SERVICE BULLETIN

DMC:	342-49-023 – SERVICE BULLETIN
Title:	Introduction of criteria for boroscopic inspection
Issue number:	002
Issue Date:	09-05-2022

Responsible Partner Company:	A0126
Originator:	F1989
Category:	3 – Recommended
Applicability:	All
Related SB:	None
Related Documents:	None
Accomplishment:	☐ Once only ☒ Recurring

Planned to be incorporated in Technical Publications:
☒ Yes ☐ No

SERVICE BULLETIN 342-49-023

1. Revision information

Issue	Date	Reason for update
001	26/06/2018	Original
002	09/05/2022	Update of the criteria applicable to the combustor chamber

2. Planning information

2.1. Applicability

This Service Bulletin (SB) is applicable to all APU power plant fitted on Leonardo Helicopters AW189 or AW149 helicopters.

2.2. Reason

Following the boroscopic inspection (performed for scheduled or unscheduled maintenance), no criteria were given to define at which stage a component is considered as damaged. This Service Bulletin (SB) provide additional instructions to help maintenance operators.

2.3. Description

The purpose of this Service Bulletin is to complete the procedure “Examination with a borescope” described in the Maintenance Manual. For the inspection of each defined component, tolerance criteria will be integrated to determine whether or not SAFRAN POWER UNITS must be contacted for repair instructions.

2.4. Compliance

2.4.1. Compliance category

Comply with compliance category 3 – Recommended.

2.4.2. Time of compliance

This SB is recommended to be performed at each boroscopic inspection (whether during the 200 APU hours’ scheduled maintenance or during unscheduled boroscopic inspection).

2.5. Approval

The technical content of this document is approved under the authority of DOA No. EASA 21J214.

2.6. Manpower

One technician: 1.00 h.

2.7. Material

Refer to paragraph 4.

2.8. Tooling

No additional special tooling is required.

2.9. Weight and balance

The weight is not affected.
The centre of gravity is not affected.

2.10. Publication affected

DT13-01 (ML 1/2) data modules will be revised:
- Examination with a borescope: 89-A-49-20-00-00A-312A-A-003

DT13-02 (ML 3) data modules will be revised:
- Examination with a borescope: 89-A-49-20-00-00A-312A-A-003

2.11. Previous modifications

Not applicable.

3. Accomplishment Instructions

3.1. Required conditions

Required condition	*Data Module/Technical Publication*
The helicopter must be safe for maintenance. Refer to the helicopter maintenance manual if the APU is installed. The access doors 461A, 462A, 463A and 481A must be opened. The igniter plugs must be removed.	n/a n/a n/a 89-A-49-42-01-00A-520A-A

3.2. Safety conditions

The helicopter must be safe for maintenance.

3.3. Procedure

3.3.1. Preliminary conditions

Refer to paragraph 3.1.

3.3.2. Boroscopic inspection procedure

3.3.2.1. Inspection from the air intake with the videoscope inspection kit and the Ø 5 mm flexible borescope

NOTE

Turn the rotate assembly by rotating the hexagonal bit drive on the Auxiliary Power Unit starter motor with a 1/4 inch wrench.

