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

RR-DERBY

V2500 International Aero Engines

400 MAIN STREET, MAIL STOP 121-10
EAST HARTFORD, CT 06108, USA.
TELEPHONE: 860 565 5515
FAX: 860 565 0600

P.O. BOX 31, DERBY
TELEGRAMS - 'ROYCAR' DERBY
TELEX - 37645
TELEPHONE - DERBY 242424

DATER Jul.15/02

V2500-A1/A5 PROPULSION SYSTEMS SERVICE BULLETIN

This document transmits Revision 2 to Service Bulletin EV2500-77-0009 and Revision 2 to the Supplement

Document History

Service Bulletin Revision Status		Supplement Revision Status	
Initial Issue	Dec.21/01	Initial Issue	Dec.21/01
Revision 1	Feb.28/02	Revision 1	Feb.28/02

Bulletin Revision 2

Remove	Incorporate	Reason for change
All pages of the Service Bulletin	Pages 1 to 12 of the Service Bulletin	To revise Concurrent Requirements, References and Accomplishment Instructions

Supplement Revision 2

Remove	Incorporate	Reason for change
All pages	Page 1 and 2	To revise Concurrent Requirements, References and Accomplishment Instructions

V2500-ENG-77-0009

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED
If any have not been received please advise Publication Services, Rolls-Royce plc, Derby, England

LIST OF EFFECTIVE PAGES

The effective pages to this Service Bulletin following incorporation of Revision 2 to the Bulletin and Revision 2 to the Supplement are as follows:

	Page	Revision Number	Revision Date
	Bulletin		
R	1	2	Jul.15/02
R	2	2	Jul.15/02
R	3	2	Jul.15/02
R	4	2	Jul.15/02
R	5	2	Jul.15/02
R	6	2	Jul.15/02
R	7	2	Jul.15/02
R	8	2	Jul.15/02
R	9	2	Jul.15/02
R	10	2	Jul.15/02
R	11	2	Jul.15/02
R	12	2	Jul.15/02
	Supplement		
R	1	2	Jul.15/02
R	2	2	Jul.15/02

ENGINE - PROVIDE NEW EGT HARNESS JUNCTION BOX TERMINAL NUTS

1. Planning Information

A. Effectivity

(1) Airbus A319

V2522-A5, V2524-A5, V2527M-A5 Engines Serial No. V10001 thru V11170 and including V11172, V11174, V11176, V11178, V11180, V11182, V11184, V11186, V11188, V11190, V11204, and V11206.

(2) Airbus A320

(a) V2500-A1 Engines Serial No. V0001 thru V0361

(b) V2527-A5, V2527E-A5 Engines Serial No. V10001 thru V11170 and including V11172, V11174, V11176, V11178, V11180, V11182, V11184, V11186, V11188, V11190, V11204 and V11206.

(3) Airbus A321

V2530-A5, V2533-A5 Engines Serial No. V10001 thru V11170 and including V11172, V11174, V11176, V11178, V11180, V11182, V11184, V11186, V11188, V11190, V11204 and V11206.

(4) ATA locator - 77-21-00

B. Concurrent Requirements

This Service Bulletin must be done concurrently with or subsequent to Reference 1, Service Bulletin No. V2500-ENG-77-0004.

R Upon completion of this Service Bulletin, it is no longer necessary to perform
R the torque tightness checks as recommended in SIL 143.

C. Reason

(1) Problem:

Exhaust Gas Temperature (EGT) display fluctuations and loss of EGT display events in service have been correlated with the loosening of the EGT harness junction box terminal nuts.

(2) Background:

The current EGT junction box harness connection nuts on the V2500 use a spring type locking feature. This type of nut has very specific torque requirements and is also subject to incorrect installation. Service experience has also shown that nuts may become loose over time.

(3) Objective:

Replace the current spring type locking nut with an elliptical (Deformed Thread) type of locking nut.

(4) Substantiation:

The new nuts are from the Society of British Aerospace Companies Standards. The nut material is a corrosion resistant steel, A286, which is silver coated. This material has been used for years and adheres to standard practices, in addition, the performance specifications of the new nuts conform to MIL-N-25027,and meets current standards.

(5) Effects of Bulletin on:

Removal/Installation: Yes

Disassembly/Assembly: Yes

Cleaning: Yes

Inspection/Check: Yes

Repair: Not applicable

Testing: Yes

(6) Supplemental Information

None.

D. Description

Replace the EGT Harness Junction Box terminal nuts.

