

PRATT & WHITNEY CANADA
SERVICE BULLETIN

P&WC S.B. No. 1803R2

BULLETIN INDEX LOCATOR

TURBOPROP ENGINE
OPERATING TIME BETWEEN OVERHAULS AND HOT SECTION INSPECTION FREQUENCY

MODEL APPLICATION

PT6A-6/C20,PT6A-20,PT6A-20A,PT6A-20B,PT6A-21,PT6A-27,PT6A-28,PT6A-135,PT6A-135A

Compliance: Refer to Para. 1.E. in the Service Bulletin

Summary: This Service Bulletin (SB) provides a recommended basic operating Time Between Overhaul (TBO) and specifies a recommended initial Hot Section Inspection (HSI) frequency. Pratt & Whitney Canada (P&WC) turbine engines are required to undergo periodic inspection in accordance with a pre-established schedule in order to ensure serviceability. The TBO and HSI intervals represent the two major scheduled periodic inspections, and are defined in this SB. This SB also provides TBO extension procedures for operators with an average utilization higher than 300 hours/year. The technical content of this service bulletin has been reviewed by and is acceptable to Transport Canada.

Oct 29/2001
Revision No. 2: Jun 02/2008

PT6A-72-1803
Cover Sheet

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02 June 2008

P&WC S.B. No. 1803R2

REVISION TRANSMITTAL SHEET
TURBOPROP ENGINE MODEL PT6A

SUBJECT: Pratt & Whitney Canada Service Bulletin No. PT6A-72-1803, Rev. No. 2, dated Jun 02/2008 (P&WC S.B. No. 1803R2) OPERATING TIME BETWEEN OVERHAULS AND HOT SECTION INSPECTION FREQUENCY

Replace your existing copy of this service bulletin with the attached revised bulletin. Destroy the superseded copy.

Please retain this Revision Transmittal Sheet with the revised bulletin.

SUMMARY: This service bulletin is revised to:

- Delete the reference to the ECTM Analytical Guide and add a reference to S.I.L. GEN-055 to References section, Para. 1.J.;
- add an accessory list and FCU TBO data in Accomplishment Instructions section, Para 3.A. and
- add para 3.A.(1).

EFFECT OF REVISION ON PRIOR ACCOMPLISHMENT:

None.

NOTE: A black bar in the left margin indicates a change in that line of text or figure.

REVISION HISTORY:

Original Issue: Oct 29/2001
Revision No. 1: Nov 13/2001
Revision No. 2: Jun 02/2008

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1. Planning Information

A. Effectivity

PT6A-6/C20
PT6A-20 Engines
PT6A-20A Engines
PT6A-20B Engines.
PT6A-21 Engines.
PT6A-27 Engines.
PT6A-28 Engines.
PT6A-135 Engines.
PT6A-135A Engines.

NOTE: This service bulletin supersedes P&WC S.B. No. 1003 for the models listed. TBO extension recommendations that were approved prior to issue of this SB, per P&WC S.B. No. 1003, revisions 0 to 27, or per AGTOIL 32, are not affected and remain valid, with the conditions, restrictions, and references stated at the time they were provided.

B. Concurrent Requirements

None.

C. Reason

This service bulletin:

- provides a recommended basic operating TBO;
- specifies a recommended initial HSI frequency;
- describes the TBO extension/evaluation process and
- add TBO for the accessories.

D. Description

(1) TBO recommendations take into consideration the average effect of the many variables affecting overhaul life, such as:

- average flight duration;
- percentage of time at any given power level;
- climatic conditions and environment;
- maintenance practices;
- utilization; and
- engine modification standards.

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1. Planning Information (Cont'd)

- (2) Under extreme conditions of very low utilization, along with frequent operation in salt water, heavy sand, or dust environments, periodic inspections per the applicable maintenance instructions may indicate maintenance action prior to the recommended overhaul life.
- (3) The TBO interval may be extended with the approval of the operator's Airworthiness Authority. The minimum requirements for engine TBO extension or for fleet TBO extension are described in the Para. 3. Accomplishment Instructions.

