

Safety Alert

Sikorsky S76A+ and S76A++ Helicopters

Applies to BHP Billiton contracted Sikorsky S76A+ and S76A++ helicopters fitted with Turbomeca Ariel 1S or 1S1 engines.

Sikorsky S76 twin engine helicopters equipped with Turbomeca Ariel 1S or 1S1 engines are fitted with engine overspeed sensors designed to shutdown an engine to prevent catastrophic damage in the event of an engine overspeed. Once an engine has been shutdown by this protection system it cannot be restarted in flight as the overspeed protection system is inaccessible to the flight crew and can only be reset on the ground. The overspeed protection is incorporated into a component known as the Tachometer Box with two installed on each helicopter, one for each engine.

BHP Billiton has experienced two separate over water in flight engine shutdowns resulting from false overspeed indications. In both events the helicopter was flown back to an onshore location and landed safely with the one remaining operative engine. Investigation by the engine manufacturer, Turbomeca, revealed that failures of the overspeed protection system resulted from ingress of moisture and internal corrosion.

In response to the failures on BHP Billiton contracted aircraft and other known events, Turbomeca has developed a replacement Tachometer Box with improved sealing to address the issue of moisture ingress and internal corrosion. The replacement of existing Tachometer Boxes with the improved part is recommended by Turbomeca in Service Bulletin 292 77 0330 for helicopters operating in humidity saturated environments which is typical of BHP Billiton offshore petroleum operations.

Sikorsky S76A+ and S76A++ helicopters that are not compliant with Service Bulletin 292 77 0330 (Incorporation of Modification TU 330) by 10 July 2008 shall not be used by BHP Billiton.

BHP Billiton assets using or are likely to use Sikorsky S76A+ or S76A++ helicopters are to verify helicopter operators have incorporated Modification TU 330 before using these helicopters beyond 10 July 2008.

For further information please contact:

Stan Medved
Aviation Safety Manager
BHP Billiton

Joe Gross
Aviation Adviser
BHP Billiton Petroleum

stan.medved@bhpbilliton.com
+61 3 9609 3018

joe.gross@bhpbilliton.com
+1 713 499 5452

Attachment:

Turbomeca Service Bulletin 292 77 0330 (Incorporation of Modification TU 330)

SERVICE BULLETIN

ARRIEL 1**No. 292 77 0330****Subject: Installation of a sealed Power Turbine (PT) overspeed tachometer box.****Incorporation of modification TU 330.**

The technical information contained in this document has been approved under the Design Organization Approval No. EASA.21J.070, on 05.02.2007.

1. Compliance

Modification effectivity date *	MAY 2007
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- * Date by which the conditions of application (defined in § A) for the modification described in this SB, must systematically be complied with.
This date corresponds to when sufficient resources required to incorporate the modification (parts, tools, documentation, etc...) will be available.
If these resources are available any earlier, the modification may, as an exception, be incorporated before the effectivity date.

A. Application

The manufacturer recommends this modification be incorporated as defined in this Service Bulletin.

Validity	Code
ARRIEL 1 S - 1 S1 engines	2-C-2

Conditions of application for engines in service

- (1) **Application at the operator's site or at a TURBOMECA-approved Service Station**
Upon customer request.
- (2) **Application at a TURBOMECA-approved Repair Center**
If the tachometer box is replaced (discarded).

B. Purpose

To improve the sealing of tachometer boxes.

C. Description (Appendices 1 and 2)

This modification consists of introducing the post TU 330 tachometer box as an option in order to allow the replacement of pre TU 330 boxes that show traces of corrosion or that are used in humidity-saturated atmospheres.

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Post TU 330 tachometer boxes have no calendar TBO and are no longer followed up with a log card.

This replacement requires a new adaptor plate that is compatible with all boxes manufactured by TURBOMECA.

D. Approval

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

E. Manpower

(1) At the operator's site or at a TURBOMECA-approved Service Station

(a) **Personnel:** 1 mechanic.

(b) **Time required:** 1 man-hour.

(2) At a TURBOMECA-approved Repair Center

(a) **Personnel** of approved Repair Center.

(b) **Time** determined by the Repair Center as being appropriate for this level of intervention.

F. Material

Refer to paragraph 3.

