

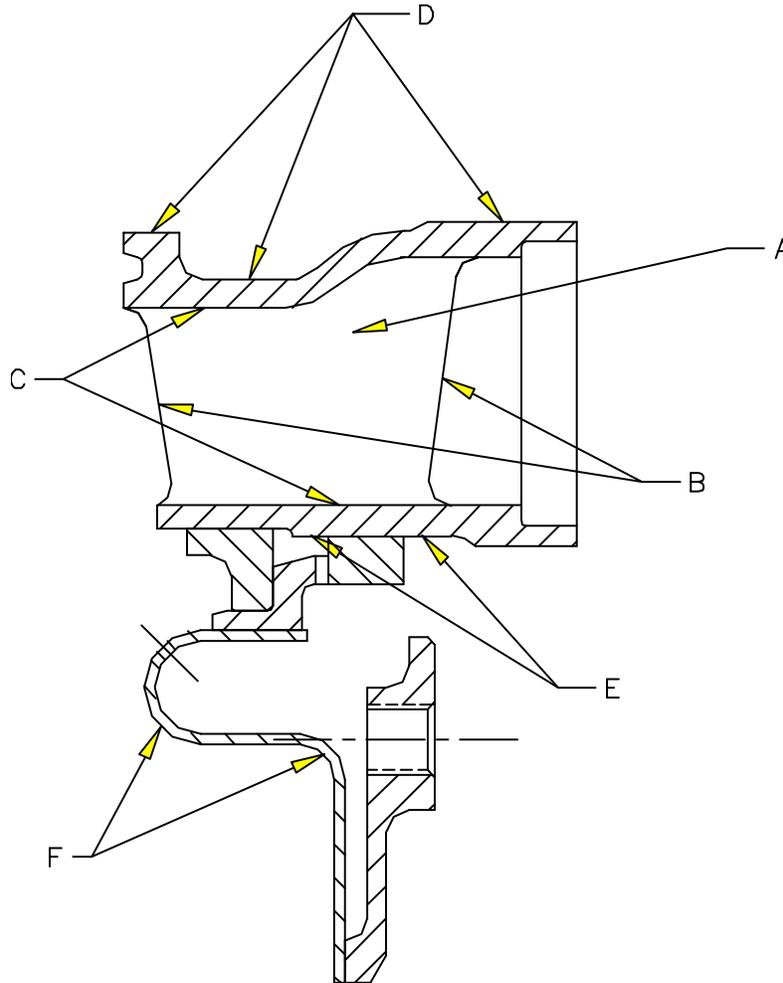
T-029 Inspection Limits and Repair

1st Stage Turbine Nozzle Assembly

Engine Application(s):	250-C30, C30G, C30G/2, C30L, C30M, C30P, C30R, C30S
Subject:	Inspection and Rework Procedures for the E23008064, E23008064-738 & E23062028-738 1 st Stage Turbine Nozzle Assembly.
Compliance:	Any time the nozzle assembly is removed for overhaul. Refer to the appropriate Figures for Inspection and Rework Procedures. Table 1: Acceptance, rework limits, and procedures Figure 1: Inspection Figure 2: Dimensional Inspection
Notes:	Extex Part Numbers E23008064, E23008064-738 & E23062028-738 incorporate a continuous weld between the key and the vane ring. This weld complies with Allison CEB 72-3168. Refer to OEM's published data for installation, engine operation, and disassembly.
Revisions:	N/C Dated: 06/16/97 Initial release. A Dated: 06/28/99 Removed sources. B Dated: 01/01/01 Added E23008064-738 & E23062028-738. C Dated: 06/18/02 Added machining requirement for nozzle OD containment ring clearance. D Dated: 09/04/09 Updated EXTEX to TIMKEN. E Dated: 2/02/16 Updated Timken to EXTEX Engineered Products.

T-029 Inspection Limits and Repair

E23008064, E23008064-738 & E23062028-738
First Stage Turbine Nozzle Assembly
Inspection and Rework Limit



Code Letter	Location	Description of Condition
A	Vane Airfoil	Cracks
B	Vane Leading Edge Vane Trailing Edge	Nicked, Dented Nicked, Dented, Warped, Burned
C	Vane Fillet	Cracks
D	Outer Band	Cracks
E	Inner Band	Cracks
F	Diaphragm	Cracks

