

TURBOCHARGER EXHAUST FLANGE INSPECTION AND/OR TURBINE HOUSING REPLACEMENT

INTRODUCTION:

It has come to the attention of Kelly Aerospace Power Systems (KAPS) that a possible interference condition may exist between the turbocharger turbine exhaust outlet flange area and the mating flange of the airframe exhaust tube. The piloted type exhaust tube flange may contact the filet radius of the turbine housing relief cut not allowing the two flange faces to meet properly. (see Figure 3 on page 3) Turbine housings manufactured between August 25, 2006 and October 12, 2007 are suspect. If this condition exists, exhaust pipe security may be compromised. While the exhaust outlet side of the turbocharger turbine has relatively low pressures, the potential of an exhaust leak, a loosening of the "V" band clamp, and a rise of temperature within the engine cowling exist. Left uncorrected, failure of the "V" band clamp may occur with possible loss of the tail pipe connection with resultant uncontained hot exhaust gas within the engine cowl.

This Service Bulletin is being issued to mandate the inspection and/or replacement of affected turbocharger turbine housing(s) P/N 441977-25 as found on KAPS turbocharger P/N 409170-0001 (Lyc LW-12463) per the serial numbers listed in the table below.

COMPLIANCE:

Within the next ten (10) hours time in service or at the next regularly scheduled maintenance event or annual inspection which ever occurs first.

EFFECTIVITY:

Any Piper PA31-350 Navajo Chieftain, Piper T1020, or Colemill Panther conversion using a 350 hp engine which utilizes a Kelly Aerospace Power Systems turbocharger P/N 409170-0001 with the serial numbers listed below.

Suspect Serial Numbers

JFL00413	JFL00414	JHL00351	JHL00352	JIL00741	JIL00742	JIL00743	JIL00744
JIL00745	JIL00746	JIL00747	JIL00748	JIL00749	JIL00750	JIL00751	JIL00752
JIL00753	JIL00754	JIL00755	JIL00756	JIL00757	JIL00758	JIL00759	JIL00760
JIL00761	JIL00762	JIL00763	JIL00764	JIL00765	JIL00766	JIL00767	JIL00768
JIL00769	JIL00770	JIL00771	JIL00772	JIL00773	JJL00098	JJL00100	JJL00101
JJL00102	JJL00103	JJL00104	JJL00105	JJL00106	JJL00107	JJL00108	JJL00109
JJL00110	JJL00111	JJL00112	JJL00113	JJL00114	JJL00115	JJL00116	JJL00117
JJL00118	JJL00119	JJL00510	JHL00341	JHL00342	JHL00343	JHL00344	JHL00345
JHL00346	JHL00347	JHL00348	JHL00349	JHL00350	KBL00771	KBL00772	KBL00773
KBL00774	KBL00775	KBL00776	KBL00777	KBL00778	KBL00779	KBL00780	KCL00180
KCL00181	KCL00182	KCL00183	KCL00184	KCL00185	KCL00186	KCL00187	KCL00188
KCL00189	KCL00190	KCL00191	KCL00192	KGL00028	KIL00089	KIL00659	KIL00843
KIL00844	KIL00845	KIL00846	KIL00847	KIL00848	KIL00850	KIL00851	KIL00852

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.

INSPECTION:

NOTE:

If the turbochargers installed on both left and right engines can be positively identified **as not being affected** by this service bulletin using the aircraft log books or other certified aircraft paperwork, no further action is necessary. If it cannot be established positively, then inspection of the data tag will be required.

