

CHAPTER

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52-EFFECTIVE PAGES		52-00-01 REPAIR 3 (cont)		52-00-01 REPAIR 10	
1 thru 9	Jul 10/2016	205	Nov 10/2012	201	Nov 10/2015
10	BLANK	206	Nov 10/2012	202	Nov 10/2015
52-CONTENTS		207	Nov 10/2012	203	Nov 10/2015
1	Mar 10/2016	208	BLANK	204	BLANK
2	Mar 10/2016	52-00-01 REPAIR 4		52-00-01 REPAIR 11	
3	Mar 10/2016	201	Nov 10/2015	201	Mar 10/2016
4	Mar 10/2016	202	Nov 10/2012	202	Mar 10/2016
5	Mar 10/2016	203	Nov 10/2012	203	Mar 10/2016
6	Mar 10/2016	204	Nov 10/2012	204	Mar 10/2016
52-00-00 GENERAL		52-00-01 REPAIR 5		52-00-01 REPAIR 12	
1	Nov 10/2012	201	Nov 10/2012	201	Mar 10/2016
2	Nov 10/2012	202	Nov 10/2015	202	Mar 10/2016
52-00-01 ALLOWABLE DAMAGE 1		203	Nov 10/2012	203	Mar 10/2016
101	Nov 10/2015	204	Nov 10/2012	204	Mar 10/2016
102	Nov 10/2015	205	Nov 10/2012	205	Mar 10/2016
103	Nov 10/2015	206	Nov 10/2012	206	BLANK
104	Nov 10/2015	52-00-01 REPAIR 6		52-00-01 REPAIR 13	
52-00-01 REPAIR 1		R 201	Jul 10/2016	201	Mar 10/2016
201	Mar 10/2016	202	BLANK	202	Mar 10/2016
202	Nov 10/2015	52-00-01 REPAIR 7		203	Mar 10/2016
203	Jul 10/2015	201	Nov 10/2012	204	BLANK
204	Nov 10/2012	202	Nov 10/2015	52-10-01 IDENTIFICATION 1	
205	Nov 10/2012	O 203	Jul 10/2016	1	Nov 10/2012
206	BLANK	204	Nov 10/2012	2	Nov 10/2012
52-00-01 REPAIR 2		205	Nov 10/2012	3	Nov 10/2015
201	Nov 10/2015	206	Nov 10/2012	4	Nov 10/2012
202	Nov 10/2012	52-00-01 REPAIR 8		52-10-01 IDENTIFICATION 2	
203	Nov 10/2012	201	Mar 10/2016	1	Nov 10/2012
204	Nov 10/2012	202	Mar 10/2016	2	Nov 10/2012
205	Nov 10/2012	203	Mar 10/2016	3	Nov 10/2012
206	Nov 10/2012	204	Mar 10/2016	4	Nov 10/2012
52-00-01 REPAIR 3		52-00-01 REPAIR 9		52-10-01 IDENTIFICATION 3	
201	Nov 10/2012	201	Mar 10/2016	1	Nov 10/2012
202	Nov 10/2015	202	Mar 10/2016	2	Nov 10/2012
203	Nov 10/2012	203	Mar 10/2016	3	Nov 10/2012
204	Nov 10/2012	204	Mar 10/2016	4	Nov 10/2012

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1	Nov 10/2012	101	Nov 10/2012	201	Jul 10/2015
2	Nov 10/2012	102	Nov 10/2012	202	Nov 10/2012
3	Nov 10/2012	103	Nov 10/2015	203	Nov 10/2015
4	Nov 10/2012	104	Nov 10/2012	204	BLANK
52-10-01 ALLOWABLE DAMAGE 1		105	Nov 10/2012	52-10-01 REPAIR 3	
101	Nov 10/2012	106	Nov 10/2012	201	Nov 10/2012
102	Nov 10/2012	107	Nov 10/2012	202	Nov 10/2012
103	Jul 10/2013	108	Mar 10/2014	203	Nov 10/2015
104	Nov 10/2015	109	Nov 10/2012	204	BLANK
105	Nov 10/2012	110	Nov 10/2012	52-10-01 REPAIR 4	
106	Nov 10/2012	111	Mar 10/2014	201	Nov 10/2012
107	Nov 10/2012	112	Mar 10/2013	202	Nov 10/2012
108	Nov 10/2012	O 113	Jul 10/2016	203	Nov 10/2015
109	Jul 10/2014	114	Nov 10/2012	204	BLANK
110	Nov 10/2012	52-10-01 ALLOWABLE DAMAGE 4		52-10-01 REPAIR 5	
111	Nov 10/2012	101	Nov 10/2012	201	Nov 10/2012
112	Nov 10/2012	102	Nov 10/2012	202	Nov 10/2012
113	Jul 10/2014	103	Nov 10/2015	203	Nov 10/2012
114	Mar 10/2013	104	Nov 10/2012	204	Nov 10/2015
O 115	Jul 10/2016	105	Nov 10/2012	205	Nov 10/2012
116	Nov 10/2012	106	Nov 10/2012	206	Nov 10/2012
52-10-01 ALLOWABLE DAMAGE 2		107	Nov 10/2012	207	Nov 10/2012
101	Nov 10/2012	108	Mar 10/2014	208	Nov 10/2012
102	Nov 10/2012	109	Nov 10/2012	209	Nov 10/2012
103	Nov 10/2015	110	Nov 10/2012	210	Nov 10/2012
104	Nov 10/2012	111	Mar 10/2014	52-10-02 IDENTIFICATION 1	
105	Jul 10/2013	112	Mar 10/2013	1	Nov 10/2012
106	Jul 10/2013	O 113	Jul 10/2016	2	Nov 10/2012
107	Jul 10/2013	114	Nov 10/2012	3	Nov 10/2012
108	Mar 10/2014	52-10-01 REPAIR 1		4	BLANK
109	Jul 10/2013	201	Nov 10/2012	52-10-02 IDENTIFICATION 2	
110	Jul 10/2013	202	Nov 10/2012	1	Nov 10/2012
111	Nov 10/2015	203	Nov 10/2015	O 2	Jul 10/2016
112	Jul 10/2013	204	BLANK	3	Nov 10/2012
O 113	Jul 10/2016			4	Nov 10/2012
114	Jul 10/2013				

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52-10-02 IDENTIFICATION 3		52-10-02 ALLOWABLE DAMAGE 3		52-10-02 REPAIR 2 (cont)	
1	Nov 10/2012	101	Nov 10/2012	204	BLANK
O 2	Jul 10/2016	102	Nov 10/2012	52-10-02	REPAIR 3
3	Nov 10/2012	103	Nov 10/2012	201	Nov 10/2012
4	Nov 10/2012	104	Nov 10/2012	202	Nov 10/2012
5	Mar 10/2013	105	Nov 10/2015	203	Nov 10/2012
6	BLANK	106	Nov 10/2012	204	Nov 10/2012
52-10-02 IDENTIFICATION 4		107	Nov 10/2012	52-10-02	REPAIR 4
1	Mar 10/2014	108	Nov 10/2012	201	Nov 10/2012
O 2	Jul 10/2016	109	Nov 10/2012	202	Nov 10/2012
3	Nov 10/2012	110	Mar 10/2014	203	Nov 10/2012
4	Nov 10/2012	111	Nov 10/2012	204	BLANK
52-10-02 ALLOWABLE DAMAGE 1		112	Nov 10/2012	52-10-90	IDENTIFICATION 1
101	Nov 10/2012	113	Nov 10/2012	1	Jul 10/2015
102	Nov 10/2012	114	Nov 10/2012	O 2	Jul 10/2016
103	Nov 10/2015	115	Nov 10/2012	3	Nov 10/2012
104	Nov 10/2012	116	BLANK	4	Nov 10/2012
105	Nov 10/2012	52-10-02	ALLOWABLE DAMAGE 4	52-10-90	IDENTIFICATION 2
106	Nov 10/2012	101	Nov 10/2012	1	Nov 10/2012
107	Nov 10/2012	102	Mar 10/2014	O 2	Jul 10/2016
108	Nov 10/2012	103	Nov 10/2012	3	Nov 10/2012
109	Jul 10/2014	104	Mar 10/2016	4	Nov 10/2012
110	Nov 10/2012	105	Nov 10/2012	52-10-90	IDENTIFICATION 3
111	Nov 10/2012	106	Nov 10/2012	1	Nov 10/2012
112	Nov 10/2012	107	Nov 10/2012	O 2	Jul 10/2016
52-10-02 ALLOWABLE DAMAGE 2		108	Nov 10/2012	3	Nov 10/2012
101	Nov 10/2012	109	Mar 10/2014	4	Nov 10/2012
102	Nov 10/2012	110	BLANK	52-10-90	IDENTIFICATION 4
103	Nov 10/2012	52-10-02	REPAIR 1	1	Nov 10/2012
104	Mar 10/2016	201	Nov 10/2012	O 2	Jul 10/2016
105	Nov 10/2012	202	Nov 10/2012	3	Nov 10/2012
106	Nov 10/2012	203	Nov 10/2012	4	Nov 10/2012
107	Nov 10/2012	204	BLANK	52-10-90	ALLOWABLE DAMAGE 1
108	Nov 10/2012	52-10-02	REPAIR 2	101	Jul 10/2014
109	Nov 10/2012	201	Nov 10/2012	102	Jul 10/2014
110	BLANK	202	Nov 10/2012	103	Nov 10/2015
		203	Nov 10/2012	104	Mar 10/2015

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52-10-90 ALLOWABLE DAMAGE 1 (cont)		52-20-02 ALLOWABLE DAMAGE 1 (cont)		52-30-01 REPAIR 1	
105	Jul 10/2014	107	Nov 10/2012	201	Nov 10/2012
106	BLANK	108	Nov 10/2012	202	Nov 10/2012
52-20-01 IDENTIFICATION 1		109	Mar 10/2014	203	Nov 10/2015
1	Nov 10/2012	110	Nov 10/2012	204	Nov 10/2015
2	Nov 10/2012	52-20-02 REPAIR 1		52-30-01 REPAIR 3	
52-20-01 ALLOWABLE DAMAGE 1		201	Nov 10/2012	201	Nov 10/2013
101	Nov 10/2012	202	Nov 10/2012	202	Nov 10/2015
102	Nov 10/2012	203	Nov 10/2012	203	Nov 10/2013
103	Nov 10/2015	204	Nov 10/2012	204	Nov 10/2013
104	Nov 10/2012	52-30-01 IDENTIFICATION 1		205	Nov 10/2013
105	Nov 10/2012	1	Nov 10/2012	206	BLANK
106	Nov 10/2012	2	Nov 10/2012	52-30-02 IDENTIFICATION 1	
107	Nov 10/2012	3	Nov 10/2012	1	Nov 10/2012
108	Mar 10/2014	4	Nov 10/2012	2	Nov 10/2012
109	Mar 10/2013	5	Nov 10/2012	3	Nov 10/2012
110	Nov 10/2012	6	Nov 10/2012	4	Nov 10/2012
52-20-01 REPAIR 1		7	Nov 10/2012	5	Nov 10/2012
201	Nov 10/2012	8	Nov 10/2012	6	BLANK
202	Nov 10/2012	9	Nov 10/2012	52-30-02 ALLOWABLE DAMAGE 1	
203	Nov 10/2015	10	BLANK	101	Nov 10/2012
204	BLANK	52-30-01 ALLOWABLE DAMAGE 1		102	Nov 10/2012
52-20-02 IDENTIFICATION 1		101	Nov 10/2012	103	Nov 10/2012
1	Jul 10/2015	102	Nov 10/2012	104	Nov 10/2015
O 2	Jul 10/2016	103	Nov 10/2015	105	Nov 10/2012
3	Nov 10/2012	104	Nov 10/2015	106	Nov 10/2012
4	Nov 10/2012	105	Nov 10/2012	107	Nov 10/2012
5	Nov 10/2012	106	Nov 10/2015	108	Nov 10/2012
6	BLANK	107	Nov 10/2012	109	Nov 10/2012
52-20-02 ALLOWABLE DAMAGE 1		108	Jul 10/2013	110	BLANK
101	Nov 10/2012	109	Nov 10/2013	52-30-02 REPAIR 1	
102	Nov 10/2012	110	Mar 10/2013	201	Nov 10/2012
103	Nov 10/2012	111	Nov 10/2012	202	Nov 10/2012
104	Nov 10/2012	112	Nov 10/2012	203	Nov 10/2012
105	Nov 10/2015	113	Nov 10/2013	204	Nov 10/2012
106	Nov 10/2012	114	Nov 10/2012		

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52-30-90 IDENTIFICATION 1		52-40-01 IDENTIFICATION 7 (cont)		52-40-01 ALLOWABLE DAMAGE 4 (cont)	
1	Jul 10/2015	3	Nov 10/2012	107	Mar 10/2014
O 2	Jul 10/2016	4	BLANK	108	BLANK
3	Nov 10/2012	52-40-01 ALLOWABLE DAMAGE 1		52-40-01 ALLOWABLE DAMAGE 5	
4	Nov 10/2012	101	Mar 10/2014	101	Jul 10/2015
5	Nov 10/2012	102	Mar 10/2014	102	Nov 10/2012
6	Nov 10/2012	103	Mar 10/2014	103	Nov 10/2015
52-40-00 GENERAL		104	Nov 10/2015	104	Jul 10/2015
1	Nov 10/2012	105	Mar 10/2014	105	Jul 10/2015
2	Nov 10/2012	106	Mar 10/2014	106	Mar 10/2014
52-40-01 IDENTIFICATION 1		107	Mar 10/2014	52-40-01 ALLOWABLE DAMAGE 6	
1	Nov 10/2012	108	Mar 10/2014	101	Jul 10/2015
2	Nov 10/2013	52-40-01 ALLOWABLE DAMAGE 2		102	Nov 10/2012
3	Nov 10/2013	101	Nov 10/2012	103	Nov 10/2012
4	BLANK	102	Nov 10/2012	104	Nov 10/2012
52-40-01 IDENTIFICATION 2		103	Nov 10/2012	105	Nov 10/2015
1	Nov 10/2012	104	Nov 10/2015	106	Nov 10/2012
2	Nov 10/2012	105	Nov 10/2012	107	Nov 10/2012
52-40-01 IDENTIFICATION 3		106	Nov 10/2012	108	Nov 10/2012
1	Nov 10/2012	107	Mar 10/2014	52-40-01 ALLOWABLE DAMAGE 7	
2	Nov 10/2012	108	BLANK	101	Nov 10/2012
52-40-01 IDENTIFICATION 4		52-40-01 ALLOWABLE DAMAGE 3		102	Nov 10/2012
1	Nov 10/2012	101	Nov 10/2012	103	Nov 10/2012
2	Nov 10/2012	102	Nov 10/2012	104	Nov 10/2015
52-40-01 IDENTIFICATION 5		103	Nov 10/2012	105	Nov 10/2012
1	Nov 10/2012	104	Nov 10/2015	106	Nov 10/2012
2	Jul 10/2015	105	Nov 10/2012	107	Nov 10/2012
52-40-01 IDENTIFICATION 6		106	Nov 10/2012	108	BLANK
1	Jul 10/2015	107	Nov 10/2012	52-40-01 REPAIR 1	
2	Jul 10/2015	108	Nov 10/2012	201	Nov 10/2015
3	Jul 10/2015	52-40-01 ALLOWABLE DAMAGE 4		202	Nov 10/2015
4	Jul 10/2015	101	Nov 10/2012	203	Nov 10/2015
5	Jul 10/2015	102	Nov 10/2012	204	Nov 10/2015
6	Jul 10/2015	103	Nov 10/2012	52-40-01 REPAIR 2	
52-40-01 IDENTIFICATION 7		104	Nov 10/2015	201	Nov 10/2012
1	Nov 10/2012	105	Nov 10/2012	202	BLANK
2	Nov 10/2012	106	Nov 10/2012		

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201	Nov 10/2012	101	Nov 10/2012	1	Nov 10/2012
202	BLANK	102	Nov 10/2012	2	Nov 10/2012
52-40-01 REPAIR 4		103	Nov 10/2015	52-41-01 IDENTIFICATION 2	
201	Mar 10/2014	104	Nov 10/2012	1	Nov 10/2012
202	BLANK	105	Nov 10/2012	2	Nov 10/2012
52-40-01 REPAIR 5		106	Nov 10/2013	52-41-01 ALLOWABLE DAMAGE 1	
201	Nov 10/2012	107	Nov 10/2012	101	Nov 10/2012
202	BLANK	108	Nov 10/2012	102	Nov 10/2012
52-40-01 REPAIR 6		52-40-02 ALLOWABLE DAMAGE 2		103	Nov 10/2015
201	Jul 10/2015	101	Nov 10/2012	104	Nov 10/2012
202	Nov 10/2012	102	Nov 10/2012	105	Nov 10/2012
203	Mar 10/2013	103	Nov 10/2015	106	Nov 10/2012
204	Nov 10/2012	104	Nov 10/2012	107	Nov 10/2012
205	Nov 10/2012	105	Nov 10/2012	108	Mar 10/2014
206	Nov 10/2012	106	Nov 10/2012	109	Mar 10/2013
52-40-01 REPAIR 7		107	Nov 10/2013	110	Nov 10/2012
201	Nov 10/2012	108	BLANK	52-41-01 ALLOWABLE DAMAGE 2	
202	BLANK	52-40-02 REPAIR 1		101	Nov 10/2012
52-40-01 REPAIR 8		201	Nov 10/2012	102	Nov 10/2012
201	Mar 10/2014	202	BLANK	103	Nov 10/2015
202	Jul 10/2015	52-40-02 REPAIR 2		104	Mar 10/2015
203	Mar 10/2014	201	Nov 10/2012	105	Mar 10/2015
204	Mar 10/2014	202	BLANK	106	Nov 10/2012
205	Mar 10/2014	52-40-90 IDENTIFICATION 1		107	Nov 10/2012
206	BLANK	1	Nov 10/2012	108	Mar 10/2014
52-40-02 IDENTIFICATION 1		2	Nov 10/2012	109	Nov 10/2012
1	Nov 10/2012	3	Nov 10/2012	110	Nov 10/2012
2	Nov 10/2012	4	BLANK	111	Nov 10/2012
3	Nov 10/2012	52-40-90 ALLOWABLE DAMAGE 1		112	Nov 10/2012
4	BLANK	101	Nov 10/2012	113	Nov 10/2012
52-40-02 IDENTIFICATION 2		102	Nov 10/2012	114	Mar 10/2014
1	Nov 10/2012	103	Nov 10/2015	52-41-01 REPAIR 1	
2	Nov 10/2012	104	Nov 10/2012	201	Nov 10/2012
3	Nov 10/2012	105	Nov 10/2012	202	BLANK
4	BLANK	106	BLANK		

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52-41-01 REPAIR 2		52-60-01 ALLOWABLE DAMAGE 1 (cont)		52-60-02 REPAIR 1	
201 Nov 10/2012		103 Nov 10/2015		201 Nov 10/2012	
202 BLANK		104 Nov 10/2012		202 BLANK	
52-41-02 IDENTIFICATION 1		105 Nov 10/2012		52-60-02 REPAIR 2	
1 Nov 10/2012		106 Nov 10/2012		201 Nov 10/2012	
2 Nov 10/2012		107 Nov 10/2012		202 BLANK	
52-41-02 IDENTIFICATION 2		108 Nov 10/2012		52-80-01 IDENTIFICATION 1	
1 Nov 10/2012		109 Mar 10/2013		1 Nov 10/2012	
2 Nov 10/2012		110 Nov 10/2012		2 Nov 10/2012	
52-41-02 ALLOWABLE DAMAGE 1		52-60-01 ALLOWABLE DAMAGE 2		3 Nov 10/2012	
101 Nov 10/2012		101 Jul 10/2014		4 Nov 10/2012	
102 Nov 10/2012		102 BLANK		5 Nov 10/2012	
103 Nov 10/2015		52-60-01 REPAIR 1		6 Nov 10/2012	
104 Nov 10/2012		201 Nov 10/2012		52-80-01 ALLOWABLE DAMAGE 1	
105 Nov 10/2012		202 Nov 10/2012		101 Nov 10/2012	
106 Nov 10/2012		203 Nov 10/2015		102 Nov 10/2012	
52-41-02 ALLOWABLE DAMAGE 2		204 BLANK		103 Nov 10/2012	
101 Nov 10/2012		52-60-01 REPAIR 2		104 Mar 10/2013	
102 Nov 10/2012		201 Jul 10/2014		105 Nov 10/2015	
103 Nov 10/2015		202 BLANK		106 Mar 10/2013	
104 Nov 10/2012		52-60-02 IDENTIFICATION 1		107 Mar 10/2013	
105 Nov 10/2012		1 Nov 10/2012		108 Nov 10/2012	
106 Nov 10/2012		2 Nov 10/2012		109 Nov 10/2012	
107 Nov 10/2012		52-60-02 ALLOWABLE DAMAGE 1		110 Nov 10/2012	
108 Nov 10/2012		101 Nov 10/2012		52-80-01 REPAIR 1	
52-41-02 REPAIR 1		102 Nov 10/2012		201 Nov 10/2012	
201 Nov 10/2012		103 Nov 10/2015		202 Nov 10/2012	
202 BLANK		104 Mar 10/2013		203 Mar 10/2013	
52-41-02 REPAIR 2		105 Nov 10/2012		204 Nov 10/2012	
201 Nov 10/2012		106 Nov 10/2012		205 Nov 10/2012	
202 BLANK		107 Nov 10/2012		206 Mar 10/2013	
52-60-01 IDENTIFICATION 1		108 Nov 10/2012		207 Nov 10/2012	
1 Nov 10/2012		52-60-02 ALLOWABLE DAMAGE 2		208 Nov 10/2012	
2 Nov 10/2012		101 Nov 10/2012		52-80-02 IDENTIFICATION 1	
52-60-01 ALLOWABLE DAMAGE 1		102 BLANK		1 Jul 10/2015	
101 Nov 10/2012				2 Jul 10/2015	
102 Nov 10/2012				3 Jul 10/2013	

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4	Nov 10/2012	201	Nov 10/2015	212	Mar 10/2014
5	Nov 10/2012	202	Mar 10/2014	213	Mar 10/2014
6	Jul 10/2013	203	Mar 10/2014	214	Mar 10/2014
7	Nov 10/2012	204	Mar 10/2014	215	Mar 10/2014
8	Nov 10/2012	205	Mar 10/2014	216	Mar 10/2014
9	Jul 10/2015	206	Mar 10/2014	217	Mar 10/2014
10	Nov 10/2012	207	Mar 10/2014	218	Mar 10/2014
11	Jul 10/2013	208	Mar 10/2014	219	Mar 10/2014
12	Nov 10/2012	209	Mar 10/2014	220	Mar 10/2014
52-80-02 ALLOWABLE DAMAGE 1		210	Mar 10/2014	221	Jul 10/2015
101	Nov 10/2012	211	Mar 10/2014	222	Mar 10/2014
102	Nov 10/2013	212	Mar 10/2014	223	Mar 10/2014
103	Nov 10/2013	213	Mar 10/2014	224	Mar 10/2014
104	Nov 10/2013	214	Mar 10/2014	52-80-02 REPAIR 4	
105	Nov 10/2013	215	Mar 10/2014	201	Nov 10/2015
106	Nov 10/2013	216	Mar 10/2014	R 202	Jul 10/2016
107	Nov 10/2013	217	Mar 10/2014	203	Nov 10/2014
108	Nov 10/2013	218	Mar 10/2014	204	Nov 10/2014
109	Nov 10/2013	219	Mar 10/2014	R 205	Jul 10/2016
110	Nov 10/2015	220	Mar 10/2014	R 206	Jul 10/2016
111	Nov 10/2012	221	Mar 10/2014	R 207	Jul 10/2016
112	Nov 10/2012	222	Mar 10/2014	R 208	Jul 10/2016
113	Nov 10/2012	223	Mar 10/2014	R 209	Jul 10/2016
114	Nov 10/2013	224	Mar 10/2014	R 210	Jul 10/2016
52-80-02 ALLOWABLE DAMAGE 2		52-80-02 REPAIR 3		R 211	Jul 10/2016
101	Jul 10/2014	201	Nov 10/2015	R 212	Jul 10/2016
102	Nov 10/2015	202	Mar 10/2014	R 213	Jul 10/2016
103	Nov 10/2012	203	Mar 10/2014	R 214	Jul 10/2016
104	Jul 10/2013	204	Mar 10/2014	R 215	Jul 10/2016
105	Jul 10/2014	205	Mar 10/2014	R 216	Jul 10/2016
106	Jul 10/2014	206	Mar 10/2014	R 217	Jul 10/2016
107	Jul 10/2014	207	Mar 10/2014	218	BLANK
108	BLANK	208	Mar 10/2014	52-80-02 REPAIR 5	
52-80-02 REPAIR 1		209	Mar 10/2014	201	Mar 10/2016
201	Mar 10/2016	210	Jul 10/2015	202	Mar 10/2016
202	BLANK	211	Mar 10/2014	203	Mar 10/2016

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204	Mar 10/2016	111	Nov 10/2012		
205	Mar 10/2016	112	Nov 10/2012		
206	Mar 10/2016	113	Nov 10/2012		
207	Mar 10/2016	114	Nov 10/2012		
208	Mar 10/2016	115	Nov 10/2012		
209	Mar 10/2016	116	BLANK		
210	Mar 10/2016				
211	Mar 10/2016				
212	Mar 10/2016				
213	Mar 10/2016				
214	Mar 10/2016				
215	Mar 10/2016				
216	Mar 10/2016				
217	Mar 10/2016				
218	BLANK				
52-80-90 IDENTIFICATION 1					
1	Jul 10/2015				
2	Jul 10/2015				
3	Jul 10/2015				
4	BLANK				
52-80-90 IDENTIFICATION 2					
1	Nov 10/2012				
2	Nov 10/2012				
3	Nov 10/2012				
4	BLANK				
52-80-90 ALLOWABLE DAMAGE 1					
101	Nov 10/2012				
102	Nov 10/2012				
103	Nov 10/2012				
104	Nov 10/2012				
105	Nov 10/2012				
106	Nov 10/2015				
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DOORS - GENERAL	52-00-00
GENERAL - Doors	
TYPICAL DOOR SKIN	52-00-01
ALLOWABLE DAMAGE 1 - Aluminum Door Outer Skin – Lightning Strike Damage - Pressurized Doors	
REPAIR 1 - Aluminum Door Skin - Typical Small Hole External Time-Limited Repair	
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SUBJECT

LANDING GEAR DOOR ATTACHMENT FITTINGS

IDENTIFICATION 1 - Main Landing Gear Door Fittings

IDENTIFICATION 2 - Nose Landing Gear Door Fittings

ALLOWABLE DAMAGE 1 - Main Landing Gear Door Fittings

**CHAPTER
SECTION
SUBJECT**

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GENERAL - DOORS

1. References

Reference	Title
52-80-01	NOSE LANDING GEAR DOORS
52-80-02	MAIN LANDING GEAR DOORS

2. General

- A. The door location diagram gives you the reference system to find the main entry doors (LH and RH side), automatic overwing exit door (emergency exit), forward and aft cargo doors, service and access doors (forward access door, equipment access door, external/power receptacle door, toilet and water service doors, ground air conditioning access door, access and blowout doors, auxiliary power unit access door, tailcone access door) and the landing gear doors. Refer to Door Location Diagram, Figure 1/GENERAL, Figure 1/52-40-00, GENERAL, 52-80-01, and 52-80-02.
- B. All of the major structural components are located and identified by the use of detailed illustrations with related material lists.
- C. The allowable damage to the doors is given in each specified door subject that follows in this chapter.
- D. The permitted repairs with illustrations are given in this chapter.

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GENERAL
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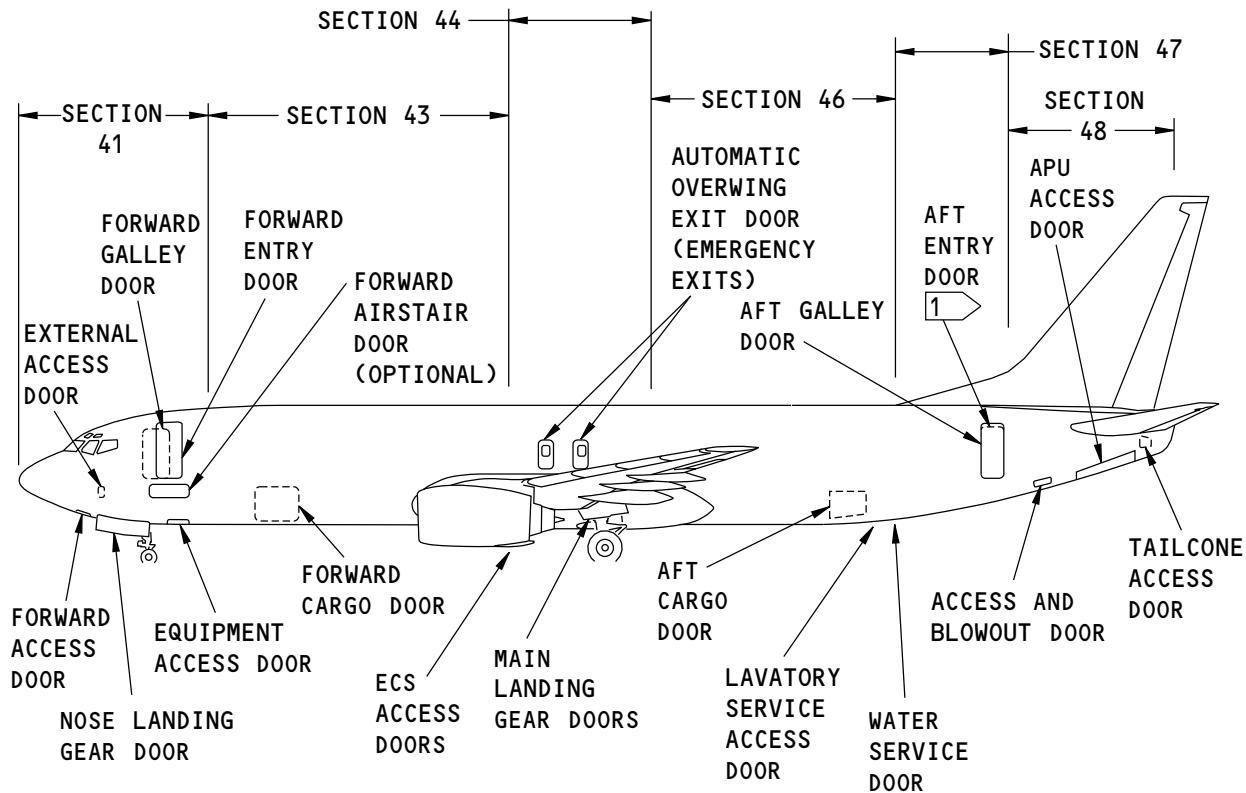
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NOTES

1 THE AFT ENTRY DOOR WITH AN AIRSTAIRS IS A CUSTOMER OPTION.

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Door Location Diagram
Figure 1

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ALLOWABLE DAMAGE 1 - ALUMINUM DOOR OUTER SKIN – LIGHTNING STRIKE DAMAGE -
PRESSURIZED DOORS

1. Applicability

- A. This subject gives the allowable damage limits for the aluminum door outer skins on the pressurized doors shown in Figure 101/ALLOWABLE DAMAGE 1 and Table 103/ALLOWABLE DAMAGE 1.

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ALLOWABLE DAMAGE 1

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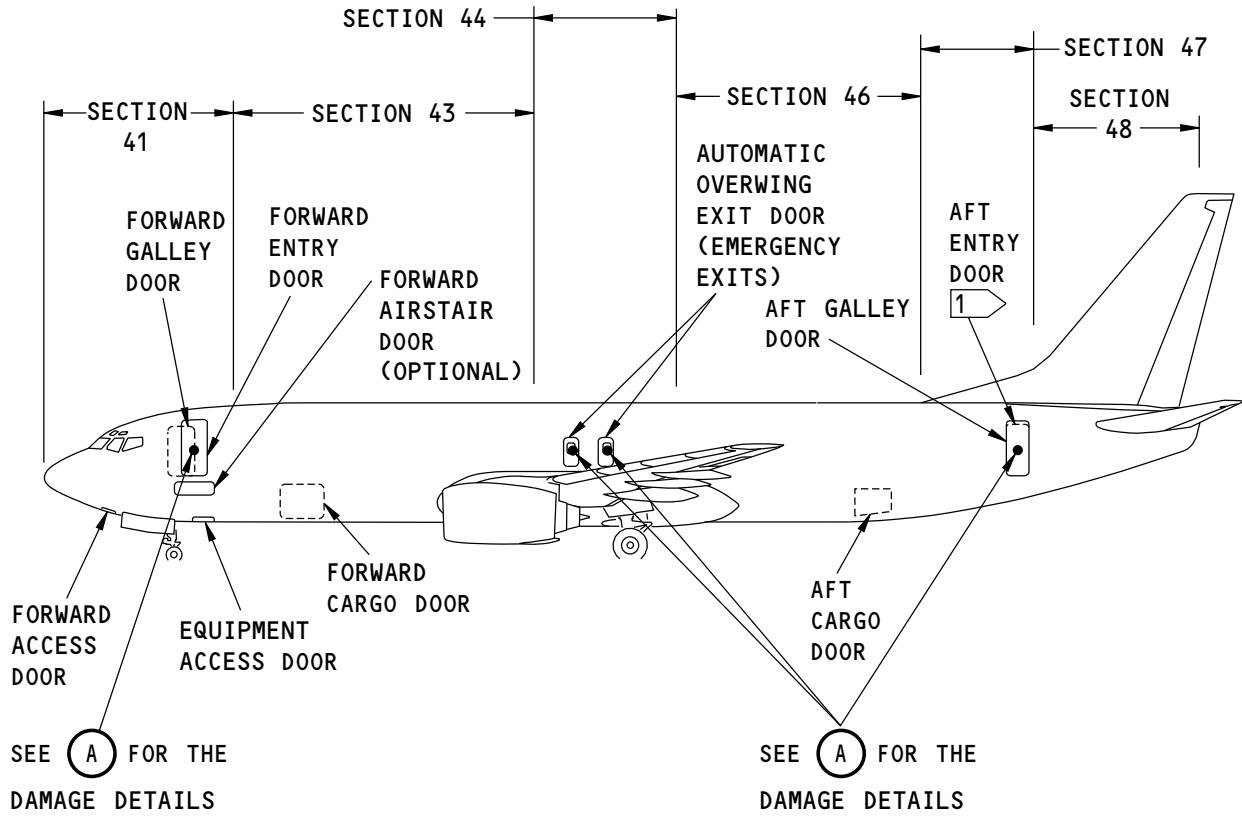
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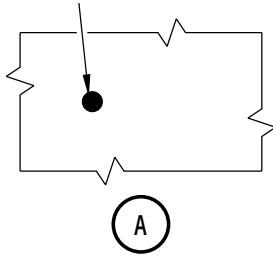
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NOTES

1 THE AFT ENTRY DOOR WITH AN AIRSTAIRS IS A CUSTOMER OPTION.

TYPICAL LIGHTNING STRIKE
DAMAGE LOOKS LIKE A SMALL
BURN MARK OR CRATER



(A)

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Pressurized Aluminum Door Outer Skin Location
Figure 101

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ALLOWABLE DAMAGE 1

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2. General

- A. Refer to Paragraph 4./ALLOWABLE DAMAGE 1 for the allowable damage limits.

3. References

Reference	Title
52-10-01, ALLOWABLE DAMAGE 1	Forward Entry Door Skin
52-10-01, ALLOWABLE DAMAGE 2	Forward Galley Door Skin
52-10-01, ALLOWABLE DAMAGE 3	Aft Entry Door Skin
52-10-01, ALLOWABLE DAMAGE 4	Aft Galley Door Skin
52-20-01, ALLOWABLE DAMAGE 1	Automatic Overwing Exit Door Skin
52-30-01, ALLOWABLE DAMAGE 1	Cargo Door Skins
52-41-01, ALLOWABLE DAMAGE 1	Forward Access Door Skin
52-41-01, ALLOWABLE DAMAGE 2	Equipment Access Door Skin
52-60-01, ALLOWABLE DAMAGE 1	Forward Airstair Door Skin

4. Allowable Damage Limits

A. Aluminum Door Outer Skins

(1) Lightning Strike:

- (a) Do the following general inspections:
- 1) Do a detailed visual inspection of the damage with a minimum of 10X magnification in a 3 in. (76 mm) radius area around the damage to ensure there are no cracks.
 - 2) Do a general visual inspection of the door skin within a 20 in. (508 mm) radius around the damage to ensure there are no cracks or corrosion. For doors with width and height dimensions less than 40 in. (1016 mm), perform a general visual inspection of the entire door skin.
- (b) For lightning strike damage to the door skin away from fasteners, the airplane can be operated for 350 flight cycles if the following conditions are met:
- 1) The lightning strike damage is equal to or less than 0.25 in. (6.35 mm) in diameter.
 - 2) The distance between any two lightning strike damages is greater than 3 in. (76 mm).
 - 3) The lightning strike damage is a minimum of 1 in. (25 mm) away from an edge of a part or fasteners.
 - 4) No door skin material is missing.
- (c) For lightning strike damage to the door skin at fasteners, the airplane can be operated for up to 350 flight cycles if the following conditions are met:
- 1) The damage is within the damage rating limits.
 - a) To determine the Lightning Strike Damage Rating (LSDR) for the damage, refer to Table 101/ALLOWABLE DAMAGE 1.
 - b) To determine the allowable damage limit using the LSDR's, refer to Table 102/ALLOWABLE DAMAGE 1.
 - 2) A close visual inspection of the damage area is performed to ensure there are no exposed countersink fasteners or additional damage.
 - 3) All initial production drawing finishes are applied as necessary.
- (d) A repair must be performed in accordance with the SRM 52-00-01 Lightning Strike Repair procedures 8 through 10, as appropriate, at or before 350 flight cycles.

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ALLOWABLE DAMAGE 1

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Table 101: Lightning Strike Damage Rating (LSDR)

Damage Description	Fastener Location	Lightning Strike Damage Rating (LSDR)
Exposed Countersink (rivet head material is missing)	All Door Skin Locations	10
Missing Fastener	All Door Skin Locations	Not permitted. Perform repair before next revenue flight.
Greater than 5 consecutive damaged fasteners in a row	All Door Skin Locations	10
Up to 5 consecutive damaged fasteners	All Door Skin Locations	5

Table 102: Allowable Damage Limit Using LSDR

Location	LSDR for 10 Flight Cycle Repair Limit	LSDR for 350 Flight Cycle Repair Limit
Single Door Outer Skin Panel	10	9 or less

Table 103: Pressurized Door ADL SRM Sections

Pressurized Doors	ADL SRM Section
Forward Access Door	52-41-01, ALLOWABLE DAMAGE 1
Equipment Access Door	52-41-01, ALLOWABLE DAMAGE 2
Forward Entry Door	52-10-01, ALLOWABLE DAMAGE 1
Forward Galley Door	52-10-01, ALLOWABLE DAMAGE 2
Forward Airstair Door	52-60-01, ALLOWABLE DAMAGE 1
Forward Cargo Door	52-30-01, ALLOWABLE DAMAGE 1
Automatic Overwing Exit Door	52-20-01, ALLOWABLE DAMAGE 1
Aft Cargo Door	52-30-01, ALLOWABLE DAMAGE 1
Aft Entry Door	52-10-01, ALLOWABLE DAMAGE 3
Aft GalleyDoor	52-10-01, ALLOWABLE DAMAGE 4

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ALLOWABLE DAMAGE 1

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REPAIR 1 - ALUMINUM DOOR SKIN - TYPICAL SMALL HOLE EXTERNAL TIME-LIMITED REPAIR

1. Applicability

- A. Repair 1 is applicable to damage that:
- (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 inch
 - (2) Is in an area of constant thickness of the skin
 - (3) Can be drilled out to a maximum of 1.00 inch in diameter
 - (4) Agrees with the conditions that follow after the damage has been removed:
 - (a) The center of the hole specified in Paragraph 4.B./REPAIR 1 must be a minimum of 2 hole diameters or "X" inches, that which is larger, away from:

NOTE: The distance "X" is related to the initial outer skin thickness. Refer to Table 201/REPAIR 1.

- 1) An edge
- 2) A chem-milled radius or a machined step
- 3) A fastener location
- 4) A skin cutout
- 5) An edge of an adjacent door skin repair.

Table 201:

INITIAL OUTER SKIN THICKNESS (INCHES)	DISTANCE "X" (INCHES)
0.040	2.00
0.063	2.25
0.071	2.25
0.125	2.50

2. General

- A. Repair 1 gives the instructions for a Category C repair. Refer to 51-00-06 to find the definitions of the different types of repairs.
- B. You can do Repair 1 if you can replace it with a Category A or B repair at or before 4000 flight cycles after repair installation or 24 months, whichever comes first. Do an external detailed visual inspection of the repair area every 300 flight cycles to check for loose fasteners, cracking, or other defects. Replace the repair if any defects are found.
- C. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION

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(Continued)

Reference	Title
51-40-05	FASTENER HOLE SIZES
51-40-06	FASTENER EDGE MARGINS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts to get access to the damaged area.
- B. Drill out the damage. Make the diameter of the hole 0.03 inch (0.76 mm) larger than the length of the damage, up to a maximum of 1.00 inch (25.4 mm) in diameter as shown in Layout of the Repair Parts, Figure 201/REPAIR 1. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- C. Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
- D. Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- E. Be careful not to damage structure that is under the skin when you cut out the damaged area.
- F. Make the repair parts.
 - (1) Refer to Table 202/REPAIR 1 for the material and the thickness of the repair parts.

Table 202:

REPAIR MATERIAL			
ITEM	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3, 2024-T4, or 2024-T42 sheet that is two times thicker than the skin that was removed
[2]	Doubler	1	Use 2024-T3, 2024-T4, or 2024-T42 clad sheet that is two times thicker than the skin that was removed
[3]	Filler	1	Use 2024-T3, 2024-T4, or 2024-T42 sheet that has the same thickness as the skin that was removed

- G. Assemble the repair parts as shown in Layout of the Repair Parts, Figure 201/REPAIR 1.
- H. Drill the necessary fastener hole. Refer to 51-40-05 for the fastener hole dimensions.
- I. Disassemble the repair parts.
- J. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair parts and the door skin.
- K. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01.
- L. Apply one layer of BMS 10-11, Type I primer as given in SOPM 20-41-02, to:
 - (1) The surfaces of the part [1] Doubler
 - (2) The inner surface of the part [2] Doubler
 - (3) The surfaces of the part [3] Filler
 - (4) The bare surfaces of the skin.

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- M. If you do the Option 2 repair, install a BACN10JP4A nutplate with BACR15BA3AD() (or MS20426AD3-()) countersink rivets to the part [2] Doubler as shown in Layout of the Repair Parts, Figure 201/REPAIR 1. Refer to 51-40-02, 51-40-03, and 51-40-05.
- N. Install the repair parts.
 - (1) Apply BMS 5-95 sealant to all the mating surfaces. Refer to 51-20-05.
 - (2) Install the fasteners (pan head screw) wet with sealant. Refer to 51-40-02.
- O. Fill the gap between the part [3] Filler and the skin with BMS 5-95 sealant. Refer to 51-20-05.
- P. Apply a layer of BMS 3-23, corrosion inhibiting compound to all the internal structure in the repair area.
- Q. Install the parts that were removed before you made the repair.
- R. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

52-00-01

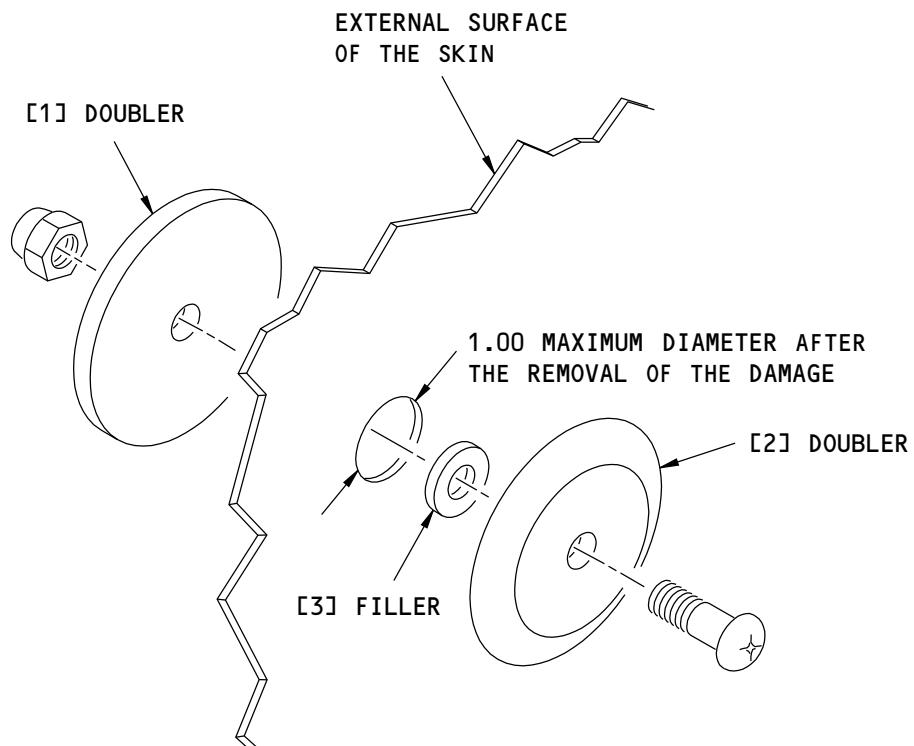
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OPTION 1 IS SHOWN

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Layout of the Repair Parts
Figure 201 (Sheet 1 of 2)

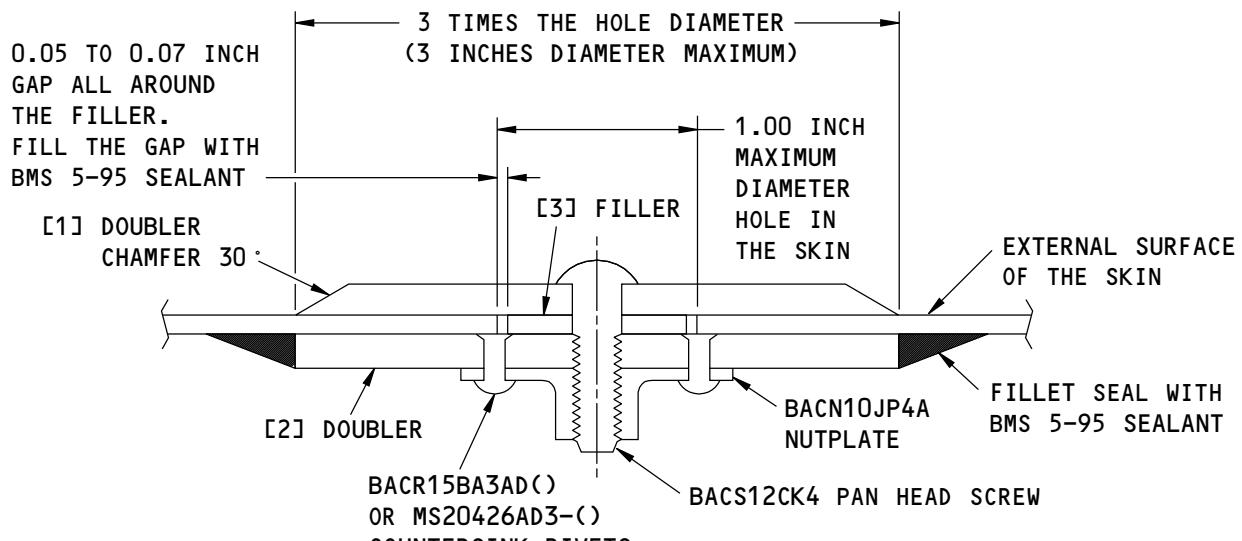
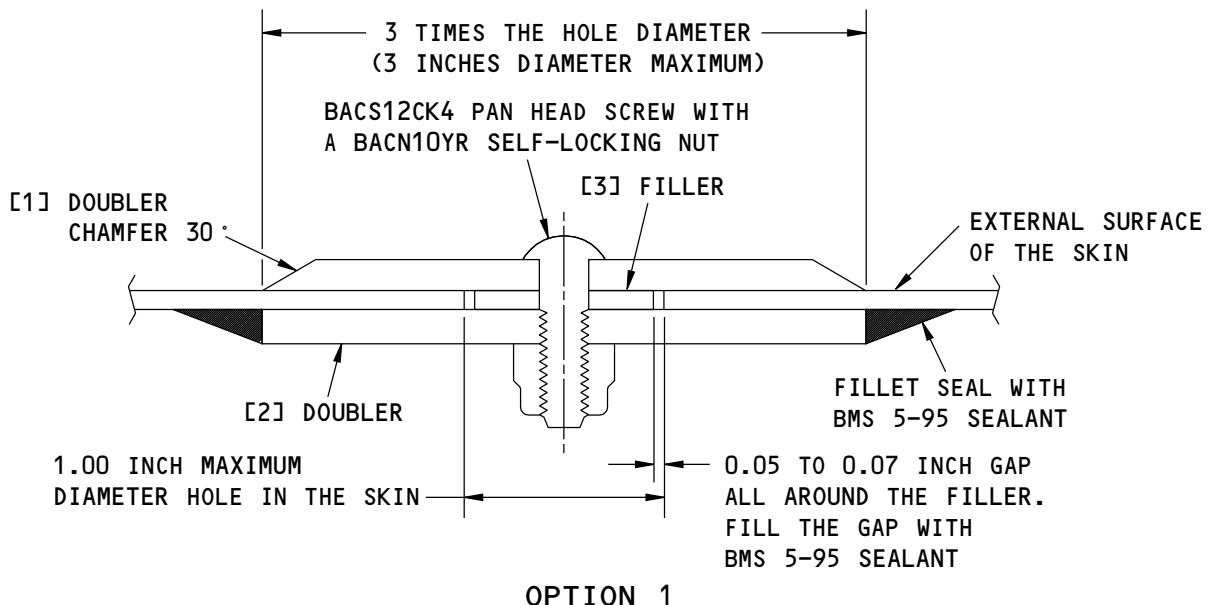
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OPTION 2

NOTE: MAKE SURE THAT THE PART [2] DOUBLER DOES NOT END WITHIN 0.03 INCHES OF A CHEM-MILLED RADIUS.

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**Layout of the Repair Parts
Figure 201 (Sheet 2 of 2)**

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REPAIR 1
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REPAIR 2 - ALUMINUM DOOR SKIN - EXTERNAL REPAIR AT A BEAM

1. Applicability

- A. Repair 2 is applicable to damage that:
 - (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 inch (1.02 mm)
 - (2) Is in an area where the door skin attaches to a beam
 - (3) Is less than 5.00 inches (127.00 mm) in length in the largest direction.
 - (4) Is in an area away from a skin cutout.
- B. All repair fasteners must have a 0.08 inch (0.20 cm) minimum distance from the edge of the hole tangent to a chem-milled step.
- C. The edge of repair doubler must be a minimum of 3 inches (7.6 cm) from the edge of an adjacent skin repair.

2. General

- A. Repair 2 gives instructions for a Category A repair for airplanes that have not completed Service Bulletin 737-21-1149. Refer to 51-00-06 to find the definitions of the different types of repairs.
- B. Repair 2 gives instructions for Category B repairs for airplanes that have completed Service Bulletin 737-21-1149. Refer to 51-00-06 to find the definitions of the different types of repairs. Refer to Paragraph 5./REPAIR 2 for the Inspection Requirements.
- C. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane. Refer to 51-10-01.

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03, GENERAL	Fastener Substitution
51-40-05, GENERAL	Fastener Hole Sizes
51-40-08	COUNTERSINKING
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts of the door to get access to the damaged area.
- B. Remove the fasteners from the locations where the repair parts will be attached, as applicable. Refer to 51-40-02.
- C. Cut and remove the damaged area of the skin as shown in Layout of the Repair Parts, Figure 201/REPAIR 2. Refer to 51-10-02 for the procedure to remove the damage.

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REPAIR 2
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- (1) Make the cut in the skin in the shape of a rectangle so the horizontal sides are parallel with the door beams.
 - (2) Make the cutout 0.03 inch (0.76 mm) larger around the contour of the damage.
 - (3) Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
 - (4) Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout.
 - (5) Be careful not to damage structure that is under the skin when you cut out the damaged area.
- D. Put the skin that is around the damage back to the initial contour. Refer to 51-10-01.
- E. Make the repair parts.
- (1) Refer to Table 201/REPAIR 2 for the material of the repair part.
 - (2) Refer to Layout of the Repair Parts, Figure 201/REPAIR 2 for the layout of the repair part.
 - (3) Make the contour of the repair parts the same as the initial contour of the skin. Refer to 51-10-01.

Table 201:

REPAIR MATERIAL			
ITEM	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3 clad sheet that is one standard aluminum sheet metal gage thicker than the initial skin that was removed
[2]	Filler	1	Use 2024-T3 clad sheet that has the same thickness as the initial skin that was removed

- F. Assemble the repair parts.
 - G. Drill and, as applicable, countersink the necessary fastener holes. Refer to 51-40-08.
 - (1) For thicknesses of the part [1] Doubler that are 0.050 inch or more, the countersink depth must be less than 80 percent of the thickness of the part [1] Doubler.
 - H. Disassemble the repair parts.
 - I. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair parts and the skin.
 - J. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01 for protective treatment of metals.
 - K. Apply one layer of BMS 10-11, Type I primer as given in SOPM 20-41-02, to the repair parts and the bare surfaces of the skin.
 - L. Install the repair parts
- NOTE:** If the part [1] Doubler makes an overlap with existing countersinks, you must install repair washers. Refer to 51-40-08.
- (1) Apply BMS 5-95 sealant to the mating surfaces of the part [1] Doubler, the part [2] Filler, and the skin as given in 51-20-05.
 - (2) Install the rivets without sealant.
 - (3) Fill the gap between the part [2] Filler and the skin with BMS 5-95 sealant.
- M. Apply a layer of BMS 3-23, corrosion inhibiting compound to all of the interior structure of the repair area. Refer to 51-20-01 for information on corrosion inhibiting compounds.
- N. Install the parts that were removed before you made the repair.

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- O. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

52-00-01

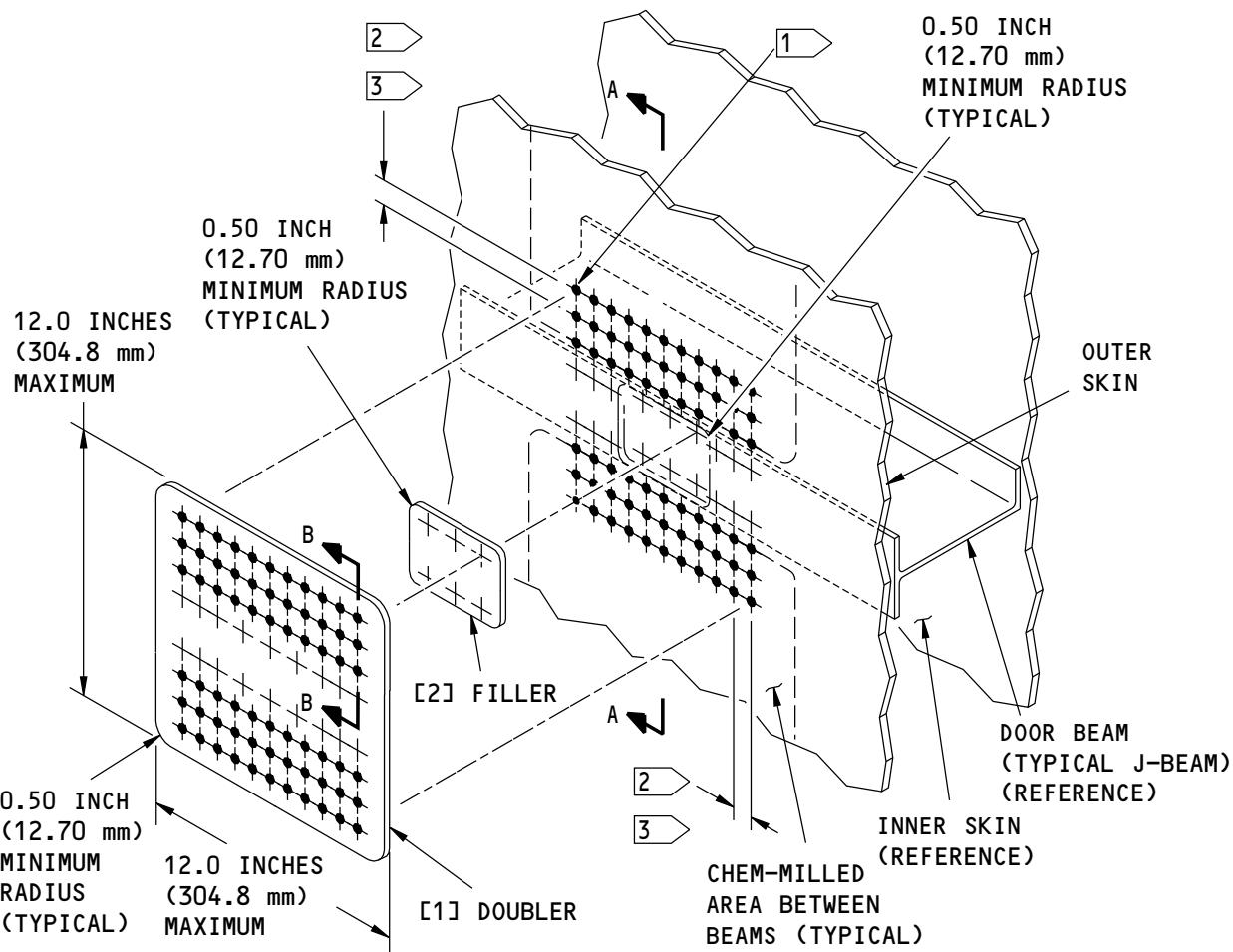
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- NOTES**
- [1] USE A MINIMUM OF THREE FASTENER ROWS BEYOND THE DAMAGE. DO NOT END THE LAST FASTENER ROW ON ANY INTERNAL STRUCTURAL PART EXCEPT AT DOOR SKIN EDGES. ADD FASTENER ROWS AS NECESSARY.
 - [2] REFER TO SRM 51-40-06 FOR THE EDGE MARGIN.
 - [3] MAINTAIN 4D - 6D FASTENER SPACING.

FASTENER SYMBOLS

- + INITIAL FASTENER LOCATION. INSTALL THE SAME TYPE AND SIZE AS THE INITIAL FASTENER. IF AN OVERSIZE IS NECESSARY, INSTALL UP TO 1/32 INCH OVERRSIZE.
- REPAIR FASTENER LOCATION.
 - FOR T LESS THAN 0.050 INCH, INSTALL A BACR15FT5D RIVET.
 - FOR T EQUAL TO 0.050 INCH BUT LESS THAN 0.063 INCH, INSTALL A BACR15CE5D OR A BACR15GF5D RIVET.
 - FOR T 0.063 INCH OR MORE, INSTALL A BACR15CE6D OR A BACR15GF6D RIVET.

F68586 S0006586471_V2

Layout of the Repair Parts
Figure 201 (Sheet 1 of 2)

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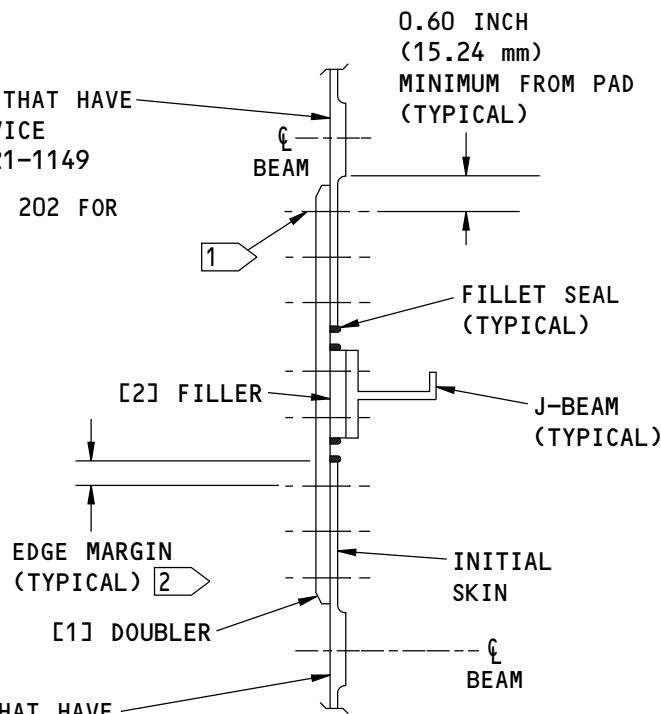
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FOR AIRPLANES THAT HAVE
COMPLETED SERVICE
BULLETIN 737-21-1149

REFER TO TABLE 202 FOR
THE INSPECTION
REQUIREMENTS

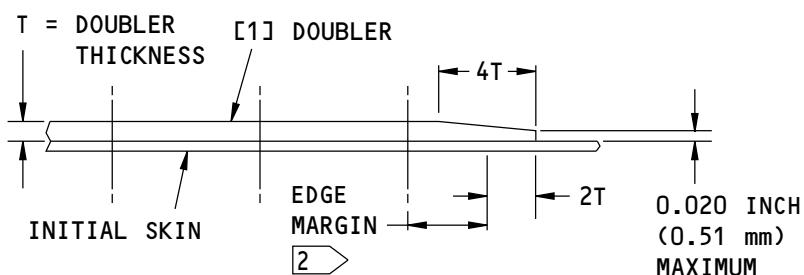


FOR AIRPLANES THAT HAVE
COMPLETED SERVICE
BULLETIN 737-21-1149

REFER TO TABLE 202 FOR
THE INSPECTION
REQUIREMENTS

CHEM-MILLED SKIN

A-A



B-B

420939 S0000137625_V1

Layout of the Repair Parts
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5. Inspection Instructions

- A. Inspections as given below are applicable to airplanes that have completed Service Bulletin 737-21-1149. Inspections as given below are not applicable to airplanes that have not completed Service Bulletin 737-21-1149.
- B. Refer to Table 202 for the inspection requirements.

Table 202:

CATEGORY B REPAIR INSPECTION REQUIREMENTS			
INSPECTION THRESHOLD	REPEAT INSPECTION ALTERNATIVES		
	METHOD	INTERVAL	REFERENCE
22,500 flight cycles	External Detailed Visual of skin around the repair	1,400 flight cycles	

NOTE: Refer to Figure 201, Sheet 2 for the inspection direction.

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REPAIR 3 - ALUMINUM DOOR SKIN - EXTERNAL REPAIR BETWEEN BEAMS

1. Applicability

- A. Repair 3 is applicable to damage that:
 - (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 inch
 - (2) Is in an area of constant thickness of the skin
 - (3) Is in an area where the door skin damage is between door beams
 - (4) Is less than 5.00 inches (127 mm) in length in the largest dimension as given in Paragraph 4.C./REPAIR 3
 - (5) Agrees with the conditions that follow after the damage has been removed:
 - (a) The edge of the damage cut specified in Paragraph 4.C./REPAIR 3 must be a minimum of 2.7 inches away from:
 - 1) An edge
 - 2) A skin cutout
 - (b) The edge of the damage cut specified in Paragraph 4.C./REPAIR 3 must be a minimum of 2D (D = the diameter of the initial fastener or the repair fastener, that which is larger) away from a fastener location.
 - (c) All repair fasteners must have a 0.08 in. (0.20 cm) minimum distance from the edge of the hole tangent to a chem milled step.
- B. The edge of the repair doubler must be a minimum of 3 inches (7.6 cm) from the edge of an adjacent skin repair.
- C. The repair doubler must not extend over any internal structure. If the repair doubler extends over internal structure, use the instructions as given in REPAIR 2.

2. General

- A. Repair 3 gives the instructions for a Category B repair for airplanes that have completed Service Bulletin 737-21-1149. Refer to STRUCTURAL REPAIR DEFINITIONS, PAGEBLOCK 51-00-06, GENERAL for the definitions of the different types of repairs. Refer to Paragraph 5./REPAIR 3 for the Inspection Requirements.
- B. Repair 3 gives the instructions for a Category A repair for airplanes that have not completed Service Bulletin 737-21-1149. Refer to STRUCTURAL REPAIR DEFINITIONS, PAGEBLOCK 51-00-06, GENERAL for the definitions of the different types of repairs.
- C. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

3. References

Reference	Title
51-00-06, GENERAL P/B GENERAL	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION

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(Continued)

Reference	Title
51-40-05	FASTENER HOLE SIZES
51-40-06	FASTENER EDGE MARGINS
51-40-08	COUNTERSINKING
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts of the door to get access to the damaged area.
- B. Remove the fasteners from the locations where the repair parts will be attached, as applicable. Refer to 51-40-02.
- C. Cut and remove the damaged area of the skin as shown in Layout of the Repair Parts, Figure 201/REPAIR 3. Refer to 51-10-02 for the procedure to remove the damage.
 - (1) The length of the cutout must not be larger than 5.00 inches (127 mm) in the largest dimension.
 - (2) Make the cutout 0.03 inch (0.76 mm) larger around the contour of the damage.
 - (3) Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
 - (4) Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout.
 - (5) Be careful not to damage structure that is under the skin when you cut out the damaged area.
 - (6) Make the cut in the skin in the shape of a rectangle so the horizontal sides are parallel with the door beams.
 - (7) Make the corner radii of the cut a minimum of 0.50 inch (12.7 mm).
 - (8) Put the skin around the damaged area back to initial contour. Refer to 51-10-01.
- D. Make the repair parts.
 - (1) Refer to Table 201/REPAIR 3 for the material of the repair part.
 - (2) Refer to Layout of the Repair Parts, Figure 201/REPAIR 3 for the layout of the repair part.
 - (3) Make the contour of the repair parts the same as the initial contour of the skin. Refer to 51-10-01.

Table 201:

REPAIR MATERIAL			
ITEM	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3 clad sheet that is one standard aluminum sheet metal gage thicker than the initial skin

- E. Assemble the repair parts.
- F. Drill and, as applicable, countersink the necessary fastener holes. Refer to 51-40-08.
 - (1) For thicknesses of the part [1] Doubler that are less than 0.050 inch, you must install protruding head (BACR15FT5D) rivets to prevent a knife edge condition.

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- (2) For thicknesses of the part [1] Doubler that are 0.050 inch or more, the countersink depth must be less than 80 percent of the thickness of the part [1] Doubler.
- G. Disassemble the repair parts.
- H. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair parts and the skin.
- I. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01 for protective treatment of metals.
- J. Apply one layer of BMS 10-11, Type I primer as given in SOPM 20-41-02 to:
- (1) The inner surface of the part [1] Doubler
 - (2) The bare surfaces of the skin.
- K. Install the repair parts
- (1) Apply BMS 5-95 sealant to the mating surfaces of the part [1] Doubler and the skin as given in 51-20-05.
 - (2) Install the rivets without sealant.
- L. Apply a fillet seal to the repair parts and the fasteners on the internal side of the repair area with BMS 5-95 sealant. Refer to 51-20-05 for sealing information.
- M. Apply a layer of BMS 3-23, corrosion inhibiting compound to all of the interior structure of the repair area. Refer to 51-20-01 for information on corrosion inhibiting compounds.
- N. Install the parts that were removed before you made the repair.
- O. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

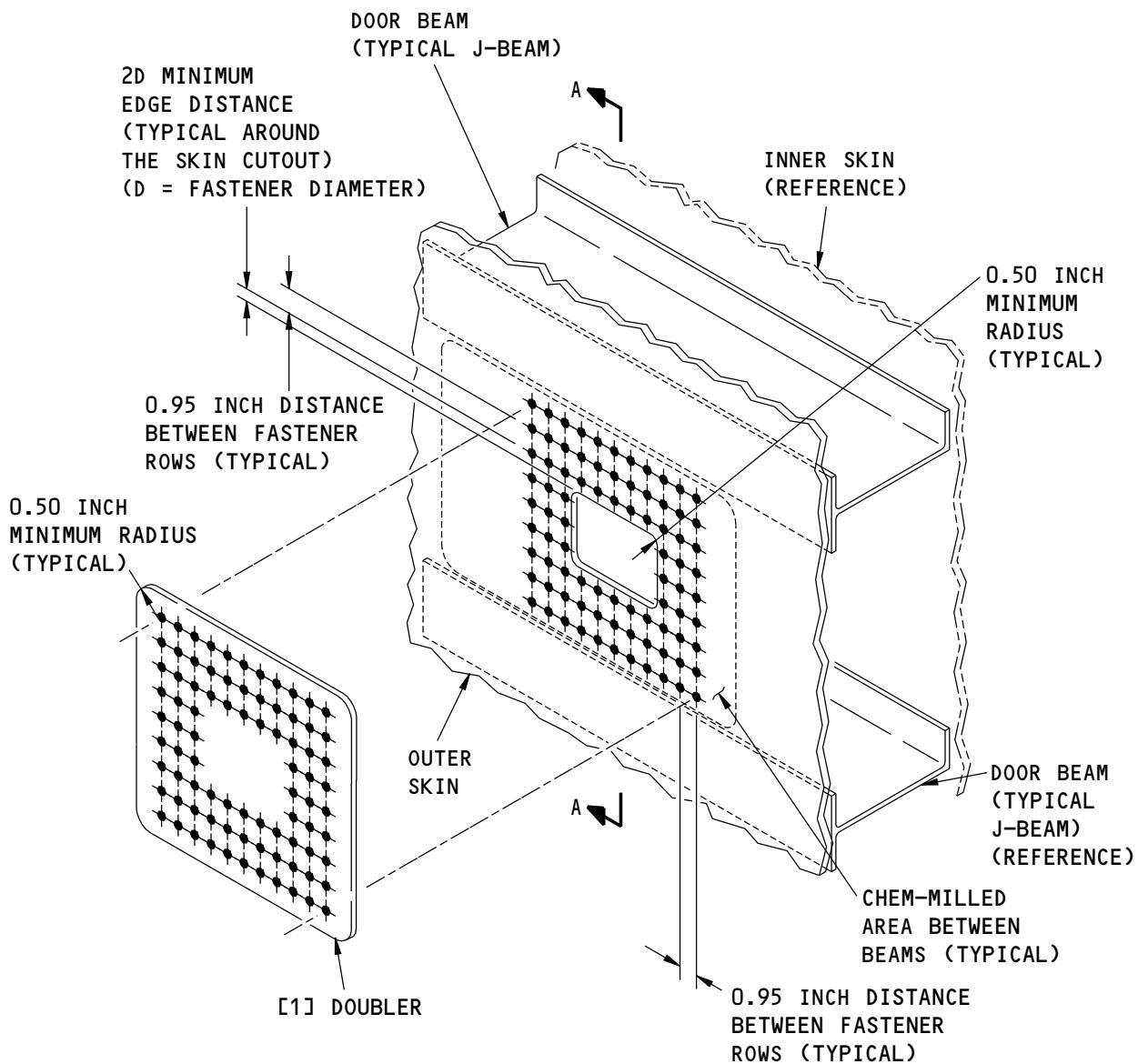
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REPAIR BETWEEN BEAMS

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Layout of the Repair Parts
Figure 201 (Sheet 1 of 3)

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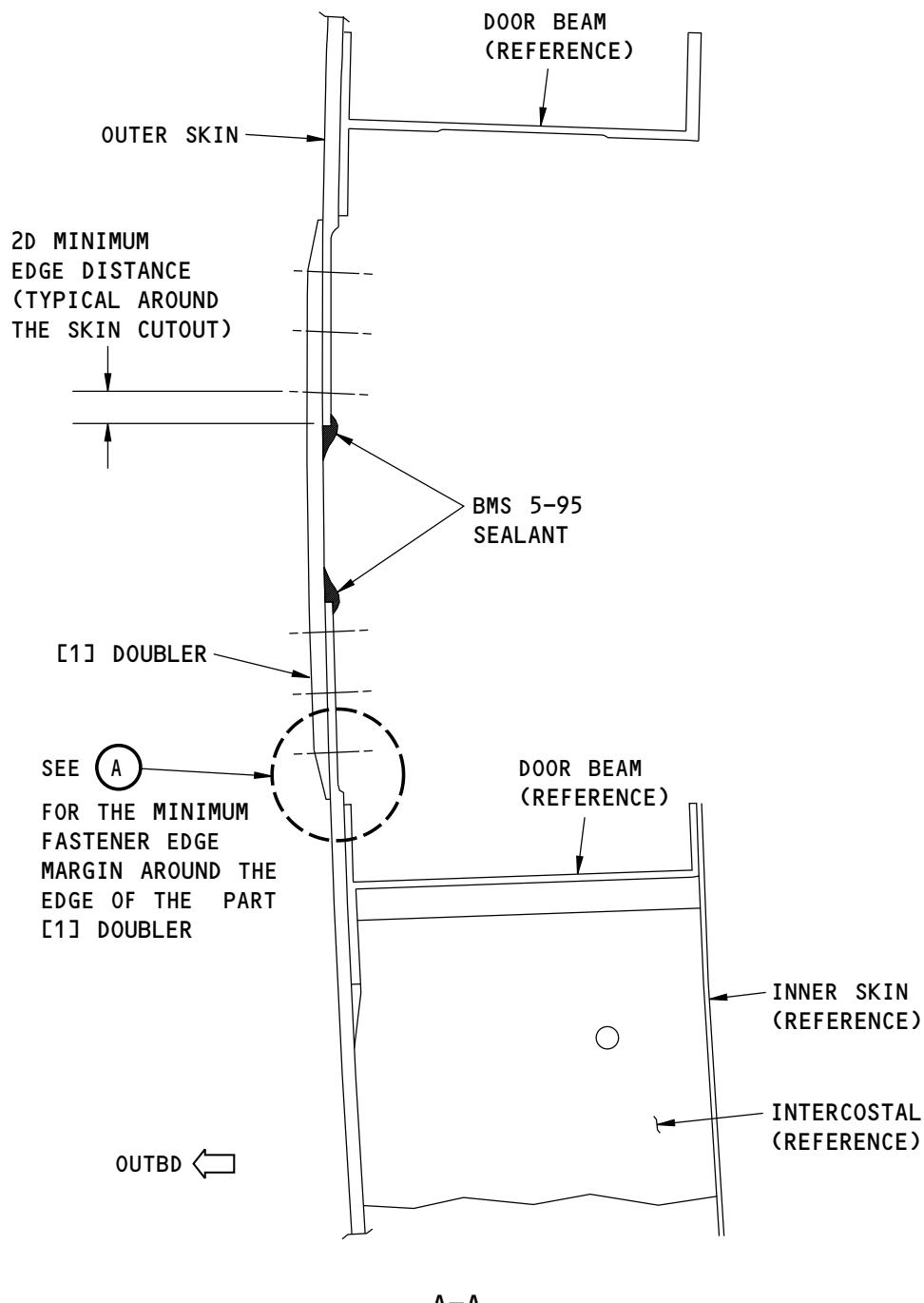
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Layout of the Repair Parts
Figure 201 (Sheet 2 of 3)

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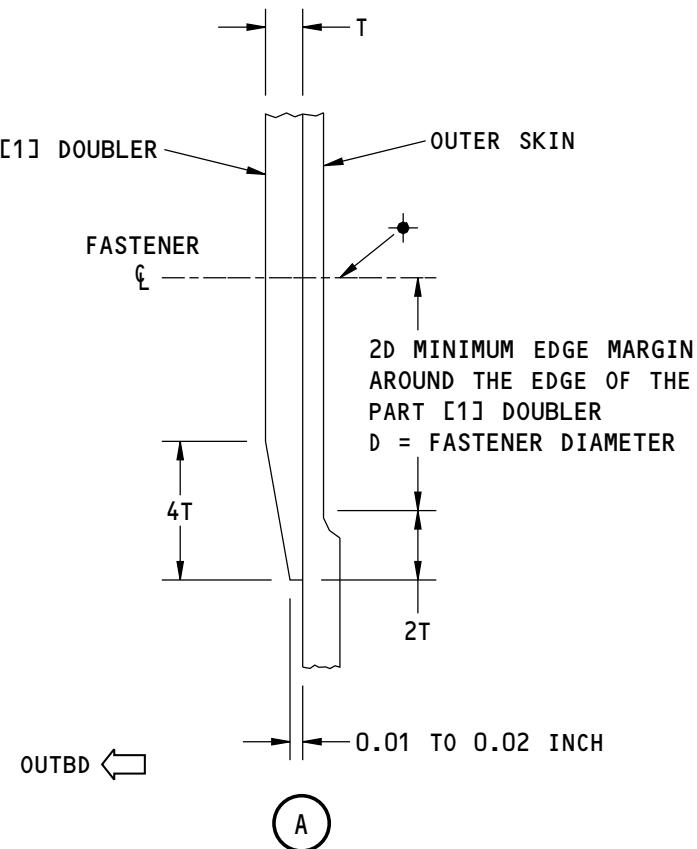
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FASTENER SYMBOLS

• REPAIR FASTENER LOCATION.

- IF T IS LESS THAN 0.050 INCH, INSTALL A BACR15FT5D RIVET.
- IF T IS 0.050 INCH OR MORE, INSTALL A BACR15CE5D OR A BACR15GF5D RIVET.

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Layout of the Repair Parts
Figure 201 (Sheet 3 of 3)

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5. Inspection Requirements

- A. For airplanes that have completed Service Bulletin 737-21-1149 refer to Table 202 for the inspection requirements.:.
- B. Inspections do not apply to airplanes that have not completed Service Bulletin 737-21-1149.

Table 202:

CATEGORY B REPAIR INSPECTION REQUIREMENTS			
INSPECTION THRESHOLD	REPEAT INSPECTION ALTERNATIVES		
	METHOD	INTERVAL	REFERENCE
22,500 flight cycles	External detailed visual of Skin around the repair	1400 flight cycles	

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REPAIR 4 - ALUMINUM DOOR SKIN - TYPICAL FLUSH REPAIR OF A SMALL HOLE

1. Applicability

- A. Repair 4 is applicable to damage that:
 - (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 in. (1.02 mm).
 - (2) Is in an area of constant thickness of the skin
- B. The edge of the repair doubler must not end within 3.0 in. (7.6 cm) of an adjacent skin repair.

2. General

- A. Repair 4 gives the instructions for a Category A repair for airplanes that have not completed Service Bulletin 737-21-1149. Refer to 51-00-06 to find the definitions of the different types of repairs.
- B. Repair 4 gives the instructions for a Category A repair for airplanes that have completed Service Bulletin 737-21-1149. Refer to 51-00-06 to find the definitions of the different types of repairs.
- C. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION
51-40-05	FASTENER HOLE SIZES
51-40-06	FASTENER EDGE MARGINS
51-40-08	COUNTERSINKING
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts to get access to the damaged area.
- B. Drill out the damage. Make the diameter of the hole 0.03 inch (0.76 mm) larger than the length of the damage, up to a maximum of 1.00 inch (25.4 mm) in diameter as shown in Layout of the Repair Parts, Figure 201/REPAIR 4. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- C. Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
- D. Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- E. Make sure the final hole diameter has a surface finish smoothness of 63 microinches Ra or smoother. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- F. Make the repair parts. Refer to Table 201/REPAIR 4.

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Table 201:

REPAIR MATERIAL			
ITEM	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3 sheet that is one standard aluminum sheet metal gage thicker than the initial skin. Refer to Table 203 for the outer diameter
[2]	Filler	1	Use 2024-T3 clad sheet that has the same thickness as the initial skin

- G. Assemble the repair parts as shown in Layout of the Repair Parts, Figure 201/REPAIR 4.
- H. Drill the necessary fastener holes. Refer to Table 202/REPAIR 4 for the fastener type, diameter, and spacing. Refer to 51-40-05 for the fastener hole dimensions.
 - (1) For thicknesses of the initial skin that are 0.050 inch or more, the countersink depth must be less than 80 percent of the thickness of the initial skin.
- I. Disassemble the repair parts.
- J. Remove all the nicks, scratches, gouges, burrs, from the initial and the repair parts.
- K. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01.
- L. Apply one layer of BMS 10-11, Type I primer to the repair parts and the bare surfaces as of the skin. Refer to SOPM 20-41-02.
- M. Install the repair parts.
 - (1) Apply BMS 5-95 sealant between the mating surfaces of the repair [1] Doubler, the part [2] Filler, and the skin. Refer to 51-20-05.
 - (2) Install the rivets without sealant.
 - (3) Fill the gap between the part [2] Filler and the door skin with BMS 5-95 sealant.

Table 202:

NUMBER, TYPE, AND DIAMETER OF THE REPAIR FASTENERS						
INITIAL SKIN THICKNESS (INCH)	OUTER DIAMETER OF PART [1] DOUBLER	DIAMETER OF THE FASTENER LOCATIONS		NUMBER OF FASTENERS		FASTENER TYPE AND DIAMETER
		A (INCH)	B (INCH)	C (INCH)	B DIA	
0.040 but less than 0.050	3.80	1.70	3.10	7	14	BACR15FT5D
0.050 thru 0.060	4.30	1.80	3.50	6	13	BACR15CE5D or BACR15GF5D
0.063 thru 0.071	4.30	1.80	3.50	6	13	BACR15CE6D or BACR15GF6D
0.125	4.80	2.00	4.00	7	14	BACR15CE6D or BACR15GF6D

- N. Apply one layer of BMS 3-23, corrosion inhibiting compound to all the internal structure in the repair area. Refer to 51-20-01 for information on corrosion inhibiting compounds.
- O. Install the parts that were removed before you made the repair.
- P. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

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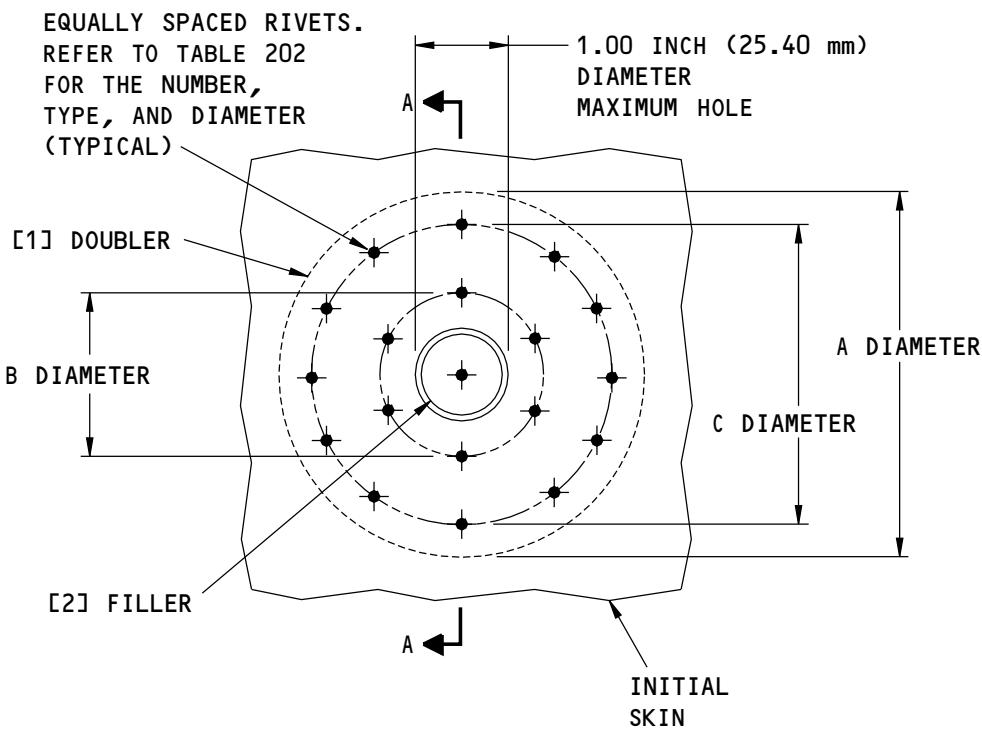
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NOTES

- MAKE SURE THAT THE PART [1] DOUBLER DOES NOT END WITHIN 0.03 INCHES OF A CHEM-MILLED RADIUS OR TOUCH THE EDGE OF A PART.

REFER TO TABLE 202 TO FIND THE EDGE MARGIN.

FASTENER SYMBOLS

REPAIR FASTENER LOCATION. REFER TO TABLE 202 FOR THE TYPE AND DIAMETER.

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Layout of the Repair Parts
Figure 201 (Sheet 1 of 2)

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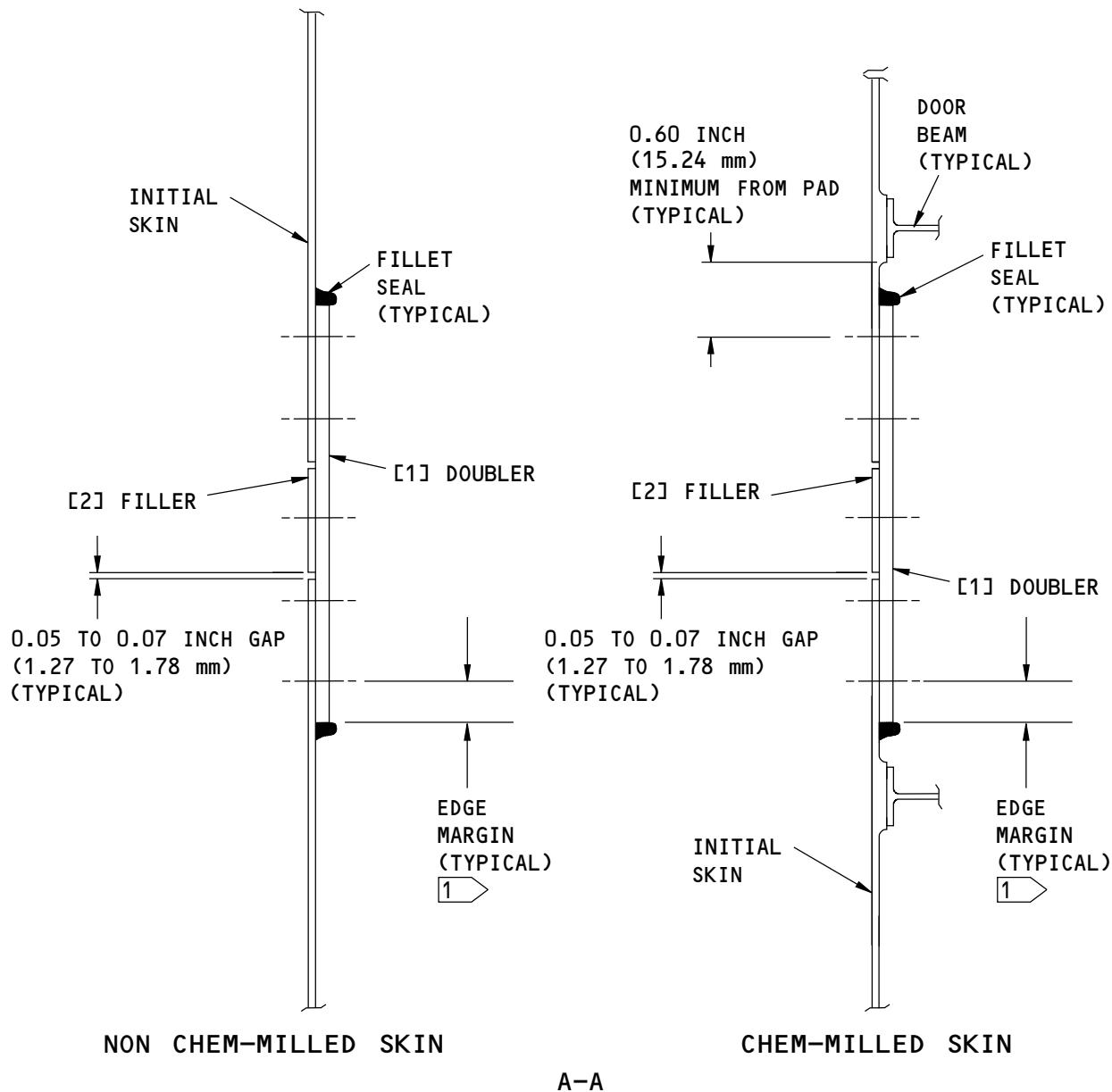
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Layout of the Repair Parts
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REPAIR 5 - ALUMINUM DOOR SKIN - FLUSH REPAIR BETWEEN BEAMS

1. Applicability

- A. Repair 5 is applicable to damage that:
 - (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 inch
 - (2) Is in an area of constant thickness of the skin
 - (3) Is in an area where the door skin damage is between door beams
 - (4) Is less than 5.00 inches (127 mm) in length in the largest direction as given in Paragraph 4.B./REPAIR 5
 - (5) Agrees with the conditions that follow after the damage has been removed:
 - (a) The edge of the damage cut specified in Paragraph 4.B./REPAIR 5 must be a minimum of 2.1 inches (53 mm) away from:
 - 1) An edge
 - 2) A chem-milled radius or a machined step
 - 3) A skin cutout
 - 4) An edge of an adjacent door skin repair.
 - (b) The edge of the damage cut specified in Paragraph 4.B./REPAIR 5 must be a minimum of 2D (D = the diameter of the initial fastener or the repair fastener, that which is larger) away from a fastener location.
- B. The edge of the repair doubler must be a minimum of 3.0 in. (7.6 cm) from the edge of an adjacent skin repair.

2. General

- A. Repair 5 gives the instructions for a Category B repair for airplanes that have completed Service Bulletin 737-21-1149. Refer to 51-00-06, GENERAL for the definitions of the different types of repairs. Refer to Paragraph 5./REPAIR 5 for the inspection requirements.
- B. Repair 5 gives the instructions for a Category A repair for airplanes that have not completed Service Bulletin 737-21-1149. Refer to 51-00-06, GENERAL for the definitions of the different types of repairs.
- C. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

3. References

Reference	Title
51-00-06, GENERAL	Structural Repair Definitions
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION
51-40-05	FASTENER HOLE SIZES
51-40-06	FASTENER EDGE MARGINS
51-40-08	COUNTERSINKING

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Reference	Title
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts of the door to get access to the damaged area.
- B. Cut and remove the damaged area of the skin as shown in Layout of the Repair Parts, Figure 201/REPAIR 5. Refer to 51-10-02 for the procedure to remove the damage.
 - (1) The length of the cutout must not be larger than 5.0 in. (12.7 cm) in the largest direction.
 - (2) Make the cutout 0.03 inch (0.76 mm) larger around the contour of the damage.
 - (3) Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
 - (4) Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout.
 - (5) Be careful not to damage structure that is under the skin when you cut out the damaged area.
 - (6) Make the cut in the skin in the shape of a rectangle so the horizontal sides are parallel with the door beams.
 - (7) Make the corner radii of the cut a minimum of 0.50 inch (12.7 mm).
 - (8) Put the skin around the damaged area back to the initial contour. Refer to 51-10-01.
- C. Make the repair parts.
 - (1) Refer to Table 201/REPAIR 5 for the material of the repair part.
 - (2) Refer to Layout of the Repair Parts, Figure 201/REPAIR 5 for the layout of the repair part.
 - (3) Make the contour of the repair parts the same as the initial contour of the skin. Refer to 51-10-01.

Table 201:

REPAIR MATERIAL			
ITEM	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3 sheet that is one standard aluminum sheet metal gage thicker than the initial skin
[2]	Filler	1	Use 2024-T3 clad sheet that is the same thickness as the initial skin

- D. Assemble the repair parts as shown in Layout of the Repair Parts, Figure 201/REPAIR 5.
- E. Drill and, if necessary, countersink the necessary fastener holes. Refer to 51-40-08.
 - (1) For door skin thicknesses that are less than 0.050 inch, you must install protruding head (BACR15FT5D) rivets to prevent knife edge conditions.
 - (2) For door skin thicknesses that are 0.050 inch or more, the countersink depth must be less than 80 percent of the outer skin thickness.
- F. Disassemble the repair parts.
- G. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair parts and the skin.
- H. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01 for protective treatment of metals.

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- I. Apply one layer of BMS 10-11, Type I primer as given in SOPM 20-41-02, to:
 - (1) The surfaces of the part [1] Doubler
 - (2) The inner surface of the part [2] Filler
 - (3) The bare surfaces of the skin.
- J. Install the repair parts.
 - (1) Apply BMS 5-95 sealant to all the mating surfaces. Refer to 51-20-05.
 - (2) Fill the gap between the part [2] Filler and the door skin with BMS 5-95 sealant.
 - (3) Install the rivets without sealant.
- K. Seal the repair area. Refer to 51-20-05.
 - (1) Apply a fillet seal to the repair parts and the fasteners on the internal side of the repair area with BMS 5-95 sealant. Refer to 51-20-05 for sealant information.
 - (2) Fill the gap between the part [2] Filler and the door skin with BMS 5-95 sealant.
 - (a) Make the sealant flush with the outer surfaces of the door skin and the part [2] Filler. Refer to 51-10-01 for the necessary aerodynamic smoothness.
- L. Apply a layer of BMS 3-23, corrosion inhibiting compound to all of the interior structure of the repair area. Refer to 51-20-01 for information on corrosion inhibiting compounds.
- M. Install the parts that were removed before you made the repair.
- N. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

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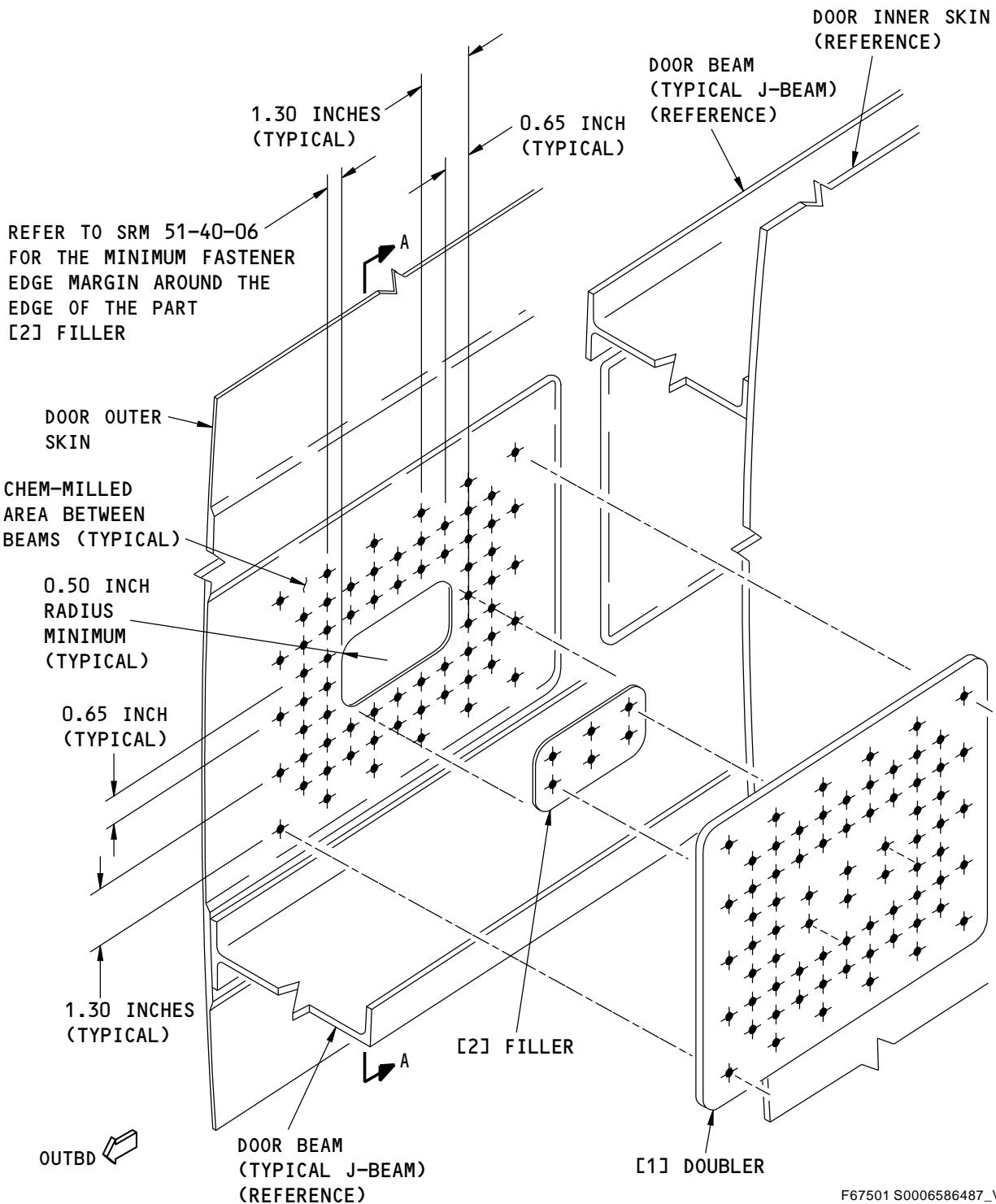
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Layout of the Repair Parts
Figure 201 (Sheet 1 of 2)

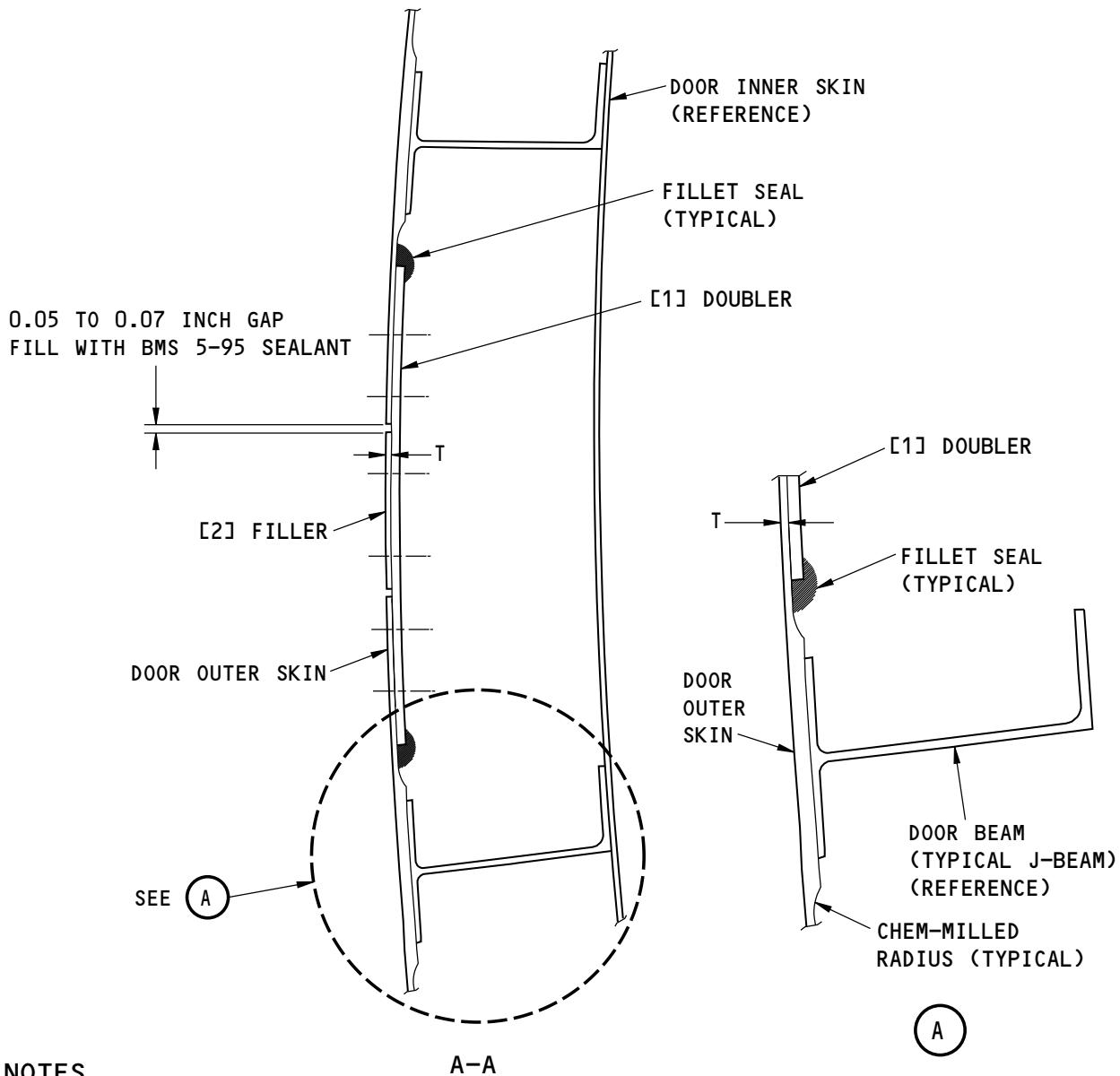
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NOTES

A-A

A

- MAKE SURE THE PART [1] DOUBLER DOES NOT END WITHIN 0.03 INCHES OF A CHEM-MILLED RADIUS.

FASTENER SYMBOLS

• REPAIR FASTENER LOCATION:

- FOR T IS LESS THAN 0.050 INCH, INSTALL A BACR15FT5D RIVET.
- FOR T IS 0.050 INCH OR MORE, INSTALL A BACR15CE5D OR A BACR15GF5D RIVET.

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Layout of the Repair Parts
Figure 201 (Sheet 2 of 2)

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5. Inspection Requirements

- A. For airplanes that have completed Service Bulletin 737-21-1149 refer to Table 202 for the inspection requirements.
- B. Inspections do not apply to airplanes that have not completed Service Bulletin 737-21-1149.

Table 202:

CATEGORY B REPAIR INSPECTION REQUIREMENTS			
INSPECTION THRESHOLD	REPEAT INSPECTION ALTERNATIVES		
	METHOD	INTERVAL	REFERENCE
22,500 flight cycles	External detailed visual of skin around the repair	1400 flight cycles	

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REPAIR 6 - ALUMINUM DOOR SKIN - FLUSH REPAIR ACROSS A BEAM

1. Repair 6

- A. This repair has been removed
- B. If this repair was installed before November 10, 2009, a Damage Tolerance Evaluation (DTE) is necessary:

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REPAIR 6

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STRUCTURAL REPAIR MANUAL

REPAIR 7 - ALUMINUM DOOR SKIN - ALTERNATIVE FLUSH REPAIR ACROSS A BEAM

1. Applicability

- A. Repair 7 is applicable to aluminum door skin damage that:
 - (1) Is on the aluminum door outer skins that have a minimum thickness of 0.040 inch
 - (2) Is in an area of constant thickness of the skin
 - (3) Is in an area where the door skin damage is across a door beam
 - (4) Is on the forward and aft entry doors or
 - (5) Is on the forward and aft galley doors or
 - (6) Is on the forward and aft cargo doors
 - (7) Is less than 5.00 inches (127 mm) in the largest direction length as given in Paragraph 4.C./REPAIR 7
 - (8) Agrees with the conditions that follow after the damage has been removed:
 - (a) The edge of the damage cut specified in Paragraph 4.C./REPAIR 7 must be a minimum of 2.1 inches (53 mm) away from:
 - 1) An edge
 - 2) A skin cutout
 - (b) The edge of the damage cut specified in Paragraph 4.C./REPAIR 7 must be a minimum of 2D (D = the diameter of the initial fastener or the repair fastener, that which is larger) away from a fastener location.
- B. Use Repair 7 when:
 - (1) The door beam flange is not damaged
 - (2) The door beam flange damage is not more than the allowable damage limits.
- C. The edge of the repair doubler must not end within 3.0 in. (7.6 cm) of an adjacent skin repair.

2. General

- A. Repair 7 gives the instructions for a Category A repair for airplanes that have not completed Service Bulletin 737-21-1149. Refer to 51-00-06 for the definitions of the different types of repairs.
- B. Repair 7 gives the instructions for a Category B repair for airplanes that have completed Service Bulletin 737-21-1149. Refer to 51-00-06 for the definitions of the different types of repairs. Refer to Paragraph 5 for the inspection requirements.
- C. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION

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(Continued)

Reference	Title
51-40-05	FASTENER HOLE SIZES
51-40-06	FASTENER EDGE MARGINS
51-40-08	COUNTERSINKING
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts of the door to get access to the damaged area.
- B. Remove the fasteners from the locations where the repair parts will be attached, as applicable. Refer to 51-40-02.
- C. Cut and remove the damaged area of the skin as shown in Layout of the Repair Parts, Figure 201/REPAIR 7. Refer to 51-10-02 for the procedure to remove the damage.
 - (1) The length of the cutout must not be larger than 5.00 inches (127 mm) in the largest direction.
 - (2) Make the cutout 0.03 inch (0.76 mm) larger around the contour of the damage.
 - (3) Do a High Frequency Eddy Current (HFEC) inspection to make sure there is no more damage.
 - (4) Make a 0.04 inch (1.02 mm) insurance cut around the initial cutout.
 - (5) Be careful not to damage structure that is under the skin when you cut out the damaged area.
 - (6) Make the cut in the skin in the shape of a rectangle so the horizontal sides are parallel with the door beams.
 - (7) Make the corner radii of the cut a minimum of 0.50 inch (12.7 mm).
- D. Put the skin around the damaged area back to the initial contour. Refer to 51-10-01.
- E. Make the repair parts.
 - (1) Refer to Table 201/REPAIR 7 for the material of the repair parts.
 - (2) Refer to Layout of the Repair Parts, Figure 201/REPAIR 7 for the layout of the repair parts.
 - (3) Make the contour of the repair parts the same as the initial contour of the skin. Refer to 51-10-01.
 - (4) Put a 50:1 taper on the part [4] Tapered Fillers to give a 0.01 inch maximum gap between the door skin and the door beam flange.

Table 201:

REPAIR MATERIAL			
PART NUMBER	PART	QUANTITY	MATERIAL
[1]	Doubler	1	Use 2024-T3 sheet that is one standard aluminum sheet metal gage thicker than the initial skin that was removed
[2]	Filler	1	Use 2024-T3 clad sheet that has the same thickness as the initial skin that was removed
[3]	Pocket Filler	2	Use 2024-T3 sheet that has the thickness required to fill the space between part [1] Doubler and the chem-milled pockets in the door skin that was removed

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Table 201: (Continued)

REPAIR MATERIAL			
PART NUMBER	PART	QUANTITY	MATERIAL
[4]	Tapered Filler (50:1 taper)	2	Use BACS40R or BAC 1534 stock material 4.0 x 1.50 inches

- F. Assemble the repair parts as shown in Layout of the Repair Parts, Figure 201/REPAIR 7.
- G. Drill and, if necessary, countersink the necessary fastener holes. Refer to 51-40-08.
 - (1) For thicknesses of the door outer skin that are less than 0.050 inch, you must install protruding head (BACR15FT5D) rivets to prevent a knife edge condition.
 - (2) For thicknesses of the door outer skin that are 0.050 inch or more, the countersink depth must be less than 80 percent of the thickness of the door outer skin.
- H. Disassemble the repair parts.
- I. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair parts and the skin.
- J. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the skin. Refer to 51-20-01 for protective treatment of metals.
- K. Apply one layer of BMS 10-11, Type I primer as given in SOPM 20-41-02 to:
 - (1) The surfaces of the part [1] Doubler
 - (2) The inner surface of the part [2] Filler
 - (3) The surfaces of the part [3] Pocket Fillers
 - (4) The surfaces of the part [4] Tapered Fillers
 - (5) The bare surfaces of the skin.
- L. Install the repair parts.
 - (1) Apply BMS 5-95 sealant to all the mating surfaces. Refer to 51-20-05.
 - (2) Install the rivets without sealant.
- M. Seal the repair area. Refer to 51-20-05.
 - (1) Apply a fillet seal to the repair parts and the fasteners on the internal side of the repair area with BMS 5-95 sealant. Refer to 51-20-05 for sealant information.
 - (2) Fill the gap between the part [2] Filler and the door skin with BMS 5-95 sealant.
 - (a) Make the sealant flush with the outer surfaces of the door skin and the part [2] Filler. Refer to 51-10-01 for the necessary aerodynamic smoothness.
- N. Apply a layer of BMS 3-23, corrosion inhibiting compound to all of the interior structure of the repair area. Refer to PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS, 51-20-01 for information on corrosion inhibiting compounds.
- O. Install the parts that were removed before you made the repair.
- P. Restore the aircraft exterior paint system in the repair area, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

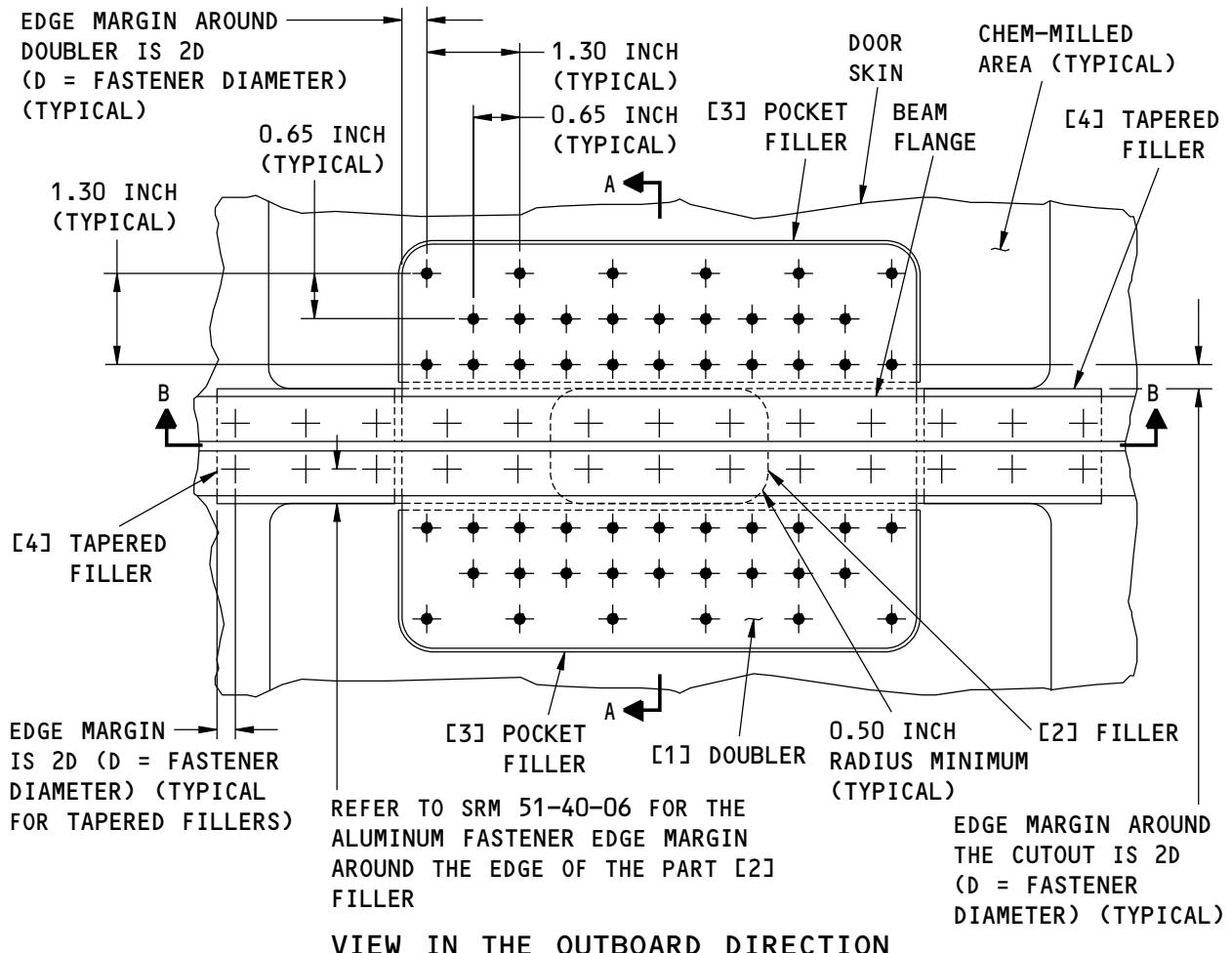
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STRUCTURAL REPAIR MANUAL



NOTES

(A)

- ALL REPAIR FASTENERS MUST HAVE A 0.08 INCH (0.020cm) MINIMUM DISTANCE FROM THE EDGE OF THE HOLE TANGENT TO A CHEM-MILLED STEP.
- REPAIR PARTS MUST NOT END WITHIN 0.03 INCH OF A CHEM-MILLED RADIUS.

FASTENER SYMBOLS

- + INITIAL FASTENER LOCATION. INSTALL THE SAME TYPE AND SIZE AS THE INITIAL FASTENERS UP TO 1/32 OVERSIZE.
- REPAIR FASTENER LOCATION.
 - FOR SKIN THICKNESSES THAT ARE LESS THAN 0.050 INCH, INSTALL A BACR15FT5D RIVET.
 - FOR SKIN THICKNESSES THAT ARE 0.050 INCH OR MORE, INSTALL A BACR15CE5D OR A BACR15GF5D RIVET.

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Layout of the Repair Parts
Figure 201 (Sheet 1 of 2)

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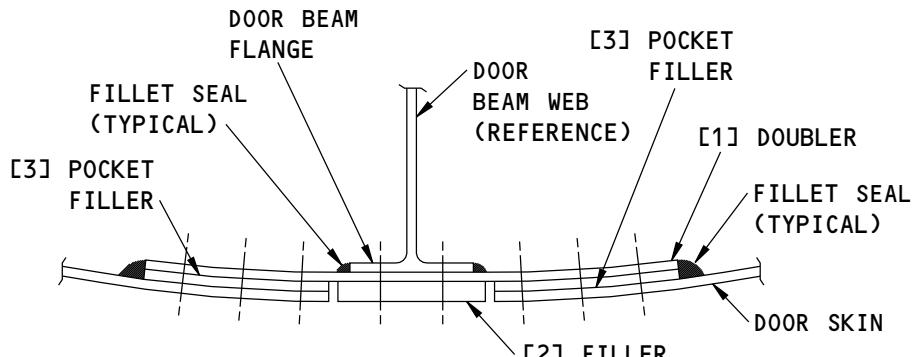
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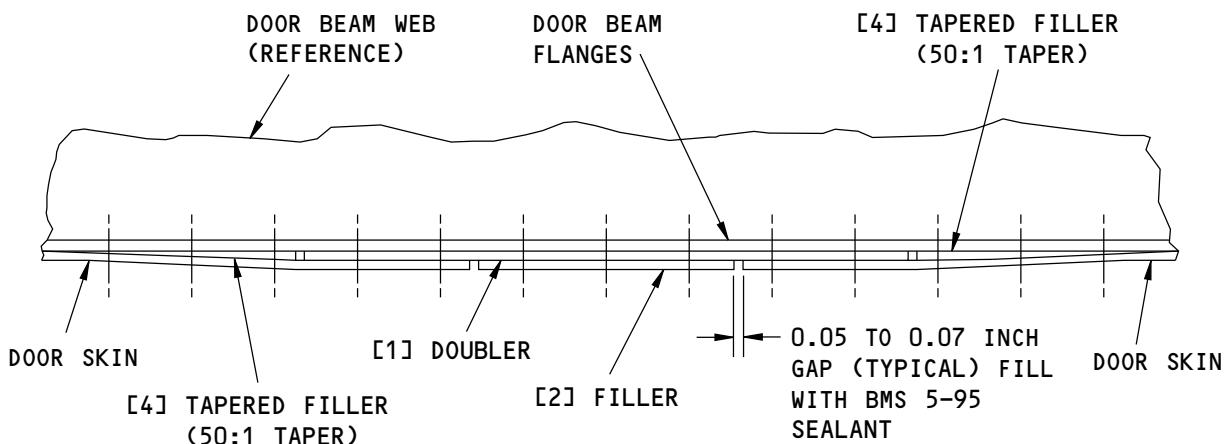
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(ROTATED 90° CW)
A-A



B-B

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Layout of the Repair Parts
Figure 201 (Sheet 2 of 2)

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5. Inspection Requirements

- A. For airplanes that have completed Service Bulletin 737-21-1149 refer to Table 202 for the inspection requirements.
- B. Inspections do not apply for airplanes that have not completed Service Bulletin 737-21-1149.

Table 202:

CATEGORY B REPAIR INSPECTION REQUIREMENTS			
INSPECTION THRESHOLD	REPEAT INSPECTION ALTERNATIVES		
	METHOD	INTERVAL	REFERENCE
22,500 flight cycles	External detailed visual of skin around the repair	1400 flight cycles	

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REPAIR 8 - ALUMINUM DOOR OUTER SKIN- REPAIR OF LIGHTNING STRIKE AND SMALL DAMAGE TO THE DOOR SKIN AWAY FROM A FASTENER LOCATION – PRESSURIZED DOORS

1. Applicability

- A. This repair is applicable to lightning strike and small damage in the aluminum outer skin of a pressurized door away from a fastener location.
- B. You can use REPAIR 8 to drill out damage if the damage is not more than the size limits given in the Allowable Damage section of the affected pressurized door section.
- C. You can use REPAIR 8 to blend out damage if the damage is not more than the nick, gouge, scratch, or corrosion damage location and size limits given in the Allowable Damage section of the affected pressurized door section.
- D. This repair is applicable only with the following conditions:
 - (1) The damage is in an area where the skin thickness is constant.
 - (2) The damage is a minimum distance away from fastener holes, an edge, other damage, or a chem-milled radius as specified for holes and nicks, scratches, gouges, corrosion in the Allowable Damage section of the affected door skin.
 - (3) The damage is not more than the size limits given in the Allowable Damage section of the affected door skin.
 - (4) The damage does not have any applicable flight operation limits as specified in the Allowable Damage section of the affected door skin.
- E. If you have lightning strike damage to a fastener and damage to the outer skin, refer to REPAIR 9.
- F. If you have lightning strike damage to a fastener that does not damage the adjacent outer skin, refer to REPAIR 10.

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REPAIR 8
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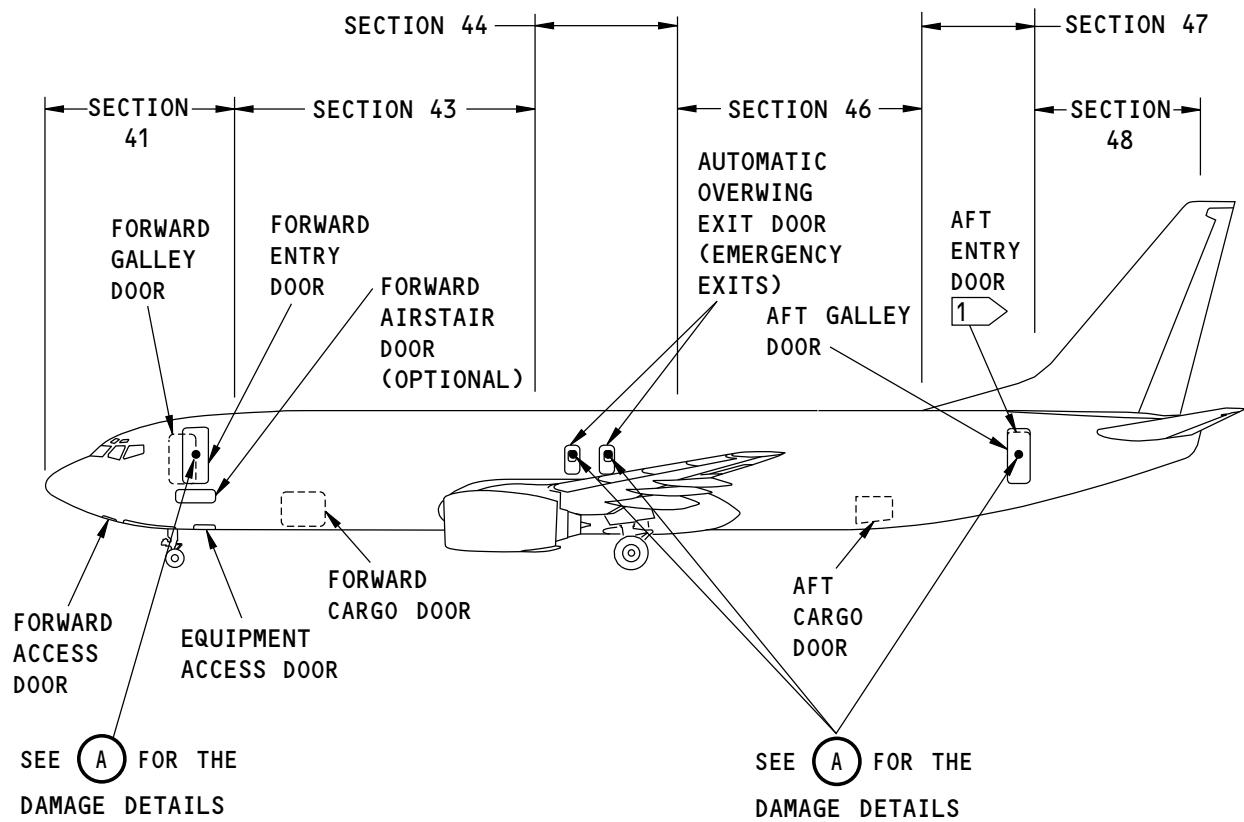
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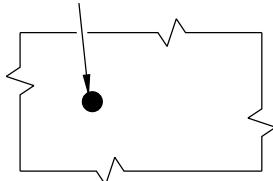
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NOTES

1) THE AFT ENTRY DOOR WITH AN AIRSTAIR IS A CUSTOMER OPTION.

TYPICAL LIGHTNING STRIKE
DAMAGE LOOKS LIKE A SMALL
BURN MARK OR CRATER



(A)

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Aluminum Door Skin Lightning Strike Damage
Figure 201

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2. General

- A. If there are no applicable flight operation limits, this repair is a Category A repair. Refer to the Allowable Damage section of the affected door skin for the flight operation limits.

3. References

Reference	Title
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-01, GENERAL	Protective Treatment of Metallic and Composite Materials
51-20-03, GENERAL P/B GENERAL	HEAT DAMAGE EVALUATION
51-40-02	FASTENER INSTALLATION AND REMOVAL
52-00-01	TYPICAL DOOR SKIN
AMM 51-21-00 P/B 701	INTERIOR AND EXTERIOR FINISHES - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-44-04	Application of Urethane Compatible Primer
737 NDT Part 6, 51-00-00, Procedure 1	Fastener Holes in Aluminum Parts (Meter Display)
737 NDT Part 6, 51-00-00, Procedure 11	Fastener Holes in Aluminum Parts (Impedance Plane Display)
737 NDT Part 6, 51-00-00, Procedure 16	Aluminum Part Fastener Hole Inspection (Rotary Scanner)
737 NDT Part 6, 51-00-00, Procedure 23	Aluminum Part Surface Inspection (Impedance Plane Display)
737 NDT Part 6, 51-00-00, Procedure 3	Investigation of Fire Damage on Aircraft Structure
737 NDT Part 6, 51-00-00, Procedure 4	Surface Inspection of Aluminum Parts (Meter Display)

4. Repair Instructions

- A. Inspect the door outer skin for heat damage. Refer to HEAT DAMAGE EVALUATION, PAGEBLOCK 51-20-03, GENERAL and 737 NDT Part 6, 51-00-00, Procedure 3. Find the dimensions of the damage.
- B. Repair the damage using one of the following procedures:
- (1) Blend out the damage
 - (a) Blend out the damage as given for nicks, gouges, scratches, and corrosion in the Allowable Damage section of the affected door skin.
 - 1) Make sure the blendout is in a permitted location and is not more than the size limits given in the Allowable Damage section of the affected door skin.
 - 2) Make sure there are no applicable flight operation limits for the blend depth.
 - (b) Inspect the door skin for cracks. Do one of the inspections that follow to make sure there are no cracks:
 - 1) Do a High Frequency Eddy Current (HFEC) inspection procedure on the surface for cracks. Refer to 737 NDT Part 6, 51-00-00, Procedure 4, or 737 NDT Part 6, 51-00-00, Procedure 23.
 - 2) As an alternative, do a penetrant inspection procedure for cracks. Refer to SOPM 20-20-02.
 - 3) As an alternative, do a Detailed Visual Inspection (DVI) with a minimum 10X magnification.
 - (c) Apply a chemical conversion coating to the bare surface of the repair area. Refer to 51-20-01, GENERAL.

52-00-01

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- (d) Apply a surface finish to the repair area as necessary. Refer to SOPM 20-44-04 for the application of BMS 10-79, Type II primer. Refer to AMM PAGEBLOCK 51-21-00/701 for the application of other finishes.
- (2) Drill out the damage
 - (a) Drill out the damage in the door skin.
 - 1) Make sure the drilled hole is in a permitted location and is not more than the size limits given in the Allowable Damage section of the affected door skin.
 - 2) Make sure there are no applicable flight operation limits for the drilled hole size.
 - (b) Inspect the skin and the drilled hole for cracks. Do the inspections that follow to make sure there are no cracks:
 - 1) Do a DVI of the Outer Skin with a minimum 10X magnification.
 - 2) Do an HFEC inspection procedure of the drilled hole for cracks. Refer to 737 NDT Part 6, 51-00-00, Procedure 1, 737 NDT Part 6, 51-00-00, Procedure 11, or 737 NDT Part 6, 51-00-00, Procedure 16.
 - (c) Apply a chemical conversion coating to the bare surface of the repair area. Refer to PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS, 51-20-01.
 - (d) Install a solid rivet as noted for Holes and Punctures in the ALLOWABLE DAMAGE section on the door skin SRM. Refer to FASTENER INSTALLATION AND REMOVAL, 51-40-02.
 - (e) Apply a surface finish to the repair area as necessary. Refer to SOPM 20-44-04 for the application of BMS 10-79, Type II primer. Refer to AMM PAGEBLOCK 51-21-00/701 for the application of other finishes.
- (3) If the damage or repair is more than the limits specified in the Allowable Damage section of the affected door skin or requires flight operation limits, find an alternative repair in TYPICAL DOOR SKIN, 52-00-01, or contact The Boeing Company.

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REPAIR 9 - ALUMINUM DOOR OUTER SKIN- REPAIR OF LIGHTNING STRIKE AND SMALL DAMAGE TO THE DOOR SKIN AT A FASTENER LOCATION – PRESSURIZED DOORS

1. Applicability

- A. This repair is applicable to lightning strike damage to pressurized door aluminum outer skins at a fastener location.
- B. This repair is applicable only with the following conditions:
 - (1) The damage is in an area where the skin thickness is constant.
 - (2) The damage is a minimum distance away from other fastener holes, an edge, other damage, or a chem-milled radius, as specified in the Allowable Damage section of the affected door skin.
 - (3) For damage to the skin surrounding the fastener:
 - (a) The damage does not exceed the hole size limits given in the Allowable Damage section of the affected door skin.
 - (b) The damage does not have any applicable flight operation limits as specified in the Allowable Damage section of the affected door skin.
 - (4) For locations requiring blending:
 - (a) The damage does not exceed the nick, scratch, gouge, and corrosion limits given in the Allowable Damage section of the affected door skin.
 - (5) The damage does not have any applicable flight operation limits as specified in the Allowable Damage section of the affected door skin.
- C. If you have lightning strike or small damage to a door aluminum outer skin that is away from a fastener location, refer to REPAIR 8.
- D. If you have lightning strike damage to a fastener that does not damage the adjacent door aluminum outer skin, refer to REPAIR 10.

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REPAIR 9
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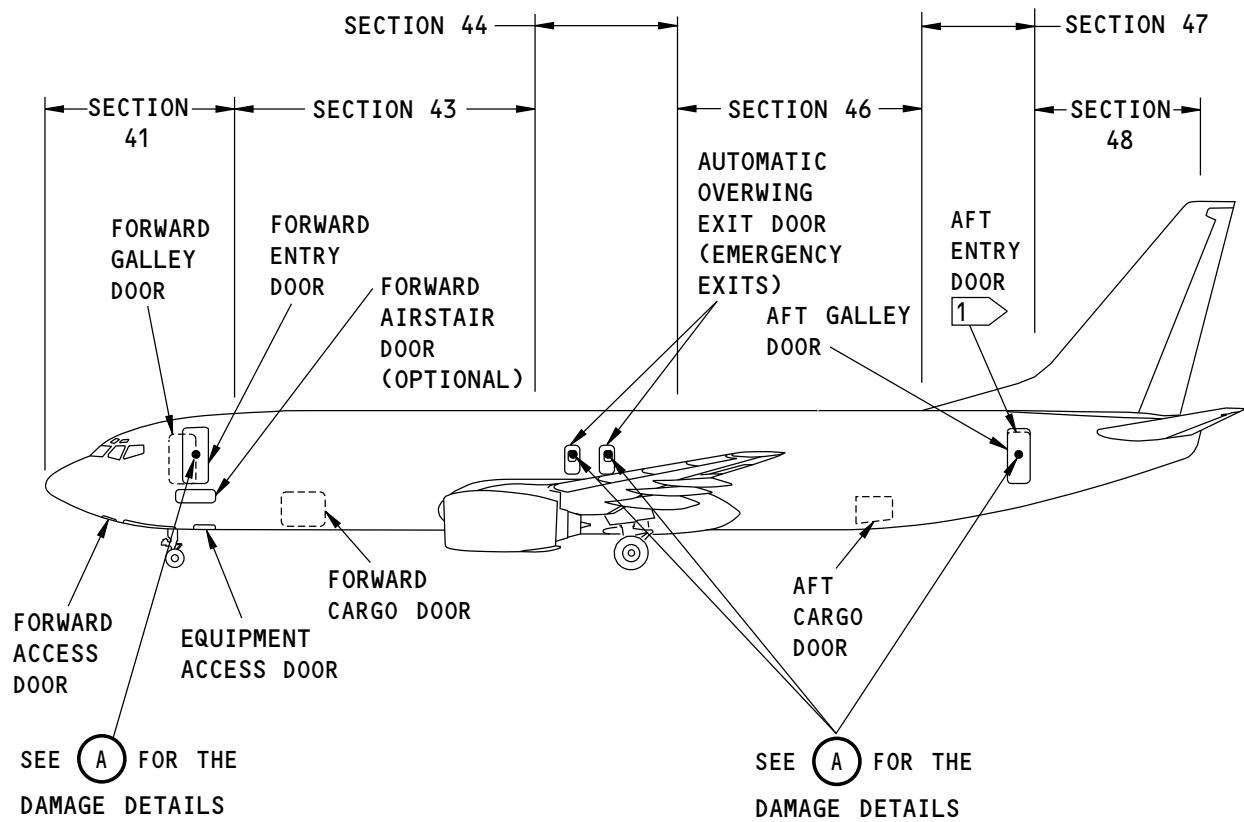
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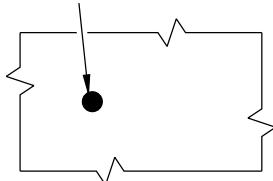
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NOTES

1) THE AFT ENTRY DOOR WITH AN AIRSTAIR IS A CUSTOMER OPTION.

TYPICAL LIGHTNING STRIKE
DAMAGE LOOKS LIKE A SMALL
BURN MARK OR CRATER



(A)

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Aluminum Door Skin Lightning Strike Damage
Figure 201

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2. General

- A. If there are no applicable flight operation limits, this repair is a Category A repair. Refer to the Allowable Damage section of the affected door skin for the flight operation limits.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01, GENERAL	Protective Treatment of Metallic and Composite Materials
51-20-05, REPAIR 1	Wet Installation of Fasteners
51-40-02, GENERAL	Fastener Installation and Removal
51-40-03, GENERAL	Fastener Substitution
51-40-05	FASTENER HOLE SIZES
51-40-08, GENERAL	Countersink Data and Procedures for Metal Structures
AMM 51-21-00 P/B 701	INTERIOR AND EXTERIOR FINISHES - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-44-04	Application of Urethane Compatible Primer
737 NDT Part 6, 51-00-00, Procedure 1	Fastener Holes in Aluminum Parts (Meter Display)
737 NDT Part 6, 51-00-00, Procedure 23	Aluminum Part Surface Inspection (Impedance Plane Display)
737 NDT Part 6, 51-00-00, Procedure 3	Investigation of Fire Damage on Aircraft Structure
737 NDT Part 6, 51-00-00, Procedure 4	Surface Inspection of Aluminum Parts (Meter Display)
737 NDT Part 6, 53-30-00, Procedure 3	Countersink Inspection of Aluminum Parts (Rotary Probe)

4. Repair Instructions

- A. Remove the damaged fastener. Refer to 51-40-02, GENERAL.
- B. Inspect the surrounding skin at the fastener location for heat damage. Refer to 737 NDT Part 6, 51-00-00, Procedure 3.
- C. Do a HFEC inspection procedure of the open fastener hole for the limits of the damage. Refer to 737 NDT Part 6, 51-00-00, Procedure 1.
- D. Remove the damage. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- (1) If there is damage to the skin surrounding the fastener hole, blend out the damage.
- (a) Blend out the damage as given for nicks, gouges, scratches and corrosion near a fastener in the Allowable Damage section of the affected door skin.
- (b) Make sure the blendout is in a permitted location and does not exceed the size limits given the Allowable Damage section of the affected door skin.
- (c) Make sure there are no applicable flight operation limits for the blend depth.
- (2) If there is damage to the fastener hole, oversize the hole to remove the damage. Refer to FASTENER HOLE SIZES, 51-40-05.
- (a) Rivet holes may be oversized up to 1/32 inch and hex-drive bolt holes may be oversized up to 1/64 inch. Refer to 51-40-02, GENERAL.
- (b) For holes with countersinks:
- 1) If there is damage to the skin countersink, oversize the countersink in 1/64 inch increments to remove the damage. Make sure countersink depth is not more than 70 percent of the skin thickness.

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- 2) If there is damage to more than the countersink of the skin, oversize the hole in 1/64 inch increments as necessary to remove the damage.
 - (c) Do a HFEC inspection procedure of the open fastener hole for damage. Refer to 737 NDT Part 6, 51-00-00, Procedure 1. For damage in the countersink only, refer to 737 NDT Part 6, 53-30-00, Procedure 3. If remaining damage is found, repeat the damage removal steps.
 - (d) Make sure the oversized hole is not more than the hole size limits given in the Allowable Damage section of the affected door skin.
 - (e) Make sure there are no applicable flight operation limits for the oversized hole size.
- E. Inspect the skin at the repaired fastener hole for cracks. Do one of the inspections that follow to make sure there are no cracks:
- (1) Do an HFEC inspection procedure on the surface for cracks. Refer to 737 NDT Part 6, 51-00-00, Procedure 4, or 737 NDT Part 6, 51-00-00, Procedure 23.
 - (2) As an alternative, do a penetrant inspection procedure for cracks. Refer to SOPM 20-20-02.
 - (3) As an alternative, do a Detailed Visual Inspection (DVI) with a minimum 10X magnification.
- F. Apply a chemical conversion coating to the bare surface of the repair area. Refer to 51-20-01, GENERAL.
- G. Install a repair fastener.
- (1) Install the same fastener type as the initial fastener. Refer to 51-40-02, GENERAL. An alternative fastener is permitted as given in 51-40-03, GENERAL. It is permitted to replace a countersink fastener with a protruding fastener of the same type as the initial fastener.
 - (a) Note: If the initial fastener was installed for an initial repair it could be a hi-lok or other type of fastener.
 - (b) If you install a protruding head fastener in an initial countersink hole, use a countersink repair washer. Refer to 51-40-08, GENERAL.
 - (c) If the repair fastener is a rivet and its diameter is equal to or larger than 0.250 in. (6.350 mm), then use a rivet made from 2117-T4.
 - (d) Drive rivets to a button diameter as given in 51-40-02, GENERAL, Figure 3.
 - (2) Install hex-drive bolts in a transition fit hole, wet with BMS 5-95 sealant. Refer to 51-20-05, REPAIR 1.
- H. Apply a surface finish to the repair area as necessary. Refer to SOPM 20-44-04 for the application of BMS 10-79, Type II primer. Refer to AMM PAGEBLOCK 51-21-00/701 for the application of other finishes.

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**REPAIR 10 - ALUMINUM PRESSURIZED DOOR OUTER SKIN - REPAIR OF LIGHTNING STRIKE
DAMAGE TO A FASTENER THAT DOES NOT DAMAGE THE ADJACENT DOOR SKIN**

1. Applicability

- A. This repair is applicable to lightning strike damage to a fastener in the aluminum outer skin of a pressurized door. This repair is not applicable if there is damage to the door outer skin.
- B. If you have lightning strike damage to the door outer skin that is away from a fastener location, refer to REPAIR 8.
- C. If you have lightning strike damage to a fastener and damage to the outer skin, refer to REPAIR 9.

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REPAIR 10

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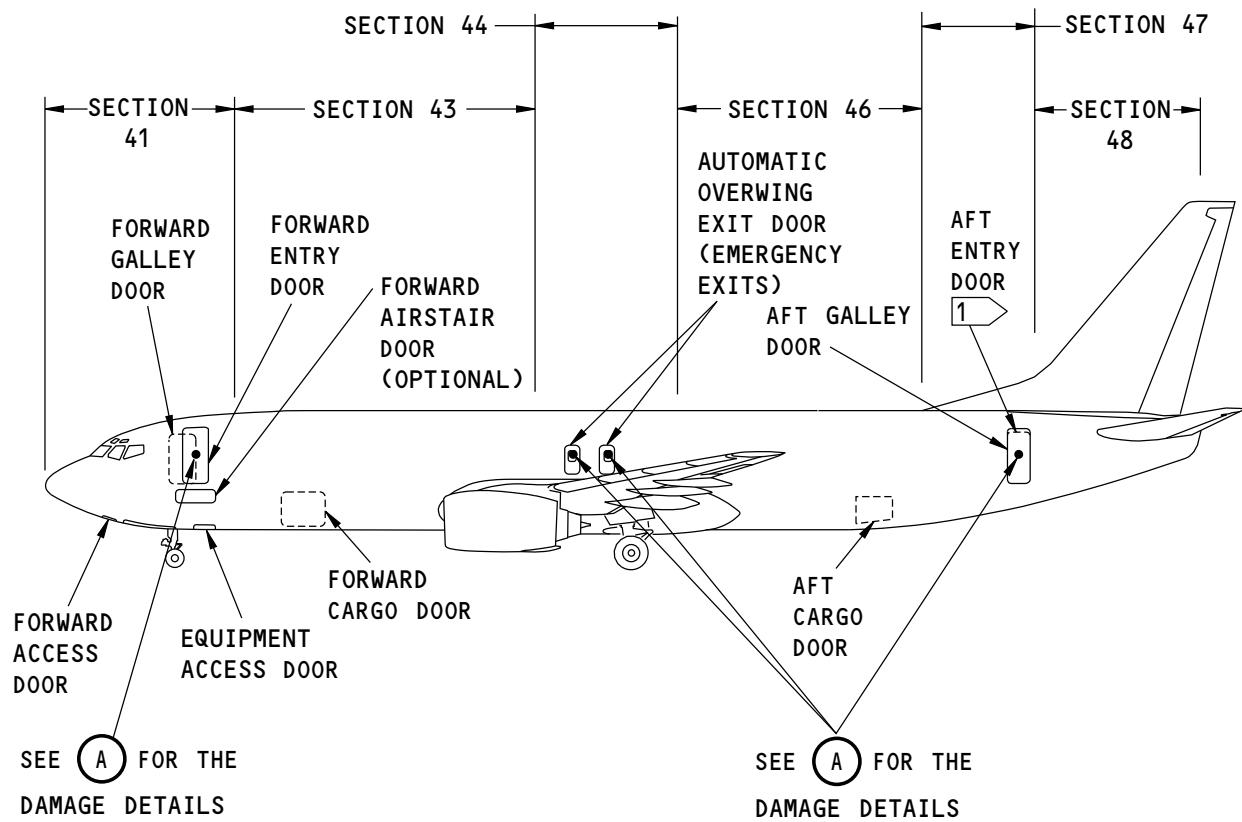
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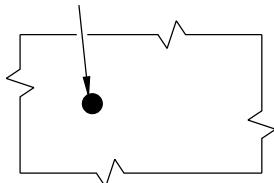
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NOTES

1) THE AFT ENTRY DOOR WITH AN AIRSTAIRS IS A CUSTOMER OPTION.

TYPICAL LIGHTNING STRIKE
DAMAGE LOOKS LIKE A SMALL
BURN MARK OR CRATER



(A)

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Aluminum Door Skin Lightning Strike Damage
Figure 201

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2. General

- A. If the damaged fastener meets the condition that follows, this repair is a Category A repair. See Paragraph 4./REPAIR 10 for repair instructions.
 - (1) The damaged fastener is replaced with a fastener of the same type and diameter as the initial fastener.

3. References

Reference	Title
51-20-05, REPAIR 1	Wet Installation of Fasteners
51-40-02, GENERAL	Fastener Installation and Removal
51-40-03, GENERAL	Fastener Substitution
51-40-05, GENERAL	Fastener Hole Sizes
AMM 51-21	INTERIOR AND EXTERIOR FINISHES
SOPM 20-44-04	Application of Urethane Compatible Primer
737 NDT Part 6, 51-00-00, Procedure 1	Fastener Holes in Aluminum Parts (Meter Display)

4. Repair Instructions

- A. Remove the fastener. Refer to 51-40-02, GENERAL.
- B. Do an High Frequency Eddy Current (HFEC) inspection procedure of the open fastener hole to make sure that there is no damage to the hole in the skin. Refer to 737 NDT Part 6, 51-00-00, Procedure 1.
- C. Install a repair fastener. Refer to 51-40-02, GENERAL.
 - (1) Install the same fastener type and diameter as the initial fastener. It is acceptable to oversize solid rivets up to 1/32 inch. An alternative fastener is permitted as given in 51-40-03, GENERAL.
 - (2) Install hex-drive bolts, in a transition fit hole, wet with BMS 5-95 sealant. It is acceptable to oversize hex-drive bolts up to 1/64 inch. Refer to 51-20-05, REPAIR 1 and 51-40-05, GENERAL.
- D. Apply a surface finish to the repair area as necessary. Refer to SOPM 20-44-04 and AMM SECTION 51-21.

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REPAIR 11 - ALUMINUM NON-PRESSURIZED DOOR OUTER SKIN - REPAIR OF LIGHTNING STRIKE AND SMALL DAMAGE IN THE DOOR SKIN AWAY FROM A FASTENER LOCATION

1. Applicability

- A. This repair is applicable to lightning strike and small damage in the aluminum outer skin of a non-pressurized door away from a fastener location.
- B. You can use REPAIR 11 to drill out damage if the damage is not more than the size limits given in the Allowable Damage section of the affected non-pressurized door section. Refer to Table 201.
- C. You can use REPAIR 11 to blend out damage if the damage is not more than the nick, gouge, scratch, or corrosion damage location and size limits given in the Allowable Damage section of the affected non-pressurized door section. Refer to Table 201.
- D. This repair is applicable only with the following conditions:
 - (1) The damage is in an area where the skin thickness is constant.
 - (2) The damage is a minimum distance away from fastener holes, an edge, other damage, or a chem-milled radius as specified for holes and nicks, scratches, gouges, or corrosion in the Allowable Damage section of the affected door skin. Refer to Table 201.
 - (3) The damage is not more than the size limits given in the Allowable Damage section of the affected door skin. Refer to Table 201.
 - (4) The damage does not have any applicable flight operation limits as specified in the Allowable Damage section of the affected door skin. Refer to Table 201.
- E. If you have lightning strike damage to a fastener and damage to the outer skin, refer to REPAIR 12.
- F. If you have lightning strike damage to a fastener that does not damage the adjacent door outer skin, refer to REPAIR 13.

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REPAIR 11

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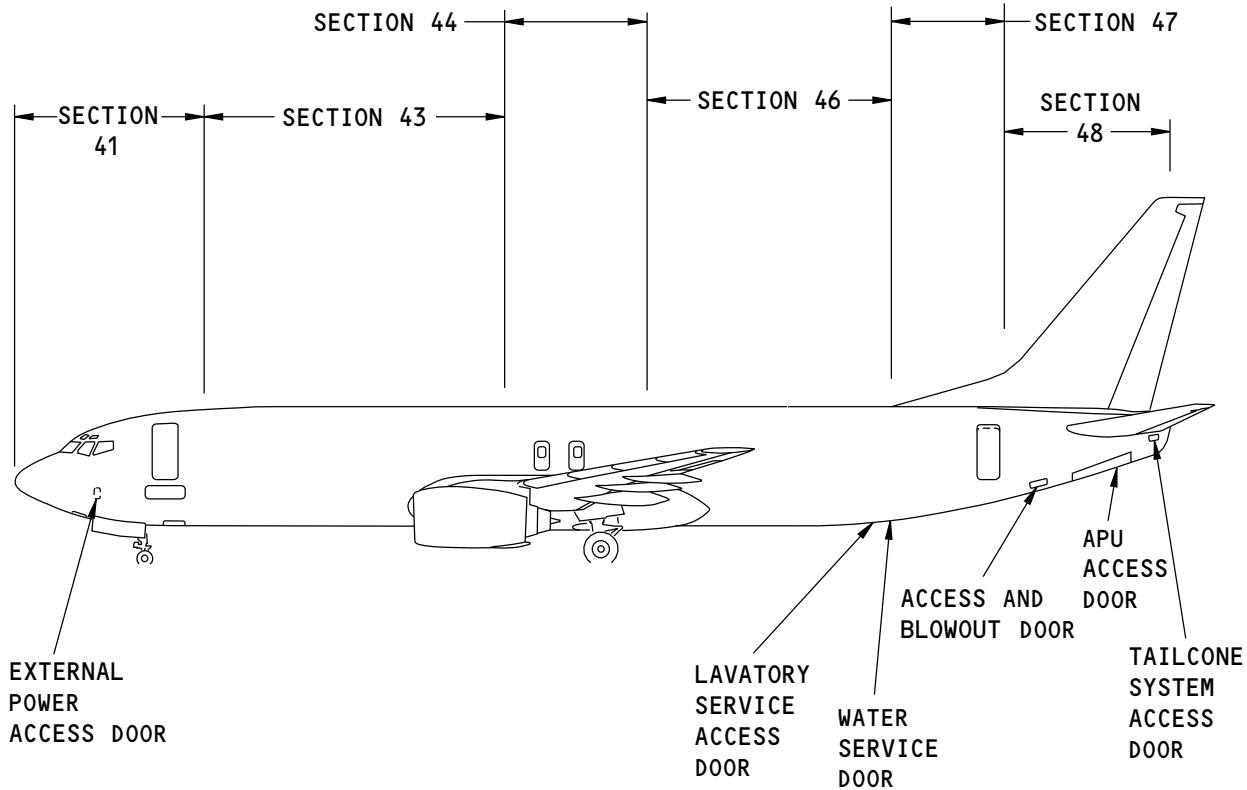
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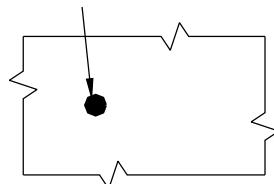
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TYPICAL LIGHTNING STRIKE
DAMAGE LOOKS LIKE A SMALL
BURN MARK OR CRATER



TYPICAL LIGHTNING STRIKE DAMAGE

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Aluminum Non-Pressurized Door Skin Lightning Strike Damage
Figure 201

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2. General

- A. If there are no applicable flight operation limits, this repair is a Category A repair. Refer to Table 201/REPAIR 11 Allowable Damage section of the affected door skin for the flight operation limits. Refer to 51-00-06, GENERAL for the definitions of the different categories of repairs.

Table 201: Non-pressurized Door ADL SRM Sections

Non-pressurized Doors	ADL SRM Sections
Access and Blowout Doors	52-40-01, ALLOWABLE DAMAGE 1
APU Access Door	52-40-01, ALLOWABLE DAMAGE 2
External Power Access Door	52-40-01, ALLOWABLE DAMAGE 3
Lavatory Service Access Door	52-40-01, ALLOWABLE DAMAGE 4
Water Service Access Door	52-40-01, ALLOWABLE DAMAGE 5
Tailcone System Access Door	52-40-01, ALLOWABLE DAMAGE 7

3. References

Reference	Title
51-00-06, GENERAL	Structural Repair Definitions
51-20-01, GENERAL	Protective Treatment of Metallic and Composite Materials
51-20-03, GENERAL P/B GENERAL	HEAT DAMAGE EVALUATION
51-40-02, GENERAL	Fastener Installation and Removal
AMM 51-21-00 P/B 701	INTERIOR AND EXTERIOR FINISHES - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-44-04	Application of Urethane Compatible Primer
737 NDT Part 6, 51-00-00, Procedure 1	Fastener Holes in Aluminum Parts (Meter Display)
737 NDT Part 6, 51-00-00, Procedure 11	Fastener Holes in Aluminum Parts (Impedance Plane Display)
737 NDT Part 6, 51-00-00, Procedure 16	Aluminum Part Fastener Hole Inspection (Rotary Scanner)
737 NDT Part 6, 51-00-00, Procedure 23	Aluminum Part Surface Inspection (Impedance Plane Display)
737 NDT Part 6, 51-00-00, Procedure 3	Investigation of Fire Damage on Aircraft Structure
737 NDT Part 6, 51-00-00, Procedure 4	Surface Inspection of Aluminum Parts (Meter Display)

4. Repair Instructions

- A. Inspect the door outer skin for heat damage. Refer to HEAT DAMAGE EVALUATION, PAGEBLOCK 51-20-03, GENERAL and 737 NDT Part 6, 51-00-00, Procedure 3. Find the dimensions of the damage.
- B. Repair the damage using one of the procedures that follows:
- (1) Blend out the damage
 - (a) Blend out the damage as given for nicks, gouges, scratches, or corrosion in the Allowable Damage section of affected the door skin. Refer to Table 201.
 - 1) Make sure the blendout is in a permitted location and is not more than the size limits given in the Allowable Damage section of the affected door skin. Refer to Table 201.
 - 2) Make sure there are no applicable flight operation limits for the blend depth.
 - (b) Inspect the door skin for cracks. Do one of the inspections to make sure there are no cracks:
 - 1) Do a HFEC inspection procedure on the surface for cracks. Refer to 737 NDT Part 6, 51-00-00, Procedure 4, or 737 NDT Part 6, 51-00-00, Procedure 23.

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- 2) As an alternative, do a penetrant inspection procedure for cracks. Refer to SOPM 20-20-02.
 - 3) As an alternative, do a Detailed Visual Inspection (DVI) with a minimum 10X magnification.
 - (c) Apply a chemical conversion coating to the bare surface of the repair area. Refer to 51-20-01, GENERAL.
 - (d) Apply a surface finish to the repair area as necessary. Refer to SOPM 20-44-04 for the application of BMS 10-79, Type II primer. Refer to AMM PAGEBLOCK 51-21-00/701 for the application of other finishes.
- (2) Drill out the damage
- (a) Drill out the damage in the door skin.
 - 1) Make sure that the drilled hole is in a permitted location and is not more than the dimension limits given in the Allowable Damage section of the affected door skin. Refer to Table 201.
 - 2) Make sure there are no applicable flight operation limits for the drilled hole size.
 - (b) Inspect the skin and the drilled hole for cracks. Do the inspections that follow to make sure there are no cracks:
 - 1) Do a DVI of the outer skin with a minimum 10X magnification.
 - 2) Do a HFEC inspection procedure of the drilled hole for cracks. Refer to 737 NDT Part 6, 51-00-00, Procedure 1, 737 NDT Part 6, 51-00-00, Procedure 11 and 737 NDT Part 6, 51-00-00, Procedure 16.
 - (c) Apply a chemical conversion coating to the bare surface of the repair area. Refer to 51-20-01, GENERAL.
 - (d) Install a solid rivet as noted for Holes and Punctures in the Allowable Damage section of the affected door skin. Refer to 51-40-02, GENERAL.
 - (e) Apply a surface finish to the repair area as necessary. Refer to SOPM 20-44-04 for the application of BMS 10-79, Type II primer. Refer to AMM PAGEBLOCK 51-21-00/701 for the application of other finishes.
- (3) If the damage or repair is more than the limits specified in the Allowable Damage section of the affected door skin or the airplane flight operation limits, find an alternative repair in SRM 52-00-01 or contact The Boeing Company.

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**REPAIR 12 - ALUMINUM NON-PRESSURIZED DOOR OUTER SKIN - REPAIR OF LIGHTNING
STRIKE DAMAGE IN THE DOOR SKIN AT A FASTENER LOCATION**

1. Applicability

- A. This repair is applicable to lightning strike damage to a non-pressurized aluminum door outer skin at a fastener location.
- B. This repair is only applicable if the following conditions are met:
 - (1) The damage is in an area where the skin thickness is constant.
 - (2) The damage is a minimum distance away from other fastener holes, an edge, other damage, or a chem-milled radius, as given in the Allowable Damage section of the affected door skin. Refer to Table 201/REPAIR 12 to find the Allowable Damage section of the affected door skin.
 - (3) For damage to the skin surrounding the fastener:
 - (a) The damage is not more than the limits given in the Allowable Damage section of the affected door skin.
 - (b) The damage does not have applicable flight operation limits as given in the Allowable Damage section of the affected door skin.
 - (4) For damage that must be blended:
 - (a) The damage is not more than the nick, scratch, gouge, or corrosion limits given in the Allowable Damage section of the affected door skin.
- C. If you have lightning strike or small damage to a aluminum door outer skin that is away from a fastener location, refer to REPAIR 11.
- D. If you have lightning strike damage to a fastener that does not damage the adjacent aluminum door outer skin, refer to REPAIR 13.

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REPAIR 12

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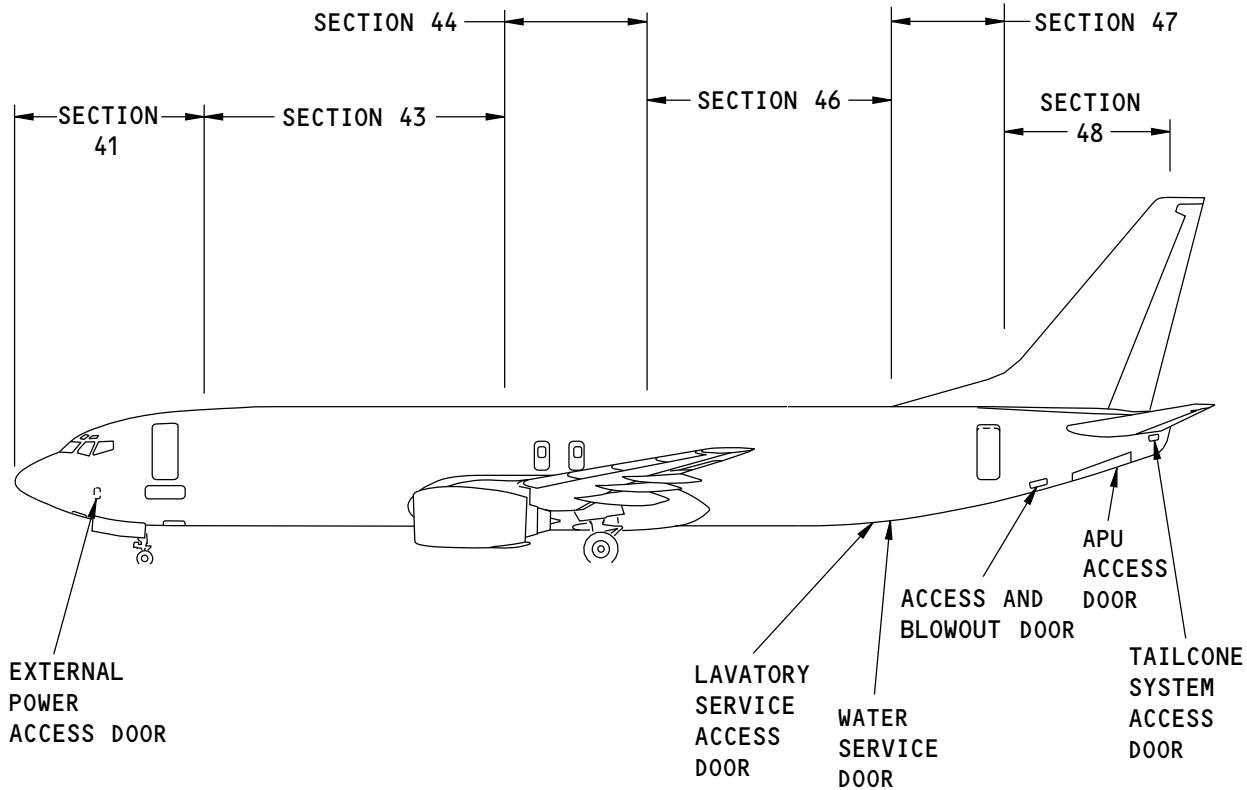
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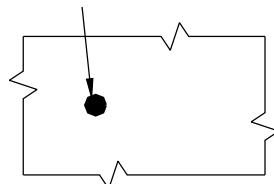
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TYPICAL LIGHTNING STRIKE
DAMAGE LOOKS LIKE A SMALL
BURN MARK OR CRATER



TYPICAL LIGHTNING STRIKE DAMAGE

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Aluminum Door Skin Lightning Strike Damage
Figure 201

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2. General

- A. If there are no applicable flight operation limits, this repair is a Category A repair. Refer to 51-00-06, GENERAL for the definitions of the different categories of repairs. Refer to Table 201/REPAIR 12 to find the Allowable Damage section of the affected door skin for the flight operation limits, if flight operation limits are present.

Table 201: Non-pressurized Door ADL SRM Sections

Non-pressurized Doors	ADL SRM Sections
Access and Blowout Doors	52-40-01, ALLOWABLE DAMAGE 1
APU Access Door	52-40-01, ALLOWABLE DAMAGE 2
External Power Access Door	52-40-01, ALLOWABLE DAMAGE 3
Lavatory Service Access Door	52-40-01, ALLOWABLE DAMAGE 4
Water Service Access Door	52-40-01, ALLOWABLE DAMAGE 5
Tailcone System Access Door	52-40-01, ALLOWABLE DAMAGE 7

3. References

Reference	Title
51-00-06, GENERAL	Structural Repair Definitions
51-10-02, GENERAL	Inspection and Removal of Damage
51-20-01, GENERAL	Protective Treatment of Metallic and Composite Materials
51-20-05, REPAIR 1	Wet Installation of Fasteners
51-40-02, GENERAL	Fastener Installation and Removal
51-40-03, GENERAL	Fastener Substitution
51-40-05, GENERAL	Fastener Hole Sizes
51-40-08, GENERAL	Countersink Data and Procedures for Metal Structures
AMM 51-21-00 P/B 701	INTERIOR AND EXTERIOR FINISHES - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-44-04	Application of Urethane Compatible Primer
737 NDT Part 6, 51-00-00, Procedure 1	Fastener Holes in Aluminum Parts (Meter Display)
737 NDT Part 6, 51-00-00, Procedure 23	Aluminum Part Surface Inspection (Impedance Plane Display)
737 NDT Part 6, 51-00-00, Procedure 3	Investigation of Fire Damage on Aircraft Structure
737 NDT Part 6, 51-00-00, Procedure 4	Surface Inspection of Aluminum Parts (Meter Display)
737 NDT Part 6, 53-30-00, Procedure 3	Countersink Inspection of Aluminum Parts (Rotary Probe)

4. Repair Instructions

- A. Remove the damaged fastener. Refer to 51-40-02, GENERAL.
- B. Inspect the surrounding skin at the fastener location for heat damage. Refer to 737 NDT Part 6, 51-00-00, Procedure 3.
- C. Do a High Frequency Eddy Current (HFEC) inspection procedure of the open fastener hole for the limits of the damage. Refer to 737 NDT Part 6, 51-00-00, Procedure 1.
- D. Remove the damage. Refer to 51-10-02, GENERAL.
 - (1) If there is damage to the skin around the fastener hole, blend out the damage.
 - (a) Blend out the damage as given for nicks, gouges, scratches, or corrosion near a fastener in the Allowable Damage section of the affected door skin.

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- (b) Make sure that the blend out is in a permitted location and is not more than the limits given in the Allowable Damage section of the affected door skin.
- (c) Make sure that there are no applicable flight operation limits for the blend out depth.
- (2) If there is damage to the fastener hole, oversize the hole to remove the damage. Refer to 51-40-05, GENERAL for fastener hole sizes.
 - (a) Rivet holes may be oversized up to 1/32 inch. Hex-drive bolt holes may be oversized up to 1/64 inch. Refer to 51-40-02, GENERAL.
 - (b) For holes with countersinks:
 - 1) If there is damage to the skin countersink, oversize the countersink in 1/64 inch increments to remove the damage.
 - a) Make sure countersink depth is not more than 70 percent of the skin thickness.
 - 2) If there is damage to more than the countersink of the skin, oversize the hole in 1/64 inch increments if necessary to remove the damage.
 - (c) Do a High Frequency Eddy Current (HFEC) inspection procedure of the open fastener hole for damage. Refer to 737 NDT Part 6, 51-00-00, Procedure 1. For damage in the countersink only, refer to 737 NDT Part 6, 53-30-00, Procedure 3. If you find more damage, do the damage removal steps again.
 - (d) Make sure that the oversized hole is not more than the limits given in the Allowable Damage section of the affected door skin.
 - (e) Make sure that there are no applicable flight operation limits for the oversized hole.
- E. Do an inspection of the skin at the repaired fastener hole for cracks. Do one of the inspections that follow to make sure there are no cracks:
 - (1) Do a High Frequency Eddy Current (HFEC) inspection procedure of the skin surface for cracks. Refer to 737 NDT Part 6, 51-00-00, Procedure 4 or 737 NDT Part 6, 51-00-00, Procedure 23.
 - (2) As an alternative, do a penetrant inspection procedure for cracks. Refer to SOPM 20-20-02.
 - (3) As an alternative, do a Detailed Visual Inspection (DVI) with a minimum 10X magnification.
- F. Apply a chemical conversion coating to the bare surfaces of the repair area. Refer to 51-20-01, GENERAL.
- G. Install a repair fastener.
 - (1) Install the same fastener type as the initial fastener. Refer to 51-40-02, GENERAL. An alternative fastener is permitted as given in 51-40-03, GENERAL. It is permitted to replace a countersunk fastener with a protruding head fastener of the same type as the initial fastener.
 - (a) If the initial fastener was installed for a previous repair, it could be a hex-drive bolt with a threaded collar or other type of fastener.
 - (b) If you install a protruding head fastener in an initial countersink hole, use a countersink repair washer. Refer to 51-40-08, GENERAL.
 - (c) If the repair fastener is a rivet and the diameter is equal to or larger than 0.25 in. (6 mm), then use a rivet made from 2117-T4.
 - (d) Drive rivets to a button diameter as given in 51-40-02, GENERAL, Figure 3.
 - (2) Install hex-drive bolts wet with BMS 5-95 sealant in transition fit holes. Refer to 51-20-05, REPAIR 1.

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- H. Apply a surface finish to the repair area if necessary. Refer to SOPM 20-44-04 for the application of BMS 10-79, Type II primer. Refer to AMM PAGEBLOCK 51-21-00/701 for the application of other finishes.

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**REPAIR 13 - ALUMINUM NON-PRESSURIZED DOOR OUTER SKIN - REPAIR OF LIGHTNING
STRIKE DAMAGE TO A FASTENER THAT DOES NOT DAMAGE THE ADJACENT DOOR SKIN**

1. Applicability

- A. This repair is applicable to lightning strike damage to a fastener in the aluminum outer skin of a non-pressurized door. This repair is not applicable if there is damage to the door outer skin.
- B. If you have lightning strike damage to the door outer skin that is away from a fastener location, refer to REPAIR 11.
- C. If you have lightning strike damage to a fastener and damage to the outer skin, refer to REPAIR 12.

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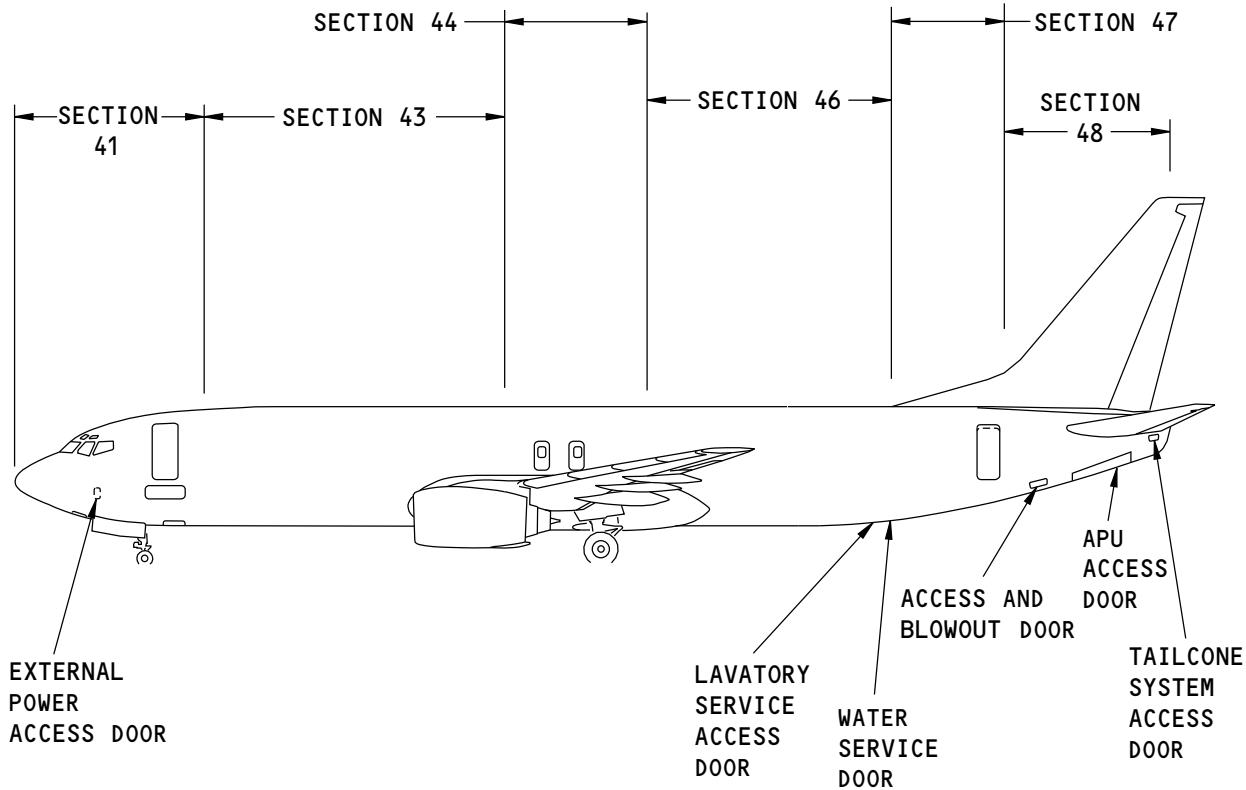
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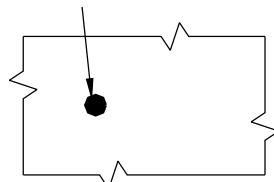
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TYPICAL LIGHTNING STRIKE
DAMAGE LOOKS LIKE A SMALL
BURN MARK OR CRATER



TYPICAL LIGHTNING STRIKE DAMAGE

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Aluminum Non-Pressurized Doors Skin Lightning Strike Damage
Figure 201

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2. General

- A. If the damaged fastener meets the condition that follows, this repair is a Category A repair. Refer to 51-00-06, GENERAL for the definitions of the different categories of repairs. See Paragraph 4./REPAIR 13 for repair instructions.
- (1) The damaged fastener is replaced with a fastener of the same type and diameter as the initial fastener.

3. References

Reference	Title
51-00-06, GENERAL	Structural Repair Definitions
51-20-05, REPAIR 1	Wet Installation of Fasteners
51-40-02, GENERAL	Fastener Installation and Removal
51-40-03, GENERAL	Fastener Substitution
51-40-05, GENERAL	Fastener Hole Sizes
AMM 51-21	INTERIOR AND EXTERIOR FINISHES
SOPM 20-44-04	Application of Urethane Compatible Primer
737 NDT Part 6, 51-00-00, Procedure 1	Fastener Holes in Aluminum Parts (Meter Display)

4. Repair Instructions

- A. Remove the fastener. Refer to 51-40-02, GENERAL.
- B. Do an HFEC inspection procedure of the open fastener hole to make sure that there is no damage to the hole in the skin. Refer to 737 NDT Part 6, 51-00-00, Procedure 1.
- C. Install a repair fastener. Refer to 51-40-02, GENERAL.
- (1) Install the same fastener type and diameter as the initial fastener. It is acceptable to oversize solid rivets up to 1/32 inch. An alternative fastener is permitted as given in 51-40-03, GENERAL.
- (2) Install hex-drive bolts, in a transition fit hole, wet with BMS 5-95 sealant. It is acceptable to oversize hex-drive bolts up to 1/64 inch. Refer to 51-20-05, REPAIR 1 and 51-40-05, GENERAL.
- D. Apply a surface finish to the repair area as necessary. Refer to SOPM 20-44-04 and AMM SECTION 51-21.

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REPAIR 13
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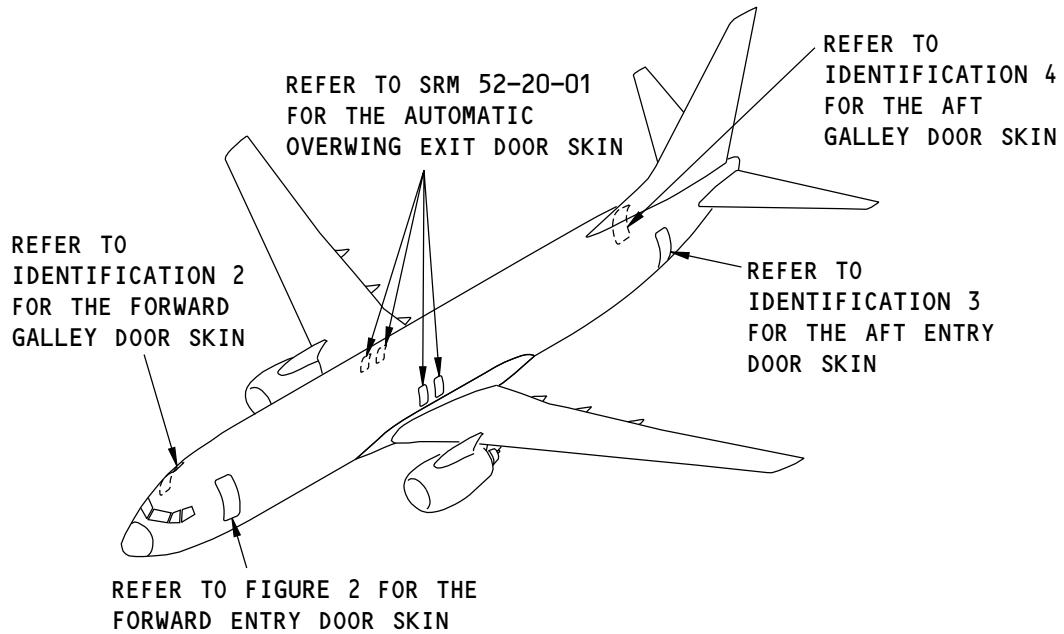
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STRUCTURAL REPAIR MANUAL

IDENTIFICATION 1 - FORWARD ENTRY DOOR SKINS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

K39047 S0006586502_V1

Forward Entry Door Skin Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6100	Forward Entry Door - Assembly
141A6185	Forward Entry Door External Skin Installation
141A6260	Forward Entry Door Internal Skin Installation

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IDENTIFICATION 1

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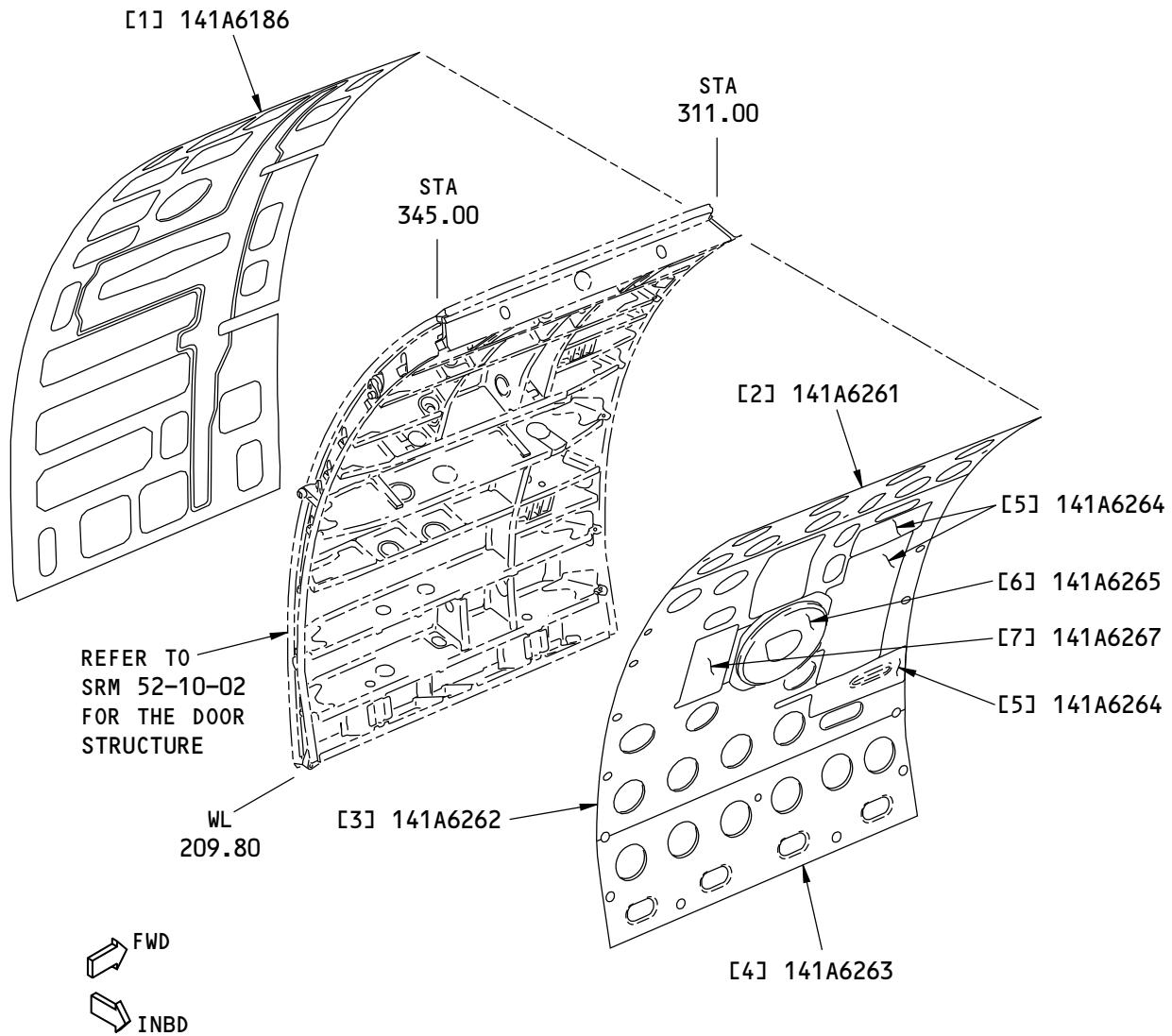
Nov 10/2012

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STRUCTURAL REPAIR MANUAL



NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F68640 S0006586506_V1

Forward Entry Door Skin Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	External Skin	0.125 (3.175)	2024-T3 clad sheet. Refer to Figure 3 for the thicknesses of the chem-milled areas	
[2]	Internal Skin - Upper	0.050 (1.27)	7075-T6 clad sheet	
[3]	Internal Skin - Middle	0.032 (0.81)	2024-T3 clad sheet	
[4]	Internal Skin - Lower	0.050 (1.27)	7075-T6 clad sheet	
[5]	Access Panel	0.040 (1.02)	2024-T42 clad sheet	
[6]	Cam Cover	0.040 (1.02)	2024-T42 clad sheet	
[7]	Access Panel	0.040 (1.02)	2024-T3 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1

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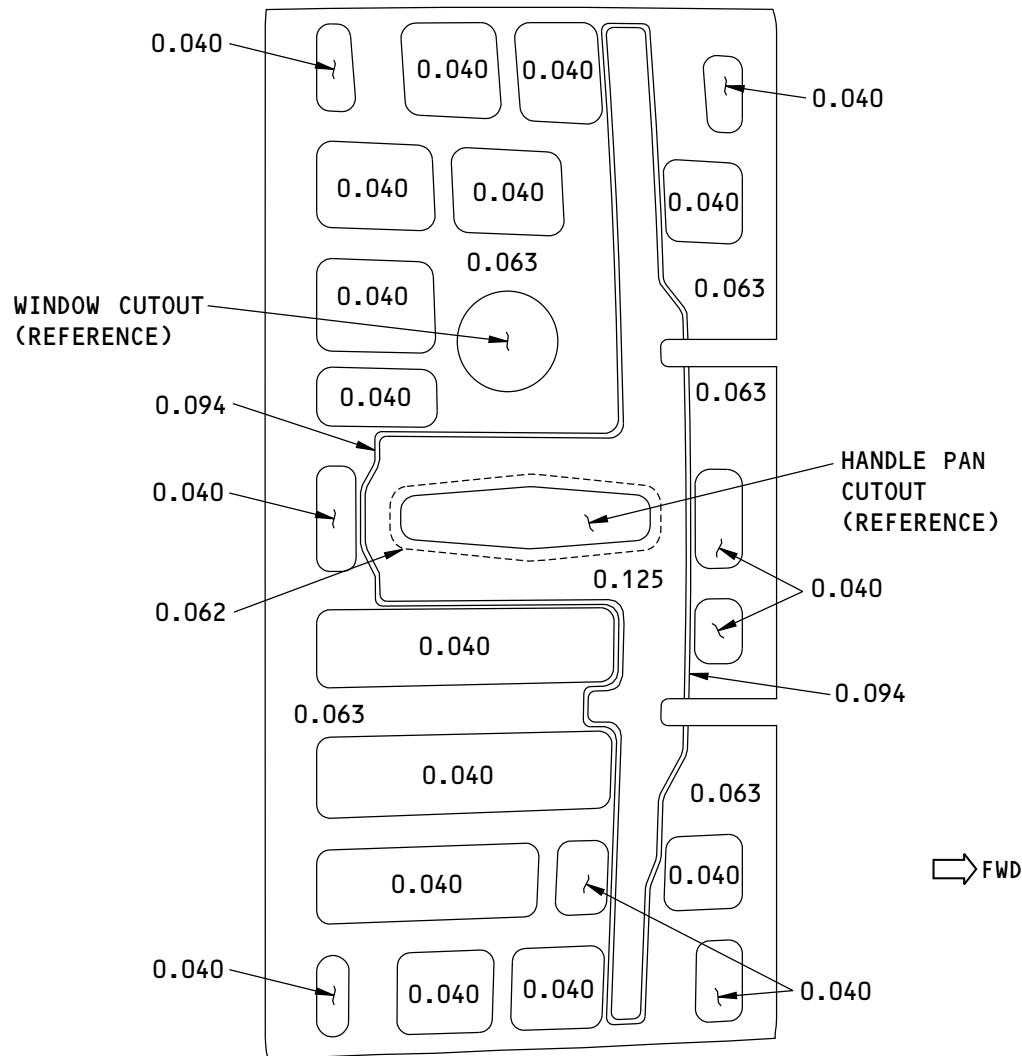
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NOTE: ALL DIMENSIONS SHOWN ARE THICKNESSES IN INCHES.

VIEW OF THE INNER SURFACE OF THE
FORWARD ENTRY DOOR OUTER SKIN

F69266 S0006586508_V1

Chem-Milled areas of Figure 2, Item [1]
Figure 3

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IDENTIFICATION 1
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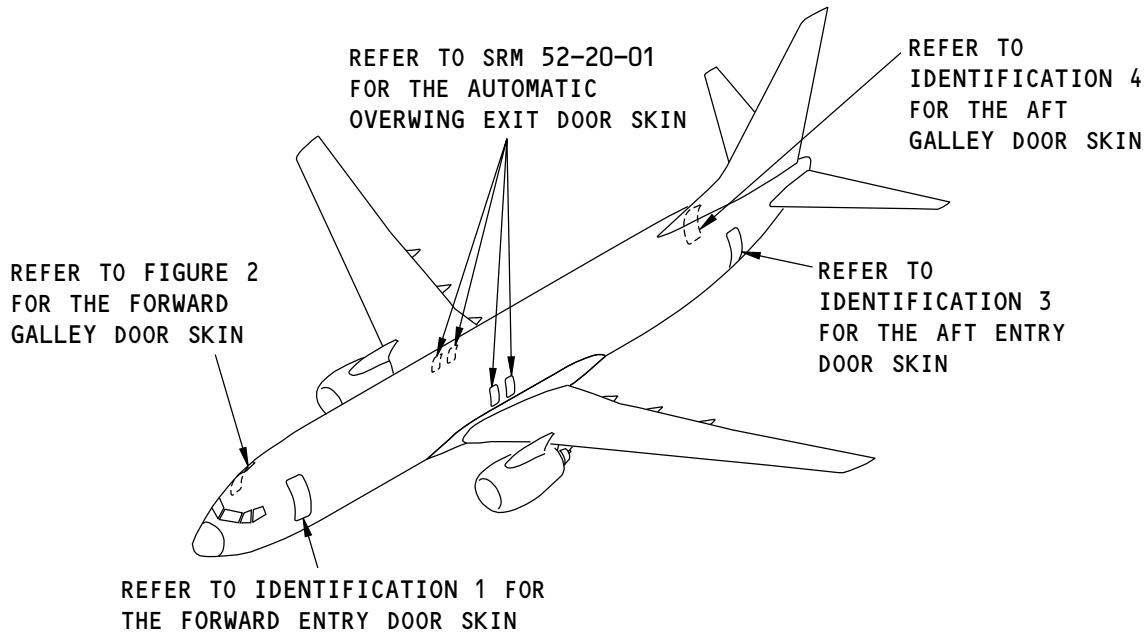
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STRUCTURAL REPAIR MANUAL

IDENTIFICATION 2 - FORWARD GALLEY DOOR SKINS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

L46358 S0006586512_V1

Forward Galley Door Skin Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
140A0030	Functional Collector - Forward Galley Door
141A6500	Door Installation - Forward Galley
141A6516	Door Assembly - Forward Galley

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IDENTIFICATION 2

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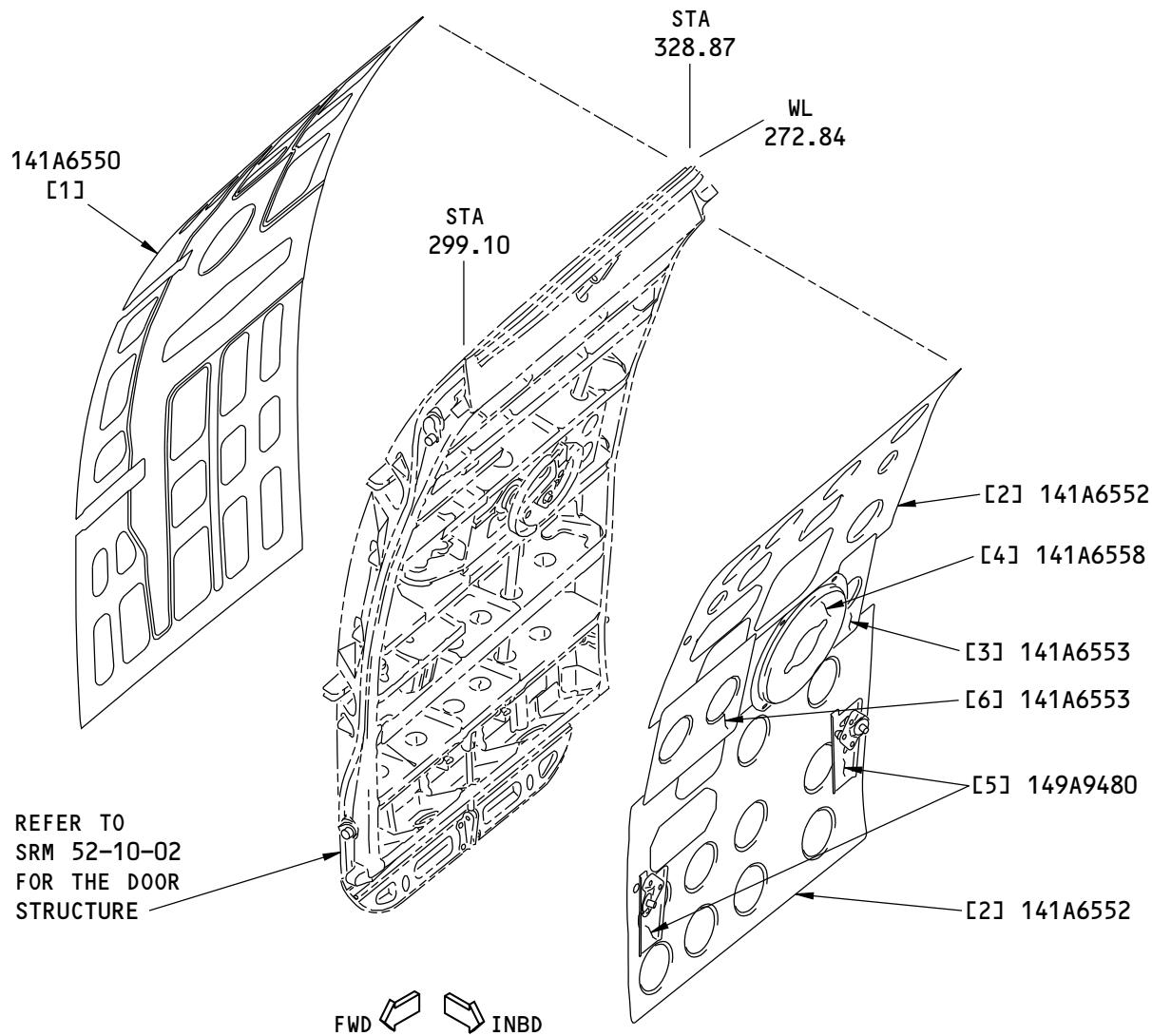
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F69287 S0006586514_V1

Forward Galley Door Skin Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	External Skin	0.125 (3.175)	2024-T3 clad sheet. Refer to Figure 3 for the chem-milled thicknesses for the different areas	
[2]	Internal Skin - Upper and Lower	0.040 (1.02)	7075-T62 clad sheet	
[3]	Coverplate	0.032 (0.81)	7075-T62 clad sheet	
[4]	Retainer	0.040 (1.02)	2024-T42 clad sheet	
[5]	Bracket Assembly			
	Bracket	0.071 (1.80)	2024-T42 clad sheet	
	Backplate	0.063 (1.60)	6013-T6 sheet	
[6]	Coverplate	0.032 (0.81)	7075-T62 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 2

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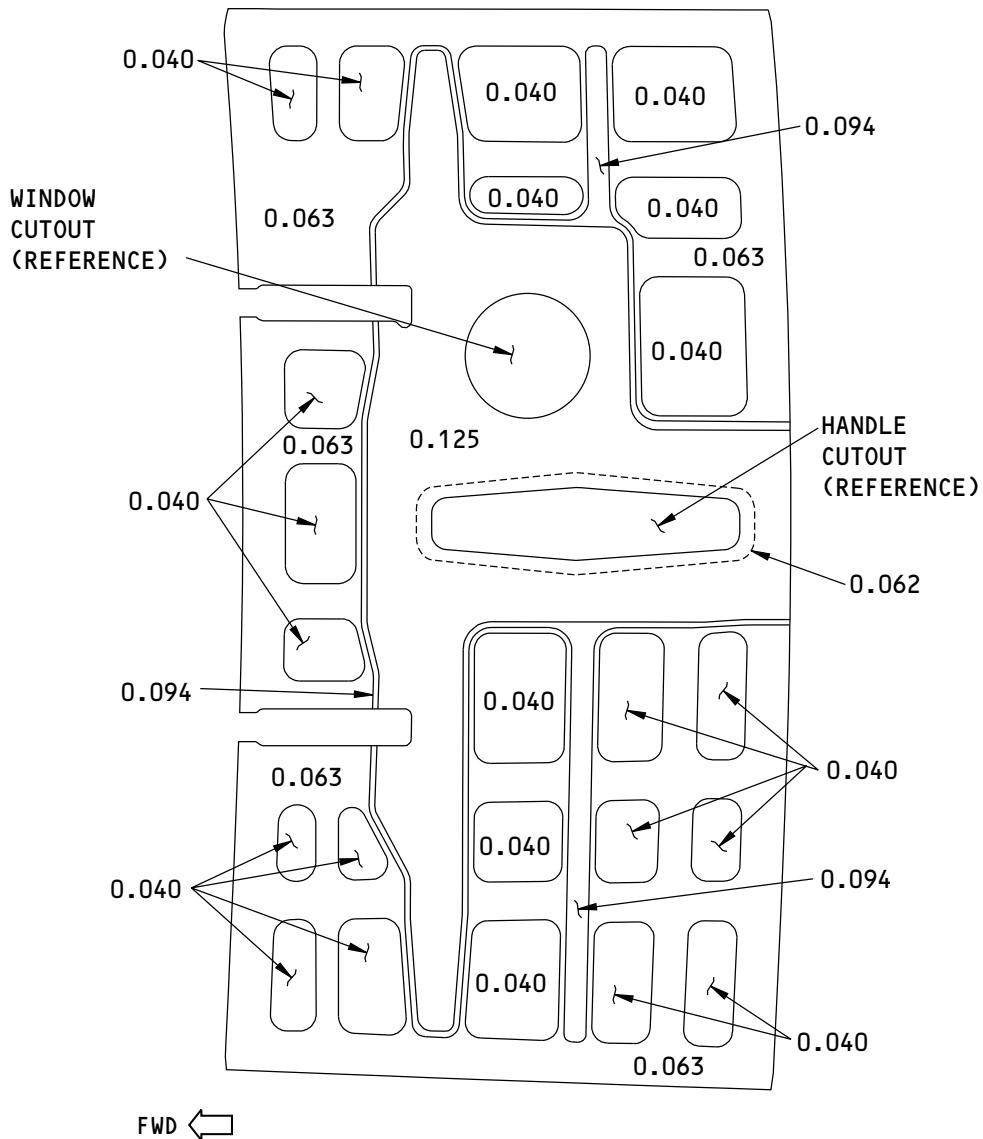
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NOTE: ALL DIMENSIONS SHOWN ARE THICKNESSES IN INCHES.

VIEW OF THE INNER SURFACE OF THE
FORWARD GALLEY DOOR OUTER SKIN

F69289 S0006586516_V1

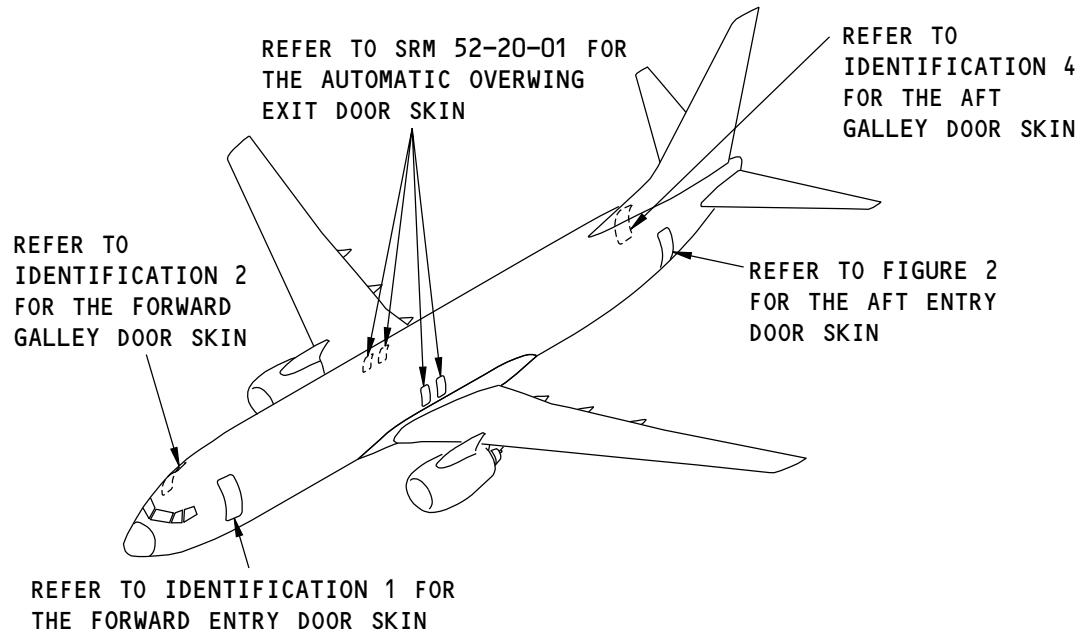
Chem-Milled Areas of Figure 2, Item [1]
Figure 3

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IDENTIFICATION 2
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IDENTIFICATION 3 - AFT ENTRY DOOR SKINS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

L46366 S0006586519_V1

Aft Entry Door Skin Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
140A0070	Functional Collector - Aft Entry Door
147A6100	Door Installation - Aft Entry
147A6116	Door Assembly - Aft Entry

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IDENTIFICATION 3

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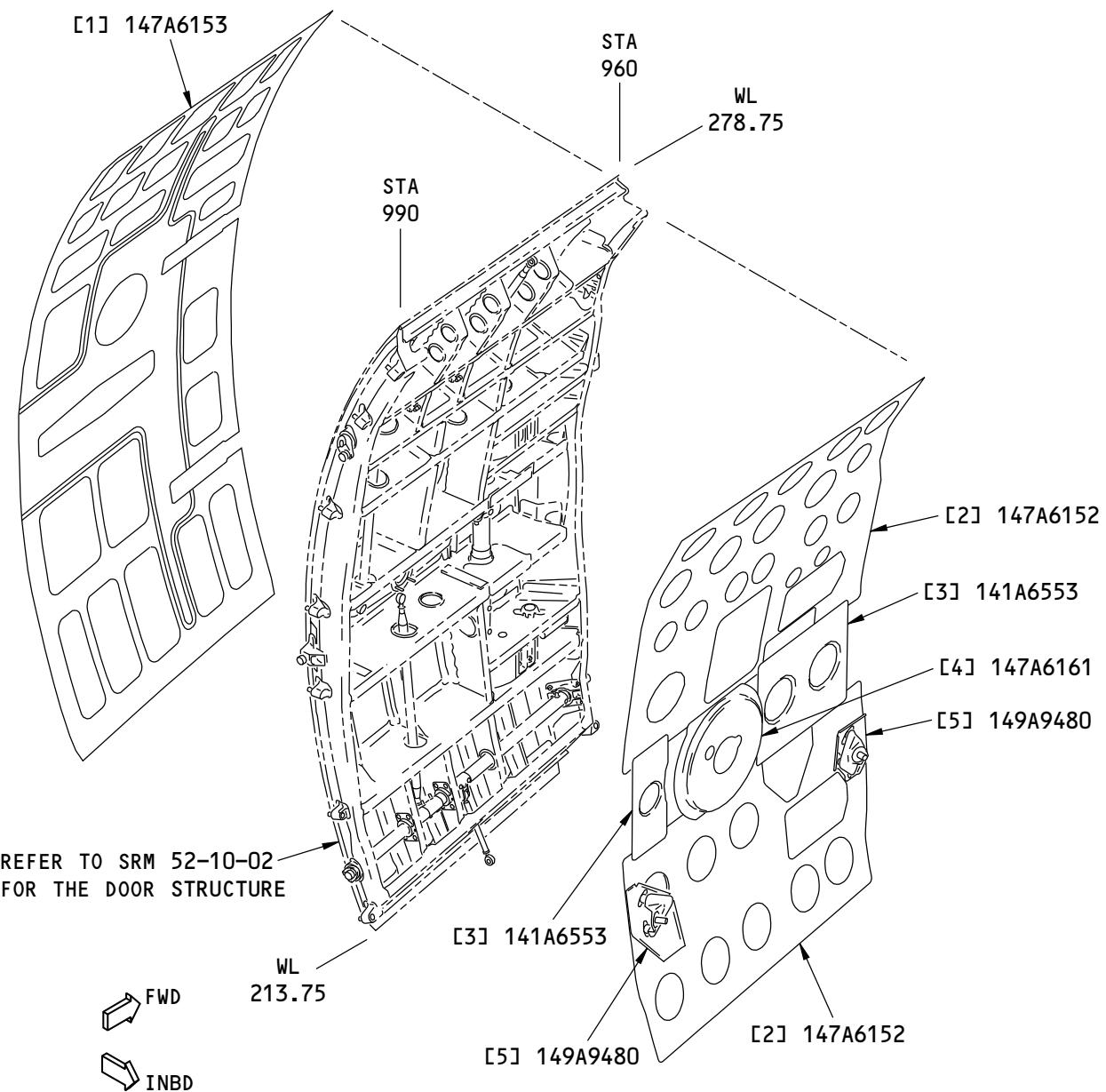
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F70474 S0006586522_V1

Aft Entry Door Skin Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	External Skin	0.125 (3.175)	2024-T3 clad sheet. Refer to Figure 3 for the chem-milled thicknesses of the different areas	
[2]	Internal Skin - Upper and Lower	0.040 (1.02)	7075-T62 clad sheet	
[3]	Coverplate	0.032 (0.81)	7075-T6 clad sheet	
[4]	Retainer	0.032 (0.81)	2024-T42 clad sheet	
[5]	Bracket Assembly			
	Bracket	0.071 (1.80)	2024-T6 clad sheet	
	Backplate	0.063 (1.60)	6013-T6 sheet as given in AMS 4347	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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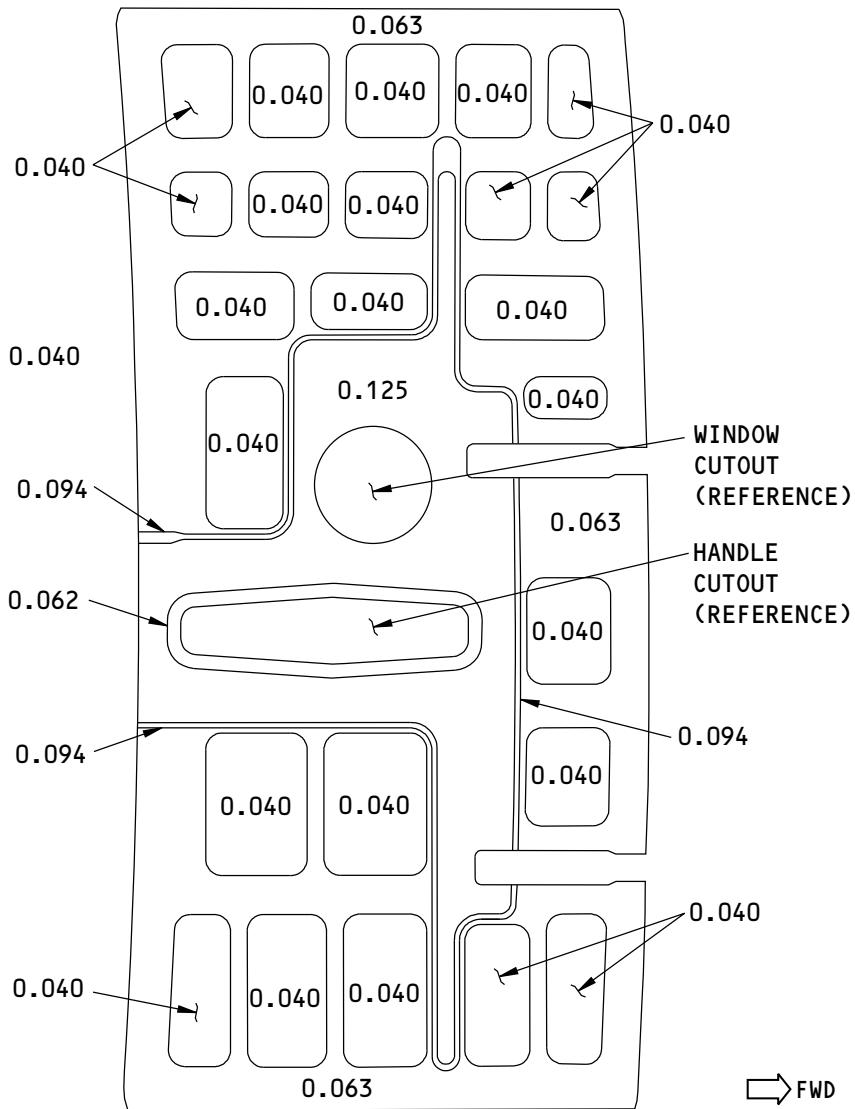
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NOTE: ALL DIMENSIONS SHOWN ARE THICKNESSES IN INCHES.

VIEW OF INNER SURFACE OF THE
AFT ENTRY DOOR OUTER SKIN

F69561 S0006586524_V1

Chem-Milled Areas of Figure 2, Item [1]
Figure 3

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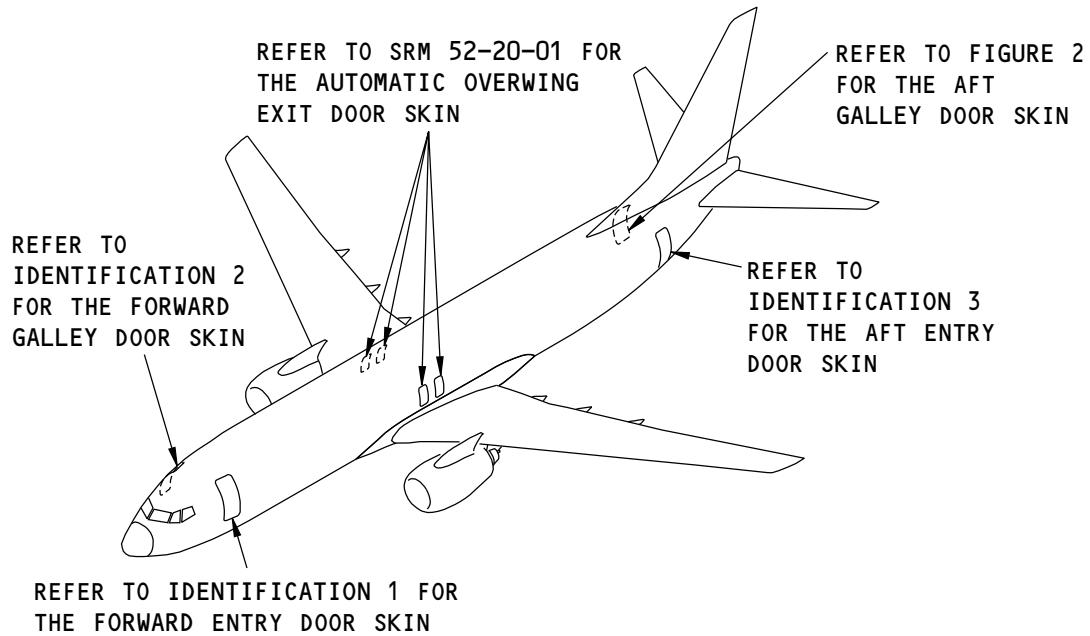
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IDENTIFICATION 4 - AFT GALLEY DOOR SKINS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

L46376 S0006586528_V1

Aft Galley Door Skin Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6500	Door Installation - Aft Galley
147A6502	Door Assembly - Aft Galley

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IDENTIFICATION 4

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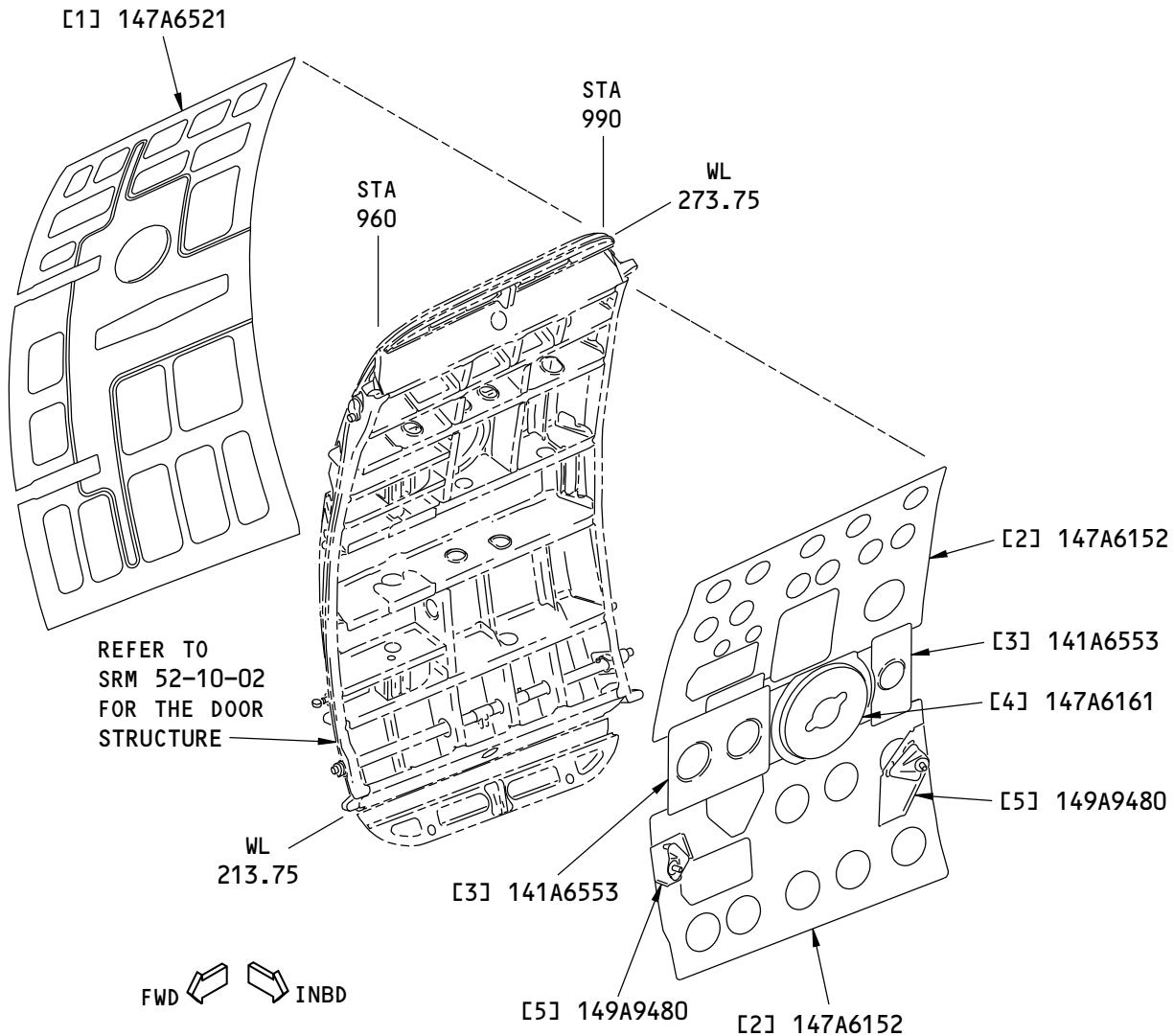
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F69400 S0006586530_V1

Aft Galley Door Skin Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	External Skin	0.125 (3.175)	2024-T3 clad sheet as given in QQ-A-250/5. Refer to Figure 3 for the chem-milled thicknesses of the different areas	
[2]	Inner Skin - Upper and Lower	0.040 (1.02)	7075-T62 clad sheet as given in QQ-A-250/13	
[3]	Coverplate	0.032 (0.81)	7075-T6 clad sheet as given in QQ-A-250/13	
[4]	Retainer	0.040 (1.02)	2024-T42 clad sheet QQ-A-250/5	
[5]	Bracket	0.063 (1.60)	6013-T4 sheet as given in AMS 4347	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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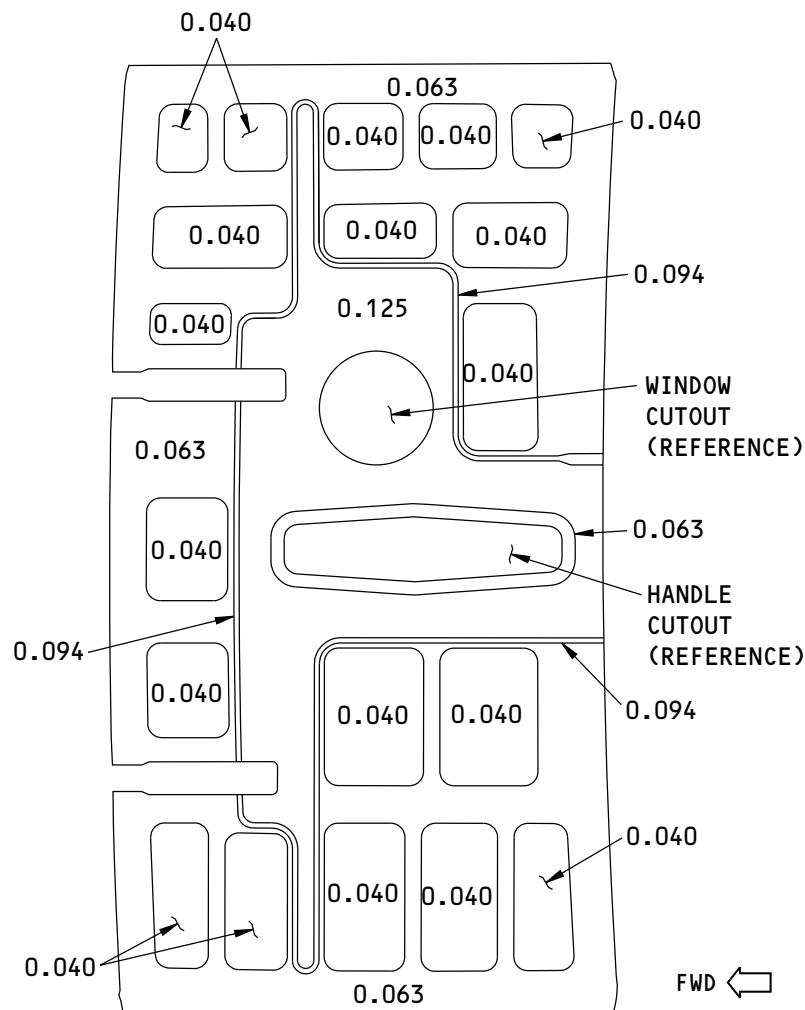
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NOTE: ALL DIMENSIONS SHOWN ARE THICKNESSES IN INCHES

VIEW OF INNER SURFACE OF THE
AFT GALLEY DOOR OUTER SKIN

F69417 S0006586532_V1

Chem-Milled Areas of Figure 2, Item [1]
Figure 3

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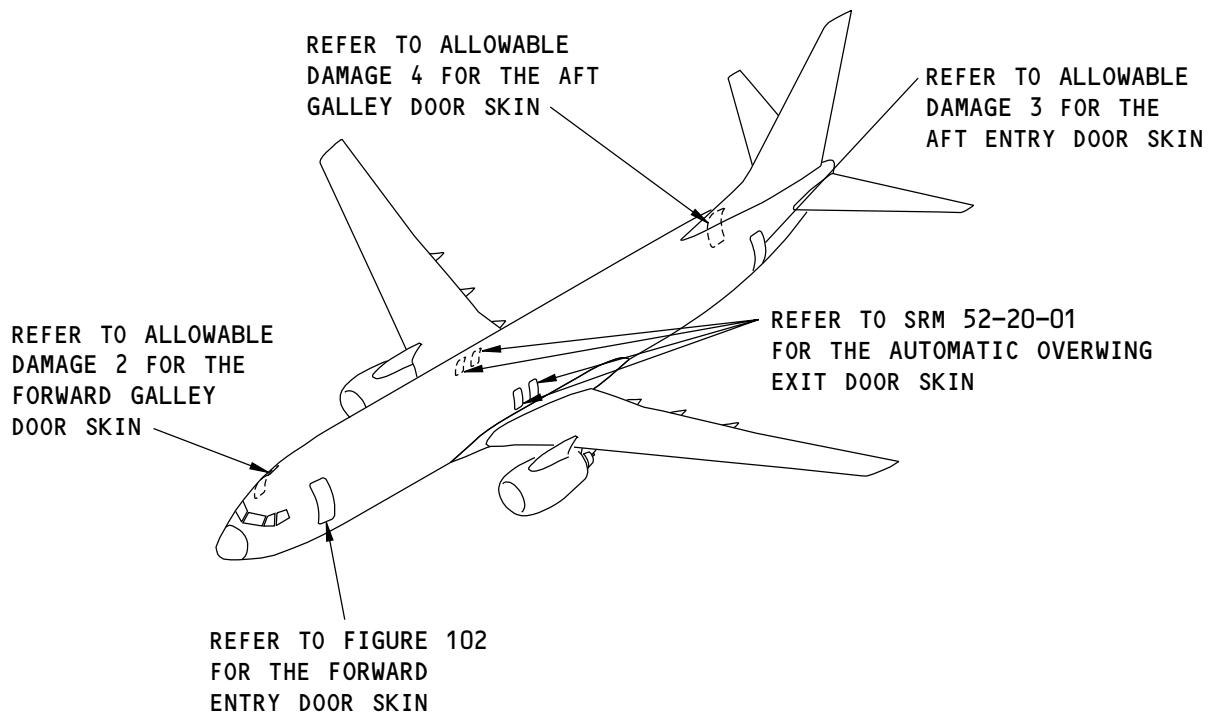


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ALLOWABLE DAMAGE 1 - FORWARD ENTRY DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the external and internal skins on the forward entry door shown in Forward Entry Door Skin Location, Figure 101/ALLOWABLE DAMAGE 1 and Forward Entry Door Skin, Figure 102/ALLOWABLE DAMAGE 1.



**Forward Entry Door Skin Location
Figure 101**

K39184 S0006586536_V1

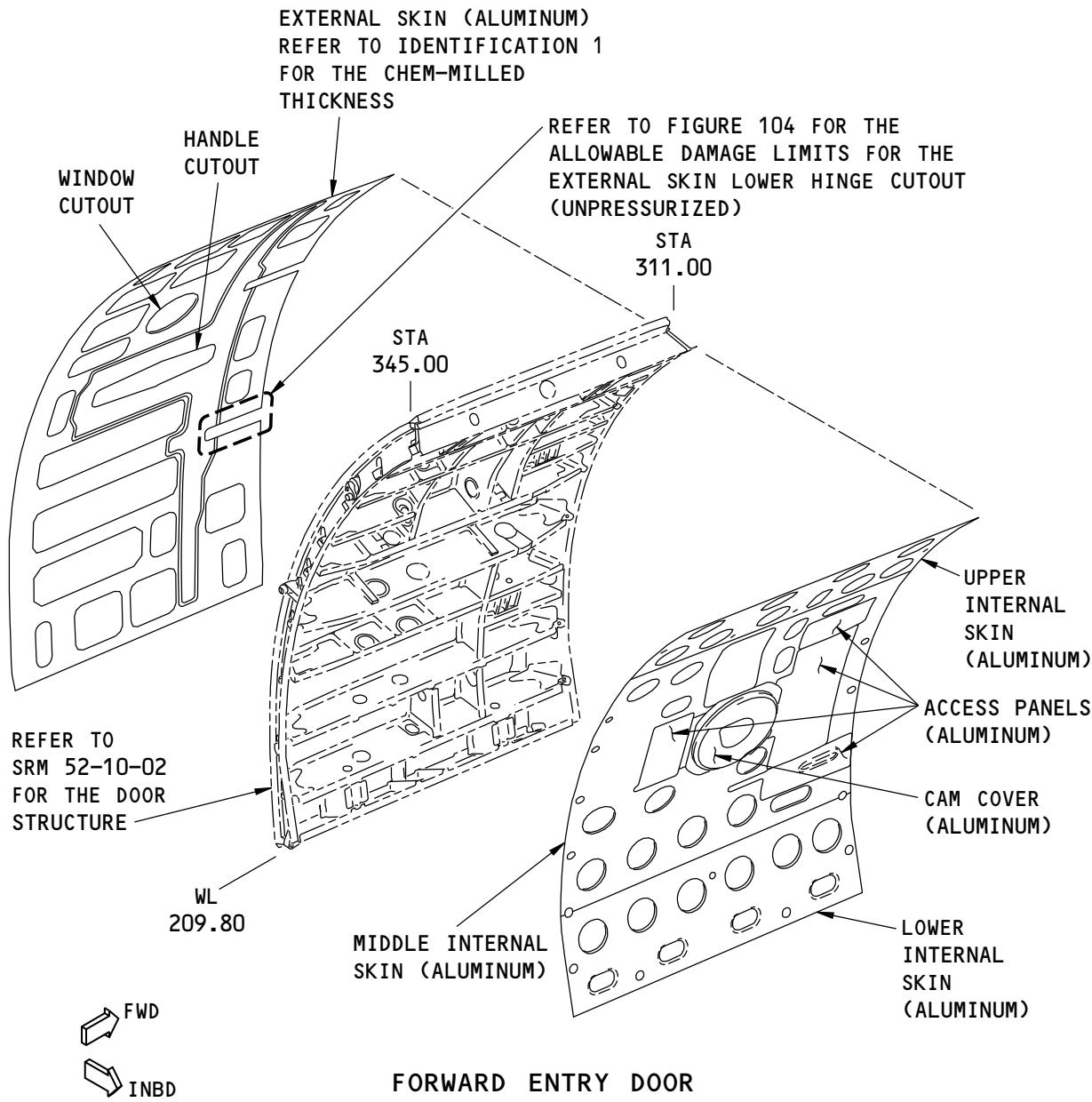
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F70595 S0006586538_V2

**Forward Entry Door Skin
Figure 102**

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ALLOWABLE DAMAGE 1

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2. General

- A. The forward entry door is in the pressurized area of the fuselage.
- B. If you find damage on the external skin lower hinge cutout (unpressurized), do the steps that follow:
 - (1) Refer to Paragraph 4.B./ALLOWABLE DAMAGE 1 for the allowable damage limits.
 - (2) Make sure that all adjacent structures in the area of the repair is intact and crack free.
 - (3) Cut and remove the damaged area of the external skin. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- NOTE:** Be careful not to damage the adjacent structures when you make the cut.
 - (a) Make the cutout 0.030 in. (0.762 mm) larger around the contour of the damage.
 - (b) Maintain a minimum of 0.50 in. (12.70 mm) radius on the cutout.
 - (c) Maintain a minimum of 2D edge margin on fasteners around the cutout.
- (4) Do a High Frequency Eddy Current (HFEC) Inspection along the cut edges to make sure there are no cracks. Refer to 737 NDT Part 6, 51-00-00, Procedure 4.
- (5) If you find no more damage, make an insurance cut of 0.040 in. (1.016 mm) around the cutout. Make sure to have a finish of 125 microinches Ra or smoother.
- (6) Remove all the nicks, scratches, gouges, burrs, and sharp edges from the door skin in the repair area. INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- (7) Apply a chemical conversion coating to the bare surface of the door skin. Refer to PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS, 51-20-01.
- (8) Apply the finish to the repair area. Refer to AMM SUBJECT 51-21-00.

- C. If you find any other damages not given in step Paragraph 2.B./ALLOWABLE DAMAGE 1, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the external skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the external skin given in Paragraph 5./ALLOWABLE DAMAGE 1
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- (3) For damage that was removed on the aerodynamic external surface of the outer skin, do the steps that follow:
 - (a) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (b) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
 - (c) Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.
- (4) For damage that was removed on the non-aerodynamic inner surface of the external skin, or on the internal skins, do the steps that follow:
 - (a) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (b) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

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ALLOWABLE DAMAGE 1

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D. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN
AMM 51-21-00	INTERIOR AND EXTERIOR FINISHES
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
737 NDT Part 6, 51-00-00, Procedure 4	Surface Inspection of Aluminum Parts (Meter Display)

4. Allowable Damage Limits

A. External Skin (Pressurized):

- (1) If you find damage to the external skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 1 for the flight operation limits.
- (2) Cracks:
 - (a) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - 1) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 2) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - 3) Refer to Damage Limits for the Pressurized External Skin, Figure 106/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.
 - (3) Nicks, Scratches, Gouges and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits - External Skin, Figure 103/ ALLOWABLE DAMAGE 1, Details A, B, C, D, and E.
 - (b) Refer to Damage Limits for the Pressurized External Skin, Figure 106/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.
 - (4) Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

 - (a) Dents are permitted if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 1, Detail F.
 - (b) Dents larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 1, Detail F, that cannot be repaired immediately are permitted if:
 - 1) There are no loose or missing fasteners.

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ALLOWABLE DAMAGE 1

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- 2) There are no damaged fastener holes.
 - 3) There are no creases, gouges, or cracks near the dent.
 - 4) You do not fill the dent.
 - 5) You make an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.
- (5) Holes and Punctures:

NOTE: For holes and punctures that are larger than 0.25 inch in diameter, flight operations limits are necessary. Refer to Paragraph 4.A.(5)(b)/ALLOWABLE DAMAGE 1 and Paragraph 5./ALLOWABLE DAMAGE 1

- (a) Damage is permitted if:
 - 1) It is a maximum of 0.25 inch in diameter.
 - 2) It is a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 3) The damage is filled with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
- (b) If you find a hole or puncture that is larger than 0.25 inch in diameter, do as follows:
 - 1) Remove the damage to a circular or oval shape.
 - 2) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 3) Refer to Damage Limits for the Pressurized External Skin, Figure 106/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

B. External Skin Lower Hinge Cutout (Unpressurized):

- (1) For all damages:
 - (a) Remove the damage as shown in Figure 104/ALLOWABLE DAMAGE 1.

C. Internal Skins, Access Panels, and Cam Cover:

- (1) Cracks:
 - (a) Remove the damage at an edge as shown in Figure 105/ALLOWABLE DAMAGE 1, Detail A, B, and C.
 - (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.
- (2) Nicks, Gouges, Scratches and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits - Internal Skin, Access Panels, and Cam Cover , Figure 105/ALLOWABLE DAMAGE 1, Details A, B, C, D, E and F.
 - (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.
- (3) Dents:
 - (a) Dents are permitted as shown in Allowable Damage Limits - Internal Skin, Access Panels, and Cam Cover , Figure 105/ALLOWABLE DAMAGE 1, Detail G.

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(4) Holes and Punctures:

(a) Damage is permitted if:

- 1) It is a maximum of 1.00 inch in diameter.
- 2) It is a minimum of 30T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.
- 3) You remove the damage to a smooth circular or oval shape.

