PRATT & WHITNEY CANADA

SERVICE BULLETIN

P&WC S.B. No. 1001R35

BULLETIN INDEX LOCATOR

TURBOPROP ENGINE
APPROVED LISTING OF (SYNTHETIC) LUBRICATING OILS

MODEL APPLICATION

PT6A-6, PT6A-6A, PT6A-6B, PT6A-6/C20, PT6A-20, PT6A-20A, PT6A-20B, PT6A-21, PT6A-25, PT6A-25A, PT6A-25C, PT6A-27, PT6A-28, PT6A-34, PT6A-34AG, PT6A-34B, PT6A-35, PT6A-36, PT6A-114, PT6A-114A, PT6A-135, PT6A-135A

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

Summary: This service bulletin provides a list of acceptable synthetic lubricating oils.

Dec 01/1973
Revision No. 35: Apr 14/2020

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Pratt & Whitney Canada
A United Technologies Company

14 April 2020

P&WC S.B. No. 1001R35

REVISION TRANSMITTAL SHEET
TURBOPROP ENGINE MODEL PT6A

SUBJECT: Pratt & Whitney Canada Service Bulletin No. PT6A-72-1001, Rev. No. 35, dated Apr 14/2020 (P&WC S.B. No. 1001R35) APPROVED LISTING OF (SYNTHETIC) LUBRICATING OILS

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 Destroy the superseded copy.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 revision is issued to:

- add “Type I” and “5 cSt - Type II” in step 2 in Para. 1.D., Planning Information.
- add “Type I” and “Type II” in Para. 3.A., Accomplishment Instructions.
- modify step 2 in Para. 3.D., Accomplishment Instructions.
- add note in step 2 in Para. 3.D., Accomplishment Instructions.
- add “Type I” and note in Table 2 in Para. 3.D., Accomplishment Instructions.
- add Table 5 in Para. 3.D., Accomplishment Instructions.
- add SIL reference in Para. 1.K., Planning Information.

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: Dec 01/1973	Revision No. 3: Jun 21/1975	Revision No. 6: Dec 21/1976
Revision No. 1: May 15/1974	Revision No. 4: Nov 10/1975	Revision No. 7: Apr 26/1977
Revision No. 2: Aug 30/1974	Revision No. 5: Sep 07/1976	Revision No. 8: Nov 04/1977

Revision No. 9: Sep 05/1978
Revision No. 10: Nov 05/1979
Revision No. 11: Dec 15/1980
Revision No. 12: Oct 26/1981
Revision No. 13: Apr 16/1982
Revision No. 14: Apr 15/1983
Revision No. 15: Jun 28/1984
Revision No. 16: Oct 25/1984
Revision No. 17: Jan 29/1985
Revision No. 18: Jan 29/1987
Revision No. 19: Sep 02/1987
Revision No. 20: Jan 15/1990
Revision No. 21: Jan 30/1991
Revision No. 22: Apr 19/2000
Revision No. 23: Mar 12/2002
Revision No. 24: Nov 12/2004
Revision No. 25: May 30/2012
Revision No. 26: Jun 15/2012
Revision No. 27: Oct 18/2012
Revision No. 28: Dec 14/2012
Revision No. 29: Jul 08/2014
Revision No. 30: Mar 20/2015
Revision No. 31: Sep 09/2015
Revision No. 32: Feb 04/2016
Revision No. 33: May 11/2016
Revision No. 34: Jul 15/2019
Revision No. 35: Apr 14/2020

PRATT & WHITNEY CANADA

SERVICE BULLETIN

P&WC S.B. No. 1001R35

TURBOPROP ENGINE
APPROVED LISTING OF (SYNTHETIC) LUBRICATING OILS

1. Planning Information

A. Effectivity

PT6A-6, PT6A-6A, PT6A-6B, PT6A-6/C20, PT6A-20, PT6A-20A, PT6A-20B, PT6A-21, PT6A-25, PT6A-25A, PT6A-25C, PT6A-27, PT6A-28, PT6A-34, PT6A-34AG, PT6A-34B, PT6A-35, PT6A-36, PT6A-114, PT6A-114A, PT6A-135, PT6A-135A Engines.

