

COVINGTON AIRCRAFT ENGINES, INC.

FAA Approved Engine Overhaul Shop No. CP2R750K

Pratt & Whitney

R-985 / Wasp Jr. & R-1340 / Wasp Series

Highway 75N & Airport Road

P.O. Box 1344

Okmulgee, OK 74447

WARRANTY

Engine Type: R-985-AN-14B Serial No.: 210476

Date: December 18, 2018 Customer: Sun Air Parts

This engine is warranted against failure for 100 hours or 120 days, whichever comes first.

In the event of failure during this period, remove engine and ship prepaid back to Covington Aircraft Engines, Okmulgee, Oklahoma, for warranty. This warranty covers only this engine against defective materials and workmanship by Covington Aircraft Engines' employees. This warranty does not cover property damage or injuries caused due to engine failure or any accident related to this engine.

This Warranty is Void

1. If propeller strikes any object causing loss of R.P.M. or sudden stoppage.
2. If any cylinder or magneto is removed off this engine except for defectiveness during operation on this engine.
3. If nose case or rear section is removed without permission from Covington Aircraft Engines.
4. If oil tank is not flushed.
5. If oil cooler isn't changed; when previous engine failed.
6. If engine is ran over 30 seconds without oil pressure.
7. Because of faulty installation.
8. If engine runs out of oil during operation.
9. If the engine is not operated in accordance with Pratt & Whitney Specifications.
10. If oil screen is not cleaned within the first 25 hours and recorded in the Engine log.
11. If engine is hydraulic locked.

COVINGTON AIRCRAFT ENGINES, INC.

FAA Repair Station No. CP2R750K
EASA.145.4356 - DNA Approval No. 1B-207
Okmulgee, Oklahoma 74447

W.O.: 12395

DATE: 12/17/2018

Customer: Sun Air

Address:

City:

State:

Zip:

Type Engine: R-985-AN-14B

Serial No.: 210476

EST:

Type of Work: Overhaul

TSO: 0.00

T.T.: 9800.00

WORK TO BE DONE

Overhaul in accordance with Pratt and Whitney Overhaul Manual P\N 123440 and applicable Covington processes. A.D. 56-06-02, 57-05-04, 66-14-04, 68-09-01, and 78-08-07 C\W. Mandatory S.B.'s C\W.

WORK ACCOMPLISHED

PARTS OVERHAULED	MECHANIC	INSPECTOR
Front Section	MIKE BARRON	
Main Crankcase	MIKE BARRON	
Crankshaft	MIKE BARRON	
Masterod	RAYMOND LOCK	
Pistons	DOUG ASHLEY	
Cylinders	ALFRED HARLEY JR.	
Super Charger Section	JEREMY WEINS	
Rear Section	ALTON HOLLIS	
Harnesses	JOHN SEEMAN	
Final Assembly	RAYMOND LOCK	
Magneto-Right: Bosch SB9RU-3/C-3 S/N B-44627	PAUL COX	
Magneto-Left: Bosch SB9RU-3/C-3 S/N BB-8639	PAUL COX	
Carburetor S/N		
TEST RUN	ROY BAILEY	
N.D.T INSPECTION:		
Magnetic Particle Inspecton	KEITH HURT	
Fluorecent Penetrant Inspection	KEITH HURT	

Date Completed: 12/12/2018

ENGINE INSPECTION RECORD

Page 2

ENGINE S/N: 210476

WORK ORDER No.: 12395

FRONT SECTION:

Guides:	OK	Thrust Brg Liner:	OK
Tappets:	OK	Thrust Bearing:	NEW
Rollers:	9 NEW EX.	Thurst Spacer:	OK
Pins:	OK	Data Plate:	OK
Frt Ring Carrier:	OK	Prop Reg Valve:	OK
Oil Seal Rings:	+20+20W NEW	Prop Oil Feed Pipe:	OK
Thrust Nut:	OK	Oil Manifold:	OK
Oil Slinger:	OK	Studs:	OK
Thrust Plate:	ORIGINAL	Plugs:	OK
Remarks:			

MAIN CRANKCASE:

Mating No (Front):	U-172	Cam Red Gear Nut:	OK
(Rear):	U-172	Oil Press Fitting:	OK
Liner (Front):	OK	Crankcase Bolts:	OK
(Rear):	OK	Lifting Links:	OK
Cyl Pads:	OK	Threads:	OK
Cam Red Gear Bush:	OK	C\Case Studs:	OK
Cam Red Gear:	OK	Cyl Studs:	OK
Remarks:			

CAM:

Track:	OK	Dr Gear Bearing Cl:	OK
Gear Teeth:	OK	Oil Feed Bracket:	OK
Bearing:	OK	Cam.Oil Seal Rings:	OK
Cam Dr Gear:	OK	Rings Cam Cl:	OK
Spacer:	OK		
Remarks:	S/N: 13505/DK-582		

CRANKSHAFT:

C\S MB Assy:	OK	Ser No (Front):	11A8682
Run Out: Thrust:	.002	(Rear):	11A8682
End:	.004	Splines (Prop Hub):	OK
Crank Pin:	STD	(Crank Pin):	OK
Dia Frt (Horiz):	2.4975	Dia Rear (Horiz):	2.497
(Vert):	2.497	(Vert):	2.4975
Main Bearing (Front):	OK	Flyweight Liners:	NEW
(Rear):	OK	Dynamic Dampers:	OK
C\Shaft Bolt:	OK	Damper Screws:	OK
C\Shaft Plugs:	OK	Spring Drive: Bolt:	OK
Rear Gear:	OK	Springs:	OK
Spr Drive Plate-Fixed:	OK	Buttons:	OK
Spr Drive Plate-Floating:	OK	Type:	14-B
Remarks:			

Inspector: Logan Simmons

Approved: 

FORM # COVR 002 (Rev. 2 06-03)

Page 2 of 7

ENGINE INSPECTION RECORD

Page 3

ENGINE S/N: 210476

WORK ORDER No: 12395

MASTER ROD:

Bearing: RPRN
Diameter: 2.504
Clearance: .0065
Knuckle Pin Locks: OK
Lock Screws: OK

Bearing Time: RPRN
Bushing (Piston Pin): NEW
Knuckle Pin Holes: OK
Oil Passages: OK

Remarks:

LINK RODS	1	2	3	4	N/A	6	7	8	9
KNUCKLE PIN BUSHINGS	NEW	-	-	-		-	-	-	-
PISTON PIN BUSHINGS	NEW	-	-	-		-	-	-	-
PISTON PIN PLUGS	OK	-	-	-		-	-	-	-
KNUCKLE PIN HOLES	OK	-	-	-		-	-	-	-
KNUCKLE PINS	R/C +5C	+5C	+5C	+5C		+5B	+5A	+5C	+5C
PISTON PINS	1	2	3	4	5	6	7	8	9
354954	NEW	-	-	-	-	-	-	-	-

Remarks:

Inspector: Logan Simmons

Approved: 

FORM # COVR 002 (Rev. 2 06-03)

Page 3 of 7

ENGINE INSPECTION RECORD

Page 4

ENGINE S/N: 210476

WORK ORDER No: 12395

PISTONS:

PART No: 7ea. AE 27056 & 2ea. AE 40698

Compresion Ratio: 6:1

LOCATION No.	1	2	3	4	5	6	7	8	9
CONDITION	NEW	-	-	-	-	-	-	-	-

RINGS: COMPRESSION: 238446 - NEW
OIL CONTROL: 17097 - NEW
OIL SCRAPER: 13681 - NEW

TYPE: WEDGE
TYPE:
TYPE:

REMARKS:

CYLINDERS:

PART No:
INT. PORT COUPLING: OK

TYPE:
EXH. PORT LINER: CHROME OK

STUDS: OK
EXH. PORT FACING: OK

Location No.	1	2	3	4	5	6	7	8	9
Condition	CHROME								
Taper	CHOKE	0.008 TO 0.012							
Out of Round	NONE	OVER 0.003							
Max. Dia.	STD.								
Int. Valves	OK STD.								
I.V. Head Thickness	OK								
Int. Bush/Shaft	.002S	-	-	-	-	-	-	-	-
Exh. Bush/Shaft	.002S	-	-	-	-	-	-	-	-
Int. Guides	NEW	-	-	-	-	-	-	-	-
Exh. Guides	NEW	-	-	-	-	-	-	-	-
Exh. Valves	OK STD.								
Exh. Valve Dia.	0.548 TO 0.5545								
Exh. Valve Stretch	OK								
Valve Seat Int.	NEW	OK	NEW	OK	NEW	-	-	OK	NEW
Exh	NEW	OK	NEW	OK	NEW	-	-	OK	NEW
Sparkplug Bush. F.	NEW	OK	-	-	NEW	OK	-	-	-
R.	OK	-	NEW	-	-	-	-	OK	NEW

Rockers:	OK	Pushrod Cover Glands:	OK
Rocker Shaft:	OK	Deflector Inserts:	OK
Rocker Bearings:	9ea New Ex.	Rocker Shaft Inserts:	OK
Adj Screws:	OK	Primer Fittings:	OK
Adj Screw Nuts:	OK	Inter Cyl Drain Pipes:	OK
Int Locks:	OK	Inner Ear Pipes:	OK
Exh Locks:	OK	Hose Clamps:	OK
Upper Washers:	OK	Rocker Box Studs:	OK
Lower Washers:	OK	Rocker Box Plugs:	OK
Outer Springs:	OK	Rocker Box Covers:	OK
Inner Springs:	OK	Nuts:	OK

REMARKS:

Inspector: Logan Simmons

Approved: [REDACTED]

FORM # COVR 002 (Rev. 3 07-04)

Page 4 of 7

ENGINE INSPECTION REPORT

Page 5

ENGINE S/N: 210476

WORK ORDER No: 12395

SUMP:

Main Suction Pipe: OK
Rocker Scav Pipe: OK
Plugs: OK
REMARKS:

Rocker Drain Fittings: OK
Strainer: OK
Studs: OK

MISCELLANEOUS:

Push Rods: OK
Push Rod Covers: OK
Packing Nuts: OK
Inter Cyl Deflectors: -
Guides: -
Latch Bolts: -
Intake Pipes: OK
Flanges: OK
REMARKS:

Grommets: -
Inter Ear Deflectors: -
Rivets: -
Sump Baffle: -
Primer Dist: OK
Primer Lines: OK
Primer Clamps: OK
Wing Nuts:

COLLECTOR SECTION:

Ratio: 10:1
Impeller: OK
Imp Shaft: OK
Imp Bearings: Ball - OK
Imp Bearing Cage: OK
Rear Spacer: OK
Bearing Cover: OK
Shaft Nuts: OK
Inter Gear Assy: OK
Inter Brg (FRONT): NEW
Inter Brg (REAR): NEW
Inter Brg Cage: OK
REMARKS:

