KITFOX #69001 FLOAT KIT INSTALLATION

PREFACE:

The #69001 Float Kit consists of Floats and mounting hardware designed specifically for KITFOX™ aircraft equipped with front float attach brackets. If your KITFOX™ does not have float attach brackets, you can order a Retro-fit Float Attach Bracket Kit and install it according to directions included with that kit. It's installation does require welding.

The #65001 Undercarriage Fuselage Brace (top photograph on page SF-6) is required on all fuselages up to serial number 1036 except serial numbers 1021, 1028, 1029 and 1033.

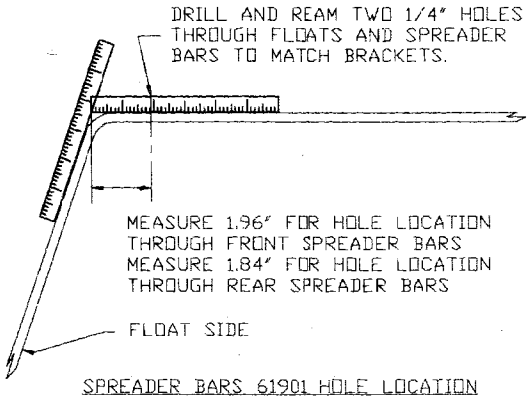
The float mount brackets are pre-drilled and the streamlined mount tubes are cut to the proper length for installation of the floats on any KITFOX™. Only one hole is pre-drilled in each end of each mount tube. This allows some adjustment for proper alignment of bolts.

The water rudder is fitted to the left float at the factory, so the KITFOX™ owner has only to fit the control cables to the rudder pedals and swage on the cable bushings.

You can install the floats next to the water but it may be easier and safer to install them in a shop, out of the wind and weather. The KITFOX on floats transports very nicely on an 8 foot wide flat trailer. If you have no hoist, eight men can easily pick up the aircraft and load it on the trailer. Swing the wings out before you back the trailer into the water. We have loaded and unloaded our float-equipped demonstrators many times with no problems. We always extend the wings and fold them with the aircraft on the trailer.

OBJECTIVE:

Assemble the float platform by bolting the spreader bars in place with the bottom mounting brackets in place. Position the streamlined float mount tubes on the bottom brackets and install the top brackets. Hoist the aircraft and remove the landing gear. Slide the float platform under the aircraft. Install the fuselage undercarriage brace if required, and attach the floats to the rear landing gear brackets and float mount brackets. Align the floats with the fuselage, drill the bolt holes and install all bolts, cable tangs and cable braces. Connect the water rudder to the aircraft rudder pedals and install the water rudder retract system. Remove the tailwheel and install the ventral fin.



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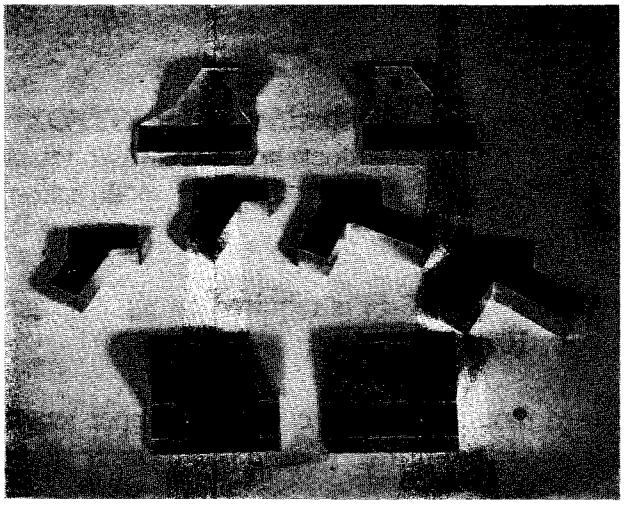
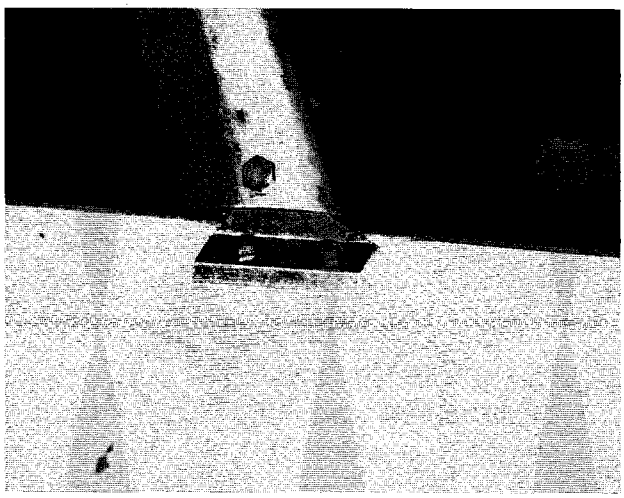
PILOT 62 - MAIN 162

