

Owner Advisory

July 25, 1986

SEB86-5A

Dear Cessna Owner,

Special "Seat Locked" and "Fuel Contamination" warning placards are being incorporated on new production piston engine airplanes, and these placards are to be installed on your airplane as well.

Installation of the placards is mandatory, and shall be accomplished within the next 10 flight hours of operation.

The placards, copies of which are reproduced below, are intended to warn you of the following:

WARNING

ASSURE THAT SEAT IS LOCKED IN POSITION PRIOR TO TAXI, TAKE-OFF, AND LANDING. FAILURE TO PROPERLY LATCH SEAT AND HEED ALL SAFETY INSTRUCTIONS CAN RESULT IN BODILY INJURY OR DEATH.

WARNING

ASSURE THAT ALL CONTAMINATES, INCLUDING WATER, ARE REMOVED FROM FUEL AND FUEL SYSTEM BEFORE FLIGHT. FAILURE TO ASSURE CONTAMINATE FREE FUEL AND HEED ALL SAFETY INSTRUCTIONS AND OWNER ADVISORIES PRIOR TO FLIGHT CAN RESULT IN BODILY INJURY OR DEATH.

The placards are enclosed and may be installed by yourself or by your service facility. Location is critical. The placards are to be installed in front of, and within clear view of the pilot.

The installation of the placards is to be recorded in your Airframe Maintenance Record Book (logbook). Reference Service Bulletin SEB86-5 when making the record entry.

* * * * *



MERL, INC.
P. O. BOX 188
1777 NO. COLONY RD.
MERIDEN, CONN. USA 06450

INSTALLATION INSTRUCTIONS FOR MERL, INC. BATTERY PACK
P/N BP-1020 IN DORNE AND MARGOLIN DM ELT 6 AND 6C

1. Disconnect the antenna connector and remote control leads.
2. Remove the fasteners holding the ELT to the airframe.
3. Remove the four (4) Phillips head screws on the bottom of the ELT and remove the plate.
4. Unfasten the two piece connector and remove the old Battery Pack.
5. Insert the new Battery Pack (label side up) and refasten the connector.
6. Reinstall the four (4) Phillips head screws and the plate removed in Step 3.
7. Affix the supplied Expiration Date Placard to the ELT directly over the existing Expiration Date Placard.
8. Reinstall the ELT in the aircraft using the fasteners removed in Step 2.
9. Turn the switch to "ON" and monitor the operation of the ELT on a COM receiver tuned to 121.5 MHz. If test is satisfactory, place the switch in the "ARM" position.
10. Enter in the Airframe Log Book the date of installation of the new Battery Pack, AND the NEXT replacement date.
11. DO NOT DISCARD OLD BATTERY PACK IN FIRE OR FLAME!!!

REFERENCE	DATE	CODE	DESCRIPTION	AMOUNT	BALANCE
5550	6/21/93	I			
1.0			PARTS-TAXABLE	\$50.02	
1.0			MAINT. LABOR-TAXABLE	\$81.60	
			TAX ON THIS INVOICE:	\$7.90	
	6/21/93	P	PAYMENT	\$0.00	
WE ARE OPEN FOR FUEL ON FRIDAYS UNTIL 10PM 2200LCL					
TOTAL CHARGES FOR THIS PERIOD:			\$131.62		
TOTAL TAX FOR THIS PERIOD:			\$7.90		
TOTAL CREDITS FOR THIS PERIOD:			\$0.00		
PAID Date <u>7-2-93</u> Check No. <u>441128</u>					
OIL CHANGE					
CODES	C = CR MEMO D = DR MEMO	P = PAYMENT I = INVOICE	A = DISCOUNT ALLOWED	F = FINANCE CHARGE	TOTAL DUE ▶ \$139.52

RELIANT AIRCRAFT SERVICE INC

Wibling Rd. Danbury Municipal Airport Danbury Ct. 06810 203-743-5100

Customer Name: MOISAN, RICHARD			Telephone: 203-263-4141	Date: 03/29/93	Written By:
Address: 175 MAIN STREET SO			City: WOODBURY	State: CT	Zip: 06798
Aircraft Make & Model CESSNA 177	Serial: 17700000	N Number: N3212T	Acft TT: 1500.2	Engine TT:	

OPERATIONS PERFORMED
1. <u>RECEIVED</u>
2. <u>PAID</u>
3. <u>TRANSFER</u>
4. <u>ADJUST</u>
5. <u>RECEIVED</u>
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97. <u>RECEIVED</u>
98. <u>PAID</u>
99. <u>TRANSFER</u>
100. <u>ADJUST</u>

[illegible]

Total Labor:\$ 179.40

I hereby authorize the above repair work along with the necessary material and hereby grant you and/or your employees permission to operate the aircraft herein described on the taxiways, runways, in flight or elsewhere for the purpose of testing and/or inspection. An express mechanic's lien is hereby acknowledged to secure the amount of repairs thereto. I also agree that you are not responsible for loss or damage to aircraft or articles left in aircraft in case of fire, theft or any other cause beyond your control.

Signed:

Invoice No:5443

Materials and Accessories

[illegible]

Shipping:	0.00
Total Parts:	0.00
Total Labor:	179.40
Tax:	10.76
Invoice Total\$	190.16

Diamond Aviation

Incorporated

Aircraft Sales and Service

P.O. Box 368

DOVER - CHESWOLD, DELAWARE 19936

PHONE: (302) 674-2665



0001082

QUAN	PART NO.	DESCRIPTION	SALE AMOUNT
1	CH48110	Filter	13.05
1	152VSD	Repacked	400.00
1	ELT BATT.	Express 11/91	30.00
1	4309	Bulb	21.17
1	51777-1	Cable	69.59

NAME DEB ENTERPRISES INC.DATE Nov 1989ADDRESS 2316 Bywood BlvdCITY Wilm De STATE DE ZIP 19802TEAR 68TYPE OR MODEL 177MOTOR NO. 0-320 EFD

L-26623 27A

SERIAL NUMBER 17700512LICENSE NUMBER N 3212TODOMETER 1492OPEN NO. 16881

REPAIR ORDER — LABOR INSTRUCTIONS

ORDER WRITTEN BY

LUBRICATE ☐ CHANGE OIL ☐ FLUSH TRANS ☐ FLUSH DIFF ☐ WASH ☐ POLISH ☐

Annual Inspection 49000
 Compression #1 73/80 #2 76/80 #3 75/80 #4 78/80
 Changed Oil & Oil Filter.
 Cleaned spark plugs
 Repacked All wheel Bearings
 Freed stuck pulleys as needed.
 Lubed Aircraft. Replaced ELT Battery
 Check mag timing. Replace mixture control
 Cable. Replaced outboard landing light
 Bulb. Repaint Back of Prop.

The Above Labor 6000

RETAIN PARTS ☐ DESTROY PARTS ☐

TOTAL PARTS

TOTAL LABOR 550.00

ESTIMATE AMOUNT PARTS LABOR

TOTAL PARTS 168.81

GAS OIL GREASE

SPECIAL REPAIRS

ESTIMATE TOTAL

STATE TAX

TOTAL AMOUNT 718.81

As provided by law, the seller (above named dealership) hereby
 warrants all warranties, either express or implied, including any implied
 merchantability or fitness for a particular purpose, and neither
 authorizes any other person to assume for it any liability in
 the sale of said products.

AUTHORIZED BY

RECEIVED BY

GAL GASOLINE @

QTS OIL @

LBS GREASE @

TOTAL GAS OIL GREASE



WORK ORDER

Chester County Aviation, Inc.

Chester County / G. O. Carlson Airport • Box 311, Coatesville, PA 19320

Tel: (215) 384-9000 Fax: (215) 384-9238

Maintenance & Parts Dept.

Mike O'Donnell WORK # 301/822-2129 HOME# 778-0556
Rt#1 Box K82 Worton, MD 21676

B
I 390
L Cashsale
L Chester County Aviation
P.O. Box 311
T Coatesville PA 19320
O

S
H 390
I Cashsale
P Chester County Aviation
P.O. Box 311
T Coatesville PA 19320
O

Registration : N321ET
Make : CESSNA
Model : C-177
Serial Number : 17700512
Flight Recorder : 1,453.67
F.R. Changed : .00
A/C Total Time : 1,453.67
Flight Ch'd By : Not Required
REUBEN

Customer Billing

PAGE NUMBER	1
DOCUMENT NUMBER	11261
DATE	2/17/89

TERMS		REFERENCE NUMBER	SHIP VIA	ORDER NO.	ORDERED	REQUESTED	SHIPPED	CUSTOMER REPRESENTATIVE						
				11261	2/17/89	2/17/89		Tony Roberts						
								Bill Hetrick						
LN NO.	ITEM NUMBER	ITEM DESCRIPTION	ITEM REFERENCE	B.O.	Y	A	X	QUANTITY PER	PRICE PER	Quantity	Price/Use	UDM	Extended	Cost
01	***** Customer Billing Fuel Leak at Firewall	***** A. Searched for and found fuel leak in cockpit at firewall. B. Defueled L/H wing tank C. Found corrosion inside of shutoff valve D. Cleaned valve and replaced O-ring Labor Section: Date Clock On Clock Off Employee Id Employee Name 2/16/89 10.00 13.00 30 Aaron Keesey 2/13/89 10.00 10.50 36 Jerry Roberts Labor Totals Parts Section: MS29513-18 O-ring 1.00 1.70 Each 1.70 MS29513-130 O-Ring 1.00 .92 Each .92 Parts Totals Outside Service / Freight Section: Freight 2nd day UPS Each 3.00 Operation 01 Totals:	***** A. Searched for and found fuel leak in cockpit at firewall. B. Defueled L/H wing tank C. Found corrosion inside of shutoff valve D. Cleaned valve and replaced O-ring Labor Section: Date Clock On Clock Off Employee Id Employee Name 2/16/89 10.00 13.00 30 Aaron Keesey 2/13/89 10.00 10.50 36 Jerry Roberts Labor Totals Parts Section: MS29513-18 O-ring 1.00 1.70 Each 1.70 MS29513-130 O-Ring 1.00 .92 Each .92 Parts Totals Outside Service / Freight Section: Freight 2nd day UPS Each 3.00 Operation 01 Totals:											
02	***** Customer Billing Tubing cracked at shutoff valve outlet. A. Replaced cracked tubing between shut off valve and firewall. B. Refueled and checked for leaks Labor Section: Date Clock On Clock Off Employee Id Employee Name 2/16/89 13.00 15.50 30 Aaron Keesey Operation 02 Totals:	***** A. Replaced cracked tubing between shut off valve and firewall. B. Refueled and checked for leaks Labor Section: Date Clock On Clock Off Employee Id Employee Name 2/16/89 13.00 15.50 30 Aaron Keesey Operation 02 Totals:	***** A. Replaced cracked tubing between shut off valve and firewall. B. Refueled and checked for leaks Labor Section: Date Clock On Clock Off Employee Id Employee Name 2/16/89 13.00 15.50 30 Aaron Keesey Operation 02 Totals:											

Continued on Next Page.