FIGURE 1

T-029 Inspection Limits and Repair

**E23008064, E23008064-738 & E23062028-738
First Stage Turbine Nozzle Assembly
Inspection and Rework Limits**

Condition	Service and/or Repair	Corrective Action
Airfoil Crack Indications, Visual and FPI	Leading Edge: 0.25 inch maximum is acceptable.* Trailing Edge: 0.25 inch maximum is acceptable.* *Acceptance is contingent upon the following: 1) Two or more cracks cannot lie in the same plane. 2) Adjacent cracks are separated by at least 0.25 inch. 3) Adjacent cracks do not propagate toward one another.	EFA to be between 4.345 and 4.365 after repair. Install new or serviceable Nozzle or replace Vane Ring per approved procedure if Service Limit cannot be met. E23008064: Repair using approved braze procedure. Repair using approved weld procedure when braze capability is exceeded. Weld repair open void areas. Airfoils maybe repaired using approved FAA/DER procedures. E23008064-738 & E23062028-738: Refer to the repair procedure for P/N E23038218-738 in T-022.
Damaged Airfoils	Leading Edge: 0.156 inch maximum after blending is acceptable provided the EFA is between 4.345 and 4.365. Trailing Edge: 0.156 inch maximum after blending is acceptable provided the EFA is between 4.345 and 4.365.	Install new or serviceable Nozzle or replace Vane Ring per approved procedure if Service Limit cannot be met. E23008064: Weld repair or replace vane ring when damage exceeds limits. Replace vane ring when service limit cannot be met. Airfoils maybe repaired using approved FAA/DER procedures. E23008064-738 & E23062028-738: Refer to the repair procedure for P/N E23038218-738 in T-022.
Airfoil Fillet Crack Indications, Visual and FPI	At Inner Band: 0.25 inch maximum from Leading or Trailing edge. At Outer Band: 0.25 inch maximum from Leading or Trailing edge. NOTE: Length specified is for cracks along the airfoil measured parallel to the adjacent band. Two or more cracks are acceptable provided they do not propagate toward one another or could cause metal breakout.	EFA to be between 4.345 and 4.365 after repair. Install new or serviceable Nozzle or replace Vane Ring per approved procedure if Service Limit cannot be met. E23008064: Repair using approved braze procedure. Repair using approved weld procedure when braze capability is exceeded. Airfoils maybe repaired using approved FAA/DER procedures. E23008064-738 & E23062028-738: Refer to the repair procedure for P/N E23038218-738 in T-022.

Table 1 (sheet 1 of 2)

T-029 Inspection Limits and Repair

**E23008064, E23008064-738 & E23062028-738
First Stage Nozzle Assembly
Inspection and Rework Limits**

Condition	Service and/or Repair Limits	Corrective Action
Inner & Outer Band Crack Indications, Visual and FPI	<p>Inner Band: Axial: 0.188 inch maximum into band but not through braze fillet.</p> <p>Outer Band: Circumferential: Circumferential cracks are not acceptable Axial: 0.50 inch maximum into band provided there are not cracks in line on the opposite edge. Circumferential: 0.62 inch max between vanes and completely through wall.</p>	<p>EFA to be between 4.345 and 4.365 after repair. Install new or serviceable Nozzle or replace Vane Ring per approved procedure if Service Limit cannot be met.</p> <p>E23008064: Repair using approved braze procedure. Repair using approved weld procedure when braze capability is exceeded.</p> <p>E23008064-738 & E23062028-738: Refer to the repair procedure for P/N E23038218-738 in T-022.</p>
Diaphragm Cracking, Visual and FPI	(First Stage) dimples are permitted in area of bolt holes 0.500 in. dia max with a 0.015 inch max height.	Install new or serviceable Nozzle or replace Diaphragm assembly per approved procedure.
Negative Imperfections (Pitting)	Smaller than 0.050 dia. and 0.010 deep. Must not be within 0.080 of L.E. or T.E. Limited to one per airfoil and five per part.	E23008064: Blend to transition smoothly to parent material. Parting line evidence is not acceptable. E23008064-738 & E23062028-738: Refer to the repair procedure for P/N E23038218-738 in T-022.
Positive Imperfections	Smaller than 0.050 dia. and 0.005 tall. Must not be within 0.080 of L.E. or T.E. Limited to one per airfoil and five per part.	E23008064: Blend to transition smoothly to parent material. Parting line evidence is not acceptable. E23008064-738 & E23062028-738: Refer to the repair procedure for P/N E23038218-738 in T-022.

