

NOTICE TO OPERATORS BR700-710A2-20 ENGINES



Rolls-Royce

NTO No.: 87

Issue No.: 01 Date: 23.03.2005

TITLE: Troubleshooting in case of ITT cross-check failure

Valid until: N/A

ATA Area: 77-21-00

EFFECTIVITY: ALL BR700-710A2-20 ENGINES

The purpose of this NTO is to inform operators about the possibility of encountering a ITT cross-check failure, the associated cockpit and engine control effects due to loose or misaligned ITT ladder harness terminal lugs and the corrective action thereof.

The CAIMS maintenance message "L (R) ITT SIGNAL WRG XCK" [7325727L(R)BR] has been reported by in-service aircraft. Occasionally the primary ITT indication was dashed on EICAS and/or the EEC aborted the Auto Start sequence (AUTOSTART ABORT message on EICAS). Replacement of the ITT harness and / or the ITT probes always resolved the issue.

The EEC will flag the above maintenance messages and abort the engine start in the Auto Start mode if the split in measured ITT between EEC channel A and B is more than 40°. In-service experience and rig tests at RRD have shown that aforementioned can be caused by an intermittent short circuit between the ITT ladder harness terminal lugs on the harness ends (refer to picture 02). Therefore, RRD has concluded that loose or misaligned terminal lugs have caused the ITT cross-check failure, dashed ITT indication and aborted Auto Starts.

RRD recommends that all operators pay special attention to the position of the ITT harness terminal lugs. In case one or more of the above symptoms are observed the applicable fault isolation task in the FIM (77-21-00-810-803) should be carried out. Importantly, operators should ensure that the ITT ladder harness terminal lugs that are connected to the engine core harness (refer to picture 01) are:

- Not touching each other (minimum distance 2 mm / 0.078 inch)
- Not loose (for the torque values refer to the ITT probe installation task in the EMM)

These terminal lugs could be inadvertently disturbed while performing maintenance in the area while the core fairings are removed, e.g. during borescope inspection, igniter plug replacement. Operators who have accessed the area under the core fairings near the ITT harness connections may want to consider revisiting the area to ensure the terminal lugs have not been disturbed / are properly torque tightened, to eliminate the possibility of this fault.

Another condition was caused by hot gas impingement from the stage 4 air pipe at the connection to the HPT following their replacement. A seal was omitted from the tube assembly and resulted in hot gas impinging on the ITT ladder harness, leading to its failure.

The applicable fault isolation task has been changed to reflect the additional fault cause and inspection requirements and will be available with the next revision of the FIM.

