P U B L I C A T I O N T R A N S M I T T A L

International Aero Engines

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V2500-A1/A5 SERIES PROPULSION SYSTEMS SERVICE BULLETIN

This document transmits the Revision 5 of Service Bulletin V2500-ENG-73-0186.

Document History

Service Bulletin Revision Status

Initial Issue.	Mar.18/04
Revision 1	Feb.15/06
Revision 2	Nov. 6/06
Revision 3	Oct. 1/09
Revision 4	Mar.22/10

Service Bulletin Revision 5

Remove	Incorporate	Reason for change

V2500-ENG-73-0186

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED
If any have not been received please advise IAE International Aero Engines AG

All Pages of the Service Bulletin.	Pages 1 to 24 of the Service Bulletin.	To allow operators to perform pressure burner port screen removal. To replace the attached Hamilton Sundstrand Service Bulletins with the latest revision.
All Pages of the Appendix.	Page 1 to 3 of the Appendix.	No change.
All Pages of the Supplement.	Page 1 of the Supplement (Prices and Availability).	To add the attached Hamilton Sundstrand Service Bulletins references.

SERVICE BULLETIN

ENGINE - FUEL AND CONTROL - EEC150-1/EEC150-20 PRESSURE BURNER SENSOR PORT SCREEN DELETION

1. Planning Information

A. Effectivity

(1) Airbus A319

Engine Models Applicable

V2522-A5, V2524-A5, V2527M-A5 (A5 Standard and A5 SelectOne™ Retrofit Standard)

Engine Serial Nos. - Any engine as applicable

V2522-A5, V2524-A5, V2527M-A5 (A5 SelectOne™ Production Standard)

Engine Serial Nos. - Any engine as applicable

(2) Airbus A320

Engine Models Applicable

V2500-A1

Engine Serial Nos. V0001 thru V0361

V2527-A5, V2527E-A5 (A5 Standard and A5 SelectOne™ Retrofit Standard)

Engine Serial Nos. - Any engine as applicable

V2527-A5, V2527E-A5 (A5 SelectOne™ Production Standard)

Engine Serial Nos. - Any engine as applicable

(3) Airbus A321

Engine Models Applicable

V2530-A5, V2533-A5 (A5 Standard and A5 SelectOne™ Retrofit Standard)

Engine Serial Nos. - Any engine as applicable

V2530-A5, V2533-A5 (A5 SelectOne™ Production Standard)

Engine Serial Nos. - Any engine as applicable

B. Concurrent Requirements

This Service Bulletin must be done at the same time or after Reference 6, Hamilton Sundstrand Service Bulletin No. EEC-150-20-73-28 for EEC 150-20.

This Service Bulletin must be done at the same time or after Reference 5, Hamilton Sundstrand Service Bulletin No. EEC-150-1-73-35 for the EEC 150-1.

C. Reason

(1) Problem: The filter screen in the Pb port has a tendency to become contaminated with aluminum hydroxide which is present in the burner as a result of oxidation of aluminum from the compressor lining. Once contaminated, the screen attracts and holds moisture which frequently leads to freezing at cruise. The frozen Pb signal is detected by the EEC Pb Synthesis, which allows safe operation for the remainder of the flight. However, a non-dispatchable 'Sensor Fault' is annunciated to the cockpit.

(2) Background: The 40 micron screen traps aluminum hydroxide contamination which leads to the in-flight Pb freezing events. Although the Pb sensor is directly heated, the screen is located in the Pb port and does not receive any heat generated by the sensor heater. The 40 micron mesh presents a relatively colder surface which encourages condensation on a surface that effectively traps and collects aluminum hydroxide. The contaminated filter screen collects water in the Pb line and freezes due to the cold temperatures observed during cruise.

(3) Objective: Remove the 40 micron screen from the Pb port of the EEC150-1 and EEC150-20 vibrating cylinder. Screen removal will prevent localized condensation which precipitates aluminum hydroxide contamination and subsequent freezing at cruise.

(4) Effects of Bulletin on:

Removal/Installation: Not affected.

Disassembly/Assembly: Not affected.

Cleaning: Not affected.

Inspection/Check: Not affected.

Repair: Not affected.

Testing: Not affected.

(5) Supplemental Information

None.

D. Description

Remove the EEC pressure burner sensor port screen as specified in the Accomplishment Instructions.

E. Compliance

Category 6

Accomplish when the subassembly (i.e. modules, accessories, components, build groups) is disassembled sufficiently to afford access to the affected part and to all affected spare parts.

NOTE: Service Bulletin incorporation on engines installed on aircraft may be desirable and should be individually evaluated.

F. Approval Data

The part number changes and/or part modifications specified in the Accomplishment Instructions and Material Information sections of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine model(s) given.

The compliance statement described in this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the Engine Model listed.

G. Manpower

(1) For Part A - For A1, A5 and A5 SelectOne™ Engines Installed on Aircraft:

In Service: 40 Minutes

(2) For Part B - For A1, A5 and A5 SelectOne™ Engines Removed from Aircraft:

At Overhaul

By replacement for EEC only: 35 Minutes

By removal and modification of EEC: 2 Hours 10 Minutes

R (3) For Part C - Screen Removal by an Operator For A1, A5 and A5 SelectOne™
R Engines Installed on Aicraft:

R In Service: 50 minutes

R (4) For Part D - Screen Removal by an Operator For A1, A5 and A5 SelectOne™
R Engines Removed from Aircraft:

R At Overhaul: 12 minutes

H. Weight and Balance

(1) Weight Change

None.

(2) Moment Arm

No Effect.

(3) Datum

Engine Front Mount Centerline (Power Plant Station (PPS) 100)

I. Electrical Load Data

This Service Bulletin has no effect on the aircraft electrical load.

J. Software Accomplishment Summary

Not Applicable.

K. References

1. IAE V2500 Service Bulletin V2500-ENG-73-0141 (Engine - Fuel And Control - To Provide A New A1 SCN14/R Electronic Engine Control (EEC) Software).

2. IAE V2500 Service Bulletin V2500-ENG-73-0184 (Engine - Fuel And Control - To Provide A New A5 SCN17/V Electronic Engine Control (EEC) Software).

3. IAE V2500 Service Bulletin V2500-ENG-73-0190 (Engine - Fuel And Control - To Provide A New Electronic Engine Control (EEC) With D5 SCN14/0 Software).

4. IAE V2500 Service Bulletin V2500-ENG-73-0220 (Engine - Fuel And Control - Electronic Engine Control (EEC) Pressure Burner Sensor Port Screen Deletion).

5. Hamilton Sundstrand Service Bulletin EEC 150-1-73-35 (Engine Fuel And Control - EEC150-1 Electronics Engine Control - Add Pb Sensor Thermal Jackets) for the EEC 150-1.

6. Hamilton Sundstrand Service Bulletin EEC 150-20-73-28 (Engine Fuel And Control - EEC150-20 Electronics Engine Control - Add Pb Sensor Thermal Jackets) for the EEC 150-20.

7. Hamilton Sundstrand Service Bulletin EEC-150-1-73-37 (Incorporation of New Software Configuration with the Pb sensor screen removed).

8. Hamilton Sundstrand Service Bulletin EEC-150-20-73-30 (Incorporation of New Software Configuration with the Pb sensor screen removed).

9. Airbus Aircraft Maintenance Manual.

10. V2500 Engine Illustrated Parts Catalogs (S-V2500-2IA, S-V2500-2IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA, S-V2500-6IB, S-V2500-7IA, and S-V2500-7IB), Chapter/Section 73-22-34.

11. V2500 Engine Illustrated Parts Catalogs (S-V2500-2SA, S-V2500-2SB, S-V2500-5SA, S-V2500-5SB, S-V2500-6SA, S-V2500-6SB, S-V2500-7SA and S-V2500-7SB), Chapter/Section 73-22-34.

R 12. Internal Reference No. - 02VC191, 06VC232, 02VC191C, 02VC191C Memo 1, IEN
R 10VC080.

13. ATA Locator - 73-22-00.

L. Interchangeability of Parts

Old and new parts are directly interchangeable.

M. Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (Yes)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

2. Material Information

A. Material - Price and Availability

Modification kit is not required.

B. Industry Support Program

Not Applicable.

C. The material data that follows is for each engine.

For V2500-A1 Engines:

73-22-34

	FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	OLD PART NO.	INSTR DISP
	01-280	2A3902 (808050-5-052)	1	Control, Electronic Engine	2A3417 (808050-4-052)	(1)(M) (N)(I)(V)
				OR		
	01-280	2A3905 (798300-19-052)	1	Control, Electronic Engine	2A3418 (798300-15-052)	(1)(M) (N)(I)(V)
				OR		
	01-280	2A3906 (798300-20-052)	1	Control, Electronic Engine	2A3419 (798300-16-052)	(1)(M) (N)(I)(V)
				OR		
	01-280	2A3907 (798300-21-052)	1	Control, Electronic Engine	2A3420 (798300-17-052)	(1)(M) (N)(I)(V)
				OR		
	01-280	2A3908 (798300-22-052)	1	Control, Electronic Engine	2A3422 (798300-18-052)	(1)(M) (N)(I)(V)
R	01-271	NAS1595-4	1	Packing	NAS1595-4	(E)

For V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5, V2522-A5 (SelectOne™), V2524-A5 (SelectOne™), V2527-A5 (SelectOne™), V2527-A5 (SelectOne™), V2527M-A5 (SelectOne™), V2530-A5 (SelectOne™), V2533-A5 (SelectOne™) Engines:

73-22-34

	FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	OLD PART NO.	INSTR DISP
	01-280	2A3898 (808050-5-056)	1	Control, Electronic Engine	2A3840 (808050-4-056)	(1)(M) (N)(I)(V)
R	01-271	NAS1595-4	1	Packing	NAS1595-4	(E)

D. Instructions/Disposition Code Statements:

Parts Modification Conditions

(1) The new part can be obtained through modification by the approved procedure in the Accomplishment Instructions. Obtain the new parts from or return the old parts for modification to one of the approved vendors listed in the Accomplishment Instructions.

