

EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2015-0133
	Date: 08 July 2015 Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.
This AD is issued in accordance with EU 748/2012, Part 21.A.3B. In accordance with EU 1321/2014 Annex I, Part M.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [EU 1321/2014 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [EC 216/2008, Article 14(4) exemption].	
Design Approval Holder's Name: CFM INTERNATIONAL S.A.	Type/Model designation(s): CFM56-3 and CFM56-7B engines
TCDS Numbers: EASA.E.066 and EASA.E.004	
Foreign AD: Not applicable	
Supersedure: None	
ATA 72	Engine – Accessory Gearbox Gearshaft – Inspection / Replacement
Manufacturer(s):	SNECMA and GE Aviation (formerly General Electric Aircraft Engines)
Applicability:	CFM56-3, CFM56-3B and CFM56-3C engines, all serial numbers (s/n), and CFM56-7B engines, all certified models, all s/n, except models CFM56-7B27A, CFM56-7B27A/3 and CFM56-7B27AE. These engines are known to be installed on, but not limited to, Boeing 737-300, -400, -500, -600, -700, -800, -900 and -900ER aeroplanes.
Reason:	Reports have been received of uncommanded in-flight shutdowns on CFM56-7B engines, caused by premature wear of the 73-tooth gearshaft located in the engine accessory gearbox (AGB). CFM International has identified a batch of 73-tooth and 41-tooth gearshafts that show premature wear on the teeth, due to inadequate shot peening. The affected gearshafts exhibit micro-pitting which may lead to material separating from the gearshaft. This condition, if not detected and corrected, could lead to failure of an AGB gearshaft, possibly resulting in engine failure or loss of thrust control, with consequent reduced control of the aeroplane. Prompted by these findings, CFM published CFM56-7B Service Bulletin (SB) 72-0964 Revision 1 and SB 72-0965, providing instructions to inspect and replace the affected AGB gearshafts. For the reasons described above, this AD requires repetitive magnetic chip detector (MCD) inspections of the affected AGB gearshafts and their eventual removal from service. As the affected parts are also eligible for installation on CFM56-3 engines and some spares are affected, this AD also applies to those engines.
Effective Date:	22 July 2015

Required Action(s)
and Compliance
Time(s):

Required as indicated, unless accomplished previously:

Note: For the purpose of this AD, an affected 41-tooth or 73-tooth AGB gearshaft is one identified by Part Number (P/N) and s/n in Appendix 1 or Appendix 2, as applicable, of this AD, which also identify the engine s/n (ESN) of the CFM56-7B engines on which the affected parts were known to be installed.

For CFM56-7B engines:

- (1) Within 25 flight hours (FH) after the effective date of this AD, determine whether an affected 41-tooth AGB gearshaft P/N 335-303-002-0 (intermediate line 7) or 73-tooth AGB gearshaft P/N 335-302-902-0 (fuel pump line 6) is installed on the engine. A review of engine maintenance records is acceptable to make this determination, provided the P/N and s/n of the installed AGB gearshaft can be conclusively identified from that review.
- (2) For an engine with an affected AGB gearshaft installed, as determined by paragraph (1) of this AD, initially within the compliance time specified in Table 1 of this AD, as applicable, and, thereafter, at intervals not to exceed 500 FH, accomplish an AGB/TGB (transfer gearbox) MCD inspection in accordance with the instructions of CFM56-7B SB 72-0964.

Table 1 – Inspection Threshold

Gearshaft	Compliance Time (A, B, or C, whichever occurs later)
73-tooth	A: Within 250 FH since last AGB/TGB MCD inspection B: Within 25 FH after the effective date of this AD C: Before the gearshaft exceeds 3 000 FH since first installation on an engine
41-tooth	A: Within 250 FH since last AGB/TGB MCD B: Within 25 FH after the effective date of this AD C: Before the gearshaft exceeds 6 000 FH since first installation on an engine

- (3) If, during any AGB/TGB MCD inspection as required by paragraph (2) of this AD, any magnetic particles, including fuzz, are seen, accomplish a particles laboratory analysis, and, if the particles are 73-tooth or 41-tooth gearshaft material, as applicable, within 75 FH since the AGB/TGB MCD inspection, remove the affected AGB gearshaft(s) from service.

