

## Rigging the Flaperons

### Sub-Section "E" - Rigging the Flaperons

**Objective:** Install the Flaperon Control Horns. Install the Flaperons on the wings, the connect tubes, and adjust the control tube linkages to rig the flaperons.

STEP (1): Paste the Flaperon Clamping Fixture Template (Fig. W-E-1) onto a piece of cardboard.

STEP (2): Carefully cut around the outside border of the Template then cut the Template on the Flaperon centerline. Trim the two Template parts along the outer line of the Flaperon.

STEP (3): Find two pieces of 2" x 4" board each 12" to 14" long. Rip saw each piece lengthwise on the centerline. Clamp the two halves together, lay out your Template over the centerline and mark around the Template. (See Fig. W-E-3.)

STEP (4): Use a bandsaw or jigsaw to cut out one Clamping Fixture for each Flaperon.

STEP (5): Drill a 1/4" hole through the Fixtures on each end so you can bolt the two halves together. Countersink the holes so the bolt head and nut fit below the surface of the fixture.

STEP (6): Clamp the flaperons near the inboard ends as shown in Fig. W-E-3. Lay the flaperons on your work table with the Fixture flat on the table and support the Flaperons at mid-span and at the tips on pads or sandbags.

MODEL 4		DENNEY AEROPLANE COMPANY			
ASSEMBLY	REVISION	DATE	SECTION	PAGE	
Sub-Section "E" - Rigging The Flaperons	1	6 Mar 92		W-E-1	
KITFOX					

MODEL 4  
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ASSEMBLY  
Sub-Section "E" - Rigging The Flaperons