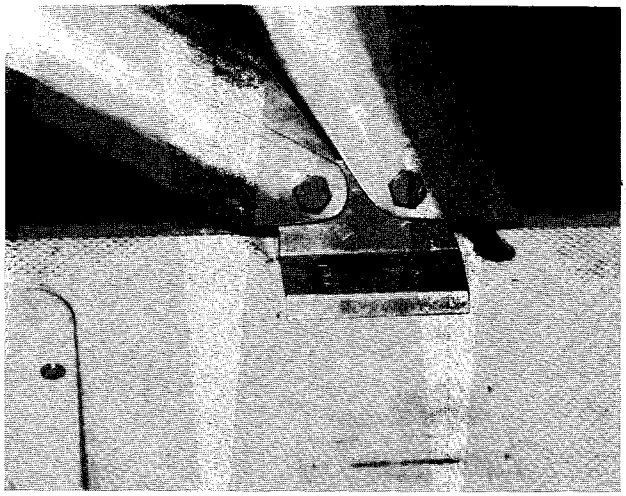
Fig. SF-1



Strut and Spreader Bar Brackets



Rear Bottom Mount Bracket



Front Bottom Mount Bracket

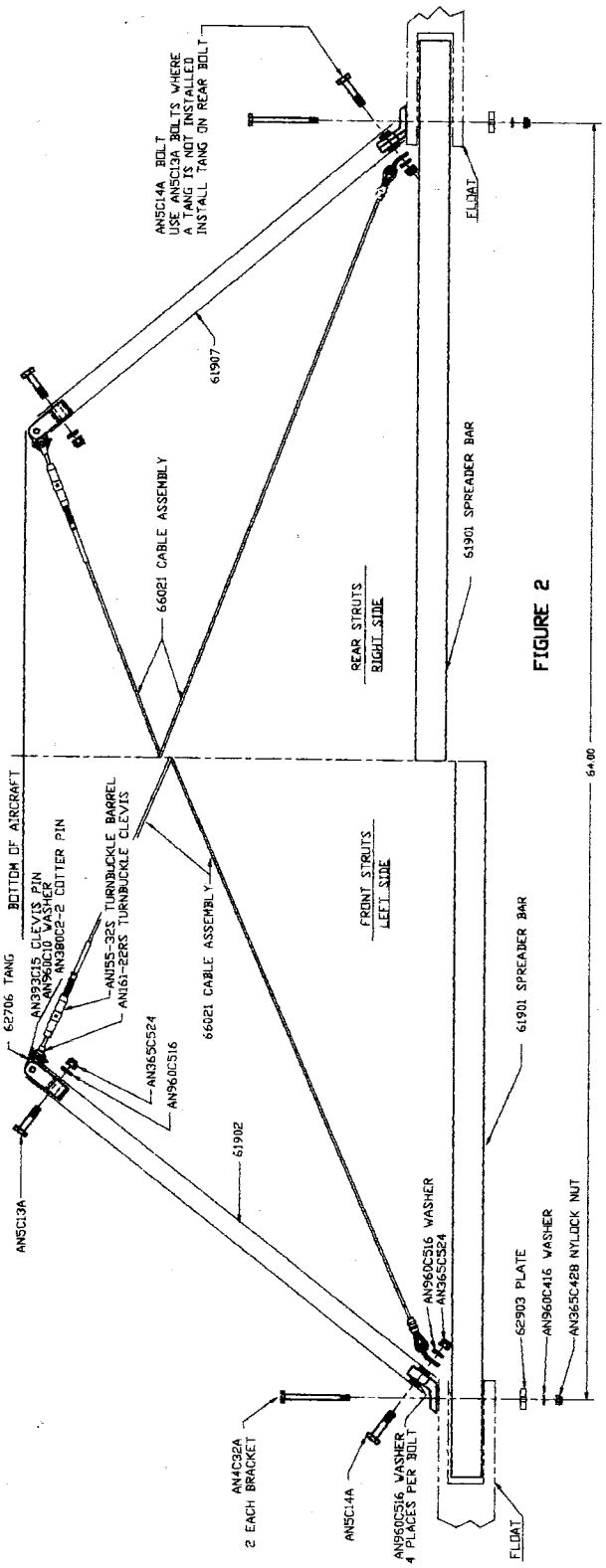
STEP (1): Mark the Bottom Mounting Bracket's bolt centerline on the float deck with a felt tip pen. This should be done on the smooth deck surface above the Spreader Bar insert holes. To do this, hold a straight edge upright against the side of the float across the Spreader Bar slot. Set your ruler flat on top of the float and measure from the straight edge, see Fig. SF-1. The center of the bolts for the #63003 and #63004 Front Brackets should be 1.96 inches from the straightedge. Mark the centerline for the #63005 and #63006 Rear Bracket bolts at 1.84 inches.

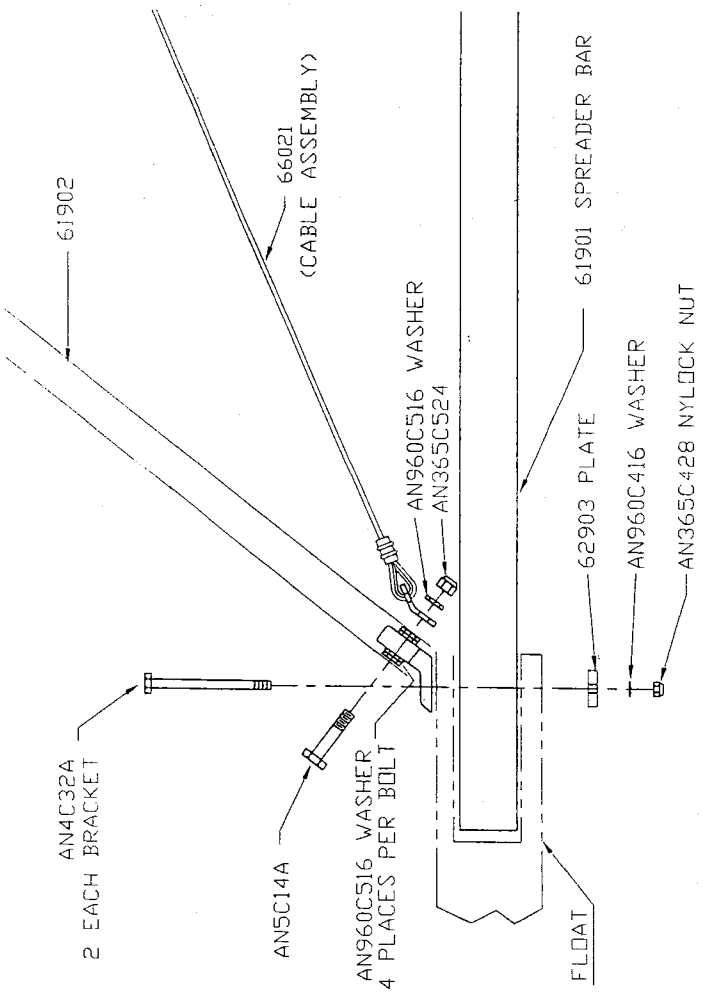
STEP (2): Dress the ends of the Spreader Bars. Lubricate about one foot on each end of the Tubes with wax or mineral oil and insert the Tubes into the slots on the floats. Push the floats together until the Tubes "bottom" in the slots.

STEP (3): Set the four Bottom Mounting Brackets in their appropriate locations on the floats, per Fig. SF-2 and Fig. SF-3. Center the bolt holes of each Bracket over the lines you have drawn. Also, center the Brackets fore and aft, between the non-skid surfaces on the top of the float (56" centers). With a felt tip marker, mark the top of the float through the center of each Bracket. Mark only one bolt hole, in each Bracket at this time.

STEP (4): Remove the Brackets. Slide the floats in or out on the Spreader Bars until the bolt hole centers, are 64" apart on each Spreader Bar. The most important objective is to align the floats exactly parallel, even if the bolt holes are not exactly 64" apart.

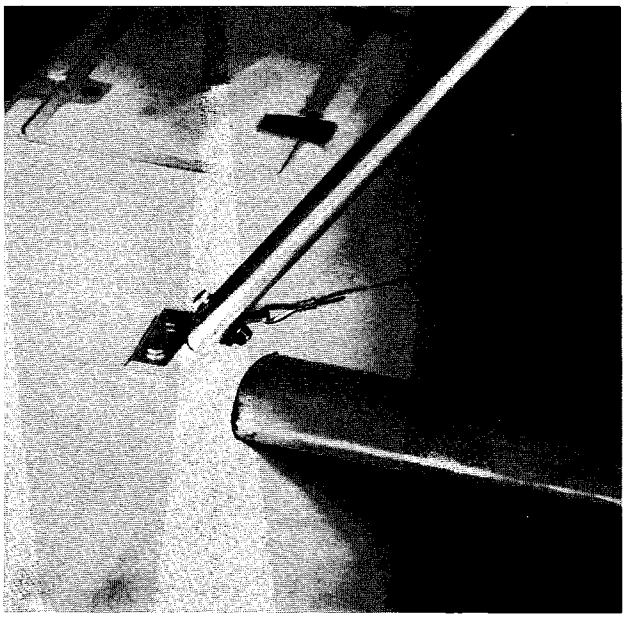
STEP (5): With a #30 bit, drill the one hole for each Bracket into the float and through the Spreader Bar. Be very careful to keep the bit square with the top of the float.





