
SERVICE BULLETIN

Modification



Recurring action



One-off action



No.

292 71 2853

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

Subject: Creation of a configuration applicable to ARRIEL 2 B, B1, B1A, C, C1, C2, D, E, H, N, S1 and S2 turboshaft engines during overhaul.

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 JANUARY 2015

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

Version: C

Reason for update:

- **Clarification of the application rules.**
- **Introduction of ARRIEL 2 H variant.**

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1. GENERAL

1.1. Purpose

Simplify the management of engines in service by standardizing their configuration each time they are sent to a Repair Center for overhaul.

1.2. Reason

Refer to General Service Letter No. 2917/14.

1.3. Description

Each time it is sent to a Repair Center for overhaul, a set of modifications designated "Overhaul Set" shall be applied to the engine, module or equipment/accessories (excluding DECU). The list of modifications to be applied is given in the table "APPLICABLE SETS OF MODIFICATIONS DURING OVERHAUL" of the Modification Index (Figure 1).

The following rules apply to the "Overhaul set":

- The list of modifications to be applied must be the list of the Modification Index in force at the acceptance date of the quote.
- The "Overhaul Set" of a module or an equipment/accessories is applied at each overhaul, on the equipment assembly returned and depending on its configuration. It is a minimum configuration standard to be obeyed.
- When an "Option set" of modifications is requested by the customer, all modifications in the set must be applied, depending on the perimeter of the equipment returned and its configuration.
- If a modification in an optional set has already been applied to the equipped engine, a stand-alone module or equipment/accessories, all modifications in this set will systematically be applied during overhaul, depending on the perimeter of the equipment returned and its configuration.

For information, the modifications that can be applied in the "APPLICABLE SETS OF MODIFICATIONS DURING OVERHAUL" are identified in the Modification Index with columns, refer to Figure 2:

- The "**SB Code**" column includes the individual application conditions of SBs.
- The "**Overhaul Code**" column, if filled in, includes the modification that can be applied in the "APPLICABLE SETS OF MODIFICATIONS DURING OVERHAUL" whatever its SB code.
- The "**Module**" column identifies the module(s) to which the modifications are applied.
- The "**Set**" column identifies a set of modifications that may be applied during overhaul, for one module or one item of equipment.

1.4. Approval

The technical information contained in this document has been approved under the Design Organization Approval No. EASA.21J.070.

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.

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1.7. Update history

VERSION	CAUSE FOR UPDATING
B	Introduction of ARRIEL 2 N variant.
C	Clarification of the application rules. Introduction of ARRIEL 2 H variant.

END of section §1

"General"

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

Not applicable.

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 BY A QUALIFIED MAINTENANCE CENTER FOR LEVEL 3

Not applicable.

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

Bring engines, modules or equipment/accessories into conformity with an Overhaul configuration authorized in compliance with the Modification Index. The list of modifications to be applied is given in the table "APPLICABLE SETS OF MODIFICATIONS DURING OVERHAUL" of the Modification Index.

4.2. Effectivity and compliance times

ENGINE/VARIANT	EFFECTIVITY CODE	CONDITIONS OF APPLICATION FOR ENGINES IN SERVICE
ARRIEL 2 B - B1 - B1A	2-B	During General Overhaul.
ARRIEL 2 C - C1 - C2		
ARRIEL 2 D		
ARRIEL 2 E		
ARRIEL 2 H		
ARRIEL 2 N		
ARRIEL 2 S1 - S2		

This SB must be applied with strict conformity to the compliance conditions as specified by the manufacturer according to the effectivity code given in the table above.

Note 1: The list of modifications to be applied must be the list of the Modification Index in force at the acceptance date of the quote.

Note 2: Interdependences between modifications are major on the list of modifications given in the "Overhaul Set".

Note 3: It is a minimum configuration standard to be obeyed.

Note 4: The applied modifications depend on:

- the perimeter of the equipment returned to Safran Helicopter Engines and its configuration, and/or
- the perimeter of the released equipment during the release inspection.

4.3. Accomplishment Instructions

4.3.1. Implementation

Not applicable.

4.3.2. Operating instructions

Application of the "Overhaul Set":

Refer to the table "APPLICABLE SETS OF MODIFICATIONS DURING OVERHAUL" of the applicable variant and make sure the modifications given are applied.

Application of "Option Sets" in both following cases:

- a) If an option set is requested by the customer, apply all modifications in the set depending on the perimeter of the equipment returned and its configuration.
- b) If a modification in an option set has already been applied to the engine, module or equipment/accessories, apply all modifications of the set depending on the perimeter of the equipment returned and its configuration.

4.3.3. Reconditioning and checks

Refer to the relevant ARRIEL 2 Overhaul Manual.

