
SERVICE BULLETIN

Modification



Recurring action



One-off action



No.

292 72 2873

ARRIEL 2 B - B1 - B1A - C - CPM - C1 - C2 - C2CG - D - E - N - S1 - S2

Subject: Module M05 (reduction gearbox). Application of silicone elastomer to the oil duct of the intermediate gear.

Date on which this SB becomes effective and must systematically be complied with, according to the conditions of application.

This is the date all resources (parts, tools, documentation, etc.) required for this procedure are available.

Applicable from MAY 2019

If resources (parts, tools, documentation, etc.) are available any earlier, the SB may be applied prior to the effectivity date.

Version: B

Reason for update:

Application of this SB is limited to PRE TU 221 modules.

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1. GENERAL

1.1. Purpose

Prevent a potential external oil leak on the front face of the reduction gear casing (M05).

1.2. Reason

Safran Helicopter Engines was informed of several cases of oil leaks (leaks without drop detachment) observed during visual inspections on the front face of the reduction gear casing (M05).

These leaks, which were caused by sealing deterioration of the screwed/bonded plug of the oil duct of the reduction gear intermediate gear (M05) have no functional impact.

1.3. Description (see Figure 1)

This SB consists of applying silicone elastomer to the oil duct plug of the intermediate gear of module M05.

Since the application of version A of this SB, Safran Helicopter Engines has developed TU 221 that introduces an oil duct without screwed/bonded plug. Consequently, version B of this SB states that the application of a silicone elastomer is only for PRE TU 221 modules M05.

