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#### TROUBLE SHOOTING MANUAL

#### **HIGHLIGHTS**

REVISION NO. 54 May 01/08

Pages which have been revised are outlined below, together with the Highlights of the Revision

CH/SE/SU C REASON FOR CHANGE EFFECTIVITY

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#### CHAPTER 77

#### **ENGINE INDICATING**

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77-ECAM			Nov01/07	77-ECAM			May01/07	77-ECAM			Nov01/07
77-ECAM			Nov01/07	77-ECAM			May01/07	77-ECAM			Nov01/07
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77-ECAM			Nov01/07	77-00-00			Aug01/05	77-00-00			Feb01/07
77-ECAM			Nov01/07	77-00-00	R		May01/08	77-00-00			Aug01/05
77-ECAM			Nov01/07	77-00-00	R		May01/08	77-00-00			Feb01/08
77-ECAM			Nov01/07	77-00-00	-		Aug01/05	77-00-00			Aug01/05
77-ECAM			Nov01/07	77-00-00			Feb01/08	77-00-00			Feb01/08
77-ECAM			Nov01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
77-ECAM			Nov01/07	77-00-00	R		May01/08	77-00-00			Feb01/07
				77-00-00	R		May01/08	77-00-00			Feb01/07
77-0BSV		101	Aug01/05	77-00-00			Feb01/08	77-00-00			Feb01/08
77-0BSV			Nov01/07	77-00-00			Aug01/05	77-00-00			Feb01/08
77-0BSV			Nov01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
77-0BSV			Nov01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
77-0BSV			Nov01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
77-0BSV			Nov01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
77-0BSV			Nov01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
77-0BSV			Nov01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
77-0BSV			Nov01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
77-0BSV			Nov01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
77-0BSV		111	Nov01/07	77-00-00			Nov01/06	77-00-00			Aug01/05
77-0BSV			Nov01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
77-0BSV			Nov01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
77-0BSV			Nov01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
11 ODSV			10001701	77-00-00			Aug01/05	77-00-00			Aug01/05
77-CFDS		101	Feb01/07	77-00-00			Aug01/05	77-00-00			Aug01/05
77-CFDS			Aug01/03	77-00-00			May01/06	77-00-00			Aug01/05
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77-CFDS			Nov01/04	77-00-00			Nov01/06	77-00-00			Aug01/05
77-CFDS			Nov01/04	77-00-00	R		May01/08	77-00-00			Aug01/05
77-CFDS			Nov01/04	77-00-00			Aug01/05	77-00-00			Aug01/05
11 6103		100	10001704	77-00-00			Aug01/05	77-00-00			Aug01/05
77-00-00		201	Aug01/04	77-00-00			Aug01/05	77-00-00			Aug01/05
77-00-00			Aug01/99	77-00-00			Aug01/05	77-00-00			Aug01/05
77-00-00			Aug01/04	77-00-00			Aug01/05	77-00-00			Aug01/05
77-00-00			Aug01/04 Aug01/99	77-00-00			Aug01/05	77-00-00			Aug01/05
77-00-00			Aug01/99	77-00-00			Aug01/05	77-00-00			Aug01/05
77-00-00			Aug01/99	77-00-00			Aug01/05	77-00-00			Aug01/05
77-00-00			Aug01/99	77-00-00			Aug01/05	77-00-00			Aug01/05
77-00-00			Aug01/99	77-00-00	R		May01/08	77-00-00			Nov01/06
77-00-00			Feb01/01	77-00-00	R		May01/08	77-00-00			May01/08
77-00-00			May01/99	77-00-00	R		-	77-00-00			Nov01/06
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77-00-00 77-00-00	D		Aug01/06 May01/08	77-00-00 77-00-00			_	77-00-00 77-00-00	K		May01/08 Nov01/06
77-00-00 77-00-00	R		May01/08	77-00-00			Aug01/05	77-00-00			Nov01/06
77-00-00 77-00-00	R R		May01/08	77-00-00	п		Aug01/06	77-00-00			Nov01/06
77-00-00	R		May01/08	77-00-00	R		May01/08	77-00-00			Nov01/06
77-00-00	R		May01/08	77-00-00	R R		May01/08	77-00-00			Nov01/06
77-00-00 77-00-00	ĸ		Feb01/08	77-00-00	K		May01/08 Feb01/08	77-00-00			Nov01/06
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11-00-00		۷ ۱۶	Aug01/05	11-00-00		210	Feb01/08	77-00-00		AZZI	Nov01/06

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77-00-00			Feb01/08	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00			Feb01/08	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00	R		May01/08	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00	R		May01/08	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00	R		May01/08	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00			May01/08	77-10-00			Aug01/99	77-10-00	•		Feb01/08
77-00-00	• • • • • • • • • • • • • • • • • • • •		Nov01/07	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00			Nov01/07	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00			Nov01/07	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00			Nov01/07	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00	R		May01/08	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00			Feb01/08	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00			Feb01/08	77-10-00			Aug01/99	77-10-00			Feb01/08
77-00-00			Nov01/07	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00	R		May01/08	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00			Feb01/08	77-10-00			Aug01/99	77-10-00	R		May01/08
77-00-00			Nov01/07	77-10-00			Aug01/99	77-10-00	R		May01/08
				77-10-00			Aug01/99	77-10-00	R		May01/08
77-10-00	R	201	May01/08	77-10-00			Aug01/99	77-10-00	R		May01/08
77-10-00	R		May01/08	77-10-00			Aug01/99	77-10-00			Feb01/08
77-10-00	R		May01/08	77-10-00			Aug01/99	77-10-00			Aug01/06
77-10-00	R		May01/08	77-10-00			Aug01/99	77-10-00			Aug01/06
77-10-00	R		May01/08	77-10-00			Aug01/99	77-10-00			Aug01/06
77-10-00	R		May01/08	77-10-00			Aug01/99	77-10-00			Aug01/06
77-10-00	R		May01/08	77-10-00			Aug01/99	77-10-00			Aug01/06
77-10-00	R		May01/08	77-10-00			Aug01/99	77-10-00			Aug01/06
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77-20-00	2	16	Nov01/03	77-30-00		216	Aug01/04				
77-20-00	2	17	Nov01/03	77-30-00		217	Aug01/04				
77-20-00	2	18	Nov01/03	77-30-00		218	Aug01/04				
77-20-00	2	19	Nov01/05	77-30-00		219	Aug01/94				
77-20-00	22	20	Aug01/99	77-30-00		220	Aug01/04				
77-20-00			Aug01/00	77-30-00			Aug01/94				
77-20-00			Aug01/99	77-30-00			Aug01/04				
77-20-00			Nov01/05	77-30-00			Feb01/97				
77-20-00			May01/96	77-30-00			Feb01/97				
77-20-00			Nov01/05	77-30-00		225	May01/96				
77-20-00			May01/99								
77-20-00			Nov01/05								
77-20-00			May01/99								
77-20-00			Nov01/05								
77-20-00			Nov01/04								
77-20-00			Nov01/05								
77-20-00			Nov01/07								
77-20-00			Nov01/04								
77-20-00			Nov01/05								
77-20-00			Nov01/05								
77-20-00 77-20-00			Nov01/04 Nov01/05								
77-20-00			Nov01/03								
77-20-00			Nov01/04								
77-20-00			Nov01/04								
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77-20-00			Nov01/04								
77-20-00			Nov01/04								
77-20-00			Nov01/04								
77-20-00			Feb01/08								
77-20-00			Feb01/08								
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77-20-00	24	48	Feb01/08								
77-20-00	24	49	Feb01/08								
77-20-00	2:	50	Nov01/07								
77-30-00	20	01	Aug01/04								
77-30-00	20	)2	Aug01/96								
77-30-00	20	)3	Aug01/04								
77-30-00			Aug01/04								
77-30-00			Aug01/04								
77-30-00			Aug01/04								
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77-30-00			Aug01/04								
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on Engine 1  Loss of the Channel B of the FADEC  on Engine 1			292	ALL
Loss of the Channel A of the FADEC			294	ALL
on Engine 2  Loss of the Channel A of the FADEC  on Engine 2			296	ALL
Loss of the Channel B of the FADEC			298	ALL
on Engine 2  Loss of the Channel B of the FADEC  on Engine 2			A200	ALL
Loss of the Channels A and B of			A202	ALL
the FADEC on Engine 1  Loss of the Channels A and B of  the FADEC on Engine 1			A204	ALL
Loss of the Channels A and B of			A206	ALL
the FADEC on Engine 2  Loss of the Channels A and B of  the FADEC on Engine 2			A208	ALL
Loss of the Data on ARINC Bus from			A210	ALL
the EIU to the FADEC on Engine 1 Loss of the Data on ARINC Bus from			A213	ALL
the EIU to the FADEC on Engine 2 Failure of the Starter Shutoff			A216	ALL

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#### CHAPTER 77

#### **ENGINE INDICATING**

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SUBJECT	CH/SE/SU	<u>C</u> <u>PAGE</u>	EFFECTIVITY
Valve on Engine 1 Failure of the Starter Shutoff Valve on Engine 2		A219	ALL
Type Disagree between Engine 1 and Engine 2 or between Engines and Aircraft Pin Programming		A222	ALL
TO/GA Inputs Invalid on Engine 1		A226	201-225, 227-227 229-239, 241-282 284-299, 426-499 503-549, 551-599 701-749,
TO/GA Inputs Invalid on Engine 2		A228	201-225, 227-227 229-239, 241-282 284-299, 426-499 503-549, 551-599 701-749,
N2 Exceedance Indication on ECAM on Engine 1		A230	ALL
N2 Exceedance Indication on ECAM on Engine 2		A232	ALL
Vibration with Noise at approximately 51% N1 on Engine 1		A234	ALL
Vibration with Noise at approximately 51% N1 on Engine 2		A237	ALL
Throttle Control Lever in Reverse Thrust Position in Flight		A240	ALL
POWER	77-10-00		
FAULT ISOLATION PROCEDURES		201	ALL
Loss of the ECU Cross Channel on		201	•
Engine 1			229-253, 276-281
			426-432, 476-480
			503-549, 551-564
		207	701-749,
Loss of the ECU Cross Channel on		203	•
Engine 2			229-253, 276-281
			426-432, 476-480 503-549, 551-564
			701-749,
Loss of the ECU Cross Channel on		205	
Engine 1		203	229-253, 276-281
<b>gg</b>			426-432, 476-480
			503-549, 551-564
			701-749,
Loss of the ECU Cross Channel on		207	•
Engine 2			229-253, 276-281
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SUBJECT	CH/SE/SU	<u>C</u> <u>I</u>	PAGE	EFFECTIVITY 426-432, 476-480 503-549, 551-564 701-749,
Loss of N1 Feedback Signal - Engine 1 - Channel A and Channel B			209	-
Loss of N1 Feedback Signal - Engine 2 - Channel A and Channel B			214	ALL
Loss of the Feedback Signal of the N1 Speed Sensor - Engine 1 - Channel A			219	ALL
Loss of the Feedback Signal of the N1 Speed Sensor - Engine 1 - Channel B			222	ALL
Loss of the Feedback Signal of the N1 Speed Sensor - Engine 2 - Channel A			225	ALL
Loss of the Feedback Signal of the N1 Speed Sensor - Engine 2 - Channel B			228	ALL
Loss of N2 Feedback Signal - Engine 1 - Channel A and Channel B			231	ALL
Loss of N2 Feedback Signal - Engine 2 - Channel A and Channel B			235	ALL
Loss of the Feedback Signal of the N2 Speed Sensor - Engine 1 - Channel A			239	ALL
Loss of the Feedback Signal of the N2 Speed Sensor - Engine 1 - Channel B			242	ALL
Loss of the Feedback Signal of the N2 Speed Sensor - Engine 2 - Channel A			245	ALL
Loss of the Feedback Signal of the N2 Speed Sensor - Engine 2 - Channel B			248	ALL
Loss of the Feedback Signal of the N1 Speed Sensor - Engine 1 - Channel A			251	ALL
Loss of the Feedback Signal of the N1 Speed Sensor - Engine 1 - Channel B			255	ALL
Loss of the Feedback Signal of the N1 Speed Sensor - Engine 2 -			259	ALL
Channel A Loss of the Feedback Signal of the N1 Speed Sensor - Engine 2 -			262	ALL

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SUBJECT B	CH/SE/SU	<u>c</u>	<u>PAGE</u>	EFFECTIVITY
Channel B Loss of the Feedback Signal of the N2 Speed Sensor - Engine 1 - Channel A			265	ALL
Loss of the Feedback Signal of the N2 Speed Sensor - Engine 1 - Channel B			268	ALL
Loss of the Feedback Signal of the N2 Speed Sensor - Engine 2 - Channel A			271	ALL
Loss of the Feedback Signal of the N2 Speed Sensor - Engine 2 - Channel B			274	ALL
Loss of the Alternator Power Supply on Engine 1 - Channel A			277	ALL
Loss of the Alternator Power Supply on Engine 2 - Channel A			284	ALL
Loss of the Alternator Power Supply on Engine 1 - Channel B			291	ALL
Loss of the Alternator Power Supply on Engine 2 - Channel B			298	ALL
Loss of the ECU Cross Channel on Engine 1 - Channel B			A205	ALL
Loss of the ECU Cross Channel on Engine 2 - Channel B			A209	ALL
Loss of the ECU Cross Channel on Engine 1 - Channel A			A213	ALL
Loss of the ECU Cross Channel on Engine 2 - Channel A			A217	ALL
TEMPERATURE	77-20-00			
FAULT ISOLATION PROCEDURES			201	
Loss of the EGT Thermocouple Signal to the ECU on Engine 1			201	ALL
Loss of the EGT Thermocouple Signal to the ECU on Engine 2			204	ALL
Loss of the T3 Thermocouple Signal - Engine 1 - Channel A and Channel B			207	ALL
Loss of the T3 Thermocouple Signal - Engine 2 - Channel A and Channel B			211	ALL
Loss of the T3 Thermocouple Signal - Engine 1 - Channel A			215	ALL
Loss of the T3 Thermocouple Signal - Engine 2 - Channel A			219	ALL

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SUBJECT Loss of the T5 Sensor Signal to	CH/SE/SU	<u>C</u>		EFFECTIVITY ALL
the ECU on Engine 1  Loss of the T5 Sensor Signal to  the ECU on Engine 2			225	ALL
Loss of the T5 Sensor Signal to the ECU on Engine 1			227	ALL
Loss of the T5 Sensor Signal to the ECU on Engine 2			229	ALL
Loss of the EGT Thermocouple Signal to the ECU on Engine 1			231	ALL
Loss of the EGT Thermocouple Signal to the ECU on Engine 2				ALL
Loss of the T3 Thermocouple Signal - Engine 1 - Channel B			237	
Loss of the T3 Thermocouple Signal - Engine 2 - Channel B The EGT indication fluctuates			241 245	
while other parameters are stable The EGT indication fluctuates			243	
while other parameters are stable			240	ALL
ANALYZERS	77-30-00			
FAULT ISOLATION PROCEDURES			201	
Loss of the Vibration Indications			201	ALL
on the two Engines Loss of N1 or N2 Vibration Indication on One Engine			203	ALL
Loss of N1 and N2 Vibration Indications on the Two Engines			204	ALL
Loss of the N1 Vibration Indication on Engine 1			206	ALL
Loss of the N1 Vibration Indication on Engine 2			208	ALL
Loss of the N2 Vibration Indication on Engine 1			210	ALL
Loss of the N2 Vibration Indication on Engine 2			212	ALL
Failure of the No. 1 Bearing Vibration Sensor on Engine 1			214	ALL
Failure of the No. 1 Bearing Vibration Sensor on Engine 2			216	ALL
Failure of the TRF Vibration Sensor on Engine 1			218	ALL
Failure of the TRF Vibration Sensor on Engine 2			220	ALL
Failure of the EVMU			222	ALL

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SUBJECT	CH/SE/SU	<u>C</u>	PAGE EFFECTIVITY	
Loss of the EVMU Output Bus			223 ALL	
Loss of the EVMU Output Bus			224 ALL	
Loss of the EVMU Output Bus			225 ALL	

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### TROUBLE SHOOTING MANUAL

#### **ENGINE INDICATING - FAULT SYMPTOMS**

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/ MALI UNCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE

#### Upper ECAM DU Warnings

R	ENG COMPRESSOR VANE	EIU1FAD	J7, HMU (VBV TM), ECU	732150	1	732900 PA267 T 810 888
R	ENG COMPRESSOR VANE	EIU1FAD	J7, HMU (VBV TM), ECU associated with	732150	1	732900 PA291 T 810 900
		EIU2FAD	J7, HMU (VBV TM), ECU	732150	1	
R	ENG COMPRESSOR VANE	EIU1FAD	J7, HMU (VBV TM), ECU associated with	732150	1	732900 PA292 T 810 901
		EIU2FAD	J8, HMU (VBV TM), ECU	732150	1	
R	ENG COMPRESSOR VANE	EIU1FAD	J7, HMU (VSV TM), ECU	732150	1	732900 PA259 T 810 884
R	ENG COMPRESSOR VANE	EIU1FAD	J7, HMU (VSV TM), ECU associated with	732150	1	732900 PA287 T 810 896
		EIU2FAD	J7, HMU (VSV TM), ECU	732150	1	. 616 676
R	ENG COMPRESSOR VANE	EIU1FAD	J7, HMU (VSV TM), ECU associated with	732150	1	732900 PA288 T 810 897
		EIU2FAD	J8, HMU (VSV TM), ECU	732150	1	
R	ENG COMPRESSOR VANE	EIU1FAD	J8, HMU (VBV TM), ECU	732150	1	732900 PA270 T 810 889
R	ENG COMPRESSOR VANE	EIU1FAD	J8, HMU (VBV TM), ECU associated with	732150	1	732900 PA293 T 810 902
		EIU2FAD	J7, HMU (VBV TM), ECU	732150	1	1 610 902
R	ENG COMPRESSOR VANE	EIU1FAD	J8, HMU (VBV TM), ECU	732150	1	732900 PA294 T 810 903
		EIU2FAD	J8, HMU (VBV TM), ECU	732150	1	1 010 700
R	ENG COMPRESSOR VANE	EIU1FAD	J8, HMU (VSV TM), ECU	732150	1	732900 PA261 T 810 885
R	ENG COMPRESSOR VANE	EIU1FAD	J8, HMU (VSV TM), ECU	732150	1	732900 PA289
		EIU2FAD	associated with J7, HMU (VSV TM), ECU	732150	1	т 810 898

EFF: ALL
SROS

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WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	
ENG COMPRESSOR VANE	EIU1FAD	J8, HMU (VSV TM), ECU associated with	732150	1	732900 PA290 T 810 899
	EIU2FAD	J8, HMU (VSV TM), ECU	732150	1	
ENG COMPRESSOR VANE	EIU2FAD	J7, HMU (VBV TM), ECU	732150	1	732900 PA273 T 810 890
ENG COMPRESSOR VANE	EIU2FAD	J7, HMU (VSV TM), ECU	732150	1	732900 PA263 T 810 886
ENG COMPRESSOR VANE	EIU2FAD	J8, HMU (VBV TM), ECU	732150	1	732900 PA276 T 810 891
ENG COMPRESSOR VANE	EIU2FAD	J8, HMU (VSV TM), ECU	732150	1	732900 PA265 T 810 887
ENG DUAL FAILURE					720000 P 209 T 810 805
ENG FLEX TEMP NOT SET					730000 P 226 T 810 870
ENG FLEX TEMP NOT SET associated with Upper ECAM DU Flags ENG 1 - N1 mismatch during flex take off					730000 P 226 T 810 870
ENG FLEX TEMP NOT SET associated with Upper ECAM DU Flags ENG 2 - N1 mismatch during flex take off					730000 P 226 T 810 870
ENG REV SET					770000 PA240 T 810 920
ENG THRUST LOCKED					700000 P 204 T 810 807
ENG TYPE DISAGREE					770000 PA222 T 810 890
ENG TYPE DISAGREE	EIU1FAD	J14WRONG, ECU ENTRY	732100	1	732000 РВ243 Т 810 977

EFF :	ALL		
SROS			

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	WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION	
	WARNINGS/MALFONCTIONS	SOURCE	MESSAGE	ATA	С	!!!	
	ENG TYPE DISAGREE	EIU2FAD	J14WRONG, ECU ENTRY	732100	1	732000 PB245 T 810 978	
	ENG VIB SYS FAULT					770000 P 284 T 810 867	
	ENG VIB SYS FAULT	EVMU	EVMU	773234	1	773000 P 201 T 810 801	
	ENG VIB SYS FAULT	EVMU	EVMU associated with	773234	1	773000 P 206 T 810 805	
		EVMU	ENG1 N1 SPEED SENSOR	771115	1	!!!	
	ENG VIB SYS FAULT	EVMU	EVMU associated with	773234	1	773000 P 208 T 810 806	
		EVMU	ENG2 N1 SPEED SENSOR	771115	1		
	ENG 1 BLEED STATUS FAULT					770000 PA210 T 810 886	
R	ENG 1 BLEED STATUS FAULT	EIU1FAD	EIU1 : NO ZONE CONT DATA	216334	1	732500 P 244 T 810 873	
R	ENG 1 BLEED STATUS FAULT	EIU1FAD	ZC, EIU (030), J3 ENG1B	216324	1	732500 P 268 T 810 893	
R	ENG 1 BLEED STATUS FAULT	EIU1FAD	ZC, EIU(030), J3 ENG1A	216334	1	732500 P 268 T 810 893	
R	ENG 1 BLEED STATUS FAULT	EIU1FAD	ZC, EIU(030), J3 ENG1B	216334	1	732500 P 268 T 810 893	
R	ENG 1 BLEED STATUS FAULT	EIU1FAD	ZN CNT EIU (030), J3 ENG1A	216334	1	732500 P 268 T 810 893	
	ENG 1 COMPRESSOR VANE associated with	EIU1FAD	ENGINE ENG1A associated with	720000	1	720000 P 219 T 810 808	
	STS-Maintenance ENG 1 FADEC	EIU1FAD	HPC (OPERAT. LINE) ENG1A	733300	2		
	ENG 1 COMPRESSOR VANE associated with	EIU1FAD	ENGINE ENG1B associated with	720000	1	720000 P 219 T 810 808	
	STS-Maintenance ENG 1 FADEC	EIU1FAD	HPC (OPERAT. LINE) ENG1B	733300	2	. 010 000	

EFF: ALL SROS

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WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES	 S		FAULT - ISOLATION		
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	АТА	С	!	
ENG 1 COMPRESSOR VANE	EIU1FAD	J7, HMU (VBV TM), ECU associated with	732150	1	732900 PA203 T 810 862	
	EIU1FAD	J8, HMU (VBV TM), ECU	732150	1		
ENG 1 COMPRESSOR VANE	EIU1FAD	J7, HMU (VSV TM), ECU associated with	732150	1	732900 P 299 T 810 860	
	EIU1FAD	J8, HMU (VSV TM), ECU	732150	1		
ENG 1 COMPRESSOR VANE	EIU1FAD	VBV ACT, HMU ENG1A	753110	1	753000 P 201 T 810 801	
ENG 1 COMPRESSOR VANE	EIU1FAD	VBV ACT, HMU ENG1B	753110	1	753000 P 239 T 810 837	
ENG 1 COMPRESSOR VANE	EIU1FAD	VBV SNSR, J11, ECU associated with	753170	1	753000 P 213 T 810 811	
	EIU1FAD	VBV SNSR, J12, ECU	753170	1		
ENG 1 COMPRESSOR VANE	EIU1FAD	VBV SNSR, J11, ECU	753170		753000 P 219 T 810 813	
	IDENT: I					
ENG 1 COMPRESSOR VANE	EIU1FAD	VBV SNSR, J12, ECU	753170	1	753000 P 227 T 810 815	
	IDENT: I	EIU1FAD				
ENG 1 COMPRESSOR VANE	EIU1FAD	VSV ACT, J11, ECU associated with	753210	1	753200 P 205 T 810 803	
	EIU1FAD	VSV ACT, J12, ECU	753210	1		
ENG 1 COMPRESSOR VANE	EIU1FAD	VSV ACT, J11, ECU	753210	1	753200 P 211 T 810 805	
	IDENT: I	EIU1FAD				
ENG 1 COMPRESSOR VANE	EIU1FAD	VSV ACT, J12, ECU	753210	1	753200 P 217 T 810 807	
	IDENT: I					
ENG 1 COMPRESSOR VANE	EIU1FAD	VSV, ACT, HMU ENG1A	753210	1	753200 P 201 T 810 801	
ENG 1 COMPRESSOR VANE	EIU1FAD	VSV, ACT, HMU ENG1B	753210	1	753200 P 223 T 810 811	

EFF: ALL

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HADNINGS /MALEUNGTIONS	<u> </u>	CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!
ENG 1 COMPRESSOR VANE	EIU1FAD	VSV, ACT, J11, ECU associated with	753210	1	753200 P 205 T 810 803
	EIU1FAD	VSV, ACT, J12, ECU	753210	1	
ENG 1 CTL VALVE FAULT	EIU1FAD	BSV (VLV CLSD), HMU ENG1A	731170	1	731000 P 205 T 810 805
ENG 1 CTL VALVE FAULT	EIU1FAD	BSV (VLV CLSD), HMU ENG1B	731170	1	731000 P 275 T 810 833
ENG 1 CTL VALVE FAULT	EIU1FAD	BSV(CL), J14(WRONG)	731170	1	731000 PA203 T 810 847
ENG 1 CTL VALVE FAULT	EIU1FAD	BSV(OP), J14(WRONG)	731170	1	731000 P 297 T 810 845
ENG 1 CTL VALVE FAULT	EIU1FAD	BSV, J11/J12, ECU ENG1A	731170	1	731000 P 215 T 810 807
ENG 1 CTL VALVE FAULT	EIU1FAD	BSV, J11/J12, ECU ENG1B	731170	1	731000 P 265 T 810 831
ENG 1 CTL VALVE FAULT	EIU1FAD	BSV, J11, J14(WRONG) ENG1A	731170	1	731000 PA209 T 810 849
ENG 1 CTL VALVE FAULT	EIU1FAD	BSV, J12, J14(WRONG) ENG1B	731170	1	731000 PA215 T 810 851
ENG 1 CTL VALVE FAULT	EIU1FAD	HPTC VLV (POS), HMU ENG1A	752110	1	752100 P 201 T 810 803
ENG 1 CTL VALVE FAULT	EIU1FAD	HPTC VLV (POS), HMU ENG1B	752110	1	752100 P 237 T 810 823
ENG 1 CTL VALVE FAULT	EIU1FAD	HPTC VLV, J11, ECU associated with	752110	1	752100 P 209 T 810 807
	EIU1FAD	HPTC VLV, J12, ECU	752110	1	
ENG 1 CTL VALVE FAULT	EIU1FAD	J7, HMU(BSVSOL), ECU associated with	732150	1	732900 P 271 T 810 852
	EIU1FAD		732150	1	
ENG 1 CTL VALVE FAULT	EIU1FAD	J7, HMU(BSVSOL), ECU	732150	1	732900 PA243 T 810 876
	IDENT: I	EIU1FAD			<del></del>

EFF: ALL SROS

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WARNINGS/MALFUNCTIONS	L	FAULT ISOLATION			
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!!
ENG 1 CTL VALVE FAULT	EIU1FAD	J7, HMU(HPTCTM), ECU associated with	732150	1	732900 P 267 T 810 850
	EIU1FAD	J8, HMU(HPTCTM), ECU	732150	1	
ENG 1 CTL VALVE FAULT	EIU1FAD	J7, HMU(RAC TM), ECU associated with	732150	1	732900 P 295 T 810 858
	EIU1FAD	J8, HMU(RAC TM), ECU	732150	1	 
ENG 1 CTL VALVE FAULT	EIU1FAD	J8, HMU(BSVSOL), ECU	732150	1	732900 PA245 T 810 877
	IDENT: E	EIU1FAD	<del>_</del>		 
ENG_1 CTL VALVE FAULT	EIU1FAD	NAC VLV (BLD), HMU ENG1A	752310	2	752500 P 247 T 810 835
ENG 1 CTL VALVE FAULT	EIU1FAD	NAC VLV (BLD), HMU ENG1B	752310	2	752500 P 247 T 810 835
ENG 1 CTL VALVE FAULT	EIU1FAD	RAC VLV (BLD), HMU ENG1A	752110	1	752100 P 229 T 810 813
ENG 1 CTL VALVE FAULT	EIU1FAD	RAC VLV (BLD), HMU ENG1B	752110	1	752100 P 233 T 810 821
ENG 1 CTL VALVE FAULT	EIU1FAD	RAC VLV, HMU ENG1A	752310	1	752300 P 201 T 810 805A
ENG 1 CTL VALVE FAULT	EIU1FAD	RAC VLV, HMU ENG1B	752310	1	752300 P 223 T 810 817
ENG 1 CTL VALVE FAULT	EIU1FAD	RAC VLV, J11, ECU associated with	752310	1	752300 P 205 T 810 807A
	EIU1FAD	RAC VLV, J12, ECU	752310	1	
ENG 1 CTL VALVE FAULT	EIU1FAD	TBV VLV, HMU ENG1A	752310	1	752600 P 221 T 810 809
ENG 1 CTL VALVE FAULT	EIU1FAD	TBV VLV, HMU ENG1B	752310	1	752600 P 223 T 810 810
ENG 1 CTL VALVE FAULT		TBV VLV, J11, ECU ENG1A associated with			752600 P 229 T 810 813
	L	TBV VLV, J12, ECU ENG1B	752310 	1	<u>[</u>

EFF: ALL SROS Printed in France **77-ECAM** 

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WARNINGS/MALFUNCTIONS			FAULT - ISOLATION		
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE
ENG 1 EGT DISCREPANCY associated with Upper ECAM DU Flags ENG 1 - "CHECK" message is shown near engine 1 EGT indication					770000 P 201 T 810 823
ENG 1 EGT OVER LIMIT					770000 P 212 T 810 849
ENG 1 EIU FAULT	CFDS	NO EIU1 DATA	732534	1	732000 P 225 T 810 845
	IDENT: (	CFDS, ECAM 1, ECAM 2			1 0 10 045 
ENG 1 EIU FAULT	ECAM 1	FWC1 : NO DATA FROM EIU1	732534	1	732000 P 221 T 810 843
	IDENT: (	CFDS, ECAM 1, ECAM 2	<b></b> _		
ENG 1 EIU FAULT	ECAM 1	FWC2 : NO DATA FROM EIU1	732534	1	732000 P 223
	IDENT: (	CFDS, ECAM 1, ECAM 2	<b></b>		
ENG 1 EIU FAULT	ECAM 2	FWC1 : NO DATA FROM EIU1	732534	1	732000 P 221 T 810 843
 	IDENT: (	CFDS, ECAM 1, ECAM 2	r		
ENG 1 EIU FAULT	ECAM 2	FWC2: NO DATA FROM EIU1	732534	1	732000 P 223 T 810 844
 	IDENT: (	CFDS, ECAM 1, ECAM 2	r		
ENG 1 EIU FAULT	EIU1FAD	CHECK EIU1 ARINC OUTPUT CIRCUIT TO FADEC OR EIU1	732534	1	732500 P 256 T 810 885
ENG 1 EIU FAULT	EIU1FAD	CHECK EIU1 ARINC OUTPUT CIRCUIT TO 199VC OR EIU1		1	732500 P 252 T 810 883
ENG 1 EIU FAULT	EIU1FAD	ECU1 4000KS OR OIL TEMP SENSOR 1 4004EN	732160	1	793200 P 201 T 810 821
ENG 1 EIU FAULT	EIU1FAD	EIU (ARINC), J3 ENG1A	732534	1	715000 P 241 T 810 811
ENG 1 EIU FAULT	EIU1FAD	EIU (ARINC), J3 ENG1B	732534	1	715000 P 277 T 810 832

EFF: ALL

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WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	С	
ENG 1 EIU FAULT	EIU1FAD	EIU1	732534	1	732500 P 214 T 810 853
ENG 1 EIU FAULT	LGCIU 1	L L/G EXT PROX SNSR 21GA	323173	1	323100 PA226 T 810 854
ENG 1 EIU FAULT	LGCIU 1	L L/G EXT PROX SNSR 21GA TGT POS	323173	1	323100 PA226 T 810 854
ENG 1 EIU FAULT	LGCIU 1	R L/G EXT PROX SNSR 20GA	323173	1	323100 PA226 T 810 854
ENG 1 EIU FAULT	LGCIU 1	R L/G EXT PROX SNSR 20GA TGT POS	323173	1	323100 PA226 T 810 854
ENG 1 FADEC A FAULT					770000 P 286 T 810 874
ENG 1 FADEC A FAULT associated with Upper ECAM DU Flags ENG 1 - N2 higher than 15 per cent on ground or in flight					770000 P 288 T 810 875
ENG 1 FADEC A FAULT associated with	AFS	AFS: FADEC1	732160	1	732900 P 240 T 810 821
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'AFS, EIU1FAD	1,		010 021
ENG 1 FADEC A FAULT	AFS	AFS: FADEC1	732160	1	732900 P 240 T 810 821
	IDENT: /	010 021			
ENG 1 FADEC A FAULT	AFS	AFS: FADEC1 associated with	732160	1	732900 P 263 T 810 848
	EIU1FAD	J3 (INSTINCT DISC) ENG1A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES				
WARNINGS/ MALI ONC 110NS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE	
ENG 1 FADEC A FAULT associated with	AFS	AFS: FADEC1 associated with	732160	1	732900 P 263 T 810 848	
AUTO FLT A/THR OFF	EIU1FAD	J3 (INSTINCT DISC) ENG1A	715100	1	010 040	
	!	AFS, ECAM 1, ECAM 2, EIS EIS 2, EIS 3, EIU1FAD	1,			
ENG 1 FADEC A FAULT	AFS	AFS: FADEC1 associated with	732160	1	732900 PB201 T 810 918	
	EIU1FAD	J3 (INSTINCT DISC) ENG1B	715100	1	1 610 716	
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIS 3, EIU1FAD	1,			
ENG_1 FADEC A FAULT associated with	AFS	AFS: FADEC1 associated with	732160	1	732900 PB201 T 810 918	
AUTO FLT A/THR OFF	EIU1FAD	J3 (INSTINCT DISC) ENG1B	715100	1		
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIS 3, EIU1FAD	1,			
ENG 1 FADEC A FAULT associated with AUTO FLT A/THR OFF	ECAM 1	FWC1 : NO DATA FROM ECU1A	732160	1	732900 P 246 T 810 825	
ANTO TEL ANTINO OTT		AFS, ECAM 1, ECAM 2, EIS EIS 3, EIU1FAD	1,			
ENG 1 FADEC A FAULT	ECAM 1	FWC1 : NO DATA FROM ECU1A	732160	1	732900 P 246 T 810 825	
	!	AFS, ECAM 1, ECAM 2, EIS ( EIS 3, EIU1FAD	1,			
ENG 1 FADEC A FAULT	ECAM 1	FWC1 : NO DATA FROM ECU1A	732160	1	732900 P 263 T 810 848	
	EIU1FAD	associated with  J3 (INSTINCT DISC) ENG1A	715100	1		
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIS 3, EIU1FAD	1,			

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT ISOLATION			
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	АТА	С	!
ENG 1 FADEC A FAULT associated with	ECAM 1	ECU1A	732160	1	732900 P 263 T 810 848
AUTO FLT A/THR OFF	EIU1FAD	associated with   J3 (INSTINCT DISC) ENG1A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS of EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT	ECAM 1	FWC1 : NO DATA FROM ECU1A	732160	1	732900 PB201 T 810 918
	EIU1FAD	associated with   J3 (INSTINCT DISC) ENG1B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT associated with	ECAM 1	FWC1 : NO DATA FROM ECU1A	732160	1	732900 PB201 T 810 918
AUTO FLT A/THR OFF	EIU1FAD	associated with   J3 (INSTINCT DISC) ENG1B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS of EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT associated with AUTO FLT A/THR OFF	ECAM 1	FWC2 : NO DATA FROM ECU1A	732160	1	732900 P 245 T 810 824
AUTO FLI AFTHE OFF		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'AFS, EIU1FAD	1,		
ENG 1 FADEC A FAULT	ECAM 1	FWC2 : NO DATA FROM ECU1A	732160	1	732900 P 245 T 810 824
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'AFS, EIU1FAD	1,		
ENG 1 FADEC A FAULT	ECAM 1	FWC2 : NO DATA FROM ECU1A	732160	1	732900 P 263 T 810 848
	EIU1FAD	associated with  J3 (INSTINCT DISC) ENG1A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES				
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	АТА	С	ISOLATION PROCEDURE	
ENG 1 FADEC A FAULT associated with	ECAM 1	ECU1A	732160	1	732900 P 263 T 810 848	
AUTO FLT A/THR OFF	EIU1FAD	associated with J3 (INSTINCT DISC) ENG1A	715100	1		
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIS 3, EIU1FAD	1,			
ENG 1 FADEC A FAULT	ECAM 1	FWC2: NO DATA FROM ECU1A	732160	1	732900 PB201 T 810 918	
	EIU1FAD	associated with J3 (INSTINCT DISC) ENG1B	715100	1		
		AFS, ECAM 1, ECAM 2, EIS 6 EIS 2, EIS 3, EIU1FAD	1,			
ENG 1 FADEC A FAULT associated with	ECAM 1	FWC2 : NO DATA FROM ECU1A	732160	1	732900 PB201 T 810 918	
AUTO FLT A/THR OFF	EIU1FAD	associated with J3 (INSTINCT DISC) ENG1B	715100	1		
		AFS, ECAM 1, ECAM 2, EIS 6 EIS 2, EIS 3, EIU1FAD	1,			
ENG 1 FADEC A FAULT associated with AUTO FLT A/THR OFF	ECAM 2	FWC1 : NO DATA FROM ECU1A	732160	1	732900 P 246 T 810 825	
AUTO PLI AFTHE OFF		AFS, ECAM 1, ECAM 2, EIS EIS 3, EIU1FAD	1,			
ENG 1 FADEC A FAULT	ECAM 2	FWC1 : NO DATA FROM   ECU1A	732160	1	732900 P 246 T 810 825	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,			
ENG 1 FADEC A FAULT	ECAM 2	FWC1 : NO DATA FROM ECU1A associated with	732160	1	732900 P 263 T 810 848	
	EIU1FAD	J3 (INSTINCT DISC) ENG1A	715100	1		
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIS 3, EIU1FAD	1,			

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT ISOLATION			
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!
ENG 1 FADEC A FAULT associated with	ECAM 2	ECU1A	732160	1	732900 P 263 T 810 848
AUTO FLT A/THR OFF	EIU1FAD	associated with   J3 (INSTINCT DISC) ENG1A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS of EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT	ECAM 2	FWC1 : NO DATA FROM ECU1A	732160	1	732900 PB201 T 810 918
	EIU1FAD	associated with   J3 (INSTINCT DISC) ENG1B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT associated with	ECAM 2	FWC1 : NO DATA FROM ECU1A	732160	1	732900 PB201 T 810 918
AUTO FLT A/THR OFF	EIU1FAD	associated with   J3 (INSTINCT DISC) ENG1B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT associated with AUTO FLT A/THR OFF	ECAM 2	FWC2 : NO DATA FROM ECU1A	732160	1	732900 P 245 T 810 824
<del>                                    </del>		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		
ENG 1 FADEC A FAULT	ECAM 2	FWC2 : NO DATA FROM ECU1A	732160	1	732900 P 245 T 810 824
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'AFS, EIU1FAD	1,		
ENG 1 FADEC A FAULT	ECAM 2	FWC2 : NO DATA FROM  ECU1A  associated with	732160	1	732900 P 263 T 810 848
	EIU1FAD	associated with   J3 (INSTINCT DISC) ENG1A 	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES				
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE	
ENG 1 FADEC A FAULT associated with AUTO FLT A/THR OFF		FWC2: NO DATA FROM ECU1A associated with J3 (INSTINCT DISC) ENG1A			732900 P 263 T 810 848	
	IDENT:	AFS, ECAM 1, ECAM 2, EIS 6 EIS 2, EIS 3, EIU1FAD	<u> </u>			
ENG 1 FADEC A FAULT		FWC2 : NO DATA FROM ECU1A associated with J3 (INSTINCT DISC) ENG1B			732900 PB201 T 810 918	
		AFS, ECAM 1, ECAM 2, EIS ' EIS 2, EIS 3, EIU1FAD	1,			
ENG 1 FADEC A FAULT associated with AUTO FLT A/THR OFF		FWC2: NO DATA FROM ECU1A associated with J3 (INSTINCT DISC) ENG1B			732900 PB201 T 810 918	
		AFS, ECAM 1, ECAM 2, EIS 6 EIS 2, EIS 3, EIU1FAD	1,			
ENG 1 FADEC A FAULT associated with	EIS 1	DMC 1 : NO ECU 1 A DATA	732160		732900 P 241 T 810 822	
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'AFS, EIU1FAD	1,		010 022	
ENG 1 FADEC A FAULT	EIS 1	DMC 1 : NO ECU 1 A DATA	732160		732900 P 241 T 810 822	
	IDENT: /	010 022				
ENG 1 FADEC A FAULT	EIS 1	DMC 1 : NO ECU 1 A DATA associated with J3 (INSTINCT DISC) ENG1A			732900 P 263 T 810 848	
	!	AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,			

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WARNINGS/MALFUNCTIONS	<u></u>	CFDS FAULT MESSAGES	 S		FAULT
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 1 FADEC A FAULT associated with	EIS 1	DMC 1 : NO ECU 1 A DATA associated with	732160	1	732900 P 263 T 810 848
AUTO FLT A/THR OFF	EIU1FAD	J3 (INSTINCT DISC) ENG1A	715100	1	010 040
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT	EIS 1	DMC 1 : NO ECU 1 A DATA associated with	732160	1	732900 PB201 T 810 918
	EIU1FAD	J3 (INSTINCT DISC) ENG1B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT associated with	EIS 1	DMC 1 : NO ECU 1 A DATA associated with	732160	1	732900 PB201 T 810 918
AUTO FLT A/THR OFF	EIU1FAD	J3 (INSTINCT DISC) ENG1B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT	EIS 2	DMC2 : NO ECU1A DATA associated with	732160	1	732900 P 263
	EIU1FAD	J3 (INSTINCT DISC) ENG1A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT associated with	EIS 2	DMC2 : NO ECU1A DATA associated with	732160	1	732900 P 263 T 810 848
AUTO FLT A/THR OFF	EIU1FAD	J3 (INSTINCT DISC) ENG1A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT	EIS 2	DMC2 : NO ECU1A DATA associated with	732160	1	732900 PB201 T 810 918
	EIU1FAD	J3 (INSTINCT DISC) ENG1B	715100	1	
	!	AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	Ţ		FAULT ISOLATION		
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	:
ENG 1 FADEC A FAULT associated with AUTO FLT A/THR OFF	EIS 2	DMC2 : NO ECU1A DATA associated with J3 (INSTINCT DISC) ENG1B			732900 PB201 T 810 918
		AFS, ECAM 1, ECAM 2, EIS ' EIS 2, EIS 3, EIU1FAD	1,	L	
ENG 1 FADEC A FAULT associated with	EIS 3	DMC3 : NO ECU1A DATA	732160	1	732900 P 243 T 810 823
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		1 610 623
ENG 1 FADEC A FAULT	EIS 3	DMC3 : NO ECU1A DATA	732160	1	732900 P 243 T 810 823
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		1 610 623
ENG 1 FADEC A FAULT	EIS 3	DMC3 : NO ECU1A DATA associated with	732160	1	732900 P 263 T 810 848
	EIU1FAD	J3 (INSTINCT DISC) ENG1A	715100	1	1 0 10 040   
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT associated with AUTO FLT A/THR OFF	EIS 3	DMC3: NO ECU1A DATA associated with J3 (INSTINCT DISC) ENG1A			732900 P 263 T 810 848
ASTO TET ATTING OTT	IDENT:	AFS, ECAM 1, ECAM 2, EIS 6	Ĺj	L <u>.</u>	
ENG 1 FADEC A FAULT	EIS 3	DMC3 : NO ECU1A DATA associated with	732160	1	732900 PB201 T 810 918
	EIU1FAD	J3 (INSTINCT DISC) ENG1B	715100	1	1 610 716 
	!	AFS, ECAM 1, ECAM 2, EIS 6 EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT associated with	EIS 3	DMC3 : NO ECU1A DATA associated with	732160	1	732900 PB201 T 810 918
AUTO FLT A/THR OFF	EIU1FAD	J3 (INSTINCT DISC) ENG1B	715100	1	1 0 10 7 10   
	!	AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 2, EIS 3, EIU1FAD	1,		

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	WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES				
	WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION   PROCEDURE	
R	ENG 1 FADEC A FAULT	EIU1FAD	ADC1+ADC2+LGCIU1 ENG1A	341234	1	770000 PA226 T 810 910	
	ENG 1 FADEC A FAULT	EIU1FAD	ALT, ECU, J9	771130	1	771000 P 201 T 810 809	
	ENG 1 FADEC A FAULT	EIU1FAD	ECU (ACI FAULT) ENG1A	732160	1	732081 P 249 T 810 855	
	ENG 1 FADEC A FAULT	EIU1FAD	ECU (CC DISCRETES) ENG1A	732160	1	732081 P 243 T 810 845	
	ENG 1 FADEC A FAULT	EIU1FAD	ECU (CCDL) ENG1A	732160	1	732081 P 215 T 810 815	
R	ENG 1 FADEC A FAULT	EIU1FAD	ECU (CHAN SYNCH) ENG1A	732160	1	732081 P 263 T 810 870	
	ENG 1 FADEC A FAULT	EIU1FAD	ECU (CPU FAULT) ENG1A	732160	1	732081 P 235 T 810 835	
	ENG 1 FADEC A FAULT	EIU1FAD	ECU (CPU FAULT) ENG1B	732160	1	732081 P 279 T 810 886	
	ENG 1 FADEC A FAULT	EIU1FAD	ECU (DATA ACQN) ENG1A	732160	1	732081 P 247 T 810 853	
	ENG 1 FADEC A FAULT	EIU1FAD	ECU (MASTER DISC) ENG1A	732160	1	732081 P 223 T 810 823	
	ENG 1 FADEC A FAULT	EIU1FAD	ECU (SYNCH W/A) ENG1A	732160	1	732081 P 227 T 810 827	
	ENG 1 FADEC A FAULT	EIU1FAD	ECU (TC JUNCTION) ENG1A	732160	1	732081 P 219 T 810 819	
	ENG 1 FADEC A FAULT	EIU1FAD	ECU (X CHANNEL) ENG1B	771130	1	771000 PA213 T 810 847	
	ENG 1 FADEC A FAULT	EIU1FAD	ECU (15 VDC FAULT) ENG1A	732160	1	732081 P 239 T 810 841	
	ENG 1 FADEC A FAULT	EIU1FAD	ECU (15 VDC FAULT) ENG1B	732160	1	732081 P 240 T 810 842	

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WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!
ENG 1 FADEC A FAULT	EIU1FAD	ECU (25 VDC FAULT) ENG1A	732160	1	732081 P 205 T 810 805
ENG 1 FADEC A FAULT	EIU1FAD	ECU (25 VDC FAULT) ENG1B	732160	1	732081 P 206 T 810 806
ENG 1 FADEC A FAULT	EIU1FAD	ECU, EIU-28V, J2	732160	1	732000 P 233 T 810 849
ENG 1 FADEC A FAULT	EIU1FAD	EIU1 : NO FADEC 1 A DATA	732160	1	732500 P 203 T 810 827
ENG 1 FADEC A FAULT associated with	EIU1FAD	EIU1 : NO FADEC 1 A DATA	732160	1	732900 P 239 T 810 820
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		0.0 020
ENG 1 FADEC A FAULT	EIU1FAD	EIU1 : NO FADEC 1 A DATA	732160	1	732900 P 239 T 810 820
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		
ENG 1 FADEC A FAULT	EIU1FAD	EIU1 : NO FADEC 1 A DATA associated with	732160	1	732900 P 263 T 810 848
	EIU1FAD	J3 (INSTINCT DISC) ENG1A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT	EIU1FAD	EIU1 : NO FADEC 1 A DATA associated with	732160	1	732900 P 263 T 810 848
AUTO FLT A/THR OFF	EIU1FAD	J3 (INSTINCT DISC) ENG1A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT	EIU1FAD	EIU1 : NO FADEC 1 A DATA associated with	732160	1	732900 PB201 T 810 918
	EIU1FAD	J3 (INSTINCT DISC) ENG1B	715100	1	
	!	AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU1FAD	1,		

EFF: ALL

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LIADNINGS /MALEUNGTIONS			FAULT ISOLATION		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!
ENG 1 FADEC A FAULT associated with AUTO FLT A/THR OFF		EIU1 : NO FADEC 1 A DATA associated with J3 (INSTINCT DISC) ENG1B		İ	732900 PB201 T 810 918
AUTO FLI A/THR OFF	<u> </u>	L	Ĺ	L	
		AFS, ECAM 1, ECAM 2, EIS ' EIS 2, EIS 3, EIU1FAD	1,		
ENG 1 FADEC A FAULT associated with ENG 1 FADEC B FAULT	EIU1FAD	J14(ID FAULT), ECU	732150	1	732000 PB237 T 810 973
ENG 1 FADEC A FAULT	EIU1FAD	J14(ID FAULT), ECU	732150	1	732000 PB237 T 810 973
ENG 1 FADEC A FAULT associated with ENG 1 FADEC B FAULT	EIU1FAD	J14(WRONG), BSV(CL)	732150	1	732000 PB241 T 810 976
ENG 1 FADEC A FAULT	EIU1FAD	J14(WRONG), BSV(CL)	732150	1	732000 PB241 T 810 976
ENG 1 FADEC A FAULT associated with ENG 1 FADEC B FAULT	EIU1FAD	J14(WRONG), BSV, ECU	732150	1	732000 PB239 T 810 974
ENG 1 FADEC A FAULT	EIU1FAD	J14(WRONG), BSV, ECU	732150	1	732000 PB239 T 810 974
ENG 1 FADEC A FAULT	EIU1FAD	J14, ECU (ENG IDENT) ENG1A	732150	1	732000 PA227 T 810 913
ENG 1 FADEC A FAULT	EIU1FAD	J14, ECU (ENG IDENT) ENG1B	732150	1	732000 PB201 T 810 957
ENG 1 FADEC ALTERNATOR	EIU1FAD	ALT, J10, ECU	771130	1	771000 P 291 T 810 839
ENG 1 FADEC ALTERNATOR	EIU1FAD	ALT, J9, ECU	771130	1	771000 P 277 T 810 837
ENG 1 FADEC B FAULT					770000 P 290 T 810 876

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WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES				
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	АТА	С	ISOLATION PROCEDURE	
ENG 1 FADEC B FAULT associated with Upper ECAM DU Flags ENG 1 - N2 higher than 15 per cent on ground or in flight					770000 P 292 T 810 877	
ENG 1 FADEC B FAULT associated with	AFS	AFS: FADEC1	732160		732900 P 248 T 810 827	
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU1FAD	1,			
ENG 1 FADEC B FAULT	AFS	AFS: FADEC1	732160		732900 P 248 T 810 827	
	IDENT: AFS, ECAM 1, ECAM 2, EIS 1, EIS 2, EIU1FAD				010 021	
ENG 1 FADEC B FAULT associated with AUTO FLT A/THR OFF	ECAM 1	FWC1 : NO DATA FROM ECU1B	732160	1	732900 P 254 T 810 831	
AUTO FLI AFTHE OFF		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU1FAD	1,			
ENG 1 FADEC B FAULT	ECAM 1	FWC1 : NO DATA FROM ECU1B	732160	1	732900 P 254 T 810 831	
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU1FAD	1,			
ENG 1 FADEC B FAULT associated with AUTO FLT A/THR OFF	ECAM 1	FWC2 : NO DATA FROM ECU1B	732160	1	732900 P 253 T 810 830	
ANTIC TET ANTIR OFF		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU1FAD	1,			
ENG 1 FADEC B FAULT	ECAM 1	FWC2 : NO DATA FROM ECU1B	732160	1	732900 P 253 T 810 830	
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU1FAD	1,			
ENG 1 FADEC B FAULT associated with AUTO FLT A/THR OFF	ECAM 2	FWC1 : NO DATA FROM ECU1B	732160	1	732900 P 254 T 810 831	
7, 111 A, 1111 VIII	!	AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU1FAD	1,			

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS			FAULT ISOLATION			
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	АТА	С	PROCEDURE	
ENG 1 FADEC B FAULT	ECAM 2	FWC1 : NO DATA FROM ECU1B	732160	1	732900 P 254 T 810 831	
		AFS, ECAM 1, ECAM 2, EIS ( EIS 2, EIU1FAD	1,			
ENG 1 FADEC B FAULT associated with AUTO FLT A/THR OFF	ECAM 2	FWC2 : NO DATA FROM ECU1B	732160	1	732900 P 253 T 810 830	
AUTO PET AFTER OFF		AFS, ECAM 1, ECAM 2, EIS ( EIS 2, EIU1FAD	1,	_		
ENG 1 FADEC B FAULT	ECAM 2	FWC2 : NO DATA FROM ECU1B	732160	1	732900 P 253 T 810 830	
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU1FAD	1,			
ENG_1 FADEC B FAULT associated with	EIS 1	DMC 1 : NO ECU 1 B DATA	732160		732900 P 251 T 810 829	
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS ' EIS 2, EIU1FAD	1,		010 027	
ENG 1 FADEC B FAULT	EIS 1	DMC 1 : NO ECU 1 B DATA	732160		732900 P 251 T 810 829	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,			
ENG 1 FADEC B FAULT associated with	EIS 2	DMC2 : NO ECU1B DATA	732160		732900 P 249 T 810 828	
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,			
ENG 1 FADEC B FAULT	EIS 2	DMC2 : NO ECU1B DATA	732160	1	732900 P 249 T 810 828	
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU1FAD	1,		010 020	
ENG 1 FADEC B FAULT	EIU1FAD	ADC1+ADC2+LGCIU1 ENG1B	341234	1	770000 PA226 T 810 910	
ENG 1 FADEC B FAULT	EIU1FAD	ALT, ECU, J10	771130	1	771000 P 205 T 810 811	
ENG 1 FADEC B FAULT	EIU1FAD	ECU (ACI FAULT) ENG1B	732160	1	732081 P 283 T 810 894	

EFF: ALL

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## TROUBLE SHOOTING MANUAL

	WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES				
	WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (CC DISCRETES) ENG1B	732160	1	732081 P 244 T 810 846	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (CCDL) ENG1B	732160	1	732081 P 216 T 810 816	
R R	ENG 1 FADEC B FAULT	EIU1FAD	ECU (CHAN SYNCH) ENG1B ENG1	732160	1	732081 P 264 T 810 871	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (CPU FAULT) ENG1A	732160	1	732081 P 235 T 810 835	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (CPU FAULT) ENG1B	732160	1	732081 P 279 T 810 886	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (DATA ACQN) ENG1B	732160	1	732081 P 281 T 810 892	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (MASTER DISC) ENG1B	732160	1	732081 P 224 T 810 824	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (SYNCH W/A) ENG1B	732160	1	732081 P 228 T 810 828	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (TC JUNCTION) ENG1B	732160	1	732081 P 220 T 810 820	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (X CHANNEL) ENG1A	771130	1	771000 PA205 T 810 841	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (15 VDC FAULT) ENG1A	732160	1	732081 P 240 T 810 842	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (15 VDC FAULT) ENG1B	732160	1	732081 P 240 T 810 842	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (25 VDC FAULT) ENG1A	732160	1	732081 P 206 T 810 806	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU (25 VDC FAULT) ENG1B	732160	1	732081 P 206 T 810 806	
	ENG 1 FADEC B FAULT	EIU1FAD	ECU, EIU-28V, J1	732160	1	732000 P 236 T 810 850	

EFF: ALL SROS

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WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES					
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	АТА	С	ISOLATION PROCEDURE	
ENG 1 FADEC B FAULT	EIU1FAD	EIU1 : NO FADEC 1 B DATA	732160	1	732500 P 206 T 810 845	
ENG 1 FADEC B FAULT associated with	EIU1FAD	EIU1 : NO FADEC 1 B DATA	732160	1	732900 P 247 T 810 826	
AUTO FLT A/THR OFF	!	AFS, ECAM 1, ECAM 2, EIS	1,			
ENG 1 FADEC B FAULT	EIU1FAD	EIU1 : NO FADEC 1 B DATA	732160	1	732900 P 247 T 810 826	
	!	AFS, ECAM 1, ECAM 2, EIS	1,			
ENG 1 FADEC B FAULT associated with ENG 1 FADEC A FAULT	EIU1FAD	J14(ID FAULT), ECU	732150	1	732000 PB237 T 810 973	
ENG 1 FADEC B FAULT	EIU1FAD	J14(ID FAULT), ECU	732150	1	732000 PB237 T 810 973	
ENG 1 FADEC B FAULT associated with ENG 1 FADEC A FAULT	EIU1FAD	J14(WRONG), BSV(CL)	732150	1	732000 PB241 T 810 976	
ENG 1 FADEC B FAULT	EIU1FAD	J14(WRONG), BSV(CL)	732150	1	732000 PB241 T 810 976	
ENG 1 FADEC B FAULT associated with ENG 1 FADEC A FAULT	EIU1FAD	J14(WRONG), BSV, ECU	732150	1	732000 PB239 T 810 974	
ENG 1 FADEC B FAULT	EIU1FAD	J14(WRONG), BSV, ECU	732150	1	732000 PB239 T 810 974	
ENG 1 FADEC B FAULT	EIU1FAD	J14, ECU (ENG IDENT) ENG1A	732150	1	732000 PA227 T 810 913	
ENG 1 FADEC B FAULT	EIU1FAD	J14, ECU (ENG IDENT) ENG1B	732150	1	732000 PB201 T 810 957	
ENG 1 FADEC FAULT					770000 PA202 T 810 882	

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES				FAULT
	SOURCE	MESSAGE	АТА	С	ISOLATION PROCEDURE
ENG 1 FADEC FAULT associated with Upper ECAM DU Flags ENG 1 - N2 higher than 15 per cent on ground or in flight					770000 PA204 T 810 883
ENG 1 FADEC FAULT	EIU1FAD	CHECK ECU1 A1 AND B1 BUS OR EIU1	732534	1	732500 P 204 T 810 843
ENG 1 FADEC FAULT	EIU1FAD	ECU (ARINC OUT) ENG1A	732160	1	732081 P 203 T 810 803
ENG 1 FADEC FAULT	EIU1FAD	ECU (ARINC OUT) ENG1B	732160	1	732081 P 267 T 810 874
ENG 1 FADEC FAULT	EIU1FAD	ECU (CCDL) ENG1A	732160	1	732081 P 213 T 810 813
ENG 1 FADEC FAULT	EIU1FAD	ECU (CCDL) ENG1B	732160	1	732081 P 297 T 810 908
ENG 1 FADEC HI TEMP		COOL VLV, J7, ECU associated with COOL VLV, J8, ECU	752420 752420		752400 P 201 T 810 805
ENG 1 FADEC HI TEMP	EIU1FAD	ECU (OVERTEMP) ENG1A	752410	1	732081 P 209 T 810 809
ENG 1 FADEC HI TEMP	EIU1FAD	ECU (OVERTEMP) ENG1B	752410	1	732081 P 273 T 810 880
ENG 1 FAIL					720000 P 211 T 810 806
ENG 1 FF DISCREPANCY					730000 P 201 T 810 859
ENG 1 FF DISCREPANCY associated with Upper ECAM DU Flags ENG 1 - "CHECK" message is shown near engine 1 FF indication					730000 P 205 T 810 861

EFF: ALL
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### TROUBLE SHOOTING MANUAL

HARNINGS (MALIFINISTICS)	CFDS FAULT MESSAGES				FAULT
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 1 FUEL CTL FAULT	EIU1FAD	HMU (FMV) ENG1A	731110	1	731000 P 201 T 810 801
ENG 1 FUEL CTL FAULT	EIU1FAD	HMU (FMV) ENG1A	732110	1	731000 P 201 T 810 801
ENG 1 FUEL CTL FAULT	EIU1FAD	HMU (FMV) ENG1B	731110	1	731000 P 287 T 810 835
ENG 1 FUEL CTL FAULT	EIU1FAD	HMU (FMV) ENG1B	732110	1	731000 P 287 T 810 835
ENG 1 FUEL CTL FAULT	EIU1FAD	J7, HMU(FMV TM), ECU associated with	732150	1	732900 P 285 T 810 856
	EIU1FAD	J8, HMU(FMV TM), ECU	732150	1	
ENG 1 FUEL CTL FAULT	EIU1FAD	J7, HMU(FMV TM), ECU	732150	1	732900 PA223 T 810 868
ENG 1 FUEL CTL FAULT	EIU1FAD	J7, HMU(FMVRES), ECU associated with	732150	1	732900 P 275 T 810 854
	EIU1FAD		732150	1	L
ENG 1 FUEL CTL FAULT	EIU1FAD	J7, HMU(FMVRES), ECU associated with	732150	1	732900 P 295 T 810 858
	EIU1FAD		732150	1	
ENG 1 FUEL CTL FAULT	EIU1FAD	J7, HMU(FMVRES), ECU	732150	1	732900 PA211 T 810 864
	IDENT: I	L			
ENG 1 FUEL CTL FAULT	EIU1FAD	J8, HMU(FMV TM), ECU	732150	1	732900 PA226 T 810 869
ENG 1 FUEL CTL FAULT	EIU1FAD	J8, HMU(FMVRES), ECU	732150	1	732900 PA214 T 810 865
	IDENT: I				
ENG 1 FUEL FILTER CLOG associated with Lower ECAM DU Flags- ENGINE ENG 1 FUEL - F. FILTER CLOG					730000 P 237 T 810 875

EFF: ALL

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### TROUBLE SHOOTING MANUAL

	WARNITHOS (MAL FUNCTIONS			FAULT ISOLATION		
	WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!!
	ENG 1 FUEL RETURN VALVE	EIU1FAD	FRV (CLOSED), J7, ECU	731150	1	731000 P 231 T 810 817
R	ENG 1 FUEL RETURN VALVE	EIU1FAD	FRV (CLOSED), J8, ECU	731150	1	731000 P 235 T 810 819
	ENG 1 FUEL RETURN VALVE	EIU1FAD	FRV (OPEN), J7, ECU	731150	1	731000 P 223 T 810 813
	ENG 1 FUEL RETURN VALVE	EIU1FAD	FRV (OPEN), J8, ECU	731150	1	731000 P 227 T 810 815
	ENG 1 HP FUEL VALVE associated with ENG1 - During engine start sequence: engine starts then shuts down					761200 P 206 T 810 810
	<pre>ENG 1 HP FUEL VALVE associated with ENG1 - During engine start sequence: ENG does not spoll up to idle</pre>					761200 P 210 T 810 812
	ENG 1 HP FUEL VALVE associated with ENG1 - During normal ENG shut down sequence: ENG does not stop					761200 P 214 T 810 814
	ENG 1 HP FUEL VALVE associated with ENG1 - During normal engine operation: engine stops					761200 P 218 T 810 816
	ENG_1 HP FUEL VALVE associated with ENG1 - During engine start sequence: engine starts then shuts down	EIU1FAD	MASTER LEVER, HMU ENG1A	761200	1	761200 P 206 T 810 810

EFF: ALL SROS

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#### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION	
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE	
ENG 1 HP FUEL VALVE associated with ENG1 - During engine start sequence: ENG does not spoll up to idle	EIU1FAD	MASTER LEVER, HMU ENG1A	761200	1	761200 P 210 T 810 812	
ENG 1 HP FUEL VALVE associated with ENG1 - During normal ENG shut down sequence: ENG does not stop	EIU1FAD	MASTER LEVER, HMU ENG1A	761200	1	761200 P 214 T 810 814	
ENG 1 HP FUEL VALVE associated with ENG1 - During normal engine operation: engine stops	EIU1FAD	MASTER LEVER, HMU ENG1A	761200	1	761200 P 218 T 810 816	
ENG 1 HP FUEL VALVE	EIU1FAD	MASTER LEVER, HMU ENG1A	761200	1	761200 P 222 T 810 828	
ENG 1 HP FUEL VALVE associated with ENG1 - During engine start sequence: engine starts then shuts down	EIU1FAD	MASTER LEVER, HMU ENG1B	761200	1	761200 P 206 T 810 810	
ENG 1 HP FUEL VALVE associated with ENG1 - During engine start sequence: ENG does not spoll up to idle	EIU1FAD	MASTER LEVER, HMU ENG1B	761200	1	761200 P 210 T 810 812	
ENG 1 HP FUEL VALVE associated with ENG1 - During normal ENG shut down sequence: ENG does not stop	EIU1FAD	MASTER LEVER, HMU ENG1B	761200	1	761200 P 214 T 810 814	
ENG 1 HP FUEL VALVE associated with ENG1 - During normal engine operation: engine stops	EIU1FAD	MASTER LEVER, HMU ENG1B	761200	1	761200 Р 218 Т 810 816	

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	F	CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!
ENG 1 HP FUEL VALVE	EIU1FAD	MASTER LEVER, HMU ENG1B	761200	1	761200 P 222 T 810 828
ENG 1 IGN A FAULT	EIU1FAD	IGN 1, ECU ENG1A	740000	1	740000 P 201 T 810 801
ENG 1 IGN A FAULT	EIU1FAD	IGN 1, ECU ENG1B	740000	1	740000 P 201 T 810 801
ENG 1 IGN A FAULT	EIU1FAD	J1, 115 VAC, ECU ENG1A	715100	1	715000 P 201 T 810 801
ENG 1 IGN A FAULT associated with ENG 2 IGN A FAULT	EIU1FAD	J1, 115 VAC, ECU ENG1A	715100	1	715000 P 201 T 810 801
ENG 1 IGN A FAULT	EIU1FAD	J1, 115 VAC, ECU ENG1B	715100	1	715000 P 257 T 810 824
ENG 1 IGN A FAULT associated with ENG 2 IGN A FAULT	EIU2FAD	J1, 115 VAC, ECU ENG2A	715100	1	715000 P 204 T 810 802
ENG 1 IGN A+B FAULT		IGN 1, ECU ENG1A associated with IGN2, ECU ENG1A	740000 740000	İ	740000 P 213 T 810 805
ENG 1 IGN A+B FAULT		IGN 1, ECU ENG1B associated with IGN 2, ECU ENG1B	740000 740000	İ	740000 P 213 T 810 805
ENG 1 IGN A+B FAULT	EIU1FAD	115VU (MASTER LEVER1 SW)	761215	1	761200 P 201 T 810 805
ENG 1 IGN B FAULT	EIU1FAD	IGN 2, ECU ENG1B	740000	1	740000 P 207 T 810 803
ENG 1 IGN B FAULT	EIU1FAD	IGN2, ECU ENG1A	740000	1	740000 P 207 T 810 803
ENG 1 IGN B FAULT	EIU1FAD	J2, 115 VAC, ECU ENG1A	715100	1	715000 P 207 T 810 803
ENG 1 IGN B FAULT associated with ENG 2 IGN B FAULT	EIU1FAD	J2, 115 VAC, ECU ENG1A	715100	1	715000 P 207 T 810 803

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES					FAULT ISOLATION		
WARNINGS/ MALFUNCTIONS	SOURCE		MESSA	GE		ATA	С	
ENG 1 IGN B FAULT	EIU1FAD	J2, 115	VAC,	ECU	ENG1B	715100	1	715000 P 263 T 810 826
ENG 1 IGN B FAULT associated with ENG 2 IGN B FAULT	EIU2FAD	J2, 115	VAC,	ECU	ENG2A	715100	1	715000 P 210 T 810 804
ENG 1 LOW N1								730000 P 207 T 810 863
ENG 1 N1 DISCREPANCY								770000 P 205 T 810 827
ENG 1 N1 DISCREPANCY associated with Upper ECAM DU Flags ENG 1 - "CHECK" message is shown near engine 1 N1 indication								770000 P 205 T 810 827
ENG 1 N1 OVER LIMIT								770000 P 223 Т 810 850
ENG 1 N2 DISCREPANCY								770000 P 207 T 810 831
ENG 1 N2 DISCREPANCY associated with Upper ECAM DU Flags ENG 1 - "CHECK" message is shown near engine 1 N2 indication								770000 P 207 T 810 831
ENG 1 N2 OVER LIMIT								770000 P 228 T 810 851
ENG_1 OIL FILTER CLOG associated with Lower ECAM DU Flags- ENGINE OIL ENG 1 - Oil filter clog								790000 P 226 T 810 820
ENG 1 OIL HI TEMP	EIU1FAD	OIL TEM	P SENS	OR 1	4004EN	793215	1	790000 P 201 T 810 805

EFF :	 ALL	 	
SROS			
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	WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION	
	WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!	
R	ENG_1 OIL LO PR associated with Lower ECAM DU Flags- ENGINE OIL ENG 1 - Oil PRESS indication flashes green on ENG 1					790000 P 206 T 810 807	
R	ENG 1 OIL LO PR					790000 P 248 T 810 836	
	ENG 1 ONE TLA FAULT	EIU1FAD	TLA SNSR, J3, ECU	761117	1	761100 P 213 T 810 805	
	ENG 1 ONE TLA FAULT	EIU1FAD	TLA SNSR, J4, ECU	761117	1	761100 P 219 T 810 807	
	ENG 1 OVSPD PROT FAULT	EIU1FAD	HMU (OSG), J7 ENG1A	732110	1	732000 P 201 T 810 837	
	ENG 1 OVSPD PROT FAULT	EIU1FAD	HMU (OSG), J7 ENG1B	732110	1	732000 PA268 T 810 941	
	ENG 1 OVTHR PROT FAULT	EIU1FAD	ECU (TCMA RELAY) ENG1A	732160	1	732000 PB247 T 810 979	
	ENG 1 OVTHR PROT FAULT	EIU1FAD	ECU (TCMA RELAY) ENG1B	732160	1	732000 PB247 T 810 979	
	ENG 1 OVTHR PROT FAULT	EIU1FAD	RLY (27KS1/28KS1)	279200	1	732000 PB248 T 810 980	
	ENG 1 PROBES FAULT		ECU (PO SENSOR) ENG1A associated with ECU (PO SENSOR) ENG1B	732160 732160		732081 P 201 T 810 801	
	ENG 1 PROBES FAULT		ECU (PO SENSOR) ENGIA		ļ	732081 P 201 T 810 801	
	ENG 1 PROBES FAULT	EIU1FAD	ECU (PO SENSOR) ENG1A	732160	1	732081 P 201	
		IDENT: 6	EIU1FAD			T 810 801	
	ENG 1 PROBES FAULT	EIU1FAD	ECU (PO SENSOR) ENG1B	732160	1	732081 P 271 T 810 878	

EFF :	ALL		
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HARNINGS /MALEUNGTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION	
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С		
ENG 1 PROBES FAULT	EIU1FAD	ECU (PS12 SENSOR) ENG1A associated with	732160	1	732000 P 281 T 810 865	
	EIU1FAD		732160	1		
ENG 1 PROBES FAULT	EIU1FAD	ECU (PS12 SENSOR) ENG1A	732160	1	732000 P 281 T 810 865	
ENG 1 PROBES FAULT	EIU1FAD	ECU (PS12 SENSOR) ENG1A	732160		732000 P 281 T 810 865	
	IDENT:	EIU1FAD				
ENG 1 PROBES FAULT	EIU1FAD	ECU (PS12 SENSOR) ENG1B	732160	1	732000 PA278 T 810 947	
ENG 1 PROBES FAULT	EIU1FAD	ECU (PS12 SENSOR) ENG1B	732160		732000 PA278	
	IDENT:	EIU1FAD				
ENG 1 PROBES FAULT	EIU1FAD	ECU (PO SENSOR) ENG1B	732160		732081 P 271	
	IDENT:	EIU1FAD				
ENG 1 PROBES FAULT	EIU1FAD	T12 SNSR, J10, ECU	732140		732000 P 275 T 810 863	
	IDENT:	EIU1FAD				
ENG 1 PROBES FAULT	EIU1FAD	T12 SNSR, J10, ECU ENG1B	732140	2	732000 P 275 T 810 863	
ENG 1 PROBES FAULT	EIU1FAD	T12 SNSR, J9, ECU associated with	732140	1	732000 P 263 T 810 859	
	EIU1FAD	T12 SNSR, J10, ECU	732140	1		
ENG 1 PROBES FAULT	EIU1FAD	T12 SNSR, J9, ECU associated with	732140	1	732000 PA255 T 810 923	
	EIU1FAD	T12 SNSR, J10, ECU	732140	1	L	
ENG 1 PROBES FAULT	EIU1FAD	T12 SNSR, J9, ECU	732140	1	732000 P 269 T 810 861	
	IDENT:					
ENG 1 REV ISOL FAULT	EIU1FAD	TR ISOL VALVE, HCU ENG1A	783753	1	783100 PA215 T 810 861	
ENG 1 REV ISOL FAULT	EIU1FAD	TR ISOL VALVE, HCU ENG1B	783753	1	783100 PA215 T 810 861	

EFF: ALL

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LIADNINGS /MALEUNCTIONS	[   		FAULT ISOLATION		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE
ENG 1 REV PRESSURIZED	EIU1FAD	HCU (TRPV), HYD ENG1A	783153	1	783100 P 201 T 810 801
ENG 1 REV PRESSURIZED	EIU1FAD	HCU (TRPV), HYD ENG1B	783153	1	783100 P 291 T 810 853
ENG 1 REV PRESSURIZED		HCU (TRPV), J5, ECU associated with HCU (TRPV), J6, ECU	783151 783151		783100 P 235 T 810 823
 				<u>'</u>	 
ENG 1 REV PRESSURIZED	EIU1FAD	HCU(TRPV OPEN) ENG1A	783153	1	783100 PA207 T 810 857
ENG 1 REV PRESSURIZED	EIU1FAD	HCU(TRPV OPEN) ENG1B	783153	1	783100 PA207 T 810 857
ENG 1 REV PRESSURIZED	EIU1FAD	TR PR SW, J5+J6, ECU	783116	1	783100 PA242 T 810 877
ENG 1 REV PRESSURIZED	EIU1FAD	TR PR SW, J5+J6, ECU ENG1A	783116	1	783100 PA211 T 810 859
ENG 1 REV PRESSURIZED	EIU1FAD	TR PR SW, J5+J6, ECU ENG1B	783116	1	783100 PA211 T 810 859
ENG 1 REV PRESSURIZED	EIU1FAD	TR PR SW, J5/J6, ECU ENG1A	783116	1	783100 P 229 T 810 821
ENG 1 REV PRESSURIZED	EIU1FAD	TR PR SW, J5/J6, ECU ENG1B	783116	1	783100 P 229 T 810 821
ENG 1 REV SWITCH FAULT	EIU1FAD	J5, TR ACFT SW, ECU	715100	1	715000 P 213 T 810 805
ENG 1 REV SWITCH FAULT	EIU1FAD	J6, TR ACFT SW, ECU	715100	1	715000 P 225 T 810 807
ENG 1 REVERSE UNLOCKED					783100 PA219 T 810 863
ENG 1 REVERSER FAULT associated with ENG 1 - REVERSER FAULT at engine shut-down					783100 PA227 T 810 867

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	АТА	С	!!
ENG 1 REVERSER FAULT	EIU1FAD	DEPL SW, J5/J6, ECU ENG1A	783117	1	783100 P 265 T 810 843
	  EIU1FAD 	associated with  DEPL SW, J5/J6, ECU  ENG1B	783117	1	
ENG 1 REVERSER FAULT	EIU1FAD	DPLSTW SW, J5/J6, ECU ENG1A associated with	783100	1	783100 P 251 T 810 835
	EIU1FAD	DPLSTW SW, J5/J6, ECU ENG1B	783100	1	
ENG 1 REVERSER FAULT	EIU1FAD	DPLSTW SW, J5/J6, ECU ENG1A	783100	1	783100 P 273 T 810 845
ENG 1 REVERSER FAULT	EIU1FAD	EIU, HCU ENG1A	732534	1	783100 PA234 T 810 871
ENG 1 REVERSER FAULT	EIU1FAD	EIU, HCU ENG1A	732534	1	783100 PA238 T 810 875
ENG 1 REVERSER FAULT	EIU1FAD	EIU, HCU ENG1B	732534	1	783100 PA234 T 810 871
ENG 1 REVERSER FAULT	EIU1FAD	EIU, HCU ENG1B	732534	1	783100 PA238 T 810 875
ENG 1 REVERSER FAULT	EIU1FAD	EIU, LGCIU(WOW) ENG1A	732534	1	732500 PA202 T 810 916
ENG 1 REVERSER FAULT	EIU1FAD	EIU, LGCIU(WOW) ENG1B	732534	1	732500 PA202 T 810 916
ENG 1 REVERSER FAULT	EIU1FAD	HCU (TRDV), J5, ECU associated with	783151	1	783100 P 207
	EIU1FAD	HCU (TRDV), J6, ECU	783151	1	
ENG 1 REVERSER FAULT associated with STS-Maintenance ENG 1 FADEC	EIU1FAD	HCU (TRDV), J5, ECU	783151	1	783100 P 217 T 810 817
ENG 1 REVERSER FAULT	EIU1FAD	HCU (TRDV), J5, ECU	783151	1	783100 P 217 T 810 817

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WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGE	s	FAULT - ISOLATION
WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	PROCEDURE
ENG 1 REVERSER FAULT associated with STS-Maintenance ENG 1 FADEC	EIU1FAD	HCU (TRDV), J6, ECU	783151	1 783100 P 220 T 810 818
ENG 1 REVERSER FAULT	EIU1FAD	HCU (TRDV), J6, ECU	783151	1 783100 P 220 T 810 818
ENG 1 REVERSER FAULT	EIU1FAD	HCU (TRPV), HYD ENG1A	783153	1 783100 P 201 T 810 801
ENG 1 REVERSER FAULT	EIU1FAD	HCU (TRPV), HYD ENG1B	783153	1 783100 P 291 T 810 853
ENG 1 REVERSER FAULT	į	HCU (TRPV), J5, ECU associated with HCU (TRPV), J6, ECU	783151 783151	1 783100 P 235 T 810 823
ENG 1 REVERSER FAULT associated with STS-Maintenance ENG 1 FADEC	<del> </del>	HCU (TRPV), J5, ECU	<del> </del> <del> </del>	1 783100 P 239 T 810 825
ENG 1 REVERSER FAULT	EIU1FAD	HCU (TRPV), J5, ECU	783151	1 783100 P 239 T 810 825
ENG 1 REVERSER FAULT associated with STS-Maintenance ENG 1 FADEC	EIU1FAD	HCU (TRPV), J6, ECU	783151	1 783100 P 242 T 810 826
ENG 1 REVERSER FAULT	EIU1FAD	HCU (TRPV), J6, ECU	783151	783100 P 242 T 810 826
ENG 1 REVERSER FAULT	EIU1FAD	HCU ENG1A	783151	1 783100 P 275 T 810 847
ENG 1 REVERSER FAULT	EIU1FAD	HCU ENG1B	783151	1 783100 P 283 T 810 851
ENG 1 REVERSER FAULT	EIU1FAD	HCU, TRSOV, HYD ENG1A	783153	1 783100 P 297 T 810 855
ENG 1 REVERSER FAULT	EIU1FAD	HCU, TRSOV, HYD ENG1B	783153	1 783100 P 297 T 810 855

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WARNINGS/MALFUNCTIONS		FAULT ISOLATION			
WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	С	!
ENG_1 REVERSER FAULT	EIU1FAD	STOW SW, J5/J6, ECU ENG1A	783118	1	783100 P 255 T 810 839
	EIU1FAD	associated with STOW SW, J5/J6, ECU ENG1B	783118	1	
ENG 1 REVERSER FAULT	EIU1FAD	TR LATCH, STOW SW ENG1A	783100	1	783100 PA219 T 810 863
ENG 1 REVERSER FAULT	EIU1FAD	TR LATCH, STOW SW ENG1A associated with	783100	1	783100 PA219 T 810 863
<u></u>	EIU1FAD	TR LATCH, STOW SW ENG1B	783100	1	
ENG 1 REVERSER FAULT	EIU1FAD	TR LATCH, STOW SW ENG1B	783100	1	783100 PA219 T 810 863
ENG 1 REVERSER FAULT	EIU1FAD	TR LOCK, TR ACT ENG1A	783300	1	783100 PA234 T 810 871
ENG 1 REVERSER FAULT	EIU1FAD	TR LOCK, TR ACT ENG1A	783300	1	783100 PA238 T 810 875
ENG 1 REVERSER FAULT	EIU1FAD	TR LOCK, TR ACT ENG1B	783300	1	783100 PA234 T 810 871
ENG 1 REVERSER FAULT	EIU1FAD	TR LOCK, TR ACT ENG1B	783300	1	783100 PA238 T 810 875
ENG 1 REVERSER FAULT	EIU1FAD	TR PR SW, J5/J6, ECU ENG1A	783116	1	783100 P 229 T 810 821
ENG 1 REVERSER FAULT	EIU1FAD	TR PR SW, J5/J6, ECU ENG1B	783116	1	783100 P 229 T 810 821
ENG 1 REVERSER FAULT	LGCIU 1	L L/G EXT PROX SNSR 21GA	323173	1	323100 PA226 T 810 854
ENG 1 REVERSER FAULT	LGCIU 1	L L/G EXT PROX SNSR 21GA TGT POS	323173	1	323100 PA226 T 810 854
ENG 1 REVERSER FAULT	LGCIU 1	R L/G EXT PROX SNSR 20GA	323173	1	323100 PA226 T 810 854
ENG 1 REVERSER FAULT	LGCIU 1	R L/G EXT PROX SNSR 20GA TGT POS	323173	1	323100 PA226 T 810 854

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HADNINGS /MALEUNGTIONS	<u> </u>	CFDS FAULT MESSAGES	 S		FAULT ISOLATION	
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С		
ENG 1 SENSOR FAULT	EIU1FAD	ECU, PS3 SNSR LINE ENG1A associated with	732160	1	732000 P 283 T 810 867	
	EIU1FAD	ECU, PS3 SNSR LINE ENG1B	732160	1		
ENG 1 SENSOR FAULT	EIU1FAD	ECU, PS3 SNSR LINE ENG1A	732160	1	732000 P 283 T 810 867	
ENG 1 SENSOR FAULT	EIU1FAD	ECU, PS3 SNSR LINE ENG1A	732160		732000 P 283 T 810 867	
	IDENT: I	EIU1FAD			1 010 001	
ENG 1 SENSOR FAULT	EIU1FAD	ECU, PS3 SNSR LINE ENG1B	732160	1	732000 PA292 T 810 951	
ENG 1 SENSOR FAULT	EIU1FAD	ECU, PS3 SNSR LINE ENG1B	732160		732000 PA292 T 810 951	
	IDENT: I	EIU1FAD			ן כל טוס ון   	
ENG 1 SENSOR FAULT	EIU1FAD	N1 SNSR, J10, ECU	771110		771000 P 222 T 810 816	
	IDENT: I	EIU1FAD				
ENG 1 SENSOR FAULT	EIU1FAD	N1 SNSR, J9, ECU associated with	771110	1	771000 P 209 T 810 813	
	EIU1FAD	N1 SNSR, J10, ECU	771110	1		
ENG 1 SENSOR FAULT	EIU1FAD	N1 SNSR, J9, ECU	771110		771000 P 219 T 810 815	
	IDENT: I	EIU1FAD				
ENG 1 SENSOR FAULT	EIU1FAD	N2 SNSR, J7, ECU associated with	771120		771000 P 231 T 810 819	
	EIU1FAD	N2 SNSR, J8, ECU	771120			
ENG 1 SENSOR FAULT	EIU1FAD	N2 SNSR, J7, ECU	771120		771000 P 239 T 810 821	
	IDENT: EIU1FAD					
ENG 1 SENSOR FAULT	EIU1FAD	N2 SNSR, J8, ECU	771120		771000 P 242 T 810 822	
	IDENT: I					
ENG 1 SENSOR FAULT	EIU1FAD	T25 SNSR, J11, ECU associated with		İ	732000 P 257 T 810 857	
	EIU1FAD	T25 SNSR, J12, ECU	732120	_1 		

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WARNINGS/MALFUNCTIONS	T		FAULT ISOLATION		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!
ENG 1 SENSOR FAULT	EIU1FAD	T25 SNSR, J11, ECU associated with	732120	1	732000 PA257 T 810 925
	EIU1FAD	T25 SNSR, J12, ECU	732120	1	1 010 723
ENG 1 SENSOR FAULT	EIU1FAD	T25 SNSR, J11, ECU	732120	1	732000 P 245 T 810 853
	IDENT: I	EIU1FAD			010 055
ENG 1 SENSOR FAULT	EIU1FAD	T25 SNSR, J11, ECU ENG1A associated with	732120	1	732000 P 257
	EIU1FAD	T25 SNSR, J12, ECU ENG1B	732120	1	
ENG 1 SENSOR FAULT	EIU1FAD	T25 SNSR, J12, ECU	732120	1	732000 P 251
	IDENT: I	EIU1FAD	<b></b> _		
ENG 1 SENSOR FAULT	EIU1FAD	T3 SNSR, J13, ECU	772310	1	772000 P 207 T 810 805
ENG 1 SENSOR FAULT	EIU1FAD	T3 SNSR, J13, ECU ENG1A associated with	772310	1	772000 P 207
	EIU1FAD	T3 SNSR, J13, ECU ENG1B	772310	1	1 0 10 005 
ENG 1 SENSOR FAULT	EIU1FAD	T495 SNSR, J13, ECU ENG1A	772110	1	772000 P 201 T 810 803
	IDENT: I	EIU1FAD			
ENG 1 SENSOR FAULT	EIU1FAD	T495 SNSR, J13, ECU ENG1B	772110	1	772000 P 231 T 810 826
	IDENT: I	EIU1FAD			
ENG 1 SHUT DOWN					700000 P 201 T 810 801
ENG 1 SHUT DOWN	LGCIU 1	L L/G EXT PROX SNSR 21GA	323173	1	323100 PA226 T 810 854
ENG 1 SHUT DOWN	LGCIU 1	R L/G EXT PROX SNSR 20GA	323173	1	323100 PA226 T 810 854
ENG 1 STALL					730000 P 209 T 810 865

