TELEDYNE CONTINENTAL ® AIRCRAFT ENGINE

MANDATORY SERVICE BULLETIN

The Subject Matter Of This Service Bulletin Is Incorporated In Whole Or In Part In An FAA Issued Airworthiness Directive

Category 1

MSB07-4

Technical Portions FAA Approved

SUBJECT: KELLY AEROSPACE POWER SYSTEM'S TURBOCHARGER REPLACEMENT

PURPOSE: To ensure compliance with Kelly Aerospace Power System's Service Bulletin No. 027.

COMPLIANCE Compliance is Mandatory. Issuance of a Federal Aviation Administration (FAA) Airworthiness Directive (AD) is expected on this subject.

MODELS AFFECTED: TSIO- 520-BE; TSIO-550-A,B,C,E and G

Teledyne Continental Motors (TCM) currently utilizes engine turbochargers purchased from Kelly Aerospace Power Systems. Kelly Aerospace Power Systems has issued Service Bulletin 027 covering certain TCM P/N 646677 (Kelly P/N 466304-0003) turbochargers manufactured in 2007. This bulletin is mandatory and must be complied with. An Airworthiness Directive is expected to be issued on the subject. Compliance is required as follows:

1. Any affected engine model with a serial number listed in **Table 1** must be inspected prior to further flight in accordance with the attached Kelly Aerospace Power Systems Service Bulletin 027.
2. Any of the above listed engine models which has had a turbocharger **replaced in the field** between March 1, 2007 and the effective date of this bulletin must have the turbocharger inspected prior to further flight in accordance with the attached Kelly Aerospace Power Systems Service Bulletin 027.

TABLE 1

Serial Number	Model	Serial Number	Model	Serial Number	Model
802854	TSIO550C	802867	TSIO550C	915041	TSIO550G
802855	TSIO550C	802868	TSIO550C	915042	TSIO550G
802856	TSIO550C	802876	TSIO550C	915043	TSIO550G
802859	TSIO550C	802877	TSIO550C	915044	TSIO550G
802860	TSIO550C	802878	TSIO550C	915046	TSIO550G
802861	TSIO550C	802881	TSIO550C	915048	TSIO550G
802862	TSIO550C	802882	TSIO550C	915050	TSIO550G
802863	TSIO550C	814585	TSIO550C	915061	TSIO550G
802864	TSIO550C	915033	TSIO550G	915062	TSIO550G
802865	TSIO550C	915039	TSIO550G		
802866	TSIO550C	915040	TSIO550G		

WARRANTY

Warranty coverage will be applied under the TCM Warranty Policy applicable to the engine or part.

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Service Bulletin

Compliance is Considered Mandatory

The technical content of this letter is FAA Approved

Bulletin No. 027 **DRAFT** **Issue Date: July 24, 2007**

TURBOCHARGER INSPECTION AND REPLACEMENT

INTRODUCTION:

It has come to the attention of Kelly Aerospace Power Systems of a disabled turbocharger where the turbine and compressor wheel shaft bearing journals were pushed inward and damaged on a part number 466304-0003 turbocharger. Examination of the damage revealed that a conical vibration along the turbine wheel and shaft assembly was the principal source of the damage. Investigation of the cause has determined that the turbine wheel shaft assembly for this particular turbocharger may have been improperly balanced. Continued operation with a turbine wheel shaft imbalance may result in the separation of the turbine wheel head from the shaft rendering the turbocharger inoperative and may result in the partial or total loss of engine power.

This Service Bulletin is being issued to mandate the replacement of affected turbochargers P/N 466304-0003 (TCM P/N 646677) manufactured in March 2007, as listed by serial number in the table below.

COMPLIANCE:

Prior to next flight. *If the turbocharger replacement can not be accomplished on site, a ferry permit is required to deliver the aircraft to a suitable facility for repair. (To determine if the turbocharger is suitable to apply for a ferry permit, see visual inspection below.)*

EFFECTIVITY:

Any aircraft utilizing a Teledyne Continental Motors engine with a Kelly Aerospace Power Systems turbocharger P/N 466304-0003 (TCM P/N 646677) with the serial numbers listed below.