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.

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.

G. Manpower

Estimated man-hours to incorporate the full intent of this Bulletin:

Venue	Estimated Manhours
In Service	1 hour
At Overhaul	1 hour

H. Weight and Balance

Weight Change	None
Moment	No Effect
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-77-0004 (Engine - Ignition - Incorporate An EGT Harness And Junction Box Featuring Improved Wiring Between The Electronic Engine Control (EEC) Channels)

2. HARCO LABORATORIES, INC. Service Bulletin SB1-77-21-43-REV-2 (Introduction of Exhaust Gas Temperature (EGT) Harness and Junction Box and Replacement Nuts, Retaining)

3. V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA, S-V2500-2IA, S-V2500-2IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA, S-V2500-6IB, S-V2500-7IA, and S-V2500-71B), Chapter/Section 77-21-43.

R 4. V2500 Engine Manual (E-V2500-1IA), Chapter/Section 71-00-00 and CMM - EHC
R 77-21-43 (submitted for publication in document 01VC414, available on IAE
R Internet 180 Day Authorization Document listing).

R 5. V2500 Aircraft Maintenance Manual, Task 77-21-43-401 and Task
R 77-21-43-700-010.

6. V2500 Standard Practices/Processes Manual, Marking of Parts task, 70-09-00-400-501.

R 7. Service Information Letter (SIL) 143 - EGT Harness Junction Box Nuts (ATF
R 77-21-43) Requirement for Torque Check.

R 8. Internal reference 99VC204, 99VC204-01, 99VC204-04, 99VC204B, 99VC204-8

L. Other Publications Affected

1. V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA, 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 77-21-43, to add the new parts.

2. V2500 Engine Manuals (E-V2500-1IA), Chapter/Section 77-21-43 Cleaning, Inspection and Repair, to add the new parts.

M. Interchangeability of Parts

New parts are directly interchangeable with old parts; old parts are no longer authorized for use. Parts will be available by an IAE Retrofit Program.

CAUTION: ONCE A NEW STYLE NUT IS INSTALLED ONTO THE MATING STUD YOU MUST NOT INSTALL AN OLD NUT ON THAT STUD.

N. 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

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

2. Part availability information is provided in material data Instructions-Disposition.

B. Industry Support Program

The following parts required to accomplish this Service Bulletin will be provided at no charge for eligible engines listed in the effectivity section of the Service Bulletin.

PART NUMBER	NOMENCLATURE	UNITS PER ENGINE
AS20624	NUT, SELF-LOCKING	2
AS27832	NUT, SELF-LOCKING	2

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

NOTE: The prices shown are for estimating purposes only and as such are given in good faith without commercial liability for advanced planning purposes only. Refer to IAE Spares and/or current Price Catalog for current prices.

For V2500-A1, 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
25975-000	1	*	.Box-Cable, TC (Ref. No. 2A3580)	HAD19824 (Ref. No. 2A1609) (77-21-43-01-010)	(1)(A)(C2)(V)
AS20624	2	3.23	.Nut, Self-locking, Dbl Hex	2A2442 (77-21-43-01-016)	(B)(C2)(D)
			OR		
2A3564	REF	*	.Nut, Self-locking, Dbl Hex	2A2442 (77-21-43-01-016)	(C2)(3)

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions-Disposition
AS27832	2	3.33	.Nut, Self-locking, Hex	2A2443 (77-21-43-01-017)	(B)(C2)(D)
			OR		
2A3565	REF	*	.Nut, Self-locking, Hex	2A2443 (77-21-43-01-017)	(C2)(3)
HAB18619-1	2	*	.Stud-Square Based, EGT, 0.164-32	(77-21-43-01-025)	(V1)
HAB18619-2	2	*	.Stud-Square Based, EGT, 0.190-32	(77-21-43-01-030)	(V1)

Printed in Great Britain

D. Instructions/Disposition Code Statements:

(1) The new part can be obtained by modification of the old part as specified in the Accomplishment Instructions.
(A) The new part will be available on a Full Manufacturing lead time quote basis only.
(B) The new part will be available approximately October 1, 2001.
(C2) The old part will no longer be supplied.
(3) The new part number will not be supplied (Shown as Reference Only).
(D) The new part is a detail of the assembly. It is available as a replacement part.
(V) This is the Harco part number.
(V1) This is the Harco part number and is for service repair only.

E. Tooling - Price and Availability

Special tools are not required to accomplish this Service Bulletin.