YEAR 68 MAKE COSENQ MODEL 177 COLOR Green white LICENSE 32127

QUAN.	PART NO. AND PART NAME	PRICE	AMOUNT
1	173-0002 Clamping		760
1	D9-14-5 Instrument Filter		2325
1	15W50 AeroShell	3.75	2625
1	CH48110		1288
1	51236-8-0280 Fuel line		11700
2	51236-6-0044 Fuel line	5590	11180
2	J-7444-14 shock mount	978	1956
1	150-0002 AeroFlash Power supply		13850
1	1752066-1 collar		355
1	1752060-200 clamp		8080
			54109

NAME DEB ENTERPRISES INC.
 ADDRESS 2316 Baynard Blvd
 CITY Wilmington, DE 19802 WK 301-222-2929
 INVOICE TO H4 301-778-0856
 MOTOR NUMBER 0-320F2D SERIAL NUMBER 17700512
 L-26673-37A
 DATE Oct. 11, 1988 A.M. P.M.
 YES NO
 PROMISED SPEEDOMETER 1436

Diamond Aviation

Incorporated

Piper Sales and Service

DOVER - CHESWOLD, DELAWARE 19936

PHONE: (302) 674-2666



OPER. NO.	DESCRIPTION OF WORK	AMOUNT
	LUBRI- ☐ OIL ☐ CHANGE ☐ CHANGE ☐ ROTATE ☐ WASH ☐ POLISH ☐ CATE ☐ FILTER ☐ TIRE ☐	
	Annual Inspection	460 00
	Compression 79/80 All cylinders	
	Cleaned & gapped spark plugs	
	Changed Oil & Filter	
	Checked mag timing - Adjusted left mag	
	Changed All Three Beaded Fuel Lines	
	IN Engine compartment.	
	Changed 2 engine cowling shock mounts	
	Replaced Beacon Bulb, Power supply	
	And lens Retainer clamp.	
	Replaced Instrument Air Filter.	
	Lubed and freed pulleys that did not	
	move in control system.	
	Replaced collar & clamp in CRRB AIR system	
	THE EXTRA labor cost	196 00
	TOTAL LABOR	
	TOTAL PARTS	541 09
	TAX	
	TOTAL AMOUNT	1197 09

Not Responsible for Loss or Damage to Cars or Articles Left in Cars in Case of Fire, Theft or Any Other Cause Beyond Our Control.

I hereby authorize the above repair work to be done along with the necessary material and hereby grant you and/or your employees permission to operate the car, truck or vehicle herein described on streets, highways or elsewhere for the purpose of testing and/or inspection. An express mechanic's lien is hereby acknowledged on above car, truck or vehicle to secure the amount of repairs thereto. I understand estimates are for labor only, material is extra.

AUTHORIZED BY

RECEIVED BY

TOTAL

Tail Bracket Assy
 1712109-3 ON ORDER

ADDITIONAL MATERIALS USED

QUAN	PART NUMBER	DESCRIPTION	SALES	COST	QUAN	PART NUMBER	DESCRIPTION	SALES	COST
		BROUGHT FORWARD							
		Installed new MAIN TIRES AND TUBES (customer provided)							
		Checked A/D's							
	86-76-04	shoulder harness N/A							
	87-70-03R1	Sent Tracks OK Repair every year							
	172-03-03R3	Flap Retractor - conversation with Steve Brooks Oct 13, 1988. Confirmed Kit SK 177-17 was previously installed at same time.							
		Remove left corner Antenna to clean corrosion for good ground.							
		OUTSIDE REPAIRS							
	TOTAL FORWARD						TOTAL		

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Form Approved
Budget Bureau No. 04-R060.1

MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)

FOR FAA USE ONLY

OFFICE IDENTIFICATION

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form.

1. AIRCRAFT	MAKE Cessna	MODEL 177
	SERIAL NO. 17700512	NATIONALITY AND REGISTRATION MARK N3212T
2. OWNER	NAME (As shown on registration certificate) Dodds James A Dodds David C	ADDRESS (As shown on registration certificate) 17821 Mill Creek Dr. Derwood, MD 20855

3. FOR FAA USE ONLY

4. UNIT IDENTIFICATION

UNIT	MAKE	MODEL	SERIAL NO.	5. TYPE	
				REPAIR	ALTERATION
AIRFRAME	***** (As described in item 1 above) *****				XX
POWERPLANT					
PROPELLER					
APPLIANCE	TYPE				
	MANUFACTURER				

6. CONFORMITY STATEMENT

A. AGENCY'S NAME AND ADDRESS	B. KIND OF AGENCY	C. CERTIFICATE NO.
Aircom 11907 Lynncrest Rd. Monrovia, MD. 21770	U.S. CERTIFICATED MECHANIC	107-54
	FOREIGN CERTIFICATED MECHANIC	
	X CERTIFICATED REPAIR STATION	
	MANUFACTURER	

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

DATE 09/24/87	SIGNATURE OF AUTHORIZED INDIVIDUAL <i>James Fred Ben</i>
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7. APPROVAL FOR RETURN TO SERVICE

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED

BY	FAA FLT. STANDARDS INSPECTOR	MANUFACTURER	INSPECTION AUTHORIZATION	OTHER (Specify)
	FAA DESIGNEE	X REPAIR STATION	CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR OF AIRCRAFT	

DATE OF APPROVAL OR REJECTION 09/24/87	CERTIFICATE OR DESIGNATION NO. 107-54	SIGNATURE OF AUTHORIZED INDIVIDUAL <i>James Fred Ben</i>
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NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

Installed NARCO AR-850 Altitude Reporter.

Installation is in accordance with NARCO installation instructions and AC 43.13-2A Chapters 2 & 3.

The AR-850 and transponder systems were tested and inspected and found to comply with Appendix F of Part 43.

Equipment list revised to indicate change.

*****END*****

☐ ADDITIONAL SHEETS ARE ATTACHED

Date: 9/24/87

Problem	Action	Mec	Hrs	Part		
				QTY	PART NUMBER	DESCRIPTION
1 Muffler cracked	Installed overhauled muffler	DD				
2 Aircraft battery retired	Install new Gill G-35	DD				
3 ELT battery expired	Replaced battery with MEAL BP 1020 Expires March 89	DD				
4 Left brake linings worn to limits	Install new linings	DD				
5 Right fuel tank sending unit seeping fuel	Re-seal attachment screws	DD				
6 Taxi light inop	Repair broken terminal end	DD				
7 7 spark plugs worn to limits	Install low time serviceable plugs	DD				

CONTROL AERO

Maintenance & Inspections

(301) 894-5555

Owner: _____

N 32/2T

Phone: _____

Tach: _____

Make: _____

Model: _____

Date: _____

Part

Problem	Action	Mec	Hrs	Part		
				QTY	PART NUMBER	DESCRIPTION
1 Right FUEL TANK CAP HANDLE BROKE	REPLACE HANDLE. CLEAN + SERVICE both caps	DD				
2 AD 86-24-07 ENGINE controls	Replaced bolt + nut AS PER AT	DD				
3 AD 86-19-11 FUEL CONTAMINATION	P/C/W	DD				
4						
5						
6						
7						

Work Order No. _____

24. Check map to engine timing:

Left

Right

- *25. Service or replace spark plugs
26. Check condition of generator or alternator
27. Check condition of starter
28. Check condition and tension of drive belts
29. Check hydraulic pump and strainer
30. Check vacuum pump and lines
31. Inspect exhaust stacks, gaskets, etc.
32. Inspect muffler and shrouds
34. Check engine baffles
35. Check breather tube for obstructions, security
36. Check crankcase for leaks, cracks, etc.
37. Check engine mounts for cracks, loose mounts
38. Check engine mount bushings
39. Check firewall seals
40. Check throttle, carb heat, mixture and prop governor controls for travel and operating condition
41. Check cowl flap condition and operation
42. Inspect engine for general condition, loose parts, chafing, proper safeties, proper installations, etc.
- *43. Fill engine with oil
44. Clean engine
45. Lubricate all controls
46. Reinstall engine cowl

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C. CABIN GROUP

1. Inspect cabin doors for damage and operation
2. Check windows for general condition
3. Check upholstery for general condition
4. Check seats, seat belts, and mountings
5. Check trim operation
6. Check flap operation
7. Check fuel selector valve operation
8. Check operation of fuel drain
9. Check landing, navigation, cabin, and instrument lights
10. Check rudder pedals
11. Check brake cylinders for operation and leaks
12. Check brake fluid level
13. Check control wheels, column, pulleys, cables
14. Check instruments, lines, and attachments
- *15. Service filters for gyro instruments
16. Check condition in general under panel for loose wires, loose equipment, chafing, etc.
17. Check condition of heater controls and ducts, air vents, and air conditioning ducts
18. Lubricate controls
19. Check condition of instrument panel shock mounts
20. Check altimeter calibration

[illegible]

D. FUSELAGE AND EMPENNAGE GROUP

1. Remove inspection plates and panels
2. Check general condition of aircraft skin
3. Check baggage door(s) latches, and hinges

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|---|-------------------|------------------|
| 1. Check fuel pump | | |
| 2. Check fuel quantity and pressure- or flow-gage | | |
| 3. Check alternator or generator output | | |
| 4. Check vacuum gage | | |
| 5. Check gyros for noise and roughness | | |
| 6. Check cabin heater operation | | |
| 7. Check electronic equipment operation | | |
| 8. Check air conditioner operation | | |
| 9. Check parking brake | | |
| 10. Check oil pressure and temperature | | |
| 11. Check manifold pressure | | |
| 12. Check alternate air | | |
| 13. Check propeller smoothness | | |
| 14. Check prop governor action | | |
| 15. Check mag RPM variation | <u>L. Engine</u> | <u>R. Engine</u> |
| | L. <u>100 RPM</u> | |
| | R. <u>100 RPM</u> | |
| 16. Check static RPM | <u>2350</u> | |
| 17. Check idle RPM | <u>1675</u> | |
| 18. Check mag switch operation | | |
| 19. Check throttle and mixture operation | | |
| 20. Check idle mixture | | |

		2
		2
		2
		2

1. Aircraft conforms to FAA specifications
2. All AD notes complied with
3. Manufacturers' service letters, bulletins, instructions complied with
4. Aircraft papers in proper order
- a. Registration
- b. Airworthiness Certificate
- c. Radio license
- d. Flight Manual

Signature of Mechanic or Inspector *David C. Dodds*

Certificate No. *APP 547027377IA*

* Items not required by FAA as part of 100-hour inspection are marked with a star.