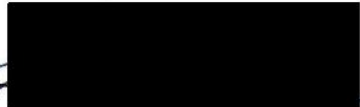
Floating Gear: OK
Roller Pins: NEW
Inner Race: OK
Floating Gear Washers: OK
Mag Shaft Bush: R: OK
L: OK
Mag Bush Hole: R: OK
L: OK
Breather: OK
Engine Mounting Lugs: OK
Oil Press Pipe: OK
Oil Passage: OK

REAR SECTION:

Starter Shaft Bush: OK
Diameter: 1.125
Starter Shaft: OK
Starter Shaft Brg: OK
Starter Jaw: OK
Fuel Dr Gear: OK
Fuel Dr Bracket: OK
Vac Dr Gear: OK
Vac Dr Housing: OK
Generator Drive: OK
AMP Ratio: 2 to 1 100 AMP
REMARKS:

Vac Dr Bushing: OK
Vac Dr Bearings: OK
Oil Press Relief Val: OK
Oil Strainer: OK
Check Valve: OK
Oil Press Pipe: OK
Oil Drain Pipe: OK
Mounting Pads: OK
Threads: OK
Studs: OK

Inspector: Logan Simmons

Approved: 

FORM # COVR 002 (Rev. 2 07-03)

Page 5 of 7

ENGINE INSPECTION RECORD

Page 6

ENGINE S/N: 210476

WORK ORDER No.: 12395

MAGNETO DRIVES:

	Shaft Bush	Dia. Shaft	Dr. Cover	Packing	Bevel Gr.	Coup Gr.
R	OK	.7475	New Leather	OK	OK	OK
L	OK	.748	New Leather	OK	OK	OK

AUXILL. TACH. DRIVES

	V. Sh Bush	V. Sh Type	Sh. Bear.	T Br Dr.	Insert	Coupling
R	OK	OK	OK	OK	OK	OK
L	OK	OK	OK	OK	OK	OK

REMARKS:

OIL PUMP:

Body: OK

Drive: OK

Dr Gear Shaft: OK

REMARKS:

Idler Gears: OK

Idler Shaft: OK

Keys: OK

ACCESSORIES:

Magneto Type: Bosch SB9RU-3/C-3

Right S/N: B-44627

Left S/N: BB-8639

Carb Model No:

Carb S/N:

Harness: NEW 7 M.M.

AIRWORTHINESS DIRECTIVES:

NUMBER	CODE	SUBJECT	C/W	MECHANIC	INSPECTOR
57-05-04	R-985	THRUST NUT THREADS	AC/W	RAYMOND LOCK	LOGAN SIMMONS
66-14-04	R-985	CAM REDUCTION DRIVE GEAR	C/W	MIKE BARRON	LOGAN SIMMONS
68-09-01	R-985	FLYWEIGHTS AND LINERS	C/W	RAYMOND LOCK	LOGAN SIMMONS
78-08-07	R-985	ULTRASONIC TEST	C/W	KEITH HURT	LOGAN SIMMONS
56-06-02	R-985	CYLINDER HOLD DOWN STUDS:	C/W	MIKE BARRON	LOGAN SIMMONS

PRATT AND WHITNEY SERVICE BULLETINS:

1693	R-985	DRAIN PIPE / CYLINDER INTER EAR	C/W	KEITH HURT	LOGAN SIMMONS
1730	R-985	HEAVY DUTY PISTON PINS	C/W	RAYMOND LOCK	LOGAN SIMMONS
1488	R-985	CRANKSHAFT THREADS (A.D. NOTE)	AC/W	RAYMOND LOCK	LOGAN SIMMONS
1767	R-985	FRONT CASE AND STUD ASSEMBLY	C/W	MIKE BARRON	LOGAN SIMMONS
621	R-985	BALANCE AND REWORK IMPELLER	C/W	JEREMY WEINS	LOGAN SIMMONS
1546	R-985	MASTER ROD BEARING REWORK	C/W	RAYMOND LOCK	LOGAN SIMMONS
1658 B	R-985	PLAIN IMPELLER BEARING	N/A	JEREMY WEINS	LOGAN SIMMONS
1000	R-985	TORQUE/ STRETCH VALUES(A.D. NOTE)	C/W	MIKE BARRON	LOGAN SIMMONS
1703	R-985	REWORK OF CYLINDER HEADS	C/W	KEITH HURT	LOGAN SIMMONS
1758	R-985	FLYWEIGHT AND LINER (A.D. NOTE)	C/W	RAYMOND LOCK	LOGAN SIMMONS

Inspector:

Logan Simmons

Approved:

FORM # COVR 002 (Rev. 2 07-03)

Page 6 of 7

ENGINE TEST SHEET

Page 7

Customer: Sun Air
Engine model: R-985-AN-14B
Engine S/N: 210476

Date 12/12/2018
W.O. No: 12395
Test Cell No: 2

TIME	RPM	MP	OIL TEMP		OIL PRESS			CYLINDER TEMP.				OIL CONS
			IN	OUT	MN	NO	RT	No 2	No 5	No 6	No 9	
10 MIN	1000	20.4	105	115	81	74	84	247	250	255	241	
10MIN	1200	20.6	115	131	83	76	85	276	295	306	281	
10 MIN	1300	21.9	125	149	84	76	86	308	341	357	308	
10 MIN	1600	24.4	135	164	85	76	87	346	380	398	339	
CHECK OIL SCREEN												
15 MIN	1800	27.0	158	184	84	74	87	380	408	434	377	
15 MIN	1900	28.4	165	194	83	73	86	403	431	465	407	
15 MIN	1900	28.3	165	194	83	73	86	400	426	457	401	
15 MIN	2000	30.0	170	200	84	73	87	419	442	478	422	
5 MIN	2100	31.7	170	201	85	73	88	420	450	480	417	
15 MIN	2000	30.0	170	200	84	73	87	412	442	478	411	1/8qt
1 MIN	2250	37	170	203	88	76	91	432	459	488	436	
1 MIN	600	18.0	158	185	28	26	28	355	360	395	345	

Thrust Plate: Original

REMARKS:

MAG DROP:	LEFT	RIGHT
RPM: 2000	70	60

OIL FLOW:	LBS PRESS	TEMP:
RPM: 2000	80	185°F

Ambient Temperature:	61°F
Bar Press:	30.06
Oil Type and Weight:	AEROSHELL 100

Test Run by: ROY BAILEY

Checked by: LOGAN SIMMONS

Oil Screen Checked by: ROY BAILEY

MAINTENANCE RELEASE

The aircraft engine identified above was repaired and inspected in accordance with current Regulations of the Federal Aviation Administration and is approved for return to service. Pertinent detail of the repair are on file at this repair station under:

Work Order Number 12395 Date 12/12/2018 Signed 

COVINGTON AIRCRAFT ENGINES, INC.

FAA Approved Repair Station No. CP2R750K - EASA.145.4356 - DNA Approval No. 1B-207
Hwy. 75 N. and Airport Rd.

P.O. Box 1344 Okmulgee, OK 74447

Phone (918)756-8320 Fax (918)756-0923

FORM # COVR 002 (Rev. 2 07-03)

Page 7 of 7

1. Approving Civil Aviation
Authority/Country:

FAA/UNITED STATES

3. Form Tracking Number:

69856

4. Organization Name and Address:

AUTHORIZED RELEASE CERTIFICATE

FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG

5. Work Order/Contract/Invoice
Number:

RR-011308

6. Item:	7. Description:	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status/Work:
1	MASTER RODS	985	8	REK1958 K17084 RE14389 K23981,	
2	MASTER RODS	1340	8	CAK6904 J16654 CAK10227 J593B, PAABV	REPAIR

12. Remarks:

PART HAS BEEN SHOT PEENED ONLY IAW AMS 2430U & MIL-S-13165C.

THIS PART HAS BEEN SHOT PEEN & INSPECTED FOR FULL COVERAGE & CONFORMITIES PERTAINING TO SHOT PEEN PROCESS ONLY AND IS AIRWORTHY ONLY WITH RESPECT TO THE WORK PERFORMED.

NOTE: FURTHER MAINTENANCE PROCESSES WORK MAY BE REQUIRED BEFORE INSTALLATION.

13a. Certifies the items identified above were manufactured in conformity to:

- ☐ Approved design data and are in condition for safe operation.
☐ Non-approved design data specified in Block 13.

14a. ☒ 14 CFR 43.9 Return to Service

☐ Other regulation specified in Block 13

Certifies that unless otherwise specified in block 13, the work identified in Block 12 and described in Block 13 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.

13b. Authorized Signature:

13c. Approval/Authorization No.:

14b. Authorized Signature:

14c. Approval/Certificate No.:

VF1RS56K

13d. Name (Typed or Printed):

13e. Date (dd/mm/yyyy):

14d. Name (Typed or Printed):

JOSE CRUZ

14e. Date (dd/mm/yyyy):

17/AUG/2018

User/Installer Responsibilities

It is important to understand that the existence of this document alone does not automatically constitute authority to install the part/component/assembly.

Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness accepts aircraft engine(s)/propeller(s)/article(s) from the airworthiness authority of the country specified in Block 1.

Statements in Blocks 13a and 14a do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.

164

1. Approving National Aviation Authority / Country: FAA/UNITED STATES	2. AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG	3. Form Tracking Number: COVER 1218181
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4. Organization Name and Address: Covington Aircraft Engines, Inc.
201 E. Airport Rd., Okmulgee, OK 74447
Repair Station # CP2R750K

5. Work Order, Contract or Invoice no.
12395

6. Item	7. Description	8. Part Number	9. Quantity	10. Serial/ Batch Number	11. Status/Work
1	AIRCRAFT ENGINE	Pratt & Whitney Wasp JR. R-985-AN-14B	1	210476	OVERHAULED
2	MAGNETO-BOSCH SB9RU-3/C-3	AN-9511	1	B-44627 RA	OVERHAULED
3	MAGNETO-BOSCH SB9RU-3/C-3	AN-9511	1	BB-8639 LA	OVERHAULED

12. Remarks:

WORK DONE: Overhauled and Test Run in accordance with Pratt and Whitney Overhaul Manual Part No. 123440 Rev. October 1979, Applicable Instructions, and Covington Processes for continued Airworthiness or other data acceptable to or approved by the Administrator, C/W all mandatory A.D.'s and S.B.'s

A COMPLETE DESCRIPTION OF WORK PERFORMED IS RECORDED UNDER THE WORK ORDER REFERENCE IN BLOCK 5
Certifies that the work specified in Block 1 U/I2 was carried out in accordance with EASA Part 145 and in respect to that work the [product/article] is considered ready for release to service under EASA Part 145 approval no. EASA. 145.4356

Limited life parts must be accompanied by maintenance history including total time/total cycles/time since new.

13a. Certifies the items identified above were manufactured in conformity to:

☐ Approved Design Data and are in a Condition for Safe Operation.