**Localisation des fuites
éventuelles**
Location of potential leaks

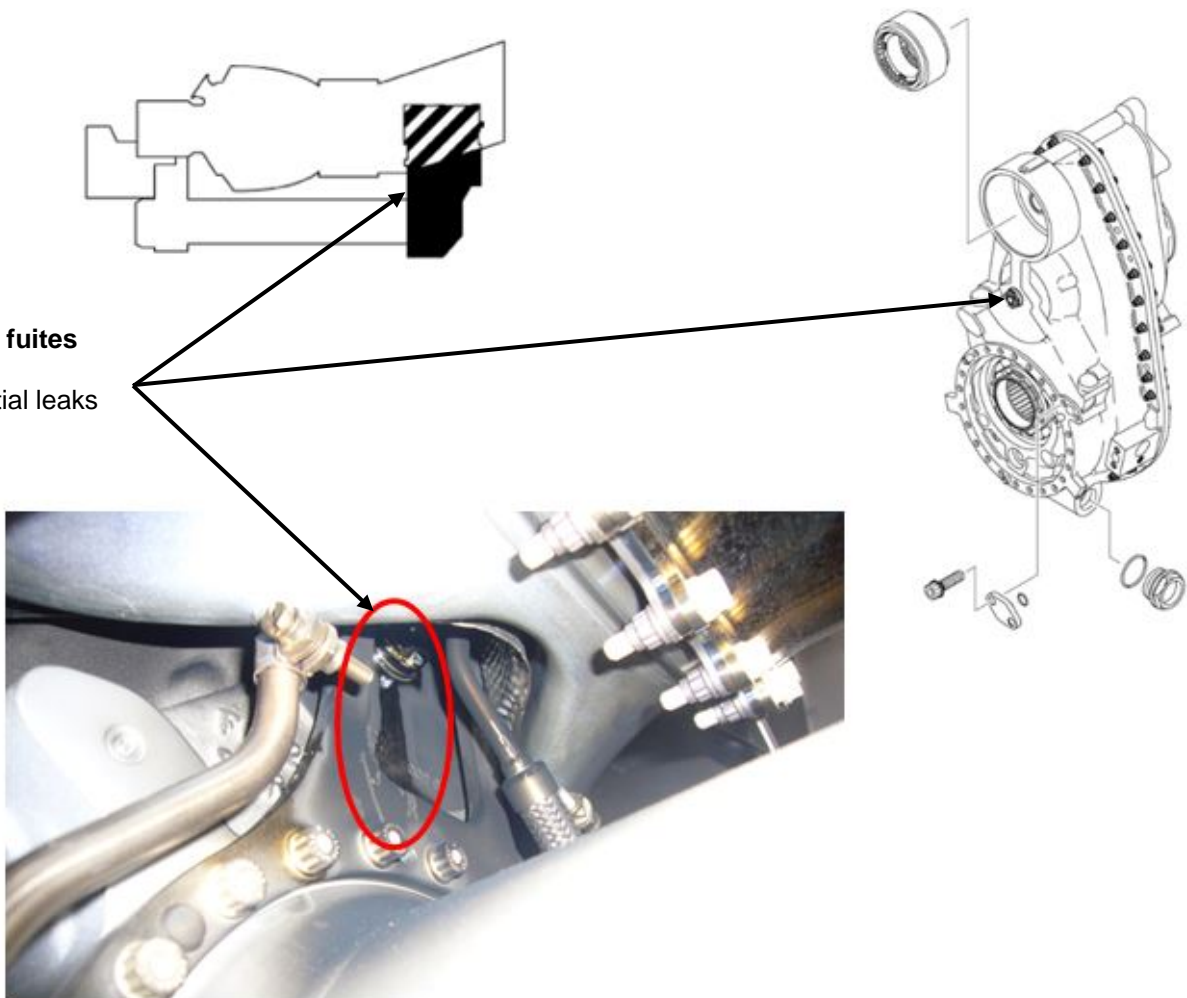


Figure 1: Illustration of the oil leak location

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1.4. Approval

- ARRIEL 2 B - B1 - B1A - C - C1 - C2 - D - E - N - S1 - 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 CPM - C2CG variants:
The technical information given in this document is approved by Safran Helicopter Engines.

1.5. Conditions of application

The conditions of application for this SB are specified in:

- Chapter §2 for application at the operator's site or at a Maintenance Center qualified for level 1, 2.
- Chapter §3 for application at a Maintenance Center qualified for level 3.
- Chapter §4 for application at a Safran Helicopter Engines-approved Repair Center.

1.6. Definition

Not applicable.

1.7. Update history

VERSION	CAUSE FOR UPDATING
B	Application of this SB is limited to PRE TU 221 modules.

END of section §1

“General”

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2. APPLICATION AT THE OPERATOR'S SITE OR AT A MAINTENANCE CENTER QUALIFIED FOR LEVEL 1, 2

2.1. Required actions

Apply silicone elastomer to the oil duct plug of module M05 intermediate gear as per paragraph 2.3.

2.2. Effectivity and compliance times

ENGINE / VARIANT		EFFECTIVITY CODE	CONDITIONS OF APPLICATION FOR ENGINES IN SERVICE
ARRIEL 2 B - B1 - B1A	PRE TU 221	4	Application upon customer request.
ARRIEL 2 C - C1 - C2			
ARRIEL 2 CPM - C2CG			
ARRIEL 2 D			
ARRIEL 2 E			
ARRIEL 2 N			
ARRIEL 2 S1 - S2			

This SB must be applied with strict conformity to the manufacturer's conditions of application according to the effectivity code in the table above.

Note: This Service Bulletin can be applied by Safran Helicopter Engines on module M05 as new before delivery, or during a level 2, 3 or 4 intervention. Refer to the module M05 log card to check whether this Service Bulletin has been applied and recorded.

2.3. Accomplishment instructions

2.3.1. Implementation

Application of this SB necessitates removal of the engine.

2.3.2. Operating instructions

2.3.2.1. Removal of module M05

Remove module M05: refer to the applicable ARRIEL 2 Maintenance Manual, task 72-00-15-900-801.

