ENGINE — FUEL AND CONTROL — INCORPORATE A NEW ELECTRONIC ENGINE CONTROL (EEC) CONFIGURATION — CATEGORY CODE 4 — MOD.ENG-73-0007

1. Planning Information

   A. Effectivity

      (1) Aircraft: Airbus A320

      (2) Engine: All V2500 A1 Engines prior to Engine Serial Numvers V0097 except Engine Serial Number V0007, V0092 and V0095.

   B. Reason

      (1) Condition

           The present software (SNC1OB) does not give the necessary Stator Vane Actuator minimum limit protection.

      (2) Background

           Decrease of the N2 RPM causes the vanes to skew too far cambered.

      (3) Objective

           To replace the Electronic Engine Control with one that has SCN1OD Software.

      (4) Substantiation

           Intermittent loss of N2 speed caused an engine to stall during engine test, because of vane misscheduling.

      (5) Effects of Bulletin on Workshop Procedures:

Removal/Installation	Not affected
Disassembly/Assembly	Not affected
Cleaning	Not affected
Inspection/Check	Not affected
Repair	Not affected
Testing	Not affected

      (6) Supplemental Information:

           None.

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C. Description

(1) The stall problem caused by intermittent loss of N2 speed was corrected as follows:

(a) A new Electronic Engine Control with SCN1OD Software is installed.

D. Approval

The Part Number Changes and/or part modifications described in Section 2 and 3 of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the Engine Model listed.

E. Compliance

Category Code 4.

Accomplish at the first visit of an engine or a module to a maintenance base capable of compliance with the accomplishment instructions regardless of the planned maintenance action of the reason for engine removal.

F. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

Venue   Estimated Manhours

(1) In Service

   (a) To gain access   .. ..   14 minutes

   (b) To embody   .. .. ..   46 minutes

   (c) To return engine to flyable
       status .. ..   14 minutes

              TOTAL   1 hour, 14 minutes

(2) In Shop .. ..   Not applicable

G. Material Price and Availability

(1) Modification Kit Not Required.

(2) See Material Information section for prices and availability of future spares.

H. Tooling — Price and Availability

Special tools are not required.

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I. <u>Weight and Balance</u>

    (1)   Weight change .. .. ..   None

    (2)   Moment arm .. ..   No effect

    (3)   Datum .. ..   Engine front mount Centerline (Powerplant
                                 Station PPS 100)

J. <u>Electrical Load Data</u>

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

K. <u>References</u>

    (1)   Internal Reference No.

        89VA119

    (2)   Other References

        Hamilton Standard Service Bulletin EEC 150-73-1.

        A320 Aircraft Maintenance Manual.

L. <u>Other Publications Affected</u>

    (1) None.

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2. Accomplishment Instructions

  A. Prerequisite Instructions

    (1) Remove the PN 2A1988 or 2A1989 RElectronic Engine Control by the approved
        procedure in Reference (2), Chapter/Section 73-22-34,
   Removal/Installation. Refer to Figure 1.

  B. Rework Instructions

    (1) Do a modification of the PN 2A1988 or 2A1989 Electronic Engine Control
        and identify as PN 2A2039 by the approved procedure in Reference (1).

  C. Fitment Instructions

    (1) Install the PN 2A2039 Electronic Engine Control by the approved procedure
        in Reference (2), Chapter/Section 73-22-34, Removal/Installation.

  D. Recording Instructions

    (1) A record of accomplishment is necessary.

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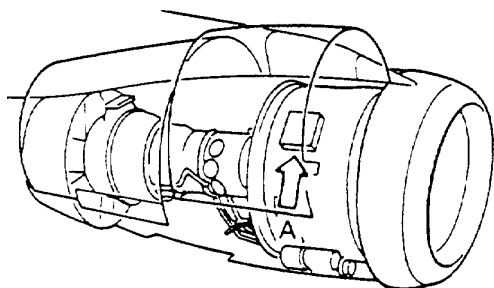
REMOVE PN 2A1988 OR
PN 2A1989 ELECTRONIC
ENGINE CONTROL, DO
A MODIFICATION, IDENTIFY
AND INSTALL AS
PN 2A2039 (1 Off)

