

10/9/87

(copy) Fuel Tank
LE FUELING - 18 Hrs.

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 NM-FSFO-65

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 Piper	MODEL PA17
	SERIAL NO. 17-4	NATIONALITY AND REGISTRATION MARK N4590H
2. OWNER	NAME (As shown on registration certificate) Donald R. Wilson	ADDRESS (As shown on registration certificate) PO Box 336 Circle, Montana 59215

3. FOR FAA USE ONLY

The data identified herein complies with the applicable airworthiness requirements and is approved for the above described aircraft, subject to conformity inspection by a person authorized in FAR Part 43, Section 43.7.

<u>NM-FSFO-65</u> Office	<u>10/09/87</u> Date	 R. F. Masterson FAA Inspector
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4. UNIT IDENTIFICATION				5. TYPE	
UNIT	MAKE	MODEL	SERIAL NO.	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.
Donald R. Wilson PO Box 336 Circle, Mt. 59215	<input checked="" type="checkbox"/> U.S. CERTIFICATED MECHANIC	NM-FSFO-65 1515679
	<input type="checkbox"/> FOREIGN CERTIFICATED MECHANIC	
	<input type="checkbox"/> CERTIFICATED REPAIR STATION	
	<input type="checkbox"/> 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 <i>October 9 1987</i>	SIGNATURE OF AUTHORIZED INDIVIDUAL <i>Donald R. Wilson</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	<input checked="" type="checkbox"/>	INSPECTION AUTHORIZATION	OTHER (Specify)
	FAA DESIGNEE	REPAIR STATION	<input type="checkbox"/>	CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR OF AIRCRAFT	
DATE OF APPROVAL OR REJECTION <i>10-9-87</i>		CERTIFICATE OR DESIGNATION NO. <i>1515679</i>		SIGNATURE OF AUTHORIZED INDIVIDUAL <i>Donald R. Wilson</i>	

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.)

1. Removed fuselage fuel tank P/N 11590-00 and installed Piper 18 gal. tank P/N 10849-34 in left wing. Modified left wing to accommodate tank same as accomplished by Glen L. Burkheimer on form 337 dated 6-30-64 on PA17, N4691H, S/N 17-89. The following list of parts were used to modify wing. All parts were furnished by Piper factory.

10650-02	Strap assy, fuel tank, bottom	2 ea.
10649-03	Strap assy, fuel tank, top	2 ea.
10634-05	Rib, #1	1 ea.
10635-02	Rib, # 2 & 3	2 ea.
10653-02	Rib, # 4	1 ea.
10641-00	Tube, drag brace, fuel tank	1 ea.
10630-00	Cover, leading edge, left	1 ea.
10633-00	Plate assy, tank support, LH	1 ea.
10657-05	Cover, wing fuel tank, LH	1 ea.
10849-34	Tank, fuel 18 gal LH	1 ea.
492-014	Valve, fuel shut off.	1 ea.

All fuel lines, hardware etc. for installation were of aircraft quality. Original gascolater was retained.

2. Manufactured and installed left access door. Door was constructed the same as the original right door except in reverse. Outer frame constructed of 4130 square tube 3/4" x .035". Diagonal bracing of 4130 square tube 1/2" x .035". No structural part of the fuselage framework is changed for this installation. This installation is the same as described on form 337 submitted by Glen L. Burkheimer on PA17 N4691H, S/N 17-89, dated 6-30-64.

***** END *****

ADDITIONAL SHEETS ARE ATTACHED

030 1213

Verified by Operator #17

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Form approved. Budget Bureau No. 04-1000.

FEDERAL AVIATION AGE Y

MAJOR REPAIR AND ALTERATION FORM (AIRFRAME, POWERPLANT, PROPELLER OR APPLIANCE)

1. AIRCRAFT	MAKE Boeing	MODEL 737	SERIAL NO. 2100	NATIONALITY AND REGISTRATION MARK N1911
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2. OWNER	NAME (First, middle, last) Glen L. Berkheimer	ADDRESS (Street and number, city, zone and State) Box 702, Anchorage, Alaska
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3. COMPLETE ONLY FOR UNIT REPAIRED AND/OR ALTERED. DESCRIBE WORK ACCOMPLISHED ON REVERSE IN ACCORDANCE WITH CIVIL AERONAUTICS MANUAL 18.