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### TROUBLE SHOOTING MANUAL

 			FAULT ISOLATION		
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!!
ENG 1 START FAULT					800000 P 222 T 810 852
ENG 1 START FAULT - STARTER TIME EXCEEDED					800000 P 207 T 810 831
ENG 1 START FAULT - ENG 1 EGT OVERLIMIT					800000 P 208 T 810 832
ENG 1 START FAULT - ENG 1 IGNITION FAULT					800000 P 201 T 810 829
ENG 1 START FAULT - ENG 1 IGNITION FAULT	EIU1FAD	IGN 2, ECU ENG1B	740000	1	740000 P 207 T 810 803
ENG 1 START FAULT - ENG 1 IGNITION FAULT	EIU1FAD	IGN2, ECU ENG1A	740000	1	740000 P 207 T 810 803
ENG 1 START FAULT - ENG					800000 P 211 T 810 833
ENG 1 START FAULT - LO START AIR PRESS					800000 P 207 T 810 831
ENG 1 START FAULT - THR LEVER NOT AT IDLE					700000 P 202 T 810 805
ENG 1 START VALVE FAULT					770000 PA216 T 810 888
ENG 1 START VALVE FAULT	EIU1FAD	SAV (SOL), J10, ECU	801120	1	801100 P 215 T 810 806
ENG 1 START VALVE FAULT	EIU1FAD	SAV (SOL), J9, ECU	801120	1	801100 P 213 T 810 805
ENG 1 START VALVE FAULT	EIU1FAD	SAV (SOL), J9, ECU associated with	801120	1	801100 P 221 T 810 809
	EIU1FAD		801120	1	
ENG 1 START VALVE FAULT	EIU1FAD	START AIR, SAV ENG1A	801100	1	801100 P 207 T 810 803
ENG 1 START VALVE FAULT	EIU1FAD	START AIR, SAV ENG1B	801100	1	801100 P 229 T 810 813

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#### TROUBLE SHOOTING MANUAL

HADNINGS / MALEUNCTIONS	CFDS FAULT MESSAGES				
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 1 START VALVE FAULT - START VALVE NOT CLOSED					770000 PA216 T 810 888
ENG 1 START VALVE FAULT - START VALVE NOT CLOSED		SAV (SOL), J9, ECU associated with SAV (SOL), J10, ECU	801120 801120		801100 P 221 T 810 809
ENG 1 START VALVE FAULT - START VALVE NOT CLOSED	<u></u>	START AIR, SAV ENG1A	<del> </del>		801100 P 207 T 810 803
ENG 1 START VALVE FAULT - START VALVE NOT CLOSED	EIU1FAD	START AIR, SAV ENG1B	801100	1	801100 P 229 T 810 813
ENG 1 START VALVE FAULT - START VALVE NOT OPEN					770000 PA216 T 810 888
ENG 1 START VALVE FAULT - START VALVE NOT OPEN		SAV (SOL), J9, ECU associated with SAV (SOL), J10, ECU	801120 801120		801100 P 221 T 810 809
ENG 1 START VALVE FAULT - START VALVE NOT OPEN	<u></u>	START AIR, SAV ENG1A	<del> </del>		801100 P 207 T 810 803
ENG 1 START VALVE FAULT - START VALVE NOT OPEN	EIU1FAD	START AIR, SAV ENG1B	801100	1	801100 P 229 T 810 813
ENG 1 THR LEVER DISAGREE					761100 P 232 T 810 813
ENG 1 THR LEVER DISAGREE		TLA SNSR, J3, ECU associated with TLA SNSR, J4, ECU	761117 761117		761100 P 232 T 810 813
ENG 1 THR LEVER FAULT					761100 P 226 T 810 811
ENG 1 THR LEVER FAULT	EIU1FAD	TLA SNSR, J3, ECU associated with	761117	1	761100 P 201 T 810 803
	EIU1FAD	TLA SNSR, J4, ECU	761117	1	010 003
ENG 2 BLEED STATUS FAULT					770000 PA213 T 810 887
ENG 2 BLEED STATUS FAULT	EIU2FAD	EIU2 : NO ZONE CONT DATA	216334	1	732500 P 246 T 810 874

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#### TROUBLE SHOOTING MANUAL

HADNINGS / MALEUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION	
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!	
ENG 2 BLEED STATUS FAULT	EIU2FAD	ZC, EIU (030), J3 ENG2B	216324	1	732500 P 271 T 810 894	
ENG 2 BLEED STATUS FAULT	EIU2FAD	ZC, EIU(030), J3 ENG2A	216334	1	732500 P 271 T 810 894	
ENG 2 BLEED STATUS FAULT	EIU2FAD	ZC, EIU(030), J3 ENG2B	216334	1	732500 P 271 T 810 894	
ENG 2 BLEED STATUS FAULT	EIU2FAD	ZN CNT EIU (030), J3 ENG2A	216334	1	732500 P 271 T 810 894	
ENG 2 COMPRESSOR VANE associated with	EIU2FAD	ENGINE ENG2A associated with	720000	1	720000 P 221 T 810 810	
STS-Maintenance ENG 2 FADEC	EIU2FAD	HPC (OPERAT. LINE) ENG2A	733300	2	. 0.0 0.0	
ENG 2 COMPRESSOR VANE associated with	EIU2FAD	ENGINE ENG2B associated with	720000	1	720000 P 221 T 810 810	
STS-Maintenance ENG 2 FADEC	EIU2FAD	HPC (OPERAT. LINE) ENG2B	733300	2		
ENG 2 COMPRESSOR VANE	EIU2FAD	J7, HMU (VBV TM), ECU associated with	732150	1	732900 PA207 T 810 863	
	EIU2FAD	J8, HMU (VBV TM), ECU	732150	1	<b>_</b>	
ENG 2 COMPRESSOR VANE	EIU2FAD	J7, HMU (VSV TM), ECU associated with	732150	1	732900 PA201 T 810 861	
	EIU2FAD	J8, HMU (VSV TM), ECU	732150	1		
ENG 2 COMPRESSOR VANE	EIU2FAD	VBV ACT, HMU ENG2A	753110	1	753000 P 207 T 810 802	
ENG 2 COMPRESSOR VANE	EIU2FAD	VBV ACT, HMU ENG2B	753110	1	753000 P 245 T 810 838	
ENG 2 COMPRESSOR VANE	EIU2FAD	VBV SNSR, J11, ECU associated with	753170	1	753000 P 216 T 810 812	
	EIU2FAD	VBV SNSR, J12, ECU	753170	1		
ENG 2 COMPRESSOR VANE	EIU2FAD	VBV SNSR, J11, ECU	753170	1	753000 P 223 T 810 814	
IDENT: EIU2FAD					_	

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WARNINGS/MALFUNCTIONS			FAULT ISOLATION		
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	i i
ENG 2 COMPRESSOR VANE	EIU2FAD	VBV SNSR, J12, ECU	753170	1	753000 P 231 T 810 816
	IDENT: I	EIU2FAD			
ENG 2 COMPRESSOR VANE	EIU2FAD	VSV ACT, J11, ECU associated with	753210	1	753200 P 208 T 810 804
	EIU2FAD	VSV ACT, J12, ECU	753210	1	!!!
ENG 2 COMPRESSOR VANE	EIU2FAD	VSV ACT, J11, ECU	753210		753200 P 214 T 810 806
	IDENT: I	EIU2FAD			
ENG 2 COMPRESSOR VANE	EIU2FAD	VSV ACT, J12, ECU	753210		753200 P 220 T 810 808
	IDENT: I	EIU2FAD			010 000
ENG 2 COMPRESSOR VANE	EIU2FAD	VSV, ACT, HMU ENG2A	753210	1	753200 P 203 T 810 802
ENG 2 COMPRESSOR VANE	EIU2FAD	VSV, ACT, HMU ENG2B	753210	1	753200 P 225 T 810 812
ENG 2 COMPRESSOR VANE	EIU2FAD	VSV, ACT, J11, ECU associated with	753210	1	753200 P 208 T 810 804
	EIU2FAD	VSV, ACT, J12, ECU	753210	1	!!!
ENG 2 CTL VALVE FAULT	EIU2FAD	BSV (VLV CLSD), HMU ENG2A	731170	1	731000 P 210 T 810 806
ENG 2 CTL VALVE FAULT	EIU2FAD	BSV (VLV CLSD), HMU ENG2B	731170	1	731000 P 281 T 810 834
ENG 2 CTL VALVE FAULT	EIU2FAD	BSV(CL), J14(WRONG)	731170	1	731000 PA206 T 810 848
ENG 2 CTL VALVE FAULT	EIU2FAD	BSV(OP), J14(WRONG)	731170	1	731000 PA200 T 810 846
ENG 2 CTL VALVE FAULT	EIU2FAD	BSV, J11/J12, ECU ENG2A	731170	1	731000 P 219 T 810 808
ENG 2 CTL VALVE FAULT	EIU2FAD	BSV, J11/J12, ECU ENG2B	731170	1	731000 P 270 T 810 832
ENG 2 CTL VALVE FAULT	EIU2FAD	BSV, J11, J14(WRONG) ENG2A	731170	1	731000 PA212 T 810 850

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	WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT - ISOLATION	
	WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	! !	
	ENG 2 CTL VALVE FAULT	EIU2FAD	BSV, J12, J14(WRONG) ENG2B	731170	1	731000 PA218 T 810 852	
R R	ENG 2 CTL VALVE FAULT	EIU2FAD	HPTC VLV (POS), HMU ENG2A	752110	1	752100 P 205 T 810 804	
R R	ENG 2 CTL VALVE FAULT	EIU2FAD	HPTC VLV (POS), HMU ENG2B	752110	1	752100 P 241 T 810 824	
R	ENG 2 CTL VALVE FAULT	EIU2FAD	HPTC VLV, J11, ECU associated with	752110	1	752100 P 213 T 810 808	
		EIU2FAD	HPTC VLV, J12, ECU	752110	1	!!!	
	ENG 2 CTL VALVE FAULT	EIU2FAD	J7, HMU(BSVSOL), ECU associated with	732150	1	732900 P 273 T 810 853	
		EIU2FAD	J8, HMU(BSVSOL), ECU	732150	1	!!!	
	ENG 2 CTL VALVE FAULT	EIU2FAD	J7, HMU(BSVSOL), ECU	732150	1	732900 PA247 T 810 878	
		IDENT:	EIU2FAD				
	ENG 2 CTL VALVE FAULT	EIU2FAD	J7, HMU(HPTCTM), ECU associated with	732150	1	732900 P 269 T 810 851	
	<u> </u>	EIU2FAD	J8, HMU(HPTCTM), ECU	732150	1	!!!	
	ENG 2 CTL VALVE FAULT	EIU2FAD	J7, HMU(RAC TM), ECU associated with	732150	1	732900 P 297 T 810 859	
		EIU2FAD	J8, HMU(RAC TM), ECU	732150	1	!!!	
	ENG 2 CTL VALVE FAULT	EIU2FAD	J8, HMU(BSVSOL), ECU	732150	1	732900 PA249 T 810 879	
		IDENT:					
	ENG 2 CTL VALVE FAULT	EIU2FAD	NAC VLV (BLD), HMU ENG2A	752310	2	752500 P 249 T 810 836	
	ENG 2 CTL VALVE FAULT	EIU2FAD	NAC VLV (BLD), HMU ENG2B	752310	2	752500 P 249 T 810 836	
R	ENG 2 CTL VALVE FAULT	EIU2FAD	RAC VLV (BLD), HMU ENG1A	752110	1	752100 P 231 T 810 814	
R	ENG 2 CTL VALVE FAULT	EIU2FAD	RAC VLV (BLD), HMU ENG2B	752110	1	752100 P 235 T 810 822	

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WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION	
WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	С	!	
ENG 2 CTL VALVE FAULT	EIU2FAD	RAC VLV, HMU ENG2A	752310	1	752300 P 203 T 810 806A	
ENG 2 CTL VALVE FAULT	EIU2FAD	RAC VLV, HMU ENG2B	752310	1	752300 P 225 T 810 818	
ENG 2 CTL VALVE FAULT		RAC VLV, J11, ECU associated with			752300 P 208 T 810 808A	
	EIU2FAD	RAC VLV, J12, ECU	752310	1		
ENG 2 CTL VALVE FAULT	EIU2FAD	TBV VLV, HMU ENG2A	752310	1	752600 P 225 T 810 811	
ENG 2 CTL VALVE FAULT	EIU2FAD	TBV VLV, HMU ENG2B	752310	1	752600 P 227 T 810 812	
ENG 2 CTL VALVE FAULT		associated with			752600 P 232 T 810 814	
	EIU2FAD	TBV VLV, J12, ECU ENG2B	752310	1		
ENG 2 EGT DISCREPANCY associated with Upper ECAM DU Flags ENG 2 - "CHECK" message is shown near engine 2 EGT indication					770000 P 203 T 810 824	
ENG 2 EGT OVER LIMIT					770000 P 212 T 810 849	
ENG 2 EIU FAULT	CFDS	NO EIU2 DATA	732534	1	732000 P 231 T 810 848	
	IDENT: (	CFDS, ECAM 1, ECAM 2			1 0 10 040 	
ENG 2 EIU FAULT	ECAM 1	FWC1 : NO DATA FROM EIU2	732534	1	732000 P 227 T 810 846	
	IDENT: (	CFDS, ECAM 1, ECAM 2	DS, ECAM 1, ECAM 2			
ENG 2 EIU FAULT	ECAM 1	FWC2 : NO DATA FROM EIU2	732534	1	732000 P 229 T 810 847	
	IDENT: (	CFDS, ECAM 1, ECAM 2			010 041	
ENG 2 EIU FAULT	ECAM 2	FWC1 : NO DATA FROM EIU2	732534	1	732000 P 227 T 810 846	
	IDENT: (	CFDS, ECAM 1, ECAM 2				

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#### TROUBLE SHOOTING MANUAL

HADNINGS / MALEUNGTIONS	   	CFDS FAULT MESSAGES	 S		FAULT ISOLATION	
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	АТА	С	!!!	
ENG 2 EIU FAULT	ECAM 2	FWC2 : NO DATA FROM EIU2	732534	1	732000 P 229 T 810 847	
	IDENT: (	CFDS, ECAM 1, ECAM 2			1 0 10 041 	
ENG 2 EIU FAULT	EIU2FAD	CHECK EIU2 ARINC OUTPUT CIRCUIT TO FADEC OR EIU2		1	732500 P 258 T 810 886	
ENG 2 EIU FAULT	EIU2FAD	CHECK EIU2 ARINC OUTPUT CIRCUIT TO 198VC OR EIU2		1	732500 P 254 T 810 884	
ENG 2 EIU FAULT	EIU2FAD	ECU2 4000KS OR OIL TEMP SENSOR 2 4004EN	732160	1	793200 P 203 Т 810 822	
ENG 2 EIU FAULT	EIU2FAD	EIU (ARINC), J3 ENG2A	732534	1	715000 P 243 T 810 812	
ENG 2 EIU FAULT	EIU2FAD	EIU (ARINC), J3 ENG2B	732534	1	715000 P 279 T 810 833	
ENG 2 EIU FAULT	EIU2FAD	EIU2	732534	1	732500 P 216 T 810 854	
ENG 2 EIU FAULT	LGCIU 2	L L/G EXT PROX SNSR 23GA	323173	1	323100 PA226 T 810 854	
ENG 2 EIU FAULT	LGCIU 2	L L/G EXT PROX SNSR 23GA TGT POS	323173	1	323100 PA226 T 810 854	
ENG 2 EIU FAULT	LGCIU 2	R L/G EXT PROX SNSR 22GA	323173	1	323100 PA226 T 810 854	
ENG 2 EIU FAULT		R L/G EXT PROX SNSR 22GA TGT POS	323173		323100 PA226 T 810 854	
ENG 2 FADEC A FAULT					770000 P 294 T 810 878	
ENG 2 FADEC A FAULT associated with Upper ECAM DU Flags ENG 2 - N2 higher than 15 per cent on ground or in flight					770000 P 296 T 810 879	

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

LIADNINGS (MALIFILINGITONS	<u></u>		FAULT				
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	АТА	С	ISOLATION PROCEDURE		
ENG 2 FADEC A FAULT associated with	AFS	AFS: FADEC1	732160	1	732900 P 256 T 810 833		
AUTO FLT A/THR OFF		IDENT: AFS, ECAM 1, ECAM 2, EIS 1, EIS 3, EIU2FAD					
ENG 2 FADEC A FAULT	AFS	AFS: FADEC1	732160	1	732900 P 256 T 810 833		
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,				
ENG 2 FADEC A FAULT	AFS	AFS: FADEC1 associated with	732160	1	732900 P 265 T 810 849		
	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	1	010 047		
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIS 3, EIU2FAD	1,				
ENG 2 FADEC A FAULT associated with	AFS	AFS: FADEC1 associated with	732160	1	732900 P 265		
AUTO FLT A/THR OFF	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	1	010 047		
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIS 3, EIU2FAD	1,				
ENG 2 FADEC A FAULT	AFS	AFS: FADEC1 associated with	732160	1	732900 PB203 T 810 919		
	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	1	010 717		
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIS 3, EIU2FAD	1,				
ENG 2 FADEC A FAULT associated with	AFS	AFS: FADEC1 associated with	732160	1	732900 PB203 T 810 919		
AUTO FLT A/THR OFF	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	1			
	!	AFS, ECAM 1, ECAM 2, EIS 6 EIS 2, EIS 3, EIU2FAD	1,				
ENG 2 FADEC A FAULT associated with AUTO FLT A/THR OFF	ECAM 1	FWC1 : NO DATA FROM ECU2A	732160	1	732900 P 262 T 810 837		
AVIOLET AVIOR OFF	!	AFS, ECAM 1, ECAM 2, EIS EIS 3, EIU2FAD	1,				

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS			FAULT ISOLATION		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!
ENG 2 FADEC A FAULT	ECAM 1	FWC1 : NO DATA FROM ECU2A	732160	1	732900 P 262 T 810 837
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		
ENG 2 FADEC A FAULT	ECAM 1	FWC1 : NO DATA FROM ECU2A	732160	1	732900 P 265 T 810 849
	EIU2FAD	associated with   J3 (INSTINCT DISC) ENG2A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 6 EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with	ECAM 1	FWC1: NO DATA FROM ECU2A	732160	1	732900 P 265 T 810 849
AUTO FLT A/THR OFF	EIU2FAD	associated with   J3 (INSTINCT DISC) ENG2A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT	ECAM 1	FWC1: NO DATA FROM ECU2A	732160	1	732900 PB203 T 810 919
	  EIU2FAD	associated with   J3 (INSTINCT DISC) ENG2B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 6 EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with AUTO FLT A/THR OFF	ECAM 1	FWC1 : NO DATA FROM ECU2A associated with	732160	1	732900 PB203 T 810 919
AOTO PET AFTER OFF	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with AUTO FLT A/THR OFF	ECAM 1	FWC2 : NO DATA FROM ECU2A	732160	1	732900 P 261 T 810 836
		AFS, ECAM 1, ECAM 2, EIS ' EIS 3, EIU2FAD	1,		

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS			FAULT ISOLATION		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!
ENG 2 FADEC A FAULT	ECAM 1	FWC2 : NO DATA FROM ECU2A	732160	1	732900 P 261 T 810 836
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		
ENG 2 FADEC A FAULT	ECAM 1	FWC2 : NO DATA FROM ECU2A associated with	732160	1	732900 P 265 T 810 849
	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with AUTO FLT A/THR OFF	ECAM 1	FWC2 : NO DATA FROM ECU2A associated with	732160	1	732900 P 265 T 810 849
AUTO FLI AFTHE OFF	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT	ECAM 1	FWC2 : NO DATA FROM ECU2A associated with	732160	1	732900 PB203 T 810 919
	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with AUTO FLT A/THR OFF	ECAM 1	FWC2 : NO DATA FROM ECU2A associated with	732160	1	732900 PB203 T 810 919
AUTO PET ATTING OFF	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with AUTO FLT A/THR OFF	ECAM 2	FWC1 : NO DATA FROM ECU2A	732160	1	732900 P 262 T 810 837
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

HADNINGS /MALEUNGTIONS	   	FAULT			
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 2 FADEC A FAULT	ECAM 2	FWC1 : NO DATA FROM ECU2A	732160	1	732900 P 262 T 810 837
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		
ENG 2 FADEC A FAULT	ECAM 2	FWC1 : NO DATA FROM ECU2A associated with	732160	1	732900 P 265 T 810 849
	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with AUTO FLT A/THR OFF	ECAM 2	FWC1 : NO DATA FROM ECU2A associated with	732160	1	732900 P 265 T 810 849
AUTO FLI AFTHE OFF	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT	ECAM 2	FWC1 : NO DATA FROM ECU2A associated with	732160	1	732900 PB203 T 810 919
	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with	ECAM 2	FWC1 : NO DATA FROM ECU2A	732160	1	732900 PB203 T 810 919
AUTO FLT A/THR OFF	EIU2FAD	associated with   J3 (INSTINCT DISC) ENG2B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS '	1,		
ENG 2 FADEC A FAULT associated with AUTO FLT A/THR OFF	ECAM 2	FWC2: NO DATA FROM ECU2A	732160	1	732900 P 261 T 810 836
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

LIADNINGS / MALEUNGTIONS	   	CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/MALFUNCTIONS 	SOURCE	MESSAGE	АТА	С	
ENG 2 FADEC A FAULT	ECAM 2	FWC2: NO DATA FROM ECU2A	732160	1	732900 P 261 T 810 836
		AFS, ECAM 1, ECAM 2, EIS '	1,		
ENG 2 FADEC A FAULT	ECAM 2	FWC2: NO DATA FROM ECU2A	732160	1	732900 P 265 T 810 849
	EIU2FAD	associated with   J3 (INSTINCT DISC) ENG2A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with	ECAM 2	FWC2: NO DATA FROM ECU2A	732160	1	732900 P 265 T 810 849
AUTO FLT A/THR OFF	EIU2FAD	associated with   J3 (INSTINCT DISC) ENG2A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT	ECAM 2	FWC2: NO DATA FROM ECU2A	732160	1	732900 PB203 T 810 919
	EIU2FAD	associated with   J3 (INSTINCT DISC) ENG2B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with	ECAM 2	FWC2: NO DATA FROM ECU2A	732160	1	732900 PB203 T 810 919
AUTO FLT A/THR OFF	EIU2FAD	associated with   J3 (INSTINCT DISC) ENG2B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with	EIS 1	DMC 1 : NO ECU 2 A DATA	732160	1	732900 P 257 T 810 834
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS '	1,		

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

HARNINGS (MALIFILMS TONS	CFDS FAULT MESSAGES				FAULT
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	АТА	С	ISOLATION PROCEDURE
ENG 2 FADEC A FAULT	EIS 1	DMC 1 : NO ECU 2 A DATA	732160	1	732900 P 257 T 810 834
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		010 034
ENG 2 FADEC A FAULT	EIS 1	DMC 1 : NO ECU 2 A DATA associated with	732160	1	732900 P 265 T 810 849
	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	1	010 047
	!	AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with	EIS 1	DMC 1 : NO ECU 2 A DATA associated with	732160	1	732900 P 265 T 810 849
AUTO FLT A/THR OFF	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	1	010 047
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT	EIS 1	DMC 1 : NO ECU 2 A DATA associated with	732160	1	732900 PB203 T 810 919
	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	1	
	!	AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT	EIS 1	DMC 1 : NO ECU 2 A DATA associated with	732160	1	732900 PB203 T 810 919
AUTO FLT A/THR OFF	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	1	
	!	AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT	EIS 2	DMC2 : NO ECU2A DATA associated with	732160	1	732900 P 265 T 810 849
	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	1	010 047
	!	AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with	EIS 2	DMC2 : NO ECU2A DATA associated with	732160	1	732900 P 265 T 810 849
AUTO FLT A/THR OFF	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	1	010 04/
	!	AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT ISOLATION			
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!
ENG 2 FADEC A FAULT	EIS 2	DMC2 : NO ECU2A DATA associated with	732160	1	732900 PB203 T 810 919
	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	1	
	,	AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with	EIS 2	DMC2 : NO ECU2A DATA associated with	732160	1	732900 PB203 T 810 919
AUTO FLT A/THR OFF	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with	EIS 3	DMC3 : NO ECU2A DATA	732160	1	732900 P 259
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		
ENG 2 FADEC A FAULT	EIS 3	DMC3 : NO ECU2A DATA	732160	1	732900 P 259 T 810 835
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS 'EIS	1,		
ENG 2 FADEC A FAULT	EIS 3	DMC3 : NO ECU2A DATA associated with	732160	1	732900 P 265 T 810 849
	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with	EIS 3	DMC3 : NO ECU2A DATA associated with	732160	1	732900 P 265 T 810 849
AUTO FLT A/THR OFF	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	1	010 042
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT	EIS 3	DMC3 : NO ECU2A DATA associated with	732160	1	732900 PB203 T 810 919
	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	1	1 0 10 7 17 
	!	AFS, ECAM 1, ECAM 2, EIS 6 EIS 2, EIS 3, EIU2FAD	1,		

EFF: ALL

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### TROUBLE SHOOTING MANUAL

	     WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION	
	WARNINGS/MALFONCTIONS	SOURCE	MESSAGE	ATA	С	!	
	ENG 2 FADEC A FAULT associated with	EIS 3	DMC3 : NO ECU2A DATA associated with	732160	1	732900 PB203 T 810 919	
	AUTO FLT A/THR OFF	EIU2FAD		715100	1 L	!!!	
			AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,			
R	ENG 2 FADEC A FAULT	EIU2FAD	ADC1+ADC2+LGCIU2 ENG2A	341234	1	770000 PA228 T 810 911	
	ENG 2 FADEC A FAULT	EIU2FAD	ALT, ECU, J9	771130	1	771000 P 203 T 810 810	
	ENG 2 FADEC A FAULT	EIU2FAD	ECU (ACI FAULT) ENG2A	732160	1	732081 P 250 T 810 856	
	ENG 2 FADEC A FAULT	EIU2FAD	ECU (CC DISCRETES) ENG2A	732160	1	732081 P 245 T 810 847	
	ENG 2 FADEC A FAULT	EIU2FAD	ECU (CCDL) ENG2A	732160	1	732081 P 217 T 810 817	
R	ENG 2 FADEC A FAULT	EIU2FAD	ECU (CHAN SYNCH) ENG2A	732160	1	732081 P 265 T 810 872	
	ENG 2 FADEC A FAULT	EIU2FAD	ECU (CPU FAULT) ENG2A	732160	1	732081 P 236 T 810 836	
	ENG 2 FADEC A FAULT	EIU2FAD	ECU (CPU FAULT) ENG2B	732160	1	732081 P 280 T 810 887	
	ENG 2 FADEC A FAULT	EIU2FAD	ECU (DATA ACQN) ENG2A	732160	1	732081 P 248 T 810 854	
	ENG 2 FADEC A FAULT	EIU2FAD	ECU (MASTER DISC) ENG2A	732160	1	732081 P 225 T 810 825	
	ENG 2 FADEC A FAULT	EIU2FAD	ECU (SYNCH W/A) ENG2A	732160	1	732081 P 229 T 810 829	
	ENG 2 FADEC A FAULT	EIU2FAD	ECU (TC JUNCTION) ENG2A	732160	1	732081 P 221 T 810 821	
	ENG 2 FADEC A FAULT	EIU2FAD	ECU (X CHANNEL) ENG2B	771130	1	771000 PA217 T 810 848	

EFF: ALL SROS

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CFDS FAULT MESSAGES					FAULT
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 2 FADEC A FAULT	EIU2FAD	ECU (15 VDC FAULT) ENG2A	732160	1	732081 P 241 T 810 843
ENG 2 FADEC A FAULT	EIU2FAD	ECU (15 VDC FAULT) ENG2B	732160	1	732081 P 242 T 810 844
ENG 2 FADEC A FAULT	EIU2FAD	ECU (25 VDC FAULT) ENG2A	732160	1	732081 P 207 T 810 807
ENG 2 FADEC A FAULT	EIU2FAD	ECU (25 VDC FAULT) ENG2B	732160	1	732081 P 208 T 810 808
ENG 2 FADEC A FAULT	EIU2FAD	ECU, EIU-28V, J2	732160	1	732000 P 239 T 810 851
ENG 2 FADEC A FAULT	EIU2FAD	EIU2 : NO FADEC 2 A DATA	732160	1	732500 P 205 T 810 844
ENG 2 FADEC A FAULT associated with	EIU2FAD	EIU2 : NO FADEC 2 A DATA	732160	1	732900 P 255 T 810 832
AUTO FLT A/THR OFF	IDENT: AFS, ECAM 1, ECAM 2, EIS 1, EIS 3, EIU2FAD			1 010 032	
ENG 2 FADEC A FAULT	EIU2FAD	EIU2 : NO FADEC 2 A DATA	732160	1	732900 P 255 T 810 832
		AFS, ECAM 1, ECAM 2, EIS '	1,		. 0.0 002
ENG 2 FADEC A FAULT		EIU2 : NO FADEC 2 A DATA associated with J3 (INSTINCT DISC) ENG2A			732900 P 265 T 810 849
	IDENT: /	AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	<u>i</u>		
ENG 2 FADEC A FAULT associated with AUTO FLT A/THR OFF		EIU2 : NO FADEC 2 A DATA associated with J3 (INSTINCT DISC) ENG2A			732900 P 265 T 810 849
	!	AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	li 1,		

EFF: ALL

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HADNINGS /MALEUNGTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/MALFUNCTIONS 	SOURCE	MESSAGE	АТА	С	PROCEDURE
ENG 2 FADEC A FAULT		EIU2 : NO FADEC 2 A DATA associated with			732900 PB203 T 810 919
	 	J3 (INSTINCT DISC) ENG2B	/ 15 100 L	1 L	
		AFS, ECAM 1, ECAM 2, EIS ' EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT	EIU2FAD	EIU2 : NO FADEC 2 A DATA associated with	732160	1	732900 PB203 T 810 919
associated with AUTO FLT A/THR OFF	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	1	
		AFS, ECAM 1, ECAM 2, EIS 'EIS 2, EIS 3, EIU2FAD	1,		
ENG 2 FADEC A FAULT associated with ENG 2 FADEC B FAULT	EIU2FAD	J14(ID FAULT), ECU	732150	1	732000 PB237 T 810 973
ENG 2 FADEC A FAULT	EIU2FAD	J14(ID FAULT), ECU	732150	1	732000 PB237 T 810 973
ENG 2 FADEC A FAULT associated with ENG 2 FADEC B FAULT	EIU2FAD	J14(WRONG), BSV(CL)	732150	1	732000 PB241 T 810 976
ENG 2 FADEC A FAULT	EIU2FAD	J14(WRONG), BSV(CL)	732150	1	732000 PB241 T 810 976
ENG 2 FADEC A FAULT associated with ENG 2 FADEC B FAULT	EIU2FAD	J14(WRONG), BSV, ECU	732150	1	732000 PB239 T 810 974
ENG 2 FADEC A FAULT	EIU2FAD	J14(WRONG), BSV, ECU	732150	1	732000 PB239 T 810 974
ENG 2 FADEC A FAULT	EIU2FAD	J14, ECU (ENG IDENT) ENG2A	732150	1	732000 PA231 T 810 914
ENG 2 FADEC A FAULT	EIU2FAD	J14, ECU (ENG IDENT) ENG2B	732150	1	732000 PB205 T 810 958
ENG 2 FADEC A FAULT	EIU2FAD	J14, ECU (ENG IDENT) ENG2B	732150	3	732000 PB200 T 810 956
ENG 2 FADEC ALTERNATOR	EIU2FAD	ALT, J10, ECU	771130	1	771000 P 298 T 810 840

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE
ENG 2 FADEC ALTERNATOR	EIU2FAD	ALT, J9, ECU	771130	1	771000 P 284 T 810 838
ENG 2 FADEC B FAULT					770000 P 298 T 810 880
ENG 2 FADEC B FAULT associated with Upper ECAM DU Flags ENG 2 - N2 higher than 15 per cent on ground or in flight					770000 PA200 T 810 881
ENG 2 FADEC B FAULT	AFS	AFS: FADEC1	732160	1	732900 P 220 T 810 809
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		
ENG 2 FADEC B FAULT	AFS	AFS: FADEC1	732160	1	732900 P 220 T 810 809
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		1 010 007
ENG 2 FADEC B FAULT associated with AUTO FLT A/THR OFF	ECAM 1	FWC1 : NO DATA FROM  ECU2B	732160	1	732900 P 226 T 810 813
A   T   A   T   T   T   T   T   T   T		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		
ENG 2 FADEC B FAULT	ECAM 1	FWC1 : NO DATA FROM ECU2B	732160	1	732900 P 226 T 810 813
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		
ENG 2 FADEC B FAULT associated with AUTO FLT A/THR OFF	ECAM 1	FWC2 : NO DATA FROM ECU2B	732160	1	732900 P 225 T 810 812
A/INCOFF	AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,			
ENG 2 FADEC B FAULT	ECAM 1	FWC2 : NO DATA FROM ECU2B	732160	1	732900 P 225 T 810 812
	!	AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!
ENG 2 FADEC B FAULT associated with AUTO FLT A/THR OFF	ECAM 2	FWC1 : NO DATA FROM ECU2B	732160	1	732900 P 226 T 810 813
<del>                                    </del>		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		
ENG 2 FADEC B FAULT	ECAM 2	FWC1 : NO DATA FROM ECU2B	732160	1	732900 P 226 T 810 813
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		
ENG 2 FADEC B FAULT associated with AUTO FLT A/THR OFF	ECAM 2	FWC2 : NO DATA FROM ECU2B	732160	1	732900 P 225 T 810 812
ANTO TEL ANTINO OTT		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		
ENG 2 FADEC B FAULT	ECAM 2	FWC2 : NO DATA FROM ECU2B	732160	1	732900 P 225 T 810 812
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		
ENG 2 FADEC B FAULT associated with	EIS 1	DMC 1 : NO ECU 2 B DATA	732160	1	732900 P 223 T 810 811
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		
ENG 2 FADEC B FAULT	EIS 1	DMC 1 : NO ECU 2 B DATA	732160	1	732900 P 223 T 810 811
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		
ENG 2 FADEC B FAULT associated with	EIS 2	DMC2 : NO ECU2B DATA	732160	1	732900 P 221 T 810 810
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		010 010
ENG 2 FADEC B FAULT	EIS 2	DMC2 : NO ECU2B DATA	732160	1	732900 P 221 T 810 810
		AFS, ECAM 1, ECAM 2, EIS EIS 2, EIU2FAD	1,		. 010 010
ENG 2 FADEC B FAULT	EIU2FAD	ADC1+ADC2+LGCIU2 ENG2B	341234	1	770000 PA228 T 810 911

EFF: ALL

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### TROUBLE SHOOTING MANUAL

	HADNINGS /MAL FUNCTIONS	CFDS FAULT MESSAGES				FAULT ISOLATION	
	WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE	
	ENG 2 FADEC B FAULT	EIU2FAD	ALT, ECU, J10	771130	1	771000 P 207 T 810 812	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (ACI FAULT) ENG2B	732160	1	732081 P 284 T 810 895	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (CC DISCRETES) ENG2B	732160	1	732081 P 246 T 810 848	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (CCDL) ENG2B	732160	1	732081 P 218 T 810 818	
R R	ENG 2 FADEC B FAULT	EIU2FAD	ECU (CHAN SYNCH) ENG2B ENG2	732160	1	732081 P 266 T 810 873	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (CPU FAULT) ENG2A	732160	1	732081 P 236 T 810 836	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (CPU FAULT) ENG2B	732160	1	732081 P 280 T 810 887	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (DATA ACQN) ENG2B	732160	1	732081 P 282 T 810 893	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (MASTER DISC) ENG2B	732160	1	732081 P 226 T 810 826	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (SYNCH W/A) ENG2B	732160	1	732081 P 230 T 810 830	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (TC JUNCTION) ENG2B	732160	1	732081 P 222 T 810 822	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (X CHANNEL) ENG2A	771130	1	771000 PA209 T 810 842	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (15 VDC FAULT) ENG2A	732160	1	732081 P 242 T 810 844	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (15 VDC FAULT) ENG2B	732160	1	732081 P 242 T 810 844	
	ENG 2 FADEC B FAULT	EIU2FAD	ECU (25 VDC FAULT) ENG2A	732160	1	732081 P 208 T 810 808	

EFF: ALL SROS

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#### TROUBLE SHOOTING MANUAL

HADNINGS /MALEUNGTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	
ENG 2 FADEC B FAULT	EIU2FAD	ECU (25 VDC FAULT) ENG2B	732160	1	732081 P 208 T 810 808
ENG 2 FADEC B FAULT	EIU2FAD	ECU, EIU-28V, J1	732160	1	732000 P 242 T 810 852
ENG 2 FADEC B FAULT	EIU2FAD	EIU2 : NO FADEC 2 B DATA	732160	1	732500 P 207 T 810 846
ENG 2 FADEC B FAULT	EIU2FAD	EIU2 : NO FADEC 2 B DATA	732160	1	732900 P 219 T 810 808
		AFS, ECAM 1, ECAM 2, EIS	1,		
ENG 2 FADEC B FAULT associated with	EIU2FAD	EIU2 : NO FADEC 2 B DATA	732160	1	732900 P 219 T 810 808
AUTO FLT A/THR OFF		AFS, ECAM 1, ECAM 2, EIS	1,		. 0.0 000
ENG 2 FADEC B FAULT associated with ENG 2 FADEC A FAULT	EIU2FAD	J14(ID FAULT), ECU	732150	1	732000 PB237 T 810 973
ENG 2 FADEC B FAULT	EIU2FAD	J14(ID FAULT), ECU	732150	1	732000 PB237 T 810 973
ENG 2 FADEC B FAULT associated with ENG 2 FADEC A FAULT	EIU2FAD	J14(WRONG), BSV(CL)	732150	1	732000 PB241 T 810 976
ENG 2 FADEC B FAULT	EIU2FAD	J14(WRONG), BSV(CL)	732150	1	732000 PB241 T 810 976
ENG 2 FADEC B FAULT associated with ENG 2 FADEC A FAULT	EIU2FAD	J14(WRONG), BSV, ECU	732150	1	732000 PB239 T 810 974
ENG 2 FADEC B FAULT	EIU2FAD	J14(WRONG), BSV, ECU	732150	1	732000 PB239 T 810 974
ENG 2 FADEC B FAULT	EIU2FAD	J14, ECU (ENG IDENT) ENG2A	732150	1	732000 PA231 T 810 914
ENG 2 FADEC B FAULT	EIU2FAD	J14, ECU (ENG IDENT) ENG2B	732150	1	732000 PB205 T 810 958

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	   		FAULT		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 2 FADEC B FAULT	EIU2FAD	J14, ECU (ENG IDENT) ENG2B	732150	3	732000 PB200 T 810 956
ENG 2 FADEC FAULT					770000 PA206 T 810 884
ENG 2 FADEC FAULT associated with Upper ECAM DU Flags ENG 2 - N2 higher than 15 per cent on ground or in flight					770000 PA208 T 810 885
ENG 2 FADEC FAULT	EIU2FAD	CHECK ECU2 A1 AND B1 BUS OR EIU2	732534	1	732500 P 201 T 810 816
ENG 2 FADEC FAULT	EIU2FAD	ECU (ARINC OUT) ENG2A	732160	1	732081 P 204 T 810 804
ENG 2 FADEC FAULT	EIU2FAD	ECU (ARINC OUT) ENG2B	732160	1	732081 P 268 T 810 875
ENG 2 FADEC FAULT	EIU2FAD	ECU (CCDL) ENG2A	732160	1	732081 P 214 T 810 814
ENG 2 FADEC FAULT	EIU2FAD	ECU (CCDL) ENG2B	732160	1	732081 P 298 T 810 909
ENG 2 FADEC HI TEMP	EIU2FAD	COOL VLV, J7, ECU	752420	1	  752400 P 202  T 810 806
<u> </u>	EIU2FAD	COOL VLV, J8, ECU	752420	1	!
ENG 2 FADEC HI TEMP	EIU2FAD	ECU (OVERTEMP) ENG2A	752410	1	732081 P 210 T 810 810
ENG 2 FADEC HI TEMP	EIU2FAD	ECU (OVERTEMP) ENG2B	752410	1	732081 P 274 T 810 881
ENG 2 FAIL					720000 P 215 T 810 807
ENG 2 FF DISCREPANCY				       	730000 P 203 T 810 860

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#### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES				FAULT ISOLATION	
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE	
ENG 2 FF DISCREPANCY associated with Upper ECAM DU Flags ENG 2 - "CHECK" message is shown near engine 2 FF indication					730000 P 206 T 810 862	
ENG 2 FUEL CTL FAULT	EIU2FAD	HMU (FMV) ENG2A	731110	1	731000 P 203 T 810 802	
ENG 2 FUEL CTL FAULT	EIU2FAD	HMU (FMV) ENG2A	732110	1	731000 P 203 T 810 802	
ENG 2 FUEL CTL FAULT	EIU2FAD	HMU (FMV) ENG2B	731110	1	731000 P 289 T 810 836	
ENG 2 FUEL CTL FAULT	EIU2FAD	HMU (FMV) ENG2B	732110	1	731000 P 289 T 810 836	
ENG 2 FUEL CTL FAULT		J7, HMU(FMV TM), ECU associated with J8, HMU(FMV TM), ECU	732150 732150		732900 P 290 T 810 857	
ENG 2 FUEL CTL FAULT	EIU2FAD	J7, HMU(FMV TM), ECU	732150	1	732900 PA229 T 810 870	
ENG 2 FUEL CTL FAULT		J7, HMU(FMVRES), ECU associated with J8, HMU(FMVRES), ECU	732150 732150		732900 P 280 T 810 855	
ENG 2 FUEL CTL FAULT		J7, HMU(FMVRES), ECU associated with J8, HMU(FMVRES), ECU	732150 732150		732900 P 297 T 810 859	
ENG 2 FUEL CTL FAULT	EIU2FAD	J7, HMU(FMVRES), ECU	732150	1	732900 PA217 T 810 866	
	IDENT: EIU2FAD				1 0 10 000 	
ENG 2 FUEL CTL FAULT	EIU2FAD	J8, HMU(FMV TM), ECU	732150	1	732900 PA232 T 810 871	
ENG 2 FUEL CTL FAULT	EIU2FAD	J8, HMU(FMVRES), ECU	732150	1	732900 PA220 T 810 867	
IDENT: EIU2FAD					<del></del>	

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

	WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES				FAULT ISOLATION
	WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!
R	ENG 2 FUEL FILTER CLOG associated with Lower ECAM DU Flags-ENGINE ENG 2 FUEL - F. FILTER CLOG					730000 P 240 T 810 876
R	ENG 2 FUEL RETURN VALVE	EIU2FAD	FRV (CLOSED), J7, ECU	731150	1	731000 P 233 T 810 818
R	ENG 2 FUEL RETURN VALVE	EIU2FAD	FRV (CLOSED), J8, ECU	731150	1	731000 P 237 T 810 820
	ENG 2 FUEL RETURN VALVE	EIU2FAD	FRV (OPEN), J7, ECU	731150	1	731000 P 225 T 810 814
	ENG 2 FUEL RETURN VALVE	EIU2FAD	FRV (OPEN), J8, ECU	731150	1	731000 P 229 T 810 816
	ENG 2 HP FUEL VALVE associated with ENG2 - During engine start sequence: engine starts then shuts down					761200 P 208 T 810 811
	ENG 2 HP FUEL VALVE associated with ENG2 - During engine start sequence: ENG does not spoll up to idle					761200 P 212 T 810 813
	ENG 2 HP FUEL VALVE associated with ENG2 - During normal ENG shut down sequence: ENG does not stop					761200 P 216 T 810 815
	ENG 2 HP FUEL VALVE associated with ENG2 - During normal engine operation: engine stops					761200 P 220 T 810 817

EFF :	ALL		
SROS			

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT ISOLATION		
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	АТА С	PROCEDURE
ENG 2 HP FUEL VALVE associated with ENG2 - During engine start sequence: engine starts then shuts down	EIU2FAD	MASTER LEVER, HMU ENG2A	761200	761200 P 208 T 810 811
ENG 2 HP FUEL VALVE associated with ENG2 - During engine start sequence: ENG does not spoll up to idle	EIU2FAD	MASTER LEVER, HMU ENG2A	761200	761200 P 212 T 810 813
ENG 2 HP FUEL VALVE associated with ENG2 - During normal ENG shut down sequence: ENG does not stop	EIU2FAD	MASTER LEVER, HMU ENG2A	761200	761200 P 216 Т 810 815
ENG 2 HP FUEL VALVE associated with ENG2 - During normal engine operation: engine stops	EIU2FAD	MASTER LEVER, HMU ENG2A	761200	761200 P 220 T 810 817
ENG 2 HP FUEL VALVE	EIU2FAD	MASTER LEVER, HMU ENG2A	761200	761200 P 224 T 810 829
ENG 2 HP FUEL VALVE associated with ENG2 - During engine start sequence: engine starts then shuts down	EIU2FAD	MASTER LEVER, HMU ENG2B	761200	761200 P 208 T 810 811
ENG 2 HP FUEL VALVE associated with ENG2 - During engine start sequence: ENG does not spoll up to idle	EIU2FAD	MASTER LEVER, HMU ENG2B	761200	761200 P 212 T 810 813
ENG 2 HP FUEL VALVE associated with ENG2 - During normal ENG shut down sequence: ENG does not stop		MASTER LEVER, HMU ENG2B	761200	761200 P 216 T 810 815

EFF: ALL

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### TROUBLE SHOOTING MANUAL

LIADNINGS / MALEUNCTIONS	L		FAULT ISOLATION		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	! :
ENG 2 HP FUEL VALVE associated with ENG2 - During normal engine operation: engine stops	EIU2FAD	MASTER LEVER, HMU ENG2B	761200	1	761200 P 220 T 810 817
ENG 2 HP FUEL VALVE	EIU2FAD	MASTER LEVER, HMU ENG2B	761200	1	761200 P 224 T 810 829
ENG 2 IGN A FAULT associated with ENG 1 IGN A FAULT	EIU1FAD	J1, 115 VAC, ECU ENG1A	715100	1	715000 P 201 T 810 801
ENG 2 IGN A FAULT	EIU2FAD	IGN 1, ECU ENG2B	740000	1	740000 P 204 T 810 802
ENG 2 IGN A FAULT	EIU2FAD	IGN1, ECU ENG2A	740000	1	740000 P 204 T 810 802
ENG 2 IGN A FAULT	EIU2FAD	J1, 115 VAC, ECU ENG2A	715100	1	715000 P 204 T 810 802
ENG 2 IGN A FAULT associated with ENG 1 IGN A FAULT	EIU2FAD	J1, 115 VAC, ECU ENG2A	715100	1	715000 P 204 T 810 802
ENG 2 IGN A FAULT	EIU2FAD	J1, 115 VAC, ECU ENG2B	715100	1	715000 P 260 T 810 825
ENG 2 IGN A+B FAULT		IGN 1, ECU ENG2B associated with		İ	740000 P 215 T 810 806
<u></u>	EIU2FAD	IGN 2, ECU ENG2B	740000 	1 	
ENG 2 IGN A+B FAULT	EIU2FAD	IGN1, ECU ENG2A associated with	740000	1	740000 P 215 T 810 806
	EIU2FAD	IGN2, ECU ENG2A	740000	1	
ENG 2 IGN A+B FAULT	EIU2FAD	115VU (MASTER LEVER2 SW)	761215	1	761200 P 203 T 810 806
ENG 2 IGN B FAULT associated with ENG 1 IGN B FAULT	EIU1FAD	J2, 115 VAC, ECU ENG1A	715100	1	715000 P 207 T 810 803
ENG 2 IGN B FAULT	EIU2FAD	IGN 2, ECU ENG2B	740000	1	740000 P 210 T 810 804

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT ISOLATION		
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	C PROCEDURE
ENG 2 IGN B FAULT	EIU2FAD	IGN2, ECU ENG2A	740000	1 740000 P 210 T 810 804
ENG 2 IGN B FAULT	EIU2FAD	J2, 115 VAC, ECU ENG2A	715100	1 715000 P 210 T 810 804
ENG 2 IGN B FAULT associated with ENG 1 IGN B FAULT	EIU2FAD	J2, 115 VAC, ECU ENG2A	715100	1 715000 P 210 T 810 804
ENG 2 IGN B FAULT	EIU2FAD	J2, 115 VAC, ECU ENG2B	715100	1 715000 P 266 T 810 827
ENG 2 LOW N1				730000 P 208 T 810 864
ENG 2 N1 DISCREPANCY				770000 P 206 T 810 828
ENG 2 N1 DISCREPANCY associated with Upper ECAM DU Flags ENG 2 - "CHECK" message is shown near engine 2 N1 indication				770000 P 206 T 810 828
ENG 2 N1 OVER LIMIT				770000 P 223 T 810 850
ENG 2 N2 DISCREPANCY				770000 P 208 T 810 832
ENG 2 N2 DISCREPANCY associated with Upper ECAM DU Flags ENG 2 - "CHECK" message is shown near engine 2 N2 indication				770000 P 208 T 810 832
ENG 2 N2 OVER LIMIT				770000 P 228 T 810 851

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### TROUBLE SHOOTING MANUAL

	HADNINGS /MALEUNGITONS			FAULT ISOLATION		
	WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	! !
R	ENG 2 OIL FILTER CLOG associated with Lower ECAM DU Flags-ENGINE OIL ENG 2 - Oil filter clog					790000 P 228 T 810 821
	ENG 2 OIL HI TEMP	EIU2FAD	OIL TEMP SENSOR2 4004EN	793215	1	790000 P 201 T 810 805
R	ENG 2 OIL LO PR associated with Lower ECAM DU Flags- ENGINE OIL ENG 2 - Oil PRESS indication flashes green on ENG 2					790000 P 209 T 810 808
R	ENG 2 OIL LO PR					790000 P 251 T 810 837
	ENG 2 ONE TLA FAULT	EIU2FAD	TLA SNSR, J3, ECU	761117	1	761100 P 216 T 810 806
	ENG 2 ONE TLA FAULT	EIU2FAD	TLA SNSR, J4, ECU	761117	1	761100 P 222 T 810 808
	ENG 2 OVSPD PROT FAULT	EIU2FAD	HMU (OSG), J7 ENG2A	732110	1	732000 P 205 T 810 838
	ENG 2 OVSPD PROT FAULT	EIU2FAD	HMU (OSG), J7 ENG2B	732110	1	732000 PA273 T 810 942
	ENG 2 OVTHR PROT FAULT	EIU2FAD	ECU (TCMA RELAY) ENG2A	732160	1	732000 PB247 T 810 979
	ENG 2 OVTHR PROT FAULT	EIU2FAD	ECU (TCMA RELAY) ENG2B	732160	1	732000 PB247 T 810 979
	ENG 2 OVTHR PROT FAULT	EIU2FAD	RLY (27KS2/28KS2)	279200	1	732000 PB251 T 810 981
	ENG 2 PROBES FAULT		ECU (PO SENSOR) ENG2A associated with			732081 P 202 T 810 802
İ		L	ECU (PO SENSOR) ENG2B	732160	1 L	L

EFF: ALL

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### TROUBLE SHOOTING MANUAL

LIADNINGS (MALIFILINGITIONS		Ţ	FAULT ISOLATION		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE
ENG 2 PROBES FAULT	EIU2FAD	ECU (PO SENSOR) ENG2A	732160	1	732081 P 202 T 810 802
ENG 2 PROBES FAULT	EIU2FAD	ECU (PO SENSOR) ENG2A	732160	1	732081 P 202 T 810 802
	IDENT: I	EIU2FAD			
ENG 2 PROBES FAULT	EIU2FAD	ECU (PO SENSOR) ENG2B	732160	1	732081 P 272 T 810 879
ENG 2 PROBES FAULT	EIU2FAD	ECU (PS12 SENSOR) ENG2A associated with	732160	1	732000 P 282 T 810 866
	EIU2FAD		732160	1	
ENG 2 PROBES FAULT	EIU2FAD	ECU (PS12 SENSOR) ENG2A	732160	1	732000 P 282 T 810 866
ENG 2 PROBES FAULT	EIU2FAD	ECU (PS12 SENSOR) ENG2A	732160	1	732000 P 282 T 810 866
	IDENT: I	EIU2FAD			
ENG 2 PROBES FAULT	EIU2FAD	ECU (PS12 SENSOR) ENG2B	732160	1	732000 PA279 T 810 948
ENG 2 PROBES FAULT	EIU2FAD	ECU (PS12 SENSOR) ENG2B	732160	1	732000 PA279 T 810 948
	IDENT: I	EIU2FAD			1 010 240
ENG 2 PROBES FAULT	EIU2FAD	ECU (PO SENSOR) ENG2B	732160	1	732081 P 272 T 810 879
	IDENT: I	EIU2FAD		_	
ENG 2 PROBES FAULT	EIU2FAD	T12 SNSR, J10, ECU	732140		732000 P 278 T 810 864
	IDENT: I				
ENG 2 PROBES FAULT	EIU2FAD	T12 SNSR, J9, ECU associated with	732140	1	732000 P 266 T 810 860
	EIU2FAD	T12 SNSR, J10, ECU	732140	1	
ENG 2 PROBES FAULT	İ	T12 SNSR, J9, ECU associated with	j j	İ	732000 PA256 T 810 924
L	EIU2FAD L	T12 SNSR, J10, ECU	732140	1	

EFF: ALL

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### TROUBLE SHOOTING MANUAL

HARNINGS /MALEUNGTIONS			FAULT		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	АТА	С	ISOLATION PROCEDURE
ENG 2 PROBES FAULT	EIU2FAD	T12 SNSR, J9, ECU	732140		732000 P 272 T 810 862
	IDENT: I	EIU2FAD			1 010 002
ENG 2 REV ISOL FAULT	EIU2FAD	TR ISOL VALVE, HCU ENG2A	783753	1	783100 PA217 T 810 862
ENG 2 REV ISOL FAULT	EIU2FAD	TR ISOL VALVE, HCU ENG2B	783753	1	783100 PA217 T 810 862
ENG 2 REV PRESSURIZED	EIU2FAD	HCU (TRPV), HYD ENG2A	783153	1	783100 P 204 T 810 802
ENG 2 REV PRESSURIZED	EIU2FAD	HCU (TRPV), HYD ENG2B	783153	1	783100 P 294 T 810 854
ENG 2 REV PRESSURIZED	EIU2FAD	HCU (TRPV), J5, ECU associated with	783151	1	783100 P 237 T 810 824
	EIU2FAD	HCU (TRPV), J6, ECU	783151	1	
ENG 2 REV PRESSURIZED	EIU2FAD	HCU(TRPV OPEN) ENG2A	783153	1	783100 PA209 T 810 858
ENG 2 REV PRESSURIZED	EIU2FAD	HCU(TRPV OPEN) ENG2B	783153	1	783100 PA209 T 810 858
ENG 2 REV PRESSURIZED	EIU2FAD	TR PR SW, J5+J6, ECU	783116	1	783100 PA245 T 810 878
ENG 2 REV PRESSURIZED	EIU2FAD	TR PR SW, J5+J6, ECU ENG2A	783116	1	783100 PA213 T 810 860
ENG 2 REV PRESSURIZED	EIU2FAD	TR PR SW, J5+J6, ECU ENG2B	783116	1	783100 PA213 T 810 860
ENG 2 REV PRESSURIZED	EIU2FAD	TR PR SW, J5/J6, ECU ENG2A	783116	1	783100 P 232 T 810 822
ENG 2 REV PRESSURIZED	EIU2FAD	TR PR SW, J5/J6, ECU ENG2B	783116	1	783100 P 232 T 810 822
ENG 2 REV SWITCH FAULT	EIU2FAD	J5, TR ACFT SW, ECU	715100	1	715000 P 219 T 810 806
ENG 2 REV SWITCH FAULT	EIU2FAD	J6, TR ACFT SW, ECU	715100	1	715000 P 231 T 810 808

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES				
WARRENGO, FIRE OROTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 2 REVERSE UNLOCKED					783100 PA223 T 810 864
ENG 2 REVERSER FAULT associated with ENG 2 - REVERSER FAULT at engine shut-down					783100 PA228 T 810 868
ENG 2 REVERSER FAULT	EIU2FAD	DEPL SW, J5/J6, ECU ENG2A associated with	783117	1	783100 P 269 T 810 844
	EIU2FAD	DEPL SW, J5/J6, ECU ENG2B	783117	1	
ENG 2 REVERSER FAULT	EIU2FAD	DPLSTW SW, J5/J6, ECU ENG2A associated with	783100	1	783100 P 253 T 810 836
	EIU2FAD	DPLSTW SW, J5/J6, ECU ENG2B	783100	1	
ENG 2 REVERSER FAULT	EIU2FAD	DPLSTW SW, J5/J6, ECU ENG2A	783100	1	783100 P 274 T 810 846
ENG 2 REVERSER FAULT	EIU2FAD	EIU, HCU ENG2A	732534	1	783100 PA236 T 810 872
ENG 2 REVERSER FAULT	EIU2FAD	EIU, HCU ENG2A	732534	1	783100 PA240 T 810 876
ENG 2 REVERSER FAULT	EIU2FAD	EIU, HCU ENG2B	732534	1	783100 PA236 T 810 872
ENG 2 REVERSER FAULT	EIU2FAD	EIU, HCU ENG2B	732534	1	783100 PA240 T 810 876
ENG 2 REVERSER FAULT	EIU2FAD	EIU, LGCIU(WOW) ENG2A	732534	1	732500 PA204 T 810 917
ENG 2 REVERSER FAULT	EIU2FAD	EIU, LGCIU(WOW) ENG2B	732534	1	732500 PA204 T 810 917
ENG 2 REVERSER FAULT	<b>j</b>	HCU (TRDV), J5, ECU associated with	İ		783100 P 212 T 810 816
<u> </u> 	E1U2FAD	HCU (TRDV), J6, ECU	783151 	1 	<u> </u>

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT - ISOLATION		
WARRENGO, FINE FOR TORO	SOURCE	MESSAGE	ATA	PROCEDURE
ENG 2 REVERSER FAULT associated with STS-Maintenance ENG 2 FADEC	EIU2FAD	HCU (TRDV), J5, ECU	783151	783100 P 223 T 810 819
ENG 2 REVERSER FAULT	EIU2FAD	HCU (TRDV), J5, ECU	783151	1 783100 P 223 T 810 819
ENG 2 REVERSER FAULT associated with STS-Maintenance ENG 2 FADEC	EIU2FAD	HCU (TRDV), J6, ECU	783151	1 783100 P 226 T 810 820
ENG 2 REVERSER FAULT	EIU2FAD	HCU (TRDV), J6, ECU	783151	783100 P 226 T 810 820
ENG 2 REVERSER FAULT	EIU2FAD	HCU (TRPV), HYD ENG2A	783153	783100 P 204 T 810 802
ENG 2 REVERSER FAULT	EIU2FAD	HCU (TRPV), HYD ENG2B	783153	1 783100 P 294 T 810 854
ENG 2 REVERSER FAULT	İ	HCU (TRPV), J5, ECU associated with HCU (TRPV), J6, ECU	783151 783151	1 783100 P 237 T 810 824
ENG 2 REVERSER FAULT associated with STS-Maintenance ENG 2 FADEC	EIU2FAD	HCU (TRPV), J5, ECU	783151	1 783100 P 245 T 810 827
ENG 2 REVERSER FAULT	EIU2FAD	HCU (TRPV), J5, ECU	783151	1 783100 P 245 T 810 827
ENG 2 REVERSER FAULT associated with STS-Maintenance ENG 2 FADEC	EIU2FAD	HCU (TRPV), J6, ECU	783151	1 783100 P 248 T 810 828
ENG 2 REVERSER FAULT	EIU2FAD	HCU (TRPV), J6, ECU	783151	1 783100 P 248 T 810 828
ENG 2 REVERSER FAULT	EIU2FAD	HCU ENG2A	783151	1 783100 P 279 T 810 848

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION	
WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	С	i	
ENG 2 REVERSER FAULT	EIU2FAD	HCU ENG2B	783151	1	783100 P 287 T 810 852	
ENG 2 REVERSER FAULT	EIU2FAD	HCU, TRSOV, HYD ENG2A	783153	1	783100 PA202 T 810 856	
ENG 2 REVERSER FAULT	EIU2FAD	HCU, TRSOV, HYD ENG2B	783153	1	783100 PA202 T 810 856	
ENG 2 REVERSER FAULT	EIU2FAD	STOW SW, J5/J6, ECU ENG2A associated with	783118	1	783100 P 260 T 810 840	
	EIU2FAD	STOW SW, J5/J6, ECU ENG2B	783118	1		
ENG 2 REVERSER FAULT	EIU2FAD	TR LATCH, STOW SW ENG2A associated with	783100	1	783100 PA223 T 810 864	
	EIU2FAD		783100	1		
ENG 2 REVERSER FAULT	EIU2FAD	TR LATCH, STOW SW ENG2A	783100	1	783100 PA223 T 810 864	
ENG 2 REVERSER FAULT	EIU2FAD	TR LATCH, STOW SW ENG2B	783100	1	783100 PA223 T 810 864	
ENG 2 REVERSER FAULT	EIU2FAD	TR LOCK, TR ACT ENG2A	783300	1	783100 PA236 T 810 872	
ENG 2 REVERSER FAULT	EIU2FAD	TR LOCK, TR ACT ENG2A	783300	1	783100 PA240 T 810 876	
ENG 2 REVERSER FAULT	EIU2FAD	TR LOCK, TR ACT ENG2B	783300	1	783100 PA236 T 810 872	
ENG 2 REVERSER FAULT	EIU2FAD	TR LOCK, TR ACT ENG2B	783300	1	783100 PA240 T 810 876	
ENG 2 REVERSER FAULT	EIU2FAD	TR PR SW, J5/J6, ECU ENG2A	783116	1	783100 P 232 T 810 822	
ENG 2 REVERSER FAULT	EIU2FAD	TR PR SW, J5/J6, ECU ENG2B	783116	1	783100 P 232 T 810 822	
ENG 2 REVERSER FAULT	LGCIU 2	L L/G EXT PROX SNSR 23GA	323173	1	323100 PA226 T 810 854	

EFF: ALL

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### TROUBLE SHOOTING MANUAL

HARNINGS (MALIFILMS TIONS	<u> </u>	CFDS FAULT MESSAGES	 S		FAULT			
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE			
ENG 2 REVERSER FAULT	LGCIU 2	L L/G EXT PROX SNSR 23GA TGT POS	323173	1	323100 PA226 T 810 854			
ENG 2 REVERSER FAULT	LGCIU 2	R L/G EXT PROX SNSR 22GA	323173	1	323100 PA226 T 810 854			
ENG 2 REVERSER FAULT	LGCIU 2	R L/G EXT PROX SNSR 22GA TGT POS	323173	1	323100 PA226 T 810 854			
ENG 2 SENSOR FAULT		ECU, PS3 SNSR LINE ENG2A associated with			Т 810 868			
	EIU2FAD	ECU, PS3 SNSR LINE ENG2B	732160	1				
ENG 2 SENSOR FAULT	EIU2FAD	ECU, PS3 SNSR LINE ENG2A	732160	1	732000 P 285 T 810 868			
ENG 2 SENSOR FAULT	EIU2FAD	ECU, PS3 SNSR LINE ENG2A	732160	1	732000 P 285 T 810 868			
	IDENT: I	EIU2FAD						
ENG 2 SENSOR FAULT	EIU2FAD	ECU, PS3 SNSR LINE ENG2B	732160	1	732000 PA294 T 810 952			
ENG 2 SENSOR FAULT	EIU2FAD	ECU, PS3 SNSR LINE ENG2B	732160	1	732000 PA294 T 810 952			
	IDENT: I	EIU2FAD			010 752			
ENG 2 SENSOR FAULT	EIU2FAD	N1 SNSR, J10, ECU	771110		771000 P 228 T 810 818			
	IDENT: I	EIU2FAD						
ENG 2 SENSOR FAULT		N1 SNSR, J9, ECU	771110		771000 P 214 T 810 814			
	:	associated with N1 SNSR, J10, ECU	771110		1 010 014			
ENG 2 SENSOR FAULT	EIU2FAD	N1 SNSR, J9, ECU	771110	1	771000 P 225 T 810 817			
	IDENT: I		1 010 017					
ENG 2 SENSOR FAULT	EIU2FAD	N2 SNSR, J7, ECU associated with	771120	1	771000 P 235 T 810 820			
	EIU2FAD	N2 SNSR, J8, ECU	771120	1	1 0 10 020 			
ENG 2 SENSOR FAULT	EIU2FAD	N2 SNSR, J7, ECU	771120	1	771000 P 245 T 810 823			
	IDENT: I	EIU2FAD		IDENT: EIU2FAD				

EFF: ALL

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### TROUBLE SHOOTING MANUAL

HADNINGS /MALEUNGTIONS		CFDS FAULT MESSAGES		FAULT ISOLATION	
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	l
ENG 2 SENSOR FAULT	EIU2FAD	N2 SNSR, J8, ECU	771120		771000 P 248 T 810 824
	IDENT: I	EIU2FAD			1 010 024
ENG 2 SENSOR FAULT	EIU2FAD	T25 SNSR, J11, ECU associated with	732120	1	732000 P 260 T 810 858
	EIU2FAD	T25 SNSR, J12, ECU	732120	1	
ENG 2 SENSOR FAULT	EIU2FAD	T25 SNSR, J11, ECU associated with	732120	1	732000 PA258 T 810 926
	EIU2FAD	T25 SNSR, J12, ECU	732120	1	!!!
ENG 2 SENSOR FAULT	EIU2FAD	T25 SNSR, J11, ECU	732120		732000 P 248 T 810 854
	IDENT: I	EIU2FAD			010 054
ENG 2 SENSOR FAULT	EIU2FAD	T25 SNSR, J11, ECU ENG2A associated with	732120	1	732000 P 260 T 810 858
	EIU2FAD	T25 SNSR, J12, ECU ENG2B	732120	1	!!!
ENG 2 SENSOR FAULT	EIU2FAD	T25 SNSR, J12, ECU	732120		732000 P 254 T 810 856
	IDENT: I	EIU2FAD			
ENG 2 SENSOR FAULT	EIU2FAD	T3 SNSR, J13, ECU	772310	1	772000 P 211 T 810 806
ENG 2 SENSOR FAULT	EIU2FAD	T3 SNSR, J13, ECU ENG2A associated with	772310	1	772000 P 211 T 810 806
	EIU2FAD		772310	1	, ,
ENG 2 SENSOR FAULT		T495 SNSR, J13, ECU ENG2A	772110		772000 P 204 T 810 804
	IDENT: I				
ENG 2 SENSOR FAULT	EIU2FAD	T495 SNSR, J13, ECU ENG2B	772110	1	772000 P 234 T 810 827
	IDENT: I				
ENG 2 SHUT DOWN					700000 P 201 T 810 801
ENG 2 SHUT DOWN	LGCIU 2	L L/G EXT PROX SNSR 23GA	323173	1	323100 PA226 T 810 854

EFF: ALL

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### TROUBLE SHOOTING MANUAL

	WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES			
	WARNINGS/MALFORCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
	ENG 2 SHUT DOWN	LGCIU 2	R L/G EXT PROX SNSR 22GA	323173	1	323100 PA226 T 810 854
	ENG 2 STALL					730000 P 209 T 810 865
<b>२</b>	ENG 2 START FAULT					800000 P 222 T 810 852
	ENG 2 START FAULT - STARTER TIME EXCEEDED					800000 P 207 T 810 831
	ENG 2 START FAULT - ENG 2 EGT OVERLIMIT					800000 P 208 T 810 832
	ENG 2 START FAULT - ENG 2 IGNITION FAULT					800000 P 204 T 810 830
	ENG 2 START FAULT - ENG 2 IGNITION FAULT	EIU2FAD	IGN 2, ECU ENG2B	740000	1	740000 P 210 T 810 804
	ENG 2 START FAULT - ENG 2 IGNITION FAULT	EIU2FAD	IGN2, ECU ENG2A	740000	1	740000 P 210 T 810 804
	ENG 2 START FAULT - ENG 2 STALL					800000 P 211 T 810 833
	ENG 2 START FAULT - LO START AIR PRESS					800000 P 207 T 810 831
	ENG 2 START FAULT - THR LEVER NOT AT IDLE					700000 P 202 T 810 805
	ENG 2 START VALVE FAULT					770000 PA219 T 810 889
	ENG 2 START VALVE FAULT	EIU2FAD	SAV (SOL), J9, ECU	801120	1	801100 P 217 T 810 807
	ENG 2 START VALVE FAULT		SAV (SOL), J9, ECU associated with	j		801100 P 223 T 810 810
		<u> </u>	SAV, J10, ECU	801120		
	ENG 2 START VALVE FAULT	EIU2FAD	SAV, J10, ECU	801120	1	801100 P 219 T 810 808

EFF: ALL SROS

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES				FAULT ISOLATION
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	i
ENG 2 START VALVE FAULT	EIU2FAD	START AIR, SAV ENG2A	801100	1	801100 P 210 T 810 804
ENG 2 START VALVE FAULT	EIU2FAD	START AIR, SAV ENG2B	801100	1	801100 P 231 T 810 814
ENG 2 START VALVE FAULT - START VALVE NOT CLOSED					770000 PA219 T 810 889
ENG 2 START VALVE FAULT - START VALVE NOT CLOSED		SAV (SOL), J9, ECU associated with	801120	1	801100 P 223 T 810 810
L		SAV, J10, ECU	801120	1	
ENG 2 START VALVE FAULT - START VALVE NOT CLOSED	EIU2FAD	START AIR, SAV ENG2A	801100	1	801100 P 210 T 810 804
ENG 2 START VALVE FAULT - START VALVE NOT CLOSED	EIU2FAD	START AIR, SAV ENG2B	801100	1	801100 P 231 T 810 814
ENG 2 START VALVE FAULT - START VALVE NOT OPEN					770000 PA219 T 810 889
ENG 2 START VALVE FAULT - START VALVE NOT OPEN	EIU2FAD	SAV (SOL), J9, ECU associated with	801120	1	801100 P 223 T 810 810
- START VALVE NOT OFEN	EIU2FAD	SAV, J10, ECU	801120	1	
ENG 2 START VALVE FAULT - START VALVE NOT OPEN	EIU2FAD	START AIR, SAV ENG2A	801100	1	801100 P 210 T 810 804
ENG 2 START VALVE FAULT - START VALVE NOT OPEN	EIU2FAD	START AIR, SAV ENG2B	801100	1	801100 P 231 T 810 814
ENG 2 THR LEVER DISAGREE					761100 P 238 T 810 814
ENG 2 THR LEVER DISAGREE	EIU2FAD	TLA SNSR, J3, ECU associated with	761117	1	761100 P 238 T 810 814
	EIU2FAD	TLA SNSR, J4, ECU	761117	1	. 010 014
ENG 2 THR LEVER FAULT				     	761100 P 229 T 810 812
ENG 2 THR LEVER FAULT	EIU2FAD	TLA SNSR, J3, ECU associated with	761117	1	761100 P 207 T 810 804
l L	EIU2FAD	TLA SNSR, J4, ECU	761117	1	

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT ISOLATION			
WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE

#### STS-Maintenance

R R

ENG EVMU associated with Lower ECAM DU Flags- ENGINE ENG - N1 vibration indication replaced by amber XX on one engine					773000 P 203 T 810 802
ENG EVMU associated with Lower ECAM DU Flags- ENGINE ENG - N2 vibration indication replaced by amber XX on one engine					773000 P 203 T 810 802
ENG EVMU	EVMU	ENG1 BRG1 ACCEL	773216	2	773000 P 214 T 810 809
ENG EVMU	EVMU	ENG1 N1 SPEED SENSOR	771115	2	773000 P 206 T 810 805
ENG EVMU	EVMU	ENG1 N2 SPEED SENSOR	771215	2	773000 P 210 T 810 807
ENG EVMU	EVMU	ENG1 SECOND ACCEL	773218	2	773000 P 218 T 810 811
ENG EVMU	EVMU	ENG2 BRG1 ACCEL	773216	2	773000 P 216 T 810 810
ENG EVMU	EVMU	ENG2 N1 SPEED SENSOR	771115	2	773000 P 208 T 810 806
ENG EVMU	EVMU	ENG2 N2 SPEED SENSOR	771215	2	773000 P 212 T 810 808
ENG EVMU	EVMU	ENG2 SECOND ACCEL	773218	2	773000 P 220 T 810 812

EFF: ALL
SROS

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT ISOLATION			
!	SOURCE	MESSAGE	ATA	С	!
ENG EVMU associated with Lower ECAM DU Flags- ENGINE ENG - N1 or N2 VIB indication replaced by amber XX on one engine	EVMU	EVMU	773234	2	773000 P 203 T 810 802
ENG 1 EIU	ECAM 1	XMTR 4003EN associated with	793315 793315		793300 P 205 T 810 814
	 	XMTR 4003EN  ECAM 2, EIU1FAD	L	_ 	
	<del> </del>	<b>_</b>	<u> </u>	Γ	<u> </u>
ENG 1 EIU 	ECAM 2	XMTR 4003EN associated with			793300 P 205  T 810 814
	ECAM 2   	SDAC2 : ENG1 OIL PRESS XMTR 4003EN	793315	2   	1
	IDENT: I	EIU1FAD			
ENG 1 EIU	EIU1FAD	CHECK HOT AIR LEAKS ENG1	362200	2	754100 P 201 T 810 805
ENG 1 EIU	EIU1FAD	CHECK OIL PRESS XMTR1 CIRCUIT 4003EN	793315	2	790000 P 233 T 810 824
ENG 1 EIU	EIU1FAD	CHECK PACK CONT 7HH/EIU1 CIRCUIT	732534	2	732500 P 228 T 810 863
ENG 1 EIU	EIU1FAD	CHECK ZONE CONT 8HK/EIU1 CIRCUIT	732534	2	732500 P 224 T 810 861
ENG 1 EIU	EIU1FAD	CHECK 10KS1 RELAY CIRCUIT OR EIU1	732534	2	732500 P 208 T 810 847
ENG 1 EIU	EIU1FAD	CHECK 12KS1 RELAY CIRCUIT OR EIU1	732534	2	732500 P 210 T 810 849
ENG 1 EIU	EIU1FAD	CHECK 14KS1 RELAY CIRCUIT OR EIU1	732534	2	732500 P 238 T 810 869

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT ISOLATION			
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!
ENG 1 EIU	EIU1FAD	CHECK 17HB RELAY CIRCUIT OR EIU1	732534	2	732500 P 232 T 810 865
ENG 1 EIU	EIU1FAD	CHECK 2708GJ RELAY CIRCUIT OR EIU1	732534	2	732500 P 222 T 810 859
ENG 1 EIU	EIU1FAD	EIU1	732534	2	732500 P 218 T 810 855
ENG 1 EIU	EIU1FAD	EIU1 : NO CFDIU DATA	313234	2	732500 P 250 T 810 881
ENG 1 EIU	EIU1FAD	EIU1 : NO CFDIU DATA	313234	2	313200 P 269 T 810 856
	IDENT:	EIU1FAD, LGCIU 1, TPIS			
ENG 1 EIU	EIU1FAD	EIU1 : NO FADEC 1 A DATA	732160	2	732500 P 203 T 810 827
ENG 1 EIU	EIU1FAD	EIU1 : NO FADEC 1 B DATA	732160	2	732500 P 206 T 810 845
ENG 1 EIU	EIU1FAD	NAC TEMP SENSOR1 13KS1	754115	2	754100 P 211 T 810 807
ENG 1 EIU	EIU1FAD	OIL TEMP SENSOR1 4004EN	793215	2	790000 P 218 T 810 815
ENG 1 EIU	EIU1FAD	115VU (CRANK/MODE AUTO/ ING SEL SW)	763115	2	761200 P 204 T 810 807
ENG 1 EIU	EIU1FAD	115VU (MASTER LEVER1 SW)	761215	1	761200 P 201 T 810 805
ENG 1 EIU	LGCIU 1	LGCIU 1:NO DATA FROM CFDS	313234	1	313200 PA247 T 810 903
	IDENT:				
ENG 1 FADEC	EIU1FAD	BSV (VLV OPEN), HMU ENG1A	731170	2	731000 P 205 T 810 805
ENG 1 FADEC	EIU1FAD	BSV (VLV OPEN), HMU ENG1B	731170	2	731000 P 275 T 810 833

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS			FAULT ISOLATION		
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!
ENG 1 FADEC	EIU1FAD	BSV, J11/J12, ECU ENG1A	731170	2	731000 P 215 T 810 807
ENG 1 FADEC	EIU1FAD	BSV, J11/J12, ECU ENG1B	731170	2	731000 P 265 T 810 831
ENG 1 FADEC		BSV, J11, ECU associated with			731000 P 263 T 810 829
	EIU1FAD <del> </del>	BSV, J12, ECU	731170	2	 
ENG 1 FADEC	EIU1FAD	BSV, J11, ECU	731170		731000 P 245 T 810 823
	IDENT:	EIU1FAD			010 023
ENG 1 FADEC	EIU1FAD	BSV, J11, J14(WRONG) ENG1A	731170	2	731000 PA209 T 810 849
ENG 1 FADEC	EIU1FAD	BSV, J12, ECU	731170		731000 P 251
	IDENT:	EIU1FAD	·		Т 810 825
ENG 1 FADEC	EIU1FAD	BSV, J12, J14(WRONG) ENG1B	731170	2	731000 PA215 T 810 851
ENG 1 FADEC	EIU1FAD	DEPL SW, J5/J6, ECU ENG1A	783117	2	783100 P 265 T 810 843
ENG 1 FADEC	EIU1FAD	DEPL SW, J5/J6, ECU ENG1B	783117	2	783100 P 265 T 810 843
ENG 1 FADEC	EIU1FAD	ECU (ADC1 INTFC)	732160	2	732081 P 251 T 810 857
ENG 1 FADEC	EIU1FAD	ECU (ADC1 INTFC) ENG1A	732160	2	732081 P 251 T 810 857
ENG 1 FADEC	EIU1FAD	ECU (ADC1 INTFC) ENG1A associated with	732160	2	732081 P 251 T 810 857
	EIU1FAD	ECU (ADC1 INTFC) ENG1B	732160	2	
ENG 1 FADEC	EIU1FAD	ECU (ADC1 INTFC) ENG1A	732160		732081 P 251 T 810 857
	IDENT: EIU1FAD				זכס טוס ז <u>ן</u>
ENG 1 FADEC	EIU1FAD	ECU (ADC1 INTFC) ENG1B	732160	2	732081 P 287 T 810 898

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES			FAULT ISOLATION	
WARNINGS/ MALI UNCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE
ENG 1 FADEC	EIU1FAD	ECU (ADC1 INTFC) ENG1B	732160	2	732081 P 287 T 810 898
	IDENT: I	EIU1FAD			010 070
ENG 1 FADEC	EIU1FAD	ECU (ADC2 INTFC)	732160	2	732081 P 253 T 810 859
ENG 1 FADEC	EIU1FAD	ECU (ADC2 INTFC) ENG1A	732160	2	732081 P 253 T 810 859
ENG 1 FADEC	EIU1FAD	ECU (ADC2 INTFC) ENG1A associated with	732160	2	732081 P 253 T 810 859
	EIU1FAD		732160	2	1 0 10 0 0 7   
ENG 1 FADEC	EIU1FAD	ECU (ADC2 INTFC) ENG1A	732160	2	732081 P 253 T 810 859
	IDENT: I	EIU1FAD			
ENG 1 FADEC	EIU1FAD	ECU (ADC2 INTFC) ENG1B	732160	2	732081 P 289 T 810 900
ENG 1 FADEC	EIU1FAD	ECU (ADC2 INTFC) ENG1B	732160	2	732081 P 289 T 810 900
	IDENT: I	EIU1FAD			
ENG 1 FADEC	EIU1FAD	ECU (CHAN SYNCH)	732160	2	732081 P 261 T 810 868
ENG 1 FADEC	EIU1FAD	ECU (EIU INTFC)	732160	2	732081 P 259 T 810 865
ENG 1 FADEC	EIU1FAD	ECU (EIU INTFC) ENG1A	732160	2	732081 P 259 T 810 865
ENG 1 FADEC	EIU1FAD	ECU (EIU INTFC) ENG1A associated with	732160	2	732081 P 259 T 810 865
	EIU1FAD	ECU (EIU INTFC) ENG1B	732160	2	
ENG 1 FADEC	EIU1FAD	ECU (EIU INTFC) ENG1A	732160	2	732081 P 259 T 810 865
	IDENT: EIU1FAD				
ENG 1 FADEC	EIU1FAD	ECU (EIU INTFC) ENG1B	732160	2	732081 P 295 T 810 906

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT - ISOLATION		
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	C PROCEDURE
ENG 1 FADEC	EIU1FAD	ECU (EIU INTFC) ENG1B	732160	2 732081 P 295 - T 810 906
	IDENT: I	EIU1FAD		1 810 700
ENG 1 FADEC	EIU1FAD	ECU (NVM FAULT) ENG1A	732160	732081 P 255 T 810 861
ENG 1 FADEC	EIU1FAD	ECU (NVM FAULT) ENG1B	732160	732081 P 291 T 810 902
ENG 1 FADEC	EIU1FAD	ECU (PO SENSOR) ENG1A	732160	732081 P 201 T 810 801
ENG 1 FADEC	EIU1FAD	ECU (PO SENSOR) ENG1B	732160	2 732081 P 271 T 810 878
ENG 1 FADEC	EIU1FAD	ECU (PRESS SYS A) ENG1A	732160	732081 P 231 T 810 831
ENG 1 FADEC	EIU1FAD	ECU (PRESS SYS A) ENG1B	732160	732081 P 275 T 810 882
ENG 1 FADEC	EIU1FAD	ECU (PRESS SYS B) ENG1A	732160	2 732081 P 233 T 810 833
ENG 1 FADEC	EIU1FAD	ECU (PRESS SYS B) ENG1B	732160	2 732081 P 277 T 810 884
ENG 1 FADEC	EIU1FAD	ECU (PS12 SENSOR) ENG1A	732160	732000 P 281 T 810 865
ENG 1 FADEC	EIU1FAD	ECU (PS12 SENSOR) ENG1B	732160	2 732000 PA278 T 810 947
ENG 1 FADEC	EIU1FAD	ECU (SCU, MUX FAULT) ENG1A	732160	2 732081 P 237 T 810 839
ENG 1 FADEC	EIU1FAD	ECU (SCU, MUX FAULT) ENG1B	732160	2 732081 P 285 T 810 896
ENG 1 FADEC	EIU1FAD	ECU (SPEED CONV) ENG1A	732160	2 732081 P 257 T 810 863
ENG 1 FADEC	EIU1FAD	ECU (SPEED CONV) ENG1B	732160	732081 P 293 T 810 904

EFF: ALL

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### TROUBLE SHOOTING MANUAL

LIADNINGS / MALEUNGITONS		FAULT ISOLATION			
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE
ENG 1 FADEC	EIU1FAD	ECU (TCMA RELAY) ENG1A	732160	2	732000 PB247 T 810 979
ENG 1 FADEC	EIU1FAD	ECU (TCMA RELAY) ENG1B	732160	2	732000 PB247 T 810 979
ENG 1 FADEC	EIU1FAD	ECU (TECU SENSOR) ENG1A	732160	2	732081 P 211 T 810 811
ENG 1 FADEC	EIU1FAD	ECU (TECU SENSOR) ENG1B	732160	2	732081 P 269 T 810 876
ENG 1 FADEC	EIU1FAD	ECU, PS3 SNSR LINE ENG1A	732160	2	732000 P 283 T 810 867
ENG 1 FADEC	EIU1FAD	ECU, PS3 SNSR LINE ENG1B	732160	2	732000 PA292 T 810 951
ENG 1 FADEC	EIU1FAD	EIU (ARINC), J3 ENG1A	732534	2	715000 P 241 T 810 811
ENG 1 FADEC	EIU1FAD	EIU (ARINC), J3 ENG1B	732534	2	715000 P 277 T 810 832
ENG 1 FADEC	EIU1FAD	EIU (031), J3 ENG1A	732534	2	732500 P 278 T 810 897
ENG 1 FADEC	EIU1FAD	EIU (031), J3 ENG1B	732534	2	732500 PA230 T 810 936
ENG 1 FADEC	EIU1FAD	EIU-28V, ECU ENG1A	732534	2	732500 P 296 T 810 909
ENG 1 FADEC	EIU1FAD	EIU-28V, ECU ENG1B	732534	2	732500 PA244 T 810 946
ENG 1 FADEC	EIU1FAD	EIU, ECU (CR3 DIODE) ENG1A	732534	2	732500 PA206 T 810 920
ENG 1 FADEC	EIU1FAD	EIU, ECU (CR3 DIODE) ENG1B	732534	2	732500 PA250 T 810 948
ENG 1 FADEC associated with Upper ECAM DU Warnings ENG 1 COMPRESSOR VANE		ENGINE ENG1A associated with HPC (OPERAT. LINE) ENG1A			720000 P 219 T 810 808

EFF: ALL

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### TROUBLE SHOOTING MANUAL

HADNINGS (MALIFINICITIONS		FAULT		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	- ISOLATION C PROCEDURE
ENG 1 FADEC associated with	EIU1FAD	ENGINE ENG1B associated with	720000	1 720000 P 219 T 810 808
Upper ECAM DU Warnings ENG 1 COMPRESSOR VANE	EIU1FAD	HPC (OPERAT. LINE) ENG1B	733300	!!!
ENG 1 FADEC	EIU1FAD	EOT SNSR, J13, ECU	793140	793100 P 201 T 810 811
ENG 1 FADEC	EIU1FAD	EOT SNSR, J13, ECU ENG1A	793140	S 793100 P 201 T 810 811
ENG 1 FADEC	EIU1FAD	EOT SNSR, J13, ECU ENG1A	793140	2 793100 P 201 T 810 811
ENG 1 FADEC	EIU1FAD	EOT SNSR, J13, ECU ENG1B	793140	793100 P 207 T 810 817
ENG 1 FADEC	EIU1FAD	FCU, EIU (034), J3 ENG1A	228112	732500 P 264 T 810 891
ENG 1 FADEC	EIU1FAD	FCU, EIU (034), J3 ENG1B	228112	732500 PA232 T 810 938
ENG 1 FADEC	EIU1FAD	FCU, EIU(ATN1), J3 ENG1A	228112	2 732500 P 260 T 810 889
ENG 1 FADEC	EIU1FAD	FCU, EIU(ATN1), J3 ENG1A associated with	228112	732500 P 260 T 810 889
	EIU1FAD	FCU, EIU(ATN1), J3 ENG1B	228112	
ENG 1 FADEC	EIU1FAD	FCU, EIU(ATN1), J3 ENG1A	228112	2 732500 P 260 - T 810 889
	IDENT: I			
ENG 1 FADEC	EIU1FAD	FCU, EIU(ATN1), J3 ENG1B	228112	732500 PA214 T 810 926
ENG 1 FADEC	EIU1FAD	FCU, EIU(ATN1), J3 ENG1B	228112	2 732500 PA214 T 810 926
	IDENT: I	-71 610 720		
ENG 1 FADEC	EIU1FAD	FLOW SNSR, J13, ECU ENG1A	733110	2 733100 P 201 T 810 805
ENG 1 FADEC	EIU1FAD	FLOW SNSR, J13, ECU ENG1B	733110	733100 P 205 T 810 807

EFF: ALL

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### TROUBLE SHOOTING MANUAL

	HADNINGS /MAL FUNCTIONS		CFDS FAULT MESSAGES		FAULT - ISOLATION	
	WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!!
	ENG 1 FADEC	EIU1FAD	FRV (CLOSED), J7, ECU	731150	2	731000 P 231 T 810 817
R	ENG 1 FADEC	EIU1FAD	FRV (CLOSED), J8, ECU	731150	2	731000 P 235 T 810 819
	ENG 1 FADEC	EIU1FAD	FRV (OPEN), J7, ECU	731150	2	731000 P 223 T 810 813
	ENG 1 FADEC	EIU1FAD	FRV (OPEN), J8, ECU	731150	2	731000 P 227 T 810 815
R	ENG 1 FADEC	EIU1FAD	FRV (SW), J7/J8, ECU ENG1A	731150	2	731000 P 239 T 810 821
R	ENG 1 FADEC	EIU1FAD	FRV (SW), J7/J8, ECU ENG1B	731150	2	731000 P 239 T 810 821
	ENG 1 FADEC associated with Upper ECAM DU Warnings ENG 1 REVERSER FAULT	EIU1FAD	HCU (TRDV), J5, ECU	783151	1	783100 P 217 T 810 817
	ENG 1 FADEC	EIU1FAD	HCU (TRDV), J5, ECU	783151	2	783100 P 217 T 810 817
	ENG 1 FADEC associated with Upper ECAM DU Warnings ENG 1 REVERSER FAULT	EIU1FAD	HCU (TRDV), J6, ECU	783151	1	783100 P 220 T 810 818
	ENG 1 FADEC	EIU1FAD	HCU (TRDV), J6, ECU	783151	2	783100 P 220 T 810 818
	ENG 1 FADEC associated with Upper ECAM DU Warnings ENG 1 REVERSER FAULT	EIU1FAD	HCU (TRPV), J5, ECU	783151	1	783100 P 239 T 810 825
	ENG 1 FADEC	EIU1FAD	HCU (TRPV), J5, ECU	783151	2	783100 P 239 T 810 825
	ENG 1 FADEC associated with Upper ECAM DU Warnings ENG 1 REVERSER FAULT	EIU1FAD	HCU (TRPV), J6, ECU	783151	1	783100 P 242 T 810 826

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES				FAULT
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 1 FADEC	EIU1FAD	HCU (TRPV), J6, ECU	783151	2	783100 P 242 T 810 826
ENG 1 FADEC	EIU1FAD	HCU ENG1A	783151	2	783100 P 275 T 810 847
ENG 1 FADEC	EIU1FAD	HCU ENG1B	783151	2	783100 P 283 T 810 851
ENG 1 FADEC	EIU1FAD	HPC (OPERAT. LINE) ENG1A	733300	2	720000 P 223 T 810 812
ENG 1 FADEC	EIU1FAD	HPC (OPERAT. LINE) ENG1B	733300	2	720000 P 223 T 810 812
ENG 1 FADEC	EIU1FAD	HPTC VLV (POS), HMU ENG1A	752110	2	752100 P 201 T 810 803
ENG 1 FADEC	EIU1FAD	HPTC VLV (POS), HMU ENG1B	752110	2	752100 P 237 T 810 823
ENG 1 FADEC		HPTC VLV, J11, ECU ENG1A associated with HPTC VLV, J12, ECU ENG1B			T 810 807
ENG 1 FADEC	EIU1FAD	HPTC VLV, J11, ECU ENG1A	752110	2	752100 P 217 T 810 809
ENG 1 FADEC	EIU1FAD	HPTC VLV, J11, ECU ENG1A	752110		752100 P 217 T 810 809
	IDENT: I	EIU1FAD			1 6 10 60 <del>7</del> 
ENG 1 FADEC	EIU1FAD	HPTC VLV, J12, ECU ENG1B	752110	2	752100 P 223 T 810 811
ENG 1 FADEC	EIU1FAD	HPTC VLV, J12, ECU ENG1B	752110	2	752100 P 223 T 810 811
	IDENT: I				
ENG 1 FADEC	EIU1FAD	IDG, FRV(OIL TEMP) ENG1A	794000	2	794000 P 201 T 810 801
ENG 1 FADEC	EIU1FAD	IDG, FRV(OIL TEMP) ENG1B	794000	2	794000 P 201 T 810 801

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EFF:

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### TROUBLE SHOOTING MANUAL

LIADNINGS (MALEUNGITONS	CFDS FAULT MESSAGES			FAULT
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	ISOLATION C PROCEDURE
ENG 1 FADEC	EIU1FAD	IGN 2, ECU ENG1B	740000	2 740000 P 207 T 810 803
ENG 1 FADEC	EIU1FAD	IGN2, ECU ENG1A	740000	2 740000 P 207 T 810 803
ENG 1 FADEC	EIU1FAD	J3 (INSTINCT DISC) ENG1A	715100	2 715000 P 237 T 810 809
ENG 1 FADEC	EIU1FAD	J3 (INSTINCT DISC) ENG1A associated with	715100	2 715000 P 237 T 810 809
	EIU1FAD	J3 (INSTINCT DISC) ENG1B	715100	!!
ENG 1 FADEC	EIU1FAD	J3 (INSTINCT DISC) ENG1A	715100	2 715000 P 237 T 810 809
	IDENT: I	EIU1FAD		
ENG 1 FADEC	EIU1FAD	J3 (INSTINCT DISC) ENG1A	715100	  2 732900 P 263   T 810 848
		AFS, ECAM 1, ECAM 2, EIS 1 EIS 2, EIS 3, EIU1FAD	1,	
ENG 1 FADEC	EIU1FAD	J3 (INSTINCT DISC) ENG1B	715100	2 715000 P 253 T 810 822
ENG 1 FADEC	EIU1FAD	J3 (INSTINCT DISC) ENG1B	715100	2 715000 P 253 T 810 822
	IDENT: I	EIU1FAD		010 022
ENG 1 FADEC	EIU1FAD	J3 (INSTINCT DISC) ENG1B	715100	2 732900 PB201 T 810 918
	IDENT: /			
ENG 1 FADEC	EIU1FAD	J7, BSV, ECU associated with	732150	2 732000 PA253 T 810 921
	EIU1FAD	J8, BSV, ECU	732150	
ENG 1 FADEC	EIU1FAD	J7, BSV, ECU	732150	2 732000 PA235 T 810 915
	IDENT: I			
ENG 1 FADEC	EIU1FAD	J7, FRV(SOL 1), ECU associated with	732150	2 732000 PA259 T 810 927
	EIU1FAD	J8, FRV(SOL 1), ECU	732150	!!

