EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2013-0034 **Date: 19 February 2013** 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 EC 2042/2003 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 [EC 2042/2003 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 :	**Type/Model designation(s) :**
HONEYWELL INTERNATIONAL, INC.	TPE331 engines

TCDS Numbers :	USA E3WE, E4WE
Foreign AD:	FAA AD 2006-15-08, dated 20 July 2006.
Supersedure:	This AD deviates from and thereby replaces (State of Design) FAA AD 2006-15-08 for affected engines, installed on aeroplanes registered in EASA Member States.

ATA 73	**Engine Fuel & Control – Woodward Fuel Control Unit – Inspection / Repair / Replacement**
Manufacturer(s):	Honeywell International, Inc. (formerly AlliedSignal Inc., Garrett Engine Division; Garrett Turbine Engine Company; and AiResearch Manufacturing Company of Arizona).
Applicability:	TPE331 series turboprop engines, identified by Model in Appendix 1 of this AD, all serial numbers. These engines are known to be installed on, but not limited to, aeroplanes listed in Appendix 2 of this AD.
Reason:	In June 2006, the Federal Aviation Administration (FAA), State of Design authority for Honeywell International Inc. TPE331 series turboprop engines, issued AD 2006-15-08 for engines with certain Woodward fuel control unit (FCU) assemblies installed. The AD was prompted by reports of loss of the fuel control drive, leading to engine overspeed, over-torque, over-temperature, and asymmetric thrust in multi-engine airplanes. This condition, if not detected and corrected, could result in uncontained rotor failure, damage to the aeroplane and injury to occupants. To address this unsafe condition, the FAA AD required initial and repetitive dimensional inspections of the fuel control drive to detect wear or damage and, depending on findings, repair or replacement of the FCU. The AD also required, for multi-engine aeroplanes, replacement of all affected FCU assemblies with modified FCU assemblies, which would constitute terminating action for the repetitive inspections. In August 2006, EASA adopted FAA 2006-15-08 for the

	affected engines, installed on aeroplanes registered in EASA Member States. Since that AD was issued, the FAA determined that additional FCU assembly P/Ns are affected, and that the compliance deadline (31 December 2012) and assembly replacement after removal for cause or overhaul are no longer required. After reviewing all available information, the FAA decided to eliminate the existing compliance deadline and to no longer require modifying the FCU. In addition, initial and repetitive inspections of the fuel control drive have proven to be effective in preventing spline failures, and those requirements are to be retained. The FAA also determined that cautionary information and procedures are needed to inform the operator of the probable engine responses and operating instructions following a loss of drive between the engine driven fuel pump and fuel control governor system. These engine responses are dependent on the phase of operation (ground engine start, ground or flight operations). Based on these findings, the FAA informed EASA of their intention to issue a new AD, superseding FAA AD 2006-15-08. EASA supports the findings and decisions of the FAA, but at this time it is not known when that new FAA AD will be finalised. For the reasons described above, this AD retains only the repetitive inspections (including corrective actions, depending on findings) as required by FAA AD 2006-15-08, which is hereby replaced, i.e. no longer considered 'adopted by EASA', expands the number of affected FCU to be inspected, and incorporates installation of modified FCU as an optional terminating action. This AD also requires insertion of uncommanded engine overspeed procedures into the Airplane Flight Manual (AFM), Pilot Operating Handbook (POH), or Manufacturer's Operating Manual (MOM) and adds P/Ns of affected FCU assemblies. This AD no longer requires modification of an FCU that is removed for cause.
Effective Date:	19 February 2013
Required Action(s) and Compliance Time(s):	Required as indicated, unless accomplished previously: (1) Definitions for the purposes of this AD: (1.1) An ''affected FCU assembly" is an FCU assembly with a Part Number (P/N) listed in Appendix 1 of this AD. (1.2) The ''fuel control drive" is a series of mating splines located between the fuel pump and fuel control governor. The fuel control drive consists of the following four drive splines: the fuel pump internal spline, the fuel control external ''quill shaft" spline, and the stub shaft internal and external splines. (2) Within 30 days after the effective date of this AD, determine whether an affected FCU assembly, as identified by P/N in Appendix 1 of this AD, is installed in the engine. If an affected P/N FCU is installed, amend the Emergency Procedures Section of the applicable AFM, POH, or MOM, as applicable, by inserting a copy of Appendix 3 of this AD. Also, provide this information to maintenance personnel that operate the engine. Honeywell Operating Information Letter OI331-12R6 (multi-engine aeroplanes) and Operating Information Letter OI331-18R4 (single-engine aeroplane), as applicable, contain further information related to this requirement. (3) Initial inspection for affected FCU, identified in Groups 2 and 4 as specified in Appendix 1 of this AD: At the next scheduled inspection of the fuel control drive, or within 500 engine hours (EH), whichever occurs first after the effective date of this AD, accomplish a dimensional inspection of the fuel control drive for wear

or damage.

(4) Initial inspection for affected FCU, identified in Groups 1, 3 and 5 as specified in Appendix 1 of this AD: Within the compliance time as specified in Table 1 of this AD, accomplish a dimensional inspection of the fuel control drive for wear or damage.