1. Access the aircraft turbocharger by removing the engine cowling as required in accordance with instructions contained in the Piper Aircraft maintenance manual. Refer to Figure 1.
2. Identify the affected turbocharger P/N 409170-0001 (LW-12463) by checking the data tag for part number and serial number to identify whether it is one that is affected. If the turbocharger is affected continue with these instructions, if not, proceed to the "Return to Service" section step 3 and 4.
3. Carefully remove the "V" band clamp from around the turbocharger turbine housing at the turbocharger exhaust outlet taking care not to move the exhaust tube and tail pipe assembly. Figure 2 shows a "V" band clamp improperly installed, notice gap and clamp riding up on flange.
4. Inspect the turbocharger turbine housing at the flange area captured by the "V" band clamp. Use a feeler gauge at the split line between the turbine housing flange and the exhaust tube flange all around the circumference. The maximum gap should not exceed .005 inch at any point. **If you suspect or know that the exhaust tube and tail pipe assembly was moved at any point prior to checking for the gap, apply pressure towards the turbine housing flange before taking a measurement.** Refer to Figure 3 on page 3.
5. If a gap exceeding tolerance is found, the turbocharger and tail pipe assembly should be removed. To accomplish this, follow the instructions contained in the Piper Aircraft or STC holder's maintenance manual or as applicable the appropriate Lycoming service information. Inspect and clean flange areas using methods recommended by Piper or Lycoming. *Do not attempt repair of the turbine housing.* Connect the cleaned exhaust tube to the turbocharger and re-inspect per step 4 above. If the gap still exceeds tolerance, the turbocharger turbine housing (P/N 441977-25) must be replaced. If gap tolerance is **not exceeded**, metal stamp a 1/8" upper case "I" in the area shown in Fig 4 (per step 7) to indicate the instruction was performed then proceed to step 10.

