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SERVICE BULLETIN

REVISION TRANSMITTAL SHEET

MODIFICATION No. : 21015K0996

ATA SYSTEM : 21

T I T L E : AIR CONDITIONING — AIR COOLING — MODIFY FLOW CONTROL VALVES AND RELOCATE PRESSURE SENSORS

Herewith Revision No. 2 of Service Bulletin A320-21-1014.

No additional work is required by this Revision.

REASON

This Revision is issued to change some technical contents and to add a further reference.

Service Bulletin Summary		
Page 1 of 5	REASON	- Reference to SB added.
Page 5 of 5	MANPOWER	- Manhours increased.
Service Bulletin		
Page 1 of 66	Para. 1.B.	- Reference to SB added.
Page 3	Para. 1.E.	- Manhours increased
Page 7	Para. (2)(f3)	- Part number changed.
Page 8	Para. 2.B.(2)	- Effectivity of procedure added.
Page 9	Para. 2.B.(3)	- Note added,worksteps deleted and step numbering changed.
Page 10		- step numbering changed. - Part number changed.
Page 11	Para. 2.B.(5)	- Text for placards added and text corrected.
Page 21/22	Fig. 2, Sheet 1	- View corrected.
Page 27/28	Fig. 4, Sheet 1	- Figure corrected.
Page 35	Fig. 6	- Bonding points added.
Page 36	Fig. 7	- Brackets, item (92) removed.
Page 39/40	Fig. 9, Sheet 1	- View corrected.
Page 57/58	Fig. 11, Sheet 4	- Placards added.
Page 63	Para. 3.A.	- Item (92) removed.
Page 64	Para. 3.A.	- Part number and QTY changed.
Page 65	Text shifted and part number changed.	

FILING INSTRUCTIONS

Replace Service Bulletin Summary Page 1 of 5, 5 of 5 and Service Bulletin Pages 1 of 66, 3, 8 thru 11, 21/22, 27/28, 35, 36, 39/40, 57/58 and 63 thru 65.
File this Revision Transmittal Sheet in front of this Service Bulletin.

Printed in France

REVISION TRANSMITTAL SHEET

REVISION SEQUENCE

Original: Aug 28/89
Revision No.: 1- May 31/90
Revision No.: 2- MAR 08/91

Printed in France

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SERVICE BULLETIN
SUMMARY

This summary is for information only
and is not D.G.A.C.-approved for modification of the aircraft

MODIFICATION No. : 21015K0996 ATA SYSTEM : 21

T I T L E : AIR CONDITIONING - AIR COOLING - MODIFY FLOW CONTROL VALVES AND RELOCATE PRESSURE SENSORS

REASON

The existing flow control valves have shown poor maintainability due to difficult access to the pneumatic sense lines connected to the unit and the existing clearance between the LH valve and the support bracket of the pack pressure sensors. The improvement consists of implementation of quick disconnect couplings between new sense lines and valves and relocation of the pressure sensors.

The pneumatic bleed valves have a higher leak rate than the flow control valve standard -03 which leads to a pressure build-up in the bleed system and then to automatic bleed closure due to overpressure when the packs are selected "Off". Two holes are drilled in the butterfly of the new flow control valve standard -04 to allow a callibrated leak thus avoiding a bleed system malfunction. The modification to flow control valve standard -04 will be accomplished with Liebherr/ABG-Semca Vendor Service Bulletin No. 751A-21-01.

This Service Bulletin has to be accomplished simultaneously with or after accomplishment of the Service Bulletin A320-21-1007, Mod. 21062K1048 and A320-36-1002, Mod. 20716K0649.

DESCRIPTION

Accomplishment of this Service Bulletin consists in carrying out the following jobs on the aircraft.

(1) Gain access to the air conditioning compartment, LH and RH.

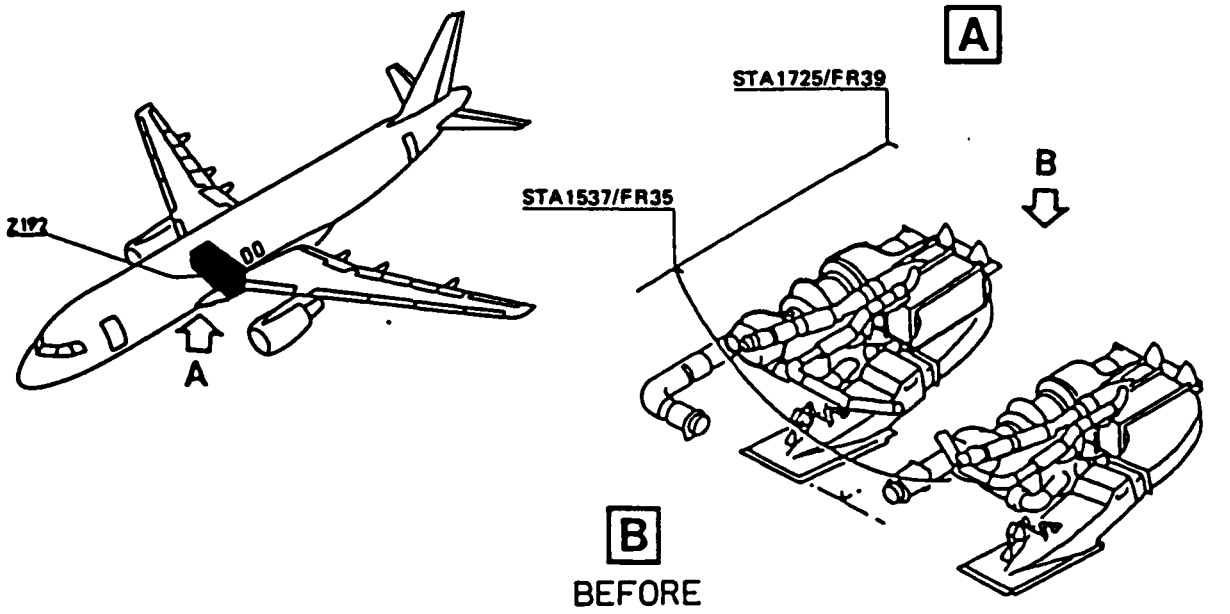
(2) Remove the air conditioning packs, flow control valves and associated equipment.

NOTE: The removed flow control valves can be modified to -04 standard in accordance with Liebherr/ABG-Semca Vendor Service Bulletin No. 751A-21-01 or returned to the Vendor where they will be modified free of charge.

(3) Remove, modify and replace the heat shields.

(4) Install pressure sensor support brackets on the sidewall structure of the air conditioning compartment and the keel beam sidewall.

(5) Reroute cable bundles to new pressure sensor positions.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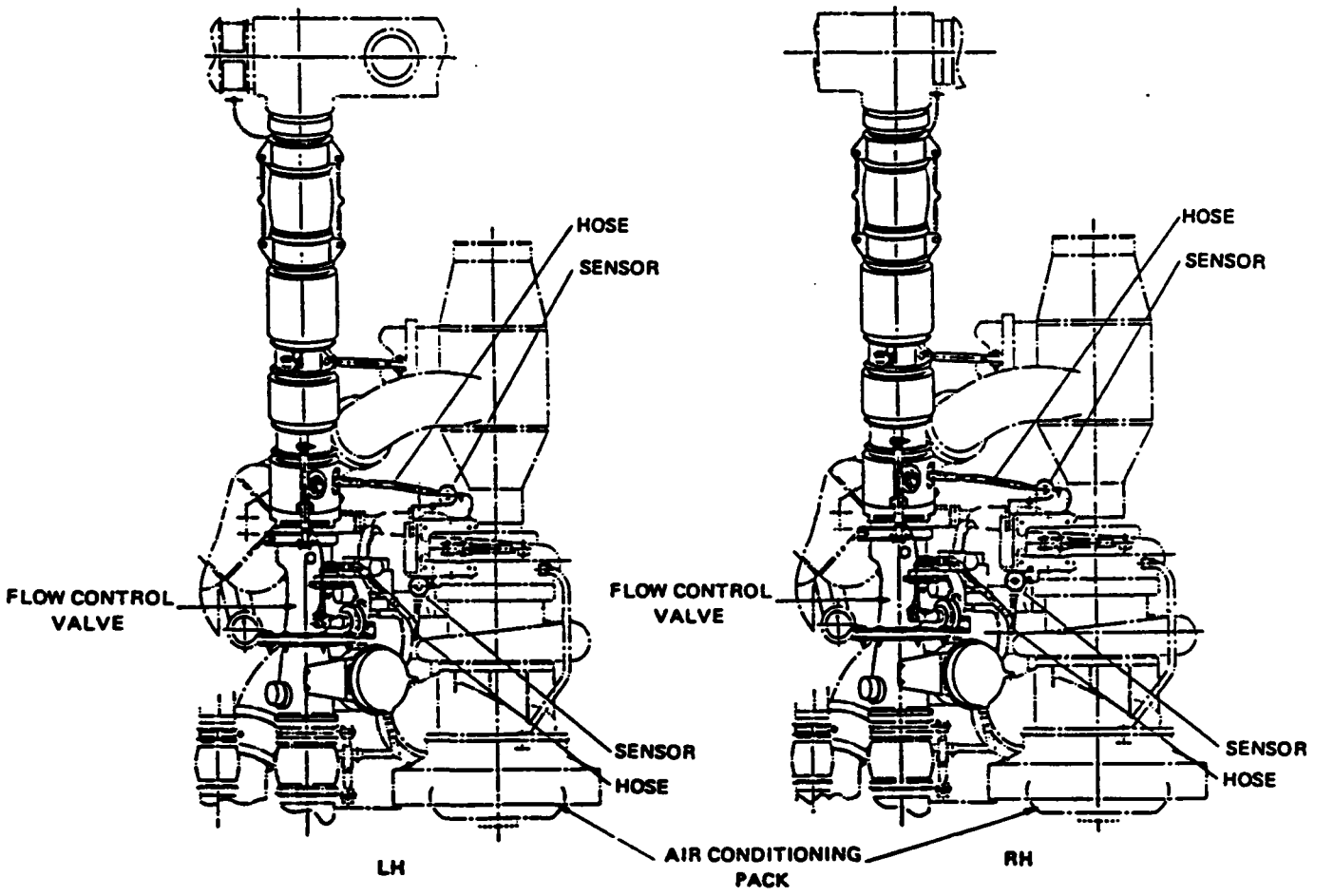
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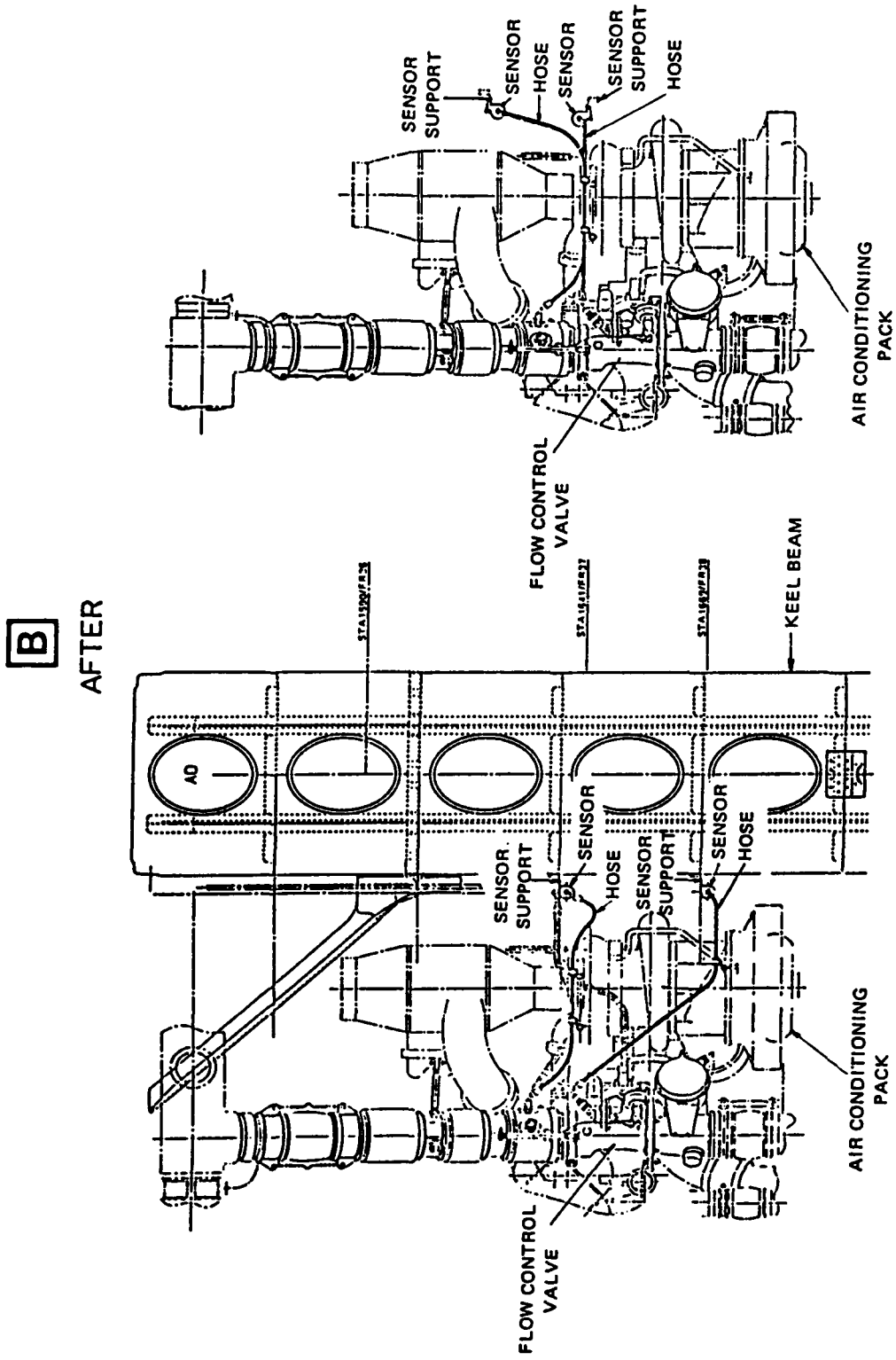
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HOSE
SENSOR SUPPORT
SENSOR
HOSE
AIR CONDITIONING PACK
FLOW CONTROL VALVE

(6) Install modified/new flow control valves and sense line hoses.

(7) Replace air conditioning packs.

NOTE: Service Bulletin A320-21-1007, Mod. 21062K1048 must have been accomplished on the air conditioning packs.

(8) Perform an operational test of the flow control and indicating and the pack temperature-control system.

(9) Close-up.

OPERATIONAL CONSEQUENCES

None

EFFECTIVITY

This Service Bulletin is applicable to the following operators: AFR, BAW and ITF.

This modification is embodied prior to delivery on aircraft MSN 015 and subsequent.

SERVICE BULLETIN/MODIFICATION TO BE ACCOMPLISHED PREVIOUSLY OR SIMULTANEOUSLY

None

REFERENCES/REPERCUSSIONS

TFU		None	LIFE LIMIT	None
OEB	Added	None	LINE MAINTENANCE AFFECTED	
	Cancelled	None	~~YES~~/NO	
AOT		None		
SIL		None	OTHERS	None

NATURE OF THE MODIFICATION

AIRCRAFT YES/~~NO~~

EQUIPMENT YES/~~NO~~

COMPLIANCE

Desirable

MANPOWER

Kit 211014A01

Total Manhours	101
Elapsed time (hours)	35

MATERIAL INFORMATION

Aircraft Data

Hoses, placards, support brackets, electrical equipment and associated hardware.

Equipment Data

Designation:	Flow Control Valve
Supplier:	LIEBHERR/ABG-SEMCA
Service Bulletin No.:	751A-21-01
Part Number-Before:	751A0000-03
Part Number-After:	751A0000-04
Interchangeability Code:	03
Intermixability:	

APPENDICES

None

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SERVICE BULLETIN

MODIFICATION No. : 21015K0996 ATA SYSTEM : 21

T I T L E : AIR CONDITIONING - AIR COOLING - MODIFY FLOW CONTROL VALVES AND RELOCATE PRESSURE SENSORS

1. PLANNING INFORMATION

A. EFFECTIVITY

(1) Aircraft Models: A320-111

(2) Aircraft

Customer and Fleet No.	MSN	Qty of Kits 211014A01
AFR 001-002 004	005, 007, 014	3
BAW 001-003	006, 008, 011	3
ITF 001-003	010, 012, 013	3

This modification is embodied prior to delivery on A/C MSN 015 and subsequent.

(3) Spares

None

B. REASON

The existing flow control valves have shown poor maintainability due to difficult access to the pneumatic sense lines connected to the unit and the existing clearance between the LH valve and the support bracket of the pack pressure sensors.The improvement consists of implementation of quick disconnect couplings between new sense lines and valves and relocation of the pressure sensors.

The pneumatic bleed valves have a higher leak rate than the flow control valve standard -03 which leads to a pressure build-up in the bleed system and then to automatic bleed closure due to overpressure when the packs are selected "Off". Two holes are drilled in the butterfly of the new flow control valve standard -04 to allow a callibrated leak thus avoiding a bleed system malfunction. The modification to flow control valve standard -04 will be accomplished with Liebherr/ABG-Semca Vendor Service Bulletin No. 751A-21-01.

This Service Bulletin has to be accomplished simultaneously with or after accomplishment of the Service Bulletin A320-21-1007, Mod. 21062K1048 and A320-36-1002, Mod. 20716K0649.

C. DESCRIPTION

Accomplishment of this Service Bulletin consists in carrying out the following jobs on the aircraft.

(1) Gain access to the air conditioning compartment, LH and RH.

(2) Remove the air conditioning packs, flow control valves and associated equipment.

NOTE: The removed flow control valves can be modified to -04 standard in accordance with Liebherr/ABG-Semca Vendor Service Bulletin No. 751A-21-01 or returned to the Vendor where they will be modified free of charge.

(3) Remove, modify and replace the heat shields.

(4) Install pressure sensor support brackets on the sidewall structure of the air conditioning compartment and the keel beam sidewall.

(5) Reroute cable bundles to new pressure sensor positions.

(6) Install modified/new flow control valves and sense line hoses.

(7) Replace air conditioning packs.

NOTE: Service Bulletin A320-21-1007, Mod. 21062K1048 must have been accomplished on the air conditioning packs.

(8) Perform an operational test of the flow control and indicating and the pack temperature-control system.

(9) Close-up.

D. APPROVAL

This Service Bulletin is approved by Direction Générale de l'Aviation Civile - FRANCE (D.G.A.C).

Printed in France

E. MANPOWER

	Manhours Kit 211014A01
Gain access	4.5
Modification	90.0
Test	2.0
Close-up	4.5
TOTAL MANHOURS	101.0
ELAPSED TIME (HOURS)	35.0

NOTE: This Service Bulletin assumes that the aircraft has been placed in a maintenance status. The manhours/elapsed time estimates do not include preparation for the modification, non-productive elapsed time, or administrative functions.

F. MATERIAL - COST AND AVAILABILITY

(1) Material

Operators with aircraft listed under paragraph 1.A.(2) above should submit purchase orders quoting this Service Bulletin to:

AIRBUS INDUSTRIE
SPARES SUPPORT CENTER
WEG BEIM JAEGER 150
D2000 HAMBURG 63
GERMANY

(2) Cost and Availability

Kit	Cost (US Dollars)	Availability*
211014A01	8,224	180

* Calendar days from receipt of order.

NOTE: Sales terms stated (cost and availability) are evaluated with respect to economic conditions at the issue date of this Service Bulletin.

A discount of ten (10) per cent will be accorded to all orders received within a period of 120 days from the original issue date of this Service Bulletin.

NOTE: The flow control valves of -03 standard can be modified to -04 standard with Liebherr/ABG-Semca Vendor Service Bulletin No. 751A-21-01 or returned to the Vendor where they will be modified free of charge.