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES				FAULT ISOLATION
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!
ENG 1 FADEC	EIU1FAD	J7, FRV(SOL 1), ECU	732150		732000 PA203 T 810 905
	IDENT: I	EIU1FAD			( CO
ENG 1 FADEC	EIU1FAD	J7, FRV(SOL 2), ECU associated with	732150		732000 PA261 T 810 929
	EIU1FAD	J8, FRV(SOL 2), ECU	732150	. !	1 010 727
ENG 1 FADEC	EIU1FAD	J7, FRV(SOL 2), ECU	732150		732000 PA215 T 810 909
	IDENT: I	EIU1FAD			1 810 909
ENG 1 FADEC	EIU1FAD	J7, HMU (NAC TM), ECU ENG1A	732150		752500 P 217 T 810 823
	EIU1FAD	associated with J8, HMU (NAC TM), ECU ENG1B	732150	S	
ENG 1 FADEC	EIU1FAD	J7, HMU (VBV TM), ECU	732150		732900 PA267 T 810 888
ENG 1 FADEC	EIU1FAD	J7, HMU (VSV TM), ECU	732150		732900 PA259 T 810 884
ENG 1 FADEC	EIU1FAD	J7, HMU(BSVSOL), ECU	732150		732900 PA243 T 810 876
ENG 1 FADEC	EIU1FAD	J7, HMU(FMV TM), ECU	732150		732900 PA223 T 810 868
ENG 1 FADEC	EIU1FAD	J7, HMU(FMVRES), ECU	732150		732900 PA211 T 810 864
ENG 1 FADEC	EIU1FAD	J7, HMU(HPTCTM), ECU	732150		732900 PA235 T 810 872
ENG 1 FADEC	EIU1FAD	J7, HMU(HPTCTM), ECU associated with	732150		732900 PA299 T 810 916
	EIU1FAD	J8, HMU(HPTCTM), ECU	732150	. !	1 010 710
ENG 1 FADEC	EIU1FAD	J7, HMU(HPTCTM), ECU	732150		732900 PA235 T 810 872
	IDENT: I	]	1 010 012		
ENG 1 FADEC	EIU1FAD	J7, HMU(LPTCTM), ECU	732150		732900 PA279 T 810 892

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGE	CFDS FAULT MESSAGES			
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 1 FADEC	EIU1FAD	J7, HMU(LPTCTM), ECU associated with	732150	2	732900 PA297 T 810 914
	EIU1FAD	J8, HMU(LPTCTM), ECU	732150	2	!
ENG 1 FADEC	EIU1FAD	J7, HMU(LPTCTM), ECU	732150	2	732900 PA279 T 810 892
	IDENT:	EIU1FAD	<b>-</b>		
ENG 1 FADEC	EIU1FAD	J7, HMU(RAC TM), ECU	732150	2	732900 PA251 T 810 880
ENG 1 FADEC	EIU1FAD	J7, HMU(RAC TM), ECU associated with	732150	2	732900 PA295 T 810 912
	EIU1FAD	J8, HMU(RAC TM), ECU	732150	2	!
ENG 1 FADEC	EIU1FAD	J7, HMU(RAC TM), ECU	732150	2	  732900 PA251  T 810 880
	IDENT:	EIU1FAD	<b></b> -		
ENG 1 FADEC	EIU1FAD	J7,HMU (TBV TM),ECU ENG1A	732150	2	752600 P 213 T 810 805
ENG 1 FADEC	EIU1FAD	J8, BSV, ECU	732150	2	  732000 PA241  T 810 917
	IDENT:	EIU1FAD			
ENG 1 FADEC	EIU1FAD	J8, FRV(SOL 1), ECU	732150	2	732000 PA209 T 810 907
	IDENT:	EIU1FAD			
ENG 1 FADEC	EIU1FAD	J8, FRV(SOL 2), ECU	732150	2	732000 PA221   T 810 911
	IDENT:				
ENG 1 FADEC	EIU1FAD	J8, HMU (VBV TM), ECU	732150	2	732900 PA270 T 810 889
ENG 1 FADEC	EIU1FAD	J8, HMU (VSV TM), ECU	732150	2	732900 PA261 T 810 885
ENG 1 FADEC	EIU1FAD	J8, HMU(BSVSOL), ECU	732150	2	732900 PA245 T 810 877
ENG 1 FADEC	EIU1FAD	J8, HMU(FMV TM), ECU	732150	2	732900 PA226 T 810 869

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT - ISOLATION		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	C PROCEDURE
ENG 1 FADEC	EIU1FAD	J8, HMU(FMVRES), ECU	732150	2 732900 PA214 T 810 865
ENG 1 FADEC	EIU1FAD	J8, HMU(HPTCTM), ECU	732150	732900 PA237 T 810 873
ENG 1 FADEC	EIU1FAD	J8, HMU(HPTCTM), ECU	732150	2 732900 PA237 T 810 873
	IDENT: I	EIU1FAD		1 010 013
ENG 1 FADEC	EIU1FAD	J8, HMU(LPTCTM), ECU	732150	732900 PA281 T 810 893
ENG 1 FADEC	EIU1FAD	J8, HMU(LPTCTM), ECU	732150	2 732900 PA281 - T 810 893
	IDENT: I	EIU1FAD		-1 610 673
ENG 1 FADEC	EIU1FAD	J8, HMU(RAC TM), ECU	732150	2 732900 PA253 T 810 881
ENG 1 FADEC	EIU1FAD	J8, HMU(RAC TM), ECU	732150	2 732900 PA253 - T 810 881
	IDENT: I	EIU1FAD	<del></del>	
ENG 1 FADEC	EIU1FAD	J8,HMU (TBV TM),ECU ENG1B	732150	2 752600 P 215 T 810 806
ENG 1 FADEC	EIU1FAD	LPTC VLV, HMU ENG1A	752210	2 752200 P 217 T 810 805
ENG 1 FADEC	EIU1FAD	LPTC VLV, HMU ENG1B	752210	2 752200 P 239 T 810 809
ENG 1 FADEC	EIU1FAD	LPTC VLV, J11, ECU	752210	2 752200 P 201 T 810 801
ENG 1 FADEC	EIU1FAD	LPTC VLV, J11, ECU associated with	752210	2 752200 P 221 T 810 807
	EIU1FAD	LPTC VLV, J12, ECU	752210	!
ENG 1 FADEC	EIU1FAD	LPTC VLV, J11, ECU	752210	2 752200 P 201 T 810 801
	IDENT: I			
ENG 1 FADEC	EIU1FAD	LPTC VLV, J12, ECU	752210	752200 P 209 T 810 803

EFF: ALL

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### TROUBLE SHOOTING MANUAL

LIADNINGS / MALEUNGTIONS	CFDS FAULT MESSAGES				FAULT ISOLATION	
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!!	
ENG 1 FADEC	EIU1FAD	LPTC VLV, J12, ECU	752210	2	752200 P 209 T 810 803	
	IDENT: I	EIU1FAD			1 610 603	
ENG 1 FADEC	EIU1FAD	NAC VLV, HMU ENG1A	752310	2	752500 P 243 T 810 833	
ENG 1 FADEC	EIU1FAD	NAC VLV, HMU ENG1B	752310	2	752500 P 243 T 810 833	
ENG 1 FADEC	İ	associated with	752310 752310	İ	752500 P 237 T 810 830	
	<del> </del>	<u></u>	<del> </del>	├	<u> </u>	
ENG 1 FADEC 	EIU1FAD	N1 SNSR, J10, ECU		2	771000 P 222  T 810 816	
ENG 1 FADEC	EIU1FAD	N1 SNSR, J9, ECU	771110	2	771000 P 219 T 810 815	
ENG 1 FADEC	EIU1FAD	N2 SNSR, J7, ECU	771120	2	771000 P 239 T 810 821	
ENG 1 FADEC	EIU1FAD	N2 SNSR, J8, ECU	771120	2	771000 P 242 T 810 822	
ENG 1 FADEC	EIU1FAD	RAC VLV, HMU ENG1A	752310	2	752300 P 201 T 810 805A	
ENG 1 FADEC	EIU1FAD	RAC VLV, HMU ENG1B	752310	2	752300 P 223 T 810 817	
ENG 1 FADEC	EIU1FAD	!	752310	2	752300 P 205 T 810 807A	
	EIU1FAD	associated with RAC VLV, J12, ECU	752310	2		
ENG 1 FADEC	EIU1FAD	RAC VLV, J11, ECU	752310	2	752300 P 211 T 810 809A	
ENG 1 FADEC	EIU1FAD	RAC VLV, J11, ECU	752310		752300 P 211 T 810 809A	
	IDENT: I	EIU1FAD	1 010 007A			
ENG 1 FADEC	EIU1FAD	RAC VLV, J12, ECU	752310	2	752300 P 217 T 810 811A	

EFF: ALL

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### TROUBLE SHOOTING MANUAL

     WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES				FAULT ISOLATION	
WARNINGS/MALFONCTIONS	SOURCE	MESSAGE	ATA	С		
ENG 1 FADEC	EIU1FAD	RAC VLV, J12, ECU	752310	2	752300 P 217 T 810 811A	
	IDENT: I	EIU1FAD				
ENG 1 FADEC	EIU1FAD	RLY (27KS1/28KS1) ENG1A	279200	2	732000 PB254 T 810 982	
ENG 1 FADEC	EIU1FAD	RLY (27KS1/28KS1) ENG1B	279200	2	732000 PB254 T 810 982	
ENG 1 FADEC	EIU1FAD	SAV (SOL), J10, ECU	801120	2	801100 P 215 T 810 806	
ENG 1 FADEC	EIU1FAD	SAV (SOL), J9, ECU	801120	2	801100 P 213 T 810 805	
ENG 1 FADEC	EIU1FAD	STOW SW, J5/J6, ECU ENG1A	783118	2	783100 P 255 T 810 839	
ENG 1 FADEC	EIU1FAD	STOW SW, J5/J6, ECU ENG1B	783118	2	783100 P 255 T 810 839	
ENG 1 FADEC	EIU1FAD	TBV VLV, HMU ENG1A	752310	2	752600 P 221 T 810 809	
ENG 1 FADEC	EIU1FAD	TBV VLV, HMU ENG1B	752310	2	752600 P 223 T 810 810	
ENG 1 FADEC	EIU1FAD	TBV VLV, J11, ECU ENG1A	752310	2	752600 P 201 T 810 801	
ENG 1 FADEC	EIU1FAD	TBV VLV, J11, ECU ENG1A associated with	752310	2	752600 P 229 T 810 813	
	EIU1FAD	TBV VLV, J12, ECU ENG1B	752310	2		
ENG 1 FADEC	EIU1FAD	TBV VLV, J12, ECU ENG1B	752310	2	752600 P 204 T 810 802	
ENG 1 FADEC	EIU1FAD	TCC SNSR, J13, ECU ENG1A	732170	2	732000 P 209 T 810 841	
ENG 1 FADEC	j	TCC SNSR, J13, ECU ENG1A associated with TCC SNSR, J13, ECU ENG1B			732000 PB223 T 810 971	
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EFF: ALL

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LIADNINGS / MALEUNGITONS	T	FAULT - ISOLATION		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	C PROCEDURE
ENG 1 FADEC	EIU1FAD	TCC SNSR, J13, ECU ENG1A	732170	732000 P 209 T 810 841
	IDENT: E	EIU1FAD	<del></del>	
ENG 1 FADEC	EIU1FAD	TCC SNSR, J13, ECU ENG1B	732170	732000 PA280 T 810 949
ENG 1 FADEC	EIU1FAD	TCC SNSR, J13, ECU ENG1B	732170	732000 PA280 - T 810 949
	IDENT:	EIU1FAD		1 010 747
ENG 1 FADEC	EIU1FAD	TR PR SW, J5/J6, ECU ENG1A	783116	783100 P 229 T 810 821
ENG 1 FADEC	EIU1FAD	TR PR SW, J5/J6, ECU ENG1B	783116	783100 P 229 T 810 821
ENG 1 FADEC	EIU1FAD	T12 SNSR, J10, ECU	732140	1 732000 P 275 T 810 863
ENG 1 FADEC	EIU1FAD	T12 SNSR, J10, ECU	732140	732000 P 275 T 810 863
ENG 1 FADEC	EIU1FAD	T12 SNSR, J10, ECU ENG1B	732140	732000 P 275 T 810 863
ENG 1 FADEC	EIU1FAD	T12 SNSR, J9, ECU	732140	1 732000 P 269 T 810 861
ENG 1 FADEC	EIU1FAD	T12 SNSR, J9, ECU	732140	732000 P 269 T 810 861
ENG 1 FADEC	EIU1FAD	T12 SNSR, J9, ECU ENG1A	732140	732000 P 269 T 810 861
ENG 1 FADEC	EIU1FAD	T25 SNSR, J11, ECU	732120	732000 P 245 T 810 853
ENG 1 FADEC	EIU1FAD	T25 SNSR, J11, ECU ENG1A	732120	732000 P 245 T 810 853
ENG 1 FADEC	EIU1FAD	T25 SNSR, J12, ECU	732120	732000 P 251 T 810 855
ENG 1 FADEC	EIU1FAD	T25 SNSR, J12, ECU ENG1B	732120	732000 P 251 T 810 855

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### TROUBLE SHOOTING MANUAL

LIADNINGS / MALEUNGTIONS	CFDS FAULT MESSAGES				FAULT ISOLATION
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!
ENG 1 FADEC	EIU1FAD	T3 SNSR, J13, ECU ENG1A	772310	2	772000 P 207 T 810 805
ENG 1 FADEC	EIU1FAD	T3 SNSR, J13, ECU ENG1A	772310	2	772000 P 215 T 810 809
ENG 1 FADEC	EIU1FAD	T3 SNSR, J13, ECU ENG1B	772310	2	772000 P 237 T 810 828
ENG 1 FADEC	EIU1FAD	T3 SNSR, J13, ECU ENG1B	772310	3	772000 P 237 T 810 828
ENG 1 FADEC	EIU1FAD	T495 SNSR, J13, ECU ENG1A	772110	2	772000 P 201 T 810 803
ENG 1 FADEC	EIU1FAD	T495 SNSR, J13, ECU ENG1B	772110	2	772000 P 231 T 810 826
ENG 1 FADEC	EIU1FAD	VBV SNSR, J11, ECU	753170	2	753000 P 219 T 810 813
ENG 1 FADEC	EIU1FAD	VBV SNSR, J12, ECU	753170	2	753000 P 227 T 810 815
ENG 1 FADEC	EIU1FAD	VSV, ACT, J11, ECU	753210	2	753200 P 211 T 810 805
ENG 1 FADEC	EIU1FAD	VSV, ACT, J12, ECU	753210	2	753200 P 217 T 810 807
ENG 1 FADEC	EIU1FAD	ZC, EIU (ECSD), J3 ENG1A	732534	2	732500 PA210 T 810 924
ENG 1 FADEC	EIU1FAD	ZC, EIU (ECSD), J3 ENG1B	216334	2	732500 PA210 T 810 924
ENG 1 FADEC	EIU1FAD	ZC, EIU (030), J3 ENG1A	216324	2	732500 P 268 T 810 893
ENG 1 FADEC	EIU1FAD	ZC, EIU (030), J3 ENG1B	216324	2	732500 P 268 T 810 893
ENG 1 FADEC	j	ZC, EIU(ECSD), J3 ENG1A associated with ZC, EIU(ECSD), J3 ENG1B	216334 216334		732500 PA210 T 810 924
 	TTTO ILAN	L	2 10334   	ے ا	 

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### TROUBLE SHOOTING MANUAL

CFDS FAULT MESSAGES					FAULT
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 1 FADEC	EIU1FAD	ZC, EIU(ECSD), J3 ENG1A	216334		732500 PA210 T 810 924
	IDENT:	EIU1FAD			1 010 72 <b>4</b> 
ENG 1 FADEC	EIU1FAD	ZC, EIU(ECSD), J3 ENG1B	216334		  732500 PA210  T 810 924
	IDENT:	EIU1FAD			
ENG 2 EIU	AMU	CFDIU(1TW)/AMU(1RN)	313234		  313200 P 273  T 810 859
	!	AMU, EIS 3, EIU2FAD, LGCIUVHF 3	J 2,		
ENG 2 EIU	ECAM 1	SDAC1 : ENG2 OIL PRESS XMTR 4003EN associated with	793315	2	793300 P 206 T 810 815
	ECAM 1	!	793315	2	
	IDENT:	ECAM 2, EIU2FAD	<b>-</b>		
ENG 2 EIU	ECAM 1	SDAC1 : ENG2 OIL PRESS	793315	2	793300 P 206 T 810 815
	ECAM 1	associated with  SDAC2 : ENG2 OIL PRESS  XMTR 4004EN	793315	2	
	IDENT:	ECAM 2, EIU2FAD	•		
ENG 2 EIU	ECAM 2	SDAC1 : ENG2 OIL PRESS XMTR 4003EN	793315	2	793300 P 206 T 810 815
	ECAM 2	associated with  SDAC2 : ENG2 OIL PRESS  XMTR 4003EN	793315	2	
	IDENT:	EIU2FAD	·		
ENG 2 EIU	ECAM 2	SDAC1 : ENG2 OIL PRESS XMTR 4004EN	793315	2	793300 P 206 T 810 815
	ECAM 2	associated with SDAC2 : ENG2 OIL PRESS XMTR 4004EN	793315	2	
	IDENT:	EIU2FAD	L	L	

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	WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES					
	WARNINGS/MALFONCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE		
	ENG 2 EIU	EIS 3	DMC3 : NO CFDIU DATA	313234	2	313200 P 275 T 810 860		
		!	AMU, EIS 3, EIU2FAD, LGCIU /HF 3	J 2,				
	ENG 2 EIU	EIU2FAD	CHECK HOT AIR LEAKS ENG2	362200	2	754100 P 206 T 810 806		
R	ENG 2 EIU	EIU2FAD	CHECK OIL PRESS XMTR2 CIRCUIT 4003EN	793315	2	790000 P 233 T 810 824		
	ENG 2 EIU	EIU2FAD	CHECK PACK CONT 7HH/EIU2 CIRCUIT	732534	2	732500 P 230 T 810 864		
	ENG 2 EIU	EIU2FAD	CHECK ZONE CONT 8HK/EIU2 CIRCUIT	732534	2	732500 P 226 T 810 862		
	ENG 2 EIU	EIU2FAD	CHECK 10KS2 RELAY CIRCUIT OR EIU2	732534	2	732500 P 209 T 810 848		
	ENG 2 EIU	EIU2FAD	CHECK 12KS2 RELAY CIRCUIT OR EIU2	732534	2	732500 P 211 T 810 850		
	ENG 2 EIU	EIU2FAD	CHECK 14KS2 RELAY CIRCUIT OR EIU2	732534	2	732500 P 239 T 810 870		
	ENG 2 EIU	EIU2FAD	CHECK 16HB RELAY CIRCUIT OR EIU2	732534	2	732500 P 233 T 810 866		
	ENG 2 EIU	EIU2FAD	CHECK 2709GJ RELAY CIRCUIT OR EIU2	732534	2	732500 P 223 T 810 860		
	ENG 2 EIU	EIU2FAD	EIU2	732534	2	732500 P 219 T 810 856		
	ENG 2 EIU	EIU2FAD	EIU2 ; NO FADEC 2 B DATA	732160	2	732500 P 207 T 810 846		
	ENG 2 EIU	EIU2FAD	EIU2 : NO CFDIU DATA	313234	2	732500 P 251 T 810 882		
	ENG 2 EIU	EIU2FAD	EIU2 : NO CFDIU DATA	313234		313200 P 270 T 810 857		
			DENT: AMU, EIS 3, EIU2FAD, LGCIU 2, VHF 3					

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Γ		[	0500 5444 7 45004050				
	WARNINGS/MALFUNCTIONS	<u> </u>	CFDS FAULT MESSAGES	<b></b> -		FAULT     ISOLATION	
		SOURCE	MESSAGE	ATA	С		
E	NG 2 EIU	EIU2FAD	EIU2 : NO FADEC 2 A DATA	732160	2	732500 P 205 T 810 844	
E	NG 2 EIU	EIU2FAD	NAC TEMP SENSOR2 13KS2	754115	2	754100 P 213 T 810 808	
E	NG 2 EIU	EIU2FAD	OIL TEMP SENSOR2 4004EN	793215	2	790000 P 218 T 810 815	
E	NG 2 EIU	EIU2FAD	115VU (CRANK/MODE AUTO/ ING SEL SW)	763115	2	761200 P 205 T 810 808	
E	NG 2 EIU	EIU2FAD	115VU (MASTER LEVER2 SW)	761215	1	761200 P 203 T 810 806	
E	NG 2 EIU	LGCIU 2	LGCIU 2: NO DATA FROM	313234	1	313200 PA248 T 810 904	
			AMU, EIS 3, EIU2FAD, LGCIU VHF 3	J 2,	•		
E	NG 2 EIU	VHF 3	CFDIU (1TW)/VHF3 (1RC3)	313234	3	313200 P 271	
		!	AMU, EIS 3, EIU2FAD, LGCIU VHF 3	J 2,		T 810 858 	
E	NG 2 EIU	VHF 3	VHF3 : NO DATA FROM CFDIU	313234	2	313200 P 271 T 810 858	
		!	AMU, EIS 3, EIU2FAD, LGCIU VHF 3	J 2,	•		
E	NG 2 FADEC	EIU2FAD	BSV (VLV OPEN), HMU ENG2A	731170	2	731000 P 210 T 810 806	
E	NG 2 FADEC	EIU2FAD	BSV (VLV OPEN), HMU ENG2B	731170	2	731000 P 281 T 810 834	
E	NG 2 FADEC	EIU2FAD	BSV, J11/J12, ECU ENG2A	731170	2	731000 P 219 T 810 808	
E	NG 2 FADEC	EIU2FAD	BSV, J11/J12, ECU ENG2B	731170	2	731000 P 270 T 810 832	

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES			FAULT ISOLATION	
	SOURCE	MESSAGE	ATA	С	!!
ENG 2 FADEC	EIU2FAD	BSV, J11, ECU associated with	731170	2	731000 P 264 T 810 830
 	EIU2FAD	BSV, J12, ECU	731170	2	
ENG 2 FADEC	EIU2FAD	BSV, J11, ECU	731170	2	731000 P 248 T 810 824
	IDENT: EIU2FAD				
ENG 2 FADEC	EIU2FAD	BSV, J11, J14(WRONG) ENG2A	731170	2	731000 PA212 T 810 850
ENG 2 FADEC	EIU2FAD	BSV, J12, ECU	731170	2	731000 P 254 T 810 826
	IDENT: EIU2FAD				1 610 626
ENG 2 FADEC	EIU2FAD	BSV, J12, J14(WRONG) ENG2B	731170	2	731000 PA218 T 810 852
ENG 2 FADEC	EIU2FAD	DEPL SW, J5/J6, ECU ENG2A	783117	2	783100 P 269 T 810 844
ENG 2 FADEC	EIU2FAD	DEPL SW, J5/J6, ECU ENG2B	783117	2	783100 P 269 T 810 844
ENG 2 FADEC	EIU2FAD	ECU (ADC1 INTFC)	732160	2	732081 P 252 T 810 858
ENG 2 FADEC	EIU2FAD	ECU (ADC1 INTFC) ENG2A	732160	2	732081 P 252 T 810 858
ENG 2 FADEC	EIU2FAD	ECU (ADC1 INTFC) ENG2A associated with	732160	2	732081 P 252 T 810 858
	EIU2FAD		732160	2	
ENG 2 FADEC	EIU2FAD	ECU (ADC1 INTFC) ENG2A	732160		732081 P 252 T 810 858
	IDENT: EIU2FAD				010 050
ENG 2 FADEC	EIU2FAD	ECU (ADC1 INTFC) ENG2B	732160	2	732081 P 288 T 810 899
ENG 2 FADEC	EIU2FAD	ECU (ADC1 INTFC) ENG2B	732160	2	732081 P 288 T 810 899
	IDENT: EIU2FAD			010 077	

EFF: ALL

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WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES			FAULT ISOLATION
	SOURCE	MESSAGE	ATA C	!!!
ENG 2 FADEC	EIU2FAD	ECU (ADC2 INTFC)	732160 2	732081 P 289 T 810 900
ENG 2 FADEC	EIU2FAD	ECU (ADC2 INTFC) ENG2A	732160 2	732081 P 254 T 810 860
ENG 2 FADEC		ECU (ADC2 INTFC) ENG2A associated with		732081 P 254 T 810 860
<u></u>	EIU2FAD	ECU (ADC2 INTFC) ENG2B	732160 2	<u> </u>
ENG 2 FADEC	EIU2FAD	ECU (ADC2 INTFC) ENG2A	732160 2	732081 P 254 T 810 860
	IDENT: I	810 800		
ENG 2 FADEC	EIU2FAD	ECU (ADC2 INTFC) ENG2B	732160 2	732081 P 290 T 810 901
ENG 2 FADEC	EIU2FAD	ECU (ADC2 INTFC) ENG2B	732160 2	732081 P 290 T 810 901
	IDENT: I	1 610 901		
ENG 2 FADEC	EIU2FAD	ECU (CHAN SYNCH)	732160 2	732081 P 262 T 810 869
ENG 2 FADEC	EIU2FAD	ECU (EIU INTFC)	732160 2	732081 P 260 T 810 866
ENG 2 FADEC	EIU2FAD	ECU (EIU INTFC) ENG2A	732160 2	732081 P 260 T 810 866
ENG 2 FADEC	EIU2FAD	ECU (EIU INTFC) ENG2A associated with	732160 2	732081 P 260 T 810 866
	EIU2FAD	ECU (EIU INTFC) ENG2B	732160 2	
ENG 2 FADEC	EIU2FAD	ECU (EIU INTFC) ENG2A	732160 2	732081 P 260 T 810 866
	IDENT: I	010 000		
ENG 2 FADEC	EIU2FAD	ECU (EIU INTFC) ENG2B	732160 2	732081 P 296 T 810 907
ENG 2 FADEC	EIU2FAD	ECU (EIU INTFC) ENG2B	732160 2	732081 P 296 T 810 907
	IDENT: EIU2FAD			7 1 0 10 707 

EFF : ALL

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WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S	FAULT - ISOLATION
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	PROCEDURE
ENG 2 FADEC	EIU2FAD	ECU (NVM FAULT) ENG2A	732160	732081 P 256 T 810 862
ENG 2 FADEC	EIU2FAD	ECU (NVM FAULT) ENG2B	732160	732081 P 292 T 810 903
ENG 2 FADEC	EIU2FAD	ECU (PO SENSOR) ENG2A	732160	732081 P 202 T 810 802
ENG 2 FADEC	EIU2FAD	ECU (PO SENSOR) ENG2B	732160	732081 P 272 T 810 879
ENG 2 FADEC	EIU2FAD	ECU (PRESS SYS A) ENG2A	732160	732081 P 232 T 810 832
ENG 2 FADEC	EIU2FAD	ECU (PRESS SYS A) ENG2B	732160	732081 P 276 T 810 883
ENG 2 FADEC	EIU2FAD	ECU (PRESS SYS B) ENG2A	732160	732081 P 234 T 810 834
ENG 2 FADEC	EIU2FAD	ECU (PRESS SYS B) ENG2B	732160	732081 P 278 T 810 885
ENG 2 FADEC	EIU2FAD	ECU (PS12 SENSOR) ENG2A	732160	732000 P 282 T 810 866
ENG 2 FADEC	EIU2FAD	ECU (PS12 SENSOR) ENG2B	732160	732000 PA279 T 810 948
ENG 2 FADEC	EIU2FAD	ECU (SCU, MUX FAULT) ENG2A	732160	732081 P 238 T 810 840
ENG 2 FADEC	EIU2FAD	ECU (SCU, MUX FAULT) ENG2B	732160	732081 P 286 T 810 897
ENG 2 FADEC	EIU2FAD	ECU (SPEED CONV) ENG2A	732160	732081 P 258 T 810 864
ENG 2 FADEC	EIU2FAD	ECU (SPEED CONV) ENG2B	732160	732081 P 294 T 810 905
ENG 2 FADEC	EIU2FAD	ECU (TCMA RELAY) ENG2A	732160	732000 PB247 T 810 979

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HADNINGS /MALEUNGTIONS		CFDS FAULT MESSAGES				
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE	
ENG 2 FADEC	EIU2FAD	ECU (TCMA RELAY) ENG2B	732160	2	732000 PB247 T 810 979	
ENG 2 FADEC	EIU2FAD	ECU (TECU SENSOR) ENG2A	732160	2	732081 P 212 T 810 812	
ENG 2 FADEC	EIU2FAD	ECU (TECU SENSOR) ENG2B	732160	2	732081 P 270 T 810 877	
ENG 2 FADEC	EIU2FAD	ECU, PS3 SNSR LINE ENG2A	732160	2	732000 P 285 T 810 868	
ENG 2 FADEC	EIU2FAD	ECU, PS3 SNSR LINE ENG2B	732160	2	732000 PA294 T 810 952	
ENG 2 FADEC	EIU2FAD	EIU (ARINC), J3 ENG2A	732534	2	715000 P 243 T 810 812	
ENG 2 FADEC	EIU2FAD	EIU (ARINC), J3 ENG2B	732534	2	715000 P 279 T 810 833	
ENG 2 FADEC	EIU2FAD	EIU (031), J3 ENG2A	732534	2	732500 P 279 T 810 898	
ENG 2 FADEC	EIU2FAD	EIU (031), J3 ENG2B	732534	2	732500 PA231 T 810 937	
ENG 2 FADEC	EIU2FAD	EIU-28V, ECU ENG2A	732534	2	732500 P 299 T 810 910	
ENG 2 FADEC	EIU2FAD	EIU-28V, ECU ENG2B	732534	2	732500 PA247 T 810 947	
ENG 2 FADEC	EIU2FAD	EIU, ECU (CR3 DIODE) ENG2A	732534	2	732500 PA208 T 810 921	
ENG 2 FADEC	EIU2FAD	EIU, ECU (CR3 DIODE) ENG2B	732534	2	732500 PA252 T 810 949	
ENG 2 FADEC associated with	EIU2FAD	ENGINE ENG2A associated with	720000	1	720000 P 221 T 810 810	
Upper ECAM DU Warnings ENG 2 COMPRESSOR VANE	EIU2FAD	HPC (OPERAT. LINE) ENG2A	733300	2	1 0 10 0 10   	

EFF: ALL

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HARNINGS (MALIFILMS TONS	<u></u>	FAULT			
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	АТА	- ISOLATION C PROCEDURE	
ENG 2 FADEC associated with	EIU2FAD	ENGINE ENG2B associated with	720000	1 720000 P 221 T 810 810	
Upper ECAM DU Warnings ENG 2 COMPRESSOR VANE	EIU2FAD	HPC (OPERAT. LINE) ENG2B	733300	!!!	
ENG 2 FADEC	EIU2FAD	EOT SNSR, J13, ECU	793140	793100 P 204 T 810 812	
ENG 2 FADEC	EIU2FAD	EOT SNSR, J13, ECU ENG2A	793140	S 793100 P 204 T 810 812	
ENG 2 FADEC	EIU2FAD	EOT SNSR, J13, ECU ENG2A	793140	2 793100 P 204 T 810 812	
ENG 2 FADEC	EIU2FAD	EOT SNSR, J13, ECU ENG2B	793140	2 793100 P 210 T 810 818	
ENG 2 FADEC	EIU2FAD	FCU, EIU (034), J3 ENG2A	228112	2 732500 P 266 T 810 892	
ENG 2 FADEC	EIU2FAD	FCU, EIU (034), J3 ENG2B	228112	2 732500 PA234 T 810 939	
ENG 2 FADEC	EIU2FAD	FCU, EIU(ATN1), J3 ENG2A	228112	2 732500 P 262 T 810 890	
ENG 2 FADEC	EIU2FAD	FCU, EIU(ATN1), J3 ENG2A associated with	228112	2 732500 P 262 T 810 890	
	EIU2FAD	FCU, EIU(ATN1), J3 ENG2B	228112		
ENG 2 FADEC	EIU2FAD	FCU, EIU(ATN1), J3 ENG2A	228112	2 732500 P 262 T 810 890	
	IDENT: I	EIU2FAD		0.0 070	
ENG 2 FADEC	EIU2FAD	FCU, EIU(ATN1), J3 ENG2B	228112	732500 PA216 T 810 927	
ENG 2 FADEC	EIU2FAD	FCU, EIU(ATN1), J3 ENG2B	228112	2 732500 PA216 - T 810 927	
	IDENT: EIU2FAD				
ENG 2 FADEC	EIU2FAD	FLOW SNSR, J13, ECU ENG2A	733110	2 733100 P 203 T 810 806	
ENG 2 FADEC	EIU2FAD	FLOW SNSR, J13, ECU ENG2B	733110	733100 P 207 T 810 808	

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## TROUBLE SHOOTING MANUAL

HARNIT	NCC (MAL FUNCTIONS		CFDS FAULT MESSAGES			
WAKNII	NGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 2	FADEC	EIU2FAD	FRV (CLOSED), J7, ECU	731150	2	731000 P 233 T 810 818
ENG 2	FADEC	EIU2FAD	FRV (CLOSED), J8, ECU	731150	2	731000 P 237 T 810 820
ENG 2	FADEC	EIU2FAD	FRV (OPEN), J7, ECU	731150	2	731000 P 225 T 810 814
ENG 2	FADEC	EIU2FAD	FRV (OPEN), J8, ECU	731150	2	731000 P 229 T 810 816
ENG 2	FADEC	EIU2FAD	FRV (SW), J7/J8, ECU ENG2A	731150	2	731000 P 242 T 810 822
ENG 2	FADEC	EIU2FAD	FRV (SW), J7/J8, ECU ENG2B	731150	2	731000 P 242 T 810 822
Upper I	FADEC ated with ECAM DU Warnings REVERSER FAULT	EIU2FAD	HCU (TRDV), J5, ECU	783151	1	783100 P 223 T 810 819
ENG 2	FADEC	EIU2FAD	HCU (TRDV), J5, ECU	783151	2	783100 P 223 T 810 819
Upper I	FADEC ated with ECAM DU Warnings REVERSER FAULT	EIU2FAD	HCU (TRDV), J6, ECU	783151	1	783100 P 226 T 810 820
ENG 2	FADEC	EIU2FAD	HCU (TRDV), J6, ECU	783151	2	783100 P 226 T 810 820
Upper I	FADEC ated with ECAM DU Warnings REVERSER FAULT	EIU2FAD	HCU (TRPV), J5, ECU	783151	1	783100 P 245 T 810 827
ENG 2	FADEC	EIU2FAD	HCU (TRPV), J5, ECU	783151	2	783100 P 245 T 810 827
Upper I	FADEC ated with ECAM DU Warnings REVERSER FAULT	EIU2FAD	HCU (TRPV), J6, ECU	783151	1	783100 P 248 T 810 828

EFF: ALL

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## TROUBLE SHOOTING MANUAL

LIADNINGS / MALEUNGITONS		FAULT ISOLATION			
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE
ENG 2 FADEC	EIU2FAD	HCU (TRPV), J6, ECU	783151	2	783100 P 248 T 810 828
ENG 2 FADEC	EIU2FAD	HCU ENG2A	783151	2	783100 P 279 T 810 848
ENG 2 FADEC	EIU2FAD	HCU ENG2B	783151	2	783100 P 287 T 810 852
ENG 2 FADEC	EIU2FAD	HPC (OPERAT. LINE) ENG2A	733300	2	720000 P 225 T 810 813
ENG 2 FADEC	EIU2FAD	HPC (OPERAT. LINE) ENG2B	733300	2	720000 P 225 T 810 813
ENG 2 FADEC	EIU2FAD	HPTC VLV (POS), HMU ENG2A	752110	2	752100 P 205 T 810 804
ENG 2 FADEC	EIU2FAD	HPTC VLV (POS), HMU ENG2B	752110	2	752100 P 241 T 810 824
ENG 2 FADEC	İ	HPTC VLV, J11, ECU ENG2A associated with HPTC VLV, J12, ECU ENG2B			т 810 808
ENG 2 FADEC	EIU2FAD	HPTC VLV, J11, ECU ENG2A	752110	2	752100 P 220 T 810 810
ENG 2 FADEC	EIU2FAD	HPTC VLV, J11, ECU ENG2A	752110		752100 P 220 T 810 810
	IDENT:	EIU2FAD			
ENG 2 FADEC	EIU2FAD	HPTC VLV, J12, ECU ENG2B	752110	2	752100 P 226 T 810 812
ENG 2 FADEC	EIU2FAD	HPTC VLV, J12, ECU ENG2B	752110	2	752100 P 226 T 810 812
	IDENT: I				
ENG 2 FADEC	EIU2FAD	IDG, FRV(OIL TEMP) ENG2A	794000	2	794000 P 206 T 810 802
ENG 2 FADEC	EIU2FAD	IDG, FRV(OIL TEMP) ENG2B	794000	2	794000 P 206 T 810 802

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EFF: ALL

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## TROUBLE SHOOTING MANUAL

LIADNINGS (MALEUNGITONS		CFDS FAULT MESSAGES				
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE	
ENG 2 FADEC	EIU2FAD	IGN 2, ECU ENG2B	740000	2	740000 P 210 T 810 804	
ENG 2 FADEC	EIU2FAD	IGN2, ECU ENG2A	740000	2	740000 P 210 T 810 804	
ENG 2 FADEC	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100	2	715000 P 239 T 810 810	
ENG 2 FADEC	EIU2FAD	J3 (INSTINCT DISC) ENG2A associated with	715100		715000 P 239 T 810 810	
	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100	. !		
ENG 2 FADEC	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100		715000 P 239 T 810 810	
	IDENT: I	EIU2FAD				
ENG 2 FADEC	EIU2FAD	J3 (INSTINCT DISC) ENG2A	715100		732900 P 265 T 810 849	
		AFS, ECAM 1, ECAM 2, EIS 1 EIS 2, EIS 3, EIU2FAD	1,		1 010 047	
ENG 2 FADEC	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100		715000 P 255 T 810 823	
ENG 2 FADEC	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100		715000 P 255 T 810 823	
	IDENT: I	EIU2FAD			1 810 823	
ENG 2 FADEC	EIU2FAD	J3 (INSTINCT DISC) ENG2B	715100		732900 PB203 T 810 919	
		AFS, ECAM 1, ECAM 2, EIS 1 EIS 2, EIS 3, EIU2FAD	1,		1 010 717	
ENG 2 FADEC	EIU2FAD	J7, BSV, ECU associated with	732150		732000 PA254 T 810 922	
	EIU2FAD	J8, BSV, ECU	732150	. !	1 010 722	
ENG 2 FADEC	EIU2FAD	J7, BSV, ECU	732150		732000 PA238 T 810 916	
	IDENT: EIU2FAD					
ENG 2 FADEC	EIU2FAD	J7, FRV(SOL 1), ECU associated with	732150		732000 PA260 T 810 928	
	EIU2FAD	J8, FRV(SOL 1), ECU	732150	. !		

EFF: ALL

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## TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGE		FAULT ISOLATION		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!	
ENG 2 FADEC	EIU2FAD	J7, FRV(SOL 1), ECU	732150		732000 PA206 T 810 906	
	IDENT: I	EIU2FAD	<u></u>		1 610 906	
ENG 2 FADEC	EIU2FAD	J7, FRV(SOL 2), ECU associated with	732150	2	732000 PA262 T 810 930	
	EIU2FAD	J8, FRV(SOL 2), ECU	732150	2	1 6 10 730	
ENG 2 FADEC	EIU2FAD	J7, FRV(SOL 2), ECU	732150		732000 PA218 T 810 910	
	IDENT:	EIU2FAD			1 610 710	
ENG 2 FADEC	EIU2FAD	J7, HMU (NAC TM), ECU ENG2A associated with	732150	S	752500 P 219 T 810 824	
	EIU2FAD	J8, HMU (NAC TM), ECU   ENG2B	732150	S		
ENG 2 FADEC	EIU2FAD	J7, HMU (VBV TM), ECU	732150	2	732900 PA273 T 810 890	
ENG 2 FADEC	EIU2FAD	J7, HMU (VSV TM), ECU	732150	2	732900 PA263 T 810 886	
ENG 2 FADEC	EIU2FAD	J7, HMU(BSVSOL), ECU	732150	2	732900 PA247 T 810 878	
ENG 2 FADEC	EIU2FAD	J7, HMU(FMV TM), ECU	732150	2	732900 PA229 T 810 870	
ENG 2 FADEC	EIU2FAD	J7, HMU(FMVRES), ECU	732150	2	732900 PA217 T 810 866	
ENG 2 FADEC	EIU2FAD	J7, HMU(HPTCTM), ECU	732150	2	732900 PA239 T 810 874	
ENG 2 FADEC	EIU2FAD	J7, HMU(HPTCTM), ECU associated with	732150	2	732900 PB200 T 810 917	
	EIU2FAD	J8, HMU(HPTCTM), ECU	732150	2	1 0 10 7 1 f 	
ENG 2 FADEC	EIU2FAD	J7, HMU(HPTCTM), ECU	732150		732900 PA239 T 810 874	
	IDENT: EIU2FAD					
ENG 2 FADEC	EIU2FAD	J7, HMU(LPTCTM), ECU	732150	2	732900 PA283 T 810 894	

EFF: ALL

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## TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES				FAULT ISOLATION	
WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	С	!	
ENG 2 FADEC	EIU2FAD	J7, HMU(LPTCTM), ECU associated with	732150	2	732900 PA298 T 810 915	
	EIU2FAD	J8, HMU(LPTCTM), ECU	732150	2		
ENG 2 FADEC	EIU2FAD	J7, HMU(LPTCTM), ECU	732150	2	732900 PA283 T 810 894	
 	IDENT:	EIU2FAD			010 074	
ENG 2 FADEC	EIU2FAD	J7, HMU(RAC TM), ECU	732150	2	732900 PA255 T 810 882	
ENG 2 FADEC	EIU2FAD	J7, HMU(RAC TM), ECU associated with	732150	2	732900 PA296 T 810 913	
 	EIU2FAD	J8, HMU(RAC TM), ECU	732150	2		
ENG 2 FADEC	EIU2FAD	J7, HMU(RAC TM), ECU	732150	2	732900 PA255 T 810 882	
	IDENT:	EIU2FAD			010 002	
ENG 2 FADEC	EIU2FAD	J7,HMU (TBV TM),ECU ENG2A	732150	2	752600 P 217 T 810 807	
ENG 2 FADEC	EIU2FAD	J8, BSV, ECU	732150	2	732000 PA244 T 810 918	
 	IDENT:	EIU2FAD			1 010 710 	
ENG 2 FADEC	EIU2FAD	J8, FRV(SOL 1), ECU	732150	2	732000 PA212 T 810 908	
	IDENT:	EIU2FAD				
ENG 2 FADEC	EIU2FAD	J8, FRV(SOL 2), ECU	732150	2	732000 PA224 T 810 912	
	IDENT:	EIU2FAD			010 712	
ENG 2 FADEC	EIU2FAD	J8, HMU (VBV TM), ECU	732150	2	732900 PA276 T 810 891	
ENG 2 FADEC	EIU2FAD	J8, HMU (VSV TM), ECU	732150	2	732900 PA265 T 810 887	
ENG 2 FADEC	EIU2FAD	J8, HMU(BSVSOL), ECU	732150	2	732900 PA249 T 810 879	
ENG 2 FADEC	EIU2FAD	J8, HMU(FMV TM), ECU	732150	2	732900 PA232 T 810 871	

EFF: ALL

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## TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES				FAULT ISOLATION	
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE	
ENG 2 FADEC	EIU2FAD	J8, HMU(FMVRES), ECU	732150	2	732900 PA220 T 810 867	
ENG 2 FADEC	EIU2FAD	J8, HMU(HPTCTM), ECU	732150	2	732900 PA241 T 810 875	
ENG 2 FADEC	EIU2FAD	J8, HMU(HPTCTM), ECU	732150		732900 PA241 T 810 875	
	IDENT:	EIU2FAD			1 010 013	
ENG 2 FADEC	EIU2FAD	J8, HMU(LPTCTM), ECU	732150	2	732900 PA285 T 810 895	
ENG 2 FADEC	EIU2FAD	J8, HMU(LPTCTM), ECU	732150		732900 PA285 T 810 895	
	IDENT:	EIU2FAD			1 010 075	
ENG 2 FADEC	EIU2FAD	J8, HMU(RAC TM), ECU	732150	2	732900 PA257 T 810 883	
ENG 2 FADEC	EIU2FAD	J8, HMU(RAC TM), ECU	732150		732900 PA257 T 810 883	
	IDENT: EIU2FAD					
ENG 2 FADEC	EIU2FAD	J8,HMU (TBV TM),ECU ENG2B	732150	2	752600 P 219 T 810 808	
ENG 2 FADEC	EIU2FAD	LPTC VLV, HMU ENG2A	752210	2	752200 P 219 T 810 806	
ENG 2 FADEC	EIU2FAD	LPTC VLV, HMU ENG2B	752210	2	752200 P 241 T 810 810	
ENG 2 FADEC	EIU2FAD	LPTC VLV, J11, ECU	752210	2	752200 P 205 T 810 802	
ENG 2 FADEC	EIU2FAD	LPTC VLV, J11, ECU associated with	752210	2	752200 P 230 T 810 808	
	EIU2FAD	LPTC VLV, J12, ECU	752210	2		
ENG 2 FADEC	EIU2FAD	LPTC VLV, J11, ECU	752210		752200 P 205 T 810 802	
	T 810 802   T 81					
ENG 2 FADEC	EIU2FAD	LPTC VLV, J12, ECU	752210	2	752200 P 213 T 810 804	

EFF: ALL

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## TROUBLE SHOOTING MANUAL

LIADNINGS / MALEUNGTIONS	CFDS FAULT MESSAGES				
WARNINGS/MALFUNCTIONS   	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 2 FADEC	EIU2FAD	LPTC VLV, J12, ECU	752210		752200 P 213 T 810 804
	IDENT: I	EIU2FAD			1 010 004
ENG 2 FADEC	EIU2FAD	NAC VLV, HMU ENG2A	752310	2	752500 P 245 T 810 834
ENG 2 FADEC	EIU2FAD	NAC VLV, HMU ENG2B	752310	2	752500 P 245 T 810 834
ENG 2 FADEC	j	associated with	752310 752310	İ	752500 P 240 T 810 832
ENG 2 FADEC	<del> </del>	N1 SNSR, J10, ECU	<u> </u>	<del> </del>	771000 P 228 T 810 818
ENG 2 FADEC	EIU2FAD	N1 SNSR, J9, ECU	771110	2	771000 P 225 T 810 817
ENG 2 FADEC	EIU2FAD	N2 SNSR, J7, ECU	771120	2	771000 P 245 T 810 823
ENG 2 FADEC	EIU2FAD	N2 SNSR, J8, ECU	771120	2	771000 P 248 T 810 824
ENG 2 FADEC	EIU2FAD	RAC VLV, HMU ENG2A	752310	2	752300 P 203 T 810 806A
ENG 2 FADEC	EIU2FAD	RAC VLV, HMU ENG2B	752310	2	752300 P 225 T 810 818
ENG 2 FADEC	EIU2FAD	RAC VLV, J11, ECU associated with	752310	2	752300 P 208 T 810 808A
	EIU2FAD	RAC VLV, J12, ECU	752310	2	
ENG 2 FADEC	EIU2FAD	RAC VLV, J11, ECU	752310	2	752300 P 214 T 810 810A
ENG 2 FADEC	EIU2FAD	RAC VLV, J11, ECU	752310		752300 P 214 T 810 810A
	IDENT: EIU2FAD				
ENG 2 FADEC	EIU2FAD	RAC VLV, J12, ECU	752310	2	752300 P 220 T 810 812A

EFF: ALL

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## TROUBLE SHOOTING MANUAL

LIADNINGS / MALEUNGTIONS		CFDS FAULT MESSAGES	 S		FAULT
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 2 FADEC	EIU2FAD	RAC VLV, J12, ECU	752310	2	752300 P 220 T 810 812A
	IDENT:	EIU2FAD			
ENG 2 FADEC	EIU2FAD	RLY (27KS2/28KS2) ENG2A	279200	2	732000 PB256 T 810 983
ENG 2 FADEC	EIU2FAD	RLY (27KS2/28KS2) ENG2B	279200	2	732000 PB256 T 810 983
ENG 2 FADEC	EIU2FAD	SAV (SOL), J10, ECU	801120	2	801100 P 219 T 810 808
ENG 2 FADEC	EIU2FAD	SAV (SOL), J9, ECU	801120	2	801100 P 217 T 810 807
ENG 2 FADEC	EIU2FAD	STOW SW, J5/J6, ECU ENG2A	783118	2	783100 P 260 T 810 840
ENG 2 FADEC	EIU2FAD	STOW SW, J5/J6, ECU ENG2B	783118	2	783100 P 260 T 810 840
ENG 2 FADEC	EIU2FAD	TBV VLV, HMU ENG2A	752310	2	752600 P 225 T 810 811
ENG 2 FADEC	EIU2FAD	TBV VLV, HMU ENG2B	752310	2	752600 P 227 T 810 812
ENG 2 FADEC	EIU2FAD	TBV VLV, J11, ECU ENG2A	752310	2	752600 P 207 T 810 803
ENG 2 FADEC		TBV VLV, J11, ECU ENG2A associated with	752310	2	752600 P 232 T 810 814
		TBV VLV, J12, ECU ENG2B	752310	2	010 014
ENG 2 FADEC	EIU2FAD	TBV VLV, J12, ECU ENG2B	752310	2	752600 P 210 T 810 804
ENG 2 FADEC	EIU2FAD	TCC SNSR, J13, ECU ENG2A	732170	2	732000 P 215 T 810 842
ENG 2 FADEC		TCC SNSR, J13, ECU ENG2A associated with TCC SNSR, J13, ECU ENG2B			732000 PB230 T 810 972
L	L	100 3H3R, 313, ECO ENGZB	L	Ĺ	L

EFF: ALL

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## TROUBLE SHOOTING MANUAL

LIADNINGS / MALEUNGTIONS	   	FAULT - ISOLATION		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA (	PROCEDURE
ENG 2 FADEC	EIU2FAD	TCC SNSR, J13, ECU ENG2A	732170	732000 P 215 T 810 842
	IDENT: I	EIU2FAD		1 010 042
ENG 2 FADEC	EIU2FAD	TCC SNSR, J13, ECU ENG2B	732170 2	732000 PA286 T 810 950
ENG 2 FADEC	EIU2FAD	TCC SNSR, J13, ECU ENG2B	732170	732000 PA286 T 810 950
	IDENT: I	EIU2FAD	r	
ENG 2 FADEC	EIU2FAD	TR PR SW, J5/J6, ECU ENG2A	783116	783100 P 232 T 810 822
ENG 2 FADEC	EIU2FAD	TR PR SW, J5/J6, ECU ENG2B	783116	783100 P 232 T 810 822
ENG 2 FADEC	EIU2FAD	T12 SNSR, J10, ECU	732140	732000 P 278 T 810 864
ENG 2 FADEC	EIU2FAD	T12 SNSR, J10, ECU	732140	732000 P 278 T 810 864
ENG 2 FADEC	EIU2FAD	T12 SNSR, J10, ECU ENG2B	732140	732000 P 278 T 810 864
ENG 2 FADEC	EIU2FAD	T12 SNSR, J9, ECU	732140	732000 P 272 T 810 862
ENG 2 FADEC	EIU2FAD	T12 SNSR, J9, ECU	732140	732000 P 272 T 810 862
ENG 2 FADEC	EIU2FAD	T12 SNSR, J9, ECU ENG2A	732140	732000 P 272 T 810 862
ENG 2 FADEC	EIU2FAD	T25 SNSR, J11, ECU	732120	732000 P 248 T 810 854
ENG 2 FADEC	EIU2FAD	T25 SNSR, J11, ECU ENG2A	732120	732000 P 248 T 810 854
ENG 2 FADEC	EIU2FAD	T25 SNSR, J12, ECU	732120	732000 P 254 T 810 856
ENG 2 FADEC	EIU2FAD	T25 SNSR, J12, ECU ENG2B	732120	732000 P 254 T 810 856

EFF: ALL

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## TROUBLE SHOOTING MANUAL

LIADNINGS / MALEUNGTIONS		CFDS FAULT MESSAGES	 S	FAULT - ISOLATION
WARNINGS/MALFUNCTIONS   	SOURCE	MESSAGE	ATA	C PROCEDURE
ENG 2 FADEC	EIU2FAD	T3 SNSR, J13, ECU ENG2A	772310	2 772000 P 211 T 810 806
ENG 2 FADEC	EIU2FAD	T3 SNSR, J13, ECU ENG2A	772310	2 772000 P 219 T 810 810
ENG 2 FADEC	EIU2FAD	T3 SNSR, J13, ECU ENG2B	772310	2 772000 P 241 T 810 829
ENG 2 FADEC	EIU2FAD	T3 SNSR, J13, ECU ENG2B	772310	3 772000 P 241 T 810 829
ENG 2 FADEC	EIU2FAD	T495 SNSR, J13, ECU ENG2A	772110	2 772000 P 204 T 810 804
ENG 2 FADEC	EIU2FAD	T495 SNSR, J13, ECU ENG2B	772110	2 772000 P 234 T 810 827
ENG 2 FADEC	EIU2FAD	VBV SNSR, J11, ECU	753170	2 753000 P 223 T 810 814
ENG 2 FADEC	EIU2FAD	VBV SNSR, J12, ECU	753170	2 753000 P 231 T 810 816
ENG 2 FADEC	EIU2FAD	VSV, ACT, J11, ECU	753210	2 753200 P 214 T 810 806
ENG 2 FADEC	EIU2FAD	VSV, ACT, J12, ECU	753210	2 753200 P 220 T 810 808
ENG 2 FADEC	EIU2FAD	ZC, EIU (ECSD), J3 ENG2A	216334	2 732500 PA212 T 810 925
ENG 2 FADEC	EIU2FAD	ZC, EIU (ECSD), J3 ENG2B	216334	2 732500 PA212 T 810 925
ENG 2 FADEC	EIU2FAD	ZC, EIU (030), J3 ENG2A	216334	2 732500 P 271 T 810 894
ENG 2 FADEC	EIU2FAD	ZC, EIU (030), J3 ENG2B	216324	2 732500 P 271 T 810 894
ENG 2 FADEC	<b>j</b>	ZC, EIU(ECSD), J3 ENG2A associated with ZC, EIU(ECSD), J3 ENG2B	216334 216334	2 732500 PA212 T 810 925
L	L TOZFAD	L	2 10334   	<u>-                                     </u>

EFF: ALL

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## TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES					FAULT ISOLATION		
WARNINGS/MALFUNCTIONS	SOURCE		MESSAG	E		ATA	С	! !
ENG 2 FADEC	EIU2FAD	ZC,	EIU(ECSD),	J3	ENG2A	216334	2	732500 PA212 T 810 925
	IDENT: I	EIU2	FAD					
ENG 2 FADEC	EIU2FAD	ZC,	EIU(ECSD),	J3	ENG2B	216334	2	732500 PA212
	IDENT: EIU2FAD				Т 810 925			

#### Upper ECAM DU Flags

	 	 	<b>,</b>
EGT - EGT of one engine is significantly higher than the other engine			770000 P 243 T 810 855
ENG 1 - "CHECK" message is shown near engine 1 EGT indication associated with Upper ECAM DU Warnings ENG 1 EGT DISCREPANCY			770000 P 201 T 810 823
ENG 1 - "CHECK" message is shown near engine 1 FF indication associated with Upper ECAM DU Warnings ENG 1 FF DISCREPANCY			730000 P 205 T 810 861
ENG 1 - "CHECK" message is shown near engine 1 N1 indication associated with Upper ECAM DU Warnings ENG 1 N1 DISCREPANCY			770000 P 205 T 810 827
ENG 1 - "CHECK" message is shown near engine 1 N2 indication associated with Upper ECAM DU Warnings ENG 1 N2 DISCREPANCY			770000 P 207 T 810 831

EFF: ALL
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## TROUBLE SHOOTING MANUAL

	WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES				FAULT ISOLATION	
	WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	<b>!</b>	
	ENG 1 - All parameters are not XX when engine 1 shut down after 5 mn					732900 P 20 T 810 804	
	ENG 1 - all parameters are XX with FADEC GND PWR P/BSW selected ON					732900 P 21 T 810 806	
	ENG 1 - EGT indication permanently equal to 15°C (default value)					770000 P 23 T 810 853	
	ENG 1 - Idle speeds (minimum or approach) too high or too low					730000 P 22 T 810 872	
	ENG 1 - Incorrect power after take off (N1 mismatch)					730000 P 23 T 810 873	
	ENG 1 - Loss of the EGT indication (amber XX on upper ECAM display)					770000 P 23 T 810 854	
	ENG 1 - N1 actual is lower than N1 command					770000 P 20 T 810 833	
	ENG 1 - N1 indication (actual) or N1 command fluctuation					770000 P 23 T 810 852	
	ENG 1 - N1 indication lost amber XX on ECAM					770000 P 21 T 810 835	
	ENG 1 - N1 mismatch during flex take off associated with Upper ECAM DU Warnings ENG FLEX TEMP NOT SET					730000 P 22 T 810 870	
	ENG 1 - N1 mismatch during flex take off					770000 P 25 T 810 859	
     	ENG 1 - N1 mismatch at climb					770000 P 25 T 810 861	

EFF :	ALL	
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## TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES				
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION     PROCEDURE	
ENG 1 - N1 mismatch at take off					770000 P 252 T 810 860	
ENG 1 - N1/N2 mismatch on the same engine					770000 P 248 T 810 858	
ENG 1 - N2 decreases while EGT and FF stay stable associated with ENG 1 - Engine roll back					720000 P 201 T 810 803	
ENG 1 - N2 higher than 15 per cent on ground or in flight associated with Upper ECAM DU Warnings ENG 1 FADEC A FAULT					770000 P 288 T 810 875	
ENG 1 - N2 higher than 15 per cent on ground or in flight associated with Upper ECAM DU Warnings ENG 1 FADEC B FAULT					770000 P 292 T 810 877	
ENG 1 - N2 higher than 15 per cent on ground or in flight associated with Upper ECAM DU Warnings ENG 1 FADEC FAULT					770000 PA204 T 810 883	
ENG 1 - N2 indication lost amber XX on ECAM				     	770000 P 211 T 810 836	
ENG 1 - T/R REV No REV indication with deployed position set					780000 P 201 T 810 801	
ENG 1 - T/R REV REV indication remains amber					780000 P 203 T 810 802	
ENG 1 FUEL - Fuel flow replaced by XX on the upper ECAM					730000 P 224 T 810 869	

EFF: ALL

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## TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAG	iES		FAULT ISOLATION
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	C	!!
ENG 1 FUEL - Fuel flow replaced by XX on the upper ECAM associated with Lower ECAM DU Flags-ENGINE ENG 1 FUEL - Fuel used replaced by XX on the lower ECAM					730000 P 224 T 810 869
ENG 1 start - All engine 1 parameters are XX					732900 P 201 T 810 802
ENG 1 Starting - N1 rotor does not turn during start					800000 P 220 T 810 837
ENG 1 Starting - Slow start before light off sequence					800000 P 214 T 810 834
ENG 2 - "CHECK" message is shown near engine 2 EGT indication associated with Upper ECAM DU Warnings ENG 2 EGT DISCREPANCY					770000 P 203 T 810 824
ENG 2 - "CHECK" message is shown near engine 2 FF indication associated with Upper ECAM DU Warnings ENG 2 FF DISCREPANCY					730000 P 206 T 810 862
ENG 2 - "CHECK" message is shown near engine 2 N1 indication associated with Upper ECAM DU Warnings ENG 2 N1 DISCREPANCY					770000 P 206 T 810 828

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## TROUBLE SHOOTING MANUAL

	WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION	
	WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	С	!	
	ENG 2 - "CHECK" message is shown near engine 2 N2 indication associated with Upper ECAM DU Warnings ENG 2 N2 DISCREPANCY					770000 P 208 T 810 832	
	ENG 2 - All parameters are not XX when engine 2 shut down after 5 mn					732900 P 211 T 810 805	
	ENG 2 - All parameters are XX with FADEC GND PWR P/BSW selected ON					732900 P 216 T 810 807	
	ENG 2 - EGT indication permanently equal to 15°C (default value)				†	770000 P 236 T 810 853	
	ENG 2 - Idle speeds (minimum or approach) too high or too low					730000 P 228 T 810 872	
İ	ENG 2 - Incorrect power after take off (N1 mismatch)					730000 P 234 T 810 873	
	ENG 2 - Loss of the EGT indication (amber XX on upper ECAM display)					770000 P 239 T 810 854	
	ENG 2 - N1 actual is lower than N1 command					770000 P 209 T 810 833	
	ENG 2 - N1 indication (actual) or N1 command fluctuation					770000 P 232 T 810 852	
	ENG 2 - N1 indication lost amber XX on ECAM				   	770000 P 210 T 810 835	
	ENG 2 - N1 mismatch during flex take off associated with Upper ECAM DU Warnings ENG FLEX TEMP NOT SET					730000 P 226 T 810 870	

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## TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	<u> </u>	CFDS FAULT MESSAGE	S		FAULT ISOLATION
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	C	:
ENG 2 - N1 mismatch during flex take off				T	770000 P 250 T 810 859
ENG 2 - N1 mismatch at climb				<b>T</b>	770000 P 254 T 810 861
ENG 2 - N1 mismatch at take off				<del> </del>	770000 P 252 T 810 860
ENG 2 - N1/N2 mismatch on the same engine				<b>T</b>	770000 P 248 T 810 858
ENG 2 - N2 decreases while EGT and FF stay stable associated with ENG 2 - Engine roll back					720000 P 205 T 810 804
ENG 2 - N2 higher than 15 per cent on ground or in flight associated with Upper ECAM DU Warnings ENG 2 FADEC A FAULT					770000 P 296 T 810 879
ENG 2 - N2 higher than 15 per cent on ground or in flight associated with Upper ECAM DU Warnings ENG 2 FADEC B FAULT					770000 PA200 T 810 881
ENG 2 - N2 higher than 15 per cent on ground or in flight associated with Upper ECAM DU Warnings ENG 2 FADEC FAULT					770000 PA208 T 810 885
ENG 2 - N2 indication lost amber XX on ECAM				†	770000 P 211 T 810 836
ENG 2 - T/R REV No REV indication with deployed position set				†	780000 P 201 T 810 801

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## TROUBLE SHOOTING MANUAL

HADNINGS (MALIFILINGITIONS			FAULT ISOLATION			
WARNINGS/MALFUNCTIONS	SOURCE	SOURCE MESSAGE		C	!!	
ENG 2 - T/R REV REV					780000 P 203 T 810 802	
ENG 2 FUEL - Fuel flow replaced by XX on the upper ECAM					730000 P 224 T 810 869	
ENG 2 FUEL - Fuel flow replaced by XX on the upper ECAM associated with Lower ECAM DU Flags-ENGINE ENG 2 FUEL - Fuel used replaced by XX on the lower ECAM					730000 P 224 T 810 869	
ENG 2 start - All engine 2 parameters are XX				†	732900 P 205 T 810 803	
ENG 2 Starting - N1 rotor does not turn during start					800000 P 220 T 810 837	
ENG 2 Starting - Slow start before light off sequence				†         	800000 P 214 T 810 834	

#### Lower ECAM DU Flags-ENGINE

ENG - N1 and N2 VIB indications replaced by amber XX on both engines					773000 P 204 T 810 803
ENG - N1 or N2 VIB indication replaced by amber XX on one engine associated with STS-Maintenance ENG EVMU	EVMU	EVMU	773234	2	773000 P 203 T 810 802

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## TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAG	iES		FAULT ISOLATION
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	C	!!!
ENG - N1 vibration indication replaced by amber XX on one engine associated with STS-Maintenance ENG EVMU					773000 P 203 T 810 802
ENG - N2 vibration indication replaced by amber XX on one engine associated with STS-Maintenance ENG EVMU					773000 P 203 T 810 802
ENG 1 - FAN VIB higher than or equal to 4 units and less than 6 units				†	770000 P 258 T 810 863
ENG 1 - FAN VIB higher than or equal to 6 units and lower than 8 units					770000 P 265 T 810 864
ENG 1 - FAN VIB higher than or equal to 8 units				T	770000 P 265 T 810 864
ENG 1 - FAN VIB less than 4 units with noise/ rumble (1 unit = 1 mils)					770000 P 256 T 810 862
ENG 1 - N1 VIB higher than 2 units and lower than 4 units associated with ENG 1 - No noise/rumble					700000 P 203 T 810 806
ENG 1 - N2 VIB higher than 1.3 units and lower than 4.2 units				†	700000 P 203 T 810 806
ENG 1 FUEL - F. FILTER CLOG associated with Upper ECAM DU Warnings ENG 1 FUEL FILTER CLOG					730000 P 237 T 810 875

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## TROUBLE SHOOTING MANUAL

	WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES			FAULT ISOLATION	
	WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!
	ENG 1 FUEL - Fuel used replaced by XX on the lower ECAM					730000 P 224 T 810 869
	ENG 1 FUEL - Fuel used replaced by XX on the lower ECAM associated with Upper ECAM DU Flags ENG 1 FUEL - Fuel flow replaced by XX on the upper ECAM					730000 P 224 T 810 869
R	ENG 1 OIL - Oil pressure lower than other engine					790000 P 230 T 810 823
	ENG 1 Starting - Starter shut off valve does not open in automatic mode					800000 P 216 T 810 835
	ENG 2 - FAN VIB higher than or equal to 4 units and less than 6 units					770000 P 258 T 810 863
	ENG 2 - FAN VIB higher than or equal to 6 units and lower than 8 units					770000 P 265 T 810 864
	ENG 2 - FAN VIB higher than or equal to 8 units				   	770000 P 265 T 810 864
	ENG 2 - FAN VIB less  than 4 units with noise/  rumble (1 unit = 1 mils)					770000 P 256 T 810 862
	ENG 2 - N1 VIB higher than 2 units and lower than 4 units associated with ENG 2 - No noise/rumble					700000 P 203 T 810 806
	ENG 2 - N2 VIB higher than 1.3 units and lower than 4.2 units					700000 P 203 T 810 806

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## TROUBLE SHOOTING MANUAL

	     WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES			FAULT ISOLATION	
	WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	! !
R	ENG 2 FUEL - F. FILTER CLOG associated with Upper ECAM DU Warnings ENG 2 FUEL FILTER CLOG					730000 P 240 T 810 876
	ENG 2 FUEL - Fuel used replaced by XX on the lower ECAM				     	730000 P 224 T 810 869
	ENG 2 FUEL - Fuel used replaced by XX on the lower ECAM associated with Upper ECAM DU Flags ENG 2 FUEL - Fuel flow replaced by XX on the upper ECAM					730000 P 224 T 810 869
R	ENG 2 OIL - Oil pressure lower than other engine					790000 P 230 T 810 823
	ENG 2 Starting - Starter shut off valve does not open in automatic mode				     	800000 P 218 T 810 836
R	OIL ENG 1 - Amber XX instead of the oil quantity indication					790000 P 216 T 810 812
R	OIL ENG 1 - Amber XX instead of the oil TEMP indication					790000 P 218 T 810 815
R	OIL ENG 1 - High oil consumption					790000 P 220 T 810 818
R	OIL ENG 1 - Loss of the oil pressure indication (amber XX on ECAM)					790000 P 233 T 810 824
R	OIL ENG 1 - Oil filter clog associated with Upper ECAM DU Warnings ENG 1 OIL FILTER CLOG					790000 P 226 T 810 820

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## TROUBLE SHOOTING MANUAL

	WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES			FAULT ISOLATION	
	WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	C	PROCEDURE	
R	OIL ENG 1 - Oil PRESS indication flashes green on ENG 1					790000 P 206 T 810 807	
R	OIL ENG 1 - Oil PRESS indication flashes green on ENG 1 associated with Upper ECAM DU Warnings ENG 1 OIL LO PR					790000 P 206 T 810 807	
R	OIL ENG 1 - Oil pressure higher than the other engine					790000 P 230 T 810 823	
R	OIL ENG 1 - Oil quantity fluctuation					790000 P 216 T 810 812	
R	OIL ENG 1 - Oil quantity indication higher than on engine 2					790000 P 212 T 810 810	
R	OIL ENG 1-Oil quantity decreases faster than the other engine					790000 P 220 T 810 818	
R	OIL ENG 2 - Amber XX instead of the oil quantity indication					790000 P 216 T 810 812	
R	OIL ENG 2 - Amber XX instead of the oil TEMP indication					790000 P 218 T 810 815	
R	OIL ENG 2 - High oil consumption					790000 P 223 T 810 819	
R	OIL ENG 2 - Loss of the oil pressure indication (amber XX on ECAM)					790000 P 233 T 810 824	
R	OIL ENG 2 - Oil filter clog associated with Upper ECAM DU Warnings ENG 2 OIL FILTER CLOG					790000 P 228 T 810 821	

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## TROUBLE SHOOTING MANUAL

	WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	<u> </u>		FAULT ISOLATION
	WARNINGS/ MALFORCTIONS	SOURCE	MESSAGE	ATA	С	!!
R	OIL ENG 2 - Oil PRESS indication flashes green on ENG 2					790000 P 209 T 810 808
R	OIL ENG 2 - Oil PRESS indication flashes green on ENG 2 associated with Upper ECAM DU Warnings ENG 2 OIL LO PR					790000 P 209 T 810 808
R	OIL ENG 2 - Oil pressure higher than the other engine					790000 P 230 T 810 823
R	OIL ENG 2 - Oil quantity fluctuation					790000 P 216 T 810 812
R	OIL ENG 2 - Oil quantity indication higher than on engine 1					790000 P 214 T 810 811
R	OIL ENG 2-Oil quantity decreases faster than the other engine					790000 P 223 T 810 819

# Lower ECAM DU Advisories CRUISE

,	ENG 1 - Oil quantity flashes green		. !	790000 P 220 T 810 818
	ENG 2 - Oil quantity flashes green		. !	790000 P 223 T 810 819

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## TROUBLE SHOOTING MANUAL

LIADNINGS / MALEUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	PROCEDURE

R Lower ECAM DU Advisories

R ENGINE

R R R R R	ENG 1 - N2 VIB value flashing associated with ENG 1 - N2 VIB higher than or equal to 4.2 and lower than 5.4 units		770000 P 273 T 810 865
R R R R R	ENG 1 - N2 VIB value flashing associated with ENG 1 - N2 VIB higher than or equal to 5.5 units		770000 P 279 T 810 866
R R R R	ENG 2 - N2 VIB value flashing associated with ENG 2 - N2 VIB higher than or equal to 4.2 and lower than 5.4 units		770000 P 273 T 810 865
R R R R R	ENG 2 - N2 VIB value flashing associated with ENG 2 - N2 VIB higher than or equal to 5.5 units		770000 P 279 T 810 866

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## TROUBLE SHOOTING MANUAL

#### ENGINE INDICATING - FAULT SYMPTOMS

	WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES			FAULT ISOLATION
	WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!
	EGT - EGT of one engine is significantly higher than the other engine					770000 P 243 T 810 855
	ENG - differential acceleration					710000 P 207 T 810 807
	ENG - N1 and N2 VIB indications replaced by amber XX on both engines					773000 P 204 T 810 803
	ENG - N1 indication lost amber XX on ECAM					770000 P 210 T 810 835
	ENG - N1 or N2 VIB indication replaced by amber XX on one engine					773000 P 203 T 810 802
	ENG - N2 indication lost amber XX on ECAM					770000 P 211 T 810 836
	ENG - slow acceleration					710000 P 207 T 810 807
	ENG 1 - "CHECK" message is shown near engine 1 EGT indication				   	770000 P 20 <sup>4</sup> T 810 823
	ENG 1 - "CHECK" message is shown near engine 1 N1 indication				   	770000 P 205 T 810 827
	ENG 1 - "CHECK" message is shown near engine 1 N2 indication					770000 P 207 T 810 831
	ENG 1 - All parameters are not XX when engine 1 shut down after 5 mn					732900 P 209 T 810 804
	ENG 1 - All parameters are XX with FADEC GND PWR P/BSW selected ON					732900 P 213 T 810 806

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HADNINGS (MALIFILMS TIONS	CFDS FAULT MESSAGES			FAULT ISOLATION	
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	
ENG 1 - During ENG start, all engine 1 parameters are XX					732900 P 201 T 810 802
ENG 1 - During ENG shut down sequence with FIRE P/B: ENG DOES NOT STOP					730000 P 243 T 810 920
ENG 1 - EGT above 915°C during Max Continuous associated with ENG 1 - EGT above 950°C during Take Off and ENG 2 - EGT above 950°C during Take Off and ENG 2 - EGT above 915°C during Max Continuous					770000 P 212 T 810 849
ENG 1 - EGT above 950°C during Take Off associated with ENG 2 - EGT above 950°C during Take Off and ENG 1 - EGT above 915°C during Max Continuous and ENG 2 - EGT above 915°C during Max Continuous					770000 P 212 T 810 849
ENG 1 - EGT indication permanently equal to 15°C (default value)					770000 P 236 T 810 853
ENG 1 - engine auto				   	770000 P 232 T 810 852
ENG 1 - engine N1 auto				         	770000 P 232 T 810 852
ENG 1 - FAN VIB higher than or equal to 4 units and lower than 6 units					770000 P 258 T 810 863

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## TROUBLE SHOOTING MANUAL

HARNINGS (MALEUNISTICALS	CFDS FAULT MESSAGES			FAULT	
WARNINGS/MALFUNCTIONS  -	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
ENG 1 - FAN VIB higher than or equal to 6 units and lower than 8 units					770000 P 26 T 810 864
ENG 1 - FAN VIB higher than or equal to 8 units					770000 P 26 T 810 864
ENG 1 - FAN VIB less than 4 units with noise/rumble					770000 P 25 T 810 862
ENG 1 - Idle speeds (minimum or approach) too high or too low					730000 P 22 T 810 872
ENG 1 - Incorrect power after take off (N1 mismatch)					730000 P 23 T 810 873
ENG 1 - Loss of the EGT indication (amber XX on upper ECAM display)					770000 P 23 T 810 854
ENG 1 - No noise/rumble associated with Lower ECAM DU Flags-ENGINE ENG 1 - N1 VIB higher than 2 units and lower than 4 units					700000 P 20 T 810 806
ENG 1 - no throttle response					770000 P 23 T 810 852
ENG 1 - N1 actual is lower than N1 command					770000 P 20 T 810 833
ENG 1 - N1 indication (actual) or N1 command fluctuation					770000 P 23 T 810 852
ENG 1 - N1 mismatch during flex take off					770000 P 25 T 810 859
ENG 1 - N1 mismatch at climb					770000 P 25 T 810 861

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## TROUBLE SHOOTING MANUAL

	WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES			FAULT ISOLATION	
	WARNINGS/MALFONCTIONS	SOURCE	MESSAGE	ATA	С	
	ENG 1 - N1 mismatch at take off					770000 P 252 T 810 860
	ENG 1 - N1 VIB higher than 2 units and lower than 4 units					700000 P 203 T 810 806
	ENG 1 - N1/N2 mismatch on the same engine					770000 P 248 T 810 858
R R R R R R R	ENG 1 - N2 VIB higher than or equal to 4.2 and lower than 5.4 units associated with Lower ECAM DU Advisories ENGINE ENG 1 - N2 VIB value flashing					770000 P 273 T 810 865
R R R R R R	ENG 1 - N2 VIB higher than or equal to 5.5 units associated with Lower ECAM DU Advisories ENGINE ENG 1 - N2 VIB value flashing					770000 P 279 T 810 866
	ENG 1 - N2 VIB higher than 1.3 units and lower than 4.2 units					700000 P 203 T 810 806
R	ENG 1 - Red X display next to N2 indication on ECAM					770000 PA230 T 810 914
R	ENG 1 - Vibration with noise at approximately 51% N1					770000 PA234 T 810 916
	ENG 2 - "CHECK" message is shown near engine 2 EGT indication					770000 P 203 T 810 824

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## TROUBLE SHOOTING MANUAL

	WARNINGS/MALFUNCTIONS		FAULT ISOLATION			
	WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	С	!!
	ENG 2 - "CHECK" message is shown near engine 2 N1 indication				     	770000 P 206 T 810 828
	ENG 2 - "CHECK" message is shown near engine 2 N2 indication					770000 P 208 T 810 832
	ENG 2 - All parameters are not XX when engine 2 shut down after 5 mn					732900 P 211 T 810 805
	ENG 2 - All parameters are XX with FADEC GND PWR P/BSW selected ON					732900 P 216 T 810 807
	ENG 2 - During ENG start, all engine 2 parameters are XX					732900 P 205 T 810 803
R	ENG 2 - During ENG shut down sequence with FIRE P/B: ENG DOES NOT STOP					730000 P 245 T 810 921
	ENG 2 - EGT above 915°C during Max Continuous associated with ENG 1 - EGT above 950°C during Take Off and ENG 2 - EGT above 950°C during Take Off and ENG 1 - EGT above 915°C during Max Continuous					770000 P 212 T 810 849

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## TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES	 S		FAULT ISOLATION
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	! !
ENG 2 - EGT above 950°C during Take Off associated with ENG 1 - EGT above 950°C during Take Off and ENG 1 - EGT above 915°C during Max Continuous and ENG 2 - EGT above 915°C during Max Continuous					770000 P 212 T 810 849
ENG 2 - EGT indication permanently equal to 15°C (default value)					770000 P 236 T 810 853
ENG 2 - engine auto					770000 P 232 T 810 852
ENG 2 - engine N1 auto deceleration					770000 P 232 T 810 852
ENG 2 - FAN VIB higher than or equal to 4 units and lower than 6 units					770000 P 258 T 810 863
ENG 2 - FAN VIB higher than or equal to 6 units and lower than 8 units					770000 P 265 T 810 864
ENG 2 - FAN VIB higher than or equal to 8 units					770000 P 265 T 810 864
ENG 2 - FAN VIB less than 4 units with noise/rumble					770000 P 256 T 810 862
ENG 2 - Idle speeds (minimum or approach) too high or too low					730000 P 228 T 810 872
ENG 2 - Incorrect power after take off (N1 mismatch)					730000 P 234 T 810 873

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R R R R R R R **© A319/A320/A321** 

## TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	Ţ	FAULT ISOLATION			
WARRINGS/ HALI ONG LIONS	SOURCE	MESSAGE	ATA	C	! !
ENG 2 - Loss of the EGT indication (amber XX on upper ECAM display)					770000 P 239 T 810 854
ENG 2 - No noise/rumble associated with Lower ECAM DU Flags-ENGINE ENG 2 - N1 VIB higher than 2 units and lower than 4 units					700000 P 203 T 810 806
ENG 2 - no throttle					770000 P 232 T 810 852
ENG 2 - N1 actual is lower than N1 command					770000 P 209 T 810 833
ENG 2 - N1 indication (actual) or N1 command fluctuation					770000 P 232 T 810 852
ENG 2 - N1 mismatch during flex take off				†	770000 P 250 T 810 859
ENG 2 - N1 mismatch at climb					770000 P 254 T 810 861
ENG 2 - N1 mismatch at take off					770000 P 252 T 810 860
ENG 2 - N1 VIB higher than 2 units and lower than 4 units					700000 P 203 T 810 806
ENG 2 - N1/N2 mismatch on the same engine					770000 P 248 T 810 858
ENG 2 - N2 VIB higher than or equal to 4.2 and lower than 5.4 units associated with Lower ECAM DU Advisories ENGINE ENG 2 - N2 VIB value flashing					770000 P 273 T 810 865