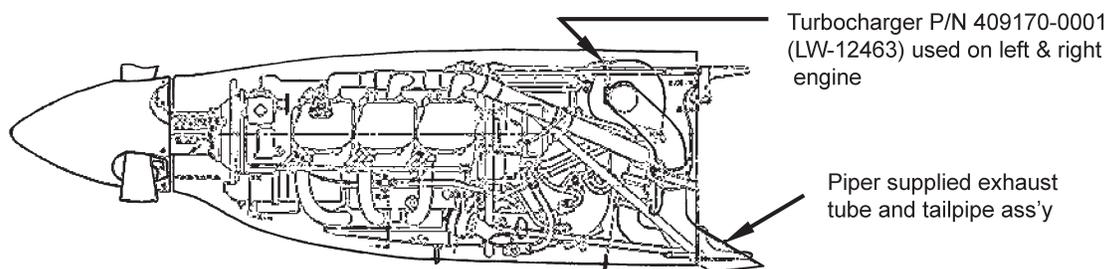


Figure 1 - Turbocharger Installation

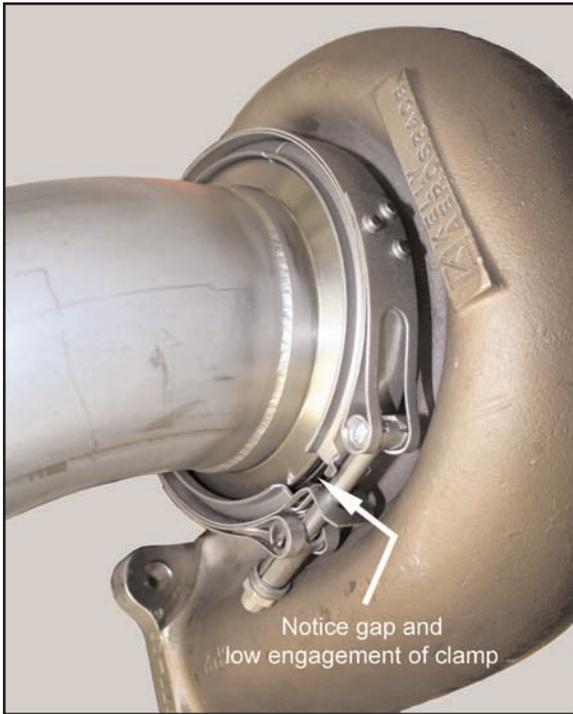


Figure 2 - "V" band Clamp Showing Gap



Figure 3 - Gap Inspection Area

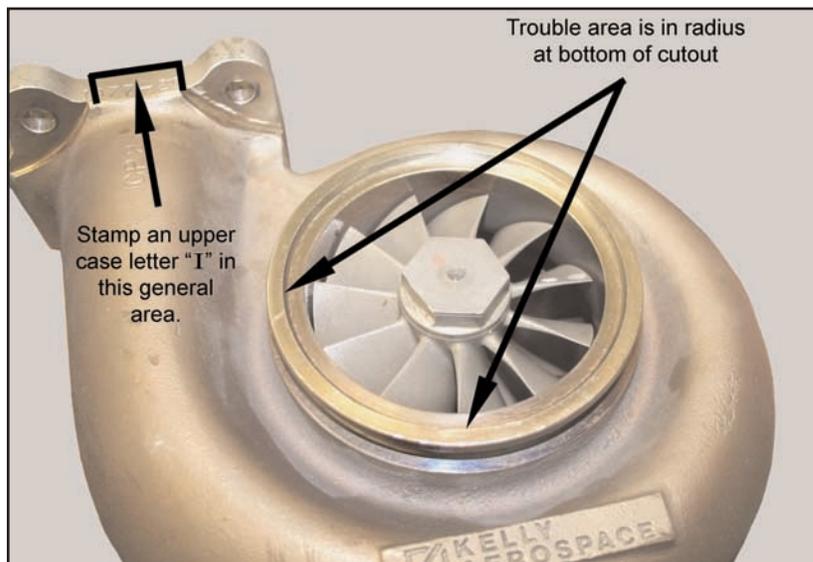


Figure 4 - Turbine Housing Trouble Area

6. Upon removal, the turbocharger must be sent to a properly certificated part 145 repair station (or foreign equivalent) experienced in turbocharger repair.
7. Once the turbocharger has been repaired and returned, visually inspect for condition and orientation of the turbine housing then, using a 1/8" metal stamp of an upper case "I", stamp the turbine housing in the area shown in Figure 4. Care must be taken not to extend stamp within 1/8" of the mating edge as it may bulge and distort the mating surface. When stamped, proceed with the installation.
8. Utilizing the applicable aircraft, engine, and/or STC holders maintenance manuals or service instructions, re-install the turbocharger assembly.

NOTE:

If the existing "V" band clamp is to be used, it should be inspected for damage on the inside of the "V" prior to re-use. If the inside radius of the "V" is flattened or cut it should not be used. Obtain the clamp part number from the appropriate aircraft or engine parts catalog.

9. When connecting the exhaust tube and tail pipe assembly to the repaired turbocharger, it is advisable to re-check the flange fit per step 4 prior to installing the clamp. Carefully, position and install the "V" band clamp to manufacturer specifications and proceed to "Return to Service" below.
10. If gap tolerance was **not exceeded** and the metal stamp "I" has been applied per step 5, carefully, position and install the "V" band clamp to manufacturer specifications and proceed to "Return to Service" below.

RETURN TO SERVICE:

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 an 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.*
3. Utilizing the applicable aircraft and engine manufacturers maintenance manuals, install the upper and lower engine cowls removed to gain access.
4. Upon successful completion of this service bulletin per the applicable compliance time listed on page 1, make an appropriate log book entry that includes the affected turbocharger model and serial number, along with an appropriate statement of the inspection and/or repair.

MATERIAL REQUIRED:

One (1) each, turbocharger turbine housing, part number P/N 441977-25 as required. All KAPS parts must be obtained through an AVIALL, Inc.. supplier. AVIALL is the sole distributor for KAPS turbocharger parts *NOTE: Other incidental parts may be required during the removal and installation of the turbocharger. These parts must be obtained per the STC holders or aircraft manufacturers parts list from the applicable manufacturer.*

WARRANTY STATEMENT:

Kelly Aerospace Power Systems will supply warranty consideration for each affected KAPS Turbine Housing (up to two per aircraft) P/N 441977-25. Additionally, up to one (1) hour labor per engine or two (2) hours labor per aircraft (at 75.00 USD) will be allowed for the inspection and repair required in this service bulletin. Warranty must be filed through AVIALL Inc. with the affected turbine housing returned. All normal KAPS warranty procedures apply. No other warranty consideration related to this service publication applies. 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.

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.