DENNEY AERO-SPORT COMPANY

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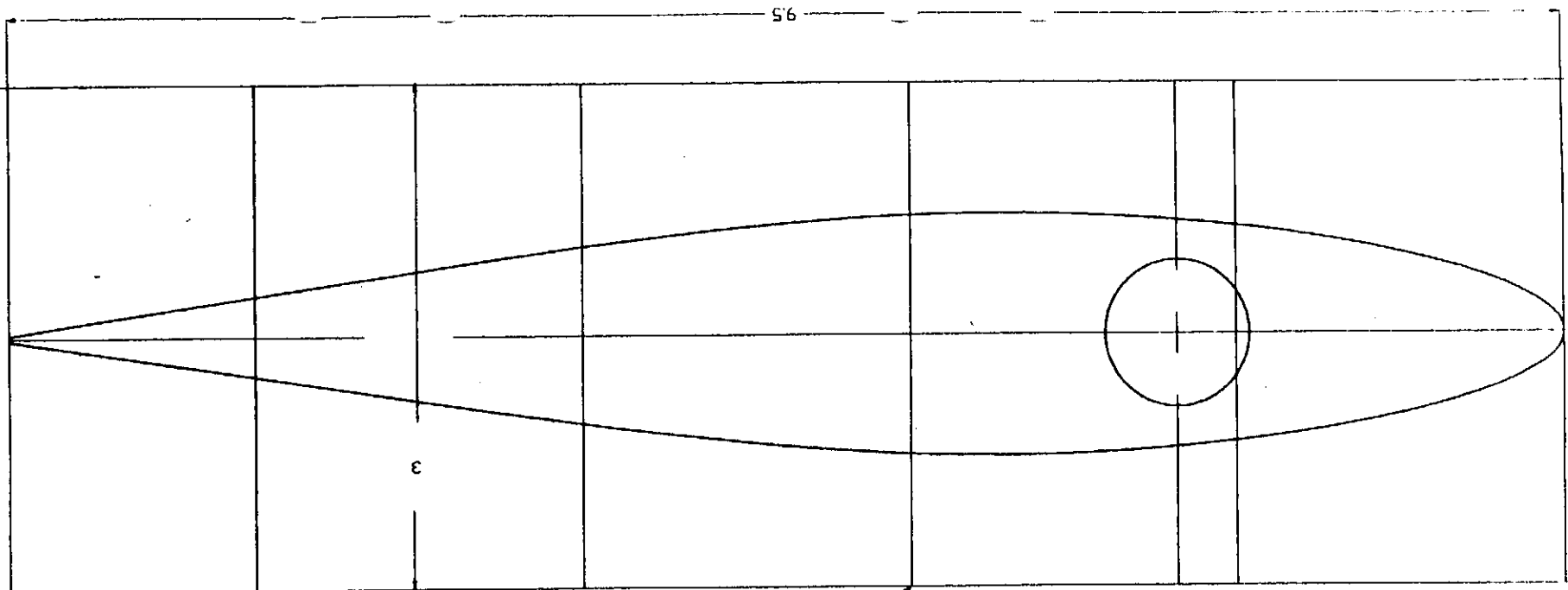
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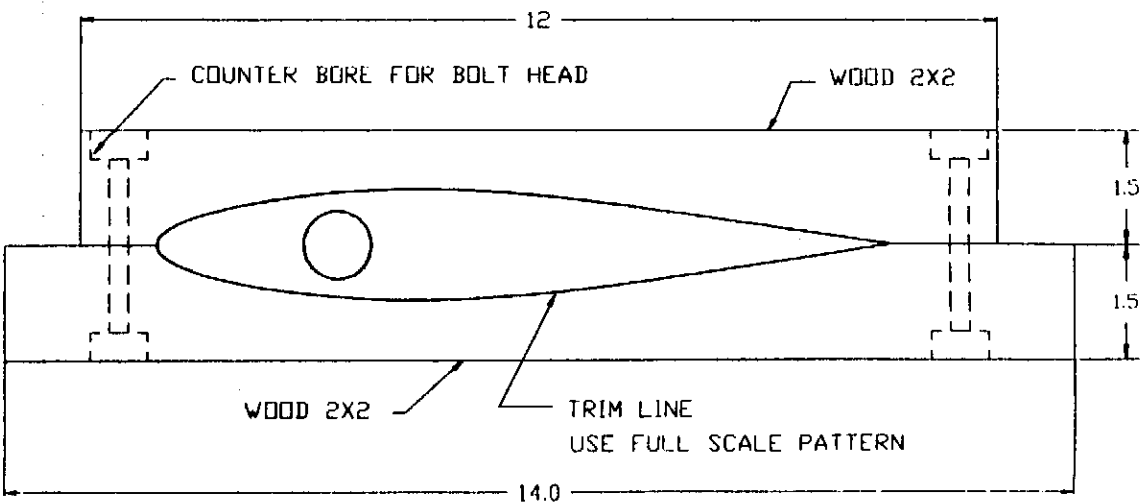
SECTION

