

**IAE Propulsion System
NON-MODIFICATION
SERVICE BULLETIN**

**ENGINE - WOODWARD GOVERNOR COMPANY (WGC) FUEL METERING UNIT (FMU) - FUEL
METERING VALVE SERVOVALVE - ONE TIME INSPECTION.
(NON-MODIFICATION).**

MODEL APPLICATION

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

BULLETIN INDEX LOCATOR

73-00-00

Compliance Category Code

4

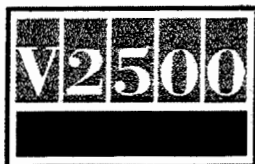
Internal Reference No.

99VR831

26 Aug1999

V2500-ENG-73-0162

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1 Planning Information

A. Effectivity

(1) Aircraft

- (a) Airbus A319
- (b) Airbus A320
- (c) Airbus A321
- (d) Boeing DPD MD90

(2) Engines

- (a) V2522-A5 Engines fitted with a WGC FMU (SB-73-0097)
- (b) V2524-A5 Engines fitted with a WGC FMU (SB-73-0097)
- (c) V2527-A5 Engines fitted with a WGC FMU (SB-73-0097)
- (d) V2527E-A5 Engines fitted with a WGC FMU (SB-73-0097)
- (e) V2527M-A5 Engines fitted with a WGC FMU (SB-73-0097)
- (f) V2530-A5 Engines fitted with a WGC FMU (SB-73-0097)
- (g) V2533-A5 Engines fitted with a WGC FMU (SB-73-0097)
- (h) V2525-D5 Engines fitted with a WGC FMU (SB-73-0108)
- (i) V2528-D5 Engines fitted with a WGC FMU (SB-73-0108)

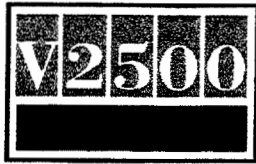
B. Reason

(1) Condition

A quality concern on Woodward FMUs can cause uncommanded engine acceleration or deceleration that could potentially result in an Inflight Shutdown Event.

(2) Background

A quality concern has recently been identified on Woodward Governor FMUs relating to the servovalve, part of the Fuel Metering Valve (FMV) assembly. The concern was highlighted after an FMU caused an engine run down on an engine type other than the V2500. The engine had not entered revenue service. The design of the servovalve in the defective FMU is similar to that in the V2500 application. There have also been three FMU rejections for this cause at new unit production pass-off testing at Woodward Governor. Two of these new production units were V2500 FMUs. The quality concern is that in some FMU servovalves, the stop-screws which limit the movement of the torquemotor armature may not have been locked in position with Loctite after setting.



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(3) Objective

To ensure that the suspect Woodward Governor FMUs are inspected for correct servovalve stop-screw locking.

(4) Substantiation

Theoretical analysis has indicated that these failures could potentially occur in units with less than 100 hours. Data from returned units combined with vibration testing of FMU servovalves will be used to validate the theoretical work.

(5) Effect of Bulletin

- (a) Operation - Not affected
- (b) Maintenance - Not affected
- (c) Overhaul - Not affected
- (d) Repair Schemes - Not affected
- (e) Interchangeability - Not affected
- (f) Fits and clearances - Not affected

(6) Supplemental Information

None

C. Description

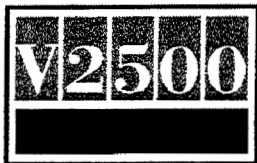
- (1) The purpose of this Non Modification Service Bulletin is to instruct the return of Woodward Governor FMUs for inspection of the servovalve stop-screws at Woodward Governor. See section H.

D. Compliance

Category 4

E. Approval

The contents of this Non-Modification Service Bulletin comply with the applicable Federal Aviation Regulations and are FAA Approved for the engine models listed.



