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Technical Variance

Where the recipient of this document works in accordance with regulations under control of the relevant national aviation authority, outside of the EU jurisdiction and no applicable bi-lateral agreement or equivalent exists, it is essential that the recipient ensures that the relevant national aviation authority accepts / approves the incorporation of this Technical Variance.

This Technical Variance is only applicable for parts of the Rolls-Royce Engine Type Design and does not apply to parts marked with 'PMA' in accordance with the national regulations. (e.g. USA/FAA)

The content of this document is supplemental to the Manual(s) specified below and should be suitably stored in accordance with local airworthiness requirements.

TV No.	**287869** Issue: **1**	Date of Application:	**07 JAN 2025**
Application Type	One-off ☑ Repeater ☐	Expiry date (If Repeater)	**N/A**
Operator/Applicant	**FALCON LANDING, LLC / ROLLS-ROYCE CANADA LIMITED**	Original Request No.	**TA25-001**
Engine Type	**TAY**	Engine Mark/Model (s)	**611-8C**
Part Description	**LPT STAGE 1 ROTOR DISC ASSEMBLY**	Eng/Mod Serial No.	**85169 / N/A**
Part No.	**JR57972**	Part Serial No.	**EETM7601**
Manual Title	**ENGINE MANAUL** Ref. **E-TAY-6RR**	ATA/DMC Ref.	**75-52-22**
TV Title	**REPAIR SCORING ON EDGE BETWEEN SLEEVE ABUTMENT FACE AND CHAMFER OF BORE 22**		
Hours	**HSN: 8004.7**	Cycles	**CSN: 3759**

Existing Requirement

Engine Manual (EM) TASK 72-52-22-200-801 'Examine the LPT Stage 1 Rotor Disc (72-52-22, 02-400)', SUBTASK 72-52-22-220-410 contains following inspection criteria:

19. Examine the Bore 22

E. Scratched / Scored

(1)	Not more than 0,08 mm (0.003 in) in depth, 20,00 mm (0.787 in) in length and 0,15 mm (0.006 in) width	Accept
(2)	More than (1) on the bore and chamfer faces and in repair limits	Repair HRS5099, TASK 72-52-22-300-815
(3)	More than (2)	Reject
(4)	More than (1) on the front face	Reject

Repair HRS5099, EM TASK 72-52-22-300-815, 'Low Pressure (LP) Turbine Stage 1 Disc Assembly – Fit New Sleeve (HRS5099, ISS.02)' SUBTASK 72-52-22-324-001, 8. Machine the Disc Bore (If required) instructs to reject the part if the disc bore diameter 'AC' is at the maximum tolerance of oversize letter designation D and surface damage is evident. Refer to Figure 2 of this TV.

Approval Statement

TV CLASSIFICATION MAJOR ☑ MINOR ☐

The technical content of this document is approved under the authority of:

☑ DOA ref. EASA.21J.065. It has been demonstrated that the TV and areas affected by the TV comply with the type-certification basis.

☐ A representative of European Union Aviation Safety Agency (EASA) Certificate no: *Certificate Number, where applicable.* Rolls-Royce has demonstrated compliance with the type-certification basis and environmental protection requirements, as established and notified by the Agency, following the certification programme as accepted by the Agency.

☐ Airframer reference no: *Airframer Reference Number, where applicable.*

Approval by Airworthiness Office

X Delegated Airworthiness Engineer DAE 065-086 Digitally signed by Tinis, Umut Date: 2025.02.10 09:42:18 -05'00'

Country	Export Classification	Date
GERMANY	Not Listed	08 Feb 25

Technology for Export Control

Requested Variance

The requested Technical Variance (TV) is to repair the subject Low-Pressure Turbine (LPT) Stage 1 Rotor Disc Assembly exhibiting damage as detailed in Table 1 of this TV.

Refer to figures on pages 3 to 6 for inspection locations and photos of damage.

ESN 85169 was removed for Overhaul.

Summary of Investigation and Conclusions

The above request has been investigated. RRD Engineering has concluded that the reported scoring on the edge between the sleeve abutment face and chamfer of the Bore at Location 22 of the LPT Stage 1 Rotor Disc Assembly will not affect the integrity, functionality and life of the part, if the recommendations given in this TV are complied with.

This TV is accepted subject to compliance with the following recommendations:

- Repair the reported scoring on the edge between the sleeve abutment face and chamfer of the Bore at Location 22 in accordance with the Repair HRS5631 Part 1, EM TASK 72-52-22-300-014 'LPT Stage 1 Rotor Disc - Repair Minor Damage by Hand Dressing (HRS5631, Iss.01)'. Make sure to dress in the circumferential direction and ensure any blending in the radial direction is kept to a minimum to maintain the disc abutment face with the Sleeve. The minimum dressing ratio (50:1) in the radial direction may be omitted. Make sure that the depth of dressing does not exceed the depth of damage and the repair blends smoothly with the adjacent area. Refer Table 1 for dressing details.
- Vibropeen TV287869 within the designated area (as shown in figure 6 on page 7) in accordance with TSD594-J OP TASK 70-00-00-300-363 (OP363). Use vibropeen equipment. Make sure high spots caused by peening are removed. Use OMat 5/112 silicon carbide abrasive stone.
- Make a record of TV287869 in the applicable records.

Location	Damage Details	Damage Depth	Dressing Depth
Bore at Location 22	Scoring on the edge between the sleeve abutment face and chamfer covering 60% of circumference	0,13 mm (0.005 in)	0,13 mm (0.005 in)