View A-A

Bottom Bracket/Spreader Bar Assembly
Fig. SF-2



Float Mount Strut to Bottom Bracket

STEP (6): Drill the bolt holes to 15/64" and ream with a .2500" reamer. Insert an AN4C32A bolt through the appropriate Bracket and into the holes you reamed to .2500".

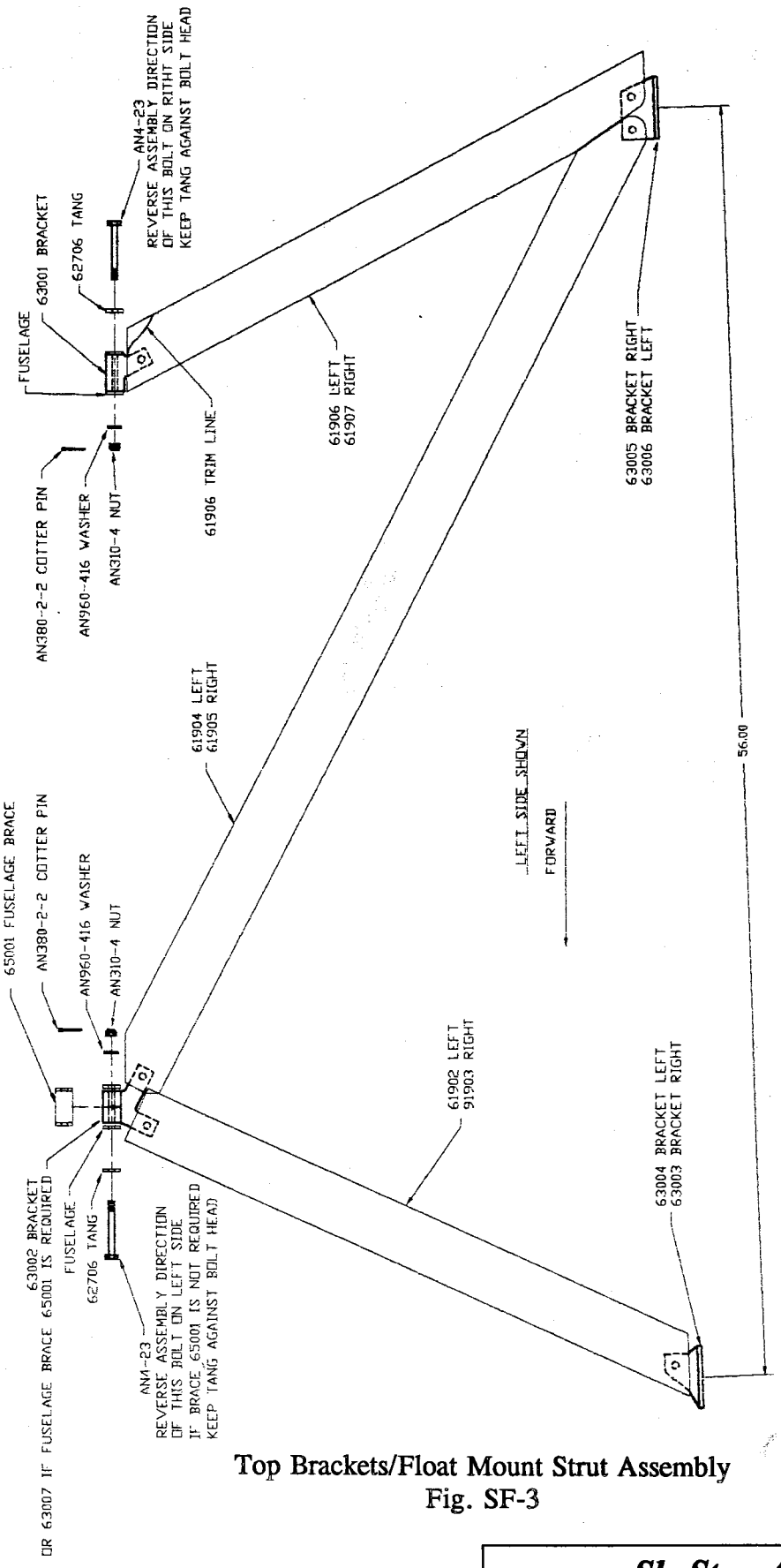
STEP (7): With a felt tip marker, mark the center of the second hole in each Bracket. Drill through the bolt holes in the Brackets with a 15/64" drill, then remove the Bracket and ream to .2500". Becareful while drilling, to avoid "hogging" out the Bracket walls. They have been precisely reamed at the factory.

STEP (8): Remove the float inspection covers and install the four Brackets in their appropriate locations, with one bolt in each Bracket. Center a #62903 (2.75 x 1.25") Aluminum Plate over the bolt holes inside the float (refer to Fig. SF-2), and mark the Plate through the second hole with a transfer punch. Remove the plate and drill to 15/64". Ream to .2500". Repeat the process for the other hole. Drill the holes on the centerline of the plates. Label the plates for final assembly.

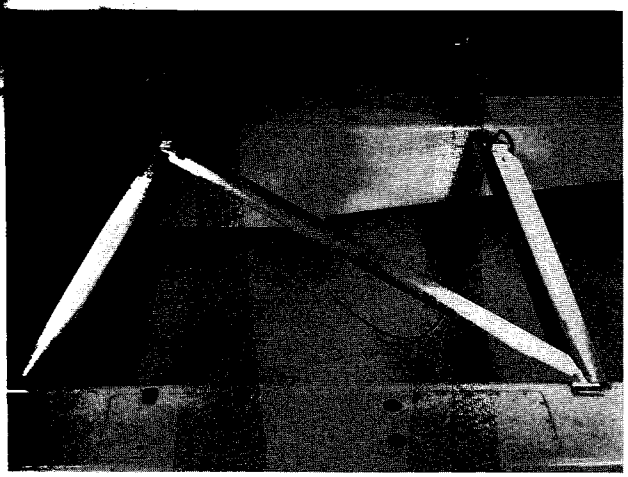
STEP (9): Install the appropriate Bottom Brackets at each of the four attach points, with AN4C32A Bolts. Use a dab of silicone around each bolt to seal the hole. These bolts do not require a washer under the head.

STEP (10): Install the proper #62903 Aluminum Plate inside the float under each Bracket. Use an AN960C4 Washer and an AN365C428 Nylock Nut on each bolt. Torque these nuts to 60 inch pounds only. See Fig. SF-2.

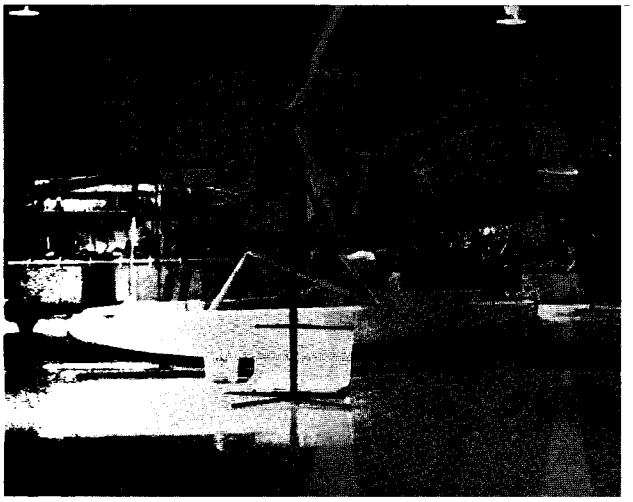
STEP (11): The Streamlined Float Mount Struts are cut to the proper lengths and have one hole drilled in each end. File smooth and dress the ends of these Struts.