F. Other Material Information Data

Studs must be ordered from the vendor:Harco Laboratories, Inc.186 Cedar StreetBranford Ct. 06405

3. Accomplishment Instructions

NOTE: SERVICE BULLETIN INCORPORATION MAY BE PERFORMED ON-WING. IT IS RECOMMENDED THAT IT BE DONE DURING "A" OR "C" CHECK.

(1) Gain access to the PN, HAD19824 Box, Cable TC.

R For on-wing incorporation, follow Job Set-up Information as presented in
R Reference 5, Aircraft Maintenance Manual, 77-21-43-401, Task
R 77-21-43-400-010, Subtask 77-21-43-860-051.

(a) Disassembly Instructions

(i) Remove safety wire from screws which secure the cover to the junction box assembly.

(ii) Remove screws and cover from the junction box assembly.

(iii) Remove 2 larger thread (0.190-32) diameter nuts from the terminal studs and properly dispose of.

(iv) Remove 2 smaller thread (0.164-32) diameter nuts from the terminal studs and properly dispose of.

(b) Assembly Instructions

CAUTION: THE USE OF LUBRICATION IS NOT PERMITTED ON EITHER THE STUDS OR LOCK NUTS.

CAUTION: ONCE A NEW STYLE NUT IS INSTALLED ONTO THE MATING STUD YOU MUST NOT INSTALL AN OLD NUT ON THAT STUD.

(i) Install 2 larger thread (0.190-32) diameter nuts, PN AS20624 onto the larger thread diameter terminal studs. See Figure 1.

(ii) Install 2 smaller thread (0.164-32) diameter nuts, PN AS27832 onto the smaller thread diameter terminal studs. See Figure 1.

(iii) Perform a Run-On Torque Test as follows:

(1) Use a torque wrench with a resolution of 1 lbfin (0.113 Nm) or smaller.

(2) Run the nut onto the stud until finger tight so that the locking thread is in contact with the stud thread.

A Minimum Run-On torque for the smaller thread (0.164-32) diameter nut shall be 1.5 lbfin (0.169 Nm).

B Maximum Run-On torque for the smaller thread (0.164-32) diameter nut shall be 9 lbfin (1.017 Nm).

C Minimum Run-On torque for the larger thread (0.190-32) diameter nut shall be 2 lbfin (0.226 Nm).

D Maximum Run-On torque for the larger thread (0.190-32) diameter nut shall be 13 lbfin (1.469 Nm).

(3) While using the torque wrench to install the nuts, measure and record the torque necessary to run the nut down to the stud shoulder

(4) If either nut fails to meet the Run-On torque requirement, use a new nut and repeat the test. If the second test fails, replace the studs per Stud Replacement Instructions section C.

(iv) Torque the larger thread (0.190-32) diameter Nut to 25 - 30 lbfin (2.82 - 3.39 Nm).

(v) Torque the smaller thread (0.164-32) diameter Nut to 20 - 25 lbfin (2.26 - 2.82 Nm).

(vi) Attach the cover to the junction box with 4 screws. Torque screws to 16 - 22 lbfin (1.08 - 2.49 N.m).

(vii) Safety wire the screws which attach the cover to the junction box.

R (c) Stud Replacement Instructions (as required, see 1.(b)(iii)(4))

NOTE: The part numbers listed in this section are Harco Laboratories numbers and are provided for convenience of ordering parts.

(i) Remove the safety wire and four Screws PN HAD14449. See Figure 2.

(ii) Remove Mounting Plate PN HDB18667. See Figure 2.

(iii) Remove the safety wire and eight Screws PN HDB14364, and disconnect the Retainer Plate PN HAB19828 from the Mounting Plate PN HDB18667. See Figure 2.

(iv) Identify terminal positions for Studs PN HAB18619-1 or PN HAB18619-2 with labels, and remove the Stud PN HAB18619-1 or PN HAB18619-2 from the Mounting Plate. See Figure 2. Dispose of the removed Studs in an approved method.

(v) Install new Studs PN HAB18619-1 and/or PN HAB18619-2 in the Mounting Plate PN HDB18667. See Figure 2.

(vi) Install the Retainer Plate PN HAB19828 over the new Studs on to the Mounting Plate PN HDB18667. Line up the Screw holes on the Retainer Plate with those on the Mounting Plate and attach the Retainer Plate to the Mounting Plate with the eight Screws PN HDB14364. See Figure 2. Safety wire all screws.