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ALLOWABLE DAMAGE 1

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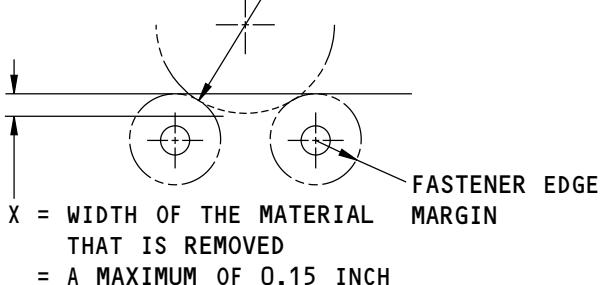
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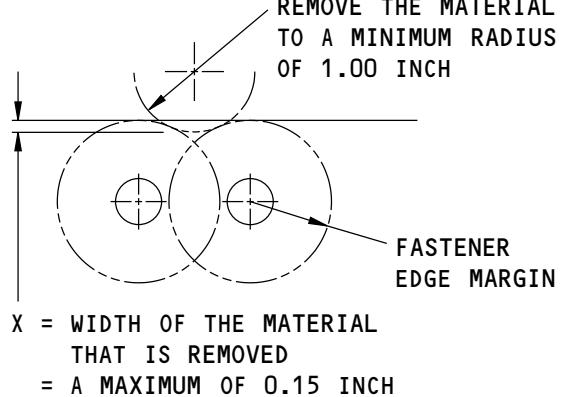
REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS DO NOT HAVE AN OVERLAP

(A)

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS HAVE AN OVERLAP

(B)

TAPER TO A MINIMUM OF $20X$.
THE DISTANCE OF THE DAMAGE
FROM A HOLE, A FASTENER,
AN EDGE, OR OTHER DAMAGE
MUST BE $20X$ OR MORE

REMOVE THE MATERIAL TO A
MINIMUM RADIUS OF 1.00 INCH,
THEN TAPER AS SHOWN

IF THERE ARE FASTENERS,
SEE (A) AND (B)

MAKE THE CONTOUR SMOOTH
(TYPICAL)

X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

(C)

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Allowable Damage Limits - External Skin
Figure 103 (Sheet 1 of 3)

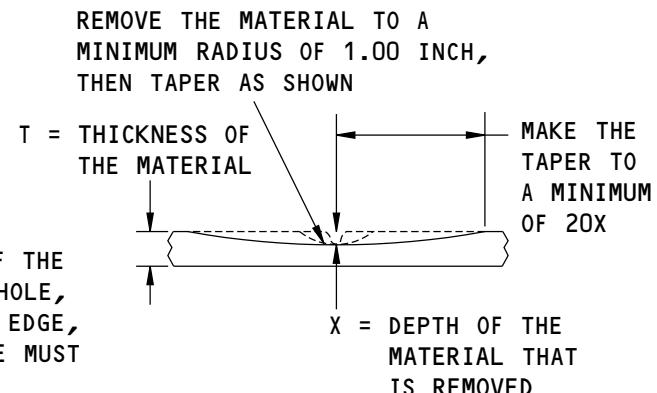
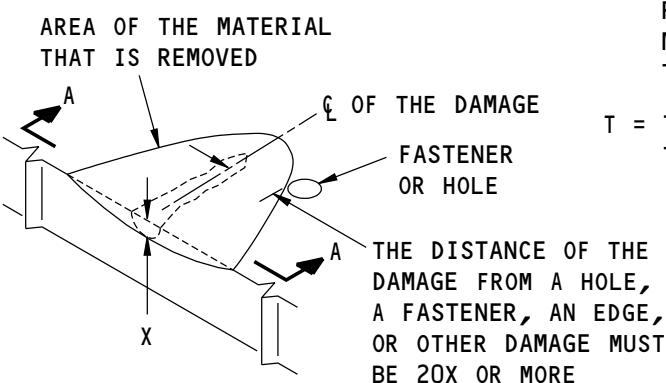
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ALLOWABLE DAMAGE 1

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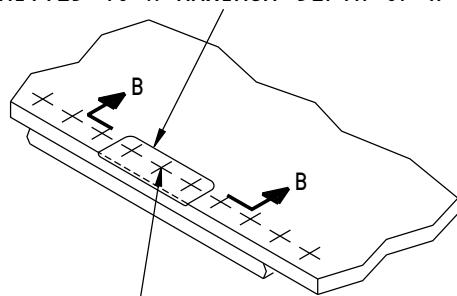
NOTE: REFER TO PARAGRAPH 5 AND FIGURE 106 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 106 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGED MATERIAL ON A SURFACE

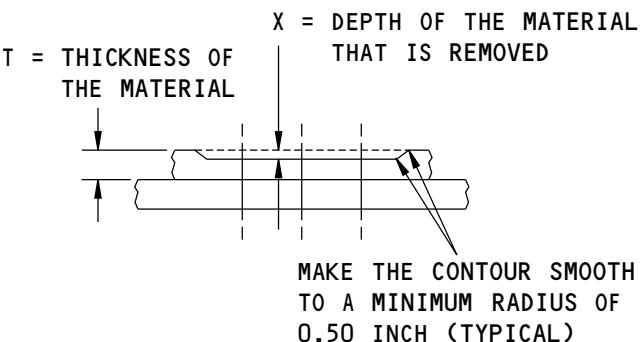

A-A

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 106 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE


NOTE: REFER TO PARAGRAPH 5 AND FIGURE 106 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

B-B

F70669 S0006586540_V2

Allowable Damage Limits - External Skin
Figure 103 (Sheet 2 of 3)

52-10-01

ALLOWABLE DAMAGE 1

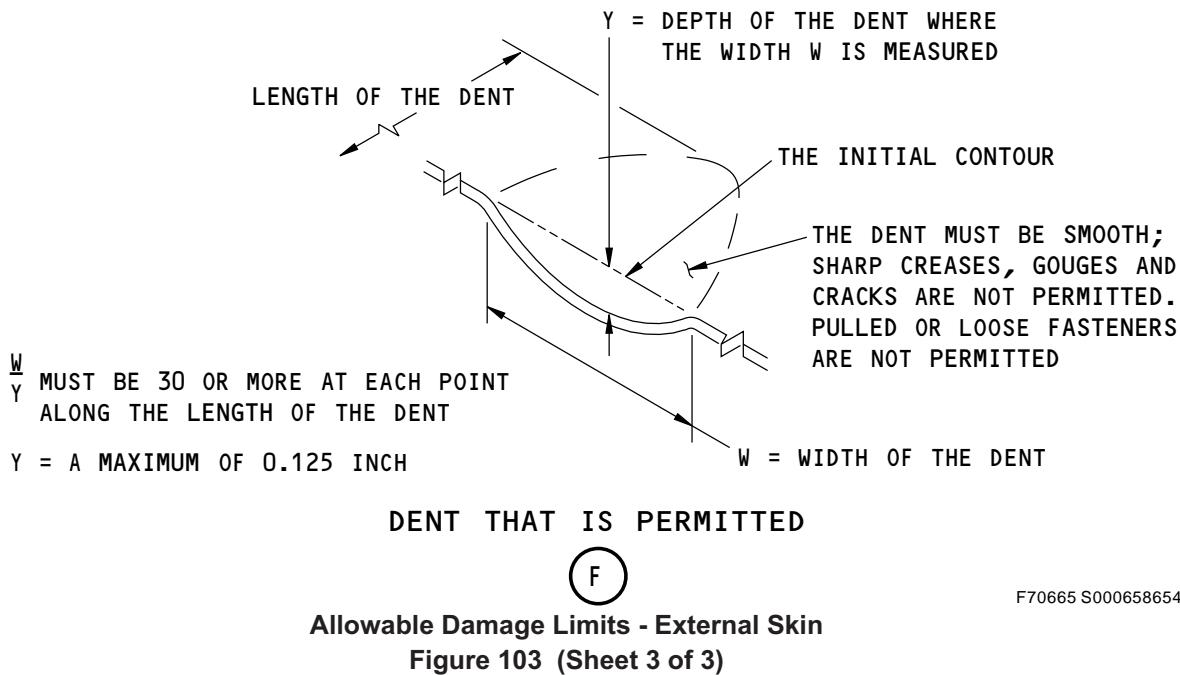
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52-10-01

ALLOWABLE DAMAGE 1

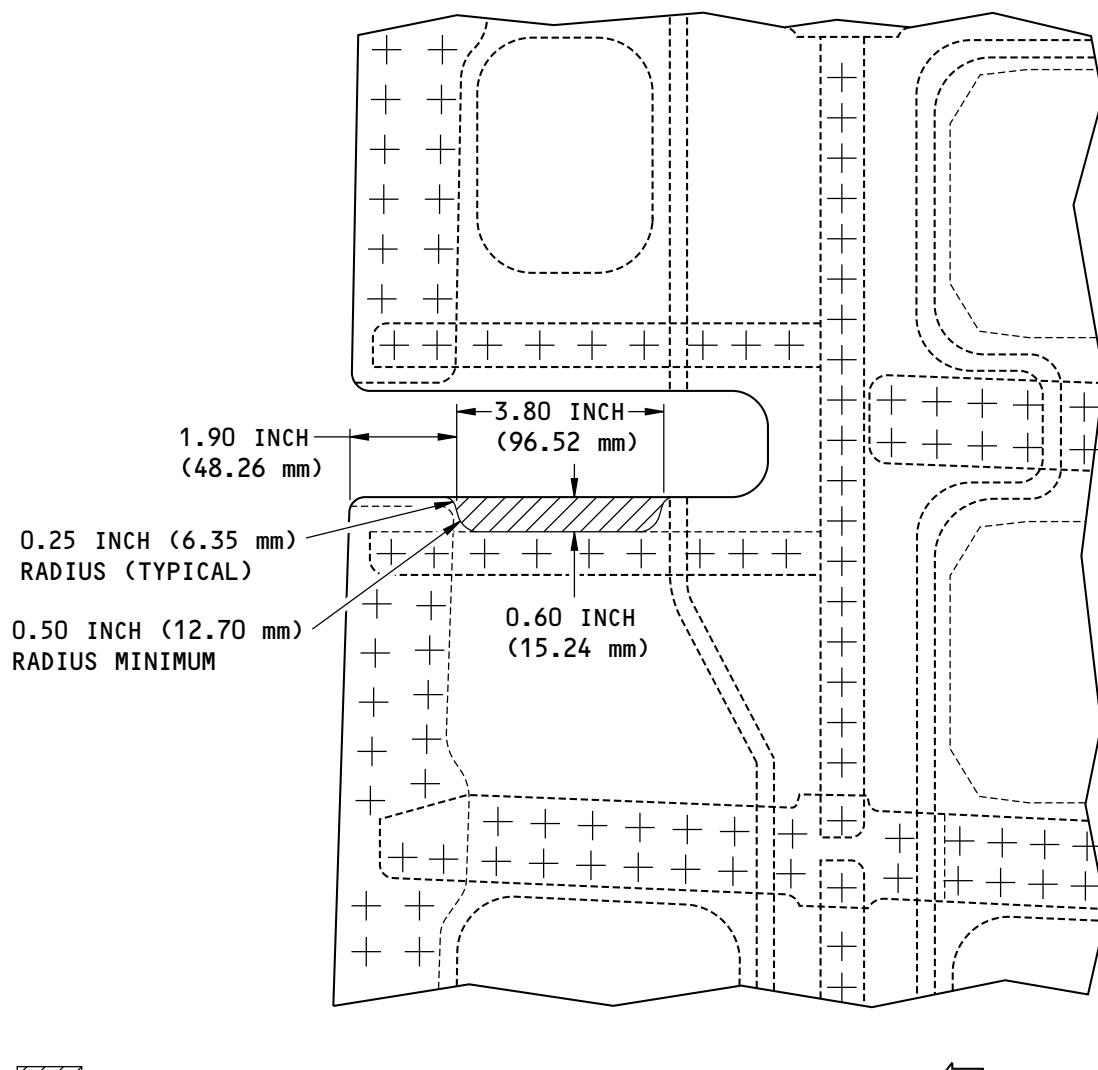
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STRUCTURAL REPAIR MANUAL



REMOVAL OF DAMAGED MATERIAL FROM EXTERNAL SKIN LOWER HINGE CUTOUT

2124429 S0000457581_V1

Allowable Damage Limits - External Skin Lower Hinge Cutout
Figure 104

52-10-01

ALLOWABLE DAMAGE 1

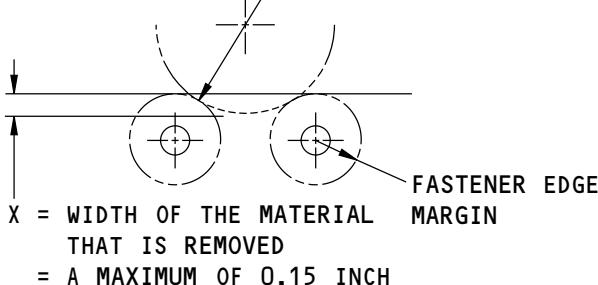
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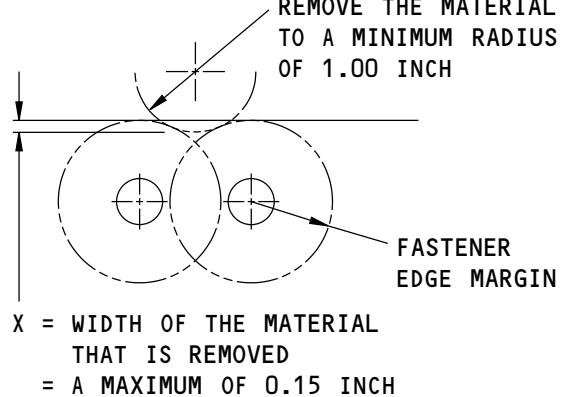
REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS DO NOT HAVE AN OVERLAP

(A)

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS HAVE AN OVERLAP

(B)

TAPER TO A MINIMUM OF $20X$.
THE DISTANCE OF THE DAMAGE
FROM A HOLE, A FASTENER,
AN EDGE, OR OTHER DAMAGE
MUST BE $20X$ OR MORE

REMOVE THE MATERIAL TO A
MINIMUM RADIUS OF 1.00 INCH,
THEN TAPER AS SHOWN

IF THERE ARE FASTENERS,
SEE (A) AND (B)

MAKE THE CONTOUR SMOOTH
(TYPICAL)

X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

(C)

F76431 S0006586542_V1

Allowable Damage Limits - Internal Skin, Access Panels, and Cam Cover
Figure 105 (Sheet 1 of 3)

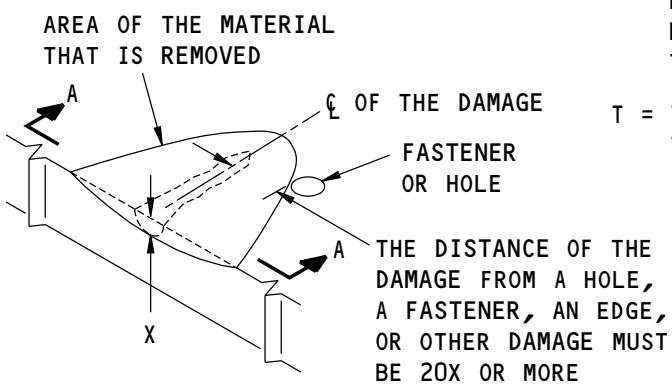
52-10-01

ALLOWABLE DAMAGE 1

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STRUCTURAL REPAIR MANUAL**


REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN

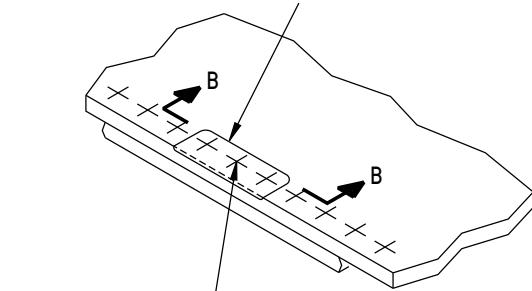
T = THICKNESS OF THE MATERIAL

MAKE THE TAPER TO A MINIMUM OF 20X

X = DEPTH OF THE MATERIAL THAT IS REMOVED = A MAXIMUM OF 0.15T

REMOVAL OF DAMAGED MATERIAL ON A SURFACE
A-A
D

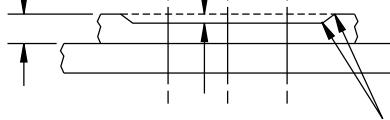
THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

X = DEPTH OF THE MATERIAL THAT IS REMOVED = A MAXIMUM OF 0.15T

T = THICKNESS OF THE MATERIAL



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (TYPICAL)

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE
B-B
E

F76436 S0006586543_V1

Allowable Damage Limits - Internal Skin, Access Panels, and Cam Cover
Figure 105 (Sheet 2 of 3)

52-10-01
ALLOWABLE DAMAGE 1

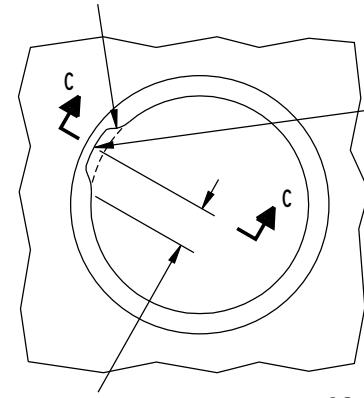
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**737-800
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REMOVAL OF MATERIAL IS PERMITTED
IN ONE LOCATION ONLY

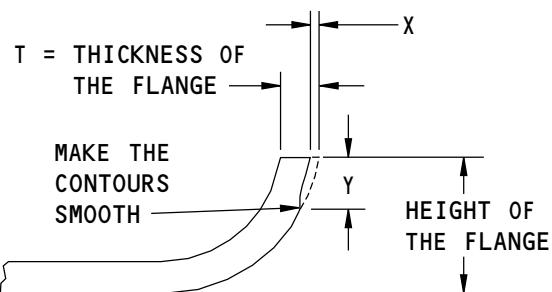


TAPER TO A MINIMUM OF $20X$

REMOVAL OF DAMAGED MATERIAL AT
AN EDGE OF A FLANGED HOLE



REMOVE THE
MATERIAL TO A
MINIMUM RADIUS
OF 1.00 INCH,
THEN TAPER AS
SHOWN



X = DEPTH OF THE MATERIAL THAT IS
REMOVED
= A MAXIMUM OF 0.15T

Y = LENGTH OF THE MATERIAL THAT IS
REMOVED
= A MAXIMUM OF 50 PERCENT OF THE
FLANGE HEIGHT, OR 1.10 INCHES,
WHICH IS LESS

C-C

$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT
ALONG THE LENGTH OF THE DENT

Y = DEPTH OF THE DENT WHERE
THE WIDTH W IS MEASURED

THE INITIAL CONTOUR

THE DENT MUST BE SMOOTH;
SHARP CREASES, GOUGES AND
CRACKS ARE NOT PERMITTED.
PULLED OR LOOSE FASTENERS
ARE NOT PERMITTED

W = WIDTH OF THE DENT

DENT THAT IS PERMITTED



F76439 S0006586544_V2

Allowable Damage Limits - Internal Skin, Access Panels, and Cam Cover
Figure 105 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 1

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5. Airplane Operation Limits that are Applicable to the External Skin

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
- (1) Find the applicable area in Damage Limits for the Pressurized External Skin, Figure 106/ALLOWABLE DAMAGE 1 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
- (a) The damage depth in Damage Limits for the Pressurized External Skin, Figure 106/ALLOWABLE DAMAGE 1 is given as a percentage of the initial skin thickness.
- 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
- (b) Damage Limits for the Pressurized External Skin, Figure 106/ALLOWABLE DAMAGE 1 is applicable to:
- 1) Cracks.
2) Nicks, Scratches, Gouges, and Corrosion.
3) Holes and Punctures that are larger than 0.25 inch in diameter.
- (c) Damage Limits for the Pressurized External Skin, Figure 106/ALLOWABLE DAMAGE 1 is not applicable to dents.
- (2) Refer to Table 101/ALLOWABLE DAMAGE 1 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for the Pressurized External Skin, Figure 106/ALLOWABLE DAMAGE 1.

Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 106 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4.A	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4.A	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired. For holes and punctures larger than 0.25 inch in diameter: The maximum cabin pressure differential is limited to 0.0 PSIG. Note: Cabin pressure limits are for skin damage to the pressurized door skin only.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits

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ALLOWABLE DAMAGE 1

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Table 101: (Continued)

PERMITTED AIRPLANE OPERATIONS		
FIGURE 106 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
D	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to 0.0 PSIG. Cabin pressure limits are for skin damage to the pressurized door skin only.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits.
E	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits

52-10-01

ALLOWABLE DAMAGE 1

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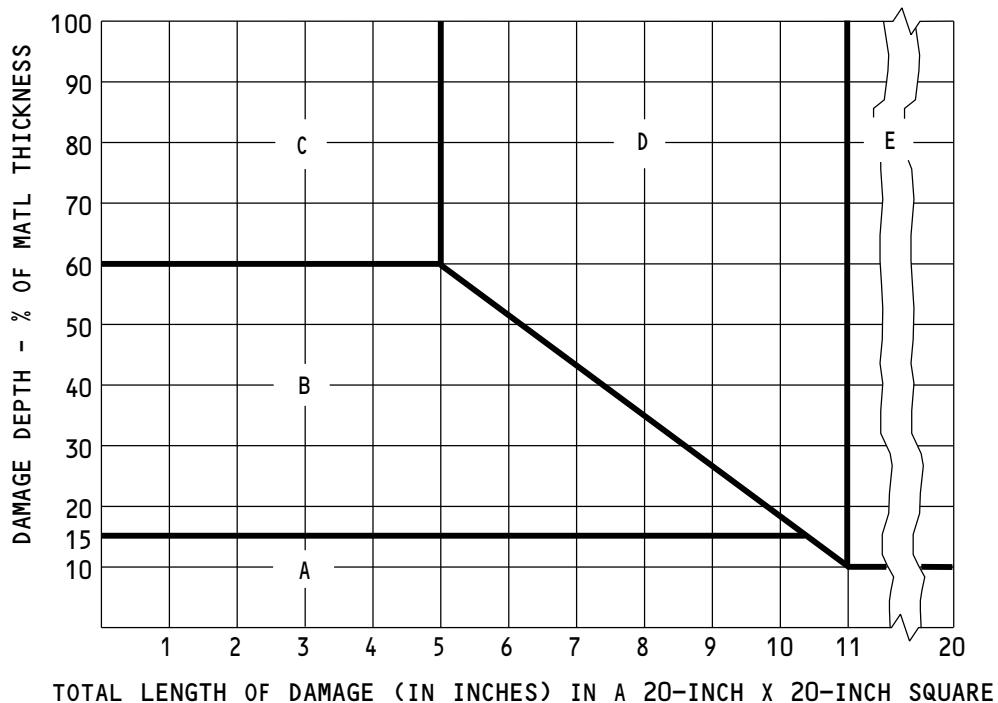
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NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

F70919 S0006586546_V1

Damage Limits for the Pressurized External Skin
Figure 106

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ALLOWABLE DAMAGE 1

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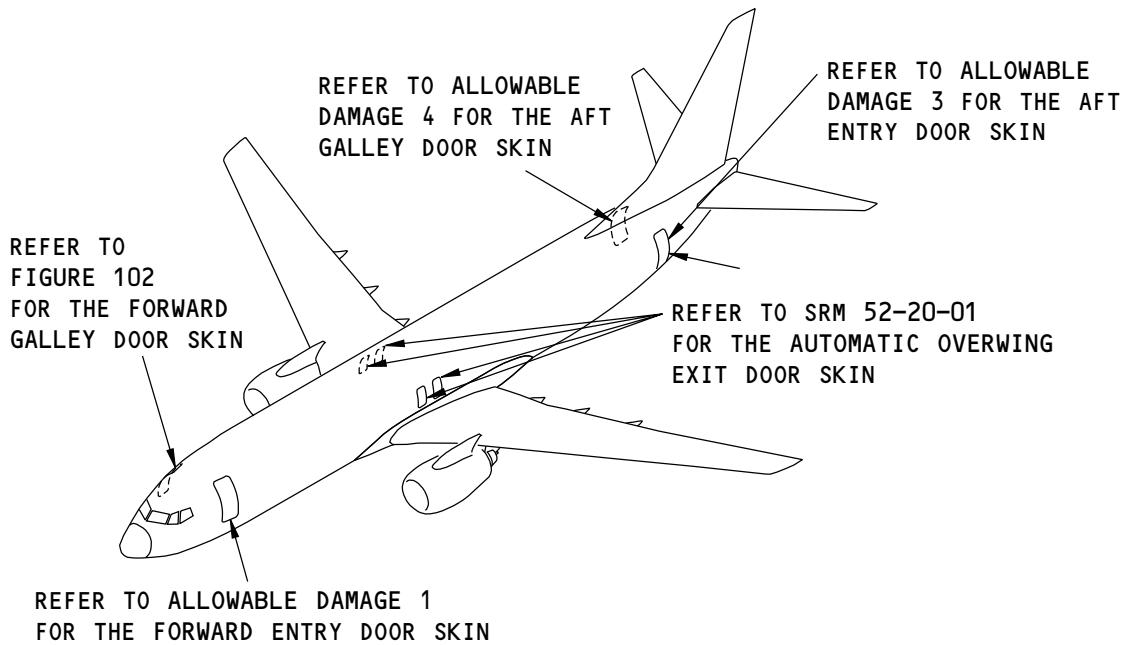


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ALLOWABLE DAMAGE 2 - FORWARD GALLEY DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the external and internal skins on the forward galley door shown in Forward Galley Door Skin Location, Figure 101/ALLOWABLE DAMAGE 2 and Forward Galley Door Skin, Figure 102/ALLOWABLE DAMAGE 2.



Forward Galley Door Skin Location
Figure 101

L46385 S0006586550_V1

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ALLOWABLE DAMAGE 2

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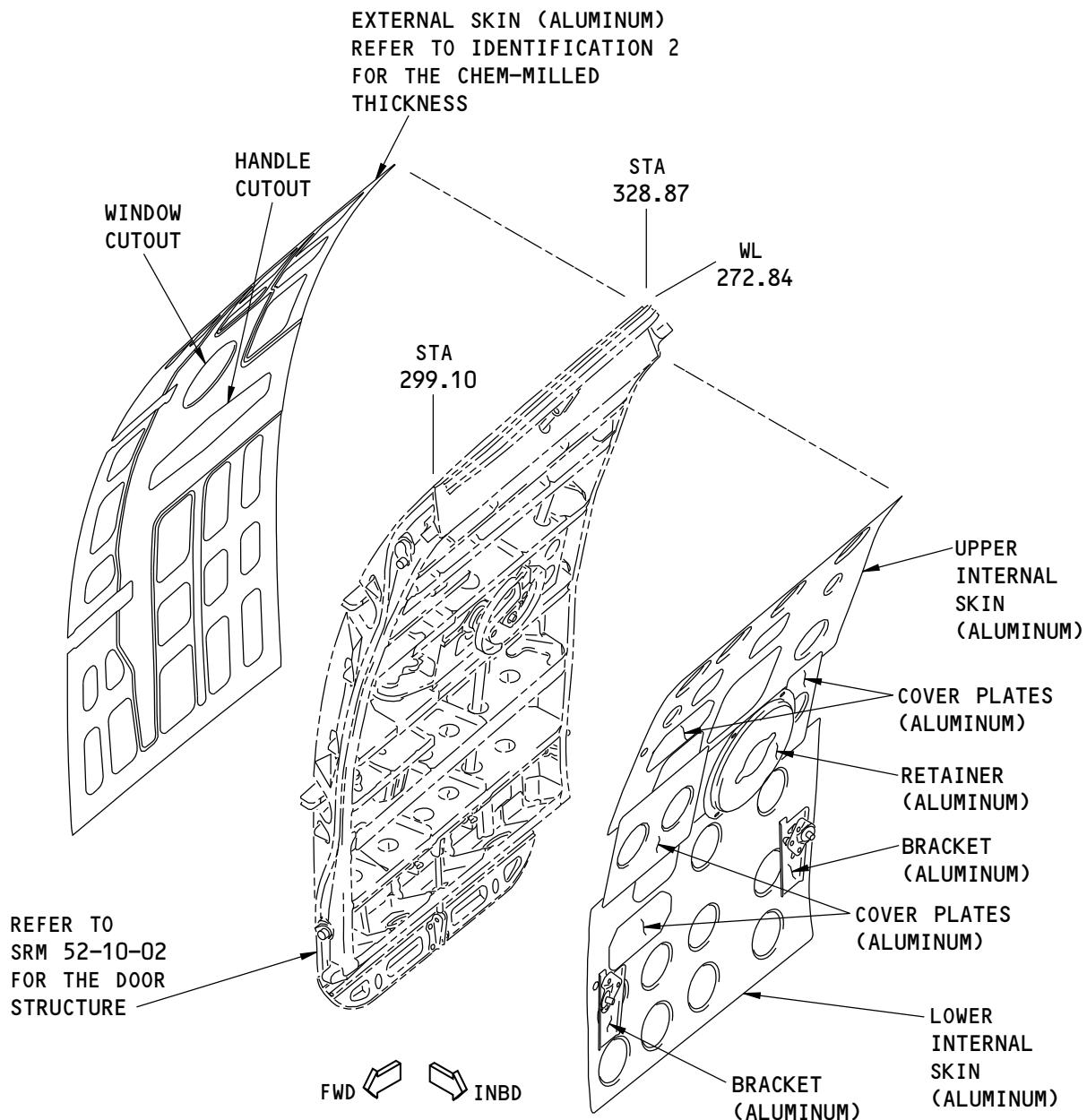
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FORWARD GALLEY DOOR

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Forward Galley Door Skin
Figure 102

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ALLOWABLE DAMAGE 2

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2. General

- A. The forward galley door is in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the external skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the external skin given in Paragraph 5./ALLOWABLE DAMAGE 2
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- C. For damage that was removed on the aerodynamic external surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.
- D. For damage that was removed on the non-aerodynamic inner surface of the external skin, or on the internal skins, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 2

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

A. External Skin:

- (1) If you find damage to the external skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 2 for the flight operation limits.

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ALLOWABLE DAMAGE 2

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(2) Cracks:

- (a) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - 1) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 2) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2, and Table 101 for the flight operation limits.

(3) Nicks, Scratches, Gouges and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits - External Skin, Figure 103/ ALLOWABLE DAMAGE 2, Details A , B , C , D , and E .
- (b) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2, and Table 101 for the flight operation limits.

(4) Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

- (a) Dents are permitted if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Detail F .
- (b) Dents larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Detail F , that cannot be repaired immediately are permitted if:
 - 1) There are no loose or missing fasteners.
 - 2) There are no damaged fastener holes.
 - 3) There are no creases, gouges, or cracks near the dent.
 - 4) You do not fill the dent.
 - 5) You make an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.

(5) Holes and Punctures:

NOTE: For holes and punctures that are larger than 0.25 inch in diameter, flight operations limits are necessary. Refer to Paragraph 4.A.(5)(b)/ALLOWABLE DAMAGE 2 and Paragraph 5./ALLOWABLE DAMAGE 2

- (a) Damage is permitted if:
 - 1) It is a maximum of 0.25 inch in diameter
 - 2) It is a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius
 - 3) You fill the damage with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
- (b) If you find a hole or puncture that is larger than 0.25 inch in diameter, do as follows:
 - 1) Remove the damage to a circular or oval shape.
 - 2) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.

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ALLOWABLE DAMAGE 2

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- 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2, and Table 101 for the flight operation limits.
- B. Internal Skins, Bracket, Cover Plate, and Retainer:
- (1) Cracks:
 - (a) Remove the damage at an edge as shown in Figure 104/ALLOWABLE DAMAGE 2, Detail A, B, and C.
 - (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from an edge, other damage, or a fastener hole.
 - (2) Nicks, Scratches, Gouges and Corrosion:
 - (a) Remove the damage as shown in Figure 104/ALLOWABLE DAMAGE 2, Detail A, B, C, D, E and F.
 - (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from an edge, other damage, or a fastener hole.
 - (3) Dents:
 - (a) Dents are permitted as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 2, Detail G .
 - (4) Holes and Punctures:
 - (a) Damage is permitted if:
 - 1) It is a maximum of 1.00 inch in diameter
 - 2) It is a minimum of 30T (T = the thickness of the material) away from a fastener hole, an edge, or other damage
 - 3) You remove the damage to a smooth circular or oval shape.

52-10-01

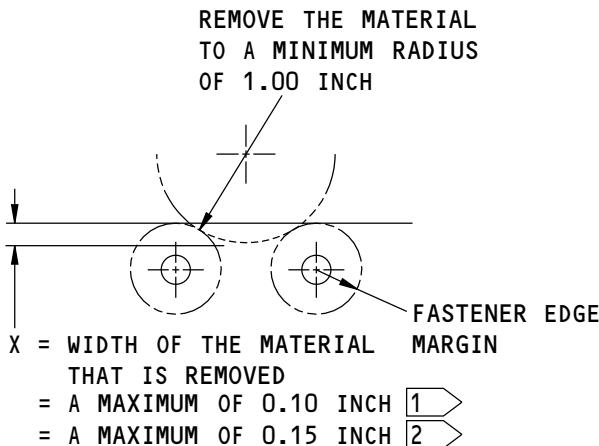
ALLOWABLE DAMAGE 2

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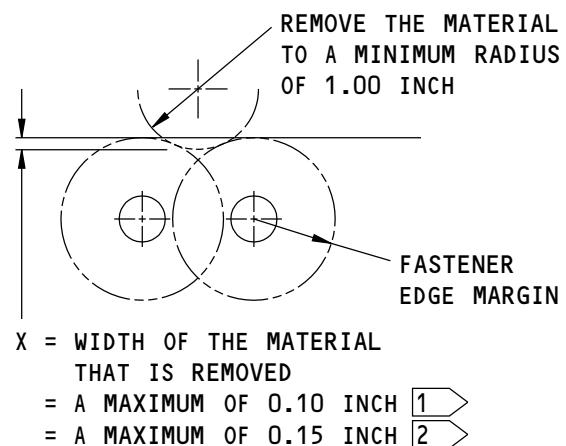
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REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

TAPER TO A MINIMUM OF $20X$.
THE DISTANCE OF THE DAMAGE FROM A HOLE, A FASTENER, AN EDGE, OR OTHER DAMAGE MUST BE $20X$ OR MORE

MAKE THE CONTOUR SMOOTH (TYPICAL)

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN

IF THERE ARE FASTENERS, SEE **A** AND **B**

X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH **1**
= A MAXIMUM OF 0.15 INCH **2**

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

C

NOTES

- 1** FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

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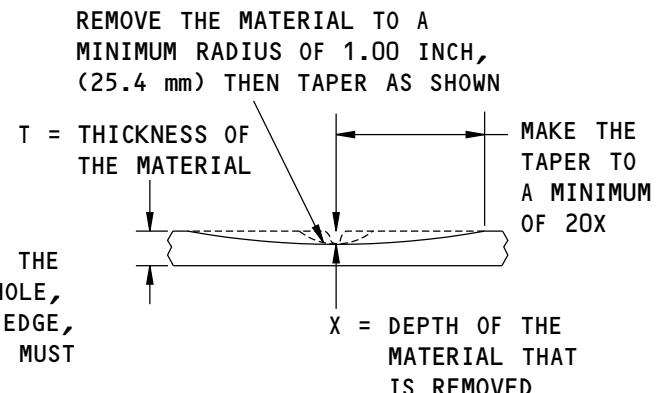
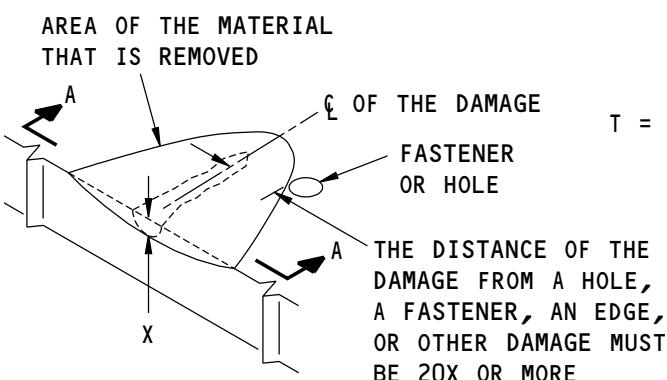
Allowable Damage Limits - External Skin
Figure 103 (Sheet 1 of 3)

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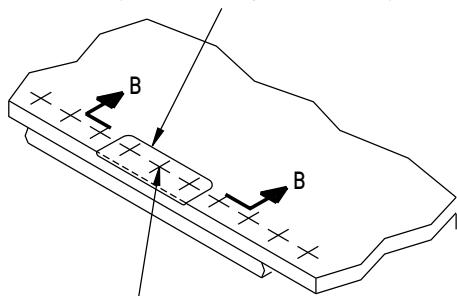
NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGED MATERIAL ON A SURFACE

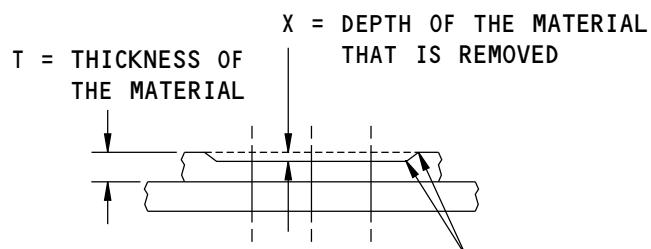

A-A

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE


NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

B-B

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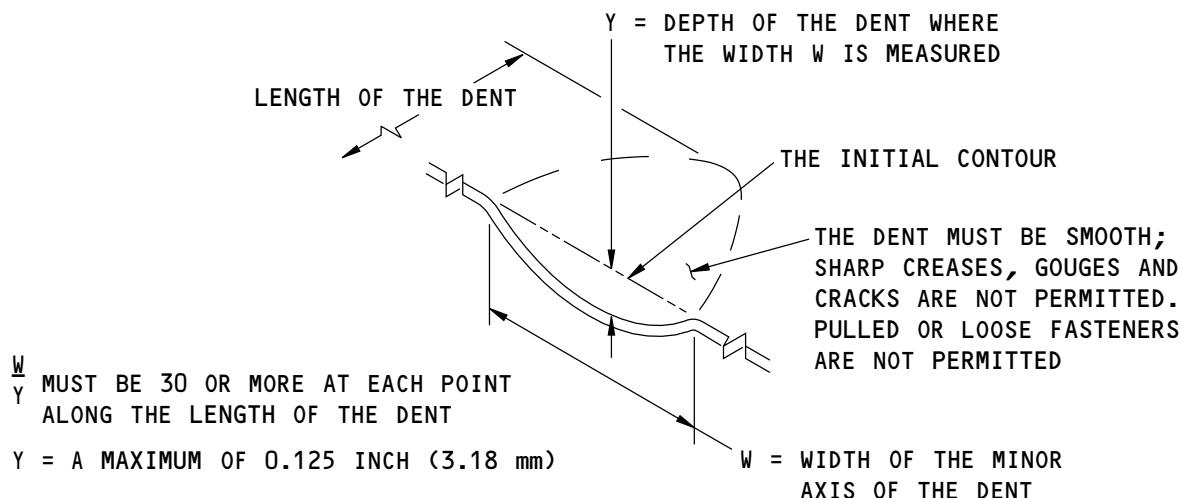
Allowable Damage Limits - External Skin
Figure 103 (Sheet 2 of 3)

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ALLOWABLE DAMAGE 2
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DENT THAT IS PERMITTED

(F)

F70931 S0006586554_V3

Allowable Damage Limits - External Skin

Figure 103 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 2

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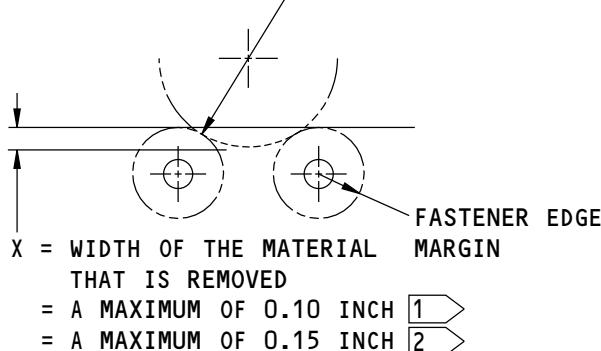
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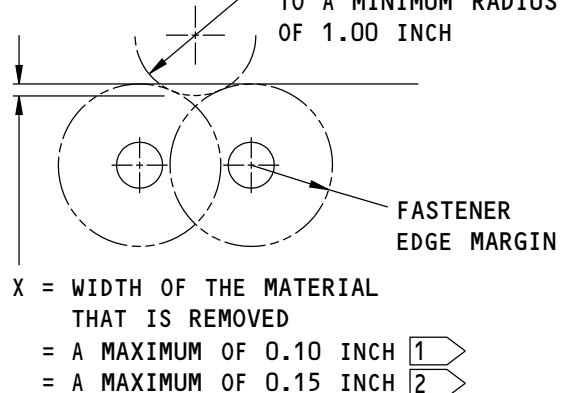
REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)

TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE FROM A HOLE, A FASTENER, AN EDGE, OR OTHER DAMAGE MUST BE 20X OR MORE

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN

IF THERE ARE FASTENERS,
SEE (A) AND (B)

MAKE THE CONTOUR SMOOTH (TYPICAL)

X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10 INCH 1
 = A MAXIMUM OF 0.15 INCH 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

(C)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

400538 S0000137433_V1

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 1 of 3)

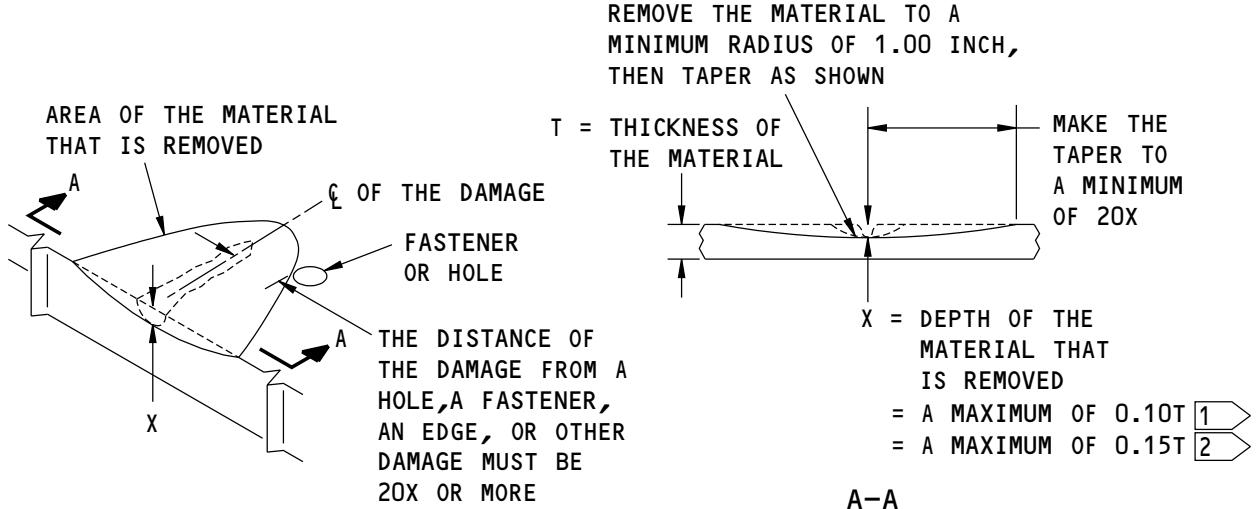
52-10-01

ALLOWABLE DAMAGE 2

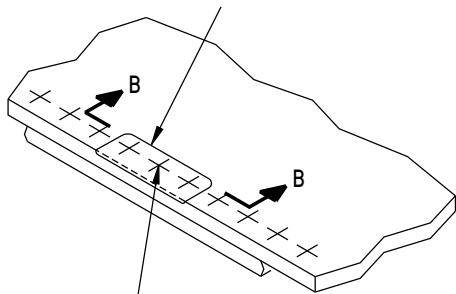
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REMOVAL OF DAMAGED MATERIAL ON A SURFACE
(D)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF **X**



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

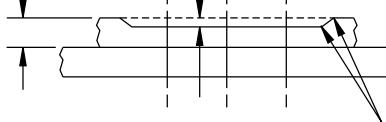
REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE
(E)

X = DEPTH OF THE MATERIAL THAT IS REMOVED

= A MAXIMUM OF 0.10T **1**

= A MAXIMUM OF 0.15T **2**

T = THICKNESS OF THE MATERIAL



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (TYPICAL)

B-B

400539 S0000137434_V1

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 2 of 3)

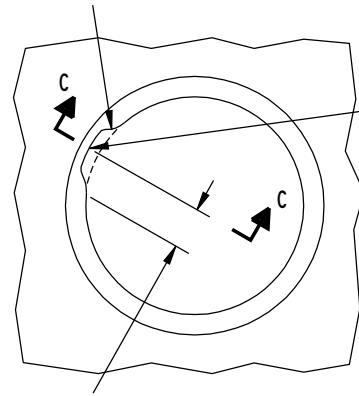
52-10-01
ALLOWABLE DAMAGE 2
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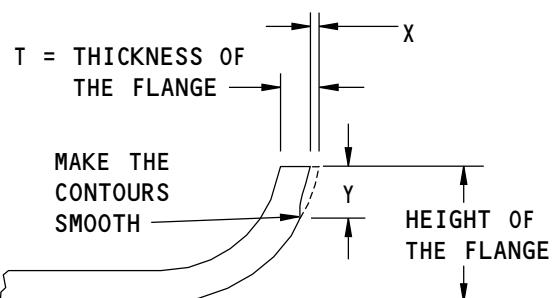
REMOVAL OF MATERIAL IS PERMITTED
IN ONE LOCATION ONLY



REMOVE THE
MATERIAL TO A
MINIMUM RADIUS
OF 1.00 INCH,
THEN TAPER AS
SHOWN

TAPER TO A MINIMUM OF 20X

REMOVAL OF DAMAGED MATERIAL AT
AN EDGE OF A FLANGED HOLE



X = DEPTH OF THE MATERIAL THAT IS
REMOVED

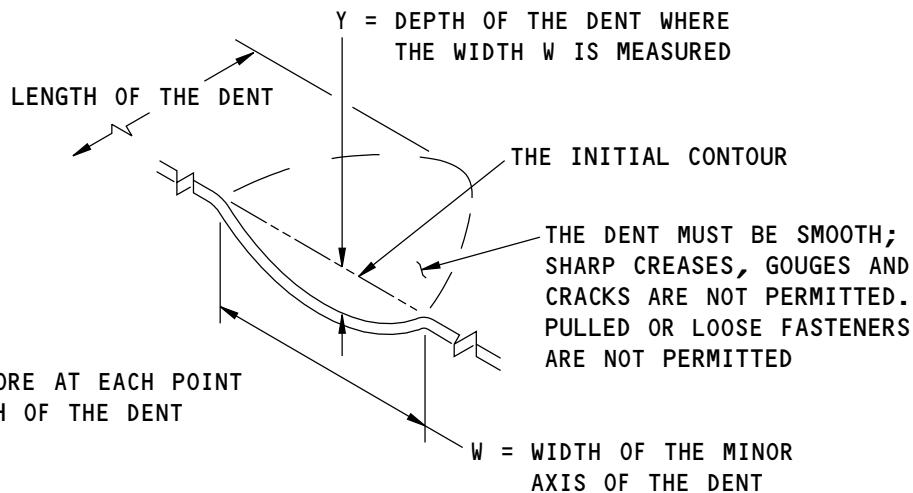
= A MAXIMUM OF 0.10T
= A MAXIMUM OF 0.15T

Y = LENGTH OF THE MATERIAL THAT IS
REMOVED

= A MAXIMUM OF 50 PERCENT OF THE
FLANGE HEIGHT, OR 1.10 INCHES,
(27.9 mm) THAT WHICH IS LESS

C-C

$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT
ALONG THE LENGTH OF THE DENT



DENT THAT IS PERMITTED



400540 S0000137435_V3

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 2

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5. Airplane Operation Limits that are Applicable to the External Skin

- A. If there is damage on the external skin, airplane flight operation limits can be necessary.
- (1) Find the applicable area in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
- (a) The damage depth in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2 is given as a percentage of the initial skin thickness.
- 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
- (b) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2 is applicable to:
- 1) Cracks.
2) Nicks, Scratches, Gouges, and Corrosion.
3) Holes and Punctures that are larger than 0.25 inch in diameter.
- (c) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2 is not applicable to dents.
- (2) Refer to Table 101/ALLOWABLE DAMAGE 2 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 2.

Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4.A	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4.A	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired. For holes and punctures larger than 0.25 inch in diameter: The maximum cabin pressure differential is limited to zero PSIG. Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits

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STRUCTURAL REPAIR MANUAL

Table 101: (Continued)

PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
D	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to zero PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits.
E	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits

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ALLOWABLE DAMAGE 2

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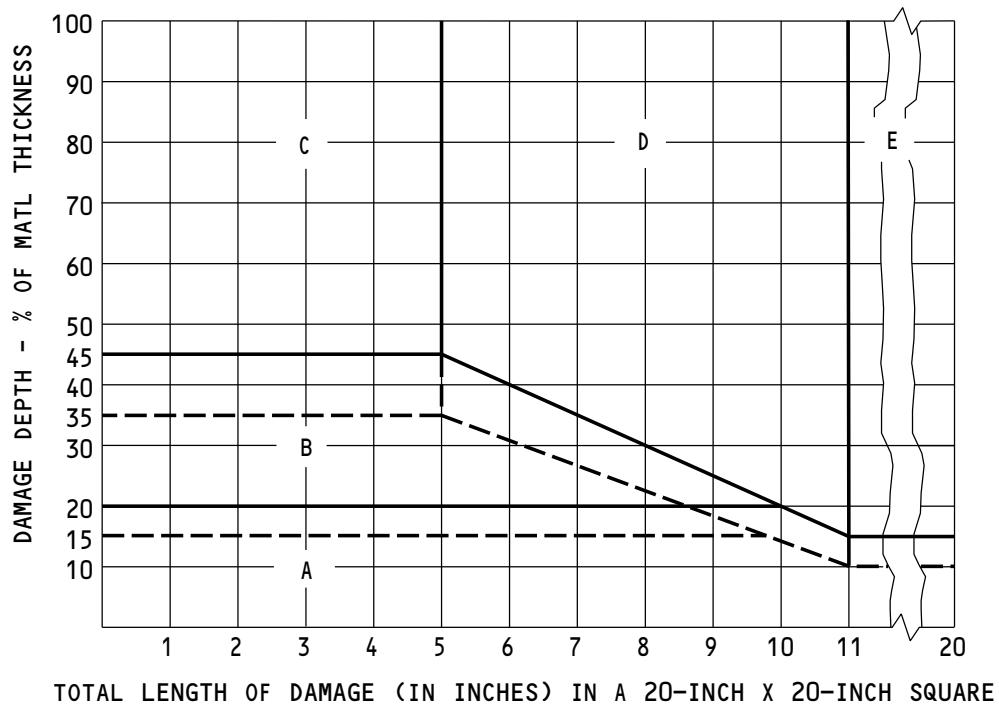
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STRUCTURAL REPAIR MANUAL



NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

— — — FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.

— — — — — FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

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Damage Limits for the Pressurized External Skin
Figure 105

52-10-01

ALLOWABLE DAMAGE 2

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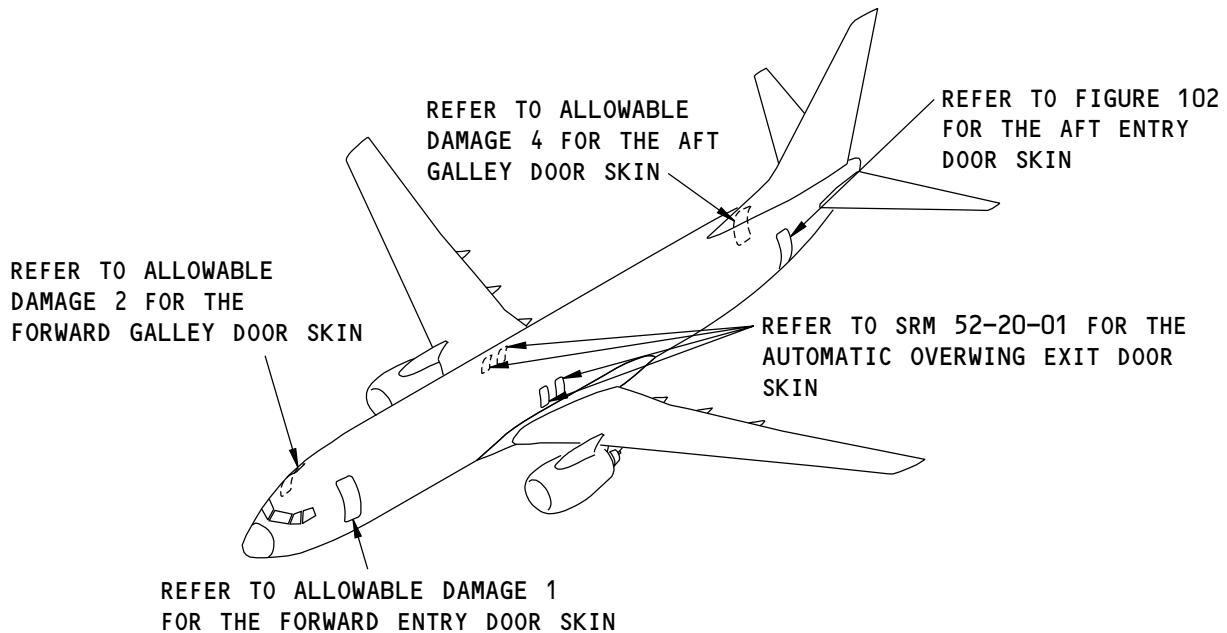


737-800
STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 3 - AFT ENTRY DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the external and internal skins on the aft entry door shown in Aft Entry Door Skin Location, Figure 101/ALLOWABLE DAMAGE 3 and Aft Entry Door Skin, Figure 102/ALLOWABLE DAMAGE 3.



**Aft Entry Door Skin Location
Figure 101**

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52-10-01

ALLOWABLE DAMAGE 3

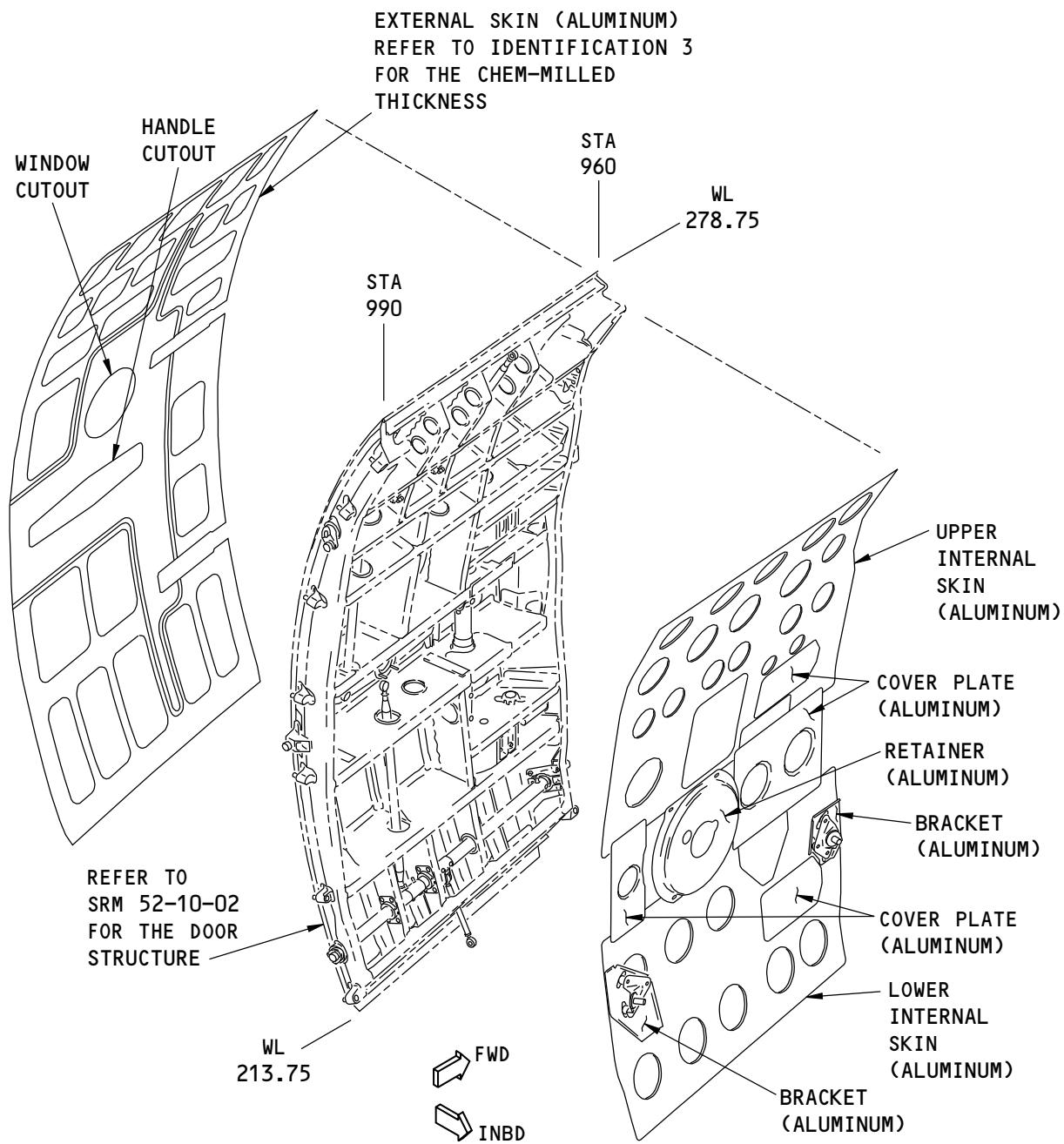
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AFT ENTRY DOOR

F70619 S0006586564_V1

Aft Entry Door Skin
Figure 102

52-10-01

ALLOWABLE DAMAGE 3

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2. General

- A. The aft entry door is in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the external skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the external skin given in Paragraph 5./ALLOWABLE DAMAGE 3
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- C. For damage that was removed on the aerodynamic external surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.
- D. For damage that was removed on the non-aerodynamic inner surface of the external skin, or on the internal skins, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 3

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

A. External Skin:

- (1) If you find damage to the external skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 3 for the flight operation limits.

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ALLOWABLE DAMAGE 3

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(2) Cracks:

- (a) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - 1) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 2) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3, and Table 101 for the flight operation limits.

(3) Nicks, Scratches, Gouges and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits - External Skin, Figure 103/ ALLOWABLE DAMAGE 3, Details A , B , C , D , and E .
- (b) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3, and Table 101 for the flight operation limits.

(4) Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

- (a) Dents are permitted if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 3, Detail F .
- (b) Dents larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 3, Detail F , that cannot be repaired immediately are permitted if:
 - 1) There are no loose or missing fasteners.
 - 2) There are no damaged fastener holes.
 - 3) There are no creases, gouges, or cracks near the dent.
 - 4) You do not fill the dent.
 - 5) You make an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.

(5) Holes and Punctures:

NOTE: For holes and punctures that are larger than 0.25 inch in diameter, flight operations limits are necessary. Refer to Paragraph 4.A.(5)(b)/ALLOWABLE DAMAGE 3 and Paragraph 5./ALLOWABLE DAMAGE 3

- (a) Damage is permitted if:
 - 1) It is a maximum of 0.25 inch in diameter
 - 2) It is a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius
 - 3) You fill the damage with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
- (b) If you find a hole or puncture that is larger than 0.25 inch in diameter, do as follows:
 - 1) Remove the damage to a circular or oval shape.
 - 2) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.

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ALLOWABLE DAMAGE 3

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- 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3, and Table 101 for the flight operation limits.

B. Internal Skins, Bracket, Cover Plate, and Retainer:

(1) Cracks:

- (a) Remove the damage at an edge as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 3, Detail A , B , and C .
- (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.

(2) Nicks, Gouges, Scratches and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 3, Details A , B , C , D , E and F .
- (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.

(3) Dents:

- (a) Dents are permitted as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 3, Detail G .

(4) Holes and Punctures:

- (a) Damage is permitted if:
 - 1) It is a maximum of 1.00 inch in diameter
 - 2) It is a minimum of 30T (T = the thickness of the material) away from a fastener hole, an edge, or other damage
 - 3) You remove the damage to a smooth circular or oval shape.

52-10-01

ALLOWABLE DAMAGE 3

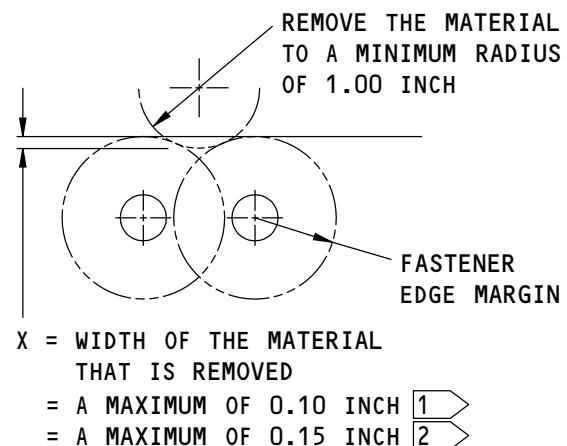
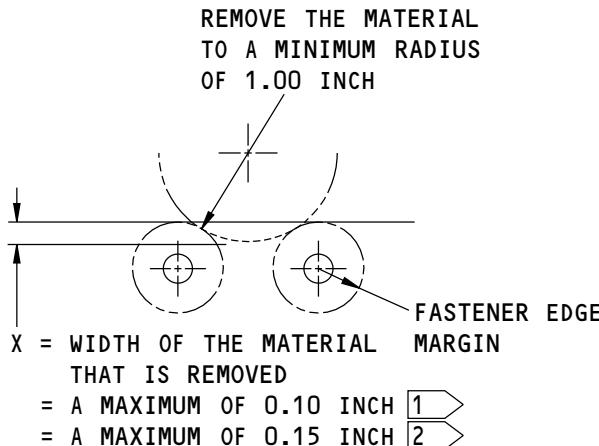
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**737-800
STRUCTURAL REPAIR MANUAL**



**REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS DO NOT HAVE AN OVERLAP**

(A)

**REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS HAVE AN OVERLAP**

(B)

TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE
FROM A HOLE, A FASTENER,
AN EDGE, OR OTHER DAMAGE
MUST BE 20X OR MORE

REMOVE THE MATERIAL TO A
MINIMUM RADIUS OF 1.00 INCH,
THEN TAPER AS SHOWN

IF THERE ARE FASTENERS,
SEE (A) AND (B)

MAKE THE CONTOUR SMOOTH
(TYPICAL)

X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH 1
= A MAXIMUM OF 0.15 INCH 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

(C)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

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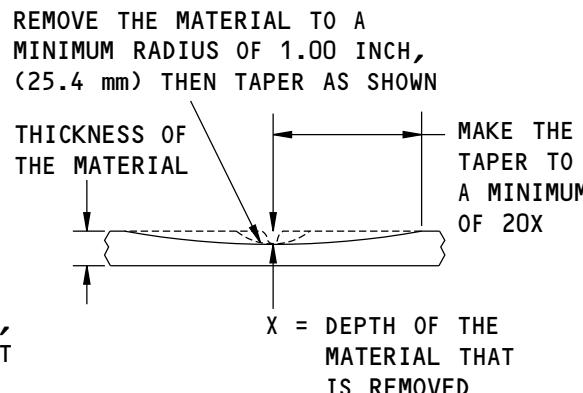
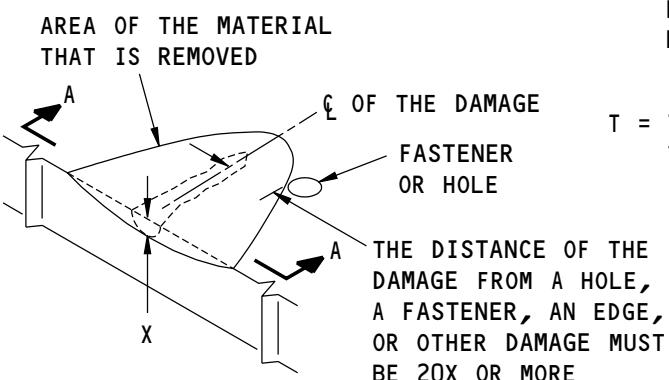
**Allowable Damage Limits - External Skin
Figure 103 (Sheet 1 of 3)**

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ALLOWABLE DAMAGE 3

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NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

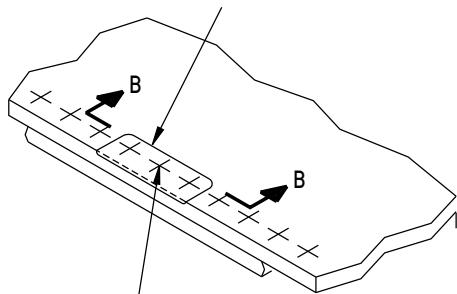
NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGED MATERIAL ON A SURFACE

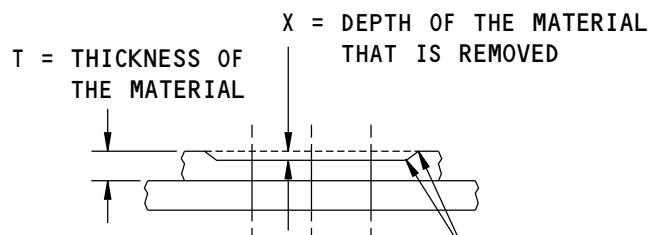
(D)

A-A

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (TYPICAL)

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(E)

B-B

F70937 S0006586566_V2

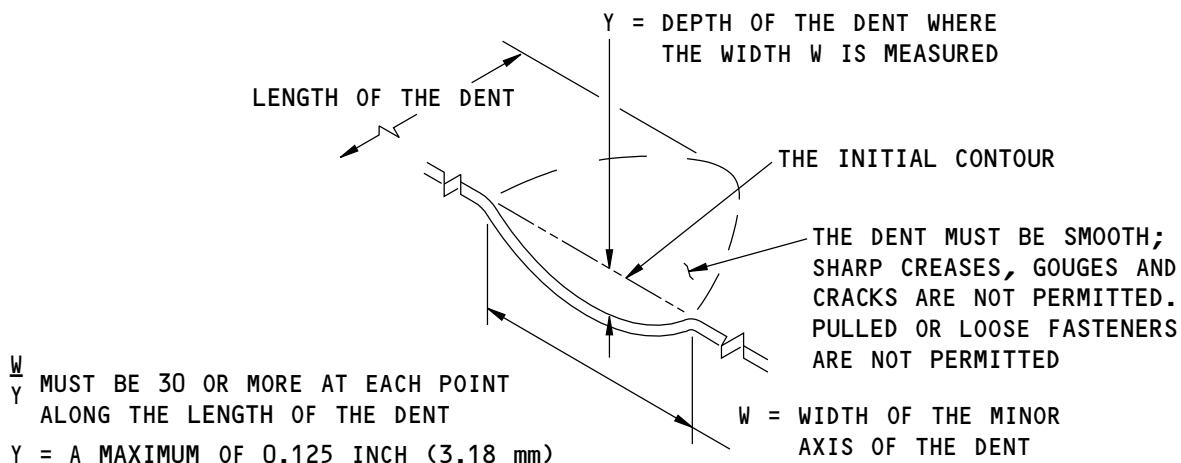
Allowable Damage Limits - External Skin
Figure 103 (Sheet 2 of 3)

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ALLOWABLE DAMAGE 3
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DENT THAT IS PERMITTED

(F)

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Allowable Damage Limits - External Skin

Figure 103 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 3

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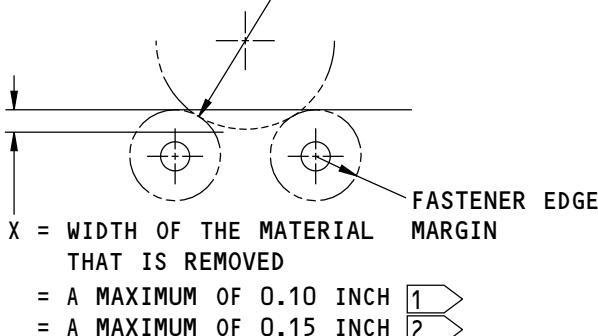
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**737-800
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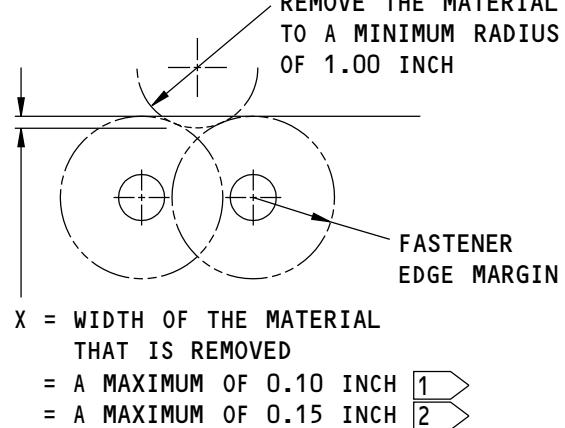
REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS DO NOT HAVE AN OVERLAP

(A)

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS HAVE AN OVERLAP

(B)

TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE
FROM A HOLE, A FASTENER,
AN EDGE, OR OTHER DAMAGE
MUST BE 20X OR MORE

MAKE THE CONTOUR SMOOTH
(TYPICAL)

REMOVE THE MATERIAL TO A
MINIMUM RADIUS OF 1.00 INCH,
THEN TAPER AS SHOWN

IF THERE ARE FASTENERS,
SEE (A) AND (B)

X

X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH [1]
= A MAXIMUM OF 0.15 INCH [2]

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

(C)

NOTES

- [1] FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- [2] FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

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Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 1 of 3)

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ALLOWABLE DAMAGE 3

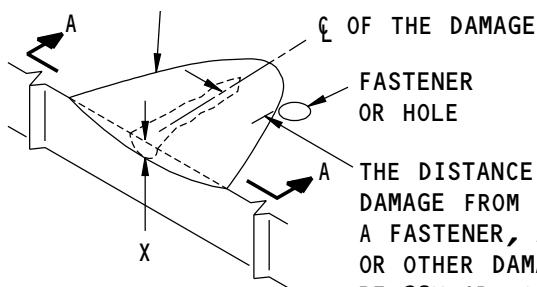
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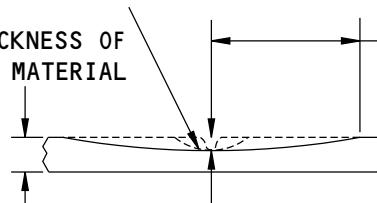
AREA OF THE MATERIAL
THAT IS REMOVED



THE DISTANCE OF THE
DAMAGE FROM A HOLE,
A FASTENER, AN EDGE,
OR OTHER DAMAGE MUST
BE 20X OR MORE

REMOVE THE MATERIAL TO A
MINIMUM RADIUS OF 1.00 INCH,
THEN TAPER AS SHOWN

T = THICKNESS OF
THE MATERIAL



MAKE THE
TAPER TO
A MINIMUM
OF 20X

X = DEPTH OF THE MATERIAL
THAT IS REMOVED

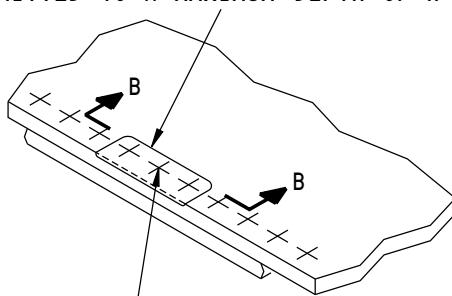
= A MAXIMUM OF 0.10 INCH 1
= A MAXIMUM OF 0.15 INCH 2

A-A

**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE**

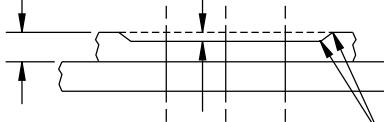
(D)

THE REMOVAL OF MATERIAL AROUND THREE
FASTENERS IN ALL GROUPS OF TEN IS
PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE
DAMAGE IS REMOVED. INSTALL THE
FASTENERS AFTER THE REWORK IS DONE

X = DEPTH OF THE MATERIAL
THAT IS REMOVED
= A MAXIMUM OF 0.10T 1
= A MAXIMUM OF 0.15T 2



MAKE THE CONTOUR SMOOTH
TO A MINIMUM RADIUS OF
0.50 INCH (12.70 mm)
(TYPICAL)

**REMOVAL OF DAMAGE AROUND THE
FASTENERS ON AN EDGE OR A SURFACE**

B-B

(E)

400544 S0000137441_V1

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 2 of 3)

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ALLOWABLE DAMAGE 3

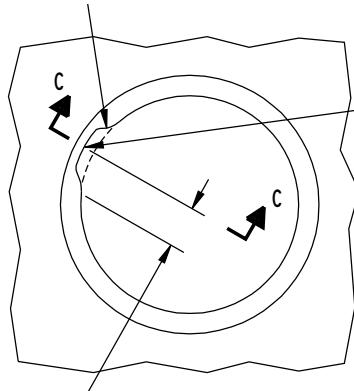
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**737-800
STRUCTURAL REPAIR MANUAL**

REMOVAL OF MATERIAL IS PERMITTED
IN ONE LOCATION ONLY

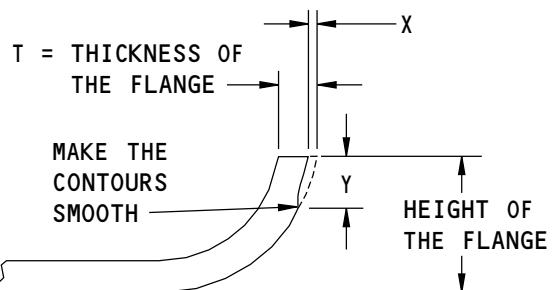


TAPER TO A MINIMUM OF 20X

REMOVAL OF DAMAGED MATERIAL AT
AN EDGE OF A FLANGED HOLE



REMOVE THE
MATERIAL TO A
MINIMUM RADIUS
OF 1.00 INCH,
(25.4 mm) THEN
TAPER AS SHOWN



X = DEPTH OF THE MATERIAL THAT IS
REMOVED

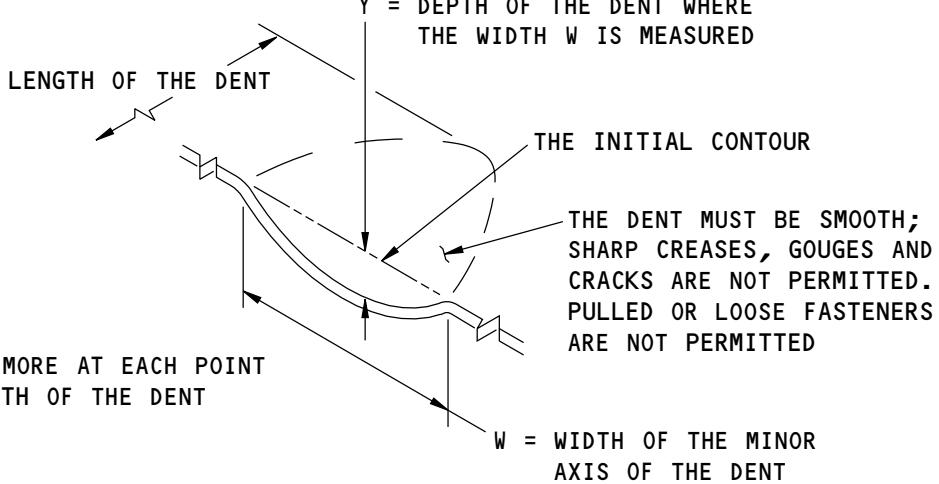
- = A MAXIMUM OF 0.10T 1
- = A MAXIMUM OF 0.15T 2

Y = LENGTH OF THE MATERIAL THAT IS
REMOVED

- = A MAXIMUM OF 50 PERCENT OF THE
FLANGE HEIGHT, OR 1.10 INCHES,
WHICH IS LESS

C-C

$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT
ALONG THE LENGTH OF THE DENT



DENT THAT IS PERMITTED



400545 S0000137442_V2

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 3

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STRUCTURAL REPAIR MANUAL

5. Airplane Operation Limits that are Applicable to the External Skin

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
- (1) Find the applicable area in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
- (a) The damage depth in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3 is given as a percentage of the initial skin thickness.
- 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
- (b) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3 is applicable to:
- 1) Cracks
2) Nicks, Scratches, Gouges, and Corrosion
3) Holes and Punctures that are larger than 0.25 inch in diameter.
- (c) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3 is not applicable to dents.
- (2) Refer to Table 101/ALLOWABLE DAMAGE 3 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 3.

Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4.A	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4.A	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired. For holes and punctures larger than 0.25 inch in diameter: The maximum cabin pressure differential is limited to zero PSIG. Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits

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ALLOWABLE DAMAGE 3

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737-800
STRUCTURAL REPAIR MANUAL

Table 101: (Continued)

PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
D	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to zero PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
E	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits

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ALLOWABLE DAMAGE 3

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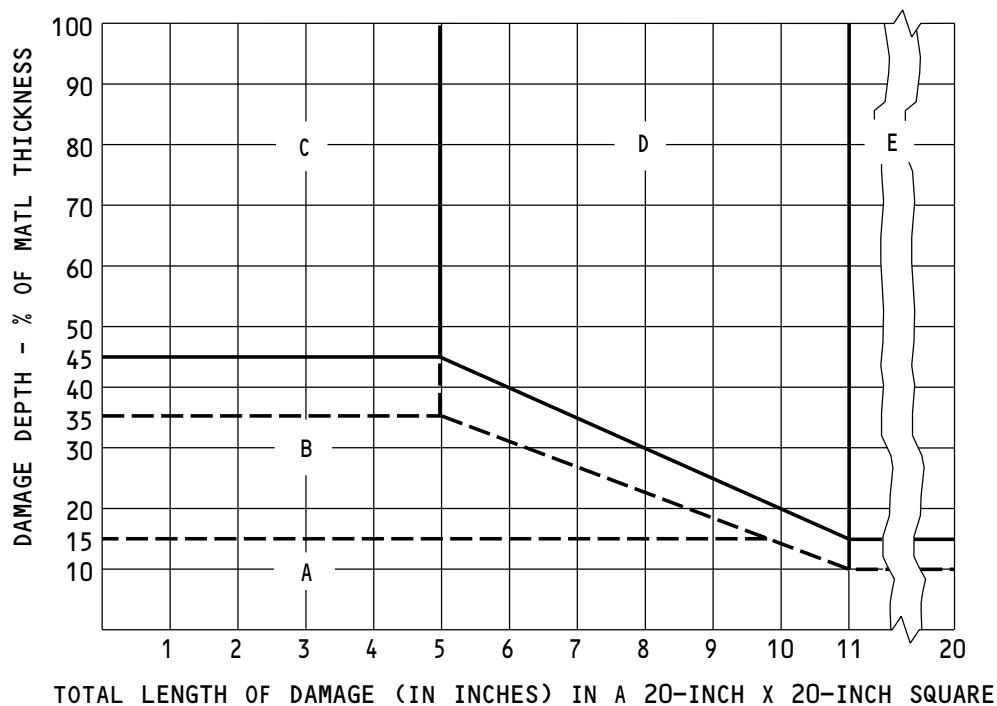
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STRUCTURAL REPAIR MANUAL



NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
 - IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
 - USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.
- — — FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
— — — — — FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

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Damage Limits for the Pressurized External Skin
Figure 105

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ALLOWABLE DAMAGE 3

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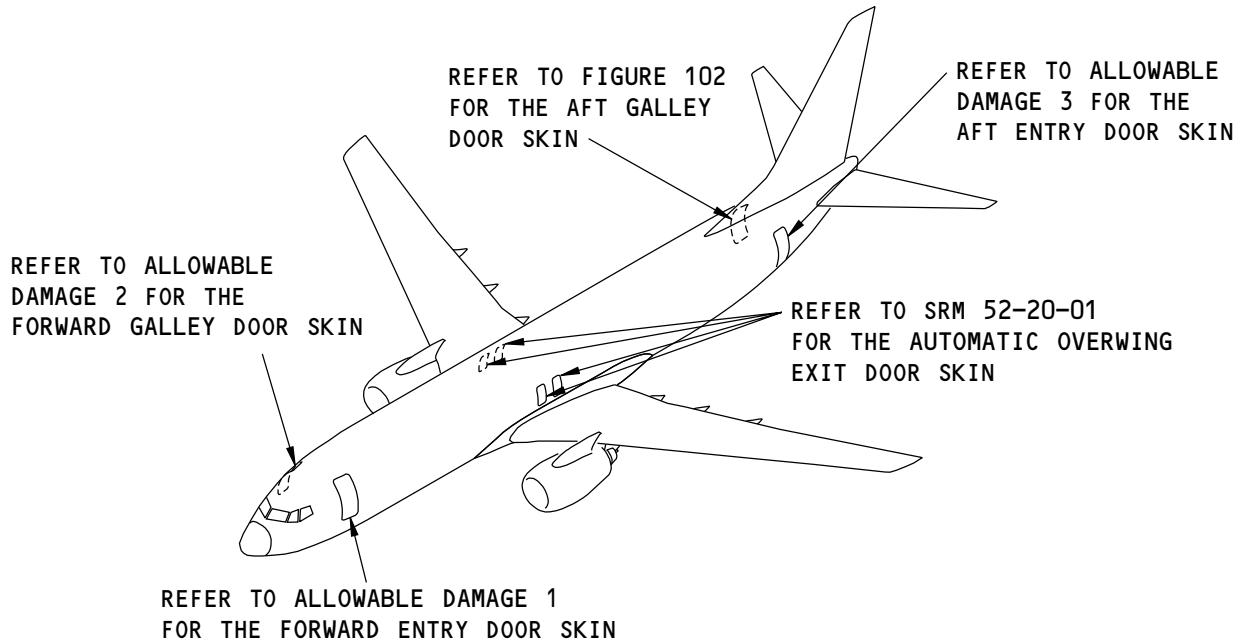


737-800
STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 4 - AFT GALLEY DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the external and internal skins on the aft galley door shown in Aft Galley Door Skin Location, Figure 101/ALLOWABLE DAMAGE 4 and Aft Galley Door Skin, Figure 102/ALLOWABLE DAMAGE 4.



Aft Galley Door Skin Location
Figure 101

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52-10-01

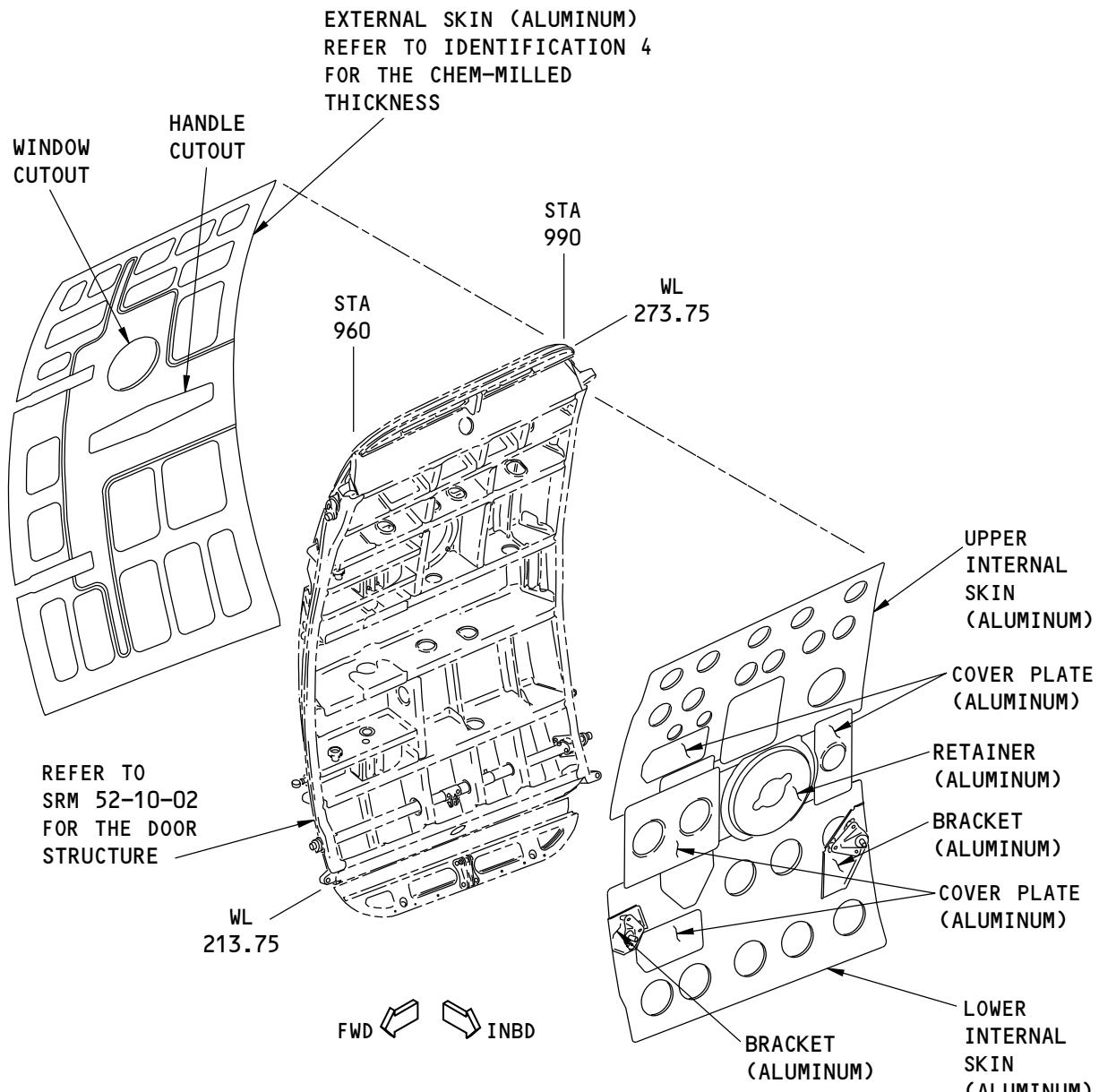
ALLOWABLE DAMAGE 4

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AFT GALLEY DOOR

F70631 S0006586577_V1

Aft Galley Door Skin
Figure 102**52-10-01****ALLOWABLE DAMAGE 4**

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2. General

- A. The aft galley door is in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the external skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the external skin given in Paragraph 5./ALLOWABLE DAMAGE 4
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- C. For damage that was removed on the aerodynamic external surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.
- D. For damage that was removed on the non-aerodynamic inner surface of the external skin, or on the internal skins, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 4

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

A. External Skin:

- (1) If you find damage to the external skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 4 for the flight operation limits.

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ALLOWABLE DAMAGE 4

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(2) Cracks:

- (a) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - 1) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 2) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4, and Table 101 for the flight operation limits.

(3) Nicks, Scratches, Gouges and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits - External Skin, Figure 103/ ALLOWABLE DAMAGE 4, Details A , B , C , D , and E .
- (b) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4, and Table 101 for the flight operation limits.

(4) Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

- (a) Dents are permitted if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 4, Detail F .
- (b) Dents larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 4, Detail F , that cannot be repaired immediately are permitted if:
 - 1) There are no loose or missing fasteners
 - 2) There are no damaged fastener holes
 - 3) There are no creases, gouges, or cracks near the dent
 - 4) You do not fill the dent
 - 5) You make an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.

(5) Holes and Punctures:

NOTE: For holes and punctures that are larger than 0.25 inch in diameter, flight operations limits are necessary. Refer to Paragraph 4.A.(5)(b)/ALLOWABLE DAMAGE 4 and Paragraph 5./ALLOWABLE DAMAGE 4

- (a) Damage is permitted if:
 - 1) It is a maximum of 0.25 inch in diameter
 - 2) It is a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius
 - 3) You fill the damage with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
- (b) If you find damage that is larger than 0.25 inch in diameter, do as follows:
 - 1) Remove the damage to a circular or oval shape.
 - 2) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.

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ALLOWABLE DAMAGE 4

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STRUCTURAL REPAIR MANUAL

- 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4, and Table 101 for the flight operation limits.

B. Internal Skins, Bracket, Cover Plate, and Retainer:

(1) Cracks:

- (a) Remove the damage at an edge as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 4, Detail A , B , and C .
- (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.

(2) Nicks, Gouges, Scratches and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 4, Details A , B , C , D , E and F .
- (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, or other damage.

(3) Dents:

- (a) Dents are permitted as shown in Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket, Figure 104/ALLOWABLE DAMAGE 4, Detail G .

(4) Holes and Punctures:

- (a) Damage is permitted if:
 - 1) It is a maximum of 1.00 inch in diameter
 - 2) It is a minimum of 30T (T = the thickness of the material) away from a fastener hole, an edge, or other damage
 - 3) You remove the damage to a smooth circular or oval shape.

52-10-01

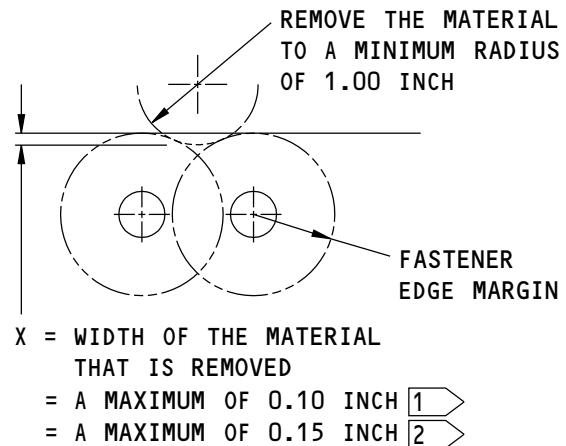
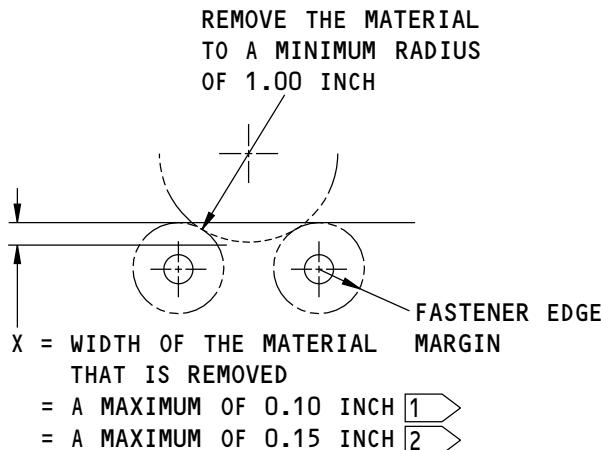
ALLOWABLE DAMAGE 4

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**737-800
STRUCTURAL REPAIR MANUAL**


REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)

TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE FROM A HOLE, A FASTENER, AN EDGE, OR OTHER DAMAGE MUST BE 20X OR MORE

MAKE THE CONTOUR SMOOTH (TYPICAL)

X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH [1]
= A MAXIMUM OF 0.15 INCH [2]

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN

IF THERE ARE FASTENERS, SEE (A) AND (B)

X

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

(C)

NOTES

- [1] FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- [2] FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

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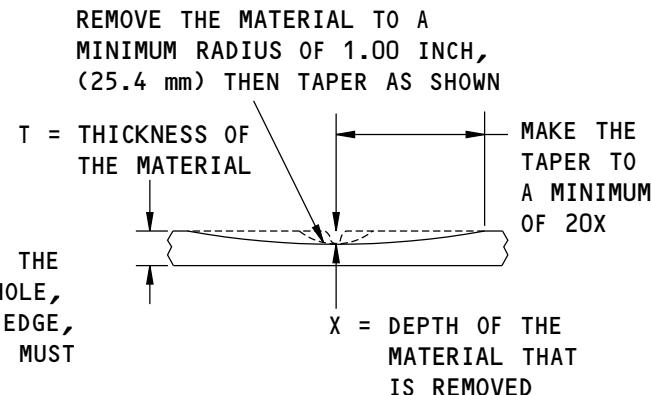
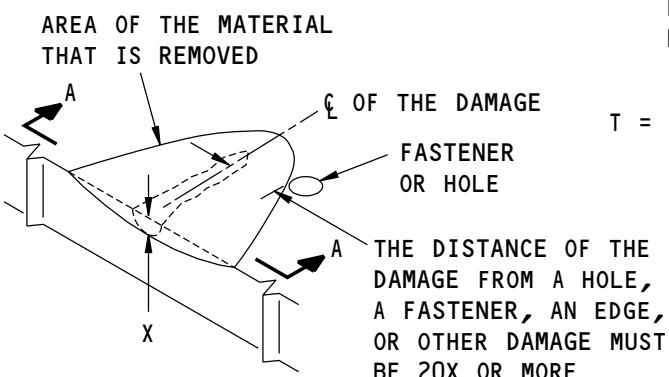
Allowable Damage Limits - External Skin
Figure 103 (Sheet 1 of 3)

52-10-01

ALLOWABLE DAMAGE 4

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STRUCTURAL REPAIR MANUAL**


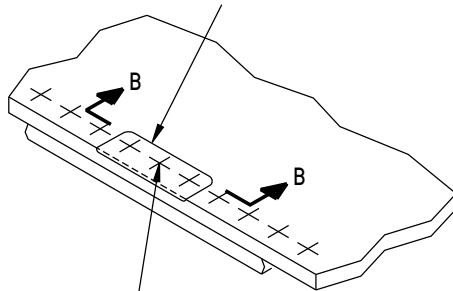
NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGED MATERIAL ON A SURFACE

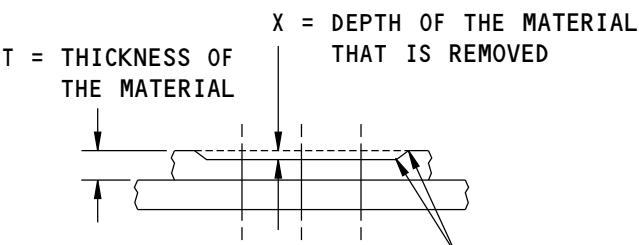

A-A

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE


MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (12.7 mm) (TYPICAL)

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

B-B

F70943 S0006586579_V2

Allowable Damage Limits - External Skin
Figure 103 (Sheet 2 of 3)

52-10-01

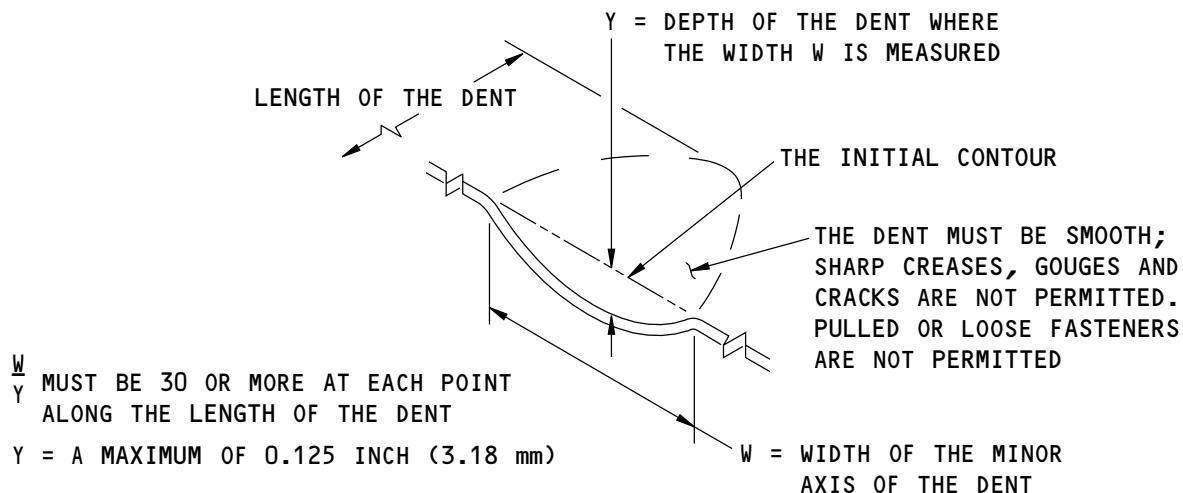
ALLOWABLE DAMAGE 4

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STRUCTURAL REPAIR MANUAL



DENT THAT IS PERMITTED

(F)

F70945 S0006586580_V3

Allowable Damage Limits - External Skin

Figure 103 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 4

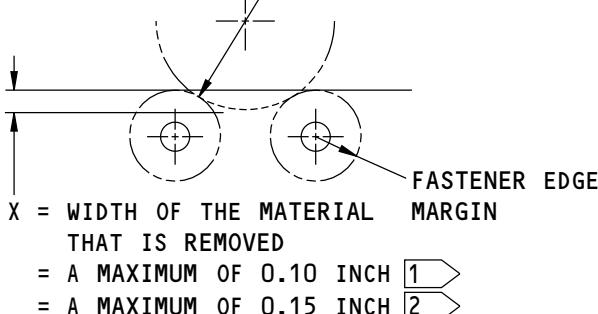
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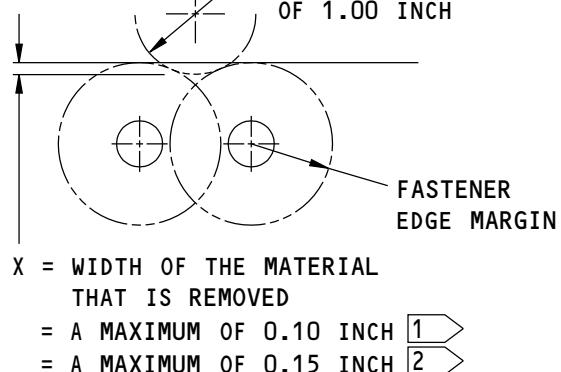
**737-800
STRUCTURAL REPAIR MANUAL**

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS DO NOT HAVE AN OVERLAP

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS HAVE AN OVERLAP

(A)

(B)

TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE
FROM A HOLE, A FASTENER,
AN EDGE, OR OTHER DAMAGE
MUST BE 20X OR MORE

MAKE THE CONTOUR SMOOTH
(TYPICAL)

REMOVE THE MATERIAL TO A
MINIMUM RADIUS OF 1.00 INCH,
THEN TAPER AS SHOWN

IF THERE ARE FASTENERS,
SEE (A) AND (B)

X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10 INCH **1**
 = A MAXIMUM OF 0.15 INCH **2**

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

(C)

NOTES

- 1** FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

400548 S0000137449_V1

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 1 of 3)

52-10-01

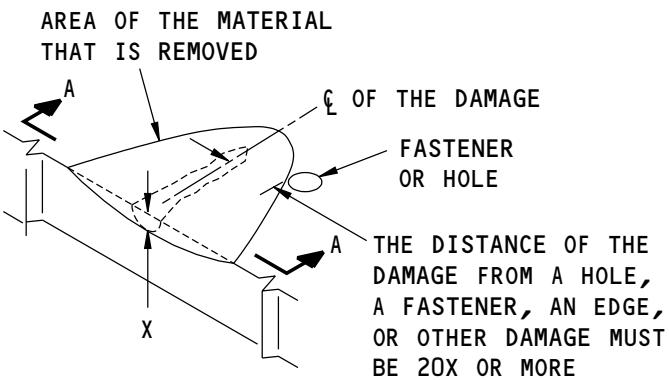
ALLOWABLE DAMAGE 4

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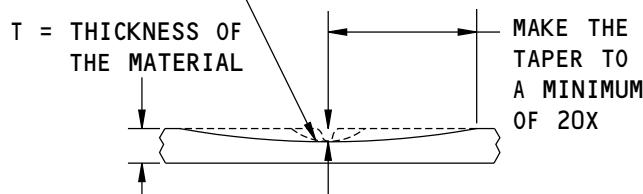
**737-800
STRUCTURAL REPAIR MANUAL**



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

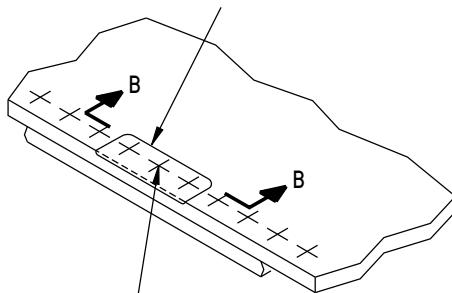
REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, (25.4 mm) THEN TAPER AS SHOWN



= A MAXIMUM OF 0.10T 1
= A MAXIMUM OF 0.15T 2

A-A

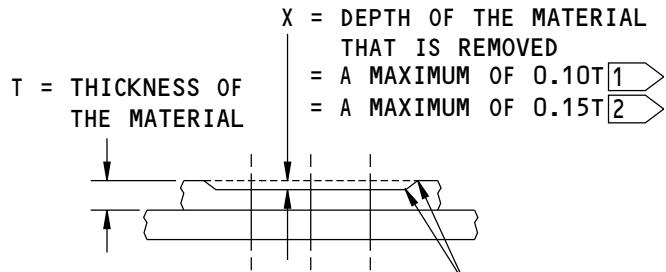
THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(E)



B-B

400549 S0000137450_V1

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 2 of 3)

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ALLOWABLE DAMAGE 4

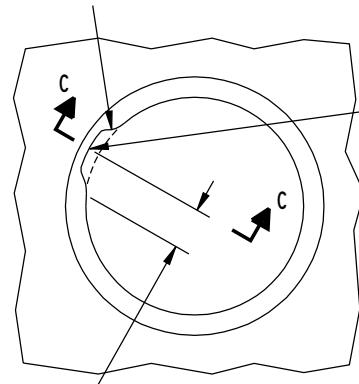
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**737-800
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REMOVAL OF MATERIAL IS PERMITTED
IN ONE LOCATION ONLY

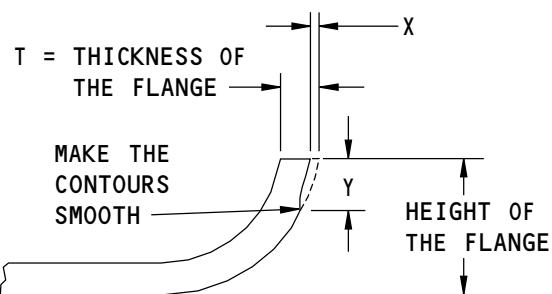


TAPER TO A MINIMUM OF 20X

REMOVAL OF DAMAGED MATERIAL AT
AN EDGE OF A FLANGED HOLE



REMOVE THE
MATERIAL TO A
MINIMUM RADIUS
OF 1.00 INCH,
(25.4 mm) THEN
TAPER AS SHOWN



X = DEPTH OF THE MATERIAL THAT IS
REMOVED

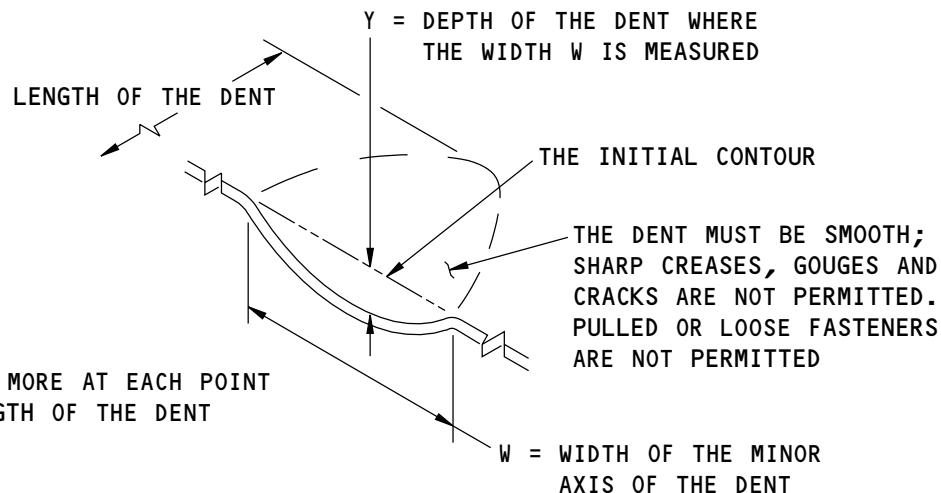
= A MAXIMUM OF 0.10T 1
= A MAXIMUM OF 0.15T 2

Y = LENGTH OF THE MATERIAL THAT IS
REMOVED

= A MAXIMUM OF 50 PERCENT OF THE
FLANGE HEIGHT, OR 1.10 INCHES,
THAT WHICH IS LESS

C-C

$\frac{W}{Y}$ MUST BE 30 OR MORE AT EACH POINT
ALONG THE LENGTH OF THE DENT



DENT THAT IS PERMITTED



400550 S0000137451_V2

Allowable Damage Limits - Internal Skin, Cover Plates, Retainer, and Bracket
Figure 104 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 4

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5. Airplane Operation Limits that are Applicable to the External Skin

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
- (1) Find the applicable area in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
- (a) The damage depth in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4 is given as a percentage of the initial skin thickness.
- 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
- (b) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4 is applicable to:
- 1) Cracks
2) Nicks, Scratches, Gouges, and Corrosion
3) Holes and punctures that are larger than 0.25 inch in diameter.
- (c) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4 is not applicable to dents.
- (2) Refer to Table 101/ALLOWABLE DAMAGE 4 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 4.

Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4.A	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4.A	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired. For holes and punctures larger than 0.25 inch in diameter: The maximum cabin pressure differential is limited to zero PSIG. Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits

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ALLOWABLE DAMAGE 4

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Table 101: (Continued)

PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
D	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to zero PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits
E	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits

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ALLOWABLE DAMAGE 4

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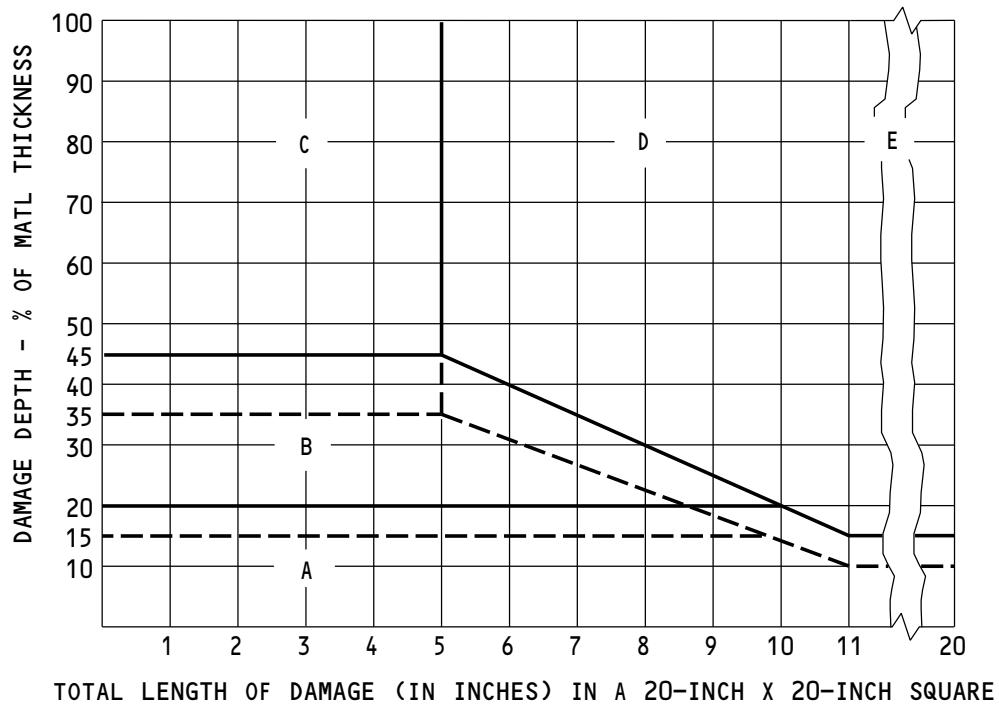
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STRUCTURAL REPAIR MANUAL



NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

— — — FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.

— — — — — FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

400551 S0000137773_V1

Damage Limits for the Pressurized External Skin
Figure 105

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ALLOWABLE DAMAGE 4

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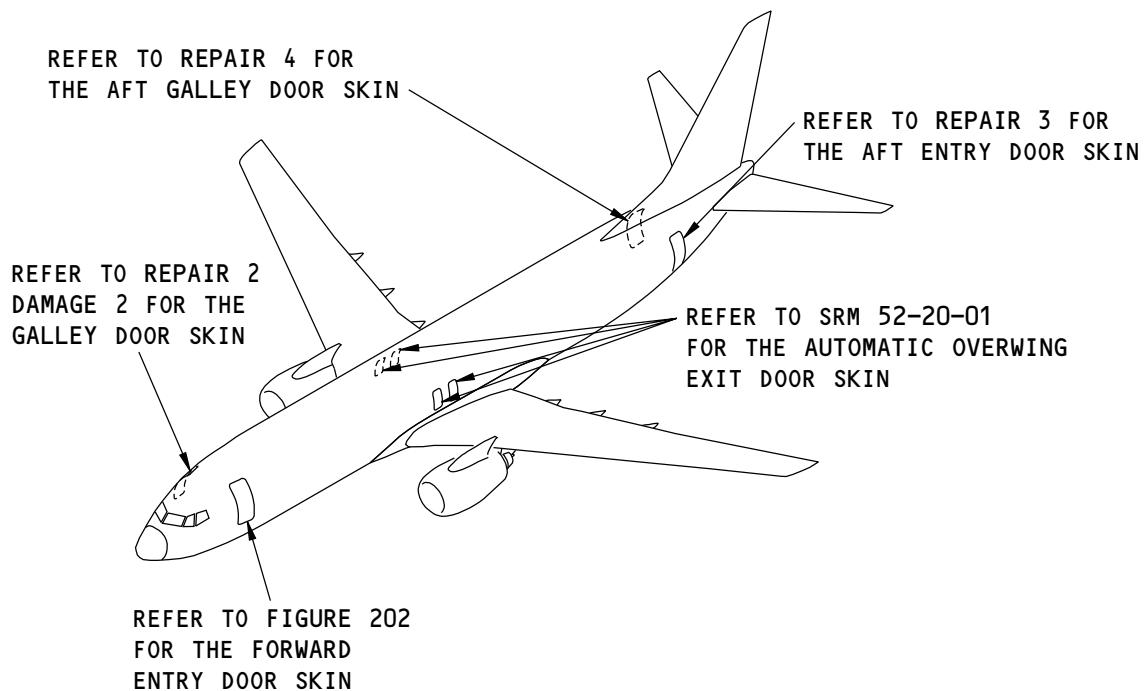


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STRUCTURAL REPAIR MANUAL

REPAIR 1 - FORWARD ENTRY DOOR SKIN

1. Applicability

- A. Repair 1 is applicable to damage to the forward entry door skins shown in Forward Entry Door Skin Location, Figure 201/REPAIR 1 and Forward Entry Door Skin, Figure 202/REPAIR 1.



Forward Entry Door Skin Location
Figure 201

K39189 S0006586589_V1

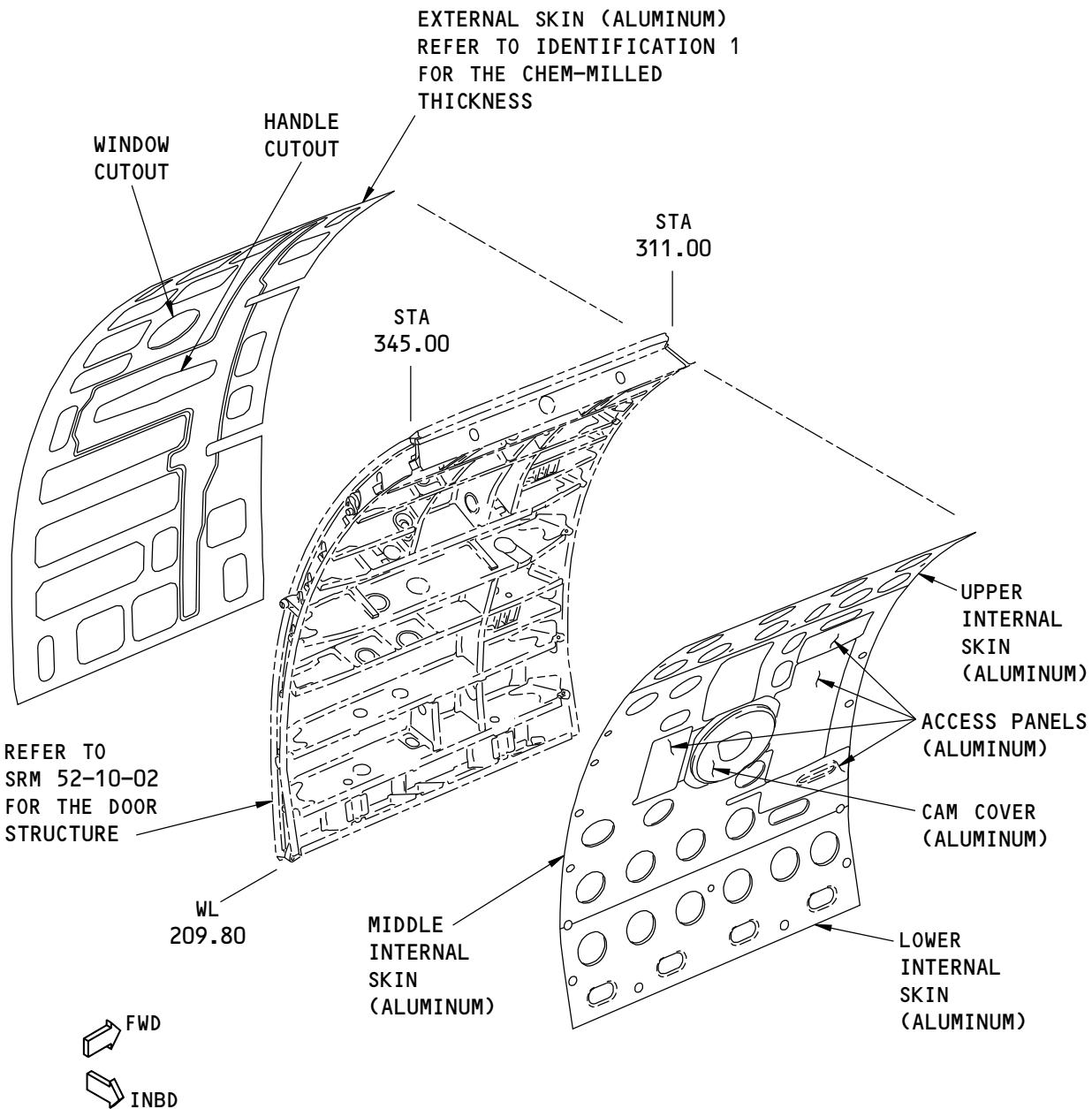
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REPAIR 1
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G83526 S0006586591_V1

Forward Entry Door Skin
Figure 202

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2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 7 can be used when applicable if:
 - (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 7 before you start a repair.

3. References

Reference	Title
52-00-01	TYPICAL DOOR SKIN
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams
52-00-01, REPAIR 6	Aluminum Door Skin - Flush Repair Across a Beam
52-00-01, REPAIR 7	Aluminum Door Skin - Alternative Flush Repair Across a Beam

4. Repair Instructions

- A. Refer to 52-00-01, REPAIR 152-00-01, REPAIR 252-00-01, REPAIR 352-00-01, REPAIR 452-00-01, REPAIR 552-00-01, REPAIR 6 and 52-00-01, REPAIR 7 to find the applicable repair for the forward entry door skins shown in Forward Entry Door Skin Location, Figure 201/REPAIR 1 and Forward Entry Door Skin, Figure 202/REPAIR 1.

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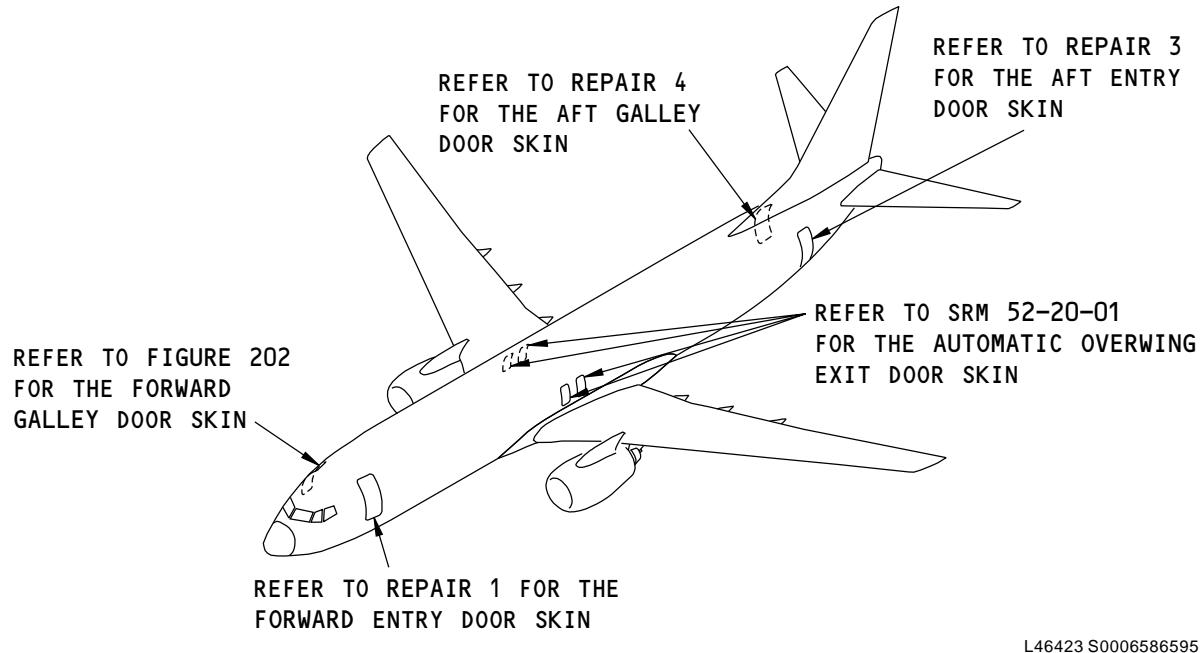


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STRUCTURAL REPAIR MANUAL

REPAIR 2 - FORWARD GALLEY DOOR SKIN

1. Applicability

- A. Repair 2 is applicable to damage to the forward galley door skins shown in Forward Galley Door Skin Location, Figure 201/REPAIR 2 and Forward Galley Door Skin, Figure 202/REPAIR 2.



L46423 S0006586595_V2

Forward Galley Door Skin Location

Figure 201

52-10-01

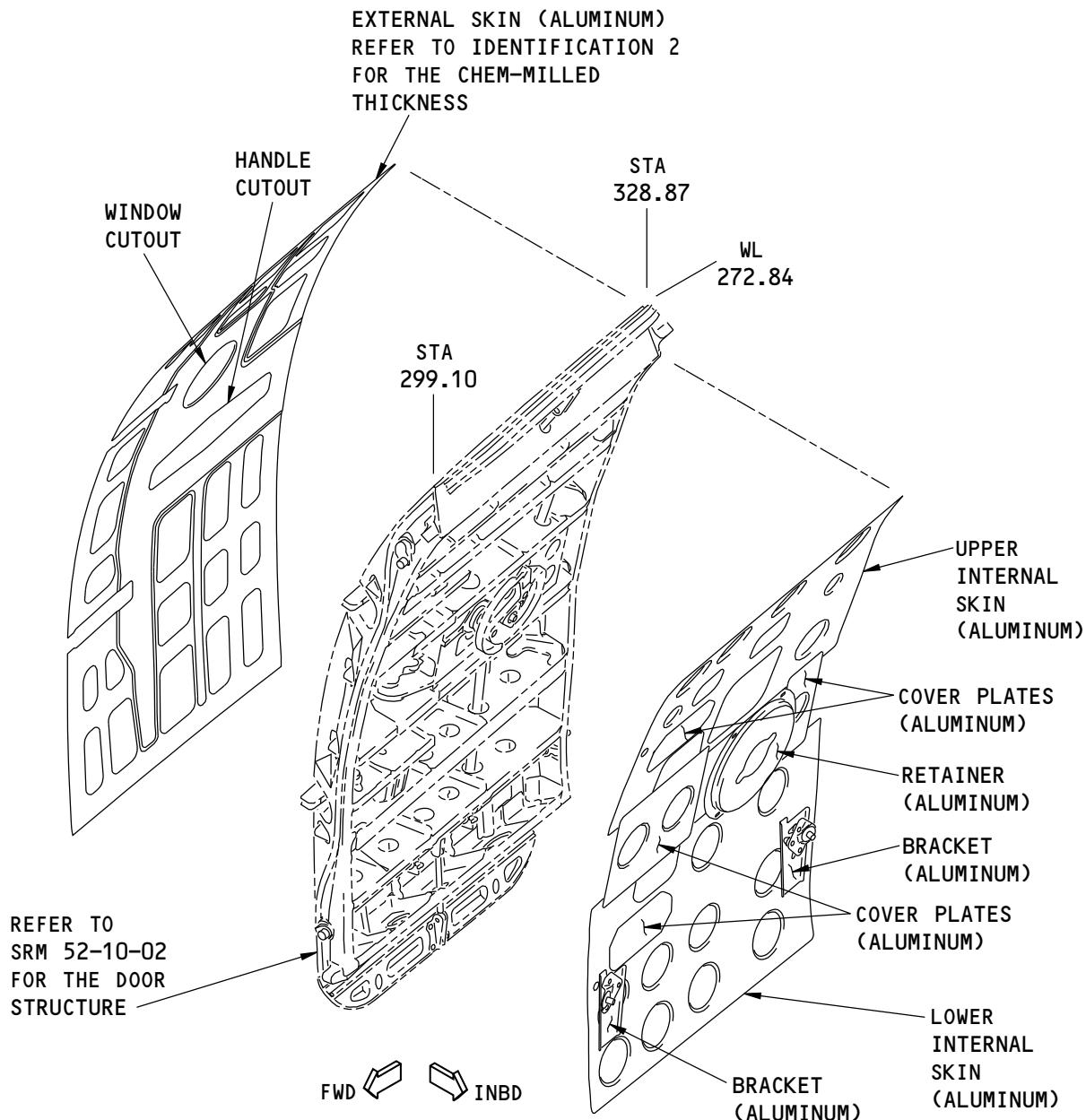
REPAIR 2

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G83528 S0006586596_V1

Forward Galley Door Skin
Figure 202

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REPAIR 2
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2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 7 can be used when applicable if:
 - (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 7 before you start a repair.

3. References

Reference	Title
52-00-01	TYPICAL DOOR SKIN
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams
52-00-01, REPAIR 6	Aluminum Door Skin - Flush Repair Across a Beam
52-00-01, REPAIR 7	Aluminum Door Skin - Alternative Flush Repair Across a Beam

4. Repair Instructions

- A. Refer to 52-00-01, REPAIR 1, 52-00-01, REPAIR 2, 52-00-01, REPAIR 3, 52-00-01, REPAIR 4, 52-00-01, REPAIR 5, 52-00-01, REPAIR 6 and 52-00-01, REPAIR 7 to find the applicable repair for the forward galley door skins shown in Forward Galley Door Skin Location, Figure 201/REPAIR 2 and Forward Galley Door Skin, Figure 202/REPAIR 2.

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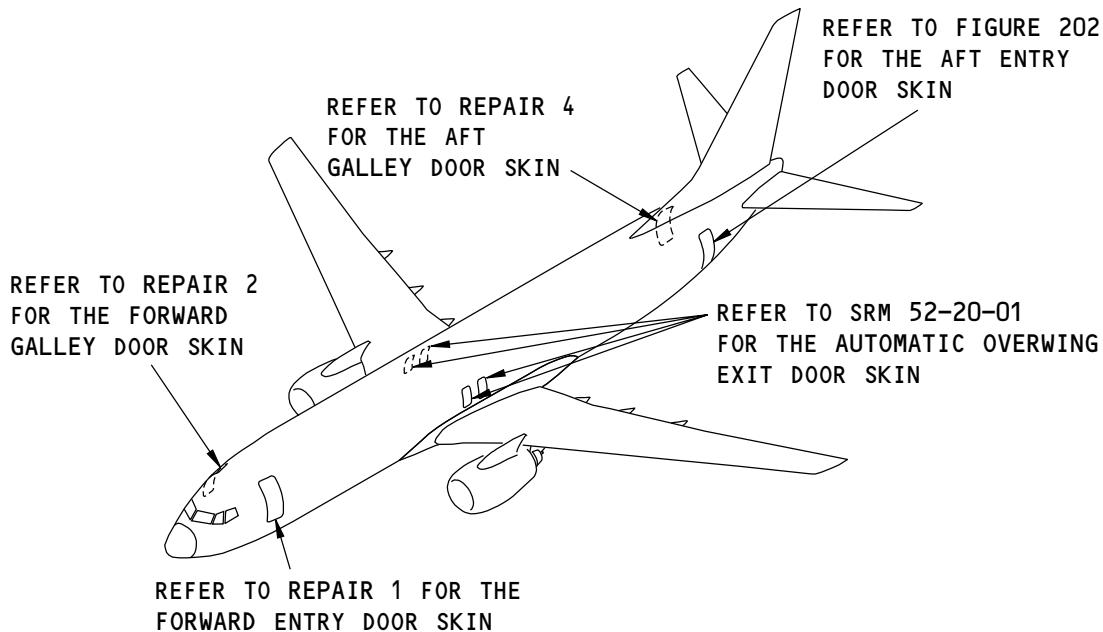


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STRUCTURAL REPAIR MANUAL

REPAIR 3 - AFT ENTRY DOOR SKIN

1. Applicability

- A. Repair 3 is applicable to damage to the aft entry door skins shown in Aft Entry Door Skin Location, Figure 201/REPAIR 3 and Aft Entry Door Skin, Figure 202/REPAIR 3.



L46435 S0006586600_V1

Aft Entry Door Skin Location
Figure 201

52-10-01

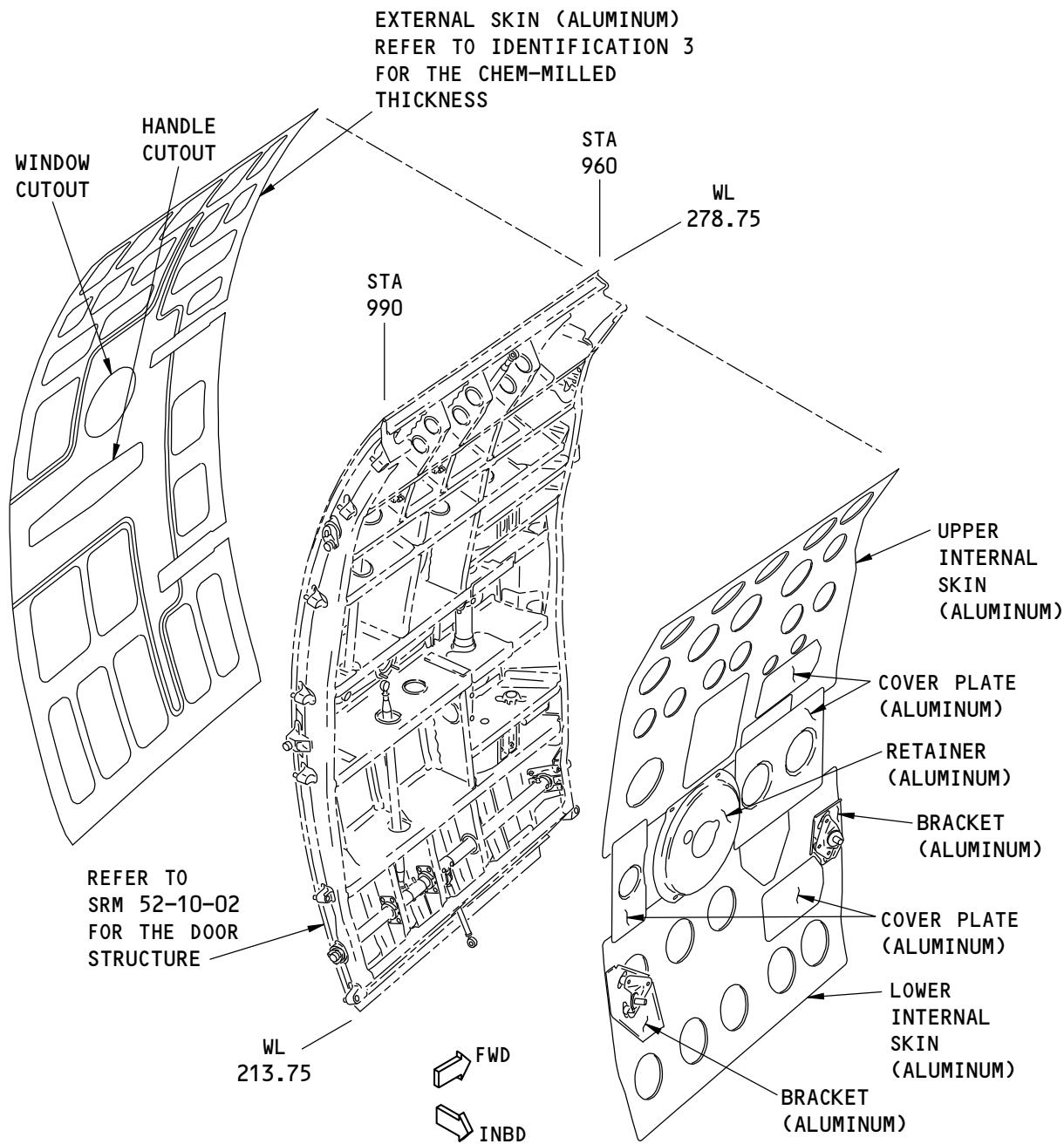
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Aft Entry Door Skin
Figure 202

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2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 7 can be used when applicable if:
 - (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 7 before you start a repair.

3. References

Reference	Title
52-00-01	TYPICAL DOOR SKIN
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams
52-00-01, REPAIR 6	Aluminum Door Skin - Flush Repair Across a Beam
52-00-01, REPAIR 7	Aluminum Door Skin - Alternative Flush Repair Across a Beam

4. Repair Instructions

- A. Refer to 52-00-01, REPAIR 1, 52-00-01, REPAIR 2, 52-00-01, REPAIR 3, 52-00-01, REPAIR 4, 52-00-01, REPAIR 5, 52-00-01, REPAIR 6 and 52-00-01, REPAIR 7 to find the applicable repair for the aft entry door skins shown in Aft Entry Door Skin Location, Figure 201/REPAIR 3 and Aft Entry Door Skin, Figure 202/REPAIR 3.

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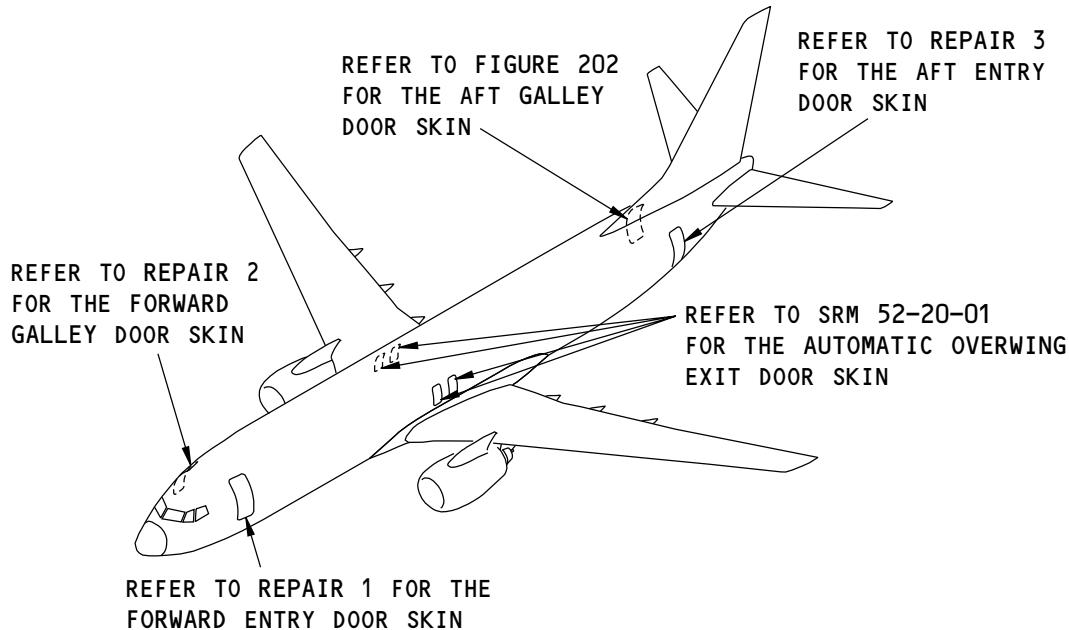


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REPAIR 4 - AFT GALLEY DOOR SKIN

1. Applicability

- A. Repair 4 is applicable to damage to the aft galley door skins shown in Aft Galley Door Skin Location, Figure 201/REPAIR 4 and Aft Galley Door Skin, Figure 202/REPAIR 4.



L46449 S0006586605_V1

Aft Galley Door Skin Location
Figure 201

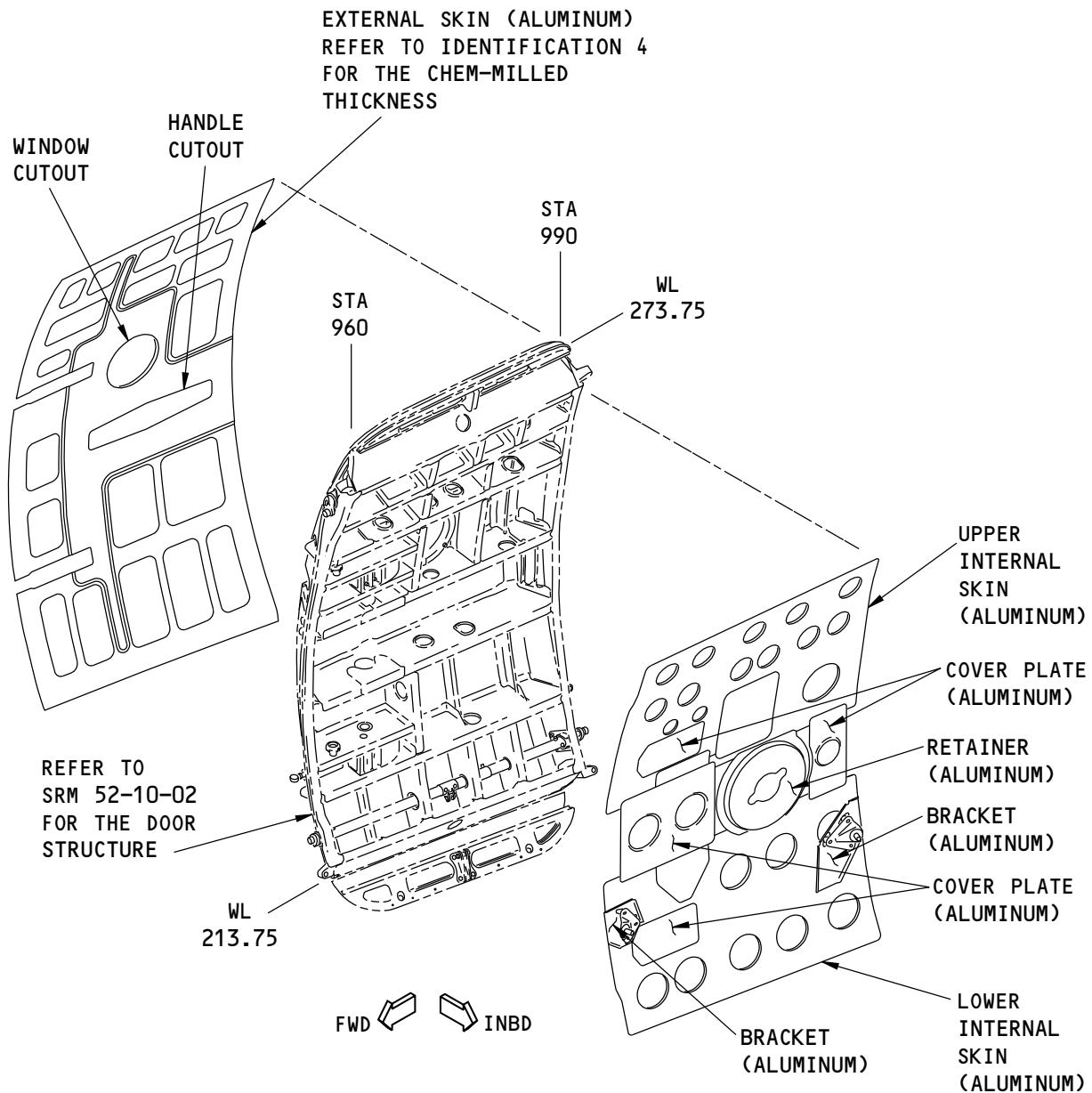
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Aft Galley Door Skin
Figure 202
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2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 7 can be used when applicable if:
 - (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 7 before you start a repair.

3. References

Reference	Title
52-00-01	TYPICAL DOOR SKIN
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams
52-00-01, REPAIR 6	Aluminum Door Skin - Flush Repair Across a Beam
52-00-01, REPAIR 7	Aluminum Door Skin - Alternative Flush Repair Across a Beam

4. Repair Instructions

- A. Refer to 52-00-01, REPAIR 1, 52-00-01, REPAIR 2, 52-00-01, REPAIR 3, 52-00-01, REPAIR 4, 52-00-01, REPAIR 5, 52-00-01, REPAIR 6 and 52-00-01, REPAIR 7 to find the applicable repair for the aft galley door skins shown in Aft Galley Door Skin Location, Figure 201/REPAIR 4 and Aft Galley Door Skin, Figure 202/REPAIR 4.

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REPAIR 5 - FORWARD ENTRY DOOR EXTERNAL SKIN LOWER HINGE CUTOUT REPAIR

1. Applicability

- A. This repair is applicable to damage on the external skin of the forward entry door at the lower hinge cutout. Refer to Figure 201/REPAIR 5.

2. General

- A. This repair is a Category B repair. This Category B repair has FAA approval if you do the supplemental inspections given in Paragraph 5./REPAIR 5. Incorporation of these inspection requirements into the airplane maintenance program satisfies the damage tolerance assessment of the repair. Refer to STRUCTURAL REPAIR DEFINITIONS, 51-00-06 for the repair categories and definitions.
- B. The permitted maximum trim out area of the damaged skin for this repair is given in Figure 202/REPAIR 5.
- C. Maintain a minimum of 2D edge margin on all fasteners.
- D. Maintain 4D to 6D fastener spacing at all repair fastener locations.
- E. Do not install fasteners on the chem-milled step.
- F. Do not install fasteners within 1.5D of a chem-milled step when you install fasteners in the pad.
- G. Make sure that there is sufficient space for the fastener head or tail when you install fasteners in the pockets of chem-milled skin.

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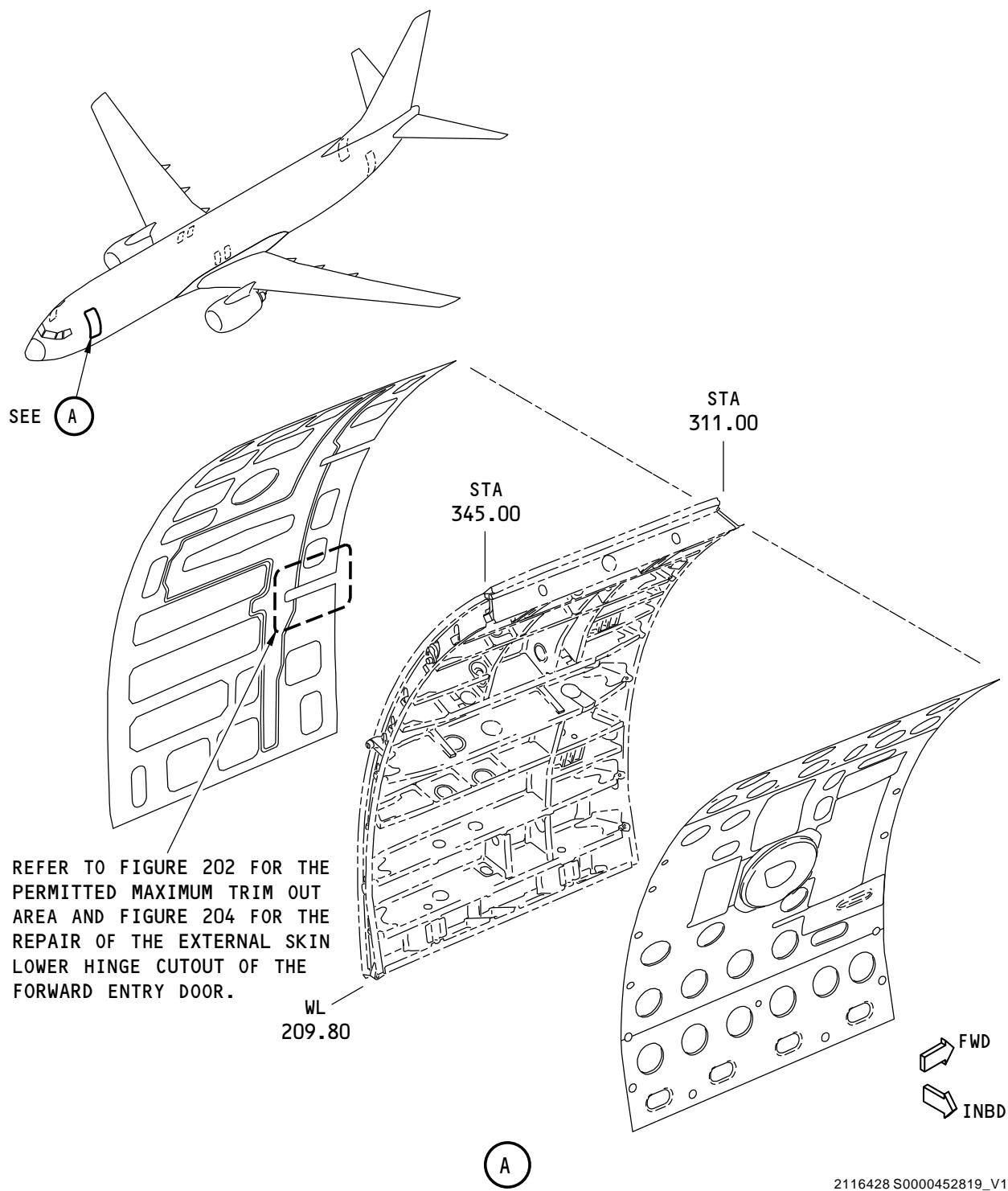
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2116428 S0000452819_V1

Forward Entry Door External Skin Location
Figure 201

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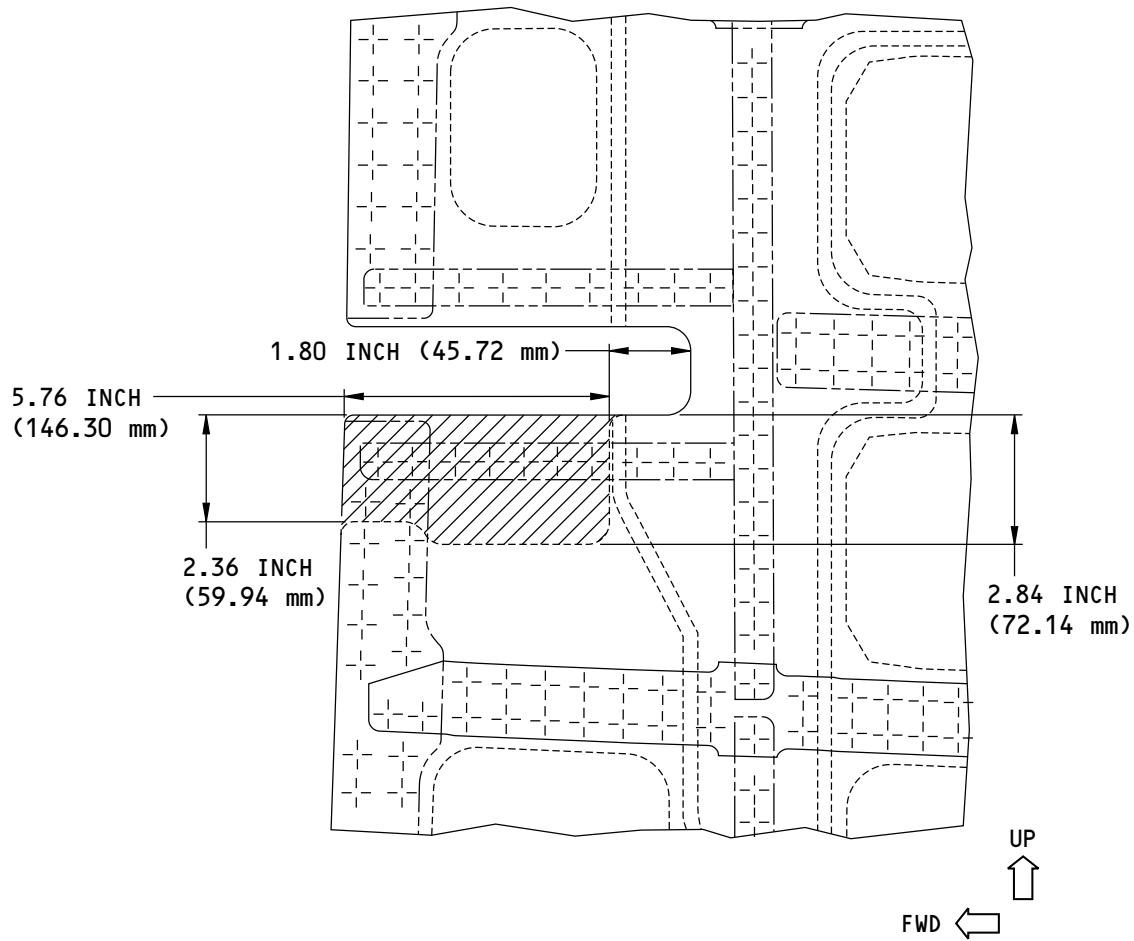
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PERMITTED MAXIMUM TRIM OUT AREA

2116865 S0000453560_V1

Maximum Permitted Outer Skin Trim Out Area
Figure 202

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3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-05	FASTENER HOLE SIZES
51-40-08	COUNTERSINKING
AMM 51-21-00	INTERIOR AND EXTERIOR FINISHES
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
737 NDT Part 6, 51-00-00, Procedure 1	Fastener Holes in Aluminum Parts (Meter Display)
737 NDT Part 6, 51-00-00, Procedure 4	Surface Inspection of Aluminum Parts (Meter Display)
737 NDT Part 6, 51-00-26	Aluminum Part Subsurface Inspection - Multilayer

4. Repair Instructions

- A. Remove the necessary parts of the door to get access to the damaged area.
- B. Make sure that all adjacent structure in the area of the repair is not damaged.
- C. Cut and remove the damaged area of the external skin as shown on Figure 204/REPAIR 5. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02
 - (1) Make the cutout 0.030 in. (0.762 mm) larger around the contour of the damage.
 - (2) Maintain a minimum of 0.50 in. (12.70 mm) radius on the cutout.
 - (3) Be careful not to damage the intercostal and the forward frame when you make the cut.
- D. Do a High Frequency Eddy Current (HFEC) Inspection along the cut edge to make sure there are no more cracks. Refer to 737 NDT Part 6, 51-00-00, Procedure 4.
- E. If you find no more damage, make an insurance cut of 0.040 in. (1.016 mm) around the cutout. Make sure to have a finish of 125 microinches Ra or smoother.
- F. Do a High Frequency Eddy Current (HFEC) Inspection on all initial fastener holes common to the repair area. Refer to 737 NDT Part 6, 51-00-00, Procedure 1.
- G. Make the repair parts. Refer to Table 201/REPAIR 5 and Figure 204/REPAIR 5. Make the contour of the repair parts the same as the initial contour of the skin. Refer to AERODYNAMIC SMOOTHNESS, 51-10-01.

Table 201: Repair Materials

PART	DESCRIPTION	QUANTITY	MATERIAL
[1]	Doubler	1	Use 0.071 in. (1.803 mm) thick 2024-T3 clad sheet as given in QQ-A-250/5
[2]	Filler	1	Use 0.063 in. (1.600 mm) thick 2024-T3 clad sheet as given in QQ-A-250/5

- H. Assemble the repairs parts. Make sure the edges of the Part 1 Doubler is aligned with the edges of the initial skin. Refer to Figure 204/REPAIR 5.

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- I. Drill the fastener holes. If necessary, countersink the fastener holes in the Part 1 Doubler. Refer to COUNTERSINKING, 51-40-08.
- J. Disassemble the repair parts.
- K. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair parts and the door skin. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
- L. Apply a chemical conversion coating to the repairs parts and to the bare surfaces of the door skin. Refer to PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS, 51-20-01.
- M. Apply one layer of BMS 10-11, Type I primer to the repair parts and to the bare surfaces of the door skin. Refer to SOPM 20-41-02.
- N. Install the repair parts.
 - (1) Install countersink repair washers at the locations where the Part 1 Doubler makes an overlap with the initial countersink. Refer to COUNTERSINKING, 51-40-08
 - (2) Apply BMS 5-95 sealant to the mating surfaces of the repair parts and the door skin. Refer to REPAIR SEALING, 51-20-05.
 - (3) Install the rivets without sealant. Refer to FASTENER INSTALLATION AND REMOVAL, 51-40-02.
 - (4) Apply a fillet seal to the Part 1 Doubler and fill all gaps with BMS 5-95 sealant. Refer to REPAIR SEALING, 51-20-05.
- O. Apply a layer of BMS 3-23 corrosion inhibiting compound to all internal structure in the repair area. Refer to PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS, 51-20-01.
- P. Reinstall all the parts that were removed to get access to the repair area.
- Q. Restore the aircraft exterior paint system in the repair area as applicable. Refer to AMM SUBJECT 51-21-00.

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NOTES

- D = FASTENER DIAMETER.
 - ALL DIMENSIONS ARE IN INCHES.
- 1** ◀ MAKE THESE EDGES OF THE PART 1 DOUBLER ALIGNED WITH THE EDGES OF THE INITIAL SKIN.

FASTENER SYMBOLS

- Reference fastener location.
- + Initial fastener location. Install a BACR15GF5D rivet. If an oversize is necessary, install up to 1/32 inch oversize.
- ◆ Repair fastener location. Install a BACR15CE5D rivet or equivalent.

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**Notes and Fastener Symbols
Figure 203**

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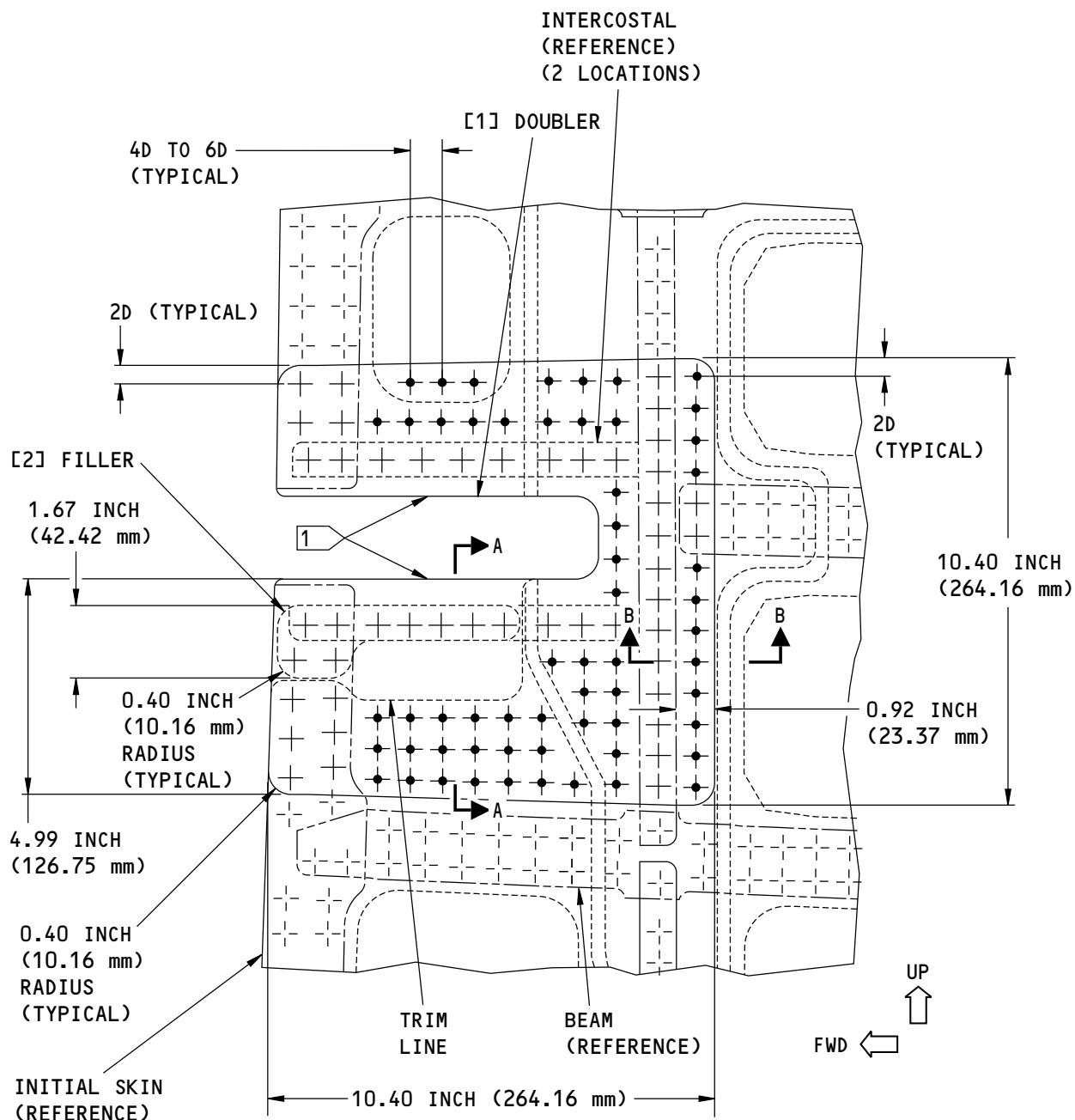
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DETAIL I

2116933 S0000451497_V1

Forward Entry Door External Skin Lower Hinge Cutout Repair
Figure 204 (Sheet 1 of 2)

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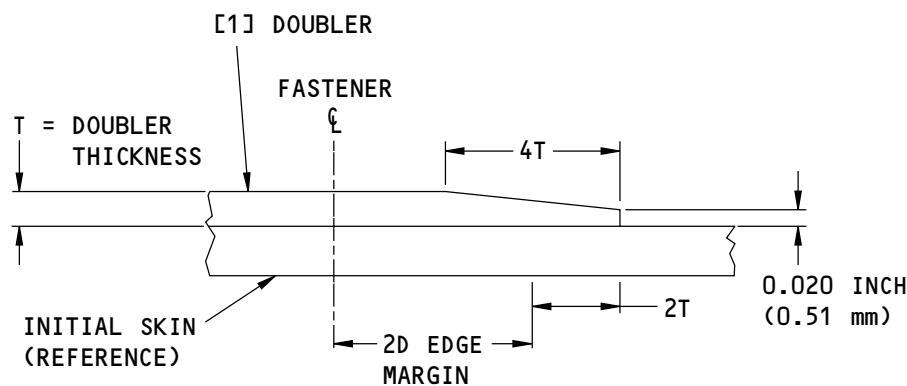
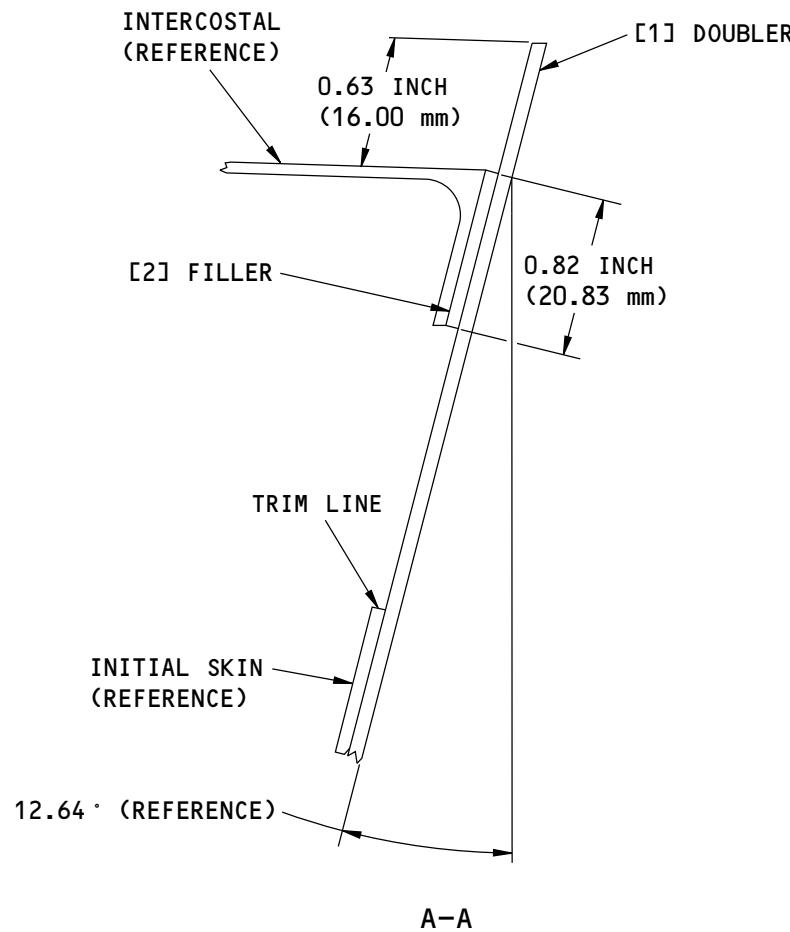
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2116958 S0000453416_V1

Forward Entry Door External Skin Lower Hinge Cutout Repair
Figure 204 (Sheet 2 of 2)

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5. Inspection Requirements

- A. Do the supplemental inspections as given in Table 202/REPAIR 5.

Table 202: Category B Repair Inspection Requirements

CATEGORY B REPAIR INSPECTION REQUIREMENTS			
INSPECTION THRESHOLD	REPEAT INSPECTION		
	METHOD	INTERVAL	REFERENCE
50,000 total door flight cycles *[1]	Low Frequency Eddy Current (LFEC) Inspection *[2]	3,000 door flight cycles	737 NDT Part 6, 51-00-26

*[1] If the door has more than 50,000 total door flight cycles or the door flight cycles are unknown, begin inspections within 3,000 door flight cycles after the repair installation.

*[2] Do the Low Frequency Eddy Current (LFEC) Inspection of the fasteners holes in the external skin externally through the Part 1 Doubler. Refer to Figure 205/REPAIR 5.

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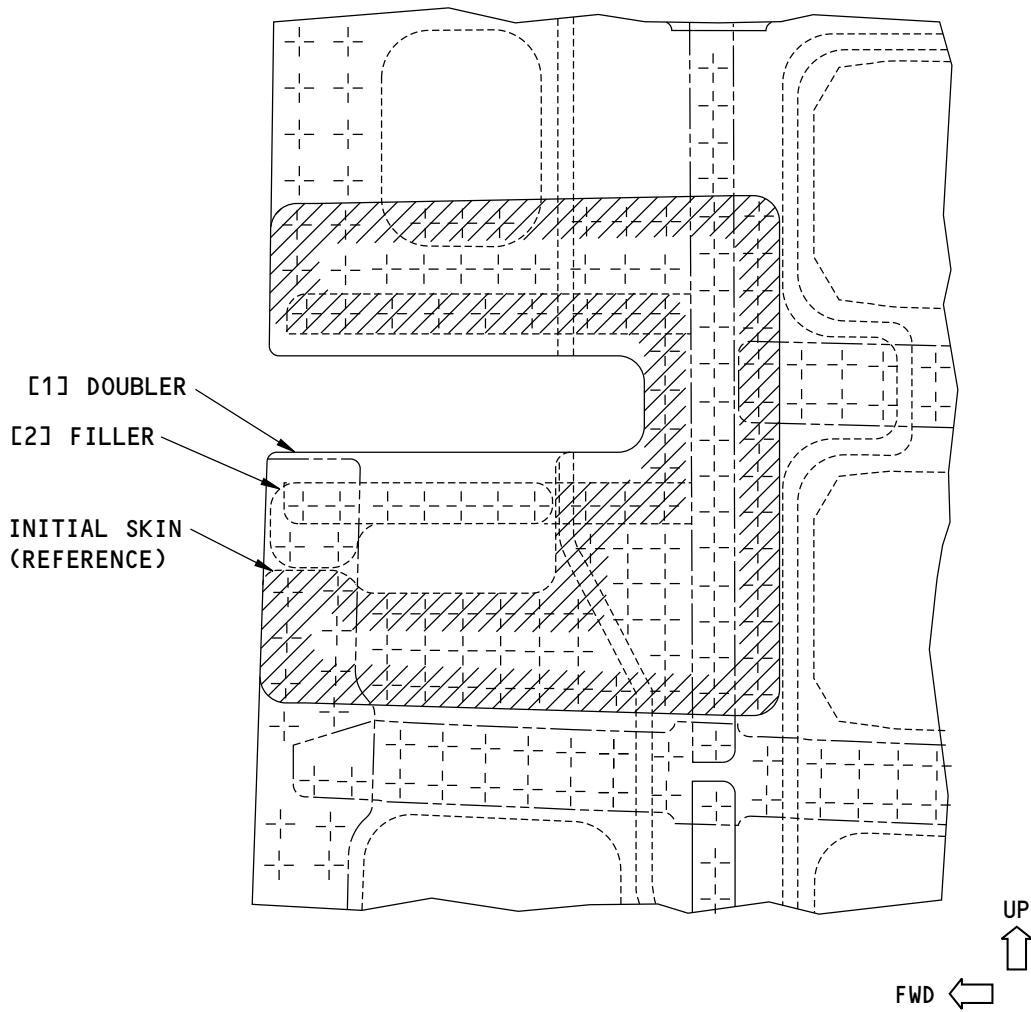
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LOW FREQUENCY EDDY CURRENT (LFEC) INSPECTION

2116978 S0000451501_V1

Inspection Requirements
Figure 205

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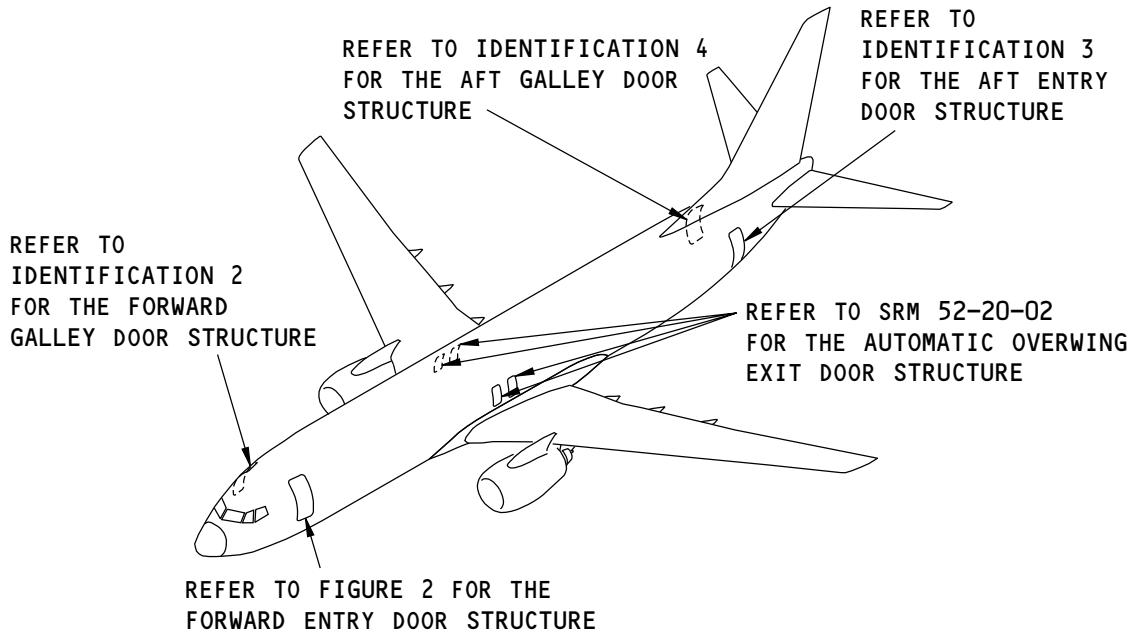
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IDENTIFICATION 1 - FORWARD ENTRY DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

L46467 S0006586611_V1

Forward Entry Door Structure Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6100	Forward Entry Door - Assembly Collector
141A6101	Frame and Beam Installation - Forward Entry Door
141A6120	Beam and Stop Assembly - Forward Entry Door
141A6140	Intercostal Installation - Forward Entry Door
141A6141	Intercostal Assembly - Forward Entry Door
141A6170	Upper Gate Installation - Forward Entry Door
141A6171	Upper Gate Assembly - Forward Entry Door
141A6180	Lower Gate Installation - Forward Entry Door
141A6181	Lower Gate Assembly - Forward Entry Door
141A6190	Hinge Support Installation - Forward Entry Door
141A6200	Window Installation - Forward Entry Door
141A6220	Bearing Housing - Installation Latch Torque Tube Forward Entry Door

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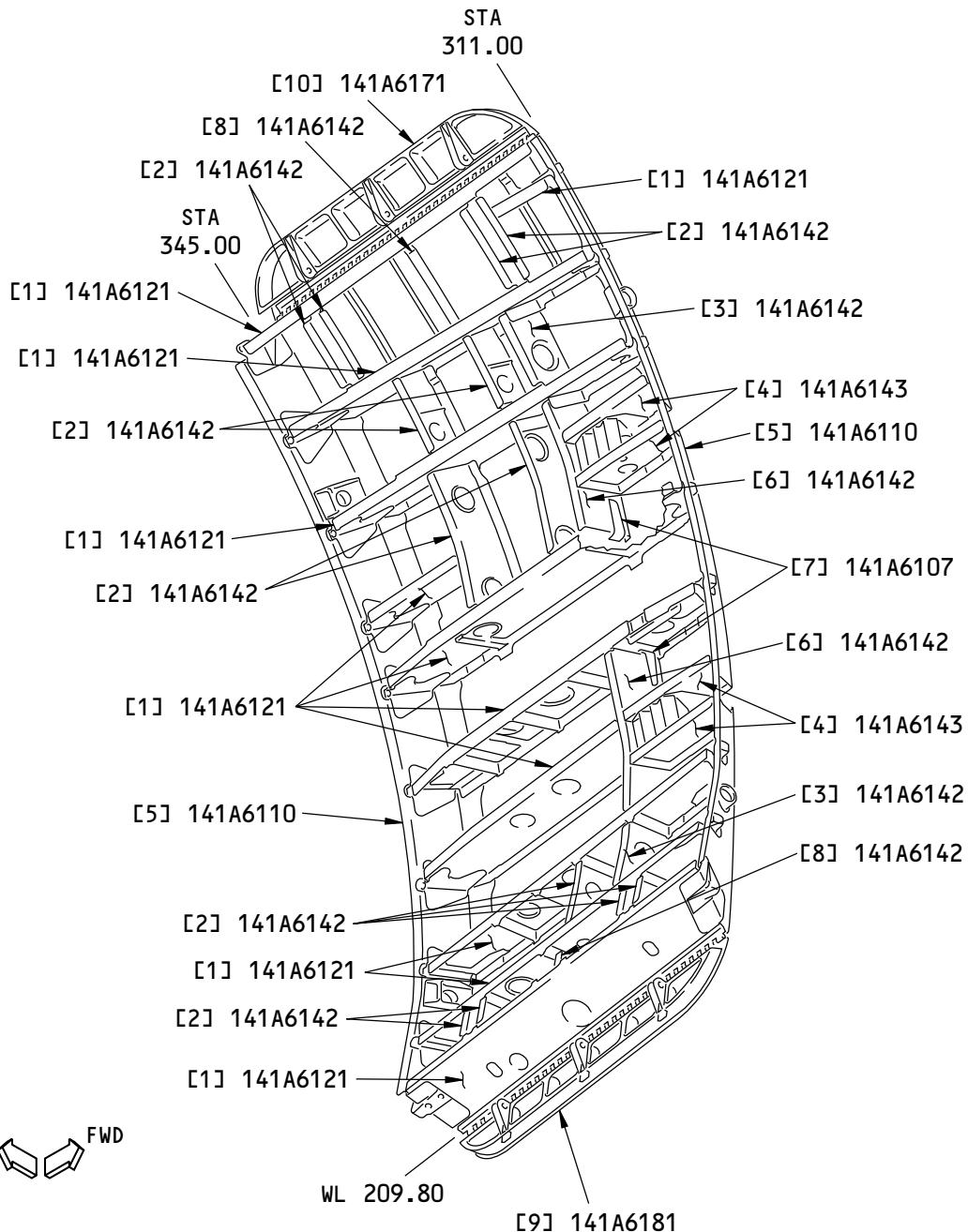
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F72561 S0006586614_V1

Forward Entry Door Structure Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^[1]	MATERIAL	EFFECTIVITY
[1]	Beam (11)		7050-T7451 plate. Refer to the production drawing for the machined areas	
[2]	Intercostal (13)	0.040 (1.02)	2024-T42 clad sheet	
[3]	Intercostal (2)	0.056 (1.42)	2024-T42 clad sheet	
[4]	Intercostal (4)		7050-T7451 plate. Refer to the production drawing for the machined areas	
[5]	Side Frame (2)	0.071 (1.80)	2024-T42 clad sheet	
[6]	Intercostal (2)	0.063 (1.60)	2024-T42 clad sheet	
[7]	Angle (2)		7050-T7451 plate. Refer to the production drawing for the machined areas	
[8]	Intercostal (2)	0.050 (1.27)	2024-T42 clad sheet as given in QQ-A-250/5	
[9]	Endgate, Lower		A357-T62 aluminum casting as given in Mil-A-21180, Strength Class 12	
[10]	Endgate, Upper		A357-T62 aluminum casting as given in Mil-A-21180, Strength Class 12	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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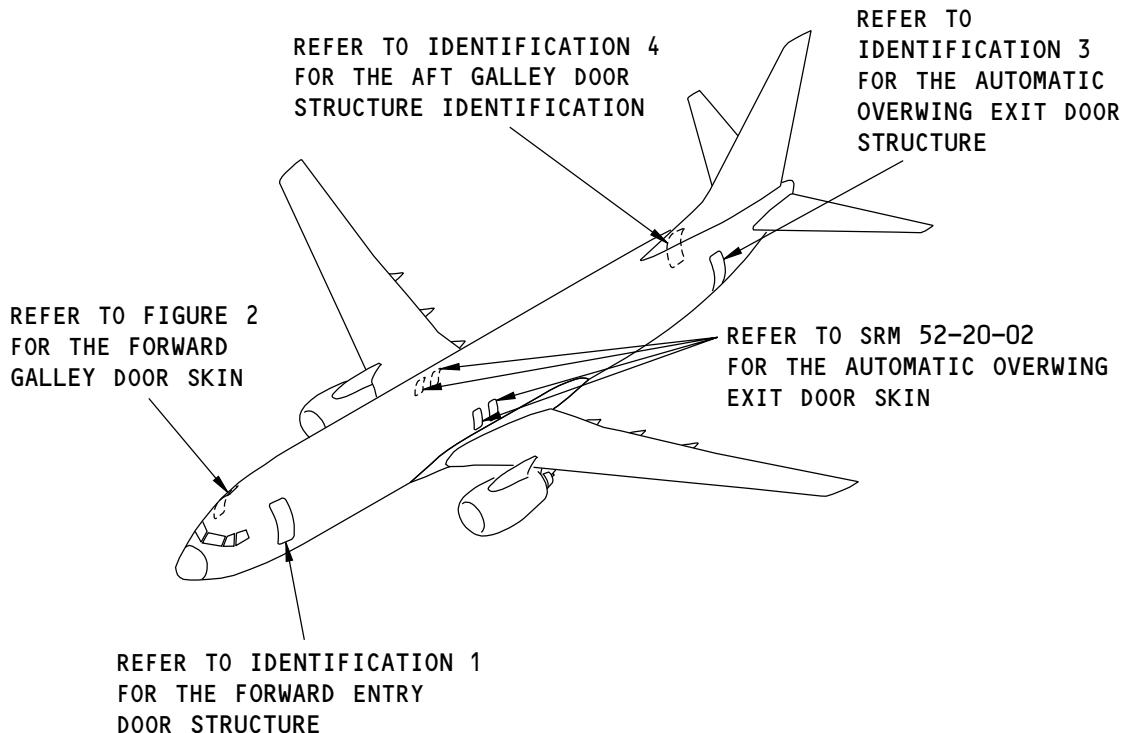
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IDENTIFICATION 2 - FORWARD GALLEY DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Forward Galley Door Structure Location

Figure 1

Table 1:

L46756 S0006586618_V1

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6500	Door Installation - Forward Galley Door
141A6516	Door Assembly - Forward Galley Door
141A6520	Stiffeners - Forward Galley Door
141A6522	Frames - Forward Galley Door
141A6524	Intercostal Details - Forward Galley Door
141A6525	Stub Beam, Hinge Support - Forward Galley Door
141A6530	Outer Chords, Intercostals - Forward Galley Door

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Table 1: (Continued)

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6535	Beam Assembly - Forward Galley Door
141A6536	Beams, Machined - Forward Galley Door
141A6540	End Gate Assembly, Upper/Lower - Forward Galley Door
141A6542	End Gate Assembly, Lower - Forward Galley Door
141A6543	End Gate Assembly, Upper - Forward Galley Door

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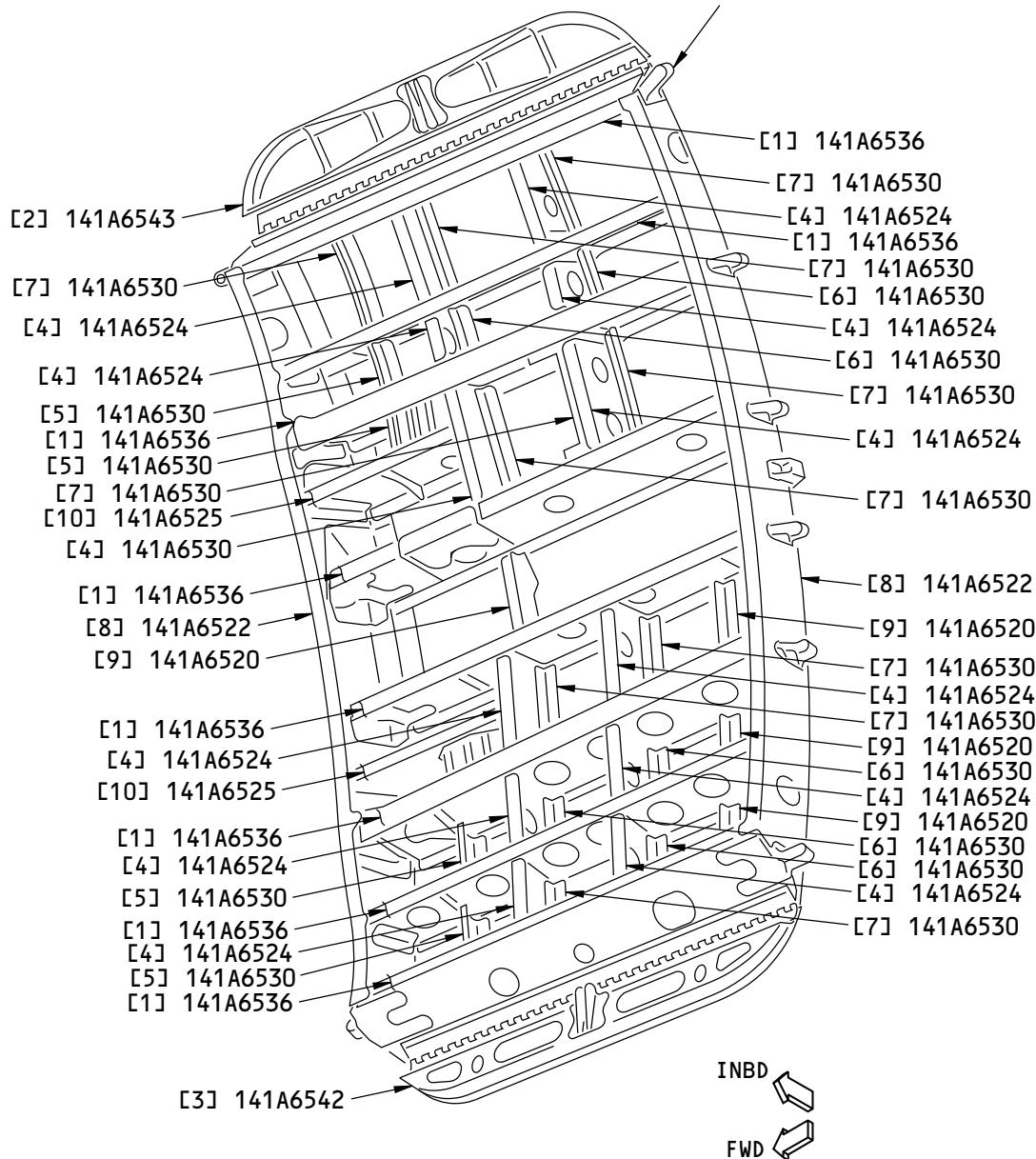
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REFER TO SRM 52-10-90
FOR THE FITTINGS
IDENTIFICATION



NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F72451 S0006586620_V1

Forward Galley Door Structure Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Beam		7050-T7451 plate as given in AMS 4050, Class A. Refer to the production drawing for the thicknesses of the machined areas	
[2]	Endgate		AZ91E-T6 magnesium casting as given in AMS 4446	
[3]	Endgate		AZ91E-T6 magnesium casting as given in AMS 4446	
[4]	Intercostal	0.050 (1.27)	Clad 7075-T62 sheet	
[5]	Intercostal	0.050 (1.27)	Clad 7075-T62 sheet	
[6]	Intercostal		7075-T73511, BAC1503-100707 extrusion	
[7]	Intercostal		7075-T73511, BAC1503-100563 extrusion	
[8]	Side Frame	0.080	Clad 2024-T42 sheet	
[9]	Stiffener		7075-T7351, BAC1505-100970 extrusion	
[10]	Stub Beam		7050-T7451 plate as given in AMS 4050, Class A. Refer to the production drawing for the thicknesses of the machined areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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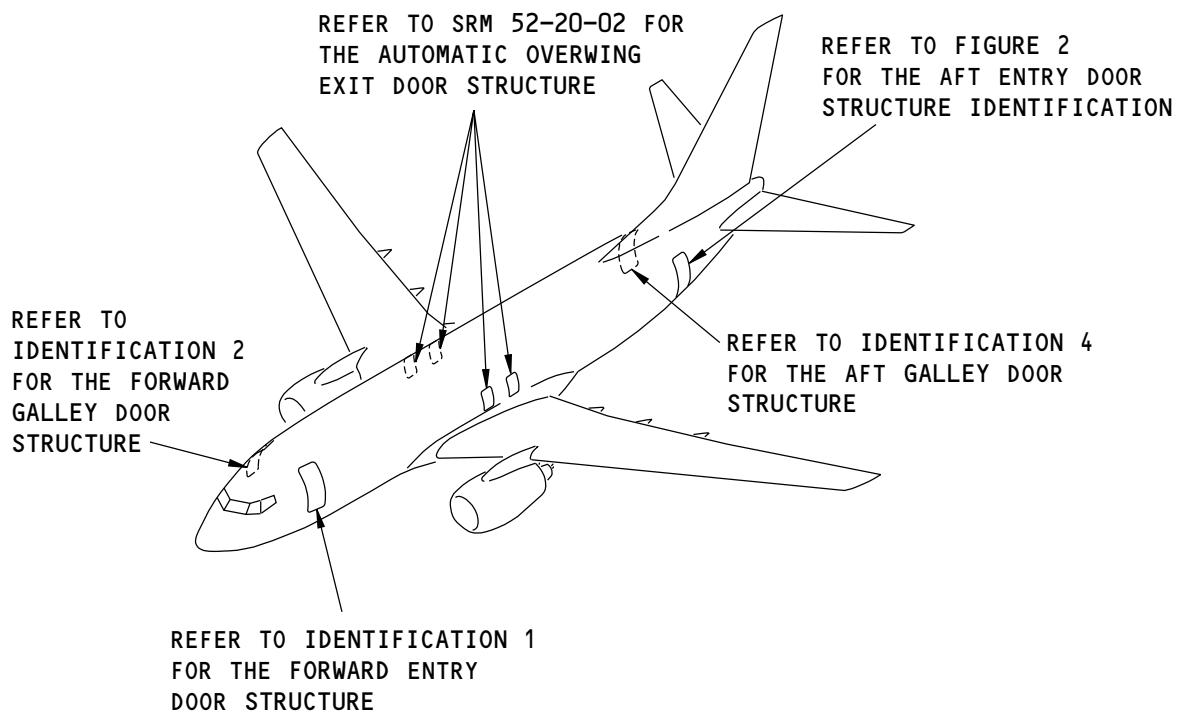
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STRUCTURAL REPAIR MANUAL

IDENTIFICATION 3 - AFT ENTRY DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Aft Entry Door Structure Location

Figure 1

Table 1:

L47034 S0006586625_V1

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6100	Door Installation - Aft Entry
147A6116	Door Assembly - Aft Entry
147A6122	Intercostal - Details, Aft Doors
147A6123	Outer Chords - Intercostals, Aft Doors
147A6124	Side Frames - Forward and Aft, Aft Entry Door
147A6125	Beam Assemblies - Aft Doors
147A6126	Beams, Machined - Aft Doors

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Table 1: (Continued)

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6143	End Gate Assemblies Aft Doors
147A6146	End Gate Assembly Lower, Aft Doors
147A6147	End Gate - Upper, Aft Entry Door
147A6149	Stub Beams - Hinge Support Aft Doors
147A6155	Stiffeners - Outer, Aft Doors
147A6160	Intercostal - Window, Aft Doors
149A9480	Brackets - Systems, Doors

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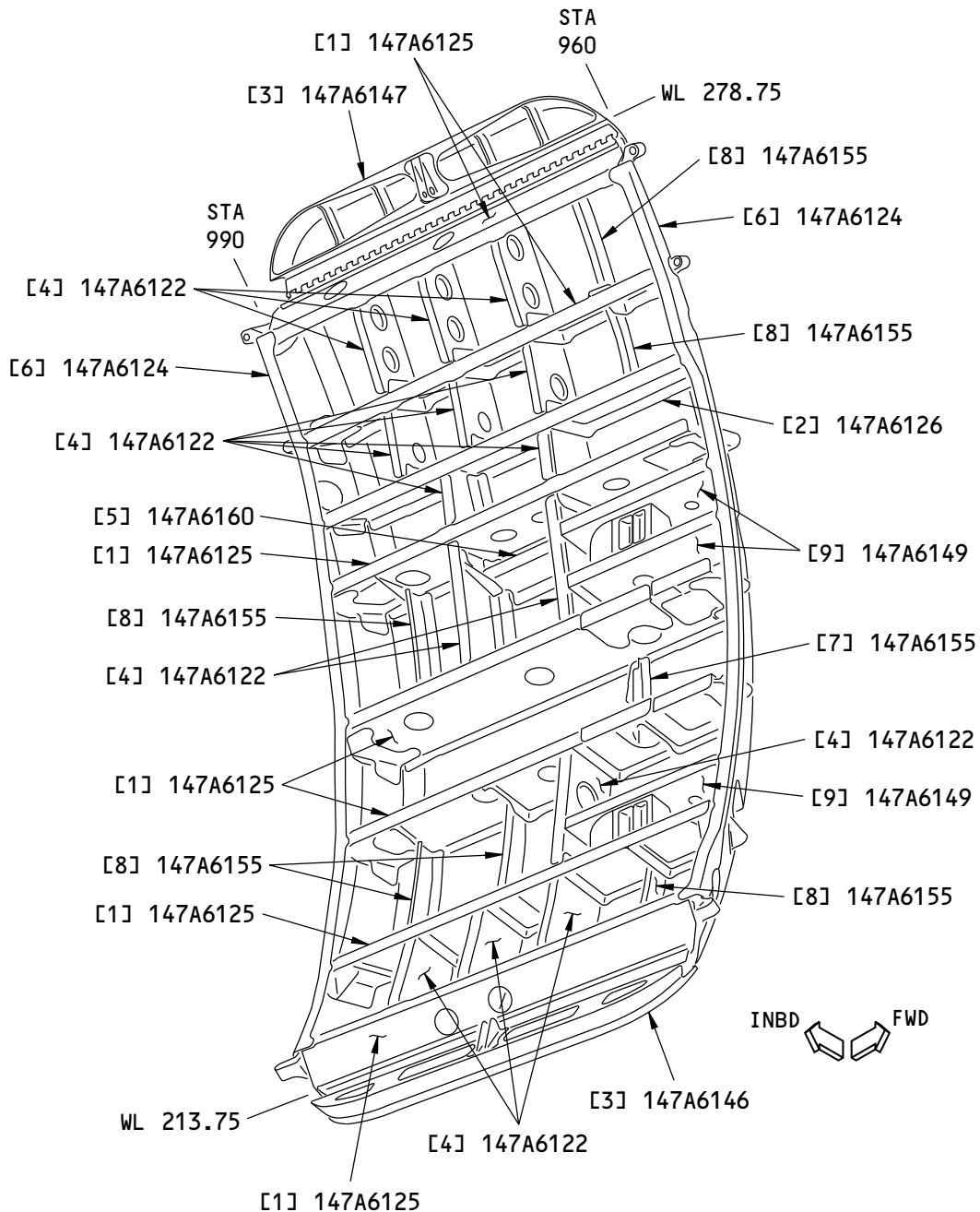
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NOTES

- REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F83066 S0006586627_V1

**Aft Entry Door Structure Identification
Figure 2 (Sheet 1 of 2)**

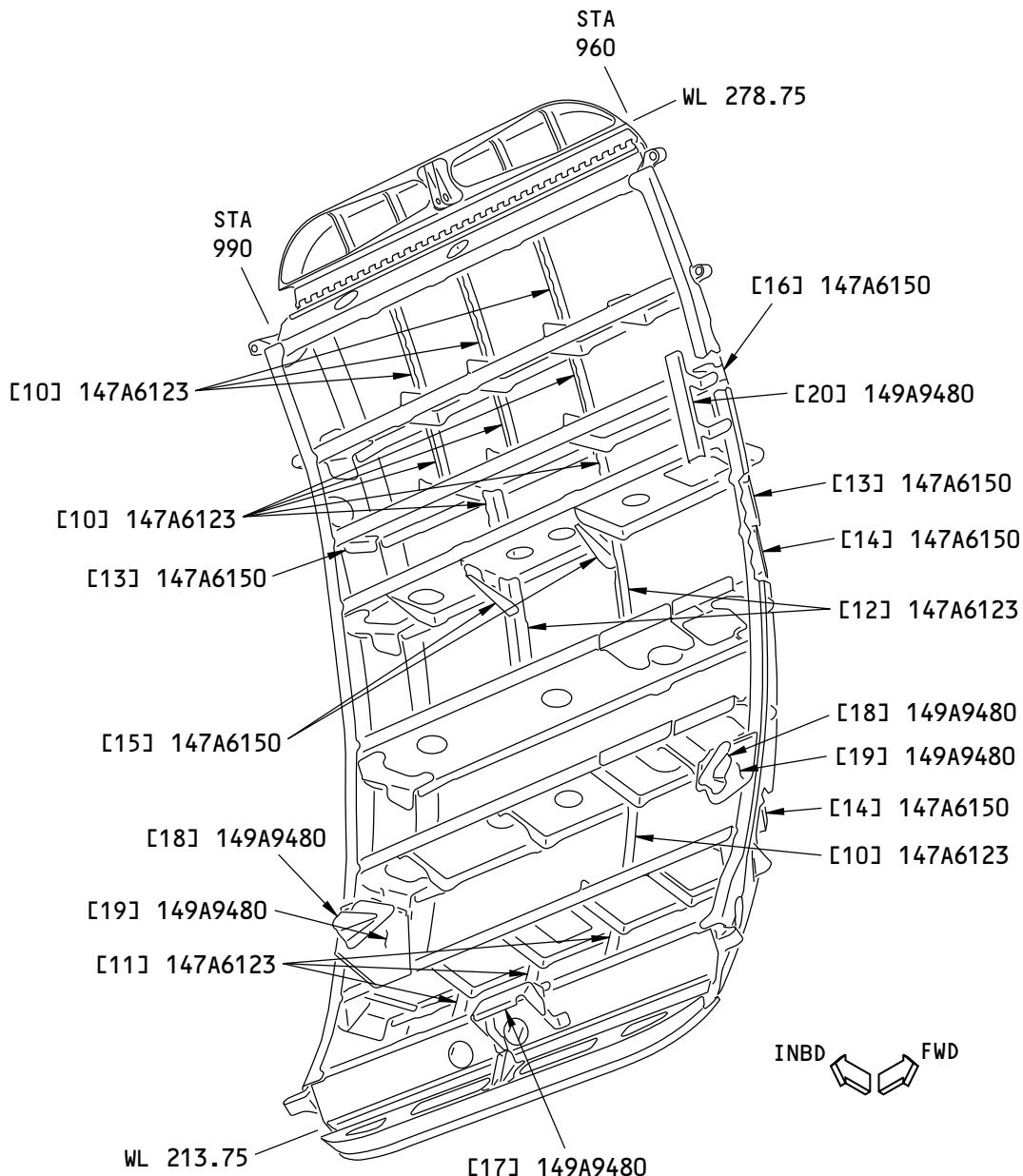
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F93304 S0006586628_V1

Aft Entry Door Structure Identification
Figure 2 (Sheet 2 of 2)

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Beam		7050-T7451 plate, Class A as given in AMS 4050. Refer to the production drawing for the machined thicknesses	
[2]	Beam		7050-T7451 plate, Class A as given in AMS 4050. Refer to the production drawing for machined thicknesses	
[3]	Endgate		AZ91E-T6 magnesium casting as given in AMS 4446	
[4]	Intercostal	0.050 (1.3)	7075-T62 clad sheet	
[5]	Intercostal	0.056 (1.4)	7075-T62 clad sheet	
[6]	Side Frame	0.080 (2.03)	2024-T42 clad sheet	
[7]	Stiffener		7075-T73511 BAC1505-100970 extrusion as given in QQ-A-200/11	
[8]	Stiffener	0.050 (1.3)	7075-T62 clad sheet	
[9]	Stub Beam		7050-T7451 plate, Class A as given in AMS 4050. Refer to the production drawing for the machined thicknesses	
[10]	Angle		7075-T73511 BAC1503-100563 extrusion	
[11]	Angle	0.050 (1.3)	7075-T62 clad sheet	
[12]	Angle	0.056 (1.4)	7075-T62 clad sheet	
[13]	Angle	0.063 (1.6)	7075-T62 clad sheet	
[14]	Angle		7075-T73511 BAC1503-100481 extrusion	
[15]	Angle		7075-T73511 BAC1503-100250 extrusion	
[16]	Tee		7075-T73511 BAC1506-3161 extrusion	
[17]	Bracket	0.063 (1.6)	2024-T42 clad sheet	
[18]	Bracket	0.071 (1.8)	2024-T42 clad sheet	
[19]	Backplate (2)	0.063 (1.6)	6013-T42 sheet as given in AMS 4347	
[20]	Handle Bracket	0.080 (2.03)	7075-T62 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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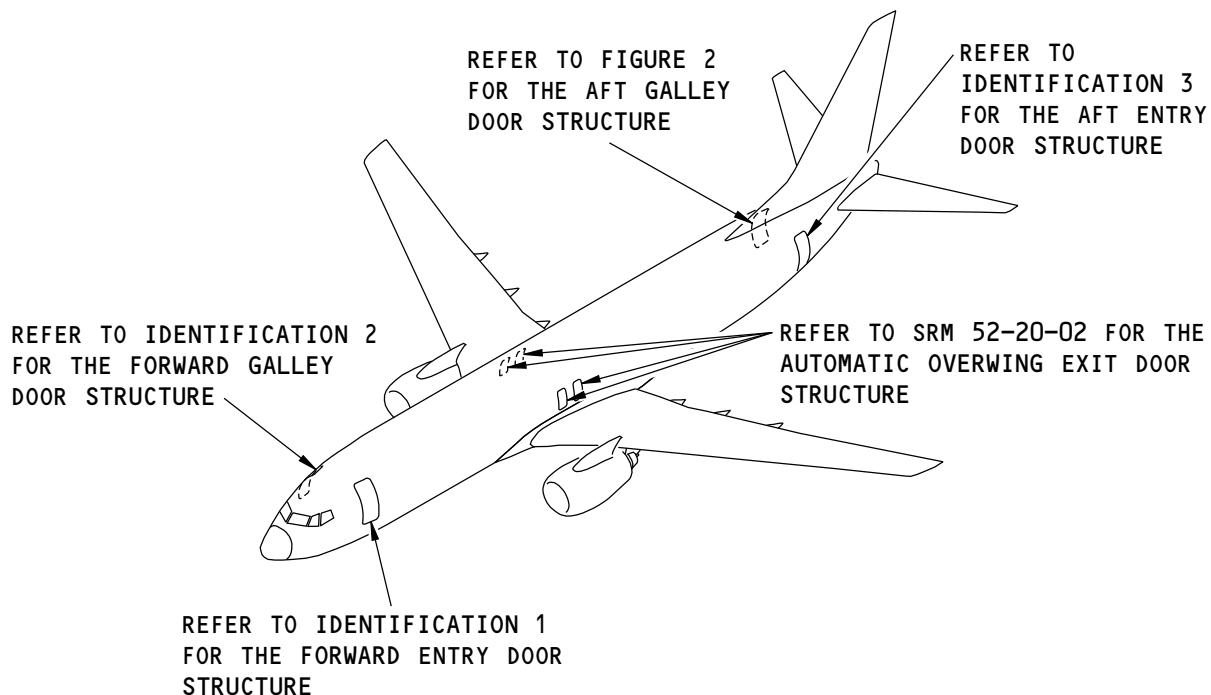
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IDENTIFICATION 4 - AFT GALLEY DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Aft Galley Door Structure Location

Figure 1

Table 1:

L46781 S0006586633_V2

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6500	Door Installation - Aft Galley Door
147A6502	Door Assembly - Aft Galley
147A6122	Intercostal, Details - Aft Entry Doors
147A6123	Outer Chords, Intercostals - Aft Doors
147A6125	Beam Assembly - Aft Doors
147A6143	End Gate Assemblies - Aft Doors
147A6131	Channel Assembly - Centering Guide

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Table 1: (Continued)

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6514	End Gate Assemblies, Upper - Aft Galley Door

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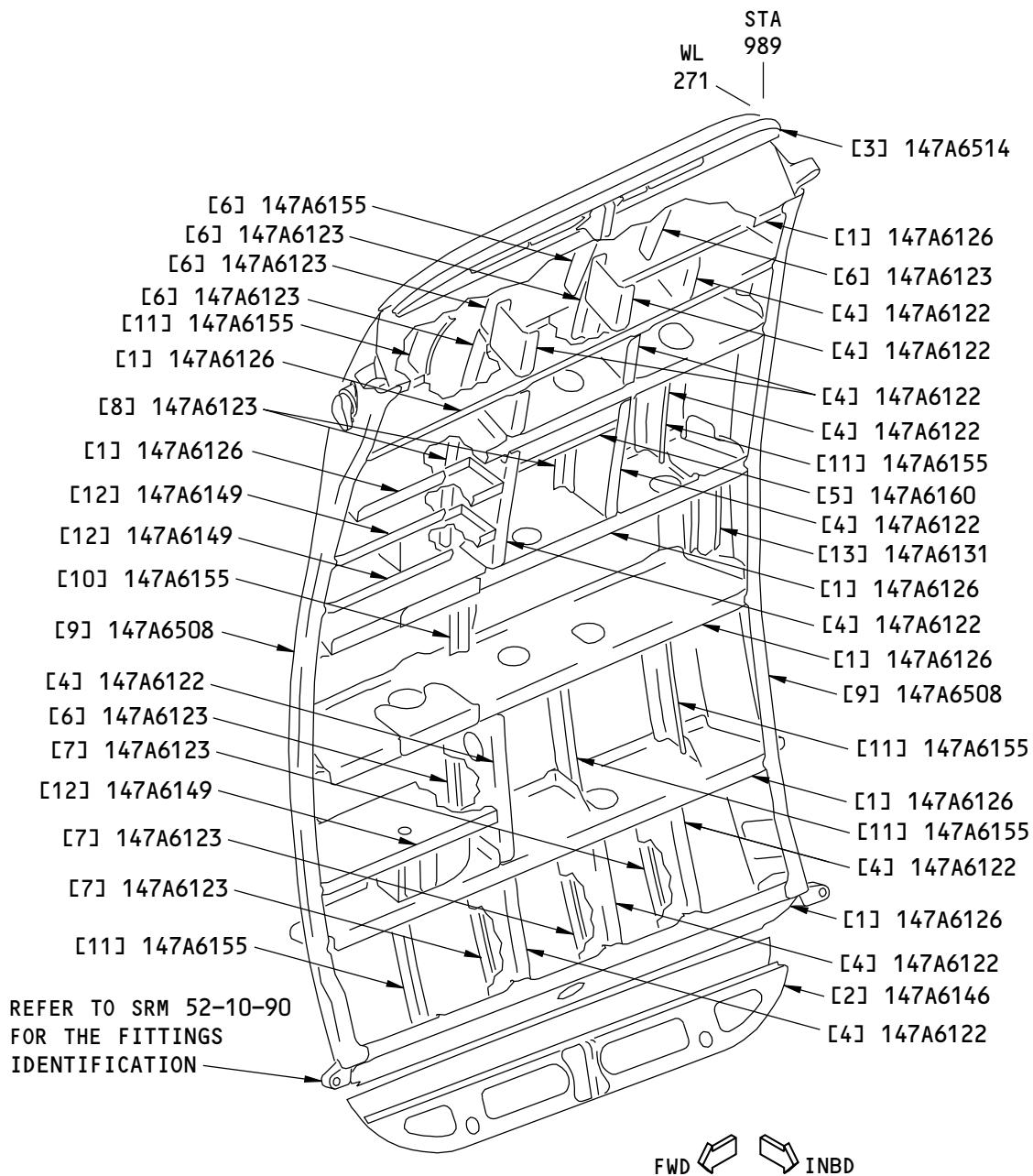
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F68972 S0006586635_V1

**Aft Galley Door Structure Identification
Figure 2**

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IDENTIFICATION 4
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Beam		7050-T7451 plate as given in AMS 4050. Refer to the production drawing for the thicknesses of the machined areas	
[2]	Endgate, Lower		AZ91E-T6 magnesium casting as given in AMS 4446	
[3]	Endgate, Upper		AZ91E-T6 magnesium casting as given in AMS 4446	
[4]	Intercostal	0.050 (1.27)	7075-T62 clad sheet	
[5]	Intercostal	0.056 (1.42)	7075-T62 clad sheet	
[6]	Angle		7075-T73511 BAC1503-100563 extrusion	
[7]	Angle	0.050 (1.27)	7075-T62 clad sheet	
[8]	Angle	0.056 (1.42)	7075-T62 clad sheet	
[9]	Side Frame	0.080 (2.03)	2024-T42 clad sheet	
[10]	Stiffener		7075-T73511 BAC1505-100970 extrusion	
[11]	Stiffener	0.050 (1.27)	7075-T62 clad sheet	
[12]	Stub Beam		7050-T7451 plate as given in AMS 4050. Refer to the production drawing for the thicknesses of the machined areas	
[13]	Channel		7050-T7451 plate as given in AMS 4050. Refer to the production drawing for the thicknesses of the machined areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 4

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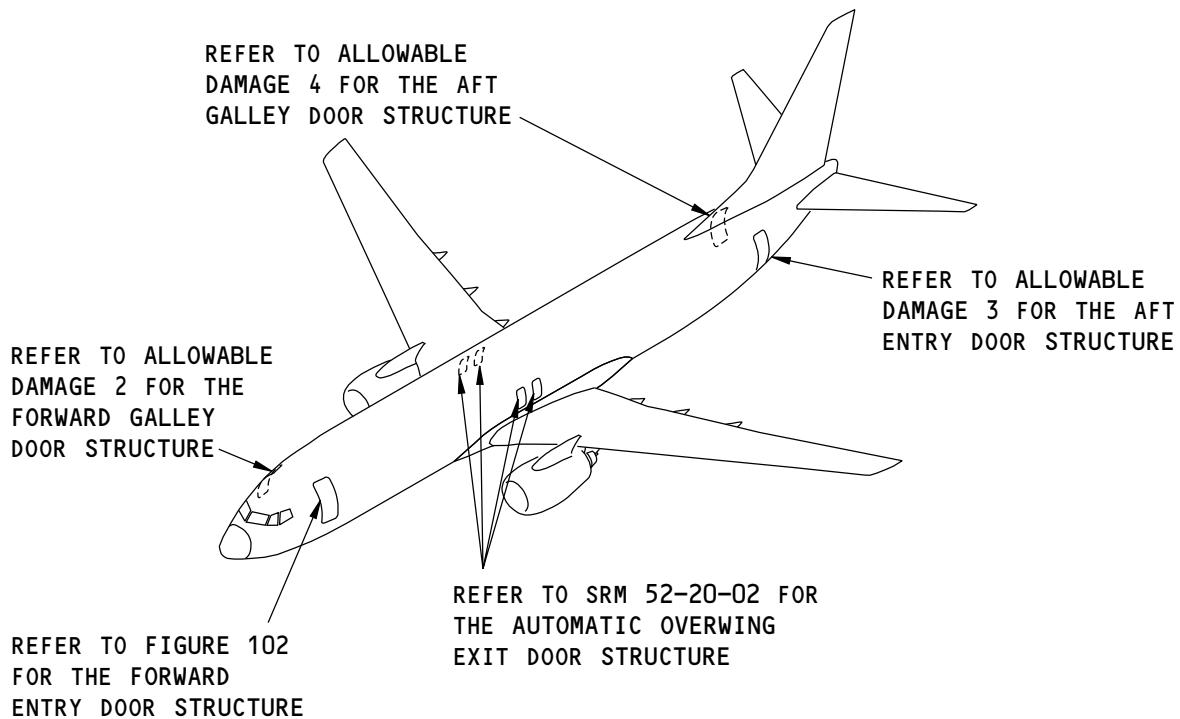


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ALLOWABLE DAMAGE 1 - FORWARD ENTRY DOOR STRUCTURE

1. Applicability

- A. This subject gives the allowable damage limits for the forward entry door structure shown in Forward Entry Door Structure Location, Figure 101/ALLOWABLE DAMAGE 1 and Forward Entry Door Structure, Figure 102/ALLOWABLE DAMAGE 1.



Forward Entry Door Structure Location
Figure 101

K39204 S0006586641_V1

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ALLOWABLE DAMAGE 1

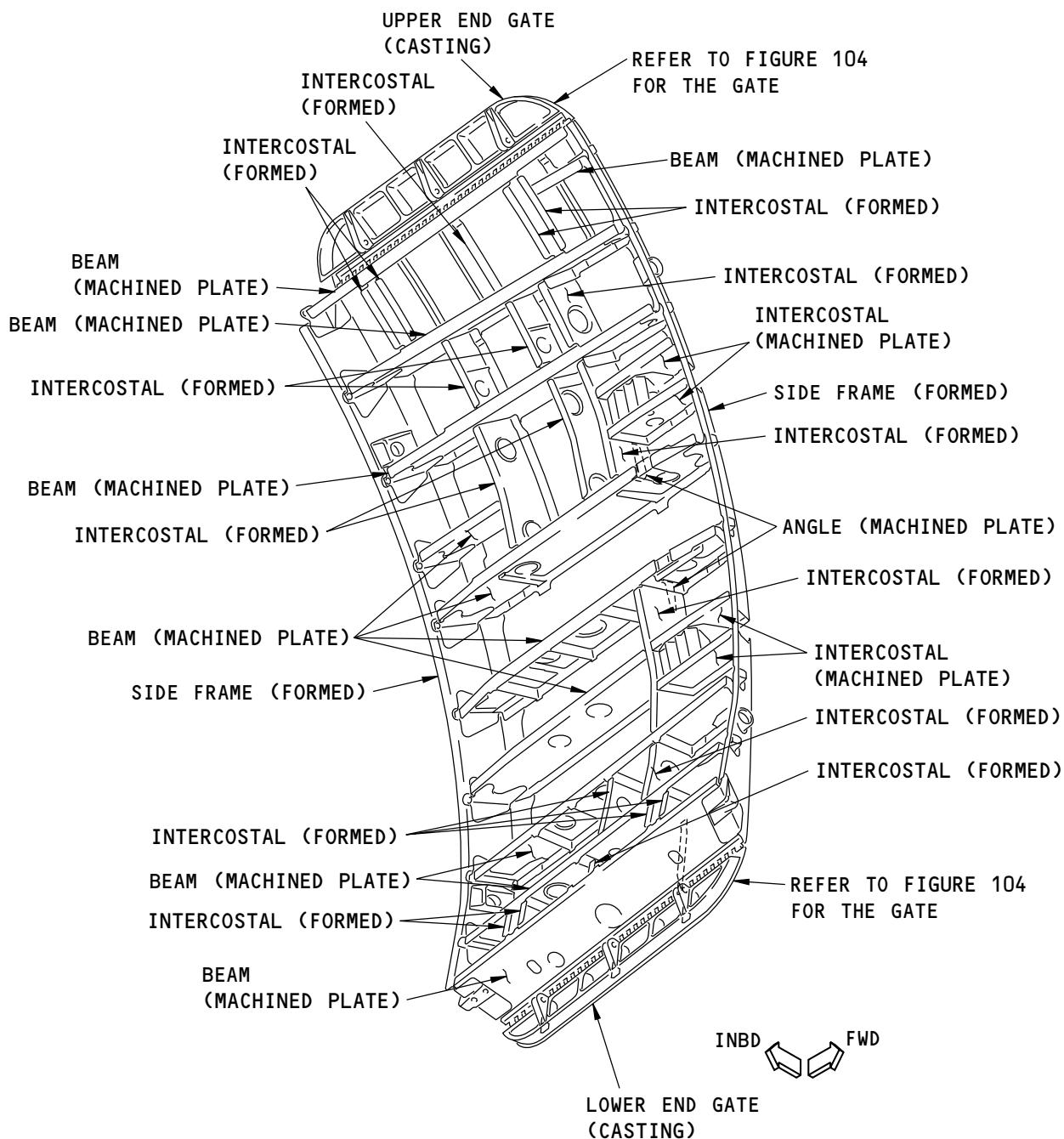
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NOTE: REFER TO SRM 52-10-90 FOR THE FITTING DATA.

F92634 S0006586642_V1

Forward Entry Door Structure
Figure 102

52-10-02

ALLOWABLE DAMAGE 1

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2. General

- A. Refer to Paragraph 4./ALLOWABLE DAMAGE 1 for the allowable damage limits. Refer to Table 101/ ALLOWABLE DAMAGE 1 for the references for the allowable damage limits for each type of structure.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
ANGLE (MACHINED)	4.A
BEAMS (MACHINED)	4.A
INTERCOSTALS (MACHINED)	4.A
INTERCOSTALS (FORMED)	4.B
SIDE FRAMES FWD/AFT (FORMED)	4.B
UPPER AND LOWER GATE - GENERAL STRUCTURE AND HINGE PLATES (CASTING)	4.C
UPPER AND LOWER GATE - CLEVISES (CASTING)	4.D

- B. Remove the damage as necessary.
- (1) Refer to 51-10-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for possible sources of abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the possible sources of equipment and tools you can use to remove the damage.
- C. After you remove the damage, do the procedures that follow:
- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas of non-aerodynamic surfaces as given in SOPM 20-41-02.
 - (3) Apply two layers of BMS 10-79, Type I primer to the reworked areas of the aerodynamic surfaces of the gates as given in SOPM 20-44-04.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-44-04	Application of Urethane Compatible Primer

4. Allowable Damage Limits

- A. Angles, Intercostals, and Beams - Machined Plate

- (1) Cracks:

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ALLOWABLE DAMAGE 1

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- (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , E , and H .
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , D , E , F and H .
 - (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail G .
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (6.35 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius
 - (d) Filled with a 2117-T3 or 2117-T4 protruding head rivet.
 - 1) Install the rivet without sealant.
- B. Intercostals and Side Frames - Formed
- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , and C .
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , and F .
 - (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail G .
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (6.35 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius
 - (d) Filled with a 2117-T3 or 2117-T4 protruding head rivet.
 - 1) Install the rivet without sealant.
- C. Upper and Lower Gate - General Structure and Hinge Plates
- (1) Refer to Upper and Lower Gate Allowable Damage, Figure 104/ALLOWABLE DAMAGE 1 for the allowable damage zones of the upper and lower gates, clevises, and hinge plates.
 - (2) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , E , and H .
 - (3) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the edge damage as shown in Allowable Damage Limits, Figure 103/ ALLOWABLE DAMAGE 1, Details A , B , D , E , F , and H .
 - (4) Dents are not permitted.
 - (5) Holes and Punctures are not permitted.
- D. Upper and Lower Gate - Clevises

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ALLOWABLE DAMAGE 1

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- (1) Cracks are not permitted.
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , D , E , H , and I .
- (3) Dents are not permitted.
- (4) Holes and Punctures are not permitted.

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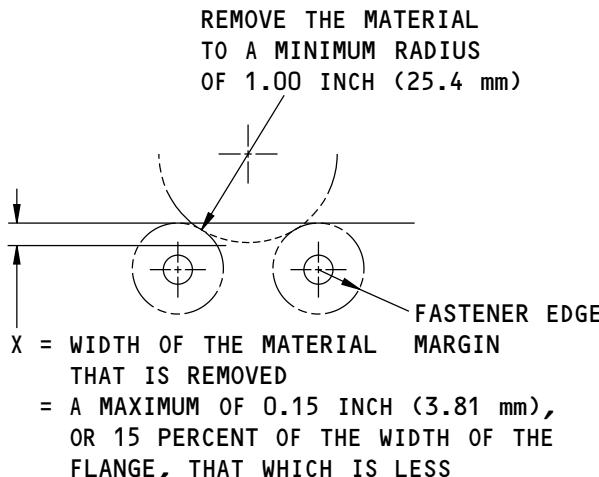
ALLOWABLE DAMAGE 1

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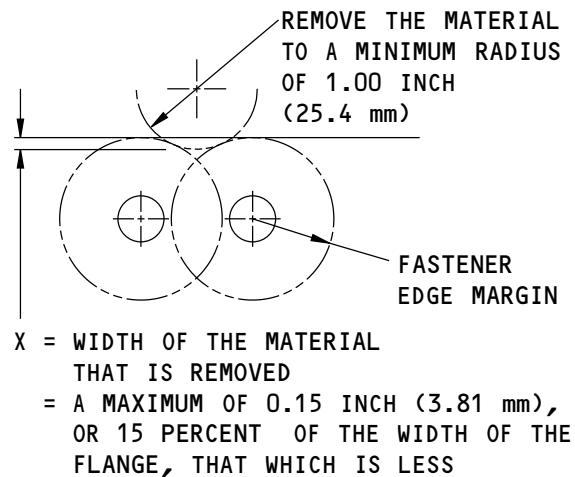
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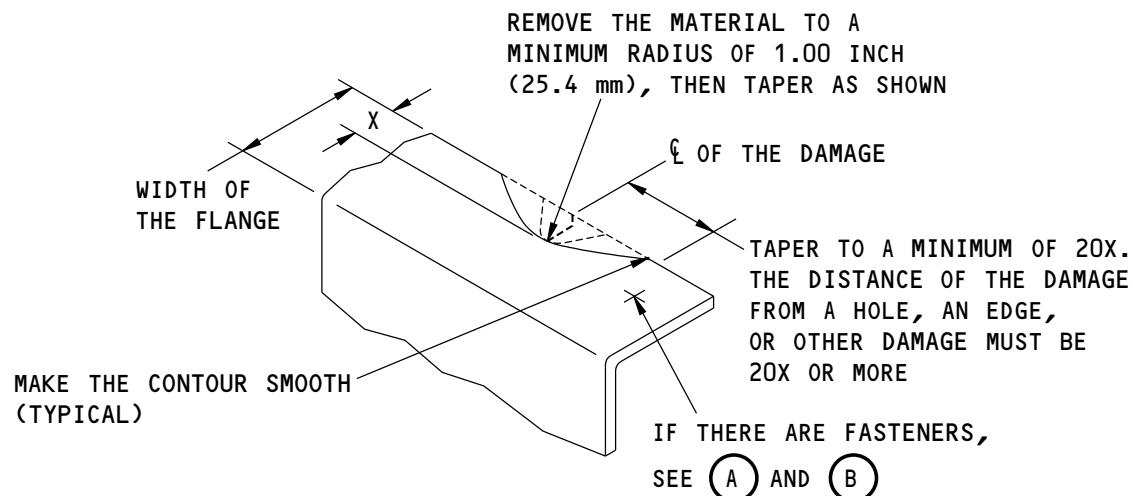
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(A)

(B)



REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

F94017 S0006586644_V1

Allowable Damage Limits
Figure 103 (Sheet 1 of 6)

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ALLOWABLE DAMAGE 1

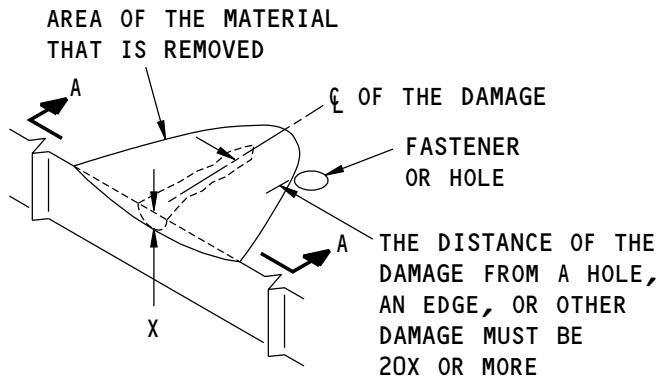
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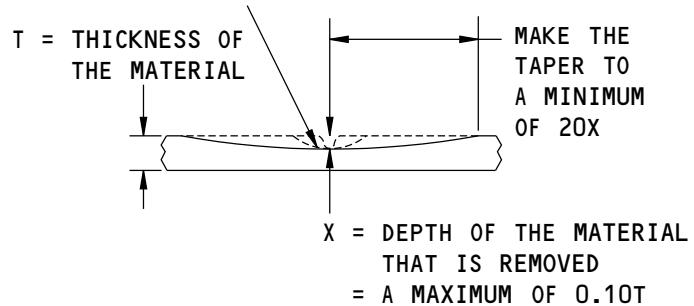
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REMOVAL OF DAMAGED MATERIAL
ON A SURFACE

(D)

REMOVE THE MATERIAL TO A
MINIMUM RADIUS OF 1.00 INCH,
THEN TAPER AS SHOWN



A-A

F94018 S0006586645_V1

Allowable Damage Limits
Figure 103 (Sheet 2 of 6)

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ALLOWABLE DAMAGE 1

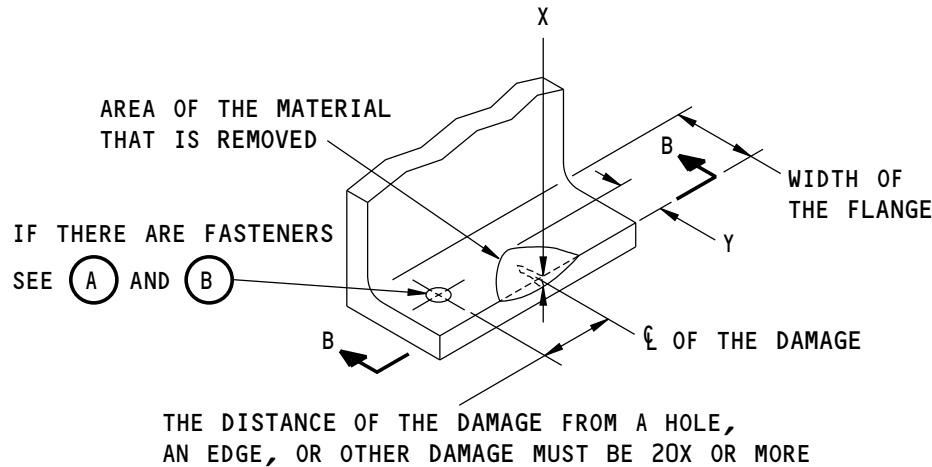
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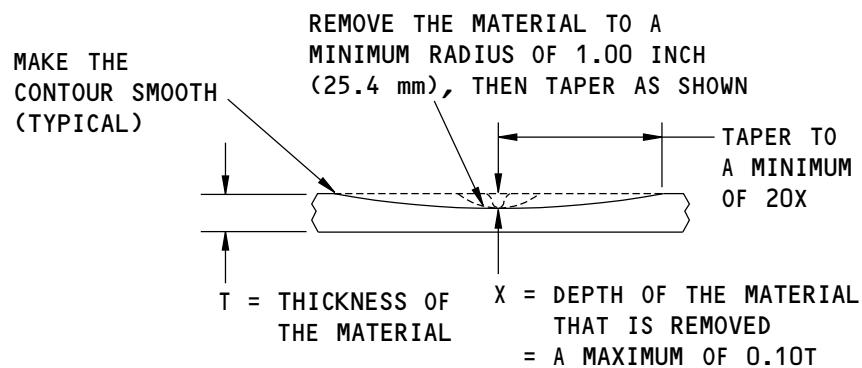
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Y = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE

(E)



B-B

F94020 S0006586646_V1

Allowable Damage Limits
Figure 103 (Sheet 3 of 6)

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ALLOWABLE DAMAGE 1

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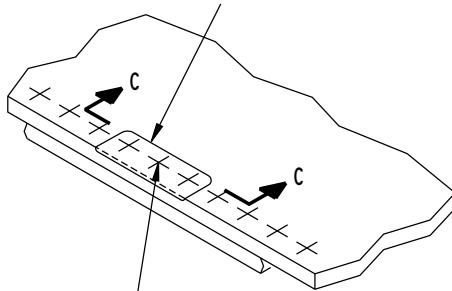
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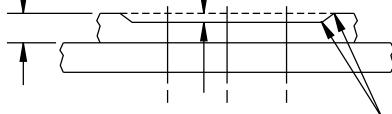
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THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



T = THICKNESS OF THE MATERIAL
 X = DEPTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10T



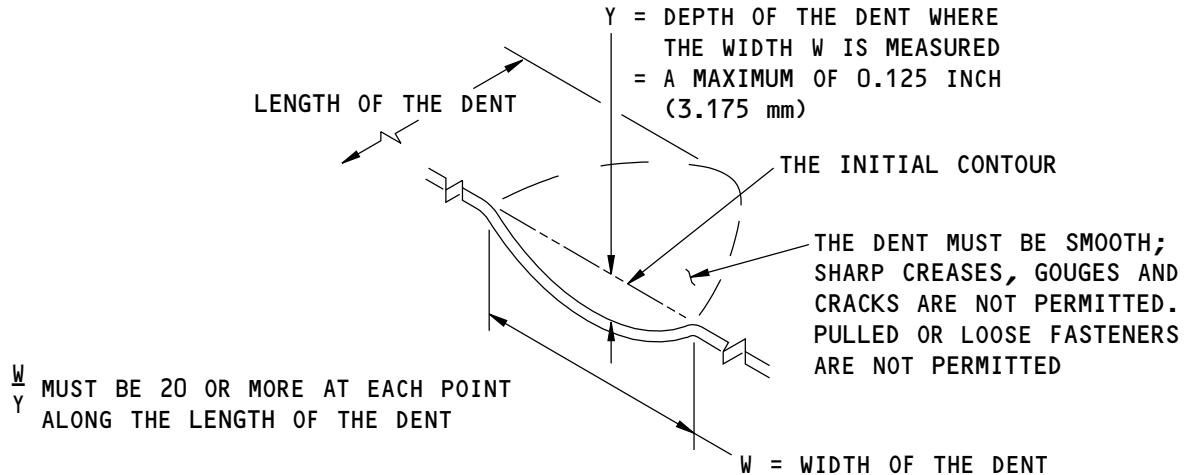
REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (12.7 mm) (TYPICAL)

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

C-C

(F)



DENT THAT IS PERMITTED

(G)

F94021 S0006586647_V2

Allowable Damage Limits
Figure 103 (Sheet 4 of 6)

52-10-02

ALLOWABLE DAMAGE 1

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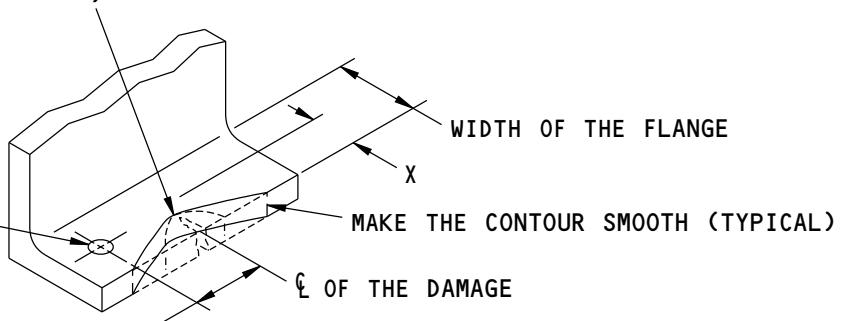
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STRUCTURAL REPAIR MANUAL

REMOVE THE MATERIAL TO A MINIMUM RADIUS
OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN

IF THERE ARE FASTENERS,
SEE (A) AND (B)



TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE FROM A HOLE,
AN EDGE, OR OTHER DAMAGE MUST BE 20x
OR MORE

X = WIDTH OF THE MATERIAL REMOVED
= A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.15 INCH (3.81 mm),
THAT WHICH IS LESS

REMOVAL OF DAMAGED MATERIAL AT AN EDGE



G82982 S0006586648_V1

Allowable Damage Limits
Figure 103 (Sheet 5 of 6)

52-10-02

ALLOWABLE DAMAGE 1

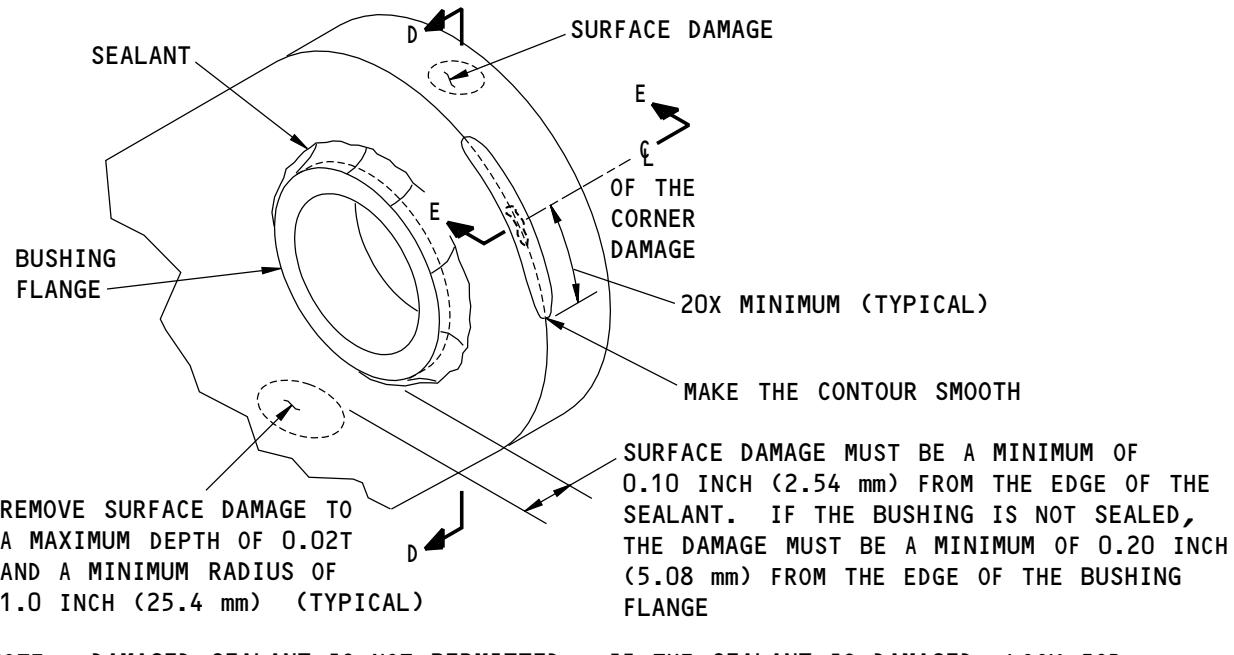
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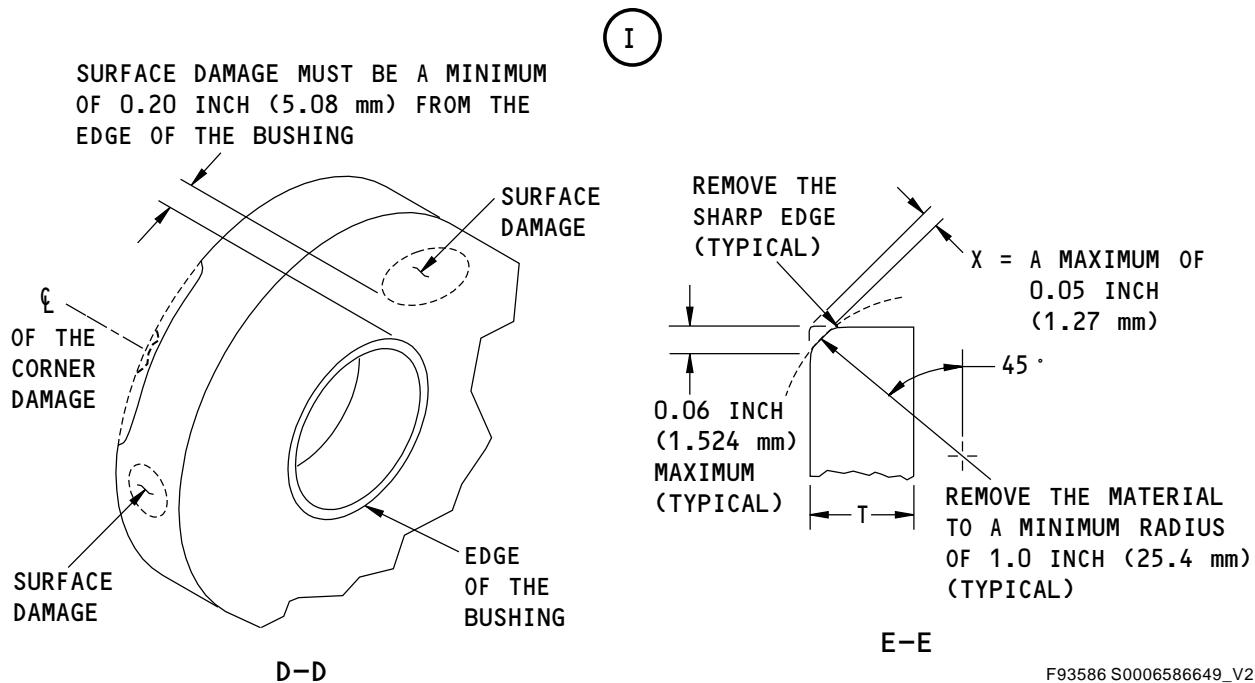
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STRUCTURAL REPAIR MANUAL



NOTE: DAMAGED SEALANT IS NOT PERMITTED. IF THE SEALANT IS DAMAGED, LOOK FOR MIGRATION OR ROTATION OF THE BUSHING. IF THERE IS NO MIGRATION, ROTATION, OR CORROSION, REMOVE THE DAMAGED SEALANT AND APPLY A NEW FILLET SEAL.

REMOVAL OF SURFACE AND EDGE DAMAGE FROM A LUG THAT HAS A BUSHING



F93586 S0006586649_V2

Allowable Damage Limits
Figure 103 (Sheet 6 of 6)

52-10-02

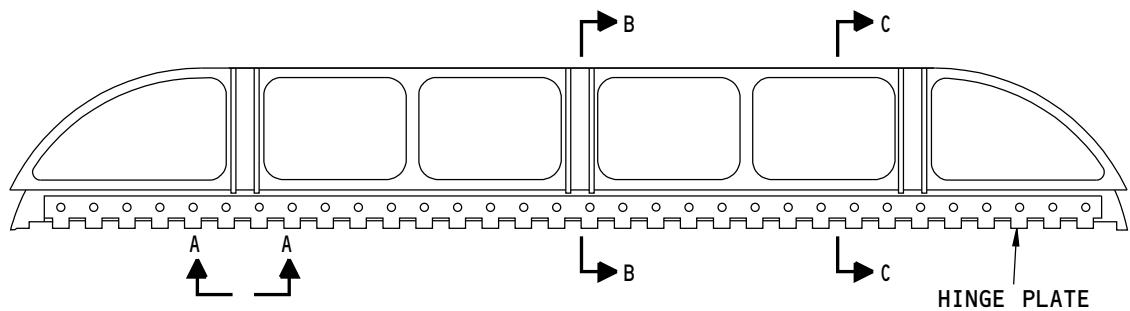
ALLOWABLE DAMAGE 1

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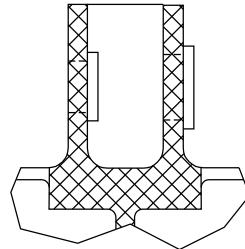
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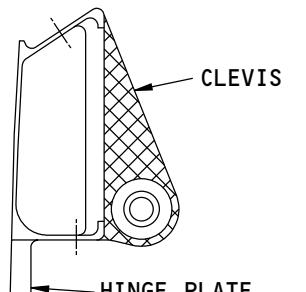
737-800
STRUCTURAL REPAIR MANUAL



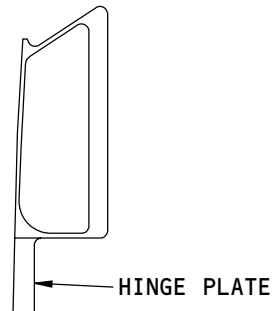
THE UPPER GATE IS SHOWN, THE LOWER GATE IS ALMOST THE SAME



AFT CLEVIS SHOWN, OTHER CLEVISES ARE THE SAME
A-A



B-B



C-C



GENERAL STRUCTURE, HINGE PLATE



CLEVIS

F93584 S0006586650_V1

Upper and Lower Gate Allowable Damage
Figure 104

52-10-02

ALLOWABLE DAMAGE 1

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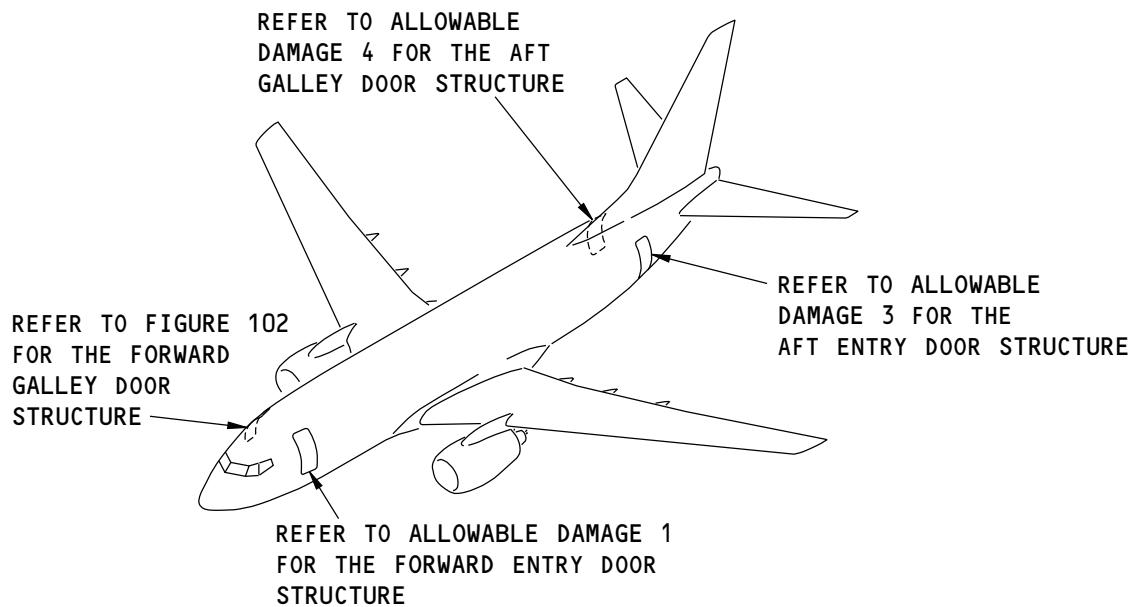


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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 2 - FORWARD GALLEY DOOR STRUCTURE

1. Applicability

- A. This subject gives the allowable damage limits for the forward galley door structure shown in Forward Galley Door Location, Figure 101/ALLOWABLE DAMAGE 2 and Forward Galley Door Structure, Figure 102/ALLOWABLE DAMAGE 2.



Forward Galley Door Location
Figure 101

F96195 S0006586652_V1

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ALLOWABLE DAMAGE 2

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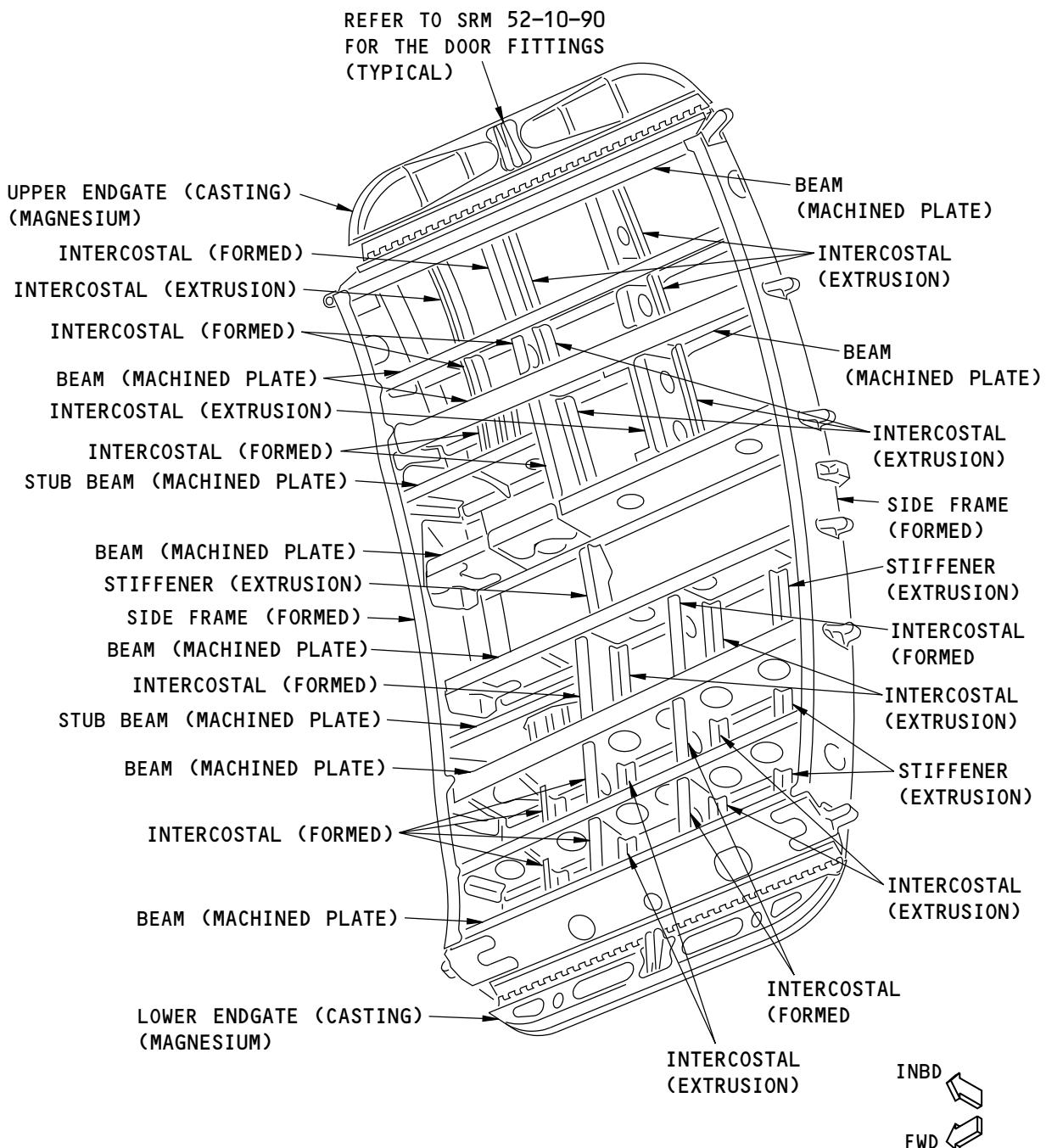
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NOTE: ALL PARTS ARE MADE FROM ALUMINUM (EXCEPT AS NOTED).

F96203 S0006586653_V1

Forward Galley Door Structure
Figure 102

52-10-02

ALLOWABLE DAMAGE 2

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2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 2. Refer to Table 101/ALLOWABLE DAMAGE 2 for the references for the allowable damage limits for each type of structure.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
Angles (Extrusion)	4.A
Angles (Formed)	4.B
Beams (Machined Plate)	4.A
Intercostals (Extrusion)	4.A
Intercostals (Formed)	4.B
Side Frames Fwd/Aft (Formed)	4.B
Stiffeners (Extrusion)	4.A
Upper and Lower Endgate (Casting)	4.C

- B. Remove the damaged material as necessary.

NOTE: The procedures that follow do not apply to dent damage.

- (1) Refer to 51-10-02 for the inspection and removal of damage.
- (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
- (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. If damage has been removed from aluminum parts, do the steps that follow:

- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.

WARNING: USE CARE WHEN YOU REWORK MAGNESIUM. SMALL PARTICLES AND FINE SHAVINGS OF MAGNESIUM ARE HIGHLY FLAMMABLE. MAGNESIUM DUST IS HIGHLY FLAMMABLE AND CAN CAUSE AN EXPLOSION. DO NOT PUT WATER ON HOT MAGNESIUM. A STEAM EXPLOSION CAN OCCUR. EXTINGUISH ALL FIRES OF MAGNESIUM WITH FULLY DRY TALC, CALCIUM CARBONATE, SAND, OR GRAPHITE. APPLY THE POWDER TO A DEPTH OF 1/2 INCH OR MORE ON TOP OF THE BURNING METAL. DO NOT USE FOAM, WATER, CARBON TETRACHLORIDE, HALON, OR CARBON DIOXIDE. IF YOU DO NOT OBEY, INJURY TO PERSONS CAN OCCUR. WEAR PROTECTIVE GOGGLES OR A FACE SHIELD WHEN YOU REMOVE THE CORROSION. IF YOU DO NOT OBEY, INJURY TO PERSONS CAN OCCUR.

- D. If damage has been removed from magnesium parts, do the steps that follow:

- (1) Apply a DOW 19 chemical conversion coating to the reworked areas as given in 51-20-01.

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ALLOWABLE DAMAGE 2

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- (2) Apply two layers of BMS 10-79, Type III primer to the reworked areas as given in SOPM 20-44-04.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-44-04	Application of Urethane Compatible Primer
737 NDT Part 6, 51-00-00, Procedure 4	Surface Inspection of Aluminum Parts (Meter Display)

4. Allowable Damage Limits - Forward Galley Door Structure

- A. Angles, Beams, Stub Beams, Intercostals and Stiffeners - Machined Plate and Extrusion.
- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A, B, D, and H.
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A, B, D, E, F, and H.
 - (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Detail G.
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (6.4 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius
 - (d) Filled with a 2017-T3 or 2017-T4 protruding head rivet.
 - 1) Install the rivet without sealant.

B. Angles, Backplate, Brackets, Intercostals, and Side Frames - Formed

- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A, B, and C.
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A, B, C, D, E, and F.
- (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Detail G.
- (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (6.4 mm) in diameter

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ALLOWABLE DAMAGE 2

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- (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius
 - (d) Filled with a 2017-T3 or 2017-T4 protruding head rivet.
 - 1) Install the rivet without sealant.
- C. Upper and Lower Endgate - Casting
- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A, B, and H.
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A, B, D, F, and H.
 - (3) Dents are not permitted.
 - (4) Holes and Punctures are not permitted.

