

Airworthiness Directive Schedule

Engines

Honeywell International TPE331 Engine Series

29 November 2018

- Notes:**
- This AD schedule is applicable to Honeywell International TPE331 Engine Series (formerly Allied Signal Inc, Garrett Engine Division, Garrett Turbine Engine Company and AiResearch Manufacturing Company of Arizona) manufactured under FAA Type Certificate Numbers:

Engine Series:	FAA Type Certificate Number:
TPE331-1	E3WE
TPE331-2	E3WE
TPE331-3	E4WE
TPE331-5	E4WE
TPE331-6	E4WE
TPE331-8	E4WE
TPE331-9	E4WE
TPE331-10	E4WE
TPE331-11	E4WE
TPE331-12	E4WE
TPE331-14	E18WE
TPE331-15	E18WE

- The Federal Aviation Administration (FAA) is the National Airworthiness Authority (NAA) responsible for the issue of State of Design Airworthiness Directives (ADs) for these engines. State of Design ADs engines can be obtained directly from the FAA web site at http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAD.nsf/MainFrame?OpenFrameSet
- The date above indicates the amendment date of this schedule.
- New or amended ADs are shown with an asterisk *

Contents

DCA/AIR/1	Oil Filter - Inspection	3
DCA/AIR/2	Engine Oil and Filter - Inspection.....	3
DCA/AIR/3	Fuel Control Drive - Inspection	3
DCA/AIR/4	Overspeed Protection - Modification	3
DCA/AIR/5D	Turbine Wheels - Inspection	3
DCA/AIR/6A	Fuel Pump Drive - Inspection.....	4
DCA/AIR/7A	Oil Scavenge Pump Assembly - Inspection	4
DCA/AIR/8	Third Stage Stators - Inspection	5
* DCA/AIR/9	Cancelled – FAA AD 2018-22-01 refers	5
DCA/AIR/10B	Third Stage Stator - Replacement	5
DCA/AIR/11	Fuel Manifold Assembly - Replacement	5
DCA/AIR/12A	Propeller Pitch Control Gasket - Replacement	6
DCA/AIR/13	Third Stage Stator Assembly - Replacement.....	6
DCA/AIR/14B	Fuel Control Drive Shaft Spline - Inspection	7
DCA/AIR/15	Inlet Temperature and Pressure Sensor Fitting.....	7
DCA/AIR/16	Third Stage Turbine Stators - Inspection	8
DCA/AIR/17	Fuel Manifold Assemblies - Replacement.....	9
DCA/AIR/18	Electronic Engine Control – Replacement	9
DCA/AIR/19	Reduction Gearbox - SOAP Sampling and Replacement.....	10

DCA/AIR/20	Second Stage Turbine Stator - Replacement	10
DCA/AIR/21	Weld Repaired Compressor Impellers - Retirement.....	11
DCA/AIR/22	First Stage Turbine Disk – Inspection	11
DCA/AIR/23	First, Second & Third Stage Turbine Rotors – Counting Method and Replacement.....	12
DCA/AIR/24	Cancelled – FAA AD 2015-12-04 refers	14
DCA/AIR/25	First Stage Turbine Disks – Replacement	14
DCA/AIR/26A	Main Shaft Bearing – Inspection	14
DCA/AIR/27	First Stage Turbine Disk – Inspection	15
<p>From 1 October 2012 the Civil Aviation Authority of New Zealand (CAA) will no longer rewrite the text of State of Design ADs. Applicable State of Design ADs will be listed below and can be obtained directly from the National Airworthiness Authority (NAA) web site. The link to the NAA web site is available on the CAA web site at http://www.caa.govt.nz/airworthiness-directives/states-of-design/ If additional NZ ADs need to be issued when an unsafe condition is found to exist in an aircraft or aeronautical product in NZ they will be added to the list below.</p>		
2015-12-04	Cancelled – FAA AD 2016-21-07 refers	16
2015-18-03	(Correction) Engine Propeller Shaft Couplings – Inspection.....	16
2016-18-17	2 nd Stage Compressor Impeller – Inspection	16
2016-21-07	Woodward Fuel Control Unit Assemblies – Inspection	16
2018-02-14	Cancelled – FAA AD 2018-17-15 refers	16
2018-13-05	Hydraulic Torque Sensor Gear Assembly – Inspection	16
2018-17-15	Combustion Chamber Case Assembly – Inspection.....	17
* 2018-22-01	Second Stage Turbine Rotor Assembly – Inspection	17

DCA/AIR/1 Oil Filter - Inspection

- Applicability:** All model TPE331-25AA and TPE331-1-151A not incorporating Airesearch SB's 659, 632 or TPE331-62-0064
- Requirement:** Inspect per Airesearch SB 628.
(FAA AD 71-05-07 refers)
- Compliance:** At intervals not exceeding 50 hours TIS
- Effective Date:** 15 May 1974

DCA/AIR/2 Engine Oil and Filter - Inspection

- Applicability:** All model TPE331-1 and -2
- Requirement:** Inspect per FAA AD 70-19-02
- Compliance:** As detailed in FAA AD 70-19-02
- Effective Date:** 15 May 1974

DCA/AIR/3 Fuel Control Drive - Inspection

- Applicability:** All model TPE331-25AA TPE331-1-151A and TPE331-5-251K
- Requirement:** Inspect per Airesearch SB TPE331-72-0027 and renew parts as prescribed.
(FAA AD 73-26-07 refers)
- Compliance:** Within next 25 hours TIS and thereafter at intervals specified in Airesearch SB TPE331-72-0027
- Effective Date:** 15 May 1974