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## TROUBLE SHOOTING MANUAL

	WARNINGS/MALFUNCTIONS		FAULT ISOLATION			
		SOURCE	MESSAGE	ATA	С	PROCEDURE
R R R R R R R	ENG 2 - N2 VIB higher than or equal to 5.5 units associated with Lower ECAM DU Advisories ENGINE ENG 2 - N2 VIB value flashing					770000 P 279 T 810 866
	ENG 2 - N2 VIB higher than 1.3 units and lower than 4.2 units					700000 P 203 T 810 806
R	ENG 2 - Red X display next to N2 indication on ECAM					770000 PA232 T 810 915
R	ENG 2 - Vibration with noise at approximately 51% N1					770000 PA237 T 810 917
	ENGINE - ENG 1 NACELLE TEMP indication flashing green associated with ENGINE - ENG 1 NACELLE TEMP indication flashing green					754100 P 201 T 810 805
	ENGINE - ENG 2 NACELLE TEMP indication flashing green associated with ENGINE - ENG 2 NACELLE TEMP indication flashing green					754100 P 206 T 810 806
	ENG1 - During engine start sequence: ENG does not spoll up to idle associated with Upper ECAM DU Warnings ENG 1 HP FUEL VALVE					761200 P 210 T 810 812

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## TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES					FAULT ISOLATION	
WARRINGS, HALL ONG LIONS	SOURCE	М	ESSAGE		ATA	С	PROCEDURE
ENG1 - During engine start sequence: ENG does not spoll up to idle associated with Upper ECAM DU Warnings ENG 1 HP FUEL VALVE	EIU1FAD	MASTER LE	VER, HMU	ENG1A	761200	1	761200 P 210 T 810 812
ENG1 - During engine start sequence: ENG does not spoll up to idle	EIU1FAD	MASTER LE	VER, HMU	ENG1A	761200	1	761200 P 210 T 810 812
ENG1 - During engine start sequence: ENG does not spoll up to idle associated with Upper ECAM DU Warnings ENG 1 HP FUEL VALVE	EIU1FAD	MASTER LE	VER, HMU	ENG1B	761200	1	761200 P 210 Т 810 812
ENG1 - During engine start sequence: ENG does not spoll up to idle	EIU1FAD	MASTER LE	VER, HMU	ENG1B	761200	1	761200 P 210 T 810 812
ENG1 - During engine start sequence: engine starts then shuts down associated with Upper ECAM DU Warnings ENG 1 HP FUEL VALVE							761200 P 206 T 810 810
ENG1 - During engine start sequence: engine starts then shuts down associated with Upper ECAM DU Warnings ENG 1 HP FUEL VALVE	EIU1FAD	MASTER LE	VER, HMU	ENG1A	761200	1	761200 P 206 T 810 810
ENG1 - During engine start sequence: engine starts then shuts down	EIU1FAD	MASTER LE	VER, HMU	ENG1A	761200	1	761200 P 206 T 810 810
ENG1 - During engine start sequence: engine starts then shuts down associated with Upper ECAM DU Warnings ENG 1 HP FUEL VALVE	EIU1FAD	MASTER LE	VER, HMU	ENG1B	761200	1	761200 P 206 T 810 810

EFF: ALL

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## TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES					FAULT ISOLATION
WARRENGO, HALL ONG LONG	SOURCE	MESSAGE		АТА	С	PROCEDURE
ENG1 - During engine start sequence: engine starts then shuts down	EIU1FAD	MASTER LEVER, HMU	J ENG1B	761200	1	761200 P 206 T 810 810
ENG1 - During normal engine operation: engine stops associated with Upper ECAM DU Warnings ENG 1 HP FUEL VALVE						761200 P 218 T 810 816
ENG1 - During normal engine operation: engine stops associated with Upper ECAM DU Warnings ENG 1 HP FUEL VALVE	EIU1FAD	MASTER LEVER, HMU	J ENG1A	761200	1	761200 P 218 T 810 816
ENG1 - During normal engine operation: engine stops	EIU1FAD	MASTER LEVER, HMU	J ENG1A	761200	1	761200 P 218 T 810 816
ENG1 - During normal engine operation: engine stops associated with Upper ECAM DU Warnings ENG 1 HP FUEL VALVE	EIU1FAD	MASTER LEVER, HMU	J ENG1B	761200	1	761200 P 218 T 810 816
ENG1 - During normal engine operation: engine stops	EIU1FAD	MASTER LEVER, HMU	J ENG1B	761200	1	761200 P 218 T 810 816
ENG1 - During normal ENG shut down sequence: ENG does not stop associated with Upper ECAM DU Warnings ENG 1 HP FUEL VALVE						761200 P 214 T 810 814
ENG1 - During normal ENG shut down sequence: ENG does not stop associated with Upper ECAM DU Warnings ENG 1 HP FUEL VALVE	EIU1FAD	MASTER LEVER, HMU	J ENG1A	761200	1	761200 P 214 T 810 814

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT		
WARNINGS/ MALFUNCTIONS	SOURCE	MESSAGE	ATA C	- ISOLATION PROCEDURE
ENG1 - During normal ENG shut down sequence: ENG does not stop	EIU1FAD	MASTER LEVER, HMU ENG1A	761200 1	761200 P 214 T 810 814
ENG1 - During normal ENG shut down sequence: ENG does not stop associated with Upper ECAM DU Warnings ENG 1 HP FUEL VALVE	EIU1FAD	MASTER LEVER, HMU ENG1B	761200 1	761200 P 214 T 810 814
ENG1 - During normal ENG shut down sequence: ENG does not stop	EIU1FAD	MASTER LEVER, HMU ENG1B	761200 1	761200 P 214 T 810 814
ENG1 - EGT fluctuation with other parameters stable				772000 P 245 T 810 830
ENG2 - During engine start sequence: ENG does not spoll up to idle associated with Upper ECAM DU Warnings ENG 2 HP FUEL VALVE				761200 P 212 T 810 813
ENG2 - During engine start sequence: ENG does not spoll up to idle associated with Upper ECAM DU Warnings ENG 2 HP FUEL VALVE	EIU2FAD	MASTER LEVER, HMU ENG2A	761200 1	761200 P 212 T 810 813
ENG2 - During engine start sequence: ENG does not spoll up to idle	EIU2FAD	MASTER LEVER, HMU ENG2A	761200 1	761200 P 212 T 810 813
ENG2 - During engine start sequence: ENG does not spoll up to idle associated with Upper ECAM DU Warnings ENG 2 HP FUEL VALVE	EIU2FAD	MASTER LEVER, HMU ENG2B	761200 1	761200 P 212 T 810 813

EFF: ALL

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### TROUBLE SHOOTING MANUAL

LIADNINGS (MALIFILMS TIONS		FAULT		
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	- ISOLATION PROCEDURE
ENG2 - During engine start sequence: ENG does not spoll up to idle	EIU2FAD	MASTER LEVER, HMU ENG2B	761200	761200 P 212 T 810 813
ENG2 - During engine start sequence: engine starts then shuts down associated with Upper ECAM DU Warnings ENG 2 HP FUEL VALVE				761200 P 208 T 810 811
ENG2 - During engine start sequence: engine starts then shuts down associated with Upper ECAM DU Warnings ENG 2 HP FUEL VALVE	EIU2FAD	MASTER LEVER, HMU ENG2A	761200	1 761200 P 208 T 810 811
ENG2 - During engine start sequence: engine starts then shuts down	EIU2FAD	MASTER LEVER, HMU ENG2A	761200	761200 P 208 T 810 811
ENG2 - During engine start sequence: engine starts then shuts down associated with Upper ECAM DU Warnings ENG 2 HP FUEL VALVE	EIU2FAD	MASTER LEVER, HMU ENG2B	761200	1 761200 P 208 T 810 811
ENG2 - During engine   start sequence: engine   starts then shuts down	EIU2FAD	MASTER LEVER, HMU ENG2B	761200	1 761200 P 208 T 810 811
ENG2 - During normal engine operation: engine stops associated with Upper ECAM DU Warnings ENG 2 HP FUEL VALVE				761200 P 220 T 810 817
ENG2 - During normal engine operation: engine stops associated with Upper ECAM DU Warnings ENG 2 HP FUEL VALVE	EIU2FAD	MASTER LEVER, HMU ENG2A	761200	1 761200 P 220 T 810 817

EFF: ALL

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT - ISOLATION		
WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA (	! !
ENG2 - During normal engine operation: engine stops	EIU2FAD	MASTER LEVER, HMU ENG2A	761200 1	761200 P 220 T 810 817
ENG2 - During normal engine operation: engine stops associated with Upper ECAM DU Warnings ENG 2 HP FUEL VALVE	EIU2FAD	MASTER LEVER, HMU ENG2B	761200 1	761200 P 220 T 810 817
ENG2 - During normal engine operation: engine stops	EIU2FAD	MASTER LEVER, HMU ENG2B	761200	761200 P 220 T 810 817
ENG2 - During normal ENG shut down sequence: ENG does not stop associated with Upper ECAM DU Warnings ENG 2 HP FUEL VALVE				761200 P 216 T 810 815
ENG2 - During normal ENG shut down sequence: ENG does not stop associated with Upper ECAM DU Warnings ENG 2 HP FUEL VALVE	EIU2FAD	MASTER LEVER, HMU ENG2A	761200	761200 P 216 T 810 815
ENG2 - During normal ENG shut down sequence: ENG does not stop	EIU2FAD	MASTER LEVER, HMU ENG2A	761200	761200 P 216 T 810 815
ENG2 - During normal ENG shut down sequence: ENG does not stop associated with Upper ECAM DU Warnings ENG 2 HP FUEL VALVE	EIU2FAD	MASTER LEVER, HMU ENG2B	761200 1	761200 P 216 T 810 815
ENG2 - During normal ENG shut down sequence: ENG does not stop	EIU2FAD	MASTER LEVER, HMU ENG2B	761200	761200 P 216 T 810 815

EFF: ALL

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### TROUBLE SHOOTING MANUAL

LIADNINGS / MALEUNCTIONS		FAULT ISOLATION			
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	C	PROCEDURE
ENG2 - EGT fluctuation with other parameters stable					772000 P 248 T 810 831

EFF: ALL
SROS

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### TROUBLE SHOOTING MANUAL

#### ENGINE INDICATING - FAULT SYMPTOMS

	WARNINGS/MALFUNCTIONS		CFDS FAULT MESSAGES			
	WARNINGS/ MALFONCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
R		CFDS	NO EVMU DATA	773234	2	313200 PA228 T 810 891
		CFDS	NO EVMU DATA	773234	2	773000 P 223
		IDENT: (	DENT: CFDS, ECAM 1, ECAM 2			1 0 10 030 
		DMU	EVMU (2EV) / DMU (1TV)	773234	3	313600 P 236 T 810 831
		DMU	EVMU (2EV) / FDIMU (10TV)	773234	3	313600 P 294 T 810 913
		ECAM 1	SDAC1 : NO DATA FROM EVMU	773234	1	315400 P 287 T 810 883
		IDENT: E	ECAM 2			
		ECAM 1	SDAC1 : NO DATA FROM EVMU	773234	1	773000 P 224 T 810 831
		IDENT: (	CFDS, ECAM 1, ECAM 2			
		ECAM 1	SDAC2 : NO DATA FROM EVMU	773234	1	315400 P 288 T 810 884
		IDENT:	ECAM 2	<u>'</u>	<u></u>	
		ECAM 2	SDAC1 : NO DATA FROM EVMU	773234	1	315400 P 287 T 810 883
		ECAM 2	SDAC2 : NO DATA FROM EVMU	773234	1	315400 P 288 T 810 884
		ECAM 2	SDAC2 : NO DATA FROM EVMU	773234	1	773000 P 225 T 810 832
		IDENT: (	CFDS, ECAM 1, ECAM 2			
		EIU1FAD	ALT, ECU, J10	771130	1	771000 P 205 T 810 811
		EIU1FAD	ALT, ECU, J9	771130	1	771000 P 201 T 810 809

EFF: ALL SROS

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### TROUBLE SHOOTING MANUAL

WARNINGS/MALFUNCTIONS		FAULT ISOLATION				
WARREST CHOTTONS	SOURCE	MESSAGE	ATA	С	!	
	EIU1FAD	ALT, J10, ECU	771130	1	771000 P 291 T 810 839	
	EIU1FAD	ALT, J9, ECU	771130	1	771000 P 277 T 810 837	
	EIU1FAD	ECU (X CHANNEL) ENG1A	771130	1	771000 PA205 T 810 841	
	EIU1FAD	ECU (X CHANNEL) ENG1B	771130	1	771000 PA213 T 810 847	
	EIU1FAD	N1 SNSR, J10, ECU	771110	S	771000 P 222 T 810 816	
	EIU1FAD	N1 SNSR, J10, ECU	771110	1	771000 P 222 T 810 816	
<u> </u>	IDENT: EIU1FAD					
	EIU1FAD	N1 SNSR, J10, ECU	771110	3	771000 P 255 T 810 828	
	EIU1FAD	N1 SNSR, J10, ECU*	771110	S	771000 P 255 T 810 828	
	EIU1FAD	N1 SNSR, J9, ECU	771110	S	771000 P 219 T 810 815	
	EIU1FAD	N1 SNSR, J9, ECU	771110	1	771000 P 219 T 810 815	
	IDENT: EIU1FAD					
	EIU1FAD	N1 SNSR, J9, ECU	771110	3	771000 P 251 T 810 827	
	EIU1FAD	N1 SNSR, J9, ECU*	771110	s	771000 P 251 T 810 827	
	EIU1FAD	N2 SNSR, J7, ECU	771120	S	771000 P 239 T 810 821	
	EIU1FAD	N2 SNSR, J7, ECU	771120	1	771000 P 239 T 810 821	
	IDENT: I	EIU1FAD				

EFF: ALL
SROS

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### TROUBLE SHOOTING MANUAL

LIADNINGS /MALEUNGTIONS	CFDS FAULT MESSAGES			FAULT ISOLATION	
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!
	EIU1FAD	N2 SNSR, J7, ECU	771120	3	771000 P 265 T 810 833
	EIU1FAD	N2 SNSR, J7, ECU*	771120	S	771000 P 265 T 810 833
	EIU1FAD	N2 SNSR, J8, ECU	771120	S	771000 P 242 T 810 822
	EIU1FAD	N2 SNSR, J8, ECU	771120	1	771000 P 242 T 810 822
	IDENT: I	EIU1FAD			010 022
	EIU1FAD	N2 SNSR, J8, ECU	771120	3	771000 P 268 T 810 834
	EIU1FAD	N2 SNSR, J8, ECU*	771120	S	771000 P 268 T 810 834
	EIU1FAD	T3 SNSR, J13, ECU ENG1A	772310	S	772000 P 207 T 810 805
	EIU1FAD	T495 SNSR, J13, ECU ENG1A	772110	S	772000 P 201 T 810 803
	EIU1FAD	T495 SNSR, J13, ECU ENG1A	772110	1	772000 P 201 T 810 803
	IDENT: I				
	EIU1FAD	T495 SNSR, J13, ECU ENG1B	772110	S	772000 P 231 T 810 826
	EIU1FAD	T495 SNSR, J13, ECU ENG1B	772110	1	772000 P 231 T 810 826
	IDENT: EIU1FAD				
	EIU1FAD	T5 SNSR, J13, ECU ENG1A	772200	3	772000 P 223 T 810 811
	EIU1FAD	T5 SNSR, J13, ECU ENG1B	772200	3	772000 P 227 T 810 822
	EIU1FAD	T5 SNSR, J13, ECU* ENG1A	772200	S	772000 P 223 T 810 811

EFF: ALL

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### TROUBLE SHOOTING MANUAL

     WARNINGS/MALFUNCTIONS	CFDS FAULT MESSAGES			FAULT ISOLATION	
	SOURCE	MESSAGE	ATA	С	!
	EIU1FAD	T5 SNSR, J13, ECU* ENG1B	772200	S	772000 P 227 T 810 822
	EIU1FAD	T5 SNSR,J13, ECU ENG1B	772200	3	772000 P 227 T 810 822
	EIU2FAD	ALT, ECU, J10	771130	1	771000 P 207 T 810 812
	EIU2FAD	ALT, ECU, J9	771130	1	771000 P 203 T 810 810
	EIU2FAD	ALT, J10, ECU	771130	1	771000 P 298 T 810 840
	EIU2FAD	ALT, J9, ECU	771130	1	771000 P 284 T 810 838
	EIU2FAD	ECU (X CHANNEL) ENG2A	771130	1	771000 PA209 T 810 842
	EIU2FAD	ECU (X CHANNEL) ENG2B	771130	1	771000 PA217 T 810 848
	EIU2FAD	N1 SNSR, J10, ECU	771110	S	771000 P 228 T 810 818
	EIU2FAD	N1 SNSR, J10, ECU	771110	1	771000 P 228
	IDENT: I	EIU2FAD			Т 810 818
	EIU2FAD	N1 SNSR, J10, ECU	771110	3	771000 P 262 T 810 830
	EIU2FAD	N1 SNSR, J10, ECU*	771110	S	771000 P 262 T 810 830
	EIU2FAD	N1 SNSR, J9, ECU	771110	S	771000 P 225 T 810 817
	EIU2FAD	N1 SNSR, J9, ECU	771110	1	771000 P 225 T 810 817
	IDENT: EIU2FAD				
	EIU2FAD	N1 SNSR, J9, ECU	771110	3	771000 P 259 T 810 829

EFF: ALL

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### TROUBLE SHOOTING MANUAL

LIADNINGS (MALEUNGTIONS	CFDS FAULT MESSAGES			FAULT	
WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	ISOLATION PROCEDURE
	EIU2FAD	N1 SNSR, J9, ECU*	771110	S	771000 P 259 T 810 829
	EIU2FAD	N2 SNSR, J7, ECU	771120	S	771000 P 245 T 810 823
	EIU2FAD	N2 SNSR, J7, ECU	771120		771000 P 245 T 810 823
	IDENT:	EIU2FAD			
	EIU2FAD	N2 SNSR, J7, ECU	771120	3	771000 P 271 T 810 835
	EIU2FAD	N2 SNSR, J7, ECU*	771120	s	771000 P 271 T 810 835
	EIU2FAD	N2 SNSR, J8, ECU	771120	S	771000 P 248 T 810 824
	EIU2FAD	N2 SNSR, J8, ECU	771120		771000 P 248 T 810 824
	IDENT: EIU2FAD				
	EIU2FAD	N2 SNSR, J8, ECU	771120	3	771000 P 274 T 810 836
	EIU2FAD	N2 SNSR, J8, ECU*	771120	S	771000 P 274 T 810 836
	EIU2FAD	T3 SNSR, J13, ECU ENG2A	772310	S	772000 P 211 T 810 806
	EIU2FAD	T495 SNSR, J13, ECU ENG2A	772110	S	772000 P 204 T 810 804
	EIU2FAD	T495 SNSR, J13, ECU ENG2A	772110	1	772000 P 204 T 810 804
	IDENT: EIU2FAD				
	EIU2FAD	T495 SNSR, J13, ECU ENG2B	772110	S	772000 P 234 T 810 827

EFF: ALL
SROS

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### TROUBLE SHOOTING MANUAL

	CFDS FAULT MESSAGES				FAULT ISOLATION	
	WARNINGS/MALFUNCTIONS	SOURCE	MESSAGE	ATA	С	!!
R		EIU2FAD	T495 SNSR, J13, ECU ENG2B	772110	1	772000 P 234 T 810 827
		IDENT: 6	EIU2FAD			
		EIU2FAD	T5 SNSR, J13, ECU ENG2A	772200	3	772000 P 225 T 810 812
		EIU2FAD	T5 SNSR, J13, ECU ENG2B	772200	3	772000 P 229 T 810 823
		EIU2FAD	T5 SNSR, J13, ECU* ENG2A	772200	S	772000 P 225 T 810 812
		EIU2FAD	T5 SNSR, J13, ECU* ENG2B	772200	S	772000 P 229 T 810 823
		EVMU	EVMU	773234	3	773000 P 222 T 810 813

EFF : ALL
SROS

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#### TROUBLE SHOOTING MANUAL

#### ENGINE INDICATING - GENERAL - FAULT ISOLATION PROCEDURES

TASK 77-00-00-810-823

Disagree between the EGT Indication and the ECU Output on Engine 1

- 1. Possible Causes
  - EGT thermocouple
  - CJ13 and HJ13 harnesses
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

DEFENDE OTV DESCONATION

REFERENCE

QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

-----

REFERENCE

DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

-----

REFERENCE DESIGNATION

AMM 73-21-50-210-002 Visual Inspection of the Wiring Harnesses

AMM 77-21-10-000-008 R AMM 77-21-10-000-025 Removal of the Upper Extension Lead Removal of the Main Junction Box

AMM 77-21-10-400-008

Installation of the Upper Extension Lead

R AMM 77-21-10-400-025

Installation of the Main Junction Box

- 3. Fault Confirmation
  - A. Test.
    - (1) Not applicable.

EFF: ALL 77-00-00

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#### TROUBLE SHOOTING MANUAL

#### 4. Fault Isolation

- A. The ECAM warning message ENG 1 EGT DISCREPANCY is generated if the cockpit indicated EGT and the EGT output selected from the ECU disagree.
  - (1) Disconnect harnesses from the EGT sensor receptacles, HJ13 and CJ13 (upper right hand and left hand thermocouple connectors, lower left hand and right hand thermocouple connectors).
    - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
      - 1 If damage is found: - repair or replace as required.
      - 2 If no damage is found:
        - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
  - (2) Disconnect harnesses from the ECU (4000KS), HJ3 and HJ4.
    - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
      - 1 If damage is found: - repair or replace as required.
      - 2 If no damage is found:
        - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
    - (b) If the fault continues during the subsequent flights: - replace the EGT thermocouple (Ref. AMM TASK 77-21-10-000-025) (Ref. AMM TASK 77-21-10-400-025).
    - (c) If the fault continues during the subsequent flights: - replace the extension leads of the CJ13 and HJ13 harnesses (Ref. AMM TASK 77-21-10-000-008) and (Ref. AMM TASK 77-21-10-400-008).
- B. No additionnal maintenance action is required if the fault is not confirmed.
  - (1) Repeat the fault isolation procedure if the fault continues.

EFF: ALL **SROS** 

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## **@A319/A320/A321**

#### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-824

Disagree between the EGT Indication and the ECU Output on Engine 2

- 1. Possible Causes
  - EGT thermocouple
  - CJ13 and HJ13 harnesses
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

-----

REFERENCE

QTY DESIGNATION

No specific bristle brush

B. Consumable Materials

-----

\_\_\_\_\_\_

REFERENCE

DESIGNATION

Material No. CP2011 \*

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

-----

REFERENCE DESIGNATION

AMM 73-21-50-210-002 Visual Inspection of the Wiring Harnesses
AMM 77-21-10-000-008 Removal of the Upper Extension Lead
R AMM 77-21-10-400-008 Installation of the Upper Extension Lead
R AMM 77-21-10-400-025 Installation of the Main Junction Box

- 3. Fault Confirmation
  - A. Test
    - (1) Not applicable.

77-00-00

**SROS** 

EFF:

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## *A319/A320/A321*

#### TROUBLE SHOOTING MANUAL

#### 4. Fault Isolation

- A. The ECAM warning message ENG 2 EGT DISCREPANCY is generated if the R cockpit indicated EGT and the EGT output selected from the ECU disagree.
  - (1) Disconnect harnesses from the EGT sensor receptacles, HJ13 and CJ13 (upper right hand and left hand thermocouple connectors, lower left hand and right hand thermocouple connectors).
    - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
      - 1 If damage is found: - repair or replace as required.
      - 2 If no damage is found:
        - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
  - (2) Disconnect harnesses from the ECU (4000KS), HJ3 and HJ4.
    - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
      - 1 If damage is found: - repair or replace as required.
      - 2 If no damage is found:
        - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
    - (b) If the fault continues during the subsequent flights: - replace the EGT thermocouple (Ref. AMM TASK 77-21-10-000-025) (Ref. AMM TASK 77-21-10-400-025).
    - (c) If the fault continues during the subsequent flights: - replace the extension leads of the CJ13 and HJ13 harnesses (Ref. AMM TASK 77-21-10-000-008) and (Ref. AMM TASK 77-21-10-400-008).
  - B. No additionnal maintenance action is required if the failure is not confirmed.
    - (1) Repeat the fault isolation procedure if the fault continues.

EFF: ALL **SROS** 

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#### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-827

Disagree between the N1 Indication and the ECU Output on Engine 1

- 1. Possible Causes
  - SENSOR-N1 ROTATIONAL SPD (4000EV)
  - HJ9/HJ10 harness
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE	DESIGNATION

AMM 73-29-00-710-040

Operational Test of the FADEC on the Ground (with Engine non Motoring)

- 3. Fault Confirmation
  - A. Test.
- R (1) Not applicable.
  - 4. Fault Isolation
    - A. The fault may be triggered with N1 fluctuations or due to defective SENSOR-N1 ROTATIONAL SPD (4000EV) or HJ9/HJ10 harness.
      - (1) Read the scheduled maintenance report or class 3 report and check if the message N1 SNSR, J9, ECU or N1 SNSR, J10, ECU is present.
         If either message is present, do the related troubleshooting procedure.
      - (2) If N1 fluctuations were reported when the warning was triggered, do the applicable troubleshooting procedure for ENG1 N1 fluctuations.
- R B. Do the operational test of the FADEC on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).
- R (1) If the test gives the message N1 SNSR, J9, ECU or N1 SNSR, J10, ECU, do the applicable troubleshooting procedure.

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## **@A319/A320/A321**

#### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-828

Disagree between the N1 Indication and the ECU Output on Engine 2

- 1. Possible Causes
  - SENSOR-N1 ROTATIONAL SPD (4000EV)
  - HJ9/HJ10 harness
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE	DESIGNATION

AMM 73-29-00-710-040

Operational Test of the FADEC on the Ground (with Engine non Motoring)

- 3. Fault Confirmation
  - A. Test
    - (1) Not applicable.
- 4. Fault Isolation
  - A. The fault may be triggered with N1 fluctuations or due to defective SENSOR-N1 ROTATIONAL SPD (4000EV) or HJ9/HJ10 harness.
    - (1) Read the scheduled maintenance report or class 3 report and check if the message N1 SNSR, J9, ECU or N1 SNSR, J10, ECU is present.
       If either message is present, do the related troubleshooting procedure.
    - (2) If N1 fluctuations were reported when the warning was triggered, do the applicable troubleshooting procedure for ENG2 N1 fluctuations.
- R B. Do the operational test of the FADEC on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).
- R (1) If the test gives the message N1 SNSR, J9, ECU or N1 SNSR, J10, ECU, do the applicable troubleshooting procedure.

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## **@A319/A320/A321**

#### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-831

Disagree between the N2 Indication and the ECU Output on Engine 1

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - J7/J8 harness
  - ECU
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE	DESIGNATION

AMM 73-29-00-710-040

Operational Test of the FADEC on the Ground (with Engine non Motoring)

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- 3. Fault Confirmation
  - A. Test

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**SROS** 

- (1) Not applicable.
- 4. Fault Isolation
  - A. The fault may be triggered with wide N2 fluctuations or due to defective SENSOR-N2 ROTATIONAL SPD (4001EV) or J7/J8 harness.
    - (1) Read the scheduled maintenance report or class 3 report and check if the message N2 SNSR, J7, ECU or N2 SNSR, J8, ECU is present.
      - If either message is present, do the related troubleshooting procedure.
    - (2) If no message is present and engine parameters fluctuations were reported at the same time:
      - do the applicable troubleshooting procedure for ENG1 N1 fluctuations.
- R B. Do the operational test of the FADEC on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).
- R (1) If the test gives the message N2 SNSR, J7, ECU or N2 SNSR, J8, ECU, do the applicable troubleshooting procedure.

EFF: ALL 77-00-00

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## **@A319/A320/A321**

#### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-832

Disagree between the N2 Indication and the ECU Output on Engine 2

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - J7/J8 harness
  - ECU
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE	DESIGNATION

AMM 73-29-00-710-040

Operational Test of the FADEC on the Ground (with Engine non Motoring)

- 3. Fault Confirmation
  - A. Test
    - (1) Not applicable.
- 4. Fault Isolation
  - A. The fault may be triggered with wide N2 fluctuations or due to defective SENSOR-N2 ROTATIONAL SPD (4001EV) or J7/J8 harness.
    - (1) Read the scheduled maintenance report or class 3 report and check if the message N2 SNSR, J7, ECU or N2 SNSR, J8, ECU is present.
      - If either message is present, do the related troubleshooting procedure.
    - (2) If no message is present and engine parameters fluctuations were reported at the same time:
      - do the applicable troubleshooting procedure for ENG2 N1 fluctuations.
- B. Do the operational test of the FADEC on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).
- R (1) If the test gives the message N2 SNSR, J7, ECU or N2 SNSR, J8, ECU, do the applicable troubleshooting procedure.

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## *319/A320/A3*

#### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-833

N1 Actual Lower than N1 Command on Engine 1 or 2

- 1. Possible Causes
  - DMC-1 (1WT1)
  - PS3 line

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- Hydromechanical Unit (HMU)
- 2. Job Set-up Information
  - A. Referenced Information

	REFE	RENCE	DESIGNATION
R	AMM AMM	31-63-34-000-001 31-63-34-400-001 72-00-00-200-026 73-21-10-000-002 73-21-10-400-002	Removal of the DMC (1WT1,1WT2,1WT3) Installation of the DMC (1WT1,1WT2,1WT3) Inspection/Check of the PS3 Line Removal of the Hydromechanical Unit (HMU) Installation of the Hydromechanical Unit (HMU)

- 3. Fault Confirmation
  - A. Test
    - (1) Make sure that the same crew observation is applicable with the DMC3 switched on on panel 8VU.
- 4. Fault Isolation
  - A. If the same crew observation is not applicable when the DMC3 is switched
    - (1) Replace the DMC-1 (1WT1) (Ref. AMM TASK 31-63-34-000-001) and (Ref. AMM TASK 31-63-34-400-001).
  - B. If the same crew observation is applicable when the DMC3 is switched on:
- (1) Do a check of the PS3 line (Ref. AMM TASK 72-00-00-200-026). - If damage is found, replace or retighten as required.
  - (2) If no damage is found:
    - Replace the Hydromechanical Unit (HMU) (Ref. AMM TASK 73-21-10-000-002) and (Ref. AMM TASK 73-21-10-400-002).
  - C. After the subsequent flight, make sure that the fault does not continue.

EFF: ALL **SROS** 

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## **@A319/A320/A321**

#### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-835

Loss of N1 Indication on Engine 1 or 2

- 1. Possible Causes
  - DMC-1 (1WT1)
  - aircraft wiring
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE	DESIGNATION

AMM 31-63-34-000-001 AMM 31-63-34-400-001 AMM 71-00-00-710-006 Removal of the DMC (1WT1,1WT2,1WT3)
Installation of the DMC (1WT1,1WT2,1WT3)

Minimum Idle Check

- 3. Fault Confirmation
  - A. Test
    - (1) Do a check to see if the N1 indication is XX on the upper ECAM display unit with the DMC3 switched on.
- 4. Fault Isolation
  - A. If N1 indication is not XX on the upper ECAM display unit with the DMC3 switched on:
    - (1) Replace the DMC-1 (1WT1) (Ref. AMM TASK 31-63-34-000-001) and (Ref. AMM TASK 31-63-34-400-001).
  - B. If N1 indication is XX on the upper ECAM display unit with the DMC3 switched on:
    - (1) Do a check and repair the aircraft wiring between the N1 sensor (4000EV), the ECU (4000KS) and the DMC (1WT1).
  - C. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

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### **© A319/A320/A321**

#### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-836

Loss of N2 Indication on Engine 1 or 2

#### 1. Possible Causes

- DMC-1 (1WT1)
- aircraft wiring

#### 2. Job Set-up Information

A. Referenced Information

REFERENCE	DESIGNATION

AMM 31-63-34-000-001 AMM 31-63-34-400-001 AMM 71-00-00-710-006 Removal of the DMC (1WT1,1WT2,1WT3)
Installation of the DMC (1WT1,1WT2,1WT3)

Minimum Idle Check

#### 3. Fault Confirmation

#### A. Test

(1) Do a check to see if the N2 indication is XX on the upper ECAM display unit with the DMC3 switched on.

#### 4. Fault Isolation

- A. If N2 indication is not XX on the upper ECAM display unit with the DMC3 switched on:
  - (1) Replace the DMC-1 (1WT1) (Ref. AMM TASK 31-63-34-000-001) and (Ref. AMM TASK 31-63-34-400-001).
- B. If N2 indication is XX on the upper ECAM display unit with the DMC3 switched on:
  - (1) Do a check and repair the aircraft wiring between the N2 sensor (4001EV), the ECU (4000KS) and the DMC (1WT1).
- C. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

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#### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-849

EGT Overlimit on Engine 1 or 2

- 1. Possible Causes
  - engine
  - HPTACC valve
  - VBV system
  - VSV system
  - IP Bleed Check Valve
  - HJ13 harness
  - ECU (4000KS)
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

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KEFEKENCE

QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

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REFERENCE DESIGNATION

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Material No. CP2010

white spirit (Ref. 70-30-00)

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

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AMM 36-11-00-710-001 Operational Test to read the CURRENT STATUS of the Engine Bleed Air System

AMM 72-00-00-100-026 Washing of the Engine Gas Path with Pure Water

AMM 72-00-00-200-006 Inspection/Check of Foreign Object Damage (FOD) (Bird Strike Included)

AMM 72-00-00-200-008 Inspection/Check After the Engine has Exceeded the Operational Limits

AMM 73-11-40-000-002 Removal of the Fuel Nozzle

AMM 73-11-40-400-002 Installation of the Fuel Nozzle

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#### TROUBLE SHOOTING MANUAL

REFE	RENCE	DESIGNATION
AMM	73-21-50-000-029	Removal of the CJ13 Harness
AMM	73-21-50-000-046	Removal of the HJ13 Harness
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-029	Installation of the CJ13 Harness
AMM	73-21-50-400-046	Installation of the HJ13 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit
		(ECU)(4000KS)
AMM	73-21-60-740-007	Correct Time Limited Faults (Non Asterisked) of the
		Engine Scheduled Maintenance Report
AMM	73-21-60-740-027	Read the Specific Data Report
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with
		Engine Motoring)
AMM	75-21-10-000-002	Removal of the High Pressure Turbine Active Clearance
		Control (HPTACC) Valve
AMM	75-21-10-200-002	Inspection/Check of the High Pressure Turbine Active
		Clearance Control Valve (HPTACC) (4035KS)
AMM	75-21-10-400-002	Installation of the High Pressure Turbine Active
		Clearance Control (HPTACC) Valve
AMM	75-31-00-210-002	Visual Inspection of the Variable Bleed Valve System
AMM		Inspection of the Variable Stator Vane Actuator
AMM	77-00-00-710-043	Read of the N1, N2 and EGT Max Pointers
AMM	31-69-00 P.Block 001	EIS - TEST/BITE

#### 3. Fault Confirmation

R \*\*ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549, R 551-599, 701-749,

#### A. Test

- (1) Read the DMU exceedence report and the DMC Max Value Report (Ref. AMM TASK 77-00-00-710-043) to note the max EGT value that was recorded during the event as well as the duration of the exceedence (if available).
  - If none of these reports are available, get the data from the AIDS or the DFDR.

<u>NOTE</u>: There are many causes that can lead to an EGT overtemperature, such as engine deterioration, engine stall, temperature inversion during take off, engine bleed selected during take off after throttle push, engine warm-up not sufficient before take off, FOD, dirty compressor airfoils, etc...

NOTE: Trend Monitoring should be reviewed first to determine whether the EGT overlimit can be explained based on the level of deterioration of the engine or based on the contributing conditions explained in the above note. Also, a shift on Trend

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#### TROUBLE SHOOTING MANUAL

Monitoring only noted on EGT and not affecting N2 and VSV should definitively concentrate the troubleshooting on the EGT indication system.

NOTE : The ECAM warning is triggered if the indicated EGT is greater than 950 deg.C.

\*\*ON A/C 254-275, 451-475,

#### A. Test

- (1) Read the DMU exceedence report and the Specific Data Report (Ref. AMM TASK 73-21-60-740-027) to note the max EGT value that was recorded during the event as well as the duration of the exceedence (if available).
  - If none of these reports are available, get the data from the AIDS or the DFDR.
  - NOTE: There are many causes that can lead to an EGT overtemperature, such as engine deterioration, engine stall, temperature inversion during take off, engine bleed selected during take off after throttle push, engine warm-up not sufficient before take off, FOD, dirty compressor airfoils, etc...
  - NOTE: Trend Monitoring should be reviewed first to determine whether the EGT overlimit can be explained based on the level of deterioration of the engine or based on the contributing conditions explained in the above note. Also, a shift on Trend Monitoring only noted on EGT and not affecting N2 and VSV should definitively concentrate the troubleshooting on the EGT indication system.
  - NOTE : The ECAM warning is triggered if the indicated EGT is greater than 950 deg.C.

\*\*ON A/C ALL

#### 4. Fault Isolation

- R \*\*ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549, R 551-599, 701-749,
  - A. If the fault symptom is identified by the ECAM warning EGT OVER LIMIT, if the EGT overlimit is confirmed through the data contained in the DMC report (Ref. AMM 31-69-00 P.Block 001) or AIDS data, or DFDR or QAR data and if there was no stall reported by the Crew or ECAM warning ENG1(2) STALL:

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#### TROUBLE SHOOTING MANUAL

- (1) Do the procedure after the engine has exceeded the operational limits (Ref. AMM TASK 72-00-00-200-008).
  - (a) If the engine is still operable, do the following:
    - If nothing is found but the EGT overlimit can be explained due to a TAT inversion during take off or a warm-up before take off not sufficient:
      - no additional maintenance is required.
    - If nothing is found but the EGT overlimit can be explained due to engine deterioration:
      - do a washing of the engine gas path with pure water (Ref. AMM TASK 72-00-00-100-026).
    - Do a check of the Post Flight Report (PFR), of the Scheduled Maintenance Report (SMR) or Class 3 report (Ref. AMM TASK 73-21-60-740-007) and of the FADEC Last Leg Report for FMV, VBV, T495, T25, N2 SNSR, ECU, HMU, VSV, PS3, PRESS REG-V, HP BLEED-V failure messages.
      - <u>a</u> if failure message is present:do the related troubleshooting procedure.
      - <u>b</u> if nothing is found, continue the troubleshooting as follows:
    - 4 Do an inspection check of the HPTACC valve for movement of the ceramic insulators (Ref. AMM TASK 75-21-10-200-002)
      - a if there is movement of the ceramic insulators
         replace the HPTACC valve (Ref. AMM TASK 75-21-10-000-002)
        and (Ref. AMM TASK 75-21-10-400-002).
      - <u>b</u> if there is no movement of the ceramic insulators, continue the troubleshooting as follows:
  - (b) Do a visual inspection of the VBV system (Ref. AMM TASK 75-31-00-210-002). Check for VBV flexible shaft failure and for offset between the VBV actuator doors (doors set in different positions).
    - 1 If damage is found: - repair as necessary.
    - 2 If nothing is found, continue the troubleshooting as follows:
  - (c) Do an inspection/check for Foreign Object Damage (Ref. AMM TASK 72-00-00-200-006).
    - If damage is found:repair as necessary.

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### **© A319/A320/A321**

#### TROUBLE SHOOTING MANUAL

- 2 If nothing is found, continue the troubleshooting as follows:
- (d) Do a visual inspection of the VSV system (Ref. AMM TASK 75-32-10-210-002).
  - 1 If damage is found: - repair as necessary.
  - 2 If nothing is found, continue the troubleshooting as follows:
- (e) Do a visual inspection of the IP Bleed Check Valve for free operation and condition of the flappers (Ref. AMM TASK 36-11-00-710-001).
  - 1 If damage is found: - repair as necessary.
  - If nothing is found and the cause of the EGT overlimit cannot be explained (troubleshooting preferably to be done on a cold engine), continue the troubleshooting as follows:
- (f) Disconnect the HJ13 harness from the ECU (4000KS) and visually examine the ECU receptacle and the harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If the HJ13 harness connector or the ECU receptacle is damaged:
    - repair as required.
  - 2 If nothing is found, continue the troubleshooting as follows:
- (g) Do an electrical resistance test through the HJ13 harness between:
  - pins 12 and 13 (1 to 10 ohms)
  - pins 12 and 24 (> 20 megohms)
  - . pin 12 and the ground (> 20 megohms).
  - 1 If the resistances are out of the specified limits:
    - Disconnect the CJ13 harness from the T495 main junction box (located in the left core compartment) and visually examine the T495 junction box receptacle and the CJ13 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).

Clean the connector and the receptacle using a bristle brush and stoddard solvent (Material No. CP2011) or white spirit (Material No. CP2010).

- a If nothing is found:
  - Do an electrical resistance test through the main junction box between:
    - . pins A and B (1 to 10 ohms)
    - . pin A and the ground (> 20 megohms)

EFF: 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549, 551-599, 701-749,

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#### TROUBLE SHOOTING MANUAL

- If the resistances are in the specified limits:
  - reconnect the CJ13 harness to the main junction box, and repeat the electrical resistance test through the J13 harness at the ECU connector between:
  - pins 12 and 13 (1 to 10 ohms)
  - pins 12 and 24 (> 20 megohms)
  - . pin 12 and the ground (> 20 megohms).
  - \* if the resistances are in the specified limits:
  - no further maintenance is required.
  - \* if the resistances are out of the specified limits:
  - replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
  - \*\* if the fault continues during subsequent flights:
  - replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
- 2 If the resistances are in the specified limits:
  - Disconnect the CJ13 harness from the T495 main junction box (located in the left core compartment) and visually examine the T495 junction box receptacle and the CJ13 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).

Clean the connector and the receptacle using a bristle brush and stoddard solvent (Material No. CP2011) or white spirit (Material No. CP2010).

- a Reconnect the CJ13 harness to the main junction box.
- (h) If the fault continues during subsequent flights:
  - 1 replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- (i) If the fault continues during subsequent flights:

NOTE: Only if Service Bulletin 73-052 is not incorporated

1 Replace the 3 fuel nozzles (position 1, 3 and 5) (Ref. AMM TASK 73-11-40-000-002) and (Ref. AMM TASK 73-11-40-400-002).

NOTE : Fuel nozzles (position 1, 3 and 5) are the most exposed to contamination in case of fuel manifold coking.

a If the fault does not continue during subsequent flights:

<u>NOTE</u>: If the EGT exceedence is determined to be caused by fuel manifold coking, then replacement of all other fuel nozzles as well as replacement of the fuel manifolds is required.

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#### TROUBLE SHOOTING MANUAL

- Replace all Fuel nozzles except position 1, 3 and 5 (Ref. AMM TASK 73-11-40-400-002) and (Ref. AMM TASK 73-11-40-400-002).
- Replace the fuel manifold.
- B. If the fault symptom is identified by the ECAM warning EGT OVER LIMIT, if the EGT overlimit is confirmed through the data contained in the DMC report(s) or AIDS data, or DFDR data and if there was a stall reported by the Crew or an ECAM warning STALL is printed in the Post Flight Report (PFR):
  - (1) Do the procedure after overshoot of the engine operational limits (Ref. AMM TASK 72-00-00-200-008).
  - (2) Do the troubleshooting related to ECAM warning STALL
- C. If the fault symptom is identified by the ECAM warning EGT OVER LIMIT and if the EGT overlimit is not confirmed through the data contained in the DMC report(s) (Ref. AMM 31-69-00 P.Block 001) or AIDS data, or DFDR data:

   Check the FWC part number via the LRU identification screen on the MCDU (Ref. AMM TASK 31-32-00-860-001).
  - (1) If the FWC part number is 350E017248685, the warning is spurious and should be disregarded. No further maintenance action is required.

\*\*ON A/C 254-275, 451-475,

- A. If the fault symptom is identified by the ECAM warning EGT OVER LIMIT, if the EGT overlimit is confirmed through the data contained in the Specific Data Report (Ref. AMM TASK 73-21-60-740-027) or AIDS data, or DFDR or QAR data and if there was no stall reported by the Crew or ECAM warning ENG1(2) STALL:
  - (1) Do the procedure after the engine has exceeded the operational limits (Ref. AMM TASK 72-00-00-200-008).
    - (a) If the engine is still operable, do the following:
      - 1 If nothing is found but the EGT overlimit can be explained due to a TAT inversion during take off or a warm-up before take off not sufficient:
        - no additional maintenance is required.
      - 2 If nothing is found but the EGT overlimit can be explained due to engine deterioration:
        - do a washing of the engine gas path with pure water (Ref. AMM TASK 72-00-00-100-026).
      - Do a check of the Post Flight Report (PFR), of the Scheduled Maintenance Report (SMR) or Class 3 report (Ref. AMM TASK 73-21-60-740-007) and of the FADEC Last Leg Report for FMV, VBV,

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EFF: ALL

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#### TROUBLE SHOOTING MANUAL

T495, T25, N2 SNSR, ECU, HMU, VSV, PS3, PRESS REG-V, HP BLEED-V failure messages.

- <u>a</u> if failure message is present:do the related troubleshooting procedure.
- $\underline{b}$  if nothing is found, continue the troubleshooting as follows:
- 4 Do an inspection check of the HPTACC valve for movement of the ceramic insulators (Ref. AMM TASK 75-21-10-200-002)
  - a if there is movement of the ceramic insulators
     replace the HPTACC valve (Ref. AMM TASK 75-21-10-000-002)
    and (Ref. AMM TASK 75-21-10-400-002).
  - <u>b</u> if there is no movement of the ceramic insulators, continue the troubleshooting as follows:
- (b) Do a visual inspection of the VBV system (Ref. AMM TASK 75-31-00-210-002). Check for VBV flexible shaft failure and for offset between the VBV actuator doors (doors set in different positions).
  - 1 If damage is found: - repair as necessary.
  - $\underline{2}$  If nothing is found, continue the troubleshooting as follows:
- (c) Do an inspection/check for Foreign Object Damage (Ref. AMM TASK 72-00-00-200-006).
  - 1 If damage is found: - repair as necessary.
  - 2 If nothing is found, continue the troubleshooting as follows:
- (d) Do a visual inspection of the VSV system (Ref. AMM TASK 75-32-10-210-002).
  - 1 If damage is found: - repair as necessary.
  - 2 If nothing is found, continue the troubleshooting as follows:
- (e) Do a visual inspection of the IP Bleed Check Valve for free operation and condition of the flappers (Ref. AMM TASK 36-11-00-710-001).
  - 1 If damage is found: - repair as necessary.

EFF: 254-275, 451-475,

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- If nothing is found and the cause of the EGT overlimit cannot be explained (troubleshooting preferably to be done on a cold engine), continue the troubleshooting as follows:
- (f) Disconnect the HJ13 harness from the ECU (4000KS) and visually examine the ECU receptacle and the harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - <u>1</u> If the HJ13 harness connector or the ECU receptacle is damaged:
    - repair as required.
  - 2 If nothing is found, continue the troubleshooting as follows:
- (g) Do an electrical resistance test through the HJ13 harness between:
  - . pins 12 and 13 (1 to 10 ohms)
  - pins 12 and 24 (> 20 megohms)
  - . pin 12 and the ground (> 20 megohms).
  - 1 If the resistances are out of the specified limits:
    - Disconnect the CJ13 harness from the T495 main junction box (located in the left core compartment) and visually examine the T495 junction box receptacle and the CJ13 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).

Clean the connector and the receptacle using a bristle brush and stoddard solvent (Material No. CP2011) or white spirit (Material No. CP2010).

- a If nothing is found:
  - Do an electrical resistance test through the main junction box between:
    - . pins A and B (1 to 10 ohms)
    - . pin A and the ground (> 20 megohms)
  - If the resistances are in the specified limits:
  - reconnect the CJ13 harness to the main junction box, and repeat the electrical resistance test through the HJ13 harness at the ECU connector between:
    - . pins 12 and 13 (1 to 10 ohms)
    - . pins 12 and 24 (> 20 megohms)
    - . pin 12 and the ground (> 20 megohms).
    - \* if the resistances are in the specified limits:
    - no further maintenance is required.
    - \* if the resistances are out of the specified limits:
    - replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
  - \*\* if the fault continues during subsequent flights:
  - replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).

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- 2 If the resistances are in the specified limits:
  - Disconnect the CJ13 harness from the T495 main junction box (located in the left core compartment) and visually examine the T495 junction box receptacle and the CJ13 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).

Clean the connector and the receptacle using a bristle brush and stoddard solvent (Material No. CP2011) or white spirit (Material No. CP2010).

- a Reconnect the CJ13 harness to the main junction box.
- (h) If the fault continues during subsequent flights:
  - 1 replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- (i) If the fault continues during subsequent flights:

NOTE: Only if Service Bulletin 73-052 is not incorporated

1 Replace the 3 fuel nozzles (position 1, 3 and 5) (Ref. AMM TASK 73-11-40-000-002) and (Ref. AMM TASK 73-11-40-400-002).

NOTE: Fuel nozzles (position 1, 3 and 5) are the most exposed to contamination in case of fuel manifold coking.

- a If the fault does not continue during subsequent flights:
  - <u>NOTE</u>: If the EGT exceedence is determined to be caused by fuel manifold coking, then replacement of all other fuel nozzles as well as replacement of the fuel manifolds is required.
  - Replace all Fuel nozzles except position 1, 3 and 5 (Ref. AMM TASK 73-11-40-400-002) and (Ref. AMM TASK 73-11-40-400-002).
  - Replace the fuel manifold.
- B. If the fault symptom is identified by the ECAM warning EGT OVER LIMIT, if the EGT overlimit is confirmed through the data contained in the Specific Data Report (Ref. AMM TASK 73-21-60-740-027) or AIDS data, or DFDR data and if there was a stall reported by the Crew or an ECAM warning STALL is printed in the Post Flight Report (PFR):
  - (1) Do the procedure after overshoot of the engine operational limits (Ref. AMM TASK 72-00-00-200-008).
  - (2) Do the troubleshooting related to ECAM warning STALL

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- C. If the fault symptom is identified by the ECAM warning EGT OVER LIMIT and if the EGT overlimit is not confirmed through the data contained in the Specific Data Report (Ref. AMM TASK 73-21-60-740-027) or AIDS data, or DFDR data:
  - Check the FWC part number via the LRU identification screen on the MCDU (Ref. AMM TASK 31-32-00-860-001).
  - (1) If the FWC part number is 350E017248685, the warning is spurious and should be disregarded. No further maintenance action is required.

#### \*\*ON A/C ALL

- D. Do the operational test of the FADEC 1A and 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040) unless above troubleshooting requires an other engine test.
  - (1) No additionnal maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-850

N1 Overlimit on Engine 1 or 2

- 1. Possible Causes
  - Hydromechanical Unit (HMU)
  - ECU (4000KS)
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION	
AMM	31-32-00-860-001	Procedure to Get Access to the SYSTEM REPORT/TEST Menu Page	
AMM	71-00-00-710-006	Minimum Idle Check	
AMM	72-00-00-200-008	Inspection/Check After the Engine has Exceeded the Operational Limits	
AMM	73-21-10-000-002	Removal of the Hydromechanical Unit (HMU)	
AMM	73-21-10-400-002	Installation of the Hydromechanical Unit (HMU)	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)	
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)	
AMM	73-21-60-740-007	Correct Time Limited Faults (Non Asterisked) of the Engine Scheduled Maintenance Report	
AMM	73-21-60-740-027	Read the Specific Data Report	
	77-00-00-710-044	Read of the N1,N2 and EGT Max Pointers	
	0-00-991-004	Fig. 201	

#### 3. Fault Confirmation

R \*\*ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549, R 551-599, 701-749,

#### A. Test

(1) On the MCDU, read (if available) the DMC Max Value Report (Ref. AMM TASK 77-00-00-710-044) to note the max N1 value that was recorded during the event as well as the duration of the exceedence (if available from crew report).

If not, read or get the data from the DFDR or QAR.

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#### TROUBLE SHOOTING MANUAL

\*\*ON A/C 254-275, 451-475,

#### A. Test

(1) On the MCDU, read (if available) the Specific Data Report (Ref. AMM TASK 73-21-60-740-027) to note the max N1 value that was recorded during the event as well as the duration of the exceedence (if available from crew report).
If not, read or get the data from the DFDR or QAR.

\*\*ON A/C ALL

#### 4. Fault Isolation

(Ref. Fig. 201/TASK 77-00-00-991-004)

R \*\*ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549, R 551-599, 701-749,

#### A. Do this procedure:

NOTE : The ECAM warning is triggered if the indicated N1 is greater than 104 percent.

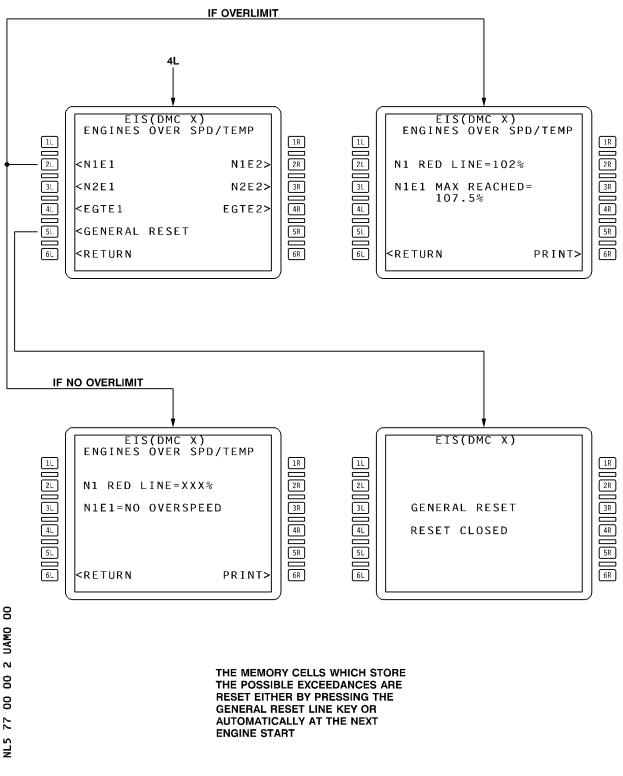
- (1) If the N1 overlimit is confirmed through the data contained in the DMC report(s) or AIDS data, or DFDR data and if the Crew reported the N1 indication flashing amber on the upper ECAM display unit:
  - Do the procedure after the engine has exceeded the engine operational limits (Ref. AMM TASK 72-00-00-200-008).
  - (a) If the engine is still operable, continue the troubleshooting.
    - Read the Post Flight Report (PFR) or the Scheduled Maintenance Report (SMR) or Class 3 Report or the FADEC Last Leg Report and check for the FMV, HMU, N1 SNSR, VSV, PS3 failure messages (Ref. AMM TASK 73-21-60-740-007).
      - a If one or more message is present:
        - do the troubleshooting related to the failure message(s).
      - b If nothing is found:
        - replace the Hydromechanical Unit (HMU) (Ref. AMM TASK 73-21-10-000-002) and (Ref. AMM TASK 73-21-10-400-002).
        - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

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#### TROUBLE SHOOTING MANUAL



Engine Overspeed Display Figure 201/TASK 77-00-00-991-004

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- (2) If the N1 overlimit is not confirmed through the data contained in the DMC report(s) or AIDS data, or DFDR data and if the crew did not report the N1 indication flashing amber on the upper ECAM display unit or actual N1 exceedance.
  - Do a check of the FWC part number via the LRU identification screen on the MCDU (Ref. AMM TASK 31-32-00-860-001).
     If the FWC part number is 350E017248685, the warning is spurious and should be disregarded.
  - no further maintenance action is required.

\*\*ON A/C 254-275, 451-475,

#### A. Do this procedure:

NOTE: The ECAM warning is triggered if the indicated N1 is greater than 104 percent.

- (1) If the N1 overlimit is confirmed through the data contained in the Specific Data Report(s) (Ref. AMM TASK 73-21-60-740-027) or AIDS data, or DFDR data and if the Crew reported the N1 indication flashing amber on the upper ECAM display unit:
  - Do the procedure after the engine has exceeded the engine operational limits (Ref. AMM TASK 72-00-00-200-008).
  - (a) If the engine is still operable, continue the troubleshooting.
    - Read the Post Flight Report (PFR) or the Scheduled Maintenance Report (SMR) or Class 3 Report or the FADEC Last Leg Report and check for the FMV, HMU, N1 SNSR, VSV, PS3 failure messages (Ref. AMM TASK 73-21-60-740-007).
      - a If one or more message is present:
        - do the troubleshooting related to the failure message(s).
      - b If nothing is found:
        - replace the Hydromechanical Unit (HMU) (Ref. AMM TASK 73-21-10-000-002) and (Ref. AMM TASK 73-21-10-400-002).
        - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- (2) If the N1 overlimit is not confirmed through the data contained in the Specific Data Report (Ref. AMM TASK 73-21-60-740-027) or AIDS data, or DFDR data and if the crew did not report the N1 indication flashing amber on the upper ECAM display unit or actual N1 exceedance.
  - Do a check of the FWC part number via the LRU identification screen on the MCDU (Ref. AMM TASK 31-32-00-860-001).
     If the FWC part number is 350E017248685, the warning is spurious and should be disregarded.
  - no further maintenance action is required.

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- B. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-851

N2 Overlimit on Engine 1 or 2

- 1. Possible Causes
  - Hydromechanical Unit (HMU)
  - ECU (4000KS)
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION	
AMM	31-32-00-860-001	Procedure to Get Access to the SYSTEM REPORT/TEST Menu Page	
AMM	71-00-00-710-006	Minimum Idle Check	
AMM	72-00-00-200-008	Inspection/Check After the Engine has Exceeded the Operational Limits	
AMM	73-21-10-000-002	Removal of the Hydromechanical Unit (HMU)	
AMM	73-21-10-400-002	Installation of the Hydromechanical Unit (HMU)	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)	
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)	
AMM	73-21-60-740-007	Correct Time Limited Faults (Non Asterisked) of the Engine Scheduled Maintenance Report	
AMM	73-21-60-740-027	Read the Specific Data Report	
AMM	77-00-00-710-044	Read of the N1,N2 and EGT Max Pointers	

### 3. Fault Confirmation

R \*\*ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549, R 551-599, 701-749,

#### A. Test

(1) On the MCDU, read (if available) the DMC Max Value Report (Ref. AMM TASK 77-00-00-710-044) to note the max N2 value that was recorded during the event as well as the duration of the exceedence (if available from crew report).

If not, read or get the data from the DFDR or QAR.

- if no overspeed has been recorded, no further action is necessary.

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#### TROUBLE SHOOTING MANUAL

\*\*ON A/C 254-275, 451-475,

#### A. Test

(1) On the MCDU, read (if available) the Specific Data Report (Ref. AMM TASK 73-21-60-740-027) to note the max N2 value that was recorded during the event as well as the duration of the exceedence (if available from crew report).

If not, read or get the data from the DFDR or QAR.

- if no overspeed has been recorded, no further action is necessary.

\*\*ON A/C ALL

#### 4. Fault Isolation

R \*\*ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549, R 551-599, 701-749,

#### A. Do this procedure:

NOTE: The ECAM warning is triggered if the indicated N2 is greater than 104 percent.

- (1) If the N2 overlimit is confirmed through the data contained in the DMC report(s) or AIDS data, or DFDR data and if the Crew reported the N2 indication flashing amber on the upper ECAM display unit:
  - Do the procedure after the engine has exceeded the engine operational limits (Ref. AMM TASK 72-00-00-200-008).
  - (a) If the engine is still operable, continue the troubleshooting.
    - Read the Post Flight Report (PFR) or the Scheduled Maintenance Report (SMR) or Class 3 Report or the FADEC Last Leg Report and check for the FMV, HMU, N2 SNSR, VSV, PS3 failure messages (Ref. AMM TASK 73-21-60-740-007).
      - a If one or more message is present:
        - do the troubleshooting related to the failure message(s).
      - b If nothing is found:
        - replace the Hydromechanical Unit (HMU) (Ref. AMM TASK 73-21-10-000-002) and (Ref. AMM TASK 73-21-10-400-002).
        - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

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#### TROUBLE SHOOTING MANUAL

- (2) If the N2 overlimit is not confirmed through the data contained in the DMC report(s) or AIDS data, or DFDR data and if the crew did not report the N2 indication flashing amber on the upper ECAM display unit or actual N2 exceedance.
  - Do a check of the FWC part number via the LRU identification screen on the MCDU (Ref. AMM TASK 31-32-00-860-001).
     If the FWC part number is 350E017248685, the warning is spurious and should be disregarded.
  - no further maintenance action is required.

\*\*ON A/C 254-275, 451-475,

#### A. Do this procedure:

NOTE: The ECAM warning is triggered if the indicated N2 is greater than 104 percent.

- (1) If the N2 overlimit is confirmed through the data contained in the Specific Data Report(s) (Ref. AMM TASK 73-21-60-740-027) or AIDS data, or DFDR data and if the Crew reported the N2 indication flashing amber on the upper ECAM display unit:
  - Do the procedure after the engine has exceeded the engine operational limits (Ref. AMM TASK 72-00-00-200-008).
  - (a) If the engine is still operable, continue the troubleshooting.
    - Read the Post Flight Report (PFR) or the Scheduled Maintenance Report (SMR) or Class 3 Report or the FADEC Last Leg Report and check for the FMV, HMU, N2 SNSR, VSV, PS3 failure messages (Ref. AMM TASK 73-21-60-740-007).
      - a If one or more message is present:
        - do the troubleshooting related to the failure message(s).
      - b If nothing is found:
        - replace the Hydromechanical Unit (HMU) (Ref. AMM TASK 73-21-10-000-002) and (Ref. AMM TASK 73-21-10-400-002).
        - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
          and (Ref. AMM TASK 73-21-60-400-001).
- (2) If the N2 overlimit is not confirmed through the data contained in the Specific Data Report (Ref. AMM TASK 73-21-60-740-027) or AIDS data, or DFDR data and if the crew did not report the N2 indication flashing amber on the upper ECAM display unit or actual N2 exceedance.
  - Do a check of the FWC part number via the LRU identification screen on the MCDU (Ref. AMM TASK 31-32-00-860-001).
     If the FWC part number is 350E017248685, the warning is spurious and should be disregarded.
  - no further maintenance action is required.

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- B. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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## TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-852

Fluctuation of N1 or Auto Acceleration or Auto Deceleration or No Throttle Response to TLA Command on Engine 1 or 2

### 1. Possible Causes

- T12 Sensor
- HMU
- J7 harness
- J8 harness
- N1 Sensor
- N2 Sensor
- ECU (4000KS)
- J7 Harness
- J8 Harness
- J9 Harness
- J10 Harness

## 2. Job Set-up Information

#### A. Referenced Information

REFERENCE		DESIGNATION
AMM	73-21-10-000-002	Removal of the Hydromechanical Unit (HMU)
AMM	73-21-10-400-002	Installation of the Hydromechanical Unit (HMU)
AMM	73-21-40-000-001	Removal of the T12 Temperature Sensor
AMM	73-21-40-400-001	Installation of the T12 Temperature Sensor
AMM	73-21-50-000-040	Removal of the HJ7 Harness
AMM	73-21-50-000-041	Removal of the HJ8 Harness
AMM	73-21-50-000-042	Removal of the HJ9 Harness
AMM	73-21-50-000-043	Removal of the HJ10 Harness
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-040	Installation of the HJ7 Harness
AMM	73-21-50-400-041	Installation of the HJ8 Harness
AMM	73-21-50-400-042	Installation of the HJ9 Harness
AMM	73-21-50-400-043	Installation of the HJ10 Harness
	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit
		(ECU)(4000KS)
AMM	73-21-60-740-007	Correct Time Limited Faults (Non Asterisked) of the
		Engine Scheduled Maintenance Report
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with
		Engine non Motoring)
AMM	77-11-10-000-002	Removal of the N1 Speed Sensor (4000EV)
AMM		Installation of the N1 Speed Sensor (4000EV)
AMM	77-11-20-000-002	Removal of the N2 Speed Sensor (4001EV).
AMM	77-11-20-400-002	Installation of the N2 Speed Sensor (4001EV).

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## 3. Fault Confirmation

#### A. Test

Do the operational test of the FADEC 1A and 1B on the ground (with engine non - motoring) (Ref. AMM TASK 73-29-00-710-040).

NOTE : If the fluctuation of N1 is reported simultaneously on all Engines, and that the A/C is under MMEL 36-11-02 (PRV secured closed), troubleshoot per TSM 36-21-00 first.

### 4. Fault Isolation

#### A. Do this procedure:

NOTE: This procedure is to be used if the crew observes uncommanded fan speed (N1) fluctuations, accelerations, deceleration or there is no response to a throttle command.

- (1) Read the Post Flight Report (PFR) and the Scheduled Maintenance Report (SMR) and/or the Class 3 Report (Ref. AMM TASK 73-21-60-740-007), and check for the following failure messages:
  - J7, HMU(FMVRES), ECU
  - J8, HMU(FMVRES), ECU
  - T12 SNSR, J9, ECU
  - T12 SNSR, J10, ECU
  - N1 SNSR, J9, ECU
  - N1 SNSR, J10, ECU
  - N2 SNSR, J7, ECU
  - N2 SNSR, J8, ECU
  - PS3 SNSR, ECU
  - (a) If one or more of these failure messages are present:
    - Do the troubleshooting procedure according to these messages first.
  - (b) If none of these failure messages are present:
    - Continue the troubleshooting as follows.
- (2) Replace the T12 Sensor (Ref. AMM TASK 73-21-40-000-001) and (Ref. AMM TASK 73-21-40-400-001).
  - (a) Visually examine the J9/J10 harness connectors for damaged pins, contamination (Ref. AMM TASK 73-21-50-210-002):
    - $\underline{1}$  If damage on a connector is found:
      - replace or repair as required.
    - 2 If nothing is found:
      - no further action is required.
      - $\underline{\underline{a}}$  If the fault continues during the subsequent flights, continue the troubleshooting as follows.

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### TROUBLE SHOOTING MANUAL

- (3) replace the HMU (Ref. AMM TASK 73-21-10-000-002) and (Ref. AMM TASK 73-21-10-400-002).
  - (a) Visually examine the J7 and J8 harness connectors for damaged pins, contamination and fuel wetting (Ref. AMM TASK 73-21-50-210-002).
    - If damage on a connector is found:replace or repair as required.
    - 2 If fuel wetting is found:
      - replace defective J7 harness (Ref. AMM TASK 73-21-50-000-040) and (Ref. AMM TASK 73-21-50-400-040) or defective J8 harness (Ref. AMM TASK 73-21-50-000-041) and (Ref. AMM TASK 73-21-50-400-041).
- (4) Replace the N1 Sensor (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002) and clean connectors.
  - (a) Visually examine the J9/J10 harness connectors for damaged pins, contamination (Ref. AMM TASK 73-21-50-210-002):
    - 1 If damage on a connector is found:
       replace or repair as required.
    - If nothing is found:no further action is required.
      - <u>a</u> If the fault continues during the subsequent flights, continue the troubleshooting as follows.
- (5) Replace the N2 Sensor (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002) and clean connectors.
  - (a) Visually examine the J7/J8 harness connectors for damaged pins, contamination (Ref. AMM TASK 73-21-50-210-002):
    - 1 If damage on a connector is found:
       replace or repair as required.
    - If nothing is found:no further action is required.
      - <u>a</u> If the fault continues during the subsequent flights, continue the troubleshooting as follows.

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- (6) Replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (a) Visually examine the harness connectors for damaged pins, contamination (Ref. AMM TASK 73-21-50-210-002):
    - If damage on a connector is found:replace or repair as required.
    - If nothing is found:no further action is required.
      - <u>a</u> If the fault continues during the subsequent flights, continue the troubleshooting as follows.
- (7) Replace the J7 Harness (Ref. AMM TASK 73-21-50-000-040) and (Ref. AMM TASK 73-21-50-400-040).
  - (a) If the fault continues during the subsequent flights, continue the troubleshooting as follows.
- (8) Replace the J8 Harness (Ref. AMM TASK 73-21-50-000-041) and (Ref. AMM TASK 73-21-50-400-041).
  - (a) If the fault continues during the subsequent flights, continue the troubleshooting as follows.
- (9) Replace the J9 Harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
  - (a) If the fault continues during the subsequent flights, continue the troubleshooting as follows.
- (10) Replace the J10 Harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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## TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-853

EGT Indication Permanently Equal to 15°C on Engine 1 or 2

## 1. Possible Causes

- harness J13
- ECU (4000KS)
- harness CJ13
- lower left-hand thermocouple lead assembly
- lower right-hand thermocouple lead assembly
- upper left-hand thermocouple lead assembly
- three-probe thermocouple lead assembly
- upper extension lead
- lower extension lead
- main junction box assembly

## 2. Job Set-up Information

#### A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-50-000-029	Removal of the CJ13 Harness
AMM	73-21-50-000-046	Removal of the HJ13 Harness
AMM	73-21-50-400-029	Installation of the CJ13 Harness
AMM	73-21-50-400-046	Installation of the HJ13 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit
		(ECU)(4000KS)
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with
		Engine Motoring)
AMM	77-21-10-000-008	Removal of the Upper Extension Lead
AMM	77-21-10-000-009	Removal of the Lower Extension Lead
AMM	77-21-10-000-025	Removal of the Main Junction Box
AMM	77-21-10-000-026	Removal of the Upper Right Thermocouple Lead Assembly
AMM	77-21-10-000-027	Removal of the Lower Left Thermocouple Lead Assembly
AMM	77-21-10-000-028	Removal of the Upper Left Thermocouple Lead Assembly
AMM	77-21-10-000-029	Removal of the Lower Right Thermocouple Lead Assembly
AMM	77-21-10-200-002	Inspection/Check of the T495 Thermocouple Wiring
		Harness
AMM	77-21-10-400-008	Installation of the Upper Extension Lead
AMM	77-21-10-400-009	Installation of the Lower Extension Lead
AMM	77-21-10-400-025	Installation of the Main Junction Box
AMM	77-21-10-400-026	Installation of the Upper Right Thermocouple Lead
		Assembly
AMM	77-21-10-400-027	Installation of the Lower Left Thermocouple Lead Assembly

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#### TROUBLE SHOOTING MANUAL

REFERENCE DESIGNATION

AMM 77-21-10-400-028 Installation of the Upper Left Thermocouple Lead

Assembly

AMM 77-21-10-400-029 Installation of the Lower Right Thermocouple Lead

Assembly

ASM 73-25/15 AWM 71-51-05

### 3. Fault Confirmation

#### A. Test

Do the operational test of the FADEC on the ground (with engine mon motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

- A. If the fault symptom is identified by the crew observation: ENG1/2 EGT indication permanently equal to 15°C (default value), and no message is present in the CFDS:
  - do a check for open or short to ground of the T495 thermocouple and of the harness J13 between the ECU (4000KS), the 6 o'clock junction box and the T495 thermocouple (Ref. AWM 71-51-05) and (Ref. ASM 73-25/15).
  - (1) If the wiring is not correct:
    - repair the above wiring.
  - (2) If the wiring is correct:
    - disconnect the harness J13 from the ECU (4000KS) and do a resistance check of the cable between:
      - pins 12 and 13 (1 to 10 ohms)
      - . pins 12 and 24 (> 10 megohms)
      - . pin 12 and the ground (> 10 megohms).
    - (a) If the resistance values are in the specified limits:
      - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
    - (b) If the resistance values are out of the specified limits:
      - disconnect the harness CJ13 at the 6 o'clock junction box and do a resistance check of the harness CJ13 between:
        - . pins 3 and 13 (1 to 10 ohms)
        - pins 3 and 12 (> 10 megohms)
        - . pin 3 and the ground (> 10 megohms).
      - 1 If the resistance values are in the specified limits:
        - replace the harness J13 (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).

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- 2 If the resistance values are out of the specified limits:
  - disconnect the harness CJ13 from the T495 thermocouple and do a resistance check of the T495 thermocouple between:
    - pins A and B (1 to 10 ohms)
    - pin A and the ground (> 10 megohms).
  - <u>a</u> If the resistance values are in the specified limits:
    - replace the harness CJ13 (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
  - b If the resistance values are out of the specified limits, do an inspection/check of the T495 thermocouple wiring harness for isolation of the defective part (Ref. AMM TASK 77-21-10-200-002).
    - if the electrical check of one of the three two-probe lead assemblies is not correct, replace the defective thermocouple:
      - . the lower left-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-027) and (Ref. AMM TASK 77-21-10-400-027) or
      - . the lower right-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-029) and (Ref. AMM TASK 77-21-10-400-029) or
      - . the upper left-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-028) and (Ref. AMM TASK 77-21-10-400-028).
    - if the electrical check of the three-probe lead assembly is not correct:
      - . replace the three-probe thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-026) and (Ref. AMM TASK 77-21-10-400-026), (Ref. AMM TASK 77-21-10-000-027) and (Ref. AMM TASK 77-21-10-400-027), (Ref. AMM TASK 77-21-10-000-028) and (Ref. AMM TASK 77-21-10-400-028), (Ref. AMM TASK 77-21-10-400-029).
    - if the electrical check of the upper extension lead is not correct:
      - replace the upper extension lead (Ref. AMM TASK 77-21-10-000-008) and (Ref. AMM TASK 77-21-10-400-008).
    - if the electrical check of the lower extension lead is not correct:
      - . replace the lower extension lead (Ref. AMM TASK 77-21- 10-000-009) and (Ref. AMM TASK 77-21-10-400-009).
    - if the electrical check of the main junction box assembly is not correct:
      - . replace the main junction box assembly (Ref. AMM TASK 77-21-10-000-025) and (Ref. AMM TASK 77-21-10-400-025).
- B. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

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## TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-854

Loss of the EGT Indication on Engine 1 or 2

### 1. Possible Causes

- DMC1 (1WT1)
- harness J13
- ECU (4000KS)
- harness CJ13
- lower left-hand thermocouple lead assembly
- lower right-hand thermocouple lead assembly
- upper left-hand thermocouple lead assembly
- three-probe thermocouple lead assembly
- upper extension lead
- lower extension lead
- main junction box assembly

## 2. Job Set-up Information

#### A. Referenced Information

REFERENCE		DESIGNATION
AMM	31-63-34-000-001	Removal of the DMC (1WT1,1WT2,1WT3)
AMM	31-63-34-400-001	Installation of the DMC (1WT1,1WT2,1WT3)
AMM	71-00-00-710-003	Engine Automatic Start
AMM	73-21-50-000-029	Removal of the CJ13 Harness
AMM	73-21-50-000-046	Removal of the HJ13 Harness
AMM	73-21-50-400-029	Installation of the CJ13 Harness
AMM	73-21-50-400-046	Installation of the HJ13 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit
		(ECU)(4000KS)
AMM	77-21-10-000-008	Removal of the Upper Extension Lead
AMM	77-21-10-000-009	Removal of the Lower Extension Lead
AMM	77-21-10-000-025	Removal of the Main Junction Box
AMM	77-21-10-000-026	Removal of the Upper Right Thermocouple Lead Assembly
AMM	77-21-10-000-027	Removal of the Lower Left Thermocouple Lead Assembly
AMM	77-21-10-000-028	Removal of the Upper Left Thermocouple Lead Assembly
AMM	77-21-10-000-029	Removal of the Lower Right Thermocouple Lead Assembly
AMM	77-21-10-200-002	Inspection/Check of the T495 Thermocouple Wiring
		Harness
AMM	77-21-10-400-008	Installation of the Upper Extension Lead
AMM	77-21-10-400-009	Installation of the Lower Extension Lead
AMM	77-21-10-400-025	Installation of the Main Junction Box
AMM	77-21-10-400-026	Installation of the Upper Right Thermocouple Lead
		Assembly
AMM	77-21-10-400-027	Installation of the Lower Left Thermocouple Lead Assembly

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#### TROUBLE SHOOTING MANUAL

REFERENCE DESIGNATION

AMM 77-21-10-400-028 Installation of the Upper Left Thermocouple Lead Assembly

AMM 77-21-10-400-029 Installation of the Lower Right Thermocouple Lead

Assembly

ASM 73-25/15 R AWM 71-51-09

### 3. Fault Confirmation

#### A. Test

R

(1) Do a check to see if the EGT indication on the upper ECAM display unit is XX with the DMC3 switched on.

### 4. Fault Isolation

- A. If the EGT indication on the upper ECAM display unit is not XX with the DMC3 switched on:
  - replace the DMC1 (1WT1) (Ref. AMM TASK 31-63-34-000-001) and (Ref. AMM TASK 31-63-34-400-001).
- B. If the EGT indication on the upper ECAM display unit is XX with the DMC3 switched on:
  - do a check for open or short to ground of the T495 thermocouple and of the harness J13 between the ECU (4000KS), the 6 o'clock junction box and the T495 thermocouple (Ref. AWM 71-51-09) and (Ref. ASM 73-25/15).
  - (1) If the wiring is not correct:
    - repair the above wiring.
  - (2) If the wiring is correct:
    - disconnect the harness J13 from the ECU (4000KS) and do a resistance check of the cable between:
      - pins 12 and 13 (1 to 10 ohms)
      - pins 12 and 24 (> 10 megohms)
      - . pin 12 and the ground (> 10 megohms).
    - (a) If the resistance values are in the specified limits:
      - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
    - (b) If the resistance values are out of the specified limits:
      - disconnect the harness CJ13 at the 6 o'clock junction box and do a resistance check of the harness CJ13 between:
        - pins 3 and 13 (1 to 10 ohms)
        - . pins 3 and 12 (> 10 megohms)
        - . pin 3 and the ground (> 10 megohms).

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- 1 If the resistance values are in the specified limits:
  - replace the harness J13 (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
- 2 If the resistance values are out of the specified limits:
  - disconnect the harness CJ13 from the T495 thermocouple and do a resistance check of the T495 thermocouple between:
    - pins A and B (1 to 10 ohms)
    - pin A and the ground (> 10 megohms).
  - a If the resistance values are in the specified limits:
    - replace the harness CJ13 (Ref. AMM TASK 73-21-50-000-029)
       and (Ref. AMM TASK 73-21-50-400-029).
  - <u>b</u> If the resistance values are out of the specified limits, do an inspection/check of the T495 thermocouple wiring harness for isolation of the defective part (Ref. AMM TASK 77-21-10-200-002).
    - if the electrical check of one of the three two-probe lead assemblies is not correct, replace the defective thermocouple:
      - . the lower left-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-027) and (Ref. AMM TASK 77-21-10-400-027) or
      - . the lower right-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-029) and (Ref. AMM TASK 77-21-10-400-029) or
      - . the upper left-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-028) and (Ref. AMM TASK 77-21-10-400-028).
    - if the electrical check of the three-probe lead assembly is not correct:
      - . replace the three-probe thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-026) and (Ref. AMM TASK 77-21-10-400-026), (Ref. AMM TASK 77-21-10-000-027) and (Ref. AMM TASK 77-21-10-400-027), (Ref. AMM TASK 77-21-10-000-028) and (Ref. AMM TASK 77-21-10-400-028), (Ref. AMM TASK 77-21-10-000-029) and (Ref. AMM TASK 77-21-10-400-029).
    - if the electrical check of the upper extension lead is not correct:
      - replace the upper extension lead (Ref. AMM TASK 77-21-10-000-008) and (Ref. AMM TASK 77-21-10-400-008).
    - if the electrical check of the lower extension lead is not correct:
      - . replace the lower extension lead (Ref. AMM TASK 77-21-10-000-009) and (Ref. AMM TASK 77-21-10-400-009).
    - if the electrical check of the main junction box assembly is not correct:
      - . replace the main junction box assembly (Ref. AMM TASK 77-21-10-000-025) and (Ref. AMM TASK 77-21-10-400-025).

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## TROUBLE SHOOTING MANUAL

C. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-003).

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## TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-855

The EGT of one engine is significantly higher than on the other engine

## 1. Possible Causes

- VBV system
- VSV system
- pack flow control valves
- IP check valve
- T495 thermocouple
- harness CJ13
- ECU (4000KS)
- harness J13
- Fuel nozzles

## 2. Job Set-up Information

A. Referenced Information

REFE	ERENCE	DESIGNATION	
21-5	51-00-810-807	FCV 1 (FCU 1) Regulation/Indication Fault	
21-5	51-00-810-808	FCV 2 (FCU 2) Regulation/Indication Fault	
AMM	36-11-41-200-001	Inspection/Check of the IP Bleed Check Valve	
AMM	72-00-00-200-006	<pre>Inspection/Check of Foreign Object Damage (FOD) (Bird Strike Included)</pre>	
AMM	72-31-00-290-002	Inspection of the High Pressure Compressor Rotor Assembly	
AMM	72-52-00-290-001	Borescope Inspection of the High-Pressure Turbine Blades (from the Rear)	
AMM	72-54-00-290-005	Inspection of the Stage 1-3 Blades	
AMM	73-11-40-000-002	Removal of the Fuel Nozzle	
AMM	73-11-40-400-002	Installation of the Fuel Nozzle	
AMM	73-21-50-000-029	Removal of the CJ13 Harness	
AMM	73-21-50-000-046	Removal of the HJ13 Harness	
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses	
AMM	73-21-50-400-029	Installation of the CJ13 Harness	
AMM	73-21-50-400-046	Installation of the HJ13 Harness	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)(4000KS)	
AMM	73-21-60-740-007	Correct Time Limited Faults (Non Asterisked) of the Engine Scheduled Maintenance Report	
AMM	75-31-00-210-002	Visual Inspection of the Variable Bleed Valve System	
AMM	75-32-10-210-002	Inspection of the Variable Stator Vane Actuator	
AMM	77-21-10-200-002	<pre>Inspection/Check of the T495 Thermocouple Wiring Harness</pre>	

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### TROUBLE SHOOTING MANUAL

## 3. Fault Confirmation

A. Test Not applicable.

### 4. Fault Isolation

- A. Do this procedure.
  - NOTE: There are many causes that can lead to an EGT sudden shift such as engine deterioration/failure, engine bleed management fault, EGT probes/harness failure, VBV system failure, hot air leak, Foreign Object Damage (FOD), Fuel nozzles contamination, etc...
  - <u>NOTE</u>: EGT difference between both engines is function of the engine performance level of each engine and therefore may be normal. Only a sudden shift should lead to initiate the following troubleshooting.
  - NOTE: Trend Monitoring should be reviewed first to determine whether the EGT higher on one engine can be explained based on the level of deterioration of the engine. Also, a shift on Trend Monitoring only noted on EGT and not affecting N2 and VSV should definitively concentrate the troubleshooting on the EGT indicating system.
  - (1) If the EGT of one engine has a sudden EGT shift compare to the other engine:
    - Do a check of the Post Flight Report (PFR), of the Schedule Maintenance Report (SMR) or Class 3 Report (Ref. AMM TASK 73-21-60-740-007) and of the FADEC Last Leg Report for failure message including the following words: VBV, VSV, HPV, PRV, NAC TEMP, T495 SNSR
    - (a) If failure message is present:
      - do the related troubleshooting procedure.
    - (b) If nothing is found:
      - Do a visual inspection of the variable bleed valve system VBV system (Ref. AMM TASK 75-31-00-210-002).
         Check for VBV flexible shaft failure and for offset between the VBV actuator doors (doors set in different positions).
      - Do a visual inspection of the VSV system (Ref. AMM TASK 75-32-10-210-002).
      - Do an inspection/check for Foreign Object Damage (Ref. AMM TASK 72-00-00-200-006).
      - 1 If damage is found: - repair as necessary.

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- 2 If nothing is found:
  - do a check for correct operation of the pack flow control valves (Ref. TASK 21-51-00-810-807) and (Ref. TASK 21-51-00-810-808).
  - <u>a</u> if damage is found:repair as necessary
  - $\underline{b}$  if nothing is found, continue the troubleshooting as follows.
- (2) Do a check of the IP check valve (Ref. AMM TASK 36-11-41-200-001).
  - (a) If damage is found:
     repair as necessary.
  - (b) If nothing is found (following troubleshooting is preferably to be done on a cold engine):
    - Disconnect the CJ13 harness from the T495 main junction box (located in the leftcore compartment) and visually examine the T495 junction box receptacle and the CJ13 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
      - <u>a</u> If damage is found:repair as neessary.
      - <u>b</u> If nothing is found, continue the troubleshooting as follows:
- (3) Do an electrical resistance test through the main junction box between:
  - pins A and B (1 to 10 ohms)
  - . pin A and the ground (> 20 megohms).
  - (a) If the resistances are out of the specified limits:
    - Do an electrical resistance test of the T495 thermocouple wiring harness (probes lead assemblies and extension leads assemblies) (Ref. AMM TASK 77-21-10-200-002).
  - (b) If the resistances are in the specified limits:
    - Reconnect the CJ13 harness on the Main Junction Box, disconnect the J13 harness from the ECU (4000KS) and visually examine the ECU receptacle and the harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If damage is found:
      - repair as necessary.

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- 2 If nothing is found:
  - do a resistance check of the cable between:
    - . pins 12 and 13 (1 to 10 ohms)
    - pins 12 and 24 (> 20 megohms)
    - . pin 12 and the ground (> 20 megohms).
  - $\underline{a}$  if the resistances are in the specified limits:
    - no further maintenance action is required.
  - b if the resistances are out of the specified limits:
    - replace the harness CJ13 (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
- (4) If the fault continues during subsequent flights:
  - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- (5) If the fault continues during subsequent flights:
- (6) Do a borescope inspection of the HPT Blades (Ref. AMM TASK 72-52-00-290-001).
- (7) Do a borescope inspection of the LPT Blades through the \$17 port (Ref. AMM TASK 72-54-00-290-005).
- (8) Do a borescope inspection of the HPC Blades (Ref. AMM TASK 72-31-00-290-002).
  - (a) If nothing is found:
    - replace the harness J13 (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
- (9) If the fault continues during subsequent flights:
  - NOTE: Only if Service Bulletin 73-052 (cut dead end of fuel nozzle manifold) is not incorporated.
  - Replace the 3 Fuel nozzles position 3,5 and 7 (Ref. AMM TASK 73-11-40-000-002) and (Ref. AMM TASK 73-11-40-400-002).
  - <u>NOTE</u>: Fuel nozzles position 3,5 and 7 are the most exposed to contamination in case of fuel manifold coking.
- (10) If the fault does not continue during subsequent flights:
  - NOTE: If the EGT exceedence is determined to be caused by fuel manifold coking, then replacement of all other fuel nozzles as well as replacement of the fuel manifolds is required.
  - replace all Fuel nozzles except position 3,5 and 7 (replaced in previous step) (Ref. AMM TASK 73-11-40-000-002) and (Ref. AMM TASK 73-11-40-400-002).

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## TROUBLE SHOOTING MANUAL

- replace the fuel manifold.

## B. Test.

- (1) No test required.
- (2) If the fault continues:
  - Repeat the fault isolation procedure.

