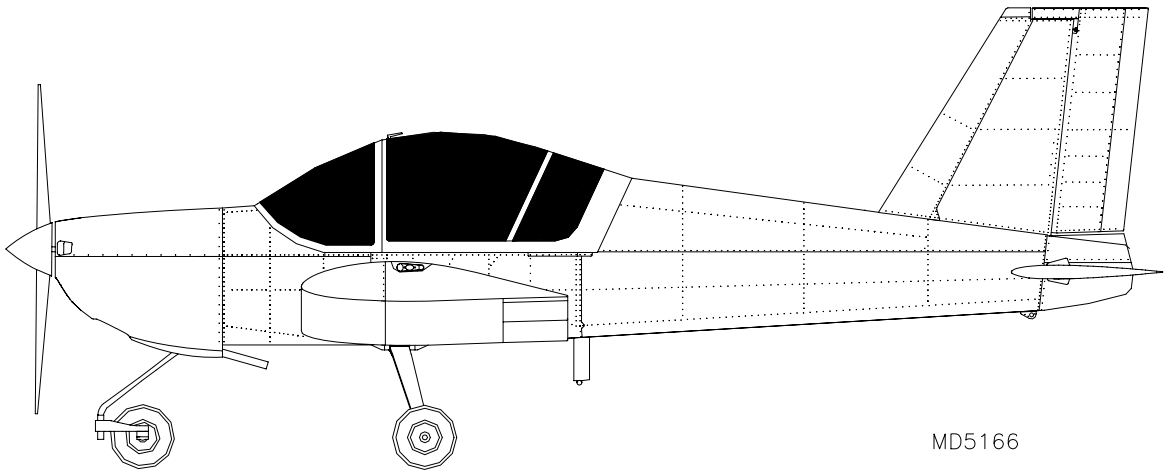




S-19 VENTERRA

FIGURES MANUAL



MD5166

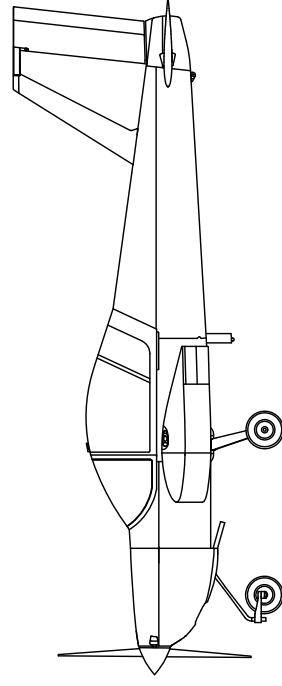
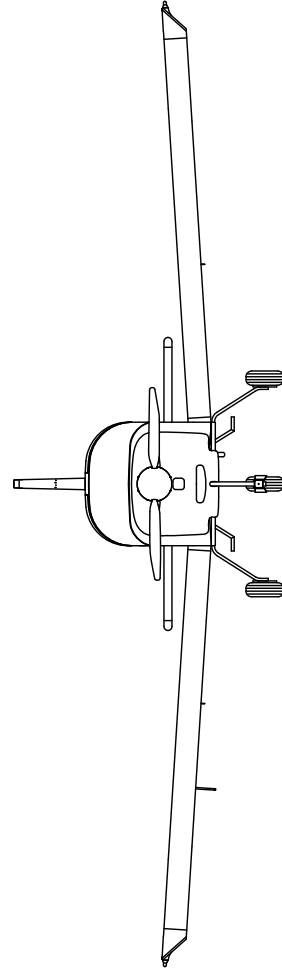
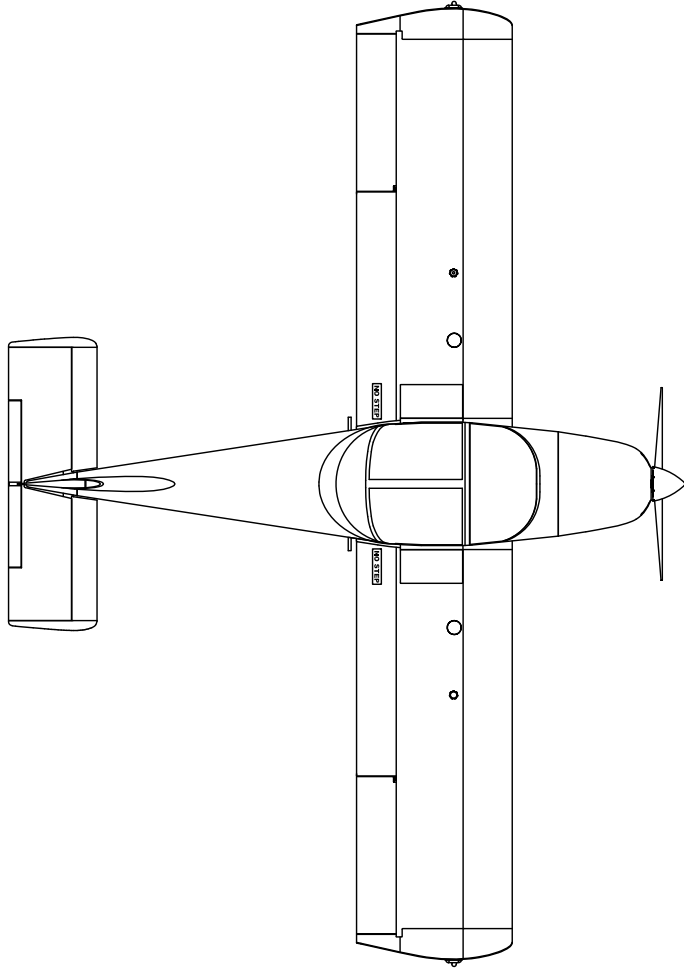
Serial Number:

Registration Number:

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RANS S-19 VENTERRA



4600 HIGHWAY 183 ALTERNATE
HAYS, KS 67601
(785) 625-6346
EMAIL: RANS@RANS.COM
WEBSITE: WWW.RANS.COM

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Please note that the RANS FIGURE Manual numbering system does not follow a consecutive 1...2...3 style of nomenclature.

The RANS FIGURE Manual numbering system follows a numbering system which lists the chapter first, then the last 2 digits of the FIGURE number refers to the paragraph in the text.

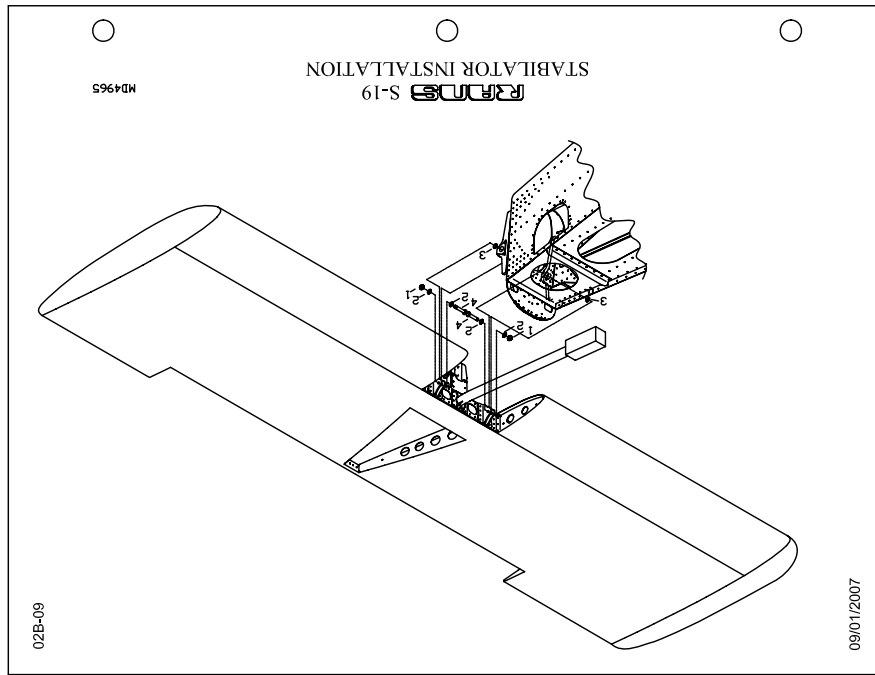
RANS has found this to aid greatly in the association of the correct paragraph with the correct FIGURE drawing it refers to. In the case of multiple FIGURES per paragraph then letters starting with "A" are added after the paragraph number.

00 – GENERAL INFO

PARTS MANUAL ASSEMBLY	00-01
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TO FACE
PARTS DESCRIPTION PAGE

PARTS DRAWING PAGE



02B-09

HD4965

RAMMS S-19
STABILIZER INSTALLATION

09/01/2007

PARTS DESCRIPTION PAGE

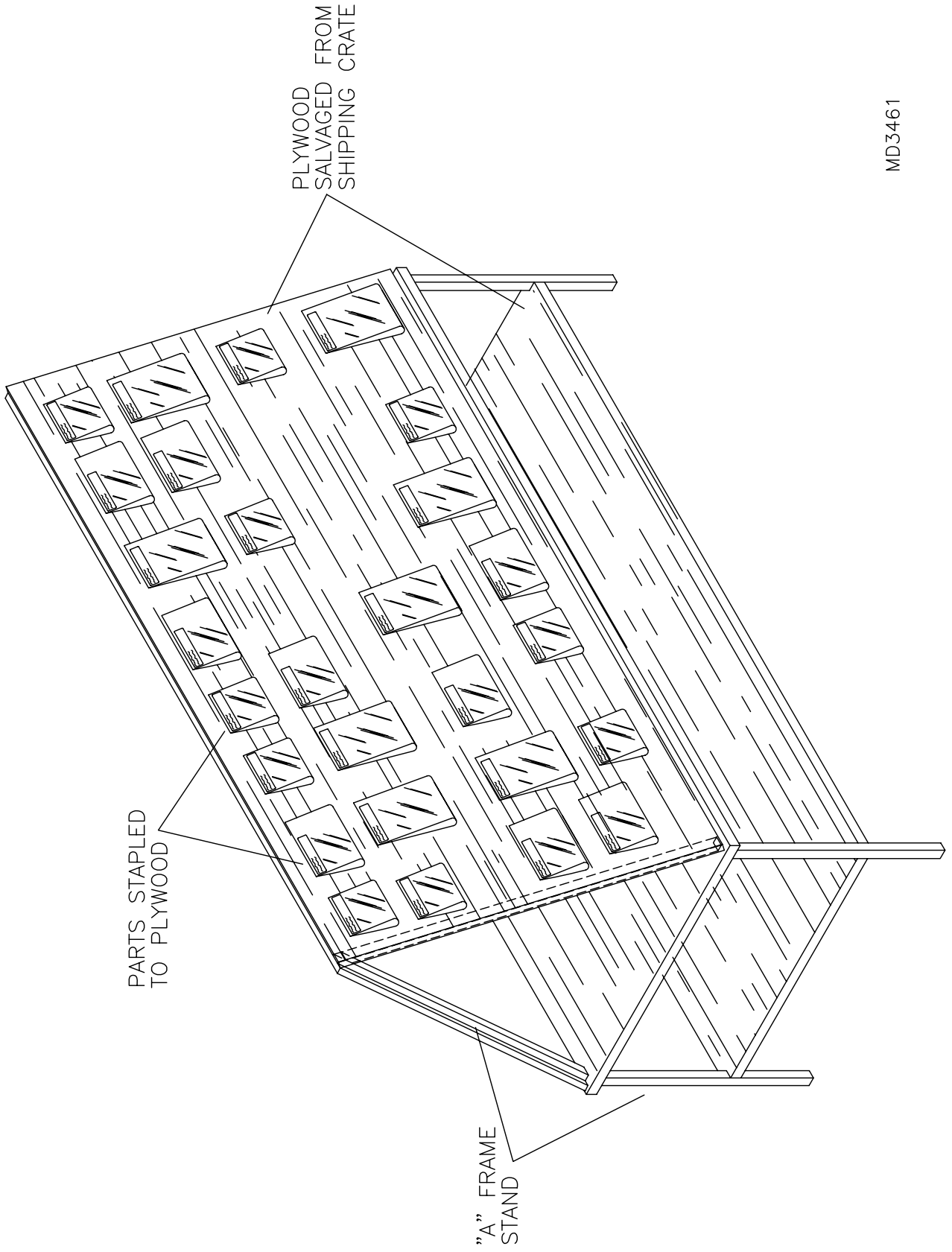
# DESCRIPTION	PART NUMBER	QUANTITY
1. 1/4" Shear Nut	AN364-428A	2
2. 1/4" Thin Washer	AN960-416L	4
3. 1/4" Thick Washer	AN960-416	2
4. 1/4" Bolt	AN4-11A	2

