DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Long Range Tanks

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

Form Approved
Budget Bureau No. 04-R060.1

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: Piper	MODEL: PA 22-150
	SERIAL NO.: 22-5250	NATIONALITY AND REGISTRATION MARK: N7522D
2. OWNER	NAME (As shown on registration certificate): Thomas D. Stewart	ADDRESS (As shown on registration certificate): 405 Norman Ave. Cashmere, Wn. 98815

3. FOR FAA USE ONLY

THE [redacted]/ALTERATION IDENTIFIED HEREIN COMPLIES WITH APPLICABLE AIRWORTHINESS REQUIREMENTS AND IS APPROVED ONLY FOR THE ABOVE DESCRIBED AIRCRAFT SUBJECT TO CONFORMITY INSPECTION BY A PERSON AUTHORIZED IN FAR 43.7.

4-24-86 Michael Larson
Date — FAA Inspector, NW-FSDO-61

4. UNIT IDENTIFICATION / 5. TYPE

UNIT	MAKE	MODEL	SERIAL NO.	5. TYPE: REPAIR	5. TYPE: ALTERATION
AIRFRAME	◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆ (As described in item 1 above) ◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆				X
POWERPLANT					
PROPELLER					
APPLIANCE	TYPE: / MANUFACTURER:				

6. CONFORMITY STATEMENT

A. AGENCY'S NAME AND ADDRESS	B. KIND OF AGENCY	C. CERTIFICATE NO.
William C. Markey 1506 Walla Walla St. Wenatchee, Wn. 98801	X U.S. CERTIFICATED MECHANIC FOREIGN CERTIFICATED MECHANIC CERTIFICATED REPAIR STATION MANUFACTURER	A&P 1740086

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	SIGNATURE OF AUTHORIZED INDIVIDUAL
4-24-86	William C Markey

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 [X] APPROVED [ ] REJECTED

BY						OTHER (Specify)
	[ ] FAA FLT. STANDARDS INSPECTOR	[ ]	MANUFACTURER	XX	INSPECTION AUTHORIZATION	
	[ ] FAA DESIGNEE	[ ]	REPAIR STATION	[ ]	CANADIAN DEPARTMENT OF TRANSFORT INSPECTOR OF AIRCRAFT	

DATE OF APPROVAL OR REJECTION	CERTIFICATE OR DESIGNATION NO.	SIGNATURE OF AUTHORIZED INDIVIDUAL
4-24-86	1740086	William C Markey

FAA Form 337 (7-67) (8320)

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.)*

Left and right fuel tanks modified as per drawings on file at Seattle FAA A/C Modification Branch under pending STC, project # SA5528NM-S. Project engineer Bill Swope.

Both tanks extended outboard 9.5" with increased cap to 23.5 gal. from 18.0 gal.. A/C pnl placard applied listing unuseable fuel for each tank at 5.5 gal.. This is to remain in effect until FAA testing verify actual unuseable fuel. Testing to be done at later date.

XXXXXXXXXXXXXXXXXXXXXXXXXXX END XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Note one time STC # SA3527NM
Issued on July 9, 1986