G. TOOLING - PRICE AND AVAILABILITY

None

H. WEIGHT AND BALANCE

M.E.W.:	-0.1 kg (-0.22 lb.)
Effect on Balance:	-1.52 m.kg (-11.0 lb.ft.)

I. REFERENCES

Aircraft Maintenance Manual:	20-28-00, 20-31-00, 21-51-00, 21-51-51, 21-52-41, 21-61-00, 36-22-18, 53-35-11, 53-35-13
Service Bulletin:	A320-21-1007
Vendor Service Bulletin:	Liebherr/ABG-Semca No. 751A-21-01

J. PUBLICATIONS AFFECTED

Aircraft Maintenance Manual:	21-51-11, 21-51-51, 21-61-16, 21-61-17
Illustrated Parts Catalog:	21-51-03, 21-52-03, 53-36-03

2. ACCOMPLISHMENT INSTRUCTIONS

A. GENERAL

(1) Job Set-up

(a) Open, safety and tag these circuit breakers:

PANEL	SERVICE	IDENT.	LOCATION
FOR 1OHM			
122VU	AIR COND/FLOW/CTL AND IND/1	1HB	V22
122VU	AIR COND/PACK TEMP/CTL SYS1/1/115VAC	1HH	X22
122VU	AIR COND/PACK TEMP/CTL SYS1/1/28VDC	3HH	X21
122VU	AIR COND/PACK TEMP CTL SYS1/2/28VDC	4HH	Y19
122VU	AIR COND/PACK TEMP CTL SYS2/1/115VAC	2HH	Y18
FOR 11HM			
122VU	AIR COND/FLOW/CTL AND IND/2	2HB	V21
122VU	AIR COND/PACK TEMP/CTL SYS1/2/115VAC	21HH	W22
122VU	AIR COND/PACK TEMP/CTL SYS1/2/28VDC	23HH	W21
122VU	AIR COND/PACK TEMP CTL SYS2/2/28VDC	24HH	Y21
122VU	AIR COND/PACK TEMP CTL SYS2/2/115VAC	22HH	Y20

(b) Remove the access panels 191BB, FB, GB, HB, JB, KB, MB and 192FB, KB (Ref. AMM 53-35-13, P. Block 401).

(c) Remove the access panel 192LB (Ref. AMM 53-35-11, P. Block 401).

(2) Standard Procedures

(a) Install blanking caps on open pipes, ports and electrical connectors.

(b) Install the bonding connections in accordance with AMM 20-28-00, P. Block 201).

(c) Apply wash primer Mat. No. 16-020, polyurethane primer Mat. No. 16-001 and top coat Mat. No. 16-002 on blank surfaces.

(d) Cut the rivets to the required length.

(e) Clean applicable surfaces with solvent Mat. No. 11-003.

(f) For specification of materials (Mat. No.) given in this Service Bulletin refer to AMM 20-31-00.

B. MODIFICATION

(1) Removal of air conditioning components

Ref. Figure 1, 2 and 3

(a) Remove the air conditioning packs 10HM (LH) and 11HM (RH) in accordance with AMM 21-52-41, P. Block 401.

(b) Remove:

hose	item (2)	not re-used
hose	item (7)	not re-used
screw	item 14	re-used
nut	item 15	re-used
washer	item 16	re-used
screw	item 17	re-used
bonding strap	item (18)	not re-used
bonding strap	item 18	re-used
clipnut	item (19)	not re-used
clamp	item 19	re-used

(c) Disconnect the electrical connections from the sensors and remove the clamp, item (106) and associated hardware as shown in figure 11. Do not re-use the fastening parts.

(d) Remove and retain the sensors, item 3, 6, 9 and 12 with fastening parts.

(e) Disconnect the hose, item (40) from the tie-rod by removing nut, item 15, washer, item 16, screw, item 30 and two clamps, item 38 and 42.

(f) Disconnect the hose, item (40) from the flow control valve LH and RH, item (1) and (8). Do not re-use the hose.

(g) Remove the flow control valves 8HB (LH), item (1) and 11HB (RH), item (8) in accordance with AMM 21-51-51, P. Block 401. Retain the ducts.

NOTE: The removed flow control valves can be modified to -04 standard in accordance with Liebherr/ABG-Semca Vendor Service Bulletin No. 751A-21-01 or returned to the Vendor where they will be modified free of charge.

(h) Remove and do not re-use the placards, item (4), (5), (10), (11), (20), (21), (22) and (23).

(j) Disconnect and remove:

hose	item (32), (33), (34), (35)	not re-used
pipe	item (36), (37)	not re-used
nut	item 15	re-used
washer	item 16	re-used
screw	item 30	re-used
clamp	item (31)	not re-used
clamp	item (38)	not re-used

(2) Modification of heat shields and re-location of fasteners

Ref. Figure 4 and 5

(a) Remove the overheat detection loops A and B from the heat shields in accordance with AMM 36-22-18, P. Block 401.

(b) Remove the hot air trim lines in the areas of the heat shields.

(c) Remove the flow sensor supports and retain with the fastening parts for re-use.

(d) Loosen the wire harnesses from the heat shields. Retain the fastening parts for re-use.

(e) Remove the heat shields D2157137101400, item (70) and D2157137101200, item (71) from the studs and retain the fastening parts for re-use.

(f) Place the heat shields on a bench and modify as follows:

(f1) Mark the installation positions of the supports, item 76 on the heat shields, item (70) and (71).

(f2) Drill 2.4 mm (0.094 in.) rivet holes.

(f3) Position the supports D3627002600000, item 76 on the heat shields and install with washers ASNA53114-24ADL, item 77 and rivets MS20470AD3-6, item 78.

(f4) Re-identify the heat shields in accordance with Para. 3.D.

(g) At the locations given in figure 5 remove the studs, item (80), (83) and (87), washers, item (81) and lockwashers, item (72).

(h) Retain the 2 studs, item (80), 1 stud, item (83), 2 washers, item (81), and 2 lockwashers, item (72).

Aircraft without center tank (MSN 005, 007, 010, 012 thru 014 only)

(j) At locations given in figure 4, section A-A install the new and retained;

stud	NSA5159-33	item 75
lockwasher	DIN137A5ST	item 72
washer	AN960C10L	item 16

NOTE: During the installation procedure, hold the washers in position with grease or equivalent.

(k) At the locations given in figure 5, detail B and section B-B and C-C install the new and retained;

stud	NSA5159-25	item 84
stud	NSA5159-32	item 83
washer	AN960KD10	item 81
lockwasher	DIN137A5ST	item 72
washer	AN960C10L	item 16
screw	NAS1096-3-10	item 85

NOTE: During the installation procedure, hold the washers in position with grease or equivalent.

Aircraft with center tank (MSN 006, 008 and 011 only)

(l) At the locations given in figure 5, sheet 1 thru 3 install the new and retained;

stud	NSA5159-23	item 80
stud	NSA5159-25	item 84
stud	NSA5159-32	item 83
washer	AN960KD10	item 81
lockwasher	DIN137A5ST	item 72
washer	AN960C10L	item 16
screw	NAS1096-3-10	item 85

NOTE: During the installation procedure, hold the washers in position with grease or equivalent.

All aircraft

(m) Install the modified heat shields D2157137101800, item 70 and D2157137101600, item 71 with retained fastening parts.

(n) Additionally fasten the heat shield, item 70 with new washers AN960C10L, item 16 and nuts MS21042-3, item 74 as shown in figure 4, section A-A.

(o) Replace the flow sensor supports with retained fastening parts.

NOTE: One sensor support is not re-used (Ref. Para. (5)). Do not install the wire harnesses at this stage.

(p) Replace the hot air trim lines in the heat shield areas.

(q) Replace the overheat detection loops A and B on the heat shields in accordance with AMM 36-22-18, P. Block 401.

(3) Structural modification

Ref. Figure 6

(a) On the longeron assy, RH at FR37, put in position the sensor-support brackets, item 60 and 61, plug-support brackets, item 62 and wire harness-support brackets, item 63 as shown in the figure.

(b) Drill dia. 3.2 mm (0.126 in.) rivet holes for the support brackets item 63 and dia. 4.0 mm (0.157 in.) for the support brackets item 60, 61 and 62.

(c) Install the support brackets D9249178620000, item 63 with rivets MS20470AD4-6, item 64. Use sealant Mat. No. 09-013.

(d) Install the support brackets D2157047600000, item 60, D2157047600100, item 61 and D9249181020000, item 62 with rivets MS20470D5-6, item 65. Use sealant Mat. No. 09-013.

NOTE: Observe the bonding procedure for marked rivets.

Ref. Figure 7

(e) Drill out and remove the support brackets, item (91) (front and rear face) and seal the rivet holes with rivets MS20470AD4-12, item 96.

(f) Drill out and remove the support bracket, item (90) and seal the rivet holes with rivets MS20470AD4-12, item 96.

(g) Drill out rivets accordingly, where the new support brackets, item 90, 91 and 92 have to be positioned.

(h) Put the bonding strap support bracket D5337067700200, item 90 in position as shown in the figure and drill dia. 4.8 mm (0.189 in.) rivet holes.

(j) Install the support bracket, item 90 with rivets MS20470D6-10, item 93. Use sealant Mat. No. 09-013.

(k) Position the support brackets D9249181120000, item 91 and D2157147720400, item 92 as shown in the figure and drill and ream dia. min. 5.113 mm (0.2013 in.) max. 5.152 mm (0.2028 in.).

(l) Install the support brackets, item 91 and 92 with Hi-lok fasteners HL110VF-6-5, item 94 and collars HL79, item 95. Use sealant Mat. No. 09-013.

(4) Installation of sensors

Ref. Figure 10

(a) Install the retained sensors 763A0000-03, item 3 and 6 on the keel beam sidewall, LH with:

clamp	MS21919WCJ19	item 19
washer	AN960C10L	item 16
screw	NAS6703-2	item 14

(b) Install the new bonding straps E0089-10-200, item 54 with screws NAS6703U1, item 17, washers AN960C10L, item 16 and nuts MS21043-3, item 15.

(c) Install the retained sensors 763A0000-03, item 9 and 12 on the longeron assy, RH with:

clamp	MS21919WCJ19	item 19
washer	AN960C10L	item 16
screw	NAS6703-2	item 14

(d) Install the retained bonding straps E0090-10-100, item 18 with screws NAS6703U1, item 17, washers AN960C10L, item 16 and nuts MS21043-3, item 15.

(e) Install the placards adjacent to the sensors according to figure 10, Sheet 5:

placard	D2157127524000	item 4
placard	D2157127523600	item 5
placard	D2157127524400	item 10
placard	D2157127523400	item 11

(5) Electrical modification

(a) Removal of electrical items and rerouting of cable bundle.

Ref. Figure 11

(a1) Remove and do not re-use clamps, item (106), (110), (111), (112) and (124) with fastening parts.
Refer to details B, C, D and F.

(a2) Modify the cable fastening in accordance with detail E and remove and install as follows:

washers		item (115)	not re-used
clamp		item (116)	not re-used
spacer		item (117)	not re-used
screw		item (118)	not re-used
spacer		item (124)	not re-used
clamp	NSA935807-06	item 113	re-used
washer	NSA935808C03	item 114	re-used
bolt	NAS1096-2-10	item 118	new
screw	NAS1096-2-14	item 119	re-used
washer	PIN960C8L	item 120	re-used
spacer	NSA5527-03-06D	item 121	re-used
clamp	NSA5516-07NV	item 122	re-used
spacer	NAS1096-2-33	item 123	re-used

(a3) Remove the receptacles 7558VC and 7559VC from the brackets. Retain the screws, item 135, washers, item 136 and nuts, item 137.

(a4) Remove and discard the support, item (125). Re-use the fastening parts, item 126 to seal the existing holes.

(a5) Re-route the cable bundles 4621VB/4653VB and install the receptacles 7558VC and 7559VC to the brackets, item 91 as shown in detail G with the retained:

screw	NAS1100-04-10	item 135
washer	AN960C4L	item 136
nut	MS21042L04	item 137

(a6) Install the placards, item 150 for receptacles 7558VC and 7559VC which are delivered with the electrical equipment D9299221000000.

(a7) Secure the cable bundles to the structure (Ref. detail G) with:

clamp	NSA935807-06	item 102
washer	NSA935808-01	item 103
screw	NAS1096-2-27	item 130
clamp	NSA935807-12	item 131
spacer	NSA5527-03-02D	item 132
spacer	NSA5527-03-03D	item 133
nut	NSA5066-08-2	item 134

NOTE: To avoid overlength install cable bundle in loop.

(b) Installation of new wiring.

Ref. Figure 11 and 12

(b1) Install the cable bundle, item 100 identified on the Hook-up Chart, line 1 thru 7, delivered with the electrical equipment D9299221000000.

(b2) Install the cable bundle, item 101 identified on the Hook-up Chart, lines 9 thru 15, delivered with the electrical equipment D9299221000200.

(b3) Connect the plugs 7560VC-B to receptacle 7560VC and 7557VC-B to receptacle 7557VC. Install placards, item 107 and 108 delivered with electrical equipment D9299221000000 and D9299221000200. (Ref. details B and C).

(b4) Install the receptacles 7557VC and 7560VC of the cable bundles, items 100 and 101 to the brackets, item 62 in accordance with section B-B with:

screw	NAS1100-04-10	item 135
washer	AN960C4L	item 136
nut	MS21042L04	item 137

(b5) Install placards, item 138 and 139 delivered with electrical equipment D9299221000000 and D2929221000200.

(b6) Secure cable bundles, items 100 and 101 to brackets, item 63 with:

clamp	NSA935807-06	item 102
washer	NSA935808-01	item 103
nut	NSA5066-08-2	item 134
screw	NAS1096-2-6	item 140

(b7) Secure cable bundles, items 100 and 101 in accordance with detail A with:

clamp	NSA935807-06	item 102
washer	NSA935808-01	item 103
screw	NAS1096-2-8	item 104
cable tie	NSA935401-04	item 105

(6) Installation of air conditioning components

Ref. Figure 8, 9 and 10

(a) Install the modified/new flow control valves 8HB (LH) and 11HB (RH) 751A0000-04, item 1 and 8 and the retained ducts in accordance with AMM 21-51-51, P. Block 401.

(b) On the flow control valve 8HB (LH) install as follows:

hose	D2157147102800, item 40	ref. figure 8
hose	D2157143703200, item 32	ref. figure 9
hose	D2157147103200, item 2	ref. figure 10
hose	D2157147103400, item 7	ref. figure 10

(c) Connect the hose, item 32 to the pipe as shown in figure 9.

(d) Connect the hose D2157143703000, item 33 to the pipe as shown in figure 9. Do not proceed with the hose installation at this stage.

(e) On the flow control valve 11HB (RH) install as follows:

hose	D2157147102800, item 40	ref. figure 8
hose	D2157143702200, item 35	ref. figure 9
hose	D2157147102600, item 50	ref. figure 10
hose	D2157147103000, item 51	ref. figure 10

(f) Connect the hose, item 35 to the pipe as shown in figure 9.

(g) Connect the hose D2157143703400, item 34 to the pipe as shown in figure 9. Do not proceed with the hose installation at this stage.

(h) Install the air conditioning packs 10HM (LH) and 11HM (RH) in accordance with AMM 21-52-41, P. Block 401.

(i) Install the placards on the heat shields according to figure 10, Sheet 2:

placard	D2157127524200	item 21
placard	D2157127523800	item 23
placard	D2157127524600	item 20
placard	D2157127523200	item 22

(j) Connect the hose, item 40, LH and RH to the compressor outlet of the air conditioning pack as shown in figure 8.

(k) Install the hoses, item 33 and 34 with elbow fittings NSA855120-6C, item 39. Secure the hoses, item 32, 33, 34 and 35 as shown in figure 9 with:

clamp	NSA5516-13NJ	item 31
clamp	NSA5516-15NJ	item 37
clamp	MS21919WCJ8	item 38
screw	A104-1/2D	item 30
washer	AN960C10L	item 16
nut	MS21043-3	item 15

(l) Connect the hoses, item 2 and 7, LH and item 50 and 51, RH to the appropriate sensor as shown in figure 10 and secure with:

clamp	MS21919WCJ6	item 42
clamp	MS21919WCJ8	item 38
clamp	NSA5516-15NJ	item 37
clamp	NSA5516-13NJ	item 31
screw	A104-1/2D	item 30
washer	AN960C10L	item 16
nut	MS21043-3	item 15

C. TEST

(1) Make sure that these circuit breakers are open, safetied and tagged:

PANEL	SERVICE	IDENT.	LOCATION
FOR 10HM			
122VU	AIR COND/FLOW/CTL AND IND/1	1HB	V22
122VU	AIR COND/PACK TEMP/CTL SYS1/1/115VAC	1HH	X22
122VU	AIR COND/PACK TEMP/CTL SYS1/1/28VDC	3HH	X21
122VU	AIR COND/PACK TEMP CTL SYS2/1/28VDC	4HH	Y19
122VU	AIR COND/PACK TEMP CTL SYS2/1/115VAC	2HH	Y18
FOR 11HM			
122VU	AIR COND/FLOW/CTL AND IND/2	2HB	V21
122VU	AIR COND/PACK TEMP/CTL SYS1/2/115VAC	21HH	W22
122VU	AIR COND/PACK TEMP/CTL SYS1/2/28VDC	23HH	W21
122VU	AIR COND/PACK TEMP CTL SYS2/2/28VDC	24HH	Y21
122VU	AIR COND/PACK TEMP CTL SYS2/2/115VAC	22HH	Y20

(2) Do an operational test of the flow control and indicating system (Ref. AMM 21-51-00, P. Block 501).

(3) Do an operational test of the pack temperature-control system (Ref. AMM 21 61-00, P. Block 501).

D. CLOSE-UP

(1) Make sure that the work area is clean and clear of tools and other items.

(2) Install the access panel 192LB (Ref. AMM 53-35-11, P. Block 401).

(3) Install the access panels 191BB, FB, GB, HB, JB, KB, MB, and 192FB, KB (Ref. AMM 53-35-13, P. Block 401).

E. ACCOMPLISHMENT INSTRUCTIONS -REMOVED COMPONENTS AND SPARES

The removed flow control valves 751A0000-03 can be modified to -04 standard in accordance with Liebherr/ABG-Semca Vendor Service Bulletin No 751A-21-01 or returned to the Vendor where they will be modified free of charge.

F. DOCUMENTATION

Record the embodiment of this Service Bulletin in the relevant aircraft technical records.