Spare Parts Availability

R (E) The old part is an expendable item necessary to do Part C of this
R Service Bulletin.
R (M) It is possible to get the new part only by modification.
(N) The old part is not available.
(V) This is the Hamilton Sundstrand part number.

Cleaning, Inspection and Repair Information

(I) The cleaning, inspection and repair requirements are the same for the old and new part. The applicable engine manuals will be revised.

E. Tooling - Price and Availability

R Equipment that is necessary

R Tool No.	Name	Manufacturer	Design Availability Date	Aperture Card Delivery Date
R SG3ASH45BR	Pick	Snap-on®	Not applicable	Not applicable
R CoMat 06-153	Felt Tip Marker (Black)	Commercially available	Not applicable	Not applicable

F. Reidentified Parts

Reidentified Parts Data

New PN	Keyword	Old PN
2A3905 (798300-19-052	Control, Electronic Engine	2A3418 (798300-15-052)
2A3906 (798300-20-052)	Control, Electronic Engine	2A3419 (798300-16-052)
2A3907 (798300-21-052)	Control, Electronic Engine	2A3420 (798300-17-052)
2A3908 (798300-22-052)	Control, Electronic Engine	2A3422 (798300-18-052)
2A3902 (808050-5-052)	Control, Electronic Engine	2A3417 (808050-4-052)
2A3898 (808050-5-056)	Control, Electronic Engine	2A3840 (808050-4-056)

G. Other Material Information Data

Not Applicable.

3. Accomplishment Instructions

Part A – For A1, A5 and A5 SelectOne™ Engines Installed on Aircraft:

NOTE: Service Bulletin incorporation on engines installed on aircraft may be desirable and should be individually evaluated.

(1) Remove the EEC as specified in Reference 9, Airbus Aircraft Maintenance Manual, Chapter/Section 73-22-34, TASK 73-22-34-000-010, Removal of the Electronic Engine Control (EEC) (4000KS). Refer to Figure 1 for the location of the EEC.

(2) Replace the EEC with an already modified EEC from the list that follows. See Accomplishment Instructions, Part B of this Service Bulletin for EEC modification information.

Replacement of the EEC

New PN	Old PN
2A3902 (808050-5-052)	2A3417 (808050-4-052)
2A3905 (798300-19-052)	3A3418 (798300-15-052)
2A3906 (798300-20-052)	2A3419 (798300-16-052)
2A3907 (798300-21-052)	2A3420 (798300-17-052)
2A3908 (798300-22-052)	2A3422 (798300-18-052)
2A3898 (808050-5-056)	2A3840 (808050-4-056)

(3) Install the EEC as specified in Reference 9, Airbus Aircraft Maintenance Manual, Chapter/Section 73-22-34, TASK 73-22-34-400-010, Installation of the Electronic Engine Control (EEC) (4000KS).

R (4) Recording Instructions

R (a) A record of accomplishment is required.

Part B - For A1, A5 and A5 SelectOne™ Engines Removed from Aircraft:

(1) Replace the EEC with an already modified EEC from the list that follows.
R See Figure 1 for the location of the EEC.

Replacement of the EEC

New PN	Old PN
2A3902 (808050-5-052)	2A3417 (808050-4-052)
2A3905 798300-19-052)	2A3418 (798300-15-052)
2A3906 (798300-20-052)	2A3419 (798300-16-052)
2A3907 (798300-21-052)	2A3420 (798300-17-052)
2A3908 (798300-22-052)	2A3422 (798300-18-052)
2A3898 (808050-5-056)	2A3840 (808050-4-056)

OR

Make a modification to the EEC as follows:

(a) Send your EEC to one of the authorized rework vendors that follows for incorporation of Reference 8, Hamilton Sundstrand Service Bulletin EEC-150-20-73-30:

NOTE: The authorized rework vendor will remove the Pb sensor port screen, reidentify the EEC, and return the EEC to you.

The designation by IAE of an authorized rework vendor indicates that the vendor has demonstrated the necessary capability to carry out the rework. However, IAE makes no warranties or representations concerning the qualifications or quality standards of the vendors to carry out the rework, and accepts no responsibility whatsoever for any work that may be carried out by a rework vendor, other than IAE. Authorized rework vendors do not act as agents or representatives of IAE.

(i) Hamilton Sundstrand Corporation

A United Technologies Company

One Hamilton Road

Dock W

Windsor Locks, CT 06096-1010

USA

FAA Repair Station License Number: S13R842L

(ii) Hamilton Sundstrand Corporation

A United Technologies Company

Worldwide Repair - Maastricht

Maastricht Airport

Horsterweg

6191 RX Beek

The Netherlands

FAA Repair Station License Number: CW5Y794M

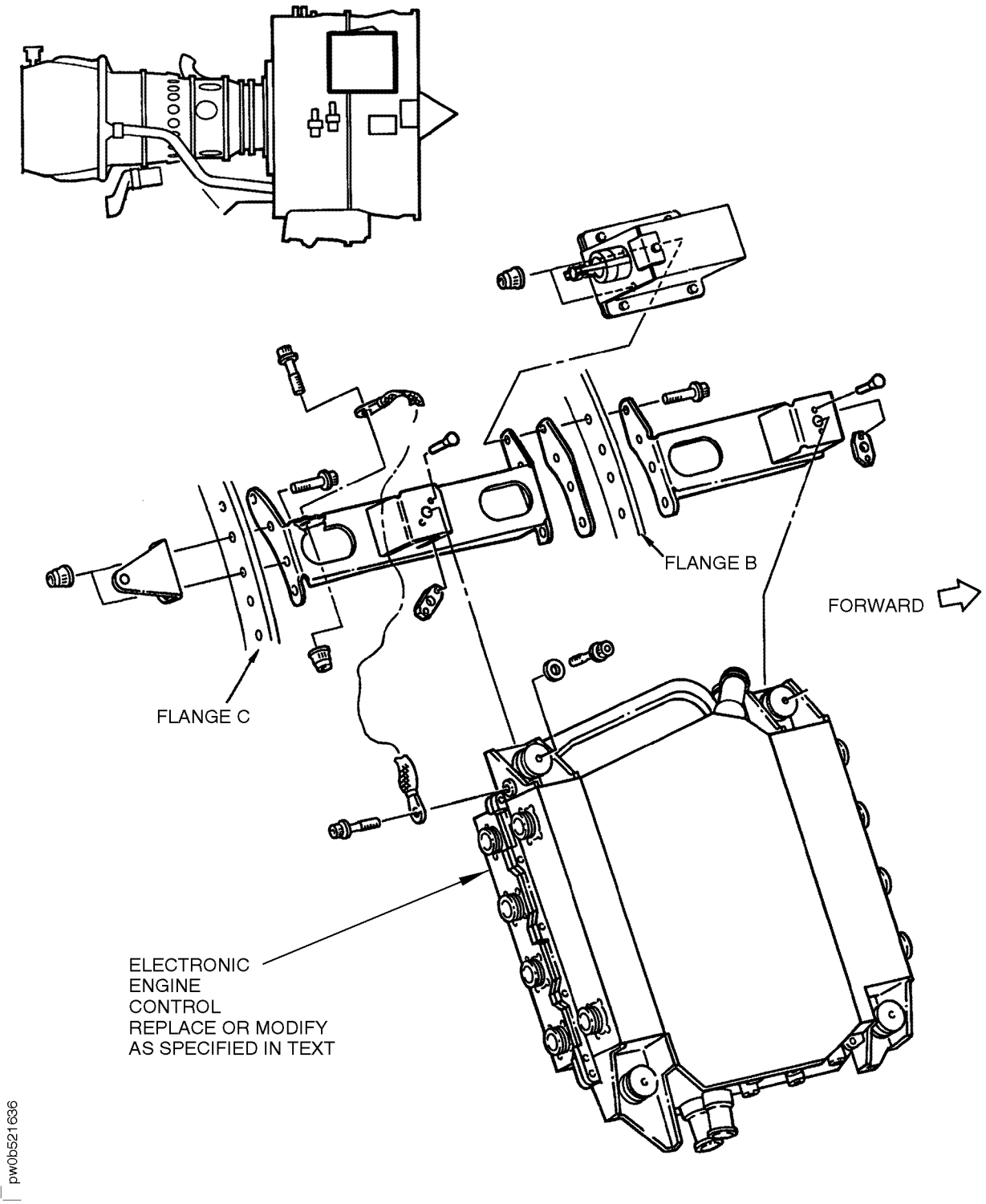
(b) The part numbers of modified EECs are specified in the list that follows:

Modification of the EEC

New PN	Old PN
2A3902 (808050-5-052)	2A3417 (808050-4-052)
2A3905 (798300-19-052)	2A3418 (798300-15-052)
2A3906 (798300-20-052)	2A3419 (798300-16-052)
2A3907 (798300-21-052)	2A3420 (798300-17-052)
2A3908 (798300-22-052)	2A3422 (798300-18-052)
2A3898 (808050-5-056)	2A3840 (808050-4-056)

R (2) Recording Instructions

R (a) A record of accomplishment is required.



LOCATION OF THE ELECTRONIC ENGINE CONTROL
73-22-34
Figure 1

R Part C - Screen Removal by an Operator For A1, A5 and A5 SelectOne™ Engines
R Installed on Aircraft:

R NOTE: The Pb screen removal method that follows was developed, validated and
R approved by Hamilton Sundstrand, the manufacturer of the relevant part.

R CAUTION: THIS MAINTENANCE OPERATION CAN ONLY BE PERFORMED ON ONE ENGINE PER
R AIRCRAFT AT A TIME. IF IMPROPERLY PERFORMED ON BOTH AIRCRAFT ENGINES A
R FLIGHT SAFETY RISK MAY OCCUR. AT LEAST ONE FLIGHT MUST OCCUR PRIOR TO
R PERFORMING THIS OPERATION ON THE OTHER ENGINE OF THE SAME AIRCRAFT.