E. Compliance

The inspection intervals and overhaul periods provided in this bulletin are the manufacturer's recommendations. Local Airworthiness Authorities normally require operators to follow these recommendations unless alternative arrangements are made between the operator and the manufacturer, and then approved by the operator's Airworthiness Authority.

F. Approval

Transport Canada has reviewed and approved the technical contents of this Service Bulletin.

NOTE: The service life values quoted herein are determined by the limiting values stated on the Pratt & Whitney Canada (P&WC) drawings which form part of the Department of Transport Aircraft Engine Type Approval for the applicable engine model. These limiting values are based on the use of P&WC recommended components installed on/in the engine. Use of other than P&WC recommended components may reduce the life limits.

G. Weight and Balance

None.

H. Electrical Load Data

Not changed.

I. Software Accomplishment Summary

Not applicable.

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1. Planning Information (Cont'd)

J. References

Applicable PT6A Technical Manuals
Deleted
Service Information Letter No. GEN-055
P&WC S.B. No. 1002 and 1404
Service Information Letter No. PT6A-107

K. Publications Affected

None.

L. Interchangeability and Intermixability of Parts

Not applicable.

2. Material Information

A. Industry Support Information

Not applicable.

B. Material - Cost and Availability

Not applicable.

C. Manpower

Not applicable.

D. Material Necessary for Each Engine

Not applicable.

E. Reidentified Parts

None.

F. Tooling - Price and Availability

Not applicable.

3. Accomplishment Instructions

A. Basic TBO Recommendations:

NOTE: The rotor component life limitations of P&WC S.B. No.1002 override TBO considerations.

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3. Accomplishment Instructions (Cont'd)

- (1) **For the PT6A-135 and PT6A-135A**
Power turbine blades P/N 3027002 marked with heat code H-155 or H-156 must be discarded at customer's convenience, but not later than next engine overhaul.
- (2) The basic industry TBO is 3600 hours.
- (3) The basic TBO can be extended, subject to the approval of the operator's Airworthiness Authority (Ref. Para. 3.B.).
- (4) The Hamilton Sundstrand fuel pump may be operated to the engine TBO (basic or extended, as applicable).
- (5) The engine accessories that follow may be operated to the engine TBO (basic or extended, as applicable) plus 500 hours.

FCU

Fuel Heater

Propeller Governor

Ignition Exciter

Compressor Bleed Valve

Flow Divider/Starting Control Installation

Fuel Pump (Argo-Tech only)

Where accessories are removed (for repair or other reason) and subsequently reinstalled, operating time since new or overhaul must be recorded on the repair tag.

B. TBO Extension Recommendations:

NOTE: The TBO established by individual operators and/or for individual engines is independent of the TBO published for the industry.

- (1) For operators with an average utilization higher than 300 hours/year, P&WC can provide recommendations for TBO extensions by one of the two options that follow:
 - (a) **Option A - Fleet TBO Extension:**
An operators' full fleet of similarly operated and maintained engines, covered by this SB, can have its TBO escalated in 500-hour increments based on a review of the condition of the hardware from an engine inducted for overhaul. The recommendation is based on a satisfactory overhaul sample. Refer to the Appendix Para. A

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3. Accomplishment Instructions (Cont'd)

(b) **Option B - Engine-Specific TBO Extension:**

The TBO of an individual engine can be increased, subject to the evaluation of the configuration, condition and method of operation of this engine. Refer to the Appendix Para. B

(2) General considerations for TBO extensions:

NOTE: TBO extensions do not have an effect on the applicable Warranty and Service Policy originally supplied with the engine. P&WC will continue to use the basic industry TBO (refer to Para. 3.A.(1)) to calculate the pro-rata credit and the benefits per the Primary Parts Service Policy and/or the Extended Engine Service policy.