NOTICE TO OPERATORS BR700-710A2-20 ENGINES



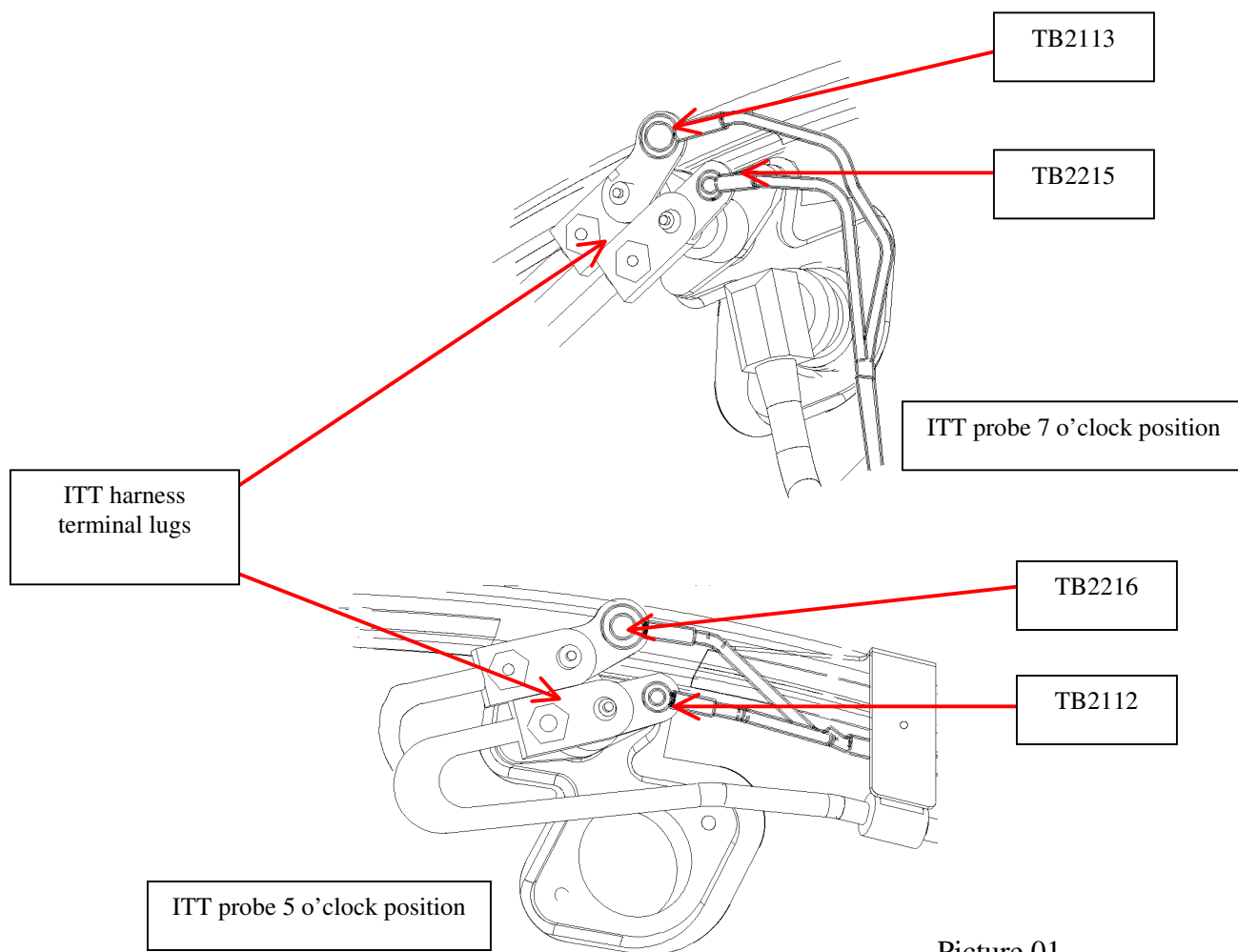
Rolls-Royce

NTO No.: 87

Issue No.: 01 Date: 23.03.2005

Abbreviations

EEC:	Electronic Engine Controller	ITT:	Inter Turbine Temperature
EICAS:	Engine Indication Crew Alerting System	XCX:	Cross-check
FIM:	Fault Isolation Manual		
HPT:	High Pressure Turbine		
CAIMS:	Central Aircraft Information and Maintenance System		



Picture 01

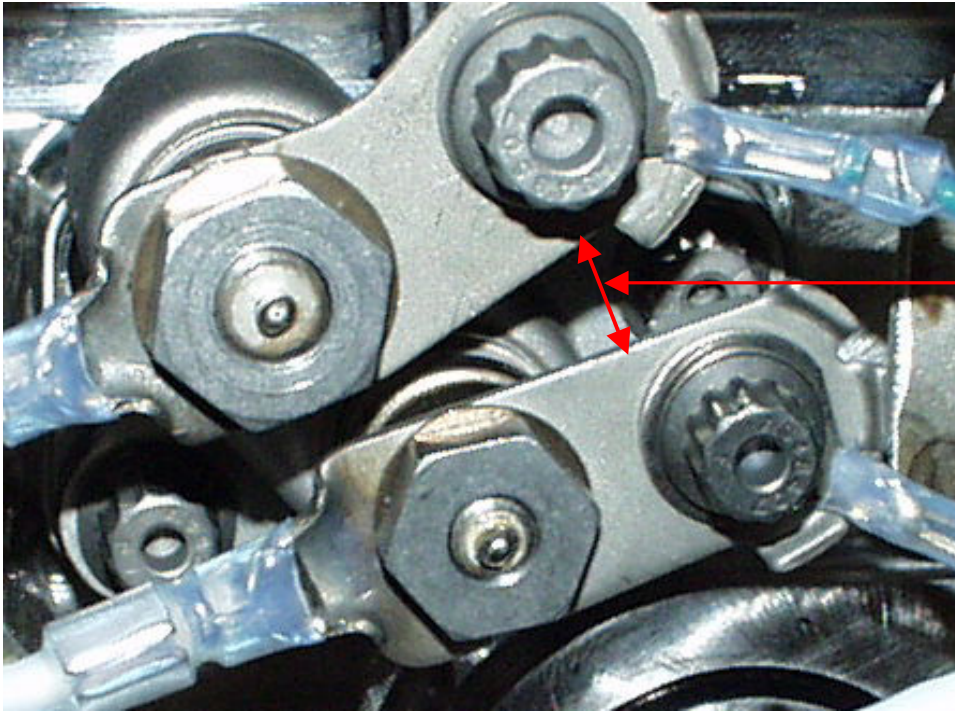
NOTICE TO OPERATORS BR700-710A2-20 ENGINES

NTO No.: 87

Issue No.: 01 Date: 23.03.2005



Rolls-Royce



Potential contact area

Picture 02 (correctly fitted, typical for ITT probes fitted into the 5 and 7 o'clock position)