Continued from page 34

A good wrap-up is as important to customer relations as a good inspection. If it isn't the shop policy to wash an aircraft after inspections, be sure to check it over thoroughly and clean up any "mechanic's tracks." Also, be sure all of the inspection covers are back in place. Cleaning out ashtrays and vacuuming the interior will go a long way toward keeping customers happy. If there are any grease

AVIATION MECHANICS JOURNAL June 1976 Issue

marks in the cabin, they must be removed—but, of course, the policy is: don't track grease or dirt into the cabin during the inspection.

When the aircraft is ready to roll out the door, you still have some paperwork to complete. Logbook entries need to be made. If you have discovered any problems which others should be aware of, send in a Malfunction or Defect Report to the FAA and/or a report to the

aircraft manufacturer. The shop copy of the invoice also must be completed and turned in, along with the other forms so the customer can be billed.

A good professional aircraft inspection is much more than just looking over an aircraft. It involves paperwork, inspections, servicing, repairs, good customer relations, and other related items, all conducted in a professional manner by competent, professional A&P mechanics.

INVOICE NO. **R**

CUSTOMER NO.

PIEDMONT AVIATION, INC.

MONTGOMERY COUNTY AIRPARK, 7930 QUEEN AIR DR.

GAITHERSBURG, MARYLAND 20760

(301) 258-0650

TERMS ☒ CASH SALE ☐ CHARGE SALE ☐ CREDIT MEMO ☐ CASH RECEIPT ☐ COMPANY REQUISITION

DATE _____

CUSTOMER ORDER NUMBER

WORK ORDER NO./AIRCRAFT NO.

SHIP

WILL NUMBER

SOLD BY

SOLD
TO

SHIP
TO[illegible]

THIS IS YOUR INVOICE

PLEASE PAY FROM THIS INVOICE

Merchandise shipped according to order cannot be returned without our permission.
All claims for damages should be made direct to transportation company.

SALES TAX

SHIPPING
CHARGES

TOTAL

FREDERICK AVIATION INC.

FAA CRS NUMBER 121-33

AIRCRAFT MAKE AND MODEL _____ REG. NO. _____ W.O. 6857

OWNER DODDS TACH TIME _____ DATE 7/24/80

ALTIMETER TYPE UNITED INSTRUMENTS PART NO. 5934P-1 SERIAL NO. 51041

CASE LEAK STATUS @ 18,000' 30' INSPECTORS SIGNATURE [Signature]

AT 29.92" Hg MASTER READS 50'

AT 29.92" Hg TESTED READS 50'

FRICTION TEST

TEST POINT	TESTED	MAX	STATUS
1000	1020	70	OK
2000	1980	70	OK
3000	2980	70	OK
5000	4950	70	OK
10,000	9950	80	OK
15,000	14960	90	OK
20,000	19900	100	OK

HYSTERESIS TEST

TEST POINT	TESTED	MAX	STATUS
10,000	9960	75	OK
8,000	7950	75	OK
AFTER EFFECT	60	30	OK

SCALE ERROR TEST

TEST POINT	CORRECTED MASTER	TESTED	CORRECTION	+/-	STATUS
-1000		-990	+10	20	OK
0	SAME	0	0	20	OK
500		490	-10	20	OK
1000		1000	0	20	OK
1500	AS	1490	-10	25	OK
2000		2000	0	30	OK
3000		3000	0	30	OK
4000	TEST	4010	+10	35	OK
6000		5980	-20	40	OK
8000		7980	-20	60	OK
10,000	POINT	9950	-50	80	OK
12,000		11950	-50	90	OK
14,000		13960	-40	100	OK
16,000		15950	-50	110	OK
18,000		17940	-60	120	OK
20,000		19900	-100	130	OK

INSIDE



Authorized Service
Carburetors
Fuel Injectors

PRECISION AIR Inc.

3610 N. W. 41 STREET, MIAMI, FLA. 33142

PHONE (305) 635-5293

F.A.A. Air Agency No. 2029

MARVEL - SCHEBLER

Authorized Service
and Distributor
Aircraft Carburetors

1 to

shipped to

D.C. Aero

Hangar B, 7940 Airpark Dr.
Gaithersburg, MD 20879

1452

Former Order No.

Shipped Via

☐ Prepaid☐ Collect

Date Shipped

Terms

Invoice Date	
--------------	--

Vbl - Mike

UPS/2DA

12/6/85

COD

QUANTITY

DESCRIPTION
1. The first step in the process of identifying a problem is to recognize that a problem exists. This is often done by comparing current performance with a desired state or goal.
2. Once a problem is recognized, the next step is to define the problem more precisely. This involves identifying the causes of the problem and the scope of the problem.
3. The third step is to develop a plan to solve the problem. This involves identifying the resources needed to solve the problem and the steps that need to be taken.
4. The fourth step is to implement the plan. This involves putting the plan into action and monitoring the progress of the solution.
5. The final step is to evaluate the results of the solution. This involves comparing the current performance with the desired state and determining if the problem has been solved.

UNIT PRICE

AMOUNT

1 ea	MA4SPA Marvel-Schebler Carburetor P/L 10-3678-32
------	--

S/N 4015686 N2351Z OHC Exchange

550.00

1 ea	MA4SPA Marvel-Schebler Carburetor P/L 10-5135
------	---

S/N CK-4-8086 Dave D. OHC Exchange

495.00

1045.00

Less 109

104	50
-----	----

940	50
-----	----

UPS Charges

13 40

NET AMOUNT DUE

953 90

~~Trade-ins not received. Core deposit not charged.~~

~~Please return your cores promptly.~~

COD

AIRCRAFT MAKE: CESSNA
ENGINE MAKE: LYCOMING

MODEL: C-177
MODEL: 0-320-E2D

REGISTRATION#: N 3212T
SERIAL #: L-26623-27A

SAMPLE DATA	WEAR METALS												OIL CONDITION				
	ALUMINUM	CHROMIUM	COPPER	IRON	LEAD	TIN	SILICON	MAGNESIUM	MOLY	NICKEL	SILVER	WATER (%)	DIELECTRIC	FUEL (%)	VISC.	pH	
	PISTON BEARINGS	CYLINDER RINGS	BEARINGS	CYLINDER RINGS CRANK SH CAM SH	CRANKSH/ROTOR	BEARINGS	DIRT (THICK AIR IN TAKE)	ACIDITY HOLDING	RINGS	RINGS BEARINGS	BEARINGS	CONDENSATION	SOLIDS (CARBON)		SAE	ACIDITY	
Date Sampled 01-07-84 Sample # 5962 Lab # 462068 Total Hrs. 1273 Hrs. Since last oil change 22 Hrs. Since last filter change 22	35 A	17 N	5.8 N	145 A	1204 N	5.2 N	6.1 N	.7 N	.9 N	3.2 N	.1 N	-.05 N	0 N	-1 N	39 N	6.4 N	
PISTON AND/OR BEARING WEAR INDICATED. RING AND CYLINDER WEAR INDICATED. CHECK FOR POSSIBLE TOO-LEAN MIXTURE. ADVISE CHECK COMPRESSION. DRAIN OIL AND CHANGE FILTER IF NOT ALREADY DONE. RESAMPLE IN 20-25 HRS. TO MONITOR. -ANALYST SS (REC'D: 3-27-84)																	
Date Sampled 8-28-83 Sample # 9051 Lab # 253106 Total Hrs. 1247 Hrs. Since last oil change 49 Hrs. Since last filter change 49	11 N	11 N	4.8 N	54 N	1440 N	2.3 N	6.0 N	.8 N	3.5 N	1.2 N	.1 N	-.05 N	0 N	-1 N	39 N	6.3 N	
ALL SUSPENDED WEAR METAL LEVELS (ABOVE) WITHIN ACCEPTABLE LIMITS, BUT LIGHT CONCENTRATION OF VISIBLE DEBRIS (DIRT, HARD CARBON & WEAR METAL PARTICLES) FILTERED FROM SAMPLE. CHECK ALL DIRT ACCESS POINTS. DRAIN OIL AND CHANGE FILTER IF NOT ALREADY DONE. RESAMPLE IN 30-35 HRS. TO MONITOR.																	
Date Sampled 5-29-82 Sample # 9012 Lab # 250153 Total Hrs. 1198 Hrs. Since last oil change 15 Hrs. Since last filter change 15	16 A	9.2 N	4.5 N	41 N	1064 N	3.4 N	8.5 N	1.0 N	. N	3.9 N	.3 N	-.05 N	0 N	-1 N	32 N	6.4 N	
CONSIDERING LOW HOURS ON OIL, PISTON AND/OR BEARING WEAR INDICATED. OTHERWISE ENGINE SATISFACTORY. RESAMPLE IN 25 HOURS TO MONITOR.																	
Date Sampled 1-27-82 Sample # 9366 Lab # 199010 Total Hrs. 1183 Hrs. Since last oil change 33 Hrs. Since last filter change 33	5.3 N	5.5 N	4.4 N	44 N	1100 N	2.6 N	12 N	2.6 N	. N	3.3 N	0 N	-.05 N	1 N	-1 N	40 N	6.3 N	
ASSUMING SAMPLE TAKEN HOT IN ACCORDANCE WITH INSTRUCTIONS, ALL ENGINE WEAR RATES NORMAL. ABRASIVE AND OTHER CONTAMINANT LEVELS SATISFACTORY. CONDITION OF OIL SATISFACTORY FOR TIME IN SERVICE. RESAMPLE AS PER YOUR PROGRAM PLAN.																	
Date Sampled Sample # Lab # Total Hrs. Hrs. Since last oil change Hrs. Since last filter change																	

LEGEND: Normal, Abnormal, Severe "+" means greater than, "-" means less than.