DCA/AIR/4 Overspeed Protection - Modification

- Applicability:** All model TPE331-1-151A and TPE331-5-251K
- Requirement:** Modify engine fuel control drive gear train in main reduction gear box per Airesearch SB TPE331-27-0061 and install torque sensor P/N 3101726-2 per Airesearch SB TPE331-27-0232.
(FAA AD 78-25-08R3 refers)
- Compliance:** At next engine overhaul or by 31 December 1985, whichever is the sooner
- Effective Date:** 14 May 1982

DCA/AIR/5D Turbine Wheels - Inspection

- Applicability:** All model TPE331-1-151A TPE331-3UW-303G and TPE331-5-251K
- Requirement:** Remove from service, inspect and replace turbine wheels and associated parts as prescribed in FAA AD 84-01-04
- Compliance:** As detailed in FAA AD 84-01-04
- Effective Date:** DCA/AIR/5C - 11 March 1983
DCA/AIR/5D - 2 March 1984

DCA/AIR/6A Fuel Pump Drive - Inspection

Applicability: All series of models TPE331-25, -43, -47, -55, -1, -2, -3, -5, -6, -10 (except -10A) and -11 with following fuel pump assemblies:

P/N	868531-7/8	S/N	A11
	869151-1/-3/-4/-5		A11
	893573-1 thru -7		A11
	895413-1/-9		A11
	897380-1/-2/-3		Series 1&2
	897380-4/-5		Series 1,2&3
	897390-1/-2/-3/-4		Series 1&2
	897400-1/-2		Series 1&2
	897400-4		Series 1

Requirement: To preclude possible engine failure accomplish the following:

1. Check drive shaft running torque per Section 2A(2) of Garrett SB TPE331-73-0121 Rev. 3. Drive shafts be removed from service before further flight.
2. Assemble pump per approved parts configuration as specified in Section 2 of SB TPE331-73-0121 Rev. 3.
(FAA AD 84-10-06 R1 refers)

Compliance:

1. Torque Check - fuel pump assemblies with
 - (a) Less than 200 hours TTIS - within next 100 hours TIS
 - (b) More than 200 but less than 1000 hours TTIS - within next 200 hours TIS
 - (c) More than 1000 hours TTIS - during next fuel pump disassembly

Effective Date: DCA/AIR/6 - 29 July 1984
DCA/AIR/6A - 8 February 1985

DCA/AIR/7A Oil Scavenge Pump Assembly - Inspection

Applicability: All series of models TPE331-25AA, -25AB, -25DA, -25DB, -25FA, -43A, -43BL, -47A, -55B, -61A, -1, -2, -2UA, -3U, -3UW, -5, -6, -6A, -8, -10, -10R, -10U, -10UA, -10UF, -10UG, -10UGR, -10UR AND -11U

Requirement: To prevent turbine failure, inspect and modify oil scavenge pump assembly per Garrett SB TPE331-72-0533 Rev. 2.
(FAA AD 89-07-07 refers)

Compliance: At next access to oil scavenge pump assembly or within next 1800 hour TIS, or within 18 months, whichever is the sooner

Effective Date: DCA/AIR/7 - 23 June 1986
DCA/AIR/7A - 12 May 1989

DCA/AIR/8 Third Stage Stators - Inspection

Applicability: All model TPE331-1, -2, -3, -5, and -6 series engines with stators P/N 868379-1 or 868379-3

Requirement: To prevent uncontained turbine wheel failures, accomplish the following:

1. Replace P/N 868379-1 with 868379-3 stators. GTEC ASB TPE/TSE331-A72-0384 Rev. 4 provides instructions for re-identification of stator assemblies from P/N 868379-1 to 868379-3.
2. Rework P/N 868379-3 stators per GTEC ASB TPE/TSE331-A72-0384 Rev. 4.
3. X-ray inspect all P/N 868379-1 and 868379-3 stators per GTEC ASB TPE331-A72-0559 Rev. 1 (except stators listed in Table 1 of subject ASB). (FAA AD 87-19-02 refers)

Compliance:

1. As detailed in para D of GTEC ASB TPE/TSE331-A72-0384 Rev. 4.
2. At intervals not exceeding 4500 hours TIS.
3. As detailed in para D of GTEC ASB TPE331-A72-0559 Rev. 1.

Effective Date: 23 October 1987

*** DCA/AIR/9 Cancelled – FAA AD 2018-22-01 refers**

Effective Date: 10 December 2018

DCA/AIR/10B Third Stage Stator - Replacement

Applicability: All model TPE331-1, -2, -2UA, -3U, -3UW, -5, -5A, -6, -6A and TSE331-3U engines with third stage stator assembly P/N 868379-1, -3 or -5.

Requirement: To prevent an uncontained third stage turbine rotor failure, replace and inspect third stage stator assemblies per FAA AD 93-05-09.

Compliance: Per FAA AD 93-05-09.

Effective Date: DCA/AIR/10A - 22 March 1991
DCA/AIR 10B - 14 May 1993

DCA/AIR/11 Fuel Manifold Assembly - Replacement

Applicability: Model TPE331-8, -10, -11, -12 series engines, installed on but not limited to Fairchild SA226 and SA227 series aircraft.

Requirement: To prevent an engine fire caused by a fuel manifold assembly leak, accomplish the following:-

Replace per Garrett Alert SB TPE331-A73-0198 Revision 1, Stratoflex Manifolds P/N 3102469-2 with dates of manufacture listed in Table 1 of the SB.
(FAA AD 93-02-01 refers)

Compliance: By 31 January 1992

Effective Date: 24 January 1992

DCA/AIR/12A Propeller Pitch Control Gasket - Replacement

Applicability: Model TPE331-1, -2, -3, -5, -6, -8, -10, -11, -12, -25, -43, -47A, -55B and -61A series engines installed on but not limited to Twin Commander 695 and Fairchild SA227 series aircraft.

