

Description: This unit changes the faired setting of the ailerons in flight to a setting below and above the neutral setting (0°) of the ailerons. It does so by changing the length of the stroke of the vertical push-pull aileron tubes located on the FS 94 bulkhead. The basic aileron torque tube bearings are removed and replaced by a cam. As the cam is rotated vertically by a cam. As the cam is rotated the aileron torque tube and vertical push-pull tubes are moved up and down. This will cause deflection of the aileron torque tube over its entire length, eliminating fatigue of the tube, and the use of universal joints.

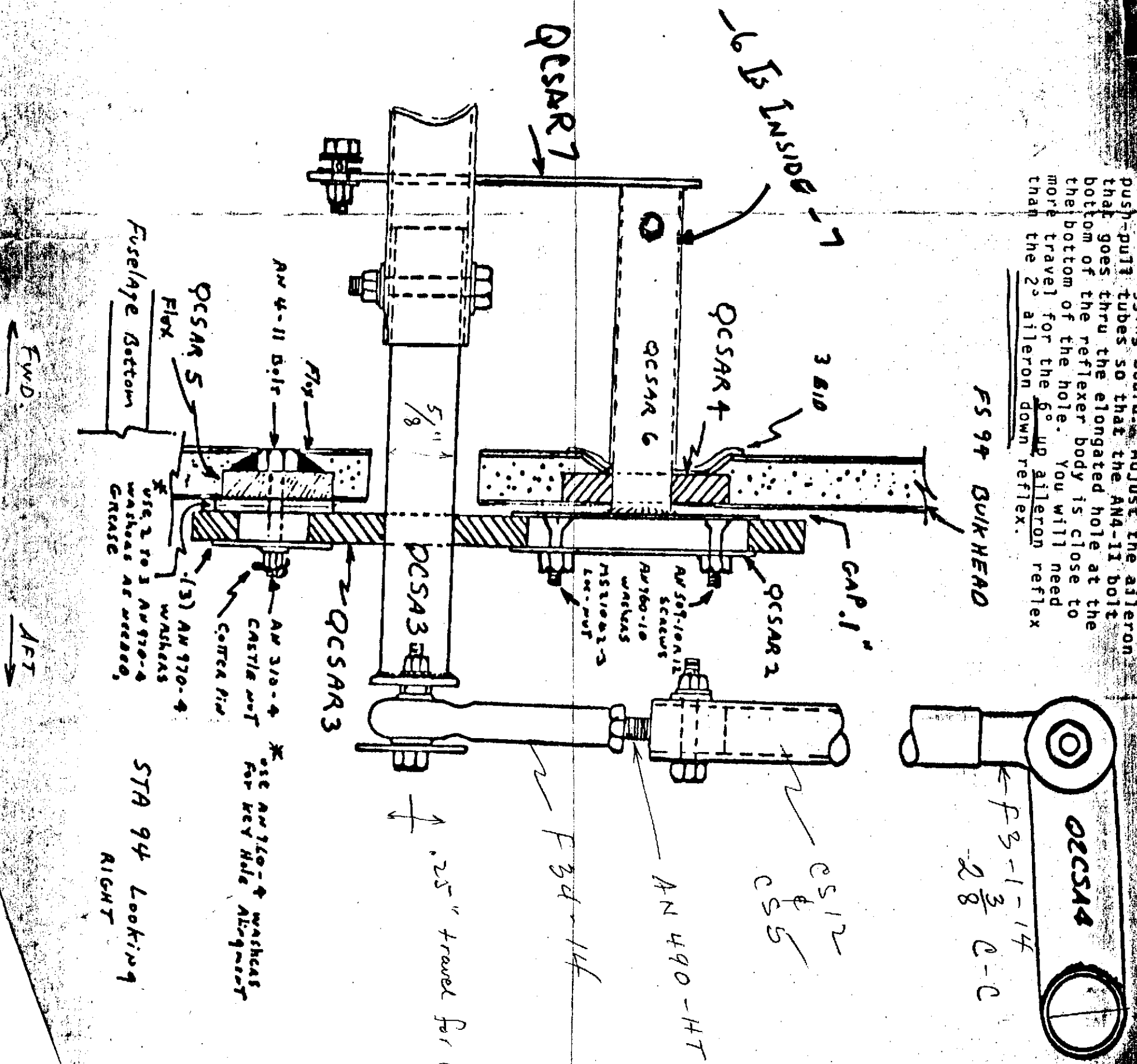
The net effect of being able to change aileron settings in flight enables the pilot to fine tune the aircraft's flight and landing attitude for various weight and cg conditions. Also, in heavy rain, it's adjustment will help unload the canard and reduce trim changes due to rain effect.