AOPA AIR SAFETY FOUNDATION
MR. DAVID C. DODDS
1340 HUGHES FORD ROAD
FREDERICK, MD 21701

LAST OVERHAUL:
SYSTEM CAPACITY: 6 QTS.
OIL MAKE & TYPE: PHILLIPS XC 20W-50
HISTORY & REMARKS: INACTIVE FOR 5 YRS.
NOTED 1/27/82.
OC: 1/13, 1/15, 1/13,
1/6,
N3212T L2662327A

Your computer code is:

A MEMBER OF THE SPECTROMETRIC OIL ANALYSIS LABORATORY ASSOCIATION

Recip 181

REPORT EXPLANATION

SAMPLE DATA		③ WEAR METALS											④ OIL CONDITION					
		ALUM- NIUM	CHRO- MIUM	COPPER	IRON	LEAD	TIN	SIL- CON	MAGNE- SIUM	MOLY	NICK- EL	SILVER	WATER (%)	DIEL- ECTRIC	FUEL (%)	VISC.	pH	⑤
		PISTON BEARINGS	CYLINDER RINGS	BEARINGS	CYLINDER RINGS CRANK SH CAM SH	GASOLINE ADDITIVE	BEARINGS	DIFF (THRU) AIR IN TAKE	ADDITIVE (OILS)	RINGS	RINGS BEARINGS	BEARINGS	CONDEN- SATION	SOLIDS (CARBON)		SAE	ACIDITY	
Date Sampled	⑥																	
Sample #	⑦																	
Lab #	⑧																	
Total Hrs. Hrs. Since Last Oil Change Hrs. Since Last Filter Change	⑨																	

- The number on the Sample Information Sheet submitted with the sample.
- A number we assign the sample for tracking in our facility.
- Wear Metals:** These key metals constitute the friction surfaces of the component being tested. The oil circulation washes the micron-sized wear debris from the friction face. The submicroscopic particles pass through the filters and are determined by metal and quantity in our emission spectrocomputer. The possible sources are listed below each metal.
- Oil Condition:**
Dielectric Constant: An electrical impedance measurement that spots general levels of conducting contaminants requiring supplemental qualification tests.
Fuel: Unburned Avgas diluting the lube oil.
Viscosity: A measure of the oil's resistance to flow and circulate in the system expressed as SAE grade.
pH: Acidity is expressed as pH number. (7.0 is neutral. Lower numbers are acidic.) Oil should be changed before the pH falls to about 5.5.
- A blank space to report additional supplemental tests as necessary.
- Metal Levels:** Reported in parts per million (PPM's) (One PPM = 1/10,000%) of that metal in the oil. We report these as found in your sample. The levels are then considered for hours since last oil change and oil consumption and compared to the established wear pattern for your make and model of engine for range determination. These wear patterns, or standards of normal, have been developed over a period of years and in conjunction with the engine manufacturers during controlled testing. The standard wear pattern for a given engine is performed only after hundreds of samples from that type of engine (in various applications) have been analyzed and reviewed.
- Our gradation of the analytical values Normal, Abnormal, Severe. For example, an element rated: "S" indicates a severe rate of wear. Note: We are evaluating the rate at which the components are wearing, not the amount of wear that has taken place.
- Diagnostic Statement:** This is a statement which takes into consideration all the tests performed translated into what you want to know, such as:
 - Condition of the working parts and the oil
 - What is wearing and why
 - Recommendation of corrective action

(Ref. Phone Call date) will appear if you have a problem needing quick remedial action. The free call is made as soon as the evaluative data has been reviewed.

AOPA Air Safety Foundation
1340 Hughes Ford Road
Frederick Municipal Airport
Frederick, Maryland 21701

Tach 1273.6

DATE	AIRCRAFT REGISTRATION	TYPE INSPECTION	
1/7/84	N3212T	ANNUAL	
1.	Clean and check plugs	Yes No	Gapped + Rotated
2.	Compression check engine	OK	1) 78/80 2) 76/80 3) 74/80 4) 75/80
3.	Clean fuel screen	OK	
4.	Clean carb. air filter	OK	
5.	Check and clean engine oil screen	OK	Installed oil filter kit
6.	Check mag. points	OK	Retimed left mag
7.	Check generator and starter brushes	OK	
8.	Check prop track	OK	
9.	Lubricate aircraft	OK	
10.	Check brake linings	OK	
11.	Bleed and adjust brakes	OK	
12.	Service reservoir	OK	
13.	Repack wheel bearings		
14.	Check tire pressure	OK	
15.	Check and service battery	OK	
16.	Static check due	7/18/85 OK	
17.	Transponder check due	7/19/85 OK	
18.	ELT	Replaced due 7/85 OK	8/21/85
19.	AD's	OK	
20.	Sign logs	Airframe OK	
		Powerplant OK	
21.	Update board		

INV. NO. _____

PAGE _____ OF _____ PAGES

TACH TIME 1273.6AOPA AIR SAFETY FOUNDATION
FLIGHT & TECHNOLOGY LAB
1340 Hughes Ford Road
Frederick, Maryland 21701

OWNER _____

PHONE NO. _____

N N3212T SERIAL # _____MAKE CESSNA MODEL 177

ITEM		MECH	HOURS
	Muffler baffles coming apart		
CORRECTIVE ACTION:	Removed loose baffles and and installed tail pipe guard	DD	
ITEM	#3 rocker cover leaking oil	MECH	HOURS
CORRECTIVE ACTION:	Installed new gasket	DD	
ITEM	Install spin-on oil filter kit	MECH	HOURS
CORRECTIVE ACTION:	Installed kit and make up new + longer oil cooler hoses	DD	
ITEM	Left mag too advanced 2° BTDC	MECH	HOURS
CORRECTIVE ACTION:	Retimed to 25° BTDC	DD	
ITEM	Install mag p-lead boots	MECH	HOURS
CORRECTIVE ACTION:	C/W	DD	
ITEM	ELT batteries expired	MECH	HOURS
CORRECTIVE ACTION:	Installed new battery Expires 4/85	DD	

DATE _____ MECHANIC _____ APPROVED BY: _____

INV. NO. _____

PAGE _____ OF _____ PAGES

TACH TIME _____

AOPA AIR SAFETY FOUNDATION
FLIGHT & TECHNOLOGY LAB
1340 Hughes Ford Road
Frederick, Maryland 21701

OWNER _____

PHONE NO. _____

N _____ SERIAL # _____

MAKE _____ MODEL _____

ITEM	MECH	HOURS
LEFT BRAKE MASTER LOCK O SEAL NEEDS REPAIR		
CORRECTIVE ACTION: c/w	DD	
ITEM	MECH	HOURS
RADIO REOSTAT INOP		
CORRECTIVE ACTION: Installed new unit	DD	
ITEM	MECH	HOURS
Adjust T/C + VSI		
CORRECTIVE ACTION:		
ITEM	MECH	HOURS
CORRECTIVE ACTION:		
ITEM	MECH	HOURS
CORRECTIVE ACTION:		
ITEM	MECH	HOURS
CORRECTIVE ACTION:		

DATE _____ MECHANIC _____ APPROVED BY: _____

FREDERICK AVIATION INC.

FAA CRS NUMBER 121-33

AIRCRAFT MAKE AND MODEL _____ REG. NO. _____ W.O. _____

OWNER DAVE DODDS TACH TIME _____ DATE 18 July 83ALTIMETER TYPE UNITED PART NO. 5934P-1 SERIAL NO. J7041CASE LEAK STATUS @ 18,000' OK INSPECTORS SIGNATURE [Signature]AT 29.92" Hg MASTER READS 250AT 29.92" Hg TESTED READS 250

FRICTION TEST

TEST POINT	TESTED	MAX	STATUS
1000	0	70	OK
2000	0	70	OK
3000	0	70	OK
5000	0	70	OK
10,000	0	80	OK
15,000	—	90	—
20,000	0	100	OK

HYSTERESIS TEST

TEST POINT	TESTED	MAX	STATUS
10,000	-10	75	OK
8,000	0	75	OK
AFTER EFFECT	0	30	OK

SCALE ERROR TEST

TEST POINT	MASTER TESTED	TESTED MASTER	CORRECTION	+/-	STATUS
-1000		-1010	-10	20	20 OK
0			-5	20	
500	500	510	-20	20	-10 OK
1000	1000	1010	-10	20	0 OK
1500	1500	1510	-20	25	-10 OK
2000	2000	2010	-20	30	-10 OK
3000	3000	3010	-20	30	-10 OK
4000	4000	4020	-20	35	0 OK
6000	6000	6020	-30	40	-10 OK
8000	8000	8000	-40	60	-40 OK
10,000	10000	10010	-60	80	-50 OK
12,000	12000	12010	-60	90	-50 OK
14,000	14000	14020	-70	100	-50 OK
16,000	16000	16020	-90	110	-70 OK
18,000	18000	18000	-80	120	-80 OK
20,000	20000	19980	-80	130	-100 OK
5000	5000	5020	-20		0 OK

**CAPITAL AVIATION
INSTRUMENT CORP.**

BOX 542
MANASSAS MUNICIPAL AIRPORT
MANASSAS, VIRGINIA 22110
703-355-0500 METRO 601-2128

INVOICE**006273**

Invoice Date	Your Order No.	Our Order No.
11 APR 83	DAVE DODIS	0406-3

SOLD TO:

- AOPA AIR SAFETY FOUNDATION
- 1340 HUGHS FORD ROAD
- FREDERICK MUNICIPAL AIRPORT
- FREDERICK, MD 21701

SHIPPED TO: (If other than SOLD TO)

• SAME

Date Shipped	Salesman	Terms	Shipped Via	F.O.B.	
4/11/83	TWK	NET 30 DAYS	UPS	MANASSAS	
Quantity	Description			Unit Price	Amount
1	HORIZON GYRO P/N 300-3CF OVERHAULED S/N 2480 PARTS			190.00-250 101.07	182.50 101.07
	SHIPPING & HANDLING INS. 400			1.52 .75	243.57 2.27
	TOTAL DUE				245.84
THANK YOU					
LTB	NO STATEMENT WILL BE MAILED PLEASE PAY FROM THIS INVOICE. ALL ACCOUNTS ARE DUE AND PAYABLE NET 30 DAYS OF THE DATE ON INVOICE FINANCE CHARGE OF 1 1/2% PER MONTH WHICH IS AN ANNUAL PERCENTAGE RATE OF 18% CHARGES ON ALL PAST DUE ACCTS.				

BASIC AVIONICS CORPORATION

Frederick Municipal Airport

FAA Cert. Repair Sta. 121-14

Frederick, Maryland 21701

Phones

Balt. Area

Frederick

Wash. DC Area

385-1998

301-663-3003

428-0119

WORK ORDER

No 5167

RADIO MAKE/MODEL

SERIAL NO.

1 RT-359A

7495

PILOT NAME

David Dodds

HOME PHONE

COMPANY NAME

DPD Enterprises

OFFICE PHONE

BILLING ADDRESS

17821 Mill Creek Drive

CITY

Derwood, Md.