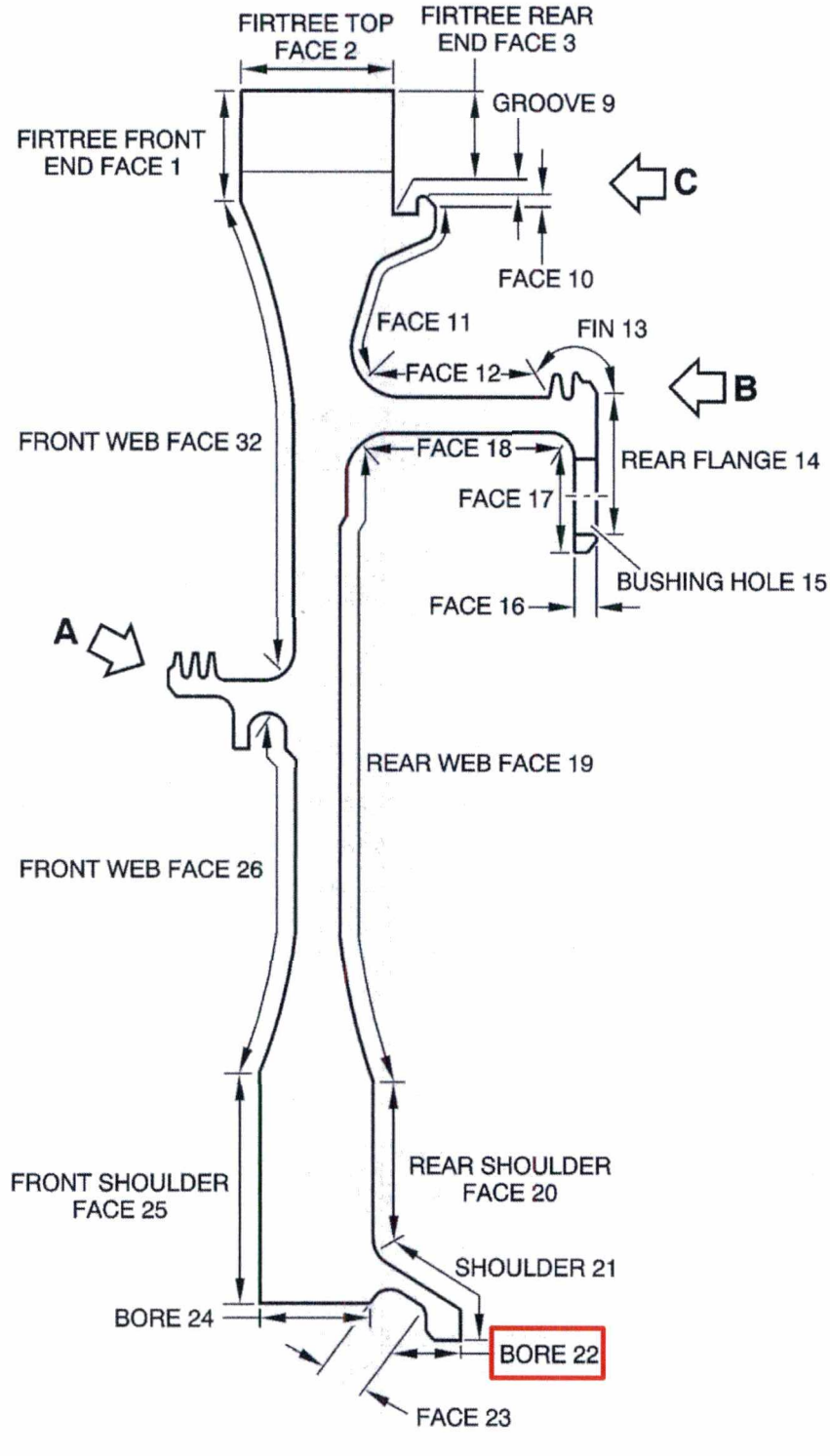
Deviation from Repair HRS5099 limits:

It is reported that the Bore at Location 22 is machined in accordance with Repair HRS5099 to maximum allowable diameter 109,743 mm (4.3206 in).

However, scoring is still evident at affected location.

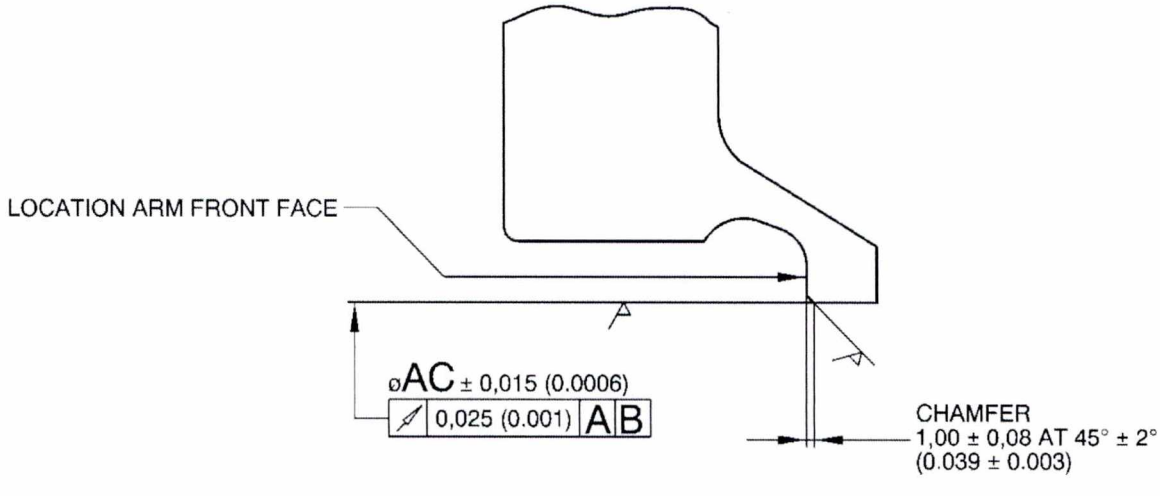
Further machining of the Bore at Location 22 is not possible.

Table 1: Damage and Deviation Details



TYPICAL SECTION THROUGH LPT STAGE 1 ROTOR DISC

Figure 1: Inspection locations on the LPT Stage 1 Rotor Disc Assembly



ENLARGED VIEW AT AB
(SHOWING THE MACHINING DETAILS OF THE DISC ONLY)

AMOUNT OVERSIZE	øAC	SUFFIX
STANDARD	109,235 (4.3006)	
0,127 (0.005)	109,362 (4.3056)	A
0,254 (0.010)	109,489 (4.3106)	B
0,381 (0.015)	109,616 (4.3156)	C
0,508 (0.020)	109,743 (4.3206)	D

NOTES:

1. MACHINE WHERE SHOWN ✓.
1. ALL DIMENSIONS ARE IN MILLIMETRES WITH INCH CONVERSION IN PARENTHESES.
3. ANGLES IN DEGREES.
4. THE SURFACE TEXTURE VALUES ARE IN MICROMETRES (MICROINCHES).
5. THE SURFACE TEXTURE TO BE 1,6 (63) UNLESS SPECIFIED DIFFERENTLY.
6. REMOVE THE SHARP EDGES 0,10 TO 0,50 (0.004 TO 0.020).

Figure 2: Repair details - Bore at Location 22
(Reference: Repair HRS5099)