Study the plans and read the instructions first. Basically the installation involves these basic steps:

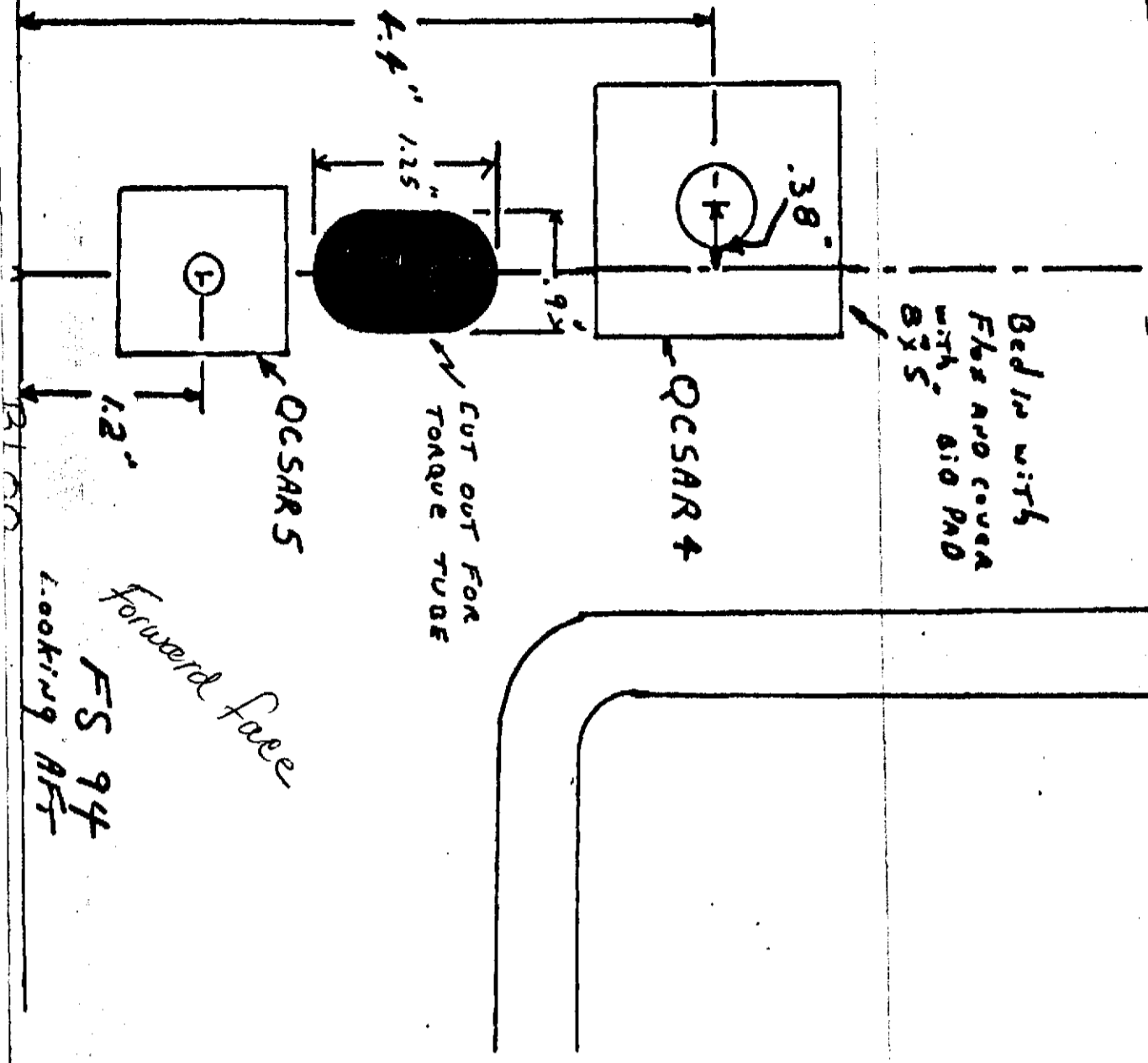
1. The removal of the Q2CS1 bearings on the FS 94 bulkhead.
2. The installation of two phenolic blocks, QCSAR4 and 5 in the proper location in the FS 94 bulkhead and the addition of 2 bid glass to each side in the local reflexer area.
3. The assembly and installation of the reflexer and the adjustment of the vertical push-pull tubes from the reflexer to the Q2CSA4 aileron bell cranks.
4. The installation of the cable to activate the reflexer.
5. Check out of the system to make sure it functions as designed, and does not rub or bind on anything.