ZIP CODE

20855

DATE

3-3-83

CUSTOMER ORDER NO.

LOCATION

AIRCRAFT MAKE/MODEL

TACH. HOURS

REG. NO.

Cardinal

N3212T

MAINTENANCE RELEASE

This component was repaired and inspected in accordance with current Regulations of the Federal Aviation Administration and is approved for return to service. Details of the repair are on file at this repair station under Work Order No. 5167

I hereby authorize, and have authority to do so, the work listed below along with the necessary material, and hereby grant you or your employees permission to operate the aircraft herein described for the purpose of testing and/or inspection. An express mechanics lien is hereby acknowledged on above aircraft to secure the amount of repairs to it or its accessories. 1 1/2% charge for any work order over 20 days and for each 20 days thereafter - Total 24% per year.

X

X

ITEM	WORK ACCOMPLISHED	ITEM	INSTRUCTIONS
1	Replaced front panel. Checked unit on all functions. Adjusted SLS, AOC, pulse width and spacing. After cooking a few hours the transponder exhibited a symptom of triggering itself. Adjusted oscillator and rec sensitivity. Cold and heat cycled unit several times and operation appeared to be OK.	1	Replace front panel on transponder
	Labor 4.0 hrs	2	Bench check navcoms.
2	Bench checked both navcoms and touched up VOR and LOC calibration.	3	ADF won't home on middle band.
3	Touched up ADF receiver alignment.	4	Bench check glide slope and marker beacon
4	Bench checked glide slope and marker beacon OK.	5	Install customer furnished radios.
	Labor 4.5 hrs	PARTS AND ACCESSORIES	
5	Installed customer furnished radios in aircraft.	QTY	PART NO. DESCRIPTION PRICE
	Labor 30.0 hrs	1	42284-07531 Panel \$ 78 28
		2	435-210-102 C.B. 15 00
		2	435-205-102 C.B. 15 00
		1	KA-60 Antenna 45 00
		16	A6-75 Rivnuts 3 20
		1	Sense Antenna 5 00
		1	AV-533 Marker Antenna 32 75
		1	C-11 Phone Jack 2 00
		1	C-12B Mic Jack 2 75
		1	AD-9 Triplexer 40 00
		20	Amp Pins 4 00
		9	RG-62 Coax 3 60
		1	UG-959 A/U Connector 4 50
		1	UG-274/U Adapter 3 00
		4	UG-88/U Connectors 13 00
		1	Lot Misc. Materials 10 00
NOT RESPONSIBLE FOR LOSS OR DAMAGE TO AIRCRAFT OR ARTICLES LEFT IN AIRCRAFT IN CASE OF FIRE OR THEFT OR ANY OTHER CAUSE BEYOND OUR CONTROL		TOTAL PARTS AND ACCESSORIES \$ 277 08	
		8.5 HOURS @ \$30.00/HR. 255 00	
		30.0 HOURS @ \$30.00/HR. 900 00	
		FAR 91.177 CHECK	
		OUTSIDE REPAIRS	
		SALES TAX 13 85	
		TOTAL AMOUNT \$1,445 93	

3-7-83 - Balone 300 00 \$1,145.93

AOPA Air Safety Foundation
1340 Hughes Ford Road
Frederick Municipal Airport
Frederick, Maryland 21701

DATE 11/24/82		AIRCRAFT REGISTRATION N3212T		TYPE INSPECTION Annual	
1.	Clean and check plugs	Yes	No		
2.	Compression check engine	DD		1)	2) 3) 4)
3.	Clean fuel screen	DD			
4.	Clean carb. air filter	DD			
5.	Check and clean engine oil screen	DD			
6.	Check mag. points	DD		Retimed both	
7.	Check generator and starter brushes	DD			
8.	Check prop track	DD		Filed + printed	
9.	Lubricate aircraft	DD			
10.	Check brake linings	DD			
11.	Bleed and adjust brakes	DD			
12.	Service reservoir	DD			
13.	Repack wheel bearings	DD			
14.	Check tire pressure	DD			
15.	Check and service battery	DD		New battery	
16.	Static check due	NA			
17.	Transponder check due	NA			
18.	ELT			DUE	
19.	AD's				
20.	Sign logs				
		Airframe			
		Powerplant			
21.	Update board				

INV. NO. _____

PAGE 1 OF 2 PAGESTACH TIME 12510AOPA AIR SAFETY FOUNDATION
FLIGHT & TECHNOLOGY LAB
1340 Hughes Ford Road
Frederick, Maryland 21701OWNER Dodd's

PHONE NO. _____

N 3212T SERIAL # 12700572MAKE CESSNA MODEL C-177

ITEM		MECH	HOURS
1	RT outboard timing worn near limits		
CORRECTIVE ACTION: <u>Replaced</u>		<u>DD</u>	
2	AD 70-24-4 Fuel shut off valve		
CORRECTIVE ACTION: <u>Checked rigging of cable as per AD instr.</u>		<u>DD</u>	
3	AN 71-24-4 Flev hoses in eng. comp.		
CORRECTIVE ACTION: <u>Prepressurized all lines for leaks</u> <u>OK</u>		<u>DD</u>	
4	72-3-3 Wing flap jack-screw		
CORRECTIVE ACTION: <u>Check & lubed as required</u>		<u>DD</u>	
5	AD 82-20-1 Bendix Impulse coupling insp.		
CORRECTIVE ACTION: <u>Removed left magneto and inspected as per AD instr. and stamped F on ID plate - OK</u>		<u>DD</u>	
6	Install new battery		
CORRECTIVE ACTION: <u>Installed new Rebat R-35</u>		<u>DD</u>	

DATE 11/24/82

MECHANIC

David C. Dodd

APPROVED BY: _____

INV. NO. _____

PAGE 2 OF 2 PAGES

TACH TIME _____

AOPA AIR SAFETY FOUNDATION
FLIGHT & TECHNOLOGY LAB
1340 Hughes Ford Road
Frederick, Maryland 21701

OWNER _____

PHONE NO. _____

N 3212T SERIAL # _____

MAKE _____ MODEL _____

ITEM		MECH	HOURS
7	Alternator making noise over radio		
CORRECTIVE ACTION: Remove alt. & installed serviceable unit P/N CW1501-0101 with new brushes & installed		DD	
8	Minor nicks in prop		
CORRECTIVE ACTION: Filed, sanded, & painted		DD	
ITEM	Rt main tire flat spot	MECH	HOURS
CORRECTIVE ACTION: Installed serviceable tire Goodyear 6.00x6 8 ply		DD	
ITEM		MECH	HOURS
CORRECTIVE ACTION:			
ITEM		MECH	HOURS
CORRECTIVE ACTION:			
ITEM		MECH	HOURS
CORRECTIVE ACTION:			

DATE _____ MECHANIC _____

APPROVED BY: _____



ENGINE AND OIL
CONDITION
ANALYSIS
REPORT

Spectro/Metrics, Inc.
35 Executive Park Drive, N.E.
Atlanta, Georgia 30329
(404) 321-7909

AIRCRAFT MAKE: CESSNA
ENGINE MAKE: LYCOMING

MODEL: C-177
MODEL: 0-320-E2D

REGISTRATION#: N 3212T
SERIAL #: L-20263-2A

SAMPLE DATA	WEAR METALS												OIL CONDITION					
	ALUMINUM	CHROMIUM	COPPER	IRON	LEAD	TIN	SILICON	MAGNESIUM	MOLY	NICKEL	SILVER	WATER (%)	DIELECTRIC	FUEL (%)	VISC.	PH		
	PISTON BEARINGS	CYLINDER RINGS	BEARINGS	CYLINDER RINGS (DATA 3rd CAM 5th)	GASOLINE ADDITIVE	BEARINGS	SOOT (THRU AIR IN TAKE)	ACIDITY (ACIDITY)	RINGS	PISTON BEARINGS	BEARINGS	CONDENSATION	SOOT (CARBON)		SAE	ACIDITY		
Date Sampled: 8-28-82 Sample #: 9051 Lab #: 253106 Total Hrs: 1247.0 Hrs. Since last oil change: 49 Hrs. since last filter change: 49	11 N	11 N	4.8 N	54 N	1440 N	2.3 N	6.0 N	.8 N	3.5 N	1.2 N	.1 N	-.05 N	0 N	-1 N	39 N	6.3 N		
Date Sampled: 1-27-82 Sample #: 9366 Lab #: 199010 Total Hrs: 1183.0 Hrs. Since last oil change: 33.0 Hrs. since last filter change: 33.0	5.3 N	5.5 N	4.4 N	44 N	1100 N	2.6 N	12 N	2.6 N	. N	3.3 N	0 N	-.05 N	1 N	-1 N	40 N	6.3 N		
ASSUMING SAMPLE TAKEN HOT IN ACCORDANCE WITH INSTRUCTIONS, ALL ENGINE WEAR RATES NORMAL. ABRASIVE AND OTHER CONTAMINANT LEVELS SATISFACTORY. CONDITION OF OIL SATISFACTORY FOR TIME IN SERVICE. RESAMPLE AS PER YOUR PROGRAM PLAN.																		
Date Sampled: Sample #: Lab #: Total Hrs: Hrs. Since last oil change: Hrs. since last filter change:																		
Date Sampled: Sample #: Lab #: Total Hrs: Hrs. Since last oil change: Hrs. since last filter change:																		
Date Sampled: Sample #: Lab #: Total Hrs: Hrs. Since last oil change: Hrs. since last filter change:																		
Date Sampled: Sample #: Lab #: Total Hrs: Hrs. Since last oil change: Hrs. since last filter change:																		

LEGEND: Normal, Abnormal, Severe "+" means greater than, "-" means less than.

