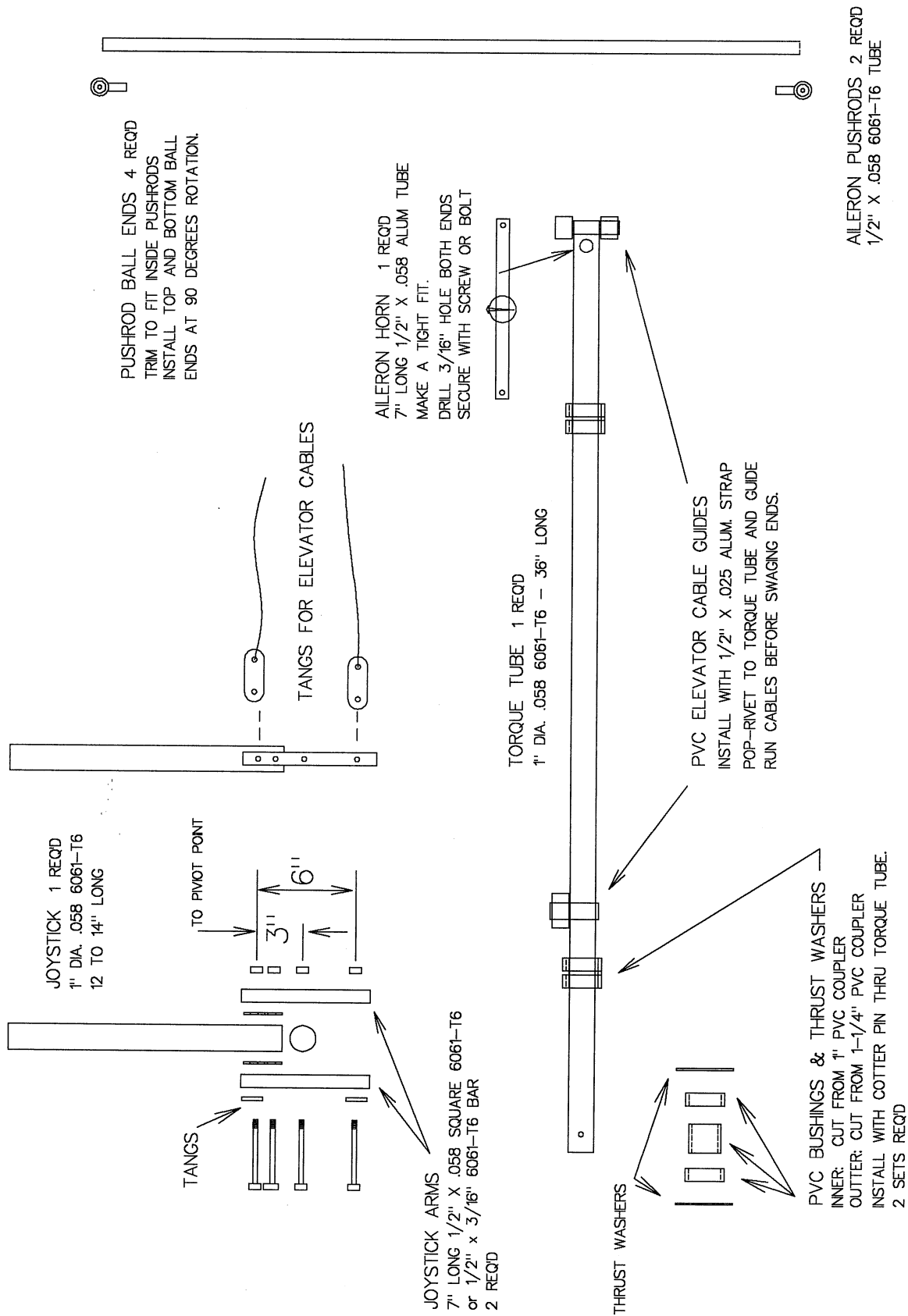


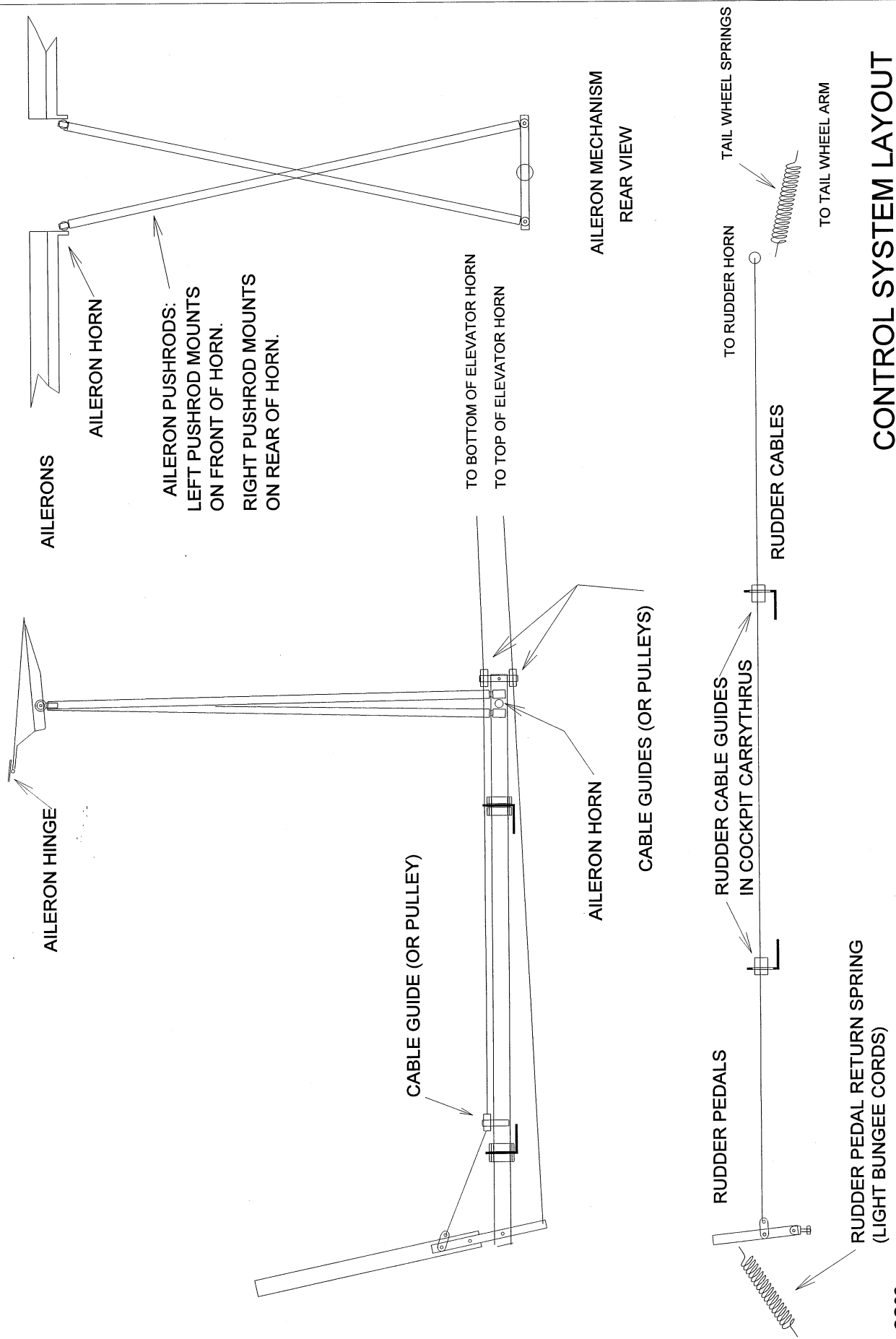
# *The Drawings*



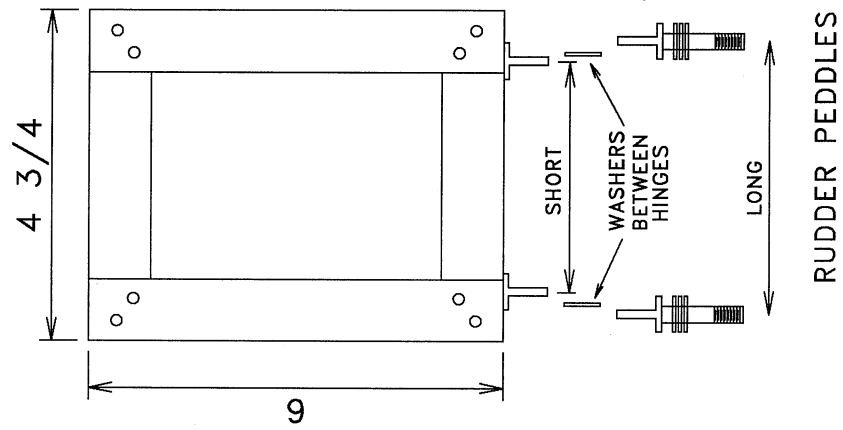


D-CS01

CONTROL SYSTEM PARTS FABRICATION

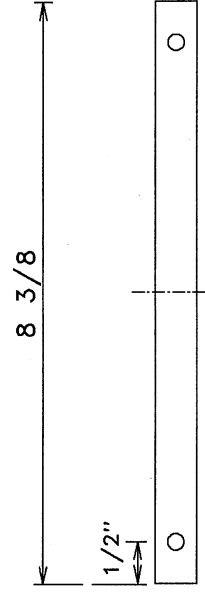


## CONTROL SYSTEM LAYOUT



TANG  
FOR  
RUDDER  
CABLES

$3 \frac{5}{8}$



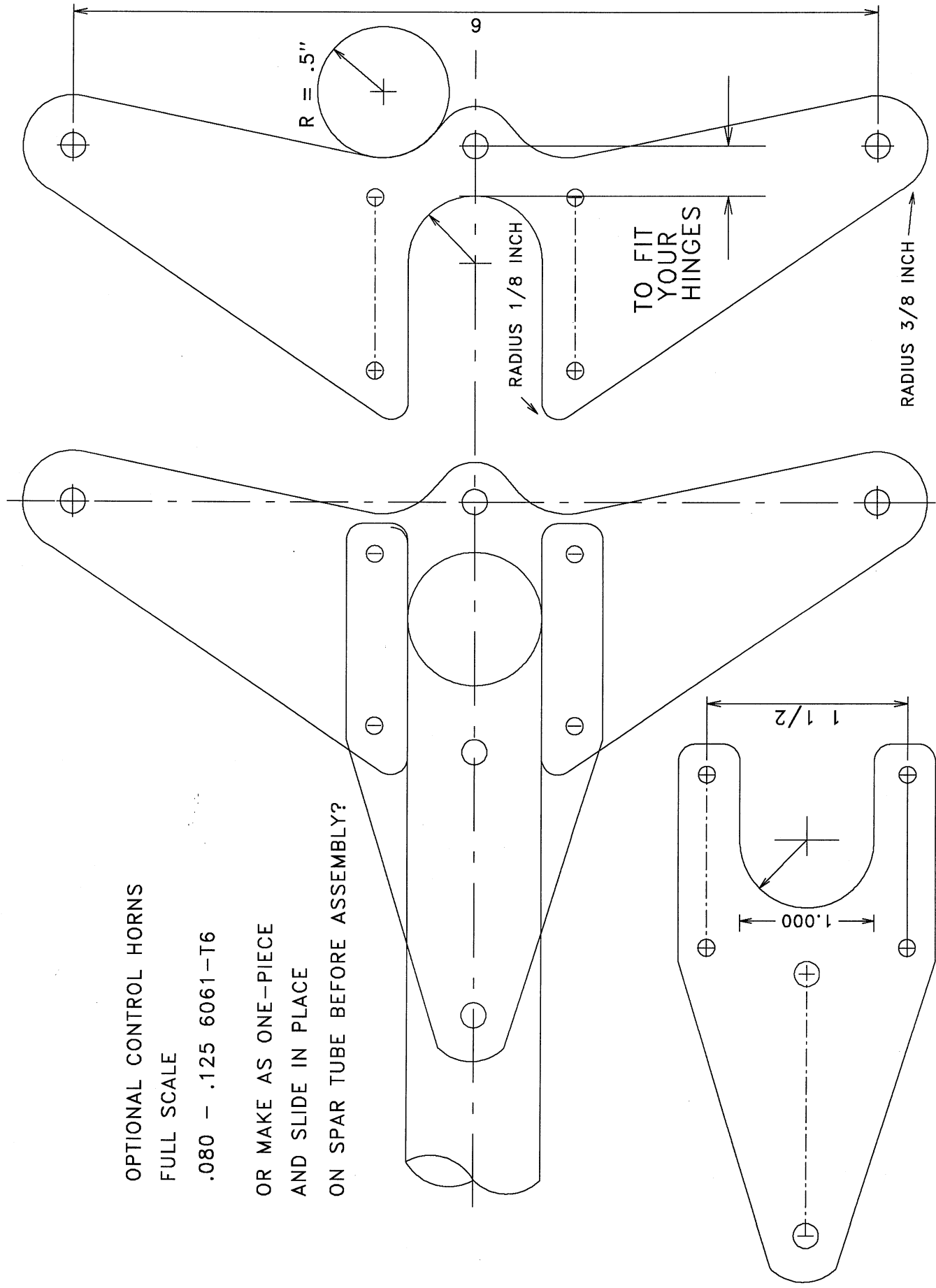
CONTROL HORNS  
(SIMPLE VERSION)  
 $1 \frac{1}{2}$ " DIA STEEL TUBE  
FOR ELEVATOR AND RUDDER  
 $1 \frac{1}{2}$ " DIA ALUM TUBE  
FOR AILERONS

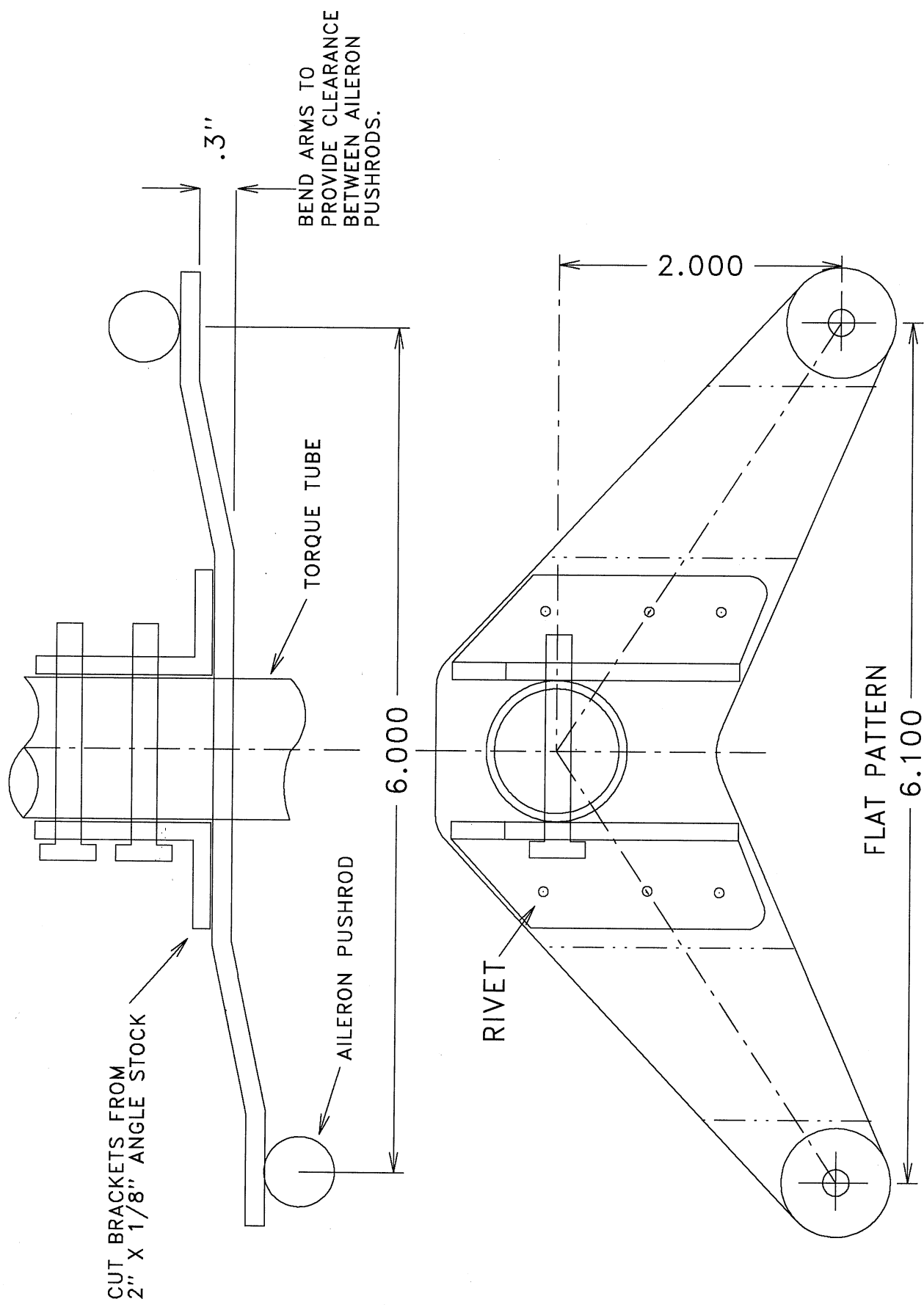
OPTIONAL CONTROL HORNS

FULL SCALE

.080 - .125 6061-T6

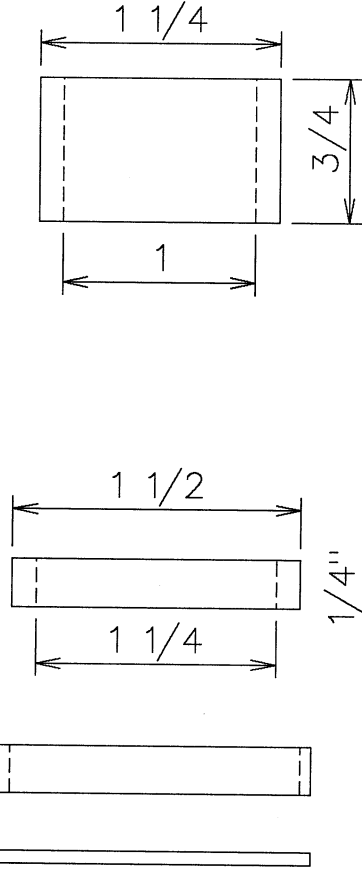
OR MAKE AS ONE-PIECE  
AND SLIDE IN PLACE  
ON SPAR TUBE BEFORE ASSEMBLY?





## TORQUE TUBE BUSHINGS

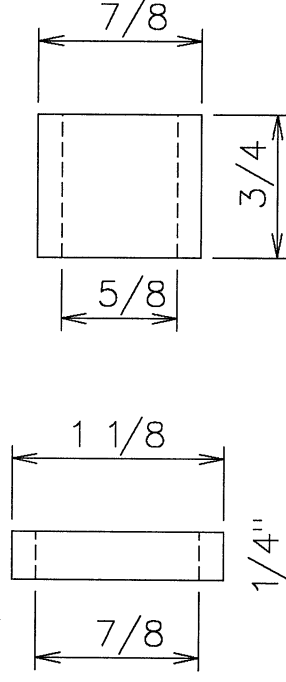
THRUST WASHERS  
1" ID MACHINE BUSHING



SAFETY RING PVC RETAINER TORQUE TUBE  
MAKE FROM 1-1/4" BUSHINGS  
1-5/8" OD PVC COUPLER  
ALUM. TUBE (4 REQUIRED)  
CUT IN HALF  
(2 REQUIRED)

- CUT OUT PARTS AND SAND ENDS SMOOTH. DEBUR AS REQUIRED.
- INSTALL TORQUE TUBE BUSHING IN COCKPIT CARRY-THROUGH (2" ANGLES).
- SLIDE TORQUE TUBE INTO BUSHINGS AND ALIGN FOR SMOOTH MOTION BEFORE GLUING RETAINERS IN PLACE.
- LEAVE TORQUE TUBE IN PLACE UNTIL DRY.