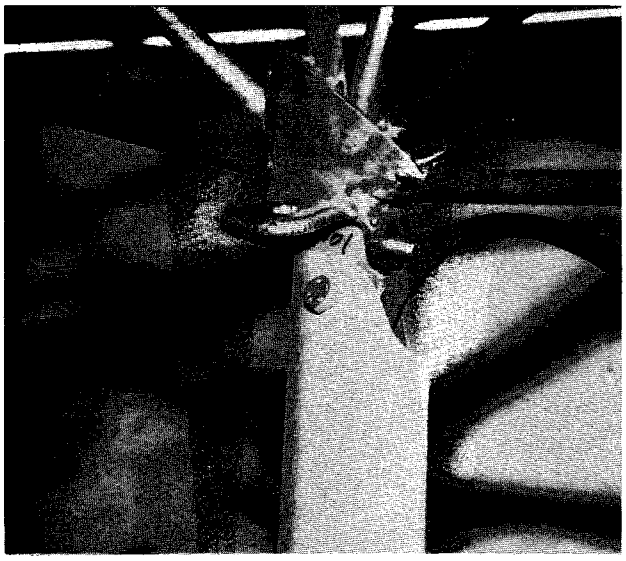
Top Brackets/Float Mount Strut Assembly
Fig. SF-3



Strut Assembly/Fuselage Brace



Jacks For Aircraft Support



Strut To Fuselage Bracket

STEP (12): Assemble the six Struts on the Bottom Float Mount Brackets, temporarily using AN5C14A Bolts. See Fig. SF-3. Secure these bolts in place with tape so they will not fall out. For final assembly, you will use two AN960C516 Washers on each side of the Lower Brackets as shims, between the Brackets and the inside of each Streamlined Strut. You should insert these shims now as you locate the second bolt hole in each Strut end. See Fig. SF-2 View A-A. An easy way to hold the washers in place, while you slip the Struts over them, is to tape the washers to the Brackets. Then, punch through the tape with the bolt.

STEP (13): Put the #63001 and #63002 Top Float Mount Brackets in place, with AN5C13A Bolts. Tape the bolts in place. Refer to Fig. SF-2.

STEP (14): Support the aircraft off the floor and remove the main landing gear. You can use a tail stand and jackstands under the front lift strut attach brackets. Or you can temporarily replace the four spar attach bolts with eyebolts and support the airplane with a hoist.

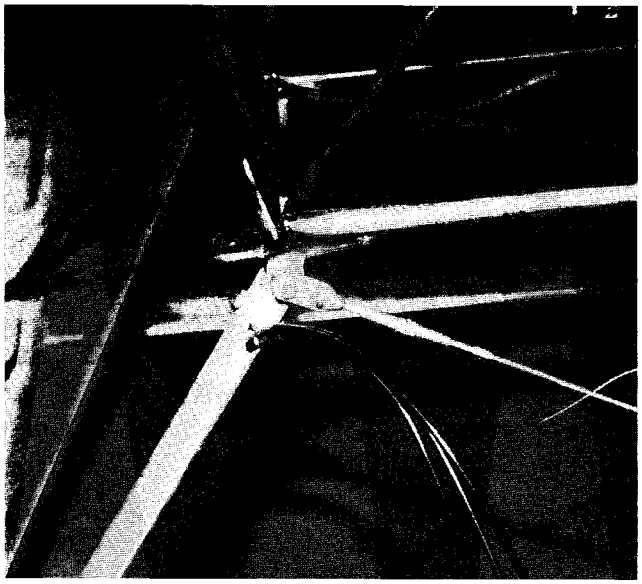
STEP (15): With the airplane supported in a level attitude, slide the floats, with Struts attached, into position under the aircraft.

STEP (16): Install the #65001 Undercarriage Fuselage Brace, if needed (see preface). Do not bolt it on now. Tape it to the belly, if you have to, to keep it in position temporarily.

STEP (17): Place blocks or shims under the floats and maneuver the Top Brackets into position with the fuselage's float attach brackets and rear landing gear brackets.

STEP (18): Insert AN4-23 Bolts, to attach the float brackets to the airplane. Refer to Fig. SF-3. Install the #62701 Cable Tangs under the head of each bolt. Insert the two bolts on the right side, and the front bolt on the left side, from the front of the aircraft. The left rear attach bolt, must be installed from the rear, with the Tang installed under the head. Use the AN310-4 Castellated Nuts that were removed with the landing gear. Put a washer under each nut. Do not use the cotter pins at this time, this is a temporary installation.

STEP (19): Now, remove the blocks so the floats are suspended under the aircraft. Measure from each attach bolt, diagonally to the junction of the opposite float and spreader bar. Adjust the float platform, side-to-side if necessary, so it fits squarely under the fuselage. Block the floats securely again.

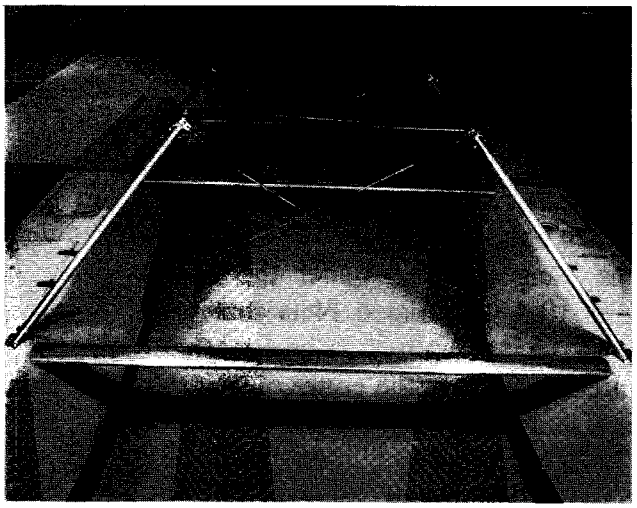


Tang and Cable Assemble

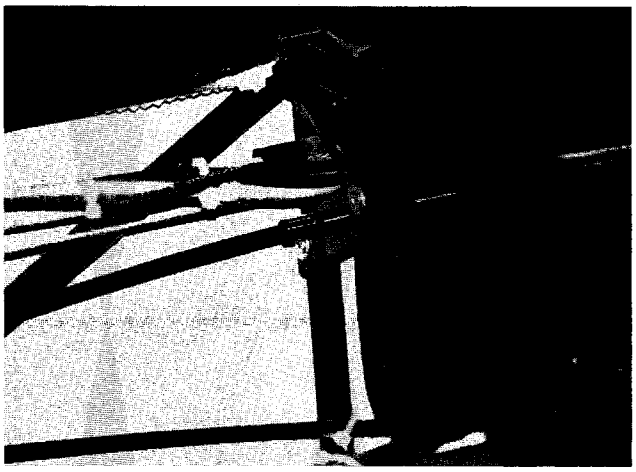
STEP (20): Remove each bolt from the Streamlined Tubes, one at a time. Replace it with the #60005 Drill Guide. Drill a 17/64" pilot hole, through the opposite wall of each tube in each location.

