

T-024 Inspection Limits and Repair

Hastelloy X Combustion Liner Assembly

Engine Application(s):	250-B17, C20 Series
Subject:	Inspection and Rework procedure for Hastelloy X Combustion Liner Assembly, P/Ns A23056108, E23056108 and E23060429; Overhaul Details for P/Ns A6875628, E6875628, A23007530, E23007530, A23004529, E23004529, E23061212, E23061213 and E23061216.
Compliance:	Any time Combustion Liner Assembly is accessed during repair or overhaul.
Notes:	Replaces Service Letter issued by Superior Turbine on October 17, 1995. Refer to OEM's published data for installation, engine operation and disassembly. OEM or FAA approved Instructions for Continued Airworthiness may be used for inspection, overhaul and repair as an alternate means of compliance with this document.
Revisions:	<p>A Dated: 01/30/97 Updated Format.</p> <p>B Dated: 12/08/97 Updated Format and added Assy & Detail P/Ns E23060429, E23061212, E23061213, E23061216.</p> <p>C Dated: 10/10/02 Added louvers to III-C Thermal Distress.</p> <p>D Dated: 06/11/04 E23056108 was E2056108 in header.</p> <p>E Dated: 09/08/09 Updated EXTEX to TIMKEN.</p> <p>F Dated: 2/02/16 Updated Timken to EXTEX Engineered Products.</p>

I. Cleaning Method

Part	Cleaning Method	Remarks
Combustion Liner Assembly	Alkaline Liquid Bath	Per approved standard practices.
	Grit Blast	Aluminum Oxide 240 per approved standard practices.

II. NDT Method

Part	Inspection Method	Remarks
Combustion Liner Assembly	FPI	Per approved water-washable technique.

III. Inspection and Repair

A. Cracks (ref. Fig. 1)

* Weld with AMS 5798 Hastelloy X weld rod; 0.035-0.062 diameter. Use Argon torch gas flow of 20-40 cfm, Argon Backup of 10-40 cfm, and 20-60 amp current.

Location	Service Limit	Repair Limit	Corrective Action
Cracks on outer wall.	Cracks are not acceptable.		Weld repair *. Crack must be completely welded. Weld material must not obstruct cooling air passage.
Crack in tab end inside liner.	Max. of ¼ inch length and limited to 2 cracks per tab.		Repair or replace.

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Location	Service Limit	Repair Limit	Corrective Action
Cracks at two adjacent relief slots progressing toward same hole.	Max. of 1/8 inch length and limited to 2 cracks propagating towards the same hole.		Repair or replace.
Crack in relief slot at combustion liner step.	Max. of 1/8 inch length and limited to 2 cracks per relief slot.		Weld repair *. Grind weld material only if it blocks or restricts airflow.
Crack in double lip area.	Cracks are not acceptable.		Weld repair *. Surfaces between lips must be free of weld material.
Cracks in expansion slots.	Cracks are not acceptable.		Weld repair *. Surfaces between lips must be free of weld material.
Crack in weld attaching igniter or fuel nozzle ferrule.	Cracks are not acceptable.		Weld repair *. Max. width of weld 0.080 inch.

B. Physical Deformations (ref. Fig. 1)

Condition	Service Limit	Repair Limit	Corrective Action
Out of Round	None.	Unable to straighten to concentricity limits.	Straighten and reform by cold-working.
Dents	None.	Unable to straighten to concentricity limits or dent causes thin-out of metal.	Straighten and reform by cold working dents in allowable areas indicated on Fig.1.
Worn or distorted (out of round) igniter ferrule.	Min. of 0.020 inch wall thickness and max. of 0.560 inch ID.		Weld Repair * or replace.
Louvers bent closed.	Maintain 0.060-0.065 inch Uniform opening.		Reposition by bending to proper opening.
Worn or distorted (out of round) fuel nozzle ferrule.	Max. of 0.670 inch ID.		Weld Repair * or replace.

C. Thermal Distress / Erosion (ref. Fig. 1)

Condition	Service Limit	Repair Limit	Corrective Action
Localized high temperature distortion indicated by warping of liner surface.	Max. of 0.187 inch depth over 1 inch diameter and within allowable areas given on Fig.1.		Repair or replace.
Relief Slot burning	Max. of 0.062 inch on rear edge, or, both corners burned max. of 0.250 inch along relief slot.		Repair or replace.
Burned louvers	None		Repair or replace
Roughened igniter ferrule ID	Max. of 0.560 inch ID after polishing.		Weld Repair *.

