PILATUS AIRCRAFT LTD. CH-6371 STANS, SWITZERLAND

# SERVICE LETTER

**SUBJECT: PRATT & WHITNEY CANADA (P&WC) SERVICE INFORMATION LETTER (SIL) NO. PT6A-116 R2**

To all Customers, Operators and Service Centers: Date: Nov 20/08

This Service Letter is issued to draw attention to the following vendor information:

**REVISION 2 TO P&WC SIL NO. PT6A-116 - BORESCOPE INSPECTION IN CONJUNCTION WITH FUEL NOZZLE CHECK**

P&WC SIL PT6A-116 recommended that operators do a borescope inspection of the trailing edges of the compressor turbine blades at the same time as their scheduled fuel nozzle maintenance. P&WC has been made aware that some operators do not do the borescope inspection.

Revision 2 to the SIL is issued to remind operators that the borescope inspection is required at the same time as the scheduled fuel nozzle maintenance as defined in the P&WC Engine Maintenance Manual, Chapter 72-00-00, Table 601.

Pilatus fully supports the content of P&WC SIL PT6A-116 R2 as undetected cracks can lead to blade fracture.

This Service Letter supercedes Pilatus Service Letter 74.

Operators requiring further information on this subject, please contact one of the addresses given below:

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**Attachments: P&WC SIL PT6A-116 R2**

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**Pratt & Whitney Canada**
A United Technologies Company

S.I.L NO. PT6A-116R2

# SERVICE INFORMATION LETTER

Subject: Borescope Inspection in Conjunction with Fuel Nozzle Check

Applicability: All PT6A Engine models

Reference: Engine Maintenance Manuals (EMM), (Section 72-00-00 Engine table 601, "Periodic Inspection" and Engine Inspection-Borescope CT Blades). P&WC Service Information Letter (SIL) PT6A-125.

Reason for Revision:

Pratt & Whitney Canada Corp (PWC) has received feed back from operators concerning the new borescope inspection procedure that allows inspection of the Compressor Turbine Blade trailing edge.

Over the past 12 months Five (5) operators reported to P&WC that they were able to detect Trailing edge cracks on the Compressor Turbine Blades using this new procedure, by inserting the fiberscope through the exhaust duct port and the power turbine stage. The new procedure was introduced in the EMM in May 2006.

Despite P&WCs efforts to emphasize the importance of Borescope inspections, it has become evident during the investigation of recent Compressor Turbine (CT) Blade fracture events (which occurred in 2007) that not all operators are performing the recommended borescope inspection at the same time as their scheduled fuel nozzle maintenance.

P&WC wishes to remind operators that borescope inspection is required per the EMM in conjunction with the fuel nozzle inspections as defined in the periodic inspection Table 601 (Reference the EMM Section 72-00-00).

This requirement was introduced to help detect the presence of heat distress at the CT Vane Ring. Pratt Whitney Canada Corp. (PWC) has determined that the loss of a part of a CT Vane trailing edge as a result of heat distress may not necessarily result in a significant change to the CT Vane flow class or overall efficiency of the vane assembly. Overall engine performance deterioration may not be seen at regular ground power checks or during flight data collection for the ECTM plots.



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A hole in one vane of the CT Vane Ring trailing edges, in excess of the limits specified in the applicable Maintenance Manual (MM), will change the exit flow velocity or angle at that particular vane window receives an impulse different from that of the other CT vane windows. Under such abnormal excitation, CT blade firtree fatigue may occur and the MM requires replacement of the entire set of CT Blades.

In addition to existing requirements, an inspection of the CT Blade trailing edge has been introduced for the PT6A-6 through –36 series engines (single power turbine). Please refer to Engine Maintenance Manual for applicability and accomplishment instructions.

In light of the possible consequences listed above, P&WC wishes to remind operators of the importance of performing borescope inspection during fuel nozzle check as per the EMM. For operators who have not been complying to this requirement P&WC recommends that a borescope inspection be scheduled at their earliest convenience and that this practice be incorporated as part of their normal scheduled fuel nozzle maintenance.

Examples of the borescope inspections are shown in the following figures.