STEP (21): Once the pilot holes are drilled, ream them to fit on AN5 Bolt. To avoid elongating the bolt holes in the aluminum Brackets, remove all six Streamlined Tubes before you drill them. Drill all these holes slightly undersize and ream to a tight fit on the AN5 bolt.

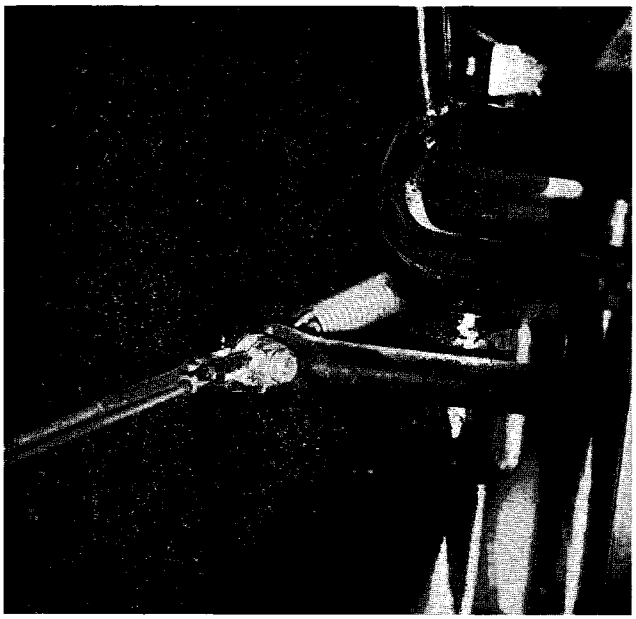
STEP (22): Attach the floats to the aircraft with the #65001 Fuselage Brace in place, if required. Attach the #62701 Tangs to the Top Brackets as shown in Fig. SF-2. Install the Tangs under the head of each bolt for maximum strength. The left rear attach bolt should be inserted from the back to allow room for the rudder control cables. Install the longer AN5C14A Bolts in the rear hole of each Lower Bracket.



Cable Assembly



Water Rudder Cable Sockets



Water Rudder Cable/Rudder Pedal

STEP (23): Attach the #66017 Cable Assemblies as shown in Fig. SF-2, with the lower Tang under on AN960C516 Washer and AN365C524 Nut, on the AN5C14A Bolt. Tighten the nuts to about 120 inch pounds.

STEP (24): Measure diagonally, from the Top Bracket on the opposite side. Adjust the float platform so the distances are equal and block the floats in position.

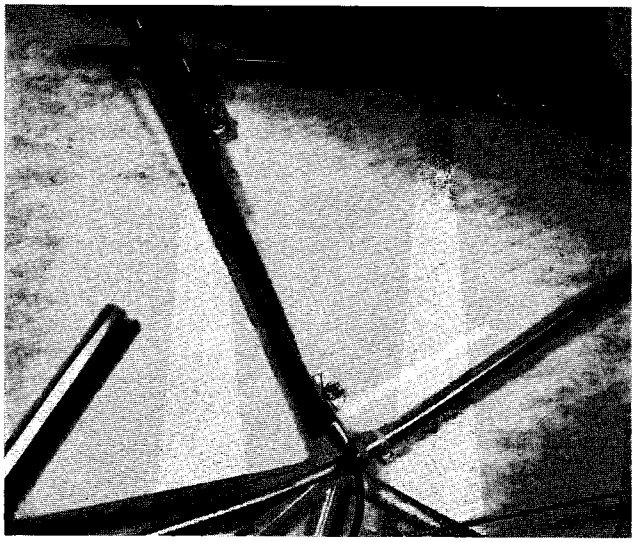
STEP (25): Adjust the Turnbuckles of all four Cables, so the floats fit squarely on the fuselage and the Cables are tight. Secure the Turnbuckles with safety wire. See Fig. SF-6.

STEP (26): With a soldering iron, burn a hole about 1/2" in diameter through the belly fabric just behind the left rear attach bracket.

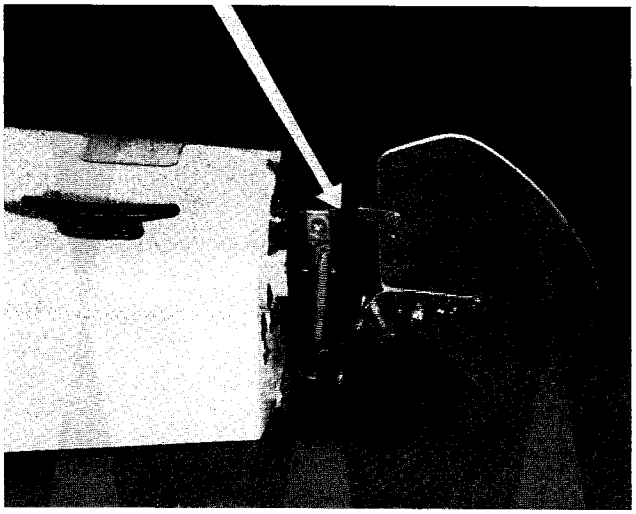
STEP (27): Remove the seat for easier access while you thread the bundle of water rudder control cables from the float, up the left rear support tube and through the hole in the fabric.

STEP (28): Rivet the Water Rudder Cable Sockets to the landing gear bulkhead, #65014 in the upper left corner and #65015 in the upper right corner as shown in the diagram Fig. SF-4.

STEP (29): Insert the cables into the Sockets. The Water Rudder Control Cables attach to the rudder pedals, alongside the aircraft rudder control cables, use the same bolt. Center the water rudder and the aircraft rudder, clamp them in place. You can clamp the aircraft rudder with a lock made of two 1" x 4" boards about 3 feet long. Pad one side of each board with carpet and tie the ends together. Slip this lock over the vertical fin and rudder. With the water rudder in the "up" position, align it with the centerline of the float and tape it securely in place.