## RUDDER PEDAL FAIRLEADS

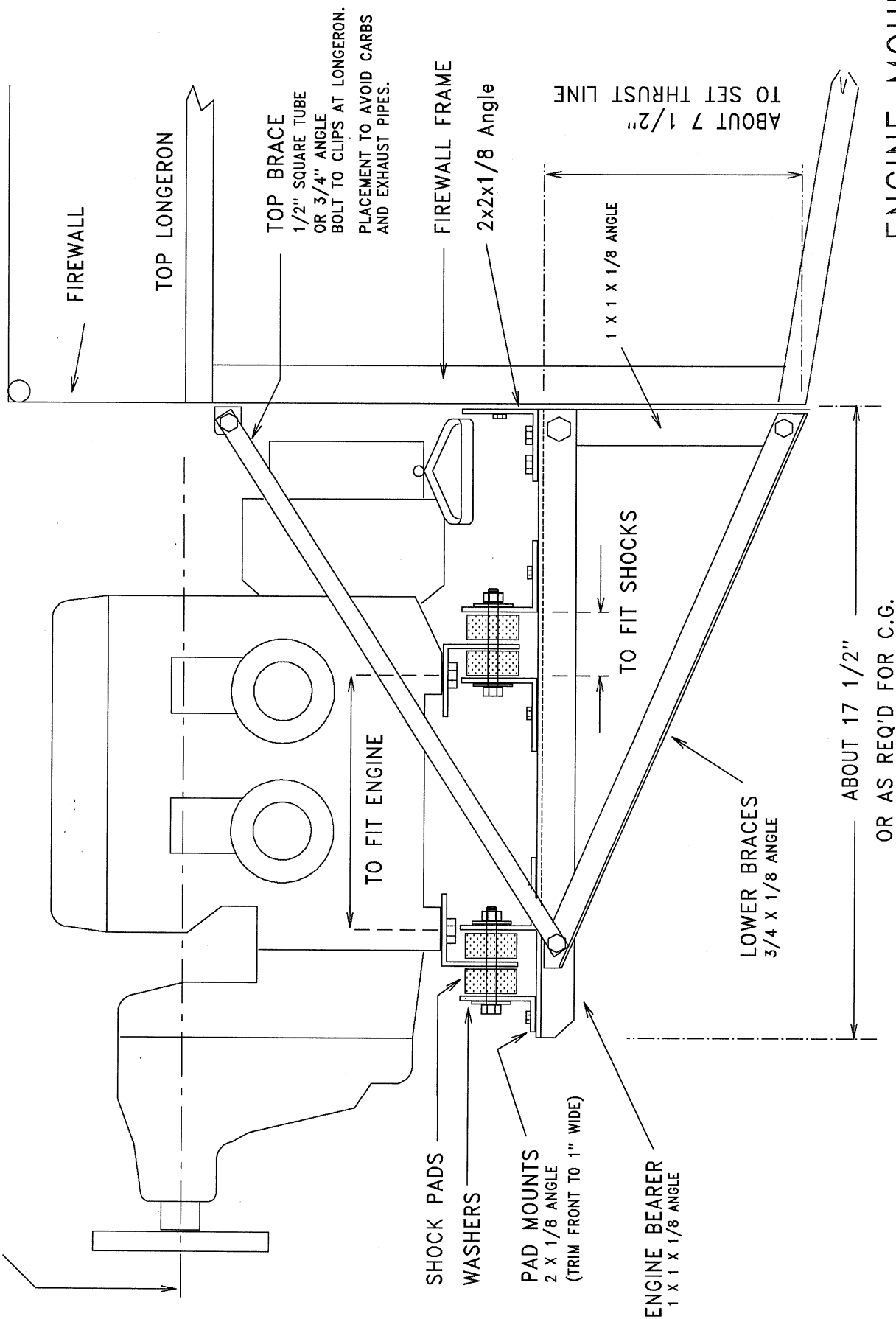


PVC RETAINER RUDDER CABLE  
MAKE FROM 1/2" FAIRLEADS  
PVC COUPLER 1/2" PVC PIPE  
(4 REQUIRED) CUT IN HALF  
(2 REQUIRED)

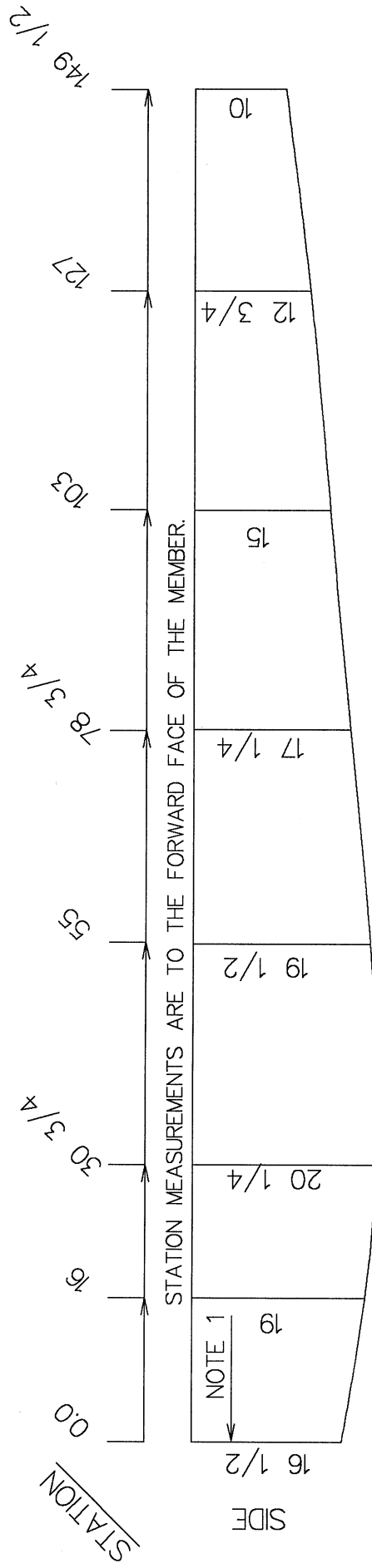
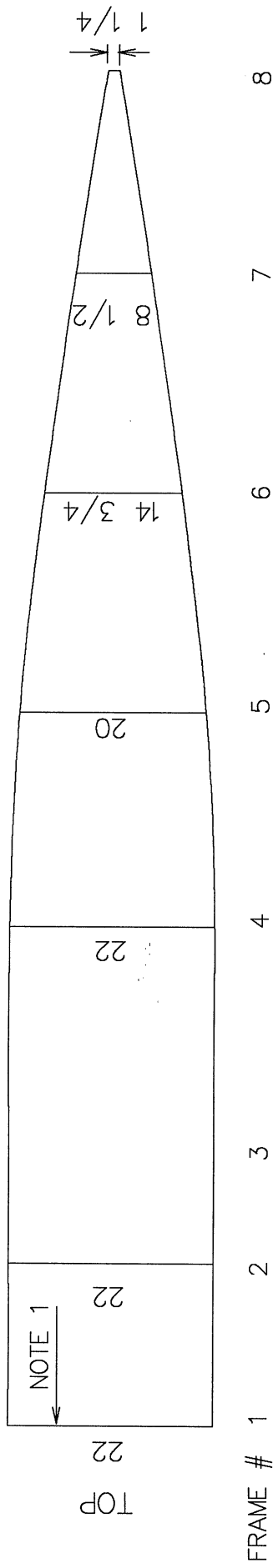
- INSTALL SAFETY RINGS AROUND PVC RETAINERS SO THAT PVC RETAINERS CAN NOT FALL OUT EVEN IF THEY CRACK OR BREAK.
- INSTALL THRUST WASHERS ON BOTH SIDES OF ONE OF THE TORQUE TUBE BUSHINGS.
- INSTALL 1-1/8 X .058 ALUM TUBE RETAINERS WITH LONG COTTER PINS OR BOLTS.



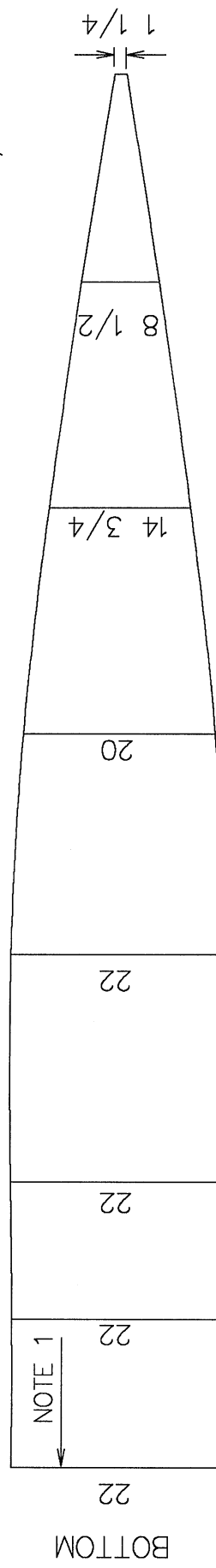
THRUST LINE SHOULD BE ABOUT LEVEL WITH TOP LONGERON

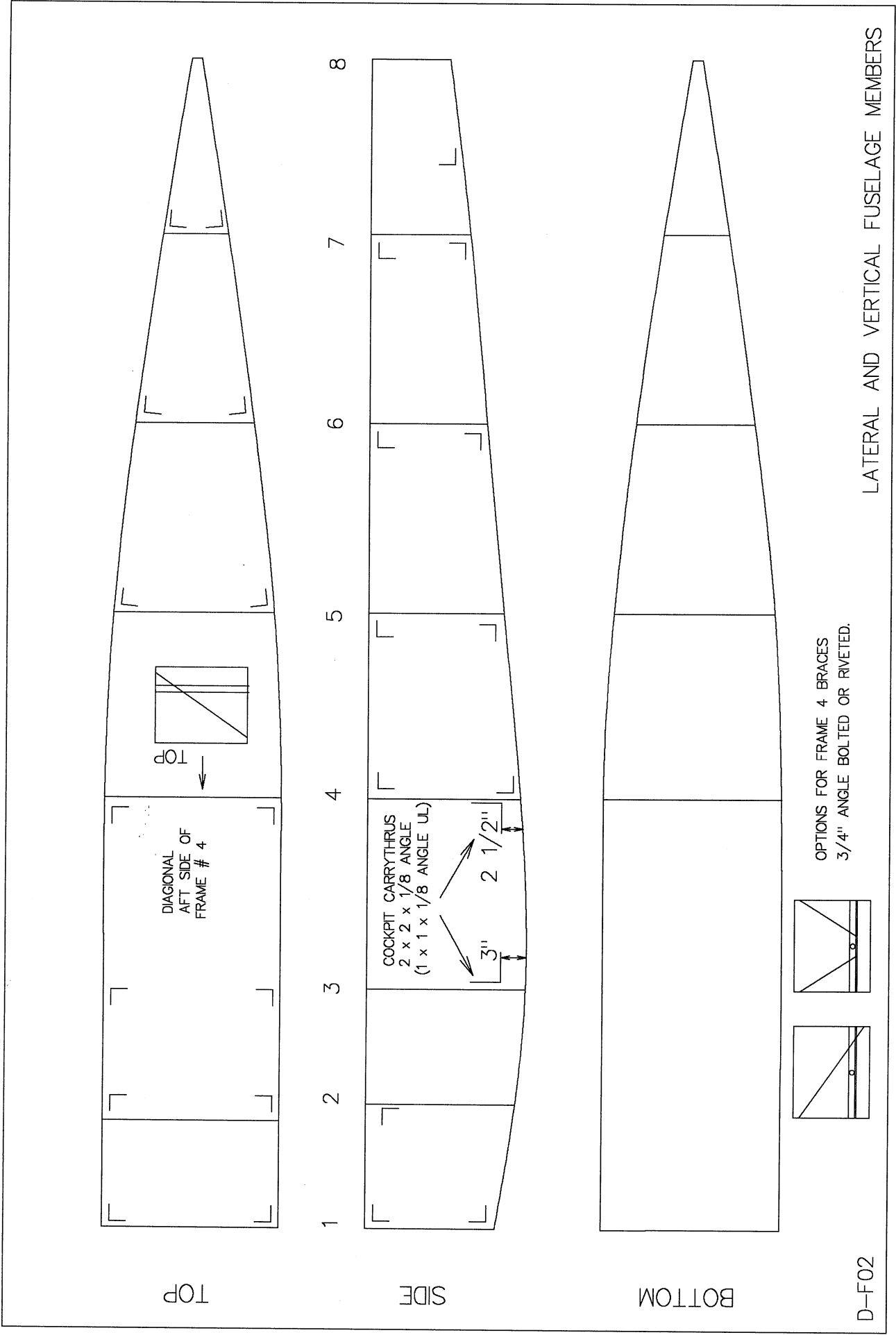


# ENGINE MOUNT 2-STROKE



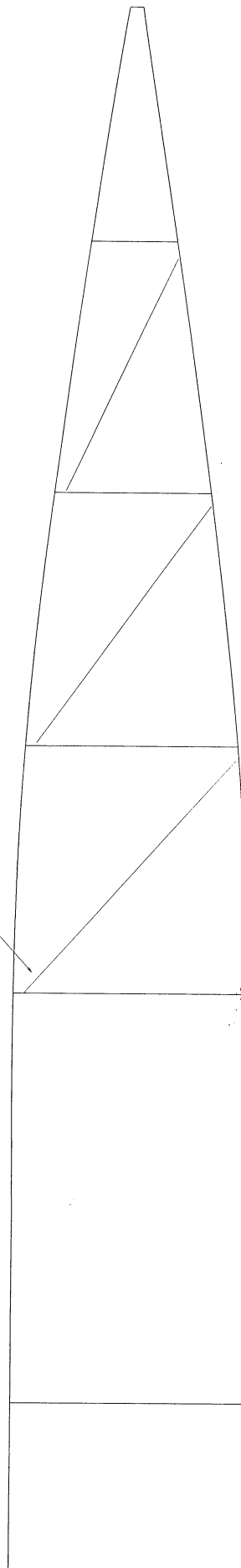
WIDTH MEASUREMENTS ARE TO OUTSIDE EDGE OF LONGERONS





LATERAL AND VERTICAL FUSELAGE MEMBERS

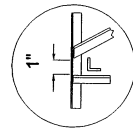
CONNECTS TO CROSS MEMBERS



TOP

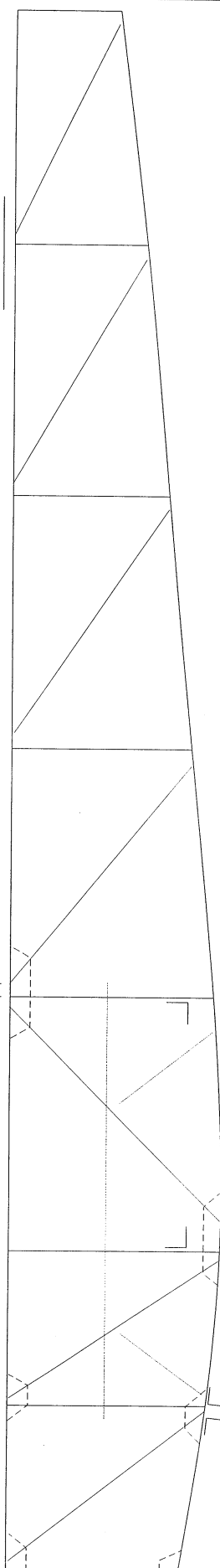
ALL DIAGONALS ON THE SIDE TRUSSES  
ARE INSTALLED WITH THE FLANGE OF  
THE ANGLE FACING DOWN.

CONNECTS TO LONGERON



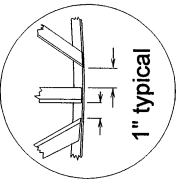
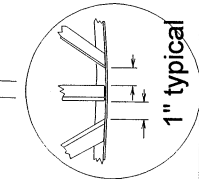
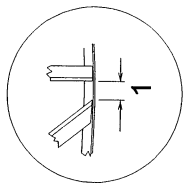
GUSSETS  
SHOWN  
DOTTED

1"

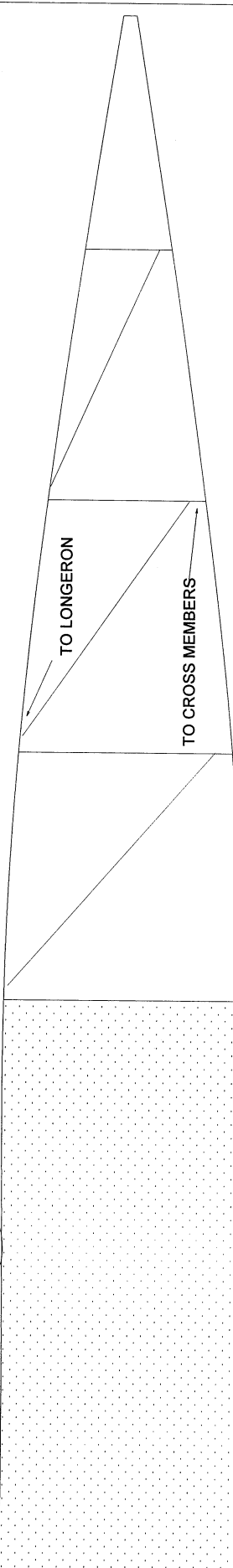


SIDE

ROOM FOR BOLTS THAT ATTACH THE CROSS BARS UNDER THE FLOOR.  
ON ASSEMBLY, MAKE SURE THAT THE DESIRED BOLT LOCATIONS  
ARE NOT OBSTRUCTED BY SIDE STRUCTURE.  
LOCATE CROSS BARS (FOR GEAR AND STRUTS)  
SO THAT BOLT LOCATIONS ARE CLEAR.