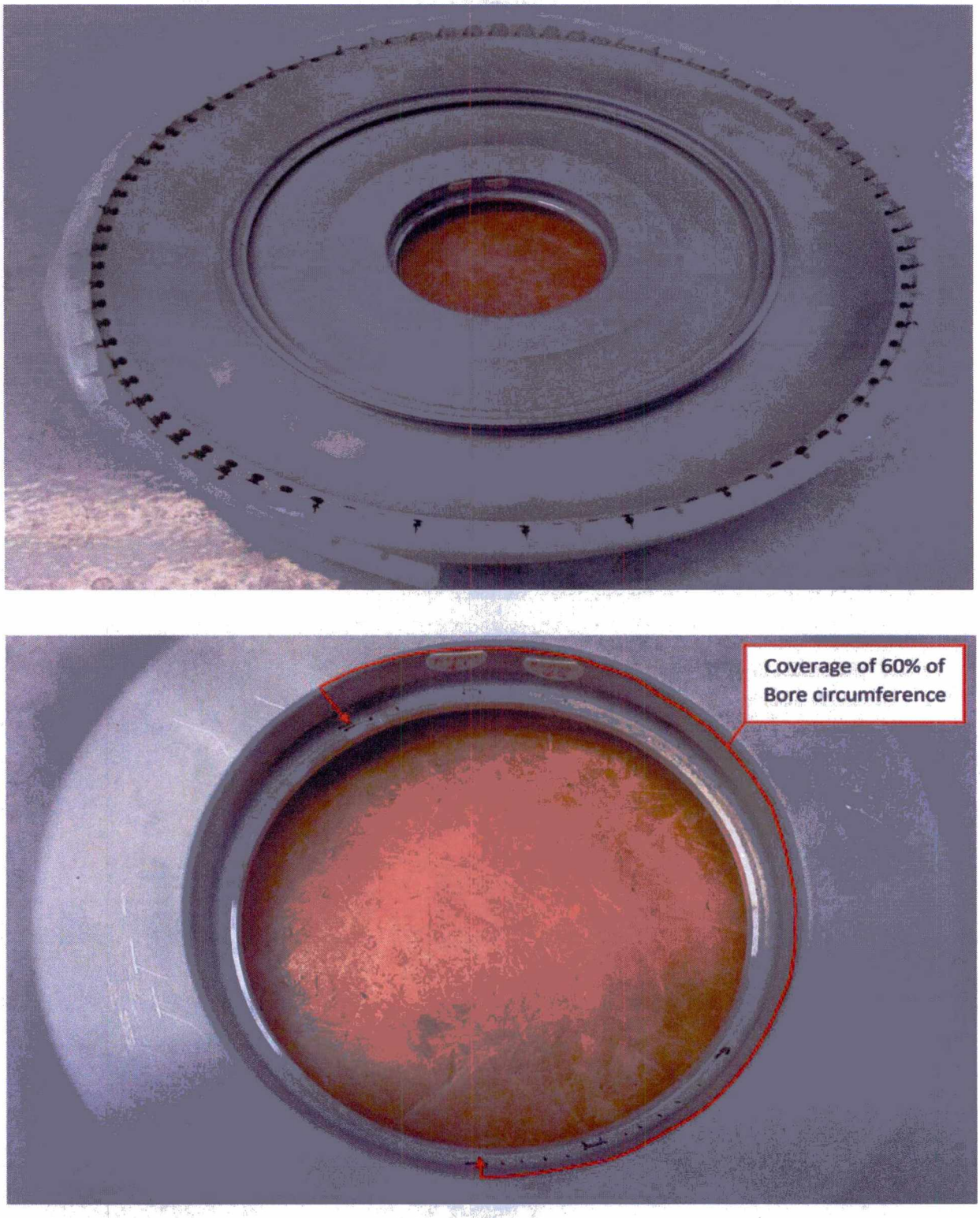


Figure 3: General view to show affected LPT Stage 1 Rotor Disc Assembly

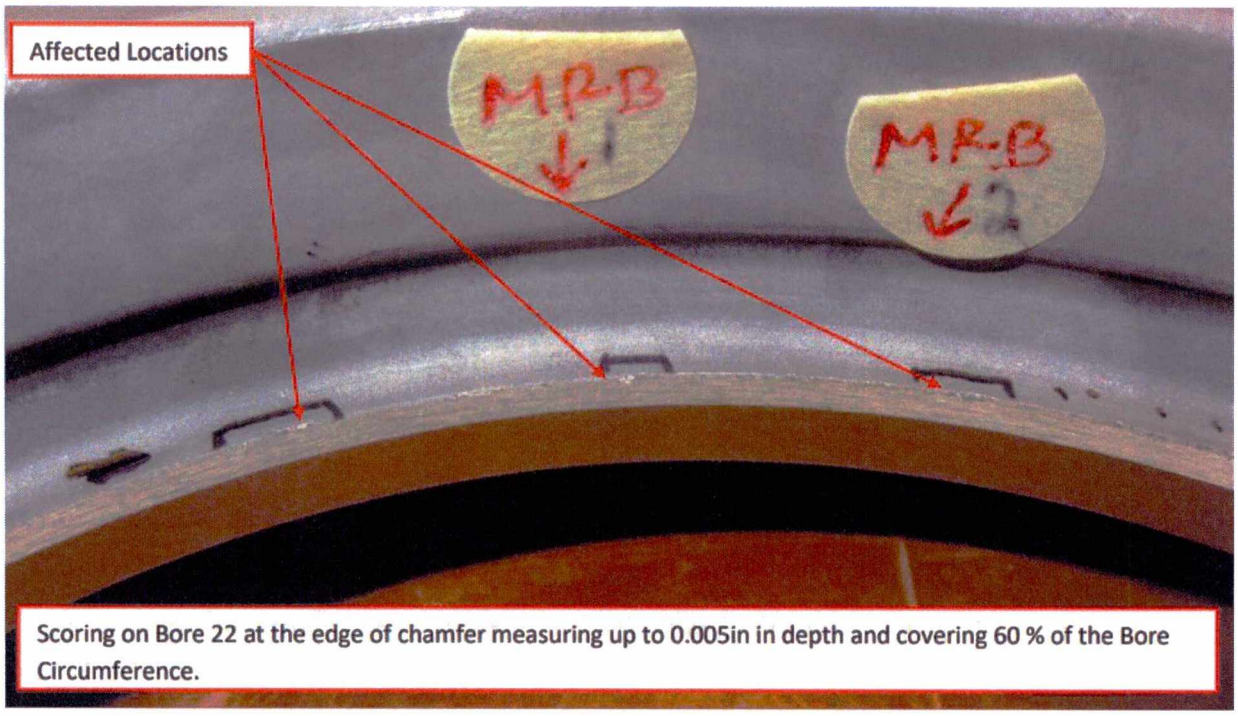


Figure 4: View to show scoring on the sleeve abutment face and chamfer of the Bore at Location 22