Requirement: To prevent a sudden loss of propeller control during application of thrust reverse that may cause loss of aircraft control accomplish the following:-

Inspect propeller pitch control gaskets per Garrett Alert SB TPE331-A72-0857 or TPE331-A72-0858 to determine if the gaskets incorporate internal metal reinforcement. Replace unreinforced gaskets with serviceable metal reinforced gaskets per the applicable Garrett Light Maintenance Manual, before further flight. (FAA AD 93-15-11 refers)

Compliance: Unless already accomplished, within next 10 hours TIS.

Effective Date: DCA/AIR/12 - 23 December
DCA/AIR/12A - 29 October 1993

DCA/AIR/13 Third Stage Stator Assembly - Replacement

Applicability: Model TPE331-1, -2, -2UA, -3U, -3UW, -5, -5A, -6 and -6A series engines incorporating third stage stator assemblies, P/N 868379-3, repaired at National Flight Services between 20 February 1990 and 6 April 1992 and listed by S/N National Flight Services Alert Bulletin NF331-A72-11921. These engines are installed on but not limited to Fairchild SA226 series, Twin Commander 680 and 690.

Requirement: To prevent an uncontained failure of the third stage turbine wheel, replace affected third stage stator assemblies, P/N 868379-3, with serviceable assemblies. (FAA AD 92-26-08 refers)

Compliance: Within 50 cycles in service for third stage stators with 900 or more cycles since repair by National Flight Services.

Within 150 cycles in service, but not to exceed 950 cycles for third stage stators with 450 to 899 cycles since repair by National Flight Services.

Prior to accumulating 600 cycles in service for third stage stators with less than 450 cycles since repair by National Flight Services.

Effective Date: 19 March 1993

DCA/AIR/14B Fuel Control Drive Shaft Spline - Inspection

- Applicability:** Model TPE331-5, -11U series engines with fuel control assembly P/Ns 897770-1 through 897770-8 and 897780-1 through 897780-11. These engines are installed on but not limited to Fairchild SA 226 and SA227 series and Twin Commander Model 680.
- Requirement:** To prevent failure of the drive input to the fuel control unit and loss of overspeed and underspeed governing functions of the fuel control unit, accomplish the following:-
Inspect fuel control unit drive shaft splines for wear per AlliedSignal Alert SB TPE331-A73-0221 Rev 2 or TPE331-A73-0226 as applicable. Before further flight replace with a serviceable part, fuel controls with drive shaft splines that do not meet the return to service criteria per the applicable SB. Replacement of fuel control units per AlliedSignal SB TPE331-73-0224 Rev 1 or SB TPE331-A73-0228 with alternate fuel control units is terminating action for this airworthiness directive. (FAA AD 94-26-07 refers)
- Compliance:** At 150 hours TTIS or within next 100 hours TIS (fuel control operating hours), whichever is the later. Thereafter accomplish additional inspections as detailed in AlliedSignal Alert SB TPE331-A73-0221 Rev 2 or TPE331-A73-0226 as applicable.
- Effective Date:** DCA/AIR/14A 2 September 1994
DCA/AIR/14B 20 January 1995

DCA/AIR/15 Inlet Temperature and Pressure Sensor Fitting - Replacement

- Applicability:** TPE331-3, -5, -6, -10, -11, -12 series turboprop engines equipped with Woodward fuel controls, installed on but not limited to the following aircraft: Ayres S2R-G10; Fairchild SA226 and SA227 series; Jetstream 3100 series; Mitsubishi MU-2B series; Twin Commander 680 and 690 series.
- Requirement:** To prevent lack of control of engine power, accomplish the following:-
- For aircraft equipped with engine inlet ice protection, revise the applicable Emergency Procedures or Abnormal Procedures Section of the applicable Flight Manual to include the following paragraph relating to a non-responsive power lever. This may be accomplished by inserting a copy of the following in the Flight Manual.

NON-RESPONSIVE POWER LEVER
If a lack of response to the power lever is observed, turn ON the ignition and engine anti-ice for both engines. After the condition has cleared and normal operation is observed, which occurs in approximately three minutes, anti-ice and ignition can be turned OFF.
 - For engine models TPE331-3U-303G, -3UW-303G, -3U-304G, and engine series TPE331-10U, -10UA, -10UF, -10UG, -10UGR, -10UR, -11U, -12UA, -12UAR, and -12UHR, replace orifice fittings and replace or rework restrictors per AlliedSignal Aerospace SB TPE331-73-0235, dated July 28, 1995. For engine model TPE331-3U-303V and engine series TPE331-5, -5A, -5AB, -5B, -6, -6A, -10, -10GP, -10GT, -10P, -10R, and -10T, replace orifice fittings per SB TPE331-73-0236, dated July 28, 1995. Accomplishing Part 2 of this AD, constitutes terminating action, and the Flight Manual revision required by Part 1 of this AD shall be removed. (FAA AD 97-15-10 refers)
- Compliance:**
- Revise flight manual by 26 October 1997 and remove revision when Part 2 is accomplished.
 - By 26 December 1997, or at next removal of the Pt2 sensor, whichever occurs first.
- Effective Date:** 26 September 1997

DCA/AIR/16 Third Stage Turbine Stators - Inspection

Applicability: Model TPE331-1, -2, -2UA, -3U, -3UW, -5, -5A, -5AB, -5B, -6, and -6A turboprop and TSE331-3U turboshaft engines with third stage turbine stators, P/N 868379-3, except those engines with turbine stators listed by S/N in Table 1 of the National Flight Services ASB NF-TPE331-A72-10961.