R CAUTION: THIS PROCEDURE IS NOT RECOMMENDED DURING INCLEMENT WEATHER CONDITIONS WHEN
R PARTICULATE MATTER OR PRECIPITATION (RAIN, SLEET, FREEZING RAIN OR SNOW,
R ALONE OR IN COMBINATION) IS VISIBLE IN THE LOCAL AIR IMMEDIATELY
R SURROUNDING THE AIRCRAFT. INTERNAL MOISTURE CONTAMINATION OF THE EEC MAY
R RESULT IN EEC MALFUNCTION. ACCOMPLISHMENT OF THIS PROCEDURE DURING THESE
R INCLEMENT WEATHER CONDITIONS IS ONLY ALLOWED IN A CLEAN, DRY ENVIRONMENT
R WITH GOOD LIGHTING, SUCH AS A HANGAR.

R CAUTION: THIS PROCEDURE MUST BE FOLLOWED AS DESCRIBED HEREIN TO PREVENT FOREIGN
R OBJECT DAMAGE (FOD) FROM THE REMOVAL OPERATION FROM ENTERING THE EEC
R INTERNAL PB SENSOR PORT PASSAGES AND SENSOR. IF FOD ENTERS THE EEC SENSOR
R PASSAGES OR THE SENSOR, THE EEC MAY MALFUNCTION ADVERSELY AFFECTING THE
R OPERATION OF THE ENGINE.

R CAUTION: DURING THIS PROCEDURE, THE PICK SHOULD BE USED IN A MANNER TO AVOID
R CONTACT WITH THE EEC HOUSING. ASSURE THREADS IN THE EEC PORT, LEAD IN
R CHAMFER AND PORT FACE ARE NOT DAMAGED.

R (1) Put a warning notice to tell persons not to start the engine on the center
R pedestal, on the ENG panel 115VU.

R (2) Make sure that the engine shutdown occurred a minimum of 5 minutes before
R you do this procedure.

R (3) Make sure that the ON legend of the ENG/FADEC GND PWR push-button switch
R is off and put a warning notice to tell persons not to energize the FADEC
R on the overhead maintenance panel 50VU.

R (4) Open fan cowls by Reference 9, Airbus Aircraft Maintenance Manual, Task
R 71-13-00-010-010 to gain access to the EEC.

R (5) Assure the Hamilton Sundstrand part numbers beginning with 808050 are
R suffixed by an "L12".

R EXAMPLE: 808050-4-052 L12

R OR

R EXAMPLE: 808050-4-052 L10 - L15 (L12 IS INCLUDED IN THIS DESIGNATION)

R Assure the Hamilton Sundstrand part numbers beginning with 798300 are
R suffixed by an "L 30".

R EXAMPLE: 798300-15-052 L30

R OR

R EXAMPLE: 798300-15-052 L28 - L32 (L30 IS INCLUDED IN THIS DESIGNATION)

R NOTE: The "L12" and "L30" number of the Hamilton Sundstrand part number
R signifies the incorporation of the required Hamilton Sundstrand EEC
R Service Bulletin to install the Pb Sensor Blanket.

R (6) Remove the wire that safeties the Pb hose and union in Figure 2, Sheet 1.

R (7) Disconnect the Pb hose from the union.

R (8) Cap the Pb hose to prevent FOD from occurring.

R (9) Remove the union from the EEC.

R (10) Place a clean cloth in the area below the Pb sensor port to capture any
R loose screen material during this procedure that falls from the port.

R (11) The P2 and P12.5 hoses should also be disconnected as to gain clear access
R to the Pb sensor port in order to perform this procedure. These hoses are
R to be disconnected in the same manner as described for the Pb hose
R previously in these Accomplishment Instructions.

R (12) Visually examine the Pb sensor port to obtain a "baseline" for the
R condition of the EEC Pb sensor port outer sealing face surface and
R threaded internal surfaces.

R (13) Locate the Pb sensor port passage hole. See Figure 2, Sheet 2 for the
R location of the hole.

R (14) Use a Snap-on® Pick, PN SG3ASH45BR or equivalent and approach the Pb
R sensor port passage hole with the pick point as close to passage center as
R possible. Pierce the center of the screen with the pick point while
R holding the pick at the required angle to orientate the pick point
R perpendicular to the screen. If necessary use a small light weight plastic
R tipped mallet to lightly tap the end of pick handle to initiate the screen
R piercing.

R (15) Once the screen is pierced, slowly rotate the pick in a clockwise
R direction as inward pressure is applied. Once the angled prick point is
R beyond the screen, 0.500 in. (12,700 mm) maximum, slowly apply outward
R force on the pick to assure screen is hooked. Repeat as required to hook
R the screen. Once the screen is securely hooked continue outwards force to
R remove screen.

R NOTE: The screen may become "spring loaded" or deformed as it is removed.
R Care must be taken to ensure the screen remains "hooked" as it is
R removed.

R (16) Examine the screen and verify that the entire screen has been removed, and
R all pieces of the screen have been accounted for.

R CAUTION: DO NOT USE LIQUID CLEANERS TO CLEAN THE EEC PRESSURE PORT. LIQUID
R CLEANERS CAN CAUSE DAMAGE TO THE EEC PB SENSOR.

R CAUTION: USE OF METAL TOOLS OTHER THAN AS SPECIFIED IS PROHIBITED INSIDE THE
R PB SENSOR PORT. METAL TOOLS CAN CAUSE DAMAGE TO THE EEC HOUSING.

R (17) Use a light to examine the inside of the port and the Pb sensor port face.

R Make sure that no visible damage was sustained during the screen removal
R operation by comparing the condition of the Pb sensor port face to the
R baseline condition identified previously in these Accomplishment
R Instructions. There must be no damage to the Pb sensor port face that has
R exposed any EEC housing "base metal". Exposed "base metal" will be visible
R as a "shiny" surface when compared to the "dull" surrounding anodized
R finish surface.

R (18) Look inside the Pb sensor port. Ensure Pb sensor port internal threads are
R not damaged. Ensure there is no FOD in the Pb sensor port that was
R generated during the screen removal operation by comparing the condition
R inside the Pb sensor port to the baseline condition identified previously
R in these Accomplishment Instructions. Additionally, ensure there are no
R remaining pieces of screen in the Pb sensor port. A vacuum may be used to
R remove any remaining pieces of screen or debris.

R Do not return the EEC to service if visible damage to the Pb sensor port
R face has been sustained or if there is material in the Pb sensor port that
R cannot be removed.

R (19) Use a Felt Tip Marker CoMat 06-153 or equivalent to ink mark SB 73-0186
R below the EEC data plate.

R (20) Use a Felt Tip Marker CoMat 06-153 or equivalent to cross out the IAE part number and ink mark the appropriate IAE part number as indicated in the list that follows:

R Identification of the EEC

R New PN	Old PN
R 2A3902 (808050-5-052)	2A3417 (808050-4-052)
R 2A3905 (798300-19-052)	2A3418 (798300-15-052)
R 2A3906 (798300-20-052)	2A3419 (798300-16-052)
R 2A3907 (798300-21-052)	2A3420 (798300-17-052)
R 2A3908 (798300-22-052)	2A3422 (798300-18-052)
R 2A3898 (808050-5-056)	2A3840 (808050-4-056)

R (21) Reidentify the Hamilton Sundstrand part number per the appropriate Hamilton Sundstrand Service Bulletin (EEC150-1-73-37 or EEC150-20-73-30).

R NOTE: Removal of the Pb sensor port screen results in a one digit change in the HS part number. This part number is stored in non-volatile memory. Electronic part number updates cannot be accomplished if the screen is removed in the field. The internal number is only used for display purposes and has no impact on engine control. The stored non-volatile memory part number will be updated whenever the unit is upgraded at an approved repair facility.

R (22) Install a new Packing, PN NAS1595-4, shown in Figure 2, Sheet 1, onto the union. See Reference 9, Airbus Aircraft Maintenance Manual, Task 70-23-13-911-010.

R NOTE: Do not apply lubricants to the packing.

R (23) Install the union into the Pb sensor port.

R NOTE: Do not apply lubricants to the threads of the union.

R (24) Torque the union to 168.0 - 181.0 lbfin (18,981 - 20,450 Nm) by Reference 9, Airbus Aircraft Maintenance Manual, Task 70-23-11-911-013.

R (25) Remove the cap from the Pb sensor hose that was installed to prevent FOD previously in these Accomplishment Instructions.

R (26) Reconnect the Pb sensor hose to the union.

R (27) Reconnect the wire that safeties the Pb sensor hose union.

R (28) Reconnect the P2 and P12.5 hoses and the wired that safety them, which
R were disconnected from the Pb Sensor Port access previously in these
R Accomplishment Instructions.