G. Tooling

(1) At the operator's site or at a TURBOMECA-approved Service Station

Mechanic's standard tooling.

(2) At a TURBOMECA-approved Repair Center

Refer to the ARRIEL 1 Repair Manual.

H. Weight and balance

Not applicable.

I. References

- | | |
|---|----------------------|
| (1) ARRIEL 1 S Maintenance Manual..... | Ref. X 292 F9 452 2. |
| (2) ARRIEL 1 S1 Maintenance Manual..... | Ref. X 292 H4 452 2. |
| (3) ARRIEL 1 Repair Manual..... | Ref. X 292 87 500 2. |
| (4) Helicopter Maintenance Manual. | |

J. Other publications concerned

- | | |
|---|----------------------|
| (1) ARRIEL 1 S Spare Parts Catalogue..... | Ref. X 292 F9 702 2. |
| (2) ARRIEL 1 S1 Spare Parts Catalogue..... | Ref. X 292 H4 702 2. |
| (3) ARRIEL 1 S Illustrated Parts Catalogue..... | Ref. X 292 F9 602 2. |
| (4) ARRIEL 1 S1 Illustrated Parts Catalogue | Ref. X 292 H4 602 2. |

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2. Instructions to be incorporated

A. Implementation

This modification can be incorporated without removing the engine from the helicopter.

(1) At the operator's site or at a TURBOMECA-approved Service Station

Replace PT overspeed tachometer box.

(2) At a TURBOMECA-approved Repair Center

Replace PT overspeed tachometer box.

B. Operating instructions

(1) At the operator's site or at a TURBOMECA-approved Service Station

(a) Remove pre TU 330 PT overspeed tachometer box: refer to the Helicopter Maintenance Manual.

(b) Replace adaptor plate (supply under Aircraft manufacturer's responsibility): refer to the Helicopter Maintenance Manual.

Note: Replacement of adaptor plate requires removal of second tachometer box.

(c) Install post TU 330 PT overspeed tachometer box: refer to the Helicopter Maintenance Manual.

(2) At a TURBOMECA-approved Repair Center

Refer to the ARRIEL 1 Repair Manual.

C. Reconditioning and checks

(1) At the operator's site or at a TURBOMECA-approved Service Station

(a) Perform a ground run check, task 71-02-13-280-801.

(b) Perform a functional check of the overspeed function: refer to relevant ARRIEL 1 Maintenance Manual, chapter 77-31-40.

(2) At a TURBOMECA-approved Repair Center

Checks and tests: refer to ARRIEL 1 Repair Manual, chapter 72-03-02 for overhaul, and chapter 72-03-03 for repair.

D. Identification

(1) At the operator's site or at a TURBOMECA-approved Service Station

(a) Complete the following sections in the engine log book:

- Section "C": Cross out the line referencing the pre TU 330 tachometer box.
Do not complete a new line on the "Replacements" page.

- Section "E": Record the replacement of the tachometer box.

(b) Notify TURBOMECA that the tachometer box has been replaced by returning the fully completed compliance certificate (page 7/7 of this Service Bulletin).

(2) At a TURBOMECA-approved Repair Center

(a) Complete the following sections in the engine log book:

- Section "A": Update the modification standard.

- Section "C": Update the equipment record. Only record equipment that is followed up with a log card. Do not record the post TU 330 tachometer box.

- Section "E": Record the replacement of the tachometer box.

(b) Notify TURBOMECA that the tachometer box has been replaced by returning the fully completed compliance certificate (page 7/7 of this Service Bulletin).

E. Routine maintenance

Not applicable.

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3. Material information

A. Basic information

The parts list (provided below) required for the incorporation of this Service Bulletin is for one engine.

B. List of parts

New Part Number	Key	Qty	Description	Price	Old Part Number	Key	Qty
9 580 11 644 0	A	1	Tachometer box	*	0 177 55 535 0	C	1

** Prices available upon request.*

Key

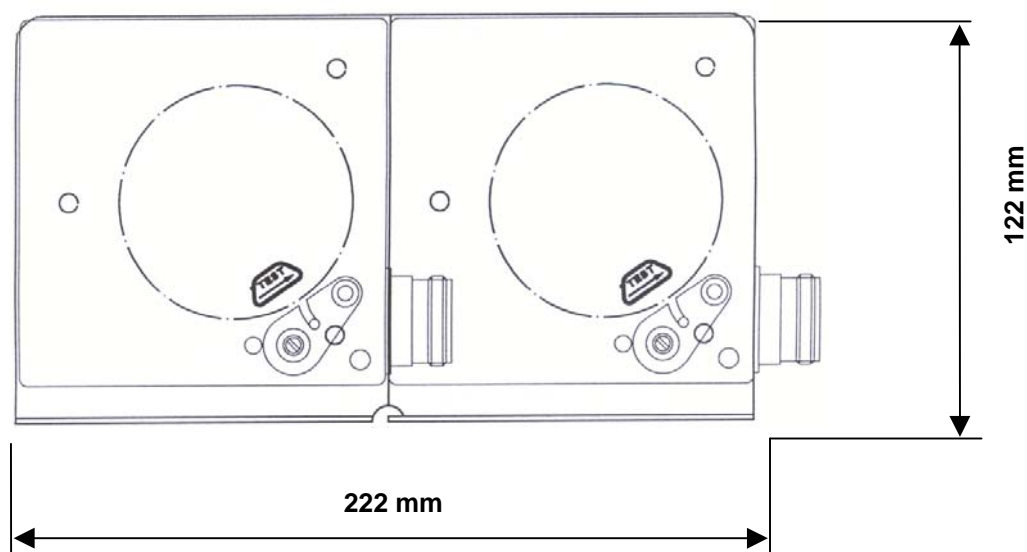
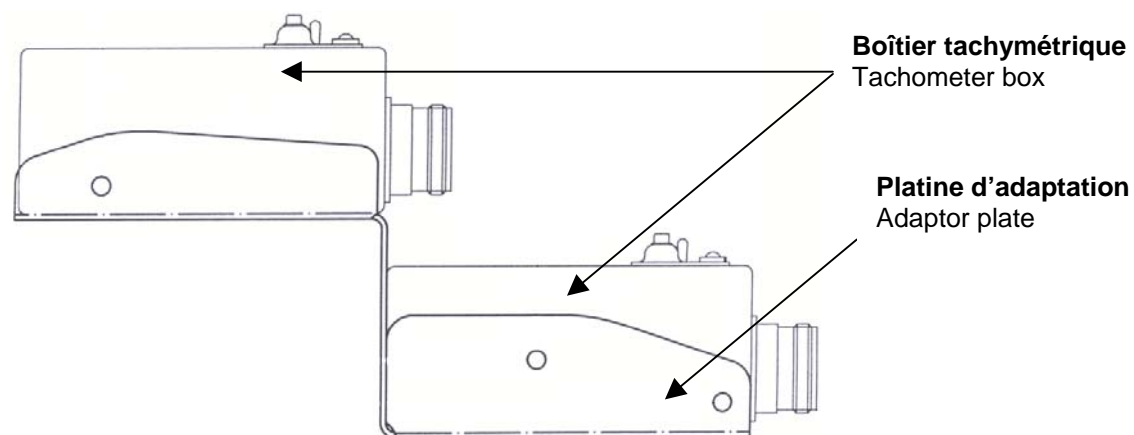
A - Part incorporated by this modification.

C - Part deleted by this modification.

C. Supply conditions

Order supplies as needed from:
your local TURBOMECA Support Center
or
TURBOMECA
Direction Support Opérateurs
Département Commercial
40220 TARNOS
France
Fax No. +33 (0) 5 59 74 45 11.

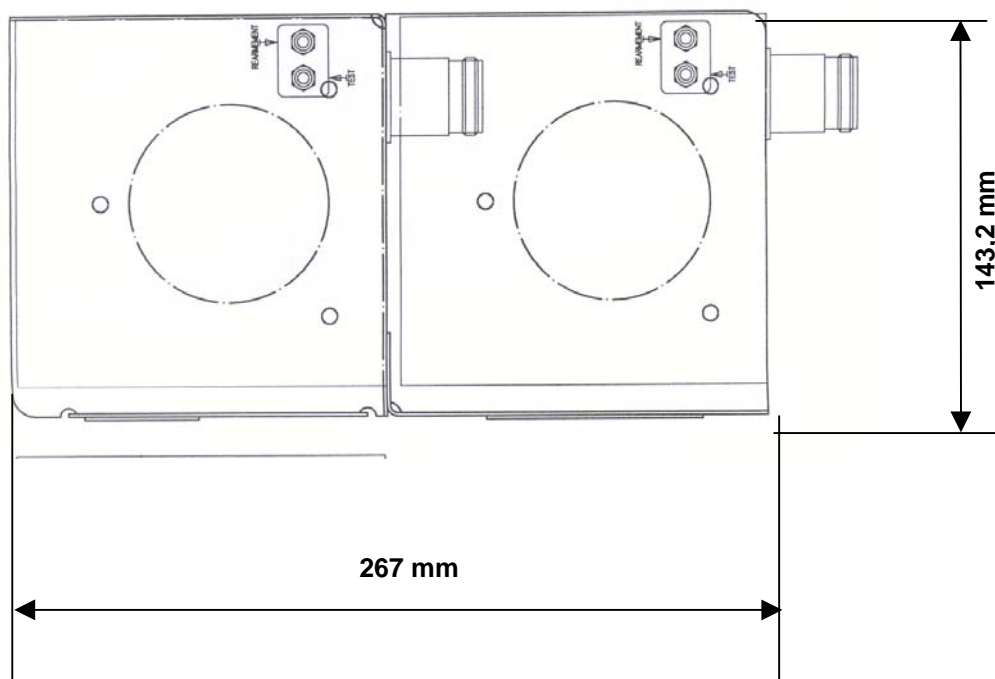
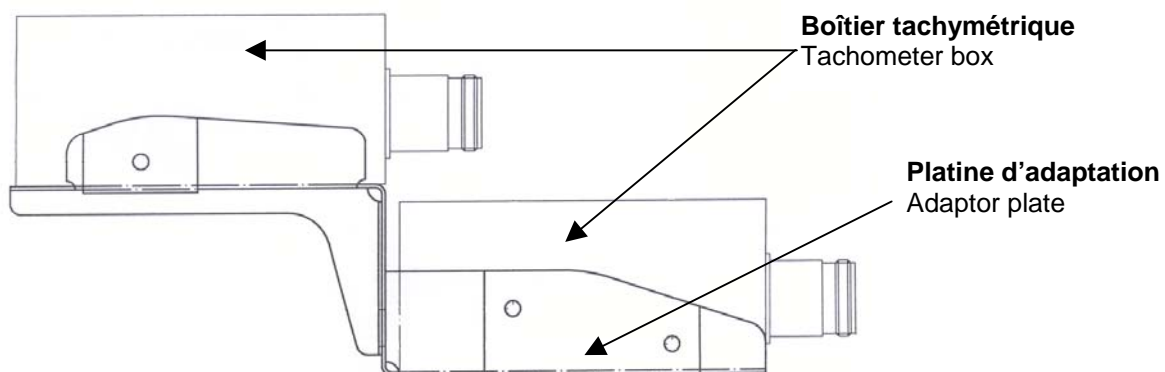
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Boîtiers tachymétriques pre TU 330
Pre TU 330 tachometer boxes

ANNEXE 1 / APPENDIX 1

SERVICE BULLETIN



Boîtiers tachymétriques post TU 330
Post TU 330 tachometer boxes

ANNEXE 2 / APPENDIX 2

SERVICE BULLETIN

Objet : Attestation de remplacement du boîtier tachymétrique.

Subject: Compliance certificate for replacement of tachometer box.

Important / Important notice:

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

After incorporating the instructions in this Service Bulletin, please complete this certificate and mail or fax it to:

TURBOMECA
Direction Support Opérateurs
Département Technique - Marque ARRIEL
40220 TARNOS - France
Fax n° / No. +33 (0) 5 59 74 45 15

ou / or

notre établissement TURBOMECA le plus proche / the nearest TURBOMECA site

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						
Boîtier tachymétrique déposé Removed tachometer box						
Boîtier tachymétrique posé Installed tachometer box						

* **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 effectuée par :

Work performed by:

.....

Je certifie que le boîtier tachymétrique identifié ci-dessus a été installé selon les directives du Service Bulletin en objet.

I certify that the above-mentioned tachometer box has been installed according to the directives given in this Service Bulletin.

Date

Nom / Print name

Fonction / Job title

.....

Signature :