These engines may be installed on, but not limited to; Mitsubishi MU-2B series, Twin Commander 680 and 690, Rockwell Commander S-2R, Ayres S-2R series; Grumman American G-164 series and Schweizer G-164 series.

Requirement: To prevent third stage turbine wheel separation due to fatigue cracking and shifting of the third stage turbine stator, which could result in an uncontained engine failure and damage to the aircraft, accomplish the following:-

For engines with third stage turbine stators with S/Ns listed in Table 1 of National Flight Services ASB NF-TPE331-A72-10961, no action is required.

For engines with third stage turbine stators with S/Ns not listed in Table 1 of ASB NF-TPE331-A72-10961, remove the unserviceable third stage turbine stator assembly per the applicable engine maintenance manual and the compliance schedule.

For third stage turbine stator assemblies removed per this AD, accomplish either a radiographic inspection for inadequate weld penetration and fatigue cracking, and, if necessary, replace with a serviceable assembly per the Accomplishment Instructions of ASB NF-TPE331-A72-10961, or replace with a serviceable assembly per the Accomplishment Instructions of AlliedSignal ASB TPE331-A72-0861, Revision 2. Accomplishing the radiographic inspection required by this paragraph constitutes compliance with the radiographic inspection requirement of DCA/AIR/10B. (FAA AD 98-04-15 refers)

Compliance: Compliance Schedule

Third Stage Turbine Stator Cycles in Service (CIS) Since Radiographic Inspection per DCA/AIR/8 or DCA/AIR/10B.	Removal Schedule
Unknown CIS since inspection	Remove within 600 CIS, at next access, or prior to 31 March 2002, whichever occurs first
2200 or more CIS since inspection	Remove within 600 CIS, at next access, or prior to 31 March 2002, whichever occurs first
Less than 2200 CIS since inspection	Remove prior to accumulating 2,800 CIS, at next access, or prior to 31 March 2002, whichever occurs first

Note 1: For the purpose of this AD, the next access to the third stage stator assembly is defined as disassembly of the turbine beyond the removal of the third stage rotor.

Note 2: This AD does not supersede AD DCA/AIR/10B. The removal schedule in this AD does not affect the requirements of DCA/AIR/10B

Note 3: For the purpose of determining third stage turbine stator removal, third stage turbine stator hours TIS may be converted to CIS since inspection by multiplying by 1.5 the number of hours since radiographic inspection per DCA/AIR/8 or DCA/AIR/10B.

Effective Date: 10 April 1998

DCA/AIR/17 Fuel Manifold Assemblies - Replacement

Applicability: Model TPE331-8, -10, -11 and -12 series turboprop engines with fuel manifold, P/N 3102469-1 or -2, repaired by Hoses Unlimited Inc prior to November 20, 1995. These engines are installed on but not limited to Ayres S2R-G10; Fairchild SA226 and SA227 series; Jetstream 3101 and 3201 series; Mitsubishi MU-2B series; and Twin Commander 695 and 695A aircraft.

Requirement: To prevent fuel leakage from the fuel manifold, resulting in fuel spraying on hot turbine components, and possible engine fire, accomplish the following:-

1. Check all fuel manifold identification bands for P/Ns 3102469 -1 or -2 and the Hoses Unlimited, Inc. name, or review engine and aircraft maintenance records and purchase receipts to establish the origin and repairs on all fuel manifolds. If records indicate that fuel manifolds, P/Ns 3102469-1 or -2, are not installed in an engine or that Hoses Unlimited Inc has not been used as a repair facility, no further AD action is required.
2. Remove from service all fuel manifolds with the Hoses Unlimited Inc name and P/Ns 3102469-1 or -2 and replace with a serviceable fuel manifold per the applicable AlliedSignal engine maintenance manual.
(FAA AD 98-12-09 refers)

Compliance:

1. By 31 October 1998
2. At next access to the fuel manifold assembly, at the next engine hot section inspection, or within next 3 years, whichever occurs first.

Note: For the purposes of this AD, next access to the fuel manifold is defined as any repair, modification, removal, or testing of the fuel manifold assembly or components of the fuel manifold assembly.

Effective Date: 31 July 1998

DCA/AIR/18 Electronic Engine Control – Replacement

Applicability: Model TPE331-8, -10N and -12B turboprop engines with Electronic Engine Controls (EEC) P/N 2101322-1, -4, -11, -12, -13, -14, -15, -16 installed.

Requirement: To prevent loss of control of aircraft due to uncommanded engine thrust increase, accomplish the following:-

1. Revise the aircraft flight manual (AFM) by inserting Temporary Revisions as listed.

<u>Aircraft to which Engine is fitted</u>	<u>AFM Temporary Revision</u>
Cessna 441 S/N 441-0001 through 441-0172:	D1561-14TR2 through -14TR8
Cessna 441 S/N 441-0173 and above:	D1586-11TR2 through -11TR5 D1586-11TR7 through -11TR11

2. Replace existing EEC P/N 2101322-1,-4, -11, -12, -13, -14, -15 and -16 with a serviceable EEC (One of the engine manufacturers approved EEC other than those P/Ns listed above) Refer to Honeywell Alert SB TPE331-A76-0035 and TPE331-A76-0036 for details of EEC replacement.
(FAA AD 2001-21-02 refers)

Compliance:

1. Revise the Flight Manual by 31 January 2002
2. Replace EEC before 31 August 2003

Effective Date: 20 December 2001

DCA/AIR/19 Reduction Gearbox - SOAP Sampling and Replacement

- Applicability:** TPE331-11U, -12B, -12JR, -12UA, -12UAR, and -12UHR series engines. These engines are installed on, but not limited to, Fairchild SA227 series, and Jetstream 3201 series aircraft.
- Requirement:** To prevent bull gear rim separations and high-speed pinion (HSP) assembly failures from abnormal gear wear, which could result in uncontained gearbox fragmentation, in-flight shutdowns, engine rotor overspeed events, comply with FAA AD 2002-12-09.
- Compliance:** As detailed in FAA AD 2002-12-09 (SOAP Samples to be submitted within 80-120 hours TIS).
- Effective Date:** 25 July 2002

DCA/AIR/20 Second Stage Turbine Stator - Replacement

- Applicability:** TPE331-1, -2, -2UA, -3U, -3UW, -5, -5A, -5AB, -5B, -6, and -6A series and TSE331-3U series engines with second stage turbine stator assemblies, P/N's 894528-1, -2, -3, -5, -6, -10, and -11.
- Requirement:** To reduce fatigue damage of the second stage turbine stator inner seal support, rotating knife seal, and the first and second stage turbine wheels which may result in an uncontained rotor failure, accomplish the following:

Replace second stage turbine stator assemblies, P/N 894528-1, -2, -3, -5, -6, -10, and -11, with a new or reworked second stage turbine stator assembly. Information for replacing second stage turbine stator assemblies is available in Honeywell ASB TPE331- A72-2082. Information for reworking second stage turbine stator assemblies is available in Honeywell SB TPE331-72-2085RWK.

Do not install any second stage turbine stator assembly P/N 894528-1, -2, -3, -5, -6, -10, and -11. after the effective date of this AD.
(FAA AD 2002-21-15 refers)
- Compliance:** At the next removal of the second stage turbine stator assembly from the engine or at the next turbine section inspection, or 3,100 hours TIS since last turbine section inspection, whichever occurs first.
- Effective Date:** 28 November 2002

DCA/AIR/21 Weld Repaired Compressor Impellers - Retirement

Applicability: TPE331-3, -5, -6, -8, -10, and -11 series and TSE331-3 series engines.

Requirement: Remove from service weld repaired first stage compressor impellers, P/N's 896223-1, -2, -3, and -7 and 3107109-2, with S/N listed in Table 1 and Table 2 of the Accomplishment Instructions in 2.A.(1) and 2.A.(2) of Honeywell ASB TPE331-A72-2083, rev 1.

Note: For purposes of this AD, weld repaired or weld repair is defined as an impeller repair which involved heat treating and that was performed from 1980 through 1997 at Honeywell Aerospace Services, Aftermarket-Phoenix Repair and Overhaul, 1944 E. Sky Harbor Circle, Phoenix, AZ. 85034 (FAA Certificate Number ZN3R030M). Former names and FAA certificate numbers for Honeywell's Repair and Overhaul Facility are listed in section 2.A. of the Accomplishment Instructions in Honeywell ASB TPE331-A72-2083, rev 1.
(FAA AD 2002-25-02 refers)

- Compliance:**
1. Remove impellers with no record of cycles since weld repair, within 3,600 cycles-in-service (CIS) or at the next engine overhaul, or at the next major Continuous Airworthiness Maintenance (CAM) compressor section inspection, whichever occurs first.
 2. Remove impellers with more than 8,900 cycles since weld repair, within 3,600 CIS, or at the next engine overhaul, or at the next major CAM compressor section inspection, whichever occurs first.
 3. Remove impellers with 8,900 or less cycles since weld repair, before reaching 12,500 cycles since weld repair.

Effective Date: 30 January 2003

DCA/AIR/22 First Stage Turbine Disk – Inspection

Applicability: Model TPE331-10-501C, -10-511C, -10-501K, -10-511K, -10-501M, -10-511M, -10AV-511B, -10AV-511M, -10GP-511D, -10GT-511D, -10N-511S, -10N-512S, -10N-513S, -10N-514S, -10N-515S, -10N-531S, -10N-532S, -10N-533S, -10N-534S, -10N-535S, -10P-511D, -10R-501C, -10R-502C, -10R-511C, -10R-512C, -10R-513C, -10T-511D, -10T-511K, -10T-511M, -10T-512K, -10T-513K, -10T-515K, -10T-516K, -10T-517K, -10U-501G, -10U-502G, -10U-511G, -10U-512G, -10U-503G, -10U-513G, -10UA-511G, -10UF-501H, -10UF-511H, -10UF-512H, -10UF-513H, -10UF-514H, -10UF-515H, -10UF-516H, -10UG-513H, -10UG-514H, -10UG-515H, -10UG-516H, -10UGR-513H, -10UGR-514H, -10UGR-516H, -10UR-513H, -10UR-516H, -11U-601G, -11U-602G, -11U-611G, and -11U-612G turboprop engines with first stage turbine disk P/N 3101520-1 or P/N 3107079-1, with S/Ns listed in Table 1 of Honeywell ASB TPE331-A72-2102.

These engines are installed on, but not limited to Mitsubishi MU-2B series, Fairchild SA226 series (Swearingen Merlin and Metro series), Twin Commander 680 and 690 series (Jetprop Commander), Cessna Aircraft Company Model 441 Conquest, and Jetstream 3201 series airplanes.