☐ Non-Approved Design Data Specified in Block 12.

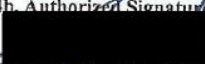
14a. ☒ CFR 43.9 Return to Service ☒ Other Regulations Specified in Block 12

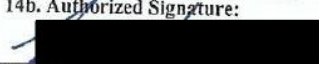
14b. Certifies that unless otherwise specified in block 12, the work identified in Block 11 and described in Block 12, was accomplished in accordance with Title 14, Code of Federal Regulations, Part 43 and in respect to that work, the items are approved for return to service.

13b. Signature	13c. FAA Authorization No.	14b. Authorized Signature	14c. Certificate Number
13d. Name (Typed or Printed)	13e. Date (dd/mm/yyyy):	14d. Name (Typed or Printed) Logan Simmons	CP2R750K 18/DEC/2018

User / Installer Responsibility

It is important to understand that the existence of this Document alone does not automatically constitute authority to install the part/component/assembly. Where the user/installer performs work in accordance with the national regulations of an Airworthiness Authority different than the Airworthiness Authority of the country specified in block 1 it is essential that the user/installer ensures that his/her Airworthiness Authority accepts parts/components/assemblies from the Airworthiness Authority of the country specified in block 1. Statements in block 13a and 14a do not constitute installation certification. In all cases aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.

1. Approving Civil Aviation Authority/Country: FAA/UNITED STATES		2. AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG			3. Form Tracking Number: COVR <u>1126183</u>	
4.  4. Organization Name and Address:		COVINGTON AIRCRAFT ENGINES, INC., HWY. 75N & Airport Rd., OKMULGEE, OK 74447 REPAIR STATION # CP2R750K			5. Work Order/Contract/Invoice Number: <u>9449</u>	
6. Item:	7. Description:	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status/Work:	
1	Magneto-Bosch SB9RU-3/C-3	AN-9511	1ea.	<u>LU</u> <u>BB-8639</u>	Overhauled	
12. Remarks:						
Work Done: Overhauled in accordance with applicable Instructions, and Covington Processes for continued Airworthiness or other data acceptable to or approved by the Administrator. C/W all mandatory A.D.'s and S.B.'s Certifies that the work specified in Block 11/12 was carried out in accordance with EASA 145 and in respect to that work, the aircraft component is considered ready to release to service under EASA acceptance certificate EASA.145.4356. <i>Limited life parts must be accompanied by maintenance history including total time/total cycles/time since new.</i>						
13a. Certifies the items identified above were manufactured in conformity to:			14a. ☒ 14 CFR 43.9 Return to Service ☒ Other regulation specified in Block 12			
☐ Approved design data and are in condition for safe operation. ☐ Non-approved design data specified in Block 12			Certifies that unless otherwise specified in block 12, the work identified in Block 11 and described in Block 12 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.			
13b. Signature		13c. Approval/Authorization No.:		14b. Authorized Signature:		14c. Approval/Certificate No.:
						CP2R750K
13d. Name (Typed or Printed)		13e. Date (dd/mm/yyyy)		14d. Name (Typed or Printed)		14e. Date (dd/mm/yyyy)
				Logan Simmons		14/DEC/2018
User/Installer Responsibilities						
It is important to understand that the existence of this Document alone does not automatically constitute authority to install the aircraft engine/propeller/article. Where the user/installer performs work in accordance with the national regulations of an Airworthiness Authority different than the Airworthiness Authority of the country specified in block 1, it is essential that the user/installer ensures that his/her Airworthiness Authority accepts aircraft engine(s)/propeller(s)/article(s) from the Airworthiness Authority of the country specified in block 1. Statements in block 13a and 14a do not constitute installation certification. In all cases aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.						

1. Approving Civil Aviation Authority/Country: FAA/UNITED STATES		2. AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG			3. Form Tracking Number: COVR <u>1126184</u>	
4.  Organization Name and Address:		COVINGTON AIRCRAFT ENGINES, INC., HWY. 75N & Airport Rd., OKMULGEE, OK 74447 REPAIR STATION # CP2R750K			5. Work Order/Contract/Invoice Number: <u>9450</u>	
6. Item:	7. Description:	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status/Work:	
1	Magneto-Bosch SB9RU-3/C-3	AN-9511	1ea.	<u>BH B 44627</u>	Overhauled	
12. Remarks:						
Work Done: Overhauled in accordance with applicable Instructions, and Covington Processes for continued Airworthiness or other data acceptable to or approved by the Administrator. C/W all mandatory A.D.'s and S.B.'s Certifies that the work specified in Block 11/12 was carried out in accordance with EASA 145 and in respect to that work, the aircraft component is considered ready to release to service under EASA acceptance certificate EASA.145.4356 <i>Limited life parts must be accompanied by maintenance history including total time/total cycles/time since new.</i>						
13a. Certifies the items identified above were manufactured in conformity to:			14a. ☒ 14 CFR 43.9 Return to Service ☒ Other regulation specified in Block 12			
☐ Approved design data and are in condition for safe operation. ☐ Non-approved design data specified in Block 12.			Certifies that unless otherwise specified in block 12, the work identified in Block 11 and described in Block 12 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.			
13b. Signature		13c. Approval/Authorization No.:		14b. Authorized Signature:		14c. Approval/Certificate No.:
						CP2R750K
13d. Name (Typed or Printed)		13e. Date (dd/mm/yyyy)		14d. Name (Typed or Printed)		14e. Date (dd/mm/yyyy)
				Logan Simmons		14 / DEC / 2019
User/Installer Responsibilities It is important to understand that the existence of this Document alone does not automatically constitute authority to install the aircraft engine/propeller/article. Where the user/installer performs work in accordance with the national regulations of an Airworthiness Authority different than the Airworthiness Authority of the country specified in block 1, it is essential that the user/installer ensures that his/her Airworthiness Authority accepts aircraft engine(s)/propeller(s)/article(s) from the Airworthiness Authority of the country specified in block 1. Statements in block 13a and 14a do not constitute installation certification. In all cases aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.						

signed _____
 at _____

1. 1. HANNAE C. CARP
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3. _____
4. _____
Signed _____
11-3-28

1. CHUCK & CHERRY
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Signed: [REDACTED] 11-19-14

[Redacted]

78-08-07 PRATT & WHITNEY: Amendment 39-3175. Applies to Pratt & Whitney Aircraft Wasp, Jr. and R-985 model engines.

Compliance required as indicated, unless already accomplished.

To prevent cylinder head separation from barrel, perform the following in accordance with Pratt & Whitney Aircraft Service Bulletin No. 1785 or later FAA-approved revision.

1. Visually inspect cylinder heads in accordance with Part B of the bulletin as follows:

A. Cylinders not ultrasonically inspected, inspect within 50 hours time in service after effective date of the AD, and thereafter at intervals not to exceed 100 hours time in service.

B. Cylinders ultrasonically inspected, inspect within 150 hours time in service after effective date of the AD, and thereafter at intervals not to exceed 150 hours time in service.

2. Remove visibly cracked cylinders and cylinders with black combustion leakage from service before further flight.

3. After the effective date of this AD, inspect all cylinder assemblies, prior to installation on an engine, by the ultrasonic test procedure in Part A of Service Bulletin 1785 or equivalent method approved by the Chief, Engineering and Manufacturing Branch, FAA, New England Region.

4. Remove from service cylinders which show cracks in excess of the limits of Part A, Section IV, of the bulletin.

NOTE: Cylinders which have been ultrasonically tested are stamped "UT" and the last two digits of year inspected over the intake port.

The manufacturer's service bulletin identified and described in this directive is incorporated herein and made a part hereof pursuant to 5 U.S.C. 552(a)(1). All persons affected by this directive who have not already received this document from the manufacturer may obtain copies upon request to Pratt & Whitney Aircraft, Division of United Technologies Corp., 400 Main Street, East Hartford, Connecticut 06108. This Document may also be examined at Federal Aviation Administration, New England Region, 12 New England Executive Park, Burlington, Massachusetts 01803, and FAA Headquarters, 800 Independence Avenue SW., Washington, DC 20591.

This supersedes AD 76-20-01, Amendment 39-2728.

This amendment becomes effective May 2, 1978.

78-08-07 **PRAATT & WHITNEY:** Amendment 39-3175. Applies to Pratt &

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Compliance required as indicated, unless already accomplished.

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1. Visually inspect cylinder heads in accordance with Part B of the bulletin as follows:

A. Cylinders not ultrasonically inspected, inspect within 50 hours time in service after effective date of the AD, and thereafter at intervals not to exceed 100 hours time in service.

B. Cylinders ultrasonically inspected, inspect within 150 hours time in service after effective date of the AD, and thereafter at intervals not to exceed 150 hours time in service.

2. Remove visibly cracked cylinders and cylinders with black combustion leakage from service before further flight.

3. After the effective date of this AD, inspect all cylinder assemblies, prior to installation on an engine, by the ultrasonic test procedure in Part A of Service Bulletin 1785 or equivalent method approved by the Chief, Engineering and Manufacturing Branch, FAA, New England Region.

4. Remove from service cylinders which show cracks in excess of the limits of Part A, Section IV, of the bulletin.

NOTE: Cylinders which have been ultrasonically tested are stamped "UT" and the last two digits of year inspected over the intake port.

The manufacturer's service bulletin identified and described in this directive is incorporated herein and made a part hereof pursuant to 5 U.S.C. 552(a)(1). All persons affected by this directive who have not already received this document from the manufacturer may obtain copies upon request to Pratt & Whitney Aircraft, Division of United Technologies Corp., 400 Main Street, East Hartford, Connecticut 06108. This Document may also be examined at Federal Aviation Administration, New England Region, 12 New England Executive Park, Burlington, Massachusetts 01803, and FAA Headquarters, 800 Independence Avenue SW., Washington, DC 20591.

This supersedes AD 76-20-01, Amendment 39-2728.

This amendment becomes effective May 2, 1978.



Pratt & Whitney Aircraft
SERVICE BULLETIN
RECIPROCATING ENGINES

No. 1785

TITLE: CYLINDER-HEAD, ULTRASONIC AND VISUAL INSPECTION OF

MODELS AFFECTED: R-985, Wasp Jr., All Models

REFERENCES: (1) R-985 Wasp Jr., Overhaul Manual, Part No. 123440, Page 112, Revised March, 1975.

(2) Service Bulletin 1720, Cylinder Head Repair and Rework.

(3) Federal Aviation Administration AD 76-20-01, - 78-08-07

(4) Service Bulletin 1744F, Engine Parts - Time Limitations.

PUBLICATIONS AFFECTED: (1) This bulletin accomplishes the intent of References (1), (3), and (4).

(2) R-985 Wasp Jr., Engine Overhaul Manual, Part No. 123440, Inspection Section.

(3) R-985 Wasp Jr., Engine Maintenance Manual, Part No. 118611, Periodic Inspection.