(vii) Attach the Mounting Plate PN HDB18667 to the Base Plate PN HDC18665) with the four Screws PN HDA14449. See Figure 2. Safety wire all screws.

R (viii) Test the Stud insulation resistance in accordance with:

R (1) Engine Manual, Reference 4, CMM - EHC 77-21-43, Insulation
R Resistance Test.

R or

R (2) Aircraft Maintenance Manual, Reference 5, Task
R 77-21-43-700-010, Step 4.C. Test for Insulation Resistance.

R (ix) Return to step (b) Assembly Instructions.

(2) After nut replacement use a hand grinder to remove the old part numbers from the Cover Assembly (HAD19824 and 2A1609).

(3) Vibropeen new part numbers onto the Cover Assembly (25975-000 and 2A3580). Refer to reference 6. Marking of parts.

R (4) Remove the Warning Notices, as required.

(5) EGT Harness and Junction Box test

(a) Test the EGT Harness and Junction Box in accordance with:

(i) Engine Manual. See reference 4. Engine Manual Task 71-00-00-700-052, Task 71-00-00-700-003.

R NOTE: Confirm that the EGT indication is available

OR

(ii) Aircraft Maintenance Manual. See reference 5. Aircraft
R Maintenance Manual Task 77-21-43-401, Subtask 77-21-43-720-053.
R This includes the following:

R (1) Do an operational test of the FADEC (Ref. Task
R 73-22-00-710-040) and a check on CFDS to make sure no fault
R is shown related to the EGT Harness.

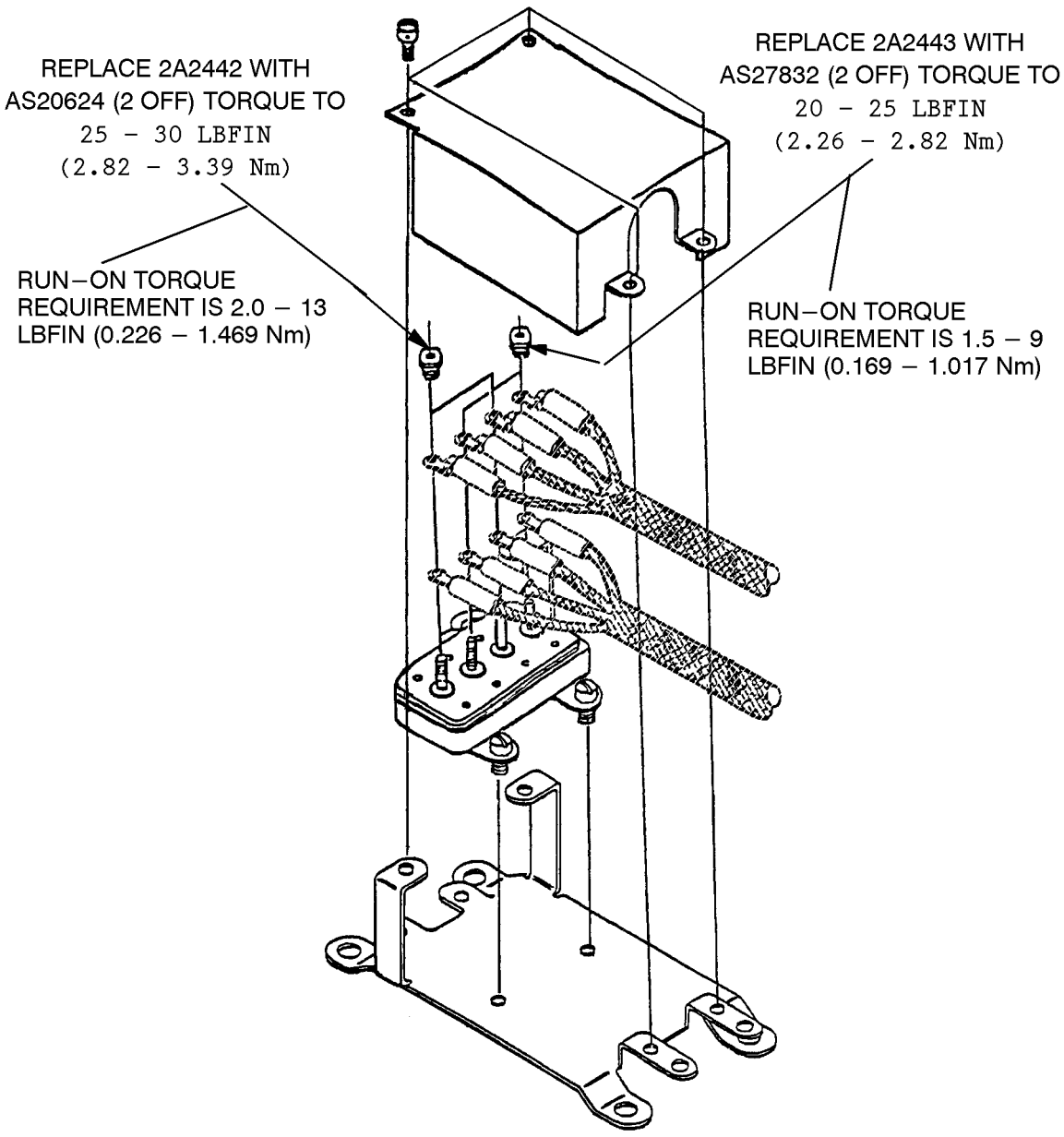
R (2) Do an idle leak check (Ref. Task 71-00-00-710-012).