A. O. P. A. AIR SAFETY FOUNDATION
1340 HUGHES FORD ROAD
FREDERICK, MD 21701

ATTN: MR. DAVID C. DODDS

LAST OVERHAUL:
SYSTEM CAPACITY: 6 QTS.
OIL MAKE & TYPE: PHILLIPS XC 20W-50
HISTORY & REMARKS: ENG. INACTIVE FOR 5 YRS.
NOTED 1-27-82.
OC:1/13,

N3212T L2026327A

REPORT EXPLANATION

SAMPLE DATA		③ WEAR METALS											④ OIL CONDITION					
		ALUMINUM	CHROMIUM	COPPER	IRON	LEAD	TIN	SILICON	MAGNESIUM	MOLY	NICKEL	SILVER	WATER (%)	DIELECTRIC	FUEL (%)	VISC.	pH	⑤
		PISTON RINGS	CYLINDER RINGS	BEARINGS	CYLINDER RINGS (CRANK SH CAM SH)	GASOLINE ADDITIVE	BEARINGS	SOOT (THIN AIR IN TAKE)	ADDITIVE (ADDITIVE)	RINGS	PISTON RINGS	BEARINGS	CONDENSATION	SOLIDS (CARBON)		SAE	ACIDITY	
Date Sampled	⑥																	
Sample #	⑦																	
Lab #	⑧																	
Totals		⑨																
Hrs. Since Last Oil Change																		
Hrs. Since Last Filter Change																		

- The number on the Sample Information Sheet submitted with the sample.
- A number we assign the sample for tracking in our facility.
- Wear Metals: These key metals constitute the friction surfaces of the component being tested. The oil circulation washes the micron-sized wear debris from the friction face. The submicroscopic particles pass through the filters and are determined by metal and quantity in our emission spectrocomputer. The possible sources are listed below each metal.
- Oil Condition:
 - Dielectric Constant: An electrical impedance measurement that spots general levels of conducting contaminants requiring supplemental qualification tests.
 - Fuel: Unburned Avgas diluting the lube oil.
 - Viscosity: A measure of the oil's resistance to flow and circulate in the system expressed as SAE grade.
 - pH: Acidity is expressed as pH number. (7.0 is neutral. Lower numbers are acidic.) Oil should be changed before the pH falls to about 5.5.
- A blank space to report additional supplemental tests as necessary.
- Metal Levels: Reported in parts per million (PPM's) (One PPM = 1/10,000%) of that metal in the oil. We report these as found in your sample. The levels are then considered for hours since last oil change and oil consumption and compared to the established wear pattern for your make and model of engine for range determination. These wear patterns, or standards of normal, have been developed over a period of years and in conjunction with the engine manufacturers during controlled testing. The standard wear pattern for a given engine is performed only after hundreds of samples from that type of engine (in various applications) have been analyzed and reviewed.
- Our gradation of the analytical values Normal, Abnormal, Severe. For example, an element rated: "S" indicates a severe rate of wear. Note: We are evaluating the rate at which the components are wearing, not the amount of wear that has taken place.
- Diagnostic Statement: This is a statement which takes into consideration all the tests performed translated into what you want to know, such as:
 - Condition of the working parts and the oil
 - What is wearing and why
 - Recommendation of corrective action

(Ref. Phone Call date) will appear if you have a problem needing quick remedial action. The free call is made as soon as the evaluative data has been reviewed.



ENGINE AND OIL
CONDITION
ANALYSIS
REPORT

Spectro / Metrics, Inc.
35 Executive Park Drive, N.E.
Atlanta, Georgia 30329
(404) 321-7909

AIRCRAFT MAKE: CESSNA
ENGINE MAKE: LYCOMING

MODEL: C-177
MODEL: 0-320-E2D

REGISTRATION#: N 3212T
SERIAL #: L-20263-27A

SAMPLE DATA	WEAR METALS												OIL CONDITION				
	ALUM- INIUM	CHRO- MIUM	COPPER	IRON	LEAD	TIN	SIL- CON	MAGNE- SIUM	MOLY	NICK- EL	SILVER	WATER (%)	DEL- ECTRIC	FUEL (%)	VISC.	PH	
	PISTON BEARINGS	CYLINDER WALLS	BEARINGS	CYLINDER RINGS CRANK SH CAM SH	CRANK/P ROD BUSH	BEARINGS	DIRT (THRU AIR IN TAKE)	ADDITIVE HOUSING	RINGS	PISTON BEARINGS	BEARINGS	CONDEN- SATION	SOLIDS (CARBON)		SAE	ACIDITY	
Date Sampled: 8-28-82 Sample #: 9051 Lab #: 253106 Total Hrs. 1247.0 Hrs. Since last oil change 49 Hrs. Since last filter change 49	11	11	4.8	54	1440	2.3	6.0	.8	3.5	1.2	.1	-.05	0	-1	39	6.3	
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
ALL SUSPENDED WEAR METAL LEVELS (ABOVE) WITHIN ACCEPTABLE LIMITS, BUT LIGHT CONCENTRATION OF VISIBLE DEBRIS (DIRT, HARD CARBON & WEAR METAL PARTICLES) FILTERED FROM SAMPLE. CHECK ALL DIRT ACCESS POINTS. DRAIN OIL AND CHANGE FILTER IF NOT ALREADY DONE. RESAMPLE IN 30-35 HRS. TO MONITOR.																	
Date Sampled: 1-27-82 Sample #: 9366 Lab #: 199010 Total Hrs. 1183.0 Hrs. Since last oil change 33.0 Hrs. Since last filter change 33.0	5.3	5.5	4.4	44	1100	2.6	12	2.6	.	3.3	0	-.05	1	-1	40	6.3	
	N	N	N	N	N	N	N	N	.	N	N	N	N	N	N	N	
ASSUMING SAMPLE TAKEN HOT IN ACCORDANCE WITH INSTRUCTIONS, ALL ENGINE WEAR RATES NORMAL. ABRASIVE AND OTHER CONTAMINANT LEVELS SATISFACTORY. CONDITION OF OIL SATISFACTORY FOR TIME IN SERVICE. RESAMPLE AS PER YOUR PROGRAM PLAN.																	
Date Sampled: Sample #: Lab #: Total Hrs. Hrs. Since last oil change: Hrs. Since last filter change:																	
Date Sampled: Sample #: Lab #: Total Hrs. Hrs. Since last oil change: Hrs. Since last filter change:																	
Date Sampled: Sample #: Lab #: Total Hrs. Hrs. Since last oil change: Hrs. Since last filter change:																	
Date Sampled: Sample #: Lab #: Total Hrs. Hrs. Since last oil change: Hrs. Since last filter change:																	

LEGEND: Normal, Abnormal, Severe "+" means greater than, "-" means less than.

A. O. P. A. AIR SAFETY FOUNDATION
1340 HUGHES FORD ROAD
FREDERICK, MD 21701

ATTN: MR. DAVID C. DODDS

LAST OVERHAUL:
SYSTEM CAPACITY: 6 QTS.
OIL MAKE & TYPE: PHILLIPS XC 20W-50
HISTORY & REMARKS: ENG. INACTIVE FOR 5 YRS.
NOTED 1-27-82.
OC:1/13

N3212T L2026327A

REPORT EXPLANATION

SAMPLE DATA		(3) WEAR METALS											(4) OIL CONDITION					
		ALUMINUM	CHROMIUM	COPPER	IRON	LEAD	TIN	SILICON	MAGNESIUM	MOLY	NICKEL	SILVER	WATER (%)	DIELECTRIC	FUEL (%)	VISC.	pH	(5)
		PISTON BEARINGS	CYLINDER RINGS	BEARINGS	CYLINDER RINGS (Blank Sp. Cam Sh.)	SMOKE/ADDS	BEARINGS	DIRTY (THRU AIR IN TAKE)	ADDS (HOUSING)	RINGS	PISTON BEARINGS	BEARINGS	CONDENSATION	SOLIDS (CARBON)	SAE	ACIDITY		
Date Sampled	(6)																	
Sample #	(7)																	
Lab #	(2)																	
Notes		(8)																

(1) _____
 (2) _____
 (3) _____
 (4) _____
 (5) _____
 (6) _____
 (7) _____
 (8) _____

- The number on the Sample Information Sheet submitted with the sample.
- A number we assign the sample for tracking in our facility.
- Wear Metals: These key metals constitute the friction surfaces of the component being tested. The oil circulation washes the micron-sized wear debris from the friction face. The submicroscopic particles pass through the filters and are determined by metal and quantity in our emission spectrocomputer. The possible sources are listed below each metal.
- Oil Condition:
 - Dielectric Constant: An electrical impedance measurement that spots general levels of conducting contaminants requiring supplemental qualification tests.
 - Fuel: Unburned Avgas diluting the lube oil.
 - Viscosity: A measure of the oil's resistance to flow and circulate in the system expressed as SAE grade.
 - pH: Acidity is expressed as pH number. (7.0 is neutral. Lower numbers are acidic.) Oil should be changed before the pH falls to about 5.5.
- A blank space to report additional supplemental tests as necessary.
- Metal Levels: Reported in parts per million (PPM's) (One PPM = 1/10,000%) of that metal in the oil. We report these as found in your sample. The levels are then considered for hours since last oil change and oil consumption and compared to the established wear pattern for your make and model of engine for range determination. These wear patterns, or standards of normal, have been developed over a period of years and in conjunction with the engine manufacturers during controlled testing. The standard wear pattern for a given engine is performed only after hundreds of samples from that type of engine (in various applications) have been analyzed and reviewed.
- Our gradation of the analytical values Normal, Abnormal, Severe. For example, an element rated: "S" indicates a severe rate of wear. Note: We are evaluating the rate at which the components are wearing, not the amount of wear that has taken place.
- Diagnostic Statement: This is a statement which takes into consideration all the tests performed translated into what you want to know, such as:
 - Condition of the working parts and the oil
 - What is wearing and why
 - Recommendation of corrective action

(Ref. Phone Call date) will appear if you have a problem needing quick remedial action. The free call is made as soon as the evaluative data has been reviewed.



ENGINE AND OIL
CONDITION
ANALYSIS
REPORT

Spectro/Metrics, Inc.
35 Executive Park Drive, N.E.
Atlanta, Georgia 30329
(404) 321-7909

AIRCRAFT MAKE: CESSNA
ENGINE MAKE: LYCOMING

MODEL: C-177
MODEL: O-320-E2D

REGISTRATION#: N 3212T
SERIAL #: L-26623-27A

SAMPLE DATA	WEAR METALS												OIL CONDITION				
	ALUM- INUM	CHRO- MIUM	COPPER	IRON	LEAD	TIN	SELI- CON	MAGNE- SIUM	NICK- EL	SILVER	WATER (%)	DIEL- ECTRIC	FUEL (%)	VISC.	pH		
	PISTON BEARINGS	CYLINDER RINGS	BEARINGS	CYLINDER RINGS CAM SHA	CRANK ROD TIE	BEARINGS	CRANK ROD TIE (TIE/ROD)	CRANK ROD TIE (TIE/ROD)	CRANK ROD TIE (TIE/ROD)	CRANK ROD TIE (TIE/ROD)	CRANK ROD TIE (TIE/ROD)	CRANK ROD TIE (TIE/ROD)	CRANK ROD TIE (TIE/ROD)	CRANK ROD TIE (TIE/ROD)	CRANK ROD TIE (TIE/ROD)		
Date Sampled Sample # Lab # Total Hrs. Hrs. Since last oil change Hrs. since last filter change	5-29-82 9012 250153 1198.0 15 15	16 A	9.2 N	4.5 N	41 N	1064 N	3.4 N	8.5 N	1.0 N	. N	3.9 N	.3 N	-0.05 N	0 N	-1 N	32 N	6.4 N
CONSIDERING LOW HOURS ON OIL, PISTON AND/OR BEARING WEAR INDICATED. OTHERWISE ENGINE SATISFACTORY. RESAMPLE IN 25 HOURS TO MONITOR.																	
Date Sampled Sample # Lab # Total Hrs. Hrs. Since last oil change Hrs. since last filter change																	
Date Sampled Sample # Lab # Total Hrs. Hrs. Since last oil change Hrs. since last filter change																	
Date Sampled Sample # Lab # Total Hrs. Hrs. Since last oil change Hrs. since last filter change																	
Date Sampled Sample # Lab # Total Hrs. Hrs. Since last oil change Hrs. since last filter change																	

LEGEND: Normal, Abnormal, Severe "+" means greater than, "-" means less than.