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4.3.4. Identification

	Case of return of an equipped engine with or without stand-alone equipment
Standardization of modules	<ul style="list-style-type: none"> Create a new module log card. Record the application of the SB on the log card of the modified module including if the equipped engine follows overhaul without a stand-alone equipment/accessory (e.g. engine delivered without its HMU, the SB must be applied and recorded on its log card). <u>Note</u>: Update the availability status, if necessary. Notify Safran Helicopter Engines that this SB has been applied by returning the fully-completed compliance certificate (Appendix 4.1).
Standardization of equipment/accessories excluding modules <u>Equipment monitored by log card (excluding ECU)</u>	<ul style="list-style-type: none"> Create a new log card for the relevant equipment. Record the P/N changes for the relevant equipment in section "C" of the engine log book. Notify Safran Helicopter Engines that this SB has been applied by returning the fully-completed compliance certificate (Appendix 4.1).
<u>Equipment not monitored by log card</u>	<ul style="list-style-type: none"> Record the application of this SB in section "A" of the engine log book. Notify Safran Helicopter Engines that this SB has been applied by returning the fully-completed compliance certificate (Appendix 4.1).

Note 5: For an engine (equipped or not), return only one compliance certificate to Safran Helicopter Engines.

	Case of return of a module or a stand-alone equipment/accessory
Stand-alone module	<ul style="list-style-type: none"> Create a new module log card. Record the application of the SB on the log card of the modified module. <u>Note</u>: Update the availability status, if necessary. Notify Safran Helicopter Engines that this SB has been applied by returning the fully-completed compliance certificate (Appendix 4.1).
Stand-alone equipment excluding module <u>Equipment monitored by log card (excluding ECU)</u>	<ul style="list-style-type: none"> Create a new log card for the relevant equipment. Notify Safran Helicopter Engines that this SB has been applied by returning the fully-completed compliance certificate (Appendix 4.1).
Stand-alone equipment excluding module <u>Equipment not monitored by log card</u>	<ul style="list-style-type: none"> Notify Safran Helicopter Engines that this SB has been applied by returning the fully-completed compliance certificate (Appendix 4.1).

Note 6: For an engine or module whose configuration is different from the "Overhaul" configuration set, the SB is considered as applied during the release inspection if the configuration deviation is justified by §1.3.

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4.3.5. Routine maintenance

Not applicable.

4.4. Material information

4.4.1. Basic information

Not applicable.

4.4.2. List of parts

Refer to the relevant ARRIEL 2 IPC.

4.4.3. 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

4.5. Manpower

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

4.6. Tooling and/or products

Refer to the relevant ARRIEL 2 Overhaul Manual.

4.7. Weight and balance

Not applicable.

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4.8. Publication references

Document	Engine	Reference	
Overhaul Manual (OM)	ARRIEL 2	X 292 R1 500 2	
	ARRIEL 2 B	X 292 M5 600 2	
Illustrated Parts Catalog (IPC)	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 C1	X 292 N4 600 2	
	ARRIEL 2 C2	X 292 N6 600 2	
	ARRIEL 2 D	X 292 R1 600 2	
	ARRIEL 2 E	X 292 R2 600 2	
	ARRIEL 2 H	X 292 2H 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	
	Modification Index	ARRIEL 2 B	X 292 M5 975 2
		ARRIEL 2 B1	X 292 N5 975 2
ARRIEL 2 B1A		X 292 P4 975 2	
ARRIEL 2 C		X 292 M1 975 2	
ARRIEL 2 C1		X 292 N4 975 2	
ARRIEL 2 C2		X 292 N6 975 2	
ARRIEL 2 D		X 292 R1 950 2	
ARRIEL 2 E		X 292 R2 975 2	
ARRIEL 2 H		X 292 2H 975 2	
ARRIEL 2 N		X 292 N2 975 2	
ARRIEL 2 S1		X 292 L0 975 2	
ARRIEL 2 S2		X 292 P5 975 2	
SB Index	ARRIEL 2 B	X 292 M5 980 2	
	ARRIEL 2 B1	X 292 N5 980 2	
	ARRIEL 2 B1A	X 292 P4 980 2	
	ARRIEL 2 C	X 292 M1 980 2	
	ARRIEL 2 C1	X 292 N4 980 2	
	ARRIEL 2 C2	X 292 N6 980 2	
	ARRIEL 2 D	X 292 R1 952 2	
	ARRIEL 2 E	X 292 R2 980 2	
	ARRIEL 2 H	X 292 2H 980 2	
	ARRIEL 2 N	X 292 N2 980 2	
	ARRIEL 2 S1	X 292 L0 980 2	
	ARRIEL 2 S2	X 292 P5 980 2	