BOTTOM



TO LONGERON

TO CROSS MEMBERS

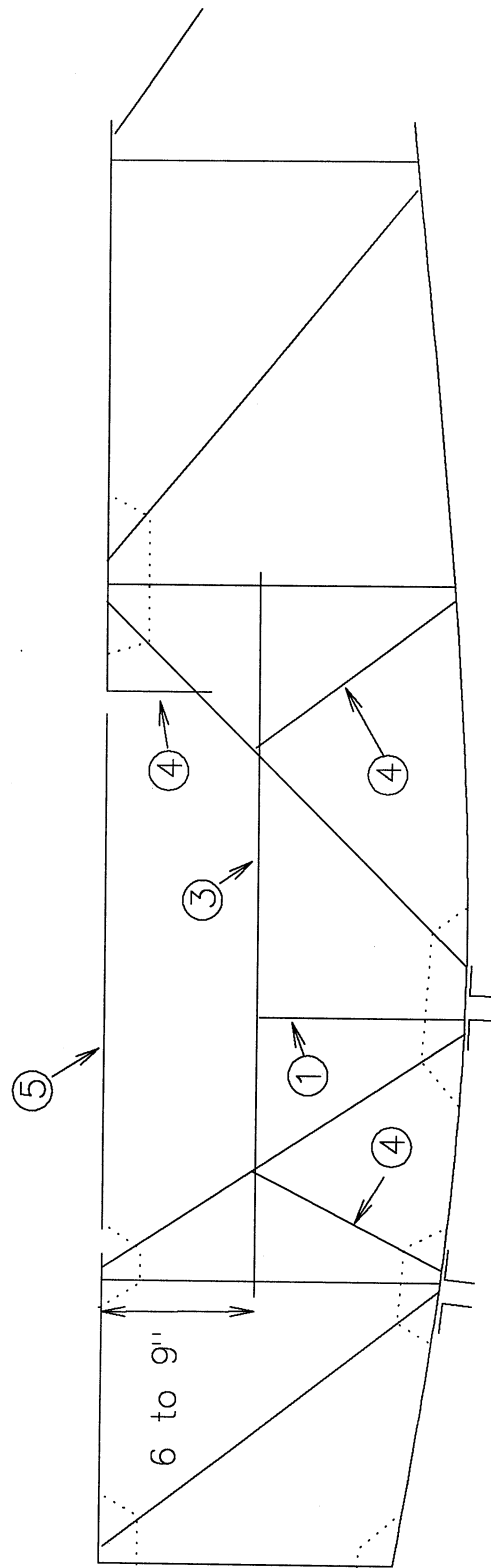
TOP AND BOTTOM VIEW ARE SEEN FROM THE TOP!

D-F03

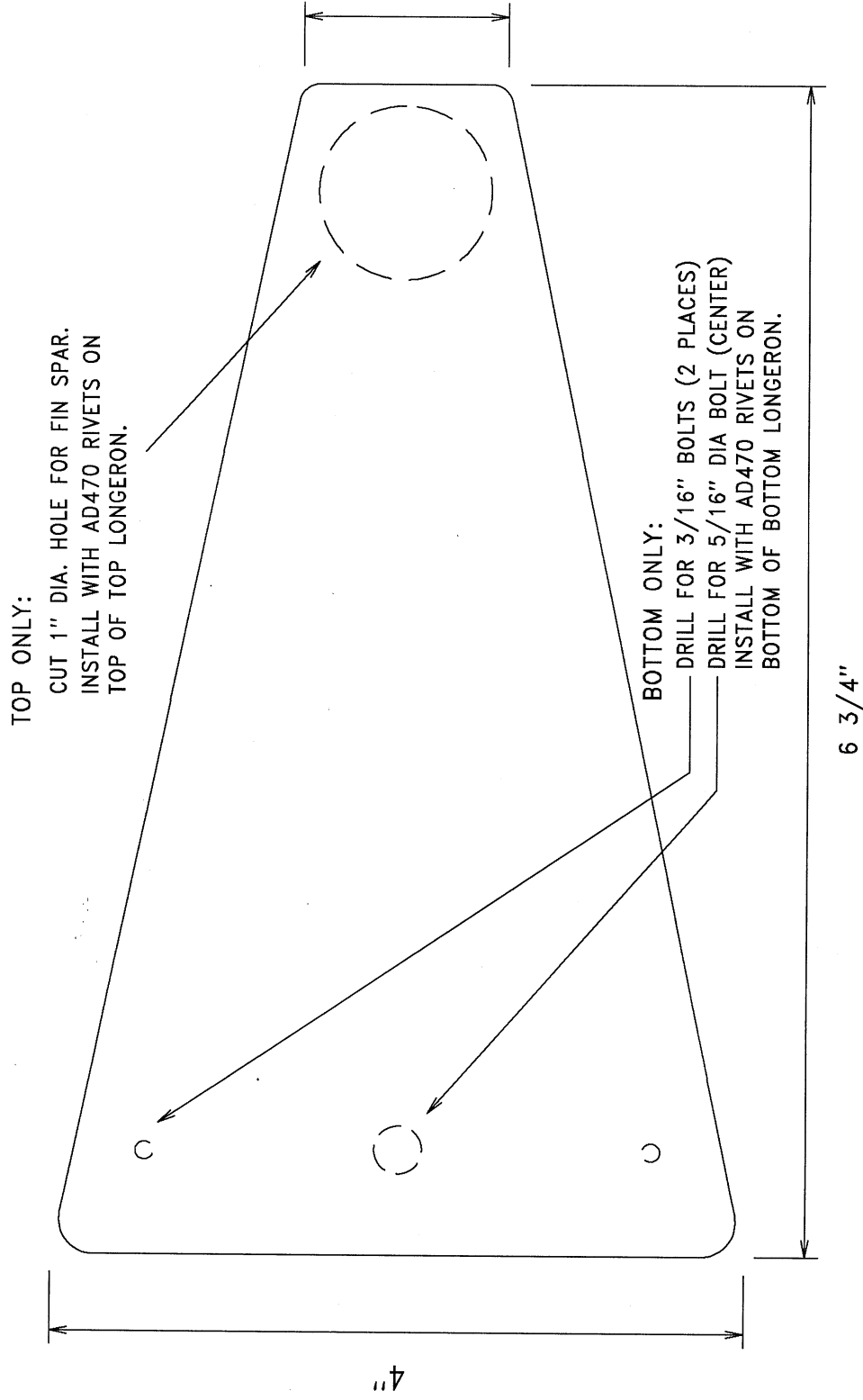
LAYOUT OF DIAGONAL FUSELAGE MEMBERS



THIS PART VIEWED FROM "TOP"

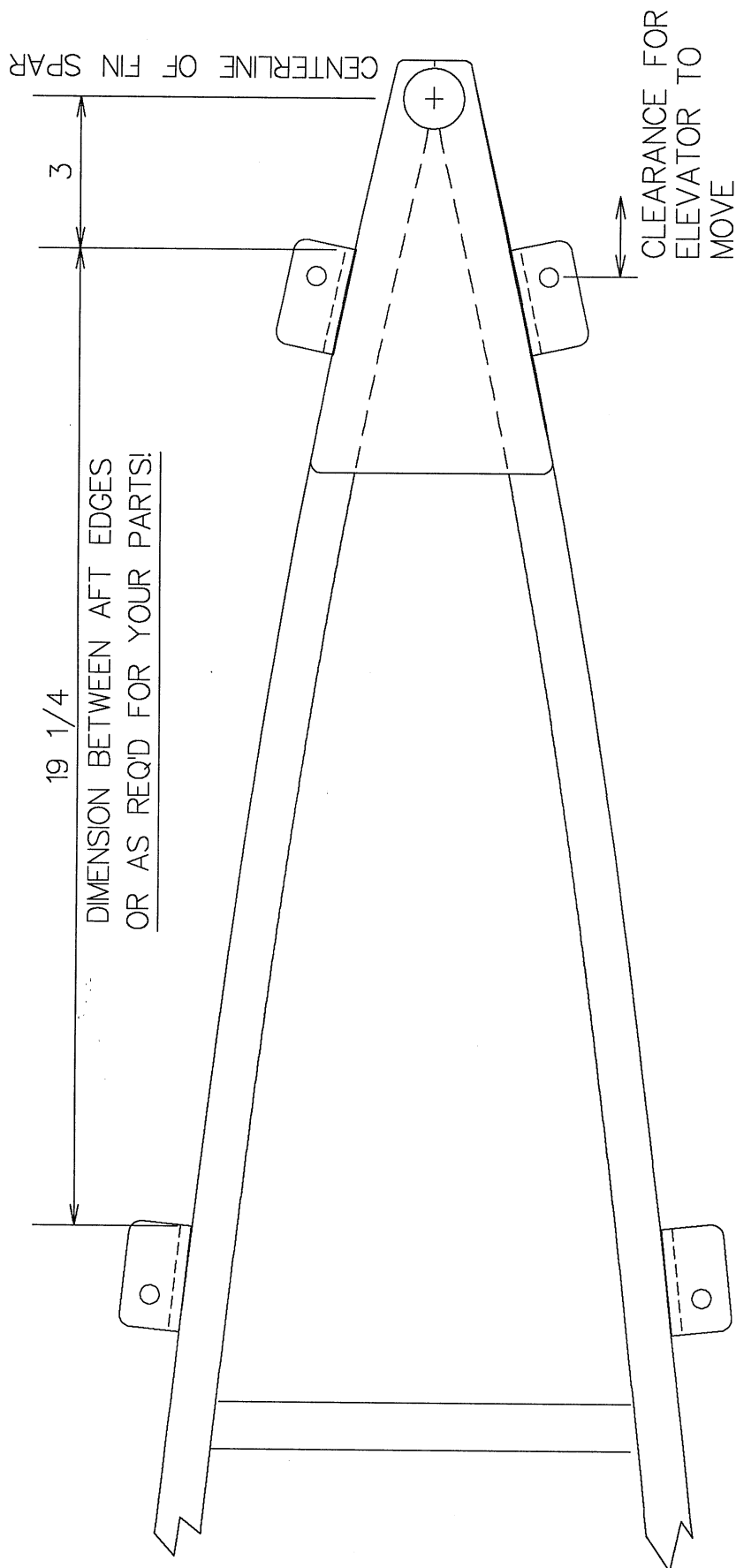


1. TRIM VERTICAL AT FRAME 3 TO LENGTH (REMEMBER OVERLAPS!).
2. MAKE DOOR SILL PIECE. NOTCH OUT FOR EXISTING MEMBERS.
3. INSTALL DOOR SILL WITH AD470 RIVETS.
4. MAKE AND INSTALL DIAGONAL BRACES.
5. CUT OUT TOP LONGERON.



.080 TO .125 6061-T6  
 2 REQUIRED

TAILPOST PLATES ☐



MOUNT TABS ARE CUT FROM 1" X 1/8" ANGLE  
RIVET TO OUTSIDE OF TOP LONGERON

TOP VIEW OF END OF FUSELAGE  
NOTE ORIENTATION OF STAB MOUNTS

STABILIZER MOUNTS ☐

FRAME 3 - LOWER  
2 REQ'D

MAKE GUSSETS FROM .050 - .063 6061-T6

FRAME 1 - TOP  
2 REQ'D

FRAME 1 - LOWER  
2 REQ'D

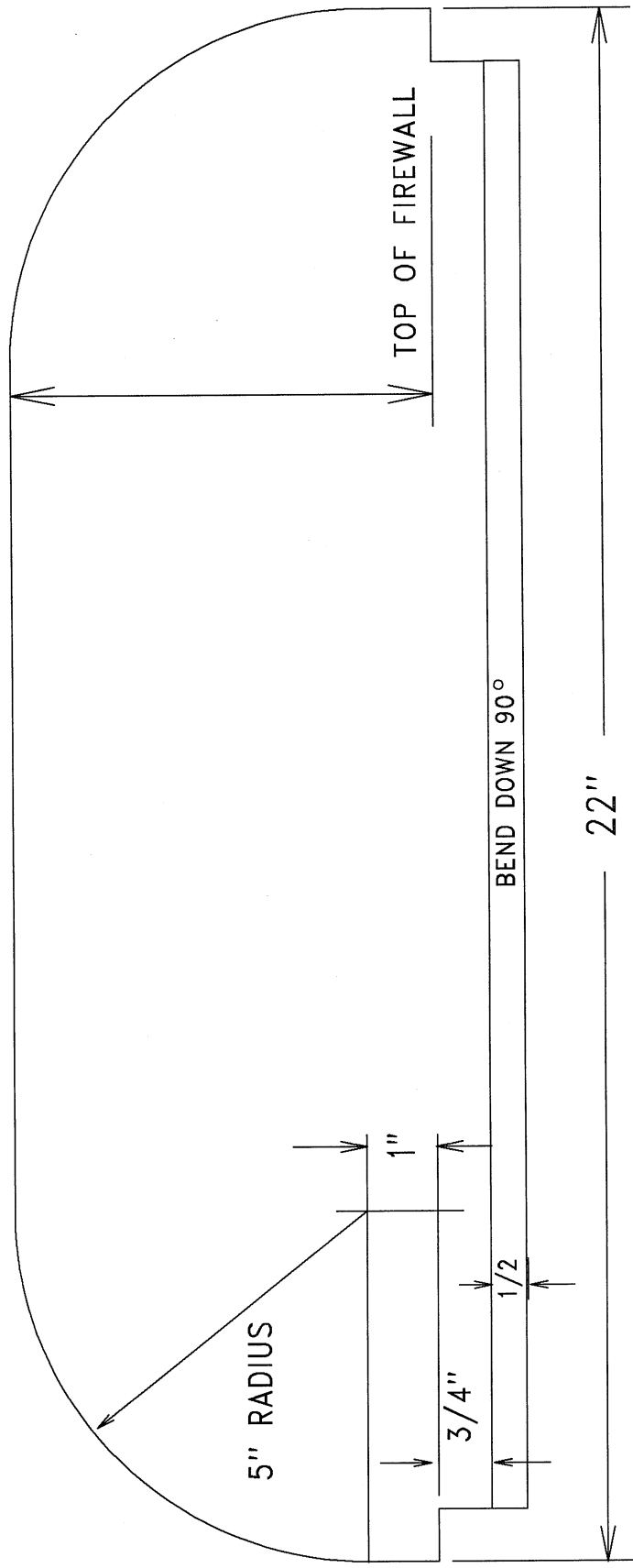
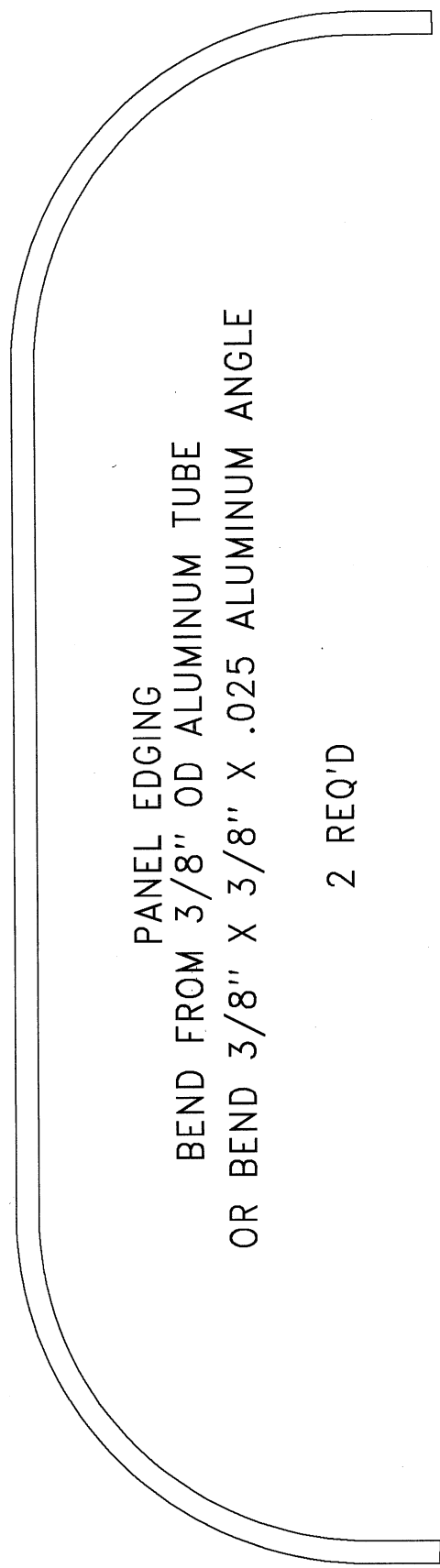


MAKE THIS PATTERN 12 INCHES LONG

FRAME 4 - TOP  
2 REQ'D

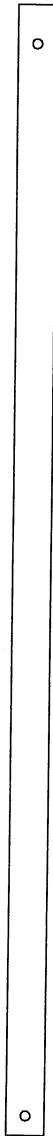
FRAME 2  
LEFT SIDE - TOP AND BOTTOM  
FULL SIZE PATTERN  
RIGHT SIDE - BOTTOM ONLY

FRAME 2  
TOP - RIGHT SIDE ONLY  
REDUCED PATTERN  
(FRONT OF DOOR CUT-OUT)



OR TO FIT YOUR AIRFRAME





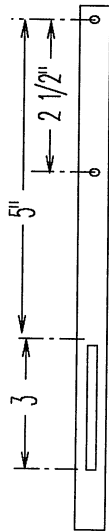
LG1

FORE LEG (2 REQ'D)  
21" LONG 1" OD X .125 WALL



LG2

AFT LEG (2 REQ'D)  
24 1/2" LONG 1" OD X .125 WALL



LG3

INNER SLIDER TUBE (2 REQ'D)  
10" LONG 7/8" OD X .058 WALL

CUT SLOT 5/16" WIDE X 3" LONG BOTH SIDES



LG4

TOP END STOP (2 REQ'D)  
4" LONG 1" OD X .058 WALL



LG5

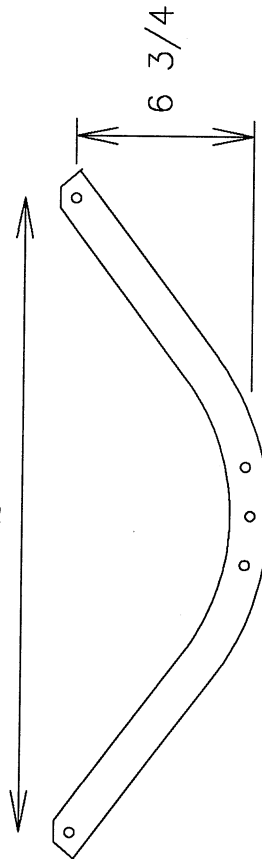
OUTTER SLIDER TUBE (2 REQ'D)  
17 - 18" LONG 1" OD X .058 WALL



LG6

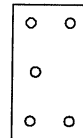
INNER DOUBLER (2 REQ'D)  
3" LONG 7/8" OD X .058 WALL 6061-T6

16



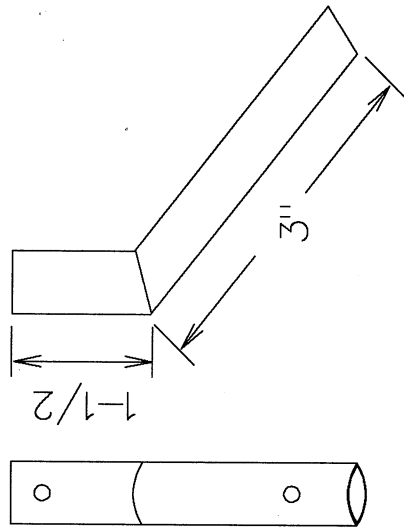
LG7

CENTER "V" TUBE (1 REQ'D)  
1" OD X .125 6061-T6 (ABOUT 19" LONG)  
\* BEND ON 6" RADIUS  
\* TRIM ENDS AS SHOWN  
\* DRILL 3/16" - 3 PLACES  
\* DRILL 1/4" AT ENDS - 2 PLACES

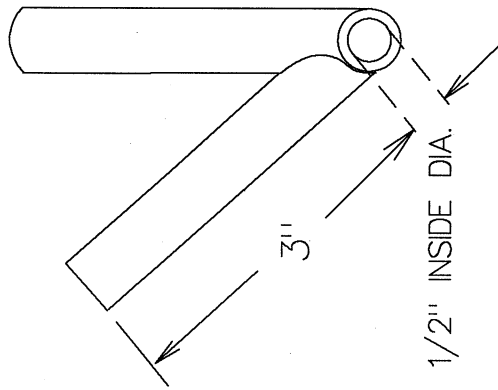


LG8

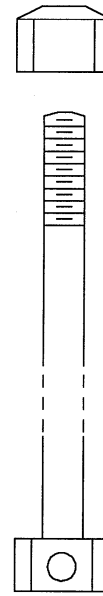
MOUNT PLATES (2 REQ'D)  
2" X 4" .100 6061-T6  
\* DRILL 3/16" - 5 PLACES



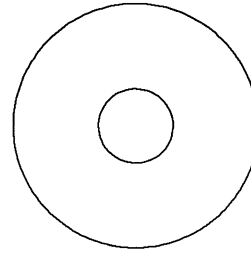
REAR LEG CLUSTER  
3/4" OD 1/8" WALL MILD STEEL PIPE  
FISHMOUTH FOR CLOSE FIT BEFORE WELDING



AXLE CLUSTER  
3/4" OD X 1/8" WALL MILD STEEL PIPE  
FISHMOUTH FOR CLOSE FIT BEFORE WELDING



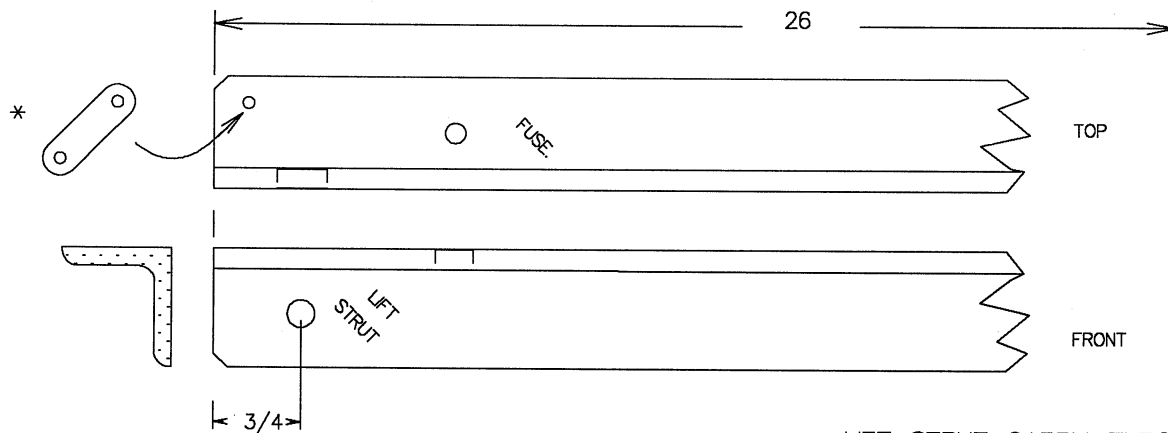
AXLE BOLT  
1/2" DIA. GRADE 9 BOLT AND LOCK NUT  
6-1/2 TO 7" LONG - DEPENDING ON WHEELS  
DRILL HEAD FOR 3/16" DIA. BOLT.