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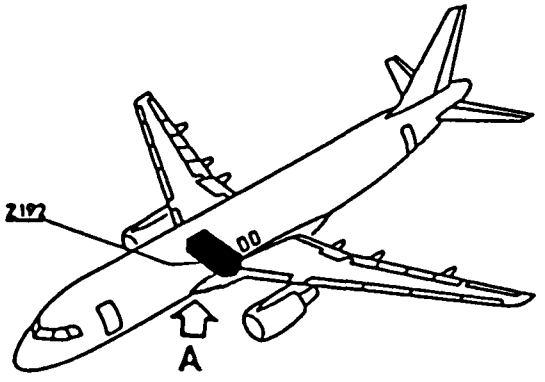

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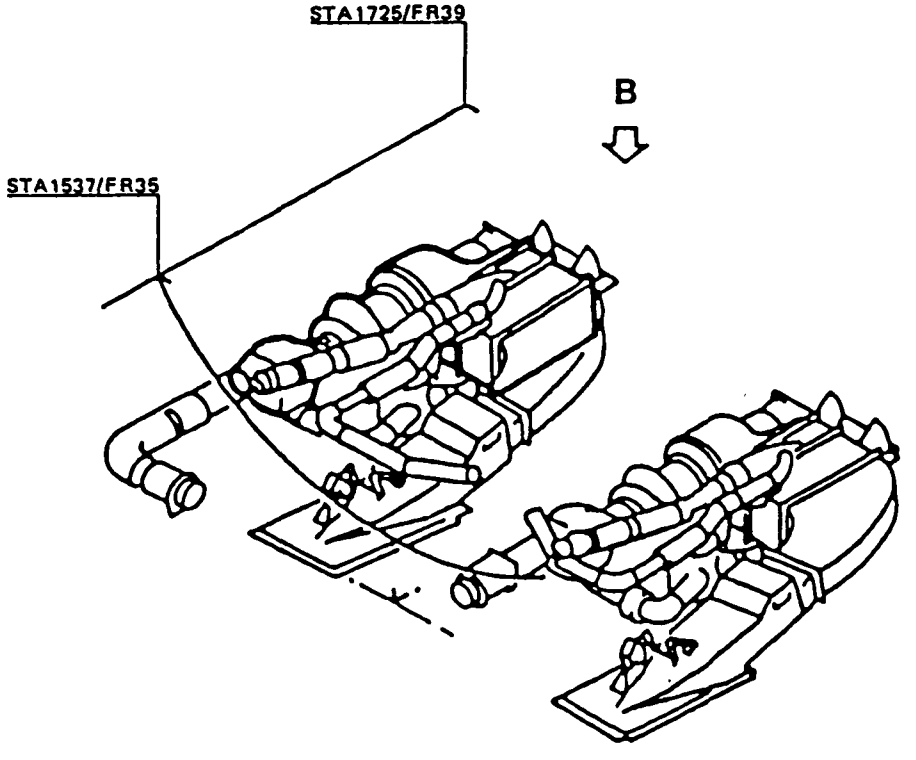
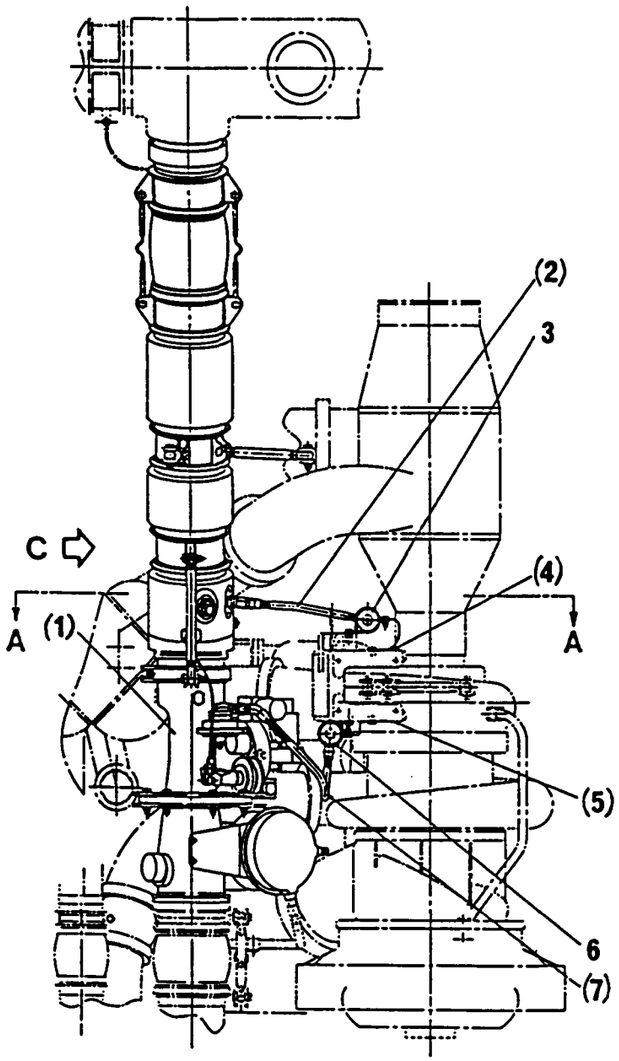


Removal of Air Conditioning Components
Figure 1, Sheet 1 of 3

B
BEFORE

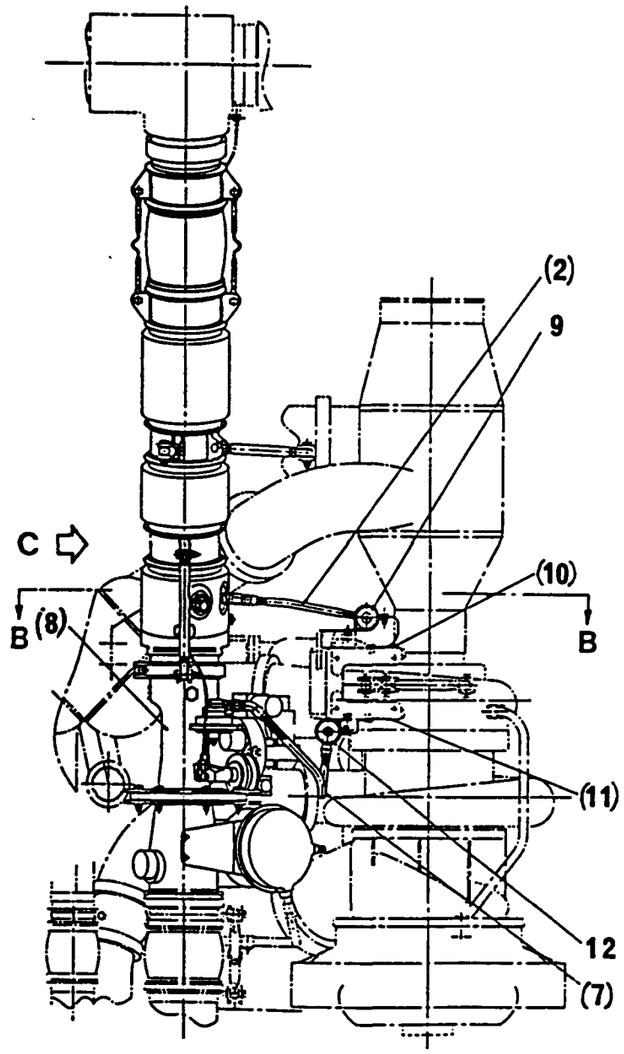


AD

STA1590/FR36

STA1641/FR37

STA1669/FR38



Removal of Flow Control Valves and Equipment
Figure 1, Sheet 2 of 3

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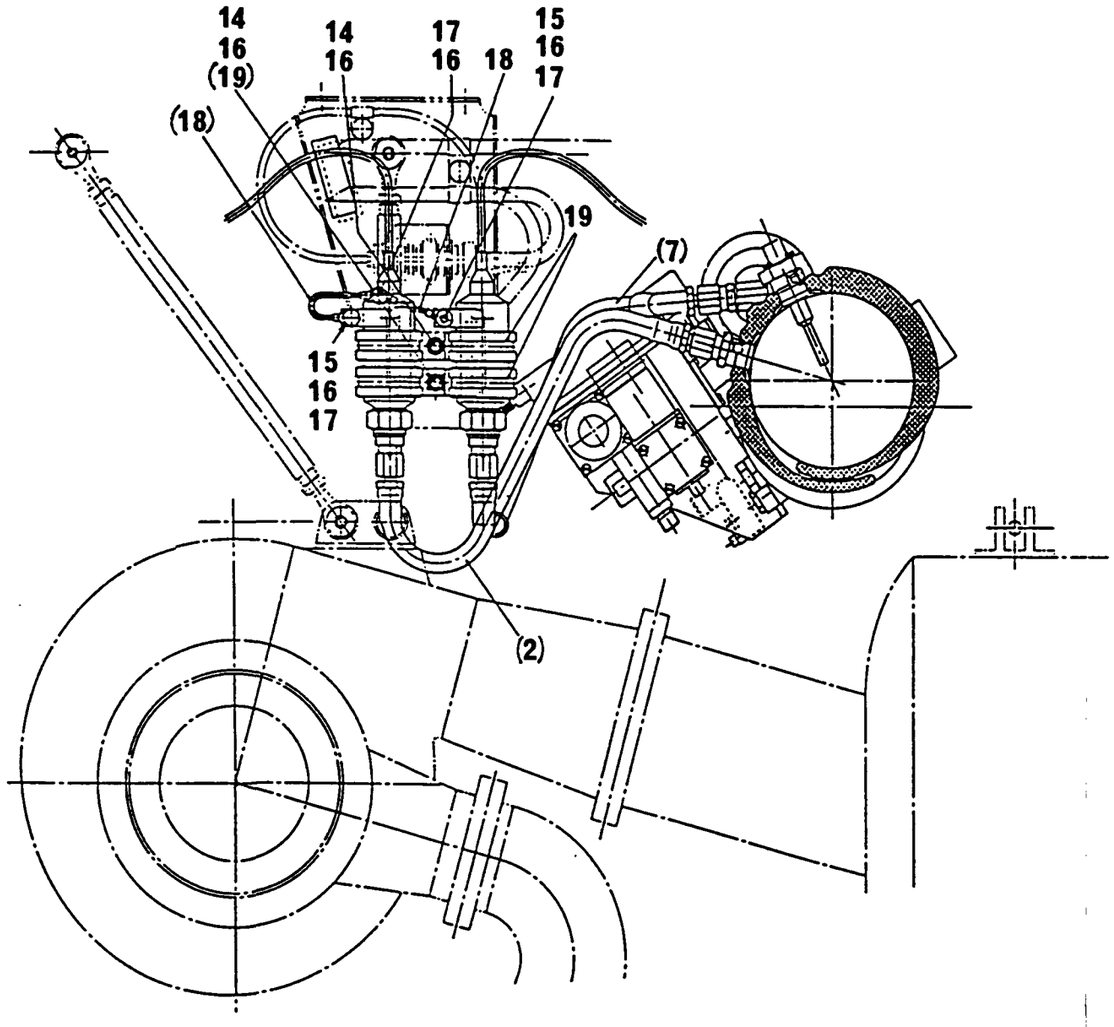
A - A
B - B



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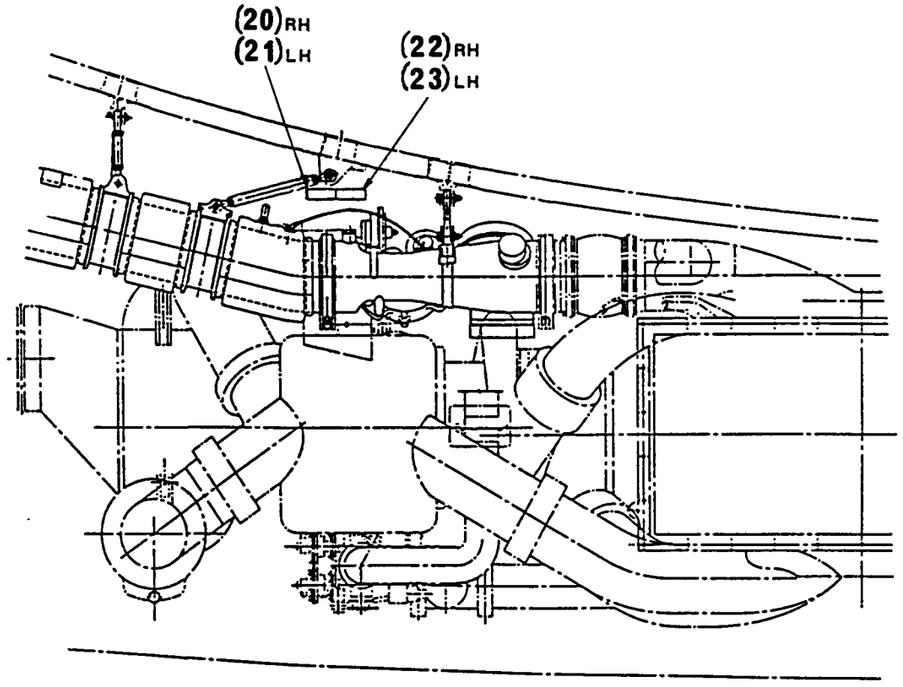
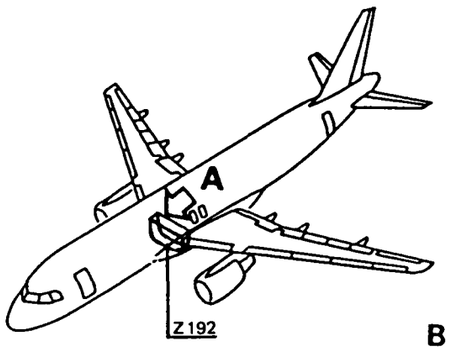
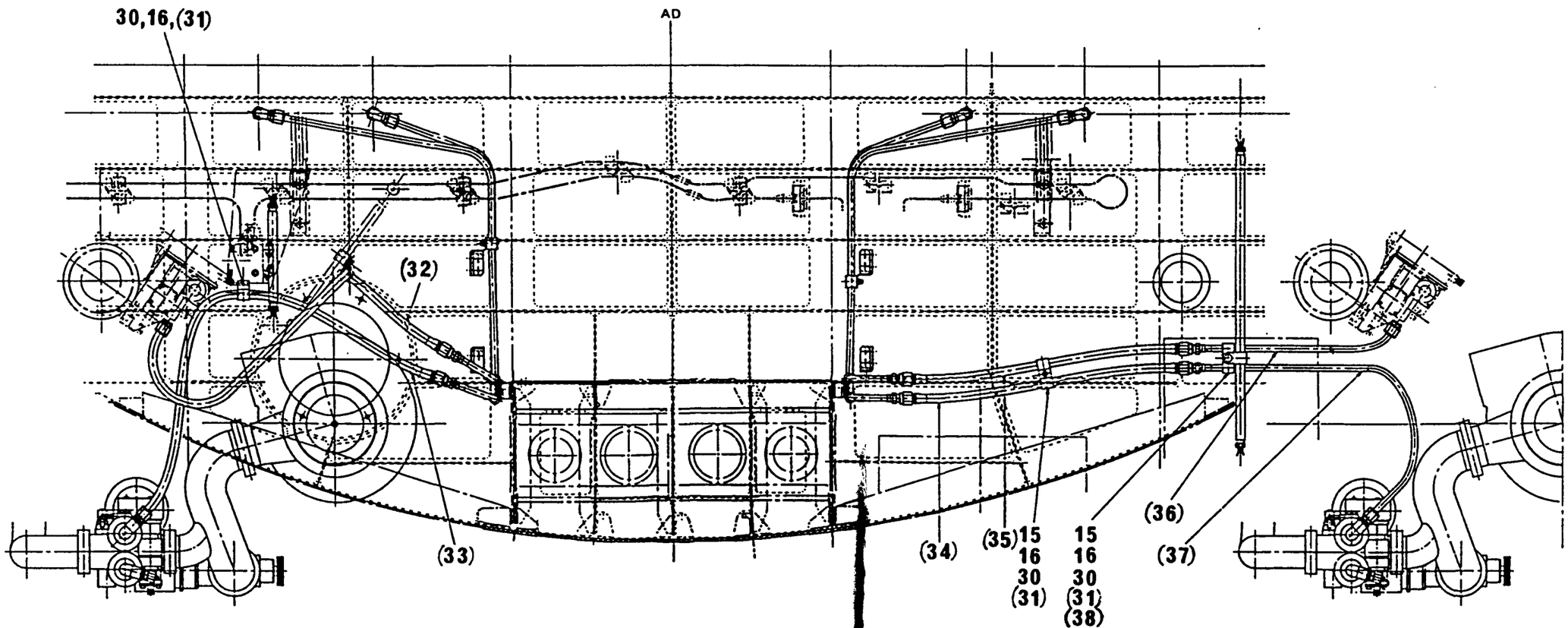


Removal of Sensors and Placards
Figure 1, Sheet 3 of 3



B

A
BEFORE



Removal of Pipes and Hoses
Figure 2, Sheet 1 of 2

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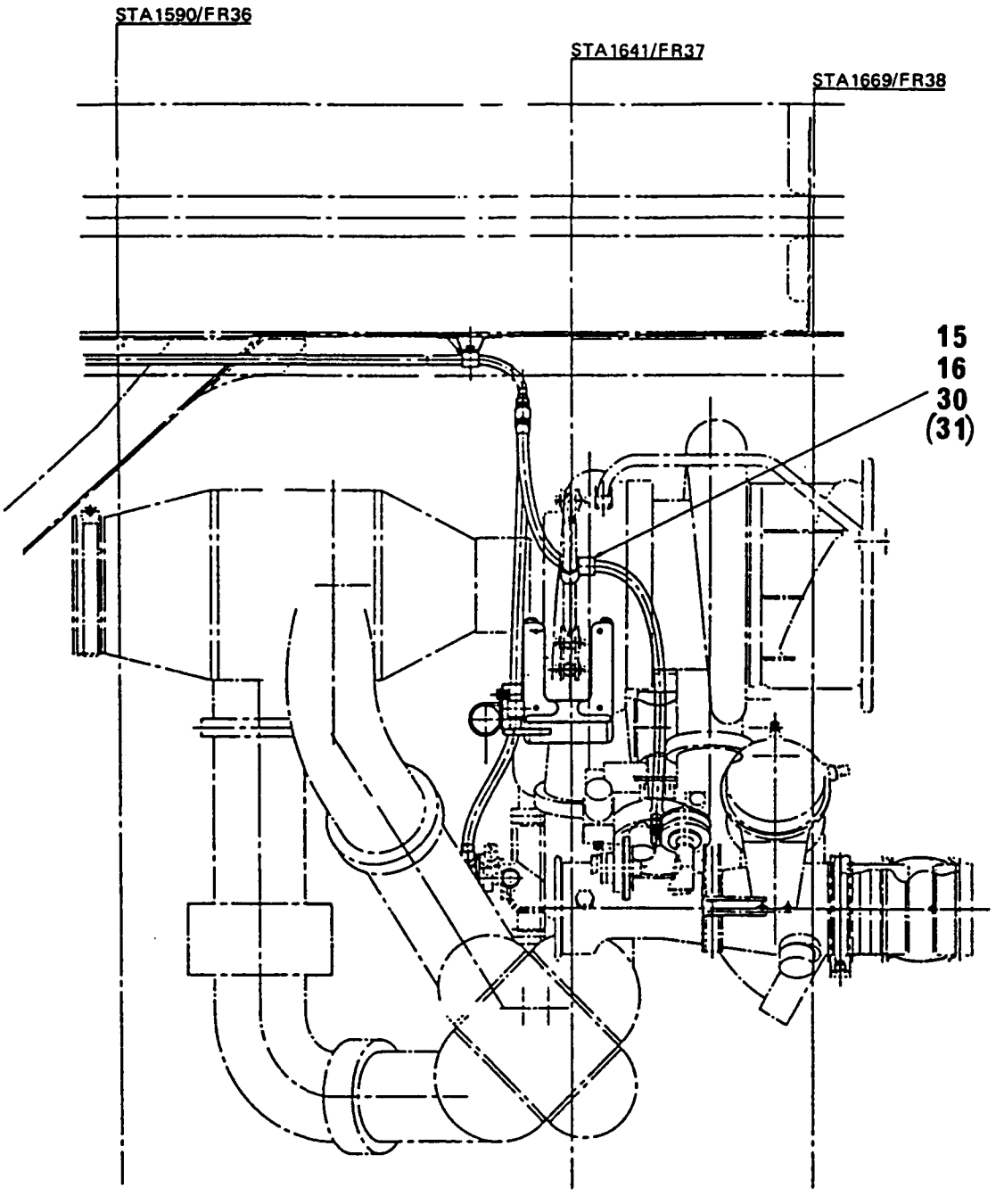
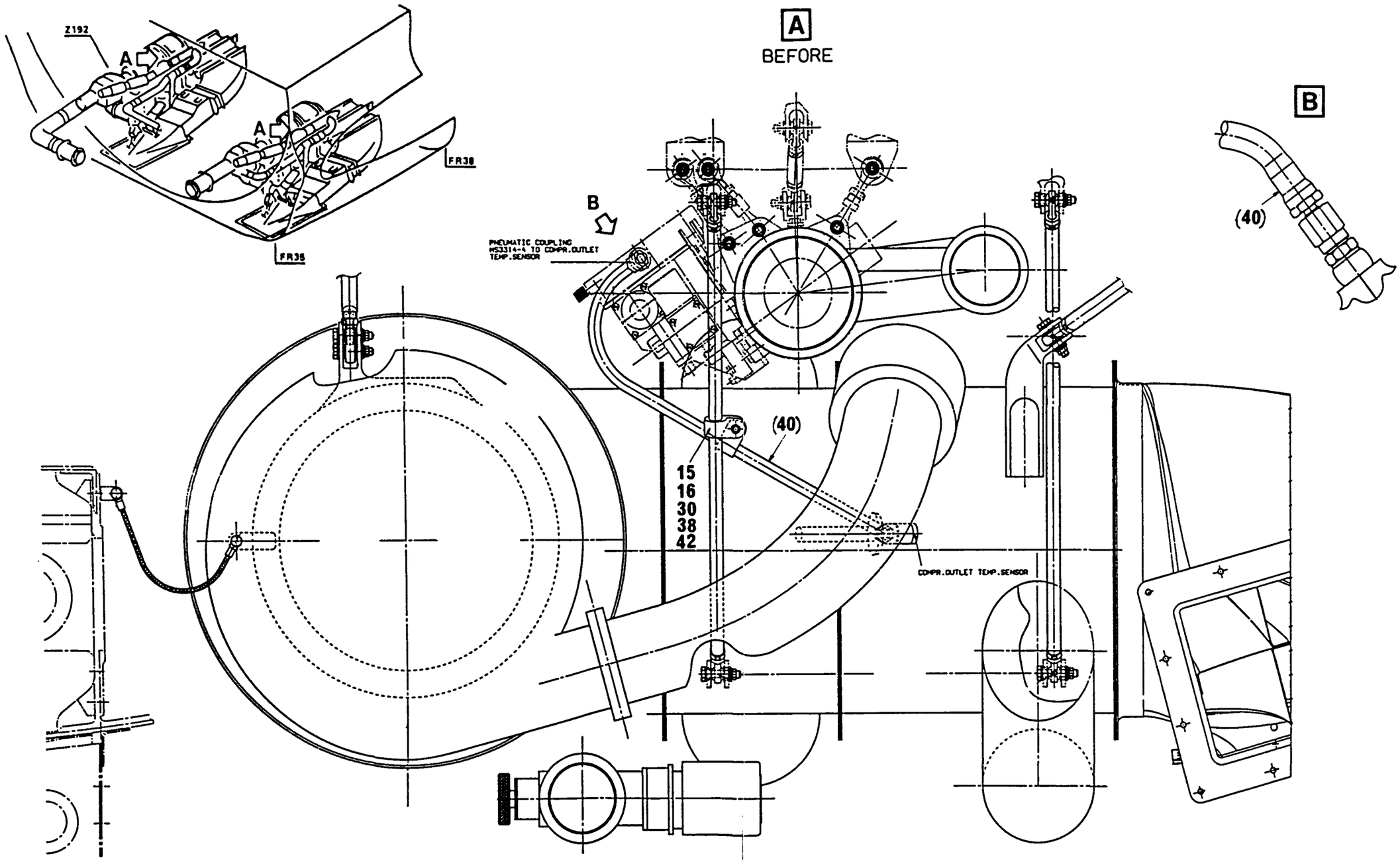
B