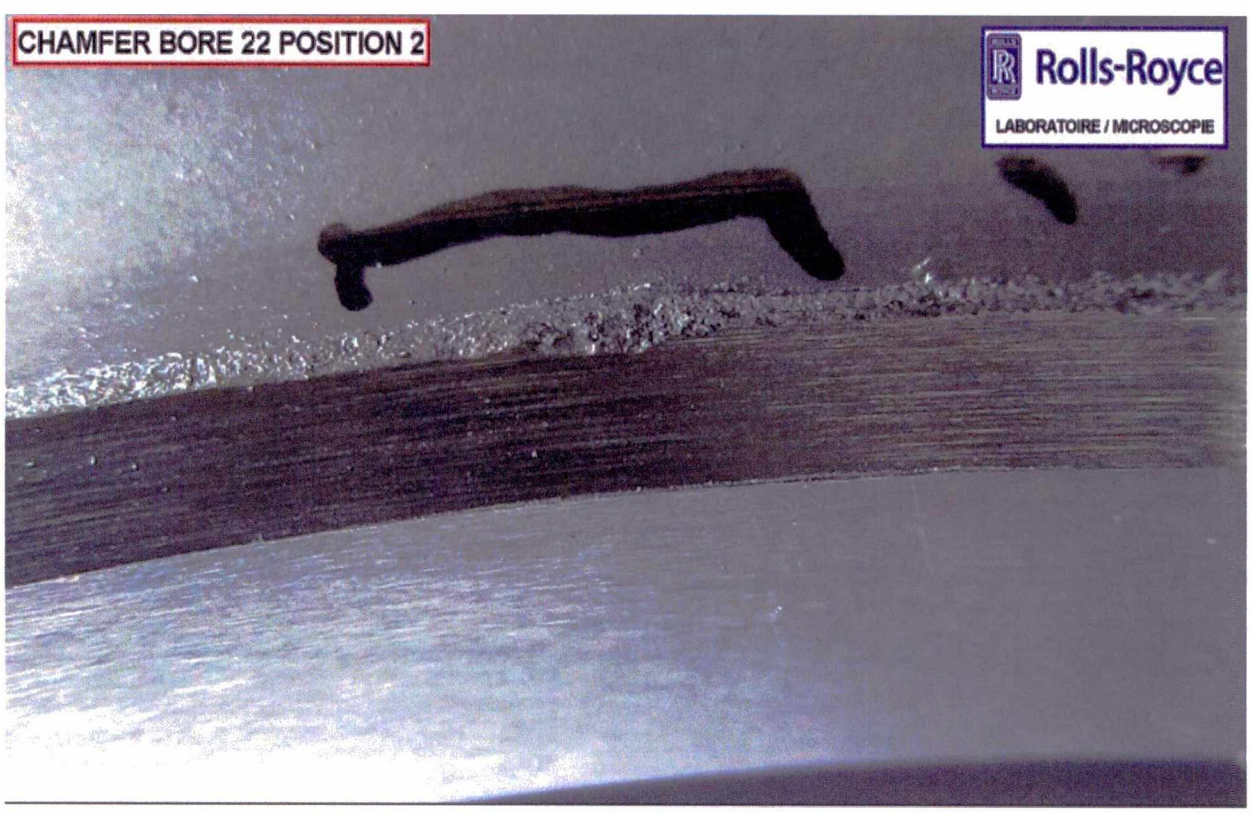


Figure 5: Close-up view to show scoring on the chamfer of the Bore at Location 22

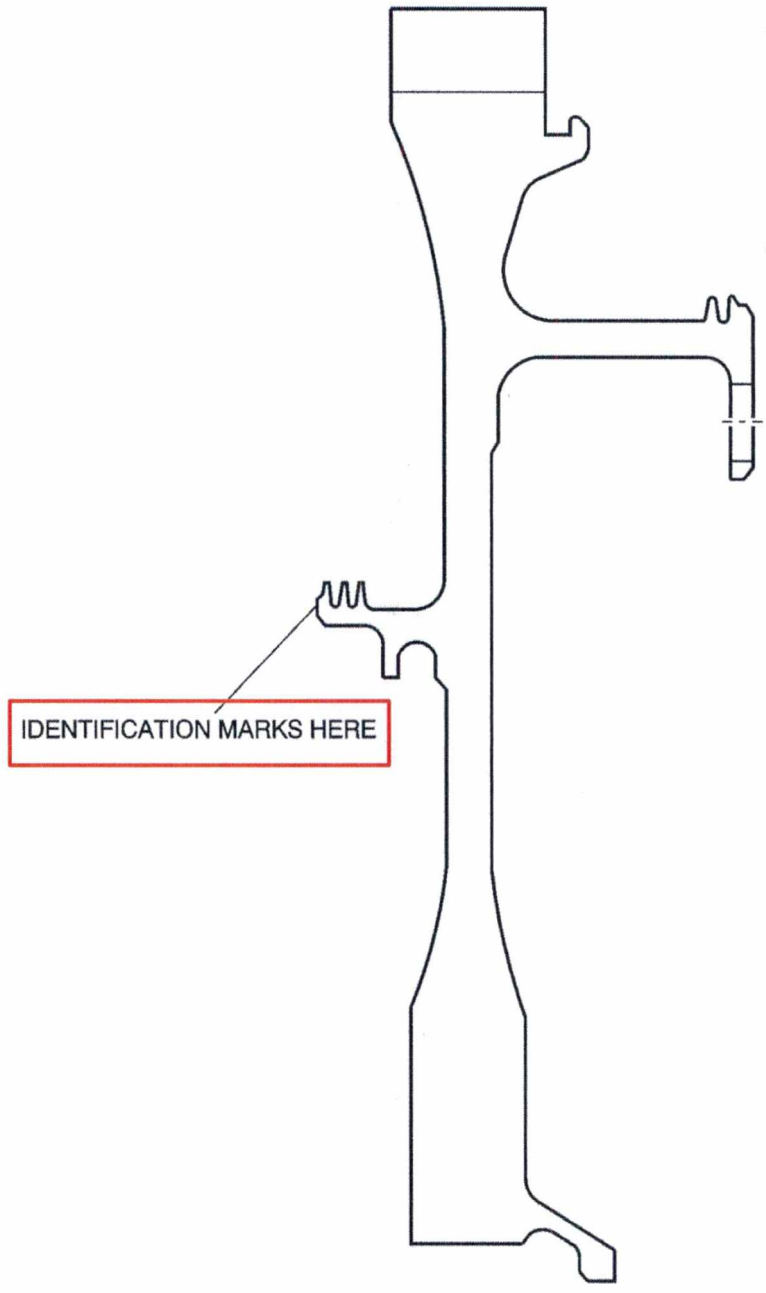


Figure 6: Identification marking location on the LPT Stage 1 Rotor Disc Assembly

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Technical Variance Approval Sheet

TV No. 287869
Issue 1
Version 1

The signatures below confirm compliance with the Engine Type Certification requirements as stated in EU 21A.433 (a).
This page must not be distributed to the applicant.

Note: All approvals below must include a signature, printed name, role/function and a date.

TV Originator

Only required if not originated by a TV Competent Author.

X Bimal.. Digitally signed by Mallick, Bimal Date: 2025.02.08 02:13:42 +05'30'

Service Engineer

TV Competent Author

Responsible for the showing of compliance demonstration, where applicable.

X Megha Kondamudi CN = Megha Kondamudi_6338(BIdentity) O = Infosys Ltd OU = Kestrel SSO 2025.02.10 14:10:37 +05'30'

Service Engineer (CA)

TV Approver

Confirmation that:

- the procedures as specified in the Civil Aerospace Design Organisation handbook have been followed including all mandatory requirements.
- no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested. Refer to Standardisation Report Safety Review section of this TV.

X Umut Tinis EIS TV Approver Digitally signed by Tinis, Umut Date: 2025.02.10 09:41:59 -05'00'

Generic Approval TV	**TV Number**	**236181**	☑	**Applicable** the criteria given in RRCS 10060-003 Appendix A has been confirmed
			☐	**Not Applicable**

Specialist Function	**Specialist Function**	**Specialist Function**
X	X	X
Specialist Function	**Specialist Function**	**Specialist Function**
X	X	X
Specialist Function	**Specialist Function**	**Specialist Function**
X	X	X

Compliance Verification Engineer (CVE) (Including a RR assigned CVE number)

Confirmation of an independent verification of the compliance demonstration, where applicable. Refer to Standardisation Report Compliance Demonstration section of this TV.

