Turbomeca
groupe snecma

SERVICE BULLETIN

No. 292 72 2070

ARRIEL 2

Application: Mandatory

Subject: M02 compressor module. Bonding of sleeve in the bleed-valve mounting boss.

Incorporation of modification TU 70A.

The technical information contained in this document has been approved under the Authority of JAA Design Organization Approval No. F.JA.05" on 05.10.2001 (Ref. FA 2001/139).

1. Planning information

A. Effectivity

(1) Validity

- **ARRIEL 2 B - 2 B1 - 2 C - 2 C1 - 2 S1 engines.**

Note: This modification requires the previous or simultaneous application of modification TU 54 (Service Bulletin No. 292 72 2020 or No. 292 72 2054).

(2) Application

(a) Definition of the application for engines in service

Mandatory: Incorporation of the Service Bulletin is required to eliminate a condition which can affect flight safety. The incorporation required can be immediate or adapted to a scheduled program.

(b) Conditions of the application for engines in service

(b.1) Application at the operator's

Within 100 operating hours (counted from receipt of this Service Bulletin).

(b.2) Application in a TURBOMECA approved Repair Center

Upon first engine or M02 module return to an approved Repair Center, irrespective of the reason for return.

TURBOMECA 40220 Tarnos - France
Tel. (33) 05 59 74 40 00 - Telex 570 042 - Fax (33) 05 59 74 45 15

B. Purpose

Eliminate sleeve fluttering in the bleed-valve mounting boss.
This fluttering may cause damage to the sleeve, bleed-valve mounting boss and bleed-valve bottom flange.
If this wear leads to a bleed valve detachment from the engine, the result will be a 10 % power loss of the take-off rating. This power loss is identical to that caused by the bleed valve jamming in the "open" position.

C. Description (Appendix 1)

This modification consists in bonding the sleeve in the bleed-valve mounting boss.

D. Approval

The technical information contained in this document has been approved under the Authority of JAA Design Organization Approval No. F.JA.05.

This Service Bulletin is the subject of an Airworthiness Directive.

E. Manpower

(1) At the operator's

(a) Personnel: 1 mechanic.
(b) Time required: 1 man-hour approximately.

(2) In a TURBOMECA approved Repair Center

(a) Personnel of the approved Repair Center.
(b) Time defined by the Repair Center for the level of this intervention.

F. Material

Products for dye penetrant inspection:

- ARDROX 907 PB penetrant (not chlorinated aerosol propellent).
- ARDROX 9 D 1 developer (not chlorinated aerosol propellent).
- ARDROX 9-PR-5 solvent (not chlorinated aerosol propellent).

Glues:

- Black RHODIA SILICONES CAF 33 glue or
- GE SILICONES RTV 106 glue (alternative).

G. Tooling

(1) At the operator's

(a) Standard mechanic's tooling.
(b) Bleed valve installation and removal tooling: refer to the Maintenance Manual, chapter 75-31-00.

(2) In a TURBOMECA approved Repair Center

Refer to the engine Overhaul Manual.

H. Weight and balance

Not applicable.

I. References

(1) ARRIEL 2 B Maintenance Manual ..... Ref. X 292 M5 450 2.
(2) ARRIEL 2 B1 Maintenance Manual ..... Ref. X 292 N5 450 2.
(3) ARRIEL 2 C Maintenance Manual ..... Ref. X 292 M1 450 2.
(4) ARRIEL 2 C1 Maintenance Manual ..... Ref. X 292 N4 450 2.
(5) ARRIEL 2 S1 Maintenance Manual ..... Ref. X 292 L0 450 2.
(6) ARRIEL 2 B Overhaul Manual ..... Ref. X 292 M5 500 2.
(7) ARRIEL 2 C Overhaul Manual ..... Ref. X 292 M1 500 2.
(8) ARRIEL 2 C1 Overhaul Manual ..... Ref. X 292 N4 500 2.
(9) ARRIEL 2 S1 Overhaul Manual ..... Ref. X 292 L0 500 2.