Suspect Serial Numbers

KBL00782	KBL00796	KCL00625	KCL00679	KCL00692	KCL00705	KCL00718
KBL00783	KBL00797	KCL00626	KCL00680	KCL00693	KCL00706	KCL00719
KBL00784	KCL00581	KCL00627	KCL00681	KCL00694	KCL00707	KCL00720
KBL00785	KCL00582	KCL00629	KCL00682	KCL00695	KCL00708	KCL00721
KBL00786	KCL00583	KCL00631	KCL00683	KCL00696	KCL00709	KCL00722
KBL00787	KCL00584	KCL00632	KCL00684	KCL00697	KCL00710	KCL00724
KBL00788	KCL00585	KCL00633	KCL00685	KCL00698	KCL00711	KCL00725
KBL00789	KCL00587	KCL00636	KCL00686	KCL00699	KCL00712	KCL00726
KBL00790	KCL00588	KCL00637	KCL00687	KCL00700	KCL00713	KCL00727
KBL00792	KCL00589	KCL00638	KCL00688	KCL00701	KCL00714	KCL00728
KBL00793	KCL00590	KCL00639	KCL00689	KCL00702	KCL00715	KCL00730
KBL00794	KCL00621	KCL00677	KCL00690	KCL00703	KCL00716	KCL00731
KBL00795	KCL00623	KCL00678	KCL00691	KCL00704	KCL00717	

PROCEDURE:

CAUTION:

This procedure must be performed by competent and qualified personnel familiar with engine and airframe maintenance activities that are specific to turbocharged aircraft.

CAUTION:

Do not depend on this Service Bulletin for gaining access to the aircraft or engine. This will require that you use the applicable manufacturers maintenance manuals or service instructions. In addition, any preflight or inflight operational checks require use of the appropriate AFM or POH.

This procedure has two steps. First, the visual inspection, the purpose is to determine if the turbocharger may be used and is suitable for the relocation of the aircraft. Second, the basic instructions to remove, replace, and check the turbocharger. *See caution above. See Table on page 1 for serial numbers affected.*

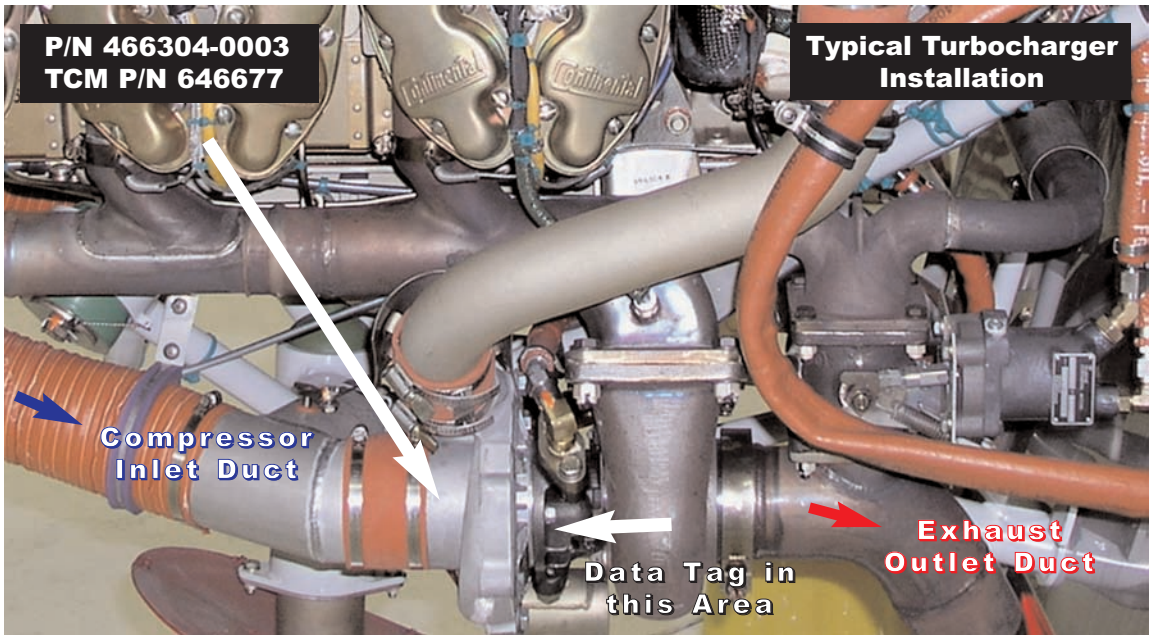


Figure 1 - Turbocharger Installation

VISUAL INSPECTION:

1. Access the aircraft turbochargers in accordance with the instructions in the aircraft maintenance manual.

2. Remove the compressor inlet ducts to expose the compressor wheels. Refer to Figure 1.

3. Visually inspect each turbocharger through the compressor inlet for any signs of contact. Look for witness marks from the impeller wheel, giving careful attention to the outer edges of the wheel blades and the inner wall of the compressor housing. Contact marks on the housing from the wheel will appear as a burnishing on the inner wall. Grooves or gouges of any sort are cause for turbocharger replacement. Utilize supplemental lighting if needed to facilitate visual inspection. Refer to Figure 2, page 3.