A. O. P. A. AIR SAFETY FOUNDATION
1340 HUGHES FORD ROAD
FREDERICK, MD 21701

ATTN: MR. DAVID C. DODDS

LAST OVERHAUL:
SYSTEM CAPACITY: 5.5 QTS.
OIL MAKE & TYPE: PHILLIPS XC 20W-50
HISTORY & REMARKS:
OC:1/15,

REPORT EXPLANATION

SAMPLE DATA		(3) WEAR METALS											(4) OIL CONDITION					
		ALUMINUM	CHROMIUM	COPPER	IRON	LEAD	TIN	SILICON	MAGNESIUM	MOLYBDENUM	NICKEL	SILVER	WATER (%)	DIELECTRIC	FUEL (%)	VISC.	pH	(5)
		PISTON RINGS	CYLINDER RINGS	BEARINGS	CYLINDER RINGS CRANK SH CAM SH	VALVE ADJUST	BEARINGS	WET (TIMES AIR FILTER)	ROD/VALVE HOLDING	RINGS	WHEEL BEARINGS	BEARINGS	CONDENSATION	SOLIDS (CARBON)		SAE	ACIDITY	
Date Sampled	(6)																	
Sample #	(7)																	
Lab #	(8)																	
Total Hrs. Since last oil change		(9)																
Hrs. Since last filter change																		

1. The number on the Sample Information Sheet submitted with the sample.

2. A number we assign the sample for tracking in our facility.

3. Wear Metals: These key metals constitute the friction surfaces of the component being tested. The oil circulation washes the micron-sized wear debris from the friction face. The submicroscopic particles pass through the filters and are determined by metal and quantity in our emission spectrocomputer. The possible sources are listed below each metal.

4. Oil Condition:
Dielectric Constant: An electrical impedance measurement that spots general levels of conducting contaminants requiring supplemental qualification tests.

Fuel: Unburned Avgas diluting the lube oil.

Viscosity: A measure of the oil's resistance to flow and circulate in the system expressed as SAE grade.

pH: Acidity is expressed as pH number. (7.0 is neutral. Lower numbers are acidic.) Oil should be changed before the pH falls to about 5.5.

5. A blank space to report additional supplemental tests as necessary.

6. Metal Levels: Reported in parts per million (PPM's) (One PPM = 1/10,000%) of that metal in the oil. We report these as found in your sample. The levels are then considered for hours since last oil change and oil consumption and compared to the established wear pattern for your make and model of engine for range determination. These wear patterns, or standards of normal, have been developed over a period of years and in conjunction with the engine manufacturers during controlled testing. The standard wear pattern for a given engine is performed only after hundreds of samples from that type of engine (in various applications) have been analyzed and reviewed.

7. Our gradation of the analytical values Normal, Abnormal, Severe. For example, an element rated: "S" indicates a severe rate of wear. Note: We are evaluating the rate at which the components are wearing, not the amount of wear that has taken place.

8. Diagnostic Statement: This is a statement which takes into consideration all the tests performed translated into what you want to know, such as:
1. Condition of the working parts and the oil
2. What is wearing and why
3. Recommendation of corrective action

(Ref. Phone Call date) will appear if you have a problem needing quick remedial action. The free call is made as soon as the evaluative data has been reviewed.



ENGINE AND OIL
CONDITION
ANALYSIS
REPORT

Spectro/Metrics, Inc.
35 Executive Park Drive, N.E.
Atlanta, Georgia 30329
(404) 321-7909

AIRCRAFT MAKE: CESSNA
ENGINE MAKE: LYCOMING

MODEL: C-177
MODEL: O-320-E2D

REGISTRATION#: N 3212T
SERIAL #: L-20263-27A

SAMPLE DATA	WEAR METALS											OIL CONDITION					
	ALUM- NIUM	CHRO- MIUM	COPPER	IRON	LEAD	TIN	SIL- CON	MAGNE- SIUM	MOLY	NICK- EL	SILVER	WATER (%)	DIE- LECTRIC	FUEL (%)	VISC.	pH	
	PISTON BEARINGS	CRANK PIN	BEARINGS	CYLINDER PINS CRANK SHAFT	VALVE SEAT	BEARINGS	DRY THERM AIR IN TAKE	ROD THERM IN TAKE	PISTON RINGS	PISTON BEARINGS	BEARINGS	CONDI- TION	SOLIDS (CARBON)		SAT	ACIDITY	
Date Sampled Sample # Lab # Total Hrs. Hrs. Since last oil change Hrs. since last filter change	1-27-82 9366 199010 1183.0 33.0 33.0	5.3 N	5.5 N	4.4 N	4.4 N	1100 N	2.6 N	12 N	2.6 N	. N	3.3 N	0 N	-0.05 N	1 N	-1 N	40 N	6.3 N
Date Sampled Sample # Lab # Total Hrs. Hrs. Since last oil change Hrs. since last filter change																	
Date Sampled Sample # Lab # Total Hrs. Hrs. Since last oil change Hrs. since last filter change																	
Date Sampled Sample # Lab # Total Hrs. Hrs. Since last oil change Hrs. since last filter change																	
Date Sampled Sample # Lab # Total Hrs. Hrs. Since last oil change Hrs. since last filter change																	
Date Sampled Sample # Lab # Total Hrs. Hrs. Since last oil change Hrs. since last filter change																	

LEGEND: Normal, Abnormal, Severe "+" means greater than, "-" means less than.

A. O. P. A. AIR SAFETY FOUNDATION
1340 HUGHES FORD ROAD
FREDERICK, MD 21701

ATTN: MR. DAVID C. DODDS

LAST OVERHAUL:
SYSTEM CAPACITY: 6 QTS.
OIL MAKE & TYPE: PHILLIPS XC 20W-50
HISTORY & REMARKS: ENG. INACTIVE FOR 5 YRS.
NOTED 1-27-82.
OC:1/13,

REPORT EXPLANATION

SAMPLE DATA	(3) WEAR METALS												(4) OIL CONDITION					(5)
	ALUM- NIUM	CHRO- MIUM	COPPER	IRON	LEAD	TIN	SIL- CON	MAGNE- SIUM	MOLY	NICK- EL	SILVER	WATER (%)	DIEL- ECTRIC	FUEL (%)	VISC.	pH		
	PISTON BEARINGS	CYLINDER RINGS	BEARINGS	CYLINDER RINGS CRANK SH CAM SH	WASOIL ADDTIVE	BEARINGS	DRY (THIN) AIR IS TAKE	ADDTIVE (OIL/SNG)	RINGS	PISTON BEARINGS	BEARINGS	CONDEN- SATION	SOLIDS (CARBON)		SAE	ACIDITY		
Date Subsided	(6)																	
Sample #	(7)																	
Lab #	(8)																	
Total Hrs.																		
Hrs. Since																		
Last oil change																		
Hrs. since																		
Last filter change																		

- The number on the Sample Information Sheet submitted with the sample.
- A number we assign the sample for tracking in our facility.
- Wear Metals:** These key metals constitute the friction surfaces of the component being tested. The oil circulation washes the micron-sized wear debris from the friction face. The submicroscopic particles pass through the filters and are determined by metal and quantity in our emission spectrocomputer. The possible sources are listed below each metal.
- Oil Condition:**
Dielectric Constant: An electrical impedance measurement that spots general levels of conducting contaminants requiring supplemental qualification tests.
Fuel: Unburned Avgas diluting the lube oil.
Viscosity: A measure of the oil's resistance to flow and circulate in the system expressed as SAE grade.
pH: Acidity is expressed as pH number, (7.0 is neutral. Lower numbers are acidic.) Oil should be changed before the pH falls to about 5.5.
- A blank space to report additional supplemental tests as necessary.
- Metal Levels:** Reported in parts per million (PPM's) (One PPM - 1/10,000%) of that metal in the oil. We report these as found in your sample. The levels are then considered for hours since last oil change and oil consumption and compared to the established wear pattern for your make and model of engine for range determination. These wear patterns, or standards of normal, have been developed over a period of years and in conjunction with the engine manufacturers during controlled testing. The standard wear pattern for a given engine is performed only after hundreds of samples from that type of engine (in various applications) have been analyzed and reviewed.
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- Diagnostic Statement:** This is a statement which takes into consideration all the tests performed translated into what you want to know, such as:
 - Condition of the working parts and the oil
 - What is wearing and why
 - Recommendation of corrective action

(Ref. Phone Call date) will appear if you have a problem needing quick remedial action. The free call is made as soon as the evaluative data has been reviewed.

BASIC AVIONICS CORPORATION

Frederick Municipal Airport
FAA Cert. Repair Sta. 121-14
FREDERICK, MARYLAND 21701

Balt. Area
385-1998

Frederick
301 663-3003

Wash. DC Area
428-0119

SOLD BY		DATE	
		10-7-81 19	
NAME			
David Dedds			
ADDRESS		PHONE	
CITY			
☐ CASH ☐ CHARGE ☐ MDSE. RET'D ☐ C.O.D. ☐ PAID OUT ☐ PD. ON ACCT.			
QUAN.	DESCRIPTION	PRICE	AMOUNT
1	Repairs to ARC 540A		
2	S/N 347 2 hrs labor		50 00
1	3 AG9FC Speaker		25 89
1	4 Sense ant. parts		5 00
5			80 89
6	Tax		1 55
7	Total		82 44
8			
9			
10			
11			
12			
13			
14			
15			
16			
RECEIVED BY		TOTAL	

No

2877

Thank You

Frederick Aviation, Inc.

