International Aero Engines

SERVICE BULLETIN

ENGINE - FUEL AND CONTROL - ENGINE FUEL AND CONTROL - FUEL AND ADDITIVES - EVALUATION OF CIS AVIATION TURBINE FUELS - CATEGORY CODE NA - MOD.ENG-73-0098

1. Planning Information

A. Effectivity

(1) Aircraft: Airbus A319, A320 and A321

(2) Engine: V2500-A1 V2522-A5 V2524-A5 V2527-A5 V2530-A5 Engines, as applicable

B. Reason

To evaluate the use of Commonwealth of Independent States (CIS) aviation turbine fuels and additives. See Table 1.

C. Approval

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

D. Compliance

As instructed by Technical Support

E. References

(1) Internal Reference No.

96VC054

(2) Other References

The V2500 Engine Manual (E-V2500-1IA), 71-00-00, Fault Isolation
The V2500 Engine Manual (E-V2500-1IA), 72-42-00, Disassembly
The V2500 Engine Manual (E-V2500-1IA), 72-00-32, Removal-20
The V2500 Engine Manual (E-V2500-1IA), 72-00-60, Removal-06, Config-2
The V2500 Engine Manual (E-V2500-1IA), 72-00-60, Removal-12
The V2500 Standard Practices/Processes Manual (SPP-V2500-1IA), 70-04-01
The Fuel Nozzle and Support Assembly Component Maintenance Manual (CMM-FN-V2500-1IA), 73-13-41.
The Fuel Distribution Valve Component Maintenance Manual, 73-13-43
The Fuel Diverter and Return Valve Component Maintenance Manual, 73-13-42
The Fuel Metering Unit Component Maintenance Manual, 73-28-02
The Fuel Pump Component Maintenance Manual, 73-18-41
Aircraft Maintenance Manual

F. Action

(1) Conduct a program for evaluation of the CIS aviation turbine fuels and additives listed in Table 1 and as follows:

(a) Limit the number of engines used in evaluating fuels to six.

(b) Select engines to provide a diverse sampling of CIS route structure, providing multiple fuel pick-up points from a variety of different refineries.

(c) Keep a log during the evaluation period of each fuel pick-up, providing date, place and fuel grade.

Fuels

Aviation Turbine Fuels (ATF) refined to CIS specifications 10227-86, grades TS-1 and RT.

Additives

1. Anti-icing Additives

- TGF: Tetrahydrofurfury Alcohol (GOST 17477-86)

- Fluid TGF-M: Tetrahydrofurfury Alcohol-Methanol (TU-6-10-1457-79)

- Fluid I-M: Ethyl Cellosolve type A-methanol (TU-6-10-1458-79)

- I: Ethyl Glycol Monoethyl Ether (GOST 8313-88)

2. Anti-static SIGBOL Additives - TU-38.101741-78

TABLE 1

(2) Operate engines normally during the evaluation period.

(a) Address operational problems (such as slow starting, hot/hung starts or tailpipe fires) using the troubleshooting procedures specified in Reference (1), Engine Manual, Chapter/Section 71-00-00 Fault Isolation.

1 Do the steps that follow, when the procedure specified in step (2) (a) does not isolate the cause of any of the problems listed.

a Suspect fuel nozzle assembly performance as the possible cause of the problems listed.

b Remove the fuel nozzle assemblies by the procedure specified in Reference (2), Engine Manual, Chapter/Section 72-42-00, Disassembly.

c Flow test the fuel nozzle assemblies by the procedure specified in Reference (7), Chapter/Section 73-13-41, Testing.

(4) Suspect fuel nozzle coking as the cause if there is a reduction in mass fuel flow or a significant variation in spray quality and proceed as follows:

(a) Disassemble the fuel nozzle assemblies by the procedure given in Reference (7), Chapter/Section 73-13-41, Repair 002 (VRS3458).

(b) Do an inspection of the internal screens, detail nozzle parts and flow passages for carbonaceous deposits.

(c) These deposits can indicate poor thermal stability characteristics of the fuel.

(3) Do a borescope inspection of the burner, and high and low pressure turbine modules for all engines involved in the customer service evaluation (CSU), within 1000 cycles.

(a) Look for any indications of sulfidation or other signs of corrosive degradation of the burner, turbine blades and vanes, during this borescope inspection.

(b) Do the procedures that follow for the components listed if you find coke deposits in the fuel nozzle assemblies:

Components Requiring Inspection	ATA Chapter/Section
Fuel Distribution Valve	73-13-43
Fuel Diverter and Return Valve	73-13-42
Fuel Metering Unit	73-22-52

1 Remove the Fuel Distribution Valve by the procedure specified in Reference (2), Engine Manual, Chapter/Section 72-42-00, Disassembly. Functionally test, disassemble and inspect the Fuel Distribution Valve for coke deposits by the procedures specified in Reference (8) Chapter 73-13-43.

2 Remove the Fuel Diverter And Return Valve by the procedure specified in Reference (3), Engine Manual, Chapter/Section 72-00-32, Removal-20. Functionally test and disassemble and inspect the Fuel Diverter and Return Valve for coke deposits by the procedures specified in Reference (9) Chapter 73-13-42.

3 Remove the Fuel Metering Unit by the procedure specified in Reference (4), Engine Manual, Chapter/Section 72-00-60, Removal-06, Config-2. Functionally test disassemble and inspect the Fuel Metering Unit for coke deposits by the procedures specified in Reference (10) Chapter 73-28-02.

(4) Remove and inspect the fuel nozzle assemblies for all engines involved in this customer service evaluation at the first shop visit after 4000 hours of quote.

NOTE: Successful completion of the evaluation is indicated by accomplishment of acceptable flow testing.

(a) All data obtained during this evaluation will be returned to International Aero Engines for review. See address specified below.

(5) We recommend that operators participating in this customer service evaluation program remove and disassemble at least one fuel pump by the procedure given in Reference (5) Chapter/Section 72-00-60, Removal-12 and Chapter/Section 73-18-41.

(a) Do an investigation of the pumping gears to see if there is any unusual wear caused by fuel lubricity that is not adequate.

NOTE: Fuel lubricity is not a fuel specification parameter, but it is important for the successful operation of certain fuel system components. There are IAE additives available Reference (2), Standard Practices Manual, Chapter/Section 70-04-01.

(6) Operators participating in this customer service evaluation (CSU) should return all of the requested data to:

Dave Starr
Director V2500 Technical Services, Hot Section
400 Main Street
East Hartford, CT 06108

G. No record of accomplishment is necessary.