4. If any anomalies are noted during the visual inspection, replace the turbocharger. If nothing appears in the visual inspection, the turbocharger is suitable for further use. This will allow the aircraft to be relocated to a qualified facility for turbocharger replacement.

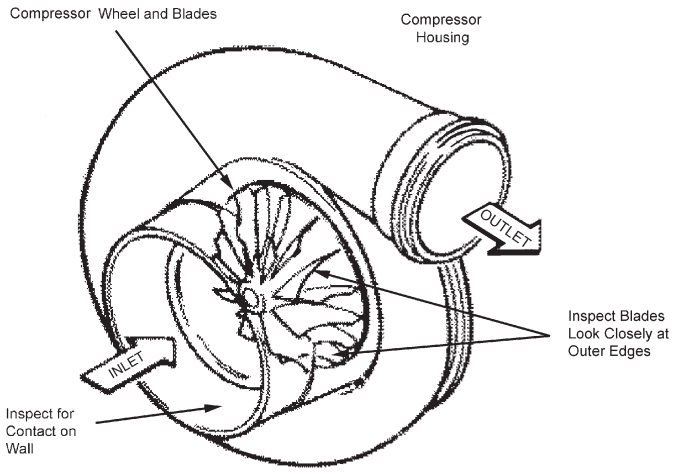


Figure 2 - Turbocharger Inspection Points

TURBOCHARGER REPLACEMENT:

1. The affected turbocharger P/N 466304-0003 (TCM P/N 646677) must be removed and replaced per the table shown on page 1. Each aircraft has two turbochargers. Check the data tag on each to identify whether the serial number of the turbocharger is one that is affected. When identification is made, remove the turbocharger from the aircraft. Removal must be in accordance with the aircraft and/or engine manufacturers maintenance manuals or service instructions. Contact the aircraft manufacturer to determine the disposition of the suspect turbocharger and information regarding the return of the turbocharger(s). All warranty applications must be made through the aircraft manufacturer. *Refer to Fig 1 as required.*

2. Upon replacement of the turbocharger, it is recommended that the inlet and outlet oil lines be flushed and the oil and oil filter be changed in accordance with the aircraft and/or engine manufacturers maintenance manual or service instructions.

3. Utilizing the applicable aircraft and/or engine manufacturers maintenance manuals or service instructions, re-install the turbocharger assembly and connect the oil lines. Connect the turbocharger compressor inlet duct and coupling, torque the clamps to manufacturer specifications. Connect the exhaust outlet duct carefully, position and torque the “V” band clamp to manufacturer specifications. *It is critical that a new gasket be installed at the oil drain adapter and the installed and torqued down properly. An oil leak in this area may result in engine oil starvation and subsequent engine failure.*

RETURN TO SERVICE:

NOTE:

Check for the latest publication issued by the applicable aircraft manufacturer regarding exact aircraft model, serial number and warranty procedures.

1. When the turbocharger has been replaced, the aircraft may now be prepared for return to service.

2. Refer to Kelly Aerospace Power Systems Service Bulletin 23 and perform the recommended turbocharger operational tests. This consists of turbocharger pre-lubrication, ground running tests, and and operational flight test. Make sure no air, exhaust, or oil leaks are present. *Service Bulletin may be viewed or downloaded online via www.kellyaerospace.com.*

4. Utilizing the applicable aircraft and engine manufacturers maintenance manuals, install any portion of the aircraft removed to gain access.

5. Upon successful completion of this service bulletin per the applicable compliance time listed on page 1, make an appropriate log book entry.

PARTS REQUIRED:

One (1) or two (2) each, turbocharger, part number 466304-0003* (TCM P/N 646677) as required. Up to (4) each, turbocharger oil inlet or drain adapter gasket, part number as per the engine or aircraft manufacturers parts list. Parts must be obtained from the engine or airframe manufacturer.

** The approved turbocharger replacement part may be P/N 466304-0003 (new) or P/N 466304-9003 (rebuilt).*

WARRANTY STATEMENT:

The sole warranty applicable to this service publication is related to the terms and conditions in the aircraft or engine manufacturers Limited Warranty Policy. This publication does not imply or state any responsibility for the workmanship of any person or entity performing work or maintenance on the turbocharger, engine, or aircraft. All claims for warranty must be forwarded to the the airframe and/or engine manufacturer per the requirements contained in their Limited Warranty policies as applicable.

CONTACT INFORMATION:

If you have any questions concerning the instructions in this service bulletin, please contact Kelly Aerospace Power Systems Technical Support at 888-461-6077.

Questions concerning aircraft service or operation must be forwarded to the applicable manufacturer of that product.