Water Rudder Control Lever

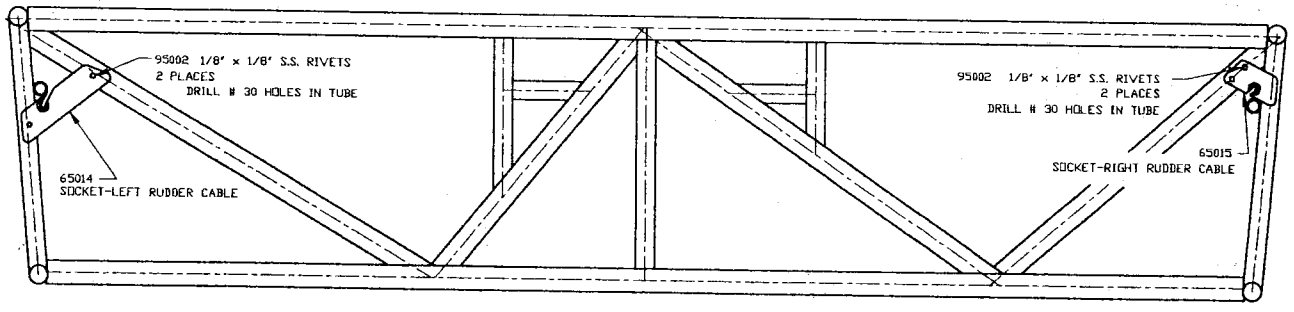


Water Rudder "up" Position

STEP (30): Bolt the AN111C3 Cable Bushing in place on the rudder pedal with AN3-7 Bolts. Slip a 21-1-C Nicropress Sleeve and a piece of #64007 Heat Shrink Tubing over each water rudder cable and wrap the Cable around the Cable Bushing. A small amount of slack is permissible in the water rudder cables, but not in the aircraft rudder cables. Hold or tie both outside rudder pedals forward to keep the aircraft rudder cables tight while you swage the water rudder cables with the Nicopress sleeves. Shrink the plastic tubing over the cut end of the cable with a lighter or a small heat gun.

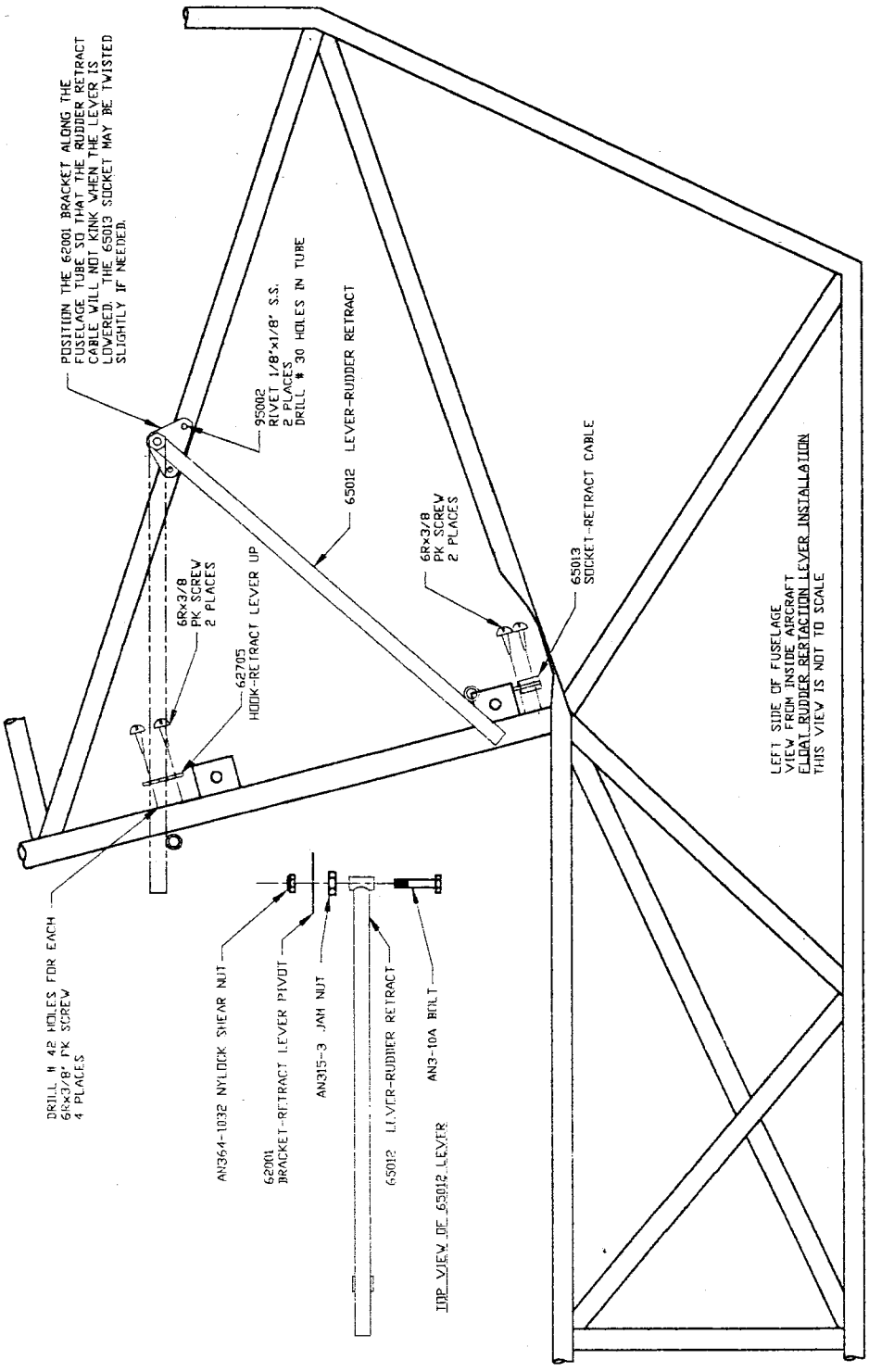
STEP (31): Fasten the #65013 Retract Cable Socket and the #62705 Control Lever Hook in place on the front doorpost with two 6R x 3/8" PK screws each. See Fig. SF-5. Attach the #62001 Control Lever Bracket with 1/8" rivets. Assemble the mount the #65012 lever as shown in Fig. SF-5. With the Control Lever in the "down" position, the water rudder should just contact the down stop. With the Lever in the "up" position, the water rudder should come just up to the stop. The tubular rudder stop on the cockpit end of the retract cable should prevent the Lever from hitting the Cable Bracket.

STEP (32): Secure all the cable sheaths to the aircraft with #96003 Zip Ties, so they will not interfere with any control linkage movement. Replace the seat and upholstery.

