SERVICE BULLETIN REVISION NOTICE

ENGINE FUEL AND CONTROL — CONTROL, ELECTRONIC ENGINE (EEC) — REPLACEMENT OR MODIFICATION OF, TO INCORPORATE SCN22/AB SOFTWARE CONFIGURATION

Turbojet Engine Service Bulletin No. V2500-ENG-73-0236 Revision No. 1 dated May 7, 2019.

Revision History

Original Issue December 19, 2014

Revision 1 dated May 7, 2019

Reason for the Revision

To add the new EEC Software Loader (ESL), Tool No. IAE2P16613 and SD card PNs 1018294-6 and 1018294-7.

Effect of Revision on Prior Compliance

None

This is a Complete Revision (Not Applicable to the SGML version)

The contents are in accordance with the list of effective pages. All pages have the current revision number. Technical changes are marked with black bars.

MODEL APPLICATION

V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5

BULLETIN ISSUE SEQUENCE

V2500 Series 73-0236

Page	Revision No.	Date
1 thru 24	1	May 7/19

A copy of this Revision Notice and any future revision notices must be filed as a permanent record with your copy of the subject bulletin.

SERVICE BULLETIN

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MODEL APPLICATION

V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5

BULLETIN ISSUE SEQUENCE

V2500 Series 73-0236

ATA NUMBER

73-22-34

Compliance Category

6

Summary

The purpose of this Service Bulletin is to provide a new Electronic Engine Control (EEC) software version for the V2500-A5 engine identified as V2500-A5 SCN22/AB. This Service Bulletin provides the new software for the EEC150-20 and EEC150-40.

NOTE: SelectOne engines receiving this software are then classified as a SelectTwo engine configuration. Further SelectTwo engines have the option to activate RGI capability via RGI Service Bulletin and DEP Service Bulletin.

Planning Information

Effectivity Data

Engine Models Applicable

V2522-A5, V2524-A5, V2527M-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5 Engine Serial Nos. V10001 thru V13190

V2522-A5, V2524-A5, V2527M-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5 Engine Serial Nos. V15001 thru V17644

Concurrent Requirements

1. If the Reference 6, Service Bulletin No. V2500-ENG-73-0222 that introduced SCN21/AA was not incorporated at the time of incorporation of this bulletin, then the following service bulletins must be incorporated before incorporating this bulletin.
   A. Reference 5, Service Bulletin No. V2500-ENG-73-0152 that introduced the longer P2/T2 probe.
   B. Reference 3, Service Bulletin No. V2500-NAC-71-0206 that introduced modification of P2/T2 support structure.
2. Reference 9, Service Bulletin No. V2500-ENG-73-0237 must be incorporated at the same time of this service bulletin.
3. Reference 10, Service Bulletin No. V2500-ENG-73-0238 must be incorporated at the same time of this service bulletin.

   NOTE: Incorporation of this Service Bulletin will upgrade the V2500-A5 Engine SelectOne™ Configuration to V2500-A5 SelectTwo™ Engine Configuration.

Reason

1. A5 SelectOne Engine Configuration Fuel Burn Improvement-Close 7A Handling Bleed During Descent.
   A. Condition: The A5 SelectOne engine configuration is incorporating a mission fuel burn improvement and can be applied to the A5 SelectOne and the A5 SelectOne retrofit engine configurations.
   B. Cause: This is a new feature that is being introduced only for the A5 SelectOne engine configuration.
   C. Solution: While the aircraft is in the air and approach idle is not commanded by the aircraft, close the engine 7A handling bleed on the A5 SelectOne engine configuration. The bleed scheduling is not changed for engine starting, relighting, surge recovery, and reverse operation.

2. Flex Take-Off Mode Selection Revision And Introduction Of The Automatic Max Take-Off.

   A. Condition:

      (1) The flex temperature method of reduced take-off can be disabled if ambient temperature is greater than the flex temperature before it is locked in during the takeoff roll.

      (2) If the EEC does not receive a valid flex temperature or the flex temperature is below ambient, the EEC will select a Max Continuous (MCT) instead of Max Take-Off (MTO) power (Note: due to throttles being set to MCT for a flex take-off).

   B. Cause:

      (1) Ambient temperature may increase after the flex temperature has been selected by the pilot.

      (2) The EEC may not have received a valid flex temperature and the pilot has not recognized that fact.

   C. Solution:

      (1) Allow the flex temperature (selected by the pilot) to be as much as 10°C lower than ambient. If it is lower, but within 10°C of ambient, limit thrust to take-off power. If it is more than 10° C below ambient, set new ECAM warning “ENG SAT ABOVE FLEX TEMP.”

      (2) If a valid flex temperature has not been received by the EEC or if it is more than 10°C below ambient, then command full power (take-off power allowed for that ambient temperature) 8 seconds after throttle is placed in the MCT flat during take-off. Note: logic change utilizes A/C TAT for flex comparisons this provides equal thrust response between engines. SCN22/AB is not intermixable with any previous SCN standard.

3. ECAM Message “ENG 1(2) REVERSE UNLOCKED” Fault Detection Improvement.

   A. Condition: Field experience has shown that the EEC fault detection logic for ECAM message “ENG 1(2) REVERSE UNLOCKED” can be improved.

   B. Cause: A field event investigation has shown that a faulty reverser system can result in the EEC logic not detecting that the reverser has not properly stowed and locked.

   C. Solution: Modify the EEC software to include a check on the reverser position for determining if the reverser is unlocked.