PAGE

W-E-2



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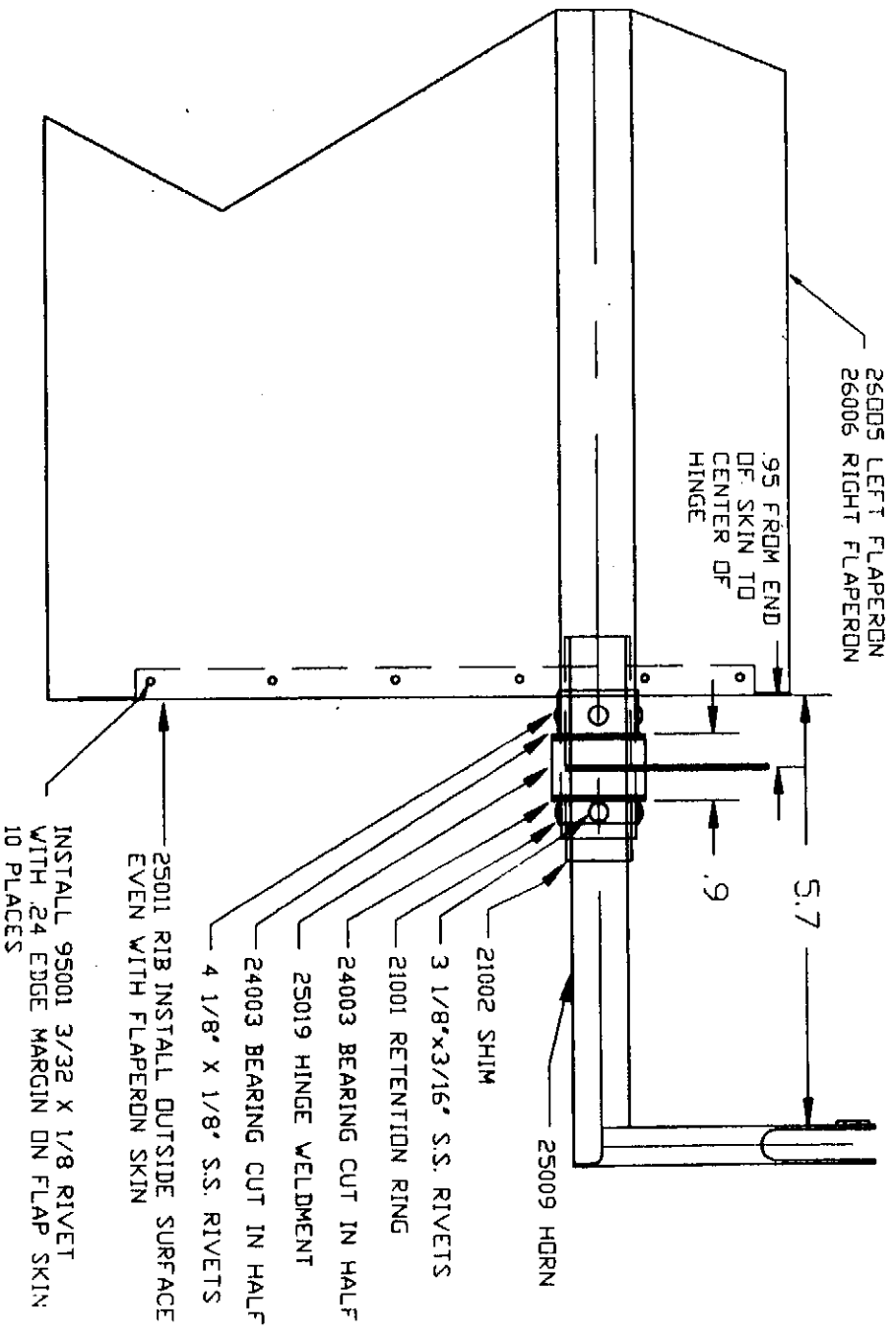
Clamping Fixture Template  
Fig. W-E-1

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**STEP (7):** There are two #24003 Nylon Bearings on the ends of each Flaperon spar. Trim each bearing to .4" from the flange. Sand the ends so a #25019 Hinge rotates freely on each pair of bearings. Leave a gap of about 1/16" between the Hinge and the shoulder of the Bearing so it will not bind.

**STEP (8):** Slide a bearing half onto the spar, then the Hinge, the other Bearing, and the #21001 Retention Ring as shown in Fig. W-E-2. Cut on side of the Retention Ring so it can expand and slip over the spar.

**STEP (9):** Slide the #21002 Shim into the end of the Flaperon spar and the #25009 Horn into the Shim. Sand the shim if necessary to fit inside the spar.



