



FAULT ISOLATION MANUAL

**ON A/C ALL

TASK 77-31-00-810-827

#1 ENG FADEC FAIL (Warning) – Fault Isolation

1. General

- A. This fault isolation procedure is for when the caution and warning panel (CAWP) #1 ENG FADEC FAIL warning light is on.
- B. The CAWP #1 ENG FADEC FAIL warning light comes on when the full authority digital electronic control 1 (FADEC1) has automatically stopped engine operation.
- C. The #1 ENG FADEC FAIL warning light also comes on when FADEC 1 has automatically set the engine speed to flight idle or ground idle.
- D. The FADEC1 will automatically stop engine operation and make the #1 ENG FADEC FAIL warning light come on when it senses a condition that follows:
 - The two fuel flow feedback channels have malfunctioned for more than 0.5 seconds during run mode, or more than 0.1 seconds when not in run mode
 - The two ambient pressure channels have malfunctioned for more than 56 seconds
 - The two T1.5/T1.8 inlet temperature channels have malfunctioned for more than five seconds
 - The two high pressure rotor speed (NH) channels have malfunctioned for more than two seconds.
 - A fuel flow wraparound and track malfunction occurs on the channel in control for more than 41.6 milliseconds
 - A malfunction is sensed during normal engine shutdown
 - Metering valve malfunctioned during shutdown
 - An NL de-couple event has been sensed and accommodated
 - The output driver test is enabled
 - A critical fault indication by remote channel while cross-link is healthy.
- E. The FADEC1 will automatically set the engine speed to flight idle or ground idle and make the #1 ENG FADEC FAIL warning light come on when it senses a condition that follows:
 - The two Q/NPT channels have malfunctioned
 - The two PLA channels have malfunctioned.
- F. When the #1 ENG FADEC FAIL warning light comes on, the engine operation is stopped or set to flight idle or ground idle independently of the power lever angle (PLA) and condition lever angle (CLA).
- G. When the #1 ENG FADEC FAIL warning light comes on and the engine speed is set to flight idle or ground idle, the engine can continue to supply electrical power and bleed air.
- H. Some discrepancies sensed during takeoff let the engine continue to supply take-off power. The #1 ENG FADEC FAIL warning light will not come on and the engine speed is not automatically set to flight idle until the power lever is set less than the RATING position.



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- I. The engine display can show the related fault codes that follow:
- 700, A/D Test Latched Failed
 - 701, Analog Drift Fault Latch
 - 702, Analog Gain Fault Latch
 - 703, ARINC Wraparound Latched Failed
 - 705, Discrete 1 Low Bits Input Latched Failed
 - 707, Discrete 2 Low Bits Input Latched Failed
 - 708, EEPROM Read/Write Fault Latch Flag
 - 709, HLDR Latched Failed
 - 710, LLDR Latched Failed
 - 711, FADEC Cross-link Latched Failed
 - 715, EEC Internal Fault Present (fault codes 700, 703 – 714)
 - 716, NH Intermittent Fault
 - 718, NP Intermittent Fault
 - 719, Q Intermittent Fault
 - 720, T1.5 Intermittent Fault
 - 723, PAMB Intermittent Fault
 - 726, PLA Intermittent Fault
 - 727, WFMV Intermittent Fault
 - 732, NH Latched Failed
 - 734, NPT Latched Failed
 - 735, QDEF Latched Failed
 - 736, T1.8 Sensor Input Latched Failed
 - 739, PAMB Sensor Input Latched Failed
 - 742, PLA RVDT Input Latched Failed
 - 743, FMU Metering Valve LVDT Latched Failed
 - 750, ARINC Input Label 211 Latched Failed (T1.5 Remote Engine)
 - 759, AC Circuit Drift Correction Latched Failed
 - 760, AC Circuit Gain Correction Latched Failed
 - 782, NH Crosscheck Latched Failed
 - 784, NPT Crosscheck Annunciation Fail Flag
 - 786, Overspeed NH Below Idle Detect Latched Failed: Bit 6 of OSBIDIND
 - 791, PAMB Drift Correction Latched Failed
 - 792, PAMB Crosscheck Annunciation Fail Flag

