T-039 Inspection Limits and Repair

INSPECTION

P/N(s): E23071313

Revision: D **Issued: 7/25/17**

Power Turbine Inner Shaft

Engine Application(s):		250-C28B, C28C, C30, C30G, C30G/2, C30L, C30M, C30P, C30R, C30R/1, C30S, C30U
Subject:		Inspection and Rework Procedures for the E23071313 Power Turbine Inner Shaft.
Compliance:		Any time the PT Inner Shaft is removed. Refer to the Tables and Figure for Inspection and Rework Limits. Table 1: Inspection and Rework Limits Figure 1: Inspection and Repair Table 2: Inspection Limits
Notes:		Refer to OEM's published data for installation, engine operation, and disassembly.
Revisions:	N/C	Dated: 7/20/97 Initial release.
	A	Dated: 1/01/01 Added P/N E23071313.
	B	Dated: 9/04/09 Updated EXTEX to TIMKEN.
	C	Dated: 2/03/16 Updated Timken to EXTEX Engineered Products.
	D	Dated: 7/25/17: Corrected nickel plate coverage definition in Figure 1. Removed references to PN E23038137.

E23071313
Power Turbine Inner Shaft
Inspection and Rework Limits

Condition	Service Limit	Repair Limit	Corrective Action
Cracks, Visual and MPI*	Cracks are not acceptable.	No Repair.	Replace.
Nicks, grooves, gouges, scratches, or spalls.	None.	Min. wall of 0.030 in. blend limit.	Blend or Replace.
Bearing inner race wear.	1.14142 in. Refer to Table 2.		Replace.
Loss of Alseal coating.	See Fig. 1.		Reapply Alseal coating.
Corrosion on bearing race.	None.		Replace.
Pitting on bearing race.	Max. pit size 0.010 in. (0.030 in. radius scriber). Max. cluster of pits (3 or more, including open slag inclusions) within an area ¼ in. in diameter, each pit no longer dimension than 0.006 in., which can definitely be felt with a 0.030 in. radius scriber.		Replace.
Corrosion Pitting on Areas Other than Bearing Race**	Min. wall thickness of 0.030 inch after blending.		Replace.

Notes:
* MPI technique as follows: A) Circular between heads
B) Longitudinal in a coil.
** Use sharp scribe, 0.030 inch radius, to detect corrosion pit 0.006 inch or larger.