02B-10

09/01/2007

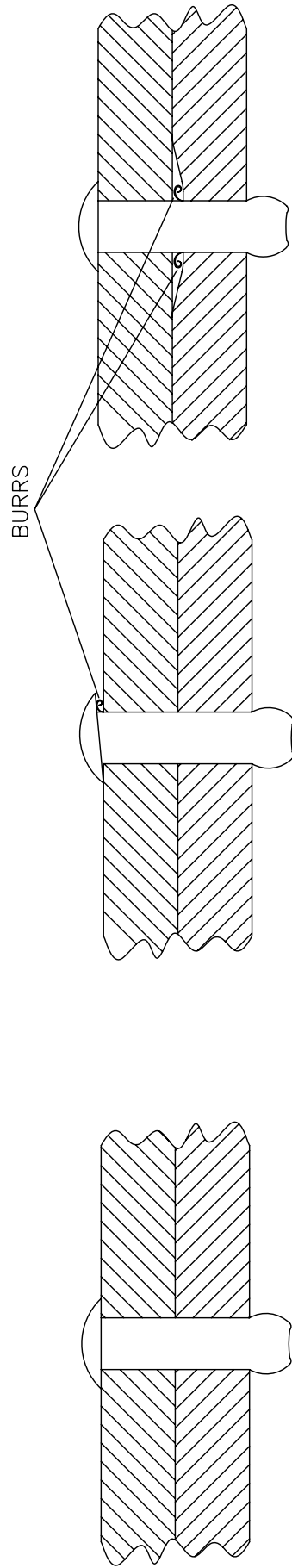
2-PARTS_PAGE

RAMMS S-19
PARTS MANUAL ASSEMBLY
FIGURE 00-01



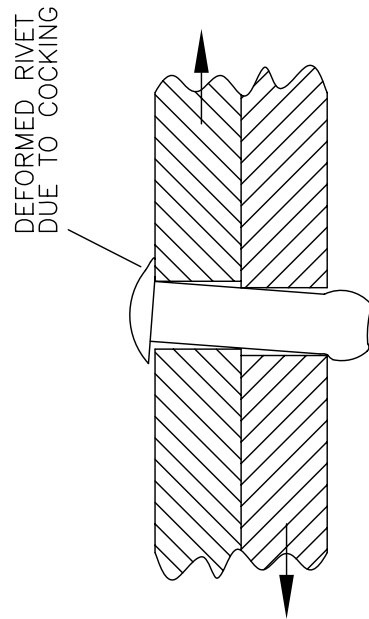
MD3461

RAMS S-19 VENTERRA
PARTS INVENTORY BOARD
FIGURE 00-02

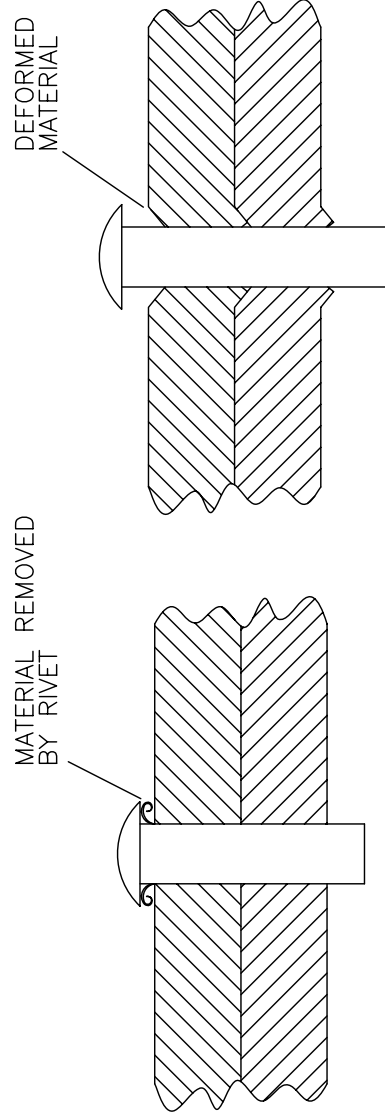


CORRECTLY INSTALLED RIVET

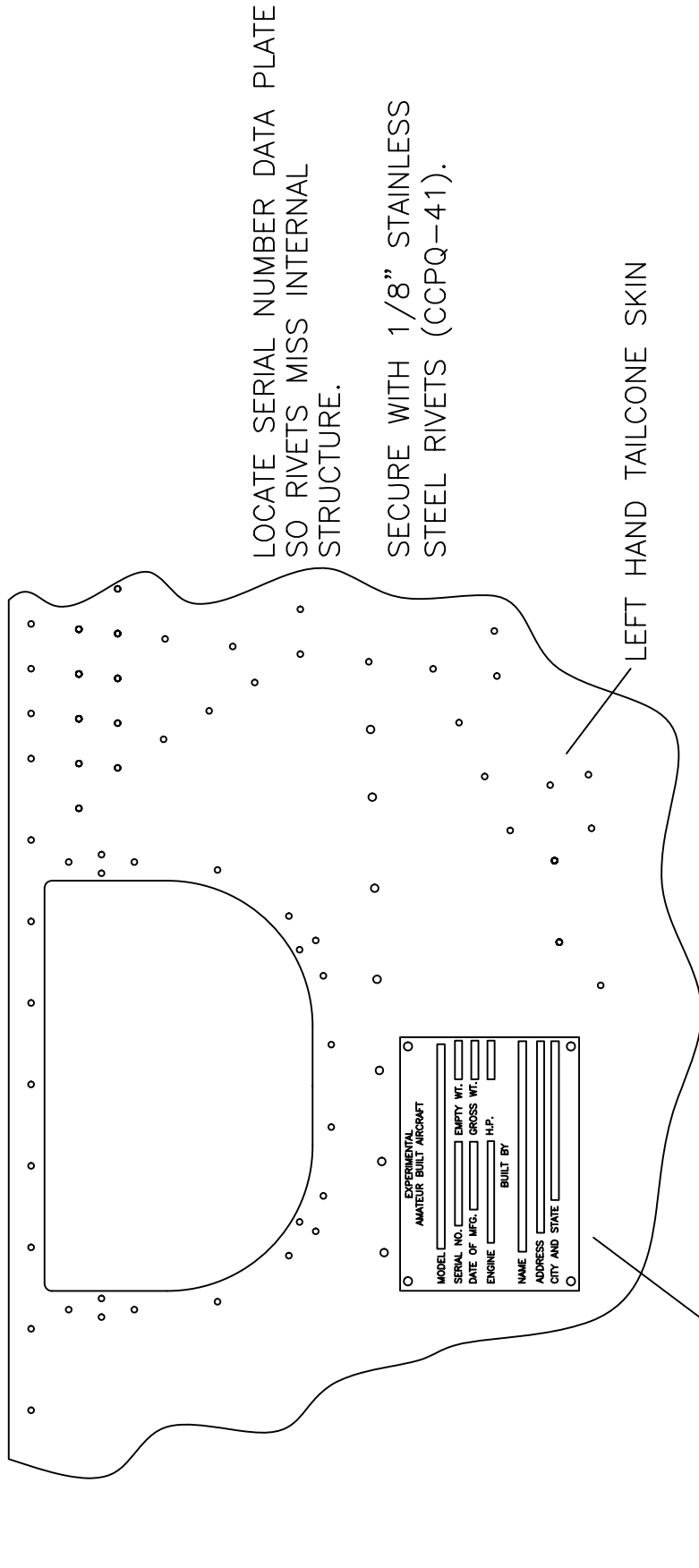
THE EFFECTS OF IMPROPER DE-BURRING



THE EFFECTS OF RIVETING THROUGH AN OVERSIZED HOLE



THE EFFECTS OF FORCING A RIVET THROUGH AN UNDERSIZED HOLE

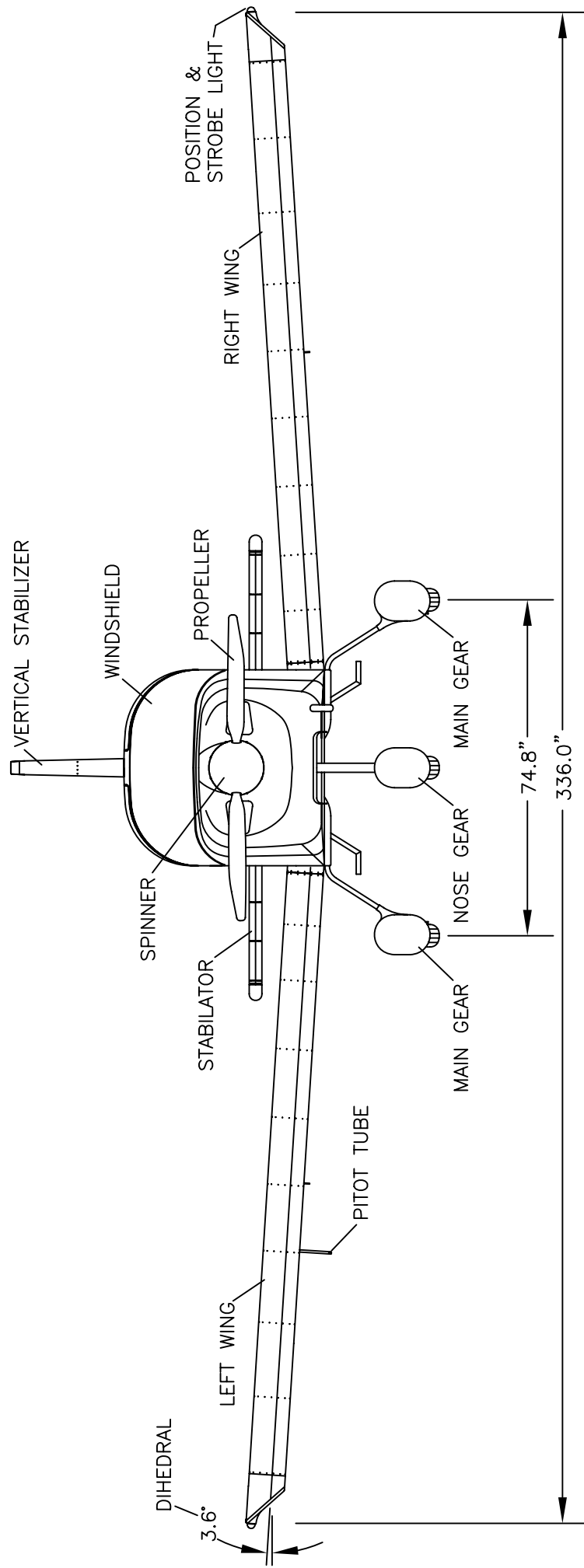


MD5155

RAMOS S-19 VENTERRA
SERIAL NUMBER DATA PLATE LOCATION
FIGURE 00-04

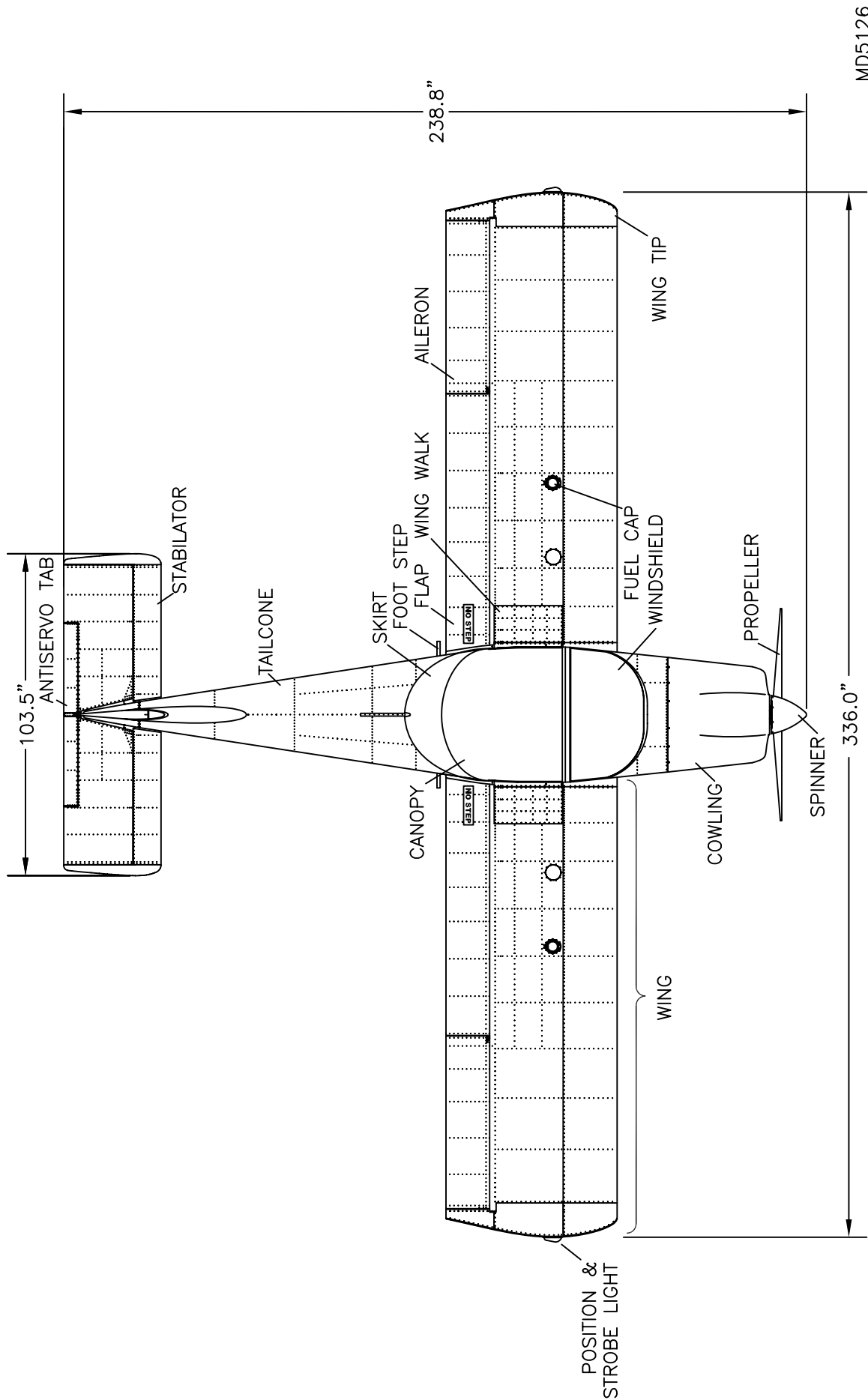
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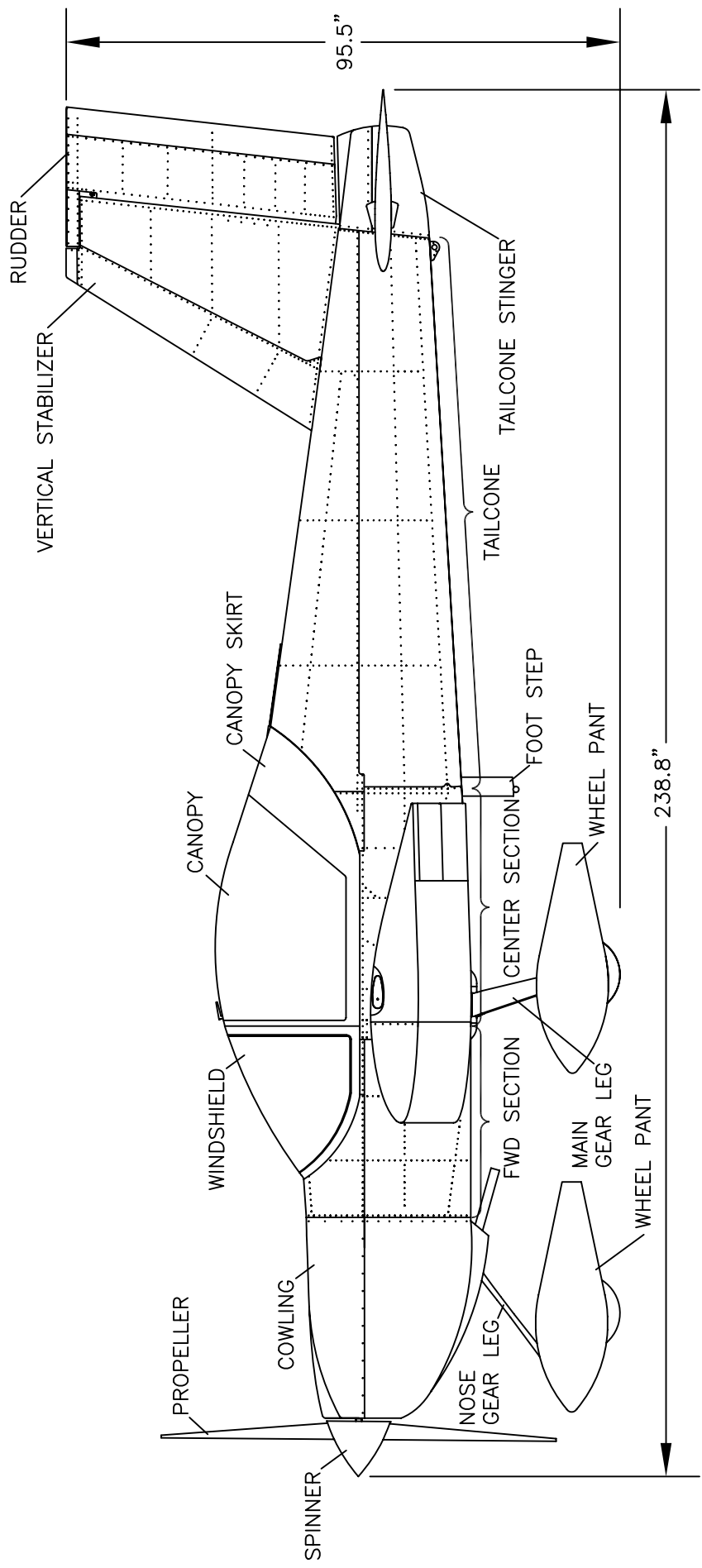
MD5126