B. Concurrent Requirements

None.

C. Reason

To assure the use of approved engine lubricants and to recommend an oil change policy.

NOTE: Major factors affecting oil deterioration with time are engine mechanical condition, climatic conditions, dust and sand ingestion during takeoff and landing mode and engine utilization.

D. Description

(1) To provide a list of acceptable synthetic lubricating oils for the subject model engines.

(2) Oil to be mixed must be of the same viscosity and must be listed as approved oils for these engine models. Oils listed in Tables 3 and 4 of this service bulletin are 5cSt viscosity and can be mixed together. Mixing oil of different viscosities is not allowed. Oils from Table 2 (7.5 cSt - Type I) cannot be mixed with the oils listed in Tables 3 and 4 (5 cSt - Type II).

(3) Occasional or inadvertent adding of a different approved type II (Ref. Tables 3 and 4) oil during routine servicing of the oil tank does not require oil drain and flush.

E. Compliance

Pratt & Whitney Canada Inc. recommends that Compliance conforms to the requirements of the Accomplishment Instructions.

F. Approval

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

G. Manpower

Not applicable.

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TURBOPROP ENGINE
APPROVED LISTING OF (SYNTHETIC) LUBRICATING OILS

1. Planning Information (Cont'd)

H. Weight and Balance

None.

I. Electrical Load Data

Not changed.

J. Software Accomplishment Summary

Not applicable.

K. References

Maintenance Manual P/N 3015442 (PT6A-6, PT6A-6A, PT6A-6B, PT6A-20, PT6A-20A, PT6A-20B)
Maintenance Manual P/N 3013242 (PT6A-21, PT6A-27, PT6A-28)
Maintenance Manual P/N 3027542 (PT6A-25, PT6A-25A)
Maintenance Manual P/N 3032142 (PT6A-25C)
Maintenance Manual P/N 3021242 (PT6A-34, PT6A-34AG, PT6A-34B, PT6A-36)
Maintenance Manual P/N 3043512 (PT6A-114, PT6A-114A, PT6A-135, PT6A-135A)
Maintenance Manual P/N 3058362 (PT6A-35)
Specification MIL-PRF-23699 latest revision, Type II (5cSt)
Special Airworthiness Information Bulletin (SAIB) NE-14-30
SIL PT6A-231

L. Publications Affected

None.

M. Interchangeability and Intermixability of Parts

Not applicable.

2. Material Information

A. Industry Support Information

Not applicable.

B. Material - Cost and Availability

Not applicable.

C. Material Necessary for Each Engine

Not applicable.

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2. Material Information (Cont'd)

D. Reidentified Parts

None.

E. Tooling - Price and Availability

Not applicable.

3. Accomplishment Instructions

A. The oils listed in Table 2 comply with this contractor's specification CPW202 (7.5 Centistokes - Type I). The oils listed in Tables 3 and 4 comply with specification MIL-PRF-23699 (5 Centistokes - Type II). These oils are fully approved for use in Pratt & Whitney Canada commercially operated engines of the models indicated.

B. No other oils are approved for these models. Should the use of an oil not listed be desired, the intended user should contact Pratt & Whitney Canada, Customer Support Department, for consultation.

C. The limits for the use of Oil additives are as follows (Ref. Table 1):

(1) Octel Oil Blue B Liquid Dye (previously DuPont Oil Blue dye LCPMC 79922) can be added to new "fresh" (MIL-PRF-23699) synthetic lubricating oil in the strength of: 0.1219-0.1707 ml/ liter of oil or 0.0156-0.0218 oz/U.S. Gallon. The volume of blue dye in fresh synthetic oil is 25-35 ml/205 l (45 Imp. Gallon) of oil and should never exceed 35 milliliters/205 liters. P&WC recommends to add blue dye to engine oil on a one time basis when filling the engine oil system. The dye improves sight glass visibility and aids in the detection of oil leaks.

