MANUFACTURER CESSNA AIRCRAFT CO. MODEL SKYHAWK 172M SERIAL 17261330 REG. NUMBER N20487 DATE OF MAN. 1-13-73 ENGINE INSTALLED MANUFACTURER LYCOMING MODEL O-320-E2D SERIAL L-25914-27A PROPELLER INSTALLED MANUFACTURER McCAULEY MODEL 1C160-CTM7553 SERIAL 722743 **REGISTERED OWNER** METHOW AVIATION INC.

15400 Airport Dr. Suite A Burlington, WA. 98233

#### 27 MAR. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3432.7 ENGINE TSMO 397.7 PROPELLER TSMO 0.0

Complied with AD 99-27-02 Fuel selector valve in accordance with Para. 1 Sec. i. No fuel selector or valve cams have been replaced in stated time period. Complied with AD 2000-06-01 Fuel filter assy. in accordance with Para. C. No parts were replaced on fuel filter assy. during stated time period.

Walter Kingslev A & P 567611745

28 MAR. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3432.7 ENGINE TSMO 397.7 PROPELLER TSMO 0.0

Removed propeller S/N 710241and installed an overhauled propeller S/N 722743. Tightened Alternator battery terminal nut. Routed oil pressure line so it would not chafe against engine mount. Removed and replace four cowling shock mounts. Installed one missing 1/4 turn fastener. Remove rear seat, seat belts and carpet. Removed all wheel pans. Installed cargo net tie down rings. Weight and balance has been updated. Walter Kingsley

30 APR. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3466.6 ENGINE TSMO 431.6 PROPELLER TSMO 33.9

Installed Stabilizer Abrasion Boots, P/N 1232040-5, in accordance with Cessna Service Manual, P/N D972-3-13, Section 4. Revised Weight and Balance.

Walter Kingsley A & P 567611745

1 MAY 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3468.6 ENGINE TSMO 433.6 PROPELLER TSMO 35.9

This aircraft has been inspected and serviced in accordance with a Cessna 172 50 hour inspection check list. All of the following work was preformed in accordance with a Cessna Service Manual P/N D972-3-13 Rev. 3TR2 and a Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7 Rev. 8. Removed and replaced number 3 exhaust stack with a serviceable one. Serviced battery with water. Serviced brake reservoirs with MIL-H-5606 Hydraulic Fluid. This aircraft was ground operated. All systems checked within limits. I certify this aircraft has been inspected in accordance with the requirement of a 50 hour inspection and was determined to be in airworthy condition.

Walter Kingsley P 567611745

#### 3 JUN 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3497.5 ENGINE TSMO 462.5 PROPELLER TSMO 64.8

Removed and replaced right Lifting Strut upper and lower fairings. Removed and replaced both right and left Main Landing Gear Tires and lubricated main wheel bearings.

Walter Kingsley

#### 19 JUN. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3518.8 ENGINE TSMO 483.8 PROPELLER TSMO 86.1

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection Operations has been completed with numbers 1, 2, 3 and 4. The fallowing Airworthiness Directives were complied with. AD 76-07-12 Bendix Ignition Switches was complied with in accordance with Para. a, b and c. No defects found. AD next due at TT 3618.8. AD 87-20-03 R2 Cessna seat tracts was complied with in accordance with Part II sec. c, Para. a sec. 1, 2, 3, 4, 5, 6 and 7, and Cessna service letter SE83-6. No defects found. AD next due at TT 3618.8. AD 96-09-06 Brackett air filter gasket was complied with in accordance with Para. a and Brackett Doc. I-194. No defects found. Next due at TT 3618.8. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Tightened left and right Aileron hinge attach screws (6 hinges total ). Installed one roll pin in Pilot's seat up and down adjustment bellcrank. Installed two roll pins in Pilot's seat back adjustment bellcrank. Removed and replaced left and right brake linings. Removed and replaced pilot's side instrument panel shock mounts. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the aircraft and a detailed inspection of all components were preformed and the aircraft is approved for return to service. Walter Kingsley

22 JUL 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3569.0 ENGINE TSMO 534.0 PROPELLER TSMO 136.3

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 1. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the aircraft and a detailed inspection of Flight Controls and Engine were preformed and the aircraft is approved for return to service. Walter Kingsley

& P 5676117

#### 15 AUG. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3620.0 ENGINE TSMO 585.0 PROPELLER TSMO 187.3

Complied with AD 87-20-03 R2 Seat track insp. in accordance with part II sec. C para. A sec. 1, 2, 3, 4, 5, 6 and 7 and Cessna Service Letter SE83-6. No defects found. Next Due at TT 3718.8. Complied with AD 76-07-12 Bendix Ign. switch in accordance with para. A, B and C. No defects found. Next due at TT 3718.8. Complied with AD 96-09-06 Bracket air filters in accordance with para. A and Bracket Doc. I-194. No defects found. Next due at TT 3718.8. Walter Kingsley

19 AUG. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3624.6 ENGINE TSMO 589.6 PROPELLER TSMO 191.9

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 2. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Replaced nose landing gear tire and lubricated nose wheel bearings. Replaced right and left brake linings. Tightened torque link bolts. Replaced landing light. Tightened Alternator belt. Tightened attacking screws to oil cooler. Replaced vacuum system relief filter. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the aircraft and a detailed inspection of Landing Gear System and Vacuum System were preformed and the aircraft is approved for return to service.

Walter Kingsley

30 AUG. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3647.6

Removed and replaced alternator and alternator bracket. The proceeding work was preformed in accordance with Cessna Service Manual P/N D972-3-13. This aircraft was ground operated. Alternator systems checked within limits.

Walter Kingsley 611745

12 SEP. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3667.8 ENGINE TSMO 632.8 PROPELLER TSMO 235.1

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 3. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced Left Lifting Strut Fairings. Removed and replaced left and right upper Landing Gear Strut Fairings. Removed and replaced Steering Rod Boots. Complied with AD 96-09-06 in accordance with para. A and Bracket doc. I-194. No defects found. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Continued on next page

#### 12 SEP. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3667.8 ENGINE TSMO 632.8 PROPELLER TSMO 235.1

#### 27 SEP. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3701.5 ENGINE TSMO 666.5 PROPELLER TSMO 268.8

Removed McCauley Wheels (P/N C163002-0101) and Brakes (P/N C163032-0101). Installed Cleveland Conversion Kit 199-84A in accordance with Cleveland Drawing Number 50-57C. Weight and Balance updated and FAA Form 337 filed (dated 27 SEP. 2002). Walter Kingsley

8 OCT. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3718.7 ENGINE TSMO 683.7 PROPELLER TSMO 286.0

Complied with AD 87-20-03 R2 Seat track insp. in accordance with part II sec. C para. A sec. 1, 2, 3, 4, 5, 6 and 7 and Cessna Service Letter SE83-6. No defects found. Next Due at TT 3818.7. Complied with AD 76-07-12 Bendix Ign. switch in accordance with para. A, B and C. No defects found. Next due at TT 3818.7. Walter Kingsley

10 OCT. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3723.8 ENGINE TSMO 688.8 PROPELLER TSMO 291.1

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 4. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Serviced Nose Landing Strut with Hydraulic Fluid and Nitrogen. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a detailed inspection of Landing Gear, Instruments, Avionics, and Vacuum System were preformed and the aircraft is approved for return to service.

Valter Kingsley

#### 8 Nov. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3765.5 ENGINE TSMO 730.5 PROPELLER TSMO 332.8

Complied with AD 96-09-06, Bracket air filter gasket, in accordance with para. A and Bracket doc. I-194. No defects found.

Walter Kingsley

#### 14 Nov. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3770.5 ENGINE TSMO 735.5 PROPELLER TSMO 337.8

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 1. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Serviced battery with water. Replaced flap chafe buttons on the right and left sides. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the aircraft and a detailed inspection of Flight Controls and Engine were preformed and the aircraft is approved for return to service.

567611745

30 Dec. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3816.1 ENGINE TSMO 781.1 PROPELLER TSMO 383.4

All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13. Removed right Flap to facilitate other maintenance. Removed right Fuel Tank to facilitate other maintenance. Disconnected Flap and Aileron control cables to facilitate other maintenance. Cut right Auxiliary Spar at wing station 45.00 and removed to gain access to Rib-Flap Track at wing station 39.00. Removed Rib-Flap Track at wing station 39.00. Repaired Rear Spar at wing station 39.00 by stop drilling crack and Patching (Note: type aluminum used for patch 2024-T3 .040 in thickness and MS20470AD4 rivets installed) in accordance with Section 18 of the Cessna Service Manual. Installed new Flap Track P/N 0523231-13 with rivets MS20470AD3, 4 and 5. Repaired Auxiliary Spar at wing station 39 by removing damaged area and installing a two flush patches and spliced at wing station 45 (Note: type aluminum used for patch 2024-T3 .025 in thickness and MS20470AD3 rivets installed) in accordance with Section 18 of the Cessna Service Manual. Connected and rigged Flap control cables in accordance with Section 7 of the Cessna Service Manual. Connected Aileron control cables in accordance with Section 6 of the Cessna Service Manual. Installed right fuel tank and replaced fuel breather line coupling in accordance with Section 12 of the Cessna Service Manual. Installed Flap in accordance with Section 7 of the Cessna Service Manual. Aircraft was flight tested and all systems checked with in limits. FAA form 337 filed with FAA.

alter Kingslev & P 567611745 IA

#### 31 Dec. 02 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3816.9 ENGINE TSMO 782.0 PROPELLER TSMO 384.3

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 2. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Complied with AD 76-07-12 Bendix Ign. switch in accordance with para. A, B and C. No defects found. Next due at TT 3916.9. Complied with AD 87-20-03 R2 Seat track insp. in accordance with part II sec. C para. A sec. 1, 2, 3, 4, 5, 6 and 7 and Cessna Service Letter SE83-6. No defects found. Next Due at TT 3916.9. Serviced all tires. Serviced brake system with hydraulic fluid. Serviced Nose Landing Gear Strut with nitrogen. This aircraft was ground operated. All systems checked within limits. Iccrtify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a detailed inspection of Engine, Wing and Flight Control System were preformed and the aircraft is approved for return to service.

Walter Kingsley

14 Feb. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3874.8 ENGINE TSMO 839.9 PROPELLER TSMO 442.2

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 3. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced Lt. and Rt. main landing gear tires. Removed and replaced Lt. and Rt. brake Linings. Complied with AD 96-09-06 in accordance with para. A and Bracket doc. I-194. No defects found. Next due at TT 3974.8. Complied with AD 76-07-12 R1 in accordance with para A, B and C. No defects found. Next due TT 3974.8. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a detailed inspection of Engine, Wing and Flight Control System were preformed and the aircraft is approved for return to service.

611745

17 Feb. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3881.0 ENGINE TSMO 846.1 PROPELLER TSMO 448.4

All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13. Removed and replaced rear bulkhead panel. Removed and replaced throttle control cable. Repaired broken wire on landing light. Tightened loose screws on wires of ignition switch.

Walter Kings

#### 27 Feb. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3899.7 ENGINE TSMO 864.8 PROPELLER TSMO 467.1

All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13. Removed and replaced Starter with overhauled unit P/N MZ-4222 S/N C011018.

Walter Kingslev

14 Mar. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3923.9 Tach Time 17.1 ENGINE TSMO 889.0 PROPELLER TSMO 491.3

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 4. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced propeller spinner screws. Removed and replaced two cowl fastener studs and receptacles. Tightened alternator drive belt. Removed foreign object form right fuel tank flush valve. Removed and replaced pilot's seat back trim. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a detailed inspection of Landing Gear, Instruments, Avionics, and Vacuum System were preformed and the aircraft is approved for return to service.

Walter Kingslev

14 Apr. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3967.9 Tach Time 61.1 ENGINE TSMO 933.0 PROPELLER TSMO 535.3

Compiled with AD 76-07-12 Bendix Ign. switch in accordance with para. A, B and C. No defects found. Next due at tt 161.1. Complied with AD 96-09-06, Bracket air filter gasket, in accordance with para. A and Bracket doc. I-194. No defects found. Next due at tt 161.1.

Walter Kingslev

#### 18 Apr. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 3970.3 Tach Time 63.5 ENGINE TSMO 934.8 PROPELLER TSMO 537.7

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 1. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced engine air filter element. Removed number 3 exhaust stack and the exhaust collector to be repaired. Installed repaired number 3 exhaust stack and exhaust collector. Removed and replaced rudder bushing. Removed and replaced right and left rudder rivets on upper and lower hinge brackets. Removed and replaced right flap roller spacer. Removed and replaced right aileron center hinge pin. Removed and replaced left aileron aft rod end. Installed rudder nav. light lens gasket. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the aircraft and a detailed inspection of Flight Controls and Engine were preformed and the aircraft is approved for return to service.

Valter Kingsley

8 May 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4003.6 Tach Time 96.8

Removed and replaced right nav. light lamp. Removed and replace tail tie down eyebolt. Removed and replaced lower rudder tip. All the work was preformed in accordance with Cessna Service Manual P/N D972-3-13.

Walter Kingsley

14 May 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4010.4 Tach Time 103.6

Removed and replaced Ignition switch. Removed and replaced Starter with a with an overhauled unit by Lamar P/N PM1201 S/N 85002499. All the work was preformed in accordance with Cessna Service Manual P/N D972-3-13.

Walter, Kingsley

21 May 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4022.9 Tach Time 116.1 ENGINE TSMO 988.0 PROPELLER TSMO 590.3

Complied with AD 87-20-03 R2 Seat track insp. in accordance with part II sec. C para. A sec. 1, 2, 3, 4, 5, 6 and 7 and Cessna Service Letter SE83-6. Replaced pilots side seat rollers and bushing. Next Due at tt 216.1.

alter Kingslev



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# AVIATION OIL ANALYSIS P.O. Box 29074 Phoenix, AZ 85038

Ph: 800-445-7930, email: aoa@ctclink.com



SINCE 1976

### CUSTOMER: METHOW AVIATION 15400 AIRPORT DRIVE SUITE A

BURLINGTON WA 98233

 CONTACT: WALTER KINGSLEY

 PHONE: 360-757-6007
 FAX: 360-757-6177

TAIL NUMBER: N20487 AIRCRAFT MODEL: CESSNA 172M ENGINE MODEL: 0-320E2D POSITION: S POS DESCR: SINGLE ENGINE S/N: L-25914-27A OIL TYPE: A/S 15W50

Sample Number	Taken Processed	Oil Hours Oil Added	TSN TSO	Auninum	hou	Collet	<b>Wicke</b> l	CHIOME	lead	Silver	silicon	Magnesium	Reco	mmendation Codes
815730	5/21/2003 6/ 5/2003	53 1	988 142	9	12.0	8.0	2	10	N/A	0	10	N/A	100	133

\*\*\* Values Abnormal

Wear Metals Reported In Parts Per Million

# **RESULT CODES**

100 ALL VALUES APPEAR NORMAL
 133 RESAMPLE NEXT OIL CHANGE TO ESTABLISH WEAR TREND



OTHER TESTS:

Since Aviation Oil Analysis services are based on samples and information supplied by others, and since corrective action, if any, is necessarily taken by others, these services are rendered without any warranty or liability of any kind beyond the actual amount paid to CTC Analytical Services Inc for the services.

### **RECOMMENDATION CODES AND DESCRIPTIONS**

		RECOMMENDATIONS
100 All Values Appear Normal	154	Wear Metal(S) High Indicating Possible Piston Pin Plug Wear
101 Aluminum Appears Slightly High	155	Wear Metals Appear Stable For Oil Time
102 Aluminum Appears High	156	Wear Metals Increased For Oil Time
103 Copper Appears Slightly High	157	Wear Metals High But Stable For Oil Time
104 Copper Appears High	158	Resample 15 To 20 Hours To Monitor Wear Trend
105 Chrome Appears Slightly High	159	Resample 25 Hours To Check Dirt/Wear
106 Chrome Appears High	161	
107 Chrome Normal If Engine Has Chrome Cylinders	162	Engine Time Unknown
108 Check Oil Filter For Chips	163	Silicon Normal Per Your Note Of Silicon Based Sealant
109 Check Oil Screen For Chips	164	Magnesium Appears Slightly High
110 Continue To Check For Chips	165	Magnesium Appears High
111 Engine Time Unknown - No Abnormal Wear Detected	166	Resample 50 To 100 Hours To Check Wear Trend
112 Engine / Oil Time Unknown	167	Overall Engine Wear Appears High
113 Engine / Oil Time Unknown - No Abnormal Wear Detected	168	No Abnormal Wear Detected For Recent Cylinder Repair Per Your Note
114 High Oil Consumption Masks True Wear Metal Concentration	169	Resample 10 Hours Max
115 High Silicon Causing Overall Engine Wear	170	Resample Next Oil Change To Check Wear Trend
116 Iron Appears Slightly High	171	Aluminum Improved For Oil Time
117 Iron Appears High	172	Aluminum Increased For Oil Time
118 No Abnormal Wear Detected For Engine/Oil Times	173	Check Mag Plug For Chips
119 No Abnormal Wear Detected For Oil/Overhaul Times	174	Chrome Improved For Oil Time
120 No Abnormal Wear Detected For New Engine	175	Chrome Increased For Oil Time
121 No Abnormal Wear Detected For Recent Överhaul	176	Continue To Check For Chips Per Your Note
122 Nickel Appears Slightly High	177	Copper Improved For Oil Time
123 Nickel Appears High	178	Copper Increased For Oil Time
124 Possible Corrosion If Aircraft Not Flown Regularly	179	Iron Improved For Oil Time
125 Possible Residual Break-In	180	Iron Increased For Oil Time
126 Possible Residual Carryover From Oil Change	181	Lead Appears High
127 Possible Piston / Piston Pin Plug Wear	183	Nickel Improved For Oil Time
128 Possible Oil Pump Wear	184	Nickel Increased For Oil Time
129 Possible Cam/Lifter Wear	185	No Abnormal Wear Detected For Oil Time And TSTOH
130 Possible Cylinder/ Ring/ Piston Wear	186	No Abnormal Wear Detected For Work Performed Per Your Note
131 Possible Bearing/ Bushing Wear	187	Possible Corrosion Per Your Note
132 Probable Initial Break-In	188	Silver Appears Slightly High
133 Resample Next Oil Change To Establish Wear Trend	189	Silver Appears High
134 Resample To Check Wear/ Dirt	190	Unit / Oil Times Unknown
135 Resample 25 Hours To Monitor Wear Trend	191	Wear Metals Appear High For Low Oil Time
136 Results Reported By Phone - Fax	192	Wear Metals Appear Slightly High For Low Oil Time
	193	Wear Metals Appear Slightly High For Oil Time
<ul><li>137 Silicon Appears Slightly High</li><li>138 Silicon Appears High</li></ul>	194	Wear Metals Improved For Oil Time
139 Silicon High - Possible Sample Contamination	195	Engine Hours Do Not Agree With Previous Sample
140 Silicon High - Check Air Induction System For Source Of Dirt Entry	196	Wear Metals Appear High For Oil Time
141 Suggest Boroscope Cylinders	197	Lead Appears Slightly For Oil Time
142 Suggest Close Watch	198	Mobil AV-1 Program
143 Suggest Resample And Check Filter For Chips	199	Teledyne Continental Program
144 Wear Metal(S) High Indicating Possible Cylinder Wear	991	Note: Engine Has Cerminil Cylinders
145 Wear Metal(S) High Indicating Possible Piston Wear	992	Note: Engine Has Steel Cylinders
146 Wear Metal(S) High Indicating Possible Valve Guide Wear	993	Note: Engine Has Cermichrome Cylinders
147 Wear Metal(S) High Indicating Possible Piston/Cylinder Wear	994	Copper High Possible Due to Additive System in Shell 15/50
148 Wear Metal(S) High Indicating Possible Bearing/ Bushing Wear	995	See Comments Below
149 Wear Metal(S) High Indicating Possible Piston/Cylinder/Valve Guide Wear	996	Note: Engine Has Chrome Cylinders
150 Wear Metal(S) High Indicating Possible Cylinder Distress	997	Previous History Deleted – New / Reman Engine
151 Wear Metal(S) High Indicating Possible Piston/ Ring/ Cylinder Wear	998	Filter/Chip Evaluation
152 Wear Metal(S) High Indicating Possible Cylinder/ Ring Wear	999	Sample Not Yet Analyzed
153 Wear Metal(S) High Possible Normal Break-In	000	ounpro not for finalysed

# **SHIPPING** TIPS

On twin engine aircraft, mark bottles and shipping forms and send in one shipping container. This way both samples will arrive in our lab at the same time. Overlap return mailing label on cylinder and cap to prevent cap from coming loose during shipment.

# **ADDITIONAL TESTS**

- Microscopic examination of filter/screen debris available.
- Fuel testing services available.
- AOA kits are good for reciprocating, turbine and jet engines and all helicopter components.
- Services are available for cars, boats, trucks, and other equipment.
- Call 1-800-445-7930 for pricing and other information

#### 23 May 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4025.3 Tach Time 118.5 ENGINE TSMO 990.4 PROPELLER TSMO 592.7

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 2. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced Carburetor air inlet baffle ring. Removed and replaced right and left main landing gear tires. Clean and packed main landing gear wheel bearings. Removed and replaced right and left brake linings. Removed and replaced #3 exhaust riser. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a detailed inspection of Engine, Wing and Flight Control System were preformed and the aircraft is approved for return to service.

& P 567611745

16 Jun. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4059.9 Tach Time 153.1 ENGINE TSMO 1025.0 PROPELLER TSMO 627.3

Removed and replaced upper Torque Link Bolt. Serviced Nose Landing Gear Strut with Nitrogen. All work was preformed in accordance with Cessna Service Manual P/N D972-3-13.

Walter/Kingsley & P 567611745

21 Jun. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4065.9 Tach Time 161.0 ENGINE TSMO 1031.0 PROPELLER TSMO 633.3

Complied with AD 96-09-06 in accordance with para. A and Bracket doc. I-194. No defects found. Next due at tt 261.0. Complied with AD 76-07-12 R1 in accordance with para A, B and C. No defects found. Next due tt 261.0. Walter Kingsley

567611745

24 Jun. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4073.8 Tach Time 167.0 ENGINE TSMO 1038.9 PROPELLER TSMO 641.2

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 3. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced ELT battery. Preformed ELT function test in accordance with FAR 91.207. On defects found with ELT next due 1 July 2004. Removed and replaced left Aileron forward rod end. Replaced one rivet in upper cowl. Replaced one rivet in lower cowl. Removed and replaced two Southco Fastener Receptacle. Tightened elevator trim actuator bolt. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a Continued on next page .....





# AVIATION OIL ANALYSIS P.O. Box 29074

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AVIATION OIL ANALYSIS SINCE 1976

#### CUSTOMER: METHOW AVIATION 15400 AIRPORT DRIVE SUITE A

BURLINGTON WA 98233

fa paí

CONTACT: WALTER KINGSLEY PHONE: 360-757-6007 FAX: 360-757-6177 TAIL NUMBER: N20487 AIRCRAFT MODEL: CESSNA 172M ENGINE MODEL: 0-320E2D POSITION: S POS DESCR: SINGLE ENGINE S/N: L-25914-27A OIL TYPE: A/S 15W50

Sample Number	Taken Processed	Oil Hours Oil Added	tśn TSO	WEIBER	15	1358	WEE	Draft	18th	-get	350A	HEREIS	Reco	ommendal Codes	tion
815730	5/21/2003 6/ 5/2003	53	988 142	9	12.0	8.0	2	10	N/A	0	10	N/A	100	133	in the
817729	6/19/2003 6/29/2003	44	1,069 333	9	9.0	7.0	1	9	N/A	0	7	N/A	100		<u>Ś</u>
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\*\*\* Values Abnormal

Wear Metals Reported In Parts Per Million

# **RESULT CODES**

100 ALL VALUES APPEAR NORMAL



OTHER TESTS:

Since Aviation Oil Analysis services are based on samples and information supplied by others, and since corrective action, if any, is necessarily taken by others, these services are rendered without any warranty or liability of any kind beyond the actual amount paid to CTC Analytical Services Inc for the services.

### **RECOMMENDATION CODES AND DESCRIPTIONS**

10/2       Chrome Normal Program         10/2       Engine Vinit Program         10/2       Engine Vinit Program         11/2       Engine Vinit Program         12/2       Engine Vinit Program         13/2       Engine Vinit Program         14/1       High Oli Consumption Naksis True Wear Netal Concentration         15/2       High Silicon Causing Overall Engine Wear         16/2       Engine Vinit Program         17/2       Honommal Wear Detected For Recent Cylinder Repair Per Your Note         18/10       No Abnormal Wear Detected For Recent Cylinder Repair Per Your Note         19/2       No Abnormal Wear Detected For Recent Cylinder Repair Per Your Note         19/3       No Abnormal Wear Detected For Recent Cylinder Repair Per Your Note         19/4       High Silicon Causing Overall Flow Regine       17/4         19/4       Chrome Increased For Oli Time       17/4         19/4       Chrome Increased For Oli Time       17/4         10/4       Possible Caru/Liner Wear       17/4       Cooper Inproved For Oli Time         11/4       Possible C	CODE RECOMMENDATIONS	CODE RECOMMENDATIONS	
152 Wear Metal(S) High Indicating Possible Cylinder/ Ring Wear 999 Sample Not Yet Analyzed 153 Wear Metal(S) High Possible Normal Break-In	100       All Values Appear Normal         101       Aluminum Appears Slightly High         102       Copper Appears Slightly High         103       Copper Appears Slightly High         104       Copper Appears Slightly High         105       Chrome Appears Slightly High         106       Chrome Appears Slightly High         107       Chrome Appears Slightly High         108       Check Oil Screen For Chips         109       Check Oil Screen For Chips         101       Continue To Check For Chips         111       Engine / Oil Time Unknown - No Abnormal Wear Detected         112       Engine / Oil Time Unknown - No Abnormal Wear Detected         113       Engine / Oil Time Unknown - No Abnormal Wear Detected         114       High Oil Consumption Masks True Wear Metal Concentration         115       High Silcon Causing Overall Engine Wear         116       Iron Appears Slightly High         117       Iron Appears High         118       No Abnormal Wear Detected For Engine/Oil Times         119       No Abnormal Wear Detected For Recent Överhaul         122       Nickel Appears High         123       Nickel Appears High         124       Nickel Appears Slightly High         125 <td< td=""><td>154       Wear Metals Appear Stable For Oil Time         155       Wear Metals Increased For Oil Time         156       Wear Metals Increased For Oil Time         157       Wear Metals Increased For Oil Time         158       Resample 15 To 20 Hours To Monitor Wear Trend         159       Resample 15 To 20 Hours To Monitor Wear Trend         159       Resample 25 Hours To Check Dirt/Wear         161       Dil Time Unknown         162       Engine Time Unknown         163       Silicon Normal Per Your Note Of Silicon Based Sealant         164       Magnesium Appears Slightly High         165       Magnesium Appears Slightly High         166       Resample 50 To 100 Hours To Check Wear Trend         167       Overall Engine Wear Appears High         168       No Abnormal Wear Detected For Recent Cylinder Repair Per Your Note         169       Resample 10 Hours Max         170       Resample Next Oil Change To Check Wear Trend         171       Aluminum Increased For Oil Time         172       Chore Increased For Oil Time         173       Check Mag Plug For Chips         174       Chorme Increased For Oil Time         175       Chrome Increased For Oil Time         176       Copper Increased For Oil Time</td><td></td></td<>	154       Wear Metals Appear Stable For Oil Time         155       Wear Metals Increased For Oil Time         156       Wear Metals Increased For Oil Time         157       Wear Metals Increased For Oil Time         158       Resample 15 To 20 Hours To Monitor Wear Trend         159       Resample 15 To 20 Hours To Monitor Wear Trend         159       Resample 25 Hours To Check Dirt/Wear         161       Dil Time Unknown         162       Engine Time Unknown         163       Silicon Normal Per Your Note Of Silicon Based Sealant         164       Magnesium Appears Slightly High         165       Magnesium Appears Slightly High         166       Resample 50 To 100 Hours To Check Wear Trend         167       Overall Engine Wear Appears High         168       No Abnormal Wear Detected For Recent Cylinder Repair Per Your Note         169       Resample 10 Hours Max         170       Resample Next Oil Change To Check Wear Trend         171       Aluminum Increased For Oil Time         172       Chore Increased For Oil Time         173       Check Mag Plug For Chips         174       Chorme Increased For Oil Time         175       Chrome Increased For Oil Time         176       Copper Increased For Oil Time	

# SHIPPING TIPS

On twin engine aircraft, mark bottles and shipping forms and send in one shipping container. This way both samples will arrive in our lab at the same time. Overlap return mailing label on cylinder and cap to prevent cap from coming loose during shipment.

## **ADDITIONAL TESTS**

- Microscopic examination of filter/screen debris available.
- Fuel testing services available.
- AOA kits are good for reciprocating, turbine and jet engines and all helicopter components.
- Services are available for cars, boats, trucks, and other equipment.
- · Call 1-800-445-7930 for pricing and other information

#### 24 Jun. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4073.8 Tach Time 167.0 ENGINE TSMO 1038.9 PROPELLER TSMO 641.2

Continued from previous page ..... detailed inspection of Engine, Wing and Flight Control System were preformed and the aircraft is approved for return to service.

Walter Kingsley

17 Jul. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4120.0 Tach Time 213.2 ENGINE TSMO 1085.1 PROPELLER TSMO 687.4

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 4. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced Vacuum Central Air Filter, next due for replacement tt 713.2 hrs. Removed and replaced Vacuum System Relief Valve Filter, next due for replacement tt 313.2 hrs. Removed and replaced Engine Air Filter, next due for replacement tt 313.2 hrs. Removed and replaced Engine Air Filter, next due for replacement tt 313.2 hrs. Removed and replaced Engine Air Filter, next due for replacement tt 313.2 hrs. Removed and replaced Engine Air Filter, next due for replacement tt 313.2 hrs. Removed and replaced Engine Air Filter, next due for replacement tt 313.2 hrs. Removed and replaced Engine Air Filter, next due for replacement tt 313.2 hrs. Removed and replaced #3 Cylinder Exhaust Riser. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a detailed inspection of Landing Gear, Instruments, Avionics, and Vacuum System were preformed and the aircraft is approved for return to service.

Walter Kingsley 567611745

11 Aug. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4165.0 Tach Time 258.2 ENGINE TSMO 1130.1 PROPELLER TSMO 732.4

Complied with AD87-20-03 R2 Seat Tracks in accordance with part II sec. C para A sec. 1, 2, 3, 4, 5, 6 and 7 and Cessna SL # SE83-6. No defects found. Next due at tt 358.2. Complied with AD 76-07-12 R1 Bendix switches in accordance with para A, B and C. No defects found. Next due at tt 358.2. Complied with AD 96-09-06, Bracket air filter gasket, in accordance with para. A and Bracket doc. I-194. No defects found. Next due at tt 358.2. Removed and replaced engine air filter element.

Walter Kingsley

13 Aug. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4168.1 Tach Time 261.3 ENGINE TSMO 1133.2 PROPELLER TSMO 735.5

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 1. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced Maker Beacon Antenna. Removed and replaced right Fuel Tank Flush Valve. Torqued upper engine mount Continued on next page

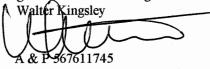
#### 13 Aug. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4168.1 Tach Time 261.3 ENGINE TSMO 1133.2 PROPELLER TSMO 735.5

Continued from previous page ..... bolts. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the aircraft and a detailed inspection of Flight Controls and Engine were preformed and the aircraft is approved for return to service.

alter Kingsley & P 567611745

28 Aug. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4198.8 Tach Time 292.0 ENGINE TSMO 1163.9 PROPELLER TSMO 766.2

All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13. Removed and replaced left Steering Rod Boot. Removed and replaced the upper half of the co-pilot's Door Seal. Removed and replaced co-pilot's Door Latch Control Rod. Removed and replaced pilot's outboard Seat Rail. Removed and replaced left Fuel Tank Filler Neck Gasket and Fuel Sending Unit Gasket. Removed and replaced Cabin Rear Bulkhead Attacking Hardware. Removed and replaced right Main Landing Gear Tire. Cleaned, Inspected and Lubricated right Main Wheel Bearings.



8 Sep. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4222.9 Tach Time 316.1 ENGINE TSMO 1188.0 PROPELLER TSMO 790.3

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 2. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced right and left brake linings. Removed and replaced #3 exhaust riser. Complied with AD87-20-03 R2 Seat Tracks in accordance with part II sec. C para A sec. 1, 2, 3, 4, 5, 6 and 7 and Cessna SL # SE83-6. No defects found. Next due at tt 416.1. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a

detailed inspection of Engine, Landing Gear and Fuselage were preformed and the aircraft is approved

for return to service.

Walter Kingsley

#### 7 Oct. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4265.7 Tach Time 358.9

Complied with AD 76-07-12 R1 Bendix switches in accordance with para A, B and C. No defects found. Next due at tt 458.9. Complied with AD 96-09-06, Bracket air filter gasket, in accordance with para. A and Bracket doc. I-194. No defects found. Next due at tt 458.9.

Walter Kingslev

#### 16 Oct. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4276.8 Tach Time 370.0 ENGINE TSMO 1241.9 PROPELLER TSMO 844.2

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 3. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced pilot's inboard Seat Track. Removed and replaced Nose landing gear tire and inspected and habed wheel bearings. Repaired left forward engine baffle. Installed new baffle seal on left forward engine baffle. Removed and replaced air filter element. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a detailed inspection of Engine, Wing and Flight Control System were preformed and the aircraft is approved for return to service.

alter Klingslev 567611745

#### 18 Nov. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4319.8 Tach Time 413.0 ENGINE TSMO 1284.9 PROPELLER TSMO 887.2

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 4. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Repaired broken wire for the Marker Beacon. Installed Mic. Jack in pilot's lower outboard instrument panel. Removed and replaced right forward baffle seal, #1 cylinder baffle seal and #2 cylinder baffle seal. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a detailed inspection of Landing Gear, Instruments, Avionics, and Vacuum System were preformed and the aircraft is approved for return to service.

Walter Kingsley

#### 24 Dec. 03 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4361.9 Tach Time 455.1

Complied with AD 76-07-12 R1 Bendix switches in accordance with para A, B and C. No defects found. Next due at tt 555.1. Complied with AD 96-09-06, Bracket air filter gasket, in accordance with para. A and Bracket doc. I-194. No defects found. Next due at tt 555.1. Removed Delta strobe and power unit. Weight and balance revised and FAA from 337 filed.

Walter Kingsley

#### 30 Dec. 2003 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4368.2 Tach Time 461.4 ENGINE TSMO 1333.3 PROPELLER TSMO 935.6

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 1. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Re-attached pilots side seat back. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the aircraft and a detailed inspection of Flight Controls and Engine were preformed and the aircraft is approved for return to service.

Walter Kingsley

13 Feb. 04 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4419.8 Tach Time 513.0 ENGINE TSMO 1384.9 PROPELLER TSMO 987.2

Complied with AD87-20-03 R2 Seat Tracks in accordance with part II sec. C para A sec. 1, 2, 3, 4, 5, 6 and 7 and Cessna SL # SE83-6. No defects found. Next due at tt 613.0.

Walter Kingsley 67611745

18 Feb. 04 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4426.6 Tach Time 519.8 ENGINE TSMO 1394.8 PROPELLER TSMO 994.0

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 2. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced right and left brake linings. Removed and replaced engine air filter. Complied with AD 96-09-06, Bracket air filter gasket, in accordance with para. A and Bracket doc. I-194. No defects found. Next due at tt 619.8. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a detailed inspection of Engine, Landing Gear and Fuselage were preformed and the aircraft is approved for return to service.

Walter Kingsley





**AVIATION OIL ANALYSIS** 

3319 W. Earll Dr. • P.O. Box 29074 (85038) Phoenix, AZ 85017

Ph: 800-445-7930 • email: aoa@ctclink.com Web access: http://aoa.ctclink.com

#### CUSTOMER: METHOW AVIATION 11674 HIGGINS AIRPORT WAY

BURLINGTON

CONTACT: WALTER KINGSLEY

PHONE: 360-757-6007

WA 98233

FAX: 360-757-6177

TAIL NUMBER: N20487 AIRCRAFT MODEL: CESSNA 172M ENGINE MODEL: 0-320E2D POSITION: S POS DESCR: SINGLE ENGINE S/N: L-25914-27A OIL TYPE: A/S 15W50

Sample Number	Taken Processed	Oil Hours Oil Added	TSN TSO	Aluminum	Iron	Copper	Nickel	chrome	Lead	silver	silicon silicon	Wagnesium	Recommendation Codes
815730	5/21/03 6/ 5/03	53 1	988 142	9.	12.0	8.0	2	10	N/A	0	10	N/A	100 133
817729	6/19/03 6/29/03	44	1,069 333	9	9.0	7.0	1	9	N/A	0	7	N/A	100
821957	7/17/03 8/18/03	52	1,085 350	8	11.0	7.0	1	9	N/A	0	7	N/A	100
822035	8/12/03 8/19/03	48	1,133 397	10	9.0	6.0	1	9	N/A	0	6	N/A	100
	9/ 8/03 9/15/03	55	1,188	6	8.0	5.0	.1	7	N/A	0	9	N/A	100
827267	10/15/03 10/22/03	54	1,242 506	11	16.0	9.0	1	9	N/A	0	7	N/A	100
829559	11/18/03 11/24/03	43	1,285 549	6	10.0	7.0	3	4	N/A	0	5	N/A	100
835078	2/17/04 2/27/04	58	1,395	8	16.0	1.0	1	1	N/A	0	14	N/A	100
837777	3/22/04 4/ 6/04	49	1,444 709	6	14.0	5.7	3	7	N/A	0	7	N/A	100
					2 Standard						A States		

\*\*\* Values Abnormal

Wear Metals Reported In Parts Per Million

# **RESULT CODES**

100 ALL VALUES APPEAR NORMAL



Since Aviation Oil Analysis services are based on samples and information supplied by others, and since corrective action, if any, is necessarily taken by others, these services are rendered without any warranty or liability of any kind beyond the actual amount paid to CTC Analytical Services for the services.



**SINCE 1976** 

### RECOMMENDATION CODES AND DESCRIPTIONS

	RECOMMENDATIONS
CODE	EDE 6 SERVICE DES REFERENCE
1 8 8 8 8 8 8 F 9	PARTE RELEASER FAILES AR REPORT

CODE	RECOMMENDATIONS	CODE	RECOMMENDATIONS
$\begin{array}{c} 100\\ 101\\ 102\\ 103\\ 104\\ 105\\ 106\\ 107\\ 108\\ 109\\ 110\\ 111\\ 112\\ 113\\ 114\\ 115\\ 116\\ 117\\ 118\\ 119\\ 120\\ 121\\ 122\\ 123\\ 124\\ 125\\ 126\\ 127\\ 128\\ 129\\ 130\\ 131\\ 132\\ 133\\ 134\\ 135\\ 136\\ 137\\ 138\\ 139\\ 140\\ 141\\ 142\\ 143\\ 141\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 141\\ 142\\ 143\\ 141\\ 142\\ 143\\ 143\\ 141\\ 142\\ 143\\ 141\\ 142\\ 143\\ 141\\ 142\\ 143\\ 141\\ 142\\ 143\\ 141\\ 142\\ 143\\ 143\\ 141\\ 142\\ 143\\ 141\\ 142\\ 143\\ 141\\ 142\\ 143\\ 143\\ 141\\ 142\\ 143\\ 142\\ 143\\ 141\\ 142\\ 143\\ 142\\ 143\\ 141\\ 142\\ 143\\ 142\\ 143\\ 141\\ 142\\ 143\\ 142\\ 143\\ 141\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 143\\ 142\\ 142\\ 142\\ 142\\ 142\\ 142\\ 142\\ 142$	RECOMMENDATIONS All Values Appear Normal Aluminum Appears Slightly High Copper Appears High Copper Appears High Chrome Appears Slightly High Chrome Appears Slightly High Chrome Appears Slightly High Chrome Appears Slightly High Chrome Normal If Engine Has Chrome Cylinders Check Oil Screen For Chips Check Oil Screen For Chips Continue To Check For Chips Engine Time Unknown - No Abnormal Wear Detected Engine / Oil Time Unknown - No Abnormal Wear Detected High Oil Consumption Masks True Wear Metal Concentration High Silicon Causing Overall Engine/Oil Times No Abnormal Wear Detected For Engine/Oil Times No Abnormal Wear Detected For New Engine No Abnormal Wear Detected For New Engine No Abnormal Wear Detected For New Engine No Abnormal Wear Detected For Recent Overhaul Nickel Appears High Possible Residual Break-In Possible Residual Break-In Possible Residual Break-In Possible Residual Break-In Possible Bearing/ Bushing Wear Probable Initial Break-In Resample To Check Wear/ Dirt Resample To Check Wear/ Dirt Resample To Check Air Induction System For Source Of Dirt Entry Suggest Conse Yolin Silicon Appears High Silicon Appears High Silicon Appears Bightly High Silicon Appears Slightly High Silicon Appears Slightly High Possible Corrosion If Aircraft Not Flown Regularly Possible Residual Break-In Possible Residual Break-In Possible Residual Break-In Resample To Check Wear/ Dirt Resample To Check Wear/ Dirt Resample To Check Air Induction System For Source Of Dirt Entry Suggest Boroscope Cylinders Suggest Resample And Check Filter For Chips Wear Metal(S) High Indicating Possible Piston/Vear Time Wear Metal(S) High Indicating Possible Piston/Vear	154 155 156 157 158 159 161 162 163 164 165 166 167 168 169 170 171	RECOMMENDATIONS Wear Metal(S) High Indicating Possible Piston Pin Plug Wear Wear Metals Appear Stable For Oil Time Wear Metals Increased For Oil Time Resample 15 To 20 Hours To Monitor Wear Trend Resample 15 To 20 Hours To Monitor Wear Trend Resample 25 Hours To Check Dirt/Wear Oil Time Unknown Silicon Normal Per Your Note Of Silicon Based Sealant Magnesium Appears Slightly High Magnesium Appears Slightly High Magnesium Appears High No Abnormal Wear Detected For Recent Cylinder Repair Per Your Note Resample 50 To 100 Hours To Check Wear Trend Overall Engine Wear Appears High No Abnormal Wear Detected For Recent Cylinder Repair Per Your Note Resample 10 Hours Max Resample Next Oil Change To Check Wear Trend Aluminum Increased For Oil Time Check Mag Plug For Chips Chrome Increased For Oil Time Chrome Increased For Oil Time Continue To Check For Chips Per Your Note Copper Increased For Oil Time Iron Increased For Oil Time Iron Increased For Oil Time Iron Increased For Oil Time Nickel Improved For Oil Time Nickel Inproved For Oil Time No Abnormal Wear Detected For Work Performed Per Your Note Possible Corrosion Per Your Note Silver Appears Slightly High Silver Appears Slightly High For Low Oil Time Wear Metals Appear High For Low Oil Time Wear Metals Appear High For Low Oil Time Wear Metals Appear High For Oil Time Lead Appears Slightly Figh For Low Oil Time Wear Metals Appear High For Oil Time Kear Metals Appear High For Oil Time Lead Appears Slightly High For Oil Time Mobil AV-1 Program Net: Engine Has Cerminil Cylinders Note: Engine Has Cerminil Cylinders No
143 144 145 146	Suggest Resample And Check Filter For Chips Wear Metal(S) High Indicating Possible Cylinder Wear Wear Metal(S) High Indicating Possible Piston Wear Wear Metal(S) High Indicating Possible Valve Guide Wear	199 991 992 993	Teledyne Continental Program Note: Engine Has Cerminil Cylinders Note: Engine Has Steel Cylinders Note: Engine Has Cermichrome Cylinders
148 149 150 151 152	Wear Meta(S) High Indicating Possible Fistor/Oyiniter Wear Wear Meta(S) High Indicating Possible Bearing/ Bushing Wear Wear Meta(S) High Indicating Possible Piston/Cylinder/Valve Guide Wear Wear Meta(S) High Indicating Possible Cylinder Distress Wear Meta(S) High Indicating Possible Piston/ Ring/ Cylinder Wear Wear Meta(S) High Indicating Possible Cylinder/ Ring Wear Wear Meta(S) High Possible Normal Break-In	995 996 997 998 999	See Comments Below Note: Engine Has Chrome Cylinders Previous History Deleted – New / Reman Engine Filter/Chip Evaluation Sample Not Yet Analyzed

### Shipping Tips

On twin engine aircraft, mark bottles and shipping forms and send in one shipping container. This way both samples will arrive in our lab at the same time. Overlap return mailing label on cylinder and cap to prevent cap from coming loose during shipment.

## ADDITIONAL TESTS

- Microscopic examination of filter/screen debris available.
- Fuel testing services available.

- AOA kits are good for reciprocating, turbine and jet engines and all helicopter components.
- Services are available for cars, boats, trucks, and other equipment.
- · Call 1-800-445-7930 for pricing and other information

#### 22 Mar. 04 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4475.9 Tach Time 569.1 ENGINE TSMO 1444.1 PROPELLER TSMO 1043.3

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 3. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced Right Main Landing Gear Tire. Removed and replaced Right Brake Disc. Replaced two rivets in Co-Pilot's Door Upper Hinge. Serviced Nose Landing Gear Shock Strut with Nitrogen and Hydraulic fluid. Removed and replaced Engine Air Filter Element. Complied with AD 87-20-03 Seat Track Inspection in accordance with part II sec. C para A sec. 1, 2, 3, 4, 5, 6 and 7 and Cessna SL # SE83-6. No defects found. Next due at tt 669.1. Complied with AD 76-07-12 R1 Bendix switches in accordance with para A, B and C. No defects found. Next due at tt 669.1. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a detailed inspection of Engine, Wing and Flight Control System were preformed and the aircraft is approved for return to service.

Walter Kingsley

28 Apr. 2004 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4524.8 Tach Time 618.0 ENGINE TSMO 1493.0 PROPELLER TSMO 1092.2

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 4. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Complied with AD 96-09-06 Air Filter Gasket Inspection, in accordance with para A and Bracket doc. I-194. No defects found. Next due at tt 718.0 hrs. Removed and replace Vacuum Inlet Filter, next due for replacement tt 1118.0 hrs. Removed and replaced Vacuum Relief Filter, next due for replacement tt 718.0 hrs. Swapped Pilot's and Co-pilots rudder peddles. Removed and replaced Rivets in Left and Right Elevator Torque Tube Adapters. Serviced left and right Brake Reservoirs. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a detailed inspection of Landing Gear, Instruments, Avionics, and Vacuum System were preformed and the aircraft is approved for return to service.

	Walter Kingsley
	A& 1567611745
	(LOG BOOK ENTRY)
ŝ	MAINTENANCE RELEASE
	MFG. Cessig Type of UNIT Air Box
	MODEL 172 P/NO552113-BS/N N/A
	The componet above was repaired/overhauled and inspected in accordance with current regulations of the Federal Aviation Administration and is approved for return to service. Pertinent details of the repairs are on file at:
:	MILLENNIUM MAGNETO & ACCESSORIES
	5140 WILBUR RD. • MARTINSVILLE, IN 46151 • PHONE: 765-349-5606
-	UNDER WO # 1264 DATE 2-23-04
	SIGNED - Glum Volume
	ALL WORK AND/OR INSPECTION PERFORMED UNDER A & P # $293683343$



-A - O - A

**AVIATION OIL ANALYSIS** 

3319 W. Earll Dr. • P.O. Box 29074 (85038) Phoenix, AZ 85017

Ph: 800-445-7930 • email: aoa@ctclink.com Web access: http://aoa.ctclink.com

CUSTOMER: METHOW AVIATION 11674 HIGGINS AIRPORT WAY

BURLINGTON

WA 98233

CONTACT: WALTER KINGSLEY PHONE: 360-757-6007

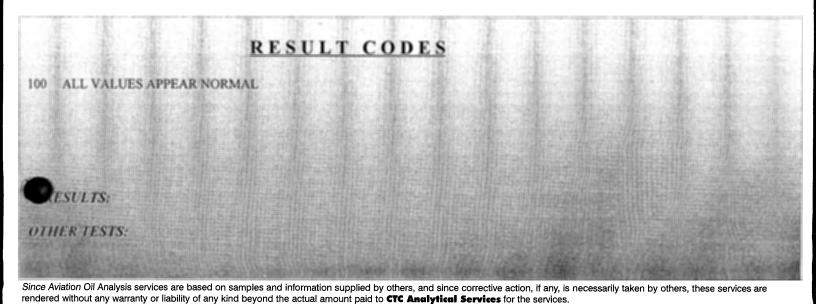
FAX: 360-757-6177

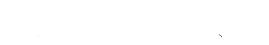
TAIL NUMBER: N20487 AIRCRAFT MODEL: CESSNA 172M COMPONENT MODEL: 0-320E2D POSITION: S POS DESCR: SINGLE COMPONENT S/N: L-25914-27A OIL TYPE: A/S 15W50

Sample Number	Taken Processed	Oil Hours Oil Added	TSN TSO	Aluminum	hou	Copper	Nickel	chrome	1 ead	Silver	silicon Silicon	Magnesium	Recommendation Codes
815730	5/21/03	53	988	9	12.0	8.0	2	10	N/A	0	10	N/A	100 133
817729	6/ 5/03 6/19/03 6/29/03	1 44	142 1,069 333	9	9.0	7.0	1	9	N/A	0	7	N/A	100
821957	7/17/03 8/18/03	52	1,085 350	8	11.0	7.0	1	9.	N/A	0	7	N/A	100
822035	8/12/03 8/19/03	48	1,133 397	10	9.0	6.0	1	9	N/A	0	6	N/A	100
214	9/ 8/03 9/15/03	55	1,188	6	8.0	5.0	1	7	N/A	0	9	N/A	100
827267	10/15/03 10/22/03	54	1,242 506	11	16.0	9.0	1	9	N/A	0	7	N/A	100
829559	11/18/03 11/24/03	43	1,285 549	6	10.0	7.0	3	4	N/A	0	5	N/A	100
835078	2/17/04 2/27/04	58	1,395	8	16.0	1.0	1	1	N/A	0	14	N/A	100
837777	3/22/04 4/ 6/04	49	1,444 709	6	14.0	5.7	3	7	N/A	0	7	N/A	100
840015	4/28/04 5/ 5/04	49	1,493 758	6	16.0	4.0	3	9	N/A	0	8	N/A	100

\*\*\* Values Abnormal

Wear Metals Reported In Parts Per Million







**SINCE 1976** 

### RECOMMENDATION CODES AND DESCRIPTIONS

101       All Values Appais Normal       154       Waar Metal(S) High Indicating Passible Piston Pin Plug Wear         101       Auminium Appaiss Signify High       156       Wear Metal(S) High Indicating Passible Piston Pin Plug Wear         102       Coper Appais Signify High       156       Wear Metal(S) High Indicating Passible Piston Pin Plug Wear         102       Coper Appais Signify High       156       Wear Metal(S) High Indicating Passible Piston Pin Plug Wear         103       Chorne Appais Signify High       156       Resample 25 Hours To Check Dirt/Wear         103       Check Dir Fitter Chips       166       Engine Time Unknown       166         104       Dirtime Unknown       167       Engine Vin Unknown       168         103       Engine C Ji Time Unknown       168       Sample Sido ID Hears To Check Wear Trend         104       Engine C Ji Time Unknown       168       Appress High         105       Engine C Ji Time Unknown       168       Appress High         106       Consum Unknown       Abnormal Wear Detected for Execut Over Note         107       Item Appais Signify High       177       Abnormal Wear Detected for Chape To Chick Wear Trend         107       Item Appais Signify High       177       Chapeas High       178         108       No Abnormal Wear Dete
151       Wear Metal(S) High Indicating Possible Piston/ Ring/ Cylinder Wear       998       Filter/Chip Evaluation         152       Wear Metal(S) High Indicating Possible Cylinder/ Ring Wear       999       Sample Not Yet Analyzed         153       Wear Metal(S) High Possible Normal Break-In       999       Sample Not Yet Analyzed

### SHIPPING TIPS

On twin engine aircraft, mark bottles and shipping forms and send in one shipping container. This way both samples will arrive in our lab at the same time. Overlap return mailing label on cylinder and cap to prevent cap from coming loose during shipment.

## **ADDITIONAL TESTS**

- Microscopic examination of filter/screen debris available.
- Fuel testing services available.
- AOA kits are good for reciprocating, turbine and jet engines and all helicopter components.
- Services are available for cars, boats, trucks, and other equipment.
- · Call 1-800-445-7930 for pricing and other information

#### 9 Jun. 04 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4575.6 Tach Time 668.8 ENGINE TSMO 1543.8 PROPELLER TSMO 1143.1

Complied with AD87-20-03 R2 Seat Tracks in accordance with part II sec. C para A sec. 1, 2, 3, 4, 5, 6 and 7 and Cessna SL # SE83-6. No defects found. Next due at tt 768.8. Complied with AD 76-07-12 R1 Bendix switches in accordance with para A, B and C. No defects found. Next due at tt 768.8.

Walter Kingslev 2 P 567611745

11 Jun. 2004 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4577.8 Tach Time 671.0 ENGINE TSMO 1546.0 PROPELLER TSMO 1145.3

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 1. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Complied with AD 96-09-06, Bracket air filter gasket, in accordance with para. A and Bracket doc. I-194. No defects found. Next due at tt 771.0. Removed and replaced with serviceable unit the carburetor air box. Removed and replaced lower cowl air scoop with serviceable unit. Removed and replaced right Main Landing Gear Tire and repacked wheel bearings. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the aircraft and a detailed inspection of Flight Controls and Engine were preformed and the aircraft is approved for return to service.

alter Kingsley P 567611745

9 Jul. 04 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4625.3 Tach Time 718.5 ENGINE TSMO 1593.5 PROPELLER TSMO 1192.8

Complied with AD87-20-03 R2 Seat Tracks in accordance with part II sec. C para A sec. 1, 2, 3, 4, 5, 6 and 7 and Cessna SL # SE83-6. No defects found. Next due at tt 768.8. Complied with AD 76-07-12 R1 Bendix switches in accordance with para A, B and C. No defects found. Next due at tt 768.8.

Walter Kingsley

#### 14 Jul. 04 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4632.1 Tach Time 725.3 ENGINE TSMO 1600.3 PROPELLER TSMO 1199.6

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide. The fallowing Inspection has been complied with Operation number 2. All the fallowing work was preformed in accordance with Cessna Service Manual P/N D972-3-13 and Textron Lycoming Direct Drive Engine Overhaul Manual P/N 60294-7. Removed and replaced right and left brake linings. Removed and replaced left main landing gear tire. left wheel bearings cleaned and greased. Removed and replaced left brake disc. Removed and replaced lower right cowl mount. Repaired wire connection to landing light. Removed and replaced lower clamp on carburetor heat exchanger. This aircraft was ground operated. All systems checked within limits. I certify that in accordance with a progressive inspection program, a routine inspection of the Aircraft and a detailed inspection of Engine, Landing Gear and Fuselage were preformed and the aircraft is approved for return to service.

Walter Kingsley 567611745

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#### 12.August 2004 REG. NUMBER N20487 SERIAL NUMBER 17261330 TOTAL TIME A/C 4076.7 Tach Time 769.9 ENGINE TSMO 1644.9 PROPELLER TSMO 1244.2

This aircraft has been inspected and serviced in accordance with a Cessna 172 series Progressive Care Program Inspection guide, Operation #3 and manufacturer's service manuals. Lubed flight and engine controls. Changed oil and filter, oil sampled for analysis. Serviced with 80W Aeroshell oil. Serviced battery. Complied with Airworthiness Directive: 96-09-06 by inspection of gasket. 87-20-03 R2 by inspecting seat tracks and rollers. I certify that in accordance with a progressive inspection program, a routine inspection of the aircraft and a detailed inspection of Flight Controls and Engine were preformed and the aircraft is approved for return to service. Duane Pratt A&P 537760263

2 - 2 Adeline AP 13266423414

#### N20487

### Cessna 172M

# Serial Number: 17261330

Date: September 9, 2004 Engine TSMOH: 1694.8 
 Tach Time:
 819.8
 TTAF:
 4726.6

 Propeller
 TSPOH:
 1294.1

Performed inspection in accordance with Cessna's Progressive Care program, **Operation 4**, and Cessna's Servicemanual P/N D972-3-13, Lycoming Direct Drive Engine Overhaul manual P/N 60294-7. See Form MA002 dated 9/9/2004, pages 1 thru 2. Complied with Airworthiness Directives: 87-20-03 R2 by inspection and dimensional check of seat tracks, repeat inspection every 100 hours. 76-07-12 R1 by function testing ignition switch past off, repeat every 100 hours. 96-09-06 by replacing Brackett Air filter assy. with new style BA-5110 rev. H, Terminating action. Performed run-up and operation checks.

I certify this aircraft has been inspected in accordance with Cessna's Progressive Care Program Operation 4 and determined to be in airworthy condition. Lin L. Holdeman II A&P 132664234 IA Lin L. Holdeman II A&P 132664234 IA

#### N20487

# Cessna 172M

Serial Number: 17261330 Tach Time: 870.6 TTAF: 4777.4

Date: October 27, 2004Tach Time: 870.6TTAFEngine TSMOH: 1745.6Propeller TSPOH: 1344.9

Performed inspection in accordance with Cessna's Progressive Care program, **Operation 1**, and Cessna's Service manual P/N D972-3-13, Lycoming Direct Drive Engine Overhaul manual P/N 60294-7. Changed oil and filter, serviced with 8 quarts of 80W Aeroshell oil. Lubed flight and engine controls. Performed Airworthiness Directive compliance check. Performed run-up and operation checks. I certify this aircraft has been inspected in accordance with Cessna's Progressive Care Program Operation 1 and determined to be in airworthy condition. Lin L.

Holdeman II A&P 132664234 IA

Lit Houla

#### N20487

Cessna 172M

Serial Number: 17261330 Tach Time: 915.7 TTAF: 4822.5

Date: December 21, 2004 Engine TSMOH: 1790.7

#### Propeller TSPOH: 1390.0

Performed inspection in accordance with Cessna's Progressive Care program, **Operation 2**, and Cessna's Service manual P/N D972-3-13, Lycoming Direct Drive Engine Overhaul manual P/N 60294-7. Changed oil and filter, serviced with 8 quarts of 80W Aeroshell oil. See Form MA002 dated 12/8/2004 thru 12/21/2004 pages 1 thru 11 for listing of repairs, alterations and parts installed. Complied with Airworthiness Directives: 87-20-03 R2 by inspection and dimensional check of seat tracks and replaced pilot's outboard track with new, repeat inspection every 100 hours. 76-07-12 R1 by function testing ignition switch past off, repeat every 100 hours. Complied with Cessna Service Bulletin SEB95-3 by inspecting both flaps and roller wear areas and installing McFarlane Aviation Products kit # MCSK100 and FLP-KT-2U on each flap. Updated equipment list and weight and balance. Performed run-up and operation checks. Aircraft test flown after work completion.

I certify this aircraft has been inspected in accordance with Cessna's Progressive Care Program Operation 2 and determined to be in airworthy condition. Lin L. Holdeman II A&P 2927433 IA