UNIT	MAKE	MODEL	SERIAL NO.	NATURE OF WORK (Check)	
				MAJOR REPAIR	MAJOR ALTERATION
a. AIRFRAME	<i>(As described in item 1 above)</i>				
b. POWERPLANT	THE DATA IDENTIFIED HEREIN COMPLIES WITH THE APPLICABLE AIRWORTHINESS REQUIREMENTS AND IS APPROVED ONLY FOR THE ABOVE DESCRIBED AIRCRAFT, SUBJECT TO CONFORMITY INSPECTION BY A PERSON AUTHORIZED IN CAR PART 18, SIG. 18.11 (1) <i>18.11.3 2 AND 3</i>				
c. PROPELLER	Date <i>6-29-64</i>				
d. APPLIANCE	TYPE AND MANUFACTURER	DATE <i>6-29-64</i> SIGNATURE OF FAA INSPECTOR <i>James C. Wilhel</i>			

4. AIRCRAFT WEIGHT AND BALANCE DATA *AFTER the repairs and/or alterations described below were made. This item must be completed by repair or alteration agency. However, in the case of a spare component, it will not be completed until such component is installed in an aircraft. At this time, it will be completed by the installing agency, if applicable.

CATEGORY	EMPTY WEIGHT (Pounds)*	EMPTY CENTER OF GRAVITY (Inches from datum)*	USEFUL LOAD (Pounds)*
Normal	780.7	11.1	409.3

5. CONFORMITY STATEMENT (Complete and check)

a. AGENCY'S NAME AND ADDRESS Glen L. Berkheimer Box 702 Anchorage, Alaska	b. KIND OF AGENCY <input checked="" type="checkbox"/> U. S. Certificated Mechanic. <input type="checkbox"/> Foreign Certificated Mechanic. <input type="checkbox"/> Certificated Repair Station. <input type="checkbox"/> Manufacturer. <input type="checkbox"/> (Check if repair or alteration was made under delegation option procedures.)	c. CERTIFICATE NO. AIP 180150
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6. I certify that the repair and/or alteration made to the unit(s) identified under item 3 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 18 of the U. S. Civil Air Regulations and that the information furnished herein is true and correct to the best of my knowledge.

(Date repair and/or alteration completed) _____ (Signature of authorized individual) *Glen L. Berkheimer*

6. APPROVAL FOR RETURN TO SERVICE (Check and complete appropriate items)

Pursuant to the authority specified below the unit identified in item 3 was inspected in the manner prescribed by the Administrator of the Federal Aviation Agency and is

3 APPROVED } BY { FAA Designee Manufacturer Canadian Department of Transport Inspector of Aircraft
 REJECTED } FAA Flight Standards Inspector Repair Station Other (Specify) *Inspector Anthony...*

(Date of approval or rejection) *6-30-64* (Signature of authorized individual; title or identification number) *Anthony... AIP 50211*

7. TO BE COMPLETED ONLY BY FAA PERSONNEL

Forwarded for engineering comment See attached memorandum
 Accepted *6-30-64* Reinspected _____ Spot Checked _____

ALASKAN REGION
5-02 (FAA designation number) *James C. Wilhel*
(Signature Flight Standards Inspector)

INSTRUCTIONS

This form must be completed in duplicate each time a major repair and/or alteration is made of an aircraft, airframe, propeller, propeller or appliance. After the repair and/or alteration has been inspected and item 6 completed, the original copy of the form will be made available to the aircraft owner for retention as part of the aircraft records. The duplicate copy is retained by the FAA for administrative purposes.

See CAM 18 for detailed instructions concerning the information to be furnished with this form and instructions concerning its preparation.

6. DESCRIPTION OF WORK ACCOMPLISHED.

Item #1...The fuselage tubing was cleaned and painted with zinc chromate and dope proof paint. The fuselage, wings and tail surfaces were covered with Grade A fabric and the finish consisted of 1¹/₂ coats of C.A.B. dope in W-3665-APB Red and Q1916-APB White.