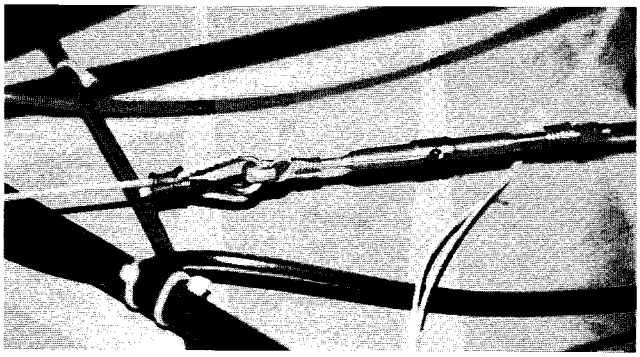


LANDING GEAR TRUSS BULKHEAD
FLOAT RUDDER CABLE SOCKET INSTALLATION
VIEW LOOKING FORWARD

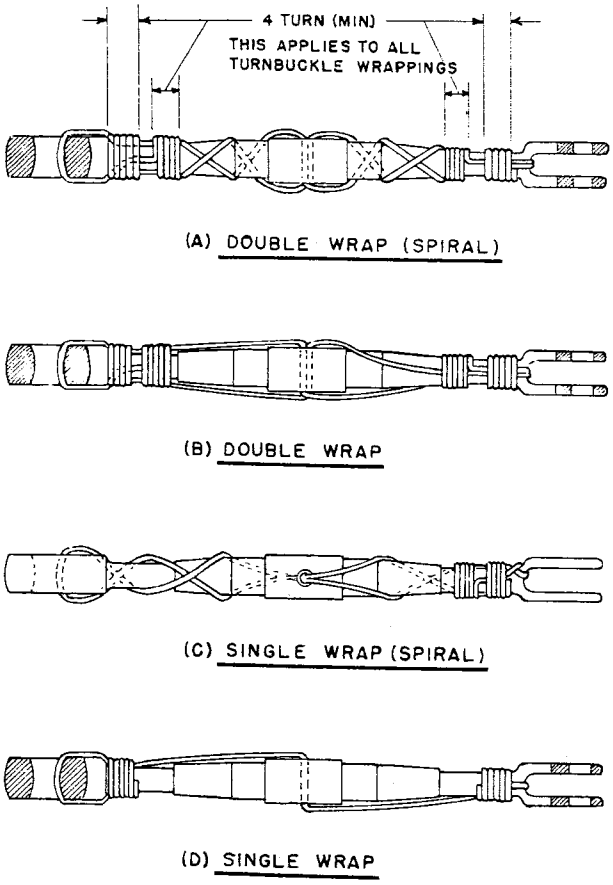
Rudder Cable Sockets
Fig. SF-4



Water Rudder Lever Assemble
Fig. SF-5



Turnbuckle Safetying



Safetying Turnbuckles.
Fig. SF-6

STEP (33): Remove the access covers, and drill out the ends of the bilge ports. Attach a section of #64011 Tubing to each port. Make sure they are long enough to reach the bottom of the compartment. There are two ports in the third compartment. Use one to pump out the third compartment and extend the tube from the other, through the hole in the bulkhead to pump out the baggage compartment. Seal the hole in the bulkhead with silicone, so that water cannot leak from one compartment into the other.

STEP (34): With silicone, seal around the control cables where they pass through the bulkheads in the left float, taking special care to get a good seal at the rear bulkhead.

STEP (35): Use the #64012 Door Seal Stripping around the access doors and around the cargo compartment doors when you permentally install them.

STEP (36): Insert a #64013 Plug in each bilge port.

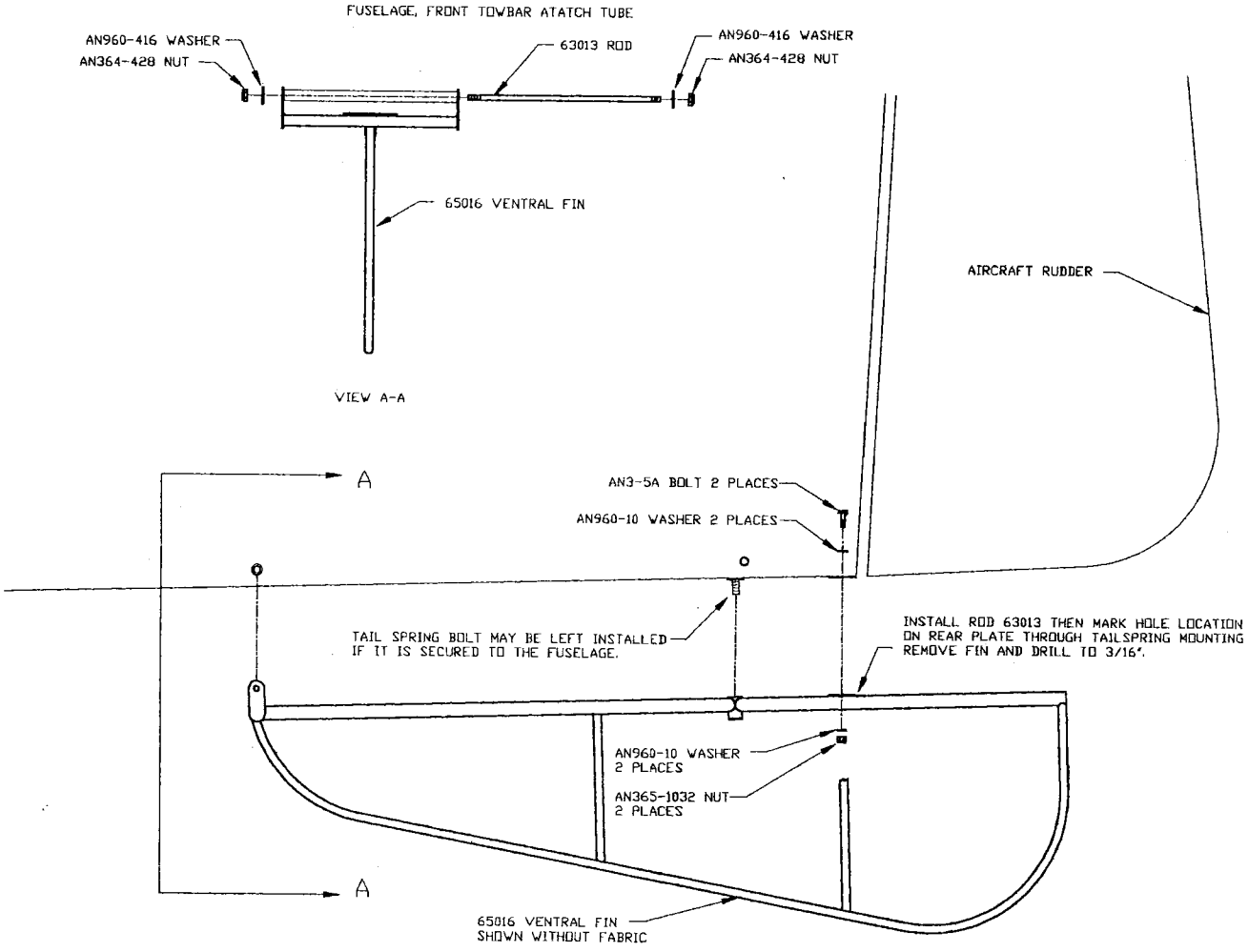
STEP (37): Fabric the #65016 Ventral Fin with scrap material from the Cover and Finish Kit. Finish and paint it to suit your aircraft. Install drain grommets in the Fin or burn a small drain hole in the fabric at the lowest point with a soldering iron.

STEP (38): Remove the tailwheel assembly. Leave the tailspring bolt in place. Install the Ventral Fin as shown in Fig. FS-7.

NOTE: The FAA requires you to re-calculate your Weight and Balance, along with making a Log Book entry that your aircraft has been made into a float plane, and may also require a revision of your Airworthiness Certificate. See the Weight and Balance section at the end of the Float Instructions.

Last Step: Double check everything you have done, and head for the water!

Ventral Fin



Ventral Fin Installation
Fig. SF-7

WEIGHT AND BALANCE FOR KITFOX FLOAT EQUIPPED AIRCRAFT

INTRODUCTION

The weight and balance information in this section should be used to allow for safe operation of your Kitfox, equipped with Standard or Amphibious Kitfox Floats.