(a) A TBO extension recommendation from P&WC is based on both the operator's procedures and experience and on P&WCs experience. P&WCs experience is based on:

- 1 Engines built only with new P&WC recommended components, components refurbished by P&WC-owned shops, or components refurbished by P&WC-recommended shops per P&WC procedures.
- 2 Factory built engines or engines overhauled/repared at a P&WC service center or a P&WC distributor and designated overhaul facility (DDOF).
- 3 As P&WCs experience grows the TBO extension requirements and limitations may be adjusted accordingly.

(b) TBO extensions incorporate limitations on the life of certain components. The operator and/or the Maintenance Organization (M.O.) selected by the operator must have a system to log the total accumulated time, i.e. Time Since New (TSN), and the Time Since Overhaul (TSO) of the following assemblies and components :

- 1 Gas generator section and power section.
- 2 Cyclic life limited rotating components (Ref. P&WC S.B. No. 1002).
- 3 Other rotating components as follows:
 - the mainline bearings (bearings 1, 2, 3, and 4),
 - the compressor turbine blades,
 - the power turbine blades,
 - the first stage sun gear, and

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3. Accomplishment Instructions (Cont'd)

- the first stage planet gears.

4 The accessories listed in the Appendix Table 2.

- (c) An engine maintains its TBO extension recommendation on either program as long as it is operated within the limitations of the relevant engine and aircraft operating manuals and is maintained in accordance with the appropriate P&WC maintenance manual and the terms of this SB.

NOTE: P&WC reserves the right to withdraw a TBO recommendation in instances where engine abuse or non-compliance with this recommendation are reported.

- (d) If the engine was put in storage or was unused for an extended period in the time since its last overhaul (or since new if not previously overhauled), there must be documented evidence that the engine has been preserved per the engine maintenance manual.
- (e) Recommendations are not transferable between operators except under circumstances described in Para. 3.C.
- (f) Recommendations for extension are subject to limitations including the maximum numbers of years between overhauls.
- (g) TBO extension recommendations from P&WC are subject to fees per Service Information Letter (SIL) PT6A-107.
- (3) Configuration requirements for engines on TBO Extensions:
- (a) **General**
Recommendations for extended TBOs are provided on the basis of an improved engine configuration and an enhanced level of maintenance control on the part of the operator. This requires the incorporation of certain SBs and the refurbishment or replacement of certain components at specific intervals.
- (b) **Eligibility**
- 1 For engines on fleet extension (Option A), the condition of the engines examined at overhaul is the primary means of validating that the specific owner is operating and maintaining the engines in a manner that warrants extending the TBO interval for the specific fleet. To ensure that engine durability is maintained as the engines are operated into their subsequent overhaul intervals, P&WC recommends that the SBs and the component service interval limitations (Ref. Para. 3 and 4) be applied at the subsequent overhaul or at a convenient opportunity prior to overhaul.

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3. Accomplishment Instructions (Cont'd)

2 For engines under the engine specific extension program (Option B), the SBs and the component service interval limitations (Ref. Para. 3 and 4) apply at induction and through the applicability of the program

3 Recommended Engine Configuration Standard:
(Incorporate at the next overhaul for engines under Option A and at program induction for engines under Option B)

P&WC S.B. No. 1316	Fuel Pump Coupling
P&WC S.B. No. 1348	CT Vane Ring
P&WC S.B. No. 1397	Planet Gear Filters
P&WC S.B. No. 1404	Bronze Bushings
P&WC S.B. No. 1416	Reversing Lever Guide Pin Bracket
P&WC S.B. No. 1427	PT Containment Ring
P&WC S.B. No. 1430	Exhaust Duct & #3 Bearing Cover
P&WC S.B. No. 1434	Combustion Chamber & Large Exit Duct
P&WC S.B. No. 1446	External Scavenge Pump
P&WC S.B. No. 1492	FCU Actuating Lever

NOTE: For accessories, refer to Table 2 in Appendix Para. D.