3.3.2.1.1. Inspect the air intake

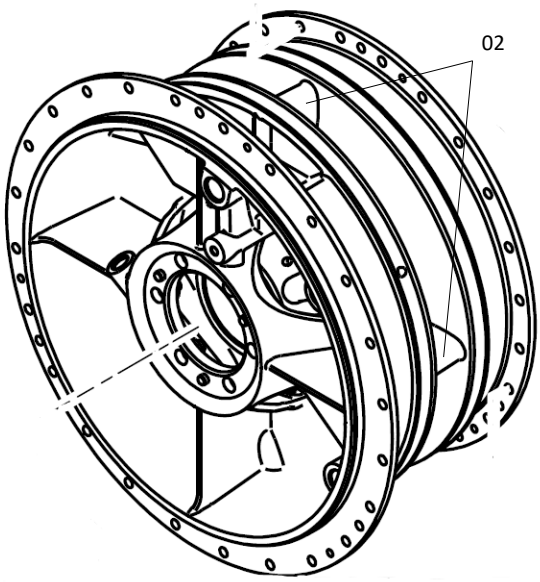

Figure 1 – Air intake casing

LOC	OBSERVATION	CODE	CRITERIA
02	CRACK(S)	085	NO TOLERANCE

3.3.2.1.2. Inspect the compressor blades

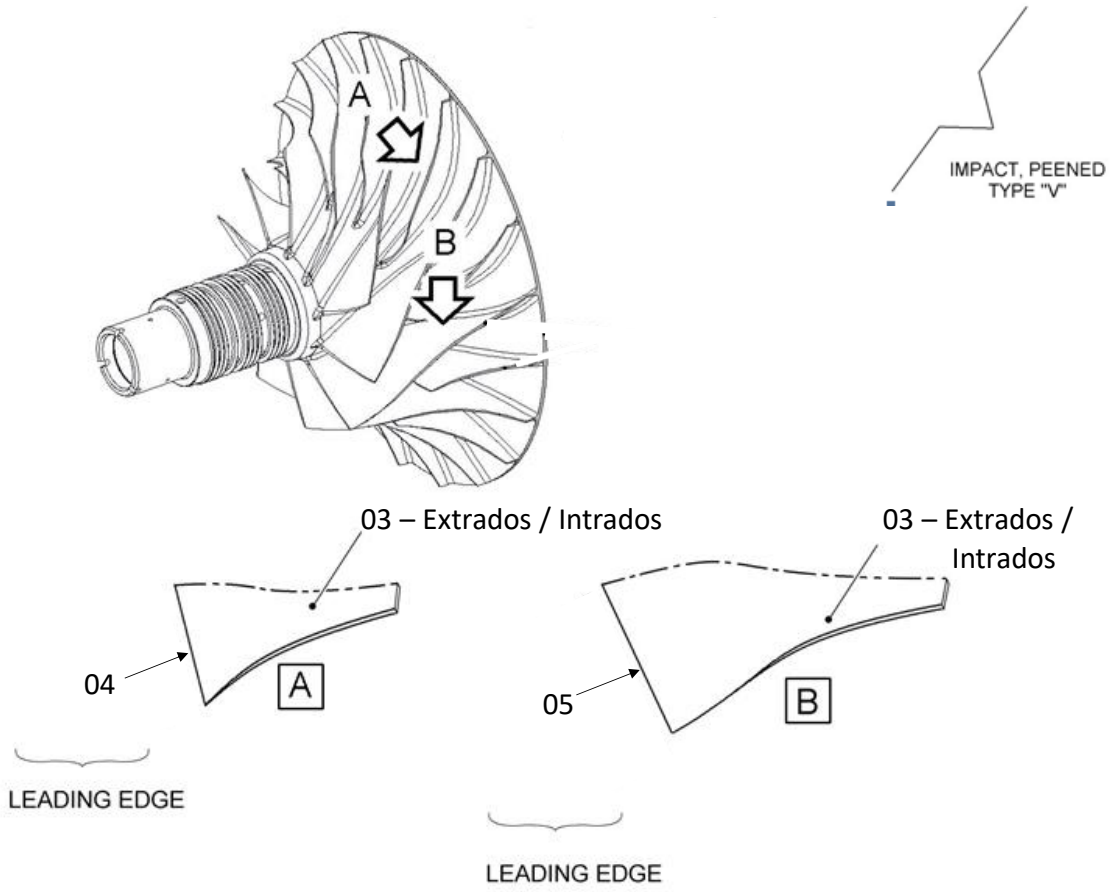

Figure 2 – Compressor wheel

LOC	OBSERVATION	CODE	CRITERIA
01	CRACK(S)	085	NO TOLERANCE
03	IMPACT	099	TYPE V NO TOLERANCE
04	IMPACT	099	TYPE V NO TOLERANCE
05	IMPACT	099	TYPE V NO TOLERANCE