X Umut Tinis Compliance Verification Engineer CVE 065-105 Digitally signed by Tinis, Umut Date: 2025.02.10 09:42:07 -05'00'

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PROPOSED TECHNICAL VARIANCE HAS A POTENTIAL EFFECT ON: *(Tick in the appropriate boxes)*											
	Yes	No		Yes	No		Yes	No		Yes	No
Stress	✓		•Performance/ operability		✓	•Noise		✓	*Repair*		✓
Containment		✓	Balancing/ Vibration		✓	Icing		✓	*Limits*		✓
Component life	✓		Oil system		✓	•Flight deck indication		✓	*Tooling*		✓
Design		✓	Fuel system		✓	Testing		✓	*Others (Please specify)*		✓
Material		✓	•Engine handling/controls		✓	Build/strip procedure		✓	*1.*		
Air system		✓	•Fire and ventilation		✓	Cleaning		✓	*2.*		
Thermals		✓	•Emissions		✓	Inspection		✓	*3.*		

For any ticked to indicate "Yes"; relevant technical substantiation (compliance demonstration with the certification basis) and/or mitigation / justification is to be provided on the Standardisation Report's continuation sheet(s).

Where identified by •, airframer approval may be required.

Future Arisings: - Subject to the understanding at the time of issue of this document.	*Yes*	*No*
Can limits approved in this TV be read across to future TVs for the current marks/models of this engine type?		✓
Can the limits approved by this TV be introduced into the Manuals?		✓

If "No" to either of the above – provide justification why these limits cannot be read across for future arisings

If "Yes to either of the above – provide actual limits that can be applied for future arisings

This is to be documented in the Previous Occurrences, Future Arisings and Associated Exit Strategies section of this Standardisation report in this TV.

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Safety Review

It is the accountability of the TV Approver to ensure that the Safety Review has been correctly completed before TV issuance.

Mandatory Regulatory Requirements - Airworthiness Directives (ADs)

A review of open EASA, FAA and CAA-UK ADs has been carried out and it is confirmed that all applicable ADs have been assessed and substantiated for relevance to the deviation contained in this TV. Chief Engineer and/or Airworthiness Office approval is not mandated for this specific assessment, however guidance may be required if uncertain. ☑

List in the table below all ADs that are applicable to the deviation in this TV. Assess if the applicable AD is additionally relevant, i.e. the deviation contained in this TV contradicts the intent of the AD, and enter "Y" or "N" in the table. Provide substantiation why the applicable AD is relevant or not relevant to the deviation in this TV.

If an AD is both applicable and relevant the TV **MUST NOT be issued.**

Applicable AD No.	Applicable AD Subject	Relevant?	Relevance Substantiation
None	N/A	N	There are no ADs applicable and relevant to deviation addressed in current TV.

Regulator & Project commitments and Safety Policies - Safety Management Plans (SMPs)

A review of the applicable specific engine type/model SMP has been carried out and it is confirmed that all applicable regulator & project commitments and safety policies have been assessed and substantiated for relevance to the deviation contained in this TV. Chief Engineer and/or Airworthiness Office approval is not mandated for this specific assessment, however guidance may be required if uncertain. However, if any commitments / safety policies are assessed to be both applicable and relevant Chief Engineer approval is mandated, unless specific waiver approval has been provided by the CE in a previous precedent TV for the same deviation. ☑

List in the table below all SMP regulator & project commitments and safety policies that are applicable to the deviation in this TV. Assess if the applicable commitments / safety policies are additionally relevant, i.e. the deviation contained in this TV contradicts the intent of and/or deviates from the declared commitment / safety policy, and enter "Y" or "N" in the table. Provide substantiation why the applicable SMP commitment / safety policy is relevant or not relevant to the deviation in this TV.

If a SMP commitment / safety policy is both applicable and relevant to the deviation contained in this TV Chief Engineer (CE) approval **must be obtained BEFORE TV issuance unless a precedent waiver applies***.

SMP No.	Applicable SMP Commitment	Relevant?	Relevance Substantiation
EDNS01000447795/010-ISS010	Safety Management Plan - TAY	N	SMP does not contain specific commitments against the part addressed in this TV.

Safety Occurrence Reporting - Red Tops (RTs)

A review of all open and closed Red Tops (RT) has been carried out and it is confirmed that all applicable RTs have been assessed and substantiated for relevance to the deviation contained in this TV. Chief Engineer and/or Airworthiness Office approval is not mandated for this specific assessment, however guidance may be required if uncertain. However, if open and/or closed Red Top is assessed to be both applicable and relevant Chief Engineer approval is mandated, unless specific waiver approval has been provided by the CE in a previous precedent TV for the same deviation. ☑

List in the table below all open and closed RTs that are applicable to the deviation contained in this TV. For applicable closed RT the closure actions, including ALARP actions, contained in the close-out report must be assessed. Assess if the applicable open RT, and/or closed RT actions, are relevant, i.e. the deviation contained in this TV contradicts the intent of and/or deviates from the declared RT assumptions and/or actions, and enter "Y" or "N" in the table. Provide substantiation why the applicable RT is relevant or not relevant to the deviation in this TV.

If an open RT, and/or a closed RT closure action (including ALARP actions), is both applicable and relevant to the deviation contained in this TV Chief Engineer (CE) approval **must be obtained BEFORE TV issuance unless a precedent waiver applies*.**

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Applicable RT No.	Applicable RT Subject	Relevant?	Relevance Substantiation
PH-03-TAY-0154	Critical part life overflown (ESN 17260)	N	The subject Red Top addresses exceedance of critical parts lives including Low Pressure Turbine (LPT) Stage 1 Disc (Part Number: JR32318A,-Serial Number: SETM124032). All events arose from improper maintenance of the applicable records from either the operator or the overhaul shop. OIN 107 and an NTO 261 were issued to inform the operator and the overhaul shops of the events and provide guidance on the LLP life calculation. The current TV is for scoring on the LPT 1 Disc Bore at the edge of the sleeve abutment face and chamfer and is not related to life recording. Hence the closed Red Top is deemed applicable to the part but not relevant to the deviation contained in this TV.