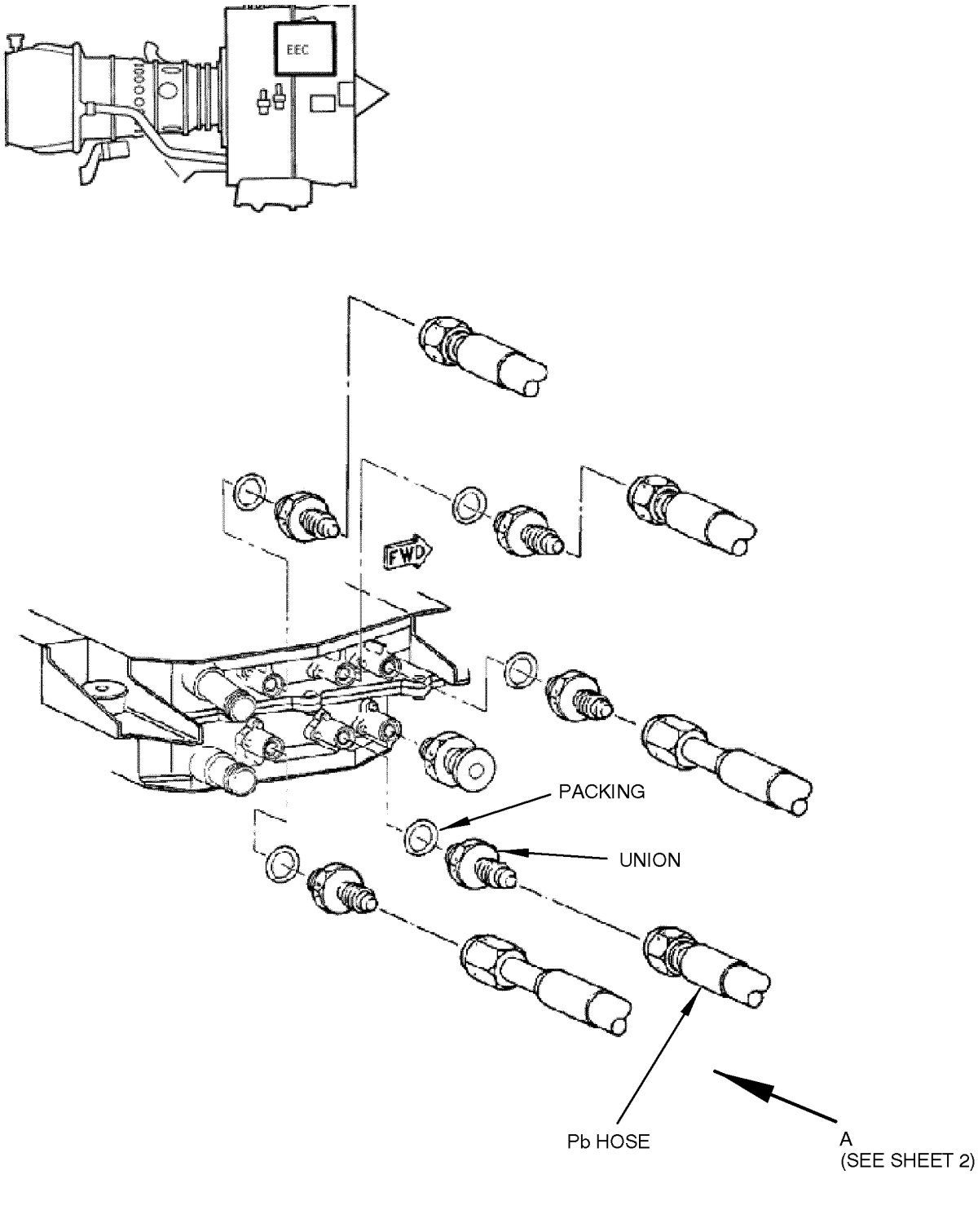
R (29) Close the fan cowls by Reference 9, Airbus Aircraft Maintenance Manual,
R Task 71-13-00-010-010.

R (30) Remove the warning notice that told persons not to start the engine from
R the center pedestal, on the ENG panel 115VU.

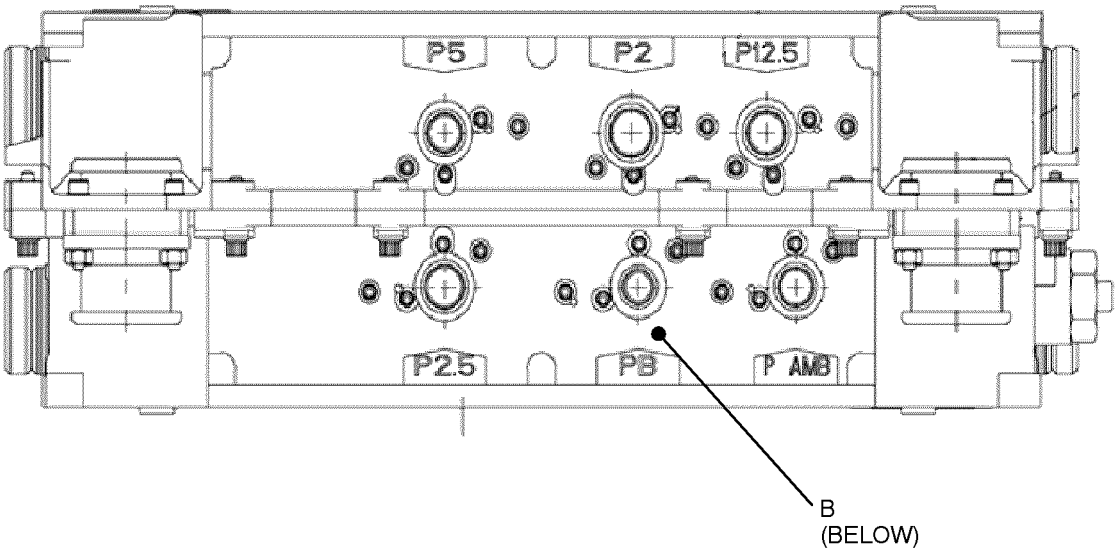
R (31) Do an operational test of the FADEC System on the ground by Reference 9,
R Airbus Aircraft Maintenance Manual, Task 73-22-00-710-040 and an EEC
R system idle test by Reference 9, Airbus Aircraft Maintenance Manual, Task
R 71-00-00-710-022.

R (32) Recording Instructions

R (a) A record of accomplishment is required.

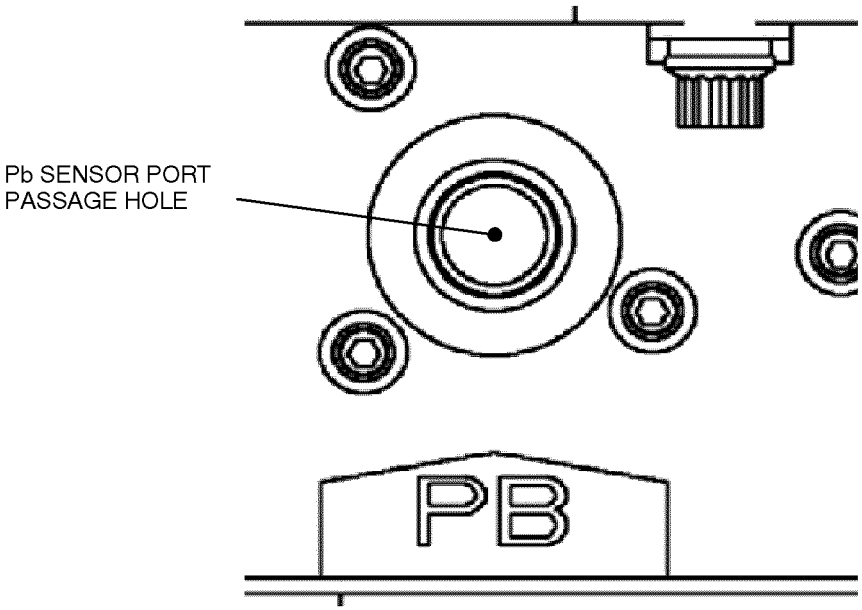


R LOCATION AND REMOVAL OF THE PRESSURE BURNER SENSOR PORT
R SCREEN BY AN OPERATOR
R FIGURE 2, SHEET 1



VIEW IN DIRECTION A

R



VIEW B

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R LOCATION AND REMOVAL OF THE PRESSURE BURNER SENSOR PORT
R SCREEN BY AN OPERATOR
R FIGURE 2, SHEET 2

R Part D - Screen Removal by an Operator For A1, A5 and A5 SelectOne™ Engines
R Removed from Aircraft:

R NOTE: The Pb screen removal method that follows was developed, validated and
R approved by Hamilton Sundstrand, the manufacturer of the relevant part.

R CAUTION: THIS MAINTENANCE OPERATION CAN ONLY BE PERFORMED ON ONE ENGINE PER
R AIRCRAFT AT A TIME. IF IMPROPERLY PERFORMED ON BOTH AIRCRAFT ENGINES A
R FLIGHT SAFETY RISK MAY OCCUR. AT LEAST ONE FLIGHT MUST OCCUR PRIOR TO
R PERFORMING THIS OPERATION ON THE OTHER ENGINE OF THE SAME AIRCRAFT.

R CAUTION: THIS PROCEDURE MUST BE FOLLOWED AS DESCRIBED HEREIN TO PREVENT FOREIGN
R OBJECT DAMAGE (FOD) FROM THE REMOVAL OPERATION FROM ENTERING THE EEC
R INTERNAL PB SENSOR PORT PASSAGES AND SENSOR. IF FOD ENTERS THE EEC SENSOR
R PASSAGES OR THE SENSOR, THE EEC MAY MALFUNCTION ADVERSELY AFFECTING THE
R OPERATION OF THE ENGINE.

R CAUTION: DURING THIS PROCEDURE, THE PICK SHOULD BE USED IN A MANNER TO AVOID
R CONTACT WITH THE EEC HOUSING. ASSURE THREADS IN THE EEC PORT, LEAD IN
R CHAMFER AND PORT FACE ARE NOT DAMAGED.

R (1) Assure the Hamilton Sundstrand part numbers beginning with 808050 are
R suffixed by an "L12".

R EXAMPLE: 808050-4-052 L12

R OR

R EXAMPLE: 808050-4-052 L10 - L15 (L12 IS INCLUDED IN THIS DESIGNATION)

R Assure the Hamilton Sundstrand part numbers beginning with 798300 are
R suffixed by an "L 30".

R EXAMPLE: 798300-15-052 L30

R OR

R EXAMPLE: 798300-15-052 L28 - L32 (L30 IS INCLUDED IN THIS DESIGNATION)

R NOTE: The "L12" and "L30" number of the Hamilton Sundstrand part number
R signifies the incorporation of the required Hamilton Sundstrand EEC
R Service Bulletin to install the Pb Sensor Blanket.

R (2) Visually examine the Pb sensor port to obtain a "baseline" for the
R condition of the EEC Pb sensor port outer sealing face surface and
R threaded internal surfaces.

R (3) Locate the Pb sensor port passage hole. See Figure 3, Sheet 2 for the
R location of the hole.