3.3.2.2. Inspection from the igniter plug hole with the videoscope inspection kit and the Ø 5 mm flexible borescope

3.3.2.2.1. Inspect the combustor chamber

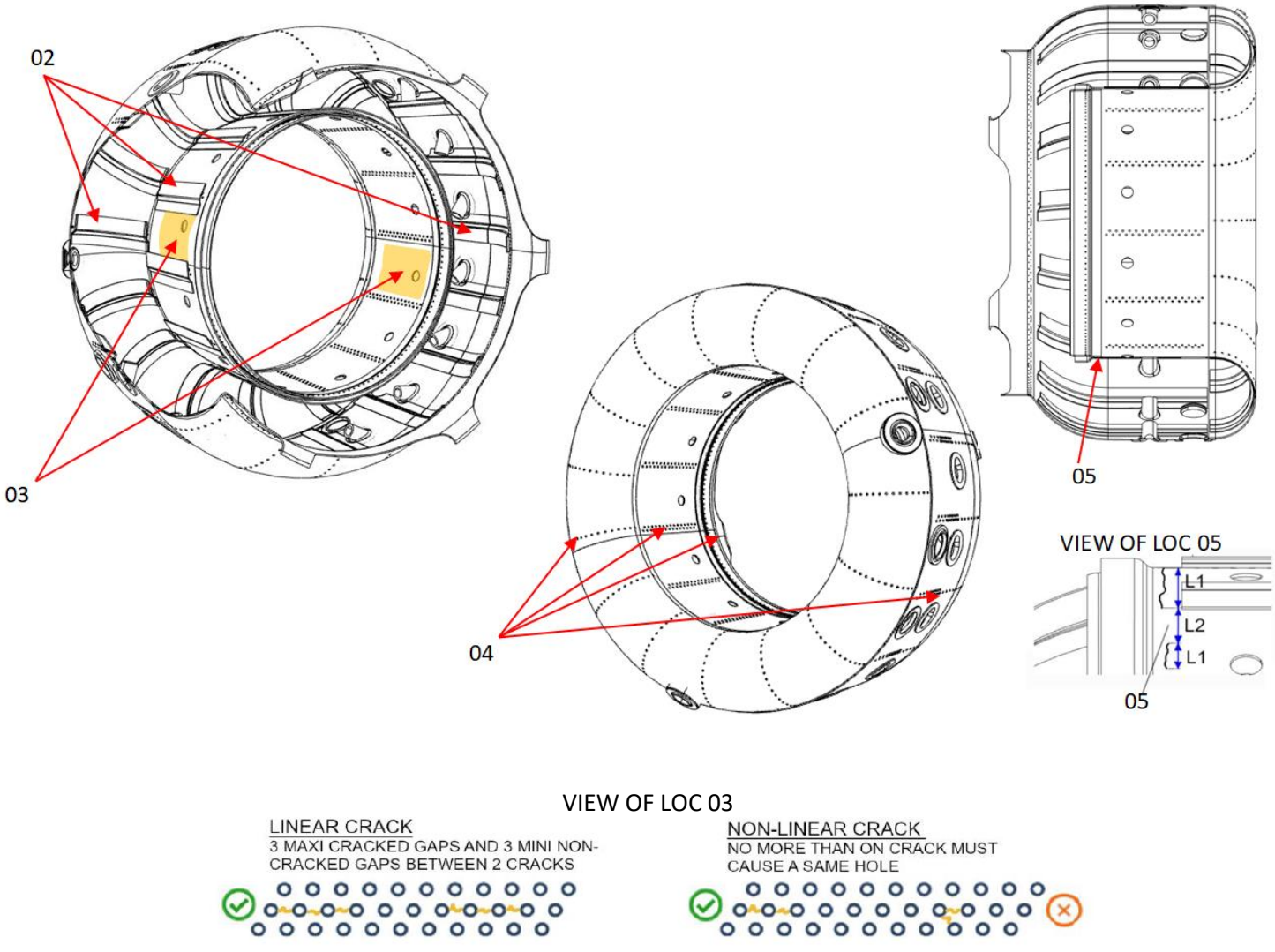

Figure 3 – Combustion chamber

LOC	OBSERVATION	CODE	CRITERIA
01	BURNING	058	COLORATION: ACCEPTABLE
02	BROKEN	052	NO MORE THAN 30% OF LOSS OF MATERIAL ON MAX 3 DEFLECTORS
03	CRACK(S)	085	LENGTH MAX 30MM
04	CRACK(S)	085	- LINEAR CRACK BETWEEN HOLES: 3 MAXI CRACKED GAPS AND 3 MINI NON-CRACKED GAPS BETWEEN 2 CRACKS -NON-LINEAR CRACK: NO MORE THAN ONE CRACK MUST CAUSE A SAME HOLE
05	CRACK(S)	085	LONGITUDINAL: LENGTH (L1) MAX. 50MM ON NO MORE THAN 3 AREAS WITH CLEARANCE BETWEEN CRACKS 20 MM (L2)

NOTA : LOC 01 is applicable to the whole part.

3.3.2.3. Inspection from the exhaust and Ø 5 mm flexible borescope

NOTE

Turn the rotate assembly by rotating the hexagonal bit drive on the Auxiliary Power Unit starter motor with a 1/4 inch wrench.

3.3.2.3.1. Inspect the 2nd stage turbine nozzle

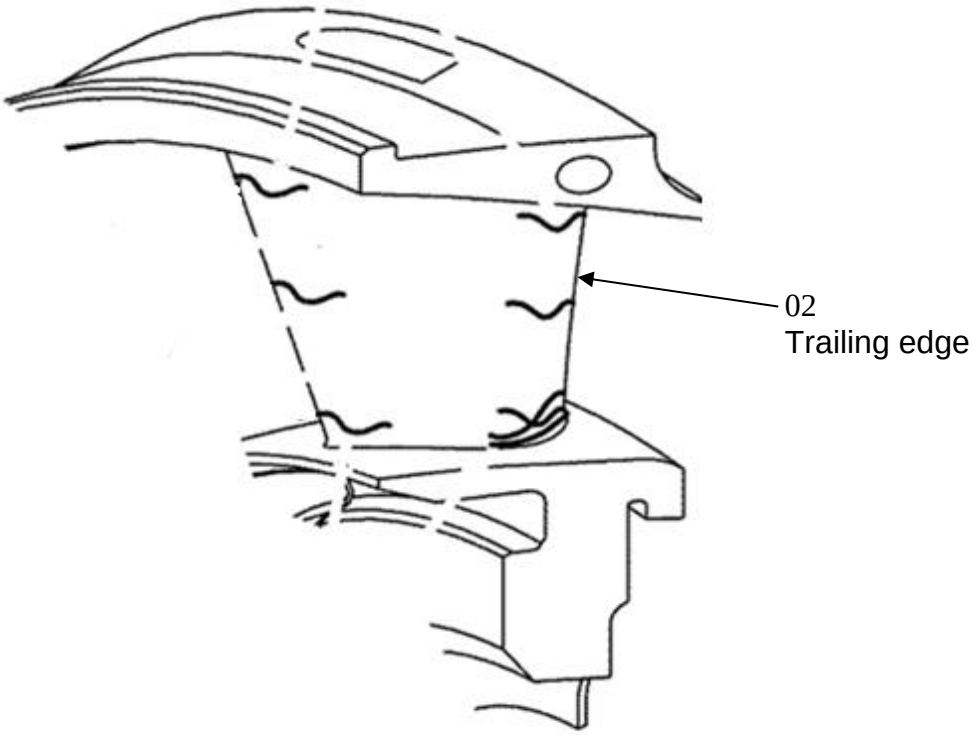

Figure 4 – 2nd stage turbine nozzle

LOC	OBSERVATION	CODE	CRITERIA
02	CRACKS ON TRAILING EDGE	085	NO TOLERANCE

3.3.2.3.2. Inspect the 2nd stage turbine blades

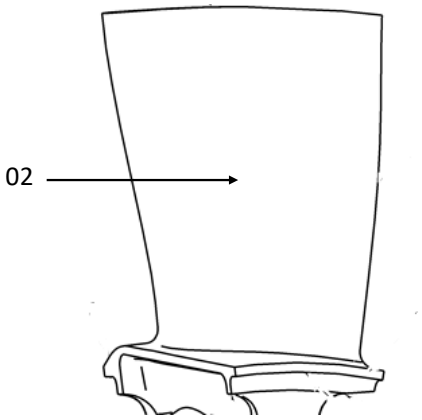

Figure 5 – 2nd stage turbine blade

LOC	OBSERVATION	CODE	CRITERIA