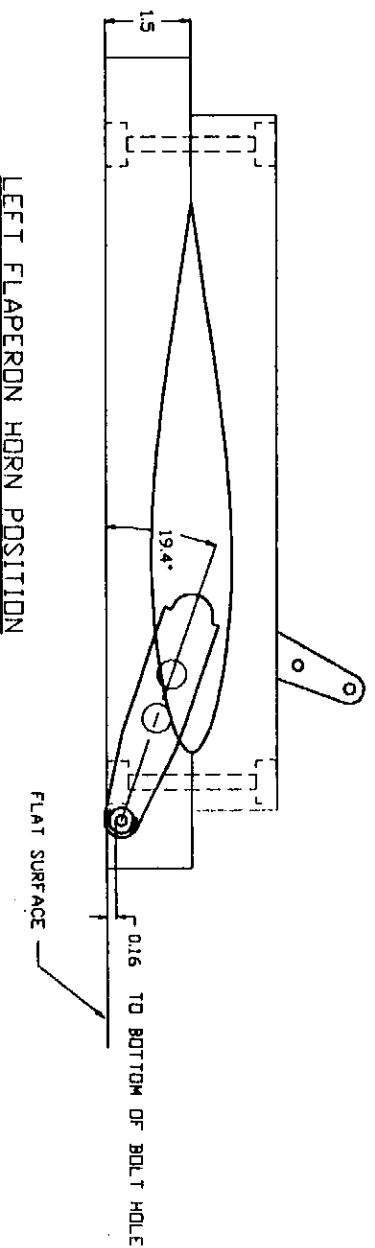
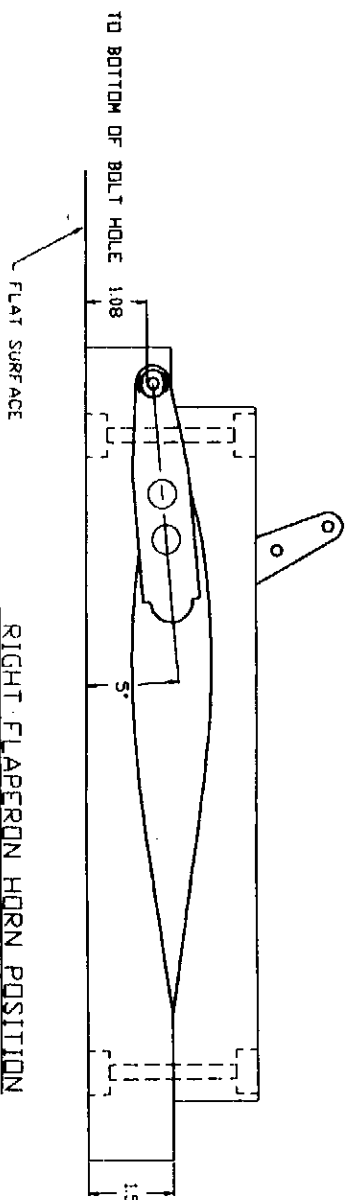
Flaperon Horn and Bearing  
Fig. W-E-2

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MODEL 4 KITFOX	ASSEMBLY Sub-Section "E" - Rigging The Flaperons	DENNEY AERO RAFT COMPANY	REVISION	DATE	SECTION	PAGE
			1	6 Mar 92		

**STEP (10):** Adjust the angle of each Flaperon Horn to the axis of the Flaperon chord as depicted in the diagram Fig. W-E-3 and clamp the Horns in place. Notice the angle of the right one is different than the left.

**STEP (11):** Drill four #30 holes through each Rib Flance the Flaperon spar, Shim, and horn spar. Cleco as you go. Disassemble, deburr the rivet holes, assemble and rivet with 1/8" x 1/8" S.S. Rivets. Refer to Fig. W-E-2 and Plate W-21. Drill three #30 holes through the Retention Ring, Spar, Shim and Horn Spar. Rivet with 1/8x3/16 SS Rivets.