Removal of Hose Support
Figure 2, Sheet 2 of 2



Removal of Flow Control Valve Sense Line
Figure 3

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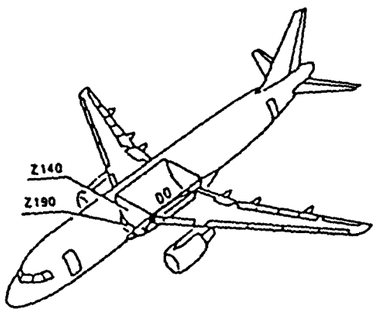
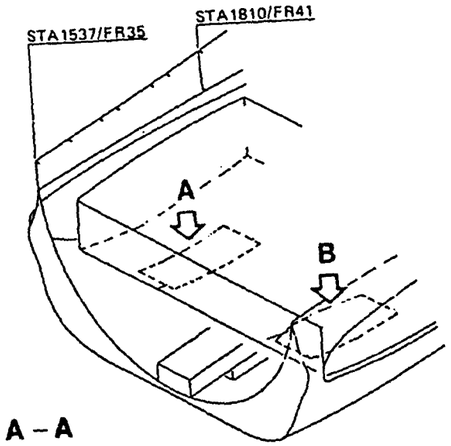
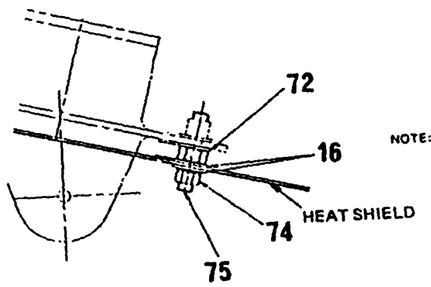


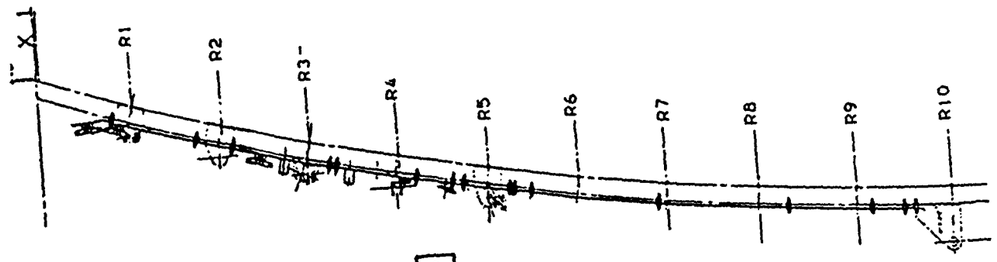


A – A

AFTER
AIRCRAFT
WITHOUT CENTER TANK ONLY



NOTE: INSTALL THE LONGER THREADED END OF STUD TO THE STRUCTURE



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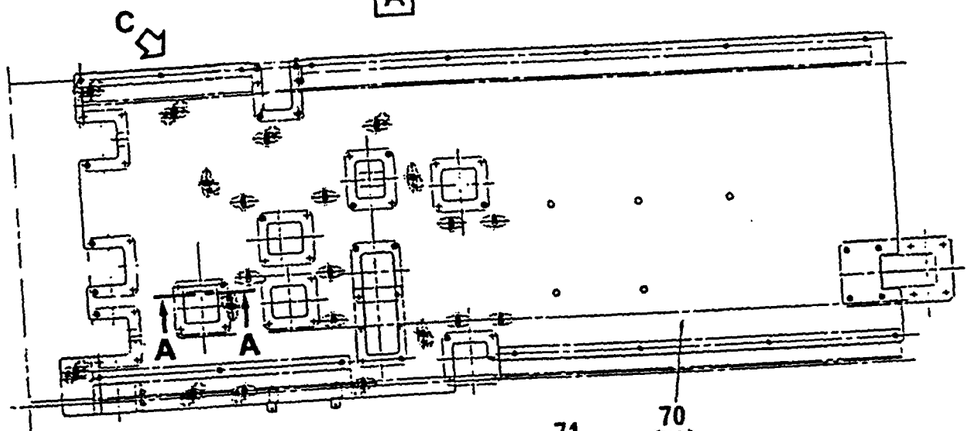

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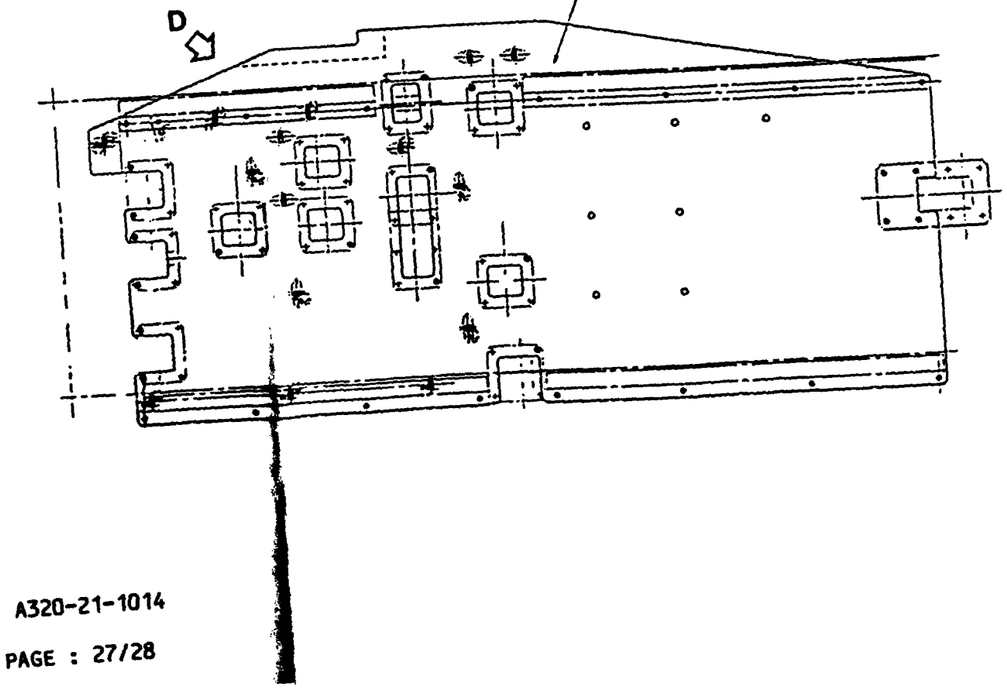
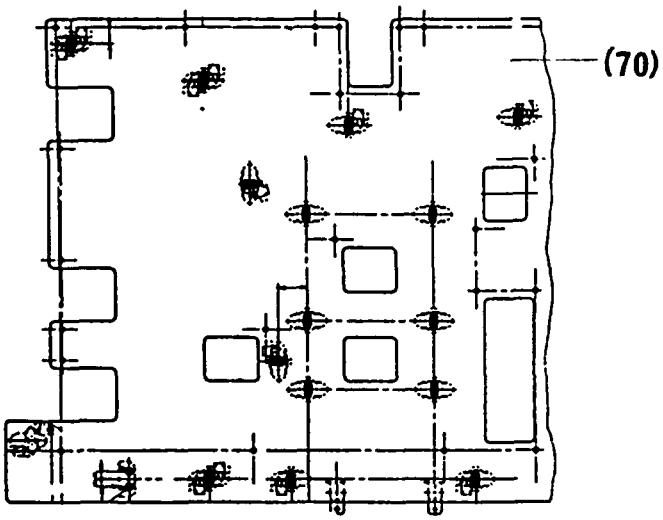


Modification of Heat Shields
Figure 4, Sheet 1 of 3

Printed in France

C

BEFORE



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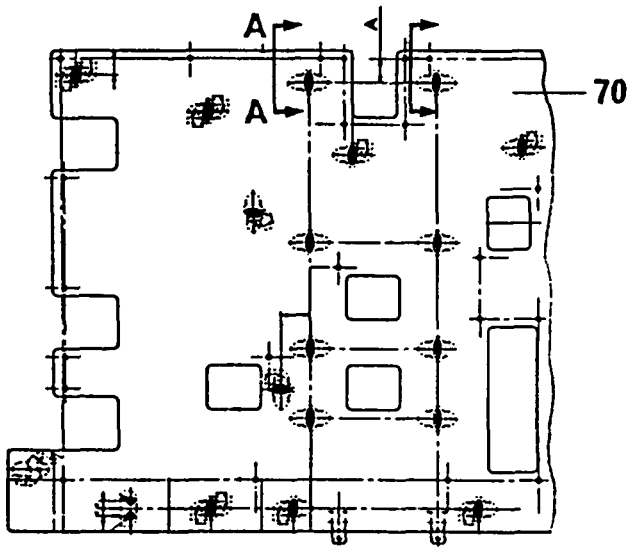
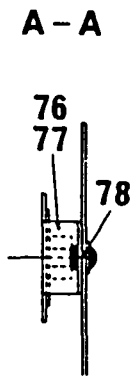


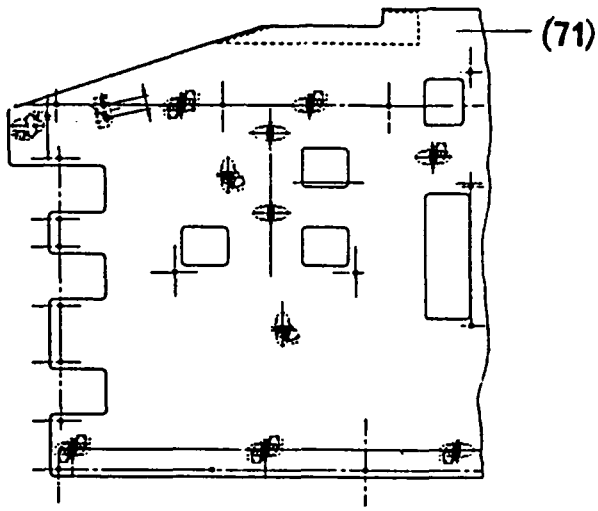


A = 30mm(1.18in.)

Modification of Heat Shield, RH
Figure 4, Sheet 2 of 3

D

BEFORE



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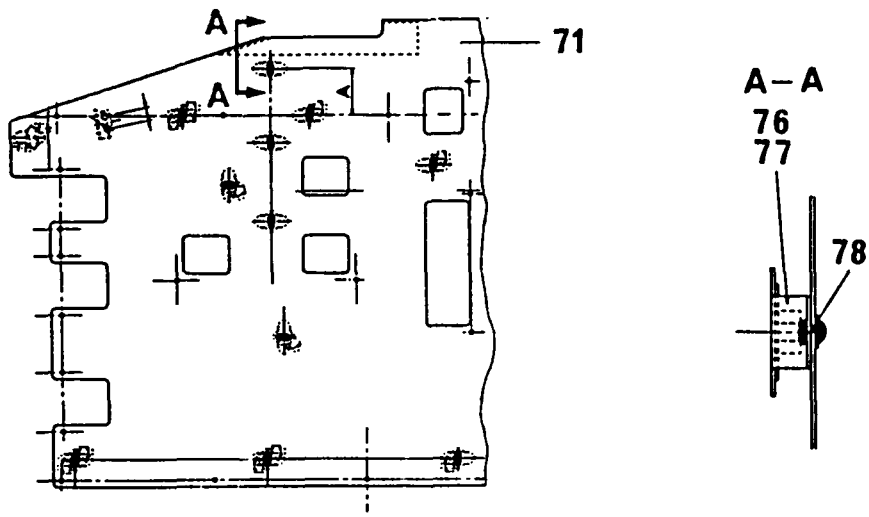
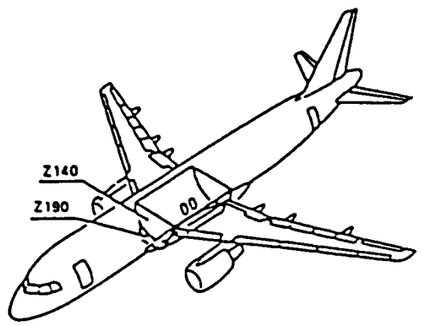
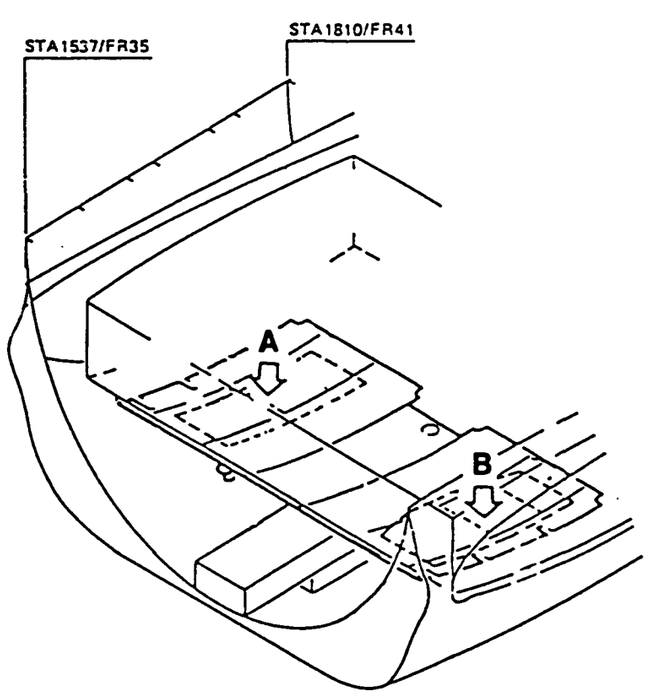


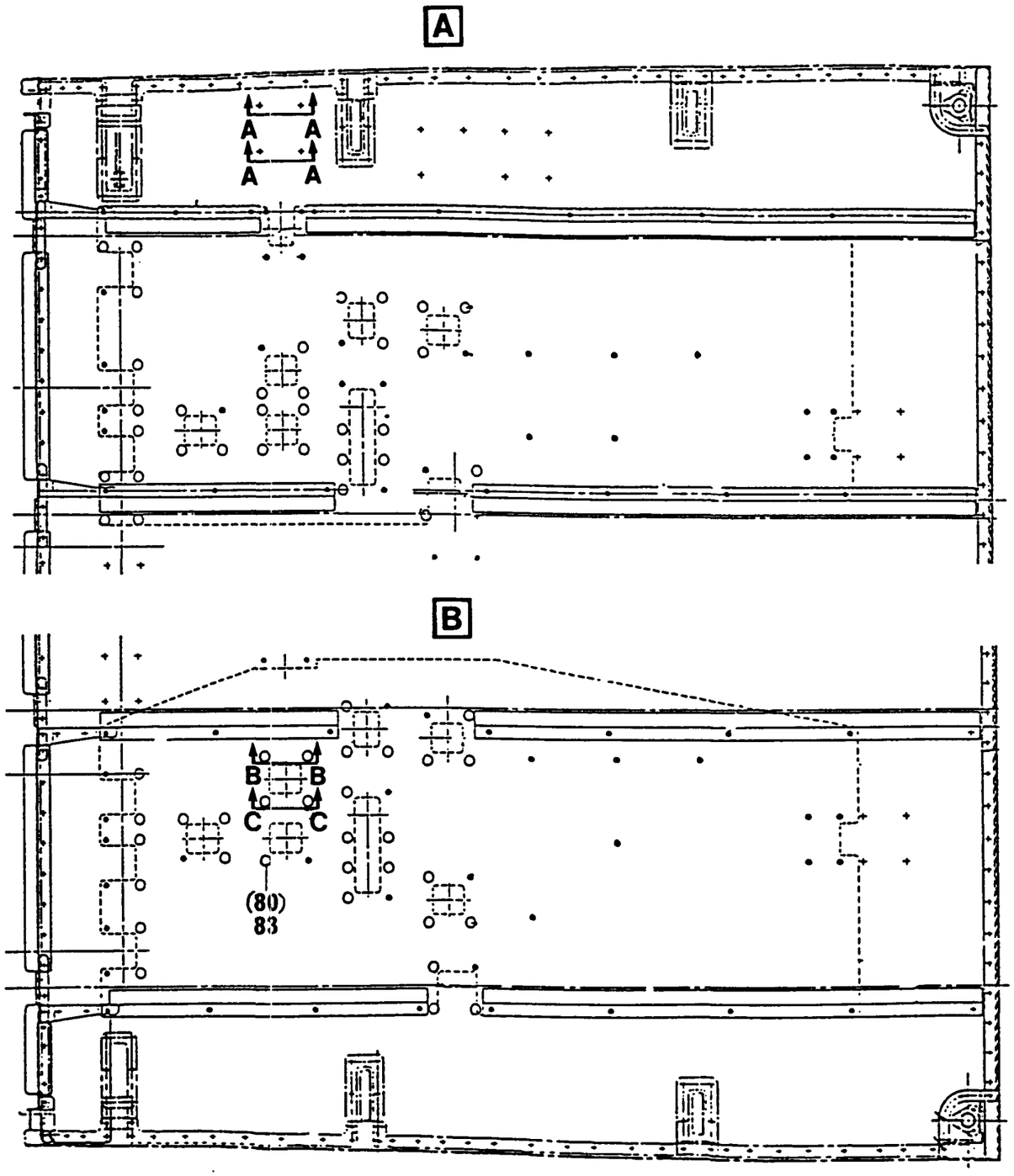
A = 68mm(2.68in.)

