

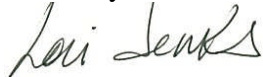
## Specification Tables for Transition Piece Assemblies

Description	Data/Information
CPI Part Numbers	CPI's parts are designed to be interchangeable with OEM's, as they are reverse engineered from an OEM sample. However, CPI sells parts fabricated to its own drawings and may only REFERENCE the OEM part number.
Parts Available (using OEM part numbers for reference)	6B TPs: 101E2572G005, 112E1305G003 7B TPs: 899E0143G008 7EA TPs: 943E0236G029 (other G#s available), 110E2246G005 9E TPs: 101E2538G008, 101E2571G003, and wear kit versions available
Country of Origin	All component parts are fabricated and assembled in the USA
Primary Material Grades	Nimonic 263 per AMS572 or AMS5873 for plate and AMS5886A for bar, Hastelloy X per AMS5536 and AMS5754L. FSX-414 per B50A489 Rev S4. Material certifications available upon request.
Forging Standards Used	No indications larger than .045 and closer than 3 times the largest adjacent indication. Part must be free of forge bursts, laps, and cracks.
Casting Specification	AMS-STD-2175. Class and grade vary upon use.
NDT Techniques Employed	<ul style="list-style-type: none"> <li>• Fluorescent penetrant inspection is per ASTM-E-1417 and is performed on all welds both before and after heat treating</li> <li>• X-ray specification is ASTM-E-1032. Qualification required then 10% audit. The following welds require x-ray on the transition pieces: aft frame to body, basemount to body, sleeve to body, and body halves</li> </ul>
Machining Techniques Employed	CNC machines, lathes, and EDM are used. EDM is used for drilling cooling holes in aft frames.
Typical Coating Details	<ul style="list-style-type: none"> <li>• 7E and 9E TPs: TBC (18" from aft end) and Chrome Carbide (4" from forward end).</li> <li>• 6B TPs: TBC on full interior and chrome carbide as above applied.</li> <li>• Thermal Barrier Coating is MCrAlY (CoNiCrAlY) bond coat followed by 7% YSZ top coat via air plasma spray. Target thickness is of bond coat is .010 and top coat is .015. Thickness is checked via Eddy Current with average thicknesses of .010 to .018.</li> <li>• Chrome carbide coating is to AMS 7875 (75% CrC, 25% Ni20Cr) with a target thickness of .004 to .006.</li> <li>• The microstructure of the bond and top coating is tested on each transition piece for transverse cracks, delamination, interface, voids, oxides, unmelts, abnormalities, cohesive integrity, and thickness.</li> </ul>

Final Tests Carried Out	Dimensional inspection via CMM and engine simulation fixture measurements, which includes: Picture frame flow path height, diameter of forward end, H-block axial measurements, TP fit with bullhorn bracket, picture frame clearance to simulated nozzle, side seal flange gaps, side seal fit, and floating seal to rat ear gaps.
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If there are any questions regarding the above specifications, please do not hesitate to contact me for clarifications.

Sincerely,



Lori Jenks  
President