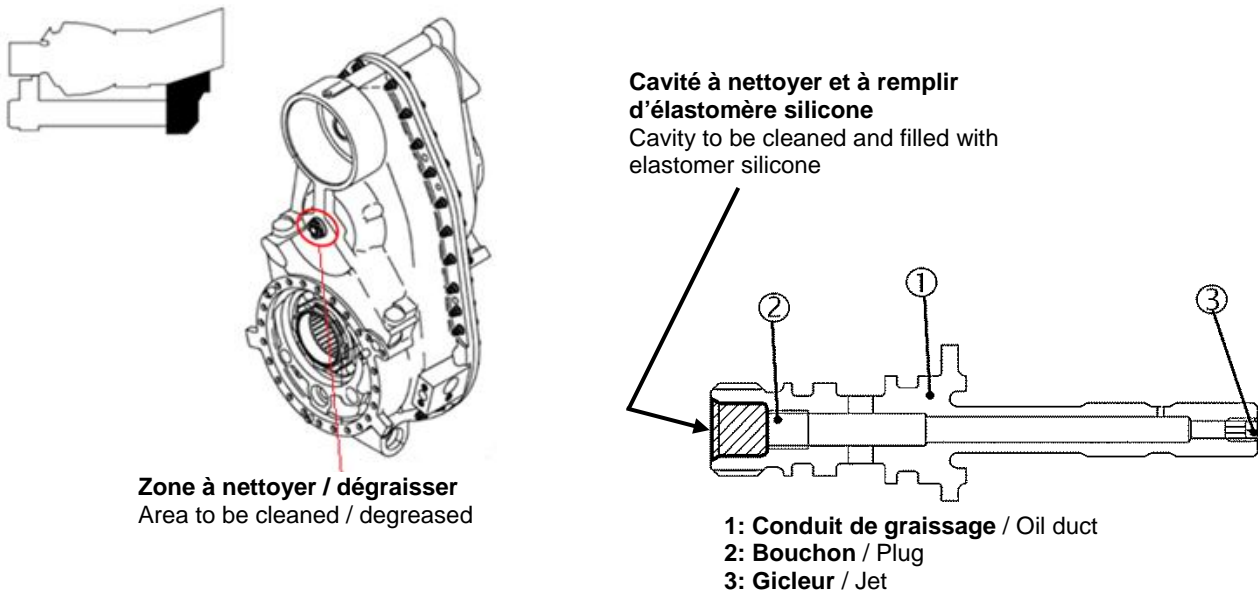
SERVICE BULLETIN

2.3.2.2. Cleaning/degreasing

Note: De-degreasing incorrectly will prevent the silicone elastomer product from adhering to the oil duct.

Cleaning/de-greasing procedure to apply silicone elastomer:

- 2.3.2.2.1. Clean around the cavity area of oil duct (72-15-30-01-070) with a de-greasing solvent: refer to the applicable ARRIEL 2 Maintenance Manual, task 71-00-02-940-801.



- 2.3.2.2.2. Gently de-grease the oil duct area (72-15-30-01-070) with acetone or methylethylketone around the area to be filled.

- 2.3.2.2.3. Dry with a hot air gun.

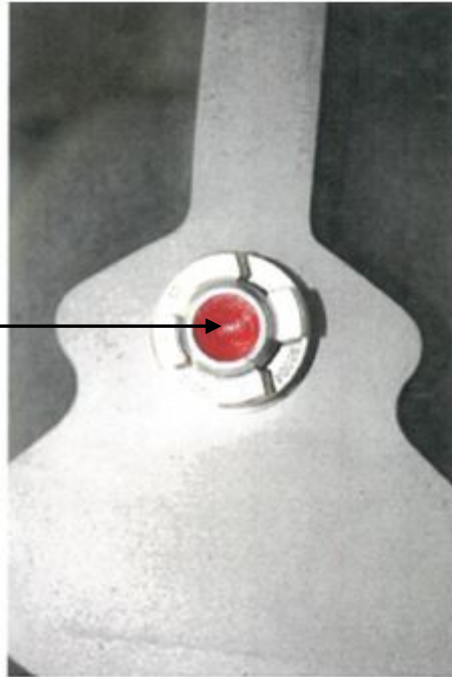
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2.3.2.3. Application of silicone elastomer

For a list of authorized elastomer products, refer to the applicable ARRIEL 2 Maintenance Manual, task 70-04-00-940-804 "Sealing, bonding or potting silicone elastomer".