Align the ailerons at 0° using the aileron rigging board. Adjust the aileron push-pull tubes so that the AN4-11 bolt that goes thru the elongated hole at the bottom of the reflexer body is close to the bottom of the hole. You will need more travel for the 6° up aileron reflex than the 2° aileron down reflex.

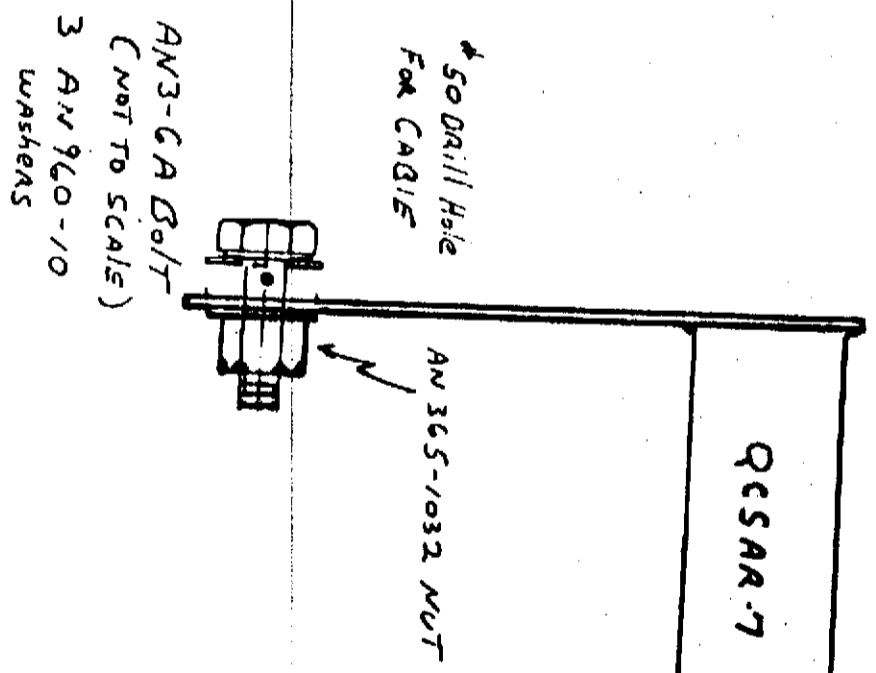
FS 94 BULK HEAD



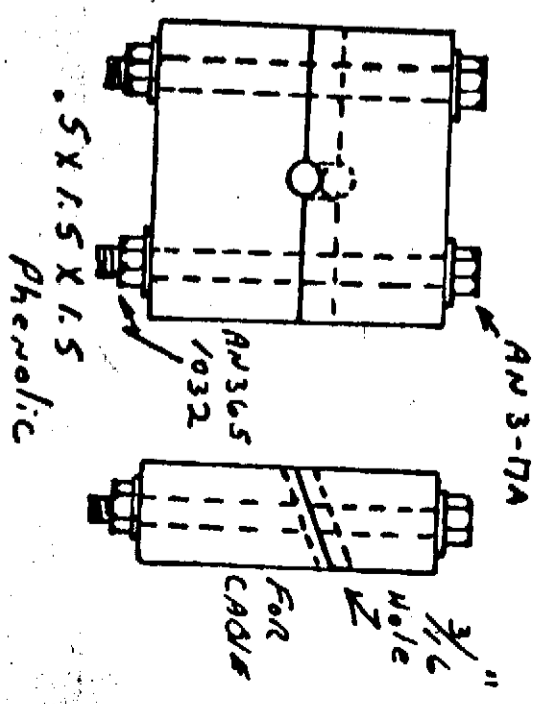
After the bearing blocks have been removed, alteron torque tube hole enlarged and the addition of the 2 bid on the aft face of FS 94, lay out the positions of QCSAR4 and QCSAR5. Cut the area out on the forward face of FS 94. Granted, this is harder to do than to cut into the aft face of the bulkhead, but it is a more structural way to do it. Cut the FWD glass and remove it and the am back to the glass on the aft face. Install phenolic bearing with flox, being careful not to get flox in the bearing surface. Flox the AN4-11 bolt to QCSAR5 and cover area with a 8"x5" 2 bid lay-up.