Requirement: To prevent cracked first stage turbine disks from causing uncontained disk separation, resulting in engine damage and shutdown, and possible damage to the aircraft, accomplish the following:

1. Perform a fluorescent penetrant inspection (FPI) of first stage turbine disks, P/N 3101520-1, per accomplishment instructions 2.A.(4)(a) through 2.A.(4)(d) in Honeywell ASB TPE331-A72-2102. First stage turbine disks that pass FPI must be eddy current inspected (ECI) before returning to service, per a Honeywell approved ECI.

2. Perform repetitive FPIs of first stage turbine disks P/N 3101520-1 and P/N 3107079-1, per accomplishment instructions 2.B.(3)(a) through 2.B.(3)(d) in Honeywell ASB TPE331-A72-2102. First stage turbine disks that pass FPI must be eddy current inspected (ECI) before returning to service, per a Honeywell approved ECI.

(FAA AD 2004-09-29 refers)

Compliance: 1. For first stage turbine disks with 4100 CSN or less, inspect at next access, and for first stage turbine disks with more than 4100 CSN, inspect within 400 cycles and prior to accumulating 4500 CSN.

2. At every scheduled hot section inspection.

Note 1: First stage turbine disks, P/N 3107079-1, do not require an initial inspection, because they receive an FPI and ECI at the time of conversion.

Note 2: The replacement of a first stage turbine disk, with a disk that does not have a S/N specified in Table 1 of Honeywell ASB TPE331-A72-2102, constitutes a terminating action for the repetitive inspection requirements specified in requirement 2 of this AD.

Note 3: For the purposes of this AD, next access is when the turbine wheel assembly is removed from the engine, or before a turbine wheel assembly is installed in an engine.

Effective Date: 26 May 2005

DCA/AIR/23 First, Second & Third Stage Turbine Rotors – Counting Method and Replacement

Applicability: All model TPE331-1, -1U, -1UA, -2, -2UA, -3U, -3UW, -3W, -5, -5A, -5AB, -5B, -5U, -6, -6A, -6U, -8, -8A, -9, -9U, -10, -10A, -10AV, -10B, -10G, -10GP, -10GR, -10GT, -10J, -10N, -10P, -10R, -10T, -10U, -10UA, -10UF, -10UG, -10UGR, -10UJ, -10UK, -10UR, -11U, -11UA, -12, -12B, -12JR, -12UA, -12UAR, -12UER, -12UHR and TSE331-3U engine series.

These engines are installed on, but not limited to, Dornier 228 series, Fairchild SA226, SA227 series, Mitsubishi MU-2B series, PAC FU24-950 and Twin Commander 680, 690 series aircraft.

Requirement: To prevent uncontained failure of first, second and third turbine rotors due to low-cycle-fatigue (LCF) and damage to the aircraft, accomplish the following:

1. For turbine rotors installed before the effective date of this AD and currently or previously used in **special-use operations**:

Determine the total equivalent cycles accrued for the turbine rotors per the instructions in paragraph 2.A. of the applicable Honeywell Alert Service Bulletin (ASB) No. TPE331-A72-2111 for TPE331-1 through -6 series engines and TSE331-3U engines, ASB TPE331-A72-2123 for TPE331-8 through -9 series engines, ASB TPE331-A72-2130 for TPE331-10 through -11 series engines, and ASB TPE331-A72-2131 for TPE331-12 series engines.

Note 1: Special-use operations is defined as an engine that accrues major and minor cycles and is installed in an aircraft that makes multiple takeoffs and landings without engine shutdown.

Note 2: If it is not possible to determine the cycles for special-use operations due to the absence of actual data regarding the number of takeoffs and landings per major cycle, use an estimated ratio of six takeoffs and landings per major cycle.

Note 3: A major cycle is an engine start, takeoff, landing, and shutdown.

Note 4: A minor cycle which occurs within a major cycle, is an additional landing with an engine speed reduction to ground idle with no engine shutdown followed by a takeoff.

Record the total equivalent cycles accrued for each turbine rotor by complying with the recording requirements of the applicable Honeywell/AlliedSignal Service Bulletin (SB) No. TPE/TSE331-72-0019 for TPE331-1 through -6 series engines and SB TSE331-3U model engines, SB TPE331-72-0117 for SB TPE331-8 through -9 series engines, SB TPE331-72-0180 for TPE331-10 through -11 series engines and SB TPE331-72-0476 for TPE331-12 series engines.

Note 5: The total equivalent cycles is the combination of major and minor cycles as specified in the applicable SBs. Record the total equivalent cycles on the Life Limited Part Log Card using the same procedure as specified in the applicable SBs.

Replace turbine rotors per the turbine rotor removal schedule in table 1 of the applicable Honeywell Alert Service Bulletin (ASB) No. TPE331-A72-2111 for TPE331-1 through - 6 series engines and TSE331-3U engines, ASB TPE331-A72-2123 for TPE331-8 through -9 series engines, ASB TPE331-A72-2130 for TPE331-10 through -11 series engines, and ASB TPE331-A72-2131 for TPE331-12 series engines.

2. For used turbine rotors installed on or after the effective date of this AD, and currently or previously used in **special-use operations**:

Determine and record the total equivalent cycles per requirement 1 of this AD.

Replace turbine rotors per the turbine rotor removal schedule in table 1 of the applicable Honeywell Alert Service Bulletin (ASB) No. TPE331-A72-2111 for TPE331-1 through - 6 series engines and TSE331-3U engines, ASB TPE331-A72-2123 for TPE331-8 through -9 series engines, ASB TPE331-A72-2130 for TPE331-10 through -11 series engines, and ASB TPE331-A72-2131 for TPE331-12 series engines.