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- 793, PAMB Excitation Circuit W/A Latched Failed
- 799, PLA Crosscheck Latched Failed
- 803, T1.5 Crosscheck Latched Failed
- 806, PAMB Temperature RTD Compensation Circuit Latched Failed
- 810, WFMV Crosscheck Latched Failed
- 811, WF Torque Motor Wraparound Range Latched Failed
- 815, Torque Motor Rail Input Latched Failed
- 825, Torque Motor Command Null WA Fault Indication
- 917, NL Shaft Shear
- 919, NH Probe Failed Open Circuit
- 920, NH Overspeed Gate Array Probe Failed Open Circuit
- 922, NPT/Q Probe Failed Open Circuit
- 935, Wf Metering Valve Track Check Latched Failed
- 936, Wf Wraparound Latched Failed
- 967, Torque Motor Rail Overcurrent Confirmed Fault
- 974, Channel Identification Failed
- 976, Metering valve failed during shutdown
- 977, Channel-to-Channel Switchover Failed.

2. Job Set-Up Information

Subtask 77-31-00-946-030

A. Reference Information

REFERENCE	DESIGNATION
AMM TASK 77-31-00-710-802	Operational Test for Engine Fault Code Indications
FIM TASK 73-20-00-810-802	Internal Fault in the FADEC (ENG FADEC FAIL – Warning) – Fault Isolation
FIM TASK 73-20-00-810-803	Fuel Metering Unit (FMU) Metering Valve
FIM TASK 73-20-00-810-804	High Pressure Rotor Speed (NH) Related Faults – Fault Isolation
FIM TASK 73-20-00-810-806	Power Turbine Speed (NPT) and Torque Related Faults – Fault Isolation
FIM TASK 73-20-00-810-808	Total Inlet Temperature T1.8 Related Faults – Fault Isolation
FIM TASK 73-20-00-810-814	Power Lever Angle (PLA) Related Faults – Fault Isolation

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REFERENCE	DESIGNATION
FIM TASK 73-20-00-810-815	Fuel Metering Unit Related Faults – Fault Isolation
FIM TASK 73-20-00-810-827	ECIU Communication (engine inputs) – Fault Isolation
FIM TASK 73-20-00-810-848	High Pressure Rotor Speed (NH) Overspeed Sensing – Fault Isolation
FIM TASK 73-20-00-810-854	Fuel Metering Unit Torque Motor – Fault Isolation
FIM TASK 73-20-00-810-872	Low Pressure Rotor (NL) Shaft Shear Detected – Fault Isolation
FIM TASK 73-20-00-810-893	967, Common Torque Motor Supply (Status) – Fault Isolation

3. Fault Confirmation

Subtask 77-31-00-810-044

- A. Do the operational test for engine fault code indications (Refer to AMM TASK 77-31-00-710-802). Do the Fault Isolation.

4. Fault Isolation

Subtask 77-31-00-810-048

- A. Isolate the fault as follows:

- (1) If the fault code is 700, do the fault isolation for fault code 700 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (2) If the fault code is 701, do the fault isolation for fault code 701 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (3) If the fault code is 702, do the fault isolation for fault code 702 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (4) If the fault code is 703, do the fault isolation for fault code 703 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (5) If the fault code is 705, do the fault isolation for fault code 705 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (6) If the fault code is 707, do the fault isolation for fault code 707 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (7) If the fault code is 708, do the fault isolation for fault code 708 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (8) If the fault code is 709, do the fault isolation for fault code 709 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.



