



FAULT ISOLATION MANUAL

**ON A/C ALL

TASK 27-33-00-810-829

PUSHER SYST FAIL (Caution) – Fault Isolation

1. General

- A. This fault isolation procedure is for when the PUSHER SYST FAIL caution light on the Caution And Warning Panel (CAWP) is on.
- B. On aircraft with the V710 software configuration, the PUSHER SYST FAIL caution light can come on after 30 seconds after landing. Verify the following:

NOTE: It has been observed that under certain terrain approach profiles the radio altimeter reasonableness check monitoring is being tripped around 200 ft because of a discrepancy detected between the RA 200 ft discrete and the digital ARINC radio altitude value.

- Reset avionics circuit breakers F2 (SPM 1) and F5 (SPM 2) and check if the PUSHER SYST FAIL light goes off. If the light is off no maintenance action is necessary. Do the Close Out.
 - If the light does not go off, do the fault confirmation. Refer to Service Letter DH8-400-SL-31-001 R21 for additional information.
- C. The PUSHER SYST FAIL caution light on the CAWP comes on for the malfunction conditions that follow:
- The condition that caused the #1 STALL SYST FAIL or #2 STALL SYST FAIL caution light to come on.
 - The stick pusher actuator is defective.
 - Stall Protection Module 1 (SPM1) and SPM2 stick pusher calculations are different.
 - No stick shaker calculation before the stick pusher calculation.
 - The operational test (STALL WARN TEST 1) sensed a Weight-On-Wheels (WOW) or a Radio Altimeter (RA) inhibit discrepancy.
 - Attitude and Heading Reference System 1 (AHRS1) and AHRS2 bank angle, pitch angle, body linear accelerations (z), body angular rates, or vertical speed input is defective.
 - There is a difference between the Angle of Attack 1 (AOA 1) vane and AOA 2 vane.
 - SPM1 is defective.
 - SPM2 is defective.

NOTE: The PUSHER SYST FAIL indication will come on for conditions that are not malfunctions as follows:

- A push condition is sensed while the aircraft is on the ground
- One STICK PUSHER SHUT OFF annunciator switch or the other set to the OFF position.



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■ **ON A/C 4587-4999 and ON A/C 4001, 4003, 4006, 4008-4009, 4011-4029, 4033-4035, 4038-4045, 4052, 4054, 4056-4058, 4062-4080, 4082, 4084-4085, 4087-4105, 4107-4114, 4116-4118, 4120-4121, 4123, 4125-4126, 4128, 4130-4136, 4138-4140, 4148, 4151-4152, 4155, 4157-4159, 4162, 4165, 4168, 4170-4172, 4174, 4176-4177, 4179-4183, 4185-4199, 4201-4209, 4211-4221, 4224-4225, 4228-4230, 4233, 4237-4238, 4241-4242, 4244, 4247-4249, 4251-4255, 4257-4263, 4266-4273, 4275-4290, 4292-4293, 4296, 4299-4304, 4306-4311, 4313-4314, 4316-4321, 4323-4324, 4326-4343, 4345-4346, 4349, 4351, 4354, 4356-4357, 4359-4362, 4365, 4367-4369, 4371-4377, 4379-4408, 4411-4435, 4437-4439, 4442-4445 Pre SB84-36-04

NOTE: The PUSHER SYST FAIL caution light also comes on when the High Pressure Shutoff Valve (HPSOV) fails because the Timer and Monitor Unit (TMU) and the HPSOVs are connected to the same circuit breakers (DEICE CONT (A7) on the left DC circuit breaker panel and DEICE CONT (S5) on the right DC circuit breaker panel). The DEICE TIMER, PITOT HEAT 1, PITOT HEAT 2, ENG ADPT HEAT 1 or ENG ADPT HEAT 2 caution lights can also come on.

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D. The Central Diagnostic System (CDS) can show the related messages that follow:

- STICK PUSHER
- WOW DISCREPANCY/SPM1
- WOW DISCREPANCY/SPM2
- RA1/SPM1
- AOA 1
- AOA 2
- AOA DISCREPANCY
- SPM1
- SPM2
- NO DATA FROM SPM1
- NO DATA FROM SPM2.