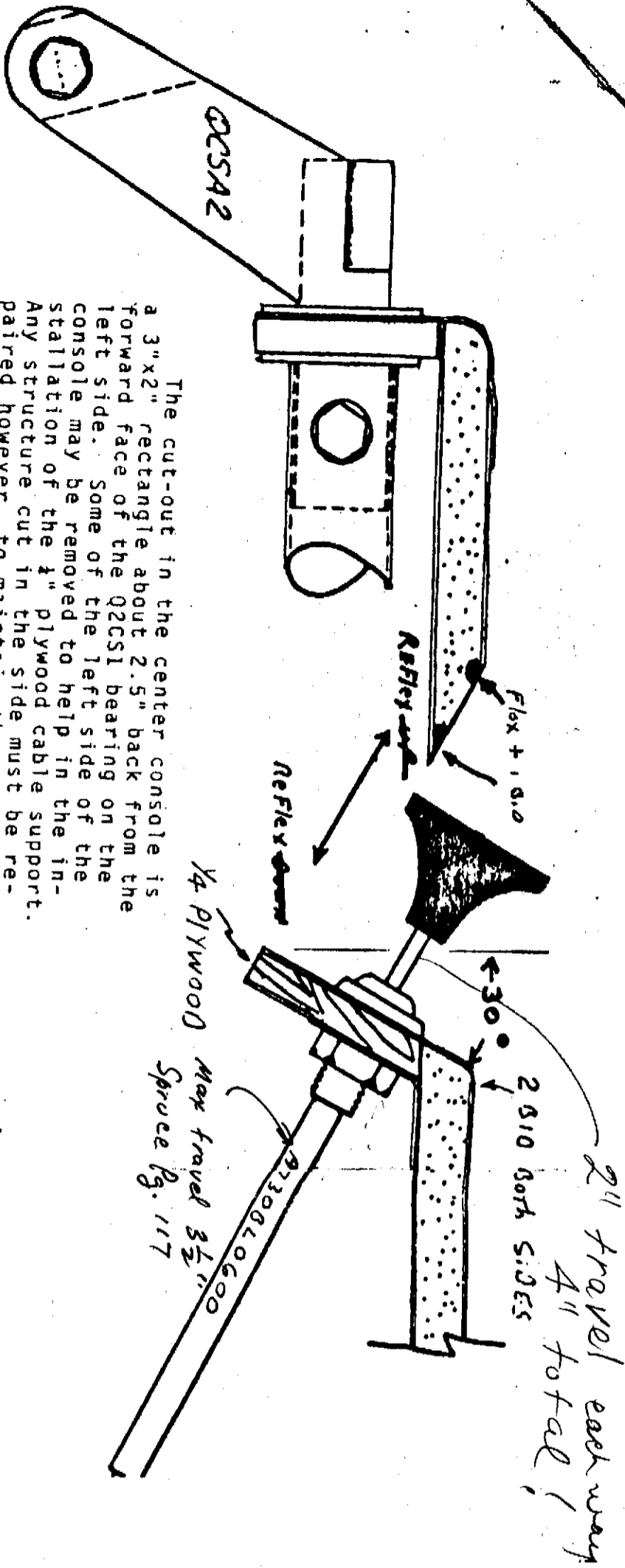
Drill #50 hole .1" back from the bolt head. After cable housing is clamped in place and cable wire is locked in the bolt, give the wire a 90° bend at where it comes thru the bolt to keep it from pulling out if the bolt should come loose.