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ALLOWABLE DAMAGE 2

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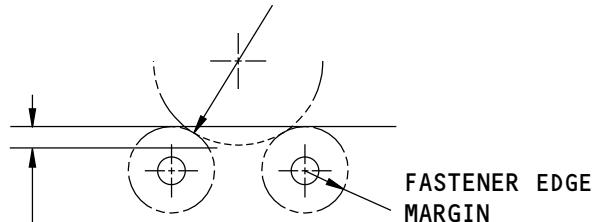
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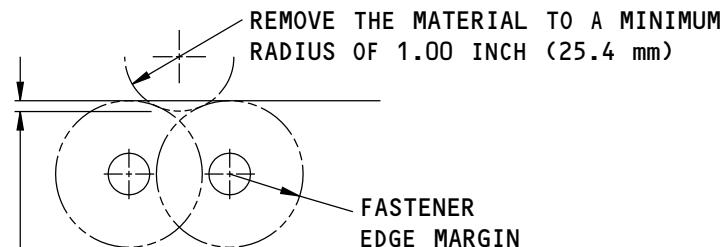
REMOVE THE MATERIAL TO A MINIMUM
RADIUS OF 1.00 INCH (25.4 mm)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH (2.54 mm) OR 10 PERCENT OF THE
WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
= A MAXIMUM OF 0.15 INCH (3.81 mm) OR 15 PERCENT OF THE
WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE
FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH (2.54 mm) OR 10 PERCENT OF
THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
= A MAXIMUM OF 0.15 INCH (3.81 mm) OR 15 PERCENT OF
THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER
EDGE MARGINS HAVE AN OVERLAP

(B)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

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Allowable Damage Limits
Figure 103 (Sheet 1 of 4)

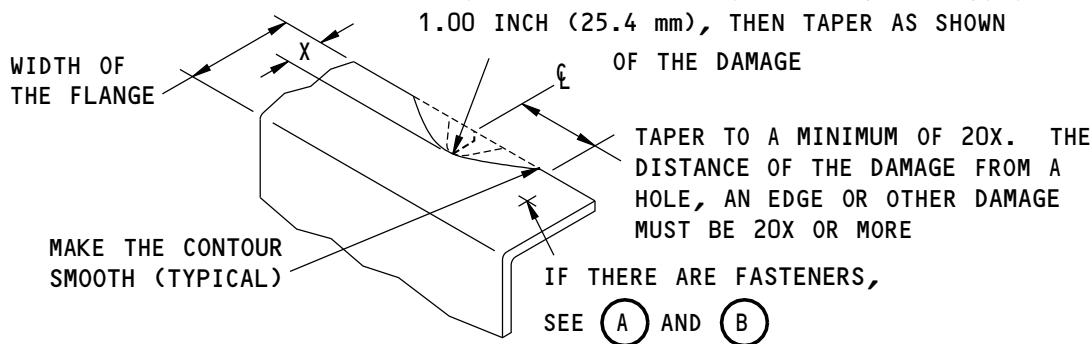
52-10-02

ALLOWABLE DAMAGE 2

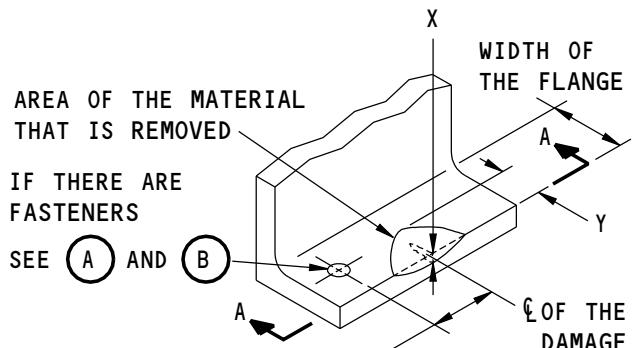
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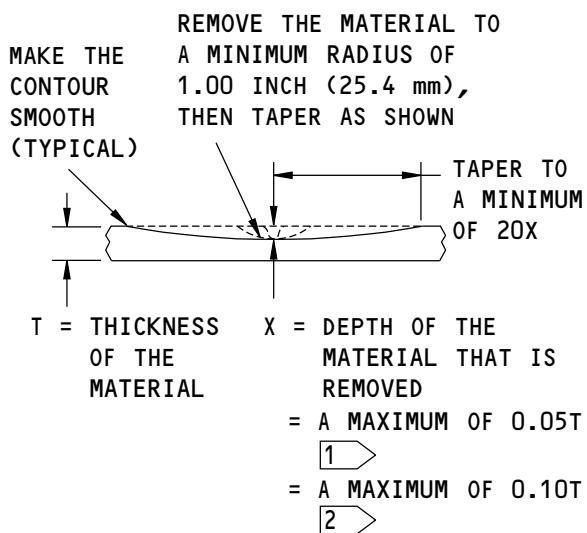
**737-800
STRUCTURAL REPAIR MANUAL**


X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10 INCH (2.54 mm) OR 10 PERCENT OF THE WIDTH OF THE FLANGE,
 THAT WHICH IS LESS **1**
 = A MAXIMUM OF 0.15 INCH (3.81 mm) OR 15 PERCENT OF THE WIDTH OF THE FLANGE,
 THAT WHICH IS LESS **2**

REMOVAL OF DAMAGED MATERIAL ON AN EDGE
(C)


THE DISTANCE OF THE DAMAGE FROM A HOLE, AN EDGE, OR OTHER DAMAGE MUST BE 20X OR MORE
 MUST BE 20X OR MORE

Y = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 5 PERCENT OF THE WIDTH OF THE FLANGE **1**
 = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE **2**

REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE
(D)

A-A

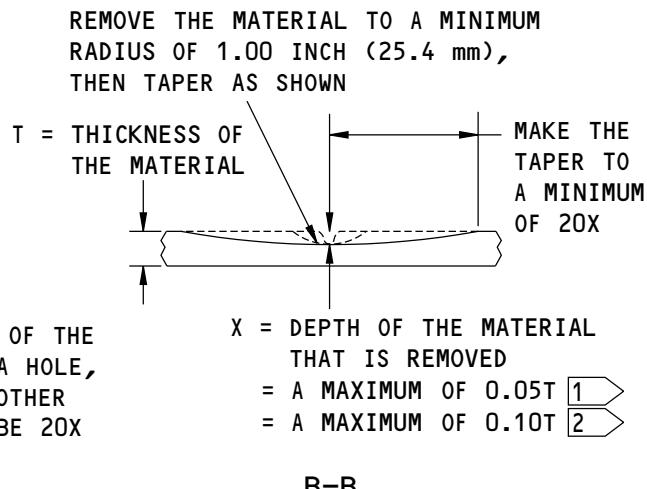
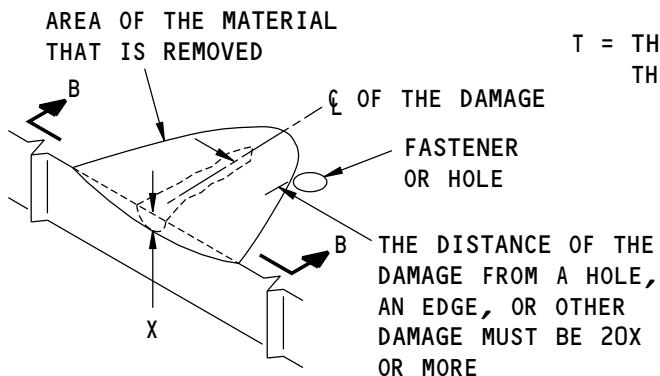
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Allowable Damage Limits
Figure 103 (Sheet 2 of 4)

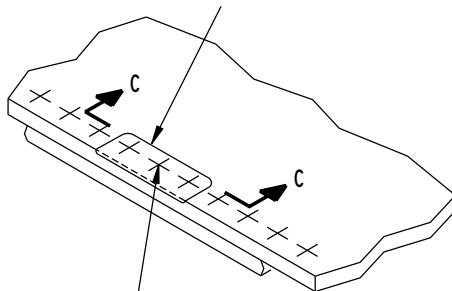
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ALLOWABLE DAMAGE 2

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**737-800
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REMOVAL OF DAMAGED MATERIAL ON A SURFACE
(E)

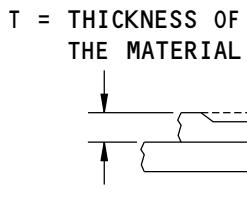
THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE
(F)

X = DEPTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.05T **1**
= A MAXIMUM OF 0.10T **2**



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (12.7 mm) (TYPICAL)

C-C

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**Allowable Damage Limits
Figure 103 (Sheet 3 of 4)**

52-10-02

ALLOWABLE DAMAGE 2

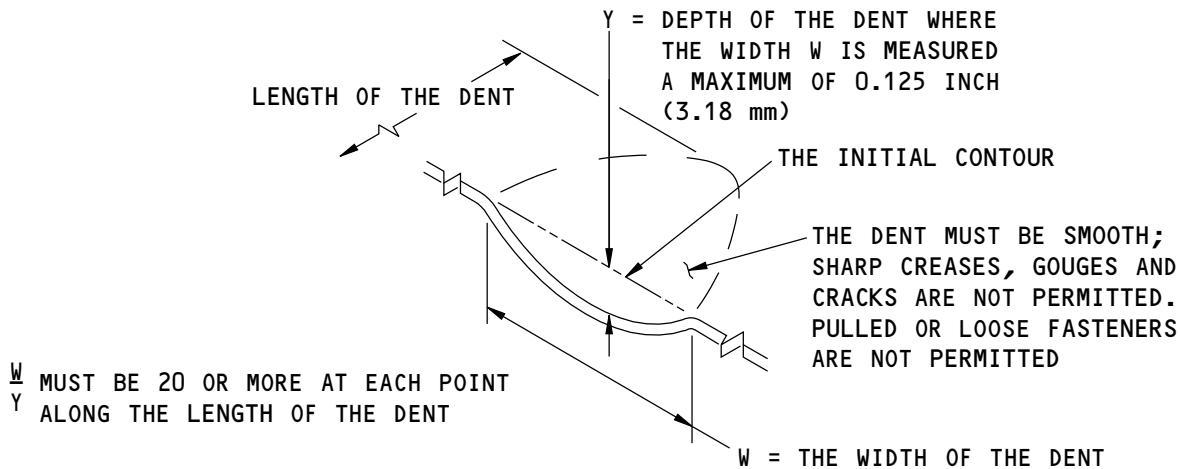
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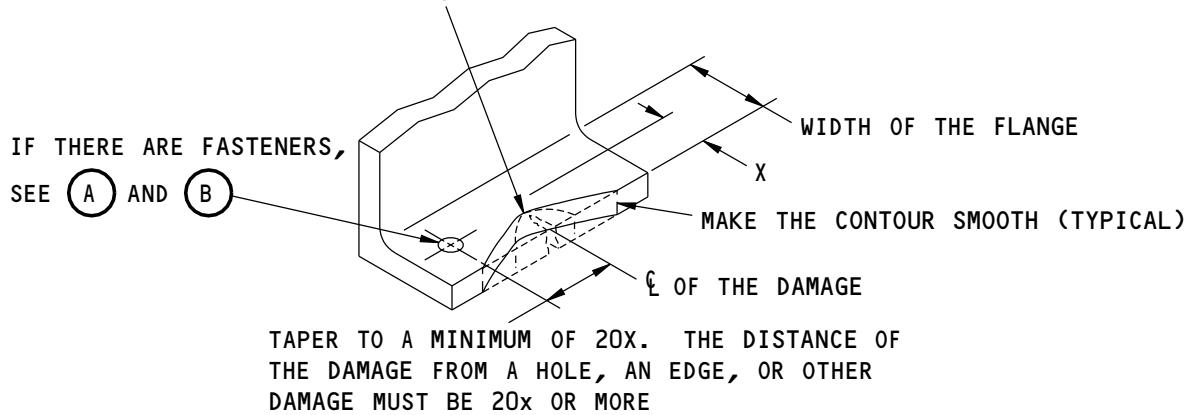
737-800
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DENT THAT IS PERMITTED



REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN



X = Width of the material removed
= A maximum of 0.10 inch (2.54 mm) or 10 percent of the width of the flange, that which is less [1]
= A maximum of 0.15 inch (3.81 mm) or 15 percent of the width of the flange, that which is less [2]

REMOVAL OF DAMAGED MATERIAL AT AN EDGE



400555 S0000137468_V1

Allowable Damage Limits
Figure 103 (Sheet 4 of 4)

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ALLOWABLE DAMAGE 2

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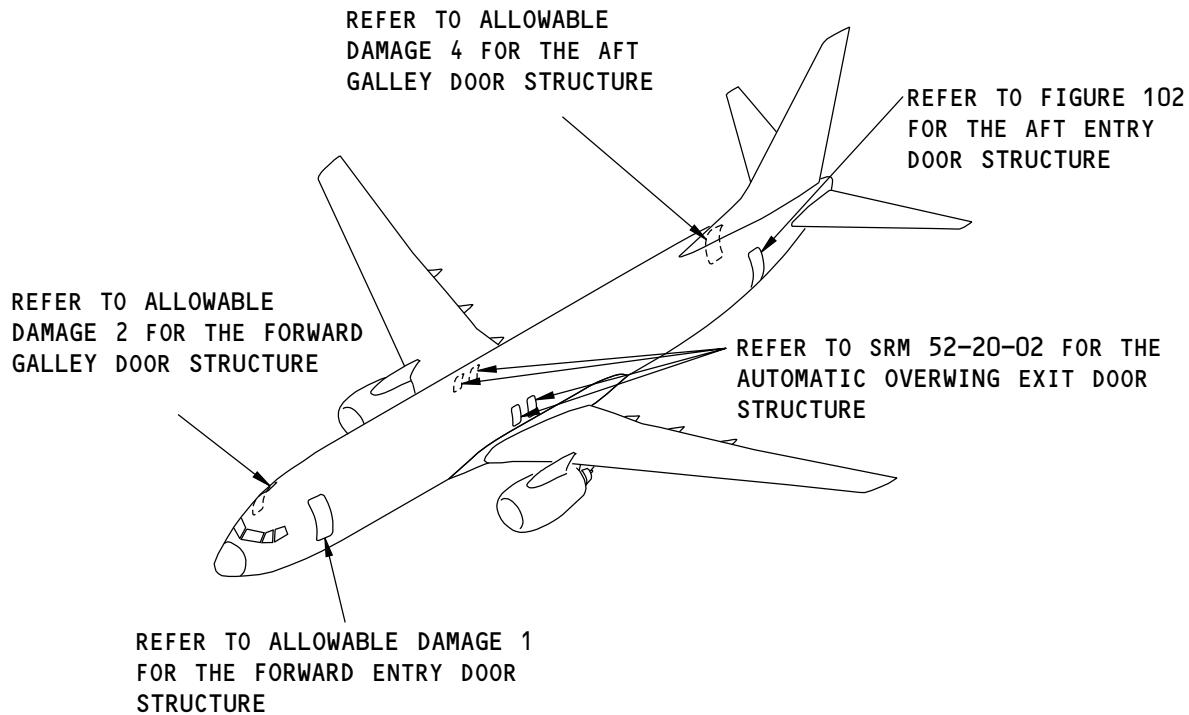


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ALLOWABLE DAMAGE 3 - AFT ENTRY DOOR STRUCTURE

1. Applicability

- A. This subject gives the allowable damage limits for the structure of the aft entry door shown in Aft Entry Door Structure Location, Figure 101/ALLOWABLE DAMAGE 3 and Aft Entry Door Structure Allowable Damage, Figure 102/ALLOWABLE DAMAGE 3.



**Aft Entry Door Structure Location
Figure 101**

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52-10-02

ALLOWABLE DAMAGE 3

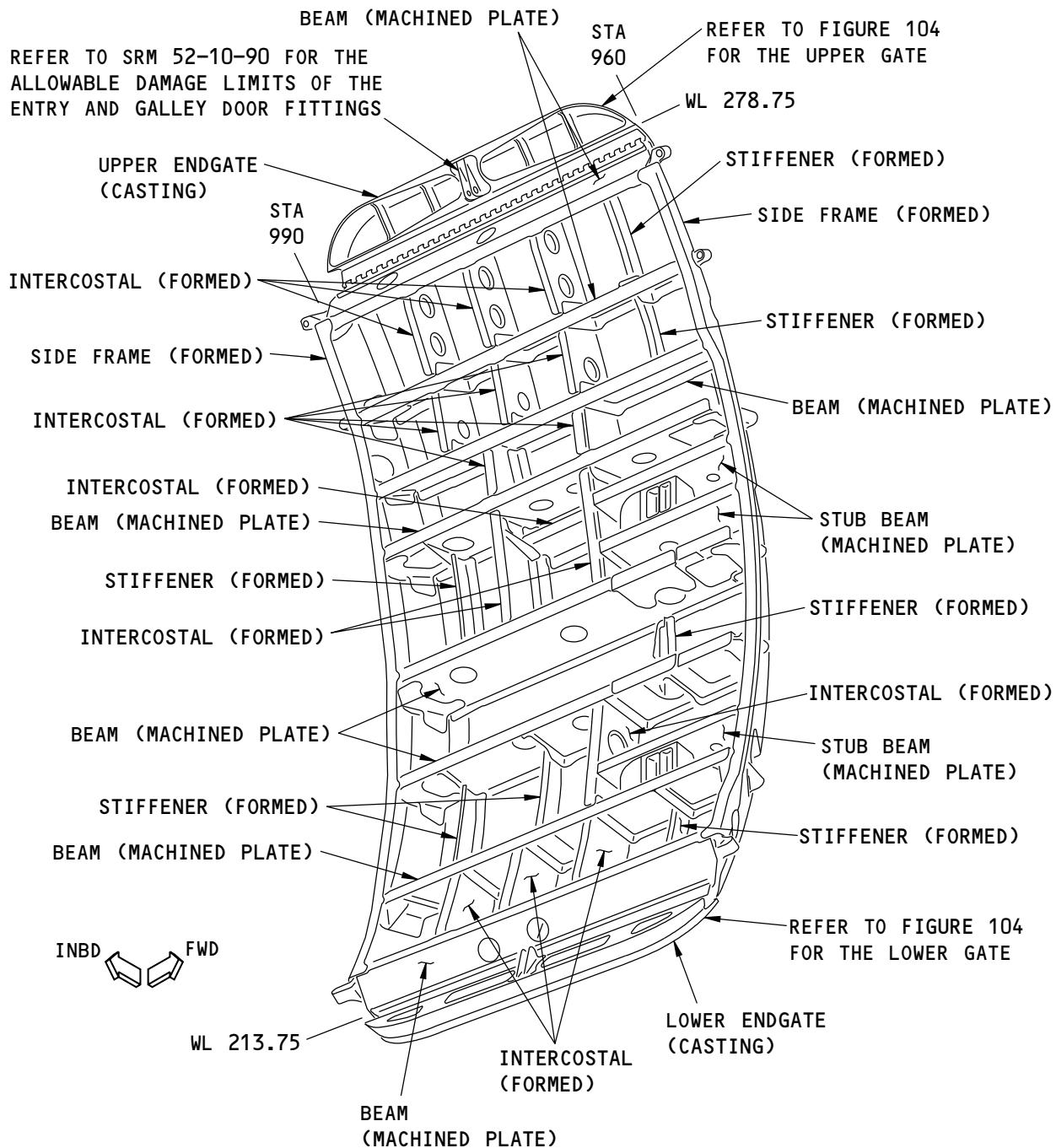
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Aft Entry Door Structure Allowable Damage
Figure 102 (Sheet 1 of 2)

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ALLOWABLE DAMAGE 3

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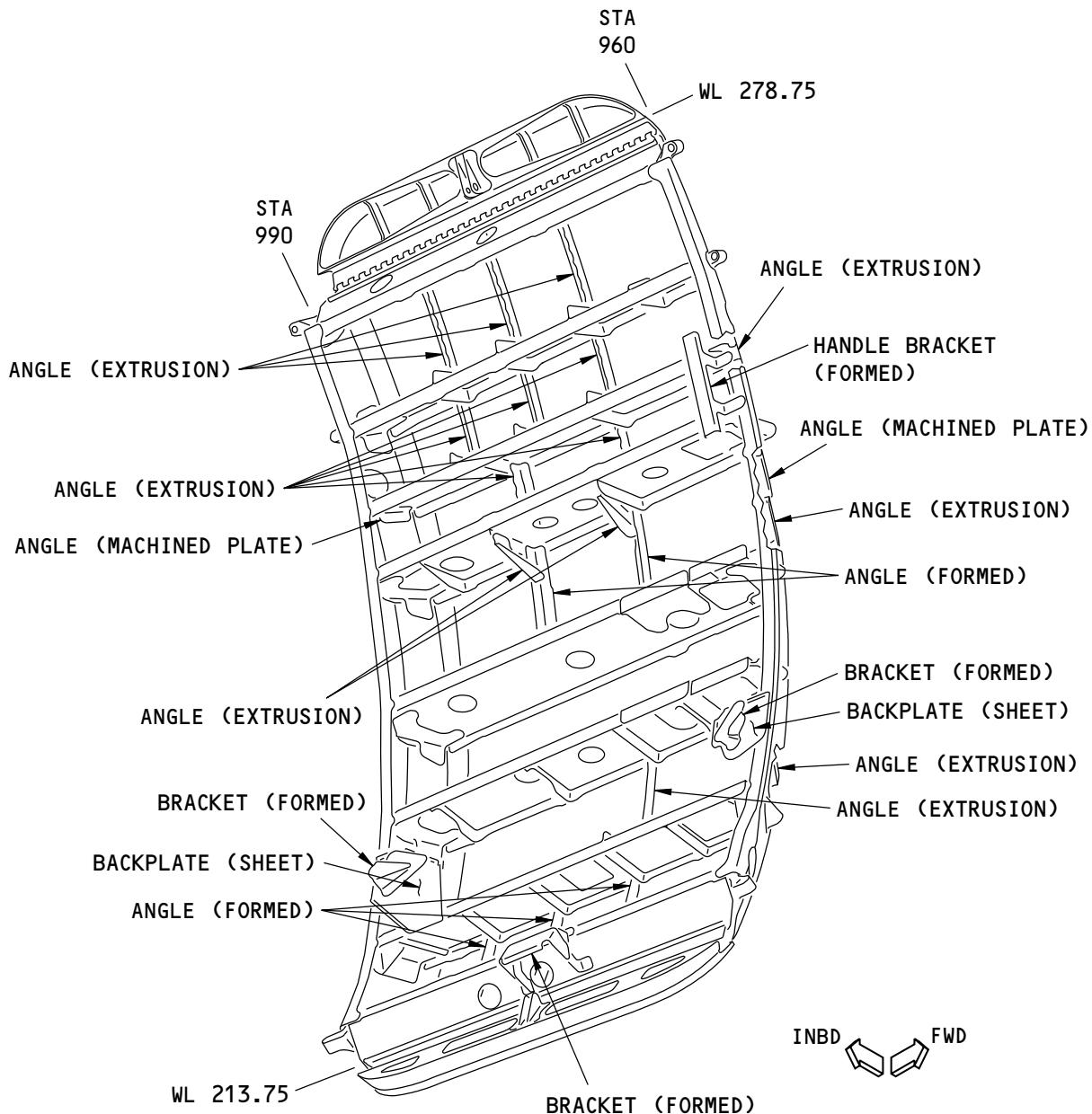
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Aft Entry Door Structure Allowable Damage
Figure 102 (Sheet 2 of 2)

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ALLOWABLE DAMAGE 3

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2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 3.
- B. Remove the damage as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for possible resources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
 - (4) Put a surface finish of 125 microinches Ra or better on the reworked surfaces.
- C. If damage is removed from aluminum, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.
 - (3) Apply a decorative finish if necessary to the reworked area. Refer to AMM PAGEBLOCK 51-21-99/701.

WARNING: USE CARE WHEN YOU REWORK MAGNESIUM. SMALL PARTICLES AND SHAVINGS OF MAGNESIUM ARE HIGHLY FLAMMABLE. MAGNESIUM DUST IS HIGHLY FLAMMABLE AND CAN CAUSE AN EXPLOSION. DO NOT PUT WATER ON HOT MAGNESIUM. A STEAM EXPLOSION CAN OCCUR. EXTINGUISH ALL FIRES OF MAGNESIUM WITH FULLY DRY TALC, CALCIUM CARBONATE, SAND, OR GRAPHITE. APPLY THE POWDER TO A DEPTH OF 1/2 INCH OR MORE ON THE METAL THAT IS ON FIRE. DO NOT USE FOAM, WATER, CARBON TETRACHLORIDE, HALON, OR CARBON DIOXIDE. IF YOU DO NOT OBEY, INJURY TO PERSONS CAN OCCUR. WEAR PROTECTIVE GOGGLES OR A FACE SHIELD WHEN YOU REMOVE THE CORROSION. IF YOU DO NOT OBEY, INJURY TO PERSONS CAN OCCUR.

- D. If damage is removed from magnesium, do the steps that follow:
 - (1) Apply a DOW 19 chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-79, Type III primer to the reworked areas as given in SOPM 20-41-02.
 - (3) Apply a decorative finish if necessary to the reworked area. Refer to AMM PAGEBLOCK 51-21-99/701.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
ANGLES - MACHINED PLATE	4.A
BEAMS - MACHINED PLATE	4.A
INTERCOSTALS - MACHINED PLATE	4.A
INTERCOSTALS - FORMED	4.B
SIDE FRAMES FWD/AFT - FORMED	4.B
UPPER AND LOWER GATES - ZONE 1 CASTING	4.C
UPPER AND LOWER GATES - ZONE 2 CASTING	4.D

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ALLOWABLE DAMAGE 3

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3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits - Aft Entry Door Structure

A. Angles, Beams, Stub Beams, and Intercostals - Machined Plate and Extrusion.

- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Details A, B, D, and F.
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Details A, B, E, and G.
- (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Detail H.
- (4) Holes and Punctures are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Detail D.
 - (a) If a hole or puncture is 0.25 inch or less in diameter, do as follows:
 - 1) Fill the hole with a 2017-T3 or 2017-T4 rivet.
 - 2) Install the rivet without sealant.

B. Angles, Backplate, Brackets, Intercostals, Side Frames, and Formed Stiffeners.

- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Details A, B, C, and D.
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Details A, B, C, E, and G.
- (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Detail H.
- (4) Holes and Punctures are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, Detail D.
 - (a) If a hole or puncture is 0.25 inch or less in diameter, do as follows:
 - 1) Fill the hole with a 2017-T3 or 2017-T4 rivet.
 - 2) Install the rivet without sealant.

C. Upper and Lower Endgates - Zone 1 (Refer to Aft Entry Door Structure - Allowable Damage Zones, Figure 104/ALLOWABLE DAMAGE 3 for the allowable damage zones)

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ALLOWABLE DAMAGE 3

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(1) Cracks:

NOTE: There are critical areas on the upper and lower endgates. Refer to Aft Entry Door Structure - Allowable Damage Zones, Figure 104/ALLOWABLE DAMAGE 3 for the Zones.

- (a) Remove the damage as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Details A, B, and C.

(2) Nicks, Gouges, Scratches, and Corrosion:

- (a) Remove the edge damage as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Details A, B, and C.
- (b) Remove the surface damage as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Details D, and E.
- (c) Remove the damage around fasteners at an edge or a surface as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Detail F.

(3) Dents are not permitted.

(4) Holes and Punctures are not permitted.

D. Upper and Lower Endgates - Zone 2 (Refer to Aft Entry Door Structure - Allowable Damage Zones, Figure 104/ALLOWABLE DAMAGE 3 for the allowable damage zones).

(1) Cracks:

- (a) Remove the damage as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Details A, B, and C.

(2) Nicks, Gouges, Scratches, and Corrosion:

- (a) Remove the edge damage as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Details A, B, and C.
- (b) Remove the surface damage as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Details D and E.
- (c) Remove the damage around fasteners at an edge or a surface as shown in Aft Entry Door Structure Allowable Damage, Figure 105/ALLOWABLE DAMAGE 3, Detail F.

(3) Dents are not permitted.

(4) Holes and Punctures are not permitted.

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ALLOWABLE DAMAGE 3

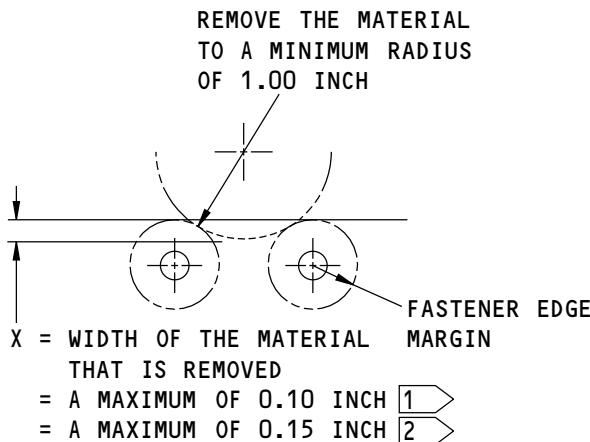
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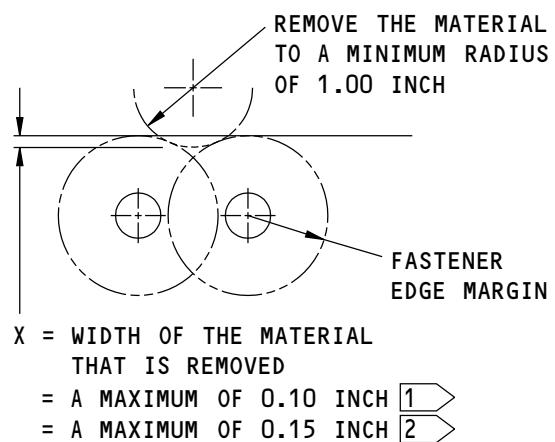
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**737-800
STRUCTURAL REPAIR MANUAL**



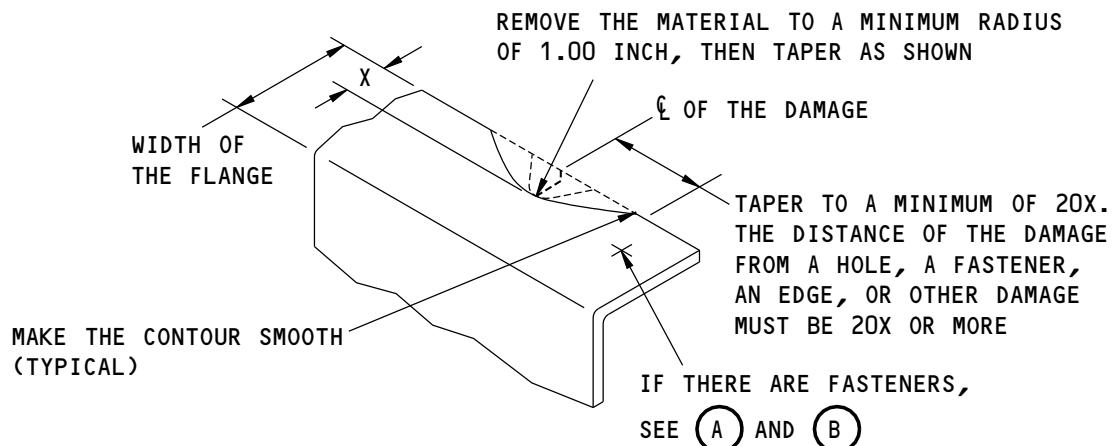
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

A



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

B



X = WIDTH OF THE MATERIAL THAT IS REMOVED

= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE 1
= A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE 2

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

C

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

400556 S0000137472_V1

**Allowable Damage Limits
Figure 103 (Sheet 1 of 4)**

52-10-02

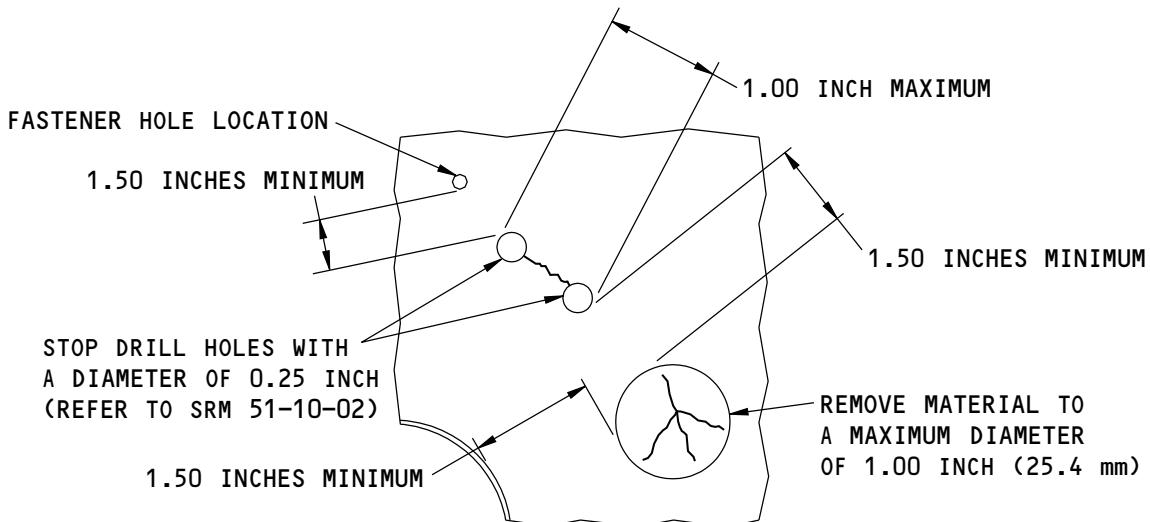
ALLOWABLE DAMAGE 3

Page 107

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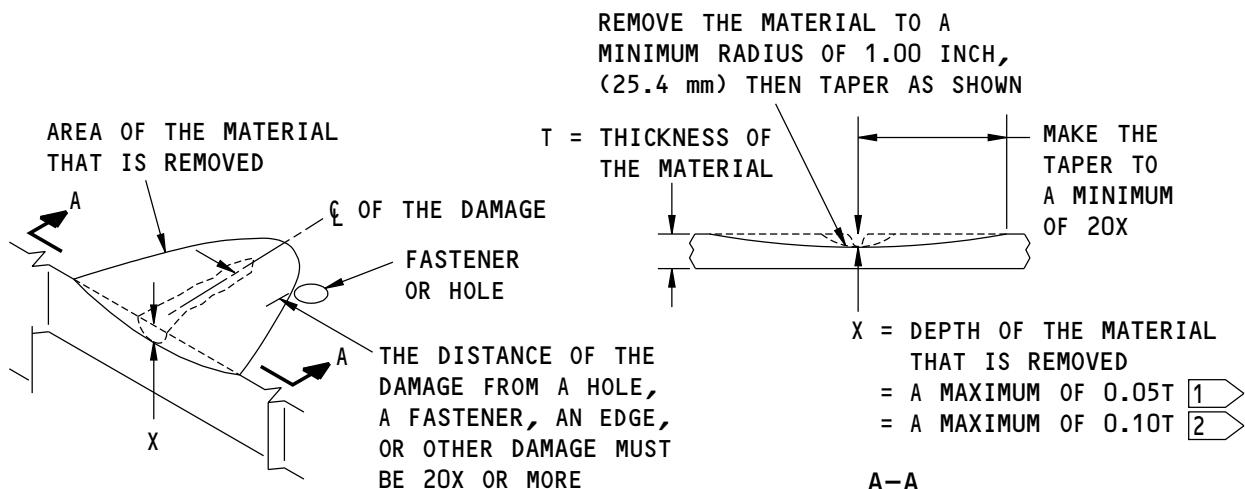
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**737-800
STRUCTURAL REPAIR MANUAL**



HOLES AND CRACKS THAT ARE PERMITTED

(D)



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(E)

400557 S0000137473_V1

Allowable Damage Limits
Figure 103 (Sheet 2 of 4)

52-10-02

ALLOWABLE DAMAGE 3

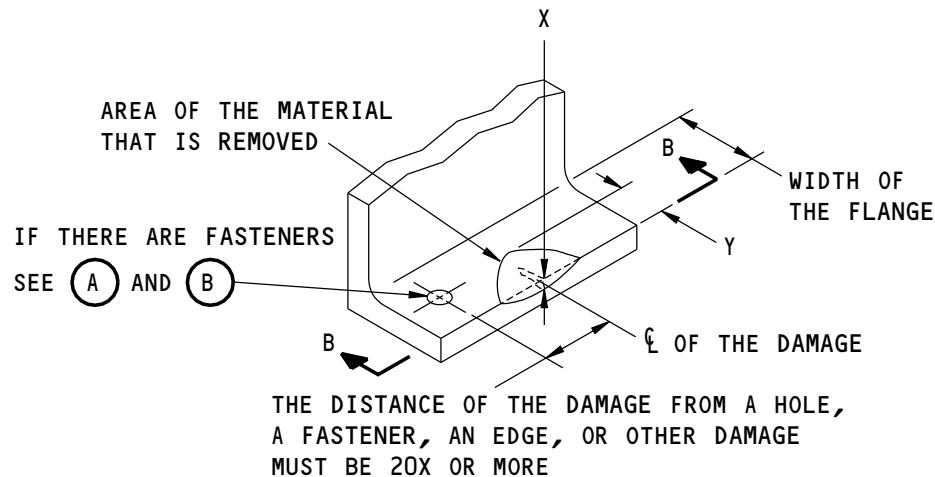
Page 108

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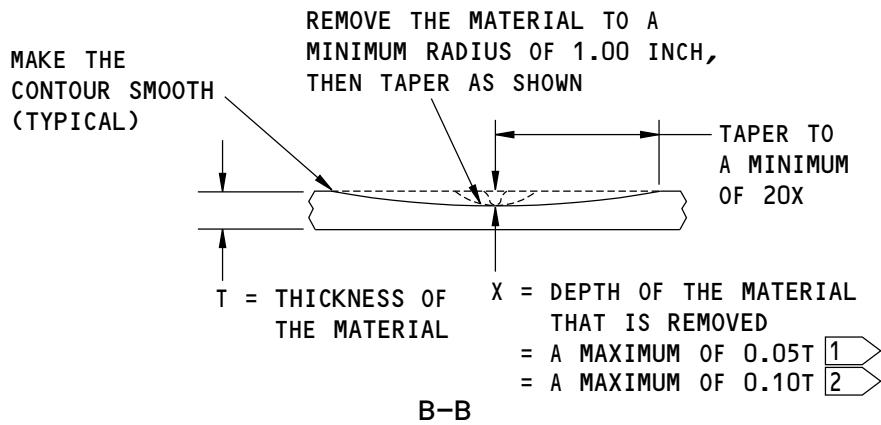
737-800
STRUCTURAL REPAIR MANUAL



Y = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 5 PERCENT OF THE WIDTH OF THE FLANGE [1]
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE [2]

REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE

(F)



400558 S0000137474_V1

Allowable Damage Limits
Figure 103 (Sheet 3 of 4)

52-10-02

ALLOWABLE DAMAGE 3

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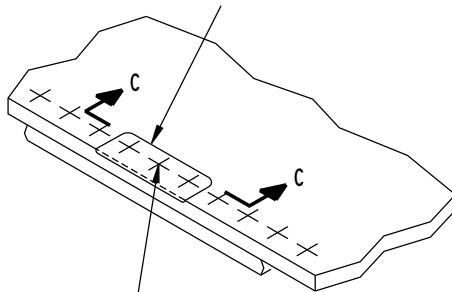
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STRUCTURAL REPAIR MANUAL

THE REMOVAL OF MATERIAL AROUND THREE
FASTENERS IN ALL GROUPS OF TEN IS
PERMITTED TO A MAXIMUM DEPTH OF X



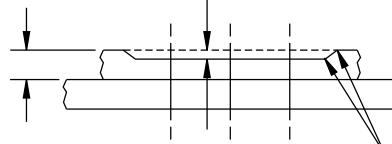
REMOVE THE FASTENERS BEFORE THE
DAMAGE IS REMOVED. INSTALL THE
FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE
FASTENERS ON AN EDGE
OR A SURFACE



X = DEPTH OF THE MATERIAL
THAT IS REMOVED
= A MAXIMUM OF 0.05T 1
= A MAXIMUM OF 0.10T 2

T = THICKNESS OF
THE MATERIAL

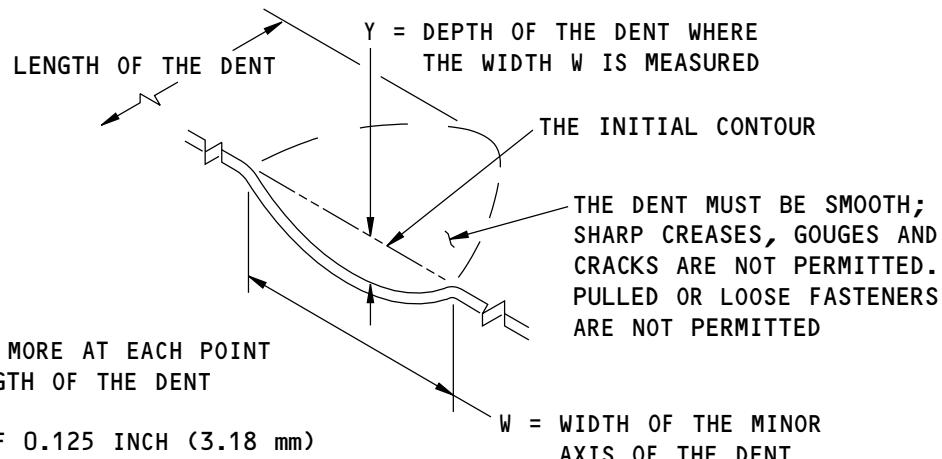


MAKE THE CONTOUR SMOOTH
TO A MINIMUM RADIUS OF
0.50 INCH (12.7 mm)
(TYPICAL)

I-I

$\frac{W}{Y}$ MUST BE 20 OR MORE AT EACH POINT
ALONG THE LENGTH OF THE DENT

Y = A MAXIMUM OF 0.125 INCH (3.18 mm)



DENT THAT IS PERMITTED



400559 S0000137475_V2

Allowable Damage Limits
Figure 103 (Sheet 4 of 4)

52-10-02

ALLOWABLE DAMAGE 3

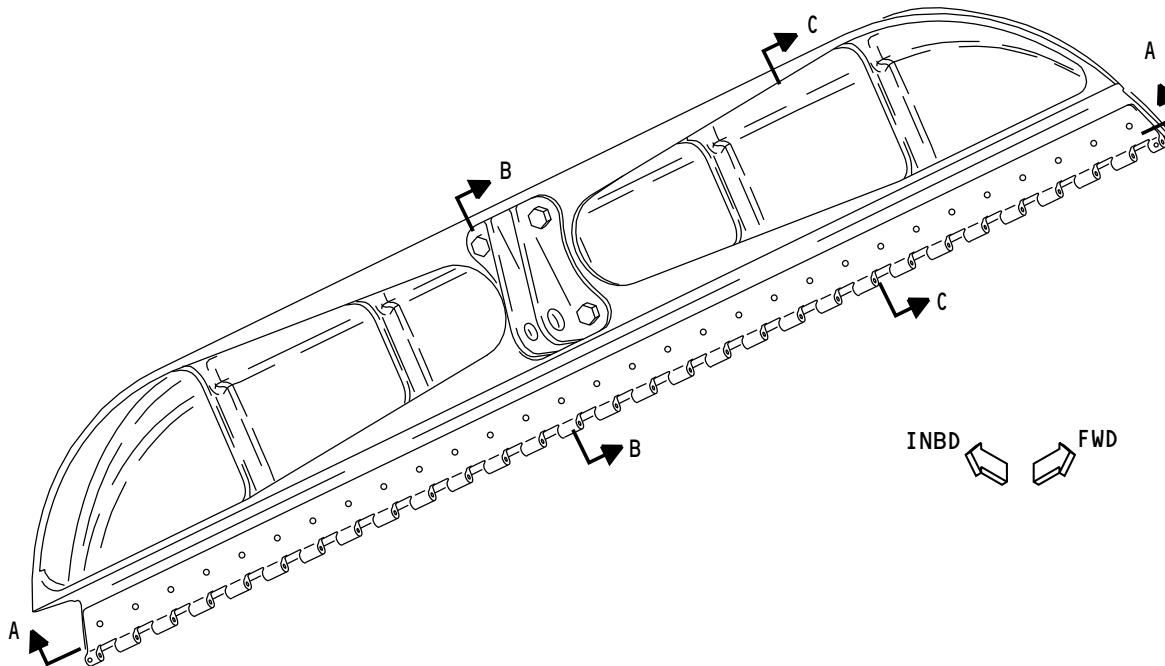
Page 110

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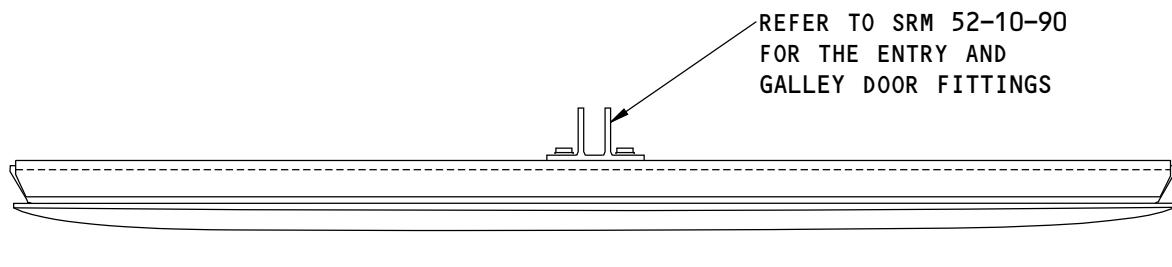
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STRUCTURAL REPAIR MANUAL



UPPER GATE IS SHOWN,
LOWER GATE IS ALMOST THE SAME



A-A

F93533 S0006586670_V1

Aft Entry Door Structure - Allowable Damage Zones
Figure 104 (Sheet 1 of 2)

52-10-02

ALLOWABLE DAMAGE 3

Page 111

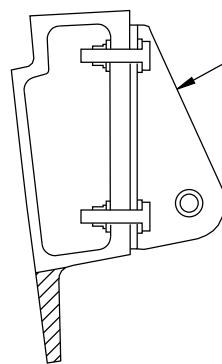
Nov 10/2012

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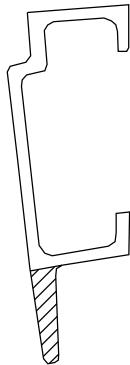


737-800
STRUCTURAL REPAIR MANUAL



REFER TO SRM 52-10-02
FOR THE ENTRY AND
GALLEY DOOR FITTINGS

B-B



C-C

ZONE 1

ZONE 2

F93597 S0006586671_V1

Aft Entry Door Structure - Allowable Damage Zones
Figure 104 (Sheet 2 of 2)

52-10-02

ALLOWABLE DAMAGE 3

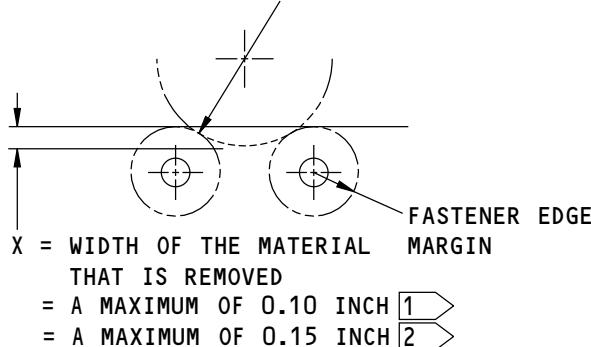
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**737-800
STRUCTURAL REPAIR MANUAL**

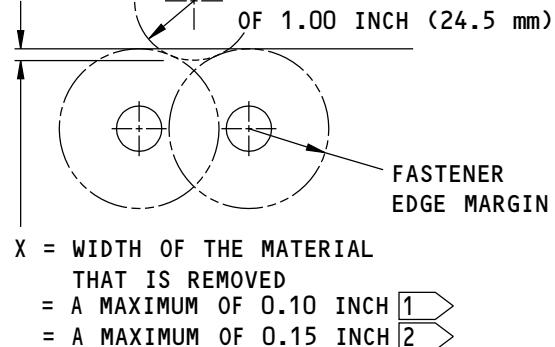
REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH (25.4 mm)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)

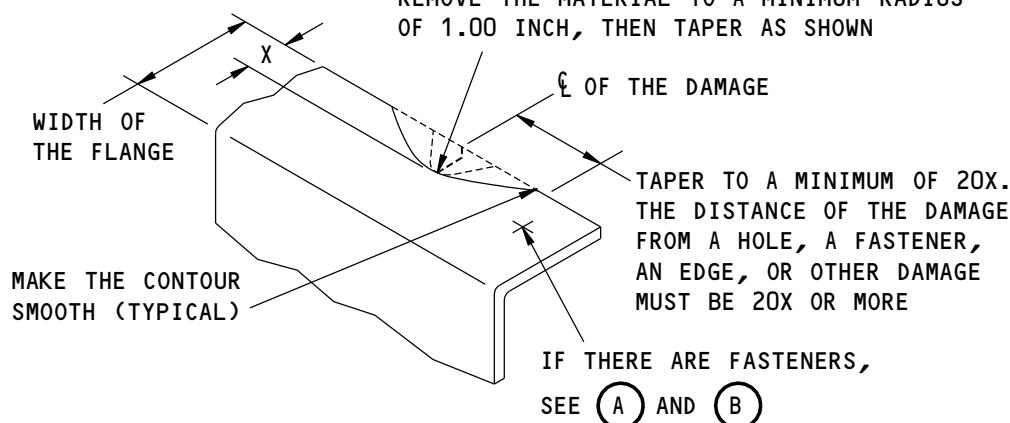
REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH (24.5 mm)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)

REMOVE THE MATERIAL TO A MINIMUM RADIUS
OF 1.00 INCH, THEN TAPER AS SHOWN



X = WIDTH OF THE MATERIAL THAT IS REMOVED

= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE [1]
= A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE [2]

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

NOTES

- [1] FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
[2] FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

400560 S0000137477_V1

Aft Entry Door Structure Allowable Damage
Figure 105 (Sheet 1 of 3)

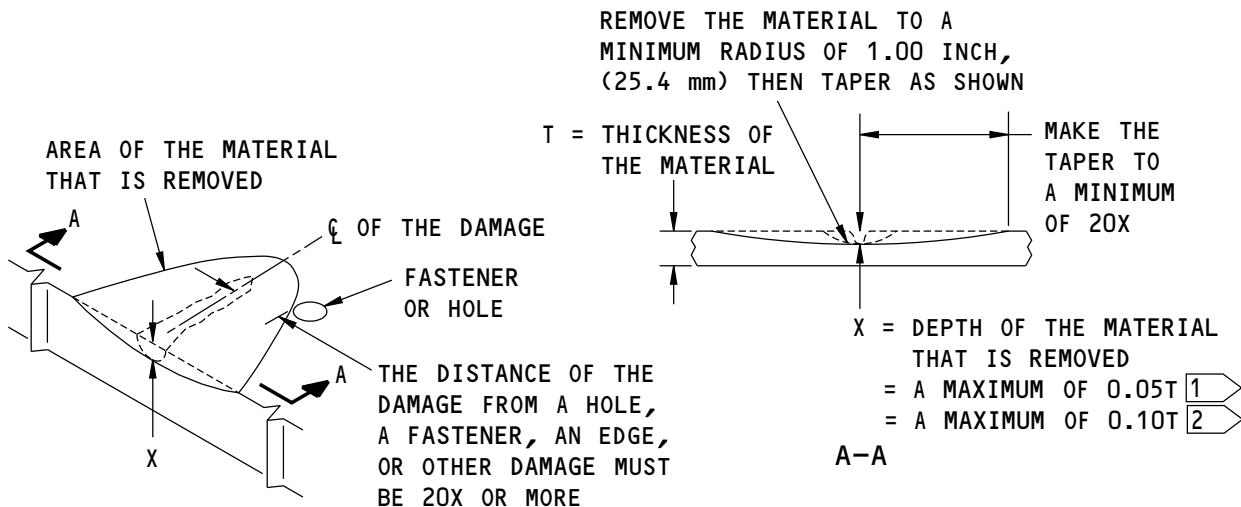
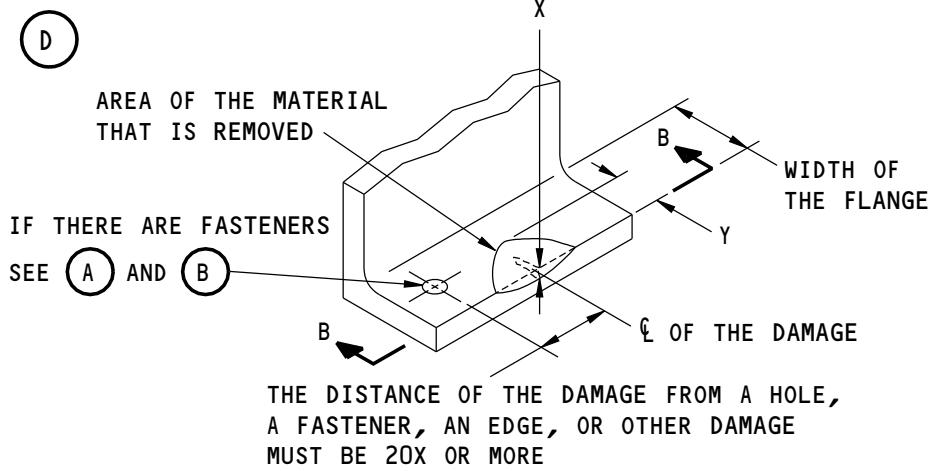
52-10-02

ALLOWABLE DAMAGE 3

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STRUCTURAL REPAIR MANUAL**

**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE**


Y = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 5 PERCENT OF THE WIDTH OF THE FLANGE [1]
 = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE [2]

**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE**


400561 S0000137478_V1

**Aft Entry Door Structure Allowable Damage
Figure 105 (Sheet 2 of 3)**

52-10-02

ALLOWABLE DAMAGE 3

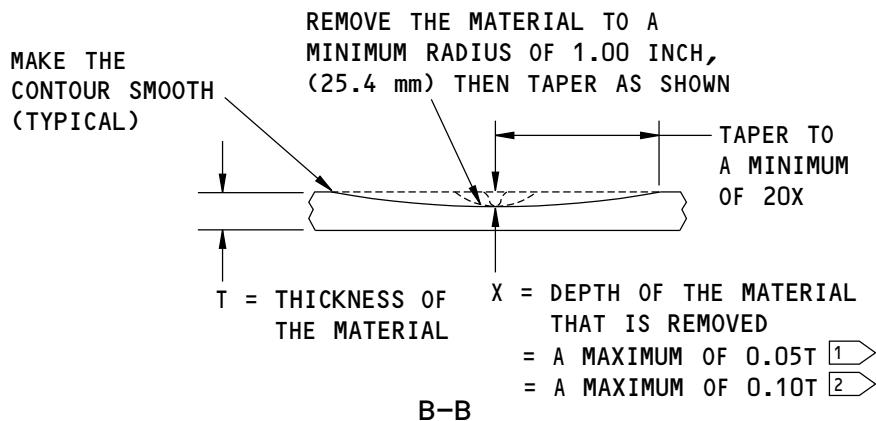
Page 114

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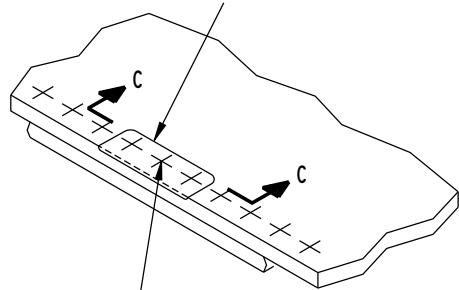
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737-800
STRUCTURAL REPAIR MANUAL



THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



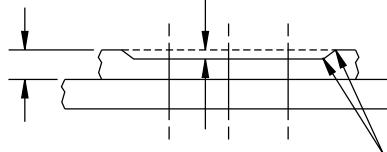
REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

X = DEPTH OF THE MATERIAL THAT IS REMOVED

= A MAXIMUM OF 0.05T ¹

= A MAXIMUM OF 0.10T ²

T = THICKNESS OF THE MATERIAL



REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

C-C



400562 S0000137479_V1

Aft Entry Door Structure Allowable Damage
Figure 105 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 3

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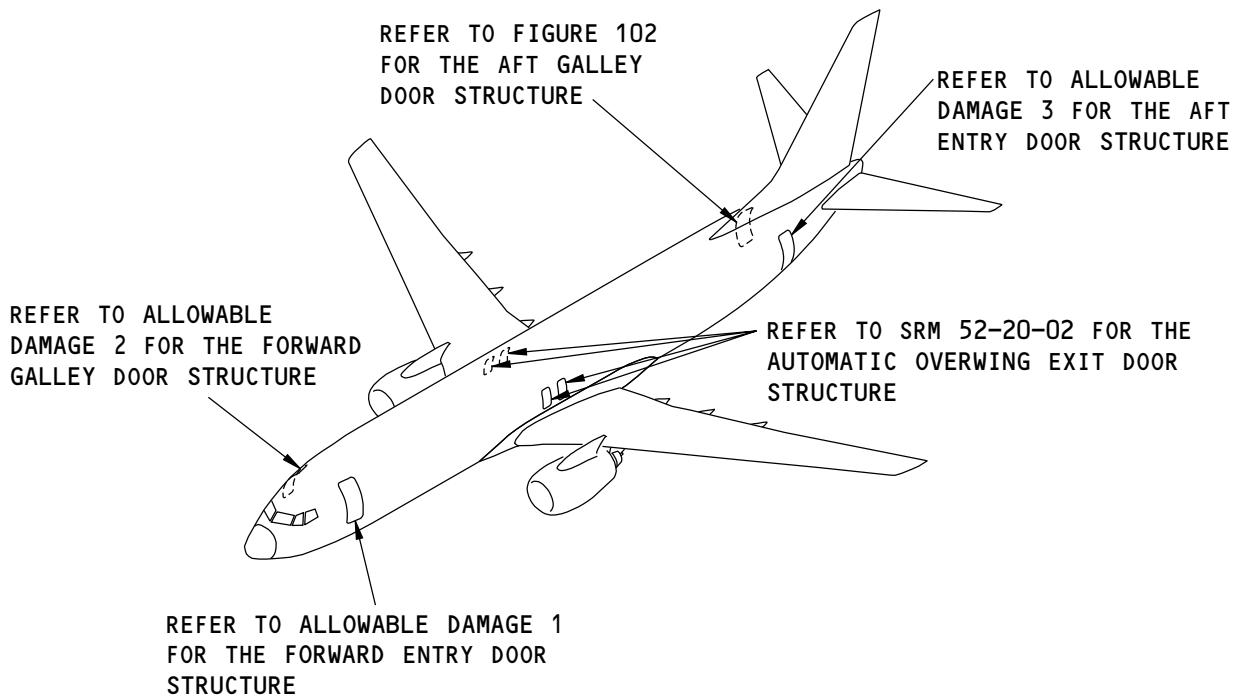


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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 4 - AFT GALLEY DOOR STRUCTURE

1. Applicability

- A. This subject gives the allowable damage limits for the aft galley door structure shown in Aft Galley Door Structure Location, Figure 101/ALLOWABLE DAMAGE 4 and Aft Galley Door Structure, Figure 102/ALLOWABLE DAMAGE 4.



Aft Galley Door Structure Location
Figure 101

L46795 S0006586678_V1

52-10-02

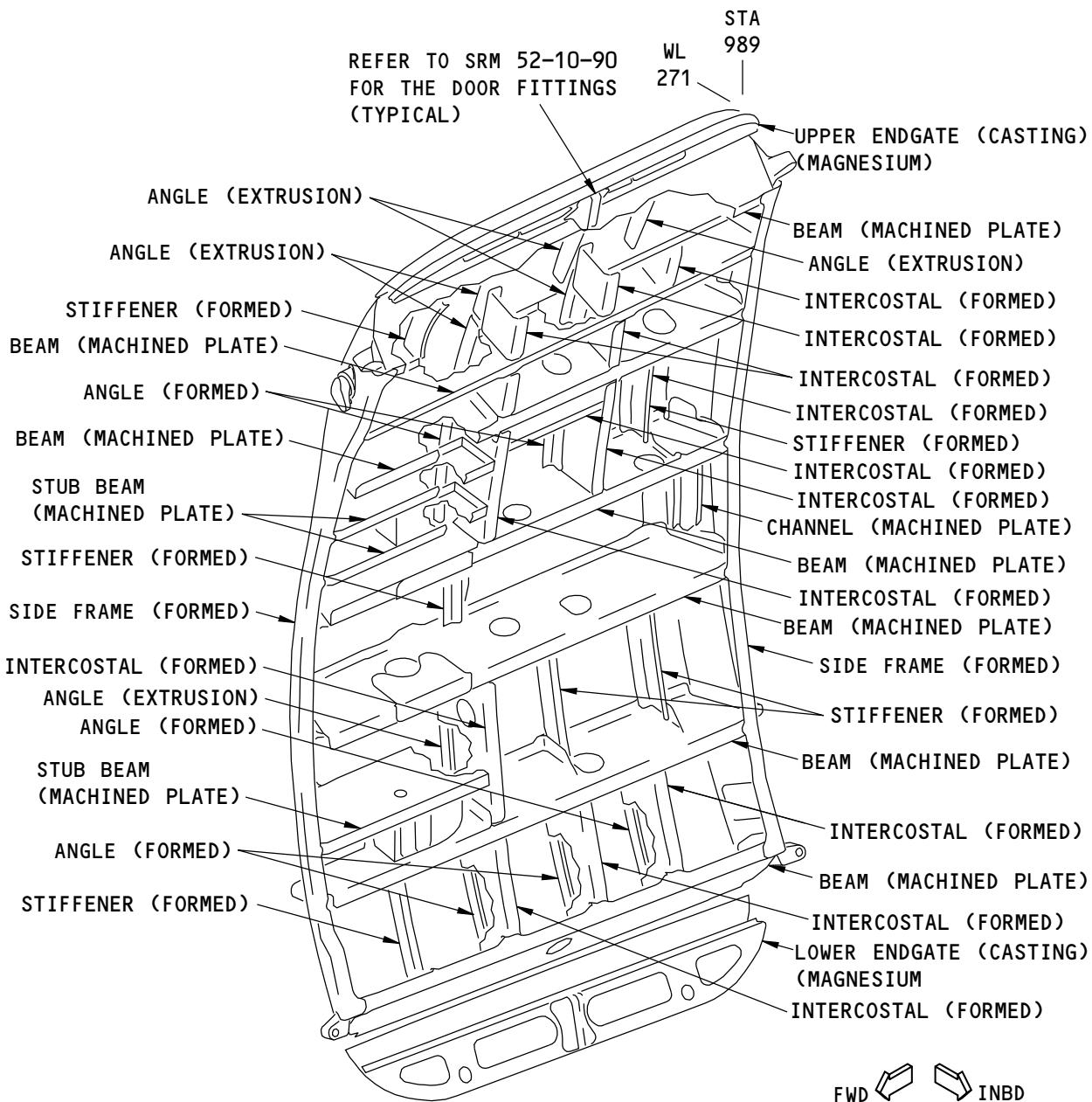
ALLOWABLE DAMAGE 4

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NOTE: ALL PARTS ARE MADE FROM ALUMINUM (EXCEPT AS NOTED).

F96232 S0006586679_V2

Aft Galley Door Structure
Figure 102

52-10-02

ALLOWABLE DAMAGE 4

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STRUCTURAL REPAIR MANUAL

2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 4 Refer to Table 101/ALLOWABLE DAMAGE 4 for the references for the allowable damage limits for each type of structure.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
Angles (Extrusion)	4.A
Angles (Formed)	4.B
Beams (Machined Plate)	4.A
Intercostals (Formed)	4.B
Side Frames Fwd/Aft (Formed)	4.B
Stiffeners (Formed)	4.B
Upper and Lower Endgate (Casting)	4.C

- B. Remove the damaged material as necessary.

NOTE: The procedures that follow do not apply to dent damage.

- (1) Refer to 51-10-02 for the inspection and removal of damage.
- (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
- (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. If damage has been removed from aluminum parts, do the steps that follow:

- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.

WARNING: USE CARE WHEN YOU REWORK MAGNESIUM. SMALL PARTICLES AND FINE SHAVINGS OF MAGNESIUM ARE HIGHLY FLAMMABLE. MAGNESIUM DUST IS HIGHLY FLAMMABLE AND CAN CAUSE AN EXPLOSION. DO NOT PUT WATER ON HOT MAGNESIUM. A STEAM EXPLOSION CAN OCCUR. EXTINGUISH ALL FIRES OF MAGNESIUM WITH FULLY DRY TALC, CALCIUM CARBONATE, SAND, OR GRAPHITE. APPLY THE POWDER TO A DEPTH OF 1/2 INCH OR MORE ON TOP OF THE BURNING METAL. DO NOT USE FOAM, WATER, CARBON TETRACHLORIDE, HALON, OR CARBON DIOXIDE. IF YOU DO NOT OBEY, INJURY TO PERSONS CAN OCCUR. WEAR PROTECTIVE GOGGLES OR A FACE SHIELD WHEN YOU REMOVE THE CORROSION. IF YOU DO NOT OBEY, INJURY TO PERSONS CAN OCCUR.

- D. If damage has been removed from magnesium parts, do the steps that follow:

- (1) Apply a DOW 19 chemical conversion coating to the reworked areas as given in 51-20-01.
- (2) Apply two layers of BMS 10-79, Type III primer to the reworked areas as given in SOPM 20-44-04.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE



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(Continued)

Reference	Title
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-44-04	Application of Urethane Compatible Primer

4. Allowable Damage Limits - Aft Galley Door Structure

A. Angles, Beams, Stub Beams, and Intercostals - Machined Plate and Extrusion

- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , D , and H .
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , D , E , F , and H .
- (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Detail G .
- (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (6.4 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius
 - (d) Filled with a 2017-T3 or 2017-T4 protruding head rivet.
 - 1) Install the rivet without sealant.

B. Angles, Backplate, Brackets, Intercostals, Side Frames, and Stiffeners - Formed

- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , and C .
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , C , D , E , and F .
- (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Detail G .
- (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (6.4 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius
 - (d) Filled with a 2017-T3 or 2017-T4 protruding head rivet.
 - 1) Install the rivet without sealant.

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ALLOWABLE DAMAGE 4

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C. Upper and Lower Endgate - Casting

- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , and H .
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , D , F , and H .
- (3) Dents are not permitted.
- (4) Holes and Punctures are not permitted.

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ALLOWABLE DAMAGE 4

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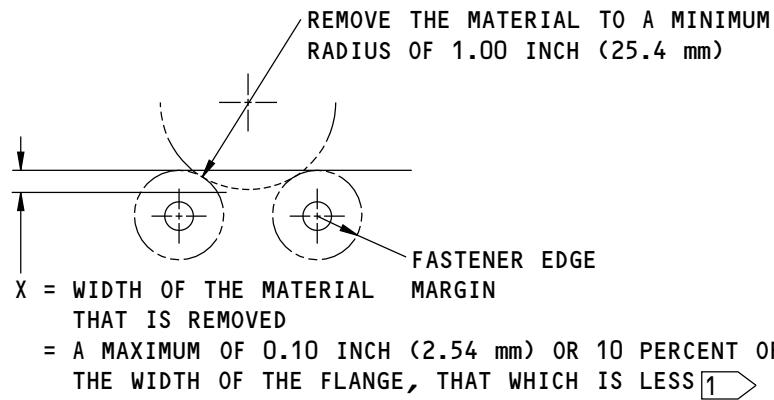
Nov 10/2012

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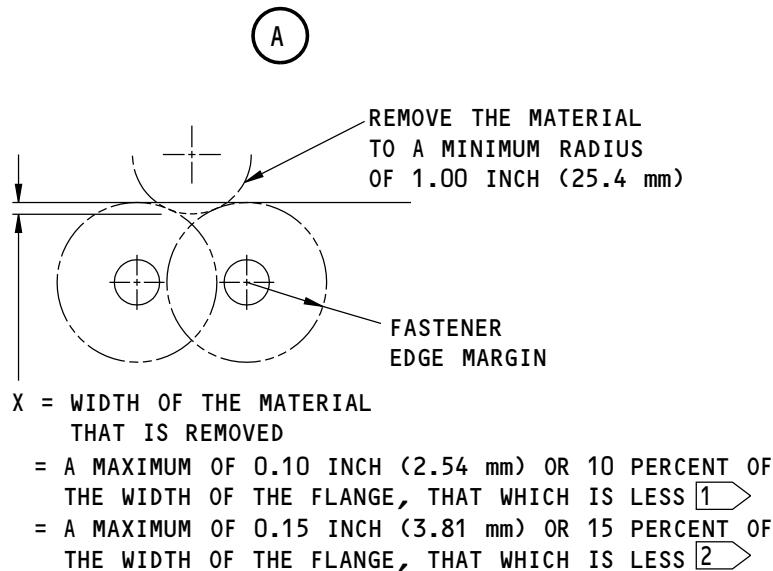
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STRUCTURAL REPAIR MANUAL



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)

NOTES

- [1] FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
[2] FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

400563 S0000137520_V1

Allowable Damage Limits
Figure 103 (Sheet 1 of 4)

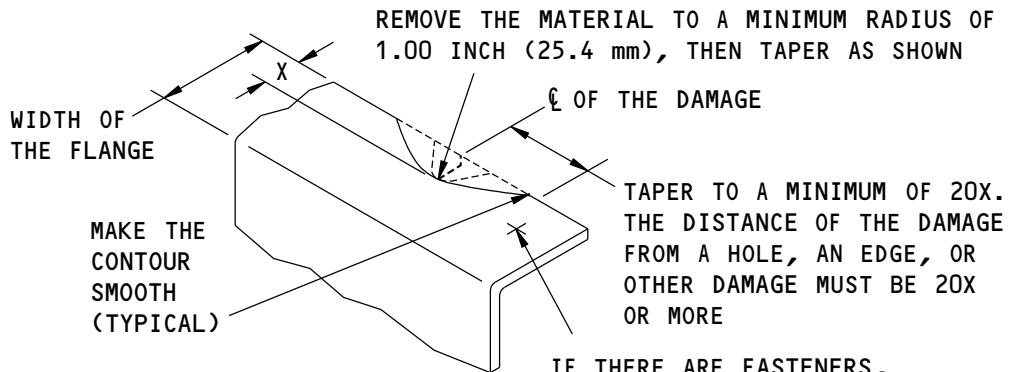
52-10-02

ALLOWABLE DAMAGE 4

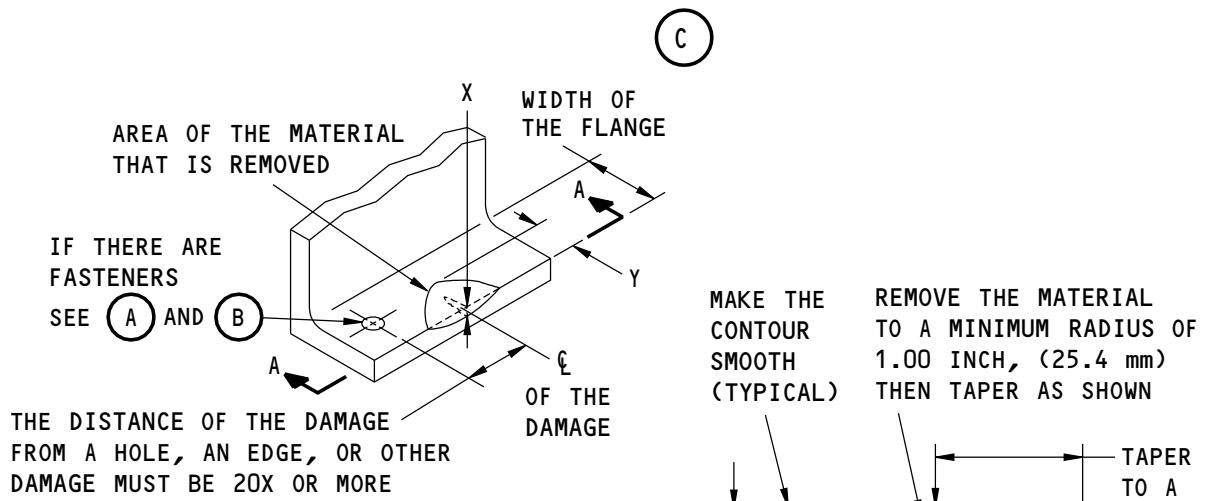
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**737-800
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- X = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.10 INCH (2.54 mm) OR 10 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS [1]
 = A MAXIMUM OF 0.15 INCH (3.81 mm) OR 15 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS [2]

REMOVAL OF DAMAGED MATERIAL ON AN EDGE


- Y = WIDTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 5 PERCENT OF THE WIDTH OF THE FLANGE [1]
 = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE [2]

REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE


- T = THICKNESS OF THE MATERIAL
 X = DEPTH OF THE MATERIAL THAT IS REMOVED
 = A MAXIMUM OF 0.05T [1]
 = A MAXIMUM OF 0.10T [2]

A-A

400564 S0000137521_V1

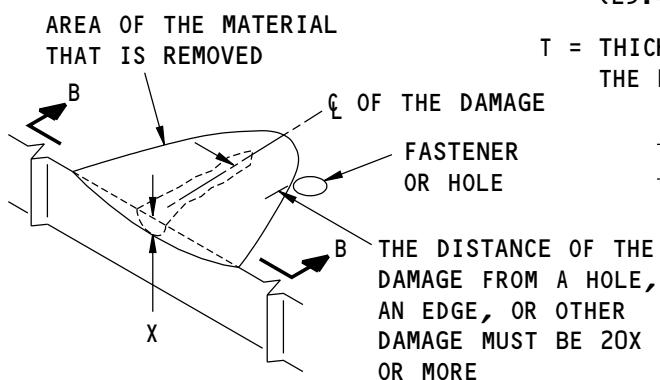
Allowable Damage Limits
Figure 103 (Sheet 2 of 4)

52-10-02
ALLOWABLE DAMAGE 4

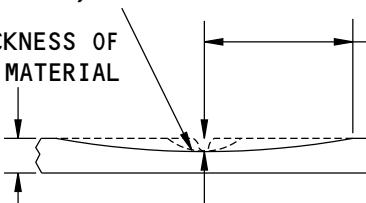
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REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN



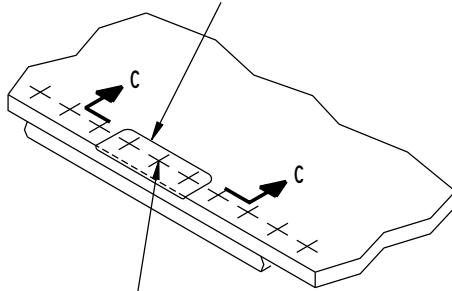
X = DEPTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.05T 1
= A MAXIMUM OF 0.10T 2

B-B

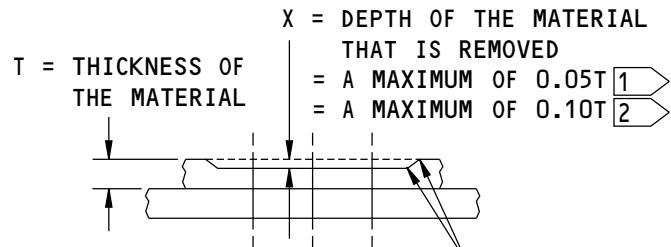
REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(E)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (12.7 mm) (TYPICAL)

C-C

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(F)

400565 S0000137522_V1

Allowable Damage Limits
Figure 103 (Sheet 3 of 4)

52-10-02

ALLOWABLE DAMAGE 4

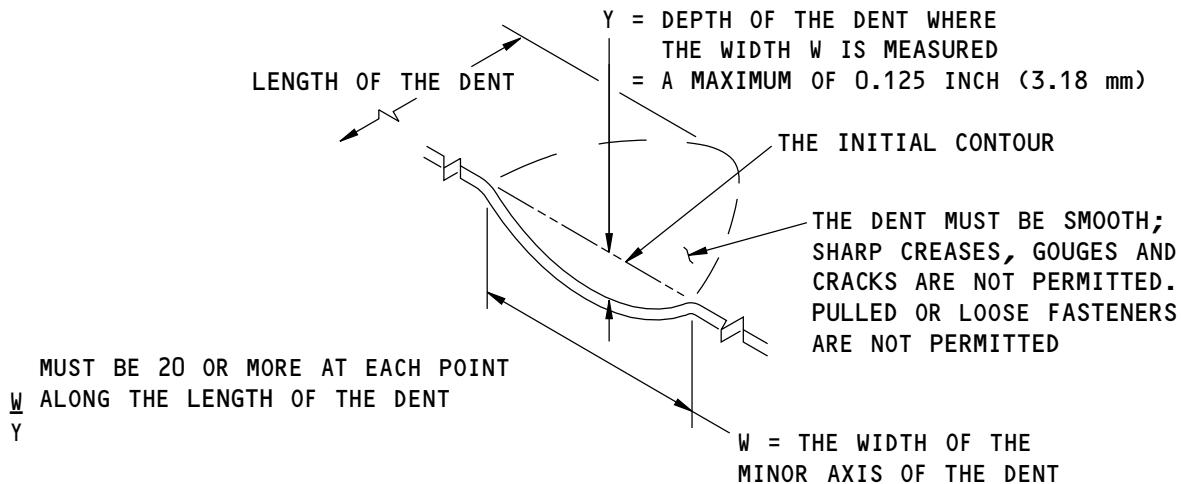
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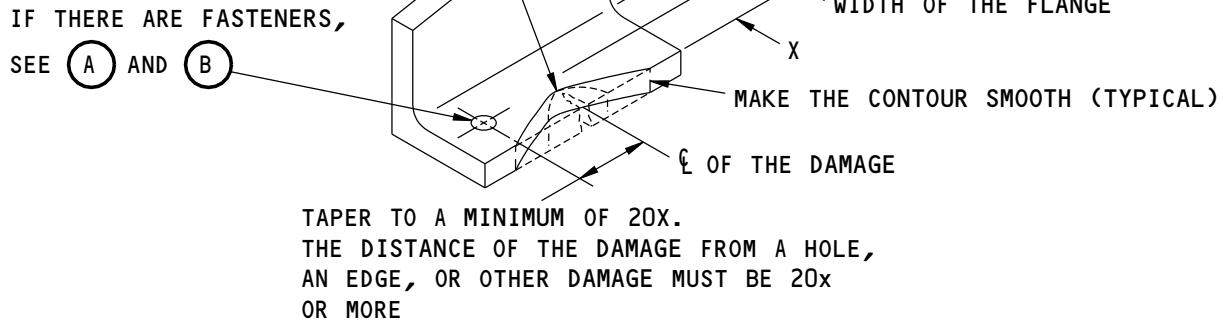
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STRUCTURAL REPAIR MANUAL



DENT THAT IS PERMITTED



REMOVE THE MATERIAL TO A MINIMUM RADIUS
OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN



X = WIDTH OF THE MATERIAL REMOVED
= A MAXIMUM OF 0.10 INCH (2.54 mm) OR 10 PERCENT OF THE WIDTH OF THE FLANGE,
THAT WHICH IS LESS 1
= A MAXIMUM OF 0.15 INCH (3.81 mm) OR 15 PERCENT OF THE WIDTH OF THE FLANGE,
THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE



400566 S0000137523_V2

Allowable Damage Limits
Figure 103 (Sheet 4 of 4)

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ALLOWABLE DAMAGE 4

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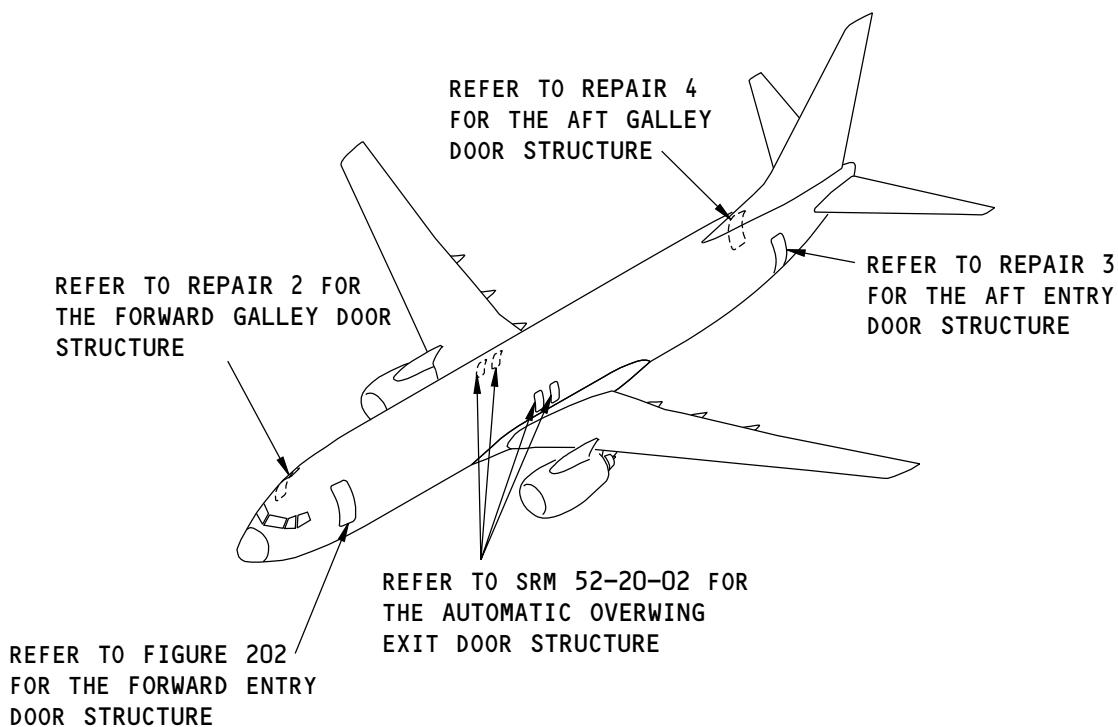


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STRUCTURAL REPAIR MANUAL

REPAIR 1 - FORWARD ENTRY DOOR STRUCTURE

1. Applicability

- A. Repair 1 is applicable to damage to the forward entry door structure shown in Forward Entry Door Structure Location, Figure 201/REPAIR 1 and Forward Entry Door Structure, Figure 202/REPAIR 1.



Forward Entry Door Structure Location
Figure 201

K39208 S0006586689_V1

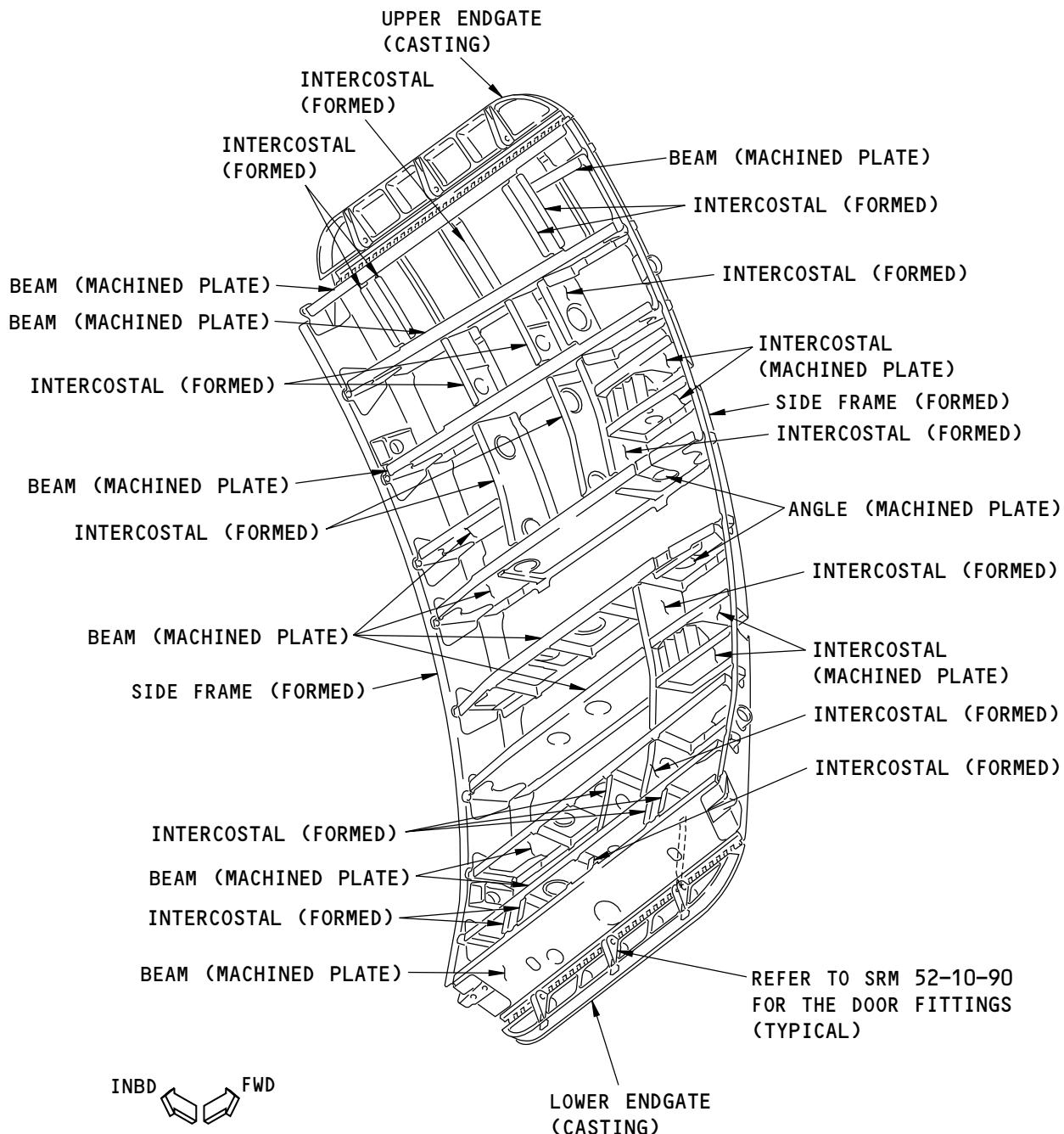
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REPAIR 1
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NOTE: ALL PARTS ARE MADE FROM ALUMINUM.

F91213 S0006586690_V1

Forward Entry Door Structure
Figure 202

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REPAIR 1
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2. General

- A. The typical repairs given in 51-70-11 can be used when applicable if there is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 51-70-11 before you start a repair.

3. References

Reference	Title
51-70-11	TYPICAL FORMED SECTION REPAIRS
52-10-02	PASSENGER/GALLEY ENTRY DOOR STRUCTURE

4. Repair Instructions

- A. Refer to Forward Entry Door Structure Location, Figure 201/REPAIR 1 and Forward Entry Door Structure, Figure 202/REPAIR 1, and Table 201 to find the applicable repair for the part that you want to repair.

NOTE: If necessary, refer to 52-10-02, Identification 1 to find the material and the process that was used to make the part which you want to repair.

Table 201:

REPAIR REFERENCES FOR THE FORWARD ENTRY DOOR STRUCTURE	
COMPONENT	REPAIR
Angle (machined plate)	There are no repairs for the Angle structure in the Structural Repair Manual at this time.
Beam (machined plate)	There are no repairs for the Beam structure in the Structural Repair Manual at this time.
Endgate (Casting)	There are no repairs for the Endgate structure in the Structural Repair Manual at this time.
Frame (formed)	Refer to SRM 51-70-11
Intercostal (formed))	Refer to SRM 51-70-11
Intercostal (machined plate)	There are no repairs for the Intercostal structure in the Structural Repair Manual at this time.

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REPAIR 1
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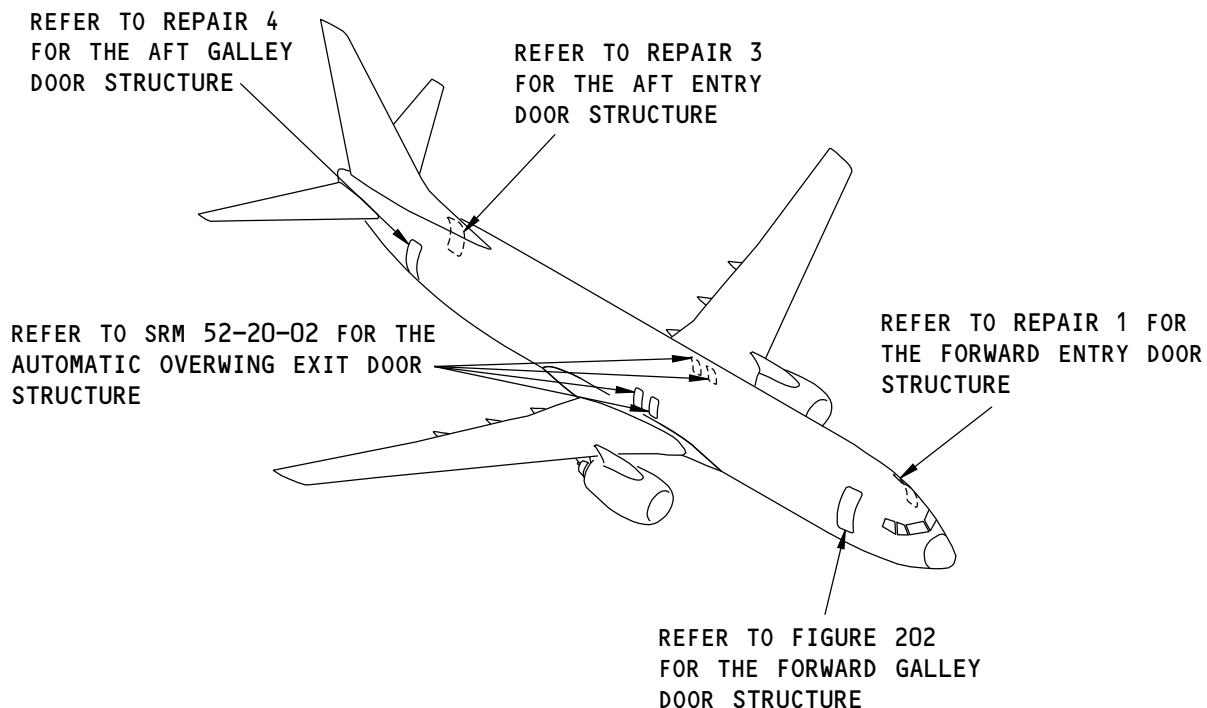


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REPAIR 2 - FORWARD GALLEY DOOR STRUCTURE

1. Applicability

- A. Repair 2 is applicable to damage to the forward galley door structure shown in Forward Galley Door Structure Location, Figure 201/REPAIR 2 and Forward Galley Door Structure, Figure 202/REPAIR 2.



**Forward Galley Door Structure Location
Figure 201**

L46808 S0006586694_V1

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REPAIR 2
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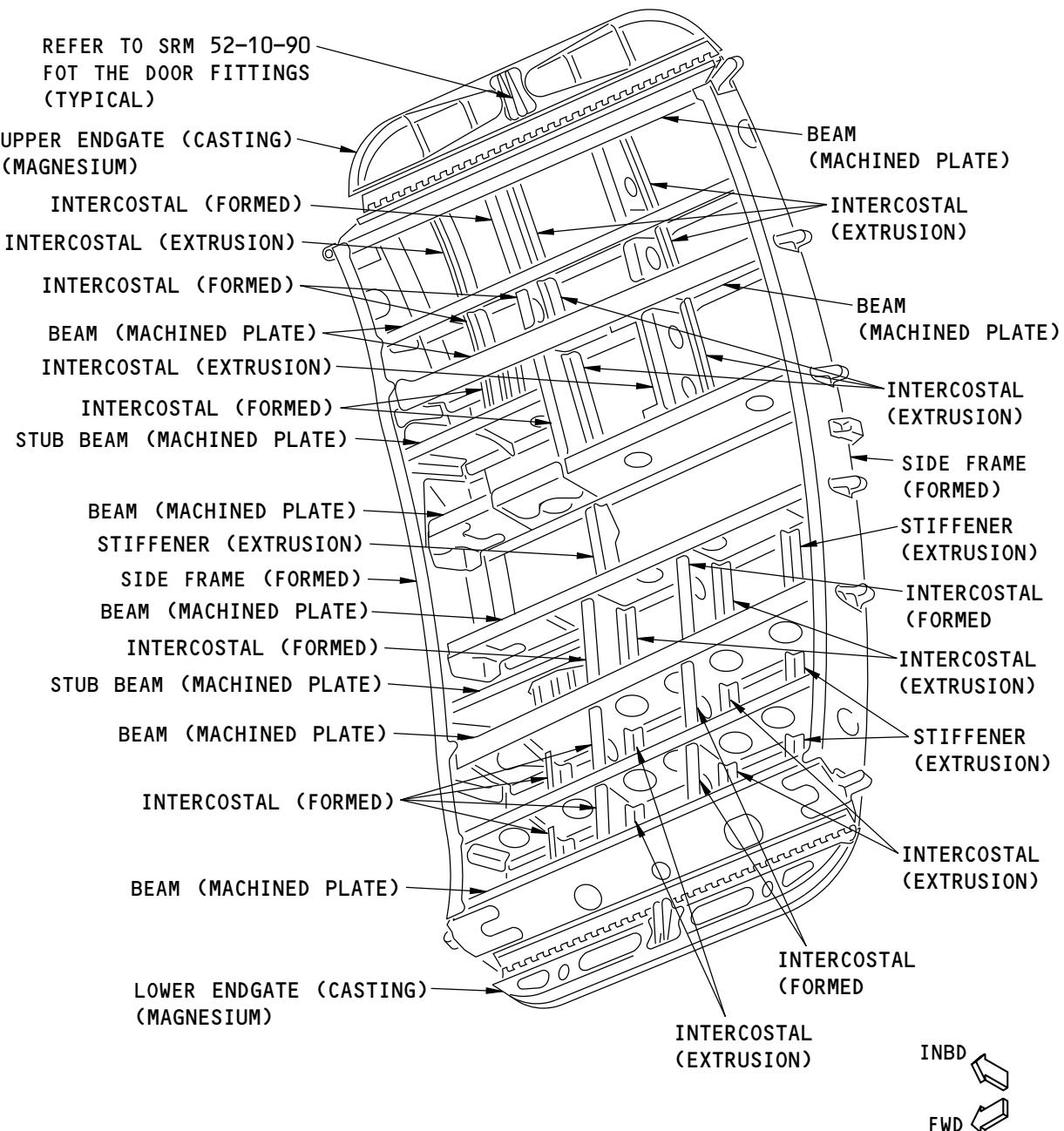
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NOTE: ALL PARTS ARE MADE FROM ALUMINUM (EXCEPT AS NOTED).

F91377 S0006586695_V1

Forward Galley Door Structure
Figure 202

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REPAIR 2
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2. General

- A. The typical repairs given in 51-70-11 and 51-70-12 can be used when applicable if there is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 51-70-11 and 51-70-12 before you start a repair.

3. References

Reference	Title
51-70-11	TYPICAL FORMED SECTION REPAIRS
51-70-12	EXTRUDED SECTION REPAIRS
52-10-02	PASSENGER/GALLEY ENTRY DOOR STRUCTURE

4. Repair Instructions

- A. Refer to Forward Galley Door Structure Location, Figure 201/REPAIR 2 and Forward Galley Door Structure, Figure 202/REPAIR 2, and Table 201 to find the applicable repair for the part you want to repair.

NOTE: If necessary, refer to 52-10-02, Identification 2 to find the material and the process that was used to make the part which you want to repair.

Table 201:

REPAIR REFERENCES FOR THE FORWARD GALLEY DOOR STRUCTURE	
COMPONENT	REPAIR
Beam (machined plate)	There are no repairs for the Beam structure in the Structural Repair Manual at this time.
Endgate (casting)	There are no repairs for the Endgate structure in the Structural Repair Manual at this time.
Frame (formed)	Refer to SRM 51-70-11
Intercostal (extrusion)	Refer to SRM 51-70-12
Intercostal (formed)	Refer to SRM 51-70-11
Stiffener (extrusion)	Refer to SRM 51-70-12
Stub Beam (machined plate)	There are no repairs for the Stub Beam structure in the Structural Repair Manual at this time.

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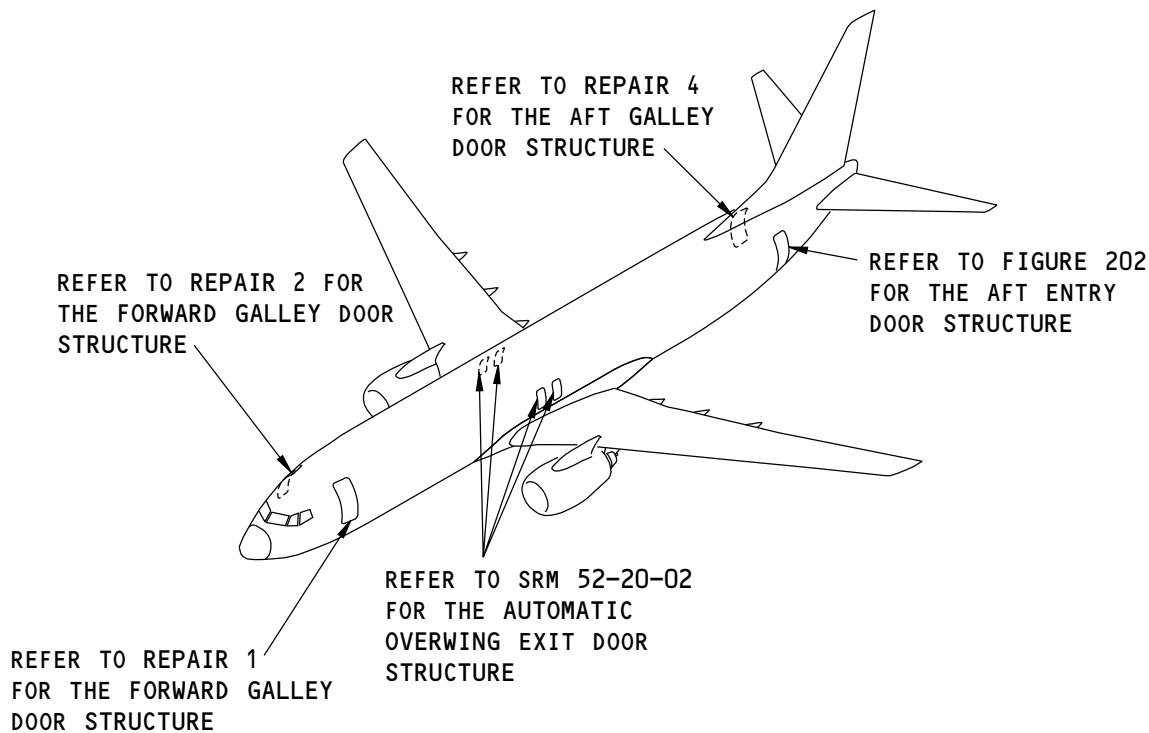


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REPAIR 3 - AFT ENTRY DOOR STRUCTURE

1. Applicability

- A. Repair 3 is applicable to damage to the aft entry door structure shown in Aft Entry Door Structure Location, Figure 201/REPAIR 3.



NOTE: REFER TO TABLE 201 FOR THE REPAIR DATA.

**Aft Entry Door Structure Location
Figure 201**

L46820 S0006586700_V1

2. References

Reference	Title
51-70-01	REPAIRS FOR MINOR DENTS IN METALLIC SHEET MATERIALS
51-70-11	TYPICAL FORMED SECTION REPAIRS
51-70-12	EXTRUDED SECTION REPAIRS

3. Repair Instructions

- A. Refer to Table 201/REPAIR 3 to find the applicable repair for a component of the aft entry door structure shown in Aft Entry Door Structure Repairs, Figure 202/REPAIR 3.

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**REPAIR 3
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Table 201:

REPAIR REFERENCES FOR THE AFT ENTRY DOOR	
COMPONENT	REPAIR
ANGLE - FORMED	Refer to SRM 51-70-12
BACK PLATE - SHEET	Refer to SRM 51-70-01
BRACKET - FORMED	Refer to SRM 51-70-11
BEAM - MACHINED PLATE	There are no repairs for the Beam structure in the Structural Repair Manual at this time.
ENDGATE - CASTING	There are no repairs for the Endgate structure in the Structural Repair Manual at this time.
HANDLE - BRACKET - FORMED	Refer to SRM 51-70-11
FRAME - FORMED	Refer to SRM 51-70-11
INTERCOSTAL - FORMED	Refer to SRM 51-70-11
STIFFENER - EXTRUSION	Refer to SRM 51-70-12
STUB BEAM - MACHINED PLATE	There are no repairs for the Stub Beam structure in the Structural Repair Manual at this time.

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REPAIR 3
Page 202

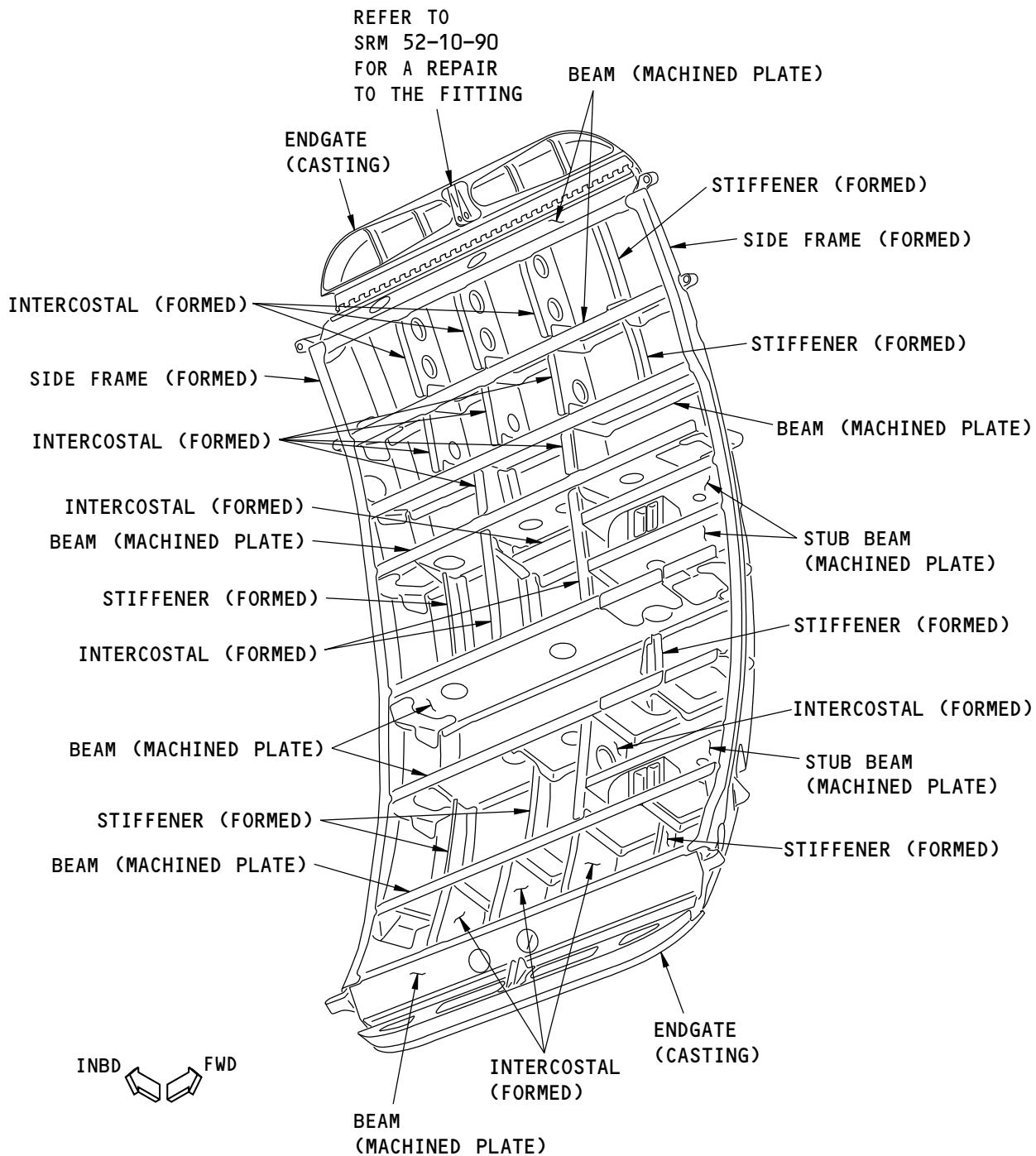
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F91720 S0006586702_V1

Aft Entry Door Structure Repairs
Figure 202 (Sheet 1 of 2)

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REPAIR 3
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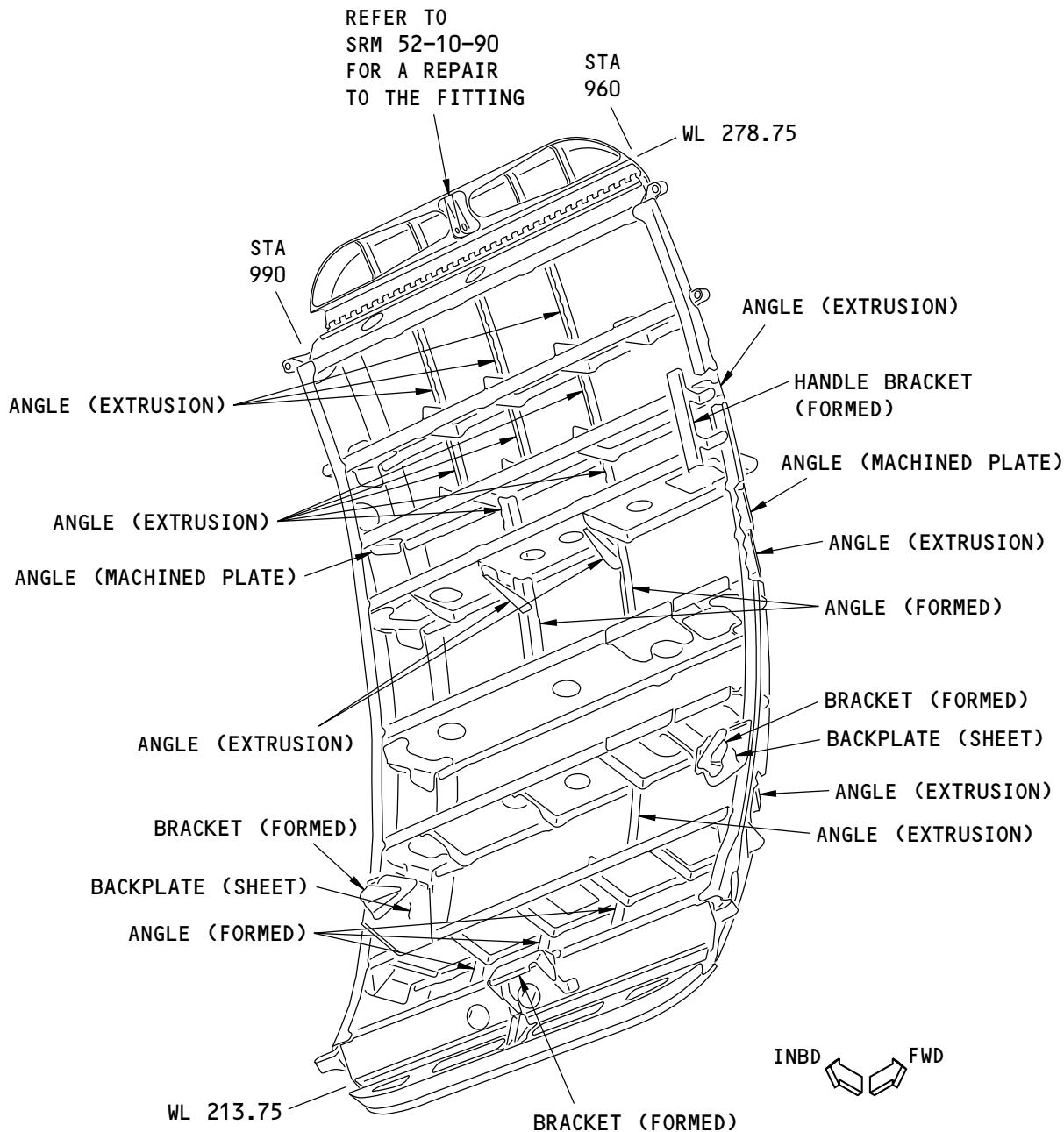
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F93313 S0006586703_V1

Aft Entry Door Structure Repairs
Figure 202 (Sheet 2 of 2)

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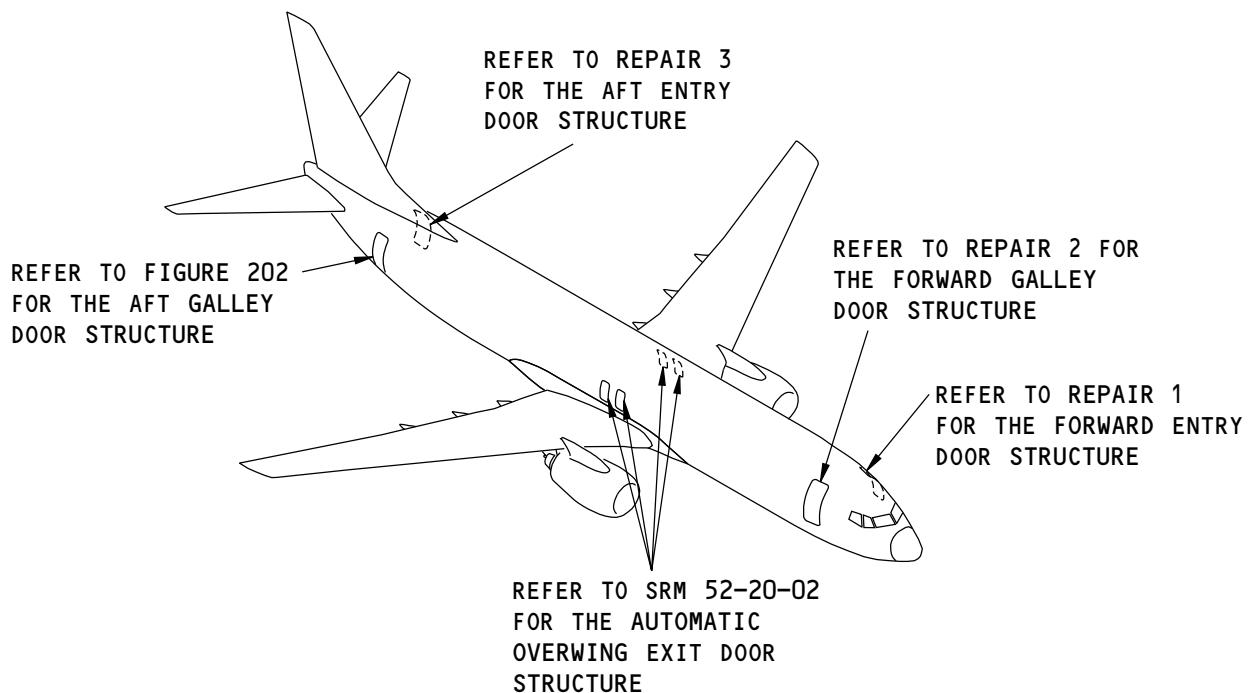


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STRUCTURAL REPAIR MANUAL

REPAIR 4 - AFT GALLEY DOOR STRUCTURE

1. Applicability

- A. Repair 4 is applicable to damage to the aft galley door structure shown in Aft Galley Door Structure Location, Figure 201/REPAIR 4 and Aft Galley Door Structure, Figure 202/REPAIR 4.



Aft Galley Door Structure Location
Figure 201

L46734 S0006586706_V1

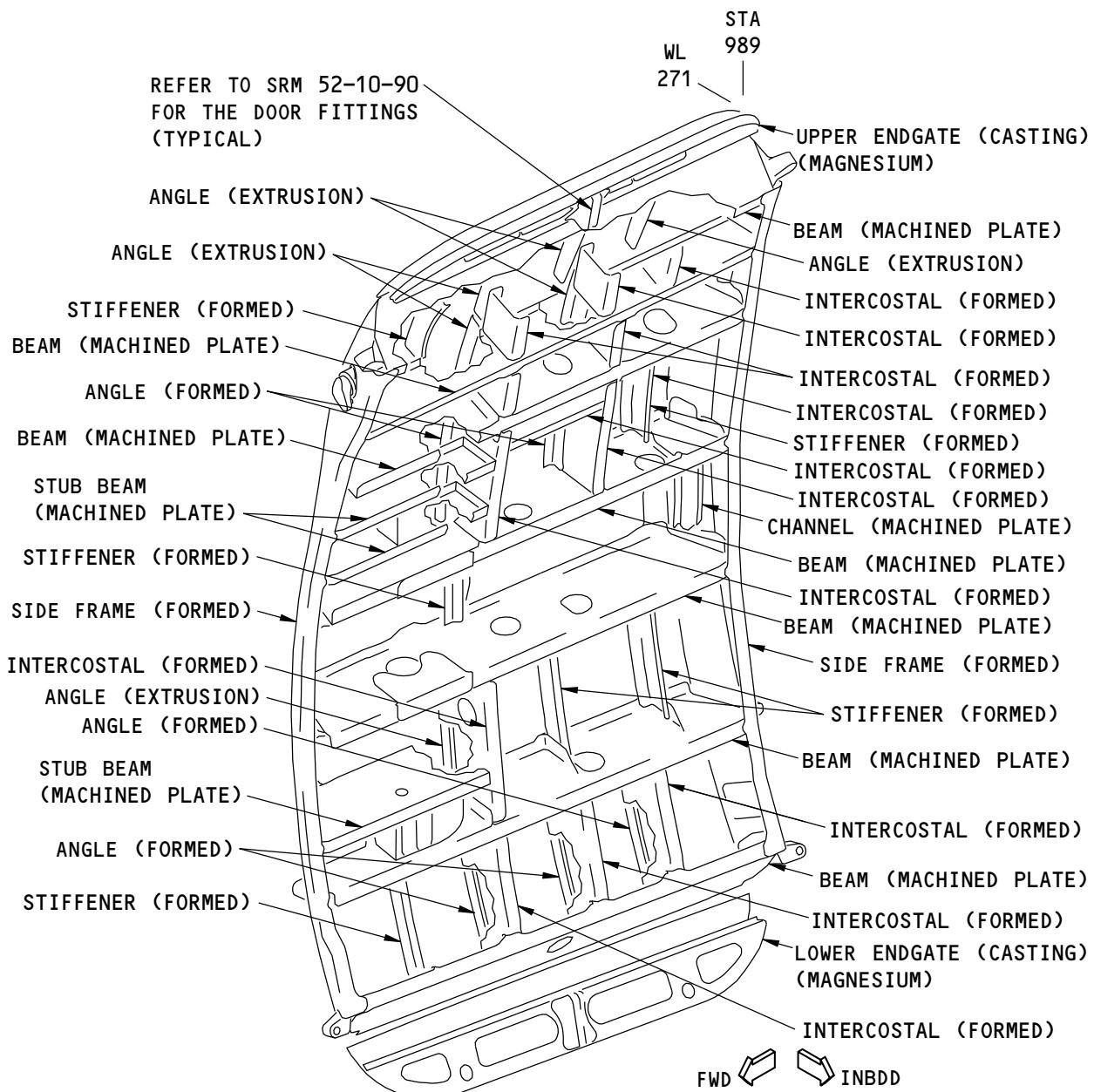
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NOTE: ALL PARTS ARE MADE FROM ALUMINUM (EXCEPT AS NOTED).

F91735 S0006586707_V1

Aft Galley Door Structure
Figure 202

52-10-02

REPAIR 4
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2. General

- A. The typical repairs given in 51-70-11 and 51-70-12 can be used when applicable if there is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 51-70-11 and 51-70-12 before you start a repair.

3. References

Reference	Title
51-70-11	TYPICAL FORMED SECTION REPAIRS
51-70-12	EXTRUDED SECTION REPAIRS
52-10-02	PASSENGER/GALLEY ENTRY DOOR STRUCTURE

4. Repair Instructions

- A. Refer to Aft Galley Door Structure Location, Figure 201/REPAIR 4 and Aft Galley Door Structure, Figure 202/REPAIR 4, and Table 201 to find the applicable repair for the part you want to repair.

NOTE: If necessary, refer to 52-10-02, Identification 4 to find the material and the process that was used to make the part which you want to repair.

Table 201:

REPAIR REFERENCES FOR THE FORWARD GALLEY DOOR STRUCTURE	
COMPONENT	REPAIR
Angle (extrusion)	Refer to SRM 51-70-12
Angle (formed)	Refer to SRM 51-70-11
Beam (machined plate)	There are no repairs for the Beam structure in the Structural Repair Manual at this time.
Endgate (casting)	There are no repairs for the Endgate structure in the Structural Repair Manual at this time.
Frame (formed)	Refer to SRM 51-70-11
Intercostal (formed)	Refer to SRM 51-70-11
Stiffener (extrusion)	Refer to SRM 51-70-12
Stiffener (formed)	Refer to SRM 51-70-11
Stub Beam (machined plate)	There are no repairs for the Stub Beam structure in the Structural Repair Manual at this time.

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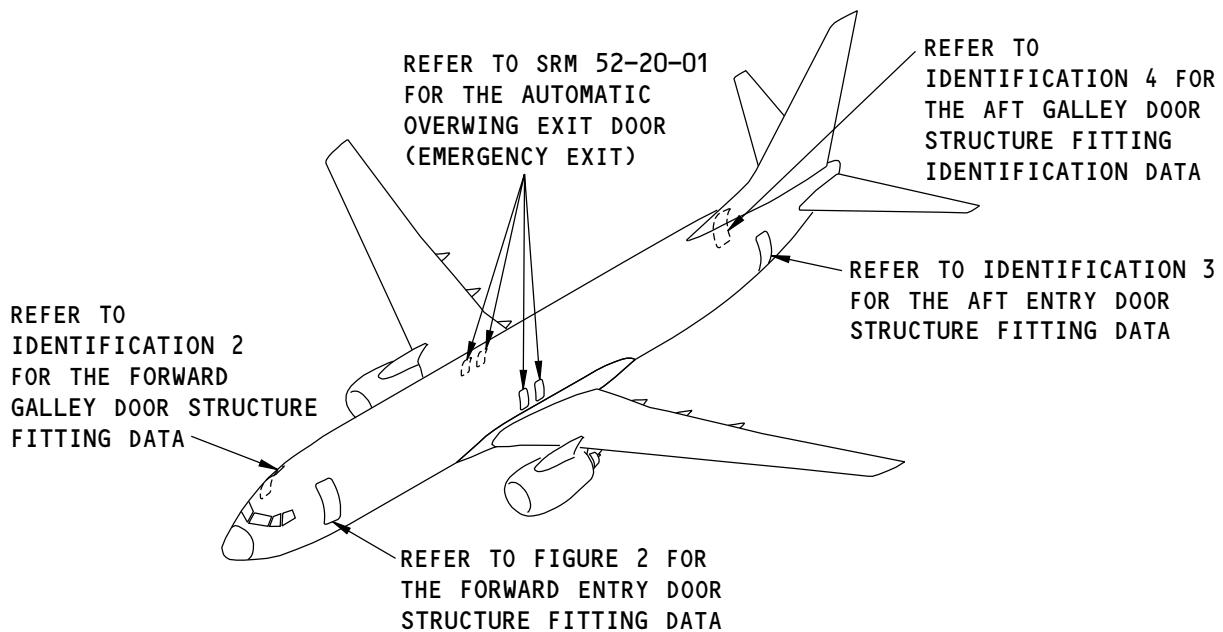
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IDENTIFICATION 1 - FORWARD ENTRY DOOR FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Forward Entry Door Location

Figure 1

Table 1:

L55333 S0006586713_V1

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6100	Forward Entry Door - Assembly Collector
141A6101	Frame and Beam Installation - Forward Entry Door
141A6120	Beam and Stop Assembly - Forward Entry Door
141A6170	Upper Gate Installation - Forward Entry Door
141A6171	Upper Gate Assembly - Forward Entry Door
141A6180	Lower Gate Installation - Forward Entry Door
141A6181	Lower Gate Assembly - Forward Entry Door

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Table 1: (Continued)

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6183	Gate Hinge Assembly - Forward Entry Door
141A6190	Hinge Support Installation - Forward Entry Door
141A6205	Centering Guide Installation - Forward Entry Door
141A6209	Guide Fitting Assembly - Forward Entry Door
69-22323	Hinge Support Assembly - Forward Entry Door

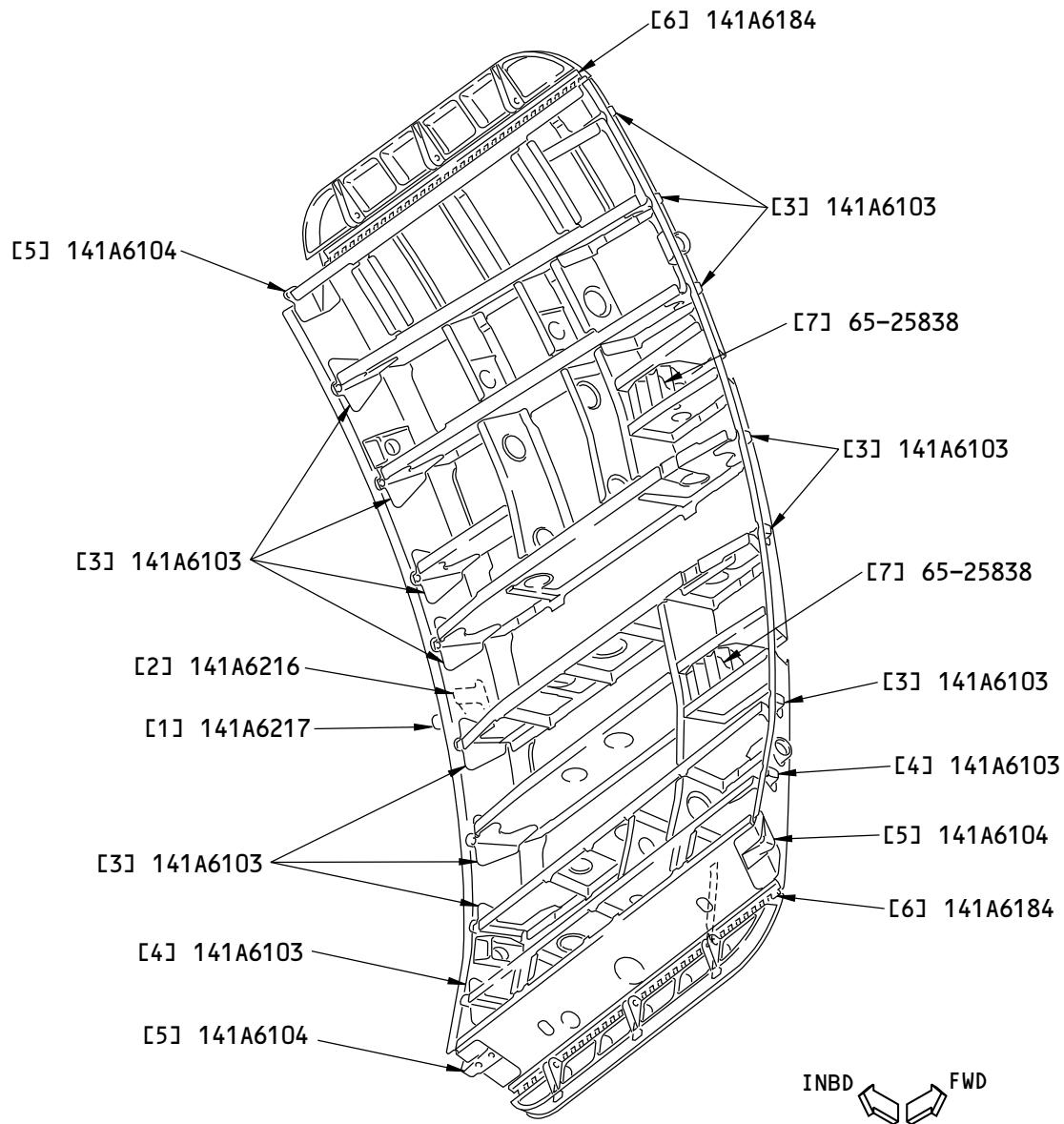
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F85847 S0006586716_V1

Forward Entry Door Structure Fitting Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Guide Ball		15-5PH CRES bar heat treated to 150 to 170 KSI. Refer to the production drawing for the machined thicknesses	
[2]	Guide Fitting		7075-T73511 plate. Refer to the production drawing for the machined thicknesses	
[3]	Stop Fitting		BAC1502-2801 2024-T3511 extrusion. Refer to the production drawing for the machined thicknesses	
[4]	Stop Fitting		BAC1502-2802 2024-T3511 extrusion. Refer to the production drawing for the machined thicknesses	
[5]	Support Fitting		7050-T7451 plate, Class A as given in AMS 4050. Refer to the production drawing for the machined thicknesses	
[6]	Hinge Half, Lower		BAC1520-2577 2024-T3511 extrusion	
[7]	Hinge Support		A356-T6 aluminum casting, composition 3	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1

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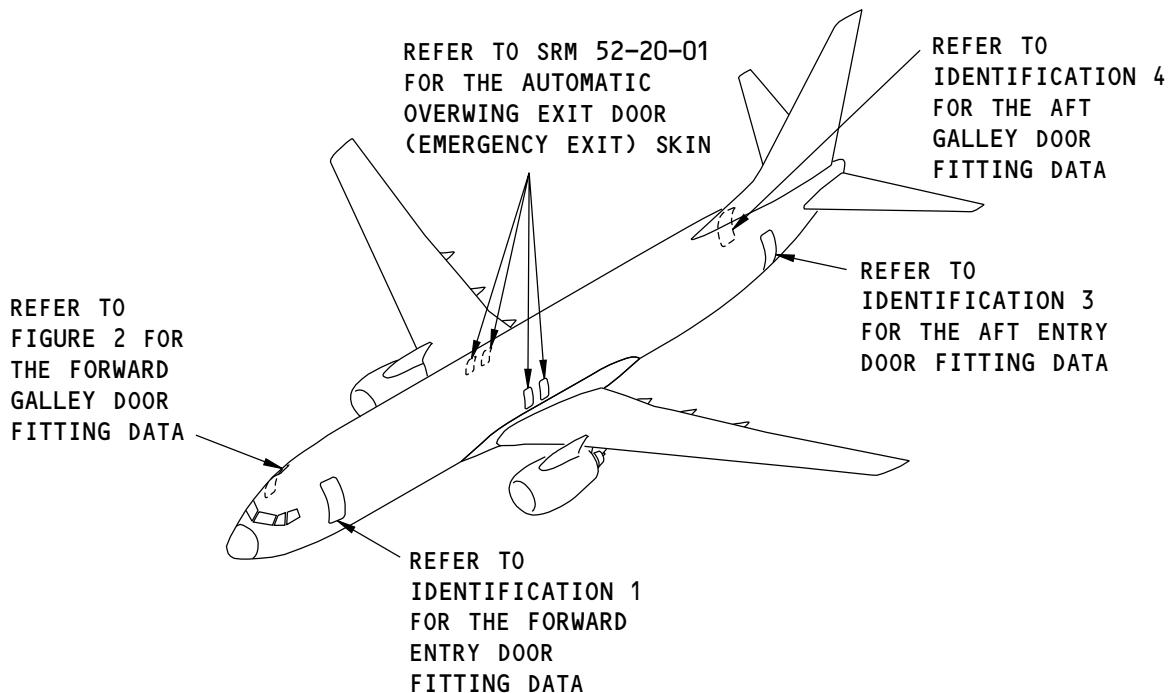
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IDENTIFICATION 2 - FORWARD GALLEY DOOR FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Forward Galley Door Structure Fittings Location

L55334 S0006586720_V1

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6500	Structures Installation - Forward Galley Door
141A6516	Major Assembly - Forward Galley Door
141A6526	Hinge Support Assembly - Forward Galley Door
141A6531	Hinge Assembly, Gate - Forward Galley Door
141A6538	Stop Fitting Assembly - Forward Galley Door
141A6540	Endgate assembly, Upper/Lower - Fwd Galley Door
141A6541	Clevis Assembly - Control Rod Attachment

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Table 1: (Continued)

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6549	Centering Guide Assembly - Forward Galley Door
65-2306	Housing Assembly - Door Camshaft

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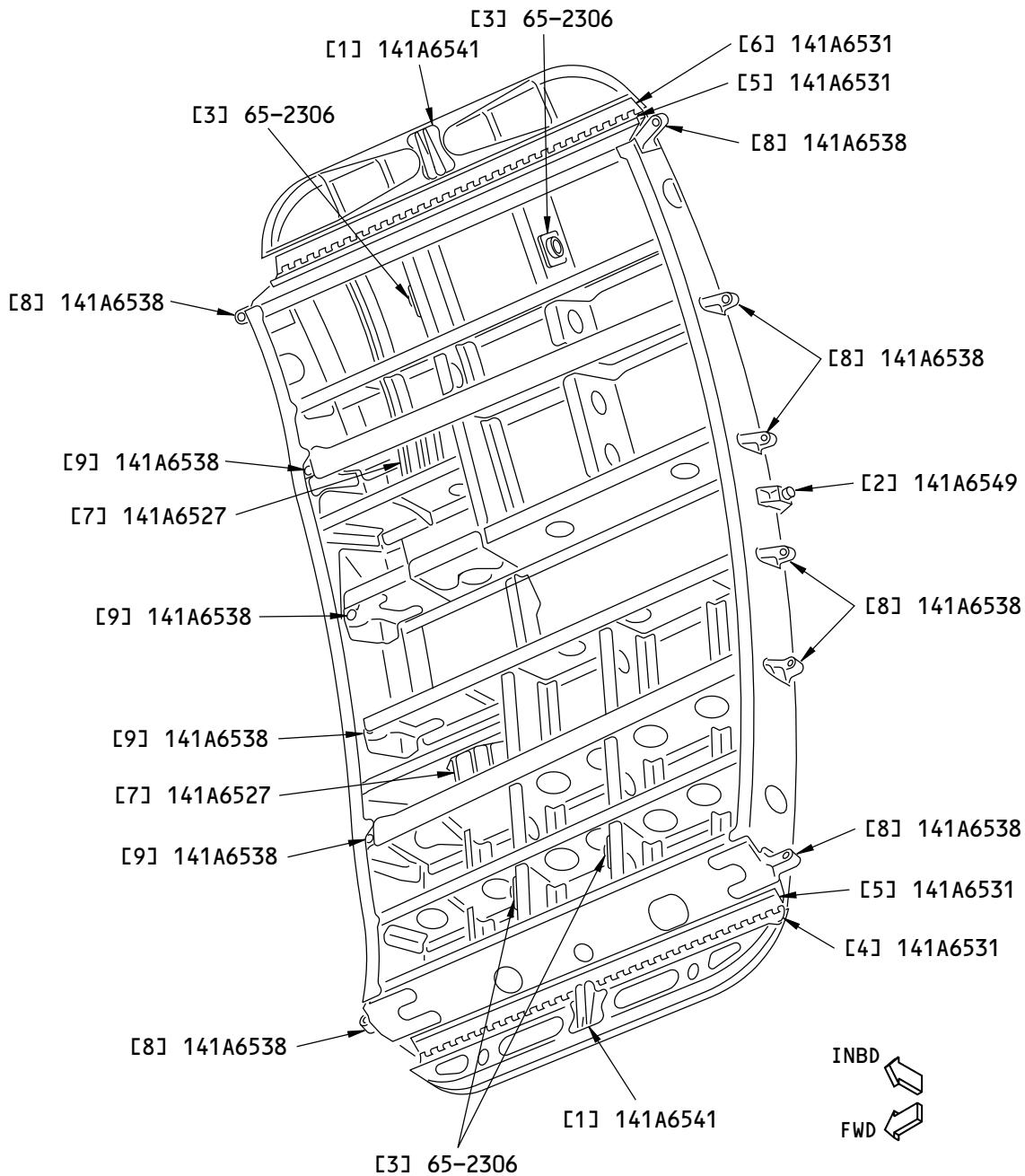
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F81864 S0006586723_V1

Forward Galley Door Fitting Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Clevis		BAC1508-310 2024-T3511 extrusion	
[2]	Guide Fitting		7075-T73511 extruded bar. Refer to the production drawing for the machined thicknesses	
[3]	Hinge Housing		A356-T6 aluminum casting, as given in AMS 4219, composition 3 (Optional: A356-T6, composition 8)	
[4]	Hinge Half, Gate		BAC1520-2543 2024-T3511 extrusion	
[5]	Hinge Half, Gate		BAC1520-2544 2024-T3511 extrusion	
[6]	Hinge Half, Gate		BAC1520-2545 2024-T3511 extrusion	
[7]	Housing		A357-T61 aluminum casting as given in AMS 4219, Class 3, Grade C	
[8]	Stop Fitting		7050-T7451 plate as given in BMS 7-323, Type I. Refer to the production drawing for the machined thicknesses	
[9]	Stop Fitting		BAC1520-2783 2024-T3511 extrusion. Refer to the production drawing for the machined thicknesses	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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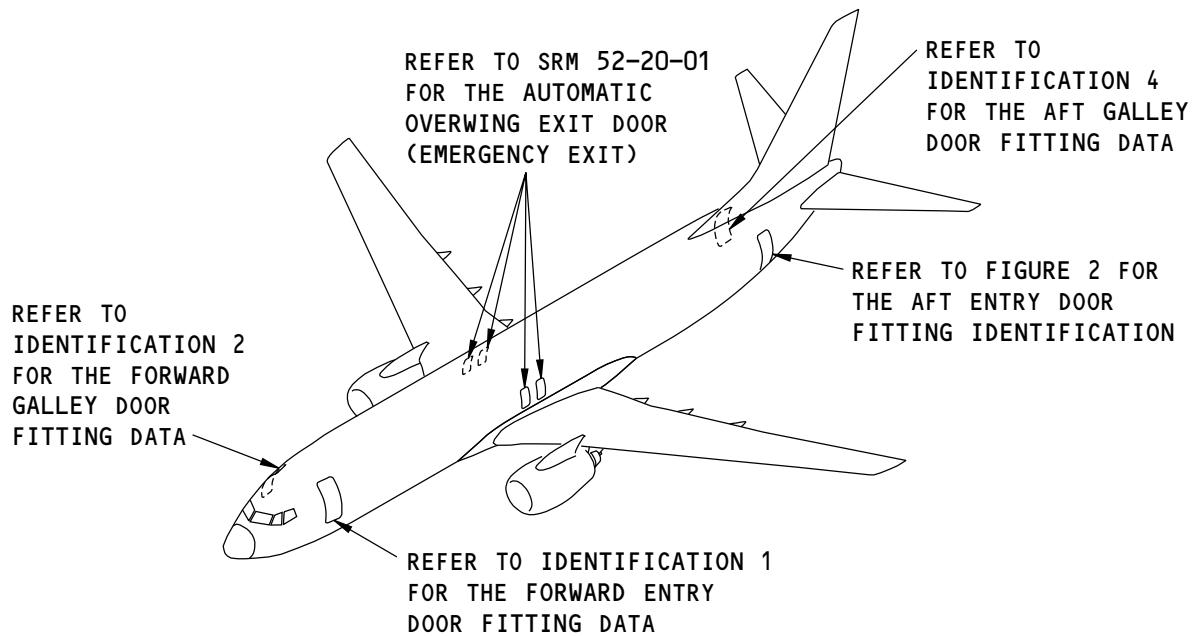
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IDENTIFICATION 3 - AFT ENTRY DOOR FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Aft Entry Door Location

Figure 1

Table 1:

L55335 S0006586727_V1

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6100	Door Installation - Aft Entry
147A6116	Door Assemble - Aft Entry Door
147A6140	Hinge Support Assembly - Aft Doors
147A6134	Hinge Assembly, Gate - Aft Doors
147A6138	Fitting Assembly, Latch Support - Aft Doors
147A6143	Endgate Assemblies - Aft Entry Doors
147A6146	Endgate Assembly, lower Aft Doors

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Table 1: (Continued)

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6147	Endgate Assembly, Upper Aft Doors
147A6144	Clevis Assembly - Aft Doors
147A6130	Centering Guide Assembly - Aft Doors
65-2306	Housing Assembly - Door Camshaft

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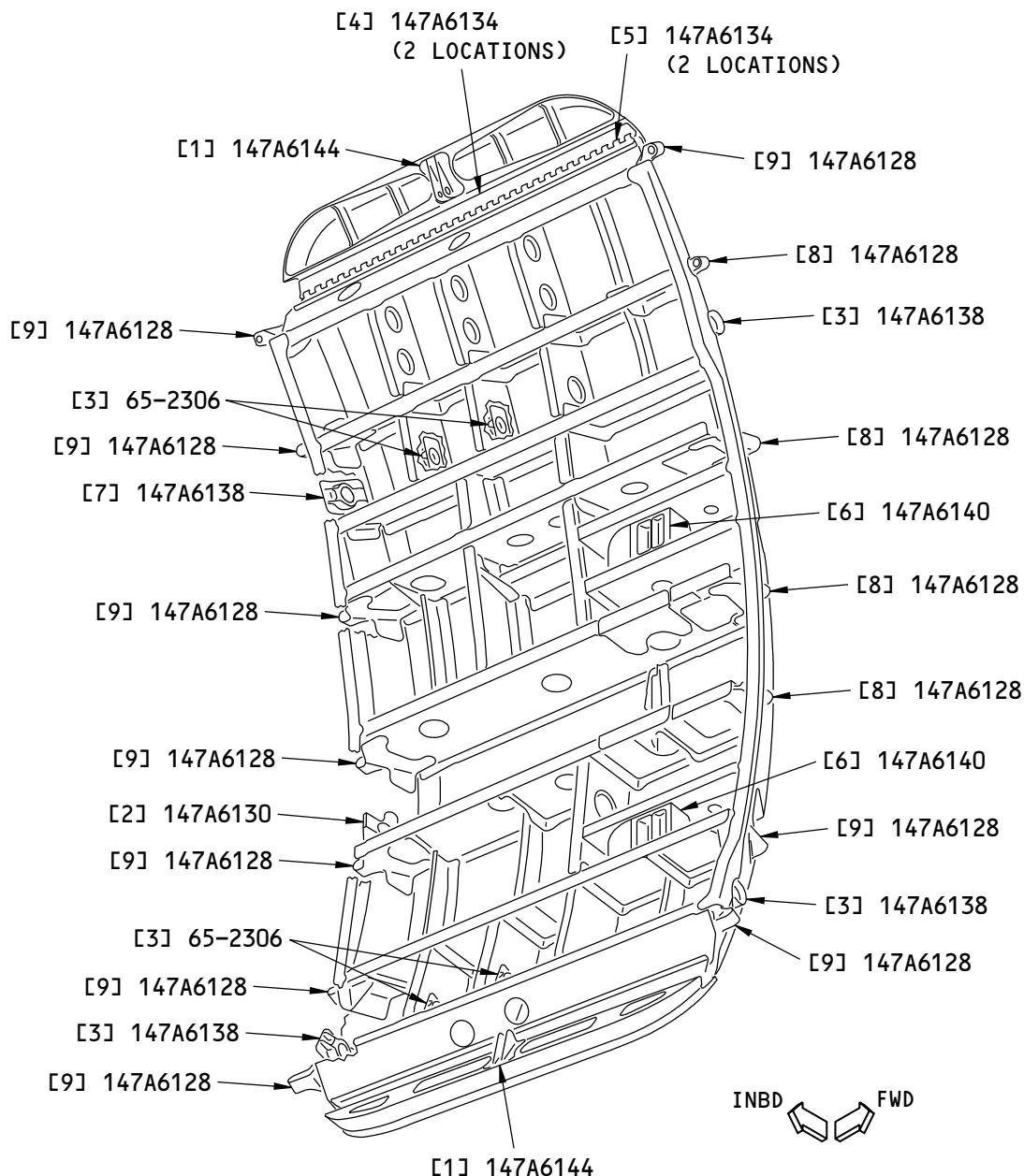
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F85215 S0006586730_V1

Aft Entry Door Structure Fittings Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Clevis		BAC1508-310 2024-T73511 extrusion	
[2]	Guide Fitting		7075-T73511 extruded bar. Refer to the production drawing for the thicknesses of the machined areas	
[3]	Hinge Housing		A356-T6 aluminum casting as given in AMS 4219, composition 3 (Optional: A356-T6, composition 8)	
[4]	Hinge Half		BAC1520-2545 2024-T3511 extrusion	
[5]	Hinge Gate		BAC1520-2545 2024-T3511 extrusion	
[6]	Hinge Housing		A357-T6 aluminum casting, composition 3	
[7]	Support Fitting		7050-T7451 plate as given in AMS 4050, Class A. Refer to the production drawing for the thicknesses of the machined areas	
[8]	Stop Fitting		BAC1520-2783 2024-T3511 extrusion. Refer to the production drawing for the thicknesses of the machined areas	
[9]	Stop Fitting		7050-T7451 plate as given in BMS 7-323, Type 1. Refer to the production drawing for the thicknesses of the machined areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 3

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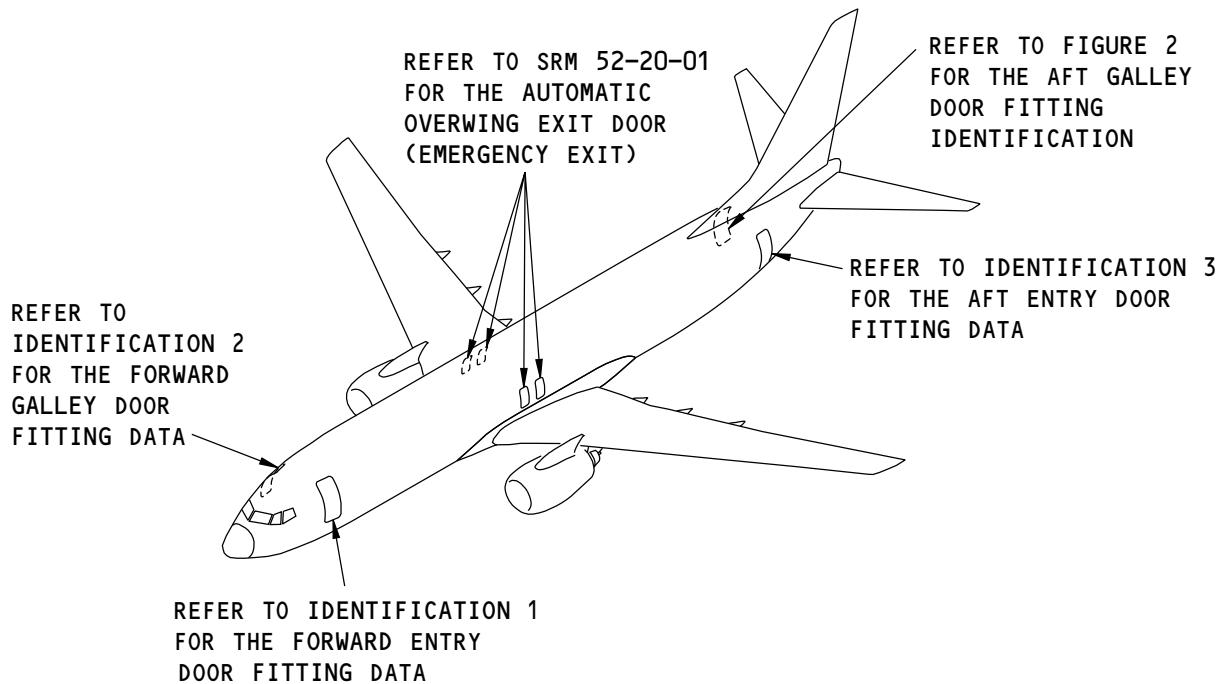
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IDENTIFICATION 4 - AFT GALLEY DOOR FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Aft Galley Door Location

Figure 1

Table 1:

L55336 S0006586734_V1

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6500	Door Installation - Aft Galley Door
147A6502	Door Assembly - Aft Galley Door
147A6125	Beam Assemblies - Aft Doors
147A6130	Centering Guide assembly - Aft Doors
147A6134	Hinge Assembly - Gate, Aft Doors
147A6140	Hinge Support Assembly - Aft Doors
147A6143	Endgate Assemblies - Aft Doors, (Lower)

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Table 1: (Continued)

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A6144	Clevis Assembly-Control Rod Attachment, Aft Doors
147A6514	Endgate Assemblies - Upper, Aft Galley Door
65-2306	Housing Assembly - Door Camshaft

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IDENTIFICATION 4

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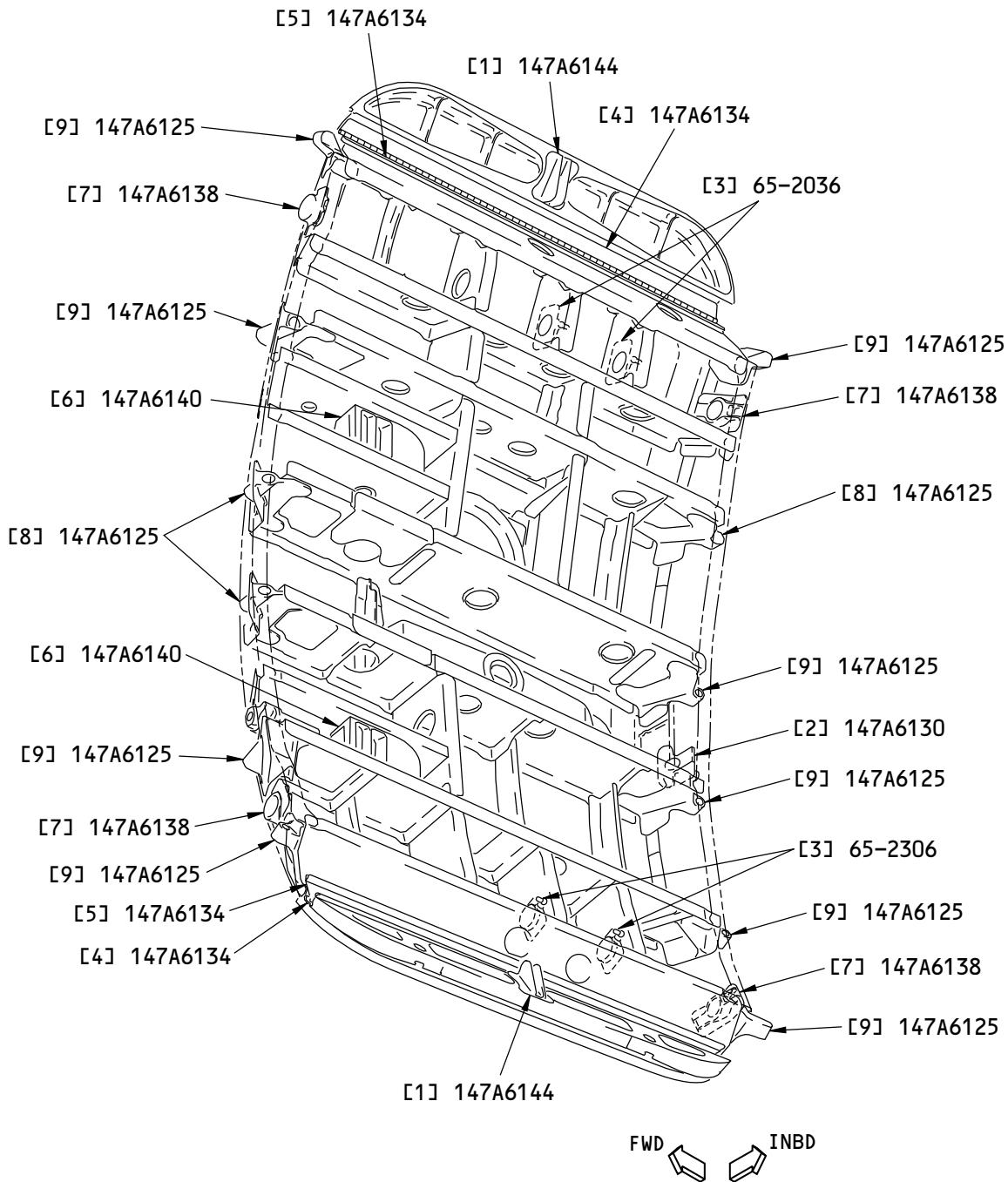
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STRUCTURAL REPAIR MANUAL



NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F83987 S0006586737_V1

Aft Galley Door Structure Fittings Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Clevis		BAC1508-310 2024-T3511 extrusion	
[2]	Guide Fitting		7075-T73511 bar. Refer to the engineering drawing for the machined thicknesses	
[3]	Hinge Housing		A356-T6 aluminum casting composition 3 as given in QQ-A-601 (Optional: A356-T6 composition 8)	
[4]	Hinge Half		BAC1530-2545 2024-T3511 extrusion	
[5]	Hinge Gate		BAC1520-2543 2024-T3511 extrusion	
[6]	Hinge Housing		A357-T6 aluminum casting composition 3	
[7]	Support Fitting		7050-T7451 plate class A as given in AMS 4050. Refer to the production drawing for the machined thicknesses	
[8]	Stop Fitting		BAC1520-2783 2024-T3511 extrusion. Refer to the engineering drawing for the machined thicknesses	
[9]	Stop Fitting		7050-T7451 plate Type 1 as given in BMS 7-323. Refer to the production drawing for the machined thicknesses	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 4

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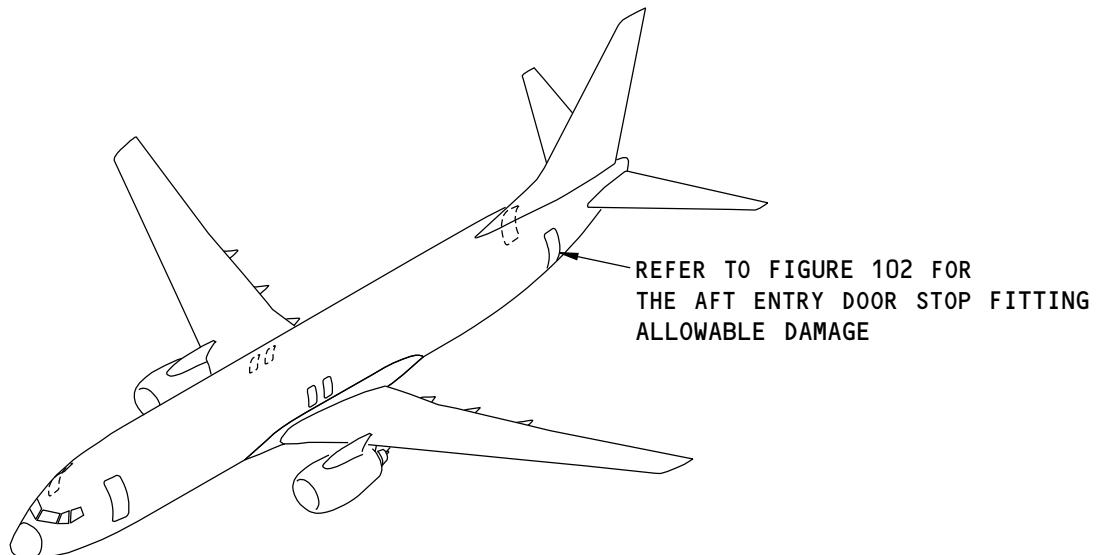


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ALLOWABLE DAMAGE 1 - AFT ENTRY DOOR STOP FITTING

1. Applicability

- A. This subject gives the allowable damage limit for the 147A6128-45 or 147A6128-54 Door Stop Fitting shown in Figure 101/ALLOWABLE DAMAGE 1.
- B. This procedure is not applicable for airplanes that have completed SB 737-21-1149.



Aft Entry Door Fitting Location
Figure 101

1999707 S0000390313_V1

52-10-90

ALLOWABLE DAMAGE 1

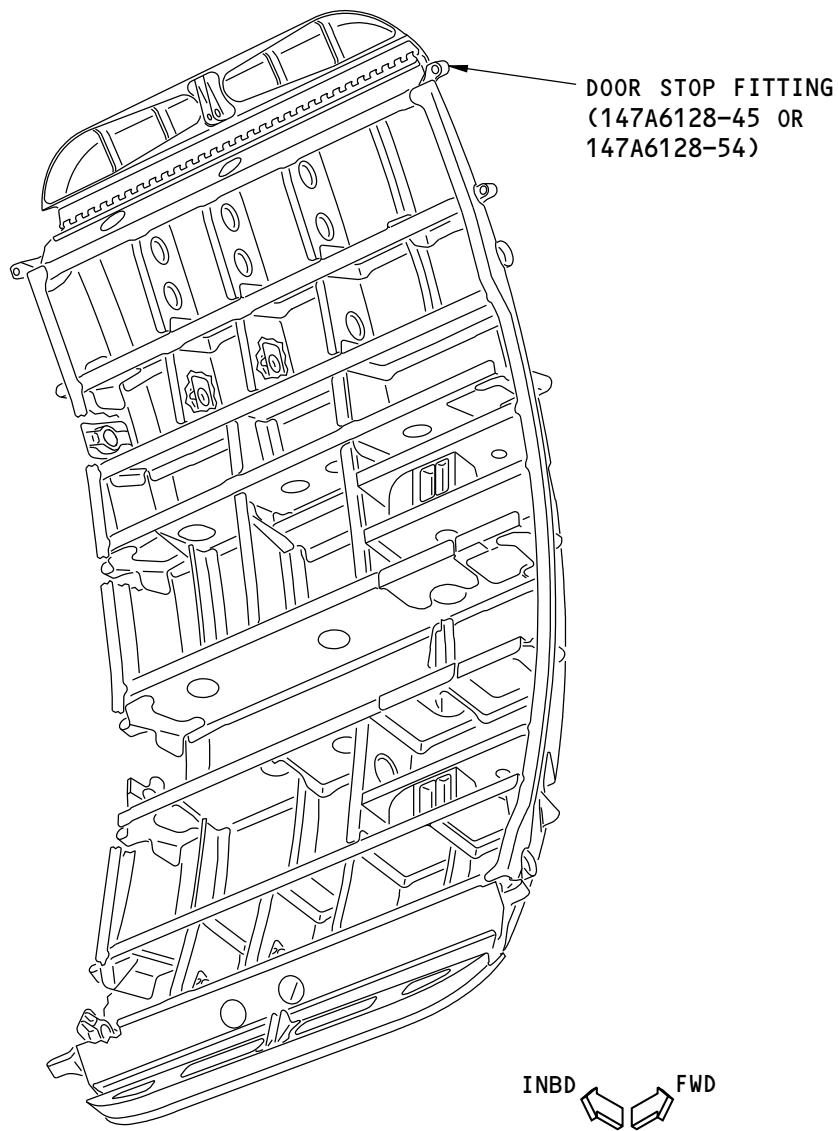
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1999757 S0000390041_V2

Aft Entry Door Fitting Allowable Damage
Figure 102

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ALLOWABLE DAMAGE 1

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2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1.

NOTE: Damage is only permitted on the end of the lug as shown in Figure 103/ALLOWABLE DAMAGE 1. Damage is not permitted on the sides of the lug.

- B. Remove the damage. Do the steps that follow:

- (1) Refer to 51-10-02 for the inspection and removal of the damage.
- (2) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- (3) Make sure that you remove the damage within the limits as shown in Figure 103/ALLOWABLE DAMAGE 1.
- (4) Keep a surface roughness of 125 microinches Ra or smoother.

- C. After you remove the damage, do the steps that follow:

- (1) Do a penetrant inspection of the area where the damage has been removed to make sure that you removed all the damage. Refer to SOPM 20-20-02.
 - (a) The High Frequency Eddy Current (HFEC) inspection is permitted as an alternative to the penetrant inspection. Refer to 737 NDT Part 6, 51-00-00, Figure 4 for the surface inspection.

WARNING: MAKE SURE THAT YOU WEAR EYE PROTECTION WHEN YOU USE THE FLAP PEEN WHEEL. IF YOU DO NOT, AN INJURY CAN BE THE RESULT.

- (2) Shot peen or flap peen the chamfered area with 200% coverage and 0.005A to 0.010A intensity. Refer to SOPM 20-10-03 for the flap peen and shot peen procedures.
- (3) Apply a chemical conversion coating to the bare surfaces of the reworked area with TYPE 2, CLASS A as given in SOPM 20-43-03.
- (4) Apply one layer of BMS 10-11, Type I primer to the surfaces of the reworked area. Refer to SOPM 20-41-02 for chemical and solvent resistant finishes application.
- (5) Restore the door stop fitting exterior finish, as applicable. Refer to AMM PAGEBLOCK 51-21-00/701.
- (6) If necessary, adjust the door to make sure that the door stop fitting does not interfere with the aircraft structure. Refer to AMM TASK 52-13-00-820-801.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
AMM 51-21-00 P/B 701	INTERIOR AND EXTERIOR FINISHES - CLEANING/PAINTING
AMM 52-13-00-820-801	Aft Entry Door Adjustment (P/B 501)
SOPM 20-10-03	SHOT PEENING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-43-03	Chemical Conversion Coatings for Aluminum
737 NDT Part 6, 51-00-00	Structures - General

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ALLOWABLE DAMAGE 1

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4. Allowable Damage Limits

- A. Cracks are not permitted.
- B. Nicks, Gouges, Scratches, and Corrosion:
 - (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1.

NOTE: Contact The Boeing Company if the damage is beyond the Allowable Damage Limit.

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ALLOWABLE DAMAGE 1

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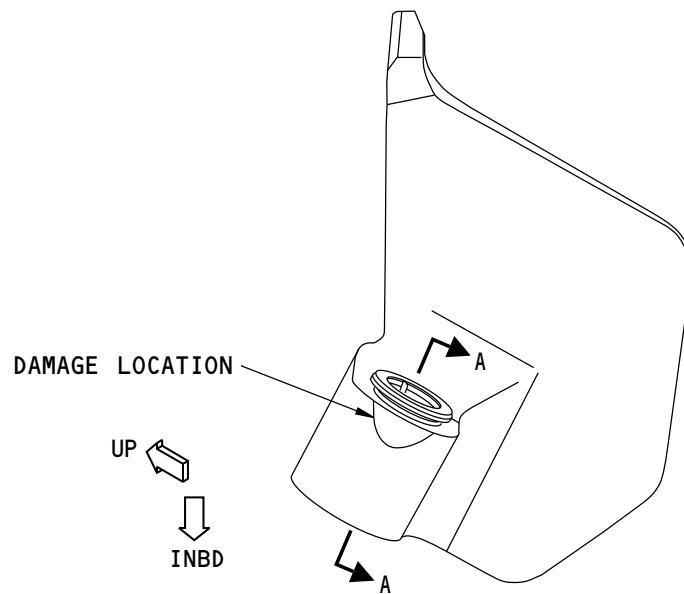
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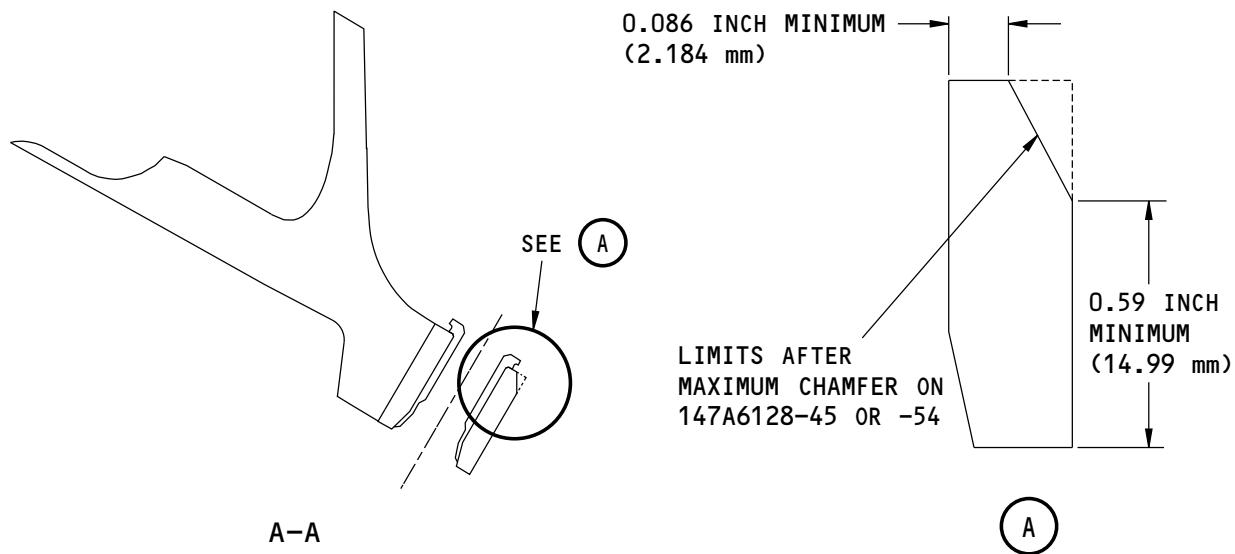
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DOOR STOP FITTING



1999857 S0000390043_V2

Door Stop Fitting Allowable Damage Limit
Figure 103

52-10-90

ALLOWABLE DAMAGE 1

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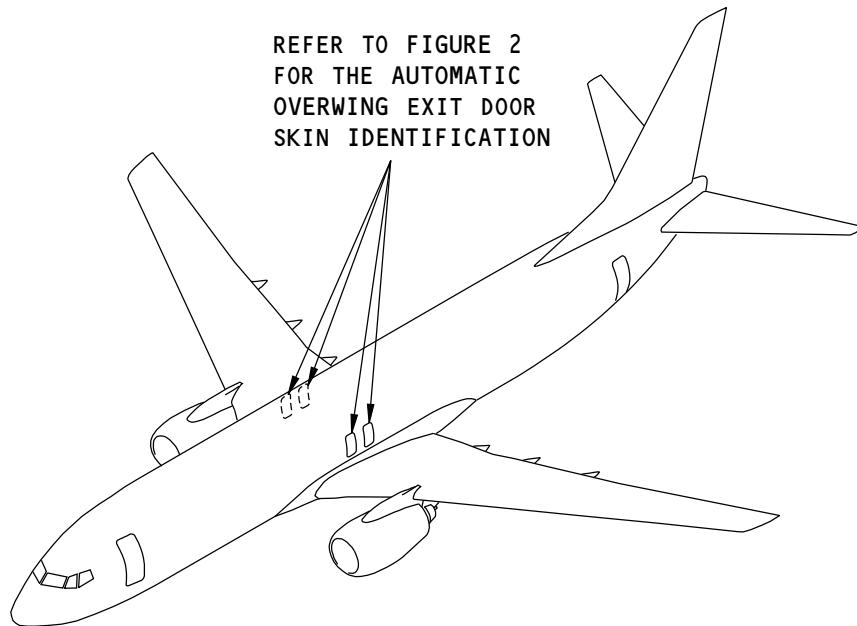
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IDENTIFICATION 1 - AUTOMATIC OVERWING EXIT DOOR SKIN



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

G73208 S0006586745_V1

Automatic Overwing Exit Door Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
144A6300	Emergency Escape Hatch and Automatic Overwing Exit - Functional Product Collector
144A6500	Door Installation - Automatic Overwing Exit
144A6550	Outer Skin Minor Assembly - Automatic Overwing Exit
144A6551	Outer Skin - Automatic Overwing Exit

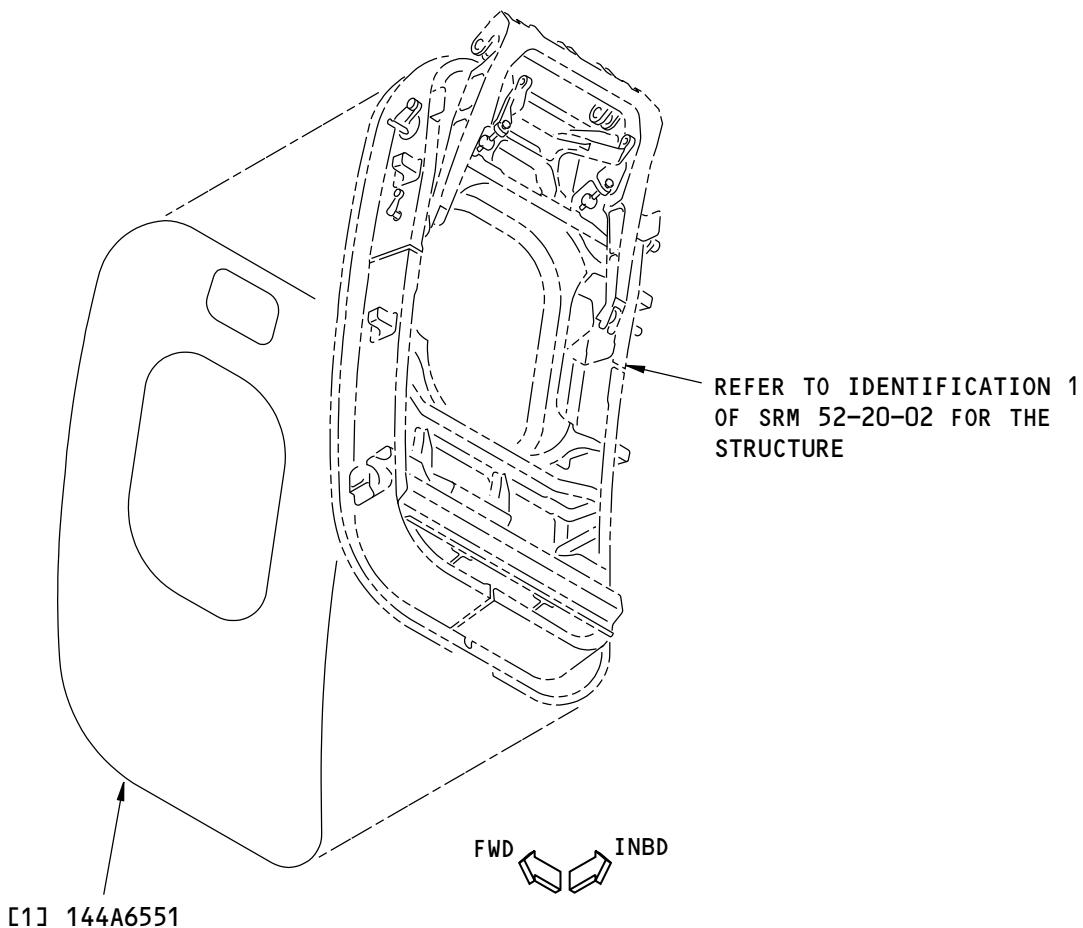
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

K35918 S0006586747_V1

Automatic Overwing Exit Door Skin Identification

Figure 2

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	External Skin	0.063 (1.60)	2024-T3 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1

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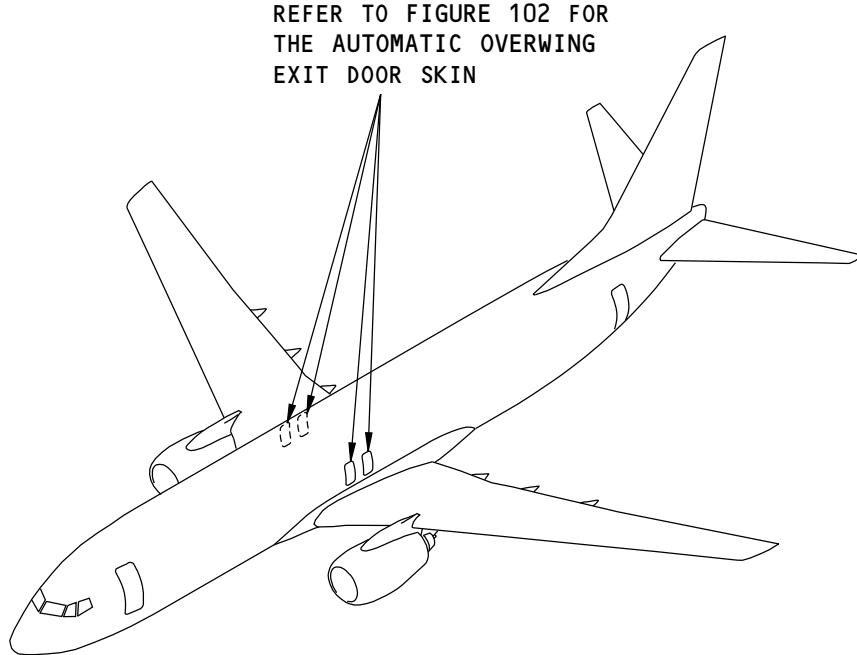


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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 1 - AUTOMATIC OVERWING EXIT DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the external skin on the automatic overwing exit door shown in Automatic Overwing Exit Door Skin Location, Figure 101/ALLOWABLE DAMAGE 1.



**Automatic Overwing Exit Door Skin Location
Figure 101**

G73261 S0006586753_V1

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ALLOWABLE DAMAGE 1

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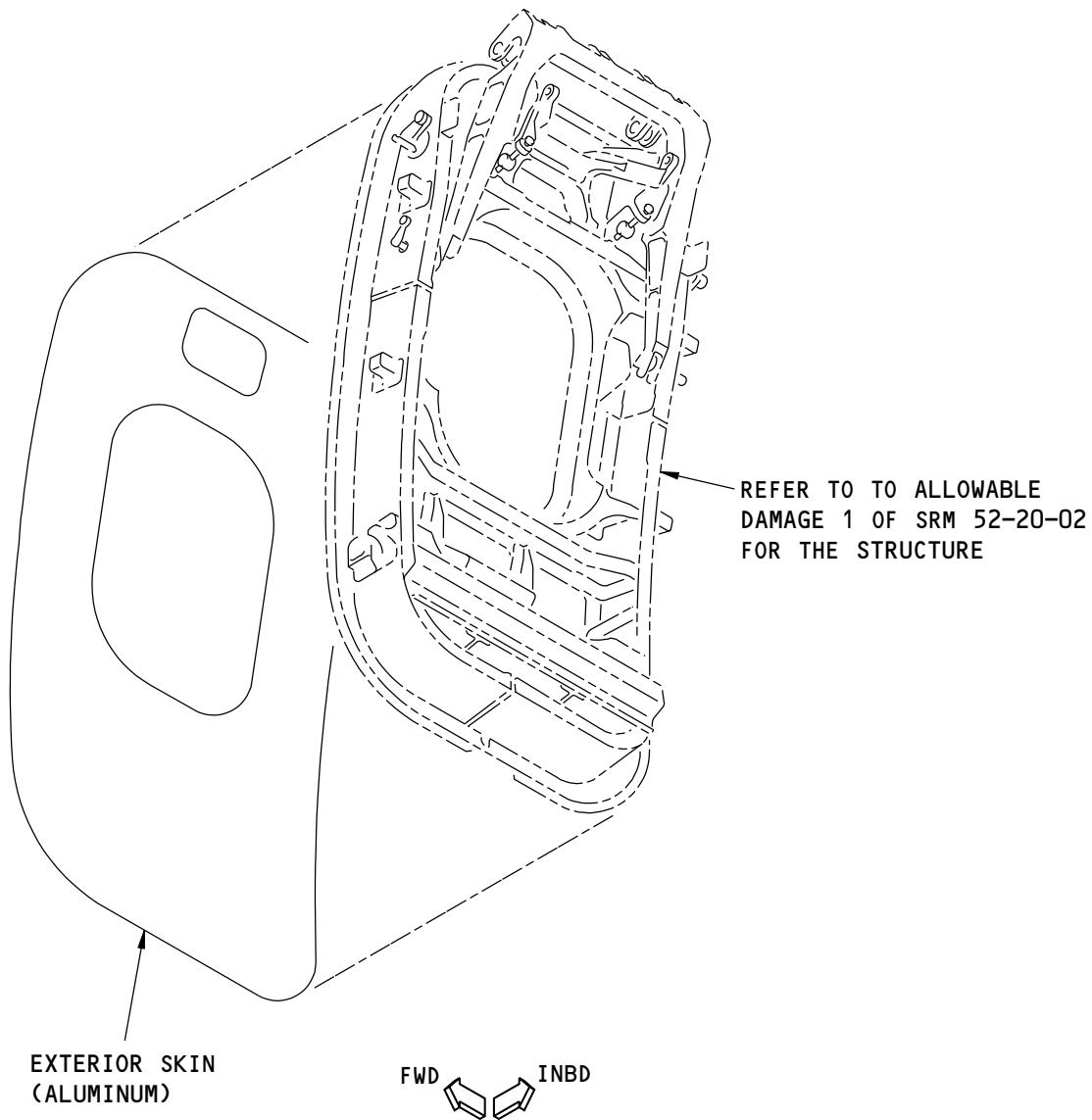
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K02935 S0006586754_V1

Automatic Overwing Exit Door Skin
Figure 102

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ALLOWABLE DAMAGE 1

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2. General

- A. The automatic overwing exit doors are in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the external skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the external skin given in Paragraph 5./ALLOWABLE DAMAGE 1
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- C. For damage that was removed on the aerodynamic external surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.
- D. For damage that was removed on the non-aerodynamic inner surface of the external skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- E. Refer to Paragraph 4./ALLOWABLE DAMAGE 1 for the allowable damage limits.

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. If you find damage to the external skin, other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 1 for the flight operation limits.
- B. Cracks:

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ALLOWABLE DAMAGE 1

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- (1) Drill a 0.25 inch (6.4 mm) diameter stop hole at the ends of a crack.
 - (a) The edge of the stop hole must be a minimum of 1.00 inch (25.4 mm) away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (b) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - 1) Install the rivet without sealant.
 - (c) Refer to Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.
- C. Nicks, Scratches, Gouges and Corrosion:
 - (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , and E .
 - (2) Refer to Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 and Table 101 for the flight operation limits.
- D. Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

 - (1) Dents are permitted if they meet the limits of Allowable Damage Limits, Figure 103/ ALLOWABLE DAMAGE 1, Detail F.
 - (2) Dents larger than the limits shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail F, that cannot be repaired immediately are permitted if:
 - (a) There are no loose or missing fasteners.
 - (b) There are no damaged fastener holes.
 - (c) There are no creases, gouges, or cracks near the dent.
 - (d) You do not fill the dent.
 - (e) You make an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.
- E. Holes and Punctures:

NOTE: For holes and punctures that are a maximum of 0.25 inch (6.4 mm) in diameter, there are no flight operations limits. Refer to Paragraph 4.E.(1)/ALLOWABLE DAMAGE 1 For holes and punctures that are larger than 0.25 inch (6.4 mm) in diameter, flight operations limits are necessary. Refer to Paragraph 4.E.(2)/ALLOWABLE DAMAGE 1 and Paragraph 5./ ALLOWABLE DAMAGE 1

 - (1) Damage is permitted if:
 - (a) It is a maximum of 0.25 inch (6.4 mm) in diameter
 - (b) It is a minimum of 1.00 inch (25.4 mm) away from a fastener hole, an edge, other damage, or a chem-milled radius
 - (c) You fill the damage with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - 1) Install the rivet without sealant.
 - (2) If you find a hole or puncture that is larger than 0.25 inch (6.4 mm) in diameter, do as follows:
 - (a) Remove the damage to a circular or oval shape.
 - (b) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch (25.4 mm) away from a fastener hole, an edge, other damage, or a chem-milled radius.

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- (c) Refer to Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 and Table 101 for the flight operation limits.

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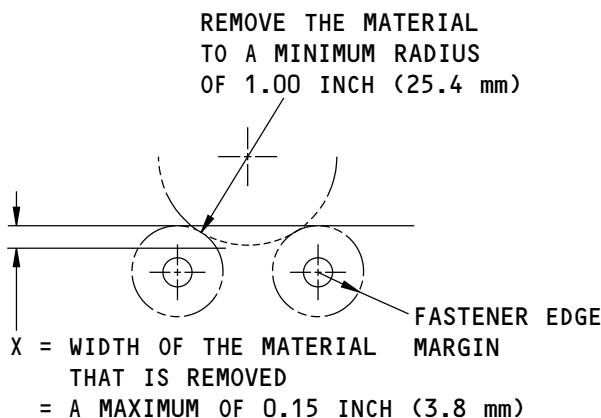
ALLOWABLE DAMAGE 1

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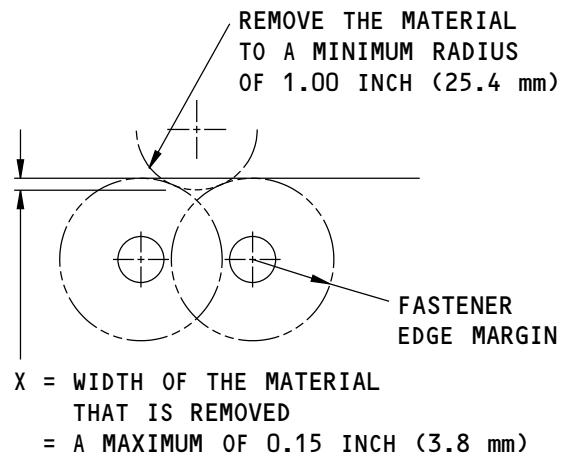
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**737-800
STRUCTURAL REPAIR MANUAL**


REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)

TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE FROM A HOLE, A FASTENER, AN EDGE, OR OTHER DAMAGE MUST BE 20X OR MORE

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN

IF THERE ARE FASTENERS,
SEE (A) AND (B)

MAKE THE CONTOUR SMOOTH (TYPICAL)

X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH (3.8 mm)

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

(C)

F94454 S0006586755_V1

Allowable Damage Limits
Figure 103 (Sheet 1 of 3)

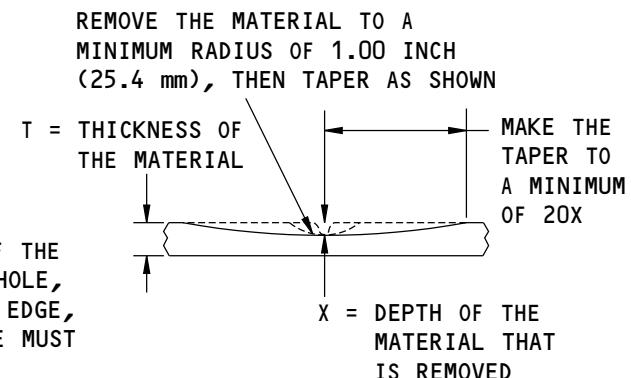
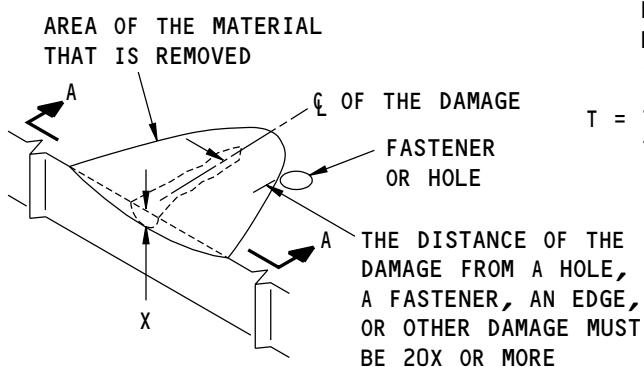
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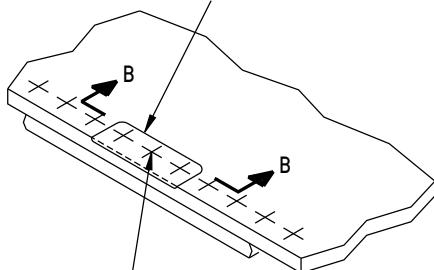
NOTE: REFER TO PARAGRAPH 5, FIGURE 104, AND TABLE 101 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

A-A

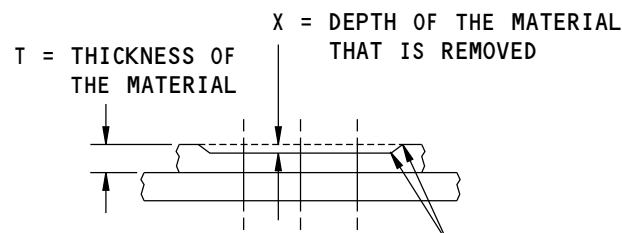
REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE



NOTE: REFER TO PARAGRAPH 5, FIGURE 104, AND TABLE 101 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

B-B

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(E)

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**Allowable Damage Limits
Figure 103 (Sheet 2 of 3)**

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ALLOWABLE DAMAGE 1

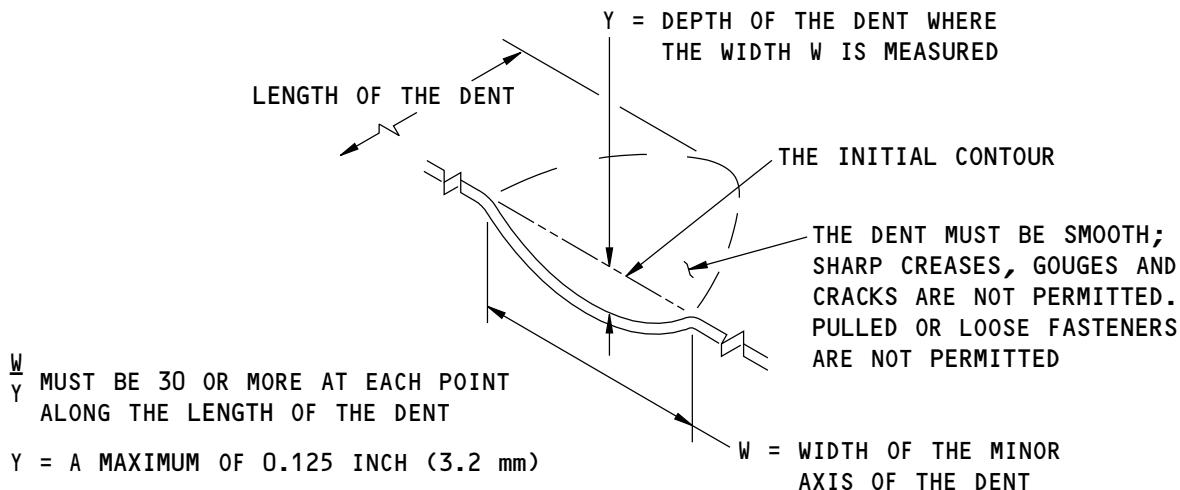
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DENT THAT IS PERMITTED



F94458 S0006586757_V2

Allowable Damage Limits

Figure 103 (Sheet 3 of 3)

5. Airplane Operation Limits Applicable to the External Skin

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
 - (1) Find the applicable area in Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 for the length and depth of the damage in all 20-inch by 20-inch (50.8 cm by 50.8 cm) square areas of the door skin.
 - (a) The damage depth in Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
 - (b) Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 is applicable to:
 - 1) Cracks
 - 2) Nicks, Scratches, Gouges, and Corrosion
 - 3) Holes and Punctures that are larger than 0.25 inch (6.4 mm) in diameter.
 - (c) Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 is not applicable to dents.
 - (2) Refer to Table 101/ALLOWABLE DAMAGE 1 to find the damage treatment and the permitted airplane operations for the area you found in Damage Limits for the Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1.

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ALLOWABLE DAMAGE 1

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Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 104 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired. For holes and punctures larger than 0.25 inch (6.4 mm) in diameter: The maximum cabin pressure differential is limited to 0.0 PSIG. Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits
	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to 0.0 PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
D	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits
	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
E	Do a permanent, interim, or time-limited repair as given in SRM 52-00-01	There are no airplane operation limits

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ALLOWABLE DAMAGE 1

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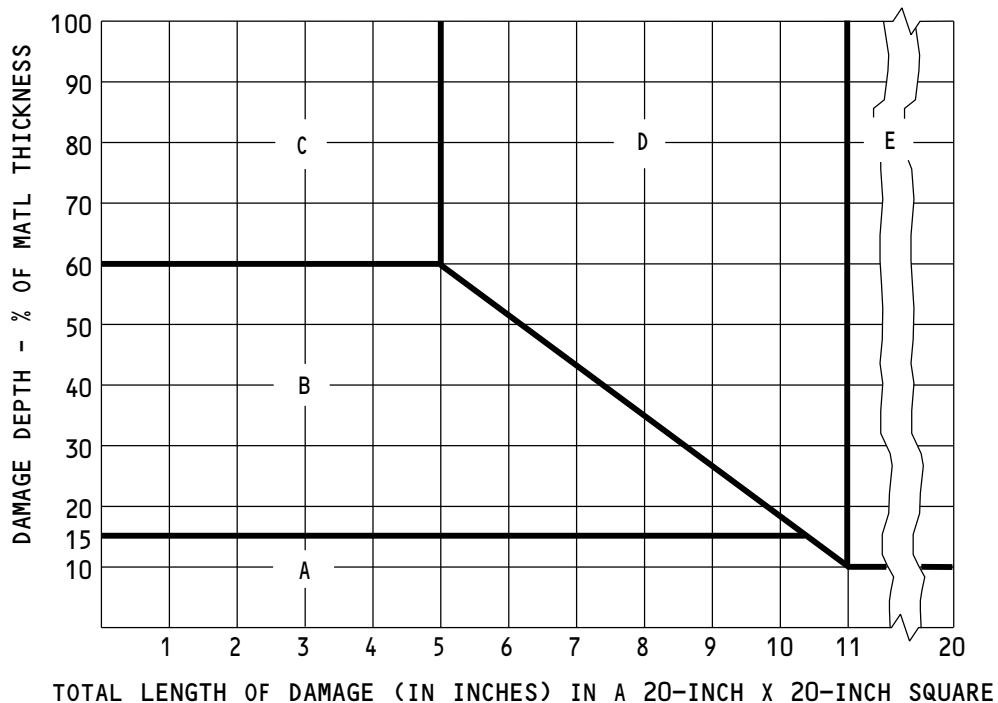
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NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

F94462 S0006586759_V1

Damage Limits for the Pressurized External Skin
Figure 104

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ALLOWABLE DAMAGE 1

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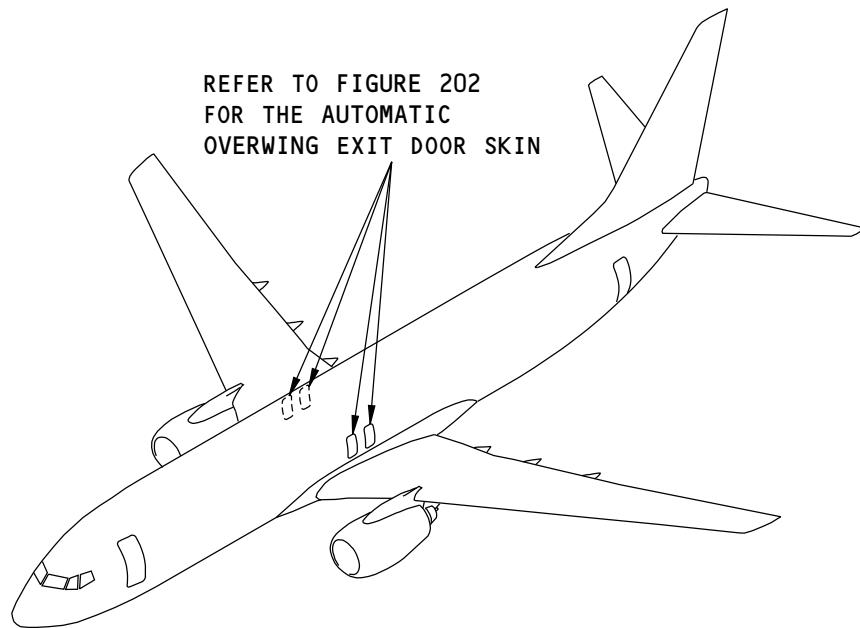


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REPAIR 1 - AUTOMATIC OVERWING EXIT DOOR SKIN

1. Applicability

- A. Repair 1 is applicable to damage to the automatic overwing exit door skins shown in Automatic Overwing Exit Door Skin Location, Figure 201/REPAIR 1.



**Automatic Overwing Exit Door Skin Location
Figure 201**

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REPAIR 1
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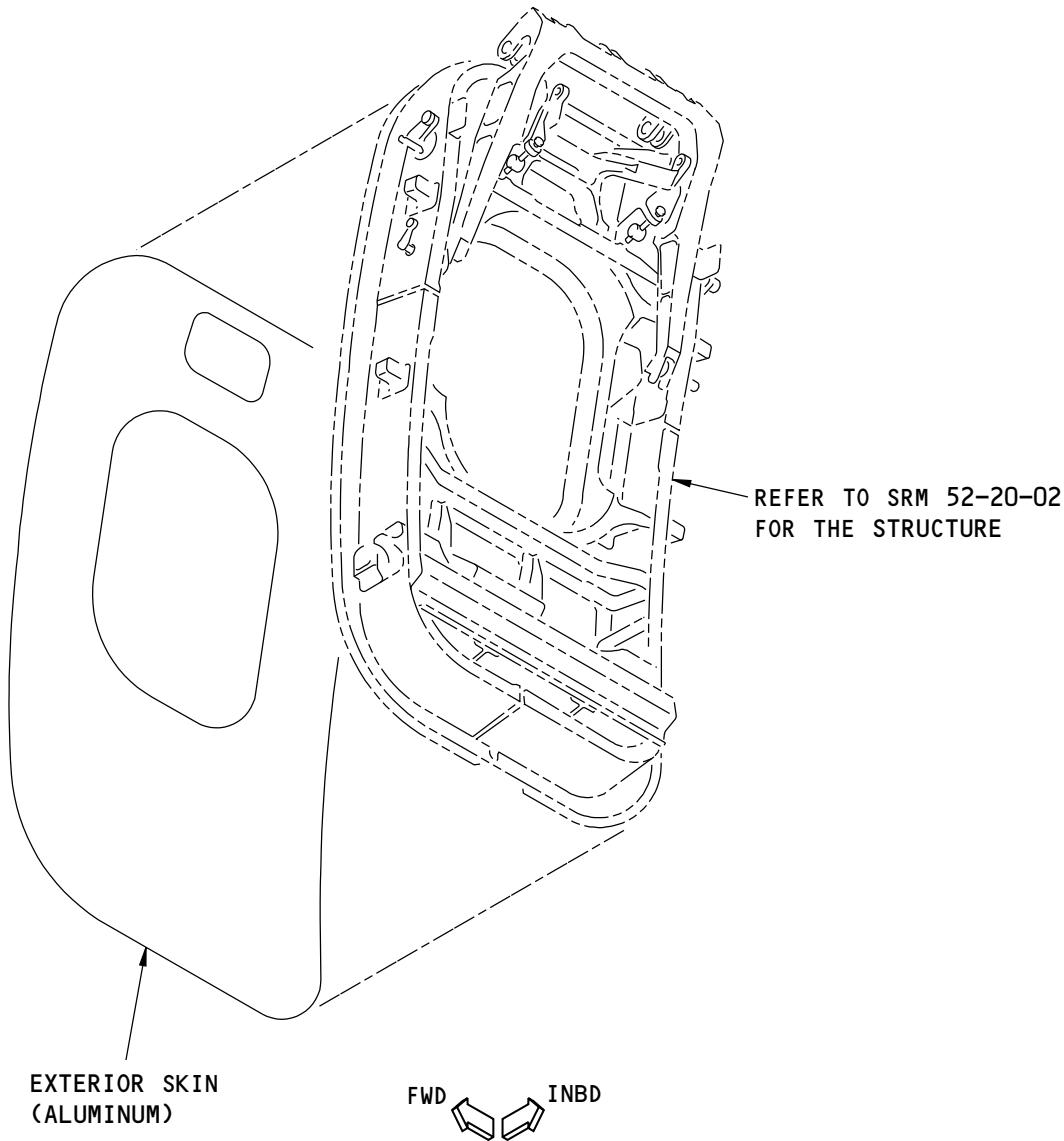
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Automatic Overwing Exit Door Skin
Figure 202

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REPAIR 1
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2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 5 can be used when applicable if:
 - (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 5 before you start a repair.

3. References

Reference	Title
52-00-01	TYPICAL DOOR SKIN
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams

4. Repair Instructions

- A. Refer to 52-00-01, REPAIR 152-00-01, REPAIR 252-00-01, REPAIR 352-00-01, REPAIR 4 and 52-00-01, REPAIR 5 to find the applicable repair for the automatic overwing exit door skins shown in Automatic Overwing Exit Door Skin, Figure 202/REPAIR 1.

52-20-01

REPAIR 1
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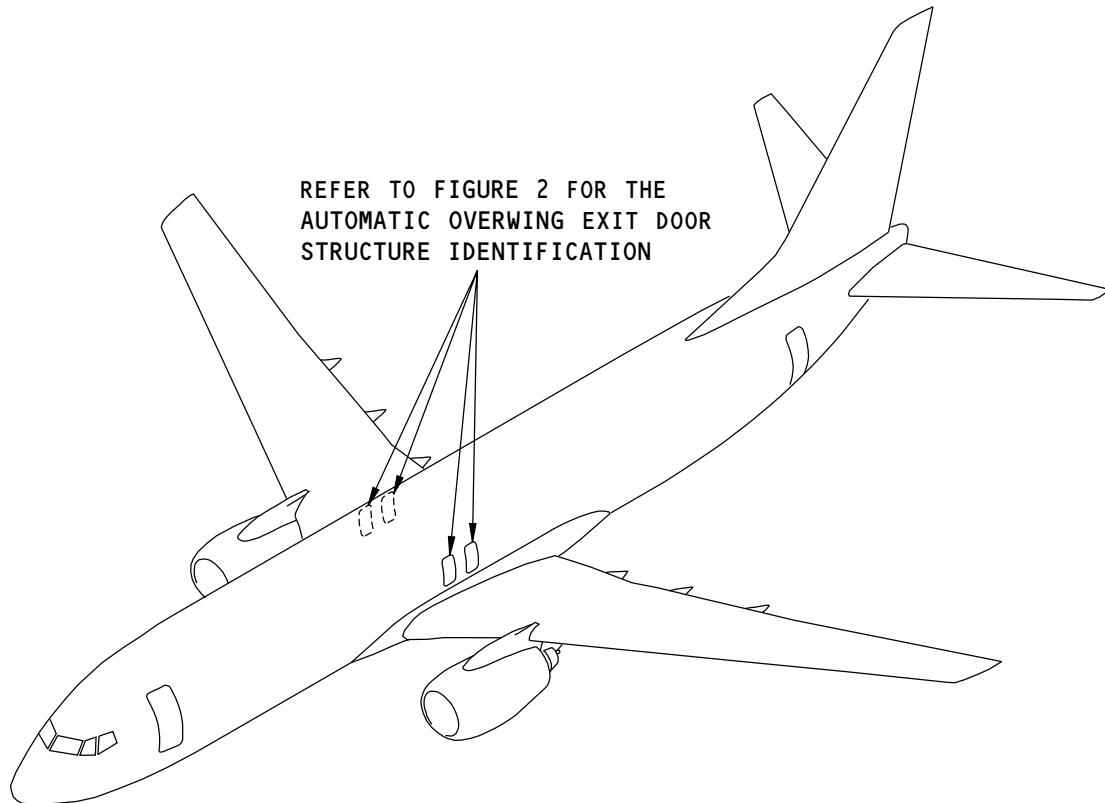
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STRUCTURAL REPAIR MANUAL

IDENTIFICATION 1 - AUTOMATIC OVERWING EXIT DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Automatic Overwing Exit Door Structure Location

Figure 1

Table 1:

K85434 S0006586770_V1

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
144A6505	Door Assembly - Automatic Overwing Exit (AOE)
144A6510	Frame Minor Assembly - (AOE)
144A6516	Handhold Support - Minor Assembly (AOE)
144A6520	Beam, Stop & Window Frame - Minor Assembly (AOE)
144A6523	Beam End (AOE)
144A6540	Handle Frame - Minor Assembly (AOE)
144A6544	Plate Assembly - Roller Adjustment (AOE)

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IDENTIFICATION 1

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Table 1: (Continued)

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
144A6545	Intercostal Minor Assembly (AOE)
144A6550	Outer Skin Minor Assembly (AOE)
144A6585	Armrest Support Minor Assembly (AOE)
144A6600	Handle Mechanism - Minor Assembly (AOE)
144A6610	Hinge Arm Minor Assembly (AOE)
144A6695	Flight Lock Minor Assembly (AOE)

52-20-02

IDENTIFICATION 1

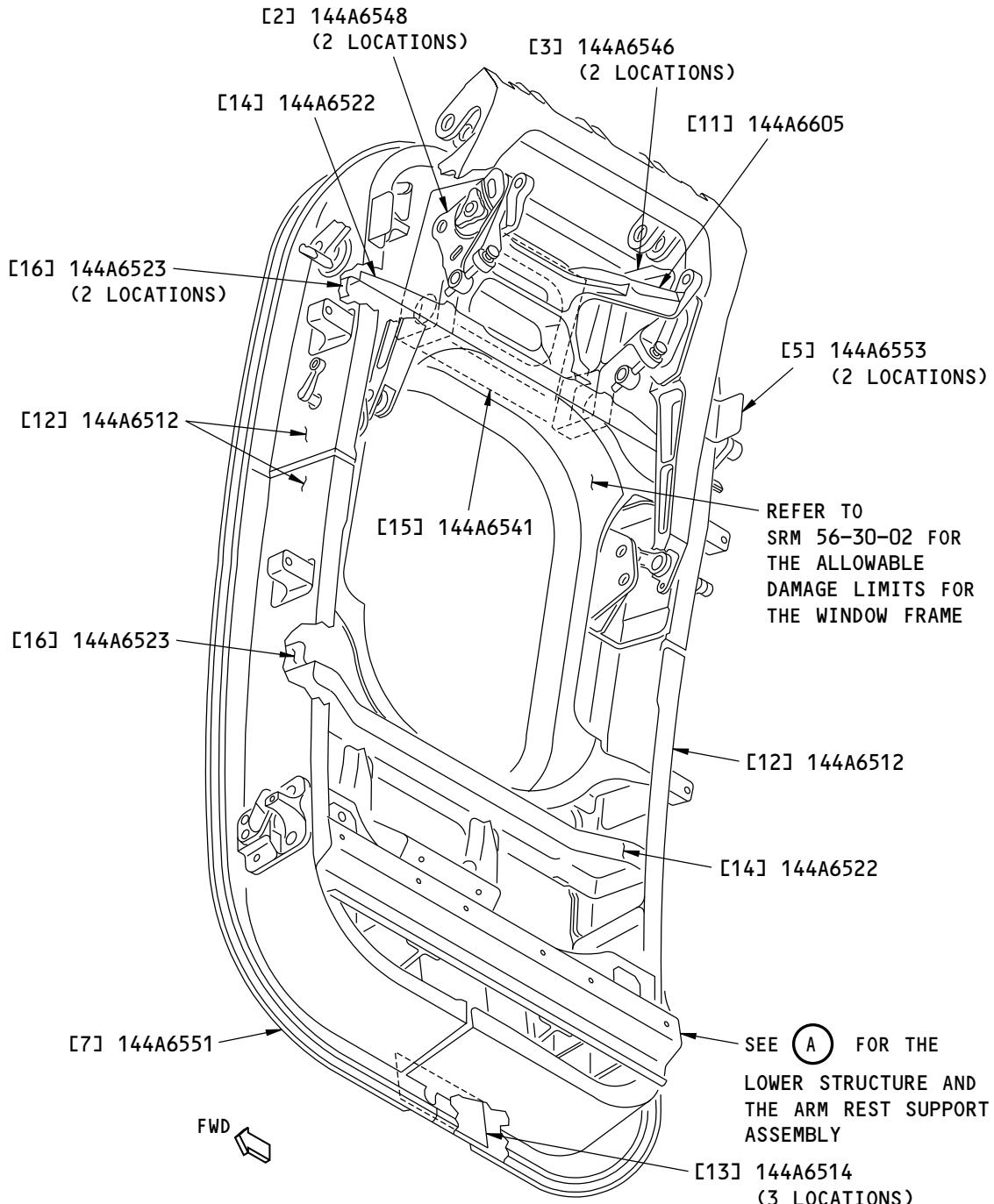
Page 2

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STRUCTURAL REPAIR MANUAL

**NOTES**

- REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

K53318 S0006586773_V1

Section 44 Automatic Overwing Exit Door
Figure 2 (Sheet 1 of 2)

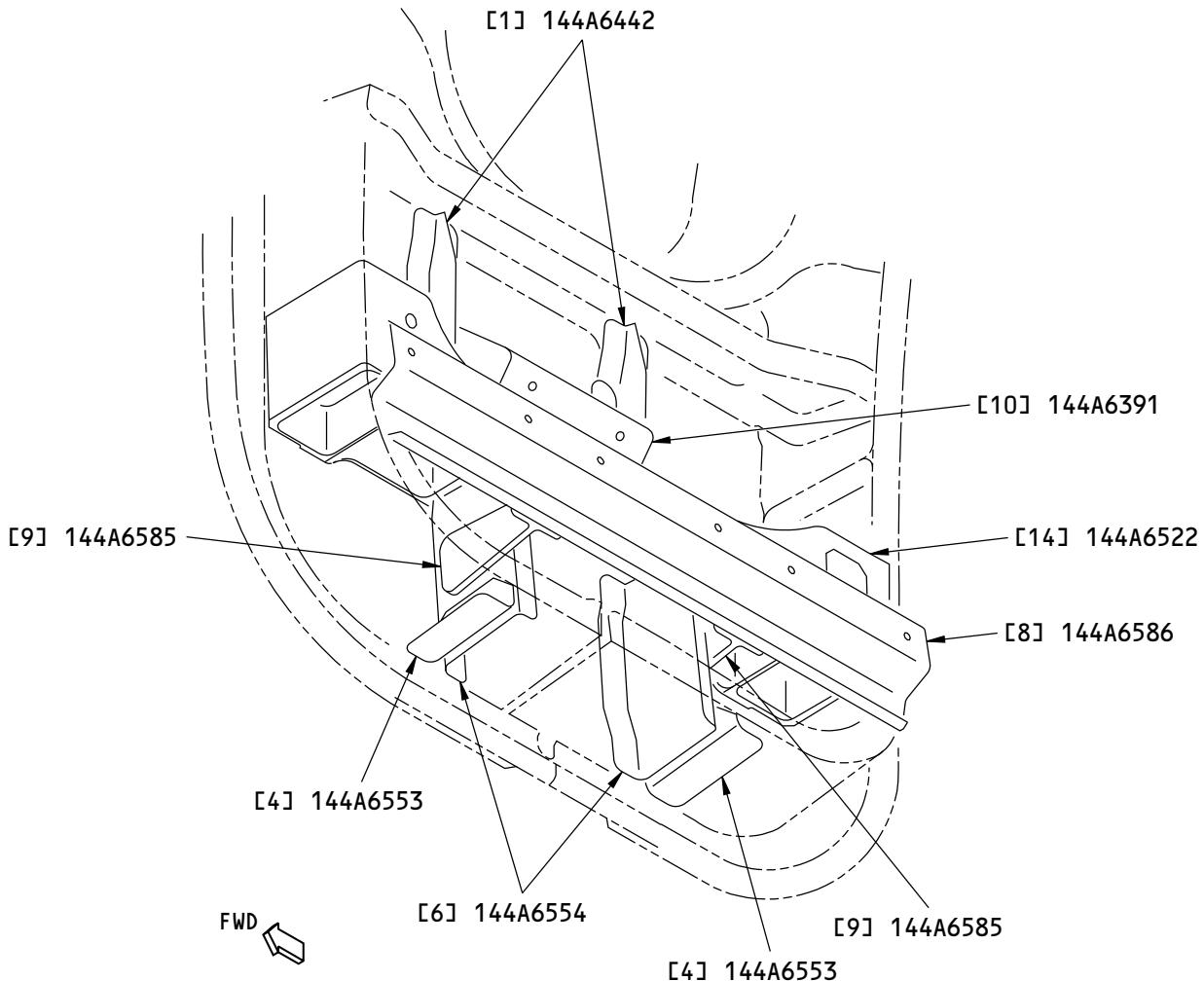
52-20-02**IDENTIFICATION 1**
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(A)

K54235 S0006586774_V1

Section 44 Automatic Overwing Exit Door
Figure 2 (Sheet 2 of 2)

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IDENTIFICATION 1
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Lower Tee Stiffener		7050-T73 BAC1505-100350 extrusion	
[2]	Plate		15-5PH stainless steel bar	
[3]	Intercostal		7050-T7451 plate	
[4]	Angle	0.071 (1.80)	7075-T62 sheet	
[5]	Angle	0.100 (2.54)	7075-T62 sheet	
[6]	Intercostal	0.063 (1.60)	7075-T62 sheet	
[7]	Outer Skin		2024-T3 clad sheet	
[8]	Channel	0.063 (1.60)	7075-T62 sheet	
[9]	Tee		7075-T6511 BAC1505-101284 extrusion	
[10]	Support Assembly Support Stiffener		7075-T6 clad 2024-T3511 BAC1512-330 extrusion	
[11]	Handle		A357.0-T61 aluminum investment casting	
[12]	Frame		7050-T7451 as given in BMS 7-323, Type 1	
[13]	Frame Splice		7075-T73511 BAC1512-3341 extrusion	
[14]	Beam	0.071 (1.80)	7075-T62 sheet as given in BMS 7-302	
[15]	Handle Frame		7050-T7451 plate	
[16]	Beam End	0.071 (1.80)	7075-T62 sheet as given in BMS 7-302	

*[1] Note: T = Pre-manufactured thicknesses are in inches (millimeters).

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IDENTIFICATION 1

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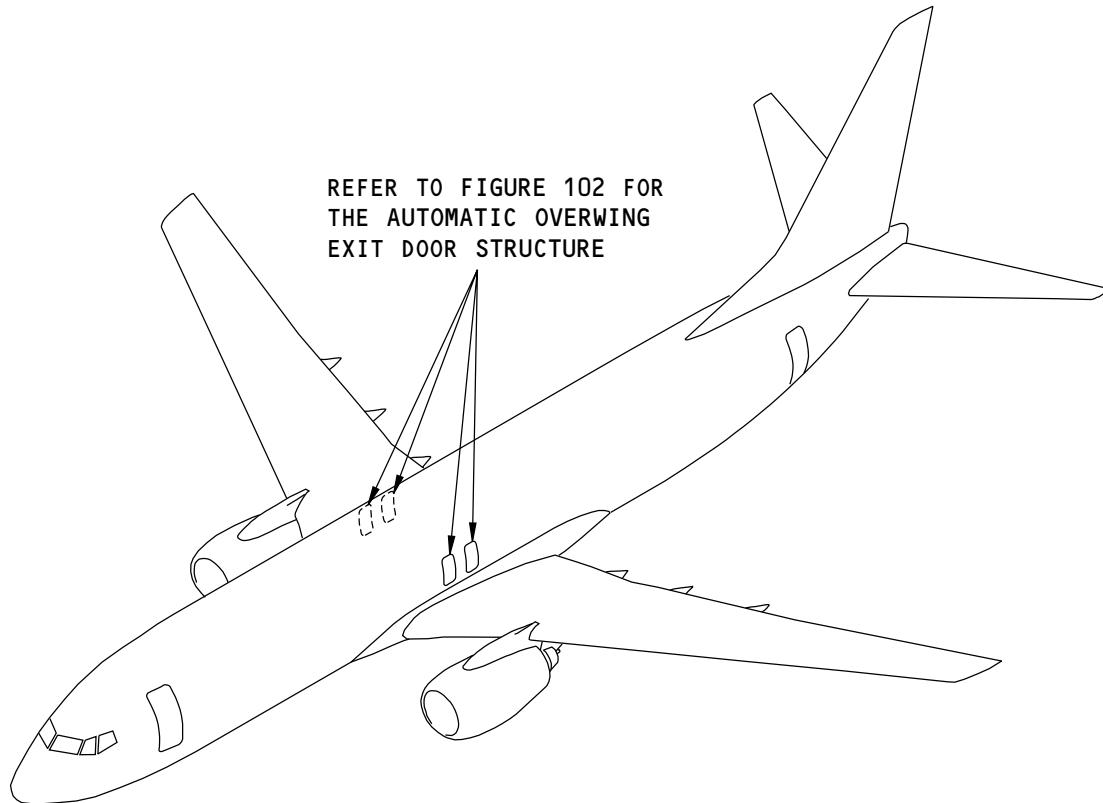


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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 1 - AUTOMATIC OVERWING EXIT DOOR STRUCTURE

1. Applicability

- A. Allowable Damage 1 is applicable to damage on the automatic overwing exit door structure as shown in Automatic Overwing Exit Door Structure Location, Figure 101/ALLOWABLE DAMAGE 1.



K04089 S0006586779_V1

Automatic Overwing Exit Door Structure Location
Figure 101

2. General

- A. Refer to Paragraph 4./ALLOWABLE DAMAGE 1 for the allowable damage limits.
- B. Remove the necessary parts to get access to the automatic overwing exit door structure as shown in Section 44 Automatic Overwing Exit Door, Figure 102/ALLOWABLE DAMAGE 1.
- C. Remove the damage as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of damage.

52-20-02

ALLOWABLE DAMAGE 1

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- (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- D. After you remove the damage, do the procedures that follow:
- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

52-20-02

ALLOWABLE DAMAGE 1

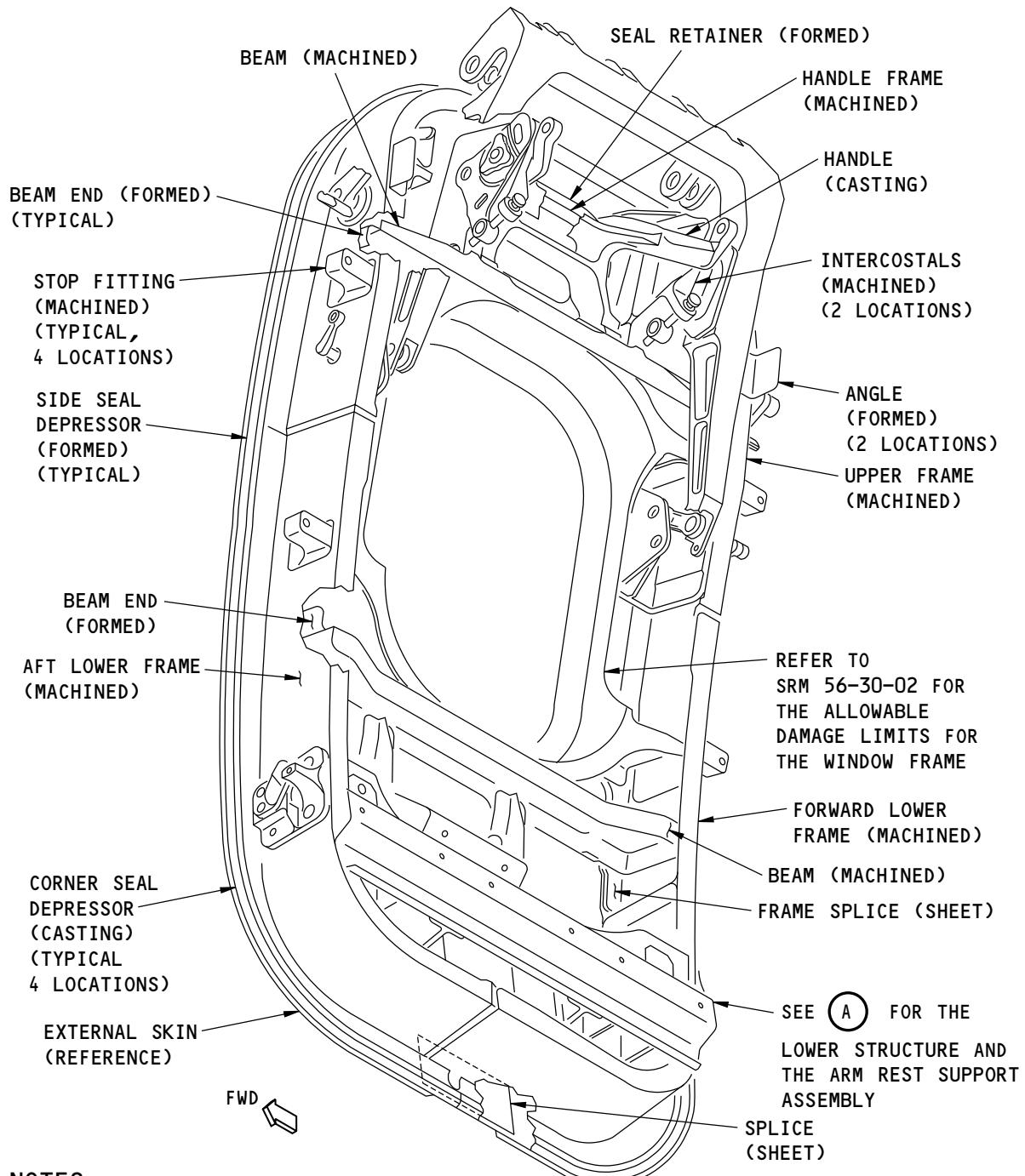
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**NOTES**

- ALL MATERIAL IS ALUMINUM.

H99309 S0006586781_V1

Section 44 Automatic Overwing Exit Door
Figure 102 (Sheet 1 of 2)

52-20-02**ALLOWABLE DAMAGE 1**

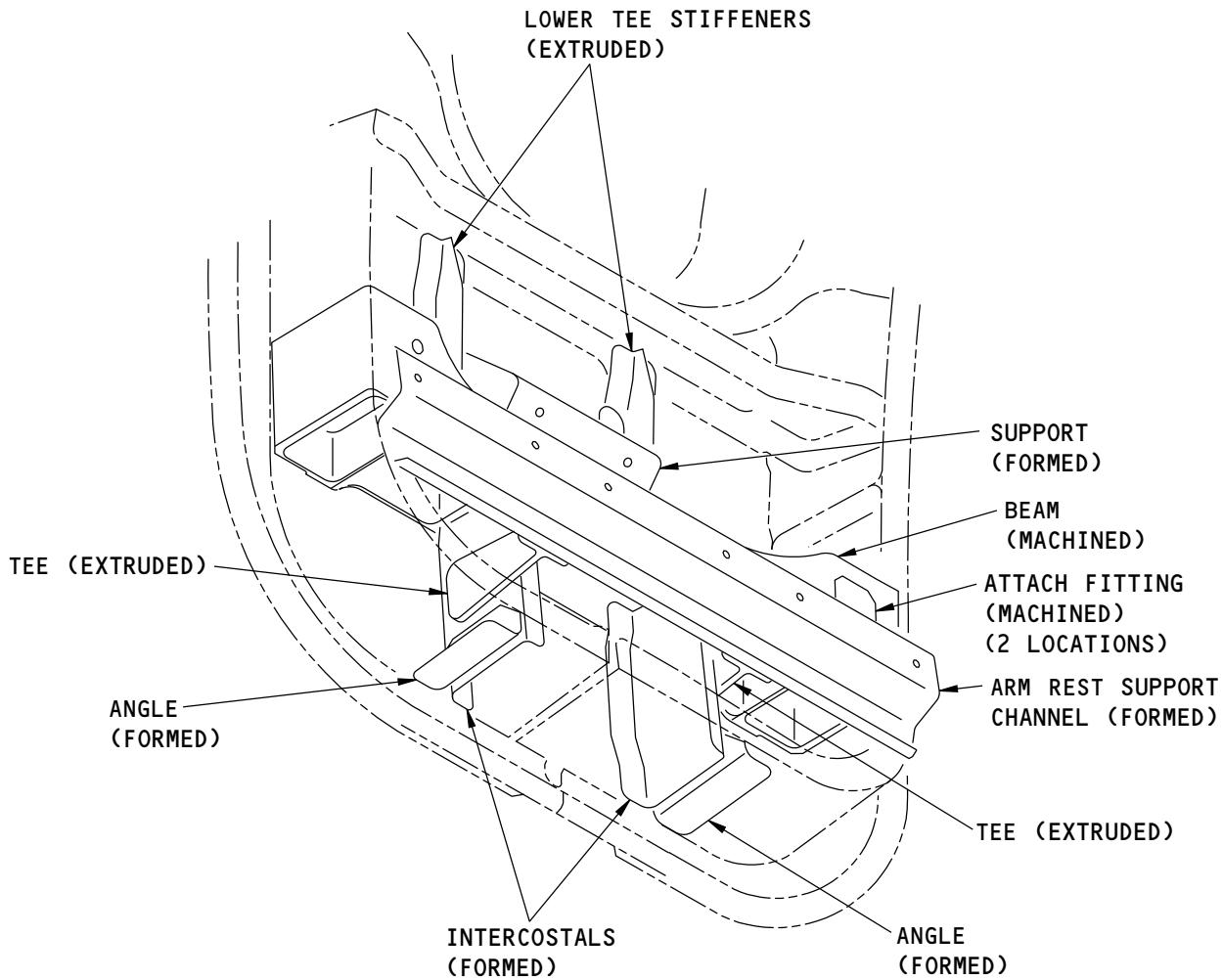
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LOWER STRUCTURE AND THE
ARM REST SUPPORT ASSEMBLY

A

K02277 S0006586782_V1

Section 44 Automatic Overwing Exit Door
Figure 102 (Sheet 2 of 2)

52-20-02

ALLOWABLE DAMAGE 1

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3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits for the Automatic Overwing Exit Door Structure

A. All Structure (This does not include the Stop Fittings):

- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A, B, and C.
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A, B, C, D, E, and F.
- (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail G.
- (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (6.4 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.5 inches (38.1 mm) away from a fastener, an edge, or a radius
 - (d) Filled with a 2117-T3 or 2117-T4 protruding head rivet.
 - 1) Install the rivet without sealant.

B. Stop Fittings (Typical, 4 places):

- (1) Cracks are not permitted.
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail H.
- (3) Dents are not permitted.
- (4) Holes and Punctures are not permitted.

52-20-02

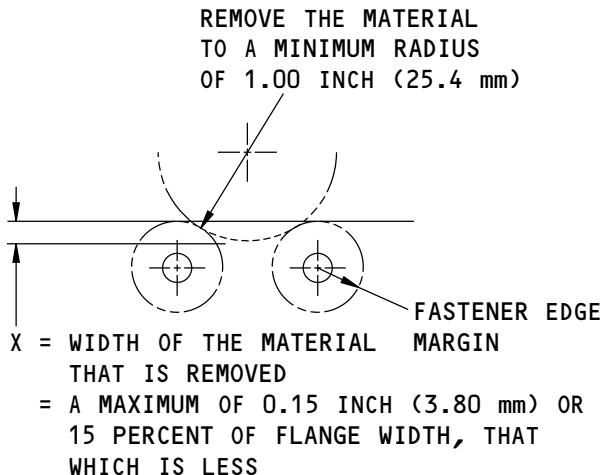
ALLOWABLE DAMAGE 1

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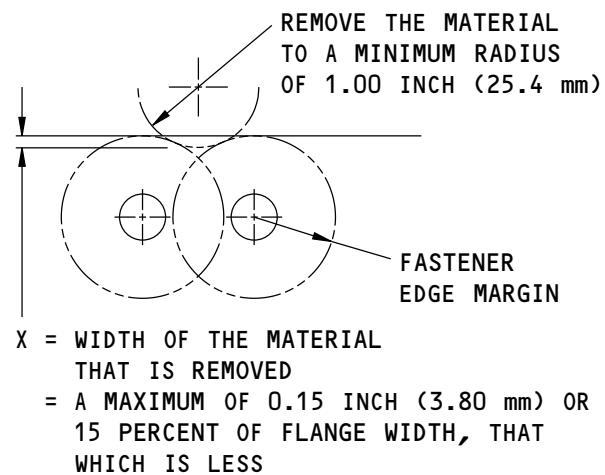
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**737-800
STRUCTURAL REPAIR MANUAL**


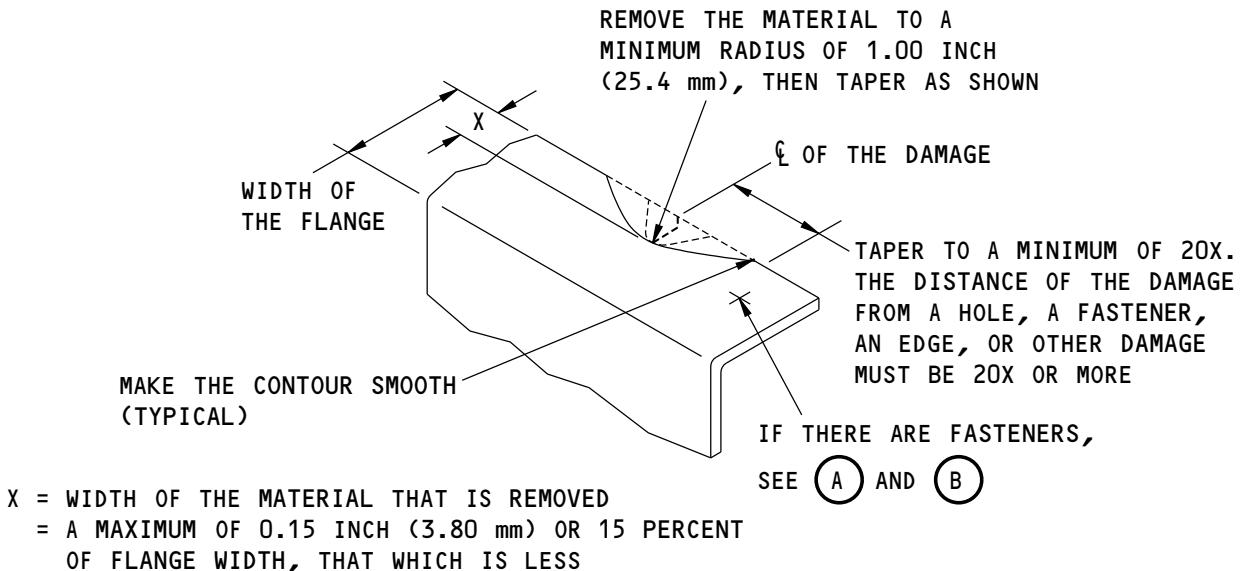
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

F96972 S0006586783_V1

Allowable Damage Limits
Figure 103 (Sheet 1 of 5)

52-20-02

ALLOWABLE DAMAGE 1

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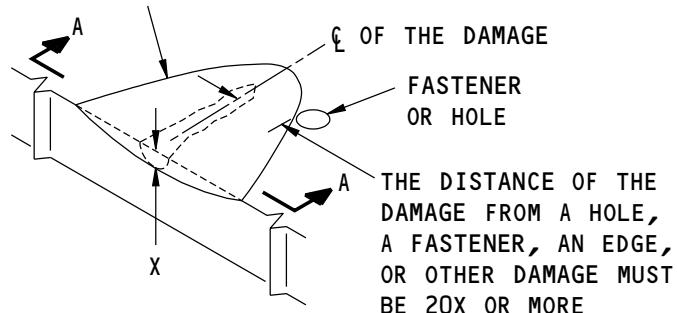
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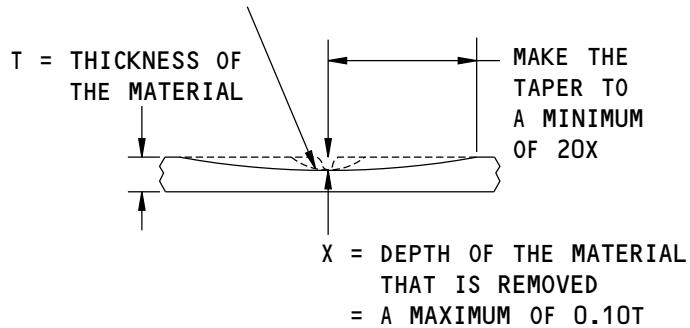
AREA OF THE MATERIAL
THAT IS REMOVED



REMOVAL OF DAMAGED MATERIAL
ON A SURFACE

(D)

REMOVE THE MATERIAL TO A
MINIMUM RADIUS OF 1.00 INCH
(25.4 mm), THEN TAPER AS SHOWN



A-A

F96974 S0006586784_V1

Allowable Damage Limits
Figure 103 (Sheet 2 of 5)

52-20-02

ALLOWABLE DAMAGE 1

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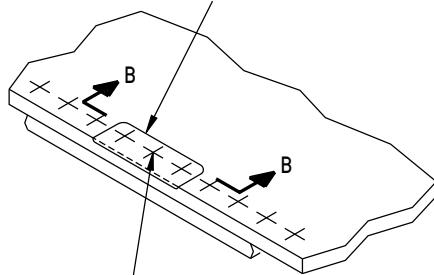
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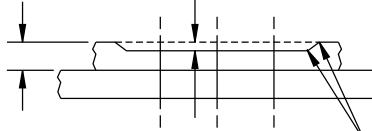
**737-800
STRUCTURAL REPAIR MANUAL**

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

T = THICKNESS OF THE MATERIAL
X = DEPTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10T



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (1.27 mm) (TYPICAL)

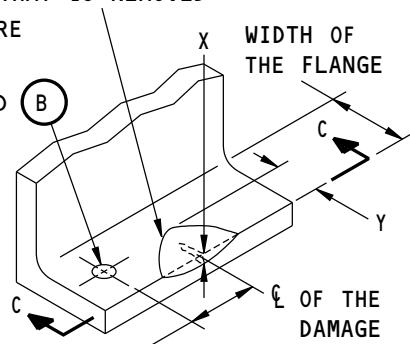
B-B

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(E)

AREA OF THE MATERIAL THAT IS REMOVED

IF THERE ARE FASTENERS
SEE (A) AND (B)



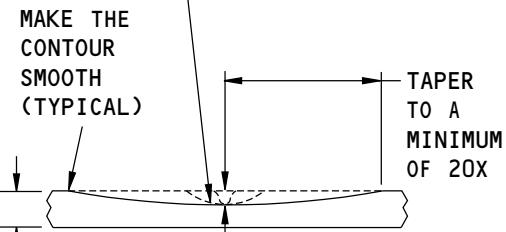
THE DISTANCE OF THE DAMAGE FROM A HOLE, A FASTENER, AN EDGE, OR OTHER DAMAGE MUST BE 20X OR MORE

Y = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE

(F)

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN



MAKE THE CONTOUR SMOOTH (TYPICAL)
T = THICKNESS OF THE MATERIAL
X = DEPTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10T

C-C

F96975 S0006586785_V1

**Allowable Damage Limits
Figure 103 (Sheet 3 of 5)**

52-20-02

ALLOWABLE DAMAGE 1

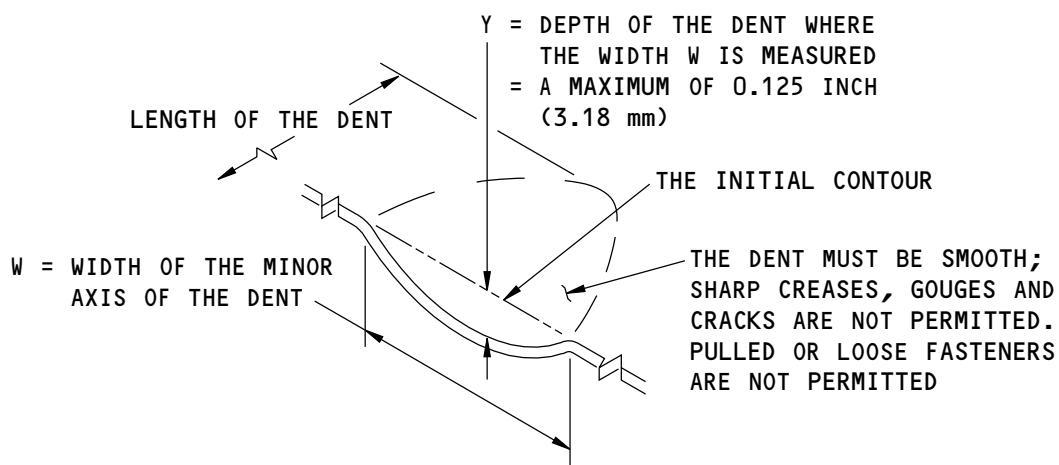
Page 108

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$\frac{W}{Y}$ MUST BE 20 OR MORE AT EACH POINT
ALONG THE LENGTH OF THE DENT

DENT THAT IS PERMITTED



F96981 S0006586786_V2

Allowable Damage Limits
Figure 103 (Sheet 4 of 5)

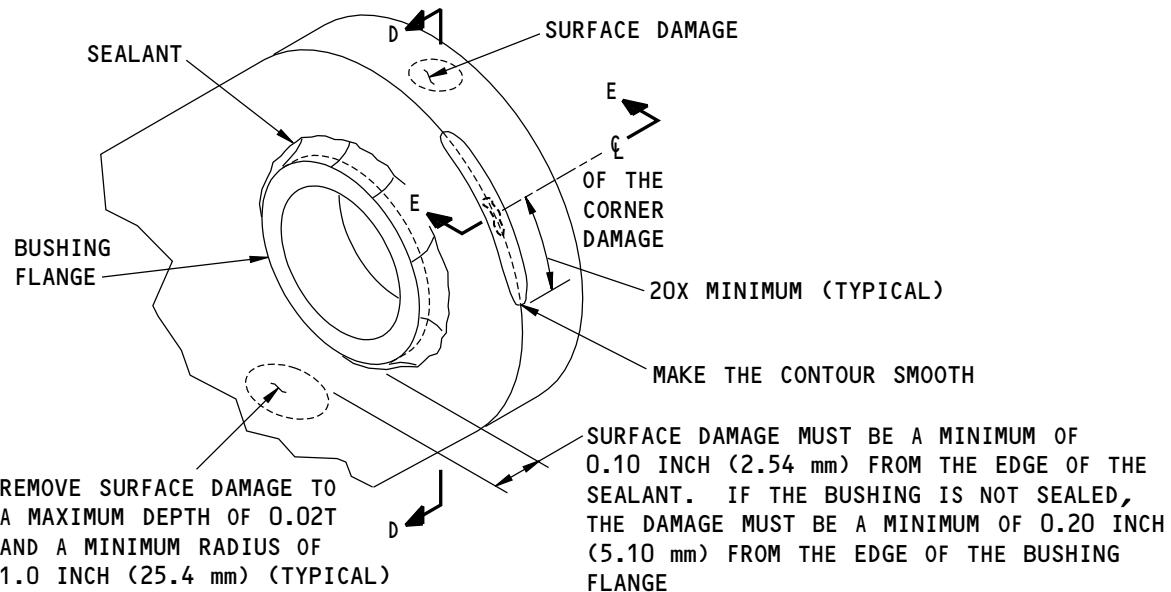
52-20-02

ALLOWABLE DAMAGE 1

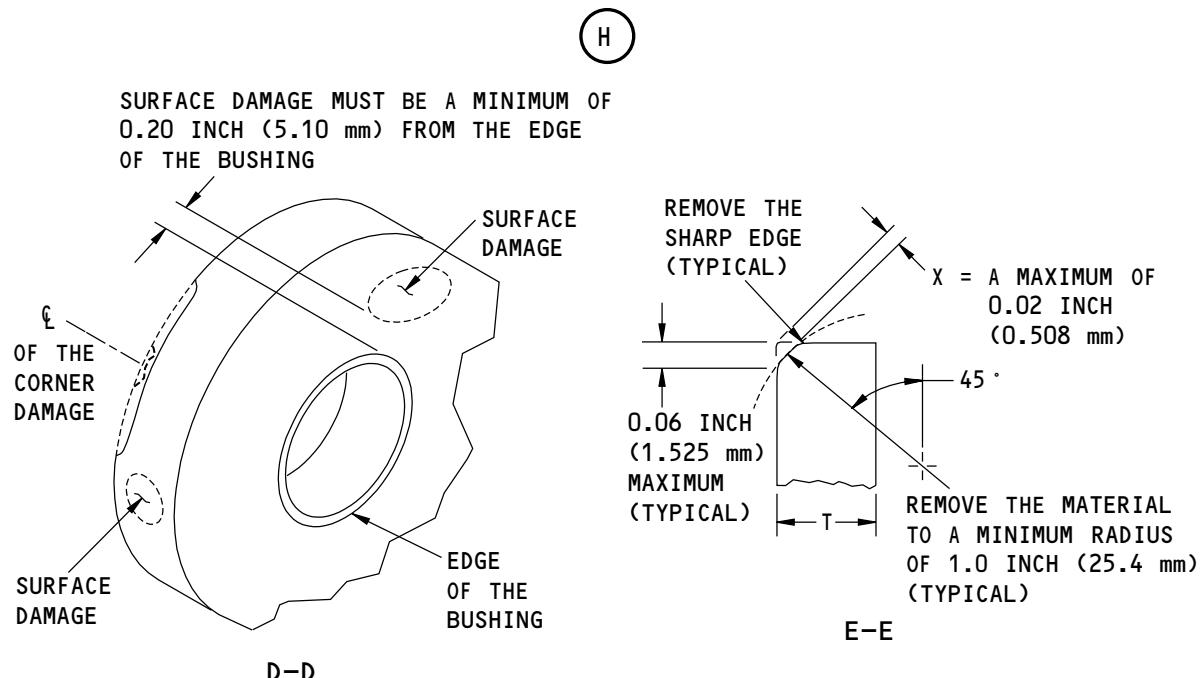
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NOTE: DAMAGED SEALANT IS NOT PERMITTED. IF THE SEALANT IS DAMAGED, LOOK FOR MIGRATION OR ROTATION OF THE BUSHING. IF THERE IS NO MIGRATION, ROTATION, OR CORROSION, REMOVE THE DAMAGED SEALANT AND APPLY A NEW FILLET SEAL.