R (4) Use a Snap-on® Pick, PN SG3ASH45BR or equivalent and approach the Pb sensor port passage hole with the pick point as close to passage center as possible. Pierce the center of the screen with the pick point while holding the pick at the required angle to orientate the pick point perpendicular to the screen. If necessary use a small light weight plastic tipped mallet to lightly tap the end of pick handle to initiate the screen piercing.

R (5) Once the screen is pierced, slowly rotate the pick in a clockwise direction as inward pressure is applied. Once the angled prick point is beyond the screen, 0.500 in. (12,700 mm) maximum, slowly apply outward force on the pick to assure screen is hooked. Repeat as required to hook the screen. Once the screen is securely hooked continue outwards force to remove screen.

R NOTE: The screen may become "spring loaded" or deformed as it is removed. Care must be taken to ensure the screen remains "hooked" as it is removed.

R (6) Examine the screen and verify that the entire screen has been removed, and all pieces of the screen have been accounted for.

R CAUTION: DO NOT USE LIQUID CLEANERS TO CLEAN THE EEC PRESSURE PORT. LIQUID CLEANERS CAN CAUSE DAMAGE TO THE EEC PB SENSOR.

R CAUTION: USE OF METAL TOOLS OTHER THAN AS SPECIFIED IS PROHIBITED INSIDE THE PB SENSOR PORT. METAL TOOLS CAN CAUSE DAMAGE TO THE EEC HOUSING.

R (7) Use a light to examine the inside of the port and the Pb sensor port face.

R Make sure that no visible damage was sustained during the screen removal operation by comparing the condition of the Pb sensor port face to the baseline condition identified previously in these Accomplishment Instructions. There must be no damage to the Pb sensor port face that has exposed any EEC housing "base metal". Exposed "base metal" will be visible as a "shiny" surface when compared to the "dull" surrounding anodized finish surface.

R (8) Look inside the Pb sensor port. Ensure Pb sensor port internal threads are not damaged. Ensure there is no FOD in the Pb sensor port that was generated during the screen removal operation by comparing the condition inside the Pb sensor port to the baseline condition identified previously in these Accomplishment Instructions. Additionally, ensure there are no remaining pieces of screen in the Pb sensor port. A vacuum may be used to remove any remaining pieces of screen or debris.

R Do not return the EEC to service if visible damage to the Pb sensor face has been sustained or if there is material in the Pb sensor port that cannot be removed.

R (9) Use a Felt Tip Marker CoMat 06-153 or equivalent to ink mark SB 73-0186 below the EEC data plate.

R (10) Use a Felt Tip Marker CoMat 06-153 or equivalent to cross out the IAE part number and ink mark the appropriate IAE part number as indicated in the list that follows:

R Identification of the EEC

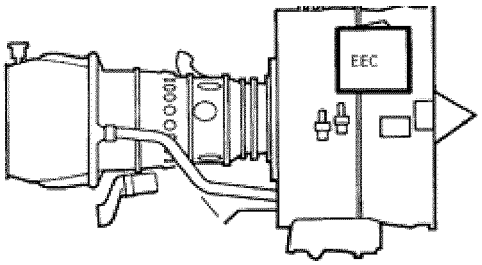
New PN	Old PN
2A3902	2A3417
(808050-5-052)	(808050-4-052)
2A3905	2A3418
(798300-19-052)	(798300-15-052)
2A3906	2A3419
(798300-20-052)	(798300-16-052)
2A3907	2A3420
(798300-21-052)	(798300-17-052)
2A3908	2A3422
(798300-22-052)	(798300-18-052)
2A3898	2A3840
(808050-5-056)	(808050-4-056)

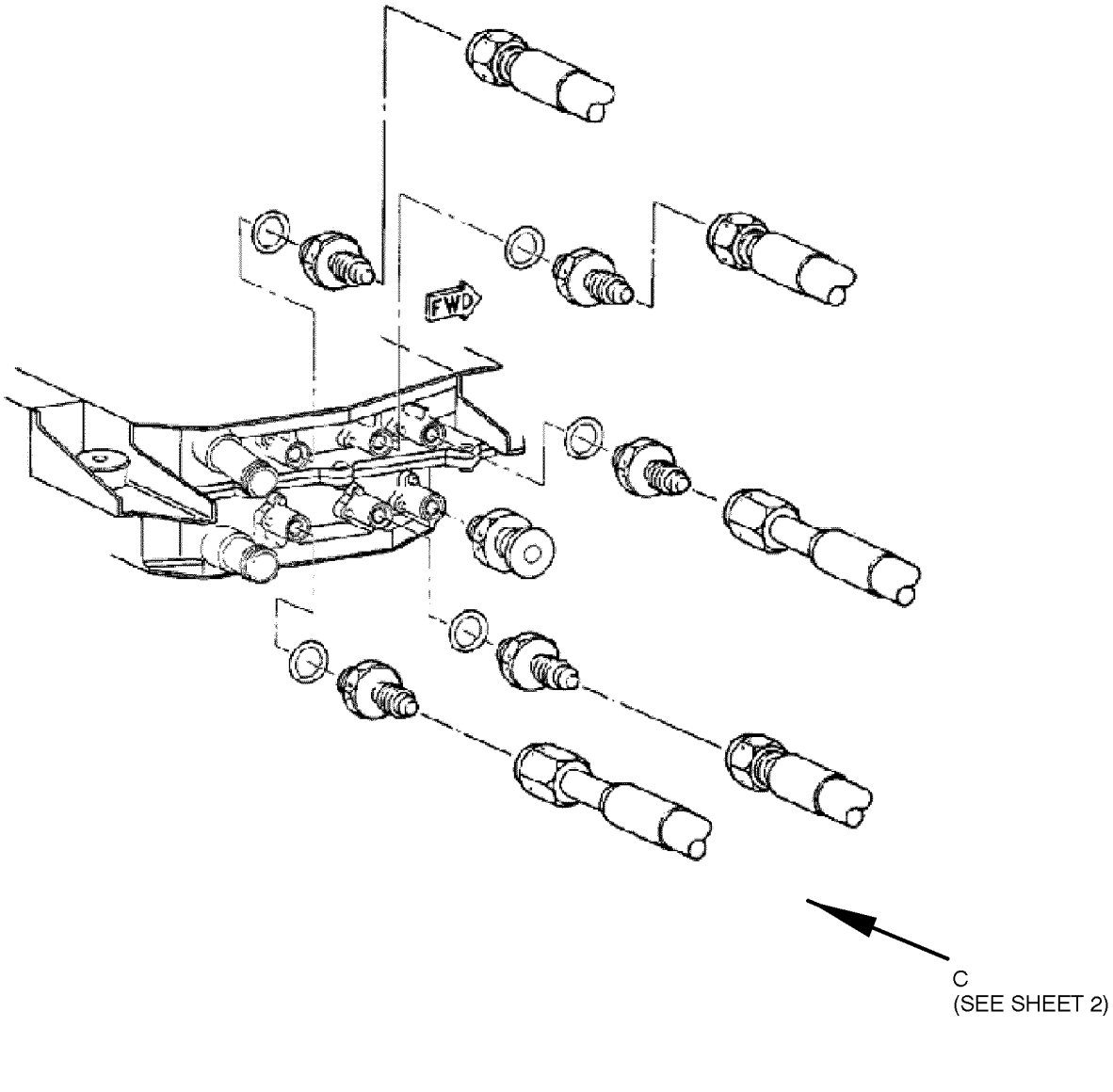
R (11) Reidentify the Hamilton Sundstrand part number per the appropriate Hamilton Sundstrand Service Bulletin (EEC150-1-73-37 or EEC150-20-73-30).

R NOTE: Removal of the Pb sensor port screen results in a one digit change in the HS part number. This part number is stored in non-volatile memory. Electronic part number updates cannot be accomplished if the screen is removed in the field. The internal number is only used for display purposes and has no impact on engine control. The stored non-volatile memory part number will be updated whenever the unit is upgraded at an approved repair facility.

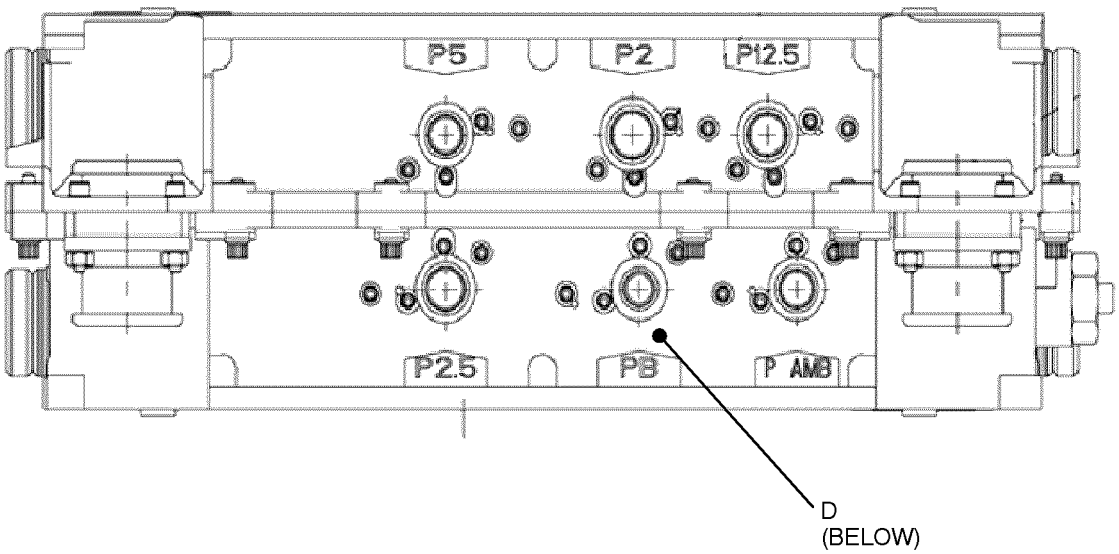
R (12) Recording Instructions

R (a) A record of accomplishment is required.