TABLE 1, Lubricating Oil, Blue Dye Concentration

OIL	Quantity of Blue Dye	
	Volume (ml)	Weight (oz)
1 liter	0.1219 - 0.1707	0.0041 - 0.0057
1 US Gallon	0.4614 - 0.6461	0.0156 - 0.0218
1 Imperial Gallon	0.5541 - 0.7760	0.0188 - 0.0262
Drum of 45 US Gallons	20 - 29	0.6763 - 0.9806
Drum of 45 Imperial Gallon (205 Liters)	25 - 35	0.8584 - 1.1835

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3. Accomplishment Instructions (Cont'd)

D. Oil System Servicing

NOTE: P&WC experience, over an extended period of time, has indicated that regular oil changes are no longer necessary for the engine models covered by this service bulletin. However, operators should be aware of the danger of oil contamination from extraneous matter such as hydraulic fluid, sand, etc., which would require the oil system to be drained, flushed and replenished with new oil of an approved brand.

(1) Where operation will result in frequent cold soaking at ambient temperature of 0 Deg. F (-18 Deg. C) or lower, use of a 5 centistoke oil as listed in Tables 3 and 4 is recommended.

CAUTION: DO NOT MIX DIFFERENT VISCOSITIES OR SPECIFICATIONS OF OIL AS THEIR DIFFERENT CHEMICAL STRUCTURE CAN MAKE THEM INCOMPATIBLE.

(2) Should oils of different viscosities become intermixed, if required as per Table 5 below, drain and flush the complete oil system and refill with an approved oil, following the maintenance manual instructions.

NOTE: Type II std (Table 3) is recommended to enable transfer towards Type II HTS oil (Table 4) from original engine Type I oil.

(3) Should an operator wish to monitor oil quality, it is recommended that a program be established in collaboration with the operator's oil supplier/manufacturer.

CAUTION: WHEN CHANGING FROM AN EXISTING LUBRICANT FORMULATION TO A "THIRD GENERATION" LUBRICANT FORMULATION (SEE TABLE 4), P&WC STRONGLY RECOMMENDS THAT SUCH A CHANGE SHOULD BE MADE WHEN AN ENGINE IS NEW OR FRESHLY OVERHAULED.

(4) The term "Third Generation" is one that oil companies have used to describe turbine oils which have been granted the classification of High Thermal Stability (HTS) under MIL-PRF-23699. Any oil designated as a "third generation" lubricant is still a Type II (5 cSt) lubricant. All "Third Generation" lubricants approved for this engine, as described in Table 4, have been classified as HTS oils.

(5) Engine oil is to be changed on condition, and/or if any of the following limits are exceeded. Additional oil system servicing requirements may be applicable (Ref. EMM Chapter 72-00-00, ENGINE, TURBOPROP - INSPECTION Para 8. Periodic Inspection):

(a) Analyze the original engine oil for the following:

- The Total Acid Number (TAN) must be less than or equal 2 mg. KOH/g maximum.

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3. Accomplishment Instructions (Cont'd)

- Kinematics viscosity (at 212 Deg. F (100 Deg. C)) changes from -10 to +25 % maximum when compared to brand new oil from the same batch.
- Water content less than 1000 ppm.

NOTE: 1. Maximum: compared to the unused new oil of the same brand.

NOTE: 2. Draining and replacing with the original oil (same brand/type currently in use) is suggested if one of the above limit is exceeded.

(6) Switching / Change over standard type II with another standard type II, standard type II with HTS or vice versa (Ref. Tables 3 and 4)

(a) For engines with less than 100 hours since new or since complete overhaul of the entire lubrication system hardware, the top-up method or the drain and fill method are acceptable without any additional oil filter inspection or replacement requirement (Ref. EMM 72-00-00, SERVICING, Lubricating Oil System).