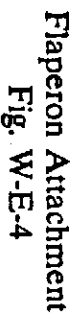
Flaperon Horn Positions  
Fig. W-E-3

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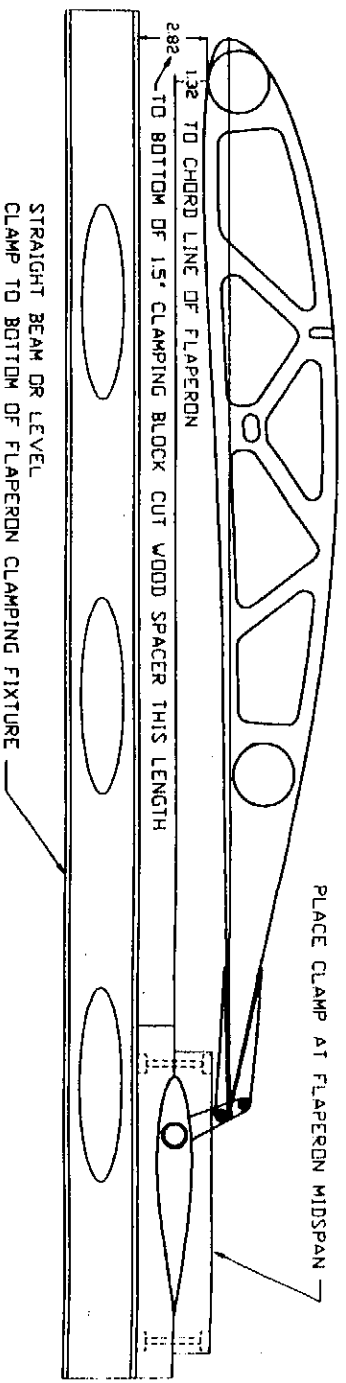
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MODEL 4	ASSEMBLY	REVISION	DATE	SECTION	PAGE
KITFOX	Sub-Section "E" - Rigging The Flaperons	1	6 Mar 92		W-E-4

**STEP (13):** Remove the Clamping Fixtures and attach the Flaperons to the wings as shown in Fig. W-E-4. Use an AN960-10 Washer and an AN960-10L Washer on each bolt as shown, Also Refer to Plate W-21.



STEP (14): Clamp one Fixture just inboard of the center Flaperon Hinge of each Flaperon. Fasten a 4' long straight board or level to the bottom of the Clamping Fixture. Tape the other end of the straight edge to the front spar with a 2.82" wood block in between, as shown in Fig. W-E-5.