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F. Planning Information

(1) Manpower

(a) In-Service

- | | |
|--|--------------------|
| (1) To gain access | 16 Minutes |
| (2) To embody | 3 Hours 06 Minutes |
| (3) To return engine to a serviceable status | 20 Minutes |

(b) At Overhaul or on spare engines

- | | |
|---------------|--------------------|
| (1) To embody | 2 Hours 10 Minutes |
|---------------|--------------------|

(2) Material Price and Availability

Inspection of the FMUs at Woodward will be at no cost.

(3) Tooling

Container for drained fuel – minimum capacity 1 US gallon.

No other special tooling required

(4) Industry Support

IAE has provisioned for additional FMUs to be centrally located for AOG cases in the event of a spares shortage due to this programme. These AOG units can be acquired through the Woodward AOG number (U.S.A. 815 624 4400 ext 161)

(5) Weight and Balance

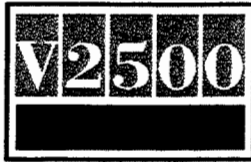
Not affected

G. References

- (1) V2500 Engine Manual, Chapter/Section 72-00-60, Removal and Installation 06 CONFIG 02.
- (2) Airbus Aircraft Maintenance Manual, Chapter/Section 73-22-52, Removal and Installation
- (3) Boeing MD-90 Aircraft Maintenance Manual, Chapter/Section 73-21-52, Removal and Installation

H. Action

- (1) Operators are requested to return all Woodward Governor FMUs for inspection of the servovalve stop-screws at Woodward Governor which have less than 100 hrs in-service to the following criteria.
 - a) Installed and in-service FMUs with less than 100 hours as of 16.Aug.99 must be removed at the earliest convenient opportunity. All affected units must be removed within 10 days of receipt of this Non-Modification Service Bulletin. Removed units are to be returned to Woodward Governor for inspection.



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- b) Spare FMUs installed on spare engines or un-installed with less than 100 hours must not be installed on in-service engines. These must be returned to Woodward Governor for inspection.

NOTE: This action only applies to Woodward Governor FMUs P/N 8061-626, 8061-627 and 8061-632 with less than 100 hours that appear list in appendix 1.0. The new Woodward Governor FMUs P/N 8061-633 do not need to be returned.

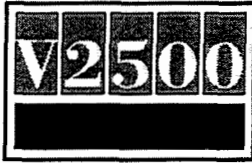
- (2) All FMUs with greater than 100 hours do not need to be returned to Woodward. These units, whose Serial Numbers appear in Appendix 1.0 will be inspected at Woodward upon return of the FMU for whatever reason (e.g. modification, repair or re-calibration). The inspected unit will have this NMSB number marked on the modification plate.

I. Accomplishment Instructions

- (1) Woodward Governor FMUs for inspection per this NMSB should be returned to the following address:

Woodward Governor Company
5001 N
Second Street
Rockford
IL 61125-7001
U.S.A.

- (2) A Free of Charge purchase order for the inspection should be submitted for the returned unit
- (3) The Non-Modification Service Bulletin number will be marked on the unit by the vendor upon completion of the inspection.

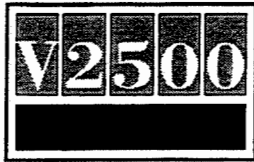


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APPENDIX 1.0 Full list of Woodward Governor FMUs by that are potentially suspect.

NOTE: Only FMUs per this list with LESS than 100 hours need to be returned to Woodward Governor for inspection.