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## TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-858

N1/N2 Mismatch on the Same Engine, on Engine 1 or 2

- 1. Possible Causes
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION
АММ	71-00-00-710-006	Minimum Idle Check
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
AMM	75-31-00-210-002	Visual Inspection of the Variable Bleed Valve System
TSM	73-20-00-810-919	Loss of the ADIRU input Data through the Channel A or disagree between Aircraft and Engine sensors on Engine 1
TSM	73-20-00-810-920	Loss of the ADIRU input Data through the Channel A or disagree between Aircraft and Engine sensors on Engine 2
TSM	73-20-00-810-961	Loss of the ADIRU input Data through the Channel B or disagree between Aircraft and Engine sensors on Engine 1
TSM	73-20-00-810-962	Loss of the ADIRU input Data through the Channel B or disagree between Aircraft and Engine sensors on Engine 2

## 3. Fault Confirmation

## A. Test

(1) Not applicable, the fault is evident.

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### TROUBLE SHOOTING MANUAL

## 4. Fault Isolation

R \*\*ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549, R 551-599, 701-749,

- A. If the fault symptom is identified by the crew observation: ENG1-N1/N2 mismatch on the same engine:
  - (1) Do an operational test of the FADEC on the ground (with engine motoring) to do a check of the VSV/VBV position (Ref. AMM TASK 73-29-00-710-040).
  - (2) Do a visual inspection of the variable bleed valve system to do a check of the VBV doors position (Ref. AMM TASK 75-31-00-210-002).

R \*\*ON A/C 201-201, 203-225, 227-227, 229-244, 247-299, 426-499, 551-551, R 554-554, 557-563, 701-749, R Post SB 73-1080 For A/C 201-201,203-225,227-227,229-244,247-253,276-299, R 426-450,476-499,551-551,554-554,557-563,701-749,

- A. If the fault symptom is identified by the crew observation: ENG1-N1/N2 mismatch on the same engine:
  - (1) Do a check of the Post Flight Report (PFR) and the Scheduled Maintenance report (SMR)/class 3 for PO/P12/T12, ADC, ECU:
    - (a) If the failure message is present, do the related troubleshoot procedure (Ref. TSM TASK 73-20-00-810-919) or (Ref. TSM TASK 73-20-00-810-961) or (Ref. TSM TASK 73-20-00-810-961) or (Ref. TSM TASK 73-20-00-810-962).
    - (b) If the failure message is not present:
      - Do an operational test of the FADEC on the ground (with engine motoring) to do a check of the VSV/VBV position (Ref. AMM TASK 73-29-00-710-040).
      - Do a visual inspection of the variable bleed valve system to do a check of the VBV doors position (Ref. AMM TASK 75-31-00-210-002).

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B. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-859

N1 Mismatch during Flex Take Off on Engine 1 or 2

#### 1. Possible Causes

- PS12 line
- engine identification plug
- ECU (4000KS)

### 2. Job Set-up Information

A. Referenced Information

REFERENCE	DESIGNATION
AMM 73-21-60-000-001 AMM 73-21-60-400-001	Removal of the Electronic Control Unit (ECU)(4000KS) Installation of the Electronic Control Unit (ECU)(4000KS)

### 3. Fault Confirmation

- A. Test
  - (1) Not applicable, the fault is evident.

### 4. Fault Isolation

- A. If the fault symptom is identified by the crew observation: N1 mismatch during flex take off:
  - (1) Do the trouble shooting procedure on the engine with the lowest N1 actual.
  - (2) On this engine do a check of the PS12 line for dents, cracks or wear. If you find any damage, replace the PS12 line.
  - (3) Make sure that all piping connections are correctly tightened. If they are loosen, tighten them.
  - (4) If you find no damage on the PS12 line:
    - disconnect the PS12 line from the ECU
    - blow filtered dry air or nitrogen from the ECU (4000KS) side fitting into the PS12 line to clear it in case of any blockage
    - clean the weep hole with a non metallic wire (max diameter: 0.5 mm).

EFF: ALL

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## TROUBLE SHOOTING MANUAL

- (5) If the fault continues:
  - do a check of the engine LRU identification screen with the CFDS to see if the engine rating coded through the engine identification plug is correct.
  - (a) If the rating is not correct:
    - replace the engine identification plug.
  - (b) If the rating is correct:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- B. After the subsequent flight, make sure that the fault does not continue.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-860

N1 Mismatch during Take Off on Engine 1 or 2

#### 1. Possible Causes

- PS12 line
- engine identification plug
- ECU (4000KS)

### 2. Job Set-up Information

A. Referenced Information

REFERENCE	DESIGNATION
AMM 73-21-60-000-001 AMM 73-21-60-400-001	Removal of the Electronic Control Unit (ECU)(4000KS) Installation of the Electronic Control Unit (ECU)(4000KS)

## 3. Fault Confirmation

- A. Test
  - (1) Not applicable, the fault is evident.

### 4. Fault Isolation

- A. If the fault symptom is identified by the crew observation: N1 mismatch at take off:
  - (1) Do the trouble shooting procedure on the engine with the lowest N1 actual.
  - (2) On this engine do a check of the PS12 line for dents, cracks or wear. If you find any damage, replace the PS12 line.
  - (3) Make sure that all piping connections are correctly tightened. If they are loosen, tighten them.
  - (4) If you find no damage on the PS12 line:
    - disconnect the PS12 line from the ECU
    - blow filtered dry air or nitrogen from the ECU (4000KS) side fitting into the PS12 line to clear it in case of any blockage
    - clean the weep hole with a non metallic wire (max diameter: 0.5 mm).

EFF: ALL

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## TROUBLE SHOOTING MANUAL

- (5) If the fault continues:
  - do a check of the engine LRU identification screen with the CFDS to see if the engine rating coded through the engine identification plug is correct.
  - (a) If the rating is not correct:
    - replace the engine identification plug.
  - (b) If the rating is correct:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- B. After the subsequent flight, make sure that the fault does not continue.

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-861

N1 Mismatch at Climb on Engine 1 or 2

#### 1. Possible Causes

- PS12 line
- engine identification plug
- ECU (4000KS)

### 2. Job Set-up Information

A. Referenced Information

REFERENCE	DESIGNATION
AMM 73-21-60-000-001 AMM 73-21-60-400-001	Removal of the Electronic Control Unit (ECU)(4000KS) Installation of the Electronic Control Unit (ECU)(4000KS)

### 3. Fault Confirmation

- A. Test
  - (1) Not applicable, the fault is evident.

### 4. Fault Isolation

- A. If the fault symptom is identified by the crew observation: N1 mismatch at climb:
  - (1) Do the trouble shooting procedure on the engine with the highest N1 actual.
  - (2) On this engine do a check of the PS12 line for dents, cracks or wear. If you find any damage, replace the PS12 line.
  - (3) Make sure that all piping connections are correctly tightened. If they are loosen, tighten them.
  - (4) If you find no damage on the PS12 line:
    - disconnect the PS12 line from the ECU
    - blow filtered dry air or nitrogen from the ECU (4000KS) side fitting into the PS12 line to clear it in case of any blockage
    - clean the weep hole with a non metallic wire (max diameter: 0.5 mm).

EFF: ALL

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## TROUBLE SHOOTING MANUAL

- (5) If the fault continues:
  - do a check of the engine LRU identification screen with the CFDS to see if the engine rating coded though the engine identification plug is correct.
  - (a) If the rating is not correct:
    - replace the engine identification plug.
  - (b) If the rating is correct:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- B. After the subsequent flight, make sure that the fault does not continue.

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-862

Fan Vibration less than 4 Units with Noise / Rumble

- 1. Possible Causes
  - fan blades
  - LPT Stage 4 blades
  - fan blades mid-span shrouds
- 2. Job Set-up Information
  - A. Referenced Information

	REFE	RENCE	DESIGNATION
R R R	AMM	71-00-00-750-001 72-21-00-210-004 72-21-00-210-009 72-54-00-290-006	Fan Trim Balance - 1 Sensor 3 Speed Detailed Inspection and Relubrication of Fan Blade Dovetails, Midspan Shrouds, Retainers, Spacers, Dampers and Fan Disk Dovetail Slots Inspect Fan Rotor Blades Installed on the Fan Disk Inspection of the Stage 4 Blades

- 3. Fault Confirmation
  - A. Test

**SROS** 

- (1) Not applicable, the fault is evident.
- 4. Fault Isolation
  - A. If the fault symptom is identified on the lower ECAM display unit by the crew observation: ENG 1(2)-FAN VIBRATION less than 4 units along with noise/rumble
    - NOTE : Trouble Shooting is recommended at next maintenance opportunity not interfering with Revenue Service Operation.
    - (1) Do a check of the fan blades (Ref. AMM TASK 72-21-00-210-009) and LPT Stage 4 blades for shingling or damage.
      - (a) If the check is not correct:
        - if fan blade damage or mid-span shroud shingling, repair as necessary,
        - if LPT Stage 4 blades shingling, use procedure (Ref. AMM TASK 72-54-00-290-006).
    - (2) If checks are correct:
      - do a Cold Trim Balance per specific procedure "Fan Trim Balance" (Ref. AMM TASK 71-00-00-750-001).

EFF: ALL

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(3) If the same crew observation is still reported during following flight(s):

- do a relubrication of the fan blades mid-span shrouds and dovetails (Ref. AMM TASK 72-21-00-210-004).

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-863

Fan Vibrations Higher than or Equal to 4 Units and less than 6 Units on Engine 1 or 2

### 1. Possible Causes

- wiring, connectors and receptacles
- No. 1 bearing vibration sensor
- TRF vibration sensor
- EVMU

R

- LPT stage 1 blades
- fan blades R
- LPT Stage 4 blades
- fan blades mid-span shrouds

### 2. Job Set-up Information

A. Fixtures, Tools, Test and Support Equipment

REFERENCE

#### **QTY DESIGNATION**

\_\_\_\_\_\_

No specific

bristle brush

B. Consumable Materials

REFERENCE DESIGNATION

Material No. CP2011

Stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

AMM 71-00-00-000-042 Removal of the Power Plant AMM 71-00-00-400-042 Installation of the Power Plant Fan Trim Balance - 1 Sensor 3 Speed AMM 71-00-00-750-001 AMM 72-21-00-210-004 Detailed Inspection and Relubrication of Fan Blade R Dovetails, Midspan Shrouds, Retainers, Spacers, Dampers and Fan Disk Dovetail Slots R AMM 72-21-00-210-009 Inspect Fan Rotor Blades Installed on the Fan Disk

Inspection of the Stage 1-3 Blades AMM 72-54-00-290-001 72-54-00-290-006 Inspection of the Stage 4 Blades AMM

AMM 73-21-50-210-002 Visual Inspection of the Wiring Harnesses

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#### TROUBLE SHOOTING MANUAL

REFERENCE DESIGNATION

\_\_\_\_\_\_

AMM 77-31-30-000-002 AMM 77-32-34-710-040 AMM 77-32-34-860-041 Removal of the Turbine Rear Frame Vibration Sensor Operational Check of EVMU through CFDS Change the configuration of the Accelerometer

- 3. Fault Confirmation
  - A. Test

ASM 77-32/02

- (1) Not applicable, the fault is evident.
- 4. Fault Isolation
- R \*\*ON A/C 201-225, 227-227, 229-239, 241-253, 276-282, 284-299, 426-499,
  R 503-549, 551-599, 701-749,
  Post SB 72-1024 For A/C 451-475,
  - A. If the fault symptom is identified on the lower ECAM display unit by the crew observation: ENG 1(2)-FAN VIBRATION higher than or equal to 4 units and less than 6 units:
    - <u>NOTE</u>: Trouble Shooting is recommended at next maintenance opportunity not interfering with Revenue Service operation.
    - (1) Do the following checks if no aircraft structure vibration/rumble was reported by reported by the crew.
      - <u>NOTE</u>: If momentary vibration on **ECAM** is greater than 4 units but in order of less than 1 minute, no maintenance action is required provided indication is no associated with aircraft vibration felt by the crew and the indication did not repeat during the flight or following flights.
      - (a) Do a check of the wiring, connectors and receptacles between (Ref. ASM 77-32/02):
        - the No. 1 vibration sensor (4002EV) to the EVMU (2EV)
        - the TRF vibration sensor (4003EV) to the EVMU (2EV).
      - (b) Check for damaged pins or connector oxidation:
        - 1 If damage is found, repair or replace as necessary.
        - 2 Do a cleaning of the connectors using a bristle brush with Stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).

EFF: ALL 77-00-00

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#### TROUBLE SHOOTING MANUAL

- (c) Do an electrical test of the No. 1 bearing vibration sensor and the TRF vibration sensor:
  - Disconnect the aircraft harness from the vibration sensor. If necessary, use soft nose pliers.
  - Measure the insulation resistance with a Megohmeter 0-100 Megohms, U= 500 VDC between:
    - . pins 1 and 2
    - . pins 1 and 3
    - pin 2 and connector body
    - pin 3 and connector body
  - The insulation resistance is expected to be greater than 20 Megohms. If anyone of these measurement is less than 20 Megohms, the sensor is not serviceable.
    - <u>a</u> If one of the two vibration sensors is found not serviceable:
      - configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041)
      - if the TRF vibration sensor is not serviceable, it should be replaced (Ref. AMM TASK 77-31-30-000-002).

NOTE: The No. 1 bearing vibration sensor cannot be replaced on-wing.

- (d) If the check (a), (b) and (c) are correct:
  - do the operational test of the Engine Vibration Monitoring Unit EVMU throught the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040)>.
- (e) If the check (a), (b), (c) and (d) are correct:
  - configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041)
- (2) Do the following checks if aircraft structure vibration/rumble was also reported by the crew.
  - (a) LPT stage 1 inspection:

NOTE: Potential risk of LPT blade separated can be the cause.

NOTE: One flight is permitted before Trouble Shooting.

- $\frac{1}{72-54-00-290-001}$ . Do the boroscope inspection of the LPT blades (Ref. AMM TASK
  - Inspect for fractured LPT stage 1 blades:
  - a If one blade (or more) has been found fractured:
    - Replace the engine (Ref. AMM TASK 71-00-00-000-042) and (Ref. AMM TASK 71-00-00-400-042)

EFF: 201-225, 227-227, 229-239, 241-253, 276-282, 284-299, 426-499, 503-549, 551-599, 701-749, SROS

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#### TROUBLE SHOOTING MANUAL

- If nothing has been found, do the following step:
  - NOTE: Trouble shooting below is recommended at next maintenance opportunity not interfering with revenue service operation.
  - NOTE: During descent or approach in icing conditions, ice may build up on the fan blade and spinner cone and consequently lead to increase the fan vibration level on the engine(s). In this case, no maintenance action is required.
- (b) Do a check of the fan blades (Ref. AMM TASK 72-21-00-210-009) and LPT Stage 4 blades for shingling or damage.
  - 1 If the check is not correct:
    - a If fan blade damage or mid-span shroud shingling, repair as necessary.
    - b If LPT Stage 4 blades shingling, use procedure (Ref. AMM TASK 72-54-00-290-006).
- (c) Do a check and an inspection of the accessories and QEC components. This includes the check and inspection of:
  - the accessory gearbox mounts
  - the links and brackets of the accessories to make sure they are not loose or broken
  - the cowling brackets, hinges and rigging
  - the pneumatic system for correct condition and rigging.
  - 1 If the check is not correct, repair or replace as necessary.
- (d) If the checks (a) and (b) are correct:
  - do a Cold Trim Balance per specific procedure "Fan Trim Balance" (Ref. AMM TASK 71-00-00-750-001).
- (e) If same crew observation is still reported during following flight(s):
  - do a relubrication of the fan blades mid-span shrouds and dovetails (Ref. AMM TASK 72-21-00-210-004).

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### TROUBLE SHOOTING MANUAL

\*\*ON A/C 240-240, 254-275, 283-283, 426-475, 479-499,

Post SB 72-1026 For A/C 426-450, Post SB 72-1027 For A/C 479-499,

- A. If the fault symptom is identified on the lower ECAM display unit by the crew observation: ENG 1(2)-FAN VIBRATION higher than or equal to 4 units and less than 6 units:
  - NOTE: Trouble Shooting is recommended at next maintenance opportunity not interfering with Revenue Service operation.
  - (1) Do the following checks if no aircraft structure vibration/rumble was reported by reported by the crew.
    - NOTE: If momentary vibration on ECAM is greater than 4 units but in order of less than 1 minute, no maintenance action is required provided indication is no associated with aircraft vibration felt by the crew and the indication did not repeat during the flight or following flights.
    - (a) Do a check of the wiring, connectors and receptacles between (Ref. ASM 77-32/02):
      - the No. 1 vibration sensor (4002EV) to the EVMU (2EV)
      - the TRF vibration sensor (4003EV) to the EVMU (2EV).
    - (b) Check for damaged pins or connector oxidation:
      - 1 If damage is found, repair or replace as necessary.
      - Do a cleaning of the connectors using a bristle brush with Stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
    - (c) Do an electrical test of the No. 1 bearing vibration sensor and the TRF vibration sensor:
      - Disconnect the aircraft harness from the vibration sensor. If necessary, use soft nose pliers.
      - 2 Measure the insulation resistance with a Megohmeter 0-100 Megohms, U= 500 VDC between:
        - . pins 1 and 2
        - pins 1 and 3
        - pin 2 and connector body
        - pin 3 and connector body
      - The insulation resistance is expected to be greater than 20 Megohms. If anyone of these measurement is less than 20 Megohms, the sensor is not serviceable.

240-240, 254-275, 283-283, 426-475, 479-499,

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**SROS** 

R R

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### TROUBLE SHOOTING MANUAL

R R R R R	<ul> <li><u>a</u> If one of the two vibration sensors is found not serviceable:         <ul> <li>configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041)</li> <li>if the TRF vibration sensor is not serviceable, it should be replaced (Ref. AMM TASK 77-31-30-000-002).</li> </ul> </li> </ul>
R R	<u>NOTE</u> : The No. 1 bearing vibration sensor cannot be replaced on-wing.
R R R	(d) If the check (a), (b) and (c) are correct: - do the operational test of the Engine Vibration Monitoring Unit EVMU throught the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040)>.
R R R	<ul><li>(e) If the check (a), (b), (c) and (d) are correct:</li><li>configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041)</li></ul>
R R	(2) Do the following checks if aircraft structure vibration/rumble was also reported by the crew.
R R R	NOTE: During descent or approach in icing conditions, ice may build up on the fan blade and spinner cone and consequently lead to increase the fan vibration level on the engine(s). In this case, no maintenance action is required.
R R	(a) Do a check of the fan blades (Ref. AMM TASK 72-21-00-210-009) and LPT Stage 4 blades for shingling or damage.
R	1 If the check is not correct:
R R	a If fan blade damage or mid-span shroud shingling, repair as necessary.
R	$\underline{b}$ If LPT Stage 4 blades shingling, use procedure (Ref. AMM TASK 72-54-00-290-006).
R R R R R R	<ul> <li>(b) Do a check and an inspection of the accessories and QEC components. This includes the check and inspection of: <ul> <li>the accessory gearbox mounts</li> <li>the links and brackets of the accessories to make sure they are not loose or broken</li> <li>the cowling brackets, hinges and rigging</li> <li>the pneumatic system for correct condition and rigging.</li> </ul> </li> </ul>
R	$\underline{1}$ If the check is not correct, repair or replace as necessary.
R R R	<ul><li>(c) If the checks (a) and (b) are correct:</li><li>do a Cold Trim Balance per specific procedure "Fan Trim Balance" (Ref. AMM TASK 71-00-00-750-001).</li></ul>

EFF: 240-240, 254-275, 283-283, 426-475, 479-499, SROS

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### TROUBLE SHOOTING MANUAL

R R R R (d) If same crew observation is still reported during following
 flight(s):

 do a relubrication of the fan blades mid-span shrouds and dovetails (Ref. AMM TASK 72-21-00-210-004).

EFF: 240-240, 254-275, 283-283, 426-475, 479-499, SROS

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### TROUBLE SHOOTING MANUAL

\*\*ON A/C ALL

TASK 77-00-00-810-864

Fan Vibrations Higher than or Equal to 6 Units on Engine 1 or 2

### 1. Possible Causes

- wiring, connectors and receptacles
- No. 1 bearing vibration sensor
- TRF vibration sensor
- EVMU
- LPT stage 1 blades
- fan blades
- LPT Stage 4 blades
- fan blades mid-span shrouds

### 2. Job Set-up Information

A. Fixtures, Tools, Test and Support Equipment

\_\_\_\_\_\_

REFERENCE **QTY DESIGNATION** 

No specific bristle brush

B. Consumable Materials

\_\_\_\_\_\_

REFERENCE DESIGNATION

Material No. CP2011

Stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

Removal of the Power Plant AMM 71-00-00-000-042 AMM 71-00-00-400-042 Installation of the Power Plant

AMM 71-00-00-750-001 Fan Trim Balance - 1 Sensor 3 Speed

Inspection/Check of Foreign Object Damage (FOD) (Bird R AMM 72-00-00-200-006 Strike Included)

Detailed Inspection and Relubrication of Fan Blade AMM 72-21-00-210-004 Dovetails, Midspan Shrouds, Retainers, Spacers,

Dampers and Fan Disk Dovetail Slots

AMM 72-21-00-210-009 Inspect Fan Rotor Blades Installed on the Fan Disk

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

REFERENCE		DESIGNATION
AMM	72-21-00-290-003	Borescope Inspection of the Booster Rotor Blades, Stages 2,3,4 and 5 through the Booster Inlet and Borescope Ports S03 and S05
AMM	72-31-00-290-002	Inspection of the High Pressure Compressor Rotor Assembly
AMM	72-52-00-290-001	Borescope Inspection of the High-Pressure Turbine Blades (from the rear)
AMM	72-54-00-290-001	Inspection of the Stage 1-3 Blades
AMM	72-54-00-290-005	Inspection of the Stage 1-3 Blades
AMM	72-54-00-290-006	Inspection of the Stage 4 Blades
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	77-31-30-000-002	Removal of the Turbine Rear Frame Vibration Sensor
AMM	77-32-34-710-040	Operational Check of EVMU through CFDS
AMM	77-32-34-860-041	Change the configuration of the Accelerometer
AMM	79-00-00-281-002	Check of the Electrical Master Chip Detector for Particles
AMM	79-00-00-281-003	Check of FWD, AFT Sump, AGB, and TGB scavenge screens
ASM	77-32/02	

### 3. Fault Confirmation

#### A. Test

(1) Not applicable, the fault is evident.

NOTE : Vibration level is reported through a pilot report or mechanical report <07> or EVMU unbalance report.

### 4. Fault Isolation

R \*\*ON A/C 201-225, 227-227, 229-239, 241-253, 276-282, 284-299, 426-499, R 503-549, 551-599, 701-749, Post SB 72-1024 For A/C 451-475,

- A. If the fault symptom is identified on the lower ECAM display unit by the crew observation: ENG 1(2)-FAN VIBRATION higher than 6 units:
  - (1) Do the following checks if no aircraft structure vibration/rumble was also reported by the crew.

<u>NOTE</u>: If momentary vibration on **ECAM** is greater than 6 units but in order of less than 1 minute, no maintenance action is required provided indication is not associated with aircraft vibration felt by the crew and the indication did not repeat during the flight or following flights.

<u>NOTE</u>: Trouble Shooting is recommended at next maintenance opportunity not interfering with Revenue Service operation.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

- (a) Do a check of the wiring, connectors and receptacles between (Ref. ASM 77-32/02):
  - the No. 1 vibration sensor (4002EV) to the EVMU (2EV)
  - the TRF vibration sensor (4003EV) to the EVMU (2EV).
- (b) Check for damaged pins or connector oxidation:
  - 1 If damage is found, repair or replace as necessary.
  - 2 Do a cleaning of the connectors using a bristle brush with Stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
- (c) Do an electrical test of the No. 1 bearing vibration sensor and the TRF vibration sensor:
  - Disconnect the aircraft harness from the vibration sensor connectors. If necessary, use soft nose pliers.
  - Measure the insulation resistance with a Megohmeter 0-100 Megohms, U= 500 VDC between:
    - . pins 1 and 2
    - . pins 1 and 3
    - . pin 2 and connector body
    - pin 3 and connector body
  - The insulation resistance is expected to be greater than 20 Megohms. If anyone of these measurement is less than 20 Megohms, the sensor is not serviceable.
    - <u>a</u> if one of the two vibration sensors is found not serviceable:
      - configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041)
      - if the TRF vibration sensor is not serviceable, it must be replaced (Ref. AMM TASK 77-31-30-000-002) at the next opportunity.
      - <u>NOTE</u>: The No. 1 bearing vibration sensor cannot be replaced on-wing.
- (d) If the check (a), (b) and (c) are correct:
  - do the operational test of the Engine Vibration Monitoring Unit EVMU throught the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040)>.
- (e) If the check (a), (b), (c) and (d) are correct:
  - configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041)

EFF: 201-225, 227-227, 229-239, 241-253, 276-282, 284-299, 426-499, 503-549, 551-599, 701-749, SROS

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### TROUBLE SHOOTING MANUAL

- (2) Do the following checks if aircraft structure vibration/rumble was also reported by the crew.
  - (a) LPT stage 1 inspection:

NOTE: Potential risk of LPT blade separated can be the cause.

NOTE: Do the trouble shooting before next flight.

- Do the borescope inspection of the LPT blades (Ref. AMM TASK 72-54-00-290-001).
  - Inspect for fractured LPT stage 1 blades:
  - a If one blade (or more) has been found fractured:
    - Replace the engine (Ref. AMM TASK 71-00-00-000-042) and (Ref. AMM TASK 71-00-00-400-042).
  - b If nothing has been found, do the following step:
    - NOTE: During descent or approach in icing conditions, ice may build up on the fan blade and spinner cone and consequently lead to increase the fan vibration level on the engine(s). In this case, no maintenance action is required.
- (b) If the engine has operated in icing condition:
  - Do a visual inspection around the engine to make sure that there are no ice ingestion damages, and especially do a check of the inlet cowl, fan blades, spinner cone, abradable material, OGV, accoustical panels (forward and mid) and splitter fairing.
  - 1 If no damage is found:
    - No maintenance action is required.
  - 2 If damage is found:
    - Repair or replace as required.
    - <u>a</u> If during the following flight you record an important decrease of EGT margin:
      - Do a borescope inspection of the HPC and do a check of HPC blades for damage (Ref. AMM TASK 72-31-00-290-002).
      - Do a borescope inspection of the HPT and do a check of HPT blades for damage (Ref. AMM TASK 72-52-00-290-001).
- (c) Do a check of the fan blades (Ref. AMM TASK 72-21-00-210-009) and LPT Stage 4 blades for shingling or damage.
  - 1 If the check is not correct:
    - <u>a</u> If fan blade damage or mid-span shroud shingling, repair as necessary.

EFF: 201-225, 227-227, 229-239, 241-253, 276-282, 284-299, 426-499, 503-549, 551-599, 701-749, SROS

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### TROUBLE SHOOTING MANUAL

- b If LPT Stage 4 blades shingling, use procedure (Ref. AMM TASK 72-54-00-290-006).
- (d) Do a check and an inspection of the accessories and QEC components. This includes the check and inspection of:
  - the accessory gearbox mounts
  - the links and brackets of the accessories to make sure they are not loose or broken
  - the cowling brackets, hinges and rigging
  - the pneumatic system for correct condition and rigging.
  - 1 If the check is not correct, repair or replace as necessary.
- (e) Do a check of the Magnetic Chip Detector visual indicator, of the Magnetic Chip Detector (Ref. AMM TASK 79-00-00-281-002) and the Scavenge Screens Plugs (Ref. AMM TASK 79-00-00-281-003).
  - 1 If you find magnetic particles, follow instructions per (Ref. AMM TASK 79-00-00-281-002) and NDT Manual (Section CHIP ANALYSIS).
- (f) Do a borescope inspection of booster assembly (Ref. AMM TASK 72-21-00-290-003).
- (g) Do a borescope inspection of the Low Pressure Turbine (Ref. AMM TASK 72-54-00-290-005) and (Ref. AMM TASK 72-54-00-290-006).
- (h) If the checks are correct:
  - do a relubrication of the fan blades mid-span shrouds and dovetails (Ref. AMM TASK 72-21-00-210-004),
  - do a Cold Trim Balance per specific procedure "Fan Trim Balance" (Ref. AMM TASK 71-00-00-750-001).

\*\*ON A/C 240-240, 254-275, 283-283, 426-475, 479-499,

Post SB 72-1026 For A/C 426-450, Post SB 72-1027 For A/C 479-499,

- A. If the fault symptom is identified on the lower ECAM display unit by the crew observation: ENG 1(2)-FAN VIBRATION higher than 6 units:
  - (1) Do the following checks if no aircraft structure vibration/rumble was also reported by the crew.
    - NOTE: If momentary vibration on ECAM is greater than 6 units but in order of less than 1 minute, no maintenance action is required provided indication is not associated with aircraft vibration felt by the crew and the indication did not repeat during the flight or following flights.
    - <u>NOTE</u>: Trouble Shooting is recommended at next maintenance opportunity not interfering with Revenue Service operation.

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- (a) Do a check of the wiring, connectors and receptacles between (Ref. ASM 77-32/02):
  - the No. 1 vibration sensor (4002EV) to the EVMU (2EV)
  - the TRF vibration sensor (4003EV) to the EVMU (2EV).
- (b) Check for damaged pins or connector oxidation:
  - 1 If damage is found, repair or replace as necessary.
  - 2 Do a cleaning of the connectors using a bristle brush with Stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
- (c) Do an electrical test of the No. 1 bearing vibration sensor and the TRF vibration sensor:
  - Disconnect the aircraft harness from the vibration sensor connectors. If necessary, use soft nose pliers.
  - 2 Measure the insulation resistance with a Megohmeter 0-100 Megohms, U= 500 VDC between:
    - . pins 1 and 2
    - . pins 1 and 3
    - pin 2 and connector body
    - pin 3 and connector body
  - The insulation resistance is expected to be greater than 20 Megohms. If anyone of these measurement is less than 20 Megohms, the sensor is not serviceable.
    - if one of the two vibration sensors is found not serviceable:
      - configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041)
      - if the TRF vibration sensor is not serviceable, it must be replaced (Ref. AMM TASK 77-31-30-000-002) at the next opportunity.
      - NOTE: The No. 1 bearing vibration sensor cannot be replaced on-wing.
- (d) If the check (a), (b) and (c) are correct:
  - do the operational test of the Engine Vibration Monitoring Unit EVMU throught the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040)>.
- (e) If the check (a), (b), (c) and (d) are correct:
  - configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041)

240-240, 254-275, 283-283, 426-475,

479-499,

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### TROUBLE SHOOTING MANUAL

(2) Do the following checks if aircraft structure vibration/rumble was R R also reported by the crew. NOTE: During descent or approach in icing conditions, ice may build R up on the fan blade and spinner cone and consequently lead to R increase the fan vibration level on the engine(s). In this R R case, no maintenance action is required. R (a) If the engine has operated in icing condition: - Do a visual inspection around the engine to make sure that R R there are no ice ingestion damages, and especially do a check R of the inlet cowl, fan blades, spinner cone, abradable material, OGV, accoustical panels (forward and mid) and R splitter fairing. R R If no damage is found: R - No maintenance action is required. 2 If damage is found: R R - Repair or replace as required. R If during the following flight you record an important decrease of EGT margin: R - Do a borescope inspection of the HPC and do a check of R HPC blades for damage (Ref. AMM TASK 72-31-00-290-002). R - Do a borescope inspection of the HPT and do a check of R HPT blades for damage (Ref. AMM TASK 72-52-00-290-001). R (b) Do a check of the fan blades (Ref. AMM TASK 72-21-00-210-009) and R R LPT Stage 4 blades for shingling or damage. R 1 If the check is not correct: R a If fan blade damage or mid-span shroud shingling, repair as R necessary. R If LPT Stage 4 blades shingling, use procedure (Ref. AMM TASK 72-54-00-290-006). (c) Do a check and an inspection of the accessories and QEC R components. This includes the check and inspection of: R R - the accessory gearbox mounts - the links and brackets of the accessories to make sure they are R R not loose or broken R - the cowling brackets, hinges and rigging R - the pneumatic system for correct condition and rigging. If the check is not correct, repair or replace as necessary. R R (d) Do a check of the Magnetic Chip Detector visual indicator, of the Magnetic Chip Detector (Ref. AMM TASK 79-00-00-281-002) and the R R Scavenge Screens Plugs (Ref. AMM TASK 79-00-00-281-003).

EFF: 240-240, 254-275, 283-283, 426-475, 479-499,

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- 1 If you find magnetic particles, follow instructions per (Ref. AMM TASK 79-00-00-281-002) and NDT Manual (Section CHIP ANALYSIS).
- (e) Do a borescope inspection of booster assembly (Ref. AMM TASK 72-21-00-290-003).
- (f) Do a borescope inspection of the Low Pressure Turbine (Ref. AMM TASK 72-54-00-290-005) and (Ref. AMM TASK 72-54-00-290-006).
- (g) If the checks are correct:
  - do a relubrication of the fan blades mid-span shrouds and dovetails (Ref. AMM TASK 72-21-00-210-004),
  - do a Cold Trim Balance per specific procedure "Fan Trim Balance" (Ref. AMM TASK 71-00-00-750-001).
- R \*\*ON A/C 206-225, 241-253, 284-299, 426-475, 481-499, 551-599, 701-749,

Post SB 72-1024 For A/C 451-475,

B. Do an engine EGT margin evaluation procedure and an EGT deterioration evaluation procedure (Ref. AMM TASK 72-00-00-200-006).

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### TROUBLE SHOOTING MANUAL

\*\*ON A/C ALL

TASK 77-00-00-810-865

Core Vibrations Higher than or Equal to 4.2 Units (1.68 Ips), and Less than 5.4 Units (2.16 Ips) on Engine 1 or 2

- 1. Possible Causes
  - wiring, connectors and receptacles
  - Engine
  - No. 1 bearing vibration sensor (4002EV)
  - TRF vibration sensor (4003EV)
  - EVMU (2EV)
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

REFERENCE **QTY DESIGNATION** 

bristle brush No specific No specific megohmeter

No specific soft nose pliers

B. Consumable Materials

\_\_\_\_\_\_

REFERENCE DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

AMM 71-11-00-210-001 Visual Inspection of the Air Intake Cowl (1100KM1, 1100KM2)

AMM 71-50-00-210-001 Visual Inspection of the Power Plant Wire Harness 72-31-00-290-002 AMM Inspection of the High Pressure Compressor Rotor

Assembly AMM 72-52-00-290-001 Borescope Inspection of the High-Pressure Turbine

Blades (from the rear) AMM 73-21-50-210-002 Visual Inspection of the Wiring Harnesses

AMM 77-31-30-000-002 Removal of the Turbine Rear Frame Vibration Sensor

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### TROUBLE SHOOTING MANUAL

REFERENCE		DESIGNATION
AMM	77-31-30-400-002	Installation of the Turbine Rear Frame Vibration
		Sensor
AMM	77-32-34-710-040	Operational Check of EVMU through CFDS
AMM	77-32-34-860-041	Change the configuration of the Accelerometer
AMM	79-00-00-281-002	Check of the Electrical Master Chip Detector for
		Particles
AMM	79-00-00-281-003	Check of FWD, AFT Sump, AGB, and TGB scavenge screens
AMM	79-35-00-040-042	Replacement of the Main Oil Supply Filter and Check
		of the Electrical Chip Detector Visual Indicator
		(pop-out)
ΔSM	77-32/02	

ASM //-32/U2

### 3. Fault Confirmation

#### A. Test

(1) Not applicable, the fault is evident.

#### 4. Fault Isolation

- A. If momentary vibration on ECAM is between 4.2 and 5.4 units but in order of less than 1 minute and provided indication did not repeat during the flight or following flights:
  - no maintenance action is required.
  - NOTE: If the engine core vibration level is reported at the installation, dispatch the aircraft.
  - (1) If the crew observation identifies ENG1/2 CORE VIB higher than or equal to 4.2 units and less than 5.4 units.
    - <u>NOTE</u>: If the vibration level is associated to high speed (max. cont, climb, or take off): High pressure turbine may be the cause it is recommended to do the trouble shooting procedure in no more than 25 cycles; engine removal should be scheduled.
    - NOTE: If the vibration level is associated to low speed (descent, approach, taxi): High pressure compressor may be the cause; Contact CFM to define cycles extension.
  - (2) If the fault symptom is identified on the lower ECAM display unit by the crew observation ENG1/2 - CORE VIB higher than or equal to 4.2 units and less than 5.4 units for less than one minute, but intermittently repeated:

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#### TROUBLE SHOOTING MANUAL

- (a) Do a check of the wiring, connectors and receptacles (Ref. ASM 77-32/02) between:
  - the No. 1 bearing vibration sensor (4002EV) and the EVMU (2EV),
  - the TRF vibration sensor (4003EV) and the EVMU (2EV).
- (b) Disconnect the harnesses from the No. 1 bearing and the TRF sensors.
  - do a check for damaged pins or connector oxidation (Ref. AMM TASK 71-50-00-210-001).
  - 1 If damage is found:
    - repair or replace as required.
  - 2 If no damage is found:
    - do a cleaning of the connectors using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
- (c) Do an electrical test of the No. 1 bearing vibration sensor and the TRF vibration sensor:
  - disconnect the aircraft harness from the vibration sensor connectors. If necessary, use soft nose pliers.
  - measure the insulation resistance with a megohmeter 0-100
    megohms, U= 500 VDC between:
    - . pins 1 and 2
    - . pins 1 and 3
    - . pin 2 and connector body
    - pin 3 and connector body,

the insulation resistance is expected to be greater than  $20\,$  megohms.

- 1 If one of these measurements is less than 20 megohms:
  - the sensor is not serviceable.
- $\underline{2}$  If one of the two vibration sensors is found not serviceable:
  - configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041).

NOTE : If the TRF vibration sensor is not serviceable, it should be replaced (Ref. AMM TASK 77-31-30-000-002) and (Ref. AMM TASK 77-31-30-400-002).

<u>NOTE</u>: The No. 1 bearing vibration sensor cannot be replaced on-wing.

- (d) If nothing is found:
  - do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).

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### TROUBLE SHOOTING MANUAL

- (e) If nothing is found:
  - Dispatch the aircraft. Vibration level must be monitored closely.

NOTE: HP unbalance is the first cause of core vibration, may be not perceptible through trouble shooting actions. The presence of high N2 vibration requires to schedule the engine removal for root cause identification at shop level.

- (3) If the fault symptom is identified on the lower ECAM display unit by the crew observation ENG1/2 CORE VIB higher than or equal to 4.2 units and less than 5.4 units for more than one minute:
  - open the cowlings (Ref. AMM TASK 71-11-00-210-001) and do a visual inspection around the engine (centerbody plug, piping and brackets fan cowl and core cowl area).
  - (a) Do a check and an inspection of the accessories and QEC components. This includes the check and inspection of:
    - the accessory gear box mounts,
    - the link and brackets of the accessories to make sure they are loose or broken,
    - the cowling brackets, hinges and rigging,
    - the pneumatic system for correct condition and rigging.
    - 1 If the check is not correct:
      - repair or replace as required.
  - (b) If nothing is found:
    - Do a check of the wiring, connectors and receptacles (Ref. ASM 77-32/02) between:
      - the No. 1 bearing vibration sensor (4002EV) and the EVMU (2EV),
      - the TRF vibration sensor (4003EV) and the EVMU (2EV).
    - $\underline{2}$  Disconnect the harnesses from the No. 1 bearing and the TRF sensors,
      - do a check for damaged pins or connector oxidation (Ref. AMM TASK 71-50-00-210-001).
      - a If damage is found:
        - repair or replace as required.
      - b If no damage is found:
        - do a cleaning of the connectors using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
    - <u>3</u> Do an electrical test of the No. 1 bearing vibration sensor and the TRF vibration sensor:

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### TROUBLE SHOOTING MANUAL

 disconnect the aircraft harness from the vibration sensor connectors. If necessary, use soft nose pliers.

- measure the insulation resistance with a megohmeter 0-100 megohms, U= 500 VDC between:
  - . pins 1 and 2
  - pins 1 and 3
  - pin 2 and connector body
  - . pin 3 and connector body,

the insulation resistance is expected to be greater than 20 megohms.

- a If one of these measurements is less than 20 megohms:
  - the sensor is not serviceable.
- $\underline{b}$  If one of the two vibration sensors is found not serviceable:
  - configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041).

NOTE : If the TRF vibration sensor is not serviceable, it should be replaced (Ref. AMM TASK 77-31-30-000-002) and (Ref. AMM TASK 77-31-30-400-002).

NOTE: The No. 1 bearing vibration sensor cannot be replaced on-wing.

- (c) If nothing is found:
  - do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).
- (d) Do a check of the electric master magnetic chip detector visual indicator (Ref. AMM TASK 79-35-00-040-042) and the magnetic chip detector (Ref. AMM TASK 79-00-00-281-002) and the scavenge screen plugs (Ref. AMM TASK 79-00-00-281-003).
  - 1 If you find magnetic particles:
    - follow the related instructions per (Ref. AMM TASK 79-00-00-281-002) and NDT Manual (section CHIP ANALYSIS).
  - 2 If no magnetic particles are found:
    - do a borescope inspection of the high pressure compressor rotor assembly (Ref. AMM TASK 72-31-00-290-002) and of the high pressure turbine blades (Ref. AMM TASK 72-52-00-290-001).
- (e) If nothing is found:
  - configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041).

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### TROUBLE SHOOTING MANUAL

(f) If nothing is found:

- dispatch the aircraft. Vibration level must be monitored closely and reported to CFMI on a regular basis.

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-866

Core Vibrations Higher than or Equal to 5.5 Units (2.2 Ips) on Engine 1 or 2

### 1. Possible Causes

- wiring, connectors and receptacles
- No. 1 bearing vibration sensor (4002EV)
- TRF vibration sensor (4003EV)
- EVMU (2EV)

### 2. Job Set-up Information

A. Fixtures, Tools, Test and Support Equipment

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REFERENCE QTY DESIGNATION

No specific bristle brush

No specific bristle brush
No specific megohmeter

No specific soft nose pliers

B. Consumable Materials

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REFERENCE DESIGNATION

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Material No. CP2011 \*

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE DESIGNATION

R R	AMM	71-11-00-210-001	Visual Inspection of the Air Intake Cowl (1100KM1, 1100KM2)
	AMM	71-50-00-210-001	Visual Inspection of the Power Plant Wire Harness
	AMM	72-31-00-290-002	Inspection of the High Pressure Compressor Rotor Assembly
	AMM	72-52-00-290-001	Borescope Inspection of the High-Pressure Turbine Blades (from the rear)
	AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
	AMM	77-31-30-000-002	Removal of the Turbine Rear Frame Vibration Sensor
	AMM	77-31-30-400-002	Installation of the Turbine Rear Frame Vibration Sensor
	AMM	77-32-34-710-040	Operational Check of EVMU through CFDS

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AMM 77-32-34-860-041

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Change the configuration of the Accelerometer

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REFERENCE		DESIGNATION
	70 00 00 204 002	
AMM	79-00-00-281-002	Check of the Electrical Master Chip Detector for Particles
AMM	79-00-00-281-003	Check of FWD, AFT Sump, AGB, and TGB scavenge screens
AMM	79-35-00-040-042	Replacement of the Main Oil Supply Filter and Check of the Electrical Chip Detector Visual Indicator (pop-out)

ASM 77-32/02

### 3. Fault Confirmation

#### A. Test

(1) Read the advisory report <07> PRE EVENT and POST EVENT to confirm the interval of time.

NOTE: Trouble shooting is required before next flight.

### 4. Fault Isolation

- A. If momentary vibration on ECAM is greater than 5.5 units but in order of less than 1 minute and provided indication did not repeat during the flight or following flights:
  - no maintenance action is required.
  - (1) If the fault symptom is identified on the lower ECAM display unit by the crew observation ENG1/2 - CORE VIB higher than or equal to 5.5 units with core vibration indication flashing green and greater than 5.5 units for less than one minute, but intermittently repeated:
    - (a) Do a check of the wiring, connectors and receptacles (Ref. ASM 77-32/02) between:
      - the No. 1 bearing vibration sensor (4002EV) and the EVMU (2EV),
      - the TRF vibration sensor (4003EV) and the EVMU (2EV).
    - (b) Disconnect the harnesses from the No. 1 bearing and the TRF sensors.
      - do a check for damaged pins or connector oxidation (Ref. AMM TASK 71-50-00-210-001).
      - 1 If damage is found:
        - repair or replace as required.
      - 2 If no damage is found:
        - do a cleaning of the connectors using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).

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### TROUBLE SHOOTING MANUAL

(c) Do an electrical test of the No. 1 bearing vibration sensor and the TRF vibration sensor:

- disconnect the aircraft harness from the vibration sensor connectors. If necessary, use soft nose pliers.
- measure the insulation resistance with a megohmeter 0-100
  megohms, U= 500 VDC between:
  - . pins 1 and 2
  - . pins 1 and 3
  - pin 2 and connector body
  - pin 3 and connector body,

the insulation resistance is expected to be greater than 20 megohms.

- 1 If one of these measurements is less than 20 megohms:
  - the sensor is not serviceable.
- 2 If one of the two vibration sensors is found not serviceable:
  - configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041).

NOTE : If the TRF vibration sensor is not serviceable, it should be replaced (Ref. AMM TASK 77-31-30-000-002) and (Ref. AMM TASK 77-31-30-400-002).

NOTE: The No. 1 bearing vibration sensor cannot be replaced on-wing.

- (d) If nothing is found:
  - do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).
- (e) If nothing is found:
  - configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041).
- (2) If the engine core vibration level has significantly increased since the engine was installed:
  - open the cowlings (Ref. AMM TASK 71-11-00-210-001) and do a visual inspection around the engine (centerbody plug, piping and brackets fan cowl and core cowl area).
  - (a) Do a check and an inspection of the accessories and QEC components. This includes the check and inspection of:
    - the accessory gear box mounts,
    - the link and brackets of the accessories to make sure they are loose or broken,
    - the cowling brackets, hinges and rigging,
    - the pneumatic system for correct condition and rigging.
    - 1 If the check is not correct:
      - repair or replace as required.

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- (b) Do a check of the electric master magnetic chip detector visual indicator (Ref. AMM TASK 79-35-00-040-042) and the magnetic chip detector (Ref. AMM TASK 79-00-00-281-002) and the scavenge screen plugs (Ref. AMM TASK 79-00-00-281-003).
  - 1 If you find magnetic particles:
    - follow the related instructions per (Ref. AMM TASK 79-00-00-281-002) and NDT Manual (section CHIP ANALYSIS).
  - 2 If no magnetic particles are found:
    - do a borescope inspection of the high pressure compressor rotor assembly (Ref. AMM TASK 72-31-00-290-002) and of the high pressure turbine blades (Ref. AMM TASK 72-52-00-290-001).
- (c) If nothing is found:
  - Do a check of the wiring, connectors and receptacles (Ref. ASM 77-32/02) between:
    - the No. 1 bearing vibration sensor (4002EV) and the EVMU (2EV),
    - the TRF vibration sensor (4003EV) and the EVMU (2EV).
  - <u>2</u> Disconnect the harnesses from the No. 1 bearing and the TRF sensors,
    - do a check for damaged pins or connector oxidation (Ref. AMM TASK 71-50-00-210-001).
    - a If damage is found:
      - repair or replace as required.
    - b If no damage is found:
      - do a cleaning of the connectors using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
  - <u>3</u> Do an electrical test of the No. 1 bearing vibration sensor and the TRF vibration sensor:
    - disconnect the aircraft harness from the vibration sensor connectors. If necessary, use soft nose pliers.
    - measure the insulation resistance with a megohmeter 0-100 megohms, U= 500 VDC between:
      - . pins 1 and 2
      - . pins 1 and 3
      - pin 2 and connector body
      - pin 3 and connector body,

the insulation resistance is expected to be greater than  $20\,$  megohms.

- a If one of these measurements is less than 20 megohms:
  - the sensor is not serviceable.

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- <u>b</u> If one of the two vibration sensors is found not serviceable:
  - configure the MCDU to read the other vibration sensor output (Ref. AMM TASK 77-32-34-860-041).

NOTE : If the TRF vibration sensor is not serviceable, it should be replaced (Ref. AMM TASK 77-31-30-000-002) and (Ref. AMM TASK 77-31-30-400-002).

<u>NOTE</u>: The No. 1 bearing vibration sensor cannot be replaced on-wing.

- (d) If nothing is found:
  - do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).
- (e) If nothing is found:
  - Contact CFM to confirm high vibration level
  - Replace the engine.
  - NOTE: If the high N2 vibes reported are greater than 5.5 CPU but in order of more than a minute and repeatable during flight or subsequent flights and trouble shooting have not found any defect, engine has to be scheduled for immediate removal. CFM is to be contacted to allow an aircraft dispatch for returning to the main base or base suitable for engine change.
  - <u>NOTE</u>: HP unbalance is the first cause of core vibration, not perceptible through trouble shooting actions. The presence of high N2 requires the engine removal for root cause identification at shop level.

EFF: ALL

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# **@A319/A320/A321**

### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-867

Vibration Indications Fault

- 1. Possible Causes
  - EVMU (2EV)
  - aircraft wiring
  - C/B-ENGINE/ENG1 AND 2/EVMU (1EV)
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION
AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)
AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>
AMM ASM	77-32-34-710-040 77-32/02	Operational Check of EVMU through CFDS

- 3. Fault Confirmation
  - A. Do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).
- 4. Fault Isolation
  - A. Table of the circuit breakers used in this procedure:

PANEL DESIGNATION IDENT. LOCATION

121VU ENGINE/ENG1 AND 2/EVMU

1EV R44

- **B.** If the fault symptom is identified by **ENG VIB SYS FAULT** message on the upper **ECAM** warning display unit:
  - do a check of the circuit breaker 1EV status.
  - (1) If the circuit breaker is open:
    - close the circuit breaker 1EV.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

- (2) If the circuit breaker is closed:
  - do a check for 115VAC on the EVMU (Ref. ASM 77-32/02).
  - (a) If there is 115VAC:
    - replace the EVMU (2EV), (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).
  - (b) If there is no 115VAC:
    - do a check and repair the aircraft wiring between the breaker 1EV to the EVMU (2EV) (Ref. ASM 77-32/02).
    - 1 If the fault continues:
      - replace the C/B-ENGINE/ENG1 AND 2/EVMU (1EV)
- C. Do the check given in Para. 3.A.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-874

Loss of the Channel A of the FADEC on Engine 1

- 1. Possible Causes
  - EIU-1 (1KS1)
  - ECU (4000KS)
  - harness J1
  - aircraft wiring
  - C/B-ENGINE/1/FADEC A/AND EIU 1 (2KS1)
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>
AMM	73-25-34-000-040	Removal of the Engine Interface Unit (EIU) (1KS1,1KS2)
AMM	73-25-34-400-040	<pre>Installation of the Engine Interface Unit (EIU) (1KS1,1KS2)</pre>
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
ASM	73-25/05	
ASM	73-25/08	

- 3. Fault Confirmation
  - A. Test
    - (1) Do the operational test of the FADEC 1A on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).
- 4. Fault Isolation
  - A. Table of the circuit breakers used in this procedure:

PANEL DESIGNATION IDENT. LOCATION
49VU ENGINE/1/FADEC A/AND EIU 1 2KS1 A04

EFF: ALL

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### TROUBLE SHOOTING MANUAL

- B. If the fault symptom is identified by the upper ECAM warning ENG1 FADEC A FAULT and the test of the FADEC 1A gives no maitenance message:
  - disconnect the connector J1 from the ECU (4000KS) and do a check for 28VDC at pin J1/13 with the FADEC GND PWR pushbutton switch released (the ON legend is on).
  - (1) If there is 28VDC:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (2) If there is no 28VDC:
    - do a check for 28VDC at EIU 1 (1KS1) pin AC/11 (Ref. ASM 73-25/05).
    - (a) If there is 28VDC:
      - do a check for open or short to ground at the harness J1 between the EIU 1 (1KS1) and the ECU (4000KS), pin AC/7 to pin J1/13. Replace the harness J1 if necessary.
      - 1 If the fault continues:
        - make sure that there is no ground signal at EIU 1 (1KS1) pin AA/5B (Ref. ASM 73-25/08).
      - 2 If the fault continues:
        - replace the EIU-1 (1KS1) (Ref. AMM TASK 73-25-34-000-040) and (Ref. AMM TASK 73-25-34-400-040).
    - (b) If there is no 28VDC:
      - do a check for open or short to ground at the aircraft wiring between the circuit breaker (2KS1) and EIU 1 (1KS1) pin AC/11.
      - 1 If there is a short to ground: - repair the above wiring.
        - · -

2 If there is no short to ground:

- replace the C/B-ENGINE/1/FADEC A/AND EIU 1 (2KS1).
- (c) Make sure that 28VDC supplies the ESS bus (Ref. ASM 73-25/05).
- C. Do the minimum idle check (Ref. AMM TASK 71-00-00-710-006).

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# **@A319/A320/A321**

### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-875

Loss of the Channel A of the FADEC on Engine 1

#### 1. Possible Causes

- harness J9
- ECU (4000KS)
- control alternator

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-30-000-002	Removal of the Control Alternator
AMM	73-21-30-400-002	Installation of the Control Alternator
AMM	73-21-50-000-008	Removal of the J9 Harness
AMM	73-21-50-400-008	Installation of the J9 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)(4000KS)
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
ASM	73-25/18	

#### 3. Fault Confirmation

#### A. Test

(1) Do the operational test of the FADEC 1A on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).

#### 4. Fault Isolation

- A. If the fault symptom is identified by:
  - the upper ECAM warning ENG1 FADEC A FAULT
  - no CFDS maintenance message after the test of the FADEC 1A
  - the crew observation N2 higher than 15% on ground or in flight
  - (1) do a check for open or short to ground of the harness J9 between the ECU (4000KS) and the control alternator pins J9/4, 5, 13, 14, 15 to pins J9/2, 3, 4, 5 (Ref. ASM 73-25/18).
    - (a) If the wiring is not correct:
      - repair the above wiring.

EFF: ALL 77-00-00

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### TROUBLE SHOOTING MANUAL

- (b) If the wiring is correct:
  - disconnect the harness J9 from the ECU (4000KS) and do a check of the ECU cable resistance between:
    - pins 5 and 13 (< 1 0hm)</pre>
    - pins 5 and 14 (< 1 0hm)</pre>
    - pins 5 and 15 (< 1 0hm)</pre>
    - . pins 5 and 4 (> 10 Megohms)
    - . pin 5 and the ground (> 10 Megohms).
  - 1 If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - 2 If the resistance values are out of the specified limits:
    - disconnect the harness J9 from the control alternator and do a check of the alternator resistance at between:
      - . pins 2 and 5 (< 1 0hm)</pre>
      - . pins 3 and 5 (< 1 0hm)
      - pins 4 and 5 (< 1 0hm)</pre>
      - . pin 5 and the ground (> 10 Megohms).
    - a If the resistance values are in the specified limits:
      - replace the harness J9 (Ref. AMM TASK 73-21-50-000-008) and (Ref. AMM TASK 73-21-50-400-008).
    - b If the resistance values are out of the specified limits:
      - replace the control alternator (Ref. AMM TASK 73-21-30-000-002) and (Ref. AMM TASK 73-21-30-400-002).
- B. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

EFF: ALL

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# **@A319/A320/A321**

### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-876

Loss of the Channel B of the FADEC on Engine 1

- 1. Possible Causes
  - EIU-1 (1KS1)
  - ECU (4000KS)
  - harness J2
  - aircraft wiring
  - C/B-ENGINE/ENG 1/FADEC B/AND EIU 1 (4KS1)
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>
AMM	73-25-34-000-040	Removal of the Engine Interface Unit (EIU) (1KS1,1KS2)
AMM	73-25-34-400-040	<pre>Installation of the Engine Interface Unit (EIU) (1K\$1,1K\$2)</pre>
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
ASM	73-25/05	
ASM	73-25/08	

- 3. Fault Confirmation
  - A. Test
    - (1) do the operational test of the FADEC 1B on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).
- 4. Fault Isolation
  - A. Table of the circuit breakers used in this procedure:

PANEL DESIGNATION IDENT. LOCATION

121VU ENGINE/ENG1/FADEC B/AND EIU 1 4KS1 R41

EFF: ALL

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### TROUBLE SHOOTING MANUAL

- B. If the fault symptom is identified by the upper ECAM warning ENG1 FADEC B FAULT and the test of the FADEC 1B gives no maintenace message:
  - disconnect the connector J2 from the ECU (4000KS) and do a check for 28VDC at pin J2/13 with the FADEC GND PWR pushbutton switch released (the ON legend is on).
  - (1) If there is 28VDC:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (2) If there is no 28VDC:
    - do a check for 28VDC at EIU 1 (1KS1) pin AC/9 (Ref. ASM 73-25/05).
    - (a) If there is 28VDC:
      - do a check for open or short to ground at the harness J2 between the EIU 1 (1KS1) and the ECU (4000KS), pin AC/2 to pin J2/13. Replace the harness J2 if necessary.
      - 1 If the fault continues:
        - make sure that there is no ground signal at EIU 1 (1KS1) pin AA/5B (Ref. ASM 73-25/08).
      - 2 If the fault continues:
        - replace the EIU-1 (1KS1) (Ref. AMM TASK 73-25-34-000-040) and (Ref. AMM TASK 73-25-34-400-040).
    - (b) If there is no 28VDC:
      - do a check for open or short to ground at the aircraft wiring between the circuit breaker (4KS1) and EIU 1 (1KS1) pin AC/9.
      - 1 If there is a short to ground:
        - repair the above wiring.
      - 2 If there is no short to ground:
         replace the C/B-ENGINE/ENG 1/FADEC B/AND EIU 1 (4KS1).
    - (c) Make sure that 28VDC supplies the BAT bus (Ref. ASM 73-25/05).
- C. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

EFF:

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# *A319/A320/A3*

### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-877

Loss of the Channel B of the FADEC on Engine 1

### 1. Possible Causes

- harness J10
- ECU (4000KS)
- control alternator

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
	74 00 00 740 00/	Minimum Tello Chook
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-30-000-002	Removal of the Control Alternator
AMM	73-21-30-400-002	Installation of the Control Alternator
AMM	73-21-50-000-009	Removal of the J10 Harness
AMM	73-21-50-400-009	Installation of the J10 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
ASM	73-25/18	

#### 3. Fault Confirmation

- A. Test
  - (1) Do the operational test of the FADEC 1B on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).

#### 4. Fault Isolation

- A. If the fault symptom is idenfified by:
  - the upper ECAM warning ENG1 FADEC B FAULT
  - no CFDS maintenance message after the test of the FADEC 1B
  - the crew observation N2 higher than 15% on ground or in flight
  - (1) do a check for open or short to ground of the harness J10 between the ECU (4000KS) and the control alternator pins J10/4, 5, 13, 14, 15 to pins J10/2, 3, 4, 5 (Ref. ASM 73-25/18)
    - (a) If the wiring is not correct:
      - repair the above wiring.

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### TROUBLE SHOOTING MANUAL

- (b) If the wiring is correct:
  - disconnect the harness J10 from the ECU (4000KS) and do a check of the ECU cable resistance between:
    - pins 5 and 13 (< 1 0hm)</pre>
    - pins 5 and 14 (< 1 0hm)</pre>
    - pins 5 and 15 (< 1 0hm)
    - . pins 5 and 4 (> 10 Megohms)
    - . pin 5 and the ground (> 10 Megohms).
  - 1 If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - 2 If the resistance values are out of the specified limits:
    - disconnect the harness J10 from the control alternator and do a check of the alternator resistance between:
      - $\cdot$  pins 2 and 5 (< 1 0hm)
      - . pins 3 and 5 (< 1 0hm)
      - pins 4 and 5 (< 1 0hm)
      - . pin 5 and the ground (> 10 Megohms).
    - a If the resistance values are in the specified limits:
      - replace the harness J10 (Ref. AMM TASK 73-21-50-000-009)
         and (Ref. AMM TASK 73-21-50-400-009).
    - b If the resistance values are out of the specified limits:
      - replace the control alternator (Ref. AMM TASK 73-21-30-000-002) and (Ref. AMM TASK 73-21-30-400-002).
- B. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-878

Loss of the Channel A of the FADEC on Engine 2

- 1. Possible Causes
  - EIU-2 (1KS2)
  - ECU (4000KS)
  - harness J1
  - aircraft wiring
  - C/B-ENGINE/2/FADEC A/AND EIU 2 (2KS2)
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>
AMM	73-25-34-000-040	Removal of the Engine Interface Unit (EIU) (1KS1,1KS2)
AMM	73-25-34-400-040	<pre>Installation of the Engine Interface Unit (EIU) (1K\$1,1K\$2)</pre>
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
ASM	73-25/05	
ASM	73-25/08	

- 3. Fault Confirmation
  - A. Test
    - (1) Do the operational test of the FADEC 2A on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).
- 4. Fault Isolation
  - A. Table of the circuit breakers used in this procedure:

PANEL DESIGNATION IDENT. LOCATION
49VU ENGINE/2/FADEC A/AND EIU 2 2KS2 A05

EFF: ALL

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### TROUBLE SHOOTING MANUAL

- B. If the fault symptom is identified by the upper ECAM warning ENG2 FADEC A FAULT and the test of the FADEC 2A gives no maintenace message:
  - disconnect the connector J1 from the ECU (4000KS) and do a check for 28VDC at pin J1/13 with the FADEC GND PWR pushbutton switch released (the ON legend is on).
  - (1) If there is 28VDC:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (2) If there is no 28VDC:
    - do a check for 28VDC at EIU 2 (1KS2) pin AC/11 (Ref. ASM 73-25/05).
    - (a) If there is 28VDC:
      - do a check for open or short to ground at the harness J1 between the EIU 2 (1KS2) and the ECU (4000KS), pin AC/7 to pin J1/13. Replace the harness J1 if necessary.
      - 1 If the fault continues:
        - make sure that there is no ground signal at EIU 2 (1KS2) pin AA/5B (Ref. ASM 73-25/08).
      - 2 If the fault continues:
        - replace the EIU-2 (1KS2) (Ref. AMM TASK 73-25-34-000-040) and (Ref. AMM TASK 73-25-34-400-040).
    - (b) If there is no 28VDC:
      - do a check for open or short to ground at the aircraft wiring between the circuit breaker (2KS2) and EIU 2 (1KS2) pin AC/11.
      - 1 If there is a short to ground:
        - repair the above wiring.
      - 2 If there is no short to ground:
        - replace the C/B-ENGINE/2/FADEC A/AND EIU 2 (2KS2).
    - (c) Make sure that 28VDC supplies the ESS bus (Ref. ASM 73-25/05).
- C. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

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## ) *A319/A320/A3*

### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-879

Loss of the Channel A of the FADEC on Engine 2

#### 1. Possible Causes

- harness J9
- ECU (4000KS)
- control alternator

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-30-000-002	Removal of the Control Alternator
AMM	73-21-30-400-002	Installation of the Control Alternator
AMM	73-21-50-000-008	Removal of the J9 Harness
AMM	73-21-50-400-008	Installation of the J9 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
ASM	73-25/18	

#### 3. Fault Confirmation

#### A. Test

(1) Do the operational test of the FADEC 2A on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).

#### 4. Fault Isolation

- A. If the fault symptom is identified by:
  - the upper ECAM warning ENG2 FADEC A FAULT
  - no CFDS maintenance message after the test of the FADEC 2A
  - the crew observation N2 higher than 15% on ground or in flight
  - (1) do a check for open or short to ground of the harness J9 between the ECU (4000KS) and the control alternator pins J9/4, 5, 13, 14, 15 to pins J9/2, 3, 4, 5 (Ref. ASM 73-25/18).
    - (a) If the wiring is not correct:
      - repair the above wiring.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

- (b) If the wiring is correct:
  - disconnect the harness J9 from the ECU (4000KS) and do a check of the ECU cable resistance between:
    - pins 5 and 13 (< 1 0hm)</pre>
    - pins 5 and 14 (< 1 0hm)</pre>
    - pins 5 and 15 (< 1 0hm)</pre>
    - pins 5 and 4 (> 10 Megohms)
    - . pin 5 and the ground (> 10 Megohms).
  - $\underline{1}$  If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - 2 If the resistance values are out of the specified limits:
    - disconnect the harness J9 from the control alternator and do a check of the alternator resistance between:
      - . pins 2 and 5 (< 1 0hm)</pre>
      - . pins 3 and 5 (< 1 0hm)</pre>
      - pins 4 and 5 (< 1 0hm)

pin 5 and the ground (> 10 Megohms).

- a If the resistance values are in the specified limits:
  - replace the harness J9 (Ref. AMM TASK 73-21-50-000-008) and (Ref. AMM TASK 73-21-50-400-008).
- b If the resistance values are out of the specified limits:
  - replace the control alternator (Ref. AMM TASK 73-21-30-000-002) and (Ref. AMM TASK 73-21-30-400-002).
- B. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-880

Loss of the Channel B of the FADEC on Engine 2

- 1. Possible Causes
  - EIU-2 (1KS2)
  - ECU (4000KS)
  - harness J2
  - aircraft wiring
  - C/B-ENGINE/ENG 2/FADEC B (4KS2)
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>
AMM	73-25-34-000-040	Removal of the Engine Interface Unit (EIU) (1KS1,1KS2)
AMM	73-25-34-400-040	<pre>Installation of the Engine Interface Unit (EIU) (1K\$1,1K\$2)</pre>
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
ASM	73-25/05	-
ASM	73-25/08	

- 3. Fault Confirmation
  - A. Test
    - (1) Do the operational test of the FADEC 2B on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).
- 4. Fault Isolation
  - A. Table of the circuit breakers used in this procedure:

PANEL DESIGNATION IDENT. LOCATION

121VU ENGINE/ENG2/FADEC B 4KS2 Q40

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

- B. If the fault symptom is identified by the upper ECAM warning ENG2 FADEC B
  FAULT:
  - disconnect the connector J2 from the ECU (4000KS) and do a check for 28VDC at pin J2/13 with the FADEC GND PWR pushbutton switch released (the ON legend is on).
  - (1) If there is 28VDC:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (2) If there is no 28VDC:
    - do a check for 28VDC at EIU 2 (1KS2) pin AC/9 (Ref. ASM 73-25/05).
    - (a) If there is 28VDC:
      - do a check for open or short to ground at the harness J2 between the EIU 2 (1KS2) and the ECU (4000KS), pin AC/2 to pin J2/13. Replace the harness J2 if necessary.
      - 1 If the fault continues:
        - make sure that there is no ground signal at EIU 2 (1KS2) pin AA/5B (Ref. ASM 73-25/08).
      - 2 If the fault continues:
        - replace the EIU-2 (1KS2) (Ref. AMM TASK 73-25-34-000-040) and (Ref. AMM TASK 73-25-34-400-040).
    - (b) If there is no 28VDC:
      - do a check for open or short to ground at the aircraft wiring between the circuit breaker (4KS2) and EIU 2 (1KS2) pin AC/9.
      - 1 If there is a short to ground:
        - repair the above wiring.
      - 2 If there is no short to ground:
        - replace the C/B-ENGINE/ENG 2/FADEC B (4KS2).
    - (c) Make sure that 28VDC supplies the BUS 2 (Ref. ASM 73-25/05).
- C. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

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# *A319/A320/A3*

### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-881

Loss of the Channel B of the FADEC on Engine 2

#### 1. Possible Causes

- harness J10
- ECU (4000KS)
- alternator

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
A MM	74 00 00 740 00/	Minimum Tello Chanle
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-30-000-002	Removal of the Control Alternator
AMM	73-21-30-400-002	Installation of the Control Alternator
AMM	73-21-50-000-009	Removal of the J10 Harness
AMM	73-21-50-400-009	Installation of the J10 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
ASM	73-25/18	

#### 3. Fault Confirmation

#### A. Test

(1) Do the operational test of the FADEC 2B on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).

#### 4. Fault Isolation

- A. If the fault symptom is identified by:
  - the upper ECAM warning ENG2 FADEC B FAULT
  - no CFDS maintenance message after the test of the FADEC 2B
  - the crew observation N2 higher than 15% on ground or in flight
  - (1) do a check for open or short to ground of the harness J10 between the ECU (4000KS) and the control alternator pins J10/4, 5, 13, 14, 15 to pins J10/2, 3, 4, 5 (Ref. ASM 73-25/18).
    - (a) If the wiring is not correct:
      - repair the above wiring.

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#### TROUBLE SHOOTING MANUAL

- (b) If the wiring is correct:
  - disconnect the harness J10 from the ECU (4000KS) and do a check of the ECU cable resistance between:
    - pins 5 and 13 (< 1 0hm)</pre>
    - pins 5 and 14 (< 1 0hm)</pre>
    - pins 5 and 15 (< 1 0hm)</pre>
    - . pins 5 and 4 (> 10 Megohms)
    - . pin 5 and the ground (> 10 Megohms).
  - 1 If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - 2 If the resistance values are out of the specified limits:
    - disconnect the harness J10 from the control alternator and do a check of the alternator resistance between:
      - . pins 2 and 5 (< 1 0hm)
      - . pins 3 and 5 (< 1 0hm)
      - pins 4 and 5 (< 1 0hm)
      - . pin 5 and the ground (> 10 Megohms).
    - a If the resistance values are in the specified limits:
      - replace the harness J10 (Ref. AMM TASK 73-21-50-000-009) and (Ref. AMM TASK 73-21-50-400-009).
    - b If the resistance values are out of the specified limits:
      - replace the alternator (Ref. AMM TASK 73-21-30-000-002) and (Ref. AMM TASK 73-21-30-400-002).
- B. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

EFF: ALL

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## TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-882

Loss of the Channels A and B of the FADEC on Engine 1

### 1. Possible Causes

- EIU-1 (1KS1)
- ECU (4000KS)
- harnesses J1 and J2
- aircraft wirings
- C/B-ENGINE/1/FADEC A/AND EIU 1 (2KS1)
- C/B-ENGINE/ENG1/FADEC B/AND EIU 1(4KS1)

## 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>
AMM	73-25-34-000-040	Removal of the Engine Interface Unit (EIU) (1KS1,1KS2)
AMM	73-25-34-400-040	<pre>Installation of the Engine Interface Unit (EIU) (1KS1,1KS2)</pre>
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
ASM	73-25/05	
ASM	73-25/08	

### 3. Fault Confirmation

#### A. Test

(1) Do the operational test of the FADEC 1A and 1B on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

A. Table of the circuit breakers used in this procedure:

PANEL	DESIGNATION	IDENT.	LOCATION
49VU	ENGINE/1/FADEC A/AND EIU 1	2K\$1	A04
12 1VU	ENGINE/ENG1/FADEC B/AND EIU 1	4KS1	R41

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#### TROUBLE SHOOTING MANUAL

- B. If the fault symptom is identified by the upper ECAM warning ENG1 FADEC FAULT and the test of the FADEC 1A and 1B gives no manitenance message:
  - disconnect the connectors J1 and J2 from the ECU (4000KS) and do a check for 28VDC at pins J1 and J2 /13 with the FADEC GND PWR pushbutton switch released (the ON legend is on).
  - (1) If there is 28VDC:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (2) If there is no 28VDC:
    - do a check for 28VDC at EIU 1 (1KS1) pins AC/9, 11 (Ref. ASM 73-25/05).
    - (a) If there is 28VDC:
      - do a check for open or short to ground at the harnesses J1 and J2 between the EIU 1 (1KS1) and the ECU (4000KS), pin AC/7 to pin J1/13 and pin AC/2 to pin J2/13. Replace the harness J1 or J2 if necessary.
      - 1 If the fault continues:
        - make sure that there is no ground signal at EIU 1 (1KS1) pin AA/5B (Ref. ASM 73-25/08).
      - 2 If the fault continues:
        - replace the EIU-1 (1KS1) (Ref. AMM TASK 73-25-34-000-040) and (Ref. AMM TASK 73-25-34-400-040).
    - (b) If there is no 28VDC:
      - do a check for open or short to ground at the aircraft wirings between the circuit breakers (2KS1), (4KS1) and EIU 1 (1KS1) pin AC/9, 11.
      - 1 If there is a short to ground:
        - repair the defective wiring(s).
      - 2 If there is no short to ground:
        - replace the defective C/B-ENGINE/1/FADEC A/AND EIU 1 (2KS1) or the C/B-ENGINE/ENG1/FADEC B/AND EIU 1(4KS1).
    - (c) Make sure that 28VDC supplies the BAT and ESS buses (Ref. ASM 73-25/05).
- C. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

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## TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-883

Loss of the Channels A and B of the FADEC on Engine 1

## 1. Possible Causes

- harnesses J9 and J10
- ECU (4000KS)
- harness J9
- harness J10
- control alternator

## 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-30-000-002	Removal of the Control Alternator
AMM	73-21-30-400-002	Installation of the Control Alternator
AMM	73-21-50-000-008	Removal of the J9 Harness
AMM	73-21-50-000-009	Removal of the J10 Harness
AMM	73-21-50-400-008	Installation of the J9 Harness
AMM	73-21-50-400-009	Installation of the J10 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
ASM	73-25/18	

## 3. Fault Confirmation

#### A. Test

(1) Do the operational test of the FADEC 1A and 1B on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).

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### TROUBLE SHOOTING MANUAL

## 4. Fault Isolation

- A. If the fault symptom is identified by:
  - the upper ECAM warning ENG1 FADEC FAULT
  - no CFDS maintenance message after the test of the FADEC 1A and 1B
  - the crew observation N2 higher than 15% on ground or in flight
  - (1) do a check for open or short to ground of the harnesses J9 and J10 between the ECU (4000KS) and the control alternator pins J9 and J10 /4, 5, 13, 14, 15 to pins J9/2, 3, 4, 5 (Ref. ASM 73-25/18).
    - (a) If one of these wirings is not correct:
      - repair the defective above wiring(s).
    - (b) If these wirings are correct:
      - disconnect the harnesses J9 and J10 from the ECU (4000KS) and do a check of the ECU cables resistance between:
        - . pins 5 and 13 (< 1 0hm)</pre>
        - pins 5 and 14 (< 1 0hm)</pre>
        - . pins 5 and 15 (< 1 0hm)</pre>
        - pins 5 and 4 (> 10 Megohms)
        - . pin 5 and the ground (> 10 Megohms).
      - 1 If the resistance values are in the specified limits:
        - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
      - 2 If the resistance values are out of the specified limits:
        - disconnect the harnesses J9 and J10 from the control alternator and do a check of the alternator resistance at between:
          - $\cdot$  pins 2 and 5 (< 1 0hm)
          - $\cdot$  pins 3 and 5 (< 1 0hm)
          - . pins 4 and 5 (< 1 0hm)</pre>
          - . pin 5 and the ground (> 10 Megohms).
        - a If the resistance values are in the specified limits:
          - replace the defective harness J9 (Ref. AMM TASK 73-21-50-000-008) and (Ref. AMM TASK 73-21-50-400-008) or the harness J10 (Ref. AMM TASK 73-21-50-000-009) and (Ref. AMM TASK 73-21-50-400-009).
        - <u>b</u> If the resistance values are out of the specified limits: - replace the control alternator (Ref. AMM TASK 73-21-30-000-002) and (Ref. AMM TASK 73-21-30-400-002).
- B. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

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# **@A319/A320/A321**

## TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-884

Loss of the Channels A and B of the FADEC on Engine 2

## 1. Possible Causes

- EIU-2 (1KS2)
- ECU (4000KS)
- harnesses J1 and J2
- aircraft wirings
- C/B-ENGINE/2/FADEC A/AND EIU 2 (2KS2)
- C/B-ENGINE/ENG2/FADEC B (4KS2)

## 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)(4000KS)
AMM	73-25-34-000-040	Removal of the Engine Interface Unit (EIU) (1KS1,1KS2)
AMM	73-25-34-400-040	<pre>Installation of the Engine Interface Unit (EIU) (1KS1,1KS2)</pre>
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
ASM	73-25/05	
ASM	73-25/08	

### 3. Fault Confirmation

#### A. Test

(1) Do the operational test of the FADEC 2A and 2B on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

A. Table of the circuit breakers used in this procedure:

PANEL	DESIGNATION	IDENT.	LOCATION
	ENGINE/2/FADEC A/AND EIU 2	2K\$2	A05
12 1VU	ENGINE/ENG2/FADEC B	4KS2	<b>Q4</b> 0

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#### TROUBLE SHOOTING MANUAL

- B. If the fault symptom is identified by the upper ECAM warning ENG2 FADEC FAULT and the test of the FADEC 2A and 2B gives no maintenance message:
  - disconnect the connectors J1 and J2 from the ECU (4000KS) and do a check for 28VDC at pins J1 and J2 /13 with the FADEC GND PWR pushbutton switch released (the ON legend is on).
  - (1) If there is 28VDC:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (2) If there is no 28VDC:
    - do a check for 28VDC at EIU 2 (1KS2) pins AC/9, 11 (Ref. ASM 73-25/05).
    - (a) If there is 28VDC:
      - do a check for open or short to ground at the harnesses J1 and J2 between the EIU 2 (1KS2) and the ECU (4000KS), pin AC/7 to pin J1/13 and pin AC/2 to pin J2/13. Replace the harness J1 or J2 if necessary.
      - 1 If the fault continues:
        - make sure that there is no ground signal at EIU 2 (1KS2) pin AA/5B (Ref. ASM 73-25/08).
      - 2 If the fault continues:
        - replace the EIU-2 (1KS2) (Ref. AMM TASK 73-25-34-000-040) and (Ref. AMM TASK 73-25-34-400-040).
    - (b) If there is no 28VDC:
      - do a check for open or short to ground at the aircraft wirings between the circuit breakers (2KS2), (4KS2) and EIU 2 (1KS2) pin AC/9, 11.
      - $\underline{1}$  If there is a short to ground:
        - repair the defective wiring(s).
      - 2 If there is no short to ground:
        - replace the defective C/B-ENGINE/2/FADEC A/AND EIU 2 (2KS2) or the C/B-ENGINE/ENG2/FADEC B (4KS2).
    - (c) Make sure that 28VDC supplies the BAT and ESS buses (Ref. ASM 73-25/05).
- C. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

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## TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-885

Loss of the Channels A and B of the FADEC on Engine 2

## 1. Possible Causes

- harnesses J9 and J10
- ECU (4000KS)
- harness J9
- harness J10
- control alternator

## 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-006	Minimum Idle Check
AMM	73-21-30-000-002	Removal of the Control Alternator
AMM	73-21-30-400-002	Installation of the Control Alternator
AMM	73-21-50-000-008	Removal of the J9 Harness
AMM	73-21-50-000-009	Removal of the J10 Harness
AMM	73-21-50-400-008	Installation of the J9 Harness
AMM	73-21-50-400-009	Installation of the J10 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)(4000KS)
AMM	73-29-00-710-040	Operational Test of the FADEC on the ground (with Engine Motoring)
ASM	73-25/18	

## 3. Fault Confirmation

#### A. Test

(1) Do the operational test of the FADEC 2A and 2B on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).

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### TROUBLE SHOOTING MANUAL

## 4. Fault Isolation

- A. If the fault symptom is identified by:
  - the upper ECAM warning ENG2 FADEC FAULT
  - no CFDS maintenance message after the test of the FADEC 2A and 2B
  - the crew observation N2 higher than 15% on ground or in flight
  - (1) do a check for open or short to ground of the harnesses J9 and J10 between the ECU (4000KS) and the control alternator pins J9 and J10 /4, 5, 13, 14, 15 to pins J9/2, 3, 4, 5 (Ref. ASM 73-25/18).
    - (a) If one of these wirings is not correct:
      - repair the defective wiring(s).
    - (b) If these wirings are correct:
      - disconnect the harnesses J9 and J10 from the ECU (4000KS) and do a check of the ECU cables resistance between:
        - . pins 5 and 13 (< 1 0hm)</pre>
        - pins 5 and 14 (< 1 0hm)</pre>
        - . pins 5 and 15 (< 1 0hm)</pre>
        - pins 5 and 4 (> 10 Megohms)
        - . pin 5 and the ground (> 10 Megohms).
      - 1 If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
      - 2 If the resistance values are out of the specified limits:
        - disconnect the harnesses J9 and J10 from the control alternator and do a check of the alternator resistance at between:
          - $\cdot$  pins 2 and 5 (< 1 0hm)
          - $\cdot$  pins 3 and 5 (< 1 0hm)
          - . pins 4 and 5 (< 1 0hm)</pre>
          - . pin 5 and the ground (> 10 Megohms).

and (Ref. AMM TASK 73-21-60-400-001).

- a If the resistance values are in the specified limits:
  - replace the defective harness J9 (Ref. AMM TASK 73-21-50-000-008) and (Ref. AMM TASK 73-21-50-400-008) or the harness J10 (Ref. AMM TASK 73-21-50-000-009) and (Ref. AMM TASK 73-21-50-400-009).
- <u>b</u> If the resistance values are out of the specified limits: - replace the control alternator (Ref. AMM TASK 73-21-30-000-002) and (Ref. AMM TASK 73-21-30-400-002).
- B. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-886

Loss of the Data on ARINC Bus from the EIU to the FADEC on Engine 1

### 1. Possible Causes

- EIU-1 (1KS1)
- harness J3 between the EIU (1KS1) and the ECU (4000KS)
- CONT-ZONE TEMPERATURE (8HK)
- ECU (4000KS)
- ECAM WARNING NO FURTHER ACTION REQUIRED
- R ACSC (47HH, 57HH)

### 2. Job Set-up Information

A. Referenced Information

	REFE	RENCE	DESIGNATION
R R	AMM	21-61-34-000-002	Removal of the Air-Conditioning System Controller (47HH, 57HH)
R R	AMM	21-61-34-400-002	<pre>Installation of the Air-Conditioning System Controller (47HH, 57HH)</pre>
	AMM	21-63-34-000-001	Removal of the Zone Controller (8HK)
	AMM	21-63-34-400-001	Installation of the Zone Controller (8HK)
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
	AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>
	AMM	73-25-34-000-040	Removal of the Engine Interface Unit (EIU) (1KS1,1KS2)
	AMM	73-25-34-400-040	<pre>Installation of the Engine Interface Unit (EIU) (1K\$1,1K\$2)</pre>
	AMM	73-25-34-710-040	Operational Test of the Engine Interface Unit (1KS1,1KS2)
	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine non Motoring)
	ASM	73-25/06	<b>3 3</b> .

## 3. Fault Confirmation

#### A. Test

- (1) Do the operational test of the Engine Interface Unit (EIU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 73-25-34-710-040).
- (2) Do the operational test of the FADEC 1A and 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

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### TROUBLE SHOOTING MANUAL

## 4. Fault Isolation

R \*\*ON A/C 201-225, 227-227, 229-275, 282-299, 426-455, 478-499, 503-549, R 551-599, 701-749,

- A. If the fault symptom is identified by the upper ECAM warning ENG1 BLEED STATUS FAULT and the tests of the EIU and FADEC give no maintenance messages:
  - do a check for open or short to ground of the harness J3 between the EIU (1KS1) and the ECU (4000KS) pins AB/5A, 5C to pins J3/22, 23 (Ref. ASM 73-25/06).
  - (1) If the wiring is not correct:
    - repair the above wiring.
  - (2) If the wiring is correct:
    - replace the EIU-1 (1K\$1) (Ref. AMM TASK 73-25-34-000-040) and (Ref. AMM TASK 73-25-34-400-040).
  - (3) If the fault continues:
    - replace the CONT-ZONE TEMPERATURE (8HK) (Ref. AMM TASK 21-63-34-000-001) and (Ref. AMM TASK 21-63-34-400-001).
  - (4) If the fault continues:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

\*\*ON A/C 276-281, 476-477,

A. If the fault symptom is identified by the upper ECAM warning ENG1 BLEED STATUS FAULT and the tests of the EIU and FADEC give no maintenance messages:

ECAM WARNING - NO FURTHER ACTION REQUIRED.

\*\*ON A/C 456-475,

- A. If the fault symptom is identified by the upper ECAM warning ENG1 BLEED STATUS FAULT and the tests of the EIU and FADEC give no maintenance messages:
  - do a check for open or short to ground of the harness J3 between the EIU (1KS1) and the ECU (4000KS) pins AB/5A, 5C to pins J3/22, 23 (Ref. ASM 73-25/06).
  - (1) If the wiring is not correct:
    - repair the above wiring.
  - (2) If the wiring is correct:
    - replace the EIU-1 (1KS1) (Ref. AMM TASK 73-25-34-000-040) and (Ref. AMM TASK 73-25-34-400-040).

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## TROUBLE SHOOTING MANUAL

R	(3) If the fault continues:
R	- replace the ACSC (47HH, 57HH) (Ref. AMM TASK 21-61-34-000-002) and
R	(Ref. AMM TASK 21-61-34-400-002).
R R	(4) If the fault continues: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref

AMM TASK 73-21-60-400-001).

EFF : 456-475, SROS 77-00-00

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## TROUBLE SHOOTING MANUAL

\*\*ON A/C ALL

TASK 77-00-00-810-887

Loss of the Data on ARINC Bus from the EIU to the FADEC on Engine 2

### 1. Possible Causes

- EIU-2 (1KS2)
- harness J3 between the EIU (1KS2) and the ECU (4000KS)
- CONT-ZONE TEMPERATURE (8HK)
- ECU (4000KS)
- ECAM WARNING NO FURTHER ACTION REQUIRED
- ACSC (47HH, 57HH)

### 2. Job Set-up Information

A. Referenced Information

	REFERENCE		DESIGNATION
R R	AMM	21-61-34-000-002	Removal of the Air-Conditioning System Controller (47HH, 57HH)
R R	AMM	21-61-34-400-002	Installation of the Air-Conditioning System Controller (47HH, 57HH)
	AMM	21-63-34-000-001	Removal of the Zone Controller (8HK)
	AMM	21-63-34-400-001	Installation of the Zone Controller (8HK)
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
	AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)(4000KS)
	AMM	73-25-34-000-040	Removal of the Engine Interface Unit (EIU) (1KS1,1KS2)
	AMM	73-25-34-400-040	Installation of the Engine Interface Unit (EIU) (1KS1,1KS2)
	AMM	73-25-34-710-040	Operational Test of the Engine Interface Unit (1KS1,1KS2)
	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine non Motoring)
	ASM	73-25/06	

### 3. Fault Confirmation

#### A. Test

(1) Do the operational test of the Engine Interface Unit (EIU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 73-25-34-710-040).