Item #2...A Rebat battery box P/15708 was installed in the center of the fuselage between Sta. 23 and Sta. 29, which is just forward of the seat. The box was attached to the tubing of the seat support with three AN742-12 Adell clamps, three AN3-11A bolts and three AN362-1032 nuts through the back of the box, which was reinforced with a piece of 2024 T3, .035X7"X6" sheet aluminum, riveted to the box with 12 AN47C-34-4 rivets. A Rebat S-12 battery was used and a voltage regulator, Delco-Remy P/1111834, was installed on the forward top left side of the firewall with three AN3-11A bolts, three AN960-10 washers and three AN362-1032 nuts. The generator lead to the voltage regulator is 12" long #14 wire. Battery lead from regulator to master switch is 24" long #14 wire. The wire from battery to master switch is 5' long #14 wire. The field lead from voltage regulator to generator switch, then to generator field post is 4' long #18 wire. A #14 wire 3" long goes to radio switch.

Item #3...A King KY90A VHF transceiver was installed in the center under the instrument panel with the face of the radio set back 1" from panel. The front of the case is attached to the fuselage cross member under the instrument panel by two AN742-14C clamps, two AN3-31 bolts, two AN960-10 washers and two AN362-1032 nuts. The rear of the case is attached to a plate made of #130 steel, .035X3"X10" welded to a #130 steel tube .050X5/8"X22" attached to the original tank fittings (support) by one AN3-11A bolt, one AN960-10 washer and one AN312-1032 nut at each end. A VHF whip antenna was installed on the left fuel tank cover and using coaxial cable to connect the antenna to the radio. A Harco LFR-1 receiver was installed below the KY90A by attaching the two cases together with the control panels flush with each other. The cases were attached together using four each #XL0 screws, nuts and lock washers. Power is supplied to both sets by a King 501-A power supply which was attached to the center left hand side and on the aft side of the firewall by five AN3-11A bolts, ten AN960-10 washers and five AN362-1032 nuts. All radio harnesses were fabricated using the radio manufacturers manuals and instructions. The power source was taken from the buss to a panel mounted fuse holder with a 15 Amp. fuse which is mounted in the top center of the instrument panel. The lead from the fuse to the power supply is A/C type wire #16 and is 34" long. This installation affected the magnetic compass and a new compass correction card was installed for radio on and off. The equipment list has been modified to reflect these installations.

Item #4...The following work is covered on SIC SA96AL. A door was installed on the left side of the cabin and a stainless steel dipole was installed in the firewall to provide clearance for a generator. See attached drawing #1. Both wings were modified to accept Piper gas tanks. See attached drawings #2 & 3. The fuel line routing and fuel flow test results are on drawing #4. A Cont. C-85-12F S/21166-6-12 engine was installed using the original baffles and cowling. The only difference from the original engine installation is that a 1" spacer was placed between the carburetor and the heat-box to make clearance with the cowling. A Bendix cable outlet plate P/110-32005 was used to make clearance ~~with the cowling~~. A high tension leads with the firewall. A 1 Amp. Delco-Remy generator #1111876 is eligible under this approval. Not installed at this time because of interference with the exhaust shroud. A starter is not eligible. The flight manual supplement dated 5/27/64 and signed by Dave Beyer #B5/27/64 A.A. engineer, A1210 was added to flight manual and placed in aircraft.

Item #5...Weight and balance and equipment list is attached.....

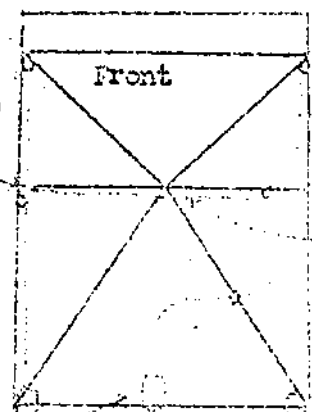
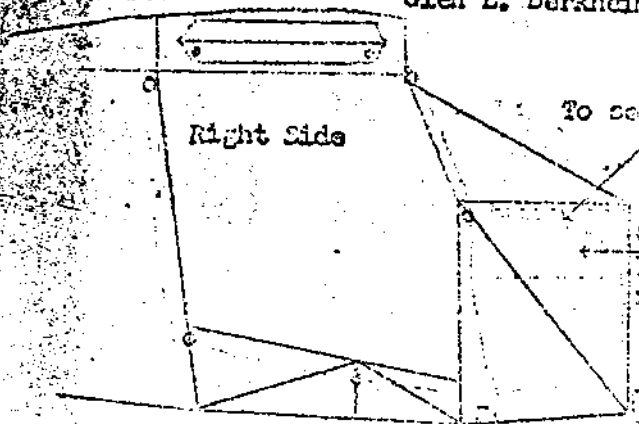
*If additional space is needed attach additional sheets bearing aircraft nationality and registration mark and date work completed.