      The reverser will be determined to be unlocked for any of the following cases:

      (1) Both of the lower locking actuators indicate unlocked.

      (2) At least one of the lower locking actuators indicates unlocked and the reverser position is greater than or equal to 10% deployed.

      (3) One of the lower locking actuators indicates unlocked while the second lower actuator lock status is unknown.

4. Improved Indications For MCDU Thrust Reverser Test For Reverser Unlocked.

   A. Condition: The MCDU thrust reverser test may display inconsistent results when the actuator lock sensors indicate that they are unlocked. The ECAM

message “ENG 1(2) REVERSE UNLOCKED” is displayed but the test screen displays “No fault detected.”

B. Cause: The system was originally designed to report that the reverser was not locked by displaying only the ECAM message.

C. Solution: Modify the MCDU thrust reverser test to record the fault acronym REVUIA and display “Fault detected, See ground scanning” if the reverser is determined to be unlocked. The ECAM message will still be displayed.

5. Autostart With Hot Start Abort Logic Improvement.

A. Condition: Field experience has shown that when an aborted ground autostart is followed by a second autostart attempt that is initiated while the engine is above the starter engagement speed (10% N2), the EEC software autostart logic may not operate correctly and hot start protection can be lost.

B. Cause: There is a common path in the EEC logic that is used for both ground and in-flight autostarts.

C. Solution: Modify the software such that the in-flight starter assist logic path will no longer feed the ground autostart path. This will allow the in-flight autostart logic and the ground autostart logic to run as originally intended.

6. Reduce A5 SelectOne Starting EGT.

A. Condition: A5 SelectOne engine configuration field experience has shown that some ground starts encounter high EGT during hot OAT conditions.

B. Cause: The A5 SelectOne engine configuration tends to have a higher EGT profile during ground starts as compared to the A5 Standard engine configuration.

C. Solution: Reduce the A5 SelectOne engine configuration ground starting EGT profile by adjusting the engine 10th stage start bleed closing trip speed and commanding the stator vanes to a more open schedule during starting. These changes do not affect in-flight starting.

7. Improve Software Protection of IDG Engagement.

A. Condition: The software does not guarantee protection against IDG disengagement throughout the entire engine envelope.

B. Cause: The production IDG hardware engagement speed is 8112 RPM N2 while the current software IDG protection speed is 7622 RPM N2.

C. Solution: Raise the software IDG protection speed to 8187 RPM N2 to protect against IDG disengagement throughout the entire engine envelope.

8. Overspeed System Dispatch Change (1 of 3).

A. Condition: Recent analysis has shown that specific failure cases of the EEC hardware can result in a bypass of part (or the entirety) of the overspeed self-test logic. Specific failure cases of EEC hardware can indirectly cause existing faults to be set during or after engine shutdown.

B. Cause: If these faults are set while the engine is shutdown, they will not be seen in the cockpit because the aircraft post flight report is closed and the EEC does not transmit the Class 2 indicator bit. Note: ECAM displays the maintenance status message “ENG 1(2) FADEC” during flight phases 1 and 10 if the EEC is transmitting the Class 2 indicator bit.

C. Solution: Modify the logic such that the three specific faults listed below will cause the Class 2 indicator bit to be transmitted even when the engine is shutdown. For all other Class 2 faults, the current logic shall remain unchanged.

As part of this change, fault EXRSTF must be raised from SMR to Class 2:

EXRSTF — External reset inputs disagree

ATA 732200, CLM 35 — FADEC RESET SW/EEC@

The other two faults are already Class 2 faults:

OSPXCF — Overspeed valve feedback position crosscheck

ATA 732252, CLM 2 — FMU/HC/EEC@

STVXCF — Starter air valve feedback position crosscheck

ATA 801351, CLM 17 — STARTER VALVE/HC/EEC@

9. Overspeed System Dispatch Change (2 of 3).

A. Condition: An internal EEC hardware failure can cause the EEC to read the incorrect input for the discrete inputs. Most cases result in a system level effect that is acceptable for safe operation until the EEC can be repaired. The dormant failure and the N2 input failure combination may cause the overspeed system reaction to be delayed in responding to an overspeed situation.

B. Cause: The current fault detection logic is not designed to detect this problem with the Auto Depower discrete input.

C. Solution: The existing V2500-A5 fault detection logic for the Auto Depower input will be improved to detect the fault being set continuously or intermittently. This change will enable the failure scenario to be detected without causing nuisance faults. Note that a fault against the Auto Depower input will set the existing non-dispatchable, Class 1 fault OSFEEC (Overspeed Failure due to EEC Problem).

10. Overspeed System Dispatch Change (3 of 3).

A. Condition: An internal EEC failure can cause the EEC hardware to read the incorrect input for the discrete inputs. Most cases result in a system level effect that is acceptable for safe operation until the EEC can be repaired.

B. Cause: The current fault detection logic is not designed to detect this problem with the EEC hardware.

C. Solution: The existing fault detection logic for the A1/A5 Harness discrete input will be improved to detect the specific failure scenario of concern.

11. ECAM “ENG STALL” Message Improvement.

A. Condition: Analysis has shown that there is a possibility that an engine stall while at idle may not display the ECAM "ENG STALL" message.

B. Cause: The current design of the EEC logic can detect an engine stall and an engine flameout at the same time. The EEC transmits these indications to the cockpit over ARINC. The cockpit will display the ECAM "ENG STALL" message only if the EEC has not detected an engine flameout “ENG FAIL” message. Note the cockpit determines the ECAM "ENG FAIL" message based on the engine dropping below 50% N2.

