# IMCA Safety Flash 06/08

April 2008

These flashes summarise key safety matters and incidents, allowing wider dissemination of lessons learned from them. The information below has been provided in good faith by members and should be reviewed individually by recipients, who will determine its relevance to their own operations.

The effectiveness of the IMCA safety flash system depends on receiving reports from members in order to pass on information and avoid repeat incidents. Please consider adding the IMCA secretariat (imca@imca-int.com) to your internal distribution list for safety alerts and/or manually submitting information on specific incidents you consider may be relevant. All information will be anonymised or sanitised, as appropriate.

A number of other organisations issue safety flashes and similar documents which may be of interest to IMCA members. Where these are particularly relevant, these may be summarised or highlighted here. Links to known relevant websites are provided at www.imca-int.com/links Additional links should be submitted to webmaster@imca-int.com

## 1 Sikorsky S76A+ and S76A++ Helicopters

Members using Sikorsky S76A+ and S76A++ helicopters are referred to the attached safety alert, originally issued via the OGP safety zone website (http://info.ogp.org.uk/safety) concerning engine failures resulting from faults in tachometer boxes on these aircraft and the recommended remedy.

## 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

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

Joe Gross
Aviation Adviser
BHP Billiton Petroleum

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


Attachment:

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

Turbomeca
Groupe SAFRAN

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

# 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 |
|---|---|

* 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.

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.

## 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.

## 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 |

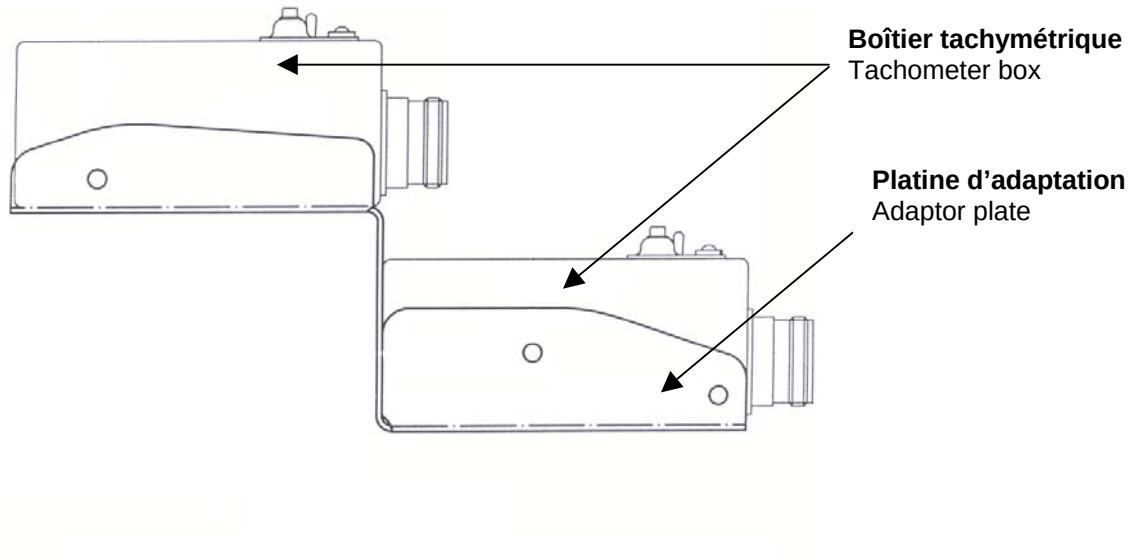
** Prices available upon request.*

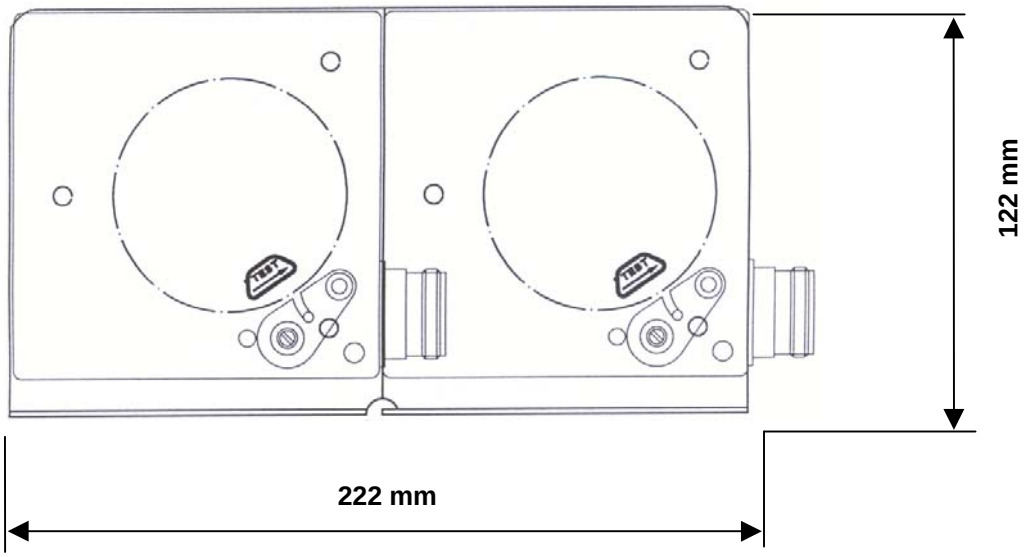
***Key***

*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.

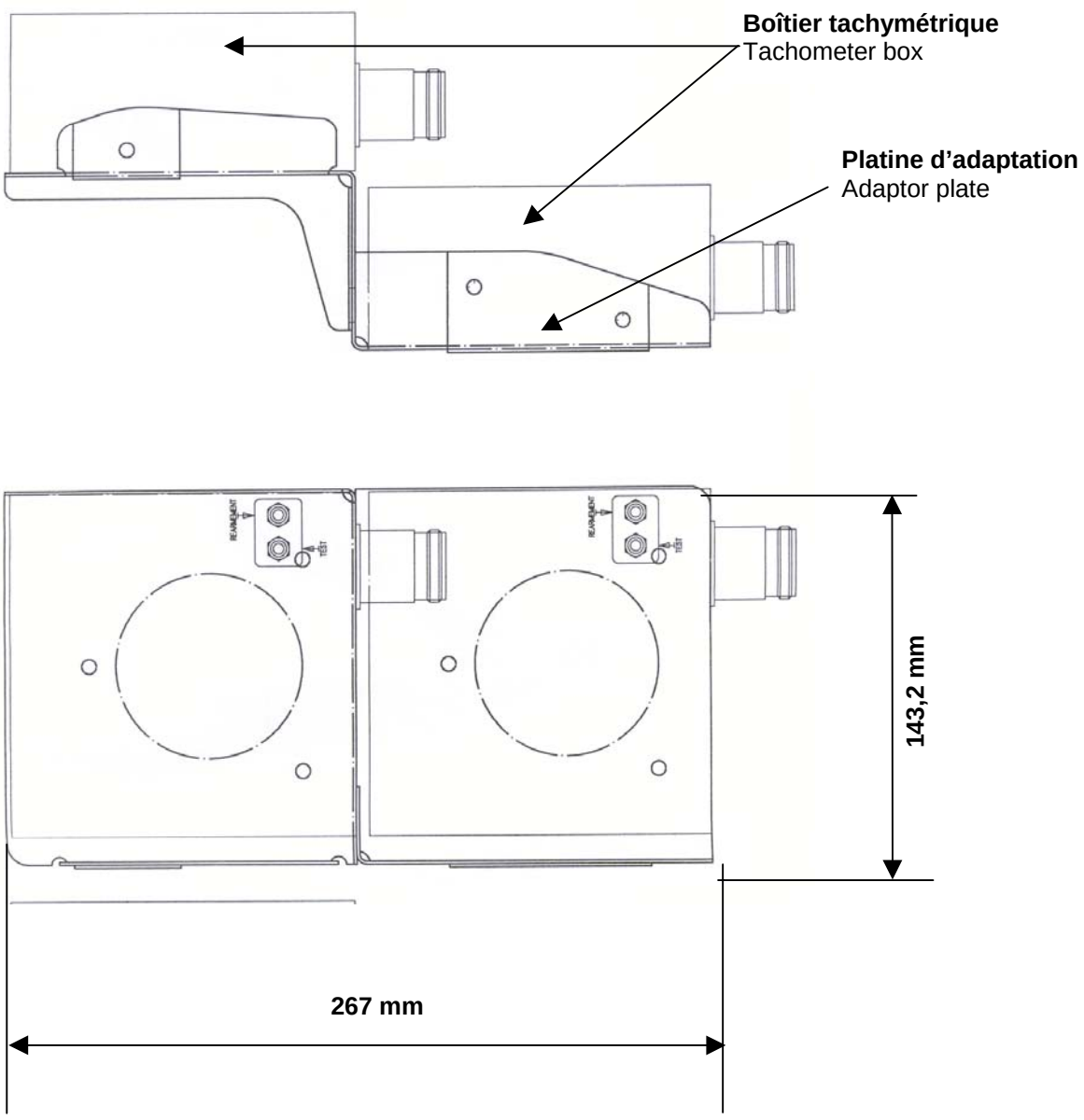



**Boîtiers tachymétriques pre TU 330**
Pre TU 330 tachometer boxes

**ANNEXE 1** / APPENDIX 1

# SERVICE BULLETIN




**Boîtiers tachymétriques post TU 330**
Post TU 330 tachometer boxes

**ANNEXE 2** / APPENDIX 2

Turbomeca
Groupe SAFRAN

# 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) **TSO = Time Since Overhaul** (Heures depuis RG)
**CSN = Cycles Since New** (Cycles depuis neuf) **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 :**