Modification of Heat Shield, LH
Figure 4, Sheet 3 of 3

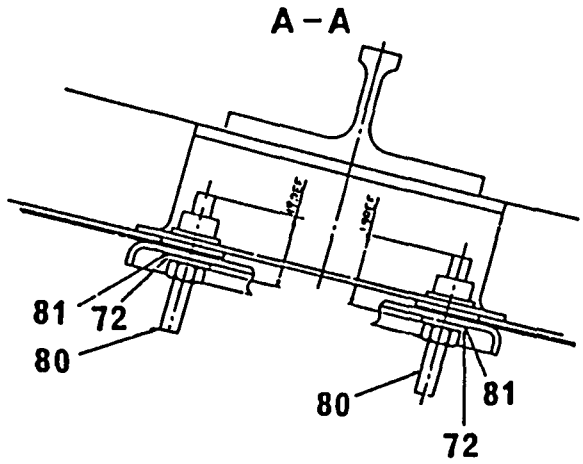
Printed in France

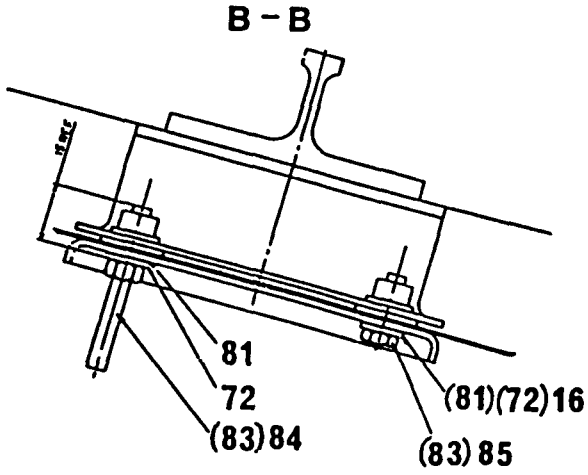




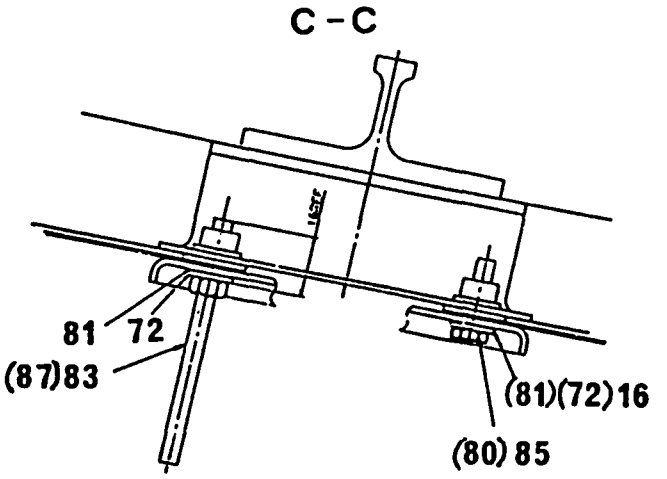


Removal/Installation of Heat Shield Fasteners
Figure 5, Sheet 1 of 3



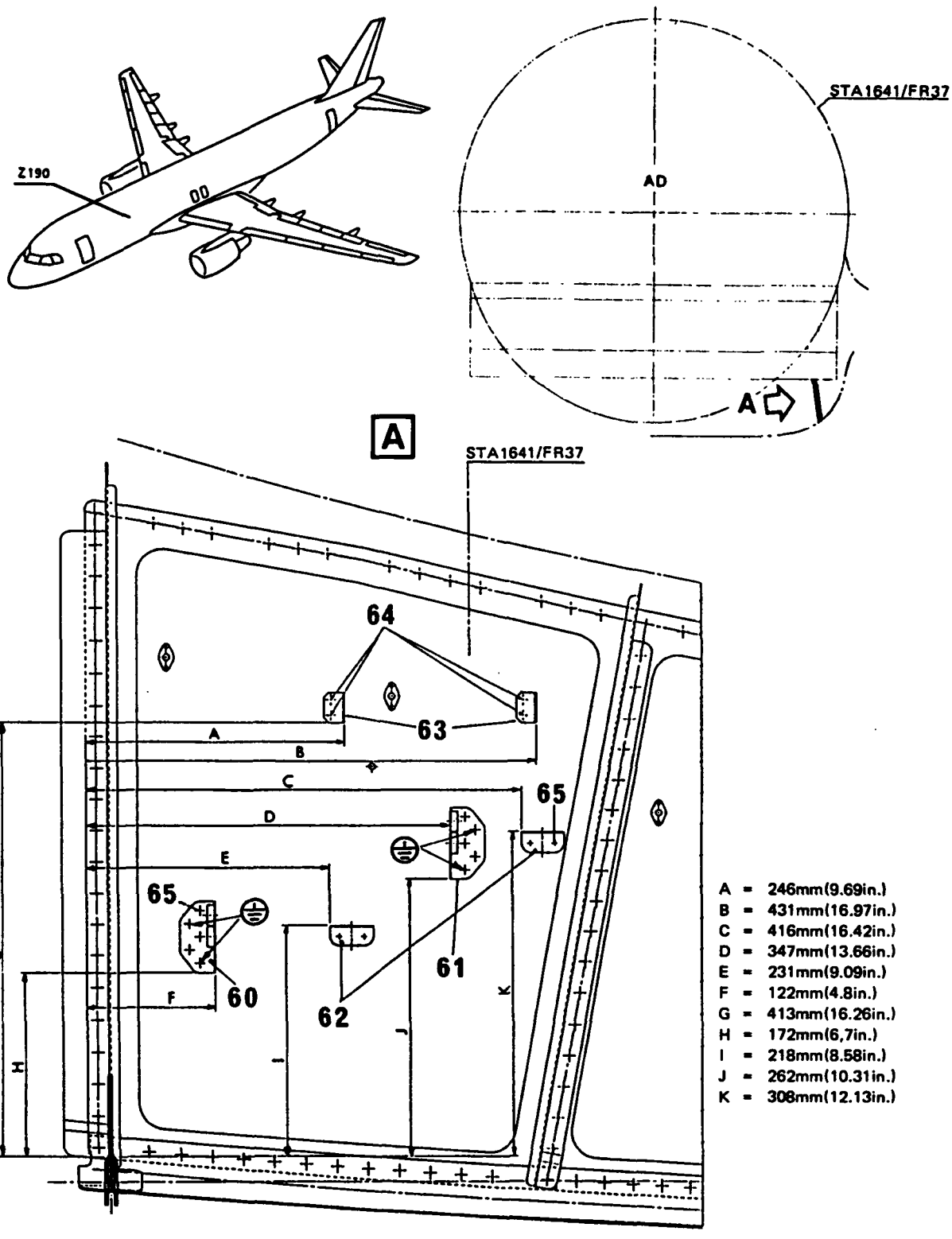


Removal/Installation of Heat Shield Fasteners
Figure 5, Sheet 2 of 3



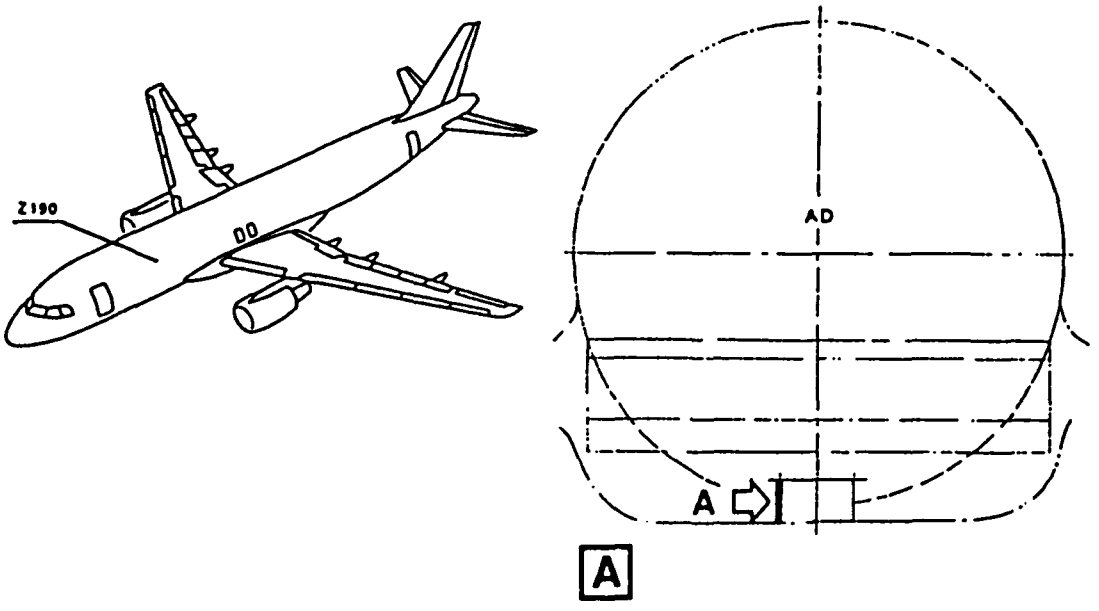
Removal/Installation of Heat Shield Fasteners
Figure 5, Sheet 3 of 3

Printed in France

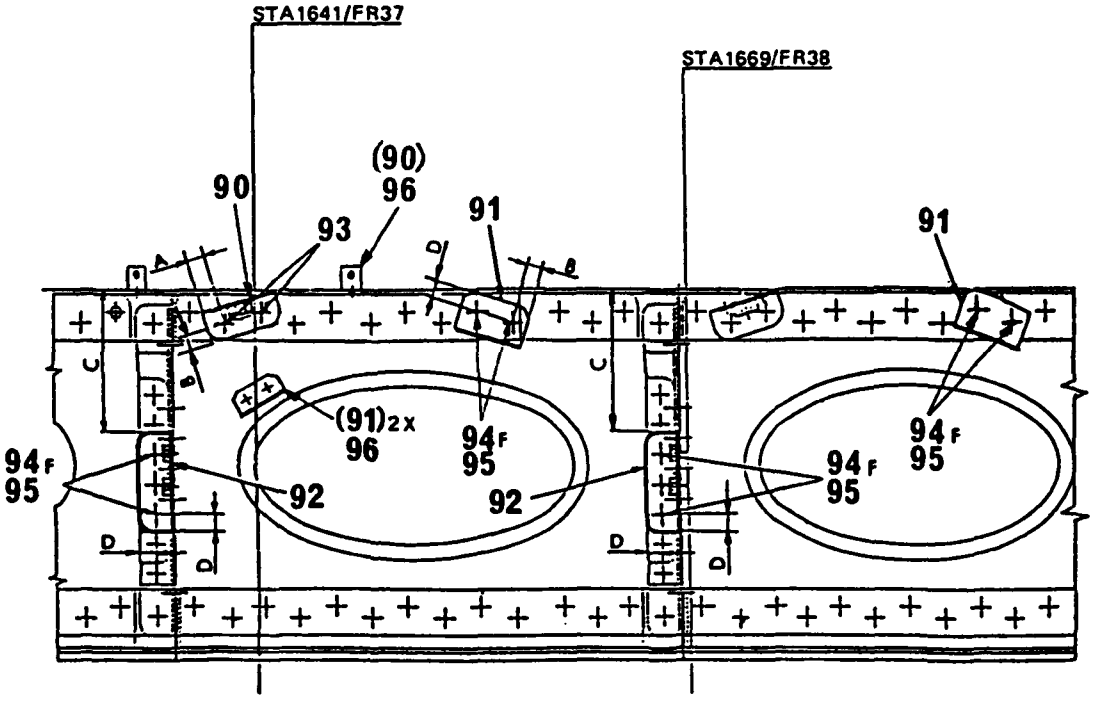


A = 246mm(9.69in.)
B = 431mm(16.97in.)
C = 416mm(16.42in.)
D = 347mm(13.66in.)
E = 231mm(9.09in.)
F = 122mm(4.8in.)
G = 413mm(16.26in.)
H = 172mm(6,7in.)
I = 218mm(8.58in.)
J = 262mm(10.31in.)
K = 308mm(12.13in.)

Installation of Support Brackets
Figure 6



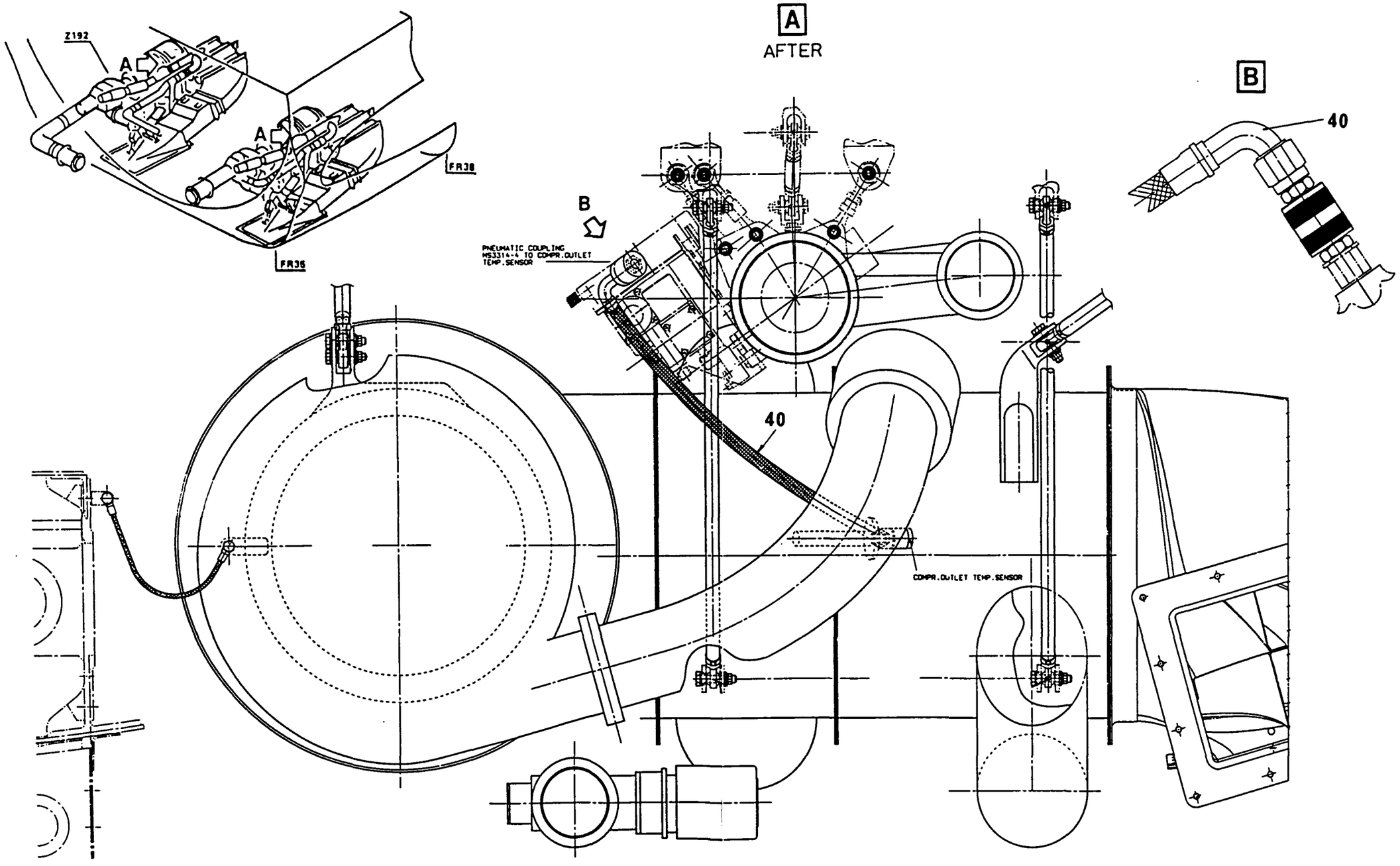
A



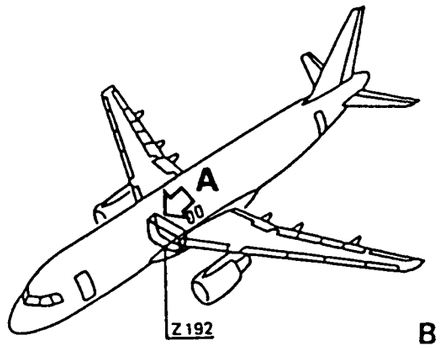
A = 12mm(0.472in.)
B = 10mm(0.394in.)
C = 71mm(2.795in.)
D = 11mm(0.433in.)

Structural Modification on Keel Beam Sidewall
Figure 7

Printed in France



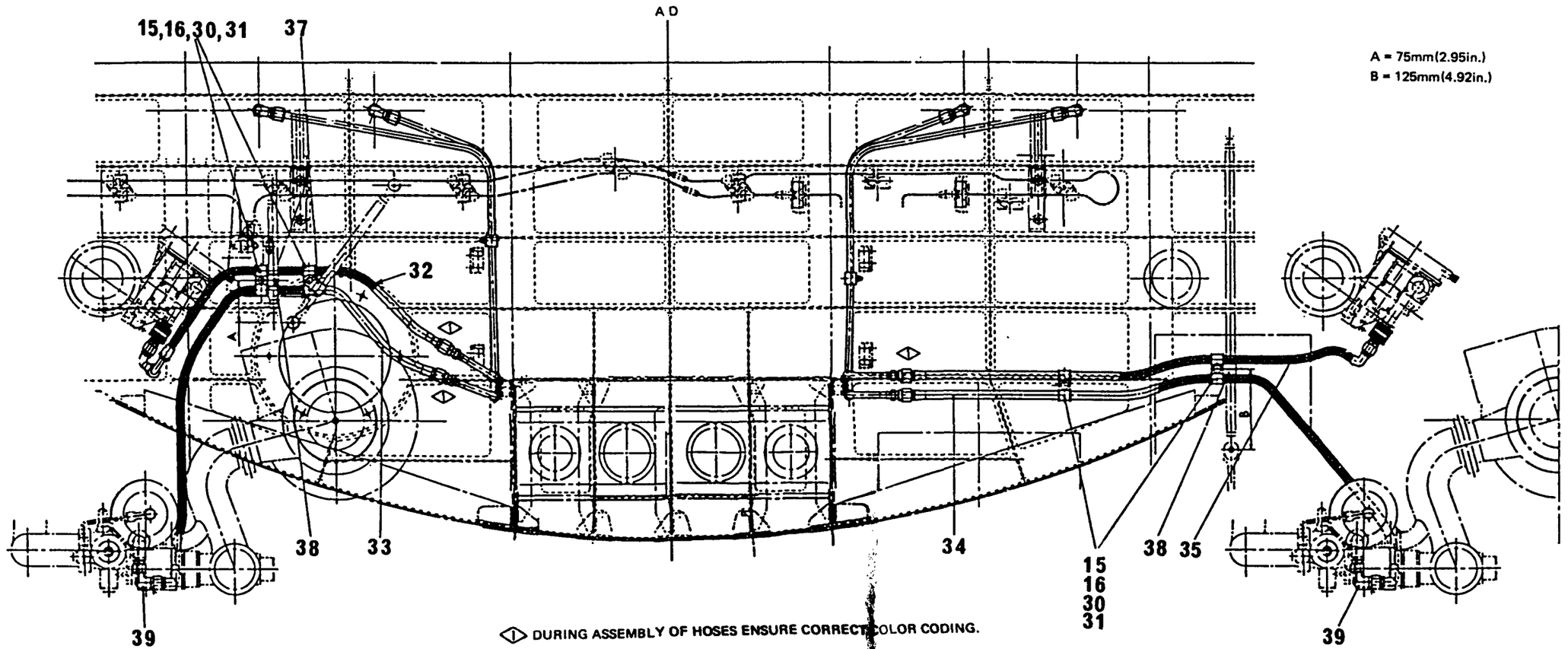
Installation of Flow Control Valve Sense Line
Figure 8