Make a cable mount block out of the piece of 1.5x1.5x.5 phenolic block supplied. Drill the 3/16 hole at the angle shown and drill the two 3/16 bolt holes next. Using a fine hacksaw, cut the block at the angle shown. A small rat tail file can be used to adjust the cable hole size. Flox the bottom in place and flox around the nuts on the bottom, they will act as nutplates when the flox is cured. Wipe a little grease on the bolt threads before installation so they will release from the threads after flox has cured.

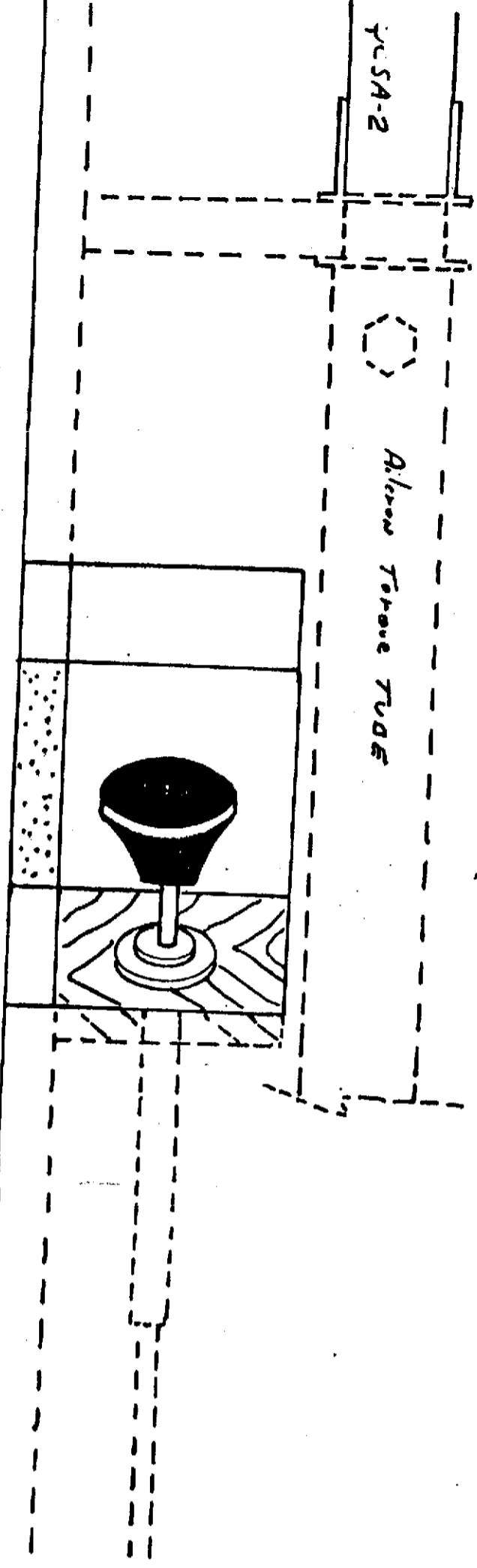


The cut-out in the center console is a 3"x2" rectangle about 2.5" back from the forward face of the Q2CS1 bearing on the left side. Some of the left side of the console may be removed to help in the installation of the 1" plywood cable support. Any structure cut in the side must be repaired however, to maintain the strength of the console. You will notice the flex cut-out area.