S/N	S/N	S/N	S/N	S/N	S/N
11516475	11911924	11945799	11968415	11980090	12011415
11516478	11911925	11946994	11968900	11980092	12011942
11516479	11911926	11946995	11969203	11980093	12012199
11516480	11911927	11946996	11969204	11980094	12012201
11521129	11911928	11948782	11969205	11980095	12013262
11522314	11911929	11949524	11971712	11984970	12014633
11522460	11911930	11949652	11971798	11984971	12014738
11522461	11912117	11949941	11971799	11984972	12014739
11522852	11912119	11950370	11971856	11984973	12014741
11522853	11912120	11950700	11972018	11984974	12015631
11523386	11912121	11950701	11973855	11984975	12015632
11523506	11912463	11956542	11974944	11984976	12015678
11524096	11914193	11956543	11975446	11984977	12016070
11524796	11914747	11956544	11975761	11984978	12016071
11525031	11915340	11956597	11975870	11984979	12016072
11525598	11915418	11956927	11975985	11984980	12016073
11525779	11917962	11956930	11975986	11984981	12016927
11526134	11919064	11957280	11975991	11989192	12016956
11526185	11922747	11957281	11977275	11989193	12017024
11526410	11922748	11957548	11977388	11990612	12017707
11527788	11924561	11958446	11977586	11990799	12018515
11527816	11926020	11959564	11978004	11991080	12018519
11528073	11926021	11959565	11978005	11991284	12018525
11528335	11928045	11960630	11978559	11991876	12018709
11528708	11928046	11960631	11978569	11991887	12019844
11528865	11933061	11961135	11978583	11992679	12020225
11529147	11933062	11961136	11979103	11993310	12020226
11529494	11933063	11961369	11979684	11993717	12020281
11530682	11935475	11961370	11979694	12000342	12020497
11530782	11935476	11961766	11979695	12000385	12020790
11531208	11935477	11964056	11979696	12000581	12022286
11533148	11935479	11964057	11979697	12002500	12022632
11533467	11937475	11964058	11979698	12003358	12022928
11535346	11937920	11964801	11979699	12004048	12022929
11535727	11939969	11965648	11979700	12005451	12023437
11536395	11940398	11966574	11979701	12006094	12023598
11536861	11941254	11966575	11979702	12006866	12026150
11537442	11941464	11966711	11980084	12006868	12026515
11537753	11941745	11966776	11980085	12006869	12026809
11538714	11943295	11967114	11980086	12008443	12026980
11911870	11944157	11967671	11980087	12009538	12027939
11911882	11944371	11967824	11980088	12009540	12028179
11911884	11945333	11967825	11980089	12009865	12028583



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APPENDIX 1.0 Continued

S/N	S/N	S/N	S/N	S/N
12028884	12054416	12078583	12094582	12122076
12029354	12055024	12078714	12094732	12123223
12029497	12055902	12078719	12095116	12125099
12030980	12056818	12078733	12095364	12152341
12030982	12056873	12078988	12095379	12154595
12032303	12057633	12079366	12096067	12154603
12033279	12057884	12079467	12096644	12161560
12034046	12057996	12079820	12097285	12184005
12034611	12058649	12080593	12097579	12202313
12035785	12058932	12081226	12099336	12202482
12035796	12059034	12082067	12099359	
12035848	12059045	12082153	12100273	
12036259	12059189	12082191	12101751	
12036581	12059830	12082405	12101906	
12037618	12060224	12082410	12101963	
12037999	12060321	12082612	12102709	
12038194	12060373	12083762	12103693	
12038650	12060841	12084151	12103702	
12038651	12060923	12084152	12103818	
12041246	12063649	12085208	12104207	
12042564	12064105	12085211	12104219	
12042619	12064597	12085213	12104922	
12043474	12065771	12085693	12105572	
12043752	12066030	12086545	12106519	
12043755	12066382	12087204	12106741	
12045711	12066450	12087831	12106826	
12046121	12066572	12088868	12111657	
12046481	12071688	12089750	12114529	
12047687	12073731	12089819	12114546	
12047739	12074794	12090518	12114547	
12048150	12075029	12091968	12114834	
12049198	12075059	12092866	12115992	
12049199	12075808	12093966	12119627	
12049204	12077031	12093978	12119628	
12049205	12077049	12093980	12120090	
12050756	12077338	12094230	12120113	
12054060	12078125	12094231	12121041	