4 Component Life Limit Intervals :
(Components that reach their limit must be replaced at the next overhaul for engines under Option A and immediately for engines under Option B)

Bearings No. 1, 2, 3, & 4	12,000 hrs TSN
1st stage planet gears	12,000 hrs TSN
Power turbine blades	12,000 hrs TSN
1st stage sun gear	12,000 hrs TSN

C. Transfer of TBO Extension Recommendations

TBO extensions by either the fleet extension or the engine specific method are valid only as long as the operator, the M.O., and the typical mission remain unchanged. The following conditions apply for P&WC to transfer the recommendation to a new M.O., a new operator, or a new application (typical mission):

NOTE: For changes limited to the selection by the operator of a new M.O., the change will have no effect if the maintenance plan remains unchanged and the newly selected M.O. is already supporting operators who have approval for engines covered by this SB and to the same or higher TBO.

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3. Accomplishment Instructions (Cont'd)

(1) **For Option A only (Ref. Appendix Para. A):**

For changes for an engine operating under a fleet extended TBO, P&WC uses a pro-rating formula. This formula is generally recognized by regulatory authorities. The TBO applicable to an engine in these circumstances is the average of the fleet TBO formerly applicable and the fleet TBO separately established for the new combination of operator, M.O. and mission for the same engine models. It is then weighted on the basis of the time remaining to overhaul under the original operation. The formula for this purpose is:

$$X = Y * a/b$$

where X = time remaining to overhaul on new program (buyer's TBO)

Y = time remaining to overhaul on previous program (seller's TBO)

a = TBO interval on new program (buyer's TBO)

b = TBO interval on previous program (seller's TBO)

Example: An aircraft is transferred (by sale or lease) between two operators. The previous operator's TBO is 8,000 hours and the new operator's TBO is 5,000 hours and the engine has a time since overhaul (TSO) of 6,000 hours

Time remaining to overhaul on the previous program:

$$Y = 8,000 - 6,000 = 2,000 \text{ hours.}$$

Time remaining to overhaul on the new program:

$$X = Y * a/b$$

$$X = 2,000 * 5,000/8,000 = 1,250 \text{ hours}$$

(2) **For Option B only (Ref. Appendix Para. B):**

For changes for an engine registered under the P&WC engine-specific TBO extension program, the operator/owner can apply to P&WC for a transfer. If the operator, its mission, and its M.O. are already established as eligible for the engine models per this SB, no further action will be required. Otherwise, it is necessary to establish the eligibility of the new operator, application, and/or M.O. before the recommendation can be extended to these new conditions.

D. HSI Frequency

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3. Accomplishment Instructions (Cont'd)

- (1) P&WC recommends to do the HSI within 50 EFH of the scheduled HSI interval. The HSI interval does not increase, as the TBO is extended.
 - (2) The scheduled HSI interval is 1800 hours.
 - (3) Alternatively, the HSI frequency may be based on Engine Condition Trend Monitoring in accordance with the Service Information Letter (SIL) Gen-055 Guidelines and Standards for Utilizing the Engine Condition Trend Monitoring (ECTM[®]) software for the model concerned.
 - (4) If trend monitoring is introduced part way through engine life, a compressor wash and HSI must be accomplished to establish a performance base line.
- E. The compressor turbine disk and blade set must be sent for an inspection per the overhaul manual instructions at the intervals that follow:
- NOTE: This inspection must include Non Destructive Testing (NDT) and stretch measurement.
- (1) Compressor turbine disk with full set of new blades installed at last shop visit, inspect within 5,000 hours.
 - (2) Compressor turbine disk with full or partial set of previously run compressor turbine blades installed, inspect within 3,000 hours since last compressor turbine blade inspection.
- F. For PT6A-27 engines, the compressor turbine blades P/N 3120011-01 cannot be stretch measured per the overhaul manual. The life limit of these blades is 5,000 hours.
- G. Pre-SB1404:
First-stage reduction planet gear bearings must be replaced at each and every overhaul, or 8,000 hours, whichever occurs first.
- H. P&WC will no longer endorse requests for on-condition programs on the PT6A models.
- I. Contact the local P&WC Field Service Representative (FSR) for additional information.