C. Solution: Modify the EEC ARINC indication of engine flameout such that it will not be transmitted if an engine stall is also detected. This will ensure that an engine stall will have an ECAM message even when the EEC detects a flameout.

12. Improve HPC Stability For On-ground Accelerations For A5 SelectOne Configuration Engines.

A. Condition: Analysis and engine test have shown that the A5 SelectOne engine configuration HPC stability margin can be improved by adjusting the ECS overpressure protection requirements.

B. Cause: This is an improvement, not a problem.

C. Solution: Modify the Engine-7C handling bleed schedule such that it will be kept closed for on-ground accelerations regardless of customer bleed extraction. This will not affect the pressures in the environmental control system. The current software for the A5 SelectOne engine configuration keeps the Engine-7C handling bleed closed for on-ground accelerations only when customer bleed is being extracted.

13. A5 SelectTwo Engine Configuration With Reduced Ground Idle Will Be Data Entry Plug Selectable With New DEP Part Number Configured.

A. Condition:

(1) The A5 SelectTwo engine configuration with Reduced Ground Idle (RGI) is required to be Data Entry Plug (DEP) selectable. However, the existing DEP does not have the capacity to support this new feature.

(2) Prior to SCN 22 engine DEP's were configured to odd parity.

B. Cause: The existing DEP does not have enough spare Variants to accommodate this change.

C. Solution:

(1) Introduce a new part number DEP and add the capability to configure the software for the A5 SelectTwo engine configuration with RGI.

(2) Active and new DEP configurations will be wired to even parity for A5 SelectOne for use with SCN22/AB. The new DEP part number will not be compatible with older versions of software. The current DEP part number will not be compatible with SCN 22 and future software.

The following Variant Numbers have been introduced:

15: A321 V2533 A5 SelectTwo Engine with RGI

16: A321 V2533 A5 SelectTwo Engine with RGI, Enhanced MCL

17: A321 V2533 A5 SelectTwo Engine with RGI, Bump enabled

18: A321 V2533 A5 SelectTwo Engine with RGI, Bump enabled, Enhanced MCL

19: A321 V2530 A5 SelectTwo Engine with RGI

20: A320 V2527 A5 SelectTwo Engine with RGI

21: A320 V2527E A5 SelectTwo Engine with RGI

22: A320 V2527E A5 SelectTwo Engine with RGI, Bump enabled

23: A319 V2527M A5 SelectTwo Engine with RGI

24: A319 V2524 A5 SelectTwo Engine with RGI

25: A319 V2522 A5 SelectTwo Engine with RGI

26: A320 V2524 A5 SelectTwo Engine with RGI (reserved for future use)

14. A5 SelectTwo Engine Configuration Fuel Burn Improvement-Reduced Ground Idle (RGI).

    A. Condition: The A5 SelectTwo engine configuration is incorporating a mission fuel burn improvement.

    B. Cause: This is a new feature that is being introduced only for the A5 SelectTwo engine configuration.

    C. Solution: Introduce RGI for the A5 SelectTwo engine configuration by selection of DEP RGI variant. Note: RGI is not intermixable across wing with non-RGI engines because of different acceleration characteristics.

15. EGT Cockpit Display.

    A. Condition: Field experience has shown that it is possible for the cockpit EGT display to indicate an overlimit but no ECAM message will be displayed. It is also possible for the cockpit EGT display to not indicate an overlimit but an ECAM overlimit message will be displayed.

    B. Cause: The EEC receives two electrically independent signals from the EGT system. These signals can be different. Each EEC channel transmits the signal it receives on ARINC. The cockpit EGT display uses the ARINC EGT data from the controlling channel of the EEC but the PFR and GPA always use the ARINC EGT data from Channel-A of the EEC. If the EEC channels are transmitting EGT values that are different it is possible for one EGT value to exceed redline while the other does not.

    C. Solution: Modify the EEC logic to transmit the same value for both EEC channels. In addition, for cold ground starts EEC logic will differentiate an incorrect high or low EGT signal that is caused by a moist or wet system. The EEC will not use an EGT signal if it is too far from the external temperature (T2) of the engine prior to starting a cold engine.

16. Select Ground Instead of Approach Idle On Ground If Thrust Reverser Does Not Deploy To Improve Landing Performance.

    A. Condition: The latest aircraft operational procedure for one thrust reverser inoperative requires the pilot to select reverse with both thrust levers. This procedure has some impact on the actual landing distance or the accel-stop distance for the Rejected Takeoff case.

    B. Cause: Approach idle is selected by the aircraft while the thrust levers are in reverse so that for normal reverse operation the engine thrust response is satisfactory. For the situation where the thrust reverser is inoperative, the engine produces forward thrust equivalent to approach idle.

    C. Solution: Modify the EEC logic to override the aircraft selection of approach idle and select ground idle if the thrust reverser is inoperative. This will keep the forward thrust to a minimum from the engine that has an inoperative reverser. The override will be used when all of the following conditions are true for more than 5 seconds:

(1) the aircraft is on the ground

(2) the thrust lever is in reverse

(3) the thrust reverser is not fully deployed

17. Reduce EGT During Approach.

A. Condition: Field experience has shown that several operators have reported EGT over amber limit during approach with A5 SelectOne engines.

B. Cause: The thrust lever movement near the idle position during manual approach effects the scheduling of the engine's Variable Stator Vanes (VSV). The movement of the VSV can cause EGT to increase and when both the VSV are moved and the transient bleed opens an over limit can occur.