B

A

AFTER



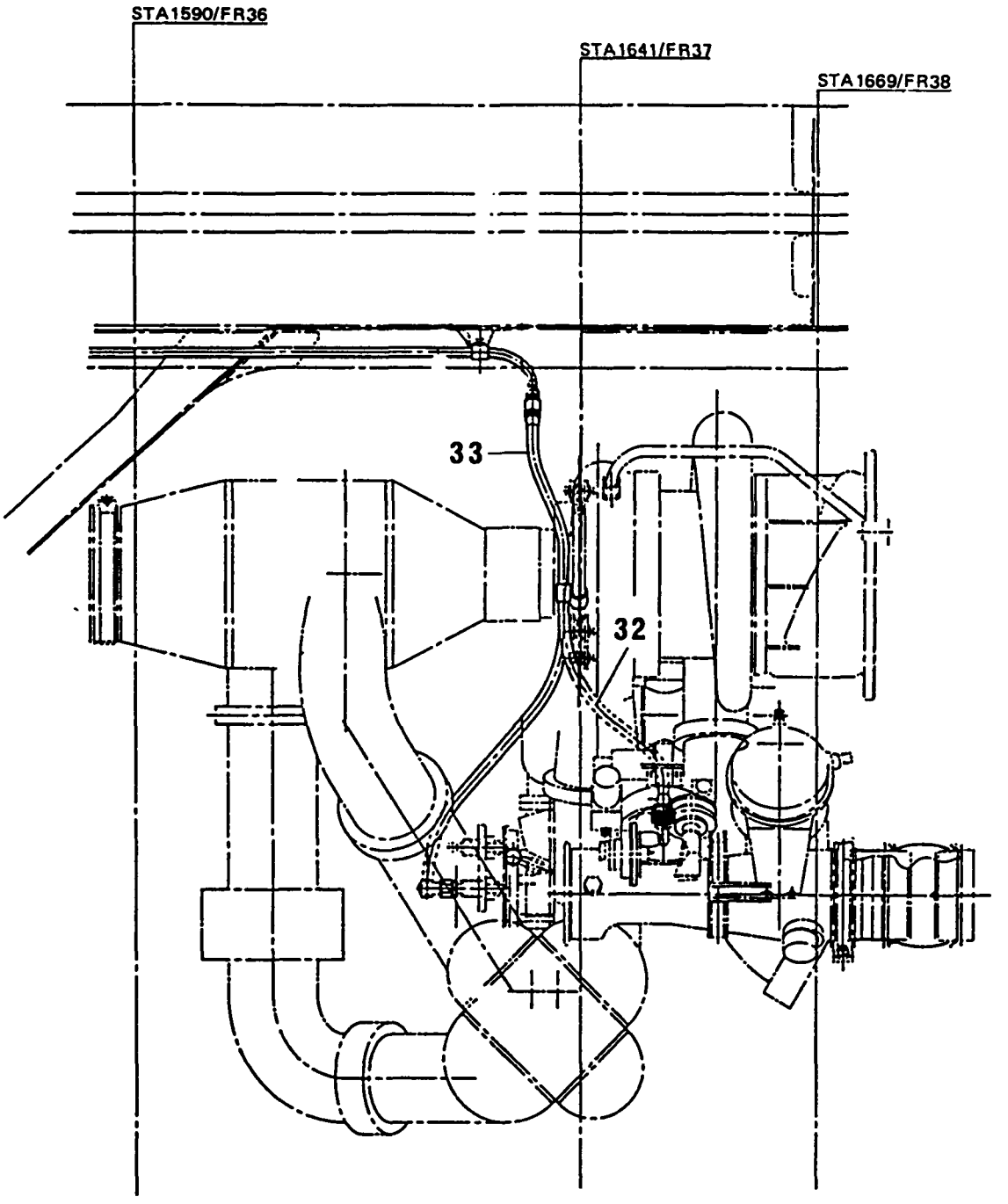
A = 75mm(2.95in.)
B = 125mm(4.92in.)

◇1 DURING ASSEMBLY OF HOSES ENSURE CORRECT COLOR CODING.

Installation of Hoses
Figure 9, Sheet 1 of 2

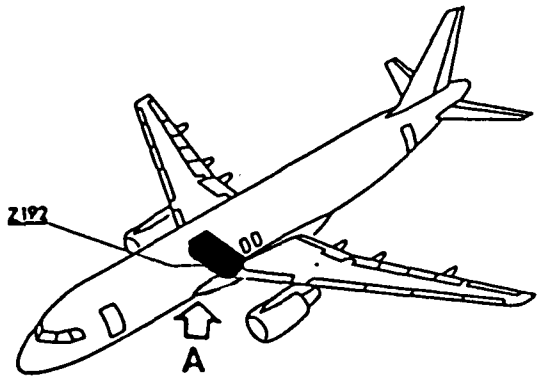
Printed in France

B

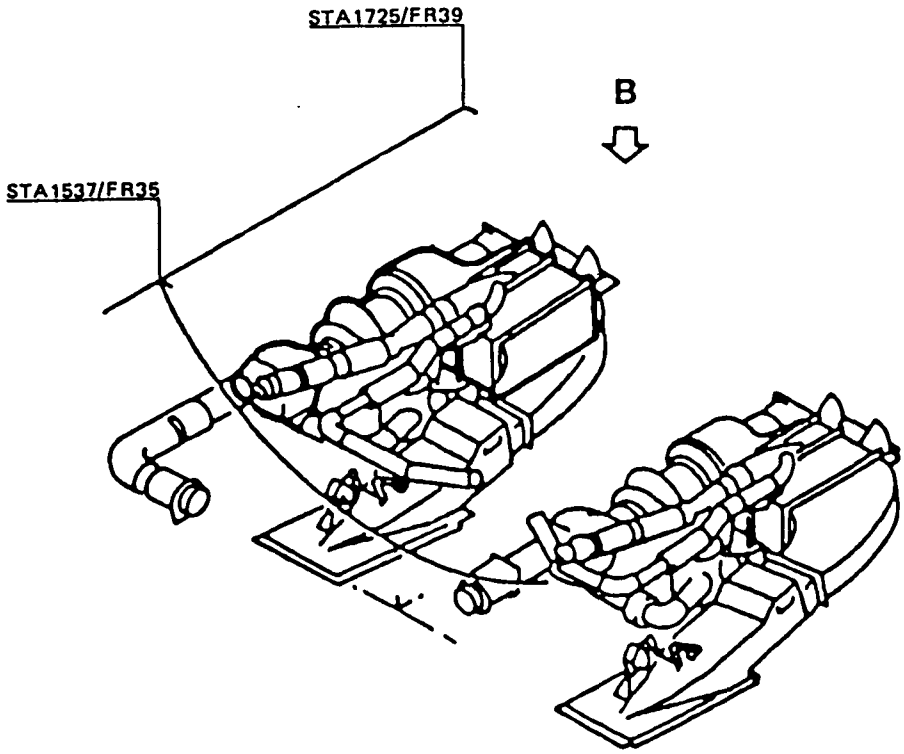


Installation of Hoses
Figure 9, Sheet 2 of 2

Printed in France

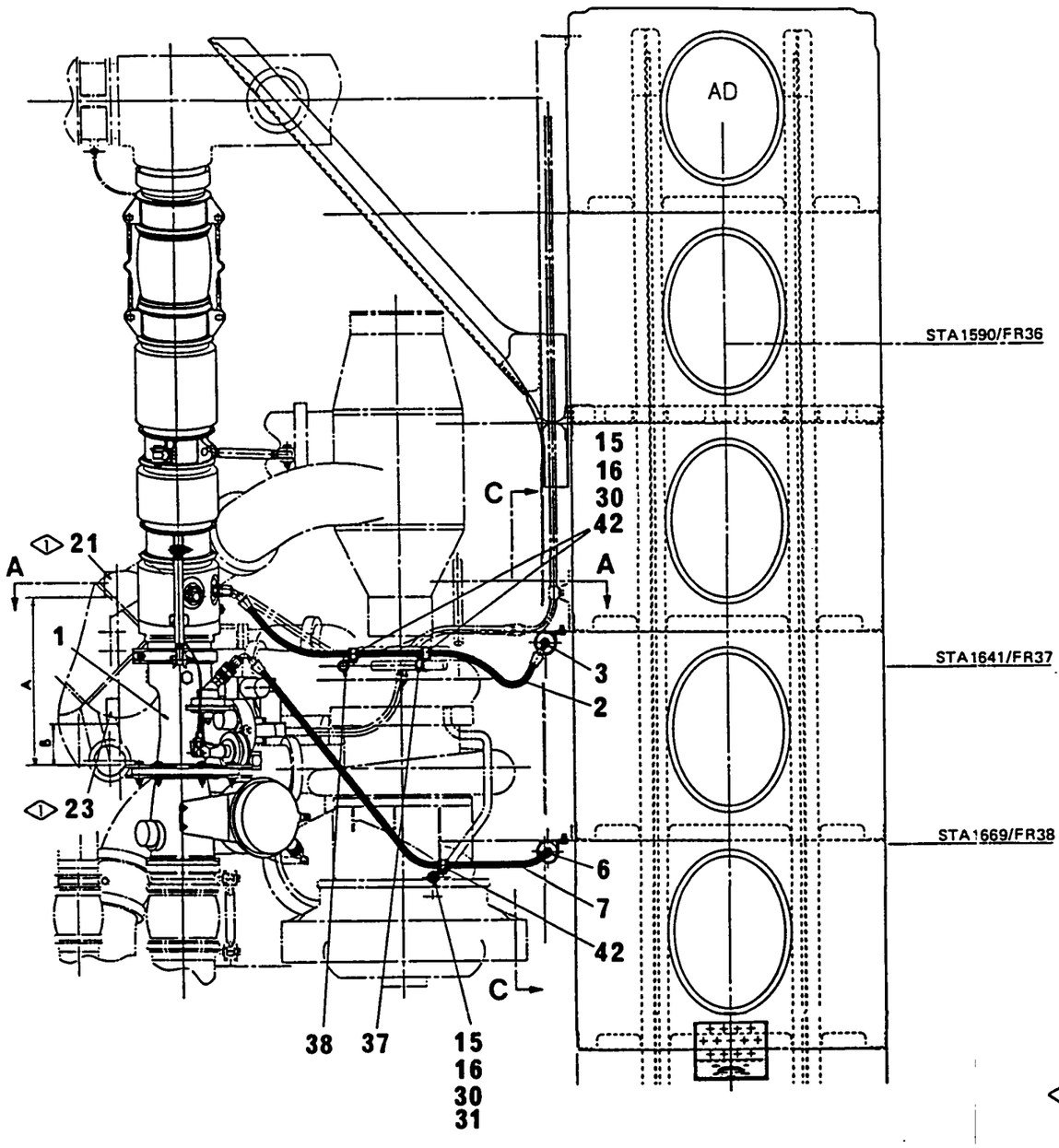


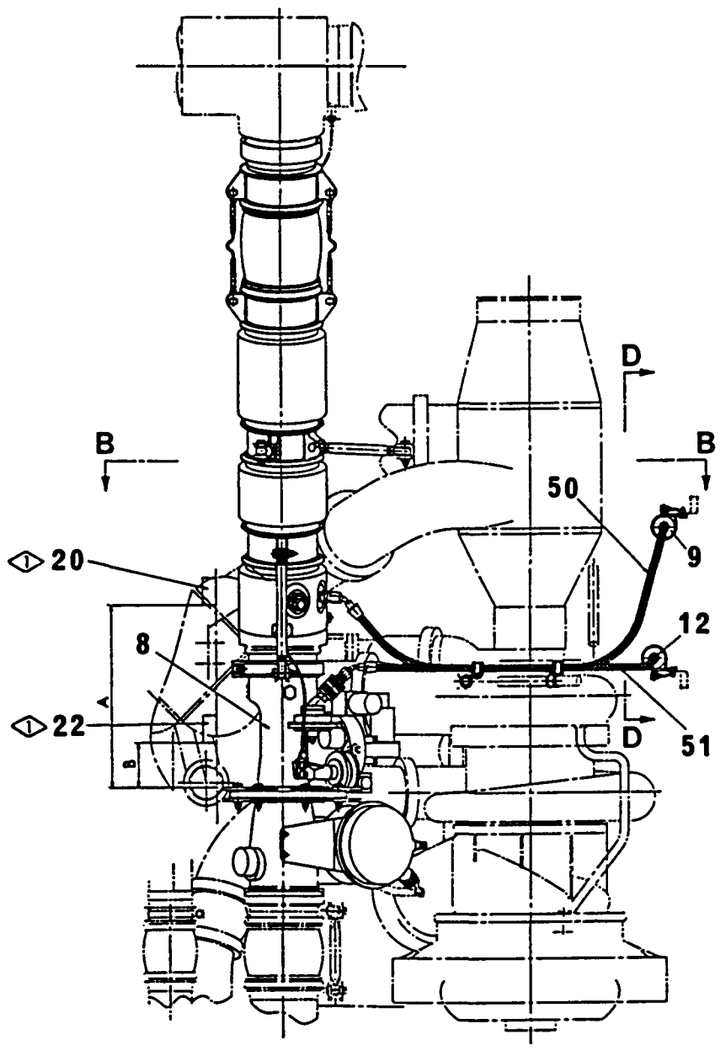
A
AFTER



Installation of Air Conditioning Components
Figure 10, Sheet 1 of 5

B
AFTER

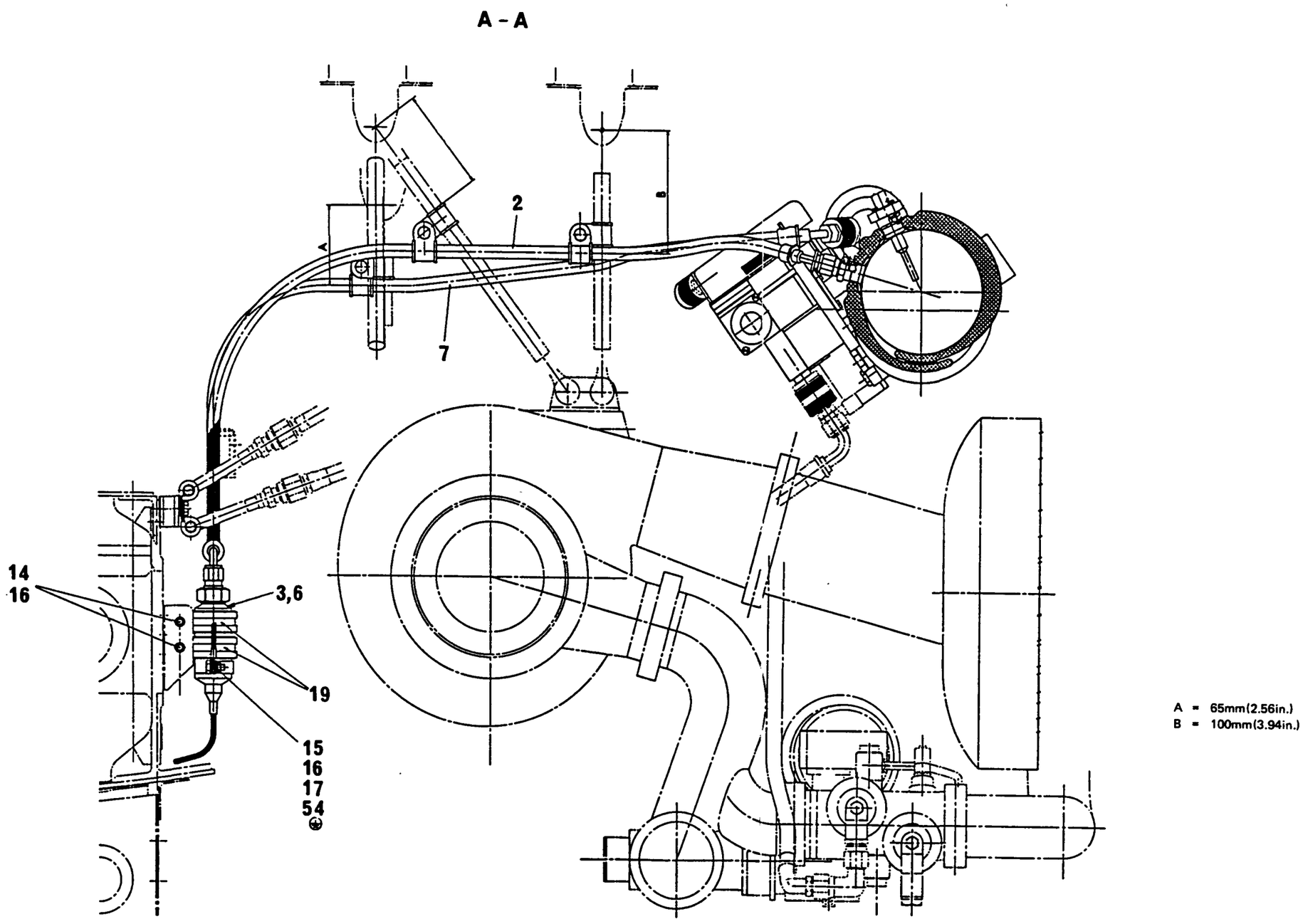




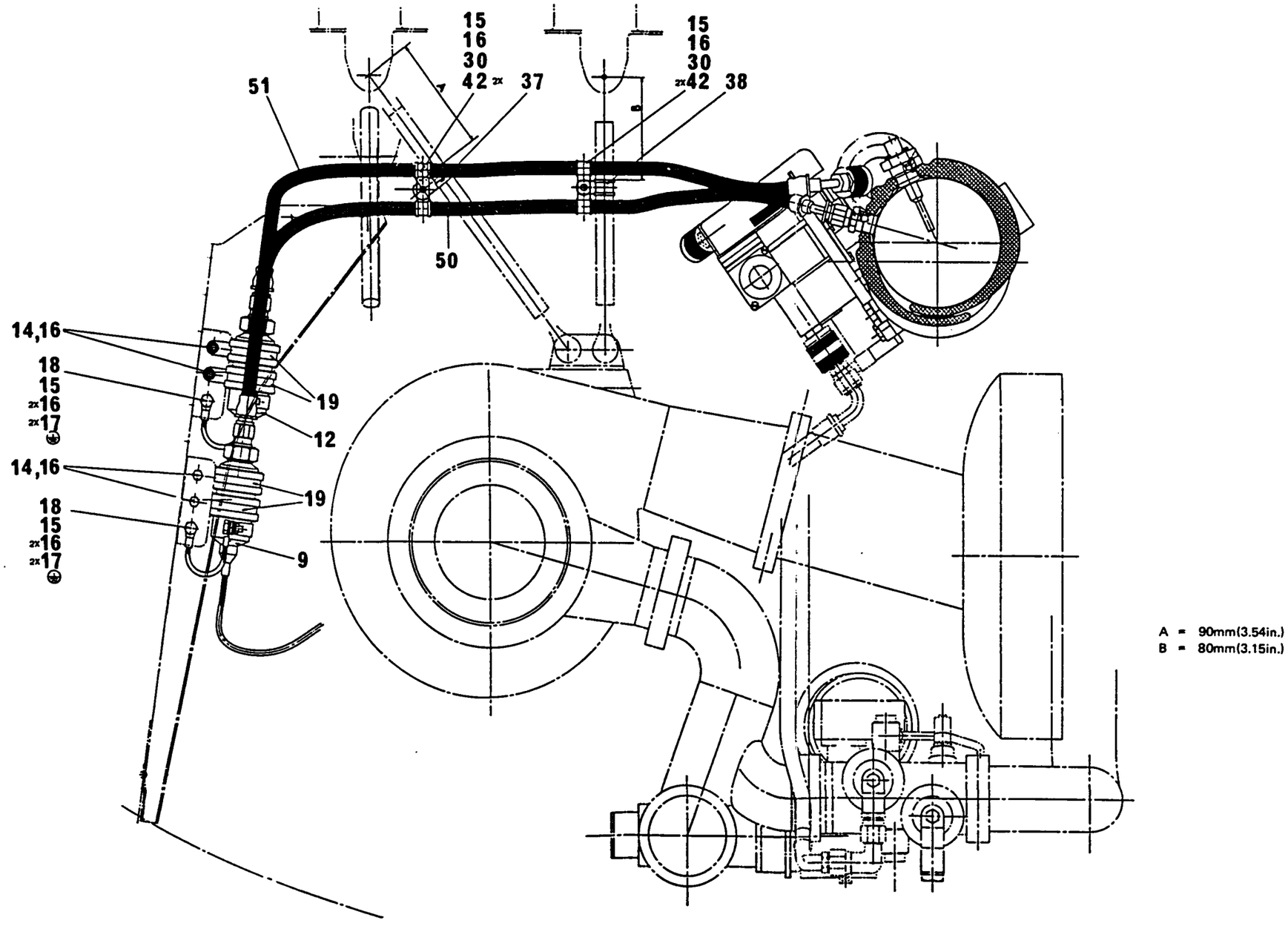
A = 265mm(10.08in.)
B = 65mm(2.56in.)