REMOVAL OF SURFACE AND EDGE DAMAGE FROM A LUG THAT HAS A BUSHING


K79781 S0006586787_V1

Allowable Damage Limits
Figure 103 (Sheet 5 of 5)

52-20-02
ALLOWABLE DAMAGE 1

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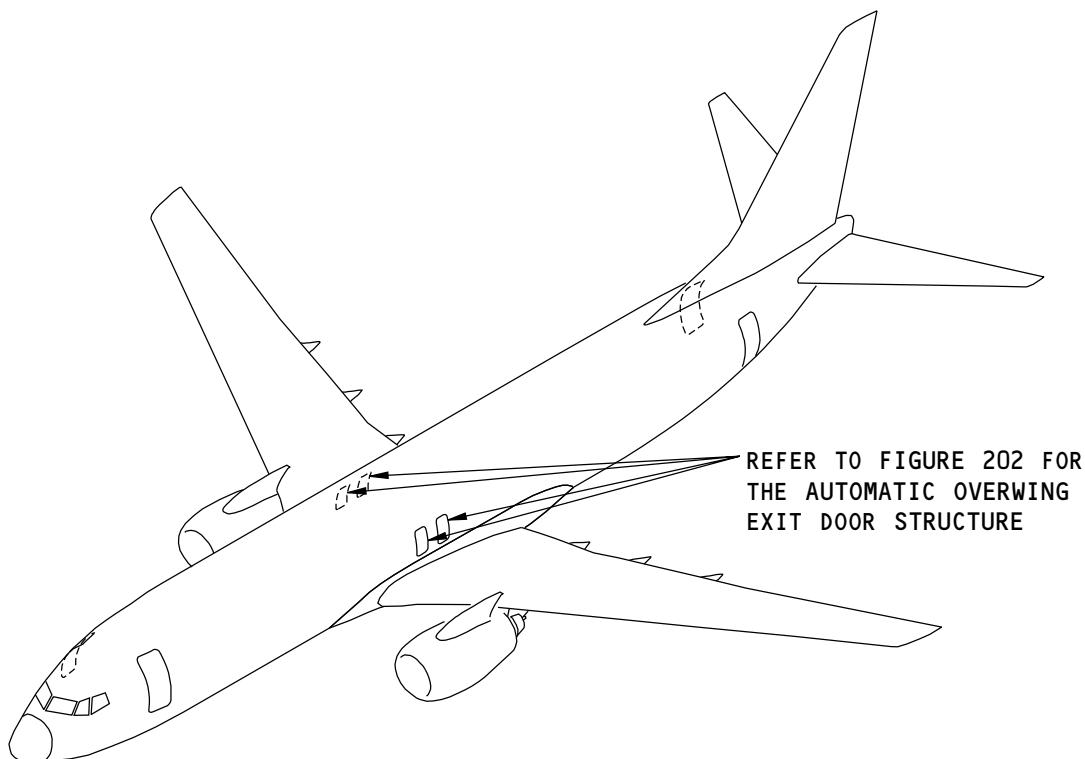


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STRUCTURAL REPAIR MANUAL

REPAIR 1 - AUTOMATIC OVERWING EXIT DOOR STRUCTURE

1. Applicability

- A. Repair 1 is applicable to damage to the Automatic Overwing Exit Door Structure shown in Automatic Overwing Exit Door Location, Figure 201/REPAIR 1.



**Automatic Overwing Exit Door Location
Figure 201**

K39871 S0006586791_V1

2. General

- A. The typical repairs given in 51-70-11 and 51-70-12 can be used when applicable if there is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 51-70-11 and 51-70-12 before you start a repair.

3. References

Reference	Title
51-70-11	TYPICAL FORMED SECTION REPAIRS

52-20-02

REPAIR 1
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(Continued)

Reference	Title
51-70-12	EXTRUDED SECTION REPAIRS
52-20-02, ALLOWABLE DAMAGE 1	Automatic Overwing Exit Door Structure
52-20-02, IDENTIFICATION 1	Automatic Overwing Exit Door Structure

4. Repair Instructions

- A. Refer to Automatic Overwing Exit Door Location, Figure 201/REPAIR 1 and Section 44 Automatic Overwing Exit Door, Figure 202/REPAIR 1, and Table 201 to find the applicable repair for the part you want to repair.

NOTE: If necessary, refer to 52-20-02, IDENTIFICATION 1, to find the material and the process that was used to make the part which you want to repair.

Table 201:

REPAIR REFERENCES FOR THE AUTOMATIC OVERWING EXIT DOOR STRUCTURE	
TYPE OF COMPONENT	REPAIR
Formed Parts	Refer to SRM 51-70-11
Extruded Parts	Refer to SRM 51-70-12
Beam, Handle Frame, Frame, Corner Seal Depressor, Handle	There are no repairs for the listed structure in the Structural Repair Manual at this time. If the damage to the structure is more than the limits given in SRM 52-20-02, Allowable Damage 1, replace the damaged part

52-20-02

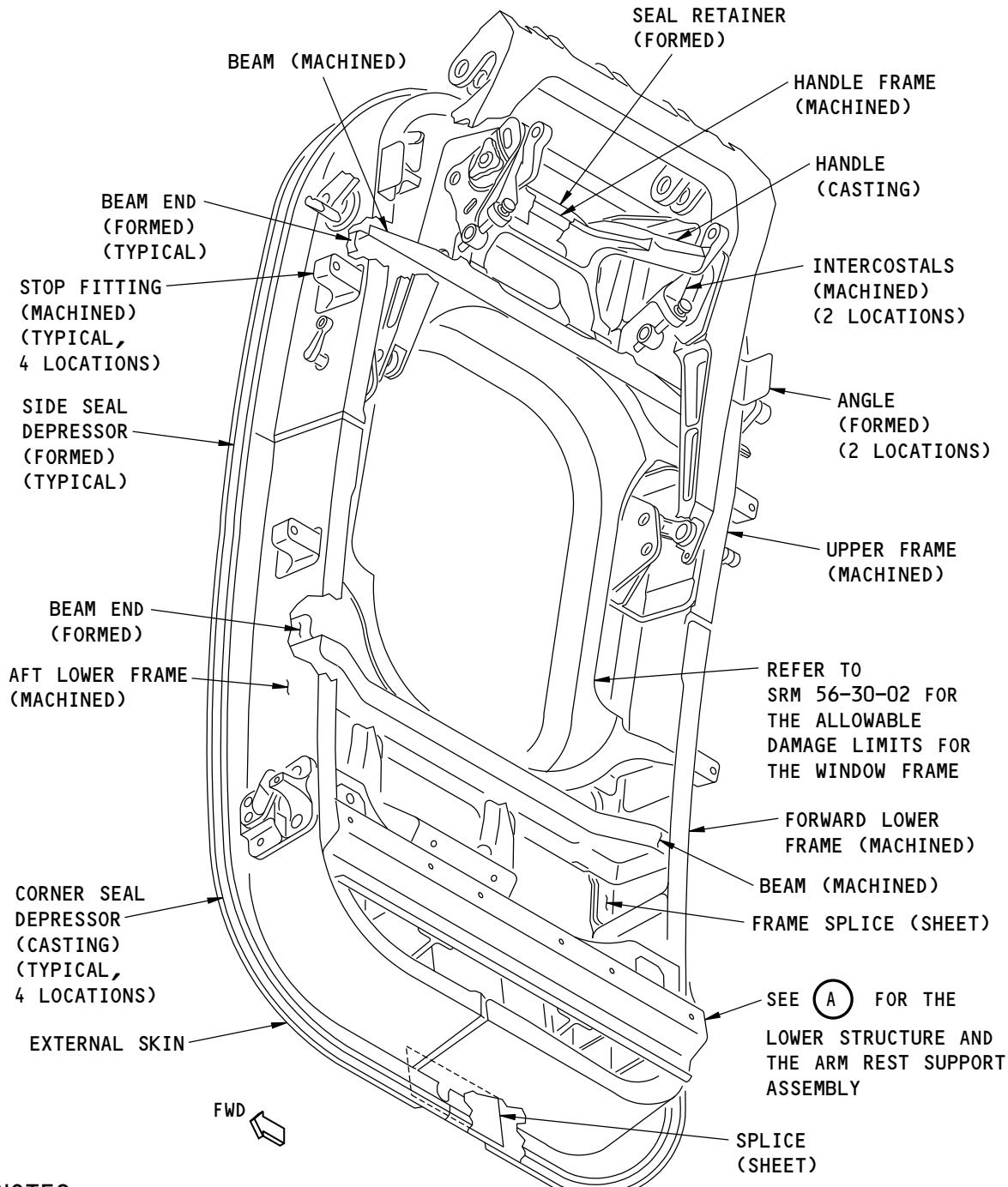
REPAIR 1
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**NOTES**

- ALL MATERIAL IS ALUMINUM.

K51475 S0006586794_V1

Section 44 Automatic Overwing Exit Door
Figure 202 (Sheet 1 of 2)

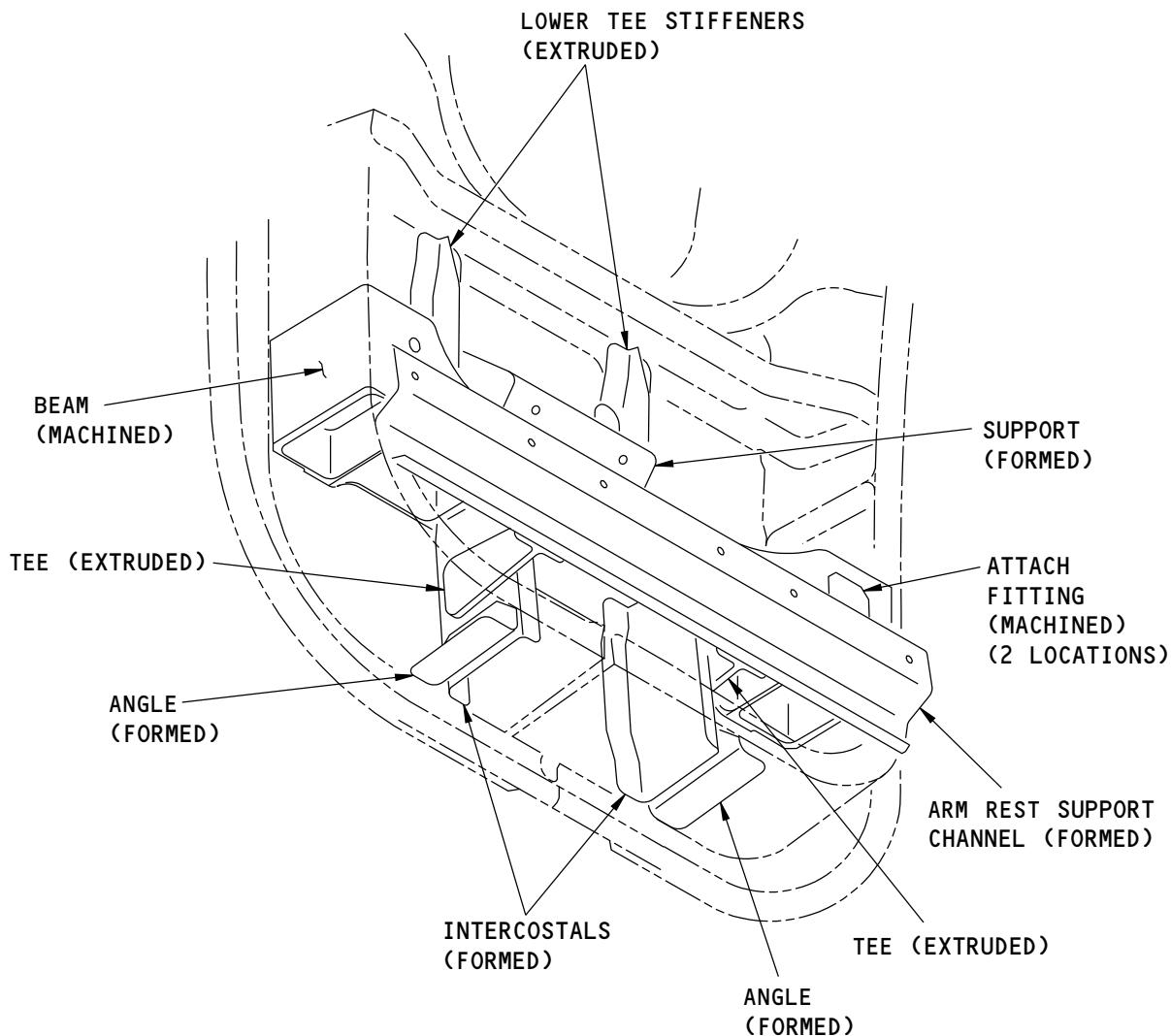
52-20-02

REPAIR 1
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LOWER STRUCTURE AND THE
ARM REST SUPPORT ASSEMBLY

A

K51477 S0006586795_V1

Section 44 Automatic Overwing Exit Door
Figure 202 (Sheet 2 of 2)

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REPAIR 1
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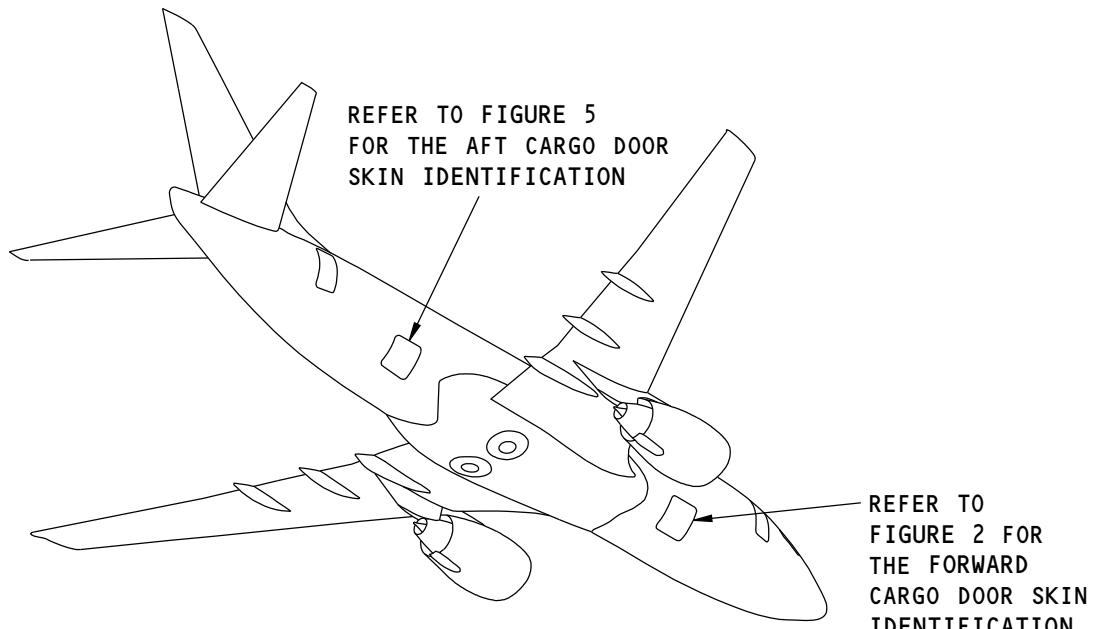
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IDENTIFICATION 1 - CARGO DOOR SKINS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

F72927 S0006586800_V1

Cargo Door Skin Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
140A0050	Functional Collector - Forward Cargo Door
140A0060	Functional Collector - Aft Cargo Door
143A6100	Door Installation - Forward Cargo Door
143A6110	Door Assembly - Forward Cargo Door
146A6100	Door Installation - Aft Cargo Door
146A6110	Door Assembly - Aft Cargo Door
149A6135	Panel Assembly - Cargo Door Access

52-30-01

IDENTIFICATION 1

Page 1

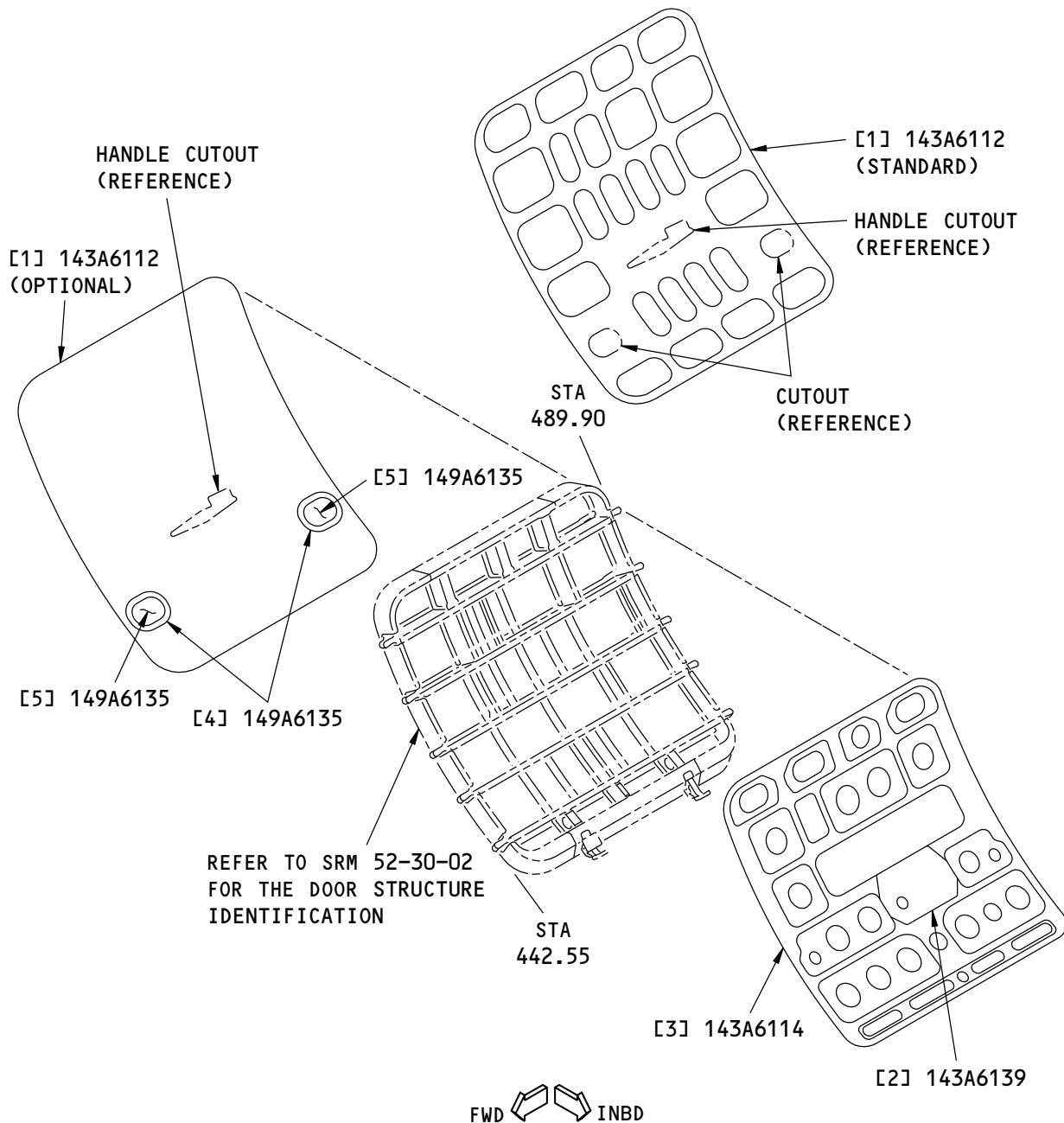
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F72926 S0006586802_V1

Forward Cargo Door Skin Identification
Figure 2

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IDENTIFICATION 1
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	External Skin (Chem-milled)	0.071 (1.80)	2024-T3 clad sheet. Refer to Figure 3 for the chem-milled thicknesses of the different areas	Refer to Drawing 143A6112 for airplanes that have chem milled skins.
	External Skin (Solid Skin)	0.071 (1.80)	2024-T3 clad sheet. Constant thickness skin	Refer to Drawing 143A6112 for airplanes that have solid skins.
[2]	Access Cover	0.032 (0.81)	2024-T3 clad sheet	
[3]	Internal Skin	0.125 (3.18)	7075-T6 sheet. Refer to Figure 4 for the chem-milled thicknesses of the different areas	
[4]	Doubler	0.100 (2.54)	2024-T3 clad sheet	
[5]	Skin Access Panel	0.040 (1.02)	2024-T3 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

52-30-01

IDENTIFICATION 1

Page 3

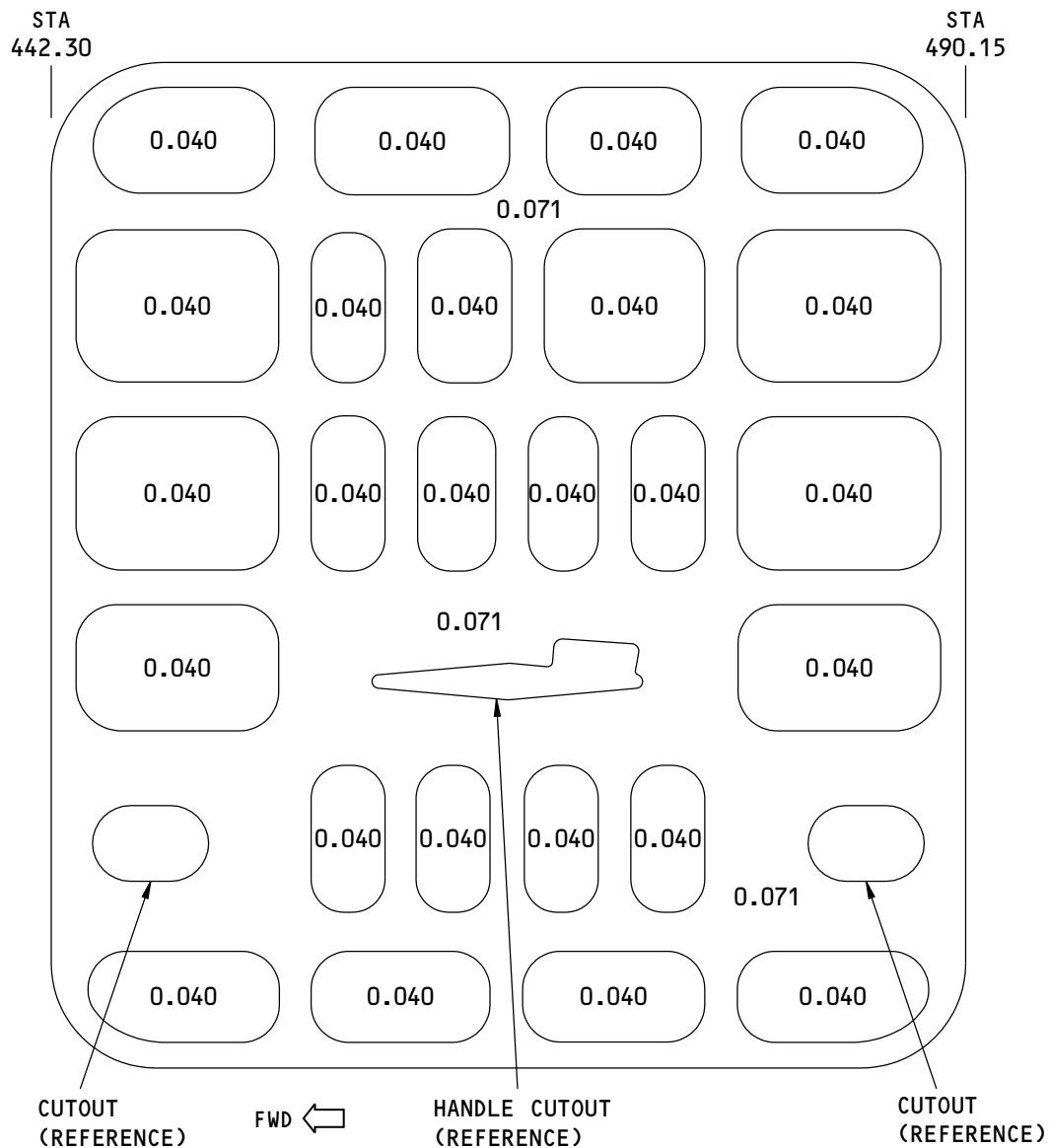
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NOTE: ALL DIMENSIONS ARE THICKNESSES IN INCHES. FOR MILLIMETERS REFER TO THE TABLE BELOW:

INCHES	mm
0.040	1.016
0.071	1.803

VIEW OF THE INTERNAL SURFACE OF THE
FORWARD CARGO DOOR EXTERNAL SKIN

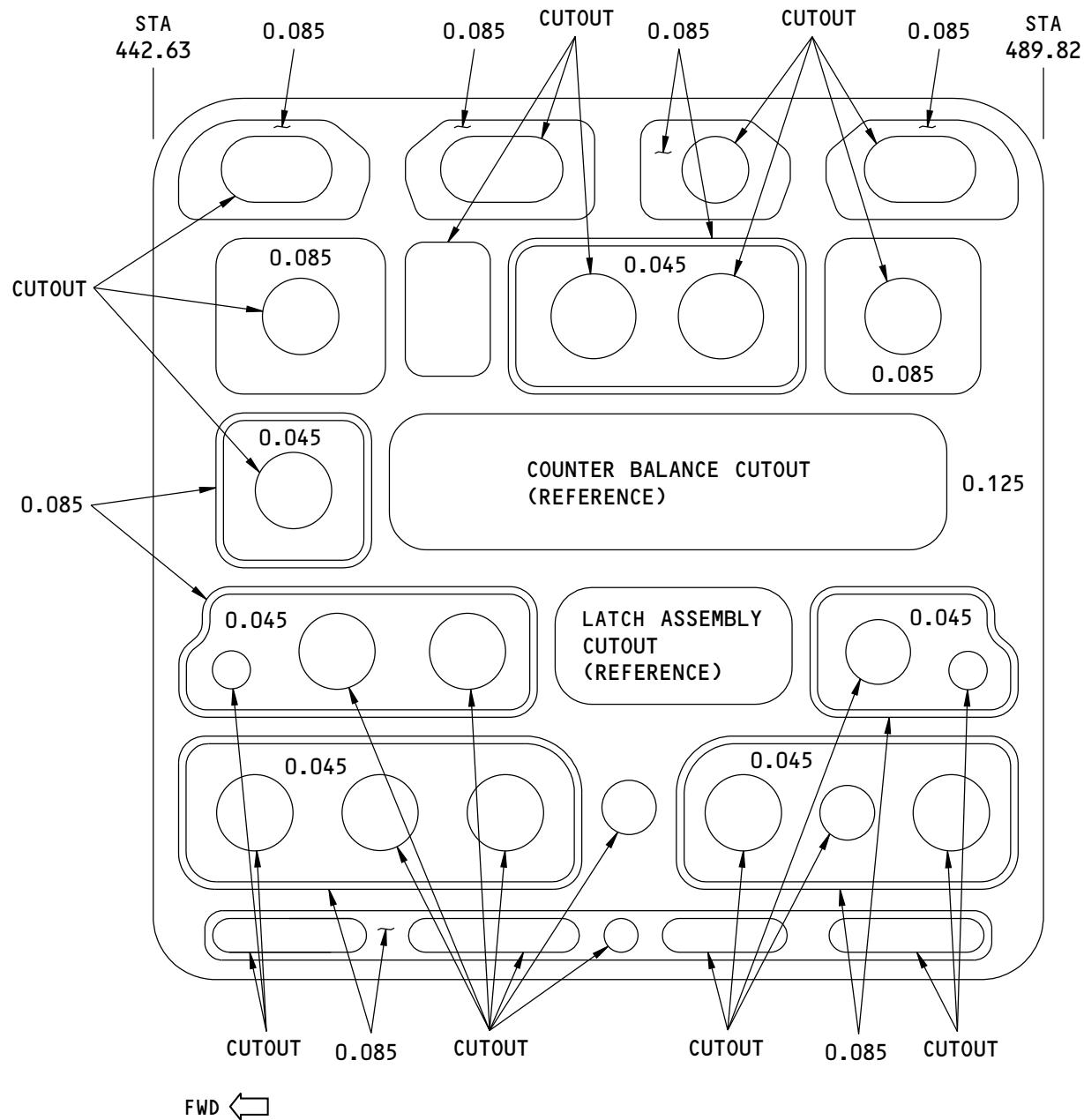
F80256 S0006586804_V1

Chem-Milled Areas of Figure 2, Item [1] (Standard Skin)
Figure 3

52-30-01
IDENTIFICATION 1
Page 4
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NOTE: ALL DIMENSIONS ARE THICKNESSES IN INCHES.

VIEW OF THE INTERNAL SURFACE OF THE
FORWARD CARGO DOOR INTERNAL SKIN

F73007 S0006586805_V1

Chem-Milled Areas of Figure 2, Item [3]
Figure 4

52-30-01

IDENTIFICATION 1
Page 5

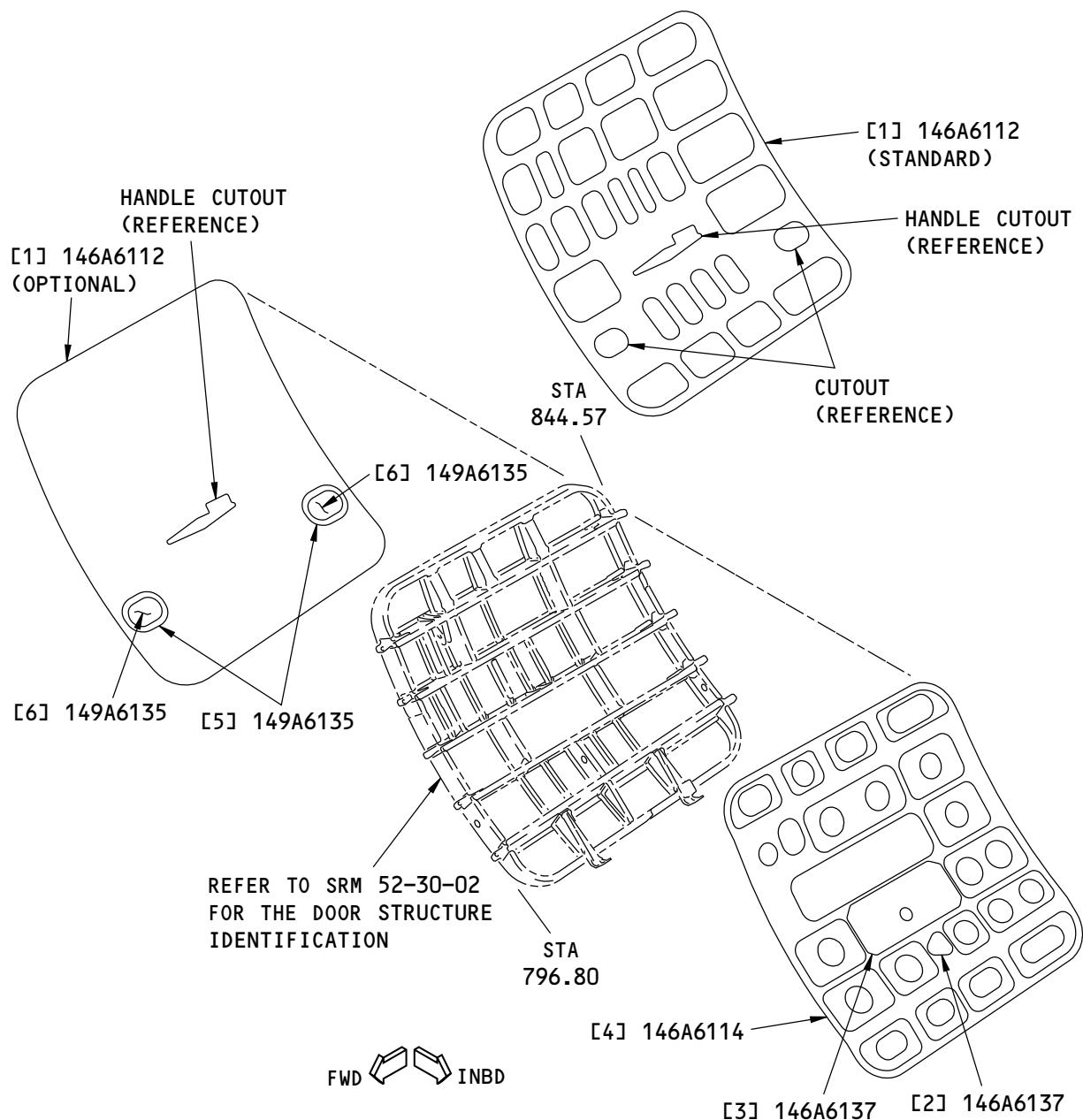
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NOTE: REFER TO TABLE 3 FOR THE LIST OF MATERIALS.

K63343 S0006586806_V1

Aft Cargo Door Skin Identification
Figure 5

52-30-01
IDENTIFICATION 1
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STRUCTURAL REPAIR MANUAL

Table 3:

LIST OF MATERIALS FOR FIGURE 5				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	External Skin (Chem-milled)	0.071 (1.80)	2024-T3 clad sheet. Refer to Figure 6 for the chem-milled thicknesses of the different areas	Refer to Drawing 146A6112 for airplanes that have chem milled skins.
	External Skin (Solid Skin)	0.071 (1.80)	2024-T3 clad sheet. Constant thickness skin	Refer to Drawing 146A6112 for airplanes that have solid skins.
[2]	Access Cover - Crank	0.032 (0.81)	2024-T3 clad sheet	
[3]	Access Cover - Latch	0.032 (0.81)	2024-T3 clad sheet	
[4]	Internal Skin	0.125 (3.18)	7075-T6 sheet. Refer to Figure 7 for the chem-milled thicknesses	
[5]	Doubler	0.100 (2.54)	2024-T3 clad sheet	
[6]	Skin - Access Panel	0.042 (1.07)	2024-T3 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1

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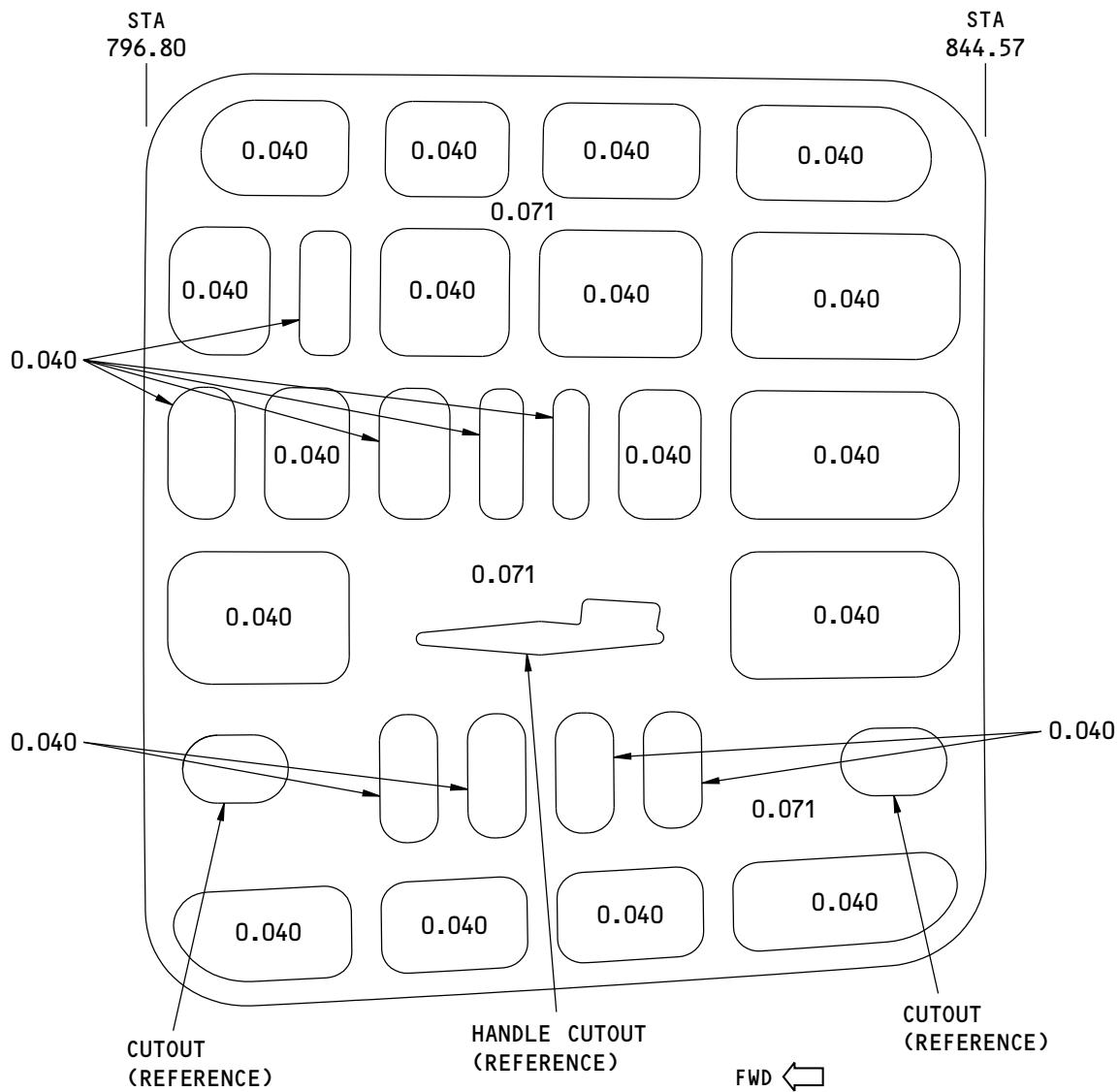
Nov 10/2012

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737-800
STRUCTURAL REPAIR MANUAL



NOTE: ALL DIMENSIONS ARE THICKNESSES IN INCHES.
FOR MILLIMETERS (mm) REFER TO TABLE BELOW:

INCHES	mm
0.040	1.016
0.071	1.803

VIEW OF THE INTERNAL SURFACE OF THE AFT CARGO DOOR EXTERNAL SKIN
K63347 S0006586808_V1

Chem-Milled Areas of Figure 5, Item [1] (Standard)
Figure 6

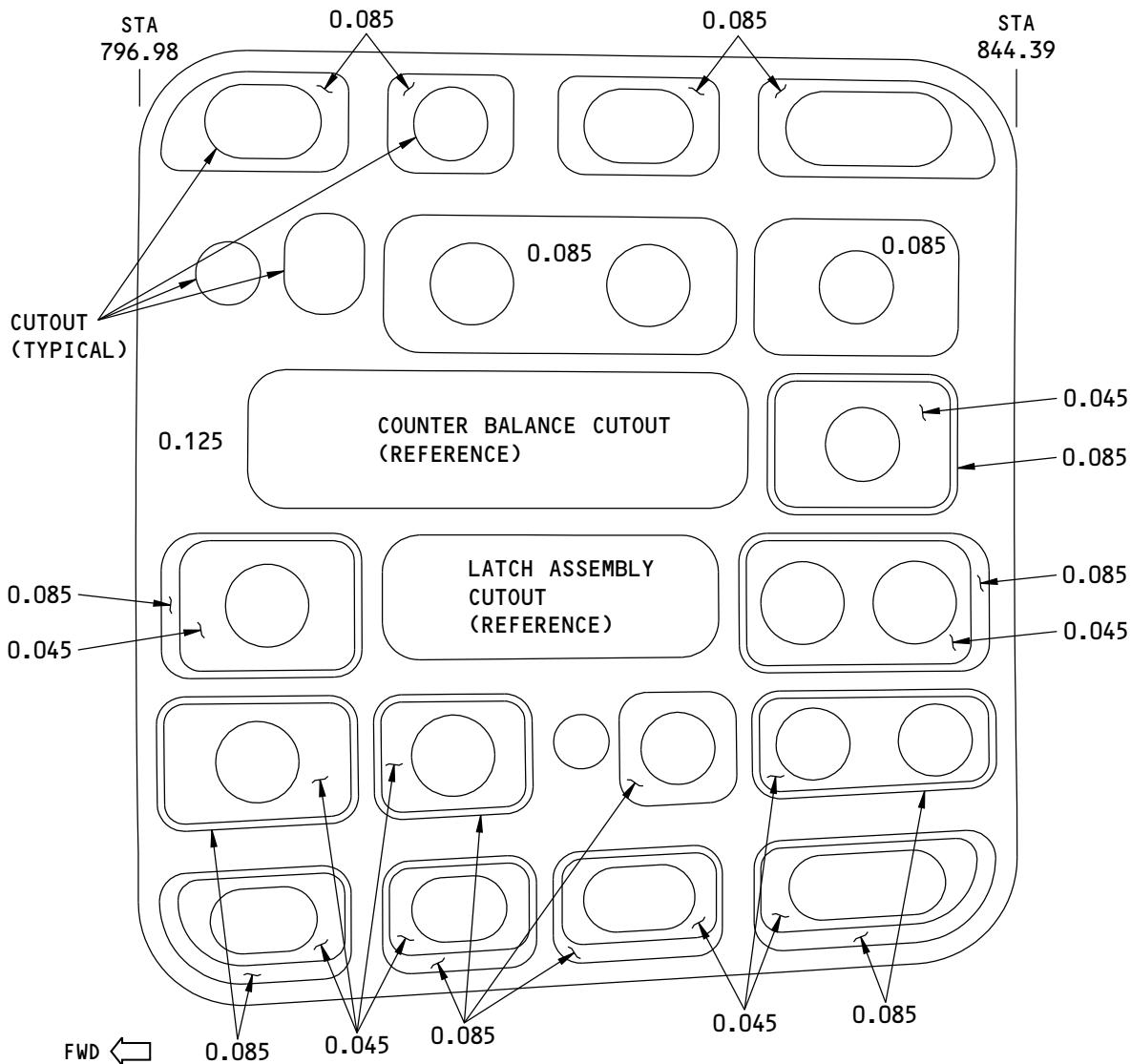
52-30-01
IDENTIFICATION 1
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737-800
STRUCTURAL REPAIR MANUAL



NOTE: ALL DIMENSIONS ARE THICKNESSES IN INCHES.
FOR MILLIMETERS (mm) REFER TO TABLE BELOW:

INCHES	mm
0.045	1.143
0.085	2.159
0.125	3.175

VIEW OF THE INTERNAL SURFACE OF THE AFT CARGO DOOR INTERNAL SKIN
K63348 S0006586809_V1

Chem-Milled Areas of Figure 5, Item [4]
Figure 7

52-30-01

IDENTIFICATION 1

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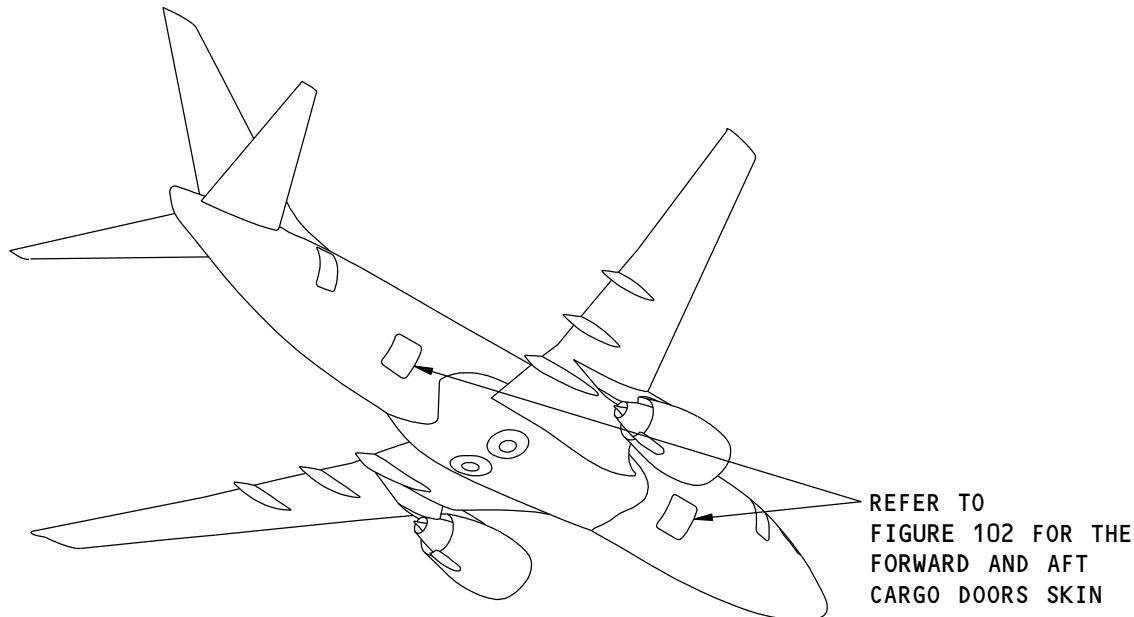


737-800
STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 1 - CARGO DOOR SKINS

1. Applicability

- A. This subject gives the allowable damage limits for the external and internal skins on the cargo doors shown in Cargo Door Skin Location, Figure 101/ALLOWABLE DAMAGE 1 and Cargo Door Skin, Figure 102/ALLOWABLE DAMAGE 1.



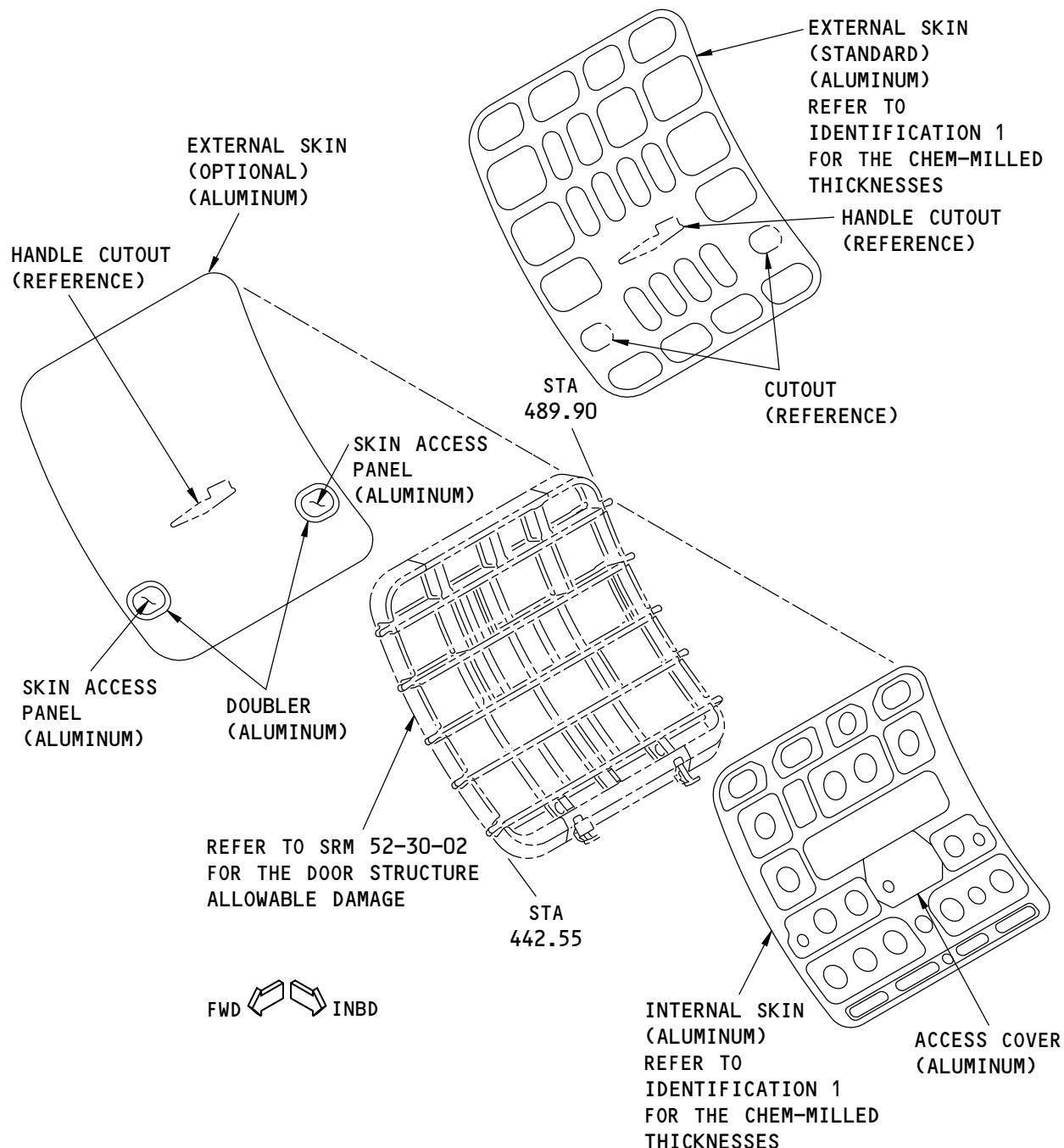
F76079 S0006586820_V1

Cargo Door Skin Location
Figure 101

52-30-01
ALLOWABLE DAMAGE 1
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FORWARD CARGO DOOR SKIN

F76083 S0006586821_V1

Cargo Door Skin
Figure 102 (Sheet 1 of 2)

52-30-01

ALLOWABLE DAMAGE 1

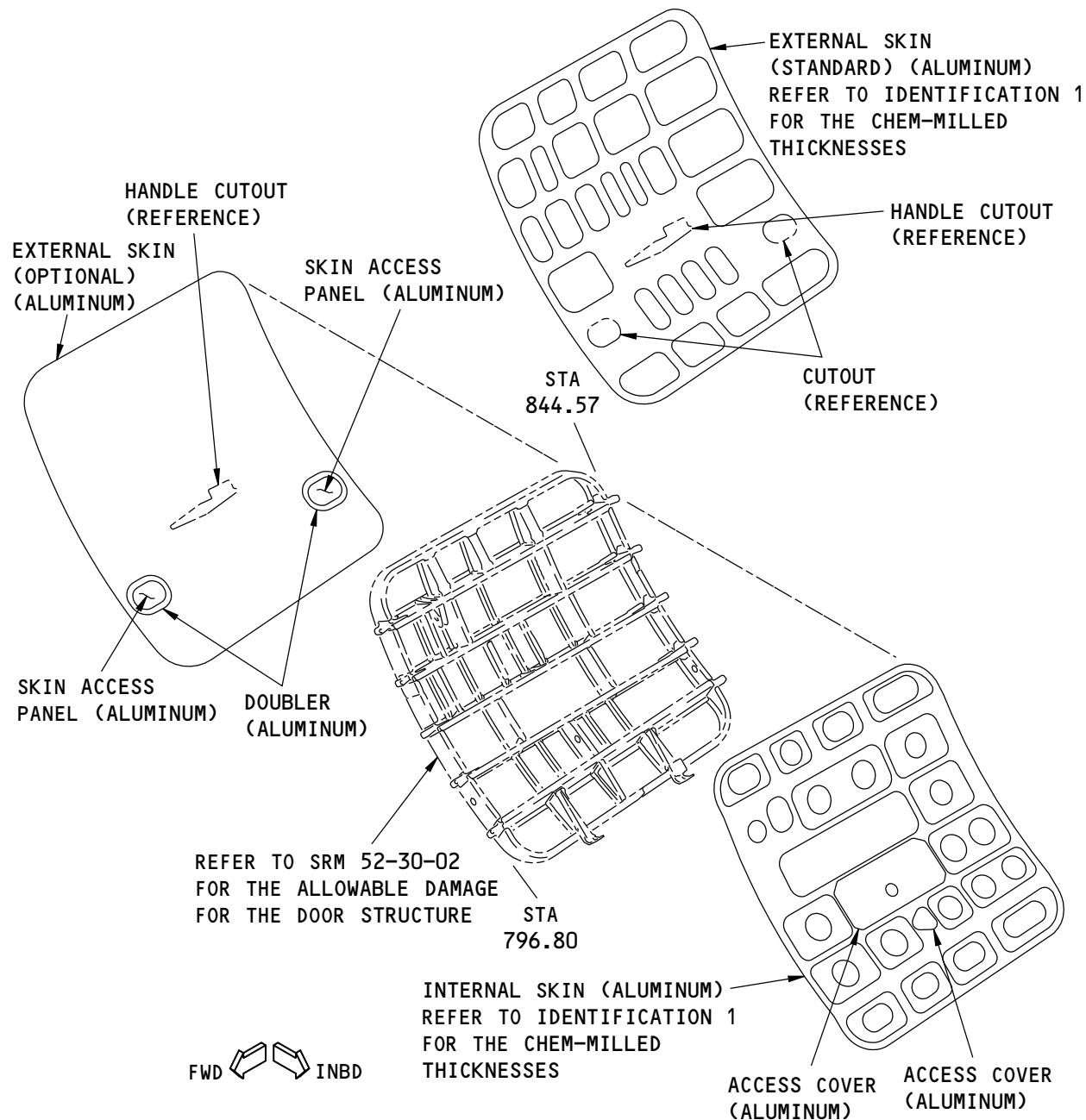
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STRUCTURAL REPAIR MANUAL



AFT CARGO DOOR SKIN

K63062 S0006586822_V2

Cargo Door Skin
Figure 102 (Sheet 2 of 2)

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ALLOWABLE DAMAGE 1

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STRUCTURAL REPAIR MANUAL

2. General

- A. The cargo doors are in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The external skin includes the skin of the access panels.

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage to the external skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the external skin given in Paragraph 5./ALLOWABLE DAMAGE 1
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- C. For damage that was removed from the aerodynamic outer surface of the external skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.
- D. For damage that was removed from the non-aerodynamic inner surface of the external skin, or from the internal skins, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

52-30-01

ALLOWABLE DAMAGE 1

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STRUCTURAL REPAIR MANUAL

4. Allowable Damage Limits

A. External Skin (This includes the access panels skin):

NOTE: If you find damage to the external skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 1 for the flight operation limits.

(1) Cracks:

- (a) Drill a 0.25 inch diameter stop hole at the ends of a crack. Refer to 51-10-02.
 - 1) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 2) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.
 - 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

(2) Nicks, Scratches, Gouges and Corrosion:

- (a) Remove the damage as shown in Allowable Damage Limits - External Skin, Figure 103/ ALLOWABLE DAMAGE 1, Details A , B , C , D , and E .
- (b) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

(3) Dents:

NOTE: Make sure the aerodynamic smoothness is satisfactory or there will be a loss in economic performance of the airplane.

- (a) Dents are permitted if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 1, Detail F .
- (b) Dents larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 1, Detail F , that cannot be repaired immediately are permitted if:
 - 1) There are no loose or missing fasteners
 - 2) There are no damaged fastener holes
 - 3) There are no creases, gouges, or cracks near the dent
 - 4) You do not fill the dent
 - 5) You do an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.

(4) Holes and Punctures:

NOTE: For holes and punctures that are a maximum of 0.25 inch in diameter, there are no flight operations limits. Refer to Paragraph 4.A.(5)(a). For holes and punctures that are larger than 0.25 inch in diameter, flight operations limits are necessary. Refer to Paragraph 4.A.(5)(b). and Paragraph 5./ALLOWABLE DAMAGE 1

(a) Holes and punctures are permitted if:

- 1) They are a maximum of 0.25 inch in diameter
- 2) They are a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius
- 3) They are filled with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - a) Install the rivet without sealant.

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ALLOWABLE DAMAGE 1

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- (b) If you find a hole or puncture that is larger than 0.25 inch in diameter, do as follows:
- 1) Remove the damage to a circular or oval shape.
 - 2) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - 3) Refer to Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

B. Internal Skin, Access Cover, and Doubler:

- (1) Cracks:
 - (a) Remove the damage at an edge as shown in Allowable Damage Limits - Internal Skin, Access Cover, and Doubler, Figure 104/ALLOWABLE DAMAGE 1, Detail A , B , and F .
 - (b) Remove the damage that is not at an edge as follows:
 - 1) Drill a 0.25 inch diameter stop hole at the ends of a crack that are not at a fastener hole or an edge as shown in Allowable Damage Limits - Internal Skin, Access Cover, and Doubler, Figure 104/ALLOWABLE DAMAGE 1, Detail D . Refer to 51-10-02.
 - a) The stop hole must be a minimum of 1.00 inch away from a chem-milled radius.
 - 2) You are permitted to remove the damage to a maximum diameter of 1.00 inch as shown in Allowable Damage Limits - Internal Skin, Access Cover, and Doubler, Figure 104/ALLOWABLE DAMAGE 1, Detail D if:
 - a) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, other damage, or a chem-milled radius.
- (2) Nicks, Gouges, Scratches and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits - Internal Skin, Access Cover, and Doubler, Figure 104/ALLOWABLE DAMAGE 1, Details A , B , C , E , and F .
 - (b) You are permitted to remove the damage to a maximum diameter of 1.00 inch if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from a fastener hole, an edge, other damage, or a chem-milled radius.
- (3) Dents:
 - (a) Dents are permitted as shown in Allowable Damage Limits - Internal Skin, Access Cover, and Doubler, Figure 104/ALLOWABLE DAMAGE 1, Detail G .
- (4) Holes and Punctures:
 - (a) Holes and punctures are permitted if:
 - 1) They are a maximum of 1.00 inch in diameter
 - 2) They are a minimum of 30T (T = the thickness of the material) away from a fastener hole, an edge, or other damage
 - 3) You remove the damage to a smooth circular or oval shape.

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ALLOWABLE DAMAGE 1

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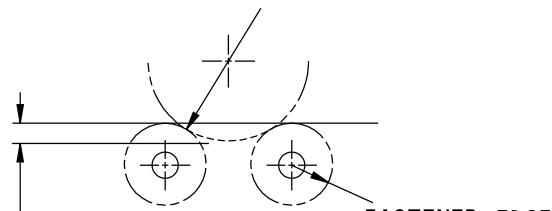
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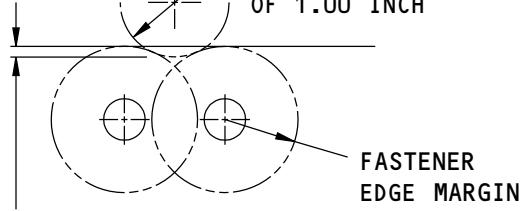
**737-800
STRUCTURAL REPAIR MANUAL**

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



X = WIDTH OF THE MATERIAL
THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH
= A MAXIMUM OF 0.15 INCH

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



X = WIDTH OF THE MATERIAL
THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH
= A MAXIMUM OF 0.15 INCH

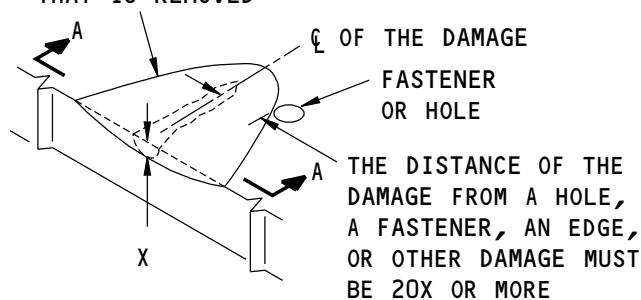
REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS DO NOT HAVE AN OVERLAP

(A)

REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS HAVE AN OVERLAP

(B)

AREA OF THE MATERIAL
THAT IS REMOVED



NOTE: REFER TO PARAGRAPH 5, TABLE 101 AND
FIGURE 105 FOR THE OPERATION LIMITS THAT
APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

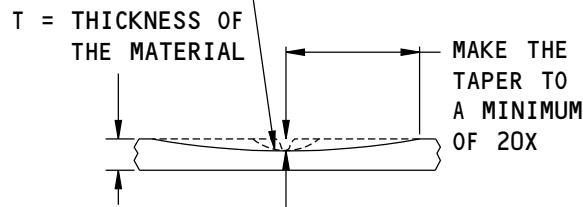
REMOVAL OF DAMAGED MATERIAL
ON A SURFACE

NOTES

(C)

- FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

REMOVE THE MATERIAL TO A
MINIMUM RADIUS OF 1.00 INCH,
THEN TAPER AS SHOWN



X = DEPTH OF THE MATERIAL
THAT IS REMOVED

A-A

400567 S0000137531_V1

Allowable Damage Limits - External Skin
Figure 103 (Sheet 1 of 3)

52-30-01

ALLOWABLE DAMAGE 1

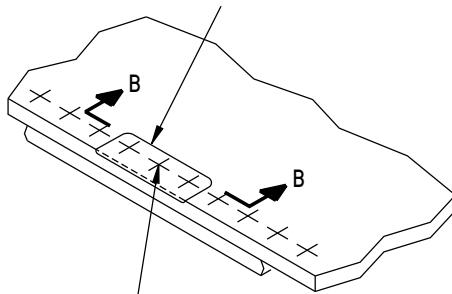
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STRUCTURAL REPAIR MANUAL**

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



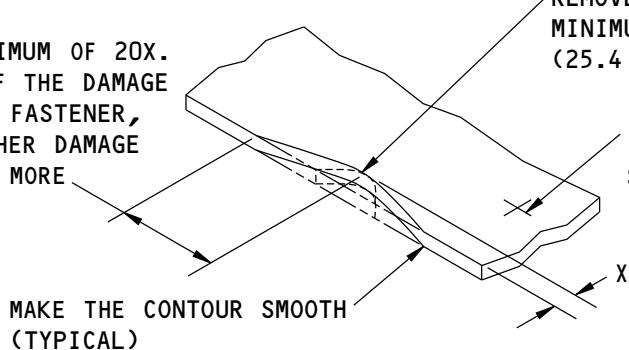
REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

NOTE: REFER TO PARAGRAPH 5, TABLE 101 AND FIGURE 105 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE



TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE FROM A HOLE, A FASTENER, AN EDGE, OR OTHER DAMAGE MUST BE 20X OR MORE



REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, (25.4 mm) THEN TAPER AS SHOWN

IF THERE ARE FASTENERS,
SEE  AND 

MAKE THE CONTOUR SMOOTH (TYPICAL)

X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH 
= A MAXIMUM OF 0.15 INCH 

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN



400568 S0000137532_V2

Allowable Damage Limits - External Skin
Figure 103 (Sheet 2 of 3)

52-30-01

ALLOWABLE DAMAGE 1

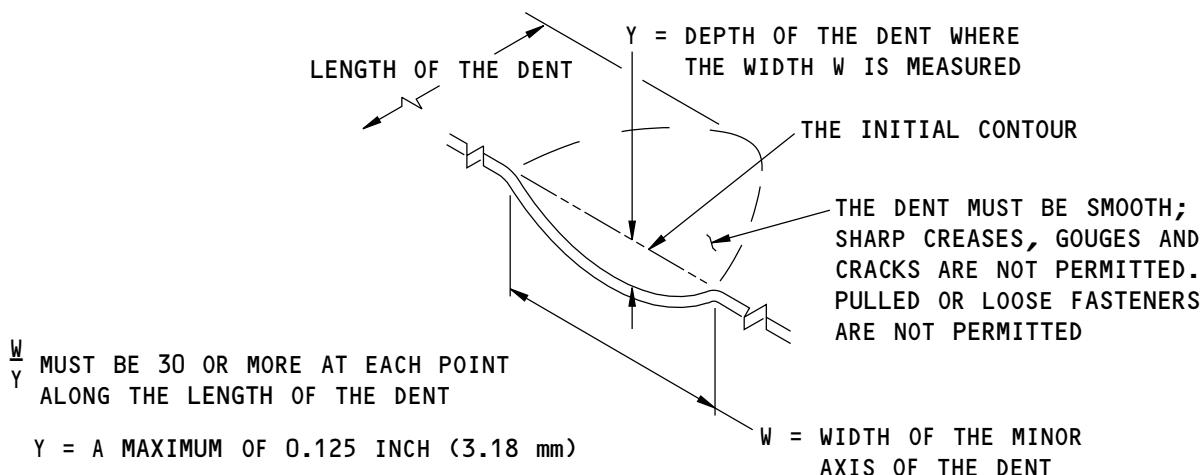
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STRUCTURAL REPAIR MANUAL



DENT THAT IS PERMITTED

F

F76132 S0006586825_V3

Allowable Damage Limits - External Skin

Figure 103 (Sheet 3 of 3)

5. Airplane Operation Limits that are Applicable to the External Skin

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
 - (1) Find the applicable area in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
 - (a) The damage depth in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
 - (b) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1 is applicable to:
 - 1) Cracks
 - 2) Nicks, scratches, gouges, and corrosion
 - 3) Holes and punctures that are larger than 0.25 inch in diameter.
 - (c) Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1 is not applicable to dents.
 - (2) Refer to Table 101/ALLOWABLE DAMAGE 1 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for the Pressurized External Skin, Figure 105/ALLOWABLE DAMAGE 1.

52-30-01

ALLOWABLE DAMAGE 1

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Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 105 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4.A	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4.A	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do the different types of repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired. For holes and punctures larger than 0.25 inch in diameter: The maximum cabin pressure differential is limited to zero PSIG. Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do the different types of repair as given in SRM 52-00-01	There are no airplane operation limits
	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to zero PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
D	Do the different types of repair as given in SRM 52-00-01	There are no airplane operation limits
	Remove the damage as given in Paragraph 4.A. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
E	Do the different types of repair as given in SRM 52-00-01	There are no airplane operation limits

52-30-01

ALLOWABLE DAMAGE 1

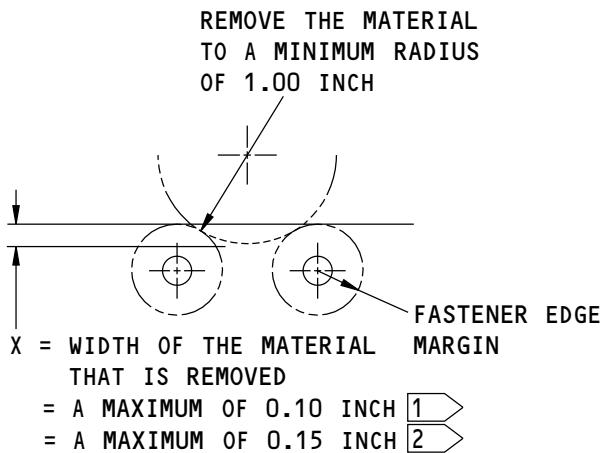
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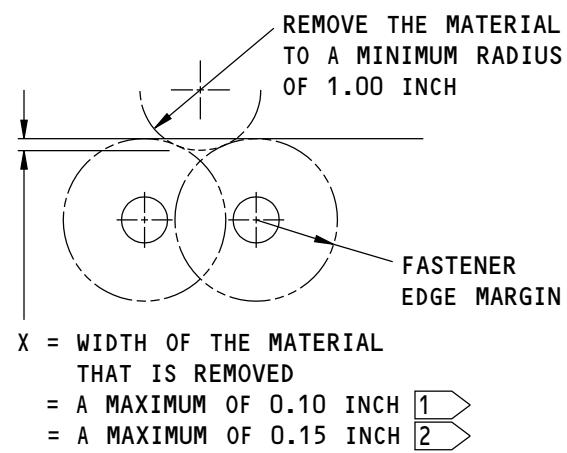
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**737-800
STRUCTURAL REPAIR MANUAL**



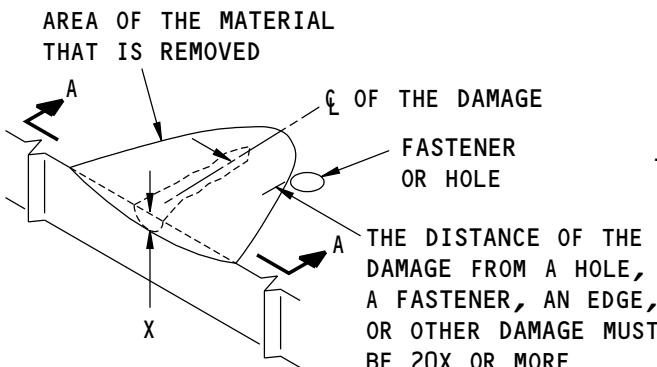
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



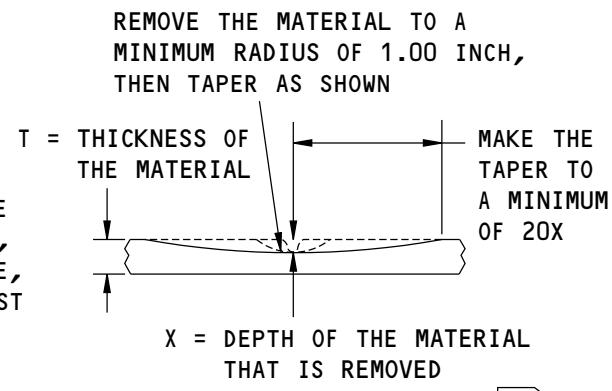
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(C)



NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
 2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

400569 S0000137533_V1

Allowable Damage Limits - Internal Skin, Access Cover, and Doubler
Figure 104 (Sheet 1 of 3)

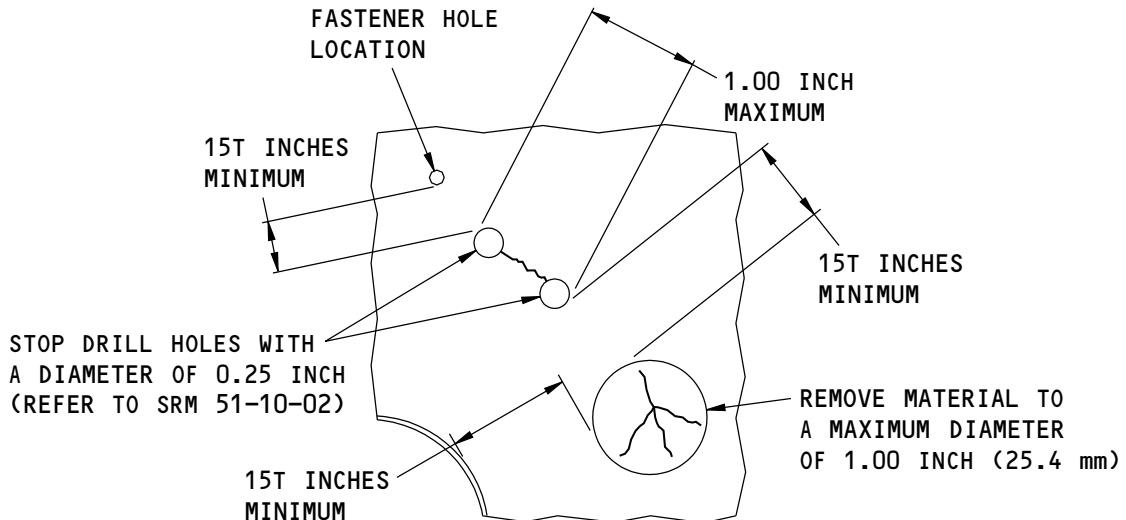
52-30-01

ALLOWABLE DAMAGE 1

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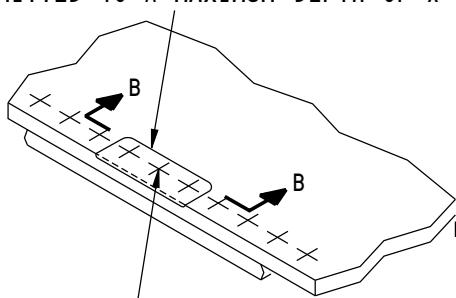
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**737-800
STRUCTURAL REPAIR MANUAL**


T = THICKNESS OF THE MATERIAL

CRACKS THAT ARE PERMITTED


THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X

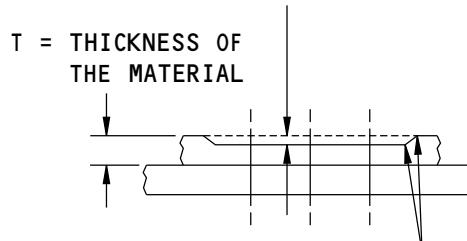


REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE



X = DEPTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10T
= A MAXIMUM OF 0.15T



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (12.7 mm)
(TYPICAL)

B-B

400570 S0000137534_V1

Allowable Damage Limits - Internal Skin, Access Cover, and Doubler
Figure 104 (Sheet 2 of 3)

52-30-01

ALLOWABLE DAMAGE 1

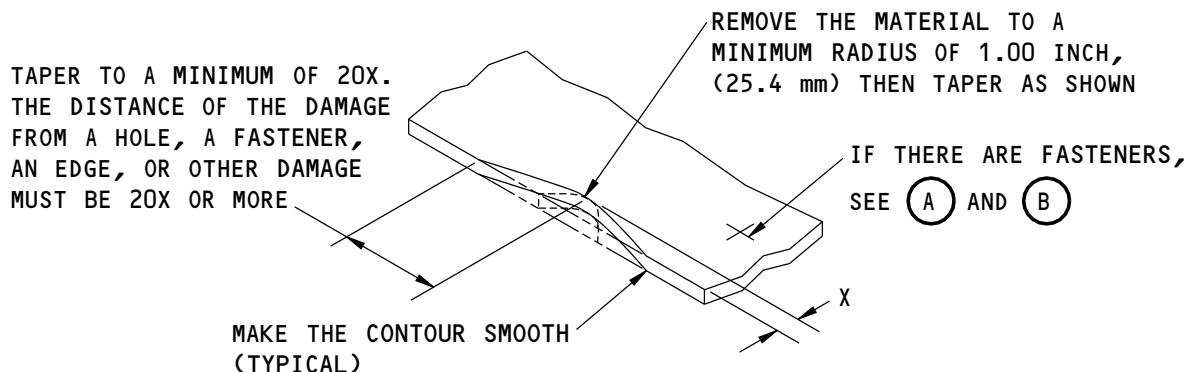
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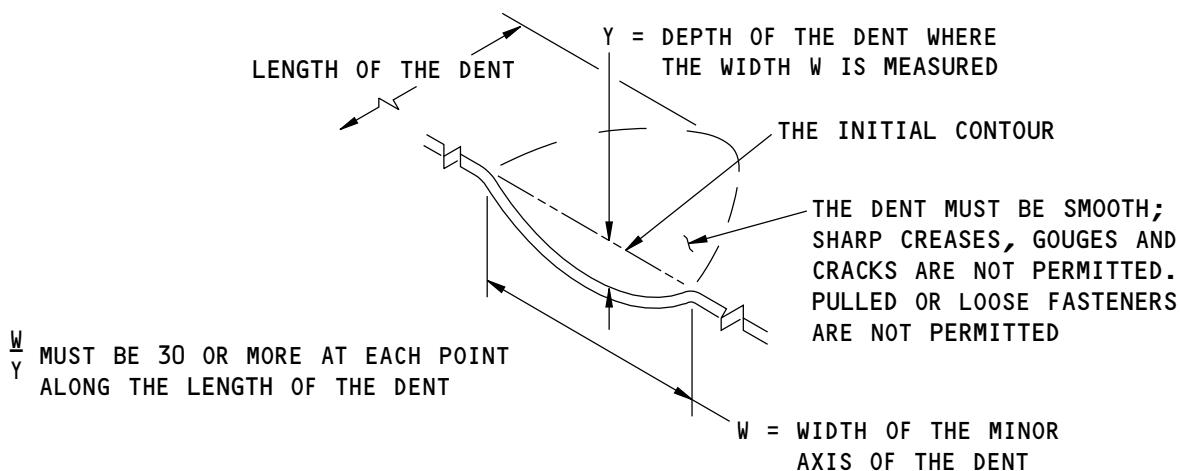
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STRUCTURAL REPAIR MANUAL



X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH 1
= A MAXIMUM OF 0.15 INCH 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN

(F)



DENT THAT IS PERMITTED

(G)

400571 S0000137535_V2

Allowable Damage Limits - Internal Skin, Access Cover, and Doubler
Figure 104 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 1

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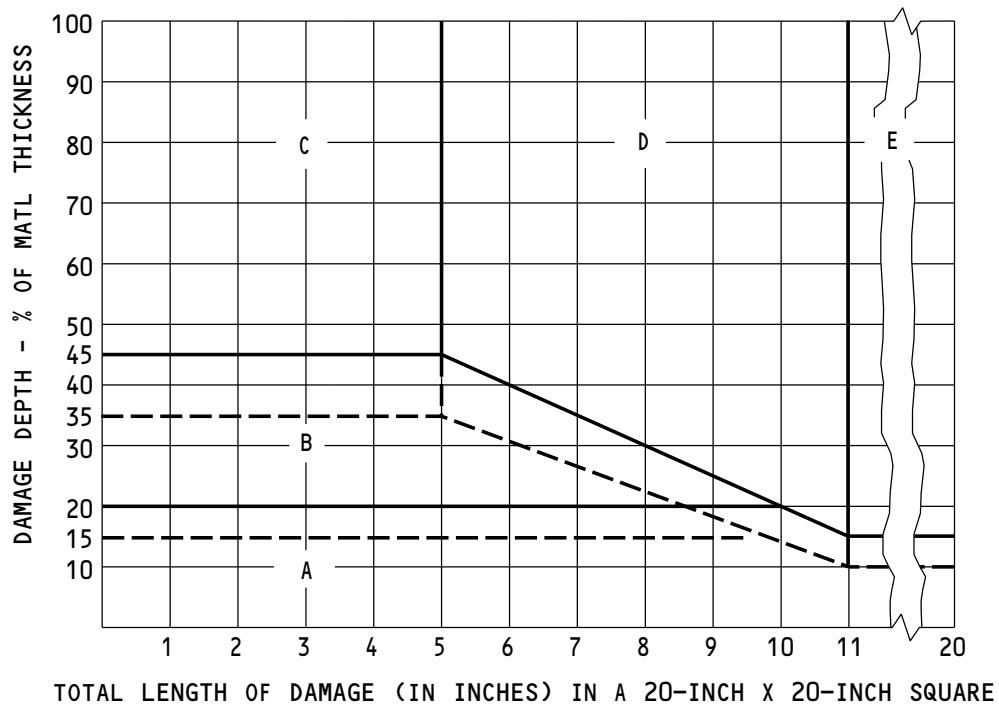
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STRUCTURAL REPAIR MANUAL



NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

— — — FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.

— — — — — FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

400572 S0000137718_V1

Damage Limits for the Pressurized External Skin
Figure 105

52-30-01

ALLOWABLE DAMAGE 1

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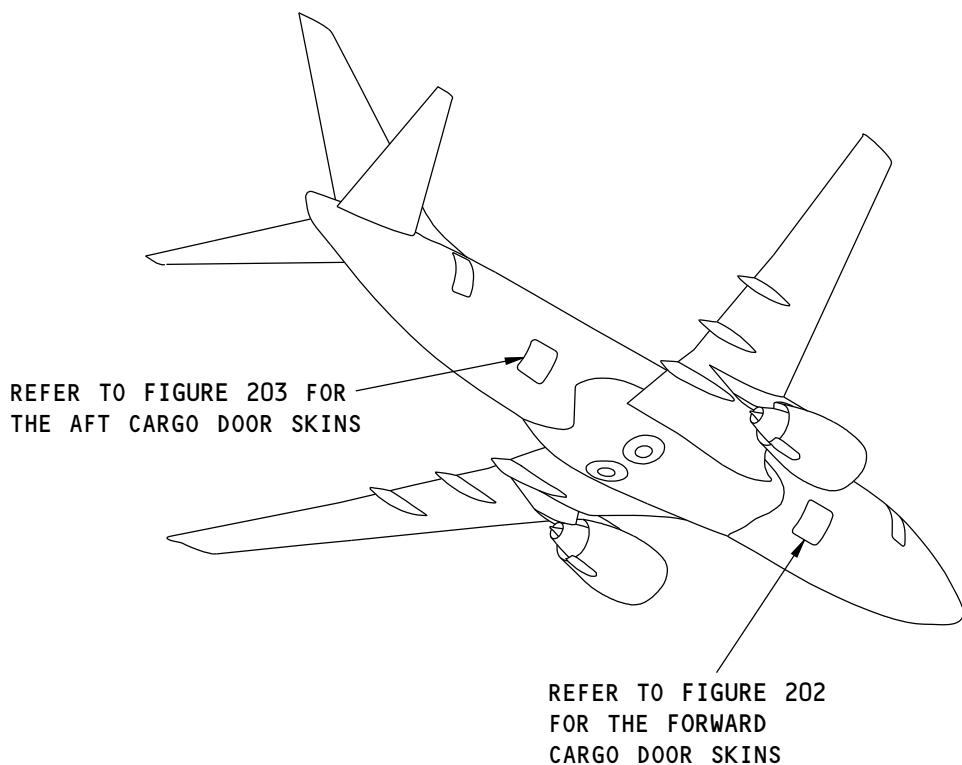


737-800
STRUCTURAL REPAIR MANUAL

REPAIR 1 - CARGO DOOR SKINS

1. Applicability

- A. Repair 1 is applicable to damage to the cargo door skins shown in Cargo Door Location, Figure 201/REPAIR 1, Forward Cargo Door Skin, Figure 202/REPAIR 1 and Aft Cargo Door Skin, Figure 203/REPAIR 1.



**Cargo Door Location
Figure 201**

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52-30-01

**REPAIR 1
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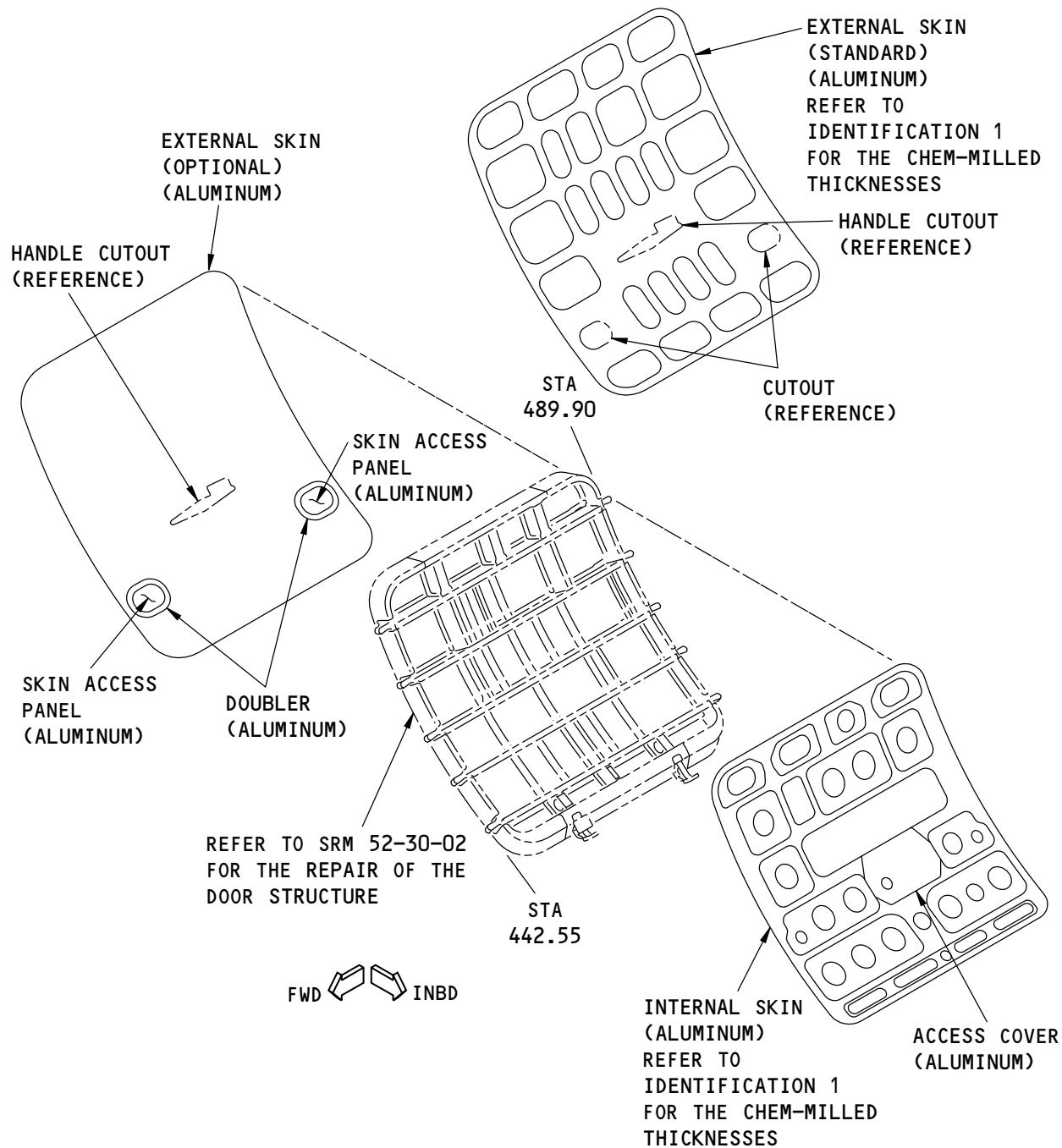
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737-800
STRUCTURAL REPAIR MANUAL



G68952 S0006586846_V1

Forward Cargo Door Skin
Figure 202

52-30-01

REPAIR 1
Page 202

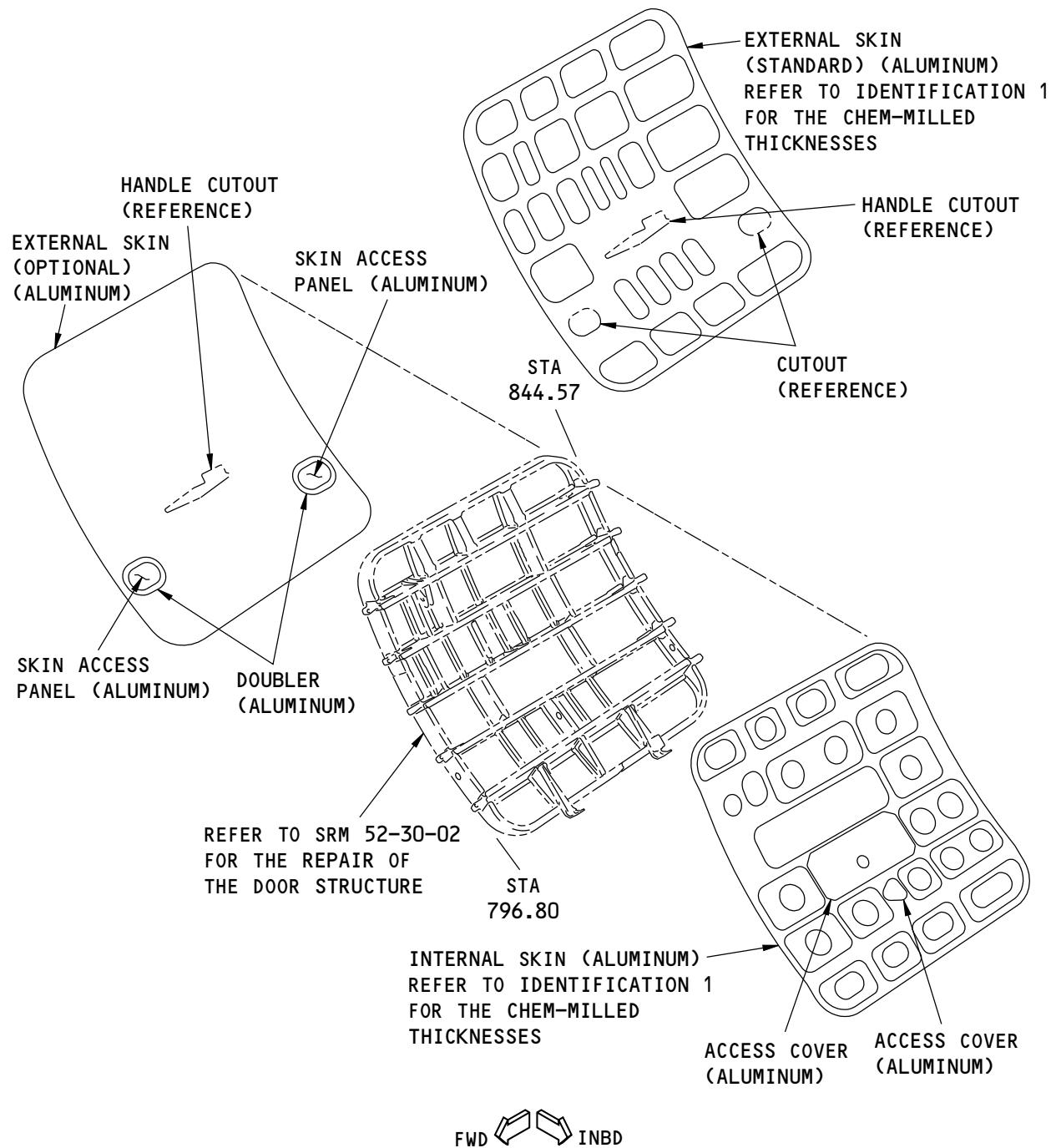
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STRUCTURAL REPAIR MANUAL



K63684 S0006586847_V2

Aft Cargo Door Skin
Figure 203

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REPAIR 1
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STRUCTURAL REPAIR MANUAL

2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 7 can be used when applicable if:
 - (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 7 before you start a repair.

3. References

Reference	Title
52-00-01	TYPICAL DOOR SKIN
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams
52-00-01, REPAIR 6	Aluminum Door Skin - Flush Repair Across a Beam
52-00-01, REPAIR 7	Aluminum Door Skin - Alternative Flush Repair Across a Beam

4. Repair Instructions

- A. Refer to 52-00-01, REPAIR 1, 52-00-01, REPAIR 2, 52-00-01, REPAIR 3, 52-00-01, REPAIR 4, 52-00-01, REPAIR 5, 52-00-01, REPAIR 6 and 52-00-01, REPAIR 7 to find the applicable repair for the cargo door skins shown in Cargo Door Location, Figure 201/REPAIR 1, Forward Cargo Door Skin, Figure 202/REPAIR 1 and Aft Cargo Door Skin, Figure 203/REPAIR 1.

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REPAIR 1
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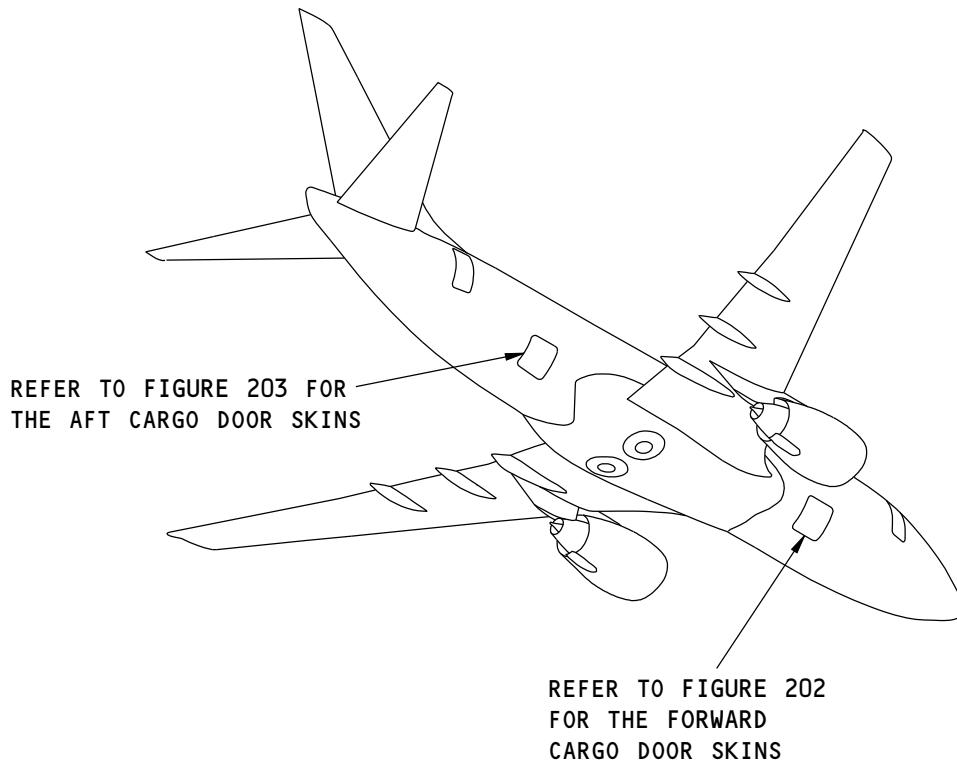


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STRUCTURAL REPAIR MANUAL

REPAIR 3 - CARGO DOOR EXTERNAL SKIN

1. Applicability

- A. Repair 3 is applicable to the external skin of the forward and aft cargo doors shown in Figure 201/REPAIR 3.



Cargo Door Location
Figure 201

2256111 S0000504599_V1

2. General

- A. Repair 3 gives the instructions for Category A repair. Refer to 51-00-06, GENERAL for repair categories and definitions.
- B. Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.
- C. Make sure the cut edges of the repair part have a surface smoothness of 63 microinches Ra or smoother.

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REPAIR 3
Page 201

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STRUCTURAL REPAIR MANUAL

3. References

Reference	Title
51-00-06, GENERAL	Structural Repair Definitions
51-10-01, GENERAL	Aerodynamic Smoothness Requirements
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01, GENERAL	Protective Treatment of Metallic and Composite Materials
51-20-05, GENERAL	Repair Sealing
51-40-02, GENERAL	Fastener Installation and Removal
51-40-05, GENERAL	Fastener Hole Sizes
AMM 51-21-00	INTERIOR AND EXTERIOR FINISHES
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-44-04	Application of Urethane Compatible Primer

4. Repair Instructions

- A. Get access to the damaged area.
- B. If necessary, put the door in a jig to keep door geometry.
- C. Remove the damaged external skin.
- D. Do a visual inspection of the structure below the damaged external skin to make sure there is no other damage. Refer to 51-10-02.
- E. Make or get the repair part.
 - (1) If you make the repair part, refer to Table 201/REPAIR 3, Figure 202/REPAIR 3, and Figure 203/REPAIR 3. Make the contour of the Part 1 External Skin the same as the initial skin. Refer to 51-10-01, GENERAL.
 - (2) If you get the repair part, use Part Number 143A6112-2 or -4 for the Forward Cargo Door External Skin and Part Number 146A6112-2 or -4 for the Aft Cargo Door External Skin from The Boeing Company.

Table 201:

REPAIR MATERIAL		
PART	QUANTITY	MATERIAL
[1] External Skin	1	Use 0.071 in. (1.803 mm) thick 2024-T3 clad sheet

- F. Assemble the repair part. Refer to Figure 202/REPAIR 3 and Figure 203/REPAIR 3.
- G. Drill the fastener holes in the same location as the initial skin. Refer to 51-40-05, GENERAL.
- H. Disassemble the repair part.
- I. Remove all the nicks, scratches, gouges, burrs, and sharp edges from the repair part.
- J. If you make the part, apply a chemical conversion coating to the repair part. Refer to 51-20-01, GENERAL.
- K. If you make the part, apply two layers of BMS 10-11, Type I primer to the internal surface of the repair part. Refer to SOPM 20-41-02.
- L. Install the repair part. Apply BMS 5-95 sealant to all the mating surfaces. Refer to 51-20-05, GENERAL.

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REPAIR 3
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STRUCTURAL REPAIR MANUAL

- M. Install the fasteners. Install the same type and diameter fastener as the initial fastener (up to 1/32 inch oversize). Fasteners that are not made of aluminum must be installed wet with BMS 5-95 sealant. Refer to 51-40-02, GENERAL.
- N. If you make the part, apply one layer of BMS 10-79, Type II primer to the external surface of the repair part. Refer to SOPM 20-44-04.
- O. Apply a decorative external finish. Refer to AMM SUBJECT 51-21-00.
- P. Install the structures that were removed back to a serviceable condition.

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REPAIR 3
Page 203

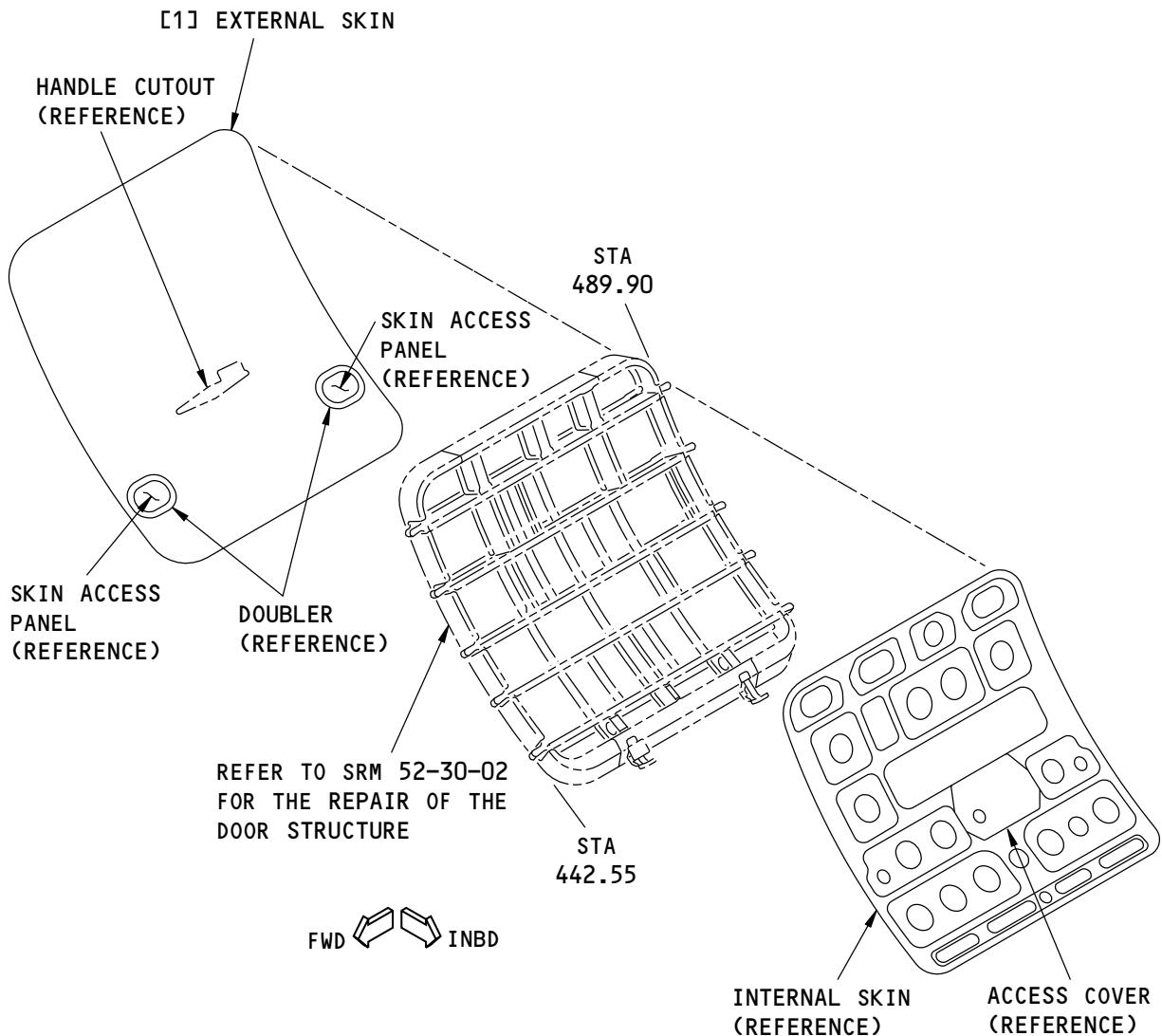
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2256113 S0000504607_V1

Forward Cargo Door External Skin
Figure 202

52-30-01

REPAIR 3
Page 204

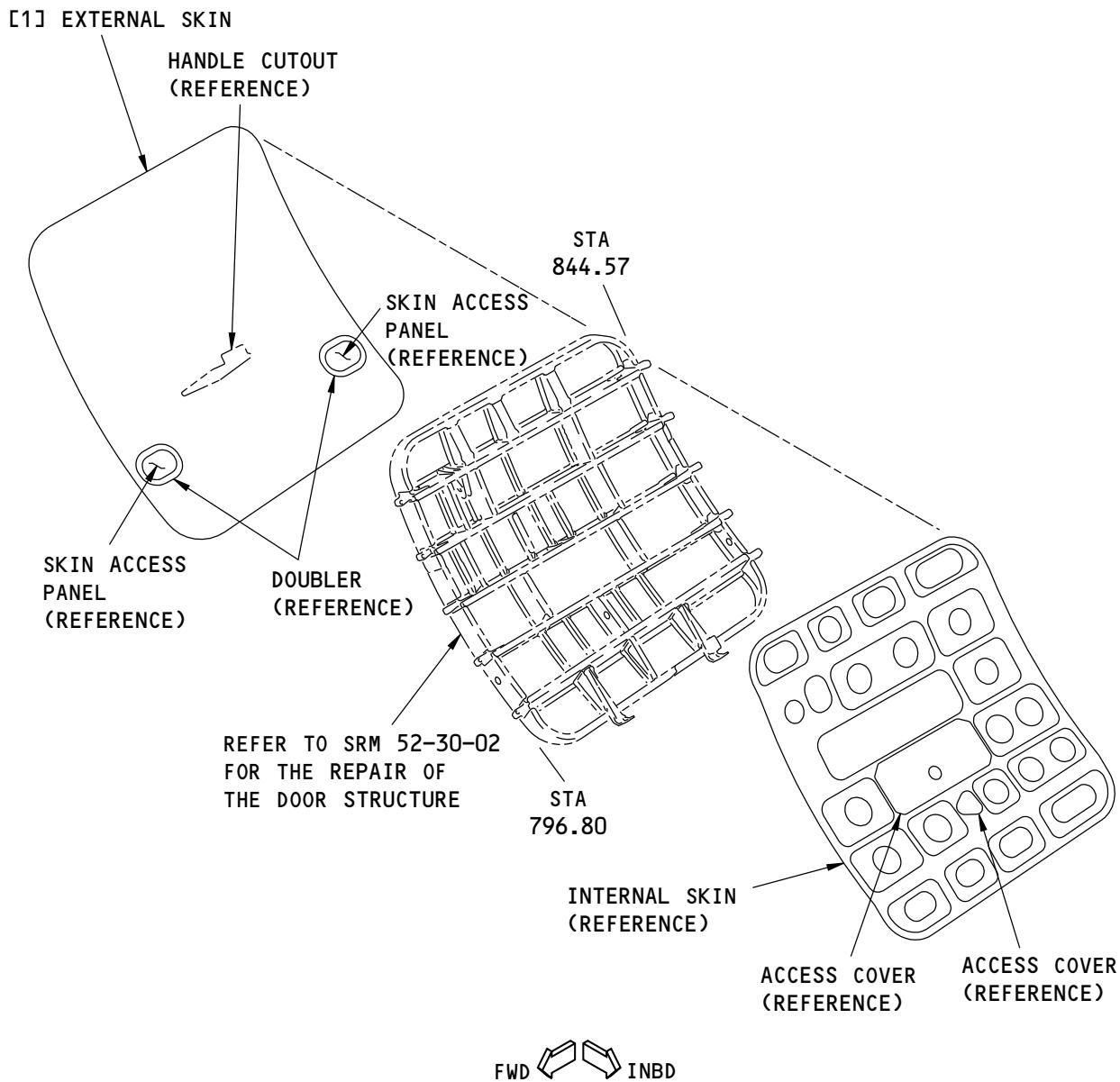
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Aft Cargo Door External Skin
Figure 203

52-30-01

REPAIR 3
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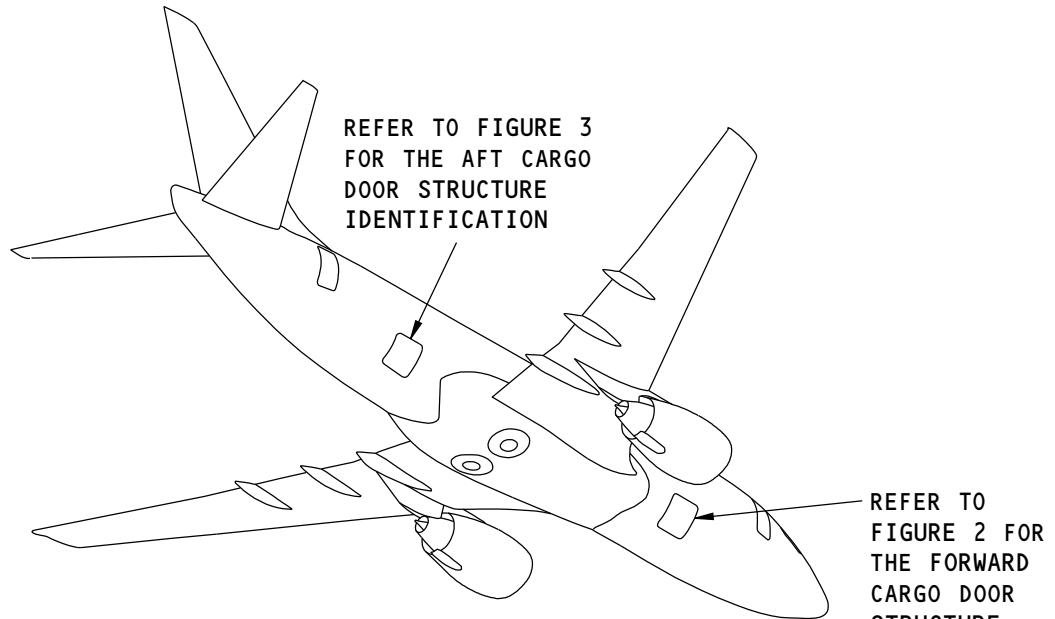
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STRUCTURAL REPAIR MANUAL

IDENTIFICATION 1 - CARGO DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

REFER TO
FIGURE 2 FOR
THE FORWARD
CARGO DOOR
STRUCTURE
IDENTIFICATION
F86332 S0006586860_V1

Cargo Door Locations

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
140A0050	Functional Collector - Forward Cargo Door
140A0060	Functional Collector - Aft Cargo Door
143A6100	Door Installation - Forward Cargo Door
143A6110	Door Assembly - Forward Cargo Door
143A6117	Beam Assemblies - Forward Cargo Door

52-30-02

IDENTIFICATION 1

Page 1

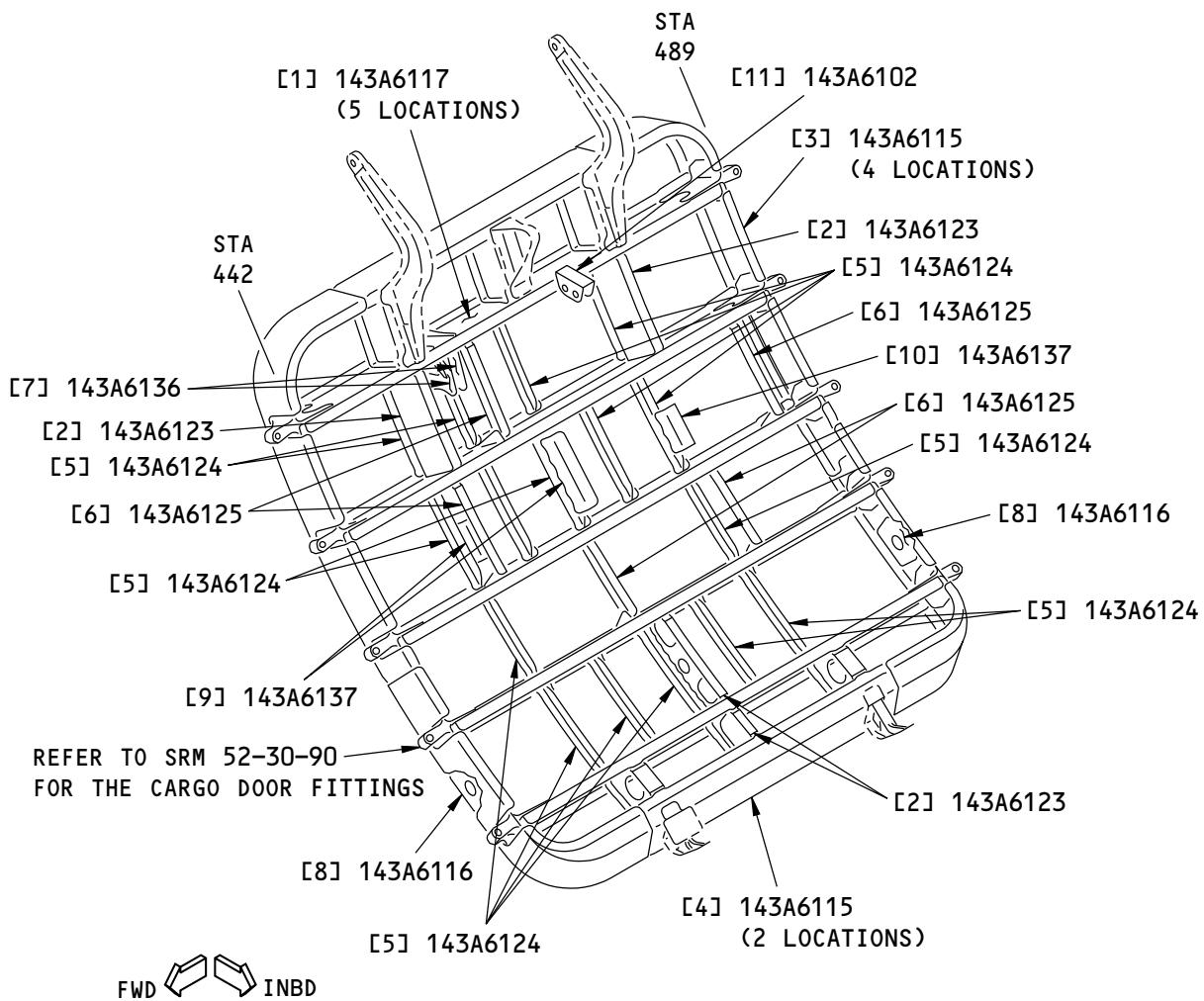
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F86971 S0006586862_V1

Forward Cargo Door Structure Identification
Figure 2

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IDENTIFICATION 1
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STRUCTURAL REPAIR MANUAL

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Beam		7050-T7451 plate. Refer to the engineering drawing for the machined thicknesses	
[2]	Intercostal Web		7050-T7451 plate. Refer to the engineering drawing for the machined thicknesses	
[3]	Frame	0.071 (1.83)	2024-T42 clad sheet	
[4]	Frame	0.056 (1.42)	7075-T62 clad sheet	
[5]	Stiffeners		7075-T73511 BAC1505-101687 extrusion	
[6]	Angle Stiffener		7075-T73511 BAC1505-101036 extrusion.	
[7]	Pulley Bracket		7050-T7451 plate. Refer to the engineering drawing for the machined thicknesses	
[8]	Frame Doubler (2)	0.050 (1.27)	7075-T62 clad sheet	
[9]	Attach Bracket (2)		7075-T62 BAC1490-2685 sheet	
[10]	Support Angle		7075-T62 BAC1490-2685 sheet	
[11]	Support Bracket		7075-T73511 bar. Refer to the engineering drawing for the machined thicknesses	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1

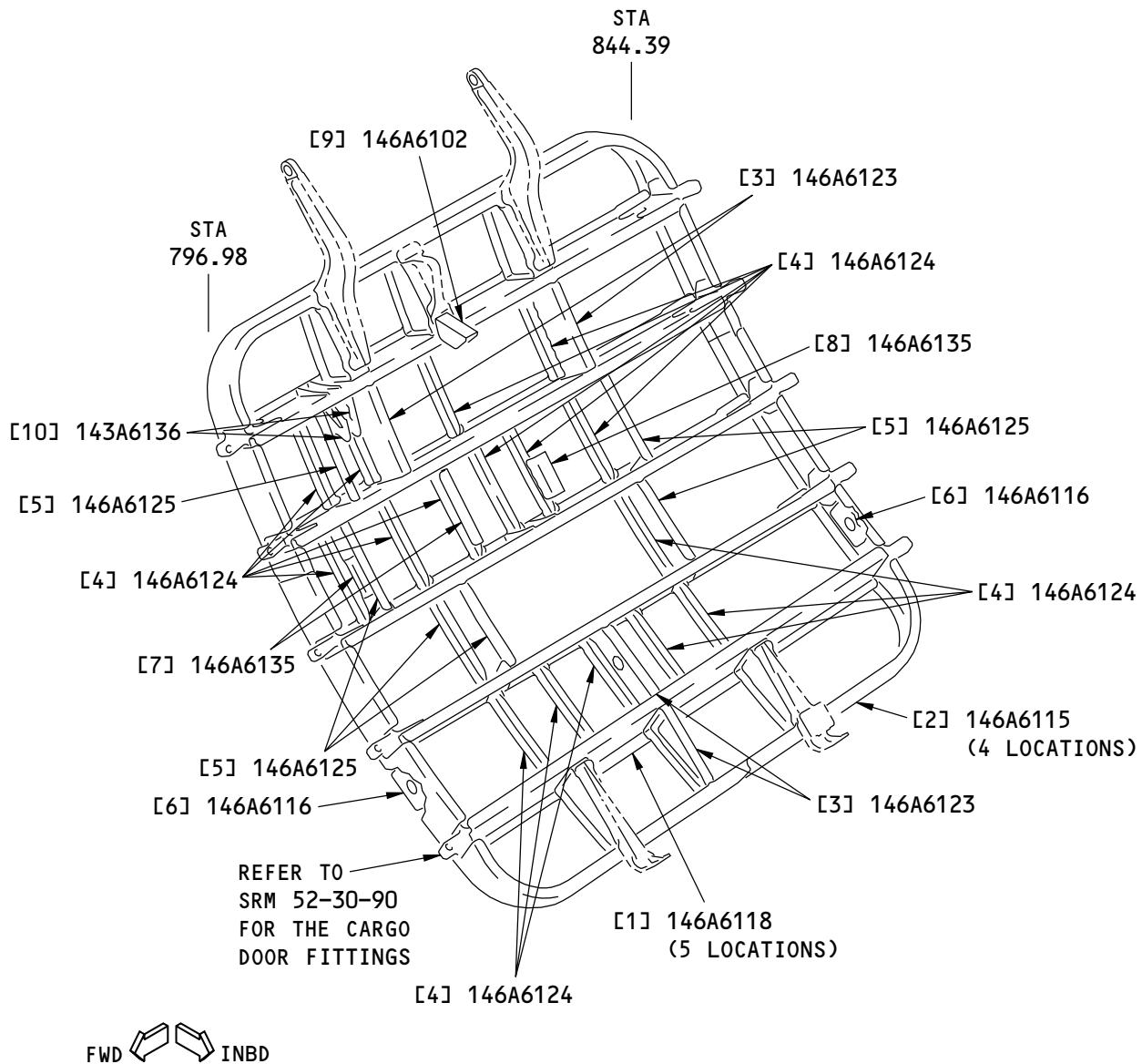
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STRUCTURAL REPAIR MANUAL



NOTE: REFER TO TABLE 3 FOR THE LIST OF MATERIALS.

K63991 S0006586864_V1

Aft Cargo Door Structure Identification
Figure 3

52-30-02
IDENTIFICATION 1
Page 4
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STRUCTURAL REPAIR MANUAL

Table 3:

LIST OF MATERIALS FOR FIGURE 3				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Beam		7050-T7451 plate. Refer to the engineering drawings for the machined thicknesses	
[2]	Frame	0.080 (2.032)	2024-T42 clad sheet	
[3]	Intercostal Web		7050-T7451 plate. Refer to the engineering drawings for the machined thicknesses	
[4]	Stiffener, Outer		7075-T73511 BAC1506-4500 extrusion	
[5]	Stiffener, Inner		7075-T73511 BAC1503-100707 extrusion	
[6]	Frame, Doubler - Latch	0.063 (1.600)	7075-T6 clad sheet	
[7]	Attach Bracket		2024-T42 BAC1489-369 extruded sheet	
[8]	Bracket, Ceiling Support		7075-T73511 extrusion	
[9]	Pulley Bracket		7050-T7451 plate. Refer to the engineering drawing for the machined thicknesses	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1

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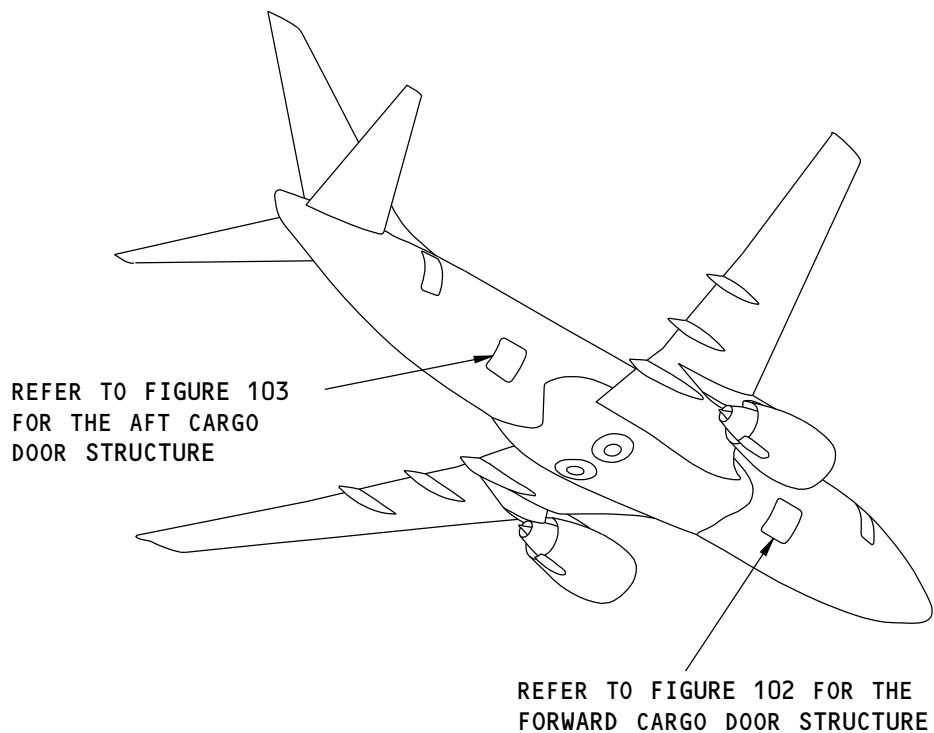


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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 1 - CARGO DOOR STRUCTURE

1. Applicability

- A. This subject gives the allowable damage limits for the structure of the cargo doors shown in Cargo Door Location, Figure 101/ALLOWABLE DAMAGE 1, Forward Cargo Door Structure, Figure 102/ALLOWABLE DAMAGE 1, and Aft Cargo Door Structure, Figure 103/ALLOWABLE DAMAGE 1.



Cargo Door Location
Figure 101

F97354 S0006586882_V1

52-30-02

ALLOWABLE DAMAGE 1

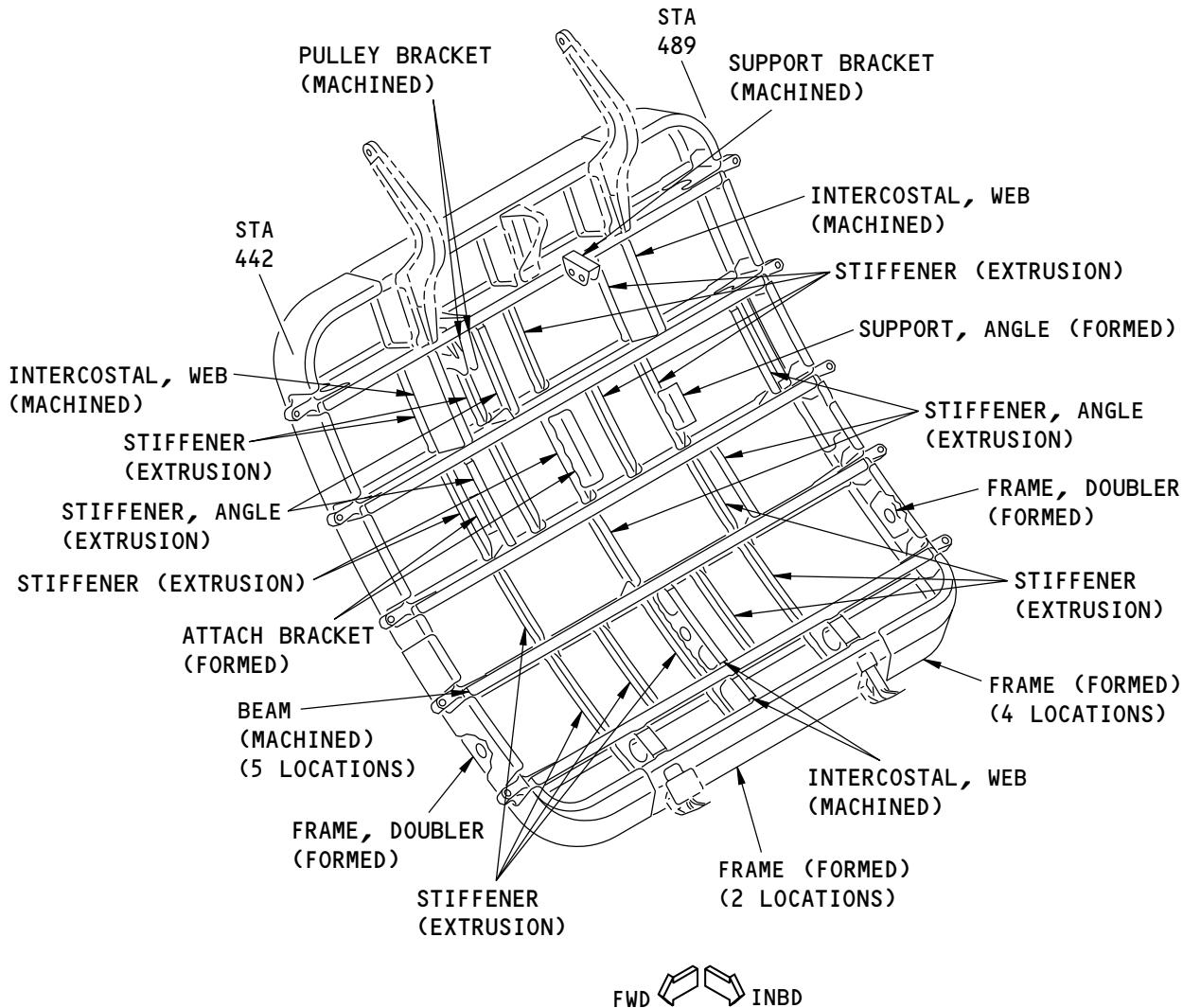
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STRUCTURAL REPAIR MANUAL

**NOTE**

- ALL PARTS ARE MADE FROM ALUMINUM.

F97355 S0006586883_V1

Forward Cargo Door Structure
Figure 102

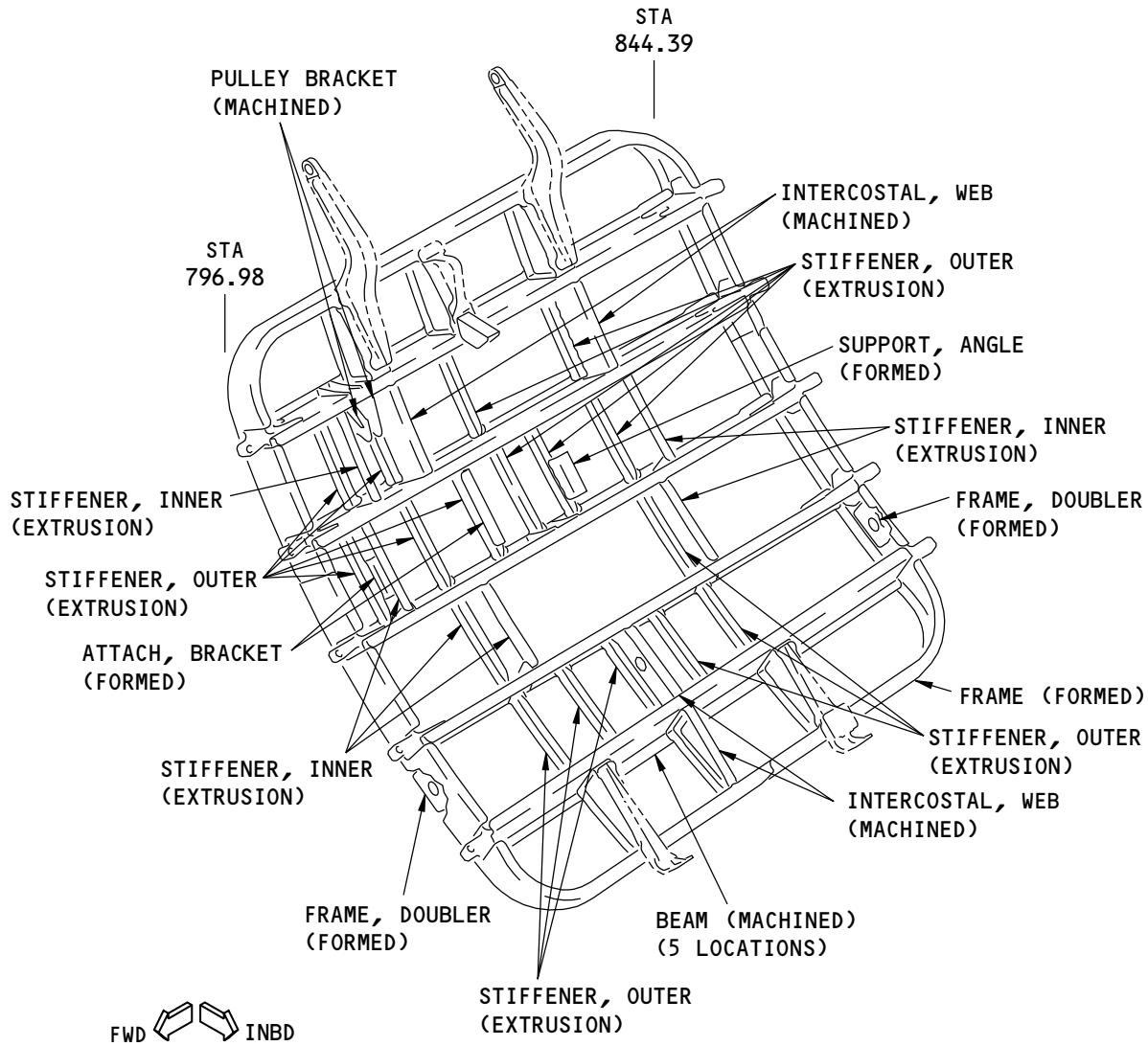
52-30-02**ALLOWABLE DAMAGE 1**

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STRUCTURAL REPAIR MANUAL

**NOTE**

- ALL PARTS ARE MADE FROM ALUMINUM.

K64914 S0006586884_V1

Aft Cargo Door Structure
Figure 103

52-30-02**ALLOWABLE DAMAGE 1**

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737-800 STRUCTURAL REPAIR MANUAL

2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1 Refer to Table 101/ALLOWABLE DAMAGE 1 for the references for the allowable damage limits for each type of structure.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
BEAMS - MACHINED PLATE	4.A
BRACKET, ATTACH - FORMED	4.B
BRACKET PULLEY/SUPPORT - EXTRUSION	4.A
INTERCOSTALS - MACHINED	4.A
FRAMES - FORMED	4.B
FRAME, DOUBLER - FORMED	4.B
STIFFENERS - EXTRUSION	4.A
SUPPORT, ANGLE - FORMED	4.B

- B. Remove the damage as necessary.

- (1) Refer to 51-10-02 for the inspection and removal of damage.
- (2) Refer to 51-30-03 for the sources of the abrasive and other materials you can use to remove the damage.
- (3) Refer to 51-30-05 for the sources of the equipment and tools you can use to remove the damage.

- C. After the damage has been removed, do the steps that follow:

- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Beams, Intercostal Webs, Pulley Bracket, Pulley Bracket Support, Stiffeners and Stiffener Angles - Machined Plate and Extrusion

- (1) Cracks:
 - (a) Remove the damage as shown in Figure 104, Details A , B , and H.
- (2) Nicks, Gouges, Scratches, and Corrosion:

52-30-02

ALLOWABLE DAMAGE 1

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- (a) Remove the damage as shown in Figure 104, Details A , B , D , E , and F.
 - (3) Dents are permitted as shown in Figure 104, Detail G.
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (0.64 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch, (38.1 mm) away from a fastener or part radius.
 - (d) Filled with a 2017-T3 or 2017-T4 protruding head rivet.
 - 1) Install the rivet without sealant.
- B. Attach Brackets, Frames, Frame Doublers, and Formed Support Angle
- (1) Cracks:
 - (a) Remove the damage as shown in Figure 104, Details A , B , and C.
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Figure 104, Details A , B , C , D , E , and F.
 - (3) Dents are permitted as shown in Figure 104, Detail G.
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch (0.64 mm) in diameter
 - (b) A minimum of 1.00 inch (25.4 mm) away from other damage
 - (c) A minimum of 1.50 inch (38.1 mm) away from a fastener or part radius.
 - (d) Filled with a 2017-T3 or 2017-T4 protruding head rivet.
 - 1) Install the rivet without sealant.

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ALLOWABLE DAMAGE 1

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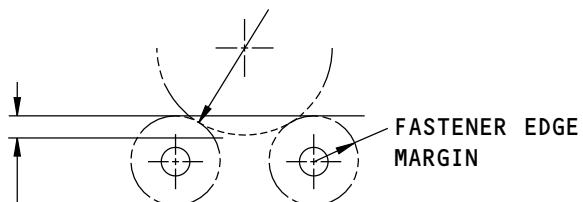
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**737-800
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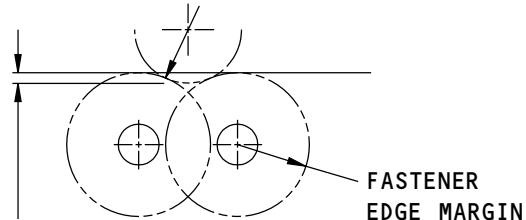
REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm)



- X = WIDTH OF THE MATERIAL THAT IS REMOVED
- = 0.10 INCH (2.54 mm), OR 10 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS ①
- = A MAXIMUM OF 0.15 INCH (3.81 mm), OR 15 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS ②

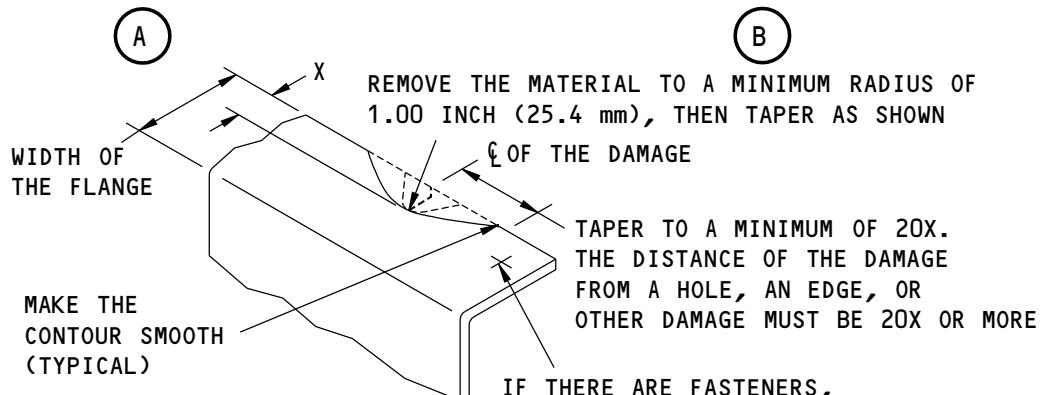
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm)



- X = WIDTH OF THE MATERIAL THAT IS REMOVED
- = 0.10 INCH (2.54 mm), OR 10 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS ①
- = A MAXIMUM OF 0.15 INCH (3.81 mm), OR 15 PERCENT OF THE WIDTH OF THE FLANGE, THAT WHICH IS LESS ②

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP



- X = WIDTH OF THE MATERIAL THAT IS REMOVED
- = 10 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.10 INCH (2.54 mm), THAT WHICH IS LESS ①
- = A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.15 INCH (3.81 mm), THAT WHICH IS LESS ②

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

NOTES

- ① FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- ② FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

400573 S0000137871_V1

**Allowable Damage Limits
Figure 104 (Sheet 1 of 4)**

52-30-02

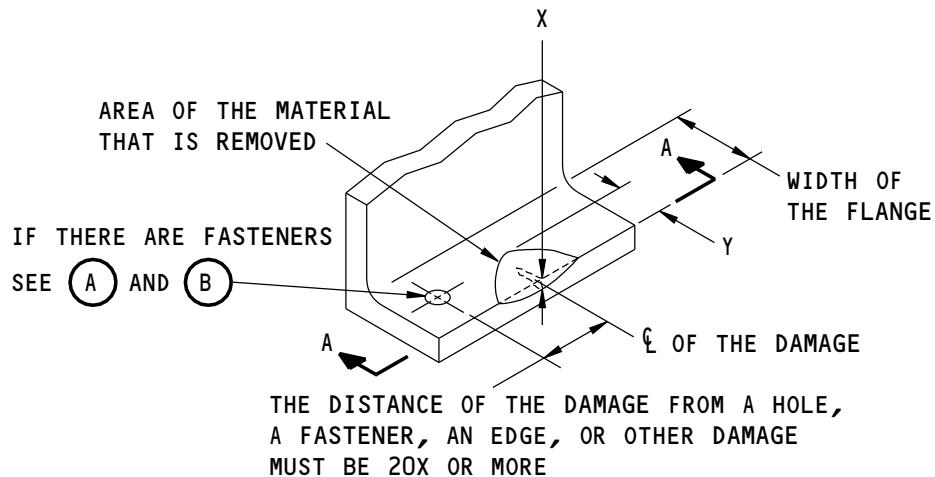
ALLOWABLE DAMAGE 1

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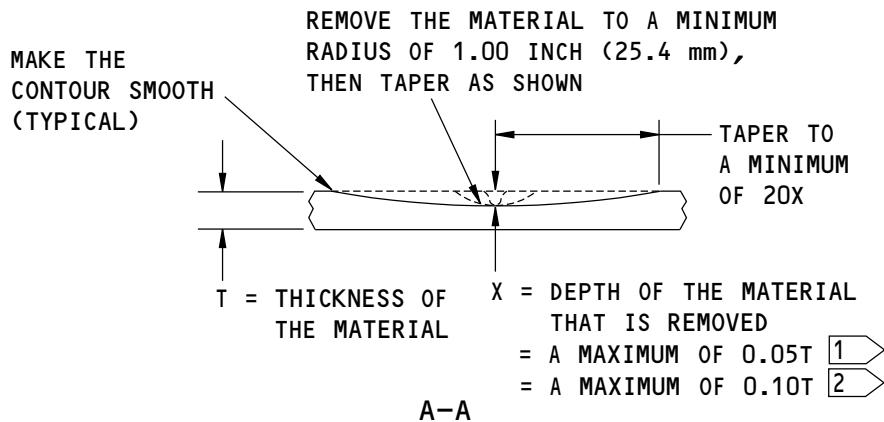
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Y = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 5 PERCENT OF THE WIDTH OF THE FLANGE [1]
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE [2]

REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE

(D)



400574 S0000137872_V1

Allowable Damage Limits
Figure 104 (Sheet 2 of 4)

52-30-02

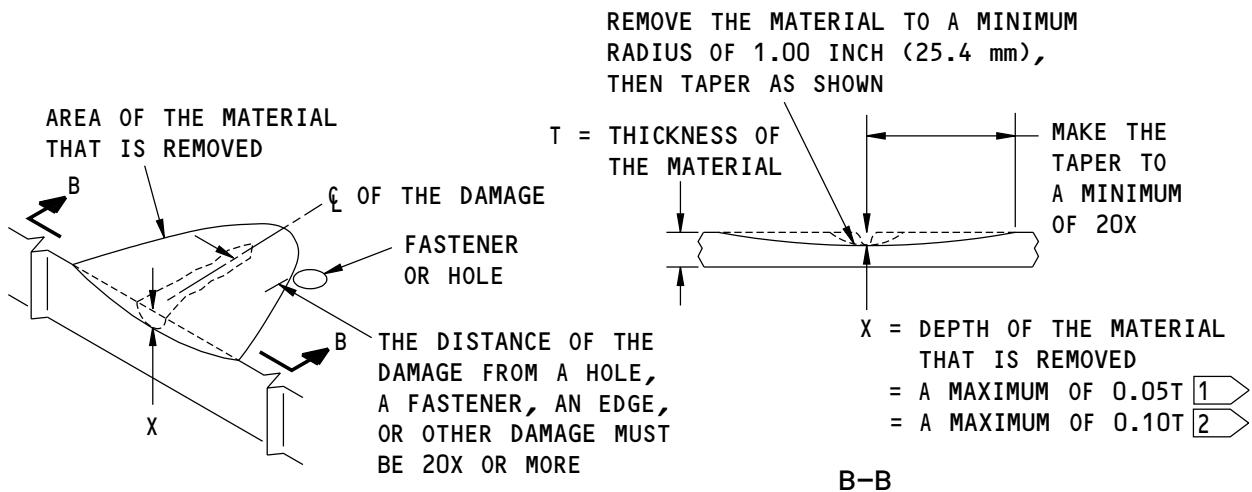
ALLOWABLE DAMAGE 1

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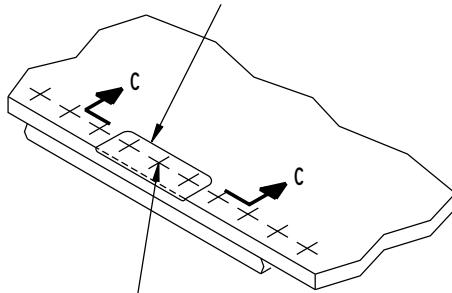
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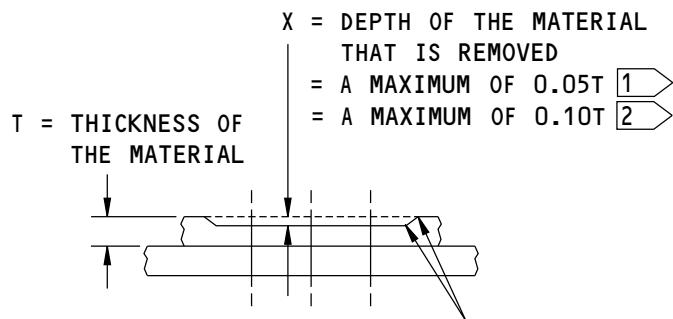
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STRUCTURAL REPAIR MANUAL**

REMOVAL OF DAMAGED MATERIAL ON A SURFACE
E

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE
F


C-C

400575 S0000137873_V1

Allowable Damage Limits
Figure 104 (Sheet 3 of 4)

52-30-02

ALLOWABLE DAMAGE 1

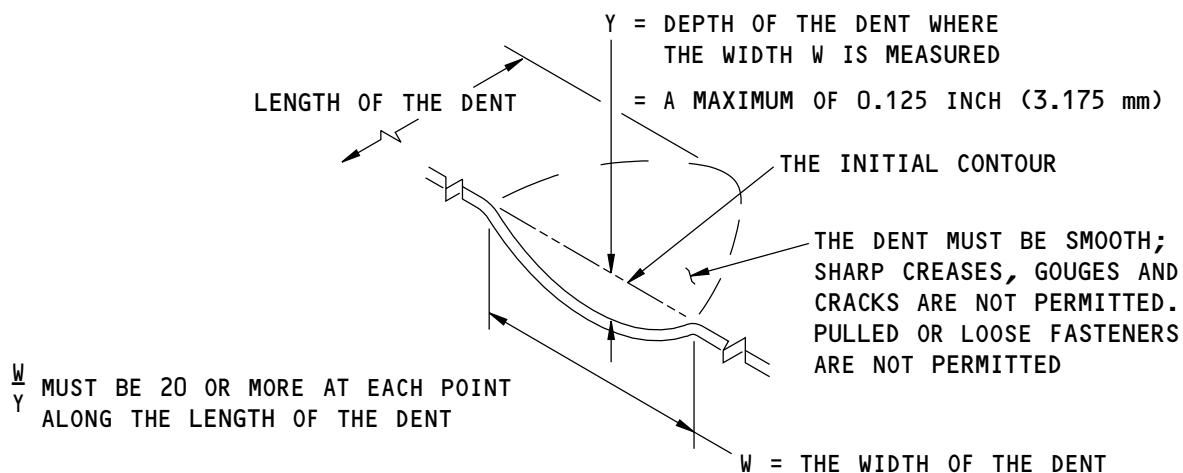
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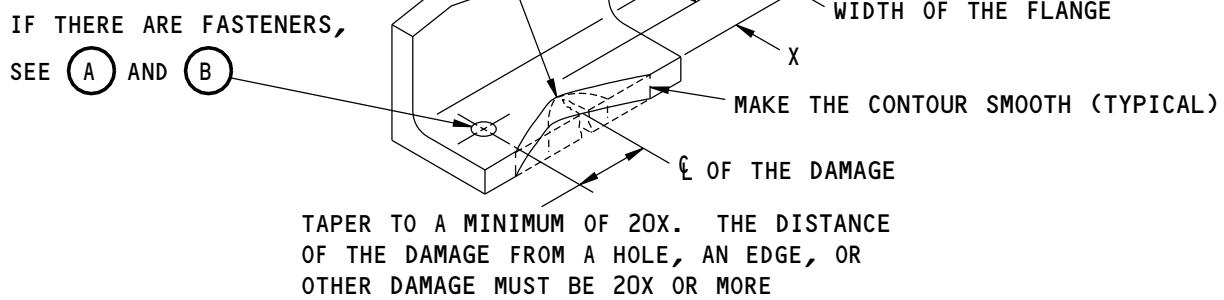
737-800
STRUCTURAL REPAIR MANUAL



DENT THAT IS PERMITTED



REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN



X = WIDTH OF THE MATERIAL REMOVED
= 10 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.10 INCH (2.54 mm), THAT WHICH IS LESS [1]
= A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.15 INCH (3.8 mm), THAT WHICH IS LESS [2]

REMOVAL OF DAMAGED MATERIAL AT AN EDGE



400576 S0000137874_V1

Allowable Damage Limits
Figure 104 (Sheet 4 of 4)

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ALLOWABLE DAMAGE 1

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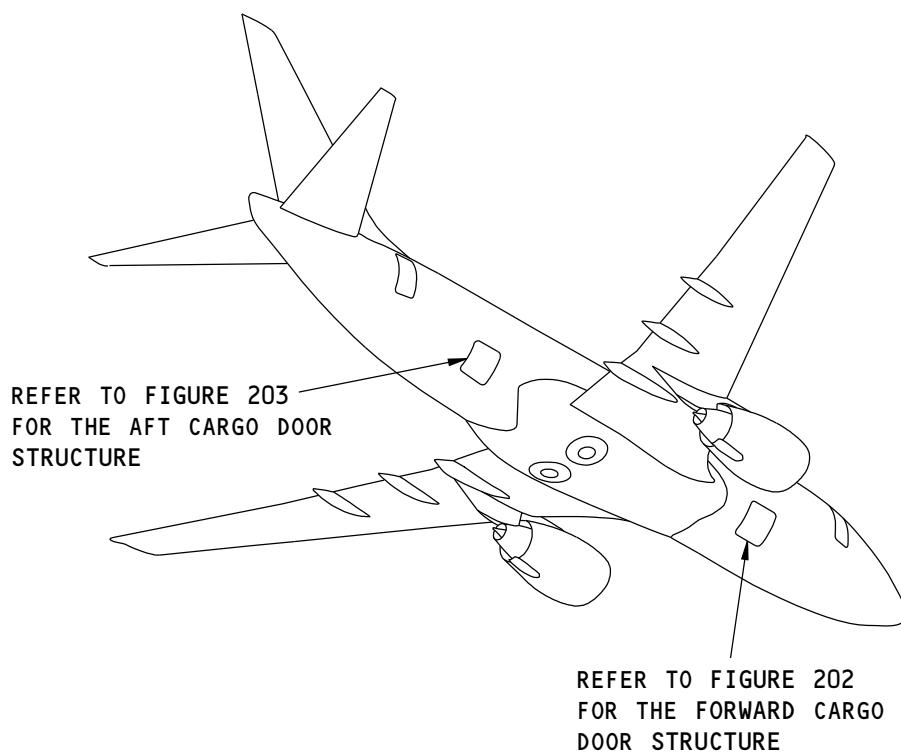
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STRUCTURAL REPAIR MANUAL
REPAIR 1 - CARGO DOOR STRUCTURE

1. Applicability

- A. Repair 1 is applicable to damage to the cargo door structure shown in Cargo Door Location, Figure 201/REPAIR 1, Forward Cargo Door Structure, Figure 202/REPAIR 1 and Aft Cargo Door Structure, Figure 203/REPAIR 1.



Cargo Door Location
Figure 201

F96627 S0006586904_V1

52-30-02

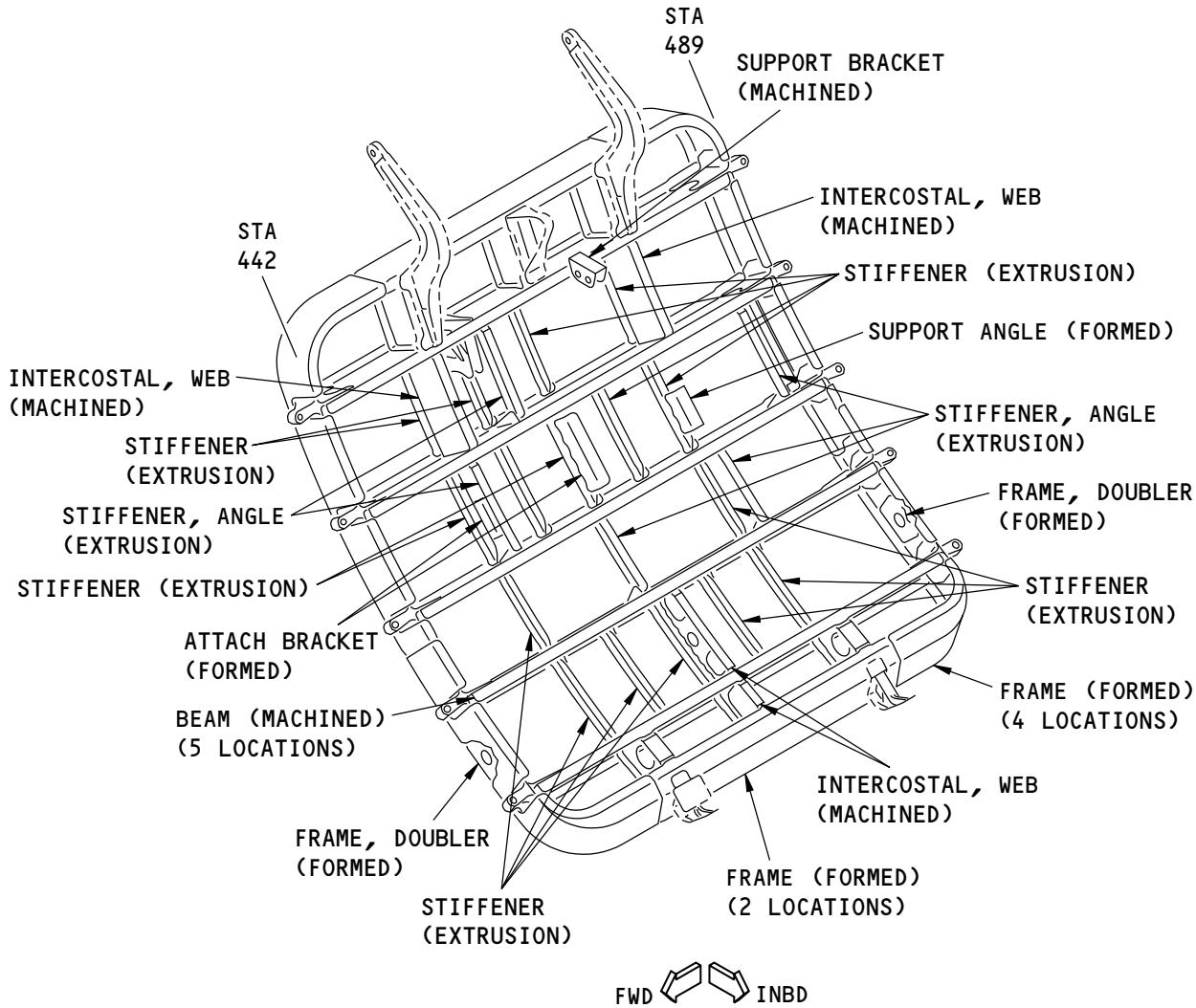
REPAIR 1
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**NOTES**

- REFER TO SRM 52-30-90 FOR THE REPAIR OF THE CARGO DOOR FITTINGS.
- ALL PARTS ARE MADE FROM ALUMINUM.

F96668 S0006586905_V1

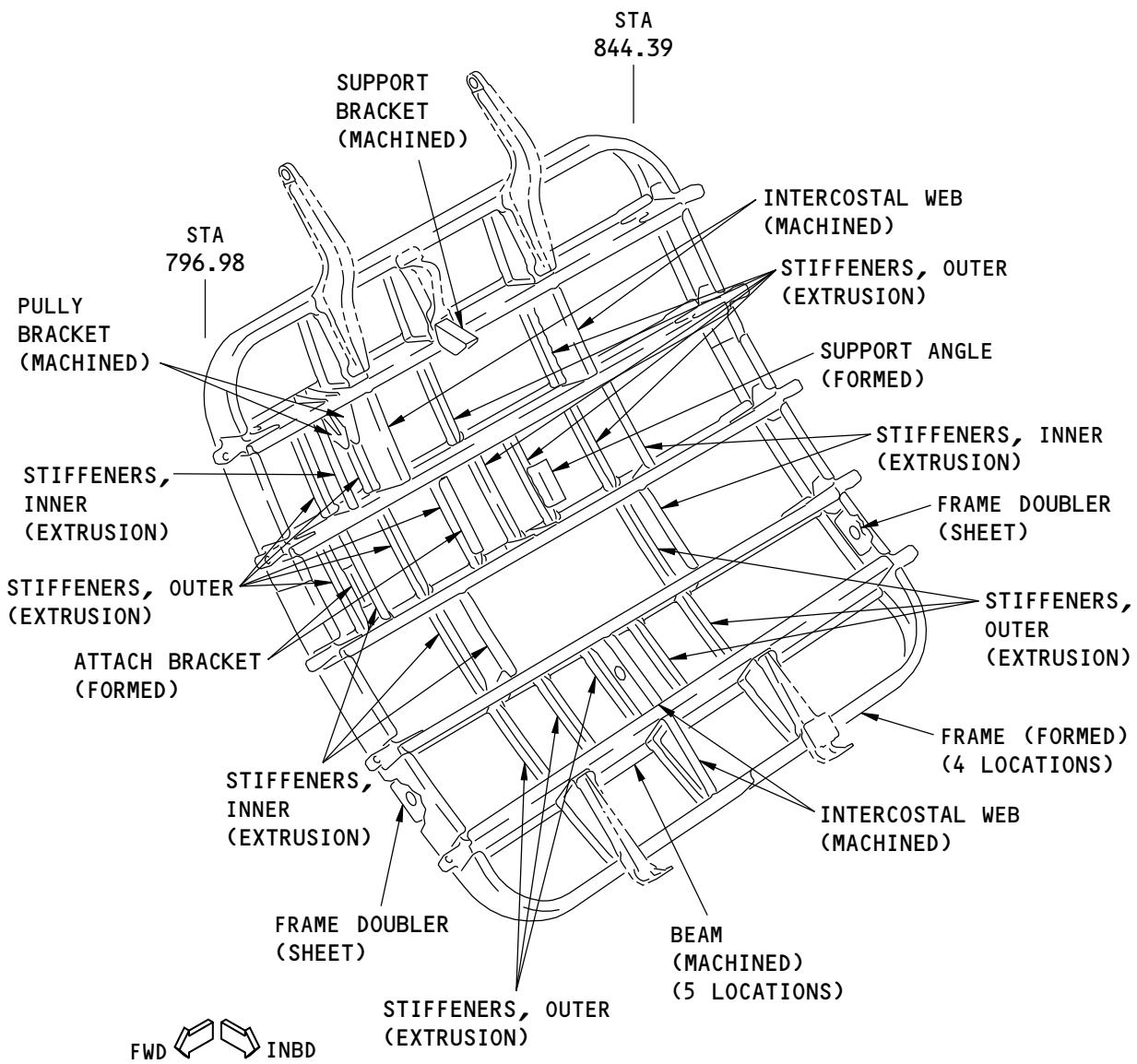
Forward Cargo Door Structure
Figure 202

52-30-02

REPAIR 1
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NOTES

- REFER TO SRM 52-30-90 FOR THE REPAIR OF THE CARGO DOOR FITTINGS.
- ALL PARTS ARE MADE FROM ALUMINUM.

K65058 S0006586906_V1

**Aft Cargo Door Structure
Figure 203**

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2. General

- A. The typical repairs given in 51-70-11 and 51-70-12 can be used when applicable if there is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 51-70-11 and 51-70-12 before you start a repair.

3. References

Reference	Title
51-70-11	TYPICAL FORMED SECTION REPAIRS
51-70-12	EXTRUDED SECTION REPAIRS
52-30-02	CARGO DOOR STRUCTURE

4. Repair Instructions

- A. Refer to Cargo Door Location, Figure 201/REPAIR 1, Forward Cargo Door Structure, Figure 202/REPAIR 1, Aft Cargo Door Structure, Figure 203/REPAIR 1, and Table 201 to find the applicable repair for the part you want to repair.

NOTE: If necessary, refer to 52-30-02, Identification 1 to find the material and the process that was used to make the part which you want to repair.

Table 201:

REPAIR REFERENCES FOR THE FORWARD CARGO DOOR STRUCTURE	
COMPONENT	REPAIR
Attach Bracket (formed)	Refer to SRM 51-70-11
Beam (machined plate)	There are no repairs for the Beam structure in the Structural Repair Manual at this time.
Frame (sheet)	Refer to SRM 51-70-11
Frame, Doubler (sheet)	Refer to SRM 51-70-11
Intercostal, Web (machined plate)	There are no repairs for the Intercostal or Web structure in the Structural Repair Manual at this time.
Pulley Bracket (machined plate)	There are no repairs for the Pulley Bracket structure in the Structural Repair Manual at this time.
Stiffener (extrusion)	Refer to SRM 51-70-12
Stiffener, Angle (extrusion)	Refer to SRM 51-70-12
Support, Angle (formed)	Refer to SRM 51-70-11

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REPAIR 1
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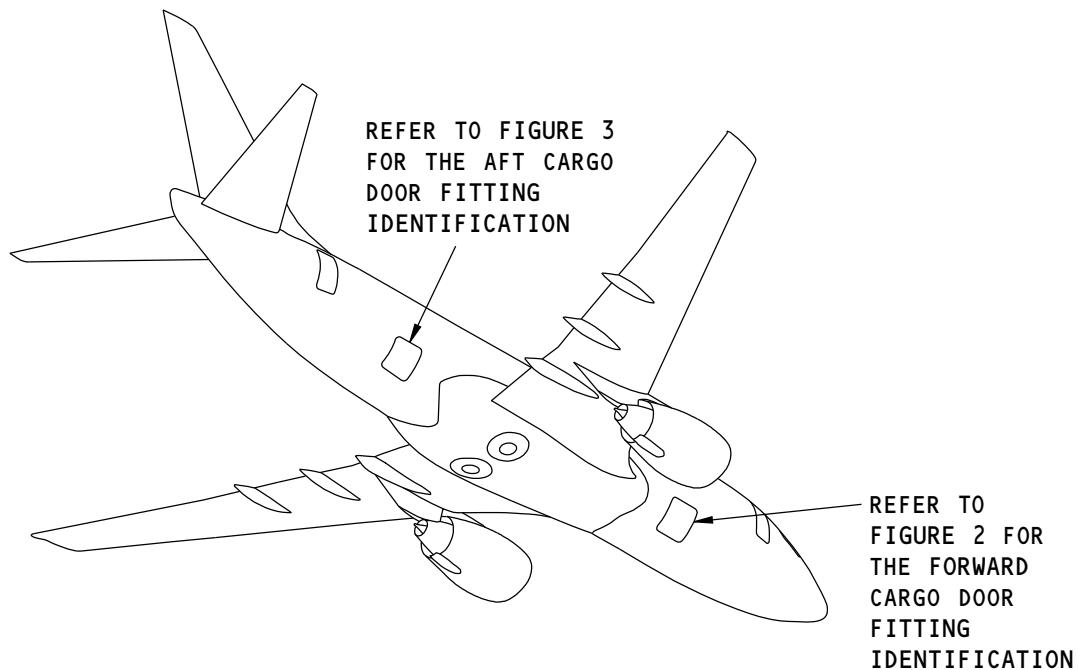
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IDENTIFICATION 1 - CARGO DOOR STRUCTURE FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Cargo Door Locations

Figure 1

Table 1:

F86358 S0006586918_V1

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
140A0050	Functional Collector - Forward Cargo Door
140A0060	Functional Collector - Forward Cargo Door
143A6100	Door Installation - Forward Cargo Door
143A6103	Hinge Arm Assembly - Forward Cargo Door
143A6110	Door Assembly - Forward Cargo Door
143A6117	Beam Assemblies - Forward Cargo Door
143A6126	Bearing Housing, Latch Torque Tube - Forward Cargo Door

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Table 1: (Continued)

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
143A6128	Stop Fitting Assemblies, Lower Frame
143A6134	Fitting - Door Snubber, Forward Cargo Door
143A6135	Hinge Support Fittings - Details, Forward Cargo Door
146A6100	Door Installation - Forward Cargo Door
146A6103	Hinge Arm Assembly - Aft Cargo Door
146A6110	Door Assembly - Aft Cargo Door
146A6117	Beam Assemblies - Aft Cargo Door
146A6120	Door Stop Assemblies - Forging
65-2306	Housing Assembly, Door Camshaft

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IDENTIFICATION 1

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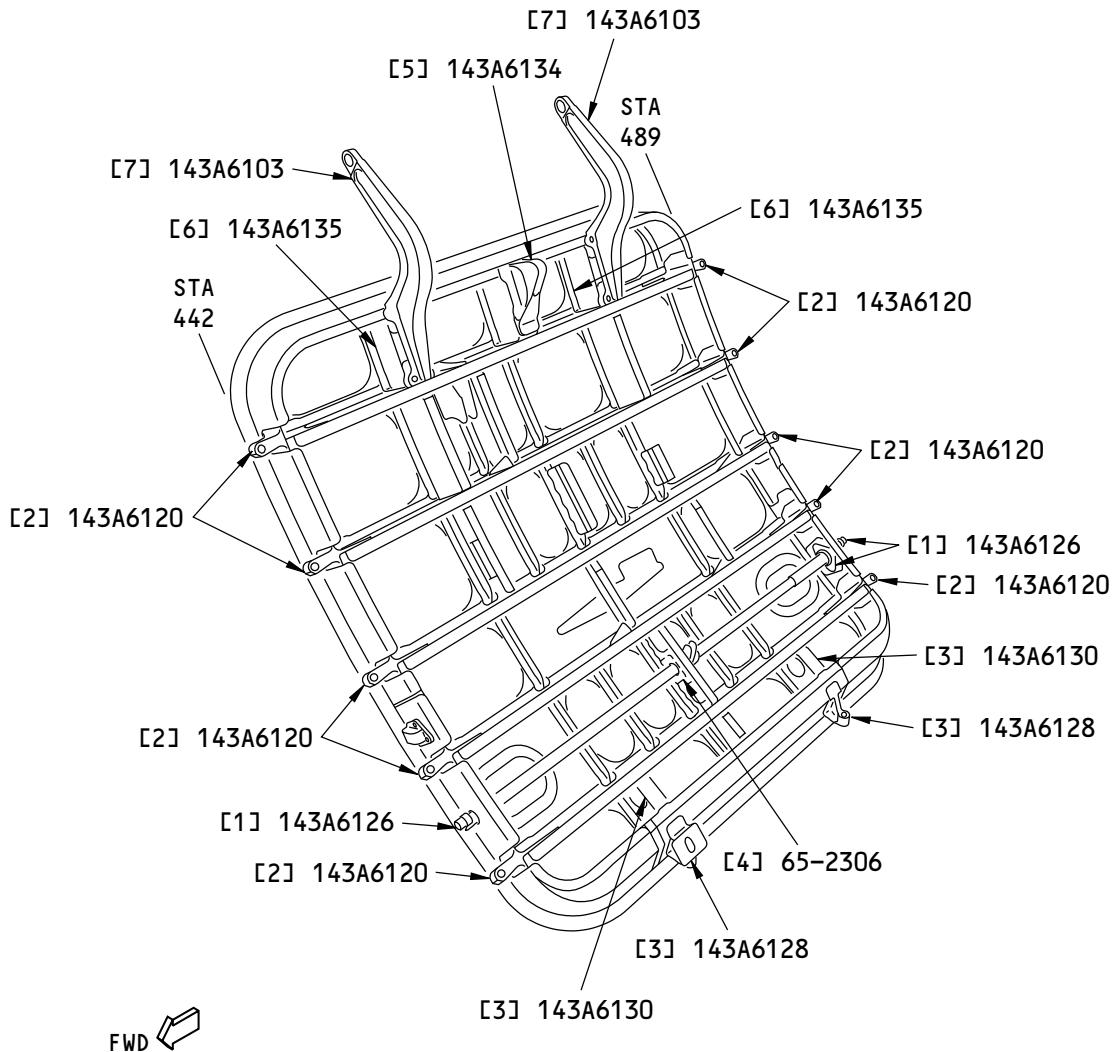
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F87056 S0006586920_V1

Forward Cargo Door Structure Fitting Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Bearing Housing		7050-T7451 plate. Refer to the engineering drawing for the machined thicknesses	
[2]	Stop Fitting		7075-T73 die forging. Refer to the engineering drawing for the machined thicknesses	
[3]	Stop Fitting		7050-T7451 plate. Refer to the engineering drawings for the machined thicknesses	
[8]	Housing		A356-T6 aluminum casting, COMP 3 (Optional: 356-T6 COMP 8)	
[5]	Support Fitting		7050-T7451 plate as given in BMS 7-323, Type I. Refer to the engineering drawing for the machined thicknesses	
[6]	Support Fitting		7050-T7451 plate as given in BMS 7-323, Type I. Refer to the engineering drawing for the machined thicknesses	
[7]	Hinge Arm Fitting		7075-T73 die forging, as given in BMS 7-186	

*[1] Note: T = Pre-manufactured thicknesses in inches (millimeters).

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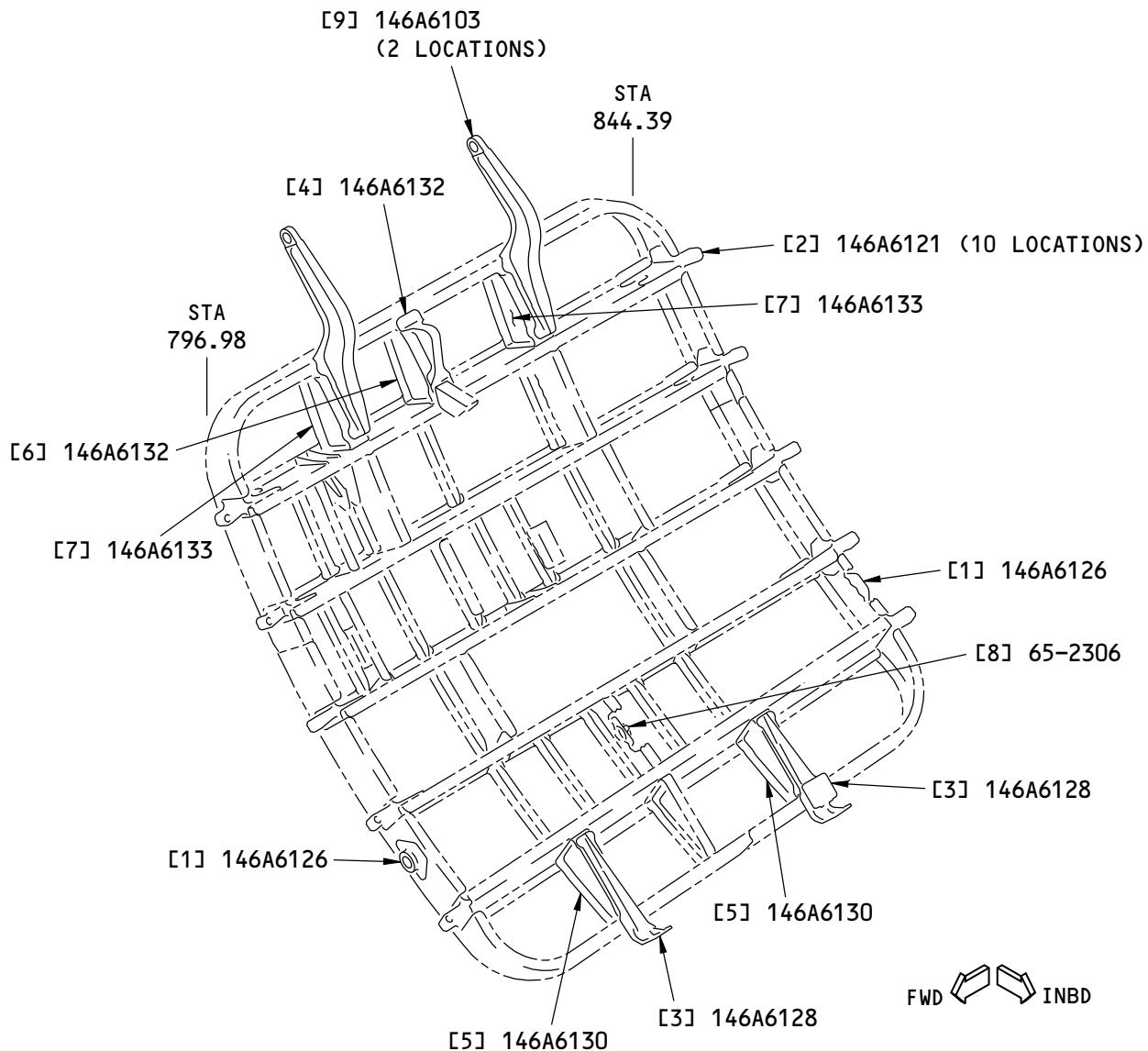
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NOTE: REFER TO TABLE 3 FOR THE LIST OF MATERIALS.

K65955 S0006586922_V1

Aft Cargo Door Structure Fittings Identification
Figure 3

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Table 3:

LIST OF MATERIALS FOR FIGURE 3					
ITEM	DESCRIPTION		T ^[1]	MATERIAL	EFFECTIVITY
[1]	Bearing Housing			7050-T7451 aluminum plate. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	
[2]	Stop Forging			7075-T73 aluminum die forging as given in BMS 7-186. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	
[3]	Stop Fitting			7050-T7451 aluminum plate. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	
[4]	Attachment Fitting, Snubber			7050-T7451 aluminum plate, Type I as given in BMS 7-323. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	
[5]	Support Fitting			7050-T7451 aluminum plate. Refer to the engineering drawing for the machined thicknesses	
[6]	Support Fitting, Snubber			7050-T7451 aluminum plate, Type I as given in BMS 7-323. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	
[7]	Support Fitting			7050-T7451 aluminum plate, Type I as given in BMS 7-323. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	
[8]	Housing			356-T6 aluminum casting as given in QQ-A-601 COMP 3 (Optional: 356-T6 aluminum casting as given in QQ-A-596 COMP 8)	
[9]	Hinge Arm Fitting			7075-T73 precision die forging as given in BMS 7-186. Grain direction controlled part. Refer to the engineering drawing for the machined thicknesses	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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GENERAL - SERVICE DOORS

1. General

- A. The door location diagram gives you the reference system to find the service and access doors (forward access door, equipment access door, external/power receptacle door, toilet and water service doors, ground air conditioning access door, access and blowout door, auxiliary power unit access door, tailcone access door). Refer to Service Door Location Diagram, Figure 1/GENERAL.
- B. All of the major structural components are located and identified by the use of detailed illustrations with related material lists.
- C. The allowable damage to the doors is given in each specified door subject that follows in this chapter.
- D. The permitted repairs with illustrations are given in this chapter.

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GENERAL
Page 1

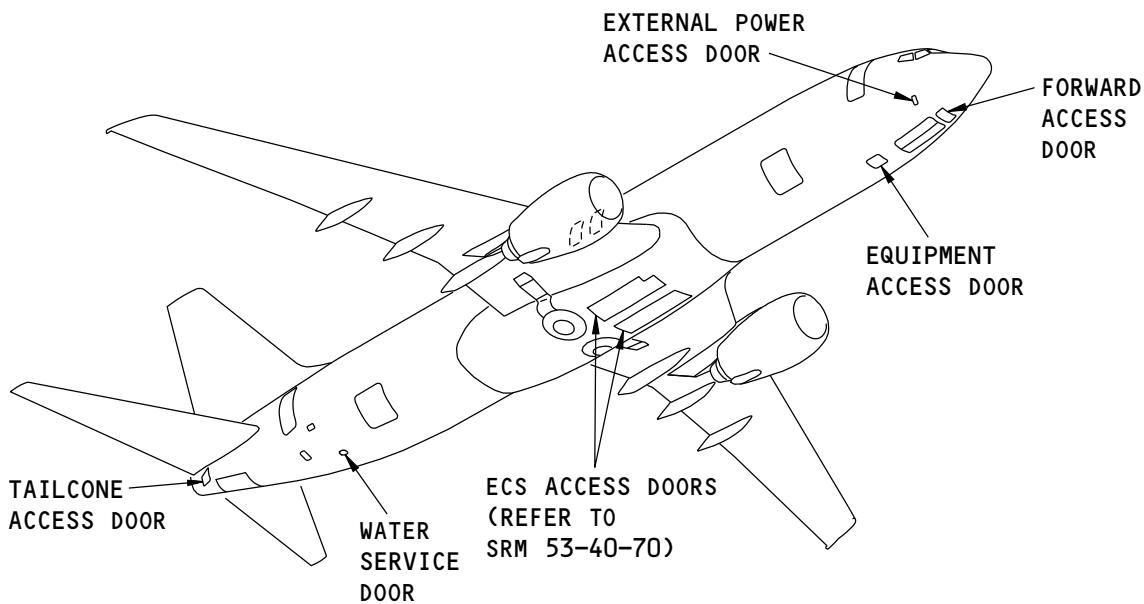
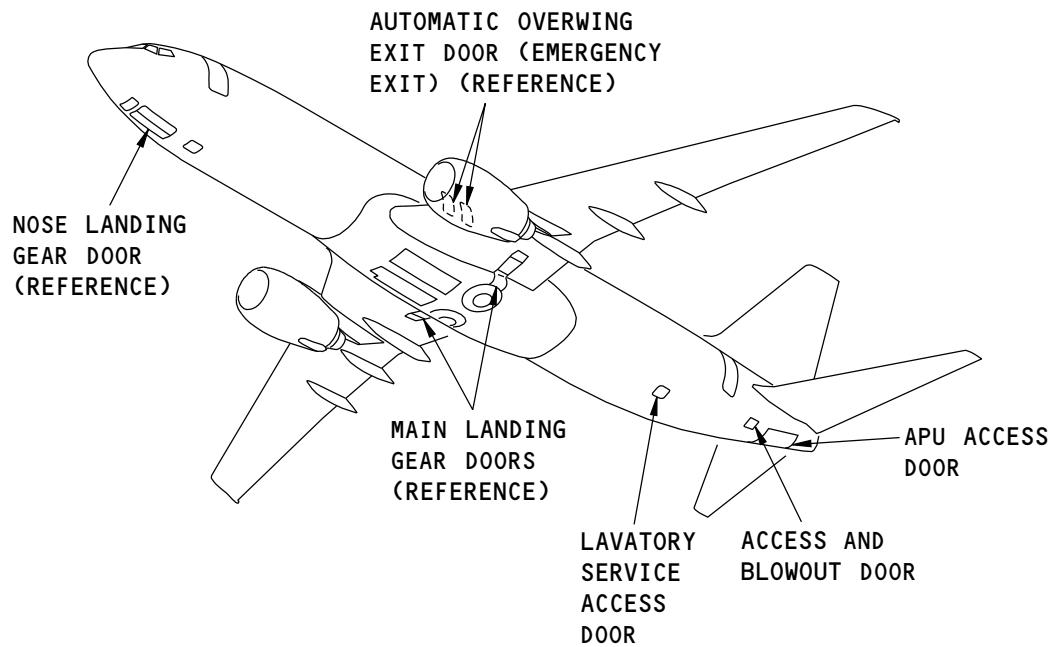
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H57791 S0006586969_V1

Service Door Location Diagram
Figure 1

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GENERAL
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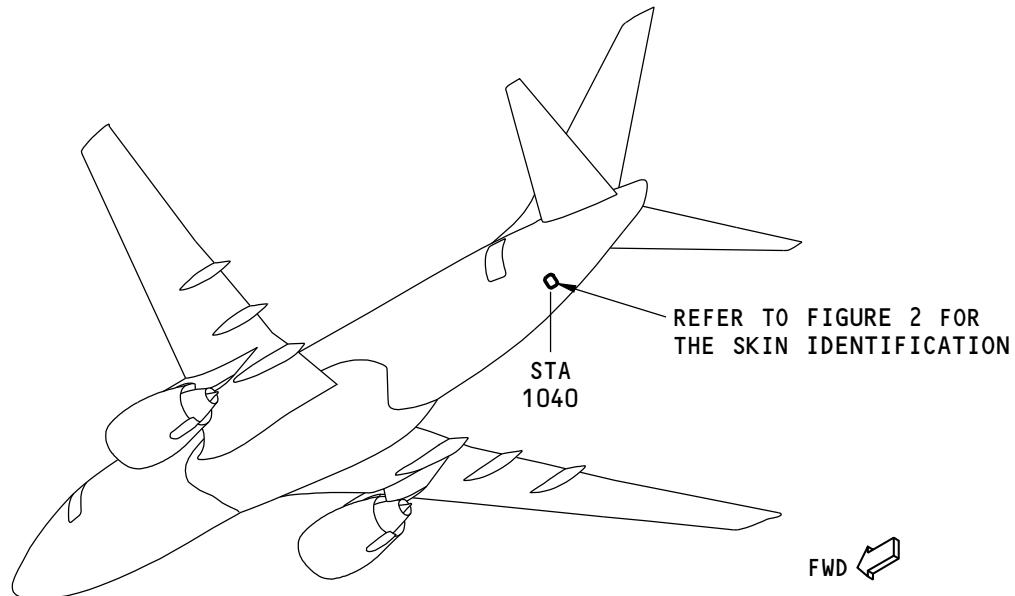
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IDENTIFICATION 1 - ACCESS AND BLOWOUT DOOR SKIN



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

F72856 S0006586973_V1

Access and Blowout Door Skin Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
148A6100	Access and Blowout Door Installation
148A6110	Access and Blowout Door Assembly

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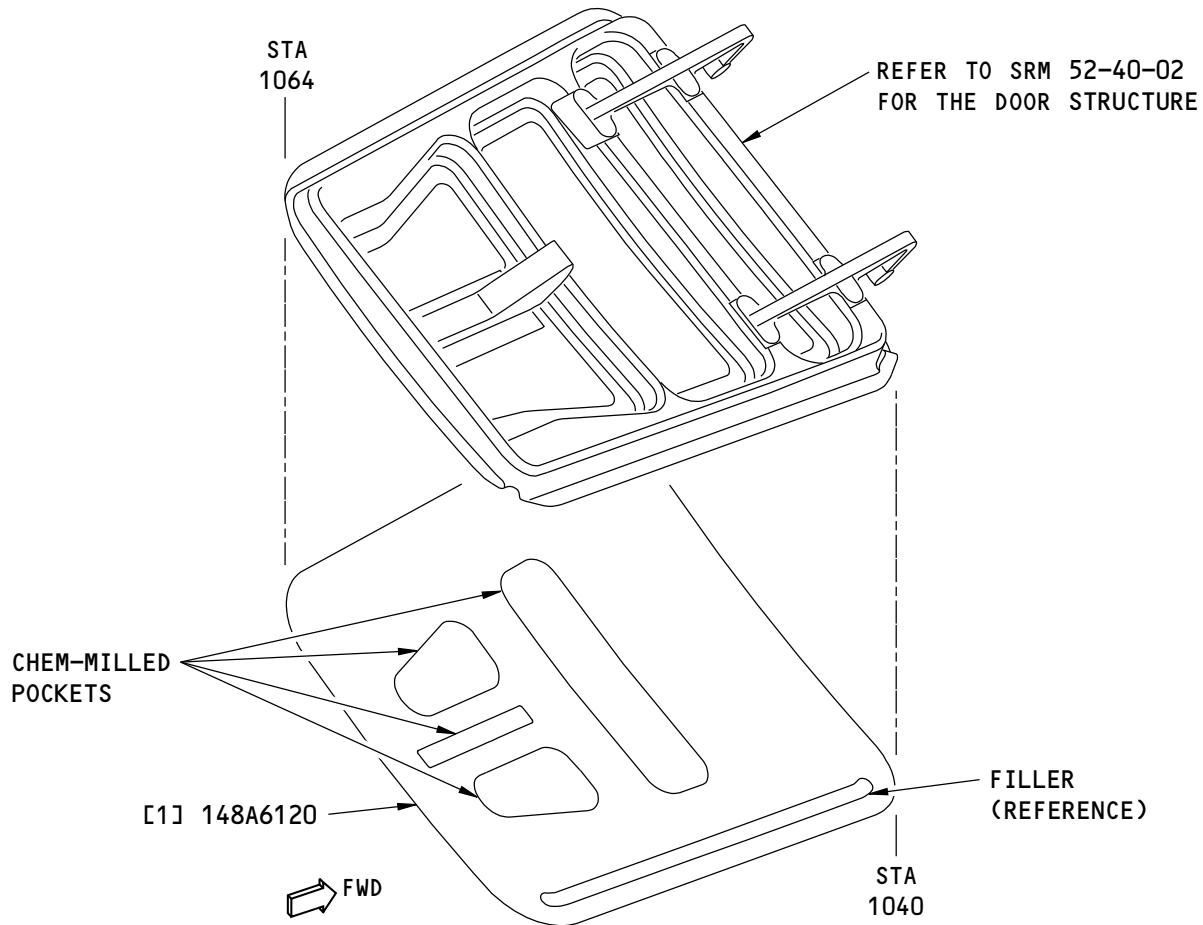
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS (FOR AIRPLANES WITH A DOMED AFT PRESSURE BULKHEAD).

2279049 S0000514528_V1

Access and Blowout Door Skin Identification
Figure 2 (Sheet 1 of 2)

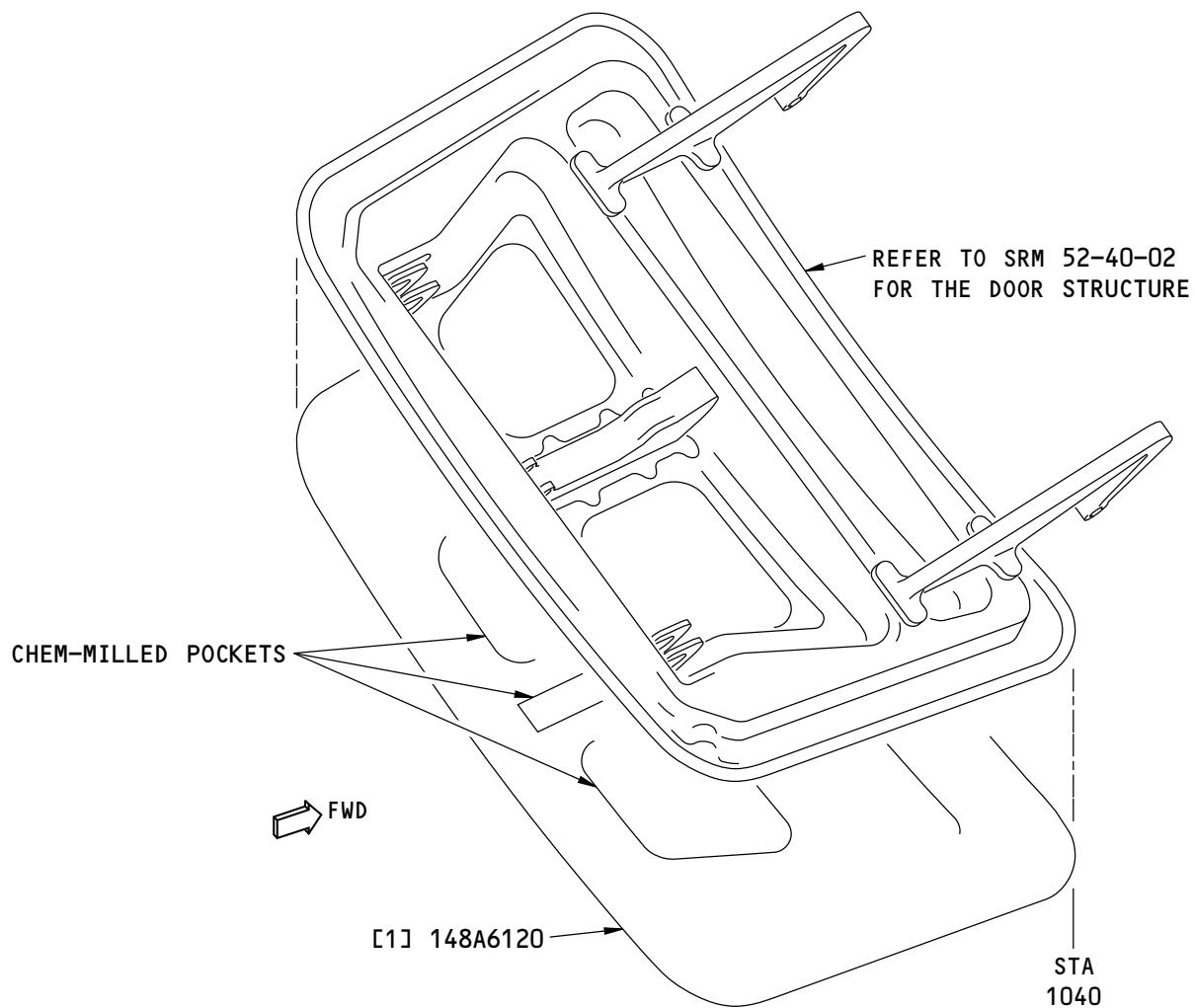
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS (FOR AIRPLANES WITH A FLAT AFT PRESSURE BULKHEAD).

2279050 S0000514527_V1

Access and Blowout Door Skin Identification

Figure 2 (Sheet 2 of 2)

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T*[1]	MATERIAL	EFFECTIVITY
[1]	Skin	0.071 (1.803)	7075-T6 clad sheet. The thickness in the chem-milled pockets is 0.050 inch (1.270 mm). Refer to Figure 2 (Sheet 1).	Airplanes with a domed aft pressure bulkhead.
[1]	Skin	0.1 (2.5)	7075-T6 clad sheet. The thickness in the chem-milled pockets is 0.050 inch (1.270 mm). Refer to Figure 2 (Sheet 2).	Airplanes with a flat aft pressure bulkhead.

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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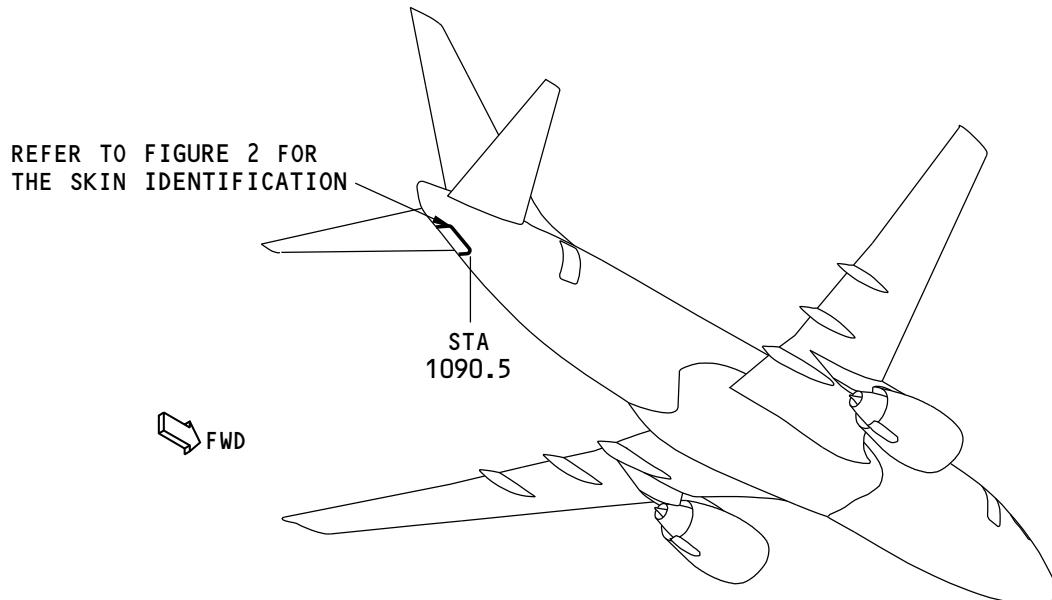
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IDENTIFICATION 2 - APU ACCESS DOOR SKIN



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

F71985 S0006586978_V1

APU Access Door Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
148A6350	APU Access Door Installation
148A6350	APU Access Door Assembly

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IDENTIFICATION 2

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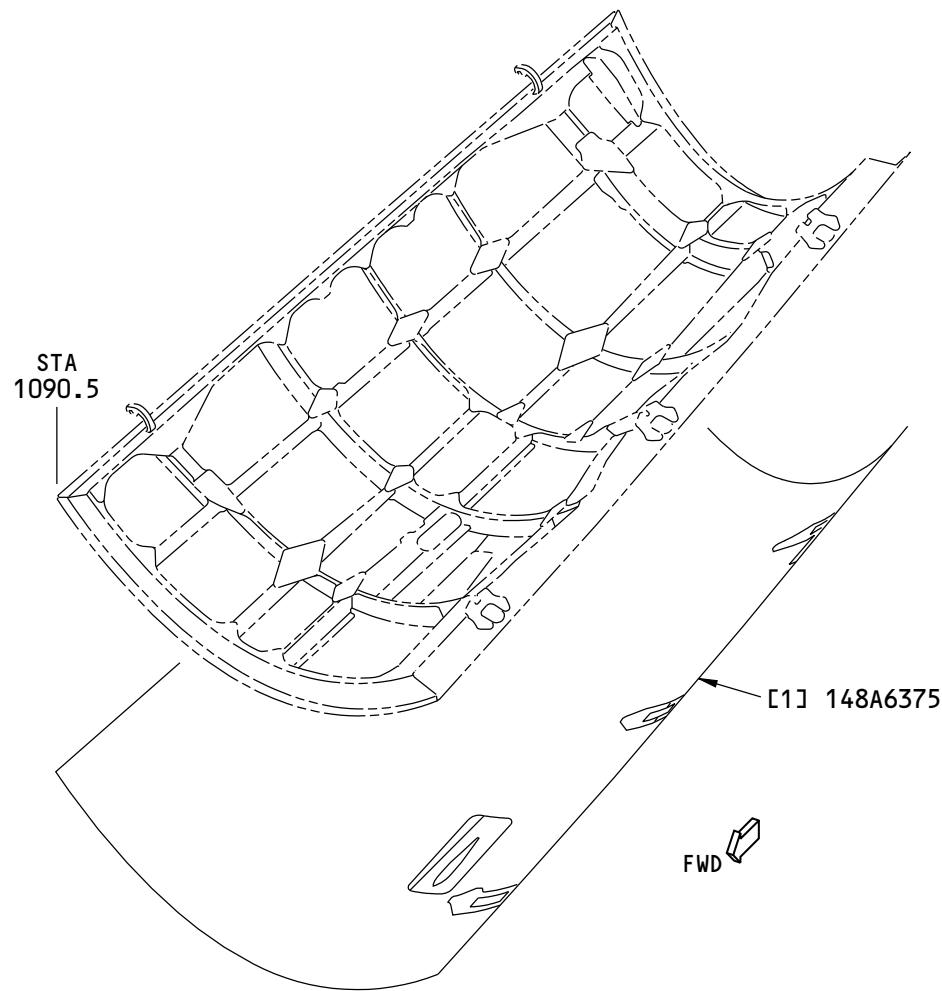
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F71991 S0006586980_V1

APU Access Door Skin Identification

Figure 2

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T*[1]	MATERIAL	EFFECTIVITY
[1]	Skin	0.100 (2.54)	2024-T3 clad sheet that is chem-milled to a thickness of 0.032 inch (0.81 mm) in the pocket areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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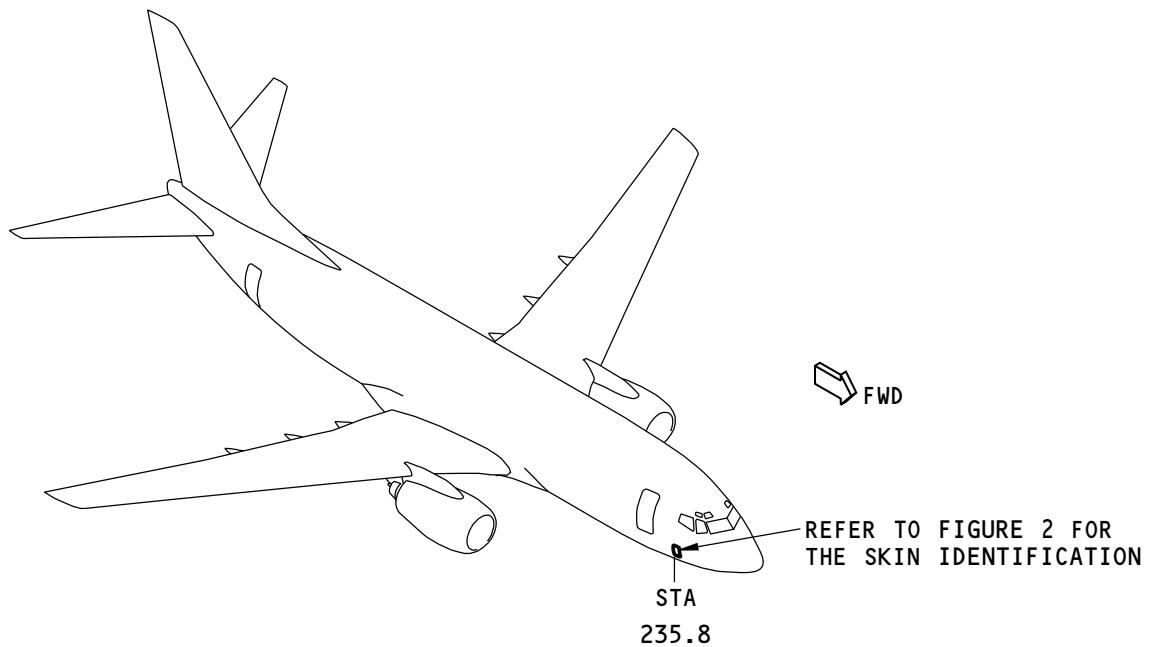
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IDENTIFICATION 3 - EXTERNAL POWER ACCESS DOOR SKIN



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

F72864 S0006586983_V1

External Power Access Door Skin Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A8701	External Power Access Door Installation

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IDENTIFICATION 3

Page 1

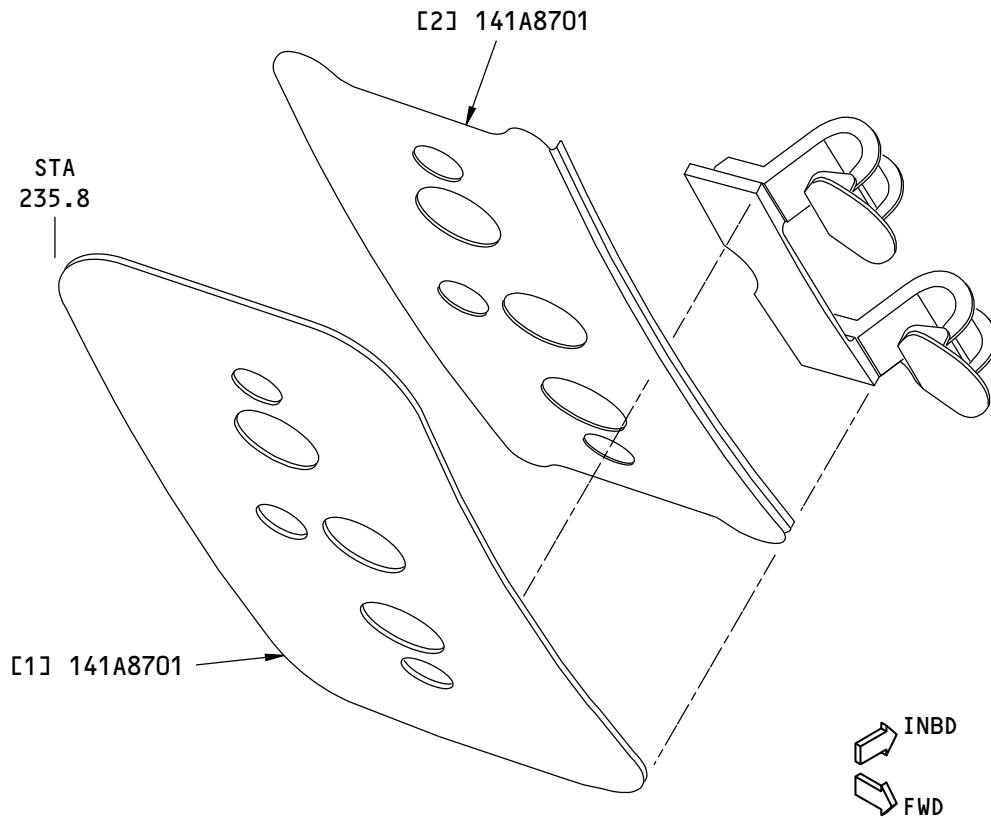
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F72867 S0006586985_V1

External Power Access Door Skin Identification

Figure 2

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T*[1]	MATERIAL	EFFECTIVITY
[1]	Skin	0.071 (1.80)	2024-T3 clad sheet that is chem-milled to a thickness of 0.032 inch (0.81 mm) in the pocket areas	
[2]	Doubler	0.020 (0.51)	2024-T42 clad sheet (Optional: 2024-T3 BAC1493-893 that is 12 inches (304.8 mm) in length)	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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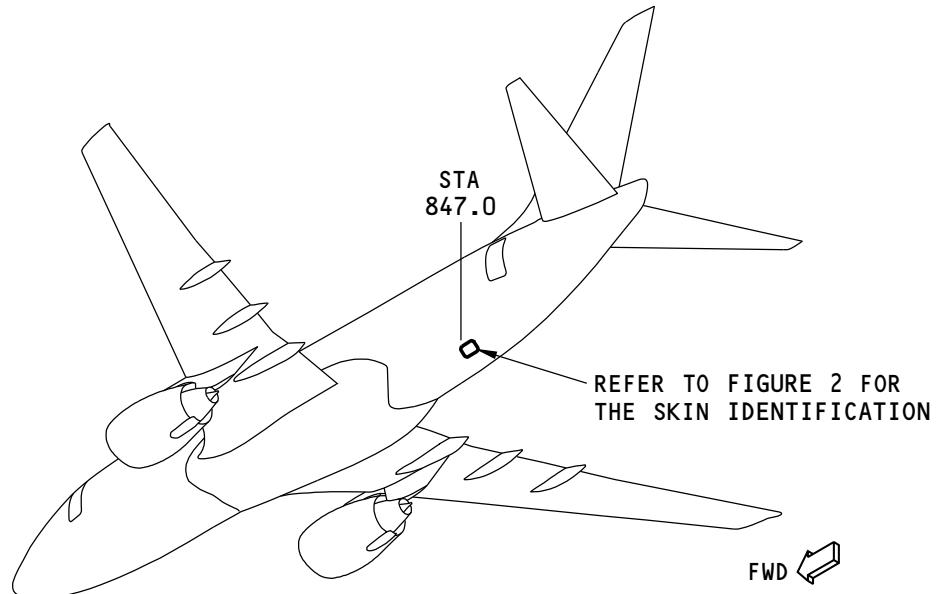
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IDENTIFICATION 4 - LAVATORY SERVICE ACCESS DOOR SKIN



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

F71749 S0006586988_V1

Lavatory Service Access Door Skin Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
146A7400	Lavatory Service Access - Pan/Door Installation
146A7410	Lavatory Service Access - Pan/Door Assembly

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IDENTIFICATION 4

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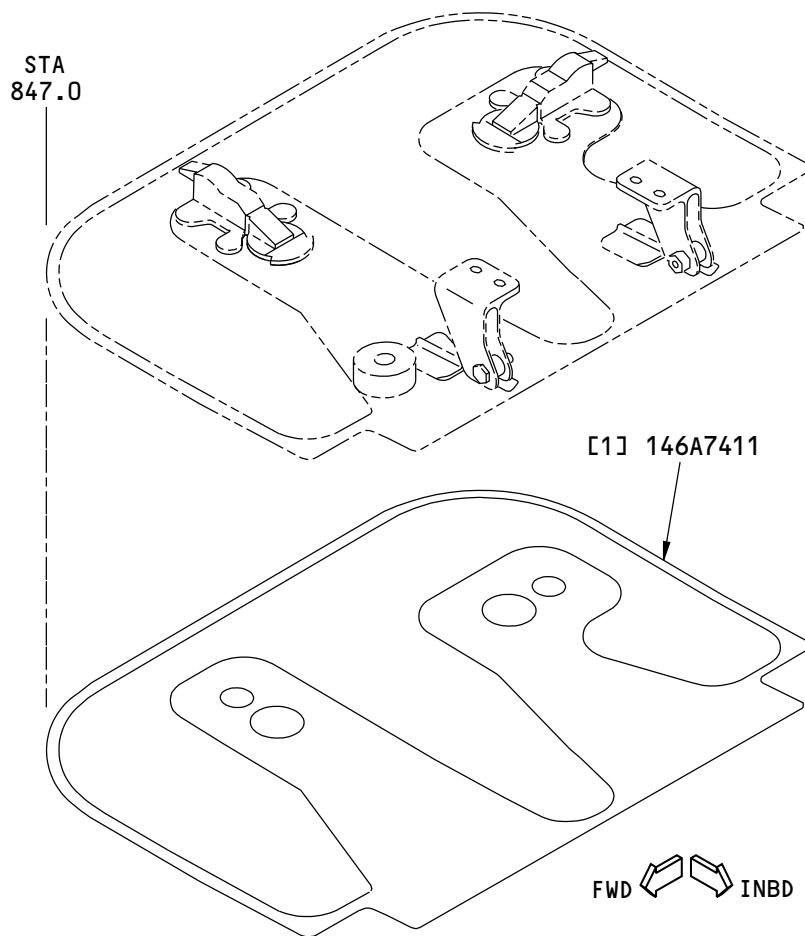
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F71967 S0006586991_V1

Lavatory Service Access Door Skin Identification

Figure 2

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T*[1]	MATERIAL	EFFECTIVITY
[1]	Door Skin	0.100 (2.54)	2024-T3 clad sheet that is chem-milled to a thickness of 0.060 inch (1.52 mm) in the pocket area	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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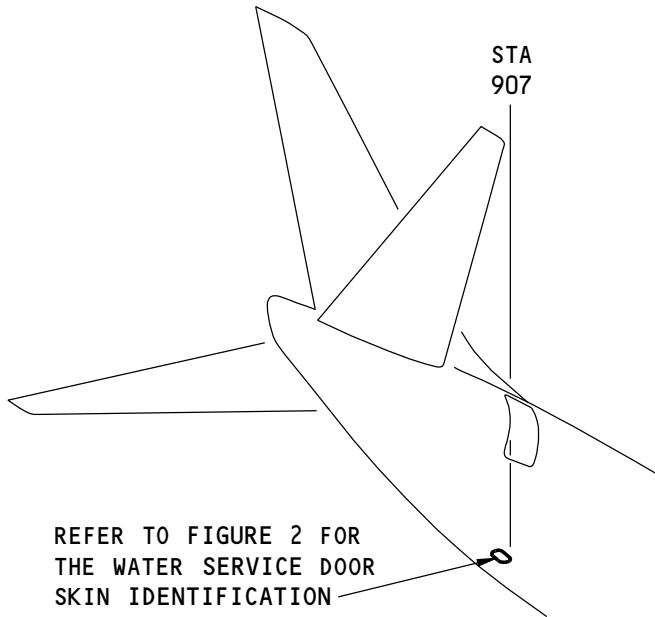
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IDENTIFICATION 5 - WATER SERVICE ACCESS DOOR SKIN



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

F72924 S0006586994_V1

Water Service Door Skin Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
147A7221	Water Service Door Installation - Section 47

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IDENTIFICATION 5

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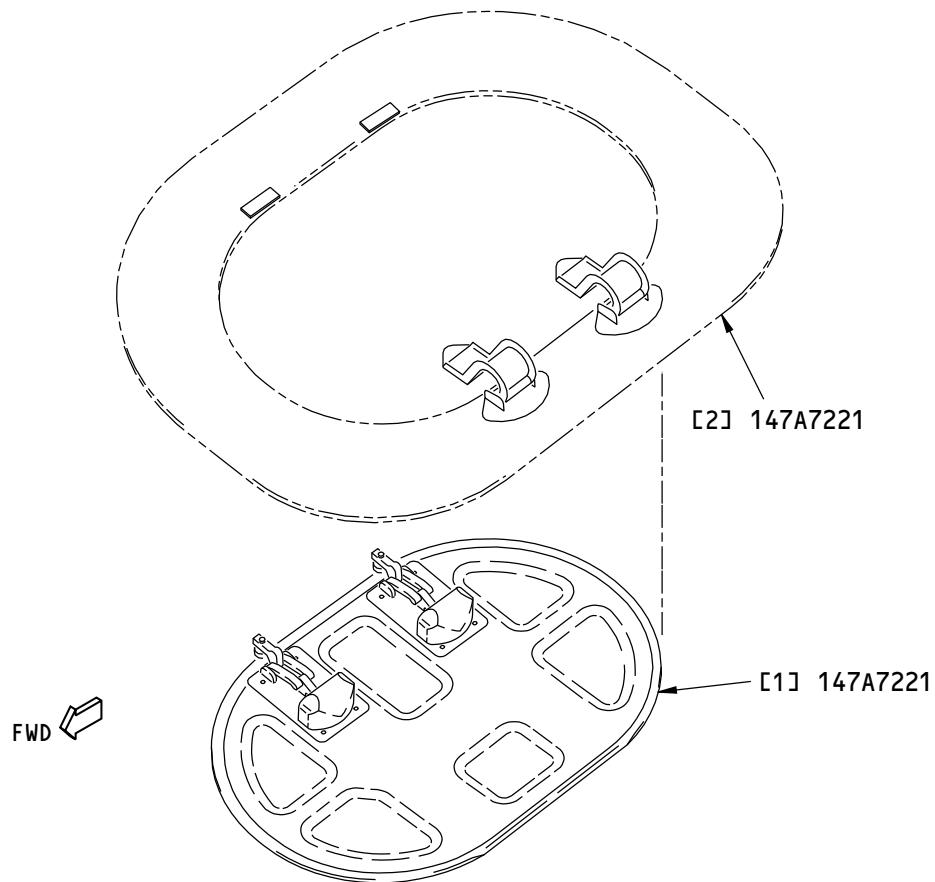
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F72923 S0006586996_V2

Water Service Door Skin Identification

Figure 2

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T*[1]	MATERIAL	EFFECTIVITY
[1]	Skin	0.140 (3.56)	2024-T3 clad sheet	
[2]	Doubler	0.080 (2.03)	2024-T3 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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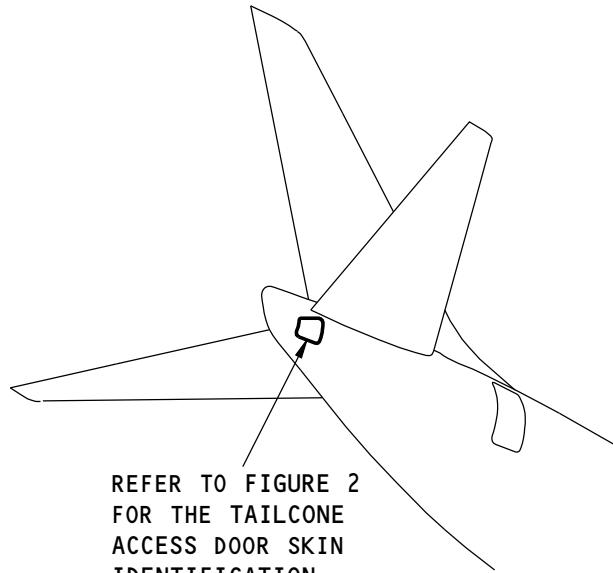
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IDENTIFICATION 6 - TAILCONE ACCESS DOOR SKIN



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

F72705 S0006586999_V1

Tailcone Access Door Skin Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
148A0971	Tailcone Integration Installation
148A7141	Tailcone Access Door Assembly and Detail

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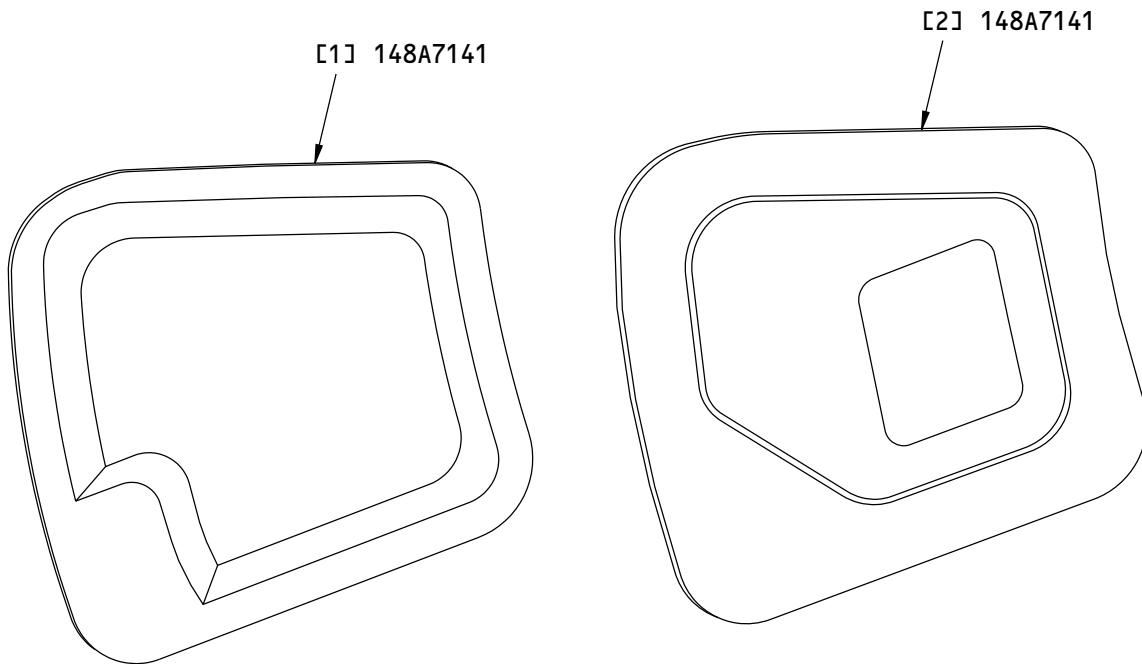
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FOR AIRPLANE LINE
NUMBERS 1 THRU 2049

FWD INBD

FOR AIRPLANE LINE
NUMBERS 2050 AND ON

NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F72676 S0006587001_V2

Tailcone Access Door Skin Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Bonded Door Assembly	0.50 (12.7)	Refer to Figure 3 Non-metallic honeycomb as given in BMS 8-124, Type V, Class IV, Grade 3.0. Refer to Figure 3 for the core ribbon direction.	Line Numbers 1 thru 2049
	Skin			Line Numbers 1 thru 2049
	Core			Line Numbers 1 thru 2049
[2]	Bonded Door Assembly		Refer to Figure 3	Line Numbers 2050 and on
	Skin			Line Numbers 2050 and on

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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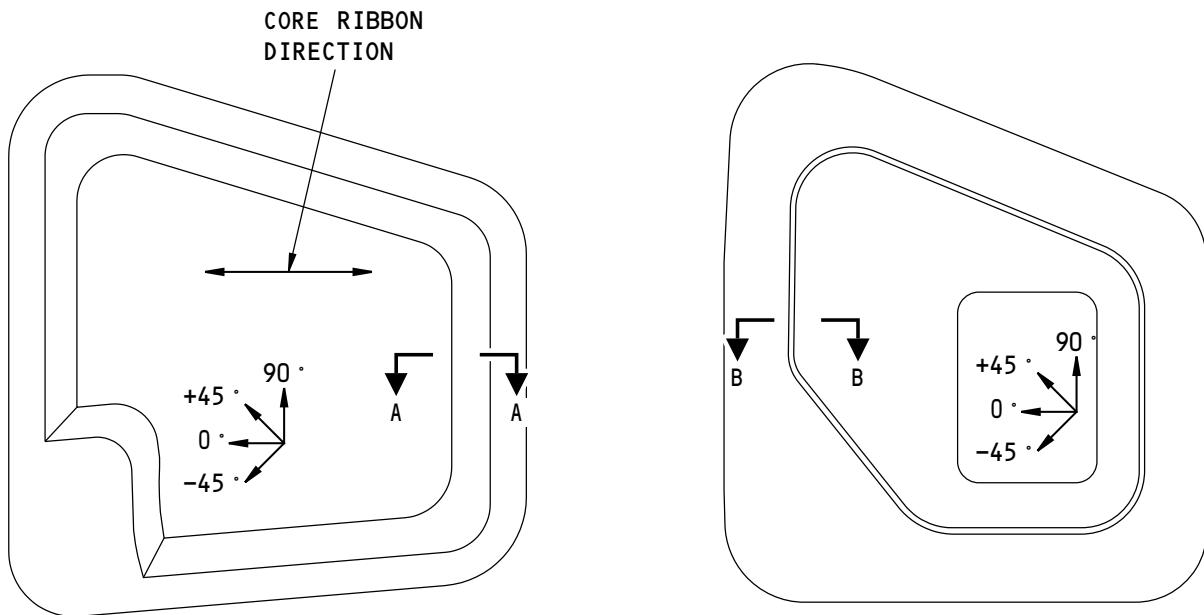
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FOR AIRPLANE LINE
NUMBERS 1 THRU 2049

FWD ←

FOR AIRPLANE LINE
NUMBERS 2050 AND ON

PLY LAYUP DIRECTION AND CORE RIBBON DIRECTION

(A)

NOTES

- THE PLY DIRECTION IS THE WARP DIRECTION OF THE FABRIC. REFER TO DETAIL A FOR THE 0 DEGREE PLY DIRECTION.
- REFER TO SECTION A-A AND SECTION B-B FOR THE PLY SEQUENCE. REFER TO THE ENGINEERING DRAWING FOR MORE INFORMATION.
- REFER TO TABLE 3 FOR THE DIRECTION AND MATERIAL OF EACH PLY.

F72717 S0006587003_V2

Ply Direction, Core Ribbon Direction, and Ply Sequence for Figure 2, Item [1] and Item [2]
Figure 3 (Sheet 1 of 2)

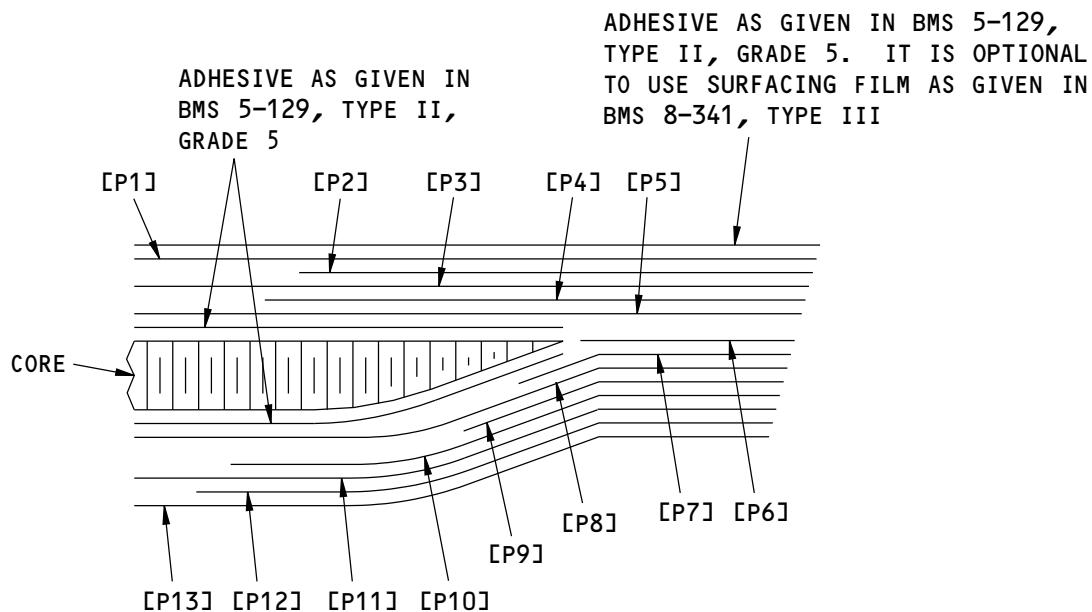
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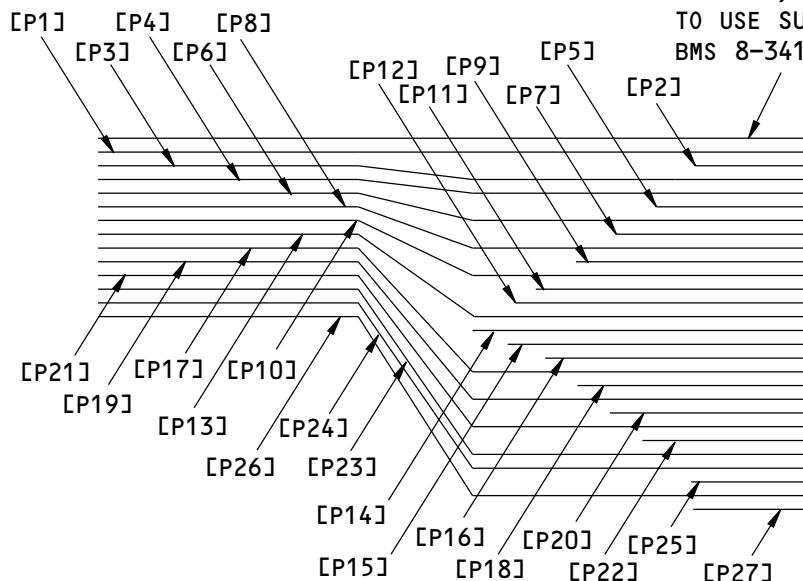


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FOR AIRPLANE LINE NUMBERS 1 THRU 2049

PLY LAYUP SEQUENCE
A-A



FOR AIRPLANE LINE NUMBERS 2050 AND ON

PLY LAYUP SEQUENCE
B-B

F72725 S0006587004_V2

Ply Direction, Core Ribbon Direction, and Ply Sequence for Figure 2, Item [1] and Item [2]
Figure 3 (Sheet 2 of 2)

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Table 3:

PLY MATERIAL AND DIRECTION FOR FIGURE 3 (For Airplane Line Numbers 1 Thru 2049)		
PLY	DIRECTION	MATERIAL
P1, P5, P8, and P13	0 or 90 degrees	Glass fiber reinforced plastic (GFRP) as given in BMS 8-79, Class III, Grade A, Style 120
P2, P6, and P12	+ or - 45 degrees	Glass fiber reinforced plastic (GFRP) as given in BMS 8-79, Class III, Grade A, Style 1581 or 7781
P4, P9, and P10	0 or 90 degrees	Glass fiber reinforced plastic (GFRP) as given in BMS 8-79, Class III, Grade A, Style 1581 or 7781
P3, P7, and P11	+ or - 45 degrees	Glass fiber reinforced plastic (GFRP) as given in BMS 8-79, Class III, Grade A, Style 120

PLY MATERIAL AND DIRECTION FOR FIGURE 3 (For Airplane Line Numbers 2050 and on)		
PLY	DIRECTION	MATERIAL
P1, P5, P8, P9, P18, P19, P22, AND P26	+ or - 45 degrees	Glass fiber reinforced plastic (GFRP) as given in BMS 8-79, Class III, Grade A, Style 120
P2, P3, P10, P17, P24, AND P25	0 or 90 degrees	Glass fiber reinforced plastic (GFRP) as given in BMS 8-79, Class III, Grade A, Style 1581 or 7781
P4, P12, P15, AND P23	+ or - 45 degrees	Glass fiber reinforced plastic (GFRP) as given in BMS 8-79, Class III, Grade A, Style 1581 or 7781
P6, P7, P11, P13, P14, P16, P20, AND P21	0 or 90 degrees	Glass fiber reinforced plastic (GFRP) as given in BMS 8-79, Class III, Grade A, Style 120

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IDENTIFICATION 6

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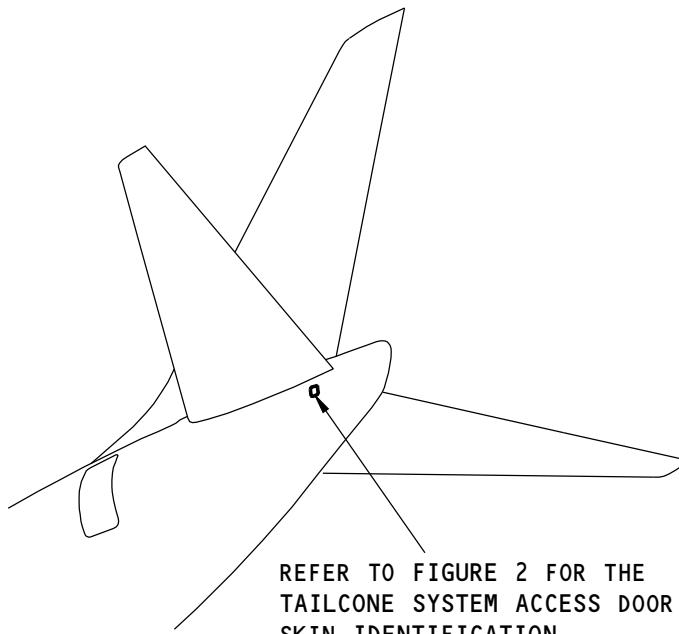
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IDENTIFICATION 7 - TAILCONE SYSTEM ACCESS DOOR SKIN



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

G77091 S0006587007_V1

Tailcone System Access Door Skin Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
140A4813	Tailcone Functional Collector
148A0971	Tailcone Integration Installation
148A7170	Access Door - Tailcone

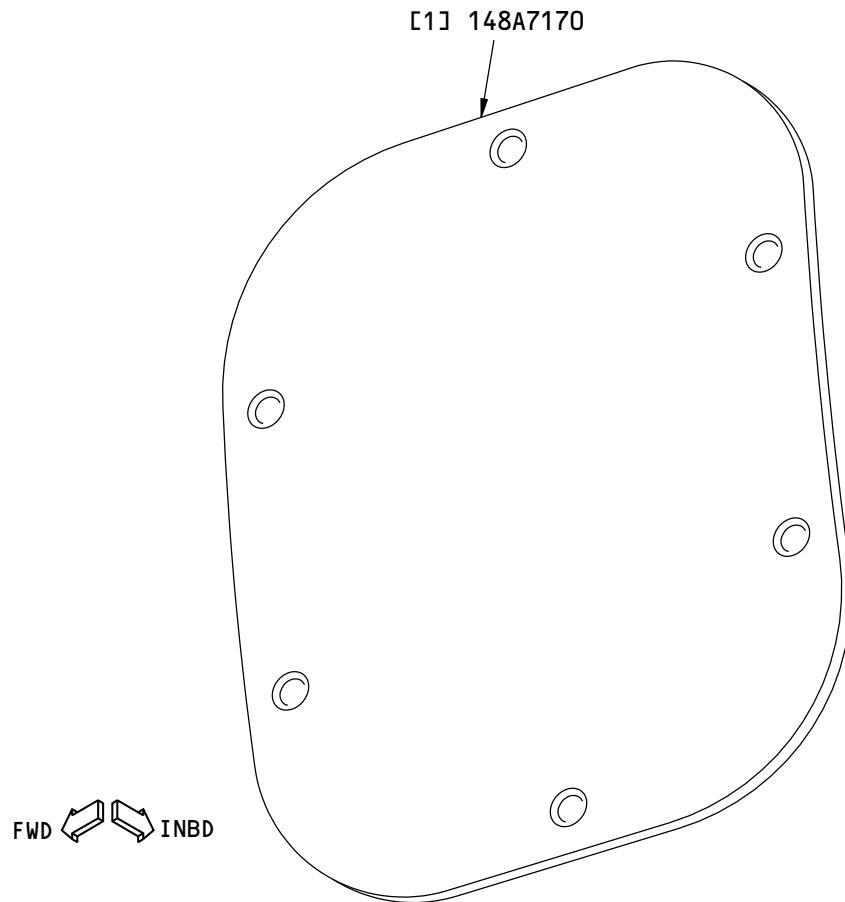
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

G77095 S0006587009_V1

Tailcone System Access Door Skin Identification
Figure 2

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Skin	0.063 (1.600)	2024-T3 clad sheet	

*[1] T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 7

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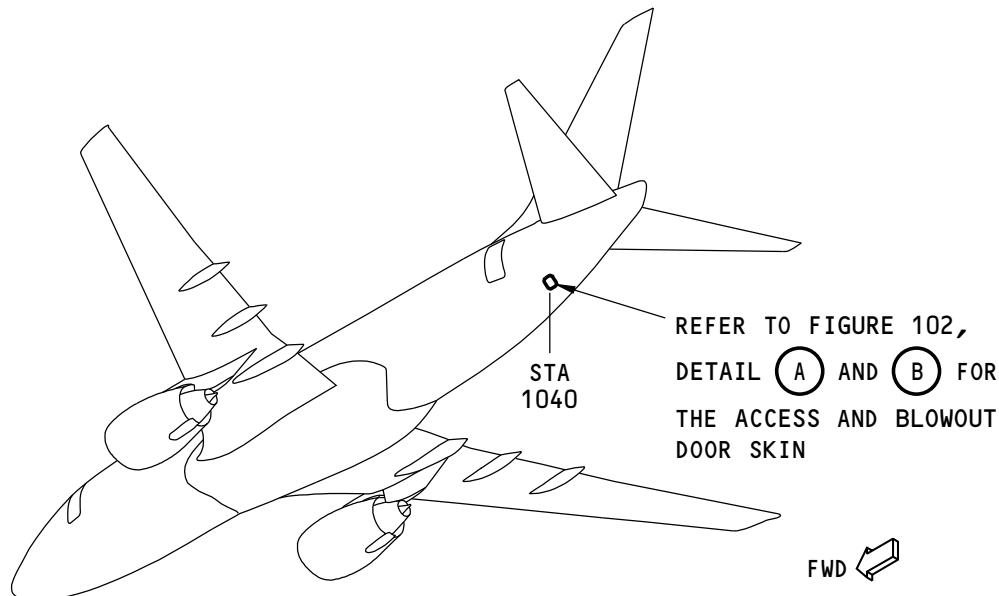


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ALLOWABLE DAMAGE 1 - ACCESS AND BLOWOUT DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the access and blowout door skin as shown in Access and Blowout Door Skin Location, Figure 101/ALLOWABLE DAMAGE 1 and Access and Blowout Door Skin, Figure 102/ALLOWABLE DAMAGE 1.



2290384 S0000518450_V1

Access and Blowout Door Skin Location
Figure 101

52-40-01

ALLOWABLE DAMAGE 1

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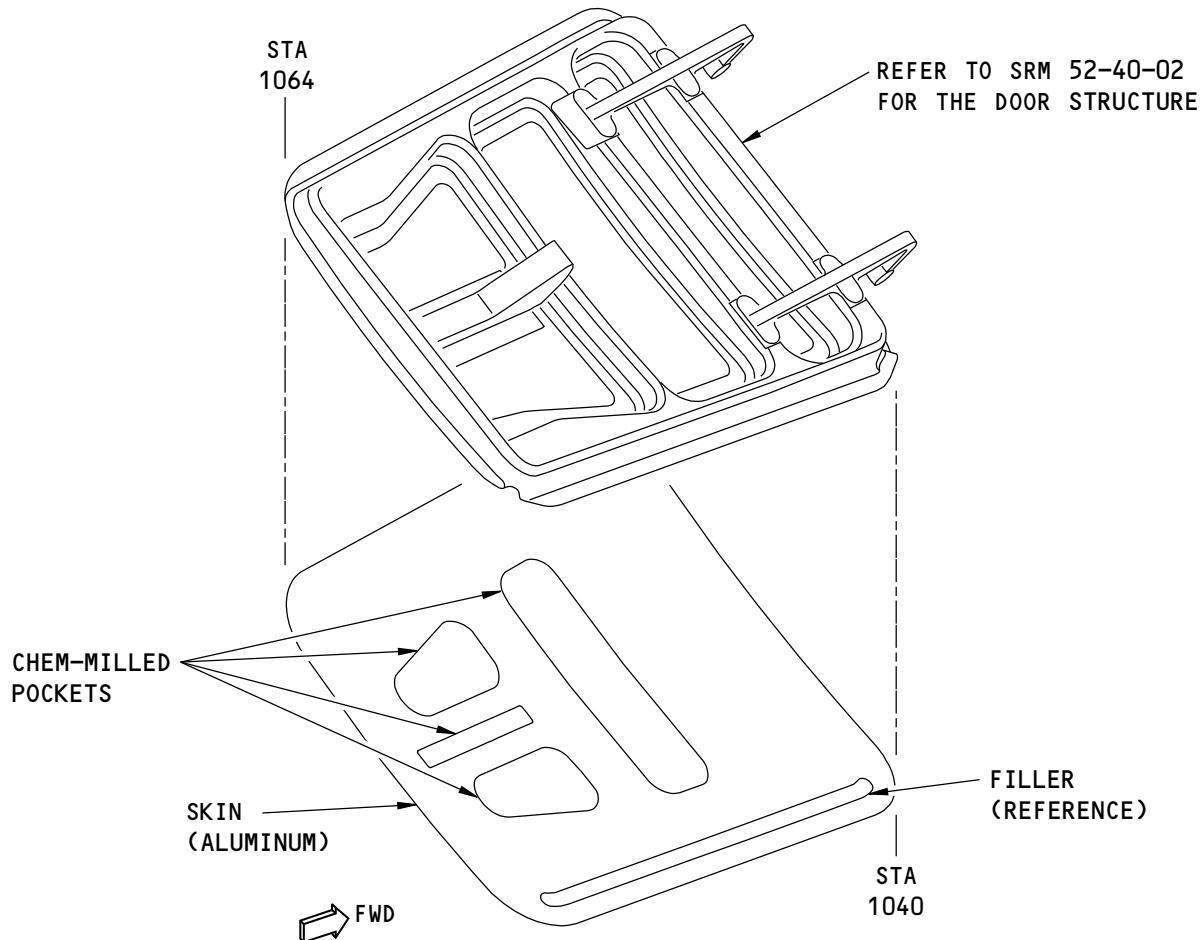
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STRUCTURAL REPAIR MANUAL



FOR AIRPLANES WITH A DOMED AFT PRESSURE BULKHEAD

A

Access and Blowout Door Skin
Figure 102 (Sheet 1 of 2)

2290386 S0000518422_V1

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ALLOWABLE DAMAGE 1

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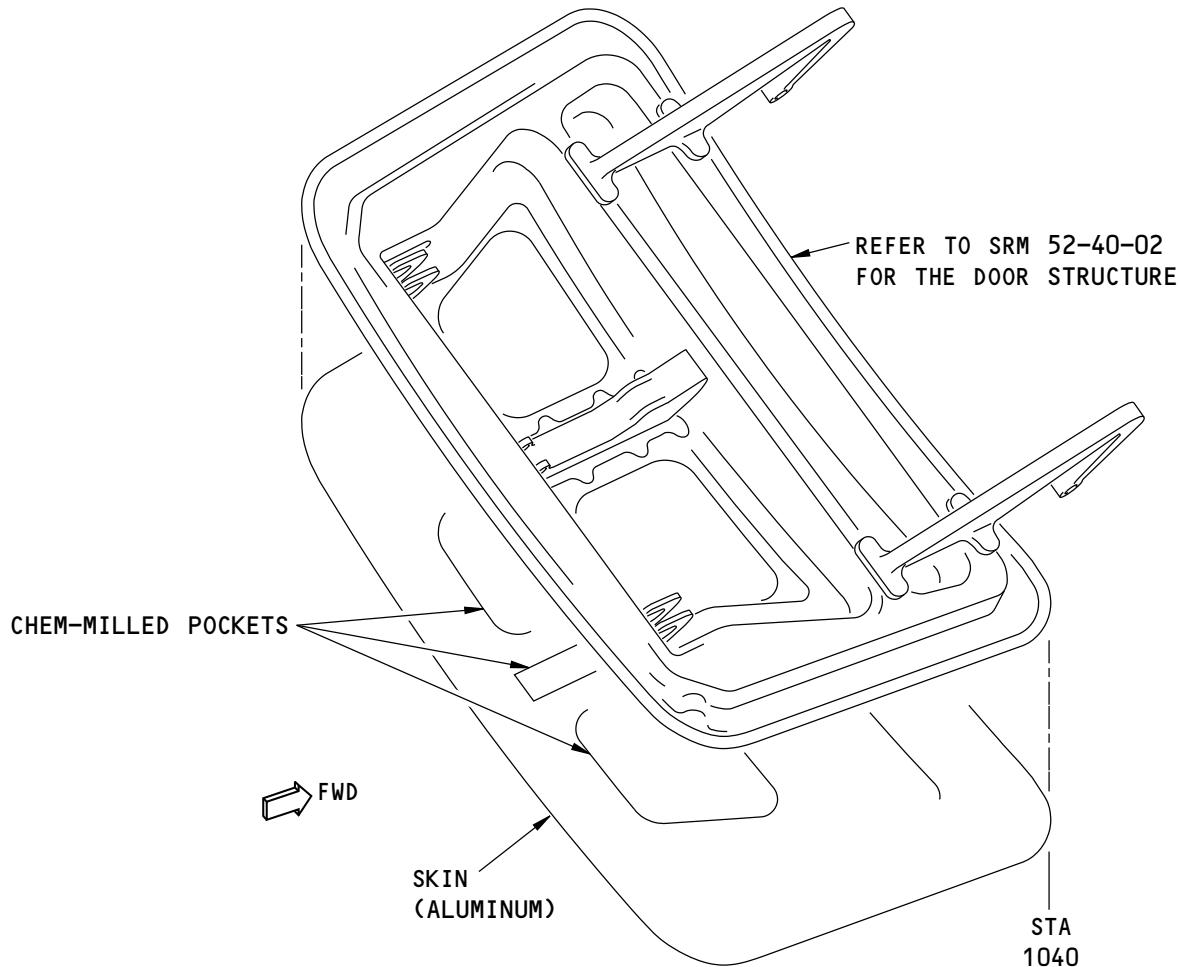
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STRUCTURAL REPAIR MANUAL



FOR AIRPLANES WITH A FLAT AFT PRESSURE BULKHEAD

B

2290388 S0000518424_V1

Access and Blowout Door Skin

Figure 102 (Sheet 2 of 2)

2. General

- A. The access and blowout door is not in a pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow are not applicable to dent damage.