RAMB S-19 VENTERRA
EXTERIOR FEATURES
FIGURE 01-01



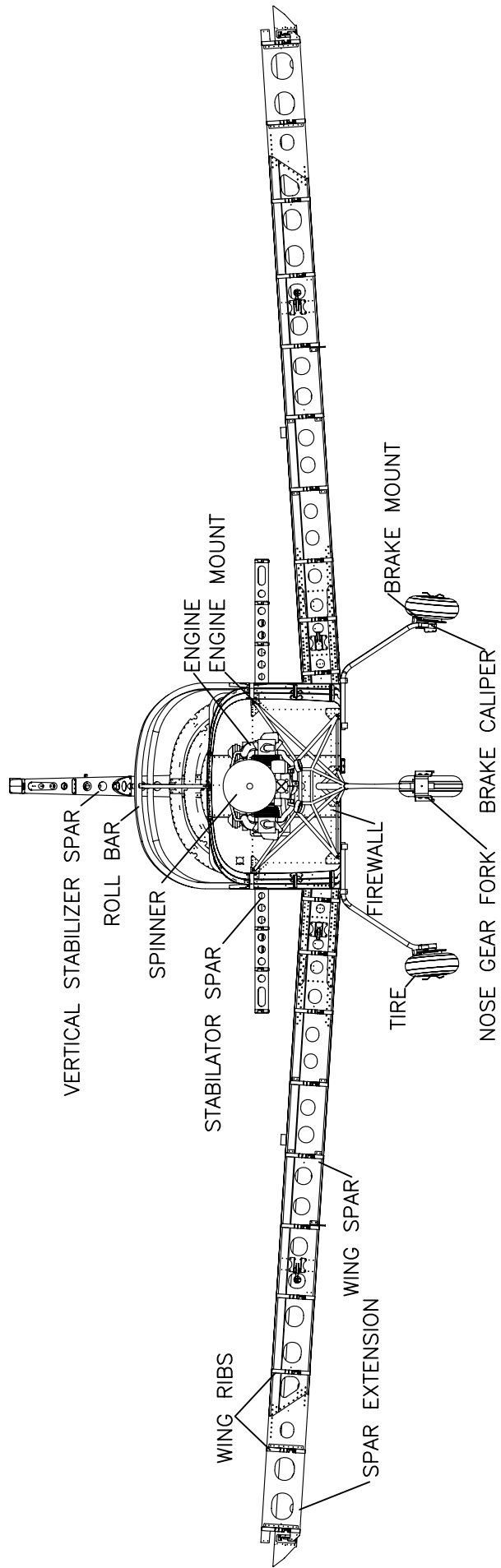
MD5126

RAVEN S-19 VENTERRA
 EXTERIOR FEATURES
 FIGURE 01-02



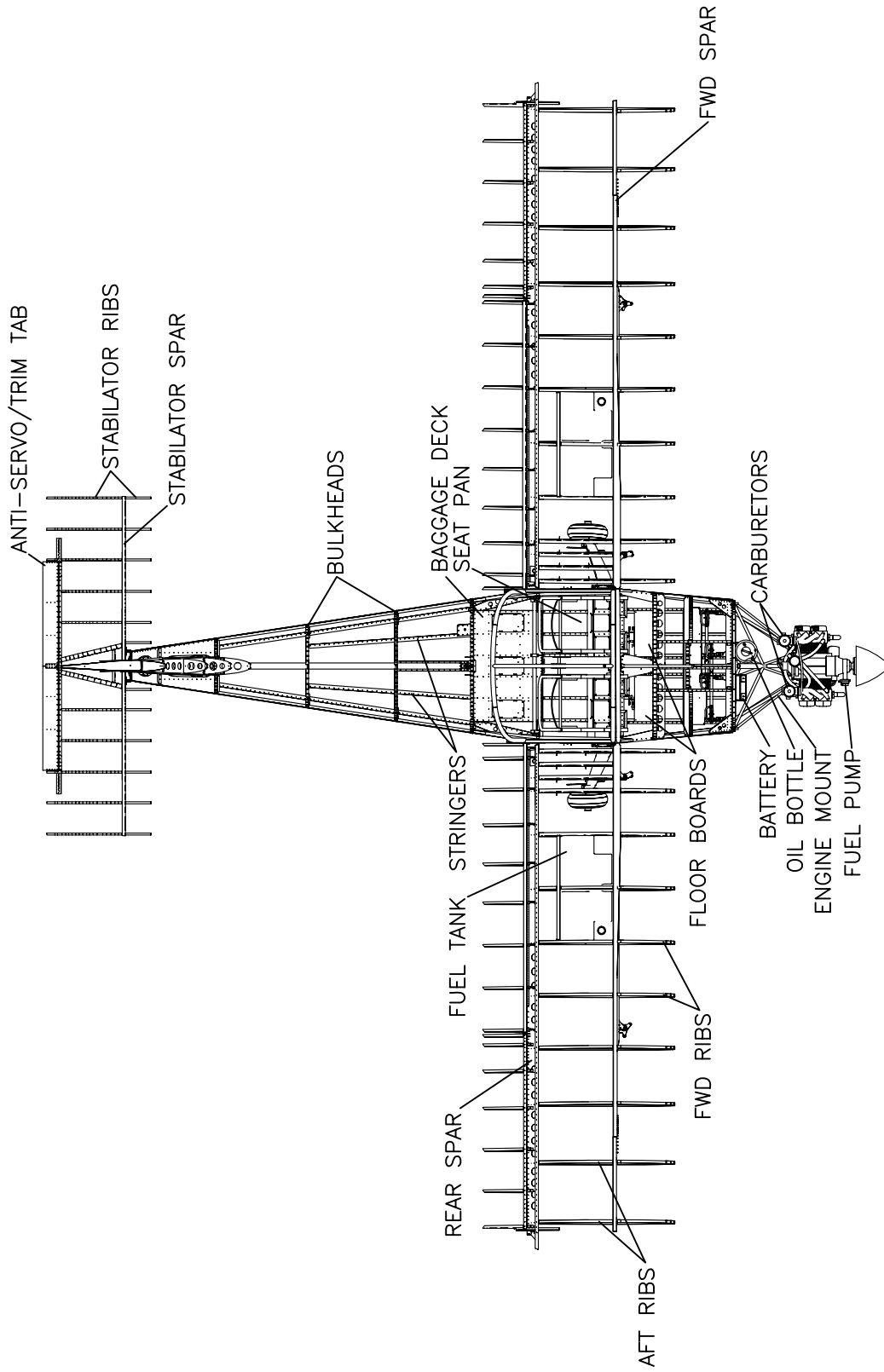
MD5126

RAMOS S-19 VENTERRA
EXTERIOR FEATURES
FIGURE 01-03



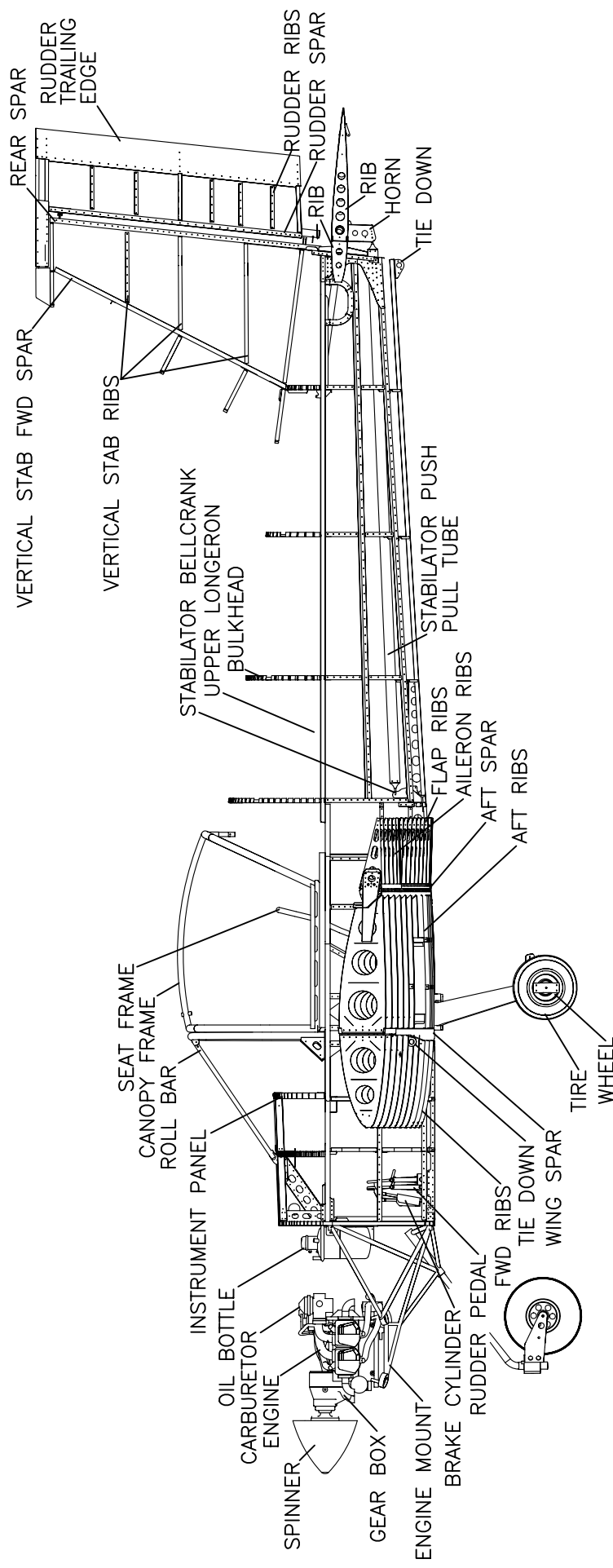
MD5127

RAMS S-19 VENTERRA
INTERIOR FEATURES
FIGURE 01-04



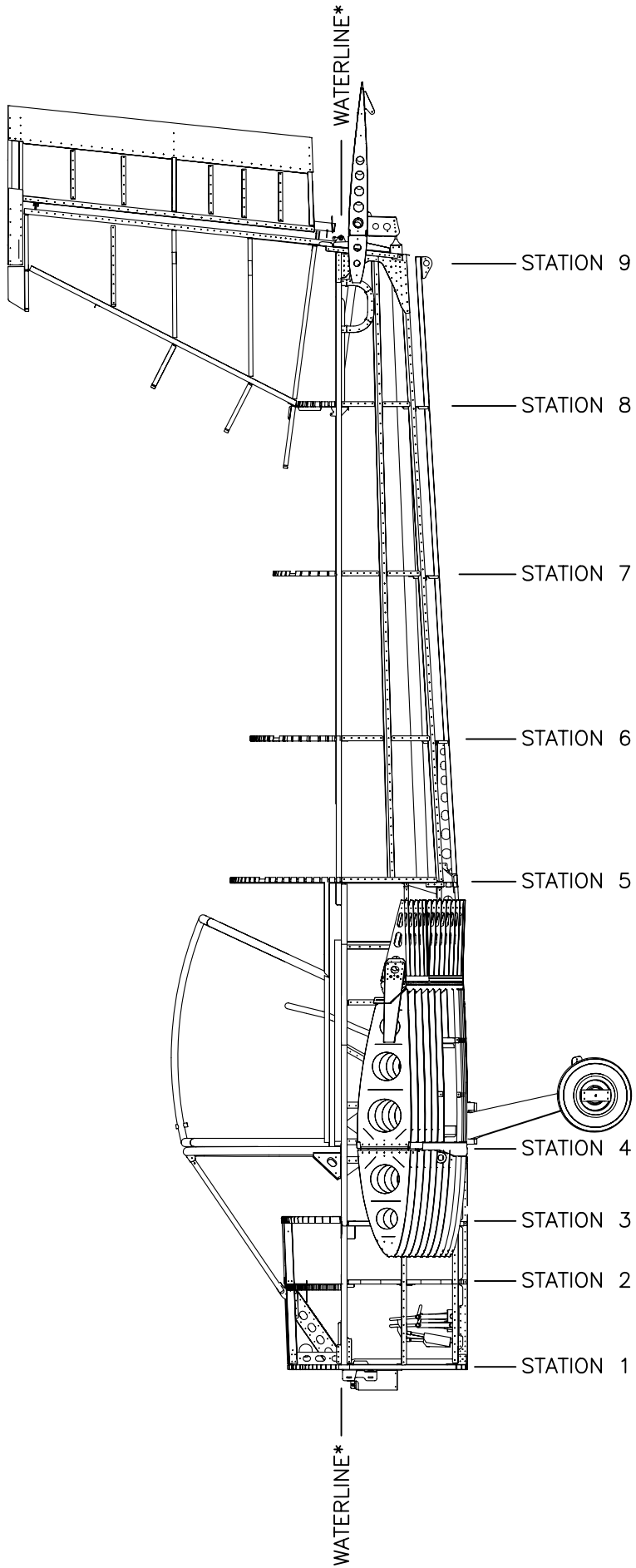
RAMS S-19 VENTERRA
INTERIOR FEATURES
FIGURE 01-05

