



Quality Aircraft Accessories

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8130-3 ENCLOSED

Attention Technicians:

- Fittings, brackets, check valves, and other accessories attached to this unit are not part of the return-to-service documentation.
- Returning brackets and fittings is the responsibility of the installation technician.



TURBOCHARGER INSTALLATION

- **Note:** *Follow the guidelines of the Supplemental Type Certificate (STC) or Type Certificate (TC) holder for your engine or airframe. Hartzell Engine Technologies (HET) holds no TC's for turbocharged engines or components.*
- **Warning:** Turbochargers operate at high speeds and temperatures. Use extreme caution to avoid injury or damage. Keep hands and foreign objects away from openings, and avoid contact with hot surfaces.
- **Caution:** Pre-oil the turbocharger and ensure all ducting, lines, and devices are properly connected and operational before starting the engine. Failure to comply may result in turbocharger failure, engine damage, or injury.

For additional technical information, consult HET's Overhaul Manual (p/n 400600-0000) or Troubleshooting Guide (p/n 400888-0000).

KEY PRE-INSTALLATION STEPS

1. Inspect the Turbocharger Replacement Cause:

- Determine if engine air induction, fuel, exhaust, or oil issues caused the failure. Turbocharger bearing or seal damage often results from external system problems.
- Even brief reductions in oil supply can cause significant turbocharger damage, even if engine bearings remain unaffected.

2. Check Oil and Return Systems:

- Restrictions in oil return lines can prevent proper scavenging, causing leaks or flooding in the center housing.
- Inspect for restrictions, deposits, or low boost pressure, which can also lead to leaks.

3. Investigate External Issues:

- Carefully examine for debris, air inlet obstructions, or exhaust manifold foreign material, as these can cause significant damage to turbocharger wheels.

4. Prepare the Turbocharger for Installation:

- Some bolts may be deliberately left loose for alignment during installation. Tighten all bolts and align housings as specified in the STC or TC manual.

REALIGNMENT OF END HOUSINGS

1. **Clean Exhaust Flange:** Inspect for erosion or flatness. Install a new gasket (never reuse old gaskets).
2. **Inspect Oil Lines and Fittings:** Check for kinks, deposits, or restrictions. Resolve any issues immediately.
3. **Pre-Oil Bearings:** Fill the oil inlet with clean oil and spin the compressor wheel by hand to coat bearings. Crank the engine with the starter until oil flows steadily.
4. **Align Housings:**
 - Loosen bolts slightly for alignment. Do not exceed 1.5 turns to avoid wheel damage.
 - Align oil inlet/outlet pads and ducting connections, ensuring no strain is placed on components.
5. **Secure Components:** Tighten all bolts and the V-band nut alternately to ensure proper alignment. Bend lockplate tabs to secure bolts. Do not reuse lockplates.
6. **Verify Operation:** Ensure the compressor wheel spins freely. If rubbing occurs, resolve the issue before proceeding.

ENGINE START-UP CHECKLIST

1. **Build Oil Pressure:** Crank the engine with ignition and fuel off for 10-15 seconds to confirm oil pressure.
2. **Start the Engine:** Idle for 3-4 minutes while monitoring oil pressure. Shut down if fluctuations occur.
3. **Inspect for Leaks:** Minor seepage may occur during pre-oiling or storage but correct significant leaks before returning to service.

KEY TORQUE SPECIFICATIONS

- **400 Series:**
 - V-Band Nut: 40-60 in-lbs.
- **600 Series:**
 - V-Band Nut: 15-20 in-lbs.
 - Compressor Housing Bolts: 80-100 in-lbs.
 - Pipe Plugs: 70-90 in-lbs.

Temporary Smoking: *A freshly overhauled turbocharger may emit smoke for up to 30 minutes as seal lubrication burns off and a carbon film forms.*

Caution: Installation of a turbocharger with the oil drain more than 35 degrees from vertical can result in improper drainage and oil leakage past the piston ring seal.

Caution: Operating the engine at speeds faster than idle immediately after start-up may damage turbocharger bearings due to oil lag, especially in cold weather or after extended inactivity.

Service Bulletin No. 23: Turbocharger System Operational Test must be performed prior to return to service. Refer to the latest bulletin at [Service Bulletin No. 23](#).

Turbocharger Housings:

- Compressor and turbine housing bolts may be left loose for proper alignment during shipping. Bolts must be torqued as specified in engine/airframe manuals.
- After torquing, bend lock tabs to secure bolts.

Original Nameplates: As per overhaul manuals, retain the original nameplate in the aircraft records when removed for a field overhaul.

Core Return Address:

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TROUBLESHOOTING



TORQUE VALUES