Hot Gas Path Considerations
6B User Conference

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Critical take-aways – For 6B’s built prior to year 2000

In preparation for an outage, consider requesting a quote for:

• All-Nimonic/Extendor Transition Piece (because old TP’s do not superseded to it)
• Latest Design S1 Shroud Blocks (needed for a future Tfire uprate)
• Load Coupling (to determine if there is a long lead time)
## Stage 1 - Interchangeability

<table>
<thead>
<tr>
<th></th>
<th>Oval Holes</th>
<th>Diffuse holes</th>
<th>AGP</th>
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<tbody>
<tr>
<td>S1N</td>
<td>Oval Holes</td>
<td>Diffuse holes</td>
<td>AGP</td>
</tr>
<tr>
<td>S1S</td>
<td>Spline Seal Option for 6561B and older</td>
<td>AGP</td>
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<tr>
<td>S1B</td>
<td>12-hole</td>
<td>16-hole</td>
<td>AGP</td>
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- Latest S1N fits into older S1N locations
- S1N and S1S Blocks as full row only. No in-row substitutions
- 2084 F Tfire requires Gen 3 coating on SS310 S1S blocks
- Perimeter Cooled S1B is a superseding part
- 16-hole S1B substitutes into some 12-hole S1B rows

**Images:**
- Diffuse and Oval geometries
- Illustrations of S1N and S1B blocks
Stage 2 - Interchangeability

- **S2N**: FSX-414  GTD222  +Brush Seal  AGP
- **S2S**: Non-Honeycomb  Honeycomb  AGP
- **S2B**: Pre-2010  Post-2010  AGP

- New Tuning Pins for each newer S2N design (CM&U)
- New Control Curve with Improved S2N or S2S Parts (CM&U)
- Post-2010 S2B is a superseding part
- In-row S2B substitutions are often not possible

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Stage 3 - Interchangeability

- Adv Aero S3N and S3B in production. Only full-row replacements
- Adv Aero S3N or S3B requires CM&U
- Adv Aero S3N + S3B together requires new control curve
- Honeycomb S3S blocks require CM&U. Full-row replacements only
- Honeycomb S2S or S3B requires cutter teeth on the S2B or S3B’s
6B Extendor Versions

CL US CLE CLEX 32k

- Only non-Extendor, CLEX and 32k are in production
- CL had Chrome Carbide hula hardcoating
- US had four liner stops
- 32k TP’s and FN’s are now used for CLEX
- 32k liners are much more robust compared to CLEX
- Pre-CLEX parts should be replaced as full combustion sets (FN + C&L + TP)
- Flame Detector mounts are different for DLN Secondaries - adapters needed
Compressor - Interchangeability

- Stator airfoils have changed
  - If purchasing a set for in-row spares, then request the older design
- Shimless and shim-type may be mixed in a row
- Mixing GTD450 and 403Cb in row S5-S8 is not recommended - different blending limits
- S1-S4 design with the SS431 OD ring is currently available
- 6581B compressor rotor compatible with 6561B stators, but not reversed
- Tip grinding of R1’s may be done in the factory with a shop’s S1W
- IGV’s: Purchase the latest GTD450 design as a full row
  - Purchase 0811 bushings and bolts, etc, with new IGVs
TILS for 6B Hardware

TIL-1352 S17/EGV vane cracking (All 6B’s but 2000-2006 most important)
TIL-1382 R1 Blades
TIL-1411 S2B Life Limits
TIL-1454 Stator Vane Staking (For Europe built 6B’s)
TIL-1562 Shim Pins for Stator Vanes
TIL-1566 Fuel Leak Detection with Automatic Shutdown
TIL-1576 Rotor Life
TIL-1619 Turbine Compartment High Temperature
TIL-1621 Atomizing Air Drain
TIL-1709 Welded Flexible Load Couplings – Goodrich and Lucas
TIL-1713 False Start Drain Valve
TIL-1872 Thrust Bearing Shims
TIL-1944 Purge Valve High Temperature Soft Parts Kit
TIL-1952 Welded Tips for Fuel Nozzles to Prevent Fuel Leak Damage
TIL-2060 3” SSOV Issue

**Inspect 5:00 and 7:00 IGVs, and all 6B IGV’s, for cracks**
Questions?