NOTE: 1. P&WC FSRs are listed on the internet at www.pwc.ca.

NOTE: 2. The P&WC Customer Help Desk may also be contacted to get the name of the local FSR:

- 1-800-268-8000 (Toll free in Canada or continental US only);
- 8000-268-8000 (International toll free, where available);

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3. Accomplishment Instructions (Cont'd)

- 1-450-647-8000.

4. Appendix

A. Option A -Fleet TBO Extension by Overhaul Sample Evaluation

- (1) P&WC may provide extension recommendations for the TBO of an operator's fleet of similarly operated and maintained engines, based on the evaluation of the condition of the hardware from engines sent for overhaul.

- (2) The time limits applicable under this program are as follows:

TBO Limit: 8,000 hrs for single-engine applications
 10,000 hrs for twin-engine applications

Calendar Limit: Engines may operate at the extended TBO for a maximum period of 12 years since overhaul, or as otherwise agreed in writing by P&WC.

- (3) Normal TBO extension recommendations are 500 engine flight hours (EFH) per sample submitted. For fleets of more than 10 engines, two samples are required for recommendations above 8,000 EFH.

- (4) Requirements applicable to the sample(s):

NOTE: In order to request a TBO extension recommendation, operators should submit a formal request in writing, through their DDOF, together with sample engine serial number and evaluation report to:

Pratt & Whitney Canada Corp.
Mail Code: 01RN5
1,000 Marie-Victorin
Longueuil Quebec
Canada J4G 1A1

Attention: Manager, Turboprop Customer Solutions and Reliability

- (a) The sample must have a time since overhaul that is within 250 hours of the current TBO period. Engines that have more hours than the current P&WC recommended TBO are also acceptable but the extension will be based on the currently recommended P&WC TBO.
- (b) The sample must have been operated by the current operator for the majority of the TBO period (i.e. for more than 50% of the current TBO interval).
- (c) The sample engine must not have had a shop visit for major repairs (overhaul manual level) during the current TBO interval (i.e. only Maintenance Manual level tasks and repairs have been carried out).

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4. Appendix (Cont'd)

- (d) The operator has requested a TBO evaluation and has submitted a completed TBO Evaluation Sample Request Form (Ref. Fig. 1)
 - (e) The owner/operator can make a request for a TBO contingency of up to 200 EFH directly to their Airworthiness Authority, for the remaining engines in the fleet. This will permit continued operation beyond the current TBO interval, while the sample engine is evaluated and overhauled, provided that engine performance remains satisfactory, in accordance with the applicable P&WC maintenance manual.
 - (f) For previously submitted samples that were rejected, operators must present what actions were taken to correct the situation.
 - (g) The sample engine must be sent to a P&WC DDOF for the TBO evaluation. The evaluation requires the engine to be disassembled and reviewed, prior to cleaning the hardware, to determine if the condition of the parts is such that they could have stayed in service for another 500 EFH. The P&WC DDOF will forward the evaluation report to P&WC for review and request a TBO extension. In exceptional circumstances, P&WC can arrange the presence of a P&WC field service representative at the Operator's facility. A successful sample will result in a letter from P&WC to the operator stating that a TBO extension of 500 EFH is recommended, subject to the approval of the operator's Airworthiness Authority.
- NOTE:** When shipping an engine to a P&WC DDOF as a sample, operators should state that it is a sample and request a TBO extension evaluation report.
- (5) The extended TBO can apply to other eligible engines in the operator's fleet covered by the same TBO SB. Refer to Table 1.