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Proposed TV Certification Basis, Classification & Rationale

Certification Basis	**Airworthiness Standards:** JAR-E, Change 6 JAR-E, Change 10, E20 and E25 JAR-E, Change 10 for all new parts of the engine control system and its associated accessories **Special Conditions (SC):** JAR-E790 at Change 10, Ingestion of Rain and Hail JAR-E540 and E800 at Amendment 11, Bird Strike / Ingestion JAR-E530(f) at Change 10 and AMJ 20X-1, EEC Fire & Overheat Protection **Equivalent Safety Findings:** JAR-E, Change 6, C3-4, Paragraph 6, 150 hour Endurance Test JAR-E, Change 6, C3-4, Paragraph 2.2.1 and JAR- E, Change 10, E640(b)(1), Static Pressure Tests JAR-E, Change 6, C3-4, Paragraph 22, Compressor and Turbine Rotor Integrity Tests **Deviations:** JAR-E, Change 6, C3-4, Paragraph 24.1, Engine Calibration in Reverse Thrust **Environmental Protection:** ICAO Annex 16, Volume II, Second Edition, July 1993 – Emissions and venting Later compliance has been shown with CS-34 iaw ICAO Annex 16, Volume II, Third Edition 2008 incl. Amendment 6 – Aircraft Engine Emissions (approved 29.06.2011)
Classification Rationale and Decision	The subject TV has been classified as 'Major' in line with RRCS 10060/002.

MAJOR ☑ **MINOR** ☐

Technical Substantiation and Compliance Demonstration

Component Classification	CRITICAL GROUP A	Material	ETM (MSRR6660)

Assessment:

The subject LPT Stage 1 Rotor Disc Assembly addressed in this TV exhibits scoring on the edge between the sleeve abutment face and chamfer of the Bore at Location 22 covering 60% circumference, measuring up to 0,13 mm in depth.

EM TASK 72-52-22-200-000 instructs to repair the part in accordance with Repair HRS5099 if scoring on the bore and chamfer faces is more than 0,08 mm in depth, 20,00 mm in length and 0,15 mm in width.

Repair HRS5099 instructs to reject the part if the disc bore diameter 'AC' is at the maximum tolerance of oversize letter designation D and surface damage is evident. Refer to Figure 2 of this TV.

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It is reported that the Bore at Location 22 is machined in accordance with Repair HRS5099 to maximum allowable diameter 109,743 mm. However, scoring is still evident at affected location. Further machining of the Bore at Location 22 is not possible.

Based on stress assessment, it is concluded to repair the reported scoring on the edge between the sleeve abutment face and chamfer of the Bore at Location 22 in accordance with the Repair HRS5631 Part 1. It is recommended to dress in the circumferential direction and ensure any blending in the radial direction is kept to a minimum to maintain the disc abutment face with the Sleeve. Further, it is recommended that the minimum dressing ratio (50:1) in the radia direction may be omitted. Dressing to the depth of damage removes the indication of damage and repair will blend smoothly with adjacent areas.

From general arrangement drawing, it is assessed that LPT Stage 1 Locating Sleeve (EIPC: 72-52-22,02-421) mates with the affected Bore at Location 22 of the LPT Stage 1 Rotor Disc (EIPC: 72-52-22,02-400). Refer below illustration 1.

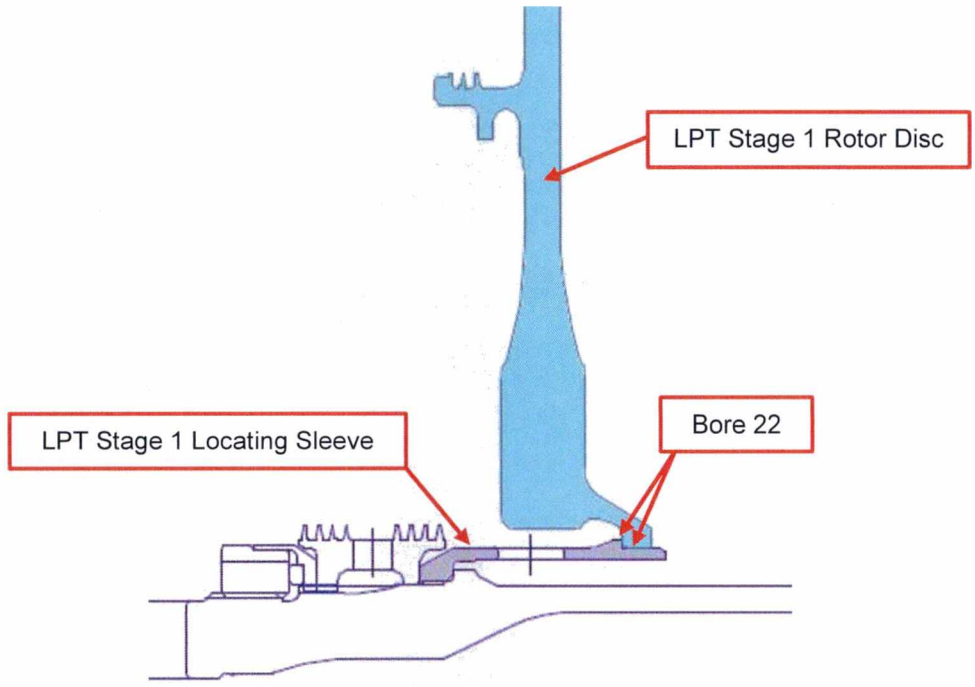

Illustration 1

There is interference/ tight fit between LPT Stage 1 Locating Sleeve and Bore at Location 22 of the LPT Stage 1 Rotor Disc. During assembly of new Sleeve, the Disc will be pre-heated to 300 °C - 450 °C and Sleeve will be frozen using OMat 220 liquid nitrogen. Additionally, the Bore at Location 22 of the LPT Stage 1 Rotor Disc is already machined in accordance with Repair HRS5099 to maximum allowable diameter 109,743 mm. Hence, further machining of Bore at Location 22 will lead to reduction in interference fit or may lead to clearance fit.

Further, the damage is localised at the edge between the chamfer and sleeve abutment face and does not extend radially outward into the face. Hence local dressing in the circumferential direction and omitting the blending ratio in the radial direction will not affect the seating between mating parts nor the interference fit between the disc and sleeve.

RRD Engineering has concluded that the reported scoring on the edge between the sleeve abutment face and chamfer of the the Bore at Location 22 of the LPT Stage 1 Rotor Disc Assembly will not affect the integrity, functionality and life of the part, if the recommendations given in this TV are complied with.