(4) Terminating Action

- (4.1) Before exceeding 6 000 FH since first installation on an engine, or within 50 FH after the effective date of this AD, whichever occurs later, remove each affected 73-tooth AGB gearshaft from service.
- (4.2) Before exceeding 9 000 FH since first installation on an engine, or within 50 FH after the effective date of this AD, whichever occurs later, remove each affected 41-tooth AGB gearshaft from service.

The actions required by this paragraph can be accomplished in accordance with the instructions of CFM56-7B SB 72-0965.

For all engines:

- (5) From the effective date of this AD, it is allowed to install on any engine a 41-tooth AGB gearshaft P/N 335-303-002-0 (intermediate line 7) or 73-tooth AGB gearshaft P/N 335-302-902-0 (fuel pump line 6), provided that, prior to installation, it is determined that this is not an affected AGB gearshaft as identified in Appendix 1 or Appendix 2 of this AD.

Ref. Publications:	CFM International S.A. CFM56-7B SB 72-0964 (original not issued) Revision 1, dated December 15, 2014. CFM International S.A. CFM56-7B S/B 72-0965, dated December 16, 2014. The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.
Remarks:	1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD. 2. This AD was posted on 22 May 2015 as PAD 15-066 for consultation until 30 June 2015. The Comment Response Document can be found at http://ad.easa.europa.eu/. 3. Enquiries regarding this AD should be referred to the Safety Information Section, Certification Directorate, EASA. E-mail: ADs@easa.europa.eu. 4. For any question concerning the technical content of the requirements in this AD, please contact: CFM SA Customer Support Center E-mail : snecma.csc@snecma.fr International Telephone : +33 1 6414 8866, Fax : +33 1 6479 8555, or CFM Inc. Customer Support Center E-mail : geae.aoc@ge.com International Telephone: +1 513 552 3272, Fax : +1 513 552 3329.

Appendix 1 – List of 73 tooth gearshafts P/N 335-302-902-0 (fuel pump line 6) and 41 tooth gearshafts P/N 335-303-002-0 (intermediate line 7) installed in production on AGB.

The listed ESN are CFM56-7B engines.

ESN S/N	AGB S/N	73 tooth gearshaft S/N	41 tooth gearshaft S/N	ESN S/N	AGB S/N	73 tooth gearshaft S/N	41 tooth gearshaft S/N
657220	WZ9871	EB960712		658235	WZ9558	EB960580	EE049365
657243	WZ9876	EB960726		658236	WZ9872	EB960704	
657258	WZ9858	EB374569		658237	WZ9878	EB960722	
657292	WZ9359	EB364108	EE020531	658238	WZ9873	EB960715	
657302	WZ9884	EB960727		658240	WZ9874	EB960705	
657310	WZ9937	EB355507		658241	WZ9875	EB960721	
657318	WZ9942	EB398629		658245	WZ9877	EB960719	
657323	WZ9938	EB960681		658247	WZ9883	EB960720	
657341	WZ9941	EB960703		658251	WZ9881	EB960708	
657346	WZ9936	EB355478		658253	WZ9879	EB960718	
657385	WZ9935	EB325274		658256	WZ9880	EB960709	
657571	WX1112	EB355427		658257	WZ9882	EB504487	
658117	WZ9582	EB960627		658261	WZ9885	EB960710	
658129	WZ9588	EB960628		658262	WZ9868	EB960571	
658133	WZ9580	EB374607		658270	WZ9344	EB960603	EE049344
658190	WZ9863	EB398574		658275	WZ9835	EB960706	
658191	WZ9867	EB374583		658279	WZ9831	EB374567	
658195	WZ9864	EB960576		658282	WZ9837	EB960713	
658210	WZ9861	EB364104		658290	WZ9862	EB398568	
658217	WZ9860	EB960575		658291	WZ9839	EB355425	
658218	WZ9857	EB355449		658293	WZ9834	EB960570	
658222	WZ9870	EB960716		658306	WZ9411	EB325356	
658226	WZ9859	EB960577		658308	WZ9836	EB960707	
658227	WZ9865	EB374576		658312	WZ9939	EB960637	
658230	WZ9869	EB960574		658313	WZ9891	EB960728	
658233	WZ9866	EB960572		658316	WZ9838	EB960711	