C. Solution: Modify the EEC logic such that during approach the VSV schedule change is delayed until after the opening of the transient bleed for thrust lever movements near the idle position. This will minimize the EGT over (amber) limit.

18. Flight Envelope Extension Down To-2000 Feet.

A. Condition: The A321 V2533 rating needs to be modified to allow engine operation capability at environmental flight envelope extension to –2000 feet. The current nacelle thrust reverser system is certified down to –1000 feet pressure altitude.

B. Cause: This is a new requirement.

C. Solution: Extend the V2533 rating down to –2000 feet by reducing EPR power management, Maximum Take-Off, Maximum Continuous, and Max Climb thrust ratings to maintain nacelle structural margins within the already certified –1000 foot load cases.

19. 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.

20. Supplemental Information

None.

Description

Replace or do a modification of the EEC as specified in the Accomplishment instructions.

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.

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 technical content under the JAR 25 regulation of this document is approved under the authority of DOA Ref. EASA.21J.031.

Manpower

PART A — FOR ENGINES INSTALLED ON THE AIRCRAFT

1. Replacement or Programming of the EEC by an Authorized Rework Vendor ... 2.0

PART B — FOR ENGINES REMOVED FROM THE AIRCRAFT

1. Programming of the EEC Using Software Loader, Tool No. IAE2P16552-A or IAE2P16613.

   Refer to Reference 10, Service Bulletin No. V2500-ENG-73-0238 for the manpower hours.

Weight and Balance

1. Weight Change

   None.

2. Moment Arm

   No Effect.

3. Datum

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

Electrical Load Data

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

Software Accomplishment Summary

Not Applicable.

References

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, a Technical Publications conversion table is provided in the Appendix.

1. ATA Locator — 73-22-34.
2. V2500-A5 Series Illustrated Parts Catalog, P&W Ref. PN 2A4428, Chapter/Section 73-22-34.
3. V2500 Service Bulletin V2500-NAC-71-0206 (Nacelle — Powerplant — Cowl, Air Intake — Rework To Accommodate Longer P2T2 Probe).
4. V2500 Service Bulletin V2500-ENG-72-0285 (Engine — Conversion — Provide Instructions To Change The V2500-A5 Engine Rating By Modifying The Data Entry Plug).

5. V2500 Service Bulletin V2500-ENG-73-0152 (Engine — Introduction Of Longer P2T2 Probe).
6. V2500 Service Bulletin V2500-ENG-73-0222 (Engine — Fuel And Control — Provide A New Electronic Engine Control (EEC) With SCN21/AA Software).
7. Airbus Service Bulletin A320-73-1104 Engine Fuel and Control FADEC System — Introduce EEC Software Standard SCN22/AB on IAE V2500-A5 Engines and Aircraft Modification No. 154858 P13163.
8. This Service Bulletin is subject to Aircraft Modification No. 154858 P13163 (classified major) and is covered by A/C Service Bulletin Number A320-73-1104. Under no circumstances shall the modified equipment, resulting from the application of this Service Bulletin, be installed on the aircraft type unless its aircraft Service Bulletin is approved.
9. V2500 Service Bulletin V2500-ENG-73-0237 (Engine Fuel And Control — Data Entry Plug (DEP) — Replacement Or Modification Of, To Provide SCN22/AB Software And Reduced Ground Idle (RGI) Capability).
10. V2500 Service Bulletin V2500-ENG-73-0238 (Engine Fuel And Control — Introduction Of Software Loader).

Other Publications Affected

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, a Technical Publications conversion table is provided in the Appendix.

1. V2500-A5 Series Illustrated Parts Catalog, P&W Ref. PN 2A4428, Chapter/Section 73-22-34.

Interchangeability of Parts

(SCN21/AA) and (SCN22/AB) electronic engine controls are directly interchangeable provided that the DEP has been rewired correctly which enables DEP, PN 2A3106 or DEP, PN 2A4378 selection.

For aircraft installation:

Refer to Reference 7, Airbus Service Bulletin A320-73-1104.

Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (Yes)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

Material Information

Material — Cost and Availability

1. There is no kit provided to do this Service Bulletin.
2. Part availability information is provided in material data Instructions — Disposition.
3. Conversion to model enhancements can only be accomplished as per contractual agreement with International Aero Engines.

Industry Support Program

Not Applicable.

The material data that follows is for each engine.

For V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5 Engines:

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
2A4347 (824972-2-024)	1	*	CONTROL, ELECTRONIC ENGINE	2A4270 (824972-2-022) (73-22-34-01-280)	(1)(B)(N) (S)(V)
			OR		
2A4348 (824972-3-024)	1	*	CONTROL, ELECTRONIC ENGINE	2A4273 (824972-3-022) (73-22-34-01-280)	(1)(B)(N) (S)(V)
			OR		
2A4349 (824972-4-024)	1	*	CONTROL, ELECTRONIC ENGINE	2A4274 (824972-4-022) (73-22-34-01-280)	(1)(B)(N) (S)(V)
			OR		
2A4352 (824972-5-024)	1	*	CONTROL, ELECTRONIC ENGINE	2A4275 (824972-5-022) (73-22-34-01-280)	(1)(B)(N) (S)(V)
			OR		
2A4353 (824972-7-024)	1	*	CONTROL, ELECTRONIC ENGINE	2A4276 (824972-7-022) (73-22-34-01-280)	(1)(B)(N) (S)(V)
			OR		
2A4354 (824972-9-024)	1	*	CONTROL, ELECTRONIC ENGINE	2A4277 (824972-9-022) (73-22-34-01-280)	(1)(B)(N) (S)(V)
			OR		
2A4355 (824972-11-024)	1	*	CONTROL, ELECTRONIC ENGINE	2A4278 (824972-11-022) (73-22-34-01-280)	(1)(B)(N) (S)(V)