WHEEL RETAINERS  
1/2" ID STEEL WASHERS  
4 REQ'D

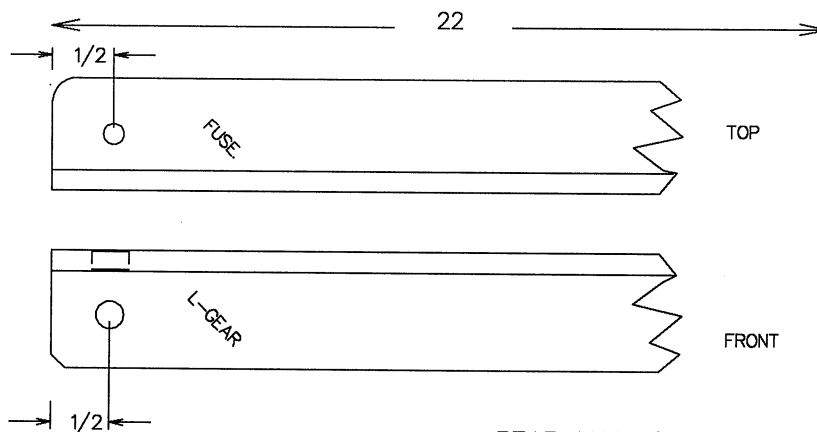


BEARING SPACER  
5/8" OD X 1/2" ID  
THIN WALL STEEL TUBING  
LENGTH TO MATCH WHEEL HUB.



LIFT STRUT CARRY-THROUGHS

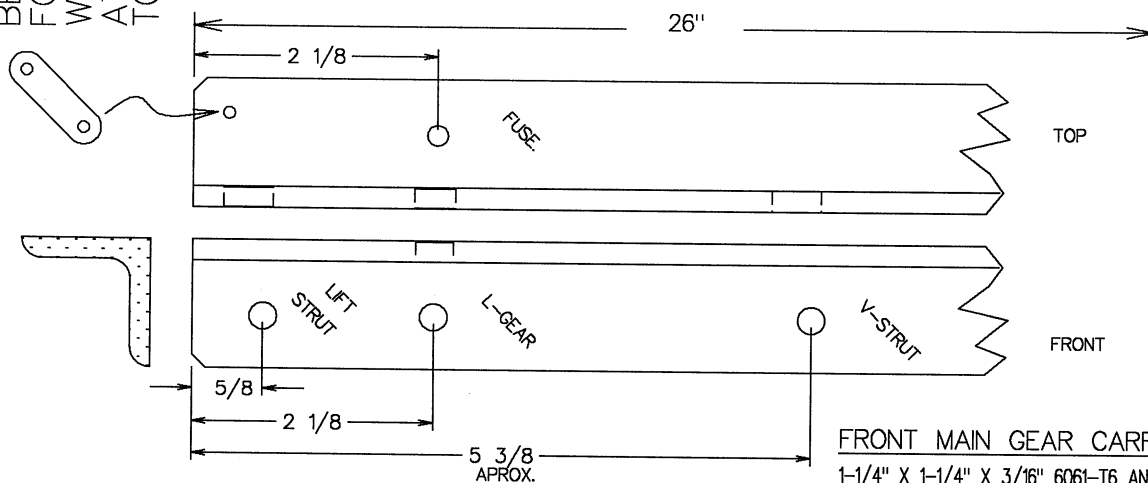
1" X 1" X 1/8" 6061-T6 ANGLE  
2 REQD FOR 2 STROKE ENGINES  
4 REQD FOR 4 STROKE ENGINES



REAR MAIN GEAR CARRY-THRU

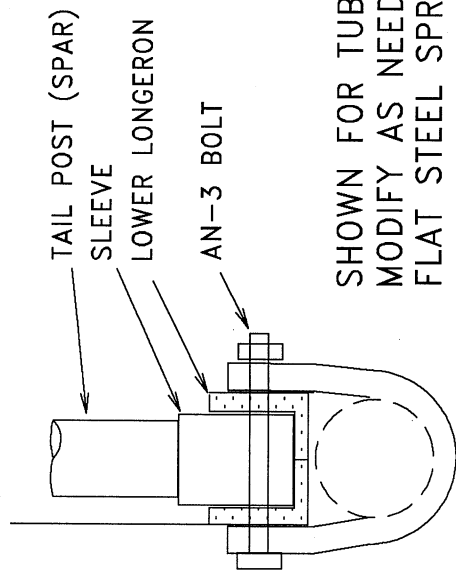
1" X 1" X 1/8" 6061-T6 ANGLE  
2 REQD

\*  
BENT TANGS  
FOR "X" BRACE  
WIRES  
ATTACH TO  
TOPS

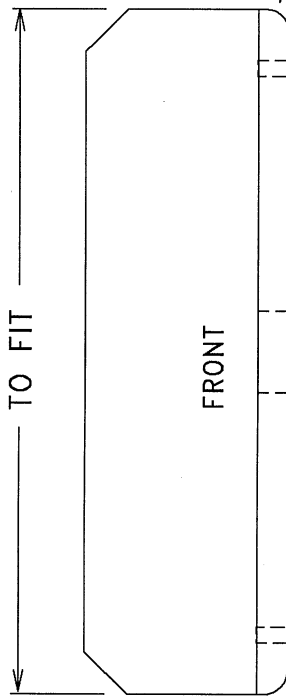


FRONT MAIN GEAR CARRY-THRU

1-1/4" X 1-1/4" X 3/16" 6061-T6 ANGLE  
2 REQUIRED

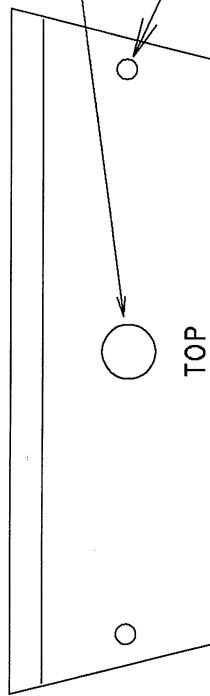


TAIL WHEEL LEG "U" BRACKET  
1-1/4" X 3/16" 6061-T6 ANGLE  
1 REQUIRED  
3/8" OD STEEL ROD  
1 X .1 STEEL STRAP



TAIL WHEEL LEG BRACKET  
1-12" X 1-1/2" X 3/16" 6061-T6 ANGLE  
1 REQUIRED

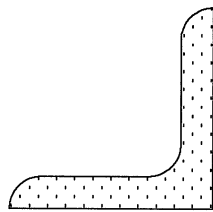
CHAMFER LOWER EDGES



DRILL FOR 5/16" DIA BOLT  
TRIM ANGLE OF SIDES TO MATCH  
LONGERONS ON ASSEMBLY.

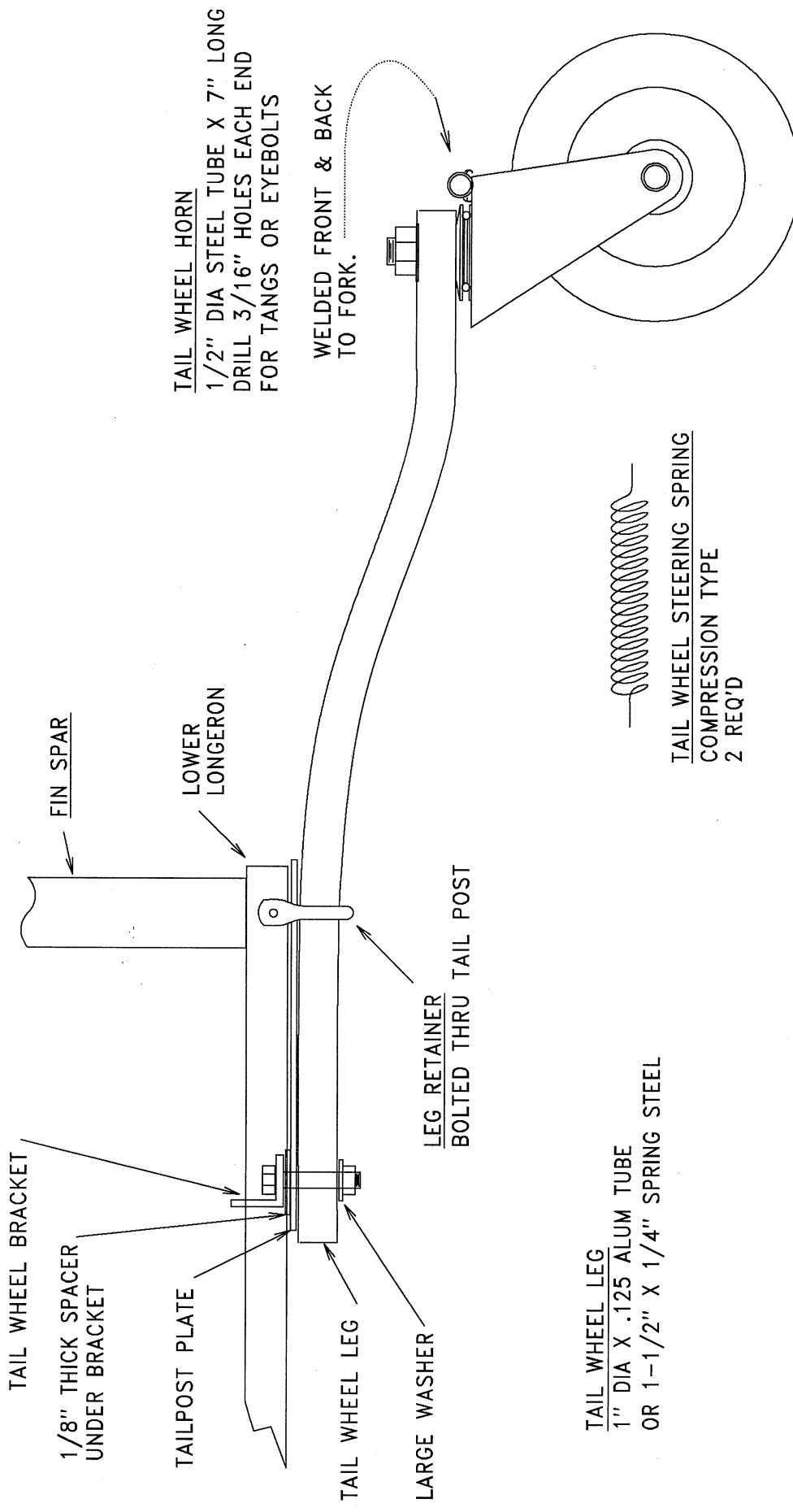
DRILL 3/16" TO MATCH TAILPOST PLATE.

BOLT THRU ANGLE, LONGERON, TAILWHEEL PLATE,  
AND BRACE WIRE TANG.



1/8" THICK SPACER  
OR 1/8" THICK WASHER  
BETWEEN BRACKET  
AND TAILPOST PLATE.


TAIL WHEEL LEG BRACKET ☐



TAIL WHEEL HORN  
 1/2" DIA STEEL TUBE X 7" LONG  
 DRILL 3/16" HOLES EACH END  
 FOR TANGS OR EYEBOLTS

WELDED FRONT & BACK  
 TO FORK.

TAIL WHEEL LEG  
 1" DIA X .125 ALUM TUBE  
 OR 1-1/2" X 1/4" SPRING STEEL

  
TAIL WHEEL STEERING SPRING  
 COMPRESSION TYPE  
 2 REQ'D



WHEEL BEARINGS  
FOR 5/8" AXLE

WIDTH OF WHEEL HUB

1/2" FINE THREAD LOCK NUT  
LARGE THRUST WASHERS

AXLE SPACER  
5/8" OD X .049 WALL  
THIN WALL STEEL TUBE  
ALLOWS AXLE BOLT TO TIGHTEN  
WITHOUT DRAGGING WHEEL BEARINGS.

AXLE CLUSTER  
7/8" OD X 1/2" ID  
HEAVY WALL STEEL PIPE  
\* LENGTH TO FIT YOUR ASSEMBLY

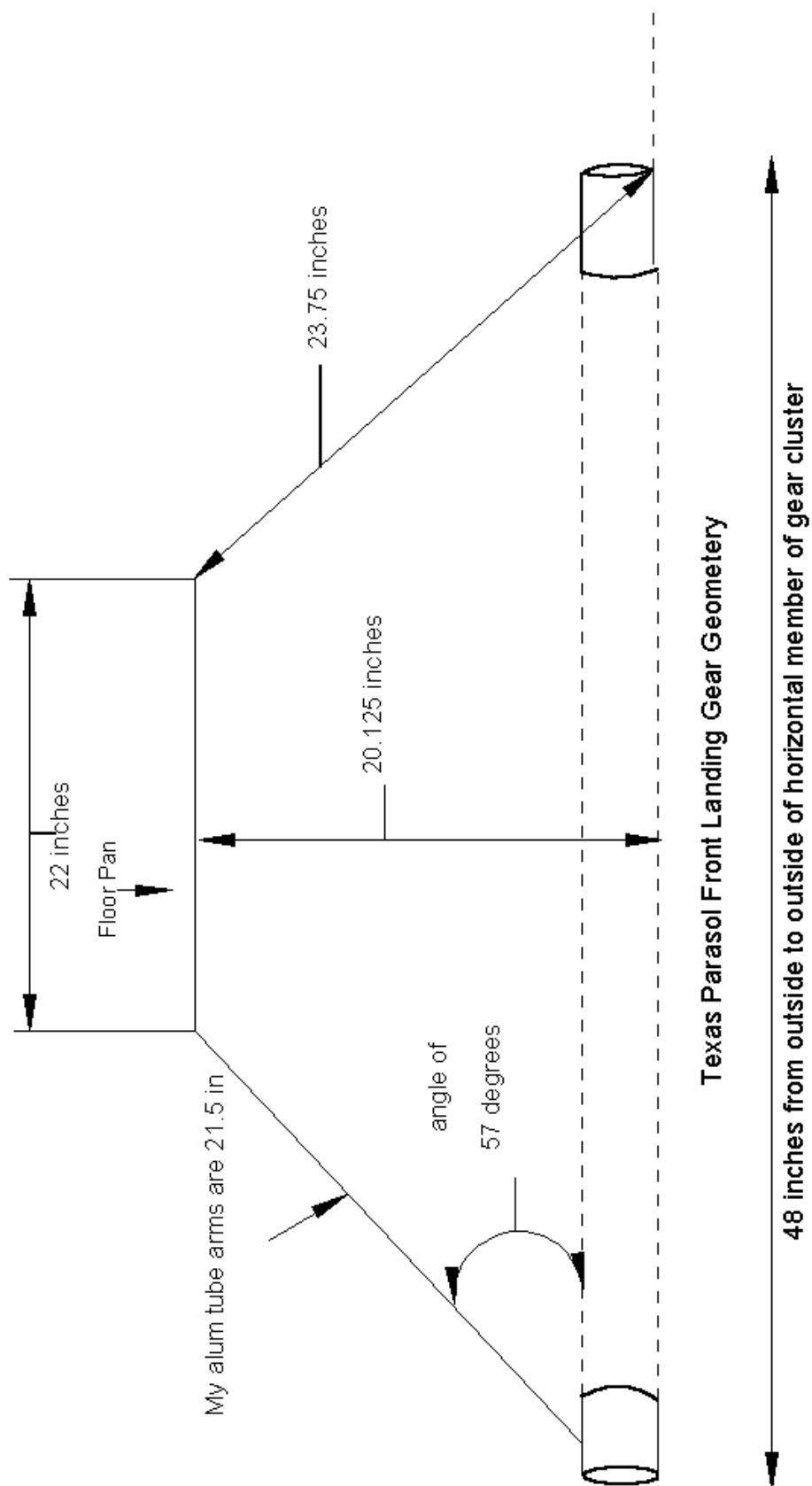
MAIN GEAR LEG  
1" OD X .120 6061-T6 TUBE