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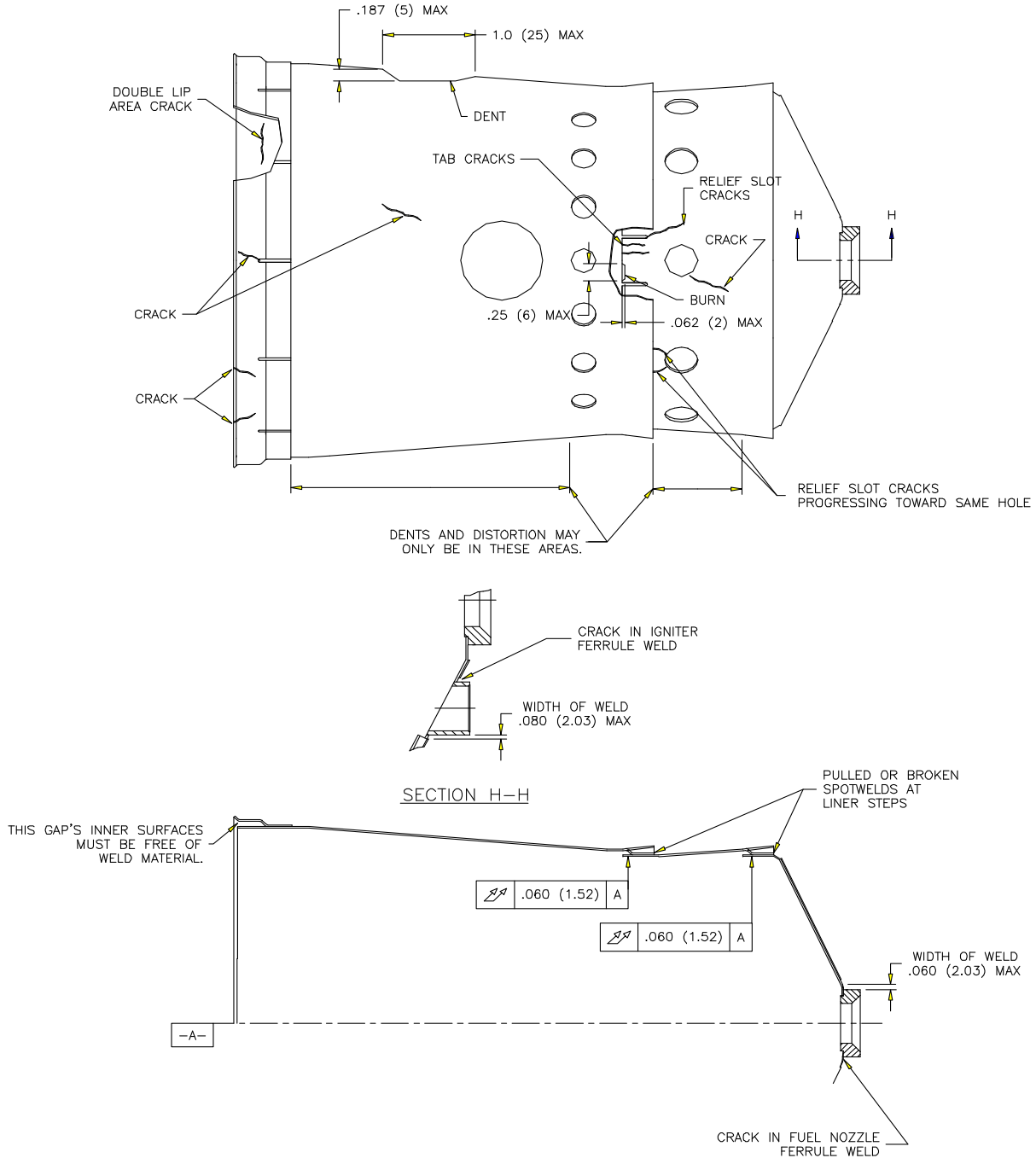


FIGURE 1
Hastelloy X Combustion Liner