Check block if additional sheets are attached.

U.S. GOVERNMENT PRINTING OFFICE : 1961 O - 587360

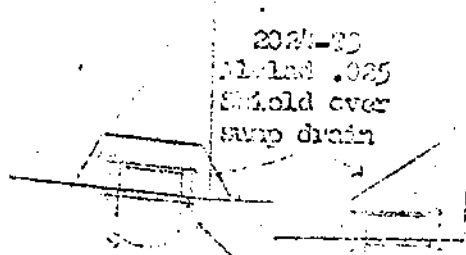
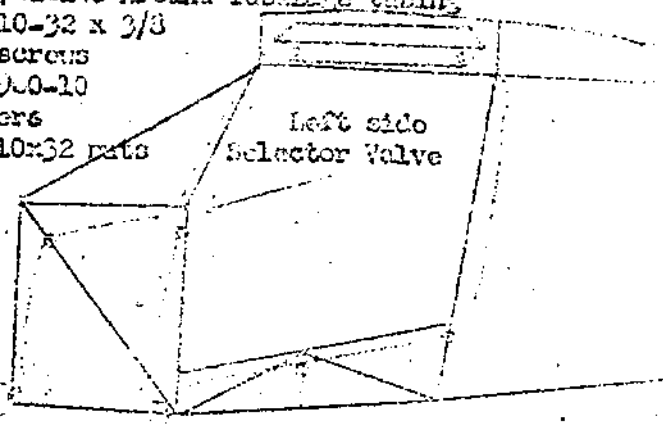
Form FAA-837 (4-57)

Glen L. Berkheimer



- Adell Clamps
- 12 AN 742-8C around gas line
- 12 AN 742-14C Around fuselage tubing
- 12 AN 10-32 x 3/8 screws
- 12 AN 9.0-10 washers
- 12 AN 10x32 nuts
- Sediment bowls with quick drains

Main fuel strainer Piper #72302-00 Not to scale



- 4-AN 3-15 bolts
- 3-AN 9.0-10 washers
- 4-AN 10x32 nuts

Parts Used

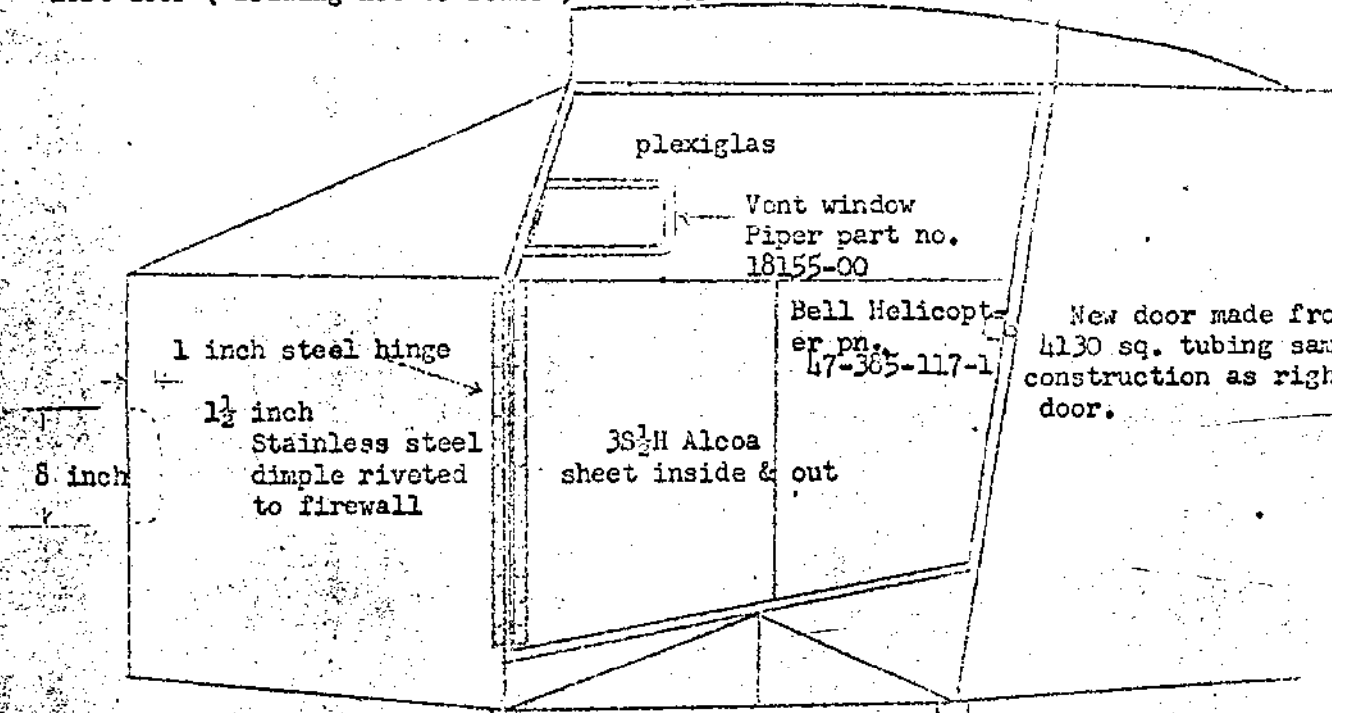
- 2 gas tanks Piper No. 1000-24
 1000-25
- 2 sediment bowls Piper No. 14330-02
- 1 selector valve Piper No. 11332-04
- 2 90 deg. elbows Piper No. 460054
- 1 tee Piper No. 463313
- 2 45 deg. elbows Piper No. 460053
- 11 inverted flare nuts
- 26 ft. alum. tubing A/C 5052-0 .375 x .005
- 4 3/8 x 5 gal and oil rubber hose
- 3 AN 737-16 clamps
- 4 tank screens No. 72091-30
- 4 tank outlet fittings AN 340-6D