2.3.2.3.1. Using a syringe, fully fill the cavity (from the bottom) with silicone elastomer product until a plug is formed as shown below.

**Conduit de graissage avec
élastomère silicone appliqué**
Oil duct with elastomer silicone
applied



2.3.2.3.2. Let the assembly cure for 24 hours at an ambient temperature of at least 15°C.

2.3.2.4. Installation of module M05

Install module M05: refer to the applicable ARRIEL 2 Maintenance Manual, task 72-00-15-900-801.

2.3.3. Reconditioning and checks

Make sure there are no leaks in the silicone elastomer plug area: Refer to the applicable ARRIEL 2 Maintenance Manual, task 05-50-00-200-801. Contact Safran Helicopter Engines if a leak is detected.

2.3.4. Identification

Record the application of this SB No. 292 72 2873_B on the module M05 log card.

Note: Update the availability status, if necessary.

2.3.5. Scheduled maintenance

No changes to the scheduled maintenance.

2.4. Material information

2.4.1. Basic information

Not applicable.

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2.4.2. List of parts

2.4.2.1. Parts required for the application of this SB

Not applicable.

2.4.2.2. Parts required for the application of the maintenance tasks referred to by this SB

Refer to the applicable ARRIEL 2 Maintenance Manual.

2.4.3. 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

2.5. Manpower

- Personnel: 1 mechanic.
- Time required: 2 man-hours (removal and installation of module M05).

2.6. Tooling and/or products

2.6.1. Standard tooling

Mechanic's standard tooling.

2.6.2. Consumables

- De-greasing solvent: (Refer to the applicable ARRIEL 2 Maintenance Manual, task 71-00-02-940-801).
- Silicone elastomer: (Refer to the applicable ARRIEL 2 Maintenance Manual, task 70-04-00-940-804 "Sealing, bonding or potting silicone elastomer").

2.7. Weight and balance

Not applicable.

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2.8. Publication references

Document	Engine	Reference
Maintenance Manual (MM)	ARRIEL 2 B	X 292 M5 450 2
	ARRIEL 2 B1	X 292 N5 450 2
	ARRIEL 2 B1A	X 292 P4 450 2
	ARRIEL 2 C	X 292 M1 450 2
	ARRIEL 2 CPM	X 292 P1 450 2
	ARRIEL 2 C1	X 292 N4 450 2
	ARRIEL 2 C2	X 292 N6 450 2
	ARRIEL 2 C2CG	X 292 P8 450 2
	ARRIEL 2 D	X 292 R1 450 2
	ARRIEL 2 E	X 292 R2 300 2
	ARRIEL 2 N	X 292 N2 450 2
	ARRIEL 2 S1	X 292 L0 301 2
	ARRIEL 2 S2	X 292 P5 451 2
Spare Parts Catalog (SPC)	ARRIEL 2 B	X 292 M5 700 2
	ARRIEL 2 B1	X 292 N5 700 2
	ARRIEL 2 B1A	X 292 P4 700 2
	ARRIEL 2 C	X 292 M1 700 2
	ARRIEL 2 CPM	X 292 P1 700 2
	ARRIEL 2 C1	X 292 N4 700 2
	ARRIEL 2 C2	X 292 N6 700 2
	ARRIEL 2 C2CG	X 292 P8 700 2
	ARRIEL 2 D	X 292 R1 700 2
	ARRIEL 2 E	X 292 R2 700 2
	ARRIEL 2 N	X 292 N2 700 2
	ARRIEL 2 S1	X 292 L0 700 2
	ARRIEL 2 S2	X 292 P5 700 2

END of section §2

“Application at the operator’s site or at a Maintenance Center qualified for level 1, 2”

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3. APPLICATION AT A MAINTENANCE CENTER QUALIFIED FOR LEVEL 3

Refer to the paragraphs that apply to Maintenance Centers, given in Chapter 2.

END of section §3

“Application at a Maintenance Center qualified for level 3”

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4. APPLICATION AT A SAFRAN HELICOPTER ENGINES-APPROVED REPAIR CENTER

4.1. Required actions

Apply silicone elastomer to the oil duct plug of module M05 intermediate gear as per paragraph 4.4.

