SERVICE BULLETIN REVISION NOTICE

NON-MODIFICATION SERVICE BULLETIN — VARIABLE STATOR VANE ACTUATOR AND BOOSTER STAGE BLEED VALVE MASTER ACTUATOR — RECOMMENDED LACQUER/FUEL DEPOSITS CLEANING INTERVAL FOR AFFECTED OPERATORS

Turbojet Engine Service Bulletin No. V2500-ENG-75-0097 Revision No. 9 dated October 1, 2019.

Revision History

Original Issue August 27, 2005

Revision 1 dated February 17, 2006

Revision 2 dated April 21, 2006

Revision 3 dated January 21, 2008

Revision 4 dated December 16, 2008

Revision 5 dated December 10, 2013

Revision 6 dated March 18, 2014

Revision 7 dated April 8, 2015

Revision 8 dated February 11, 2019

Revision 9 dated October 1, 2019

Reason for the Revision

To add Jetstar Japan (JJP), Qatar Amiri Flight (QAF), Qatar Executive (QQE), and Spirit Airlines (NKS) to "Airline Group 3" in the Operators section.

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

V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5, V2525-D5, V2528-D5

BULLETIN ISSUE SEQUENCE

V2500 Series 75-0097

Page	Revision No.	Date
1 thru 9	9	October 1/19

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.

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MODEL APPLICATION

V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5, V2525-D5, V2528-D5

BULLETIN ISSUE SEQUENCE

V2500 Series 75-0097

ATA NUMBER

75-31-42

75-32-41

Export Classification: Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

Compliance Category

3

Summary

The purpose of this Non-Modification Service Bulletin is to provide criteria for regular actuator cleaning to ensure that in most cases lacquer or fuel deposit build-up will not reach a level sufficient to cause an in-service event.

Planning Information

Effectivity Data

Engine Models Applicable

V2500-A1
Engine Serial No. — All engines

V2522-A5, V2524-A5, V2527M-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5
Engine Serial No. — All engines

V2525-D5, V2528-D5
Engine Serial No. — All engines

1. Operators:

   A. Group 1

      (1) All Extended-Range Twin-Engine Operations (ETOPS) Operators not already mentioned in Group 2, 3 or 4.

   B. Group 2

Airline Group 2

Air Macau (AMU)	SriLankan Airlines (ALK)
DragonAir (HDA)	American Airlines (AAL)
Saudi Arabian Airlines (SVA)	

   C. Group 3

Airline Group 3

Air New Zealand	Asiana (AAR)
Bangkok Airways (BKP)	Silkair (SLK)
Novair (NVR)	Royal Brunei Airlines (RBA)
South African Airways (SAA)	Qatar Airways (QTR)
United Airlines (UAL)	Tiger Airways (TGW)
Indigo Airways (IGO)	Qatar Amiri Flight (QAF)
Jetstar Japan (JJP)	Qatar Executive (QQE)
Spirit Airlines (NKS)	

      (1) Any operator from Group 1 or 2 that has adequately shown using the acceptance criteria to have no operational events and through data shown to have low lacquer or fuel deposit levels at the Group 1 or 2 time frame.

D. Group 4

Airline Group 4

Jetstar (JST)	Jetstar (JSA)

(1) Any operator from Group 3 that has adequately shown using the acceptance criteria to have no operational events and through data shown to have low lacquer or fuel deposit levels at the Group 3 time frame.

Concurrent Requirements

There are no concurrent requirements.

Reason

1. Condition: This Non-Modification Service Bulletin introduces a recommended maintenance interval for Variable Stator Vane Actuators (VSVA) and Booster Stage Bleed Valve Master Actuators (BSBVMA) in operation with certain operators historically affected by fuel lacquer or fuel deposits. The recommendations embodied by this Non-Modification Service Bulletin are as follows:

   Group 1 - ETOPS = 12,000-hours
   Group 2 - 12,000-hours
   Group 3 - 18,000-hours
   Group 4 - 22,500-hours

   A. Removal and replacement on-wing of any VSVAs or BSBVMAs that have accumulated 12000 hours since entry into service, last clean or recondition operated by airlines in Group 1 and 2.

   B. Removal and replacement on-wing of any VSVAs or BSBVMAs that have accumulated 18000 hours since entry into service, last clean or recondition operated by airlines in Group 3.

   C. Removal and replacement on-wing of any VSVA or BSBVMA that have accumulated 22500 hours since entry into service, last cleaning or recondition operated by airline in Group 4.