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ESN S/N	AGB S/N	73 tooth gearshaft S/N	41 tooth gearshaft S/N	ESN S/N	AGB S/N	73 tooth gearshaft S/N	41 tooth gearshaft S/N
658317	WZ9833	EB960579		962633	WZ9378	EB355487	
658326	WZ9402	EB960616	EE020515	962634	WZ9376	EB325341	
658332	WZ9832	EB960573		962636	WZ9370	EB325328	
658335	WZ9890	EB960723		962637	WZ9374	EB374572	
658339	WZ9840	EB960724		962638	WZ9252	EB374575	
658342	WZ9892	EB960717		962639	WZ9379	EB325330	
658348	WZ9940	EB960701		962640	WZ9368	EB364105	
658351	WZ9841	EB960725		962642	WZ9357	EB374602	EE020530
658390	WZ9970	EB960672		962644	WZ9250	EB374579	
658395	WZ9969	EB374574		962645	WZ9387	EB960653	
658397	WZ9968	EB960700		962648	WZ9389	EB960649	
658398	WZ9971	EB398636		962649	WZ9392	EB960696	
658418	WZ9966	EB960702		962650	WZ9390	EB960659	
658500	WZ9973	EB504519		962651	WZ9384	EB374592	
658529	WX1114	EB355439		962652	WZ9395	EB960695	
658656	WX1111	EB364107		962653	WZ9396	EB960691	EE020528
962609	WZ9358	EB364109	EE020513	962654	WZ9398	EB960673	EE020517
962610	WZ9361	EB325343	EE020512	962656	WZ9393	EB960697	
962611	WZ9363	EB364101	EE020524	962657	WZ9400	EB960677	EE020521
962612	WZ9356	EB374582	EE020520	962658	WZ9394	EB960610	
962617	WZ9251	EB364092		962661	WZ9381	EB325316	
962618	WZ9364	EB364098		962662	WZ9249	EB504509	EB979610
962623	WZ9365	EB355479		962663	WZ9290	EB960693	EE020514
962624	WZ9355	EB325321	EE020525	962664	WZ9291	EB960671	EE020511
962625	WZ9375	EB374566		962665	WZ9391	EB960664	
962627	WZ9373	EB364090		962666	WZ9423	EB960665	
962628	WZ9367	EB364096		962667	WZ9397	EB364100	EE020519
962629	WZ9366	EB364102		962670	WZ9425	EB960613	
962631	WZ9369	EB364089		962671	WZ9420	EB960644	
962632	WZ9377	EB374568		962672	WZ9415	EB960675	