AXLE BOLT  
1/2" DIA GRADE 9 (L9)  
FINE THREAD TO FIT YOUR ASSEMBLY

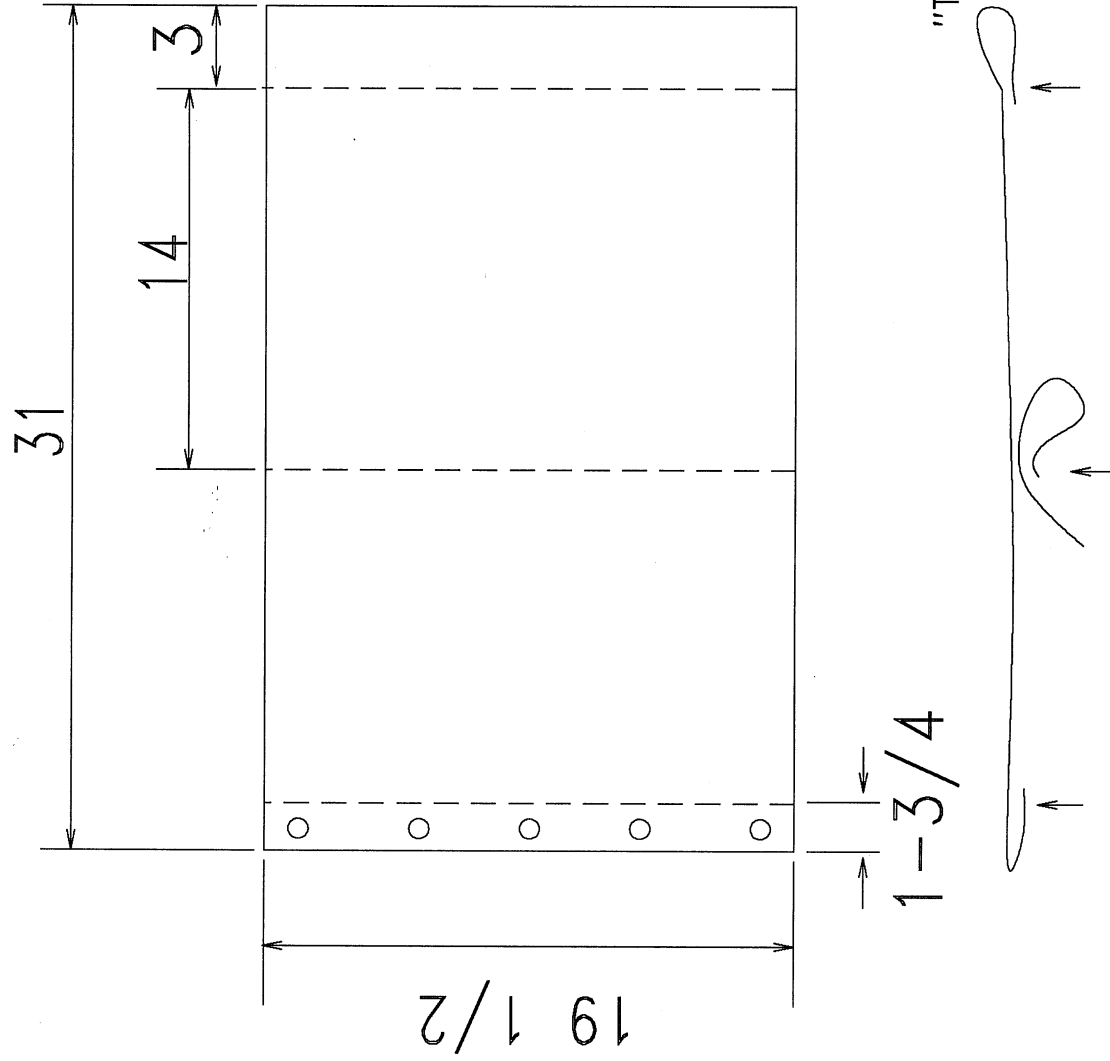
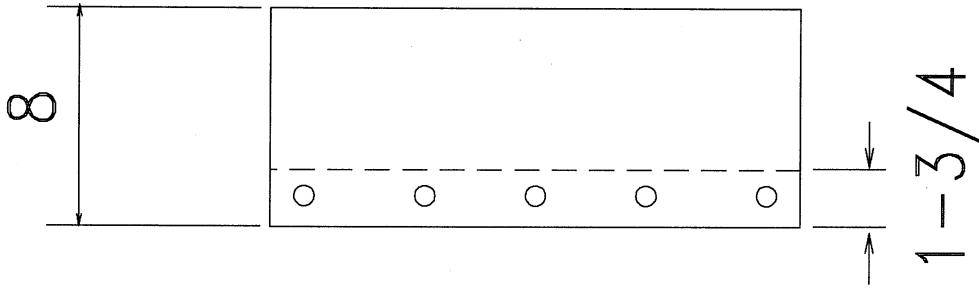
LOWER SLIDER TUBE  
1" OD X .038 6061-T6 TUBE

STAINLESS STEEL TANG  
CONNECTS AXLE BOLT TO SLIDER

# AXLE AND BEARING ASSEMBLY



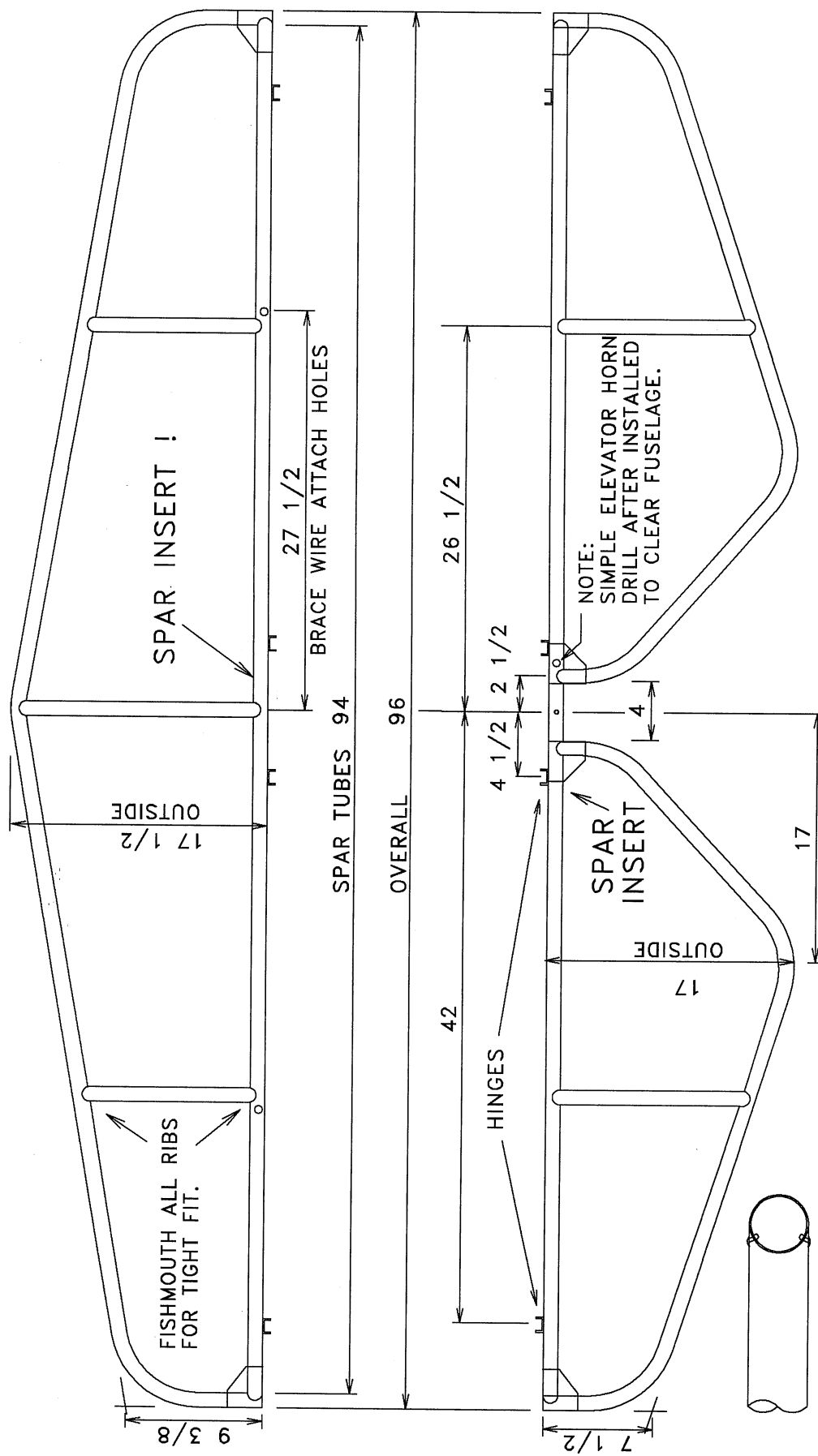
Drawing courtesy of Al Robinson



MAKE FROM 8 TO 10 OUNCE DUCK  
 SEW SEAMS AS SHOWN AT ARROWS.  
 ADD BRASS GROMMETS

CLOTH "SLING" SEAT

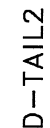
D-SEAT



BENT TUBES ARE 1" X .049 6061-T6  
 BEND RADIUS = 6"  
 STRAIGHT TUBES ARE 1" X .058 6061-T6  
 FISH-MOUTH MATING TUBES FOR TIGHT FIT.

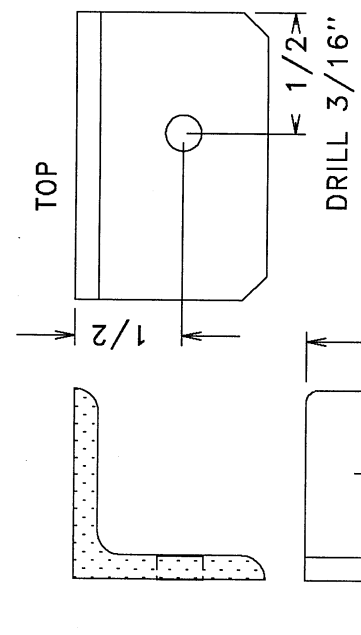
12

TAIL SPAR INSERTS  
 7/8" X .058 6061-T6 TUBE  
 2 REQUIRED

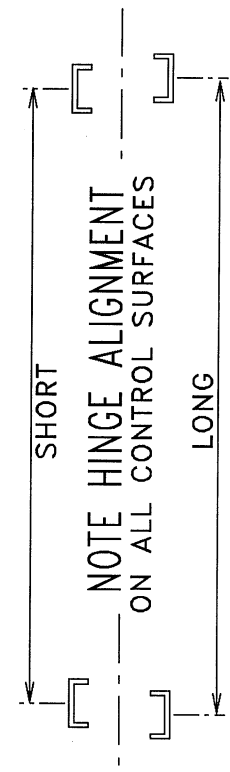
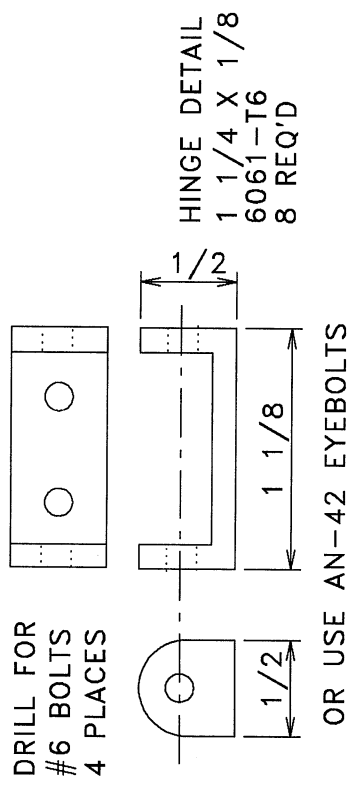


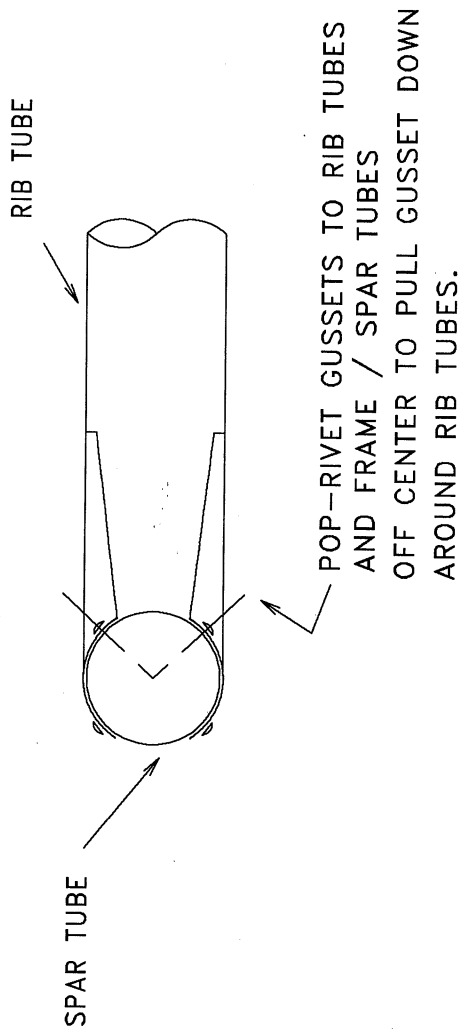
BENT TUBES ARE 1" OD. X .049 WALL 6061-T6  
STRAIGHT TUBES ARE 1" OD X .058 WALL 6061-T6

## FIN and RUDDER LAYOUT



STAB MOUNT BRACKET  
 1" X 1 1/8" 6061-T6  
 4 REQUIRED  
 DRILL 1/8" (2 PLACES)

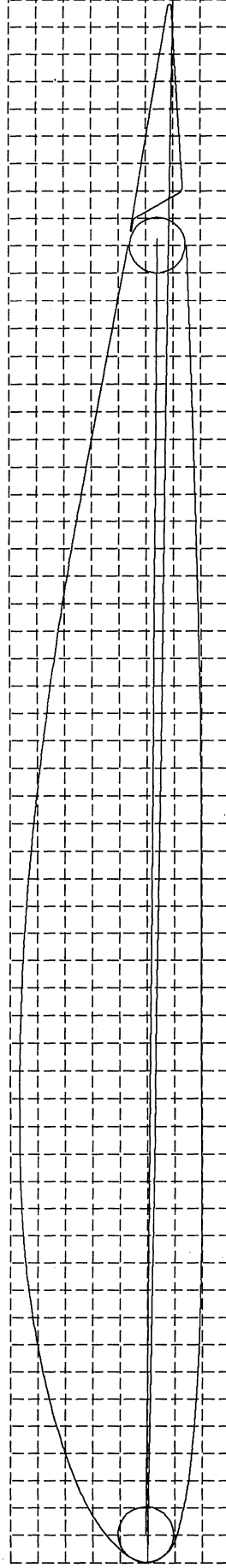




# TAIL GUSSETS

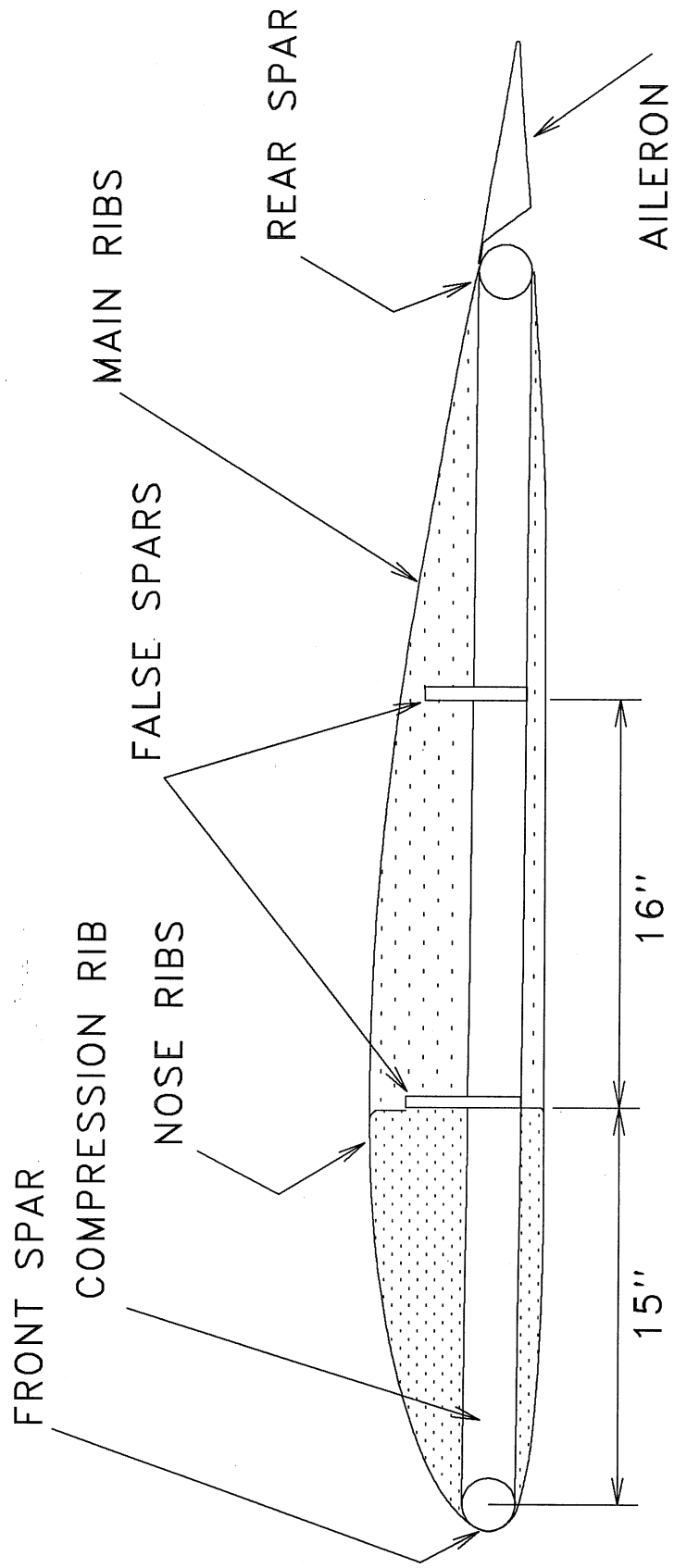
.025 6061-T6

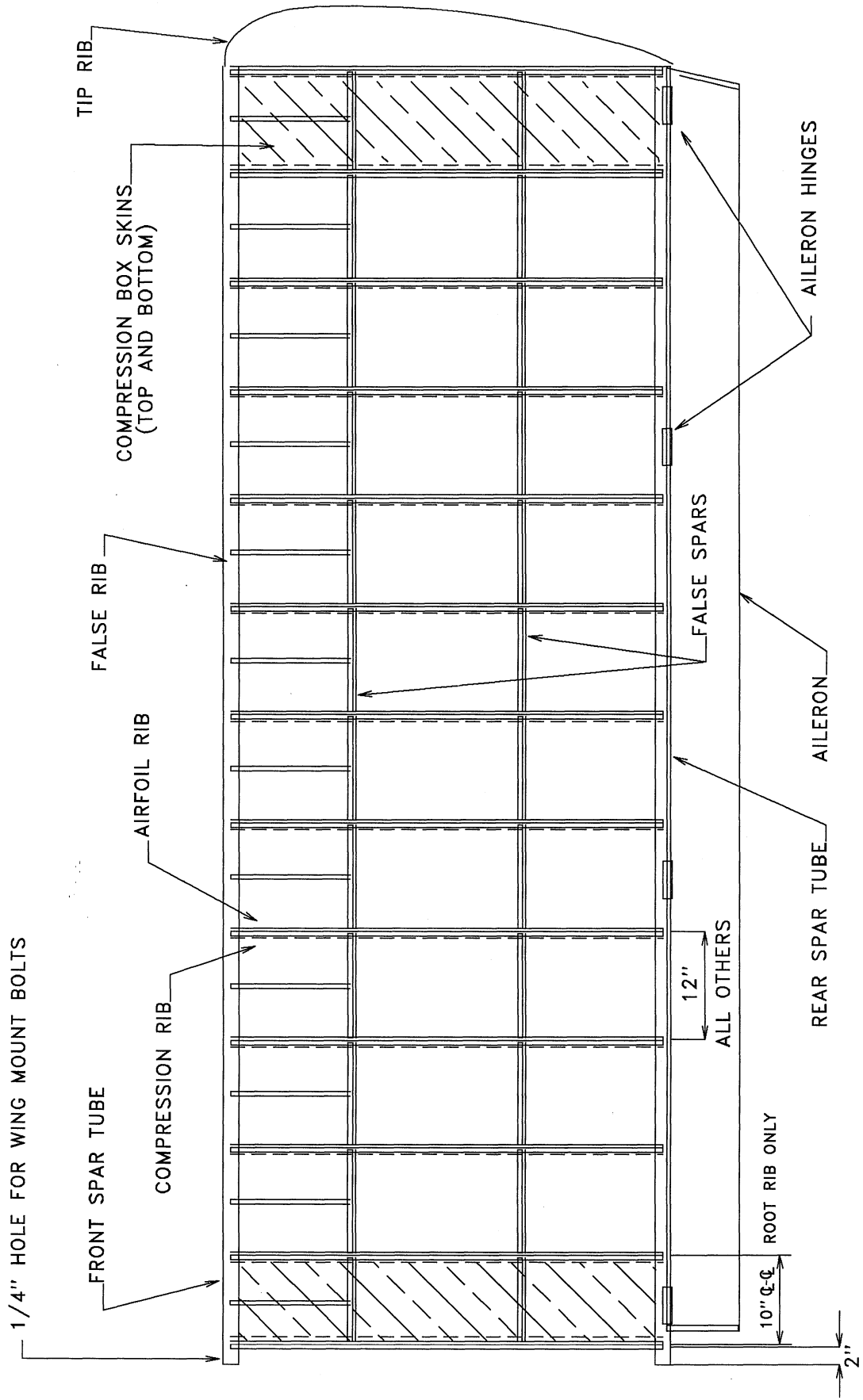
STABILIZER	2 REDQ'D
ELEVATOR	4 REDQ'D
FIN	1 REDQ'D
RUDDER	2 REDQ'D



SQUARES ARE 1" EACH  
SPAR CENTER TO CENTER IS 47"  
OVERALL CHORD IS 57"