NOTE: The AOA DISCREPANCY monitoring is only done when the airspeed is more than 60 kts Calibrated Air Speed (CAS).



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NOTE: The Proximity Sensor Electronics Unit (PSEU) can show the related BITE messages that follow:

- PSEU CHAN E FAIL CHANNEL INOP
- PSEU CHAN A FAIL CHANNEL INOP
- PSEU CHAN E FAIL SIG COND 0X FAIL
- PSEU CHAN A FAIL SIG COND 0X FAIL
- PSEU CHAN E FAIL DOT26E FAIL
- PSEU CHAN A FAIL DOT26A FAIL
- DOT26E LOAD FAULT
- DOT26A LOAD FAULT
- DOT26E OVERCURRENT FAULT
- DOT26A OVERCURRENT FAULT
- PSEU CHAN E FAIL DOT27E FAIL
- PSEU CHAN A FAIL DOT27A FAIL
- DOT27E LOAD FAULT
- DOT27A LOAD FAULT
- DOT27E OVERCURRENT FAULT
- DOT27A OVERCURRENT FAULT.

2. Job Set-Up Information

Subtask 27-33-00-946-026

A. Reference Information

REFERENCE	DESIGNATION
AMM 24-00-00-861-801	Energize the Electrical System
AMM 27-33-00-730-801	System Test of the Elevator Control Stick Pusher System
AMM 45-00-34-742-801	Retrieval of Data from the Central Diagnostic System (CDS) – Avionics (AVIONICS)
FIM 27-33-00-810-808	AOA 1 (Status) – Fault Isolation
FIM 27-33-00-810-809	AOA 2 (Status) – Fault Isolation
FIM 27-33-00-810-813	#1 STALL SYST FAIL (Caution) – Fault Isolation
FIM 27-33-00-810-815	#2 STALL SYST FAIL (Caution) – Fault Isolation
FIM 27-33-00-810-816	SPM1 (Status) – Fault Isolation
FIM 27-33-00-810-818	STICK PUSHER (Status) – Fault Isolation
FIM 27-33-00-810-826	NO DATA FROM SPM1 (Status) – Fault Isolation

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EFFECTIVITY:
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REFERENCE	DESIGNATION
FIM 27-33-00-810-828	AOA DISCREPANCY (Status) – Fault Isolation
FIM 27-33-00-810-834	SPM2 (Status) – Fault Isolation
FIM 27-33-00-810-836	NO DATA FROM SPM2 (Status) – Fault Isolation
FIM 32-60-00-810-805	WOW DISCREPANCY/SPM2 (Status) – Fault Isolation
FIM 32-60-00-810-808	WOW DISCREPANCY/SPM1 (Status) – Fault Isolation
FIM 34-44-00-810-806	RA1/SPM1 (Status) – Fault Isolation

3. Job Set-Up

Subtask 27-33-00-861-028

- A. Energize the aircraft electrical system (Refer to AMM 24-00-00-861-801).

4. Fault Confirmation

Subtask 27-33-00-810-127

- A. Confirm the fault as follows:

(1) Do the CDS fault indication retrieval as follows:

- (a) On the Audio and Radio Control Display Unit (ARCDU), do the CDS fault indication retrieval from the AVIONICS STATUS, LAST LEG REPORT or the PREVIOUS LEGS REPORT pages related to the flight when the PUSHER SYST FAIL caution was reported (Refer to AMM 45-00-34-742-801).
- NOTE:** The flight leg number in the PREVIOUS LEGS REPORT will increase by one when the airspeed increases to more than 50 knots for the take-off.
- NOTE:** The time and date information is in GMT.
- (b) Do the CDS system test for the SPM1 and SPM2 (Refer to AMM 45-00-34-742-801).
- NOTE:** The system test is found in CDS>AVIONICS>SYSTEM REPORT/TEST>IFC1(2)>SPM1(2)>SYSTEM TEST.
- NOTE:** At this step, do not pull the circuit breaker shown on the ARCDU. If you reset the circuit breaker, it can clear the codes from intermittent faults.
- (c) Do the system test of the elevator control stick pusher system (Refer to AMM 27-33-00-730-801).
- (d) On the ARCDU, do the CDS fault indication retrieval from the AVIONICS STATUS page again (Refer to AMM 45-00-34-742-801).
- (e) Do the CDS system test again for the SPM1 and SPM2 (Refer to AMM 45-00-34-742-801).