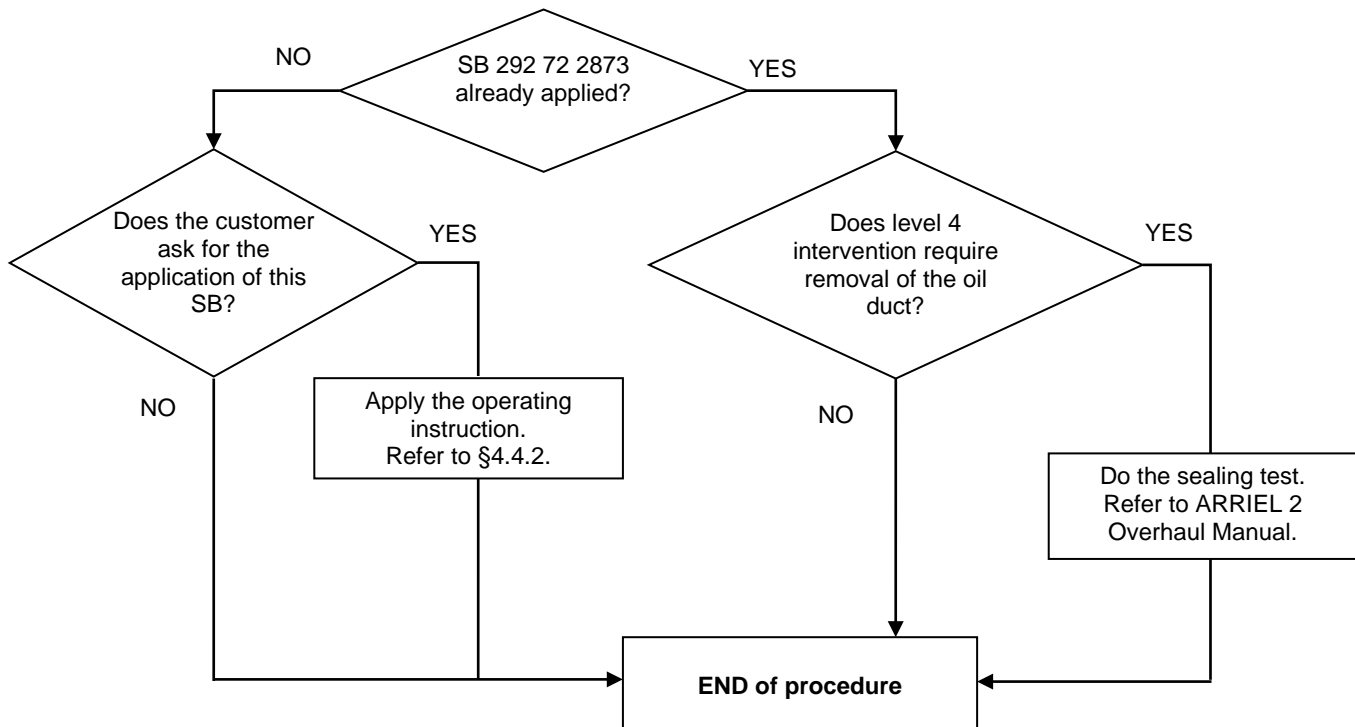
4.2. Effectivity and compliance times

ENGINE / VARIANT	EFFECTIVITY CODE	CONDITIONS OF APPLICATION FOR ENGINES IN SERVICE
ARRIEL 2 B - B1 - B1A	4	Application upon customer request.
ARRIEL 2 C - C1 - C2		
ARRIEL 2 CPM - C2CG		
ARRIEL 2 D		
ARRIEL 2 E		
ARRIEL 2 N		
ARRIEL 2 S1 - S2		

This SB must be applied with strict conformity to the manufacturer's conditions of application according to the effectivity code in the table above.

4.3. Conditions of application for engines in service

4.3.1. Block diagram pertaining to the conditions of application of the SB



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4.4. Accomplishment instructions

4.4.1. Implementation

Not applicable.