MD5127



RAMS S-19 VENTERRA
INTERIOR FEATURES
FIGURE 01-06

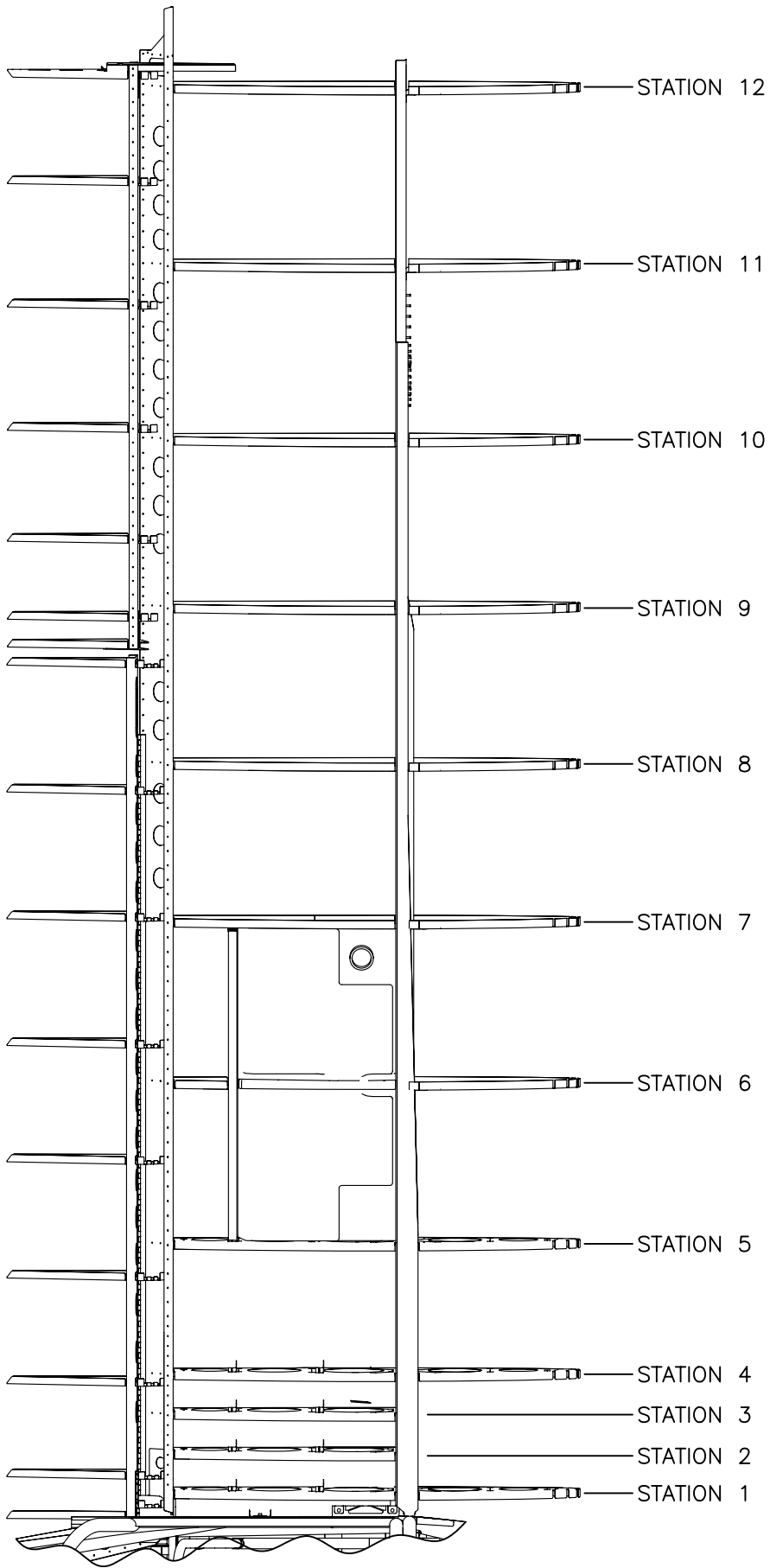
MD5127



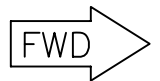
* WATERLINE IS TOP OF FWD LONGERON AND
BOTTOM OF AFT LONGERON

MD5149

RAMCO S-19 VENTERRA
FUSELAGE STATIONS
FIGURE 01-07



LH WING SHOWN



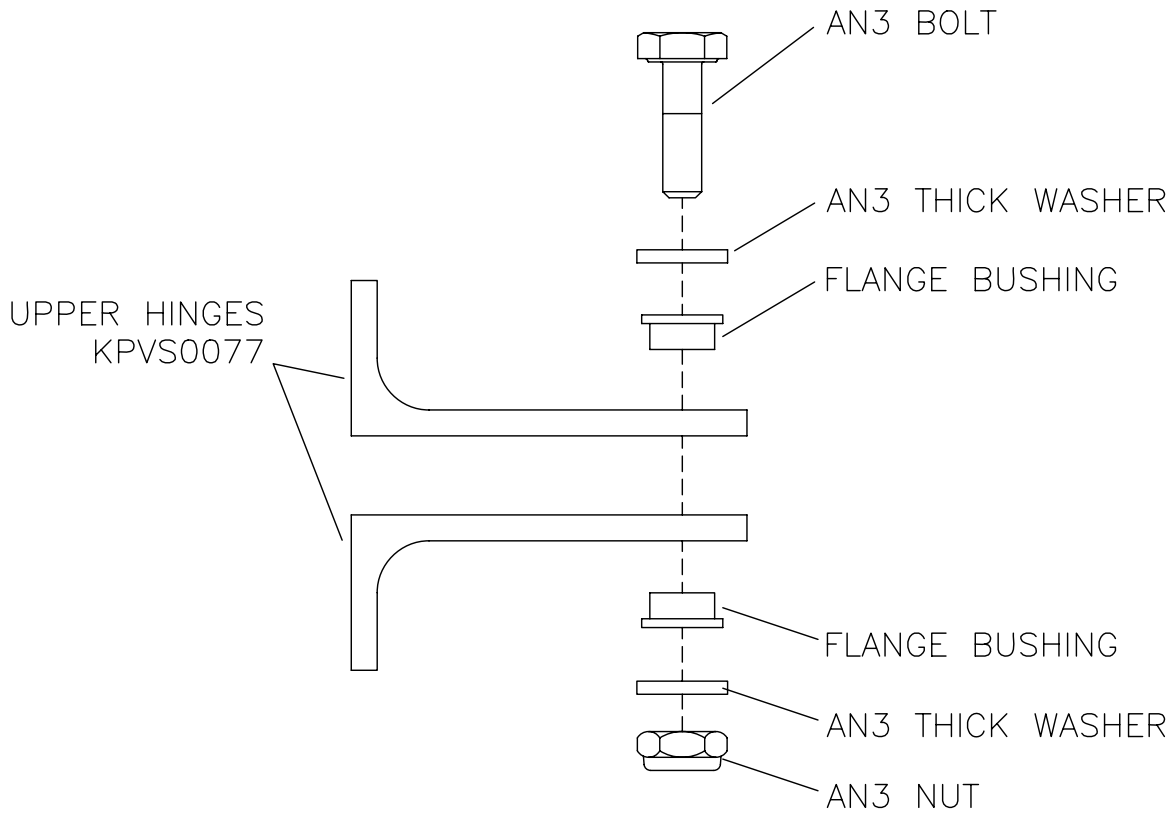
MD5148

RAMBOS S-19 VENTERRA
 WING STATIONS
 FIGURE 01-08

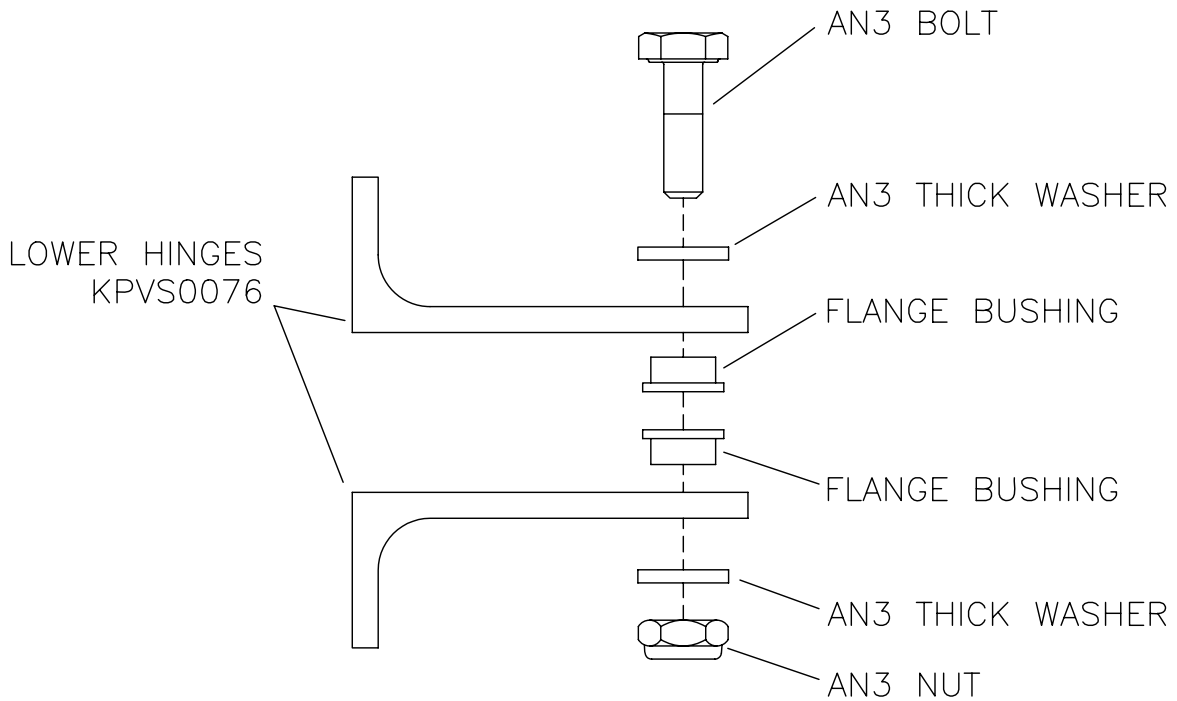
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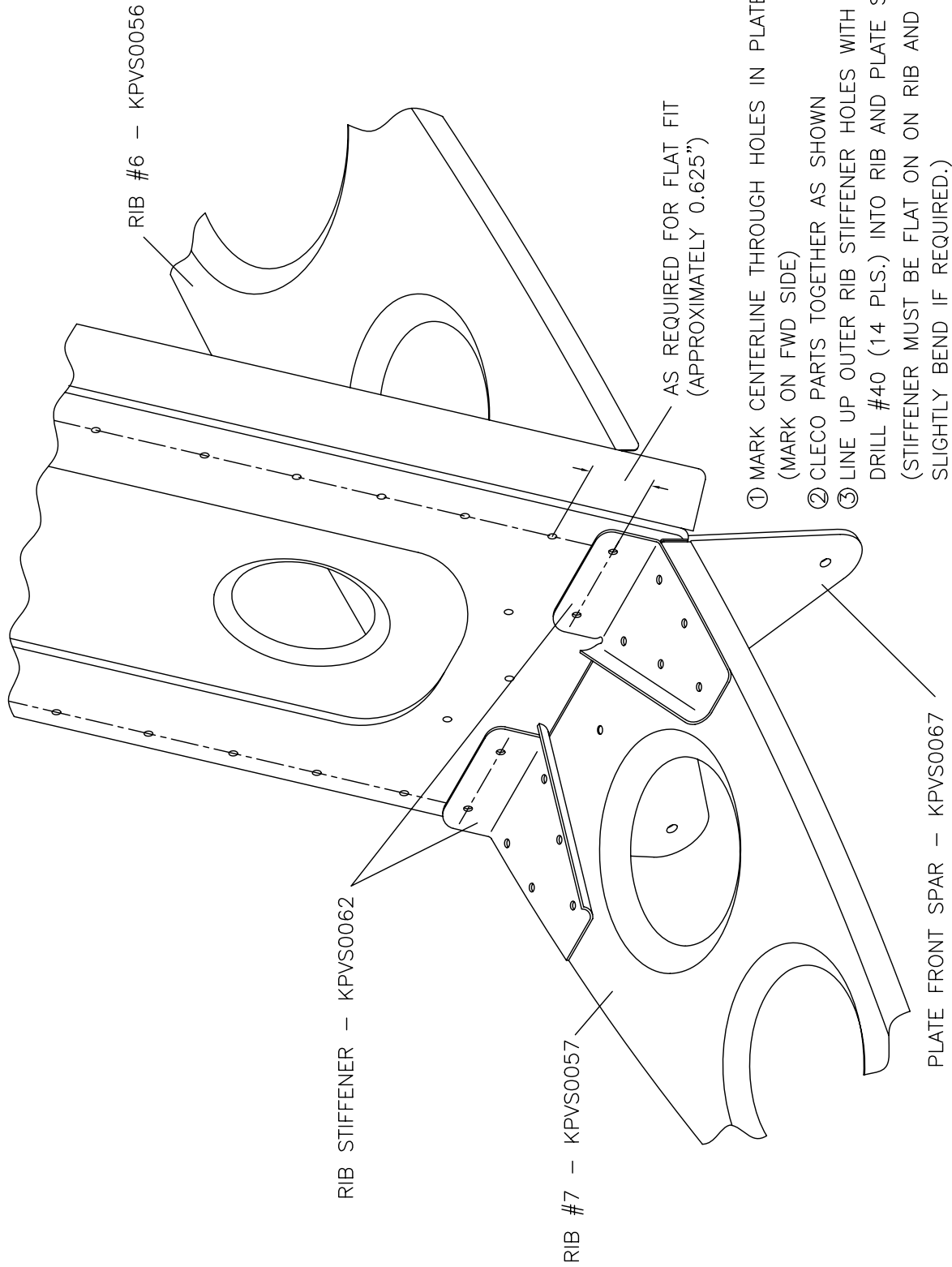
TIGHTEN NUT UNTIL
FLANGE BUSHINGS ARE
PRESSED INTO PLACE.



MD4893

RANS S-19 VENTERRA
VERTICAL STABILIZER HINGE ASSEMBLY
FIGURE 02-02

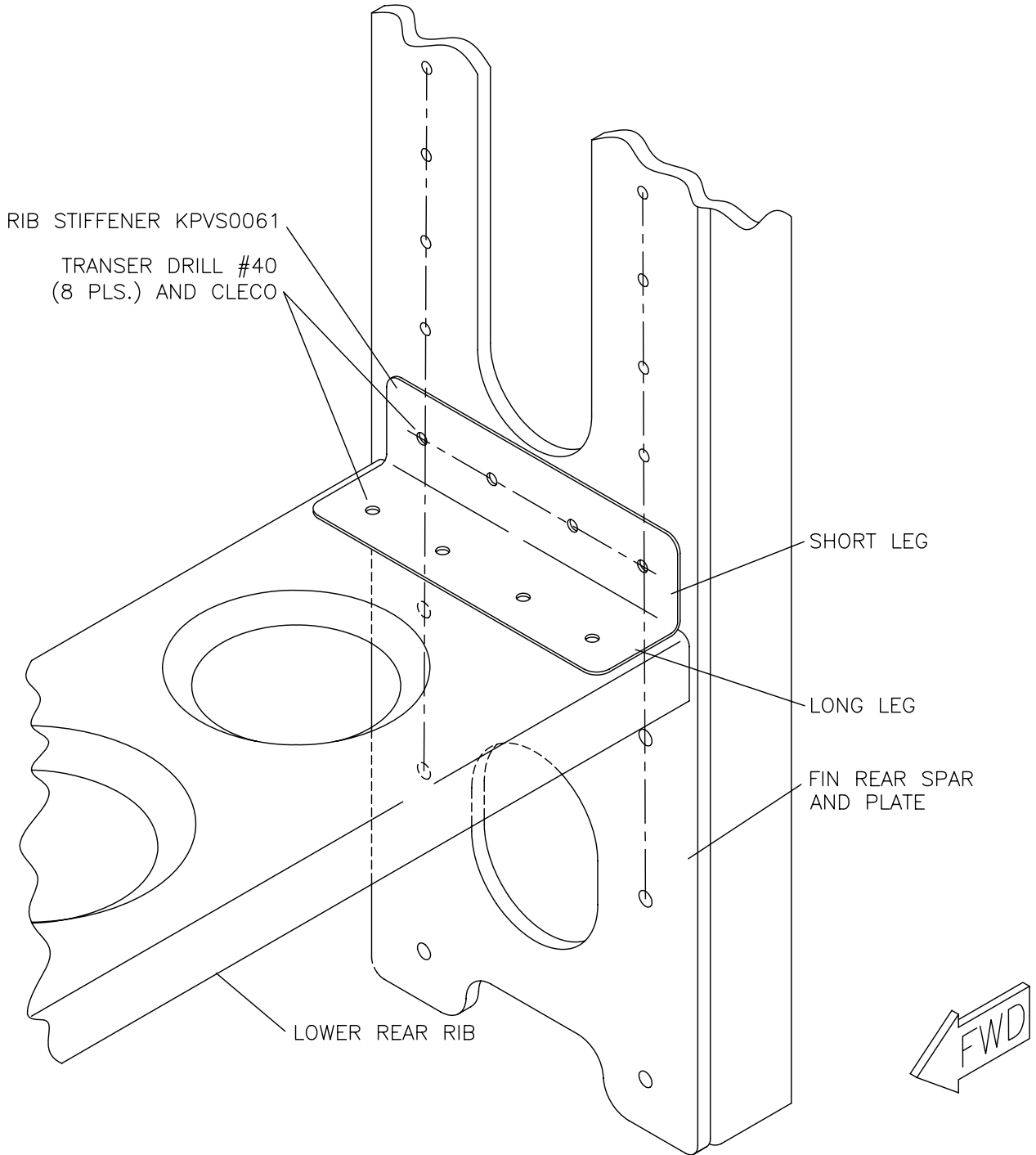
04/01/2011



MD4891

RAMS S-19 VENTERRA
VERTICAL STABILIZER - LOWER FWD RIB - RIB STIFFENER ATTACH
FIGURE 02-04

- ① MARK CENTERLINE THROUGH HOLES IN PLATE – REAR SPAR AS SHOWN
- ② CLECO PARTS TOGETHER (REAR SPAR – PLATE– RIB)
- ③ LINE UP RIB STIFFENER OUTER HOLES WITH CENTERLINE AND TRANSFER DRILL #40 (8 PLS.) IN RIB AND PLATE SPAR – CLECO. (STIFFENER MUST BE FLAT ON RIB AND SPAR. SLIGHTLY BEND AS REQUIRED)

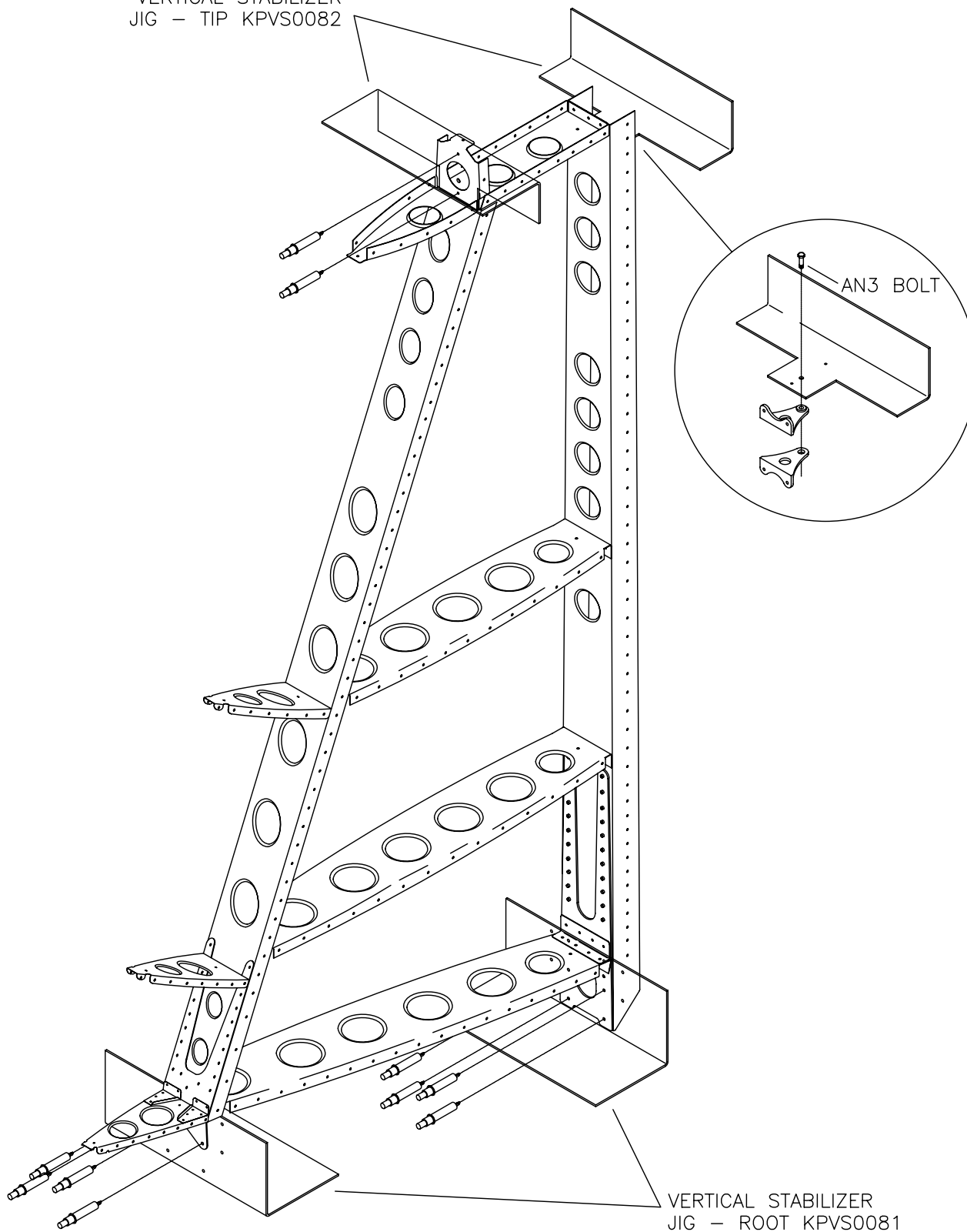


MD4890

RANS S-19 VENTERRA
VERTICAL STABILIZER - LOWER REAR RIB
- RIB STIFFENER ATTACH
FIGURE 02-17

04/01/2011

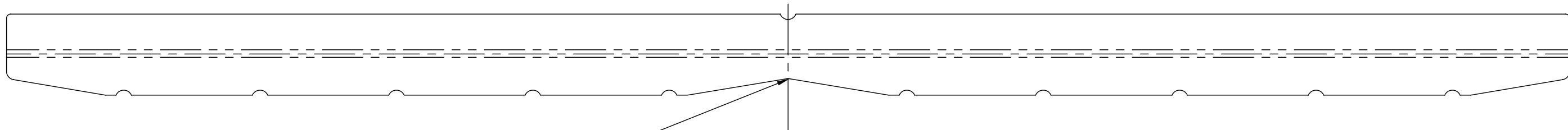
VERTICAL STABILIZER
JIG - TIP KPVS0082



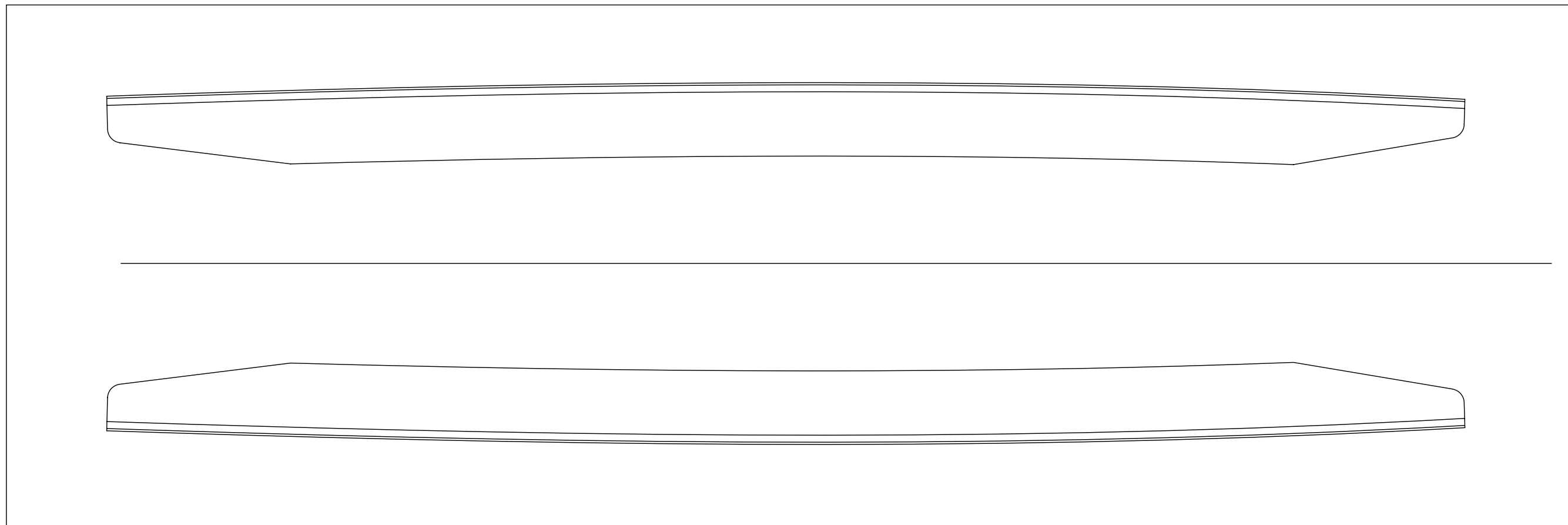
MD4894

RANS S-19 VENTERRA
VERTICAL STABILIZER JIGGING ANGLE
FIGURE 02-23

04/01/2011



CUT, PROFILE AS SHOWN, RADIUS CORNERS AND USE FLUTING PLIERS TO ACHIEVE PROFILE AS SHOWN IN FULL SIZE FIGURE DWG.