3. For all new (zero cycles) turbine rotors installed on or after the effective date of this AD used in **special-use operations**:

Use the new counting method for counting and recording minor and major cycles, per requirement 1. Using the ratio of six takeoffs and landings per major cycle for unknown cycle history, is not permitted.
(FAA AD 2006-14-03 refers)

Note 6: The turbine rotor cycle life limits are specified in the turbine rotor removal schedule in table 1 of the applicable ASB TPE331-A72-2111 for TPE331-1 through - 6 series engines and TSE331-3U engines, ASB TPE331-A72-2123 for TPE331-8 through -9 series engines, ASB TPE331-A72-2130 for TPE331-10 through -11 series engines, and ASB TPE331-A72-2131 for TPE331-12 series engines.

Note 7: Turbine rotors include first, second and third stage seal plates, air seals, rotor disks, wheels, and assemblies and are parts that have P/Ns specified in applicable SB TPE/TSE331-72-0019 for TPE331-1 through -6 series engines and SB TSE331-3U model engines, SB TPE331-72-0117 for SB TPE331-8 through -9 series engines, SB TPE331-72-0180 for TPE331-10 through -11 series engines and SB TPE331-72-0476 for TPE331-12 series engines.

Note 8: A "used turbine rotor" is a turbine rotor whose cycles- since-new are more than zero.

Compliance: 1. Determine and record the total equivalent cycles accrued within 100 major cycles or upon removal of the turbine rotor(s), whichever occurs sooner.

Replace turbine rotors by 27 April 2007 or per the turbine rotor removal schedule in table 1 of the applicable Honeywell ASB, whichever occurs later.

2. Before further flight.

3. From the effective date of this AD.

Effective Date: 27 July 2006

DCA/AIR/24 Cancelled – FAA AD 2015-12-04 refers**Effective Date:** 22 July 2015**DCA/AIR/25 First Stage Turbine Disks – Replacement****Applicability:** Model TPE331-10 and TPE331-11 series turboprop engines fitted with a first stage turbine disk P/N 3101520-1 or 3107079-1 with S/N 2-03501-2299, 2-03501-2300, 2-03501-2301, 2-03501-2302 or 2-03501-2304.

These engines are installed on, but not limited to, British Aerospace Jetstream 3201 series aircraft, Cessna model 441 Conquest aircraft, CASA C-212 series aircraft, Dornier Luftfahrt Dornier 228 series aircraft, Hawker Beechcraft (formerly Raytheon, formerly Beech) B100, C90 and E90 series aircraft, M7 Aerospace (formerly Fairchild) SA226 and SA227 series aircraft, Mitsubishi MU-2B series aircraft, PZL M18 series aircraft, and Twin Commander 680 and 690 series aircraft.

Requirement: To prevent uncontained failure of the first stage turbine disk which could result in damage to the aircraft, accomplish the following:

1. Remove first stage turbine disks P/N 3101520-1 or P/N 3107079-1 with S/N 2-03501-2299, 2-03501-2300, 2-03501-2301, 2-03501-2302 or 2-03501-2304 from service.
2. First stage turbine disks P/N 3101520-1 or P/N 3107079-1 with S/N 2-03501-2299, 2-03501-2300, 2-03501-2301, 2-03501-2302 or 2-03501-2304 shall not be fitted to any engine.

Note: Honeywell International Inc. ASB No. TPE331-72-A2150 dated 13 June 2008 pertains to the subject of this AD.
(FAA AD 2009-17-05 refers)

- Compliance:**
1. Within the next 25 hours TIS or 25 cycles, whichever occurs sooner.
 2. From 1 September 2009.

Effective Date: 1 September 2009**DCA/AIR/26A Main Shaft Bearing – Inspection****Applicability:** All model TPE331 series turboprop engines fitted with PMA replacement Dixie Aerospace main shaft bearings P/N 3108098-1WD with a S/N listed in table 1 of this AD.**Note 1:** This AD revised to list affected Dixie Aerospace main shaft bearings P/N 3108098-1WD by S/N for clarification.**Requirement:** To prevent main shaft bearing failure which could result in engine damage, loss of engine power and damage to the aircraft, accomplish the following:

Review the aircraft/engine records and determine if the engine was overhauled or replaced since 1 February 2010 and determine if a Dixie Aerospace LLC main shaft bearing P/N 3108098-1WD with S/N listed in table 1 of this AD is installed in the engine/s.

If an affected bearing P/N 3108098-1WD is found fitted, replace the bearing before further flight.

Table 1 – Affected Dixie Aerospace, LLC main shaft bearings P/N 3108098-1WD:

Affected S/N:				
A10-1727	A10-1762	A10-1764	A10-1770	A10-1771
A10-1775	A10-1776	A10-1780	A10-1786	A10-1789
A10-1796	A10-1798	A10-1799	A10-1800	A10-1801
A10-1803	A10-1804	A10-1805	A10-1809	A10-1810
A10-1811	A10-1814	A10-1818	A10-1822	A10-1825

Note 2: This AD is applicable to Part Manufacturer Approval (PMA) main shaft bearing P/N 3108098-1WD manufactured by Dixie Aerospace LLC.

Note 3: Main shaft bearings with P/N 3108098-1 and without a WD suffix after the P/N are not affected by this AD.
(FAA AD 2011-18-51R1 refers)

Compliance: Within the next 10 hours TIS unless previously accomplished.