TABLE 1, Eligible Engines (Fleet)

Sample Submitted	Recommendation Applies to:
PT6A-20 or PT6A-20A	PT6A-20, PT6A-20A
PT6A-21	PT6A-21
PT6A-27	PT6A-21, PT6A-27
PT6A-28	PT6A-21, PT6A-27, PT6A-28
PT6A-135 or PT6A-135A	PT6A-135, PT6A-135A

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TBO Evaluation Sample Request Form

REQUESTING PARTY DATA

Company name: _____ (owner of engine)
Company address: _____

Telephone number: _____
Facsimile number: _____
Company contact: Mr./Mrs. _____
Title: _____
Telephone number: _____ Ext.: _____ (If other than company number)
Maintenance Facility: _____ (if other than owner)
Contact name: _____
Title: _____
Telephone number: _____
Facsimile number: _____

SAMPLE ENGINE DATA

- Engine Model _____ Engine Serial Number: _____
- Total time since new: _____ hours
- Total time since overhaul: _____ hours
- Current Operator TBO _____ hours
- Was this sample engine operated by the requesting party for the totality of the specified TBO period? Yes ___ No ___
If not, please provide the total hours accumulated by the requesting party during this last TBO period. _____ hours
- Did this engine undergo major repair (requiring removal from aircraft) during this last TBO period? Yes ___ No ___
If yes, please provide details of repair performed:
 1. Reason for removal _____
 2. Total time (since overhaul if applicable) of sample engine at time of major repair _____ hours
 3. List of parts replaced by the repair agency who performed the repair _____

If this sample does not meet the minimum eligibility criteria listed in page 1 of this form, please explain why you believe that the engine should still be considered as an eligible sample for the TBO evaluation process. Include attachments as necessary.

I understand that the sample engine submitted for the purpose of TBO evaluation must meet minimum eligibility criteria for it to be considered as an acceptable sample.

I hereby attest that the information provided herein is exact to the best of my knowledge and that I may be requested to provide additional data to support the sample engine's eligibility to this program.

Completed by: _____ Date: _____

C72341

TBO Evaluation Sample Request Form
Figure 1

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4. Appendix (Cont'd)

- (6) The TBO extension process can be repeated when the next engine reaches the new escalated TBO interval.
- (7) Certain circumstances can warrant a higher TBO increase increment. These will be reviewed on a case by case basis upon written request.
- (8) P&WC reserves the right to request additional information on the sample condition, or further TBO extension samples, and this request does not herein imply that P&WC will automatically recommend the extension.

B. Option B - Engine Specific Extension by Evaluation of Configuration, Condition and Operation

(1) General

TBO extensions can be recommended under this option for specific engines based on a full evaluation of their configuration, condition, and operation. Operators and engines must meet minimum eligibility criteria and the engines must be individually registered into the P&WC engine-specific TBO extension program, and maintained per specific procedures set forth hereunder. Registration is recommended as early as possible when new or after overhaul, but is not subject to a time limit other than the maximum limits of this program. Refer to Para. 4.B.(3).

(2) Missions that are not Eligible

The following missions are not considered applicable to this program:

- (a) Agricultural
- (b) Skydiving operations
- (c) Other missions which involve an unusually high ratio of cycles to flight hours or unusually protracted use of high power may not be eligible.

NOTE: For confirmation of eligibility, please refer the proposed mission to P&WC, attention PT6A Customer Solutions.

(3) Time Limits

Hour limits:	3,000 hrs. since mid-life inspection (Ref. Para. 4.B.(5))
	6,000 hrs. since overhaul
Calendar limit:	6 yrs. since mid-life inspection
	12 yrs. since overhaul.