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
			OR		
2A4345 (808050-4-070)	1	*	CONTROL, ELECTRONIC ENGINE	2A4279 (808050-4-068) (73-22-34-01-280)	(1)(B)(N) (S)(V)
			OR		
2A4346 (808050-5-070)	1	*	CONTROL, ELECTRONIC ENGINE	2A4280 (808050-5-068) (73-22-34-01-280)	(1)(B)(N) (S)(V)

Instructions/Disposition Code Statements:

Parts Modification Conditions

Estimated part prices are provided when they are available at time of publication. The Estimate of Unit Price is only for planning purposes and does not constitute a firm quotation. An asterisk (*) is shown where part pricing information was unavailable. In either case, contact IAE Spares for firm quotations.

(1) The new part can be obtained by modification of the old part as specified in the Accomplishment Instructions.

Spare Parts Availability

(B) The new part is available.

(N) The old part is not available.

(S) Procure the part directly from the Supplier referenced in Vendor Services or Special Components.

(V) The part number in parentheses is the UTC Aerospace Systems part number.

Vendor Services or Special Components/Materials

Vendor Services or Special Components/Materials

P&W Designation	Vendor Designation	Name	Vendor Name & Address
2A4347	824972-2-024	Control, Electronic Engine	UTC Aerospace Systems A United Technologies Company One Hamilton Road Dock W Windsor Locks, CT 06096-1010 USA
2A4348	824972-3-024	Control, Electronic Engine	
2A4349	824972-4-024	Control, Electronic Engine	
2A4352	824972-5-024	Control, Electronic Engine	
2A4353	824972-7-024	Control, Electronic Engine	
2A4354	824972-9-024	Control, Electronic Engine	
2A4355	824972-11-024	Control, Electronic Engine	
2A4345	808050-4-070	Control, Electronic Engine	
2A4346	808050-5-070	Control, Electronic Engine	
FAA Repair License Number: SI3R842L			
OR			
			UTC Aerospace Systems A United Technologies Company Worldwide Repair — Maastricht Horsterweg 6191 RX Beek Maastricht Airport The Netherlands
FAA Repair License Number: CW5Y794M			

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Tooling — Price and Availability

1. The following equipment is required to accomplish this Service Bulletin for units that are reprogrammed in the field. Units that are returned to UTC Aerospace Systems or Maastricht Aachen Airport to incorporate this Service Bulletin will be charged to the operator.

A. IAE Software Loader, Tool No. IAE2P16552-A or IAE2P16613

NOTE: The IAE software loader must be used with the appropriate reprogramming SD card to accomplish this Service Bulletin. This equipment can be obtained by contacting your Customer Fleet Director. The reprogramming SD card is referenced in Accomplishment Instructions, Table 2.

This reprogramming SD card contains the EEC 150-20/150-40 application code, trims and memory clear utilities. The reprogramming SD card can be obtained from your Customer Fleet Director.

Table 2 — Reprogramming Input Reference Table A5 SelectOne SCN22/AB

	New PN	Old PN
Trim Checksum	37151	N/A
Reprogramming SD Card for IAE2P16552-A	1018294-4	N/A
Reprogramming SD Card for IAE2P16613	1018294-6 or 1018294-7	N/A
Control, Electronic Engine — 150-40	2A4347	2A4270
Control, Electronic Engine — 150-40	2A4348	2A4273
Control, Electronic Engine — 150-40	2A4349	2A4274
Control, Electronic Engine — 150-40	2A4352	2A4275
Control, Electronic Engine — 150-40	2A4353	2A4276
Control, Electronic Engine — 150-40	2A4354	2A4277
Control, Electronic Engine — 150-40	2A4355	2A4278
Control, Electronic Engine — 150-20	2A4345	2A4279
Control, Electronic Engine — 150-20	2A4346	2A4280

2. EEC 150-20/150-40 Name Plate PN 751333-1 or modified Name Plate PN 822815-1.

Reidentified Parts

Reidentified Parts Data

New PN	Keyword	Old PN
2A4347 (824972-2-024)	Control, Electronic Engine	2A4270 (824972-2-022)
2A4348 (824972-3-024)	Control, Electronic Engine	2A4273 (824972-3-022)
2A4349 (824972-4-024)	Control, Electronic Engine	2A4274 (824972-4-022)
2A4352 (824972-5-024)	Control, Electronic Engine	2A4275 (824972-5-022)

New PN	Keyword	Old PN
2A4353 (824972-7-024)	Control, Electronic Engine	2A4276 (824972-7-022)
2A4354 (824972-9-024)	Control, Electronic Engine	2A4277 (824972-9-022)
2A4355 (824972-11-024)	Control, Electronic Engine	2A4278 (824972-11-022)
2A4345 (808050-4-070)	Control, Electronic Engine	2A4279 (808050-4-068)
2A4346 (808050-5-070)	Control, Electronic Engine	2A4280 (808050-5-068)

Other Material Information Data

Not Applicable.