REASON FOR BULLETIN: Service experience indicates that some R-985 Wasp Jr. cylinder heads, which due to rebarrelling or cylinder barrel chromium plating, have operated for longer than normal expected usage (Reference (4) or later), can develop a circumferential root crack in the inner first or second blind threads which contact the end of cylinder barrel. This crack can propagate in fatigue around cylinder head and radially outward until a major portion of head falls in tension and is liberated. It is estimated that 1 to 2 percent of head in time cylinder heads contain a crack and that, through use of this special inspection procedure, they may be identified and removed from service before failure can result. The critical area, or crack origin, is almost always primarily located approximately 30 degrees from the rear spark plug toward the exhaust or left side of cylinder assembly. Inspections should be more concentrated in this area. It is the intent of this bulletin to:

(1) Provide instructions for ultrasonic inspection of inner cylinder head threads, at each overhaul.

(2) Provide instruction for visual inspection, at each periodic maintenance interval.

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PRAATT & WHITNEY AIRCRAFT



November 1, 1977

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PRATT & WHITNEY AIRCRAFT GROUP
Commercial Products Division

No. 1785

D. Monitor CRT presentation for signals occurring between ".42" and ".5" (.45 to 50 percent screen width) that exceed 50 percent screen height, Figure 5A.

NOTE

There may be other signals appearing on the screen. Position and intensity of these signals may vary from part to part due to allowable geometry variations, Figure 5B. ONLY THOSE SIGNALS OCCURRING BETWEEN ".42" AND ".5" THAT EXCEED 50 PERCENT SCREEN HEIGHT ARE OF CONCERN.

E. Mark physical location of signals exceeding 50 percent of screen height on OD surface of cylinder head bottom face, as shown in Figure 6.

IV. Rejection Criteria:

A. A defective cylinder which must be removed from service is defined as: Any cylinder in which the CUMULATIVE signal physical location markings exceed 1" in circumferential length. See Figure 6.

V. Marking:

A. Metal stamp acceptable cylinder assembly using 5/32" capital letters over the intake port, with UT (Ultrasonic Test) and last two (2) numbers of year inspected. Typical Stamp will read UT78.

PART B - VISUAL INSPECTION

I. For installed engines, visually inspect rear of the cylinder head to the following schedule and procedure:

A. Cylinder head not ultrasonically tested - inspect as soon as possible but not to exceed the next 50 hours, then inspect every 100 hours thereafter.

B. Cylinder head which was ultrasonically tested - inspect periodically every 150 hours.

C. Using sufficient light, visually inspect cylinder head outer wall between fins #2 and #3 in a 90 degree quadrant, starting at the rear spark plug and extending circumferentially to the exhaust valve, Figure 7. Critical area is approximately 30 degrees from rear spark plug or thermocouple boss location. If crack is visible, or if black combustion leakage is found, replace cylinder assembly. Return rejected cylinder assembly to overhaul for inspection and salvage of usable parts.

Reference No.
PM/LM 77-9-31

PRATT & WHITNEY AIRCRAFT GROUP
Commercial Products Division

No. 1785

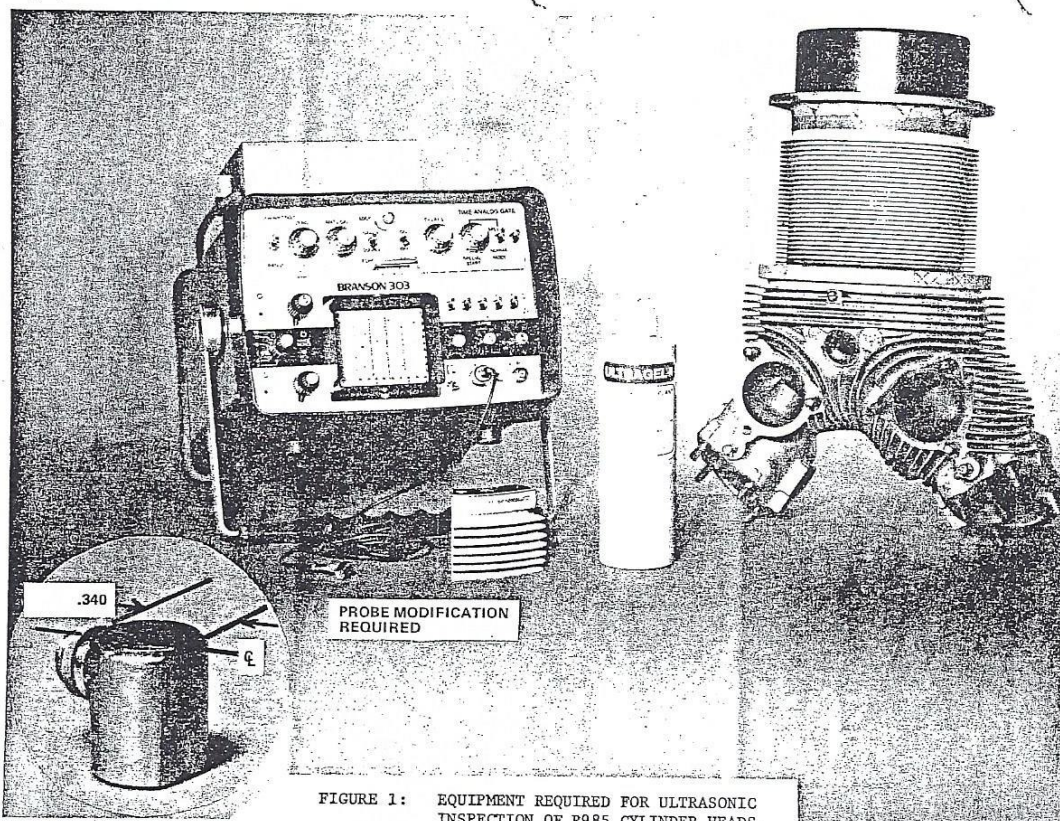


FIGURE 1: EQUIPMENT REQUIRED FOR ULTRASONIC INSPECTION OF R985 CYLINDER HEADS.

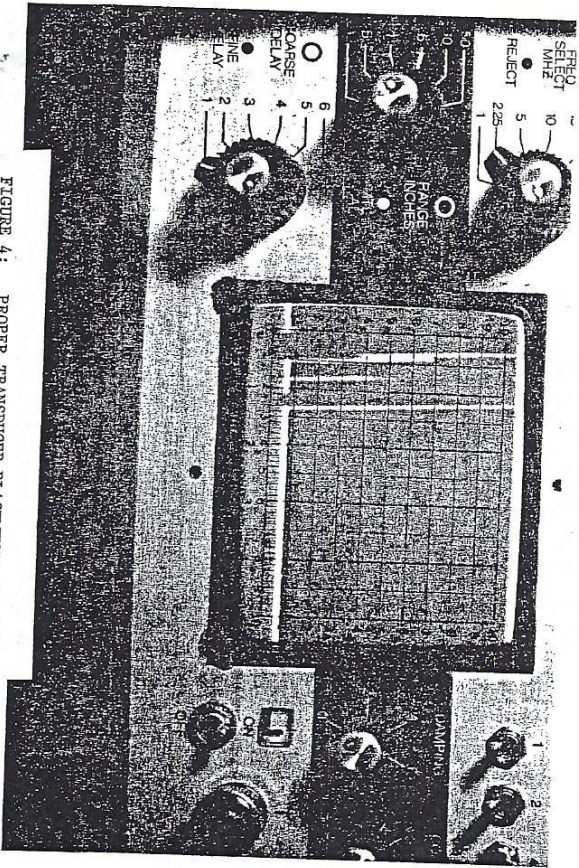
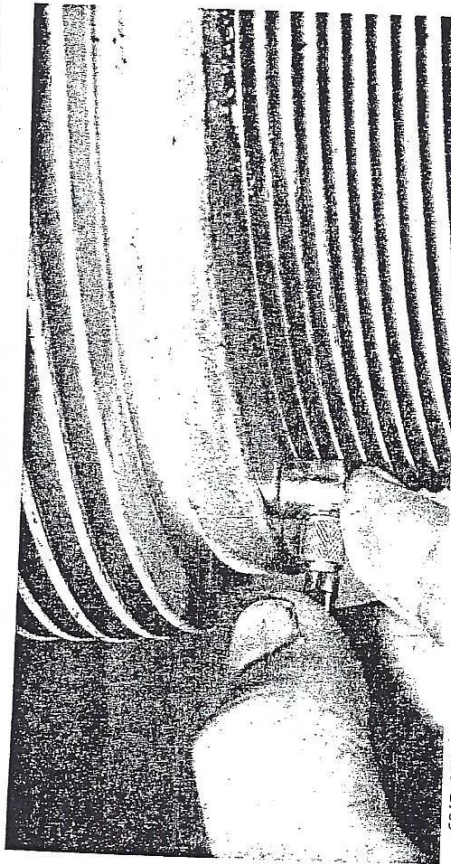


FIGURE 4: PROPER TRANSDUCER PLACEMENT; AND CRT PRESENTATION INDICATING PROPER COUPLING.

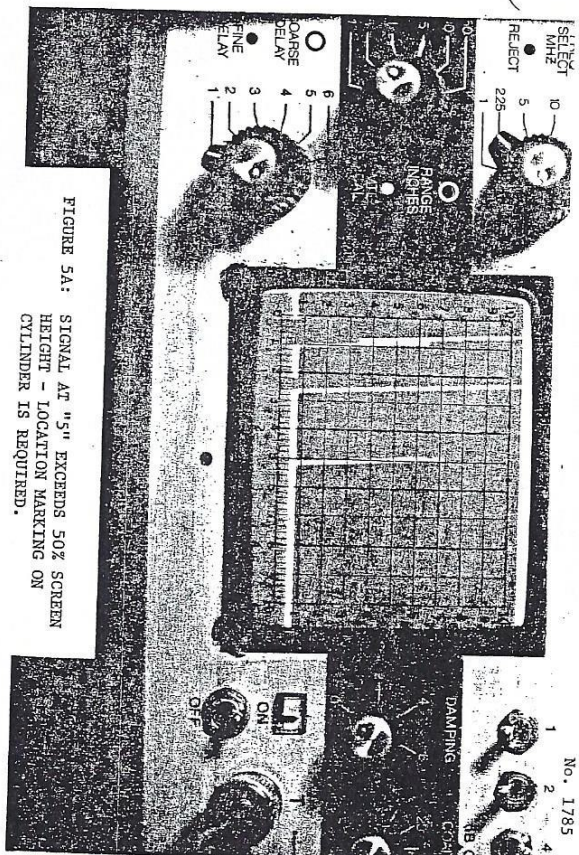


FIGURE 5A: SIGNAL AT "5" EXCEEDS 50% SCREEN HEIGHT - LOCATION MARKING ON CYLINDER IS REQUIRED.