Oil consumption Gen. C 85-12
 .35 lbs. per hour
 5 qt. oil sump on engine
 Fuel flow test
 3 gal. used
 flow 9 in. above main strainer
 1st gal. 3 min. 22 sec.
 2nd gal. 3 min. 40 sec.
 A/C in 15 deg. nose high attitude
 total fuel 36 gallons.

May 27, 1964

Piper PA-17 N4691H Ser. 17-89 (Drawing # 1)

Left door (Drawing not to scale)



Door installed in left side of fuselage in the identical manner as the existing door in the right side. The window channel was removed, but the steel tubing geometry was identical and required no alteration.

Piper PA 17

May 24 1964

W469TH

Wing Modification for fuel tanks

Drawing # 3

Olen L. Berkheimer

original leading edge

Piper #10641 Tube

Rib
1065302

38 1/2 Hard Alcoa Sheet

Rib # 10634-05

Ribs # 10635-02

Parts Removed

- 2- #11941-06 Drag wires and attaching parts
- 2- # 10635-00 Ribs

Parts Installed
Tank # 10649-34

Tank Straps

- 2- 10650-2
- 2- 10649-3
- 2- 10648-2
- 2- 8011-00 Stud
- 2- AN362-1032 Nuts
- 2- AN960-10 Washers

1- AN3-4A Bolt

1- AN362-1032 Nut

2- AN960-10 Washers

Tank Covers

Piper # 454039

Both wings changed the same.

1- Rib 10653-02

2- Ribs 10635-02

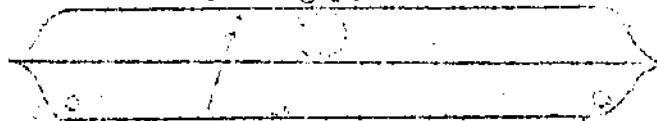
1- Rib 10634-05

Piper PA 17

May 27, 1964

H 4621R
Drawing #2

Fuel Tanks
Glen L. Berkheimer



PA 20 GAS TANK No. 10849-34

New visual fuel quantity lines welded in same location as PA 20 gas tank. After welding the above lines in, had to use electric fuel gauges. Lines blocked off by gas and oil rubber hose and two clamps. New Piper fuel quantity transmitter installed, also a new Piper fuel gauge installed in instrument panel.

Tran. Piper No. 450-003

Gauge Piper No. 450-004

PA 18 Gas Tank

No. 10849-25



New outlet welded in place same location as on PA 20 Tank.

New fuel quantity transmitter hole made in the tank and same location as in PA 20 tank.

Visual fuel quantity lines blocked off by gas and oil rubber hose and two clamps.

Not to scale