A
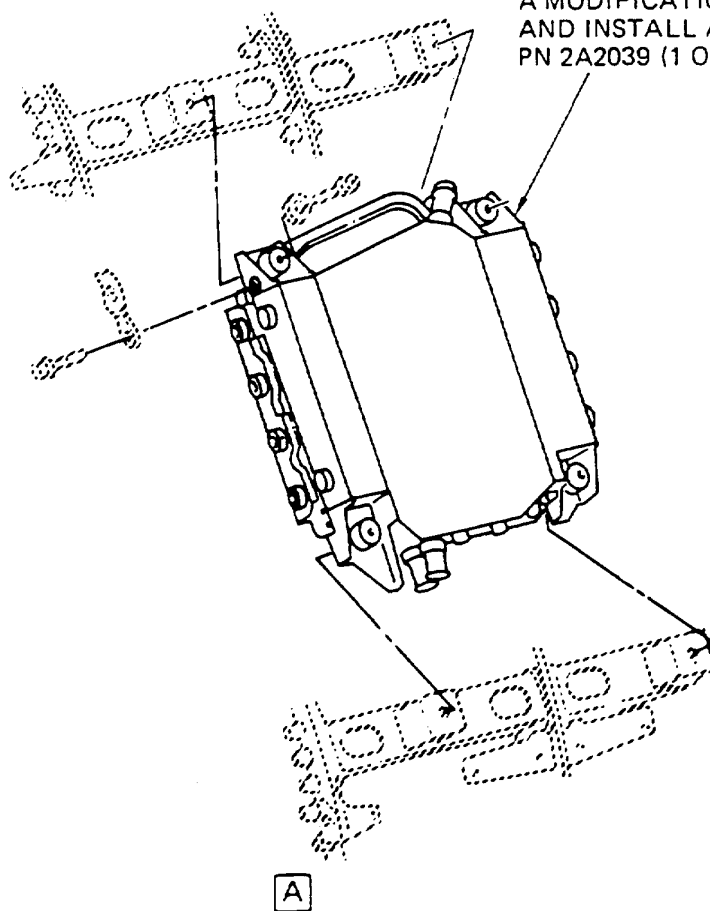
14987

Location of Electronic Engine Control
Fig.1

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3. Material Information

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NEW                EST'D                   OLD
PART NO.           UNIT                    PART NO.      INSTRUCTIONS
(ATA NO.)    QTY   PRICE ($)  KEYWORD      (IPC NO.)     DISPOSITION
---------------------------------------------------------------------
```

Applicability: For each V2500 Engine to incorporate this Bulletin.

A. Kit associated with this Bulletin:

   None.

B. Parts affected by this Bulletin:

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   2A2039        1                  Control-Electronic  2A1988      (1D)
   (73-22-34)                       Engine              (01-280)
                                                        or
                                                        2A1989      (1D)
                                                        (01-280)
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C. Instruction/Disposition Code Statements:

   (1D) A modification can be done to the Old Part and it can then be
        identified as the New Part Number.

   NOTE: The estimated 1989 unit prices shown are provided for
          planning purposes only and do not constitute a firm quotation.
          Contact IAE's Spare Parts Sales Department for information
          concerning firm prices.

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**UNITED
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STANDARD**

SERVICE BULLETIN

CIRCULATE PROMPTLY

ENGINE FUEL AND CONTROL – EEC150 ELECTRONIC ENGINE CONTROL
INCORPORATE NEW SOFTWARE

1. Planning Information

   A. Effectivity

   All Hamilton Standard Electronic Engine Controls Model EEC150 Not
   Incorporating Part Number:

   798300-8-027

   B. Reason

   This product improvement change introduces a new software
   configuration into revenue service. The new software updates the
   2.5 Bleed Logic and the Stator Vane Logic.

   C. Description

   Processor board assemblies are removed from the unit. New
   software is incorporated by reprogramming the EPROMs. Following
   EPROM reprogramming, the unit is assembled and tested.

   D. Compliance

   Category 4 – Accomplish at the first visit of an Electronic
   Engine Control to a maintenance shop.

   NOTE: The tasks of this service bulletin must be accomplished
          concurrently with Service Bulletin EEC150-73-2.

   E. Approval

   The part number changes and part modifications described in
   Paragraph 2 of this service bulletin have been shown to comply
   with the applicable Federal Aviation Regulations and are
   FAA-Approved for the Electronic Engine Controls listed.

F.   Manpower

Approximately 8 man-hours are required to reprogram each unit.
This includes disassembly, assembly, and testing.

G.   Material - Cost and Availability

None

H.   Tooling

None

I.   Weight and Balance

Not Affected

J.   Electrical Load Data

Not Affected

K.   Reference

IAE Service Bulletin No. V2500-ENG-73-007
Hamilton Standard Service Bulletin EEC150-73-2
Component Maintenance Manual 73-22-34 (TR73-1)

L.   Other Publications Affected

Component Maintenance Manual 73-22-34
Illustrated Parts Catalog 73-22-34

2.   <u>Accomplishment Instructions</u>

A.   Reprogram the EEC using the following instructions or return the
EEC, for reprogramming, to:

Pratt & Whitney Overhaul/Repair Center Europe (PWORCE)
Maastricht Airport
P.O. Box 269
6190 AG BEEK
The Netherlands

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B. Determine the requirements for service bulletin incorporation by checking the units and spare assemblies for the following part numbers:

Assembly	HS Part Number
EEC150	798300-8-XXX
Control Assembly	798199-8-XXX
Processor/Input Module-Channel A	793610-14-XXX
Processor/Input Module-Channel B	793612-14-XXX

(XXX) - indicates the software configuration

CAUTION: OBEY THE ESDS PRECAUTIONS IN REPAIR 1 OF CMM 73-22-34. THE EEC150 CONTAINS ESDS COMPONENTS WHICH MAY BE EASILY DAMAGED.

C. Reprogram the units according to REPAIR 5 (TR73-1) of Component Maintenance Manual 73-22-34. Use the program and version number shown below with the indicated checksums.

Application Program:	Y793610
Application Version Number:	E050
Application Checksum:	B93F
.PAR Checksum:	C78E
Engine Trim Program:	Y793612
Engine Trim Version Number:	E050

NOTE: Perform the inspection described in Service Bulletin EEC150-73-2 after the unit is disassembled but before the boards are reprogrammed.

D. Reidentify the assemblies as shown below. Refer to <u>REPAIR 4</u> (TR73-1) of Component Maintenance Manual 73-22-34 for instructions to replace the identification plates.

Assembly	New HS Part Number	New IAE Part Number
EEC150	798300-8-027 L6 798300-8-027 L7	2A2039E 2A2039F
Control Assembly	798199-8-027	N/A
Processor/Input Module-Channel A	793610-14-027	N/A
Processor/Input Module-Channel B	793612-14-027	N/A

3. <u>Material Information</u>

None

Hamilton Standard Internal Reference Number 192745-1
Hamilton Standard Document Identification Number 6323N
Pratt & Whitney Reference GES/PSH 89VA119