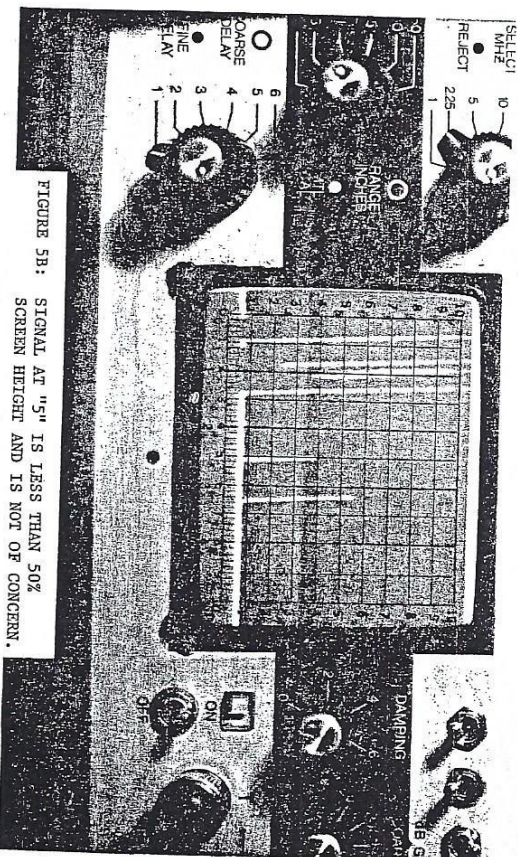


FIGURE 5B: SIGNAL AT "5" IS LESS THAN 50% SCREEN HEIGHT AND IS NOT OF CONCERN.

PERIODIC INSPECTION

Service inspection and associated maintenance include periodic inspection, cleaning, lubricating, adjusting, and all maintenance work associated with the routine inspection of the engine.

When an engine is new or has just been overhauled, it should be given a thorough check no later than 30 hours after it has been installed in the aircraft. In the following periodic inspection schedule, it is suggested that

"A" represents a 50 hour inspection period, "B," 100 hour, "C," 200 hour, and "D," the midpoint period between overhauls. Experience and the type and conditions of operation should establish an actual hourly inspection period breakdown similar to that given above, for each operator. Any periodic inspection should be performed each time the interval established for that inspection has elapsed. The term "inspect" denotes visual inspection unless otherwise noted.

PERIODIC INSPECTION

Nature of Inspection	Preflight	A	B	C	D	Remarks
GENERAL						
Inspect engine and accessory section for failures, and fuel or oil leaks.	✓					On some installations it may be desirable to remove sections of cowling.
Inspect engine cowling for security of fasteners.	✓					
Inspect propeller governor for oil leaks.		✓				Evidence of oil leakage at the governor mounting pad may indicate warpage of the governor base, or governor mounting pad stud failure. If any stud is found to be broken, replace all four studs. It is essential that the governor mounting pad nuts be drawn down evenly and tightened to the recommended torque.
Inspect the propeller shaft thrust bearing cover for oil leakage.		✓				Leakage at the thrust bearing cover necessitates further investigation to determine source of leakage (Improper pinch fit of thrust cover to case, cracked oil slinger, cracked crankshaft). Check thrust bearing nut for tightness.
Remove, clean, and inspect engine and accessory cowling.		✓				
Inspect for loose nuts and broken lockwire.		✓				Frequently indicated by signs of oil or fuel leakage.
Inspect drain plugs and covers for proper lockwiring.		✓				

Nature of Inspection	Preflight	A	B	C	D	Remarks
Inspect all oil lines and connections for leaks, dents, cracks, chafing, and security.		✓				
Inspect connections and clamps for general condition, positioning, and tightness.		✓				
Change oil.	The time between oil changes should be determined by the type, and condition, of engine operation.				Drained oil should be collected, strained, and examined for presence of metal particles. After servicing oil tank, rotate propeller several times to prime the oil pump.	
ELECTRICAL SYSTEM						
Remove sparkplugs, and install new or reconditioned sparkplugs.			✓			Operating conditions may establish a longer period before replacement.
Clean sparkplug lead insulators with naphtha, acetone, alcohol, or clear unleaded gasoline.			✓			Inspect lead insulators for chipping or cracks. Replace if necessary.
Check sparkplug lead elbow nuts for security and condition.		✓				Tighten lead elbow nuts to the recommended torque as overtightening may damage the sparkplug insulator.
Inspect the ignition harness for signs of overheating, security and condition.			✓			Examine harness and lead shieldings for presence of moisture.
Inspect ignition cables for evidence of chafing and deterioration of insulation.			✓			Check ignition system with a high voltage leakage tester if leakage is suspected.

PERIODIC INSPECTION

7-7

Nature of Inspection	Preflight	A	B	C	D	Remarks
Inspect the magneto ground wires for security and condition.			✓	✓		At "C" check remove the ground wires from the magnetos, clean, inspect, and carefully reinstall.
Inspect the magnetos for security and condition.			✓			Inspect vent screens for clogging.
Inspect breaker points, and cam follower for excessive wear.			✓			Refer to Breaker Point Inspection, ADJUSTMENTS Chapter, for procedures of inspection of breaker assembly and lubrication of cam follower felt.
Check magneto timing and synchronization.			✓			Refer to Timing and Synchronizing, ADJUSTMENTS Chapter.
Clean breaker compartments, distributor rotors, and distributor blocks.			✓			Wipe with a clean dry cloth.
Inspect all electrical conduits and connectors for security and condition.		✓				Assure that areas of conduits under hold-down clamps are not chafed through.
Inspect the induction vibrator cables and connections for security and condition.		✓				
Inspect thermocouple leads for security and condition.		✓				Ascertain that there is no sparkplug gasket used with the thermocouple.
Inspect the starter for security and condition.			✓			Inspect condition of starter brushes and commutator.

PERIODIC INSPECTION

7-8

PERIODIC INSPECTION

7-11

FOREIGN MATERIAL IN THE OIL SYSTEM

General

Rubber-like particles found in the oil screen are an indication of disintegrating oil seals or a faulty oil line. On all reciprocating engines, the oil system has an oil screen by-pass valve. This valve opens at any time the oil screen is clogged enough to restrict the oil flow, thereby allowing unscreened oil to flow through all oil passages on the engine.

Frequently, carbon tends to break loose from the interior of the engine in large pieces which have the outward appearance of metal. However, carbon can be distinguished from metal by placing the foreign material on a flat metal object and hitting it with a hammer. If the material is carbon, it will disintegrate when struck with a hammer, whereas metal will either remain intact or change shape, depending on the malleability of the metal.

Metal Particles

Metal particles on the engine oil screens or on the magnetic sump plugs are generally an indication of partial internal failure of the engine. However, due to the construction of aircraft oil systems, it is possible that metal particles may have collected in sludge in the oil system at the time of a previous engine failure; consequently, this must be taken into account when metal particles are found in the engine oil screens or on the magnetic sump plugs.

Before removing an engine for suspected internal failure as indicated by foreign material on the oil screens or oil sump plugs, collect all obtainable metal particles for analysis. In order to collect fine metal particles, it may be necessary to strain the oil through a cloth.

An oil soaked rag can very easily cause spontaneous combustion unless placed in a tightly closed container, such as a quart or pint can with a press-fit lid.

Reissued April 1962

7-12

PERIODIC INSPECTION

The serviceability of the engine will depend upon the quantity and the form of the metal. Granular metal particles, in any amount greater than a trace, require a very careful inspection of the engine, as the presence of these particles is usually an indication of an impending part failure.

Identification of Metal Particles

Metal particles found in an engine may be any of five kinds, steel, tin, aluminum, silver, and copper (or bronze). A visual inspection as to color and hardness will occasionally be sufficient to determine the kind of metal present.

When visual inspection does not positively identify the metal, the kind of metal present may be determined by a few simple tests performed with a permanent magnet, electric soldering iron, and approximately two ounces each of concentrated hydrochloric (muriatic) acid and concentrated nitric acid, as follows:

Exercise care in handling the acids.

STEEL PARTICLES—can be isolated by means of a permanent magnet. The presence of any amount of steel particles requires engine removal.

TIN PARTICLES—can be identified by their low melting point. The soldering iron should be cleaned, heated to about 265°C (500°F), and tinned with 50-50 solder (50% lead—50% tin). Wipe off the excess solder. A tin particle dropped on the heated iron will melt and fuse with the solder. Exercise care to avoid excess overheating of the iron during this test. The presence of tin requires no action since tin is used only in plating engine parts, and in thickness not greater than .0005 inch.

ALUMINUM PARTICLES—may be identified by their reaction with hydrochloric acid. When a particle of aluminum is immersed into hydrochloric (muriatic) acid, it will "fuzz" with a rapid emission of bubbles. The particle will gradually disintegrate and form a black residue (aluminum chloride). The presence of

aluminum flakes smaller than 1/16 inch x 3/16 inch does not demand engine removal; however, they may indicate a piston failure. Visually inspect the cylinder bores through the sparkplug holes and compression check the engine in effort to locate a faulty piston. If a faulty piston is found, remove the cylinder assembly, carefully inspect the piston assembly, linkrod, and the cylinder bore for damage. If the damage is of an insignificant amount that the engine is not contaminated with aluminum particles, replace the cylinder assembly, ground check the engine, and then reinspect the main pressure oil screen and the sumps for additional presence of metal particles. If no metal particles are found return the engine to service. Additional checks of the screen and sumps should be accomplished for a short period following a failure to assure that the failure is not recurring.

If at any time aluminum particles greater than 1/16 inch x 3/16 inch are found in the screen or sumps, a failure is indicated to the extent that significant damage and subsequent contamination of the engine has occurred requiring removal of the engine as a precautionary measure.

SILVER PARTICLES—may be identified by their reaction with nitric acid. When a silver particle is immersed into nitric acid, it will react rather slowly, producing a "whitish" fog in the acid. Silver is used in plating form on numerous parts. Since silver is quite soft, some small flakes will occasionally be released due to the normal working of these parts. If the size of the silver particles does not exceed 1/16 inch x 3/16 inch, and the quantity of particles does not exceed ten in number, no action is required. However, a small quantity of silver from the masterrod bearings will make a large number of tiny flakes as it passes through roller bearings or gears within the engine. Therefore, large quantities of silver flakes indicate an excessive loss of plating material, or a masterrod bearing failure, requiring removal of the engine as a precautionary measure.

Wasp and Wasp Jr. Maintenance

COPPER OR BRONZE PARTICLES—may be identified by their reaction with nitric acid. When a copper or bronze particle is immersed into nitric acid it will react rapidly, producing a bright green cloud. There is no need in this instance to separate the copper from the bronze. If the size of the copper or bronze particles does not exceed 1/16 inch x 3/16 inch, and the quantity of particles does not exceed ten in number, no action is required. However, copper or bronze particles of larger size, or in quantity, indicate disintegration of a bushing or valve guide, requiring removal of the engine as a precautionary measure.

INSPECTION OF CONTAMINATED AIR-CRAFT OIL SYSTEMS AND OIL COOLERS

In case of an internal engine failure, metal chips and foreign material will be deposited throughout the aircraft oil system. If these contaminating materials are not removed before the replacement engine is installed, the latter will probably be damaged and an internal failure result. Experience has shown that the only satisfactory method of cleaning the oil system is to disassemble it sufficiently so that all surfaces where chips may be lodged can be cleaned and visually inspected to make sure that the foreign material has been eliminated. In particular, it is recommended that the oil cooler be removed to positively ensure that all tubes are free of metal particles, as it has been found that methods of cleaning which involve reverse or alternate flushing accompanied by shaking the oil cooler are not sufficiently effective. In propeller systems using engine oil, the propeller, the engine oil tank, and all components should be thoroughly cleaned or replaced.

SPARKPLUGS AND LEADS

General

A sparkplug is fundamentally only an insulator. Its function is to sufficiently insulate the current generated by the magneto, and

Reissued April 1962

PERIODIC INSPECTION

7-13

to assure delivery of enough electric energy to overcome the resistance at the sparkplug gap. All other conditions being ideal, an engine will perform only as satisfactorily as do the sparkplugs which are in it. The proper handling and installation of sparkplugs has proven to be one of the most important factors contributing to smooth engine performance both on the ground and in flight.

Experience has shown that proper recognition and identification of sparkplug discrepancies are of the utmost importance, since some apparently faulty sparkplugs require cylinder assembly replacement while others require substitution by a satisfactory sparkplug.

As a result of inaccurate descriptive terminology and misinterpretation, considerable confusion at both overhaul and maintenance activities has resulted in removal from service of numerous satisfactory sparkplugs. Also, in some cases, cylinder assemblies which have suffered distress from overheating and/or detonation have been mistakenly continued in service, leading to more serious failure.

It is the purpose of this section to define several basic conditions which may be found and to make appropriate recommendations for the action to be taken for each. It is not intended to discuss all possible discrepancies which may be encountered such as cracked nose ceramic, shielding barrel insulation failures, etc., as they do not impose a recognition problem and the action to be taken is clear.

SILVER RUN-OUT OF FINE WIRE ELECTRODE-TYPE SPARKPLUGS — When a fine wire electrode type sparkplug is subjected to pre-ignition and detonation, the excessive combustion temperature may cause the silver spindle of the center electrode to flow toward the firing end of the electrode. Small globules of silver are usually formed at or near the junction of the nose ceramic and the center electrode.

Silver run-out is attended by other combustion chamber distress and, therefore, it is recommended that the affected cylinders be replaced.

COPPER RUN-OUT OF MASSIVE ELECTRODE-TYPE SPARKPLUGS — This difficulty is usually the result of pre-ignition and detonation where by abnormally high combustion chamber temperatures causes the copper core of the center electrode assembly to melt and flow. In most cases the copper will bridge the electrode gap, rendering the plug inoperative.

Visual inspection of the plug will disclose copper loss and concavity of the center electrode if the plug is so designed that the copper core is normally exposed. In sparkplugs which incorporate a nickel-steel capped center electrode, this type of failure is characterized by a minute perforation of the cap and the presence of copper outside of the steel cap.

When the foregoing is encountered, other attendant combustion chamber difficulties have been regularly noted. Hence, replacement of the affected cylinder assemblies is recommended.

CENTER ELECTRODE CORE EROSION — Sparkplugs in which the copper core of the center electrode is exposed to combustion will exhibit erosion of the soft copper. The concavity seldom progresses to a depth which seriously affects the sparkplug rating. Erosion to a depth of 3/32 inch is acceptable, provided that the sparkplug is satisfactory in other respects. Should the erosion exceed the foregoing limit, replace the sparkplug.

INTERGRANULAR CORROSION — In the initial stages, intergranular corrosion of the center electrode nickel alloy sheath is detectable by linear cracks of the sheath and diametric expansion of the center electrode. As the condition progresses, the sheath may crumble, leaving some of the copper core

7-14

PERIODIC INSPECTION

protruding beyond the sheath. The deterioration will be more pronounced in cylinders which operate at higher temperatures. This is considered to be a sparkplug fault and substitution of a satisfactory plug is required.

CENTER ELECTRODE TIP SCALE — The formation of scale on the end of the center electrode assembly has been confused at times, with copper run-out. The carbon-lead scale appears as a bulbous formation attached to

the end of the center electrode, seldom protruding beyond its normal diameter.

In the usual quantities, such hemispherical scale is of no consequence to normal sparkplug operation. Usual abrasive cleaning of the plug will detach the formation. As a precaution, such plugs may be cleaned prior to reinstallation, or they may be replaced. No other corrective or precautionary measures need be undertaken.

**Installed
Engine/
Propeller**

	Bulkhead Fitting Straight & Steel #4 M/P at Fire shield	1
C2E169AND/C2E181AND/C2E187AND	Blast Tubes	1 set
	Primer Bulkhead Fitting #4	1
	Primer Line/ Spider to Fire Shield	1
	Large Breather Fitting	1
VIP 101-78 / MB100878	Set of Lord Mounts	1
NAR9B-18	Carb & Gasket	1
C-4-2	Prop Governor & Gasket	1
756-21-C	Starter & Gasket	1
7555T	Alternator & Gasket	1
AN4100 / 2BRD400-5	Fuel Pump & Gasket	1
AA3216CW	Vacuum Pump & Gasket	1
RFS DHC2 OEM Hose Kit, or RFS DHC2 EXD Hose Kit, or RFS DHC2 Sealand EXD Hose Kit	Hose Kit	1
MB100888	Dog Bones (6)	1 set

DHC2 Engine build-up & Replacement (things to know)

1. Remove screw holding air box (inside the air filter housing) to the firewall, before slinging of engine away from the airframe.
2. Remove Carburetor inlet temperature cannon plug from engine, before slinging of engine away from the airframe.
3. Remove cylinder #5 intake tube for installation of new engine mounting, bolt to engine mount assembly.

Build-up of Engine

1. Install all inner cylinder baffles and safety (wing bolt brace is installed on 3rd upper fin of cylinder barrel.
2. Remove Magneto booster coil wire (no longer used) and cap.
3. Install rear stark plugs & torque (REM38S fine wires).
4. Modification to cylinder #1 head baffle to make room for EGT probe on exhaust segment.
5. Transfer all items from old engine to new engine.

6. Insure that new carburetor enrichment valve shaft has same measurement valve as old carburetor (top side of jam nuts to end of shaft, approximately 3/8 ").
7. Position dishpan on new engine mount, install on firewall (nuts finger tight) temporary install boot cowl for correct alignment, remove mount assembly, and tighten dishpan-mounting hardware.
8. Torque stripe all cylinder base nuts.
- 9.

Removal of Engine

1. Disconnect and remove battery.
2. Drain sump and rocker sump.
3. Disconnect all connection from engine mount to firewall.
4. Remove aft connection of all fuel/ oil/ vacuum hoses (placard all hoses).
5. Placard all electrical connection and, disconnect at engine.
6. Disconnect all engine controls, i.e.: throttle, mixture, propeller, carburetor heat.

Installation of Engine

1. Sling engine into approximate position and connect Carburetor inlet temperature cannon plug to engine, tighten.
2. Ensure engine mount bolts are positioned and marking of cotter pin holes are correct for installing of cotter pins after torque of castle nuts.
3. Make all connections to fire wall.
4. Pre-oil engine prior to start-up (remove oil scavenge line at front of engine, below propeller shaft, cap boss at engine, bridge connection and pre-oil towards fire wall, (priming of the oil pump)).
5. Start engine at low R.P.M. (for maximum circulation of oil throughout oil galleys and cylinders.
6. Torque stripe all fuel/ oil connections.

Items:		Mech Sign.	RII Safeties
1.	Engine-to-mount torque and safety (12 each).		
2.	Mount-to-airframe torque and safety (4 each).		
3.	Propeller installation (internal & external safeties).		
4.	Throttle control linkage.		
5.	Propeller control linkage.		
6.	Mixture control linkage.		
7.	Carb Air heat control linkage		
8.	Carb Air temp probe.		
9.	Intake Cylinder #5.		
10.	All fuel hoses.		

11.	All oil hoses.			
12.	Service oil tank.			
13.	Oil filter housing cap.			
14.	All loose caps/ plugs.			
15.	Governor.			
16.	Carburetor.			
17.	Vacuum pump.			
18.	Starter.			
19.	Magneto -LH.			
20.	Magneto -RH.			
21.				
22.				
23.				
24.				
25.				
26.				

R985 Build Up

2225
2225
2225

[illegible][illegible]

Engine Run

[illegible]

ENGINE RECORD

Manufacturer: **Pratt & Whitney**

Model: **R-985-AN-14B**

Serial No: **210476**

Type Certificate: **5E-1**

This engine is currently installed in
aircraft: _____

Min. Octane Fuel: **80/87 Aviation *** Spark Plug Gap: **.015 - .018 in. ***

Oil Grade Summer: **120 wt.**

Winter: **100 wt.**

Magneto Time: **25° BTC**

Point Setting: **Bosch .008 - .010 in.**

Firing Order: **1-3-5-7-9-2-4-6-8**

Bendix N/A

Recommended Overhaul at _____ Hours. *

Crankshaft Serial No.: **11A8682**

Cam Serial No.: **13505/DK-582**

* see Pratt & Whitney Maintenance Manual P/N 118611

NOTES

CAUTION

RUN THIS ENGINE WITH NON-DETERGENT OIL 100-120
UNTIL RINGS COMPLETELY SEAT.
NONCOMPLIANCE NULLIFIES WARRANTY.
WARRANTY VOID, IF ENGINE IS RUN
WITH AUTOMOTIVE FUEL.

In the absence of manufactures specific operating instructions please
note the following recommendations:

- 1) Avoid Idling engine at lower Manifold Pressures for extended periods of time, for at least 35 hrs of operation.
- 2) Use full power at take-off to Facilitate proper cylinder cooling.
- 3) Maintain a least 1" of manifold pressure for every 100-RPM on extended descents.
- 4) Cruise Power - Maximum spread of 10 or less on Manifold to RPM. i.e. 2000 RPM = 30" Hg., 1900 RPM = 29" Hg.
- 5) Avoid shock-cooling Cylinder before and during shut down.

COVINGTON AIRCRAFT ENGINES, INC.
OKMULGEE OKLAHOMA 74447
SHOP No. CP2R750K

DATE	TOTAL TIME IN SERVICE	TOTAL TIME SINCE OVERHAUL	TACH OR RECORDING METER TIME	DESCRIPTION OF WORK PERFORMED - SIGNATURE & CERTIFICATE NO. OF PERSON PERFORMING WORK



FAA Approved Repair Station No. CP2R750K EASA.145.4356
Hwy. 75 N. & Airport Road / P.O. Box 1344
Okmulgee, OK 74447 Ph: 918-756-8320 Fax: 918-756-3424

Date: December 18, 2018	Engine Model: R-985-AN-14B	Engine S/N: 210476	TSOH: 0:00	EST. Total Time: 9800.00
Crankshaft S/N: B-9042	Crankshaft P/N: 261280	Cam S/N: 218786-26	Cam P/N: 9903	

OVERHAULED IN ACCORDANCE WITH PRATT & WHITNEY OVERHAUL MANUAL PN 123440 AND COVINGTON PROCESSES. C/W A.D. NOTE 56-06-02, 57-05-04, 66-14-04, 68-09-01, & 78-08-07. ENGINE TEST RUN - TEST OK. "NEW PISTONS".

MAINTENANCE RELEASE:

This certifies that the work specified above was carried out in accordance with Federal Aviation Regulations and current manufacturer's specifications. In respect to the work performed, the engine/component is approved for return to service.

Pertinent details of the repair are on file at this repair station under work order No: **12395**

Authorized Signature:

Date: December 18, 2018

08/28/2021

N4444Z

Mx Hobbs: 1583.3

TTSN: 9800.0

SMOH: 0.0

Removed Propeller, Serial Number EM155 to facilitate scheduled engine change. Removed engine R985-14B, Serial Number 7800, in serviceable condition, for time limits. Installed Covington OHC (Ovhl w/o #12395) engine Serial Number 210476 on airframe, N4444Z with the following:

Left Magneto, PN SB9RU-3, Serial BB-8639, 0.0 SMOH. Installed on engine at delivery.

Right Magneto, PN SB9RU-3, Serial B-44627, 0.0 SMOH. Installed on engine at delivery.

Installed Repaired Starter, PN 756-21C, Serial 2842.

Installed OHC Fuel Pump, PN TF900-5, Serial TF479913W

Installed OHC Propeller Governor, PN C-4-2, Serial Number 641KJ.

Installed New Vacuum Pump, PN AA3216CW, Serial Number ON9M19.

Installed OHC Alternator, PN 7555T, Serial Number H-U031333.

Installed NEW set of VIP 101-78 vibration isolators, Re-installed Aviall hose kit, engine attach hardware, New CHT & EGT probe, new engine baffle set. Pre-oiled engine and serviced with 5 gallons Phillips 25W60 oil.

Re-installed propeller EM155 using new O-ring. Rll'ed all engine and propeller safeties. Verified throttle, propeller, mixture and carb-heat control rigging. Verified fuel and oil pressures, accelerator pump, idle mixture setting, propeller governor take-off RPM and adjusted as required to manufactures specifications. Engine run-up and leak checked OK. This engine is approved for return to service. -End

Colin Rust

DATE	TOTAL TIME IN SERVICE	TOTAL TIME SINCE OVERHAUL	TACH OR RECORDING METER TIME	DESCRIPTION OF WORK PERFORMED - SIGNATURE & CERTIFICATE NO. OF PERSON PERFORMING WORK
8/28/21				R/R Starter S/N 2842 With Time continued
Hobbs: 1587.5				starter S/N 441. Ground checks correct.
				[REDACTED] A&P [REDACTED]
9/4/21				
Hobbs: 1612.5				Performed oil screen inspection check. Inspected filter, no ab-normal indications exist. Leaks check good, safety RIFed. [REDACTED]

Rust's Flying Service
W/O#: 20210908E

Open at date : 9/8/2021
Close date : 9/10/2021
Tel : 907-771-2150
Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA 99519

For Aircraft : N4444Z , Engine , R-985-AN-14B , 210476

Total:	Hours <u>9848.00</u>	Cycles	Landings	Other
Engine	TSO <u>48.00</u>	CSO	LSO	OSO

Mx Hobbs: 1631.3

- Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect IAW a 100 hour checklist.....Compressions: 78,80,78,80,77,78,77,80/80.....Performed inspection on this date using a company 100 hour checklist...Corrective actions: Tightened leaking cyl #1 push rod gland nuts & repl rocker shaft o-ring..
- Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P [REDACTED]

Signature : [REDACTED]

Rust's Flying Service **W/O#: 20220118E**

Open at date : 1/18/2022
 Close date : 3/22/2022
 Tel : 907-771-2150
 Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA 99519
 For Aircraft : N4444Z , Engine R-985-AN-14B , 210476
 Total: Hours 9901.50 Cycles Landings Other
 Engine TSO 101.50 CSO LSO OSO
 Mx Hobbs: 1684.8

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/AW a 100 hour checklist.....Performed inspection on this date using a company 100 hour checklist...Corrective actions: Tightened leaking cyl #1 exh rckr shaft nut, tightened spinning cyl #2 int rckr shaft nut.
- 3 , Performed Inspection/Check, Engine Cylinder Valve Adjustment. Valve Adjustment . Verify IAW R985 Maint. Man. cold valve lash measurement of 0.010".....Performed IAW M/M for 0.010" cold clearance. Rll'ed all locking jam nuts, used new cover gaskets. -no leaks.
- 4 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust
 Certificate Number : A&P
 Signature :

Rust's Flying Service **W/O#: 20220607E**

Open at date : 6/7/2022
 Close date : 6/8/2022
 Tel : 907-771-2150
 Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA 99519
 For Aircraft : N4444Z , Engine R-985-AN-14B , 210476
 Total: Hours 9973.80 Cycles Landings Other
 Engine TSO 173.80 CSO LSO OSO
 Mx Hobbs: 1757.1

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed visual inspection as detailed in the AD and SEB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/AW a 100 hour checklist.....Performed inspection on this date using a company 100 hour checklist...Compressions: 78,78,79,78,79,78,79,79,79/80.....Corrective actions: -None.
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust
 Certificate Number : A&P
 Signature :

Rust's Flying Service **W/O#: 20220628E**

Open at date : 6/28/2022
Close date : 6/29/2022
Tel : 907-771-2150
Page: 1 Of 1

DATE

P.O. Box 190867 Anchorage Alaska USA 99519
For Aircraft : N4444Z , Engine , R-985-AN-14B , 210476

Total: Hours 10069.50 Cycles Landings Other
Engine TSO 269.50 CSO LSO OSO

Mx Hobbs: 1852.8

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed visual inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/AW a 100 hour checklist.....Performed inspection on this date using a company 100 hour checklist...Compressions: 78,79,79,79,79,79,79,79,78/80.....Corrective actions: - None.
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P

Signature :

RMING WORK

Rust's Flying Service **W/O#: 20220713E**

Open at date : 7/13/2022
Close date : 7/14/2022
Tel : 907-771-2150
Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA 99519
For Aircraft : N4444Z , Engine , R-985-AN-14B , 210476

Total: Hours 10148.80 Cycles Landings Other
Engine TSO 348.80 CSO LSO OSO

Mx Hobbs: 1932.1

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed visual inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/AW a 100 hour checklist.....Performed inspection on this date using a company 100 hour checklist...Compressions: 79,79,79,79,79,79,79,79,79/80.....Corrective actions: -Tightened cyl #2 exhaust push tube housing..
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : IA

Signature :

Rust's Flying Service **W/O#: 20220728E**

Open at date : 7/28/2022

Close date : 7/29/2022

Tel : 907-771-2150

Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA 99519

For Aircraft : N4444Z , Engine R-985-AN-14B , 210476

Total: Hours 10213.50 Cycles Landings Other
 Engine TSO 413.50 CSO LSO OSO

Mx Hobbs: 1996.8

G WORK

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed visual inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect IAW a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Compressions: 78,80,80,80,80,80,80,79,80/80.....Corrective actions: - Re-tightened fuel press. "T" line elbow at carburetor..
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P [REDACTED]

Signature : [REDACTED]

8/4/22
 Hobbs: 2040.5

PILOT SQUAWK: IDLE TO HIGH
 1000 RPM

CORRECTIVE ACTION: LUBRICATED
 CARBURETOR PLUNGER. OPS CHECK
 GOOD.

A&P [REDACTED]

Rust's Flying Service
W/O#: 20220811E

Open at date : 8/11/2022
Close date : 8/12/2022
Tel : 907-771-2150
Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA 99519

For Aircraft : N4444Z , Engine , R-985-AN-14B , 210476

Total:	Hours <u>10292.60</u>	Cycles	Landings	Other
Engine	TSO <u>492.60</u>	CSO	LSO	OSO

Mx Hobbs: 2075.9

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed visual inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/AW a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Compressions: 74,79,78,79,78,79,79,79/80.....Corrective actions: - Re-timed both magnetos to 25° BTDC.
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P

Signature :

Rust's Flying Service
W/O#: 20220828E

Open at date : 8/28/2022
Close date : 8/29/2022
Tel : 907-771-2150
Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA 99519

For Aircraft : N4444Z , Engine , R-985-AN-14B , 210476

Total:	Hours <u>10371.50</u>	Cycles	Landings	Other
Engine	TSO <u>571.50</u>	CSO	LSO	OSO

Mx Hobbs: 2154.8

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/AW a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Compressions: 72,80,80,80,80,80,80,80/80.....Corrective actions: -Tightened 'Y' sump clamps.
- 3 , Performed Inspection/Check, vacuum pump inspection. vane wear. I/AW MFG instructions.....Performed inspection as detailed in the Manufacture's instruction. -No discrepancies noted, Normal wear pattern observed.
- 4 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P

Signature :

W/O # 20230203E
N4444Z
O: 02/03/2023 C: 02/16/2023
Mx Hobbs: 2244.7
TSN: 10,4641.4
SMOH: 66.4

Corrective actions:

See next entry for inspection sign-off.

Staked cylinder #1 intake & exhaust valves and replaced valve cover gaskets. Dressed cylinder #1 broken cooling fin. Cleaned rear spark plug threads. Tightened leaking #9 rocker drain clamp. Tightened leaking sump and rocker drain hardware. Replace O-ring on #1 rocker pin exhaust side. Replaced leaking starter gasket. Tightened fuel intake boss and fitting at carburetor. Replaced leaking #3 base O-ring. Torqued all base nuts. Re-installed #1 rear sparkplug F.O.M. Rll'ed all disturbed items for safeties. Performed leak checks where applicable. This aircraft is approved for return to service.