(b) For engines with more than 100 hours since new or since complete overhaul of the entire lubrication system hardware, the top-up method is required as follows:

1 Analyze the original engine oil per Para. 3. D. (5), (a), or alternatively drain and replace with original oil (same brand/type currently in use).

NOTE: Not require if unacceptable amount of carbon debris is found and flush is performed per step 4, a below.

2 Inspect main oil filter paying special attention to carbon deposits (Ref. EMM 79-20-02, OIL FILTER & CHECK VALVE - MAINTENANCE PRACTICES).

3 If no carbon debris is found (traces are acceptable) (Ref. Fig. 1), the original oil does not need to be drained and engine does not need to be flushed.

a Top-up the engine oil with candidate oil in accordance with the oil level check (top-up) procedure (Ref. EMM 72-00-00, SERVICING, Lubricating Oil System).

4 If unacceptable amount of carbon debris is found, do as follows:

a Flush engine oil system and refill with original oil (same brand/type currently in use) (Ref. EMM 72-00-00, SERVICING, Lubricating Oil System).

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3. Accomplishment Instructions (Cont'd)

b Top-up the engine oil with candidate oil in accordance with the oil level check (top-up) procedure (Ref. EMM 72-00-00, SERVICING, Lubricating Oil System).

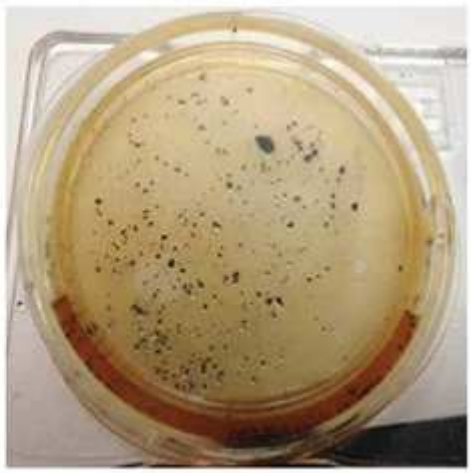
c Inspect main oil filter and clean (Ref. EMM 79-20-02, OIL FILTER & CHECK VALVE - MAINTENANCE PRACTICES) at 50, 100 AND 200 flight hours, paying special attention to carbon accumulation in the filter. If oil filter is clean at 200 hours, reinstate normal periodic inspection intervals (Ref. EMM 72-00-00, ENGINE, TURBOPROP - INSPECTION). If carbon debris is still observed at 200 hours, repeat oil filter inspection and cleaning at 100 hour intervals until no debris is found.

(c) Add/replace the identification to engine AGB next to the oil filler cap and/or on the aircraft service panel to indicate oil brand/type being used for servicing.

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Examples of acceptable amount of carbon debris
Figure 1

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3. Accomplishment Instructions (Cont'd)

TABLE 2, Approved Lubricating Oils (Synthetic), CPW202 - Type I (7.5 Centistokes)

BRAND	SUPPLIER
AeroShell Turbine Oil 750	Shell Canada Products Ltd. 1500 Don Mills Road Don Mills, Ontario, Canada M3B 3K4
	Shell International Petroleum Co. Shell Centre London, SE1 7NA England
Castrol 98	Castrol Speciality Products Div. 16715 Von Karman Ave., Suite 230 Irvine, CA 92714-4918 USA
	Castrol Canada Inc. 3660 Lakeshore Blvd. West Toronto, Ontario, Canada M8W 1P2
	Castrol (U.K.) Ltd. Burmah House Pipers Way Swindon, Berkshire SN3 1RE England
BP Turbo Oil 274 (Original Name) Eastman Turbo Oil 274 (New Name)	Eastman Chemical Company PO Box 431 Kingsport, Tennessee 37660 USA TEL: +1 (423) 229-2000 www.EastmanAviationSolutions.com EMAIL: TurboOil@eastman.com

3. Accomplishment Instructions (Cont'd)

TABLE 2, Approved Lubricating Oils (Synthetic), CPW202 - Type I (7.5 Centistokes) (Cont'd)

BRAND	SUPPLIER
Turbonycoil 35 M	NYCO S.A. 66 Ave. Des Champs Elysee Paris, France 75008 TEL: +33 (0) 1 45 61 50 00 www.nyco.fr/ EMAIL: info@nyco.fr
NOTE: TN35M is not allowed to use on the PT6A-25 engines series. Refer to the SIL PT6A-231.	