J. Other publications affected

(1) ARRIEL 2 B Spare Parts Catalogue ..... Ref. X 292 M5 700 2.
(2) ARRIEL 2 B1 Spare Parts Catalogue ..... Ref. X 292 N5 700 2.
(3) ARRIEL 2 C Spare Parts Catalogue ..... Ref. X 292 M1 700 2.
(4) ARRIEL 2 C1 Spare Parts Catalogue ..... Ref. X 292 N4 700 2.
(5) ARRIEL 2 S1 Spare Parts Catalogue ..... Ref. X 292 L0 700 2.

2. Instructions to be incorporated

A. Implementation (see Appendix 1)

This modification can be incorporated with the engine installed on the helicopter.

B. Operating instructions

(1) At the operator's

(a) Remove the bleed valve: refer to the Maintenance Manual, chapter 75-31-00.

(b) Remove the sleeve from the bleed-valve mounting boss.

(c) Check for wear on the bleed-valve mounting boss, sleeve and bleed-valve bottom flange.

Wear criteria

1 Bleed-valve mounting boss

Examine visually the outer section of the mounting boss where the sleeve is located in order to detect a possible hole or an open crack.

Note: If you find a hole or an open crack, return the M02 module or complete engine to a TURBOMECA approved repair center.

Do a manual penetrant inspection (aerosol can) over the whole periphery of the bleed valve boss (refer to directions for use on each aerosol can).

Note: If you find a crack, return the M02 module or complete engine to a TURBOMECA approved repair center.

Examine visually the inner section of the mounting boss.

In case of fretting wear exceeding 180° as a consequence of sleeve rotation:

Protect the air path with a clean cloth. Do a light cloth-polishing of the mounting boss using fine abrasive paper. Then remove the dust and remove the cloth.

CAUTION: **AFTER POLISHING, IF WEAR IS STILL VISIBLE, MEASURE RESIDUAL THICKNESS (e) OF THE BOSS WEB WITH PLIERS:**

- THICKNESS (e) MUST BE MORE THAN OR EQUAL TO 0.8 mm OVER A SECTOR OF AT LEAST 180°,

- THICKNESS (e) MUST BE EVERYWHERE MORE THAN 0.6 mm.

Examples:

- Measured thickness **(e)** equals 0.7 mm over 90° and **(e)** is more than 0.8 mm over 200°: M02 module is kept in service.
- Measured thickness **(e)** equals 0.7 mm over 200° and **(e)** is more than 0.8 mm over 30°: M02 module is returned to the factory or a TURBOMECA approved Repair Center.
- Measured thickness **(e)** equals 0.5 mm over 20°: M02 module is returned to the factory or a TURBOMECA approved Repair Center.

2 **Sleeve**

Measure the sleeve at several points of the circumference using a slide.

Calculate the wear by comparing the measured material of an area without wear with the area most worn.

Note: If fretting is more than or equal to 0.5 mm, replace the sleeve. If fretting is less than 0.5 mm, do a light cloth-polishing of the sleeve using fine abrasive paper. Then remove the dust.

3 **Bleed valve**

Check the bottom flange of the bleed valve as fretting may cause shouldering.

If this occurs, do a light cloth-polishing of the bleed-valve bottom flange using fine abrasive paper in order to remove possible edges. Then remove the dust from the bleed valve.

However, if shouldering is too significant and if there is any risk for material separation, we agree for material removal. This can be done by cutting a window to remove the damaged section.

Then, polish the reworked areas to remove possible sharp edges, then remove the dust from the bleed valve.

In case of excess damage, contact a technical agent from TURBOMECA France or its nearest subsidiary.

(d) Degrease carefully the bleed-valve mounting boss and the sleeve with a chlorinated solvent.
Allow for sufficient drying time so that the solvent evaporates completely.

(e) Apply a thin layer (0.6 mm approx.) of black CAF 33 (or RTV 106) glue to 50.2 diameter over a width between 5 to 6 mm using a clean spatula and avoiding any excess glue.

