T-601 Inspection Limits and Repair

3840223-4E, E3840282-3 1st Stage Turbine Blades

Engine Application(s):		Honeywell (Allied Signal) 131-9 Series Auxiliary Power Unit (APU).
Subject:		Inspection and Repair Limits
Compliance:		On condition or at scheduled APU service event.
Revisions:	A	Dated: 1/29/07
	B	Dated: 7/20/09 Added E3840282-3. Updated from EXTEX to TIMKEN.
	C	Dated: 2/08/16 Updated from Timken to EXTEX Engineered Products.

1. Refer to OEM's published data for instructions for APU disassembly, cleaning, inspection, rework, assembly, operation, and testing.

2. Use the OEM Instructions for Continued Airworthiness (ICA) for the equivalent OEM part to inspect, repair, and overhaul the subject 1st Stage Turbine Blades.

Note: As part of the FAA approval process, Extex demonstrated that the OEM's ICA is applicable to these replacement parts.

3. The Extex blade is made from the same material and has the same configuration as the equivalent OEM part, except that some Extex blades are coated with a diffused platinum aluminide (Pt-Al) coating as an improvement over the PVD CoCrAlY coating. These blades do not have metal spray on the fir tree and the blade may be returned to service without metal spray on the fir tree. Follow the applicable OEM service information if metal spray is desired. See applicable additional inspection data below.

4. Extex recommends coating the subject 1st Stage Turbine Blades for return to service with a diffused platinum aluminide coating. Contact Extex for recommended coating sources.

5. All work must be performed at an FAA approved repair facility.

Additional Inspection Data Applicable to Blades coated with diffused platinum-aluminide

- 3840223-4E blades coated with diffused platinum aluminide were manufactured without metal spray on the fir tree and are marked with a lot number of 50091 or higher. All E3840282-3 blades have the diffused platinum aluminide coating and were manufactured without metal spray on the fir tree.
- The airfoil is coated with a diffused Pt-Al coating and the under platform "pocket" is coated with a simple diffused aluminide (reference Figure 1) for improved corrosion resistance.
- Inspect the blade firtree for wear per Figure 2.
- Inspect the airfoil for serviceability per Figure 3.
- After coating, shot peen the fir tree per Figure 4.

Figure 1 – Coating Definition

Coating Area: Coat platform and airfoil where shown with diffused platinum aluminide. Optional to coat ground sides of platform. Coat underneath platform with diffused aluminide. Leakage past the masking permitted provided the firtree lobe is not coated. After coating, age at 1600 deg. F +/- 25 deg. F for 20 hours +/- 15 minutes and air cool.