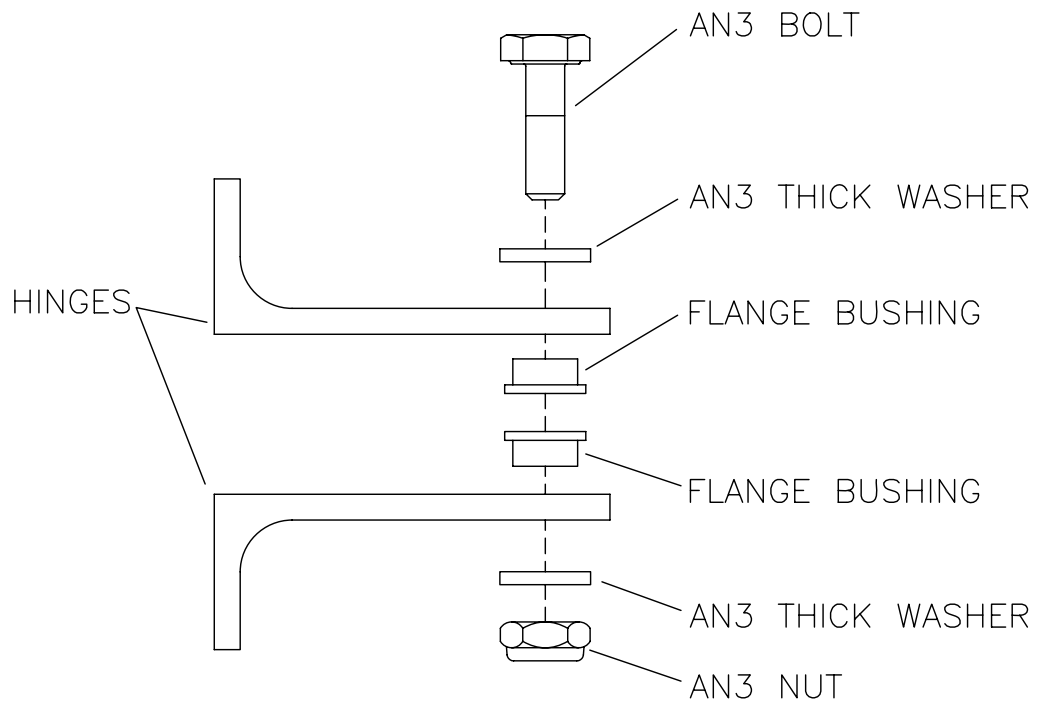
1 TO 1

MD4892

RANS S-19
VERTICAL STABILIZER SKIN STIFFENER MODIFICATION
FIGURE 02-25

09/01/2007

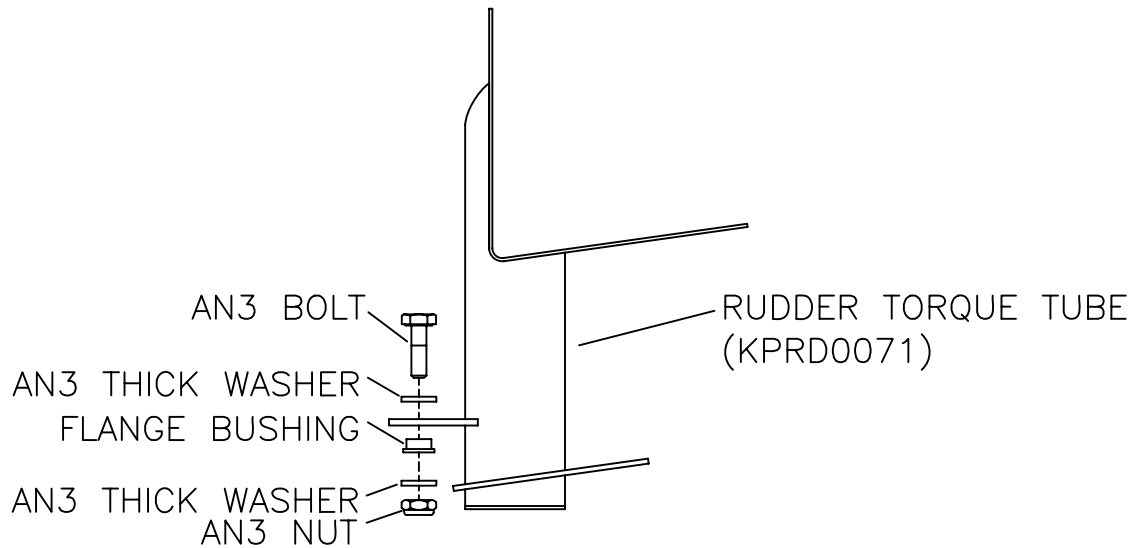
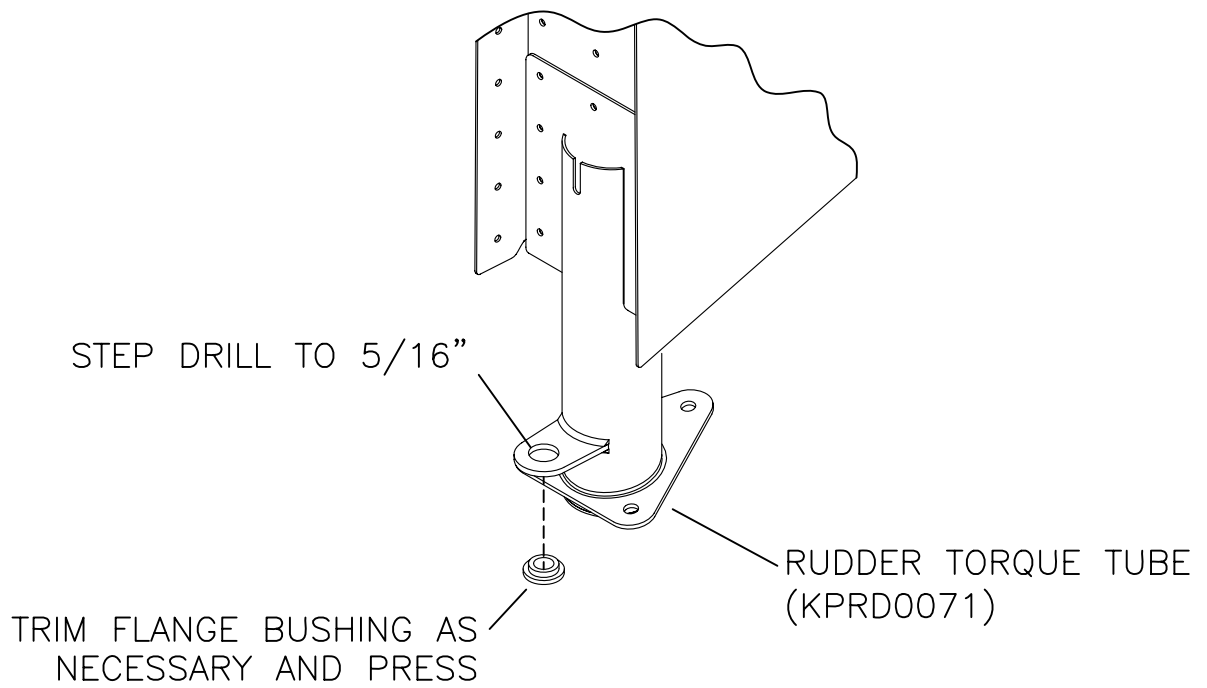
TIGHTEN NUT UNTIL FLANGE BUSHINGS
ARE PRESSED INTO PLACE.



MD4859

RANDS S-19 VENTERRA
RUDDER HINGE ASSEMBLY
FIGURE 02A-02

04/01/2011

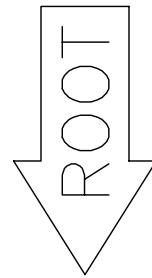
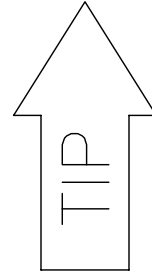
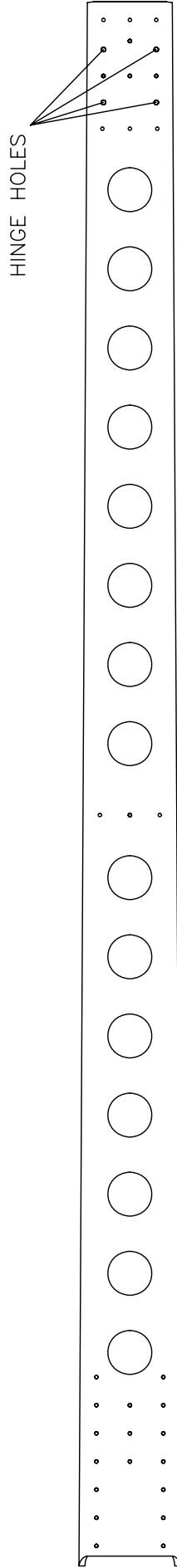


TIGHTEN NUT UNTIL FLANGE BUSHING IS PRESSED INTO PLACE.

MD5209

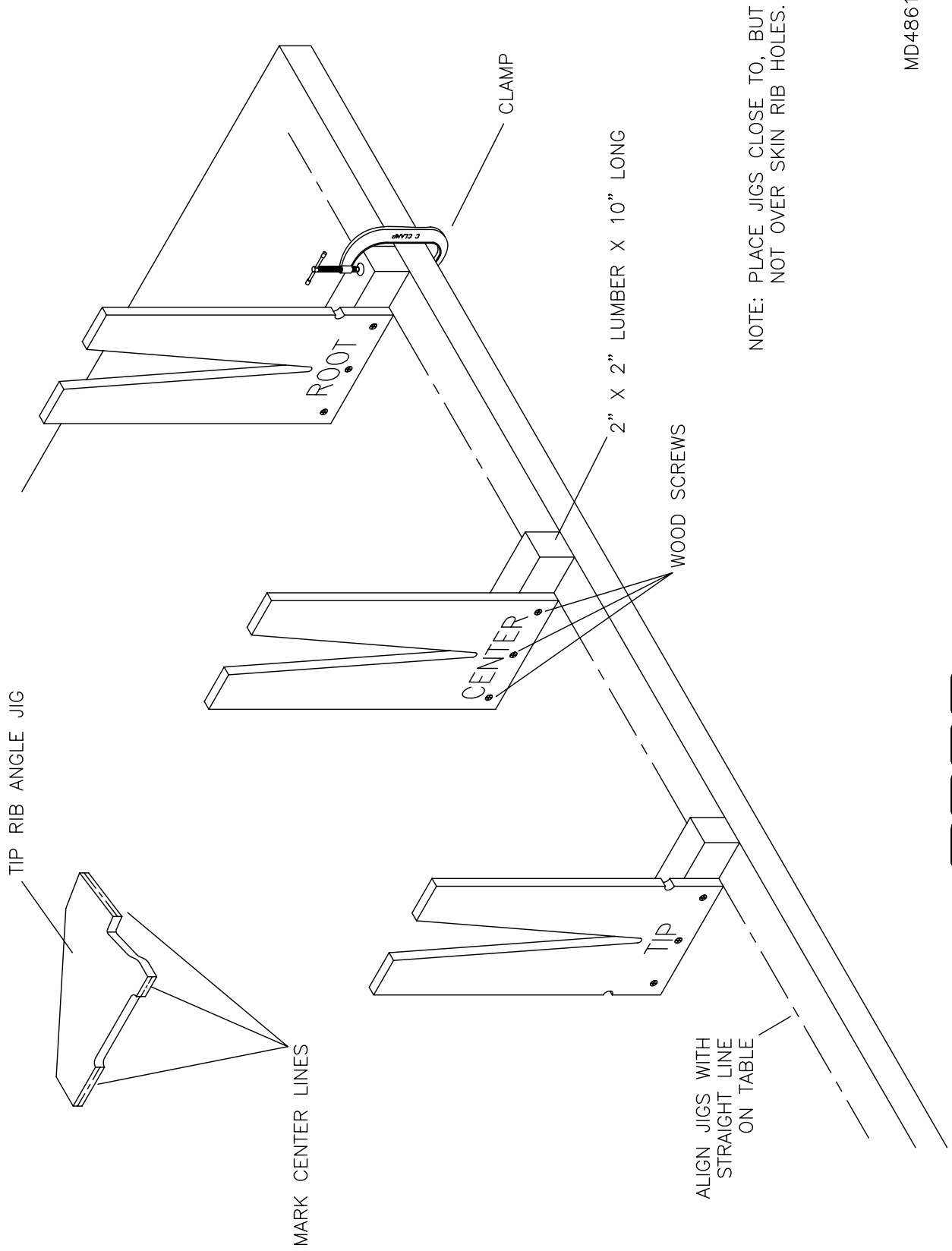
RANDS S-19 VENTERRA
RUDDER TANG FLANGE BUSHING INSTALLATION
FIGURE 02A-02A

04/01/2011



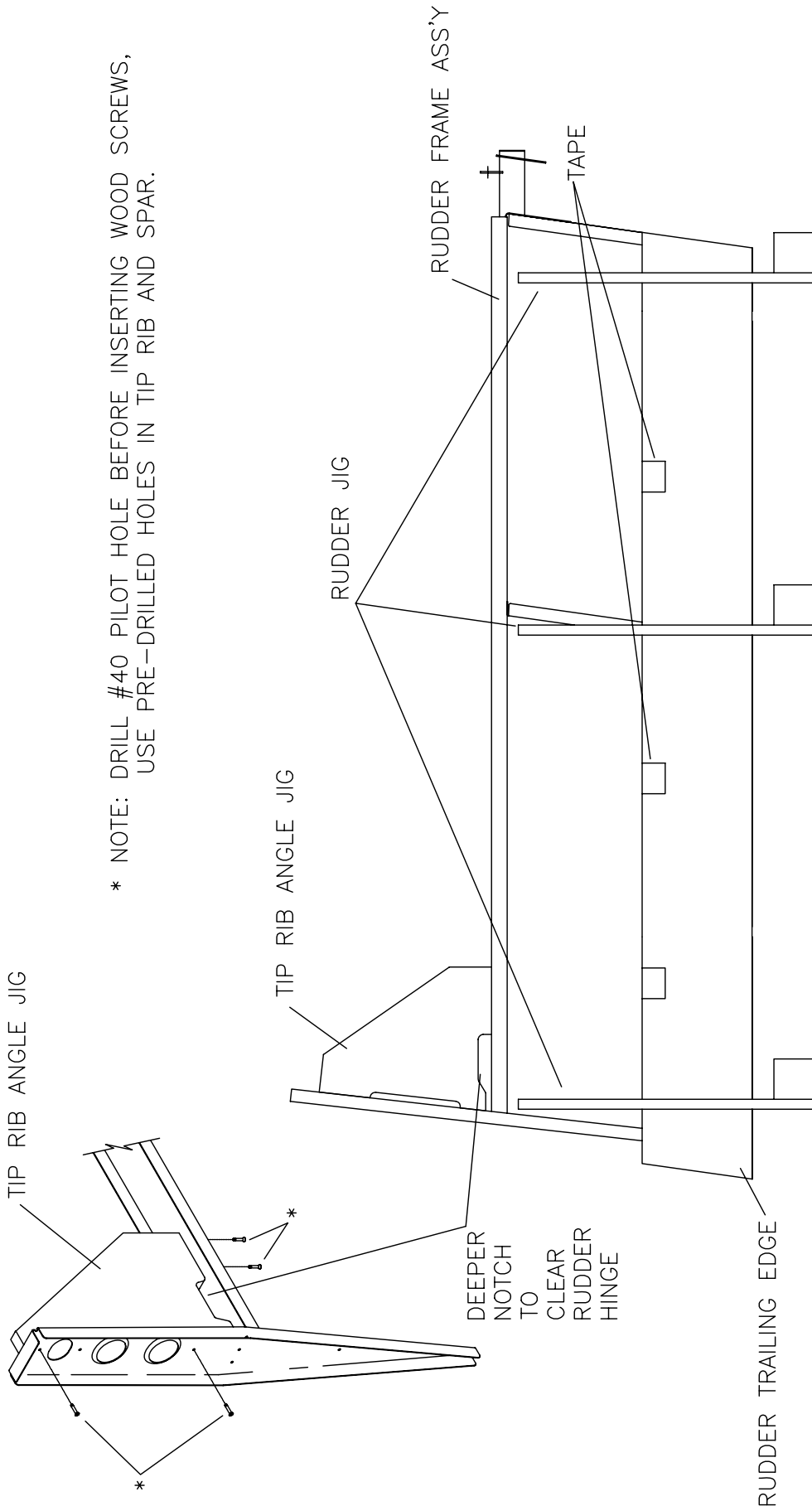
MD5162

RRF S-19 VENTERRA
 RUDDER SPAR ORIENTATION
 FIGURE 02A-03



MD4861

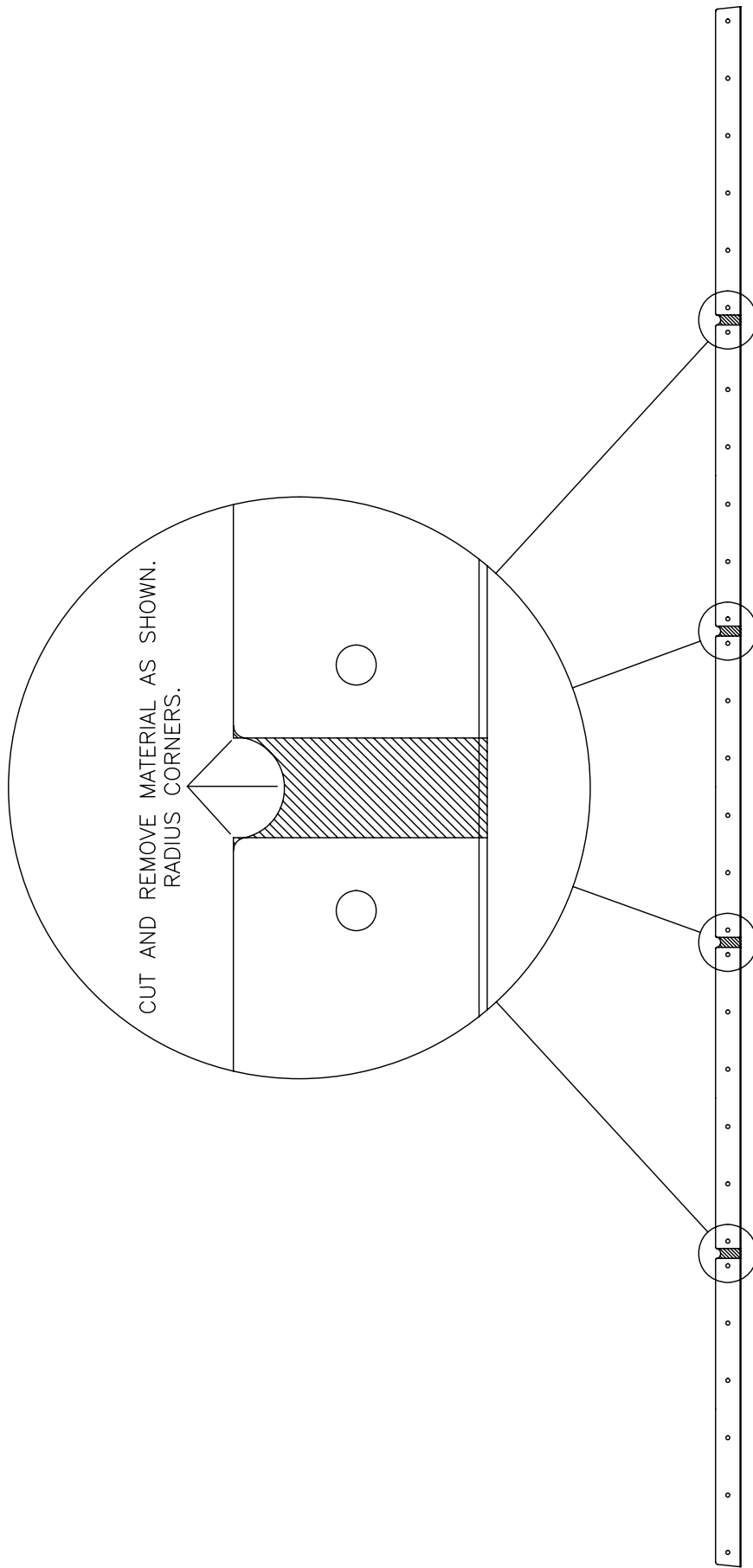
RAMBER S-19 VENTERRA
RUDDER JIGS
FIGURE 02A-08



* NOTE: DRILL #40 PILOT HOLE BEFORE INSERTING WOOD SCREWS,
 USE PRE-DRILLED HOLES IN TIP RIB AND SPAR.