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- (9) If the fault code is 710, do the fault isolation for fault code 710 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (10) If the fault code is 711, do the fault isolation for fault code 711 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (11) If the fault code is 715, do the fault isolation for fault code 715 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (12) If the fault code is 716, do the fault isolation for fault code 716 (Refer to FIM TASK 73-20-00-810-804). Do the Close Out.
- (13) If the fault code is 718, do the fault isolation for fault code 718 (Refer to FIM TASK 73-20-00-810-806). Do the Close Out.
- (14) If the fault code is 719, do the fault isolation for fault code 719 (Refer to FIM TASK 73-20-00-810-806). Do the Close Out.
- (15) If the fault code is 720, do the fault isolation for fault code 720 (Refer to FIM TASK 73-20-00-810-808). Do the Close Out.
- (16) If the fault code is 723, do the fault isolation for fault code 723 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (17) If the fault code is 726, do the fault isolation for fault code 726 (Refer to FIM TASK 73-20-00-810-814). Do the Close Out.
- (18) If the fault code is 727, do the fault isolation for fault code 727 (Refer to FIM TASK 73-20-00-810-815). Do the Close Out.
- (19) If the fault code is 732, do the fault isolation for fault code 732 (Refer to FIM TASK 73-20-00-810-804). Do the Close Out.
- (20) If the fault code is 734, do the fault isolation for fault code 734 (Refer to FIM TASK 73-20-00-810-806). Do the Close Out.
- (21) If the fault code is 735, do the fault isolation for fault code 735 (Refer to FIM TASK 73-20-00-810-806). Do the Close Out.
- (22) If the fault code is 736, do the fault isolation for fault code 736 (Refer to FIM TASK 73-20-00-810-808). Do the Close Out.
- (23) If the fault code is 739, do the fault isolation for fault code 739 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (24) If the fault code is 742, do the fault isolation for fault code 742 (Refer to FIM TASK 73-20-00-810-814). Do the Close Out.
- (25) If the fault code is 743, do the fault isolation for fault code 743 (Refer to FIM TASK 73-20-00-810-815). Do the Close Out.
- (26) If the fault code is 750, do the fault isolation for fault code 750 (Refer to FIM TASK 73-20-00-810-827). Do the Close Out.
- (27) If the fault code is 759, do the fault isolation for fault code 759 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (28) If the fault code is 760, do the fault isolation for fault code 760 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.



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- (29) If the fault code is 782, do the fault isolation for fault code 782 (Refer to FIM TASK 73-20-00-810-804). Do the Close Out.
- (30) If the fault code is 784, do the fault isolation for fault code 784 (Refer to FIM TASK 73-20-00-810-806). Do the Close Out.
- (31) If the fault code is 786, do the fault isolation for fault code 786 (Refer to FIM TASK 73-20-00-810-848). Do the Close Out.
- (32) If the fault code is 791, do the fault isolation for fault code 791 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (33) If the fault code is 792, do the fault isolation for fault code 792 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (34) If the fault code is 793, do the fault isolation for fault code 793 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (35) If the fault code is 799, do the fault isolation for fault code 799 (Refer to FIM TASK 73-20-00-810-814). Do the Close Out.
- (36) If the fault code is 803, do the fault isolation for fault code 803 (Refer to FIM TASK 73-20-00-810-808). Do the Close Out.
- (37) If the fault code is 806, do the fault isolation for fault code 806 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (38) If the fault code is 810, do the fault isolation for fault code 810 (Refer to FIM TASK 73-20-00-810-815). Do the Close Out.
- (39) If the fault code is 811, do the fault isolation for fault code 811 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (40) If the fault code is 815, do the fault isolation for fault code 815 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (41) If the fault code is 825, do the fault isolation for fault code 825 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (42) If the fault code is 917, do the fault isolation for fault code 917 (Refer to FIM TASK 73-20-00-810-872). Do the Close Out.
- (43) If the fault code is 919, do the fault isolation for fault code 919 (Refer to FIM TASK 73-20-00-810-804). Do the Close Out.
- (44) If the fault code is 920, do the fault isolation for fault code 920 (Refer to FIM TASK 73-20-00-810-804). Do the Close Out.
- (45) If the fault code is 922, do the fault isolation for fault code 922 (Refer to FIM TASK 73-20-00-810-806). Do the Close Out.
- (46) If the fault code is 935, do the fault isolation for fault code 935 (Refer to FIM TASK 73-20-00-810-803). Do the Close Out.
- (47) If the fault code is 936, do the fault isolation for fault code 936 (Refer to FIM TASK 73-20-00-810-854). Do the Close Out.
- (48) If the fault code is 967, do the fault isolation for fault code 967 (Refer to FIM TASK 73-20-00-810-893). Do the Close Out.

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- (49) If the fault code is 974, do the fault isolation for fault code 974 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.
- (50) If the fault code is 976, do the fault isolation for fault code 976 (Refer to FIM TASK 73-20-00-810-803). Do the Close Out.
- (51) If the fault code is 977, do the fault isolation for fault code 977 (Refer to FIM TASK 73-20-00-810-802). Do the Close Out.

5. Close Out

Subtask 77-31-00-941-030

- A. Make sure that the CAWP #1 FADEC FAIL warning light is not on.
- B. Remove all tools, equipment and unwanted materials from the work area.