(4) Eligibility - Operator, Maintenance Organization, and Engines:

To be eligible to request an engine TBO extension recommendation, an operator must provide evidence that the operator's Maintenance Organization (M.O.) has addressed the following maintenance procedures:

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4. Appendix (Cont'd)

- (a) The M.O. must be capable of performing all line maintenance activities, including all activities listed in the maintenance manual, periodic inspection table, borescopic inspection, compressor and turbine washing, etc. It must also be capable of, or have access to, other aircraft maintenance that can have an effect on the durability of the engine, such as instrumentation calibration and propeller balancing. To demonstrate capability, the M.O. must have available all the applicable tooling and must have personnel specifically trained to perform these tasks and/or must have service contracts with facilities that have such applicable tooling and trained personnel.
- (b) The operator/M.O. must have a quality system that records all snags and maintenance activities related to the operation of the engine. This also applies to engine-mounted aircraft accessories such as the propeller, the overspeed governor, and the starter-generator. Records must be available for review by P&WC on request.
- (c) Engines must meet and maintain configuration requirements per Para. 3.B.(3).
- (d) Records for engine events that required unscheduled inspections must be available for review by P&WC. This is to ensure compliance with all maintenance manual requirements.
- (e) P&WC recommends that the aircraft is equipped with an approved exceedance and engine monitor. P&WC will provide a list of currently available monitors on request.

(5) Mid-Life Inspection

Engines registered in the engine specific TBO extension program are subject to a mid-life inspection. Requirements need not be carried out concurrently but must have all been carried out within 3,600 hours TSN/TSO or at program registration. When scheduling this inspection, operators must also consider other limitations such as the time limits per 3.D., 3.E., 4.B.(3), and cyclic limits per P&WC S.B. No. 1002. Do the inspection as follows:

NOTE: 1. A P&WC DDOF facility/representative or an M.O., that meets the requirements of this SB for this operation, must do this inspection.

NOTE: 2. Unless otherwise specified, maintenance manual procedures and limits apply.

- (a) Verify compliance with all applicable inspection SBs.
- (b) Do a full hot section inspection, including all applicable requirements described in the maintenance manual (72-00-00). The exposed gas generator surfaces must be free of corrosion and all missing diffuser ducts must be replaced. Turbine blades must show no or minimal sulphidation (stage 1 maximum).

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4. Appendix (Cont'd)

- (c) Do the CT disc assembly overhaul level inspection (Ref. Para. 3.E.) at this time. An overtemperature exposure check per the overhaul manual (72-50-02, Light Overhaul, Overtemperature, Category B (All Conditions Other than Starting)) is also recommended, especially for single-engine applications.
- (d) Inspect the power turbine per the maintenance manual. Blades must show no or minimal sulphidation (stage 1).
- (e) Make sure the compressor is free of corrosion.
- (f) Repair compressor foreign object damage (FOD).
- (g) Inspect the AGB starter generator drive pad splines for wear.
- (h) Make sure the external surfaces meet all corrosion and damage requirements. Repair gas generator and cast housing surfaces with touch-up paint. Clean and inspect the gas generator drain valves.
- (i) Remove and inspect the external pneumatic hoses and tubes (Px and Py tubes) for cracks or other damage. Tubes must show no signs of deformation (compared to a new tube).
- (j) Perform all oil system checks, for example:
 - MOP setting;
 - Torquemeter functional check.
- (k) Accessories require inspection per Appendix Table 2.
- (l) Inspect all controls, linkages, leads and connectors for chafing, corrosion, cracks. Do all controls adjustments and checks specified in the maintenance manual (71-00-00, Power Plant - Adjustment/Test).
- (m) Check the calibration of all engine related instrumentation (ITT, Tq, Ng, Np). Refer to the applicable Aircraft Maintenance Manual (AMM).
- (n) Engine performance after this inspection must meet the aircraft power assurance requirements with a minimum of 20°C (36°F) ITT margin and 200 rpm Ng margin.

NOTE: A lower temperature margin can be acceptable for the PT6A-20 and PT6A-21 series engines if approved by the facility/representative that does the mid-life inspection.

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4. Appendix (Cont'd)

(6) Operation and maintenance requirements after registration in the program. Maintain the engine per the engine and/or aircraft maintenance manual. In addition, an approved maintenance plan will include the items that follow:

- (a) Monitor the engine performance as per the ECTM[®] program, including a weekly data review by technicians trained to do this task.
- (b) Wash the engine compressor and turbine at intervals that are consistent with the environment in which the engine operates. Refer to the maintenance manual (71-00-00, Power Plant - Cleaning).

