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V2500-A5 SERIES PROPULSION SYSTEM NON-MODIFICATION SERVICE BULLETIN

This document transmits Revision 4 to Service Bulletin EV2500-72-0452

Document History

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Bulletin Revision 4

Remove	Incorporate	Reason for change
All pages of the Service Bulletin	Pages 1 to 5 of the Service Bulletin	To revise Compliance section, add note to Appx 1 and make editorial changes.
Page 1 and 2 of Appendix 1	Pages 1 to 3 of Appendix 1	To revise Compliance section, add note to Appx 1 and make editorial changes.
All pages of Appendix 2	Page 1 of Appendix 2	To revise Compliance section, add note to Appx 1 and make editorial changes.

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 4 are as follows:

	Page	Revision Number	Revision Date
	Bulletin		
R	1	4	Sep.30/05
R	2	4	Sep.30/05
R	3	4	Sep.30/05
R	4	4	Sep.30/05
R	5	4	Sep.30/05
	Appendix 1		
R	1	4	Sep.30/05
R	2	4	Sep.30/05
R	3	4	Sep.30/05
	Appendix 2		
R	1	4	Sep.30/05

International Aero Engines

SERVICE BULLETIN

ENGINE - MAGNETIC CHIP DETECTOR (MCD) INSPECTIONS FOR ENGINES IN THE RANGE V10600 TO V11365 WITH PN 2A1165 (FAG) NUMBER 3 BEARINGS INSTALLED

1. Planning Information

A. Effectivity

(1) Airbus A319, A320, A321

V2500-A5 Engines within the serial number range V10600 to V11365 with bearing p/n 2A1165 (FAG) installed. at new production.

B. Concurrent Requirements

None.

C. Reason

To mitigate against the risk of further In-flight Shut-Downs (IFSD) due to No.3 Bearing Outer Race fractures.

D. Description

This service bulletin is issued revising the population of affected engines previously identified in NMSB 72-0452 Rev2 due to final recommendations from IAE engineering root cause investigation of No.3 bearing PN 2A1165 fractures.

This service bulletin instructs how to carry out the MCD inspection procedures for engines with P/N 2A1165 (FAG) bearings. Two distinct populations of engine which are known to have had P/N 2A1165 (FAG) bearings are identified:

Appendix 1 table 1 provides a list identifying engines within the range V10600 to V11365 known to have had HPC stubshafts with low-energy standard of hard coating and 2A1165 bearings installed at new production build.

Appendix 1 table 2 provides a list identifying engines within the range V10600 to V11365 known to have had 2A1165 bearings installed at new production build but which do not have HPC stubshafts with low-energy standard of hard coating.

E. Compliance

(1) Decreased inspection interval for the Master or number 1,2,3 Magnetic Chip Detectors (MCDs).

IAE recommends this decreased inspection interval for the affected population of Appendix 1 Table 1 until the HPC stubshaft and FAG bearings listed in Appendix 1 Table 1 have been reworked/replaced during shop visit. IAE recommends this decreased inspection interval for the affected population of Appendix 1 Table 2 until the FAG bearings listed in Appendix 1 Table 2 have been replaced during shop visit.

NOTE: The recommendation for a reduced MCD inspection interval is applicable to engines with 2A1165 No3 bearings only. All No3 bearing fractures to date have been with 2A1165 bearings and therefore, it is considered that the risk of a fracture of a 2A1165 No3 bearing is considerably higher than for a 2A1170 No. 3 bearing. It may, however, be more practical for operators to apply the reduced inspection interval to all engines within the at risk batch or indeed to all V2500 engines in their operation and this is acceptable.

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.

(a) Inspect the Master MCD or the number 1,2,3 MCD at an interval not to exceed 125 flight hours until the No.3 bearing (2A1165) is replaced at next shop visit in accordance with NMSB 72-0459.

NOTE: This criteria is IAE's recommendation, however if an Airline performs the MCD inspection as part of a weekly check this is acceptable.

F. Approval

The Compliance statement at 1.E. and the procedures in Section 3. of this Non-Modification Service Bulletin comply with the applicable Federal Aviation Regulations (FAR's) and are FAA Approved for the engine models listed.