Accomplishment Instructions

For Engines Installed on The Aircraft

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

NOTE: For logistical reasons it is acceptable to down change software on-wing from SCN22/AB to SCN21/AA.

For SCN21/AA, refer to the latest Reference 6, Service Bulletin No. V2500-ENG-73-0222 for software requirements and Reference 4, Service Bulletin No. V2500-ENG-72-0285 for wiring and marking instructions.

1. Replace or do a modification of the EEC by the procedure that follows:

   A. Remove the EEC as specified in Reference 7, Airbus Service Bulletin A320-73-1104. See Figure 1 for the location of the part.

   B. Replace the EEC given in Table 1 or do a modification of the EEC as follows. See Figure 1.

      (1) Send the part to the vendor listed in the Vendor Services section. The modified EEC will be returned identified as given in Table 1 below.

   C. Install the EEC as specified in Reference 7, Airbus Service Bulletin A320-73-1104. See Table 1 for old and new part numbers. Remark EEC as given in Table 1 below.

Table 1

New PN	Old PN
2A4347 (824972-2-024)	2A4270 (824972-2-022)
2A4348 (824972-3-024)	2A4273 (824972-3-022)
2A4349 (824972-4-024)	2A4274 (824972-4-022)
2A4352 (824972-5-024)	2A4275 (824972-5-022)
2A4353 (824972-7-024)	2A4276 (824972-7-022)
2A4354 (824972-9-024)	2A4277 (824972-9-022)
2A4355 (824972-11-024)	2A4278 (824972-11-022)
2A4345 (808050-4-070)	2A4279 (808050-4-068)
2A4346 (808050-5-070)	2A4280 (808050-5-068)

   D. Recording Instructions

(1) A record of accomplishment is required.

2. Do programming of the EEC using Software Loader, Tool No. IAE2P16552-A or IAE2P16613 by the procedure that follows:

NOTE: The Software Loader Service Bulletin now provides the following information:

1. Installing EEC Software

a. This procedure provides instructions for downloading software to the EEC, this procedure can be accomplished on-wing, off-wing (engine stand), or on an uninstalled EEC.

2. Testing Cables and Equipment

a. Instructions to check/troubleshoot the software loader assembly via internal self tests.

3. DEP Electrical Wiring Test

a. Instructions to evaluate DEP configurations for automated results and error feedback via the handheld display.

4. Retrieving Fault Dump Files

a. Instructions for using an engine support program which captures fault information stored within EEC memory.

NOTE: The latest software standard may be loaded directly over any prior approved software standard. It is not required to load all the interim software standards.

Reprogramming assistance regarding proper use of Software Loader, Tool No. IAE2P16552-A or IAE2P16613 is available from your local IAE representative.

Reprogramming the EEC will clear the fault memory. Fault dump will be automatically stored in the hand-held device that is included with Software Loader, Tool No. IAE2P16552-A or Siemens SIMATIC ITP1000 tablet that is included with Software Loader, Tool No. IAE2P16613 and may be retrieved at a later time.

NOTE: Disassembly of the EEC is not required.

Data integrity check of the UTC Aerospace Systems supplied software is performed as part of the reprogramming procedure.

A bit-for-bit memory verification test is included as part of the reprogramming procedure.

No functional, thermal cycle, or vibration testing is required for units reprogrammed in accordance with this Service Bulletin.

The EEC can be programmed at room ambient conditions or while installed on the engine.

A. Prepare EEC for software load by the procedure that follows:

(1) Open the nacelle and prepare the aircraft for servicing as specified in Reference 7, Airbus Service Bulletin A320-73-1104. See Figure 1 for the location of the part.

(2) Remove the EEC harness connector from J1, J3, J7 and J9.

(3) If desired, remove the EEC as specified in Reference 7, Airbus Service Bulletin A320-73-1104. See Figure 1 for the location of the part.

(4) Install Software per software loader Reference 10, Service Bulletin V2500-ENG-73-0238.

NOTE: Trim Checksum number is required from Table 2 of this Service Bulletin.

NOTE: Ensure DEP, PN 2A4378 is installed.

For Engines Removed from The Aircraft

1. Replace or do a modification of the EEC by the procedure that follows:

A. Replace the EEC as shown in Table 2 or do a modification of the EEC as follows. See Figure 1.

(1) Send the part to the vendor listed in the Vendor Services section. The modified EEC will be returned identified as given in Table 2 below. Remark EEC PN as given in Table 2 below.

Table 2

New PN	Old PN
2A4347 (824972-2-024)	2A4270 (824972-2-022)
2A4348 (824972-3-024)	2A4273 (824972-3-022)
2A4349 (824972-4-024)	2A4274 (824972-4-022)
2A4352 (824972-5-024)	2A4275 (824972-5-022)
2A4353 (824972-7-024)	2A4276 (824972-7-022)
2A4354 (824972-9-024)	2A4277 (824972-9-022)
2A4355 (824972-11-024)	2A4278 (824972-11-022)
2A4345 (808050-4-070)	2A4279 (808050-4-068)
2A4346 (808050-5-070)	2A4280 (808050-5-068)

B. Recording Instructions

(1) A record of accomplishment is required.

2. Do programming of the EEC using Software Loader, Tool No. IAE2P16552-A or IAE2P16613 by the procedure that follows:

NOTE: The latest software standard may be loaded directly over any prior approved software standard. It is not required to load all the interim software standards.

Reprogramming assistance regarding proper use of Software Loader, PN IAE2P16552-A or IAE2P16613 is available from your local IAE representative.