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- (f) If there are no related CDS messages and the #1 STALL SYST FAIL and #2 STALL SYST FAIL caution lights do not come on, no maintenance procedure is necessary. Do the Close Out.
- (g) If there are related CDS messages, or the #1 STALL SYST FAIL or #2 STALL SYST FAIL caution light comes on, do the Fault Isolation.
- (2) On aircraft with the V710 software configuration, confirm the fault as follows:
 - (a) On the avionics circuit breaker panel, open and close the circuit breakers that follow:

CB PANEL AND CB NO	NAME
AVIONICS (LEFT MAIN), F2	SPM 1
AVIONICS (RIGHT MAIN), F5	SPM 2

- (b) If the PUSHER SYST FAIL caution light goes off, then no maintenance procedure is necessary. Do the Close Out.
- (c) If the PUSHER SYST FAIL caution light does not go off then continue with the fault isolation procedure.

5. Fault Isolation

Subtask 27-33-00-810-128

A. Isolate the fault as follows:

- (1) If the #1 STALL SYST FAIL caution light also comes on, do the Fault Isolation for #1 STALL SYST FAIL caution light on (Refer to FIM 27-33-00-810-813). Do the Close Out.
- (2) If the #2 STALL SYST FAIL caution light also comes on, do the Fault Isolation for #2 STALL SYST FAIL caution light on (Refer to FIM 27-33-00-810-815). Do the Close Out.
- (3) If the CDS message is STICK PUSHER, do the Fault Isolation for STICK PUSHER (Refer to FIM 27-33-00-810-818). Do the Close Out.
- (4) If the CDS message is WOW DISCREPANCY/SPM1, do the Fault Isolation for WOW DISCREPANCY/SPM1 (Refer to FIM 32-60-00-810-808). Do the Close Out.
- (5) If the CDS message is WOW DISCREPANCY/SPM2, do the Fault Isolation for WOW DISCREPANCY/SPM2 (Refer to FIM 32-60-00-810-805). Do the Close Out.
- (6) If the CDS message is RA1/SPM1, do the Fault Isolation for RA1/SPM1 (Refer to FIM 34-44-00-810-806). Do the Close Out.
- (7) If the CDS message is AOA 1, do the Fault Isolation for AOA 1 (Refer to FIM 27-33-00-810-808). Do the Close Out.
- (8) If the CDS message is AOA 2, do the Fault Isolation for AOA 2 (Refer to FIM 27-33-00-810-809). Do the Close Out.
- (9) If the CDS message is AOA DISCREPANCY, do the Fault Isolation for AOA DISCREPANCY (Refer to FIM 27-33-00-810-828). Do the Close Out.
- (10) If the CDS message is SPM1, do the Fault Isolation for SPM1 (Refer to FIM 27-33-00-810-816). Do the Close Out.



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- (11) If the CDS message is SPM2, do the Fault Isolation for SPM2 (Refer to FIM 27-33-00-810-834). Do the Close Out.
- (12) If the CDS message is NO DATA FROM SPM1, do the Fault Isolation for NO DATA FROM SPM1 (Refer to FIM 27-33-00-810-826). Do the Close Out.
- (13) If the CDS message is NO DATA FROM SPM2, do the Fault Isolation for NO DATA FROM SPM2 (Refer to FIM 27-33-00-810-836). Do the Close Out.

6. Close Out

Subtask 27-33-00-941-009

- A. Make sure that the PUSHER SYST FAIL caution light on the CAWP is not on.
- B. Remove all tools, equipment, and unwanted materials from the work area.