Note 1: Information on spline inspection can be found in Section 72-00-00 of the applicable Engine Maintenance Manual.

Table 1 – Group 1, 3 and 5 FCU Initial Inspection

	Compliance time (whichever occurs later, A or B)
A	At the next scheduled inspection of the fuel control drive, or within 1 000 engine hours (EH), whichever occurs first after 24 August 2006 [the effective date of FAA AD 2006-15-08]
B	within 50 EH after the effective date of this AD

(5) Repetitive inspections for affected FCU, identified in Groups 2 and 4 as specified in Appendix 1 of this AD: Before exceeding 1 000 EH after the initial inspection as required by paragraph (3) of this AD, and, thereafter, at intervals not to exceed 1 000 EH, accomplish a dimensional inspection of the fuel control drive for wear or damage.

(6) Repetitive inspections for affected FCU, identified in Groups 1, 3 and 5 as specified in Appendix 1 of this AD: Before exceeding the compliance time as specified in Table 2 of this AD, as applicable, and, thereafter, at intervals not to exceed 1 000 EH, accomplish a dimensional inspection of the fuel control drive for wear or damage.

Table 2 – Group 1, 3 and 5 FCU First Repeat Inspection

EH accumulated by the FCU since last fuel control drive inspection (on the effective date of this AD)	**Compliance time**
950 EH or more	Within 50 EH after the effective date of this AD
Less than 950 EH	Within 1 000 EH since the last fuel control drive inspection

(7) If, during any inspection as required by this AD, the fuel pump spline fails the dimensional inspection, before release to service of the engine, or before next flight, as applicable, repair or replace the fuel pump with any serviceable fuel pump.

(8) If, during any inspection as required by this AD, the FCU splines fail the dimensional inspection, before release to service of the engine, or before next flight, as applicable, repair or replace the FCU assembly with any serviceable FCU assembly.

(9) Replacement of an affected FCU assembly on an engine with a modified FCU assembly, having a P/N not listed in Appendix 1 of this AD, constitutes terminating action for the repetitive inspections as required by paragraph (5) or (6) of this AD, as applicable. Concurrent with modification of the engine or, for a multi-engine aeroplane, modification of both engines, the AFM change as required by paragraph (2) of this AD may be removed from the AFM (or POH or MOM, as applicable) of the affected aeroplane.

Replacement of an FCU can be accomplished in accordance with the

	instructions of Honeywell Alert Service Bulletin (ASB) No. TPE331-A73-0271, Revision 3, or ASB No. TPE331-A73-0262, Revision 3, or ASB No. TPE331-A73-0254, Revision 2, as applicable to the affected FCU and engine (see Appendix 1 of this AD). (10) From the effective date of this AD, installation of an affected FCU assembly on any TPE331 engine is allowed, provided that, after installation, the engine is inspected and, depending on findings, corrected as required by this AD.
Ref. Publications:	Honeywell ASB No. TPE331-A73-0271, Revision 3, dated January 12, 2009. Honeywell ASB No. TPE331-A73-0262, Revision 3, dated January 12, 2009. Honeywell ASB No. TPE331-A73-0254, Revision 2, dated June 17, 2005. Honeywell Operating Information Letter OI331-12R6, dated 26 May 2009. Honeywell Operating Information Letter OI331-18R4, dated 26 May 2009.
Remarks :	1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD. 2. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication. 3. Enquiries regarding this AD should be referred to the Safety Information Section, Executive Directorate, EASA. E-mail: ADs@easa.europa.eu. 4. For any question concerning the technical content of the requirements in this AD, please contact: Honeywell International Inc., Technical Data Distribution, 111 South 34th Street, Phoenix, Arizona 85034-2802, United States of America; Telephone: 800-601-3099 (US/Canada) or +1 602-365-3099 (International).

Appendix 1 – Affected FCU, identified by Part Number (P/N)