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- (2) Do the operational test of the FADEC 2A and 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).
- 4. Fault Isolation
- R \*\*ON A/C 201-225, 227-227, 229-275, 282-299, 426-455, 478-499, 503-549, R 551-599, 701-749,
  - A. If the fault symptom is identified by the upper ECAM warning ENG2 BLEED STATUS FAULT and the tests of the EIU and FADEC give no maintenance messages:
    - do a check for open or short to ground of the harness J3 between the EIU (1KS2) and the ECU (4000KS) pins AB/5A, 5C to pins J3/22, 23 (Ref. ASM 73-25/06).
    - (1) If the wiring is not correct:
       repair the above wiring.
    - (2) If the wiring is correct:
      - replace the EIU-2 (1KS2) (Ref. AMM TASK 73-25-34-000-040) and (Ref. AMM TASK 73-25-34-400-040).
    - (3) If the fault continues:
      - replace the CONT-ZONE TEMPERATURE (8HK) (Ref. AMM TASK 21-63-34-000-001) and (Ref. AMM TASK 21-63-34-400-001).
    - (4) If the fault continues:
      - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

\*\*ON A/C 276-281, 476-477,

A. If the fault symptom is identified by the upper ECAM warning ENG2 BLEED STATUS FAULT and the tests of the EIU and FADEC give no maintenance messages:

ECAM WARNING - NO FURTHER ACTION REQUIRED.

\*\*ON A/C 456-475,

- A. If the fault symptom is identified by the upper ECAM warning ENG2 BLEED STATUS FAULT and the tests of the EIU and FADEC give no maintenance messages:
  - do a check for open or short to ground of the harness J3 between the EIU (1KS2) and the ECU (4000KS) pins AB/5A, 5C to pins J3/22, 23 (Ref. ASM 73-25/06).
  - (1) If the wiring is not correct:
     repair the above wiring.

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	<u> </u>	
R	(2)	If the wiring is correct:
R		- replace the EIU-2 (1KS2) (Ref. AMM TASK 73-25-34-000-040) and (Ref.
R		AMM TASK 73-25-34-400-040).
R	(3)	If the fault continues:
R		- replace the ACSC (47HH, 57HH) (Ref. AMM TASK 21-61-34-000-002) and
R		(Ref. AMM TASK 21-61-34-400-002).
R	(4)	If the fault continues:
R		- replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref.

AMM TASK 73-21-60-400-001).

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## TROUBLE SHOOTING MANUAL

\*\*ON A/C ALL

TASK 77-00-00-810-888

Failure of the Starter Shutoff Valve on Engine 1

## 1. Possible Causes

- starter shutoff valve (SAV)
- starter
- harness J9
- harness J10
- ECU (4000KS)

## 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
AMM	73-21-50-000-008	Removal of the J9 Harness
AMM	73-21-50-000-009	Removal of the J10 Harness
AMM	73-21-50-400-008	Installation of the J9 Harness
AMM	73-21-50-400-009	Installation of the J10 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)(4000KS)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine non Motoring)
AMM	80-11-10-000-001	Removal of the Pneumatic Starter
AMM	80-11-10-400-001	Installation of the Pneumatic Starter
AMM	80-11-20-000-001	Removal of the Starter Shutoff Valve
AMM	80-11-20-400-001	Installation of the Starter Shutoff Valve

## 3. Fault Confirmation

### A. Test

(1) Do the operational test of the FADEC 1A and 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

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## 4. Fault Isolation

- A. If the fault symptom is identified by the upper ECAM warning START AIR, SAV and the test of the FADEC 1A and 1B gives no CFDS maintenance message:
  - (1) If, since the last engine shut down, there has been icing conditions, do the actions that follow:

NOTE: It is possible that the starter air valve P/N 3290064-17 or 3290064-20 (single actuator valves) is frozen, specially during the first start of the day and thus causes the triggering of the E/W "ENG 1 START VALVE FAULT - START VALVE NOT OPEN".

- (a) Open access door on the fan cowl: 438CR and 437BL.
- (b) Actuate the SAV flapper.

<u>CAUTION</u>: FULL OPENING OF THE SAV CAN CAUSE DAMAGE TO THE SAV DIAPHRAGMS WHEN NO AIR PRESSURE IS IN THE CIRCUIT. IT IS THUS RECOMMENDED TO ACTUATE THE SAV FLAPPER NO MORE THAN 30 DEG IN ORDER TO CHECK ITS FREE OPENING/CLOSING.

- Push the wrench button and then turn the manual handle clockwise by 30 degrees maximum (to prevent damage to the internal SAV diaphragms) to put the valve in a not fully open position.
- (c) If the manual override is seized or difficult to turn.

<u>CAUTION</u>: DURING THE HEATING PHASE, DO NOT DIRECT THE HEAT FLOW TO THE SAV SOLENOID, J9/J10 CONNECTORS AND HARNESSES.

- Blow hot air at 30 DEG.C (86 DEG.F) in SAV air duct through the SAV access door.
- (d) Close the starter air valve.
- (e) Close access door on the fan cowl: 438CR and 449CR.
- (2) Do a check for open or short to ground at pins J9/11, 12 or J10/11, 12 of the harness J9 or J10 between the ECU (4000KS) and the stater shutoff valve.
  - (a) If the wiring is not correct:
    - repair the above wiring.
  - (b) If the wiring is correct:
    - disconnect the harness J9 or J10 from the ECU (4000KS) and do a check of the ECU resistance cable between:
      - . pins 11 and 12 (10 to 60 ohms).

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- If the resistance values are in the specified limits:

  do a check for low starter air duct pressure.
  - <u>a</u> If the starter air duct pressure is in the specified limits (11 PSI < P < 60 PSI):
    - replace the starter shutoff valve (SAV) (Ref. AMM TASK 80-11-20-000-001) (Ref. AMM TASK 80-11-20-400-001)
    - replace the starter (Ref. AMM TASK 80-11-10-000-001)
       (Ref. AMM TASK 80-11-10-400-001).
- 2 If the resistance values are out of the specified limits:
  - remove the harness J9 or J10 from SAV and do a check of the SAV resistance between:
    - . pins 1 and 2 (10 to 60 ohms).
    - a If the resistance values are in the specified limits:
      - replace the harness J9 (Ref. AMM TASK 73-21-50-000-008)
         (Ref. AMM TASK 73-21-50-400-008) or
      - replace the harness J10 (Ref. AMM TASK 73-21-50-000-009)
         (Ref. AMM TASK 73-21-50-400-009).
    - b If the resistance values are out of the specified limits:
      - replace the starter shutoff valve (SAV) (Ref. AMM TASK 80-11-20-000-001) (Ref. AMM TASK 80-11-20-400-001).
    - c If the fault continues:
      - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) (Ref. AMM TASK 73-21-60-400-001).
- B. Do the test given in Para. 3.A.(1).

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## $\mathsf{C}\ \mathsf{F}\ \mathsf{M}$

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-889

Failure of the Starter Shutoff Valve on Engine 2

#### 1. Possible Causes

- starter shutoff valve (SAV)
- starter
- harness J9
- harness J10
- ECU (4000KS)

### 2. Job Set-up Information

A. Referenced Information

REFE	RENCE	DESIGNATION	
AMM	73-21-50-000-008	Removal of the J9 Harness	
AMM	73-21-50-000-009	Removal of the J10 Harness	
AMM	73-21-50-400-008	Installation of the J9 Harness	
AMM	73-21-50-400-009	Installation of the J10 Harness	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)(4000KS)	
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine non Motoring)	
AMM	80-11-10-000-001	Removal of the Pneumatic Starter	
AMM	80-11-10-400-001	Installation of the Pneumatic Starter	
AMM	80-11-20-000-001	Removal of the Starter Shutoff Valve	
AMM	80-11-20-400-001	Installation of the Starter Shutoff Valve	

### 3. Fault Confirmation

#### A. Test

(1) Do the operational test of the FADEC 2A and 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

- A. If the fault sypmtom is identified by the upper ECAM warning START AIR, SAV and the test of the FADEC 2A and 2B gives no CFDS maintenance message:
  - (1) If, since the last engine shut down, there has been icing conditions, do the actions that follow:

 $\underline{{\tt NOTE}}$ : It is possible that the starter air valve P/N 3290064-17 or 3290064-20 (single actuator valve) is frozen, specially during

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the first start of the day and thus cause the triggering of the E/W "ENG 2 START VALVE FAULT - START VALVE NOT OPEN"

- (a) Open access door on the fan cowl: 448CR and 447BL.
- (b) Actuate the SAV flapper.

CAUTION: FULL OPENING OF THE SAV CAN CAUSE DAMAGE TO THE SAV DIAPHRAGMS WHEN NO AIR PRESSURE IS IN THE CIRCUIT. IT IS THUS RECOMMENDED TO ACTUATE THE SAV FLAPPER NO MORE THAN 30 DEG IN ORDER TO CHECK ITS FREE OPENING/CLOSING.

- Push the wrench button and then turn the manual handle clockwise by 30 degrees maximum (to prevent damage to the internal SAV diaphragms) to put the valve in a not fully open position.
- (c) If the manual override is seized or difficult to turn.

<u>CAUTION</u>: DURING THE HEATING PHASE, DO NOT DIRECT THE HEAT FLOW TO THE SAV SOLENOID, J9/J10 CONNECTORS AND HARNESSES.

- Blow hot air at 30 DEG.C (86 DEG.F) in SAV air duct through the SAV access door.
- (d) Close the starter air valve
- (e) Close access door on the fan cowl : 437BL and 447BL.
- (2) Do a check for open or short to ground at pins J9/11, 12 or J10/11, 12 of the harness J9 or J10 between the ECU (4000KS) and the starter shutoff valve.
  - (a) If the wiring is not correct:
    - repair the above wiring.
  - (b) If the wiring is correct:
    - disconnect the harness J9 or J10 from the ECU (4000KS) and do a check of the ECU resistance cable between:
      - . pins 11 and 12 (10 to 60 0hms).
    - 1 If the resistance values are in the specified limits:

      do a check for low starter air duct pressure.
      - a If the starter air duct pressure is in the specified limits (11 PSI < P < 60 PSI):</p>
        - replace the starter shutoff valve (SAV) (Ref. AMM TASK 80-11-20-000-001) (Ref. AMM TASK 80-11-20-400-001)
        - replace the starter (Ref. AMM TASK 80-11-10-000-001)
           (Ref. AMM TASK 80-11-10-400-001).

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- 2 If the resistance values are out of the specified limits:
  - remove the harness J9 or J10 from SAV and do a check of the SAV resistance between:
    - . pins 1 and 2 (10 to 60 0hms).
  - a If the resistance values are in the specified limits:
    - replace the harness J9 (Ref. AMM TASK 73-21-50-000-008)
       (Ref. AMM TASK 73-21-50-400-008) or
    - replace the harness J10 (Ref. AMM TASK 73-21-50-000-009)
       (Ref. AMM TASK 73-21-50-400-009).
  - b If the resistance values are out of the specified limits:
    - replace the starter shutoff valve (SAV) (Ref. AMM TASK 80-11-20-000-001) (Ref. AMM TASK 80-11-20-400-001).
  - c If the fault continues:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
       (Ref. AMM TASK 73-21-60-400-001).
- B. Do the test given in Para. 3.A.(1)

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-890

- R Type Disagree between Engine 1 and Engine 2 or between Engines and Aircraft Pin R Programming
  - 1. Possible Causes
    - Identification Connector
  - 2. Job Set-up Information
    - A. Referenced Information

	REFERENCE		DESIGNATION		
	AMM	31-32-00-860-012	Procedure to Get Access to the SYSTEM REPORT/TEST/ENG Page		
	AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)(4000KS)		
	AMM	73-21-90-000-002	Removal of the Engine Identification Connector		
	AMM	73-21-90-400-002	Installation of the Engine Identification Connector		
R R	AMM	73-21-90-860-001	Programming of the Identification Plug (Push-Pull Design)		
R R	AMM	73-21-90-860-001	Programming of the Identification Plug (Push-Pull Design)		
	SIL	73-019	-		

### 3. Fault Confirmation

\*\*ON A/C 201-225, 240-240, 254-275, 283-283, 451-475, 479-480, 503-549, 551-599,

#### A. Test

NOTE: This fault is generated if the installed engine thrust and/or bump rating is not correct.

- (1) On the MCDU, get the SYSTEM REPORT/TEST page (Ref. AMM TASK 31-32-00-860-012).
  - (a) Push the line key adjacent to the FADEC 1A(1B) for engine 1 or 2.
  - (b) Push the line key adjacent to the LRU identification.
  - (c) Check that both engines have the same thrust and bump rating (Ref. AMM TASK 73-21-60-400-001).

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R \*\*ON A/C 227-227, 229-239, 241-253, 276-282, 284-299, 426-450, 476-478, R 481-499, 701-749,

#### A. Test

NOTE : This fault is generated if the installed engine thrust and/or bump rating is not correct.

- (1) On the MCDU, get the SYSTEM REPORT/TEST page (Ref. AMM TASK 31-32-00-860-012).
  - (a) Push the line key adjacent to the FADEC 1A(1B) for engine 1 or 2.
  - (b) Push the line key adjacent to the LRU identification.
  - (c) Check that both engines have the same thrust and bump rating (Ref. AMM TASK 73-21-60-400-001).

\*\*ON A/C ALL

#### 4. Fault Isolation

- A. Do this procedure:
  - (1) If engines have not the same thrust and bump rating:
    - check engine configuration table to determine which rating is correct, and replace the Identification Connector (Ref. AMM TASK 73-21-90-000-002) and (Ref. AMM TASK 73-21-90-400-002).
  - (2) If both engines thrust and bump rating are the same:
    - check that both engines match the A/C type configuration:

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A/C MODEL	ENGINE MODEL
A318-111	CFM56-5B8/P
A318-112	CFM56-5B9/P
A319-111	CFM56-5B5
A319-111	CFM56-5B5/P
A319-112	CFM56-5B6
A319-112	CFM56-5B6/P
A319-112	CFM56-5B6/2
A319-112	
A319-115	CFM56-5B7
A319-115	CFM56-5B7/P 
A320-214	CFM56-5B4
A320-214	CFM56-5B4/P
A320-214	CFM56-5B4/2
A320-214	CFM56-5B4/2P
A320-215	CFM56-5B5/P
A320-216	CFM56-5B6/P
A321-111	CFM56-5B1
A321-111	CFM56-5B1/P
A321-111	CFM56-5B1/2P
A321-212	   CFM56-5B1
A321-212	CFM56-5B1/P
A321-212	CFM56-5B1/2P
A321-112	   CFM56-5B2
A321-112	CFM56-5B2/P
A321-213	   CFM56-5B2
A321-213	CFM56-5B2/P
A321-211	   CFM56-5B3/P
A321-211	CFM56-5B3/2P
A321-214	CFM56-5B4/P

- (3) For B4, B5 and B6 ratings, if there is no discrepancy between both engines, confirm the adequacy between the ID plug coding and aicraft type:
  - check the setting/position of the pins for the aircraft type to be considered (Ref. AMM TASK 73-21-90-860-001) or (Ref. AMM TASK 73-21-90-860-001).

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(4) If both engines have the same thrust rating and bump function, and match the A/C type configuration, make sure that the ECU software intermix configuration is correct.

 $\underline{\underline{\text{NOTE}}}$ : For ECU software intermix configuration refer to (Ref. SIL 73-019).

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R \*\*ON A/C 201-225, 227-227, 229-239, 241-282, 284-299, 426-499, 503-549, R 551-599, 701-749,

TASK 77-00-00-810-910

TO/GA Inputs Invalid on Engine 1

### 1. Possible Causes

- PO port on the ECU
- PS12 sense line
- LGCIU1 (5GA1)
- EIU-1 (1KS1)
- ECU (4000KS)
- ADIRU 1
- ADIRU 2

### 2. Job Set-up Information

A. Referenced Information

\_\_\_\_\_

\_\_\_\_\_\_

#### REFERENCE

#### **DESIGNATION**

73-25-00-810-916 AMM 73-21-60-000-001 AMM 73-21-60-400-001 Loss of Weight on Wheels Signal on the System 1
Removal of the Electronic Control Unit (ECU)
Installation of the Electronic Control Unit (ECU)

### 3. Fault Confirmation

- A. Test
  - (1) The fault cannot be confirmed by the ground test.

### 4. Fault Isolation

- A. This failure message will be set if the ECU cannot determine the take-off or go around state due to disagreement on flight/ground input signals.
  - (1) If the failure message ADC1+ADC2+LGCIU1 is displayed:
    - look at the Post Flight Report or the Last Leg Report for failure message EIU, LGCIU (WOW).
    - (a) If there is this message:
      - do the applicable trouble shooting procedure for this message (Ref. TASK 73-25-00-810-916).
      - 1 The fault may be caused by:
        - a blockage of the PO port on the ECU,
        - a blockage or leakage on the PS12 sense line,
        - an LGCIU1 (5GA1) system failure,

EFF: 201-225, 227-227, 229-239, 241-282, 284-299, 426-499, 503-549, 551-599, 701-749,

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- an EIU-1 (1KS1) or an ECU (4000KS) internal failure.
- (b) If there is not this message:
  - look for failure message relative to ADIRU 1 or ADIRU 2 or pitot or static probes.
  - $\underline{1}$  If there is a message:
    - do the applicable trouble shooting procedure.
  - 2 If there is no message:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- B. No additional maintenance action is required if the fault is not confirmed.
  - (1) Repeat the fault isolation procedure if the fault continues.

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-911

TO/GA Inputs Invalid on Engine 2

#### 1. Possible Causes

- PO port on the ECU
- PS12 sense line
- LGCIU2 (5GA2)
- EIU-2 (1KS2)
- ECU (4000KS)
- ADIRU 1
- ADIRU 2

### 2. Job Set-up Information

A. Referenced Information

-----

#### REFERENCE

#### DESIGNATION

73-25-00-810-917 AMM 73-21-60-000-001 AMM 73-21-60-400-001 Loss of Weight on Wheels Signal on the System 2
Removal of the Electronic Control Unit (ECU)
Installation of the Electronic Control Unit (ECU)

#### 3. Fault Confirmation

- A. Test
  - (1) The fault cannot be confirmed by the ground test.

### 4. Fault Isolation

- A. This failure message will be set if the ECU cannot determine the take-off or go around state due to disagreement on flight/ground input signals.
  - (1) If the failure message ADC1+ADC2+LGCIU2 is displayed:
    - look at the Post Flight Report or the Last Leg Report for failure message EIU, LGCIU (WOW).
    - (a) If there is this message:
      - do the applicable trouble shooting procedure for this message (Ref. TASK 73-25-00-810-917).
      - 1 The fault may be caused by:
        - a blockage of the PO port on the ECU,
        - a blockage or leakage on the PS12 sense line,
        - an LGCIU2 (5GA2) system failure,
        - an EIU-2 (1KS2) or an ECU (4000KS) internal failure.

EFF: 201-225, 227-227, 229-239, 241-282, 284-299, 426-499, 503-549, 551-599, 701-749,

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- (b) If there is not this message:
  - look for failure message relative to ADIRU 1 or ADIRU 2 or pitot or static probes.
  - $\underline{1}$  If there is a message:
    - do the applicable trouble shooting procedure.
  - 2 If there is no message:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- B. No additional maintenance action is required if the fault is not confirmed.
  - (1) Repeat the fault isolation procedure if the fault continues.

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### TROUBLE SHOOTING MANUAL

\*\*ON A/C ALL

TASK 77-00-00-810-914

N2 Exceedance Indication on ECAM on Engine 1

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - HJ7/HJ8 harness
  - ECU (4000KS)
- 2. Job Set-up Information
  - A. Referenced Information

- 3. Fault Confirmation
  - A. Test
    - (1) Not applicable.
- 4. Fault Isolation
  - A. This indication is set if the N2 speed has exceeded the limit (Red line). This indication may be spurious if it is not associated to the ECAM warning ENG 1 N2 OVERLIMIT.
    - (1) If this indication was associated to the ECAM warning ENG 1 N2 OVERLIMIT, do the trouble shooting procedure relative to this ECAM warning (Ref. TASK 77-00-00-810-851).
    - (2) If this indication was not associated to the ECAM warning ENG 1 N2 OVERLIMIT, and not associated to any engine malfunction such as N1 auto acceleration, N1 OVERLIMIT, N1 fluctuations:
      - (a) no action is required, the indication is spurious.

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- (b) if any of the above listed malfunctions was noticed:
  - do the applicable trouble shooting procedure. Refer to the crew observation entry or ECAM warning entry ATA 77.
- (3) If the fault becomes repetitive:
  - inspect the HJ7/HJ8 harness and associated connectors to the N2 speed sensor and ECU for signs of looseness, damage or contamination. Clean, repair or replace as required (Ref. AMM TASK 73-21-50-000-008) and (Ref. AMM TASK 73-21-50-400-008) and (Ref. AMM TASK 73-21-50-400-009).
  - (a) If nothing is found:
    - replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
  - (b) If the fault continues:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

EFF: ALL 77-00-00

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-915

N2 Exceedance Indication on ECAM on Engine 2

#### 1. Possible Causes

- SENSOR-N2 ROTATIONAL SPD (4001EV)
- HJ7/HJ8 harness
- ECU (4000KS)

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION		
	77-00-00-810-851  AMM 73-21-50-000-008  AMM 73-21-50-400-008  AMM 73-21-50-400-009  AMM 73-21-60-000-001  AMM 73-21-60-400-001  AMM 77-11-20-000-002  AMM 77-11-20-400-002	N2 Overlimit on Engine 1 or 2 Removal of the J9 Harness Removal of the J10 Harness Installation of the J9 Harness Installation of the J10 Harness Removal of the Electronic Control Unit (ECU) Installation of the Electronic Control Unit (ECU) Removal of the N2 Speed Sensor (4001EV). Installation of the N2 Speed Sensor (4001EV).		
		•		

### 3. Fault Confirmation

- A. Test
  - (1) Not applicable.

### 4. Fault Isolation

- A. This indication is set if the N2 speed has exceeded the limit (Red line). This indication may be spurious if it is not associated to the ECAM warning ENG 2 N2 OVERLIMIT.
  - (1) If this indication was associated to the ECAM warning ENG 2 N2 OVERLIMIT, do the trouble shooting procedure relative to this ECAM warning (Ref. TASK 77-00-00-810-851).
  - (2) If this indication was not associated to the ECAM warning ENG 2 N2 OVERLIMIT, and not associated to any engine malfunction such as N1 auto acceleration, N1 OVERLIMIT, N1 fluctuations:
    - (a) no action is required, the indication is spurious.

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## TROUBLE SHOOTING MANUAL

- (b) if any of the above listed malfunctions was noticed:
  - do the applicable trouble shooting procedure. Refer to the crew observation entry or ECAM warning entry ATA 77.
- (3) If the fault becomes repetitive:
  - inspect the HJ7/HJ8 harness and associated connectors to the N2 speed sensor and ECU for signs of looseness, damage or contamination. Clean, repair or replace as required (Ref. AMM TASK 73-21-50-000-008) and (Ref. AMM TASK 73-21-50-400-008) and (Ref. AMM TASK 73-21-50-400-009).
  - (a) If nothing is found:
    - replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
  - (b) If the fault continues:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

EFF: ALL 77-00-00

**SROS** 

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### TROUBLE SHOOTING MANUAL

TASK 77-00-00-810-916

Vibration with Noise at approximately 51% N1 on Engine 1

- 1. Possible Causes
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE	DESIGNATION		
AMM 71-00-00-750-001 AMM 77-32-34-750-001 AMM 77-32-34-750-001 AMM 77-32-34-860-042	Fan Trim Balance - 1 sensor 3 speed  Fan Trim Balance with the EVMU (one Shot Method)  Fan Trim Balance with the EVMU (Vectorial Method)  Acquire Unbalance Data During the Flight and Read  Unbalance Data		

### 3. Fault Confirmation

A. Prior to perform the fault isolation, the flight vibration data must be available for the engine speeds listed below:

1	N1 S	SPEED	ļ	
   	A319 A320	A321 	   N1 tolerance 	   Time
1	51%	   51%		15sec.
İ	64%	64%	2%	15sec.
	84%	88%	2%	15sec.
	88%	92%	2%	15sec.
	92%	96%	2%	15sec.

- if these data are not available acquire these values and do the fault isolation at the first opportunity (Ref. AMM TASK 77-32-34-860-042).
- 4. Fault Isolation
- R \*\*ON A/C 201-206, 227-227, 229-243, 276-283, 476-478,
  - A. Balance the engine with the CFM Trim Balance Software, using the actual flight data prints:
    - (1) Cold trim balance the engine using One Shot method (2 sensors, 5 speeds) (Ref. AMM TASK 71-00-00-750-001)
       Dispatch the aircraft.

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#### TROUBLE SHOOTING MANUAL

- (2) If the vibration continue, Cold trim balance the engine using
   Vectorial method (Ref. AMM TASK 71-00-00-750-001)
   Dispatch the aircraft.
- (3) If the vibration continue with engine N1 vib higher than 2 units, go to step(2)
- (4) If the vibration continue with engine N1 vib less than 2 units, Cold trim balance the engine using Vectorial method with the 51 % N1 speed only: input only 51% N1 data into the software.
  - Dispatch the aircraft.

R \*\*ON A/C 207-225, 244-275, 284-299, 426-475, 479-499, 503-549, 551-599, R 701-749,

A. Balance the engine with the EVMU using the flight data as follows:

NOTE: For information, hereafter are the CFM56-5B One Shot Coefficients:

	N1 bearin	ng vib sensor	TRF vib sensor	
N1%   	One Shot coefficient cmg/mils da		One Shot coefficient cmg/mils da	One Shot     coefficient     lag phase degrees
   96     92     88     84     64    51-52	205 235 300 225 365 500		305 330 400 370 285 550	185     225     245     230     230

(1) Cold trim balance the engine using the one shot method (Ref. AMM TASK 77-32-34-750-001).

NOTE: In SCREWS TO CHANGE menu, push the line key adjacent to the UPDATE indication to memorize the EVMU calculation.

- dispatch the aircraft.
- (2) If the vibration continues, cold trim balance the engine using the vectorial method (Ref. AMM TASK 77-32-34-750-001).

NOTE: In SCREWS TO CHANGE menu, push the line key adjacent to the UPDATE indication to memorize the EVMU calculation.

- dispatch the aircraft.
- (3) If the vibration continues with engine N1 vib higher than 2 units, go to step (2).

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(4) If the vibration continues with engine N1 vib less than 2 units, cold trim balance the engine using the vectorial method with the 51% N1 speed only, using current vib manual input option, according to EVMU flight data print.

NOTE: In SCREWS TO CHANGE menu, push the line key adjacent to the UPDATE indication to memorize the EVMU calculation.

EFF: 207-225, 244-275, 284-299, 426-475, 479-499, 503-549, 551-599, 701-749,

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## **@A319/A320/A321**

### TROUBLE SHOOTING MANUAL

\*\*ON A/C ALL

TASK 77-00-00-810-917

Vibration with Noise at approximately 51% N1 on Engine 2

- 1. Possible Causes
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE	DESIGNATION	
AMM 71-00-00-750-001 AMM 77-32-34-750-001 AMM 77-32-34-750-001 AMM 77-32-34-860-042	Fan Trim Balance - 1 sensor 3 speed  Fan Trim Balance with the EVMU (one Shot Method)  Fan Trim Balance with the EVMU (Vectorial Method)  Acquire Unbalance Data During the Flight and Read  Unbalance Data	

### 3. Fault Confirmation

A. Prior to perform the fault isolation, the flight vibration data must be available for the engine speeds listed below:

	N 1	SPEED		!!!
	A319 A320	A321 	N1 tolerance	
	5 1%	51%	2%	15aaa
ı	J 1/6	%ا د ۱	Z/ <sub>0</sub>	15sec.
	64%	64%	2%	15sec.
	84%	88%	2%	15sec.
1	88%	92%	2%	15sec.
İ	92%	96%	2%	15sec.

- if these data are not available acquire these values and do the fault isolation at the first opportunity (Ref. AMM TASK 77-32-34-860-042).

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

R \*\*ON A/C 201-206, 227-227, 229-243, 276-283, 476-478,

- A. Balance the engine with the CFM Trim Balance Software, using the actual flight data prints:
  - (1) Cold trim balance the engine using One Shot method (2 sensors, 5 speeds) (Ref. AMM TASK 71-00-00-750-001)
     Dispatch the aircraft.
  - (2) If the vibration continue, Cold trim balance the engine using
     Vectorial method (Ref. AMM TASK 71-00-00-750-001)
     Dispatch the aircraft.
  - (3) If the vibration continue with engine N1 vib higher than 2 units, go to step(2)
  - (4) If the vibration continue with engine N1 vib less than 2 units, Cold trim balance the engine using Vectorial method with the 51 % N1 speed only: input only 51% N1 data into the software.
     Dispatch the aircraft.

\*\*ON A/C 207-225, 244-275, 284-299, 426-475, 479-499, 503-549, 551-599, 701-749,

A. Balance the engine with the EVMU using the flight data as follows:

NOTE: For information, hereafter are the CFM56-5B One Shot Coefficients:

	N1 bearin	ng vib sensor	TRF	vib sensor
N 1%	One Shot coefficient cmg/mils da	One Shot	One Shot	One Shot
N 1%		coefficient	coefficient	coefficient
		lag phase degrees	cmg/mils da	lag phase degrees
	205	160	305	185
96	235	175	330	225
92	300	200	400	245
88	225	170	370	230
84	365	185	285	230
64	500	205	550	45

(1) Cold trim balance the engine using the one shot method (Ref. AMM TASK 77-32-34-750-001).

NOTE: In SCREWS TO CHANGE menu, push the line key adjacent to the UPDATE indication to memorize the EVMU calculation.

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#### TROUBLE SHOOTING MANUAL

- dispatch the aircraft.
- (2) If the vibration continues, cold trim balance the engine using the vectorial method (Ref. AMM TASK 77-32-34-750-001).

NOTE: In SCREWS TO CHANGE menu, push the line key adjacent to the UPDATE indication to memorize the EVMU calculation.

- dispatch the aircraft.
- (3) If the vibration continues with engine N1 vib higher than 2 units, go to step (2).
- (4) If the vibration continues with engine N1 vib less than 2 units, cold trim balance the engine using the vectorial method with the 51% N1 speed only, using current vib mamual input option, according to EVMU flight data print.

NOTE: In SCREWS TO CHANGE menu, push the line key adjacent to the UPDATE indication to memorize the EVMU calculation.

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### TROUBLE SHOOTING MANUAL

\*\*ON A/C ALL

TASK 77-00-00-810-920

Throttle Control Lever in Reverse Thrust Position in Flight

- 1. Possible Causes
- 2. Job Set-up Information

Not Applicable

- 3. Fault Confirmation
  - A. Not Applicable
- 4. Fault Isolation
  - A. Operational ECAM WARNING. No maintenance action is necessary.

EFF: ALL
SROS

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#### TROUBLE SHOOTING MANUAL

#### POWER - FAULT ISOLATION PROCEDURES

R \*\*ON A/C 201-225, 227-227, 229-253, 276-281, 426-432, 476-480, 503-549, R 551-564, 701-749,

**DESIGNATION** 

TASK 77-10-00-810-809

Loss of the ECU Cross Channel on Engine 1

- 1. Possible Causes
  - harness J9

REFERENCE

- ECU (4000KS)
- control alternator
- 2. Job Set-up Information
  - A. Referenced Information

		72010
AMM	73-21-30-000-001	Removal of the Control Alternator
AMM	73-21-30-400-001	Installation of the Control Alternator
AMM	73-21-50-000-042	Removal of the HJ9 Harness
AMM	73-21-50-400-042	Installation of the HJ9 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)(4000KS)
ASM	73-25/18	(100) (1000)

- 3. Fault Confirmation
  - A. Not apllicable
- 4. Fault Isolation
  - A. If the fault symptom is identified by the maintenance message ALT, ECU,
  - NOTE 1: In the usual operating condition, a fault of the harness J9 is detected with the test of the channel A.
  - NOTE 2: When a cross channel fault occurs, the harness fault is detected during the test on the opposite channel.
  - NOTE 3: For the trouble shooting, do the procedure for the plug which is shown on the fault message and not the channel which is given at the end of the post flight report.
    - do a check for open or short to ground of the harness J9 between the ECU (4000KS) and the control alternator pins J9/4, 5, 13, 14, 15 to pins J9/2, 3, 4, 5 (Ref. ASM 73-25/18).

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#### TROUBLE SHOOTING MANUAL

- (1) If the wiring is not correct:
  - repair the above wiring.
- (2) If the wiring is correct:
  - disconnect the harness J9 from the ECU (4000KS) and do a check of the ECU cable resistance between:
    - pins 5 and 13 (< 1 0hm)</pre>
    - . pins 5 and 14 (< 1 0hm)</pre>
    - . pins 5 and 15 (< 1 0hm)</pre>
    - pins 5 and 4 (> 10 Megohms)
    - . pin 5 and the ground (> 10 Megohms).
  - (a) If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (b) If the resistance values are out of the specified limits:
    - disconnect the harness J9 from the control alternator and do a check of the alternator resistance between:
      - . pins 2 and 5 (< 1 0hm)</pre>

      - pins 4 and 5 (< 1 0hm)</pre>
      - . pin 5 and the ground (> 10 Megohms).
    - 1 If the resistance values are in the specified limits:
      - replace the harness J9 (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
    - $\underline{2}$  If the resistance values are out of the specified limits:
      - replace the control alternator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-810

Loss of the ECU Cross Channel on Engine 2

#### 1. Possible Causes

- harness J9
- ECU (4000KS)
- control alternator

#### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION	
АММ	73-21-30-000-001	Removal of the Control Alternator	
AMM	73-21-30-600-001	Installation of the Control Alternator	
AMM	73-21-50-000-042	Removal of the HJ9 Harness	
AMM	73-21-50-400-042	Installation of the HJ9 Harness	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>	
ASM	73-25/18		

### 3. Fault Confirmation

A. Not Applicable

#### 4. Fault Isolation

- A. If the test gives the maintenance message ALT, ECU, J9:
- NOTE 1: In the usual operating condition, a fault of the harness J9 is detected with the test of the channel A.
- NOTE 2: When a cross channel fault occurs, the harness fault is detected during the test on the opposite channel.
- NOTE 3: For the trouble shooting, do the procedure for the plug which is shown on the fault message and not the channel which is given at the end of the post flight report.
  - do a check for open or short to ground of the harness J9 between the ECU (4000KS) and the control alternator pins J9/4, 5, 13, 14, 15 to pins J9/2, 3, 4, 5 (Ref. ASM 73-25/18).
  - (1) If the wiring is not correct:
    - repair the above wiring.

EFF: 201-225, 227-227, 229-253, 276-281, 426-432, 476-480, 503-549, 551-564, 701-749,

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#### TROUBLE SHOOTING MANUAL

- (2) If the wiring is correct:
  - disconnect the harness J9 from the ECU (4000KS) and do a check of the ECU cable resistance between:
    - pins 5 and 13 (< 1 0hm)</pre>
    - pins 5 and 14 (< 1 0hm)</pre>
    - pins 5 and 15 (< 1 0hm)</pre>
    - . pins 5 and 4 (> 10 Megohms)
    - . pin 5 and the ground (> 10 Megohms).
  - (a) If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (b) If the resistance values are out of the specified limits:
    - disconnect the harness J9 from the control alternator and do a check of the alternator resistance between:
      - . pins 2 and 5 (< 1 0hm)
      - . pins 3 and 5 (< 1 0hm)
      - . pins 4 and 5 (< 1 0hm)</pre>
      - . pin 5 and the ground (> 10 Megohms).
    - 1 If the resistance values are in the specified limits:
      - replace the harness J9 (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
    - 2 If the resistance values are out of the specified limits:
      - replace the control alternator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-811

Loss of the ECU Cross Channel on Engine 1

#### 1. Possible Causes

- harness J10
- ECU (4000KS)
- control alternator

#### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION	
AMM	73-21-30-000-001	Removal of the Control Alternator	
AMM	73-21-30-400-001	Installation of the Control Alternator	
AMM	73-21-50-000-043	Removal of the HJ10 Harness	
AMM	73-21-50-400-043	Installation of the HJ10 Harness	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>	
ASM	73-25/18		

### 3. Fault Confirmation

A. Not applicable.

#### 4. Fault Isolation

- A. If the fault symptom is identified by the maintenance message ALT, ECU, J10:
- NOTE 1: In the usual operating condition, a fault of the harness J10 is detected with the test of the channel B.
- NOTE 2: When a cross channel fault occurs, the harness fault is detected during the test on the opposite channel.
- NOTE 3: For the trouble shooting, do the procedure for the plug which is shown on the fault message and not the channel which is given at the end of the post flight report.
  - do a check for open or short to ground of the harness J10 between the ECU (4000KS) and the control alternator pins J10/4, 5, 13, 14, 15 to pins J10/2, 3, 4, 5 (Ref. ASM 73-25/18).
  - (1) If the wiring is not correct:
     repair the above wiring.

EFF: 201-225, 227-227, 229-253, 276-281, 426-432, 476-480, 503-549, 551-564, 701-749,

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#### TROUBLE SHOOTING MANUAL

- (2) If the wiring is correct:
  - disconnect the harness J10 from the ECU (4000KS) and do a check of the ECU cable resistance between:
    - pins 5 and 13 (< 1 0hm)</pre>
    - pins 5 and 14 (< 1 0hm)</pre>
    - pins 5 and 15 (< 1 0hm)</pre>
    - pins 5 and 4 (> 10 Megohms)
    - . pin 5 and the ground (> 10 Megohms).
  - (a) If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (b) If the resistance values are out of the specified limits:
    - disconnect the harness J10 from the control alternator and do a check of the alternator resistance between:
      - . pins 2 and 5 (< 1 0hm)</pre>
      - pins 3 and 5 (< 1 0hm)</pre>
      - pins 4 and 5 (< 1 0hm)</pre>
      - . pin 5 and the ground (> 10 Megohms).
    - 1 If the resistance values are in the specified limits:
      - replace the harness J10 (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
    - 2 If the resistance values are out of the specified limits:
      - replace the control alternator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-812

Loss of the ECU Cross Channel on Engine 2

#### 1. Possible Causes

- harness J10
- ECU (4000KS)
- control alternator

#### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION	
AMM	73-21-30-000-001	Removal of the Control Alternator	
AMM	73-21-30-400-001	Installation of the Control Alternator	
AMM	73-21-50-000-043	Removal of the HJ10 Harness	
AMM	73-21-50-400-043	Installation of the HJ10 Harness	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>	
ASM	73-25/18		

### 3. Fault Confirmation

A. Not applicable.

#### 4. Fault Isolation

- A. If the fault symptom is identified by the maintenance message ALT, ECU, J10:
- NOTE 1: In the usual operating condition, a fault of the harness J10 is detected with the test of the channel B.
- NOTE 2: When a cross channel fault occurs, the harness fault is detected during the test on the opposite channel.
- NOTE 3: For the trouble shooting, do the procedure for the plug which is shown on the fault message and not the channel which is given at the end of the post flight report.
  - do a check for open or short to ground of the harness J10 between the ECU (4000KS) and the control alternator pins J10/4, 5, 13, 14, 15 to pins J10/2, 3, 4, 5 (Ref. ASM 73-25/18).
  - (1) If the wiring is not correct:
     repair the above wiring.

EFF: 201-225, 227-227, 229-253, 276-281, 426-432, 476-480, 503-549, 551-564, 701-749,

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- (2) If the wiring is correct:
  - disconnect the harness J10 from the ECU (4000KS) and do a check of the ECU cable resistance between:
    - pins 5 and 13 (< 1 0hm)</pre>
    - pins 5 and 14 (< 1 0hm)</pre>
    - pins 5 and 15 (< 1 0hm)</pre>
    - pins 5 and 4 (> 10 Megohms)
    - . pin 5 and the ground (> 10 Megohms).
  - (a) If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (b) If the resistance values are out of the specified limits:
    - disconnect the harness J10 from the control alternator and do a check of the alternator resistance between:
      - . pins 2 and 5 (< 1 0hm)
      - pins 3 and 5 (< 1 0hm)</pre>
      - pins 4 and 5 (< 1 0hm)</pre>
      - . pin 5 and the ground (> 10 Megohms).
    - 1 If the resistance values are in the specified limits:
      - replace the harness J10 (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
    - 2 If the resistance values are out of the specified limits:
      - replace the control alternator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).

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### TROUBLE SHOOTING MANUAL

\*\*ON A/C ALL

TASK 77-10-00-810-813

Loss of N1 Feedback Signal - Engine 1 - Channel A and Channel B

- 1. Possible Causes
  - SENSOR-N1 ROTATIONAL SPD (4000EV)
  - ECU (4000KS)
  - HJ9 harness
  - HJ10 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

REFERENCE

QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

-----

REFERENCE

DESIGNATION

Material No. CP2011 \*

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE DESIGNATION

AMM	73-21-50-000-042	Removal of the HJ9 Harness
AMM	73-21-50-000-043	Removal of the HJ10 Harness
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-042	Installation of the HJ9 Harness
AMM	73-21-50-400-043	Installation of the HJ10 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with
		Engine non Motoring)
AMM	77-11-10-000-002	Removal of the N1 Speed Sensor (4000EV)

ALL

AMM 77-11-10-400-002

77-10-00

Installation of the N1 Speed Sensor (4000EV)

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EFF:

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#### TROUBLE SHOOTING MANUAL

#### 3. Fault Confirmation

A. Do the operational test of the FADEC 1A and 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

#### 4. Fault Isolation

- A. The failure message is generated if both channel A and channel B signals are invalid or out of range.
  - (1) If the failure messages N1 SNSR, J9, ECU and N1 SNSR, J10, ECU are not confirmed:

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- (a) No maintenance action is required.
- (2) If the failure messages N1 SNSR, J9, ECU and N1 SNSR, J10, ECU are not confirmed but are repetitive:
  - disconnect HJ9 harness from the N1 sensor (N1-A connector) and disconnect HJ10 harness from the N1 sensor (N1-B connector).
  - (a) Visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - If damage is found:repair or replace as required.
    - 2 If no damage is found:
      - do a cleaning of the connectors and receptacles using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
  - (b) If the failure continues during the subsequent flights:
     replace the SENSOR-N1 ROTATIONAL SPD (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).

  - (d) If the failure continues during the subsequent flights: - replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
  - (e) If the failure continues during the subsequent flights: - replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).

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#### TROUBLE SHOOTING MANUAL

(3) If the failure message N1 SNSR, J9, ECU is confirmed:disconnect the HJ9 harness from the N1 sensor (N1-A connector).

- (a) Visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:
  - repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the N1 sensor (4000EV) (channel A) between:
      - pins 1 and 2 (40 to 80 ohms)

for S/N different than 25451 and up

- . pins 1 and 3 (>5 kiloohms)
- . pin 1 and the ground (>10 megohms)

for S/N 25451 and up

- . pins 1 and 3 (>10 megohms)
- . pin 1 and the ground (>10 megohms).
- <u>a</u> If the resistance values are out of the specified limits: - replace the N1 sensor (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- <u>b</u> If the resistance values are in the specified limits.
   connect the HJ9 harness to the N1 sensor.
- (b) Disconnect connector HJ9 from the ECU (4000KS) receptacle and visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:
    - repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ9 harness between:
      - . pins 16 and 17 (40 to 80 ohms)

for S/N different than 25451 and up

- pins 16 and 6 (>5 kiloohms)
- pin 16 and the ground (>10 megohms)

for S/N 25451 and up

- pins 16 and 6 (>10 megohms)
- . pin 16 and the ground (>10 megohms).
- a If the resistance values are in the specified limits:
  - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

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#### TROUBLE SHOOTING MANUAL

<u>b</u> If the resistance values are out of the specified limits: - replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).

- (4) If the failure message N1 SNSR, J10, ECU is confirmed:
   disconnect the HJ10 harness from the N1 sensor (N1-B connector).
  - (a) Visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If damage is found: - repair or replace as required.
    - 2 If no damage is found:

- do the electrical resistance test through the N1 sensor (4000EV) (channel B) between:

. pins 1 and 2 (40 to 80 ohms)

for S/N different than 25451 and up

- . pins 1 and 3 (>5 kiloohms)
- pin 1 and the ground (>10 megohms)

for S/N 25451 and up

- pins 1 and 3 (>10 megohms)
- . pin 1 and the ground (>10 megohms).
- a If the resistance values are out of the specified limits: - replace the N1 sensor (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- <u>b</u> If the resistance values are in the specified limits:
   connect the HJ10 harness to the N1 sensor.
- (b) Disconnect connector HJ10 from the ECU (4000KS) receptacle and visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:- repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the J10 harness between:
      - . pins 16 and 17 (40 to 80 ohms)

for S/N different than 25451 and up

- . pins 16 and 6 (>5 kiloohms)
- pin 16 and the ground (>10 megohms)

for S/N 25451 and up

- . pins 16 and 6 (>10 megohms)
- . pin 16 and the ground (>10 megohms).

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R R

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### TROUBLE SHOOTING MANUAL

R	а	If the resistance values are in the specified limits:
R		- replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
R		and (Ref. AMM TASK 73-21-60-400-001).

- <u>b</u> If the resistance values are out of the specified limits: replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
- (2) Repeat the fault isolation procedure if the fault continues.

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-814

Loss of N1 Feedback Signal - Engine 2 - Channel A and Channel B R 1. Possible Causes R - SENSOR-N1 ROTATIONAL SPD (4000EV) - ECU (4000KS) - HJ9 harness - HJ10 harness R 2. Job Set-up Information R A. Fixtures, Tools, Test and Support Equipment REFERENCE QTY DESIGNATION R No specific bristle brush B. Consumable Materials R REFERENCE DESIGNATION Material No. CP2011 R stoddard solvent (Ref. 70-30-00) R C. Referenced Information REFERENCE DESIGNATION AMM 73-21-50-000-042 Removal of the HJ9 Harness Removal of the HJ10 Harness 73-21-50-000-043 AMM R AMM 73-21-50-210-002 Visual Inspection of the Wiring Harnesses AMM 73-21-50-400-042 Installation of the HJ9 Harness AMM 73-21-50-400-043 Installation of the HJ10 Harness Removal of the Electronic Control Unit (ECU) R AMM 73-21-60-000-001 Installation of the Electronic Control Unit (ECU) R AMM 73-21-60-400-001 AMM 73-29-00-710-040 Operational Test of the FADEC on the Ground (with Engine non Motoring) AMM 77-11-10-000-002 Removal of the N1 Speed Sensor (4000EV) AMM 77-11-10-400-002 Installation of the N1 Speed Sensor (4000EV) R

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#### TROUBLE SHOOTING MANUAL

### 3. Fault Confirmation

A. Do the operational test of the FADEC 2A and 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

#### 4. Fault Isolation

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- R A. The failure message is generated if both channel A and channel B signals
  R are invalid or out of range.
  - (1) If the failure messages N1 SNSR, J9, ECU and N1 SNSR, J10, ECU are not confirmed:
    - (a) No maintenance action is required.
  - (2) If the failure messages N1 SNSR, J9, ECU and N1 SNSR, J10, ECU are not confirmed but are repetitive:
    - disconnect HJ9 harness from the N1 sensor (N1-A connector) and disconnect HJ10 harness from the N1 sensor (N1-B connector).
    - (a) Visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
      - 1 If damage is found:repair or replace as required.
      - 2 If no damage is found:
        - do a cleaning of the connectors and receptacles using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
    - (b) If the failure continues during the subsequent flights:
       replace the SENSOR-N1 ROTATIONAL SPD (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
    - (c) If the failure continues during the subsequent flights:
       replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and
      (Ref. AMM TASK 73-21-60-400-001).
    - (d) If the failure continues during the subsequent flights: - replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
    - (e) If the failure continues during the subsequent flights: - replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).

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### TROUBLE SHOOTING MANUAL

R R	<ul><li>(3) If the failure message N1 SNSR, J9, ECU is confirmed:</li><li>disconnect the HJ9 harness from the N1 sensor (N1-A connector).</li></ul>
R R	(a) Visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
R R	<pre>1 If damage is found:   - repair or replace as required.</pre>
R R R R	<pre> 2  If no damage is found:     - do the electrical resistance test through the N1 sensor         (4000EV) (channel A) between:         pins 1 and 2 (40 to 80 ohms) </pre>
R R R R	for S/N different than 25451 and up . pins 1 and 3 (>5 kiloohms) . pin 1 and the ground (>10 megohms)
R R R	for S/N 25451 and up . pins 1 and 3 (>10 megohms) . pin 1 and the ground (>10 megohms).
R R R	<ul> <li><u>a</u> If the resistance values are out of the specified limits:</li> <li>replace the N1 sensor (4000EV) (Ref. AMM TASK 77-11-10-000-002).</li> </ul>
R R	<ul> <li><u>b</u> If the resistance values are in the specified limits.</li> <li>- connect the HJ9 harness to the N1 sensor.</li> </ul>
R R R	(b) Disconnect connector HJ9 from the ECU (4000KS) receptacle and visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
R R	<ul><li>1 If damage is found:</li><li>repair or replace as required.</li></ul>
R R R R	<ul> <li>If no damage is found:         <ul> <li>do the electrical resistance test through the HJ9 harness between:</li></ul></li></ul>
R R R R	for S/N different than 25451 and up . pins 16 and 6 (>5 kiloohms) . pin 16 and the ground (>10 megohms)
R R R	for S/N 25451 and up . pins 16 and 6 (>10 megohms) . pin 16 and the ground (>10 megohms).
R R R	a If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
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### TROUBLE SHOOTING MANUAL

R R	<ul> <li>the resistance values are out of the specified limits:</li> <li>replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042)</li> <li>and (Ref. AMM TASK 73-21-50-400-042).</li> </ul>
	f the failure message N1 SNSR, J10, ECU is confirmed: disconnect the HJ10 harness from the N1 sensor (N1-B connector).
R (	a) Visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
R R	<pre>1 If damage is found:   - repair or replace as required.</pre>
R R R R	<pre>2 If no damage is found:   - do the electrical resistance test through the N1 sensor      (4000EV) (channel B) between:           pins 1 and 2 (40 to 80 ohms)</pre>
R R R	<pre>for S/N different than 25451 and up   pins 1 and 3 (&gt;5 kiloohms)   pin 1 and the ground (&gt;10 megohms)</pre>
R R R	<pre>for S/N 25451 and up   pins 1 and 3 (&gt;10 megohms)   pin 1 and the ground (&gt;10 megohms).</pre>
R R R	a If the resistance values are out of the specified limits: - replace the N1 sensor (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
R R	<ul> <li>b If the resistance values are in the specified limits:</li> <li>connect the HJ10 harness to the N1 sensor.</li> </ul>
R (I	b) Disconnect connector HJ10 from the ECU (4000KS) receptacle and visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
R R	<pre>1 If damage is found:    - repair or replace as required.</pre>
R R R R	<ul> <li>If no damage is found:         <ul> <li>do the electrical resistance test through the J10 harness between:</li> <li>pins 16 and 17 (40 to 80 ohms)</li> </ul> </li> </ul>
R R R R	<pre>for S/N different than 25451 and up . pins 16 and 6 (&gt;5 kiloohms) . pin 16 and the ground (&gt;10 megohms) for S/N 25451 and up</pre>
R R	pins 16 and 6 (>10 megohms) pin 16 and the ground (>10 megohms).

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### TROUBLE SHOOTING MANUAL

R R R a If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

R R R R

- b If the resistance values are out of the specified limits: - replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-815

Loss of the Feedback Signal of the N1 Speed Sensor - Engine 1 - Channel A

- 1. Possible Causes
  - SENSOR-N1 ROTATIONAL SPD (4000EV)
  - ECU (4000KS)
  - HJ9 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

REFERENCE QTY DESIGNATION

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No specific bristle brush

B. Consumable Materials

DEFENCE DESCRIPTION

REFERENCE DESIGNATION

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Material No. CP2011 \*

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

PEFERENCE DESTGNATION

REFERENCE	DESIGNATION
AMM 73-21-50-000-042	Removal of the HJ9 Harness

AITIT	13-21-30-000-042	Removat of the nj/ nathess
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-042	Installation of the HJ9 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with
		Engine non Motoring)
AMM	77-11-10-000-002	Removal of the N1 Speed Sensor (4000EV)
AMM	77-11-10-400-002	Installation of the N1 Speed Sensor (4000EV)

- 3. Fault Confirmation
  - A. Do the operational test of the FADEC 1A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel A input from the N1 sensor is invalid or out of range.
  - (1) If the failure message N1 SNSR, J9, ECU is not confirmed:

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- (a) No maintenance action is required.
- (2) If the failure message N1 SNSR, J9, ECU is not confirmed but is repetitive:
  - disconnect HJ9 harness from the N1 sensor (N1-A connector).

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- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:- repair or replace as required.
  - 2 If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
- (b) If the failure continues during the subsequent flights:
   replace the SENSOR-N1 ROTATIONAL SPD (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- (d) If the failure continues during the subsequent flights: - replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
- (3) If the failure message N1 SNSR, J9, ECU is confirmed:
   disconnect the HJ9 harness from the N1 sensor (N1-A connector).
  - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - <u>1</u> If damage is found:- repair or replace as required.
    - 2 If no damage is found:
      - do the electrical resistance test through the N1 sensor (4000EV) (channel A) between:
         pins 1 and 2 (40 to 80 ohms)

for S/N different than 25451 and up:

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

- . pins 1 and 3 (>5 kiloohms)
- pin 1 and the ground (>10 megohms)

for S/N 25451 and up:

- pins 1 and 3 (>10 megohms)
- pin 1 and the ground (>10 megohms).
- <u>a</u> If the resistance values are out of the specified limits: - replace the N1 sensor (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- $\underline{b}$  If the resistance values are in the specified limits: connect the HJ9 harness to the N1 sensor.
- (b) Disconnect the HJ9 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found: - repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ9 harness between:
      - pins 16 and 17 (40 to 80 ohms)

for S/N different than 25451 and up:

- pins 16 and 6 (>5 kiloohms)
- pin 16 and the ground (>10 megohms)

for S/N 25451 and up:

- pins 16 and 6 (>10 megohms)
- . pin 16 and the ground (>10 megohms).
- a If the resistance values are in the specified limits:
   replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
   and (Ref. AMM TASK 73-21-60-400-001).
- <u>b</u> If the resistance values are out of the specified limits:
   replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042)
   and (Ref. AMM TASK 73-21-50-400-042).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-816

Loss of the Feedback Signal of the N1 Speed Sensor - Engine 1 - Channel B

- 1. Possible Causes
  - SENSOR-N1 ROTATIONAL SPD (4000EV)
  - ECU (4000KS)
  - HJ10 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

REFERENCE

DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

AMM	73-21-50-000-043	Removal of the HJ10 Harness
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-043	Installation of the HJ10 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with

Engine non Motoring)

AMM 77-11-10-000-002 Removal of the N1 Speed Sensor (4000EV) AMM 77-11-10-400-002 Installation of the N1 Speed Sensor (4000EV)

- 3. Fault Confirmation
  - A. Do the operational test of the FADEC 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

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### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel B input from the N1 sensor is invalid or out of range.
  - (1) If the failure message N1 SNSR, J10, ECU is not confirmed:

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- (a) No maintenance action is required.
- (2) If the failure message N1 SNSR, J10, ECU is not confirmed but is repetitive:
  - disconnect HJ10 harness from the N1 sensor (N1-B connector).

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- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:- repair or replace as required.
  - 2 If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
- (b) If the failure continues during the subsequent flights:
   replace the SENSOR-N1 ROTATIONAL SPD (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- (d) If the failure continues during the subsequent flights: - replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
- (3) If the failure message N1 SNSR, J10, ECU is confirmed:disconnect the HJ10 harness from the N1 sensor (N1-B connector).
  - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - <u>1</u> If damage is found:- repair or replace as required.
    - 2 If no damage is found:
      - do the electrical resistance test through the N1 sensor (4000EV) (channel B) between:
         pins 1 and 2 (40 to 80 ohms)

for S/N different than 25451 and up:

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#### TROUBLE SHOOTING MANUAL

- . pins 1 and 3 (>5 kiloohms)
- pin 1 and the ground (>10 megohms)

for S/N 25451 and up:

- pins 1 and 3 (>10 megohms)
- . pin 1 and the ground (>10 megohms).
- <u>a</u> If the resistance values are out of the specified limits: - replace the N1 sensor (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- $\underline{b}$  If the resistance values are in the specified limits: connect the HJ10 harness to the N1 sensor.
- (b) Disconnect the HJ10 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found: - repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ10 harness between:
      - . pins 16 and 17 (40 to 80 ohms)

for S/N different than 25451 and up:

- pins 16 and 6 (>5 kiloohms)
- pin 16 and the ground (>10 megohms)

for S/N 25451 and up:

- pins 16 and 6 (>10 megohms)
- . pin 16 and the ground (>10 megohms).
- a If the resistance values are in the specified limits:
   replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
   and (Ref. AMM TASK 73-21-60-400-001).
- <u>b</u> If the resistance values are out of the specified limits: - replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-817

Loss of the Feedback Signal of the N1 Speed Sensor - Engine 2 - Channel A

- 1. Possible Causes
  - SENSOR-N1 ROTATIONAL SPD (4000EV)
  - ECU (4000KS)
  - HJ9 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

REFERENCE

DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE	DESIGNATION
AMM 73-21-50-000-042	Removal of the HJ9 Harness

AMM	13-21-30-000-042	Removat of the mig marriess
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-042	Installation of the HJ9 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with
		Engine non Motoring)
AMM	77-11-10-000-002	Removal of the N1 Speed Sensor (4000EV)
AMM	77-11-10-400-002	Installation of the N1 Speed Sensor (4000EV)

- 3. Fault Confirmation
  - A. Do the operational test of the FADEC 2A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

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#### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel A input from the N1 sensor is invalid or out of range.
  - (1) If the failure message N1 SNSR, J9, ECU is not confirmed:

R

R

- (a) No maintenance action is required.
- (2) If the failure message N1 SNSR, J9, ECU is not confirmed but is repetitive:
  - disconnect HJ9 harness from the N1 sensor (N1-A connector).

R R

R

R

R

R

R

- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:- repair or replace as required.
  - 2 If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
- (b) If the failure continues during the subsequent flights:
   replace the SENSOR-N1 ROTATIONAL SPD (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- (d) If the failure continues during the subsequent flights: - replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
- (3) If the failure message N1 SNSR, J9, ECU is confirmed:
   disconnect the HJ9 harness from the N1 sensor (N1-A connector).
  - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - <u>1</u> If damage is found:- repair or replace as required.
    - 2 If no damage is found:
      - do the electrical resistance test through the N1 sensor (4000EV) (channel A) between:
         pins 1 and 2 (40 to 80 ohms)

for S/N different than 25451 and up:

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R

R

R

R

R R

R

R

R

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#### TROUBLE SHOOTING MANUAL

- . pins 1 and 3 (>5 kiloohms)
- pin 1 and the ground (>10 megohms)

for S/N 25451 and up:

- pins 1 and 3 (>10 megohms)
- . pin 1 and the ground (>10 megohms).
- a If the resistance values are out of the specified limits: - replace the N1 sensor (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- <u>b</u> If the resistance values are in the specified limits:
   connect the HJ9 harness to the N1 sensor.
- (b) Disconnect the HJ9 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:
    - repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ9 harness between:
      - pins 16 and 17 (40 to 80 ohms)

for S/N different than 25451 and up:

- pins 16 and 6 (>5 kiloohms)
- pin 16 and the ground (>10 megohms)

for S/N 25451 and up:

- pins 16 and 6 (>10 megohms)
- . pin 16 and the ground (>10 megohms).
- a If the resistance values are in the specified limits:
   replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
   and (Ref. AMM TASK 73-21-60-400-001).
- <u>b</u> If the resistance values are out of the specified limits:
   replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042)
   and (Ref. AMM TASK 73-21-50-400-042).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-818

Loss of the Feedback Signal of the N1 Speed Sensor - Engine 2 - Channel B

- 1. Possible Causes
  - SENSOR-N1 ROTATIONAL SPD (4000EV)
  - ECU (4000KS)
  - HJ10 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

REFERENCE

DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

AMM AMM	73-21-50-000-043 73-21-50-210-002 73-21-50-400-043	Removal of the HJ10 Harness Visual Inspection of the Wiring Harnesses Installation of the HJ10 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine non Motoring)
AMM	77-11-10-000-002	Removal of the N1 Speed Sensor (4000EV)

AMM 77-11-10-400-002 Installation of the N1 Speed Sensor (4000EV)

- 3. Fault Confirmation
  - A. Do the operational test of the FADEC 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL 77-10-00

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#### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel B input from the N1 sensor is invalid or out of range.
  - (1) If the failure message N1 SNSR, J10, ECU is not confirmed:

R

R

- (a) No maintenance action is required.
- (2) If the failure message N1 SNSR, J10, ECU is not confirmed but is repetitive:
  - disconnect HJ10 harness from the N1 sensor (N1-B connector).

R R

R

R R

R

R

**SROS** 

- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - If damage is found: - repair or replace as required.
  - If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
- (b) If the failure continues during the subsequent flights: - replace the SENSOR-N1 ROTATIONAL SPD (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- (c) If the failure continues during the subsequent flights: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- (d) If the failure continues during the subsequent flights: - replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
- (3) If the failure message N1 SNSR, J10, ECU is confirmed: - disconnect the HJ10 harness from the N1 sensor (N1-B connector).
  - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - If damage is found: - repair or replace as required.
    - If no damage is found:
      - do the electrical resistance test through the N1 sensor (4000EV) (channel B) between: . pins 1 and 2 (40 to 80 ohms)

for S/N different than 25451 and up:

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R

R

R

R

R R

R

R

R

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#### TROUBLE SHOOTING MANUAL

- . pins 1 and 3 (>5 kiloohms)
- . pin 1 and the ground (>10 megohms)

for S/N 25451 and up:

- . pins 1 and 3 (>10 megohms)
- pin 1 and the ground (>10 megohms).
- a If the resistance values are out of the specified limits: - replace the N1 sensor (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- $\underline{b}$  If the resistance values are in the specified limits: connect the HJ10 harness to the N1 sensor.
- (b) Disconnect the HJ10 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found: - repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ10 harness between:
      - pins 16 and 17 (40 to 80 ohms)

for S/N different than 25451 and up:

- pins 16 and 6 (>5 kiloohms)
- pin 16 and the ground (>10 megohms)

for S/N 25451 and up:

- pins 16 and 6 (>10 megohms)
- . pin 16 and the ground (>10 megohms).
- a If the resistance values are in the specified limits:
   replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
   and (Ref. AMM TASK 73-21-60-400-001).
- <u>b</u> If the resistance values are out of the specified limits: - replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-819

Loss of N2 Feedback Signal - Engine 1 - Channel A and Channel B

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - ECU (4000KS)
  - HJ7 harness
  - HJ8 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

REFERENCE

#### QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

\_\_\_\_\_\_

REFERENCE

DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

AMM 73-21-50-000-040 Removal of the HJ7 Harness AMM 73-21-50-000-041 Removal of the HJ8 Harness AMM 73-21-50-210-002 Visual Inspection of the Wiring Harnesses 73-21-50-400-040 Installation of the HJ7 Harness AMM

Installation of the HJ8 Harness AMM 73-21-50-400-041

AMM 73-21-60-000-001 Removal of the Electronic Control Unit (ECU) AMM 73-21-60-400-001 Installation of the Electronic Control Unit (ECU)

AMM 73-29-00-710-040 Operational Test of the FADEC on the Ground (with

Engine non Motoring)

AMM 77-11-20-000-002 Removal of the N2 Speed Sensor (4001EV).

AMM 77-11-20-400-002 Installation of the N2 Speed Sensor (4001EV).

#### 3. Fault Confirmation

A. Do the operational test of the FADEC 1A and 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

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#### TROUBLE SHOOTING MANUAL

#### 4. Fault Isolation

- A. The failure message is generated if both channel A and channel B signals are invalid or out of range.
  - (1) If the failure messages N2 SNSR, J7, ECU and N2 SNSR, J8, ECU are not confirmed:

R

R

R

(a) No maintenance action is required.

- (2) If the failure messages N2 SNSR, J7, ECU and N2 SNSR, J8, ECU are not confirmed but are repetitive:
  - disconnect HJ7 harness from the N2 sensor (N2-A connector) and disconnect HJ8 harness from the N2 sensor (N2-B connector).
  - (a) Visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If damage is found:- repair or replace as required.
    - 2 If no damage is found:
      - do a cleaning of the connectors and receptacles using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
  - (b) If the failure continues during the subsequent flights:
     replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).

  - (d) If the failure continues during the subsequent flights: - replace the HJ7 harness (Ref. AMM TASK 73-21-50-000-040) and (Ref. AMM TASK 73-21-50-400-040).
- (3) If the failure message N2 SNSR, J7, ECU is confirmed:
   disconnect the HJ7 harness from the N2 sensor (N2-A connector).
  - (a) Visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - If damage is found:repair or replace as required.

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R

# **@A319/A320/A321**

### TROUBLE SHOOTING MANUAL

R R	<pre>If no damage is found:   - do the electrical resistance test through the N2 sensor   (4001EV) (channel A) between:     . pins 1 and 2 (40 to 80 ohms)     . pins 1 and 3 (&gt;10 megohms)     . pin 1 and the ground (&gt;10 megohms).</pre> If the resistance values are out of the specified limits:     - replace the N2 sensor (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
R	<ul> <li><u>b</u> If the resistance values are in the specified limits:</li> <li>- connect the HJ7 harness to the N2 sensor.</li> </ul>
R R R	(b) Disconnect connector HJ7 from the ECU (4000KS) receptacle and visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
R	<pre>If damage is found:     - repair or replace as required.  If no damage is found:     - do the electrical resistance test through the HJ7 harness between:     . pins 2 and 11 (40 to 80 ohms)     . pins 2 and 3 (&gt;10 megohms)     . pin 2 and the ground (&gt;10 megohms).  If the resistance values are in the specified limits:     - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)     and (Ref. AMM TASK 73-21-60-400-001).  If the resistance values are out of the specified limits:     - replace the HJ7 harness (Ref. AMM TASK 73-21-50-000-040)     and (Ref. AMM TASK 73-21-50-400-040).</pre>
_	(4) If the failure message N2 SNSR, J8, ECU is confirmed: - disconnect the HJ8 harness from the N2 sensor (N2-B connector).
R R	(a) Visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
	<pre>1 If damage is found:   - repair or replace as required.</pre>
R R	<pre>If no damage is found:   - do the electrical resistance test through the N2 sensor      (4001EV) (channel B) between:      pins 1 and 2 (40 to 80 ohms)</pre>
R	<ul><li>pins 1 and 3 (&gt;10 megohms)</li><li>pin 1 and the ground (&gt;10 megohms).</li></ul>

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R

R

R

R

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#### TROUBLE SHOOTING MANUAL

- a If the resistance values are out of the specified limits: - replace the N2 sensor (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- <u>b</u> If the resistance values are in the specified limits:
   connect the HJ8 harness to the N2 sensor.
- (b) Disconnect connector HJ8 from the ECU (4000KS) receptacle and visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:- repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ8 harness between:
      - pins 2 and 11 (40 to 80 ohms)
      - pins 2 and 3 (>10 megohms)
      - . pin 2 and the ground (>10 megohms).
    - a If the resistance values are in the specified limits:
       replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
       and (Ref. AMM TASK 73-21-60-400-001).
    - <u>b</u> If the resistance values are out of the specified limits:
       replace the HJ8 harness (Ref. AMM TASK 73-21-50-000-041)
       and (Ref. AMM TASK 73-21-50-400-041).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-820

Loss of N2 Feedback Signal - Engine 2 - Channel A and Channel B

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - ECU (4000KS)
  - HJ7 harness
  - HJ8 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

REFERENCE

QTY DESIGNATION

No specific bristle brush

B. Consumable Materials

\_\_\_\_\_\_

REFERENCE DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

AMM 73-21-50-000-040 Removal of the HJ7 Harness AMM 73-21-50-000-041 Removal of the HJ8 Harness AMM 73-21-50-210-002 Visual Inspection of the Wiring Harnesses 73-21-50-400-040 Installation of the HJ7 Harness AMM Installation of the HJ8 Harness AMM 73-21-50-400-041 AMM 73-21-60-000-001 Removal of the Electronic Control Unit (ECU) AMM 73-21-60-400-001 Installation of the Electronic Control Unit (ECU) AMM 73-29-00-710-040 Operational Test of the FADEC on the Ground (with Engine non Motoring) AMM 77-11-20-000-002 Removal of the N2 Speed Sensor (4001EV). AMM 77-11-20-400-002 Installation of the N2 Speed Sensor (4001EV).

3. Fault Confirmation

A. Do the operational test of the FADEC 2A and 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

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#### TROUBLE SHOOTING MANUAL

#### 4. Fault Isolation

- A. The failure message is generated if both channel A and channel B signals are invalid or out of range.
  - (1) If the failure messages N2 SNSR, J7, ECU and N2 SNSR, J8, ECU are not confirmed:

R

R

R

(a) No maintenance action is required.

- (2) If the failure messages N2 SNSR, J7, ECU and N2 SNSR, J8, ECU are not confirmed but are repetitive:
  - disconnect HJ7 harness from the N2 sensor (N2-A connector) and disconnect HJ8 harness from the N2 sensor (N2-B connector).
  - (a) Visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If damage is found:- repair or replace as required.
    - 2 If no damage is found:
      - do a cleaning of the connectors and receptacles using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
  - (b) If the failure continues during the subsequent flights:
     replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).

  - (d) If the failure continues during the subsequent flights: - replace the HJ7 harness (Ref. AMM TASK 73-21-50-000-040) and (Ref. AMM TASK 73-21-50-400-040).
- (3) If the failure message N2 SNSR, J7, ECU is confirmed:
   disconnect the HJ7 harness from the N2 sensor (N2-A connector).
  - (a) Visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If damage is found:- repair or replace as required.

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R

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### TROUBLE SHOOTING MANUAL

R R	<pre>If no damage is found:    - do the electrical resistance test through the N2 sensor       (4001EV) (channel A) between:             pins 1 and 2 (40 to 80 ohms)             pins 1 and 3 (&gt;10 megohms)             pin 1 and the ground (&gt;10 megohms).</pre> If the resistance values are out of the specified limits:             - replace the N2 sensor (4001EV) (Ref. AMM TASK 77-11-20-000-002).
R	<ul> <li><u>b</u> If the resistance values are in the specified limits:</li> <li>- connect the HJ7 harness to the N2 sensor.</li> </ul>
R R R	(b) Disconnect connector HJ7 from the ECU (4000KS) receptacle and visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
	<pre>1 If damage is found:    - repair or replace as required. 2 If no damage is found:</pre>
R	<ul> <li>do the electrical resistance test through the HJ7 harness between:</li> <li>pins 2 and 11 (40 to 80 ohms)</li> <li>pins 2 and 3 (&gt;10 megohms)</li> <li>pin 2 and the ground (&gt;10 megohms).</li> </ul>
	a If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
	<ul> <li><u>b</u> If the resistance values are out of the specified limits:</li> <li>replace the HJ7 harness (Ref. AMM TASK 73-21-50-000-040)</li> <li>and (Ref. AMM TASK 73-21-50-400-040).</li> </ul>
	<ul><li>(4) If the failure message N2 SNSR, J8, ECU is confirmed:</li><li>disconnect the HJ8 harness from the N2 sensor (N2-B connector).</li></ul>
R R	(a) Visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
	<pre>1 If damage is found:   - repair or replace as required.</pre>
R R	If no damage is found: <ul> <li>do the electrical resistance test through the N2 sensor</li> <li>(4001EV) (channel B) between:</li> <li>pins 1 and 2 (40 to 80 ohms)</li> </ul>
R	<ul><li>pins 1 and 3 (&gt;10 megohms)</li><li>pin 1 and the ground (&gt;10 megohms).</li></ul>

EFF: ALL

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R

R

R

R

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#### TROUBLE SHOOTING MANUAL

- a If the resistance values are out of the specified limits: - replace the N2 sensor (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- <u>b</u> If the resistance values are in the specified limits:
   connect the HJ8 harness to the N2 sensor.
- (b) Disconnect connector HJ8 from the ECU (4000KS) receptacle and visually examine the receptacles and the connectors for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - <u>1</u> If damage is found:- repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ8 harness between:
      - pins 2 and 11 (40 to 80 ohms)
      - . pins 2 and 3 (>10 megohms)
      - . pin 2 and the ground (>10 megohms).
    - a If the resistance values are in the specified limits:
       replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
       and (Ref. AMM TASK 73-21-60-400-001).
    - <u>b</u> If the resistance values are out of the specified limits:
       replace the HJ8 harness (Ref. AMM TASK 73-21-50-000-041)
       and (Ref. AMM TASK 73-21-50-400-041).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-821

Loss of the Feedback Signal of the N2 Speed Sensor - Engine 1 - Channel A

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - ECU (4000KS)
  - HJ7 harness
- Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

REFERENCE

DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

AMM 73-21-50-000-040 Removal of the HJ7 Harness AMM 73-21-50-210-002 Visual Inspection of the Wiring Harnesses AMM 73-21-50-400-040 Installation of the HJ7 Harness AMM 73-21-60-000-001 Removal of the Electronic Control Unit (ECU) AMM 73-21-60-400-001 Installation of the Electronic Control Unit (ECU) AMM 73-29-00-710-040 Operational Test of the FADEC on the Ground (with Engine non Motoring) AMM 77-11-20-000-002 Removal of the N2 Speed Sensor (4001EV). AMM 77-11-20-400-002 Installation of the N2 Speed Sensor (4001EV).

3. Fault Confirmation

A. Do the operational test of the FADEC 1A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL 77-10-00

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#### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel A input from the N2 sensor is invalid or out of range.
  - (1) If the failure message N2 SNSR, J7, ECU is not confirmed:

R

R

- (a) No maintenance action is required.
- (2) If the failure message N2 SNSR, J7, ECU is not confirmed but is repetitive:
  - disconnect HJ7 harness from the N2 sensor (N2-A connector).

R R

R

R R

R

R

R

- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - If damage is found: - repair or replace as required.
  - If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
- (b) If the failure continues during the subsequent flights: - replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- (c) If the failure continues during the subsequent flights: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- (d) If the failure continues during the subsequent flights: - replace the HJ7 harness (Ref. AMM TASK 73-21-50-000-040) and (Ref. AMM TASK 73-21-50-400-040).
- (3) If the failure message N2 SNSR, J7, ECU is confirmed: - disconnect the HJ7 harness from the N2 sensor (N2-A connector).
  - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - If damage is found: - repair or replace as required.
    - If no damage is found:
      - do the electrical resistance test through the N2 sensor (4001EV) (channel A) between:
        - pins 1 and 2 (40 to 80 ohms)
        - . pins 1 and 3 (>10 megohms)
        - . pin 1 and the ground (>10 megohms).

EFF: ALL

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R

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#### TROUBLE SHOOTING MANUAL

- a If the resistance values are out of the specified limits: - replace the N2 sensor (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- <u>b</u> If the resistance values are in the specified limits: - connect the HJ7 harness to the N2 sensor.
- (b) Disconnect the HJ7 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - <u>1</u> If damage is found:- repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ7 harness between:
      - pins 2 and 11 (40 to 80 ohms)
      - . pins 2 and 3 (>10 megohms)
      - . pin 2 and the ground (>10 megohms).
    - a If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
    - <u>b</u> If the resistance values are out of the specified limits:
       replace the HJ7 harness (Ref. AMM TASK 73-21-50-000-040)
       and (Ref. AMM TASK 73-21-50-400-040).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-822

Loss of the Feedback Signal of the N2 Speed Sensor - Engine 1 - Channel B

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - ECU (4000KS)
  - HJ8 harness
- Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

REFERENCE QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

REFERENCE DESIGNATION

REFERENCE DESIGNATION

-----

Material No. CP2011 \*

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE DESIGNATION

REFERENCE PESIGNATION

AMM 73-21-50-000-041 Removal of the HJ8 Harness AMM 73-21-50-210-002 Visual Inspection of the Wiring Harnesses AMM 73-21-50-400-041 Installation of the HJ8 Harness AMM 73-21-60-000-001 Removal of the Electronic Control Unit (ECU) AMM 73-21-60-400-001 Installation of the Electronic Control Unit (ECU) AMM 73-29-00-710-040 Operational Test of the FADEC on the Ground (with Engine non Motoring) AMM 77-11-20-000-002 Removal of the N2 Speed Sensor (4001EV). AMM 77-11-20-400-002 Installation of the N2 Speed Sensor (4001EV).

3. Fault Confirmation

A. Do the operational test of the FADEC 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL

77-10-00

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## **@A319/A320/A321**

#### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel B input from the N2 sensor is invalid or out of range.
  - (1) If the failure message N2 SNSR, J8, ECU is not confirmed:

R

R

- (a) No maintenance action is required.
- (2) If the failure message N2 SNSR, J8, ECU is not confirmed but is repetitive:
  - disconnect HJ8 harness from the N2 sensor (N2-B connector).

R R

R

R R

R

R

R

- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:- repair or replace as required.
  - 2 If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
- (b) If the failure continues during the subsequent flights:
   replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- (d) If the failure continues during the subsequent flights:
   replace the HJ8 harness (Ref. AMM TASK 73-21-50-000-041) and
  (Ref. AMM TASK 73-21-50-400-041).
- (3) If the failure message N2 SNSR, J8, ECU is confirmed:
   disconnect the HJ8 harness from the N2 sensor (N2-B connector).
  - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - <u>1</u> If damage is found:- repair or replace as required.
    - $\underline{2}$  If no damage is found:
      - do the electrical resistance test through the N2 sensor (4001EV) (channel B) between:
        - . pins 1 and 2 (40 to 80 ohms)
        - . pins 1 and 3 (>10 megohms)
        - . pin 1 and the ground (>10 megohms).

EFF: ALL

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R

R

R

R

R

R

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#### TROUBLE SHOOTING MANUAL

- <u>a</u> If the resistance values are out of the specified limits: - replace the N2 sensor (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- <u>b</u> If the resistance values are in the specified limits:
   connect the HJ8 harness to the N2 sensor.
- (b) Disconnect the HJ8 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found: - repair or replace as required.
  - 2 If no damage is found: - do the electrical resistance test through th
    - do the electrical resistance test through the HJ8 harness between:
      - pins 2 and 11 (40 to 80 ohms)
      - . pins 2 and 3 (>10 megohms)
      - . pin 2 and the ground (>10 megohms).
    - a If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
    - <u>b</u> If the resistance values are out of the specified limits:
       replace the HJ8 harness (Ref. AMM TASK 73-21-50-000-041)
       and (Ref. AMM TASK 73-21-50-400-041).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL 77-10-00

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-823

Loss of the Feedback Signal of the N2 Speed Sensor - Engine 2 - Channel A

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - ECU (4000KS)
  - HJ7 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

REFERENCE DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

AMM	73-21-50-000-040	Removal of the HJ7 Harness
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-040	Installation of the HJ7 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)

AMM 73-29-00-710-040 Operational Test of the FADEC on the Ground (with Engine non Motoring)

AMM 77-11-20-000-002 Removal of the N2 Speed Sensor (4001EV). AMM 77-11-20-400-002 Installation of the N2 Speed Sensor (4001EV).

- 3. Fault Confirmation
  - A. Do the operational test of the FADEC 2A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL 77-10-00

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#### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel A input from the N2 sensor is invalid or out of range.
  - (1) If the failure message N2 SNSR, J7, ECU is not confirmed:

R

R

- (a) No maintenance action is required.
- (2) If the failure message N2 SNSR, J7, ECU is not confirmed but is repetitive:
  - disconnect HJ7 harness from the N2 sensor (N2-A connector).

R R

R

R R

R

R

R

- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:- repair or replace as required.
  - 2 If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
- (b) If the failure continues during the subsequent flights:
   replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- (d) If the failure continues during the subsequent flights: - replace the HJ7 harness (Ref. AMM TASK 73-21-50-000-040) and (Ref. AMM TASK 73-21-50-400-040).
- (3) If the failure message N2 SNSR, J7, ECU is confirmed:
   disconnect the HJ7 harness from the N2 sensor (N2-A connector).
  - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - <u>1</u> If damage is found:- repair or replace as required.
    - $\underline{2}$  If no damage is found:
      - do the electrical resistance test through the N2 sensor (4001EV) (channel A) between:
        - pins 1 and 2 (40 to 80 ohms)
        - pins 1 and 3 (>10 megohms)
        - . pin 1 and the ground (>10 megohms).

EFF: ALL

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R

R

R

R

R

R

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#### TROUBLE SHOOTING MANUAL

- <u>a</u> If the resistance values are out of the specified limits: - replace the N2 sensor (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- <u>b</u> If the resistance values are in the specified limits: - connect the HJ7 harness to the N2 sensor.
- (b) Disconnect the HJ7 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - <u>1</u> If damage is found:- repair or replace as required.
  - $\underline{2}$  If no damage is found:
    - do the electrical resistance test through the HJ7 harness between:
      - pins 2 and 11 (40 to 80 ohms)
      - pins 2 and 3 (>10 megohms)
      - . pin 2 and the ground (>10 megohms).
    - a If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
    - <u>b</u> If the resistance values are out of the specified limits:
       replace the HJ7 harness (Ref. AMM TASK 73-21-50-000-040)
       and (Ref. AMM TASK 73-21-50-400-040).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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## **@A319/A320/A321**

#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-824

Loss of the Feedback Signal of the N2 Speed Sensor - Engine 2 - Channel B

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - ECU (4000KS)
  - HJ8 harness
- Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

REFERENCE QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

REFERENCE DESIGNATION

REFERENCE DESIGNATION

\_\_\_\_\_\_

Material No. CP2011 \*

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE DESIGNATION

AMM 73-21-50-000-041 Removal of the HJ8 Harness AMM 73-21-50-210-002 Visual Inspection of the Wiring Harnesses AMM 73-21-50-400-041 Installation of the HJ8 Harness AMM 73-21-60-000-001 Removal of the Electronic Control Unit (ECU) AMM 73-21-60-400-001 Installation of the Electronic Control Unit (ECU) AMM 73-29-00-710-040 Operational Test of the FADEC on the Ground (with Engine non Motoring) AMM 77-11-20-000-002 Removal of the N2 Speed Sensor (4001EV). AMM 77-11-20-400-002 Installation of the N2 Speed Sensor (4001EV).

3. Fault Confirmation

A. Do the operational test of the FADEC 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL

77-10-00

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#### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel B input from the N2 sensor is invalid or out of range.
  - (1) If the failure message N2 SNSR, J8, ECU is not confirmed:

R

R

- (a) No maintenance action is required.
- (2) If the failure message N2 SNSR, J8, ECU is not confirmed but is repetitive:
  - disconnect HJ8 harness from the N2 sensor (N2-B connector).

R R

R

R R

R

R

R

- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - If damage is found:repair or replace as required.
  - 2 If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).
- (b) If the failure continues during the subsequent flights:
   replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- (d) If the failure continues during the subsequent flights: - replace the HJ8 harness (Ref. AMM TASK 73-21-50-000-041) and (Ref. AMM TASK 73-21-50-400-041).
- (3) If the failure message N2 SNSR, J8, ECU is confirmed:
   disconnect the HJ8 harness from the N2 sensor (N2-B connector).
  - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If damage is found: - repair or replace as required.
    - $\underline{2}$  If no damage is found:
      - do the electrical resistance test through the N2 sensor (4001EV) (channel B) between:
        - . pins 1 and 2 (40 to 80 ohms)
        - . pins 1 and 3 (>10 megohms)
        - . pin 1 and the ground (>10 megohms).

EFF: ALL

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R

R

R

R

R

R

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#### TROUBLE SHOOTING MANUAL

- <u>a</u> If the resistance values are out of the specified limits: - replace the N2 sensor (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- <u>b</u> If the resistance values are in the specified limits:
   connect the HJ8 harness to the N2 sensor.
- (b) Disconnect the HJ8 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found: - repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ8 harness between:
      - pins 2 and 11 (40 to 80 ohms)
      - . pins 2 and 3 (>10 megohms)
      - . pin 2 and the ground (>10 megohms).
    - a If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
    - <u>b</u> If the resistance values are out of the specified limits:
       replace the HJ8 harness (Ref. AMM TASK 73-21-50-000-041)
       and (Ref. AMM TASK 73-21-50-400-041).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-827

Loss of the Feedback Signal of the N1 Speed Sensor - Engine 1 - Channel A

- 1. Possible Causes
  - SENSOR-N1 ROTATIONAL SPD (4000EV)
  - ECU (4000KS)
  - HJ9 harness
- Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

QTY DESIGNATION

No specific bristle brush

B. Consumable Materials

REFERENCE DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

KEFERENCE	DESIGNATION
77 24 50 000 042	B 1 6 (1 111 <b>0</b> 11

AMM 73-21-50-000-042 Removal of the HJ9 Harness AMM 73-21-50-210-002 Visual Inspection of the Wiring Harnesses AMM 73-21-50-400-042 Installation of the HJ9 Harness AMM 73-21-60-000-001 Removal of the Electronic Control Unit (ECU) AMM 73-21-60-400-001 Installation of the Electronic Control Unit (ECU) AMM 73-29-00-710-040 Operational Test of the FADEC on the Ground (with Engine non Motoring) AMM 77-11-10-000-002 Removal of the N1 Speed Sensor (4000EV) AMM 77-11-10-400-002 Installation of the N1 Speed Sensor (4000EV)

3. Fault Confirmation

A. Do the operational test of the FADEC 1A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL 77-10-00

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#### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel A and channel B inputs from the N1 sensor disagree.
  - (1) If the failure message N1 SNSR, J9, ECU\* is not confirmed:

R

R

- (a) No maintenance action is required.
- (2) If the failure message N1 SNSR, J9, ECU\* is not confirmed but is repetitive:
  - disconnect HJ9 harness from the N1 sensor (N1-A connector).

R R

- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - If damage is found:repair or replace as required.
  - 2 If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).

R

R

(b) If the failure continues during the subsequent flights:
- replace the SENSOR-N1 ROTATIONAL SPD (4000EV) (Ref. AMM TASK 77-11-10-000-002).