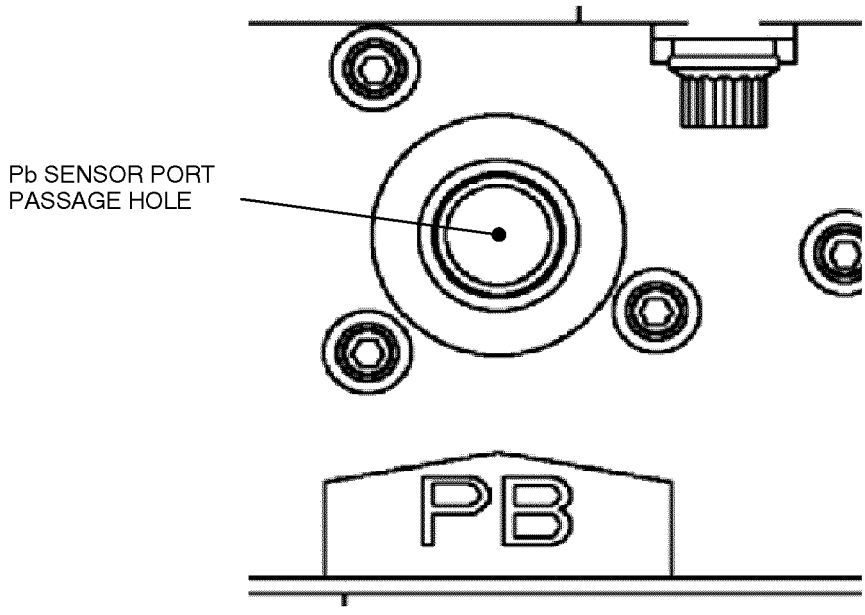


R LOCATION AND REMOVAL OF THE PRESSURE BURNER SENSOR PORT
R SCREEN BY AN OPERATOR
R FIGURE 3, SHEET 2



VIEW IN DIRECTION C

R



VIEW D

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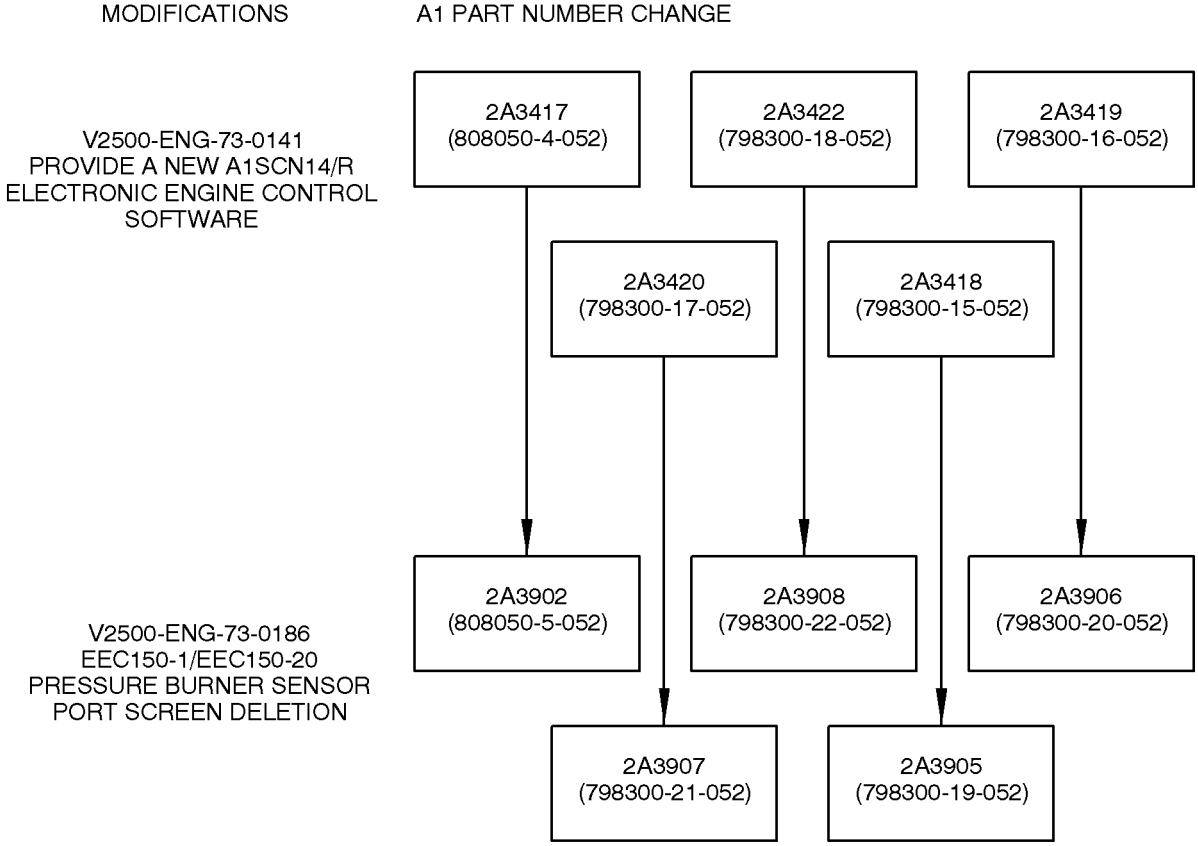
R LOCATION AND REMOVAL OF THE PRESSURE BURNER SENSOR PORT
R SCREEN BY AN OPERATOR
R FIGURE 3, SHEET 2

APPENDIX 1

Parts Progression To Show the Changed Part in Relation to Other Parts



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FAMILY TREE - ELECTRONIC ENGINE CONTROL, REF. CATALOG SEQUENCE NO. 73-22-34 FIG. 01, ITEM 280
Chart A

MODIFICATIONS	A5 AND A5 SELECTONE PART NUMBER CHANGE
V2500-ENG-73-0184 PROVIDE A NEW ELECTRONIC ENGINE CONTROL WITH A5 SCN17/V SOFTWARE	2A3840 (808050-4-056)
V2500-ENG-73-0186 EEC150-1/EEC150-20 PRESSURE BURNER SENSOR PORT SCREEN DELETION	2A3898 (808050-5-056)

pw0b521638

FAMILY TREE - ELECTRONIC ENGINE CONTROL (EEC) REF. CATALOG SEQUENCE NO. 73-22-34.
FIG. 01 ITEM 280
Chart B

APPENDIX

Added Data

1. Internal Reference Information

Revision No.	Reference Document	Origination
Original	ECO2VC191	DTL/MN
1	ECO2VC191	DTL/MN
2	IENO6VC232	DTL/MN
3	ECO2VC191B	DTL/JDH
4	ECO2VC191C	DTL/JDH
R 5	IEN1OVCO8O	DTL/JDH

SERVICE BULLETIN

ENGINE - FUEL AND CONTROL - EEC150-1/EEC150-20 PRESSURE BURNER SENSOR PORT SCREEN DELETION

Supplement

V2500-A1, -A5, A5 SelectOne™

1. Modification Kit

   A. There is no kit provided to do this Service Bulletin.

2. Material Cost

   A. There is no new material cost to do this Service Bulletin when the part modification procedure is used.

   B. There is no kit provided to do this Service Bulletin.

3. New Production Parts

   Not applicable.

R Hamilton Sundstrand Service Bulletin EEC-150-20-73-30, Revision No.2 and Hamilton
R Sundstrand Service Bulletin EEC-150-1-73-37, Revision No. 2 follow:

Hamilton Sundstrand
A United Technologies Company

TO ALL HOLDERS OF HAMILTON SUNDSTRAND
SERVICE BULLETIN EEC150-20-73-30

APPLICABILITY: A319, A320, A321 and MD90

THIS SHEET TRANSMITS REVISION NO. 2 DATE Jun 7/10

HIGHLIGHTS

We reprinted this Service Bulletin in its entirety. Please replace all of the pages of your Service Bulletin with this revision. We made many general format and layout changes in addition to these technical changes:

Page	Description of Change
1	Made Service Bulletin applicable to all EEC150-20s, not just MD90 specific. Changed effectivity to part number 808050-X-YYY and updated the Note.
4	Changed SB cost to $5.90 for each EEC150-20 and added end date for free of charge.
5	Changed EEC part number from “808050-4-YYY” to “808050-X-YYY” in first row of parts list. Deleted “Sensor Assembly Pressure Set”. Updated Instruction Code D.
6	Changed EEC part number from “808050-4-YYY” to “808050-X-YYY” in Reidentification Table.
7	Changed part number “808050-4-YYY” to “808050-X-YYY” in step 3.D. Updated the Note following step 3.D.

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Hamilton Sundstrand
A United Technologies Company

SERVICE BULLETIN

ENGINE FUEL AND CONTROL - EEC150-20 ELECTRONIC ENGINE CONTROL - PB FILTER SCREEN REMOVAL

1. Planning Information

A. Effectivity

Table 1. Effectivity

All Hamilton Sundstrand EEC150-20 Electronic Controls Incorporating Part Number:
808050-X-YYY

NOTE: The EEC150-20 is used on MD90 aircraft fitted with IAE V2500-D5 engines and A319, A320 and A321 aircraft fitted with IAE V2500-A1 and V2500-A5 engines. X = All hardware part numbers. YYY = All software part numbers.

B. Concurrent Requirements

(1) None

C. Reason

(1) PROBLEM:

(a) The filter screen within the EEC150-20 Burner Pressure (Pb) port has a tendency to become contaminated with aluminum hydroxide, which is present in the burner as a result of oxidation of aluminum from the compressor lining. Once contaminated, the screen attracts and holds moisture which can potentially lead to freezing of the moisture at cruise. The frozen Pb signal is detected by the EEC Pb Synthesis, which allows safe operation for the remainder of the flight. However, a non-dispatchable "Sensor Fault" is annunciated to the cockpit.

(2) CAUSE:

(a) The 40-micron filter screen traps aluminum hydroxide contamination making the EEC more prone to the in-flight Pb freezing events. Although the Pb sensor is directly heated, the screen is located in the Pb port and does not receive any heat generated by the sensor heater. The 40-micron mesh presents a relatively colder surface, which encourages condensation on a surface that effectively traps and collects aluminum hydroxide.