3. Accomplishment Instructions (Cont'd)

TABLE 3, Approved Standard Lubricating Oils (Synthetic), MIL-PRF-23699 - Type II (5 Centistokes)

BRAND	SUPPLIER
AeroShell Turbine Oil 500	Shell Canada Products Ltd. 1500 Don Mills Road Don Mills, Ontario, Canada M3B 3K4
	Shell International Petroleum Co. Shell Centre London, SE1 7NA England
Royco Turbine Oil 500	Chemtura Corporation Anderol Division 215 Merry Lane East Hanover, NJ 07936 USA TEL: 1-973-887-7410 www.anderol.com EMAIL: info-anderol@chemtura.com
Mobil Jet Oil II	Exxon Mobil Corporation 3225 Gallows Road Fairfax, Virginia 22037 USA TEL: 1-800-662-4525 www.exxonmobil.com

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3. Accomplishment Instructions (Cont'd)

TABLE 3, Approved Standard Lubricating Oils (Synthetic), MIL-PRF-23699 - Type II (5 Centistokes) (Cont'd)

BRAND	SUPPLIER
Castrol 5000	Castrol Speciality Products Div. 16715 Von Karman Ave., Suite 230 Irvine, CA 92714-4918 USA
	Castrol Canada Inc. 3660 Lakeshore Blvd. West Toronto, Ontario, Canada M8W 1P2
	Castrol (U.K.) Ltd. Burmah House Pipers Way Swindon, Berkshire SN3 1RE England
BP Turbo Oil 2380 (Original Name) Eastman Turbo oil 2380 (New Name)	Eastman Chemical Company PO Box 431 Kingsport, Tennessee 37660 USA TEL: +1 (423) 229-2000 www.EastmanAviationSolutions.com EMAIL: TurboOil@eastman.com
Turbonycoil 600	NYCO S.A. 66 Ave. Des Champs Elysee Paris, France 75008 TEL: +33 (0) 1 45 61 50 00 www.nyco.fr/ EMAIL: info@nyco.fr

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3. Accomplishment Instructions (Cont'd)

TABLE 4, Approved High Thermal Stability (HTS) Lubricating Oils (Synthetic), MIL-PRF-23699 - Type II (5 Centistokes)

BRAND	SUPPLIER
AeroShell Turbine Oil 560 (ASTO 560)	Shell Canada Products Ltd. 1500 Don Mills Road Don Mills, Ontario, Canada M3B 3K4
	Shell International Petroleum Co. Shell Centre London England SE1 7NA TEL: 44-171-934-1234 FAX: 44-171-934-8060
Royco Turbine Oil 560	Chemtura Corporation Anderol Division 215 Merry Lane East Hanover, NJ 07936 United States of America TEL: 1-973-887-7410 www.anderol.com EMAIL: info-anderol@chemtura.com

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3. Accomplishment Instructions (Cont'd)

TABLE 5, Approved Oils

		Added oil			Action
		Type I	Type II std	Type II HTS	
Original oil	Type I (7.5 cSt, Table 2)		X		Drain and Flush. Service with Type I or Type II std
				X	Drain and Flush. Service with Type I or Type II std. See NOTE
	Type II (5 cSt, Table 3)	X			Drain and Flush. Service with Type I or Type II std
				X	No action or continue as per step 6 for oil transition
	Type II HTS (5 cSt, Table 4)	X			Drain and Flush. Service with Type I or Type II std
			X		No action

4. Appendix

Not applicable.

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