R (3) On the upper ECAM DU, make sure that the EGT indication is
R available.

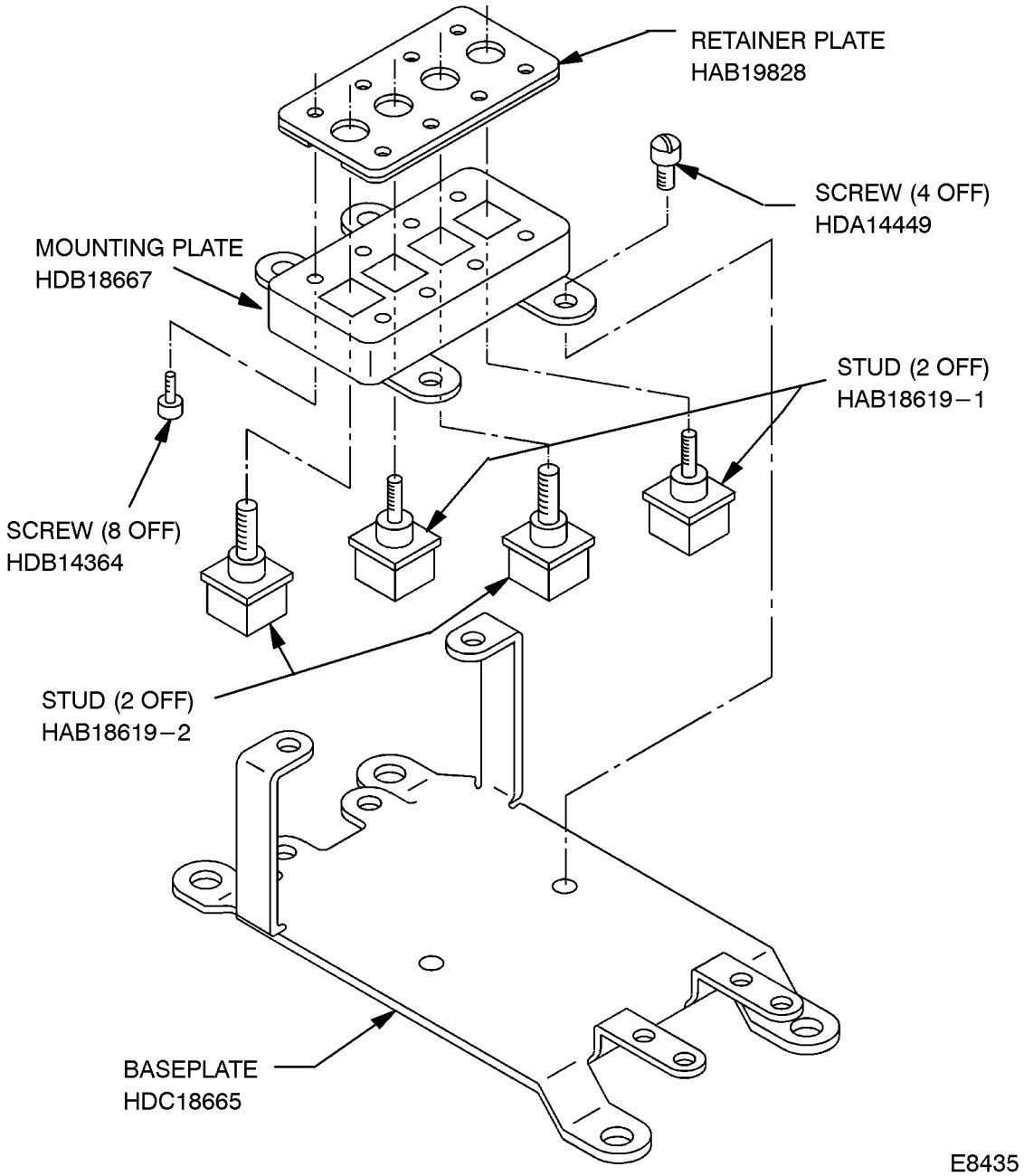
R (6) For on-wing incorporation, follow Job Close-up as presented in Reference
R 5, Aircraft Maintenance Manual, 77-21-43-401, Task 77-21-43-400-010,
R Subtask 77-21-43-410-052.