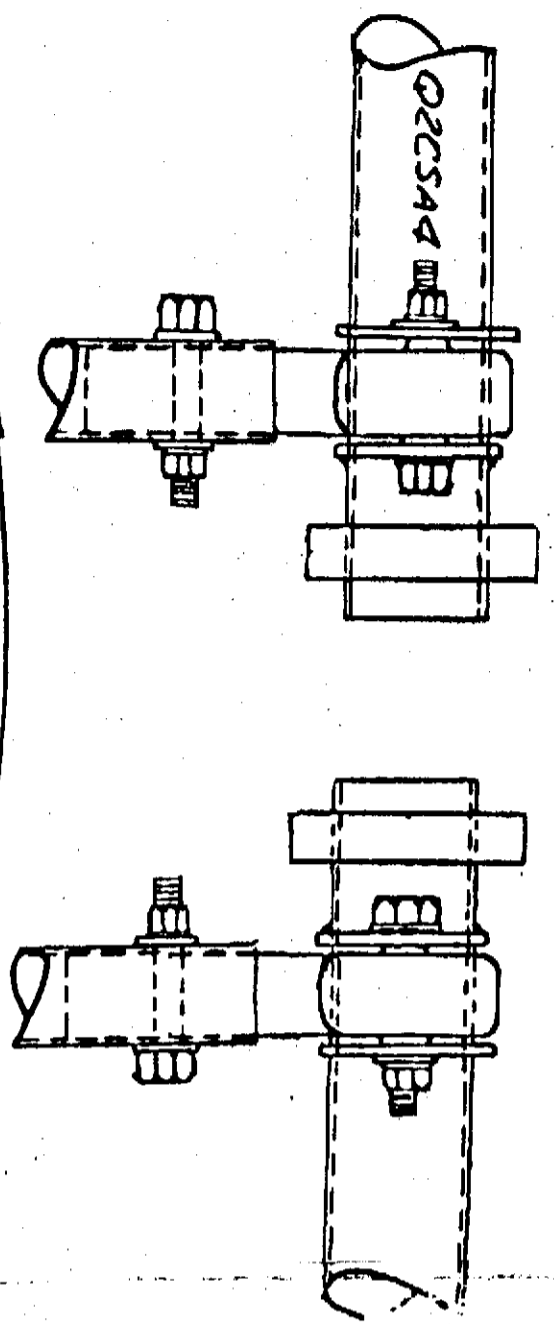
2" travel each way
4" total

TOP of CENTER CONSOLE
(Looking down)