Note: This procedure must be carried out in less than 5 minutes.

(f) Install the sleeve in abutment on the bleed-valve mounting boss bottom.

Note: The sleeve slot does not require any specific positioning.

(g) Install the bleed valve: refer to the Maintenance Manual, chapter 75-31-00.

CAUTION: IF CURING IS OBTAINED AT AN AMBIENT TEMPERATURE OF 20°C (68°F) APPROX. WITH A 50% HUMIDITY; POLYMERISATION IS COMPLETE AFTER 48 HOURS.

CURING TIME MAY BE REDUCED TO A MINIMUM OF 12 HOURS BUT MUST THEN BE FOLLOWED MANDATORILY WITH A 15-MINUTE GROUND RUN TO ACCELERATE THE CURING PROCESS.

(2) In a TURBOMECA approved Repair Center

Refer to the relevant ARRIEL 2 Overhaul Manual.

C. Reconditioning and checks

(1) At the operator's

Carry out a ground run check: refer to the Maintenance Manual, task 71-02-13-280-801.

(2) In a TURBOMECA approved Repair Center

Refer to the relevant ARRIEL 2 Overhaul Manual.

D. Identification

(1) At the operator's

(a) Record incorporation of Service Bulletin No. 292 72 2070 dealing with modification TU 70A in section "E" of the engine log book and on the log card (FMFE) of the M02 module.

(b) Inform TURBOMECA that modification TU 70A has been incorporated by returning the compliance certificate fully completed (see page 9/9 of this Service Bulletin).

(2) In a TURBOMECA approved Repair Center

(a) Record incorporation of modification TU 70A in section "E" of the engine log book and on M02 module log card (FMFE).

(b) Inform TURBOMECA that modification TU 70A has been incorporated by returning the compliance certificate fully completed (see page 9/9 of this Service Bulletin).

3. Material information

A. Basic information

The parts required for the incorporation of this Service Bulletin are for one engine.

B. List of parts

New Part Number	Key	Qty	Description	Price	Old Part Number	Key	Qty
9 590 00 594 1	A	1	Black CAF 33 glue	*			
9 590 00 616 1	A	1	GE SILICONES RTV 106 glue (alternative)	*			
0 292 15 333 0		1	Sleeve (if required)				