02	CRACK(S)	085	NO TOLERANCE

3.3.2.3.3. Inspect the exhaust cone arms

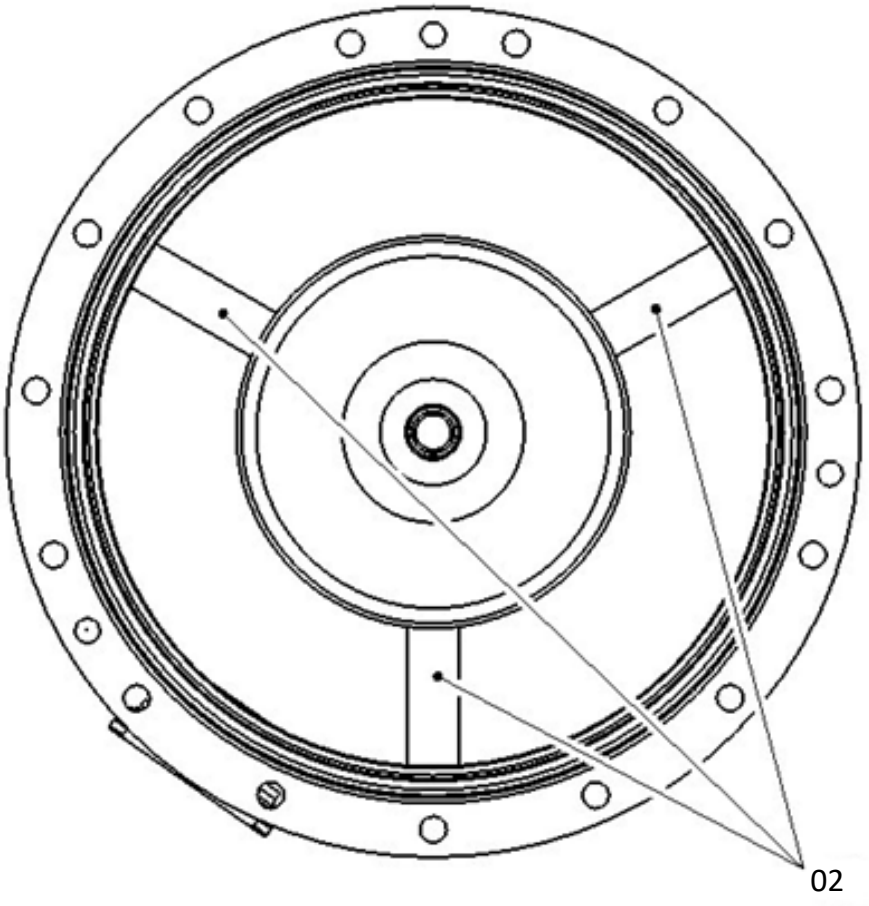

Figure 6 – Exhaust cone arms

LOC	OBSERVATION	CODE	CRITERIA
02	CRACKS IN WELD SEAM	902	NO TOLERANCE

3.3.2.4. If damages are detected in Step 3.3.2.1, Step 3.3.2.2 and Step 3.3.2.3 (cracks, impact…), contact SAFRAN POWER UNITS.