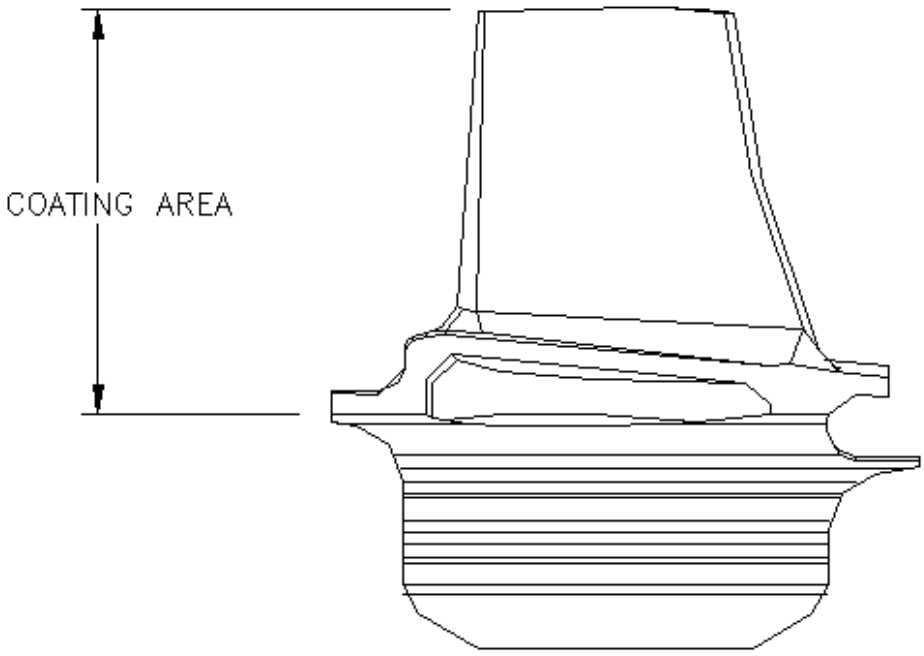
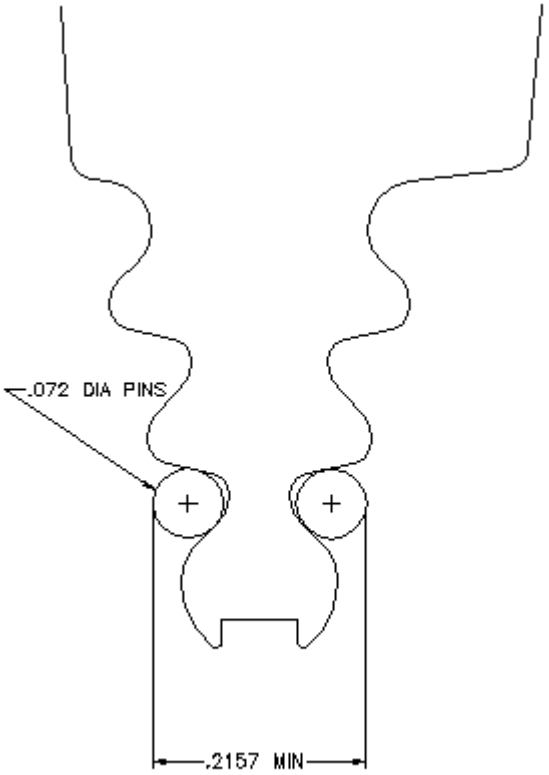
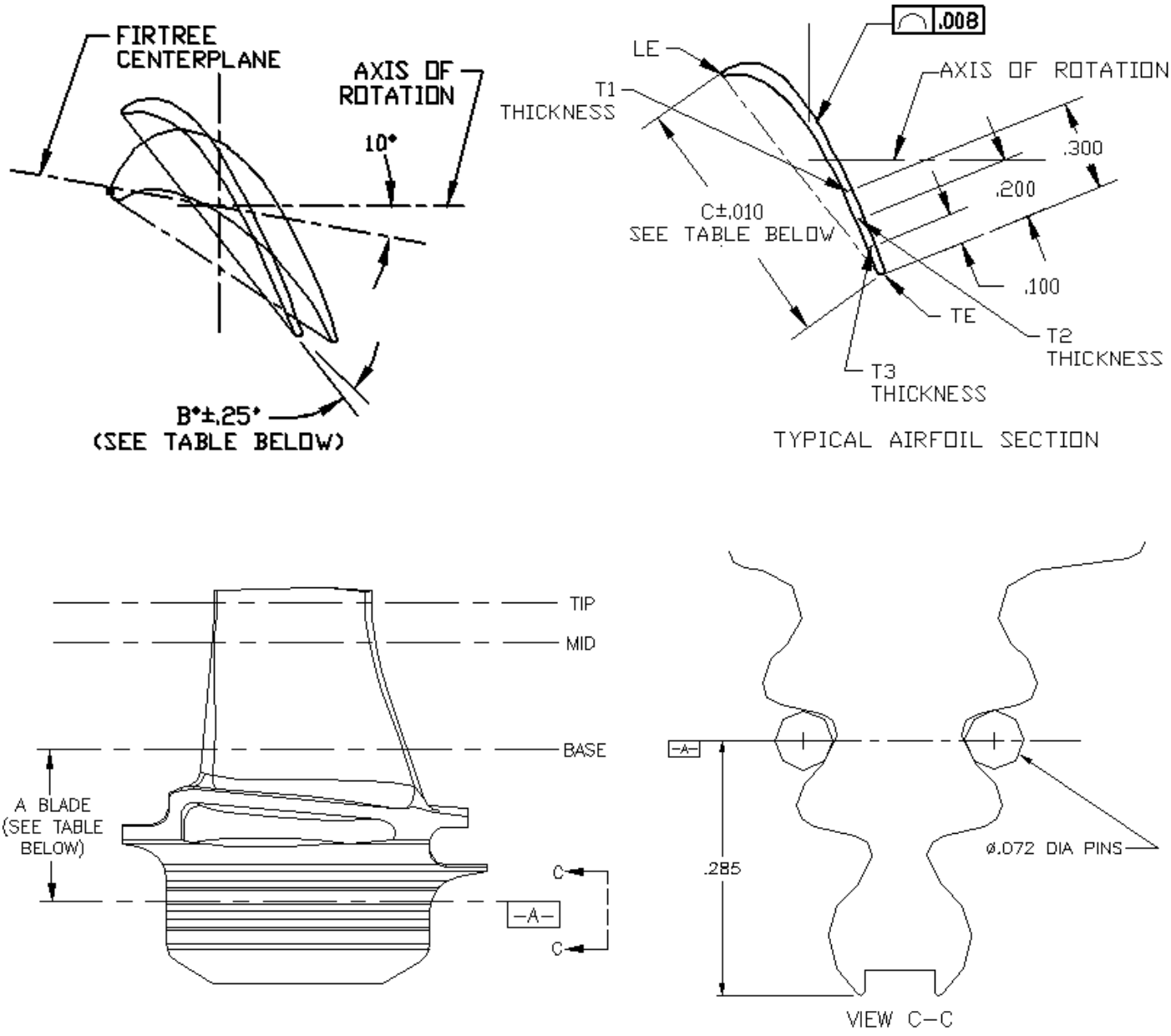


Figure 2 – Firtree Inspection



T-601 Inspection Limits and Repair

Figure 3 - Airfoil Inspection



First Stage Turbine Blade Airfoil Dimensions

A	B ANGLE	C	SECTION	T1	T2	T3
0.575	0.00	0.820	BASE	0.070 MIN	0.043 MIN	0.027 MIN
0.775	10.44	0.823	MID	0.040 MIN	0.028 MIN	0.023 MIN
0.975	18.78	0.856	TIP	0.023 MIN	0.022 MIN	0.028 MIN

Figure 4 – Shot Peen Instructions

Shot peen Area: Shot peen all surfaces below platform per AMS 2430 using CS70R or CS110 media. Intensity 4-7A. Coverage 200%. Do not shot peen the pocket.