Reprogramming the EEC will clear the fault memory. Fault dump will be automatically stored in the hand-held device that is included with Software Loader, Tool No. IAE2P16552-A or Siemens SIMATIC ITP1000 tablet that is included with Software Loader, Tool No. IAE2P16613 and may be retrieved at a later time.

NOTE: Disassembly of the EEC is not required.

Data integrity check of the UTC Aerospace Systems supplied software is performed as part of the reprogramming procedure.

A bit-for-bit memory verification test is included as part of the reprogramming procedure.

No functional, thermal cycle, or vibration testing is required for units reprogrammed in accordance with this Service Bulletin.

The EEC can be programmed at room ambient conditions or while it is installed on the engine.

A. Prepare EEC for Software Load

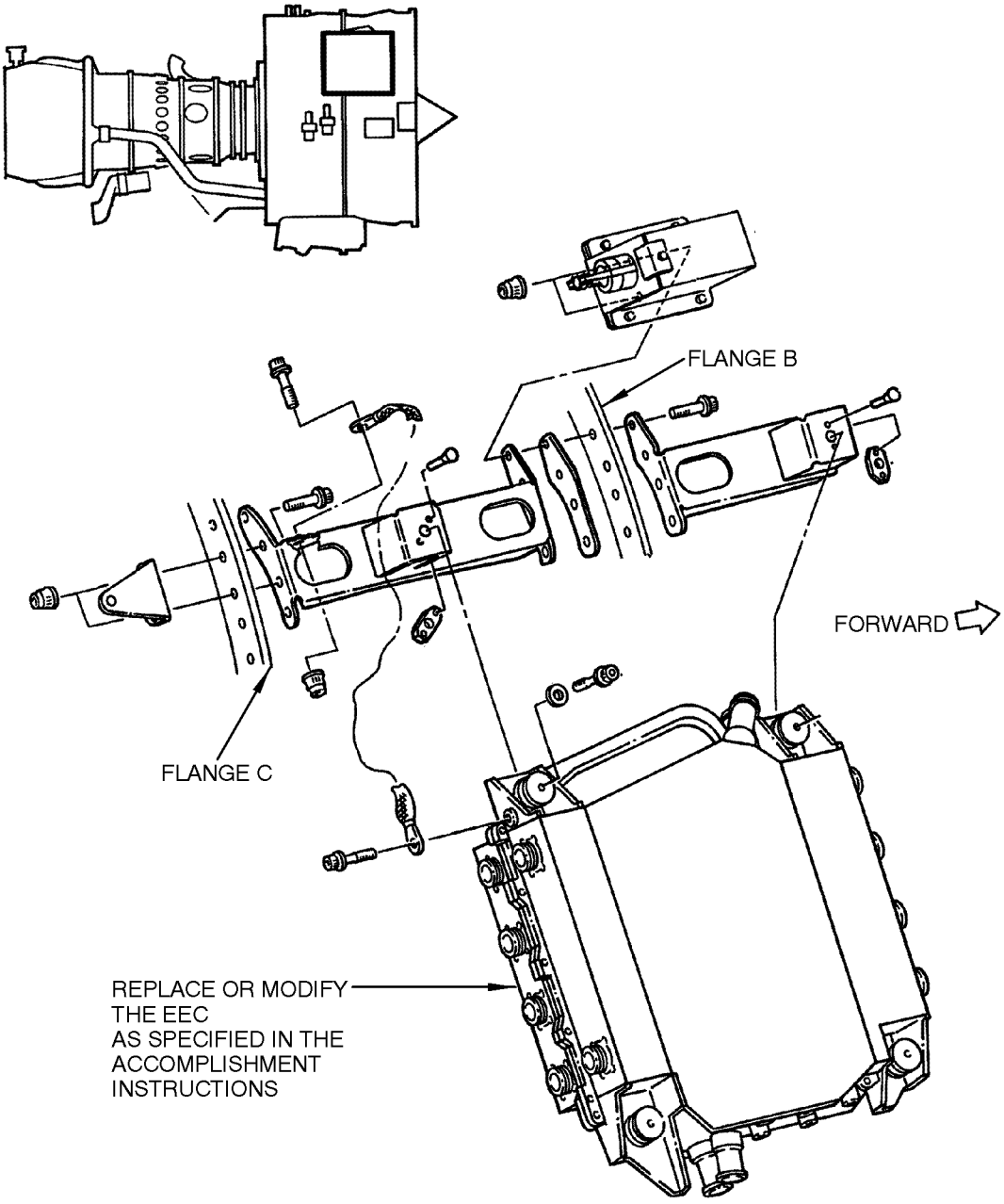
(1) Remove the EEC harness connector from J1, J3, J7 and J9.

(2) If desired, remove the EEC as specified in Reference 7, Airbus Service Bulletin A320-73-1104. See Figure 1 for the location of the part.

(3) Install Software per software loader Reference 10, Service Bulletin V2500-ENG-73-0238.

NOTE: Trim Checksum number is required from Table 2 of this Service Bulletin.

NOTE: Ensure DEP, PN 2A4378 is installed.