1 INSTALL PLACARD ON HEAT SHIELD

Installation of Flow Control Valves and Equipment
Figure 10, Sheet 2 of 5



Installation of Sensors and Hoses, LH
Figure 10, Sheet 3 of 5



Installation of Sensors and Hoses, RH
Figure 10, Sheet 4 of 5

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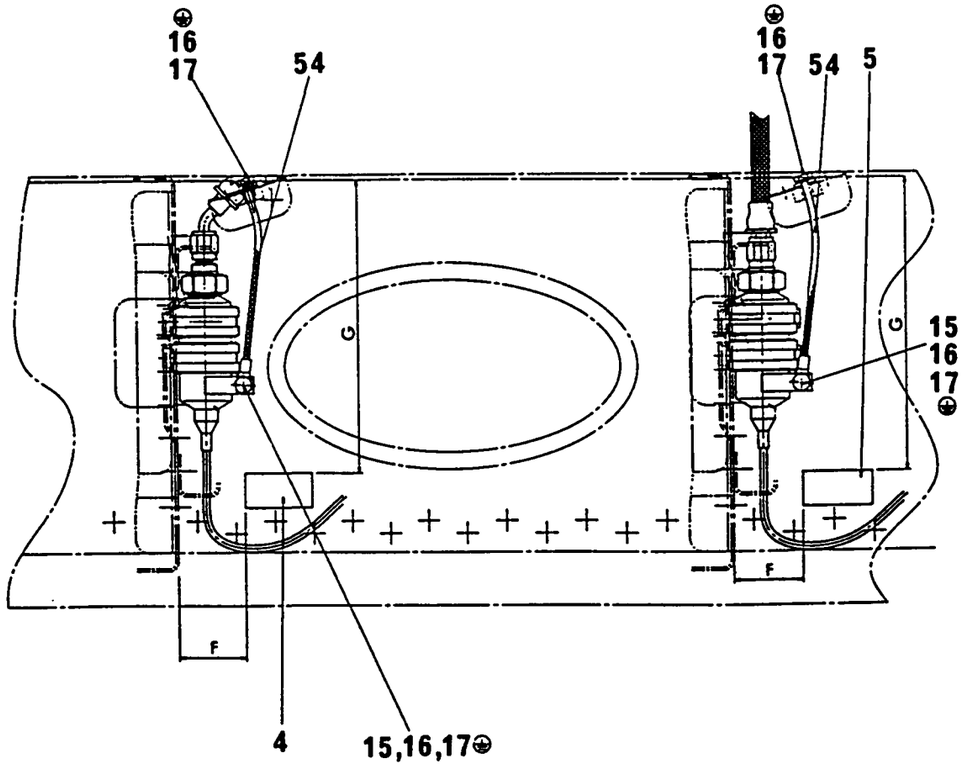
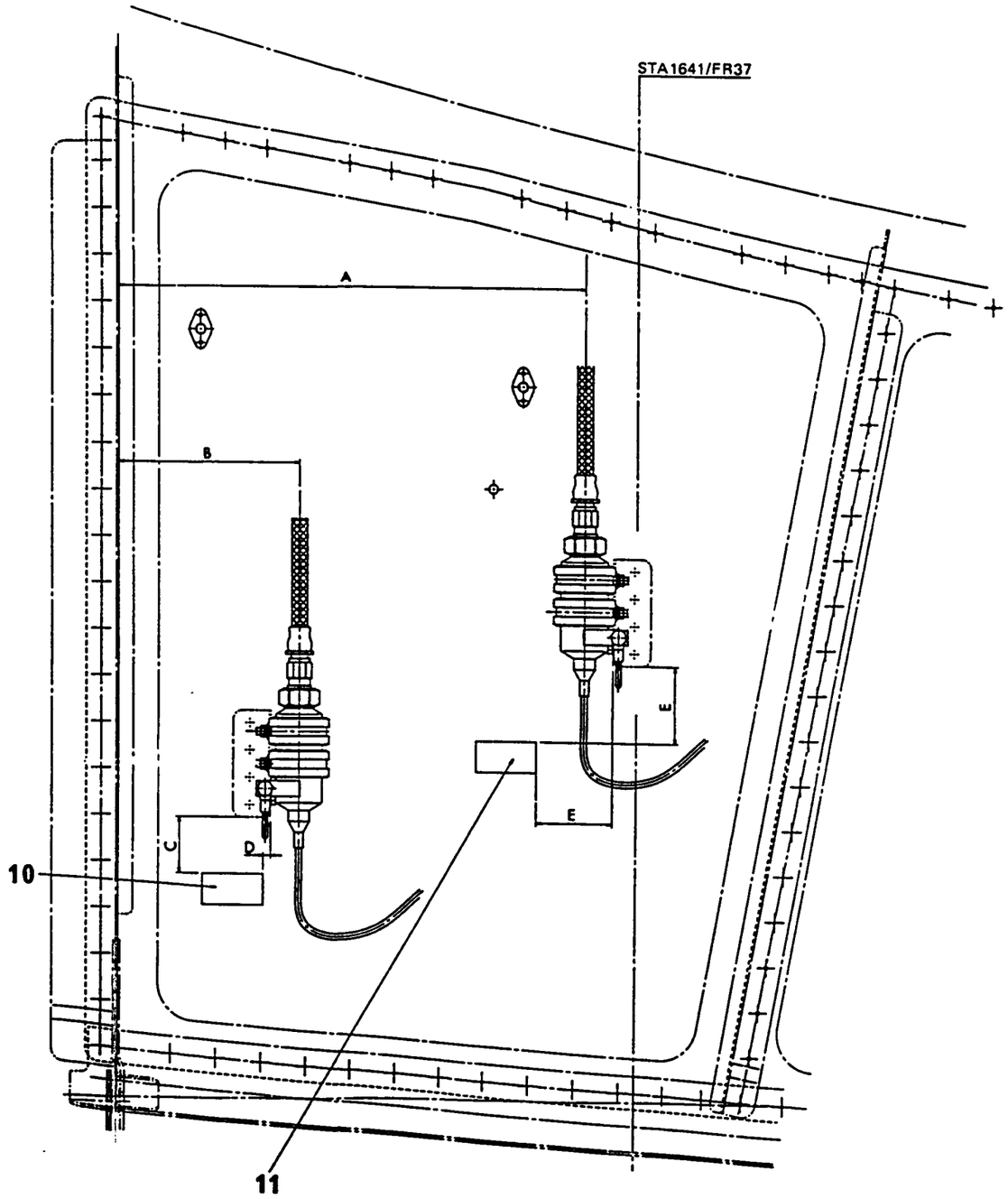
C-C

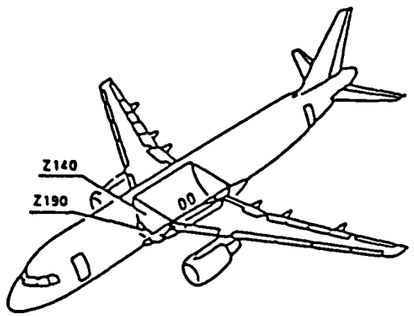


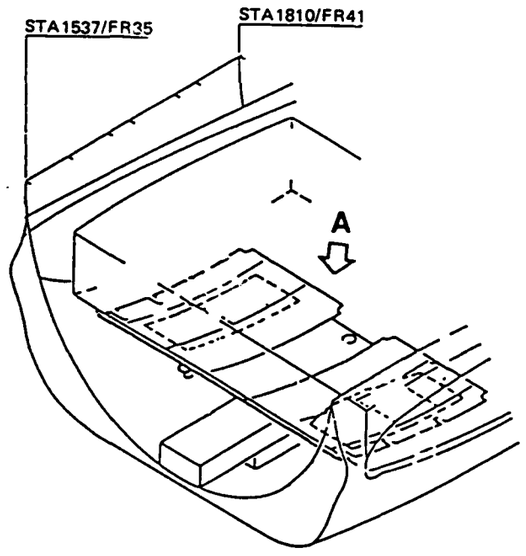
D-D



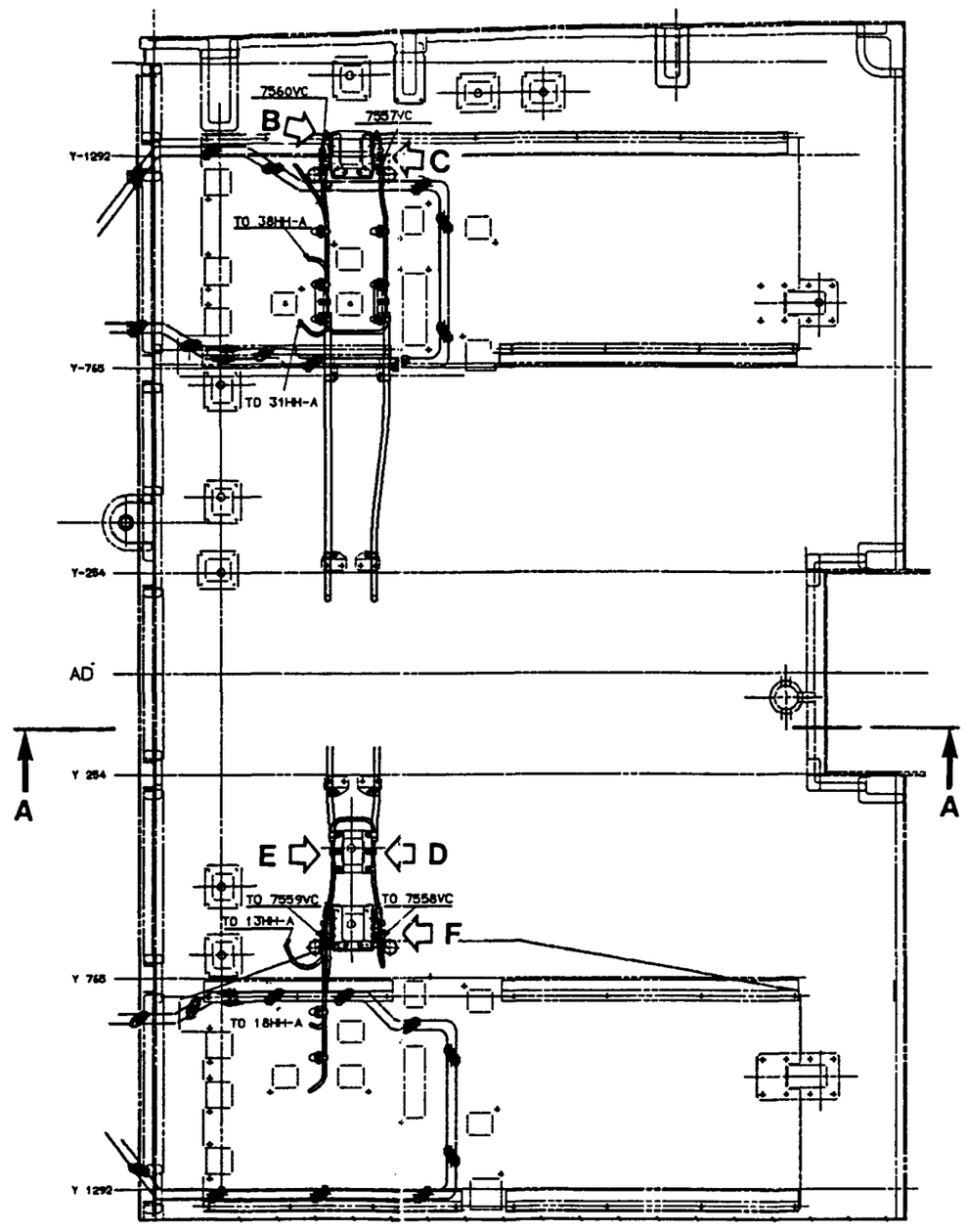
A = 310mm(12.2in.)
B = 120mm(4.72in.)
C = 36mm(1.42in.)
D = 5mm(0.2in.)
E = 50mm(1.97in.)
F = 40mm(1.57in.)
G = 170mm(6.7in.)

Installation of Sensor Bonding Straps and Placards
Figure 10, Sheet 5 of 5





A BEFORE



Electrical Modification
Figure 11, Sheet 1 of 5

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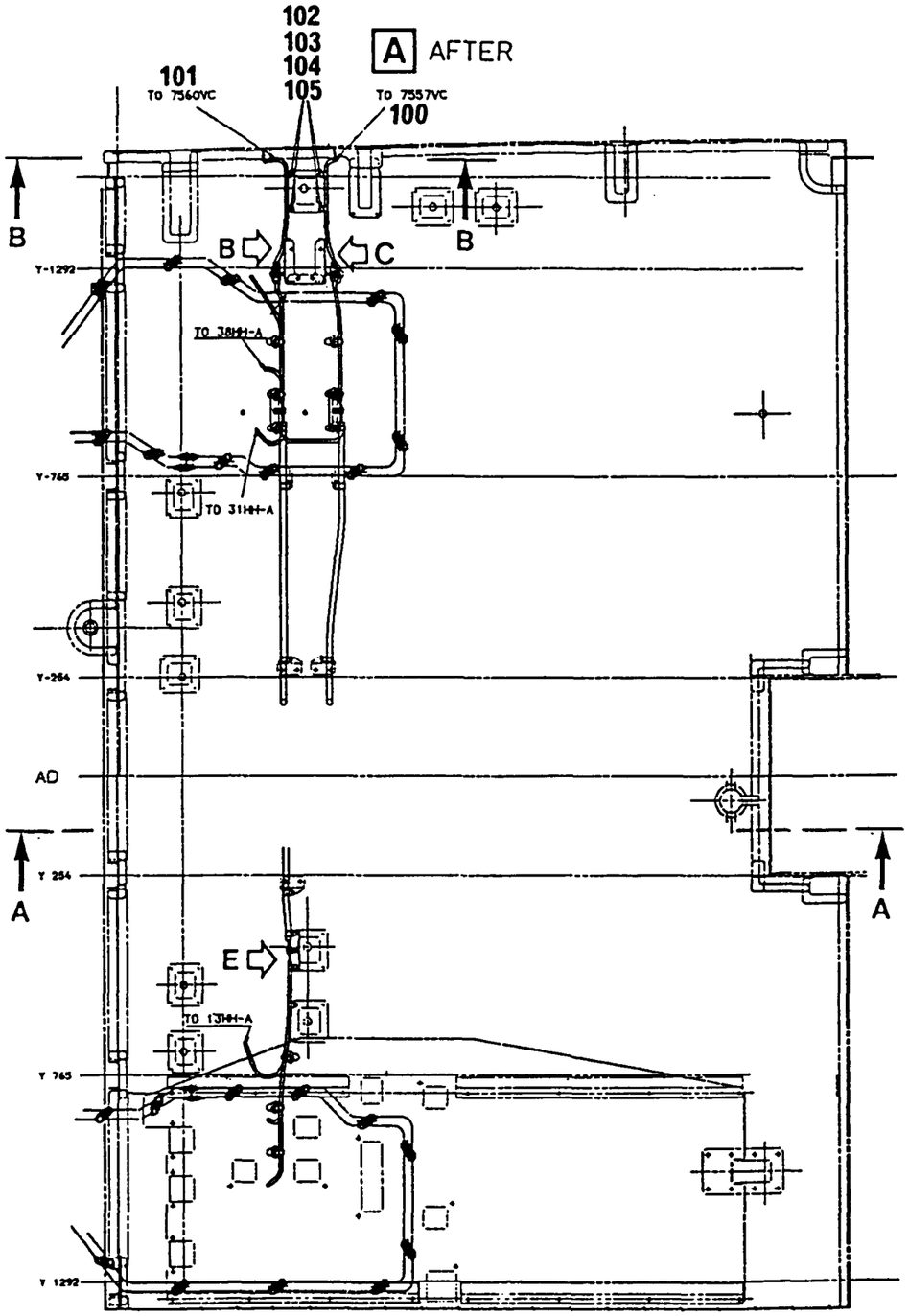
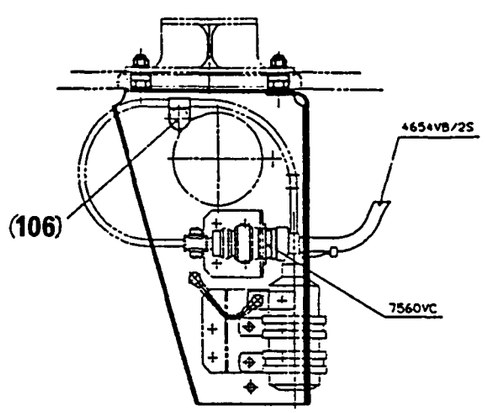
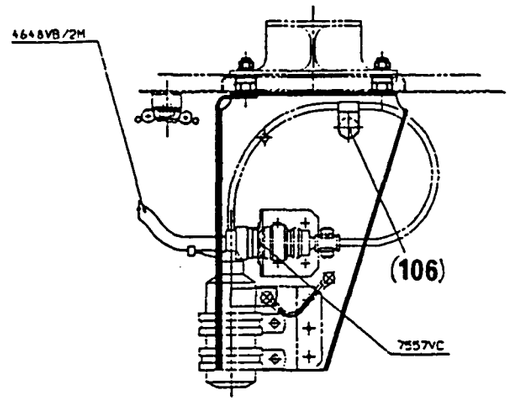
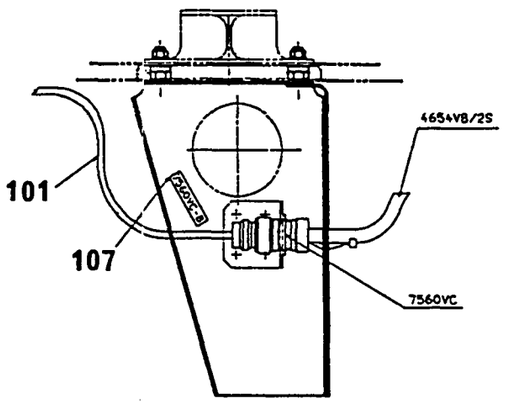