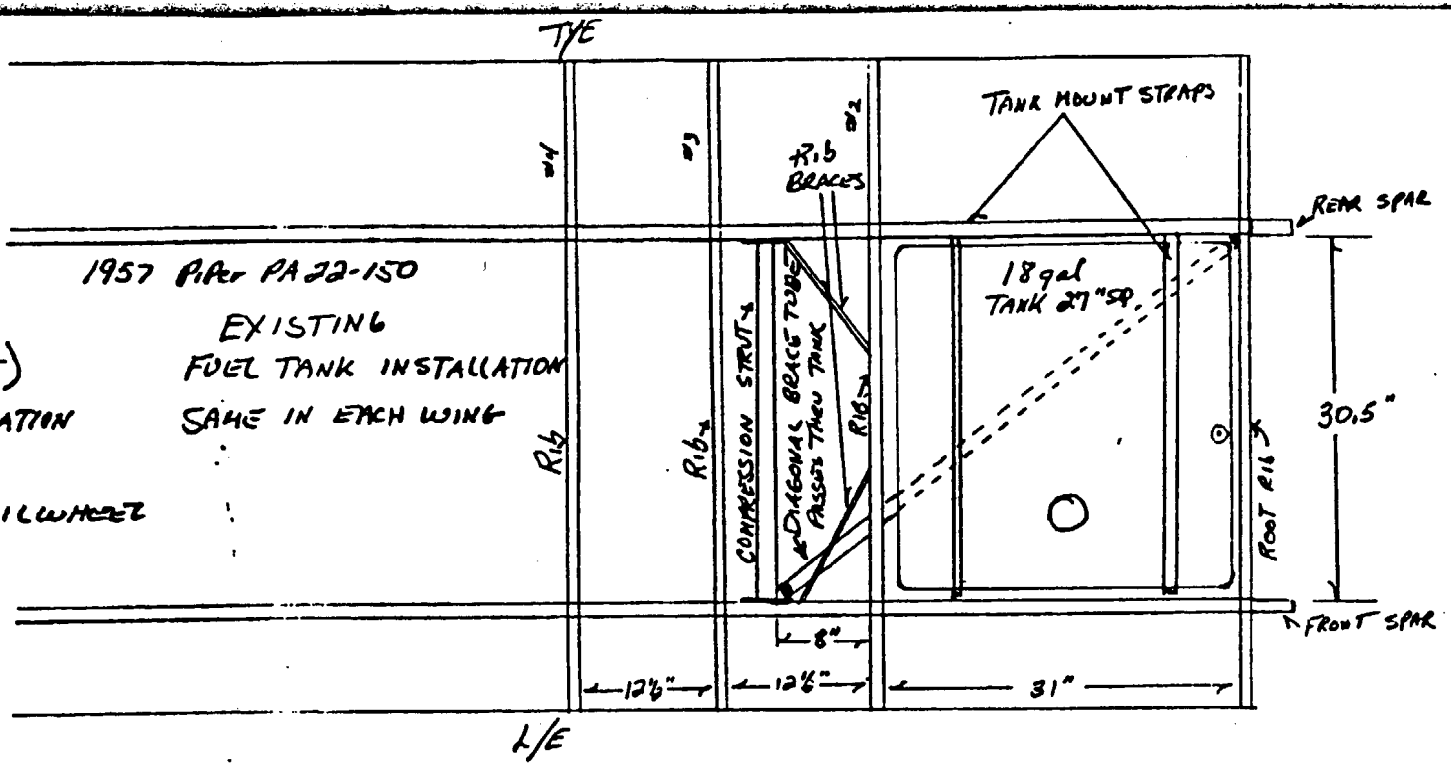
☐ ADDITIONAL SHEETS ARE ATTACHED

☆U.S. GOVERNMENT PRINTING OFFICE: 1977—771-021/290

SCALE APPROX
4" P/SD □

DRAWING #2 (4/10/85)
FUEL TANK MODIFICATION
INSTALLATION FOR
PIPER PA22-150 TAILWHEEL

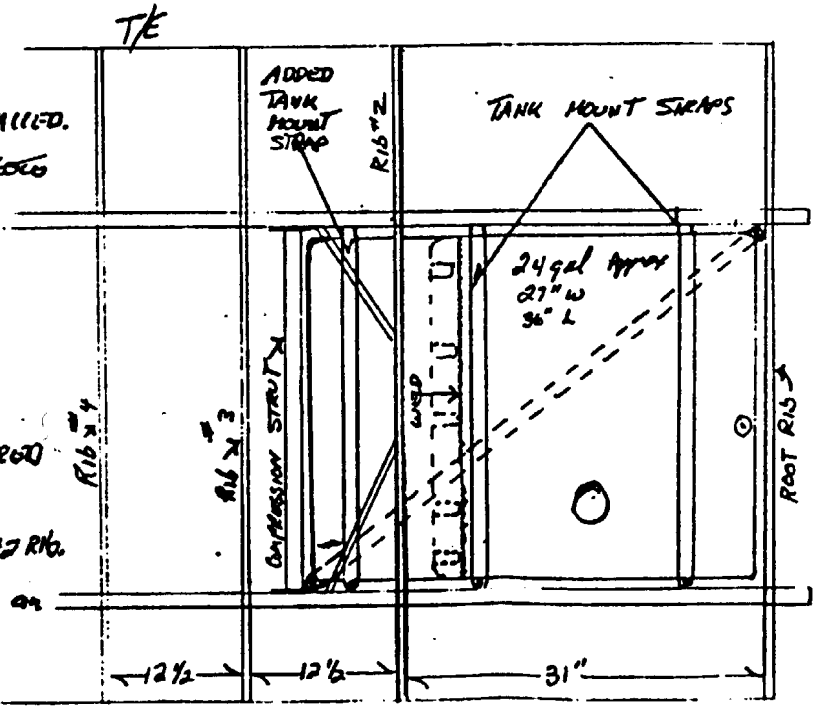
1957 Piper PA22-150
EXISTING
FUEL TANK INSTALLATION
SAME IN EACH WING



Rib #2 Replaced
AS PER ATTACHED
DRAWING 1-A

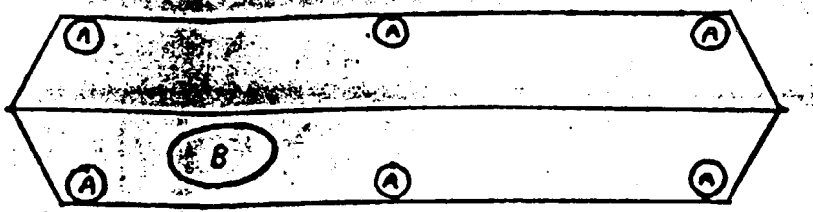
EXISTING WING SHOWING
ENLARGED FUEL TANK INSTALLED.
~~Rib #2 is opened up to allow~~
~~tank to pass through Rib.~~
~~Rib is rienforced~~