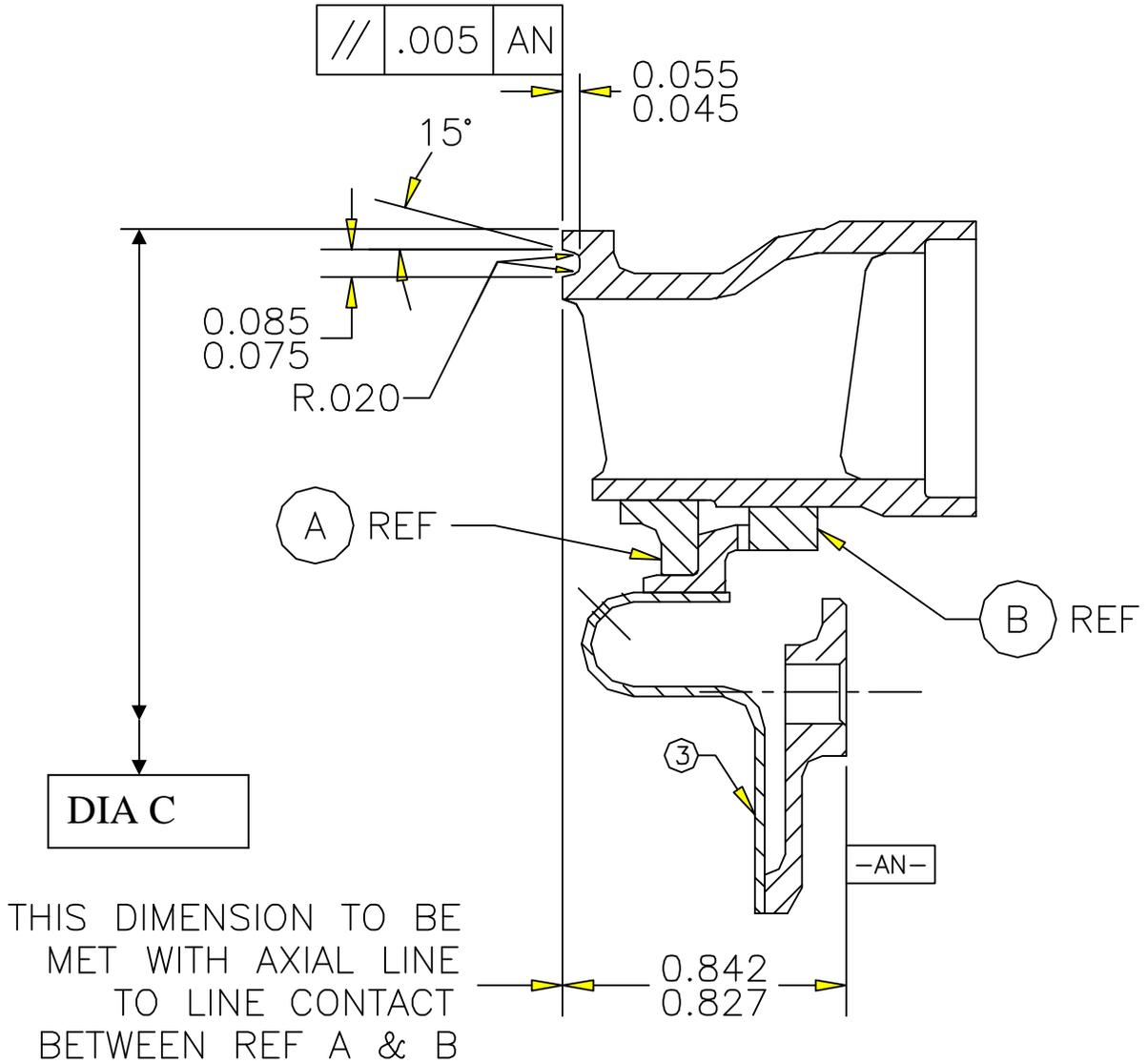
TABLE 1 (sheet 2 of 2)

NOTES:

- 1 Extex considers airfoil restoration of these parts a Major Repair (as defined in FAR 1) and should be performed under FAA authorization.
- 2 Airfoil repairs to be performed by an FAA Approved repair facility with Major Repair experience.
- 3 Blending to remove L.E. and/or T.E. damage may affect airflow.
- 4 Recommended airflow to be 4.345 to 4.365 EFA (as determined with a Fleming Flow Rig.)
- 5 FPI indications less than 0.005 inch are acceptable.
- 6 Blend and polish acceptable vane edge damage in a radial direction using a fine file or 320 grit abrasive paper. Optimum blend should produce scallops with a 3:1 width to depth ratio. Maintain a smooth blend with the basic airfoil. Trailing edge radius after blend to be greater than 0.005 inch.
- 7 Machine Dia C to 6.580 +.000 - .010 as required for clearance with containment ring.