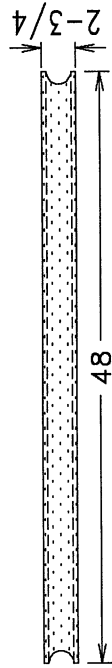


D-WING2

BASIC WING LAYOUT - PLANFORM



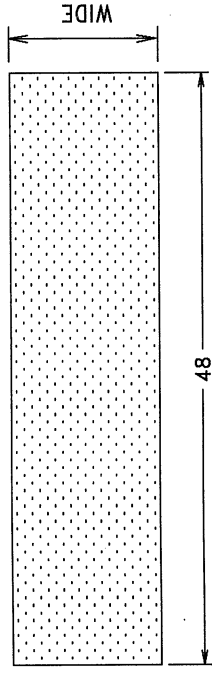
## SHEET PARTS



COMPRESSION RIBS .025 6061-T6 SHEET

30 REQUIRED

CUT ENDS FOR 2" OD SPAR TUBE  
BEND FLANGES UP 90 DEGREES

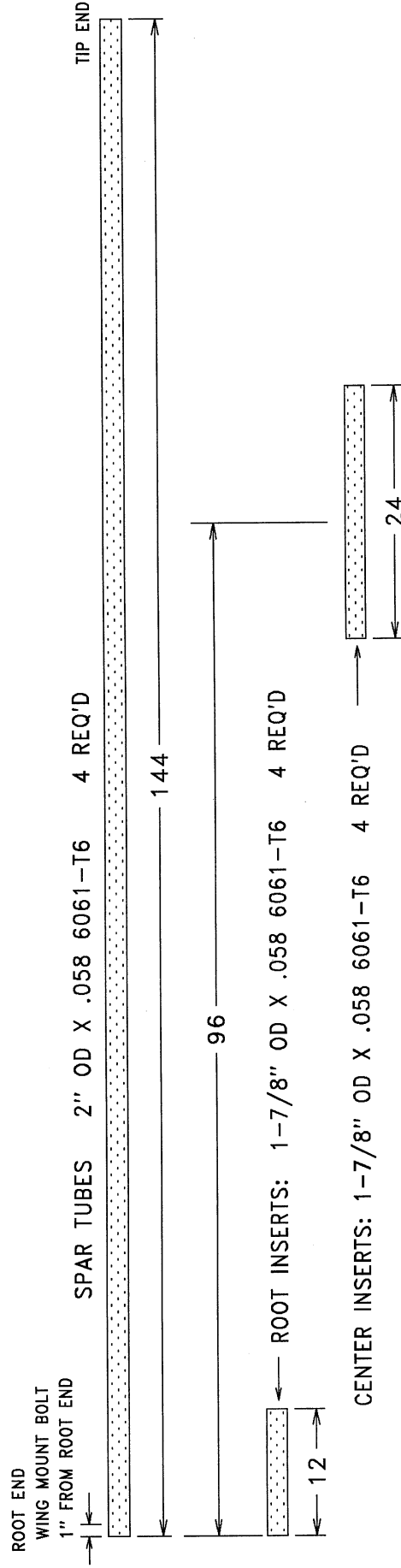


COMPRESSION BOX SKINS .025 6061-T6 SHEET

4 REQ'D 10" WIDE FOR ROOT BOXES

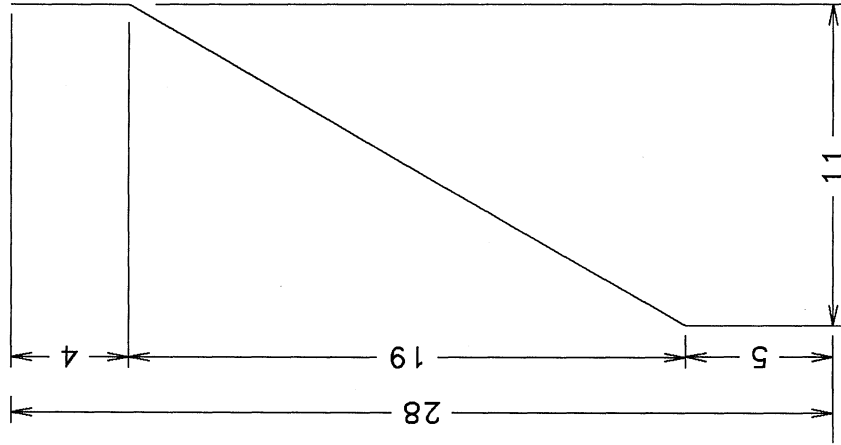
4 REQ'D 12" WIDE FOR TIP BOXES

## SPAR PARTS

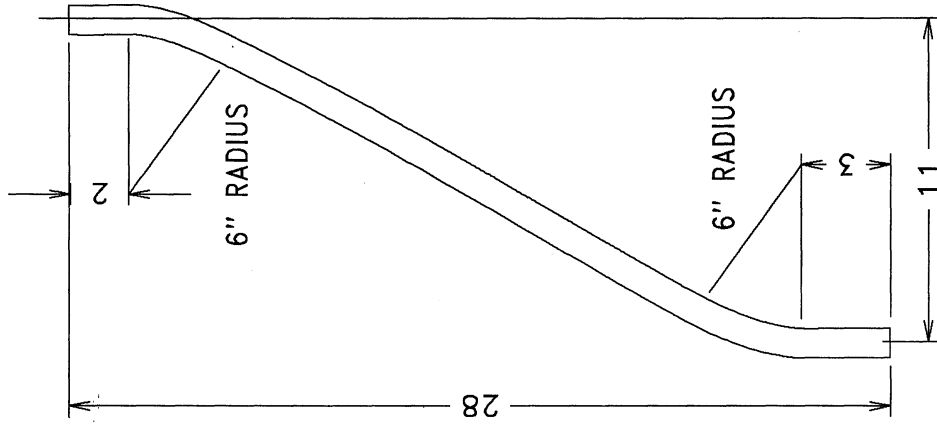


D-WING3

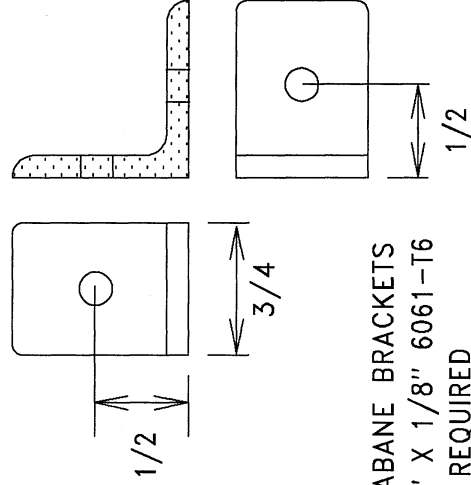
WING PARTS FABRICATION ☐



CABANE PATTERN  
DIMENSIONS TO  
CENTERS OF BENDS



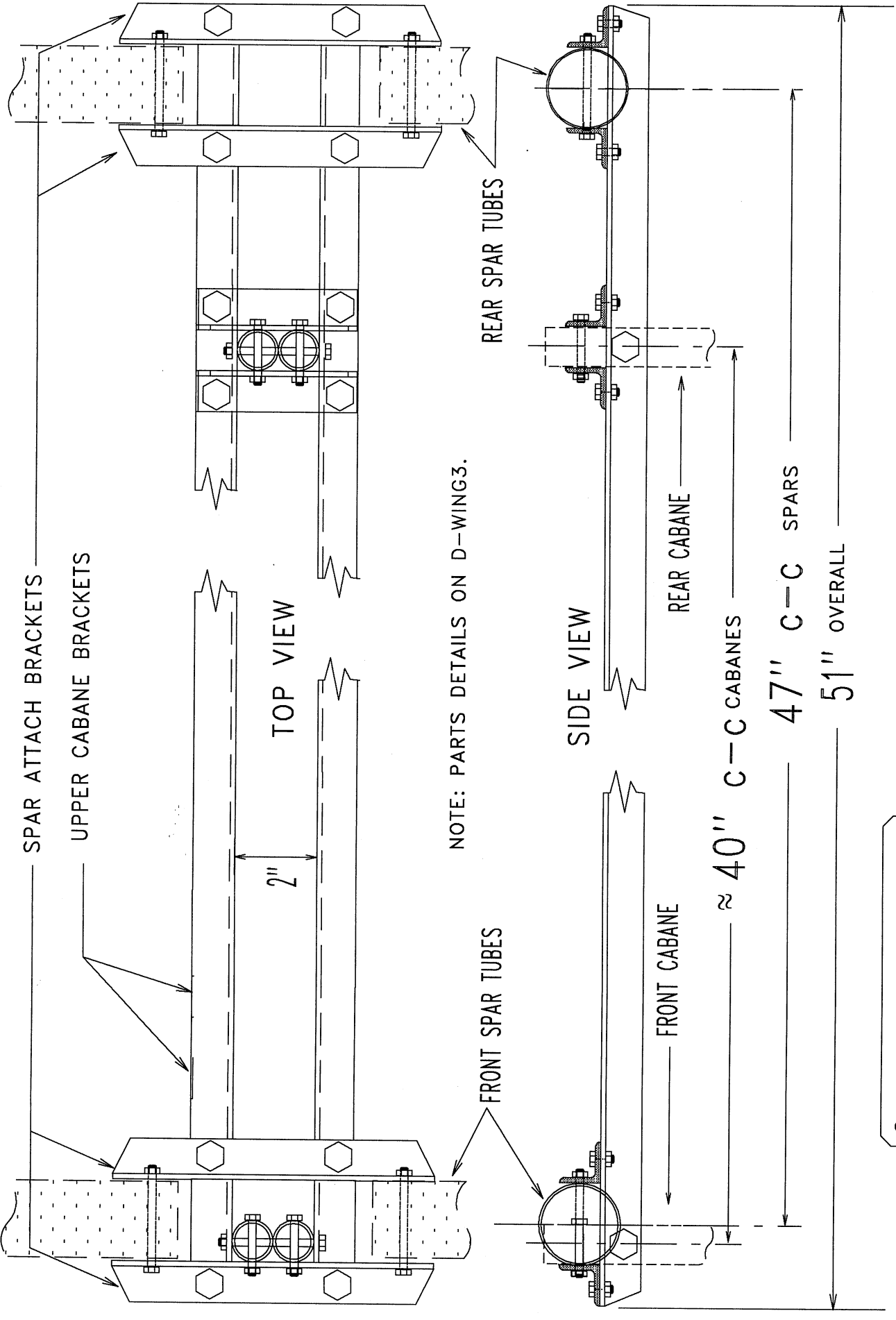
CABANE STRUTS 4 REQ'D  
1" OD X .058 6061-T6 TUBE



CABANE BRACKETS  
1" X 1/8" 6061-T6  
8 REQUIRED

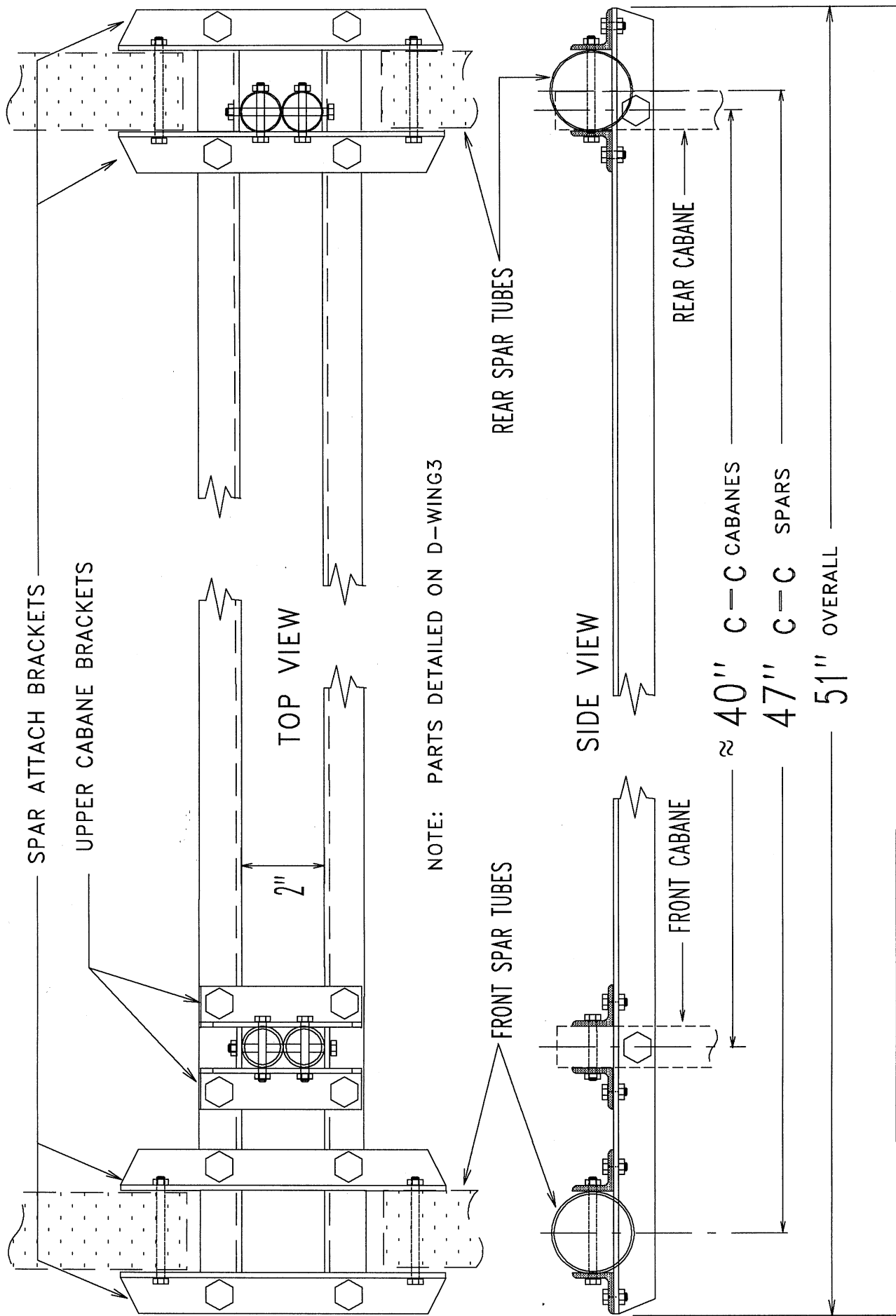


CABANE STRUT INSERTS 8 REQ'D  
2" X 7/8" OD X .058 6061-T6 TUBE  
INSERT IN ENDS OF CABANES  
AS DOUBLERS FOR BOLTS.