NOTE: Contact the local P&WC FSR for information on the best interval .

- (c) At the periodic fuel nozzle inspection, record the nozzle positions per the applicable maintenance manual. Do a borescope inspection of the hot section area in line with any nozzle found unserviceable.

NOTE: For nozzle assemblies on an exchange program, do the inspection within 400 hours of removal.

- (d) Inspect the compressor first stage blades for FOD at an interval not more than 500 hours or one year and blend per the maintenance manual.
- (e) Do all control adjustments and checks annually per the maintenance manual (71-00-00, Power Plant - Adjustment/Test).
- (f) Balance the propeller per the aircraft maintenance manual or the propeller Component Maintenance Manual (CMM) at an interval not more than 1,000 hrs or one year
- (g) Check the calibration of all engine related instrumentation at intervals not more 1,000 hrs or one year per the aircraft maintenance manual. (ITT, Tq, Ng).
- (h) Supply a report each year to P&WC with a status update relative to these requirements.
- (i) Additional requirements, such as engine vibration monitoring, may be specified at a later time by revision to this SB.

(7) Mission Consistency

The mission that the engine is used for and the area of operation must remain as specified at the time of induction. (Ref. Para. 3.C.).

C. Transfer from one TBO Extension Option to the Other

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4. Appendix (Cont'd)

- (1) Operators that have extended their fleet TBO per Option A, or through the provisions of P&WC S.B. No. 1003 prior to October 2001, may apply for an individual engine TBO extension per Option B. Refer to Para. 4.B.
- (2) Operators that have extended the TBO of individual engines per Option B may consider submitting these engines as samples per Option A. Refer to Para. 4.A.
 - (a) Each acceptable sample provides a fleet extension of 500 hours relative to the current P&WC recommended fleet TBO for the operator.
 - (b) The recommendation will apply to engines in the fleet that meet requirements per Option B. Refer to Para. 4.B.
 - (c) Recommendations in cases where some of the samples submitted were not in satisfactory condition may be lower and/or take into consideration corrective actions put in place.

D. Requirements for Accessories

NOTE: Refer to the service bulletin for engine model applicability.

TABLE 2, Accessories

System Accessory	Recom- mended Configuration (See Note)	Mid-Life Requirement (Option B only)	Other Requirements
Propeller Governor	SB1470	Shop Functionality Check	
Fuel Heater		Shop Functionality Check Replace element packings	
Fuel Pump		Shop Functionality Check Replace Pump to FCU coupling	
Fuel Control Unit	SB1561	Per Honeywell SIB 053, replace drive shaft bearings, clean pneumatic section and re-calibrate	For more severe environmental conditions, incorporate mid-life requirements at 2,000 and 4,000 hrs.

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4. Appendix (Cont'd)

TABLE 2, Accessories (Cont'd)

System Accessory	Recom- mended Configuration (See Note)	Mid-Life Requirement (Option B only)	Other Requirements
T2 Compensator		Clean pneumatic section and re-calibrate	For severe environmental conditions, incorporate mid-life requirements at 2,000 and 4,000 hrs.
Start Control		Shop Functionality Check	
Flow Divider		Shop Functionality Check	
Automatic Fuel Dump Valve		Shop Functionality Check	
Fuel Nozzles	SB1396	Overhaul (Except for nozzles on an exchange program)	
Governor Free Turbine		Shop Functionality Check	
Bleed Off Valve	SB1581	Replace diaphragm, clean and re-calibrate	Inspect per the MM annually
T5 Harness		Inspect per MM	
T5 Thermocouple		Inspect per MM	
T1 Thermocouple		Inspect per MM	

NOTE: Incorporate at the next overhaul for engines under Option A and at program induction for engines under Option B.