2. Background: Most Operators in Group 1 and Group 2 have historically experienced in-service events (Aborted Take-Off (ABTO), approximately 90% of events or In-Flight Shut-Down (IFSD), approximately 10% of events) associated with the build up of fuel lacquer or fuel deposits in the VSVA and BSBVMA. Operators continue to experience in-service events where fuel lacquer or fuel deposits is the primary failure mode of either the BSBVMA or VSVA.

3. Objective: Regular actuator cleaning will ensure that in most cases build-up will not reach a level sufficient to cause an in-service event.

4. Substantiation: Removal from the engine and cleaning is the only way to remove lacquer or fuel deposits from a fuel driven unit.

5. Effects of Bulletin on:

   Removal/Installation: Affected.

   Disassembly/Assembly: Affected.

   Cleaning: Affected.

Inspection/Check: Affected.

Repair: None.

Testing: None.

6. Supplemental Information

   A. Operators can be removed from Group 1, 2 or 3 as stated in Planning Information Effectivity Data Step 1. Effectivity Data listed and ETOPS operators can have their maintenance interval extended. Each operator will be reviewed jointly by IAE and Rolls Royce Control Systems (RRCS) (formerly Controls & Data Services (CDS), Aero Engine Controls (AEC) and Goodrich Engine Control Systems (GECS)) on a case-by-case basis. Both of the following criteria shall be met as a minimum to support removal:

      (1) Depending on the fleet size, an operator shall demonstrate a number of units, BSBVMA and VSVA, with hours at or above the recommended maintenance interval time that exhibit low levels of fuel lacquer or deposits.

      (2) No significant in-service events In Flight Shut Down or Aborted Take Off (IFSD or ABTO) whose root cause is attributable to fuel lacquer or deposits for a period of two years.

Description

Fuel lacquer is the result of fuel breaking down at temperatures above 212.0°F (100.0°C) and releasing sulphur-based compounds that coat fuel washed surfaces. All fuels produce lacquer to differing extents as a function of the time above the trigger temperature with the likelihood of fuel lacquering increasing with higher sulphur content fuels. Once the lacquer starts to adhere to a surface, other particles in the fuel will then tend to become stuck in the lacquer, increasing the lacquer build-up rate. Over time this coating builds up to affect first the Torque Motor screens and second the Control Servo Valve (CSV) on both units. As the torque motor screens foul the ram velocity drops to the point where the ram cannot keep up with the commanded position, especially during rapid throttle maneuvers, and the EEC flags a dual track check fault and class 1 ECAM message. It is also possible, although far less common, for the CSV to stick in one position due to lacquer leading to the ram slewing uncommanded to either hard-stop or remaining in position leading to either N2 overspeed and EGT over temperature or HP compressor surge.

Fuel Deposits are the result of fuel breaking down leaving similar effect as described above for fuel lacquering. The fuel deposits on screens and internal component surfaces is very much the same in appearance on these parts with the exception that these deposits wash away with water. Current industry data suggest fuel temperature may not play a large part in these deposits. However, as these deposits form, other particles can adhere to them which is believed to increase the build-up rate. Actuators on post SCN 21 engines have shown little improvement and many operators continue to have operational disruptions due to this issue. It should be noted, the G4000VSVA series VSVA is being affected by this issue. At the time of Revision 8 release of this Service Bulletin, the G4000VSVA series VSVA has been seeing this problem in terms of clogged screens on the Torque Motor.

Compliance

Category 3

1. All ETOPS Operators not already mentioned in groups 1, 2, 3 or 4

A. IAE recommend operators accomplish the cleaning process once 12,000 hours of operation since entry into service, last clean or recondition have accrued on the VSVA or BSBVMA.

2. For Operators in Group 2

A. IAE recommend operators accomplish the cleaning process once 12000 hours of operation since entry into service, last clean or recondition have accrued on the VSVA or BSBVMA.

3. For Operators in Group 3

A. IAE recommend operators accomplish the cleaning process once 18000 hours of operation since entry into service, last clean or recondition have accrued on the VSVA or BSBVMA.

4. For Operators in Group 4

A. IAE recommend operators accomplish the cleaning process once 22500 hours of operation since entry into service, last clean or recondition have accrued on the VSVA or BSBVMA.