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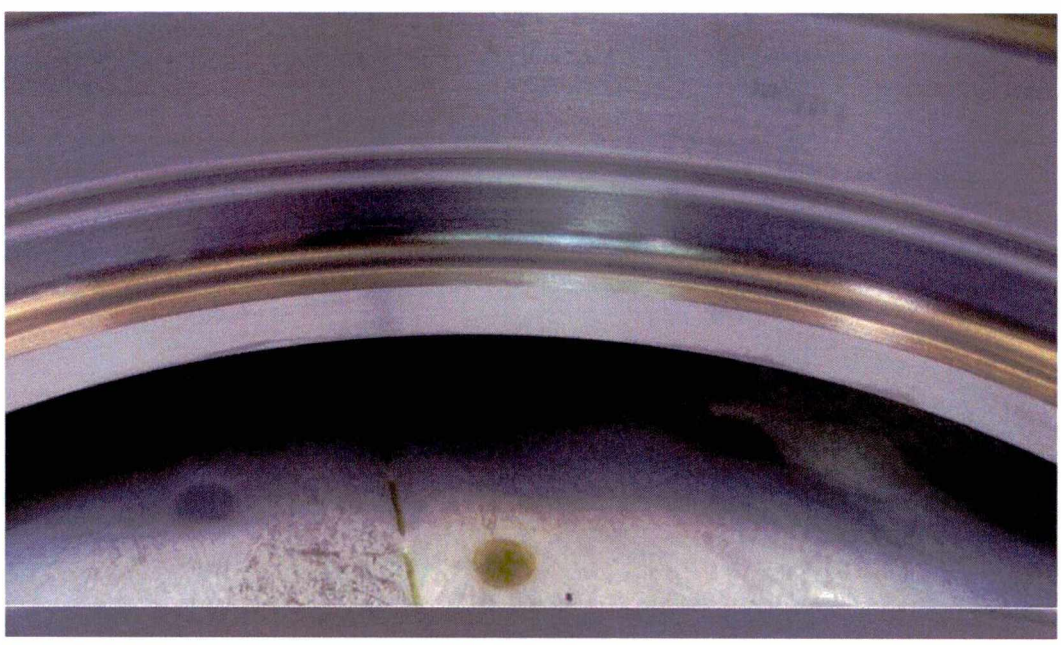
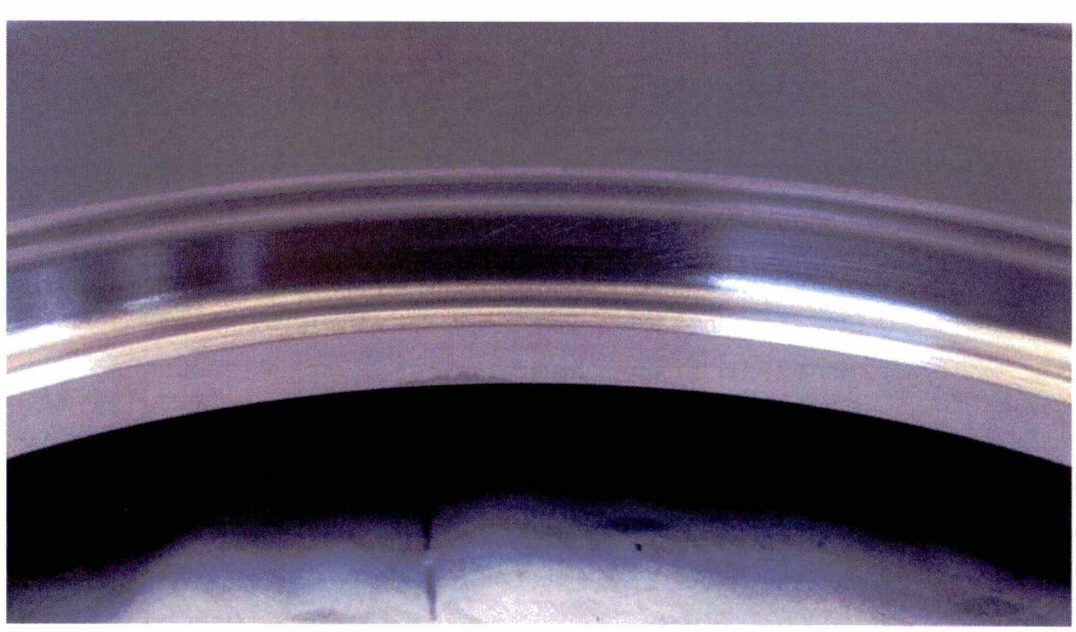
Post Blend Details:

The Scoring on sleeve abutment face and chamfer at Location 22 of the LPT Stage 1 Rotor Disc Assembly is already repaired in accordance with recommendations given in this TV.

Below are the post dressing dimensions and post repair photos:

Damage Location	Damage Depth
Scoring on sleeve abutment face and chamfer of bore 22 with 60% circumference	0,13 mm (0.005 in)





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Stress Assessment:

Substantiation for TV287869:

Scoring on the edge between the sleeve abutment face and chamfer of the Bore at Location 22.
Repairing the scoring in accordance with HRS5631 Part 1 repair (single depth dressing) to remove reported scoring covering 60% of the circumference, measuring up to 0,13mm in depth is acceptable. This is based on reference to the 2D stress models used for the stress and lifing report EDNS01000800111, which confirm this to be a medium-stressed location with a large margin on life. The local stress increase associated with the dressing procedure can still be accommodated due to this large life margin.

Conclusive statement:

For the reason(s) stated above, the repair decision(s) will not compromise
the (declared) safe cyclic life – DSCL (C3-2, §1.2.5),
the strength (C3-2, §1.3.3) and
the rotor (overspeed) integrity (C3-4, §22)
of the component for the relevant conditions established at certification and subsequent modification changes

Parker, James

Digitally signed by Parker, James
Date: 2025.02.10 13:51:18 +01'00'

Generic Approval:

TV236181 is considered as a generic approval of this TV based on meeting the requirements of the RRCS 10060/003:

1. The previous deviation applied to a component or engine from the same Engine Type
2. The previous TV RESPONSE applied to a component from the same EIPC item number series.
3. The affected feature and operational characteristic of the component to which the deviation is to be applied has not changed between the different modification / SB standards.
4. The deviation must be to the same or lesser extent, and to the same feature as the previous deviation.
5. If applicable, the repair definition/method used is the same as the previous TV RESPONSE.

Note: TV236181 is considered as Generic Approval TV, as the damage depth on the current TV is less, the repair method is the same and based on visual comparison of the condition documented in TV236181 to the current TV, the extent of damage encroaching into the abutment area on the current TV is less. The damages on the current TV are localized only at the edge of the chamfer (in contrast to some damages that appear to be in the abutment area on TV236181), therefore the instructed dressing repair in the circumferential direction will have a negligible effect on the abutment face.

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Compliance Demonstration

The effect of this TV on the certification requirements has been investigated and the following items have been considered. All other requirements (Airworthiness and Environmental Protection) are deemed to be not applicable to the subject of this TV.

Requirement	Title	Means of Compliance Demonstration	Evidence
Chapter C3-2, Para. 1.3	Strength	Specific Calculation / Analysis	This TV recommends repairing scores on the edge between the sleeve abutment face and chamfer of the Bore at Location 22 in accordance with the Repair HRS5631 Part 1. Based on the stress assessment on Appendix A page 8 considering stress and lifing report EDNS01000800111/001, it is concluded that the affected area is medium stressed with sufficient margin on life, also considering any local stress increase due to the Part 1 repair. Hence, the recommendations given in this TV will not affect the strength of the part. Compliance with C3-2, Para 1.3 has been demonstrated by stress & lifing report and repair design review.
Chapter C3-2, Para. 1.2	Failure Analysis	Engineering Judgement & Specific Calculation / Analysis	Failure of LPT Stage 1 Rotor Disc by fatigue or creep, overheat and corrosion is classified in the FMECA Report EDNS01000481873/005 as Major/Hazardous but Remote/Extremely Remote. However, based on FMECA and repair design review, the recommendations given in this TV do not introduce any new failure modes, nor do they change any assumptions, analysis or conclusion contained in existing FMECA Report EDNS01000481873/005 (engineering judgement). Further, based on stress assessment on Appendix A page 8 considering Technical Report EDNS01000800111/001, this TV will not adversely affect the life (DSCL) or integrity of the part (specific calculation/analysis). Compliance with Chapter C3-2, Para. 1.2 has been demonstrated by FMECA, repair design, and stress/lifing report review.
Chapter C3-4, Para. 22	Rotor Integrity Tests	Specific Calculation / Analysis	Based on stress assessment on Appendix A page 8 considering Technical Report EDNS01000800111/001, it is concluded that the recommendations on this TV will not compromise the critical part integrity established for the relevant conditions at certification and subsequent modification changes. Hence, the repair recommendation will not affect the critical part integrity and compliance with C3-4, Para 22. has been demonstrated by stress/lifing report review and this compliance statement.