3.4. Requirements after job completion

3.4.1. Close up procedure

Required condition	*Data Module/Technical Publication*
Remove all the tools and the other items from the work area. Make sure that the work area is clean. The igniter plugs must be installed. The access doors 461A, 462A, 463A and 481A must be closed.	n/a 89-A-49-42-01-00A-720A-A n/a

3.4.2. Record

Record the embodiment of this SERVICE BULLETIN 342-49-023 in the EQUIPMENT LOG CARD of the APU power plant.

3.4.3. Compliance certificate

For each APU power plant where the SERVICE BULLETIN 342-49-023 is embodied and when damages are detected, send the following service bulletin compliance certificate to the MANUFACTURER.

SERVICE BULLETIN 342-49-023

Objet : **Attestation d'application du Bulletin Service 342-49-023.**
Subject: *Service Bulletin Embodiment Certificate 342-49-023.*

Important / *Important notice*:

Après application de ce Bulletin Service, veuillez compléter la présente attestation et la retourner par courrier ou fax à :
After incorporating this Service Bulletin, please complete this certificate and mail or fax it to:

Safran Power Units
Support Clients - 8 Chemin du pont de Rupé, BP 62089 - 31019 Toulouse Cedex 2, France
Fax (33) (0)5 61 70 74 45 - e.mail: csc.spu@safrangroup.com

Information concernant le matériel / *Equipment information*					
Utilisateur *Customer*					**N° Appareil** *Aircraft S/N*
	Réf. - P/N	**N/S** - S/N	**TSN***	**CSN***	
GAP / *APU*					

Contrôle endoscopique depuis l'admission d'air *Boroscopic inspection from the air intake*	Yes ☐	No ☐
Dommage(s) constaté(s) sur le carter d'entrée d'air *Detected damage on air intake casing*	Yes ☐	No ☐
Dommage(s) constaté(s) sur les pales du compresseur *Detected damage on compressor blades*	Yes ☐	No ☐
Contrôle endoscopique au niveau de l'orifice des bougies d'allumage *Boroscopic inspection from the igniter plug hole*	Yes ☐	No ☐
Dommage(s) constaté(s) dans la chambre de combustion *Detected damage in combustion chamber*	Yes ☐	No ☐
Contrôle endoscopique au niveau de la sortie des gaz *Boroscopic inspection from the exhaust*	Yes ☐	No ☐
Dommage(s) constaté(s) sur les distributeurs BP *Detected damage on 2nd stage turbine nozzles*	Yes ☐	No ☐
Dommage(s) constaté(s) sur les pales des turbines BP *Detected damage on 2nd stage turbine blades*	Yes ☐	No ☐
Dommage(s) constaté(s) sur les bras du cône de sortie *Detected damage on exhaust cone arms*	Yes ☐	No ☐
Commentaire *Comment*		

*** TSN = Time Since New** (Heures depuis neuf) **CSN = Cycles Since New** (Cycles depuis neuf)

Opération effectuée par:
Work performed by: .....

Je certifie que le matériel identifié ci-dessus a été modifié selon les directives du Bulletin Service en objet.
I certify that the above-mentioned equipment has been modified according to the directives given in this Service Bulletin.

Date	**Nom** / *Print name*	**Fonction** / *Position*	**Signature**
.....	.....	.....	

4. Material information

4.1. Material requirements

Not applicable.

4.2. List of components

Not applicable.

4.3. Interchangeability

Physical interchangeability: ..... Not affected
Functional interchangeability: ..... Not affected
Restriction of mixability: ..... No restriction

4.4. Parts disposition

Not applicable.

4.5. Procurement conditions

Not applicable.

END OF SERVICE BULLETIN