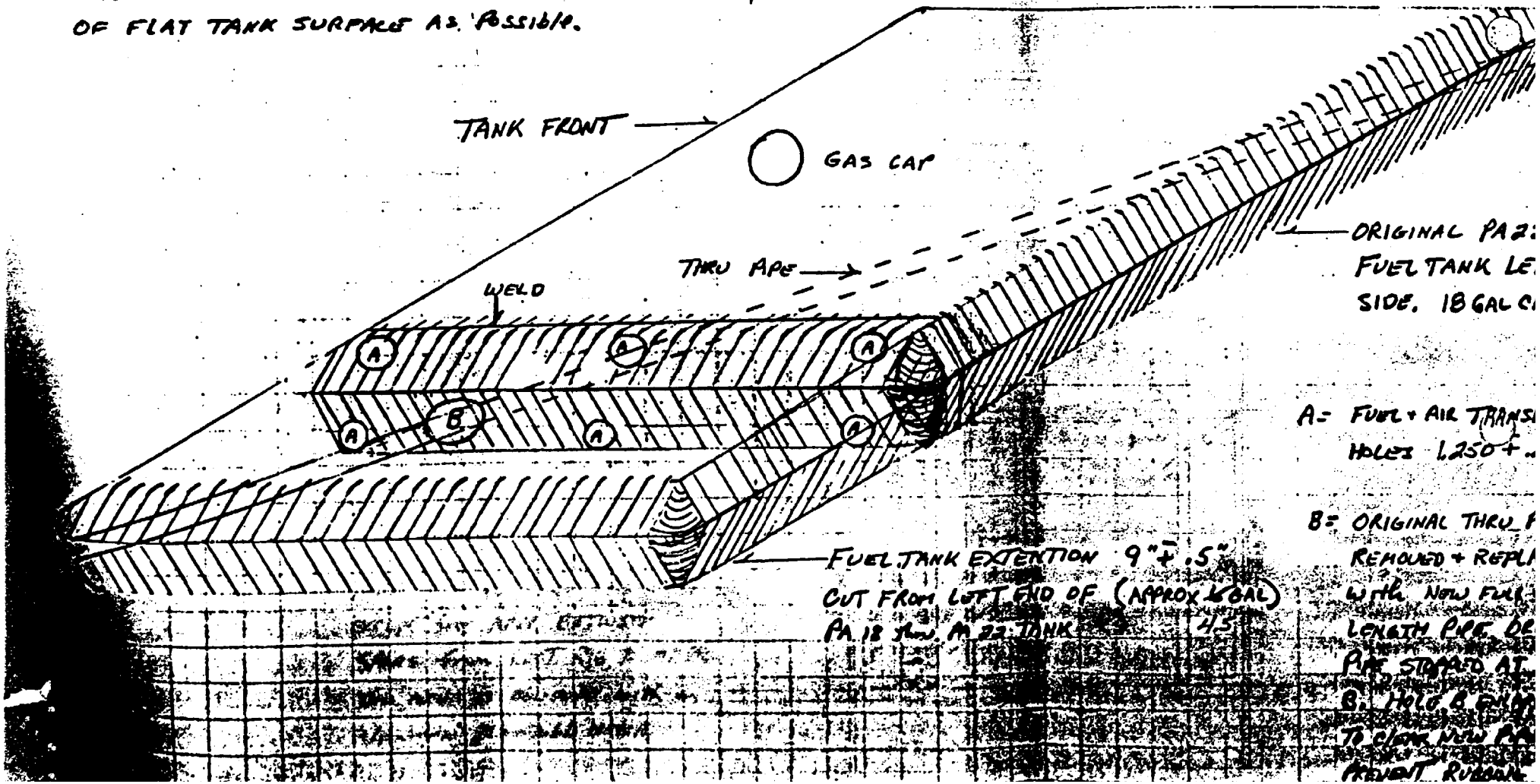
TOTAL WING IS FABRIC COVERED
EXCEPT for AREA BETWEEN
SPARS from ROOT RIB TO #3 Rib.
THIS AREA IS COVERED with an
Aluminum removable HATCH.

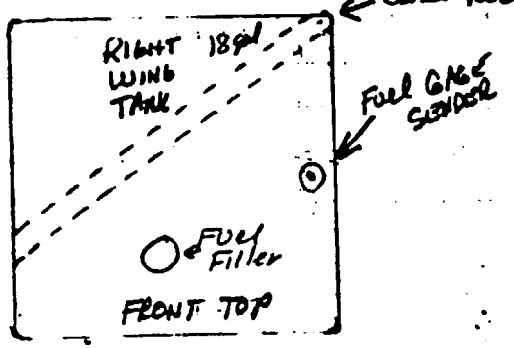


1. MODIFICATIONS TO PA22 FUEL TANK
2. LEFT TANK SHOWN
3. RIGHT TANK SAME WITH EXTENTION MOUNTED ON OPPOSITE END OF TANK.
4. FUEL + AIR TRANSFER HOLES (A) ARE LOCATED AS CLOSE TO TOP + BOTTOM OF ORIGINAL TANK END AS POSSIBLE. TOP + BOTTOM HOLES LOCATED AT FRONT + REAR OF TANK SHOULD BE AS CLOSE TO OUTER END OF FLAT TANK SURFACE AS POSSIBLE.