(7) Recording Instructions

(a) A record of accomplishment is necessary.



Engine - Indicating EGT harness and junction box
Fig 1



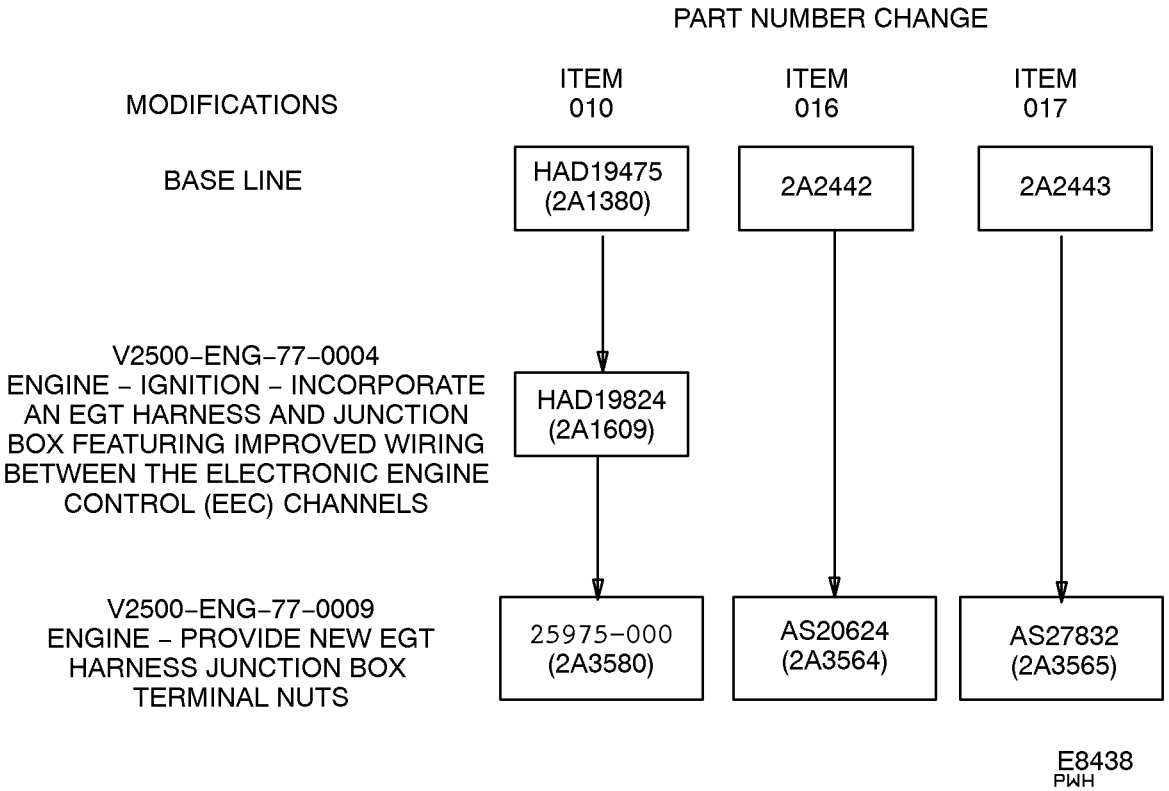
Harness and junction box stud replacement
Fig 2

ENGINE - PROVIDE NEW EGT HARNESS JUNCTION BOX TERMINAL NUTS

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

Added Data

Number values shown in parenthesis adjacent to U.S. values are Systeme Internationale equivalents.



R Family tree V2500 thermocouple junction box and nuts Ref Catalog Seq. No. 77-21-43
Fig 01 Item 016, Item 017, Item 018
R Fig 3