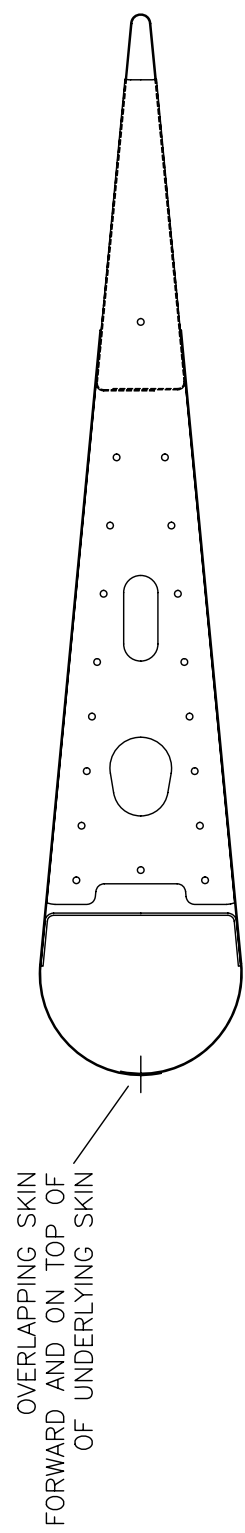
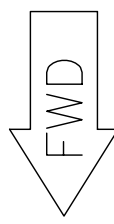
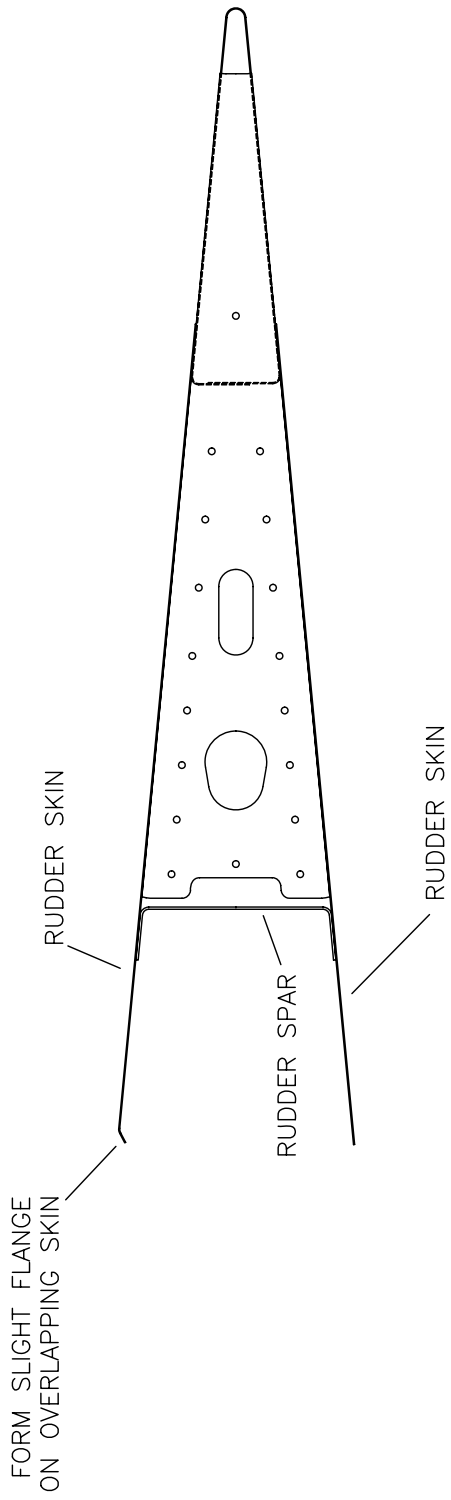
MD4860

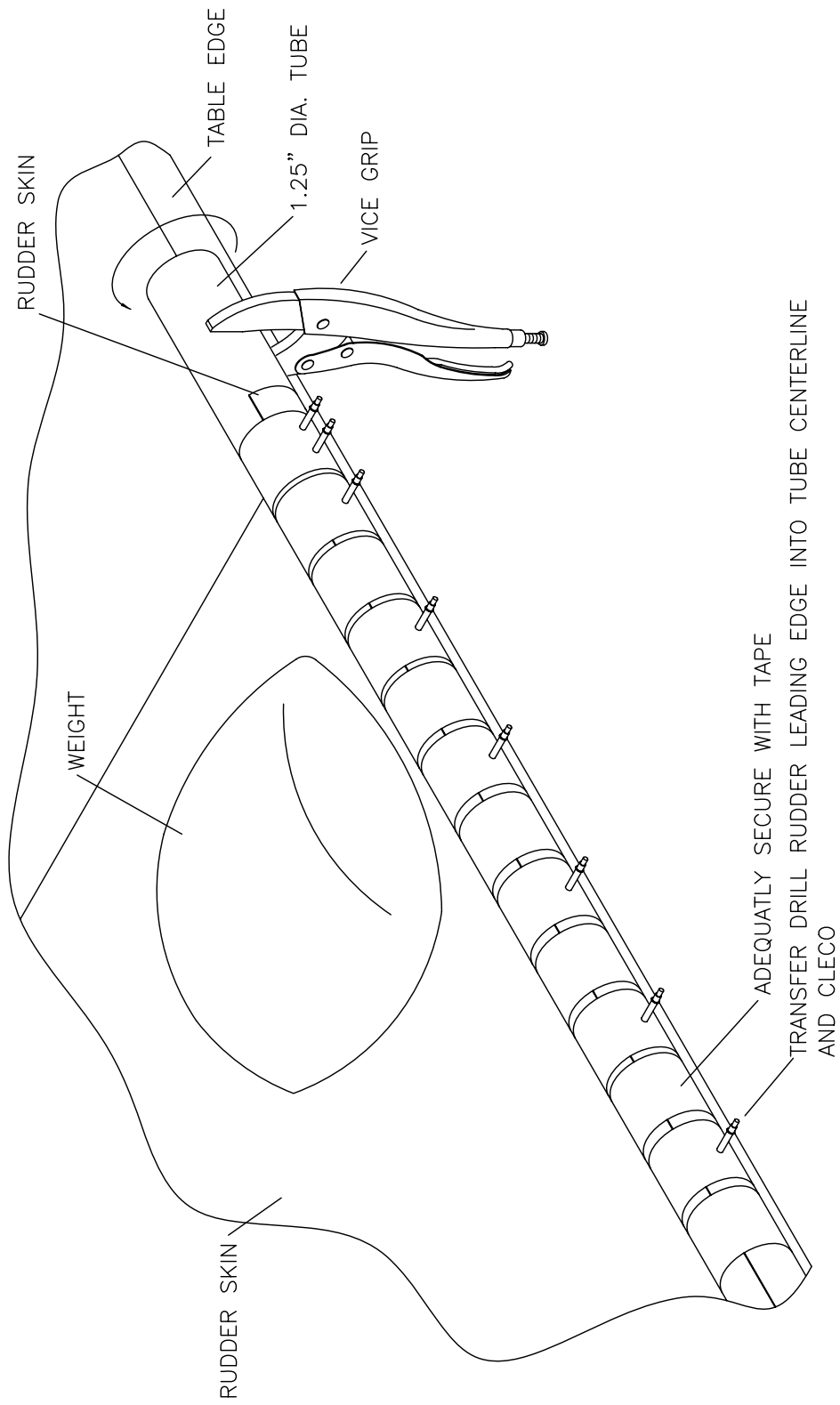
RAMS S-19 VENTERRA
RUDDER JIG
FIGURE 02A-10



CUT AND REMOVE MATERIAL AS SHOWN.
RADIUS CORNERS.

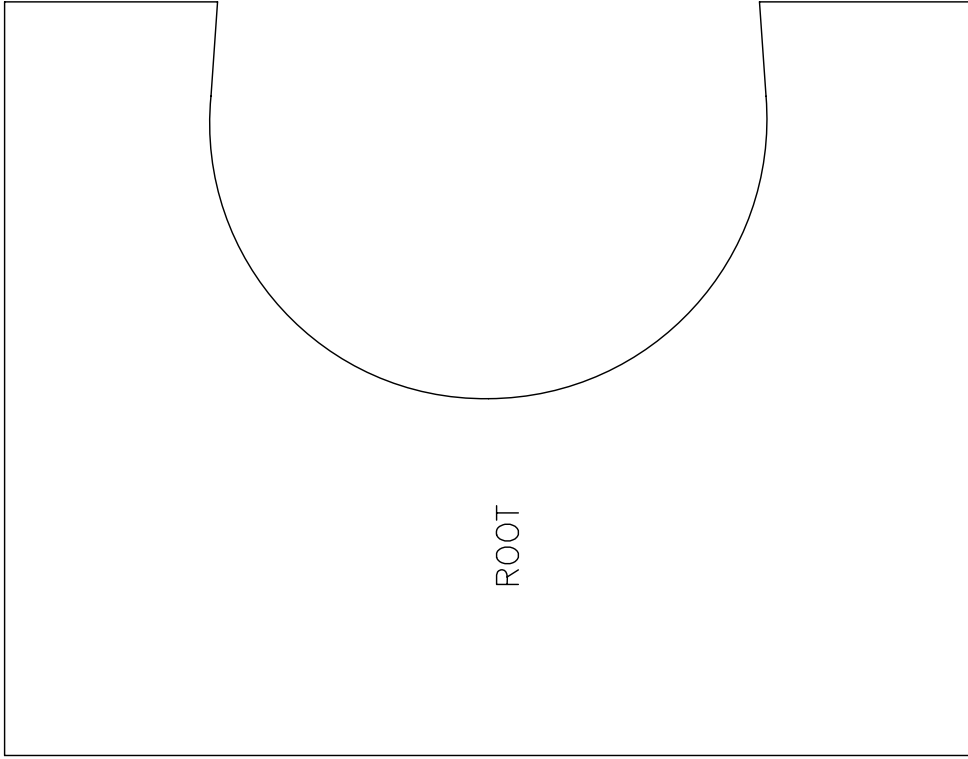
RAMS S-19 VENTERRA
RUDDER SKIN STIFFENER MODIFICATION
FIGURE 02A-13



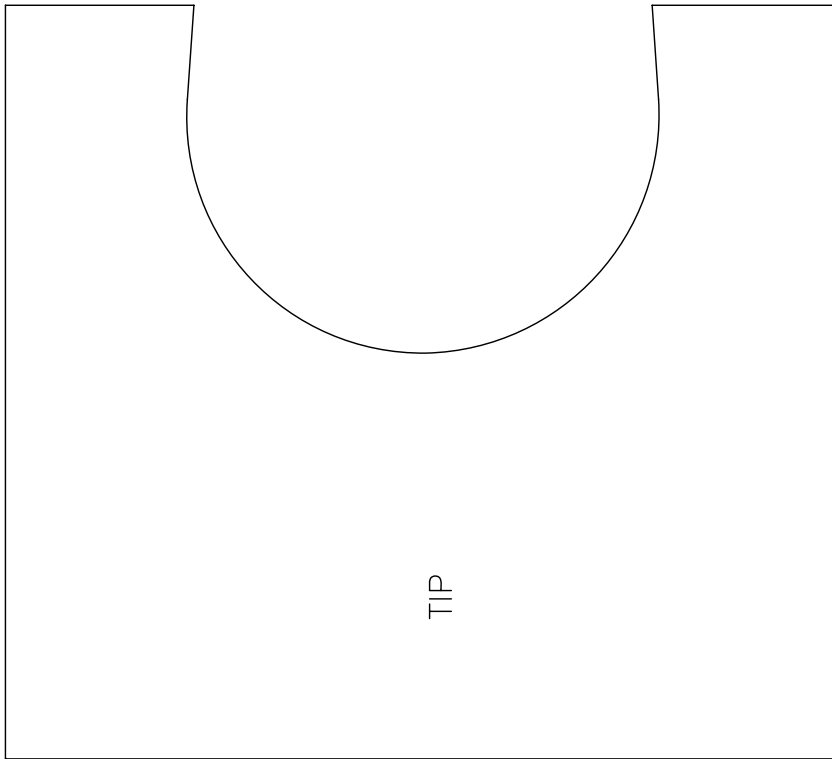


MD4863

RAMBER S-19 VENTERRA
RUDDER FORMING JIG
FIGURE 02A-23



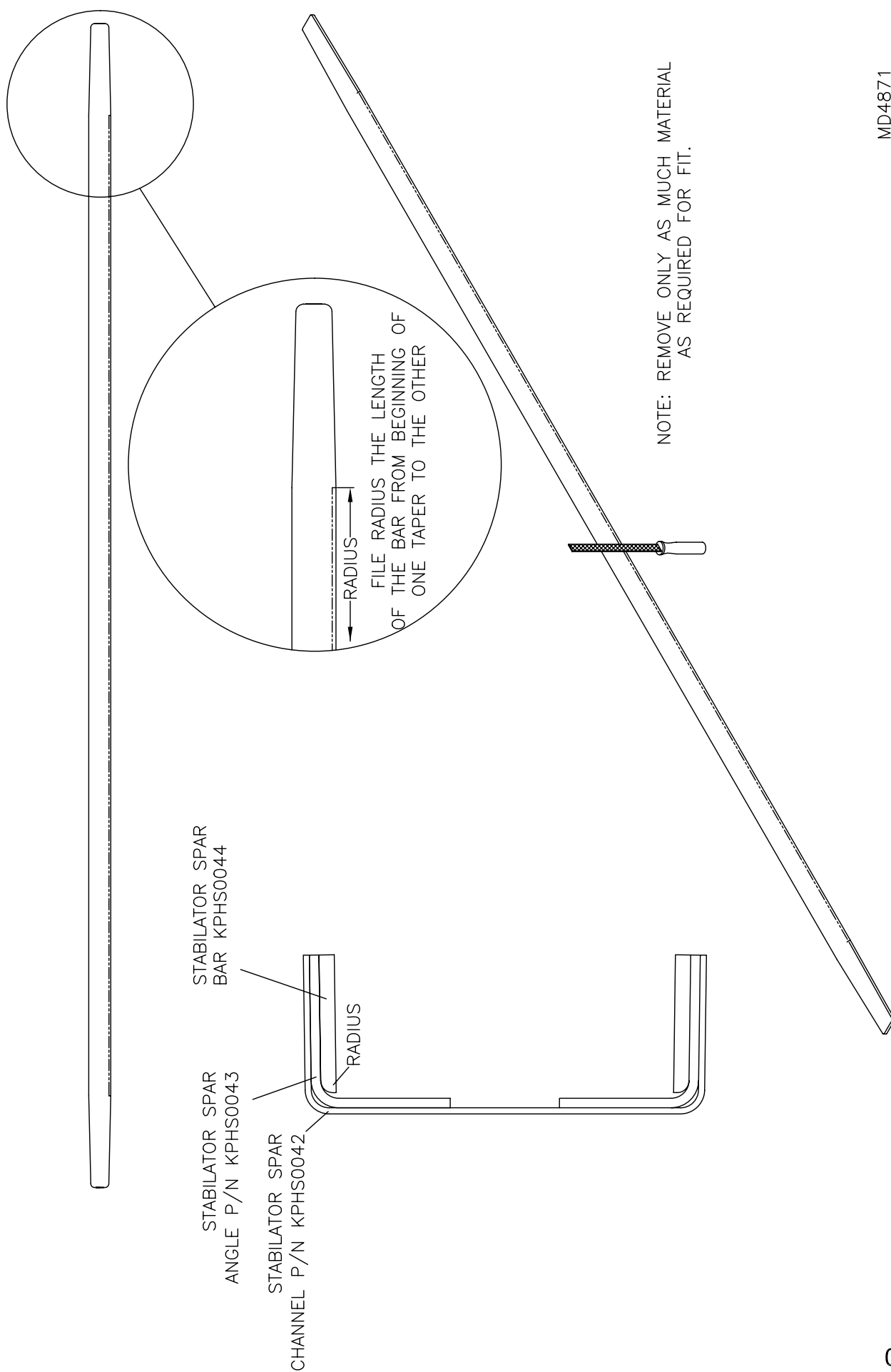
ROOT



TIP

MD4862

RAMS S-19 VENTERRA
RUDDER LEADING EDGE TEMPLATE
FIGURE 02A-23A



STABILATOR SPAR
BAR KPHS0044

STABILATOR SPAR
ANGLE P/N KPHS0043

STABILATOR SPAR
CHANNEL P/N KPHS0042

RADIUS

RADIUS

FILE RADIUS THE LENGTH
OF THE BAR FROM BEGINNING OF
ONE TAPER TO THE OTHER

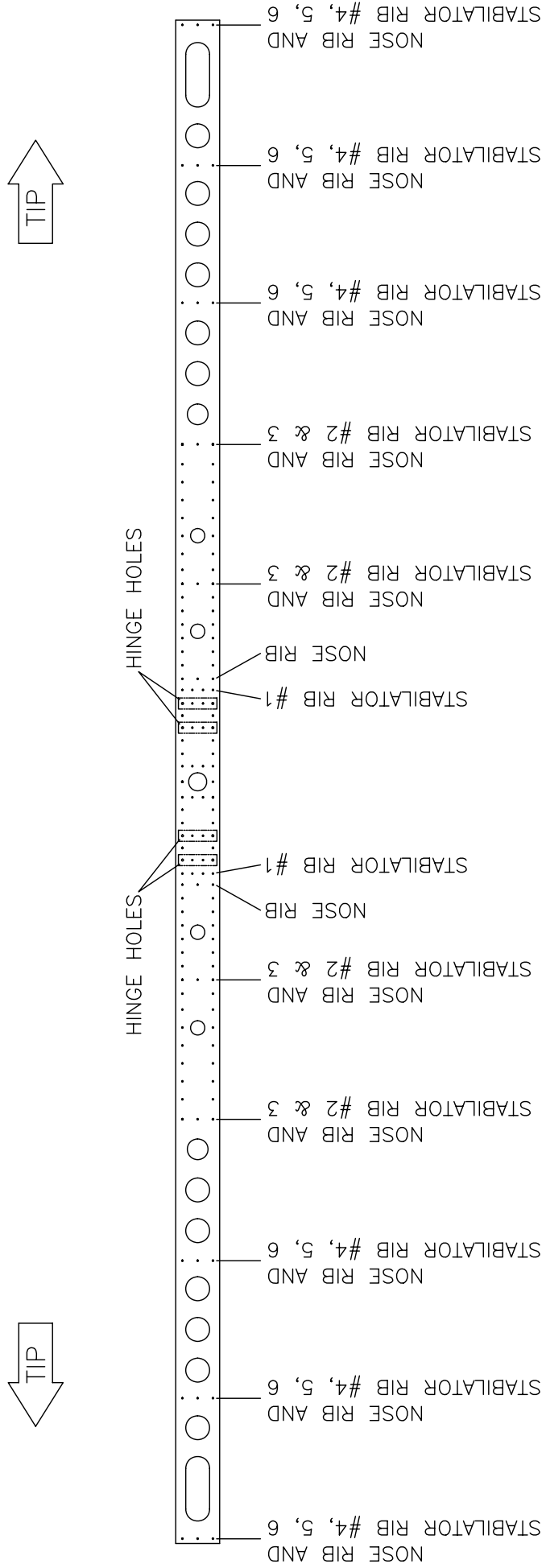
NOTE: REMOVE ONLY AS MUCH MATERIAL
AS REQUIRED FOR FIT.