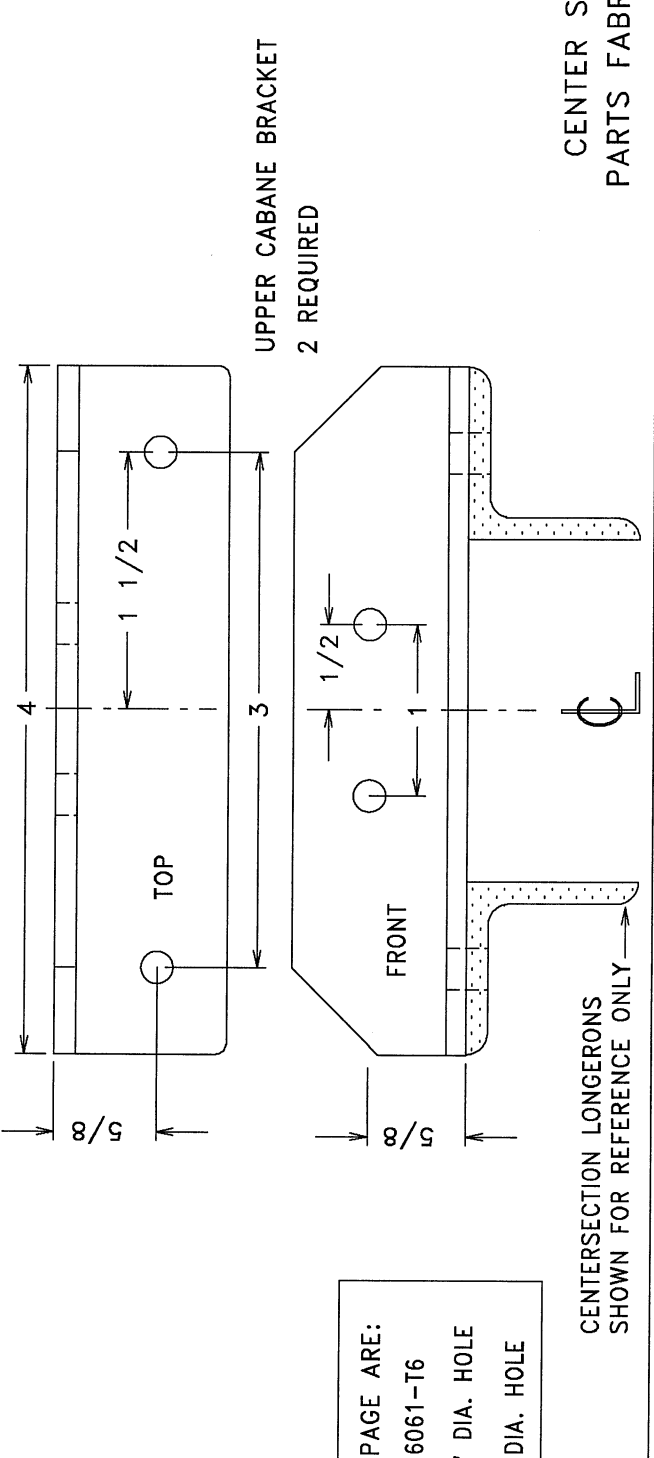
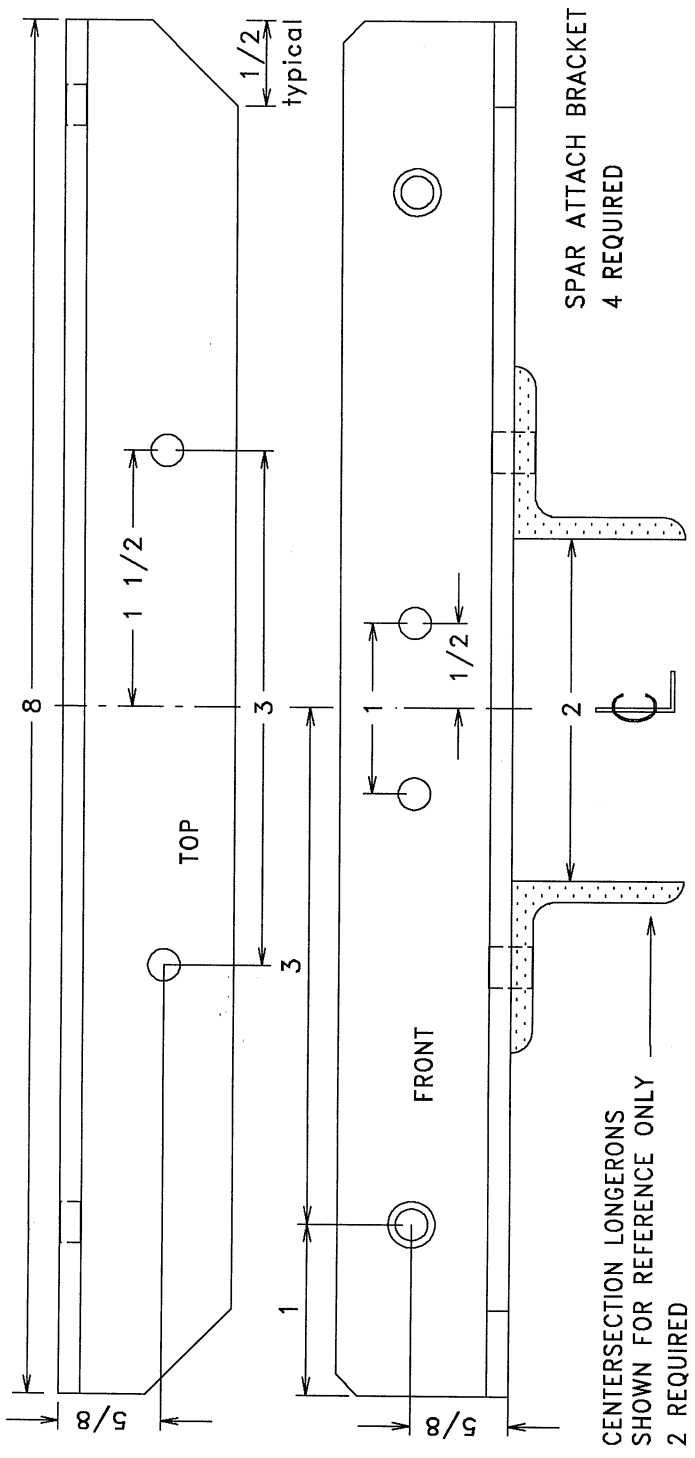
CENTER SECTION TREE  
FOR 2 CYLINDER 2-STROKE ENGINES  
WING IN AFT POSITION

D-WING5A



CENTER SECTION TREE  
FOR 4 CYLINDER 4-STROKE ENGINES  
WING IN FWD POSITION

D-WING5B



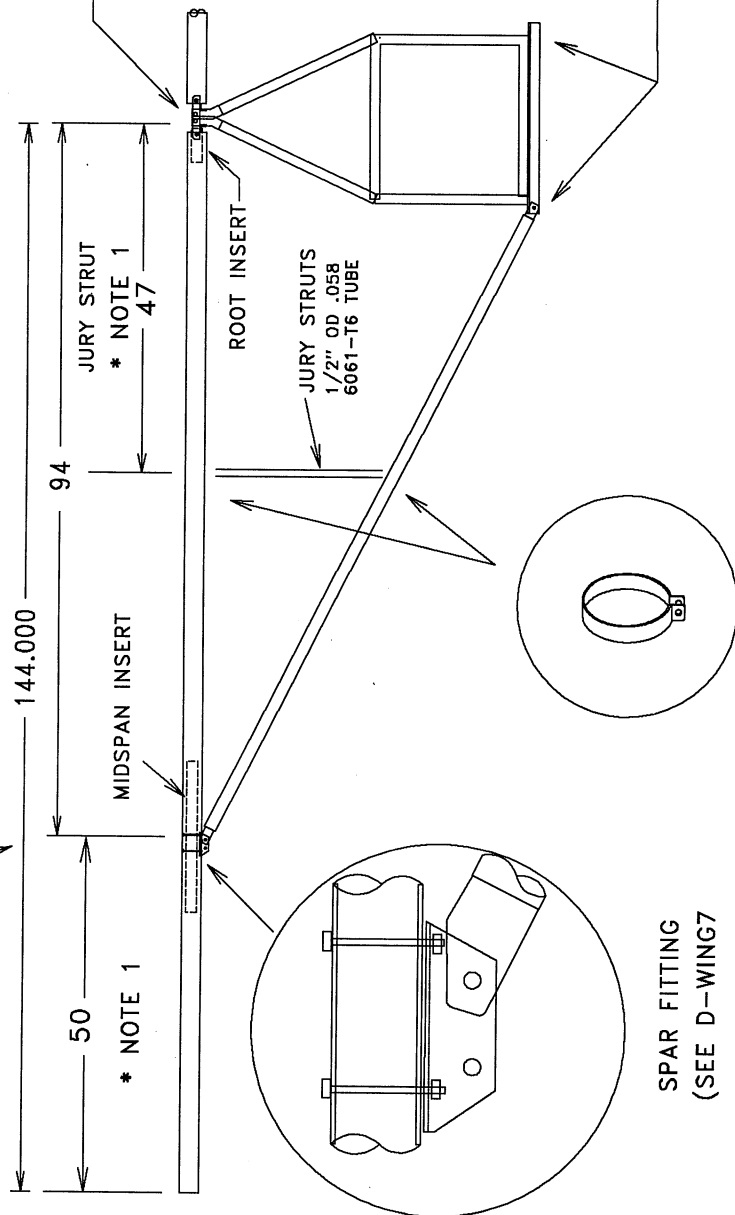
- ALL PARTS THIS PAGE ARE:
- 1" x 1" x 1/8" 6061-T6
  - DRILL 3/16" DIA. HOLE
  - ⊙ DRILL 1/4" DIA. HOLE

D-WING5C

CENTERSECTION LONGERONS  
SHOWN FOR REFERENCE ONLY

CENTER SECTION  
PARTS FABRICATION

NOTE 1 - ADJUST POSITION TO CENTER BETWEEN RIBS.



JURY STRUT FITTINGS  
1/2" X .050 STAINLESS STEEL STRAP  
(SEE D-WING8)

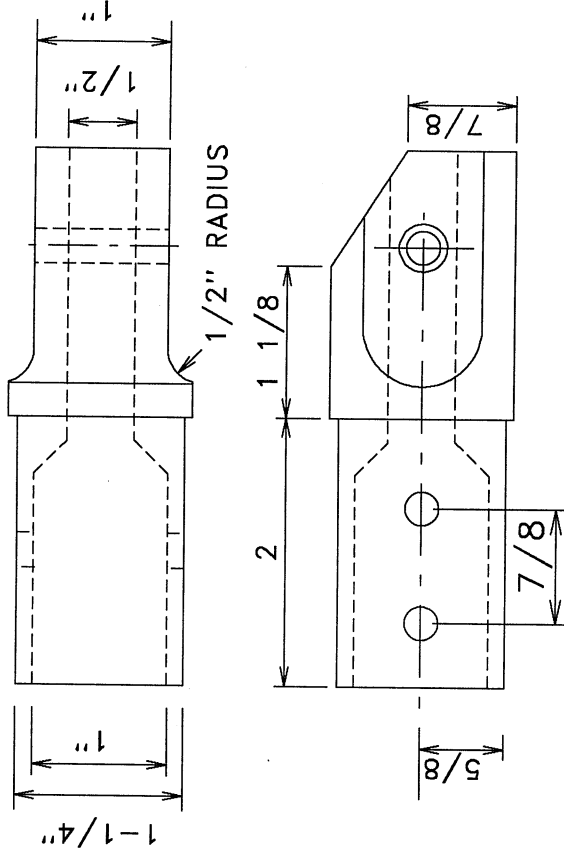
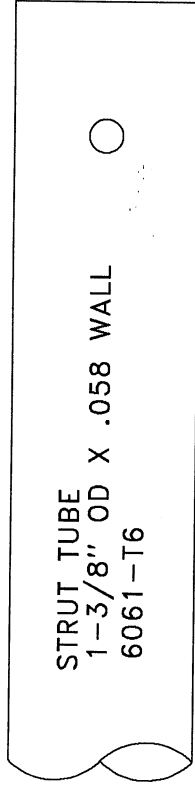
SPAR FITTING  
(SEE D-WING7)

NEED ROOM HERE FOR END OF  
STRUT FITTING AND CLEARANCE  
FOR GEAR LEG MOTION !

D-WING6

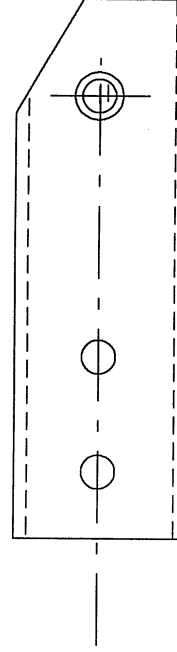
## WING MOUNTING



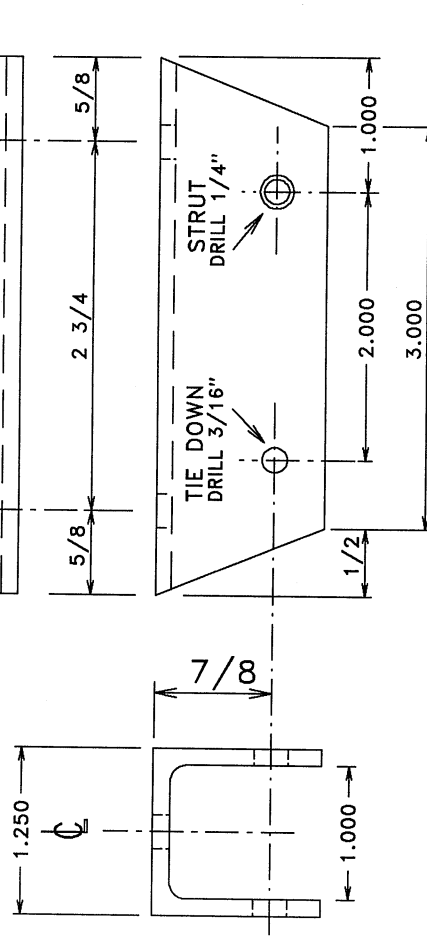


LIFT STRUT END PLUGS  
1-3/8" OD 6061-T6 ROUND  
8 REQUIRED

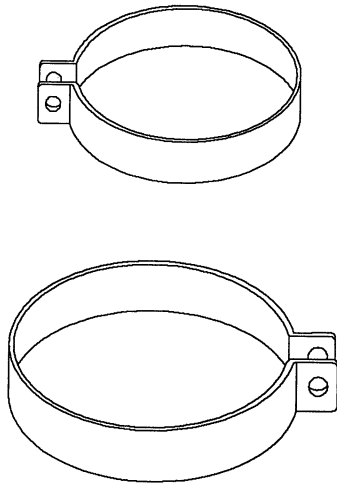
-OR-



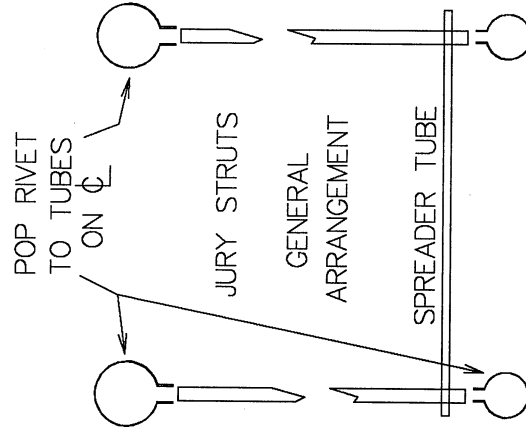
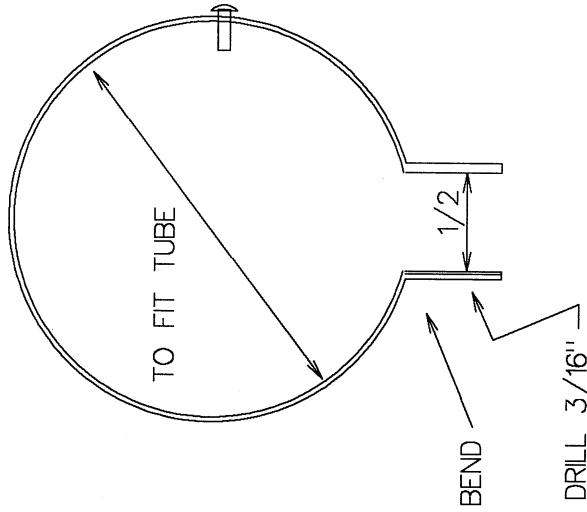
ULTRALIGHTS MAY SUBSTITUTE  
1-1/4" X .058 TUBE INSERTS  
8 REQUIRED



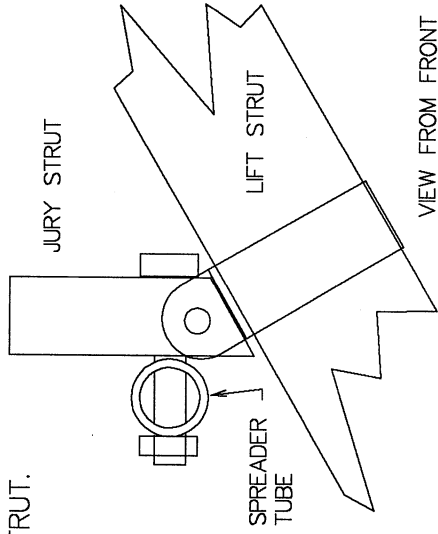
LIFT STRUT SPAR FITTINGS  
1-1/4 X 1-1/4 X 1/8 6061-T6 CHANNEL  
4 REQUIRED



JURY STRUT CLAMPS  
MAKE FROM STAINLESS STEEL STRAP  
1/2" WIDE X .050 TO .063 THICK  
MAKE PATTERNS FOR SPAR AND LIFT STRUT.  
DRILL 3/16" HOLES - 2 PLACES.  
SMOOTH ALL EDGES AND HOLES  
BEND TABS - 2 PLACES.

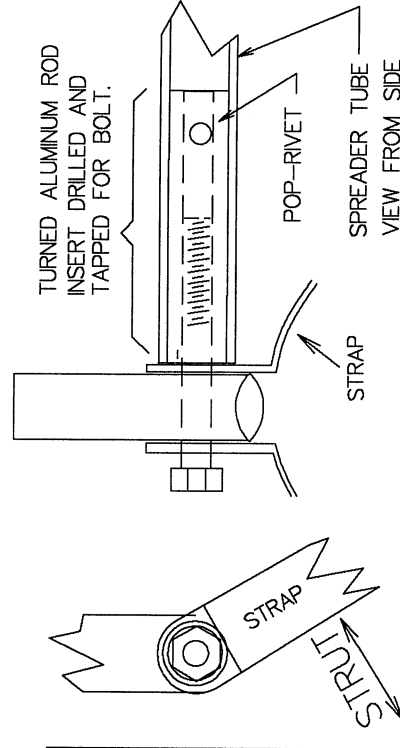


JURY STRUT MATERIALS:  
ALL TUBES ARE 1/2" OD X .058 WALL 6061-T6  
CLAMPS ARE 1/2" X .058 STAINLESS STEEL  
OPTIONAL SOCKETS FOR SPREADER TUBES  
ARE 3/8" OD ALUMINUM ROD



SIMPLE - BOLT ON THE SIDE?

## SPREADER TUBE ATTACHMENT



NICER OPTIONAL METHOD

AILERON HINGES  
PIANO HINGE  
4" LONG  
4 PER WING

APPROX. 7"

CROSS SECTION OF AILERON

REAR SPAR

AILERON ROOT RIB

AILERON

AILERON HORN ASSEMBLY  
VIEW FROM REAR

AILERON HORN

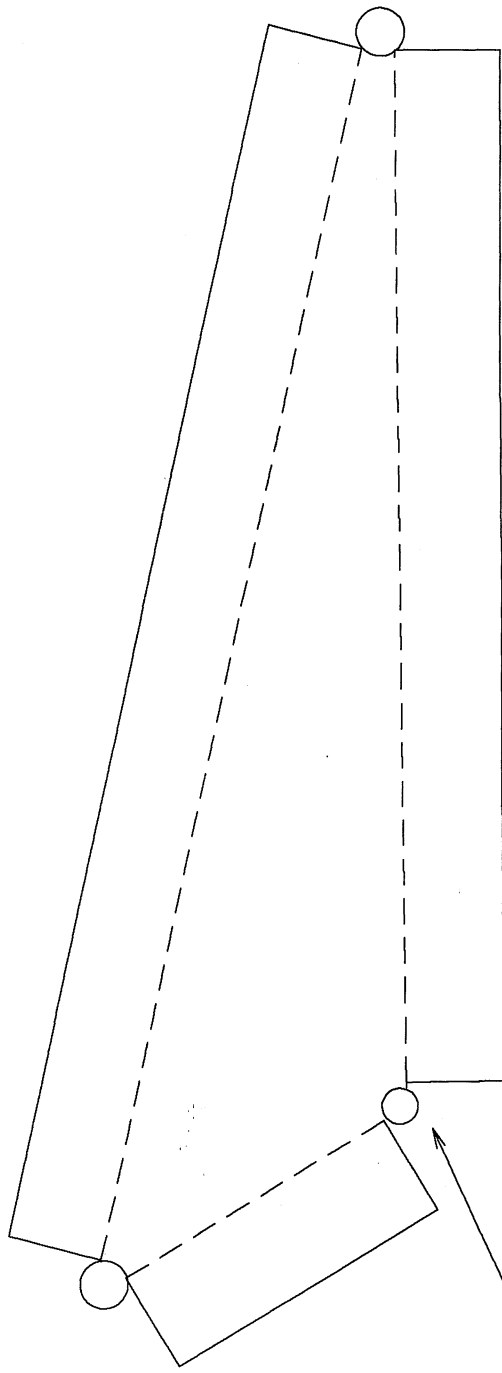
PUSHROD

AILERON CONTROL HORN  
CUT FROM  $3/4"$  ANGLE  
1 EACH (L&R) REQ'D.