R

R

R

R

R

R

R

R

R

- (d) If the failure continues during the subsequent flights:
   replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and
  (Ref. AMM TASK 73-21-50-400-042).
- (3) If the failure message N1 SNSR, J9, ECU\* is confirmed:
  - disconnect the HJ9 harness from the N1 sensor (N1-A connector).
- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - $\underline{1}$  If damage is found:
    - repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the N1 sensor (4000EV) (channel A) between:

EFF: ALL

77-10-00

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R

R

R R

R

R

R R

R

R

R

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#### TROUBLE SHOOTING MANUAL

pins 1 and 2 (40 to 80 ohms)

for S/N different than 25451 and up:

- pins 1 and 3 (>5 kiloohms)
- pin 1 and the ground (>10 megohms)

for S/N 25451 and up:

- . pins 1 and 3 (>10 megohms)
- . pin 1 and the ground (>10 megohms).
- <u>a</u> If the resistance values are out of the specified limits: - replace the N1 sensor (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- $\underline{b}$  . If the resistance values are in the specified limits:
  - connect the HJ9 harness to the N1 sensor.
- (b) Disconnect the HJ9 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:
    - repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ9 harness between:
      - pins 16 and 17 (40 to 80 ohms)

for S/N different than 25451 and up:

- . pins 16 and 6 (>5 kiloohms)
- . pin 16 and the ground (>10 megohms)

for S/N 25451 and up:

- pins 16 and 6 (>10 megohms)
- . pin 16 and the ground (>10 megohms).
- a If the resistance values are in the specified limits:
  - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- b If the resistance values are out of the specified limits:
  - replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).

EFF: ALL

77-10-00

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### TROUBLE SHOOTING MANUAL

- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL
SROS

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-828

Loss of the Feedback Signal of the N1 Speed Sensor - Engine 1 - Channel B

- 1. Possible Causes
  - SENSOR-N1 ROTATIONAL SPD (4000EV)
  - ECU (4000KS)
  - HJ10 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

QTY DESIGNATION

No specific bristle brush

B. Consumable Materials

REFERENCE DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

AMM	73-21-50-000-043	Removal of the HJ10 Harness
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-043	Installation of the HJ10 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with
		Engine non Motoring)
AMM	77-11-10-000-002	Removal of the N1 Speed Sensor (4000EV)
AMM	77-11-10-400-002	Installation of the N1 Speed Sensor (4000EV)

- 3. Fault Confirmation
  - A. Do the operational test of the FADEC 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL 77-10-00

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#### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel A and channel B inputs from R the N1 sensor disagree.
  - (1) If the failure message N1 SNSR, J10, ECU\* is not confirmed:

R

R

- (a) No maintenance action is required.
- (2) If the failure message N1 SNSR, J10, ECU\* is not confirmed but is repetitive:
  - disconnect HJ10 harness from the N1 sensor (N1-B connector).

R R

- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - If damage is found:repair or replace as required.
  - 2 If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).

R

R

- (b) If the failure continues during the subsequent flights: - replace the SENSOR-N1 ROTATIONAL SPD (4000EV) (Ref. AMM TASK
  - 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).

R

R

R

R

R

R

R

R

R

- (d) If the failure continues during the subsequent flights:
   replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and
  (Ref. AMM TASK 73-21-50-400-043).
- (3) If the failure message N1 SNSR, J10, ECU\* is confirmed:disconnect the HJ10 harness from the N1 sensor (N1-B connector).
  - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If damage is found: - repair or replace as required.
    - $\underline{2}$  If no damage is found:
      - do the electrical resistance test through the N1 sensor (4000EV) (channel B) between:

EFF: ALL

77-10-00

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R

R

R R

R

R

R R

R

R

R

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#### TROUBLE SHOOTING MANUAL

pins 1 and 2 (40 to 80 ohms)

for S/N different than 25451 and up:

- pins 1 and 3 (>5 kiloohms)
- . pin 1 and the ground (>10 megohms)

for S/N 25451 and up:

- . pins 1 and 3 (>10 megohms)
- . pin 1 and the ground (>10 megohms).
- <u>a</u> If the resistance values are out of the specified limits: - replace the N1 sensor (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- $\underline{b}$  If the resistance values are in the specified limits: connect the HJ10 harness to the N1 sensor.
- (b) Disconnect the HJ10 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - If damage is found:repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ10 harness between:
      - pins 16 and 17 (40 to 80 ohms)

for S/N different than 25451 and up:

- . pins 16 and 6 (>5 kiloohms)
- pin 16 and the ground (>10 megohms)

for S/N 25451 and up:

- pins 16 and 6 (>10 megohms)
- . pin 16 and the ground (>10 megohms).

and (Ref. AMM TASK 73-21-60-400-001).

- If the resistance values are in the specified limits:
   replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
- <u>b</u> If the resistance values are out of the specified limits: - replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).

77-10-00

EFF: ALL

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### TROUBLE SHOOTING MANUAL

- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL
SROS

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-829

Loss of the Feedback Signal of the N1 Speed Sensor - Engine 2 - Channel A

- 1. Possible Causes
  - SENSOR-N1 ROTATIONAL SPD (4000EV)
  - ECU (4000KS)
  - HJ9 harness
- Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

QTY DESIGNATION

No specific bristle brush

B. Consumable Materials

REFERENCE DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE	DESIGNATION

Removal of the HJ9 Harness AMM 73-21-50-000-042 73-21-50-210-002 Visual Inspection of the Wiring Harnesses AMM AMM 73-21-50-400-042 Installation of the HJ9 Harness AMM 73-21-60-000-001 Removal of the Electronic Control Unit (ECU) 73-21-60-400-001 Installation of the Electronic Control Unit (ECU) AMM AMM 73-29-00-710-040 Operational Test of the FADEC on the Ground (with Engine non Motoring) AMM 77-11-10-000-002 Removal of the N1 Speed Sensor (4000EV) AMM 77-11-10-400-002 Installation of the N1 Speed Sensor (4000EV)

3. Fault Confirmation

A. Do the operational test of the FADEC 2A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL 77-10-00

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### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

R R	Α.		failure message is generated if channel A and channel B inputs from N1 sensor disagree.
R		(1)	If the failure message N1 SNSR, J9, ECU* is not confirmed:
R			(a) No maintenance action is required.
R		(2)	If the failure message N1 SNSR, J9, ECU* is not confirmed but is
R			repetitive:
R			- disconnect HJ9 harness from the N1 sensor (N1-A connector).
R			(a) Visually examine the receptacle and the connector for damaged
R			pins or contamination (Ref. AMM TASK 73-21-50-210-002).
R			1 If damage is found:
R			- repair or replace as required.
R			2 If no damage is found:
R			<ul> <li>do a cleaning of the connector and receptacle using a</li> </ul>
R			bristle brush with stoddard solvent (Material No. CP2011)
R			(Ref. AMM TASK 73-21-50-210-002).
R			(b) If the failure continues during the subsequent flights:
R			- replace the SENSOR-N1 ROTATIONAL SPD (4000EV) (Ref. AMM TASK
R			77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
R			(c) If the failure continues during the subsequent flights:
R			- replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and
R			(Ref. AMM TASK 73-21-60-400-001).
R			(d) If the failure continues during the subsequent flights:
R			- replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and
R			(Ref. AMM TASK 73-21-50-400-042).
R		(3)	If the failure message N1 SNSR, J9, ECU* is confirmed:
R			- disconnect the HJ9 harness from the N1 sensor (N1-A connector).
R			(a) Visually examine the receptacle and the connector for damaged
R			pins or contamination (Ref. AMM TASK 73-21-50-210-002).
R			1 If damage is found:
R			- repair or replace as required.
R			2 If no damage is found:
R			- do the electrical resistance test through the N1 sensor
R			(4000EV) (channel A) between:
R			. pins 1 and 2 (40 to 80 ohms)
R			
R			for S/N different than 25451 and up:
R			. pins 1 and 3 (>5 kiloohms)

EFF: ALL

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#### TROUBLE SHOOTING MANUAL

pin 1 and the ground (>10 megohms) R R for S/N 25451 and up: R . pins 1 and 3 (>10 megohms) R . pin 1 and the ground (>10 megohms). R R If the resistance values are out of the specified limits: R - replace the N1 sensor (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002). R If the resistance values are in the specified limits: R R - connect the HJ9 harness to the N1 sensor. (b) Disconnect the HJ9 harness from the ECU (4000KS) and visually R examine the receptacle and the connector for damaged pins or R contamination (Ref. AMM TASK 73-21-50-210-002). R If damage is found: R - repair or replace as required. R 2 If no damage is found: R do the electrical resistance test through the HJ9 harness R between: R pins 16 and 17 (40 to 80 ohms) R for S/N different than 25451 and up: R R pins 16 and 6 (>5 kiloohms) pin 16 and the ground (>10 megohms) R R for S/N 25451 and up: R pins 16 and 6 (>10 megohms) R R . pin 16 and the ground (>10 megohms). a If the resistance values are in the specified limits: R - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) R and (Ref. AMM TASK 73-21-60-400-001). R b If the resistance values are out of the specified limits: R

- replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
- B. Do the test given in Para. 3.A.

R

R R

- (1) No additional maintenance action is required if the fault is not confirmed.
- (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL **SROS** 

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-830

Loss of the Feedback Signal of the N1 Speed Sensor - Engine 2 - Channel B

- 1. Possible Causes
  - SENSOR-N1 ROTATIONAL SPD (4000EV)
  - ECU (4000KS)
  - HJ10 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

QTY DESIGNATION

No specific bristle brush

B. Consumable Materials

REFERENCE DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

AMM AMM AMM	73-21-50-000-043 73-21-50-210-002 73-21-50-400-043 73-21-60-000-001 73-21-60-400-001 73-29-00-710-040	Removal of the HJ10 Harness Visual Inspection of the Wiring Harnesses Installation of the HJ10 Harness Removal of the Electronic Control Unit (ECU) Installation of the Electronic Control Unit (ECU) Operational Test of the FADEC on the Ground (with
AMM	77-11-10-000-002	Engine non Motoring) Removal of the N1 Speed Sensor (4000EV)
AMM	77-11-10-400-002	Installation of the N1 Speed Sensor (4000EV)

- 3. Fault Confirmation
  - A. Do the operational test of the FADEC 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

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### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

R R	Α.		N1 sensor disagree.
R		(1)	If the failure message N1 SNSR, J10, ECU* is not confirmed:
R			(a) No maintenance action is required.
R R R		(2)	If the failure message N1 SNSR, J10, ECU* is not confirmed but is repetitive: - disconnect HJ10 harness from the N1 sensor (N1-B connector).
R R			(a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
R R			<ul><li>1 If damage is found:</li><li>repair or replace as required.</li></ul>
R R R R			If no damage is found: <ul> <li>do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).</li> </ul>
R R R			(b) If the failure continues during the subsequent flights: - replace the SENSOR-N1 ROTATIONAL SPD (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
R R R			<pre>(c) If the failure continues during the subsequent flights:     replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and     (Ref. AMM TASK 73-21-60-400-001).</pre>
R R R			<pre>(d) If the failure continues during the subsequent flights:     - replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and</pre>
R R		(3)	If the failure message N1 SNSR, J10, ECU* is confirmed: - disconnect the HJ10 harness from the N1 sensor (N1-B connector).
R R			(a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
R R			<ul><li>1 If damage is found:</li><li>repair or replace as required.</li></ul>
R R R R R			<pre> 2   If no damage is found:     - do the electrical resistance test through the N1 sensor         (4000EV) (channel B) between:</pre>
- •			

EFF: ALL 77-10-00

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#### TROUBLE SHOOTING MANUAL

pin 1 and the ground (>10 megohms) R R for S/N 25451 and up: R . pins 1 and 3 (>10 megohms) R . pin 1 and the ground (>10 megohms). R R If the resistance values are out of the specified limits: R - replace the N1 sensor (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002). R If the resistance values are in the specified limits: R R - connect the HJ10 harness to the N1 sensor. (b) Disconnect the HJ10 harness from the ECU (4000KS) and visually R examine the receptacle and the connector for damaged pins or R contamination (Ref. AMM TASK 73-21-50-210-002). R If damage is found: R - repair or replace as required. R 2 If no damage is found: R do the electrical resistance test through the HJ10 harness R between: R pins 16 and 17 (40 to 80 ohms) R for S/N different than 25451 and up: R R pins 16 and 6 (>5 kiloohms) pin 16 and the ground (>10 megohms) R R for S/N 25451 and up: R pins 16 and 6 (>10 megohms) R R . pin 16 and the ground (>10 megohms). a If the resistance values are in the specified limits: R - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) R and (Ref. AMM TASK 73-21-60-400-001). R

- b If the resistance values are out of the specified limits:
  - replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
- B. Do the test given in Para. 3.A.

R

R

R R

- (1) No additional maintenance action is required if the fault is not confirmed.
- (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL **SROS** 

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#### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-833

Loss of the Feedback Signal of the N2 Speed Sensor - Engine 1 - Channel A

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - ECU (4000KS)
  - HJ7 harness
- Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

QTY DESIGNATION

No specific bristle brush

B. Consumable Materials

REFERENCE

DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

AMM 73-21-50-000-040 Removal of the HJ7 Harness AMM 73-21-50-210-002 Visual Inspection of the Wiring Harnesses AMM 73-21-50-400-040 Installation of the HJ7 Harness AMM 73-21-60-000-001 Removal of the Electronic Control Unit (ECU) AMM 73-21-60-400-001 Installation of the Electronic Control Unit (ECU) AMM 73-29-00-710-040 Operational Test of the FADEC on the Ground (with Engine non Motoring) AMM 77-11-20-000-002 Removal of the N2 Speed Sensor (4001EV). AMM 77-11-20-400-002 Installation of the N2 Speed Sensor (4001EV).

3. Fault Confirmation

A. Do the operational test of the FADEC 1A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL 77-10-00

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#### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel A input from the N2 sensor is invalid or out of range.
  - (1) If the failure message N2 SNSR, J7, ECU\* is not confirmed:

R

R

- (a) No maintenance action is required.
- (2) If the failure message N2 SNSR, J7, ECU\* is not confirmed but is repetitive:
  - disconnect HJ7 harness from the N2 sensor (N2-A connector).

R R

- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:- repair or replace as required.
  - 2 If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).

R

R

(b) If the failure continues during the subsequent flights:
- replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).

R

R

(c) If the failure continues during the subsequent flights:
- replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and
(Ref. AMM TASK 73-21-60-400-001).

R

R

R

R

R

- (d) If the failure continues during the subsequent flights:
   replace the HJ7 harness (Ref. AMM TASK 73-21-50-000-040) and
  (Ref. AMM TASK 73-21-50-400-040).
- (3) If the failure message N2 SNSR, J7, ECU\* is confirmed:
  - disconnect the HJ7 harness from the N2 sensor (N2-A connector).
- R (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - $\underline{1}$  If damage is found:
    - repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the N2 sensor (4001EV) (channel A) between:

EFF: ALL

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R

R R

R

R

R R

R

R

R

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### TROUBLE SHOOTING MANUAL

- pins 1 and 2 (40 to 80 ohms)
- pins 1 and 3 (>10 megohms)
- . pin 1 and the ground (>10 megohms).
- <u>a</u> If the resistance values are out of the specified limits: - replace the N2 sensor (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- $\underline{b}$  If the resistance values are in the specified limits: connect the HJ7 harness to the N2 sensor.
- (b) Disconnect the HJ7 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - If damage is found:repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ7 harness between:
      - pins 2 and 11 (40 to 80 ohms)
      - . pins 2 and 3 (>10 megohms)
      - . pin 2 and the ground (>10 megohms).
    - a If the resistance values are in the specified limits:
       replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
       and (Ref. AMM TASK 73-21-60-400-001).
    - If the resistance values are out of the specified limits:
       replace the HJ7 harness (Ref. AMM TASK 73-21-50-000-040)
       and (Ref. AMM TASK 73-21-50-400-040).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-834

Loss of the Feedback Signal of the N2 Speed Sensor - Engine 1 - Channel B

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - ECU (4000KS)
  - HJ8 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

REFERENCE

DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

AMM AMM	73-21-50-000-041 73-21-50-210-002 73-21-50-400-041 73-21-60-000-001	Removal of the HJ8 Harness Visual Inspection of the Wiring Harnesses Installation of the HJ8 Harness Removal of the Electronic Control Unit (ECU)
	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with
		Engine non Motoring)
AMM	77-11-20-000-002	Removal of the N2 Speed Sensor (4001EV).
AMM	77-11-20-400-002	Installation of the N2 Speed Sensor (4001EV).

- 3. Fault Confirmation
  - A. Do the operational test of the FADEC 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL 77-10-00

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### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel B input from the N2 sensor is invalid or out of range.
  - (1) If the failure message N2 SNSR, J8, ECU\* is not confirmed:

R

R

- (a) No maintenance action is required.
- (2) If the failure message N2 SNSR, J8, ECU\* is not confirmed but is repetitive:
  - disconnect HJ8 harness from the N2 sensor (N2-B connector).

R R

- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - If damage is found: - repair or replace as required.
  - If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).

R

R

(b) If the failure continues during the subsequent flights: - replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).

R

R

(c) If the failure continues during the subsequent flights: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

R

R

R

R

- (d) If the failure continues during the subsequent flights: - replace the HJ8 harness (Ref. AMM TASK 73-21-50-000-041) and (Ref. AMM TASK 73-21-50-400-041).
- (3) If the failure message N2 SNSR, J8, ECU\* is confirmed: R
  - disconnect the HJ8 harness from the N2 sensor (N2-B connector).
- R (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002). R
  - If damage is found:
    - repair or replace as required.
  - If no damage is found:
    - do the electrical resistance test through the N2 sensor (4001EV) (channel B) between:

EFF: ALL 77-10-00

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**SROS** 

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### TROUBLE SHOOTING MANUAL

- pins 1 and 2 (40 to 80 ohms)
- pins 1 and 3 (>10 megohms)
- . pin 1 and the ground (>10 megohms).
- a If the resistance values are out of the specified limits: - replace the N2 sensor (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- $\underline{b}$  If the resistance values are in the specified limits: connect the HJ8 harness to the N2 sensor.
- (b) Disconnect the HJ8 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ8 harness between:
      - . pins 2 and 11 (40 to 80 ohms)
      - . pins 2 and 3 (>10 megohms)
      - . pin 2 and the ground (>10 megohms).
    - a If the resistance values are in the specified limits:
       replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
       and (Ref. AMM TASK 73-21-60-400-001).
    - If the resistance values are out of the specified limits:
       replace the HJ8 harness (Ref. AMM TASK 73-21-50-000-041)
       and (Ref. AMM TASK 73-21-50-400-041).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-835

Loss of the Feedback Signal of the N2 Speed Sensor - Engine 2 - Channel A

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - ECU (4000KS)
  - HJ7 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

REFERENCE

DESIGNATION

Material No. CP2011

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE **DESIGNATION** 

	72016W.120W
AMM 73-21-50-000-040	Removal of the HJ7 Harness

AITIT	13-21-30-000-040	Removat of the hir harriess
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-040	Installation of the HJ7 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with
		Engine non Motoring)
AMM	77-11-20-000-002	Removal of the N2 Speed Sensor (4001EV).
AMM	77-11-20-400-002	Installation of the N2 Speed Sensor (4001EV).

- 3. Fault Confirmation
  - A. Do the operational test of the FADEC 2A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

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### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel A input from the N2 sensor is invalid or out of range.
  - (1) If the failure message N2 SNSR, J7, ECU\* is not confirmed:

R

R

- (a) No maintenance action is required.
- (2) If the failure message N2 SNSR, J7, ECU\* is not confirmed but is repetitive:
  - disconnect HJ7 harness from the N2 sensor (N2-A connector).

R R

- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:- repair or replace as required.
  - 2 If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).

R

R

(b) If the failure continues during the subsequent flights:
- replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).

R

R

(c) If the failure continues during the subsequent flights:
- replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and
(Ref. AMM TASK 73-21-60-400-001).

R

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- (d) If the failure continues during the subsequent flights:
   replace the HJ7 harness (Ref. AMM TASK 73-21-50-000-040) and
  (Ref. AMM TASK 73-21-50-400-040).
- (3) If the failure message N2 SNSR, J7, ECU\* is confirmed:disconnect the HJ7 harness from the N2 sensor (N2-A connector).
  - disconnect the may markess from the M2 sensor (M2-A connector).
  - (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If damage is found:
      - repair or replace as required.
    - 2 If no damage is found:
      - do the electrical resistance test through the N2 sensor (4001EV) (channel A) between:

EFF: ALL

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### TROUBLE SHOOTING MANUAL

- pins 1 and 2 (40 to 80 ohms)
- pins 1 and 3 (>10 megohms)
- . pin 1 and the ground (>10 megohms).
- <u>a</u> If the resistance values are out of the specified limits: - replace the N2 sensor (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- <u>b</u> If the resistance values are in the specified limits:
   connect the HJ7 harness to the N2 sensor.
- (b) Disconnect the HJ7 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - If damage is found:repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ7 harness between:
      - . pins 2 and 11 (40 to 80 ohms)
      - . pins 2 and 3 (>10 megohms)
      - . pin 2 and the ground (>10 megohms).
    - a If the resistance values are in the specified limits:
       replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
       and (Ref. AMM TASK 73-21-60-400-001).
    - If the resistance values are out of the specified limits:
       replace the HJ7 harness (Ref. AMM TASK 73-21-50-000-040)
       and (Ref. AMM TASK 73-21-50-400-040).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-836

Loss of the Feedback Signal of the N2 Speed Sensor - Engine 2 - Channel B

- 1. Possible Causes
  - SENSOR-N2 ROTATIONAL SPD (4001EV)
  - ECU (4000KS)
  - HJ8 harness
- 2. Job Set-up Information
  - A. Fixtures, Tools, Test and Support Equipment

REFERENCE QTY DESIGNATION

No specific

bristle brush

B. Consumable Materials

REFERENCE DESIGNATION

KELEKENCE DESIGNATION

-----

Material No. CP2011 \*

stoddard solvent (Ref. 70-30-00)

C. Referenced Information

REFERENCE DESIGNATION

	7-0-0
AMM 73-21-50-000-041	Democrat of the U.O. Henness
AMM 73-21-30-000-041	Removal of the HJ8 Harness
AMM 73-21-50-210-002	Visual Inspection of the Wiring Harnesses
NMM / 5 = 2 1 = 5     = 2 1     =	Vicual inchestion of the Wising Mashesses

,	. 5 50 000 0	Nemotat of the not har need
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-041	Installation of the HJ8 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with
		Engine non Motoring)
AMM	77-11-20-000-002	Removal of the N2 Speed Sensor (4001EV).
AMM	77-11-20-400-002	Installation of the N2 Speed Sensor (4001EV).

- 3. Fault Confirmation
  - A. Do the operational test of the FADEC 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

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### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel B input from the N2 sensor is invalid or out of range.
  - (1) If the failure message N2 SNSR, J8, ECU\* is not confirmed:

R

R

- (a) No maintenance action is required.
- (2) If the failure message N2 SNSR, J8, ECU\* is not confirmed but is repetitive:
  - disconnect HJ8 harness from the N2 sensor (N2-B connector).

R R

- (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - If damage is found: - repair or replace as required.
  - If no damage is found:
    - do a cleaning of the connector and receptacle using a bristle brush with stoddard solvent (Material No. CP2011) (Ref. AMM TASK 73-21-50-210-002).

R

R

(b) If the failure continues during the subsequent flights: - replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).

R

R

(c) If the failure continues during the subsequent flights: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

R

R

R

R

- (d) If the failure continues during the subsequent flights: - replace the HJ8 harness (Ref. AMM TASK 73-21-50-000-041) and (Ref. AMM TASK 73-21-50-400-041).
- R
- (3) If the failure message N2 SNSR, J8, ECU\* is confirmed: - disconnect the HJ8 harness from the N2 sensor (N2-B connector).
- R (a) Visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002). R
  - If damage is found:
    - repair or replace as required.
  - If no damage is found:
    - do the electrical resistance test through the N2 sensor (4001EV) (channel B) between:

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### TROUBLE SHOOTING MANUAL

- pins 1 and 2 (40 to 80 ohms)
- . pins 1 and 3 (>10 megohms)
- . pin 1 and the ground (>10 megohms).
- <u>a</u> If the resistance values are out of the specified limits: - replace the N2 sensor (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- $\underline{b}$  If the resistance values are in the specified limits: connect the HJ8 harness to the N2 sensor.
- (b) Disconnect the HJ8 harness from the ECU (4000KS) and visually examine the receptacle and the connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - 1 If damage is found:repair or replace as required.
  - 2 If no damage is found:
    - do the electrical resistance test through the HJ8 harness between:
      - pins 2 and 11 (40 to 80 ohms)
      - . pins 2 and 3 (>10 megohms)
      - . pin 2 and the ground (>10 megohms).
    - a If the resistance values are in the specified limits:
       replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
       and (Ref. AMM TASK 73-21-60-400-001).
    - <u>b</u> If the resistance values are out of the specified limits:
       replace the HJ8 harness (Ref. AMM TASK 73-21-50-000-041)
       and (Ref. AMM TASK 73-21-50-400-041).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-837

Loss of the Alternator Power Supply on Engine 1 - Channel A

#### 1. Possible Causes

- ECU (4000KS)
- alternator stator
- HJ9 harness
- alternator rotor
- AGB

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
4 MM	72 /7 00 000 007	Democrat of the Assessment Constant Assessment
AMM		Removal of the Accessory Gearbox Assembly
AMM	72-63-00-400-003	Installation of the Accessory Gearbox Assembly
AMM	73-21-30-000-001	Removal of the Control Alternator
AMM	73-21-30-400-001	Installation of the Control Alternator
AMM	73-21-50-000-042	Removal of the HJ9 Harness
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-042	Installation of the HJ9 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Motoring)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Non motoring)
AMM	79-00-00-281-002	Check of the Electrical Master Chip Detector for Particles

#### 3. Fault Confirmation

```
R **ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549,
R 551-599, 701-749,
```

A. Do the operational test of the FADEC 1A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

```
R **ON A/C 201-201, 203-225, 227-227, 229-244, 247-299, 426-499, 551-551,
  554-554, 557-563, 701-749,
  Post SB 73-1080 For A/C 201-201,203-225,227-227,229-244,247-253,276-299,
R
                            426-450,476-499,551-551,554-554,557-563,701-749,
```

A. Do the operational test of the FADEC 1A on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL **SROS** 

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### TROUBLE SHOOTING MANUAL

#### \*\*ON A/C ALL

#### 4. Fault Isolation

- R \*\*ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549, R 551-599, 701-749,
  - A. This fault is generated if the ECU detects an open or short circuit on one or more alternator windings and N2 is greater than 58.8% (min idle).
    - NOTE: A possible cause of the message failure "ALT, J9, ECU" may be the result of a short circuit through J9 wires which can produce an ECU power supply deterioration. The troubleshooting steps must be performed as specified hereunder.
    - (1) If the failure message ALT, J9, ECU is not confirmed:
      - do a check of the Electrical Master Chip Detector for Particles (Ref. AMM TASK 79-00-00-281-002).
      - (a) If particles are found:
        - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
        - Inspect alternator stator and rotor for contact, replace as required (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
      - (b) If no particles are found:
        - no further maintenance action is required.
    - (2) If the failure message ALT, J9, ECU is not confirmed but is repetitive:
      - disconnect the HJ9 harness from the alternator stator.
      - (a) Visually examine the alternator stator receptacle and the HJ9 harness connector for damaged pins or contamination, and the 90° elbow of the harness boot for evidence of overheat (Ref. AMM TASK 73-21-50-210-002).
        - 1 If harness or alternator stator connector is damaged:
           repair or replace as required.
        - 2 If no damage is found:
          - remove the alternator stator (Ref. AMM TASK 73-21-30-000-001).

77-10-00

EFF:

ALL

### TROUBLE SHOOTING MANUAL

- (b) Visually examine the alternator stator and rotor for evidence of contact.
  - If evidence of contact is found, the cause must be determined:
     inspect the alternator rotor nut for proper installation, do a check of the Electrical Master Chip Detector for Particles
    - (Ref. AMM TASK 79-00-00-281-002).
    - a If chips are found on the chip detector:
      - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
    - $\underline{b}$  If rubbing is found and chips were not found on the chip detector:
      - replace the alternator rotor and stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
    - c If no rubbing is noted:
      - reinstall the alternator stator (Ref. AMM TASK 73-21-30-400-001).
- (c) Replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
  - 1 If fault continues during the subsequent flights:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- (3) If the failure message ALT, J9, ECU is confirmed:
  - disconnect the HJ9 harness from the alternator stator (ALT-A)
     (located in the left core compartment).
  - (a) Visually examine the alternator stator receptacle and the HJ9 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness or alternator stator connector is damaged:

      repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the alternator stator connector between:
        - . pins 2 and 5 (<1 0hm)</pre>
        - pins 3 and 5 (<1 0hm)</pre>
        - pins 4 and 5 (<1 0hm)</pre>
        - . pin 5 and the ground (>10 Megohms).
      - a If the resistance values are out of the specified limits:
        - replace the alternator stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).

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### TROUBLE SHOOTING MANUAL

- <u>b</u> If the resistance values are in the specified limits:
   reconnect the HJ9 harness to the alternator stator.
- (b) Disconnect the HJ9 harness from the ECU (4000KS) receptacle.
- (c) Visually examine the ECU (4000KS) receptacle and the HJ9 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - <u>1</u> If harness connector or ECU receptacle is damaged: - repair or replace as required.
  - 2 If no damage is found:
    - do an electrical resistance test through the HJ9 harness between:
      - . pins 5 and 13 (<1 ohm)</pre>
      - pins 5 and 14 (<1 ohm)</pre>
      - . pins 5 and 15 (<1 ohm)</pre>
      - . pins 5 and 4 (>10 megohms)
      - . pins 13 and 4 (>10 megohms)
      - . pins 14 and 4 (>10 megohms)
      - . pins 15 and 4 (>10 megohms)
      - . pin 5 and the ground (>10 megohms).
    - If the resistance values are out of the specified limits: - replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
    - <u>b</u> If the resistance values are in the specified limits: replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

```
R **ON A/C 201-201, 203-225, 227-227, 229-244, 247-299, 426-499, 551-551, R 554-554, 557-563, 701-749, R Post SB 73-1080 For A/C 201-201,203-225,227-227,229-244,247-253,276-299, R 426-450,476-499,551-551,554-554,557-563,701-749,
```

- A. This fault is generated if the ECU detects an open or short circuit on one or more alternator windings and N2 is greater than 58.8% (min idle). The fault is also generated when the FADEC motoring test is active and N2 is less than 15%.
  - NOTE: A possible cause of the message failure "ALT, J9, ECU" may be the result of a short circuit through J9 wires which can produce an ECU power supply deterioration. The troubleshooting steps must be performed as specified hereunder.

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### TROUBLE SHOOTING MANUAL

- (1) If the failure message ALT, J9, ECU is not confirmed:
  - do a check of the Electrical Master Chip Detector for Particles (Ref. AMM TASK 79-00-00-281-002).
  - (a) If particles are found:
    - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
    - Inspect alternator stator and rotor for contact, replace as required (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
  - (b) If no particles are found:
    - no further maintenance action is required.
- (2) If the failure message ALT, J9, ECU is not confirmed but is repetitive:
  - disconnect the HJ9 harness from the alternator stator.
  - (a) Visually examine the alternator stator receptacle and the HJ9 harness connector for damaged pins or contamination, and the 90° elbow of the harness boot for evidence of overheat (Ref. AMM TASK 73-21-50-210-002).
    - <u>1</u> If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - remove the alternator stator (Ref. AMM TASK 73-21-30-000-001).
  - (b) Visually examine the alternator stator and rotor for evidence of contact.
    - 1 If evidence of contact is found, the cause must be determined:
      - inspect the alternator rotor nut for proper installation, do a check of the Electrical Master Chip Detector for Particles (Ref. AMM TASK 79-00-00-281-002).
        - a If chips are found on the chip detector:
          - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
      - $\underline{b}$  If rubbing is found and chips were not found on the chip detector:
        - replace the alternator rotor and stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
      - c If no rubbing is noted:
        - reinstall the alternator stator (Ref. AMM TASK 73-21-30-400-001).

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### TROUBLE SHOOTING MANUAL

- (c) Replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
  - 1 If fault continues during the subsequent flights:
     replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
    and (Ref. AMM TASK 73-21-60-400-001).
- (3) If the failure message ALT, J9, ECU is confirmed:
  - disconnect the HJ9 harness from the alternator stator (ALT-A) (located in the left core compartment).
  - (a) Visually examine the alternator stator receptacle and the HJ9 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the alternator stator connector between:
        - pins 2 and 5 (<1 0hm)</pre>
        - . pins 3 and 5 (<1 0hm)</pre>
        - pins 4 and 5 (<1 0hm)</pre>
        - . pin 5 and the ground (>10 Megohms).
      - <u>a</u> If the resistance values are out of the specified limits:
        - replace the alternator stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
      - <u>b</u> If the resistance values are in the specified limits:
         reconnect the HJ9 harness to the alternator stator.
  - (b) Disconnect the HJ9 harness from the ECU (4000KS) receptacle.
  - (c) Visually examine the ECU (4000KS) receptacle and the HJ9 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness connector or ECU receptacle is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the HJ9 harness between:
        - . pins 5 and 13 (<1 ohm)
        - pins 5 and 14 (<1 ohm)</pre>
        - pins 5 and 15 (<1 ohm)</pre>
        - pins 5 and 4 (>10 megohms)
        - . pins 13 and 4 (>10 megohms)
        - . pins 14 and 4 (>10 megohms)
        - . pins 15 and 4 (>10 megohms)

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### TROUBLE SHOOTING MANUAL

- . pin 5 and the ground (>10 megohms).
- If the resistance values are out of the specified limits: - replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
- b If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

#### \*\*ON A/C ALL

- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-838

Loss of the Alternator Power Supply on Engine 2 - Channel A

#### 1. Possible Causes

- ECU (4000KS)
- alternator stator
- HJ9 harness
- alternator rotor
- AGB

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
AMM	72-63-00-000-003	Removal of the Accessory Gearbox Assembly
AMM	72-63-00-400-003	Installation of the Accessory Gearbox Assembly
AMM	73-21-30-000-001	Removal of the Control Alternator
AMM	73-21-30-400-001	Installation of the Control Alternator
AMM	73-21-50-000-042	Removal of the HJ9 Harness
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-042	Installation of the HJ9 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Motoring)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Non motoring)
AMM	79-00-00-281-002	Check of the Electrical Master Chip Detector for Particles

#### 3. Fault Confirmation

```
R **ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549,
R 551-599, 701-749,
```

A. Do the operational test of the FADEC 2A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

```
R **ON A/C 201-201, 203-225, 227-227, 229-244, 247-299, 426-499, 551-551,
  554-554, 557-563, 701-749,
  Post SB 73-1080 For A/C 201-201,203-225,227-227,229-244,247-253,276-299,
R
                            426-450,476-499,551-551,554-554,557-563,701-749,
```

A. Do the operational test of the FADEC 2A on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL **SROS** 

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\*\*ON A/C ALL

#### 4. Fault Isolation

- R \*\*ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549, R 551-599, 701-749,
  - A. This fault is generated if the ECU detects an open or short circuit on one or
    - NOTE: A possible cause of the message failure "ALT, J9, ECU" may be the result of a short circuit through J9 wires which can produce an ECU power supply deterioration. The troubleshooting steps must be performed as specified hereunder.

more alternator windings and N2 is greater than 58.8% (min idle).

- (1) If the failure message ALT, J9, ECU is not confirmed:
  - do a check of the Electrical Master Chip Detector for Particles (Ref. AMM TASK 79-00-00-281-002).
  - (a) If particles are found:
    - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
    - Inspect alternator stator and rotor for contact, replace as required (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
  - (b) If no particles are found:
    - no further maintenance action is required.
- (2) If the failure message ALT, J9, ECU is not confirmed but is repetitive:
  - disconnect the HJ9 harness from the alternator stator.
  - (a) Visually examine the alternator stator receptacle and the HJ9 harness connector for damaged pins or contamination, and the 90° elbow of the harness boot for evidence of overheat (Ref. AMM TASK 73-21-50-210-002).
    - <u>1</u> If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - remove the alternator stator (Ref. AMM TASK 73-21-30-000-001).

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- (b) Visually examine the alternator stator and rotor for evidence of contact.
  - If evidence of contact is found, the cause must be determined:

    inspect the alternator rotor nut for proper installation, do
    a check of the Electrical Master Chip Detector for Particles
    - (Ref. AMM TASK 79-00-00-281-002).
    - a If chips are found on the chip detector:
      - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
    - $\underline{b}$  If rubbing is found and chips were not found on the chip detector:
      - replace the alternator rotor and stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
    - c If no rubbing is noted:
      - reinstall the alternator stator (Ref. AMM TASK 73-21-30-400-001).
- (c) Replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
  - 1 If fault continues during the subsequent flights:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- (3) If the failure message ALT, J9, ECU is confirmed:
  - disconnect the HJ9 harness from the alternator stator (ALT-A)
     (located in the left core compartment).
  - (a) Visually examine the alternator stator receptacle and the HJ9 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the alternator stator connector between:
        - pins 2 and 5 (<1 0hm)</pre>
        - pins 3 and 5 (<1 0hm)</pre>
        - pins 4 and 5 (<1 0hm)</pre>
        - . pin 5 and the ground (>10 Megohms).
      - a If the resistance values are out of the specified limits:
        - replace the alternator stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).

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### TROUBLE SHOOTING MANUAL

- <u>b</u> If the resistance values are in the specified limits:
   reconnect the HJ9 harness to the alternator stator.
- (b) Disconnect the HJ9 harness from the ECU (4000KS) receptacle.
- (c) Visually examine the ECU (4000KS) receptacle and the HJ9 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
  - <u>1</u> If harness connector or ECU receptacle is damaged: - repair or replace as required.
  - 2 If no damage is found:
    - do an electrical resistance test through the HJ9 harness between:
      - . pins 5 and 13 (<1 ohm)</pre>
      - pins 5 and 14 (<1 ohm)</pre>
      - pins 5 and 15 (<1 ohm)</pre>
      - . pins 5 and 4 (>10 megohms)
      - . pins 13 and 4 (>10 megohms)
      - . pins 14 and 4 (>10 megohms)
      - . pins 15 and 4 (>10 megohms)
      - . pin 5 and the ground (>10 megohms).
    - <u>a</u> If the resistance values are out of the specified limits: - replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
    - b If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

```
R **ON A/C 201-201, 203-225, 227-227, 229-244, 247-299, 426-499, 551-551, R 554-554, 557-563, 701-749, R Post SB 73-1080 For A/C 201-201,203-225,227-227,229-244,247-253,276-299, R 426-450,476-499,551-551,554-554,557-563,701-749,
```

- A. This fault is generated if the ECU detects an open or short circuit on one or more alternator windings and N2 is greater than 58.8% (min idle). This fault is also generated when the FADEC motoring test is active and N2 is less than 15%.
  - NOTE: A possible cause of the message failure "ALT, J9, ECU" may be the result of a short circuit through J9 wires which can produce an ECU power supply deterioration. The troubleshooting steps must be performed as specified hereunder.

EFF: ALL

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- (1) If the failure message ALT, J9, ECU is not confirmed:
  - do a check of the Electrical Master Chip Detector for Particles (Ref. AMM TASK 79-00-00-281-002).
  - (a) If particles are found:
    - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
    - Inspect alternator stator and rotor for contact, replace as required (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
  - (b) If no particles are found:
    - no further maintenance action is required.
- (2) If the failure message ALT, J9, ECU is not confirmed but is repetitive:
  - disconnect the HJ9 harness from the alternator stator.
  - (a) Visually examine the alternator stator receptacle and the HJ9 harness connector for damaged pins or contamination, and the 90° elbow of the harness boot for evidence of overheat (Ref. AMM TASK 73-21-50-210-002).
    - <u>1</u> If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - remove the alternator stator (Ref. AMM TASK 73-21-30-000-001).
  - (b) Visually examine the alternator stator and rotor for evidence of contact.
    - 1 If evidence of contact is found, the cause must be determined:
      - inspect the alternator rotor nut for proper installation, do a check of the Electrical Master Chip Detector for Particles (Ref. AMM TASK 79-00-00-281-002).
        - a If chips are found on the chip detector:
          - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
      - $\underline{b}$  If rubbing is found and chips were not found on the chip detector:
        - replace the alternator rotor and stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
      - c If no rubbing is noted:
        - reinstall the alternator stator (Ref. AMM TASK 73-21-30-400-001).

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- (c) Replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
  - 1 If fault continues during the subsequent flights:
     replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
    and (Ref. AMM TASK 73-21-60-400-001).
- (3) If the failure message ALT, J9, ECU is confirmed:
  - disconnect the HJ9 harness from the alternator stator (ALT-A) (located in the left core compartment).
  - (a) Visually examine the alternator stator receptacle and the HJ9 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness or alternator stator connector is damaged:

      repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the alternator stator connector between:
        - . pins 2 and 5 (<1 0hm)</pre>
        - . pins 3 and 5 (<1 0hm)</pre>
        - . pins 4 and 5 (<1 0hm)</pre>
        - . pin 5 and the ground (>10 Megohms).
      - a If the resistance values are out of the specified limits:
        - replace the alternator stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
      - <u>b</u> If the resistance values are in the specified limits: - reconnect the HJ9 harness to the alternator stator.
  - (b) Disconnect the HJ9 harness from the ECU (4000KS) receptacle.
  - (c) Visually examine the ECU (4000KS) receptacle and the HJ9 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness connector or ECU receptacle is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the HJ9 harness between:
        - pins 5 and 13 (<1 ohm)</pre>
        - pins 5 and 14 (<1 ohm)</pre>
        - . pins 5 and 15 (<1 ohm)</pre>
        - pins 5 and 4 (>10 megohms)
        - . pins 13 and 4 (>10 megohms)
        - . pins 14 and 4 (>10 megohms)
        - pins 15 and 4 (>10 megohms)

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- . pin 5 and the ground (>10 megohms).
- If the resistance values are out of the specified limits: - replace the HJ9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
- <u>b</u> If the resistance values are in the specified limits:
   replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
   and (Ref. AMM TASK 73-21-60-400-001).

#### \*\*ON A/C ALL

- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-839

Loss of the Alternator Power Supply on Engine 1 - Channel B

#### 1. Possible Causes

- ECU (4000KS)
- alternator stator
- HJ10 harness
- alternator rotor
- AGB

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
	70 (7 00 000 007	
AMM	72-63-00-000-003	Removal of the Accessory Gearbox Assembly
AMM	72-63-00-400-003	Installation of the Accessory Gearbox Assembly
AMM	73-21-30-000-001	Removal of the Control Alternator
AMM	73-21-30-400-001	Installation of the Control Alternator
AMM	73-21-50-000-043	Removal of the HJ10 Harness
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-043	Installation of the HJ10 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Motoring)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Non motoring)
AMM	79-00-00-281-002	Check of the Electrical Master Chip Detector for Particles

#### 3. Fault Confirmation

```
R **ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549,
R 551-599, 701-749,
```

A. Do the operational test of the FADEC 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

```
R **ON A/C 201-201, 203-225, 227-227, 229-244, 247-299, 426-499, 551-551,
R 554-554, 557-563, 701-749,
  Post SB 73-1080 For A/C 201-201,203-225,227-227,229-244,247-253,276-299,
R
                            426-450,476-499,551-551,554-554,557-563,701-749,
```

A. Do the operational test of the FADEC 1B on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).

EFF: ALL **SROS** 

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### TROUBLE SHOOTING MANUAL

\*\*ON A/C ALL

#### 4. Fault Isolation

- R \*\*ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549, R 551-599, 701-749,
  - A. This fault is generated if the ECU detects an open or short circuit on one or more alternator windings and N2 is greater than 58.8% (min idle).
    - <u>NOTE</u>: A possible cause of the message failure "ALT, J10, ECU" may be the result of a short circuit through J10 wires which can produce an ECU power supply deterioration. The troubleshooting steps must be performed as specified hereunder.
    - (1) If the failure message ALT, J10, ECU is not confirmed:
      - do a check of the Electrical Master Chip Detector for Particles (Ref. AMM TASK 79-00-00-281-002).
      - (a) If particles are found:
        - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
        - Inspect alternator stator and rotor for contact, replace as required (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
      - (b) If no particles are found:
        - no further maintenance action is required.
    - (2) If the failure message ALT, J10, ECU is not confirmed but is repetitive:
      - disconnect the HJ10 harness from the alternator stator.
      - (a) Visually examine the alternator stator receptacle and the HJ10 harness connector for damaged pins or contamination, and the 90° elbow of the harness boot for evidence of overheat (Ref. AMM TASK 73-21-50-210-002).
        - 1 If harness or alternator stator connector is damaged:
           repair or replace as required.
        - 2 If no damage is found:
          - remove the alternator stator (Ref. AMM TASK 73-21-30-000-001).

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- (b) Visually examine the alternator stator and rotor for evidence of contact.
  - 1 If evidence of contact is found, the cause must be determined:

    inspect the alternator rotor nut for proper installation, do
    a check of the Electrical Master Chip Detector for Particles
    - (Ref. AMM TASK 79-00-00-281-002).
    - a If chips are found on the chip detector:
      - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
    - $\underline{b}$  If rubbing is found and chips were not found on the chip detector:
      - replace the alternator rotor and stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
    - c If no rubbing is noted:
      - reinstall the alternator stator (Ref. AMM TASK 73-21-30-400-001).
- (c) Replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
  - 1 If fault continues during the subsequent flights:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- (3) If the failure message ALT, J10, ECU is confirmed:
  - disconnect the HJ10 harness from the alternator stator (ALT-A)
     (located in the left core compartment).
  - (a) Visually examine the alternator stator receptacle and the HJ10 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the alternator stator connector between:
        - pins 2 and 5 (<1 0hm)</pre>
        - pins 3 and 5 (<1 0hm)</pre>
        - pins 4 and 5 (<1 0hm)</pre>
        - . pin 5 and the ground (>10 Megohms).
      - a If the resistance values are out of the specified limits:
        - replace the alternator stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).

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- <u>b</u> If the resistance values are in the specified limits:
   reconnect the HJ10 harness to the alternator stator.
- (b) Disconnect the HJ10 harness from the ECU (4000KS) receptacle.
- (c) Visually examine the ECU (4000KS) receptacle and the HJ10 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).

  - 2 If no damage is found:
    - do an electrical resistance test through the HJ10 harness between:
      - . pins 5 and 13 (<1 ohm)</pre>
      - pins 5 and 14 (<1 ohm)</pre>
      - . pins 5 and 15 (<1 ohm)</pre>
      - . pins 5 and 4 (>10 megohms)
      - . pins 13 and 4 (>10 megohms)
      - pins 14 and 4 (>10 megohms)
      - . pins 15 and 4 (>10 megohms)
      - . pin 5 and the ground (>10 megohms).
    - a If the resistance values are out of the specified limits: - replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
    - <u>b</u> If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

```
R **ON A/C 201-201, 203-225, 227-227, 229-244, 247-299, 426-499, 551-551, R 554-554, 557-563, 701-749, R Post SB 73-1080 For A/C 201-201,203-225,227-227,229-244,247-253,276-299, R 426-450,476-499,551-551,554-554,557-563,701-749,
```

- A. This fault is generated if the ECU detects an open or short circuit on one or more alternator windings and N2 is greater than 58.8% (min idle). This fault is also generated when the FADEC motoring test is active and N2 is less than 15%.
  - <u>NOTE</u>: A possible cause of the message failure "ALT, J10, ECU" may be the result of a short circuit through J10 wires which can produce an ECU power supply deterioration. The troubleshooting steps must be performed as specified hereunder.

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- (1) If the failure message ALT, J10, ECU is not confirmed:
  - do a check of the Electrical Master Chip Detector for Particles (Ref. AMM TASK 79-00-00-281-002).
  - (a) If particles are found:
    - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
    - Inspect alternator stator and rotor for contact, replace as required (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
  - (b) If no particles are found:
    - no further maintenance action is required.
- (2) If the failure message ALT, J10, ECU is not confirmed but is repetitive:
  - disconnect the HJ10 harness from the alternator stator.
  - (a) Visually examine the alternator stator receptacle and the HJ10 harness connector for damaged pins or contamination, and the 90° elbow of the harness boot for evidence of overheat (Ref. AMM TASK 73-21-50-210-002).
    - If harness or alternator stator connector is damaged: - repair or replace as required.
    - If no damage is found:
      - remove the alternator stator (Ref. AMM TASK 73-21-30-000-001).
  - (b) Visually examine the alternator stator and rotor for evidence of contact.
    - If evidence of contact is found, the cause must be determined:
      - inspect the alternator rotor nut for proper installation, do a check of the Electrical Master Chip Detector for Particles (Ref. AMM TASK 79-00-00-281-002).
        - a If chips are found on the chip detector:
          - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
      - b If rubbing is found and chips were not found on the chip detector:
        - replace the alternator rotor and stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
      - If no rubbing is noted:
        - reinstall the alternator stator (Ref. AMM TASK 73-21-30-400-001).

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- (c) Replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
  - 1 If fault continues during the subsequent flights:
     replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
    and (Ref. AMM TASK 73-21-60-400-001).
- (3) If the failure message ALT, J10, ECU is confirmed:
  - disconnect the HJ10 harness from the alternator stator (ALT-A) (located in the left core compartment).
  - (a) Visually examine the alternator stator receptacle and the HJ10 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - <u>1</u> If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the alternator stator connector between:
        - . pins 2 and 5 (<1 0hm)</pre>
        - pins 3 and 5 (<1 0hm)</pre>
        - pins 4 and 5 (<1 0hm)</pre>
        - . pin 5 and the ground (>10 Megohms).
      - $\underline{\underline{a}}$  If the resistance values are out of the specified limits:
        - replace the alternator stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
      - <u>b</u> If the resistance values are in the specified limits: - reconnect the HJ10 harness to the alternator stator.
  - (b) Disconnect the HJ10 harness from the ECU (4000KS) receptacle.
  - (c) Visually examine the ECU (4000KS) receptacle and the HJ10 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness connector or ECU receptacle is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the HJ10 harness between:
        - pins 5 and 13 (<1 ohm)</pre>
        - pins 5 and 14 (<1 ohm)</pre>
        - . pins 5 and 15 (<1 ohm)</pre>
        - pins 5 and 4 (>10 megohms)
        - . pins 13 and 4 (>10 megohms)
        - . pins 14 and 4 (>10 megohms)
        - pins 15 and 4 (>10 megohms)

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- . pin 5 and the ground (>10 megohms).
- If the resistance values are out of the specified limits:
   replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043)
   and (Ref. AMM TASK 73-21-50-400-043).
- b If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

#### \*\*ON A/C ALL

- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-840

Loss of the Alternator Power Supply on Engine 2 - Channel B

#### 1. Possible Causes

- ECU (4000KS)
- alternator stator
- HJ10 harness
- alternator rotor
- AGB

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
АММ	72-63-00-000-003	Removal of the Accessory Gearbox Assembly
AMM	72-63-00-400-003	Installation of the Accessory Gearbox Assembly
AMM	73-21-30-000-001	Removal of the Control Alternator
AMM	73-21-30-400-001	Installation of the Control Alternator
AMM	73-21-50-000-043	Removal of the HJ10 Harness
AMM		Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-043	Installation of the HJ10 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM		Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Motoring)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Non motoring)
AMM	79-00-00-281-002	Check of the Electrical Master Chip Detector for Particles

#### 3. Fault Confirmation

```
R **ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549,
R 551-599, 701-749,
```

A. Do the operational test of the FADEC 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

```
R **ON A/C 201-201, 203-225, 227-227, 229-244, 247-299, 426-499, 551-551,
R 554-554, 557-563, 701-749,
  Post SB 73-1080 For A/C 201-201,203-225,227-227,229-244,247-253,276-299,
R
                            426-450,476-499,551-551,554-554,557-563,701-749,
```

A. Do the operational test of the FADEC 2B on the ground (with engine motoring) (Ref. AMM TASK 73-29-00-710-040).

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### TROUBLE SHOOTING MANUAL

#### \*\*ON A/C ALL

#### 4. Fault Isolation

- R \*\*ON A/C 201-225, 227-227, 229-253, 276-299, 426-450, 476-499, 503-549, R 551-599, 701-749,
  - A. This fault is generated if the ECU detects an open or short circuit on one or more alternator windings and N2 is greater than 58.8% (min idle).
    - <u>NOTE</u>: A possible cause of the message failure "ALT, J10, ECU" may be the result of a short circuit through J10 wires which can produce an ECU power supply deterioration. The troubleshooting steps must be performed as specified hereunder.
    - (1) If the failure message ALT, J10, ECU is not confirmed:
      - do a check of the Electrical Master Chip Detector for Particles (Ref. AMM TASK 79-00-00-281-002).
      - (a) If particles are found:
        - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
        - Inspect alternator stator and rotor for contact, replace as required (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
      - (b) If no particles are found:
        - no further maintenance action is required.
    - (2) If the failure message ALT, J10, ECU is not confirmed but is repetitive:
      - disconnect the HJ10 harness from the alternator stator.
      - (a) Visually examine the alternator stator receptacle and the HJ10 harness connector for damaged pins or contamination, and the 90° elbow of the harness boot for evidence of overheat (Ref. AMM TASK 73-21-50-210-002).
        - 1 If harness or alternator stator connector is damaged:
           repair or replace as required.
        - 2 If no damage is found:
          - remove the alternator stator (Ref. AMM TASK 73-21-30-000-001).

### TROUBLE SHOOTING MANUAL

- (b) Visually examine the alternator stator and rotor for evidence of contact.
  - If evidence of contact is found, the cause must be determined:

    inspect the alternator rotor nut for proper installation, do
    a check of the Electrical Master Chip Detector for Particles

(Ref. AMM TASK 79-00-00-281-002).

- a If chips are found on the chip detector:
  - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
- $\underline{b}$  If rubbing is found and chips were not found on the chip detector:
  - replace the alternator rotor and stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
- c If no rubbing is noted:
  - reinstall the alternator stator (Ref. AMM TASK 73-21-30-400-001).
- (c) Replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
  - 1 If fault continues during the subsequent flights:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- (3) If the failure message ALT, J10, ECU is confirmed:
  - disconnect the HJ10 harness from the alternator stator (ALT-A)
     (located in the left core compartment).
  - (a) Visually examine the alternator stator receptacle and the HJ10 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the alternator stator connector between:
        - pins 2 and 5 (<1 0hm)</pre>
        - pins 3 and 5 (<1 0hm)</pre>
        - pins 4 and 5 (<1 0hm)</pre>
        - . pin 5 and the ground (>10 Megohms).
      - a If the resistance values are out of the specified limits:
        - replace the alternator stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).

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### TROUBLE SHOOTING MANUAL

- <u>b</u> If the resistance values are in the specified limits:
   reconnect the HJ10 harness to the alternator stator.
- (b) Disconnect the HJ10 harness from the ECU (4000KS) receptacle.
- (c) Visually examine the ECU (4000KS) receptacle and the HJ10 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).

  - 2 If no damage is found:
    - do an electrical resistance test through the HJ10 harness between:
      - . pins 5 and 13 (<1 ohm)</pre>
      - pins 5 and 14 (<1 ohm)</pre>
      - pins 5 and 15 (<1 ohm)</pre>
      - . pins 5 and 4 (>10 megohms)
      - . pins 13 and 4 (>10 megohms)
      - . pins 14 and 4 (>10 megohms)
      - . pins 15 and 4 (>10 megohms)
      - . pin 5 and the ground (>10 megohms).
    - <u>a</u> If the resistance values are out of the specified limits: - replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
    - <u>b</u> If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

```
R **ON A/C 201-201, 203-225, 227-227, 229-244, 247-299, 426-499, 551-551, R 554-554, 557-563, 701-749, R Post SB 73-1080 For A/C 201-201,203-225,227-227,229-244,247-253,276-299, R 426-450,476-499,551-551,554-554,557-563,701-749,
```

- A. This fault is generated if the ECU detects an open or short circuit on one or more alternator windings and N2 is greater than 58.8% (minidle). This fault is also generated when the FADEC motoring test is active and N2 is less than 15%.
  - <u>NOTE</u>: A possible cause of the message failure "ALT, J10, ECU" may be the result of a short circuit through J10 wires which can produce an ECU power supply deterioration. The troubleshooting steps must be performed as specified hereunder.

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### TROUBLE SHOOTING MANUAL

- (1) If the failure message ALT, J10, ECU is not confirmed:
  - do a check of the Electrical Master Chip Detector for Particles (Ref. AMM TASK 79-00-00-281-002).
  - (a) If particles are found:
    - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
    - Inspect alternator stator and rotor for contact, replace as required (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
  - (b) If no particles are found:
    - no further maintenance action is required.
- (2) If the failure message ALT, J10, ECU is not confirmed but is repetitive:
  - disconnect the HJ10 harness from the alternator stator.
  - (a) Visually examine the alternator stator receptacle and the HJ10 harness connector for damaged pins or contamination, and the 90° elbow of the harness boot for evidence of overheat (Ref. AMM TASK 73-21-50-210-002).
    - <u>1</u> If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - remove the alternator stator (Ref. AMM TASK 73-21-30-000-001).
  - (b) Visually examine the alternator stator and rotor for evidence of contact.
    - 1 If evidence of contact is found, the cause must be determined:
      - inspect the alternator rotor nut for proper installation, do a check of the Electrical Master Chip Detector for Particles (Ref. AMM TASK 79-00-00-281-002).
        - a If chips are found on the chip detector:
          - replace the AGB (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003).
        - $\underline{b}$  If rubbing is found and chips were not found on the chip detector:
          - replace the alternator rotor and stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
        - c If no rubbing is noted:
          - reinstall the alternator stator (Ref. AMM TASK 73-21-30-400-001).

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#### TROUBLE SHOOTING MANUAL

- (c) Replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).
  - 1 If fault continues during the subsequent flights:
     replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
    and (Ref. AMM TASK 73-21-60-400-001).
- (3) If the failure message ALT, J10, ECU is confirmed:
  - disconnect the HJ10 harness from the alternator stator (ALT-A) (located in the left core compartment).
  - (a) Visually examine the alternator stator receptacle and the HJ10 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the alternator stator connector between:
        - . pins 2 and 5 (<1 0hm)</pre>
        - . pins 3 and 5 (<1 0hm)</pre>
        - . pins 4 and 5 (<1 0hm)</pre>
        - . pin 5 and the ground (>10 Megohms).
      - <u>a</u> If the resistance values are out of the specified limits:
        - replace the alternator stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
      - <u>b</u> If the resistance values are in the specified limits: - reconnect the HJ10 harness to the alternator stator.
  - (b) Disconnect the HJ10 harness from the ECU (4000KS) receptacle.
  - (c) Visually examine the ECU (4000KS) receptacle and the HJ10 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness connector or ECU receptacle is damaged:
       repair or replace as required.
    - 2 If no damage is found:

201-201, 203-225, 227-227, 229-244,

247-299, 426-499, 551-551, 554-554, 557-563,

- do an electrical resistance test through the HJ10 harness between:
  - pins 5 and 13 (<1 ohm)</pre>
  - pins 5 and 14 (<1 ohm)</pre>
  - pins 5 and 15 (<1 ohm)</pre>
  - pins 5 and 4 (>10 megohms)
  - . pins 13 and 4 (>10 megohms)
  - . pins 14 and 4 (>10 megohms)
  - . pins 15 and 4 (>10 megohms)

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## TROUBLE SHOOTING MANUAL

- . pin 5 and the ground (>10 megohms).
- If the resistance values are out of the specified limits:
   replace the HJ10 harness (Ref. AMM TASK 73-21-50-000-043)
   and (Ref. AMM TASK 73-21-50-400-043).
- b If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

#### \*\*ON A/C ALL

- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-841

R Loss of the ECU Cross Channel on Engine 1 - Channel B

### 1. Possible Causes

- Alternator Stator
- Accessory Gearbox Assembly
- Alternator Rotor
- J10 Harness

R

- ECU (4000KS)

## 2. Job Set-up Information

A. Referenced Information

	REFE	RENCE	DESIGNATION
	AMM	72-63-00-000-003	Removal of the Accessory Gearbox Assembly
	AMM	72-63-00-400-003	Installation of the Accessory Gearbox Assembly
	AMM	73-21-30-000-001	Removal of the Control Alternator
	AMM	73-21-30-400-001	Installation of the Control Alternator
R	AMM	73-21-50-000-043	Removal of the HJ10 Harness
	AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
R	AMM	73-21-50-400-043	Installation of the HJ10 Harness
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
	AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with
			Engine non Motoring)
	AMM	79-00-00-281-002	Check of the Electrical Master Chip Detector for
			Particles

### 3. Fault Confirmation

A. Do the operational test of the FADEC 1A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

**SROS** 

A. If the failure message ECU (A CHANNEL) is not confirmed:
- no maintenance action is required.

NOTE: This failure message is generated when there is an internal ECU cross channel fault, control alternator stator contact, or related wiring.

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#### TROUBLE SHOOTING MANUAL

- **B.** If the failure message **ECU** (**A CHANNEL**) is not confirmed but is repetitive:
  - do a check of the J10 harness connection at the control alternator:
  - (1) If the connection is loose:
    - tighten the connection by hand plus one eighth of a turn.

NOTE: Soft nose pliers may be used if necessary.

- (2) If the connection is tight:
  - Disconnect the J10 harness from the alternator stator.
  - (a) Visually examine the alternator stator receptacle and the J10 harness connector for damaged pins or contamination, and the 90° elbow of the harness boot for evidence of overheat (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - remove the Alternator Stator (Ref. AMM TASK 73-21-30-000-001).
      - visually examine the alternator stator and rotor for evidence of contact.
      - <u>a</u> If evidence of contact is found, the cause must be determined:
        - inspect the alternator rotor nut for proper installation, inspect the Electrical Master Chip Detector for particles (Ref. AMM TASK 79-00-00-281-002).
          - \* If chips are found on the chip detector:
          - replace the Accessory Gearbox Assembly (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003)
          - \* If rubbing is found and chips were not found on the chip detector:
          - replace the Alternator Rotor and stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
          - \* If no rubbing is noted:
          - reinstall the alternator stator (Ref. AMM TASK 73-21-30-400-001).
      - b If no evidence of contact is found:
        - replace the J10 Harness (Ref. AMM TASK 73-21-50-000-043)
          and (Ref. AMM TASK 73-21-50-400-043)
- (3) If fault continues during the subsequent flights:
  - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

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#### TROUBLE SHOOTING MANUAL

- C. If the failure message ECU (A CHANNEL) is confirmed:
  - do a check of the J10 harness connection at the control alternator:
  - (1) If the connection is loose:
    - tighten the connection by hand plus one eighth of a turn.

NOTE: Soft nose pliers may be used if necessary.

- (2) If the connection is tight:
  - disconnect the J10 harness from the alternator stator (ALT-A)
     (located in the left core compartment).
  - (a) Visually examine the alternator stator receptacle and the J10 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the alternator stator connector between:
        - pins 2 and 5 (<1 0hm)</pre>
        - . pins 3 and 5 (<1 0hm)</pre>
        - . pins 4 and 5 (<1 0hm)</pre>
        - . pins 5 and the ground (>10 Megohms)
    - 3 If the resistance values are out of the specified limits:
      - replace the alternator stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
    - 4 If the resistance values are in the specified limits:
      - reconnect the J10 harness to the alternator stator.
      - disconnect the J10 harness from the ECU (4000KS) receptacle.
      - Visually examine the ECU (4000KS) receptacle and the J10 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
      - a If harness connector or ECU receptacle is damaged:
        - repair or replace as required.
      - b If no damage is found:
        - do an electrical resistance test through the J10 harness between:
          - pins 5 and 13 (<1 0hm)</pre>
          - . pins 5 and 14 (<1 0hm)</pre>
          - . pins 5 and 15 (<1 0hm)
          - . pins 5 and 4 (>10 megohms)
          - pins 13 and 4 (>10 megohms)
          - pins 14 and 4 (>10 megohms)
          - . pins 15 and 4 (>10 megohms)
          - . pin 5 and the ground (>10 megohms)

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## TROUBLE SHOOTING MANUAL

\* If the resistance values are out of the specified limits:

- replace the J10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).

\* If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

- D. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-842

R Loss of the ECU Cross Channel on Engine 2 - Channel B

## 1. Possible Causes

- Alternator Stator
- Accessory Gearbox Assembly
- Alternator Rotor
- J10 Harness

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- ECU (4000KS)

## 2. Job Set-up Information

A. Referenced Information

	REFERENCE		DESIGNATION	
R R	AMM AMM AMM AMM AMM	72-63-00-000-003 72-63-00-400-003 73-21-30-000-001 73-21-30-400-001 73-21-50-000-043 73-21-50-210-002 73-21-50-400-043 73-21-60-000-001 73-21-60-400-001 73-29-00-710-040	Removal of the Accessory Gearbox Assembly Installation of the Accessory Gearbox Assembly Removal of the Control Alternator Installation of the Control Alternator Removal of the HJ10 Harness Visual Inspection of the Wiring Harnesses Installation of the HJ10 Harness Removal of the Electronic Control Unit (ECU) Installation of the Electronic Control Unit (ECU) Operational Test of the FADEC on the Ground (with Engine non Motoring) Check of the Electrical Master Chip Detector for	
			Particles	

### 3. Fault Confirmation

A. Do the operational test of the FADEC 2A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

A. If the failure message ECU (A CHANNEL) is not confirmed:
- no maintenance action is required.

NOTE: This failure message is generated when there is an internal ECU cross channel fault, control alternator stator contact, or related wiring.

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#### TROUBLE SHOOTING MANUAL

- **B.** If the failure message **ECU** (**A CHANNEL**) is not confirmed but is repetitive:
  - do a check of the J10 harness connection at the control alternator:
  - (1) If the connection is loose:
    - tighten the connection by hand plus one eighth of a turn.

NOTE: Soft nose pliers may be used if necessary.

- (2) If the connection is tight:
  - Disconnect the J10 harness from the alternator stator.
  - (a) Visually examine the alternator stator receptacle and the J10 harness connector for damaged pins or contamination, and the 90° elbow of the harness boot for evidence of overheat (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - remove the Alternator Stator (Ref. AMM TASK 73-21-30-000-001).
      - visually examine the alternator stator and rotor for evidence of contact.
      - <u>a</u> If evidence of contact is found, the cause must be determined:
        - inspect the alternator rotor nut for proper installation, inspect the Electrical Master Chip Detector for particles (Ref. AMM TASK 79-00-00-281-002).
          - \* If chips are found on the chip detector:
          - replace the Accessory Gearbox Assembly (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003)
          - \* If rubbing is found and chips were not found on the chip detector:
          - replace the Alternator Rotor and stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
          - \* If no rubbing is noted:
          - reinstall the alternator stator (Ref. AMM TASK 73-21-30-400-001).
      - b If no evidence of contact is found:
        - replace the J10 Harness (Ref. AMM TASK 73-21-50-000-043)
          and (Ref. AMM TASK 73-21-50-400-043)
- (3) If fault continues during the subsequent flights:
  - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

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## TROUBLE SHOOTING MANUAL

- C. If the failure message ECU (A CHANNEL) is confirmed:
  - do a check of the J10 harness connection at the control alternator:
  - (1) If the connection is loose:
    - tighten the connection by hand plus one eighth of a turn.

NOTE: Soft nose pliers may be used if necessary.

- (2) If the connection is tight:
  - disconnect the J10 harness from the alternator stator (ALT-A) (located in the left core compartment).
  - (a) Visually examine the alternator stator receptacle and the J10 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the alternator stator connector between:
        - . pins 2 and 5 (<1 0hm)</pre>
        - . pins 3 and 5 (<1 0hm)</pre>
        - . pins 4 and 5 (<1 0hm)</pre>
        - pins 5 and the ground (>10 Megohms)
    - If the resistance values are out of the specified limits:
      - replace the alternator stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
    - 4 If the resistance values are in the specified limits:
      - reconnect the J10 harness to the alternator stator.
      - disconnect the J10 harness from the ECU (4000KS) receptacle.
      - Visually examine the ECU (4000KS) receptacle and the J10 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
      - If harness connector or ECU receptacle is damaged:
        - repair or replace as required.
      - If no damage is found:
        - do an electrical resistance test through the J10 harness between:
          - pins 5 and 13 (<1 0hm)</pre>
          - pins 5 and 14 (<1 0hm)</pre>
          - . pins 5 and 15 (<1 0hm)</pre>
          - . pins 5 and 4 (>10 megohms)
          - . pins 13 and 4 (>10 megohms) . pins 14 and 4 (>10 megohms)

          - pins 15 and 4 (>10 megohms)
          - pin 5 and the ground (>10 megohms)

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\* If the resistance values are out of the specified limits:

- replace the J10 harness (Ref. AMM TASK 73-21-50-000-043) and (Ref. AMM TASK 73-21-50-400-043).

\* If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

- D. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-847

R Loss of the ECU Cross Channel on Engine 1 - Channel A

#### 1. Possible Causes

- Alternator Stator
- Accessory Gearbox Assembly
- Alternator Rotor
- **J9** Harness

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- ECU (4000KS)

### 2. Job Set-up Information

A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	72-63-00-000-003	Removal of the Accessory Gearbox Assembly	
	AMM AMM	72-63-00-400-003 73-21-30-000-001	Installation of the Accessory Gearbox Assembly Removal of the Control Alternator	
	AMM	73-21-30-400-001	Installation of the Control Alternator	
R	AMM	73-21-50-000-042	Removal of the HJ9 Harness	
	AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses	
R	AMM	73-21-50-400-042	Installation of the HJ9 Harness	
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)	
	AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)	
	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with	
	AMM	79-00-00-281-002	Engine non Motoring) Check of the Electrical Master Chip Detector for Particles	

### 3. Fault Confirmation

A. Do the operational test of the FADEC 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

A. If the failure message ECU (B CHANNEL) is not confirmed:
- no maintenance action is required.

NOTE: This failure message is generated when there is an internal ECU cross channel fault, control alternator stator contact, or related wiring.

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#### TROUBLE SHOOTING MANUAL

- **B.** If the failure message **ECU** (**B CHANNEL**) is not confirmed but is repetitive:
  - do a check of the J9 harness connection at the control alternator:
  - (1) If the connection is loose:
    - tighten the connection by hand plus one eighth of a turn.

NOTE: Soft nose pliers may be used if necessary.

- (2) If the connection is tight:
  - Disconnect the J9 harness from the alternator stator.
  - (a) Visually examine the alternator stator receptacle and the J9 harness connector for damaged pins or contamination, and the 90° elbow of the harness boot for evidence of overheat (Ref. AMM TASK 73-21-50-210-002).
    - If harness or alternator stator connector is damaged:repair or replace as required.
    - 2 If no damage is found:
      - remove the Alternator Stator (Ref. AMM TASK 73-21-30-000-001).
      - visually examine the alternator stator and rotor for evidence of contact.
      - <u>a</u> If evidence of contact is found, the cause must be determined:
        - inspect the alternator rotor nut for proper installation, inspect the Electrical Master Chip Detector for particles (Ref. AMM TASK 79-00-00-281-002).
          - \* If chips are found on the chip detector:
          - replace the Accessory Gearbox Assembly (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003)
          - \* If rubbing is found and chips were not found on the chip detector:
          - replace the Alternator Rotor and stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
          - \* If no rubbing is noted:
          - reinstall the alternator stator (Ref. AMM TASK 73-21-30-400-001).
      - b If no evidence of contact is found:
         replace the J9 Harness (Ref. AMM TASK 73-21-50-000-042)
        and (Ref. AMM TASK 73-21-50-400-042)
- (3) If fault continues during the subsequent flights:
  - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

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#### TROUBLE SHOOTING MANUAL

- C. If the failure message ECU (B CHANNEL) is confirmed:
  - do a check of the J9 harness connection at the control alternator:
  - (1) If the connection is loose:
    - tighten the connection by hand plus one eighth of a turn.

NOTE: Soft nose pliers may be used if necessary.

- (2) If the connection is tight:
  - disconnect the J9 harness from the alternator stator (ALT-B) (located in the left core compartment).
  - (a) Visually examine the alternator stator receptacle and the J9 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - <u>1</u> If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the alternator stator connector between:
        - pins 2 and 5 (<1 0hm)</pre>
        - pins 3 and 5 (<1 0hm)</pre>
        - . pins 4 and 5 (<1 0hm)</pre>
        - . pins 5 and the ground (>10 Megohms)
    - If the resistance values are out of the specified limits:
       replace the alternator stator (Ref. AMM TASK 73-21-30-000-
    - 4 If the resistance values are in the specified limits:

001) and (Ref. AMM TASK 73-21-30-400-001).

- reconnect the J9 harness to the alternator stator.
- disconnect the J9 harness from the ECU (4000KS) receptacle.
- Visually examine the ECU (4000KS) receptacle and the J9 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
- a If harness connector or ECU receptacle is damaged:
  - repair or replace as required.
- b If no damage is found:
  - do an electrical resistance test through the J9 harness between:
    - . pins 5 and 13 (<1 0hm)</pre>
    - pins 5 and 14 (<1 0hm)</pre>
    - . pins 5 and 15 (<1 0hm)</pre>
    - $\cdot$  pins 5 and 4 (>10 megohms)
    - . pins 13 and 4 (>10 megohms)
    - . pins 14 and 4 (>10 megohms)
    - . pins 15 and 4 (>10 megohms)
    - . pin 5 and the ground (>10 megohms)

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\* If the resistance values are out of the specified

- replace the J9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).
- \* If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- D. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL SROS

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### TROUBLE SHOOTING MANUAL

TASK 77-10-00-810-848

R Loss of the ECU Cross Channel on Engine 2 - Channel A

### 1. Possible Causes

- Alternator Stator
- Accessory Gearbox Assembly
- Alternator Rotor
- **J9** Harness

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- ECU (4000KS)

### 2. Job Set-up Information

A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	72-63-00-000-003	Removal of the Accessory Gearbox Assembly	
	AMM		Installation of the Accessory Gearbox Assembly	
	AMM	73-21-30-000-001	Removal of the Control Alternator	
	AMM	73-21-30-400-001	Installation of the Control Alternator	
R	AMM	73-21-50-000-042	Removal of the HJ9 Harness	
	AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses	
R	AMM	73-21-50-400-042	Installation of the HJ9 Harness	
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)	
	AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)	
	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with	
	AMM	79-00-00-281-002	Engine non Motoring) Check of the Electrical Master Chip Detector for Particles	

### 3. Fault Confirmation

A. Do the operational test of the FADEC 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

A. If the failure message ECU (B CHANNEL) is not confirmed:
- no maintenance action is required.

NOTE: This failure message is generated when there is an internal ECU cross channel fault, control alternator stator contact, or related wiring.

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#### TROUBLE SHOOTING MANUAL

- **B.** If the failure message **ECU** (**B CHANNEL**) is not confirmed but is repetitive:
  - do a check of the J9 harness connection at the control alternator:
  - (1) If the connection is loose:
    - tighten the connection by hand plus one eighth of a turn.

NOTE: Soft nose pliers may be used if necessary.

- (2) If the connection is tight:
  - Disconnect the J9 harness from the alternator stator.
  - (a) Visually examine the alternator stator receptacle and the J9 harness connector for damaged pins or contamination, and the 90° elbow of the harness boot for evidence of overheat (Ref. AMM TASK 73-21-50-210-002).
    - If harness or alternator stator connector is damaged:repair or replace as required.
    - 2 If no damage is found:
      - remove the Alternator Stator (Ref. AMM TASK 73-21-30-000-001).
      - visually examine the alternator stator and rotor for evidence of contact.
      - <u>a</u> If evidence of contact is found, the cause must be determined:
        - inspect the alternator rotor nut for proper installation, inspect the Electrical Master Chip Detector for particles (Ref. AMM TASK 79-00-00-281-002).
          - \* If chips are found on the chip detector:
          - replace the Accessory Gearbox Assembly (Ref. AMM TASK 72-63-00-000-003) and (Ref. AMM TASK 72-63-00-400-003)
          - \* If rubbing is found and chips were not found on the chip detector:
          - replace the Alternator Rotor and stator (Ref. AMM TASK 73-21-30-000-001) and (Ref. AMM TASK 73-21-30-400-001).
          - \* If no rubbing is noted:
          - reinstall the alternator stator (Ref. AMM TASK 73-21-30-400-001).
      - b If no evidence of contact is found:
        - replace the J9 Harness (Ref. AMM TASK 73-21-50-000-042)
          and (Ref. AMM TASK 73-21-50-400-042)
- (3) If fault continues during the subsequent flights:
  - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

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#### TROUBLE SHOOTING MANUAL

- C. If the failure message ECU (B CHANNEL) is confirmed:
  - do a check of the J9 harness connection at the control alternator:
  - (1) If the connection is loose:
    - tighten the connection by hand plus one eighth of a turn.

NOTE: Soft nose pliers may be used if necessary.

- (2) If the connection is tight:
  - disconnect the J9 harness from the alternator stator (ALT-B) (located in the left core compartment).
  - (a) Visually examine the alternator stator receptacle and the J9 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
    - 1 If harness or alternator stator connector is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - do an electrical resistance test through the alternator stator connector between:
        - pins 2 and 5 (<1 0hm)</pre>
        - pins 3 and 5 (<1 0hm)</pre>
        - . pins 4 and 5 (<1 0hm)</pre>
        - . pins 5 and the ground (>10 Megohms)
    - If the resistance values are out of the specified limits:
       replace the alternator stator (Ref. AMM TASK 73-21-30-000-
    - 4 If the resistance values are in the specified limits:

001) and (Ref. AMM TASK 73-21-30-400-001).

- reconnect the J9 harness to the alternator stator.
- disconnect the J9 harness from the ECU (4000KS) receptacle.
- Visually examine the ECU (4000KS) receptacle and the J9 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
- a If harness connector or ECU receptacle is damaged:
  - repair or replace as required.
- b If no damage is found:
  - do an electrical resistance test through the J9 harness between:
    - pins 5 and 13 (<1 0hm)</pre>
    - pins 5 and 14 (<1 0hm)</pre>
    - . pins 5 and 15 (<1 0hm)
    - . pins 5 and 4 (>10 megohms)
    - pins 13 and 4 (>10 megohms)
    - . pins 14 and 4 (>10 megohms)
    - . pins 15 and 4 (>10 megohms)
    - . pin 5 and the ground (>10 megohms)

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\* If the resistance values are out of the specified

- replace the J9 harness (Ref. AMM TASK 73-21-50-000-042) and (Ref. AMM TASK 73-21-50-400-042).

\* If the resistance values are in the specified limits: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).

- D. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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## TROUBLE SHOOTING MANUAL

## TEMPERATURE - FAULT ISOLATION PROCEDURES

TASK 77-20-00-810-803

Loss of the EGT Thermocouple Signal to the ECU on Engine 1

### 1. Possible Causes

- harness HJ13
- ECU (4000KS)
- harness CJ13
- lower left-hand thermocouple lead assembly
- lower right-hand thermocouple lead assembly
- upper left-hand thermocouple lead assembly
- three-probe thermocouple lead assembly
- upper extension lead
- lower extension lead
- main junction box assembly

## 2. Job Set-up Information

#### A. Referenced Information

REFE	RENCE	DESIGNATION
AMM	73-21-50-000-029	Removal of the CJ13 Harness
AMM	73-21-50-000-046	Removal of the HJ13 Harness
AMM	73-21-50-400-029	Installation of the CJ13 Harness
AMM	73-21-50-400-046	Installation of the HJ13 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with
		Engine Non motoring)
AMM	77-21-10-000-008	Removal of the Upper Extension Lead
AMM	77-21-10-000-009	Removal of the Lower Extension Lead
AMM	77-21-10-000-025	Removal of the Main Junction Box
AMM	77-21-10-000-026	Removal of the Upper Right Thermocouple Lead Assembly
AMM	77-21-10-000-027	Removal of the Lower Left Thermocouple Lead Assembly
AMM	77-21-10-000-028	Removal of the Upper Left Thermocouple Lead Assembly
AMM	77-21-10-000-029	Removal of the Lower Right Thermocouple Lead Assembly
AMM	77-21-10-200-002	Inspection/Check of the T495 Thermocouple Wiring
		Harness
AMM	77-21-10-400-008	Installation of the Upper Extension Lead
AMM	77-21-10-400-009	Installation of the Lower Extension Lead
AMM	77-21-10-400-025	Installation of the Main Junction Box
AMM	77-21-10-400-026	Installation of the Upper Right Thermocouple Lead Assembly
AMM	77-21-10-400-027	Installation of the Lower Left Thermocouple Lead Assembly

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#### TROUBLE SHOOTING MANUAL

REFERENCE DESIGNATION

AMM 77-21-10-400-028 Installation of the Upper Left Thermocouple Lead

Assembly

AMM 77-21-10-400-029 Installation of the Lower Right Thermocouple Lead
Assembly

ASM 73-25/15 AWM 71-51-05

## 3. Fault Confirmation

A. Do the operational test of the FADEC 1A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

#### 4. Fault Isolation

- A. If the test gives the maintenance message T495 SNSR, J13, ECU:
  - do a check for open or short to ground of the T495 thermocouple and of the harness HJ13 between the ECU (4000KS), the 6 o'clock junction box and the T495 thermocouple (Ref. AWM 71-51-05) and (Ref. ASM 73-25/15).
  - (1) If the wiring is not correct:
    - repair the above wiring.
  - (2) If the wiring is correct:
    - disconnect the harness HJ13 from the ECU (4000KS) and do a resistance check of the cable between:
      - . pins 12 and 13 (1 to 10 ohms)
      - . pins 12 and 24 (> 10 megohms)
      - . pin 12 and the ground (> 10 megohms).
    - (a) If the resistance values are in the specified limits:
      - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
    - (b) If the resistance values are out of the specified limits:
      - disconnect the harness CJ13 at the 6 o'clock junction box and do a resistance check of the harness CJ13 between:
        - . pins 3 and 13 (1 to 10 ohms)
        - pins 3 and 12 (> 10 megohms)
        - . pin 3 and the ground (> 10 megohms).
      - 1 If the resistance values are in the specified limits:
        - replace the harness HJ13 (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
      - 2 If the resistance values are out of the specified limits:
        - disconnect the harness CJ13 from the T495 thermocouple and do a resistance check of the T495 thermocouple between:
          - . pins A and B (1 to 10 ohms)

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#### TROUBLE SHOOTING MANUAL

- . pin A and the ground (> 10 megohms).
- a If the resistance values are in the specified limits: - replace the harness CJ13 (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
- <u>b</u> If the resistance values are out of the specified limits, do an inspection/check of the T495 thermocouple wiring harness for isolation of the defective part (Ref. AMM TASK 77-21-10-200-002).
  - if the electrical check of one of the three two-probe lead assemblies is not correct, replace the defective thermocouple:
    - . the lower left-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-027) and (Ref. AMM TASK 77-21-10-400-027) or
    - . the lower right-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-029) and (Ref. AMM TASK 77-21-10-400-029) or
    - . the upper left-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-028) and (Ref. AMM TASK 77-21-10-400-028).
  - if the electrical check of the three-probe lead assembly is not correct:
    - . replace the three-probe thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-026) and (Ref. AMM TASK 77-21-10-400-026), (Ref. AMM TASK 77-21-10-000-027) and (Ref. AMM TASK 77-21-10-400-027), (Ref. AMM TASK 77-21-10-000-028) and (Ref. AMM TASK 77-21-10-400-028), (Ref. AMM TASK 77-21-10-000-029) and (Ref. AMM TASK 77-21-10-400-029).
  - if the electrical check of the upper extension lead is not correct:
    - . replace the upper extension lead (Ref. AMM TASK 77-21- 10-000-008) and (Ref. AMM TASK 77-21-10-400-008).
  - if the electrical check of the lower extension lead is not correct:
    - replace the lower extension lead (Ref. AMM TASK 77-21-10-000-009) and (Ref. AMM TASK 77-21-10-400-009).
  - if the electrical check of the main junction box assembly is not correct:
    - . replace the main junction box assembly (Ref. AMM TASK 77-21-10-000-025) and (Ref. AMM TASK 77-21-10-400-025).
- B. Do the test given in Para. 3.A.

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## TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-804

Loss of the EGT Thermocouple Signal to the ECU on Engine 2

### 1. Possible Causes

- harness HJ13
- ECU (4000KS)
- harness CJ13
- lower left-hand thermocouple lead assembly
- lower right-hand thermocouple lead assembly
- upper left-hand thermocouple lead assembly
- three-probe thermocouple lead assembly
- upper extension lead
- lower extension lead
- main junction box assembly

## 2. Job Set-up Information

#### A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	73-21-50-000-029	Removal of the CJ13 Harness	
	AMM	73-21-50-000-046	Removal of the HJ13 Harness	
	AMM	73-21-50-400-029	Installation of the CJ13 Harness	
	AMM	73-21-50-400-046	Installation of the HJ13 Harness	
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
	AMM	73-21-60-400-001	Installation of the Electronic Control Unit	
			(ECU)(4000KS)	
R	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with	
R			Engine Non motoring)	
	AMM	77-21-10-000-008	Removal of the Upper Extension Lead	
	AMM	77-21-10-000-009	Removal of the Lower Extension Lead	
	AMM	77-21-10-000-025	Removal of the Main Junction Box	
	AMM	77-21-10-000-026	Removal of the Upper Right Thermocouple Lead Assembly	
	AMM	77-21-10-000-027	Removal of the Lower Left Thermocouple Lead Assembly	
	AMM	77-21-10-000-028	Removal of the Upper Left Thermocouple Lead Assembly	
	AMM	77-21-10-000-029	Removal of the Lower Right Thermocouple Lead Assembly	
	AMM	77-21-10-200-002	Inspection/Check of the T495 Thermocouple Wiring	
			Harness	
	AMM	77-21-10-400-008	Installation of the Upper Extension Lead	
	AMM	77-21-10-400-009	Installation of the Lower Extension Lead	
	AMM	77-21-10-400-025	Installation of the Main Junction Box	
	AMM	77-21-10-400-026	Installation of the Upper Right Thermocouple Lead	
			Assembly	
	AMM	77-21-10-400-027	Installation of the Lower Left Thermocouple Lead	
		77 24 40 400 020	Assembly	
	AMM	77-21-10-400-028	Installation of the Upper Left Thermocouple Lead Assembly	

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#### TROUBLE SHOOTING MANUAL

REFERENCE DESIGNATION

\_\_\_\_\_\_

AMM 77-21-10-400-029

Installation of the Lower Right Thermocouple Lead Assembly

ASM 73-25/15

AWM 71-51-09

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## 3. Fault Confirmation

A. Do the operational test of the FADEC 2A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

- A. If the test gives the maintenance message T495 SNSR, J13, ECU:
  - do a check for open or short to ground of the harness HJ13 between the ECU (4000KS) and the 6 o'clock junction box, between the 6 o'clock junction box and the T495 thermocouple (Ref. AWM 71-51-09) and (Ref. ASM 73-25/15).
  - (1) If the wiring is not correct:
    - repair the above wiring.
  - (2) If the wiring is correct:
    - disconnect the harness HJ13 from the ECU (4000KS) and do a resistance check of the cable between:
      - . pins 12 and 13 (1 to 10 ohms)
      - pins 12 and 24 (> 10 megohms)
      - . pin 12 and the ground (> 10 megohms).
    - (a) If the resistance values are in the specified limits:
      - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
    - (b) If the resistance values are out of the specified limits:
      - disconnect the harness CJ13 at the 6 o'clock junction box and do a resistance check of the harness CJ13 between:
        - pins 3 and 13 (1 to 10 ohms)
        - . pins 3 and 12 (> 10 megohms)
        - . pin 3 and the ground (> 10 megohms).
      - 1 If the resistance values are in the specified limits:
        - replace the harness HJ13 (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
      - 2 If the resistance values are out of the specified limits:
        - disconnect the harness CJ13 from the T495 thermocouple and do a resistance check of the T495 thermocouple between:
          - . pins A and B (1 to 10 ohms)
          - . pin A and the ground (> 10 megohms).