MD4871

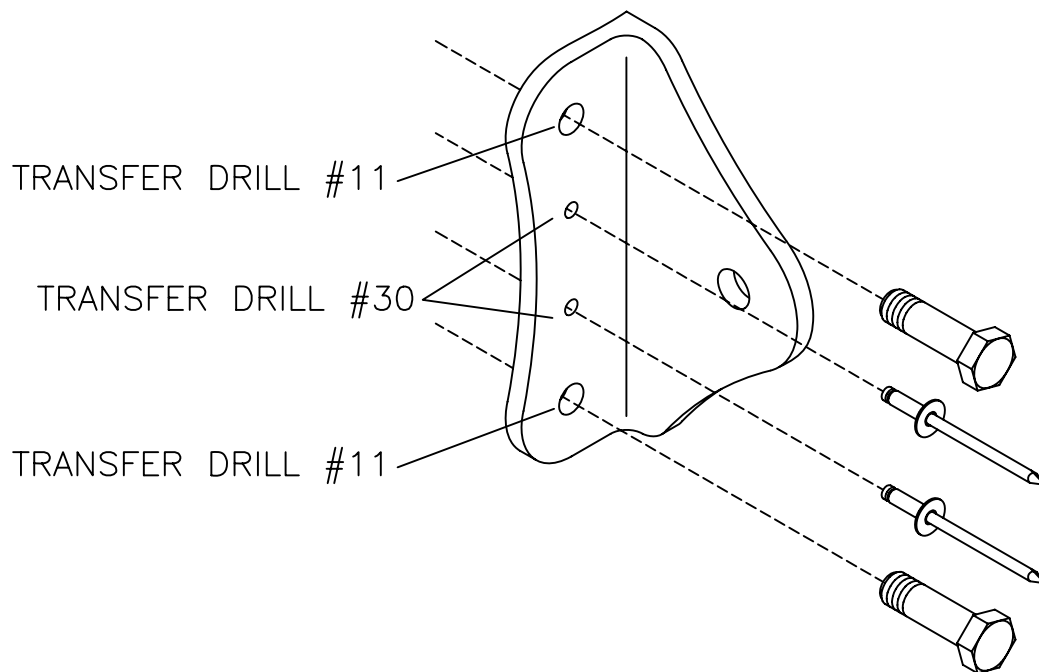
RAMS S-19 VENTERRA
STABILATOR SPAR BAR MODIFICATION
FIGURE 02B-04

RRR S-19 VENTERRA STABILATOR SPAR ORIENTATION FIGURE 02B-06

MD5165



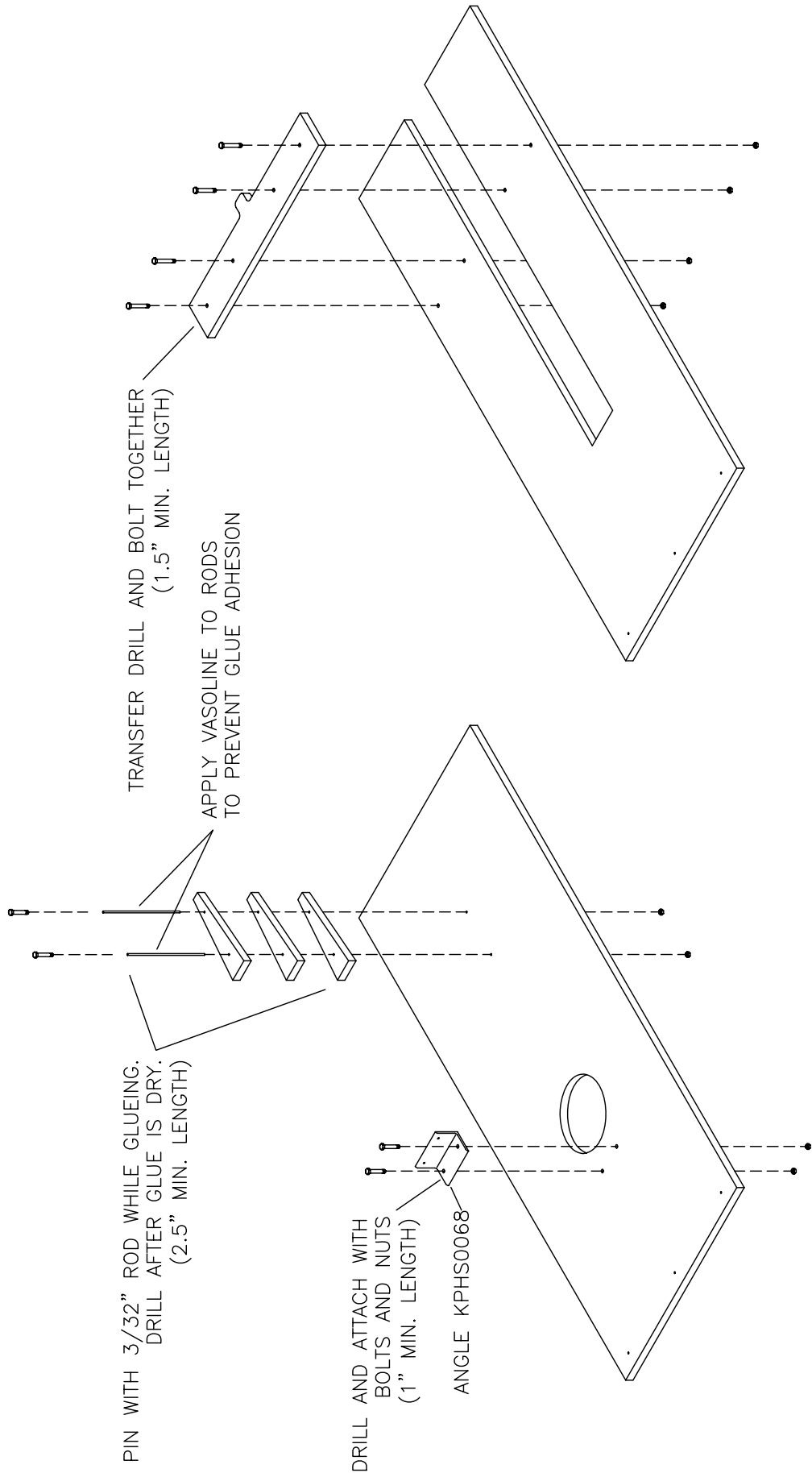
CLECO TO STABILATOR SPAR AND
DRILL PER DIRECTIONS BELOW



MD5232

RANS S-19 VENTERRA
STABILATOR HINGE MODIFICATION
FIGURE 02B-07

04/01/2011



PIN WITH 3/32" ROD WHILE GLUEING.
 DRILL AFTER GLUE IS DRY.
 (2.5" MIN. LENGTH)

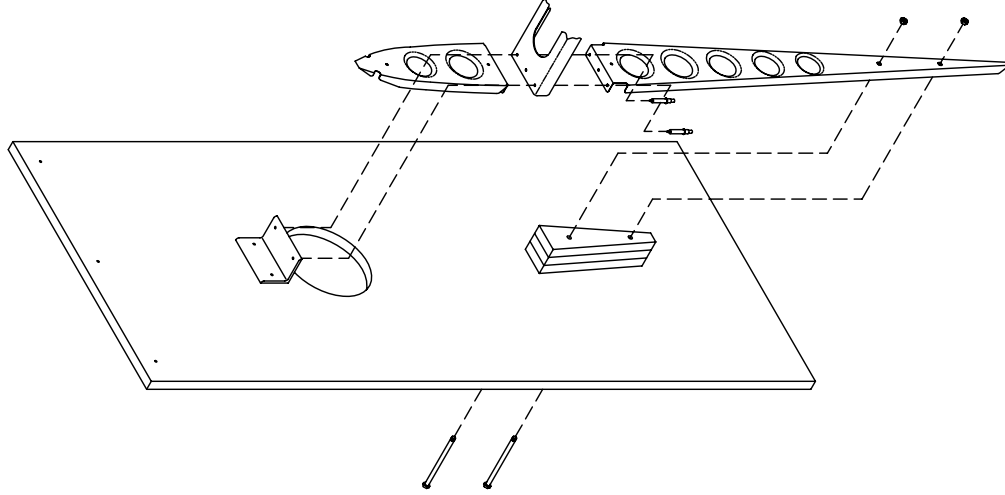
TRANSFER DRILL AND BOLT TOGETHER
 (1.5" MIN. LENGTH)

APPLY VASOLINE TO RODS
 TO PREVENT GLUE ADHESION

DRILL AND ATTACH WITH
 BOLTS AND NUTS
 (1" MIN. LENGTH)

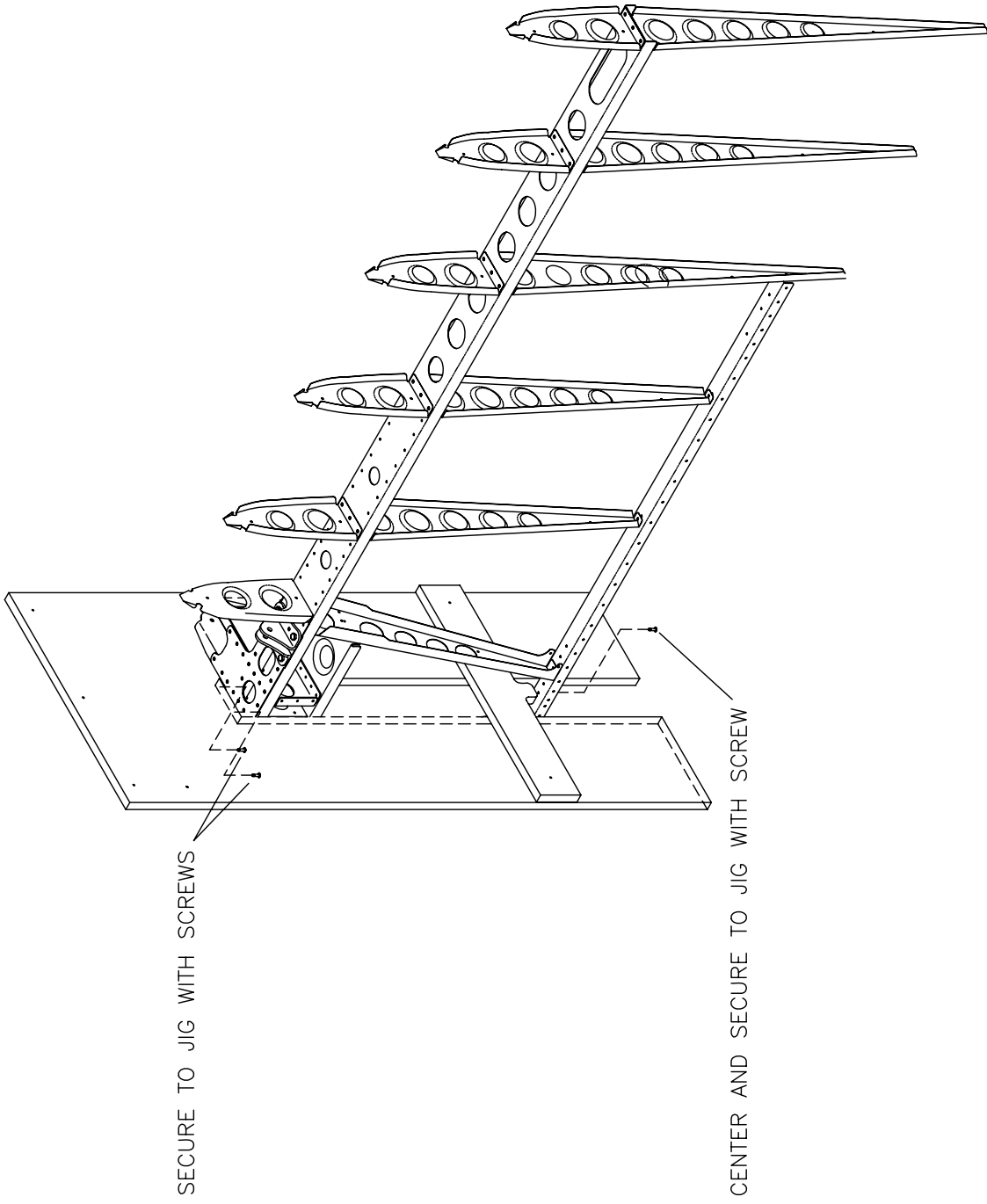
ANGLE KPHS0068

RAMS S-19 VENTERRA
STABILATOR JIG ASSEMBLY #1
FIGURE 02B-08



MD4868

RRANOS S-19 VENTERRA
STABILATOR JIG ASSEMBLY #2
FIGURE 02B-08A

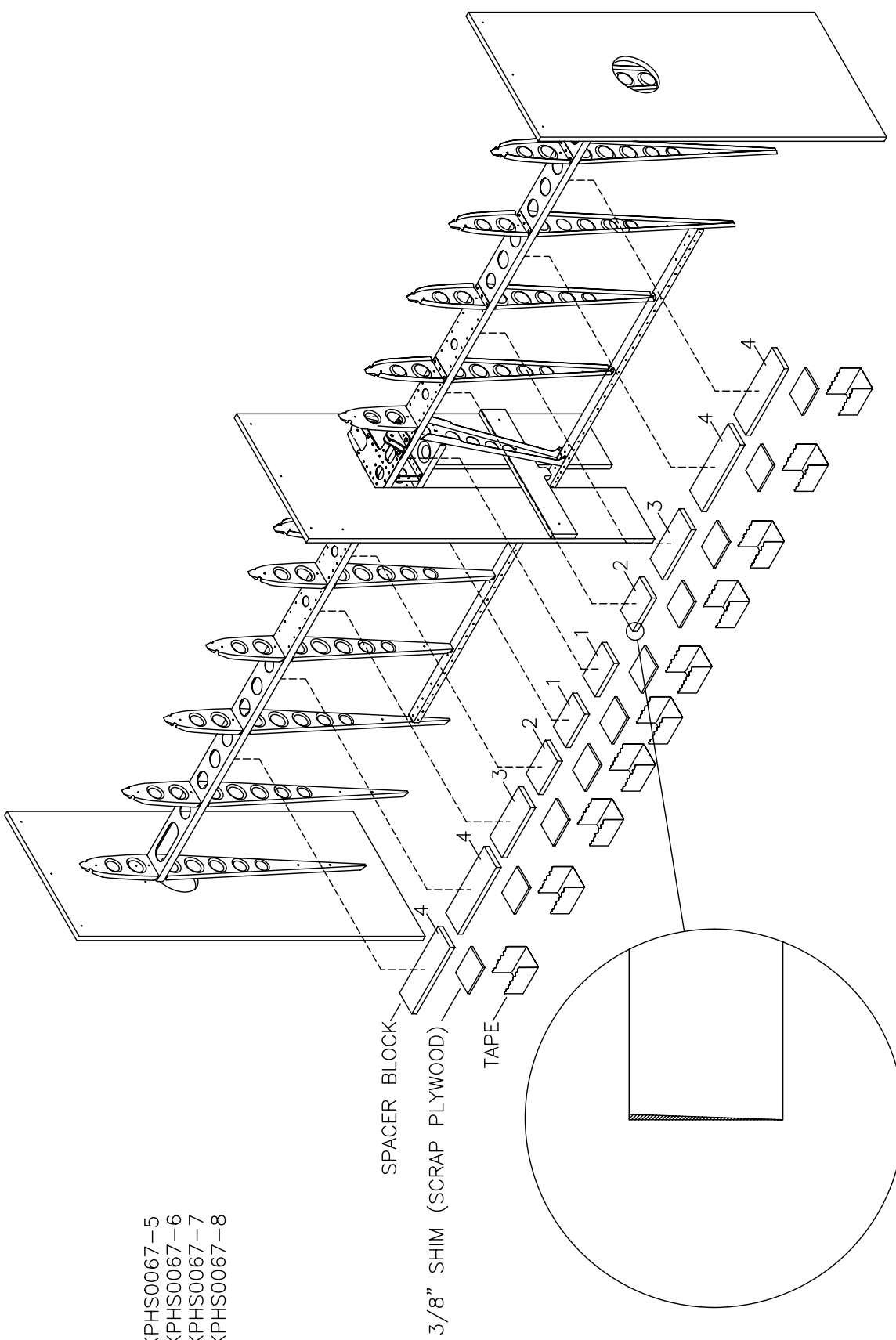


SECURE TO JIG WITH SCREWS

CENTER AND SECURE TO JIG WITH SCREW

MD4868

RRF S-19 VENTERRA
STABILATOR JIG ASSEMBLY #3
FIGURE 02B-08B



- 1. KPHS0067-5
- 2. KPHS0067-6
- 3. KPHS0067-7
- 4. KPHS0067-8

SPACER BLOCK

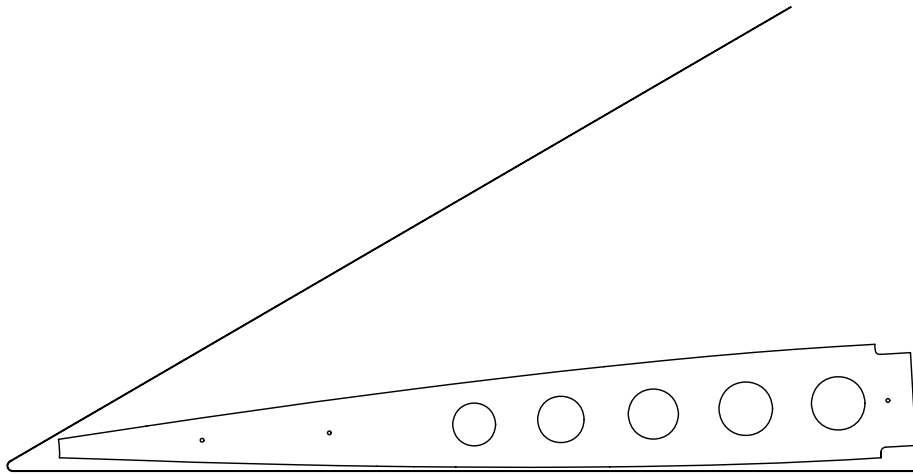
3/8" SHIM (SCRAP PLYWOOD)