PA22 TANK END VIEW MODIFIED FOR TANK EXTENTION







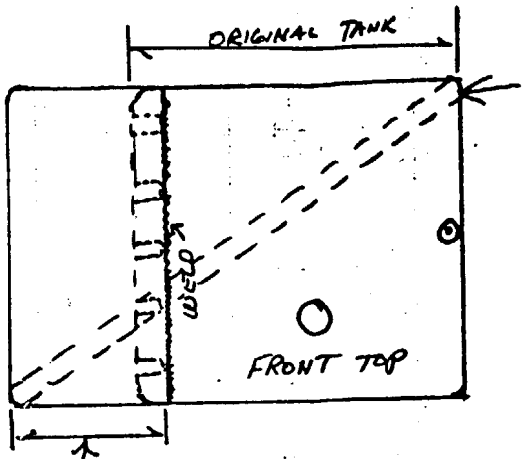
EXISTING TANK CAPACITY 18 U.S. GAL
Modified TANK CAPACITY 24 U.S. GAL

TANK MODIFICATIONS ARE THE SAME FOR EACH WING. 1ea TANK Per WING

All Fuel Systems And Fuel GAGES will Function As NORMAL with no CHANGES REQUIRED by this MOD.

TOTAL Fuel CAPACITY will INCREASE FROM 36 U.S GAL to 48 U.S GAL.

MODIFIED TANK



9" EXTENTION CUT OFF of EXTRA PA 22 TANK + SPLICED to EXISTING PA22 TANK. END of ORIGINAL TANK USED for BAFFIG # HOLES PROVIDED for fuel TRANSfer + VENT Between CHAMBERS.

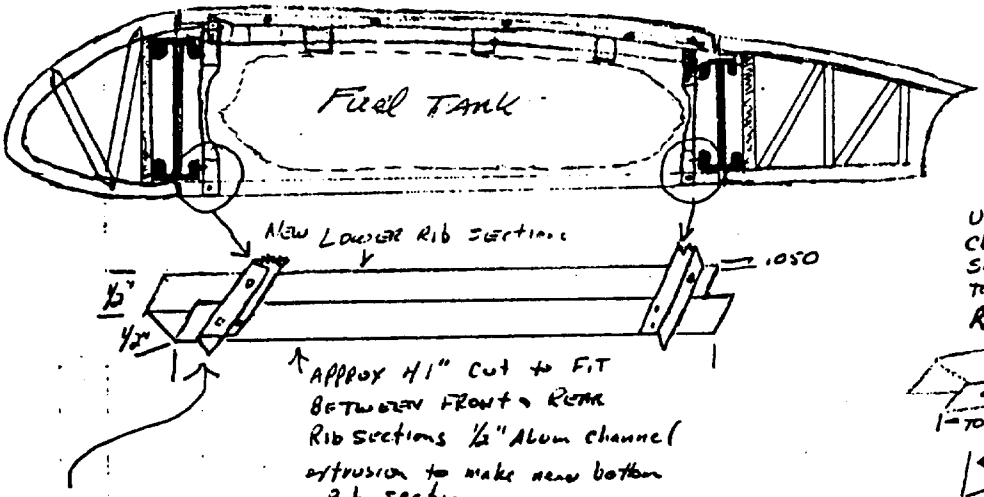
TUBE THRU TANK Replaced with FULL LENGTH 1 PIECE Tube. No other MODS. Required on TANK. Fuel Sender + Lines all remain as original

TANK will Possibly HAVE mounts added to support #2 Rib upper surface. This will not be done unless necessary to support RIB.

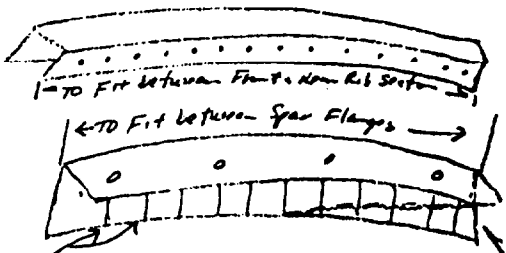
DRAWING #1 (4/10/85)

FUEL TANK MODIFICATION FOR PIPER PA-22-150 TAIL WHEEL

Removed from between Spars to Allow Room for enlarged tank. New upper & lower Rib Stations made to replace removed portion of Rib.