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APPLICABLE SETS OF MODIFICATIONS DURING OVERHAUL

<i>Module</i>	<i>Set</i>	<i>TU</i>
M01	OVERHAUL	81A-122A-154-182-192-219
M02	OVERHAUL	116A
	OPT A	212
M03	OVERHAUL	163-164-166-181
	OPT A	123A-167
	OPT B	165
	OPT C	208
M04	OVERHAUL	146A-213-215
M05	OVERHAUL	100A-108A-139A
HM	OVERHAUL	96-113A-124A-180-181-195-198-211
	OPT A	126A
	OPT B	120
	OPT C	121A
	OPT D	136A
	OPT E	151
HMU	OVERHAUL	42A-43A-45A-82A-83A-88A-92-105-133-147-148A-157-172-178-184

FIGURE 1

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Extract of the Modification Index ARRIEL 2 C1

No.	Modification Title	SB code	Overhaul Code	Module	Set	Comments
TU 3	Axial compressor nut with a long base	B				
TU 4A	M04. Free turbine envelope with scalloped flange	B				
TU 6A	Power turbine envelope made of a new material	2-3	2-3	M04	M04 - OVERHAUL	SB 292 72 2006 Update 1 On envelope TU 4A
TU 11A		A				
TU 13A	Gas generator turbine shroud. Clearance increased between the gas generator turbine and the turbine ring	B				
TU 14A	Power turbine shroud. Power turbine housing diameter increased	2-A-1	2-A-1	M04	M04 - OVERHAUL	SB 292 72 2014 Update 1 If TU 6A is not embodied
TU 17A	Turbine casing and rear bearing support. Improvement of removability of thermocouple probes	B				
TU 18A	Protection of the pyrometric harness	B				
TU 19A	Oil system. Reduction of valve assembly length	3		HM	HM - OPT A	SB 292 79 2019 Update 1
TU 21	Installation of a power turbine envelope of 2S1 type	5-1		M04	M04 - OPT A	
TU 22	M03. Thickening of rear flange of power turbine shielding	2-A-3	2-A-3	M03	M03 - OVERHAUL	SB 292 72 2022 Update 1
TU 23	M04. Solid power turbine disk shaft	3				SB 292 72 2023 Update 1 MTI X 292 M5 333 2
TU 30A	Improve air tightness of module M04/module M05 air duct	4	2-B	HM	HM - OVERHAUL	SB 292 72 2030
TU 31A	Fuel metering unit HP/LP pump (HMU). HP/LP pump matched bearings gears	2-A-1	2-A-1	HMU	HMU - OVERHAUL	SB 292 73 2031 RTI 292 73 2031
TU 33A	T45 junction/conformation box. Increased resistance to high temperature	2-A-1		M03	M03 - OPT D	SB 292 72 2033 Update 1
TU 34A	Torque conformation box. Increase of resistance to temperature	2-C-2		M01	M01 - OPT A	SB 292 72 2034
TU 35A	Pyrometric harness. Increase of the resistance to high temperature	2-1	2-1	HM	HM - OVERHAUL	SB 292 77 2035

FIGURE 2

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Objet : Attestation d'application du SB n° 292 71 2853.

Subject: SB No. 292 71 2853 compliance certificate.

Important / Important notice:

Après application des instructions spécifiées dans ce SB, veuillez compléter la présente attestation et la retourner par courrier ou courriel à :

After application of the instructions specified in this SB please mail or email the fully-completed compliance certificate to:

SAFRAN HELICOPTER ENGINES,
Equipe Administration Base installée / Fleet Data Administrator Team, BP 25
40220 TARNOS - France
Email : data-fleet.fr.she@safrangroup.com

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 modifié Modified engine						
Module M01 modifié Modified module M01						
Module M02 modifié Modified module M02						
Module M03 modifié Modified module M03						
Module M04 modifié Modified module M04						
Module M05 modifié Modified module M05						
Équipement modifié Modified equipment						
Répertoire des Modifications Modification Index	Référence / Reference			Version / Version		

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

TSO = Time Since Overhaul (Heures depuis RG)
CSO = Cycles Since Overhaul (Cycles depuis RG)

Opération faite par / Work done by:

Je certifie que le moteur ou les modules identifiés ci-dessus ont été modifiés selon les directives de ce SB.
 I certify that the above-mentioned engine or modules have been modified according to the directives given in this SB.

Date [JJ/MMMM (en lettre)/AAAA ou/or DD/MMMM (letter)/YYYY]	Nom / Name	Fonction / Job title

ANNEXE 4.1 / APPENDIX 4.1

Signature :

END of section §4

"Application at a Safran Helicopter Engines-approved Repair Center"