FLAPERON RIGGING

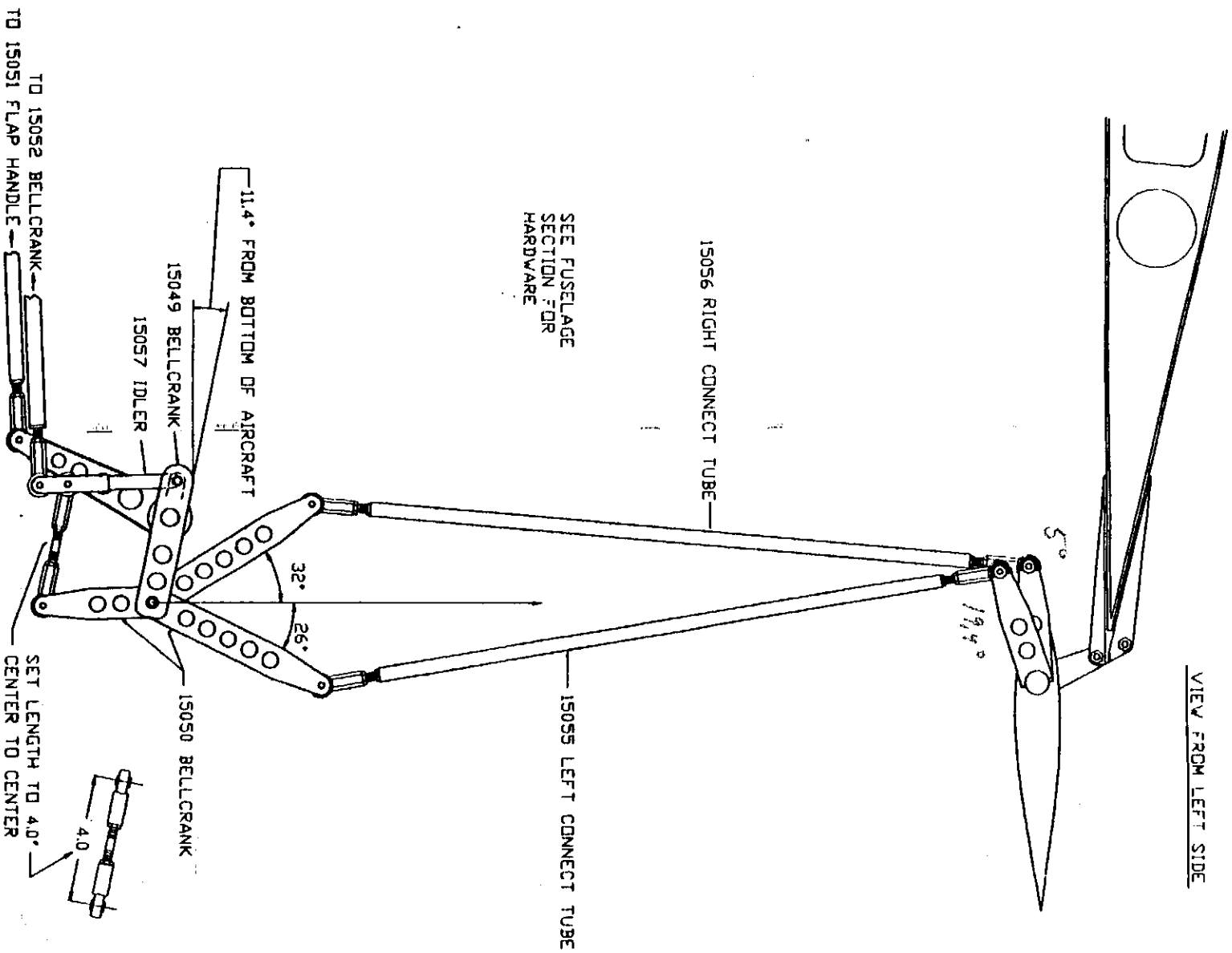
Neutral Flaperon  
Fig. W-E-5

STEP (15): Center the control stick (lateral function) and tape or clamp it securely. An easy way is to attach a strip of strapping tape to one door frame, around the stick and to the other door frame.

STEP (16): Adjust the flap push-pull tube so the angle between the belly of the aircraft and the #15049 Bellcrank is 11.4° as shown in Fig. W-E-6. (A "Smart Level" is invaluable for this.)

STEP (17): When you have the Flaperons clamped in this "neutral" position you can adjust the lengths of the #15056 Right and #15055 Left Connect Tubes and install them. Use an AN3-7A Bolt, AN960-10 Washer and an AN364-1032 Nylock Shear Nut on the lower rod end and the #15061 Winged Bolt on the Flaperon Horn. Tighten the AN316-4 Check Nuts on the rod ends.

MODEL 4		ASSEMBLY		<div>DENNEY  COMPANY</div>				D82001	
KITFOX	Sub-Section "E" - Rigging The Flaperons			REVISION	1	DATE	6 Mar 92	SECTION	PAGE
									W-E-6



Connect Tube Adjustment  
Fig. W-E-6

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MODEL 4	ASSEMBLY	DENNEY AIRCRAFT COMPANY			
KITFOX	Sub-Section "E" - Rigging The Flaperons	REVISION	DATE	SECTION	PAGE
		1	6 Mar 92		W-E-7

**STEP (18):** Drill a #40 oil hole just aft of the weld attaching Hinge to the Bearing Housing.  
Drill through the Bearing Housing only. See Fig. W-E-7 and W-E-8.