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Chapter C3-4, Para. 3	Vibration Survey	Engineering Judgement	The recommendations given in this TV will not adversely affect the vibrational behaviour of the part, as a very limited amount of material will be removed during HRS5631 Part 1 repair. Further, EM Tasks 72-52-20-400-801 and 72-00-00-700-809 define the acceptable limits to which this part is required to be balanced and to which a vibration survey is to be conducted during engine pass-off test, respectively. Satisfactory accomplishment of the aforementioned ICA tasks and attainment of the approved limits within ensures the vibrational characteristics of the part/engine are within the established acceptable range. Hence, compliance with the requirements of Chapter C3-4, Para. 3 'Vibration Surveys' is demonstrated by repair design review and above compliance statement.
Chapter C3-2, Para 1.8	Assembly of Parts	Engineering Judgement	The instruction to repair the scores on the edge between the sleeve abutment face and chamfer of the Bore at Location 22 in accordance with HRS5631 Part 1 will not affect the seating between mating parts. The reported damages are localized on the edge of the chamfer and the instruction to polish circumferentially while keeping the dressing in the radial direction to a minimum will ensure the majority of the abutment face is maintained. In addition, the interference fit between the LPT Stage 1 Disc and Sleeve remains unaffected. Hence, it is concluded that the recommendation given in this TV will not affect the fit and assembly process between mating parts, nor the risk of incorrect assembly.
Chapter C3-2, Para. 1.7	Drawing and Marking of Parts	Engineering Judgement	The recommendation to vibropeen the TV number is for the traceability of the repair on the part. This TV recommends repairing scores on the edge between the sleeve abutment face and chamfer of the Bore at Location 22 in accordance with the Repair HRS5631 Part 1, which provides full particulars of repair design and the identification method. The marking will be done in accordance with the OP TASK 70-00-00-300-363 (OP363), which is equivalent to JES131 design requirements and the marking is done on the area designated in the manufacturing drawing. Compliance with C3-2, Para 1.7 is demonstrated by repair design review and this compliance statement.

☑ **Based on the evidence given compliance with the applicable certification basis has been demonstrated.**

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Previous Occurrences, Future Arisings and Associated Exit Strategies

Previous Occurrences

Following TV has been issued to repair the damage on the Bore at Location 22 on the LPT Stage 1 Rotor Disc Assembly (Engine Mark: TAY 611-8 of P/No. JR32318A):

TV No.	Damage Details	Worst-off Damage Depth	Disposition
TV236181	2-off dents	0,117 mm	Repair HRS5631 Part 2
	Scores on 20% of circumference. Bore at Location 22 is machined in accordance with Repair HRS5099 to maximum allowable diameter 109,743 mm. Further machining of the Bore at Location 22 is not possible	0,193 mm	Repair HRS5631 Part 1

The depth of scores addressed in this TV is less than depth of scores of previous TV236181. The circumferential extent of the damage in this TV is more than TV236181, however the damages on this TV are limited to the edge of the chamfer. The disposition of this TV and above previous TV236181 is same for scoring. TV236181 is approved by stress and design specialists.

Previous Occurrences for same Part Serial No.:

This is the first instance of damage on the LPT Stage 1 Rotor Disc Assembly of P/No. JR27972 and Part Serial No. EETM7601.

Future Arisings:

This case is considered as one-off and will be assessed on case-by-case basis.

Export Control Information (This table applies to TV Approval Sheet, Standardisation Report & Information Sheet Only)

Country	Export Classification	Date
Germany	Not Listed	08 February 2025
Canada	Not Listed	08 February 2025
India	Not Listed	08 February 2025

Note 1 (Germany) : The technology contained in these parts of a TV must be confirmed, by the TV Approver, to have an Export Classification of either "Not Listed" or "PL9009.c". These sections of a TV must NOT contain technology of any other Export Classification but may reference such technology (e.g. Technical Reports). However, such referenced material must NOT be archived in the TV Database.

Note 2 : (All other countries including Singapore & USA) : Export Control must be considered and these parts of the TV document marked in accordance with the requirements of that country. Refer to the relevant Export Control Manager.

Rolls-Royce Technical Variance Information Sheet

TV No. 287869
Issue 1
Version 1

This page must not be distributed to the applicant. This page is optional and to be used as a guide only.

What date is the completed TV due to the customer (RR Promise date)?	Date:	
Are the relevant detail drawings, general arrangement and schemes included with the pack? ***Any comments :***		
Are the relevant Engine Manual Inspection Checks, I.P.C. illustrations, Service Bulletins included in the pack? ***Any comments :***		
Has a TV history search for the engine and part number (including description) been completed and appropriate TV's included in the pack? ***Any comments :***		
Has a TV history search for similar engines and part numbers (including description) been completed and appropriate TV's included in the pack? ***Any comments :***		
Are the relevant Previous TVs and FRSs included in the pack and any examples of rejected TV's? ***Any comments :***		
Has a concession search been completed and relevant documentation included in the pack? ***Any comments :***		
Is the condition of mating parts understood (if applicable)? And is the part to be rebuilt reusing the mating part or using matched pair option? ***Any comments :***		
Have the Engine Manual Limits and Aircraft Manual Limits been included (if applicable)? ***Any comments :***		
Has the root cause of damage been identified with the TV request originator and a statement included in the pack? ***Any comments :***		
Has a sketch / diagram of non-conformance been included? ***Any comments :***		
Have replicasts been included? ***Any comments :***		
Are all damaged / repaired areas fully dimensioned on the request? Where applicable, have relevant min remaining wall sections been included? ***Any comments :***		
Are there Repair Parts (Spares) required to carry out the repair, if so, does the relevant supply chain exist? ***Any comments :***		
Has EDC been updated with the latest information? ***Any comments :***		
Have you confirmed that no export controlled technology is within the TV document content? ***Any comments :***		
Have you reviewed all current and historic Red Top Investigations? ***Any comments :***		

NOTE : An entry should be made in all boxes. Acceptable entries include: Y (Yes), N (No) or NA (Not Applicable). Explain briefly within the boxes above if N or NA is entered