4.4.2. Operating instructions

4.4.2.1. Removal of module M05

Remove module M05: refer to ARRIEL 2 Overhaul Manual.

4.4.2.2. Cleaning/degreasing (Refer to Figures 2 to 5)

Note: De-greasing incorrectly will prevent the silicone elastomer product from adhering to the oil duct.

4.4.2.2.1. Clean around the cavity area of oil duct (72-15-30-01-070) with a de-greasing solvent: (Refer to the Common Techniques Book, task 70-21-02-110-801).

4.4.2.2.2. Sand the oil duct area (72-15-30-01-070) with sand paper in order to increase roughness (see Figure 2).

4.4.2.2.3. Gently de-grease the oil duct area (72-15-30-01-070) with acetone or methylethylketone around the area to be filled.

4.4.2.2.4. Let it dry at ambient temperature for 5 minutes.

4.4.2.3. Application of silicone elastomer

For a list of authorized elastomer products, refer to the Common Techniques Book, task 70-44-66-380-801 "Application of sealing, bonding or potting silicone elastomer".

4.4.2.3.1. Using a syringe or an appropriate end, fully fill the recess (from the bottom) with silicone elastomer until it slightly overflows (see Figure 3).

4.4.2.3.2. With a clean lint-free cloth, remove any excess elastomer (see Figure 4).

4.4.2.3.3. With a clean lint-free cloth, remove any deposits of elastomer around the oil duct area until the surface is clean (see figure 5).

4.4.2.3.4. Let the assembly cure for 24 hours at an ambient temperature of at least 15°C.



Figure 2

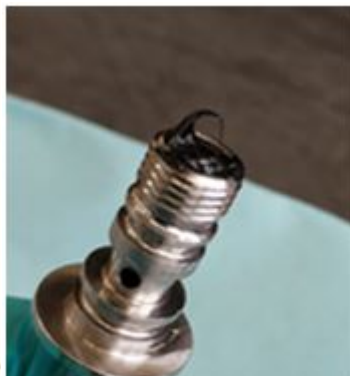


Figure 3



Figure 4



Figure 5

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4.4.2.4. Installation of module M05

Install module M05: refer to ARRIEL 2 Overhaul Manual.

4.4.3. Reconditioning and checks

Refer to the ARRIEL 2 Overhaul Manual.

4.4.4. Identification

Record the application of this SB No. 292 72 2873_B on the module M05 log card.

Note: Update the availability status, if necessary.

4.4.5. Scheduled maintenance

No changes to the scheduled maintenance.

4.5. Material information

4.5.1. Basic information

Not applicable.

4.5.2. List of parts

Not applicable.

4.5.3. 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

4.6. Manpower

- Personnel of approved Repair Center.
- Time determined by the Repair Center as being appropriate for this level of intervention.

4.7. Tooling and/or products

Refer to the ARRIEL 2 Overhaul Manual.

4.8. Weight and balance

Not applicable.

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4.9. Publication references

Document	Engine	Reference
Overhaul Manual (OM)	ARRIEL 2	X 292 R1 500 2
Illustrated Parts Catalog (IPC)	ARRIEL 2 B	X 292 M5 600 2
	ARRIEL 2 B1	X 292 N5 600 2
	ARRIEL 2 B1A	X 292 P4 600 2
	ARRIEL 2 C	X 292 M1 600 2
	ARRIEL 2 CPM	X 292 P1 600 2
	ARRIEL 2 C1	X 292 N4 600 2
	ARRIEL 2 C2	X 292 N6 600 2
	ARRIEL 2 C2CG	X 292 P8 600 2
	ARRIEL 2 D	X 292 R1 600 2
	ARRIEL 2 E	X 292 R2 600 2
	ARRIEL 2 N	X 292 N2 600 2
	ARRIEL 2 S1	X 292 L0 600 2
	ARRIEL 2 S2	X 292 P5 600 2
Common Techniques Book (CTB)		X 000 00 900 2

END of section §4

“Application at a Safran Helicopter Engines-approved Repair Center”