** Prices and delivery times are available upon request.*

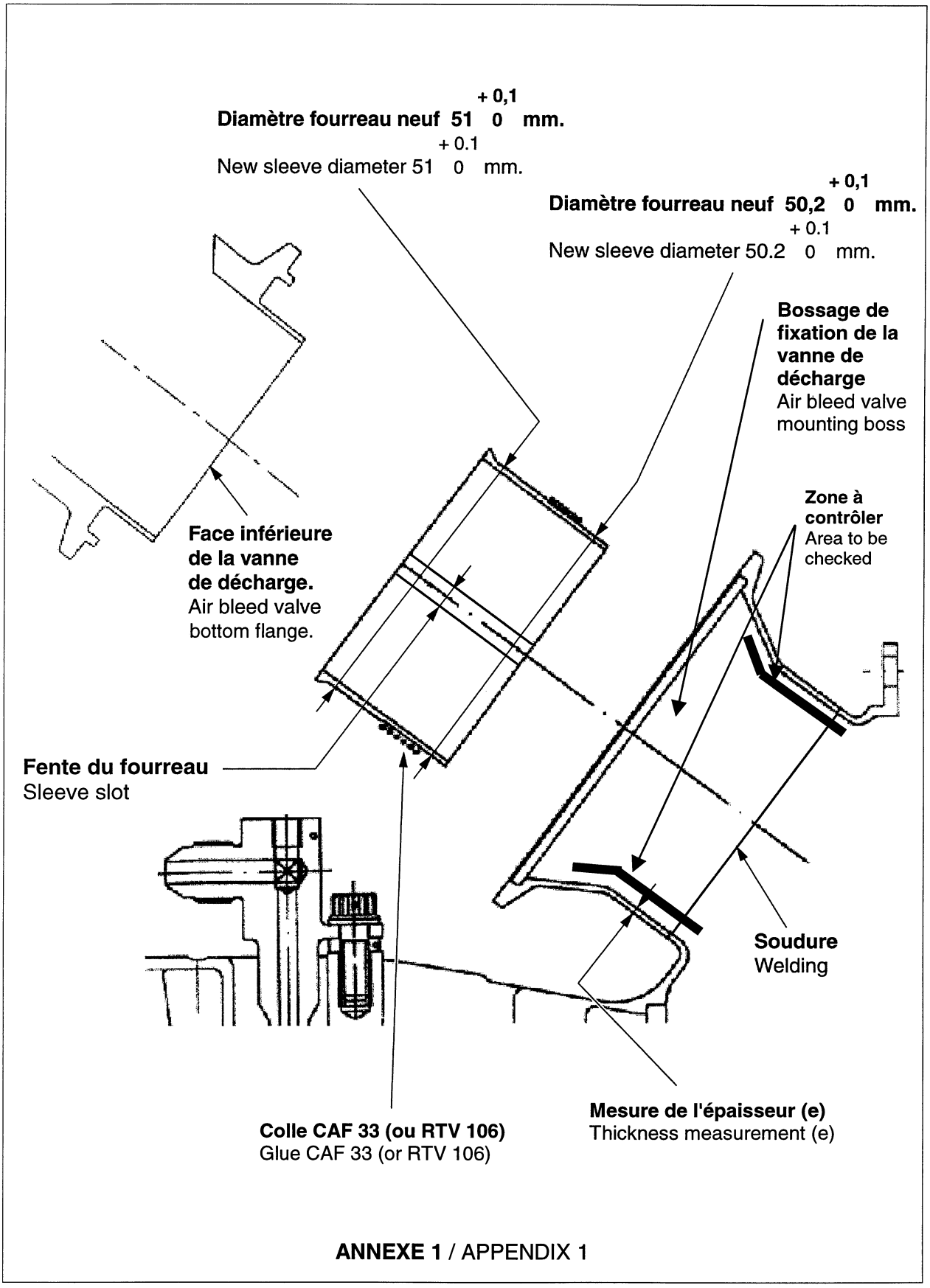
Key

A - Part incorporated by the modification.

C. Supply conditions

Order according to your requirements from:

M. Louis LABOURDET
TURBOMECA
DSO/T/NORIA
64 511 BORDES Cedex
FRANCE.
Fax No. (33) (0)5 59 12 51 60.



ANNEXE 1 / APPENDIX 1

Objet : Attestation d'application de la modification TU 70A.

Subject: Modification TU 70A compliance certificate.

Important / Important notice:

Après application de ce Service Bulletin, veuillez compléter la présente attestation et la retourner par courrier à :

After incorporation of this Service Bulletin, please complete this certificate and mail it to:

M. Louis LABOURDET
TURBOMECA
DSO / T / NORIA
64 511 BORDES Cedex
FRANCE
Fax n° (33) (0)5 59 12 51 60

Information concernant le matériel / Equipment information

Utilisateur Customer				**N° Appareil** Aircraft S/N		
	N/S - S/N	**Réf.** - P/N	**TSN***	**TSO***	**CSN***	**CSO***
Moteur Engine						
Module M02 modifié Modified M02 module						

* **TSN = Time Since New** (Heures depuis neuf) **TSO = Time Since Overhaul** (Heures depuis RG)
CSN = Cycles Since New (Cycles depuis neuf) **CSO = Cycles Since Overhaul** (Cycles depuis RG)

Opération effectuée par :

Works performed by:

.....

Je certifie que le moteur identifié ci-dessus a été modifié selon les directives du Service Bulletin en objet.

I certify that the above mentioned engine has been modified according to the directives given in this Service Bulletin.

Date **Nom** / Print name **Fonction** / Job title

.....

Signature: