

**ALERT SERVICE BULLETIN**  
**Bell Helicopter** **TEXTRON**

A Subsidiary of Textron Inc.

NO. 412-07-121

DATE MAR 26, 2007

PAGE 1

DATE

REV

**MODEL AFFECTED:** 412/ 412EP

**SUBJECT:** ENGINE, P3 FILTER AND PNEUMATIC SYSTEM  
– INSPECTION OF

**HELICOPTERS AFFECTED:** All 412/ 412EP Helicopters.

**COMPLIANCE:** See vendor bulletin.

**DESCRIPTION:**

The purpose of this bulletin is to achieve complete distribution of the attached vendor bulletin to the current affected model distribution list on record by Bell Helicopter.

**APPROVAL:**

See vendor bulletin approval.

PRATT & WHITNEY CANADA  
**ALERT SERVICE BULLETIN**

P&WC S.B. No. A5490

**BULLETIN INDEX LOCATOR**  
**73-10-07**

TURBOSHAFT ENGINE  
P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF

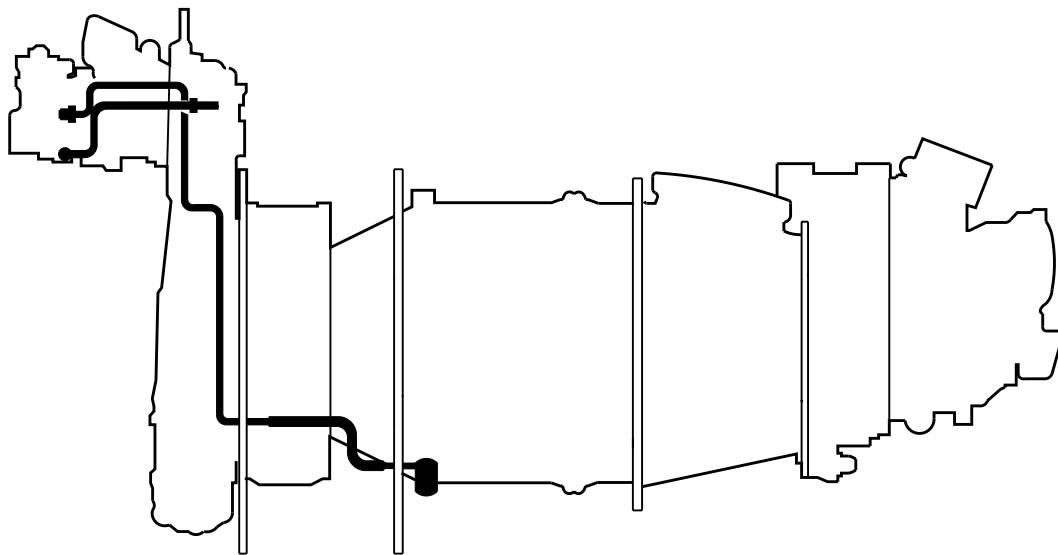
MODEL APPLICATION

PT6T-3B, PT6T-3D, PT6T-3DF

Commercial Support Program No: 1002573

Compliance: CATEGORY 3

Summary: Black debris has been found in the P3 filter of recently delivered engines. In two cases, the debris was located downstream of the P3 filter which can cause contamination of the AFCU.



Mar 09/2007

**PT6T-72-A5490**  
Cover Sheet

24-Hour Global Service

**HELP DESK**

Toll free where available (SIL GEN-027)

USA & CANADA..... 1-800-268-8000

International ..... (IAC\*)+8000-268-8000

\* International Access Code

Other..... 1-450-647-8000

Fax..... 1-450-647-2888

Web Site ..... [www.pwc.ca](http://www.pwc.ca)

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TURBOSHAFT ENGINE  
P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF

1. Planning Information

A. Effectivity

PT6T-3B Power Sections which are before and include Serial No. CP-PSTB0300 excluding Power Sections that have had a P3 filter inspection since entry into service.  
PT6T-3D Power Sections which are before and include Serial No. CP-PSTH0827 (excluding TH0773, TH0774, TH0787, TH0788, TH0811, TH0819 thru TH0822, TH0824, TH0825) excluding Power Sections that have had a P3 filter inspection since entry into service.  
PT6T-3DF Power Sections which are before and include Serial No. CP-PSTX0141 (excluding TX0123 thru TX0128) excluding Power Sections that have had a P3 filter inspection since entry into service.

B. Concurrent Requirements

None.

C. Reason

(1) Problem

Black debris has been found in the P3 filter of recently delivered engines. In two cases, the debris was located downstream of the P3 filter which can cause contamination of the AFCU.

(2) Cause

Accumulation of oil on the filter element that cooked during engine operation caused by excessive amounts of oil being used in production to lubricate the packings for the P3 filters.

(3) Solution

Do a one time inspection of the P3 filter and AFCU pneumatic system for debris.

D. Description

Inspect the P3 filter and AFCU pneumatic system for debris.

E. Compliance

**For engines in the field:**

CATEGORY 3 - P&WC recommends to do this service bulletin within 10 flight hours from receipt of this service bulletin.

**For engines at OEM:**

CATEGORY 3 - P&WC recommends to do this service bulletin prior to delivery of the aircraft.

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P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF

1. Planning Information (Cont'd)

F. Approval

D.A.A. approved

G. Weight and Balance

None.

H. Electrical Load Data

Not changed.

I. Software Accomplishment Summary

Not changed.

J. References

Applicable PT6T Technical Manuals

K. Publications Affected

Applicable PT6T Technical Manuals

L. Interchangeability and Intermixability of Parts

Interchangeability - Refer to Para. 2.D.

Intermixability - Not changed.

2. Material Information

A. Industry Support Information

Commercial Support Program Notification 1002573.

B. Material - Cost and Availability

Not applicable.

C. Manpower

**P3 Filter Inspection Per Power Section**

Once you have access to the part, an estimate of 1.0 man-hours is required to include this service bulletin at maintenance.

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P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF

2. Material Information (Cont'd)

**Pneumatic Lines Inspection and Flushing Per Power Section**

Once you have access to the part, an estimate of 4.0 man-hours is required to include this service bulletin at maintenance.

**Replacement of AFCU**

Once you have access to the part, an estimate of 8.0 man-hours is required to include this service bulletin at maintenance.

No more man-hours are necessary to include this service bulletin at overhaul.

D. Material Necessary for Each Engine

The quantity of materials listed in this section is on a per engine basis.

<u>New P/N</u>	<u>Keyword</u>	<u>Old P/N</u>	<u>Qty</u>	<u>Est. Unit List Price (\$US, 2007)</u>	<u>Instructions Disposition</u>
<b>PT6B-3B</b>					
ST3001-015	Packing, Preformed (Pre-SB5124)	ST3001-015	1	1.15	(A)
<b>or</b>					
3029488	Packing, Preformed (Post-SB5124, Pre-SB5309, Pre-SB5359)	3029488	1	12.01	(A)
<b>or</b>					
MS9386-014	Packing, Preformed (Post-SB5309R2, Post-SB5359)	MS9386-014	1	1.61	(A)
ST3001-126	Packing, Preformed (Post-SB5124)	ST3001-126	1	2.02	(A)
<b>or</b>					
AS3209-126	Packing, Preformed (Pre-SB5309, Pre-SB5359)	AS3209-126	1	2.02	(A)
<b>or</b>					

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TURBOSHAFT ENGINE  
P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF

<u>New P/N</u>	<u>Keyword</u>	<u>Old P/N</u>	<u>Qty</u>	<u>Est. Unit List Price (\$US, 2007)</u>	<u>Instructions Disposition</u>
MS9386-126	Packing, Preformed (Post-SB5309, Post-SB5359)	MS9386-126	1	8.57	(A)
MS9386-015	Packing, Preformed (Post-SB5309, Post-SB5359)	MS9386-015	1	8.57	(A)

**PT6B-3D, PT6B-3DF**

MS9386-015	Packing, Preformed	MS9386-015	1	8.57	(A)
MS9386-014	Packing, Preformed	MS9386-014	1	1.61	(A)
MS9386-126	Packing, Preformed	MS9386-126	1	8.57	(A)

(A) Standard replacement part.

**Caution: Make sure that only a very thin film of lubricant (Ref. MM 70-00-00, Lubrication of Preformed Packings) is applied to the packing on the P3 filter.**

**Note: It is possible that some packings are black in color. The standard replacement packings are orange in color.**

E. Reidentified Parts

None.

F. Tooling - Price and Availability

Not applicable.

3. Accomplishment Instructions

A. Make sure the P3 filter preformed packings, listed in Para. 2.D., are replaced when you remove the P3 filter element (Ref. MM 73-10-07).

B. **Engines PT6T-3B and Engines PT6T-3D, PT6T-3DF Pre-SB5458**

Do the inspection for Contamination of the AFCU P3 (Pneumatic) System (Ref. Maintenance Manual (MM) 72-00-00) with the differences that follow (Ref. Fig. 1 and 2):

NOTE: 1. The intent of this procedure is to verify if debris may have contaminated the AFCU.

NOTE: 2. It is important to install clean blanking covers on open ended tubes after removal to prevent losing debris that may be present. It is also important to make sure that the flushing fluid and container, used to collect the fluid, are free of any contaminant.

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TURBOSHAFT ENGINE  
P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF

3. Accomplishment Instructions (Cont'd)

- (1) When you remove the filter element from the cover, inspect the filter element, inside and outside, for black deposit.
- (2) If there is no black deposit on the filter element and there is no loose debris inside the filter housing assembly and cover, reinstall the P3 air filter housing cover and filter element (Ref. MM 73-10-07). No further action is required.

NOTE: 1. Small dark stains in the filter housing and cover are acceptable if there is no significant thickness and it adheres completely to the surface.

NOTE: 2. A small amount of soot is also acceptable anywhere on the filter element or inside the filter housing assembly and cover.

- (3) If the filter has a black deposit that is dark and smooth and if it is baked on the filter element with no build-up or lumps and there is no loose debris in the filter housing and cover (Ref. Fig. 1 and 2), install a new filter element. No further action is required.

NOTE: Make sure debris does not fall in the filter cover after removal.

- (4) If loose debris is found inside the filter element only, install a new filter element. No further action is required.

NOTE: 1. Make sure the filter cover is clean upon installation.

NOTE: 2. The air in the P3 filter flows from inside to outside.

- (5) If debris was found during flushing of the P3 tubes, send the AFCU for inspection and cleaning of air passages to:

P&WC Accessories Services  
333 rue d'Auvergne (Area 2K)  
Longueuil Quebec  
Canada J4H 3Y3

TEL: (450) 442-6800  
FAX: (450) 442-6810

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TURBOSHAFT ENGINE  
P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF

3. Accomplishment Instructions (Cont'd)

Honeywell Aerospace Inc.  
200 Marcel-Laurin Blvd.  
Montreal Quebec  
Canada H4M 2L5

TEL: (514) 744-2811

REF: Refer to Honeywell Service Bulletin listed in para. 1.J.

or

Local Authorized Warranty and Repair Stations (AWARS).

Note: If the local AWARS is unknown, please contact customer support engineer at:  
(574) 231-4034, Mobile (574) 210-7747, Fax. (574) 231-4016.

C. **Engines PT6T-3D and PT6T-3DF Post-SB5458**

Do the inspection for Contamination of the AFCU P3 (Pneumatic) System as follows:

NOTE: 1. It is important to install clean blanking covers on open ended tubes after removal to prevent losing debris that may be present. It is also important to make sure that the flushing fluid and container, used to collect the fluid, are free of any contaminant.

NOTE: 2. Clamps and associated parts may be loosened or removed as required to prevent damage to the P3 tubes.

- (1) Remove the P3 air filter cover and filter element (Ref. 73-10-07).
- (2) Remove the filter element from the cover.
- (3) Inspect inside and outside the filter element for black deposit (Ref. Fig. 1).
- (4) Inspect inside the filter cover for loose debris (Ref. Fig. 2).
- (5) If no black deposit and no loose debris are found, reinstall the P3 filter (Ref. MM 73-10-07). No further action is required.

NOTE: 1. Small dark stains in the filter housing and cover are acceptable if there is no significant thickness and it adheres completely to the surface.

NOTE: 2. A small amount of soot is also acceptable anywhere on the filter element or inside the filter housing assembly and cover.

- (6) If the filter has a black deposit that is dark and smooth and if it is baked on the filter element with no build-up or lumps and there is no loose debris in the filter housing and cover, install a new filter element (Ref. Fig. 1 and 2). No further action is required.

NOTE: Make sure debris does not fall in the filter cover after removal.

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TURBOSHAFT ENGINE  
P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF

3. Accomplishment Instructions (Cont'd)

- (7) If loose debris is found inside the P3 filter element only, install a new filter element. No further action is required.

NOTE: 1. Make sure debris does not fall in the filter cover after removal.

NOTE: 2. The air in the P3 filter flows from inside to outside.

- (8) If the filter element has a build-up of black deposit or lumps or if loose debris is found inside the filter cover (Ref. Fig. 2), inspect and flush the P3 (Pneumatic) system for possible contamination as follows:

NOTE: 1. The intent of this procedure is to verify if debris may have contaminated the AFCU.

NOTE: 2. It is important to install clean blanking covers on open ended tubes after removal to prevent losing debris that may be present. It is also important to make sure that the flushing fluid and container, used to collect the fluid, are free of any contaminant.

- (a) Use a high intensity light and inspect for debris at the inner area of the filter housing. Clean any accumulated debris from the filter housing.

NOTE: Debris found at this location does not require AFCU removal.

- (b) Put a clean suitable container under the P3 filter housing assembly to contain fluid during flushing procedure.

- (c) Disconnect tube assembly P/N 3057490-01 and P/N 3055497-01 from AFCU and tube assembly P/N 3057486-01.

- (d) Disconnect tube assembly P/N 3057486-01 from tube assembly P/N 3055539-01.

- (e) Use a high intensity light and a mirror, if required, and inspect the P3 air inlet ports on the AFCU (Ref. MM 72-00-00, AFCU P3 Inlet Ports - Inspection) for debris.

- (f) If internal debris is evident, send the AFCU for inspection and cleaning of the air passages to:

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P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF

3. Accomplishment Instructions (Cont'd)

P&WC Accessories Services  
333 rue d'Auvergne (Area 2K)  
Longueuil Quebec  
Canada J4H 3Y3

TEL: (450) 442-6800  
FAX: (450) 442-6810

Honeywell Aerospace Inc.  
200 Marcel-Laurin Blvd.  
Montreal Quebec  
Canada H4M 2L5

TEL: (514) 744-2811

REF: Refer to Honeywell Service Bulletin listed in para. 1.J.  
or

Local Authorized Warranty and Repair Stations (AWARS).

Note: If the local AWARS is unknown, please contact customer support engineer at: (574) 231-4034, Mobile (574) 210-7747, Fax. (574) 231-4016.

- (g) Remove applicable blanking covers and inject flushing fluid through tube P/N 3055539-01 allowing fluid to flow freely through the P3 filter housing (Ref. MM 72-00-00).

NOTE: The compressor wash cart and solutions may be used to flush the P3 tube(s) (Ref. 72-00-00, ENGINE - CLEANING). Ensure that the outlet pressure is regulated to 10 psi. As an alternate method, manual injection (pouring) of petroleum solvent (PWC11-027) in the tube(s) is acceptable.

- (h) Inspect the flushed fluid in the container for debris (particles).

- (i) Repeat flushing process until fluid is clean.

NOTE: Debris found from this flushing does not require replacement of AFCU.

- (j) Remove condensation trap P/N 3049959-01 from tube 3057486-01.

- (k) Inspect condensation trap P/N 3049959-01 for debris and clean.

- (l) If debris was found in condensation trap, send the AFCU for inspection and cleaning of the air passages to P&WC Accessories Services, or Honeywell Aerospace Inc., or Local Authorized Warranty and Repair Stations (AWARS).

- (m) Remove blanking covers and inject flushing fluid through tubes P/N 3057486-01, P/N 3057490-01, P/N 3055497-01.

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P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF

3. Accomplishment Instructions (Cont'd)

- (n) Inspect flushed fluid for debris (particles).
- (o) Repeat flushing process until fluid is clean.
- (p) If debris was found during flushing of tubes P/N 3057486-01, P/N 3057490-01 and P/N 3055497-01, send the AFCU for inspection and cleaning of the air passages to P&WC Accessories Services, or Honeywell Aerospace Inc., or Local Authorized Warranty and Repair Stations (AWARS).
- (q) Dry the interior of the tubes using clean dry shop air or equivalent.

D. **Engines PT6T-3D and PT6T-3DF Post-SB5458**

To install the P3 tube assemblies and attaching hardware that were removed or loosened, proceed as follows (Ref. Fig. 3):

- (1) Install bracket P/N 3055590-01 on the AGB cover over the studs of the AGB housing and attach with nuts P/N 3016606. Torque nuts 32 to 36 lbf.in. (3.7-4.0 N.m).
- (2) Install condensation trap P/N 3049959-01 on tube P/N 3057486-01. Torque trap 90 to 100 lbf.in. (10.2 to 11.2 N.m) and lockwire.
- (3) Loosely connect tubes P/N 3057486-01, P/N 3057490-01, P/N 3055497-01, and P/N 3055539-01.
- (4) Connect tubes P/N 3057490-01 and P/N 3055497-01 to AFCU. Torque 90 to 100 lbf.in. (10.2 to 11.2 N.m) and lockwire.
- (5) Torque tubes P/N 3057486-01, P/N 3057490-01, P/N 3055497-01, and P/N 3055539-01, 90 to 100 lbf.in. (10.2 to 11.2 N.m) and lockwire.
- (6) Install clamp P/N ST2231-04 on tube P/N 3057486-01 and attach the clamp to bracket P/N 3055590-01 with bolt P/N MS9518-06 and nut P/N 3016606. Torque nut 36 to 40 lbf.in. (4.1 to 4.5 N.m).

E. Write accomplishment of P&WC S.B. No. 5490 in the applicable engine module log book.

4. Appendix

Not applicable.

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TURBOSHAFT ENGINE  
P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF



C116757

Oil Deposit on Filter Element  
Figure 1

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TURBOSHAFT ENGINE  
P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF



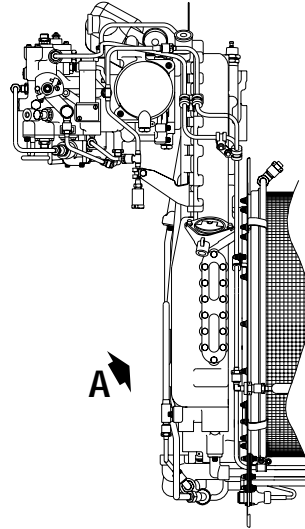
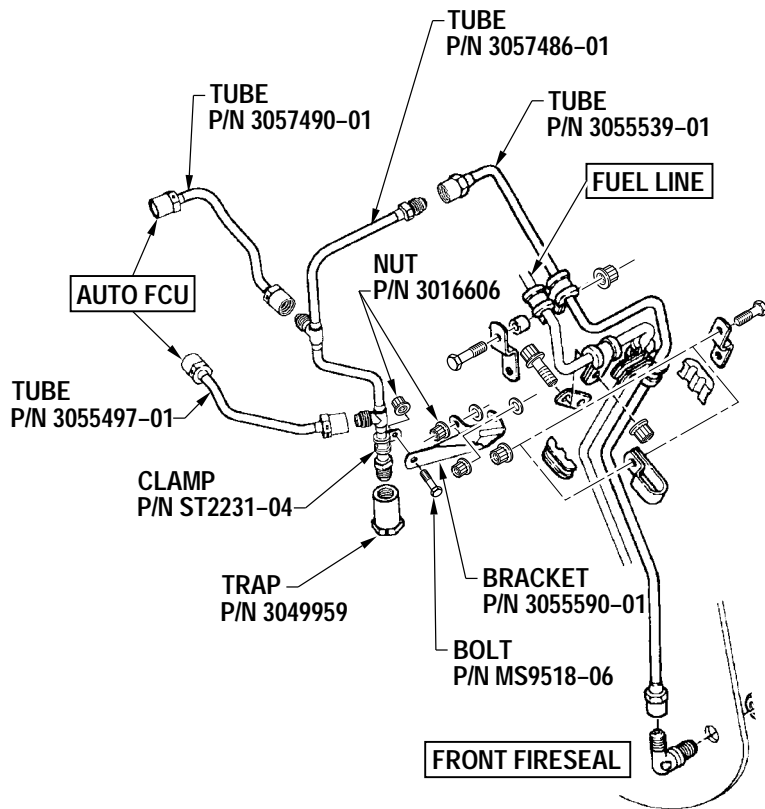
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Unacceptable Debris in Filter Housing Cover  
Figure 2

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TURBOSHAFT ENGINE  
P3 FILTER AND PNEUMATIC SYSTEM - INSPECTION OF



VIEW A

C116732

Air Pressure Compressor Delivery Tubes - Installation (Post-SB5458)  
Figure 3