Colin Rust A/P

Rust's Flying Service
W/O#: 20230203E

Open at date : 2/3/2023

Close date : 2/16/2023

Tel : 907-771-2150

Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA

99519

For Aircraft : N4444Z

, Engine

, R-985-AN-14B

, 210476

Total: Hours 10461.40

Cycles

Landings

Other

Engine TSO 661.40

CSO

LSO

OSO

Mx Hobbs: 2244.7

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/A/W a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Compressions: *.80,80,80,80,80,80,80,80/80.....Corrective actions: See previous entry for corrective actions.
- 3 , Performed Inspection/Check, Engine Cylinder Valve Adjustment. Valve Adjustment . Verify IAW R985 Maint. Man. cold valve lash measurement of 0.010".....Adjusted Cyl #1, 4, 5, and 9. Torqued checked nuts. Installed new gaskets at cover re-installation.
- 4 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : IA

Signature :

Rust's Flying Service **W/O#: 20230607E**

Open at date : 6/7/2023
Close date : 6/8/2023
Tel : 907-771-2150
Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA 99519
For Aircraft : N4444Z , Engine , R-985-AN-14B , 210476
Total: Hours 10518.50 Cycles Landings Other
Engine TSO 718.50 CSO LSO OSO
Mx Hobbs: 2301.8

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/A/W a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Compressions: 65,78,78,77,78,76,76,77,78/80.....Corrective actions: Tightened valve cover hardware #2 & intake tube #4 & #8, starter attachment.
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P

Signature :

Rust's Flying Service **W/O#: 20230617E**

Open at date : 6/17/2023
Close date : 6/18/2023
Tel : 907-771-2150
Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA 99519
For Aircraft : N4444Z , Engine , R-985-AN-14B , 210476
Total: Hours 10560.80 Cycles Landings Other
Engine TSO 760.80 CSO LSO OSO
Mx Hobbs: 2344.1

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/A/W a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Corrective actions: Replaced leaking starter gasket. Staked both cyl. #1 valves..
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P

Signature :

Rust's Flying Service

W/O#: 20230703E

Open at date : 7/3/2023

Close date : 7/4/2023

Tel : 907-771-2150

Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA

99519

For Aircraft : N4444Z , Engine , R-985-AN-14B , 210476

Total:	Hours <u>10641.80</u>	Cycles	Landings	Other
Engine	TSO <u>841.80</u>	CSO	LSO	OSO

Mx Hobbs: 2425.1

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/A/W a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Compressions: 54,78,76,77,79,78,78,79,77/80.....Corrective actions: Repl starter w/ OHC PN 756-21/E80, serial 2842. Repl intake gaskt. cyl #8. Cashed sparkplug boss #1, 9. Tightened pushrod housing glad cyl #3.
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P

Signature :

7/8/23

TSN: 10666.60

R+R starter new S/N 274-U ops ✓ good

Hobbs 2449.9

RTI'd Leak ✓ good

A&P

Rust's Flying Service

W/O#: 20230720E

Open at date : 7/20/2023

Close date : 7/21/2023

Tel : 907-771-2150

Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA

99519

For Aircraft : N4444Z , Engine , R-985-AN-14B , 210476

Total:	Hours <u>10717.50</u>	Cycles	Landings	Other
Engine	TSO <u>917.50</u>	CSO	LSO	OSO

Mx Hobbs: 2500.8

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SEB. -No discrepancies noted.
- 2 , Performed Discrepancy, Corrective Actions: . Correcting New Discrepancies. Removed Carburetor. Installed OHC PN NAR9B-18, serial 5822150 w/ new gaskets. rigged arms. No leaks..
- 3 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/A/W a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Compressions: 70,80,78,79,80,80,78,80,79/80.....Corrective actions: -See disc.
- 4 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P

Signature :

N4444Z
7-21-2023
HOBBS: 2501.3

NG WORK

Replaced Cylinder #1 with OHC cylinder (incl. piston) assembly. Installed new cylinder base O-ring. Installed new pushrod tube seals and backer rings. Installed new induction tube copper gasket. Installed new rocker box gaskets. Installed new primer elbow. Installed serviceable intake and exhaust pushrods. Torqued all base nuts. All work Rll'ed and leak checked. Completed new cylinder break in engine run IAW P&W R985 manual.

30 min @ 1000 RPM

30 min @ 1400 RPM

30 min @ short spurts up to 2000 RPM

Verified oil temp and pressure in green range at all times

Verified CHT did not exceed 205 degrees C

This aircraft engine approved for return to service.

Colin Rust AP

7/31/23

Hobbs 2502.0

TSN 10,759.5

REMOVED CARBURETOR P/N R9B-18

S/N 5822150. INSTALLED CARBURETOR

P/N NAR9B S/N 5778971.

RJI, LEAK CHECK, OPS CHECK GOOD.

THIS AIRCRAFT ENGINE APPROVED FOR
RETURN TO SERVICE.

A+P

Rust's Flying Service
W/O#: 20230805E

Open at date : 8/5/2023

Close date : 8/6/2023

Tel : 907-771-2150

Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA

99519

For Aircraft : N4444Z

, Engine

, R-985-AN-14B

, 210476

Total: Hours 10787.00

Cycles

Landings

Other

Engine TSO 987.00

CSO

LSO

OSO

Mx Hobbs: 2570.3

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/AW a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Compressions: 78,76,79,78,76,77,79,78,78/80.....Corrective actions: -Tightened leaking rocker shaft nut 1 flat & safetied..
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P

Signature :

Open at date : 8/20/2023
Close date : 8/21/2023
Tel : 907-771-2150
Page: 1 Of 1

DATE	TOT TIME SERV
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P.O. Box 190867 Anchorage Alaska USA		99519	Tel :
For Aircraft : <u>N4444Z</u>		, Engine	, <u>R-985-AN-14B</u>
Total:	Hours <u>10859.40</u>	Cycles	Landings
Engine	TSO <u>1059.40</u>	CSO	LSO

Mx Hobbs: 2642.7

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/A/W a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Compressions: 78,74,78,78,78,78,78,78/80..... Corrective actions: -Timed LH magneto to 25° BTDC. Tightened cyl #5 rocker drain clamp..
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted. serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number: A&P

Signature :

Open at date : 9/18/2023
Close date : 9/19/2023
Tel : 907-771-2150
Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA		99519	
For Aircraft : <u>N4444Z</u>		, <u>Engine</u> , <u>R-985-AN-14B</u> , <u>210476</u>	
Total:	Hours <u>10936.90</u>	Cycles	Landings
Engine	TSO <u>1136.90</u>	CSO	LSO

Mx Hobbs: 2720.2

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/A/W a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist.....Compressiouns: 79,78,74,80,78,79,79,79,80/80..... Corrective actions: -Blended cracked fin on cyl #5. Tightend oil tranfer hardware on Cly #9 & 2..
- 3 ; Performed Inspection/Check, vacuum pump inspection. vane wear. I/A/W MFG instructions.....Performed inspection as detailed in the Manufacturer's instructions. -Pump beyond limits. Removed AA3216CW, serial ON9M19. Installed new serial OXVX08. Ops normal..
- 4 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted. serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P

Signature :

Rust's Flying Service **W/O#: 20231103E**

Open at date : 11/3/2023
Close date : 12/31/2023

DATE

P.O. Box 190867 Anchorage Alaska USA

99519

Tel : 907-771-2150

Page: 1 Of 1

For Aircraft : N4444Z

Engine

R-985-AN-14B

210476

Total: Hours 10976.30

Cycles

Landings

Other

Engine TSO 1176.30

CSO

LSO

OSO

Mx Hobbs: 2759.6

MED -
PERFORMING WORK

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/A/W a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist.....Compressions: 78,60,74,78,77,78,79,78,79/80..... Corrective actions: Replaced intake gskts #1,2 & 8. Tightened rckr drms #2, 3, 6, 9 & exh. pushrod housing #9. Repl ign cover rear #9..
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : IA

Signature :

Rust's Flying Service **W/O#: 20240619E**

Open at date : 6/19/2024
Close date : 6/19/2024

P.O. Box 190867 Anchorage Alaska USA

99519

Tel : 907-771-2150

Page: 1 Of 1

For Aircraft : N4444Z

Engine

R-985-AN-14B

210476

Total: Hours 11057.60

Cycles

Landings

Other

Engine TSO 1257.60

CSO

LSO

OSO

Mx Hobbs: 2840.9

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/A/W a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Compressions: 78,78,70,78,78,79,79,79,78/80.....Corrective actions: -Replaced clamp for oil transfer tube on cyl. #9 exhaust..
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P

Signature :

Rust's Flying Service **W/O#: 20240701E**

Open at date : 7/1/2024

Close date : 7/1/2024

Tel : 907-771-2150

Page: 1 Of 1

DATE TO
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P.O. Box 190867 Anchorage Alaska USA 99519

For Aircraft : N4444Z , Engine , R-985-AN-14B , 210476

Total: Hours 11129.10 Cycles Landings Other
Engine TSO 1329.10 CSO LSO OSO

Mx Hobbs: 2912.4

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/A/W a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Compressions: 78,78,60,78,78,78,78,78/0.....Corrective actions: -Adjusted LH magneto to 25° BTDC. Verified torque on cyl #1 attach stud and re- torque striped.
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P

Signature :

ING WORK

Rust's Flying Service **W/O#: 20240719E**

Open at date : 7/19/2024

Close date : 7/19/2024

Tel : 907-771-2150

Page: 1 Of 1

P.O. Box 190867 Anchorage Alaska USA 99519

For Aircraft : N4444Z , Engine , R-985-AN-14B , 210476

Total: Hours 11213.40 Cycles Landings Other
Engine TSO 1413.40 CSO LSO OSO

Mx Hobbs: 2996.7

- 1 , Performed Airworthiness Directive, cyl seperation. . AD 78-08-07 & SB 1785, Latest Revision.....Performed inspection as detailed in the AD and SB. -No discrepancies noted.
- 2 , Performed Inspection - Scheduled, 100 Hour Inspection. . Inspect I/A/W a 100 hour checklist.....Performed inspection on this date using a company 100 Hour checklist..... Compressions 80,80,65,80,80,80,75,80,80.....Corrective actions: Chased cyl #8 S.P. threads. Adjusted LH magneto. Replaced hose clamp on #8 cross-over tube..
- 3 , Performed Servicing - Scheduled, oil change. . Drain, clean filter & service with Phillips 25W60 oil.....Performed by draining tank and sumps. Cleaned filter screen, -No metal noted, serviced with oil. No leaks.

Certificate of return to service

This Engine has been inspected IAW an 100 hr. inspection checklist and was determined to be in airworthy condition and is approved for return to service-end

Signed off by : Colin. Rust

Certificate Number : A&P

Signature :

D_t

FORMING WORK

ETTSN: 11,227.9

Corrective actions: Removed Cylinder #3 assembly for an intake valve issue. Installed OHC cylinder (chrome, upper) assembly PN 399353CP, serial LN635. Torqued all attach nuts, re-installed pushrods, set cold valve clearance. Used all new O-rings, gaskets or seals. Re-assembled all item removed for replacement. Run up and leak checked OK. This aircraft engine is approved for return to service.

Sam Froh

8/5/2024

REMOVED THIS R985-14B ~~SR~~ AC 210476 FROM

LX NABS: 3066.7

NOTHING IN UN-SERVICEABLE CONDITION.

TTSN:	11283.4
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5 moti:	1483.4
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