> NOTE: When floats are installed, it is possible to exceed the maximum takeoff weight with two people and fuel depending on fuel tank options installed. It is the responsibility of the pilot to ensure that the Kitfox on floats is loaded properly and within its center of gravity limits.

FAA REQUIREMENTS:

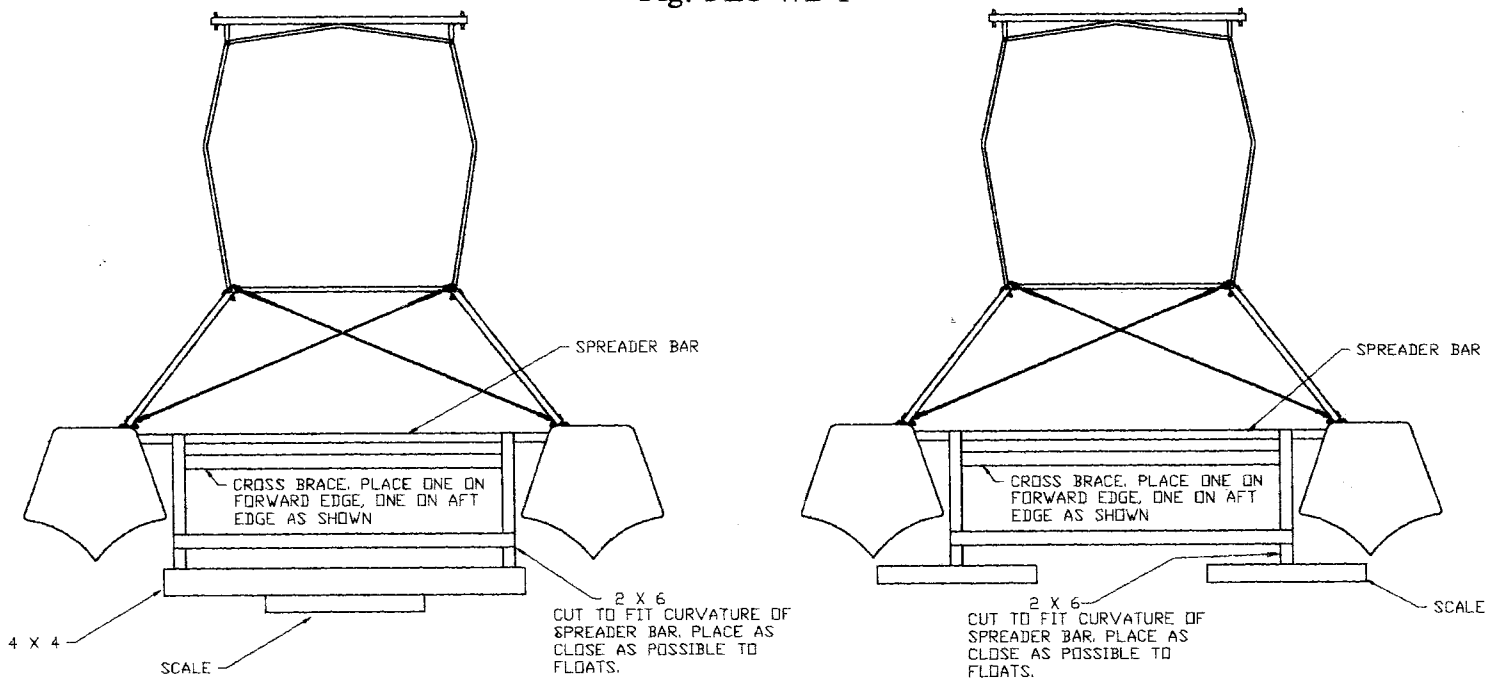
The Aircraft Operating Limitations that are part of the Airworthiness Certificate state that "Any major change to this aircraft, as defined by FAR 21.93, invalidates the Special Airworthiness Certificate issued for this aircraft". This basically means that the builder must notify the local FAA of his intention, if an Experimental Airworthiness Certificate has previously been issued. The FAA will most likely require a short flight test evaluation to be completed.

PROCEDURE

OBSERVE THE FOLLOWING PROCEDURES:

- Refer to your Kitfox Construction Manual section on Weight and Balance, for reference and definitions of nomenclature used.
- The aircraft should be weighed inside a closed building to avoid errors which may be caused by wind.
- The aircraft must be level both longitudinally and laterally.
- All items of equipment to be installed in the aircraft should be included and in place, for weighing the EMPTY WEIGHT.
- Record the weight of the TARE for each scale.

Fig. FLT-WB-1



INSTRUCTIONS:

STEP (1): Empty all useable fuel from tanks and remove any items not part of the empty weight. Use caution and "ground" the aircraft.

STEP (2): Fabricate two supports, using wood 4x4's and 2x6's as shown in Fig. FLT. WB-1. Place the scales under the floats using the supports. **For Amphibious Floats, place the scales under the wheels,** do not use a support under the Spreader Bars.

STEP (3): Level aircraft both laterally and longitudinally, as described in the Fuselage Section of the Construction Manual.

STEP (4): Record the scale readings for the front and both aft scales.

STEP (5): Mark the floor, for the center line of TARE blocks as shown in Fig. FLT WB-2.

STEP (6): Mark the leading edge of each wing (datum), on the floor, using a plumb bob.

STEP (7): Mark the centerline of the aircraft on the floor, using a plumb bob from the tail and the prop center line.

STEP (8): Remove the aircraft assembly so you can mark the floor.

STEP (9): Snap a chalkline between the floor marks, as shown in Fig. FLT. WB-2 and replace the aircraft assembly upon them.

STEP (10): Weigh the TARES

STEP (11): Measure the distances of X and Y.

STEP (12): Compute the empty weight and balance.

EXAMPLE ONLY

	WEIGHT - TARE		STATION	MOMENT
RT	337 - 0	x	"Y"=25.45	=8576.65
LT	328 - 0	x	"Y"=25.45	=8347.60
FRT	153 - 0	x	"X"=-50.7	=7757.10
TOTAL	818			9167.15

CENTER OF GRAVITY = TOTAL MOMENT/TOTAL EMPTY WEIGHT

11.2 = 9167.15/818

STEP (13): Complete Aircraft weight and balance form, (most Forward and Mass APH LG checks).

NOTE: A good reference and instructional manual for performing weight and balance on any aircraft, is the Aircraft Inspection, Repair and Alterations book, published by the U.S. Department of Transportation and the FAA. Reference 43.13 - 1A and 2A.

LEFT FLOAT

~~445-9358~~

Baldwin
453-9359

RH spacer 1.470 — TOO LONG.

.628 AXLE 5'.475 LONG

.375 BOLT

LYLES
452-9619

AIRSAINTCLAIRE

CARR DANIELS
GRAHAM LINDSEY

BANKER - 454-1000

TUBING Needed .75 od - .625 ID HARD.

.630

1.258

1.470

- 90 grease fitting -
- 5/8 DRILL
- NEW FILE

R. FLOAT

FR

- LH SPACER 1.72 OK 7 PCS
- RH " 1.41 OK "

4 PLYWOOD