

SERVICE BULLETIN No. 292 72 2238

Version: B

Date: 31 August 2023

Reason for update: Addition of 2 C2 and 2 S2 variants.



Modification



Periodical action



One-off action

Applicable from:
“NOVEMBER
2023”

Subject:
Module M03 - Replacement of HP turbine blades.
Modification TU 238.

APPLICABLE ENGINE / VARIANT(S)	EFFECTIVITY CODE	MAINTENANCE LEVEL	CONDITION OF APPLICATION	EFFECT ON OPERATION
ARRIEL 2 C2, C2-CG, S2	3	1, 2, 3	Application following depletion of existing stock	Replacement of module M03 in level 1, 2 or removal/installation of HP turbine in level 3
		4	Application following depletion of existing stock	Replacement of the HP turbine blades and disc

Apply this SB in full compliance with the manufacturer's instructions.
Refer to the effectivity code above.

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§1.GENERAL

§2.LEVEL 1, 2

§3.LEVEL 3

§4.LEVEL 4

§5.CERTIFICATES

1. GENERAL

1.1. Background

1.1.1. Context

On 26 December 2022, there was a fire in the PRAXAIR UK factory at Weston-Super-Mare. The fire caused major damage in this factory and all maintenance and production services done by this supplier were shut down.

PRAXAIR UK is the mere source supplier of the HP turbine blade coating made by Electrolytic co-deposition for ARRIEL 2 C2, S2 and C2-CG engines.

1.1.2. Analysis

The PRAXAIR UK production shutdown caused a stock disruption of the applicable HP turbine blades. Discussions between Safran Helicopter Engines and PRAXAIR UK did not come up with a short- and medium-term solution to manufacture again the HP turbine blades. Therefore, Safran Helicopter Engines launched the certification of the ARRIEL 2 E HP turbine blades on ARRIEL 2 C2, S2 and C2-CG variants.

1.1.3. Solution

The modification TU 238 consists in installing a set of HP turbine blades, of similar design to the ARRIEL 2 E blade, on ARRIEL 2 C2, S2 and C2-CG variants.

The ARRIEL 2 E and ARRIEL 2 C2, S2 and C2-CG HP turbine blades are geometrically identical but not produced from the same material. Because of the difference in density of the 2 blade materials and the differences in the operating cycles of the ARRIEL 2 E and ARRIEL 2 C2, S2 and C2-CG engines:

- The PRE and POST TU 238 blades cannot be mixed on the same turbine wheel
- There is a reduction of 2,000 cycles in the life limit of the HP turbine disc (17,000 cycles PRE TU 238, 15,000 cycles POST TU 238), hence disk reference change.

1.2. Approval

- ARRIEL 2 C2 - S2 variants:

The technical content of this document is approved under the authority of the DOA (Design Organisation Approval) ref. EASA.21J.070.

- ARRIEL 2 C2-CG variant:

The technical information given in this document is approved by Safran Helicopter Engines.

1.3. Summary of updates

Version	Date	Primary cause for update
A	21-08-2023	First issue

End of Section §1

“General”

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§1.GENERAL

§2.LEVEL 1, 2

§3.LEVEL 3

§4.LEVEL 4

§5.CERTIFICATES

2. PROCEDURE DONE AT THE OPERATOR'S SITE OR AT A MAINTENANCE CENTER APPROVED FOR LEVEL 1, 2**2.1. Manpower**

- Personnel: 1 mechanic.
- Time: 24 man-hours.

2.2. Tools / Parts

- Mechanic's standard tools.
- Removal and installation tool of module M03, refer to the applicable ARRIEL 2 Maintenance Manuals.

2.3. Parts information**2.3.1. Basic information**

The list of parts is given for one engine.

2.3.2. List of parts

POST TU 238 module M03.