(3) SOLUTION:

(a) Remove the 40-micron filter screen from the Pb port of the EEC150-20 Pb Vibrating Cylinder Pressure Sensor. Filter screen removal will prevent the localized condensation that precipitates aluminum hydroxide contamination.

(4) SUBSTANTIATION:

(a) Although the Vibrating Cylinder Pressure Sensor is intrinsically sensitive to contamination, removal of the filter screen will not increase contamination seen at the sensor. With the filter screen in place, contaminants which make it past the screen during the takeoff roll are obstructed by the filter screen from flowing back to the burner during pull back to maximum climb. Contaminants that do not flow back to the burner are more likely to be deposited on the filter screen and/or vibrating cylinder. Removal of the filter screen removes the most likely location for condensation, contamination buildup, and consequent Pb line freezing.

(b) Numerous contaminated filter screens from service units have been analyzed. The only contaminant consistently observed in any measurable quantity has been aluminum hydroxide.

(c) The EEC150-20 software incorporates an accurate model of engine Pb (Pb synthesis). Over a decade of service experience has demonstrated that the fault tolerance between measured Pb and Pb synthesis is such that any degradation of sensor calibration due to aluminum hydroxide contamination is detected and accommodated with no impact on engine operation.

(d) Substantiation is also based on successful completion of Endurance Run on X804/25. The EEC150-20 was modified per Hamilton Sundstrand Deviation 14436, which removed the filter screen from the Pb port. The test engine had a re-built compressor with new stage 3, 4, and 6 linings. The EEC operated without any Pb events for 274 hours (2000+cycles). There was no impact to performance and no Pb soft failures were recorded. The test engine EEC successfully completed pressure PAT following the endurance run. Additional visual examination of the port, adapter, and sensor showed no signs of any debris or contaminants.

(e) Because the vibrating cylinder is sensitive to contamination, this engineering change will only be implemented in conjunction with the Pb Thermal blanket (02VC190). The marginally increased temperatures observed by the vibrating cylinder with the thermal blanket will serve to increase the amount of water in vapor form. This will help to decrease the amount of contamination deposited on the vibrating cylinder by minimizing the amount of water that condenses inside the transducer. Reduction of contamination will slow accuracy degradation.

D. Description

(1) The 40 micron filter screen is removed from the port of the EEC150-20 Pb pressure sensor. This change applies to parts and spares unless otherwise noted.

E. Compliance

(1) Category 8- You can do this service bulletin if the operator thinks the change is necessary because of what he knows of the history of the EEC150-20.

F. Approval

(1) The part number changes and/or modifications described in paragraphs 2. and 3. of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA approved for the EEC150-20 Electronic Engine Controls listed.

G. Manpower

(1) Approximately 2.0 man-hours are necessary to perform the Service Bulletin procedures. This estimate does not include time required to perform functional tests.

Deleted

H. Weight and Balance

(1) None

I. Electrical Load Data

(1) Not affected

J. Software Accomplishment Summary

(1) None

K. References

(1) Standard Electronic Practices Manual 20-00-02

(2) Component Maintenance Manual CMM 73-28-01

(3) Service Bulletin EEC150-20-73-28

L. Other Publications Affected

(1) Illustrated Parts Catalog 73-28-01

M. Interchangeability or Intermixability of Parts

(1) None

2. Material Information

A. Material - Price and Availability

(1) Total estimated price for parts required to perform this modification will be $5.90 for each EEC150-20. Refer to Paragraph 2.C.(1)for price breakdown of individual parts. Parts in Table 2 are available at lead time.

B. Industry Support Information

(1) If an EEC150-20 is sent to the following address and requires repairs, this Service Bulletin will be done at no charge to the operator until March 1, 2015. However, if a unit is sent specifically for this modification or is found to be "No Fault Found", charges will apply. Note that charges for any concurrent Service Bulletin requirements will be applied per their respective Service Bulletin terms.

Hamilton Sundstrand
Windsor Locks Repair Station
One Hamilton Road
Dock W
Windsor Locks, CT 06096-1010
USA

FAA Repair Station License Number SI3R842L

OR

Hamilton Sundstrand
Customer Support Center - Maastricht
Horsterweg 7
6199 AC Maastricht Airport
The Netherlands

FAA Repair Station License Number CW5Y794M

C. Material Necessary for each Component

(1) Material to be Purchased

(a) This Service Bulletin change will use parts in the list for each EEC150-20 unit that is changed.

(b) Any parts that usually are discarded when you disassemble the EEC150-20 unit may not be listed.

Deleted

(c) In the list of parts for this change, the "Key Word" is the name of the part.

(d) In the list of parts for this change, the "instruction codes" tell you what to do with the parts. A short list under the list of parts tells you about the instruction codes that are used in the list.

(e) The prices that are shown are estimates for one part. When you buy the parts, the prices may be different. Send requests for parts to:

Hamilton Sundstrand Corporation
A United Technologies Company
Attention: Manager, Commercial Spares Administration
Mail Stop: 236-6
P.O. Box 7002
4747 Harrison Avenue
Rockford, IL 61125-7002

Facsimile: (815) 226-2624

Table 2. Material to be Purchased

New PN	Qty	Estimated Price	Key Word	PN Before this SB	Instruction Code
808050-5-YYY	1	N/A	Control, Engine Electronic	808050-X-YYY	C, D
816990-3	1	N/A	Cover, Control	816990-2	C
N/A	N/A	N/A	Filter, Screen	ED748323-3	B
751333-1	1	$5.90	Plate, Identification	751333-1	A, B

- Instruction Code A. This Service Bulletin change adds the "New PN" to the EEC150-20.
- Instruction Code B. This Service Bulletin change removes the "PN Before this SB" from the EEC150-20. Discard the old part.
- Instruction Code C. This Service Bulletin uses the "PN Before this SB" to make the "New PN".
- Instruction Code D. X identifies all hardware configurations. YYY identifies all software configurations.

(2) Material Supplied by the Operator

(a) None

D. Material Necessary for Spare

(1) Same as material necessary for each component.

E. Reidentified Parts

(1) Refer to Table 3.

Table 3. Reidentification

Old Part Number	New Part Number
808050-X-YYY	808050-5-YYY

F. Tooling - Price and Availability

(1) No additional tooling, other than that which is required for shop maintenance, will be required to incorporate this modification.

3. Accomplishment Instructions

A. The user should obtain the material safety data sheets [Occupational Safety and Health Act (OSHA) Form 20 or equivalent] from the manufacturers or suppliers of materials to be used. The user must become completely familiar with the manufacturer/supplier information and adhere to the procedures, recommendations, warnings, and cautions of the manufacturer/supplier for the safe use, handling, storage, and disposal of these materials. The user should also read the long version of the warnings contained in this service bulletin. The long version warnings are contained in Hamilton Sundstrand Warnings Registry 341-006 available free of charge to all organizations that are on distribution for this Service Bulletin. The Warnings Registry 341-006 is also available at www.hsvas.com.

CAUTION: READ REPAIR GENERAL IN CMM 73-28-01 BEFORE YOU TOUCH THE EEC150-20 ELECTRONIC ENGINE CONTROL. OBEY THE INSTRUCTIONS IN THE 20-00-02 STANDARD ELECTRONIC PRACTICES MANUAL WHEN YOU TOUCH THE EEC150-20 OR ITS COMPONENTS. IT IS AN ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICE. IT CAN BE DAMAGED BY ELECTROSTATIC DISCHARGE, WHICH CAN BE TRANSMITTED BY TOUCH.

NOTE: Refer to the Standard Electronic Practices Manual 20-00-02 to do the procedures unless otherwise noted.

B. Disassemble the EEC150-20 per DISASSEMBLY in CMM 73-28-01 to gain access to Filter Screen PN ED748323-3 located on the Pb Pressure Sensor port.

(1) Remove Filter Screen PN ED748323-3 and discard part. This action modifies Control Cover from part number 816990-2 to part number 816990-3.

(2) Mark the new Control Cover part number in ink by crossing out the "-2" and add a "-3" next to the crossed out number.

C. Reassemble the EEC150-20 per ASSEMBLY in CMM 73-28-01.

D. Reidentify the EEC150-20 808050-X-YYY by remarking/replacing the identification plate with new part number 808050-5-YYY.

NOTE: X - identifies all hardware part numbers. YYY - identifies all software part numbers.

Hamilton Sundstrand Internal Identification Number EEC150-20-73-30
Hamilton Sundstrand Internal Reference Number 284457
Pratt and Whitney Reference Number EC02VC191

Hamilton Sundstrand
A United Technologies Company

TO ALL HOLDERS OF HAMILTON SUNDSTRAND
SERVICE BULLETIN EEC150-1-73-37

APPLICABILITY: Airbus A320

THIS SHEET TRANSMITS REVISION NO. 2 DATE Jul 6/10

HIGHLIGHTS

We reprinted this Service Bulletin in its entirety. Please replace all of the pages of your Service Bulletin with this revision. We made many general format and layout changes in addition to these technical changes:

Page	Description of Change
3	Changed compliance from “8” to “6”.
4	Changed total price for parts to “5.90” in section 2.A.(1).
5	In Table 2, deleted row in Table, Sensor Assembly Pressure Set is not required.
7	Deleted step 3.B.(3). This step is no longer required.

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Hamilton Sundstrand
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SERVICE BULLETIN

ENGINE FUEL AND CONTROL - EEC150-1 ELECTRONIC ENGINE CONTROL - PB FILTER SCREEN REMOVAL

1. Planning Information

A. Effectivity

Table 1. Effectivity

All Hamilton Sundstrand EEC150-1 Electronic Controls Incorporating Part Number:
798300-X-YYY

NOTE: The EEC150-1 is used on Airbus A320 aircraft that use IAE V2500-A1 engines. X = All hardware part numbers and YYY = All software part numbers.