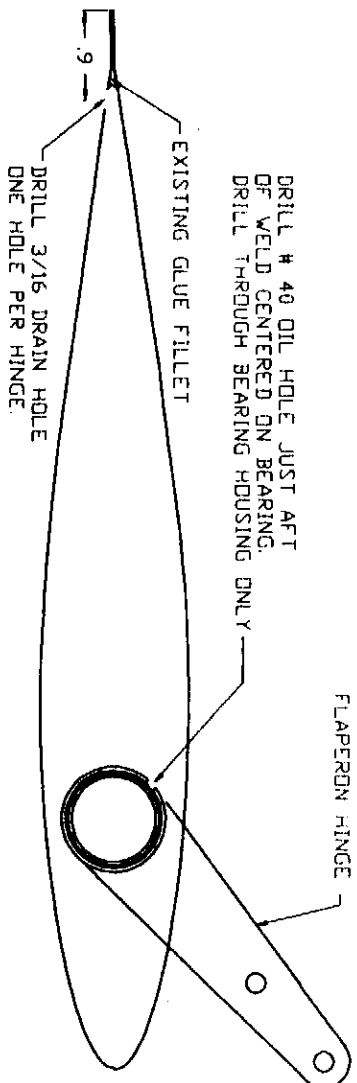


Fig. W-E-7

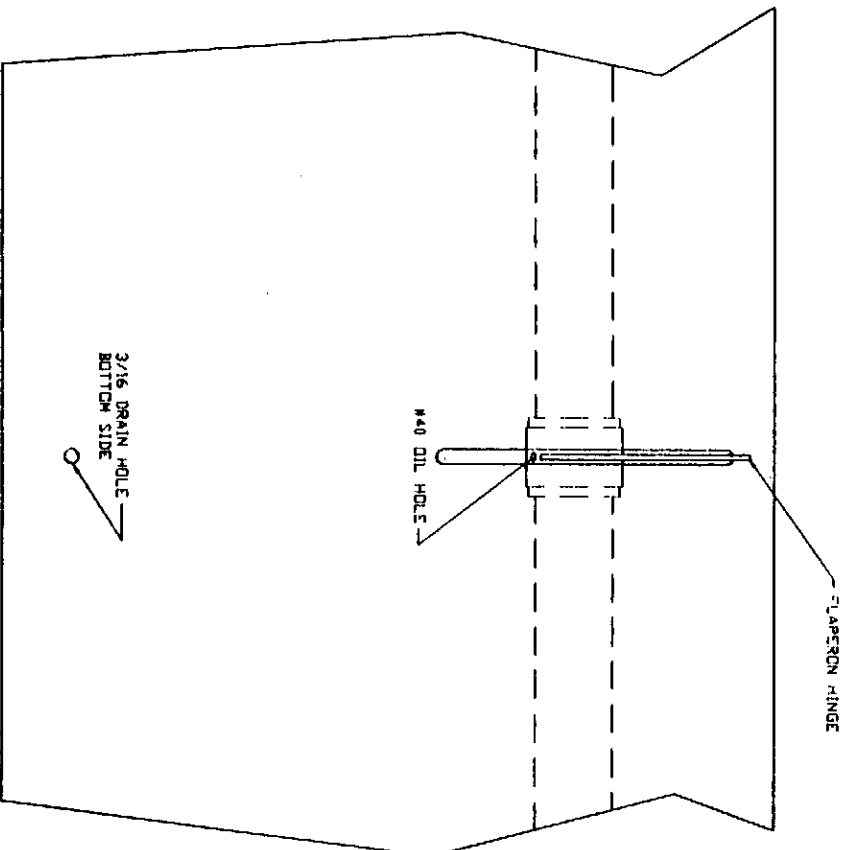


Fig. W-E-8

D62001

MODEL 4		ASSEMBLY		DENNEY AERO-RAFT COMPANY	
KITFOX		Sub-Section "E" - Rigging The Flaperons		REVISION	DATE
				1	6 Mar 92
				SECTION	PAGE
					W-E-8