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ESN S/N	AGB S/N	73 tooth gearshaft S/N	41 tooth gearshaft S/N	ESN S/N	AGB S/N	73 tooth gearshaft S/N	41 tooth gearshaft S/N
962674	WZ9422	EB960646		962842	WZ9351	EB960583	EE049345
962675	WZ9403	EB960622	EE020509	962847	WZ9562	EB960688	EE049367
962676	WZ9399	EB960678	EE020504	962851	WZ9555	EB960599	EE049386
962679	WZ9409	EB960642		962854	WZ9545	EB960606	
962682	WZ9293	EB960676	EE020508	962858	WZ9559	EB960604	EE049346
962684	WZ9421	EB960643		962859	WZ9561	EB960594	EE049366
962687	WZ9419	EB960648		962861	WZ9553	EB960683	EE049384
962691	WZ9418	EB960647		962863	WZ9549	EB960605	EE049342
962695	WZ9412	EB960679		962867	WZ9550	EB960598	EE049373
962699	WZ9401	EB960615	EE020507	962871	WZ9568	EB960667	EE049353
962722	WZ9297	EB960661		962872	WZ9551	EB960601	EE049374
962737	WZ9416	EB960680		962881	WZ9566	EB960656	EE049359
962738	WZ9424	EB960652		962888	WZ9563	EB960668	EE049370
962750	WZ9404	EB960690	EE020516	962889	WZ9565	EB960645	EE049347
962764	WZ9341	EB960698	EE049348	962898	WZ9564	EB960624	EE049380
962772	WZ9410	EB325354		962901	WZ9567	EB960650	EE049351
962782	WZ9332	EB960641	EE049155	962919	WZ9590	EB960632	
962787	WZ9340	EB960663	EE049343	962939	WZ9583	EB960633	
962788	WZ9338	EB960669	EE049363	962951	WZ9586	EB960636	
962790	WZ9342	EB960655	EE049358	962952	WZ9587	EB960639	
962793	WZ9339	EB960699	EE049356	962955	WZ9589	EB960638	
962795	WZ9343	EB960620	EE049368	962968	WZ9592	EB960626	
962807	WZ9347	EB960609	EE049381	962969	WZ9556	EB960590	EE049369
962808	WZ9350	EB960589	EE049357	962990	WZ9581	EB960625	
962815	WZ9349	EB960600	EE049349	962994	WZ9591	EB960630	
962821	WZ9348	EB960595	EE049350	962996	WZ9584	EB960629	
962828	WZ9557	EB960587	EE049377	963620	WZ9362	EB325333	EE020503
962831	WZ9548	EB960607	EE049364	963626	WZ9360	EB325327	EE020526
962834	WZ9547	EB960582	EE049355	963646	WZ9371	EB325346	
962835	WZ9554	EB960593	EE049362	963647	WZ9383	EB325323	

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ESN S/N	AGB S/N	73 tooth gearshaft S/N	41 tooth gearshaft S/N	ESN S/N	AGB S/N	73 tooth gearshaft S/N	41 tooth gearshaft S/N
963659	WZ9388	EB960640		658734	WX1323		EE049157
963660	WZ9385	EB325342		658741	WX1321		EE049335
963668	WZ9372	EB325344		658743	WX1318		EE049150
963669	WZ9382	EB355488		658746	WX1328		EE049339
963677	WZ9292	EB960682	EE020506	658765	WX1322		EE049156
963678	WZ9253	EB325259		658772	WX1325		EE049330
963685	WZ9380	EB325326		658799	WX1329		EE049385
963686	WZ9386	EB960618		962568	WZ9277		EB910875
963690	WZ9408	EB960611		962570	WZ9314		EB979604
963703	WZ9406	EB960689		962573	WZ9309		EB979611
963730	WZ9407	EB960621		962575	WZ9240		EB910873
963735	WZ9417	EB960674		962576	WZ9239		EB979619
963823	WZ9345	EB960588	EE049352	962577	WZ9313		EB979602
963826	WZ9552	EB960596	EE049382	962578	WZ9310		EB979624
963832	WZ9546	EB960586	EE049354	962583	WZ9288		EB979603
963852	WZ9569	EB960686	EE049379	962584	WZ9324		EB979613
963853	WZ9346	EB960581	EE049372	962589	WZ9282		EB910876
963933	WZ9585	EB960634		962590	WZ9323		EB979622
657719	WX1372		EE049338	962591	WZ9289		EB979605
657724	WX1371		EE049333	962592	WZ9281		EB864699
657737	WX1319		EE049337	962594	WZ9287		EB979600
657756	WX1324		EE049158	962595	WZ9327		EE020510
657757	WX1330		EE049332	962596	WZ9325		EB979618
657768	WX1327		EE049331	962597	WZ9286		EB979621
657779	WX1326		EE049341	962598	WZ9246		EB979625
658527	WZ9459		EE049149	962599	WZ9284		EB910881
658677	WX1370		EE049336	962602	WZ9280		EB910878
658691	WX1373		EE049334	962603	WZ9326		EE020518
658699	WX1374		EE049383	962604	WZ9320		EB979606
658733	WX1320		EE049340	962605	WZ9245		EB910880