- (1) Remove the damage as necessary.
 - (a) Refer to 51-10-02, GENERAL for the inspection and removal of damage.
 - (b) Refer to 51-30-03, GENERAL for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05, GENERAL for possible sources of the equipment and tools you can use to remove the damage.

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ALLOWABLE DAMAGE 1

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- C. For damage that was removed on the aerodynamic outer surface of the skin, do the steps that follow:

NOTE: The steps that follow are not applicable to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01, GENERAL.
- (2) Apply a decorative finish to the reworked areas if necessary. Refer to AMM PAGEBLOCK 51-21-99/701.
- (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

- D. For damage that was removed on the non-aerodynamic inner surface of the skin, do the steps that follow:

NOTE: The steps that follow are not applicable to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01, GENERAL.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02, GENERAL	Inspection and Removal of Damage
51-20-01, GENERAL	Protective Treatment of Metallic and Composite Materials
51-30-03, GENERAL	Sources for Non-Metallic Repair Materials
51-30-05, GENERAL	Equipment and Tools For Repairs
51-40-06	FASTENER EDGE MARGINS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Cracks are not permitted.

- B. Nicks, Gouges, Scratches, and Corrosion:

- (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , and E.

- C. Dents:

- (1) Dents are permitted as follows:

- (a) Dents are permitted if they meet the limits of Allowable Damage Limits, Figure 103/ ALLOWABLE DAMAGE 1, Detail F.
- (b) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

- D. Holes and Punctures are permitted if:

- (1) They are 0.25 in. (6.35 mm) in diameter or less
- (2) They are 1.00 in. (25.4 mm) inch or more away from a fastener hole, an edge, or other damage

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ALLOWABLE DAMAGE 1

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- (3) They are filled with a 2117-T3 or 2117-T4 aluminum rivet.
 - (a) Install the rivet without sealant.

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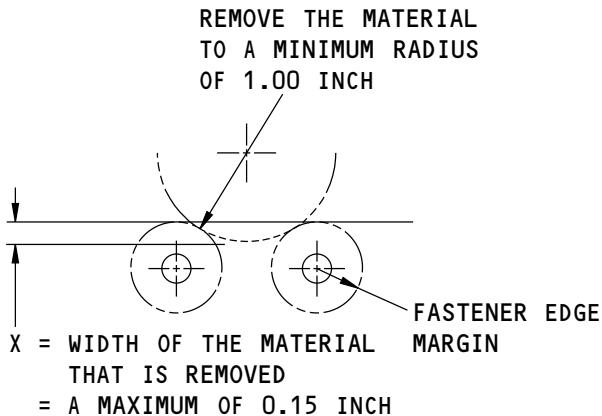
ALLOWABLE DAMAGE 1

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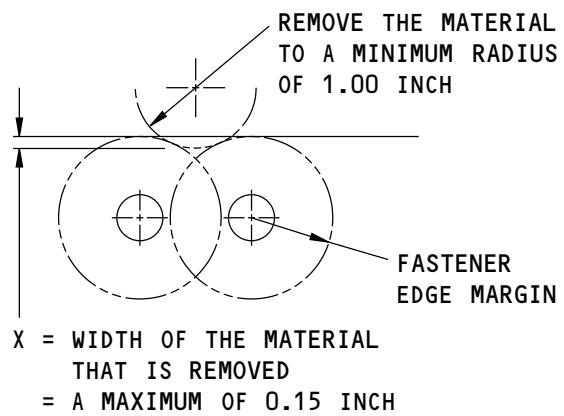
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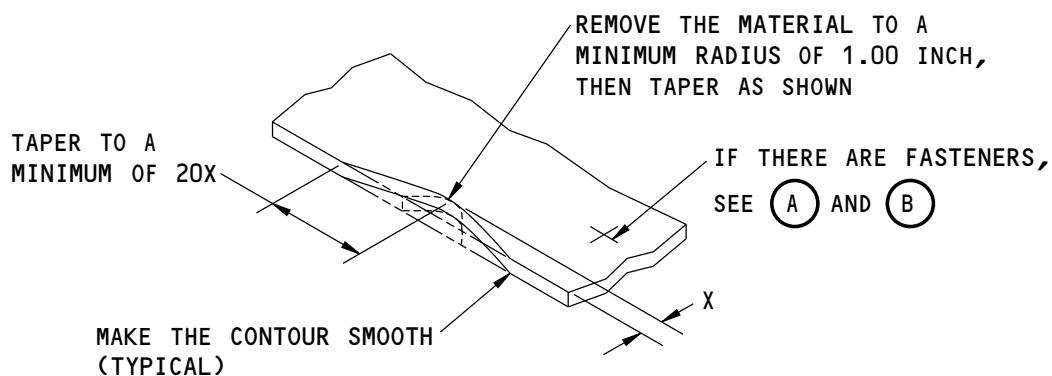
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(C)

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Allowable Damage Limits
Figure 103 (Sheet 1 of 3)

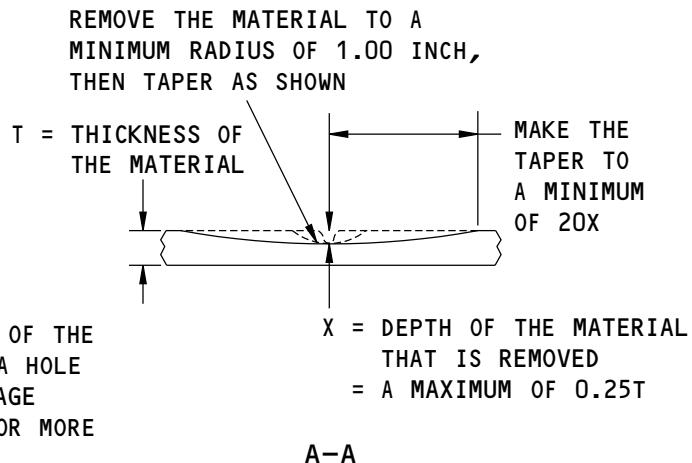
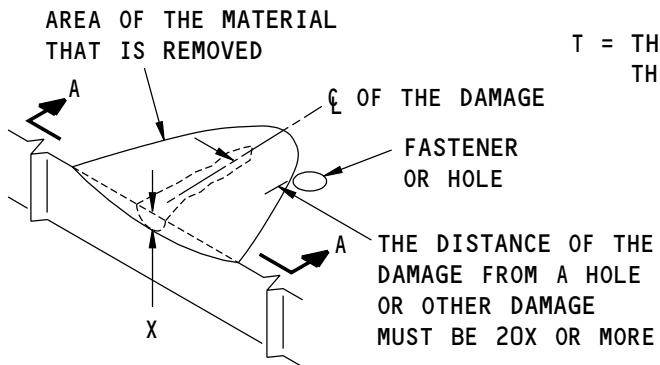
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ALLOWABLE DAMAGE 1

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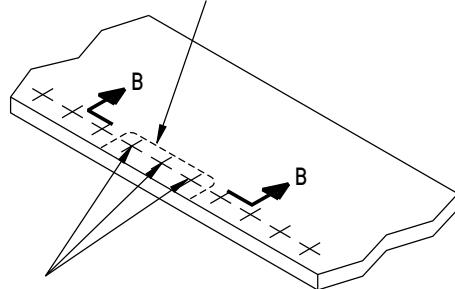
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REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X

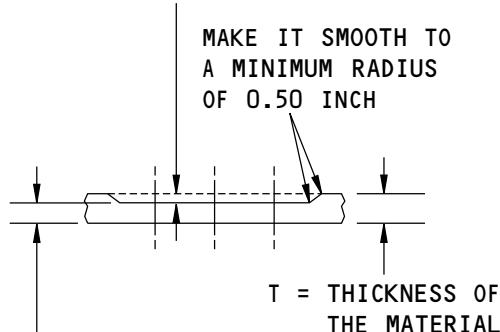


REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS COMPLETED

REMOVAL OF CORROSION DAMAGE

(E)

X = THE DEPTH OF THE MATERIAL REMOVED



Y = THE THICKNESS OF THE REMAINING MATERIAL AFTER THE DAMAGE HAS BEEN REMOVED
= A MINIMUM OF 0.0375 INCH FOR CHEM-MILLED OR NON CHEM-MILLED AREAS

B-B

F74376 S0006587016_V2

Allowable Damage Limits
Figure 103 (Sheet 2 of 3)

52-40-01

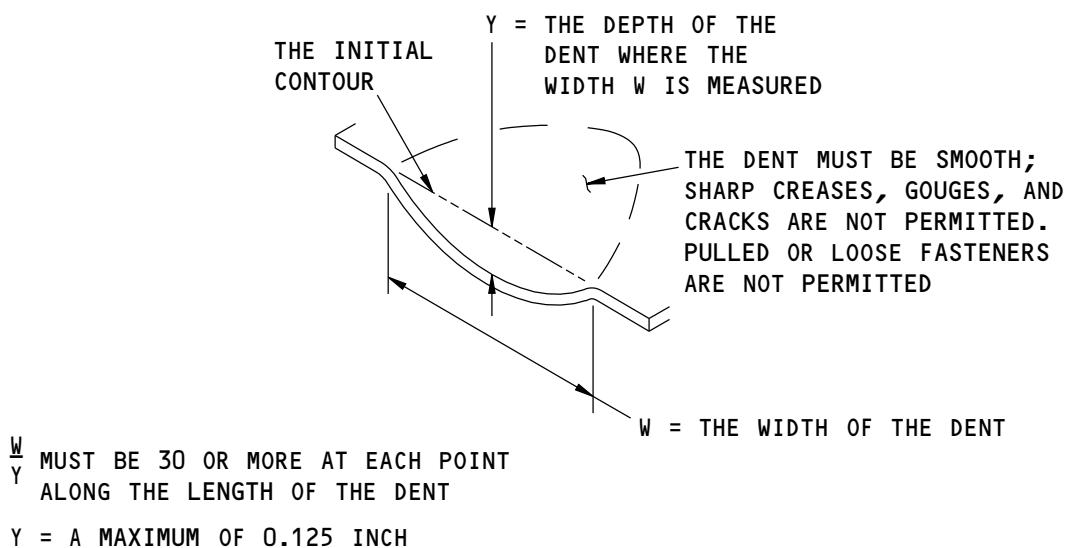
ALLOWABLE DAMAGE 1

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A DENT THAT IS PERMITTED

(F)

F74377 S0006587017_V1

Allowable Damage Limits
Figure 103 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 1

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ALLOWABLE DAMAGE 2 - APU ACCESS DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the APU access door skin as shown in APU Access Door Location, Figure 101/ALLOWABLE DAMAGE 2 and APU Access Door Skin Allowable Damage, Figure 102/ALLOWABLE DAMAGE 2.

2. General

- A. The APU access door is not in a pressurized region of the fuselage.
- B. Refer to Paragraph 4./ALLOWABLE DAMAGE 2 for the allowable damage limits.
- C. Remove the damage if necessary.
 - (1) Refer to 51-30-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
 - (4) Put a surface finish of 125 microinches Ra or better on the reworked surfaces.
- D. For damage that was removed on the external aerodynamic surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- E. For damage that was removed on the internal non-aerodynamic surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01/701.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- F. Make sure the aerodynamic smoothness is satisfactory or there will be a decrease in the performance of the airplane. Refer to 51-10-01.

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ALLOWABLE DAMAGE 2

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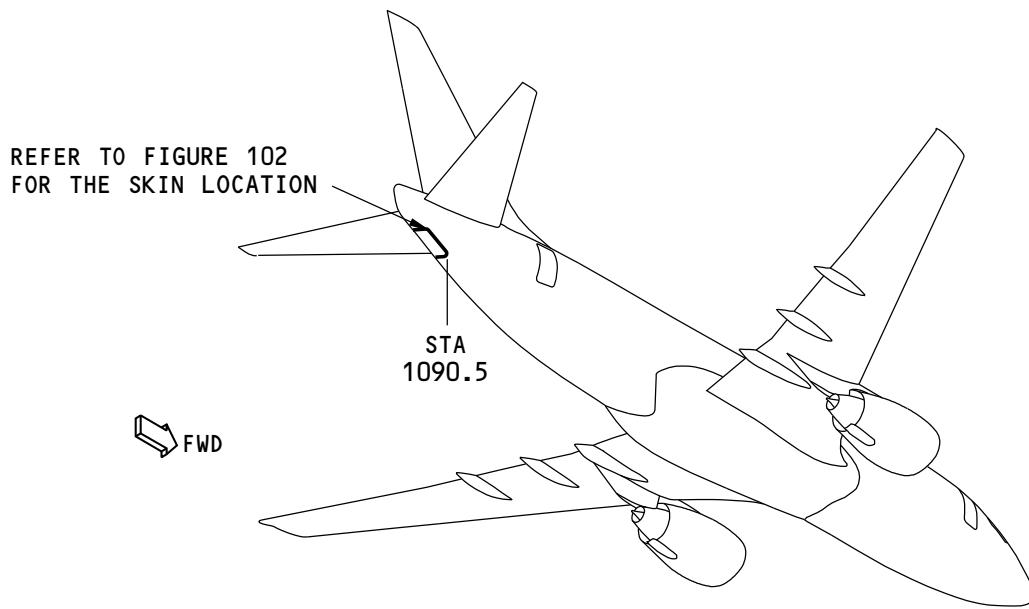
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**APU Access Door Location
Figure 101**

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ALLOWABLE DAMAGE 2

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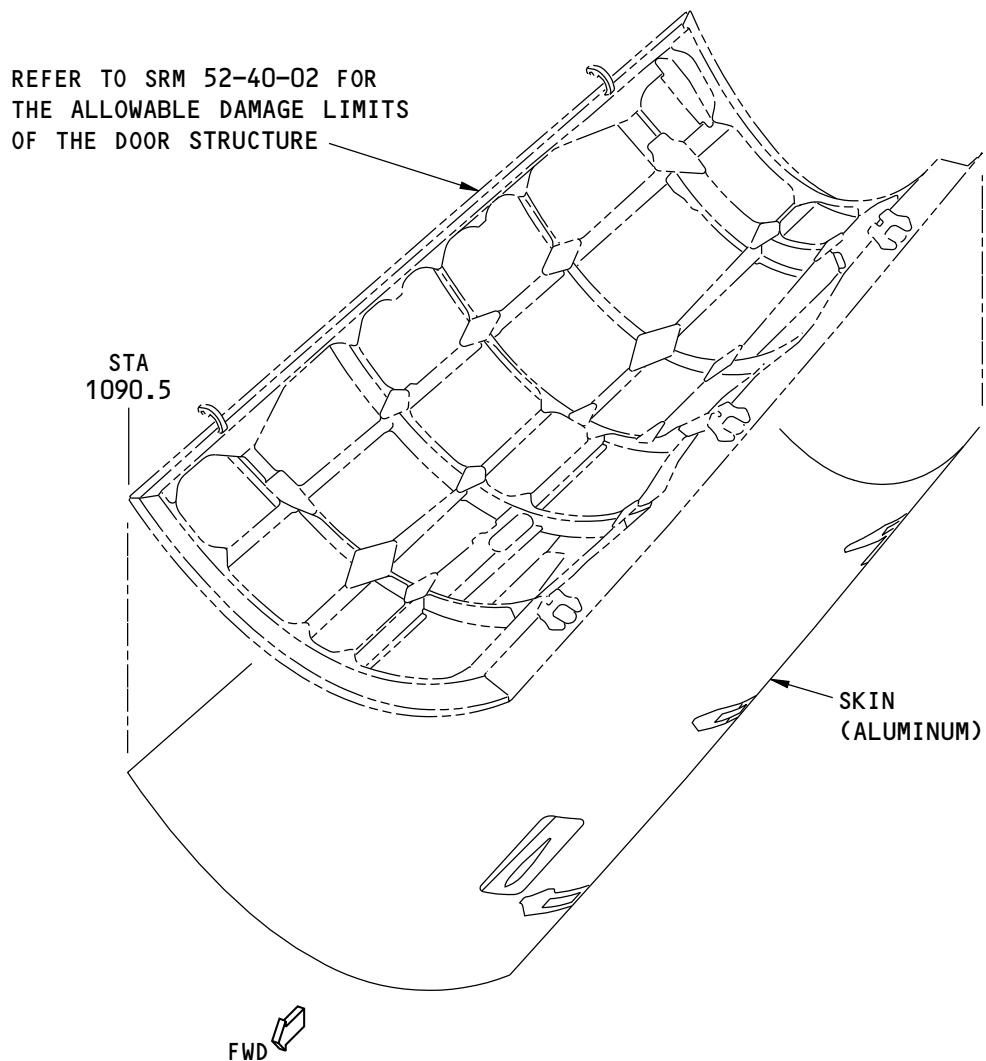
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APU Access Door Skin Allowable Damage
Figure 102

52-40-01

ALLOWABLE DAMAGE 2

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3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-02	METALLIC MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-70-01	REPAIRS FOR MINOR DENTS IN METALLIC SHEET MATERIALS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Cracks are not permitted.
- B. Nicks, Gouges, Scratches, and Corrosion
 - (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , C , D , and E .
- C. Holes and Punctures are permitted if:
 - (1) They are 0.25 inch in diameter or less
 - (2) They are 1.00 inch or more away from a fastener hole, an edge, or other damage
 - (3) They are filled with a 2117-T3 or 2117-T4 aluminum rivet. Install the rivets without sealant.
- D. Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Detail F .

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ALLOWABLE DAMAGE 2

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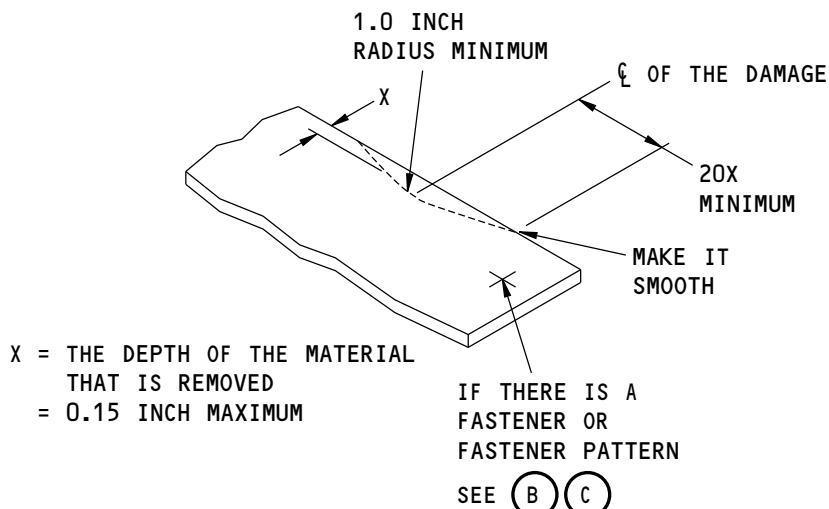
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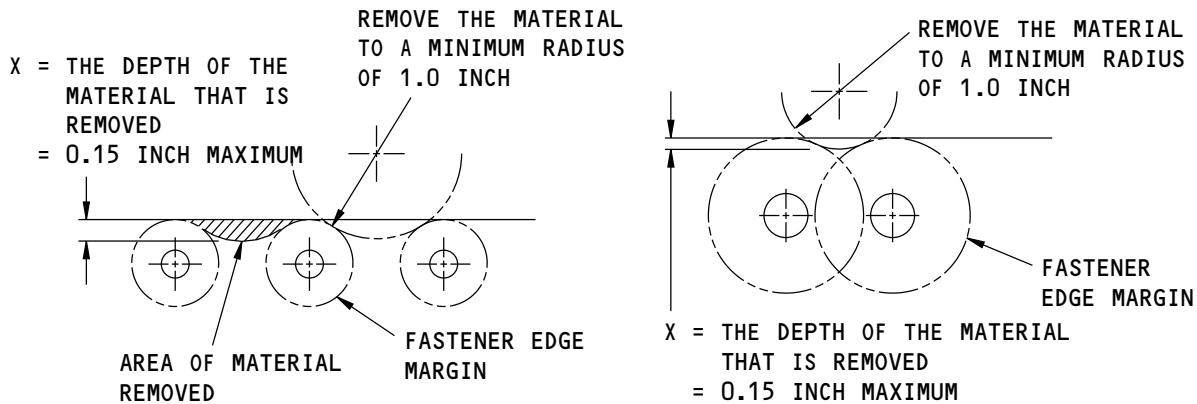


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REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(B)

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(C)

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Allowable Damage Limits
Figure 103 (Sheet 1 of 3)

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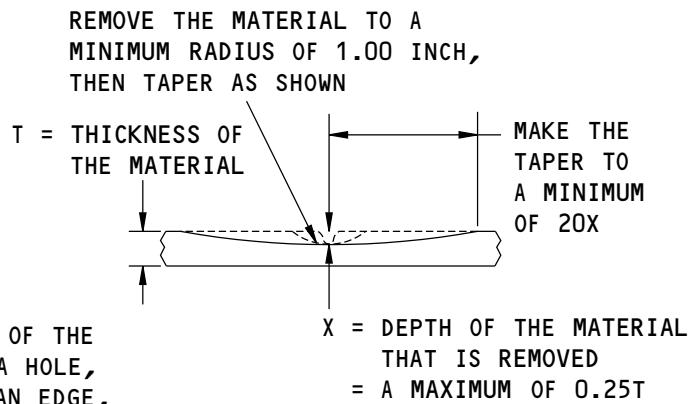
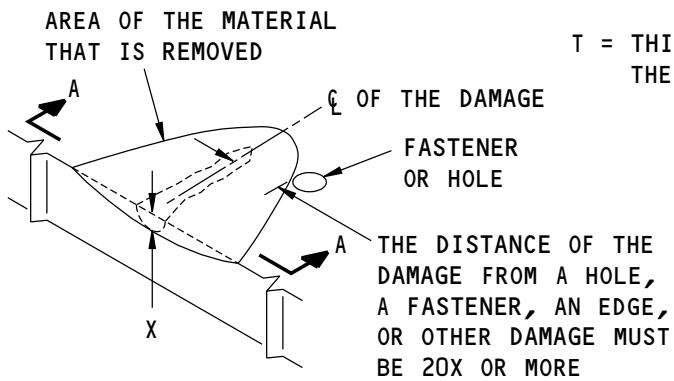
ALLOWABLE DAMAGE 2

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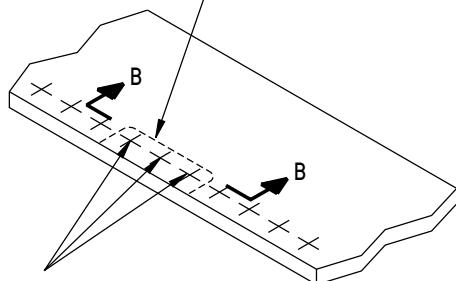
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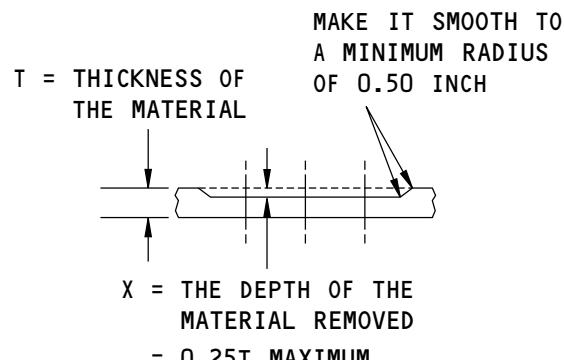
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REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS COMPLETED



B-B

REMOVAL OF CORROSION DAMAGE

(E)

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**Allowable Damage Limits
Figure 103 (Sheet 2 of 3)**

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ALLOWABLE DAMAGE 2

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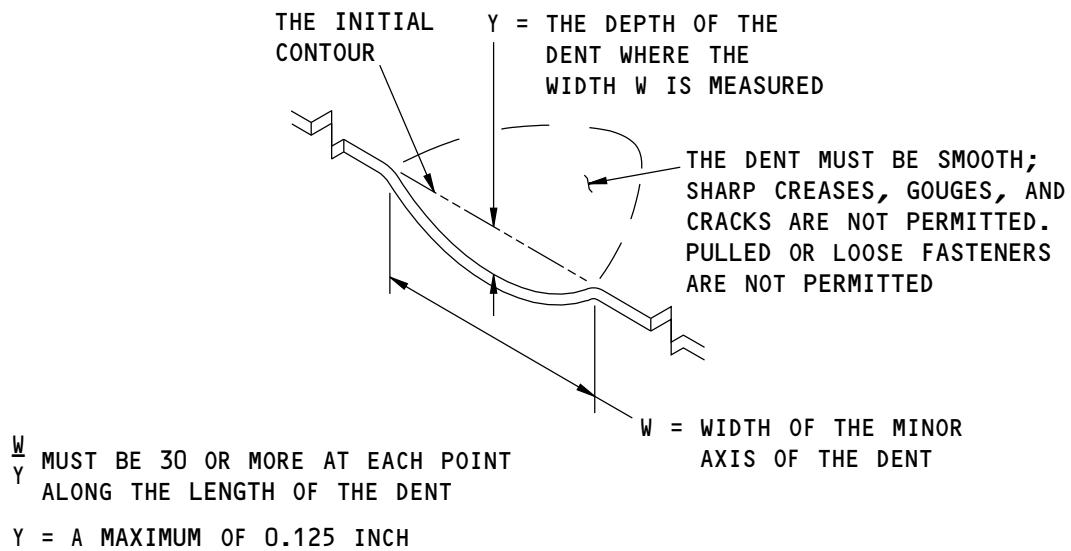
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A DENT THAT IS PERMITTED

(F)

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Allowable Damage Limits
Figure 103 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 2

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ALLOWABLE DAMAGE 3 - EXTERNAL POWER ACCESS DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the external power access door skin and doubler as shown in External Power Access Door Skin Location, Figure 101/ALLOWABLE DAMAGE 3 and External Power Access Door Skin, Figure 102/ALLOWABLE DAMAGE 3.

2. General

- A. The external power access door is not in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Remove the damage as necessary.
- (a) Refer to 51-10-02 for the inspection and removal of damage.
- (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
- (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. For damage that was removed from the aerodynamic outer surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
- (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

- D. For damage that was removed from the non-aerodynamic inner surface of the skin, or from the doubler, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 3

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ALLOWABLE DAMAGE 3

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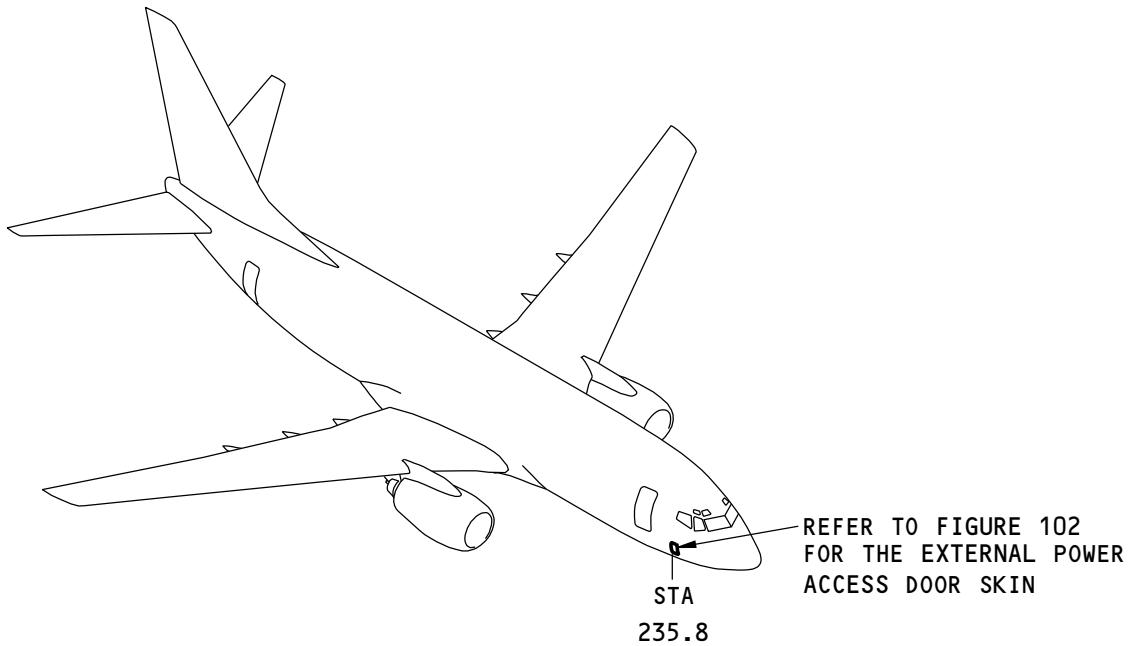
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**External Power Access Door Skin Location
Figure 101**

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ALLOWABLE DAMAGE 3

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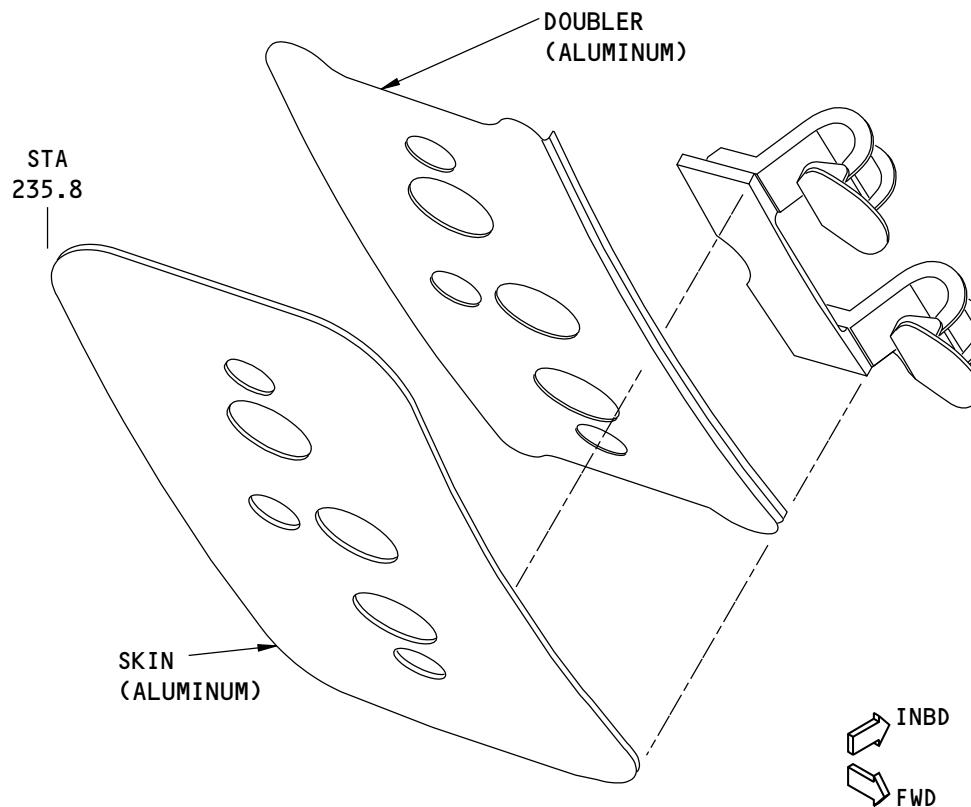
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External Power Access Door Skin
Figure 102

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3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

A. Cracks:

- (1) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - (a) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, or other damage.

NOTE: The thickness of the skin allows for the installation of countersunk rivets, which is preferred.
 - (b) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum rivet.
 - 1) Install the rivet without sealant.

B. Nicks, Gouges, Scratches, and Corrosion:

- (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 3, details A , B , C , D , and E .

C. Dents:

- (1) Dents are permitted as follows:
 - (a) Dents are permitted if they meet the limits of Allowable Damage Limits, Figure 103/ ALLOWABLE DAMAGE 3, Detail F .
 - (b) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

D. Holes and Punctures

- (1) Holes and Punctures are permitted if:
 - (a) They are a maximum of 0.25 inch in diameter
 - (b) They are a minimum of 1.00 inch away from a fastener hole, an edge, or other damage
 - (c) They are filled with a 2017-T3 or 2017-T4 aluminum rivet.

NOTE: The thickness of the skin allows for the installation of countersunk rivets, which is preferred.

 - 1) Install the rivet without sealant.
- (2) Non-revenue flights to a repair station are allowed if:
 - (a) The damage is removed to a 5.0 inch smooth circular or oval shape.
 - (b) The damage is a minimum of 1.0 inch away from the edge of the skin or a fitting.

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E. Delamination

- (1) A maximum of 1.00 square inch of delamination is permitted in any 10.00 square inches of doubler area.

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ALLOWABLE DAMAGE 3

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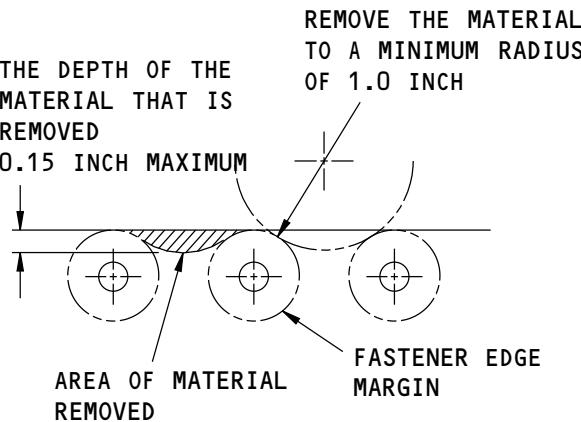
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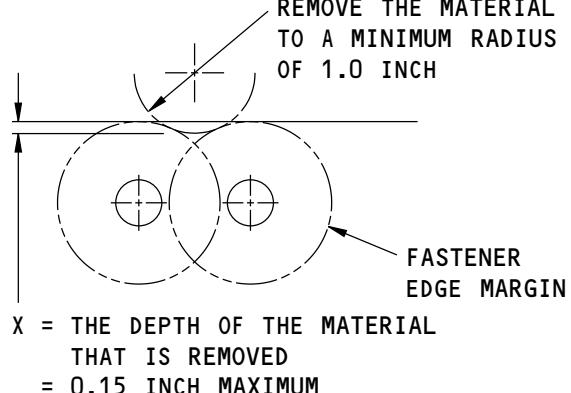
X = THE DEPTH OF THE MATERIAL THAT IS REMOVED
= 0.15 INCH MAXIMUM



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

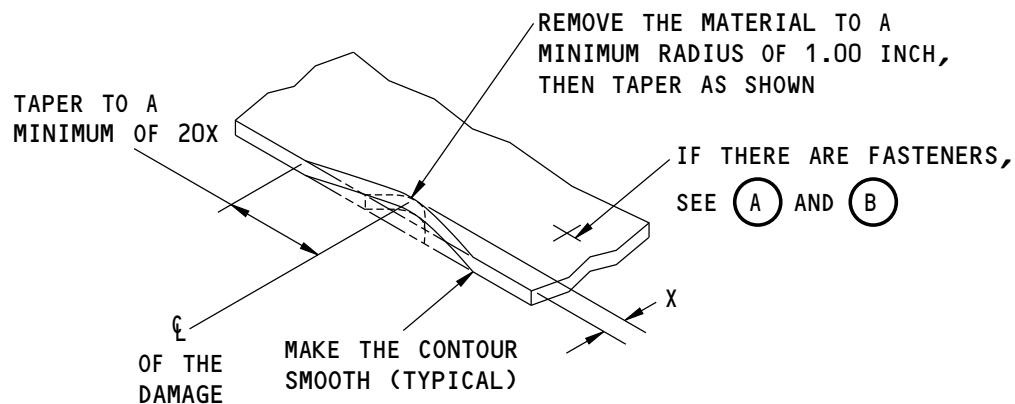
(A)

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.0 INCH



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



X = DEPTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(C)

F74391 S0006587027_V1

**Allowable Damage Limits
Figure 103 (Sheet 1 of 3)**

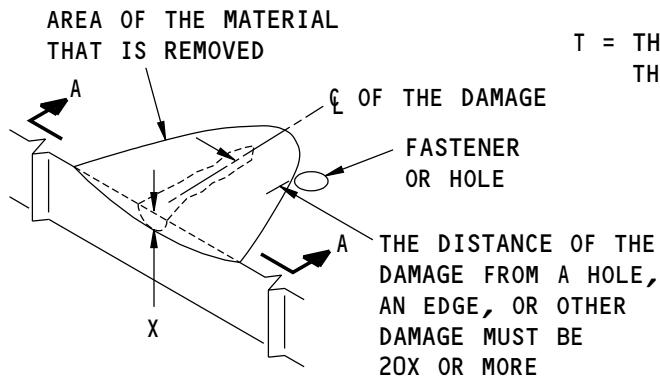
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ALLOWABLE DAMAGE 3

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REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN

T = THICKNESS OF THE MATERIAL

MAKE THE TAPER TO A MINIMUM OF 20X

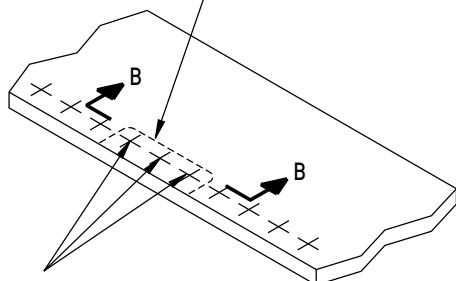
X = DEPTH OF THE MATERIAL THAT IS REMOVED = A MAXIMUM OF 0.10T

A-A

REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



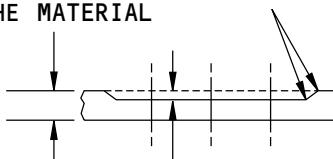
REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS COMPLETED

REMOVAL OF CORROSION DAMAGE

(E)

MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (TYPICAL)

T = THICKNESS OF THE MATERIAL



X = THE DEPTH OF THE MATERIAL THAT IS REMOVED = A MAXIMUM OF 0.10T

B-B

F74392 S0006587028_V1

Allowable Damage Limits
Figure 103 (Sheet 2 of 3)

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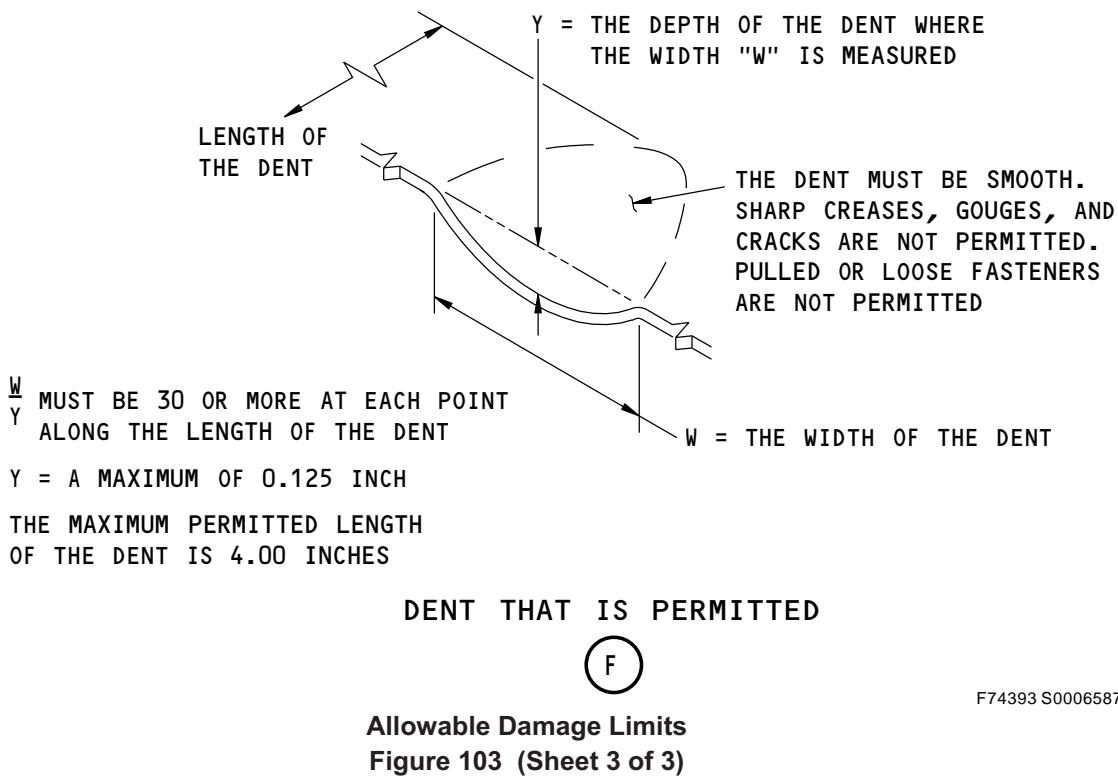
ALLOWABLE DAMAGE 3

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ALLOWABLE DAMAGE 3

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ALLOWABLE DAMAGE 4 - LAVATORY SERVICE ACCESS DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the lavatory service access door skin as shown in Lavatory Service Access Door Skin Location, Figure 101/ALLOWABLE DAMAGE 4 and Lavatory Service Access Door Skin Allowable Damage, Figure 102/ALLOWABLE DAMAGE 4.

2. General

- A. The lavatory service access door is not in a pressurized region of the fuselage.
- B. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 4
- C. Remove the damage as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of the damage.
 - (2) Refer to 51-30-03 for the possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the possible sources of the equipment and tools you can use to remove the damage.
 - (4) Put a surface finish of 125 microinches Ra or better on the reworked surfaces.
- D. If damage is removed on the external aerodynamic surface of the outer skin, do the steps that follows:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
 - (3) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- E. If damage is removed on the internal non-aerodynamic surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- F. Make sure the aerodynamic smoothness is satisfactory or there will be a loss in the economic performance of the airplane. Refer to 51-10-01.

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ALLOWABLE DAMAGE 4

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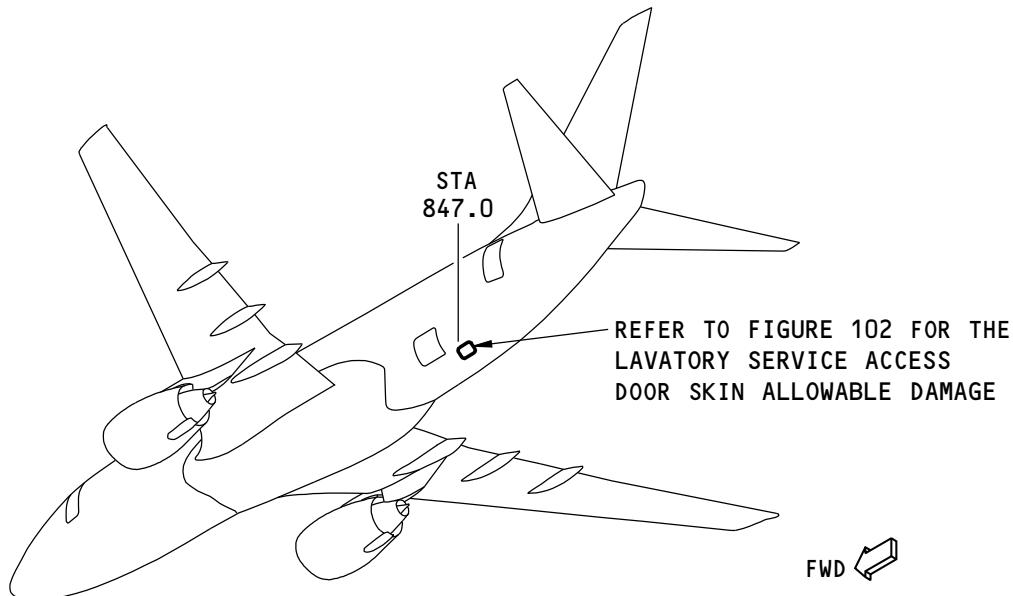
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Lavatory Service Access Door Skin Location
Figure 101

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ALLOWABLE DAMAGE 4

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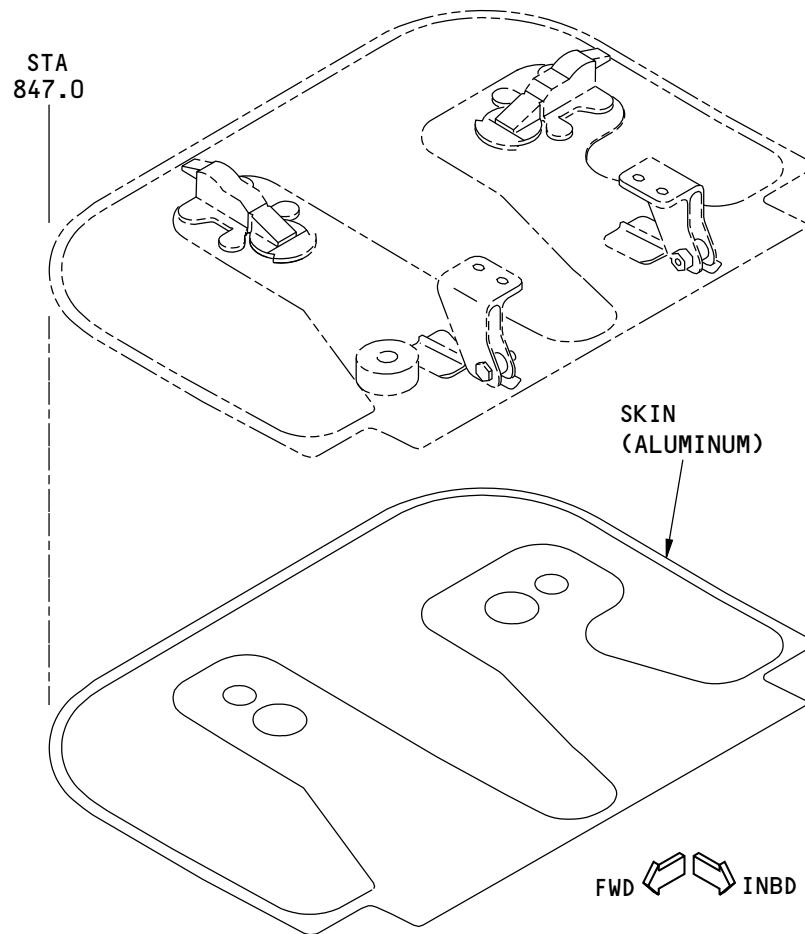
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F74396 S0006587032_V1

Lavatory Service Access Door Skin Allowable Damage
Figure 102

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ALLOWABLE DAMAGE 4

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3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-70-01	REPAIRS FOR MINOR DENTS IN METALLIC SHEET MATERIALS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Cracks are not permitted.
- B. Nicks, Gouges, Scratches, and Corrosion
 - (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Details A , B , C , D , and E .
- C. Holes and Punctures are permitted if:
 - (1) They are 0.25 inch (6.35 mm) in diameter or less.
 - (2) They are 1.00 inch (25.4 mm) or more away from a fastener hole, an edge, or other damage.
 - (3) They are filled with a 2117-T3 or 2117-T4 aluminum protruding head rivet. Install the rivets without sealant.
- D. Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 4, Detail F .

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ALLOWABLE DAMAGE 4

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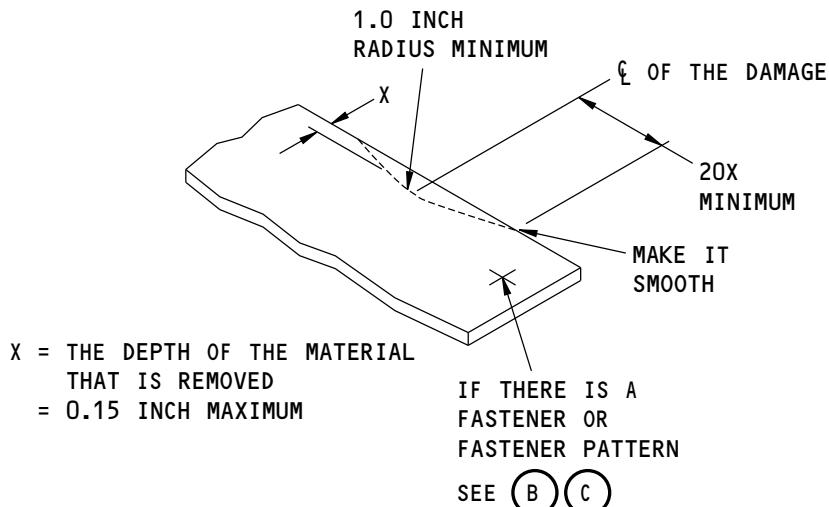
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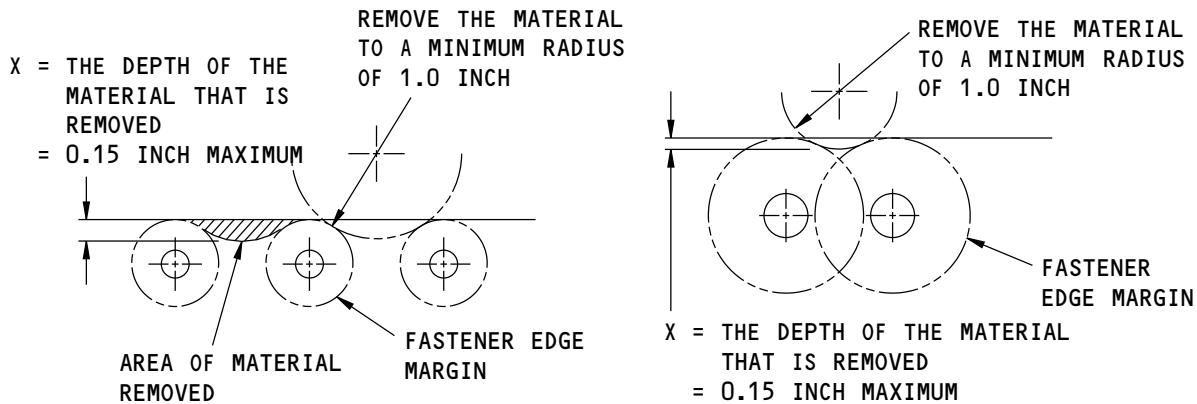


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REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(B)

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(C)

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Allowable Damage Limits
Figure 103 (Sheet 1 of 3)

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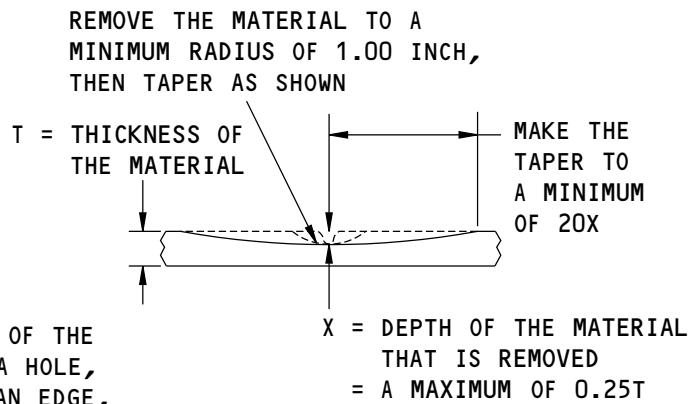
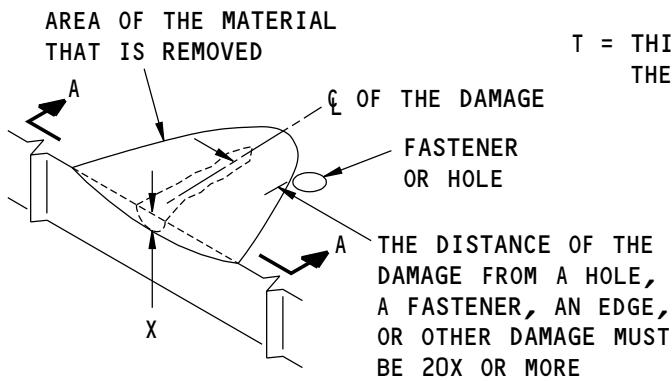
ALLOWABLE DAMAGE 4

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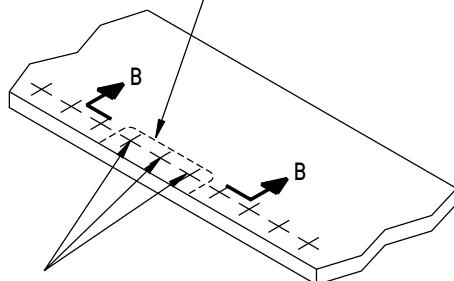
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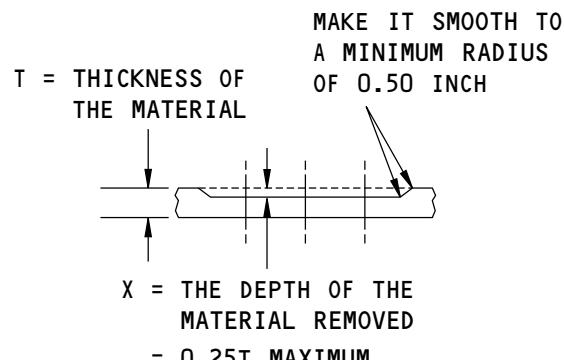
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REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS COMPLETED



B-B

REMOVAL OF CORROSION DAMAGE

(E)

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**Allowable Damage Limits
Figure 103 (Sheet 2 of 3)**

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ALLOWABLE DAMAGE 4

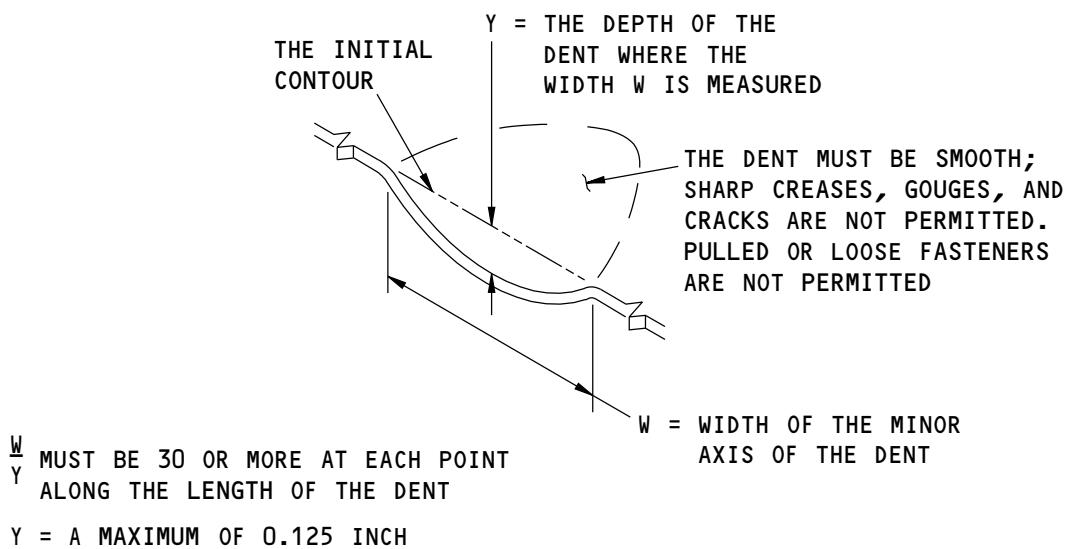
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A DENT THAT IS PERMITTED

F

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Allowable Damage Limits
Figure 103 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 4

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ALLOWABLE DAMAGE 5 - WATER SERVICE ACCESS DOOR SKIN AND DOUBLER

1. Applicability

- A. This subject gives the allowable damage limits for the water service access door skin and doubler as shown in Water Service Access Door Skin Location, Figure 101/ALLOWABLE DAMAGE 5 and Water Service Access Door Skin Allowable Damage, Figure 102/ALLOWABLE DAMAGE 5.

2. General

- A. The water service access door is not in a pressurized region of the fuselage.
- B. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 5
- C. Remove the damage as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of the damage
 - (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- D. If damage is removed from the external aerodynamic surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.
 - (3) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- E. If damage is removed from the internal non-aerodynamic surface of the outer skin, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- F. Make sure the aerodynamic smoothness is satisfactory or there will be a loss in the economic performance of the airplane. Refer to 51-10-01.

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ALLOWABLE DAMAGE 5

Page 101

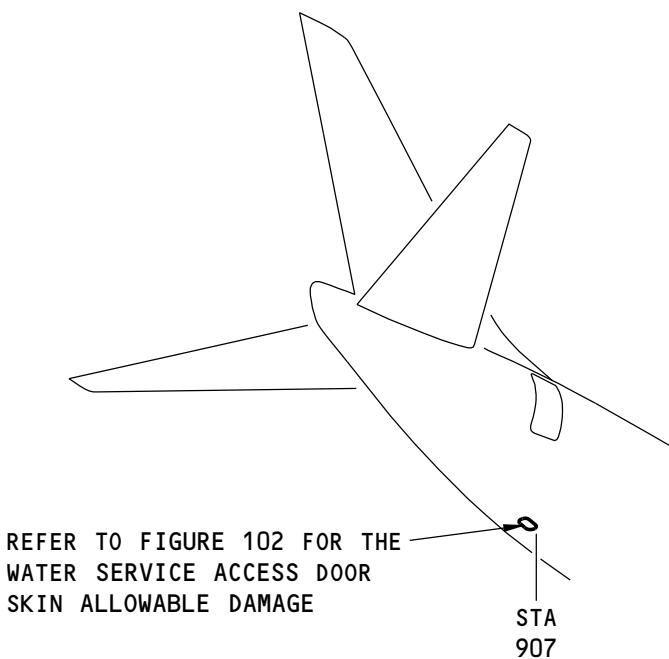
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Water Service Access Door Skin Location
Figure 101

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ALLOWABLE DAMAGE 5

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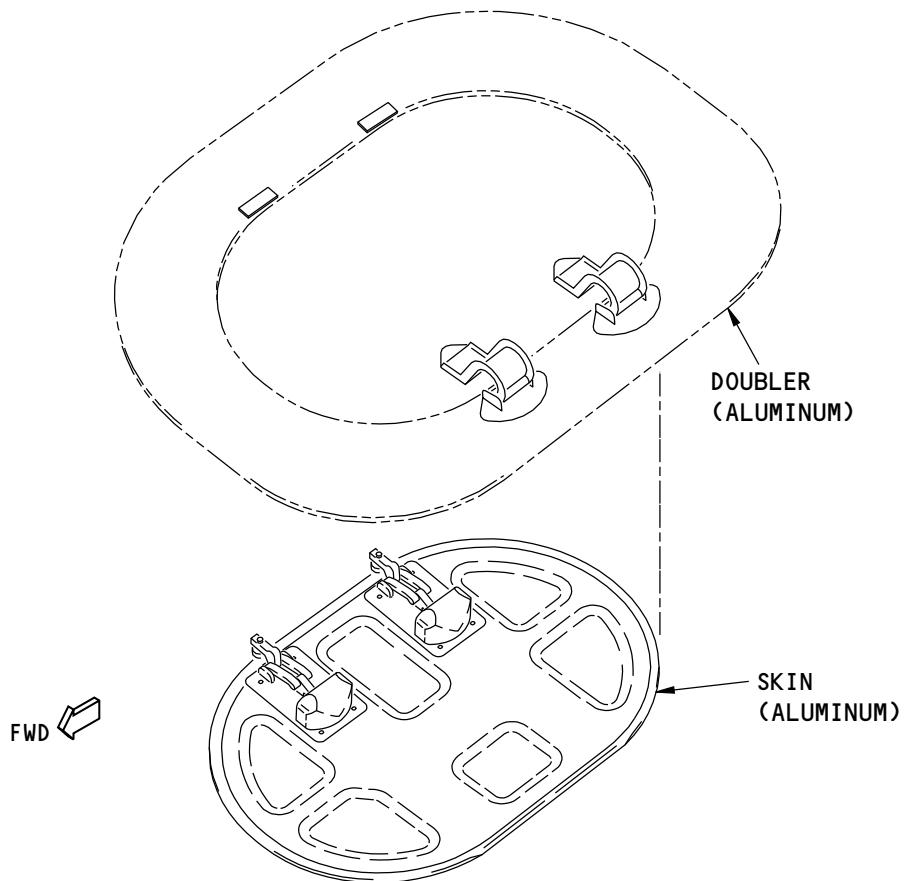
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F74496 S0006587038_V2

Water Service Access Door Skin Allowable Damage
Figure 102

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-70-01	REPAIRS FOR MINOR DENTS IN METALLIC SHEET MATERIALS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

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ALLOWABLE DAMAGE 5

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4. Allowable Damage Limits

A. Skin

- (1) Cracks are not permitted.
- (2) Nicks, Gouges, Scratches, and Corrosion
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 5, Details A, and B .
- (3) Holes and Punctures are permitted if:
 - (a) They are 0.25 inch (6.35 mm) or less in diameter.
 - (b) They are 1.00 inch (25.4 mm) or more away from a fastener hole, an edge, machined radius, or other damage.
 - (c) They are filled with a 2117-T3 or 2117-T4 aluminum rivet. Install the rivet without sealant.
- (4) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 5, Detail C .

B. Doubler

- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 5, Detail A.
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 5, Details A, and B.
- (3) Holes and Punctures are not permitted.
- (4) Dents are not permitted.

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ALLOWABLE DAMAGE 5

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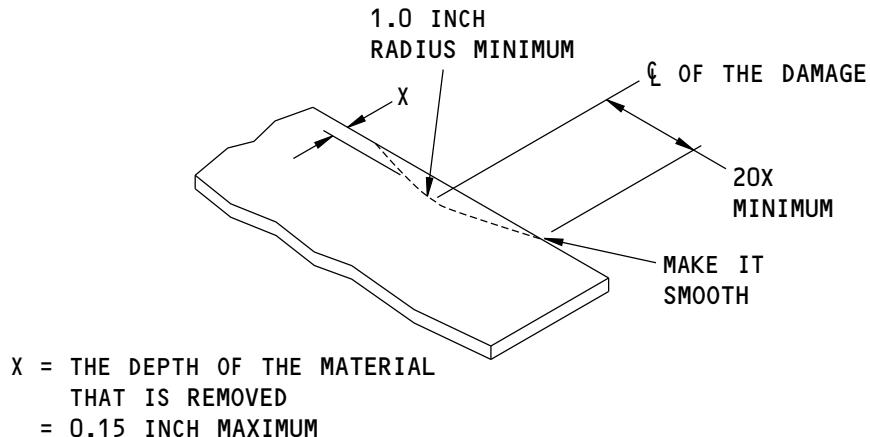
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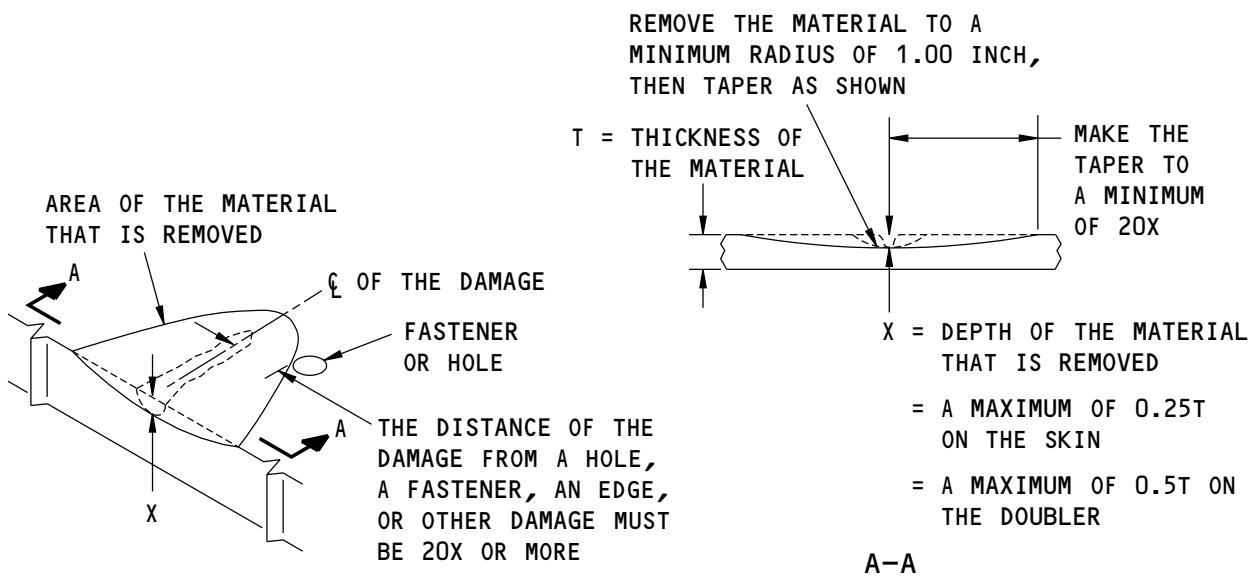


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REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(A)



**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE**

(B)

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Allowable Damage Limits
Figure 103 (Sheet 1 of 2)

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ALLOWABLE DAMAGE 5

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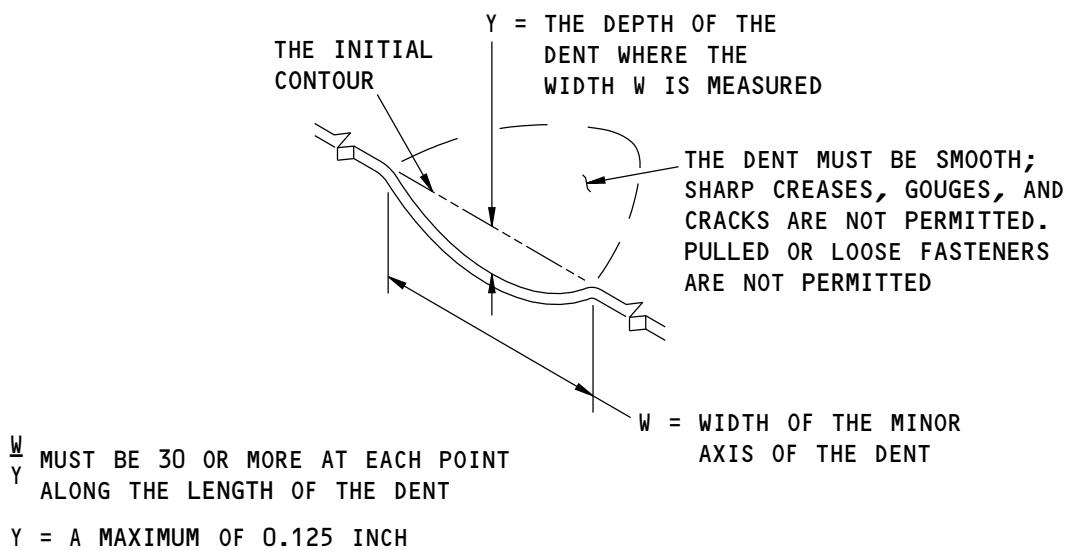
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A DENT THAT IS PERMITTED

(C)

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Allowable Damage Limits
Figure 103 (Sheet 2 of 2)

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ALLOWABLE DAMAGE 5

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ALLOWABLE DAMAGE 6 - TAILCONE ACCESS DOOR SKIN

1. Applicability

- A. Allowable Damage 6 is applicable to damage on the Tailcone Access Door Skin composite panel as shown in Tailcone Access Door Skin Location, Figure 101/ALLOWABLE DAMAGE 6.
- B. Allowable Damage 6 is applicable to airplane line numbers 1 thru 2049.

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ALLOWABLE DAMAGE 6

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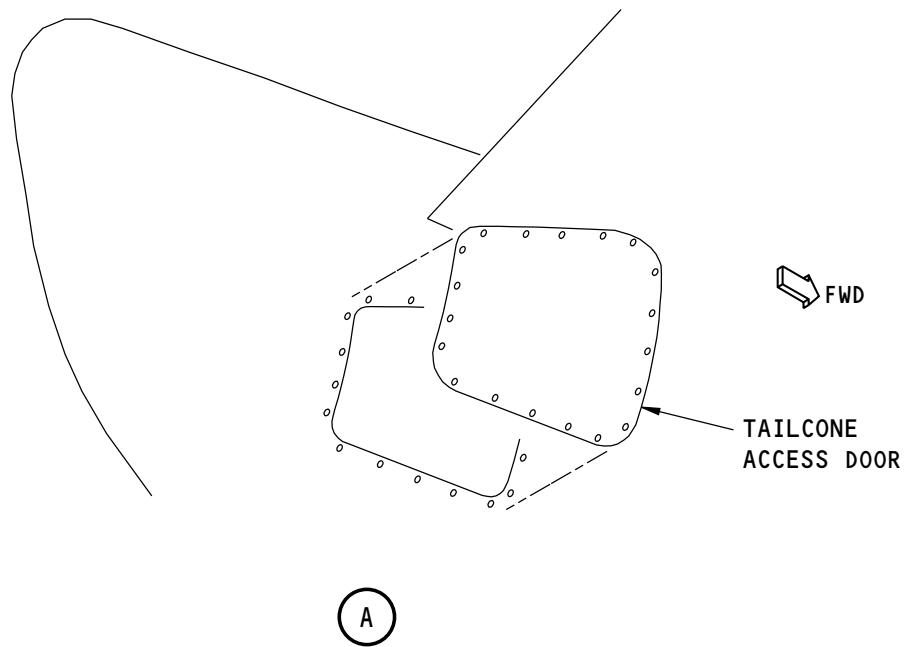
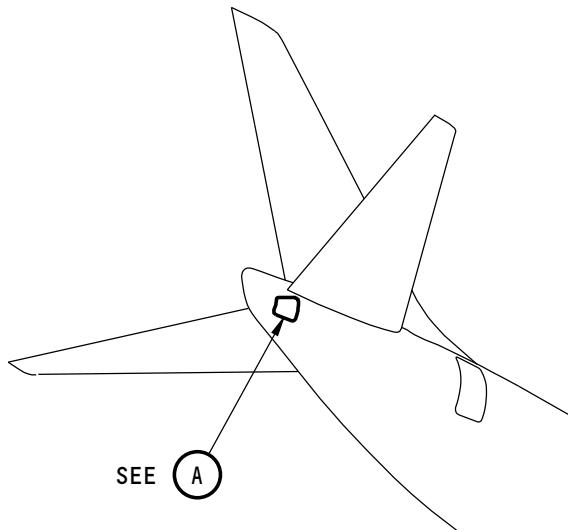
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Tailcone Access Door Skin Location
Figure 101

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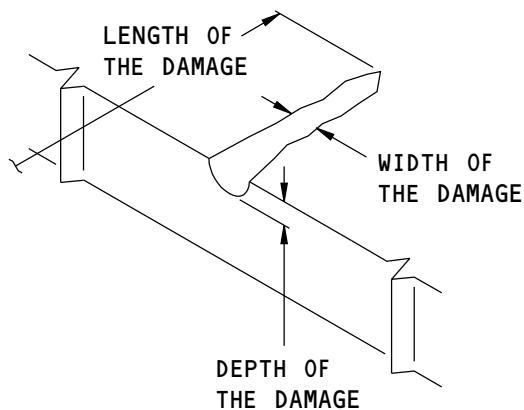
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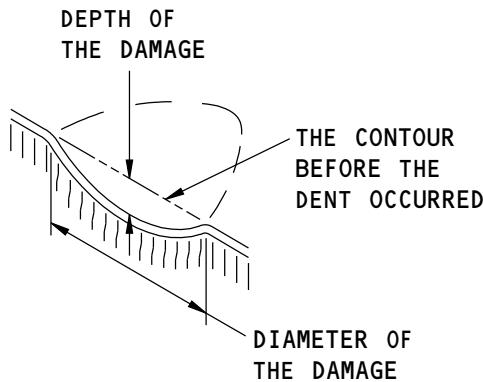


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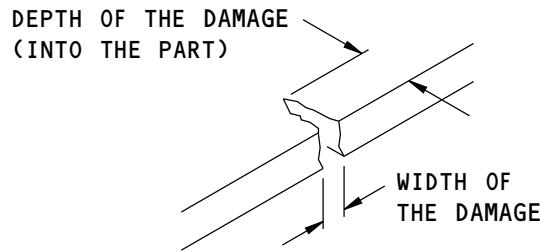
SIZE DEFINITIONS FOR NICK, GOUGE, OR SCRATCH DAMAGE

(A)



SIZE DEFINITIONS FOR
DENT DAMAGE

(B)



SIZE DEFINITIONS FOR
EDGE DAMAGE

(C)

F74522 S0006587043_V1

Definitions of the Damage Size

Figure 102

2. General

- A. Do an inspection of the damaged area to find the length, width, and depth of the damage. Boeing recommends that you use an instrumented Non-Destructive Test (NDT) procedure. Refer to 737 NDT Part 1, 51-01-02 for inspection procedures.

NOTE: Other inspection methods that have been examined and found to be satisfactory by the operator can be used.

- (1) For the honeycomb core areas, the tap test is an alternative procedure to an instrumented NDT procedure.
- (2) Refer to Definitions of the Damage Size, Figure 102/ALLOWABLE DAMAGE 6 for the definitions of the length, width, and depth of the damage.
- (3) Refer to Definitions of the Facesheets, Figure 103/ALLOWABLE DAMAGE 6 for the definitions of the facesheets of a honeycomb core area.

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ALLOWABLE DAMAGE 6

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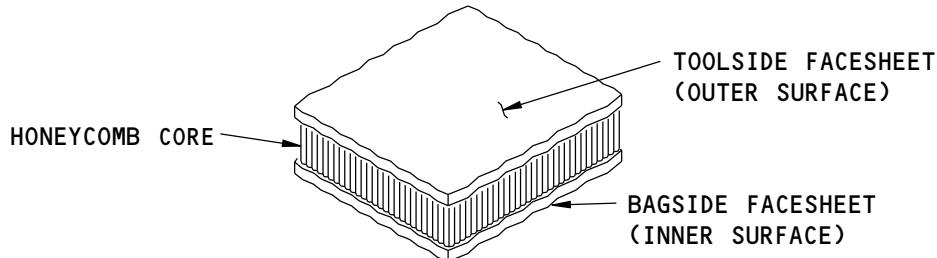
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- B. Remove all of the contamination and water from the door.
- (1) Refer to 51-70-04 for the damage removal procedures.
 - (2) Refer to 51-30-05 for possible sources of the equipment you can use to remove the damage.
 - (3) Seal all damaged areas with the steps that follow.
 - (a) Seal the damage that is not more than one ply deep and that agrees with the allowable damage limits given in Paragraph 4./ALLOWABLE DAMAGE 6
 - 1) Make a temporary seal.
 - a) Apply aluminum foil tape (speed tape).
 - b) Keep a record of the location.
 - c) Make sure the tape is in satisfactory condition at 400 flight hours from the time you made the seal.
 - d) Seal the damage permanently by 5000 flight hours or less.
 - 2) Make a permanent seal.
 - a) Apply BMS 8-207 or BMS 8-301 epoxy resin to the area as given in 51-70-08.
 - b) Apply one layer of BMS 10-79, Type 3 or BMS 10-103, Type 1 primer. Refer to SOPM 20-44-04.
 - c) Apply one layer of BMS 10-60 enamel to the areas sealed with epoxy resin. Refer to AMM PAGEBLOCK 51-21-99/701.
 - (b) Seal all permitted damaged areas that are more than one ply deep. Refer to Paragraph 4./ALLOWABLE DAMAGE 6 Seal the damage as follows:
 - 1) Use a vacuum and heat to remove moisture from the solid laminate or the honeycomb cells. Refer to 51-70-04.
 - 2) Make a temporary seal with aluminum foil tape (speed tape).
 - 3) Keep a record of the location.
 - 4) Repair the damage by 400 flight hours or less.



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Definitions of the Facesheets
Figure 103

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING

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ALLOWABLE DAMAGE 6

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(Continued)

Reference	Title
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-70-01	REPAIRS FOR MINOR DENTS IN METALLIC SHEET MATERIALS
51-70-04	REPAIR PROCEDURES FOR WET LAYUP MATERIALS
51-70-08	RESIN SWEEP-FAIR PROCEDURES
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-44-04	Application of Urethane Compatible Primer
737 NDT Part 1, 51-01-02	NDT Examination of Composite Structure for Impact Damage

4. Allowable Damage Limits

A. Tailcone Access Door Skin GFRP Panel - Honeycomb Core Area

- (1) Nicks, Gouges and Scratches that do not cause damage to the glass fibers are permitted.
- (2) Nicks, Gouges and Scratches that cause damage to the glass fibers are permitted if they are:
 - (a) A maximum of one ply in depth
NOTE: Use the limits for holes and punctures if the damage is more than one ply in depth.
 - (b) A maximum length of 3.0 inches
 - (c) A maximum width of 0.25 inch
 - (d) A minimum distance of 4D away from the edge of any hole, part edge or other damage as shown in Figure 107 . Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies, and
 - 2) Are sealed as given in Paragraph 2.
- (3) Dents are permitted if they are:
 - (a) A maximum depth of 0.050 inch
 - (b) A maximum of 1.50 inches in diameter
 - (c) A minimum distance from the edge of other damage as shown in Damage that is Permitted to GFRP Honeycomb Sandwich Areas, Figure 104/ALLOWABLE DAMAGE 6. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies, and
 - 2) Are sealed as given in Paragraph 2.
- (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 1.00 inch in diameter
 - (b) A minimum distance from the edge of other damage as shown in Damage that is Permitted to GFRP Honeycomb Sandwich Areas, Figure 104/ALLOWABLE DAMAGE 6. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies and
 - 2) Are sealed as given in Paragraph 2.
- (5) Delaminations are permitted if they are:
 - (a) A maximum of 1.50 inches in diameter

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ALLOWABLE DAMAGE 6

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- (b) A minimum distance from the edge of other damage as shown in Damage that is Permitted to GFRP Honeycomb Sandwich Areas, Figure 104/ALLOWABLE DAMAGE 6. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies, and
 - 2) Are sealed as given in Paragraph 2.
- B. Tailcone Access Door Skin GFRP Panel - Solid Laminate Area
 - (1) Nicks, Gouges and Scratches that do not cause damage to the glass fibers are permitted.
 - (2) Nicks, Gouges and Scratches that cause damage to the glass fibers are permitted if they are:
 - (a) A maximum of one ply in depth

NOTE: Use the limits for holes and punctures if the damage is more than one ply in depth.
 - (b) A minimum of 0.50 inch away from the edge of other damage. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies, and
 - 2) Are sealed as given in Paragraph 2.
 - (3) Dents are permitted if they are:
 - (a) A maximum of 0.05 inch in depth
 - (b) A maximum of 1.00 inch diameter
 - (c) A minimum of 0.50 inch away from the edge of other damage. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies, and
 - 2) Are sealed as given in Paragraph 2.
 - (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 1.00 inch in diameter
 - (b) A minimum of 0.50 inch away from the edge of other damage. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies, and
 - 2) Are sealed as given in Paragraph 2.
 - (5) Delaminations are permitted if they are:
 - (a) A maximum of 1.50 inch diameter.
 - (b) A minimum of 0.50 inch away from the edge of other damage. Other damage does not include nicks, gouges, and scratches that:
 - 1) Do not cause damage to the glass fiber plies
 - 2) Are sealed as given in Paragraph 2.
 - (6) Edge Erosion is permitted as shown in Sealing of Erosion Damage at an Edge of Composite Parts, Figure 105/ALLOWABLE DAMAGE 6.
 - (7) Edge damage is permitted if:
 - (a) It is a maximum 0.10 inch in depth
 - (b) It is a maximum width of 0.25 inch

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ALLOWABLE DAMAGE 6

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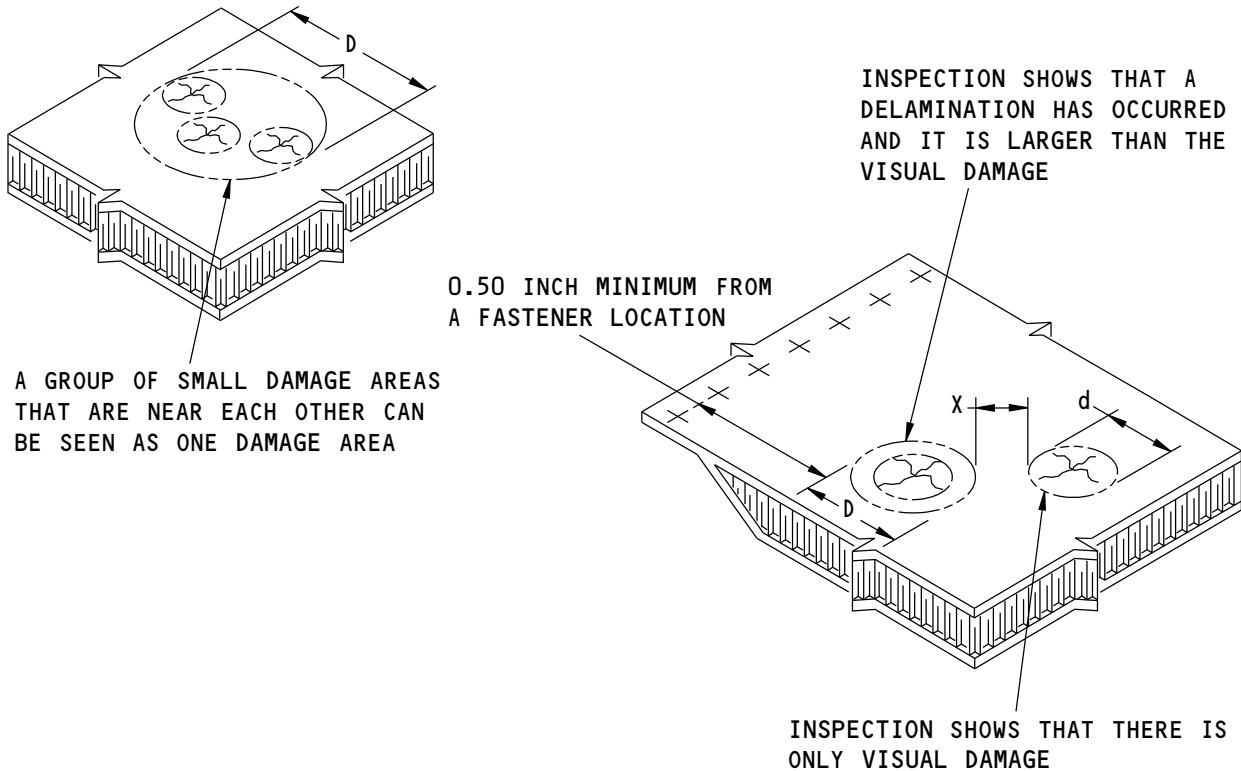
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NOTES

- TO FIND DELAMINATION, YOU CAN USE NONDESTRUCTIVE INSPECTION PROCEDURES. REFER TO NDT PART 1, 51-01-02.
- THE DIAMETER OF A DAMAGE AREA IS EITHER THE DIAMETER OF THE VISUAL DAMAGE OR THE DIAMETER OF THE DELAMINATION. USE THE DIAMETER OF THE LARGER DAMAGE.
- D IS THE LARGER DIAMETER OF TWO ADJACENT DAMAGE AREAS.
- d IS THE SMALLER DIAMETER OF TWO ADJACENT DAMAGE AREAS.
- X IS THE DISTANCE BETWEEN TWO ADJACENT DAMAGE AREAS.
- THE MINIMUM X THAT IS PERMITTED IS THE LARGER OF 0.75D OR 2d.

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Damage that is Permitted to GFRP Honeycomb Sandwich Areas
Figure 104

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ALLOWABLE DAMAGE 6

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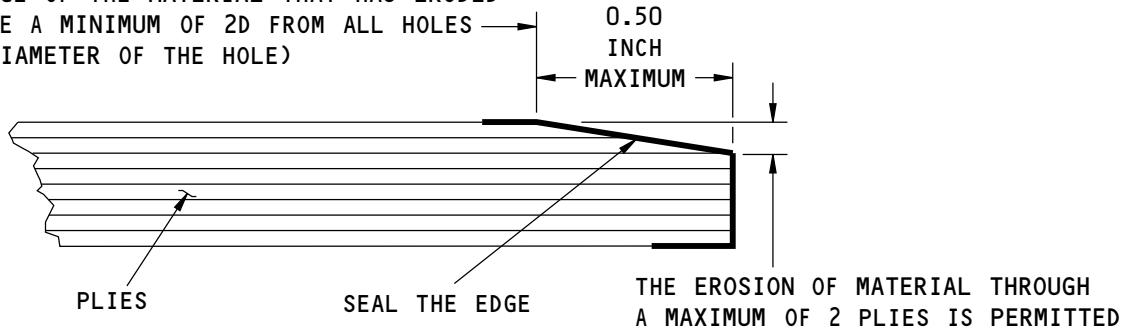
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THE EDGE OF THE MATERIAL THAT HAS ERODED
MUST BE A MINIMUM OF 2D FROM ALL HOLES
(D = DIAMETER OF THE HOLE)



F74532 S0006587046_V1

Sealing of Erosion Damage at an Edge of Composite Parts
Figure 105

52-40-01

ALLOWABLE DAMAGE 6

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ALLOWABLE DAMAGE 7 - TAILCONE SYSTEM ACCESS DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the tailcone system access door skin as shown in Tailcone System Access Door Skin Location, Figure 101/ALLOWABLE DAMAGE 7 and Tailcone System Access Door Skin, Figure 102/ALLOWABLE DAMAGE 7.

2. General

- A. The tailcone system access door is not in a pressurized area of the fuselage.
B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Remove the damage as necessary.
(a) Refer to 51-10-02 for the inspection and removal of the damage.
(b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
(c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. For damage that was removed on the aerodynamic outer surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
(2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
(3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

- D. For damage that was removed on the non-aerodynamic internal surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
(2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 7

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ALLOWABLE DAMAGE 7

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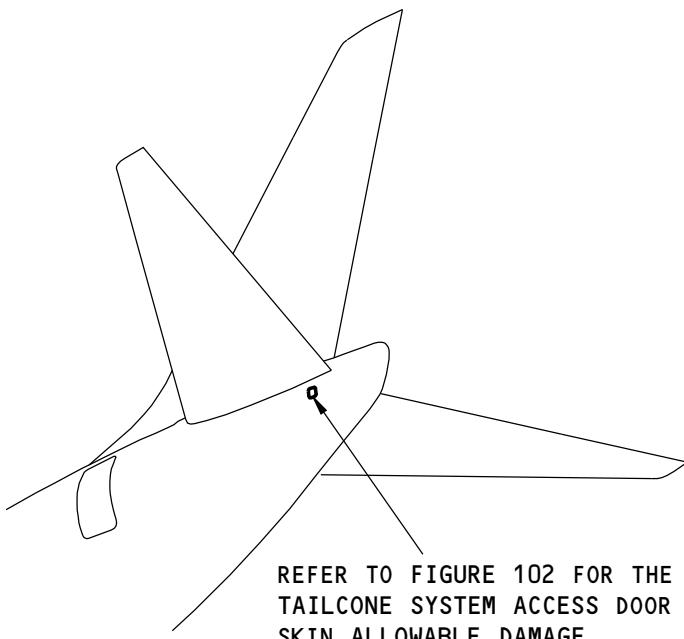
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**Tailcone System Access Door Skin Location
Figure 101**

F74415 S0006587048_V1

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ALLOWABLE DAMAGE 7

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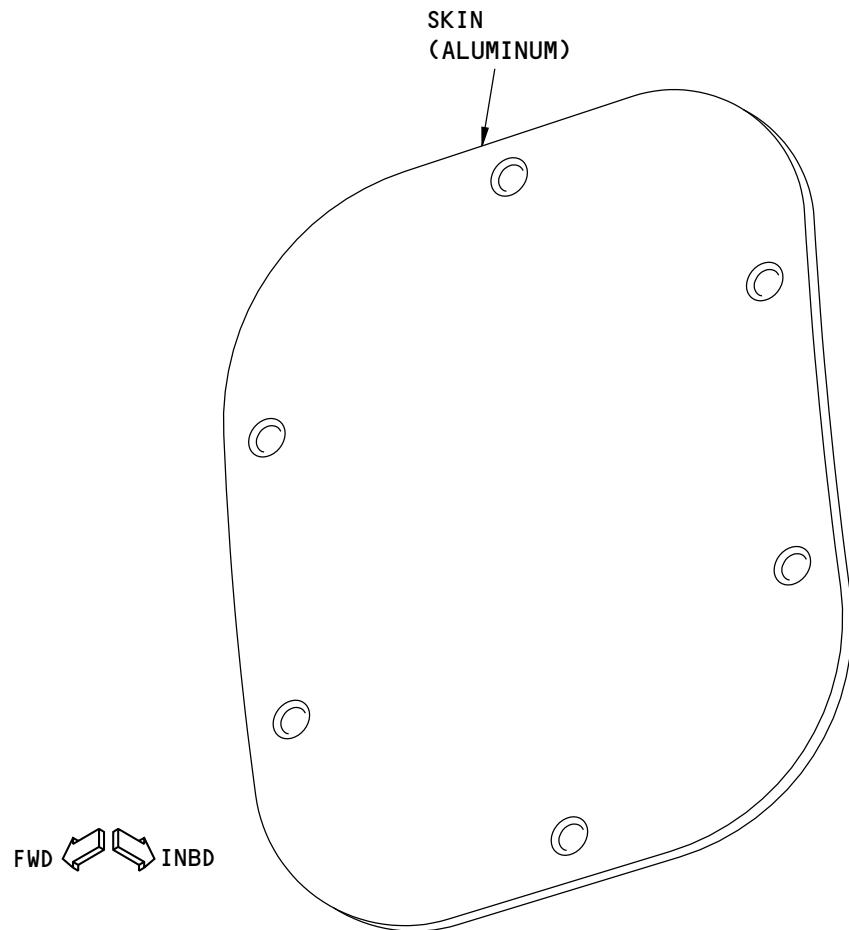
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Tailcone System Access Door Skin
Figure 102

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ALLOWABLE DAMAGE 7

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3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Cracks are not permitted.
- B. Nicks, Gouges, Scratches, and Corrosion:
 - (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 7, Details A , B , C , D , and E .
- C. Dents:
 - (1) Dents are permitted as follows:
 - (a) Dents are permitted if they meet the limits of Allowable Damage Limits, Figure 103/ ALLOWABLE DAMAGE 7, Detail F .
 - (b) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.
- D. Holes and Punctures:
 - (1) Holes and Punctures are permitted if:
 - (a) They are a maximum of 0.25 inch in diameter
 - (b) They are a minimum of 1.00 inch away from a fastener hole, an edge, or other damage
 - (c) They are filled with a 2117-T3 or 2117-T4 aluminum rivet.
NOTE: The thickness of the skin allows for the installation of countersunk rivets, which is preferred.
 - 1) Install the rivet without sealant.

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ALLOWABLE DAMAGE 7

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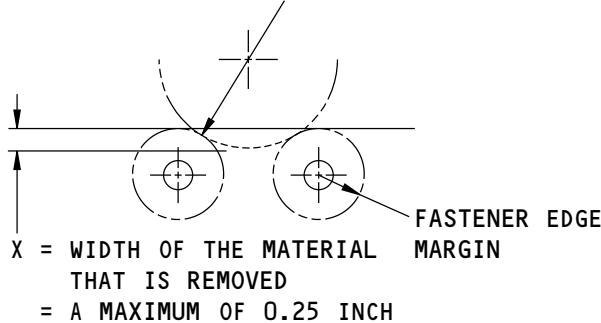
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STRUCTURAL REPAIR MANUAL

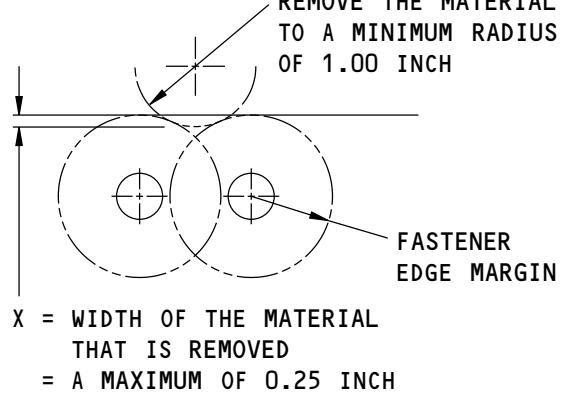
REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS DO NOT HAVE AN OVERLAP

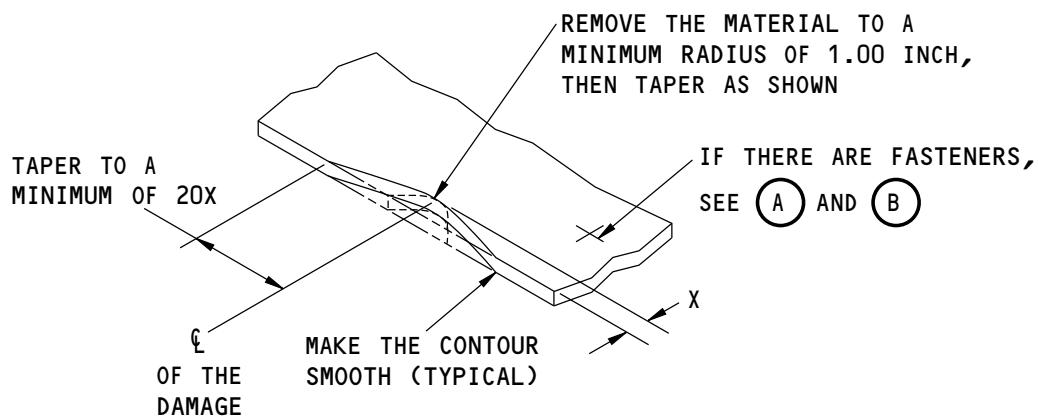
(A)

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS HAVE AN OVERLAP

(B)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.25 INCH

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(C)

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Allowable Damage Limits
Figure 103 (Sheet 1 of 3)

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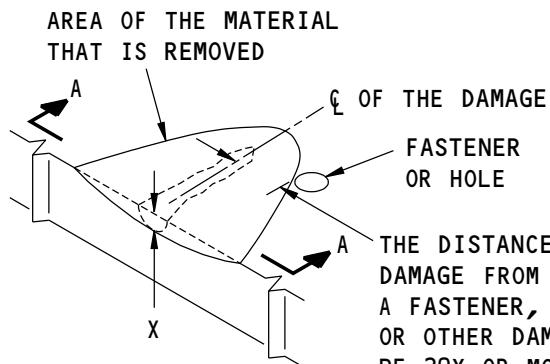
ALLOWABLE DAMAGE 7

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REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN

T = THICKNESS OF THE MATERIAL

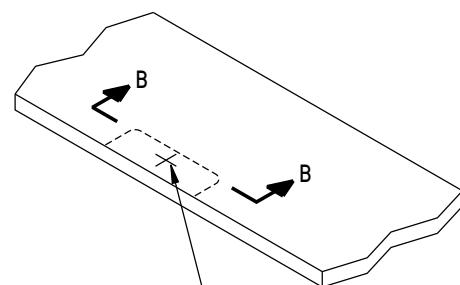
MAKE THE TAPER TO A MINIMUM OF 20X

X = DEPTH OF THE MATERIAL THAT IS REMOVED = A MAXIMUM OF 0.33T

A-A

REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)



REMOVE THE FASTENER BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENER AFTER THE REWORK IS COMPLETED

T = THICKNESS OF THE MATERIAL

MAKE IT SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH

X = THE DEPTH OF THE MATERIAL REMOVED = 0.33T MAXIMUM

B-B

REMOVAL OF CORROSION DAMAGE

(E)

F74419 S0006587051_V1

**Allowable Damage Limits
Figure 103 (Sheet 2 of 3)**

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ALLOWABLE DAMAGE 7

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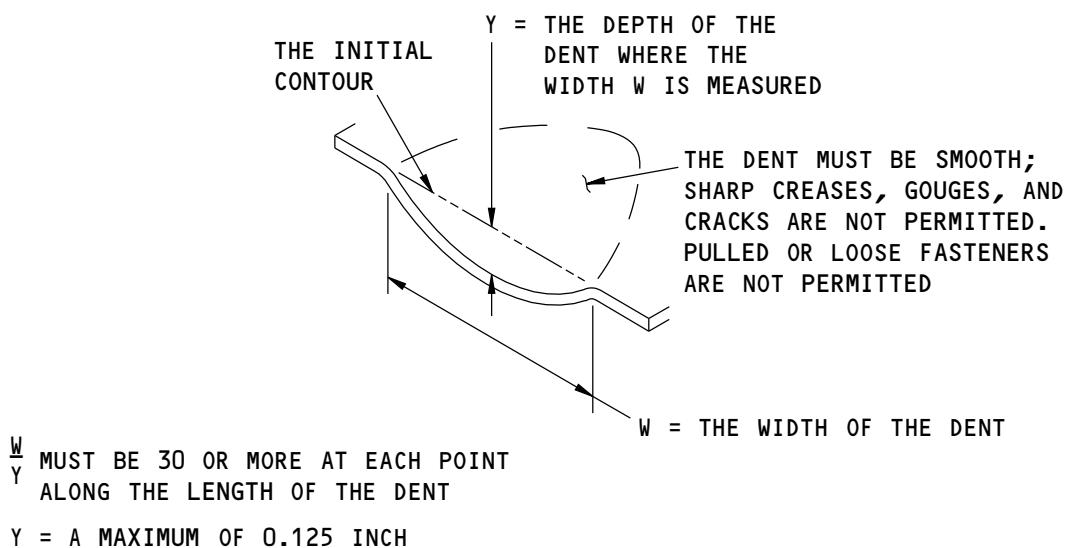
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A DENT THAT IS PERMITTED

(F)

F74420 S0006587052_V1

Allowable Damage Limits
Figure 103 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 7
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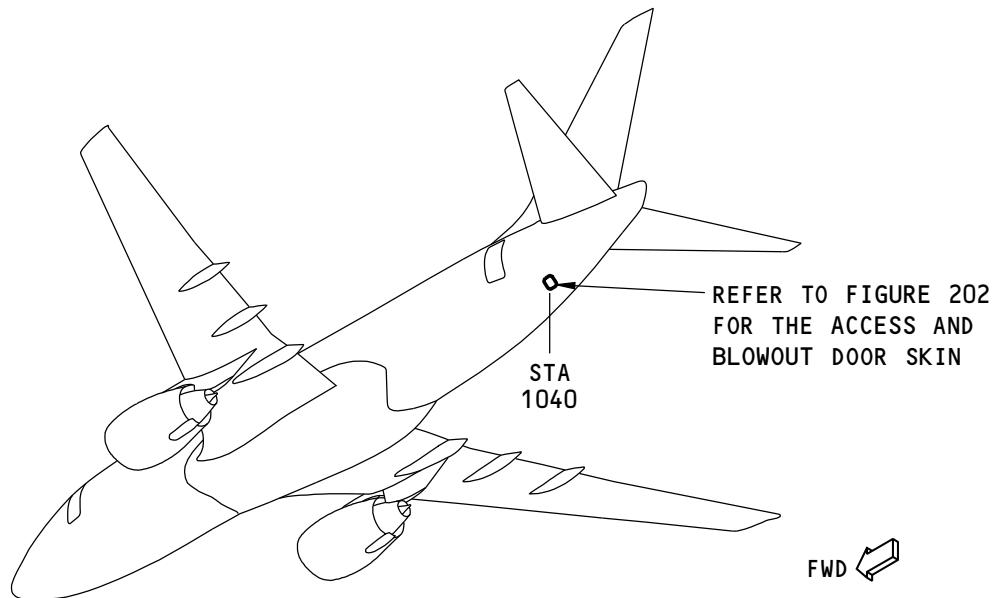


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STRUCTURAL REPAIR MANUAL

REPAIR 1 - ACCESS AND BLOWOUT DOOR SKIN - CHEM-MILLED SKIN REPLACEMENT BY SOLID SKIN

1. Applicability

- A. Repair 1 is applicable to damage to the access and blowout door skin shown in Access and Blowout Door Skin Location, Figure 201/REPAIR 1 and Access and Blowout Door Skin, Figure 202/REPAIR 1.



Access and Blowout Door Skin Location
Figure 201

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REPAIR 1

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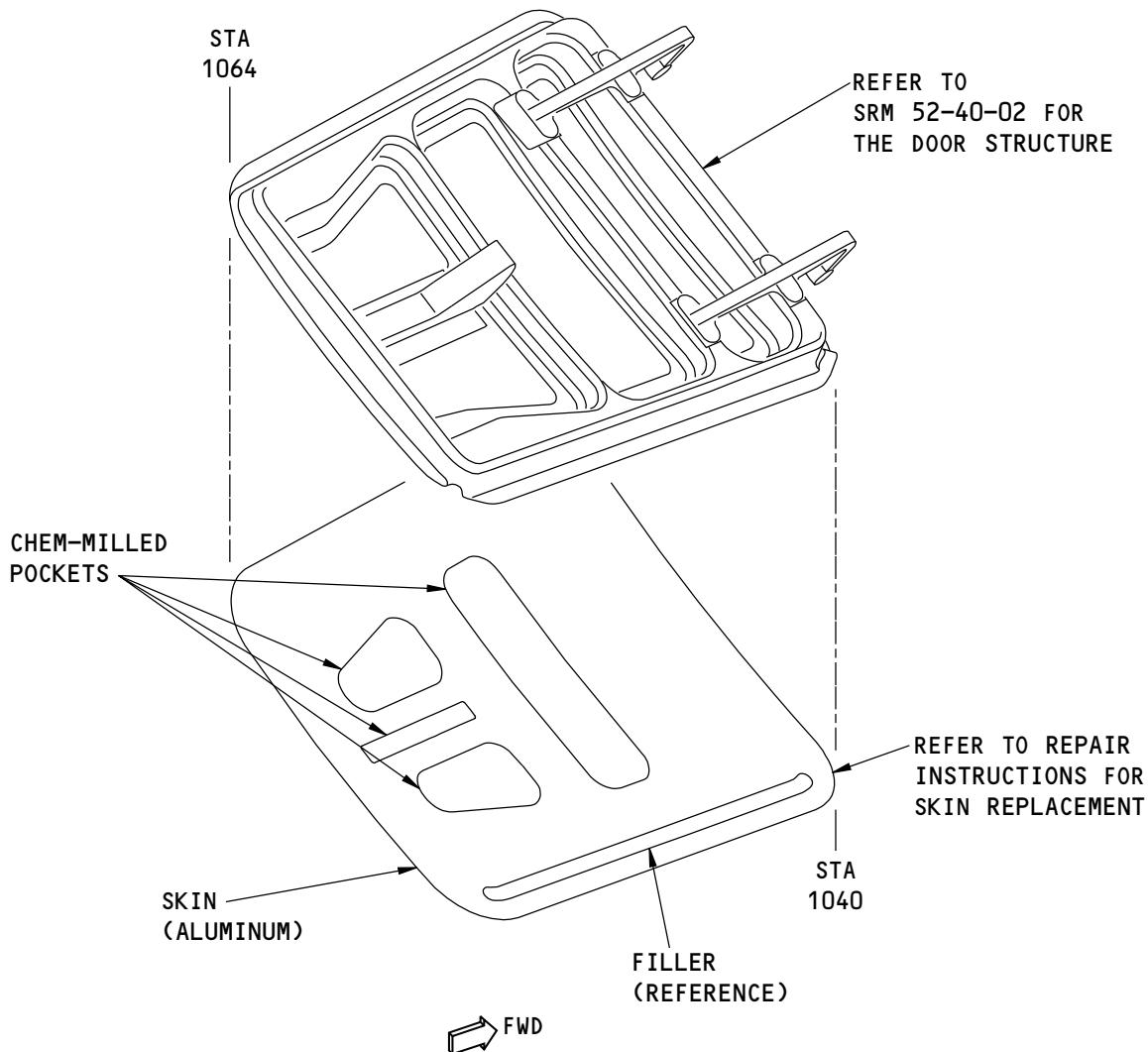
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Access and Blowout Door Skin
Figure 202

52-40-01

REPAIR 1
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2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 5 can be used when applicable if:
 - (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 5 before you start a repair.

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-08	COUNTERSINKING
52-00-01	TYPICAL DOOR SKIN
AMM 51-21-99	DECORATIVE EXTERIOR PAINT SYSTEM
AMM 52-49-11	SECTION 48 ACCESS AND BLOWOUT DOOR
AMM 52-49-11-000-802	Section 48 Access and Blowout Door Removal (P/B 401)
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Repair Instructions

- A. Remove the necessary parts of the door to get access to the damaged area.
- B. Remove the skin attachment fasteners as applicable. Refer to FASTENER INSTALLATION AND REMOVAL, 51-40-02 and AMM TASK 52-49-11-000-802 .
- C. Remove the damaged door skin.
- D. Inspect the internal structure to make sure that no cracks, deformation or other damages exist after the removal of the original production door skin. Do a detailed close visual inspection with a 10X magnification to inspect the internal structure to make sure no corrosion exist.
- E. Do an open hole High Frequency Eddy Current (HFEC) inspection on all initial fastener holes in the door structure to make sure that there are no cracks. Refer to 737 NDT Part 6, 51-00-00, Procedure 16 in the skin internal structure to make sure that no cracks exist. If any other damages are found, contact the Boeing Company.
- F. Make the Part 1 Skin. Refer to the Table 201/REPAIR 1. Make the contour of the repair skin the same as the initial contour of the skin . Refer to AERODYNAMIC SMOOTHNESS, 51-10-01.

Table 201: REPAIR MATERIAL

ITEM	PART	QUANTITY	MATERIAL
[1]	Skin	1	Use 0.071 in. (1.803 mm) thick 7075-T6 clad sheet as given in QQ-A-250/13. * ^[1]

*[1] Chem-milling is not necessary.

- G. Drill and, as applicable, countersink the necessary fastener holes on Part [1] Skin. Refer to COUNTERSINKING, 51-40-08. Use initial skin as template for the fastener holes location.
- H. Remove all the nicks, scratches, gouges, burrs and sharp edges from the Part 1skin.

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REPAIR 1
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- I. Apply a chemical conversion coating to the repair area and to the bare surfaces of the skin. Refer to PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS, 51-20-01 for the protective treatment of metals.
- J. Apply two layers of BMS 10-11, Type 1 primer as given in SOPM 20-41-02 to repair area and the bare surfaces of the Part 1 skin.
- K. Install the Part 1 Skin to door structure.
 - (1) Apply BMS 5-95 sealant to the mating surfaces. Refer to REPAIR SEALING, 51-20-05.
 - (2) Install the fasteners. Fasteners that are not made of aluminum must be installed wet with BMS 5-95 sealant. Use the initial fastener locations, install the same type and diameter fastener as the initial fastener. It is permitted to oversize a maximum of 1/32 inch diameter as necessary.
- L. Install the parts that were removed before the repair was made.
- M. Install, fit, adjust and test the door. Refer to AMM SUBJECT 52-49-11.
- N. Restore the aircraft decorative exterior paint system in the repair area as applicable. Refer to AMM SUBJECT 51-21-99.

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REPAIR 1
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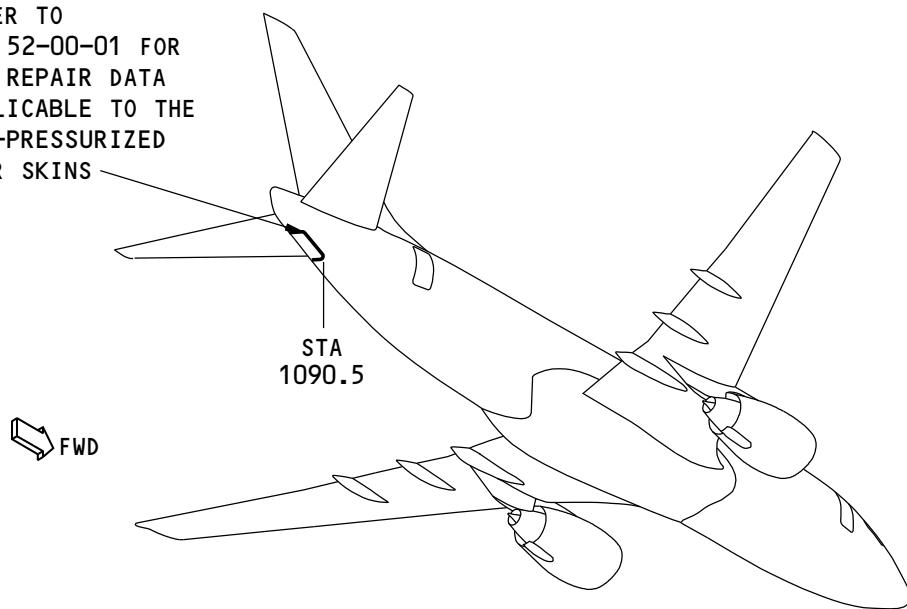
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STRUCTURAL REPAIR MANUAL
REPAIR 2 - APU ACCESS DOOR SKIN

REFER TO
SRM 52-00-01 FOR
THE REPAIR DATA
APPLICABLE TO THE
NON-PRESSURIZED
DOOR SKINS



APU Access Door Skin Repair
Figure 201

F74721 S0006587058_V1

52-40-01

REPAIR 2
Page 201

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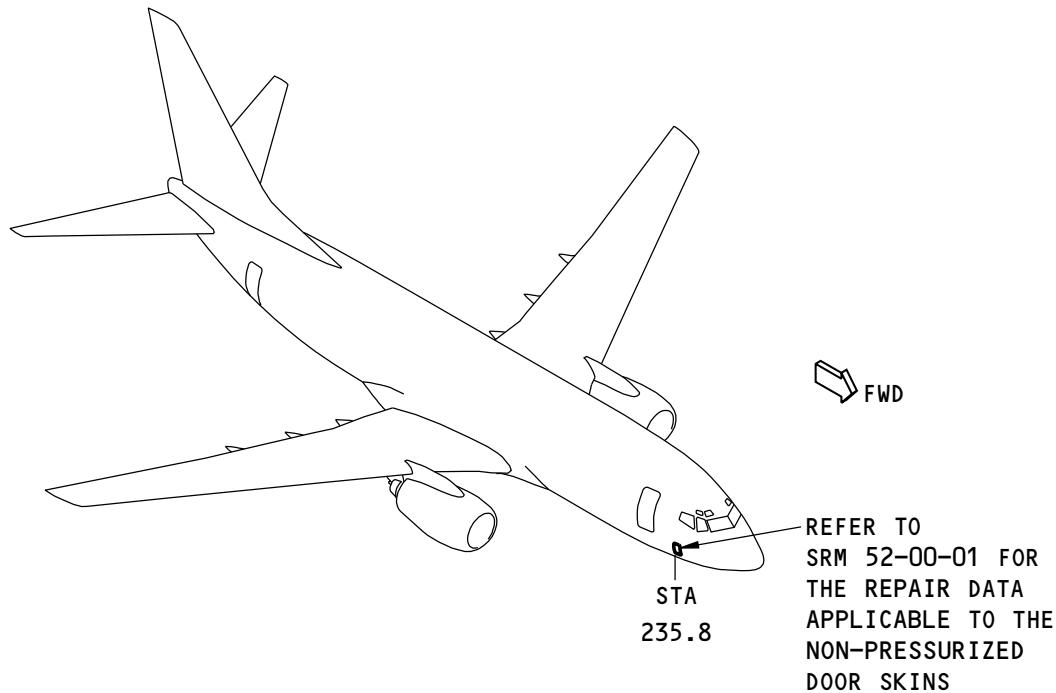
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REPAIR 3 - EXTERNAL POWER ACCESS DOOR SKIN



External Power Access Door Skin Repair
Figure 201

F74726 S0006587060_V1

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REPAIR 3
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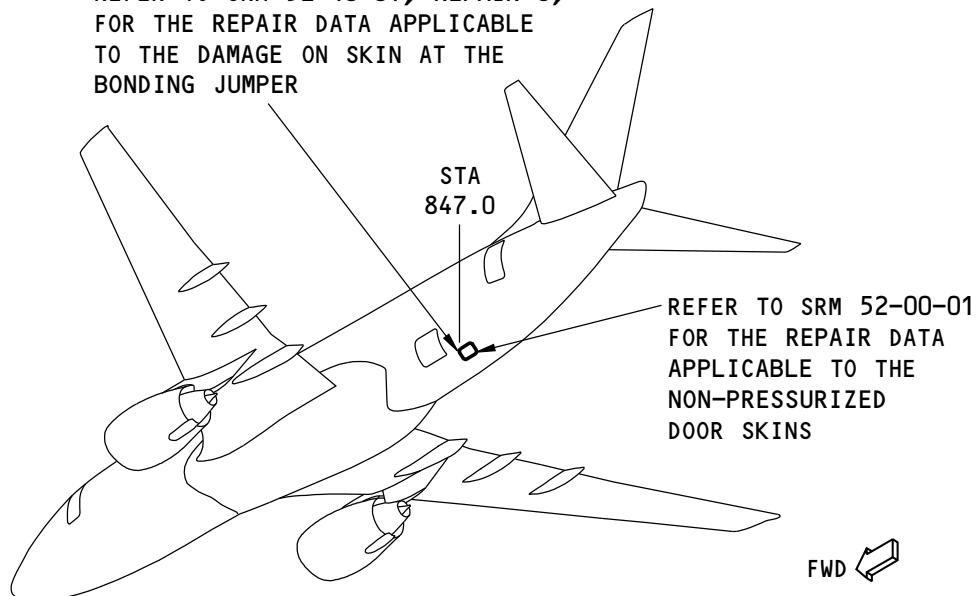
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REPAIR 4 - LAVATORY SERVICE ACCESS DOOR SKIN

REFER TO SRM 52-40-01, REPAIR 8,
FOR THE REPAIR DATA APPLICABLE
TO THE DAMAGE ON SKIN AT THE
BONDING JUMPER



Lavatory Service Access Door Skin Repair
Figure 201

F74731 S0006587062_V2

52-40-01

REPAIR 4
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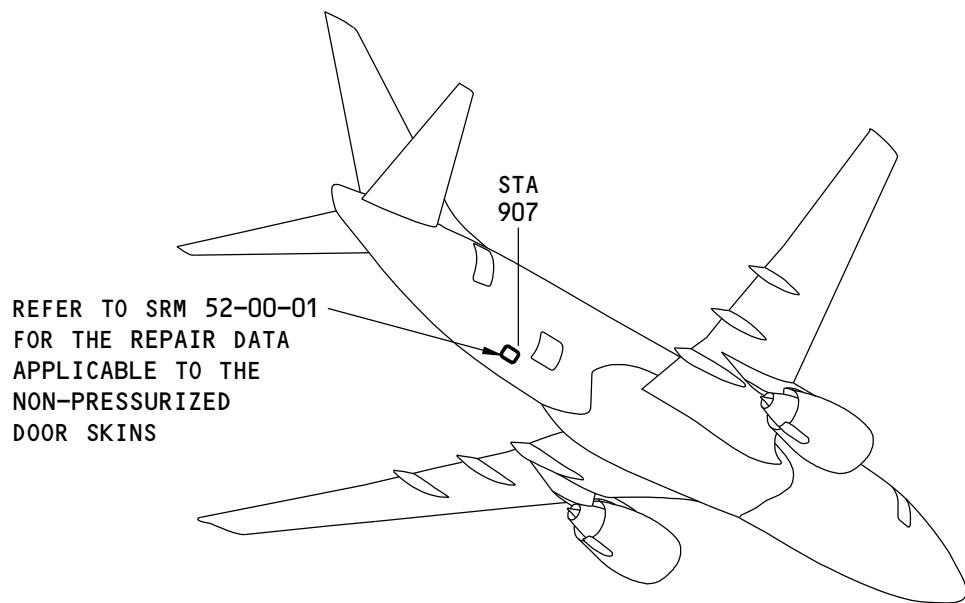
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REPAIR 5 - WATER SERVICE ACCESS DOOR SKIN



Water Service Access Door Skin Repair
Figure 201

F74744 S0006587064_V1

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REPAIR 5
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STRUCTURAL REPAIR MANUAL

REPAIR 6 - TAILCONE ACCESS DOOR SKIN

1. Applicability

- A. Repair 6 is applicable to the tailcone access door skin composite panel made of Glass Fiber Reinforced Plastic (GFRP) shown in Tailcone Access Door Skin Repair, Figure 201/REPAIR 6.
- B. Repair 6 is applicable to damage that is more than the limits permitted in Allowable Damage 6. Refer to Allowable Damage 6 for the type and size of damage that is permitted.
- C. Repair 6 is applicable to airplane line number 1 thru 2049.

2. General

- A. Repair 6 gives instructions for Permanent or Interim Repairs. Refer to 51-00-06 to find the definitions of the different types of repairs.
- B. Refer to Definitions of the Facesheets, Figure 203/REPAIR 6 for the definitions of the facesheet of the honeycomb core area.
- C. Get access to the damaged area.
 - (1) Refer to 51-40-02 for information on fastener removal.
- D. Do an inspection of the damaged area to find the dimensions of the damage.
 - (1) Boeing recommends that you use an instrumented Non-Destructive Test (NDT) procedure. Refer to NDT, Part 1, 51-01-02 for inspection procedures.

NOTE: Other inspection methods that have been examined and found to be satisfactory by the operator can be used.

- E. Refer to Definitions of the Damage Size, Figure 202/REPAIR 6, Details A , B , and C for the definitions of the length, width, and depth of damage.
- F. Do the repair as given in Paragraph 4./REPAIR 6
- G. Put the access door back to the initial condition, as applicable.
 - (1) Install the access door, if it was removed.
 - (a) Refer to 51-40-02 for information on fastener installation.
 - (2) Make sure the aerodynamic smoothness is satisfactory or there will be a decrease in the performance of the airplane. Refer to 51-10-01.

52-40-01

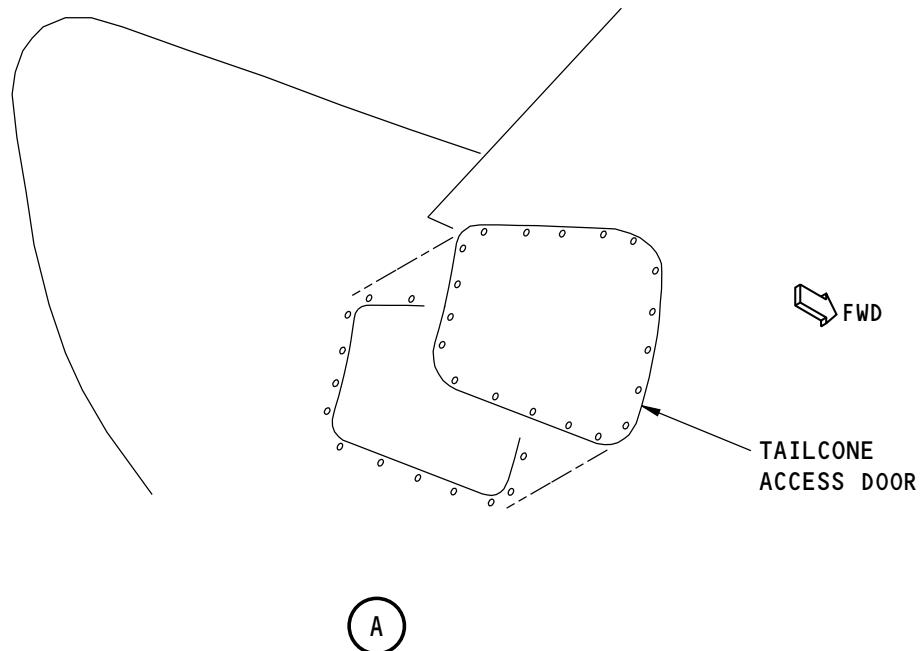
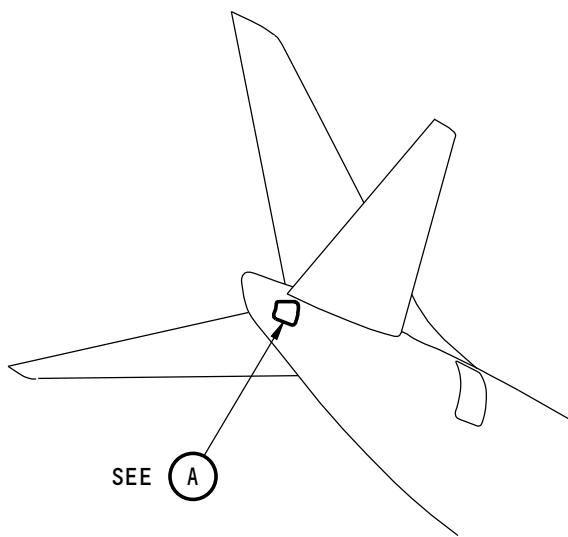
REPAIR 6
Page 201
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Tailcone Access Door Skin Repair
Figure 201

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REPAIR 6
Page 202

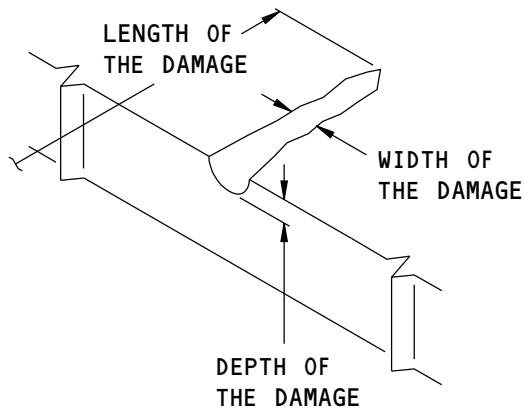
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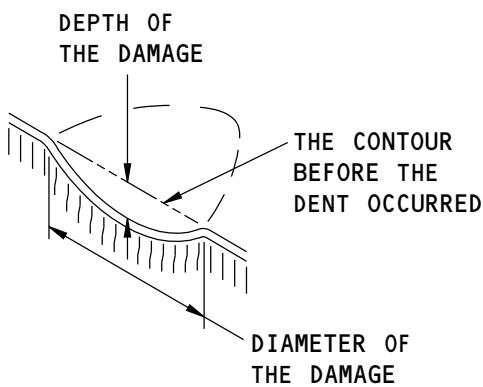


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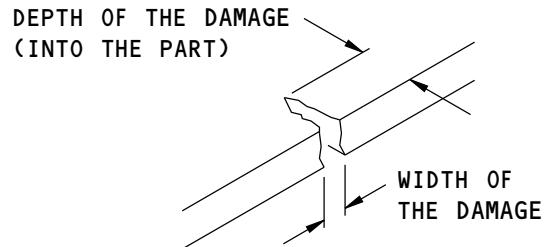
SIZE DEFINITIONS FOR NICK, GOUGE, OR SCRATCH DAMAGE

(A)



SIZE DEFINITIONS FOR
DENT DAMAGE

(B)



SIZE DEFINITIONS FOR
EDGE DAMAGE

(C)

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Definitions of the Damage Size
Figure 202

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REPAIR 6
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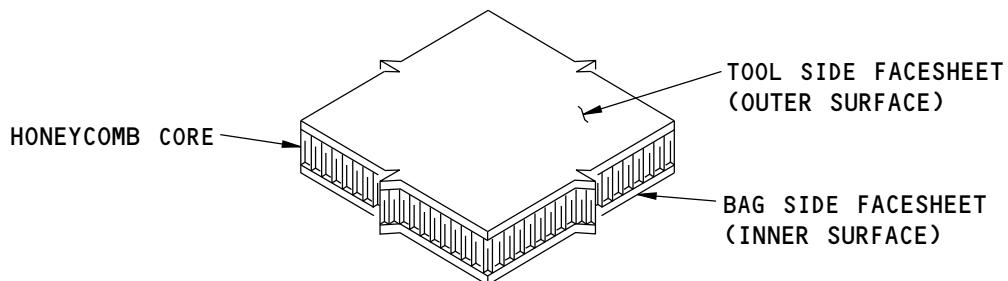
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G33052 S0006587068_V1

Definitions of the Facesheets
Figure 203

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-03	FASTENER SUBSTITUTION
51-70-04	REPAIR PROCEDURES FOR WET LAYUP MATERIALS
51-70-05	REPAIR PROCEDURES FOR PREIMPRregnATED MATERIALS
51-70-06	ROOM TEMPERATURE CURE REPAIRS
737 NDT Part 1, 51-01-01	Inspection of Repairs to Composite Structure
737 NDT Part 1, 51-01-02	NDT Examination of Composite Structure for Impact Damage

4. Repair Instructions

- A. For dents that are a maximum of 2 inches in diameter and have no fiber damage and delamination, do the steps that follow:
 - (1) Fill the dent with BMS 5-28, Type 7 potting compound
 - (2) Apply a fiberglass patch over the potted area as given in 51-70-04.
- B. For dents that are not permitted by Paragraph 4.A./REPAIR 6 and for other damage that is not permitted by Allowable Damage 6, refer to Table 201/REPAIR 6.
- C. Use the instructions that follow to do an Interim repair with wet layup materials at room temperature cure.
 - (1) Only one repair is permitted for each 144 square inches of door skin area.
 - (2) The edges of the repair must be 6.0 inches or more away from:
 - (a) The edge of other repairs
 - (b) The edge of the part
 - (c) The edge of other damage. This does not include damage that is permitted and sealed as given in Allowable Damage 6.

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REPAIR 6
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Table 201:

REPAIR DATA FOR THE 250°F (121°C) CURE TAILCONE ACCESS DOOR SKIN				
REPAIR TYPE	INTERIM WET LAYUP	PERMANENT WET LAYUP	PERMANENT WET LAYUP	PERMANENT PREIMPREGNATED LAYUP
REPAIR CURE TEMPERATURE	Room Temperature	150°F (66°C)	200°F (93°C)	250°F (121°C)
REPAIR SIZE	Damage that is a maximum of: - 3.0 inches in diameter - 30 percent of the smallest dimension across the panel at the damage location - One facesheet and the honey-comb core in depth	Damage that is a maximum of: - 5.0 inches in diameter - 50 percent of the smallest dimension across the panel at the damage location	Damage that is a maximum of: - 6.0 inches in diameter - 50 percent of the smallest dimension across the panel at the damage location	There are no limits on the dimensions of the repair
REPAIR PROCEDURE	SRM 51-70-06 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.D	SRM 51-70-04 and Paragraph 4.E	SRM 51-70-05 and Paragraph 4.F

- (3) Repair the damage as given in 51-70-06.
 - (a) Use the same number of repair plies as the number of initial plies that were removed.
- (4) Do an inspection of the repair at each 800 flight hour interval.
 - (a) Refer to 737 NDT Part 1, 51-01-01 for inspection procedures.
 - (b) If deterioration is found, replace the repair with a Permanent repair.

NOTE: Other inspection methods that have been examined and found to be satisfactory by the operator can be used.

- D. Use the instructions that follow to do a Permanent repair with wet layup materials at 150°F (66°C) cure.
 - (1) Only one repair is permitted for each 144 square inches of panel area.
 - (2) The edges of the repair must be 3.0 inches or more away from:
 - (a) The edge of other repairs
 - (b) The edge of the part
 - (c) The edge of other damage. This does not include damage that is permitted and sealed as given in Allowable Damage 6.
 - (3) Repair the damage as given in 51-70-04.
 - (a) Use the same number of repair plies as the number of initial plies that were removed.
 - (b) Add one structural ply of BMS 9-3, Type H-2, or Type H-3 glass fabric that is ± 45 degrees.
 - (c) Add a second structural ply of BMS 9-3, Type H-2 or Type H-3 glass fabric that is 0 or 90 degrees.
- E. Use the instructions that follow to do a Permanent repair with wet layup materials at 200°F (93°C) cure.
 - (1) Only one repair is permitted for each 144 square inches of panel area.
 - (2) The edges of the repair must be 3.0 inches or more away from:

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STRUCTURAL REPAIR MANUAL

- (a) The edge of other repairs
 - (b) The edge of the part
 - (c) The edge of other damage. This does not include damage that is permitted and sealed as given in Allowable Damage 6.
- (3) Repair the damage as given in 51-70-04.
- (a) Use the same number of repair plies as the number of initial plies that were removed.
 - (b) Add one structural ply of BMS 9-3, Type H-2, or Type H-3 glass fabric that is ± 45 degrees.
 - (c) Add a second structural ply of BMS 9-3, Type H-2 or Type H-3 glass fabric that is 0 or 90 degrees.
- F. Use the instruction that follows to do a Permanent repair with preimpregnated layup materials at 250°F (121°C) cure.
- (1) Repair the damage as given in 51-70-05.
- (a) Use the same number of repair plies as the number of initial plies that were removed

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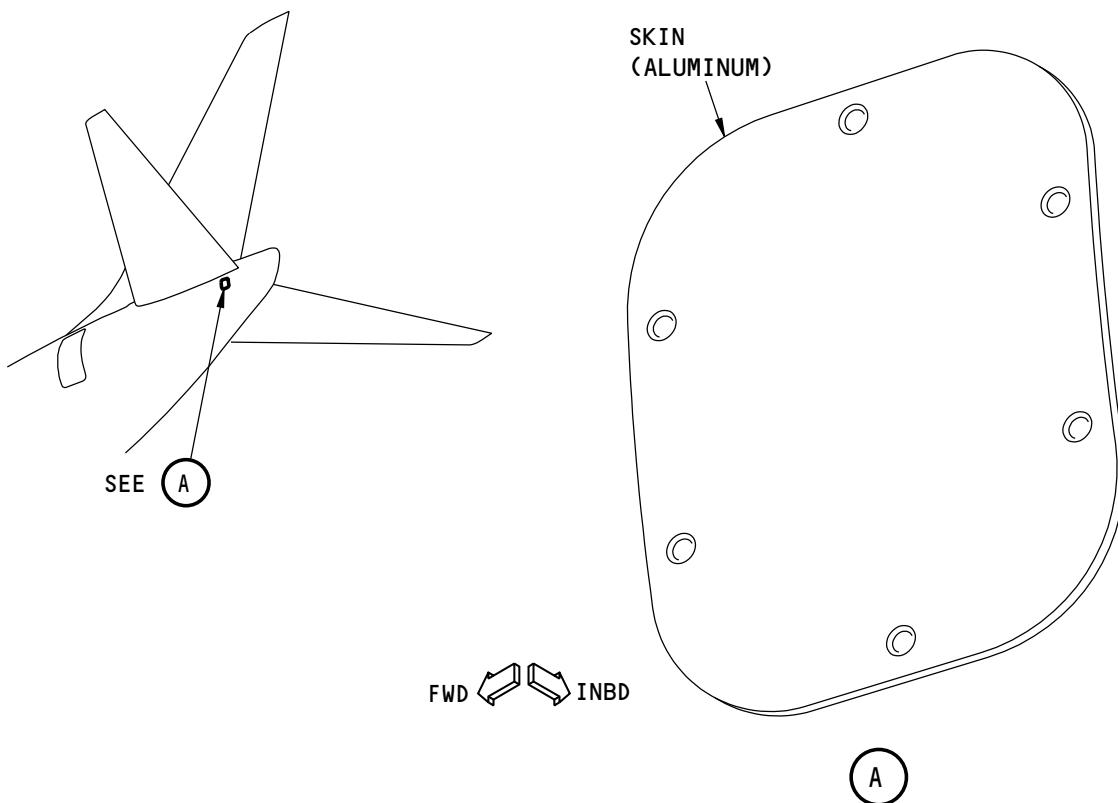
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STRUCTURAL REPAIR MANUAL

REPAIR 7 - TAILCONE SYSTEM ACCESS DOOR SKIN



NOTE: THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME. IF DAMAGE TO THE TAILCONE SYSTEM ACCESS DOOR SKIN IS MORE THAN THE LIMITS GIVEN IN SRM 52-40-01, ALLOWABLE DAMAGE 7, REPLACE THE DAMAGED PART.

Tailcone System Access Door Skin Location
Figure 201

G76346 S0006587071_V2

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REPAIR 7
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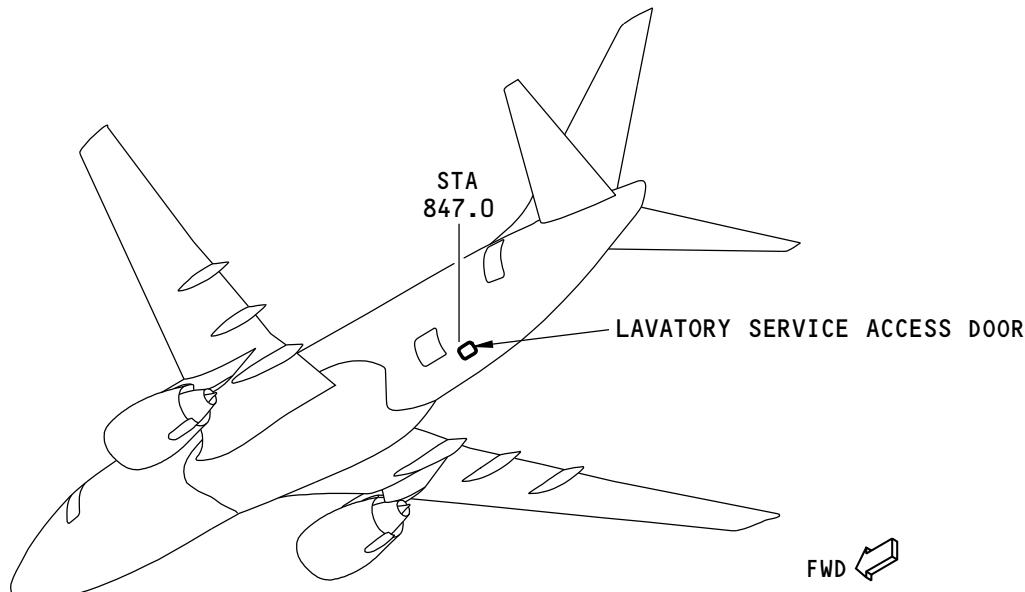


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STRUCTURAL REPAIR MANUAL

REPAIR 8 - LAVATORY SERVICE ACCESS DOOR SKIN REPAIR AT THE BONDING JUMPER

1. Applicability

- A. This repair is applicable to damage on Lavatory Service Access Door Skin at the bonding jumper shown in Figure 201/REPAIR 8.



2276284 S0000513536_V1

Lavatory Service Access Door Location
Figure 201

2. General

- A. This repair is a permanent repair. Refer to 51-00-06, GENERAL for repair categories and definitions.
- B. D = fastener diameter.
- C. Keep a 2D minimum fastener edge margin.
- D. All dimensions are in inches, unless they are shown differently.
- E. Keep a minimum of 0.50 in. (12.70 mm) corner radius of all initial and repair parts, unless they are shown differently.
- F. Keep a 4D to 6D fastener spacing, unless it is shown differently.
- G. Make sure the cut edges of the repair and initial parts have a surface smoothness of 125 microinches Ra or smoother. Refer to 51-20-13, GENERAL.
- H. Make sure the repair and initial parts have a surface smoothness of 125 microinches Ra or smoother. Refer to 51-20-13, GENERAL.

3. References

Reference	Title
51-00-06, GENERAL	Structural Repair Definitions
51-20-01, GENERAL	Protective Treatment of Metallic and Composite Materials

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(Continued)

Reference	Title
51-20-05, GENERAL	Repair Sealing
51-20-13, GENERAL	Surface Roughness Finish Requirements
51-30-01, GENERAL	Sheet Metal Materials
51-40-02, GENERAL	Fastener Installation and Removal
51-40-05, GENERAL	Fastener Hole Sizes
AMM 52-49-07 P/B 401	WASTE TANK SERVICE PANEL - REMOVAL/INSTALLATION
SOPM 20-30-03	General Cleaning Procedures
SOPM 20-44-04	Application of Urethane Compatible Primer

4. Repair Instructions

- A. Get access to the damaged area.
 - (1) Remove the Lavatory Service Access Door as given in AMM PAGEBLOCK 52-49-07/401.
 - (2) Remove the bonding jumper. Keep a record of the fastener installation. Discard the bolt. Keep the hardware.
 - (3) If necessary, remove the latches and hinges. Refer to 51-40-02, GENERAL for information on fastener removal.
- B. Cut and remove the damaged part of the Lavatory Service Access Door skin at the bonding jumper. Refer to Figure 202/REPAIR 8.
- C. Make the repair parts. Refer to Table 201/REPAIR 8 and Figure 202/REPAIR 8.
 - (1) Make the contour of the Part 1 Doubler and the Part 2 Filler match the contour of the initial structure. Refer to 51-30-01, GENERAL.
 - (2) Make sure the Part 1 Doubler has the chamfer per Figure 203/REPAIR 8.
 - (3) There must be two rows of fasteners on each side of the cutout.

Table 201: REPAIR MATERIALS

PART		QUANTITY	MATERIAL
1	Doubler	1	0.100 in. (2.540 mm) thick clad 2024-T3
2	Filler	1	0.100 in. (2.540 mm) thick clad 2024-T3

- D. Assemble the repair parts. Refer to Figure 202/REPAIR 8.
- E. Drill the fastener holes. Refer to 51-40-05, GENERAL and Figure 202/REPAIR 8 for the fastener locations, type and size.
 - If necessary, do a spot face to make a flat surface for the fastener. Make spot face diameter 0.5 in. (12.7 mm) with a corner radius 0.06 in. (1.5 mm) to 0.09 in. (2.3 mm). Make sure that minimum thickness of the door is 0.06 in. (1.52 mm).
- F. Disassemble the repair parts.
- G. Remove all nicks, scratches, burrs, and sharp edges from the repair parts and the bare surfaces of the initial parts.
- H. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the initial parts. Refer to 51-20-01, GENERAL.
- I. Apply two layers of BMS 10-79, Type III primer to the repair parts and to the bare surfaces of the initial parts. Refer to SOPM 20-44-04.

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REPAIR 8

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- J. Install the repair parts with BMS 5-95 sealant between the mating surfaces. Refer to 51-20-05, GENERAL.
- K. Install the fasteners. Refer to 51-40-02, GENERAL.
- L. Apply a fillet seal and fill all gaps with BMS 5-95 sealant. Refer to 51-20-05, GENERAL.
- M. Apply a decorative external finish.
- N. Apply a layer of BMS 3-23, corrosion inhibiting compound to the internal surfaces of the repair area. Refer to 51-20-01, GENERAL.
- O. Install the bonding jumper.
 - (1) Clean the surfaces at the ground stud location. Refer to SOPM 20-30-03.
 - (2) Apply a chemical conversion coating. Refer to 51-20-01, GENERAL.
 - (3) Install the bonding jumper with a BACB30ZE3K6 bolt and hardware that was removed before the repair.
 - (4) Seal the ground stud with BMS 5-95 sealant, Class B.
 - (5) The maximum electrical resistance must be 0.001 Ohm between terminal 1 and the adjacent aluminum structure.
- P. Install the latches and hinges.
- Q. Install the structures that were removed back to serviceable condition. Refer to AMM PAGEBLOCK 52-49-07/401.

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REPAIR 8
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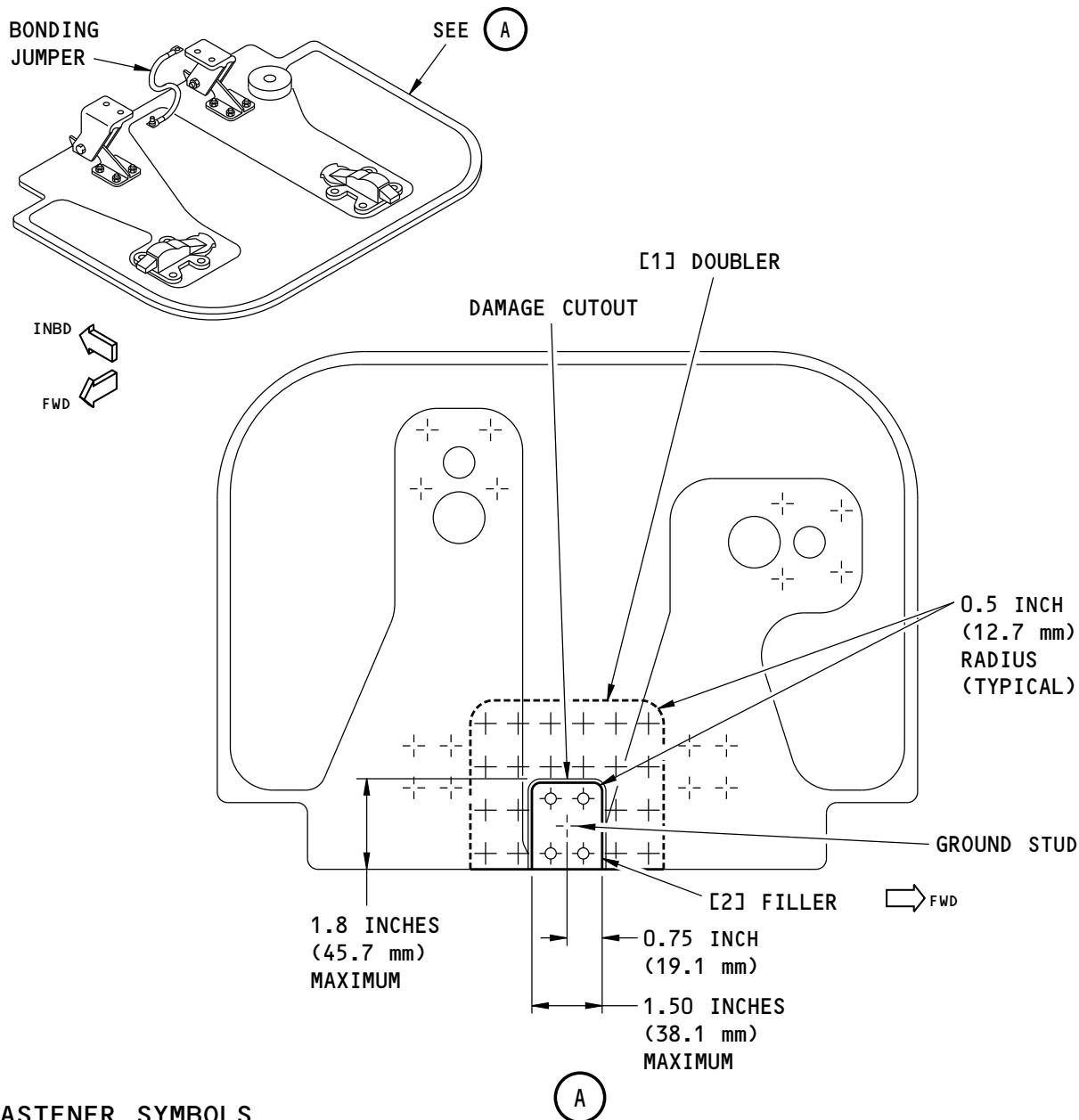
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FASTENER SYMBOLS

- - REFERENCE FASTENER LOCATION.
- + + REPAIR FASTENER LOCATION. INSTALL A BACR15GF6D RIVET. AS AN ALTERNATIVE INSTALL A BACR15CE6D.
- ○ REPAIR FASTENER LOCATION. INSTALL A BACR15GF5D RIVET. AS AN ALTERNATIVE INSTALL A BACR15CE5D.

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Lavatory Service Access Door Skin Repair at the Bonding Jumper
Figure 202

52-40-01

REPAIR 8
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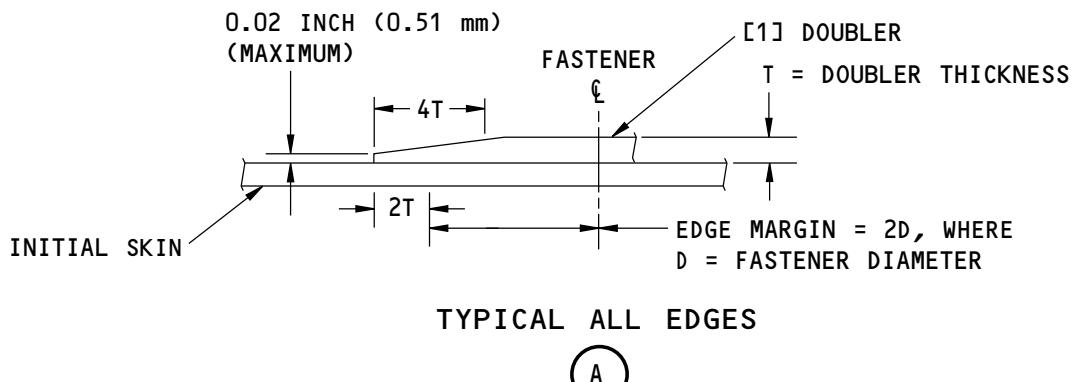
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2286440 S0000516967_V1

Layout of the Repair Parts
Figure 203

52-40-01

REPAIR 8
Page 205

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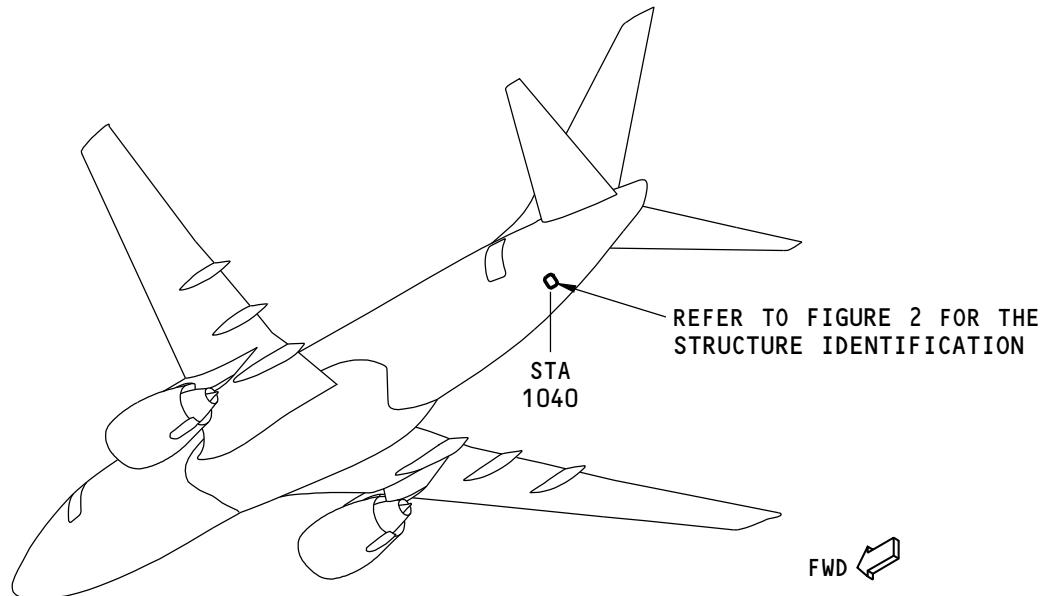
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IDENTIFICATION 1 - ACCESS AND BLOWOUT DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

F91061 S0006587075_V1

Access and Blowout Door Structure Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
148A6100	Door Installation - Access and Blowout Door
148A6110	Door Assembly - Access and Blowout Door
65C35118	Pan - Access and Blowout Door, Section 48
148A6111	Pan - Access and Blowout Door, Section 48

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IDENTIFICATION 1

Page 1

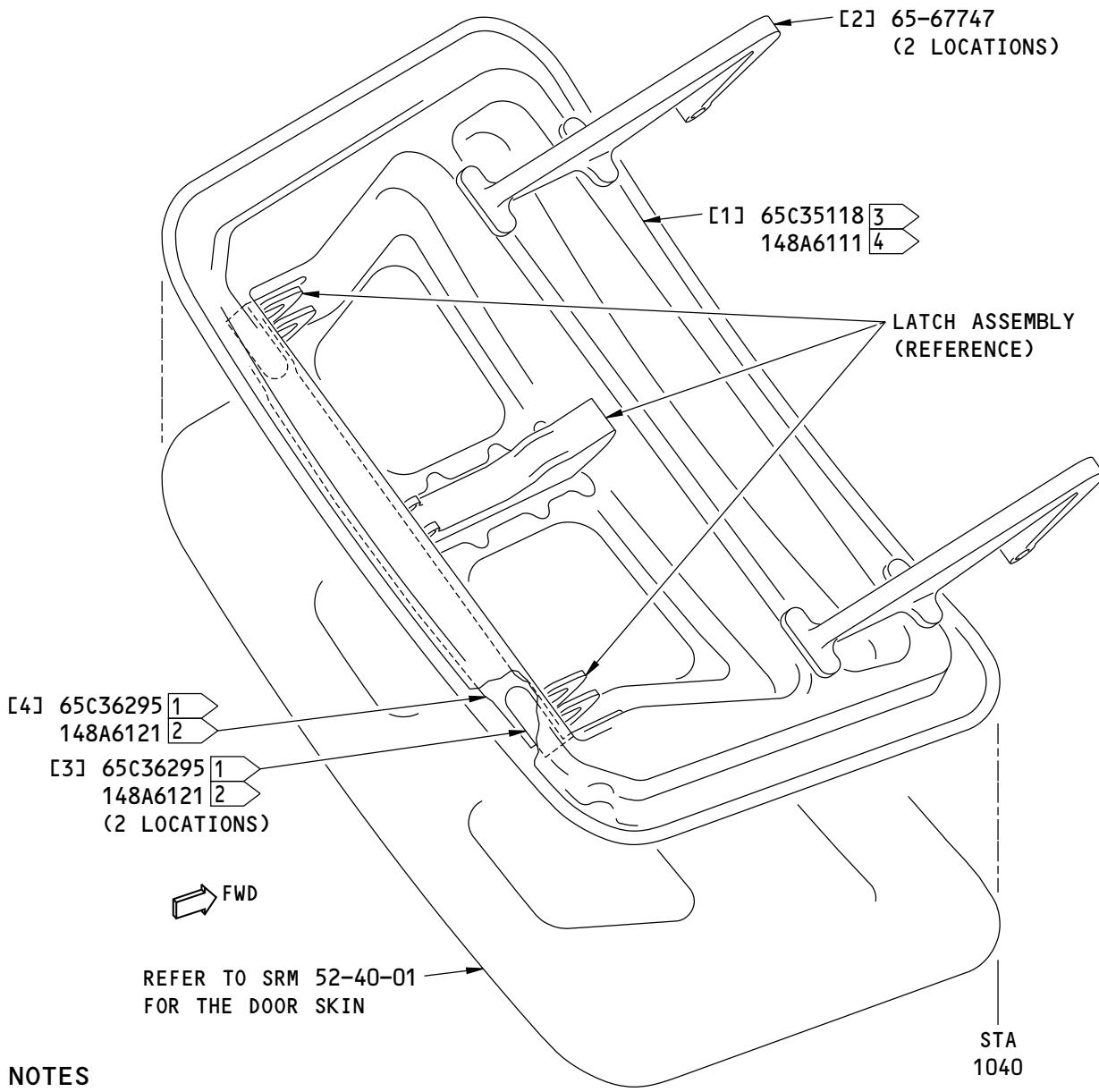
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NOTES

- REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

- [1] AIRPLANE LINE NUMBERS 1 THRU 48
- [2] AIRPLANE LINE NUMBERS 49 AND ON
- [3] AIRPLANE LINE NUMBERS 1 THRU 331
- [4] AIRPLANE LINE NUMBERS 332 AND ON

J91028 S0000184122_V1

Access and Blowout Door Structure Identification
Figure 2

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IDENTIFICATION 1

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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Pan	0.059 (1.50)	7454-T76 SPF grade sheet as given in BMS 7-318	Line Numbers 1 thru 331
		0.063 (1.60)	7454-T4 bare sheet as given in BMS 7-318	Line Numbers 332 and on
[2]	Hinge		7075-T6 Forging as given in QQ-A367	
[3]	Latch Tee		BAC1505-100952 7075-T6511 extrusion as given in QQ-A-200/11	Line Numbers 1 thru 48
[3]	Latch Angle		BAC1503-100194 7075-T77351 extrusion as given in QQ-A-200/11	Line Numbers 49 and on
[4]	Latch Support	0.063 (1.60)	7075-T62 clad sheet as given in BMS 7-318	Line Numbers 1 thru 48
			7050-T7351 plate as given in QQ-A-250/12	Line Numbers 49 and on

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1

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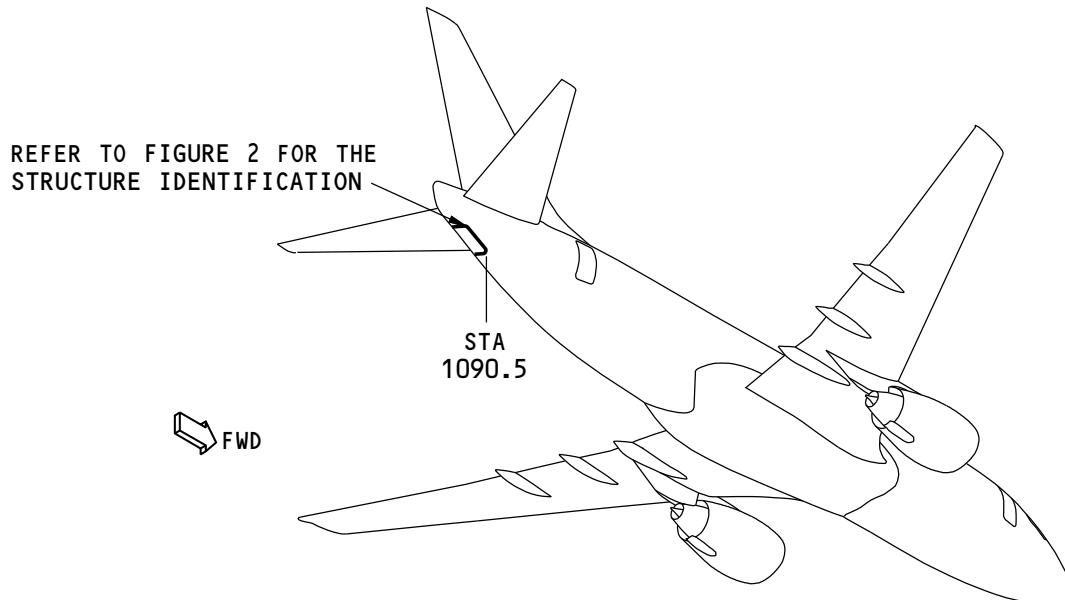
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IDENTIFICATION 2 - APU ACCESS DOOR STRUCTURE



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

F87052 S0006587081_V1

APU Access Door Structure Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
148A6350	APU Access Door Installation

52-40-02

IDENTIFICATION 2

Page 1

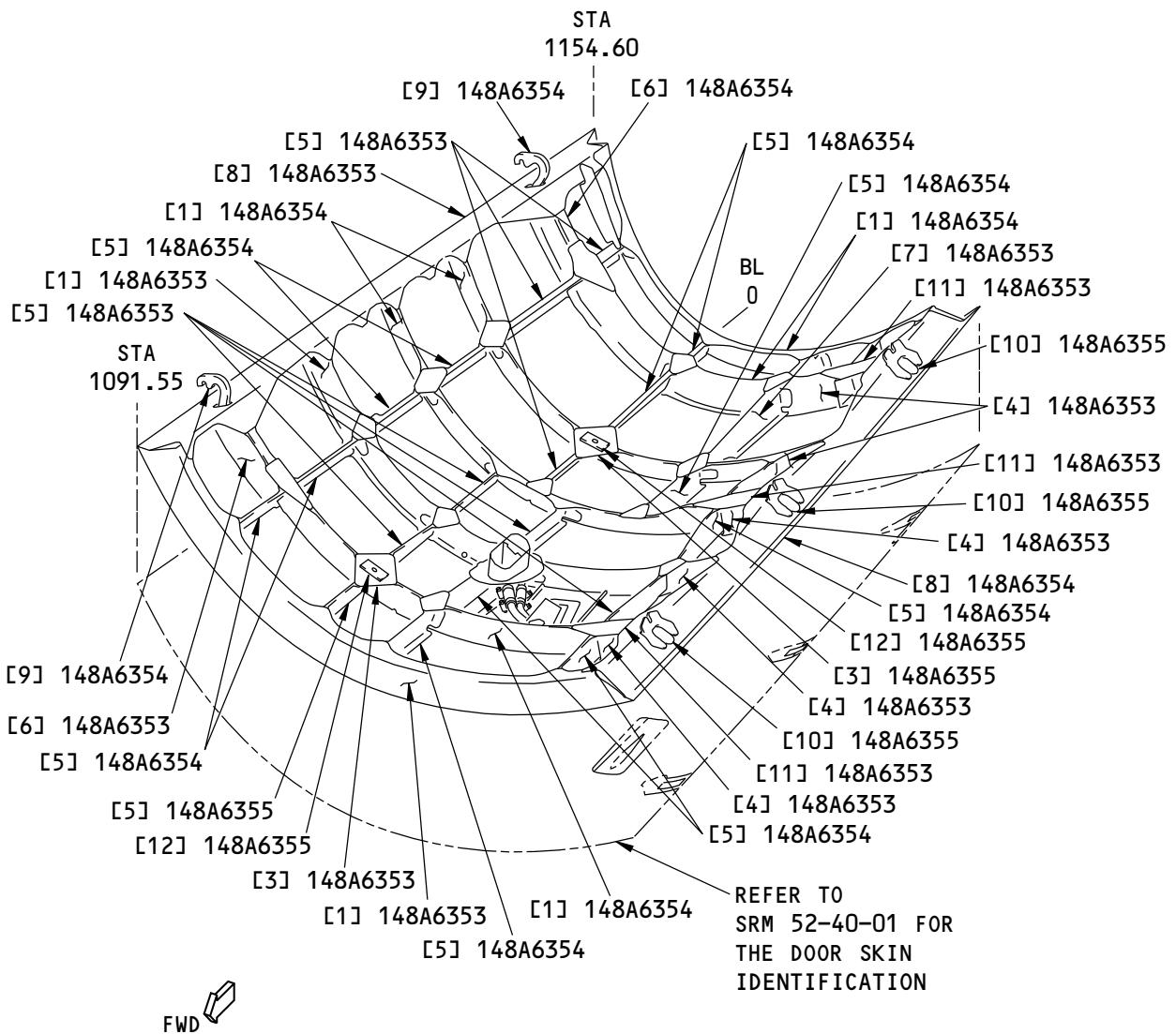
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F87400 S0006587083_V1

APU Access Door Structure Identification
Figure 2

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IDENTIFICATION 2
Page 2
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Frame	0.050 (1.27)	2024-T42 clad sheet	
[2]	Gusset	0.050 (1.27)	2024-T42 clad sheet	
[3]	Hinge Gusset	0.063 (1.60)	2024-T42 clad sheet	
[4]	Frame Double Cant	1.30 (3.30)	7075-T7351 plate	
[5]	Intercostal	0.040 (1.02)	2024-T42 clad sheet	
[6]	Hinge Supports	0.050 (1.27)	2024-T42 clad sheet	
[7]	Intercostal	0.050 (1.27)	2024-T42 clad sheet	
[8]	Zee Edge - LH, RH	0.050 (1.27)	2024-T42 clad sheet	
[9]	Hinges	0.700 (1.78)	15-5PH CRES plate heat treated to 150-170 KSI	
[10]	Stop Fitting - FWD, MID, AFT	0.800 (2.03)	15-5PH CRES plate heat treated to 150-170 KSI	
[11]	Latch Gusset MID, AFT	0.050 (1.27)	2024-T3 clad sheet	
[12]	Plate	0.180 (4.57)	2024-T3 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 2

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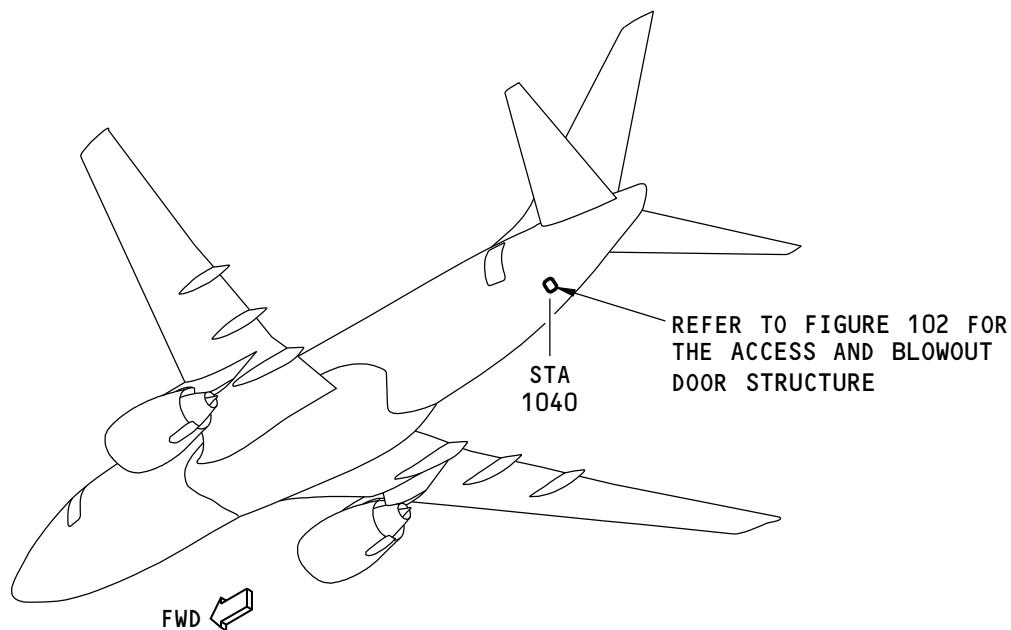
ALLOWABLE DAMAGE 1 - ACCESS AND BLOWOUT DOOR STRUCTURE

1. Applicability

- A. This subject gives the allowable damage limits for the structure on the access and blowout door shown in Access and Blowout Door Structure Location, Figure 101/ALLOWABLE DAMAGE 1.

2. General

- A. Refer to Paragraph 4./ALLOWABLE DAMAGE 1 for the allowable damage limits.
- B. Remove the damage as necessary.
- (1) Refer to 51-10-02 for the inspection and removal of the damage.
 - (2) Refer to 51-30-03 for the possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the possible sources of the equipment and tools you can use to remove the damage.
- C. If damage is removed from the structure, do the steps that follow:
- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.



Access and Blowout Door Structure Location
Figure 101

F91091 S0006587087_V1

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ALLOWABLE DAMAGE 1

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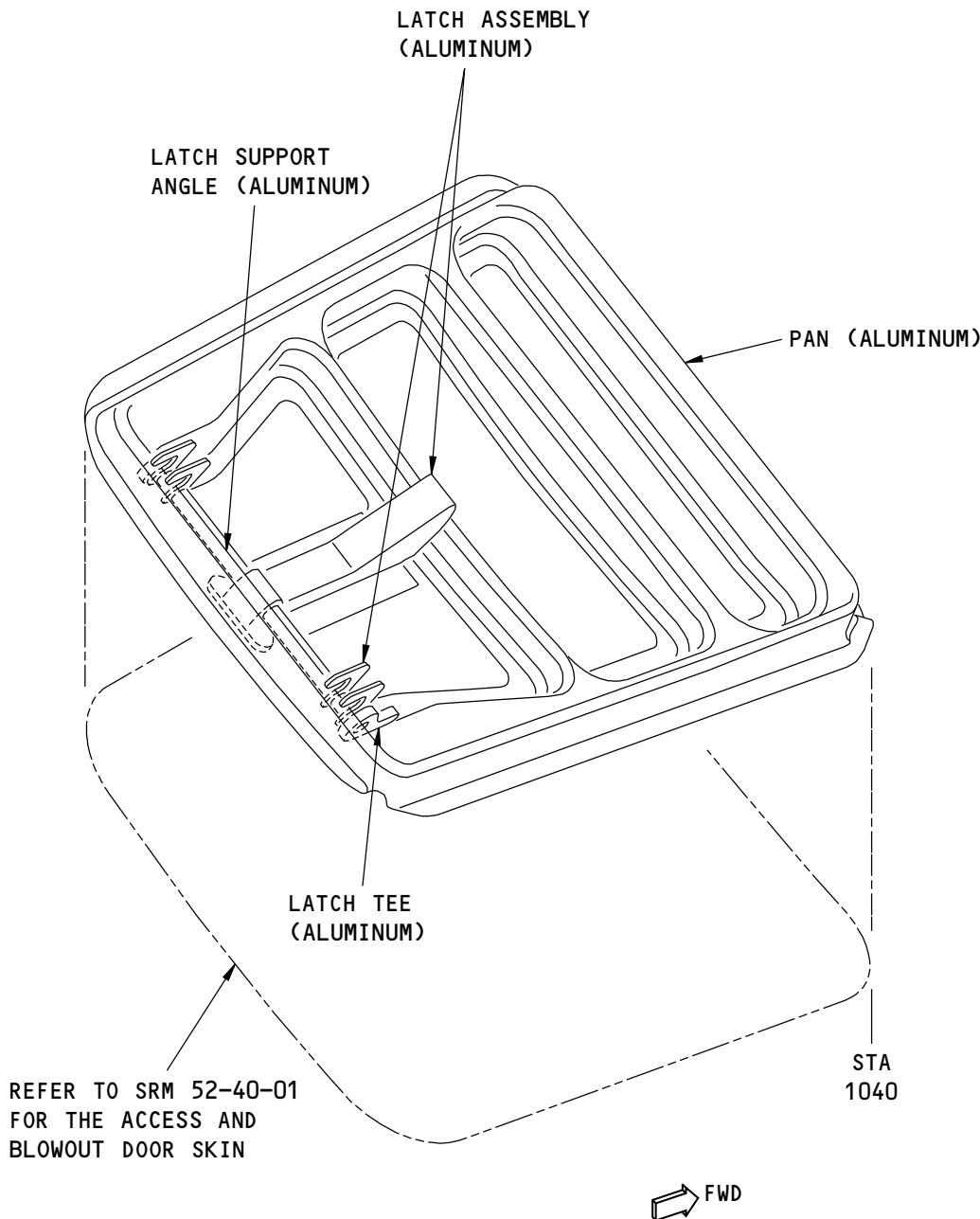
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F91093 S0006587088_V1

Access and Blowout Door Structure
Figure 102

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ALLOWABLE DAMAGE 1

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3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
AMM 51-21-00	INTERIOR AND EXTERIOR FINISHES
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

A. Pan:

- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A, B, and C.
 - (b) Other cracks are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail D.
- (2) Nicks, Scratches, Gouges, and Corrosion:
 - (a) Damage that does not go through the clad surface is permitted.
 - (b) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A, B, C, E, and F.
- (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail G.
- (4) Holes and Punctures are permitted if:
 - (a) They are 0.25 inch in diameter or less
 - (b) They are 1.00 or more away from a part radius
 - (c) They are 1.5 D (D = the diameter of the damage) or more away from a part edge.

B. Latch Assembly, Latch Support, and Latch Tee:

- (1) Cracks are not permitted.
- (2) Nicks, Scratches, Gouges, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail E and H.
 - (b) Remove the lug damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail I.
- (3) Dents are not permitted.
- (4) Holes and Punctures are not permitted.

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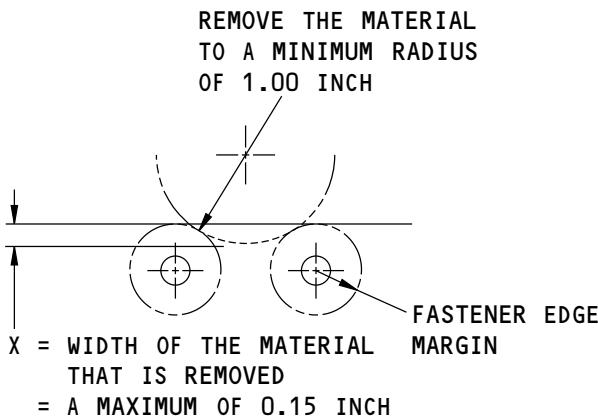
ALLOWABLE DAMAGE 1

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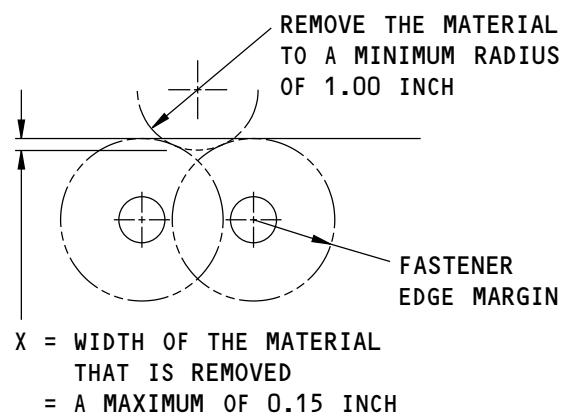
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**737-800
STRUCTURAL REPAIR MANUAL**


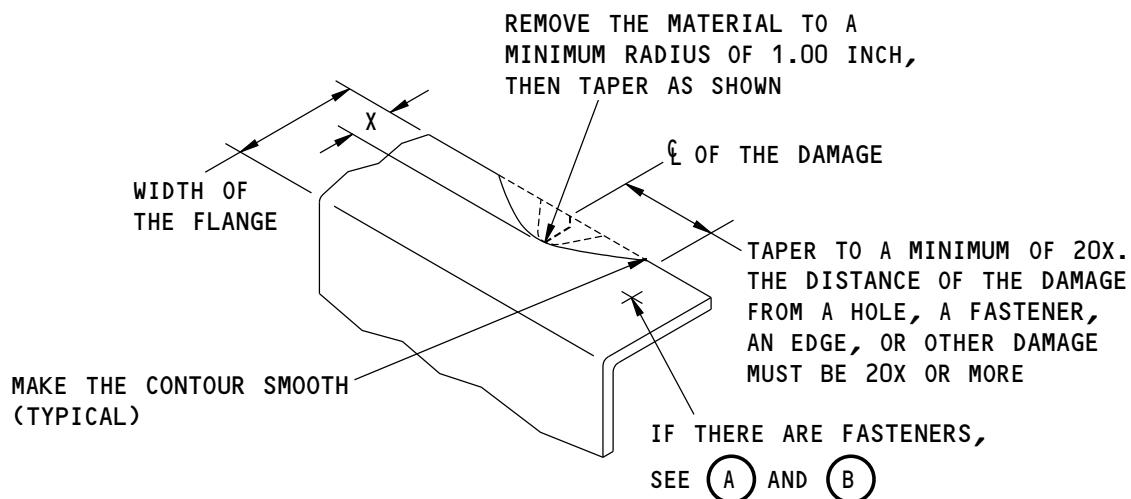
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH OF THE WIDTH OF THE FLANGE

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

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**Allowable Damage Limits
Figure 103 (Sheet 1 of 5)**

52-40-02

ALLOWABLE DAMAGE 1

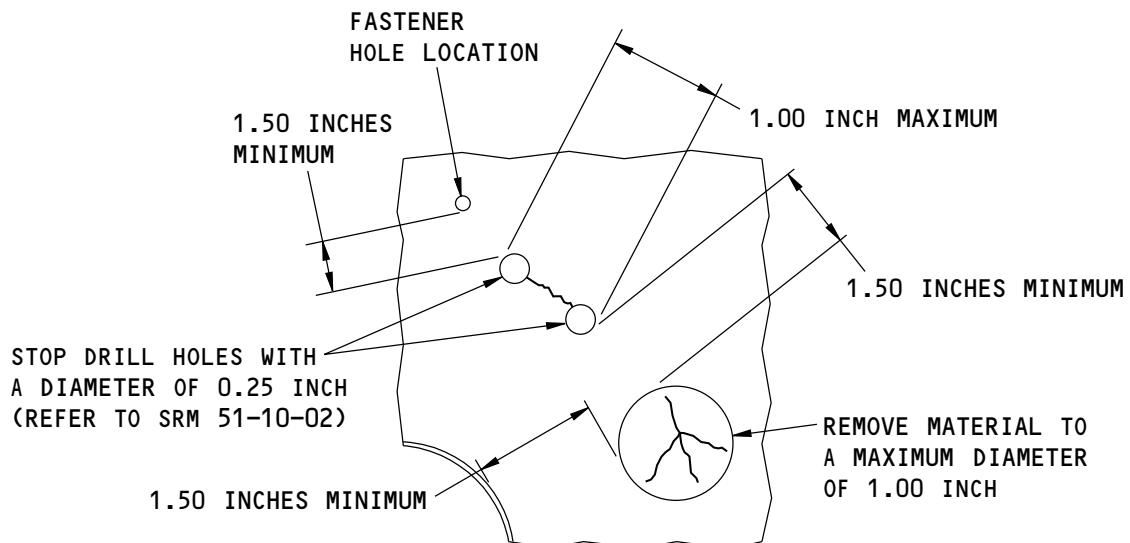
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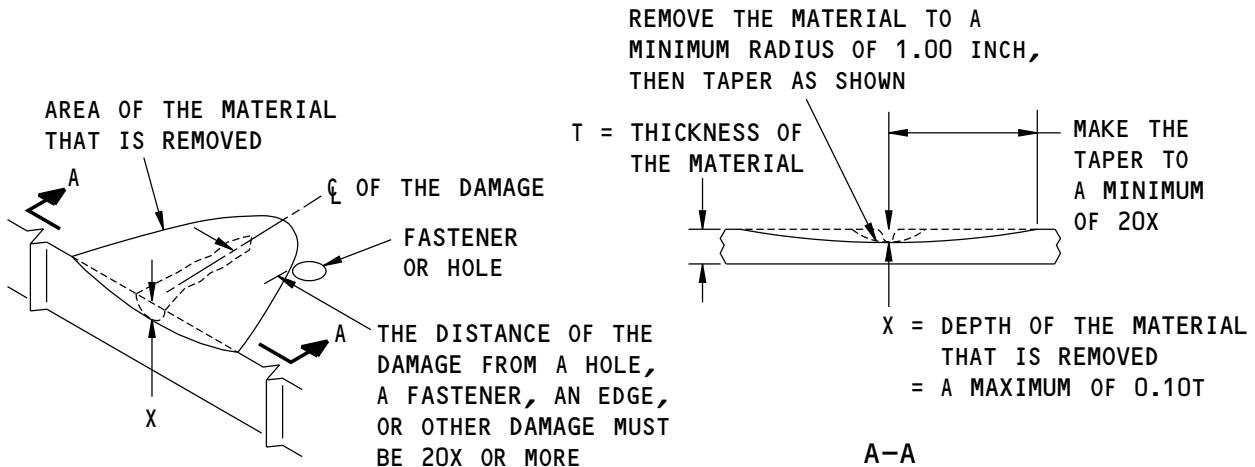


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CRACKS THAT ARE PERMITTED

(D)



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(E)

F91154 S0006587090_V1

Allowable Damage Limits
Figure 103 (Sheet 2 of 5)

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ALLOWABLE DAMAGE 1

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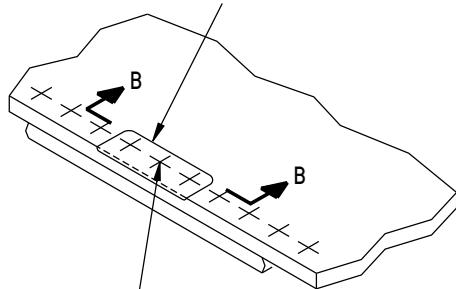
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STRUCTURAL REPAIR MANUAL

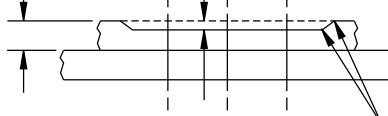
THE REMOVAL OF MATERIAL AROUND THREE
FASTENERS IN ALL GROUPS OF TEN IS
PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE
DAMAGE IS REMOVED. INSTALL THE
FASTENERS AFTER THE REWORK IS DONE

T = THICKNESS OF
THE MATERIAL

X = DEPTH OF THE MATERIAL
THAT IS REMOVED
= A MAXIMUM OF 0.10T

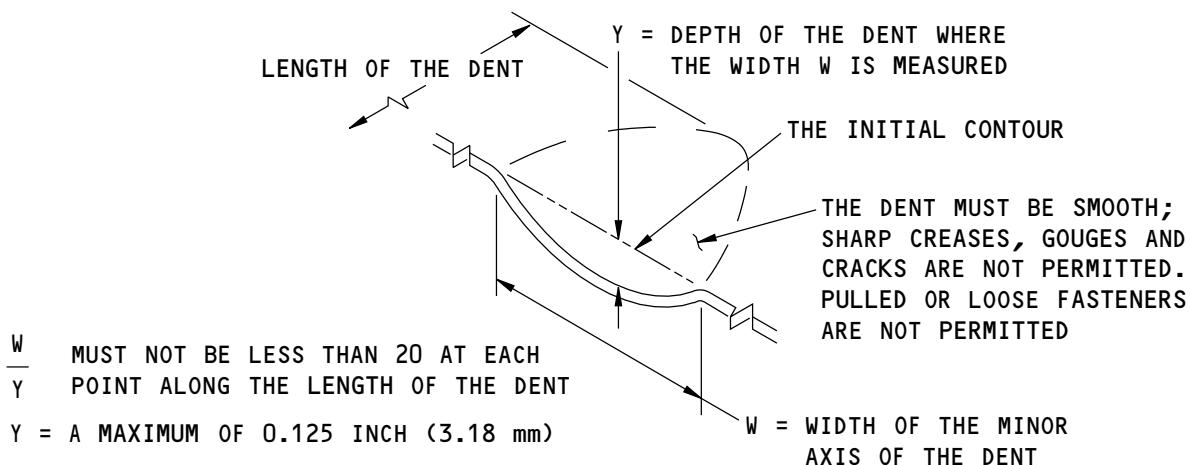


MAKE THE CONTOUR SMOOTH
TO A MINIMUM RADIUS OF
0.50 INCH (TYPICAL)

REMOVAL OF DAMAGE AROUND THE
FASTENERS ON AN EDGE OR A SURFACE

B-B

(F)



DENT THAT IS PERMITTED

(G)

F91099 S0006587091_V2

Allowable Damage Limits
Figure 103 (Sheet 3 of 5)

52-40-02

ALLOWABLE DAMAGE 1

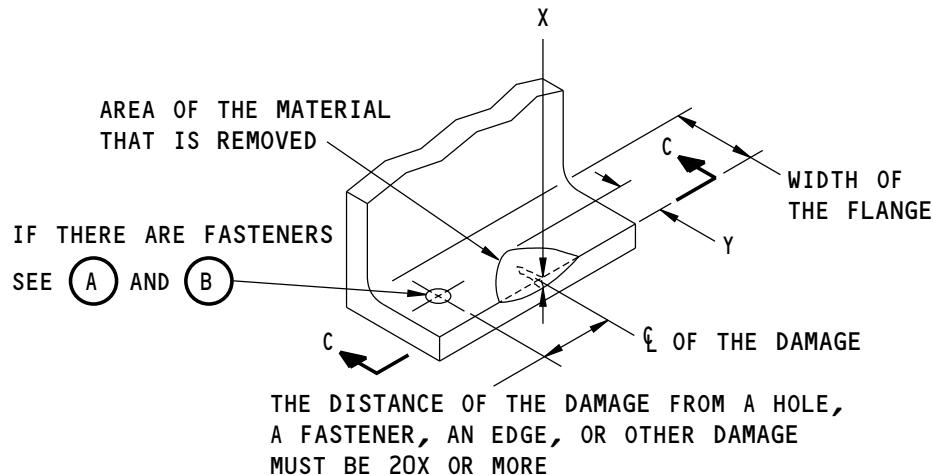
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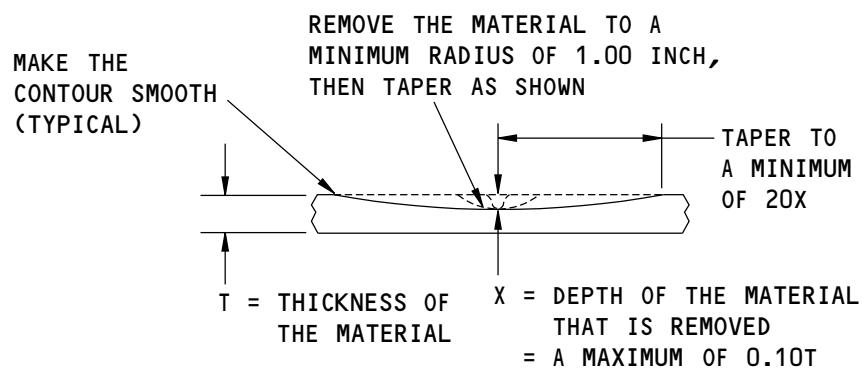
737-800
STRUCTURAL REPAIR MANUAL



Y = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE

(H)



C-C

F91156 S0006587092_V1

Allowable Damage Limits
Figure 103 (Sheet 4 of 5)

52-40-02

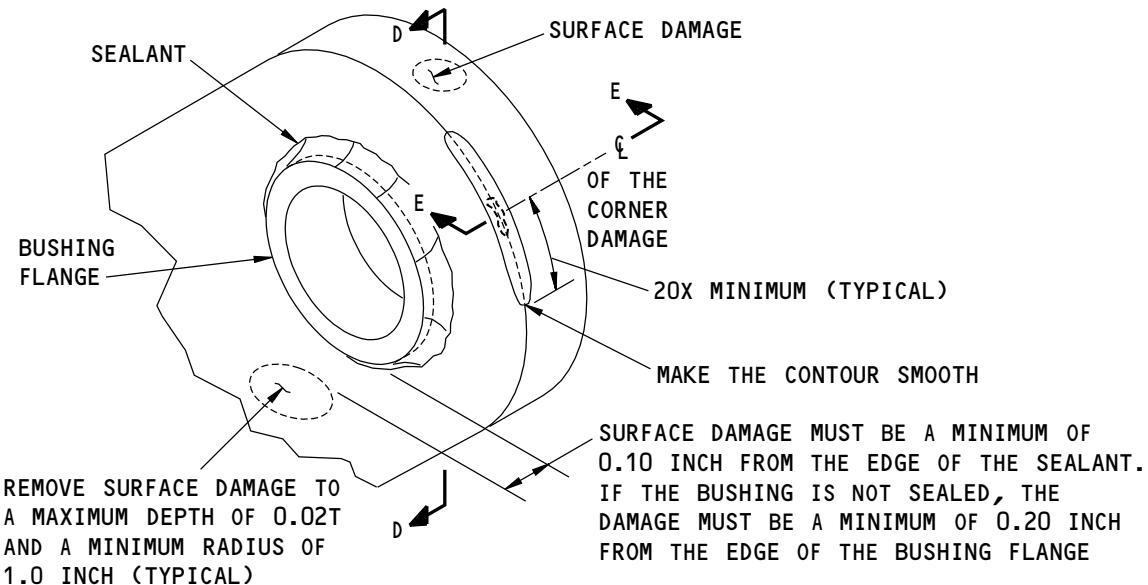
ALLOWABLE DAMAGE 1

Page 107

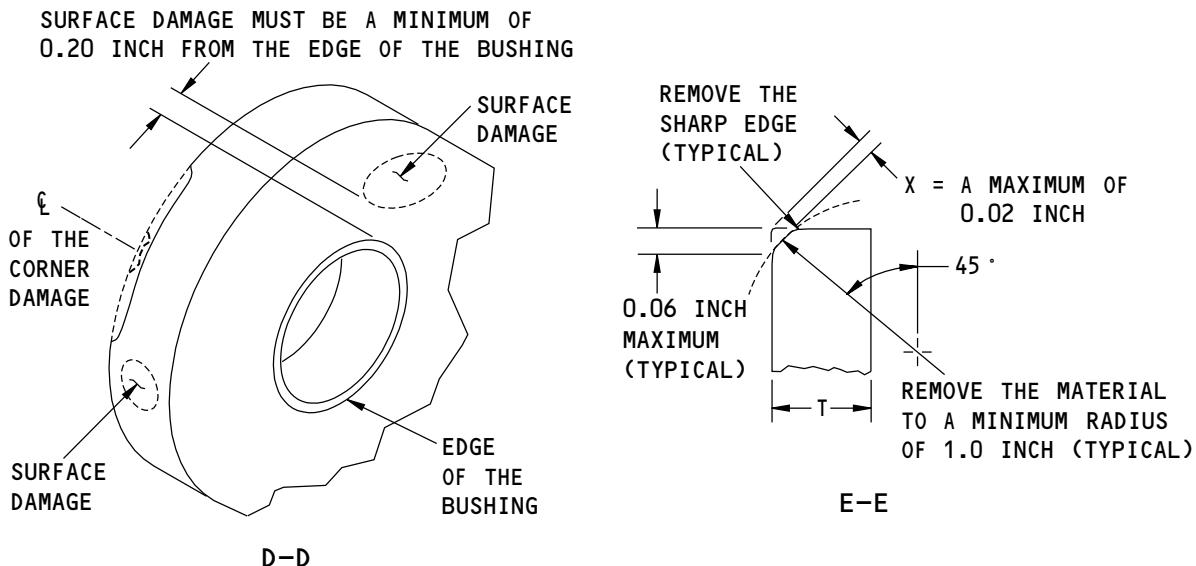
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STRUCTURAL REPAIR MANUAL**

REMOVAL OF SURFACE AND EDGE DAMAGE FROM A LUG THAT HAS A BUSHING

I



F91158 S0006587093_V1

**Allowable Damage Limits
Figure 103 (Sheet 5 of 5)**

52-40-02

ALLOWABLE DAMAGE 1

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STRUCTURAL REPAIR MANUAL

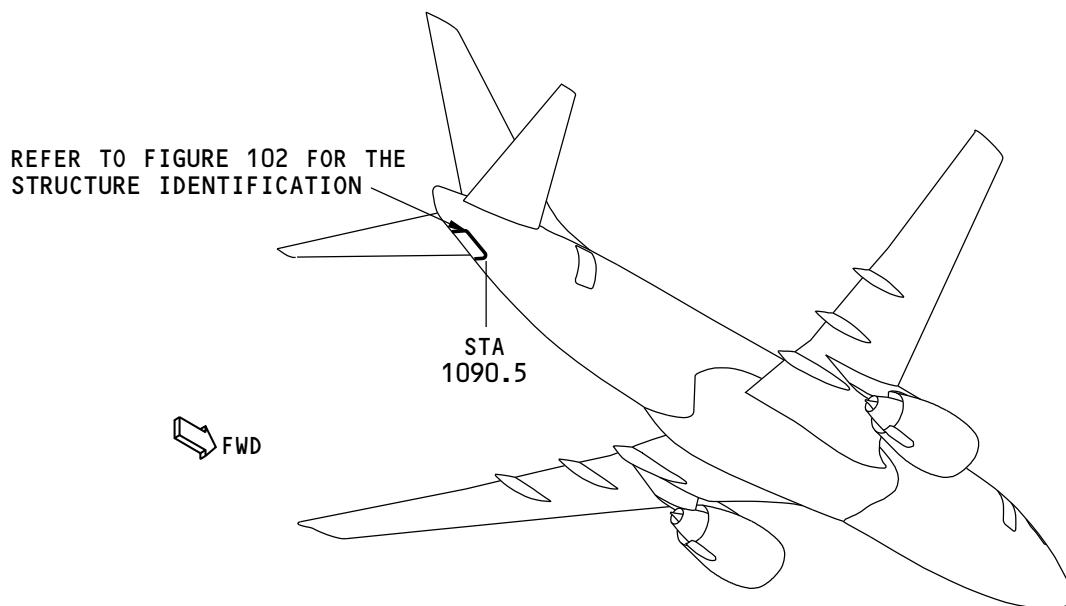
ALLOWABLE DAMAGE 2 - APU ACCESS DOOR STRUCTURE

1. Applicability

- A. Allowable Damage 2 is applicable to damage on the APU access door structure as shown in APU Access Door Structure Allowable Damage, Figure 101/ALLOWABLE DAMAGE 2.

2. General

- A. Refer to Paragraph 4./ALLOWABLE DAMAGE 2 for the allowable damage limits.
- B. Remove the damage as necessary for the aluminum and corrosion resistant steel (CRES) parts.
- (1) Refer to 51-10-02 for the inspection and removal of the damage.
 - (2) Refer to 51-30-03 for the possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the possible sources of the equipment and tools you can use to remove the damage.
- C. After you remove the damage on aluminum parts:
- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.
- D. After you remove the damage on steel parts:
- (1) Apply a cadmium plating to the reworked areas. Refer to SOPM 20-42-05.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.



F87402 S0006587095_V1

APU Access Door Structure Allowable Damage
Figure 101

52-40-02

ALLOWABLE DAMAGE 2

Page 101

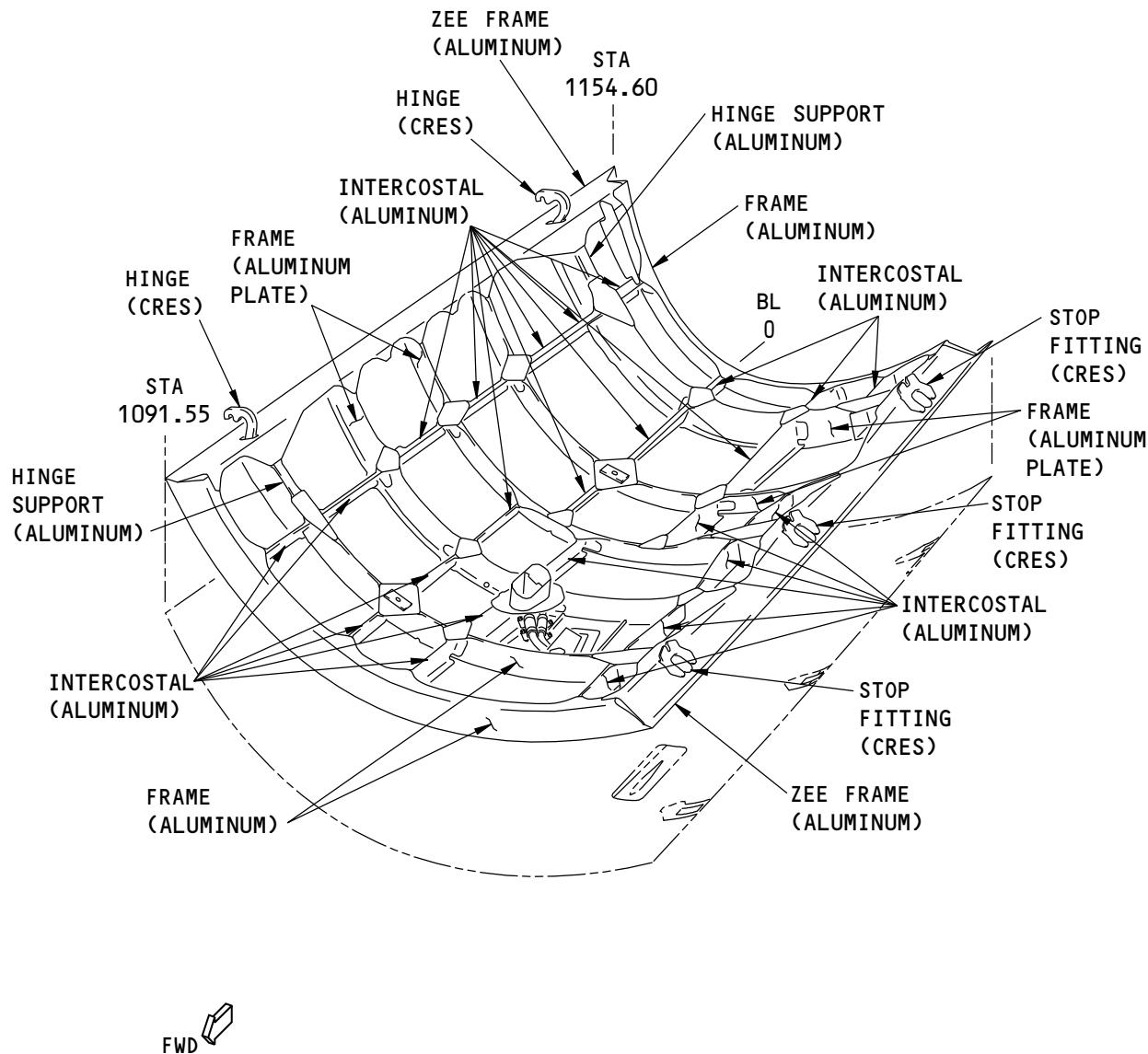
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F87407 S0006587096_V1

APU Access Door Structure
Figure 102

52-40-02

ALLOWABLE DAMAGE 2

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STRUCTURAL REPAIR MANUAL

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
AMM 51-21-00	INTERIOR AND EXTERIOR FINISHES
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-42-05	Bright Cadmium Plating

4. Allowable Damage Limits

A. Frames, Edge Frames, Edge Zees, and Intercostals

- (1) Cracks:
 - (a) Remove edge damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , and C .
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , C , D , and E .
- (3) Dents are permitted as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Detail G .
- (4) Holes and Punctures are permitted only in vertical web if:
 - (a) They are 0.25 inch in diameter or less
 - (b) They are 1.00 inch or more away from a fastener hole or other damage
 - (c) They are 1.5 D (D = the diameter of the damage) away from a part radius or part edge.

B. Hinge Supports, Stop Fittings, and Plates:

- (1) Cracks are not permitted.
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , C , D , E and F .
- (3) Dents are not permitted.
- (4) Holes and Punctures are not permitted.

C. Hinges:

- (1) Cracks are not permitted.
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , C , D , E and F .
 - (b) Remove the damage to the hinges as shown in Allowable Damage Limits, Figure 103/ ALLOWABLE DAMAGE 2, Detail H .
- (3) Dents are not permitted.
- (4) Holes and Punctures are not permitted.

52-40-02

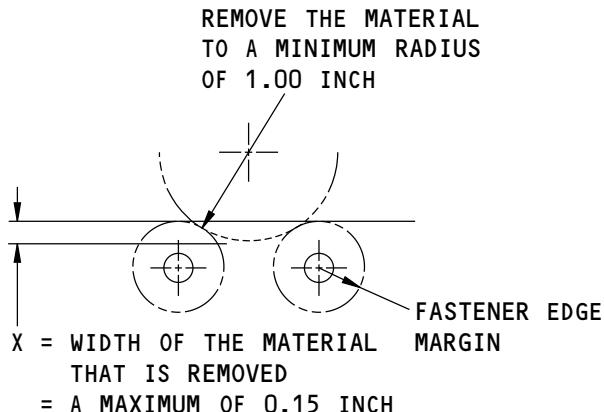
ALLOWABLE DAMAGE 2

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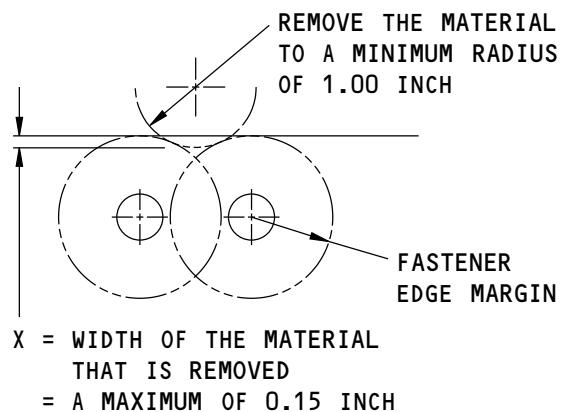
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**737-800
STRUCTURAL REPAIR MANUAL**


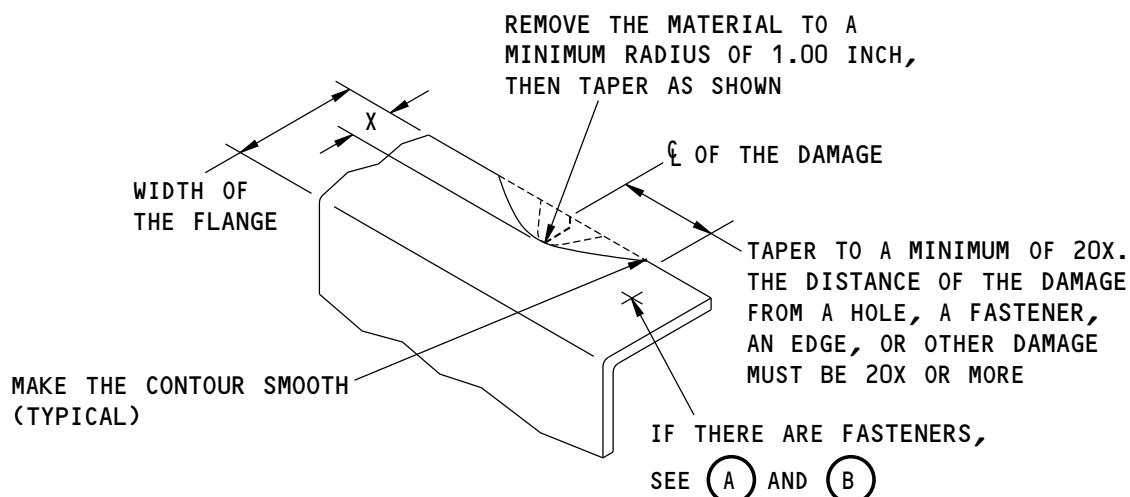
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH OF THE WIDTH OF THE FLANGE

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

F87435 S0006587097_V1

**Allowable Damage Limits
Figure 103 (Sheet 1 of 4)**

52-40-02

ALLOWABLE DAMAGE 2

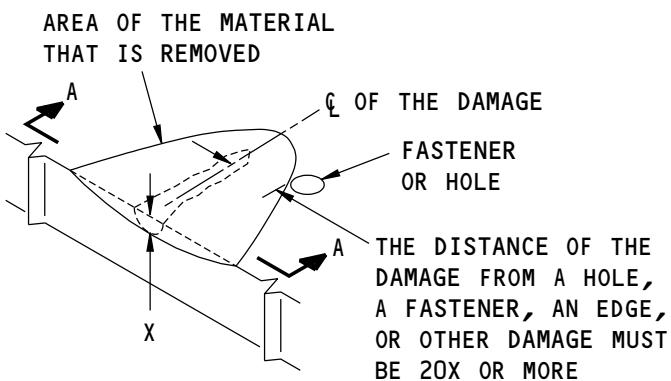
Page 104

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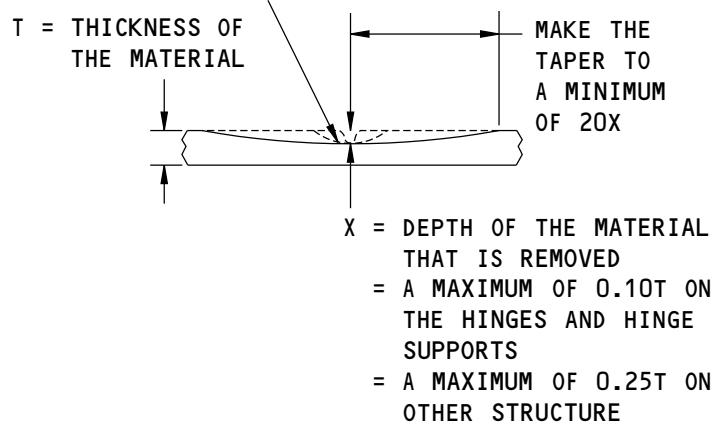
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REMOVAL OF DAMAGED MATERIAL
ON A SURFACE

(D)

REMOVE THE MATERIAL TO A
MINIMUM RADIUS OF 1.00 INCH,
THEN TAPER AS SHOWN



A-A

F87437 S0006587098_V1

Allowable Damage Limits
Figure 103 (Sheet 2 of 4)

52-40-02

ALLOWABLE DAMAGE 2

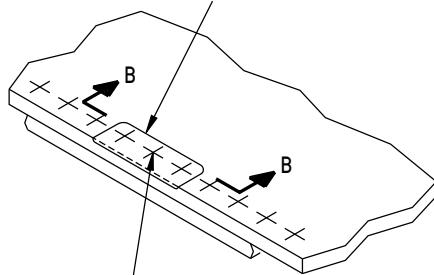
Page 105

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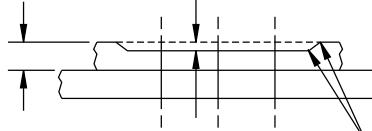
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THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

T = THICKNESS OF THE MATERIAL
X = DEPTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10T



MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (TYPICAL)

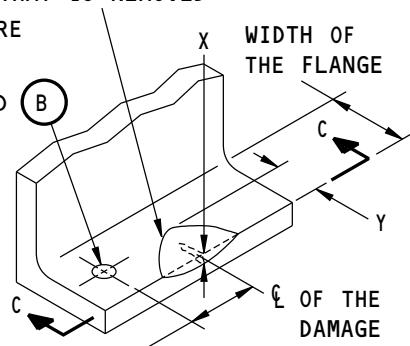
B-B

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(E)

AREA OF THE MATERIAL THAT IS REMOVED

IF THERE ARE FASTENERS
SEE (A) AND (B)



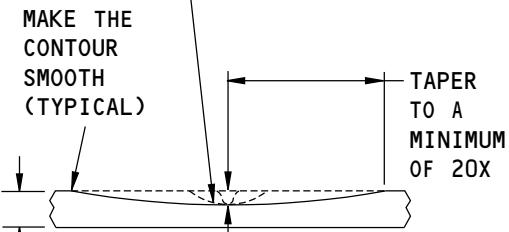
THE DISTANCE OF THE DAMAGE FROM A HOLE, A FASTENER, AN EDGE, OR OTHER DAMAGE MUST BE 20X OR MORE

Y = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

REMOVAL OF DAMAGED MATERIAL ON A SURFACE AT AN EDGE

(F)

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN



MAKE THE CONTOUR SMOOTH (TYPICAL)
T = THICKNESS OF THE MATERIAL
X = DEPTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10T

F87438 S0006587099_V1

**Allowable Damage Limits
Figure 103 (Sheet 3 of 4)**

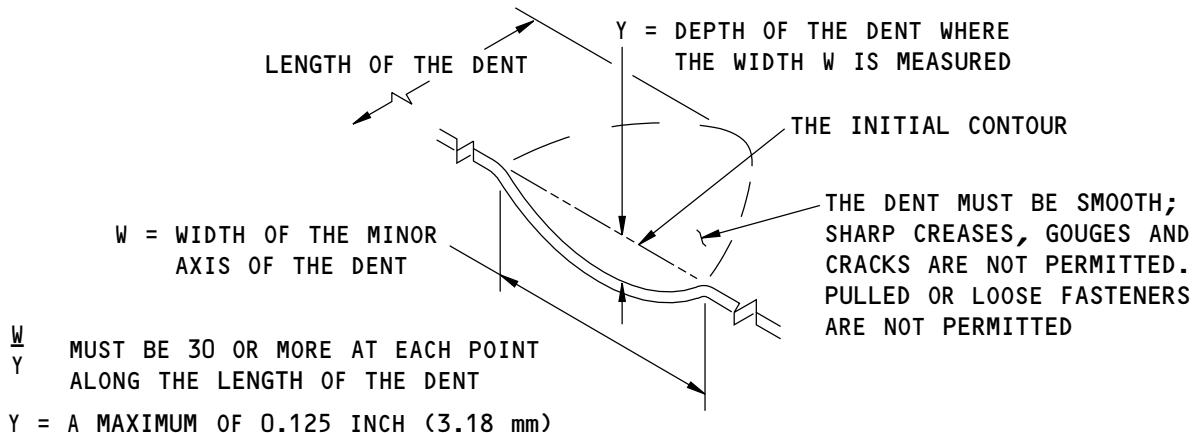
52-40-02

ALLOWABLE DAMAGE 2

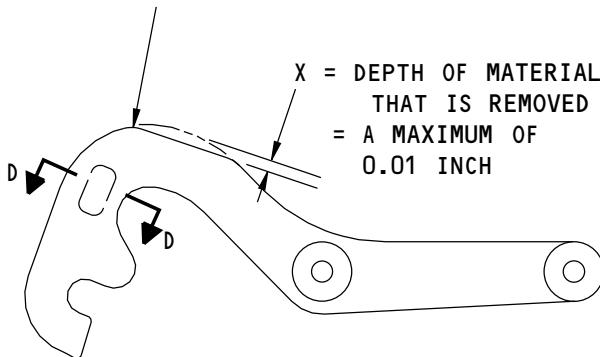
Page 106

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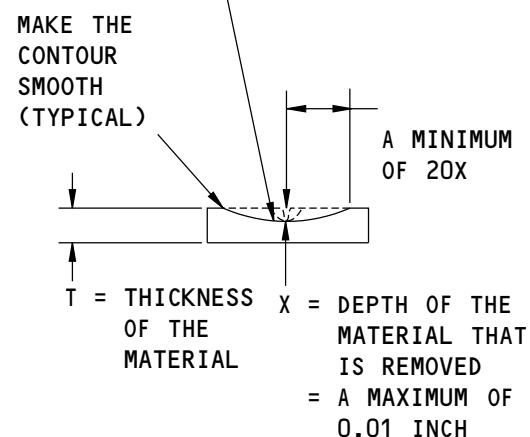
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STRUCTURAL REPAIR MANUAL**

DENT THAT IS PERMITTED


REMOVE MATERIAL
TO A MINIMUM
RADIUS OF 1.00 INCH



REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH, THEN
TAPER AS SHOWN



DAMAGE CLEANUP FOR HINGE HOOKS
(HINGE AREA ONLY)



D-D

F87439 S0006587100_V2

Allowable Damage Limits
Figure 103 (Sheet 4 of 4)

52-40-02

ALLOWABLE DAMAGE 2

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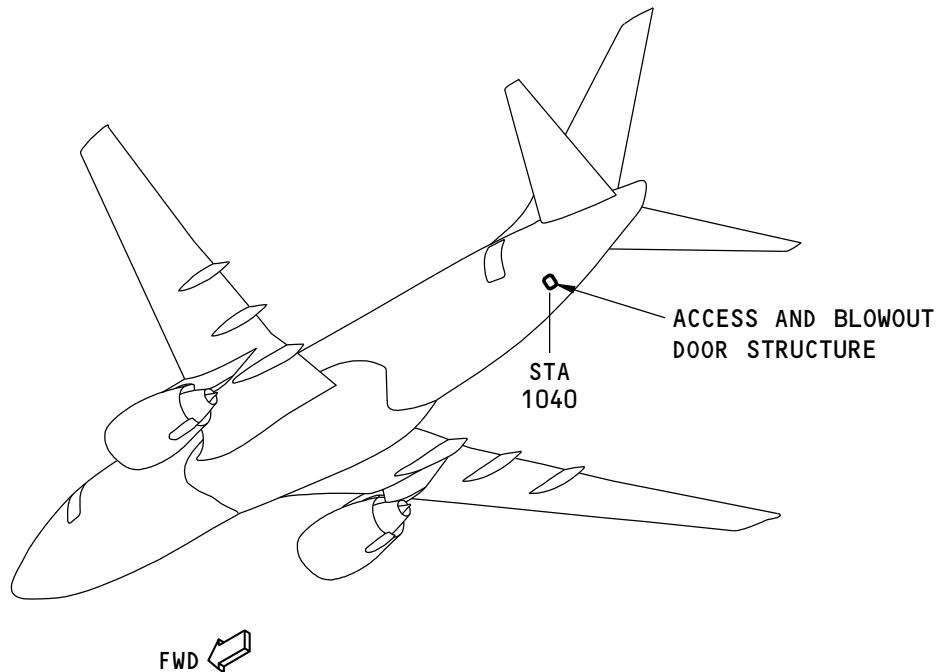
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STRUCTURAL REPAIR MANUAL

REPAIR 1 - ACCESS AND BLOWOUT DOOR STRUCTURE



NOTE: THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME.

F91161 S0006587103_V2

Access and Blowout Door Structure
Figure 201

52-40-02

REPAIR 1
Page 201

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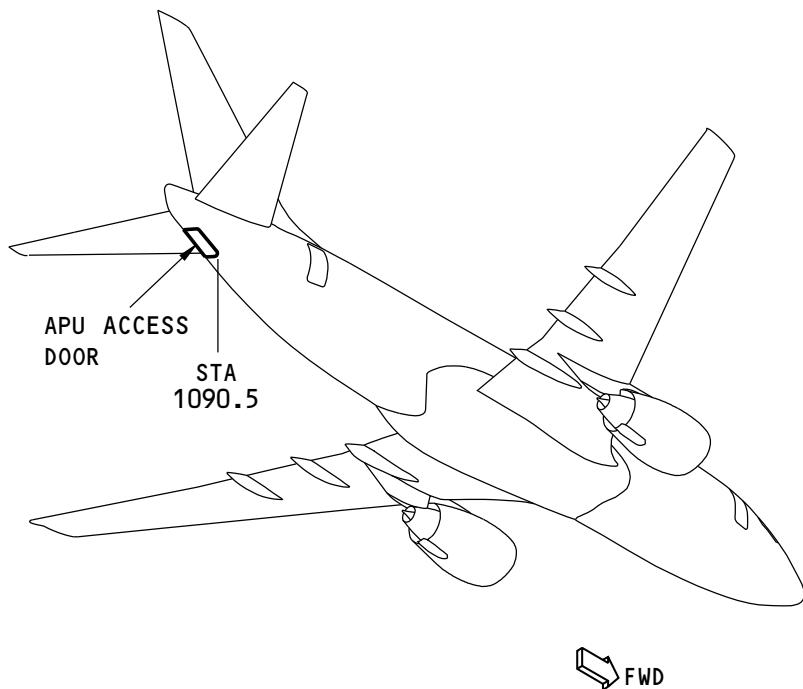
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STRUCTURAL REPAIR MANUAL

REPAIR 2 - APU ACCESS DOOR STRUCTURE



NOTE: THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME.

F87440 S0006587105_V2

APU Access Door Structure Repair
Figure 201

52-40-02

REPAIR 2
Page 201

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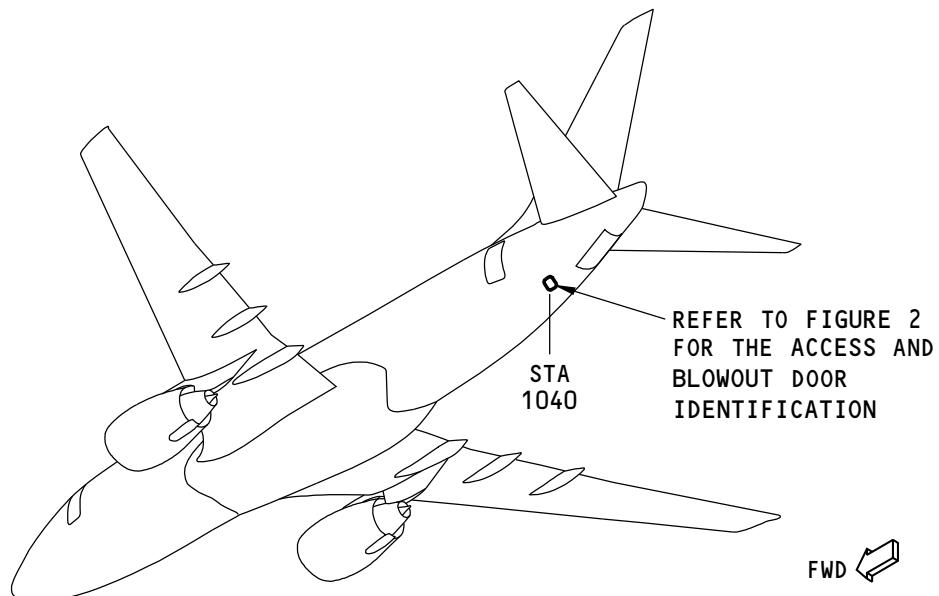
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STRUCTURAL REPAIR MANUAL

IDENTIFICATION 1 - SECTION 48 ACCESS AND BLOWOUT DOOR FITTING



G49989 S0006587109_V1

Section 48 Access and Blowout Door Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
001A4001	Fuselage Product Collector
140A4805	Access and Blowout Door Functional Collector, Section 48
148A6100	Access and Blowout Door Installation
148A6110	Access and Blowout Door Assembly
65C36295	Details - Access and Blowout Door, Sec. 48

52-40-90

IDENTIFICATION 1

Page 1

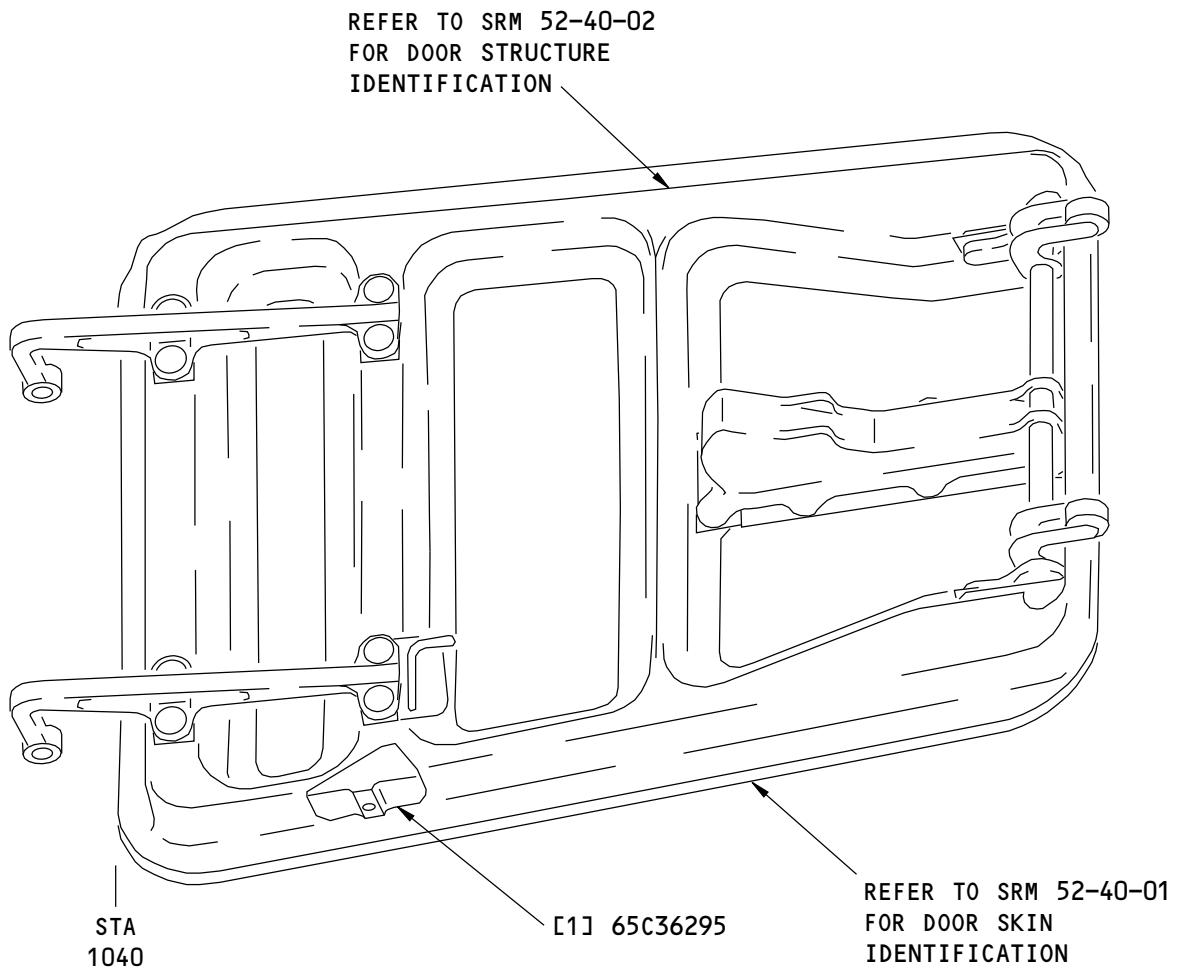
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

VIEW IS LOOKING OUTBOARD

G50024 S0006587111_V1

Section 48 Access and Blowout Door Fitting Identification
Figure 2

52-40-90
IDENTIFICATION 1
Page 2
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STRUCTURAL REPAIR MANUAL**

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Fitting, Jury Strut		BAC1503-5828 7075-T6511 extrusion	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1

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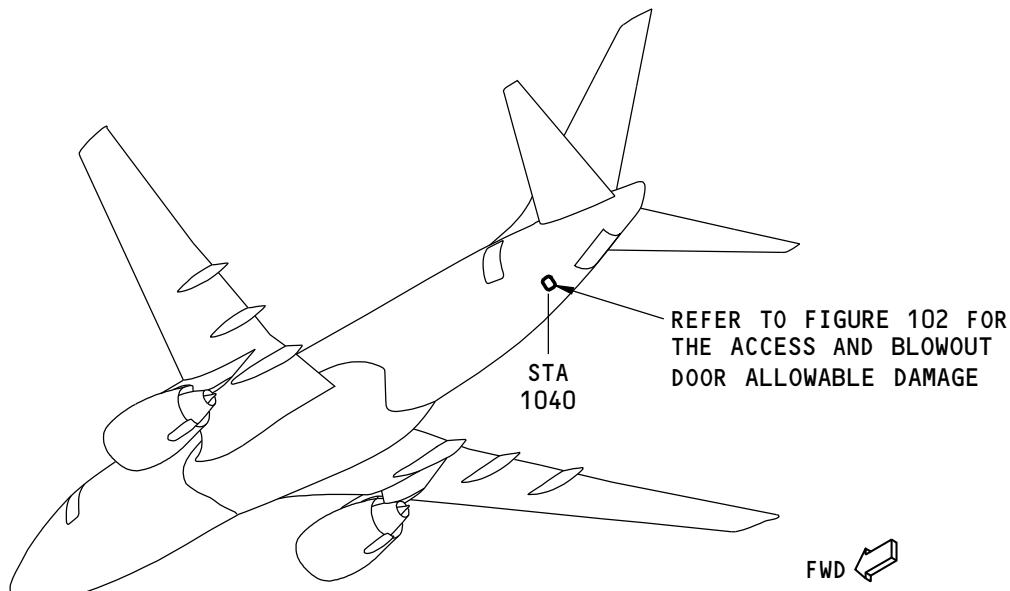


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ALLOWABLE DAMAGE 1 - SECTION 48 ACCESS AND BLOWOUT DOOR FITTING

1. Applicability

- A. This subject gives the allowable damage limits for the Section 48 Access and Blowout Door Fitting shown in Section 48 Access and Blowout Door Location, Figure 101/ALLOWABLE DAMAGE 1.



H13837 S0006587115_V1

Section 48 Access and Blowout Door Location
Figure 101

52-40-90

ALLOWABLE DAMAGE 1

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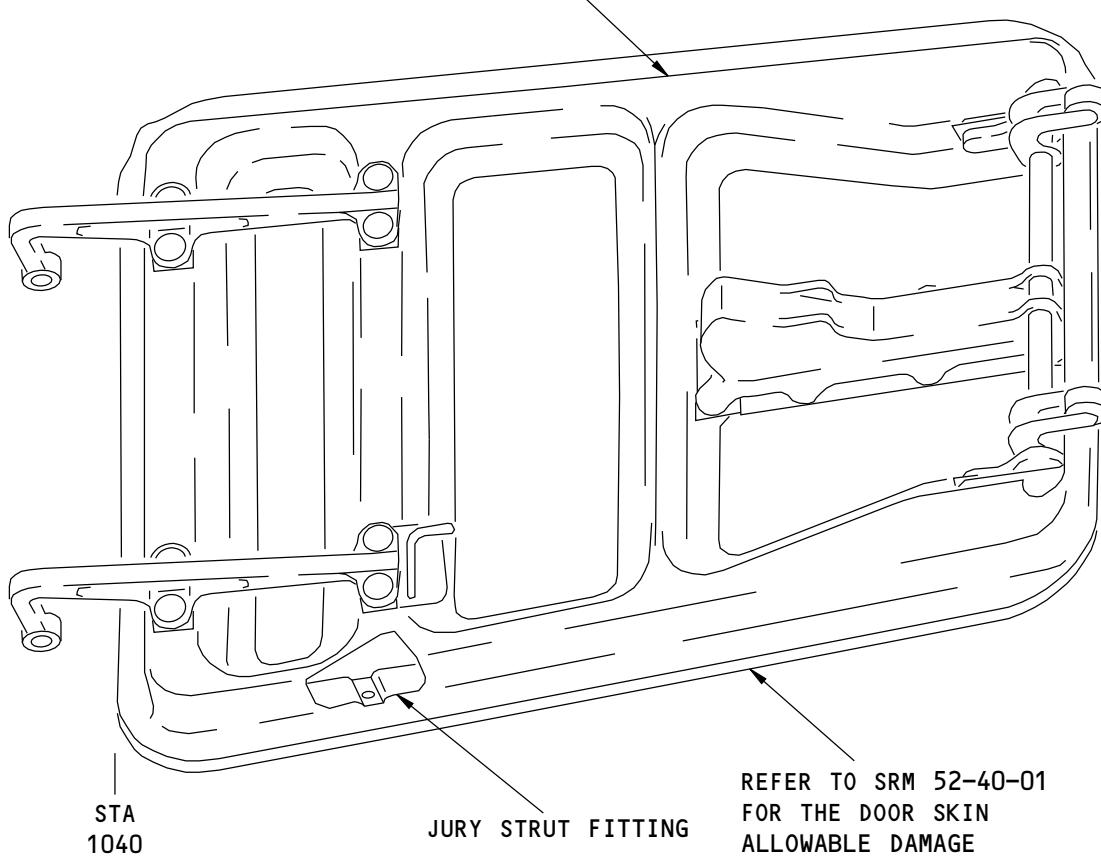
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REFER TO SRM 52-40-02
FOR THE DOOR STRUCTURE
ALLOWABLE DAMAGE



VIEW IS LOOKING OUTBOARD

H13841 S0006587116_V1

Section 48 Access and Blowout Door Fitting Allowable Damage
Figure 102

52-40-90

ALLOWABLE DAMAGE 1

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STRUCTURAL REPAIR MANUAL

2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1
- B. Remove the damaged material as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of the damage.
 - (2) Refer to 51-30-03 for the possible sources of the abrasive and other materials you need to remove the damage.
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you need to remove the damage.
- C. After the damage is removed, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Cracks are not permitted.
- B. Nicks, Gouges, Scratches, and Corrosion:
 - (1) Remove the damage as show in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A and B .
 - (2) Dents are not permitted.
 - (3) Holes and Punctures are not permitted.