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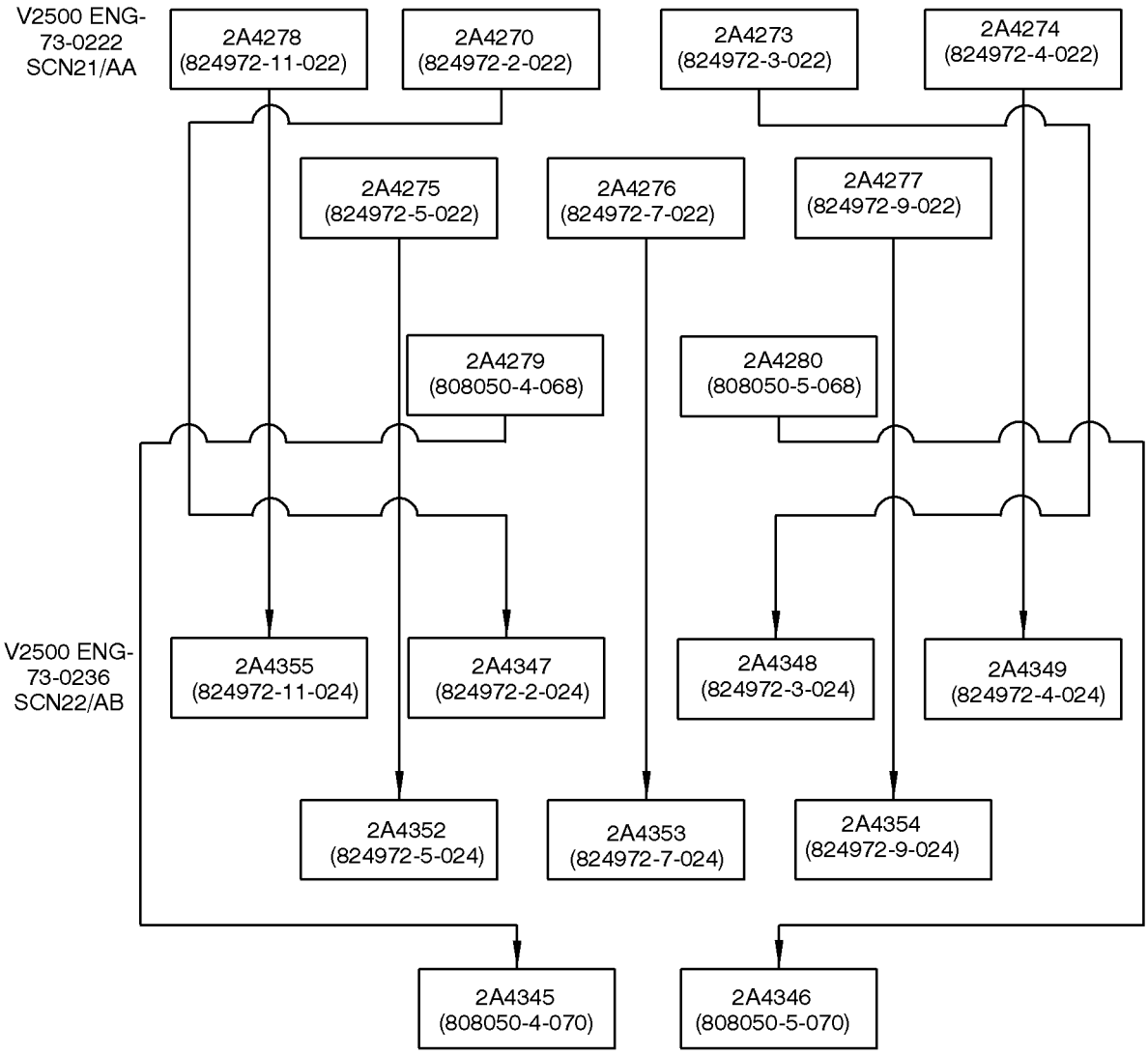
LOCATION OF THE EEC
73-22-34
FIGURE 1

Appendix

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



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EEC
CHART A

Added Data

Internal Reference Information

Revision No.	Reference Document	Origination
Original	EC11VZ008	SOP/IEL
1	EC19VC103	EA/RCM

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, the following Technical Publications cross reference table is provided.

Technical Publications Cross Reference Table

Publication	Engine Model(s)	IAE IETM Pub Ref	P&W Part Number
EIPC — A5	V2522/V2524/V2527M-AQ02	S-V2500-6IA	2A4428
	V2522/V2524/V2527M-AQ03	S-V2500-6IB	
	V2522/V2524/V2527M-SQ02	S-V2500-6SA	
	V2522/V2524/V2527M-SQ03	S-V2500-6SB	
	V2522/V2524/V2527M-SQ04	S-V2500-6NA	
	V2522/V2524/V2527M-SQ05	S-V2500-6NB	
	V2527/V2527E-AQ02	S-V2500-7IA	
	V2527/V2527E-AQ03	S-V2500-7IB	
	V2527/V2527E-SQ02	S-V2500-7SA	
	V2527/V2527E-SQ03	S-V2500-7SB	
	V2527/V2527E-SQ04	S-V2500-7NA	
	V2527/V2527E-SQ05	S-V2500-7NB	
	V2530-AQ02	S-V2500-2IA	
	V2530-AQ03	S-V2500-2IB	
	V2530-SQ02	S-V2500-2SA	
	V2530-SQ03	S-V2500-2SB	
	V2530-SQ04	S-V2500-2NA	
	V2530-SQ05	S-V2500-2NB	
	V2533-AQ02	S-V2500-5IA	
	V2533-AQ03	S-V2500-5IB	
	V2533-SQ02	S-V2500-5SA	
	V2533-SQ03	S-V2500-5SB	
	V2533-SQ04	S-V2500-5NA	
	V2533-SQ05	S-V2500-5NB	