EFF: ALL

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- a If the resistance values are in the specified limits: - replace the harness CJ13 (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
- <u>b</u> If the resistance values are out of the specified limits, do an inspection/check of the T495 thermocouple wiring harness for isolation of the defective part (Ref. AMM TASK 77-21-10-200-002).
  - if the electrical check of one of the three two-probe lead assemblies is not correct, replace the defective thermocouple:
    - . the lower left-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-027) and (Ref. AMM TASK 77-21-10-400-027) or
    - . the lower right-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-029) and (Ref. AMM TASK 77-21-10-400-029) or
    - . the upper left-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-028) and (Ref. AMM TASK 77-21-10-400-028).
  - if the electrical check of the three-probe lead assembly is not correct:
    - . replace the three-probe thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-026) and (Ref. AMM TASK 77-21-10-400-026), (Ref. AMM TASK 77-21-10-000-027) and (Ref. AMM TASK 77-21-10-400-027), (Ref. AMM TASK 77-21-10-000-028) and (Ref. AMM TASK 77-21-10-400-028), (Ref. AMM TASK 77-21-10-000-029) and (Ref. AMM TASK 77-21-10-400-029).
  - if the electrical check of the upper extension lead is not correct:
    - . replace the upper extension lead (Ref. AMM TASK 77-21-10-000-008) and (Ref. AMM TASK 77-21-10-400-008).
  - if the electrical check of the lower extension lead is not correct:
    - . replace the lower extension lead (Ref. AMM TASK 77-21-10-000-009) and (Ref. AMM TASK 77-21-10-400-009).
  - if the electrical check of the main junction box assembly is not correct:
    - . replace the main junction box assembly (Ref. AMM TASK 77-21-10-000-025) and (Ref. AMM TASK 77-21-10-400-025).
- B. Do the test given in Para. 3.A.

EFF: ALL

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## TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-805

Loss of the T3 Thermocouple Signal - Engine 1 - Channel A and Channel B

#### 1. Possible Causes

- T3 thermocouple
- CJ13 harness
- HJ13 harness
- ECU (4000KS)

## 2. Job Set-up Information

A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	73-21-50-000-029	Removal of the CJ13 Harness	
	AMM	73-21-50-000-046	Removal of the HJ13 Harness	
	AMM	73-21-50-210-001	Visual Inspection of the Wiring Harness	
	AMM	73-21-50-400-029	Installation of the CJ13 Harness	
	AMM	73-21-50-400-046	Installation of the HJ13 Harness	
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)	
	AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)	
R R	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Non motoring)	
	AMM	77-23-10-000-002	Removal of the Compressor Discharge Temperature (T3) Sensor	
	AMM	77-23-10-400-002	<pre>Installation of the Compressor Discharge Temperature (T3) Sensor</pre>	

## 3. Fault Confirmation

A. Do the operational test of the FADEC 1A and 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

A. The failure message is generated if channel B sensor signal is invalid or out of range.

NOTE: If T3 sensor Part Number is 1348M21P01, P04 or P05, replace T3 sensor (Ref. AMM TASK 77-23-10-000-002) and (Ref. AMM TASK 77-23-10-400-002).

- (1) If the failure messages T3 SNSR, J13, ECU + T3 SNSR, J13, ECU are not confirmed:
  - no maintenance action is required.

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(2) If the failure messages T3 SNSR, J13, ECU + T3 SNSR, J13, ECU are not R R confirmed, but are repetitive: - visually examine the T3 thermocouple receptacle and the CJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001). (a) If harness connector or T3 thermocouple receptacle is damaged: R - repair or replace as required. (b) If no damage is found: - visually examine the ECU (4000KS) receptacle and the HJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001). If harness connector or ECU receptacle is damaged: R - repair or replace as required. If no damage is found: - replace the T3 thermocouple (Ref. AMM TASK 77-23-10-000-002) and (Ref. AMM TASK 77-23-10-400-002). R (c) If the fault continues during the subsequent flights: - replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029). (d) If the fault continues during the subsequent flights: R - replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046). (e) If the fault continues during the subsequent flights: R - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001). (3) If the failure messages T3 SNSR, J13, ECU + T3 SNSR, J13, ECU are R confirmed: R - disconnect the two CJ13 connectors from the T3 thermocouple R R - visually examine the T3 thermocouple receptacle and the CJ13 harness connectors for damaged pins and contamination (Ref. AMM R TASK 73-21-50-210-001). R (a) If harness connectors or T3 thermocouple receptacle are damaged: - repair or replace as required. (b) If no damage is found: - do a resistance check of the two T3 thermocouple connectors R between: pins A and B (0.5 to 10 ohms) . pin A and the ground (> 10 megohms). If the resistance values of one of the two T3 thermocouple connectors are out of specified limits:

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R

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#### TROUBLE SHOOTING MANUAL

- replace the T3 thermocouple (Ref. AMM TASK 77-23-10-000-002) and (Ref. AMM TASK 77-23-10-400-002).
- 2 If the resistance values are in the specified limits:
  - reconnect the CJ13 harness to the T3 thermocouple
  - disconnect the HJ13 harness from the ECU
  - visually examine the ECU (4000KS) receptacle and the HJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).
  - a If harness connector or ECU receptacle is damaged:
    - repair or replace as required.
  - b If no damage is found:
    - do an electrical resistance test through the HJ13 harness between:
      - . pins 4 and 5 (0.5 to 10 ohms)
      - pins 14 and 15 (0.5 to 10 ohms)
      - pins 4 and 16 (> 10 megohms)
      - . pins 14 and 16 (> 10 megohms)
      - . pin 4 and the ground (> 10 megohms)
      - . pin 14 and the ground (> 10 megohms).
  - c If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - d If the resistance values are out of the specified limits:
    - reconnect the HJ13 harness
    - disconnect the HJ13 harness from the CJ13 harness at the 6 o'clock junction box
    - do an electrical resistance test trough the CJ13 harness between:
      - pins 7 and 8 (0.5 to 10 ohms)
      - . pins 1 and 10 (0.5 to 10 ohms)
      - . pins 7 and 9 (> 10 megohms)
      - pins 1 and 9 (> 10 megohms)
      - . pin 7 and the ground (> 10 megohms)
      - . pin 1 and the ground (> 10 megohms).
  - e If the resistance values are out of the specified limits:
    - replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
  - f If the resistance values are in the specified limits:
    - replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).

EFF: ALL

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R B. Do the test given in Para. 3.A.

(1) No additional maintenance action is required if the fault is not confirmed.

(2) Repeat the fault isolation procedure if the fault continues.

R R

R

R

EFF: ALL

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## TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-806

Loss of the T3 Thermocouple Signal - Engine 2 - Channel A and Channel B

#### 1. Possible Causes

- T3 thermocouple
- CJ13 harness
- HJ13 harness
- ECU (4000KS)

## 2. Job Set-up Information

A. Referenced Information

	REFERENCE C		DESIGNATION	
	AMM	73-21-50-000-029	Removal of the CJ13 Harness	
	AMM	73-21-50-000-046	Removal of the HJ13 Harness	
	AMM	73-21-50-210-001	Visual Inspection of the Wiring Harness	
	AMM	73-21-50-400-029	Installation of the CJ13 Harness	
	AMM	73-21-50-400-046	Installation of the HJ13 Harness	
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)	
	AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)	
R	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with	
R			Engine Non motoring)	
	AMM	77-23-10-000-002	Removal of the Compressor Discharge Temperature (T3) Sensor	
	AMM	77-23-10-400-002	<pre>Installation of the Compressor Discharge Temperature (T3) Sensor</pre>	

## 3. Fault Confirmation

A. Do the operational test of the FADEC 2A and 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

A. The failure message is generated if channel B sensor signal is invalid or out of range.

NOTE: If T3 sensor Part Number is 1348M21P01, P04 or P05, replace T3 sensor (Ref. AMM TASK 77-23-10-000-002) and (Ref. AMM TASK 77-23-10-400-002).

- (1) If the failure messages T3 SNSR, J13, ECU + T3 SNSR, J13, ECU are not confirmed:
  - no maintenance action is required.

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(2) If the failure messages T3 SNSR, J13, ECU + T3 SNSR, J13, ECU are not R R confirmed, but are repetitive: - visually examine the T3 thermocouple receptacle and the CJ13 R harness connector for damaged pins and contamination (Ref. AMM TASK R 73-21-50-210-001). (a) If harness connector or T3 thermocouple receptacle is damaged: R R - repair or replace as required. R (b) If no damage is found: - visually examine the ECU (4000KS) receptacle and the HJ13 R R harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001). If harness connector or ECU receptacle is damaged: R - repair or replace as required. R R 2 If no damage is found: - replace the T3 thermocouple (Ref. AMM TASK 77-23-10-000-002) R and (Ref. AMM TASK 77-23-10-400-002). R R (c) If the fault continues during the subsequent flights: - replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029) and R R (Ref. AMM TASK 73-21-50-400-029). (d) If the fault continues during the subsequent flights: R - replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and R (Ref. AMM TASK 73-21-50-400-046). R (e) If the fault continues during the subsequent flights: R - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and R (Ref. AMM TASK 73-21-60-400-001). R (3) If the failure messages T3 SNSR, J13, ECU + T3 SNSR, J13, ECU are R confirmed: R - disconnect the two CJ13 connectors from the T3 thermocouple R R - visually examine the T3 thermocouple receptacle and the CJ13 harness connectors for damaged pins and contamination (Ref. AMM R TASK 73-21-50-210-001). R (a) If harness connectors or T3 thermocouple receptacle are damaged: R - repair or replace as required. (b) If no damage is found: R - do a resistance check of the two T3 thermocouple connectors R R between: pins A and B (0.5 to 10 ohms) R . pin A and the ground (> 10 megohms). R 1 If the resistance values of one of the two T3 thermocouple R connectors are out of specified limits: R

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- replace the T3 thermocouple (Ref. AMM TASK 77-23-10-000-002) and (Ref. AMM TASK 77-23-10-400-002).
- 2 If the resistance values are in the specified limits:
  - reconnect the CJ13 harness to the T3 thermocouple
  - disconnect the HJ13 harness from the ECU
  - visually examine the ECU (4000KS) receptacle and the HJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).
  - a If harness connector or ECU receptacle is damaged:
    - repair or replace as required.
  - b If no damage is found:
    - do an electrical resistance test through the HJ13 harness between:
      - . pins 4 and 5 (0.5 to 10 ohms)
      - pins 14 and 15 (0.5 to 10 ohms)
      - pins 4 and 16 (> 10 megohms)
      - . pins 14 and 16 (> 10 megohms)
      - . pin 4 and the ground (> 10 megohms)
      - . pin 14 and the ground (> 10 megohms).
  - $\underline{c}$  If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - d If the resistance values are out of the specified limits:
    - reconnect the HJ13 harness
    - disconnect the HJ13 harness from the CJ13 harness at the
       6 o'clock junction box
    - do an electrical resistance test trough the CJ13 harness between:
      - . pins 7 and 8 (0.5 to 10 ohms)
      - . pins 1 and 10 (0.5 to 10 ohms)
      - . pins 7 and 9 (> 10 megohms)
      - pins 1 and 9 (> 10 megohms)
      - pin 7 and the ground (> 10 megohms)
      - . pin 1 and the ground (> 10 megohms).
  - e If the resistance values are out of the specified limits:
    - replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
  - f If the resistance values are in the specified limits:
    - replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).

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## TROUBLE SHOOTING MANUAL

R B. Do the test given in Para. 3.A.

(1) No additional maintenance action is required if the fault is not confirmed.

(2) Repeat the fault isolation procedure if the fault continues.

R R

R

R

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## TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-809

Loss of the T3 Thermocouple Signal - Engine 1 - Channel A

### 1. Possible Causes

- T3 thermocouple
- CJ13 harness
- HJ13 harness
- ECU (4000KS)

## 2. Job Set-up Information

A. Referenced Information

REFE	RENCE	DESIGNATION
AMM	73-21-50-000-029	Removal of the CJ13 Harness
AMM	73-21-50-000-046	Removal of the HJ13 Harness
AMM	73-21-50-210-001	Visual Inspection of the Wiring Harness
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses
AMM	73-21-50-400-029	Installation of the CJ13 Harness
AMM	73-21-50-400-046	Installation of the HJ13 Harness
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Non motoring)
AMM	77-23-10-000-001	Removal of the Compressor Discharge Temperature (T3) Sensor
AMM	77-23-10-000-002	Removal of the Compressor Discharge Temperature (T3) Sensor
AMM	77-23-10-400-001	<pre>Installation of the Compressor Discharge Temperature (T3) Sensor</pre>
AMM	77-23-10-400-002	<pre>Installation of the Compressor Discharge Temperature (T3) Sensor</pre>

## 3. Fault Confirmation

R A. Test

R (1) Do the operational test of the FADEC 1A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

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## 4. Fault Isolation

A. The failure message is generated if channel A sensor signal is invalid or out of range.

NOTE: If T3 sensor Part Number is 1348M21P01, P04 or P05, replace T3 sensor (Ref. AMM TASK 77-23-10-000-001) and (Ref. AMM TASK 77-23-10-400-001).

- (1) If the failure message T3 SNSR, J13, ECU is not confirmed: - no maintenance action is required.
- (2) If the failure message T3 SNSR, J13, ECU is not confirmed, but is repetitive:
  - visually examine the T3 thermocouple receptacle and the CJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-002).
  - (a) If harness connector or T3 thermocouple receptacle is damaged:repair or replace as required.
  - (b) If no damage is found:
    - visually examine the ECU (4000KS) receptacle and the HJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).
    - 1 If harness connector or ECU receptacle is damaged: - repair or replace as required.
    - 2 If no damage is found:
      - replace the T3 thermocouple (Ref. AMM TASK 77-23-10-000-002) and (Ref. AMM TASK 77-23-10-400-002).
  - (c) If the fault continues during the subsequent flights:
    - replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
  - (d) If the fault continues during the subsequent flights:
    - replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
  - (e) If the fault continues during the subsequent flights:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- (3) If the failure message T3 SNSR, J13, ECU is confirmed:
  - disconnect the two CJ13 connectors from the T3 thermocouple
  - visually examine the T3 thermocouple receptacle and the CJ13 harness connectors for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).

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#### TROUBLE SHOOTING MANUAL

- (a) If harness connectors or T3 thermocouple receptacle are damaged:repair or replace as required.
- (b) If no damage is found:
  - do a resistance check of the two T3 thermocouple connectors between:
    - pins A and B (0.5 to 10 ohms)
    - . pin A and the ground (> 10 megohms).
  - If the resistance values of one of the two T3 thermocouple connectors are out of specified limits:
    - replace the T3 thermocouple (Ref. AMM TASK 77-23-10-000-002) and (Ref. AMM TASK 77-23-10-400-002).
  - 2 If the resistance values are in the specified limits:
    - reconnect the CJ13 harness to the T3 thermocouple
    - disconnect the HJ13 harness from the ECU
    - visually examine the ECU (4000KS) receptacle and the HJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).
    - a If harness connector or ECU receptacle is damaged:
      - repair or replace as required.
    - b If no damage is found:
      - do an electrical resistance test through the HJ13 harness between:
        - . pins 4 and 5 (0.5 to 10 ohms)
        - . pins 14 and 15 (0.5 to 10 ohms)
        - pins 4 and 16 (> 10 megohms)
        - . pins 14 and 16 (> 10 megohms)
        - pin 4 and the ground (> 10 megohms)
        - . pin 14 and the ground (> 10 megohms).
    - c If the resistance values are in the specified limits:
      - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
        and (Ref. AMM TASK 73-21-60-400-001).
    - d If the resistance values are out of the specified limits:
      - reconnect the HJ13 harness
        - disconnect the HJ13 harness from the CJ13 harness at the
           6 o'clock junction box
        - do an electrical resistance test through the CJ13 harness between:
          - . pins 7 and 8 (0.5 to 10 ohms)
          - . pins 1 and 10 (0.5 to 10 ohms)
          - . pins 7 and 9 (> 10 megohms)
          - pins 1 and 9 (> 10 megohms)
          - . pin 7 and the ground (> 10 megohms)
          - . pin 1 and the ground (> 10 megohms).

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- e If the resistance values are out of the specified limits:
   replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029)
   and (Ref. AMM TASK 73-21-50-400-029).
- $\underline{f}$  If the resistance values are in the specified limits: replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL
SROS

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### TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-810

Loss of the T3 Thermocouple Signal - Engine 2 - Channel A

### 1. Possible Causes

- T3 thermocouple
- CJ13 harness
- HJ13 harness
- ECU (4000KS)

### 2. Job Set-up Information

A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	73-21-50-000-029	Removal of the CJ13 Harness	
	AMM	73-21-50-000-046	Removal of the HJ13 Harness	
	AMM	73-21-50-210-001	Visual Inspection of the Wiring Harness	
	AMM	73-21-50-400-029	Installation of the CJ13 Harness	
	AMM	73-21-50-400-046	Installation of the HJ13 Harness	
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)	
	AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)	
R R	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Non motoring)	
	AMM	77-23-10-000-001	Removal of the Compressor Discharge Temperature (T3) Sensor	
	AMM	77-23-10-000-002	Removal of the Compressor Discharge Temperature (T3) Sensor	
	AMM	77-23-10-400-001	<pre>Installation of the Compressor Discharge Temperature (T3) Sensor</pre>	
	AMM	77-23-10-400-002	<pre>Installation of the Compressor Discharge Temperature (T3) Sensor</pre>	

### 3. Fault Confirmation

R A. Test

R

(1) Do the operational test of the FADEC 2A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

A. The failure message is generated if channel A sensor signal is invalid or out of range.

NOTE : If T3 sensor Part Number is 1348M21P01, P04 or P05, replace T3 sensor (Ref. AMM TASK 77-23-10-000-001) and (Ref. AMM TASK 77-23-10-400-001).

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(1) If the failure message T3 SNSR, J13, ECU is not confirmed: R R - no maintenance action is required. (2) If the failure message T3 SNSR, J13, ECU is not confirmed, but is R repetitive: R - visually examine the T3 thermocouple receptacle and the CJ13 R R harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001). R (a) If harness connector or T3 thermocouple receptacle is damaged: R repair or replace as required. R (b) If no damage is found: - visually examine the ECU (4000KS) receptacle and the HJ13 R harness connector for damaged pins and contamination (Ref. AMM R TASK 73-21-50-210-001). If harness connector or ECU receptacle is damaged: R R - repair or replace as required. 2 If no damage is found: R R - replace the T3 thermocouple (Ref. AMM TASK 77-23-10-000-002) and (Ref. AMM TASK 77-23-10-400-002). R R (c) If the fault continues during the subsequent flights: - replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029) and R (Ref. AMM TASK 73-21-50-400-029). R R (d) If the fault continues during the subsequent flights: - replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and R (Ref. AMM TASK 73-21-50-400-046). R R (e) If the fault continues during the subsequent flights: - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and R (Ref. AMM TASK 73-21-60-400-001). R R (3) If the failure message T3 SNSR, J13, ECU is confirmed: - disconnect the two CJ13 connectors from the T3 thermocouple R - visually examine the T3 thermocouple receptacle and the CJ13 R harness connectors for damaged pins and contamination (Ref. AMM R TASK 73-21-50-210-001). (a) If harness connectors or T3 thermocouple receptacle are damaged: R repair or replace as required. R (b) If no damage is found: R - do a resistance check of the two T3 thermocouple connectors R between:  $\blacksquare$  pins A and B (0.5 to 10 ohms) R R pin A and the ground (> 10 megohms).

EFF: ALL

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- If the resistance values of one of the two T3 thermocouple connectors are out of specified limits:
  - replace the T3 thermocouple (Ref. AMM TASK 77-23-10-000-002) and (Ref. AMM TASK 77-23-10-400-002).
- 2 If the resistance values are in the specified limits:
  - reconnect the CJ13 harness to the T3 thermocouple
  - disconnect the HJ13 harness from the ECU
  - visually examine the ECU (4000KS) receptacle and the HJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).
  - a If harness connector or ECU receptacle is damaged:
    - repair or replace as required.
  - b If no damage is found:
    - do an electrical resistance test through the HJ13 harness between:
      - . pins 4 and 5 (0.5 to 10 ohms)
      - . pins 14 and 15 (0.5 to 10 ohms)
      - pins 4 and 16 (> 10 megohms)
      - pins 14 and 16 (> 10 megohms)
      - . pin 4 and the ground (> 10 megohms)
      - . pin 14 and the ground (> 10 megohms).
  - c If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - d If the resistance values are out of the specified limits:
    - reconnect the HJ13 harness
    - disconnect the HJ13 harness from the CJ13 harness at the
       6 o'clock junction box
    - do an electrical resistance test through the CJ13 harness between:
      - . pins 7 and 8 (0.5 to 10 ohms)
      - . pins 1 and 10 (0.5 to 10 ohms)
      - . pins 7 and 9 (> 10 megohms)
      - pins 1 and 9 (> 10 megohms)
      - . pin 7 and the ground (> 10 megohms)
      - pin 1 and the ground (> 10 megohms).
  - e If the resistance values are out of the specified limits:
    - replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
  - f If the resistance values are in the specified limits:
    - replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).

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- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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### TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-811

Loss of the T5 Sensor Signal to the ECU on Engine 1

- 1. Possible Causes
  - ECU (4000KS)
  - harness HJ13
  - harness CJ13
  - T5 temperature sensor
- 2. Job Set-up Information
  - A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	73-21-50-000-029	Removal of the CJ13 Harness	
	AMM	73-21-50-000-046	Removal of the HJ13 Harness	
	AMM	73-21-50-400-029	Installation of the CJ13 Harness	
	AMM	73-21-50-400-046	Installation of the HJ13 Harness	
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
	AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>	
R R	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Non motoring)	
	AMM	77-22-10-000-002	Removal of the T5 Sensor	
	AMM	77-22-10-400-002	Installation of the T5 Sensor	
	ASM	73-25/18		
	AWM	71-51-09		

- 3. Fault Confirmation
- A. Test R
- (1) Do the operational test of the FADEC 1A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).
  - 4. Fault Isolation
    - A. If the test gives the maintenance message T5 SNSR, J13, ECU\*:

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- do a check for open or short to ground of the harness HJ13 between the ECU (4000KS) and the 6 o'clock junction box, between the 6 o'clock junction box and the T5 sensor (Ref. ASM 73-25/18).
- (1) If the wiring is not correct:
  - repair the above wiring.

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R R R R R	<ul> <li>(2) If the wiring is correct: <ul> <li>disconnect the harness HJ13 from the ECU (4000KS) and do a resistance check of the cable J13 between:</li> <li>pins 11 and 23 (0.5 to 10 ohms)</li> <li>pins 11 and 24 ( &gt; to megohms)</li> <li>pin 11 and the ground ( &gt; 10 megohms).</li> </ul> </li> </ul>
R R R	<ul><li>(a) If the resistance values are in the specified limits:</li><li>replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).</li></ul>
R R R R R	<ul> <li>(b) If the resistance values are out of the specified limits: <ul> <li>disconnect the connector CJ13 at the 6 o'clock junction box and do a resistance check of the cable CJ13 between:</li> <li>pins 2 and 11 (0.5 to 10 ohms)</li> <li>pins 2 and 12 (&gt; 10 megohms)</li> <li>pin 2 and the ground (&gt; 10 megohms) (Ref. AWM 71-51-09).</li> </ul> </li> </ul>
R R R	1 If the resistance values are in the specified limits: - replace the harness HJ13 (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
R R R R	2 If the resistance values are out of the specified limits: <ul> <li>disconnect the harness CJ13 from the T5 sensor and do a resistance check of the T5 sensor between:</li> <li>pins A and B (0.88 to 1.22 ohms)</li> <li>pin A and the ground ( &gt; 10 megohms).</li> </ul>
R R R	<ul> <li><u>a</u> If the resistance values are in the specified limits:</li> <li>replace the harness CJ13 (Ref. AMM TASK 73-21-50-000-029)</li> <li>and (Ref. AMM TASK 73-21-50-400-029).</li> </ul>
R R R	<ul> <li><u>b</u> If the resistance values are out of the specified limits:</li> <li>replace the T5 temperature sensor (Ref. AMM TASK 77-22-10-000-002)</li> <li>and (Ref. AMM TASK 77-22-10-400-002)</li> </ul>

B. Do the test given in Para. 3.A.

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### TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-812

Loss of the T5 Sensor Signal to the ECU on Engine 2

- 1. Possible Causes
  - ECU (4000KS)
  - harness HJ13
  - harness CJ13
  - T5 temperature sensor
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION	
AMM	73-21-50-000-029	Removal of the CJ13 Harness	
AMM	73-21-50-000-046	Removal of the HJ13 Harness	
AMM	73-21-50-400-029	Installation of the CJ13 Harness	
AMM	73-21-50-400-046	Installation of the HJ13 Harness	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
AMM 73-21-60-400-001		Installation of the Electronic Control Unit (ECU)(4000KS)	
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Non motoring)	
AMM	77-22-10-000-002	Removal of the T5 Sensor	
AMM	77-22-10-400-002	Installation of the T5 Sensor	
ASM	73-25/18		
AWM	71-51-09		

- 3. Fault Confirmation
- A. Test R
- (1) Do the operational test of the FADEC 2A on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).
  - 4. Fault Isolation
    - A. If the test gives the maintenance message T5 SNSR, J13, ECU\*:

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- do a check for open or short to ground of the harness HJ13 between the ECU (4000KS) and the 6 o'clock junction box, between the 6 o'clock junction box and the T5 sensor (Ref. ASM 73-25/18).
- (1) If the wiring is not correct:
  - repair the above wiring.

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#### TROUBLE SHOOTING MANUAL

- (2) If the wiring is correct:
  - disconnect the harness HJ13 from the ECU (4000KS) and do a resistance check of the cable J13 between:
    - . pins 11 and 23 (0.5 to 10 ohms)
    - pins 11 and 24 ( > to megohms)
    - . pin 11 and the ground ( > 10 megohms).
  - (a) If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (b) If the resistance values are out of the specified limits:
    - disconnect the connector CJ13 at the 6 o'clock junction box and do a resistance check of the cable CJ13 between:
      - . pins 2 and 11 (0.5 to 10 ohms)
      - pins 2 and 12 ( > 10 megohms)
      - . pin 2 and the ground ( > 10 megohms) (Ref. AWM 71-51-09).
    - 1 If the resistance values are in the specified limits:
      - replace the harness HJ13 (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
    - 2 If the resistance values are out of the specified limits:
      - disconnect the harness CJ13 from the T5 sensor and do a resistance check of the T5 sensor between:
        - pins A and B (0.88 to 1.22 ohms)
        - pin A and the ground ( > 10 megohms).
      - If the resistance values are in the specified limits:
         replace the harness CJ13 (Ref. AMM TASK 73-21-50-000-029)
         and (Ref. AMM TASK 73-21-50-400-029).
      - b If the resistance values are out of the specified limits:
        - replace the T5 temperature sensor (Ref. AMM TASK 77-22-10-000-002) and (Ref. AMM TASK 77-22-10-400-002).
- B. Do the test given in Para. 3.A.

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### TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-822

Loss of the T5 Sensor Signal to the ECU on Engine 1

- 1. Possible Causes
  - ECU (4000KS)
  - harness HJ13
  - harness CJ13
  - T5 temperature sensor
- 2. Job Set-up Information
  - A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	73-21-50-000-029	Removal of the CJ13 Harness	
	AMM	73-21-50-000-046	Removal of the HJ13 Harness	
	AMM	73-21-50-400-029	Installation of the CJ13 Harness	
	AMM	73-21-50-400-046	Installation of the HJ13 Harness	
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
	AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>	
R R	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Non motoring)	
	AMM	77-22-10-000-002	Removal of the T5 Sensor	
	AMM	77-22-10-400-002	Installation of the T5 Sensor	
	ASM	73-25/18		
	AWM	71-51-09		

- Fault Confirmation
- A. Test R
- (1) Do the operational test of the FADEC 1B on the ground (with engine R non motoring) (Ref. AMM TASK 73-29-00-710-040).
  - 4. Fault Isolation
    - A. If the test gives the maintenance message T5 SNSR, J13, ECU or T5 SNSR, J13, ECU\*:
      - do a check for open or short to ground of the harness HJ13 between the ECU (4000KS) and the 6 o'clock junction box, between the 6 o'clock junction box and the T5 sensor (Ref. ASM 73-25/18).
      - (1) If the wiring is not correct: - repair the above wiring.

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#### TROUBLE SHOOTING MANUAL

- (2) If the wiring is correct:
  - disconnect the harness HJ13 from the ECU (4000KS) and do a resistance check of the cable J13 between:
    - . pins 11 and 23 (0.5 to 10 ohms)
    - pins 11 and 24 ( > to megohms)
    - . pin 11 and the ground ( > 10 megohms).
  - (a) If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (b) If the resistance values are out of the specified limits:
    - disconnect the connector CJ13 at the 6 o'clock junction box and do a resistance check of the cable CJ13 between:
      - . pins 2 and 11 (0.5 to 10 ohms)
      - pins 2 and 12 ( > 10 megohms)
      - . pin 2 and the ground ( > 10 megohms) (Ref. AWM 71-51-09).
    - 1 If the resistance values are in the specified limits:
      - replace the harness HJ13 (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
    - 2 If the resistance values are out of the specified limits:
      - disconnect the harness CJ13 from the T5 sensor and do a resistance check of the T5 sensor between:
        - pins A and B (0.88 to 1.22 ohms)
        - pin A and the ground ( > 10 megohms).
      - a If the resistance values are in the specified limits:
        - replace the harness CJ13 (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
      - b If the resistance values are out of the specified limits:
        - replace the T5 temperature sensor (Ref. AMM TASK 77-22-10-000-002) and (Ref. AMM TASK 77-22-10-400-002).
- B. Do the test given in Para. 3.A.

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### TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-823

Loss of the T5 Sensor Signal to the ECU on Engine 2

- 1. Possible Causes
  - ECU (4000KS)
  - harness HJ13
  - harness CJ13
  - T5 temperature sensor
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION	
A M M	77 24 50 000 020	Democrat of the C147 Houses	
AMM	73-21-50-000-029	Removal of the CJ13 Harness	
AMM	73-21-50-000-046	Removal of the HJ13 Harness	
AMM	73-21-50-400-029	Installation of the CJ13 Harness	
AMM	73-21-50-400-046	Installation of the HJ13 Harness	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>	
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Non motoring)	
AMM	77-22-10-000-002	Removal of the T5 Sensor	
AMM	77-22-10-400-002	Installation of the T5 Sensor	
ASM	73-25/18		
AWM	71-51-09		

- 3. Fault Confirmation
- A. Test R
- (1) Do the operational test of the FADEC 2B on the ground (with engine R non motoring) (Ref. AMM TASK 73-29-00-710-040).
  - 4. Fault Isolation
    - A. If the test gives the maintenance message T5 SNSR, J13, ECU or T5 SNSR, J13, ECU\*:
      - do a check for open or short to ground of the harness HJ13 between the ECU (4000KS) and the 6 o'clock junction box, between the 6 o'clock junction box and the T5 sensor (Ref. ASM 73-25/18).
      - (1) If the wiring is not correct: - repair the above wiring.

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#### TROUBLE SHOOTING MANUAL

- (2) If the wiring is correct:
  - disconnect the harness HJ13 from the ECU (4000KS) and do a resistance check of the cable J13 between:
    - . pins 11 and 23 (0.5 to 10 ohms)
    - pins 11 and 24 ( > to megohms)
    - . pin 11 and the ground ( > 10 megohms).
  - (a) If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (b) If the resistance values are out of the specified limits:
    - disconnect the connector CJ13 at the 6 o'clock junction box and do a resistance check of the cable CJ13 between:
      - . pins 2 and 11 (0.5 to 10 ohms)
      - pins 2 and 12 ( > 10 megohms)
      - . pin 2 and the ground ( > 10 megohms) (Ref. AWM 71-51-09).
    - 1 If the resistance values are in the specified limits:
      - replace the harness HJ13 (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
    - 2 If the resistance values are out of the specified limits:
      - disconnect the harness CJ13 from the T5 sensor and do a resistance check of the T5 sensor between:
        - pins A and B (0.88 to 1.22 ohms)
        - pin A and the ground ( > 10 megohms).

and (Ref. AMM TASK 73-21-50-400-029).

- a If the resistance values are in the specified limits:
   replace the harness CJ13 (Ref. AMM TASK 73-21-50-000-029)
- b If the resistance values are out of the specified limits:
  - replace the T5 temperature sensor (Ref. AMM TASK 77-22-10-000-002) and (Ref. AMM TASK 77-22-10-400-002).
- B. Do the test given in Para. 3.A.

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## TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-826

Loss of the EGT Thermocouple Signal to the ECU on Engine 1

### 1. Possible Causes

- harness HJ13
- ECU (4000KS)
- harness CJ13
- lower left-hand thermocouple lead assembly
- lower right-hand thermocouple lead assembly
- upper left-hand thermocouple lead assembly
- three-probe thermocouple lead assembly
- upper extension lead
- lower extension lead
- main junction box assembly

### 2. Job Set-up Information

#### A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	73-21-50-000-029	Removal of the CJ13 Harness	
	AMM	73-21-50-000-046	Removal of the HJ13 Harness	
	AMM	73-21-50-400-029	Installation of the CJ13 Harness	
	AMM	73-21-50-400-046	Installation of the HJ13 Harness	
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
	AMM	73-21-60-400-001	Installation of the Electronic Control Unit	
			(ECU)(4000KS)	
R	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with	
R			Engine Non motoring)	
	AMM	77-21-10-000-008	Removal of the Upper Extension Lead	
	AMM	77-21-10-000-009	Removal of the Lower Extension Lead	
	AMM	77-21-10-000-025	Removal of the Main Junction Box	
	AMM	77-21-10-000-026	Removal of the Upper Right Thermocouple Lead Assembly	
	AMM	77-21-10-000-027	Removal of the Lower Left Thermocouple Lead Assembly	
	AMM	77-21-10-000-028	Removal of the Upper Left Thermocouple Lead Assembly	
	AMM	77-21-10-000-029	Removal of the Lower Right Thermocouple Lead Assembly	
	AMM	77-21-10-200-002	Inspection/Check of the T495 Thermocouple Wiring	
			Harness	
	AMM	77-21-10-400-008	Installation of the Upper Extension Lead	
	AMM	77-21-10-400-009	Installation of the Lower Extension Lead	
	AMM	77-21-10-400-025	Installation of the Main Junction Box	
	AMM	77-21-10-400-026	Installation of the Upper Right Thermocouple Lead	
			Assembly	
	AMM	77-21-10-400-027	Installation of the Lower Left Thermocouple Lead	
		77 24 40 400 020	Assembly	
	AMM	77-21-10-400-028	Installation of the Upper Left Thermocouple Lead Assembly	

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#### TROUBLE SHOOTING MANUAL

REFERENCE DESIGNATION

AMM 77-21-10-400-029 Installation of the Lower Right Thermocouple Lead

Assemb

Installation of the Lower Right Thermocouple Lead Assembly

ASM 73-25/15

R AWM 71-51-09

R

### 3. Fault Confirmation

A. Do the operational test of the FADEC 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

- A. If the test gives the maintenance message T495 SNSR, J13, ECU:
  - do a check for open or short to ground of the T495 thermocouple and of the harness HJ13 between the ECU (4000KS), the 6 o'clock junction box and the T495 thermocouple (Ref. AWM 71-51-09) and (Ref. ASM 73-25/15).
  - (1) If the wiring is not correct:
    - repair the above wiring.
  - (2) If the wiring is correct:
    - disconnect the harness HJ13 from the ECU (4000KS) and do a resistance check of the cable between:
      - . pins 12 and 13 (1 to 10 ohms)
      - pins 12 and 24 (> 10 megohms)
      - . pin 12 and the ground (> 10 megohms).
    - (a) If the resistance values are in the specified limits:
      - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
    - (b) If the resistance values are out of the specified limits:
      - disconnect the harness CJ13 at the 6 o'clock junction box and do a resistance check of the harness CJ13 between:
        - pins 3 and 13 (1 to 10 ohms)
        - pins 3 and 12 (> 10 megohms)
        - . pin 3 and the ground (> 10 megohms).
      - 1 If the resistance values are in the specified limits:
        - replace the harness HJ13 (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
      - 2 If the resistance values are out of the specified limits:
        - disconnect the harness CJ13 from the T495 thermocouple and do a resistance check of the T495 thermocouple between:
          - . pins A and B (1 to 10 ohms)
          - . pin A and the ground (> 10 megohms).

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#### TROUBLE SHOOTING MANUAL

- a If the resistance values are in the specified limits: - replace the harness CJ13 (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
  - If the resistance values are out of the specified limits, do an inspection/check of the T495 thermocouple wiring

harness for isolation of the defective part (Ref. AMM TASK

- 77-21-10-200-002).
   if the electrical check of one of the three two-probe lead assemblies is not correct, replace the defective thermocouple:
  - . the lower left-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-027) and (Ref. AMM TASK 77-21-10-400-027) or
  - . the lower right-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-029) and (Ref. AMM TASK 77-21-10-400-029) or
  - . the upper left-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-028) and (Ref. AMM TASK 77-21-10-400-028).
- if the electrical check of the three-probe lead assembly is not correct:
  - . replace the three-probe thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-026) and (Ref. AMM TASK 77-21-10-400-026), (Ref. AMM TASK 77-21-10-000-027) and (Ref. AMM TASK 77-21-10-400-027), (Ref. AMM TASK 77-21-10-000-028) and (Ref. AMM TASK 77-21-10-400-028), (Ref. AMM TASK 77-21-10-000-029) and (Ref. AMM TASK 77-21-10-400-029).
- if the electrical check of the upper extension lead is not correct:
  - . replace the upper extension lead (Ref. AMM TASK 77-21- 10-000-008) and (Ref. AMM TASK 77-21-10-400-008).
- if the electrical check of the lower extension lead is not correct:
  - . replace the lower extension lead (Ref. AMM TASK 77-21-10-000-009) and (Ref. AMM TASK 77-21-10-400-009).
- if the electrical check of the main junction box assembly is not correct:
  - . replace the main junction box assembly (Ref. AMM TASK 77-21-10-000-025) and (Ref. AMM TASK 77-21-10-400-025).
- B. Do the test given in Para. 3.A.

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## TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-827

Loss of the EGT Thermocouple Signal to the ECU on Engine 2

### 1. Possible Causes

- harness HJ13
- ECU (4000KS)
- harness CJ13
- lower left-hand thermocouple lead assembly
- lower right-hand thermocouple lead assembly
- upper left-hand thermocouple lead assembly
- three-probe thermocouple lead assembly
- upper extension lead
- lower extension lead
- main junction box assembly

### 2. Job Set-up Information

#### A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	73-21-50-000-029	Removal of the CJ13 Harness	
	AMM	73-21-50-000-046	Removal of the HJ13 Harness	
	AMM	73-21-50-400-029	Installation of the CJ13 Harness	
	AMM	73-21-50-400-046	Installation of the HJ13 Harness	
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
	AMM	73-21-60-400-001	Installation of the Electronic Control Unit	
			(ECU)(4000KS)	
R	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with	
R			Engine Non motoring)	
	AMM	77-21-10-000-008	Removal of the Upper Extension Lead	
	AMM	77-21-10-000-009	Removal of the Lower Extension Lead	
	AMM	77-21-10-000-025	Removal of the Main Junction Box	
	AMM	77-21-10-000-026	Removal of the Upper Right Thermocouple Lead Assembly	
	AMM	77-21-10-000-027	Removal of the Lower Left Thermocouple Lead Assembly	
	AMM	77-21-10-000-028	Removal of the Upper Left Thermocouple Lead Assembly	
	AMM	77-21-10-000-029	Removal of the Lower Right Thermocouple Lead Assembly	
	AMM	77-21-10-200-002	Inspection/Check of the T495 Thermocouple Wiring	
			Harness	
	AMM	77-21-10-400-008	Installation of the Upper Extension Lead	
	AMM	77-21-10-400-009	Installation of the Lower Extension Lead	
	AMM	77-21-10-400-025	Installation of the Main Junction Box	
	AMM	77-21-10-400-026	Installation of the Upper Right Thermocouple Lead	
			Assembly	
	AMM	77-21-10-400-027	Installation of the Lower Left Thermocouple Lead	
			Assembly	
	AMM	77-21-10-400-028	Installation of the Upper Left Thermocouple Lead Assembly	

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#### TROUBLE SHOOTING MANUAL

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REFERENCE DESIGNATION

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AMM 77-21-10-400-029

Installation of the Lower Right Thermocouple Lead Assembly

ASM 73-25/15

AWM 71-51-09

R

R

### 3. Fault Confirmation

A. Do the operational test of the FADEC 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

#### 4. Fault Isolation

- A. If the test gives the maintenance message T495 SNSR, J13, ECU:
  - do a check for open or short to ground of the harness HJ13 between the ECU (4000KS) and the 6 o'clock junction box, between the 6 o'clock junction box and the T495 thermocouple (Ref. AWM 71-51-09) and (Ref. ASM 73-25/15).
  - (1) If the wiring is not correct:
    - repair the above wiring.
  - (2) If the wiring is correct:
    - disconnect the harness HJ13 from the ECU (4000KS) and do a resistance check of the cable between:
      - . pins 12 and 13 (1 to 10 ohms)
      - pins 12 and 24 (> 10 megohms)
      - . pin 12 and the ground (> 10 megohms).
    - (a) If the resistance values are in the specified limits:
      - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
    - (b) If the resistance values are out of the specified limits:
      - disconnect the harness CJ13 at the 6 o'clock junction box and do a resistance check of the harness CJ13 between:
        - pins 3 and 13 (1 to 10 ohms)
        - . pins 3 and 12 (> 10 megohms)
        - . pin 3 and the ground (> 10 megohms).
      - 1 If the resistance values are in the specified limits:
        - replace the harness HJ13 (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
      - 2 If the resistance values are out of the specified limits:
        - disconnect the harness CJ13 from the T495 thermocouple and do a resistance check of the T495 thermocouple between:
          - . pins A and B (1 to 10 ohms)
          - . pin A and the ground (> 10 megohms).

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#### TROUBLE SHOOTING MANUAL

- a If the resistance values are in the specified limits: - replace the harness CJ13 (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
- <u>b</u> If the resistance values are out of the specified limits, do an inspection/check of the T495 thermocouple wiring harness for isolation of the defective part (Ref. AMM TASK 77-21-10-200-002).
  - if the electrical check of one of the three two-probe lead assemblies is not correct, replace the defective thermocouple:
    - . the lower left-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-027) and (Ref. AMM TASK 77-21-10-400-027) or
    - . the lower right-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-029) and (Ref. AMM TASK 77-21-10-400-029) or
    - . the upper left-hand thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-028) and (Ref. AMM TASK 77-21-10-400-028).
  - if the electrical check of the three-probe lead assembly is not correct:
    - . replace the three-probe thermocouple lead assembly (Ref. AMM TASK 77-21-10-000-026) and (Ref. AMM TASK 77-21-10-400-026), (Ref. AMM TASK 77-21-10-000-027) and (Ref. AMM TASK 77-21-10-400-027), (Ref. AMM TASK 77-21-10-000-028) and (Ref. AMM TASK 77-21-10-400-028), (Ref. AMM TASK 77-21-10-000-029) and (Ref. AMM TASK 77-21-10-400-029).
  - if the electrical check of the upper extension lead is not correct:
    - . replace the upper extension lead (Ref. AMM TASK 77-21-10-000-008) and (Ref. AMM TASK 77-21-10-400-008).
  - if the electrical check of the lower extension lead is not correct:
    - replace the lower extension lead (Ref. AMM TASK 77-21-10-000-009) and (Ref. AMM TASK 77-21-10-400-009).
  - if the electrical check of the main junction box assembly is not correct:
    - . replace the main junction box assembly (Ref. AMM TASK 77-21-10-000-025) and (Ref. AMM TASK 77-21-10-400-025).
- B. Do the test given in Para. 3.A.

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## **@A319/A320/A321**

## TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-828

Loss of the T3 Thermocouple Signal - Engine 1 - Channel B

### 1. Possible Causes

- T3 thermocouple
- CJ13 harness
- HJ13 harness
- ECU (4000KS)

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION	
AMM	73-21-50-000-029	Removal of the CJ13 Harness	
AMM	73-21-50-000-046	Removal of the HJ13 Harness	
AMM	73-21-50-210-001	Visual Inspection of the Wiring Harness	
AMM	73-21-50-400-029	Installation of the CJ13 Harness	
AMM	73-21-50-400-046	Installation of the HJ13 Harness	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)	
AMM	73-21-60-400-001	Installation of the Electronic Control Unit	
		(ECU)(4000KS)	
AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)	
AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with	
		Engine Non motoring)	
AMM	77-23-10-000-001	Removal of the Compressor Discharge Temperature (T3) Sensor	
AMM	77-23-10-000-002	Removal of the Compressor Discharge Temperature (T3)	
		Sensor	
AMM	77-23-10-400-001	Installation of the Compressor Discharge Temperature	
		(T3) Sensor	
AMM	77-23-10-400-002	<pre>Installation of the Compressor Discharge Temperature (T3) Sensor</pre>	

### 3. Fault Confirmation

R A. Test

(1) Do the operational test of the FADEC 1B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

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### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. The failure message is generated if channel B sensor signal is invalid or out of range.
  - NOTE: If T3 sensor Part Number is 1348M21P01, P04 or P05, replace T3 sensor (Ref. AMM TASK 77-23-10-000-001) and (Ref. AMM TASK 77-23-10-400-001).
  - (1) If the failure message T3 SENS, J13, ECU is not confirmed: - no maintenance action is required.
  - (2) If the failure message T3 SENS, J13, ECU is not confirmed, but is repetitive:
    - visually examine the T3 thermocouple receptacle and the CJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).
    - (a) If harness connector or T3 thermocouple receptacle is damaged:repair or replace as required.
    - (b) If no damage is found:
      - visually examine the ECU (4000KS) receptacle and the HJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).
      - 1 If harness connector or ECU receptacle is damaged: - repair or replace as required.
      - 2 If no damage is found:
        - replace the T3 thermocouple (Ref. AMM TASK 77-23-10-000-002) and (Ref. AMM TASK 77-23-10-400-002).
    - (c) If the fault continues during the subsequent flights:
      - replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
    - (d) If the fault continues during the subsequent flights:
      - replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
    - (e) If the fault continues during the subsequent flights:
      - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - (3) If the failure message T3 SENS, J13, ECU is confirmed:
    - disconnect the two CJ13 connectors from the T3 thermocouple
    - visually examine the T3 thermocouple receptacle and the CJ13 harness connectors for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).

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#### TROUBLE SHOOTING MANUAL

- (a) If harness connectors or T3 thermocouple receptacle are damaged:repair or replace as required.
- (b) If no damage is found:
  - do a resistance check of the two T3 thermocouple connectors between:
    - . pins A and B (0.5 to 10 ohms)
    - pin A and the ground (> 10 megohms).
  - 1 If the resistance values of one of the two T3 thermocouple connectors are out of specified limits:
    - replace the T3 thermocouple (Ref. AMM TASK 77-23-10-000-001) and (Ref. AMM TASK 77-23-10-400-001).
  - 2 If the resistance values are in the specified limits:
    - reconnect the CJ13 harness to the T3 thermocouple
    - disconnect the HJ13 harness from the ECU
    - visually examine the ECU (4000KS) receptacle and the HJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).
    - a If harness connector or ECU receptacle is damaged:
      - repair or replace as required.
    - b If no damage is found:
      - do an electrical resistance test through the HJ13 harness between:
        - . pins 4 and 5 (0.5 to 10 ohms)
        - . pins 14 and 15 (0.5 to 10 ohms)
        - pins 4 and 16 (> 10 megohms)
        - . pins 14 and 16 (> 10 megohms)
        - pin 4 and the ground (> 10 megohms)
        - . pin 14 and the ground (> 10 megohms).
    - c If the resistance values are in the specified limits:
      - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001)
        and (Ref. AMM TASK 73-21-60-400-001).
    - d If the resistance values are out of the specified limits:
      - reconnect the HJ13 harness
      - disconnect the HJ13 harness from the CJ13 harness at the
         6 o'clock junction box
      - do an electrical resistance test through the CJ13 harness between:
        - . pins 7 and 8 (0.5 to 10 ohms)
        - . pins 1 and 10 (0.5 to 10 ohms)
        - . pins 7 and 9 (> 10 megohms)
        - pins 1 and 9 (> 10 megohms)
        - . pin 7 and the ground (> 10 megohms)
        - . pin 1 and the ground (> 10 megohms).

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### TROUBLE SHOOTING MANUAL

- e If the resistance values are out of the specified limits:
   replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029)
   and (Ref. AMM TASK 73-21-50-400-029).
- $\underline{f}$  If the resistance values are in the specified limits: replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

EFF: ALL

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## **@A319/A320/A321**

### TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-829

Loss of the T3 Thermocouple Signal - Engine 2 - Channel B

### 1. Possible Causes

- T3 thermocouple
- CJ13 harness
- HJ13 harness
- ECU (4000KS)

### 2. Job Set-up Information

A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	73-21-50-000-029	Removal of the CJ13 Harness	
	AMM	73-21-50-000-046	Removal of the HJ13 Harness	
	AMM	73-21-50-210-001	Visual Inspection of the Wiring Harness	
	AMM	73-21-50-400-029	Installation of the CJ13 Harness	
	AMM	73-21-50-400-046	Installation of the HJ13 Harness	
	AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)	
	AMM	73-21-60-400-001	Installation of the Electronic Control Unit (ECU)	
R R	AMM	73-29-00-710-040	Operational Test of the FADEC on the Ground (with Engine Non motoring)	
	AMM	77-23-10-000-001	Removal of the Compressor Discharge Temperature (T3) Sensor	
	AMM	77-23-10-000-002	Removal of the Compressor Discharge Temperature (T3) Sensor	
	AMM	77-23-10-400-001	<pre>Installation of the Compressor Discharge Temperature (T3) Sensor</pre>	
	AMM	77-23-10-400-002	<pre>Installation of the Compressor Discharge Temperature (T3) Sensor</pre>	

### 3. Fault Confirmation

R A. Test

R

(1) Do the operational test of the FADEC 2B on the ground (with engine non motoring) (Ref. AMM TASK 73-29-00-710-040).

### 4. Fault Isolation

A. The failure message is generated if channel B sensor signal is invalid or out of range.

NOTE : If T3 sensor Part Number is 1348M21P01, P04 or P05, replace T3 sensor (Ref. AMM TASK 77-23-10-000-001) and (Ref. AMM TASK 77-23-10-400-001).

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#### TROUBLE SHOOTING MANUAL

- (1) If the failure message T3 SENS, J13, ECU is not confirmed:
  - no maintenance action is required.
- (2) If the failure message T3 SENS, J13, ECU is not confirmed, but is repetitive:
  - visually examine the T3 thermocouple receptacle and the CJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).
  - (a) If harness connector or T3 thermocouple receptacle is damaged:
     repair or replace as required.
  - (b) If no damage is found:
    - visually examine the ECU (4000KS) receptacle and the HJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).

    - 2 If no damage is found:
      - replace the T3 thermocouple (Ref. AMM TASK 77-23-10-000-002) and (Ref. AMM TASK 77-23-10-400-002).
  - (c) If the fault continues during the subsequent flights:
    - replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
  - (d) If the fault continues during the subsequent flights:
    - replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).
  - (e) If the fault continues during the subsequent flights:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
- (3) If the failure message T3 SENS, J13, ECU is confirmed:
  - disconnect the two CJ13 connectors from the T3 thermocouple
  - visually examine the T3 thermocouple receptacle and the CJ13 harness connectors for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).
  - (a) If harness connectors or T3 thermocouple receptacle are damaged:repair or replace as required.
  - (b) If no damage is found:
    - do a resistance check of the two T3 thermocouple connectors between:
      - pins A and B (0.5 to 10 ohms)
      - pin A and the ground (> 10 megohms).

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## **© A319/A320/A321**

#### TROUBLE SHOOTING MANUAL

- 1 If the resistance values of one of the two T3 thermocouple connectors are out of specified limits:
  - replace the T3 thermocouple (Ref. AMM TASK 77-23-10-000-002) and (Ref. AMM TASK 77-23-10-400-002).
- 2 If the resistance values are in the specified limits:
  - reconnect the CJ13 harness to the T3 thermocouple
  - disconnect the HJ13 harness from the ECU
  - visually examine the ECU (4000KS) receptacle and the HJ13 harness connector for damaged pins and contamination (Ref. AMM TASK 73-21-50-210-001).
  - a If harness connector or ECU receptacle is damaged:
    - repair or replace as required.
  - b If no damage is found:
    - do an electrical resistance test through the HJ13 harness between:
      - pins 4 and 5 (0.5 to 10 ohms)
      - . pins 14 and 15 (0.5 to 10 ohms)
      - . pins 4 and 16 (> 10 megohms)
      - pins 14 and 16 (> 10 megohms)
      - pin 4 and the ground (> 10 megohms)
      - . pin 14 and the ground (> 10 megohms).
  - c If the resistance values are in the specified limits:
    - replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref. AMM TASK 73-21-60-400-001).
  - d If the resistance values are out of the specified limits:
    - reconnect the HJ13 harness
    - disconnect the HJ13 harness from the CJ13 harness at the
       6 o'clock junction box
    - do an electrical resistance test through the CJ13 harness between:
      - . pins 7 and 8 (0.5 to 10 ohms)
      - . pins 1 and 10 (0.5 to 10 ohms)
      - pins 7 and 9 (> 10 megohms)
      - pins 1 and 9 (> 10 megohms)
      - . pin 7 and the ground (> 10 megohms)
      - pin 1 and the ground (> 10 megohms).
  - e If the resistance values are out of the specified limits:
    - replace the CJ13 harness (Ref. AMM TASK 73-21-50-000-029) and (Ref. AMM TASK 73-21-50-400-029).
  - f If the resistance values are in the specified limits:
    - replace the HJ13 harness (Ref. AMM TASK 73-21-50-000-046) and (Ref. AMM TASK 73-21-50-400-046).

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## TROUBLE SHOOTING MANUAL

- B. Do the test given in Para. 3.A.
  - (1) No additional maintenance action is required if the fault is not confirmed.
  - (2) Repeat the fault isolation procedure if the fault continues.

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## *GA319/A320/A321*

### TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-830

The EGT indication fluctuates while other parameters are stable

#### 1. Possible Causes

- T495 probes
- Main Electrical Junction Box
- CJ13 Harness
- ECU (4000KS)
- J13 Harness

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION	
AMM	71-00-00-710-006	Minimum Idle Check	
AMM	73-21-50-000-029	Removal of the CJ13 Harness	
AMM	73-21-50-000-046	Removal of the HJ13 Harness	
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses	
AMM	73-21-50-400-029	Installation of the CJ13 Harness	
AMM	73-21-50-400-046	Installation of the HJ13 Harness	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>	
AMM	73-21-60-740-007	Correct Time Limited Faults (Non Asterisked) of the Engine Scheduled Maintenance Report	
AMM	77-21-10-000-025	Removal of the Main Junction Box	
AMM	77-21-10-200-002	<pre>Inspection/Check of the T495 Thermocouple Wiring Harness</pre>	
AMM	77-21-10-400-025	Installation of the Main Junction Box	

#### 3. Fault Confirmation

#### A. Test

R

(1) Not applicable.

NOTE: Most likely cause for an EGT fluctuation (while other parameters are stable) is oxidation deposit on the CJ13 harness connector onto the junction box receptacle. Therefore, as a first attempt to fix the fault, the connector/receptacle (CJ13 harness connector and Main Junction Box receptacle) must be cleaned per procedure here below.

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### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. If EGT fluctuations have been reported and other engine parameters were stable:
  - Do a check of the Post Flight Report (PFR), of the Schedule Maintenance Report (SMR) or Class 3 Report (Ref. AMM TASK 73-21-60-740-007), and of the FADEC Last Leg Report for a T495 SNSR failure message.
- R (1) If message is found:
  - Do the related troubleshooting procedure.
  - (2) If nothing is found:
    - Disconnect the CJ13 harness from the T495 main junction box (located in the left core compartment), and visually examine the T495 junction box receptacle and the CJ13 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002). Clean the connector and the receptacle using a bristle brush and stoddart solvant (CP 2011) or white spirit (CP 2010).
    - (a) If damage is found:
      - replace or repair as necessary.
    - (b) If nothing is found:
      - Disconnect the J13 harness from the ECU (4000KS), and visually examine the ECU receptacle and the harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
      - $\underline{1}$  If damage is found:
        - repair or replace as required.
      - 2 If nothing is found, continue the troubleshooting as follows.
  - (3) Do a visual inspection of the J13 and CJ13 harnesses connectors for looseness.
    - (a) If a connector is found loose:
      - do a cleanning of the connector and the receptacle using a bristle brush and stoddart solvant (CP 2011) or white spirit (CP 2010) (Ref. AMM TASK 73-21-50-210-002)
    - (b) If nothing is found:
      - do a visual inspection of the T495 probes lead assemblies and check for damage.
      - 1 If damage is found:
        - repair or replace damaged hardware as required.
  - (4) If the fault continues during the subsequent flight:
    - Do an electrical resistance test through the Main Electrical Junction Box between:
      - pins A and B (1 to 10 ohms)
      - pin A and the ground (> 20 megohms)

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## TROUBLE SHOOTING MANUAL

R		(a) If the resistances are out of the specified limits:
R		- Do an electrical resistance test of the T495 thermocouple
R		wiring harness (probes lead assemblies and extension leads
R		assemblies) (Ref. AMM TASK 77-21-10-200-002)
R		(b) If the resistances are in the specified limits:
R		- replace the CJ13 Harness (Ref. AMM TASK 73-21-50-000-029) and
R		(Ref. AMM TASK 73-21-50-400-029).
R	(5)	If the fault continues during the subsequent flight:
R		- Replace the Main Junction Box assembly (Ref. AMM TASK 77-21-10-000-
R		025) and (Ref. AMM TASK 77-21-10-400-025).
R	(6)	If the fault continues during the subsequent flight:
R		- Replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref.
R		AMM TASK 73-21-60-400-001).
R	(7)	If the fault continues during the subsequent flight:
R		- Replace the J13 Harness (Ref. AMM TASK 73-21-50-000-046) and (Ref.
R R		AMM TASK 73-21-50-400-046).

## 5. Close-up

- A. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).
  - (1) Repeat the fault isolation procedure, if the fault continues.

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### TROUBLE SHOOTING MANUAL

TASK 77-20-00-810-831

The EGT indication fluctuates while other parameters are stable

#### 1. Possible Causes

- T495 probes
- Main Electrical Junction Box
- CJ13 Harness
- ECU (4000KS)
- J13 Harness

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION	
AMM	71-00-00-710-006	Minimum Idle Check	
AMM	73-21-50-000-029	Removal of the CJ13 Harness	
AMM	73-21-50-000-046	Removal of the HJ13 Harness	
AMM	73-21-50-210-002	Visual Inspection of the Wiring Harnesses	
AMM	73-21-50-400-029	Installation of the CJ13 Harness	
AMM	73-21-50-400-046	Installation of the HJ13 Harness	
AMM	73-21-60-000-001	Removal of the Electronic Control Unit (ECU)(4000KS)	
AMM	73-21-60-400-001	<pre>Installation of the Electronic Control Unit (ECU)(4000KS)</pre>	
AMM	73-21-60-740-007	Correct Time Limited Faults (Non Asterisked) of the Engine Scheduled Maintenance Report	
AMM	77-21-10-000-025	Removal of the Main Junction Box	
AMM	77-21-10-200-002	<pre>Inspection/Check of the T495 Thermocouple Wiring Harness</pre>	
AMM	77-21-10-400-025	Installation of the Main Junction Box	

#### 3. Fault Confirmation

#### A. Test

(1) Not applicable.

NOTE: Most likely cause for an EGT fluctuation (while other parameters are stable) is oxidation deposit on the CJ13 harness connector onto the junction box receptacle. Therefore, as a first attempt to fix the fault, the connector/receptacle (CJ13 harness connector and Main Junction Box receptacle) must be cleaned per procedure here below.

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### TROUBLE SHOOTING MANUAL

### 4. Fault Isolation

- A. If EGT fluctuations have been reported and other engine parameters were stable:
  - Do a check of the Post Flight Report (PFR), of the Schedule Maintenance Report (SMR) or Class 3 Report (Ref. AMM TASK 73-21-60-740-007), and of the FADEC Last Leg Report for a T495 SNSR failure message.
  - (1) If message is found:
    - Do the related troubleshooting procedure.
  - (2) If nothing is found:
    - Disconnect the CJ13 harness from the T495 main junction box (located in the left core compartment), and visually examine the T495 junction box receptacle and the CJ13 harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002). Clean the connector and the receptacle using a bristle brush and stoddart solvant (CP 2011) or white spirit (CP 2010).
    - (a) If damage is found:
      - replace or repair as necessary.
    - (b) If nothing is found:
      - Disconnect the J13 harness from the ECU (4000KS), and visually examine the ECU receptacle and the harness connector for damaged pins or contamination (Ref. AMM TASK 73-21-50-210-002).
      - 1 If damage is found:
        - repair or replace as required.
      - 2 If nothing is found, continue the troubleshooting as follows.
  - (3) Do a visual inspection of the J13 and CJ13 harnesses connectors for looseness.
    - (a) If a connector is found loose:
      - do a cleanning of the connector and the receptacle using a bristle brush and stoddart solvant (CP 2011) or white spirit (CP 2010) (Ref. AMM TASK 73-21-50-210-002)
    - (b) If nothing is found:
      - do a visual inspection of the T495 probes lead assemblies and check for damage.
      - 1 If damage is found:
        - repair or replace damaged hardware as required.
  - (4) If the fault continues during the subsequent flight:
    - Do an electrical resistance test through the Main Electrical Junction Box between:
      - pins A and B (1 to 10 ohms)
      - . pin A and the ground (> 20 megohms)

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R		(a) If the resistances are out of the specified limits:
R		- Do an electrical resistance test of the T495 thermocouple
R		wiring harness (probes lead assemblies and extension leads
R		assemblies) (Ref. AMM TASK 77-21-10-200-002)
R		(b) If the resistances are in the specified limits:
R		- replace the CJ13 Harness (Ref. AMM TASK 73-21-50-000-029) and
R		(Ref. AMM TASK 73-21-50-400-029).
R	(5)	If the fault continues during the subsequent flight:
R		- Replace the Main Junction Box assembly (Ref. AMM TASK 77-21-10-000-
R		025) and (Ref. AMM TASK 77-21-10-400-025).
R	(6)	If the fault continues during the subsequent flight:
R		- Replace the ECU (4000KS) (Ref. AMM TASK 73-21-60-000-001) and (Ref.
R		AMM TASK 73-21-60-400-001).
R	(7)	If the fault continues during the subsequent flight:
R		- Replace the J13 Harness (Ref. AMM TASK 73-21-50-000-046) and (Ref.
R R		AMM TASK 73-21-50-400-046).

## 5. Close-up

- A. Do a minimum idle check (Ref. AMM TASK 71-00-00-710-006).
  - (1) Repeat the fault isolation procedure, if the fault continues.

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### TROUBLE SHOOTING MANUAL

### ANALYZERS - FAULT ISOLATION PROCEDURES

TASK 77-30-00-810-801

Loss of the Vibration Indications on the two Engines

- 1. Possible Causes
  - EVMU (2EV)
  - aircraft wiring
  - C/B-ENGINE/ENG1 AND 2/EVMU (1EV)
- 2. Job Set-up Information
  - A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)	
	AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>	
R	AMM ASM	77-32-34-710-040 77-32/02	Operational Check of EVMU through CFDS	

- 3. Fault Confirmation
  - A. Test

Do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).

- 4. Fault Isolation
  - A. Table of the circuit breakers used in this procedure:

PANEL DESIGNATION IDENT. LOCATION

121VU ENGINE/ENG1 AND 2/EVMU 1EV R44

- B. If the test gives the maintenance message EVMU:do a check of the circuit breaker 1EV status.
  - (1) If the circuit breaker is open:close the circuit breaker 1EV.

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- (2) If the circuit breaker is closed:
  - do a check for 115VAC on the EVMU (Ref. ASM 77-32/02).
  - (a) If there is 115VAC:
    - replace the EVMU (2EV), (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).
  - (b) If there is no 115VAC:
    - do a check and repair the aircraft wiring between the breaker 1EV to the EVMU (2EV) (Ref. ASM 77-32/02).
    - 1 If the fault continues:
      - replace the C/B-ENGINE/ENG1 AND 2/EVMU (1EV)
- R C. Do the check given in Para. 3.A.

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-802

Loss of N1 or N2 Vibration Indication on One Engine

- 1. Possible Causes
  - EVMU (2EV)
- 2. Job Set-up Information
  - A. Referenced Information

	REFE	RENCE	DESIGNATION
	AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)
	AMM	77-32-34-400-042	Installation of the Engine Vibration Monitoring Unit (EVMU)
2	AMM	77-32-34-710-040	Operational Check of EVMU through CFDS

### 3. Fault Confirmation

A. Test

R

Do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).

- 4. Fault Isolation
  - A. If the test gives the maintenance message EVMU:
    - replace the EVMU (2EV), (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-803

Loss of N1 and N2 Vibration Indications on the Two Engines

- 1. Possible Causes
  - EVMU (2EV)
  - wiring from the circuit breaker 1EV to the pin AC/2 of the EVMU (2EV)
  - C/B-ENGINE/ENG1 AND 2/EVMU (1EV)
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION	
AMM	31-60-00-860-001	EIS Start Procedure	
AMM	31-60-00-860-002	EIS Stop Procedure	
AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)	
AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>	
AMM	77-32-34-710-040	Operational Check of EVMU through CFDS	
ASM	77-32/02		
ASM	77-33/02		
	AMM AMM AMM AMM	AMM 31-60-00-860-001 AMM 31-60-00-860-002 AMM 77-32-34-000-042 AMM 77-32-34-400-042 AMM 77-32-34-710-040 ASM 77-32/02	

- 3. Fault Confirmation
  - A. Job Set-Up
    - (1) Do the EIS start procedure (Upper ECAM DU and lower ECAM DU only) (Ref. AMM TASK 31-60-00-860-001).
  - B. Test
    - (1) On the ECAM control panel:
      - push the ENG key to get the ENGINE page on the lower ECAM display unit.
    - (2) On the ENGINE page, the N1 and N2 vibration level indications on the two engines show amber XX.
- 4. Fault Isolation
  - A. Table of the circuit breakers used in this procedure:

PANEL DESIGNATION IDENT. LOCATION

121VU ENGINE/ENG1 AND 2/EVMU

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1EV

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- B. If the test confirms the fault:
  - do a check of the circuit breaker 1EV status.
  - (1) If the circuit breaker is open:
    - close the circuit breaker 1EV.
  - (2) If the circuit breaker is closed:
    - do a check for 115VAC on the pin AC/2 of the EVMU (Ref. ASM 77-33/02).
    - (a) If there is 115VAC:
      - replace the EVMU (2EV), (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).
    - (b) If there is no 115VAC:
      - do a check and repair the wiring from the circuit breaker 1EV to the pin AC/2 of the EVMU (2EV) (Ref. ASM 77-32/02).
      - 1 If the fault continues:
        - replace the C/B-ENGINE/ENG1 AND 2/EVMU (1EV)
- C. Do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).

### 5. Close-up

A. On the ECAM control panel, set the UPPER display and LOWER display potentiometers to OFF (Ref. AMM TASK 31-60-00-860-002). Put the aircraft back to its initial configuration.

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-805

Loss of the N1 Vibration Indication on Engine 1

### 1. Possible Causes

- EVMU (2EV)
- wiring from the EVMU (2EV) to the N1 speed sensor (4000EV)
- SENSOR-N1 ROTATIONAL SPD (4000EV)
- harness between the EVMU and the N1 speed sensor

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION	
AMM	71-00-00-710-009	Vibration Check	
AMM	77-11-10-000-002	Removal of the N1 Speed Sensor (4000EV)	
AMM	77-11-10-400-002	Installation of the N1 Speed Sensor (4000EV)	
AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)	
AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>	
ASM	77-32/02		

### 3. Fault Confirmation

A. Test

R

R

Not applicable, you cannot confirm this fault on the ground.

### 4. Fault Isolation

- A. If the Post Flight Report gives the maintenance message ENG1 N1 SPEED SENSOR:
  - do a check for open or short to ground of the wiring from the EVMU (2EV) to the N1 speed sensor (4000EV) pins AA/8B, 7A to pins CC/1, 2 (Ref. ASM 77-32/02).
  - (1) If the wiring is not correct:
    - repair the above wiring.
  - (2) If the wiring is correct:
    - with the cable disconnected from the EVMU, do a resistance check of the EVMU between: pins 8B and 7A (40 to 80 0hms).
    - (a) If the resistance values are in the specified limits:
      - replace the EVMU (2EV) (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).

EFF: ALL

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### TROUBLE SHOOTING MANUAL

R R (b) If the resistance values are out of the specified limits:

- with the connector CC disconnected from the N1 speed sensor, do a resistance check of the sensor between: pins 1 and 2 (40 to 80 0hms).
- If the resistance values are out of the specified limits: - replace the SENSOR-N1 ROTATIONAL SPD (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- 2 If the resistance values are in the specified limits: - replace the harness between the EVMU and the N1 speed sensor (Ref. ASM 77-32/02).
- B. Do the vibration check to get the vibration data (Ref. AMM TASK 71-00-00-710-009).

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-806

Loss of the N1 Vibration Indication on Engine 2

### 1. Possible Causes

- EVMU (2EV)
- wiring from the EVMU (2EV) to the N1 speed sensor (4000EV)
- SENSOR-N1 ROTATIONAL SPD (4000EV)
- harness between the EVMU (2EV) and the N1 speed sensor (4000EV).

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-009	Vibration Check
AMM	77-11-10-000-002	Removal of the N1 Speed Sensor (4000EV)
AMM	77-11-10-400-002	Installation of the N1 Speed Sensor (4000EV)
AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)
AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>
ASM	77-32/02	

### 3. Fault Confirmation

A. Test

R

R

Not applicable, you cannot confirm this fault on the ground.

### 4. Fault Isolation

- A. If the Post Flight Report gives the maintenance message ENG2 N1 SPEED SENSOR:
  - do a check for open or short to ground of the wiring from the EVMU (2EV) to the N1 speed sensor (4000EV) pins AB/8B, 7A to pins CC/1, 2 (Ref. ASM 77-32/02).
  - (1) If the wiring is not correct:
    - repair the above wiring.
  - (2) If the wiring is correct:
    - with the cable disconnected from the EVMU, do a resistance check of the EVMU between: pins 8B and 7A (40 to 80 0hms).
    - (a) If the resistance values are in the specified limits:
      - replace the EVMU (2EV) (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).

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R R (b) If the resistance values are out of the specified limits: - with the connector CC disconnected from the N1 speed sensor (4000EV), do a resistance check of the sensor between: pins 1 and 2 (40 to 80 0hms).

- 1 If the resistance values are out of the specified limits: - replace the SENSOR-N1 ROTATIONAL SPD (4000EV) (Ref. AMM TASK 77-11-10-000-002) and (Ref. AMM TASK 77-11-10-400-002).
- <u>2</u> If the resistance values are in the specified limits: - replace the harness between the EVMU (2EV) and the N1 speed sensor (4000EV). (Ref. ASM 77-32/02).
- B. Do the vibration check to get the vibration data (Ref. AMM TASK 71-00-00-710-009).

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-807

Loss of the N2 Vibration Indication on Engine 1

### 1. Possible Causes

- EVMU (2EV)
- wiring from the EVMU (2EV) to the N2 speed sensor (4001EV)
- SENSOR-N2 ROTATIONAL SPD (4001EV)
- harness between the EVMU and the N2 speed sensor

### Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION	
	74 00 00 740 000		
AMM	71-00-00-710-009	Vibration Check	
AMM	77-11-20-000-002	Removal of the N2 Speed Sensor (4001EV).	
AMM	77-11-20-400-002	Installation of the N2 Speed Sensor (4001EV).	
AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)	
AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>	
ASM	77-32/02		

### 3. Fault Confirmation

A. Test

R

R

Not applicable, you cannot confirm this fault on the ground.

### 4. Fault Isolation

- A. If the Post Flight Report gives the maintenance message ENG1 N2 SPEED SENSOR:
  - do a check for open or short to ground of the wiring from the EVMU (2EV) to the N2 speed sensor (4001EV) pins AA/8D, 7C to pins CC/1, 2 (Ref. ASM 77-32/02).
  - (1) If the wiring is not correct:
    - repair the above wiring.
  - (2) If the wiring is correct:
    - with the cable disconnected from the EVMU (2EV), do a resistance check of the EVMU between: pins 7C and 8D (40 to 80 0hms).
    - (a) If the resistance values are in the specified limits:
      - replace the EVMU (2EV), (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).

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### TROUBLE SHOOTING MANUAL

R R

- (b) If the resistance values are out of the specified limits:
  - with the connector CC disconnected from the N2 speed sensor, do a resistance check of the sensor between:
    - pins 1 and 2 (40 to 80 0hms)
    - pins 1 and 3 (> 10 Megohms)
    - pin 1 and the ground (> 10 Megohms)
  - 1 If the resistance values are out of the specified limits:
    - replace the SENSOR-N2 ROTATIONAL SPD (4001EV), (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
  - 2 If the resistance values are in the specified limits:
    - replace the harness between the EVMU and the N2 speed sensor (Ref. ASM 77-32/02).
- B. Do the vibration check to get the vibration data (Ref. AMM TASK 71-00-00-710-009).

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-808

Loss of the N2 Vibration Indication on Engine 2

### 1. Possible Causes

- EVMU (2EV)
- wiring from the EVMU (2EV) to the N2 speed sensor (4001EV)
- SENSOR-N2 ROTATIONAL SPD (4001EV)
- harness between the EVMU and the N2 speed sensor

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION
AMM	71-00-00-710-009	Vibration Check
AMM	77-11-20-000-002	Removal of the N2 Speed Sensor (4001EV).
AMM	77-11-20-400-002	Installation of the N2 Speed Sensor (4001EV).
AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)
AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>
ASM	77-32/02	

### 3. Fault Confirmation

A. Test

R

R

Not applicable, you cannot confirm this fault on the ground.

### 4. Fault Isolation

- A. If the Post Flight Report gives the maintenance message ENG2 N2 SPEED SENSOR:
  - do a check for open or short to ground of the wiring from the EVMU (2EV) to the N2 speed sensor (4001EV) pins AB/8D, 7C to pins CC/1, 2 (Ref. ASM 77-32/02).
  - (1) If the wiring is not correct:
    - repair the above wiring.
  - (2) If the wiring is correct:
    - with the cable disconnected from the EVMU (2EV), do a resistance check of the EVMU between: pins 7C and 8D (40 to 80 0hms).
    - (a) If the resistance values are in the specified limits:
      - replace the EVMU (2EV), (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).

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R R

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(b) If the resistance values are out of the specified limits:

- with the connector CC disconnected from the N2 speed sensor, do a resistance check of the sensor between:
  - pins 1 and 2 (40 to 80 0hms)
  - pins 1 and 3 (> 10 Megohms)
  - pin 1 and the ground (> 10 Megohms)
- 1 If the resistance values are out of the specified limits:
  - replace the SENSOR-N2 ROTATIONAL SPD (4001EV) (Ref. AMM TASK 77-11-20-000-002) and (Ref. AMM TASK 77-11-20-400-002).
- 2 If the resistance values are in the specified limits:
  - replace the harness between the EVMU and the N2 speed sensor (Ref. ASM 77-32/02).
- B. Do the vibration check to get the vibration data (Ref. AMM TASK 71-00-00-710-009).

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-809

Failure of the No. 1 Bearing Vibration Sensor on Engine 1

- 1. Possible Causes
  - EVMU (2EV)
  - wiring from the EVMU (2EV) to the vibration sensor (4002EV)
- 2. Job Set-up Information
  - A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit	
			(EVMU)	
	AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>	
R	AMM	77-32-34-710-040	Operational Check of EVMU through CFDS	
	AMM ASM	77-32-34-860-041 77-32/02	Change the configuration of the Accelerometer	

- 3. Fault Confirmation
  - A. Test
    - (1) Do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).
- 4. Fault Isolation
  - A. If the test gives the maintenance message ENG1 BRG1 ACCEL:
    - do a check of the wiring from the EVMU (2EV) to the vibration sensor (4002EV) pins AA/1A, 2B to pins AA/2, 3 (Ref. ASM 77-32/02).
    - (1) If there is no continuity:
      - repair the above wiring.
    - (2) If there is continuity:
      - reconfigure the accelerometer to get the data from the TRF vibration sensor (Ref. AMM TASK 77-32-34-860-041).

NOTE: The N1 bearing vibration sensor is not a LRU, replace it at the first shop visit.

- (3) If the fault continues:
  - replace the EVMU (2EV), (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).

EFF: ALL 77-30-00

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### TROUBLE SHOOTING MANUAL

B. Do the test given in Para. 3.A.

EFF: ALL
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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-810

Failure of the No. 1 Bearing Vibration Sensor on Engine 2

- 1. Possible Causes
  - EVMU (2EV)
  - wiring from the EVMU (2EV) to the vibration sensor (4002EV)
- 2. Job Set-up Information
  - A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)	
	AMM	77-32-34-400-042	Installation of the Engine Vibration Monitoring Unit (EVMU)	
R		77-32-34-710-040 77-32-34-860-041 77-32/02	Operational Check of EVMU through CFDS Change the configuration of the Accelerometer	

- 3. Fault Confirmation
  - A. Test
    - (1) Do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).
- 4. Fault Isolation
  - A. If the test gives the maintenance message ENG2 BRG1 ACCEL:
    - do a check of the wiring from the EVMU (2EV) to the vibration sensor (4002EV) pins AA/1A, 2B to pins AA/2, 3 (Ref. ASM 77-32/02).
    - (1) If there is no continuity:
      - repair the above wiring.
    - (2) If there is continuity:
      - reconfigure the accelerometer to get the data from the TRF vibration sensor (Ref. AMM TASK 77-32-34-860-041).

NOTE: The No. 1 bearing vibration sensor is not a LRU, replace it at the first shop visit.

- (3) If the fault continues:
  - replace the EVMU (2EV), (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).

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### TROUBLE SHOOTING MANUAL

B. Do the test given in Para. 3.A.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-811

Failure of the TRF Vibration Sensor on Engine 1

### 1. Possible Causes

- EVMU (2EV)
- wiring from the EVMU (2EV) to the TRF vibration sensor (4003EV)
- SENSOR-TRF VIB (4003EV)

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION	
AMM	77-31-30-000-002	Removal of the Turbine Rear Frame Vibration Sensor	
AMM	77-31-30-400-002	Installation of the Turbine Rear Frame Vibration Sensor	
AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)	
AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>	
AMM	77-32-34-710-040	Operational Check of EVMU through CFDS	
AMM	77-32-34-860-041	Change the configuration of the Accelerometer	
ASM	77-32/02	-	

### 3. Fault Confirmation

A. Test

Do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).

#### 4. Fault Isolation

- A. If the test gives the maintenance message ENG1 SECOND ACCEL:
  - do a check of the wiring from the EVMU (2EV) to the TRF vibration sensor (4003EV) pins AA/1C, 2D to pins AA/2, 3 (Ref. ASM 77-32/02).
  - (1) If there is no continuity:
    - repair the above wiring.
  - (2) If there is continuity:
    - reconfigure the accelerometer to get the data from the No. 1 bearing vibration sensor (Ref. AMM TASK 77-32-34-860-041)
    - if necessary, replace the SENSOR-TRF VIB (4003EV), (Ref. AMM TASK 77-31-30-000-002) and (Ref. AMM TASK 77-31-30-400-002).

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### TROUBLE SHOOTING MANUAL

- (3) If the fault continues:
  - replace the EVMU (2EV), (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).
- B. Do the test given in Para. 3.A.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-812

Failure of the TRF Vibration Sensor on Engine 2

#### 1. Possible Causes

- EVMU (2EV)
- wiring from the EVMU (2EV) to the TRF vibration sensor (4003EV)
- SENSOR-TRF VIB (4000EV)

### 2. Job Set-up Information

A. Referenced Information

REFERENCE		DESIGNATION	
AMM	77-31-30-000-002	Removal of the Turbine Rear Frame Vibration Sensor	
AMM	77-31-30-400-002	Installation of the Turbine Rear Frame Vibration Sensor	
AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)	
AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>	
AMM	77-32-34-710-040	Operational Check of EVMU through CFDS	
AMM	77-32-34-860-041	Change the configuration of the Accelerometer	
ASM	77-32/02		

### 3. Fault Confirmation

A. Test

Do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).

#### 4. Fault Isolation

- A. If the test gives the maintenance message ENG 2 SECOND ACCEL:
  - do a check of the wiring from the EVMU (2EV) to the TRF vibration sensor (4003EV) pins AB/1C, 2D to pins AA/2, 3 (Ref. ASM 77-32/02).
  - (1) If there is no continuity:
    - repair the above wiring.
  - (2) If there is continuity:
    - reconfigure the accelerometer to get the data from the No. 1 bearing vibration sensor (Ref. AMM TASK 77-32-34-860-041)
    - if necessary, replace the SENSOR-TRF VIB (4000EV), (Ref. AMM TASK 77-31-30-000-002) and (Ref. AMM TASK 77-31-30-400-002).

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### TROUBLE SHOOTING MANUAL

- (3) If the fault continues:
  - replace the EVMU (2EV), (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).
- B. Do the test given in Para. 3.A.

EFF: ALL

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-813

Failure of the EVMU

- 1. Possible Causes
  - EVMU (2EV)
- 2. Job Set-up Information
  - A. Referenced Information

	REFERENCE		DESIGNATION	
	AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)	
	AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>	
l	AMM	77-32-34-710-040	Operational Check of EVMU through CFDS	

- 3. Fault Confirmation
  - A. Test

Do the operational test of the Engine Vibration Monitoring Unit (EVMU) through the Centralized Fault Display System (CFDS) (Ref. AMM TASK 77-32-34-710-040).

- 4. Fault Isolation
  - A. If the test gives the maintenance message EVMU:
    - replace the EVMU (2EV), (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-830

Loss of the EVMU Output Bus

- 1. Possible Causes
  - EVMU (2EV)
  - wiring from the EVMU (2EV) pins AA/13A, 13C to the first terminal block
- 2. Job Set-up Information
  - A. Referenced Information

			DESIGNATION	
R	AMM	31-32-00-869-002	Procedure for Class 3 Faults Reading	
	AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)	
	AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>	
	ASM	77-32/02		

- 3. Fault Confirmation
  - A. Make sure that this(these) circuit breaker(s) is(are) closed:

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PANEL	DESIGNATION	IDENT.	LOCATION

121VU ENGINE/ENG1 AND 2/EVMU

1EV R44

R B. Test R On t

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On the CFDS MENU page, get access to the AVIONICS STATUS page (Ref. AMM TASK 31-32-00-869-002).

- 4. Fault Isolation
  - A. If the test gives the maintenance message NO EVMU DATA:
    - replace the EVMU (2EV) (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).
    - (1) If the fault continues:
      - do a check and repair the wiring from the EVMU (2EV) pins AA/13A,
         13C to the first terminal block (Ref. ASM 77-32/02).
  - B. Do the test given in Para. 3.

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-831

Loss of the EVMU Output Bus

- 1. Possible Causes
  - EVMU (2EV)
  - wiring from the EVMU (2EV) pins AA/13A, 13C to the first terminal block
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION
AMM	31-50-00-710-001	Ground Scanning of the Central Warning System
AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)
AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>
ASM	77-32/02	

3. Fault Confirmation

A. Make sure that this(these) circuit breaker(s) is(are) closed:

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PANEL DESIGNATION

IDENT. LOCATION

121VU ENGINE/ENG1 AND 2/EVMU

1EV R44

- B. Do the operational test of the Central Warning Systems (SDAC) (Ref. AMM TASK 31-50-00-710-001).
- 4. Fault Isolation
  - A. If the test gives the maintenance message SDAC1: NO DATA FROM EVMU: - replace the EVMU (2EV) (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM
    - TASK 77-32-34-400-042).
    - (1) If the fault continues:
      - do a check and repair the wiring from the EVMU (2EV) pins AA/13A, 13C to the first terminal block (Ref. ASM 77-32/02).
  - B. Do the test given in Para. 3.

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### TROUBLE SHOOTING MANUAL

TASK 77-30-00-810-832

Loss of the EVMU Output Bus

- 1. Possible Causes
  - EVMU (2EV)
  - wiring from the EVMU (2EV) pins AA/13A, 13C to the first terminal block
- 2. Job Set-up Information
  - A. Referenced Information

REFERENCE		DESIGNATION
AMM	31-50-00-710-001	Ground Scanning of the Central Warning System
AMM	77-32-34-000-042	Removal of the Engine Vibration Monitoring Unit (EVMU)
AMM	77-32-34-400-042	<pre>Installation of the Engine Vibration Monitoring Unit (EVMU)</pre>
ASM	77-32/02	

3. Fault Confirmation

A. Make sure that this(these) circuit breaker(s) is(are) closed:

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PANEL DESIGNATION

IDENT. LOCATION

R

R

121VU ENGINE/ENG1 AND 2/EVMU

1EV

R44

B. Do the operational test of the Central Warning Systems (SDAC) (Ref. AMM TASK 31-50-00-710-001).

- 4. Fault Isolation
  - A. If the test gives the maintenance message SDAC2: NO DATA FROM EVMU:
    - replace the EVMU (2EV) (Ref. AMM TASK 77-32-34-000-042) and (Ref. AMM TASK 77-32-34-400-042).
    - (1) If the fault continues:
      - do a check and repair the wiring from the EVMU (2EV) pins AA/13A, 13C to the first terminal block (Ref. ASM 77-32/02).
  - B. Do the test given in Para. 3.

77-30-00 EFF: ALL

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