2.3.3. Supply conditions

Order supplies from:

Your local Safran Helicopter Engines Support Center

or

SAFRAN HELICOPTER ENGINES

Direction Support et Service

Département Commercial

40220 TARNOS - France

2.4. Procedures

Replacement of the PRE TU 238 module M03 with a POST TU 238 module M03: Refer to paragraph 2.6.

2.5. Block diagram for this SB

Not applicable.

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§1.GENERAL

§2.LEVEL 1, 2

§3.LEVEL 3

§4.LEVEL 4

§5.CERTIFICATES

2.6. Instructions on how to do the procedure**2.6.1. Implementation**

Removal of the engine is necessary for this SB.

2.6.2. Operating instructions

- 2.6.2.1. Remove the PRE TU 238 module M03: refer to the applicable ARRIEL 2 Maintenance Manual, task 72-00-43-900-801.
- 2.6.2.2. Send back the PRE TU 238 module M03, along with its updated log card, to a Safran Helicopter Engines-approved Repair Center.
- 2.6.2.3. Install a POST TU 238 module M03: refer to the applicable ARRIEL 2 Maintenance Manual, task 72-00-43-900-801.

2.6.3. Reconditioning and checks

Refer to the applicable ARRIEL 2 Maintenance Manual.

2.6.4. Identification

Refer to the Guides U441 and U015 for instructions on how to record the engine log book and the log cards.

- 2.6.4.1. Update the log card of the installed module M03 and the log card of the removed module M03.
- 2.6.4.2. Record the replacement of the module M03 in the engine log book.
- 2.6.4.3. Integrate the log card of the installed module M03 in the engine log book.
- 2.6.4.4. Record the application of this SB in section E.
- 2.6.4.5. Update the availability status in section E.

2.7. Weight and balance

Not applicable.

End of Section §2

“Procedure done at the operator’s site or at a Maintenance Center approved for Level 1, 2”

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§1.GENERAL

§2.LEVEL 1, 2

§3.LEVEL 3

§4.LEVEL 4

§5.CERTIFICATES

3. PROCEDURE DONE AT A MAINTENANCE CENTER APPROVED FOR LEVEL 3 OR AT THE OPERATOR'S SITE BY A MAINTENANCE CENTER APPROVED FOR LEVEL 3
3.1. Manpower

- Personnel: 1 Safran Helicopter Engines-approved technician for this work.
- Time: 40 man-hours (application of MTI Ref. X 292 M1 308 2).

3.2. Tools / Parts

Refer to MTI Ref. X 292 M1 308 2.

3.3. Parts information
3.3.1. Basic information

The list of parts is given for one engine.

3.3.2. List of parts

New Part Number	Key	Qty	Description / Item	Old Part Number	Key	Qty
ARRIEL 2 C2 - S2						
0 292 26 079 0	A'	1	HP turbine wheel assy	0 292 26 052 0	G	1
0 292 26 077 0	A'	1	HP turbine wheel assy	0 292 26 074 0	G	1
ARRIEL 2 C2-CG						
0 292 26 080 0	A'	1	HP turbine wheel assy	0 292 26 052 0	G	1
0 292 26 078 0	A'	1	HP turbine wheel assy	0 292 26 074 0	G	1

Key

A'	Part got after application of this modification as a retrofit
G	Part changed by Safran Helicopter Engines

3.3.3. Supply conditions

Personnel in charge of the operation supply the parts.

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§1.GENERAL

§2.LEVEL 1, 2

§3.LEVEL 3

§4.LEVEL 4

§5.CERTIFICATES

3.4. Procedures

Replace the PRE TU 238 HP turbine wheel assy with a POST TU 238 HP turbine wheel assy: Refer to paragraph 3.6.

3.5. Block diagram for this SB

Not applicable.

3.6. Instructions on how to do the procedure**3.6.1. Implementation**

Removal of the engine is necessary for this SB.

3.6.2. Operating instructions

Refer to MTI Ref. X 292 M1 308 2.