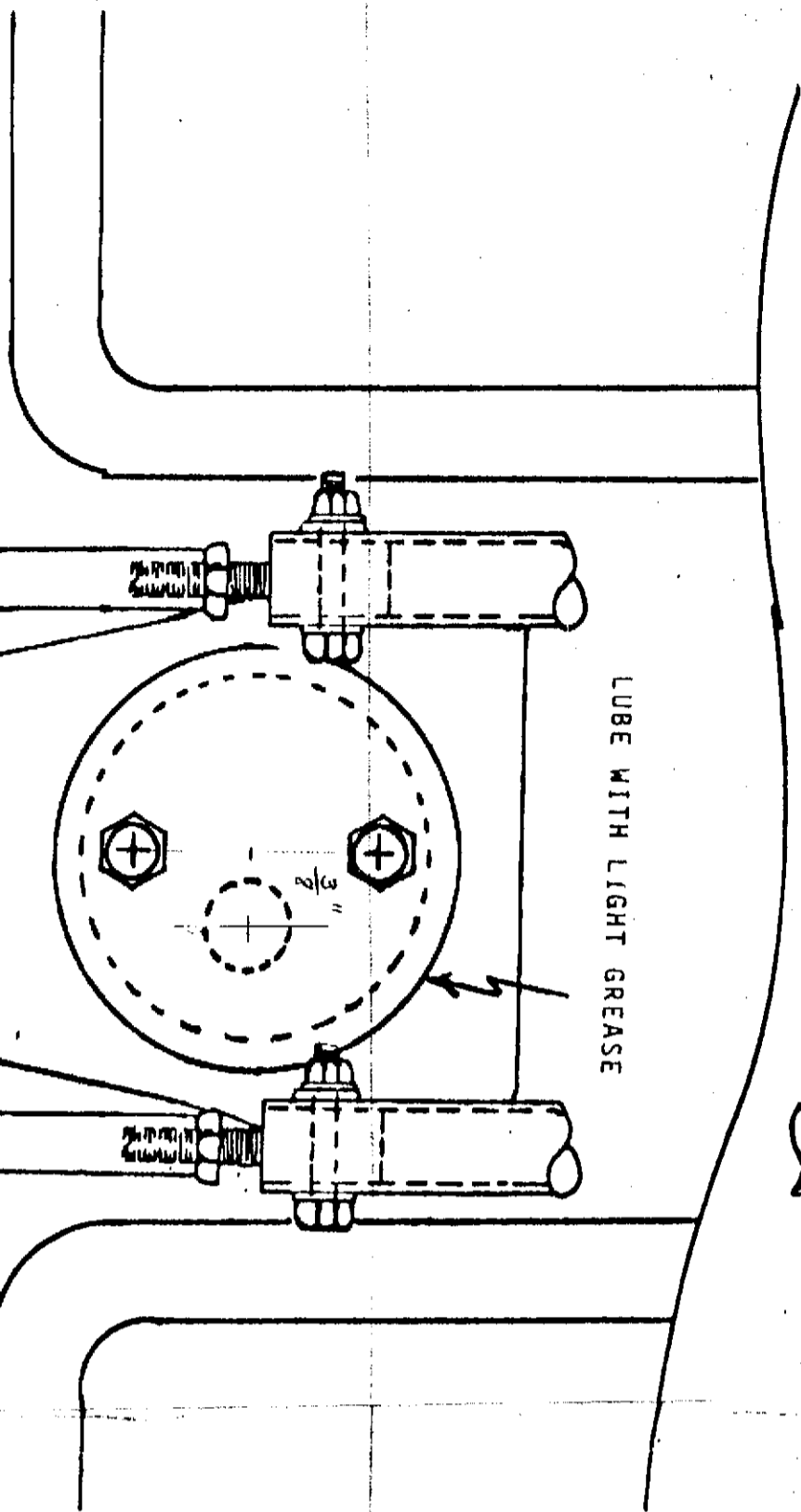


System Check-Out:

1. Check ailerons for freedom of operation in all reflex positions.
2. Check reflex 2° down max. 6° up for 0° max.
3. Lube the aileron bearings and the reflexer unit.
4. Check to see that the aileron torque tube does not hit or rub along it's length in any reflex position.
5. Examine torque tube for nicks, scratches or dents. A tight nick or scratch should be dressed out with aluminum oxide cloth, badly nicked or scratched tubing should be replaced. If the aircraft is kept in a damp environment, tube should be cleaned and painted with zinc chromated paint inside and out.
6. Aileron control stops should be added at the top stroke of Q2CSA4 bellcrank. Use 1" plywood floxed on with 2 bid each side.
7. Call on the Builder Hotline if you have any questions in regard to this system.