TABLE 1: Inspection and Rework Limits

E23071313
Power Turbine Inner Shaft
Inspection and Repair

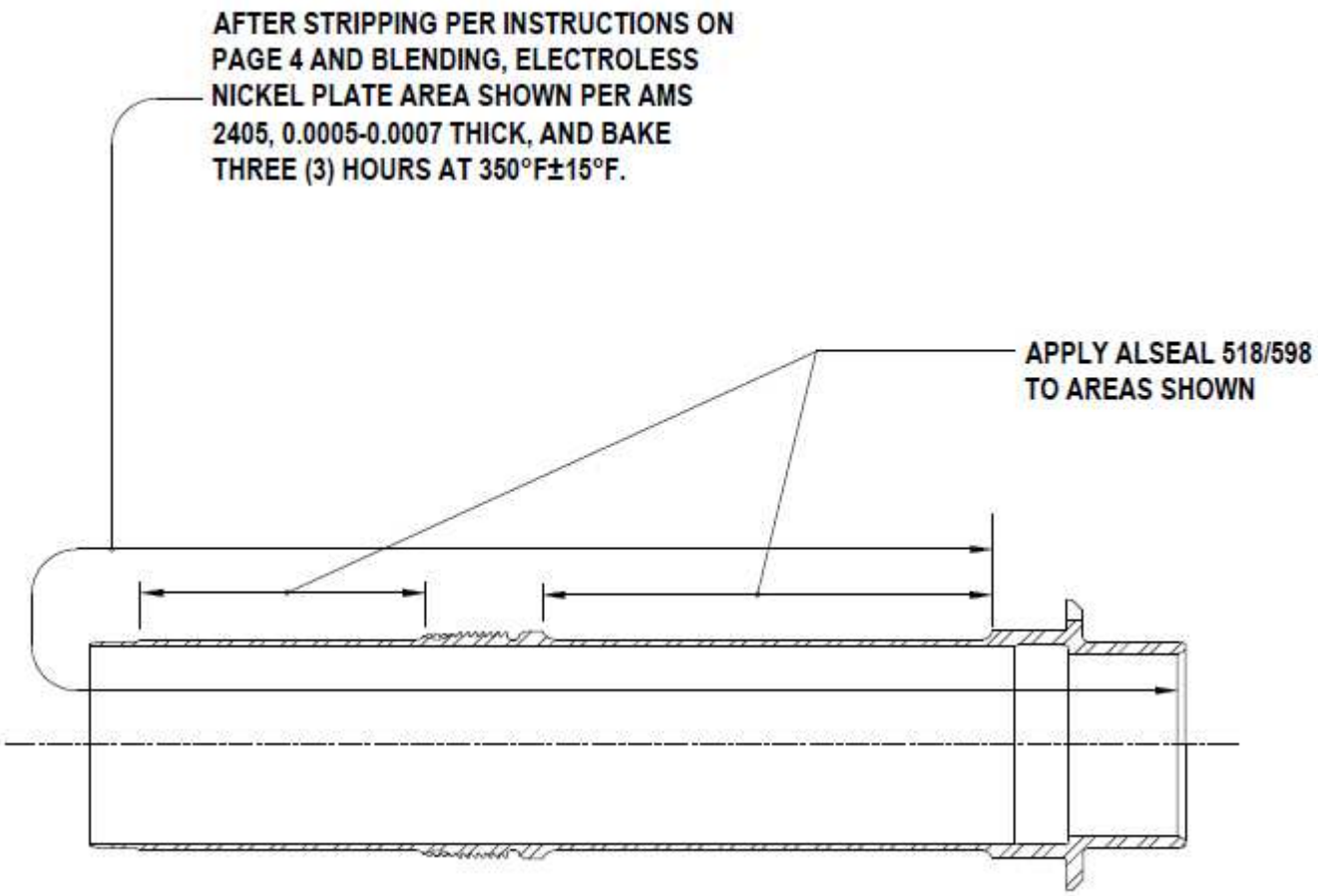

FIGURE 1: Inspection and Repair

ALSEAL COVERAGE MUST BE COMPLETE TO SHOULDERS AS SHOWN. ALSEAL NOT PERMITETD ON ADJACENT SURFACES.

E23071313
Power Turbine Inner Shaft.
Inspection Limits

Condition	Serviceable	Nominal	Corrective Action
Bearing ID (roller set)	1.1424	1.1420-1.1424	Replace.
Bearing OD	1.6533	1.6533-1.6535	Replace.
Shaft OD (inner race)	1.1410	1.1410-1.1414	Replace.
Damper Groove OD	1.7565	1.7530-1.7550	Plate Damper Groove.
Housing ID	1.6585	1.6575-1.6585	Plate Bearing Bore.

TABLE 2: Inspection Limits

The following procedure is to be used at time of overhaul to allow inspection of the power turbine inner shaft.

1.0 Remove Alseal coating by soaking the part in a caustic solution of potash.

WARNING

When mixing the caustic solution, wear protective gloves, apron and safety glasses. Add the caustic potash to the water. Never add water to the caustic potash or solution. To do so could result in the caustic potash or solution boiling over violently.

(a) Add two pounds of potash to one gallon of water. (0.907 kg potash to 3.8 liters of water.)
(b) Stir material well until all is mixed.
(c) Soak the part in the solution for one hour at 125°F (79°C). Rinse with clear water.
(d) After rinsing, remove the residue by glass bead peening at 20 psi (138 kPa).

Remove the nickel coating by immersing the clean dry shaft into concentrated nitric acid. Rinse thoroughly in clear running water for 30 to 60 seconds. Immerse in clean hot water, 160°F (71°C) minimum, for at least 10 seconds, then dry.

E23071313
Power Turbine Inner Shaft.

1.0 Apply electroless nickel plating to the areas shown in Figure 1. The following procedure is to be used for the shafts that have passed the inspection criteria and are considered serviceable.

2.0 Apply Alseal 518/598 coating over the electroless nickel plating in areas shown in Figure 1 except for:

a. Base coat shall be 0.002-0.004 inch thick (two layers 0.001-0.002 inch).

b. Prior to application of top coat, burnish base coat using 00 grade steel wool or lightly aluminum oxide grit blast until a reading of 0.25-3.0 ohms is obtained when the probes of an ohmmeter are lightly held 1.00 inch apart.

c. No requirements are established for coating thickness for deep recesses in which controlled coating thickness cannot be obtained under normal application techniques.

NOTES: Scratches on the inner shaft that occur during disassembly and assembly are acceptable if:
(1) Scratched area is less than 5% of the coated area.
(2) Maximum scratch is 0.040 X 0.750 inch.
(3) Nickel plating is not damaged under the scratch. The Alseal coating is sacrificial so any uncoated area of a limited size will be protected by the coating on adjacent surfaces.

Scratches on the coated safety flange are acceptable if nickel plating under the scratch is not damaged.