Upper Rib section ⅜" .050 Alum Channel extrusion. Hand Form to shape of upper Rib Surface & Cut to fit exactly between Front & Rear Rib Stations.

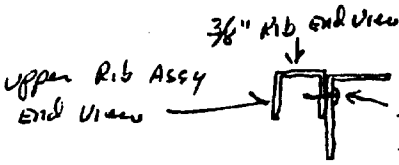


¾" Alum Angle extrusion

1" Rear "L" .050 Pop Rivet or #4 x ⅜ sheet metal screw to attach rear Angle to back end of Rib bottom Spaced exact Distance between front & Rear Spar. Drill inner spar flange & Attach w/ #4 x ⅜ screw to Attach Rib Section to Spar.

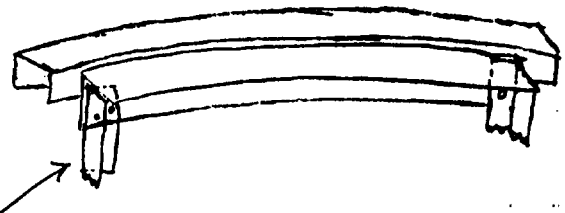
Hacksaw bottom flange of Angle so L will conform to Rib channel. Appx ¾" Between Cuts

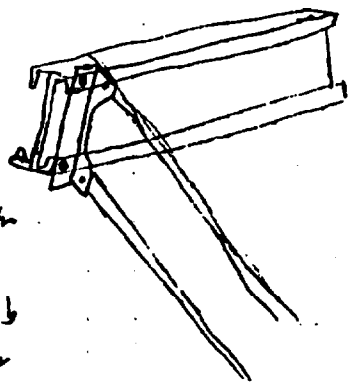
1" Alum .050 Angle extrusion which ATTACHes to inside edge of upper Rib channel for Tank cover to mount to. Attach with #4x⅜ sheetmetal screws. Upper lip of Angle to be 1/16" Lower than upper Surface of Rib. Cut to length to fit between front & Rear Spar flange.



Angle bracket to attach upper & Lower Rib Sections to Spar. Front Bracket appx ⅝" Longer than width Front Spar & Rear Bracket appx ⅝" Longer than width Rear Spar

Upper Rib Qtr View →





Angle ATTACHes to Top Rib same as to Lower Rib station. Drill upper spar flange to attach Angle to Spar. This is done the same as original Rib was mounted to Spar

Angle bracket Qtr View to ATTACH upper & Lower Rib Sections to Spar Same Front & Rear

Fuel tank modification on Piper N7522D to increase capacity.

The following tests were conducted to establish capacity and fuel flows.

Left and Right fuel tanks were filled with A/C in 3 point attitude. Calibration of gas pump meter tested with Wash. State calibrated 5 gal. test can that is used to test service station gas pump meters. Meter tested accurate at both high and low flows.

Left fuel tank capacity 23.65 gal.

Right fuel tank capacity 23.4 gal.

A/C placed in level flight attitude and fuel from both tanks drained through fuel system with fuel line disc. from carb.

Left tank fuel flow through system is 5 gal. in 10 min. 42 sec. for 28 gph.

Right tank fuel flow through system is 5 gal. in 11 min. 18 sec. for 26.5 gph.

After both tanks had been drained through normal fuel system A/C was placed in 3 pt. attitude and tanks re-filled.

Left tank took 22.7 gal. for total of .95 gal. which did not feed through fuel system.

Right tank took 22.6 gal. for total of .8 gal. which did not feed through fuel system.

Redrained tanks with A/C in level attitude. Placed A/C in 3 pt. attitude and removed fuel tank drain valves. Right tank drained .8 gal. and left tank drained .95 gal. for insignificant amount of trapped fuel.

Fuel quantity and fuel flow tests conducted by Bill Markey and Doug Stewart on 10-30-85.