Group:	Affected Woodward FCU P/N:	Installed on Engines :	Honeywell ASB :
1	869199-13, 869199-20, 869199-21, 869199-22, 869199-23, 869199-24, 869199-25, 869199-26, 869199-27, 869199-28, 869199-29, 869199-31, 869199-32, 869199-33, 869199-34, and 869199-35.	TPE331-1, TPE331-2, and TPE331-2UA	TPE331-A73- 0271, Revision 3, dated January 12, 2009
2	869199-9, 869199-10, 869199-11, 869199-12, 869199-14, 869199-16, 869199-17, and 869199-18.		
3	893561-7, 893561-8, 893561-9, 893561-10, 893561-11, 893561-14, 893561-15, 893561-16, 893561-20, 893561-26, 893561-27, and 893561-29.	TPE331-3U, TPE331-3UW, TPE331-5, TPE331-5A, TPE331-5AB, TPE331-5B, TPE331-6, TPE331-6A, TPE331-10AV, TPE331-10GP, TPE331-10GT, TPE331-10P, and TPE331-10T	TPE331-A73-0262, Revision 3, dated January 12, 2009
	897770-1, 897770-3, 897770-7, 897770-9, 897770-10, 897770-11, 897770-12, 897770-14, 897770-15, 897770-16, 897770-25, 897770-26, and 897770-28.		
4	893561-4, 893561-5, 893561-12, and 893561-13.		
	897770-5, 897770-8, and 897770-13.		
5	897375-2, 897375-3, 897375-4, 897375-5, 897375-8, 897375-9, 897375-10, 897375-11, 897375-12, 897375-13, 897375-14, 897375-15, 897375-16, 897375-17, 897375-19, 897375-21, 897375-24, 897375-25, 897375-26, and 897375-27.	TPE331-10, TPE331-10R, TPE331-10U, TPE331-10UA, TPE331-10UF, TPE331-10UG, TPE331-10UGR, TPE331-10UR, TPE331-11U, TPE331-12JR, TPE331-12UA, TPE331-12UAR, and TPE331-12UHR	TPE331-A73-0254, Revision 2, dated June 17, 2005
	897780-1, 897780-2, 897780-3, 897780-4, 897780-5, 897780-6, 897780-7, 897780-8, 897780-9, 897780-10, 897780-11, 897780-14, 897780-15, 897780-16, 897780-17, 897780-18, 897780-19, 897780-20, 897780-21, 897780-22, 897780-23, 897780-24, 897780-25, 897780-26, 897780-27, 897780-30, 897780-32, 897780-34, 897780-36, 897780-37, and 897780-38.		
	893561-17, 893561-18, and 893561-19.		

Note 1: At the time of issuance of this AD, the following engine Models have not been validated in Europe: TPE331-2UA, TPE331-3U, TPE331-5AB, TPE331-6A, TPE331-10AV, TPE331-10GP, TPE331-10GT, TPE331-10P, TPE331-10T, TPE331-10UG, TPE331-12UA and TPE331-12UAR.

Note 2: The P/Ns identified as Group 2 and Group 4 are in addition to those listed in FAA AD 2006-15-08.

Appendix 2 – TPE331 engines are known to be installed on, **but not limited to**, the following Aeroplanes:

TC holder (manufacturer)	**Type(s)**
Allied Ag Cat Productions (formerly Schweizer, Grumman)	G-164 series
BAE Systems (formerly British Aerospace, Scottish Aviation, Handley Page)	Jetstream 31 and 32 series, HP.137 Jetstream Mk.1
EADS CASA (formerly CASA)	C-212 series
Hawker Beechcraft (formerly Raytheon, Beech Aircraft Corporation)	B100, C90 and E90
M7 Aerospace (formerly Fairchild, Swearingen)	SA226, SA227 series
Mitsubishi Heavy Industries (Mitsubishi Aircraft International)	MU-2B series
Pilatus Aircraft (incl. Fairchild production)	PC-6/C series
Polskie Zaklady Lotnicze	PZL M18 series
RUAG (formerly Fairchild-Dornier, Dornier Luftfahrt)	Dornier 228 series
Short Brothers plc	SC7 (Skyvan) series
Thrush Aircraft, Inc. (formerly Ayres, Rockwell)	S-2R series
Twin Commander (formerly Gulfstream, Rockwell)	680, 690 and 695 series

Appendix 3 – AFM / POH / MOM Amendment

Loss of Fuel Control Drive Procedures

Procedure #1:

WARNING

If a fuel control drive fails during ground engine starts with the propeller ON the start locks, the engine will experience a rapid uncommanded, uncontrolled acceleration to an overspeed condition sufficient to cause an uncontained separation of high speed rotating components.

RAPID, UNCOMMANDED ACCELERATION DURING ENGINE START (Propeller ON Start Locks)

1. Engine Start – Abort Immediately

WARNING

Do not attempt a re-start until after inspecting the fuel control drive and rotating components in accordance with the applicable maintenance manual.

Procedure #2:

WARNING

If a fuel control drive fails during ground or flight operations with the propeller OFF the start locks, the engine will experience a rapid uncommanded, uncontrolled increase in RPM, torque and/or turbine temperature (the engine may exceed RPM, torque and/or temperature limits) and increased forward thrust. Reverse thrust will not be available. For multi-engine airplanes an uncommanded fuel flow increase on only one engine could result in significant asymmetric thrust. Therefore, an uncontrolled fuel flow increase is most serious when it occurs to one engine with the opposite engine at a relatively low power setting, such as during an approach or during the landing rollout. Carefully identify failed engine.

RAPID, UNCOMMANDED INCREASE IN THRUST (Propeller OFF Start Locks)

1. Identify Malfunctioning Engine (multi-engine aircraft) – Cross check for high torque, RPM, fuel flow, and turbine temperatures
2. Power – Reduce as required to maintain limits
3. If limits cannot be maintained or engine is non-responsive, shut engine down as soon as possible consistent with safe operation of the airplane.

WARNING

Do not attempt a re-start until after inspecting the fuel control drive and rotating components in accordance with the applicable maintenance manual.