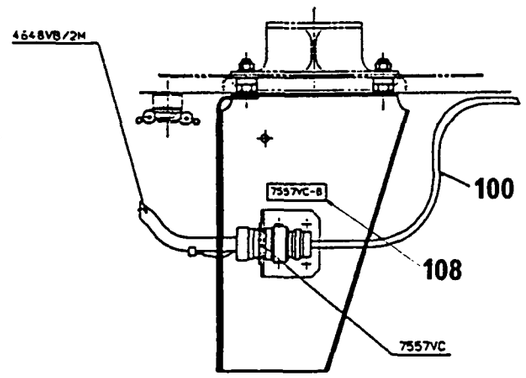




B AFTER

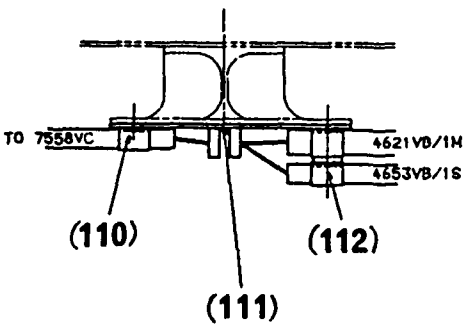


C AFTER

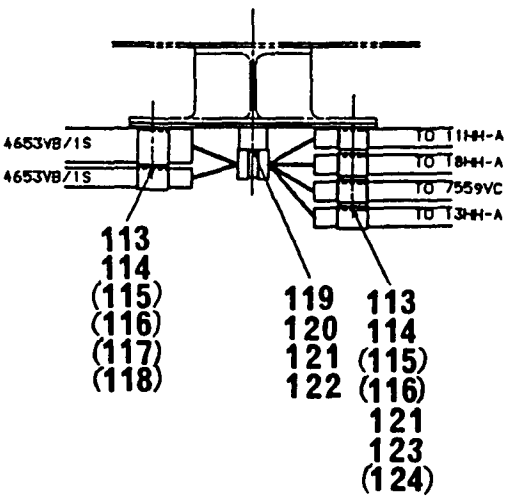


Removal/Installation of Electrical Equipment
Figure 11, Sheet 2 of 5

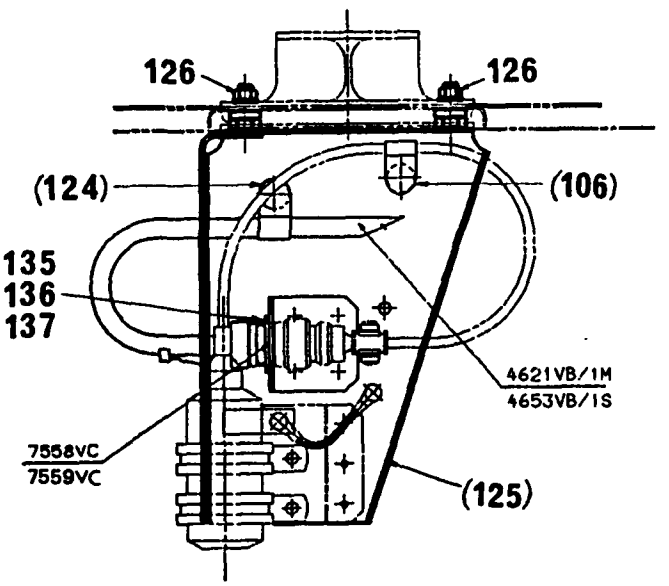
D



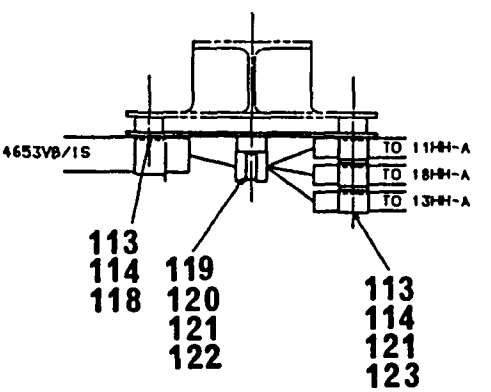
E BEFORE



F

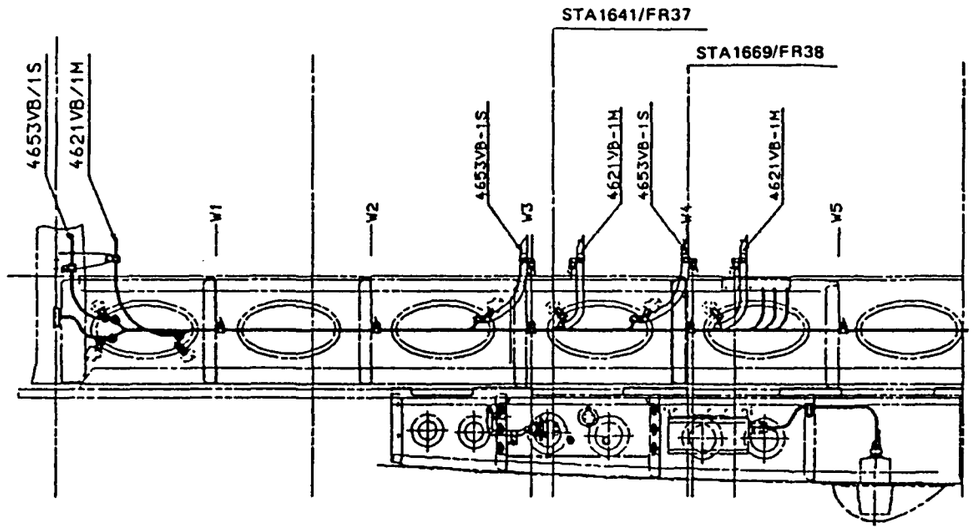


E AFTER

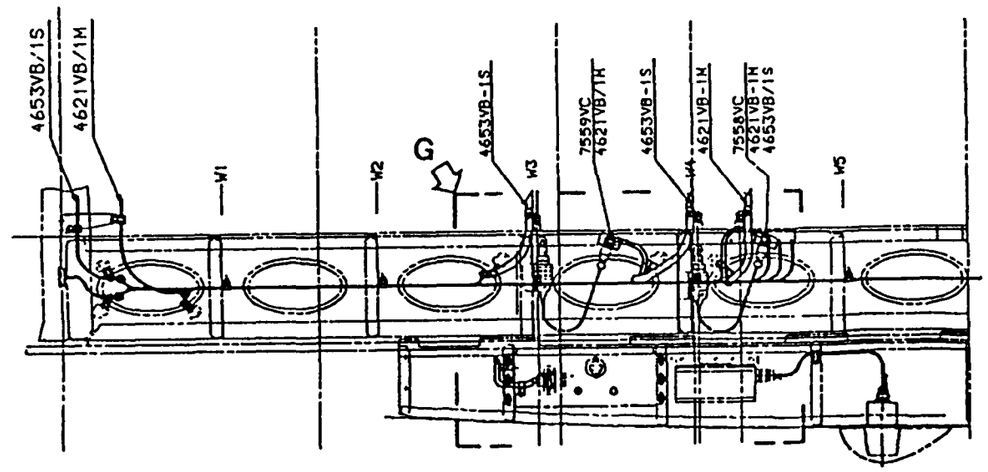


Removal/Installation of Electrical Equipment
Figure 11, Sheet 3 of 5

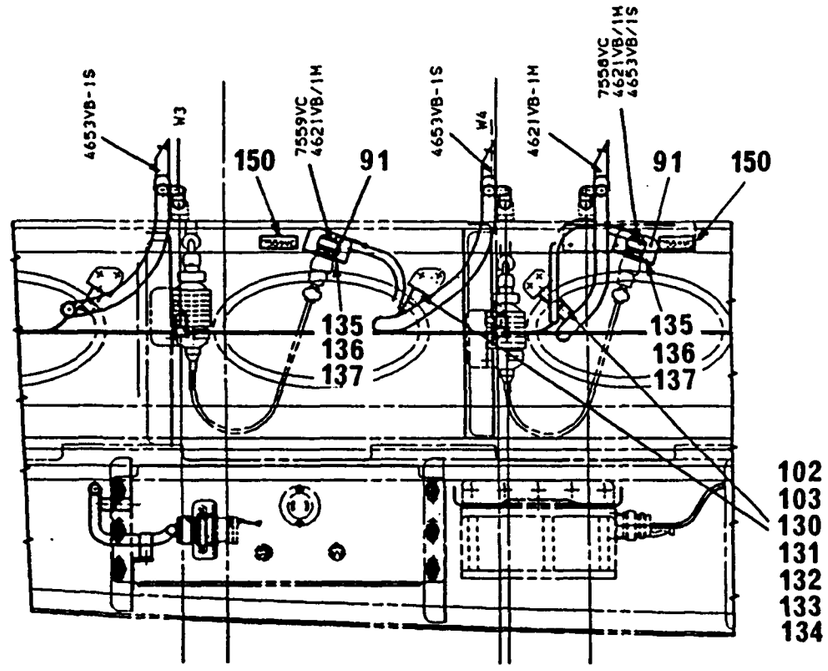
A - A BEFORE



A - A AFTER



G AFTER



Installation of Electrical Equipment
of the Keel Beam Sidewall
Figure 11, Sheet 4 of 5

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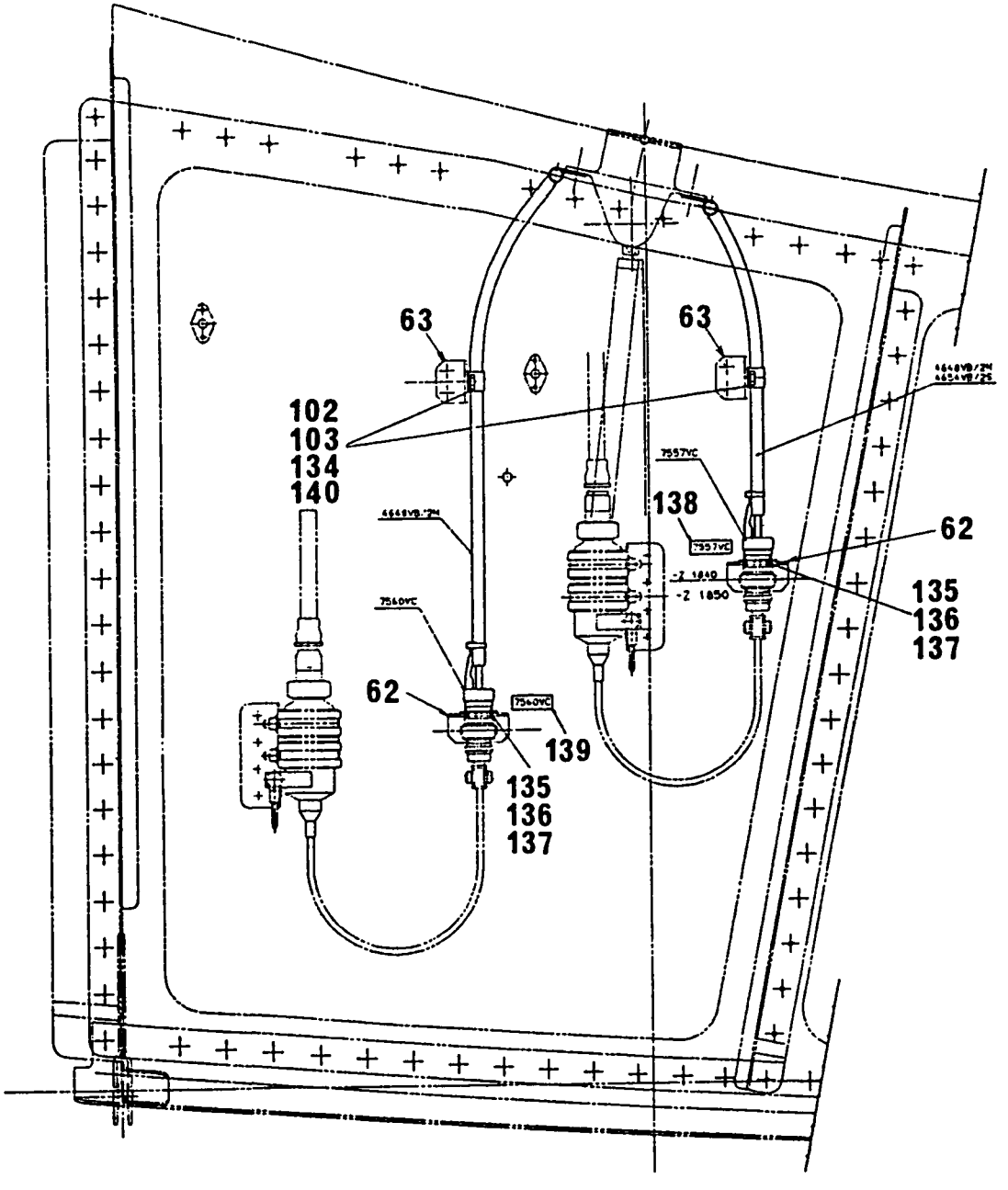
B - B



Installation of Electrical Equipment
at the Longeron Assy, RH
Figure 11, Sheet 5 of 5

	END 1				LEAD					END 2				
LINE	ZONE OR PANEL	ELEC IDENT	TERM.	TERMINAL P/N	WIRE IDENT	ROUTE	GAUGE	LENGTH MM	LENGTH INCH	ZONE OR PANEL	ELEC IDENT	TERM	TERMINAL P/N	INSTRUCTIONS
1	192	7557VC-B	D	NSA938151PA2000	2151-8000-B	2M	PF22	1000	39 4	192	7557VC	D	NSA938152SA2000	A 1)
2	192	7557VC-B	A	NSA938151PA2000	2151-8000-R	2M	PF22	-	-	192	7557VC	A	NSA938152SA2000	A 1)
3	192	7557VC-B			2151-7999	2M	TK24	1000	39 4	192	7557VC			A 1)
4	192	7557VC-B	C	NSA938151PA2000	2151-7999-R	2M	TK24	-	-	192	7557VC	C	NSA938152SA2000	A 1)
5	192	7557VC-B	B	NSA938151PA2000	2151-7999-B	2M	TK24	-	-	192	7557VC	B	NSA938152SA2000	A 1)
6	192	7557VC-B	E	NSA938151PA2000	2151-8001	2M	CF24	150	5 9	192	2151-7999	-	ABS 0237-02	A 1)
7	192	7557VC	E	NSA938152SA2000	2151-8002	2M	CF24	150	5 9	192	2151-7914	-	ABS 0237-02	A 1)
8														
9	192	7560VC-B	D	NSA938151PA2000	2161-8000-B	2M	PF22	1000	39 4	192	7560VC	D	NSA938152SA2000	A 2)
10	192	7560VC-B	A	NSA938151PA2000	2161-8000-R	2M	PF22	-	-	192	7560VC	A	NSA938152SA2000	A 2)
11	192	7560VC-B			2161-7999	2M	TK24	1000	39 4	192	7560VC			A 2)
12	192	7560VC-B	C	NSA938151PA2000	2161-7999-R	2M	TK24	-	-	192	7560VC	C	NSA938152SA2000	A 2)
13	192	7560VC-B	B	NSA938151PA2000	2161-7999-B	2M	TK24	-	-	192	7560VC	B	NSA938152SA2000	A 2)
14	192	7560VC-B	E	NSA938151PA2000	2161-8001	2M	CF24	150	5.9	192	2161-7999	-	ABS 0237-02	A 2)
15	192	7560VC	E	NSA938152SA2000	2161-8002	2M	CF24	150	5.9	192	2161-7901	-	ABS 0237-02	A 2)
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														

A) ADDED WIRE
1) D929 92210 000 00
2) D929 92210 002 00

Hook-up Chart
Figure 12

3. MATERIAL INFORMATION

Basis for the following material data is per aircraft

A. LIST OF COMPONENTS

ITEM	NEW PART NO.	QTY	DESCRIPTION	ITEM	OLD PART NO.	INT	INSTRUCTIONS/ DISPOSITION
Kit No. 211014		A01					
2	D2157147103200	1	Hose	(2)	D2157147100200		not re-used
7	D2157147103400	1	Hose	(7)	D2157147100600		not re-used
22	D2157127523200	1	Placard	(22)	D2157127523200		not re-used
11	D2157127523400	1	Placard	(11)	D2157127523400		not re-used
5	D2157127523600	1	Placard	(5)	D2157127523600		not re-used
23	D2157127523800	1	Placard	(23)	D2157127523800		not re-used
4	D2157127524000	1	Placard	(4)	D2157127524000		not re-used
21	D2157127524200	1	Placard	(21)	D2157127524200		not re-used
10	D2157127524400	1	Placard	(10)	D2157127524400		not re-used
20	D2157127524600	1	Placard	(20)	D2157127524600		not re-used
33	D2157143703000	1	Hose	(33)	D2157143700200		not re-used
32	D2157143703200	1	Hose	(32)	D2157143700400		not re-used
34	D2157143703400	1	Hose	(34)	D2157143700000		not re-used
35	D2157143702200	1	Hose	(35)	D2157143700600		not re-used
			Pipe	(36)	D2157143001000		not re-used
			Pipe	(37)	D2157143000800		not re-used
50	D2157147102600	1	Hose				
51	D2157147103000	1	Hose				
40	D2157147102800	2	Hose	(40)	D2157147100400		not re-used
60	D2157047600000	1	Bracket				
61	D2157047600100	1	Bracket				
62	D9249181020000	2	Bracket				
63	D9249178620000	2	Bracket				
76	D3627002600000	3	Bracket	(91)	D9249178620000		not re-used
91	D9249181120000	2	Bracket				
92	D2157147720400	2	Bracket				
90	D5337067700200	1	Bracket	(90)	D9249176920400		not re-used

ITEM	NEW PART NO.	QTY	DESCRIPTION	ITEM	OLD PART NO.	INT	INSTRUCTIONS/ DISPOSITION
Kit No. 211014		A01					
100	D9299221000000	1	Elt. Equipment				
101	D9299221000200	1	Elt. Equipment				
			Bracket	(125)	D9249171800600		not re-used
39	NSA855120-6C	2	Elbow fitting				
31	NSA5516-13NJ	9	Clamp	(31)	NSA5516-14NJ		not re-used
37	NSA5516-15NJ	3	Clamp				
38	MS21919WCJ8	4	Clamp	(38)	NSA5516-10NJ		not re-used
42	MS21919WCJ6	7	Clamp				
15	MS21043-3	7	Nut				
16	AN960C10L	16	Washer				
54	E0089-10-200	2	Bonding strap				
30	A104-1/2D	5	Screw				
77	ASNA53114-24ADL	6	Washer				
81	AN960KD10	4	Washer				
74	MS21042-3	4	Nut				
80	NSA5159-23	4	Stud				
75	NSA5159-33	4	Stud				
84	NSA5159-25	1	Stud				
72	DIN137A5ST	6	Washer				
85	NAS1096-3-10	2	Screw				
94	HL110VF-6-5	12	Fastener, Hi-lok				
95	HL79-6	12	Collar, Hi-lok				
102	NSA935807-06	8	Clamp				
103	NSA935808-01	6	Washer				
104	NAS1096-2-8	6	Screw				
105	NSA935401-04	40	Cable tie				
130	NAS1096-2-27	2	Screw				
140	NAS1096-2-6	2	Screw				
134	NSA5066-08-2	4	Nut				
135	NAS1100-04-6	8	Screw				
136	AN960C4L	8	Washer				
137	MS21042L04	8	Nut				

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ITEM	NEW PART NO.	QTY	DESCRIPTION	ITEM	OLD PART NO.	INT	INSTRUCTIONS/ DISPOSITION
Kit No. 211014		A01					
131	NSA935807-12	2	Clamp				
132	NSA5527-03-02D	2	Spacer				
133	NSA5527-03-03D	2	Spacer				
118	NAS1096-2-10	1	Screw				
78	MS20470AD3-6	6	Rivet				
96	MS20470AD4-12	12	Rivet				
64	MS20470AD4-6	6	Rivet				
65	MS20470D5-6	20	Rivet				
93	MS20470D6-10	12	Rivet				

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B. SPECIAL TOOLS

None

C. LIST OF MATERIALS — OPERATOR SUPPLIED

DESCRIPTION	REFERENCE AMM 20-31-00	QTY PER A/C
Solvent	Mat. No. 11-003	as required
Primer	Mat. No. 16-001	as required
Top coat	Mat. No. 16-002	as required
Primer	Mat. No. 16-020	as required
Sealant	Mat. No. 09-013	as required

D. PARTS TO BE RE-IDENTIFIED BY OPERATOR

NEW PN	DESCRIPTION	OLD PN	REMARKS
D2157137101800	Heat Shield	D2157137101400	
D2157137101600	Heat Shield	D2157137101200	
751A0000-04	Flow Control Valve	751A0000-03	Modified with Vendor SB, Liebherr/ABG-Semca 751A-21-01

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