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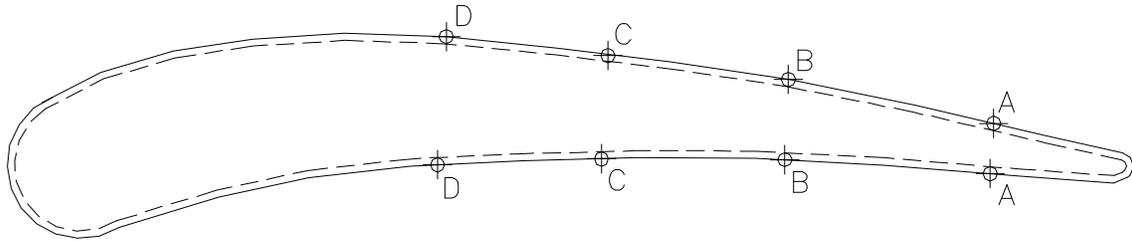


THIS DIMENSION TO BE MET WITH AXIAL LINE TO LINE CONTACT BETWEEN REF A & B

FOR DIMENSIONAL RESTORATION OF PACKING GROOVE, METALLIZE USING METCO 450. DIMENSIONS ARE IN INCHES.

FIGURE 2

T-029 Inspection Limits and Repair



TYPICAL AIRFOIL CROSS-SECTION

Location	Distance from Trailing Edge inch	Airfoil Minimum Thickness inch
A	0.125	0.038
B	0.250	0.053
C	0.375	0.072
D	0.500	0.094

- * Distance measured along airfoil surface.
- ** Do not measure thickness in fillet radius.

FIGURE 3 (sheet 1 of 2)

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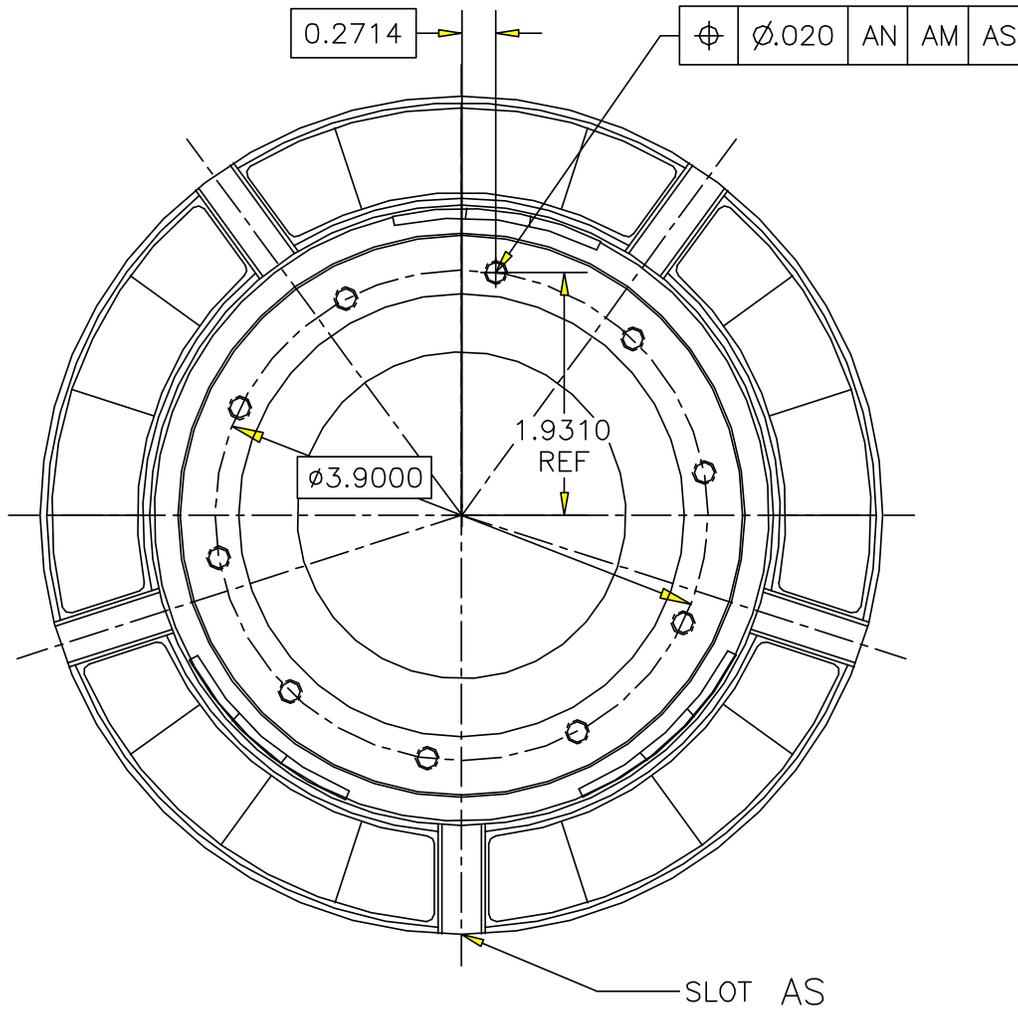


FIGURE 3 (sheet 2 of 2)