5. All Operators in Groups 1, 2, 3, and 4

A. IAE recommends that the cleaning process be carried out as soon as possible, especially for older units. Operators listed above are expected to be fully compliant with the recommendations in this Non-Modification Service Bulletin within 1 year of issue.

CAUTION: IN ORDER TO REDUCE THE POTENTIAL FOR MULTIPLE ENGINE IN-FLIGHT SHUT DOWN, POWER LOSS, OR OTHER ANOMALIES DUE TO MAINTENANCE ERROR, IAE RECOMMENDS THAT OPERATORS AVOID PERFORMING MAINTENANCE ON MULTIPLE ENGINES INSTALLED ON THE SAME AIRCRAFT AT THE SAME TIME. IF IT IS NOT POSSIBLE TO AVOID MAINTENANCE ON MORE THAN ONE ENGINE AT THE SAME TIME, IAE RECOMMENDS THAT ADDITIONAL CONTROLS BE APPLIED IN ORDER TO ENSURE THAT MAINTENANCE TASKS HAVE BEEN COMPLETED AS DEFINED. MAINTENANCE GUIDELINES SHOULD BE REVISED WHERE POSSIBLE, TO PROMOTE THIS RECOMMENDATION.

Approval Data

The maintenance procedures above have been shown to be compliant with applicable Federal Aviation Authority regulations and are FAA-APPROVED for the engine models listed above.

Manpower

1. In Service

..... Not Applicable.

2. At Overhaul

..... Not Applicable.

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 Non-Modification Service Bulletin has no effect on the aircraft electrical load.

Software Accomplishment Summary

Not Applicable.

References

1. ATA Locator — 75-31-42, and 75-32-41.
2. Airbus A319/A320/A321 Aircraft Maintenance Manual procedure:
   (a) Removal of the Low Pressure Compressor (LPC) Booster Stage Bleed Valve Master Actuator - 75-31-42-000-010.
   (b) Removal of the Variable Stator Vane (VSV) Actuator - 75-32-41-000-010.
3. IAE V2500 RRCS.
   (a) 75-32-41, VSVA type 1685.
   (b) 75-32-61, VSVA type 2607.
   (c) 75-31-42, BBMVA type 1666.
   (d) 75-38-02, BBMVA type 1777.
   (e) 75-38-22, BBMVA type 1797.
   (f) 75-32-42, VSVA type G4000VSVA.
4. IAE V2500 Service Information Letter (SIL) 85.

Other Publications Affected

1. eMMP 75-32 NM19.
   (a) Reference to this Non-Modification Service Bulletin to be included.
   (b) Customer specific eMMP to include appropriate recommended maintenance interval.

Interchangeability of Parts

None.

Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (No)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

Material Information

Material — Price and Availability

1. There is no material cost to do this Non-Modification Service Bulletin.
2. There is no Part Information required.

Industry Support Program

Not Applicable.

Tooling — Price and Availability

Special tools are not required to accomplish this Non-Modification Service Bulletin.

Reidentified Parts

Not Applicable.

Other Material Information Data

Not Applicable.

Accomplishment Instructions

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

1. Remove and replace the actuators in accordance with Reference 2, AMM procedures:
   A. 75-32-41-000-010 and 75-32-41-400-010 for the VSVA.
   B. 75-31-42-000-010 and 75-31-42-400-010 for the BSBVMA.
2. Return the actuators to an approved repair facility, clearly stating on the documentation:
   A. That the unit has been removed from service due to this Non-Modification Service Bulletin.
   B. Where available the total time and cycles in-service for this unit and the time and cycles since this unit was last reconditioned or cleaned.
   C. Cleaning of the Actuators is defined as completely disassembling and cleaning all internal parts to remove lacquering or deposits. This cleaning is to include Torque Motor cleaning of screens or replacement of the Torque Motor if cleaning is not feasible.
3. Recording Instructions
   A. A record of accomplishment is required.

Appendix

Added Data

Internal Reference Information

Revision No.	Reference Document	Origination
Original	EC05VR753	RR
1	EC06VR724	RR
2	EC06VR759	RR
3	EC07VR978	RR
4	EC08VR838	RR
5	EC13VC242	RG/CMS
6	EC13VC242 EA13VK008	RG/CMS
7	EA15VC039 EA13VK008	RG/CMS
8	EA18VC318	RG/RCM
9	EA19VC447	RG/RCM

Number values shown in parentheses adjacent to U.S. values are International System of units (SI) equivalents.