B. Concurrent Requirements

(1) Service Bulletin EEC150-1-73-35

C. Reason

(1) PROBLEM:

(a) The filter screen within the EEC150-1 Burner Pressure (Pb) port has a tendency to become contaminated with aluminum hydroxide, which is present in the burner as a result of oxidation of aluminum from the compressor lining. Once contaminated, the screen attracts and holds moisture which can potentially lead to freezing of the moisture at cruise. The frozen Pb signal is detected by the EEC Pb Synthesis, which allows safe operation for the remainder of the flight. However, a non-dispatchable "Sensor Fault" is annunciated to the cockpit.

(2) CAUSE:

(a) The 40-micron filter screen traps aluminum hydroxide contamination making the EEC more prone to the in-flight Pb freezing events. Although the Pb sensor is directly heated, the screen is located in the Pb port and does not receive any heat generated by the sensor heater. The 40-micron mesh presents a relatively colder surface, which encourages condensation on a surface that effectively traps and collects aluminum hydroxide.

(3) SOLUTION:

(a) Remove the 40-micron filter screen from the Pb port of the EEC150-1 Pb Vibrating Cylinder Pressure Sensor. Filter screen removal will prevent the localized condensation that precipitates aluminum hydroxide contamination.

(4) SUBSTANTIATION:

(a) Although the Vibrating Cylinder Pressure Sensor is intrinsically sensitive to contamination, removal of the filter screen will not increase contamination seen at the sensor. With the filter screen in place, contaminants which make it past the screen during the takeoff roll are obstructed by the filter screen from flowing back to the burner during pull back to maximum climb. Contaminants that do not flow back to the burner are more likely to be deposited on the filter screen and/or vibrating cylinder. Removal of the filter screen removes the most likely location for condensation, contamination buildup, and consequent Pb line freezing.

(b) Numerous contaminated filter screens from service units have been analyzed. The only contaminant consistently observed in any measurable quantity has been aluminum hydroxide.

(c) The EEC150-1 software incorporates an accurate model of engine Pb (Pb synthesis). Over a decade of service experience has demonstrated that the fault tolerance between measured Pb and Pb synthesis is such that any degradation of sensor calibration due to aluminum hydroxide contamination is detected and accommodated with no impact on engine operation.

(d) Substantiation is also based on successful completion of Endurance Run on X804/25. The EEC150-1 was modified per Hamilton Sundstrand Deviation 14436, which removed the filter screen from the Pb port. The test engine had a re-built compressor with new stage 3, 4, and 6 linings. The EEC operated without any Pb events for 274 hours (2000+cycles). There was no impact to performance and no Pb soft failures were recorded. The test engine EEC successfully completed pressure PAT following the endurance run. Additional visual examination of the port, adapter, and sensor showed no signs of any debris or contaminants.

(e) Because the vibrating cylinder is sensitive to contamination, this engineering change will only be implemented in conjunction with the Pb Thermal blanket (02VC190). The marginally increased temperatures observed by the vibrating cylinder with the thermal blanket will serve to increase the amount of water in vapor form. This will help to decrease the amount of contamination deposited on the vibrating cylinder by minimizing the amount of water that condenses inside the transducer. Reduction of contamination will slow accuracy degradation.

D. Description

(1) The 40 micron filter screen is removed from the port of the EEC150-1 Pb pressure sensor. This change applies to parts and spares unless otherwise noted.

E. Compliance

(1) Category 6 - You can do this Service Bulletin when the EEC150-1 is disassembled and access is available to the necessary part. Do all spare EEC150-1 Electronic Engine Controls.

F. Approval

(1) The part number changes and/or modifications described in paragraphs 2. and 3. of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA approved for the EEC150-1 Electronic Engine Controls listed.

G. Manpower

(1) Approximately 2.0 man-hours are necessary to perform the Service Bulletin procedures. This estimate does not include time required to perform functional tests.

Deleted

H. Weight and Balance

(1) None

I. Electrical Load Data

(1) Not affected

J. Software Accomplishment Summary

(1) None

K. References

(1) Standard Electronic Practices Manual 20-00-02

(2) Component Maintenance Manual CMM 73-22-34

(3) Service Bulletin EEC150-1-73-28

L. Other Publications Affected

(1) Illustrated Parts Catalog 73-22-34

M. Interchangeability or Intermixability of Parts

(1) None

2. Material Information

A. Material - Price and Availability

(1) Total estimated price for parts required to perform this modification will be $5.90 for each EEC150-1. Refer to Paragraph 2.C.(1) for price breakdown of individual parts. Parts in Table 2 are available at lead time.

B. Industry Support Information

(1) If an EEC150-1 is sent to the following address and requires repairs, this Service Bulletin will be done at no charge to the operator. However, if a unit is sent specifically for this modification or is found to be "No Fault Found", charges will apply. Note that charges for any concurrent Service Bulletin requirements will be applied per their respective Service Bulletin terms.

Hamilton Sundstrand
Windsor Locks Repair Station
One Hamilton Road
Dock W
Windsor Locks, CT 06096-1010
USA

FAA Repair Station License Number SI3R842L

OR

Hamilton Sundstrand
Customer Support Center - Maastricht
Horsterweg 7
6199 AC Maastricht Airport
The Netherlands

FAA Repair Station License Number CW5Y794M

C. Material Necessary for each Component

(1) Material to be Purchased

(a) This Service Bulletin change will use parts in the list for each EEC150-1 unit that is changed.

(b) Any parts that usually are discarded when you disassemble the EEC150-1 unit may not be listed.

(c) In the list of parts for this change, the “Key Word” is the name of the part.

(d) In the list of parts for this change, the “instruction codes” tell you what to do with the parts. A short list under the list of parts tells you about the instruction codes that are used in the list.

(e) The prices that are shown are estimates for one part. When you buy the parts, the prices may be different. Send requests for parts to:

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A United Technologies Company
Attention: Manager, Commercial Spares Administration
Mail Stop: 236-6
P.O. Box 7002
4747 Harrison Avenue
Rockford, IL 61125-7002

Facsimile: (815) 226-2624

Table 2. Material to be Purchased

New PN	Qty	Estimated Price	Key Word	PN Before this SB	Instruction Code
798300-19-YYY	1	N/A	Control, Engine Electronic	798300-15-YYY	C, D
798300-20-YYY	1	N/A	Control, Engine Electronic	798300-16-YYY	C, D
798300-21-YYY	1	N/A	Control, Engine Electronic	798300-17-YYY	C, D
798300-22-YYY	1	N/A	Control, Engine Electronic	798300-18-YYY	C, D
793805-7	1	N/A	Cover, Control	793805-2	C
N/A	N/A	N/A	Filter, Screen	ED748323-3	B
751333-1	1	$5.90	Plate, Identification	751333-1	A, B

- Instruction Code A. This Service Bulletin change adds the “New PN” to the EEC150-1.

- Instruction Code B. This Service Bulletin change removes the "PN Before this SB" from the EEC150-1. Discard the old part.
- Instruction Code C. This Service Bulletin uses the "PN Before this SB" to make the "New PN".
- Instruction Code D. YYY identifies all software configurations.

(2) Material Supplied by the Operator

(a) None

D. Material Necessary for Spare

(1) Same as material necessary for each component.

E. Reidentified Parts

(1) Refer to Table 3.

Table 3. Reidentification

Old Part Number	New Part Number
798300-15-YYY	798300-19-YYY
798300-16-YYY	798300-20-YYY
798300-17-YYY	798300-21-YYY
798300-18-YYY	798300-22-YYY

NOTE: YYY = All software part numbers.

F. Tooling - Price and Availability

(1) No additional tooling, other than that which is required for shop maintenance, will be required to incorporate this modification.

3. Accomplishment Instructions

A. The user should obtain the material safety data sheets [Occupational Safety and Health Act (OSHA) Form 20 or equivalent] from the manufacturers or suppliers of materials to be used. The user must become completely familiar with the manufacturer/supplier information and adhere to the procedures, recommendations, warnings, and cautions of the manufacturer/supplier for the safe use, handling, storage, and disposal of these materials. The user should also read the long version of the warnings contained in this service bulletin. The long version warnings are contained in Hamilton Sundstrand Warnings Registry 341-006 available free of charge to all organizations that are on distribution for this Service Bulletin. The Warnings Registry 341-006 is also available at www.hsvas.com.

CAUTION: READ REPAIR GENERAL IN CMM 73-22-34 BEFORE YOU TOUCH THE EEC150-1 ELECTRONIC ENGINE CONTROL. OBEY THE INSTRUCTIONS IN THE 20-00-02 STANDARD ELECTRONIC PRACTICES MANUAL WHEN YOU TOUCH THE EEC150-1 OR ITS COMPONENTS. IT IS AN ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICE. IT CAN BE DAMAGED BY ELECTROSTATIC DISCHARGE, WHICH CAN BE TRANSMITTED BY TOUCH.

NOTE: Refer to the Standard Electronic Practices Manual 20-00-02 to do the procedures unless otherwise noted.

B. Disassemble the EEC150-1 per DISASSEMBLY in CMM 73-22-34 to gain access to Filter Screen PN ED748323-3 located on the Pb Pressure Sensor port.

(1) Remove Filter Screen PN ED748323-3 and discard part. This action modifies Control Cover from part number 816990-2 to part number 816990-3.

(2) Mark the new Control Cover part number in ink by crossing out the "-2" and add a "-3" next to the crossed out number.

(3) Deleted

C. Reassemble the EEC150-1 per ASSEMBLY in CMM 73-22-34.

D. Reidentify the EEC150-1 part number by remarking/replacing the identification plate with new part number shown in Table 4.

Table 4. Reidentification

Old Part Number	New Part Number
798300-15-YYY	798300-19-YYY
798300-16-YYY	798300-20-YYY
798300-17-YYY	798300-21-YYY
798300-18-YYY	798300-22-YYY

NOTE: YYY = identifies all software part numbers.

Hamilton Sundstrand Internal Identification Number EEC150-1-73-37
Hamilton Sundstrand Internal Reference Number 284457
Pratt and Whitney Reference Number EC02VC191