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ESN S/N	AGB S/N	73 tooth gearshaft S/N	41 tooth gearshaft S/N	ESN S/N	AGB S/N	73 tooth gearshaft S/N	41 tooth gearshaft S/N
962606	WZ9318		EB979620	962721	WZ9450		EE049138
962607	WZ9322		EB979612	962723	WZ9471		EE049144
962608	WZ9321		EB979615	962724	WZ9300		EE020597
962613	WZ9315		EB979614	962725	WZ9447		EB979637
962614	WZ9317		EB979608	962726	WZ9301		EE049143
962615	WZ9316		EB979617	962727	WZ9463		EE049133
962621	WZ9243		EE020529	962731	WZ9454		EE020594
962622	WZ9328		EE020527	962732	WZ9448		EE020596
962630	WZ9247		EB979607	962733	WZ9336		EE049124
962635	WZ9241		EB910877	962734	WZ9440		EE049136
962641	WZ9329		EE020502	962740	WZ9442		EE049120
962643	WZ9248		EB979626	962741	WZ9475		EB979634
962655	WZ9306		EB864700	962742	WZ9457		EB979631
962683	WZ9437		EE049152	962746	WZ9468		EE049125
962689	WZ9446		EE049141	962751	WZ9460		EE049134
962692	WZ9449		EE020599	962756	WZ9456		EE049154
962693	WZ9436		EE049142	962757	WZ9470		EE049117
962694	WZ9452		EE020600	962761	WZ9480		EE049147
962696	WZ9451		EE049145	962762	WZ9481		EE049121
962701	WZ9453		EE049118	962765	WZ9469		EE049148
962702	WZ9461		EB979628	962766	WZ9472		EB979633
962704	WZ9455		EB979632	962775	WZ9483		EE020590
962705	WZ9458		EE049122	962776	WZ9482		EE049135
962708	WZ9462		EE020598	962777	WZ9477		EE049140
962709	WZ9465		EE049126	962778	WZ9478		EB979635
962710	WZ9302		EE049139	962779	WZ9479		EE049127
962713	WZ9439		EE020591	962780	WZ9335		EE049119
962714	WZ9464		EB979636	962781	WZ9337		EE049131
962717	WZ9473		EE049137	962806	WZ9334		EE049132
962719	WZ9474		EE049130	962812	WZ9333		EE049129

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ESN S/N	AGB S/N	73 tooth gearshaft S/N	41 tooth gearshaft S/N
962918	WZ9573		EE049371
962986	WZ9572		EE049378
963544	WZ9278		EB910879
963551	WZ9276		EB864696
963552	WZ9275		EB864695
963555	WZ9279		EB864702
963556	WZ9283		EB910882
963564	WZ9308		EB979599
963572	WZ9311		EB979616
963587	WZ9312		EB979623
963588	WZ9319		EB979627
963600	WZ9285		EB979601
963616	WZ9242		EB864698
963697	WZ9438		EE020595
963736	WZ9467		EE049128
963747	WZ9304		EE049123
963748	WZ9303		EE049151
963753	WZ9466		EE020592
963754	WZ9476		EB979629
963785	WZ9485		EE020593
963786	WZ9484		EB979630
963845	WZ9571		EE049360
963848	WZ9570		EE049375

Appendix 2 – List of 73 tooth gearshafts P/N 335-302-902-0 delivered as spares.

AGB S/N	73 tooth gearshaft S/N	41 tooth gearshaft S/N
WZ9405	EB960685	-
-	EB960617	-
-	EB960619	-
-	EB960654	-
-	EB960666	-