G. Manpower

Estimated man-hours to embody this Non-Modification Service Bulletin in full:

(1) To inspect the Master Magnetic Chip Detector only

(a) To gain access - 0.1 hours

(b) To inspect - 0.1 hours

(c) To close up - 0.1 hours

(d) Total - 0.3 hours

(2) To inspect the Master MCD and 1, 2, 3 MCD

(a) To gain access - 0.2 hours

(b) To inspect - 0.1 hours

(c) To close up - 0.2 hours

(d) Total - 0.5 hours

(3) To inspect the 1, 2, 3 MCD only

(a) To gain access - 0.1 hours

(b) To inspect - 0.1 hours

(c) To close up - 0.1 hours

(d) Total - 0.3 hours

H. References

R (1) IAE Internal Reference Number EC 03VR835E.

(2) Airbus A319,A320, A321

(a) Aircraft Maintenance Manual (AMM), 79-00-00, Inspection/Check

(b) Planning Document (MPD) 792000-I4-I.

(3) Appendix 1 table 1 provides a list identifying which engines within the range V10600 to V11365 known to have had 2A1165 bearings and a low energy coated HPC stubshaft installed at new production build.

(4) Appendix 1 table 2 provides a list identifying which engines within the range V10600 to V11365 known to have had 2A1165 bearings installed at new production build but not a low energy coated HPC stubshaft.

(5) Non-Modification Service Bulletin 72-0459

(6) Non-Modification Service Bulletin 72-0460

(7) Non-Modification Service Bulletin 72-0494

(8) ATA Locator - 72-32-20.

2. Material Information

None.

3. Accomplishment Instructions

(1) Examine the Master or number 1, 2, 3 MCD's for debris.

(a) Remove and inspect the Master MCD or the number 1, 2, 3 MCD for debris. Refer to Aircraft Maintenance Manual (AMM) TASK 79-00-00.

NOTE: For guidance of best practices for inspection of MCD's and for further sources of reference regarding inspection techniques/findings, refer to Appendix 2.

APPENDIX 1

Table 1 : List identifying engines within the engine range V10600 to V11365 known to have had 2A1165 bearings installed at new production build in conjunction with a low energy coated HPC stubshaft.

NOTE: Operators should check their records for Part No. 2A1165 Bearings, particularly for those engines with Stubshafts in range specified, that have had a shop visit.

R NOTE: This list has been revised to reflect the intent of V2500-ENG-72-0494 by
R removing engines known to have 2A1165 bearings installed with bearing balls
R provided by an alternative supplier.