LOOKING APT SHOWING
PUSH-PULL CABLE

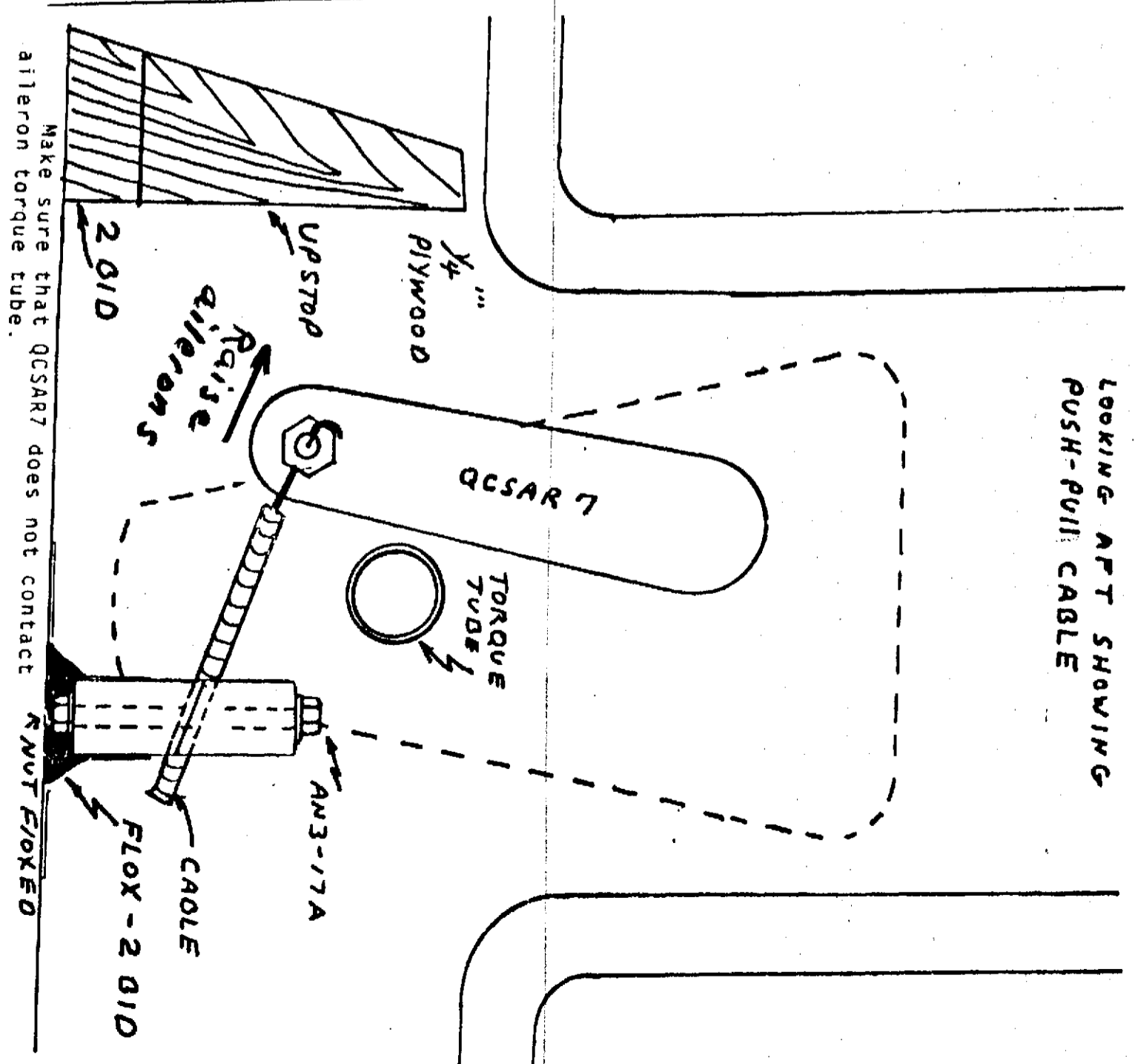


FS 94
BULKHEAD

Tighten castle nut to remove any
slap but not tight enough to bind. Keep
lubricated and inspect every 50 hours.
Make a note in your service guide.

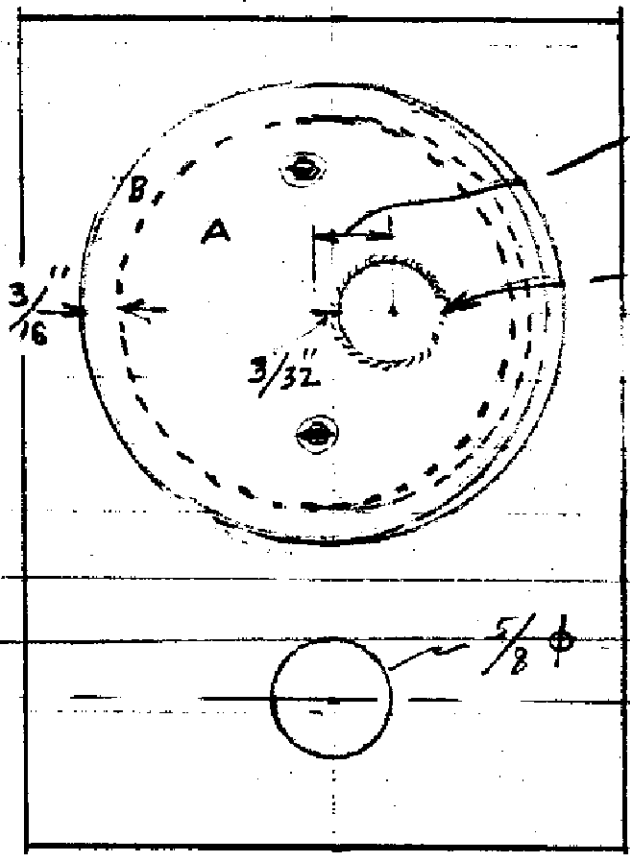
LUBE WITH LIGHT GREASE

.24"
2.4" ±
(variable)



Make sure that QCSAR 7 does not contact
aileron torque tube.

UP STOP
PLYWOOD
TORQUE TUBE
QCSAR 7
AN3-17A
FLOX-2 010
CABLE
K NUT FLOXED



$4/16 \times 3/32$

$13/32$

$1/2" \text{ } \phi$

Looking aft

$1/8$

Inside fuselage

Mike Quinn

1/16
1/32

Exploded View