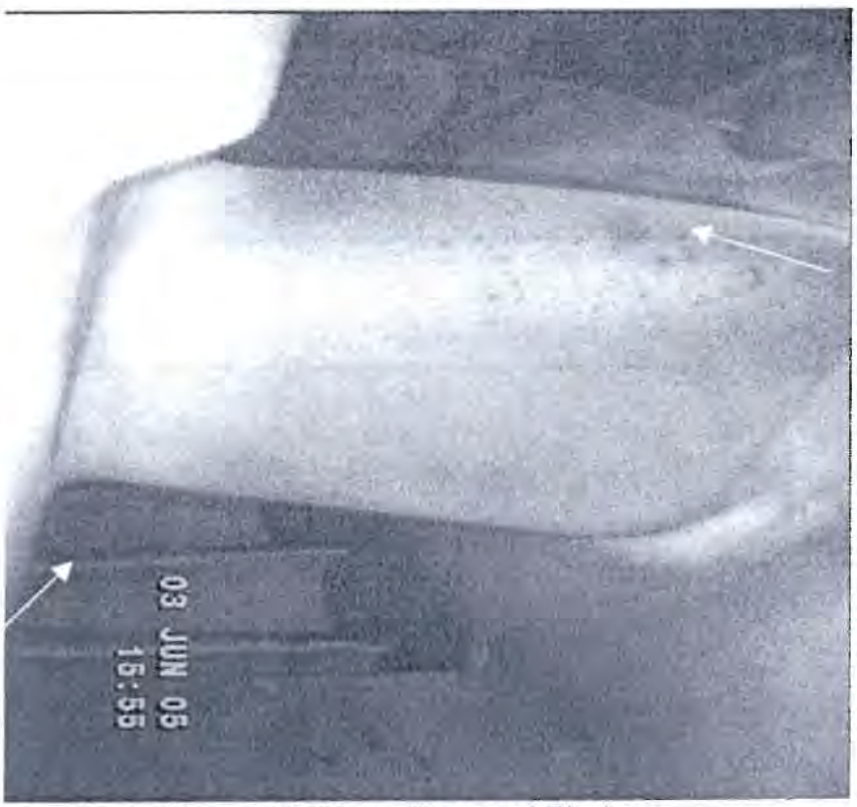


**Fig. 1- View of CT Vane Ring and Blades**

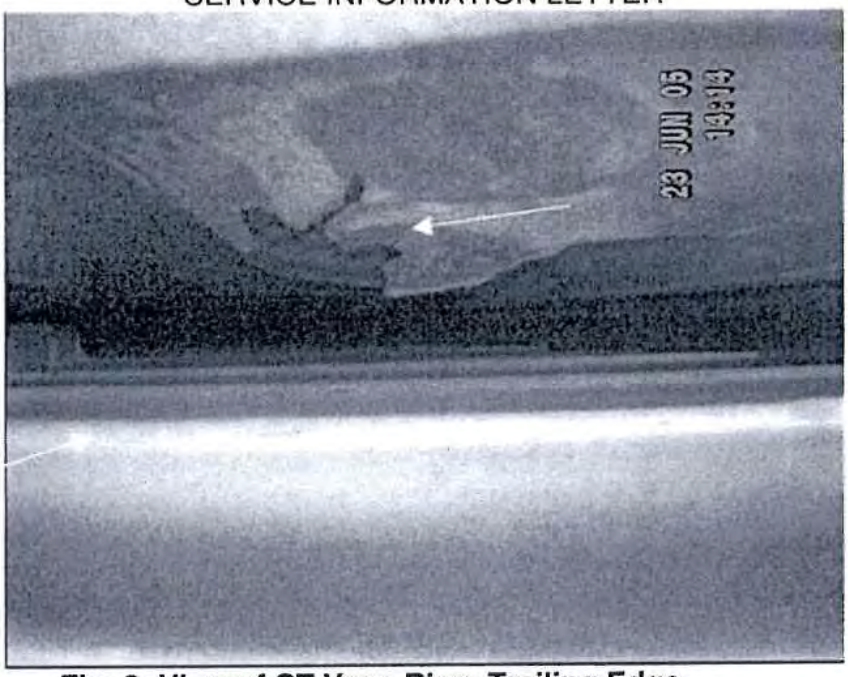


**Fig. 2- View of CT Vane Ring Trailing Edge**

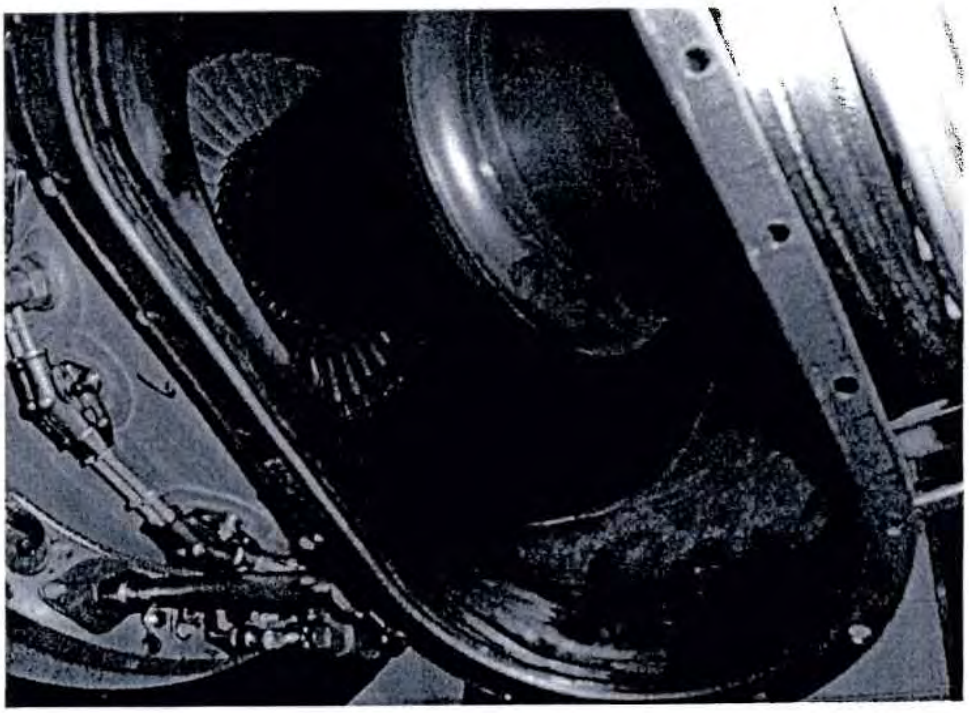

**Fig. 3 – Exhaust Duct Port**

**Fig. 4 - Fiberscope inserted in exhaust duct port**

**Fig.5 – View of Fiberscope inserted between PT blades and distal tips clear of CT blades (For reference only Power Turbine Vane Ring missing)**

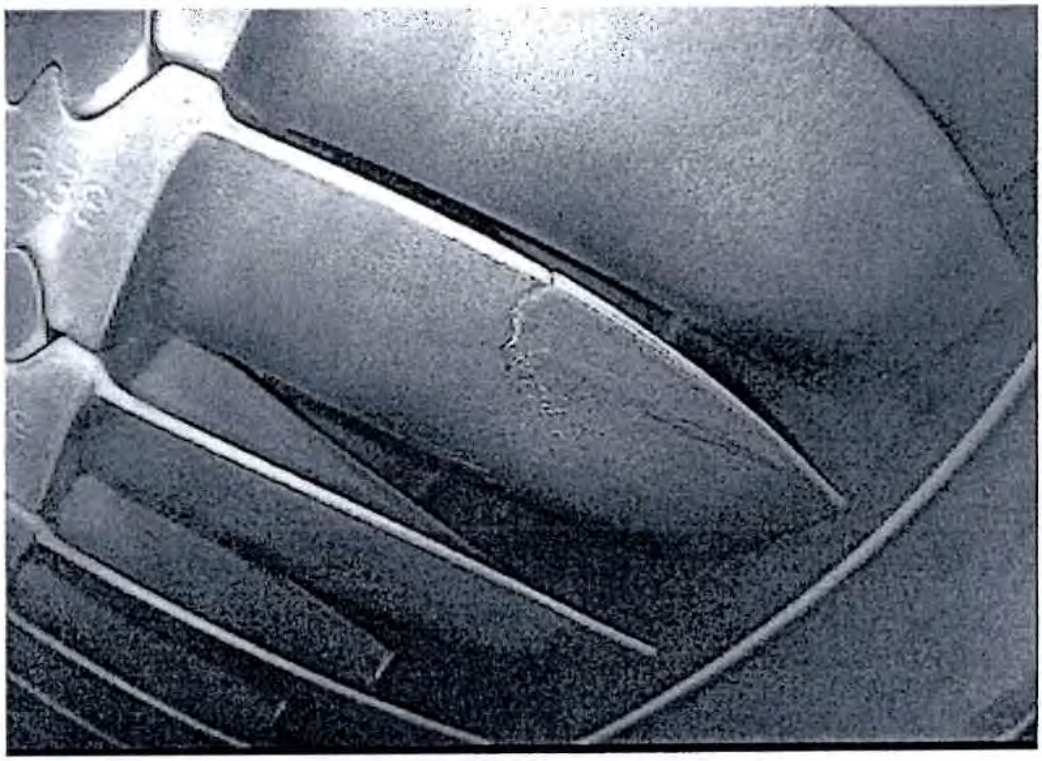

**Fig. 6 –Borescope View of the CT blades obtained through the exhaust duct port and the power turbine stage showing a trailing edge crack**

**Yours truly,**

**PRATT & WHITNEY CANADA CORP.**

**Giovanni Mulas Eng.**
**Manager, Small Turboprop Engines**
**Service Engineering, Customer Support**