D-WING9A

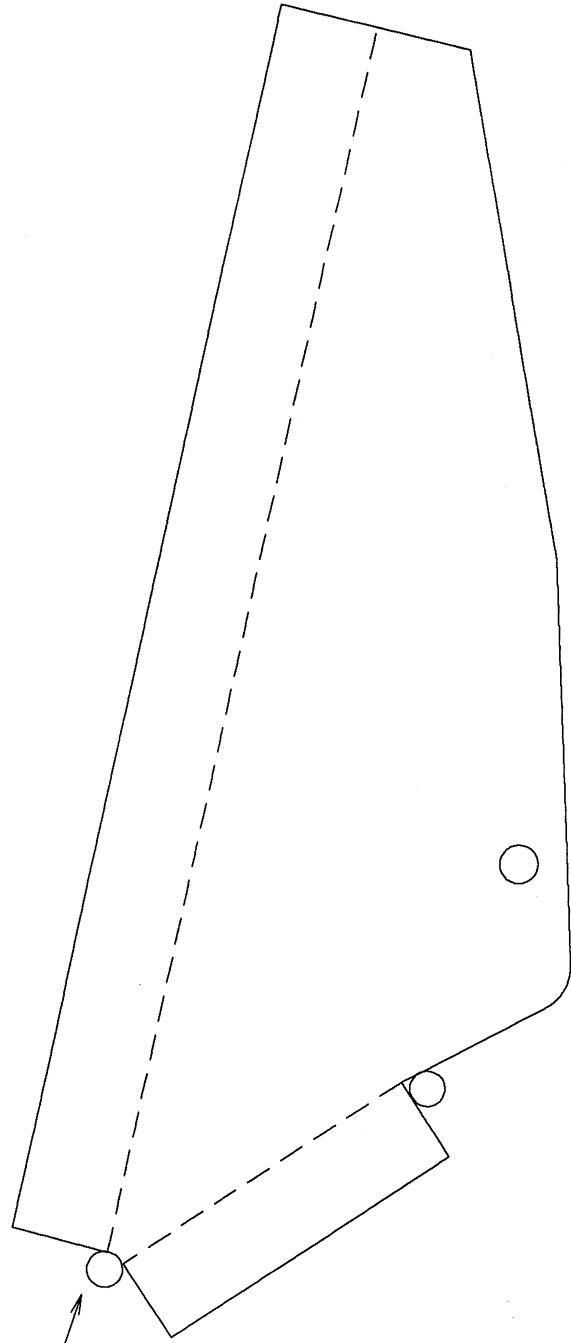
AILERONS

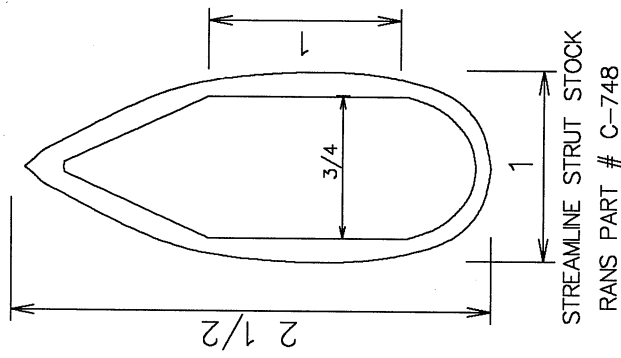
AILERON RIB  
 .025 6061-T6 SHEET  
 BEND FOR LEFT OR RIGHT  
 OR  
 1 EACH (L&R) REQ'D  
 FOR ONE-PIECE AILERON  
 OR  
 12 EACH (L&R) REQ'D  
 FOR BUILT-UP AILERON



DRILL 3/16"  
 BEFORE CUTTING

AILERON ROOT RIB  
 .025 6061-T6 SHEET  
 OVERLAPS AILERON HORN  
 BEND FOR LEFT OR RIGHT  
 1 EACH (L&R) REQ'D.

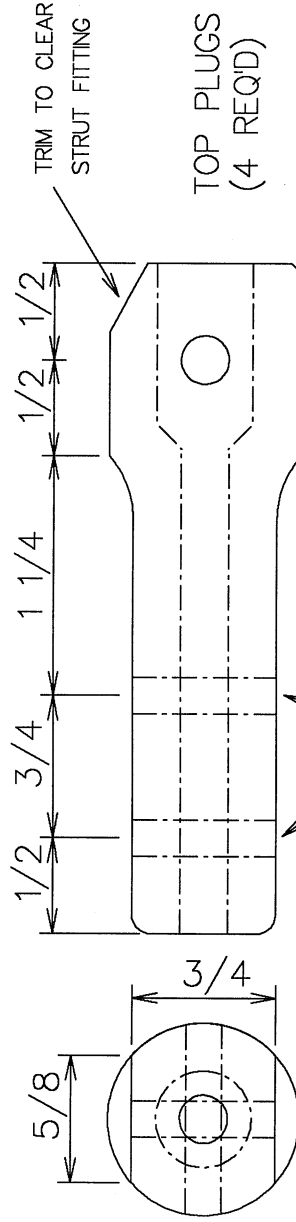
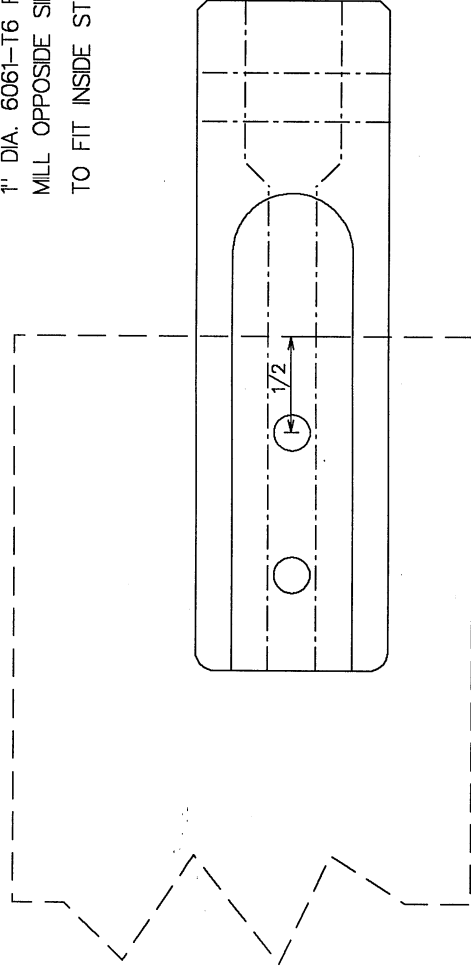




**NOTE 1:**  
FOR TOP END PLUGS, DRILL 1/4" BOLT HOLE  
DURING PART FABRICATION.  
TRIM CORNER TO CLEAR STRUT FITTING.

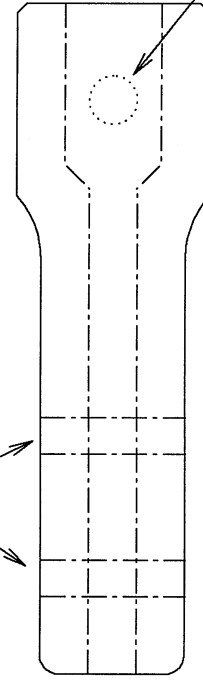
**NOTE 2:**  
FOR BOTTOM END PLUGS:  
DRILL 1/4" BOLT HOLE DURING ASSEMBLY.  
THIS IS TO MATCH THE ANGLE OF BOTTOM LONGERON.

1" DIA. 6061-T6 ROUND STOCK  
MILL OPPOSITE SIDES FLAT AND PARALLEL  
TO FIT INSIDE STRUT.



DRILL 1/4"

DRILL 3/16"

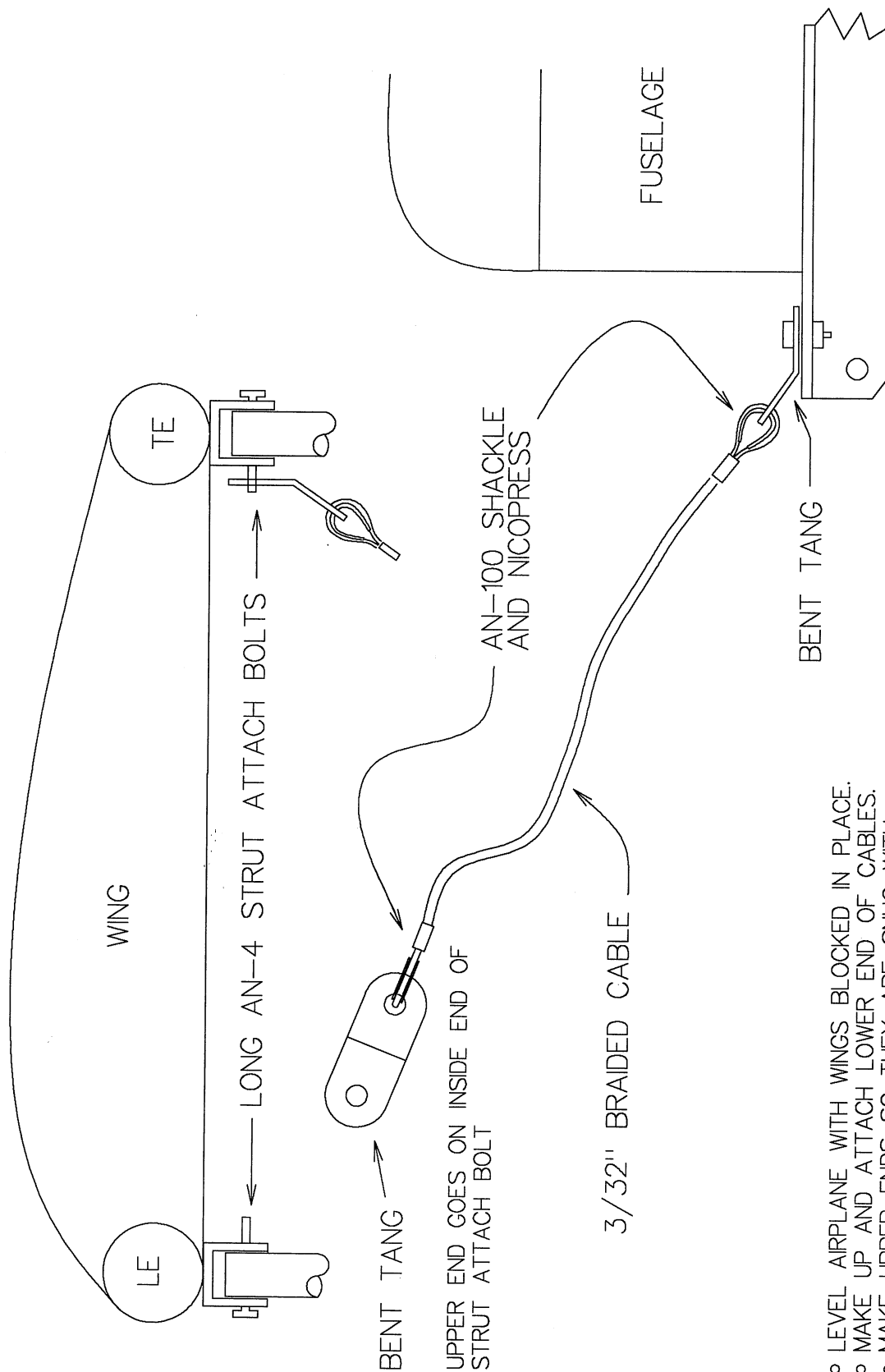


BREAK SHARP CORNERS

SEE NOTE 2

- MAKE FROM 1" OD 6061-T6 ROUND STOCK.
- MACHINE OPPOSITE SIDES FLAT AND PARALLEL.
- DRILL CENTER 1/2" DIA AND 3/8" DIA. AS SHOWN

*OPTIONAL*  
STREAMLINE STRUTS



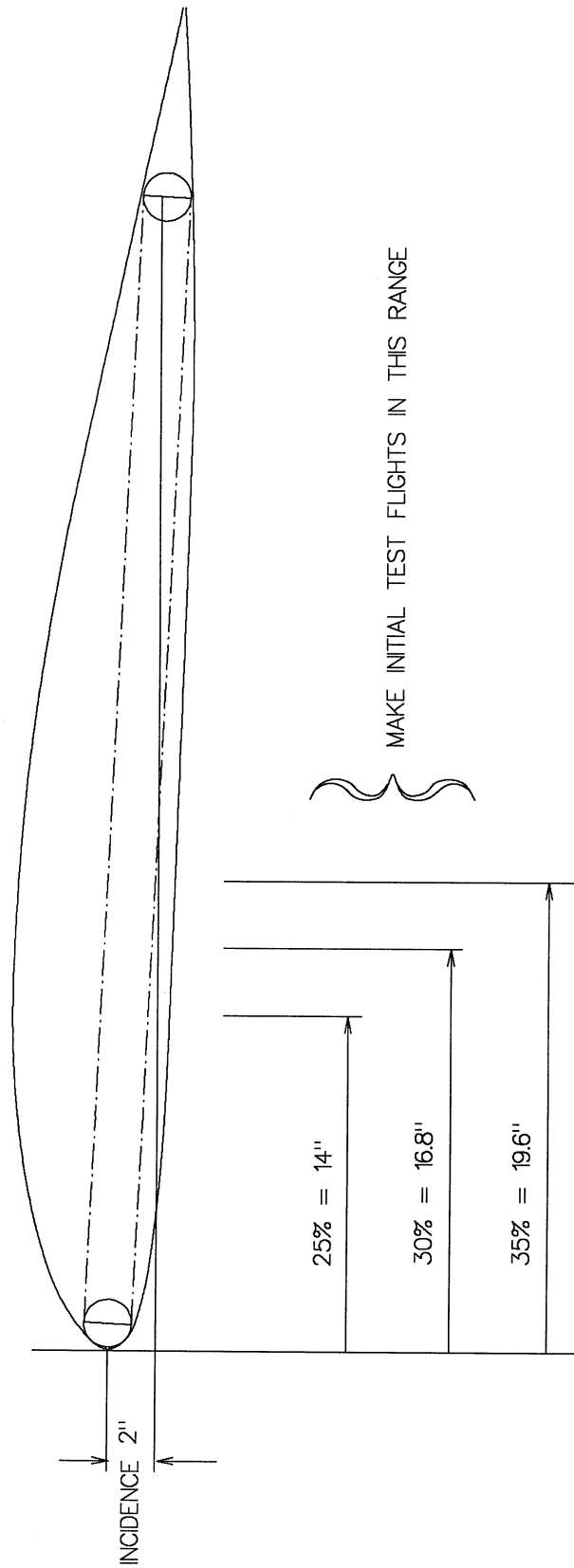
LOWER END BOLTED TO TOP OF  
CROSS MEMBERS UNDER FUSELAGE.

- LEVEL AIRPLANE WITH WINGS BLOCKED IN PLACE.
- MAKE UP AND ATTACH LOWER END OF CABLES.
- MAKE UPPER ENDS SO THEY ARE SNUG WITH STRUT BOLT NUTS BARELY STARTED. ( IE: LOOSE)
- TIGHTEN NUTS TO SNUG WIRES.
- ADJUST TENSION AS NECESSARY WITH WASHERS OR BY TWISTING/UNTWISTING WIRES.

NOTE: IF TURNBUCKLES ARE USED,  
PLEASE USE ONLY AIRCRAFT  
PARTS FOR X WIRES.

D-WING11

"X" WIRE RIGGING



# REVISION 2000 DRAWING FILES

D-CG	DC2	4,456	02-20-00	10:38p	D-CG.DC2
D-CS01	DC2	20,053	02-20-00	10:11p	D-CS01.DC2
D-CS02	DC2	36,807	02-20-00	10:14p	D-CS02.DC2
D-CS03	DC2	15,119	01-29-00	7:27p	D-CS03.DC2
D-CS04	DC2	15,641	01-29-00	7:27p	D-CS04.DC2
D-CS05	DC2	14,901	01-29-00	7:25p	D-CS05.DC2
D-CS06	DC2	9,715	02-11-00	12:23a	D-CS06.DC2
D-ENG01	DC2	23,260	02-01-99	9:23p	D-ENG01.DC2
D-F01	DC2	12,207	02-17-00	5:51p	D-F01.DC2
D-F02	DC2	11,418	02-17-00	6:04p	D-F02.DC2
D-F03	DC2	21,405	02-17-00	6:11p	D-F03.DC2
D-F04	DC2	7,308	02-17-00	6:12p	D-F04.DC2
D-F05	DC2	5,366	02-17-00	6:13p	D-F05.DC2
D-F06	DC2	12,322	02-17-00	6:14p	D-F06.DC2
D-F07	DC2	2,777	01-29-00	6:07p	D-F07.DC2
D-F08	DC2	5,279	01-29-00	6:08p	D-F08.DC2
D-F09	DC2	9,130	02-17-00	6:15p	D-F09.dc2
D-LG00	DC2	166,643	01-29-00	10:04p	D-LG00.DC2
D-LG01	DC2	11,359	01-29-00	8:25p	D-LG01.DC2
D-LG02	DC2	13,528	01-29-00	10:13p	D-LG02.DC2
D-LG03	DC2	22,125	02-17-00	6:38p	D-LG03.DC2
D-LG04	DC2	10,828	01-29-00	6:27p	D-LG04.DC2
D-LG05	DC2	15,407	01-29-00	6:34p	D-LG05.DC2
D-LG06	DC2	7,102	01-29-00	5:07p	D-LG06.DC2
D-SEAT	DC2	6,058	01-29-00	8:27p	D-SEAT.DC2
D-TAIL1	DC2	26,472	01-29-00	8:28p	D-TAIL1.DC2
D-TAIL2	DC2	12,927	01-29-00	8:29p	D-TAIL2.DC2
D-TAIL3	DC2	9,609	01-29-00	8:29p	D-TAIL3.DC2
D-TAIL4	DC2	5,737	01-29-00	8:30p	D-TAIL4.DC2
D-TUBES	DC2	13,605	01-29-00	10:25p	D-TUBES.DC2
D-WING0	DC2	14,538	01-29-00	8:33p	D-WING0.DC2
D-WING1	DC2	6,606	01-29-00	8:34p	d-wing1.DC2
D-WING2	DC2	13,534	01-29-00	8:35p	d-wing2.DC2
D-WING3	DC2	7,163	01-29-00	9:41p	d-wing3.DC2
D-WING4	DC2	11,067	01-29-00	8:36p	D-WING4.DC2
D-WING5A	DC2	59,611	01-29-00	9:46p	d-wing5a.DC2
D-WING5B	DC2	57,818	01-29-00	9:46p	d-wing5b.DC2
D-WING5C	DC2	14,652	02-17-00	6:20p	d-wing5c.DC2
D-WING6	DC2	43,147	02-17-00	6:30p	D-WING6.DC2
D-WING7	DC2	18,007	01-29-00	8:06p	d-wing7.DC2
D-WING8	DC2	55,924	02-20-00	10:36p	d-wing8.DC2
D-WING9A	DC2	11,940	01-29-00	8:39p	D-WING9A.DC2
D-WING9B	DC2	4,463	01-29-00	8:39p	D-WING9B.DC2
D-WING9C	DC2	22,375	01-29-00	8:07p	D-WING9C.DC2
D-WING10	DC2	12,472	02-06-00	9:46p	D-WING10.DC2
D-WING11	DC2	15,502	02-18-00	9:17a	D-Wing11.dc2