Effective Date: DCA/AIR/26 - 19 August 2011
DCA/AIR/26A - 1 December 2011

DCA/AIR/27 First Stage Turbine Disk – Inspection

Applicability: Model TPE331-10, -10AV, -10GP, -10GT, -10N, -10P, -10R, -10T, -10U, -10UA, -10UF, -10UG, -10UGR, -10UR, and TPE331-11U turboprop engines fitted with a first stage turbine disk P/N 3101520-1 or P/N 3107079-1 with a S/N listed in table 2 of Honeywell International Inc. ASB No. TPE331-72-A2156 dated 2 December 2008.

Note 1: This AD is prompted by a report from the FAA of an uncontained failure of a first stage turbine disk which was due to a metallurgical defect.

Requirement: To prevent uncontained failure of the first stage turbine disk and possible damage to the aircraft, accomplish the inspections and corrective actions specified in FAA AD 2012-02-06.

Note 2: A copy of FAA AD 2012-02-06 can be obtained from the FAA AD website at http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAD.nsf/MainFrame?OpenFrameSet

(FAA AD 2012-02-06 refers)

Compliance: At the compliance times specified in FAA AD 2012-02-06.

Effective Date: 29 March 2012

From 1 October 2012 the Civil Aviation Authority of New Zealand (CAA) will no longer rewrite the text of State of Design ADs. Applicable State of Design ADs will be listed below and can be obtained directly from the National Airworthiness Authority (NAA) web site. The link to the NAA web site is available on the CAA web site at

<http://www.caa.govt.nz/airworthiness-directives/states-of-design/>

If additional NZ ADs need to be issued when an unsafe condition is found to exist in an aircraft or aeronautical product in NZ they will be added to the list below.

2015-12-04 Canceled – FAA AD 2016-21-07 refers

Effective Date: 28 November 2016

2015-18-03 (Correction) Engine Propeller Shaft Couplings – Inspection

Applicability: Model TPE331-5, -5A, -5AB, -5B, -10, -10R, -10U, -10UF, -10UG, -10UGR, and -10UR turboprop engines fitted with an engine propeller shaft coupling P/N 3107065-1, 865888-3, 865888-6, or 865888-8.

Effective Date: FAA AD 2015-18-03 - 13 November 2015
FAA AD 2015-18-03 (correction) - 13 November 2015

2016-18-17 2nd Stage Compressor Impeller – Inspection

Applicability: Model TPE331-3U, -3UW, -5, -5A, -5AB, -5B, -6, -6A, -8, -10, -10AV, -10GP, -10GT, -10N, -10P, -10R, -10T, -10U, -10UA, -10UF, -10UG, -10UGR, -10UR, and -11U turboprop engines, and model TSE331-3U turboshaft engines fitted with a 2nd stage compressor impeller P/N 893482-1 through to -5, inclusive, or P/N 3107056-1 or P/N 3107056-2.

Effective Date: 4 November 2016

2016-21-07 Woodward Fuel Control Unit Assemblies – Inspection

Applicability: Model TPE331-1, -2, -2UA, -3U, -3UW, -5, -5A, -5AB, -5B, -6, -6A, -10, -10AV, -10GP, -10GT, -10P, -10R, -10T, -10U, -10UA, -10UF, -10UG, -10UGR, -10UR, -11U, -12JR, -12UA, -12UAR, and -12UHR turboprop engines fitted with Woodward fuel control unit assemblies with Honeywell P/Ns as listed in Table 1 to paragraph (c) of FAA AD 2016-21-07.

Effective Date: 28 November 2016

2018-02-14 Canceled – FAA AD 2018-17-15 refers

Effective Date: 22 October 2018

2018-13-05 Hydraulic Torque Sensor Gear Assembly – Inspection

Applicability: Honeywell TPE331-1, -2, -2UA, -3U, -3UW, -5, -5B, -6, -6A, -8, -10, -10AV, -10N, -10P, -10R, -10T, -10U, -10UA, -10UF, -10UR turboprop and TSE331-3U turboshaft engines fitted with hydraulic torque sensor gear assemblies P/N 3101726-1, -2 or -3.

Effective Date: 26 July 2018

2018-17-15 Combustion Chamber Case Assembly – Inspection

Applicability: Honeywell TPE331-1, -2, -2UA, -3U, -3UW, -5, -5A, -5AB, -5B, -6, -6A, -8, -10, -10AV, -10GP, -10GT, -10N, -10P, -10R, -10T, -10U, -10UA, -10UF, -10UG, -10UGR, -10UR, -11U, -12B, -12JR, -12UA, -12UAR, -12UHR, -25AA, -25AB, -25DA, -25DB, -25FA, -43-A, -43-B, -47-A, -55-B and -61-A turboprop engines, including those engines with a -L stamped after the model number (for example, -43-BL), and

Honeywell TSE331-3U turboshaft engine models fitted with combustion chamber case assembly, P/Ns 869728-x, 893973-x, 3101668-x and 3102613-x, where “x” denotes any dash number.

Note: FAA AD 2018-17-15 retains the inspection and replacement requirements in superseded AD 2018-02-04, revises the AD applicability to include the TPE331-12 engine model and the related inspection action, correct references to certain engine models and revises the requirements to allow certain weld repair procedures.

Effective Date: 22 October 2018

*** 2018-22-01 Second Stage Turbine Rotor Assembly – Inspection**

Applicability: Honeywell TPE331-8, -10, -10N, -10R, -10U, -10UA, -10UF, -10UG, -10UGR, -10UR and -11U turboprop engines fitted with second stage turbine rotor assemblies P/N 3102106-1, -6 and -8, or P/N 3101514-1, -10 and -12.

Note: This AD supersedes FAA AD 88-12-10 to expand the applicability.

Effective Date: 10 December 2018