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ALLOWABLE DAMAGE 1

Page 103

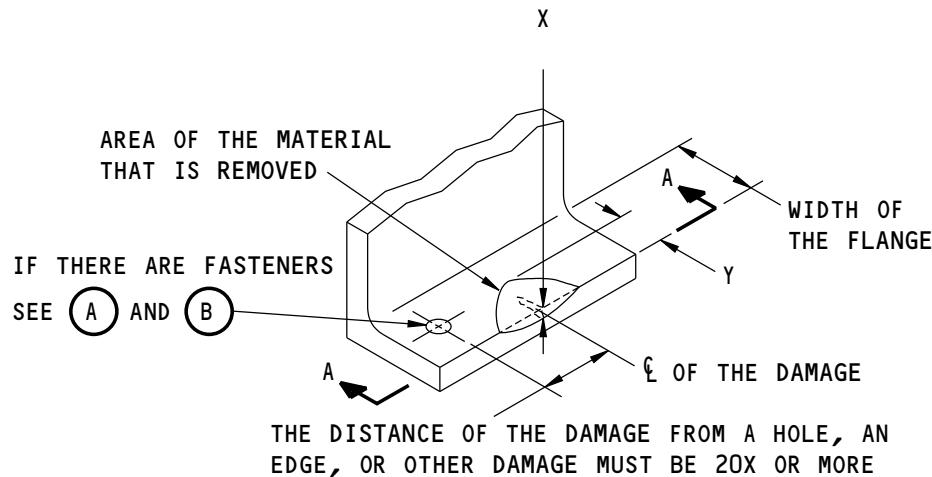
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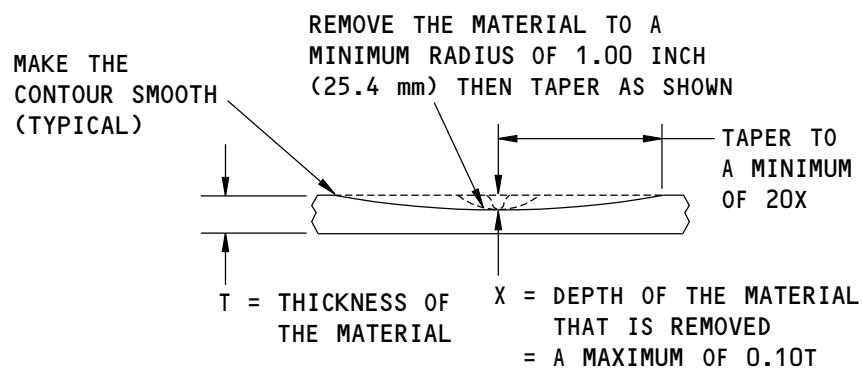


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Y = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE**



A-A

H13963 S0006587117_V1

Allowable Damage Limits
Figure 103 (Sheet 1 of 2)

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ALLOWABLE DAMAGE 1

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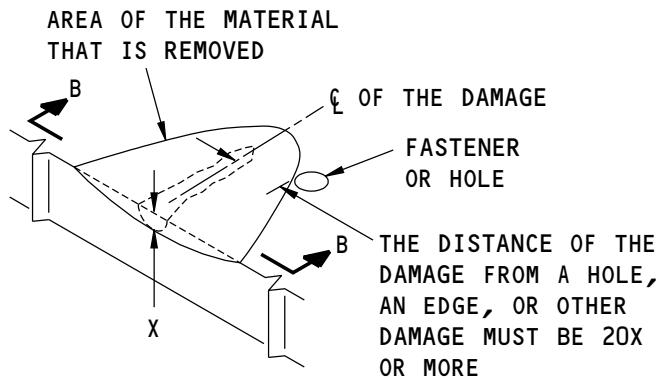
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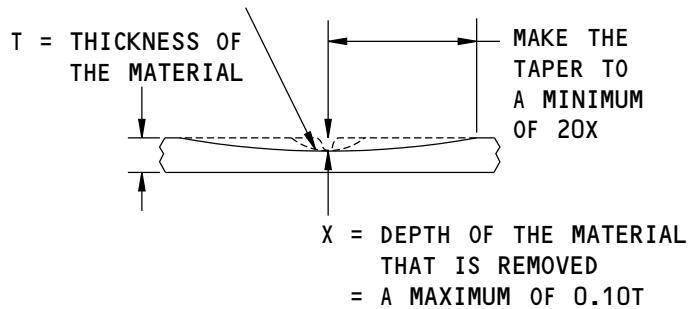
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REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(B)

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN



B-B

H13968 S0006587118_V1

Allowable Damage Limits
Figure 103 (Sheet 2 of 2)

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ALLOWABLE DAMAGE 1

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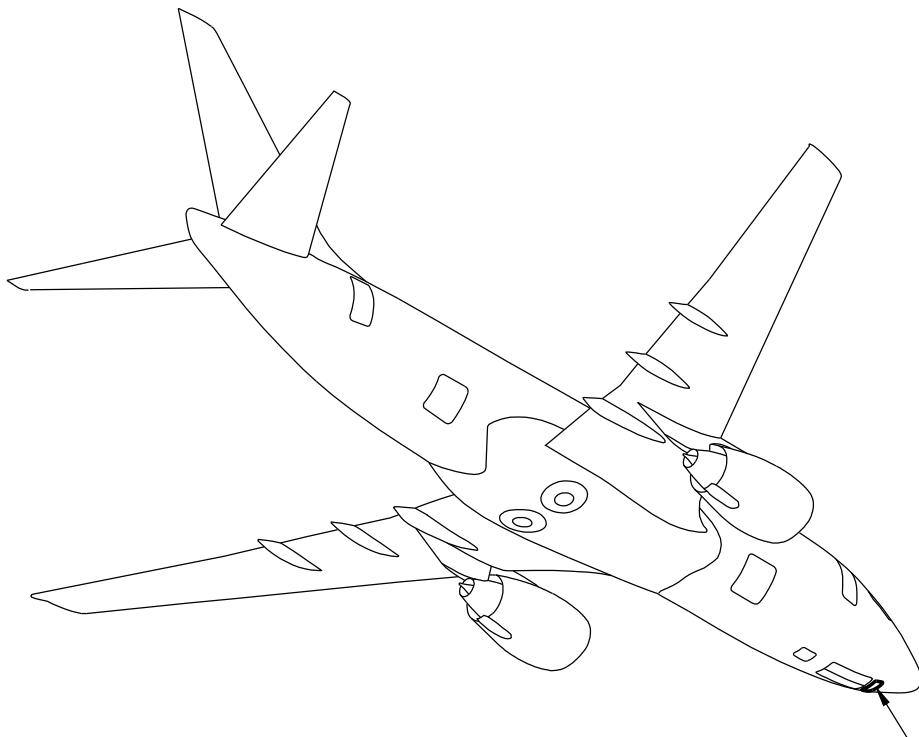
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IDENTIFICATION 1 - FORWARD ACCESS DOOR SKIN



REFER TO FIGURE 2
FOR THE FORWARD
ACCESS DOOR SKIN
IDENTIFICATION

NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Forward Access Door Skin Location

Figure 1

Table 1:

F77578 S0006587123_V1

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6801	Door Installation - Forward Access Door
141A6812	Outer Skin - Forward Access Door

52-41-01

IDENTIFICATION 1

Page 1

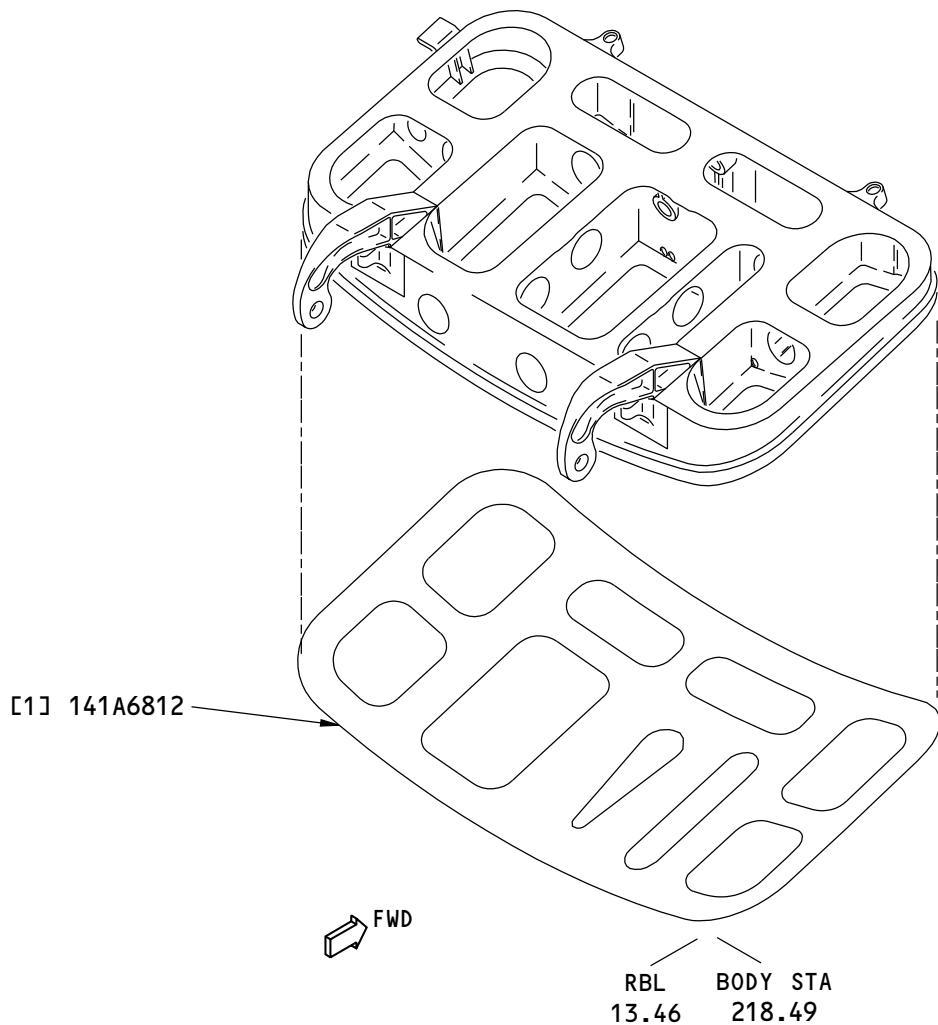
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STRUCTURAL REPAIR MANUAL



F77771 S0006587125_V1

Forward Access Door Skin Identification

Figure 2

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T*[1]	MATERIAL	EFFECTIVITY
[1]	Outer Skin	0.063 (1.60)	2024-T3 clad sheet that is chem-milled to a thickness of 0.04 inch (1.02 mm) in the pocket areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

52-41-01

IDENTIFICATION 1

Page 2

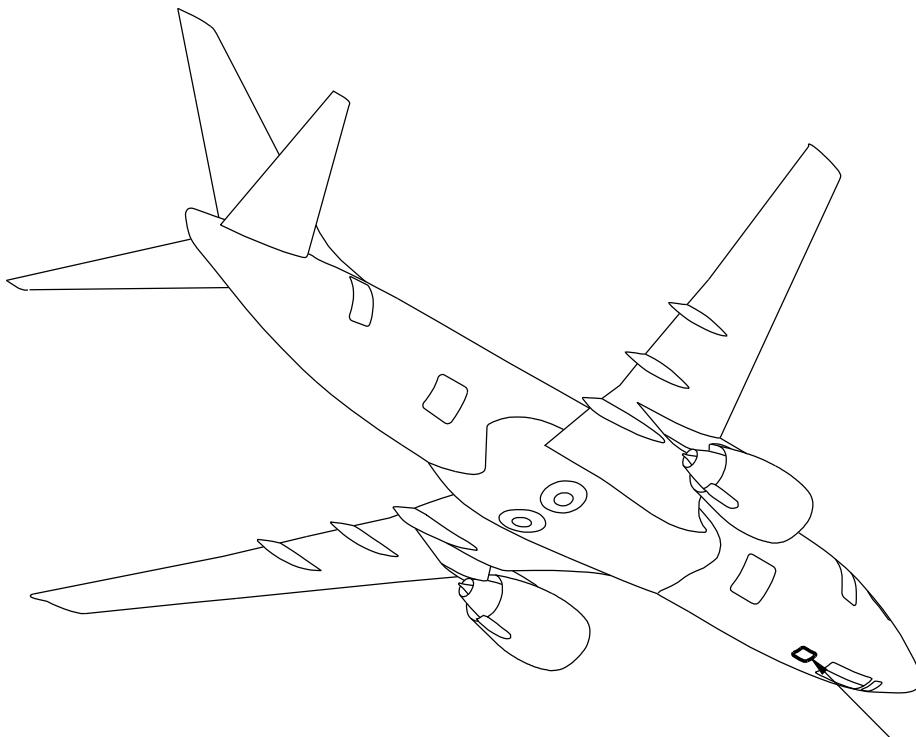
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IDENTIFICATION 2 - EQUIPMENT ACCESS DOOR SKIN



REFER TO FIGURE 2
FOR THE EQUIPMENT
ACCESS DOOR SKIN
IDENTIFICATION

NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Equipment Access Door Skin Location
Figure 1
Table 1:

F77784 S0006587128_V1

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6700	Door Installation - Equipment Access
141A6710	Door Assembly - Equipment Access

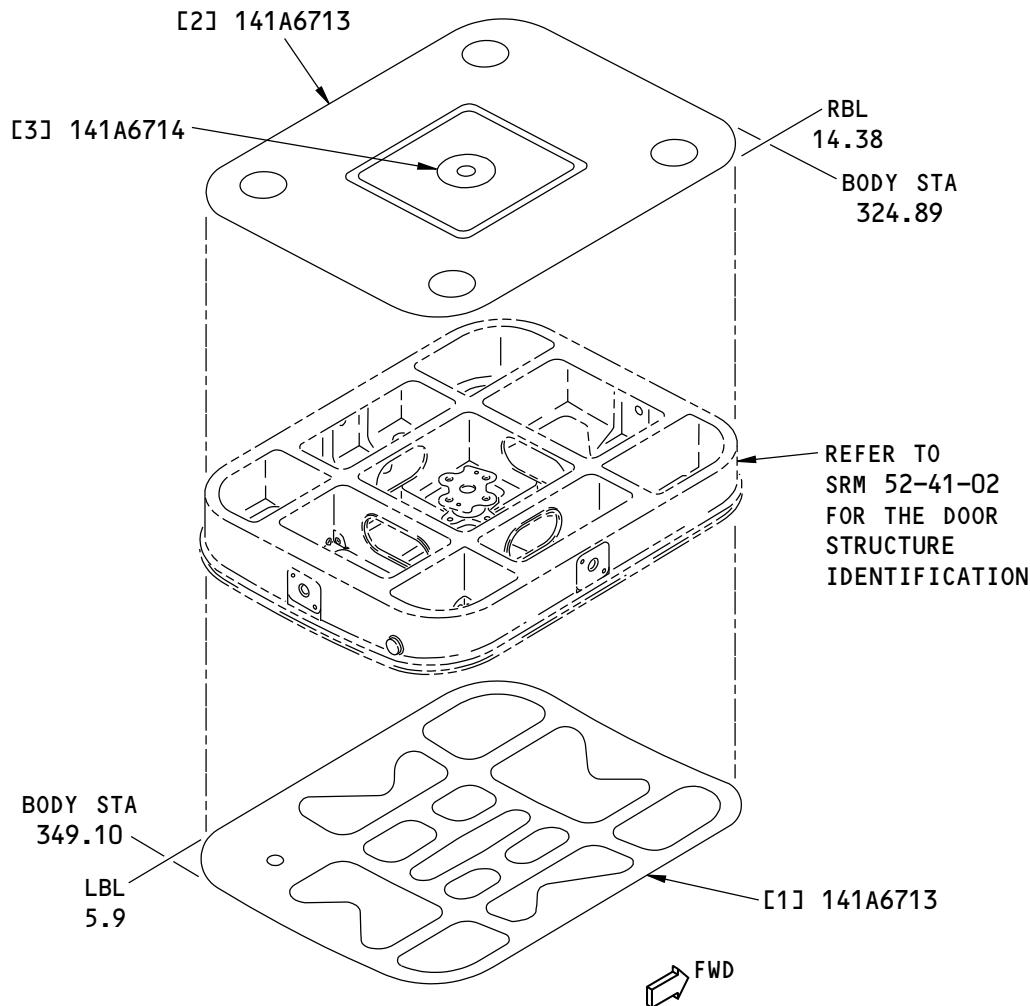
52-41-01
IDENTIFICATION 2
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F77958 S0006587130_V2

Equipment Access Door Skin Identification

Figure 2

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T*[1]	MATERIAL	EFFECTIVITY
[1]	External Skin	0.063 (1.60)	2024-T3 clad sheet that is chem-milled to a thickness of 0.040 inch (1.02 mm) in the pocket areas	
[2]	Internal Skin	0.040 (1.02)	7075-T6 clad sheet	
[3]	Access Cover	0.040 (1.02)	2024-T42 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

52-41-01

IDENTIFICATION 2

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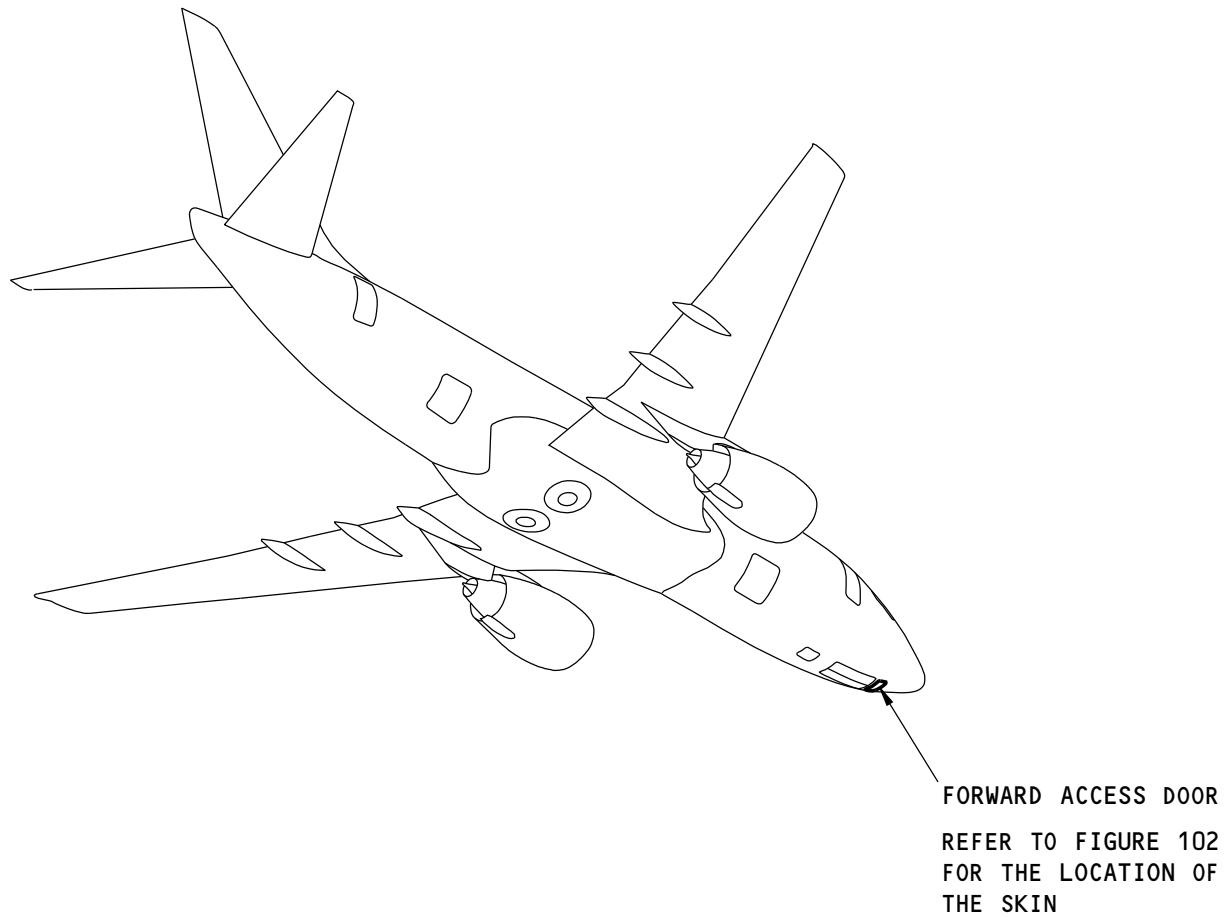


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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 1 - FORWARD ACCESS DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits and the flight operating limits for the skin on the forward access door as shown in Forward Access Door Location, Figure 101/ALLOWABLE DAMAGE 1.



Forward Access Door Location
Figure 101

F78013 S0006587134_V1

52-41-01

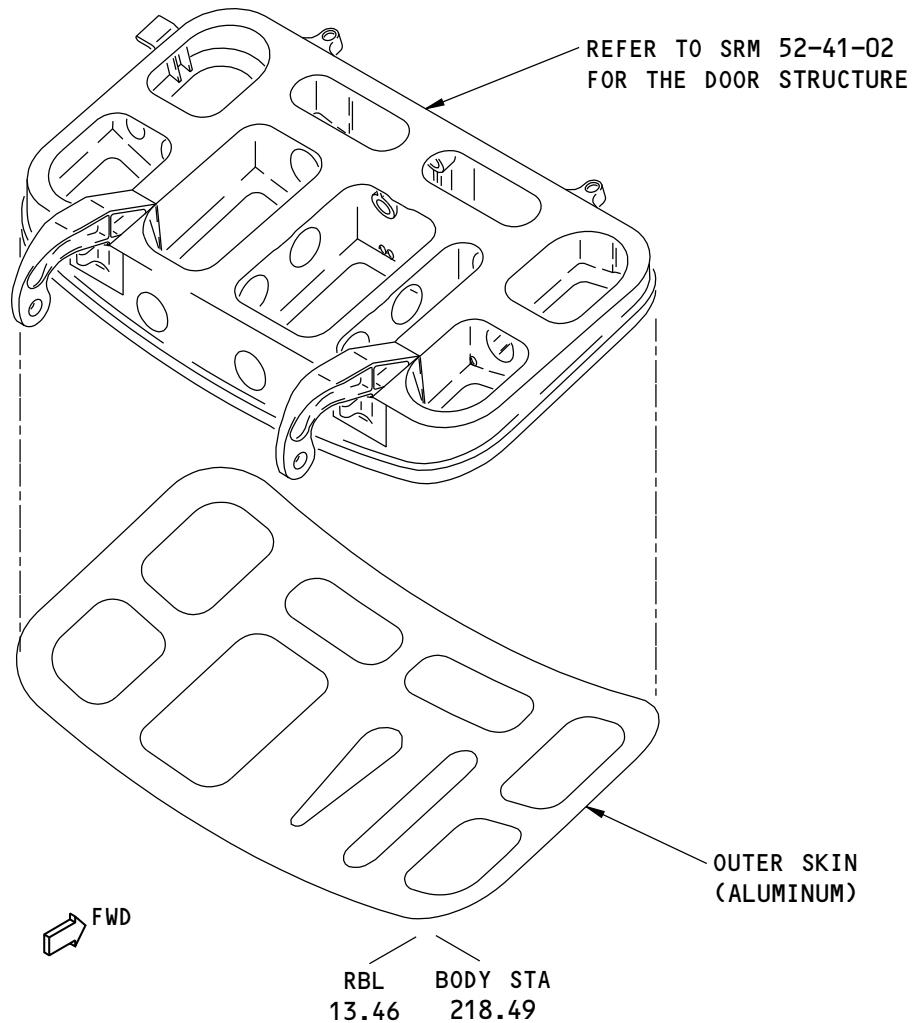
ALLOWABLE DAMAGE 1
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STRUCTURAL REPAIR MANUAL



NOTE: ALL CHEM-MILLED POCKETS ARE 0.04 INCH THICK.

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Forward Access Door Skin Location
Figure 102

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2. General

- A. The forward access door is in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the forward access door skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the forward access door skin given in Paragraph 5./ ALLOWABLE DAMAGE 1
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. For damage that was removed on the aerodynamic outer surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
- (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

- D. For damage that was removed on the non-aerodynamic inner surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
52-00-01	TYPICAL DOOR SKIN
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

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ALLOWABLE DAMAGE 1

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4. Allowable Damage Limits

- A. If you find damage to the forward access door skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 1 for the flight operation limits.
- B. Cracks:
 - (1) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - (a) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (b) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - 1) Install the rivet without sealant.
 - (2) Refer to Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.
- C. Nicks, Gouges, Scratches, and Corrosion:
 - (1) Remove the damage as shown in Allowable Damage Limits - Forward Access Door Skin, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , and E .
 - (2) Refer to Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.
- D. Dents:
 - (1) Dents are permitted if they meet the limits of Allowable Damage Limits - Forward Access Door Skin, Figure 103/ALLOWABLE DAMAGE 1, Detail F .
 - (2) Dents larger than the limits shown in Allowable Damage Limits - Forward Access Door Skin, Figure 103/ALLOWABLE DAMAGE 1, Detail F , that cannot be repaired immediately are permitted if:
 - (a) There are no loose or missing fasteners
 - (b) There are no damaged fastener holes
 - (c) There are no creases, gouges, or cracks near the dent
 - (d) You do not fill the dent
 - (e) You do an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.
- E. Holes and Punctures

NOTE: For holes and punctures that are a maximum of 0.25 inch in diameter, there are no flight operation limits. Refer to Paragraph 4.E.(1)/ALLOWABLE DAMAGE 1 For holes and punctures that are larger than 0.25 inch in diameter, flight operation limits are necessary. Refer to Paragraph 4.E.(2)/ALLOWABLE DAMAGE 1 and Paragraph 5./ALLOWABLE DAMAGE 1

- (1) Holes and punctures are permitted if:
 - (a) They are a maximum of 0.25 inch in diameter.
 - (b) They are a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.

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ALLOWABLE DAMAGE 1

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- (c) They are filled with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - 1) Install the rivet without sealant.
- (2) If you find a hole or puncture that is larger than 0.25 inch in diameter, do as follows:
 - (a) Remove the damage to a circular or oval shape.
 - (b) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (c) Refer to Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

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ALLOWABLE DAMAGE 1

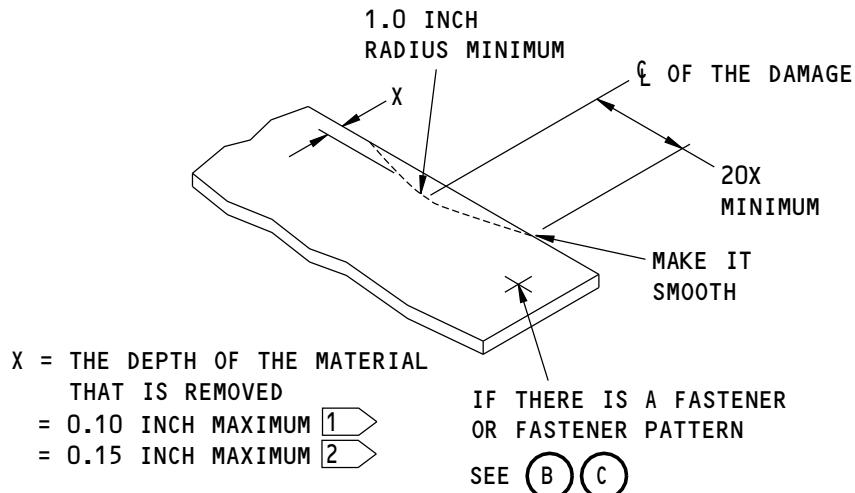
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STRUCTURAL REPAIR MANUAL**

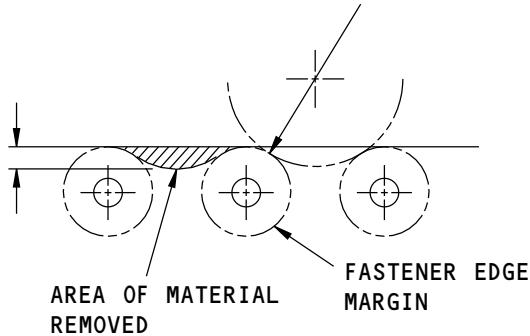


REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(A)

X = THE DEPTH OF THE MATERIAL THAT IS REMOVED
= 0.10 INCH MAXIMUM [1]
= 0.15 INCH MAXIMUM [2]

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.0 INCH

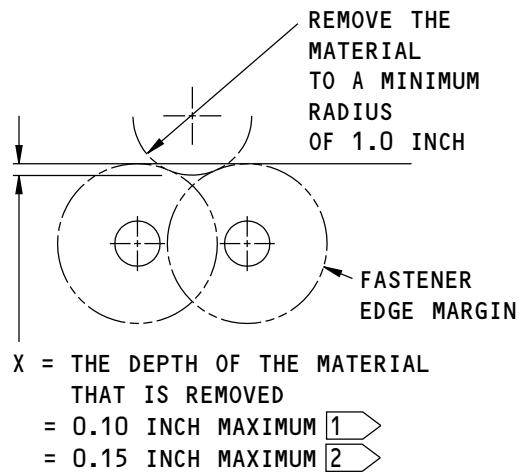


REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(B)

NOTES

- [1] FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- [2] FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(C)

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**Allowable Damage Limits - Forward Access Door Skin
Figure 103 (Sheet 1 of 3)**

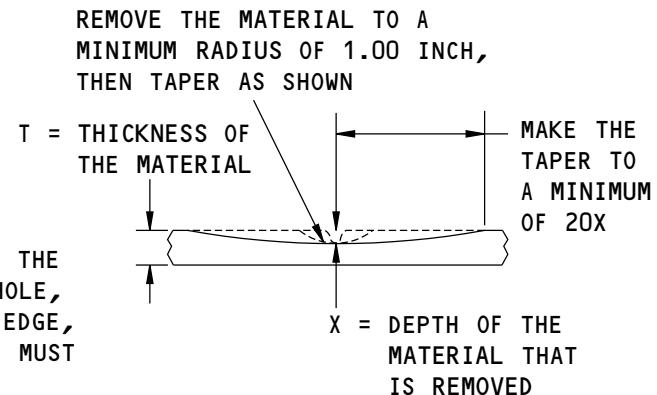
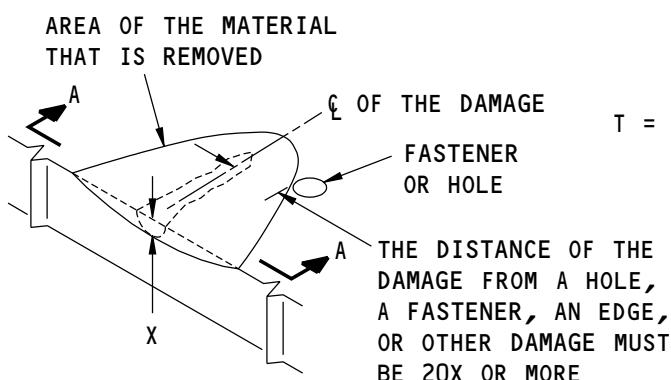
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ALLOWABLE DAMAGE 1

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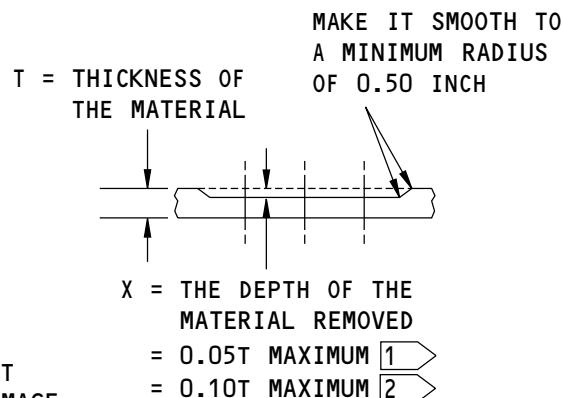
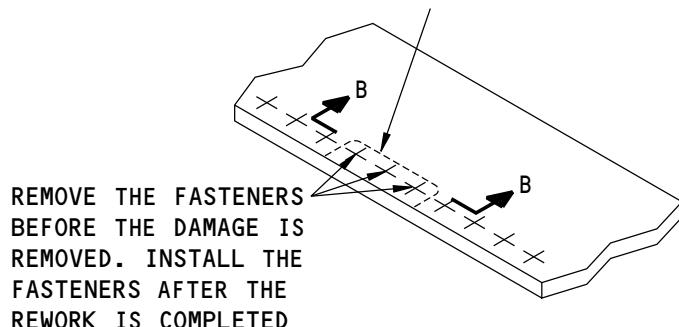
NOTE: REFER TO PARAGRAPH 5, TABLE 101, AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

A-A

REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



NOTE: REFER TO PARAGRAPH 5, TABLE 101, AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

REMOVAL OF NICKS, GOUGES, SCRATCHES, AND CORROSION DAMAGE

(E)

B-B

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Allowable Damage Limits - Forward Access Door Skin
Figure 103 (Sheet 2 of 3)

52-41-01

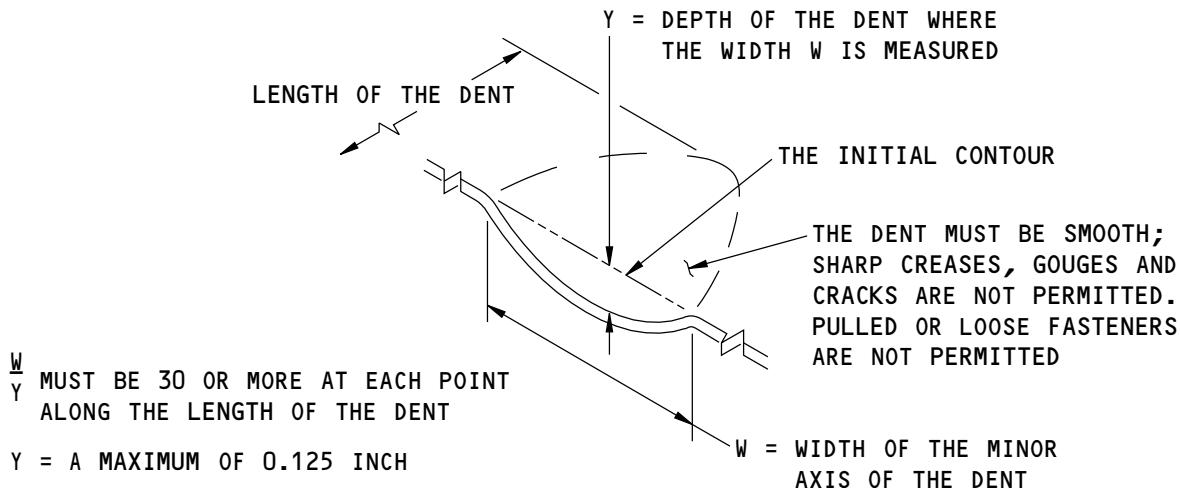
ALLOWABLE DAMAGE 1

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DENT THAT IS PERMITTED



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Allowable Damage Limits - Forward Access Door Skin

Figure 103 (Sheet 3 of 3)

5. Airplane Flight Operation Limits

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
 - (1) Find the applicable area in Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
 - (a) The damage depth in Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ ALLOWABLE DAMAGE 1 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
 - (b) Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1 is applicable to:
 - 1) Cracks
 - 2) Nicks, Scratches, Gouges, and Corrosion
 - 3) Holes and Punctures that are larger than 0.25 inch in diameter.
 - (c) Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ALLOWABLE DAMAGE 1 is not applicable to dents.
 - (2) Refer to Table 101/ALLOWABLE DAMAGE 1 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door, Figure 104/ ALLOWABLE DAMAGE 1.

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ALLOWABLE DAMAGE 1

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Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 104 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a category A, B, or C repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired. For holes and punctures larger than 0.25 inch (6.4 mm) in diameter: The maximum cabin pressure differential is limited to 0.0 PSIG. Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a category A, B, or C repair as given in SRM 52-00-01	There are no airplane operation limits
	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to 0.0 PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
D	Do a category A, B, or C repair as given in SRM 52-00-01	There are no airplane operation limits
	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
E	Do a category A, B, or C repair as given in SRM 52-00-01	There are no airplane operation limits

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ALLOWABLE DAMAGE 1

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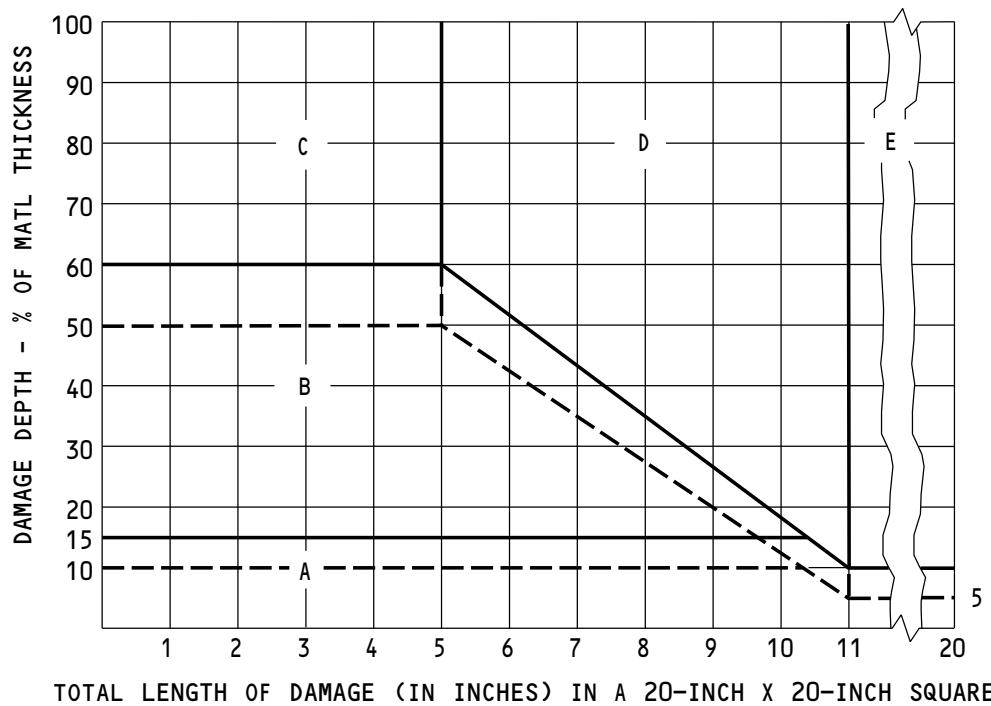
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NOTE: IF THERE IS DAMAGE AT MORE THAN ONE LOCATION, THE TOTAL LENGTH OF DAMAGE TO BE USED IN THE GRAPH IS THE TOTAL LENGTH OF DAMAGE IN A 20-INCH SQUARE.

USE THE DEEPEST DAMAGE DEPTH IN A 20 INCH BY 20 INCH SQUARE FOR THE DAMAGE DEPTH IN THE GRAPH.

THERE ARE NO FLIGHT OPERATION LIMITS IF THE DAMAGE HAS BEEN FILLED AS GIVEN IN PARAGRAPH 4.D. THEN FIGURE 104 DOES NOT APPLY.

— — — FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.

— — — FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

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Damage Limits for Cracks, Nicks, Scratches, Gouges, Holes, Punctures, and Corrosion on Pressurized Forward Access Door

Figure 104

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ALLOWABLE DAMAGE 1

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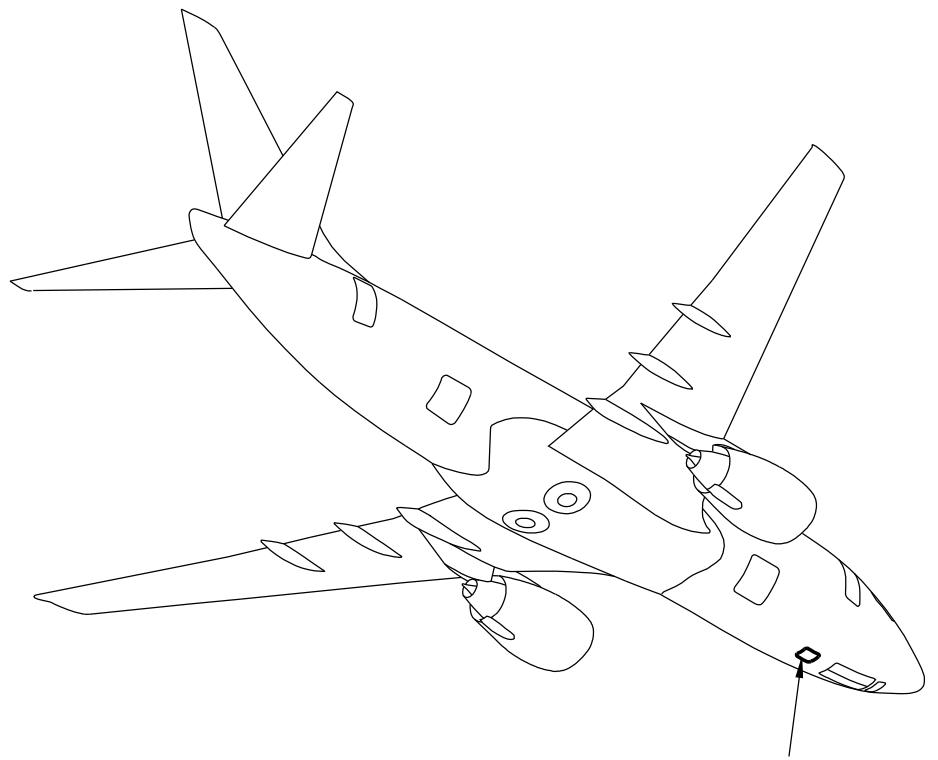


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ALLOWABLE DAMAGE 2 - EQUIPMENT ACCESS DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits and the flight operating limits for the skins on the equipment access door shown in Equipment Access Door Location, Figure 101/ALLOWABLE DAMAGE 2.



REFER TO FIGURE 102 FOR
THE EQUIPMENT ACCESS
DOOR ALLOWABLE DAMAGE

Equipment Access Door Location
Figure 101

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ALLOWABLE DAMAGE 2

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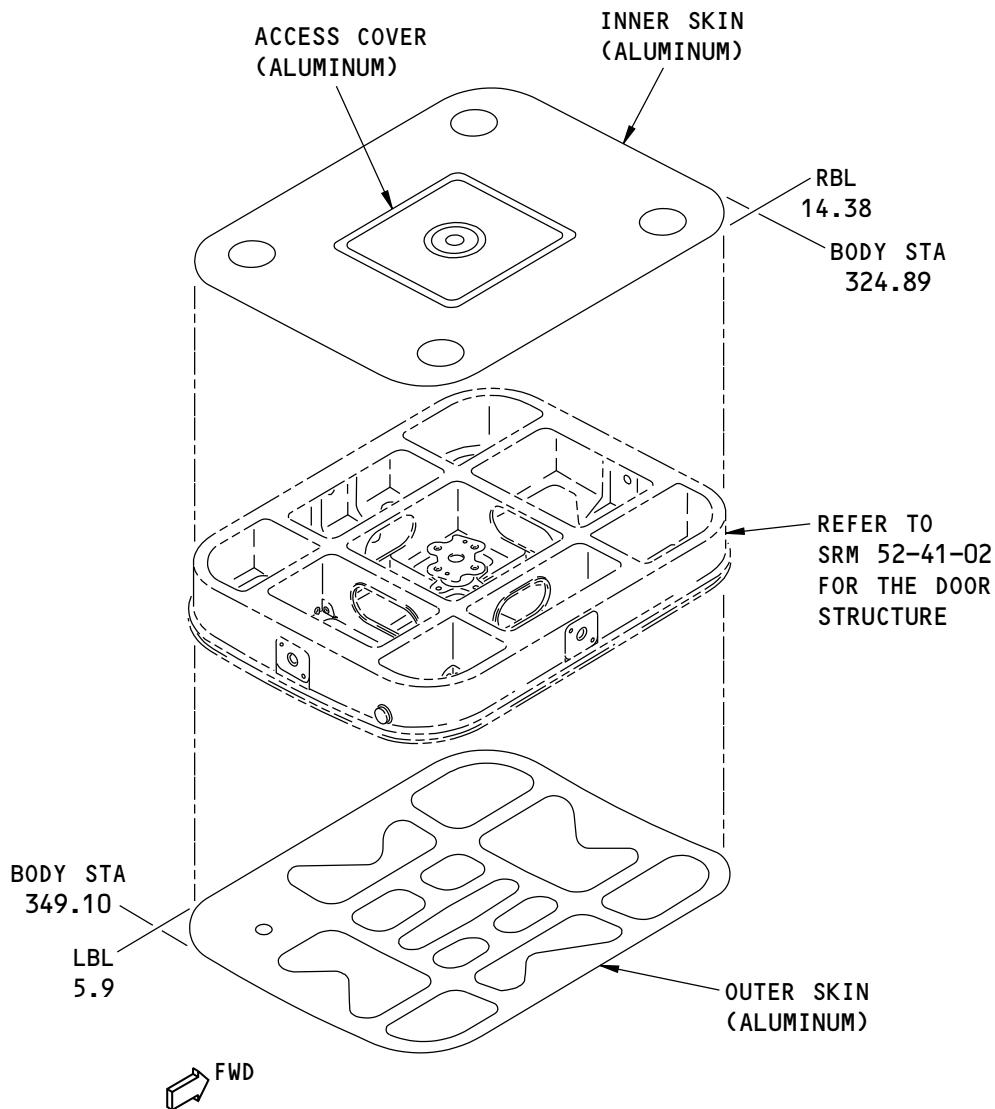
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Equipment Access Door Skin Allowable Damage
Figure 102

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ALLOWABLE DAMAGE 2

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2. General

- A. The equipment access door is in a pressurized region of the fuselage.
- B. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 2
- C. Remove the damage as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for the possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the possible sources of the equipment and tools you can use to remove the damage.
- D. Airplane flight operation limits can be necessary. Refer to the limits given in Paragraph 5./ ALLOWABLE DAMAGE 2, Table 101/ALLOWABLE DAMAGE 2, and shown in Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2.
- E. If damage is removed on the external aerodynamic surface of the outer skin, do the steps that follows:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.
 - (3) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- F. If damage is removed on the internal non-aerodynamic surface of the outer skin, or on the internal skin do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01/701.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.
- G. Make sure the aerodynamic smoothness is satisfactory and not more than the limits given in 51-10-01.

NOTE: If the aerodynamic smoothness is not satisfactory there can be a loss in the economic performance of the airplane.

3. References

Reference	Title
51-10-01	AERODYNAMIC SMOOTHNESS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

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ALLOWABLE DAMAGE 2

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4. Allowable Damage Limits

A. External Skin:

(1) Cracks:

- (a) Airplane flight operation limits are necessary. Refer to Paragraph 5./ALLOWABLE DAMAGE 2, Table 101/ALLOWABLE DAMAGE 2, and Figure 104 for the flight operation limits.
- (b) Drill a 0.25 inch (6.35 mm) diameter stop hole at the ends of a crack that does not end at a fastener hole or surface edge. Refer to 51-10-02.
 - 1) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet. Install the rivet without sealant. Refer to 51-10-02 for the aerodynamic smoothness requirements.

(2) Nicks, Gouges, Scratches, and Corrosion:

- (a) Airplane flight operation limits can be necessary. Depth of damage limits and length of damage limits are given in Table 101/ALLOWABLE DAMAGE 2 and shown in Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2.
- (b) Damage that does not go through the clad surface is permitted.
- (c) Remove the damage as shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, details A , B , C , D , and E .
- (d) Removal of damage as shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Detail D and E is permitted to the limits given in Table 101/ALLOWABLE DAMAGE 2 and shown in Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2.

(3) Dents:

CAUTION: DO NOT FILL DENTS THAT ARE LARGER THAN THE ALLOWABLE DAMAGE LIMITS SHOWN IN FIGURE 103, DETAIL F. IF YOU DO NOT OBEY, THE RESULT CAN BE AN UNSATISFACTORY CONDITION THAT CAN CAUSE MORE DAMAGE TO THE AIRPLANE STRUCTURE.

- (a) Dents are permitted if they meet the limits of Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Detail F .
- (b) A dent larger than the limits shown in Allowable Damage Limits - External Skin, Figure 103/ALLOWABLE DAMAGE 2, Detail F , that cannot be repaired immediately, is permitted if:
 - 1) There are no loose or missing fasteners.
 - 2) You do not fill the dent.
 - 3) There are no damaged fastener holes.
 - 4) You inspect the dent for corrosion and cracks at each 1500 flight hour interval or more frequently.

(4) Holes and Punctures:

- (a) Holes and punctures are permitted if:

- 1) They are 0.25 inch (6.35 mm) or less in diameter.
- 2) They are 1.00 inch (25.4 mm) or more away from a fastener hole, an edge, a chem-milled radius, or other damage or other damage.

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- 3) They are filled with a 2017-T3 or 2017-T4 aluminum protruding head rivet. Install the rivet without sealant.
- (b) Flight operation limits are necessary if the damage is larger than 0.25 inch (6.35 mm) in diameter.
 - 1) The damage must be 1.00 inch (6.35 mm) or more away from the edge of the part or fitting, a fastener hole, an edge, a chem-milled radius, or other damage.
 - 2) Remove the damage to a smooth circular or oval shape.
 - 3) Refer to Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2 and Table 101 for the flight operation limits.

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ALLOWABLE DAMAGE 2

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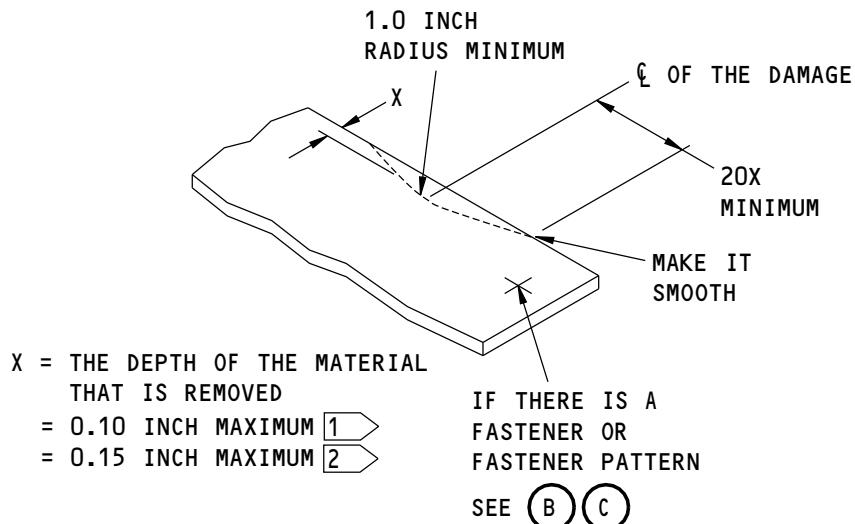
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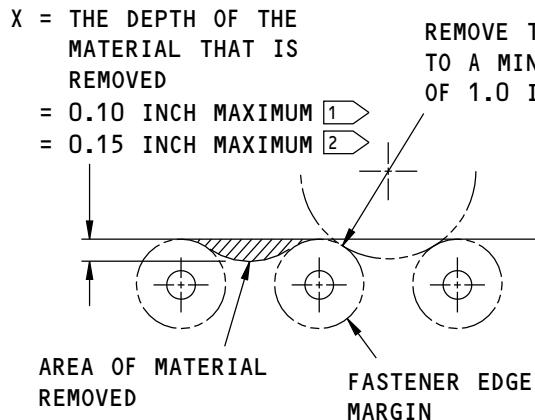


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REMOVAL OF DAMAGED MATERIAL ON AN EDGE

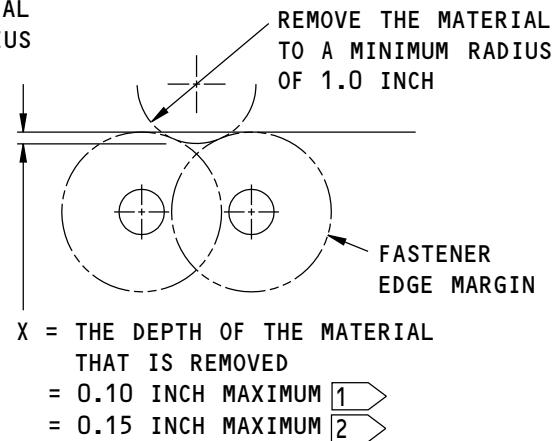
(A)



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

NOTES

- [1] FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- [2] FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(C)

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**Allowable Damage Limits - External Skin
Figure 103 (Sheet 1 of 3)**

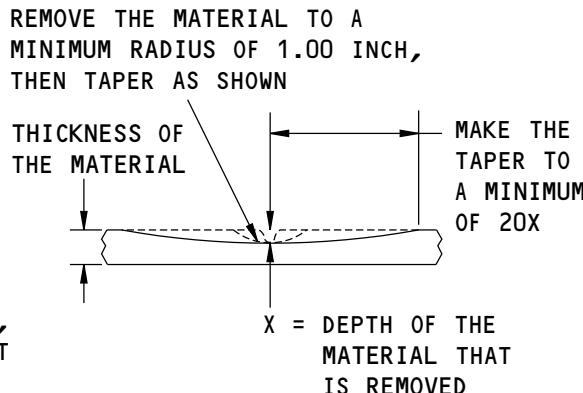
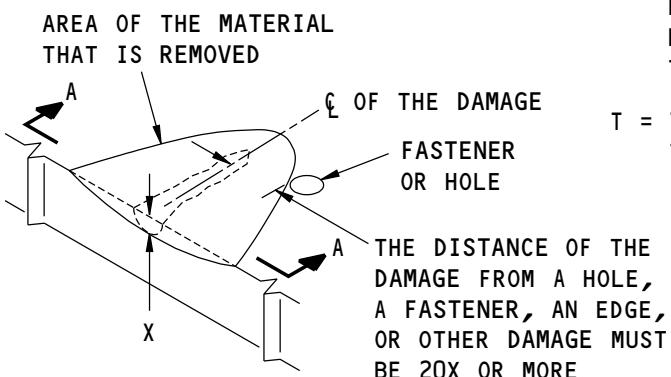
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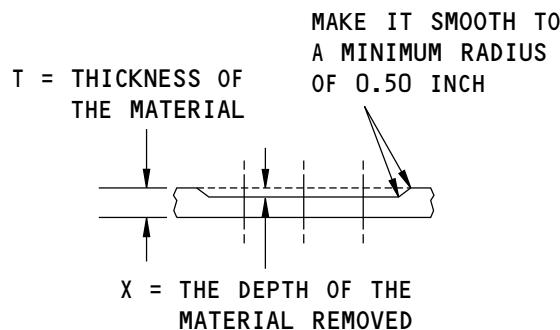
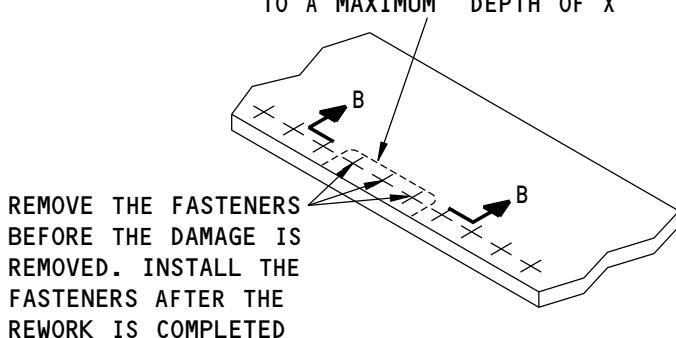
NOTE: REFER TO PARAGRAPH 5, TABLE 101, AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

A-A

REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



NOTE: REFER TO PARAGRAPH 5, TABLE 101, AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

B-B

REMOVAL OF NICKS, GOUGES, SCRATCHES, AND CORROSION DAMAGE

(E)

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Allowable Damage Limits - External Skin
Figure 103 (Sheet 2 of 3)

52-41-01

ALLOWABLE DAMAGE 2

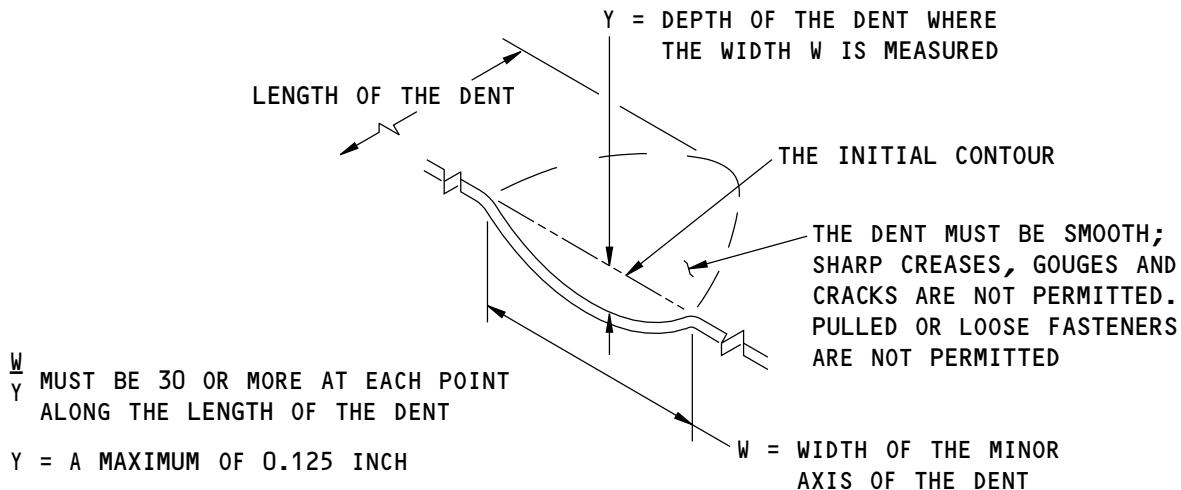
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STRUCTURAL REPAIR MANUAL



DENT THAT IS PERMITTED



F78055 S0006587146_V2

Allowable Damage Limits - External Skin

Figure 103 (Sheet 3 of 3)

5. Airplane Flight Operation Limits

- A. If there is external door skin damage, airplane flight operation limits can be necessary.
 - (1) Find the applicable area in Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2 for the length and depth of the damage in all 20 inch by 20 inch square (508 mm by 508 mm) areas of the door skin.
 - (a) The damage depth in Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification subject or the engineering drawings.
 - (b) Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2 is applicable to:
 - 1) Cracks
 - 2) Nicks, Gouges, Scratches, and Corrosion
 - 3) Holes and Punctures.
 - (c) Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2 is not applicable to Dents.
 - (2) Refer to Table 101/ALLOWABLE DAMAGE 2 to find the damage treatment and permitted airplane flight operations for the area you found shown in Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin, Figure 104/ALLOWABLE DAMAGE 2.

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ALLOWABLE DAMAGE 2

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STRUCTURAL REPAIR MANUAL

Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 104 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Clean up the damage as given in Figure 103	There are no airplane operation limits
B	Clean up the damage as given in Figure 103	Up to 50 revenue flight hours are permitted
	Do a permanent, interim or time limited repair	There are no airplane operation limits
C	Drill 0.25 inch diameter stop holes at the ends of the cracks. Clean up other damage as given in Figure 103	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to 5.0 PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim or time limited repair	There are no airplane operation limits.
D	Drill 0.25 inch diameter stop holes at the ends of the cracks. Clean up other damage as given in Figure 103	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to zero PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim or time limited repair	There are no airplane operation limits
E	Drill 0.25 inch diameter stop holes at the ends of the cracks. Clean up other damage as given in Figure 103	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
	Do a permanent, interim or time limited repair	There are no airplane operation limits

B. Internal Skin:

(1) Cracks:

- (a) Remove the damage as shown In Allowable Damage Limits - Internal Skin, Figure 105/ ALLOWABLE DAMAGE 2, Detail A , B and C .
- (b) Drill a 0.25 inch (6.35 mm) diameter stop hole at the ends of a crack that are not at a fastener hole or an edge an shown in Allowable Damage Limits - Internal Skin, Figure 105/ALLOWABLE DAMAGE 2, Detail D . Refer to 51-10-02.
- (c) You are permitted to remove the damage to a maximum diameter of 1.00 inch (25.4 mm) if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from an edge, or other damage.
 - 2) You keep the fastener edge margins. Refer to 51-40-06.

(2) Nicks, Gouges, Scratches and Corrosion:

- (a) Damage that does not go through the clad surface is permitted.
- (b) Remove the damage as shown in Allowable Damage Limits - Internal Skin, Figure 105/ ALLOWABLE DAMAGE 2, Details A , B , C , E , and F .
- (c) You are permitted to remove the damage to a maximum diameter of 1.00 inch (25.4 mm) if:
 - 1) The edge of the cleanup is a minimum of 15T (T = the thickness of the material) away from an edge, or other damage

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ALLOWABLE DAMAGE 2

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- 2) You keep the fastener edge margins. Refer to 51-40-06.
- (3) Dents:
 - (a) Dents are permitted as shown in Allowable Damage Limits - Internal Skin, Figure 105/ ALLOWABLE DAMAGE 2, Detail G .
- (4) Holes and Punctures:
 - (a) Damage is permitted to a maximum diameter of 1.00 inch (25.4 mm), if it is a minimum of 30T (T = the thickness of the material) away from an edge, or other damage.
 - (b) Remove the damage to a smooth circular or oval shape.

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ALLOWABLE DAMAGE 2

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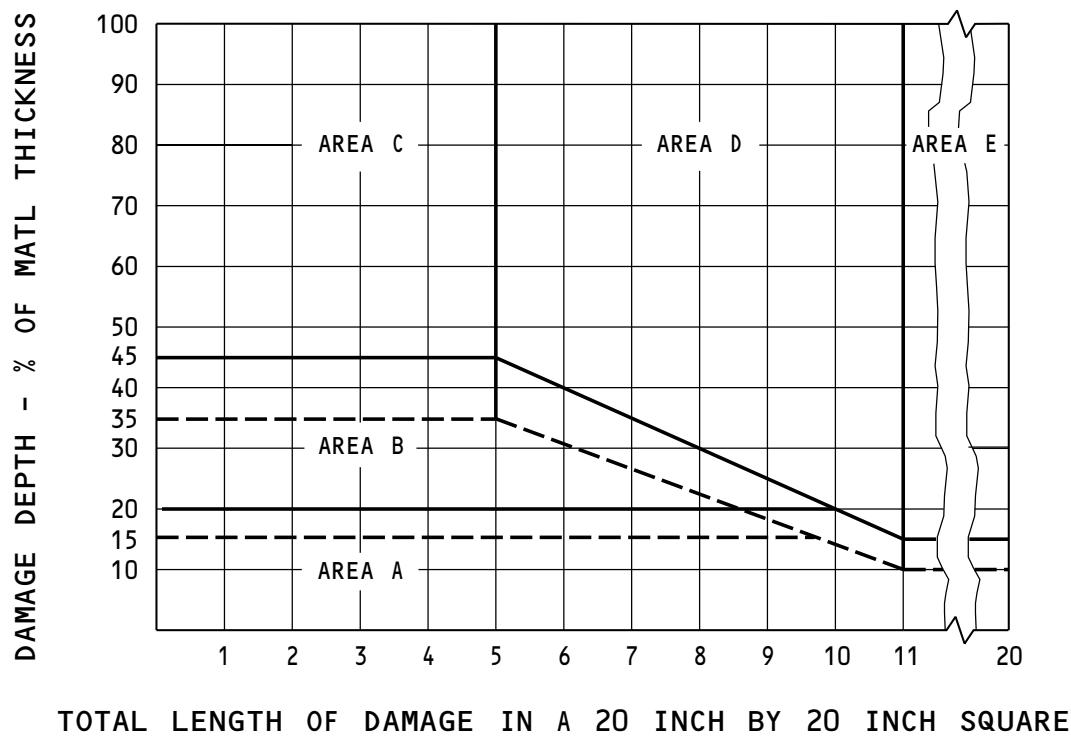
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NOTE: THIS FIGURE APPLIES TO PRESSURIZED EXTERNAL SKIN PANELS OF THE FUSELAGE DOORS.

IF THERE IS DAMAGE AT MORE THAN ONE LOCATION, THE TOTAL LENGTH OF DAMAGE TO BE USED IN THE GRAPH IS THE TOTAL LENGTH OF DAMAGE IN A 20-INCH SQUARE.

USE THE DEEPEST DAMAGE DEPTH IN A 20 INCH BY 20 INCH SQUARE FOR THE DAMAGE DEPTH IN THE GRAPH.

IF THE DAMAGE IN AREA C HAS BEEN FILLED AS GIVEN IN PARAGRAPH 4.A(4)(a), THEN FIGURE 104 DOES NOT APPLY.

— — — FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.

— — — FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

400582 S0000137739_V1

Damage Limits for Cracks, Nicks, Scratches, Gouges, and Corrosion on Pressurized Equipment Access Door External Skin

Figure 104

52-41-01

ALLOWABLE DAMAGE 2

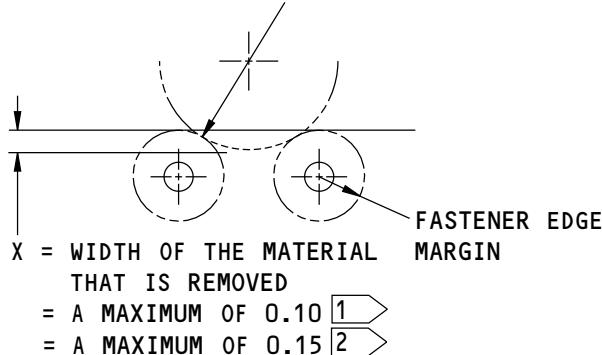
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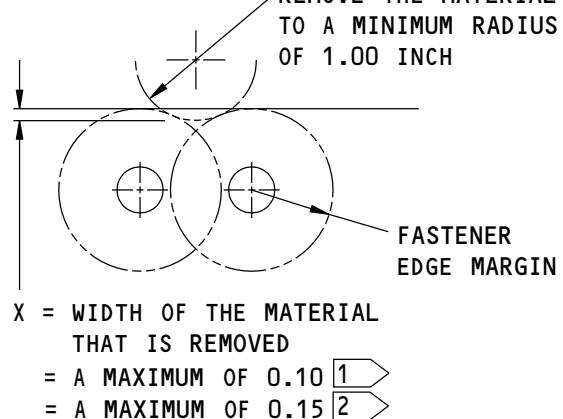
REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)

TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE FROM A HOLE, A FASTENER, AN EDGE, OR OTHER DAMAGE MUST BE 20X OR MORE

MAKE THE CONTOUR SMOOTH (TYPICAL)

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH, THEN TAPER AS SHOWN

IF THERE ARE FASTENERS,
SEE (A) AND (B)

X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH [1]
= A MAXIMUM OF 0.15 INCH [2]

REMOVAL OF DAMAGED MATERIAL AT AN EDGE OF A METAL SKIN OR WEB

(C)

NOTES

- [1] FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
- [2] FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

400583 S0000137785_V1

Allowable Damage Limits - Internal Skin
Figure 105 (Sheet 1 of 3)

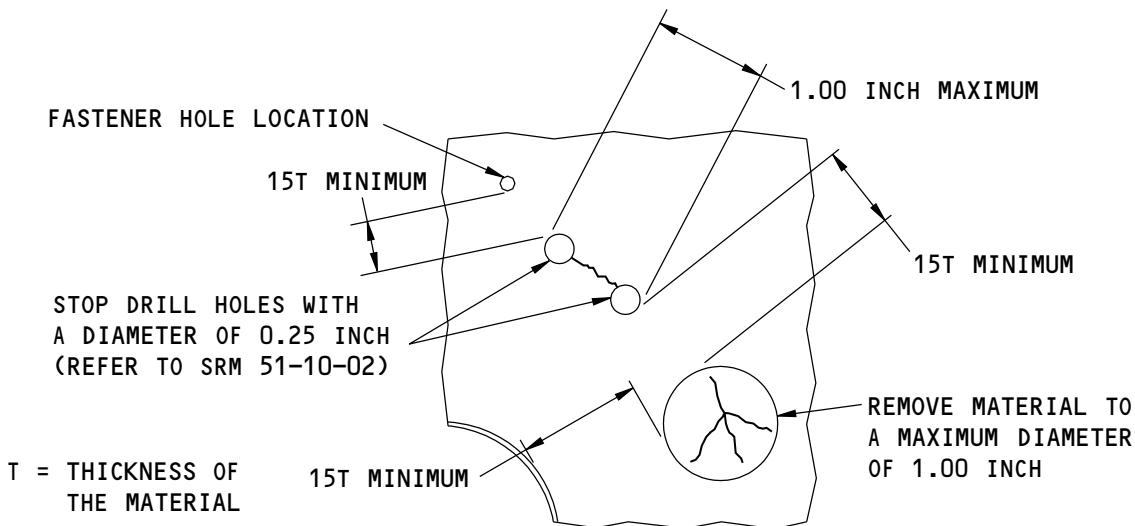
52-41-01

ALLOWABLE DAMAGE 2

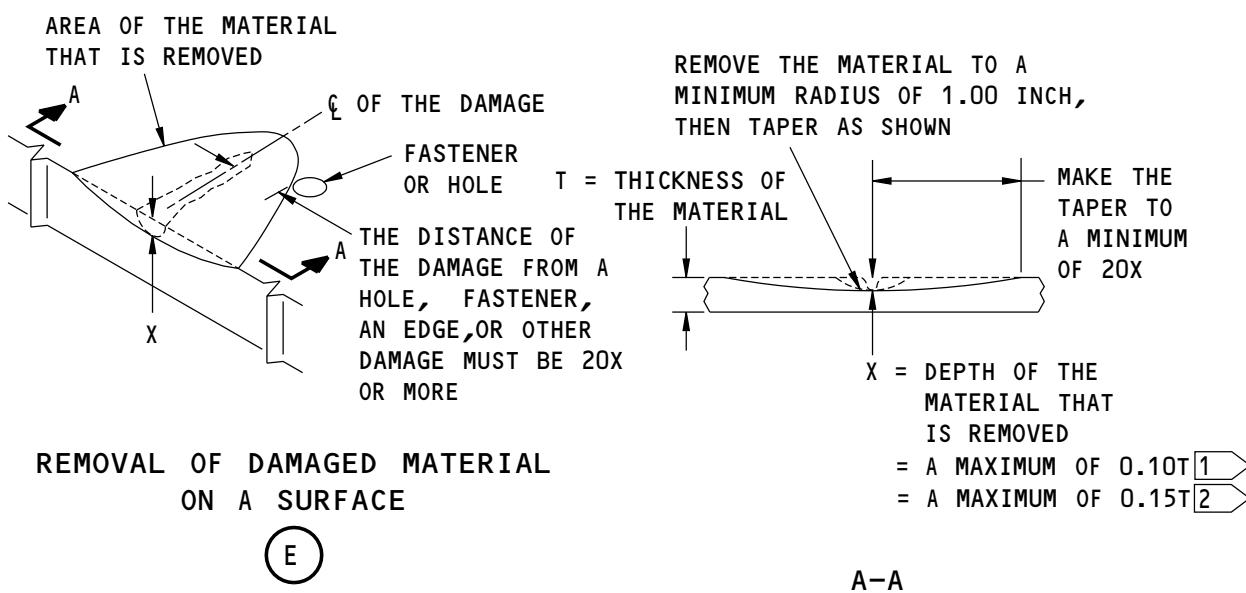
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CRACKS THAT ARE PERMITTED

(D)



400584 S0000137789_V1

Allowable Damage Limits - Internal Skin
Figure 105 (Sheet 2 of 3)

52-41-01
ALLOWABLE DAMAGE 2

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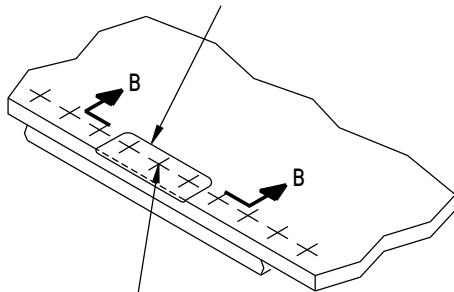
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THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



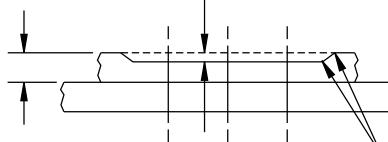
REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE

T = THICKNESS OF THE MATERIAL

X = DEPTH OF THE MATERIAL THAT IS REMOVED

= A MAXIMUM OF 0.10T 1

= A MAXIMUM OF 0.15T 2

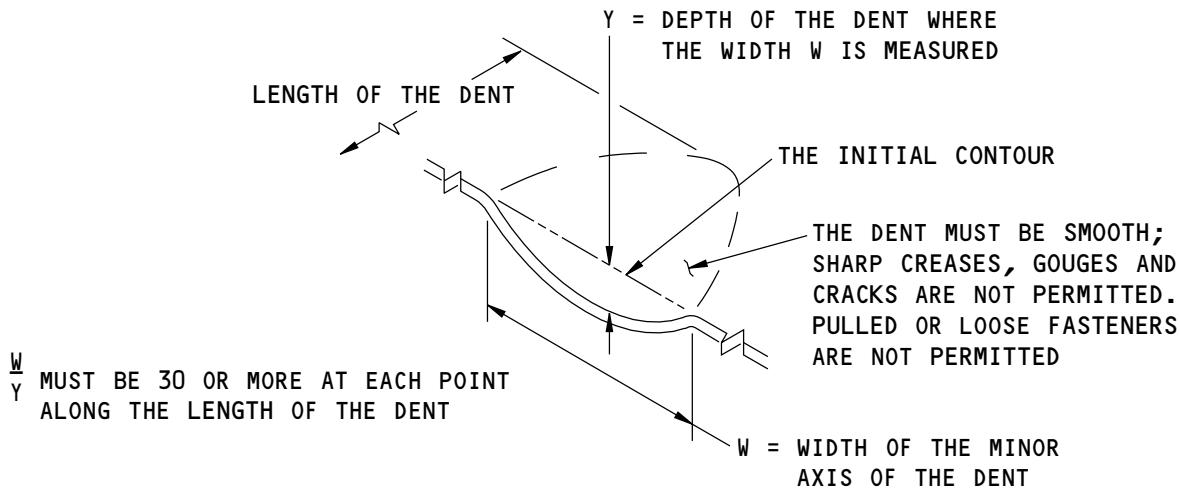


MAKE THE CONTOUR SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (TYPICAL)

B-B

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

(F)



DENT THAT IS PERMITTED

(G)

400585 S0000137792_V2

Allowable Damage Limits - Internal Skin
Figure 105 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 2

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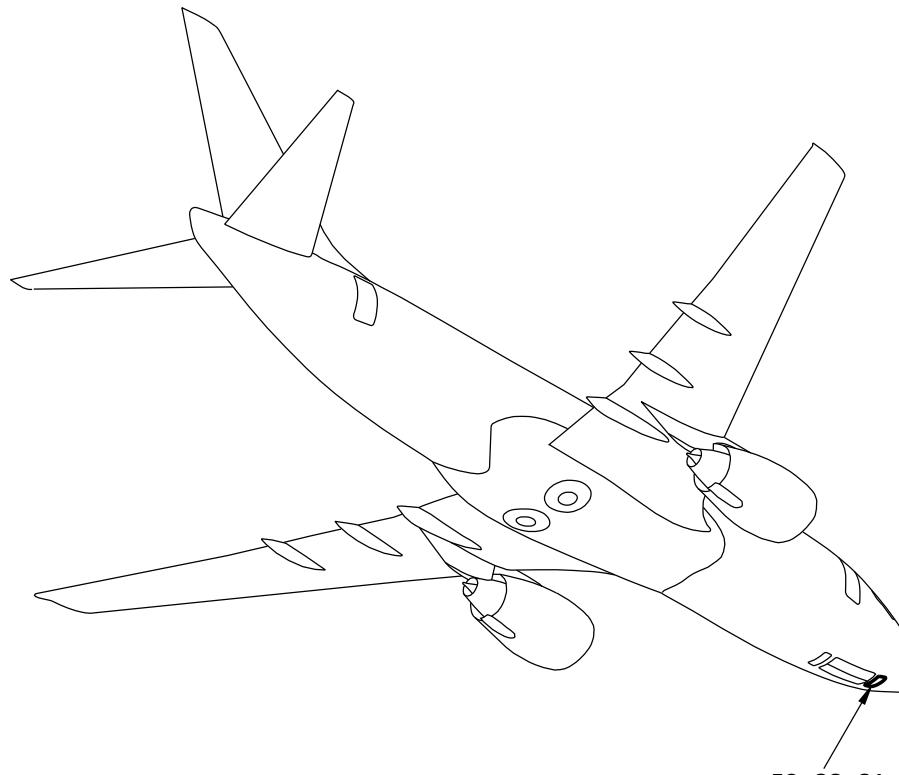
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REPAIR 1 - FORWARD ACCESS DOOR SKIN



REFER TO SRM 52-00-01 FOR THE
REPAIR DATA APPLICABLE TO
THE PRESSURIZED DOOR SKINS

Forward Access Door Skin Repair
Figure 201

F77682 S0006587154_V1

52-41-01

REPAIR 1
Page 201

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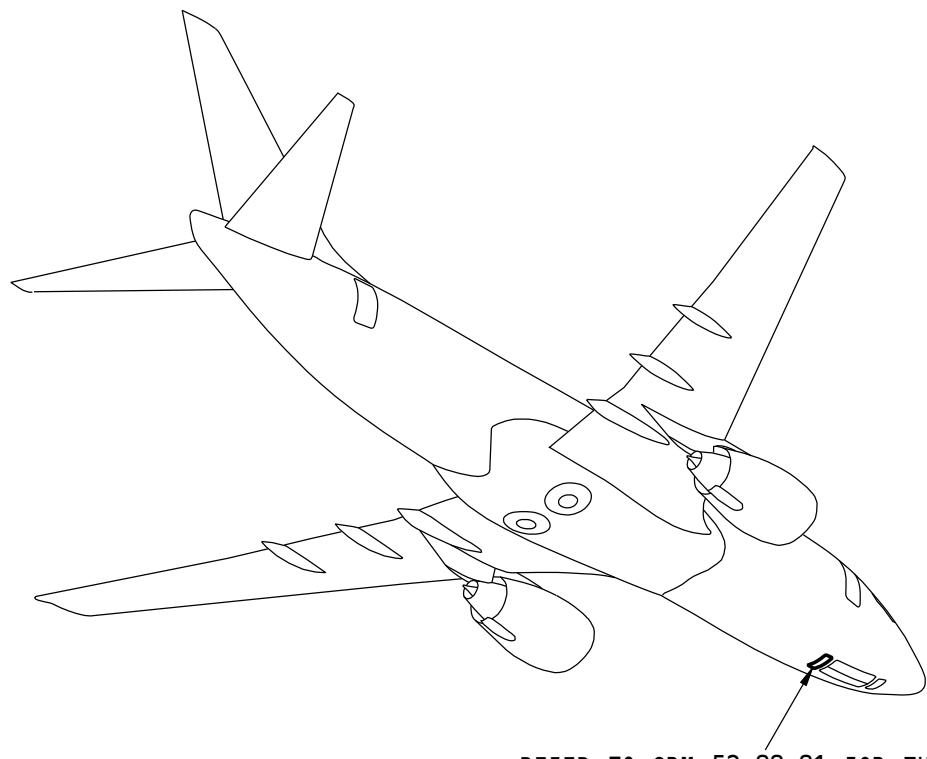
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REPAIR 2 - EQUIPMENT ACCESS DOOR SKIN



REFER TO SRM 52-00-01 FOR THE
REPAIR DATA APPLICABLE TO
THE PRESSURIZED DOOR SKINS

Equipment Access Door Skin Repair
Figure 201

F77686 S0006587156_V1

52-41-01

REPAIR 2
Page 201

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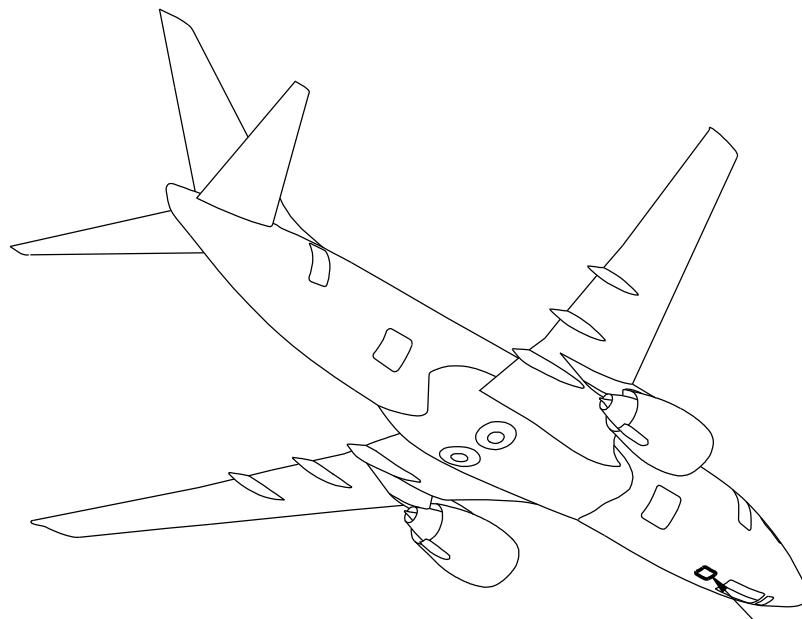
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IDENTIFICATION 1 - EQUIPMENT ACCESS DOOR STRUCTURE



REFER TO FIGURE 2
FOR THE EQUIPMENT
ACCESS DOOR
STRUCTURE

NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Equipment Access Door Structure Location

F78062 S0006587160_V1

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6700	Installation - Equipment Access Door
141A6710	Assembly - Equipment Access Door
141A6711	Structural Casting - Equipment Access Door

52-41-02

IDENTIFICATION 1

Page 1

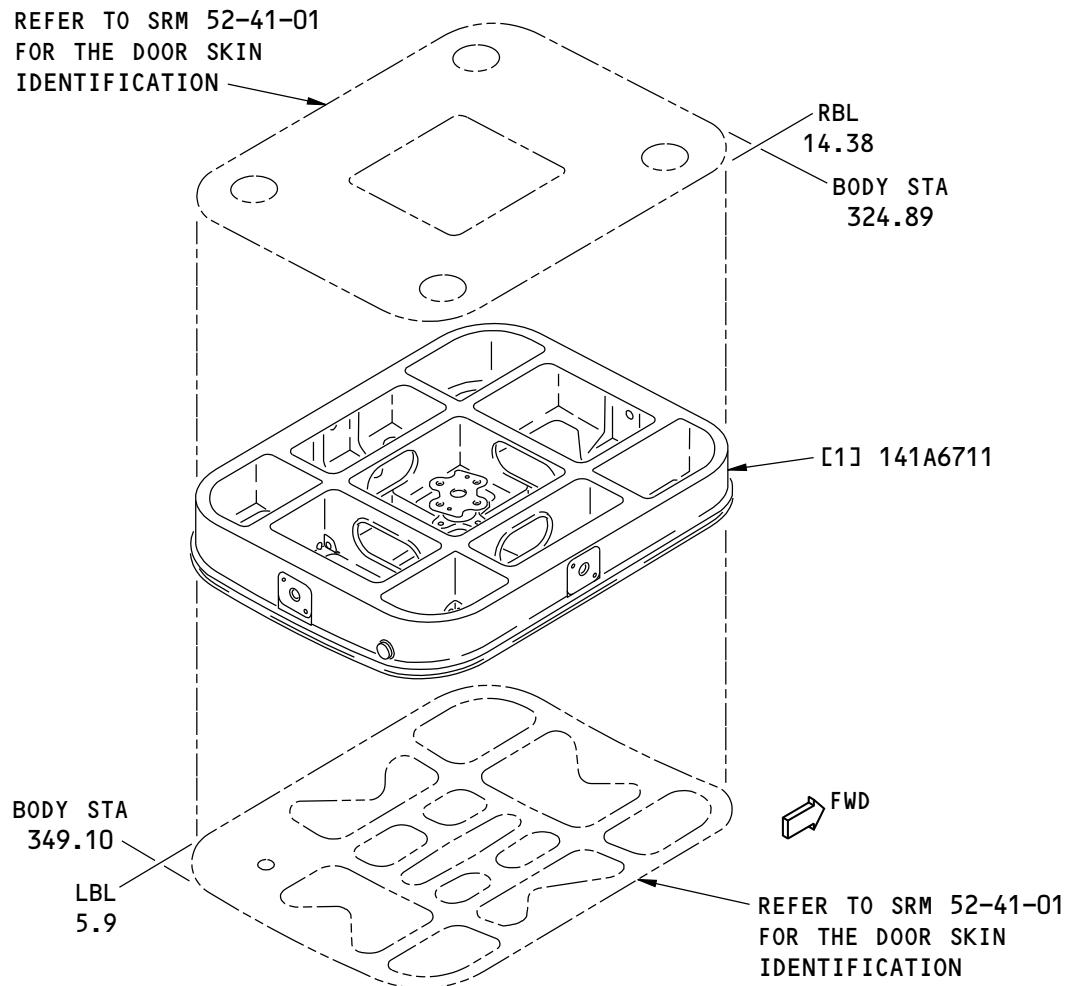
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F78064 S0006587162_V1

Equipment Access Door Structure Identification

Figure 2

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Framework		D357.0-T6 casting as given in BMS 7-330	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1

Page 2

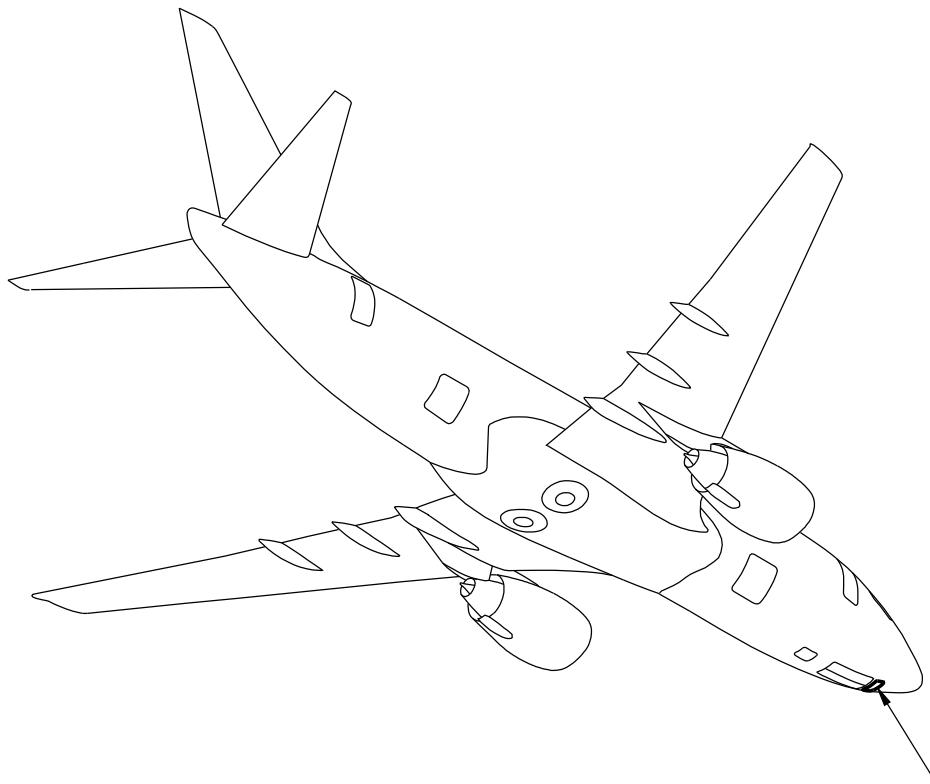
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IDENTIFICATION 2 - FORWARD ACCESS DOOR STRUCTURE



REFER TO FIGURE 2
FOR THE FORWARD
ACCESS DOOR
STRUCTURE
IDENTIFICATION

NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

Forward Access Door Structure Location

Figure 1

Table 1:

F78029 S0006587165_V1

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6800	Forward Access Door Functional Product Collector
141A6801	Installation - Forward Access Door
141A6802	Assembly - Forward Access Door
141A6803	Framework Assembly - Forward Access Door

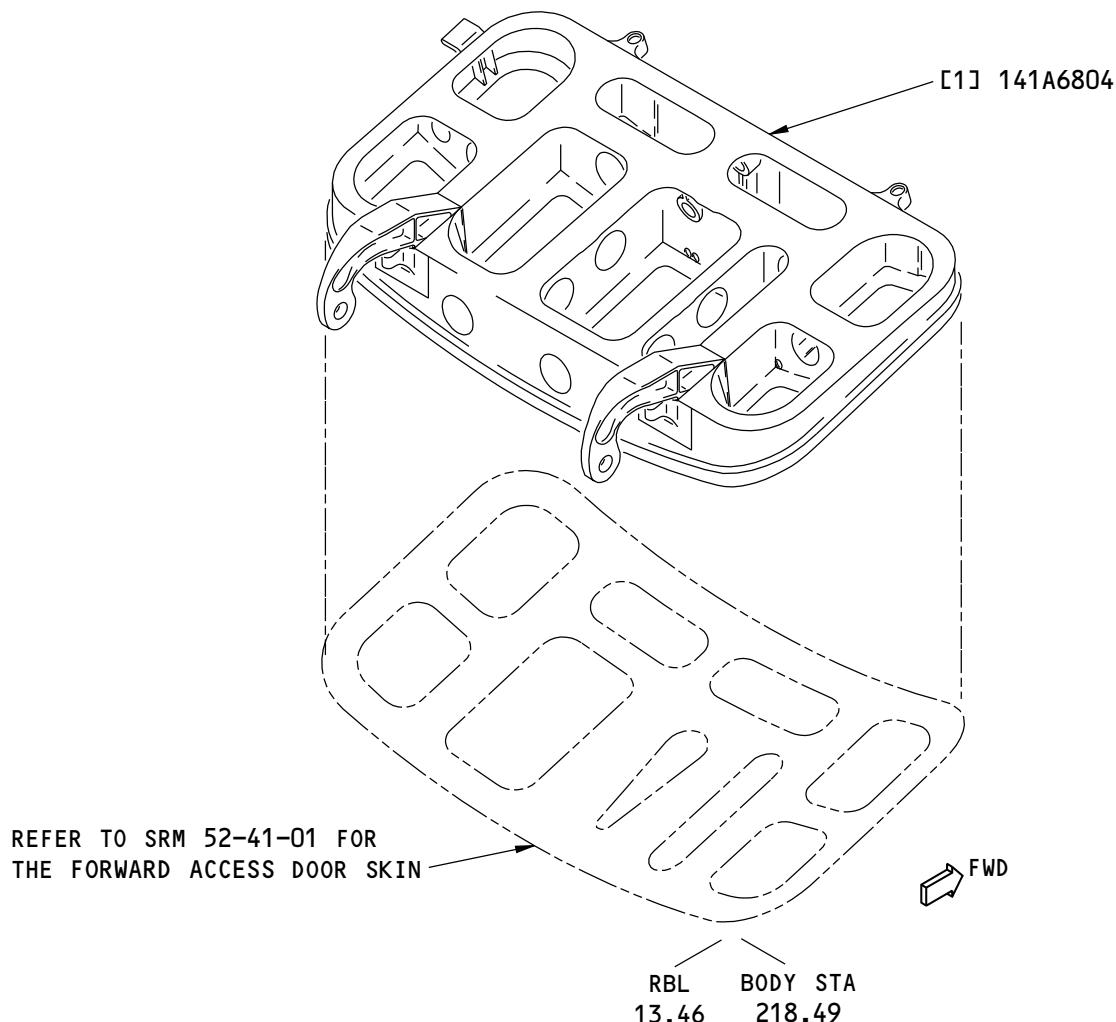
52-41-02
IDENTIFICATION 2
Page 1
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F78031 S0006587167_V1

Forward Access Door Structure Identification

Figure 2

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Framework		D357.0-T6 aluminum casting as given in BMS 7-330	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 2

Page 2

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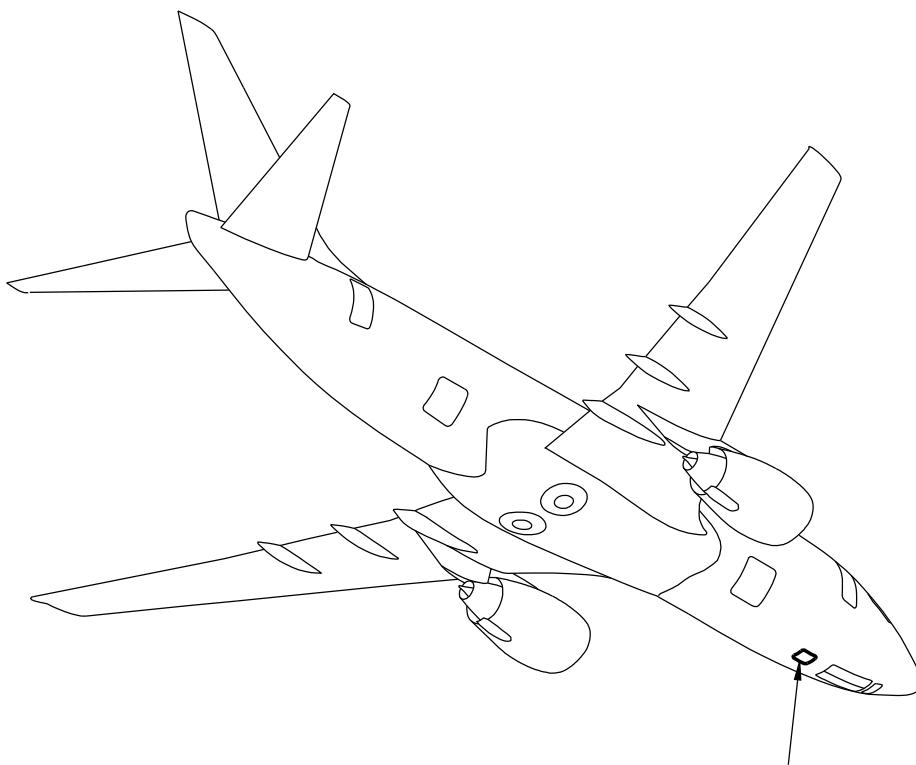


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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 1 - EQUIPMENT ACCESS DOOR STRUCTURE

1. Applicability

- A. This subject gives the allowable damage limits for the equipment access door structure shown in Equipment Access Door Location, Figure 101/ALLOWABLE DAMAGE 1 and Equipment Access Door Structure, Figure 102/ALLOWABLE DAMAGE 1.



REFER TO FIGURE 102 FOR THE
EQUIPMENT ACCESS DOOR STRUCTURE

Equipment Access Door Location
Figure 101

F78065 S0006587171_V1

52-41-02

ALLOWABLE DAMAGE 1

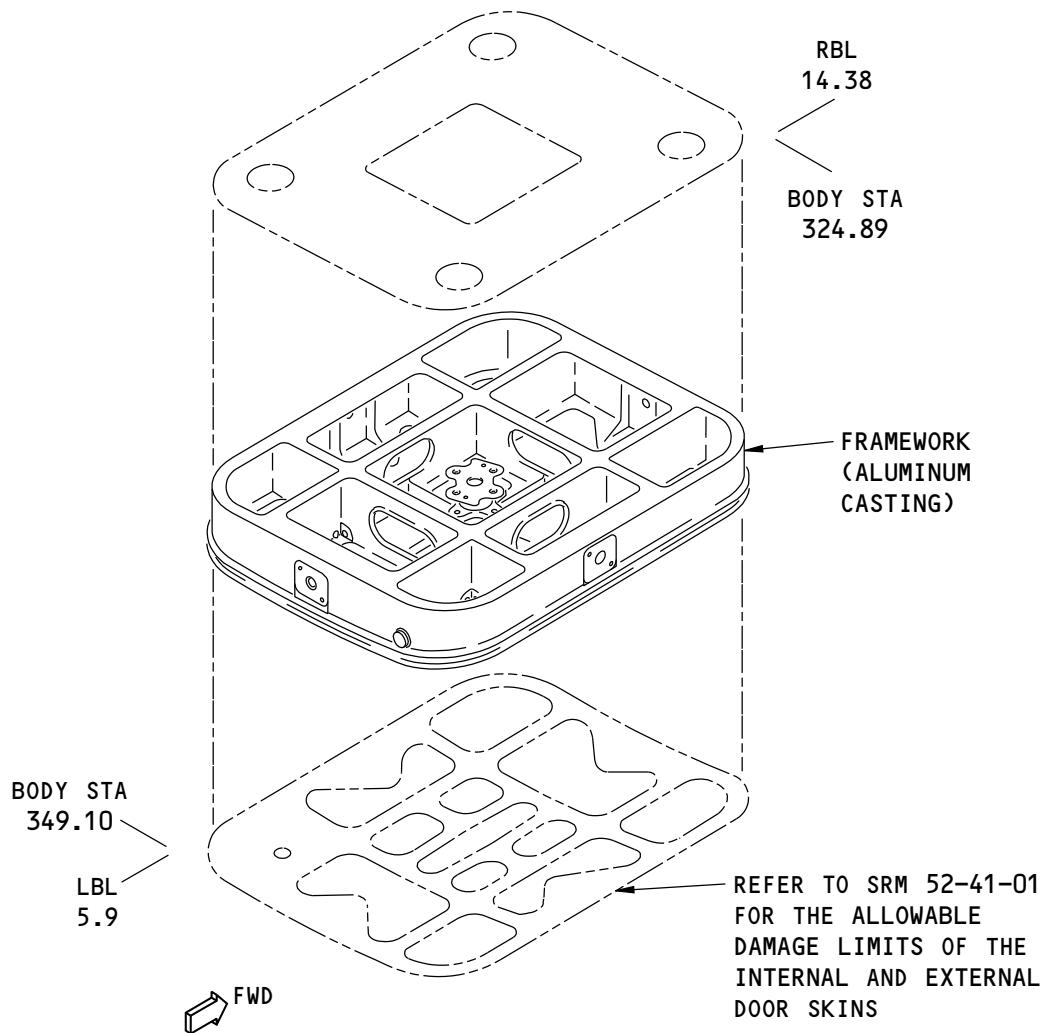
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F78070 S0006587172_V1

Equipment Access Door Structure
Figure 102

52-41-02

ALLOWABLE DAMAGE 1

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2. General

- A. Remove the necessary parts to get access to the equipment access door structure shown in Equipment Access Door Structure, Figure 102/ALLOWABLE DAMAGE 1.
- B. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1
- C. Remove the damage as necessary.
 - (1) Refer to 51-10-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for the possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for the possible sources of the equipment and tools you can use to remove the damage.
- D. After the damage has been removed, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Cracks are not permitted.
- B. Nicks, Scratches, Gouges, and Corrosion:
 - (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , E , and F .
- C. Dents are not permitted.
- D. Holes and Punctures are permitted if:
 - (1) They are 0.25 inch (6.35 mm) in diameter or less
 - (2) They are 1.00 inch (25.4 mm) or more away from a fastener hole or other damage
 - (3) They are 1.5 D (D = the diameter of the damage) away from a part radius or part edge
 - (4) They are filled with a 2017-T3 or 2017-T4 protruding head rivet.
 - (a) Install the rivet without sealant.

52-41-02

ALLOWABLE DAMAGE 1

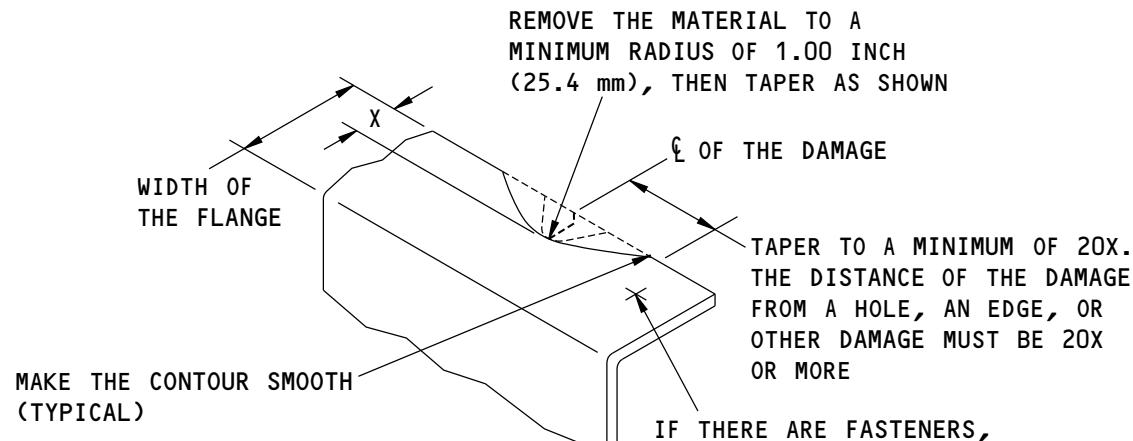
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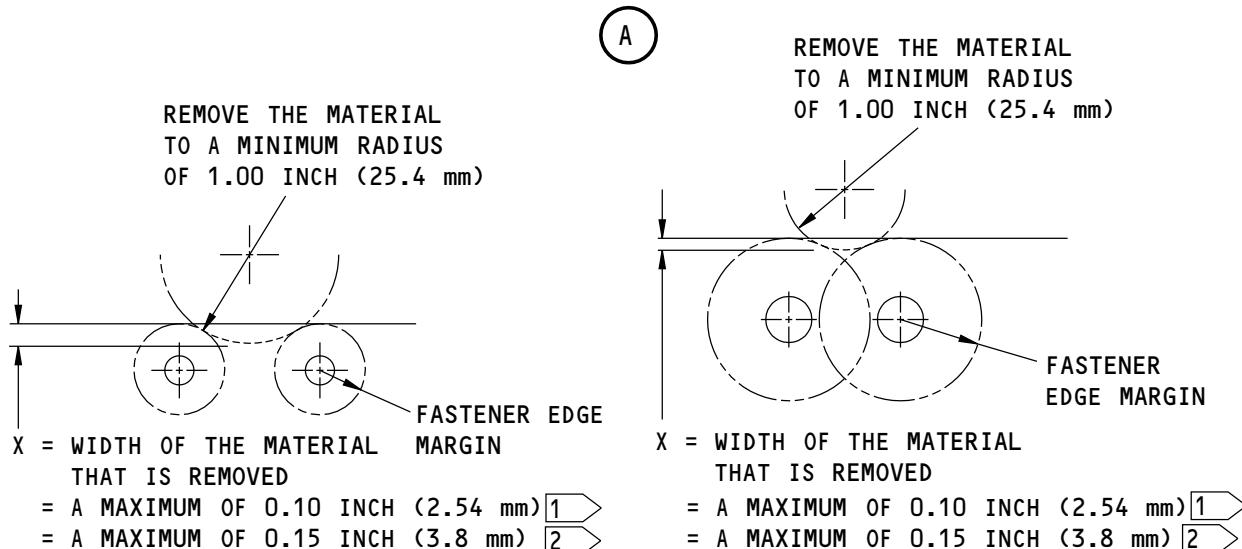
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X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE [1]
= A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE [2]

REMOVAL OF DAMAGED MATERIAL ON AN EDGE



**REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS DO NOT HAVE AN OVERLAP**

NOTES

- [1] FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
[2] FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

**REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS HAVE AN OVERLAP**

C

400586 S0000137805_V1

Allowable Damage Limits
Figure 103 (Sheet 1 of 3)

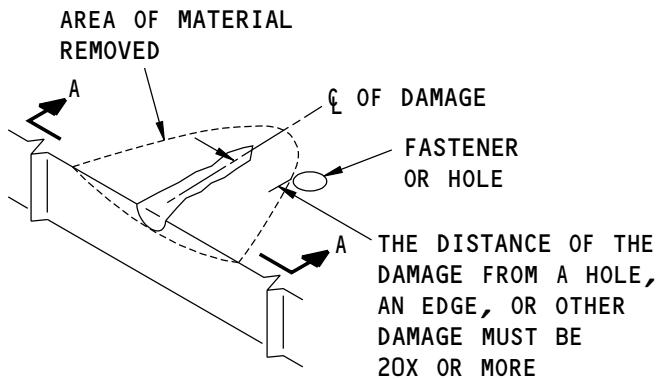
52-41-02

ALLOWABLE DAMAGE 1

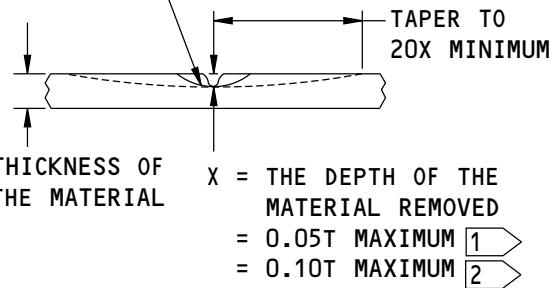
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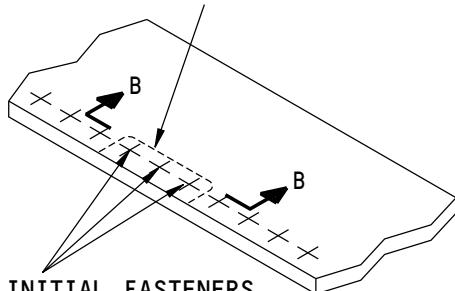
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**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE**
D

REMOVE THE MATERIAL TO A 1.00 INCH (25.4 mm) RADIUS MINIMUM, THEN TAPER AS SHOWN


A-A

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN A GROUP OF TEN IS PERMITTED TO A DEPTH OF X MAXIMUM

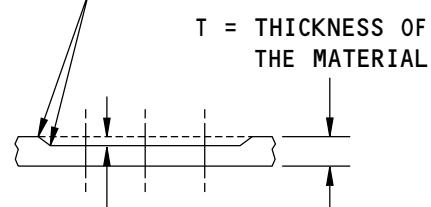


REMOVE THE INITIAL FASTENERS BEFORE THE DAMAGED MATERIAL IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS COMPLETED

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

E

MAKE IT SMOOTH TO A MINIMUM RADIUS OF 0.50 INCH (12.7 mm) (TYPICAL)


B-B

400587 S0000137806_V1

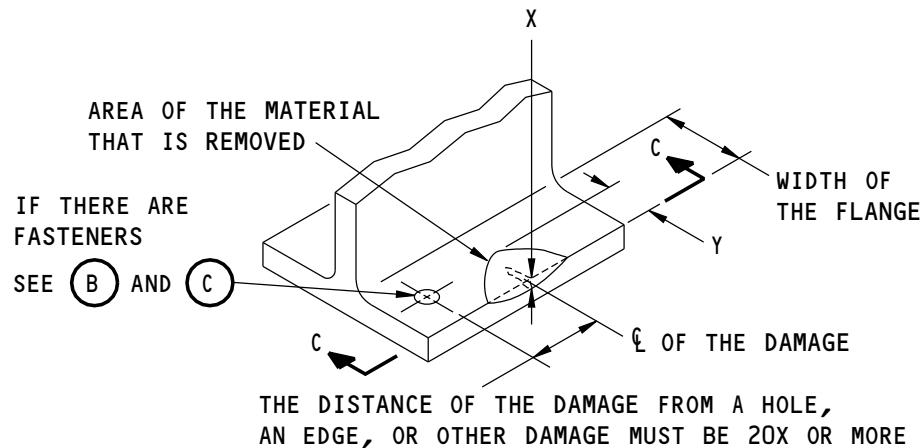
**Allowable Damage Limits
Figure 103 (Sheet 2 of 3)**
52-41-02
ALLOWABLE DAMAGE 1

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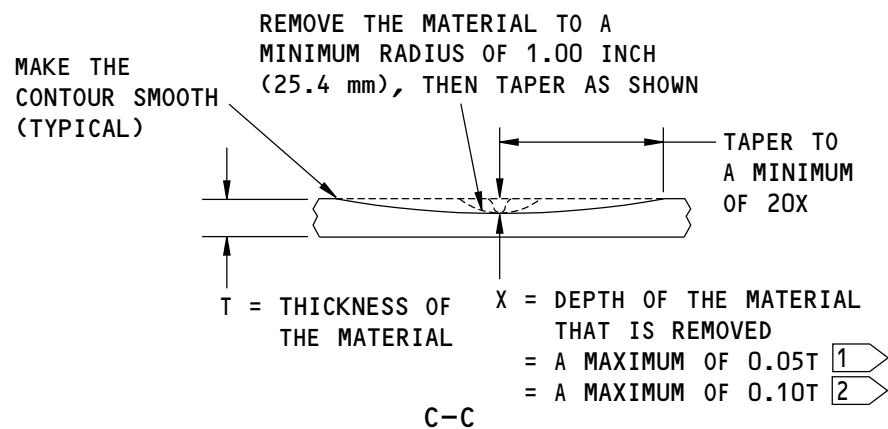
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Y = THE WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE [1]
= A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE [2]

REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE

(F)



400588 S0000137807_V1

Allowable Damage Limits
Figure 103 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 1

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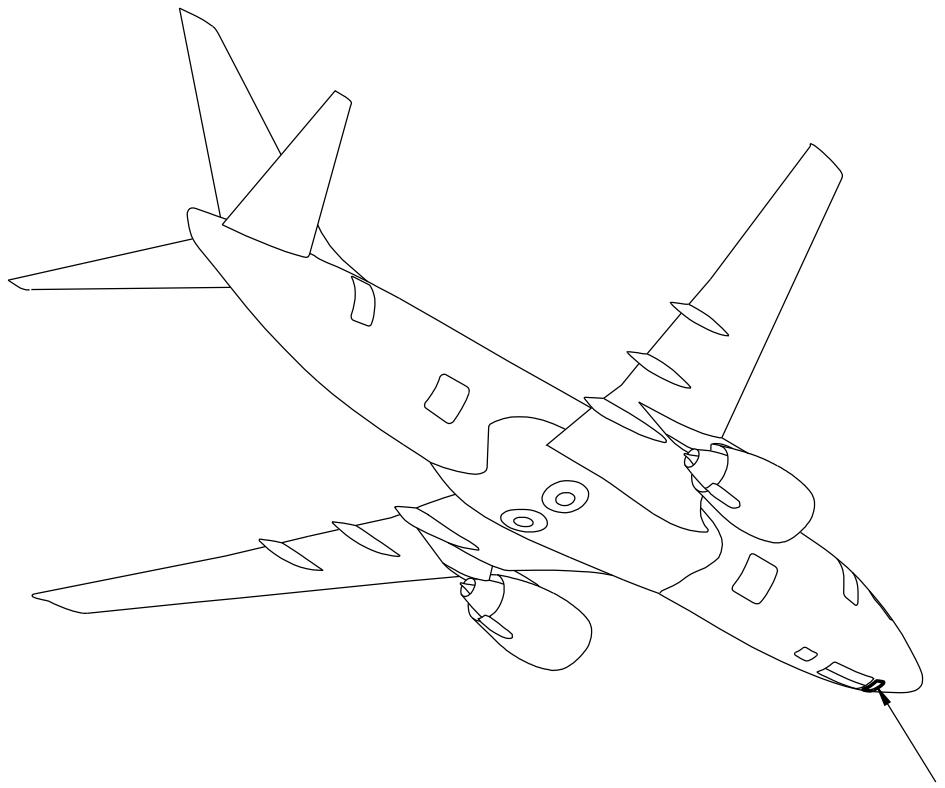


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ALLOWABLE DAMAGE 2 - FORWARD ACCESS DOOR STRUCTURE

1. Applicability

- A. This subject gives the allowable damage limits for the forward access door structure shown in Forward Access Door Location, Figure 101/ALLOWABLE DAMAGE 2 and Forward Access Door Structure, Figure 102/ALLOWABLE DAMAGE 2.



REFER TO FIGURE 102
FOR THE FORWARD
ACCESS DOOR STRUCTURE

Forward Access Door Location
Figure 101

F78034 S0006587177_V1

52-41-02

ALLOWABLE DAMAGE 2

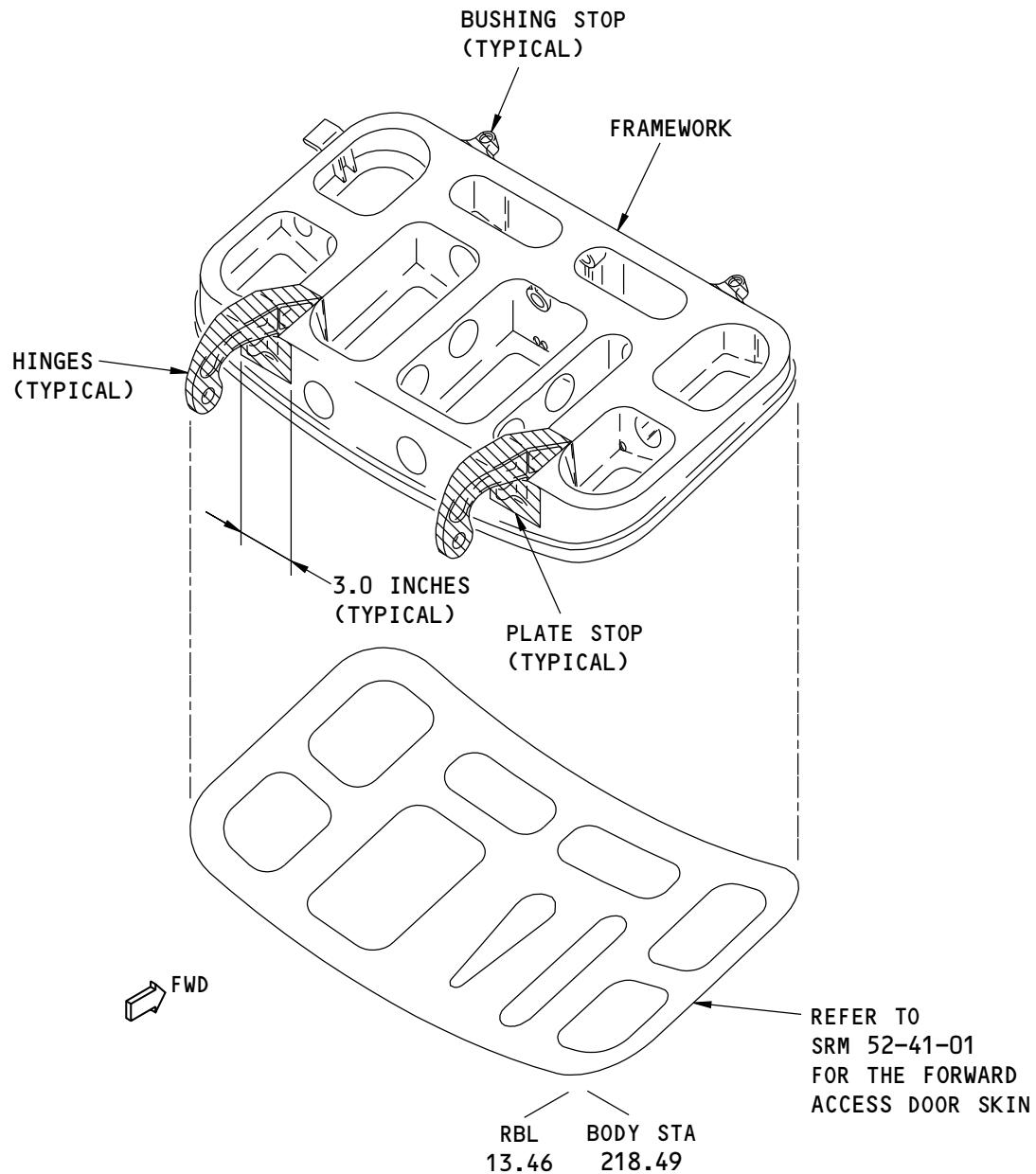
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MATERIAL: ALUMINUM CASTING



FRAMEWORK



PLATE STOP, BUSHING STOP, HINGES

F78035 S0006587178_V1

Forward Access Door Structure
Figure 102

52-41-02

ALLOWABLE DAMAGE 2

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2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 2 Refer to Table 101/ALLOWABLE DAMAGE 2 for the references for the allowable damage limits for each type of structure.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
Framework	4.A
Hinges, and Plate Stop and Bushing Stop Points	4.B

- B. Remove the necessary parts to get access to the forward access door structure.
- C. Remove the damage as necessary.
- (1) Refer to 51-10-02 for the inspection and removal of damage.
- (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
- (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- D. After the damage has been removed, do the steps that follow:
- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06	FASTENER EDGE MARGINS
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Framework:

- (1) Cracks:
- (a) Remove the damage as shown in Allowable Damage Limits - Forward Access Door Structure, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , and C .
- (2) Nicks, Scratches, Gouges, and Corrosion:
- (a) Remove the damage as shown in Allowable Damage Limits - Forward Access Door Structure, Figure 103/ALLOWABLE DAMAGE 2, Details A , B , C , D , E , and F .
- (3) Holes and Punctures are not permitted.
- (4) Dents are not permitted.

- B. Hinges, and Plate and Bushing Stop Points:

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ALLOWABLE DAMAGE 2

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- (1) Damage is not permitted.

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ALLOWABLE DAMAGE 2

Page 104

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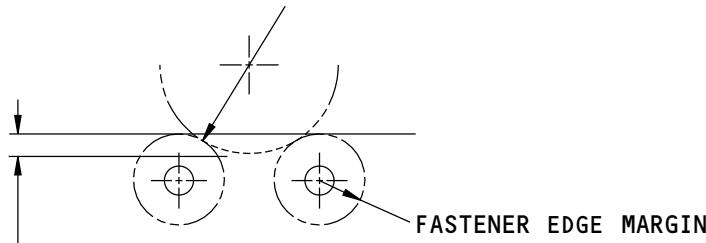
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737-800 STRUCTURAL REPAIR MANUAL

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH (25.4 mm)

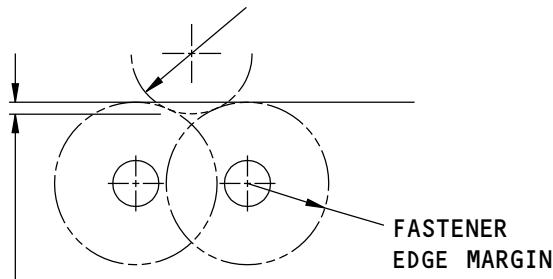


X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH (2.54 mm), OR 10 PERCENT OF
THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
= A MAXIMUM OF 0.15 INCH (3.81 mm), OR 15 PERCENT OF
THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE
FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)

REMOVE THE MATERIAL TO A MINIMUM
RADIUS OF 1.00 INCH (25.4 mm)



X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10 INCH (2.54 mm), OR 10 PERCENT OF
THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 1
= A MAXIMUM OF 0.15 INCH (3.81 mm), OR 15 PERCENT OF
THE WIDTH OF THE FLANGE, THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE
FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)

NOTES

- 1 FOR AIRPLANES THAT HAVE COMPLETED SERVICE BULLETIN 737-21-1149.
2 FOR AIRPLANES THAT HAVE NOT COMPLETED SERVICE BULLETIN 737-21-1149.

400589 S0000137813_V2

Allowable Damage Limits - Forward Access Door Structure
Figure 103 (Sheet 1 of 4)

52-41-02

ALLOWABLE DAMAGE 2

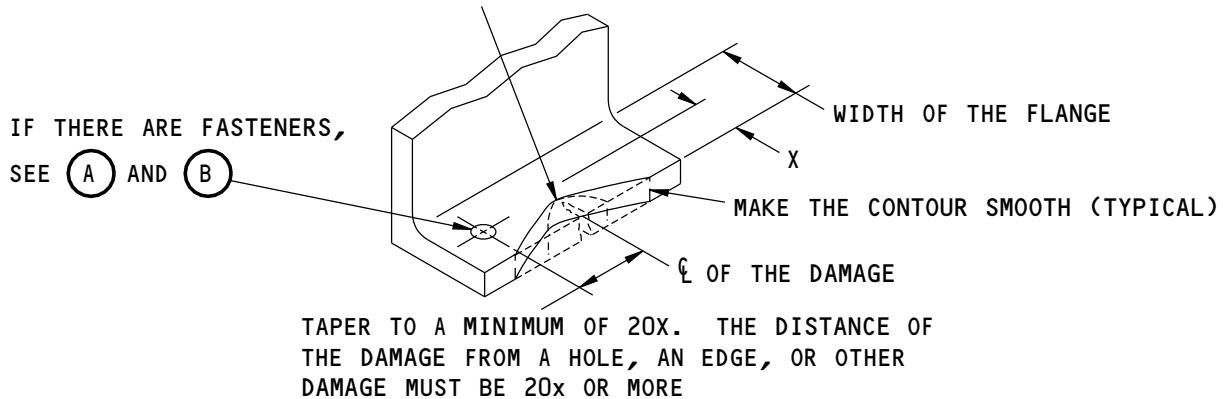
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**737-800
STRUCTURAL REPAIR MANUAL**

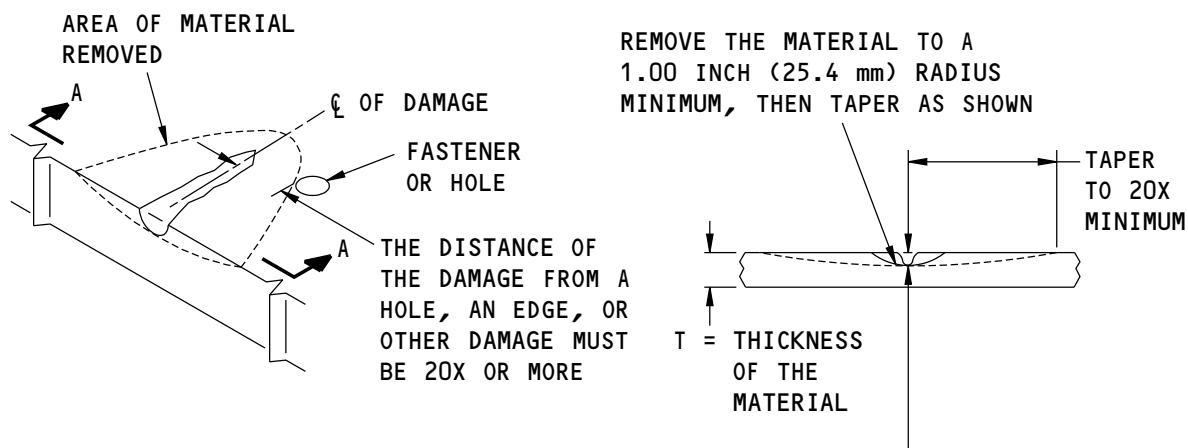
REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN



- X = WIDTH OF THE MATERIAL REMOVED
 = A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.10 INCH (2.54 mm), THAT WHICH IS LESS 1
 = A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.15 INCH (3.81 mm), THAT WHICH IS LESS 2

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(C)


REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)

- X = THE DEPTH OF THE MATERIAL REMOVED
 = A MAXIMUM OF 0.05T 1
 = A MAXIMUM OF 0.10T 2
- A-A

400590 S0000137814_V1

Allowable Damage Limits - Forward Access Door Structure
Figure 103 (Sheet 2 of 4)

52-41-02

ALLOWABLE DAMAGE 2

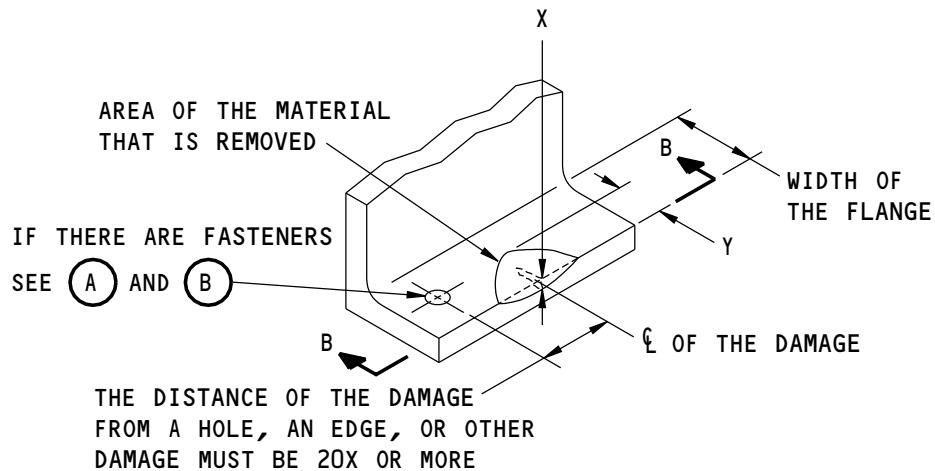
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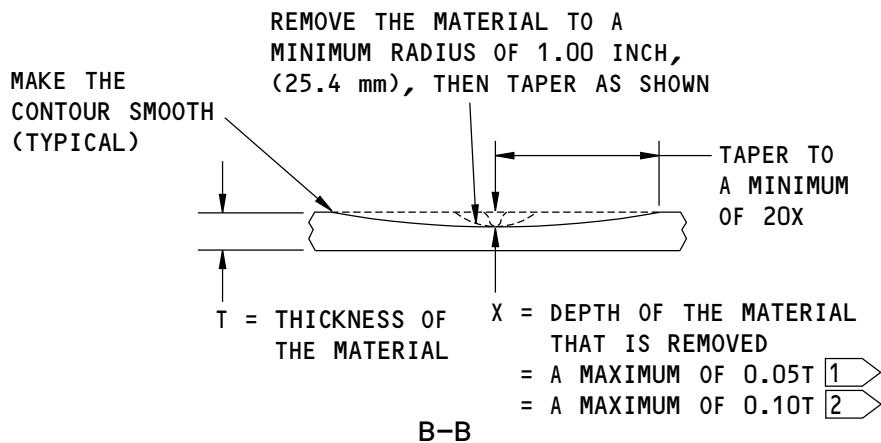
737-800
STRUCTURAL REPAIR MANUAL



Y = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 5 PERCENT OF THE WIDTH OF THE FLANGE [1]
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE [2]

REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE

(E)



400591 S0000137823_V1

Allowable Damage Limits - Forward Access Door Structure
Figure 103 (Sheet 3 of 4)

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ALLOWABLE DAMAGE 2

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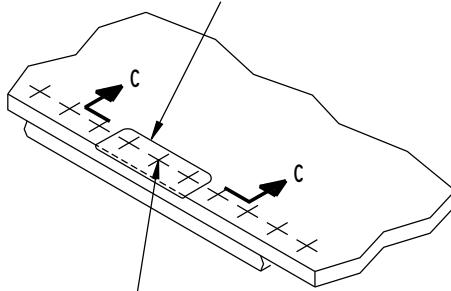
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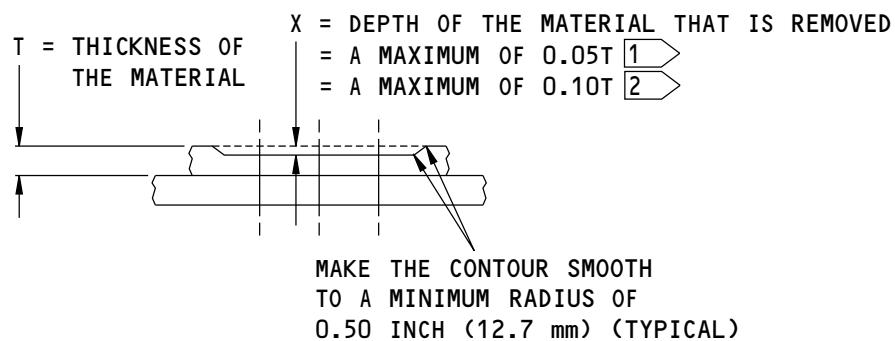
THE REMOVAL OF MATERIAL AROUND THREE
FASTENERS IN ALL GROUPS OF TEN IS
PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE
DAMAGE IS REMOVED. INSTALL THE
FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE
FASTENERS ON AN EDGE OR A SURFACE

(F)



C-C

400592 S0000137824_V1

Allowable Damage Limits - Forward Access Door Structure
Figure 103 (Sheet 4 of 4)

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ALLOWABLE DAMAGE 2

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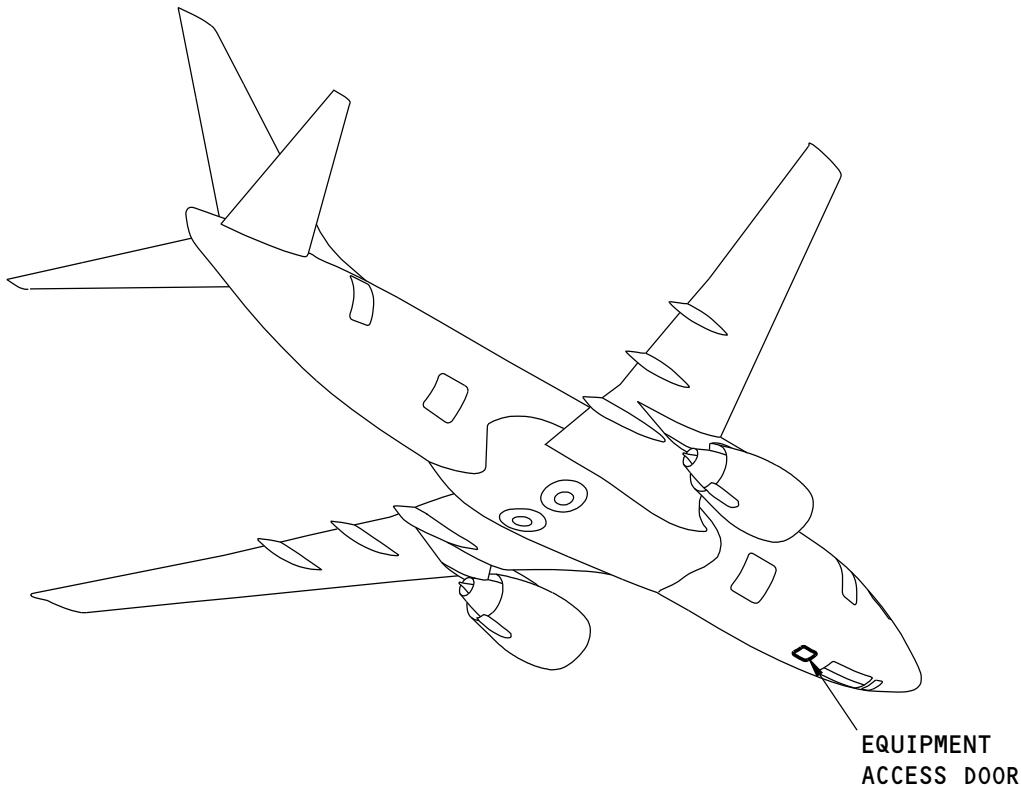
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REPAIR 1 - EQUIPMENT ACCESS DOOR STRUCTURE



NOTE: THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME.

F89770 S0006587186_V2

Equipment Access Door Structure Repair
Figure 201

52-41-02

REPAIR 1
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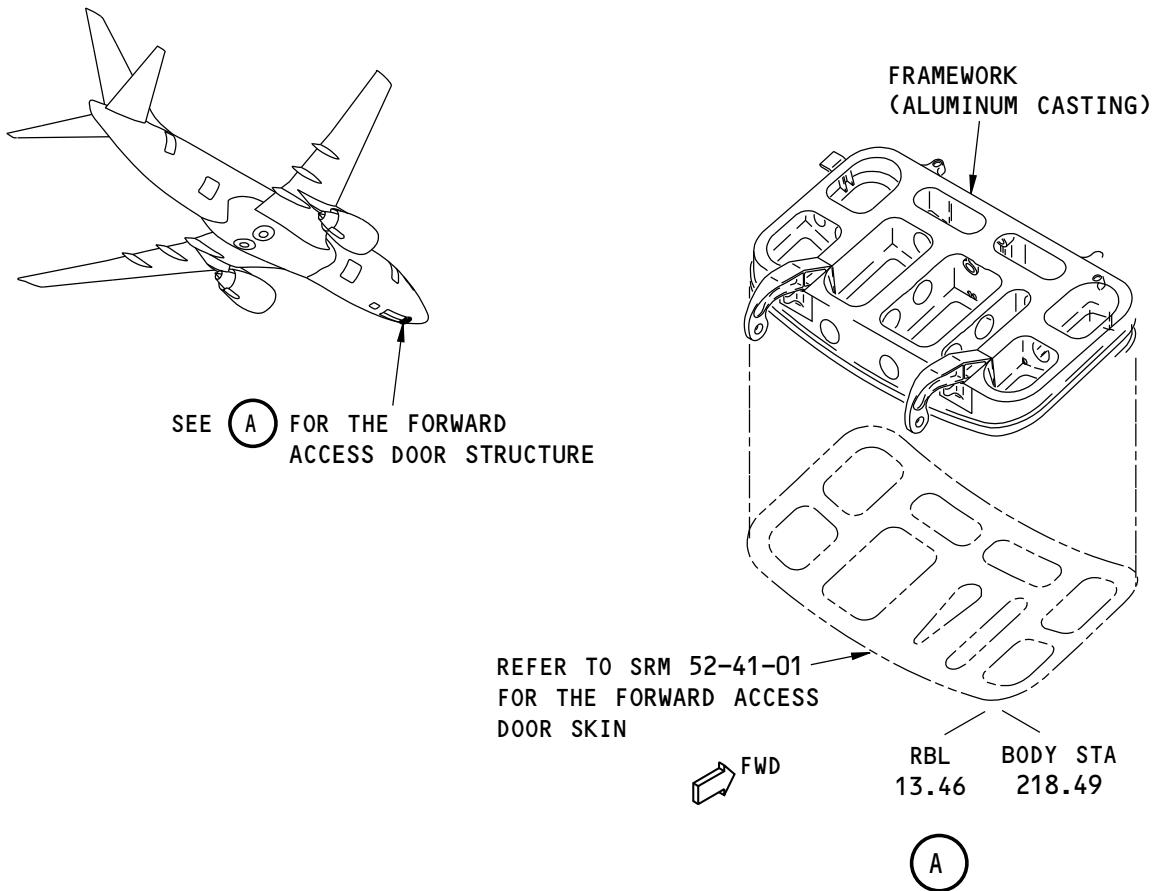
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STRUCTURAL REPAIR MANUAL

REPAIR 2 - FORWARD ACCESS DOOR STRUCTURE



NOTES

- THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME.

Forward Access Door Structure
Figure 201

F89764 S0006587188_V2

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REPAIR 2
Page 201

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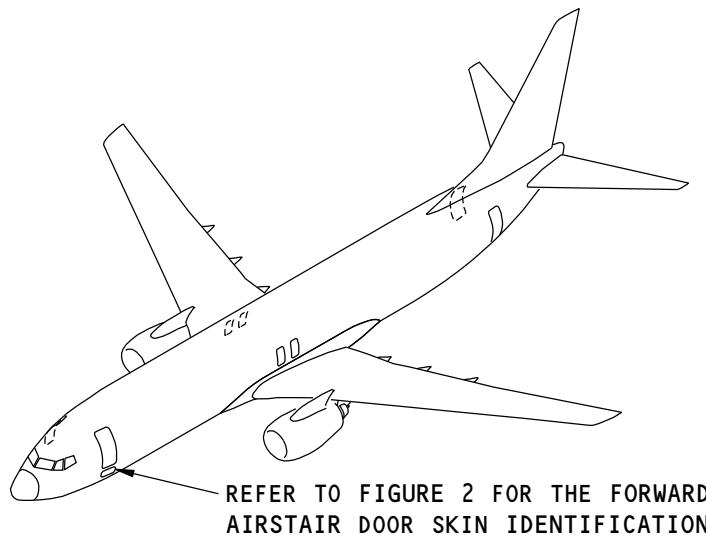
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STRUCTURAL REPAIR MANUAL

IDENTIFICATION 1 - FORWARD AIRSTAIR DOOR SKIN



NOTES

- REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.
- FORWARD AIRSTAIR AND FORWARD AIRSTAIR DOOR COMBINATION IS A CUSTOMER OPTION.

Forward Airstair Door Skin Location

K39874 S0006587194_V1

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6401	Door Installation - Forward Airstair
141A6402	Door Assembly - Forward Airstair

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IDENTIFICATION 1

Page 1

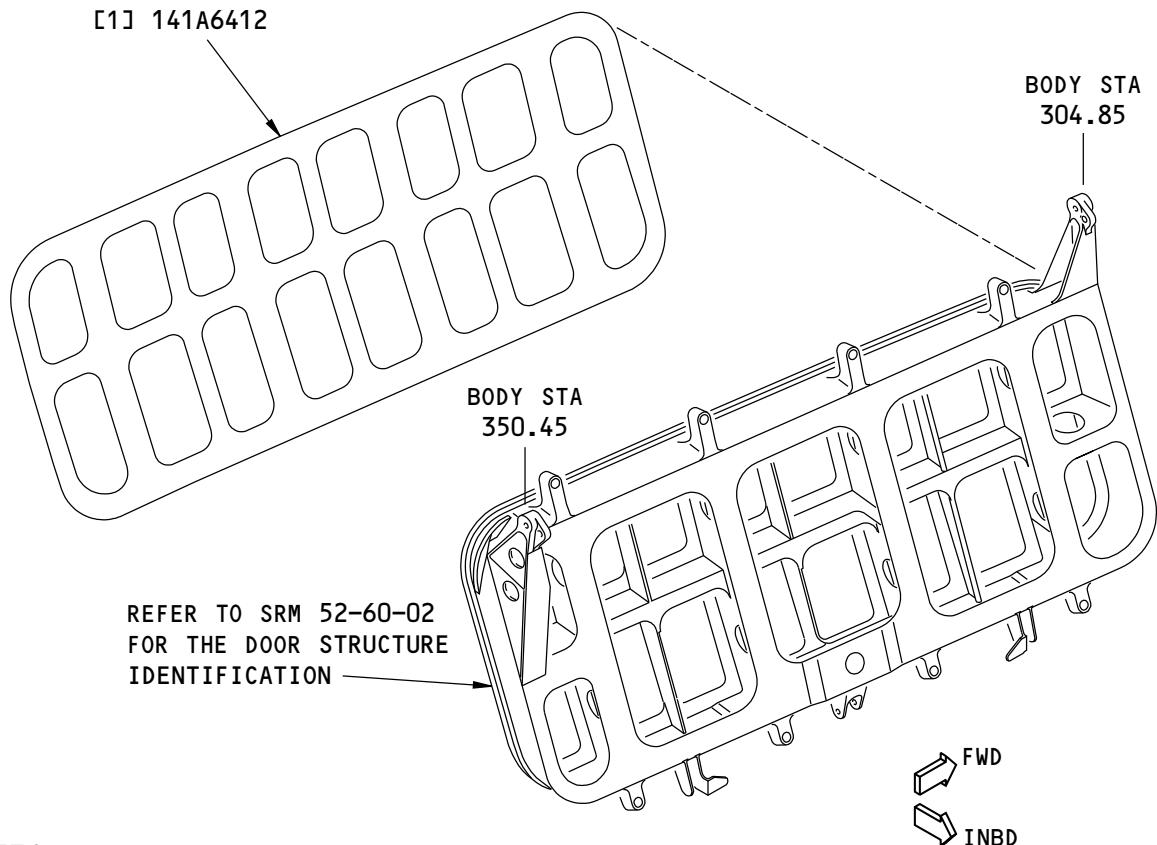
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NOTES

- ALL CHEM-MILLED POCKETS ARE 0.040 INCH DEPTH
- REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F61877 S0006587198_V1

Forward Airstair Door Skin Identification

Figure 2

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T*[1]	MATERIAL	EFFECTIVITY
[1]	Outer Skin	0.063 (1.60)	2024-T3 clad sheet	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1

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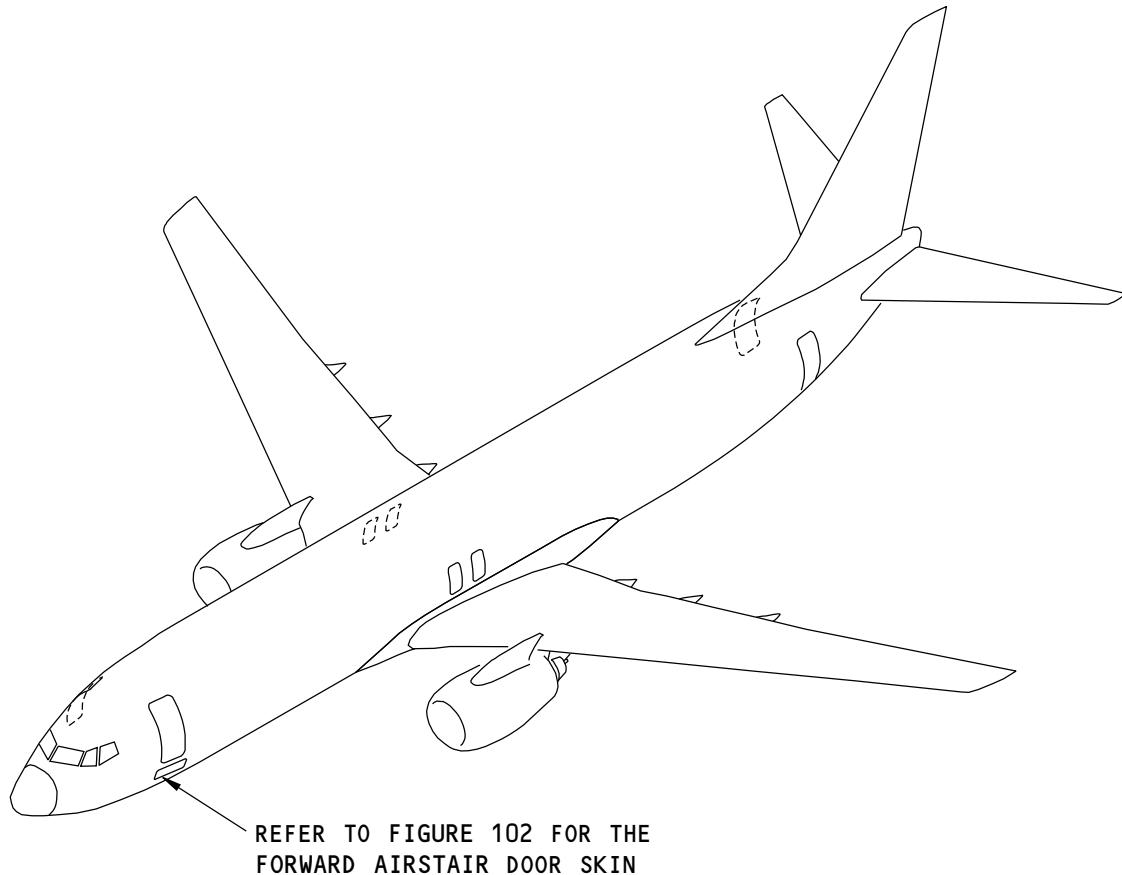


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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 1 - FORWARD AIRSTAIR DOOR SKIN

1. Applicability

- A. This subject gives the allowable damage limits for the forward airstair door skin shown in Forward Airstair Door Skin Location, Figure 101/ALLOWABLE DAMAGE 1 and Forward Airstair Door Skin, Figure 102/ALLOWABLE DAMAGE 1.



NOTE: FORWARD AIRSTAIR AND FORWARD AIRSTAIR DOOR COMBINATION IS A CUSTOMER OPTION.

**Forward Airstair Door Skin Location
Figure 101**

K39878 S0006587203_V1

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ALLOWABLE DAMAGE 1

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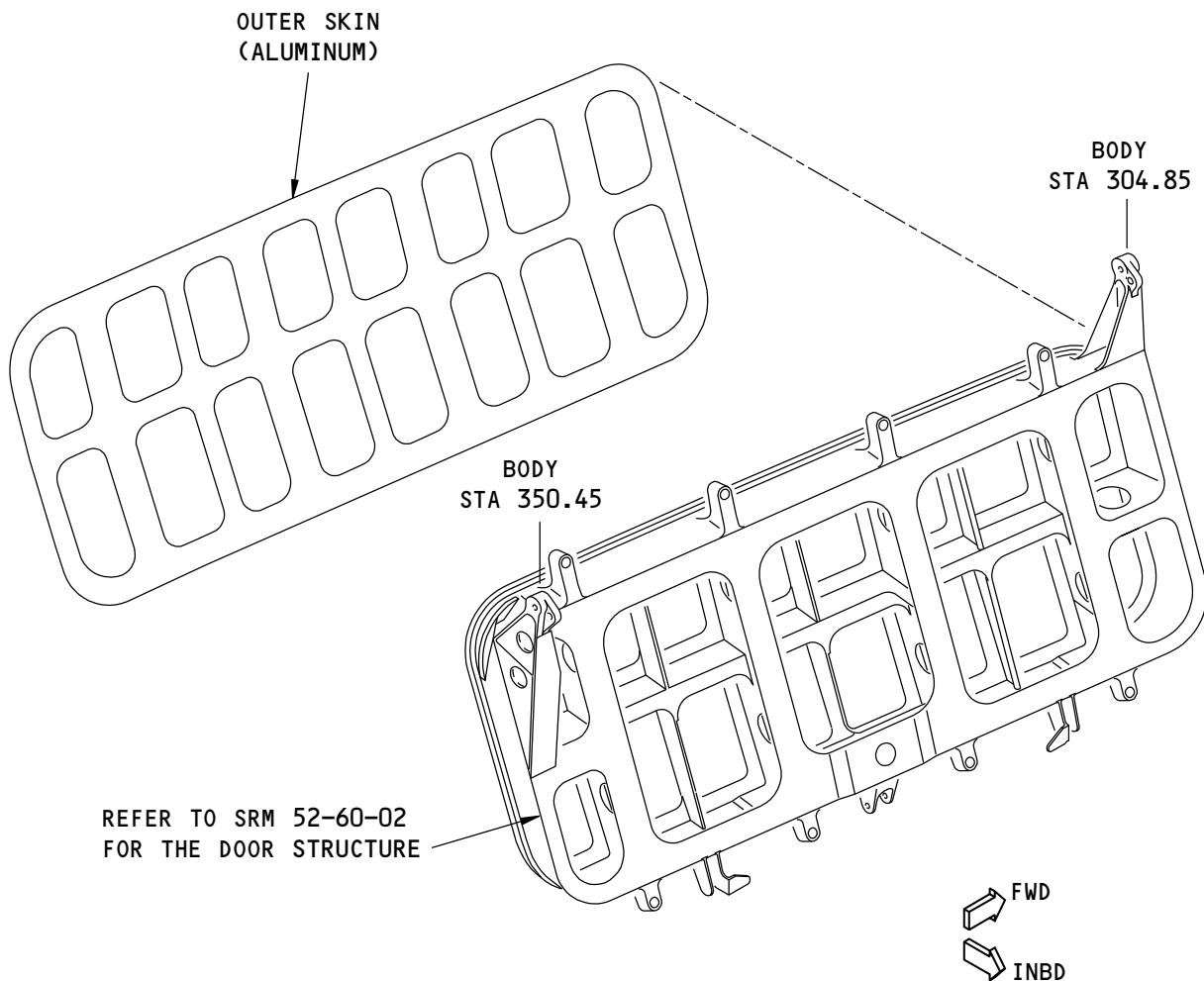
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STRUCTURAL REPAIR MANUAL



NOTES

- ALL CHEM-MILLED POCKETS ARE 0.040 INCH DEPTH.

F62241 S0006587206_V1

Forward Airstair Door Skin
Figure 102

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ALLOWABLE DAMAGE 1

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2. General

- A. The forward airstair door is in the pressurized area of the fuselage.
- B. If you find damage, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) For damage on the forward airstair door skin, airplane flight operation limits can be necessary. Refer to the flight operation limits for the forward airstair door skin given in Paragraph 5./ ALLOWABLE DAMAGE 1
- (2) Remove the damage as necessary.
 - (a) Refer to 51-10-02 for the inspection and removal of damage.
 - (b) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

- C. For damage that was removed on the aerodynamic outer surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
- (2) Apply a decorative finish to the reworked areas, if necessary, as given in AMM PAGEBLOCK 51-21-99/701.
- (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.

- D. For damage that was removed on the non-aerodynamic inner surface of the skin, do the steps that follow:

NOTE: The steps that follow do not apply to dent damage.

- (1) Apply a chemical conversion coating to the reworked areas. Refer to 51-20-01.
- (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas. Refer to SOPM 20-41-02.

- E. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06, GENERAL	Fastener Edge Margins
52-00-01	TYPICAL DOOR SKIN
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

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ALLOWABLE DAMAGE 1

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STRUCTURAL REPAIR MANUAL

4. Allowable Damage Limits

- A. If you find damage to the forward airstair door skin other than dents, then flight operation limits can be necessary after the damage has been removed. Refer to Paragraph 5./ALLOWABLE DAMAGE 1 for the flight operation limits.
 - B. Cracks:
 - (1) Drill a 0.25 inch diameter stop hole at the ends of a crack.
 - (a) The edge of the stop hole must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (b) Fill the stop drilled hole with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - 1) Install the rivet without sealant.
 - (2) Refer to Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.
 - C. Nicks, Gouges, Scratches, and Corrosion:
 - (1) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , and E .
 - (2) Refer to Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.
 - D. Dents:
 - (1) Dents are permitted if they meet the limits of Allowable Damage Limits, Figure 103/ ALLOWABLE DAMAGE 1, Detail F .
 - (2) Dents larger than the limits shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail F , that cannot be repaired immediately are permitted if:
 - (a) There are no loose or missing fasteners
 - (b) There are no damaged fastener holes
 - (c) There are no creases, gouges, or cracks near the dent
 - (d) You do not fill the dent
 - (e) You do an inspection of the dent for corrosion and cracks after each 1500 flight hour interval or more frequently.
 - (3) Make sure the aerodynamic smoothness is satisfactory or there can be a loss in economic performance of the airplane.
 - E. Holes and Punctures
- NOTE:** For holes and punctures that are a maximum of 0.25 inch in diameter, there are no flight operation limits. Refer to Paragraph 4.E.(1)/ALLOWABLE DAMAGE 1 For holes and punctures that are larger than 0.25 inch in diameter, flight operation limits are necessary. Refer to Paragraph 4.E.(2)/ALLOWABLE DAMAGE 1 and Paragraph 5./ALLOWABLE DAMAGE 1
- (1) Damage is permitted if:
 - (a) It is a maximum of 0.25 inch in diameter.
 - (b) It is a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (c) It is filled with a 2017-T3 or 2017-T4 aluminum protruding head rivet.
 - 1) Install the rivet without sealant.

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ALLOWABLE DAMAGE 1

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- (2) If you find damage that is larger than 0.25 inch in diameter, do as follows:
 - (a) Remove the damage to a circular or oval shape.
 - (b) The edge of the damage after the removal of the damage must be a minimum of 1.00 inch away from a fastener hole, an edge, other damage, or a chem-milled radius.
 - (c) Refer to Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1, and Table 101 for the flight operation limits.

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ALLOWABLE DAMAGE 1

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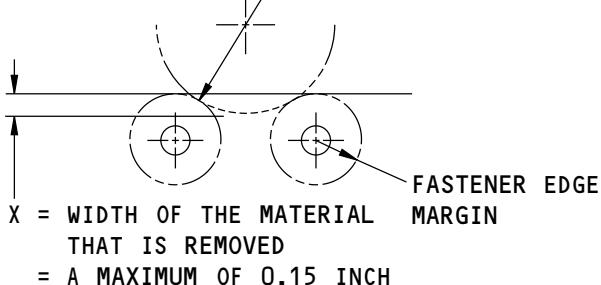
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**737-800
STRUCTURAL REPAIR MANUAL**

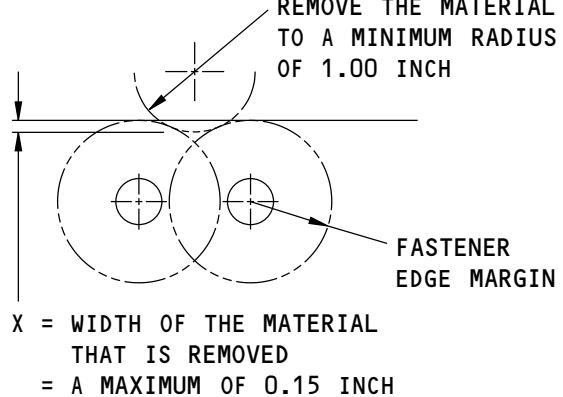
REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS DO NOT HAVE AN OVERLAP

(A)

REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS HAVE AN OVERLAP

(B)

TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE
FROM A HOLE, A FASTENER,
AN EDGE, OR OTHER DAMAGE
MUST BE 20X OR MORE

MAKE THE CONTOUR SMOOTH
(TYPICAL)

REMOVE THE MATERIAL TO A
MINIMUM RADIUS OF 1.00 INCH,
THEN TAPER AS SHOWN

IF THERE ARE FASTENERS,
SEE (A) AND (B)

X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.15 INCH

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(C)

F62244 S0006587207_V1

Allowable Damage Limits
Figure 103 (Sheet 1 of 3)

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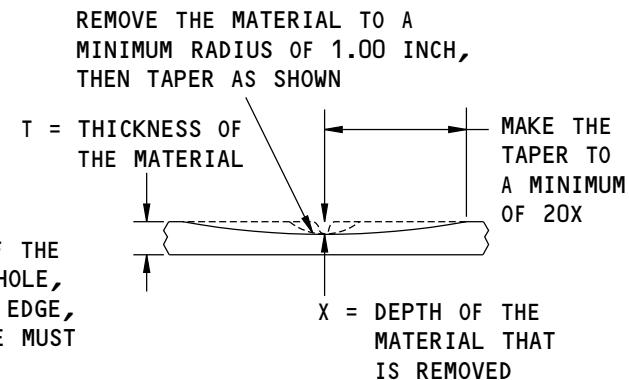
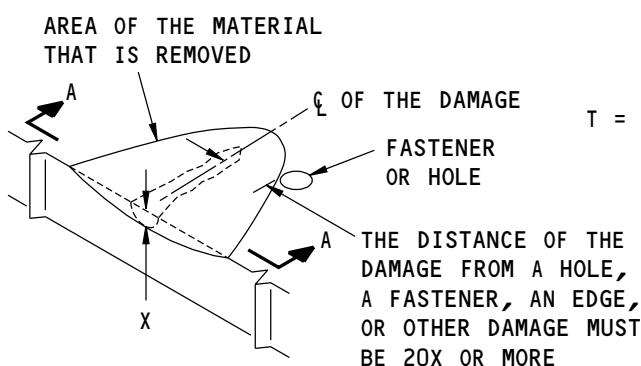
ALLOWABLE DAMAGE 1

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NOTE: REFER TO PARAGRAPH 5 AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

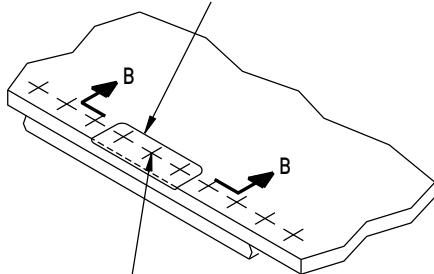
NOTE: REFER TO PARAGRAPH 5 AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE**

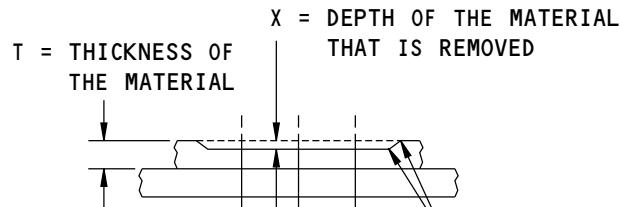
(D)

A-A

THE REMOVAL OF MATERIAL AROUND THREE FASTENERS IN ALL GROUPS OF TEN IS PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE DAMAGE IS REMOVED. INSTALL THE FASTENERS AFTER THE REWORK IS DONE



NOTE: REFER TO PARAGRAPH 5 AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE LENGTH AND DEPTH OF THE DAMAGE.

NOTE: REFER TO PARAGRAPH 5 AND FIGURE 104 FOR THE OPERATION LIMITS THAT APPLY TO THE DEPTH OF THE DAMAGE.

**REMOVAL OF DAMAGE AROUND THE
FASTENERS ON AN EDGE OR A SURFACE**

(E)

B-B

F62243 S0006587208_V1

**Allowable Damage Limits
Figure 103 (Sheet 2 of 3)**

52-60-01

ALLOWABLE DAMAGE 1

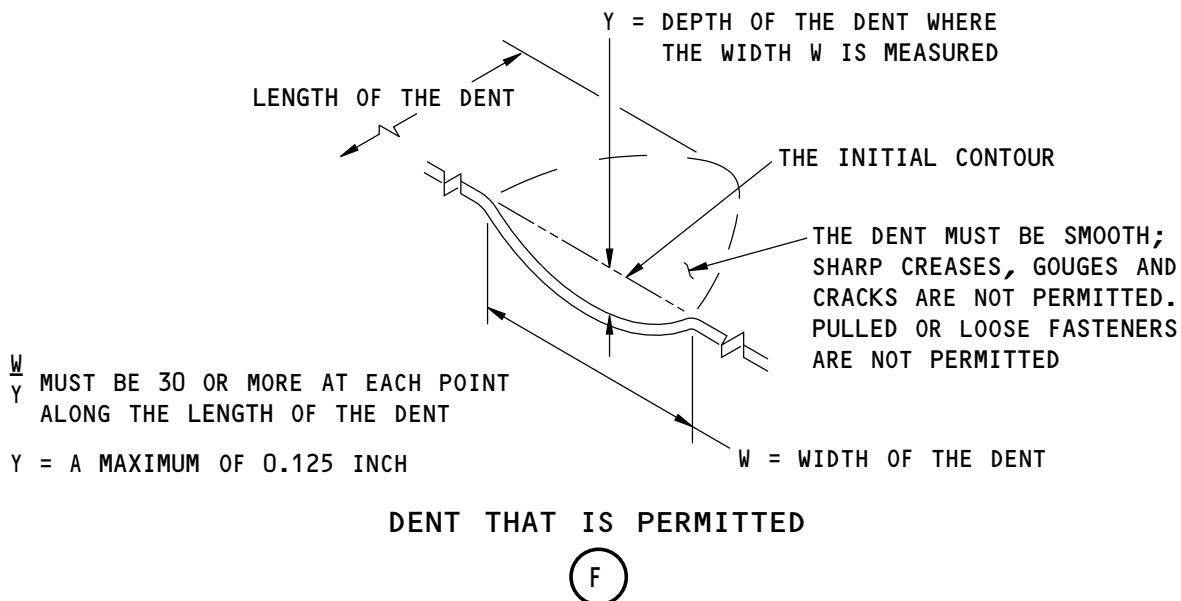
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Allowable Damage Limits

Figure 103 (Sheet 3 of 3)

5. Airplane Flight Operation Limits

- A. If there is damage to the external skin, airplane flight operation limits can be necessary.
 - (1) Find the applicable area in Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 for the length and depth of the damage in all 20-inch by 20-inch square areas of the door skin.
 - (a) The damage depth in Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 is given as a percentage of the initial skin thickness.
 - 1) When you calculate the damage depth, use the skin thickness given in the applicable identification section or the engineering drawings.
 - (b) Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 is applicable to:
 - 1) Cracks
 - 2) Nicks, Scratches, Gouges, and Corrosion
 - 3) Holes and Punctures that are larger than 0.25 inch in diameter.
 - (c) Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1 is not applicable to dents.
 - (2) Refer to Table 101/ALLOWABLE DAMAGE 1 to find the damage treatment and permitted airplane operations for the area you found in Damage Limits for Pressurized External Skin, Figure 104/ALLOWABLE DAMAGE 1.

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ALLOWABLE DAMAGE 1

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Table 101:

PERMITTED AIRPLANE OPERATIONS		
FIGURE 104 AREA	DAMAGE TREATMENT	PERMITTED AIRPLANE OPERATIONS
A	Remove the damage as given in Paragraph 4	There are no airplane operation limits
B	Remove the damage as given in Paragraph 4	Up to 50 revenue flight hours or 20 flights, that which occurs first, is permitted
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
C	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. For cracks, nicks, gouges, scratches, and corrosion: The maximum cabin pressure differential is limited to 5.0 PSIG unless the skin is repaired. For holes and punctures larger than 0.25 inch in diameter: The maximum cabin pressure differential is limited to 0.0 PSIG. Note: Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	A non-revenue flight to a repair station is permitted if the applicable regulatory authority gives approval before the flight. It is recommended that the proposed repair procedure be given to Boeing. The maximum cabin pressure differential is limited to 0.0 PSIG. Cabin pressure limits are for skin damage to the pressurized fuselage skin only.
D	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits
	Remove the damage as given in Paragraph 4. Do an inspection of the surrounding structure to make sure that there is no other damage	Operation is not permitted before Boeing and the applicable regulatory authority give approval.
E	Do a permanent, interim or time limited repair as given in SRM 52-00-01	There are no airplane operation limits

52-60-01

ALLOWABLE DAMAGE 1

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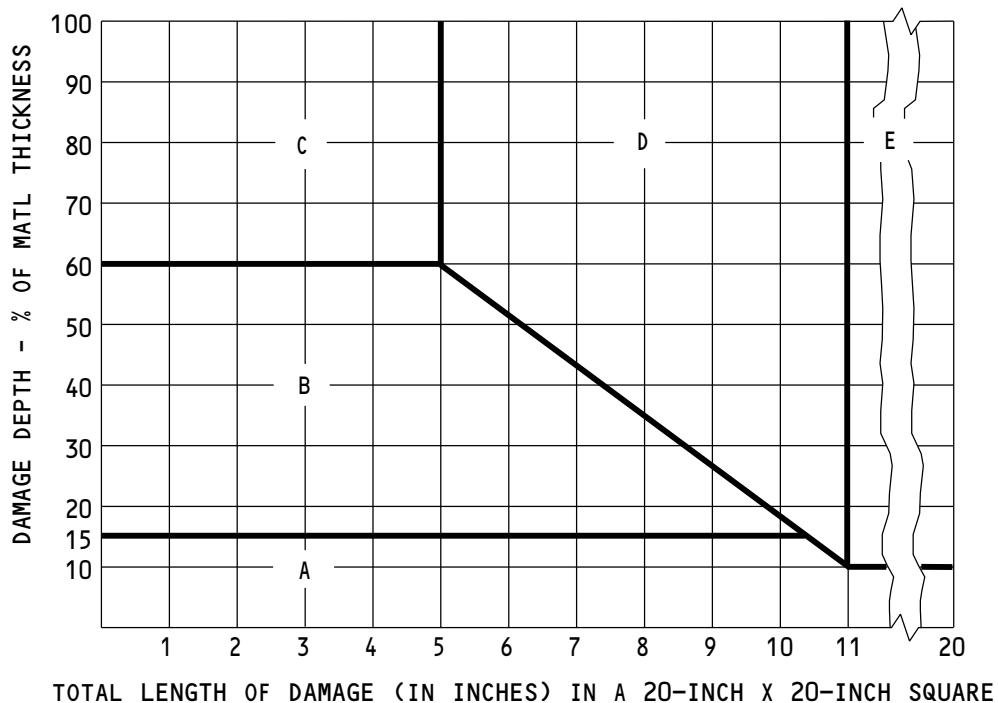
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STRUCTURAL REPAIR MANUAL



NOTES

- THIS FIGURE APPLIES ONLY TO THE PRESSURIZED EXTERNAL SKIN PANELS ON THE FUSELAGE DOORS.
- IF THERE IS DAMAGE AT MORE THAN ONE LOCATION:
 - FIND THE SUM OF THE DIFFERENT DAMAGE LENGTHS.
 - USE THE SUM AS THE TOTAL DAMAGE LENGTH IN A 20-INCH BY 20-INCH SQUARE AREA.
- USE THE DEEPEST DAMAGE DEPTH IN A 20-INCH BY 20-INCH SQUARE AREA FOR THE DAMAGE DEPTH IN THE GRAPH.

F62300 S0006587211_V1

Damage Limits for Pressurized External Skin
Figure 104

52-60-01

ALLOWABLE DAMAGE 1

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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 2 - DELETED

1. References

Reference	Title
52-30-01, ALLOWABLE DAMAGE 1	Cargo Door Skins

2. Allowable Damage 2

A. The data for Allowable Damage 2 has been moved to 52-30-01, ALLOWABLE DAMAGE 1.

52-60-01

ALLOWABLE DAMAGE 2

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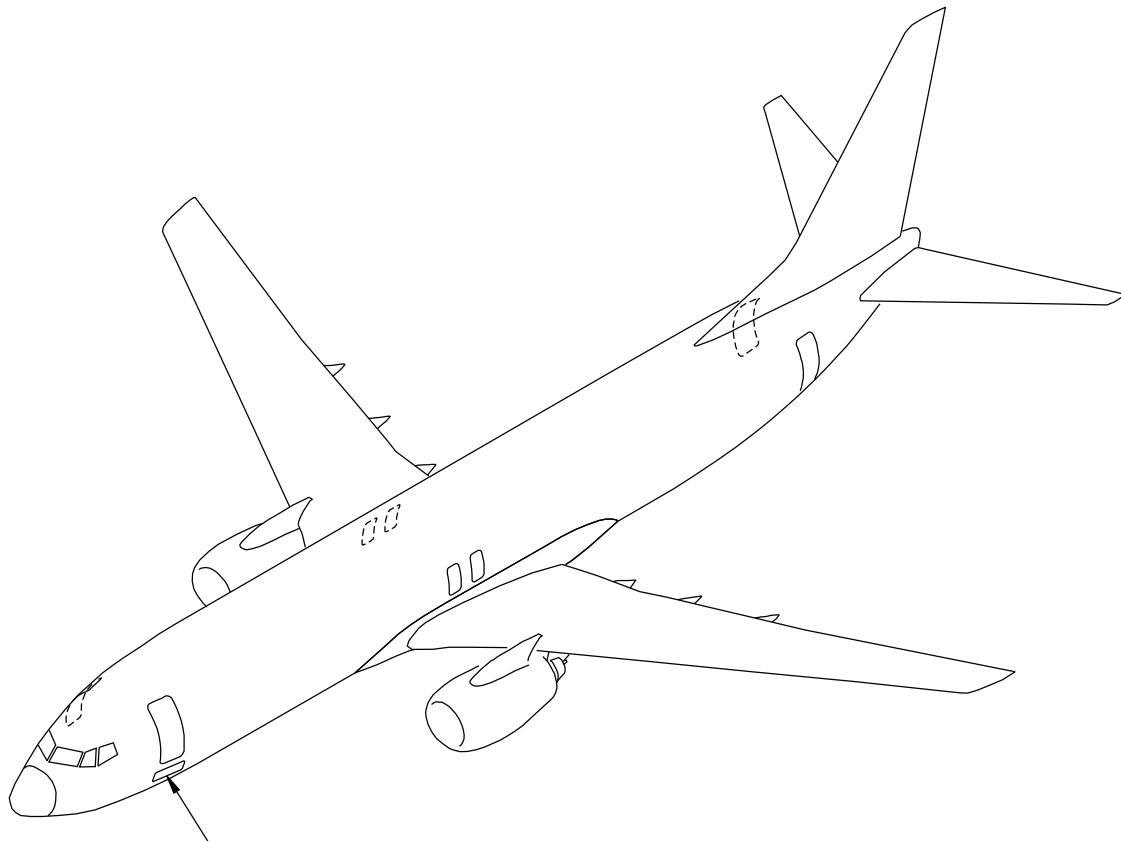


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STRUCTURAL REPAIR MANUAL

REPAIR 1 - FORWARD AIRSTAIR DOOR SKIN

1. Applicability

- A. Repair 1 is applicable to damage to the forward airstair door skin shown in Forward Airstair Door Skin Location, Figure 201/REPAIR 1 and Forward Airstair Door Skin, Figure 202/REPAIR 1.



REFER TO FIGURE 202
FOR THE FORWARD
AIRSTAIR DOOR SKIN

NOTE: FORWARD AIRSTAIR AND FORWARD AIRSTAIR DOOR COMBINATION IS A CUSTOMER OPTION.

Forward Airstair Door Skin Location
Figure 201

K39883 S0006587216_V1

52-60-01

REPAIR 1
Page 201

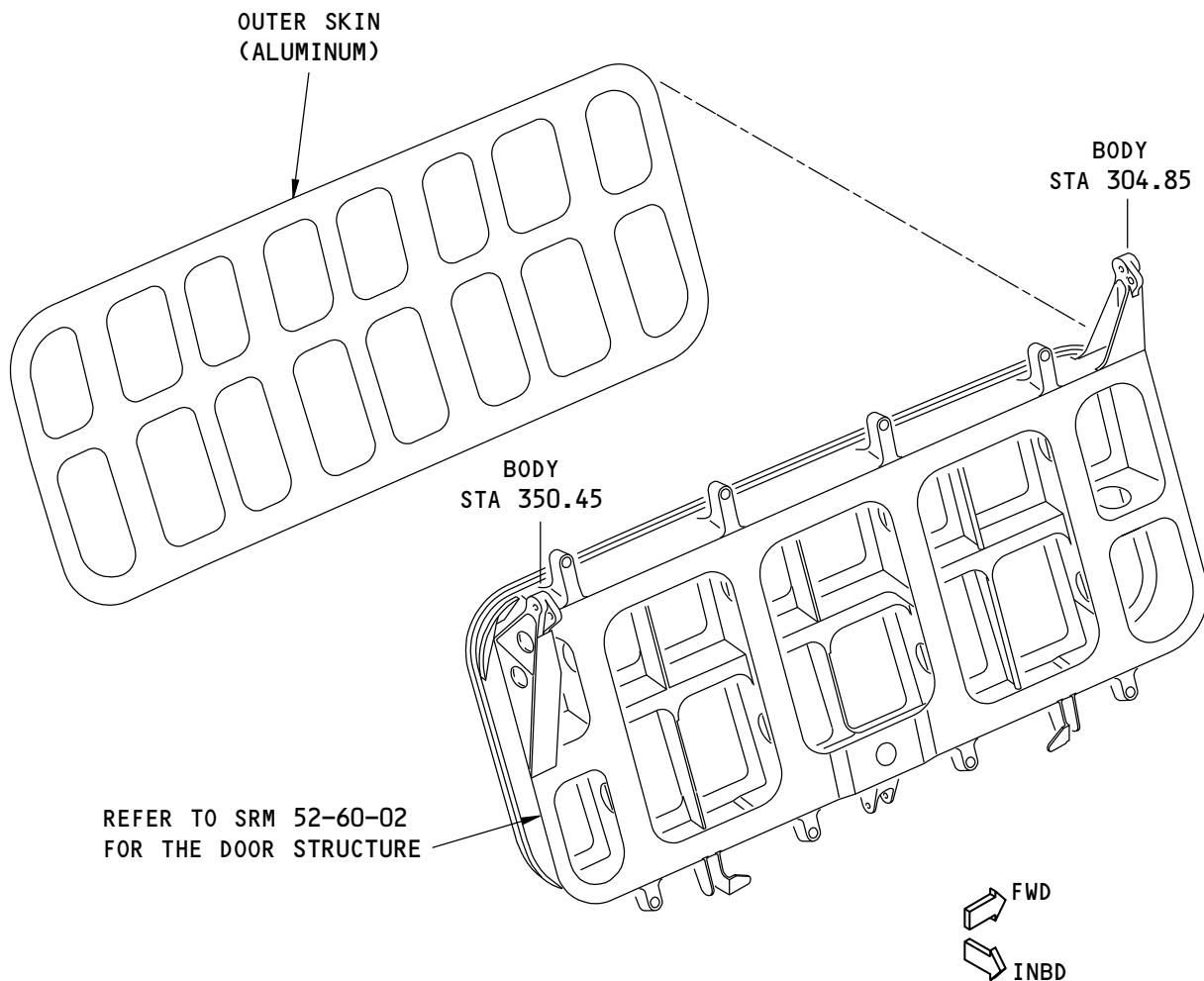
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STRUCTURAL REPAIR MANUAL



NOTE: ALL CHEM-MILLED POCKETS ARE 0.040 INCH DEPTH.

G82632 S0006587219_V1

Forward Airstair Door Skin
Figure 202

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REPAIR 1
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2. General

- A. The typical repairs for aluminum door skins given in 52-00-01, Repair 1 through Repair 5 can be used when applicable if:
 - (1) There is sufficient clearance with the adjacent structure for the installation of the repair parts.
- B. Refer to the limits of the typical repairs given in 52-00-01, Repair 1 through Repair 5 before you start a repair.

3. References

Reference	Title
52-00-01	TYPICAL DOOR SKIN
52-00-01, REPAIR 1	Aluminum Door Skin - Typical Small Hole External Time-Limited Repair
52-00-01, REPAIR 2	Aluminum Door Skin - External Repair at a Beam
52-00-01, REPAIR 3	Aluminum Door Skin - External Repair Between Beams
52-00-01, REPAIR 4	Aluminum Door Skin - Typical Flush Repair of a Small Hole
52-00-01, REPAIR 5	Aluminum Door Skin - Flush Repair Between Beams

4. Repair Instructions

- A. Refer to 52-00-01, Repair 1 through Repair 5 to find the applicable repair for the forward airstair door skin shown in Forward Airstair Door Skin Location, Figure 201/REPAIR 1 and Forward Airstair Door Skin, Figure 202/REPAIR 1.

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REPAIR 1
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REPAIR 2 - DELETED

1. References

Reference	Title
52-30-01, REPAIR 1	Cargo Door Skins

2. Repair 2

A. The data for Repair 2 has been moved to 52-30-01, REPAIR 1.

52-60-01

REPAIR 2

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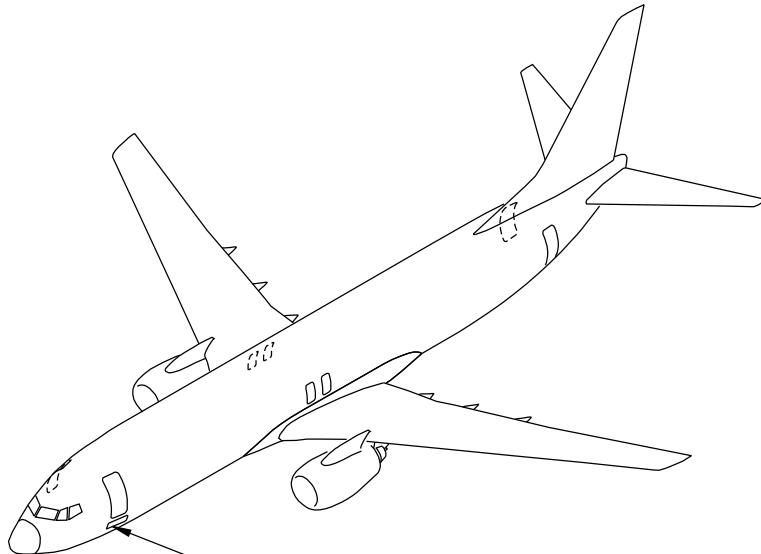
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STRUCTURAL REPAIR MANUAL

IDENTIFICATION 1 - FORWARD AIRSTAIR DOOR STRUCTURE



REFER TO FIGURE 2 FOR THE
FORWARD AIRSTAIR DOOR
STRUCTURE IDENTIFICATION

NOTES

- REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.
- FORWARD AIRSTAIR AND FORWARD AIRSTAIR DOOR COMBINATION IS A CUSTOMER OPTION.

Forward Airstair Door Structure Location

K39887 S0006587225_V1

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6400	Forward Airstair Door Functional Product Collector
141A6401	Door Installation - Forward Airstair
141A6402	Door Assembly - Forward Airstair

52-60-02
IDENTIFICATION 1
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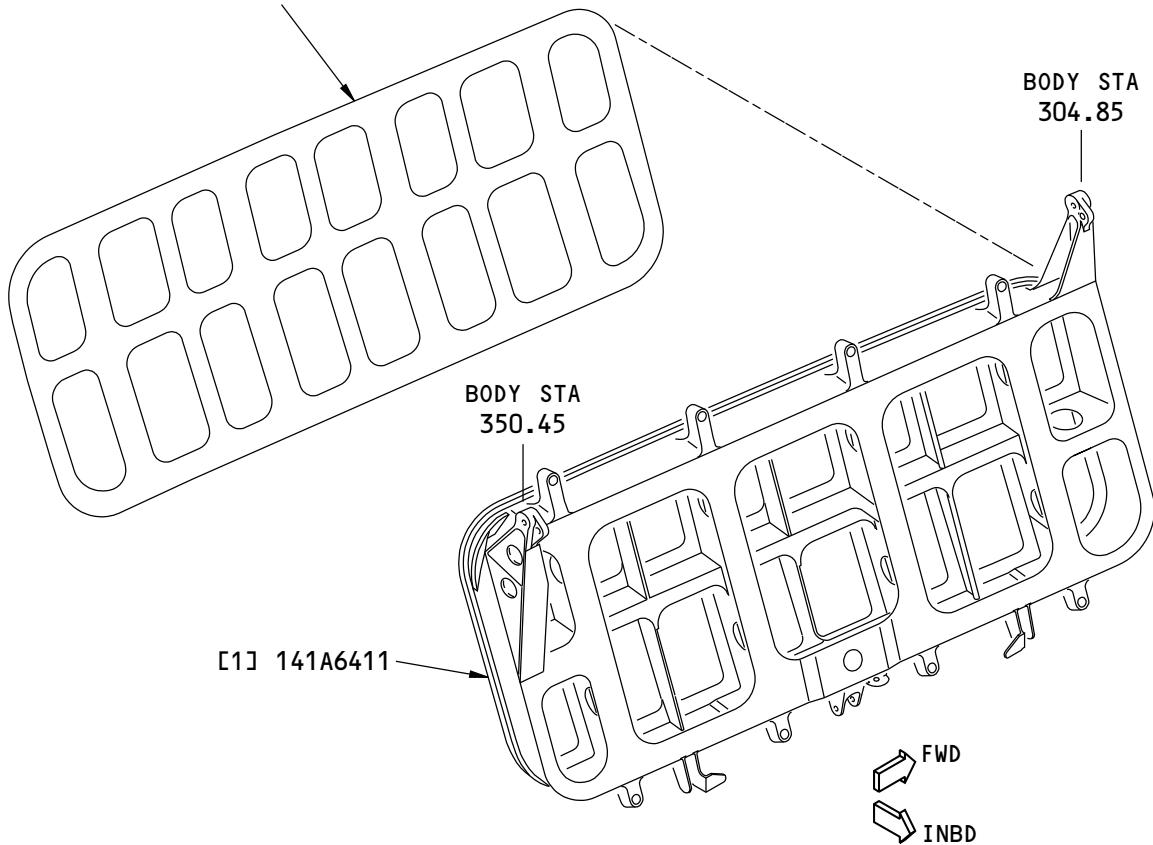
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REFER TO SRM 52-60-01
FOR THE FORWARD AIRSTAIR
DOOR SKIN IDENTIFICATION



NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F61905 S0006587229_V1

Forward Airstair Door Structure Identification

Figure 2

Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Framework		D357.0-T6 aluminum casting as given in BMS 7-330	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

52-60-02

IDENTIFICATION 1

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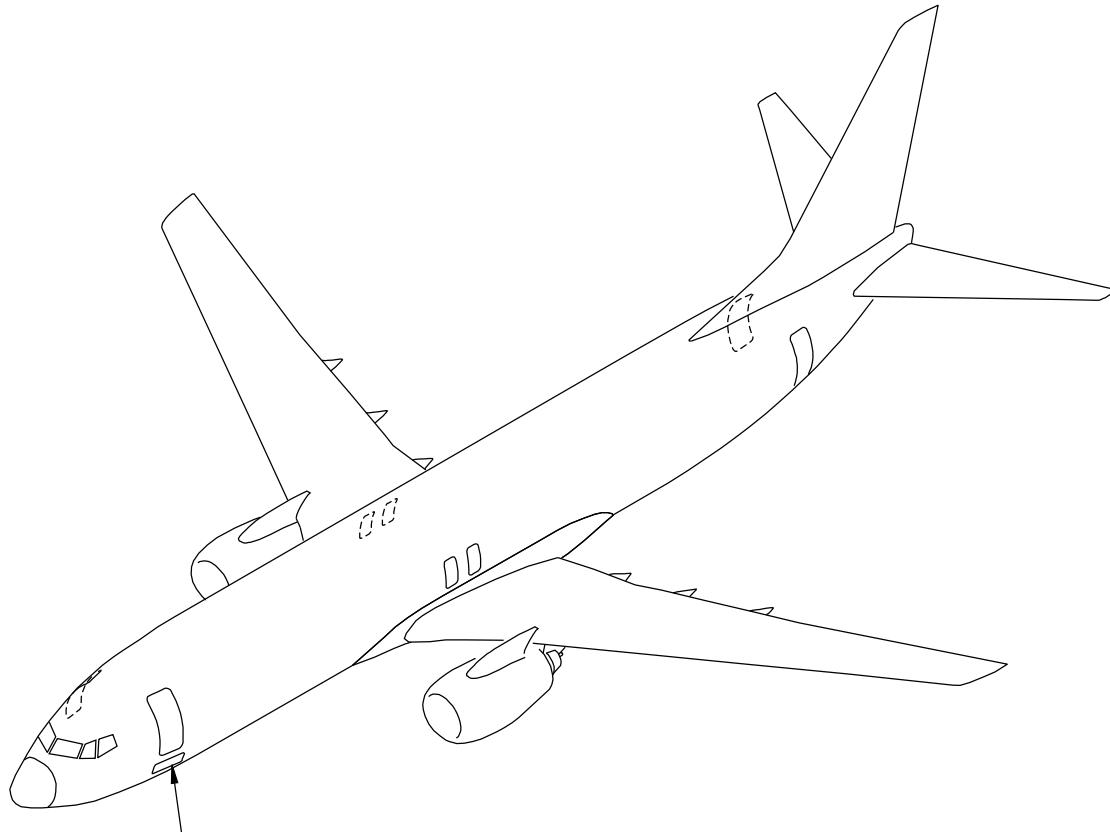


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STRUCTURAL REPAIR MANUAL

ALLOWABLE DAMAGE 1 - FORWARD AIRSTAIR DOOR STRUCTURE

1. Applicability

- A. This subject gives the allowable damage limits for the forward airstair door structure shown in Forward Airstair Door Location, Figure 101/ALLOWABLE DAMAGE 1 and Forward Airstair Door Structure, Figure 102/ALLOWABLE DAMAGE 1.



REFER TO FIGURE 102 FOR THE
FORWARD AIRSTAIR DOOR STRUCTURE

Forward Airstair Door Location
Figure 101

K39890 S0006587234_V1

52-60-02

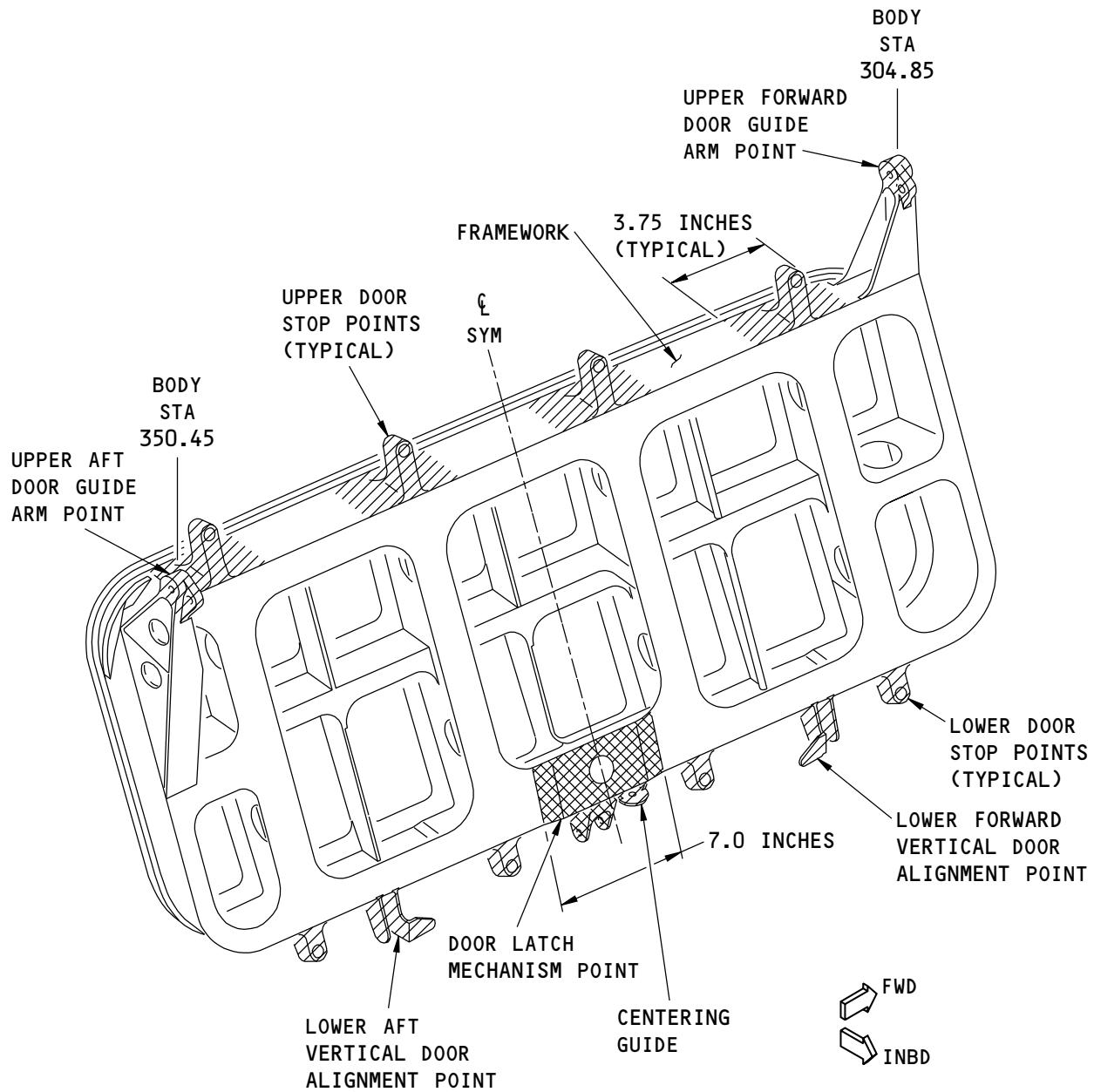
ALLOWABLE DAMAGE 1

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STRUCTURAL REPAIR MANUAL**

MATERIAL: ALUMINUM CASTING

- FRAMEWORK
- DOOR STOP POINTS, GUIDE ARM POINTS, ALIGNMENT POINTS
- DOOR LATCH MECHANISM POINT.

F70758 S0006587237_V1

**Forward Airstair Door Structure
Figure 102**
52-60-02
ALLOWABLE DAMAGE 1

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2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1 Refer to Table 101/ALLOWABLE DAMAGE 1 for the references for the allowable damage limits for each type of structure.

Table 101:

PARAGRAPH REFERENCES FOR THE ALLOWABLE DAMAGE LIMITS	
TYPE OF STRUCTURE	PARAGRAPH
Framework	4.A
Upper and Lower Door Stop Points	4.B
Upper Forward and Aft Door Guide Arm Points	4.B
Lower Forward and Aft Vertical Door Alignment Points	4.B
Door Latch Mechanism Point	4.B
Centering Guide	4.B

- B. Remove the necessary parts to get access to the forward access door structure.
- C. Remove the damage as necessary.
- (1) Refer to 51-10-02 for the inspection and removal of damage.
 - (2) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (3) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- D. After the damage has been removed, do the steps that follow:
- (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-40-06, GENERAL	Fastener Edge Margins
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits

- A. Framework:
- (1) Cracks:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , and C .
 - (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Details A , B , C , D , E , and F .

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ALLOWABLE DAMAGE 1

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- (3) Holes and Punctures are not permitted.
 - (4) Dents are not permitted.
- B. Upper and Lower Door Stop Points, Upper Forward and Aft Door Guide Arm Points, Lower Forward and Aft Vertical Door Alignment Points, Centering Guide and Door Latch Mechanism Point:
- (1) Damage is not permitted.

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ALLOWABLE DAMAGE 1

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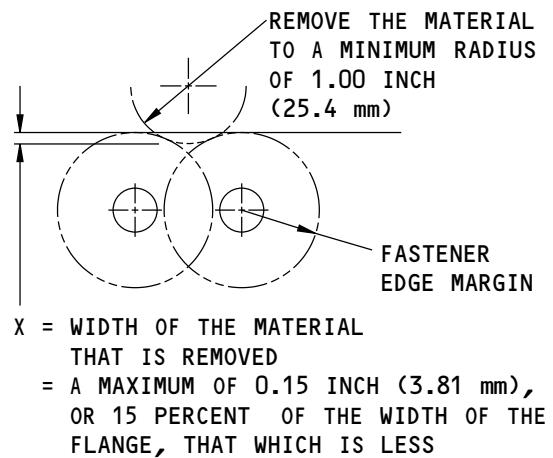
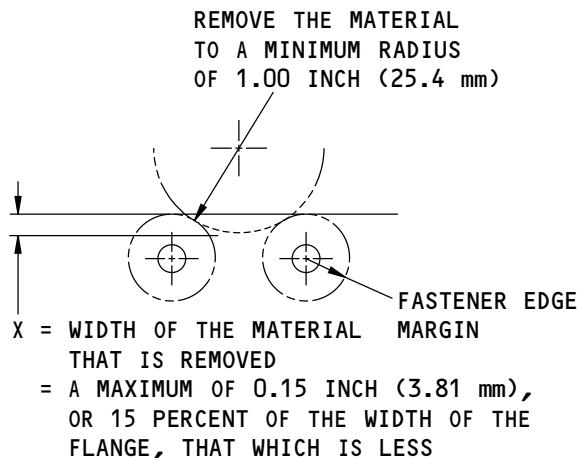
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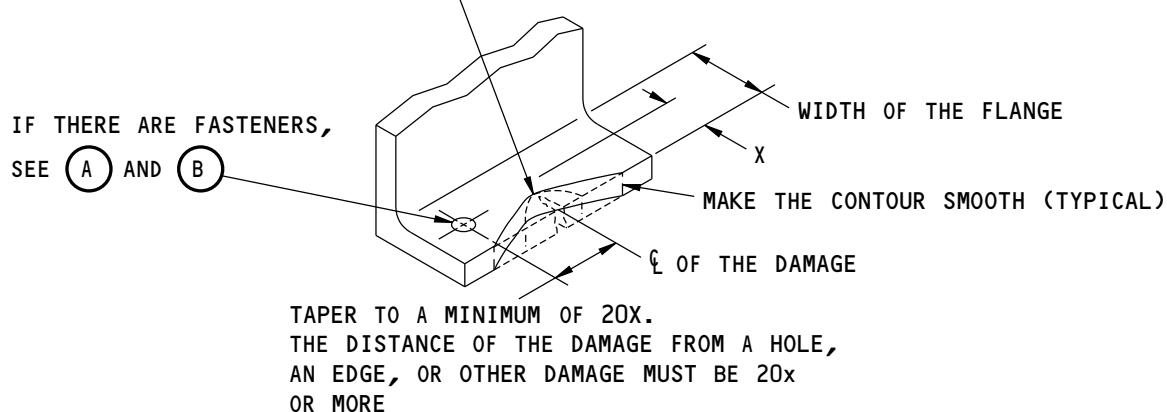
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)

REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)

REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.4 mm), THEN TAPER AS SHOWN



X = WIDTH OF THE MATERIAL REMOVED
= A MAXIMUM OF 15 PERCENT OF THE WIDTH OF THE FLANGE, OR 0.15 INCH (3.81 mm), THAT WHICH IS LESS

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(C)

F70332 S0006587239_V1

Allowable Damage Limits
Figure 103 (Sheet 1 of 4)

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ALLOWABLE DAMAGE 1

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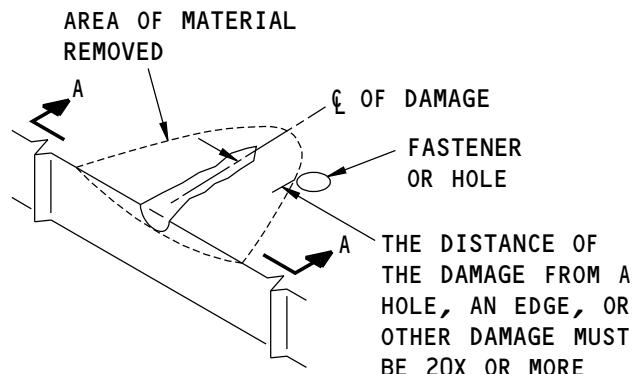
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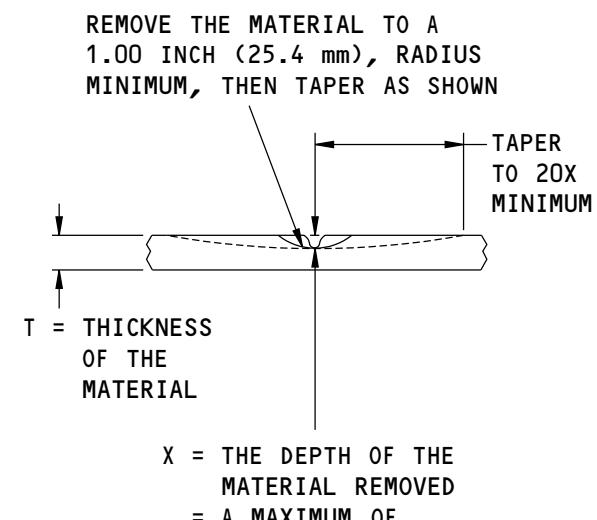


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**REMOVAL OF DAMAGED MATERIAL
ON A SURFACE**

(D)



A-A

F70345 S0006587240_V1

**Allowable Damage Limits
Figure 103 (Sheet 2 of 4)**

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ALLOWABLE DAMAGE 1

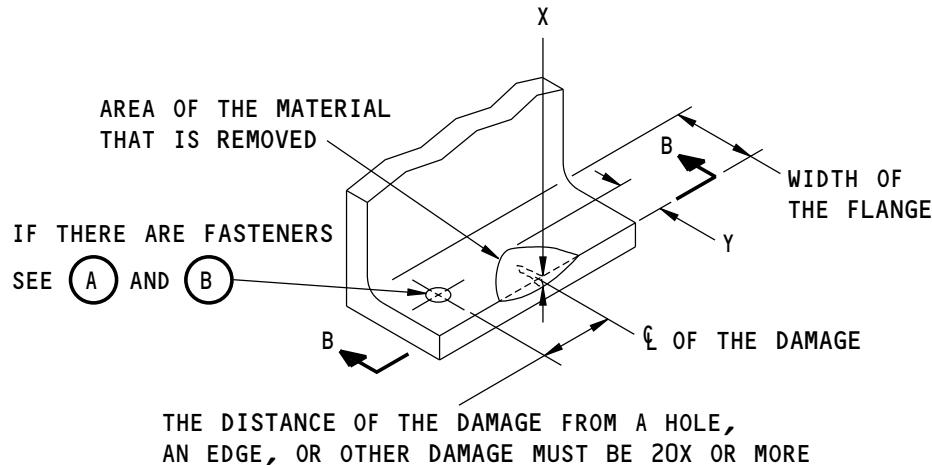
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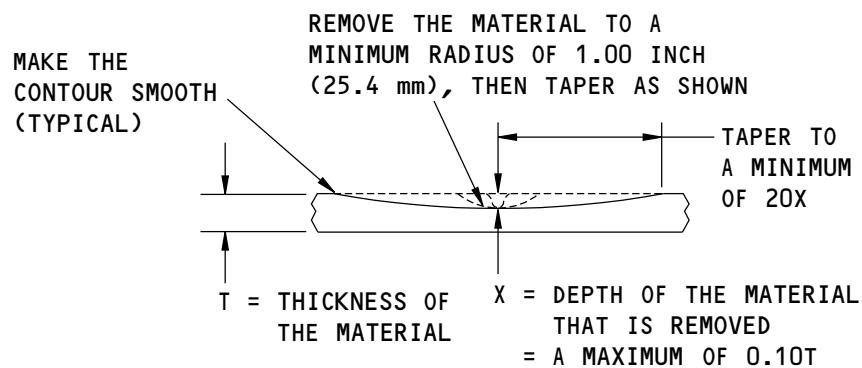


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REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE

(E)



B-B

F70361 S0006587241_V1

Allowable Damage Limits
Figure 103 (Sheet 3 of 4)

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ALLOWABLE DAMAGE 1

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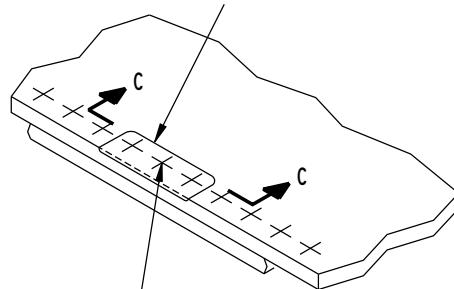
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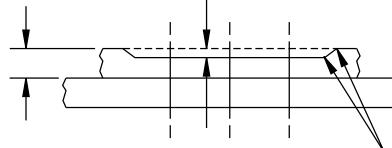
THE REMOVAL OF MATERIAL AROUND THREE
FASTENERS IN ALL GROUPS OF TEN IS
PERMITTED TO A MAXIMUM DEPTH OF X



REMOVE THE FASTENERS BEFORE THE
DAMAGE IS REMOVED. INSTALL THE
FASTENERS AFTER THE REWORK IS DONE

REMOVAL OF DAMAGE AROUND THE FASTENERS ON AN EDGE OR A SURFACE

F



MAKE THE CONTOUR SMOOTH
TO A MINIMUM RADIUS OF
0.50 INCH (12.7 mm)
(TYPICAL)

C-C

G83464 S0006587242 V1

Allowable Damage Limits

Figure 103 (Sheet 4 of 4)

52-60-02

TABLE DAMAGE 1

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ALLOWABLE DAMAGE 2 - DELETED

1. Allowable Damage 2

A. The data for Allowable Damage 2 has been moved to SRM 52-30-02, Allowable Damage 1.

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ALLOWABLE DAMAGE 2

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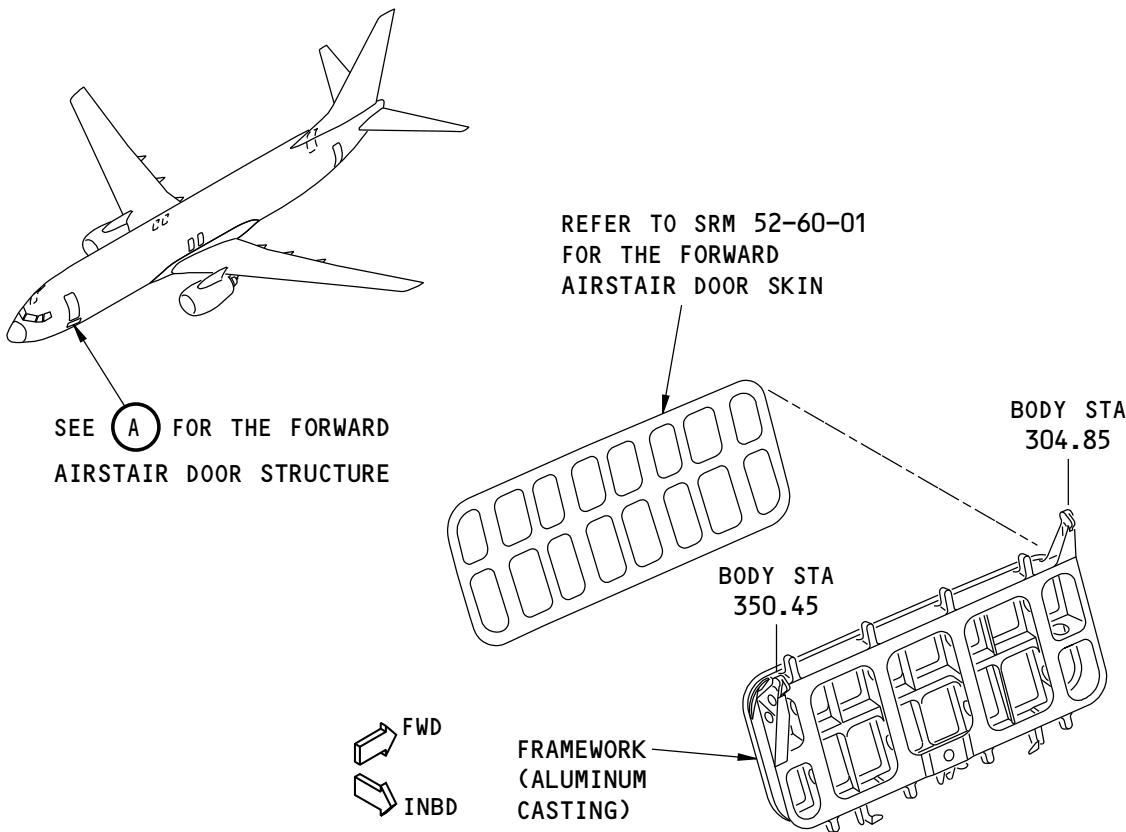
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STRUCTURAL REPAIR MANUAL

REPAIR 1 - FORWARD AIRSTAIR DOOR STRUCTURE



NOTES

- FORWARD AIRSTAIR AND FORWARD AIRSTAIR DOOR COMBINATION IS A CUSTOMER OPTION.
- THERE ARE NO REPAIRS FOR THIS PART IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME.

Forward Airstair Door Structure
Figure 201

K39893 S0006587247_V2

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REPAIR 1
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REPAIR 2 - DELETED

1. Repair 2

- A. The data for Repair 2 has been moved to SRM 52-30-02, Repair 1.

52-60-02

REPAIR 2

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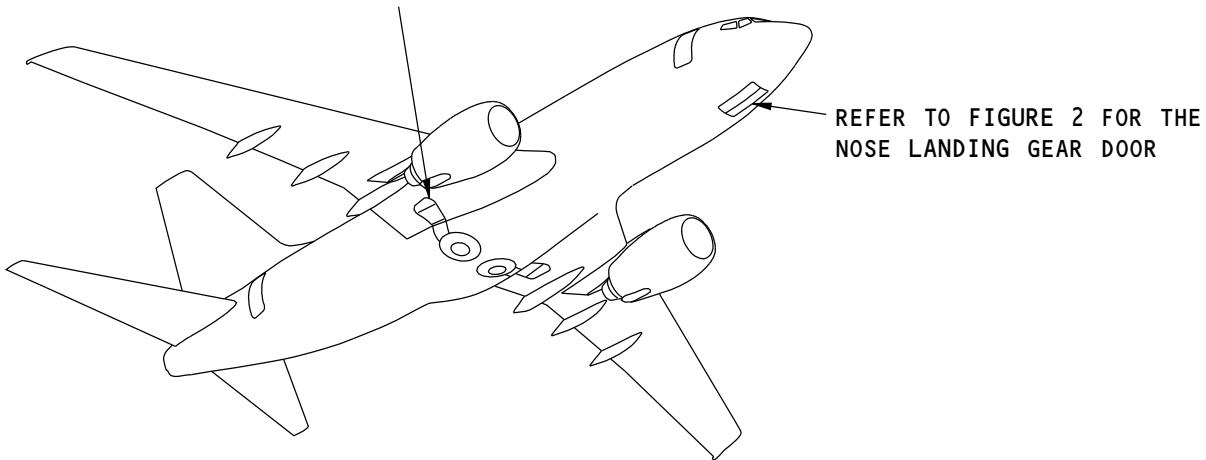
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IDENTIFICATION 1 - NOSE LANDING GEAR DOOR SKIN

REFER TO SRM 52-80-02 FOR
THE MAIN LANDING GEAR DOOR



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

F90815 S0006587255_V1

Nose Landing Gear Door Skin Location

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6900	Door Installation - Nose Wheel Well
141A6902	Door Assembly - Nose Wheel Well
141A6903	Bonded Door Assembly - Nose Wheel Well
141A6904	Machined Core Details - Nose Wheel Well Doors
141A6905	Seal Details and Block Assembly - Nose Wheel Well
141A6906	Hinge Assembly - Nose Wheel Well Door

52-80-01

IDENTIFICATION 1

Page 1

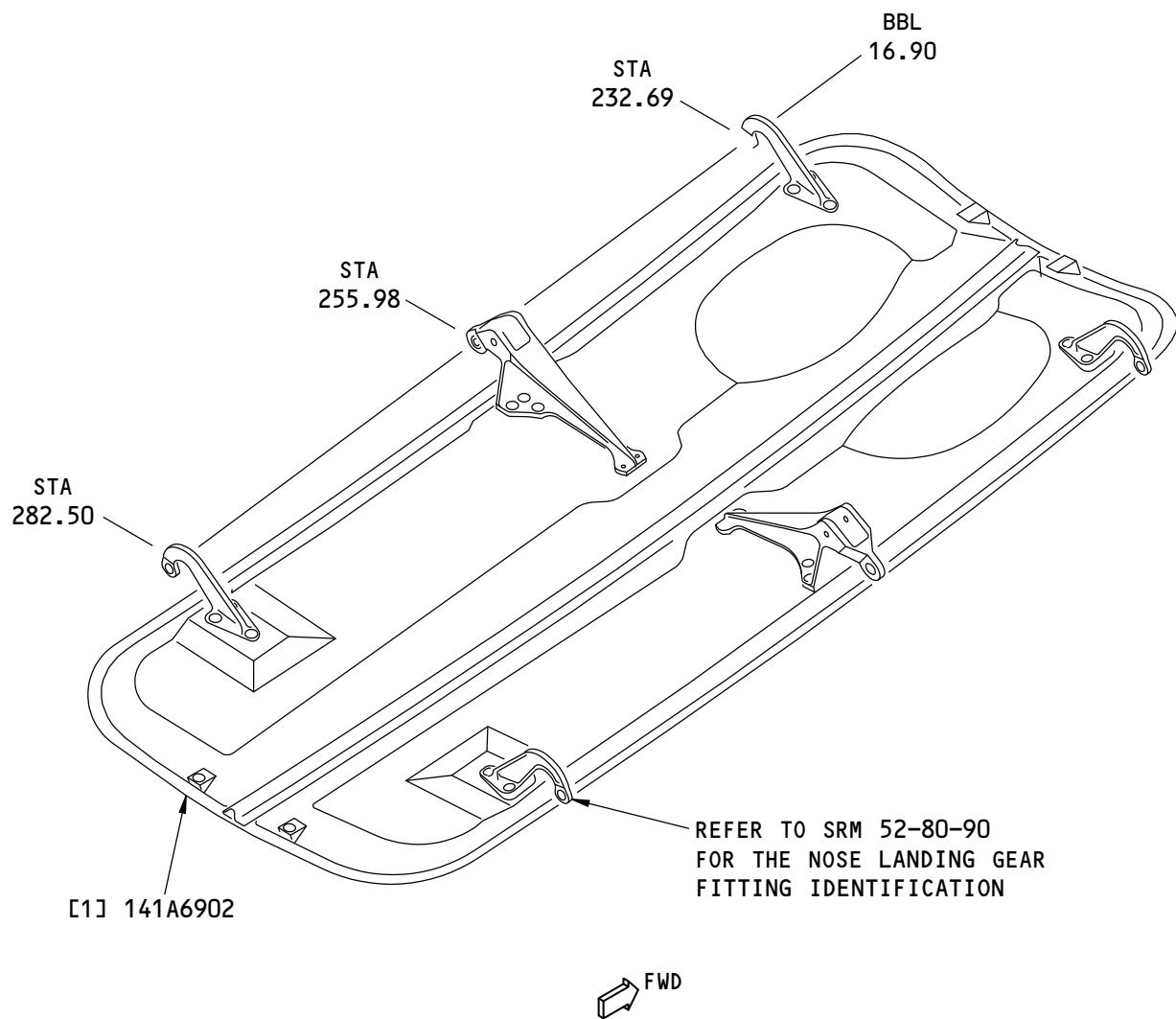
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

F90795 S0006587257_V1

Nose Landing Gear Door Skin Identification
Figure 2

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IDENTIFICATION 1
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Nose Wheel Door, Bonded Assembly Skin Core (2) Core		Carbon Fiber Reinforced Plastic (CFRP) honeycomb sandwich with Glass Fiber Reinforced Plastic (GFRP) isolation plies Refer to Figure 3 Phenolic honeycomb as given in BMS 8-124, Type I, Class 1, Grade 4.0. Refer to the production drawing for the machined thicknesses Phenolic honeycomb as given in BMS 8-124, Type I, Class 1, Grade 8.0. Refer to the production drawing for the machined thicknesses	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

52-80-01

IDENTIFICATION 1

Page 3

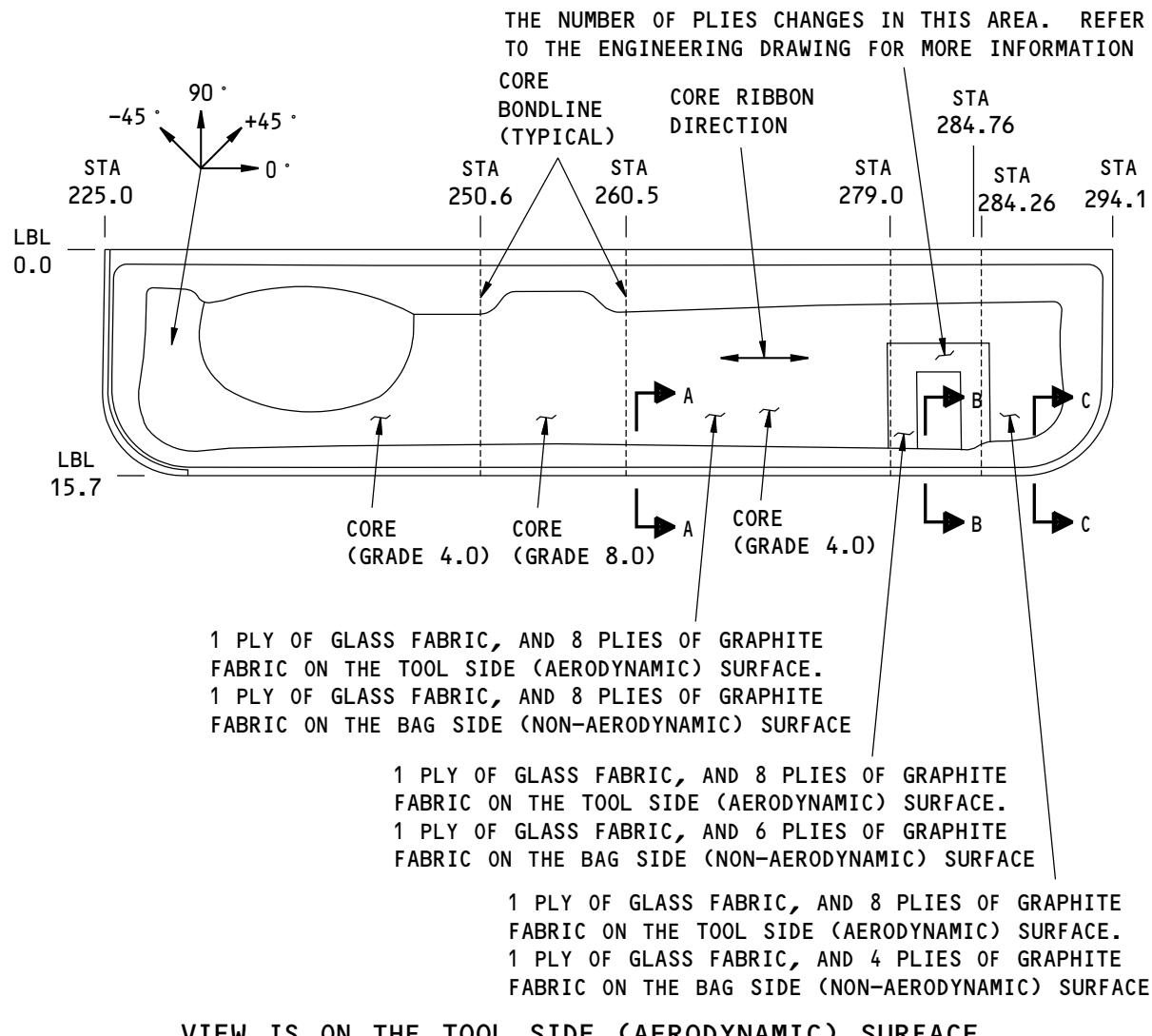
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(A)

NOTES

- THE PLY DIRECTION IS THE WARP DIRECTION OF THE FABRIC, REFER TO DETAIL A FOR THE 0 DEGREE PLY DIRECTION AND THE CORE RIBBON DIRECTION.
- REFER TO SECTIONS A-A, B-B, AND C-C FOR THE PLY SEQUENCE AT THOSE LOCATIONS.
- REFER TO TABLE 3 FOR THE DIRECTION AND MATERIAL OF EACH PLY.

F91512 S0006587259_V1

Ply Direction and Ply Sequence for Figure 2, Item [1]
Figure 3 (Sheet 1 of 2)

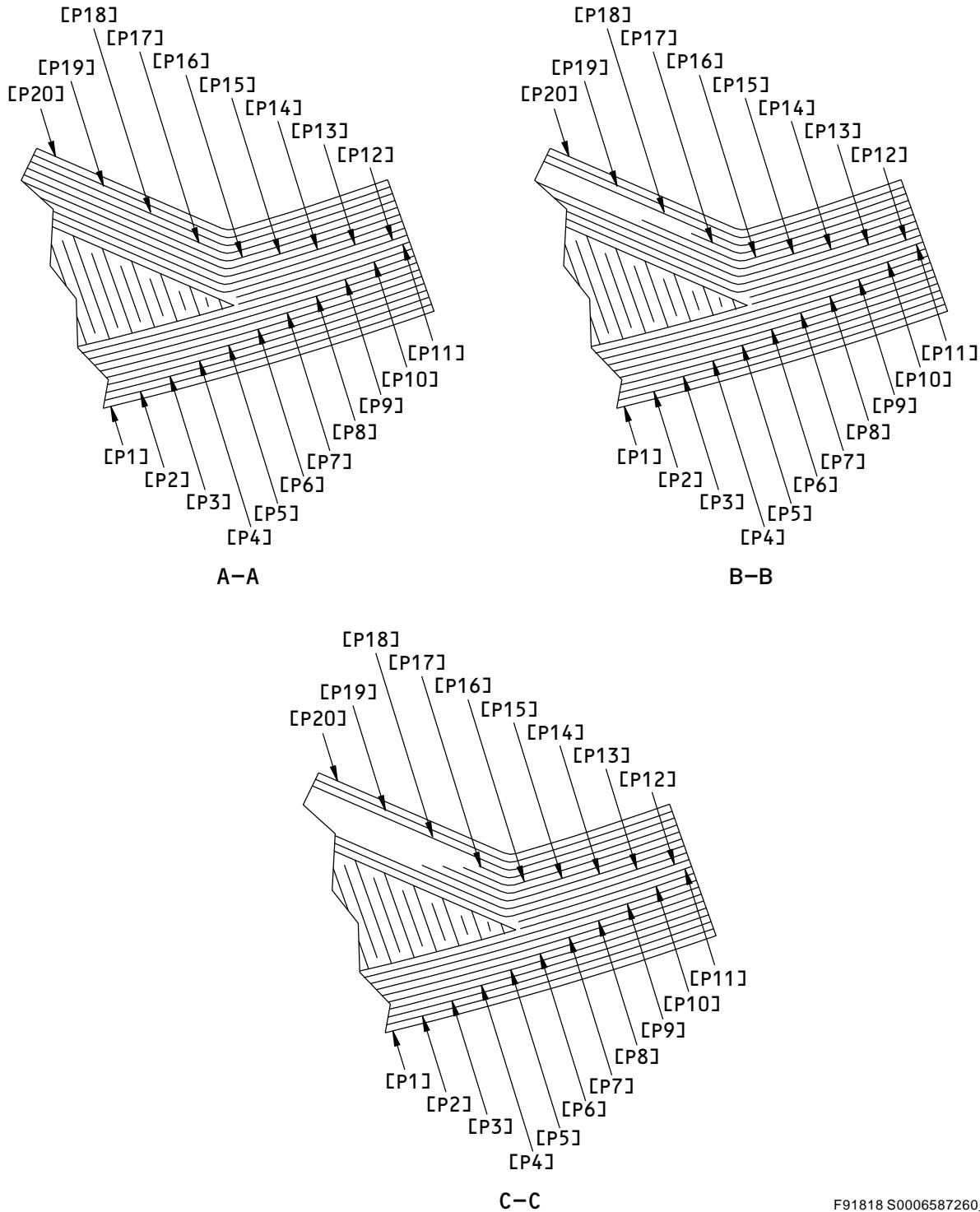
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F91818 S0006587260_V1

**Ply Direction and Ply Sequence for Figure 2, Item [1]
Figure 3 (Sheet 2 of 2)**

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Table 3:

PLY MATERIAL AND DIRECTION FOR FIGURE 2, Item [1]					
DRAWING	PART NUMBER	PLY (P)	MATERIAL *[1]	DIRECTION 0 OR 90 DEGREES	DIRECTION + OR- 45 DEGREES
141A6903	-5 and -6	P1,P20	1	x	
	-5 and -6	P2, P5, P6, P9, P10, P12, P15, P16, P19	2		x
	-5 and -6	P3, P4, P7, P8, P11, P13, P14, P17, P18	2	x	
141A6903	-7, -8, -9, -10	P1,P20	3	x	
	-7, -8, -9, -10	P2, P5, P6, P9, P10, P12, P15, P16, P19	4		x
	-7, -8, -9, -10	P3, P4, P7, P8, P11, P13, P14, P17, P18	4	x	
141A6903	-11 and -12	P1,P20	3	x	
	-11 and -12	P2, P5, P6, P9, P10, P12, P15, P16, P19	4		x
	-11 and -12	P3, P4, P7, P8, P11, P13, P14, P17, P18	4	x	
141A6903	-13 and -14	P1,P20	3	x	
	-13 and -14	P2, P5, P6, P9, P10, P12, P15, P16, P19	4		x
	-13 and -14	P3, P4, P7, P8, P11, P13, P14, P17, P18	3	x	

*[1] Refer to Table 4 for material descriptions.

Table 4:

MATERIAL DESCRIPTION	
1	BMS 8-169, TYPE 120
2	BMS 8-258, CLASS II, STYLE 3K-PW
3	BMS 8-79, CLASS III, STYLE 220
4	BMS 8-168, TYPE II, CLASS II, STYLE 3K-70-PW

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ALLOWABLE DAMAGE 1 - NOSE LANDING GEAR DOOR SKIN

1. Applicability

- A. Allowable Damage 1 is applicable to damage on the Nose Landing Gear Door Skin made from carbon fiber reinforced plastic (CFRP) shown in Nose Landing Gear Door Skin, Figure 101/ ALLOWABLE DAMAGE 1.
- B. The allowable damage limits are only applicable if they are sealed as given in Paragraph 2.C./ ALLOWABLE DAMAGE 1

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ALLOWABLE DAMAGE 1

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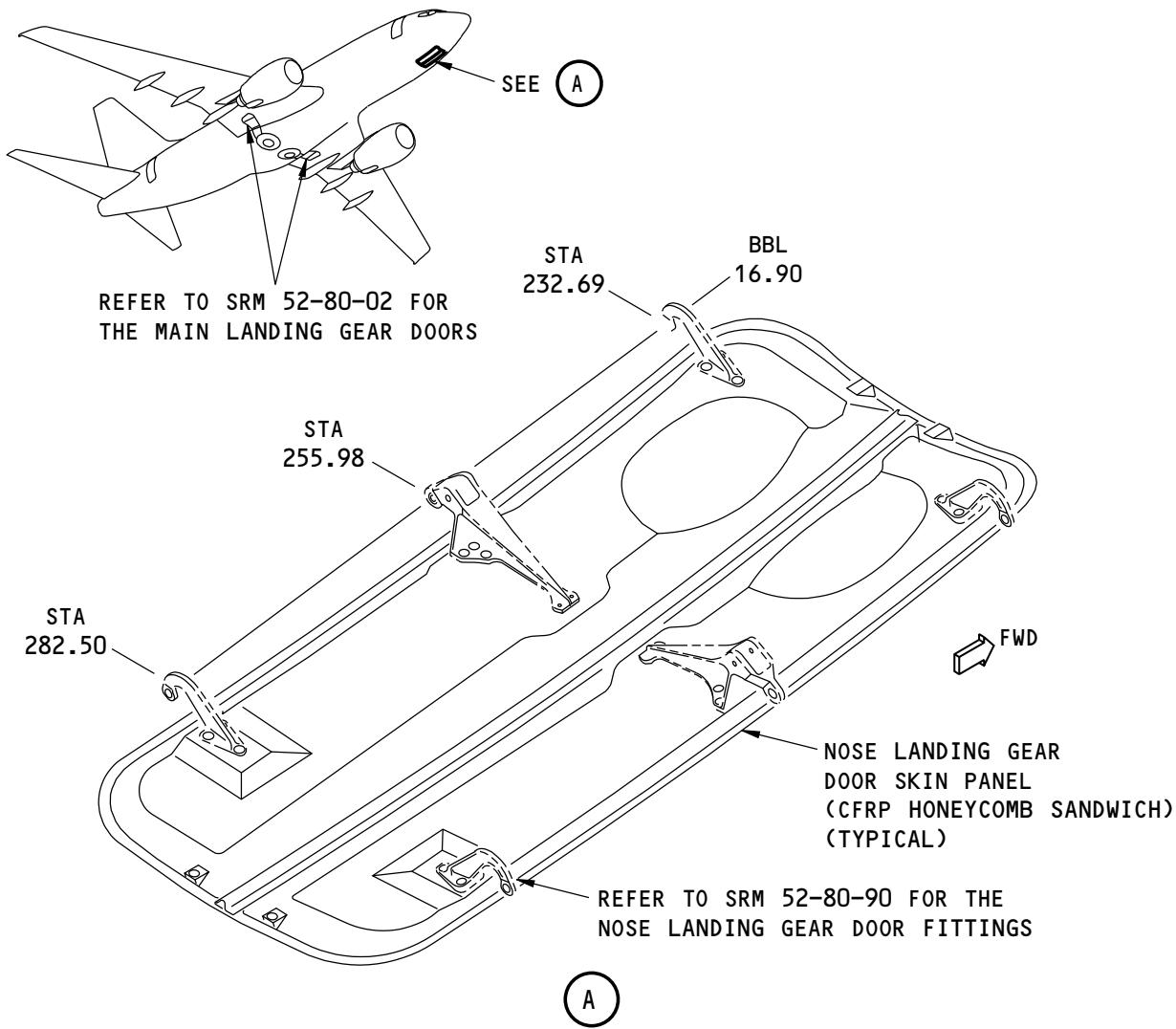
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STRUCTURAL REPAIR MANUAL



F96717 S0006587264_V1

Nose Landing Gear Door Skin
Figure 101

2. General

- A. Do an inspection of the damaged area to find the length, width and depth of the damage. Boeing recommends that you use an instrumented Non-Destructive Test (NDT) procedure. Refer to NDT, Part 1, 51-01-02 or 51-01-03 for inspection procedures.

NOTE: Other equivalent inspection methods that have been examined and found to be satisfactory by the operator can be used.

- (1) For the honeycomb core areas, the tap test is an alternative procedure to an instrumented NDT.
 - (a) Refer to Damage Definitions, Figure 102/ALLOWABLE DAMAGE 1, Details A , B , and C for the definitions of the length, width, and depth of damage.
 - (b) Refer to Definitions of the Facesheets, Figure 103/ALLOWABLE DAMAGE 1 for the definitions of the facesheets of a honeycomb core area.

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ALLOWABLE DAMAGE 1

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STRUCTURAL REPAIR MANUAL

- B. Remove all the contamination and water from the structure.
 - (1) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (2) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
 - (3) Refer to 51-70-05 for the cleanup procedures.
- C. Seal all damaged areas with the steps that follow:
 - (1) Seal the damage that is not more than one ply deep and that agrees with the allowable damage limits given in Paragraph 4./ALLOWABLE DAMAGE 1
 - (a) Make a temporary seal.
 - 1) Apply aluminum foil tape (speed tape).
 - 2) Keep a record of the location.
 - 3) Make sure the tape is in satisfactory condition at each 400 flight hour interval or more frequently.
 - 4) Seal the damage permanently no later than 5000 flight hours from the time the temporary seal was made.
 - (b) Make a permanent seal.
 - 1) Apply BMS 8-207 or BMS 8-301 epoxy resin to the area as given in 51-70-08.
 - 2) Apply one layer of BMS 10-79, Type III or BMS 10-103, Type I primer. Refer to SOPM 20-44-04.
 - 3) Apply one layer of BMS 10-60 enamel to the areas sealed with epoxy resin. Refer to AMM PAGEBLOCK 51-21-99/701.
 - (2) Seal the damaged areas that are more than one ply deep and that agree with the allowable damage limits given in Paragraph 4./ALLOWABLE DAMAGE 1
 - (a) Use a vacuum and heat to remove moisture from the solid laminate or the honeycomb cells. Refer to 51-70-05.
 - (b) Make a temporary seal with aluminum foil tape (speed tape).
 - (c) Keep a record of the location.
 - 1) Repair the damage no later than 400 flight hours from the time the seal was made.
- D. If there is damage in Zone 2, do the steps that follow:

NOTE: Refer to Nose Landing Gear Door Skin Allowable Damage Zones, Figure 104/ALLOWABLE DAMAGE 1 for the allowable damage zones.

 - (1) Do an inspection of the damage at each 400 flight hour interval or more frequently.
 - (2) Repair the damage in 90 days or less.
- E. Make sure the aerodynamic smoothness is satisfactory or there will be a decrease in the economic performance of the airplane.
- F. Restore the aircraft exterior paint system in the area where damage has been removed, as applicable. Refer to AMM PAGEBLOCK 51-21-99/701.

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ALLOWABLE DAMAGE 1

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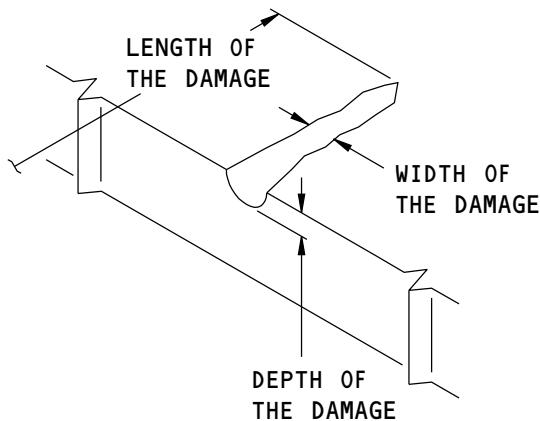
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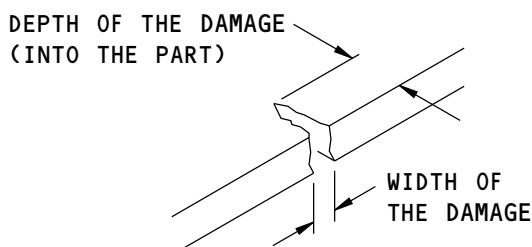
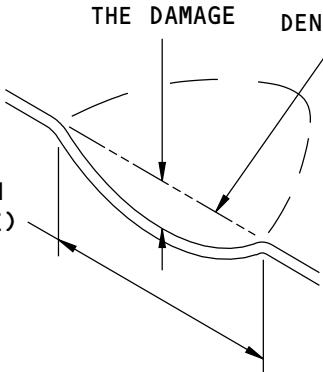


DEFINITIONS FOR NICK,
GOUGE, OR SCRATCH DAMAGE

(A)

DEPTH OF THE DAMAGE THE CONTOUR BEFORE THE DENT OCCURRED

DIAMETER OF THE
DAMAGE (USE THE
LARGEST DIMENSION
ACROSS THE DAMAGE)



DEFINITIONS FOR
DENT DAMAGE

(B)

DEFINITIONS FOR
EDGE DAMAGE

(C)

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Damage Definitions
Figure 102

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ALLOWABLE DAMAGE 1

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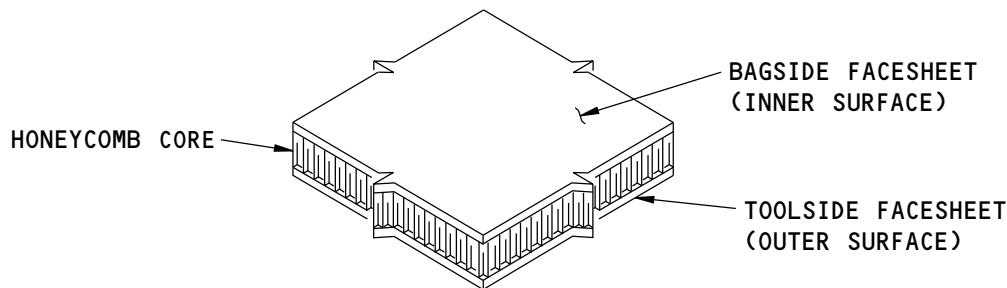
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Definitions of the Facesheets
Figure 103

3. References

Reference	Title
51-10-01, GENERAL	Aerodynamic Smoothness Requirements
51-10-02, GENERAL	Inspection and Removal of Damage
51-20-01, GENERAL	Protective Treatment of Metallic and Composite Materials
51-20-05, GENERAL	Repair Sealing
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-70-05	REPAIR PROCEDURES FOR PREIMPRGNATED MATERIALS
51-70-08	RESIN SWEEP-FAIR PROCEDURES
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-44-04	Application of Urethane Compatible Primer
737 NDT Part 1, 51-01-02	NDT Examination of Composite Structure for Impact Damage
737 NDT Part 1, 51-01-03	NDT Assessment of Lightning Strike Damage to Graphite/Epoxy Composite Structure

4. Allowable Damage Limits

A. Zone 1 and Zone 2 - CFRP Honeycomb Core Area

NOTE: Refer to Paragraph 2.C./ALLOWABLE DAMAGE 1 for the inspection intervals and repair instructions for damage that is in Zone 2. Refer to Nose Landing Gear Door Skin Allowable Damage Zones, Figure 104/ALLOWABLE DAMAGE 1 for the allowable damage zones.

- (1) Nicks, Gouges and Scratches are permitted if they:
 - (a) Cause damage to the outer ply glass fibers only and thus
 - (b) Do not cause damage to the carbon fibers
 - (c) Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (2) Nicks, Gouges and Scratches that cause damage to the carbon fibers are permitted if they are:
 - (a) A maximum of one ply in depth

NOTE: Use the limits for holes and punctures if the damage is more than one ply in depth.
 - (b) A maximum of 1.00 inch in length

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ALLOWABLE DAMAGE 1

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- (c) A maximum of 0.25 inch in width
- (d) A minimum of 1.5 inches away from the edge of any hole, part edge, or other damage

NOTE: Other damage does not include nicks, gouges, and scratches that:

- Do not cause damage to the glass fiber plies
- Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1

- (e) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (3) Dents that do not cause damage to the carbon fibers are permitted if they are:
- (a) A maximum of 0.050 inch in depth
- NOTE:** Use the limits for holes and punctures if there is carbon fiber damage or if the depth of the dent is more than 0.050 inch.
- (b) A maximum of 1.50 inches in diameter
 - (c) A minimum of 2.5D (D = the largest dimension across the damage) away from the edge of any hole, part edge or other damage
- NOTE:** Other damage does not include nicks, gouges, and scratches that:
- Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (d) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (4) Holes and Punctures are permitted if they are:
- (a) A maximum of 1.00 inch in diameter
 - (b) A minimum of 2.5D (D = the largest dimension across the damage) away from the edge of other damage

NOTE: Other damage does not include nicks, gouges, and scratches that:

- Do not cause damage to the glass fiber plies
- Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1

- (c) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (5) Delaminations are permitted if they are:
- (a) A maximum of one facesheet and the core in depth
 - (b) A maximum of 1.00 inch in length
 - (c) A maximum of 1.00 inch in width
 - (d) A minimum distance of 4D (D = the largest dimension across the damage) away from the edge of other damage
- NOTE:** Other damage does not include nicks, gouges, and scratches that:
- Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (e) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1

B. Zone 1 - CFRP Solid Laminate Area

NOTE: Refer to Nose Landing Gear Door Skin Allowable Damage Zones, Figure 104/ALLOWABLE DAMAGE 1 for the allowable damage zones.

- (1) Nicks, Gouges and Scratches are permitted if they:
- (a) Cause damage to the outer ply glass fibers only and thus

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ALLOWABLE DAMAGE 1

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- (b) Do not cause damage to the carbon fibers
 - (c) Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (2) Nicks, Gouges and Scratches that cause damage to the carbon fibers are permitted if they are:
- (a) A maximum of one ply in depth
 - NOTE:** Use the limits for holes and punctures if the damage is more than one ply in depth.
 - (b) A maximum of 1.00 inch in length
 - (c) A maximum of 0.25 inch in width
 - (d) A minimum of 0.50 inch away from the edge of any hole, part edge, or other damage
 - NOTE:** Other damage does not include nicks, gouges, and scratches that:
 - Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (e) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (3) Dents are permitted if they are:
- (a) A maximum of 0.05 inch in depth
 - (b) A maximum of 1.00 inch in diameter
 - (c) A minimum of 0.50 inch away from the edge of any hole, part edge, or other damage
 - NOTE:** Other damage does not include nicks, gouges, and scratches that:
 - Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (d) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (4) Holes and Punctures are permitted if they are:
- (a) A maximum of 0.25 inch in diameter
 - (b) A minimum of 1.5D (D = the largest dimension across the damage) away from the edge of any hole, part edge, or other damage
 - NOTE:** Other damage does not include nicks, gouges, and scratches that:
 - Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (c) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (5) Delaminations are permitted if they are:
- (a) A maximum of 0.30 inch in width
 - (b) A maximum of 1.50 square inches in area
 - (c) A maximum of 25 percent of the length of the honeycomb core that is adjacent to the edgeband in length
 - (d) A minimum of 2D (D = the largest dimension across the damage) but not less than 1.00 inch away from the edge of any hole, part edge, or other damage
 - NOTE:** Other damage does not include nicks, gouges, and scratches that:
 - Do not cause damage to the glass fiber plies
 - Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1
- (e) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1

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ALLOWABLE DAMAGE 1

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- (6) Edge Erosion is permitted as shown in CFRP Honeycomb Sandwich Panels - Sealing of Erosion Damage at an Edge , Figure 105/ALLOWABLE DAMAGE 1.
- (7) Edge damage is permitted if it is:
 - (a) A maximum of 0.10 inch in depth
 - (b) A maximum of 0.25 inch in width
 - (c) A minimum of 2.5D (D = the largest dimension across the damage) away from the edge of any hole or other damage

NOTE: Other damage does not include nicks, gouges, and scratches that:

- Do not cause damage to the glass fiber plies
- Are sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1

- (d) Sealed as given in Paragraph 2.C./ALLOWABLE DAMAGE 1

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ALLOWABLE DAMAGE 1

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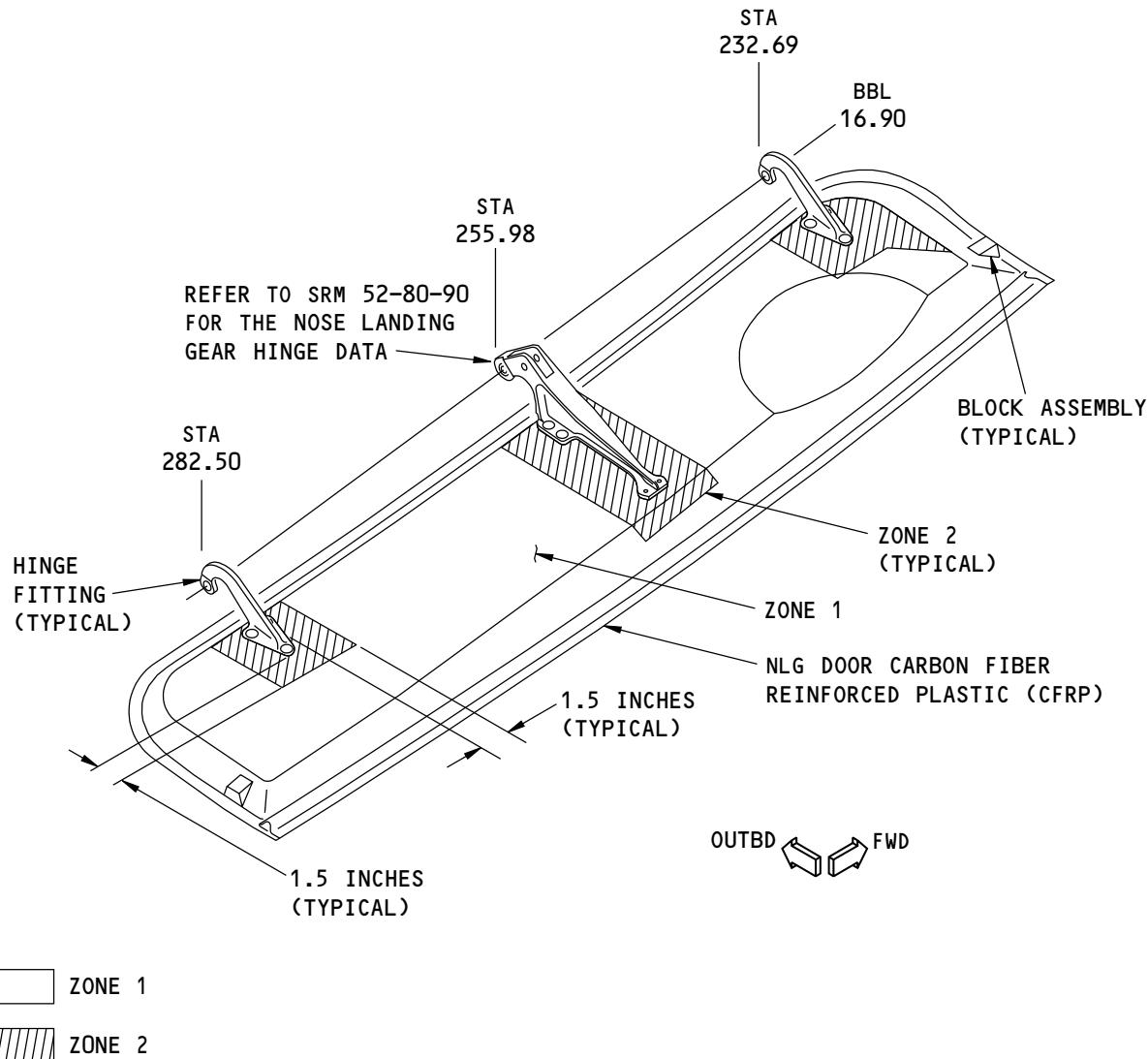
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LEFT SIDE SHOWN, RIGHT SIDE OPPOSITE

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Nose Landing Gear Door Skin Allowable Damage Zones
Figure 104

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ALLOWABLE DAMAGE 1

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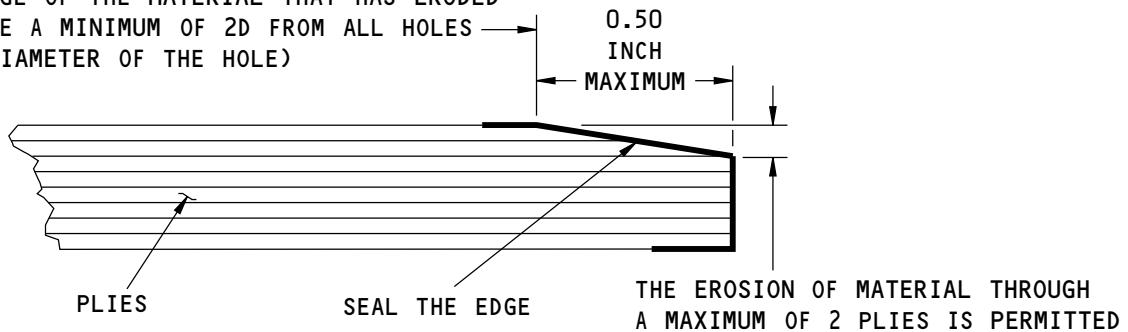
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THE EDGE OF THE MATERIAL THAT HAS ERODED
MUST BE A MINIMUM OF $2D$ FROM ALL HOLES
(D = DIAMETER OF THE HOLE)



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CFRP Honeycomb Sandwich Panels - Sealing of Erosion Damage at an Edge

Figure 105

52-80-01

ALLOWABLE DAMAGE 1

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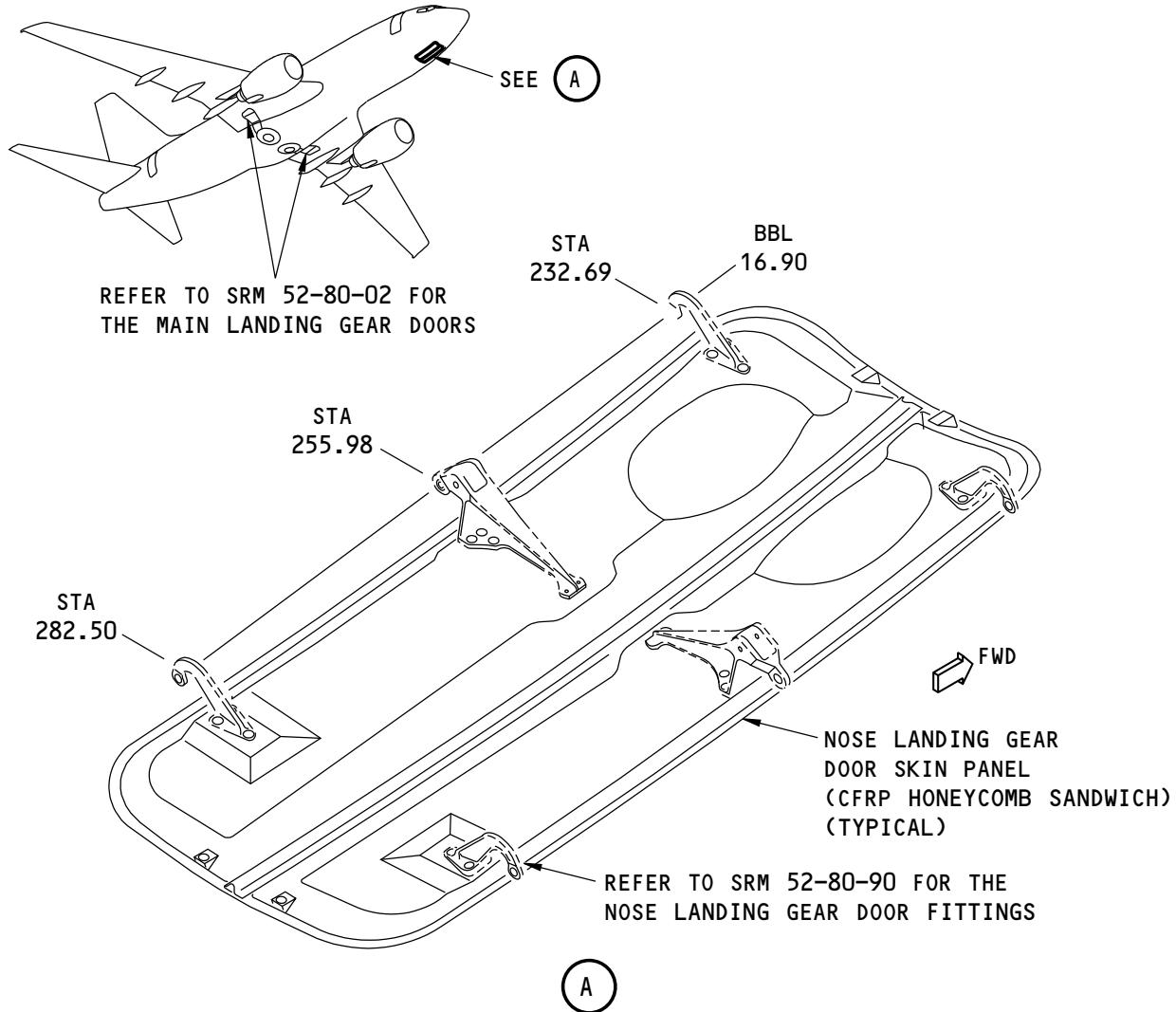
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REPAIR 1 - NOSE LANDING GEAR DOOR SKIN

1. Applicability

- A. Repair 1 is applicable to the nose landing gear door skin shown in Nose Landing Gear Door Skin, Figure 201/REPAIR 1.
- B. Repair 1 is applicable to damage that is more than the limits permitted in Allowable Damage 1.