Municipal Airport Frederick, MD 21701

Nº 724
 Billing Date: Sept 30
 Received Date: 30 Sept 81
 Promised Date: _____



Telephones
 Frederick 662-5984
 Washington 948-9007
 Baltimore 385-1998

SALES AND SERVICE

NAME <u>DCD Aero</u>		Cust. Order No.	CASH	SERVICE CLASS ☐ SHOP ☐
ADDRESS		CITY	CREDIT CARD	Preliminary
Make and Model	AIRCRAFT	Serial No.	Total Hours	Date
Registration No.	Engine			Hidden Damage
	R or FWD			Date
Customer Phone No.				In Progress
☐ OFFICE ☐ HOME				Date
	L or AFT			Final
SERVICES WANTED			LABOR COST CODE	

PARTS ONLY

☐ REPAIRS	☐ 100 HOUR INSPECTIONS
☐ A. D. NOTES	☐ ANNUAL ☐ MAJOR
☐ SER. LETTER	☐ CONTINUOUS INSPECTION ☐

Not responsible for loss or damage to planes or articles left in planes in case of fire, theft or any other cause beyond our control.

I hereby authorize the above work to be done with the necessary material, and hereby grant you and/or your employees permission to operate this aircraft locally by a certificated representative of your Service Department for the purpose of flight testing and/or inspection. An express mechanic's lien is hereby acknowledged on the above aircraft to secure the amount of repairs thereto. This is a work order and upon completion of the work the Grand Total as computed on this form shall be due and payable. If legal or collection fees are incurred in the collection of the amount due, they will be added to the past due balance.

QUAN. GAL GAS

8

QTS. OIL

9

TOTAL PARTS THIS PAGE

PARTS FORWARDED FROM OTHER PAGE

TOTAL PARTS →

AUTHORIZED AND CONDITIONS AGREED TO AS STATED ABOVE

BY _____ DATE _____

LABOR

PARTS

OUTSIDE REPAIRS

GAS

OIL

TAX

GRAND TOTAL

318

16
334

 United Parcel Service® PICKUP RECORD (One Time) CUSTOMER'S SERVICE ACCEPTED AT SHIPPER'S RISK (UNLESS OTHERWISE NOTED ON C.O.D. TAG)		RECEIVED FROM PICKUP PRINT: NAME <i>D. C. D. Aero Service Co.</i> STREET <i>Cessna Bldg</i> CITY <i>Frederick</i> STATE <i>MD</i> ZIP <i>21701</i> CALLER <i>Dave Dodds</i> TELEPHONE NO. <i>694-8391</i> CLOSING TIME <i>5 p.m.</i>		PLACE UPS SHIPPER NUMBER ABOVE PICKUP RECORD NO. 101958428 INDEX NO. 5		<i>291 X 12</i> <i>Hagerstown</i>	
DATE <i>9/15/81</i> FOR UPS OFFICE USE ONLY DO NOT WRITE IN THIS AREA TELEPHONE CENTER <i>Julia</i> OPERATING CENTER NO. <i>1</i>		TELEPHONE NO. <i>694-8391</i> CLOSING TIME <i>5 p.m.</i>		ENTER RETAIL RATES BY THIS SERVICE ZONE RATE DIM. LBS. RATE LBS.		DECLARED VALUE IF IN EXCESS OF \$1000 C.O.D. AMOUNT OR A.O.D.	
NAME <i>Capitol Inn</i> STREET ADDRESS <i>Box 542</i> CITY <i>Annapolis</i> STATE <i>MD</i> ZIP CODE <i>21401</i>		NAME <i>Capitol Inn</i> STREET ADDRESS <i>Box 542</i> CITY <i>Annapolis</i> STATE <i>MD</i> ZIP CODE <i>21401</i>		DIM. LBS. RATE LBS.		C.O.D. AMOUNT OR A.O.D.	
<i>aircraft part</i>		<i>no value</i>		DIM. LBS. RATE LBS.		C.O.D. AMOUNT OR A.O.D.	
<i>2</i>		<i>3</i>		DIM. LBS. RATE LBS.		C.O.D. AMOUNT OR A.O.D.	
<i>3</i>		<i>4</i>		DIM. LBS. RATE LBS.		C.O.D. AMOUNT OR A.O.D.	
<i>5</i>		<i>6</i>		DIM. LBS. RATE LBS.		C.O.D. AMOUNT OR A.O.D.	
<i>7</i>		<i>8</i>		DIM. LBS. RATE LBS.		C.O.D. AMOUNT OR A.O.D.	
<i>9</i>		<i>10</i>		DIM. LBS. RATE LBS.		C.O.D. AMOUNT OR A.O.D.	
UNLESS A GREATER VALUE IS DECLARED IN WRITING ON THIS RECEIPT (FOR WHICH A VALUATION CHARGE APPLIES), THE SHIPPER HEREBY DECLARES THE RELEASED VALUE OF EACH PACKAGE OR ARTICLE NOT ENCLOSED IN A PACKAGE COVERED BY THIS RECEIPT TO BE AS FOL- LOWS: \$100 FOR EACH PACKAGE OR ARTICLE. THE ENTRY OF A C.O.D. AMOUNT DOES NOT CONSTITUTE SUCH A DECLARATION. IN ADDITION, THE MAXIMUM DECLARED VALUE FOR AIR SERVICE SHIPMENT IS \$5,000 AND THE MAXIMUM CARRIER LIABILITY IS \$5,000. CLAIM FOR LOSS OR DAMAGE MUST BE MADE WITHIN 9 MONTHS FROM THE DATE OF THIS RECEIPT. A CLAIM NOT MADE WITHIN THE TIME LIMIT SPECIFIED IS DEEMED WAIVED.		TRANSFORMATION PROVIDED BY UNITED PARCEL SERVICE CO. GREENWICH OFFICE PARK, BUILDING OF E. GREENWICH		RECEIVED BY PICKUP TIME NO. PAGE NO. CALLS		C.O.D. CHARGES A.O.D. CHARGES EXCESS VALUATION PICKUP CHARGE TOTAL CHARGES	
2-RT (FORM 582, 4-81)		250 388		WHITE-UPS YELLOW-SHIPPER PINK-CUST. SERV.			

CUSTOMER'S ORDER NO.	PHONE	DATE			
		7/11 1981			
NAME Dave Dodds					
ADDRESS					
CASH	COD	CHARGE	CW ACCT	MISC FELD	PAY OUT
20		800-201-6 Seal		92c	1 84
10c		E588510-0107			21 70
		Patience			
					26 54
				TAX	1 33
SOLD BY	RECEIVED BY				TOTAL
					27 87

All claims and returned goods MUST be accompanied by this bill. 911-10

Thank You



Summit Airpark
P.O. Box 258
MIDDLETOWN, DELAWARE 19709

DAVE DODDS 301-694-8397
D.D. Aero Serv Co.
~~1000 Main St~~
Cessna Building
Fredrick Municipal A/P
Fredrick, MD 21701

SHIP TO
"Rush"

INVOICE DATE:
TELEX: 83-5499 *P13638* TELEPHONE: 302-834-5400
PACKING SLIP NUMBER: *43102*

DATE ENTERED: *9-3-81* CUSTOMER NO.: *2000* SALESMAN: *COJ* TERMS: *Shipping Point* YOUR ORDER NUMBER: *Verbal* B/D FROM: *Verbal* APPROX DEL. DATE: *Verbal*

ITEM	QUANTITY			PART NUMBER	DESCRIPTION	LOCATION	PRICE	DISCOUNT	NET
	ORDERED	BL ORDER	SHIPPED						
<i>1</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>1732024-1-791</i>	<i>Stab Tip</i>	<i>NLS</i>	<i>30.40</i>	<i>15</i>	<i>25.84</i>
<i>2</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>1713208-1</i>	<i>Bracket Assy</i>	<i>NLS</i>	<i>30.50</i>	<i>15</i>	<i>—</i>
<i>3</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>1713209-1</i>	<i>Spacer</i>	<i>NLS</i>	<i>3.16</i>	<i>15</i>	<i>2.69</i>
<i>4</i>	<i>2</i>	<i>0</i>	<i>2</i>	<i>\$1080-3</i>	<i>Grommet</i>	<i>NLS</i>	<i>6.43</i>	<i>15</i>	<i>10.92</i>
<i>5</i>	<i>2</i>	<i>0</i>	<i>0</i>	<i>QES1054-836\$</i>	<i>Paint</i>	<i>NLS</i>	<i>11.70</i>	<i>10</i>	<i>—</i>
NOTE: Item #5 is NOT AVAILABLE: CESSNA HAS DISCONTINUED HANDLING THIS. <i>INCOMING FRT.</i>									
<i>8109-18</i>									

SUB TOTAL: *47.96* TAX CATEGORY: *8109-18* TAX %: *8* TAX AMOUNT: *3.84* TERMS: *Verbal* AMOUNT: *51.20*
VIA: *WDS* DATE: *9/18/81* WEIGHT: *8* NO. OF BOXES: *1* PICKED BY: *TS* CHECKED BY: *TS* SHIPPING CHARGE: *1.40* PAY THIS AMOUNT: *51.20*

NOTE - ANY ERRORS SHOULD BE REPORTED WITHIN 5 DAYS AFTER RECEIPT OF GOODS. ALL SHIPMENTS ARE MADE AT THE BUYER'S RISK. REPORT ANY LOSS OR DAMAGE PROMPTLY TO THE TRANSPORTATION COMPANY. SELLER REPRESENTS THAT ALL GOODS HAVE BEEN MANUFACTURED IN COMPLIANCE WITH FAIR LABOR STANDARDS ACT OF 1938 AS AMENDED. NO MATERIALS ACCEPTED FOR RETURN WITHOUT OUR WRITTEN PERMISSION.

INVOICE NO.

AIRCRAFT COMPONENTS, INC.

700 NORTH SHORE DRIVE, BENTON HARBOR, MI. 49022

90197
9/04/81DCD AERO SVC
FREDRICK MUNICIPAL ARPTCESSNA BLDG
FREDRICK

MD 21701

18-023-2 SCREW & WASHER REPLACEMENT 177

1

31.95

31.95

U.P.S. SHIPPING & HANDLING

31.95 *

TOTAL

3.00

34.95 **

U.P.S. COD FEE

1.40

C.O.D. TOTAL

36.35 **

THIS INVOICE COVERS ITEMS BACKORDERED ON INVOICE #89970
THANK YOU FOR YOUR PATIENCE WHILE WE FILLED YOUR ORDER.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL AT 800-253-0800
AND ASK ABOUT INVOICE NUMBER 90197, REFERENCE 21701 DCD

WARRANTY INFORMATION AND CONDITIONS ON REVERSE SIDE