V10601, V10602, V10603, V10604, V10610, V10611, V10612, V10613, V10614, V10615, V10616, V10619, V10620, V10621, V10622, V10623, V10624, V10625, V10626, V10629, V10632, V10641, V10642, V10644, V10646, V10654, V10656, V10657, V10658, V10659, V10662, V10665, V10670, V10679, V10682, V10683, V10684, V10692, V10693, V10696, V10697, V10702, V10703, V10719, V10721, V10723, V10730, V10731, V10732, V10734, V10737, V10738, V10741, V10742, V10743, V10744, V10745, V10746, V10749, V10758, V10759, V10760, V10761, V10767, V10768, V10769, V10770, V10771, V10772, V10774, V10777, V10778, V10779, V10780, V10781, V10783, V10786, V10787, V10788, V10790, V10791, V10792, V10793, V10801, V10805, V10807, V10812, V10813, V10814, V10815, V10816, V10817, V10818, V10819, V10820, V10821, V10825, V10829, V10830, V10831, V10832, V10833, V10834, V10837, V10838, V10839, V10841, V10842, V10843, V10844, V10845, V10846, V10847, V10848, V10849, V10850, V10851, V10857, V10858, V10859, V10875, V10880, V10886, V10887, V10888, V10889, V10890, V10901, V10902, V10903, V10904, V10905, V10906, V10907, V10908, V10909, V10910, V10911, V10912, V10913, V10914, V10915, V10916, V10917, V10918, V10919, V10920, V10921, V10922, V10924, V10925, V10927, V10929, V10931, V10932, V10933, V10934, V10935, V10937, V10938, V10941, V10943, V10945, V10946, V10948, V10949, V10950, V10951, V10952, V10953, V10954, V10955, V10956, V10957, V10958, V10959, V10960, V10963, V10966, V10970, V10971, V10972, V10974, V10980, V10983, V10986, V10987, V10988, V10989, V10990, V10991, V10992, V10993, V10994, V10995, V10996, V10997, V10998, V10999, V11000, V11001, V11002, V11003, V11004, V11005, V11006, V11007, V11008, V11009, V11010, V11011, V11012, V11013, V11014, V11015, V11016, V11017, V11018, V11019, V11020, V11023, V11024, V11025, V11026, V11027, V11032, V11033, V11034, V11035, V11036, V11037, V11043, V11044, V11045, V11048, V11049, V11051, V11052, V11054, V11055, V11056, V11057, V11058, V11059, V11060, V11061, V11062, V11067, V11068, V11070, V11073, V11075, V11076, V11077, V11078, V11079, V11080, V11081, V11082, V11083, V11084, V11085, V11086, V11087, V11088, V11089, V11090, V11091, V11092, V11093, V11094, V11095, V11096, V11097, V11098, V11099, V11100, V11101, V11102, V11103, V11104, V11105, V11106, V11107, V11108, V11109, V11110, V11111, V11112, V11113, V11114, V11115, V11116, V11117, V11118, V11119, V11120, V11121, V11122, V11123, V11124, V11125, V11126, V11127, V11128, V11129, V11130, V11131, V11132, V11133, V11135, V11136, V11137, V11138, V11139, V11140, V11143, V11144, V11149, V11150, V11151, V11152, V11153, V11154, V11155, V11156, V11158, V11159, V11160, V11161, V11162, V11163, V11166, V11167, V11168, V11169, V11170, V11171, V11172, V11173, V11174, V11175, V11176, V11181, V11182, V11185, V11187, V11188, V11189, V11191, V11192, V11198, V11199, V11201, V11202, V11203, V11213, V11214, V11215, V11216, V11217, V11218, V11220, V11222, V11223, V11224, V11225, V11227, V11228, V11229, V11235, V11240, V11249, V11257, V11263, V11264, V11265, V11268, V11269, V11272, V11274, V11275, V11278, V11283, V11285, V11286, V11287, V11288, V11289, V11290, V11291, V11293, V11294, V11295, V11296, V11297, V11298, V11303, V11315, V11330, V11335

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R Table 2 : List identifying engines within the engine range V10600 to V11365 known to have had 2A1165 bearings installed at new production build but not in conjunction with a low energy coated HPC stubshaft.

NOTE: The engine population listed do not have low-energy coated HPC stubshafts but do have FAG bearings targeted for removal at next shop visit.

V11280, V11307, V11310, V11311, V11312, V11314, V11316, V11318, V11319, V11320, V11321, V11322, V11323, V11324, V11325, V11326, V11327, V11329, V11331, V11333, V11334, V11336, V11337, V11338, V11340, V11341, V11343, V11345, V11346, V11348, V11350, V11352, V11353, V11354, V11355, V11356, V11358, V11359, V11362, V11363, V11364, V11365

APPENDIX 2

Magnetic Chip Detector (MCD) Inspection Guidelines

(1) It is advised to use main base experienced inspection personnel to avoid variation in the interpretation of results and maintain a 'consistent' inspection technique.

(2) If it is not possible to always inspect at main base, limit stations involved and coordinate findings. Return all debris back to main base to enable a complete assessment.

(3) Avoid 'non-scheduled' inspections by personnel not familiar with the inspection of the MCD.

NOTE: For further information on inspecting MCD and for examples of bearing material findings, refer to the guide booklet 'Early detection of transmission failures through oil system debris assessment'. This document is available from the following sources:

Your IAE service representative.

IAE Technical Services.

The IAE Technical Services Intranet - this is available at the following address: http://iaewww.iaev2500.com/Eng/tech_svc/TSMCD.shtml.