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Nose Landing Gear Door Skin
Figure 201

2. General

- A. Repair 1 gives instructions for Permanent and Interim repairs. Refer to 51-00-06 to find the definitions of the different types of repairs.
- B. Get access to the damaged area.
 - (1) Remove the nose landing gear door, as necessary. Refer to AMM 32-22-11/401.

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REPAIR 1
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- (a) As applicable, remove the nose landing gear door fittings. Refer to 51-40-02 for the fastener removal procedures.
 - (b) If a fastener hole is damaged, refer to Repair 8 of 51-70-04 or Repair 8 of 51-70-05 for the repair procedures.
- C. Do an inspection of the damaged area to find the dimensions of the damage. Boeing recommends that you use an instrumented Non-Destructive Test (NDT) procedure. Refer to 737 NDT Part 1, 51-01-02 or 737 NDT Part 1, 51-01-03 for the inspection procedures.
- NOTE:** Other equivalent inspection methods that have been examined and found to be satisfactory by the operator can be used.
- (1) For the honeycomb core areas, the tap test is an alternative procedure to an instrumented NDI.
 - (2) Refer to Damage Definitions, Figure 202/REPAIR 1, Details A , B , and C for the definitions of the length, width, and depth of damage.
 - (3) Refer to Definitions of the Facesheets, Figure 203/REPAIR 1 for the definitions of the facesheets of a honeycomb core area.
- D. Do the repair as given in Paragraph 4./REPAIR 1
- E. Make sure the aerodynamic smoothness is satisfactory or there can be a decrease in the economic performance of the airplane.
- F. Restore the aircraft to the initial condition.
- (1) Install the nose landing gear door fittings, as applicable.
- G. Restore the aircraft nose landing gear door skin panel exterior finish, as applicable. Refer to AMM 51-21-00/701.

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REPAIR 1
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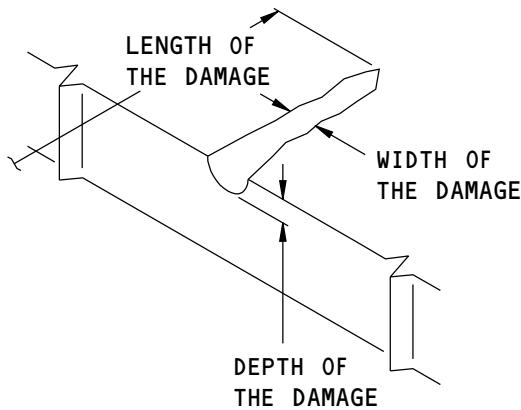
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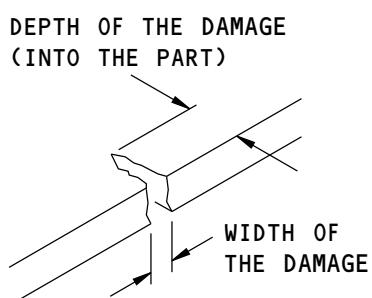


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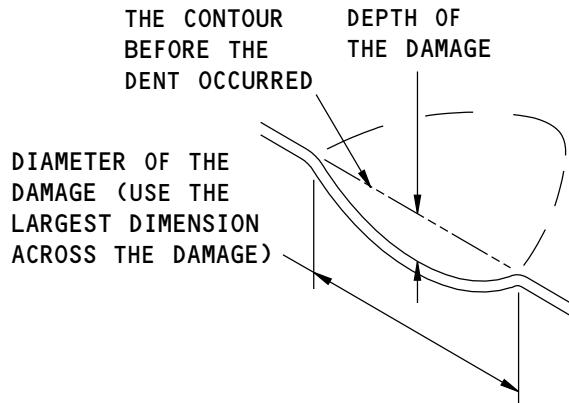
DEFINITIONS FOR NICK,
GOUGE, OR SCRATCH DAMAGE

(A)



DEFINITIONS FOR
EDGE DAMAGE

(C)



DEFINITIONS FOR
DENT DAMAGE

(B)

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Damage Definitions
Figure 202

52-80-01

REPAIR 1
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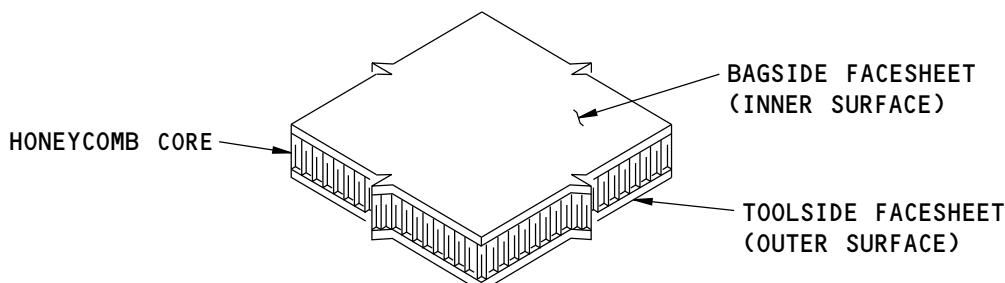
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Definitions of the Facesheets
Figure 203

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-01, GENERAL	Aerodynamic Smoothness Requirements
51-30-05, GENERAL	Equipment and Tools For Repairs
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-70-04	REPAIR PROCEDURES FOR WET LAYUP MATERIALS
51-70-05	REPAIR PROCEDURES FOR PREIMPREGNATED MATERIALS
52-80-01	NOSE LANDING GEAR DOORS
52-80-01, ALLOWABLE DAMAGE 1	Nose Landing Gear Door Skin
52-80-01, IDENTIFICATION 1	Nose Landing Gear Door Skin
AMM 32-22-11/401	Nose Landing Gear Wheel Well Door - Removal/Installation
AMM 51-21-00/701	Interior And Exterior Finishes - Cleaning/Painting
737 NDT Part 1, 51-01-01	Inspection of Repairs to Composite Structure
737 NDT Part 1, 51-01-02	NDT Examination of Composite Structure for Impact Damage
737 NDT Part 1, 51-01-03	NDT Assessment of Lightning Strike Damage to Graphite/Epoxy Composite Structure

4. Repair Instructions

NOTE: If necessary, refer to 52-80-01, Identification 1 to find the material and the build-up of the part that you want to repair.

- A. For dents that are a maximum of 2 inches in diameter and have no fiber damage and delamination, do the steps that follow:
 - (1) Fill the dent with BMS 5-28, Type 7 potting compound.
 - (2) Apply a fiberglass patch over the potted area as given in Repair 14 of 51-70-04.
- B. If Paragraph 4.A./REPAIR 1 is not applicable, then refer to:
 - (1) Table 201/REPAIR 1 and Table 202/REPAIR 1 for the repair data that is applicable to damage in Zone 1. Refer to Nose Landing Gear Door Skin Repair Zones, Figure 204/REPAIR 1 for the repair zones.
 - (2) Table 203/REPAIR 1 for the repair data that is applicable to damage in Zone 2. Refer to Nose Landing Gear Door Skin Repair Zones, Figure 204/REPAIR 1 for the repair zones.
- C. For repairs made with wet layup materials, do as follows, as applicable:

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REPAIR 1
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- (1) Use one repair ply of fabric for each initial ply that was damaged.
- (2) Add two structural plies of fabric for each facesheet that is repaired. Put one structural ply at ± 45 degrees to the core ribbon direction and the other at 0 or 90 degrees.

NOTE: Repair plies or added plies are not necessary in the repair of delamination at an edge if the delamination is a minimum of 2D (D = fastener diameter) away from a fastener hole.

- (3) Inspect Interim repairs after each 800 flight hour interval or more frequently. Refer to 737 NDT Part 1, 51-01-01 for inspection procedures. If deterioration is found, then they must be replaced with Permanent repairs.

NOTE: Other inspection methods that have been examined and found to be satisfactory by the operator, can be used.

- D. For repairs made with preimpregnated layup materials, use the same number of repair plies as the number of initial plies that were damaged.

Table 201:

REPAIR DATA FOR ZONE 1 OF THE HONEYCOMB CORE 250°F (121°C) CURE, NOSE LANDING GEAR DOOR SKIN				
REPAIR TYPE	INTERIM WET LAYUP	PERMANENT WET LAYUP	PERMANENT WET LAYUP	PERMANENT PREIMPREGNATED LAYUP
REPAIR CURE TEMPERATURE	ROOM TEMPERATURE	150°F (66°C)	200°F (93°C)	250°F (121°C)
REPAIR SIZE AND LIMITS	Damage that is a maximum of: - 2.0 inches across the largest dimension of the damage - 30 percent of the smallest dimension across the panel at the damage location - one facesheet and the honey- honeycomb core in depth One repair for each 144 square inches 6.0 inches minimum clearance from: -other repairs -fastener holes -panel edges	Damage that is a maximum of: - 6.50 inches across the largest dimension of the damage - 80 percent of the smallest dimension across the panel at the damage location One repair for each 144 square inches 6.0 inches minimum clearance from: -other repairs -fastener holes -panel edges	Damage that is a maximum of: - 6.50 inches across the largest dimension of the damage - 80 percent of the smallest dimension across the panel at the damage location One repair for each 144 square inches 6.0 inches minimum clearance from: -other repairs -fastener holes -panel edges	There are no limits on the dimension of the repair
REPAIR PROCEDURE	SRM 51-70-06 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.C	SRM 51-70-05 and Paragraph 4.D

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REPAIR 1
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Table 202:

REPAIR DATA FOR THE ZONE 1 EDGEBANDS FOR THE 250°F (121°C) CURE NOSE LANDING GEAR DOOR SKIN				
REPAIR TYPE	INTERIM WET LAYUP	PERMANENT WET LAYUP	PERMANENT WET LAYUP	PERMANENT PREIMPREGNATED LAYUP
REPAIR CURE TEMPERATURE	ROOM TEMPERATURE	150°F (66°C)	200°F (93°C)	250°F (121°C)
REPAIR SIZE AND LIMITS	Damage that is a maximum of: - 15 percent of the cross-sectional area of the edgeband at the damage location - 10 percent of the length of the edgeband on the side of the damage	There are no limits on the dimensions of the repair	There are no limits on the dimensions of the repair	There are no limits on the dimensions of the repair
REPAIR PROCEDURE	SRM 51-70-06 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.C	SRM 51-70-05 and Paragraph 4.D

NOTE: Refer to Figure 205 for the definition of the damage areas for zone 1 edgebands.

Table 203:

REPAIR DATA FOR THE ZONE 2 OF THE HONEYCOMB CORE 250°F (121°C) CURE NOSE LANDING GEAR DOOR SKIN				
REPAIR TYPE	INTERIM WET LAYUP	PERMANENT WET LAYUP	PERMANENT WET LAYUP	PERMANENT PREIMPREGNATED LAYUP
REPAIR CURE TEMPERATURE	ROOM TEMPERATURE	150°F (66°C)	200°F (93°C)	250°F (121°C)
REPAIR SIZE AND LIMITS	Damage that is a maximum of: - 2.0 inches across the largest dimension of the damage - 30 percent of the smallest dimension across the panel at the damage location - One facesheet and the honeycomb core in depth One repair for each 144 square inches 6.0 inches minimum clearance from: -other repairs -fastener holes -panel edges	Damage that is a maximum of: - 5.0 inches across the largest dimension of the damage - 50 percent of the smallest dimension across the panel at the damage location One repair for each 144 square inches 6.0 inches minimum clearance from: -other repairs -fastener holes -panel edges	Damage that is a maximum of: - 6.50 inches across the largest dimension of the damage - 80 percent of the smallest dimension across the panel at the damage location One repair for each 144 square inches 6.0 inches minimum clearance from: -other repairs -fastener holes -panel edges	There are no limits on the dimensions of the repair
REPAIR PROCEDURE	SRM 51-70-06 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.C	SRM 51-70-04 and Paragraph 4.C	SRM 51-70-05 and Paragraph 4.D

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REPAIR 1
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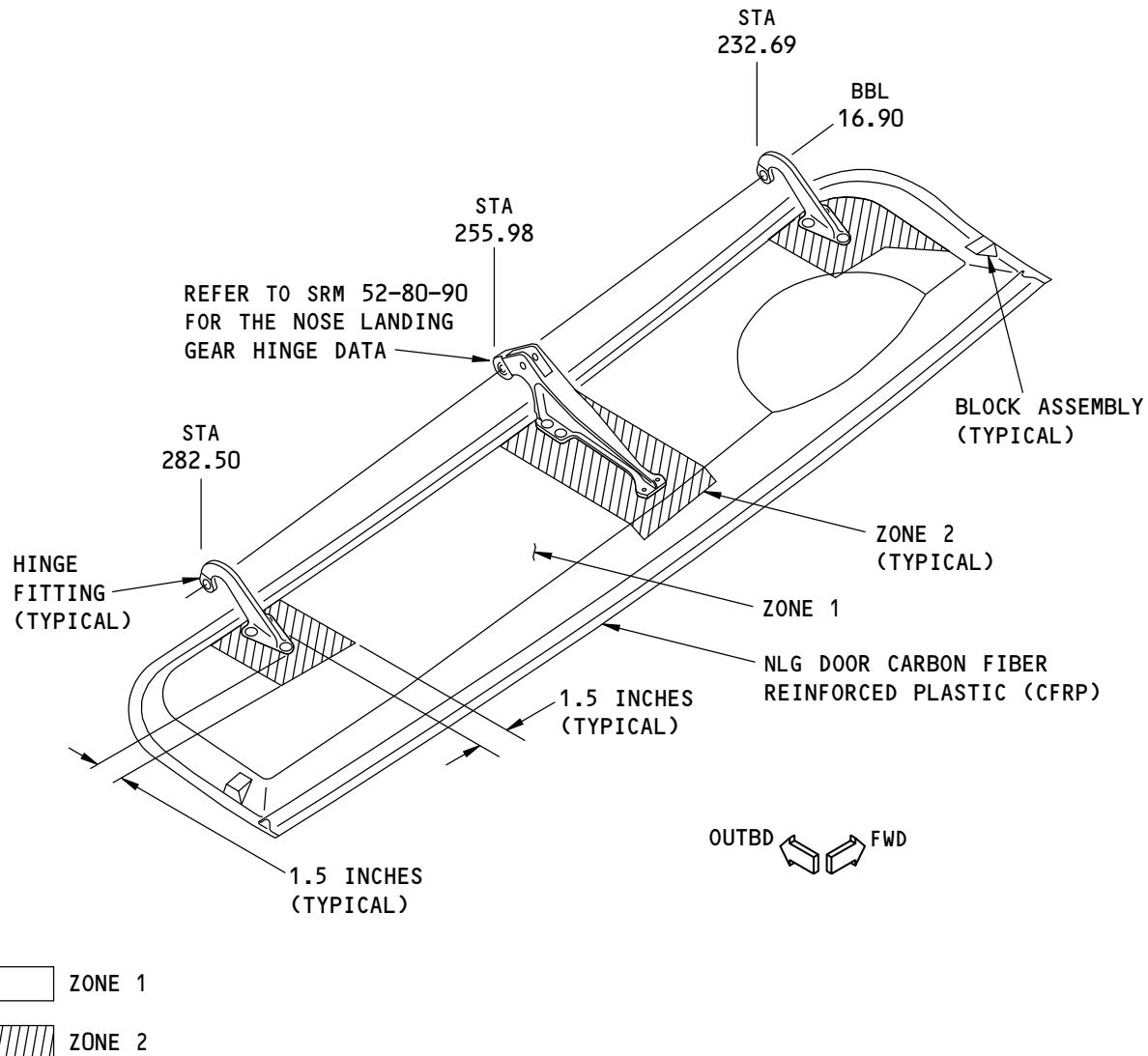
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LEFT SIDE SHOWN, RIGHT SIDE OPPOSITE

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Nose Landing Gear Door Skin Repair Zones
Figure 204

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REPAIR 1
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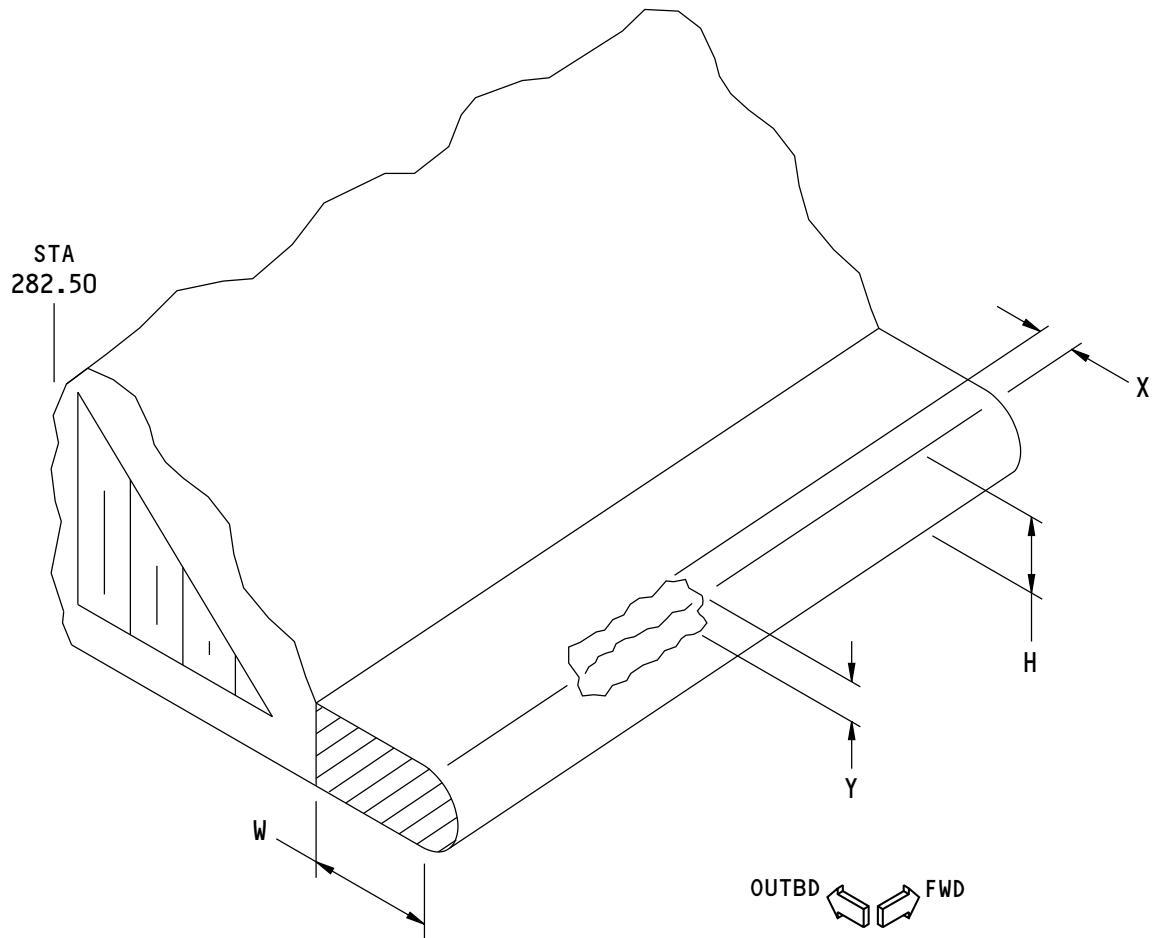
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CROSS-SECTIONAL AREA AS GIVEN IN TABLE 202.

TOTAL CROSS-SECTIONAL AREA = $W \times H$
DAMAGE AREA = $X \times Y$
SEE TABLES FOR THE MAXIMUM DAMAGE AREA

A-A

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Nose Landing Gear Door Skin Damage Areas for Zone 1 Edgebands
Figure 205

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REPAIR 1
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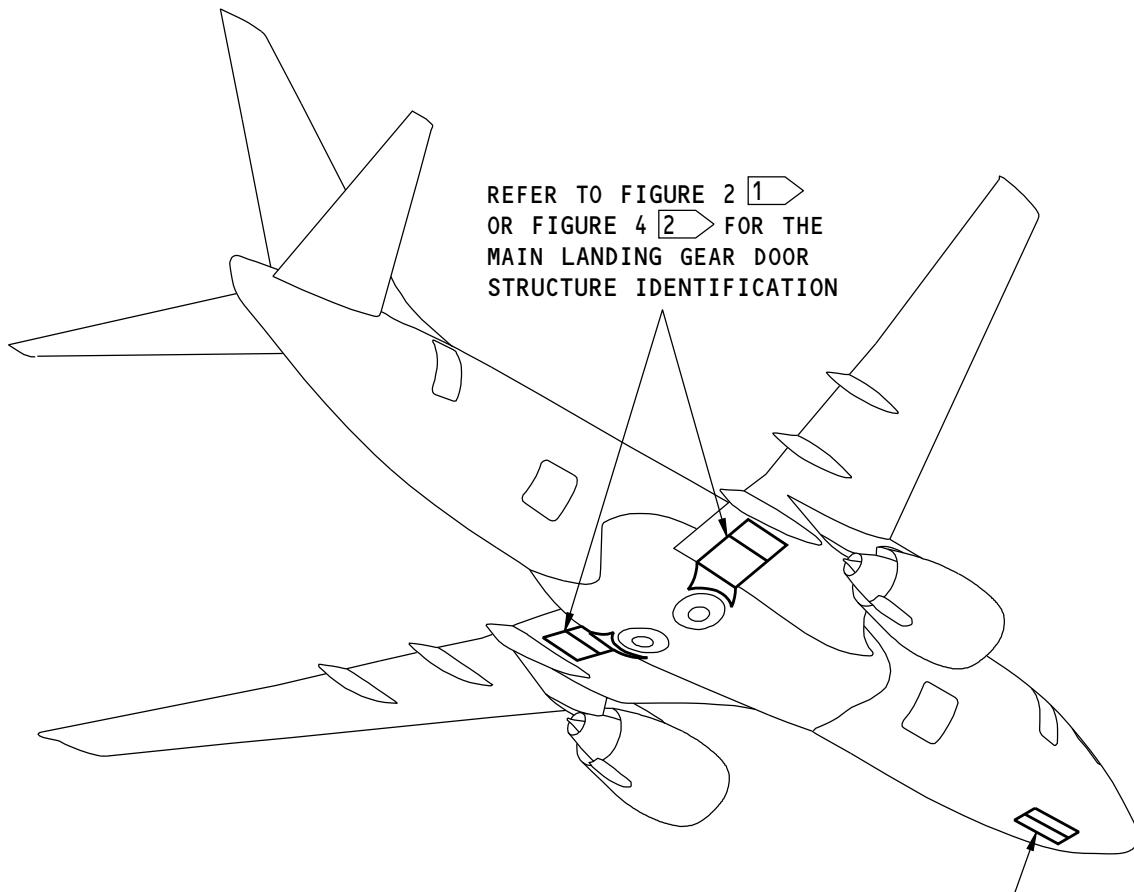
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IDENTIFICATION 1 - MAIN LANDING GEAR DOOR STRUCTURE



NOTES

- REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

REFER TO SRM 52-80-01 FOR THE
NOSE LANDING GEAR DOOR DATA

- [1] FOR AIRPLANES WITH 3 PIECE DOOR ASSEMBLY
[2] FOR AIRPLANES WITH 4 PIECE DOOR ASSEMBLY

Main Landing Gear Door Structure Location

Figure 1

Table 1:

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REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
113A8000	Main Landing Gear Door Installation
113A8100	Door Assembly - Outboard Main landing Gear
113A8130	Casting - Outboard Main landing Gear Door
113A8131	Outboard Main landing Gear Door
113A8200	Door Assembly - Center Main Landing Gear
113A8230	Casting - Center Main Landing Gear Door
113A8232	Center Main Landing Gear Door

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IDENTIFICATION 1

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Table 1: (Continued)

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
113A8331	Door Assembly - Inboard Main Landing Gear
113A8335	Door Assembly - Inboard Main Landing Gear
113A8330	Casting - Inboard Main Landing Gear Door
113A8334	Inboard Center Main Landing Gear Door
113A8333	Inboard Center Main Landing Gear Door

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IDENTIFICATION 1

Page 2

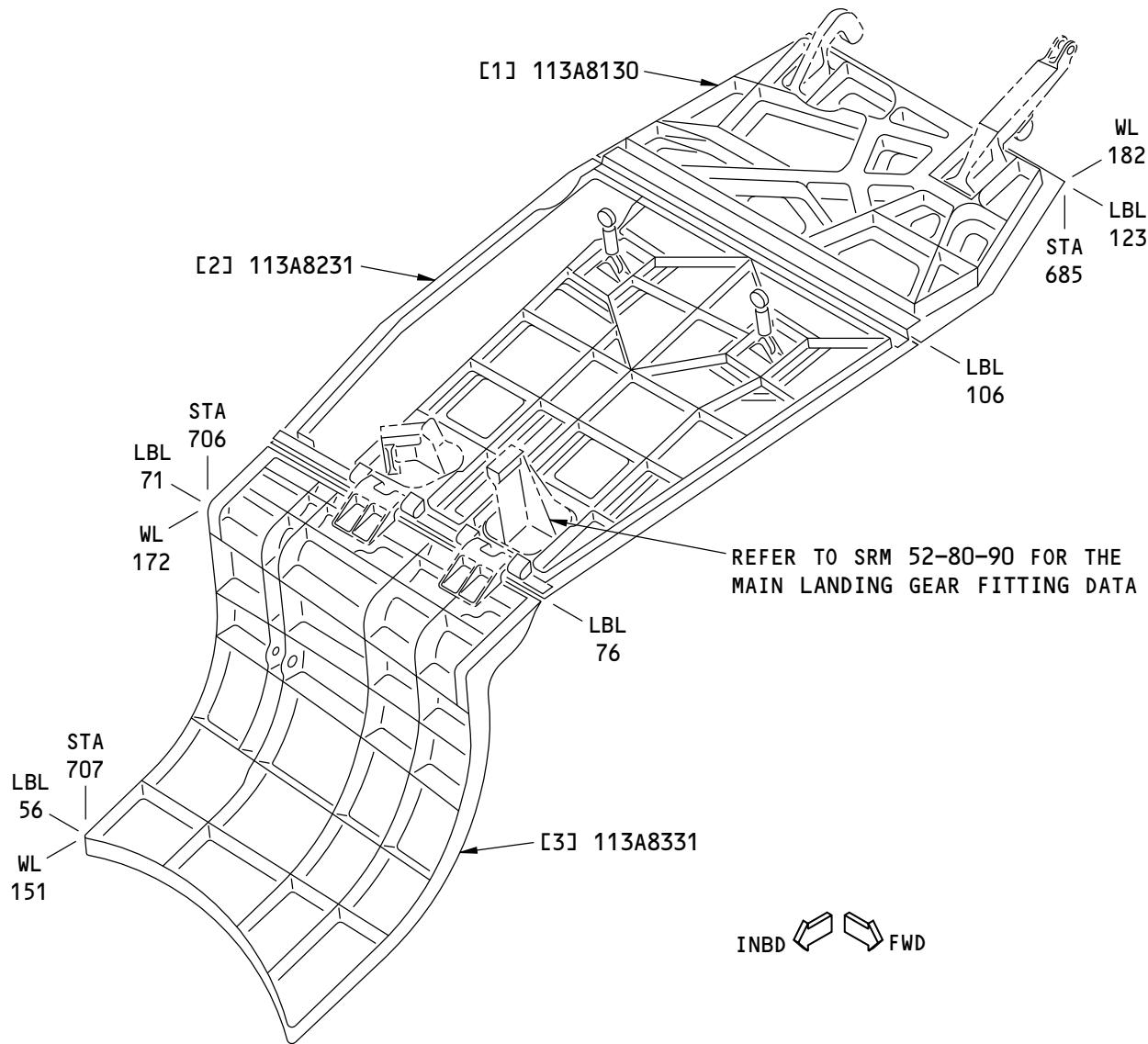
Jul 10/2015

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STRUCTURAL REPAIR MANUAL



NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

F92085 S0006587284_V3

Three Piece Door Assembly Structure Identification
Figure 2

52-80-02
IDENTIFICATION 1
Page 3
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Outboard MLG Door (2)		A357-T6 aluminum casting as given in MIL-A-21180. Refer to Figure 3 for the machined thicknesses of the different areas	
[2]	Center MLG Door (2)		A357-T6 aluminum casting as given in MIL-A-21180. Refer to Figure 3 for the machined thicknesses of the different areas	
[3]	Inboard Upper MLG Door (2)		A357-T6 aluminum casting as given in MIL-A-21180. Refer to Figure 3 for the machined thicknesses of the different areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

52-80-02

IDENTIFICATION 1

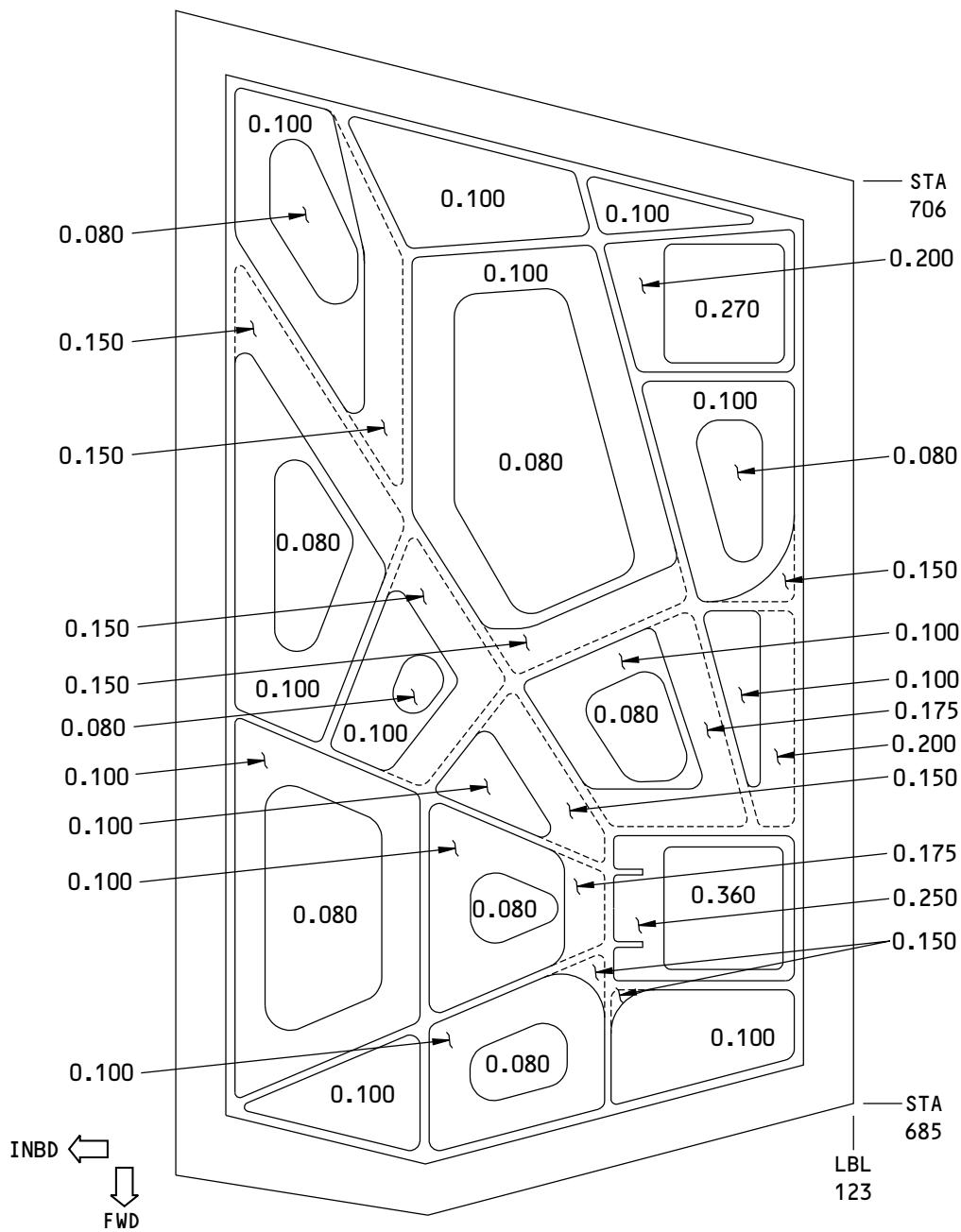
Page 4

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NOTE: ALL DIMENSIONS ARE IN INCHES.

**VIEW OF THE INNER SURFACE OF THE OUTBOARD
MAIN LANDING GEAR DOOR CASTING**

F92334 S0006587286_V1

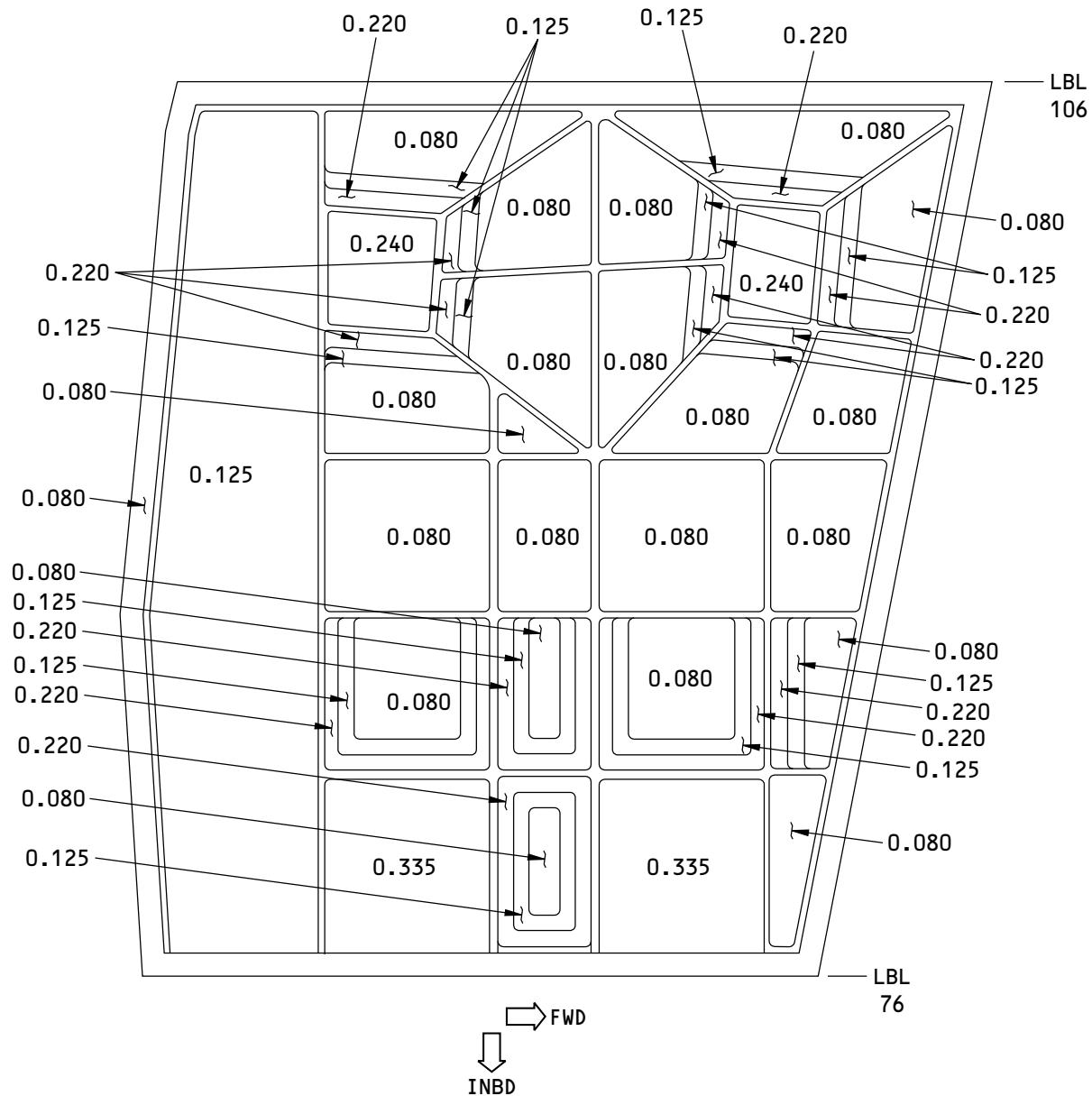
Machined Areas for Doors

Figure 3 (Sheet 1 of 3)

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IDENTIFICATION 1
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NOTE: ALL DIMENSIONS ARE IN INCHES.

VIEW OF THE INNER SURFACE OF THE CENTER
MAIN LANDING GEAR DOOR CASTING

F92421 S0006587287_V3

Machined Areas for Doors

Figure 3 (Sheet 2 of 3)

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NOTE: ALL DIMENSIONS ARE IN INCHES.

**VIEW OF THE INNER SURFACE OF THE INBOARD
MAIN LANDING GEAR DOOR**

F93485 S0006587288_V2

Machined Areas for Doors
Figure 3 (Sheet 3 of 3)

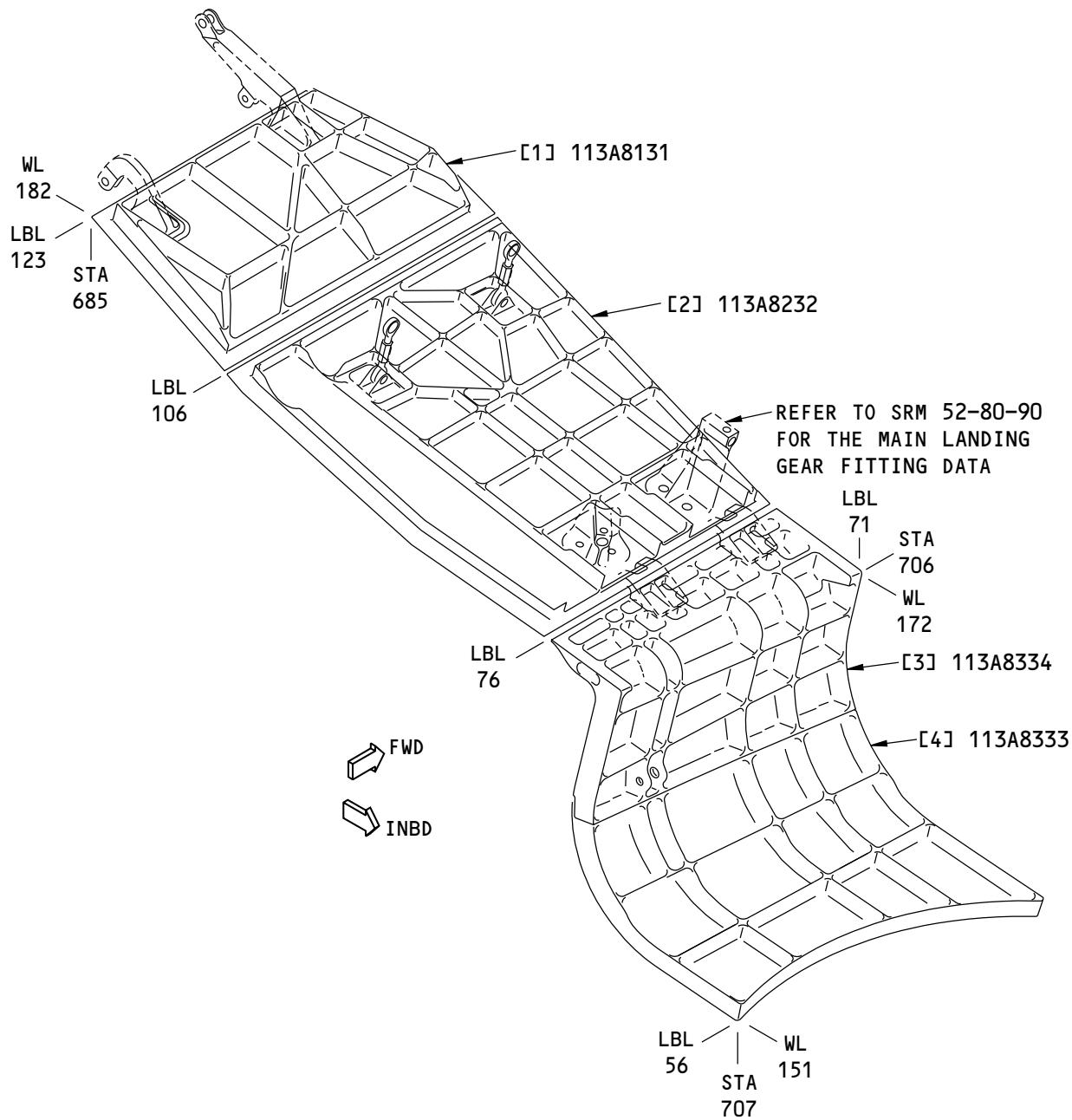
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NOTE: REFER TO TABLE 3 FOR THE LIST OF MATERIALS.

LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

J97165 S0000189738_V1

Four Piece Door Assembly Structure Identification
Figure 4

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IDENTIFICATION 1
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Table 3:

LIST OF MATERIALS FOR FIGURE 4				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Outboard MLG Door (2)		7050-T7451 plate as given in AMS 4050. Refer to Figure 5 for the machined thicknesses of the different areas	
[2]	Center MLG Door (2)		7050-T7451 plate as given in AMS 4050. Refer to Figure 5 for the machined thicknesses of the different areas	
[3]	Inboard Upper MLG Door (2)		7050-T7451 plate as given in AMS 4050. Refer to Figure 5 for the machined thicknesses of the different areas	
[4]	Inboard Lower MLG Door (2)		7050-T7451 plate as given in AMS 4050. Refer to Figure 5 for the machined thicknesses of the different areas	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1

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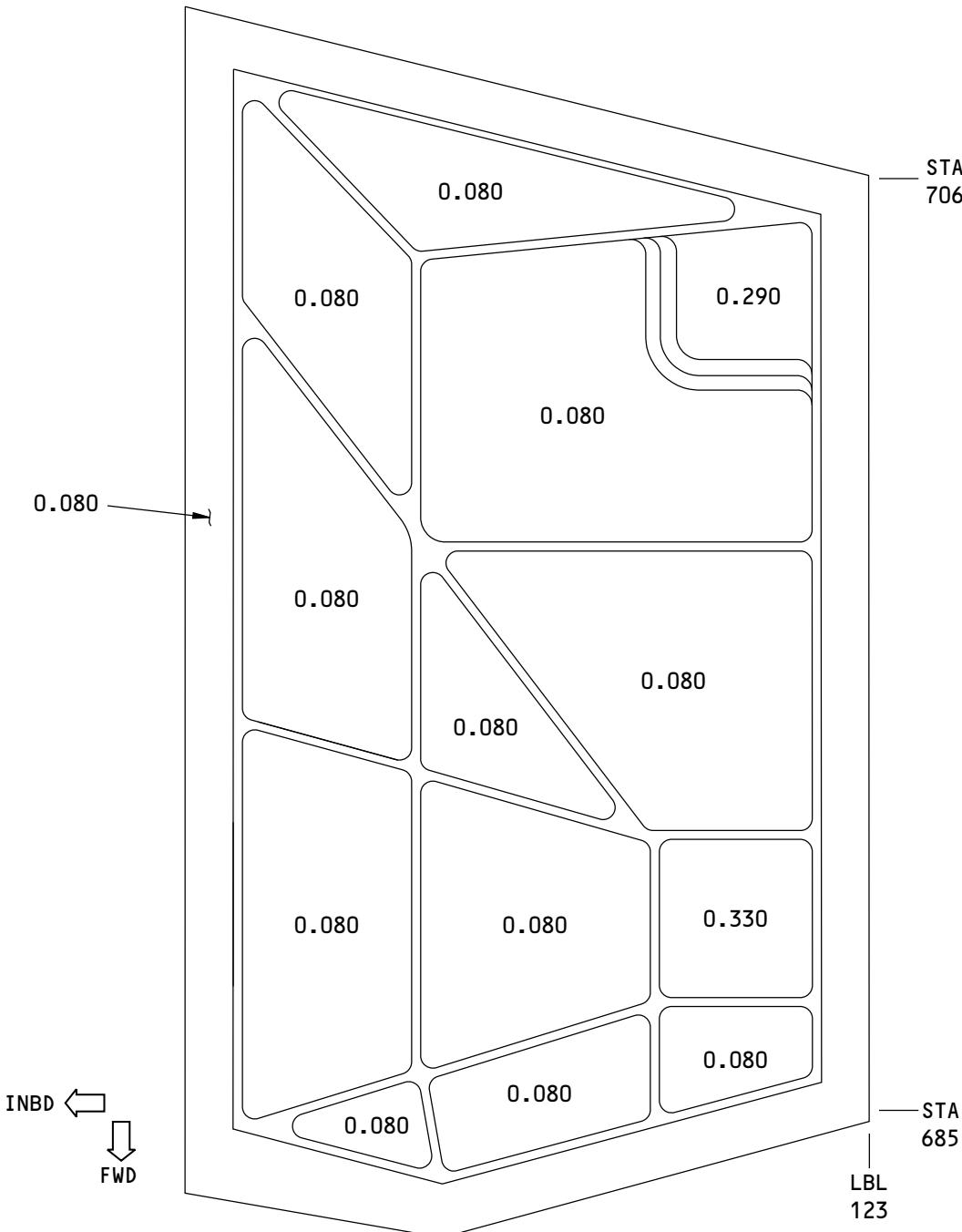
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NOTE: ALL DIMENSIONS ARE IN INCHES.

VIEW OF THE INNER SURFACE OF THE OUTBOARD
MAIN LANDING GEAR DOOR

U30465 S0000189843_V1

Machined Areas for Doors
Figure 5 (Sheet 1 of 3)

52-80-02

IDENTIFICATION 1

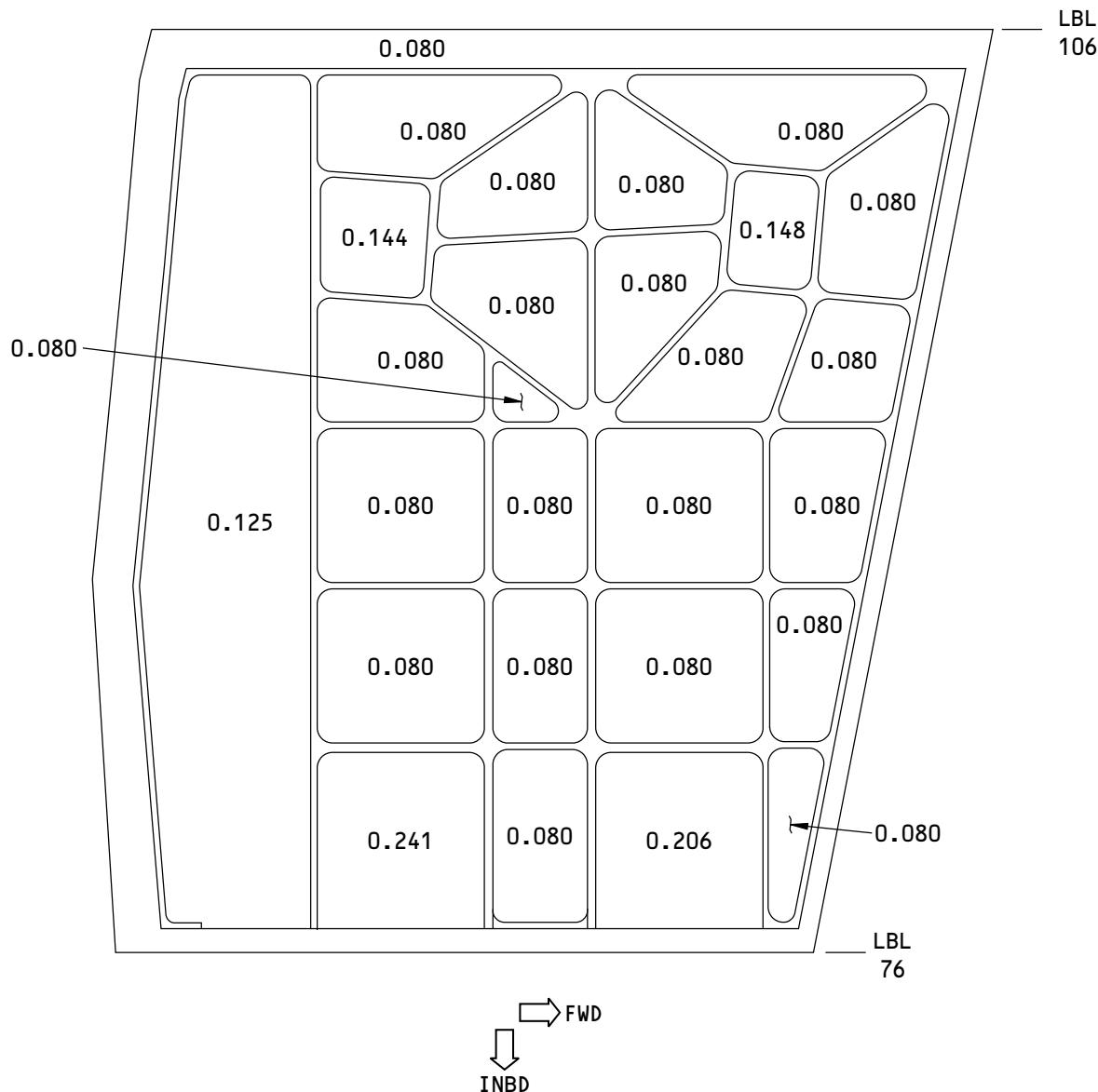
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NOTE: ALL DIMENSIONS ARE IN INCHES.

VIEW OF THE INNER SURFACE OF THE CENTER
MAIN LANDING GEAR DOOR

U30500 S0000189847_V2

Machined Areas for Doors
Figure 5 (Sheet 2 of 3)

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IDENTIFICATION 1

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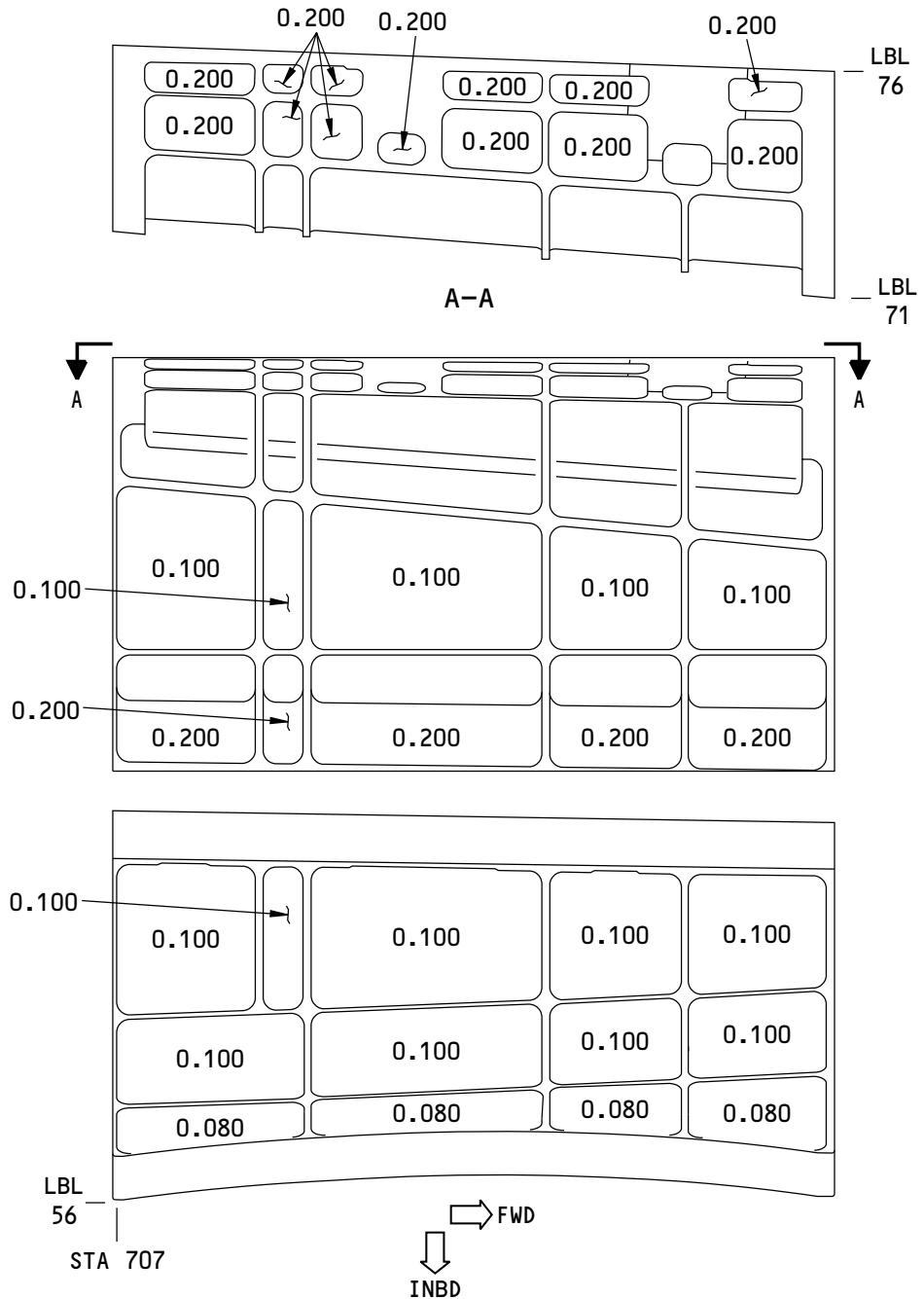
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NOTE: ALL DIMENSIONS ARE IN INCHES.

**VIEW OF THE INNER SURFACE OF THE INBOARD
UPPER AND LOWER MAIN LANDING GEAR DOOR CASTING**

U30767 S0000189848_V1

Machined Areas for Doors
Figure 5 (Sheet 3 of 3)

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IDENTIFICATION 1

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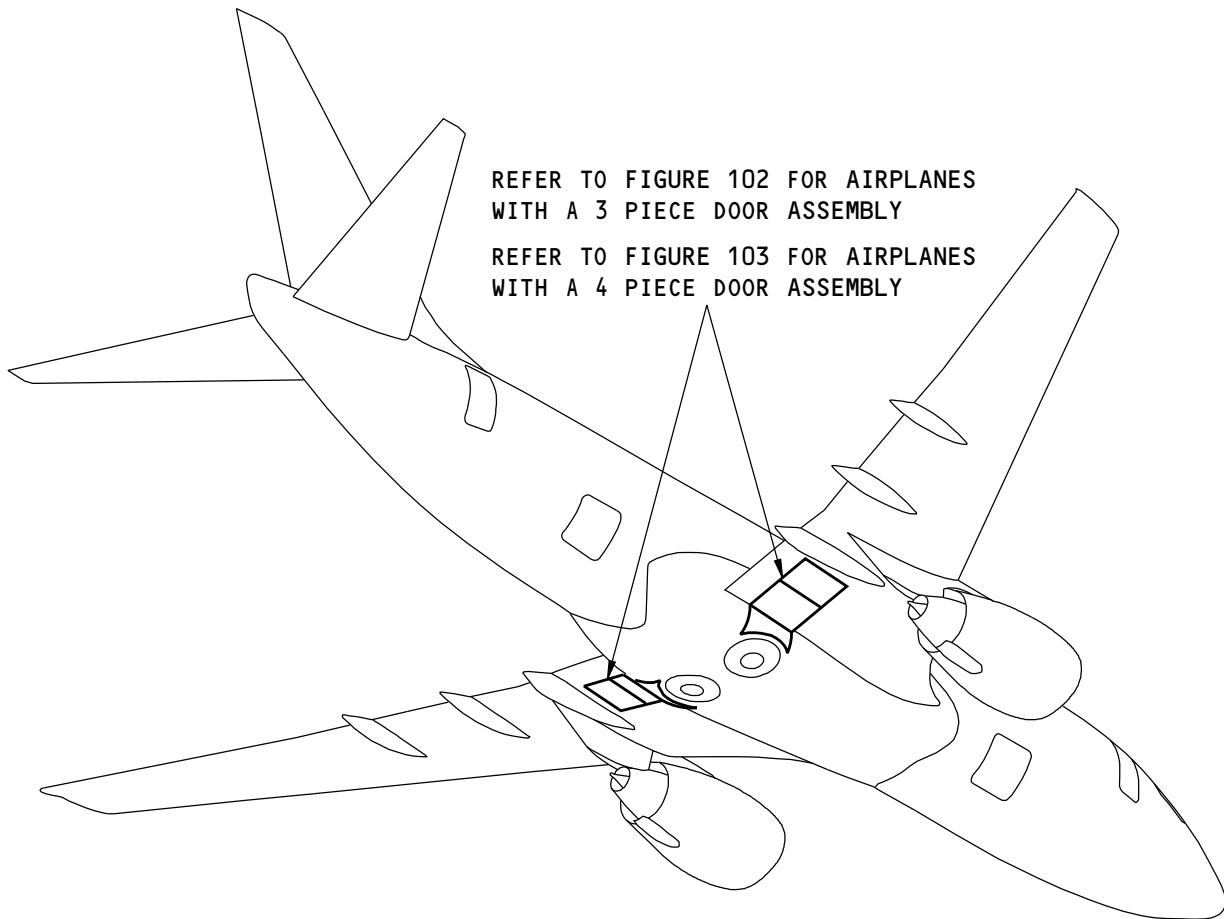


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ALLOWABLE DAMAGE 1 - MAIN LANDING GEAR DOOR STRUCTURE

1. Applicability

- A. This subject gives the allowable damage limits for the structure of the main landing gear doors as shown in Main Landing Gear Door Structure Location, Figure 101/ALLOWABLE DAMAGE 1.



Main Landing Gear Door Structure Location
Figure 101

F95644 S0006587291_V2

52-80-02

ALLOWABLE DAMAGE 1

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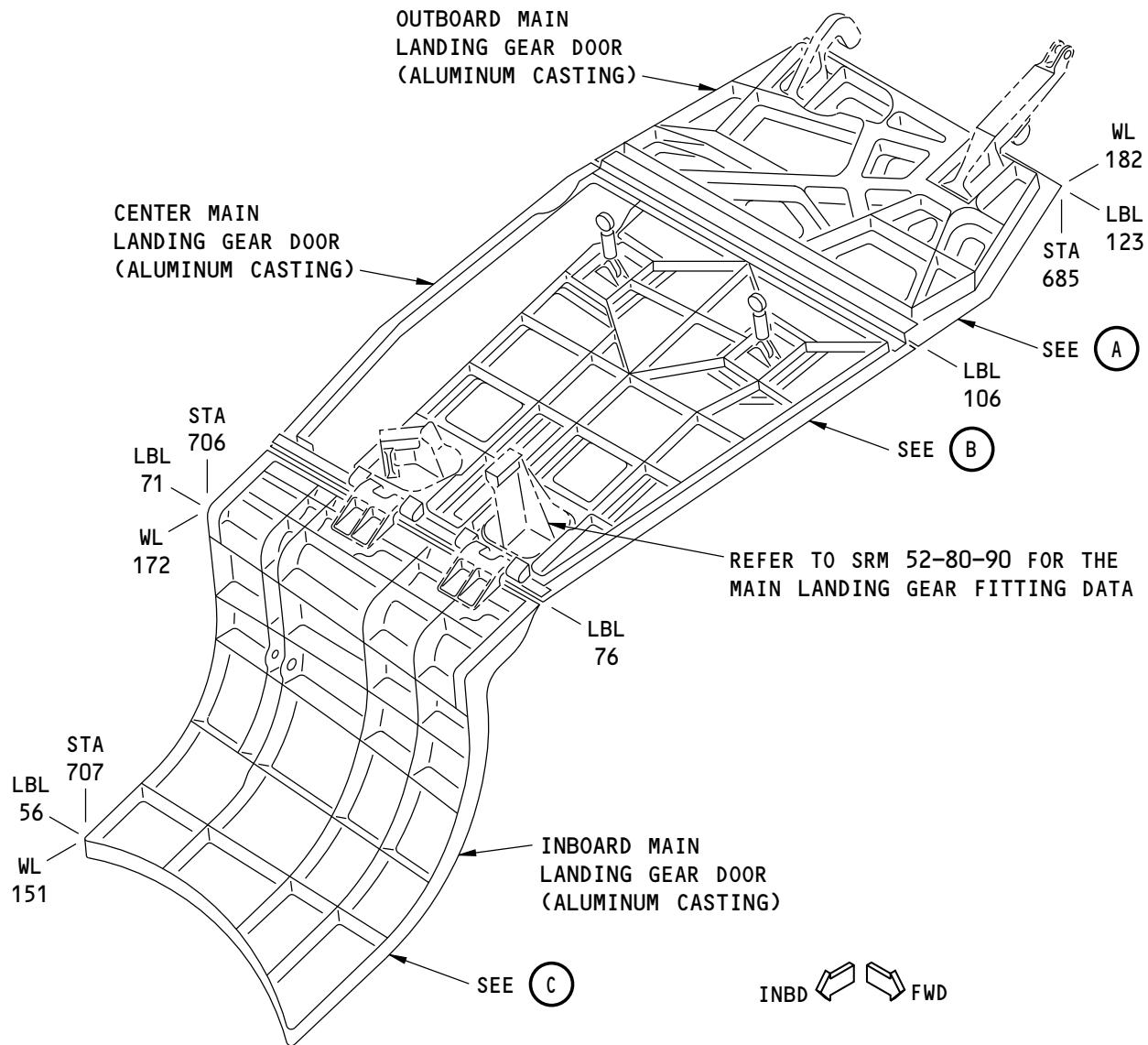
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(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

F95650 S0006587292 V2

Three Piece Door Assembly Allowable Damage
Figure 102 (Sheet 1 of 4)

52-80-02

ALLOWABLE DAMAGE 1

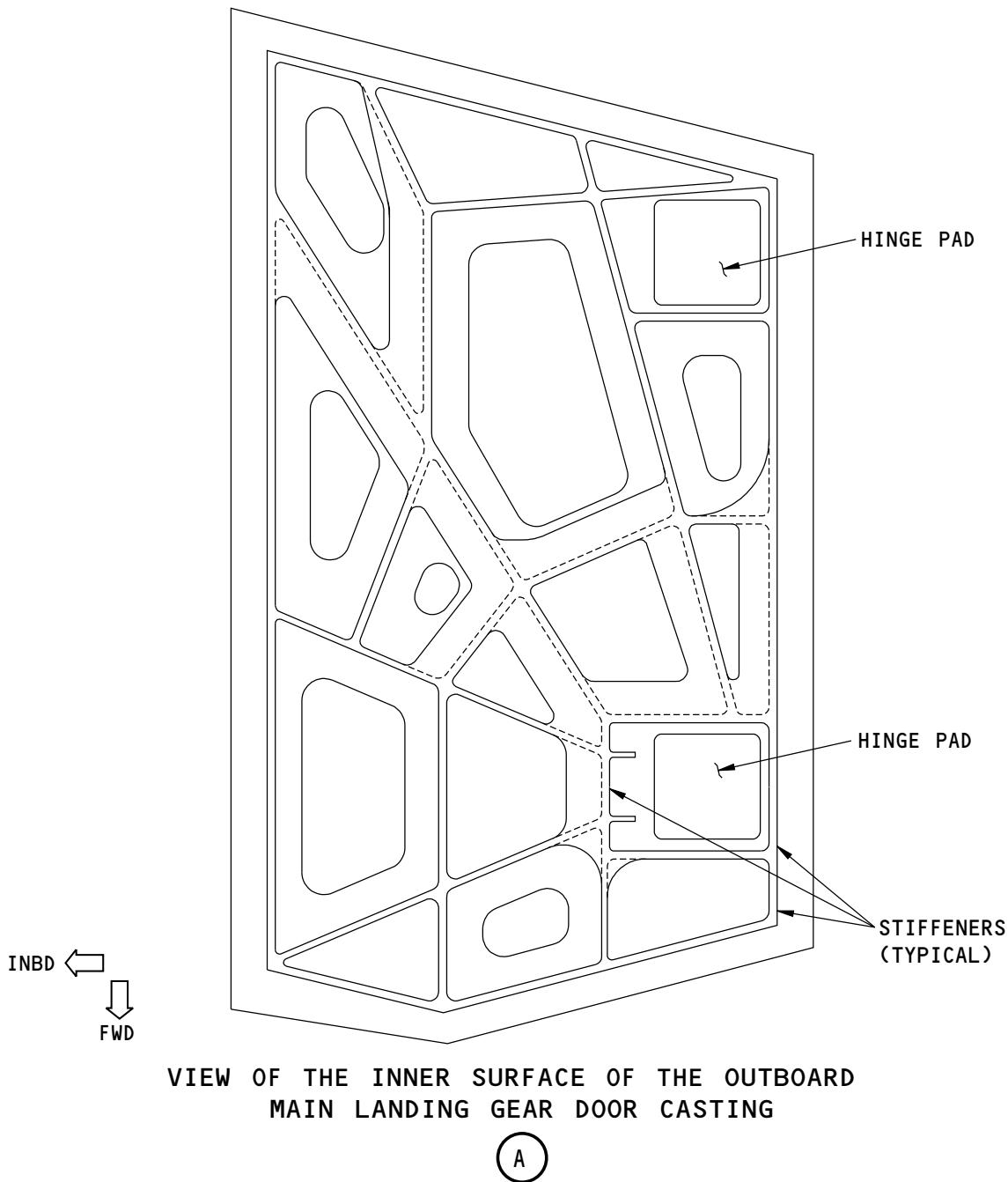
Page 102

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F95655 S0006587293_V1

Three Piece Door Assembly Allowable Damage
Figure 102 (Sheet 2 of 4)

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ALLOWABLE DAMAGE 1

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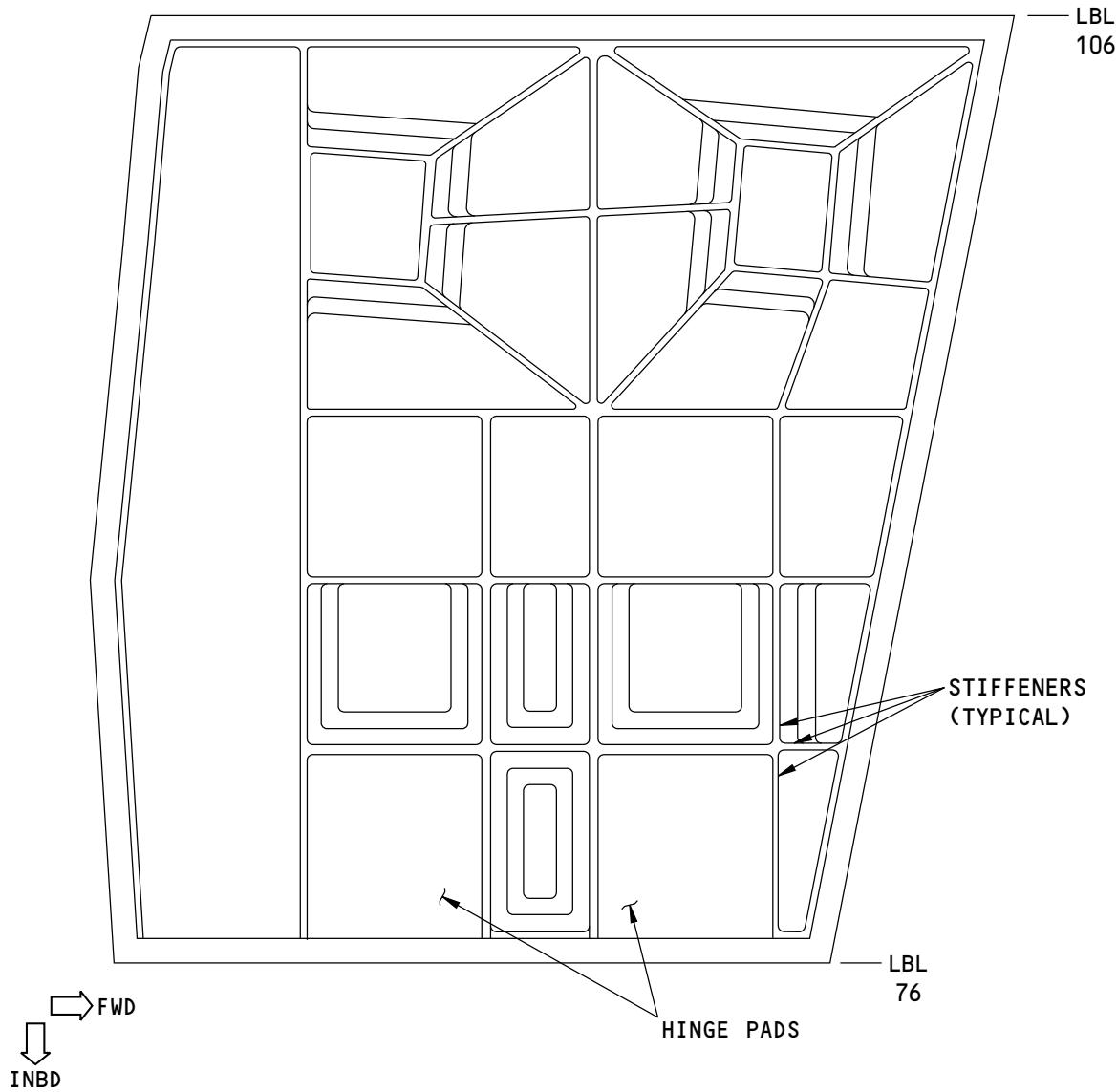
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VIEW OF THE INNER SURFACE OF THE CENTER
MAIN LANDING GEAR DOOR CASTING

B

F95661 S0006587294_V1

Three Piece Door Assembly Allowable Damage
Figure 102 (Sheet 3 of 4)

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ALLOWABLE DAMAGE 1

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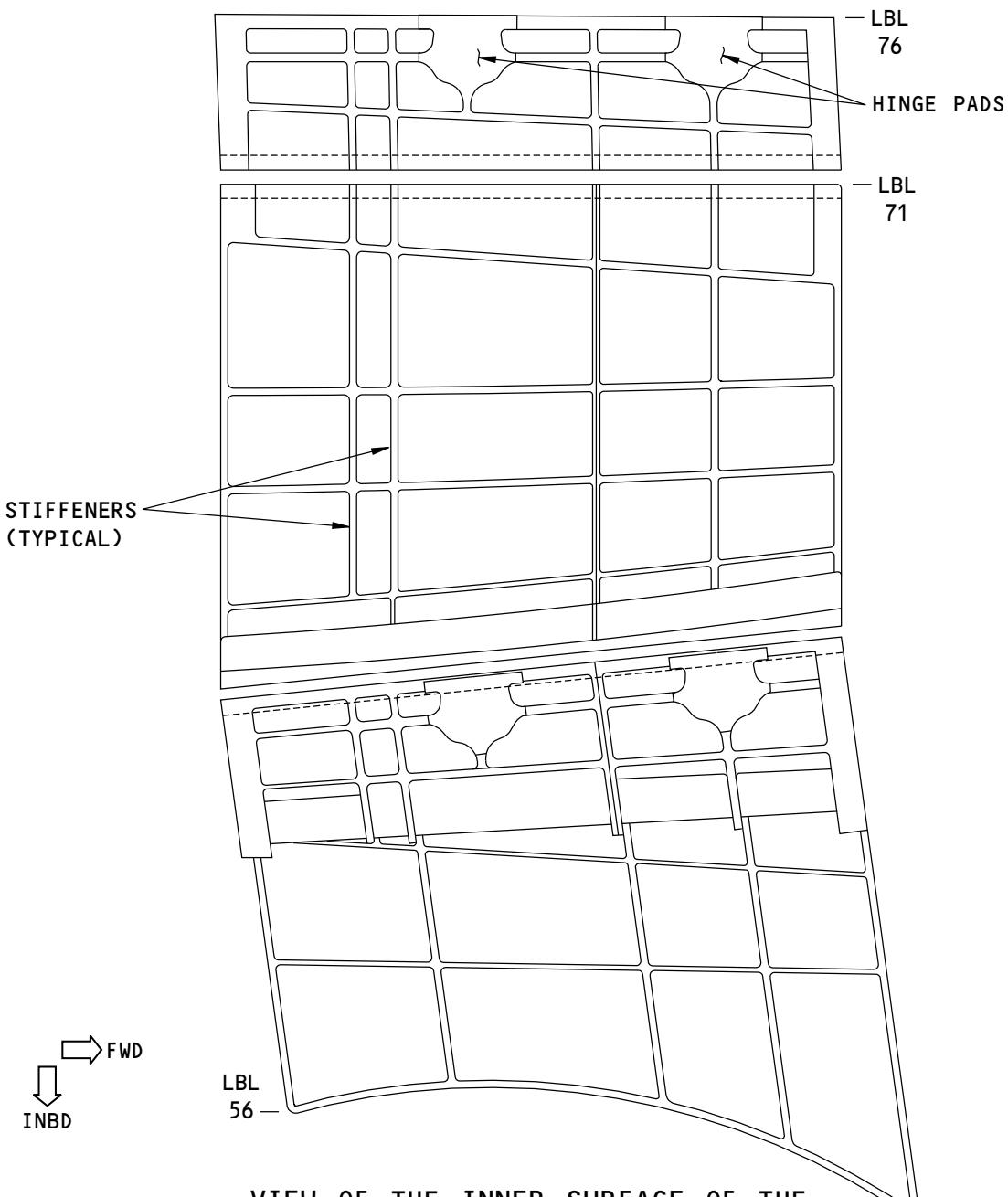
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**VIEW OF THE INNER SURFACE OF THE
INBOARD MAIN LANDING GEAR DOOR CASTING**

(C)

F95664 S0006587295_V1

**Three Piece Door Assembly Allowable Damage
Figure 102 (Sheet 4 of 4)**

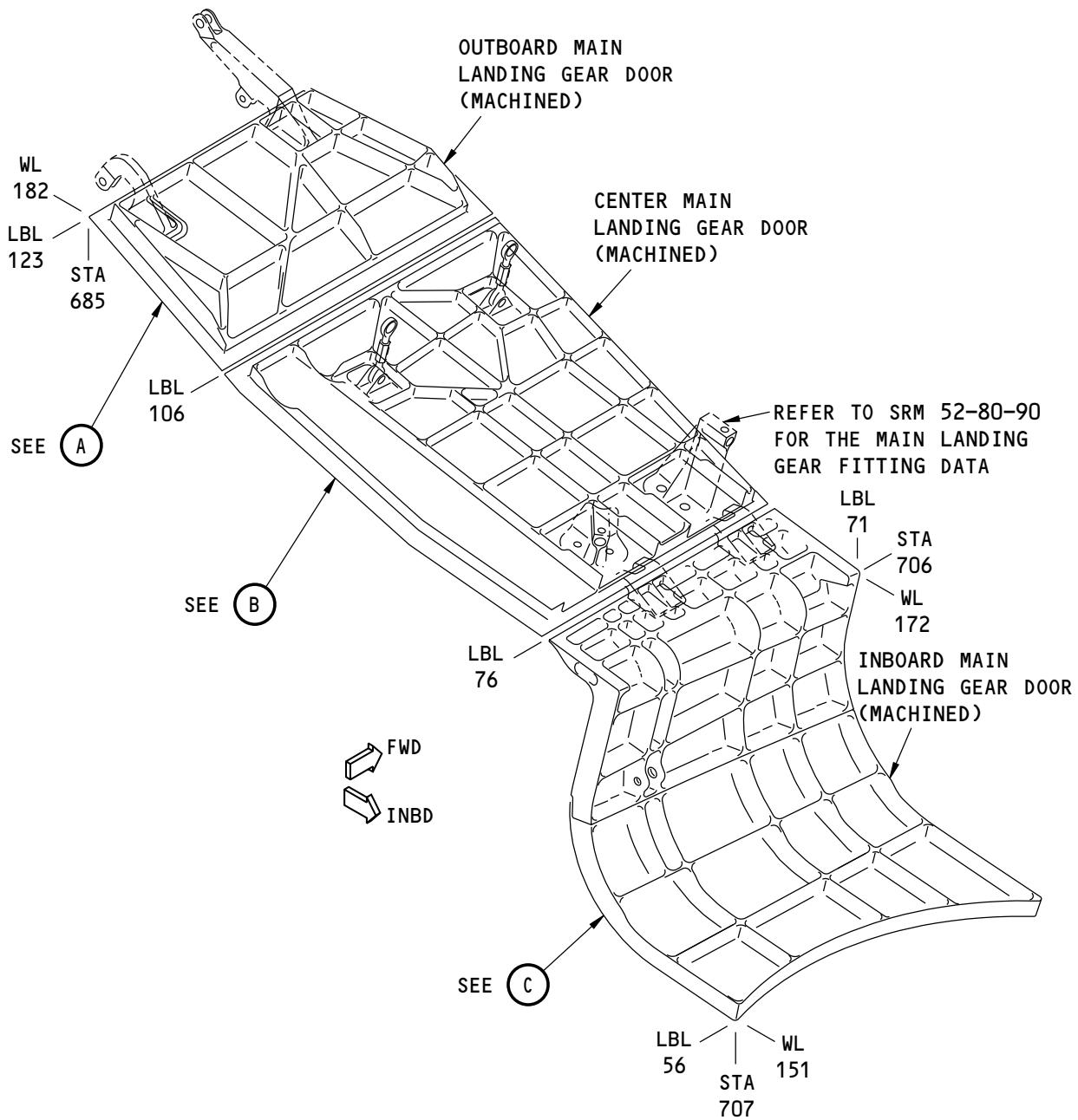
52-80-02

ALLOWABLE DAMAGE 1

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(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

U46326 S0000196771_V2

**Four Piece Door Assembly Allowable Damage
Figure 103 (Sheet 1 of 4)**

52-80-02

ALLOWABLE DAMAGE 1

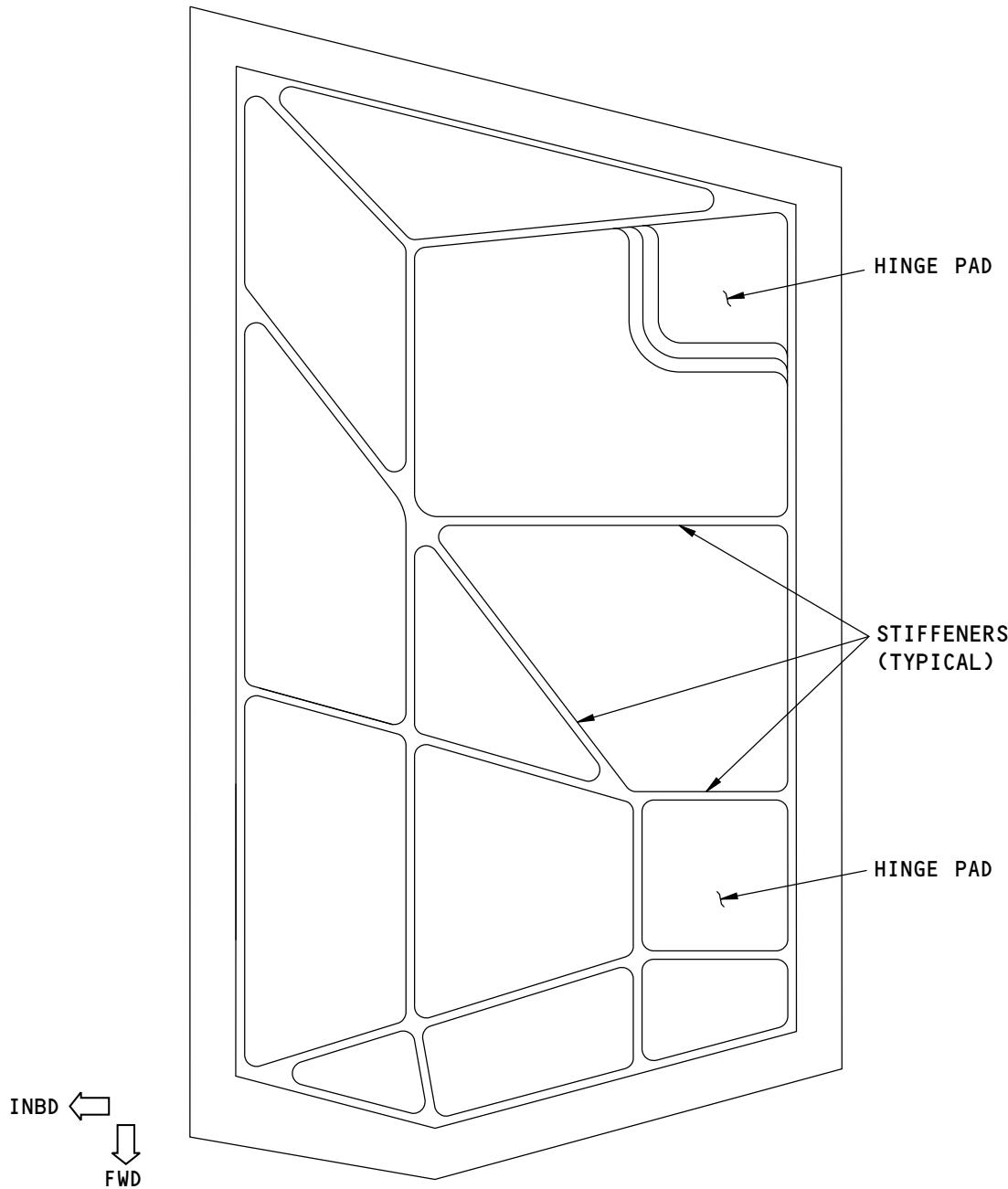
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VIEW OF THE INNER SURFACE OF THE OUTBOARD
MAIN LANDING GEAR DOOR

A

U46342 S0000196772_V2

Four Piece Door Assembly Allowable Damage
Figure 103 (Sheet 2 of 4)

52-80-02

ALLOWABLE DAMAGE 1

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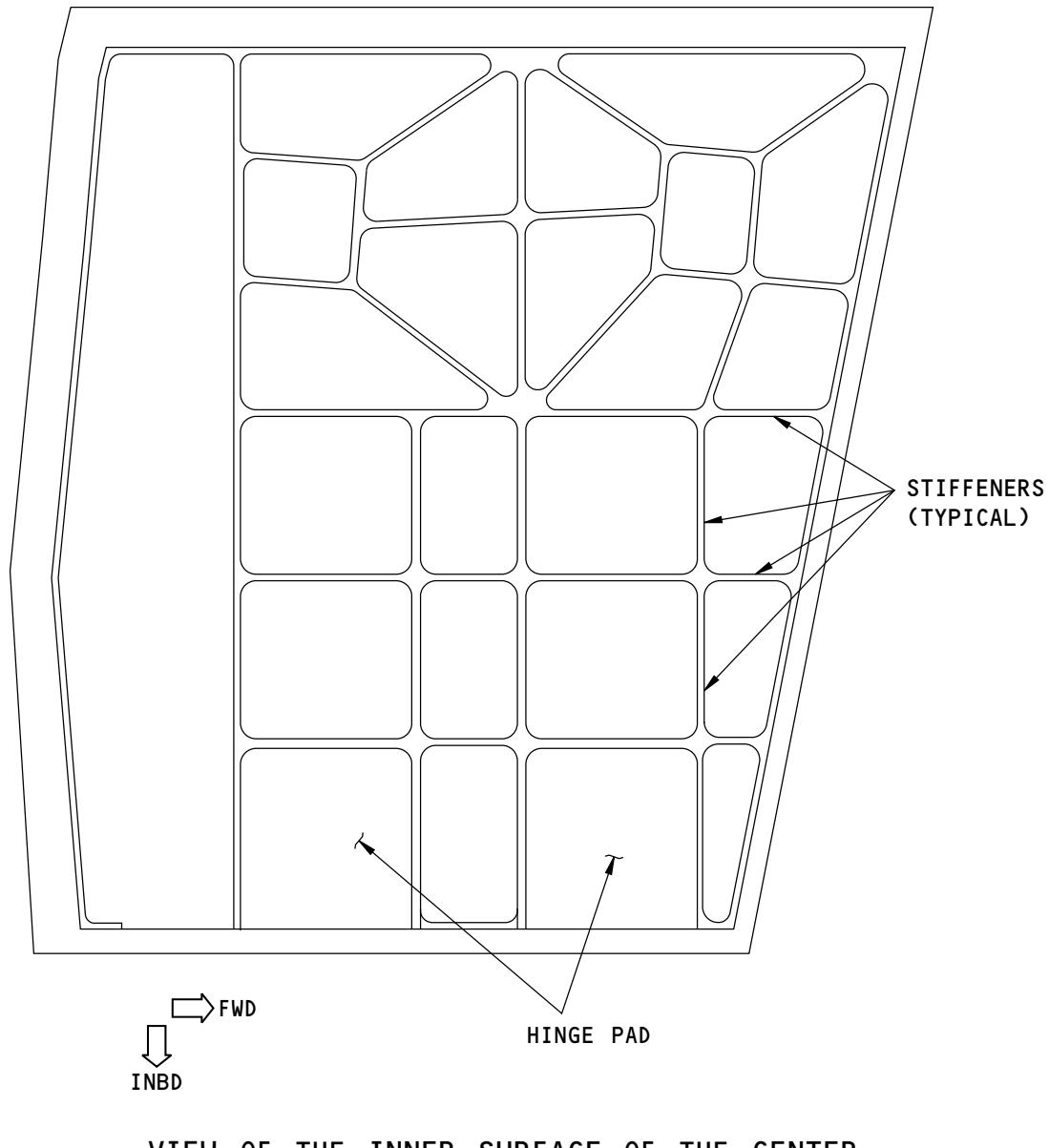
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VIEW OF THE INNER SURFACE OF THE CENTER
MAIN LANDING GEAR DOOR

B

U46345 S0000196773_V2

Four Piece Door Assembly Allowable Damage
Figure 103 (Sheet 3 of 4)

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ALLOWABLE DAMAGE 1

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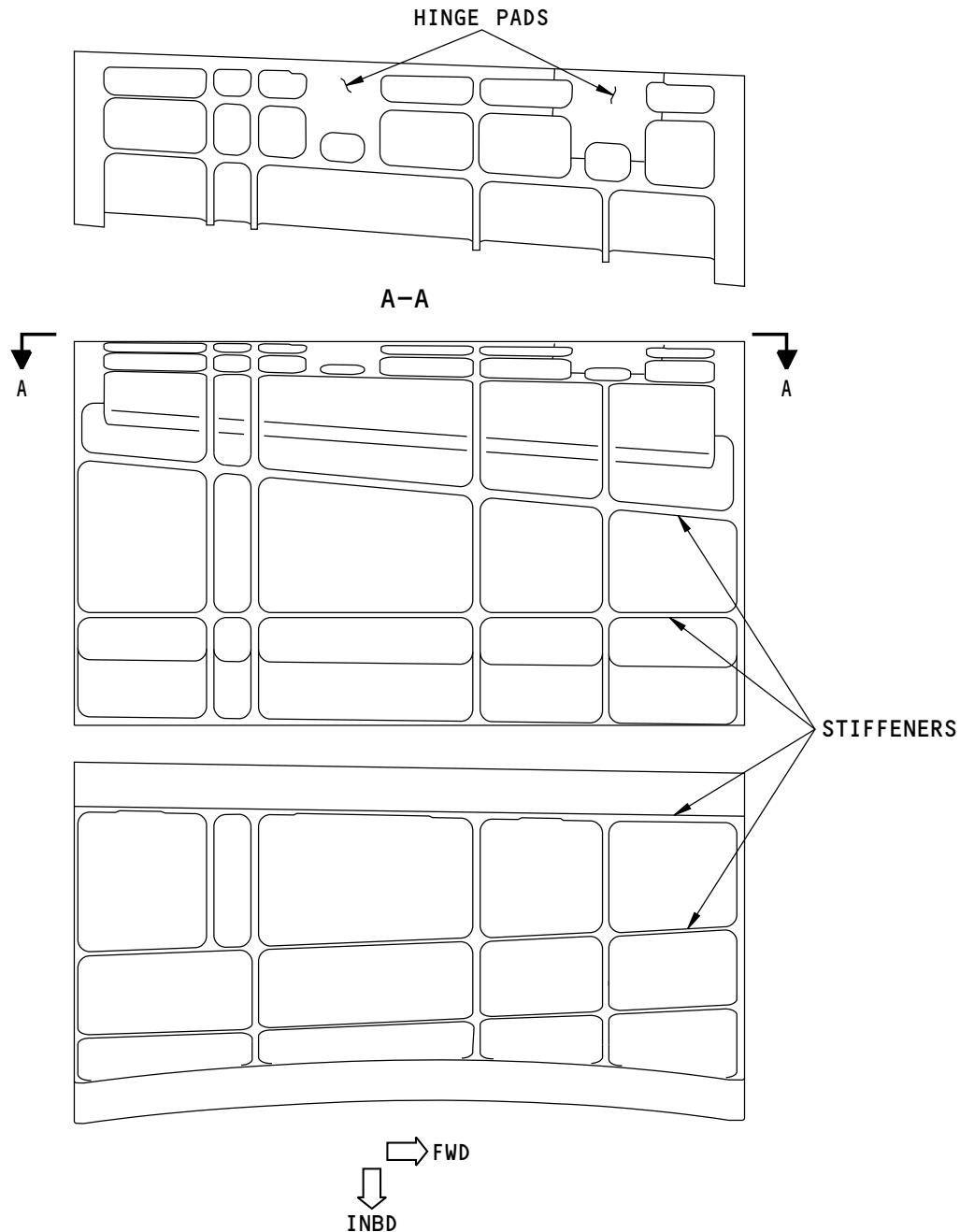
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**VIEW OF THE INNER SURFACE OF THE INBOARD
UPPER AND LOWER MAIN LANDING GEAR DOOR CASTING**

(C)

U46359 S0000196774_V1

Four Piece Door Assembly Allowable Damage
Figure 103 (Sheet 4 of 4)

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ALLOWABLE DAMAGE 1

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2. General

- A. The allowable damage limits are given in Paragraph 4./ALLOWABLE DAMAGE 1
 - (1) Refer to 51-30-03 for possible sources of the abrasive and other materials you can use to remove the damage.
 - (2) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.
- B. If damage is removed, do the steps that follow:
 - (1) Apply a chemical conversion coating to the reworked areas as given in 51-20-01.
 - (2) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02.
 - (3) Apply a decorative finish, if necessary. Refer to AMM PAGEBLOCK 51-21-99/701.

3. References

Reference	Title
51-10-01, GENERAL	Aerodynamic Smoothness Requirements
51-10-02, GENERAL	Inspection and Removal of Damage
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
51-30-06, GENERAL	Order Data for Composite Repair Materials
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes

4. Allowable Damage Limits - Main Landing Gear Door Structure

A. Inboard, Center, and Outboard Doors

- (1) Cracks:
 - (a) Remove the damage as shown in Main Landing Gear Door Structure Allowable Damage, Figure 104/ALLOWABLE DAMAGE 1, Details A , B , and C .
- (2) Nicks, Gouges, Scratches, and Corrosion:
 - (a) Remove the damage as shown in Main Landing Gear Door Structure Allowable Damage, Figure 104/ALLOWABLE DAMAGE 1, Details A , B , C , D , E , and F .
- (3) Dents:
 - (a) Remove the damage as shown in Main Landing Gear Door Structure Allowable Damage, Figure 104/ALLOWABLE DAMAGE 1, Detail G .
- (4) Holes and Punctures are permitted if they are:
 - (a) A maximum of 0.25 inch in diameter
 - (b) A minimum of 6D (D = the diameter of the fastener) away from other damage
 - (c) A minimum of 2.00 inch away from a fastener or part radius
 - (d) Filled with a 2117-T3 or 2117-T4 protruding head rivet.

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ALLOWABLE DAMAGE 1

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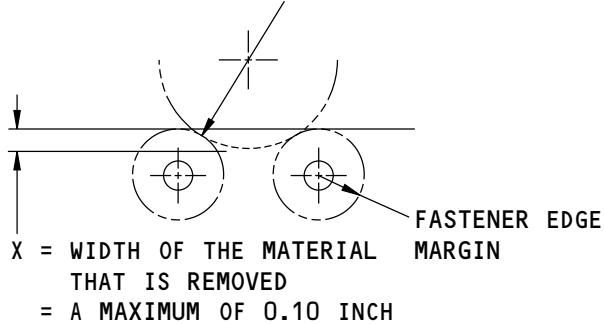
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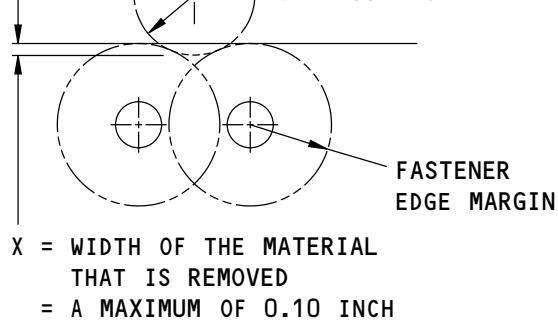
REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS DO NOT HAVE AN OVERLAP

(A)

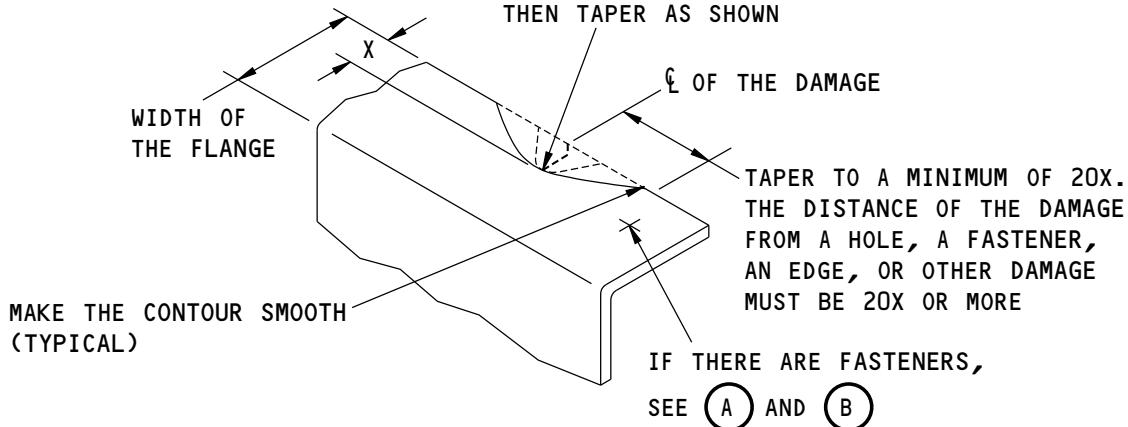
REMOVE THE MATERIAL
TO A MINIMUM RADIUS
OF 1.00 INCH



REMOVAL OF DAMAGED MATERIAL AT
EDGES WHERE THE FASTENER EDGE
MARGINS HAVE AN OVERLAP

(B)

REMOVE THE MATERIAL TO A
MINIMUM RADIUS OF 1.00 INCH,
THEN TAPER AS SHOWN



X = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

REMOVAL OF DAMAGED MATERIAL ON AN EDGE

(C)

F95667 S0006587296_V1

Main Landing Gear Door Structure Allowable Damage
Figure 104 (Sheet 1 of 4)

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ALLOWABLE DAMAGE 1

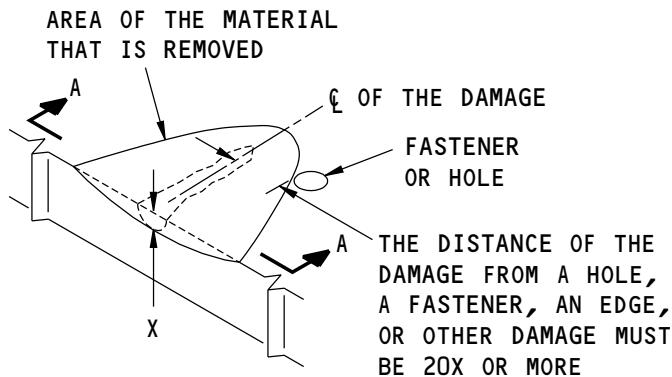
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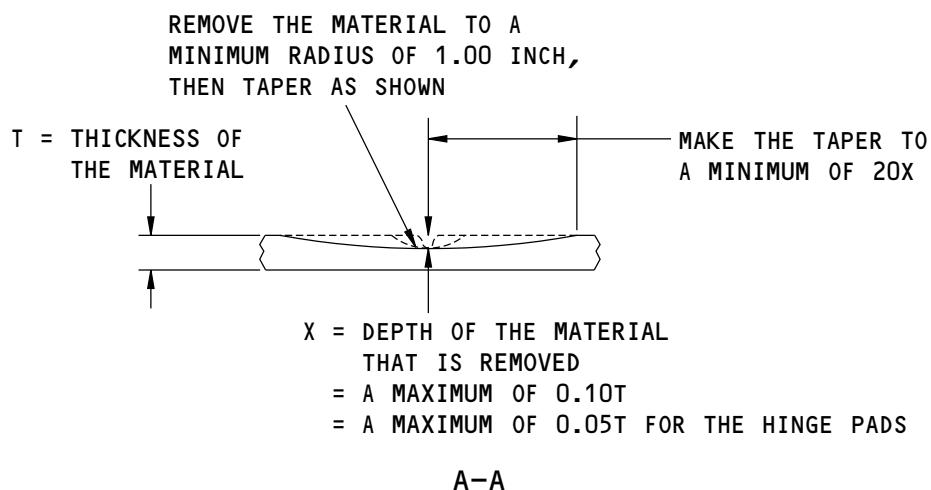


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REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(D)



F95671 S0006587297_V1

Main Landing Gear Door Structure Allowable Damage
Figure 104 (Sheet 2 of 4)

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ALLOWABLE DAMAGE 1

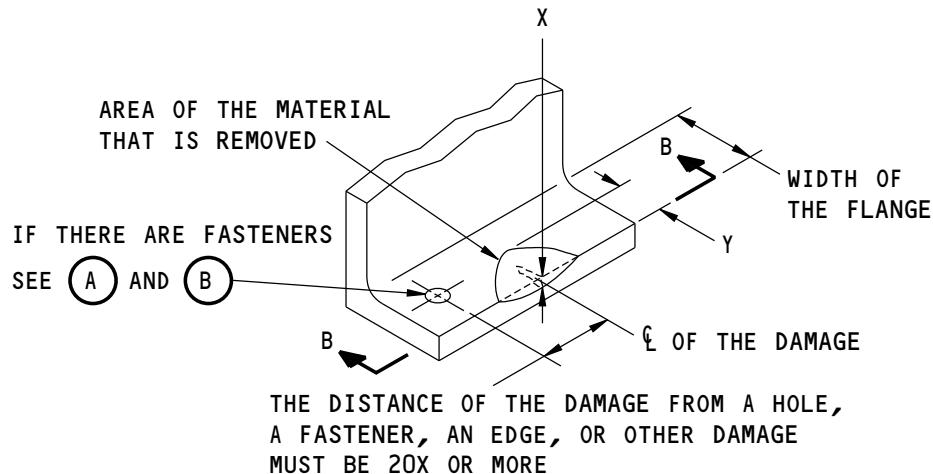
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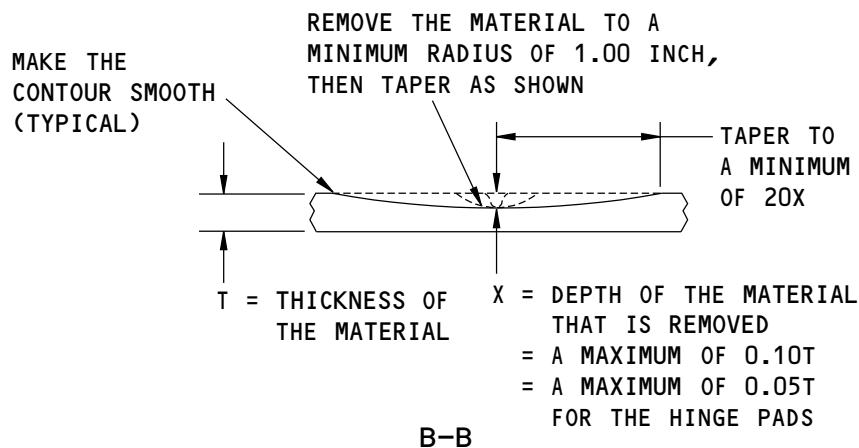
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Y = WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 10 PERCENT OF THE WIDTH OF THE FLANGE

REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE

(E)



F95674 S0006587298_V1

Main Landing Gear Door Structure Allowable Damage
Figure 104 (Sheet 3 of 4)

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ALLOWABLE DAMAGE 1

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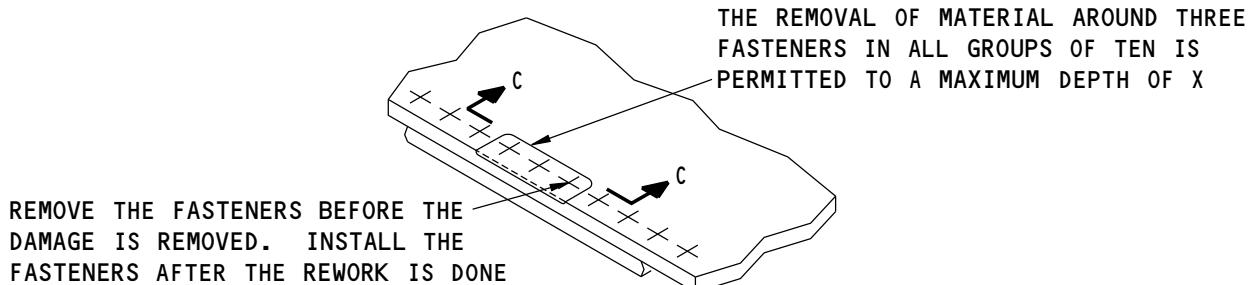
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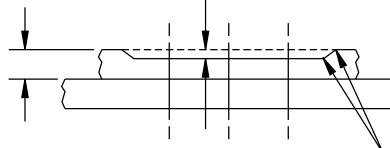
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REMOVAL OF DAMAGE AROUND THE FASTENERS
ON AN EDGE OR A SURFACE

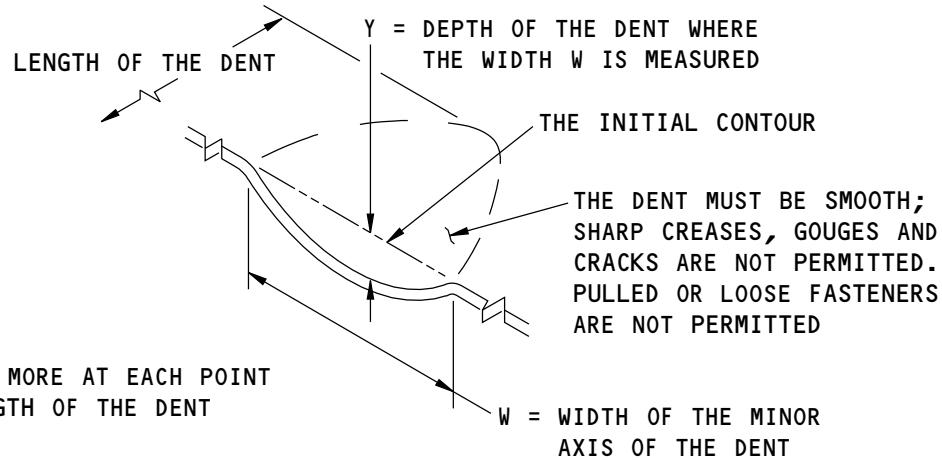
(F)

X = DEPTH OF THE MATERIAL
THAT IS REMOVED
= A MAXIMUM OF 0.10T
T = THICKNESS OF
THE MATERIAL
= A MAXIMUM OF 0.05T FOR THE HINGE PADS



MAKE THE CONTOUR SMOOTH
TO A MINIMUM RADIUS OF
0.50 INCH (TYPICAL)

C-C



DENT THAT IS PERMITTED

(G)

F95896 S0006587299_V2

Main Landing Gear Door Structure Allowable Damage
Figure 104 (Sheet 4 of 4)

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ALLOWABLE DAMAGE 1

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ALLOWABLE DAMAGE 2 - INBOARD UPPER MAIN LANDING GEAR DOOR WEB

1. Applicability

- A. This procedure gives the allowable damage limits for the 113A8335-1/-2/-3/-4 machined aluminum inboard upper main landing gear door web as shown in Figure 101/ALLOWABLE DAMAGE 2.
- B. This procedure gives the allowable damage limits for the 113A8331-1/-2 cast aluminum inboard upper main landing gear door web as shown in Figure 103/ALLOWABLE DAMAGE 2.

2. General

- A. Refer to Figure 101/ALLOWABLE DAMAGE 2 for the allowable damage location on the machined aluminum door.
- B. Refer to Figure 103/ALLOWABLE DAMAGE 2 for the allowable damage location on the cast aluminum door.
- C. Refer to Paragraph 4./ALLOWABLE DAMAGE 2 for the allowable damage limits.
- D. Get access to the damaged area. If necessary, remove the inboard main landing gear door as given in AMM SUBJECT 32-13-11.
- E. Do the steps that follow to remove damage from the web:
 - (1) Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02 for the inspection and removal of damage.
 - (2) Refer to NON-METALLIC MATERIALS, 51-30-03 for possible sources of abrasive and other materials that can be used to remove the damage.
 - (3) Refer to EQUIPMENT AND TOOLS FOR REPAIRS, 51-30-05 for possible sources of equipment and tools that can be used to remove the damage.
 - (4) Do a High Frequency Eddy Current (HFEC) inspection of the reworked areas to make sure that there are no more cracks. Refer to 737 NDT Part 6, 51-00-00, Procedure 4 and 51-10-02.
 - (5) For only the machined aluminum door, flap peen or shot peen the blended surfaces with 200% coverage. Refer to SHOT PEENING, 51-20-06 or SOPM 20-10-03.
 - (6) Apply a chemical conversion coating to the reworked areas as given in PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS, 51-20-01.
 - (7) Apply two layers of BMS 10-11, Type I primer to the reworked areas as given in SOPM 20-41-02 and 51-20-01.
 - (8) If necessary, apply a decorative finish. Refer to AMM SECTION 51-21.
- F. Put the inboard main landing gear door back to the initial condition, as applicable.
 - (1) Install the inboard main landing gear door as given in AMM SUBJECT 32-13-11, if it was removed.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-06	SHOT PEENING
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
AMM 32-13-11	MAIN LANDING GEAR SHOCK STRUT DOORS

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ALLOWABLE DAMAGE 2

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(Continued)

Reference	Title
AMM 51-21	INTERIOR AND EXTERIOR FINISHES
SOPM 20-10-03	SHOT PEENING
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
737 NDT Part 6, 51-00-00, Procedure 4	Surface Inspection of Aluminum Parts (Meter Display)

4. Allowable Damage Limits - Inboard Upper Main Landing Gear Door Web

- A. Removal of cracks for the machined aluminum door:
 - (1) Refer to Figure 102/ALLOWABLE DAMAGE 2.
 - (2) Make sure the door skin of the blend area has a thickness greater than or equal to 0.20 in. (5.08 mm).
 - (3) Make sure the maximum blend length along the web is less than or equal to 1.70 in. (43.18 mm).
 - (4) Keep a fillet radius of 0.19 in. (4.83 mm) at all edges.
 - (5) Keep a 45° blend from the upper edge of the web to the door skin.
- B. Removal of cracks for the cast aluminum door:
 - (1) Refer to Figure 104/ALLOWABLE DAMAGE 2.
 - (2) Make sure the door skin of the blend area has a thickness greater than or equal to 0.20 in. (5.08 mm).
 - (3) Make sure the maximum blend length along the web is less than or equal to 1.70 in. (43.18 mm).
 - (4) Keep a fillet radius of 0.19 in. (4.83 mm) at all edges.
 - (5) Keep a 45° blend from the upper edge of the web to the door skin.

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ALLOWABLE DAMAGE 2

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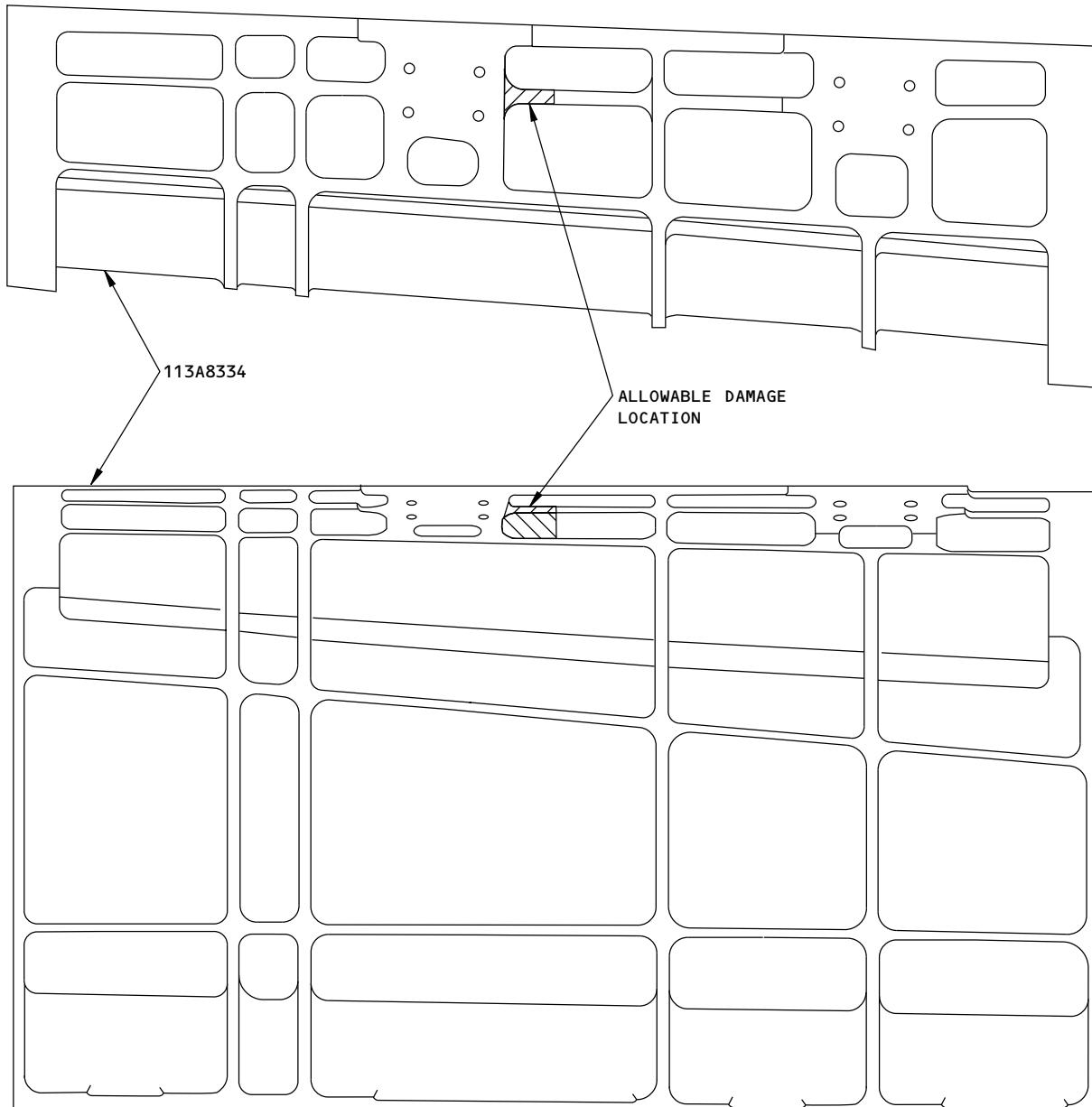
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LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

2071809 S0000430873_V1

Inboard Upper Main Landing Gear Door Web Allowable Damage Location
Figure 101

52-80-02

ALLOWABLE DAMAGE 2

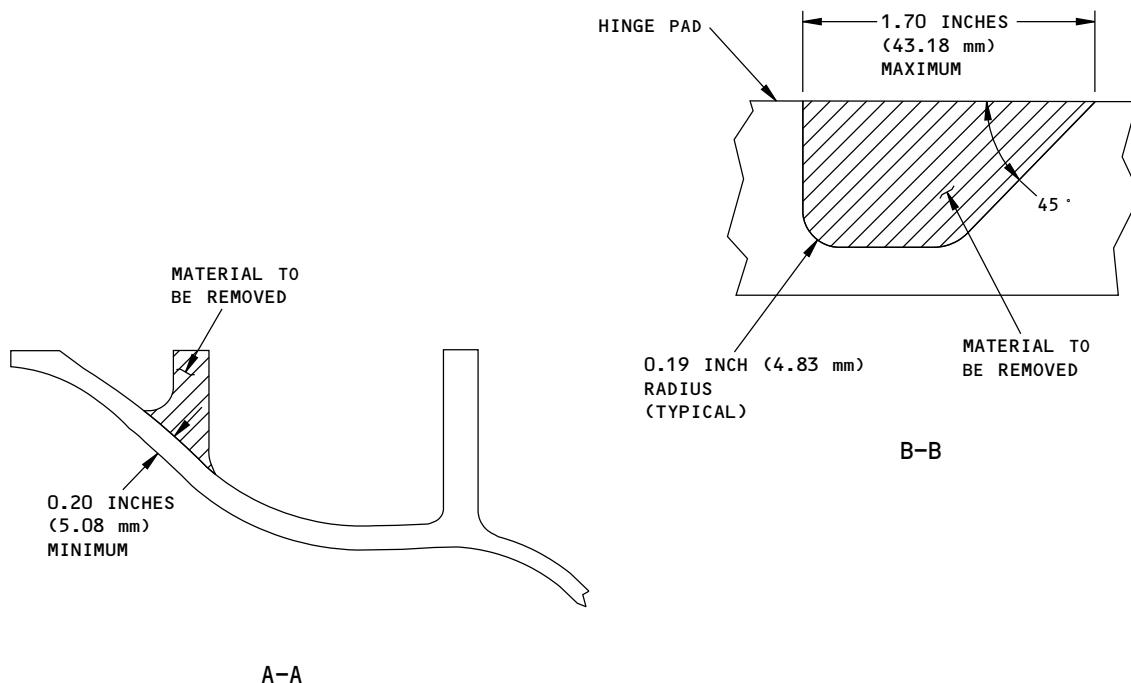
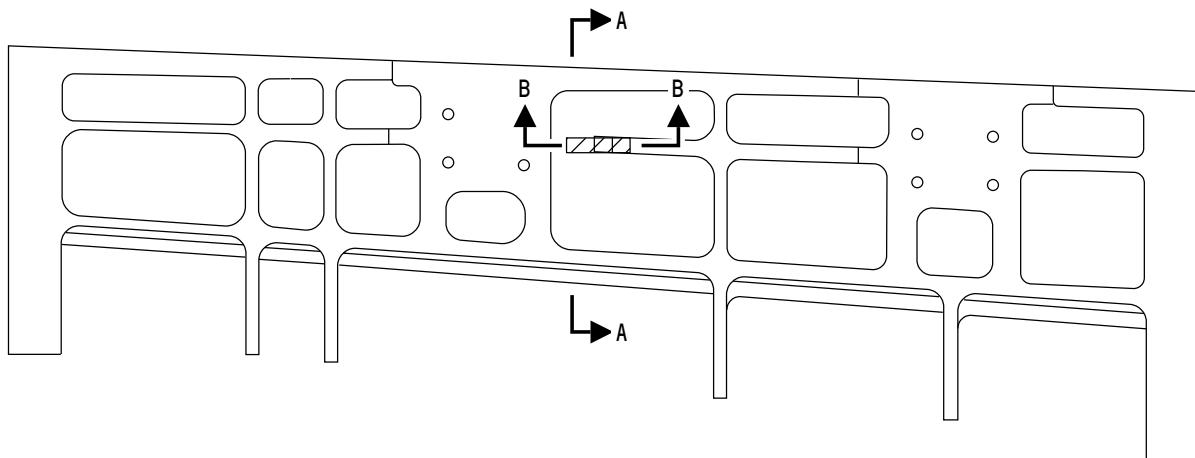
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2071563 S0000431877_V3

Inboard Upper Main Landing Gear Door Web Allowable Damage
Figure 102

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ALLOWABLE DAMAGE 2

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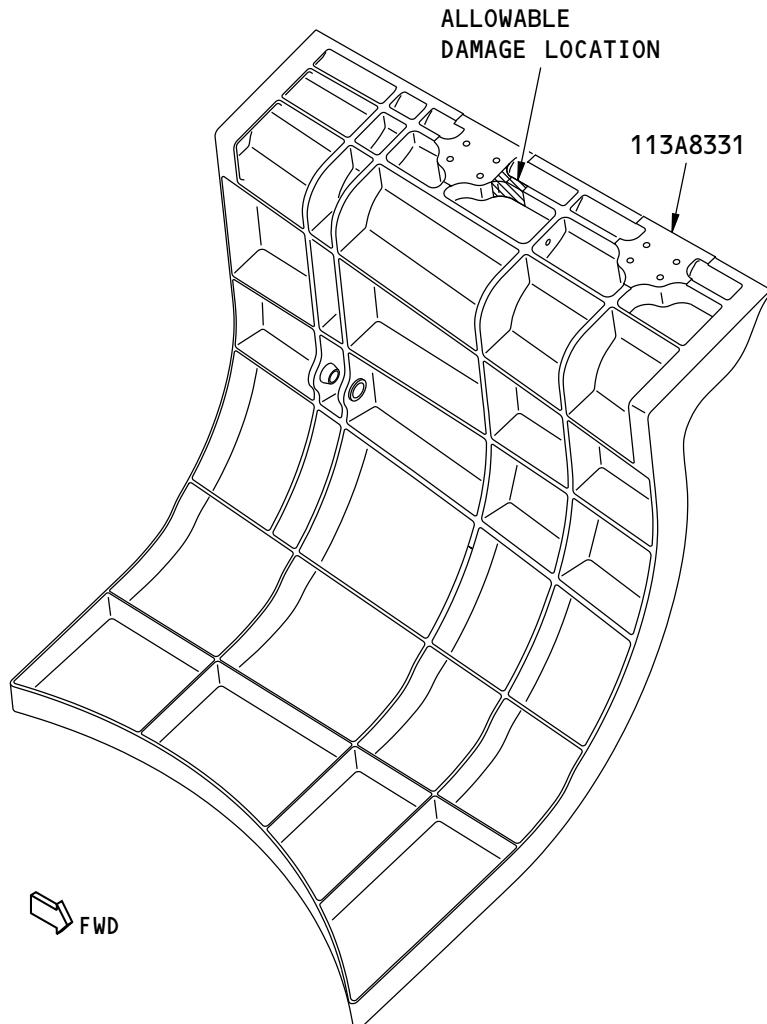
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(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

2332641 S0000530581_V1

Inboard Upper Main Landing Gear Door Web Allowable Damage Location
Figure 103

52-80-02

ALLOWABLE DAMAGE 2

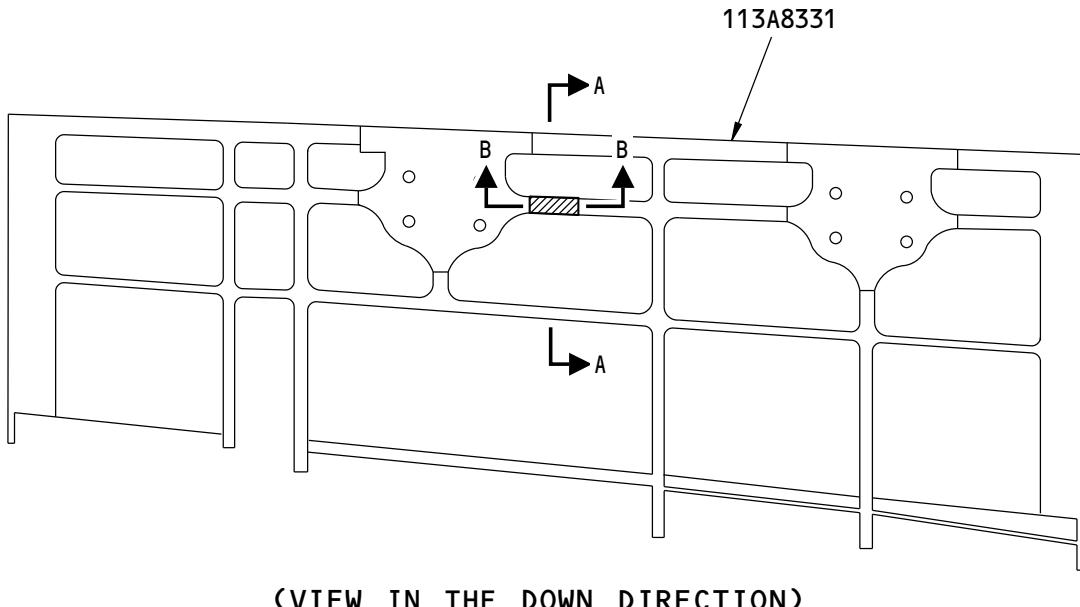
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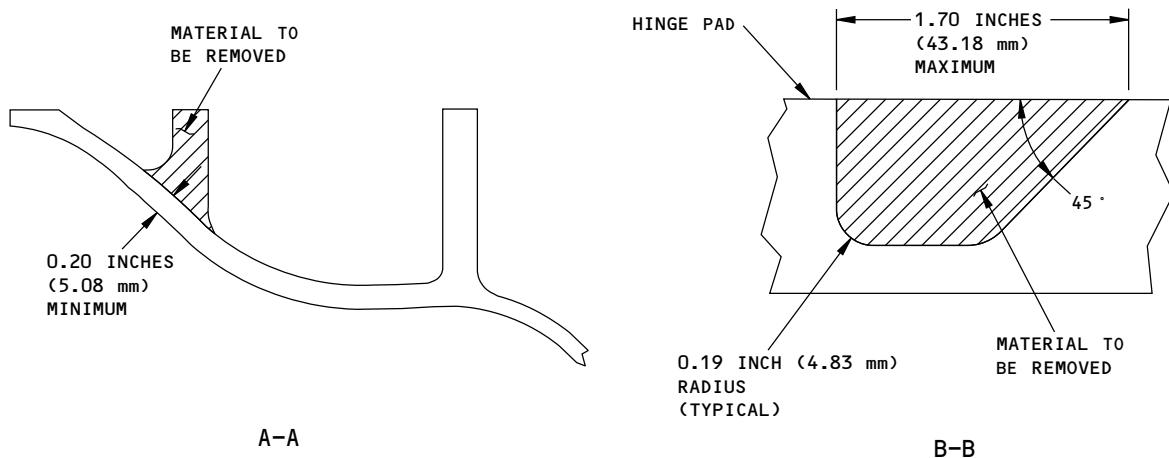
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(VIEW IN THE DOWN DIRECTION)



2332920 S0000530582_V1

Inboard Upper Main Landing Gear Door Web Allowable Damage
Figure 104

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ALLOWABLE DAMAGE 2

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5. Inspection Requirements

- A. For only the cast aluminum door, do the inspection as given in Table 101/ALLOWABLE DAMAGE 2

Table 101: Inspection Requirements

INSPECTION THRESHOLD	REPEAT INSPECTIONS	
	METHOD	INTERVAL
When you remove the damage	Do a detailed visual inspection of the inboard main landing gear door to make sure that there are no more cracks. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02	5000 Flight Cycles

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ALLOWABLE DAMAGE 2

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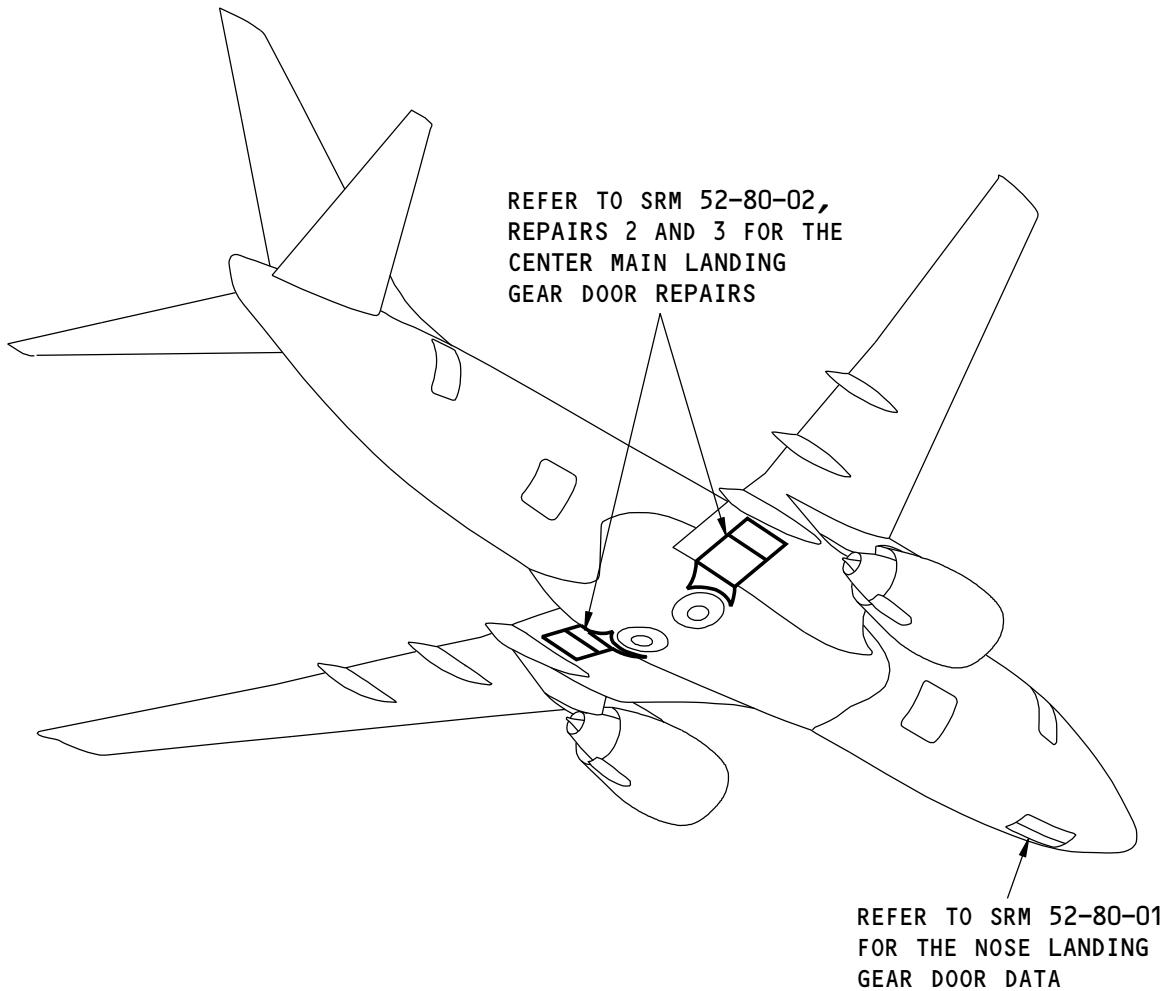
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REPAIR 1 - MAIN LANDING GEAR DOOR STRUCTURE



NOTE: THERE ARE NO REPAIRS FOR OUTBOARD MAIN LANDING GEAR DOORS IN THE STRUCTURAL REPAIR MANUAL AT THIS TIME.

F95911 S0006587302_V5

Main Landing Gear Door Locations
Figure 201

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REPAIR 1
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REPAIR 2 - MAIN LANDING GEAR DOOR CRACK REPAIR - ALUMINUM CAST CENTER DOOR

1. Applicability

- A. This repair is applicable to a stiffener crack in the center main landing gear door.
- B. This repair is applicable to the center main landing gear door that is made from aluminum casting.
- C. This repair is not applicable to a crack that extends into the web of the center main landing gear door.

2. General

- A. This repair is a Permanent repair. Refer to STRUCTURAL REPAIR DEFINITIONS, 51-00-06 for the definitions of the different categories of damage tolerant repairs.
- B. D = Fastener diameter.
- C. L = Longitudinal grain direction.
- D. LT = Long transverse grain direction.
- E. ST = Short transverse grain direction.
- F. Refer to FASTENER HOLE SIZES, 51-40-05, Figure 3, Table A or Table B for the solid rivet fastener hole diameters, as applicable.
- G. Refer to FASTENER HOLE SIZES, 51-40-05, Figure 4, Table A or Table B for the hex-drive bolt hole diameters, as applicable. Use the transition fit criteria.

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-20-13	SURFACE ROUGHNESS FINISH REQUIREMENTS
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-05	FASTENER HOLE SIZES
51-40-06	FASTENER EDGE MARGINS
AMM 32-13-11	MAIN LANDING GEAR SHOCK STRUT DOORS
AMM 51-21	INTERIOR AND EXTERIOR FINISHES
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
737 NDT Part 6, 51-00-00	Structures - General

4. Repair Instructions

- A. Get access to the damaged area. If necessary, remove the center main landing gear door as given in AMM SUBJECT 32-13-11.
- B. Remove the initial fasteners as necessary. Refer to FASTENER INSTALLATION AND REMOVAL, 51-40-02.
- C. Where applicable, make a cutout in the flange at the crack location as shown in Figure 202/REPAIR 2. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02 for inspection and removal of damage.

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REPAIR 2
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- D. For damage at the forward hinge fitting location and the location between the hinge fittings, remove the initial flange of the door as shown in Figure 202/REPAIR 2, Detail B or E. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02 for inspection and removal of damage.
- E. For damage at the forward hinge fitting location, machine the fillet radius as shown in Figure 202/REPAIR 2, Detail B. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02 for inspection and removal of damage.
- F. Do a High Frequency Eddy Current (HFEC) inspection of the repair area to make sure that all the damage is removed. Refer to 737 NDT Part 6, 51-00-00.
- G. Make the repair parts. Refer to Table 201/REPAIR 2 and Figure 203/REPAIR 2, Details A, B, C, or D as applicable.

Table 201: Repair Material

ITEM	PART	QUANTITY	MATERIAL
1	Angle Doubler	1	Use 7050-T7451 plate as given in AMS 4050. Maximum plate thickness (ST grain direction) 1.5 in. (38.1 mm). Ultrasonic inspect as given in BAC5439, Class B.
2	Fitting	1	Use 7050-T7451 plate as given in AMS 4050. Maximum plate thickness (ST grain direction) 1.5 in. (38.1 mm). Ultrasonic inspect as given in BAC5439, Class B.
3	Angle	1	Use 7050-T7451 plate as given in AMS 4050. Maximum plate thickness (ST grain direction) 1.5 in. (38.1 mm). Ultrasonic inspect as given in BAC5439, Class B.
4	Radius Filler	As Necessary	Use 7050-T7451 plate as given in AMS 4050. Thickness 0.25 in. (6.35 mm).
5	Fitting *[1]	1	Use 7050-T7451 plate as given in AMS 4050. Maximum plate thickness (ST grain direction) 1.5 in. (38.1 mm). Ultrasonic inspect as given in BAC5439, Class B.
6	Shim	As Necessary	Use 7075-T6 bare aluminum sheet as given in AMS 4045 or AMS-QQ-A250/12. Optional: 2024-T3 bare aluminum sheet as given in AMS 4037 or AMS-QQ-A-250/4. Thickness 0.095 in. (2.413 mm).
7	Shim	As Necessary	Use 7075-T6 bare aluminum sheet as given in AMS 4045 or AMS-QQ-A250/12. Optional: 2024-T3 bare aluminum sheet as given in AMS 4037 or AMS-QQ-A-250/4. Thickness 0.045 in. (1.143 mm)

*[1] If necessary, trim the part widths to less than the maximum permitted shim thickness and more than the minimum fastener edge margins.

- H. Make sure the surface of the repair parts and the bare surfaces of the initial part have a surface finish of 125 microinches (3.2 micrometers) Ra or smoother. Refer to SURFACE ROUGHNESS FINISH REQUIREMENTS, 51-20-13.
- I. Assemble the repair parts.
- J. Drill the fastener holes. Refer to Figure 202/REPAIR 2, as applicable. Refer to FASTENER EDGE MARGINS, 51-40-06 for fastener edge margins.
 - (1) If there is not sufficient space between the cutout and the flange to install a fastener as shown in Figure 202 (Sheet 6), E-E, then do the steps that follow:
 - (a) Use a 2024-T3 or equivalent aluminum filler to fill the cutout.
 - (b) Make sure that there is a 0.030 in. (0.76 mm) minimum wall thickness between the edge of the fastener hole and the edge of the filler.
 - (c) Install the fastener through the filler and repair parts.

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- (2) If the fastener rides up the fillet radius of the repair parts, add the Part [4] Radius Filler as necessary. Refer to Figure 202 (Sheet 3), B-B.
- (3) If the fastener is on a tapered surface, install a BACB30NX6K hex-drive bolt with BACC30BQ6 self-aligning nut.
- K. Disassemble the repair parts.
- L. Remove the nicks, scratches, gouges, burrs and sharp edges from the repair parts and the bare surfaces of the initial part.
- M. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the initial part. Refer to PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS, 51-20-01.
- N. Apply two layers of BMS 10-11, Type I primer to the repair parts and to the bare surfaces of the initial part. Refer to SOPM 20-41-02.
- O. Install the repair parts and initial parts that you removed:
 - (1) Apply BMS 5-95 sealant between the mating surfaces. Refer to REPAIR SEALING, 51-20-05.
 - (2) Shim all gaps between the mating surfaces of the parts that are more than 0.005 in. (0.127 mm). If the shim gap is more than 0.040 in. (1.02 mm) do not install a shim, contact the Boeing Company.
 - (3) Install all fasteners wet with BMS 5-95 sealant. Refer to REPAIR SEALING, 51-20-05.
- P. Apply a fillet seal and fill all gaps with BMS 5-95 sealant. Refer to REPAIR SEALING, 51-20-05.
- Q. Put the center main landing gear door back to the initial condition, as applicable.
 - (1) Install the center main landing gear door as given in AMM SUBJECT 32-13-11, if it was removed.
- R. Restore the aircraft external finish as applicable. Refer to AMM SECTION 51-21.

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REPAIR 2
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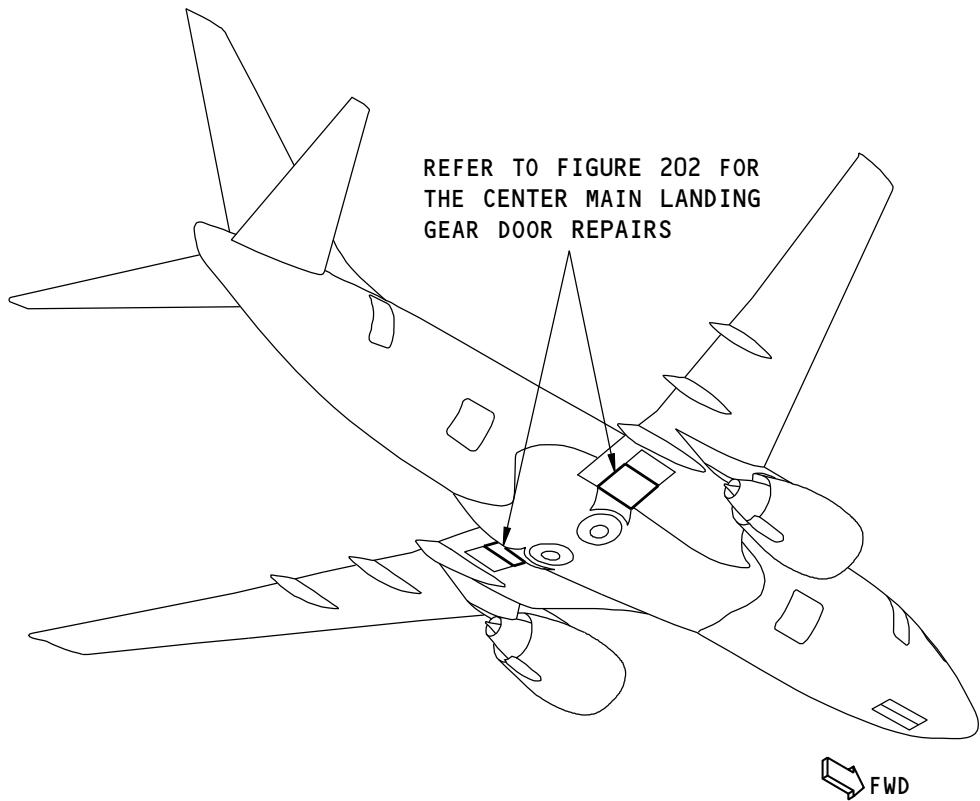
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Center Main Landing Gear Door Location
Figure 201

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REPAIR 2
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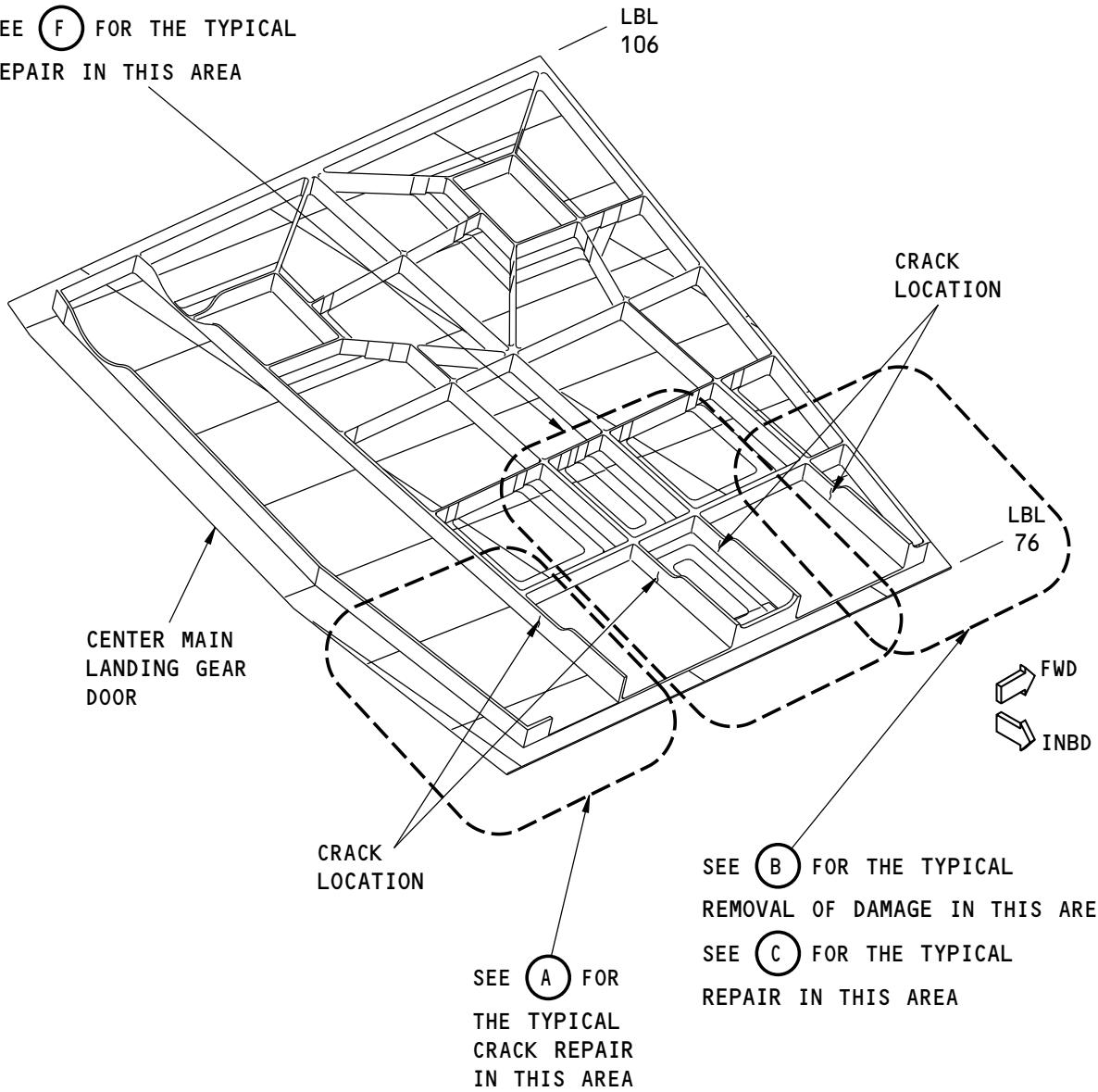
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SEE (E) FOR THE TYPICAL
 REMOVAL OF DAMAGE IN THIS AREA

SEE (F) FOR THE TYPICAL
 REPAIR IN THIS AREA



LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

1305442 S0000226015_V2

Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 1 of 13)

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REPAIR 2
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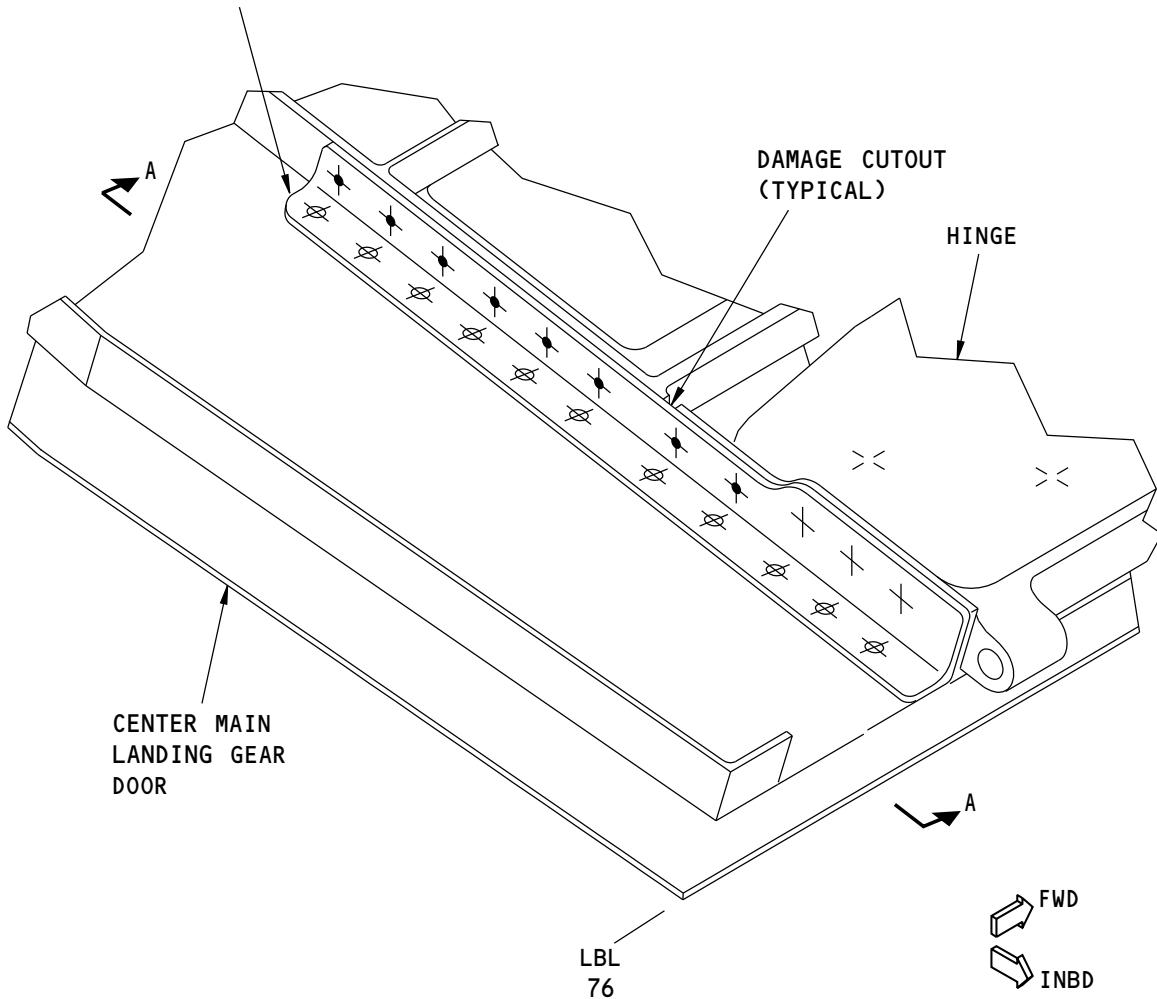
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[1] ANGLE DOUBLER

REFER TO FIGURE 203 FOR
THE PART DETAILS



TYPICAL REPAIR AT THE AFT HINGE
FITTING LOCATION



1305440 S0000226016_V2

Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 2 of 13)

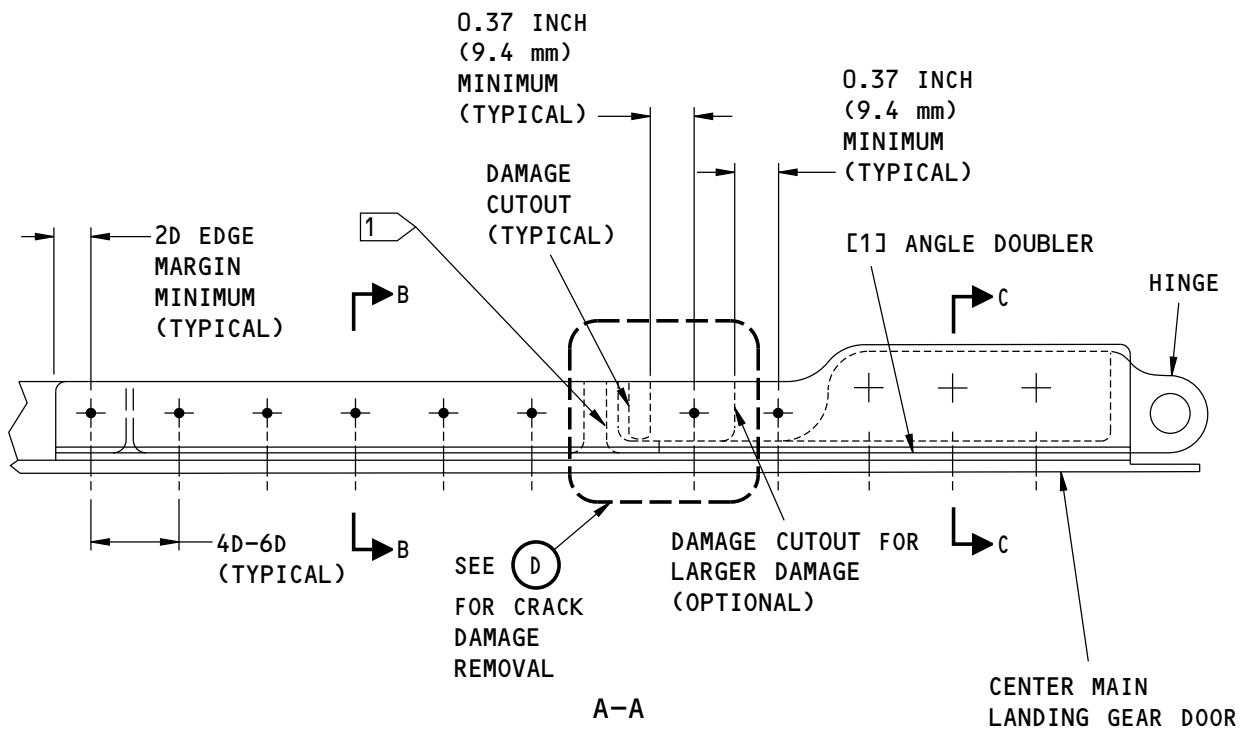
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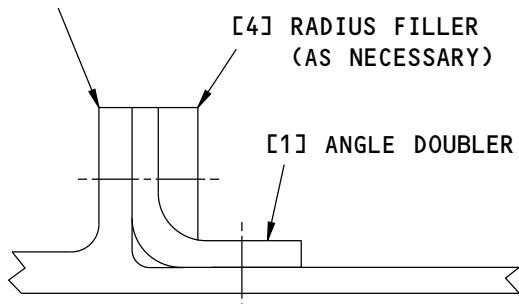
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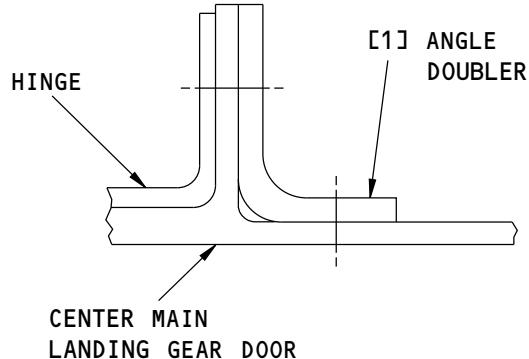
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CENTER MAIN
LANDING GEAR DOOR



B-B



C-C

1305443 S0000226017_V2

Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 3 of 13)

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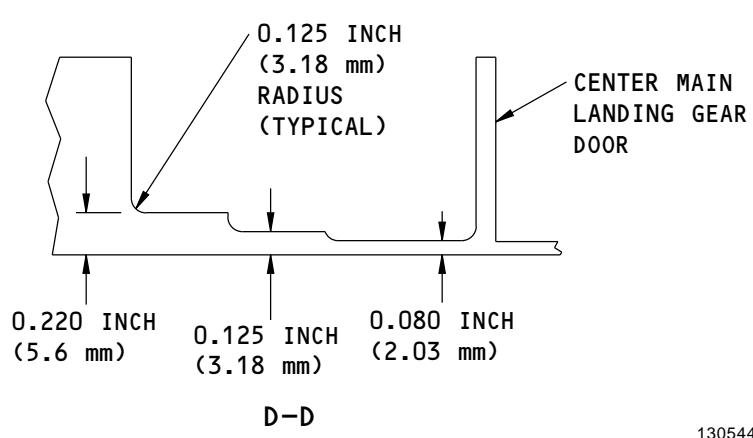
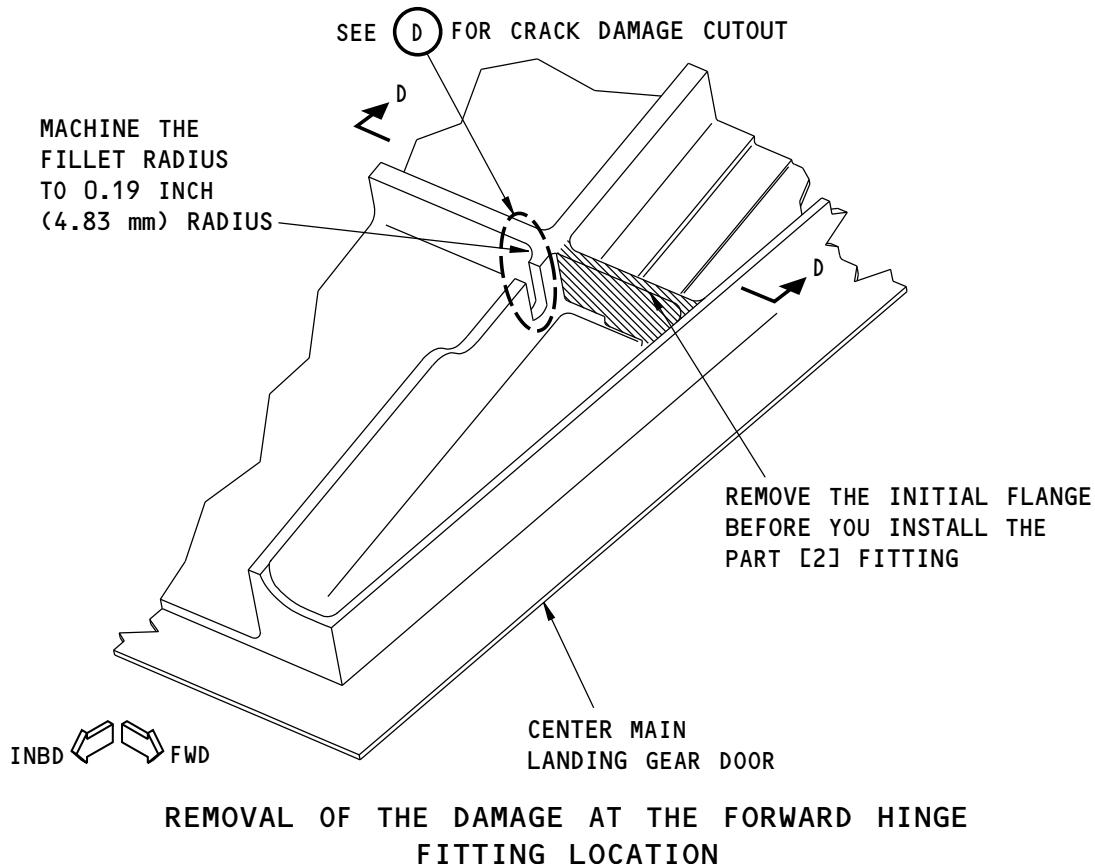
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1305445 S0000226019_V2

Center Main Landing Gear Door Typical Repair
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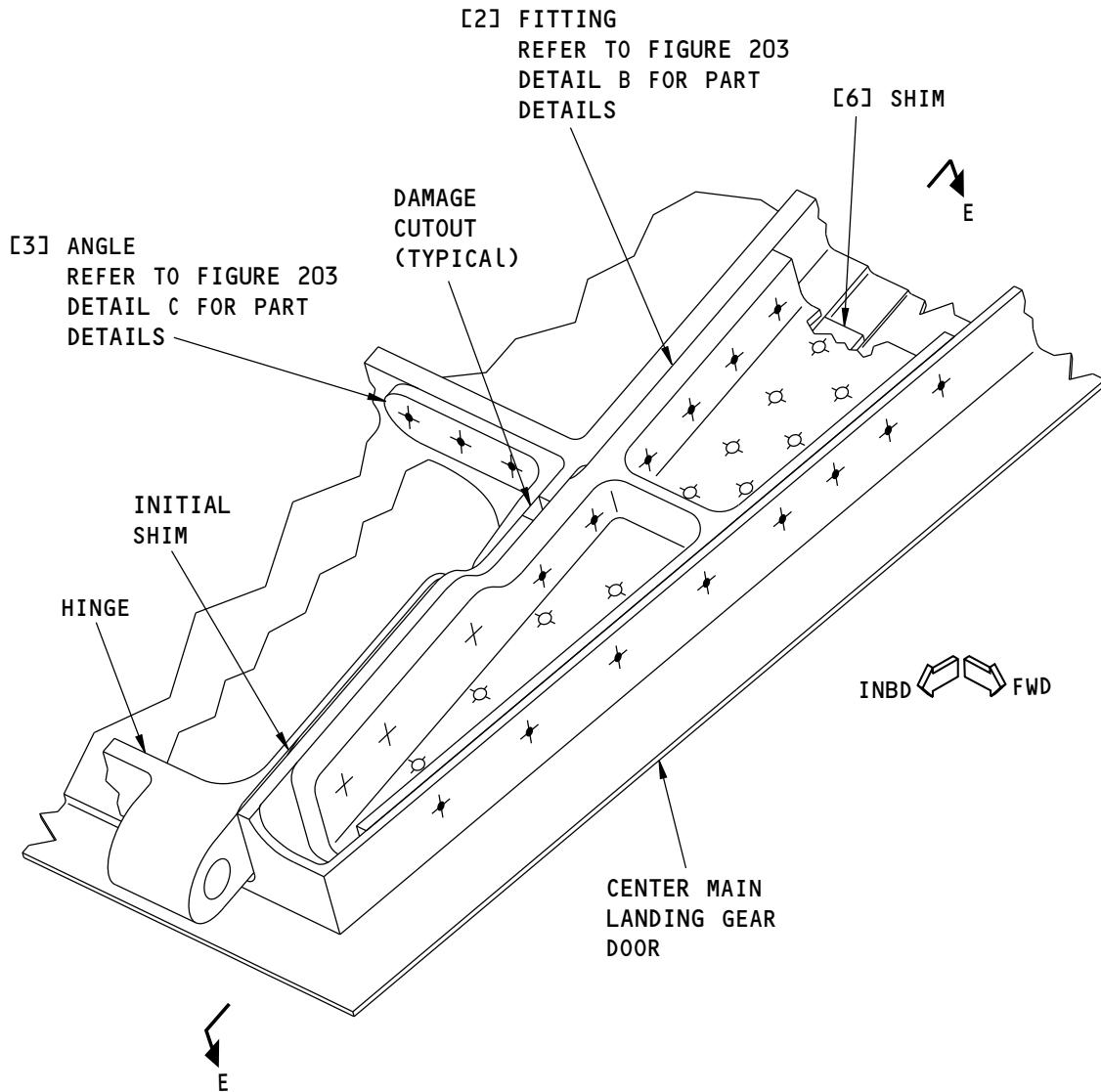
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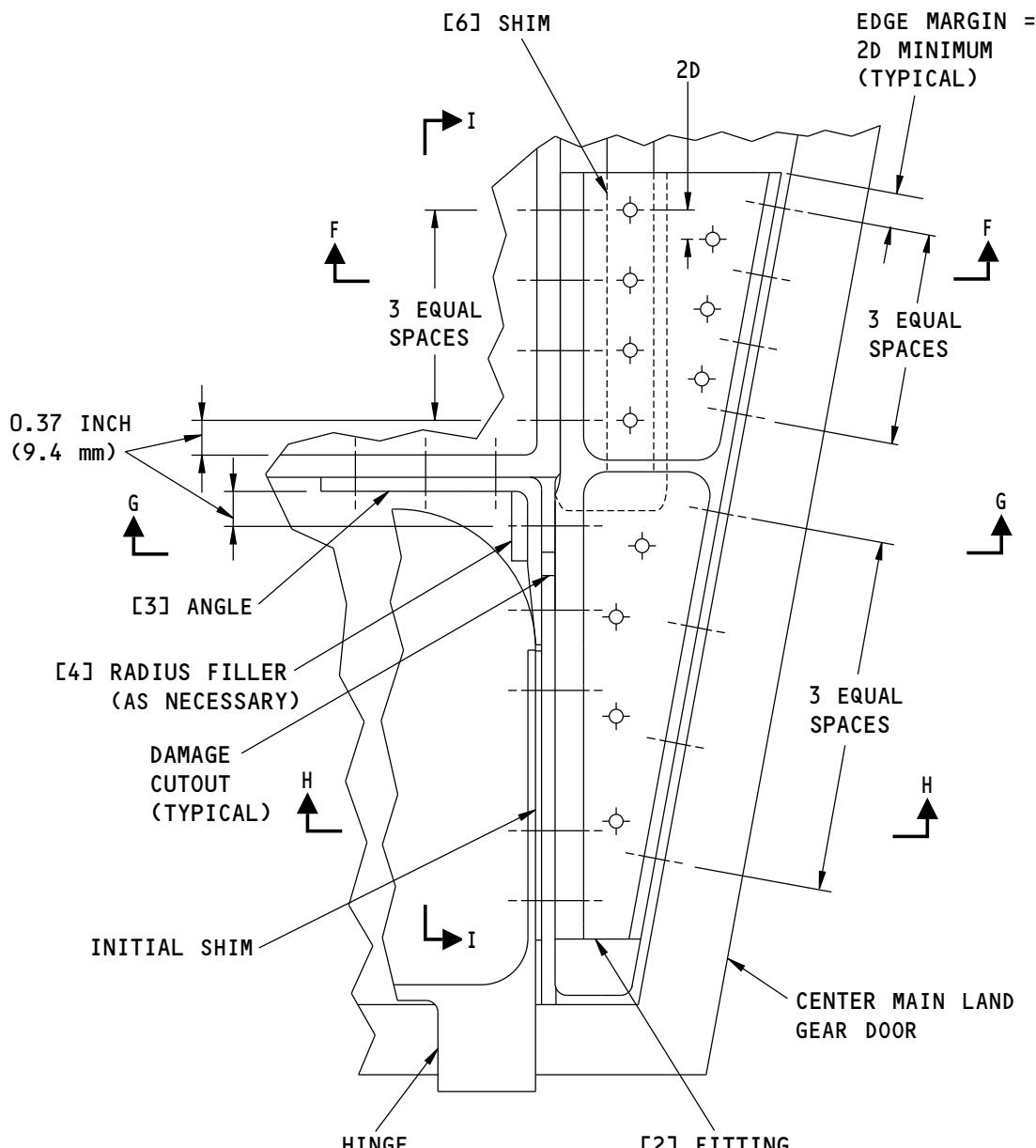
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Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 5 of 13)

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E-E

1305447 S0000226021_V2

Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 6 of 13)

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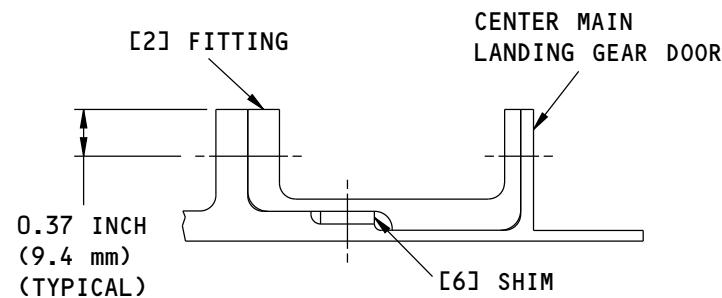
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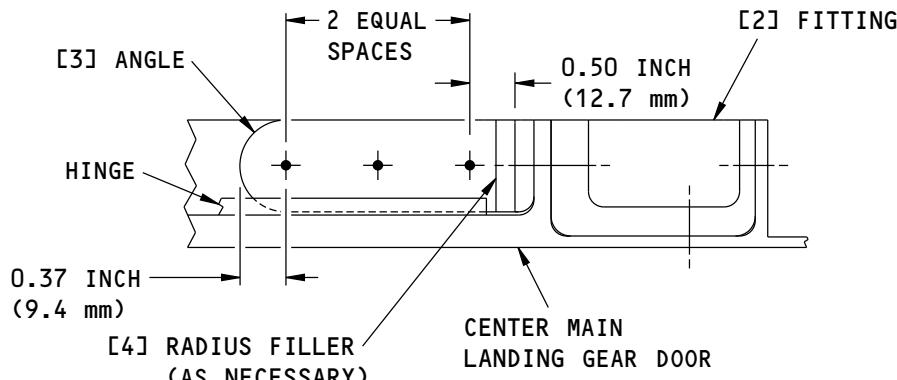
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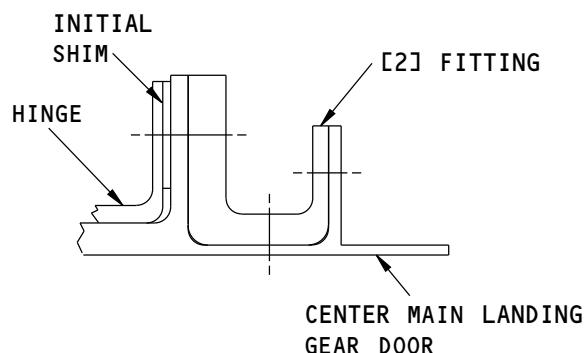
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F-F



G-G



H-H

1305448 S0000226022_V2

Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 7 of 13)

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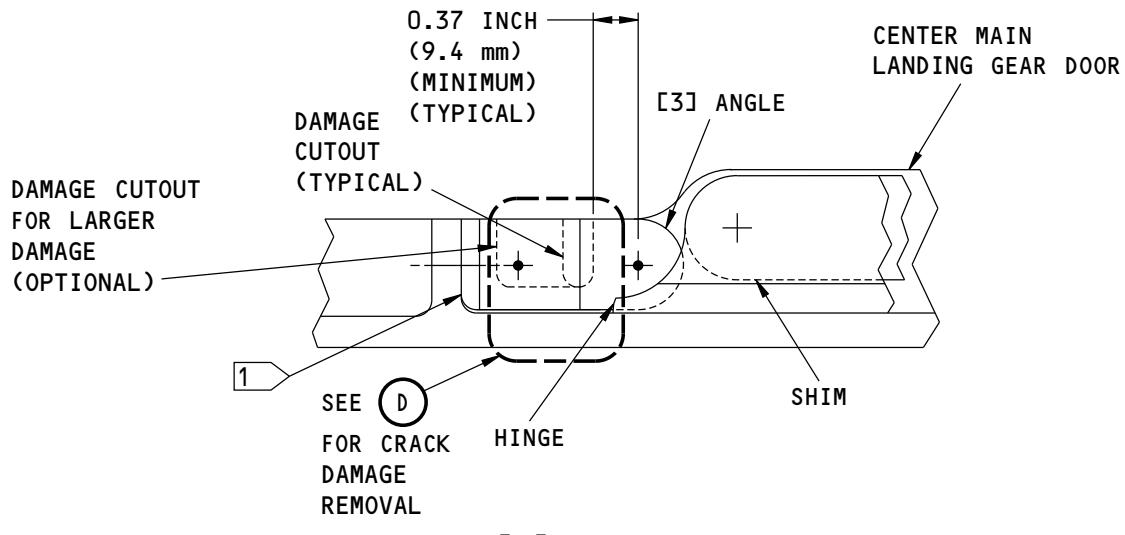
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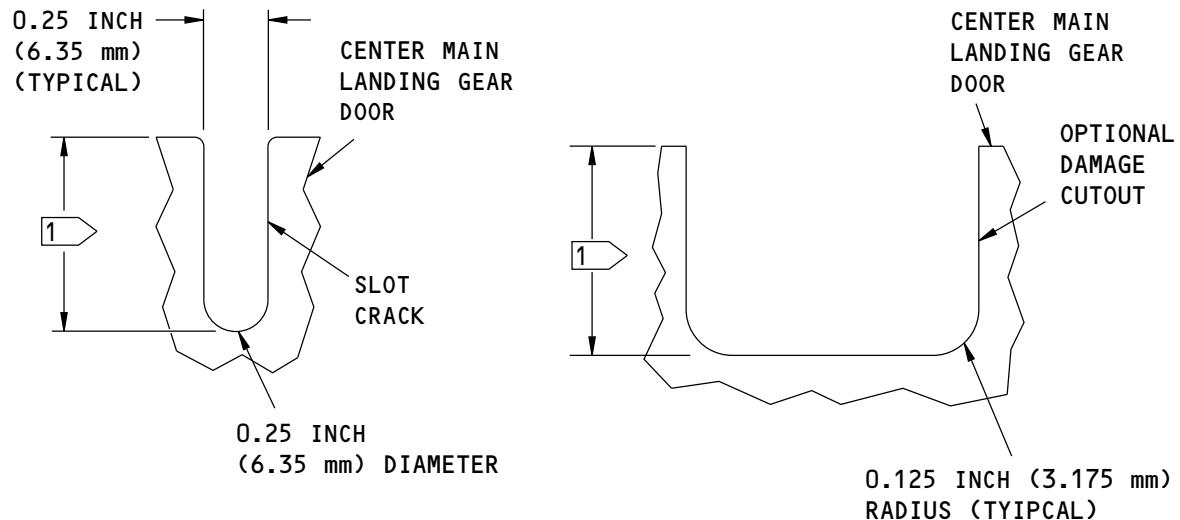


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I-I

VIEW IS ROTATED 90° COUNTERCLOCKWISE



TYPICAL CRACK DAMAGE REMOVAL
(REPAIR PARTS ARE NOT SHOWN)

OPTIONAL CRACK DAMAGE REMOVAL
(REPAIR PARTS ARE NOT SHOWN)

D

1305449 S0000226023_V3

Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 8 of 13)

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REPAIR 2
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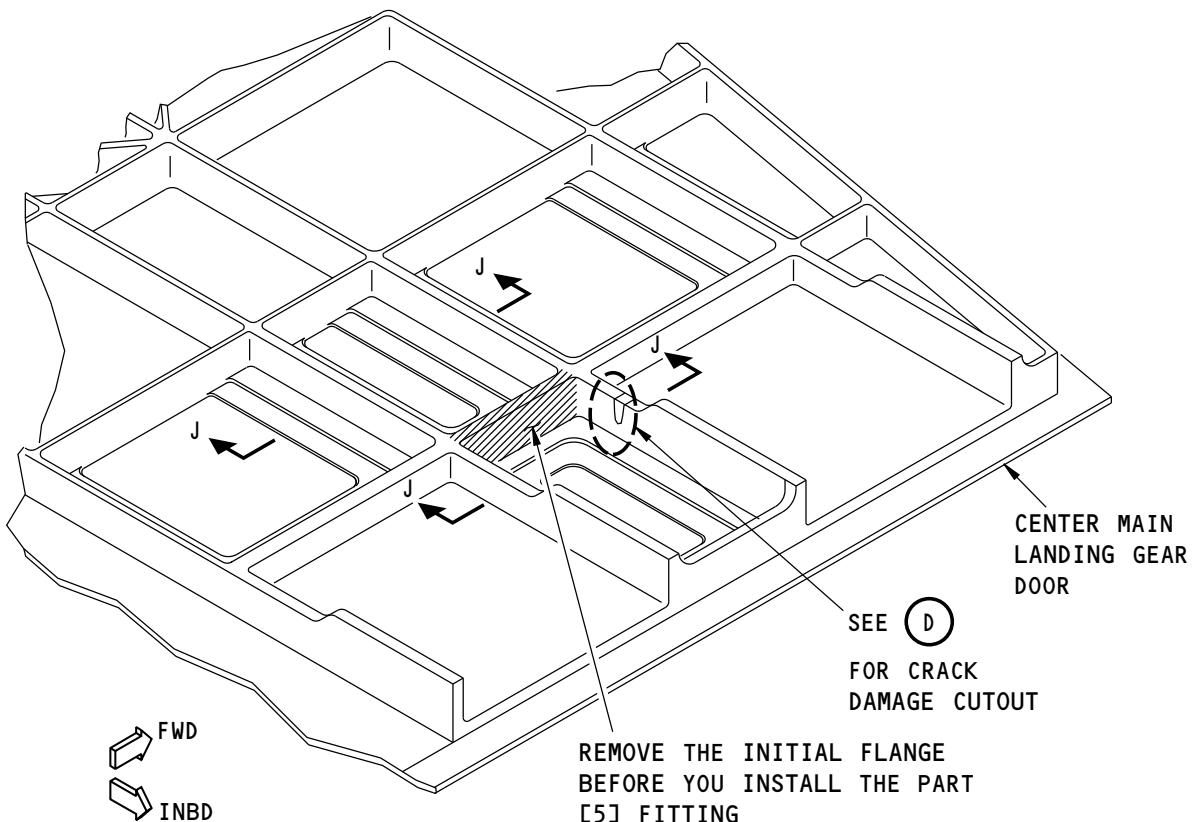
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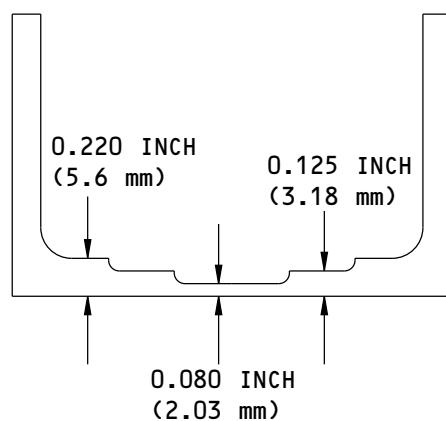


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REMOVAL OF THE DAMAGE BETWEEN THE HINGE FITTINGS

(E)



J-J

2283992 S0000514697_V1

Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 9 of 13)

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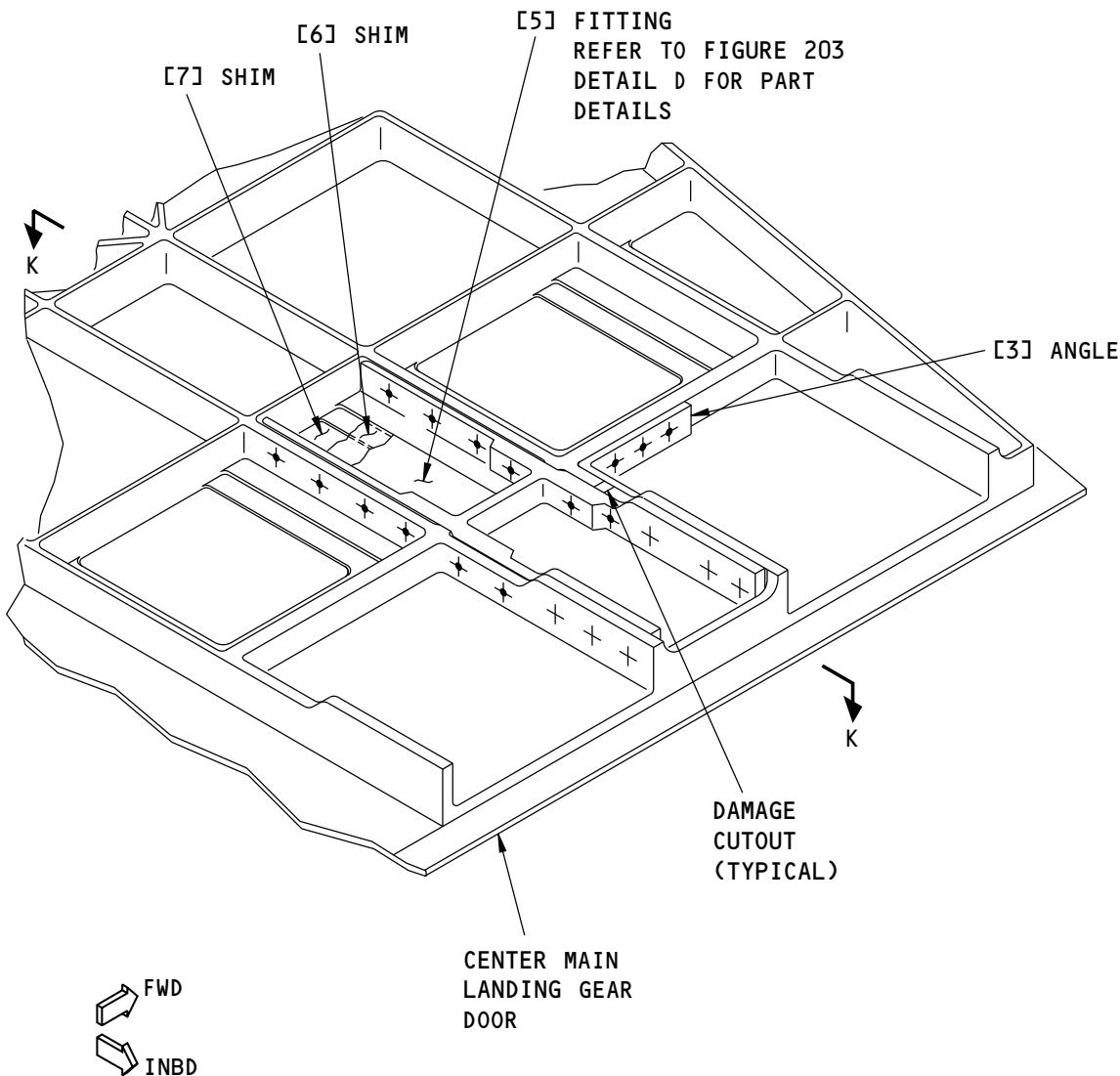
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TYPICAL REPAIR BETWEEN THE HINGE FITTINGS

F

2284491 S0000514698_V1

Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 10 of 13)

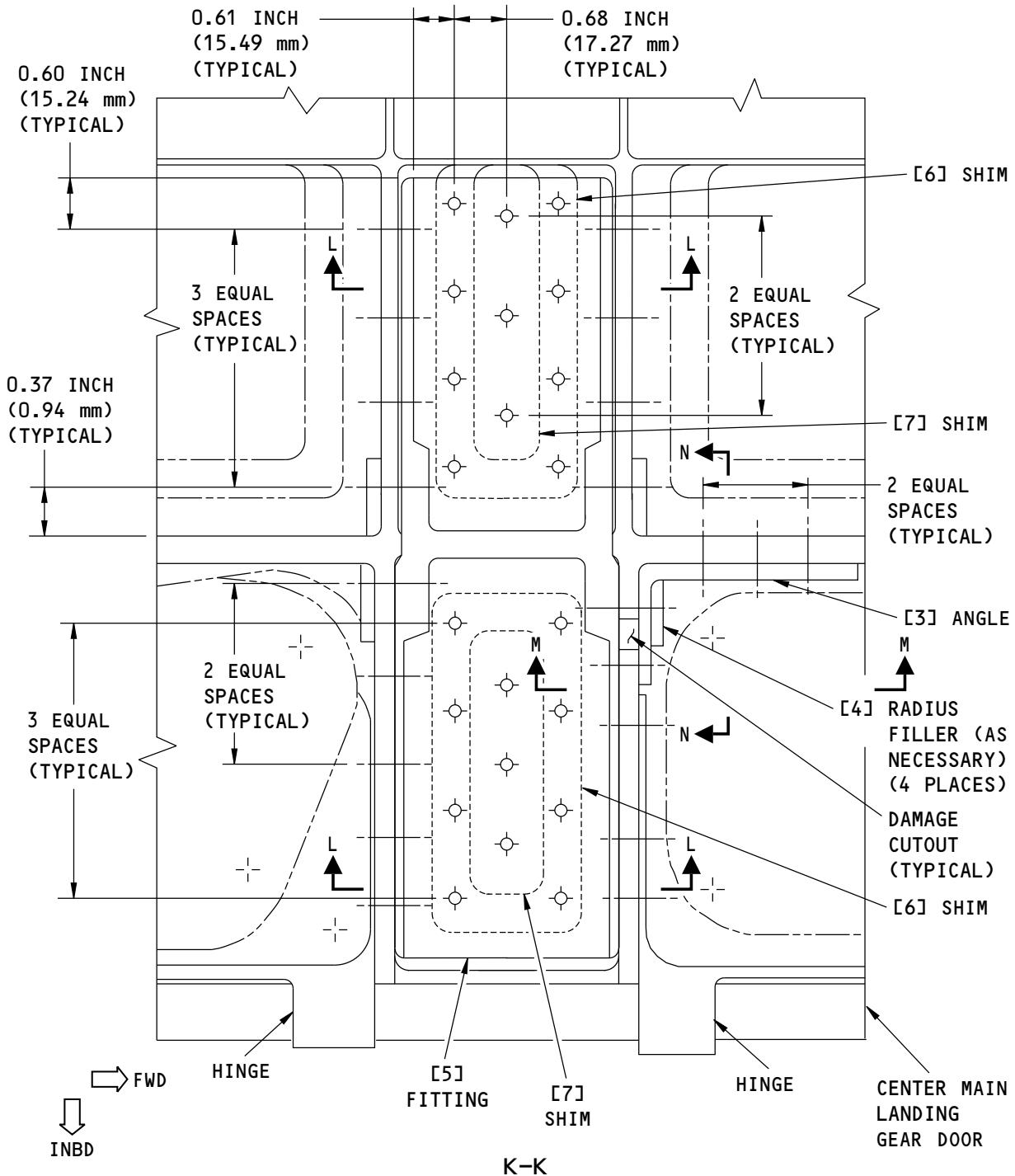
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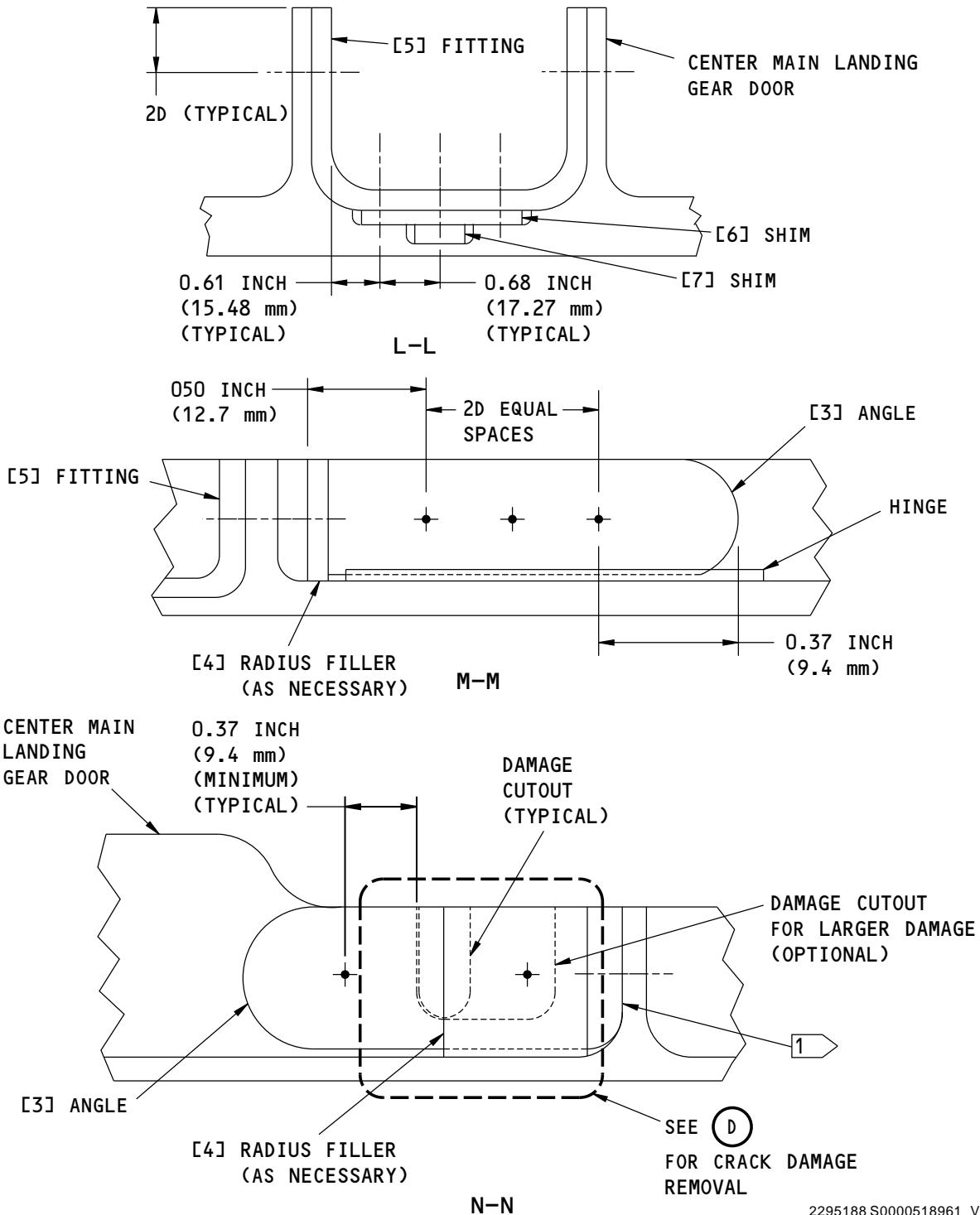
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2284650 S0000514699_V1

**Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 11 of 13)**

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2295188 S0000518961_V1

Center Main Landing Gear Door Typical Repair
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NOTES

- D = FASTENER DIAMETER
-  REMOVE THE CRACK. DO NOT TRIM INTO THE RADIUS OF THE WEB. BREAK ALL SHARP EDGES.

FASTENER SYMBOLS

- !- REFERENCE FASTENER LOCATION.
- + INITIAL FASTENER LOCATION. INSTALL A BACB30NX6K()X HEX-DRIVE BOLT WITH A BACC30M6 COLLAR.
- REPAIR FASTENER LOCATION. INSTALL A BACB30VT6K() HEX-DRIVE BOLT WITH A BACC30BL6 COLLAR FOR DETAIL A. INSTALL A BACB30NX6K() WITH A BACC30X6 COLLAR FOR DETAIL C AND F.
- REPAIR FASTENER LOCATION. INSTALL A BACR15CE6 RIVET.
- REPAIR FASTENER LOCATION. INSTALL A BACB30VU6K() HEX-DRIVE BOLT WITH A BACC30BL6 COLLAR.

1305444 S0000226018_V2

Center Main Landing Gear Door Typical Repair
Figure 202 (Sheet 13 of 13)

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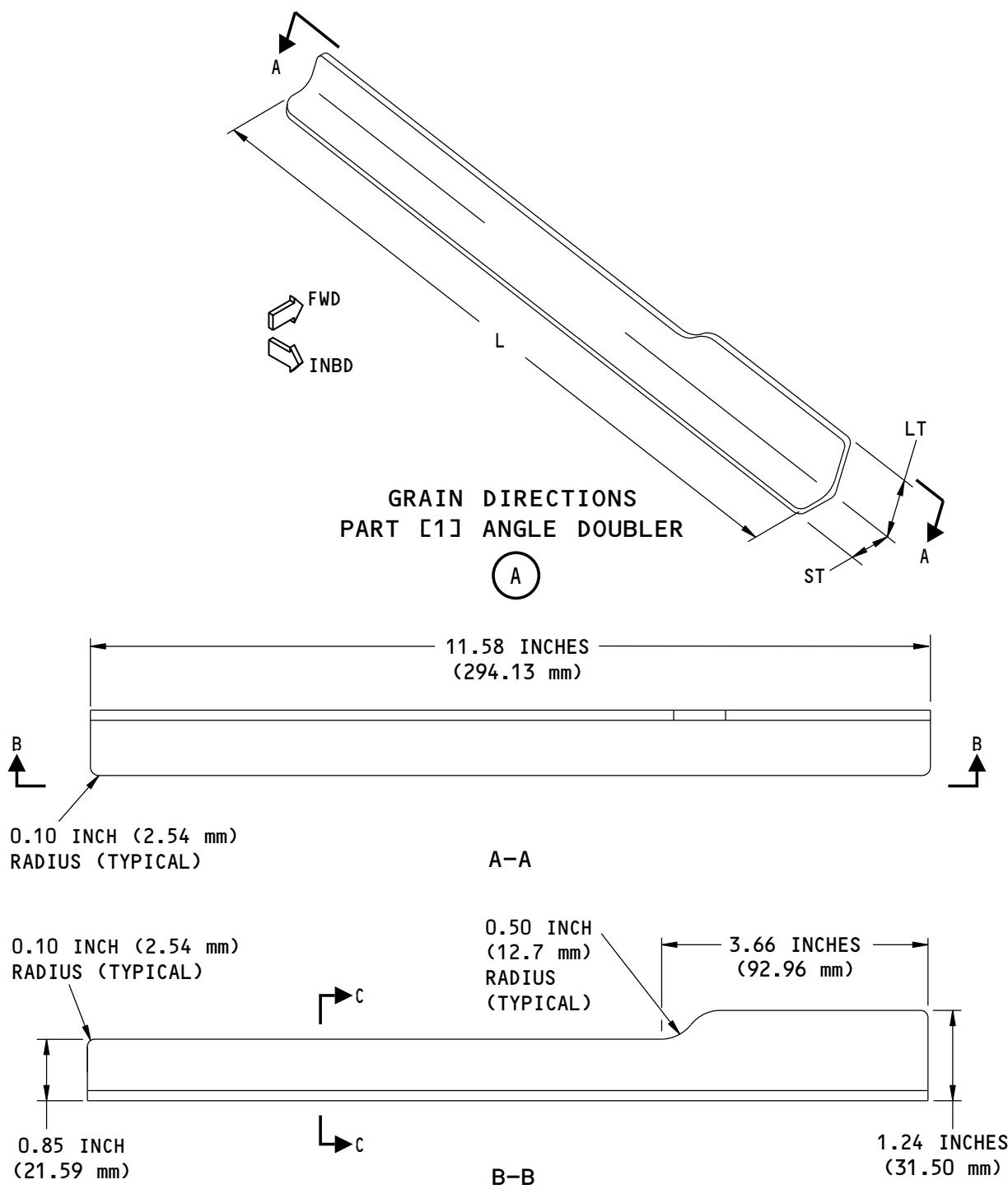
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Repair Details
Figure 203 (Sheet 1 of 7)

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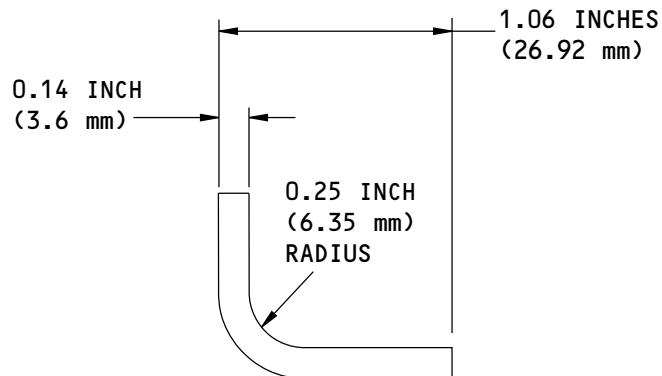
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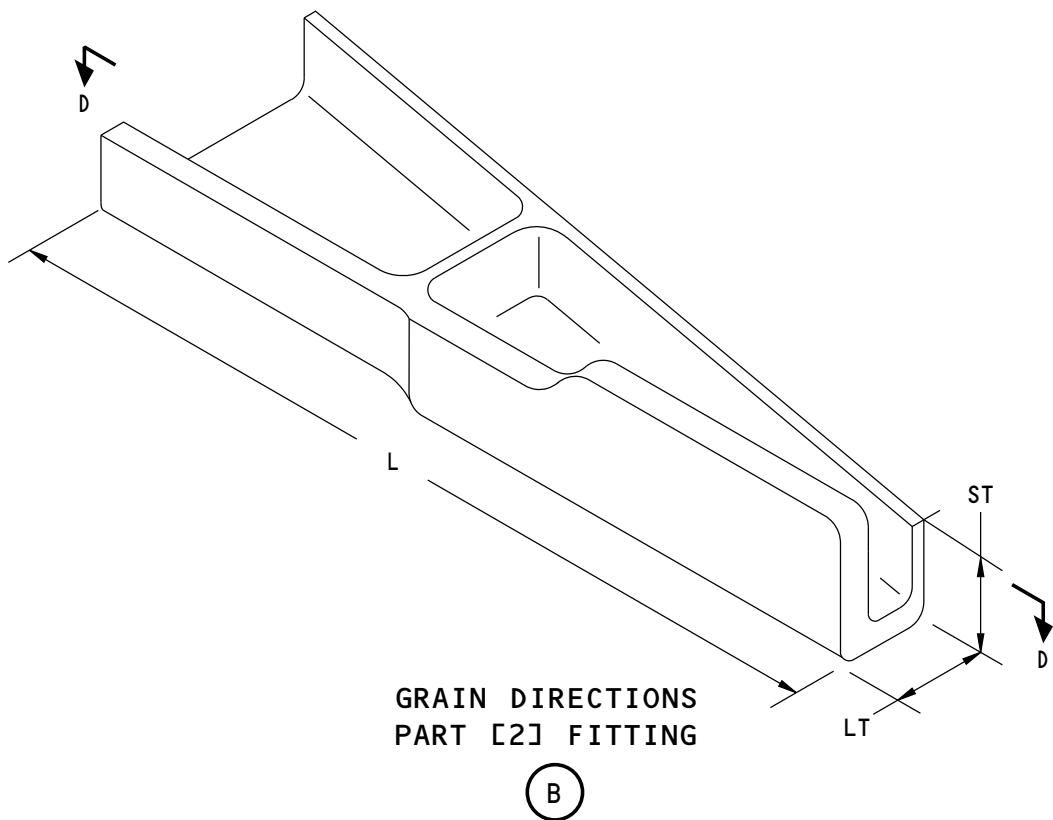
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C-C



1305451 S0000226029_V2

Repair Details
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REPAIR 2

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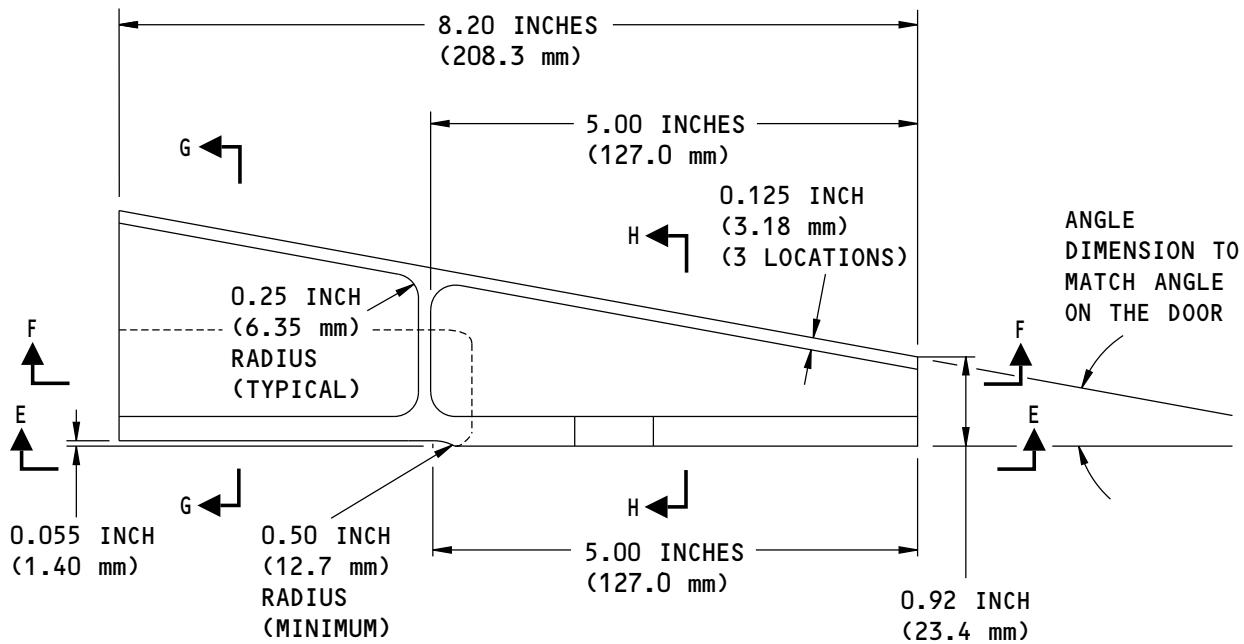
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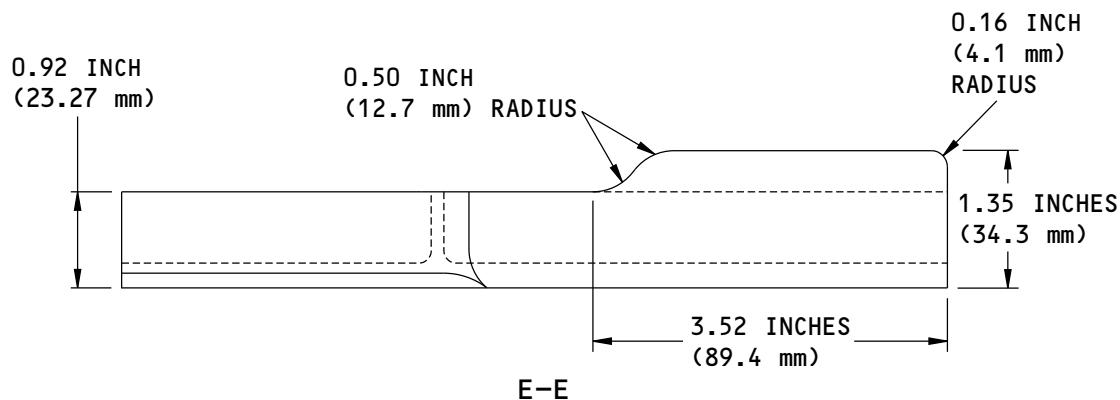
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D-D



E-E

1305452 S0000226031_V3

Repair Details
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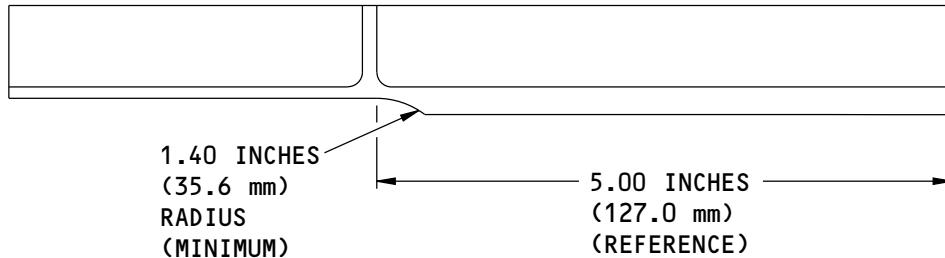
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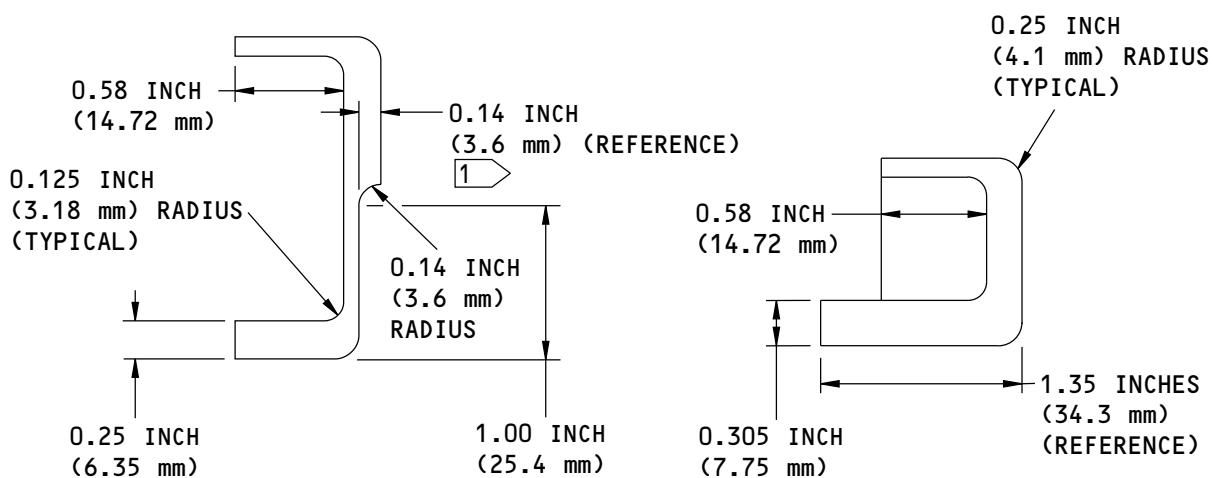
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F-F



G-G

H-H

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Repair Details
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REPAIR 2
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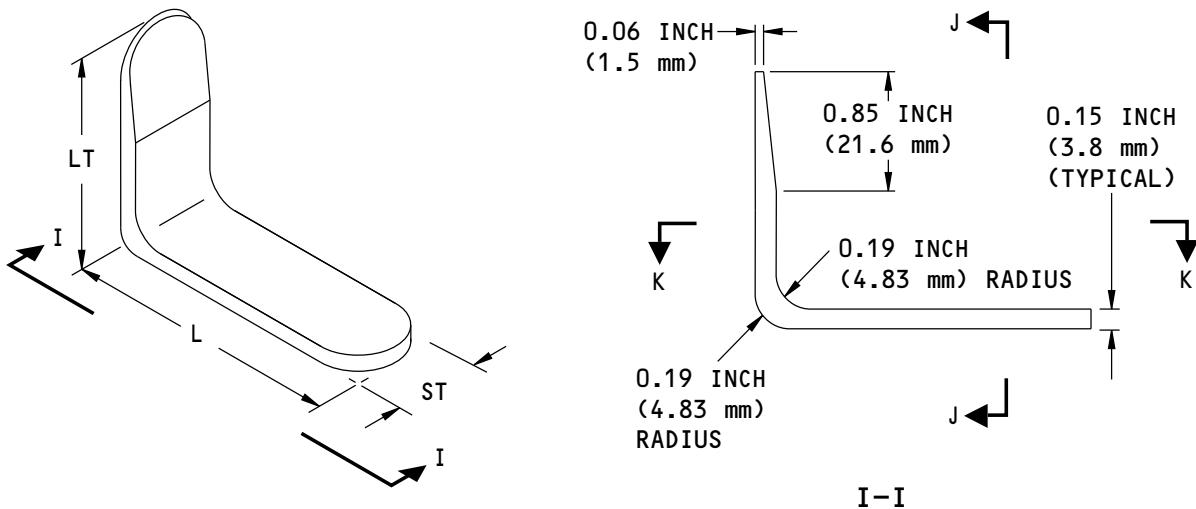
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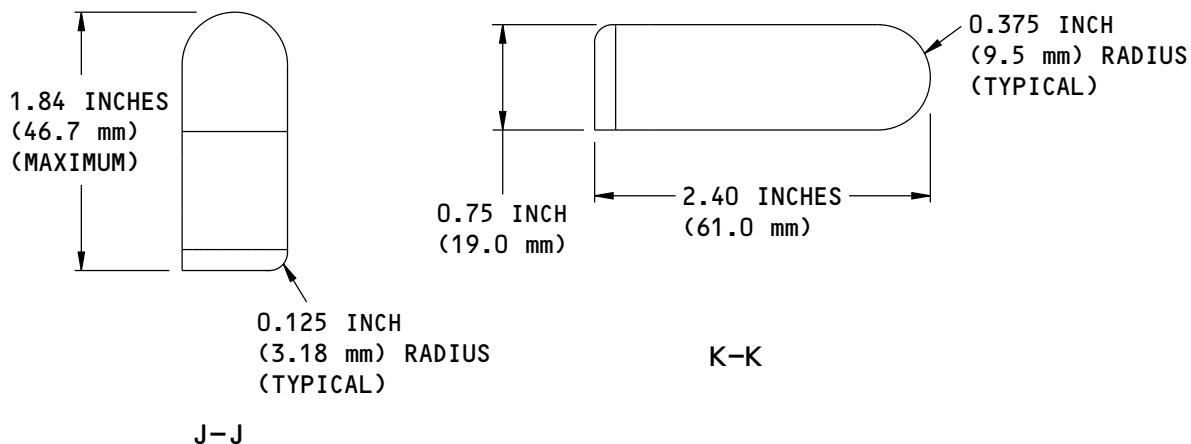


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GRAIN DIRECTIONS
PART [3] ANGLE

(C)



1305450 S0000226034_V3

Repair Details
Figure 203 (Sheet 5 of 7)

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REPAIR 2
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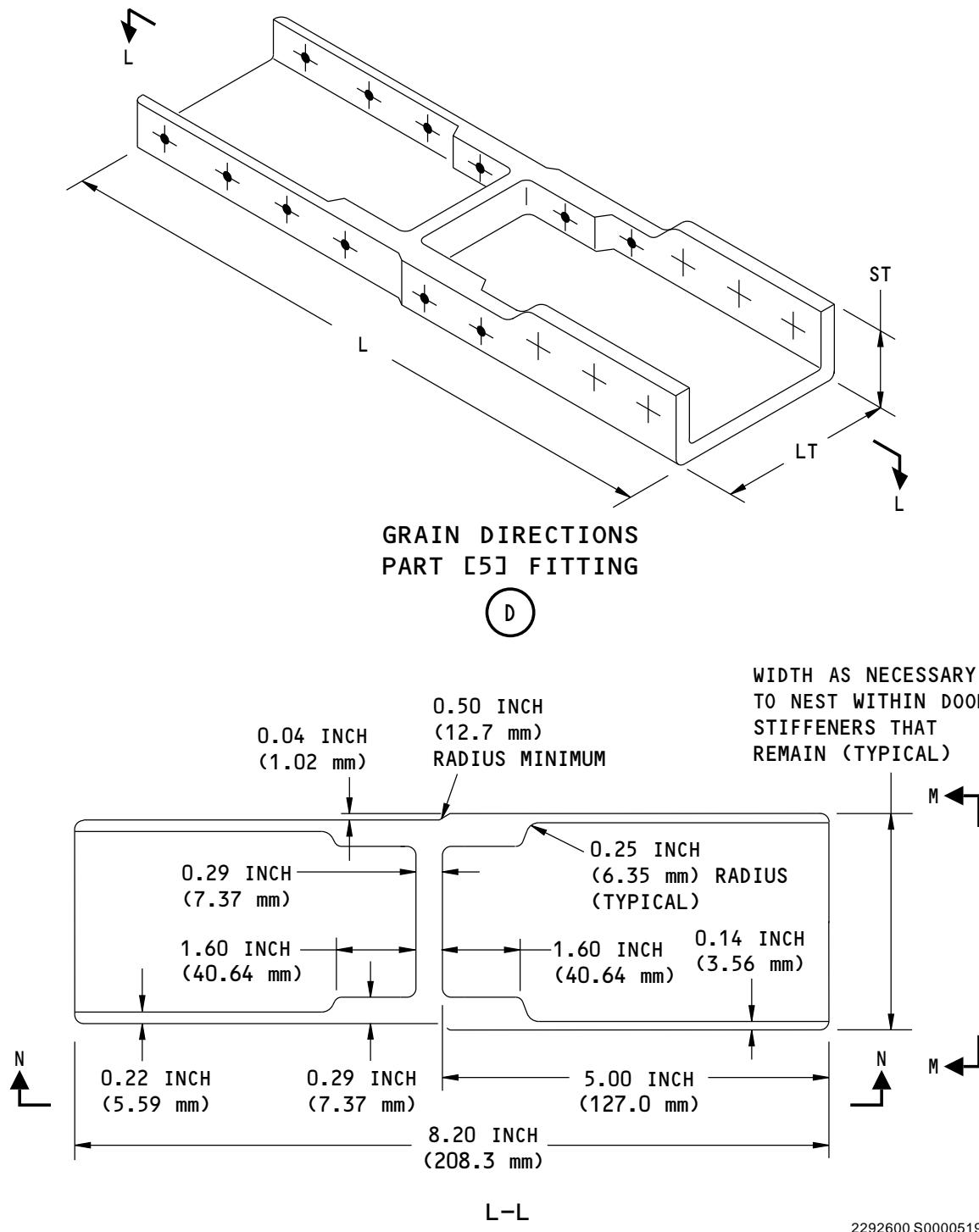
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Repair Details
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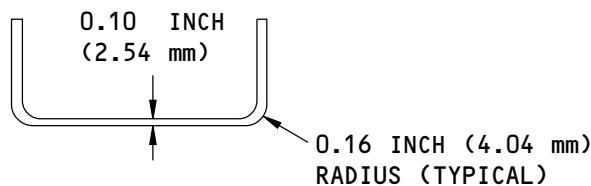
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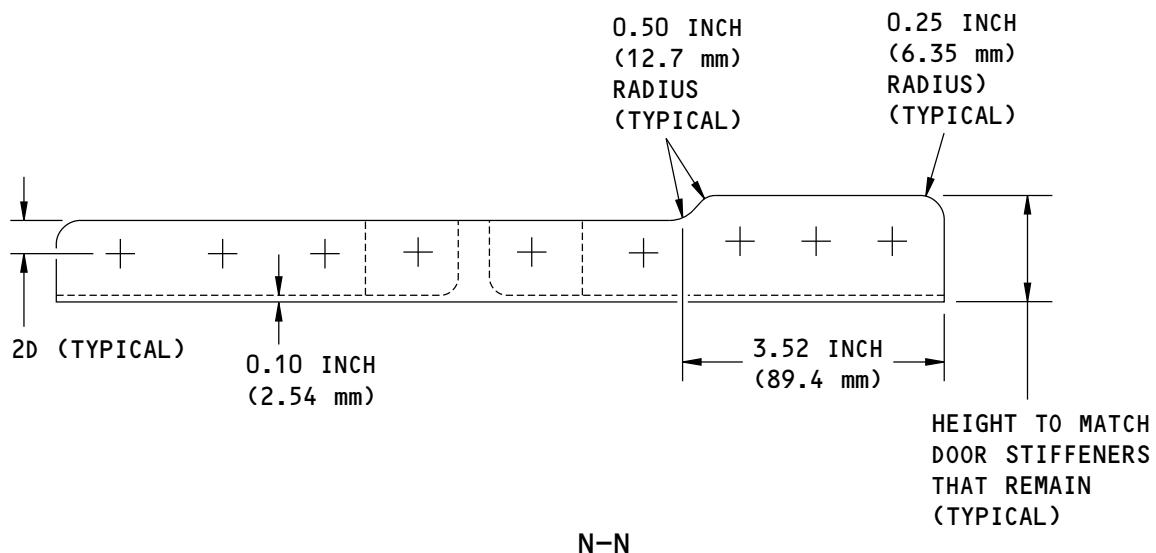
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737-800
STRUCTURAL REPAIR MANUAL



ROTATED 90° CLOCKWISE
M-M



NOTES

- REFER TO TABLE 201, REPAIR 2 FOR THE MATERIAL THICKNESS
- 1 FIND THIS DIMENSION AFTER THE REMOVAL OF THE INITIAL FLANGE. REFER TO FIGURE 202/REPAIR 2, DETAIL B.

2285544 S0000516755_V1

Repair Details
Figure 203 (Sheet 7 of 7)

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REPAIR 2
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STRUCTURAL REPAIR MANUAL

REPAIR 3 - MAIN LANDING GEAR DOOR CRACK REPAIR - ALUMINUM MACHINED CENTER DOOR

1. Applicability

- A. This repair is applicable to a stiffener crack in the center main landing gear door.
- B. This repair is applicable to the center main landing gear door that is made from machined-aluminum.
- C. This repair is not applicable to a crack that extends into the web of the center main landing gear door.

2. General

- A. This repair is a Permanent repair. Refer to STRUCTURAL REPAIR DEFINITIONS, 51-00-06 for the definitions of the different categories of damage tolerant repairs.
- B. D = Fastener diameter.
- C. L = Longitudinal grain direction.
- D. LT = Long transverse grain direction.
- E. ST = Short transverse grain direction.
- F. Refer to FASTENER HOLE SIZES, 51-40-05, Figure 3, Table A or Table B for the solid rivet fastener hole diameters, as applicable.
- G. Refer to FASTENER HOLE SIZES, 51-40-05, Figure 4, Table A or Table B for the hex-drive bolt hole diameters, as applicable. Use the transition fit criteria.

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-20-13	SURFACE ROUGHNESS FINISH REQUIREMENTS
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-05	FASTENER HOLE SIZES
51-40-06	FASTENER EDGE MARGINS
AMM 32-13-11	MAIN LANDING GEAR SHOCK STRUT DOORS
AMM 51-21	INTERIOR AND EXTERIOR FINISHES
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
737 NDT Part 6, 51-00-00	Structures - General

4. Repair Instructions

- A. Get access to the damaged area. If necessary, remove the center main landing gear door as given in AMM SUBJECT 32-13-11.
- B. Remove the initial fasteners as necessary. Refer to FASTENER INSTALLATION AND REMOVAL, 51-40-02.
- C. Where applicable, make a cutout in the flange at the crack location as shown in Figure 202/REPAIR 3. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02 for inspection and removal of damage.

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- D. For damage at the forward hinge fitting location and the location between the hinge fittings, remove the initial flange of the door as shown in Figure 202/REPAIR 3, Detail B or E. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02 for inspection and removal of damage.:.
- E. For damage at the forward hinge fitting location, machine the fillet radius as shown in Figure 202/REPAIR 3, Detail B. Refer to INSPECTION AND REMOVAL OF DAMAGE, 51-10-02 for inspection and removal of damage.
- F. Do a High Frequency Eddy Current (HFEC) inspection of the repair area to make sure that all the damage is removed. Refer to 737 NDT Part 6, 51-00-00.
- G. Make the repair parts. Refer to Table 201/REPAIR 3 and Figure 203/REPAIR 3, Details A, B, C, or D, as applicable.

Table 201: Repair Material

ITEM	PART	QUANTITY	MATERIAL
1	Angle Doubler	1	Use 7050-T7451 plate as given in AMS 4050. Maximum plate thickness (ST grain direction) 1.5 in. (38.1 mm). Ultrasonic inspect as given in BAC5439, Class B.
2	Fitting	1	Use 7050-T7451 plate as given in AMS 4050. Maximum plate thickness (ST grain direction) 1.5 in. (38.1 mm). Ultrasonic inspect as given in BAC5439, Class B.
3	Angle	1	Use 7050-T7451 plate as given in AMS 4050. Maximum plate thickness (ST grain direction) 1.5 in. (38.1 mm). Ultrasonic inspect as given in BAC5439, Class B.
4	Radius Filler	As Necessary	Use 7050-T7451 plate as given in AMS 4050. Thickness 0.25 in. (6.35 mm).
5	Fitting ^[1]	1	Use 7050-T7451 plate as given in AMS 4050. Maximum plate thickness (ST grain direction) 1.5 in. (38.1 mm). Ultrasonic inspect as given in BAC5439, Class B.

*[1] If necessary, trim the part widths to less than the maximum permitted shim thickness and more than the minimum fastener edge margins.

- H. Make sure the surface of the repair parts and the bare surfaces of the initial part have a surface finish of 125 microinches (3.2 micrometers) Ra or smoother. Refer to SURFACE ROUGHNESS FINISH REQUIREMENTS, 51-20-13.
- I. Assemble the repair parts.
- J. Drill the fastener holes. Refer to Figure 202/REPAIR 3, as applicable. Refer to FASTENER EDGE MARGINS, 51-40-06 for fastener edge margins.
 - (1) If there is not sufficient space between the cutout and the flange to install a fastener as shown in Figure 202/REPAIR 3, E-E, then do the steps that follow:
 - (a) Use a 2024-T3 or equivalent aluminum filler to fill the cutout.
 - (b) Make sure that there is a 0.030 in. (0.76 mm) minimum wall thickness between the edge of the fastener hole and the edge of the filler.
 - (c) Install the fastener through the filler and repair parts.
 - (2) If the fastener rides up the fillet radius of the repair parts, add the Part [4] Radius Filler as necessary. Refer to Figure 202 (Sheet 3), B-B.
 - (3) If the fastener is on a tapered surface, install a BACB30NX6K hex-drive bolt with BACC30BQ6 self-aligning nut.
- K. Disassemble the repair parts.

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STRUCTURAL REPAIR MANUAL

- L. Remove the nicks, scratches, gouges, burrs and sharp edges from the repair parts and the bare surfaces of the initial part.
- M. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the initial part. Refer to PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS, 51-20-01.
- N. Apply two layers of BMS 10-11, Type I primer to the repair parts and to the bare surfaces of the initial part. Refer to SOPM 20-41-02.
- O. Install the repair parts and initial parts that you removed:
 - (1) Apply BMS 5-95 sealant between the mating surfaces. Refer to REPAIR SEALING, 51-20-05.
 - (2) Shim all gaps between the mating surfaces of the parts that are more than 0.005 in. (0.127 mm). If the shim gap is more than 0.040 in. (1.016 mm) do not install a shim, contact the Boeing Company.
 - (3) Install all fasteners wet with BMS 5-95 sealant. Refer to REPAIR SEALING, 51-20-05.
- P. Apply a fillet seal and fill all gaps with BMS 5-95 sealant. Refer to REPAIR SEALING, 51-20-05.
- Q. Put the center main landing gear door back to the initial condition, as applicable.
 - (1) Install the center main landing gear door as given in AMM SUBJECT 32-13-11, if it was removed.
- R. Restore the aircraft external finish as applicable. Refer to AMM SECTION 51-21.