3.6.3. Reconditioning and checks

Refer to MTI Ref. X 292 M1 308 2.

3.6.4. Identification

Refer to MTI Ref. X 292 M1 308 2.

Refer to the Guides U441 and U015 for instructions on how to record the engine log book and the log cards.

3.6.4.1. Record the application of the SB on the module M03 log card and in section E.

3.6.4.2. Update the availability status on the module M03 log card and in section E.

End of section §3

“Procedure done AT a maintenance center approved for level 3 OR AT THE OPERATOR’S SITE BY a Maintenance Center approved for Level 3”

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§1.GENERAL

§2.LEVEL 1, 2

§3.LEVEL 3

§4.LEVEL 4

§5.CERTIFICATES

4. PROCEDURE DONE AT A REPAIR CENTER APPROVED FOR LEVEL 4
4.1. Manpower

- Personnel of approved Repair Center.
- Time calculated by the Repair Center for this level of intervention.

4.2. Tools / Parts

Refer to the ARRIEL 2 Overhaul Manual.

4.3. Parts information
4.3.1. Basic information

The list of parts is given for one engine.

4.3.2. List of parts

New Part Number	Key	Qty	Description / Item	Old Part Number	Key	Qty
ARRIEL 2 C2 - S2						
0 292 26 079 0	A'	1	HP turbine wheel assy	0 292 26 052 0	G	1
2 292 26 052 0	A'	1	· disc	2 292 26 006 0	G	1
2 292 26 A87 0	A	39	· blade	2 292 26 A40 0	C	39
0 292 26 077 0	A'	1	HP turbine wheel assy	0 292 26 074 0	G	1
0 292 26 076 0	A'	1	· disc	0 292 26 069 0	G	1
2 292 26 A87 0	A	39	· blade	2 292 26 A40 0	C	39
ARRIEL 2 C2-CG						
0 292 26 080 0	A'	1	HP turbine wheel assy	0 292 26 052 0	G	1
2 292 26 052 0	A'	1	· disc	2 292 26 006 0	G	1
2 292 26 A97 0	A	39	· blade	2 292 26 A40 0	C	39
0 292 26 078 0	A'	1	HP turbine wheel assy	0 292 26 074 0	G	1
0 292 26 076 0	A'	1	· disc	0 292 26 069 0	G	1
2 292 26 A97 0	A	39	· blade	2 292 26 A40 0	C	39

Key

A	Part included by this SB
A'	Part got after application of this modification as a retrofit
C	Part deleted by this SB
G	Part changed by Safran Helicopter Engines

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§1.GENERAL

§2.LEVEL 1, 2

§3.LEVEL 3

§4.LEVEL 4

§5.CERTIFICATES

4.3.3. Supply conditions

Order supplies as needed from:
your local Safran Helicopter Engines Support Center
or
SAFRAN HELICOPTER ENGINES
Direction Support et Service
Département Commercial
40220 TARNOS - France

4.4. Procedures

Conversion of the HP turbine assy by replacement of the PRE TU 238 HP turbine blades and disc with POST TU 238 HP turbine blades and disc, refer to paragraph 4.6.

4.5. Block diagram for this SB

Not applicable.

4.6. Instructions on how to do the procedure**4.6.1. Implementation**

Not applicable.

4.6.2. Operating instructions

Refer to the ARRIEL 2 Overhaul Manual.

4.6.3. Reconditioning and checks

Refer to the ARRIEL 2 Overhaul Manual.

4.6.4. Identification

Refer to the Guides U441 and U015 for instructions on how to record the engine log book and the log cards.

Record the application of the SB on the module M03 log card.

4.7. Weight and balance

Not applicable.

End of Section §4**“Procedure done at a Repair Center approved for Level 4”**

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§1.GENERAL

§2.LEVEL 1, 2

§3.LEVEL 3

§4.LEVEL 4

§5.CERTIFICATES

Not applicable.