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REPAIR 3
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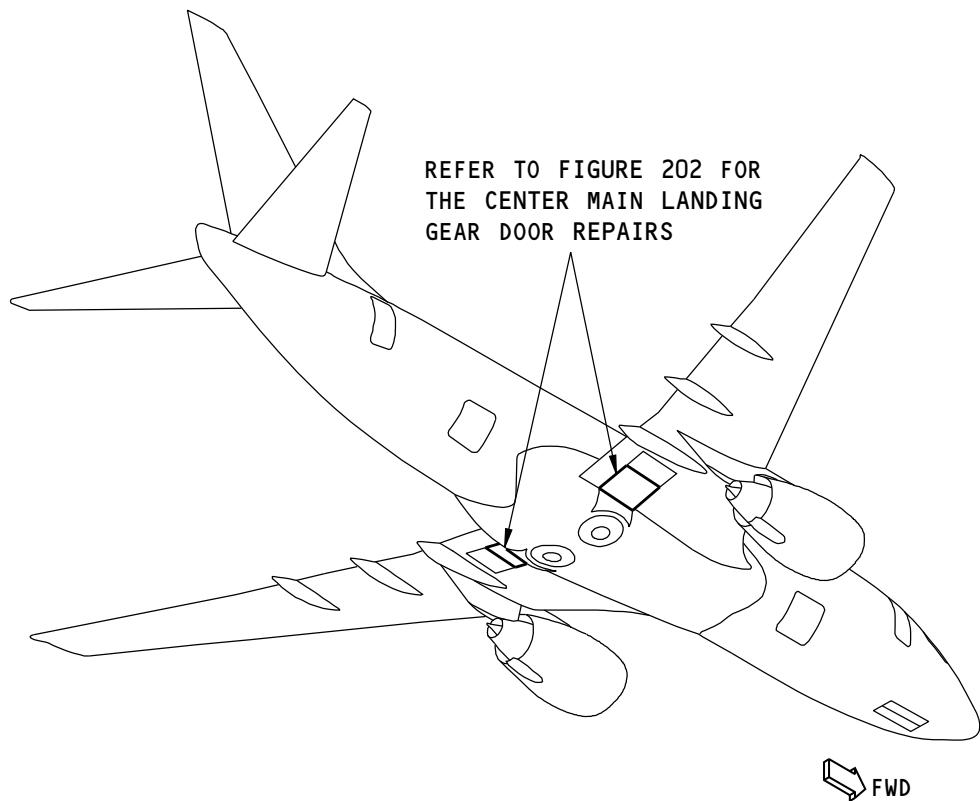
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STRUCTURAL REPAIR MANUAL



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Center Main Landing Gear Door Location
Figure 201

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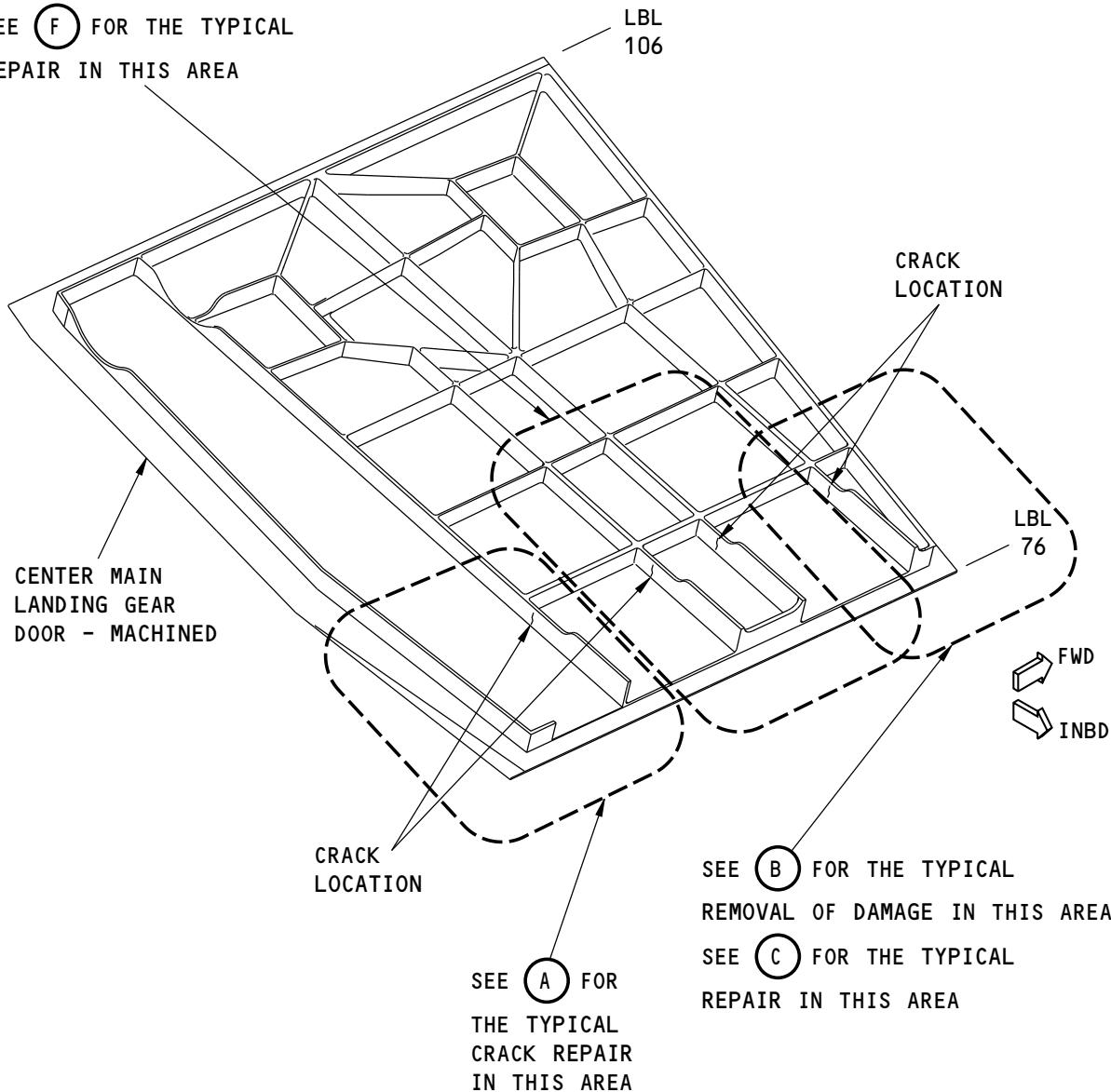
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SEE **E** FOR THE TYPICAL
 REMOVAL OF DAMAGE IN THIS AREA

SEE **F** FOR THE TYPICAL
 REPAIR IN THIS AREA



LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

2018767 S0000399120_V2

Main Landing Gear Door Typical Repair
Figure 202 (Sheet 1 of 13)

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REPAIR 3
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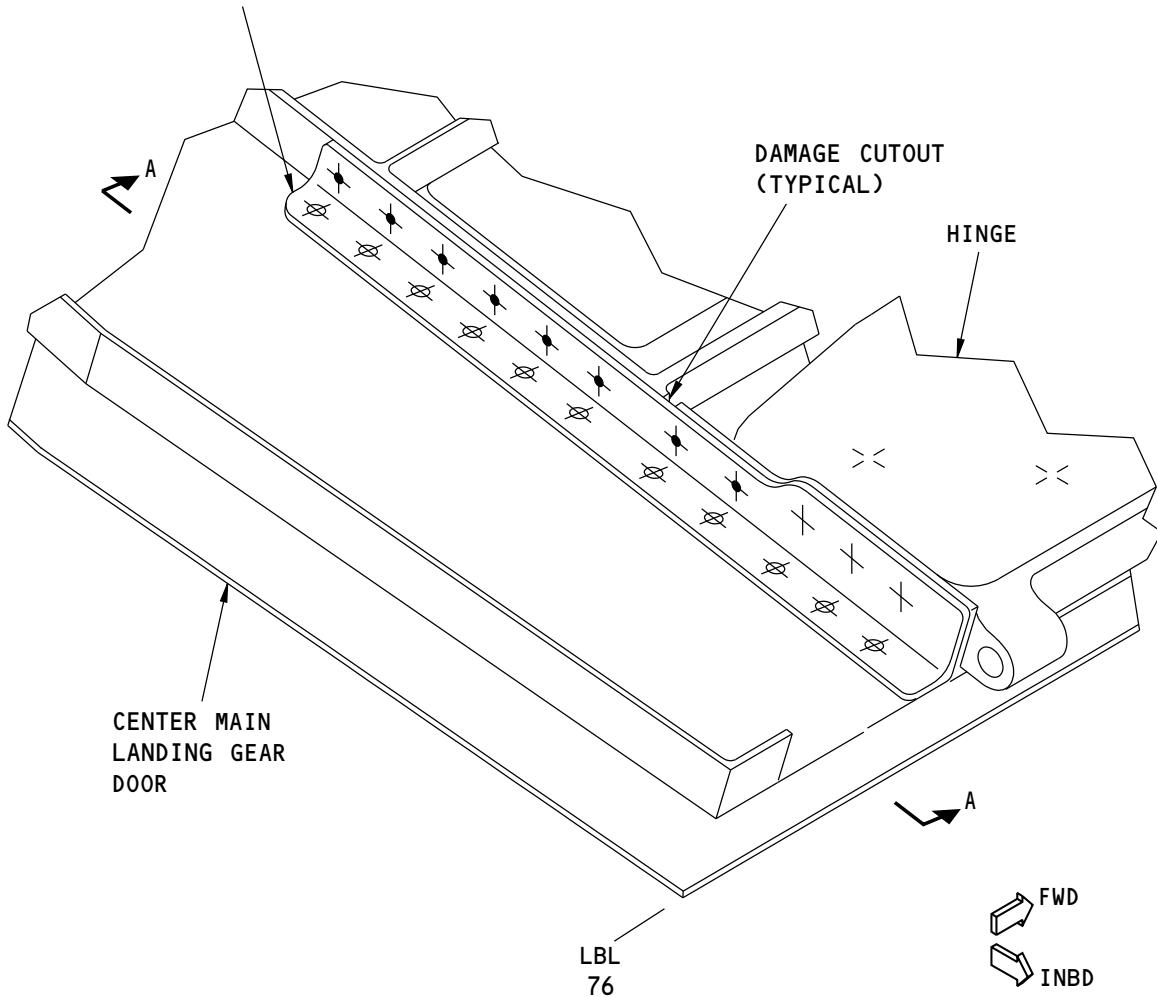
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STRUCTURAL REPAIR MANUAL

[1] ANGLE DOUBLER

REFER TO FIGURE 203 FOR
THE PART DETAILS



TYPICAL REPAIR AT THE AFT HINGE
FITTING LOCATION

(A)

2018770 S0000399124_V2

Main Landing Gear Door Typical Repair
Figure 202 (Sheet 2 of 13)

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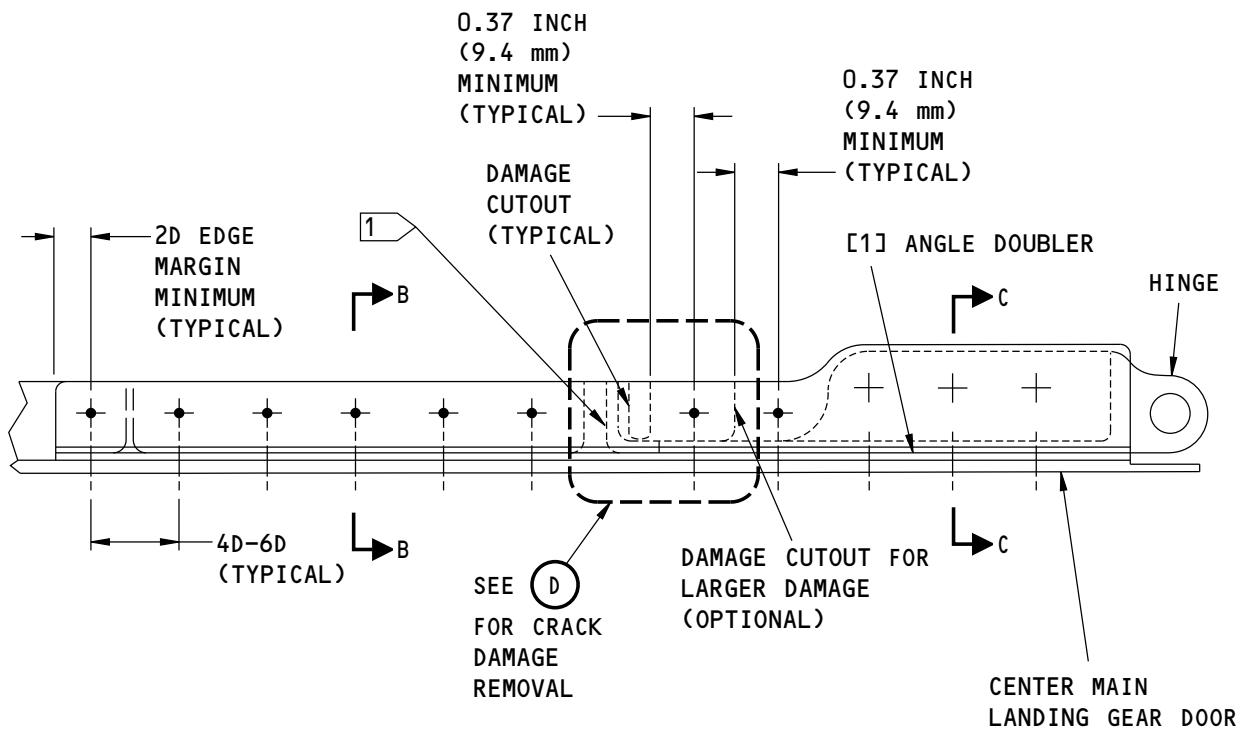
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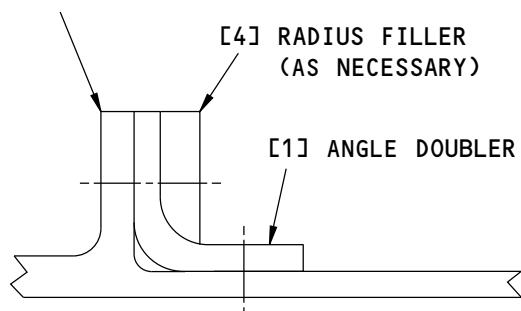


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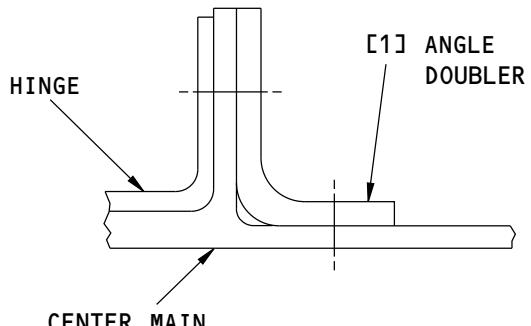


A-A

CENTER MAIN
LANDING GEAR DOOR



B-B



C-C

2018771 S0000399125_V2

Main Landing Gear Door Typical Repair
Figure 202 (Sheet 3 of 13)

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REPAIR 3
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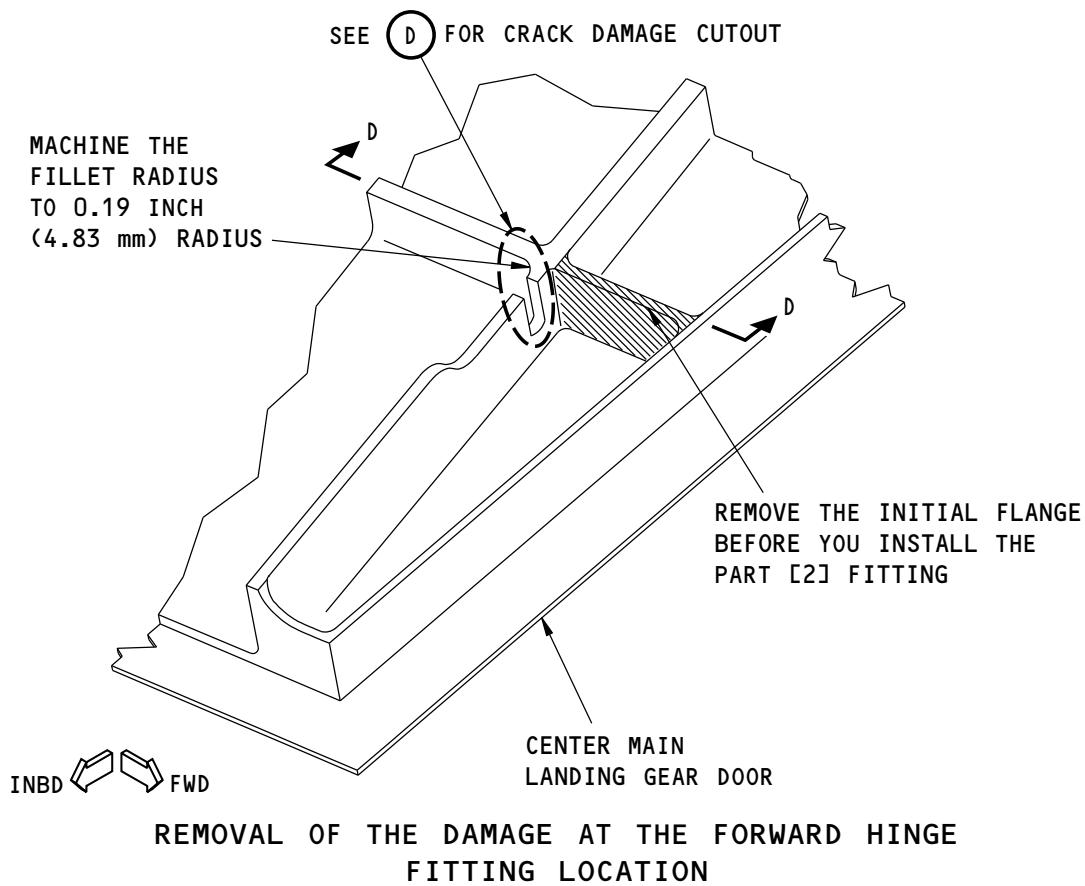
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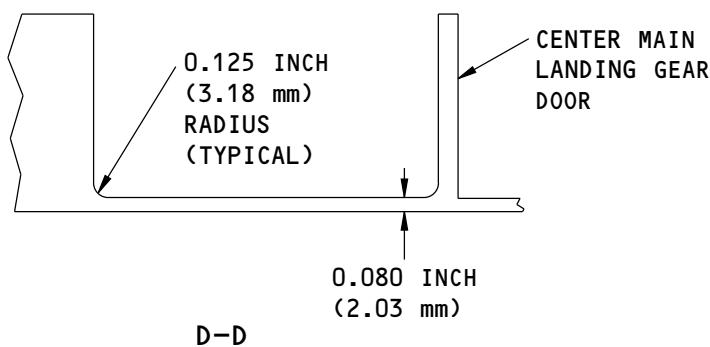
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STRUCTURAL REPAIR MANUAL



(B)



2018775 S0000399126_V2

Main Landing Gear Door Typical Repair
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REPAIR 3
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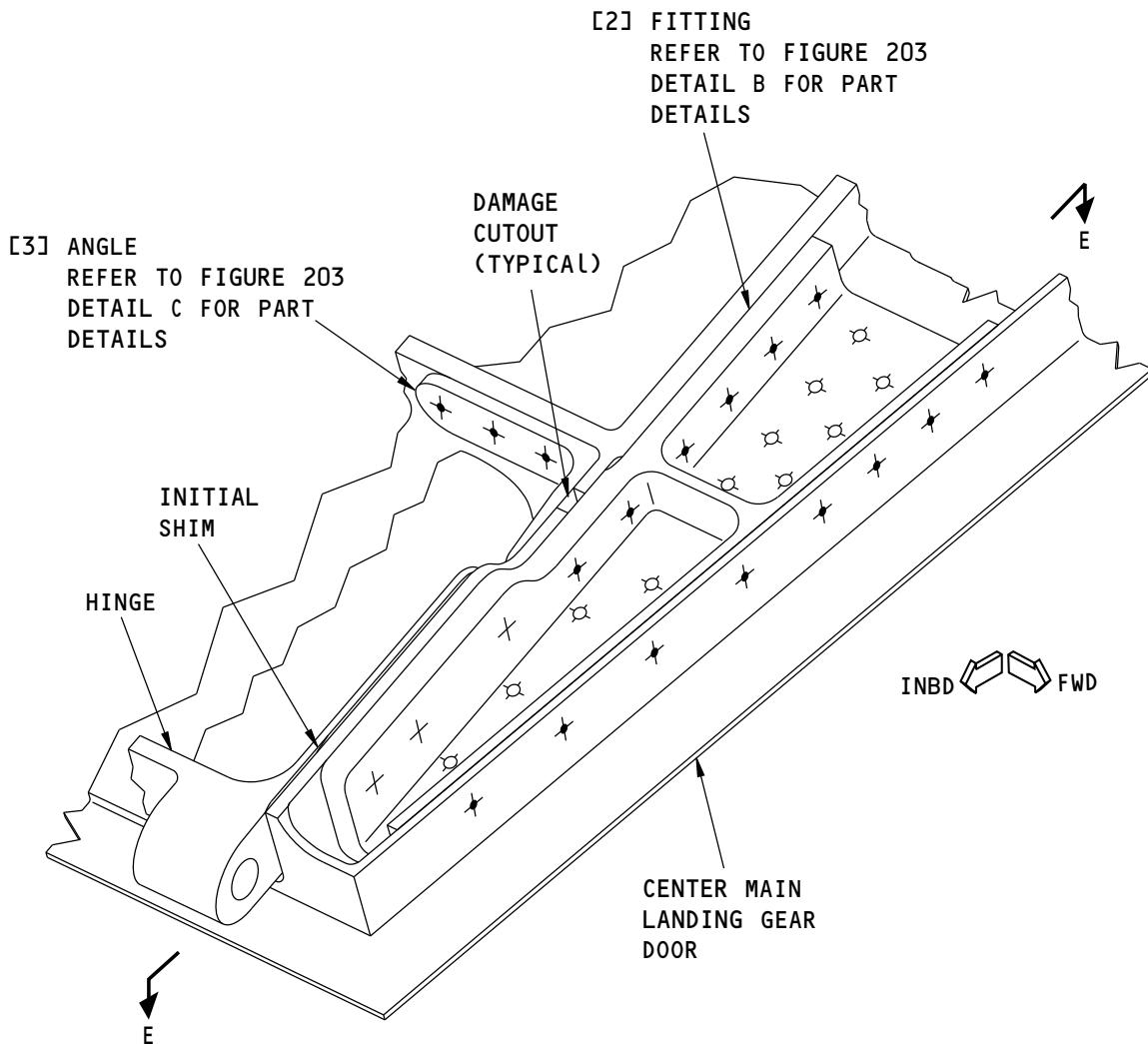
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TYPICAL REPAIR AT THE FORWARD HINGE FITTING LOCATION

(C)

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Main Landing Gear Door Typical Repair
Figure 202 (Sheet 5 of 13)

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REPAIR 3
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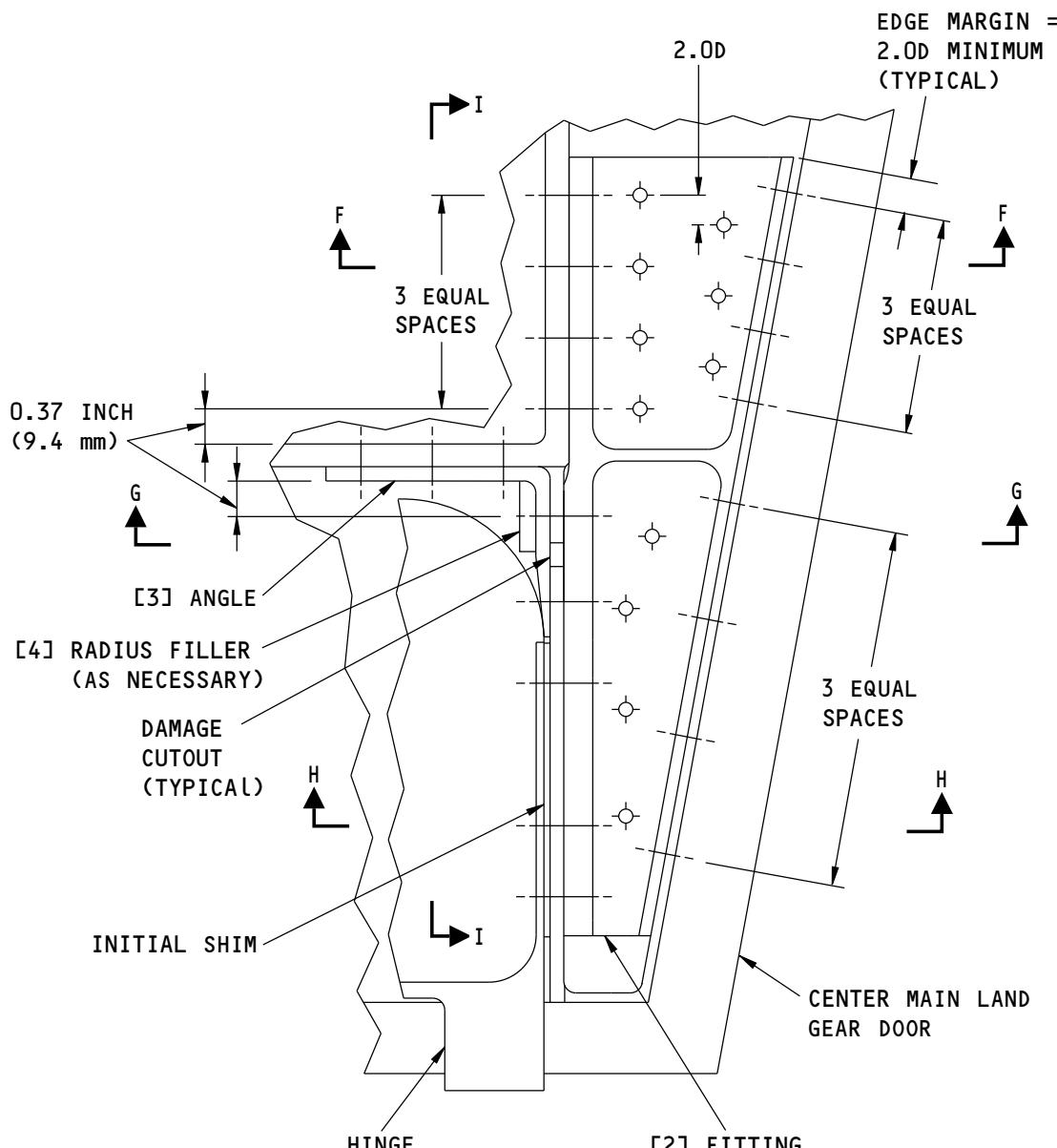
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E-E

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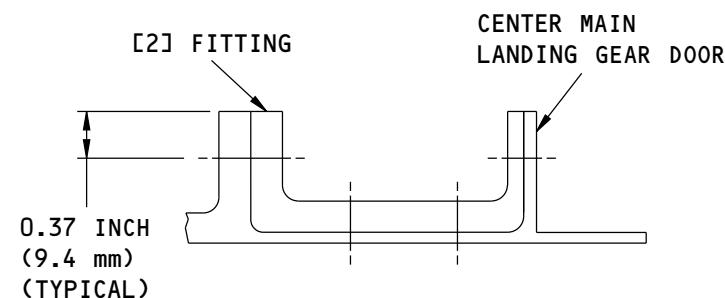
Main Landing Gear Door Typical Repair
Figure 202 (Sheet 6 of 13)

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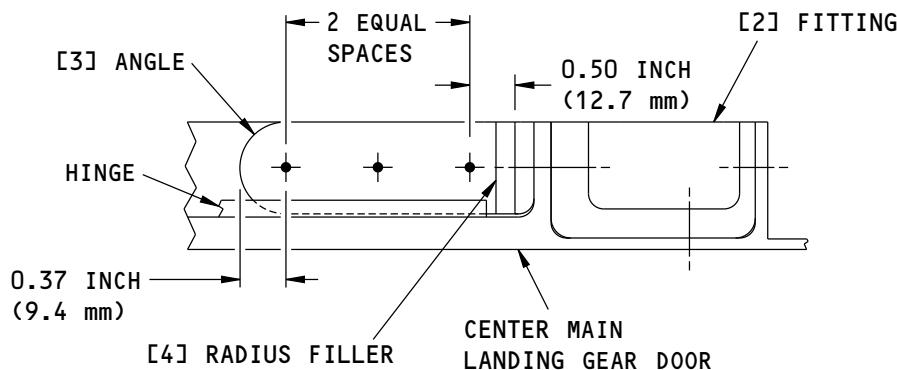
REPAIR 3
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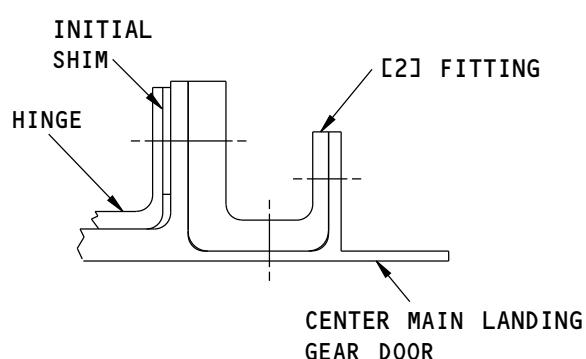
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F-F



G-G



H-H

2018788 S0000399130_V2

Main Landing Gear Door Typical Repair
Figure 202 (Sheet 7 of 13)

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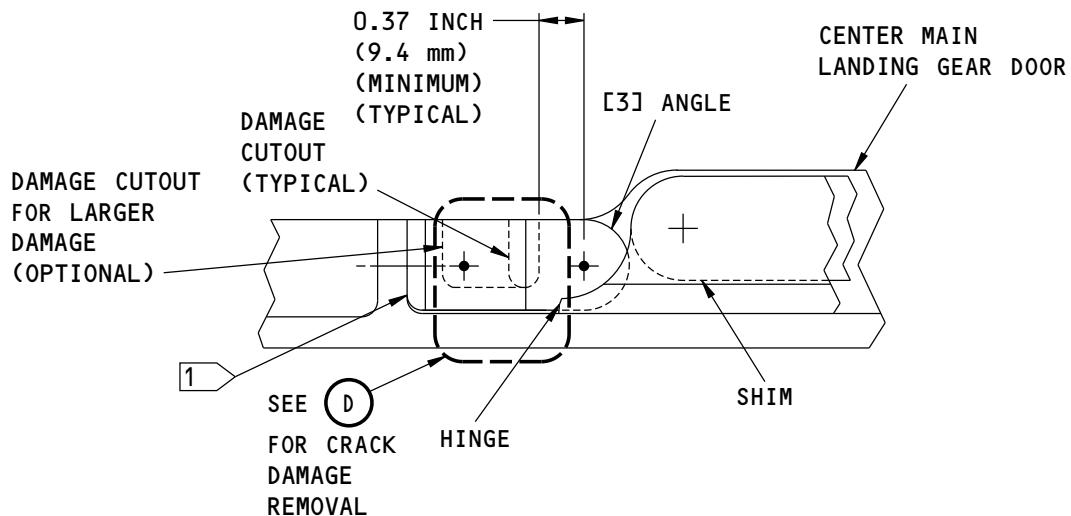
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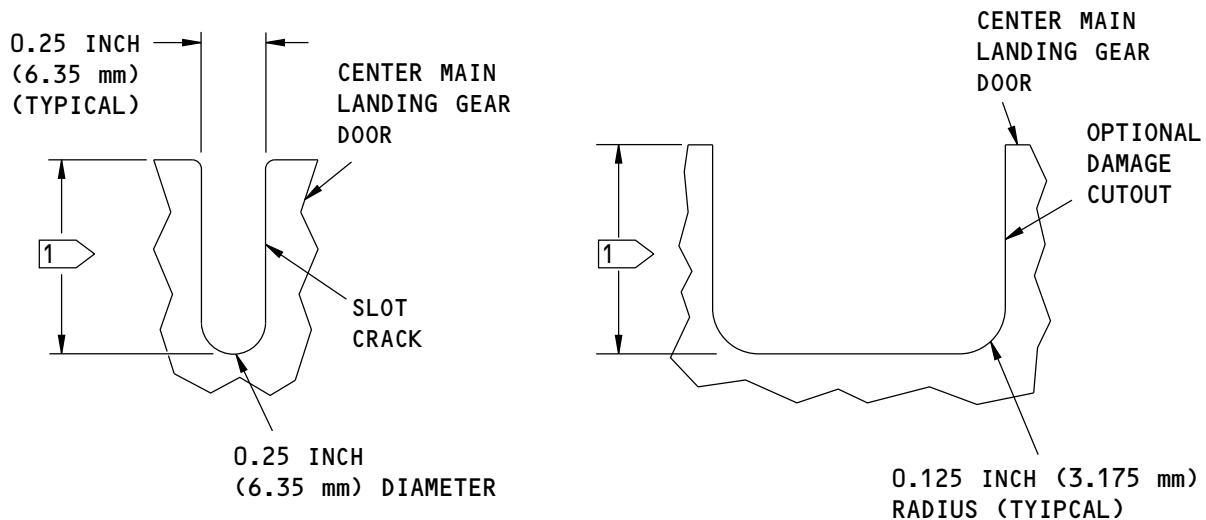


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STRUCTURAL REPAIR MANUAL



I-I

VIEW IS ROTATED 90° COUNTERCLOCKWISE



TYPICAL CRACK DAMAGE REMOVAL
(REPAIR PARTS ARE NOT SHOWN)

OPTIONAL CRACK DAMAGE REMOVAL
(REPAIR PARTS ARE NOT SHOWN)

D

2018870 S0000399131_V2

Main Landing Gear Door Typical Repair
Figure 202 (Sheet 8 of 13)

52-80-02

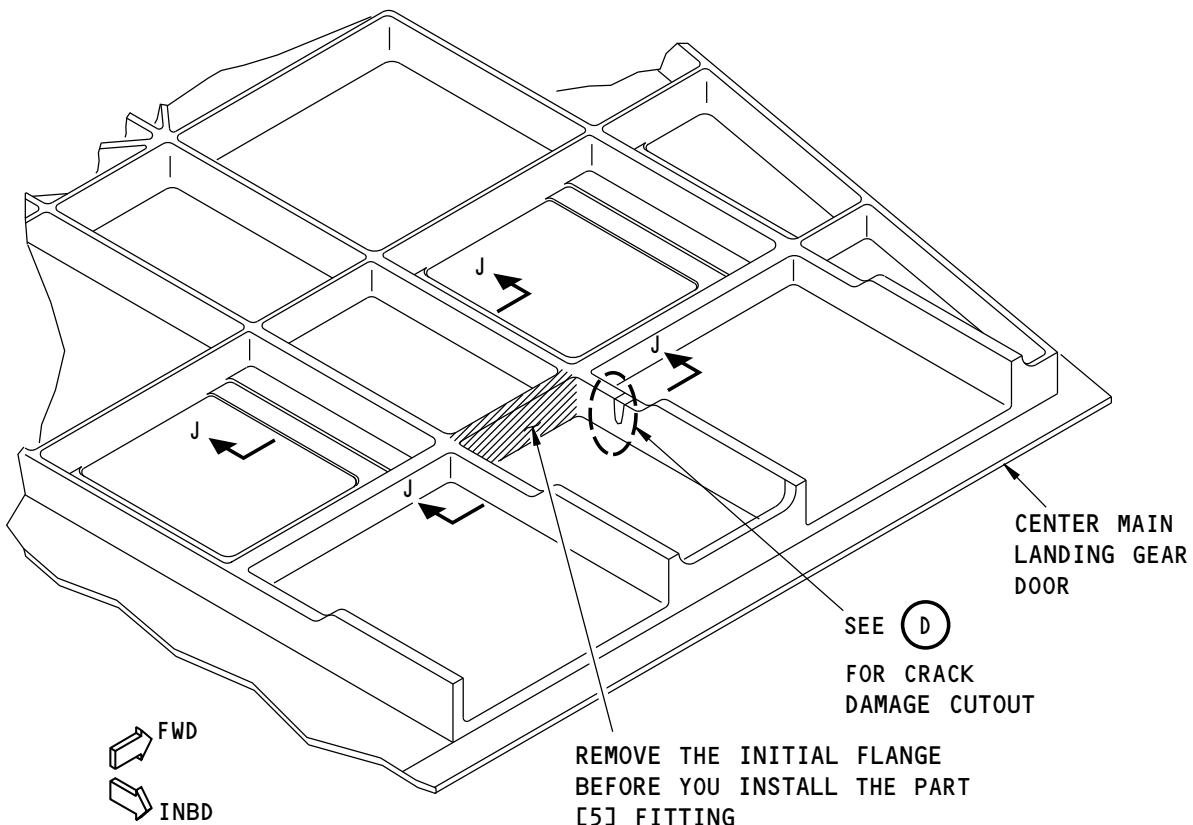
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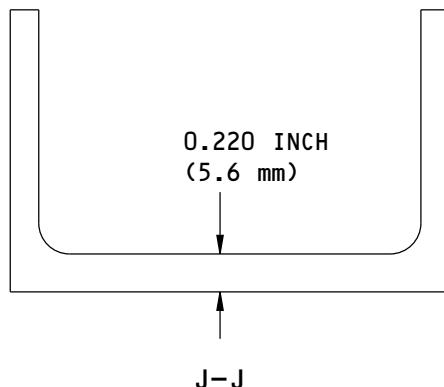


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REMOVAL OF THE DAMAGE BETWEEN THE HINGE FITTINGS

(E)



2289529 S0000517511_V1

Main Landing Gear Door Typical Repair
Figure 202 (Sheet 9 of 13)

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REPAIR 3
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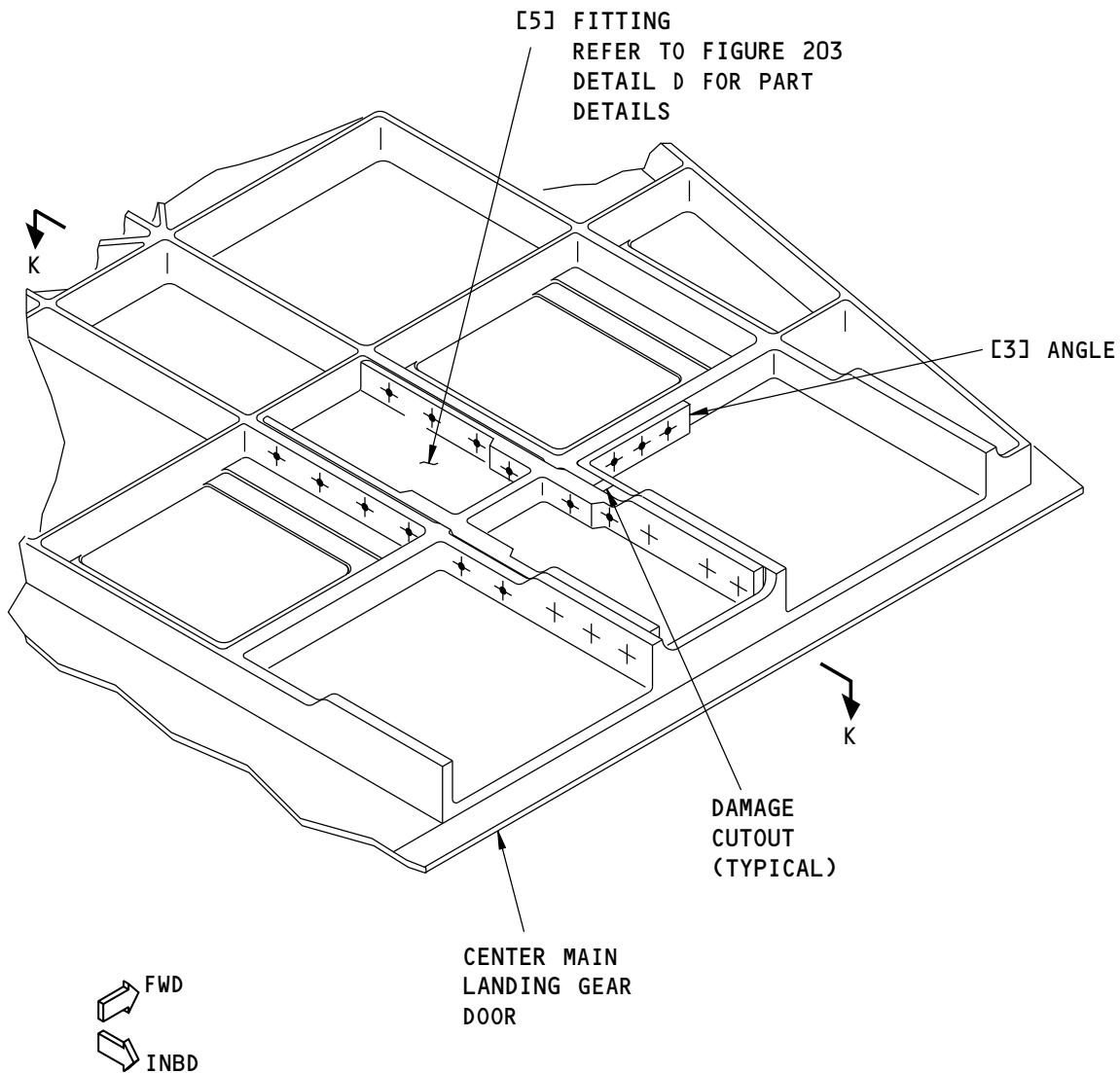
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TYPICAL REPAIR BETWEEN THE HINGE FITTINGS

(F)

2289539 S0000517512_V1

Main Landing Gear Door Typical Repair
Figure 202 (Sheet 10 of 13)

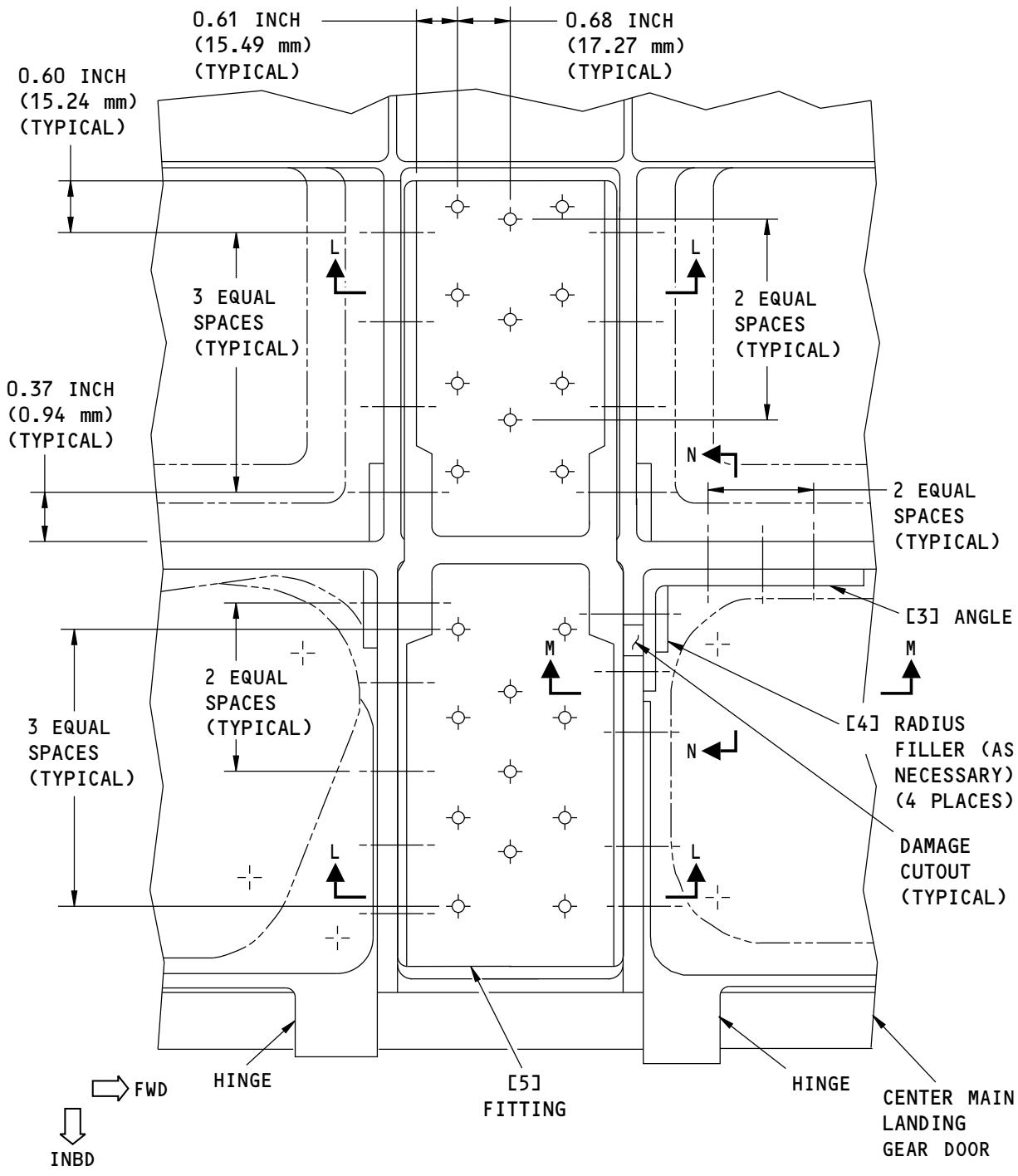
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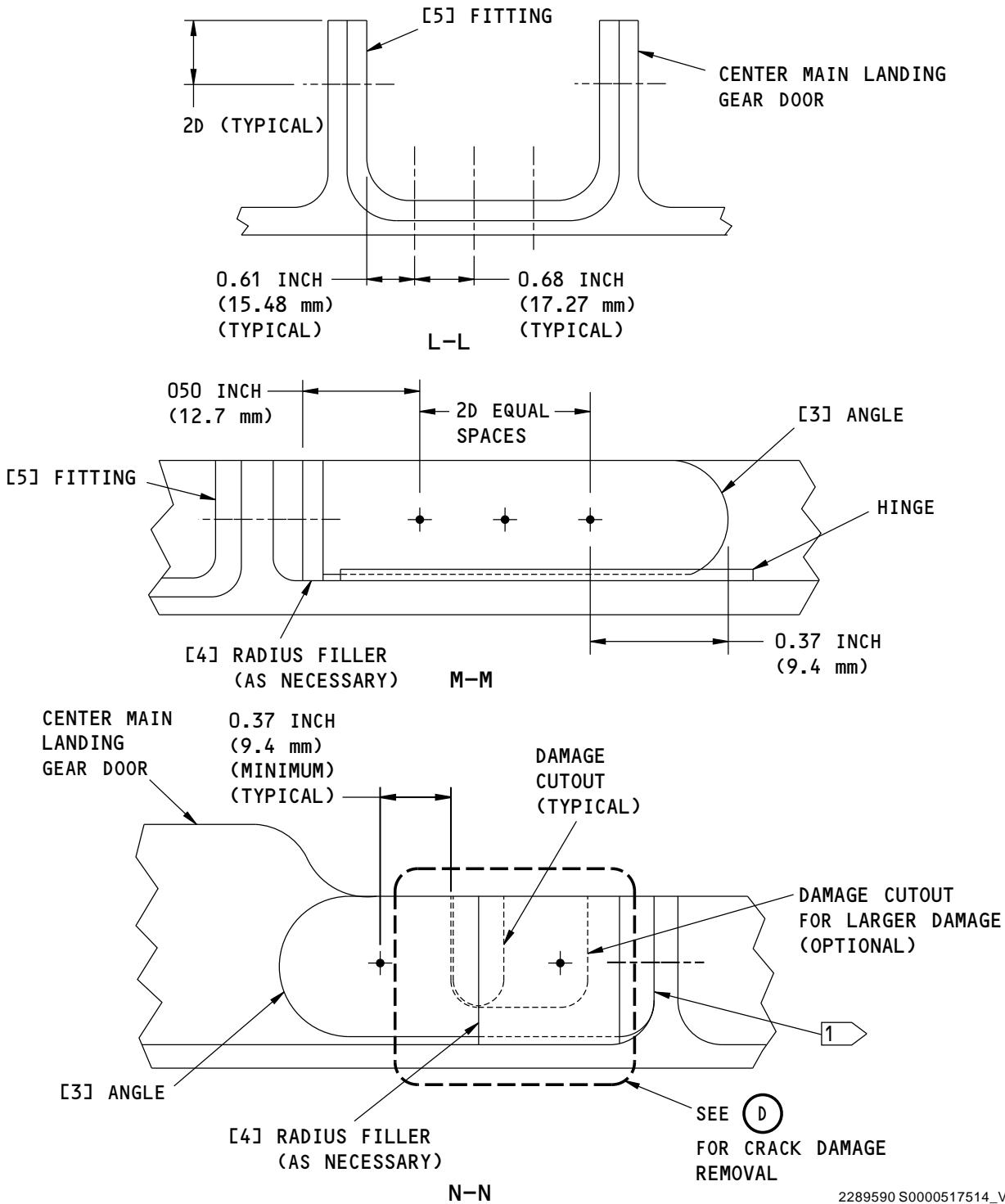
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STRUCTURAL REPAIR MANUAL**


2289551 S0000517513_V1

**Main Landing Gear Door Typical Repair
Figure 202 (Sheet 11 of 13)**

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2289590 S0000517514_V1

**Main Landing Gear Door Typical Repair
Figure 202 (Sheet 12 of 13)**

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**REPAIR 3
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NOTES

- D = FASTENER DIAMETER
-  REMOVE THE CRACK. DO NOT TRIM INTO THE RADIUS OF THE WEB. BREAK ALL SHARP EDGES.

FASTENER SYMBOLS

- !- REFERENCE FASTENER LOCATION.
- + INITIAL FASTENER LOCATION. INSTALL A BACB30NX6K()X HEX-DRIVE BOLT WITH A BACC30M6 COLLAR.
- REPAIR FASTENER LOCATION. INSTALL A BACB30VT6K() HEX-DRIVE BOLT WITH A BACC30BL6 COLLAR FOR DETAIL A. INSTALL A BACB30NX6K() WITH A BACC30X6 COLLAR FOR DETAIL C AND F.
- REPAIR FASTENER LOCATION. INSTALL A BACR15CE6 RIVET.
- REPAIR FASTENER LOCATION. INSTALL A BACB30VU6K() HEX-DRIVE BOLT WITH A BACC30BL6 COLLAR.

2289738 S0000518273_V1

Main Landing Gear Door Typical Repair
Figure 202 (Sheet 13 of 13)

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REPAIR 3
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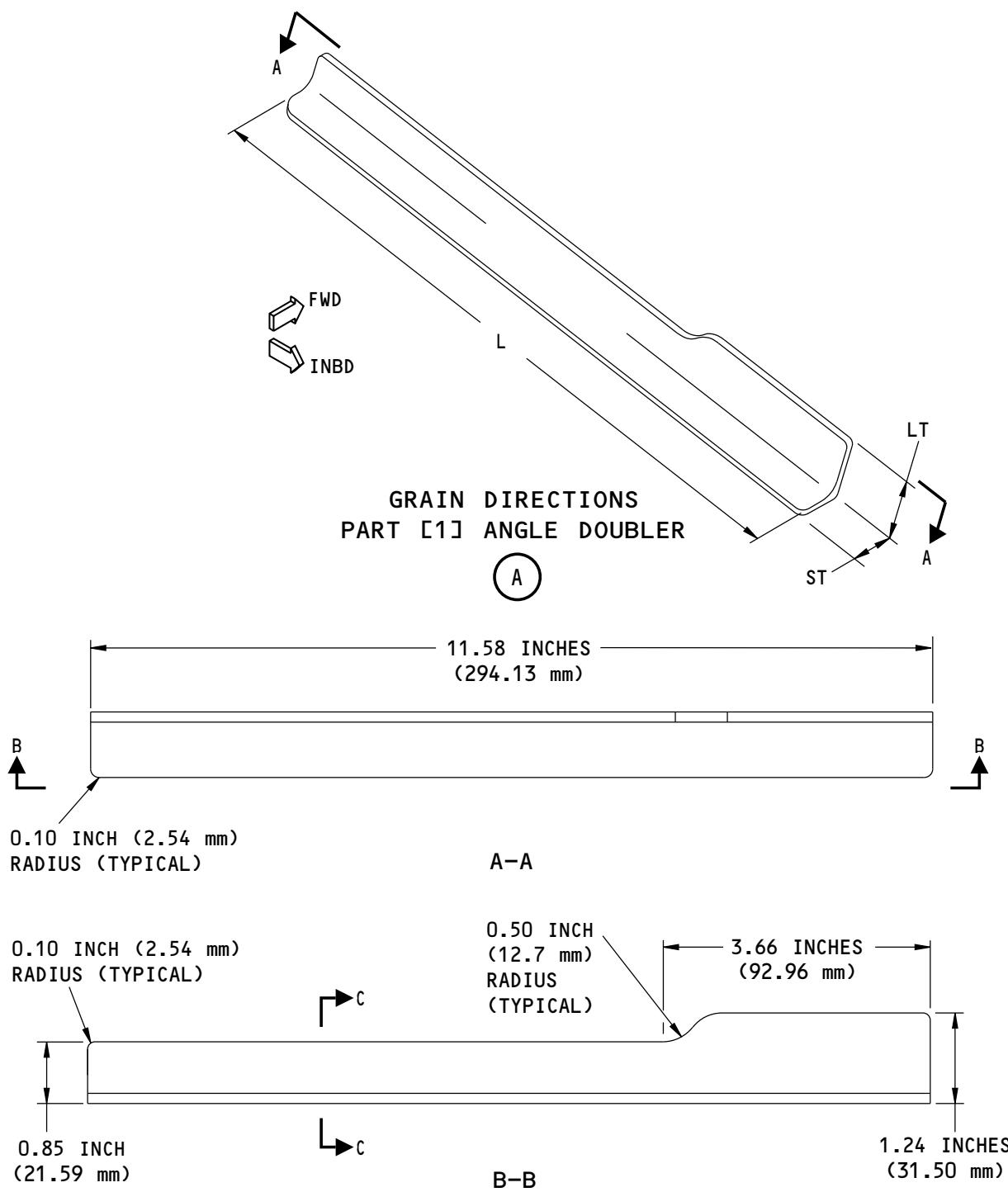
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Repair Details
Figure 203 (Sheet 1 of 7)

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REPAIR 3
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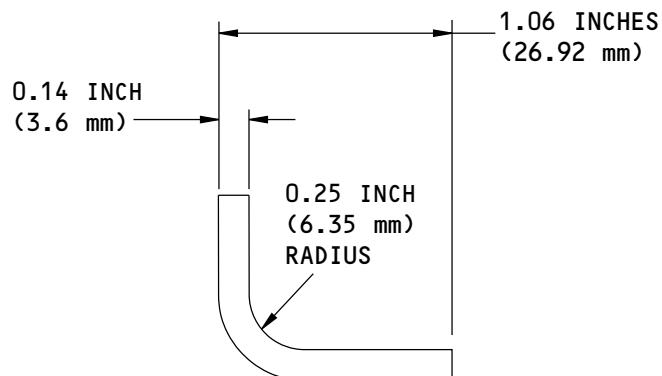
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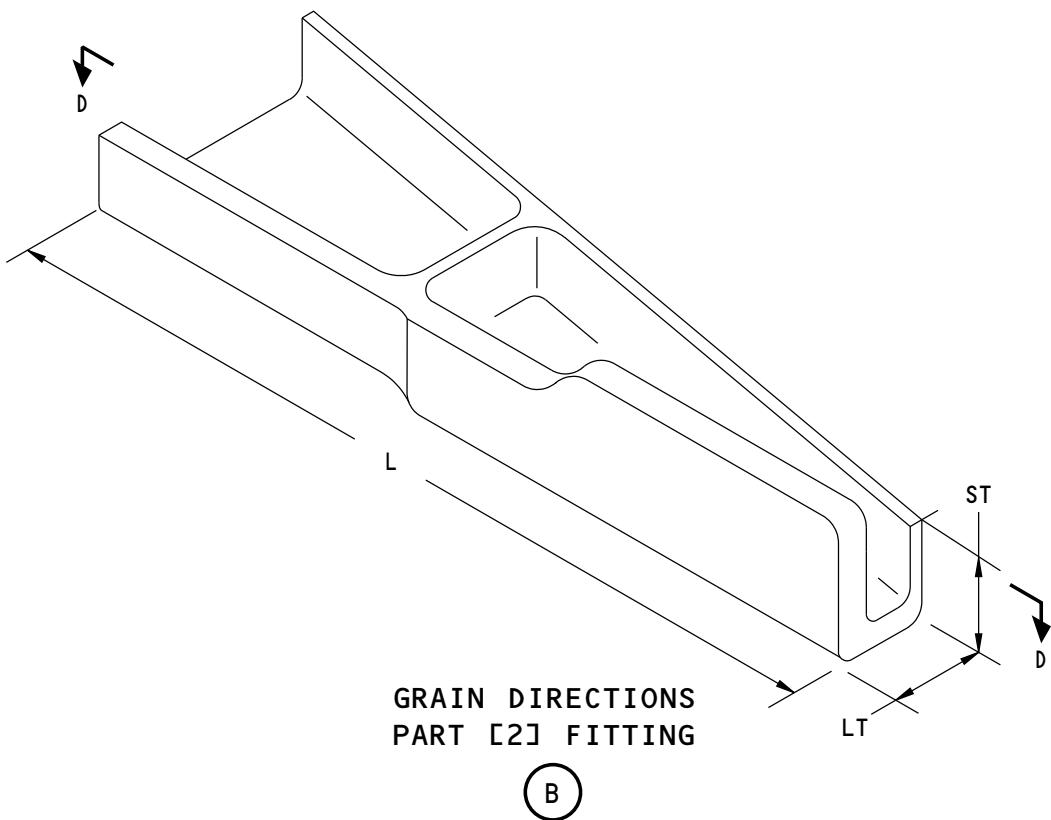
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C-C



2018878 S0000399133_V2

Repair Details
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REPAIR 3

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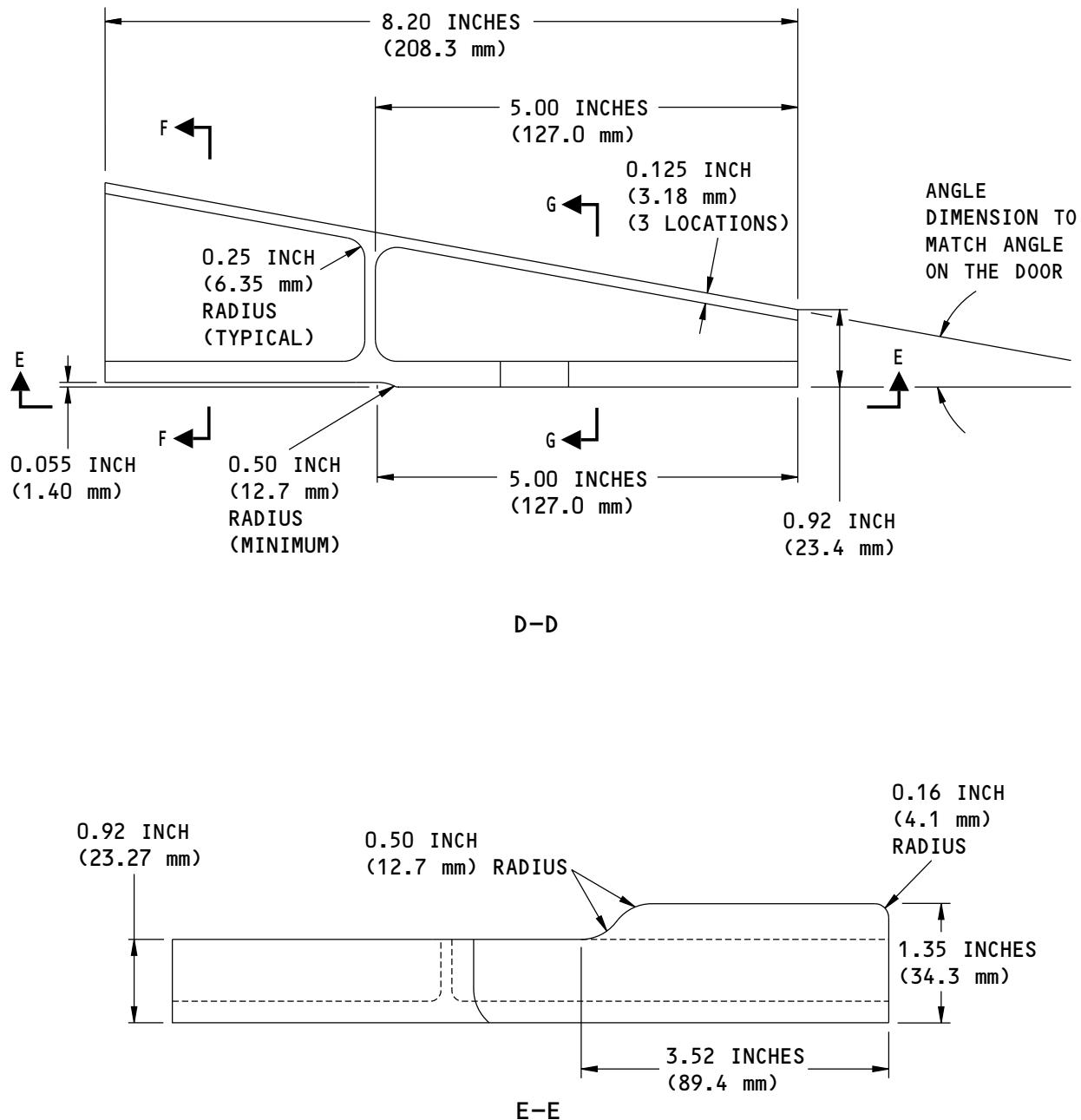
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Repair Details
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REPAIR 3
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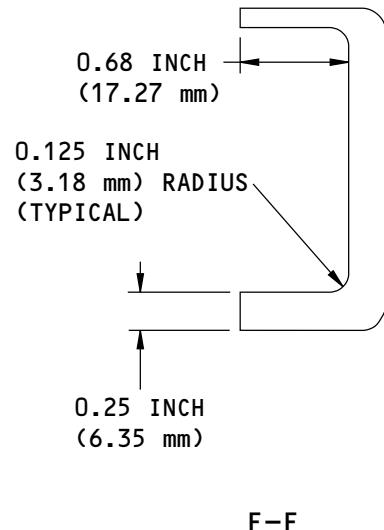
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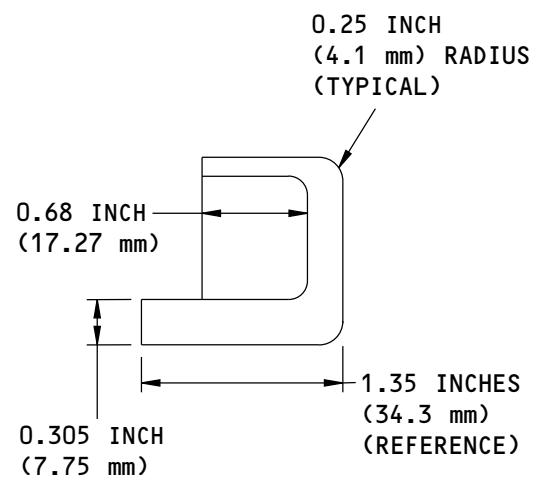
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F-F



G-G

2018881 S0000399135_V3

Repair Details
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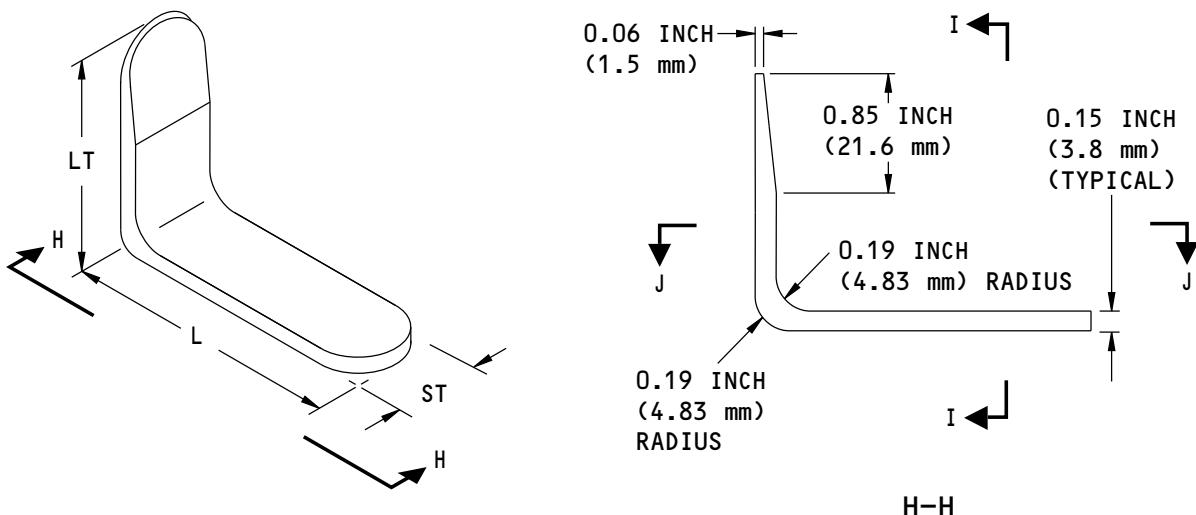
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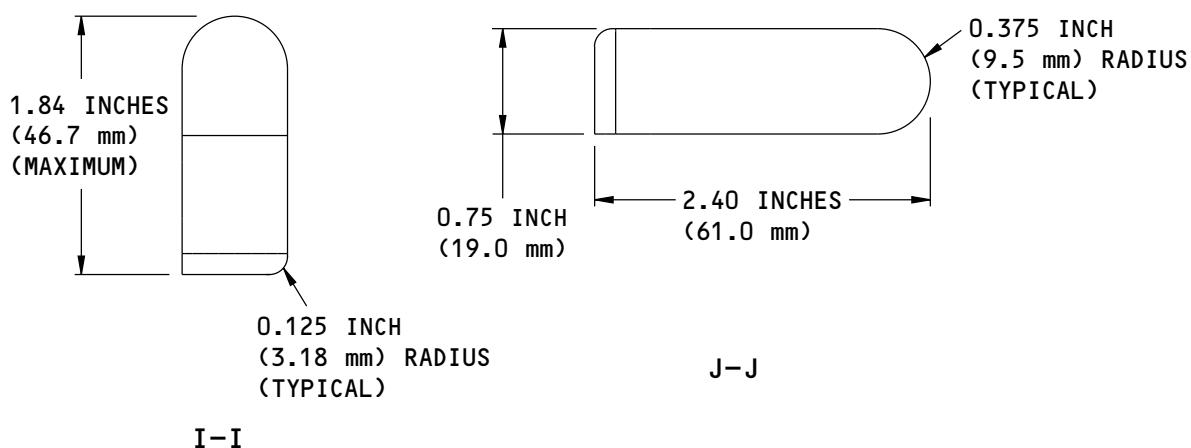


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GRAIN DIRECTIONS
PART [3] ANGLE

(C)



I-I

2018884 S0000399136_V2

Repair Details
Figure 203 (Sheet 5 of 7)

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REPAIR 3
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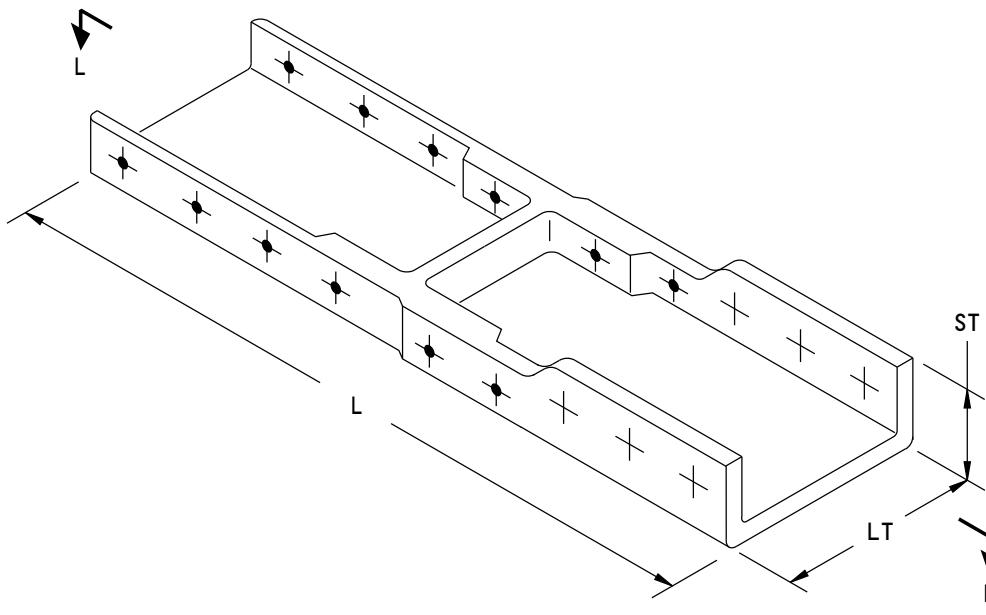
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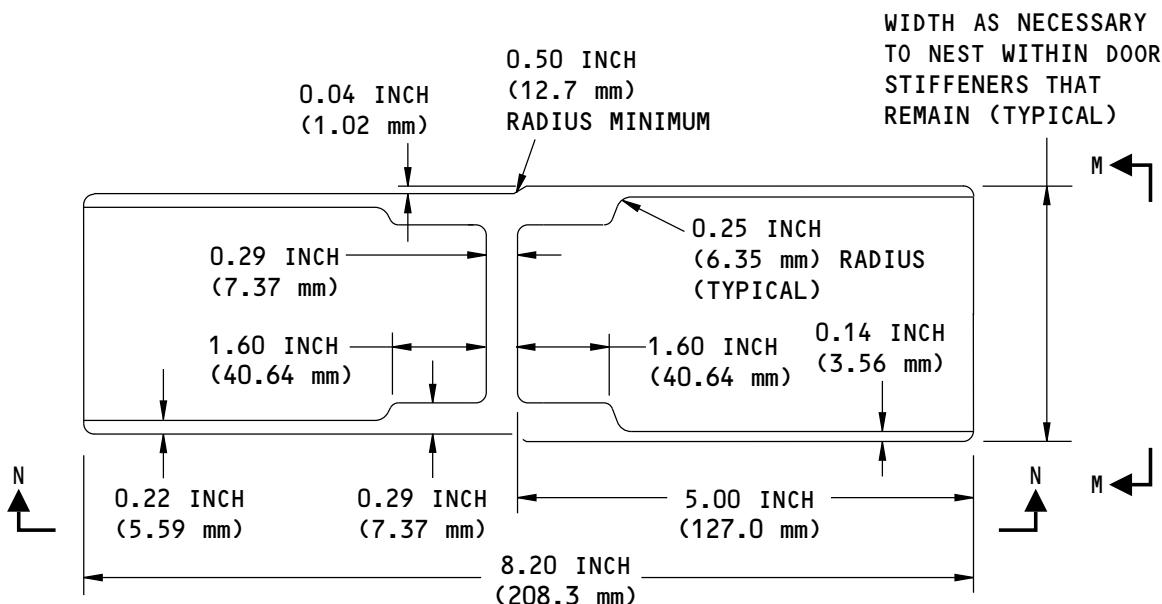


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GRAIN DIRECTIONS
PART [5] FITTING

D



2294296 S0000519413_V1

Repair Details
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REPAIR 3
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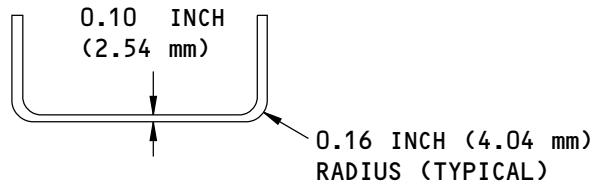
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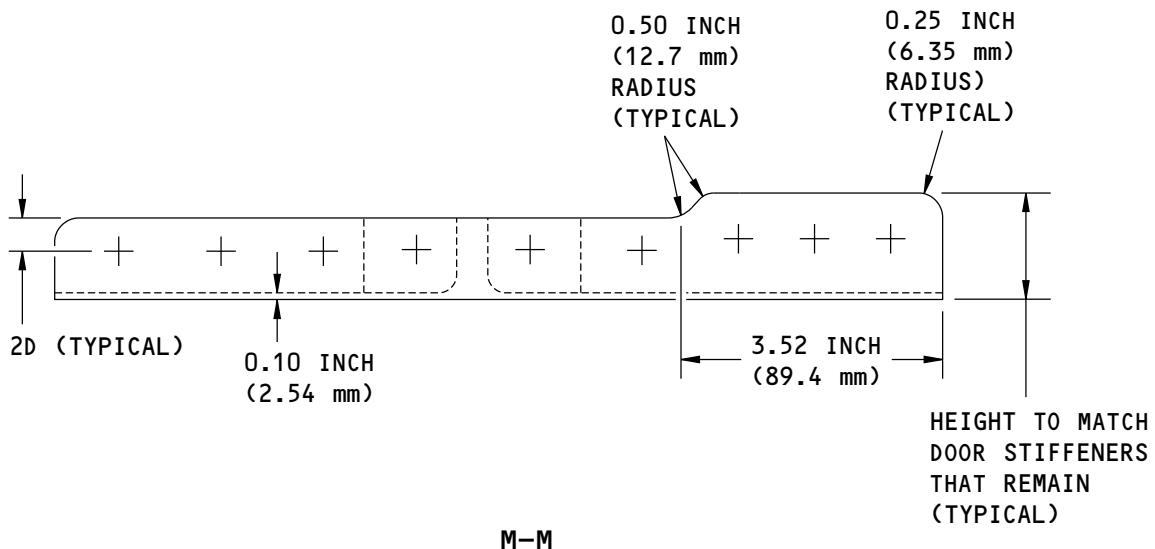
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ROTATED 90 ° COUNTERCLOCKWISE
L-L



NOTES

- REFER TO TABLE 201, REPAIR 3 FOR THE MATERIAL THICKNESS

2294298 S0000519633_V1

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REPAIR 3
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STRUCTURAL REPAIR MANUAL

REPAIR 4 - MAIN LANDING GEAR DOOR CRACK REPAIR - ALUMINUM CAST INBOARD DOOR
WITH 113A8341-1/-2 HINGE FITTING

1. Applicability

- A. This repair is applicable to a stiffener crack in the inboard main landing gear door.
- B. This repair is applicable to the inboard main landing gear door that is made from an aluminum casting (113A8331) as shown in Figure 201/REPAIR 4.
- C. This repair is applicable to the inboard main landing gear door with the 113A8341-1/-2 hinge fitting.
- D. This repair is not applicable to a crack that extends into the skin of the inboard main landing gear door.

2. General

- A. This repair is a Permanent repair. Refer to STRUCTURAL REPAIR DEFINITIONS, 51-00-06 for the definitions of the different categories of repairs.
- B. Refer to Figure 202 (Sheet 1) for the crack damage location.
- C. D = Fastener diameter.
- D. Keep a 2D minimum fastener edge margin, unless it is shown differently.
- E. ST = Short transverse grain direction.
- F. This repair is in an area where AD 2013-15-16 is applicable. It is necessary that you obey the requirements of Service Bulletin 737-52A1167. This repair does not stop the inspections that are necessary as given in the Service Bulletin. When you install this repair, it is recommended that you do a High Frequency Eddy Current (HFEC) inspection as given in the Service Bulletin for the hinge fittings. This inspection will let you have an increased inspection interval as given in the Service Bulletin.

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-20-13	SURFACE ROUGHNESS FINISH REQUIREMENTS
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-05, GENERAL	Fastener Hole Sizes
AMM 32-13-11	MAIN LANDING GEAR SHOCK STRUT DOORS
AMM 51-21	INTERIOR AND EXTERIOR FINISHES
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
737 NDT Part 6, 51-00-00, Procedure 4	Surface Inspection of Aluminum Parts (Meter Display)

4. Repair Instructions

- A. Get access to the damaged area. If necessary, remove the inboard main landing gear door as given in AMM SUBJECT 32-13-11.
- B. Remove the initial fasteners at the hinge fittings. Refer to FASTENER INSTALLATION AND REMOVAL, 51-40-02.

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- C. Make a 0.5 in. (12.7 mm) wide cutout in the stiffener at the crack location as shown in Figure 202 (Sheet 2). Refer to the INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.
 - (1) The slot depth must extend as far as necessary to remove the crack. Refer to Figure 202 (Sheet 2).
 - (2) Make sure that there is a minimum height of 0.25 in. (6.35 mm) at the stiffener as shown in Figure 202 (Sheet 2).
- D. Do a High Frequency Eddy Current (HFEC) inspection of the reworked area to make sure that there are no more cracks. Refer to 737 NDT Part 6, 51-00-00, Procedure 4 and 51-10-02.
- E. Make the repair parts. Refer to Table 201/REPAIR 4, Figure 203/REPAIR 4 and as follows:
 - (1) Make sure that the contour of the repair fitting aligns with the contour of the door and door hinge fitting.
 - (2) Make sure that there is a 1.7D minimum fastener edge margin on the repair fitting at the initial fastener locations common to the hinge fittings. Refer to Figure 202/REPAIR 4.

Table 201: Repair Material

ITEM	PART	QUANTITY	MATERIAL
1	Fitting	1	Use 7050-T7451 plate as given in AMS 4050. Maximum plate thickness (ST grain direction) 3.0 in. (76.2 mm).
2	Fitting	1	Use 7050-T7451 plate as given in AMS 4050. Maximum plate thickness (ST grain direction) 3.0 in. (76.2 mm).

- F. Make sure that the repair parts and the bare surfaces of the initial parts have a surface finish of 125 microinches (3.2 micrometers) Ra or smoother. Refer to SURFACE ROUGHNESS FINISH REQUIREMENTS, 51-20-13.
- G. Make radius fillers if fasteners between the repair fittings and the door do not have the necessary space for the fastener.
 - (1) Do not use radius fillers at hinge fitting fasteners.
 - (2) Use 7075-T6 clad sheet as given in AMS-QQ-A-250/13 for the radius filler material.
- H. Shim all spaces between the mating surfaces of the parts that are more than 0.005 in. (0.127 mm). Use 7075-T6 clad sheet as given in AMS-QQ-A-250/13 for the shim material.
- I. Assemble the repair parts. Refer to Figure 202/REPAIR 4.
- J. Drill the fastener holes. Make sure that you do not cause damage to the door or hinge fittings. Refer to 51-40-05, GENERAL, Figure 202/REPAIR 4 and Figure 203/REPAIR 4.
- K. Disassemble the repair parts.
- L. Remove all nicks, scratches, burrs, and sharp edges from the repair parts and the bare surfaces of the initial parts.
- M. Apply a chemical conversion coating to the repair parts and to the reworked areas of the initial parts as given in 51-20-01.
- N. Apply two layers of BMS 10-11, Type I primer to the repair parts and to the reworked areas of the initial parts as given in 51-20-01 and SOPM 20-41-02.
- O. Install the repair parts with BMS 5-95 sealant between the mating surfaces. Refer to REPAIR SEALING, 51-20-05.
- P. Install the fasteners. Fasteners must be installed wet with BMS 5-95 sealant. Refer to REPAIR SEALING, 51-20-05 and FASTENER INSTALLATION AND REMOVAL, 51-40-02.

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- Q. If necessary, apply a decorative finish. Refer to AMM SECTION 51-21.
- R. Put the inboard main landing gear door back to its initial condition, as applicable.
 - (1) Install the inboard main landing gear door as given in AMM SUBJECT 32-13-11, if it was removed.
 - (2) An incorrectly rigged door can lead to interferences between the repair fitting [2] and the main landing gear structure and systems.

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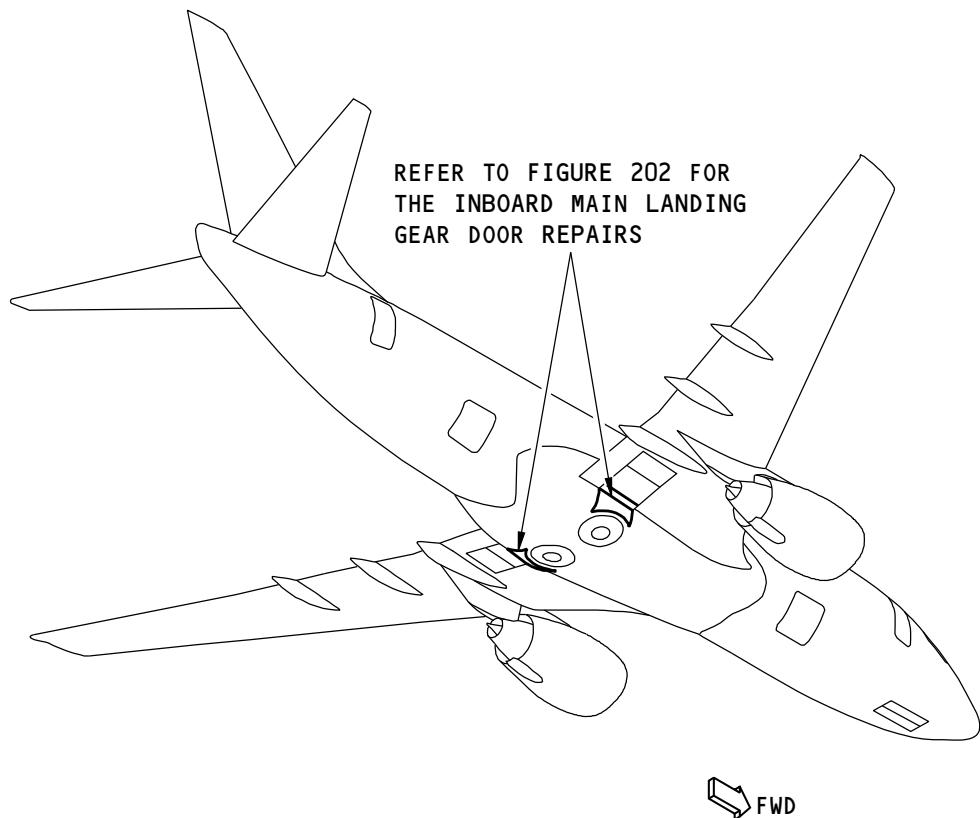
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2341980 S0000533708_V1

Inboard Main Landing Gear Door Location
Figure 201

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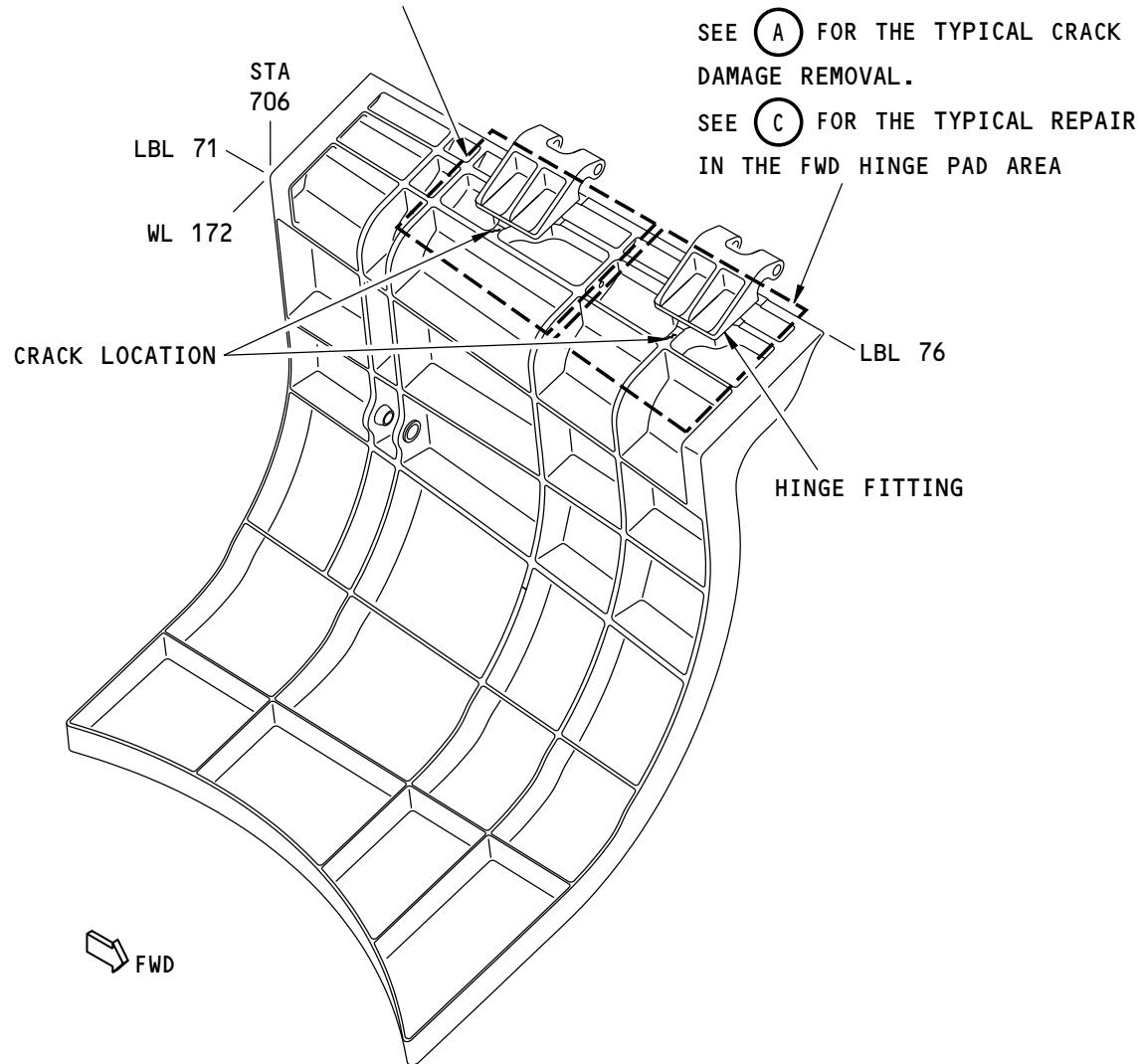
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SEE A FOR THE TYPICAL CRACK
DAMAGE REMOVAL.

SEE D FOR THE TYPICAL REPAIR
IN THE AFT HINGE PAD AREA



(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

2342425 S0000533710_V2

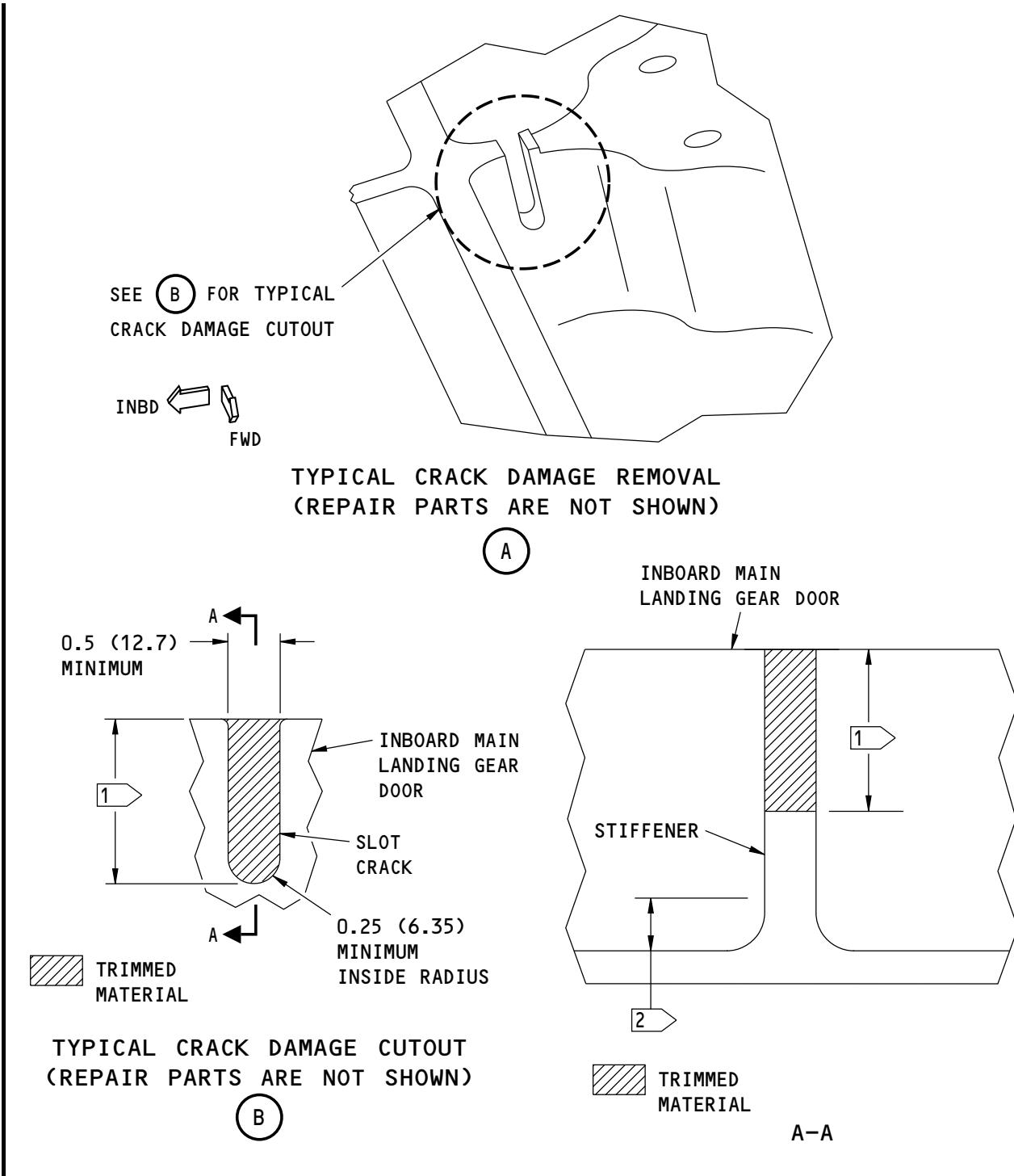
Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 1 of 7)

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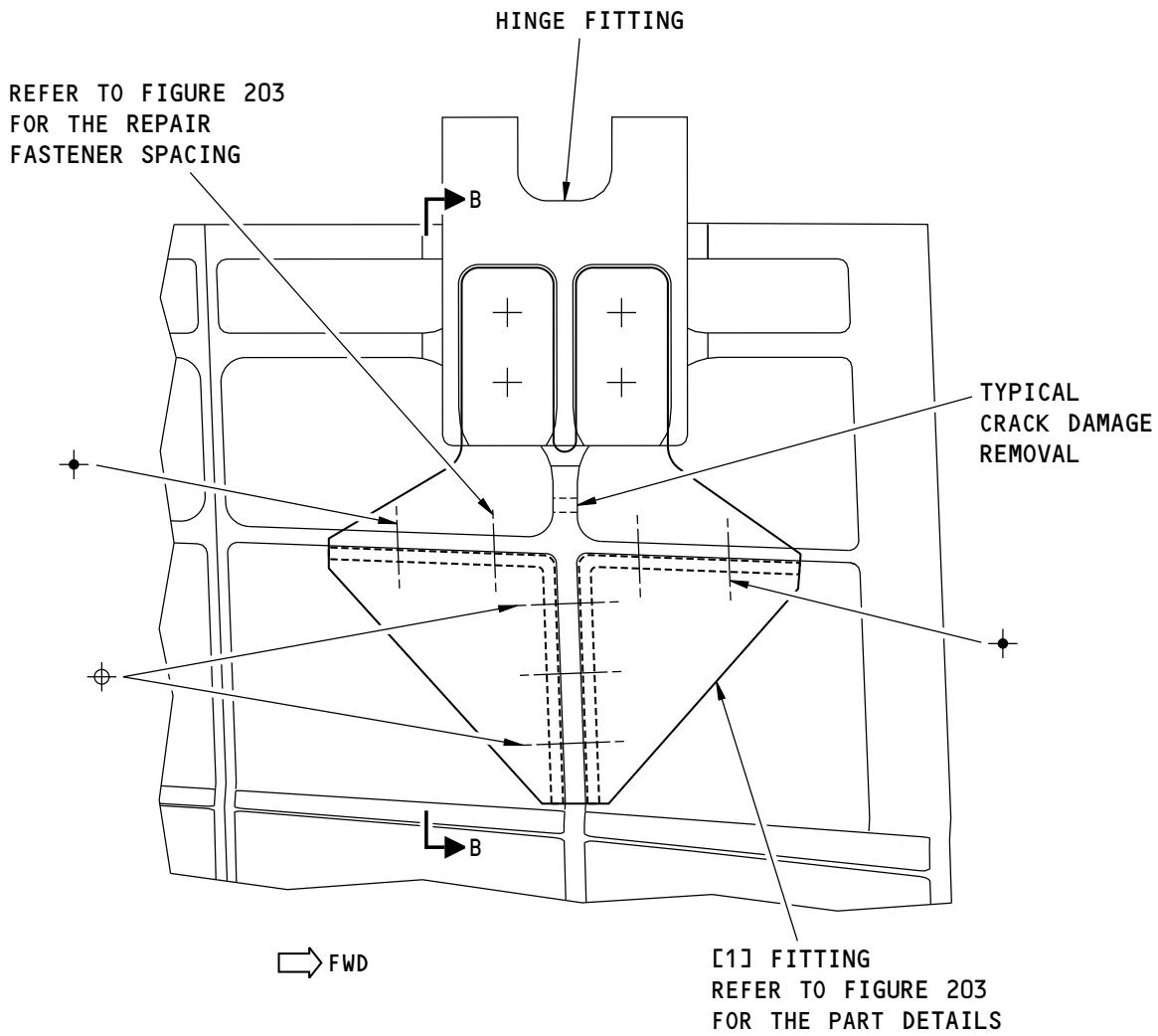
2342847 S0000533711_V2

Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 2 of 7)

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TYPICAL REPAIR AT THE FORWARD HINGE PAD
(VIEW IN THE DOWN DIRECTION)

C

2342955 S0000533712_V2

Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 3 of 7)

52-80-02

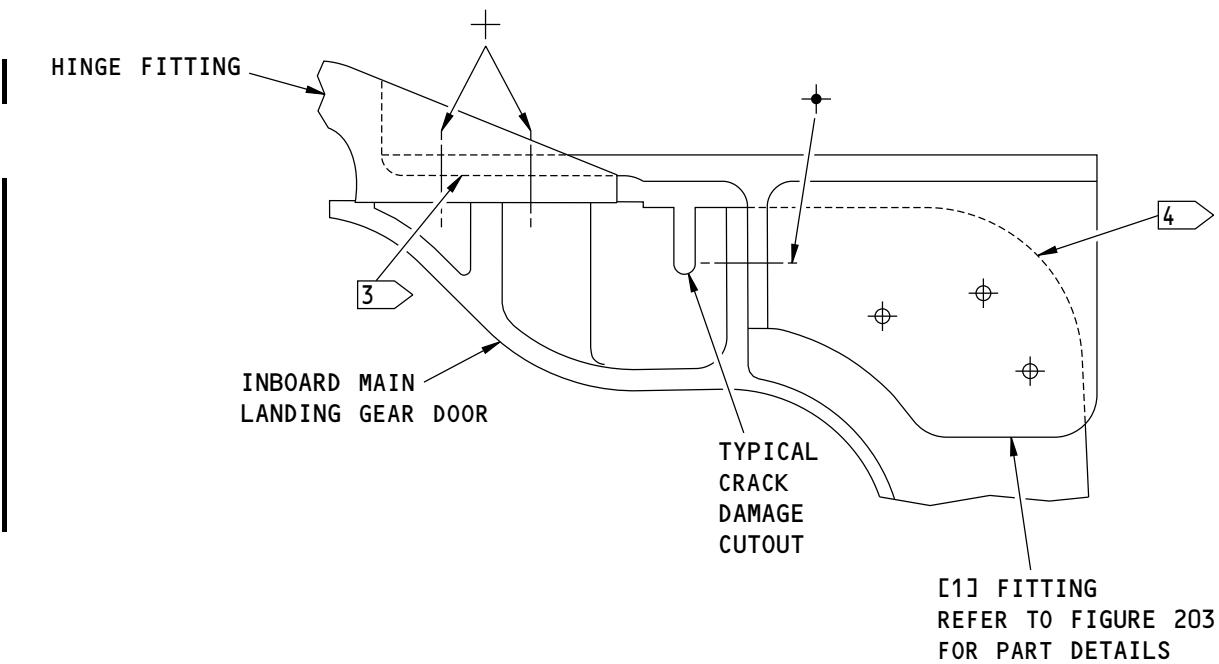
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(VIEW IN THE FORWARD DIRECTION)

B-B

2344569 S0000533713_V2

Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 4 of 7)

52-80-02

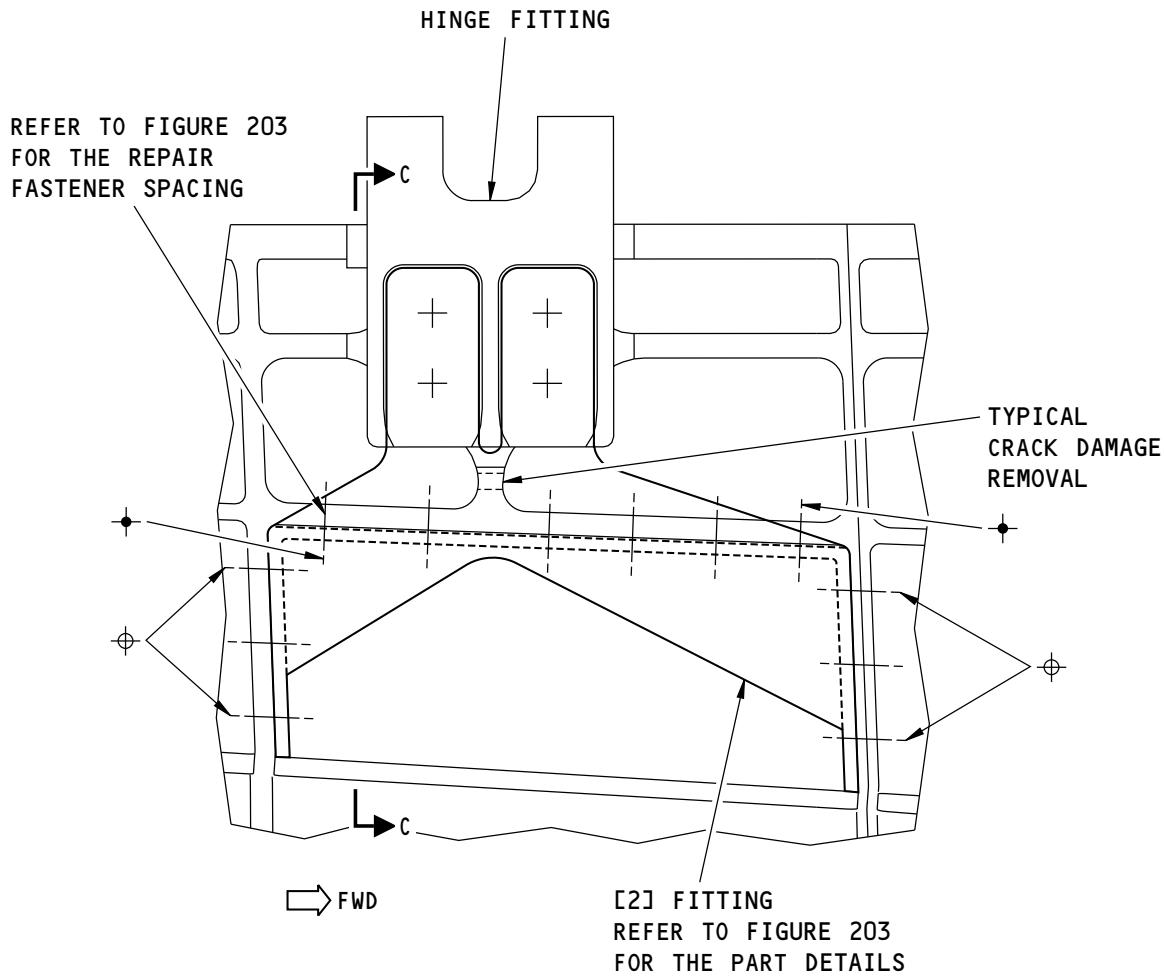
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TYPICAL REPAIR AT THE AFT HINGE PAD
(VIEW IN THE DOWN DIRECTION)

2343411 S0000533715_V2

Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 5 of 7)

52-80-02

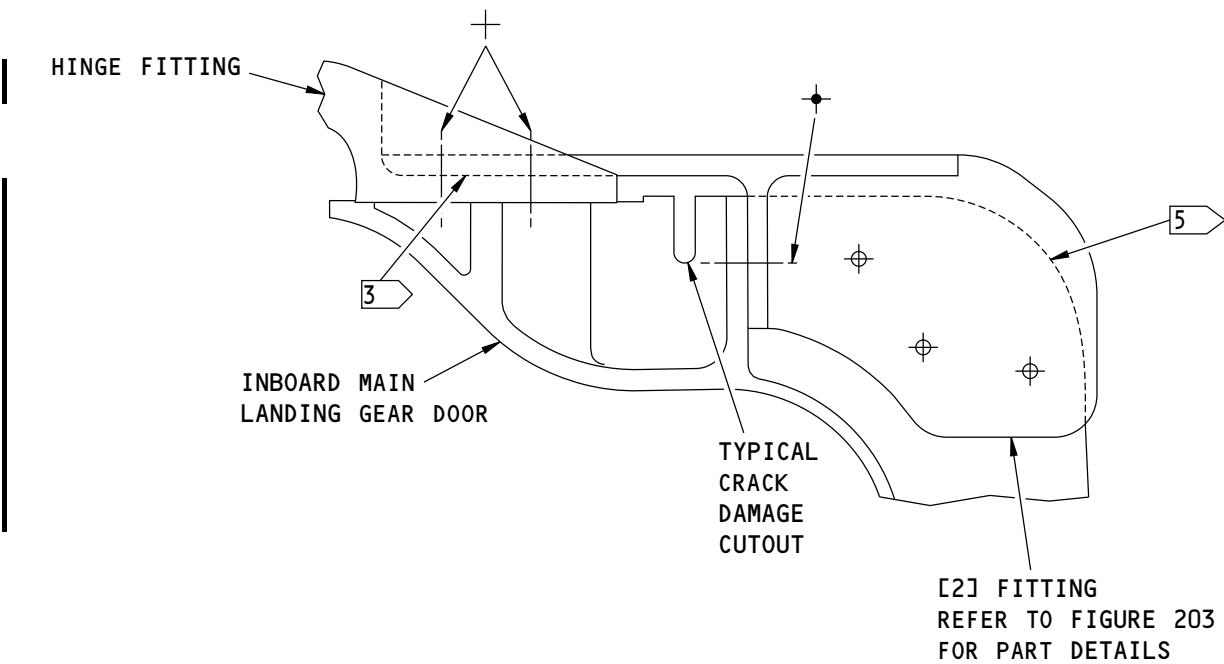
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(VIEW IN THE FORWARD DIRECTION)

C-C

2344595 S0000533716_V2

Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 6 of 7)

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NOTES

- ALL DIMENSIONS ARE IN INCHES (mm).
 - D = FASTENER DIAMETER
- [1] TRIM A SLOT INTO THE STIFFENER TO REMOVE THE CRACK. MAKE SURE THAT THE DEPTH OF THE SLOT FULLY REMOVES THE CRACK AND IS THE MINIMUM NECESSARY TO REMOVE THE CRACK.
- [2] THE HEIGHT OF THE REMAINING STIFFENER AT THE SLOT MUST BE A MINIMUM OF 0.25 (6.35).
- [3] MAKE SURE THAT THE RADIUS OF THE REPAIR FITTING NESTS INTO THE RADIUS OF THE HINGE FITTING WITHOUT INTERFERENCE. MAKE SURE THAT THERE IS NO GAP BETWEEN THE REPAIR FITTING AND HINGE FITTING AT THE FAYING SURFACES. KEEP A 1.7D MINIMUM FASTENER EDGE MARGIN ON THE REPAIR FITTING AT THE INITIAL FASTENER LOCATIONS COMMON TO THE HINGE FITTINGS.
- [4] THE MAXIMUM SHIM THICKNESS ON EACH SIDE OF THE DOOR STIFFENER IS 0.020 (0.508).
- [5] THE MAXIMUM SHIM THICKNESS ON EACH SIDE OF THE FLANGE AND THE DOOR STIFFENER IS 0.040 (1.016).

FASTENER SYMBOLS

- + INITIAL FASTENER LOCATION. INSTALL THE SAME TYPE AND DIAMETER FASTENER AS THE INITIAL FASTENER (UP TO 1/32-INCH DIAMETER OVERSIZE).
- REPAIR FASTENER LOCATION. INSTALL A BACB30NX6K() HEX-DRIVE BOLT WITH A BACC30BH6 COLLAR.
- ∅ REPAIR FASTENER LOCATION. INSTALL A BACB30NX8K() HEX-DRIVE BOLT WITH A BACC30BH8 COLLAR.

2343808 S0000533721_V2

Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 7 of 7)

52-80-02

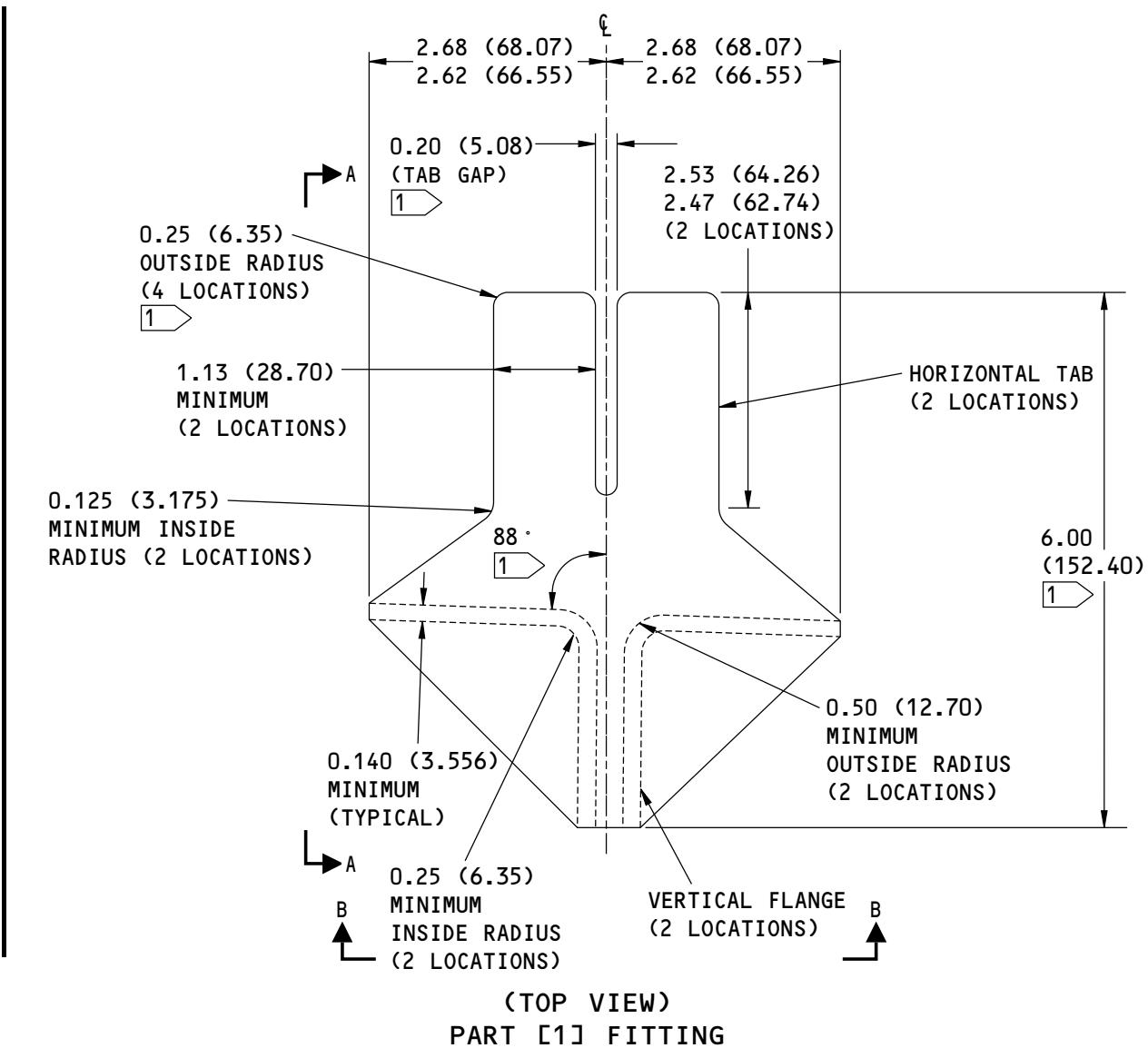
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2343987 S0000533727_V2

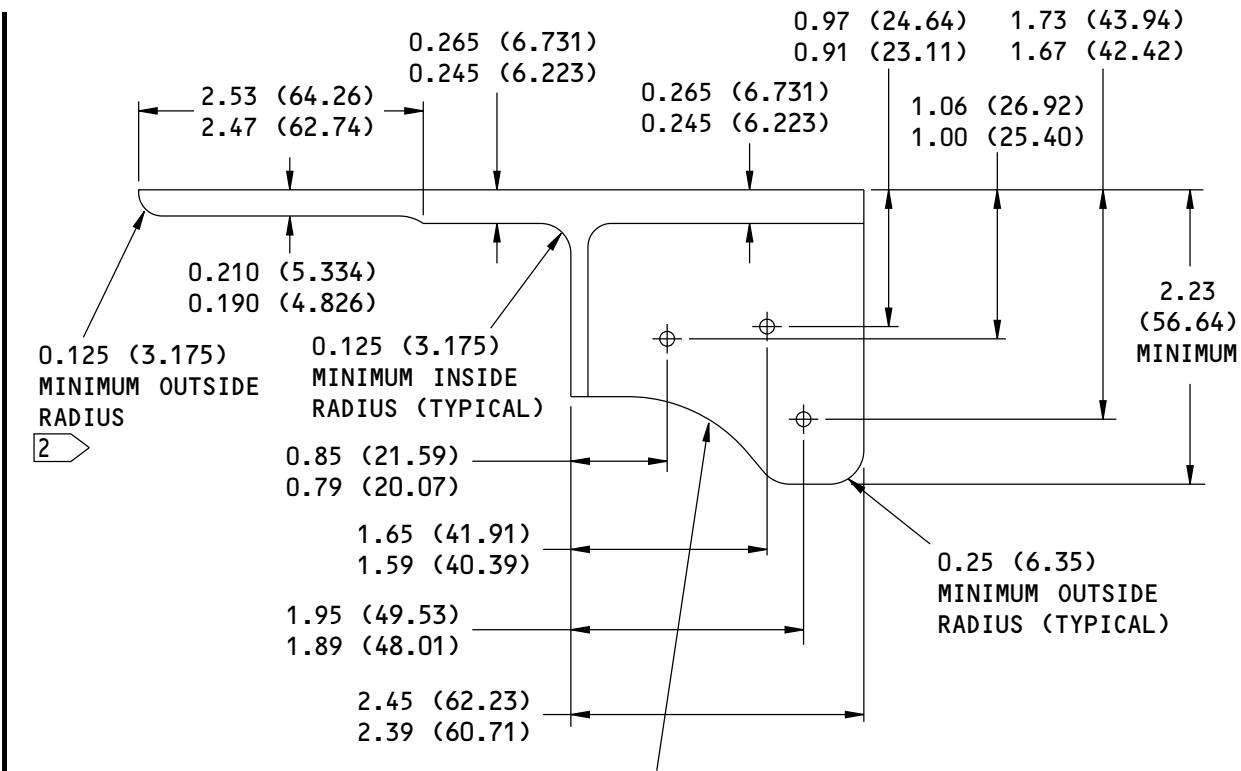
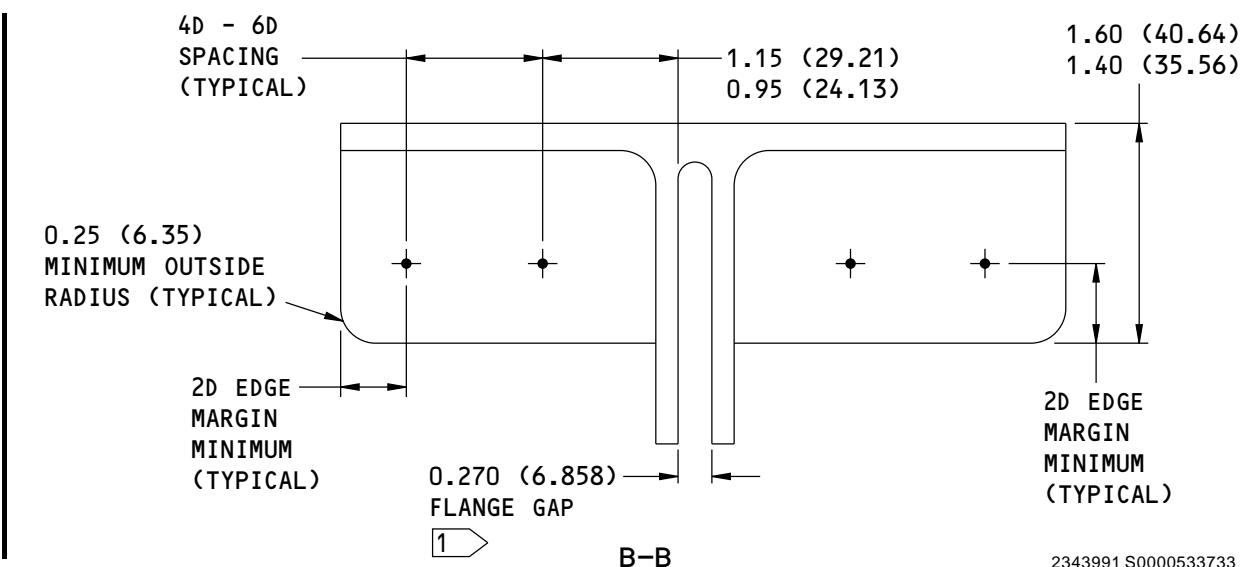
Repair Details
Figure 203 (Sheet 1 of 6)

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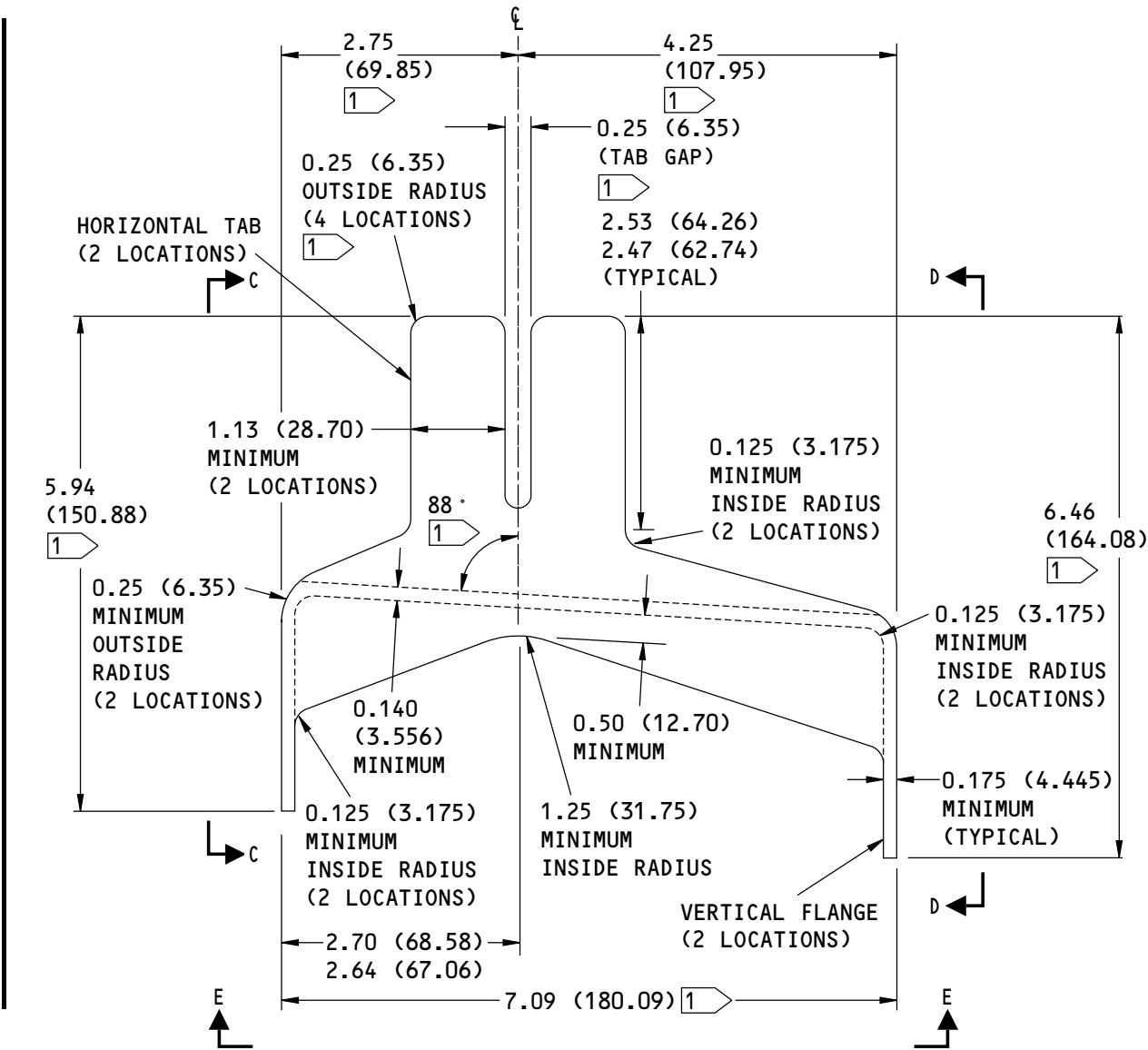
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A-A


2343991 S0000533733_V2

Repair Details
Figure 203 (Sheet 2 of 6)

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(TOP VIEW)
PART [2] FITTING

2343953 S0000533736_V2

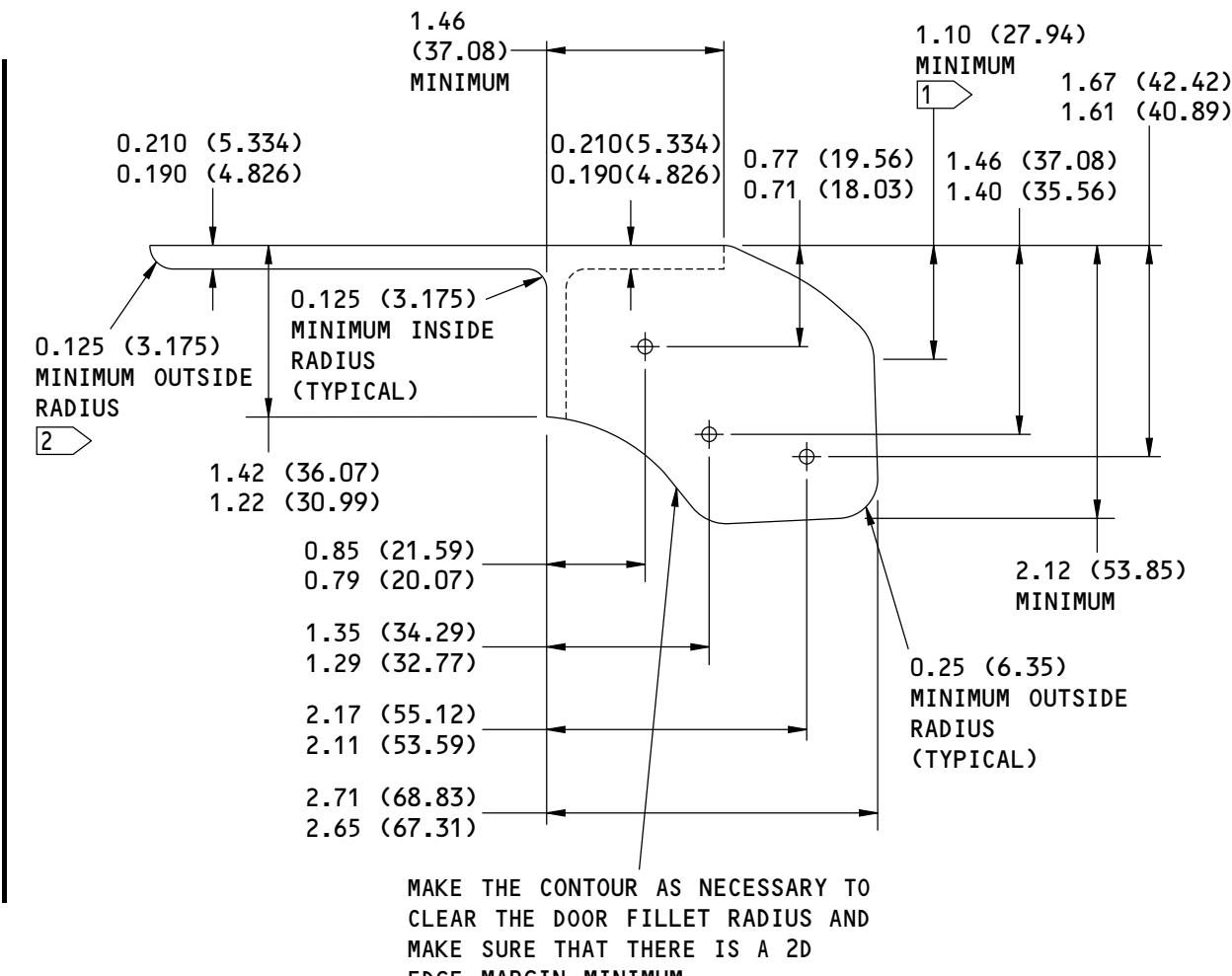
Repair Details
Figure 203 (Sheet 3 of 6)

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C-C

2344153 S0000533740_V2

Repair Details
Figure 203 (Sheet 4 of 6)

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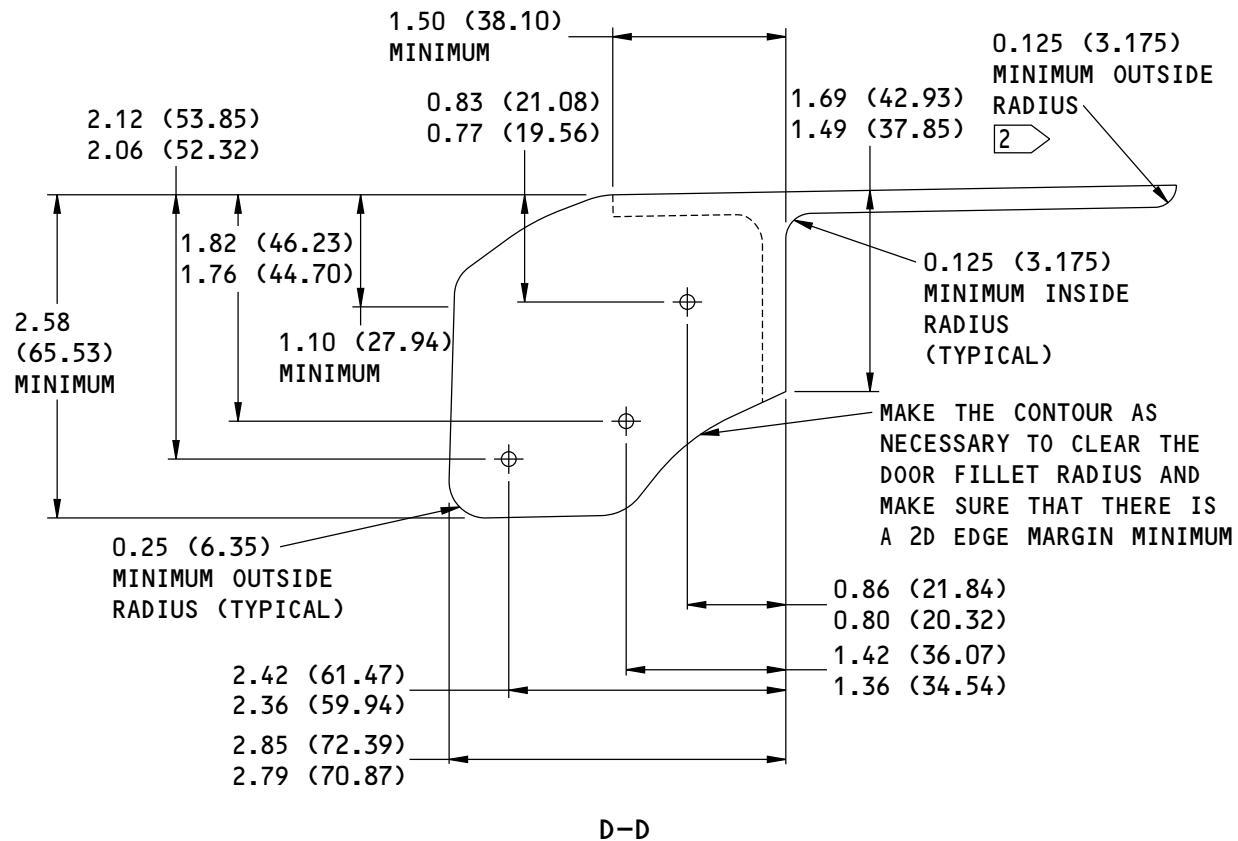
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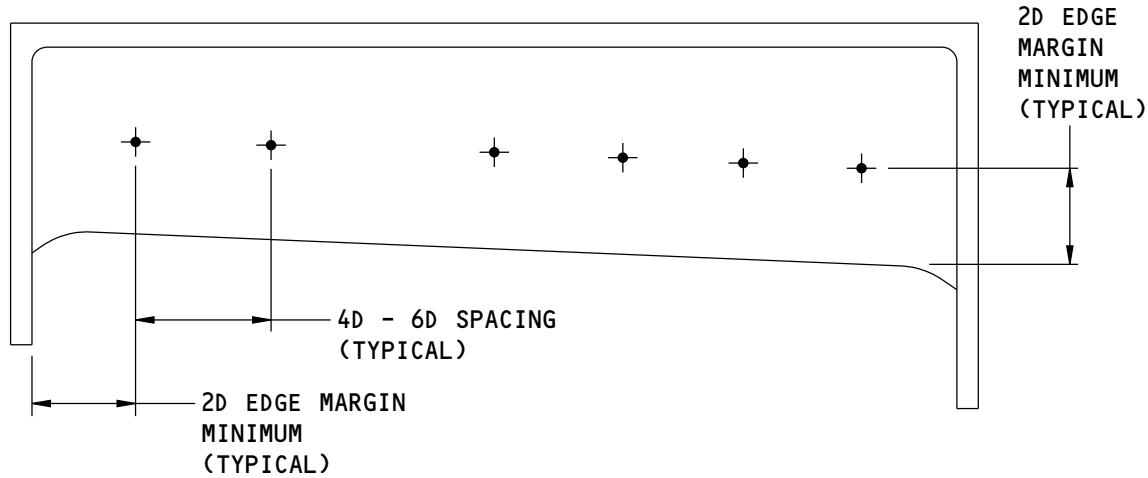
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D-D



E-E

2344364 S0000533744_V2

Repair Details
Figure 203 (Sheet 5 of 6)

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NOTES

- ALL DIMENSIONS ARE IN INCHES (mm).
- D = FASTENER DIAMETER
- TYPICAL = THE DIMENSION SHOWN APPLIES TO OTHER SIMILAR FEATURES IN THE VIEW.

- 1 ➤ DIMENSIONS SHOWN ARE FOR REPAIR FITTINGS THAT ARE BASED ON THE GIVEN NOMINAL DESIGN GEOMETRY OF THE INBOARD MAIN LANDING GEAR DOOR. DIMENSIONS SHOWN WITHOUT A TOLERANCE ARE NOT THE MOST IMPORTANT DIMENSIONS. YOU CAN ADJUST THE DIMENSIONS, IF NECESSARY, TO ACCOMMODATE THE GEOMETRY OF THE INBOARD MAIN LANDING GEAR DOOR TO MAKE SURE THAT THERE IS NO INTERFERENCE BETWEEN THE MATING FEATURES OF THE DOOR AND REPAIR FITTING AND THAT THE GAPS BETWEEN THE DOOR AND REPAIR FITTING ARE NOT MORE THAN 0.005 (0.127).
- 2 ➤ MAKE SURE THAT THE RADIUS OF THE REPAIR FITTING NESTS INTO THE RADIUS OF THE HINGE FITTING WITHOUT INTERFERENCE. MAKE SURE THAT THERE IS NO GAP BETWEEN THE REPAIR FITTING AND HINGE FITTING AT THE FAYING SURFACES. KEEP A 1.7D MINIMUM FASTENER EDGE MARGIN ON THE REPAIR FITTING AT THE INITIAL FASTENER LOCATIONS COMMON TO THE HINGE FITTINGS.

FASTENER SYMBOLS

- REPAIR FASTENER LOCATION. INSTALL A BACB30NX6K() HEX-DRIVE BOLT WITH A BACC30BH6 COLLAR.
- REPAIR FASTENER LOCATION. INSTALL A BACB30NX8K() HEX-DRIVE BOLT WITH A BACC30BH8 COLLAR.

2344376 S0000533747_V2

Repair Details
Figure 203 (Sheet 6 of 6)

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**REPAIR 5 - MAIN LANDING GEAR DOOR CRACK REPAIR - ALUMINUM CAST INBOARD DOOR
WITH 113A8341-9/-10 HINGE FITTING**

1. Applicability

- A. This repair is applicable to a stiffener crack in the inboard main landing gear door.
- B. This repair is applicable to the inboard main landing gear door that is made from an aluminum casting (113A8331) as shown in Figure 201/REPAIR 5.
- C. This repair is applicable to the inboard main landing gear door with the 113A8341-9/-10 hinge fitting.
- D. This repair is not applicable to a crack that extends into the skin of the inboard main landing gear door.

2. General

- A. This repair is a Permanent repair. Refer to STRUCTURAL REPAIR DEFINITIONS, 51-00-06 for the definitions of the different categories of repairs.
- B. Refer to Figure 202 (Sheet 1) for the damage location.
- C. D = Fastener diameter.
- D. Keep a 2D minimum fastener edge margin, unless it is shown differently.
- E. ST = Short transverse grain direction.
- F. The manager of the FAA Seattle ACO approves the accomplishment of this repair with the installation of 113A8341-9/-10 hinge fittings as an Alternative Method of Compliance (AMOC) to paragraph (h) (1) of AD 2013-15-16 for the repaired fitting location only.

3. References

Reference	Title
51-00-06	STRUCTURAL REPAIR DEFINITIONS
51-10-02	INSPECTION AND REMOVAL OF DAMAGE
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-05	REPAIR SEALING
51-20-13	SURFACE ROUGHNESS FINISH REQUIREMENTS
51-40-02	FASTENER INSTALLATION AND REMOVAL
51-40-05, GENERAL	Fastener Hole Sizes
AMM 32-13-11	MAIN LANDING GEAR SHOCK STRUT DOORS
AMM 51-21	INTERIOR AND EXTERIOR FINISHES
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
737 NDT Part 6, 51-00-00, Procedure 4	Surface Inspection of Aluminum Parts (Meter Display)

4. Repair Instructions

- A. Get access to the damaged area. If necessary, remove the inboard main landing gear door as given in AMM SUBJECT 32-13-11.
- B. Remove the initial fasteners at the hinge fittings. Refer to FASTENER INSTALLATION AND REMOVAL, 51-40-02.
- C. Make a 0.5 in. (12.7 mm) wide cutout in the stiffener at the crack location as shown in Figure 202 (Sheet 2). Refer to the INSPECTION AND REMOVAL OF DAMAGE, 51-10-02.

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- (1) The slot depth must extend as far as necessary to remove the crack. Refer to Figure 202 (Sheet 2).
- (2) Make sure that there is a minimum height of 0.25 in. (6.35 mm) at the stiffener as shown in Figure 202 (Sheet 2).
- D. Do a HFEC inspection of the reworked area to make sure that there are no more cracks. Refer to 737 NDT Part 6, 51-00-00, Procedure 4 and 51-10-02.
- E. Make the repair parts. Refer to Table 201/REPAIR 5, Figure 203/REPAIR 5 and as follows:
 - (1) Make sure that the contour of the repair fitting aligns with the contour of the door and door hinge fitting.
 - (2) Make sure that there is a 1.7D minimum fastener edge margin on the repair fitting at the initial fastener locations common to the hinge fittings. Refer to Figure 202/REPAIR 5.

Table 201: Repair Material

ITEM	PART	QUANTITY	MATERIAL
1	Fitting	1	Use 7050-T7451 plate as given in AMS 4050. Maximum plate thickness (ST grain direction) 3.0 in. (76.2 mm).
2	Fitting	1	Use 7050-T7451 plate as given in AMS 4050. Maximum plate thickness (ST grain direction) 3.0 in. (76.2 mm).

- F. Make sure that the repair parts and the bare surfaces of the initial parts have a surface finish of 125 microinches (3.2 micrometers) Ra or smoother. Refer to SURFACE ROUGHNESS FINISH REQUIREMENTS, 51-20-13.
- G. Make radius fillers if fasteners between the repair fittings and the door do not have the necessary space for the fastener.
 - (1) Do not use radius fillers at hinge fitting fasteners.
 - (2) Use 7075-T6 clad sheet as given in AMS-QQ-A-250/13 for the radius filler material.
- H. Shim all spaces between the mating surfaces of the parts that are more than 0.005 in. (0.127 mm). Use 7075-T6 clad sheet as given in AMS-QQ-A-250/13 for the shim material.
- I. Assemble the repair parts. Refer to Figure 202/REPAIR 5.
- J. Drill the fastener holes. Make sure that you do not cause damage to the door or hinge fittings. Refer to 51-40-05, GENERAL, Figure 202/REPAIR 5 and Figure 203/REPAIR 5.
- K. Disassemble the repair parts.
- L. Remove all nicks, scratches, burrs, and sharp edges from the repair parts and the bare surfaces of the initial parts.
- M. Apply a chemical conversion coating to the repair parts and to the reworked areas of the initial parts as given in 51-20-01.
- N. Apply two layers of BMS 10-11, Type I primer to the repair parts and to the reworked areas of the initial parts as given in 51-20-01 and SOPM 20-41-02.
- O. Install the repair parts with BMS 5-95 sealant between the mating surfaces. Refer to REPAIR SEALING, 51-20-05.
- P. Install the fasteners. Fasteners must be installed wet with BMS 5-95 sealant. Refer to REPAIR SEALING, 51-20-05 and FASTENER INSTALLATION AND REMOVAL, 51-40-02.
- Q. If necessary, apply a decorative finish. Refer to AMM SECTION 51-21.
- R. Put the inboard main landing gear door back to its initial condition, as applicable.

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- (1) Install the inboard main landing gear door as given in AMM SUBJECT 32-13-11, if it was removed.
- (2) An incorrectly rigged door can lead to interferences between the repair fitting [2] and the main landing gear structure and systems.

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REPAIR 5
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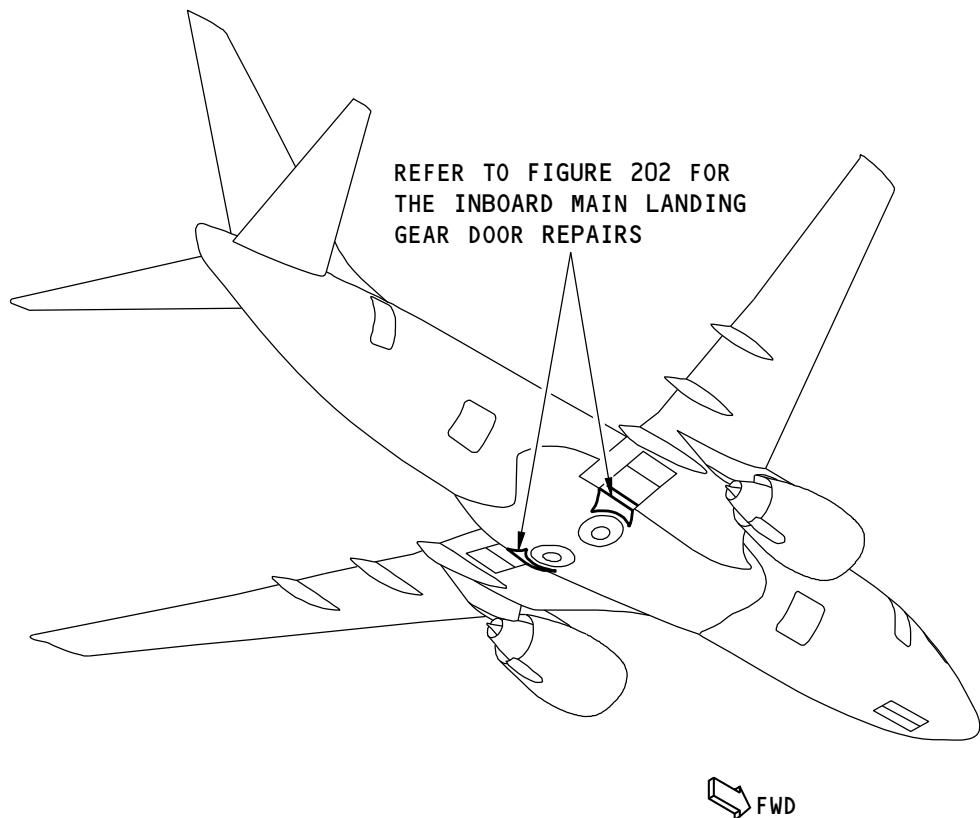
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2366733 S0000542040_V1

Inboard Main Landing Gear Door Location
Figure 201

52-80-02

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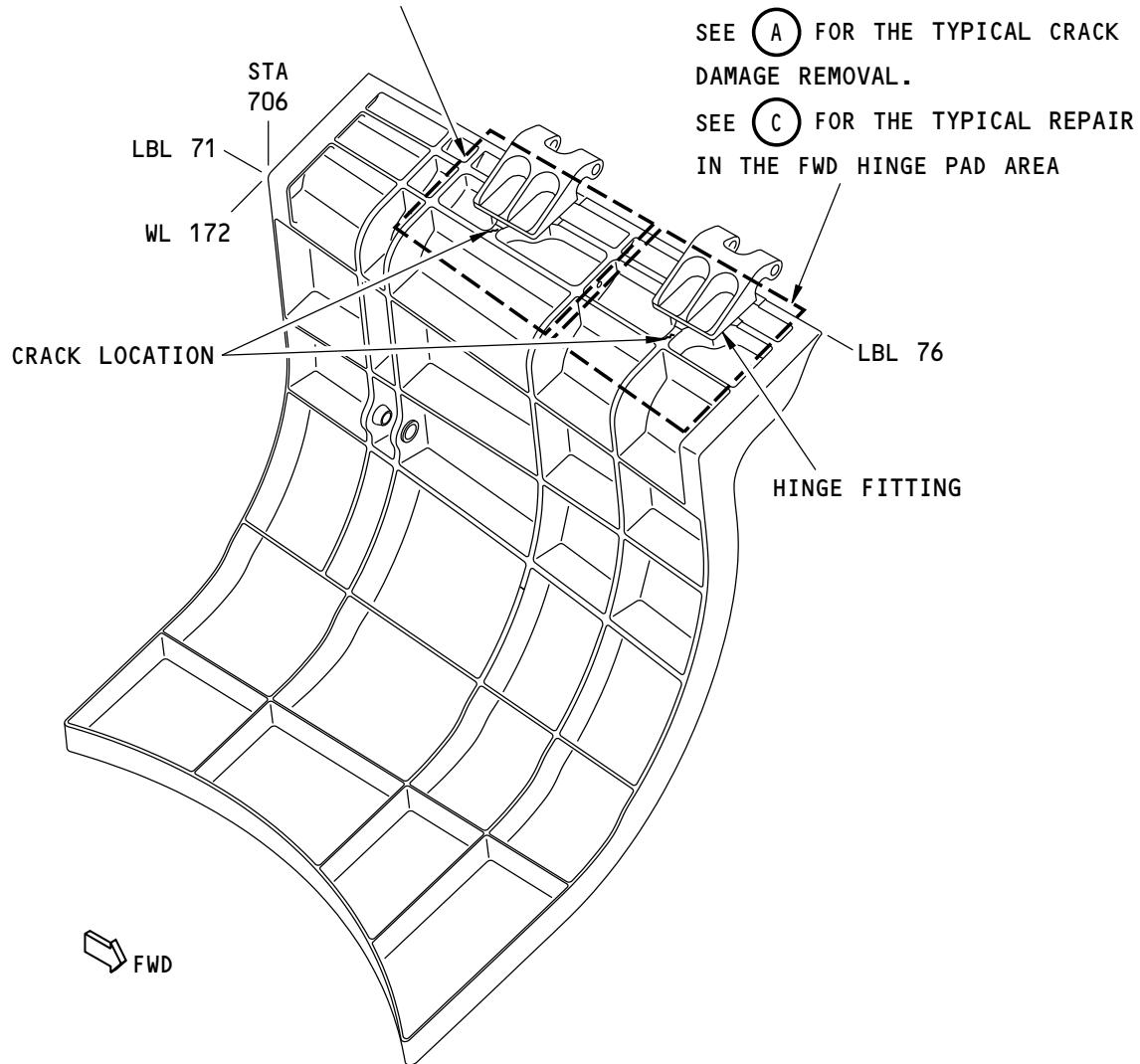
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SEE A FOR THE TYPICAL CRACK
DAMAGE REMOVAL.

SEE D FOR THE TYPICAL REPAIR
IN THE AFT HINGE PAD AREA



(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

2342817 S0000533748_V1

Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 1 of 7)

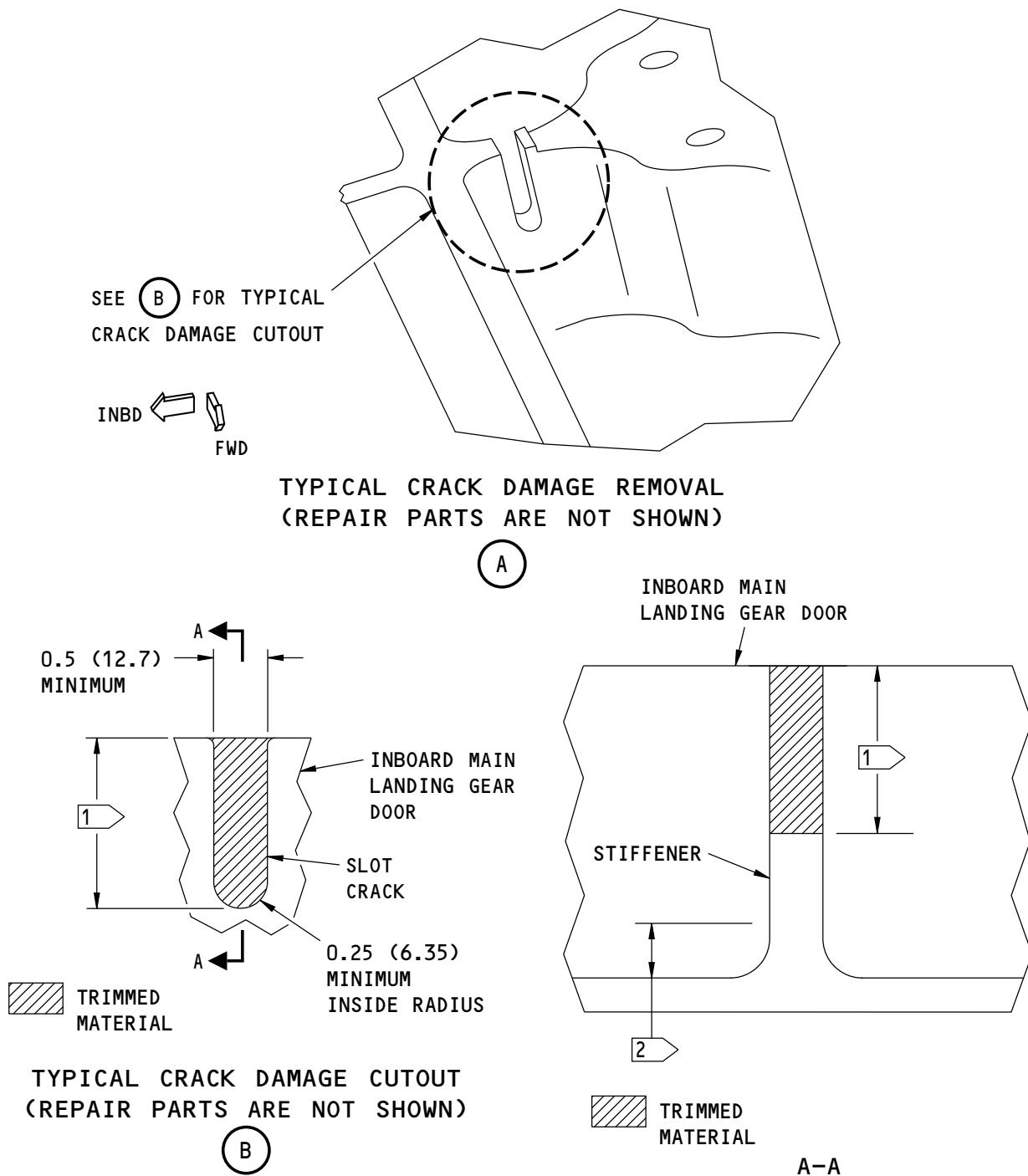
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2342848 S0000533749_V1

**Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 2 of 7)**

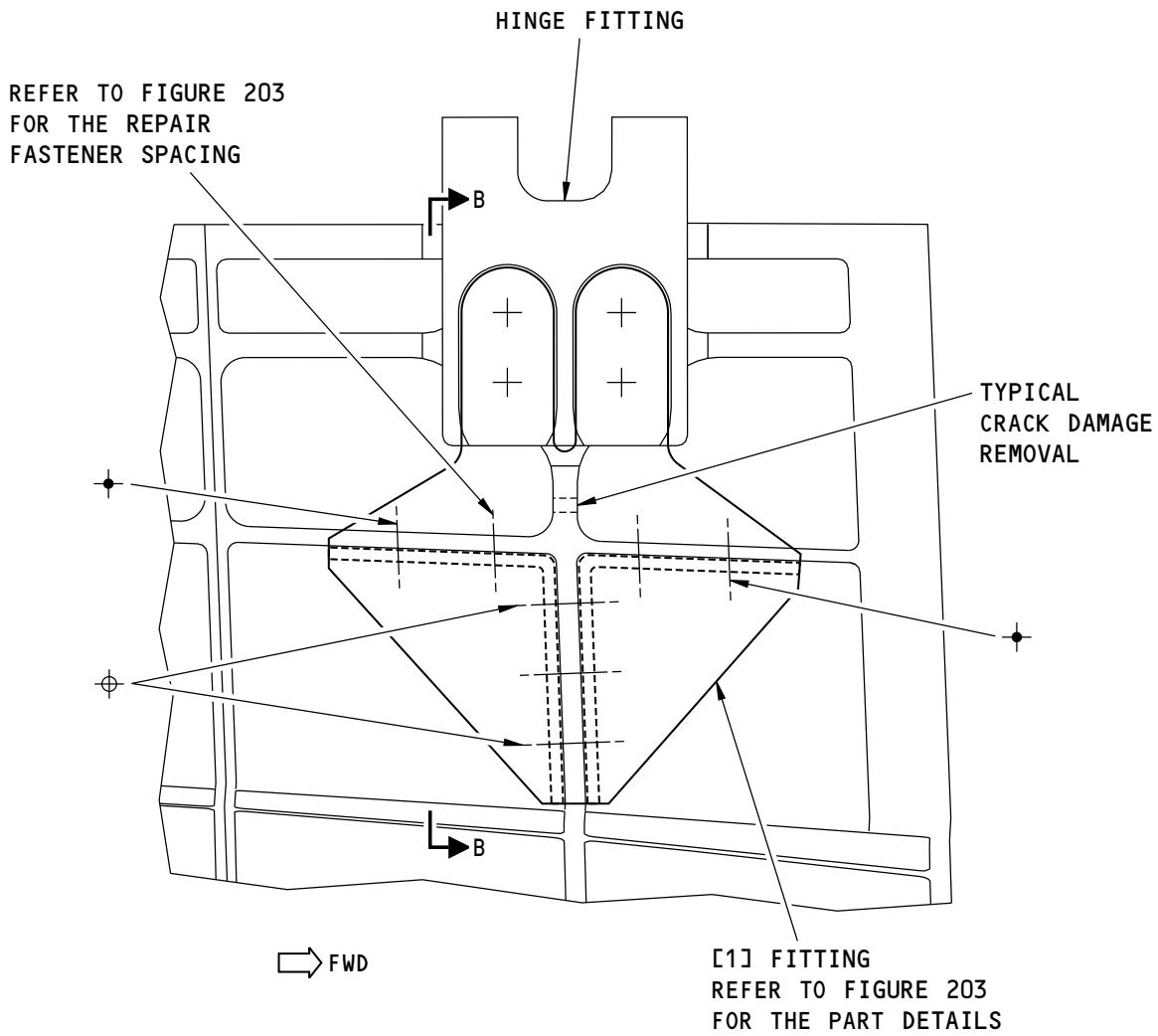
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TYPICAL REPAIR AT THE FORWARD HINGE PAD
(VIEW IN THE DOWN DIRECTION)

C

2343150 S0000533751_V1

Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 3 of 7)

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REPAIR 5

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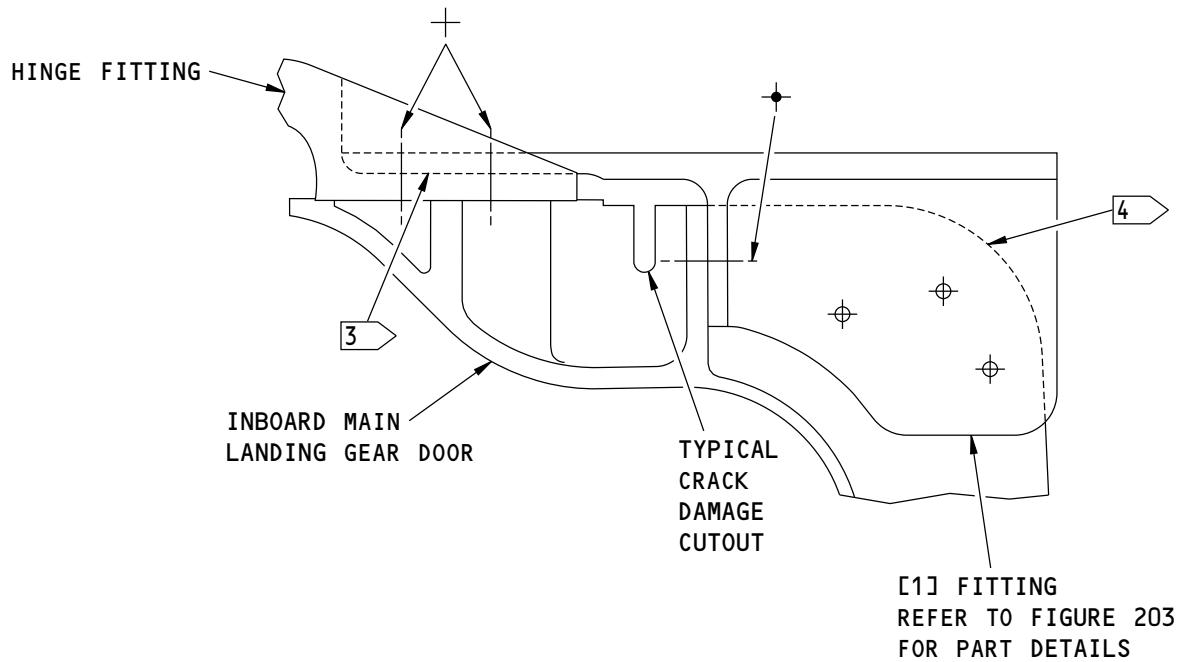
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(VIEW IN THE FORWARD DIRECTION)

B-B

2344382 S0000533752_V1

Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 4 of 7)

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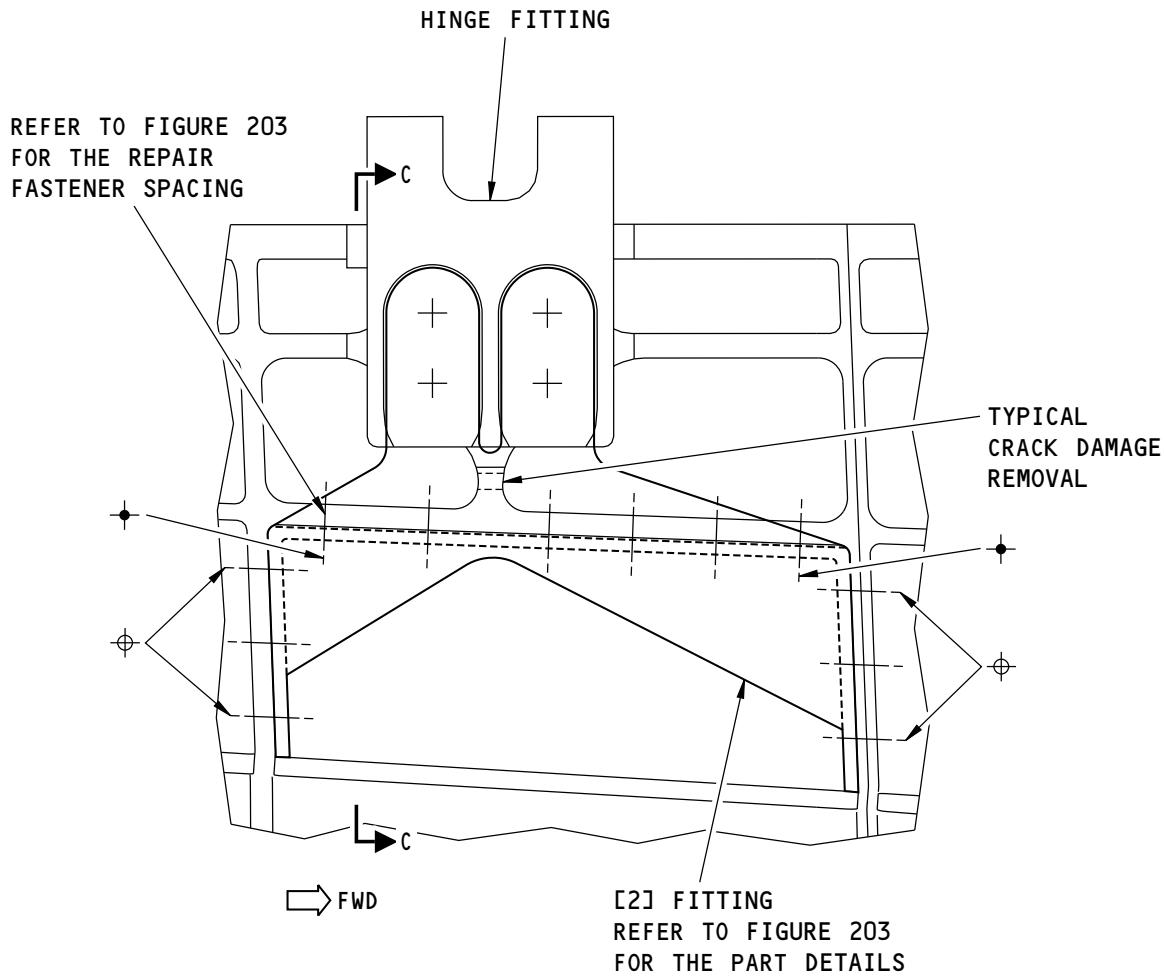
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TYPICAL REPAIR AT THE AFT HINGE PAD
(VIEW IN THE DOWN DIRECTION)

D

2343348 S0000533753_V1

Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 5 of 7)

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REPAIR 5
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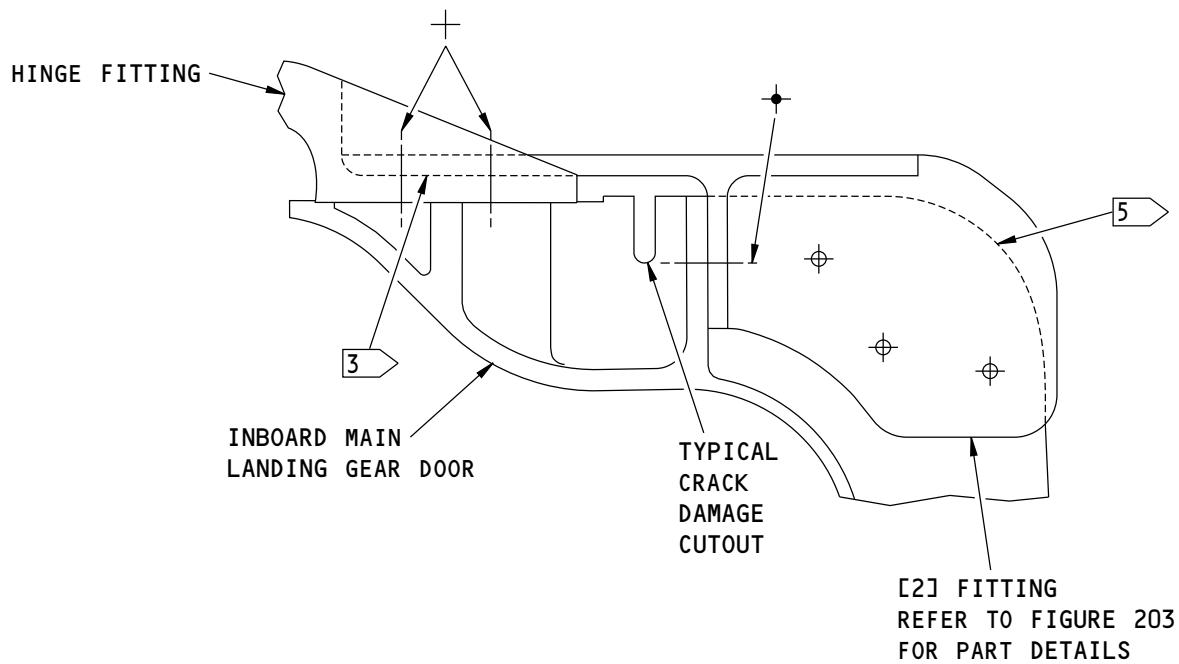
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(VIEW IN THE FORWARD DIRECTION)

C-C

2344597 S0000533754_V1

Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 6 of 7)

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STRUCTURAL REPAIR MANUAL

NOTES

- ALL DIMENSIONS ARE IN INCHES (mm).
 - D = FASTENER DIAMETER
- [1] TRIM A SLOT INTO THE STIFFENER TO REMOVE THE CRACK. MAKE SURE THAT THE DEPTH OF THE SLOT FULLY REMOVES THE CRACK AND IS THE MINIMUM NECESSARY TO REMOVE THE CRACK.
- [2] THE HEIGHT OF THE REMAINING STIFFENER AT THE SLOT MUST BE A MINIMUM OF 0.25 (6.35).
- [3] MAKE SURE THAT THE RADIUS OF THE REPAIR FITTING NESTS INTO THE RADIUS OF THE HINGE FITTING WITHOUT INTERFERENCE. MAKE SURE THAT THERE IS NO GAP BETWEEN THE REPAIR FITTING AND HINGE FITTING AT THE FAYING SURFACES. KEEP A 1.7D MINIMUM FASTENER EDGE MARGIN ON THE REPAIR FITTING AT THE INITIAL FASTENER LOCATIONS COMMON TO THE HINGE FITTINGS.
- [4] THE MAXIMUM SHIM THICKNESS ON EACH SIDE OF THE DOOR STIFFENER IS 0.020 (0.508).
- [5] THE MAXIMUM SHIM THICKNESS ON EACH SIDE OF THE FLANGE AND THE DOOR STIFFENER IS 0.040 (1.016).

FASTENER SYMBOLS

- + INITIAL FASTENER LOCATION. INSTALL THE SAME TYPE AND DIAMETER FASTENER AS THE INITIAL FASTENER (UP TO 1/32-INCH DIAMETER OVERSIZE).
- ◆ REPAIR FASTENER LOCATION. INSTALL A BACB30NX6K() HEX-DRIVE BOLT WITH A BACC30BH6 COLLAR.
- ◇ REPAIR FASTENER LOCATION. INSTALL A BACB30NX8K() HEX-DRIVE BOLT WITH A BACC30BH8 COLLAR.

2343776 S0000533755_V1

Inboard Main Landing Gear Door Typical Repair
Figure 202 (Sheet 7 of 7)

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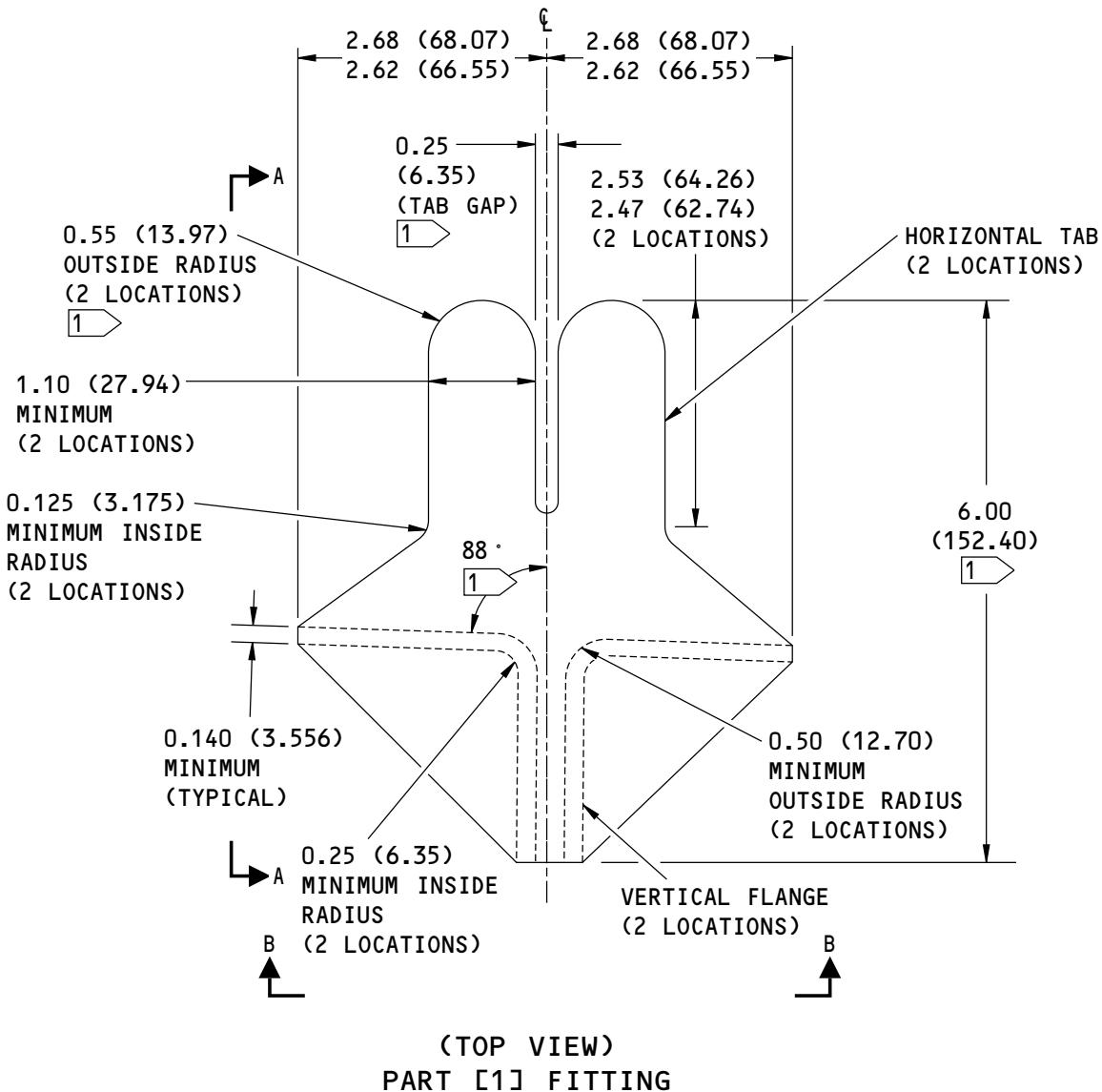
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2343985 S0000533756_V1

Repair Details
Figure 203 (Sheet 1 of 6)

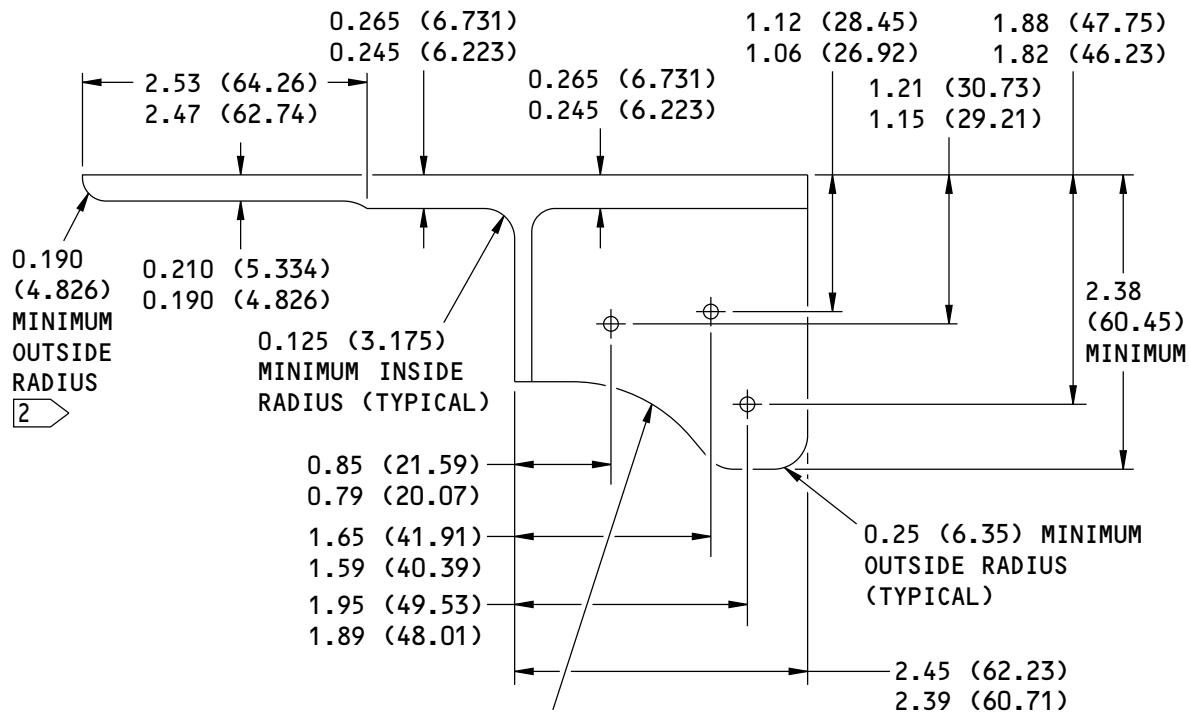
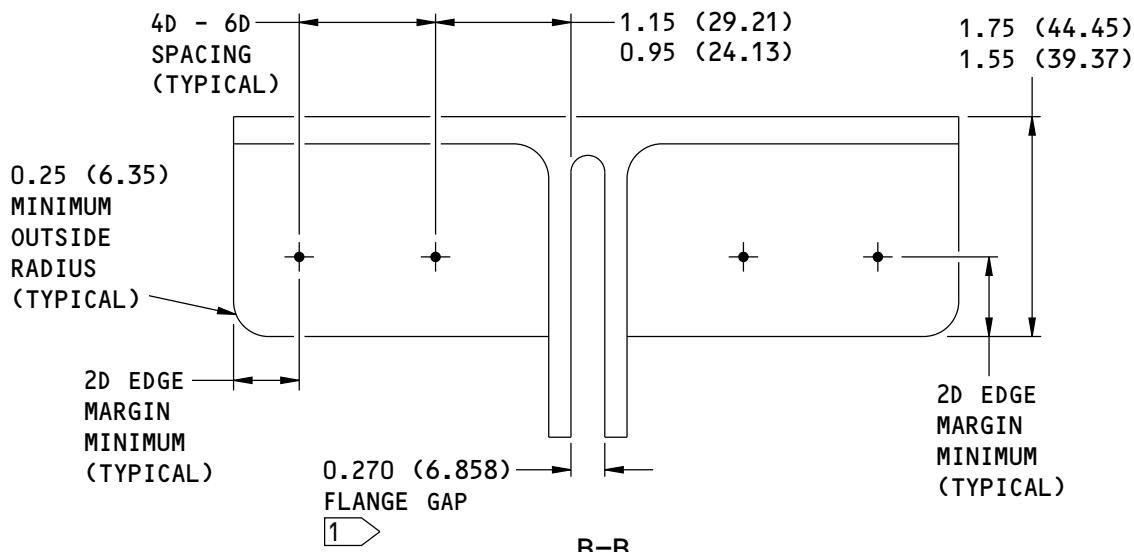
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A-A


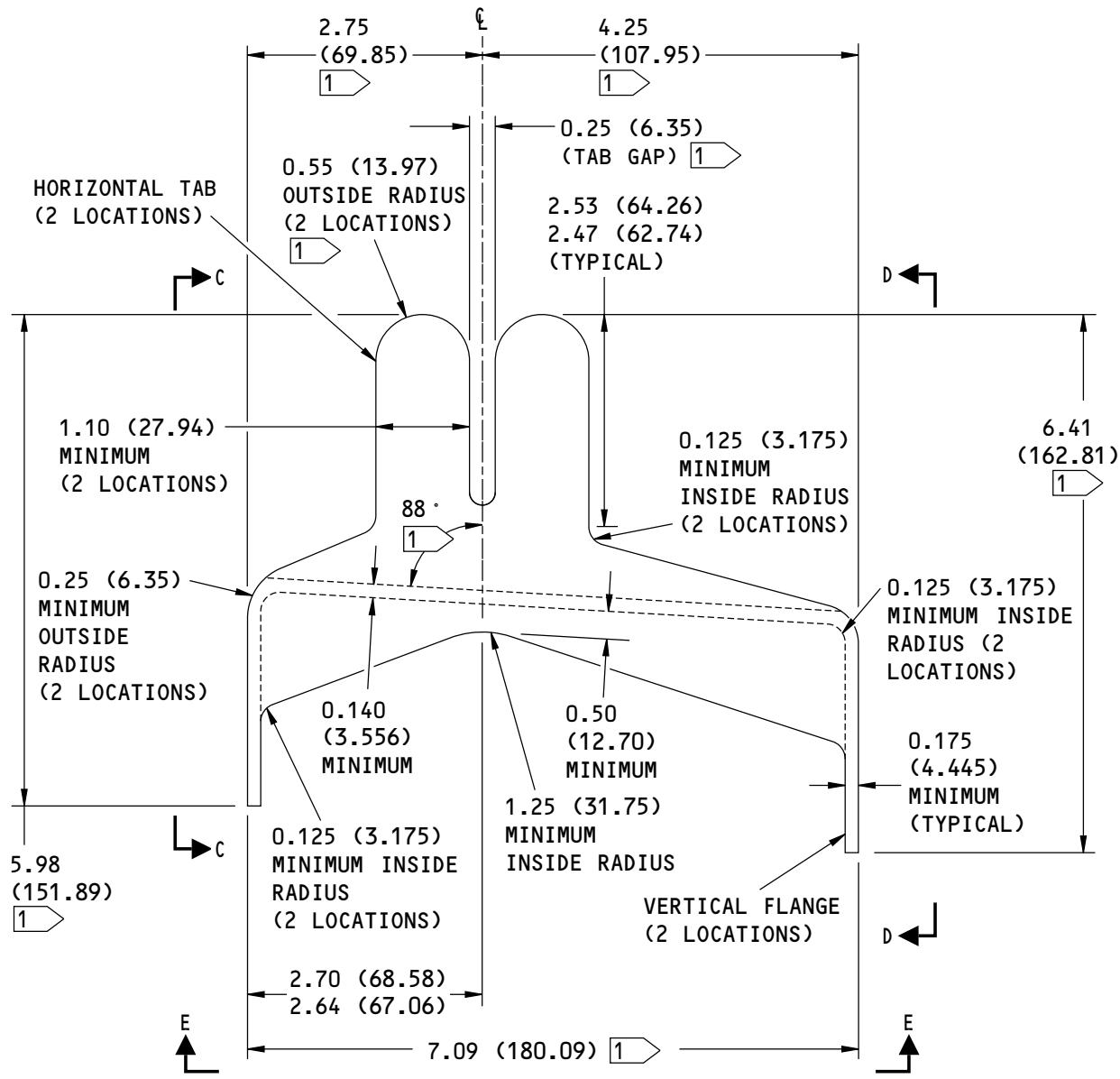
2344125 S0000533757_V1

Repair Details
Figure 203 (Sheet 2 of 6)

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(TOP VIEW)
PART [2] FITTING

2343952 S0000533758_V1

Repair Details

Figure 203 (Sheet 3 of 6)

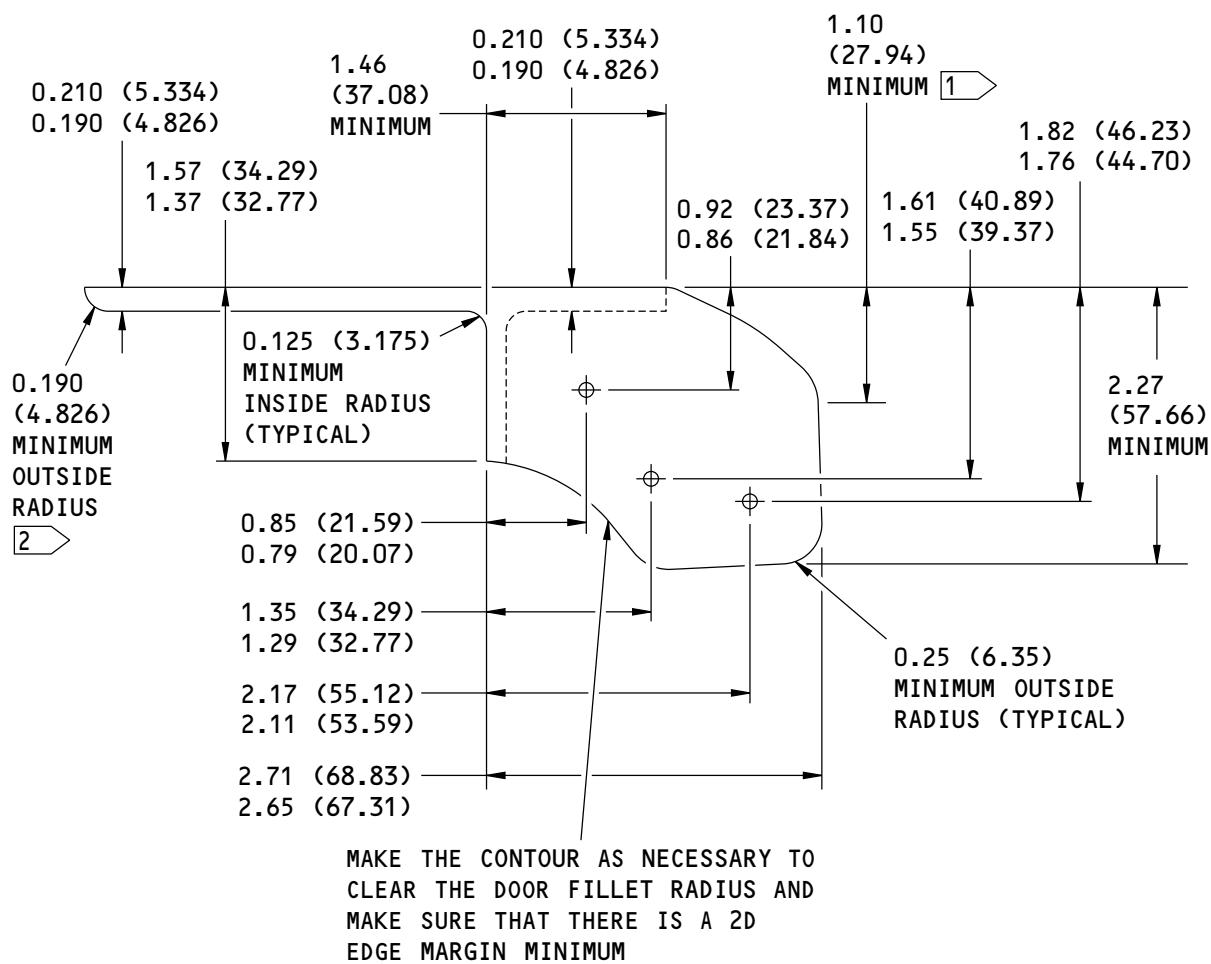
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C-C

2344348 S0000533762_V1

Repair Details
Figure 203 (Sheet 4 of 6)

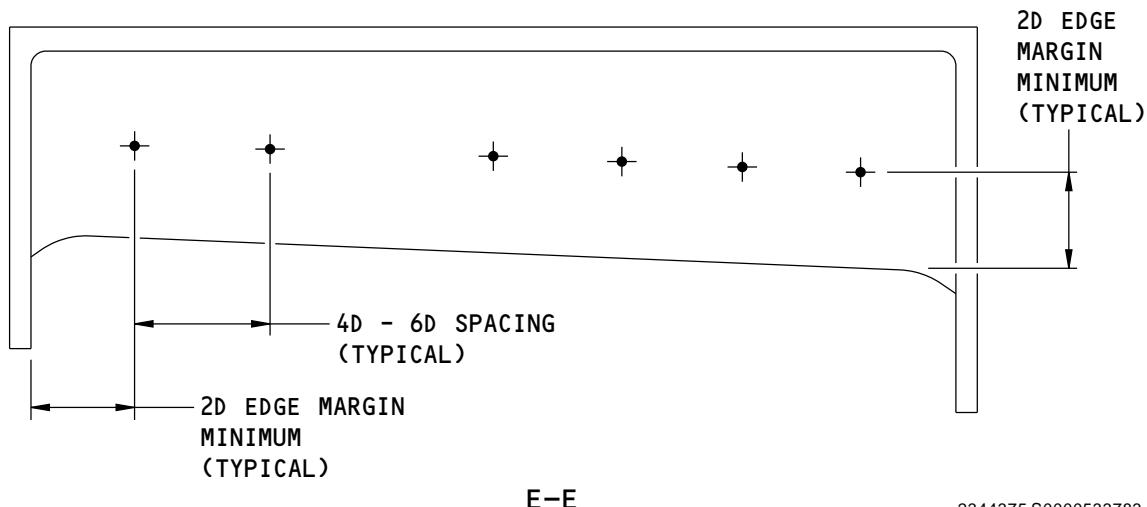
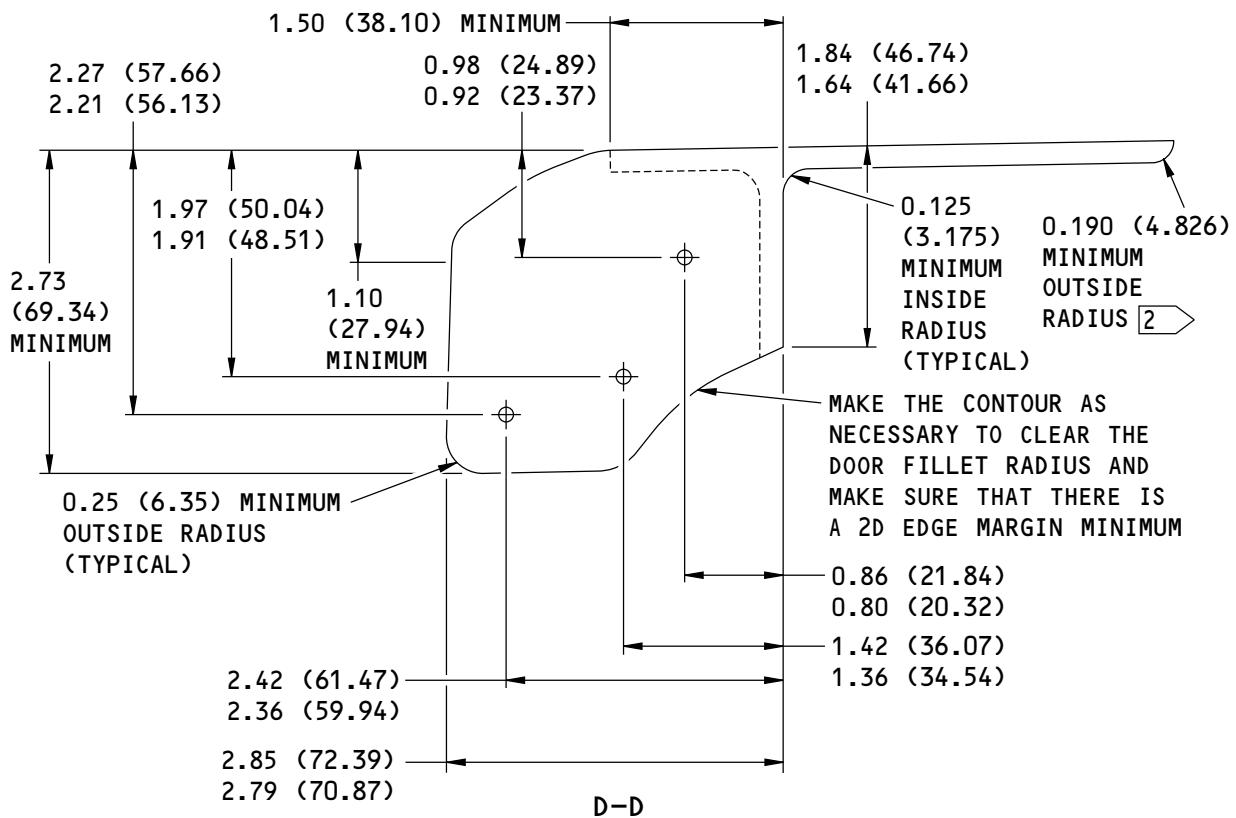
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2344375 S0000533783_V1

Repair Details
Figure 203 (Sheet 5 of 6)

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NOTES

- ALL DIMENSIONS ARE IN INCHES (mm).
- D = FASTENER DIAMETER
- TYPICAL = THE DIMENSION SHOWN APPLIES TO OTHER SIMILAR FEATURES IN THE VIEW.

- [1] >** DIMENSIONS SHOWN ARE FOR REPAIR FITTINGS THAT ARE BASED ON THE GIVEN NOMINAL DESIGN GEOMETRY OF THE INBOARD MAIN LANDING GEAR DOOR. DIMENSIONS SHOWN WITHOUT A TOLERANCE ARE NOT THE MOST IMPORTANT DIMENSIONS. YOU CAN ADJUST THE DIMENSIONS, IF NECESSARY, TO ACCOMMODATE THE GEOMETRY OF THE INBOARD MAIN LANDING GEAR DOOR TO MAKE SURE THAT THERE IS NO INTERFERENCE BETWEEN THE MATING FEATURES OF THE DOOR AND REPAIR FITTING AND THAT THE GAPS BETWEEN THE DOOR AND REPAIR FITTING ARE NOT MORE THAN 0.005 (0.127).
- [2] >** MAKE SURE THAT THE RADIUS OF THE REPAIR FITTING NESTS INTO THE RADIUS OF THE HINGE FITTING WITHOUT INTERFERENCE. MAKE SURE THAT THERE IS NO GAP BETWEEN THE REPAIR FITTING AND HINGE FITTING AT THE FAYING SURFACES. KEEP A 1.7D MINIMUM FASTENER EDGE MARGIN ON THE REPAIR FITTING AT THE INITIAL FASTENER LOCATIONS COMMON TO THE HINGE FITTINGS.

FASTENER SYMBOLS

- ⊕ REPAIR FASTENER LOCATION. INSTALL A BACB30NX6K() HEX-DRIVE BOLT WITH A BACC30BH6 COLLAR.
- ⊖ REPAIR FASTENER LOCATION. INSTALL A BACB30NX8K() HEX-DRIVE BOLT WITH A BACC30BH8 COLLAR.

2344377 S0000533786_V1

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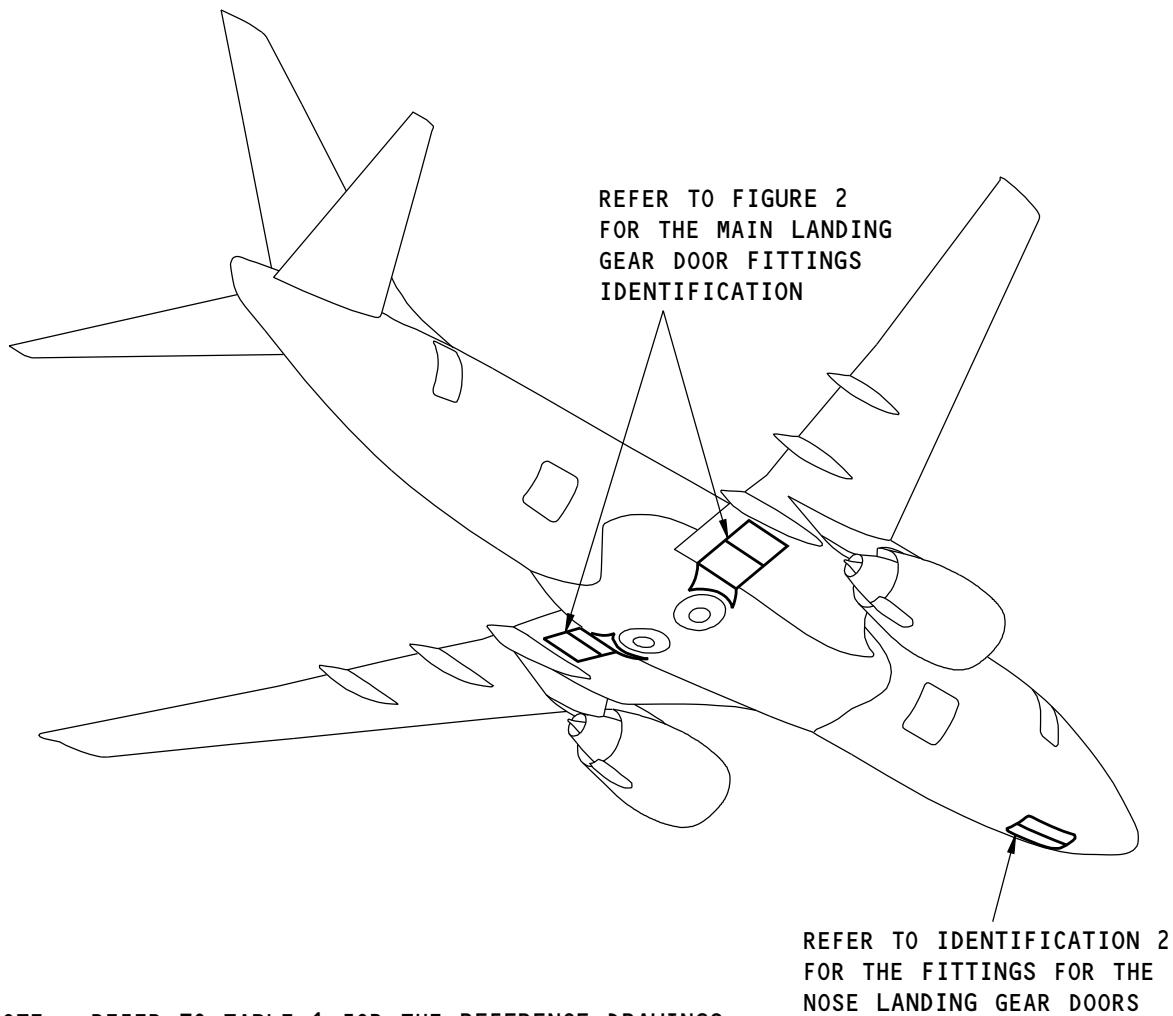
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IDENTIFICATION 1 - MAIN LANDING GEAR DOOR FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

H04039 S0006587306_V1

Main Landing Gear Door Fittings Locations

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
113A8000	Main Landing Gear Door Installation - Center
113A8100	Door Assembly - Outboard Main landing Gear
113A8140	Hinge Assembly - Forward Outboard Main Landing Gear Door
113A8240	Fitting - Inboard Aft Center Main Landing Gear Door
113A8241	Fitting - Forward Inboard Center Main Landing Gear Door
113A8245	Clevis Assembly - Center Main Landing Gear Door
113A8341	Hinge Assembly - Inboard, Forward and Aft Main Landing Gear Door

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IDENTIFICATION 1

Page 1

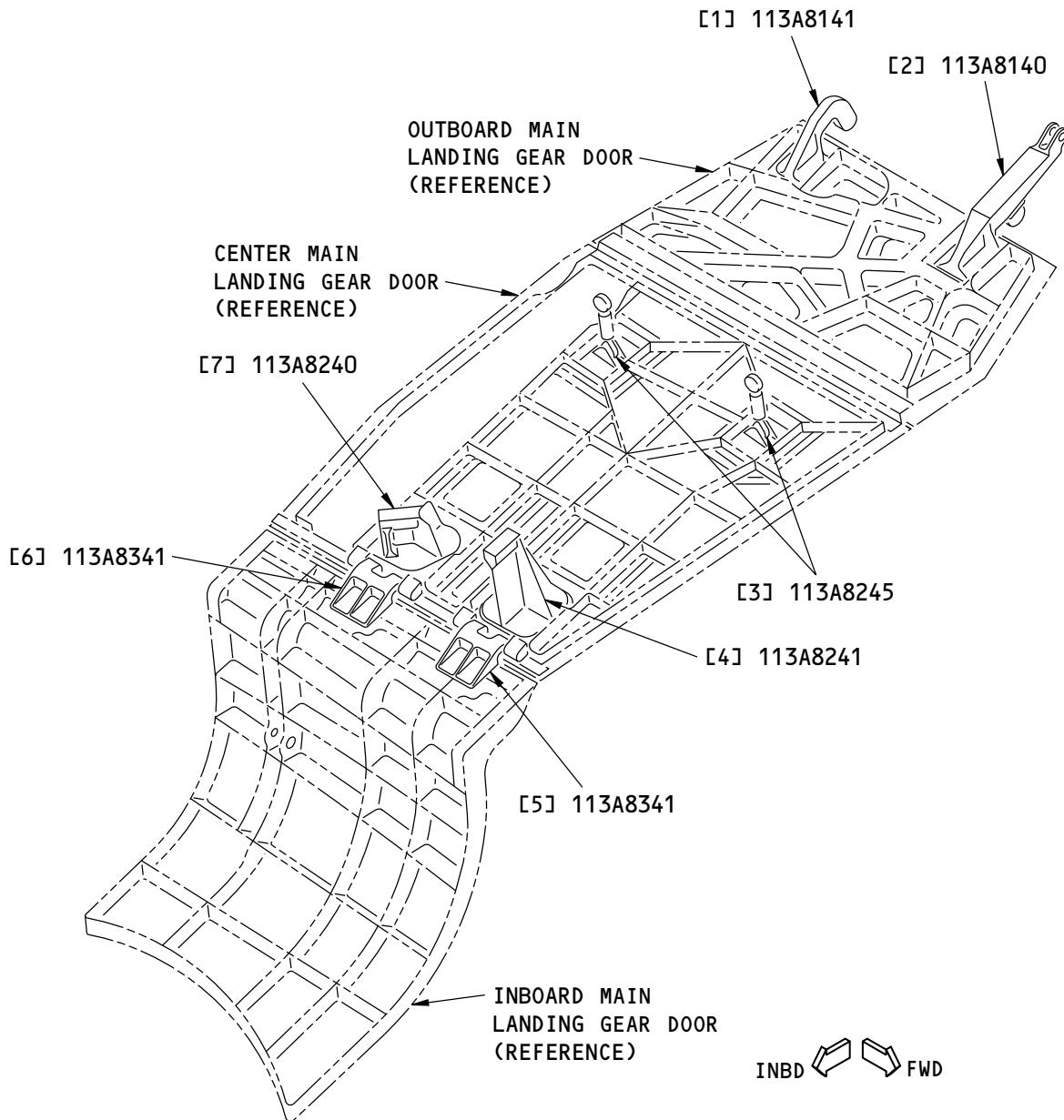
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NOTE: REFER TO TABLE 2 FOR THE LIST OF MATERIALS.

LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

H04302 S0006587308_V2

Main Landing Gear Door Fittings Identification
Figure 2

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IDENTIFICATION 1
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Aft Hinge Fitting Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type III. Refer to the production drawing for the grain direction	
[2]	Forward Hinge Fitting Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type III. Refer to the production drawing for the grain direction	
[3]	Clevis Assembly (4)		7050-T7451 plate as given in AMS 4050. Refer to the production drawing for the grain direction	
[4]	Forward, Inboard, Center Fitting Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type III. Refer to the production drawing for the grain direction	
[5]	Forward, Inboard, Center Hinge Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type III. Refer to the production drawing for the grain direction	
[6]	Aft, Inboard, Center Hinge Assembly (2)		7050-T7451 plate as given in AMS 4050. Refer to the production drawing for the grain direction	
[7]	Aft, Inboard Center Fitting Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type III. Refer to the production drawing for the grain direction	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 1

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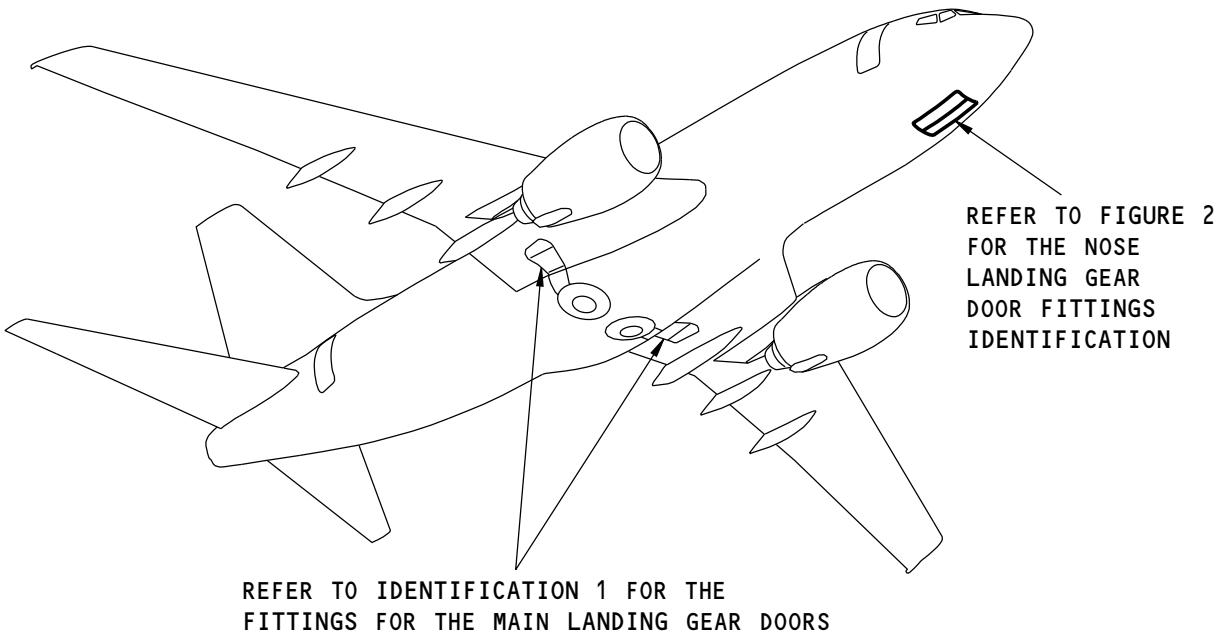
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IDENTIFICATION 2 - NOSE LANDING GEAR DOOR FITTINGS



NOTE: REFER TO TABLE 1 FOR THE REFERENCE DRAWINGS.

H04020 S0006587311_V1

Nose Landing Gear Door Fittings Locations

Figure 1

Table 1:

REFERENCE DRAWINGS	
DRAWING NUMBER	TITLE
141A6900	Door Installation - Nose Wheel Well
141A6902	Door Assembly - Nose Wheel Well
141A6906	Hinge Assembly - Nose Wheel Well Door
65-50514	Hinge Assembly - Nose Wheel Well Door

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IDENTIFICATION 2

Page 1

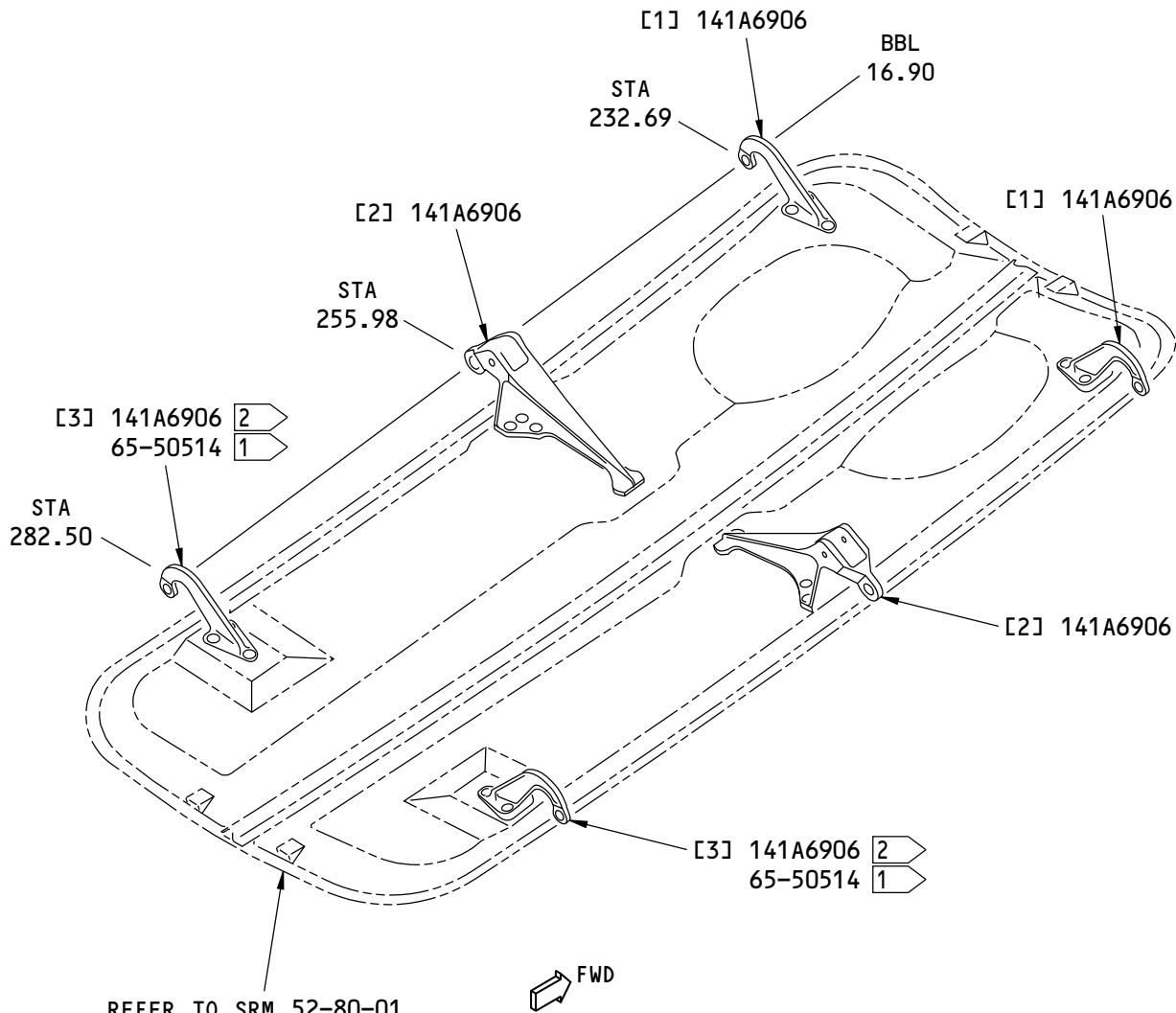
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NOTES

- REFER TO TABLE 2 FOR THE LIST OF MATERIALS.
- [1] FOR AIRCRAFT WITH LINE NUMBER 1 THRU 701
- [2] FOR AIRCRAFT WITH LINE NUMBER 702 AND ON

H04030 S0006587313_V2

Nose Landing Gear Door Fittings Identification
Figure 2

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IDENTIFICATION 2
Page 2
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Table 2:

LIST OF MATERIALS FOR FIGURE 2				
ITEM	DESCRIPTION	T ^{*[1]}	MATERIAL	EFFECTIVITY
[1]	Forward Hinge Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type I. Refer to the production drawing for the grain direction	
[2]	Center Hinge Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type I. Refer to the production drawing for the grain direction	
[3]	Aft Hinge Assembly (2)		7050-T7451 plate as given in BMS 7-323, Type I. Refer to the production drawing for the grain direction	

*[1] Note: T = Pre-manufactured thickness in inches (millimeters).

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IDENTIFICATION 2

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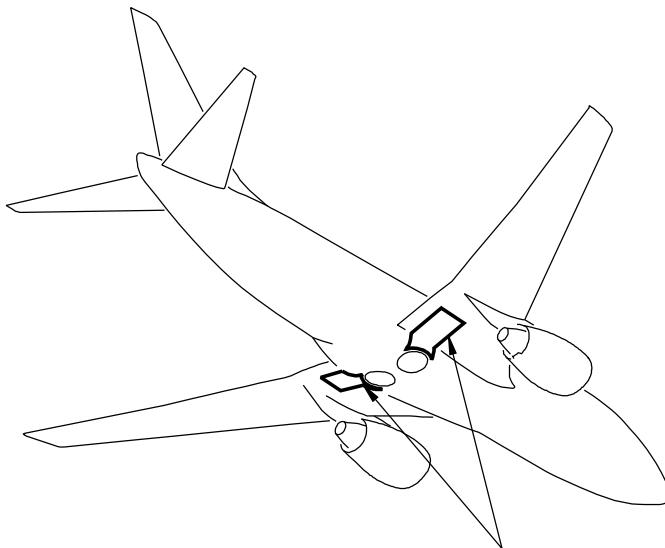


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ALLOWABLE DAMAGE 1 - MAIN LANDING GEAR DOOR FITTINGS

1. Applicability

- A. This subject gives the allowable damage limits for the main landing gear door fittings shown in Main Landing Gear Door Fittings Location, Figure 101/ALLOWABLE DAMAGE 1 and Main Landing Gear Door Fittings, Figure 102/ALLOWABLE DAMAGE 1.



REFER TO FIGURE 102 FOR THE
MAIN LANDING GEAR DOOR FITTINGS

Main Landing Gear Door Fittings Location
Figure 101

H10024 S0006587317_V1

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ALLOWABLE DAMAGE 1

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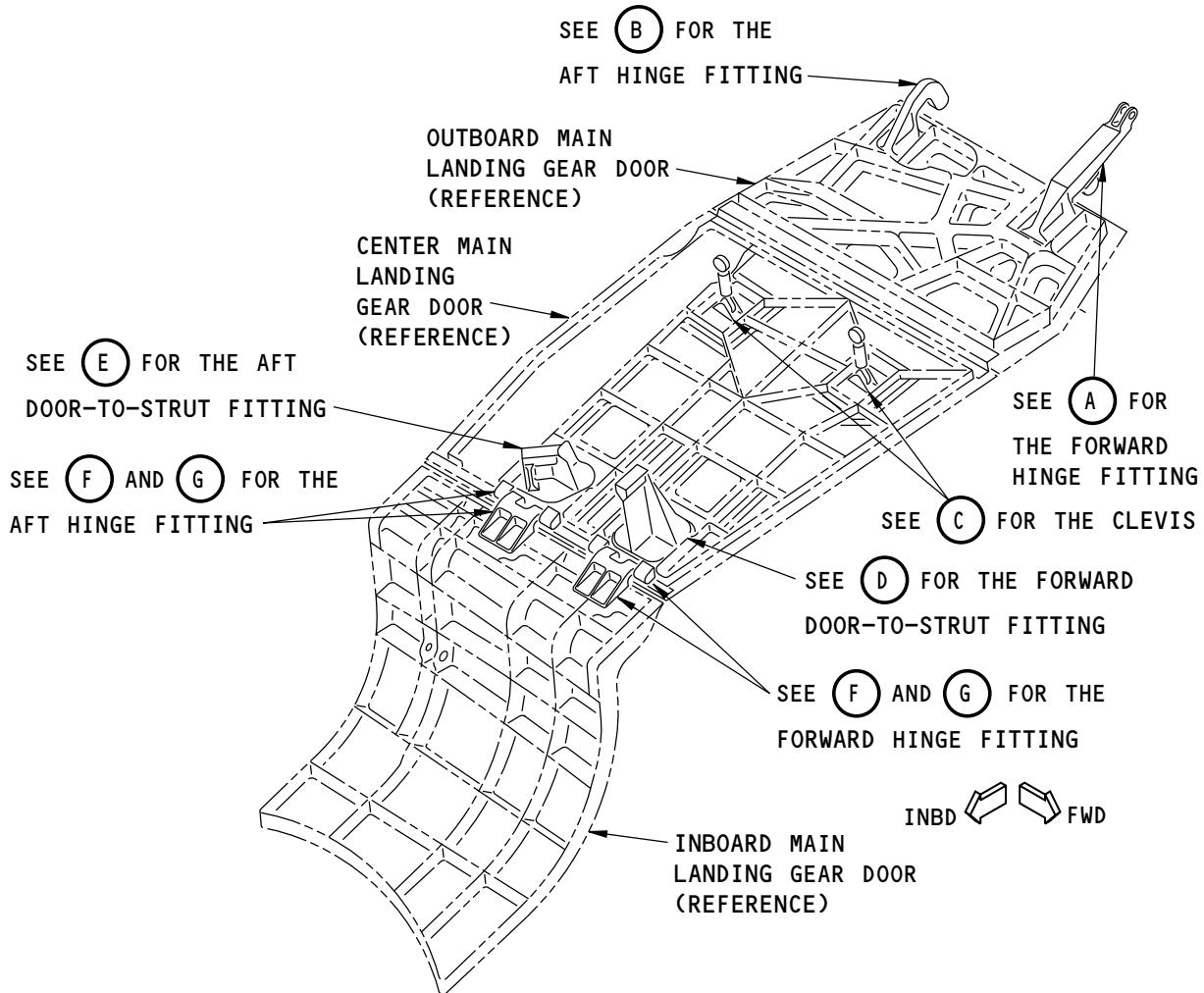
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LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE

H60009 S0006587318_V1

Main Landing Gear Door Fittings
Figure 102 (Sheet 1 of 4)

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ALLOWABLE DAMAGE 1

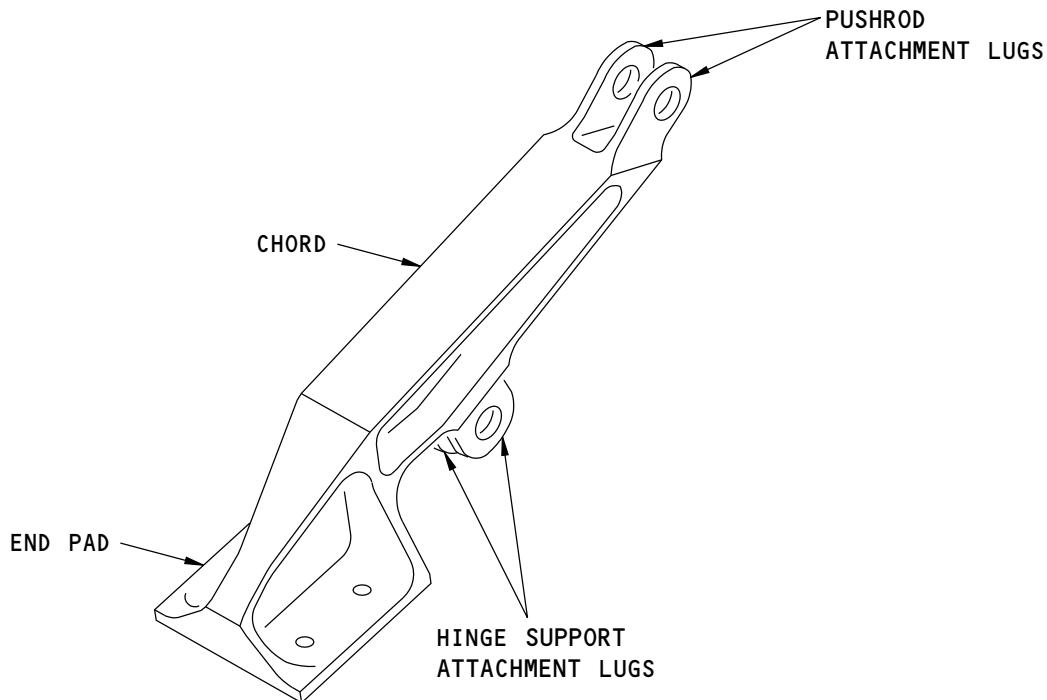
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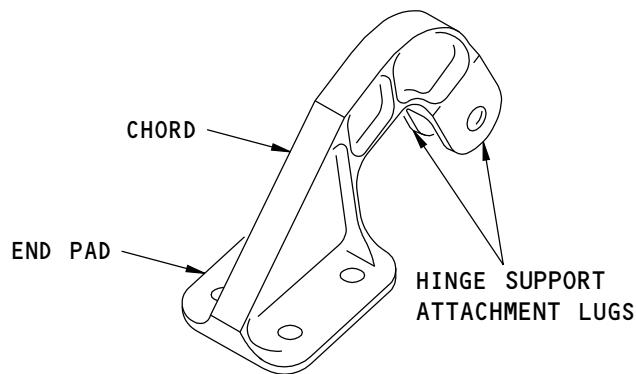


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OUTBOARD MAIN LANDING GEAR DOOR
FORWARD HINGE FITTING

(A)



OUTBOARD MAIN LANDING GEAR DOOR
AFT HINGE FITTING

(B)

H10046 S0006587319_V1

Main Landing Gear Door Fittings
Figure 102 (Sheet 2 of 4)

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ALLOWABLE DAMAGE 1

Page 103

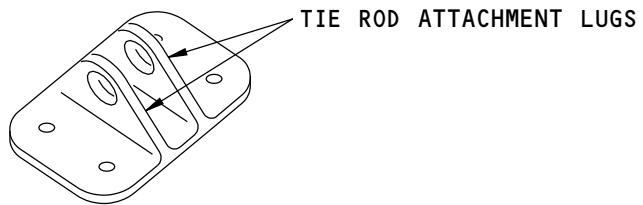
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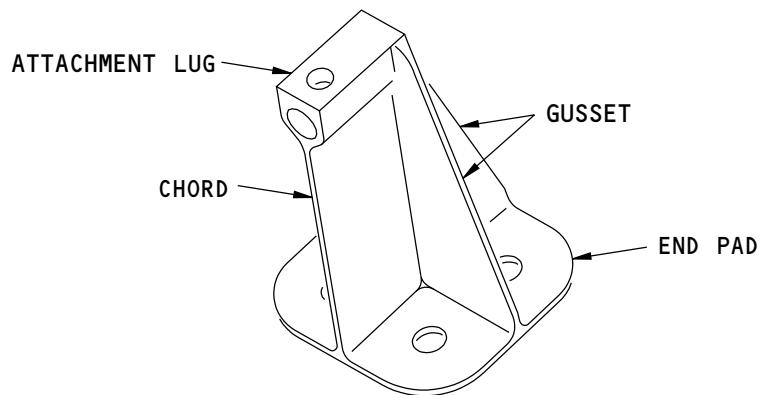


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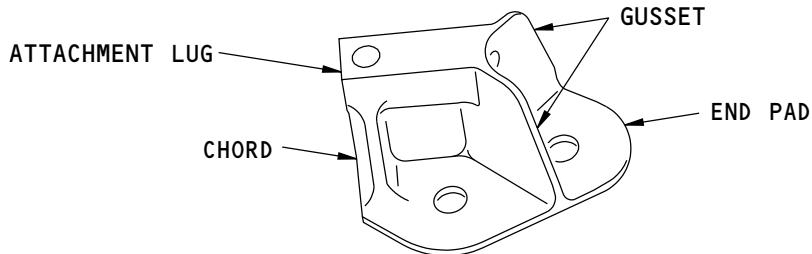
**CENTER MAIN LANDING GEAR DOOR
CLEVIS**

(C)



**CENTER MAIN LANDING GEAR DOOR
FORWARD DOOR-TO-STRUT SUPPORT FITTING**

(D)



**CENTER MAIN LANDING GEAR DOOR
AFT DOOR-TO-STRUT SUPPORT FITTING**

(E)

H10082 S0006587320_V1

**Main Landing Gear Door Fittings
Figure 102 (Sheet 3 of 4)**

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ALLOWABLE DAMAGE 1

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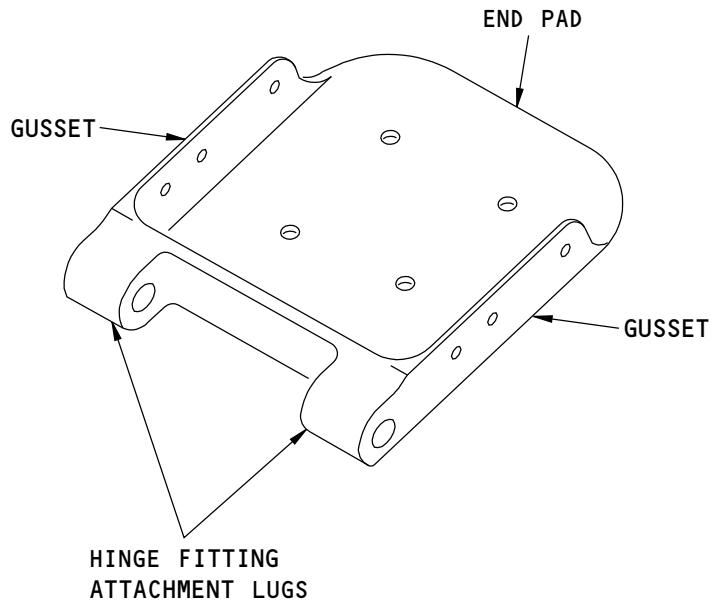
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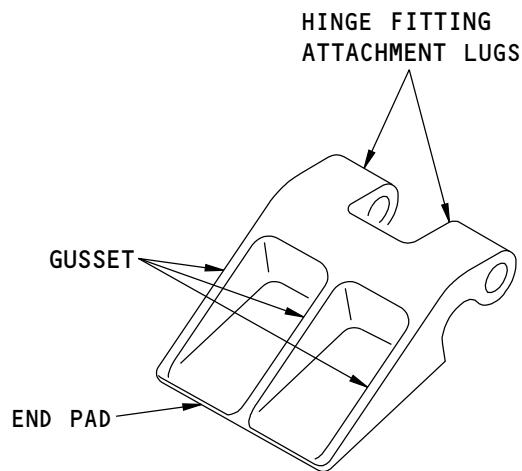


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CENTER MAIN LANDING GEAR DOOR
FORWARD HINGE FITTING IS SHOWN,
AFT HINGE FITTING IS SIMILAR

(F)



INBOARD MAIN LANDING GEAR DOOR
FORWARD AND AFT HINGE FITTING

(G)

H10229 S0006587321_V1

**Main Landing Gear Door Fittings
Figure 102 (Sheet 4 of 4)**

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ALLOWABLE DAMAGE 1

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2. General

- A. For the removal and installation of bushings, refer to SOPM 20-50-03, as applicable.

CAUTION: MAKE SURE THAT YOU DO NOT DAMAGE THE LUG BORE WHEN YOU REMOVE THE BUSHING(S).

- B. If you remove the bushing(s) to remove the damage on the face of the lug and there is no damage on the lug bore, do as follows after you have removed the damage from the face of the lug:
- (1) Install the same type and size of bushing(s)
 - (a) Refer to Table 101/ALLOWABLE DAMAGE 1 for the type and size of the bushing(s) for each fitting.

Table 101:

TYPE, SIZE, AND INTERFERENCE FIT OF THE BUSHINGS FOR EACH FITTING			
FITTING		BUSHING(S)	INTERFERENCE FIT INCHES (mm)
OUTBOARD MAIN LANDING GEAR DOOR	Forward Hinge Fitting - Pushrod Attachment Lugs	BACB28AT08D013C (outer bushing) BACB28AU06B019C (inner bushing)	0.0005-0.0016 (0.013-0.041) 0.0100-0.0175 (0.25-0.44)
	Forward Hinge Fitting - Hinge Support Attachment Lugs	BACB28AT07B015C (larger lug) BACB28AP05P015 (smaller lug)	0.0010-0.0011 (0.025-0.028) 0.0003-0.0014 (0.008-0.036)
	Aft Hinge Fitting - Hinge Support Attachment Lugs	BACB28AT07D012C (outer bushing) BACB28AU05B018C (inner bushing)	0.0005-0.0016 (0.013-0.041) 0.0002-0.0014 (0.005-0.036)
CENTER MAIN LANDING GEAR DOOR	Forward and Aft Clevis - Tie Rod Attachment Lugs	BACB28AT08B013C (outer bushing) BACB28AU06B019C (inner bushing)	0.0005-0.0016 (0.013-0.041) 0.0004-0.0015 (0.010-0.038)
	Forward Door-to-Strut Support Fitting - Attachment Lug	BACB28AU06D022B	0.0004-0.0015 (0.010-0.038)
	Aft Door-to-Strut Support Fitting - Attachment Lug	BACB28AU06D022B	0.0004-0.0015 (0.010-0.038)
	Forward Hinge Fitting - Hinge Fitting Attachment Lugs	BACB28BB05A098C and BACB28BB05A103C	0.0003-0.0014 (0.007-0.036) (both bushings)
	Aft Hinge Fitting - Hinge Fitting Attachment Lugs	BACB28BB05A107C and BACB28BB05A110C	0.0003-0.0014 (0.007-0.036) (both bushings)
INBOARD MAIN LANDING GEAR DOOR	Forward and Aft Hinge Fitting - Hinge Fitting Attachment Lugs	BACB28BB05A091C and BACB28BC05A091C	0.0003-0.0014 (0.007-0.036) (both bushings)

- C. If you remove the bushing(s) to remove the damage on the face of the lug and there is also damage on the lug bore, do as follows after you have removed the damage from the face and the bore of the lug:

- (1) Install an oversized bushing.
 - (a) Install the bushing with the same interference fit as the initial bushing installation. Refer to Table 101/ALLOWABLE DAMAGE 1 for the interference fit.

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ALLOWABLE DAMAGE 1

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D. Do the steps that follow if you have damage:

- (1) Do a detailed close visual inspection of the damaged area to find the length, width, and depth of the damage.
 - (a) The methods that follow are permitted as an alternative to the detailed close visual inspection:
 - 1) Penetrant inspection. Refer to SOPM 20-20-02.
 - 2) High Frequency Eddy Current (HFEC) inspection. Refer to 737 NDT Part 6, 51-00-00, Figure 4 for the surface inspection.
- (2) Remove the damage.
 - (a) Refer to 51-10-02 for the inspection and removal of the damage.
 - (b) Refer to 51-30-03 for possible sources of nonmetallic materials you can use to remove the damage.
 - (c) Refer to 51-30-05 for possible sources of the equipment and tools you can use to remove the damage.

E. After you remove the damage, do as follows:

- (1) For fitting surfaces and edges, do a penetrant inspection of the area where the damage has been removed to make sure that all the damage has been removed. Refer to SOPM 20-20-02.
 - (a) The High Frequency Eddy Current (HFEC) inspection is permitted as an alternative to the penetrant inspection. Refer to 737 NDT Part 6, 51-00-00, Figure 4 for the surface inspection.
- (2) For the lugs of the fittings, do a High Frequency Eddy Current (HFEC) inspection of the area where the damage has been removed to make sure that all the damage has been removed. Refer to 737 NDT Part 6, 51-00-00, Figure 4 for the surface inspection.

WARNING: MAKE SURE THAT YOU WEAR EYE PROTECTION WHEN YOU USE THE FLAP PEEN WHEEL. IF YOU DO NOT OBEY, AN INJURY CAN OCCUR.

- (3) Flap peen or shot peen the reworked areas.

NOTE: Do not flap peen or shot peen the inner surface of the fastener holes and the bore of the lugs.

- (a) Refer to 51-20-06 for the shot peen intensity and shot number.
- (b) Refer to SOPM 20-10-03 for the flap peen and shot peen procedures.
- (4) Apply a chemical conversion coating to the bare surfaces of the part. Refer to 51-20-01.
- (5) Apply one layer of BMS 10-11, Type I primer to the surfaces of the reworked areas of the part. Refer to SOPM 20-41-02.

NOTE: Do not apply the BMS 10-11, Type 1 primer to the bore of the lug where a bushing is installed.

- (6) Restore the paint layer on the hinge fitting with BMS 10-60 Boeing color 707 gray gloss enamel. Refer to AMM PAGEBLOCK 51-21-99/701.

NOTE: Do not apply the BMS 10-60, enamel to the bore of the lug where a bushing is installed.

3. References

Reference	Title
51-10-02	INSPECTION AND REMOVAL OF DAMAGE

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ALLOWABLE DAMAGE 1

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(Continued)

Reference	Title
51-20-01	PROTECTIVE TREATMENT OF METALLIC AND COMPOSITE MATERIALS
51-20-06	SHOT PEENING
51-30-03	NON-METALLIC MATERIALS
51-30-05	EQUIPMENT AND TOOLS FOR REPAIRS
AMM 51-21-99 P/B 701	DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING
SOPM 20-10-03	SHOT PEENING
SOPM 20-20-02	Penetrant Methods of Inspection
SOPM 20-41-02	Application of Chemical and Solvent Resistant Finishes
SOPM 20-42-05	Bright Cadmium Plating
SOPM 20-50-03	Bearing and Bushing Replacement
737 NDT Part 6, 51-00-00	Structures - General

4. Allowable Damage Limits

A. Lugs of the Fittings:

NOTE: For the removal and installation of bushings, refer to SOPM 20-50-03, as applicable.

NOTE: Refer to Paragraph 2.B./ALLOWABLE DAMAGE 1 and Paragraph 2.C./ALLOWABLE DAMAGE 1 for general guidelines on the required installation of bushings after the damage on the bore of the lug has been removed.

(1) Cracks, Nicks, Gouges, Scratches, and Corrosion:

- (a) Remove the damage on the edge and the face of the lug as shown in Fitting Lug Allowable Damage Limits, Figure 103/ALLOWABLE DAMAGE 1, Detail A , and as given in Table 102/ALLOWABLE DAMAGE 1.
 - 1) When you remove the damage along the complete edge of the bore (spotface), do as follows:
 - a) Make sure that the spotface is perpendicular to the bore
 - b) Make a 15-5PH or 17-4PH CRES washer to fill the spotface
 - Make the washer the same thickness as the depth of the spotface
 - Keep the center of the hole in the washer aligned with the center of the bore within plus or minus 0.005 inch (0.1270 mm)
 - The inside diameter of the washer must be the same or a small amount larger in diameter than the diameter of the bore
 - Make the outside diameter of the washer smaller than the radius at the outer edge of the spotface
 - The outside edge of the washer may not touch the radius at the outer edge of the spotface
 - Cadmium plate the washer as given in QQ-P-416, Type 2, Class 2. Refer to SOPM 20-42-05
 - Install the washer wet with BMS 5-95 sealant.

(b) Remove the damage on the bore as follows:

- 1) Oversize the lug bore by reaming out the inside diameter of the lug up to the maximum oversize diameter given in Table 103/ALLOWABLE DAMAGE 1.
 - a) Make sure that the oversized bore has the same alignment as the initial bore.

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ALLOWABLE DAMAGE 1

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- (c) Dents are not permitted.
- (d) Holes and Punctures are not permitted.

Table 102:

MAXIMUM DIMENSIONS OF THE DAMAGE CLEANUP AT THE LUGS AS GIVEN IN FIGURE 103, DETAIL A					
FITTING		X1 INCHES (mm)	X2 INCHES (mm)	X3 INCHES (mm)	D1 INCHES (mm)
OUTBOARD MAIN LANDING GEAR DOOR	Forward Hinge Fitting - Pushrod Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	1.01 (25.7)
	Forward Hinge Fitting - Hinge Support Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	1.01 (25.7)
	Aft Hinge Fitting - Hinge Support Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	1.225 (31.12)
CENTER MAIN LANDING GEAR DOOR	Forward and Aft Clevis - Tie Rod Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	1.00 (25.4)
	Forward Door-to-Strut Support Fitting - Attachment Lug	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	0.87 (22.1)
	Aft Door-to-Strut Support Fitting - Attachment Lug	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	0.87 (22.1)
	Forward Hinge Fitting Hinge Fitting Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	1.00 (25.4)
	Aft Hinge Fitting Hinge Fitting Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	0.83 (21.1)
INBOARD MAIN LANDING GEAR DOOR	Forward and Aft Hinge Fitting - Hinge Fitting Attachment Lugs	0.014 (0.36)	0.020 (0.51)	0.020 (0.51)	0.81 (20.6)

Table 103:

MAXIMUM OVSIZE DIAMETERS OF THE LUG BORES AFTER THE REMOVAL OF THE DAMAGE		
FITTING		DIAMETER IN INCHES (mm)
OUTBOARD MAIN LANDING GEAR DOOR	Forward Hinge Fitting - Pushrod Attachment Lugs	0.6856 (17.41)
	Forward Hinge Fitting - Hinge Support Attachment Lugs smaller lug larger lug	0.4981 (12.65) 0.6231 (15.83)
	Aft Hinge Fitting - Hinge Support Attachment Lugs	0.6231 (15.83)
CENTER MAIN LANDING GEAR DOOR	Forward and Aft Clevis - Tie Rod Attachment Lugs	0.6856 (17.41)
	Forward Door-to-Strut Support Fitting - Attachment Lug	0.7530 (19.13)
	Aft Door-to-Strut Support Fitting - Attachment Lug	0.7530 (19.13)
	Forward Hinge Fitting - Hinge Fitting Attachment Lugs	0.4981 (12.65)
	Aft Hinge Fitting - Hinge Fitting Attachment Lugs	0.4981 (12.65)

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ALLOWABLE DAMAGE 1

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Table 103: (Continued)

MAXIMUM OVERRSIZE DIAMETERS OF THE LUG BORES AFTER THE REMOVAL OF THE DAMAGE		
INBOARD MAIN LANDING GEAR DOOR	Forward and Aft Hinge Fitting - Hinge Fitting Attachment Lugs	0.4981 (12.65)

B. Fitting Surfaces and Edges (Chords, Gussets, and End Pads):

- (1) Cracks are permitted if:
 - (a) The damage is removed as shown in Fitting Chord and Clevis Allowable Damage Limits, Figure 104/ALLOWABLE DAMAGE 1, Details A , B , D , and E
 - (b) The damage is a minimum distance of 0.50 inches (12.70 mm) away from the lug.
- (2) Nicks, Gouges, Scratches, and Corrosion are permitted if:
 - (a) The damage is removed as shown in Fitting Chord and Clevis Allowable Damage Limits, Figure 104/ALLOWABLE DAMAGE 1, Details A , B , C , D , and E
 - (b) The damage is a minimum distance of 0.50 inches (12.70 mm) away from the lug.
- (3) Dents are not permitted.
- (4) Holes and Punctures are not permitted.

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ALLOWABLE DAMAGE 1

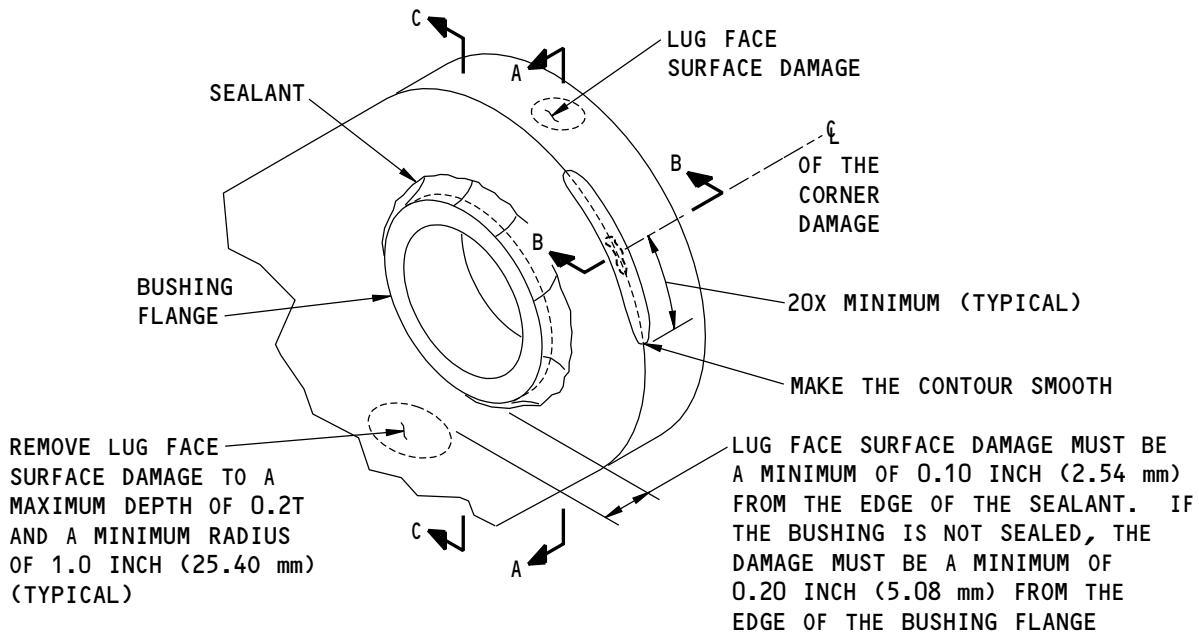
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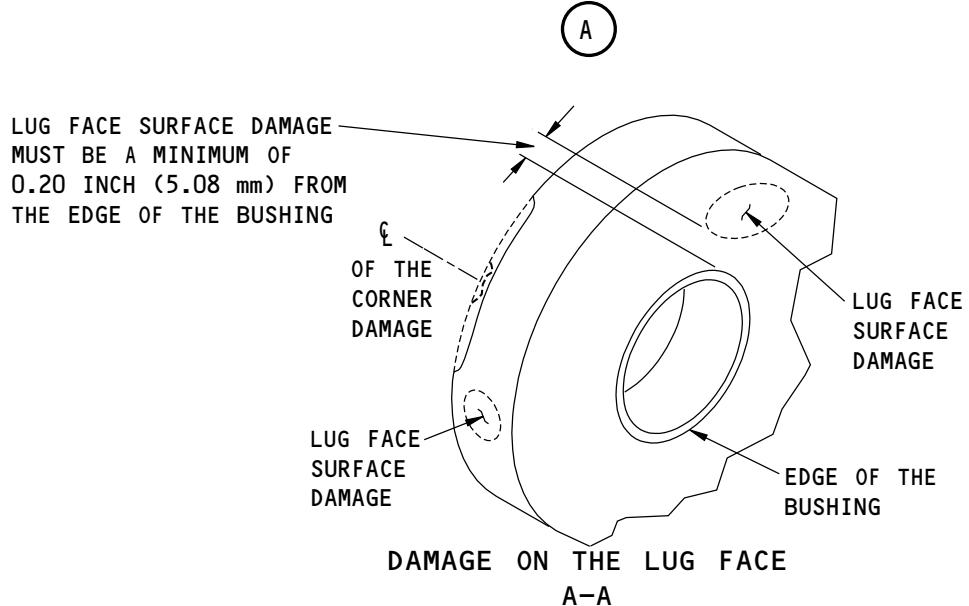
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NOTE: DAMAGED SEALANT IS NOT PERMITTED. IF THE SEALANT IS DAMAGED, LOOK FOR MIGRATION OR ROTATION OF THE BUSHING. IF THERE IS NO MIGRATION, ROTATION, OR CORROSION, REMOVE THE DAMAGED SEALANT AND APPLY A NEW FILLET SEAL.

**REMOVAL OF SURFACE AND EDGE DAMAGE FROM A LUG THAT HAS A BUSHING
(TYPICAL LUG IS SHOWN)**



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Fitting Lug Allowable Damage Limits
Figure 103 (Sheet 1 of 2)

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ALLOWABLE DAMAGE 1

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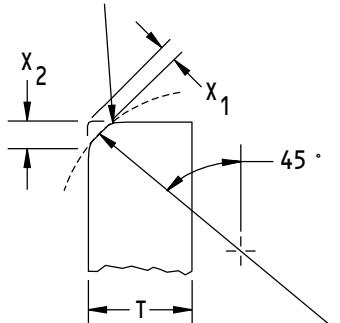
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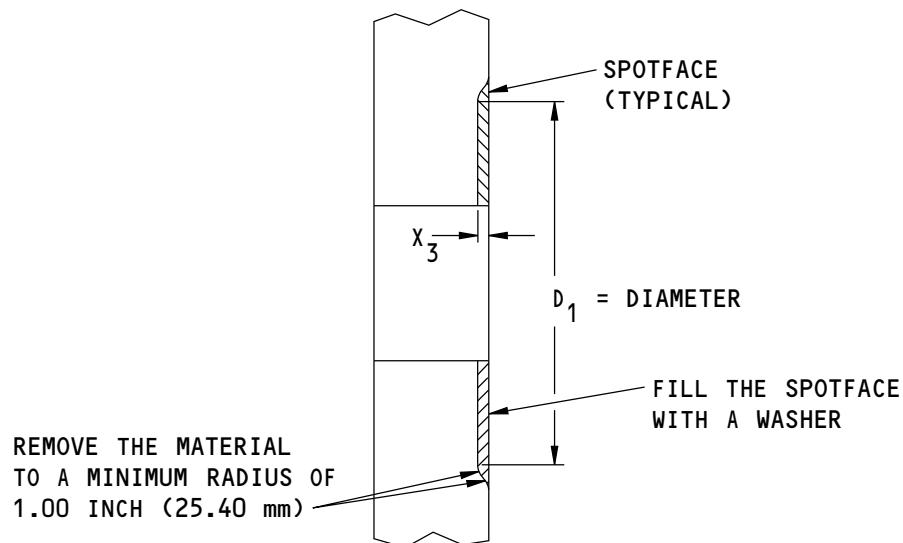
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REMOVE THE SHARP EDGE
(TYPICAL)



REMOVE THE MATERIAL TO A MINIMUM
RADIUS OF 1.0 INCH (25.40 mm) (TYPICAL)

DAMAGE ON THE LUG EDGE
B-B



SHADE AREA SHOWS WHERE THE DAMAGE HAS BEEN REMOVED

NOTES

- REFER TO TABLE 102 FOR THE MAXIMUM DIMENSIONS OF X_1 , X_2 , X_3 , AND D_1 FOR EACH FITTING.

DAMAGE ON THE LUG FACE
C-C

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Fitting Lug Allowable Damage Limits
Figure 103 (Sheet 2 of 2)

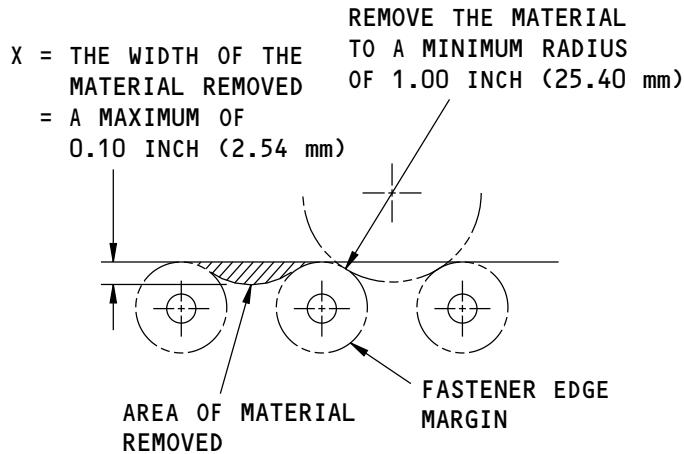
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ALLOWABLE DAMAGE 1

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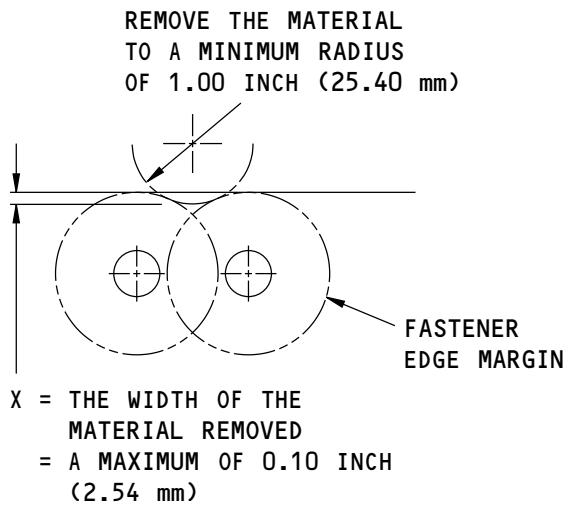
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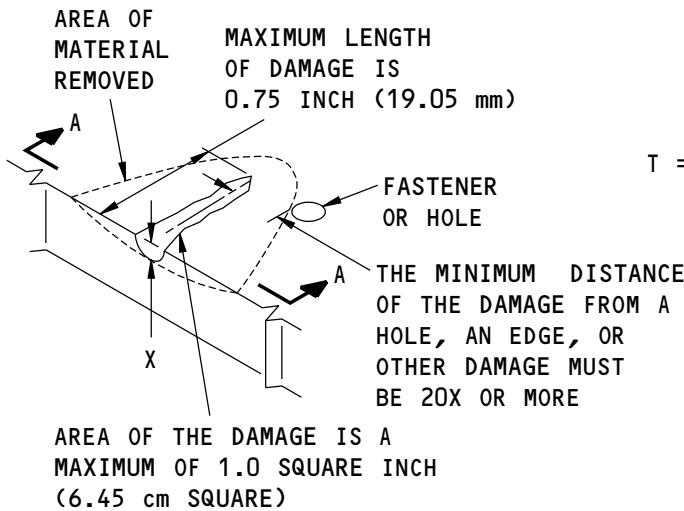
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS DO NOT HAVE AN OVERLAP

(A)



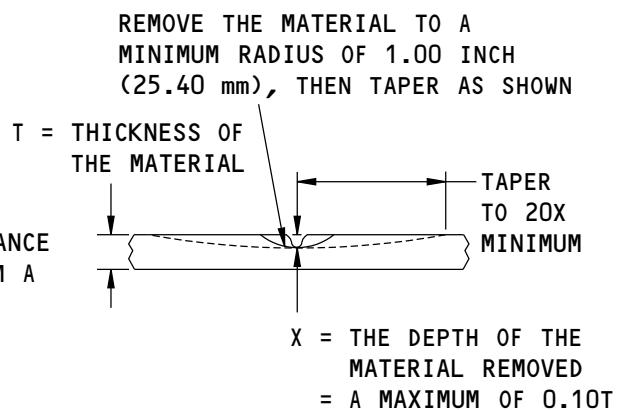
REMOVAL OF DAMAGED MATERIAL AT EDGES WHERE THE FASTENER EDGE MARGINS HAVE AN OVERLAP

(B)



REMOVAL OF DAMAGED MATERIAL ON A SURFACE

(C)



A-A

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Fitting Chord and Clevis Allowable Damage Limits
Figure 104 (Sheet 1 of 3)

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ALLOWABLE DAMAGE 1

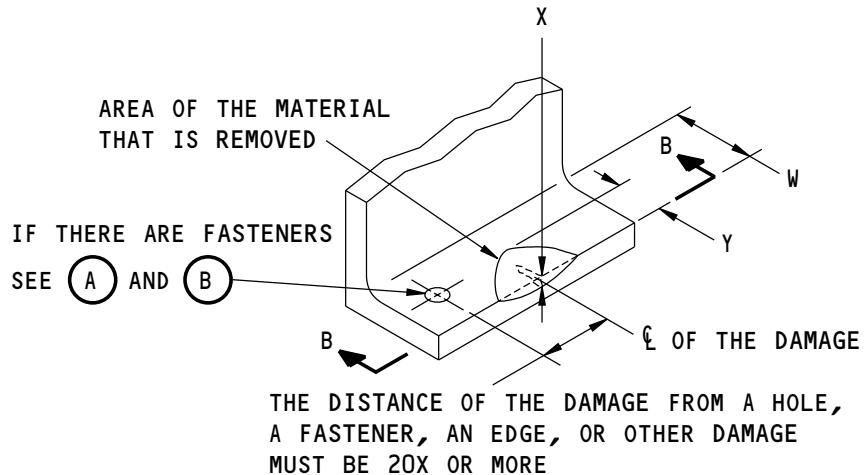
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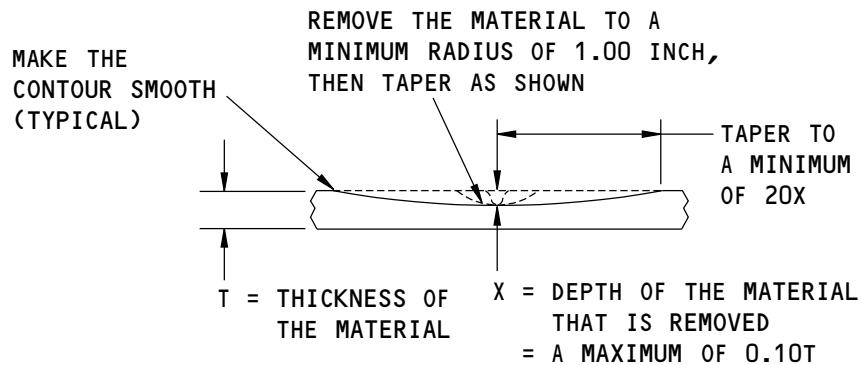
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W = THE WIDTH OF THE FLANGE
 Y = THE WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10W

REMOVAL OF DAMAGED MATERIAL
ON A SURFACE AT AN EDGE

(D)



B-B

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Fitting Chord and Clevis Allowable Damage Limits
Figure 104 (Sheet 2 of 3)

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ALLOWABLE DAMAGE 1

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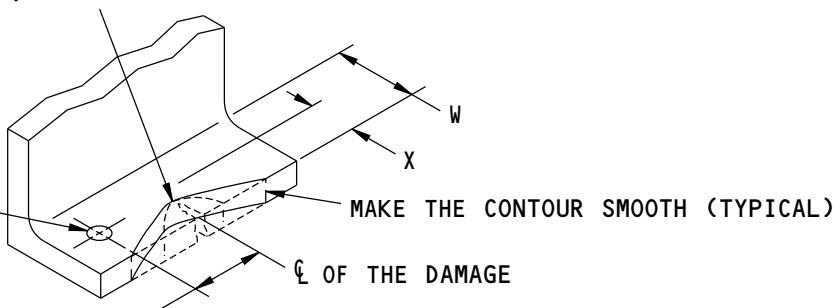
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REMOVE THE MATERIAL TO A MINIMUM RADIUS OF 1.00 INCH (25.40 mm), THEN TAPER AS SHOWN

IF THERE ARE FASTENERS,
SEE (A) AND (B)



TAPER TO A MINIMUM OF 20X.
THE DISTANCE OF THE DAMAGE FROM
A HOLE, AN EDGE, OR OTHER DAMAGE
MUST BE 20X OR MORE

W = THE WIDTH OF THE FLANGE

X = THE WIDTH OF THE MATERIAL THAT IS REMOVED
= A MAXIMUM OF 0.10W

REMOVAL OF DAMAGED MATERIAL AT AN EDGE

(E)

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Fitting Chord and Clevis Allowable Damage Limits
Figure 104 (Sheet 3 of 3)

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ALLOWABLE DAMAGE 1

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