TAPE

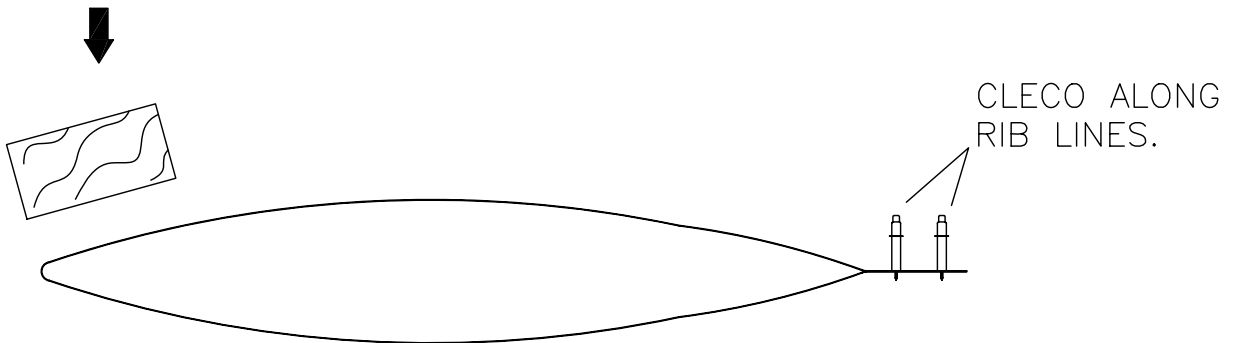
BEVEL EDGES OF BLOCKS TO MATCH INNER SHAPER OF STABILATOR LEADING EDGE SPAR WITH THE STABILATOR SPAR BAR IN PLACE.

RRANOR S-19 VENTERRA
STABILATOR JIG ASSEMBLY #4
FIGURE 02B-08C

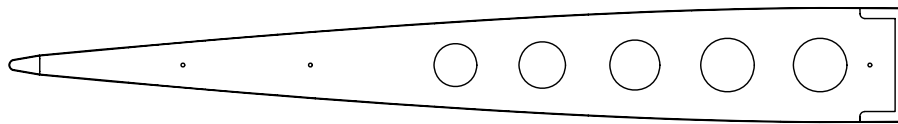
MD4868



SKIN AS DELIVERED



LAY SKIN ON FLAT, CLEAN
WORK SURFACE



DESIRED SHAPE

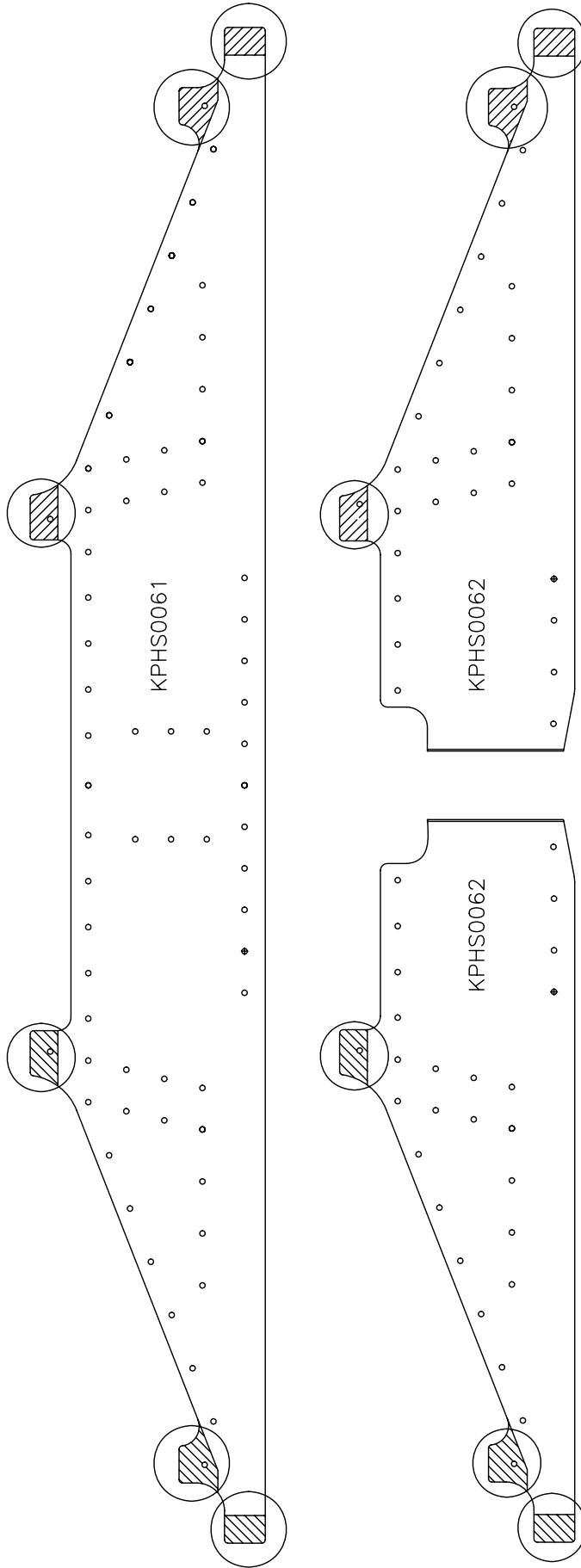
RANS S-19 VENTERRA
STABILATOR TRAILING EDGE
FIGURE 02B-11

MD4874

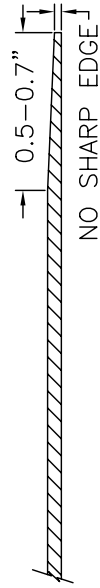
04/01/2011

NOTE: IDENTIFY UP AND DOWN ON
KPHS0062 AS PER PARTS MANUAL
BEFORE SANDING.

SKIN DETAIL

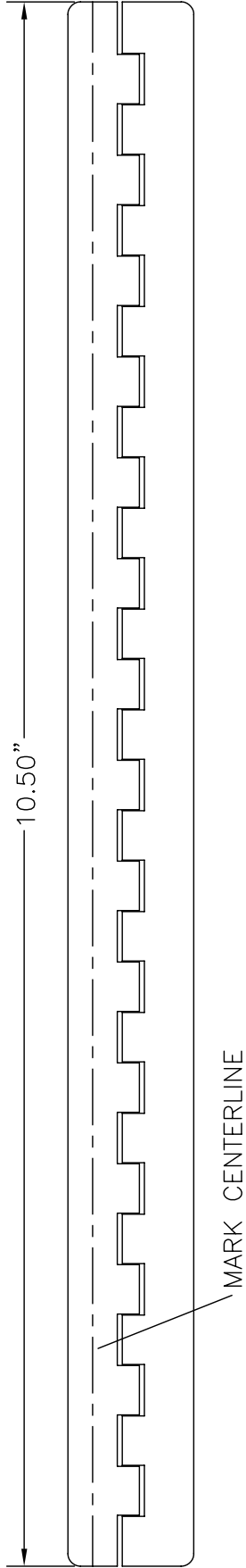


FILE AND SAND TO SHAPE
FOR SMOOTH SKIN
TRANSITION.



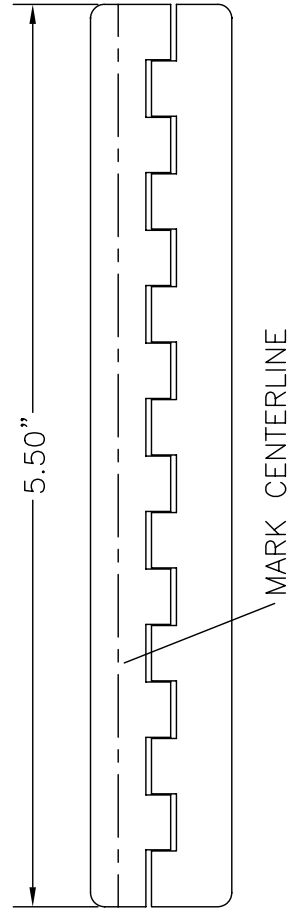
RRR S-19 VENTERRA
TORQUE BOX PLATE MODIFICATION
FIGURE 02B-13

1 REQUIRED

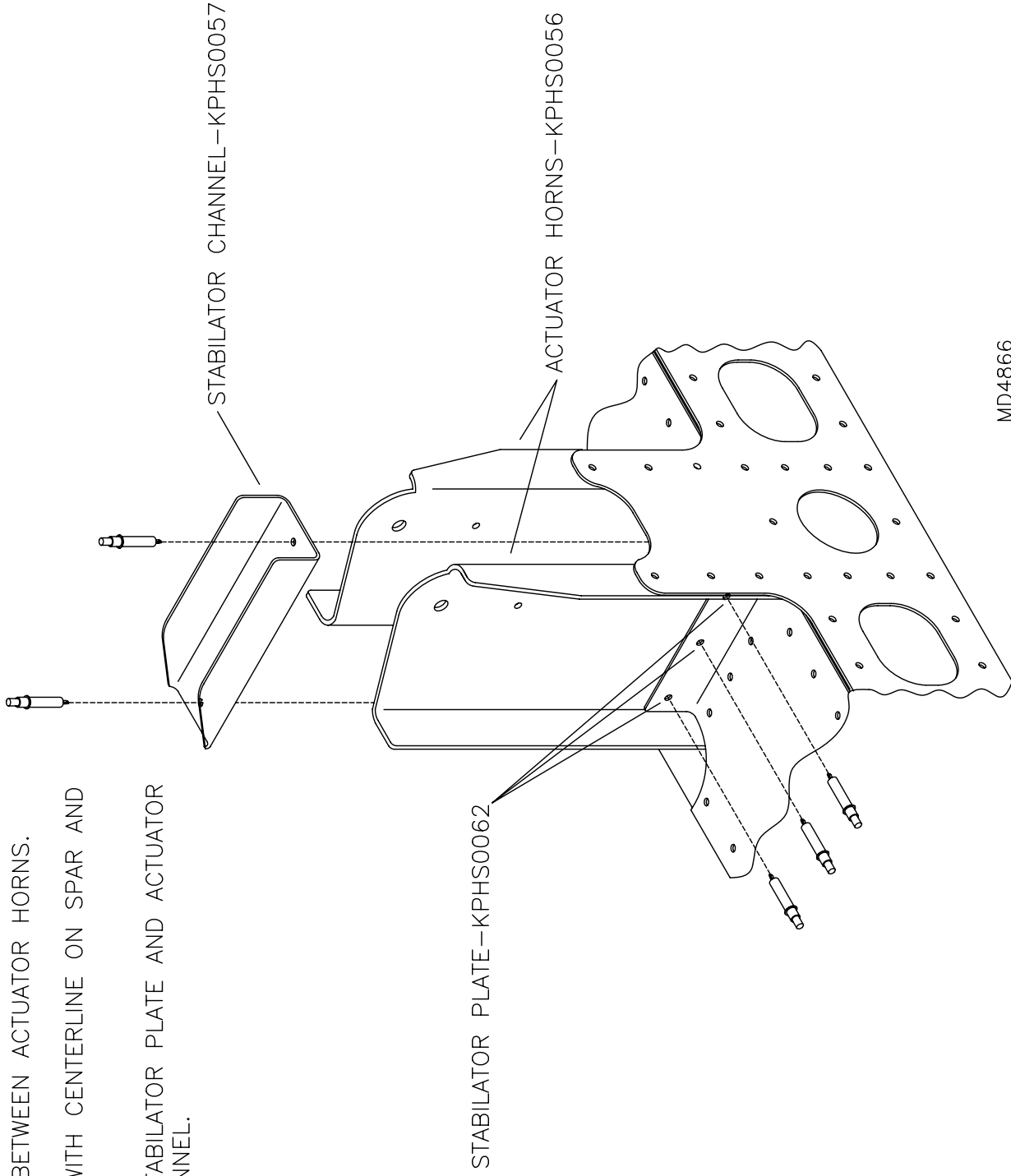


IMPORTANT: REMOVE PIN FROM HINGE BEFORE CUTTING

2 REQUIRED

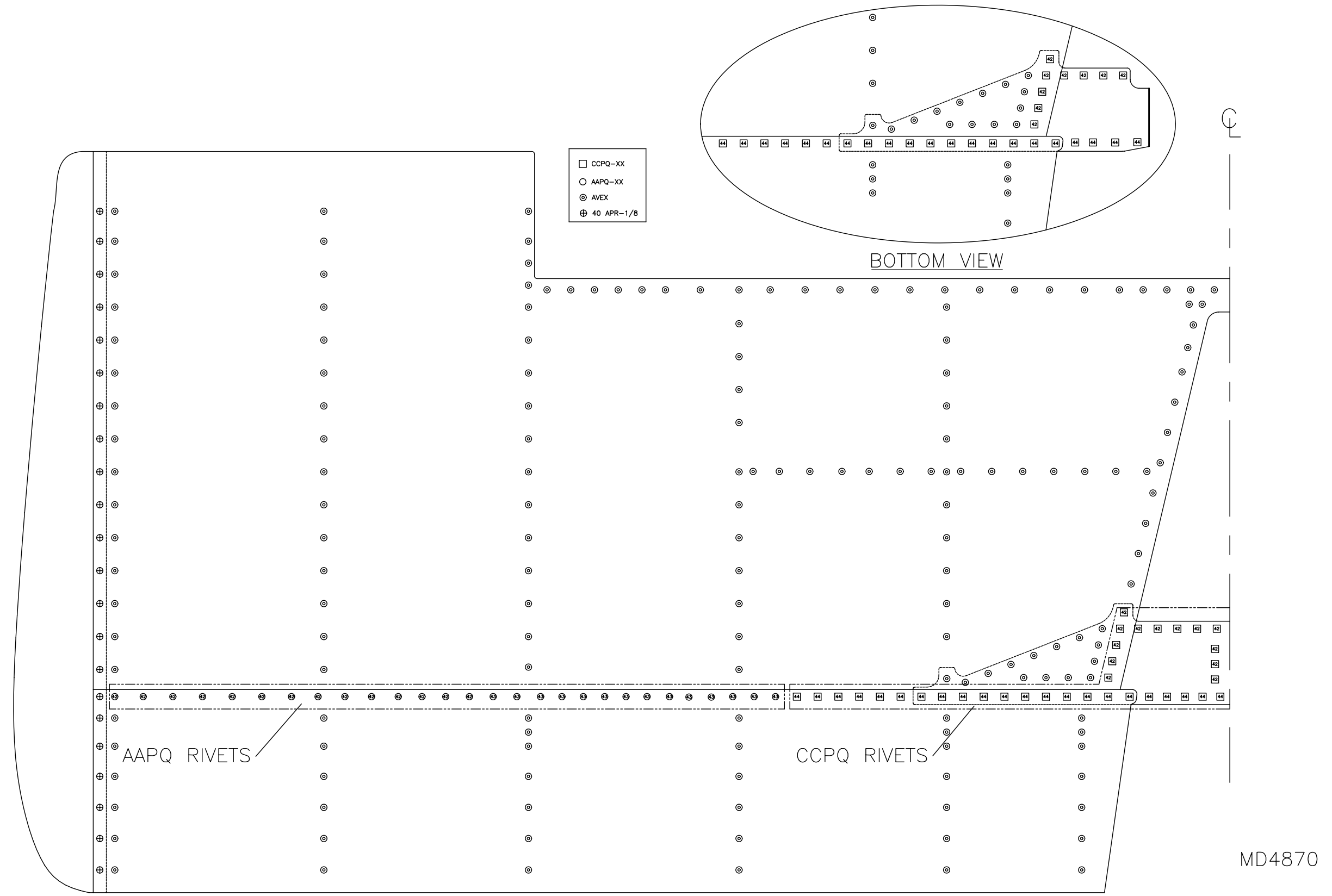


1. PLACE STABILATOR CHANNEL BETWEEN ACTUATOR HORNS.
2. ALIGN STABILATOR CHANNEL WITH CENTERLINE ON SPAR AND TRANSFER DRILL.
3. TRANSFER DRILL THROUGH STABILATOR PLATE AND ACTUATOR HORNS INTO STABILATOR CHANNEL.



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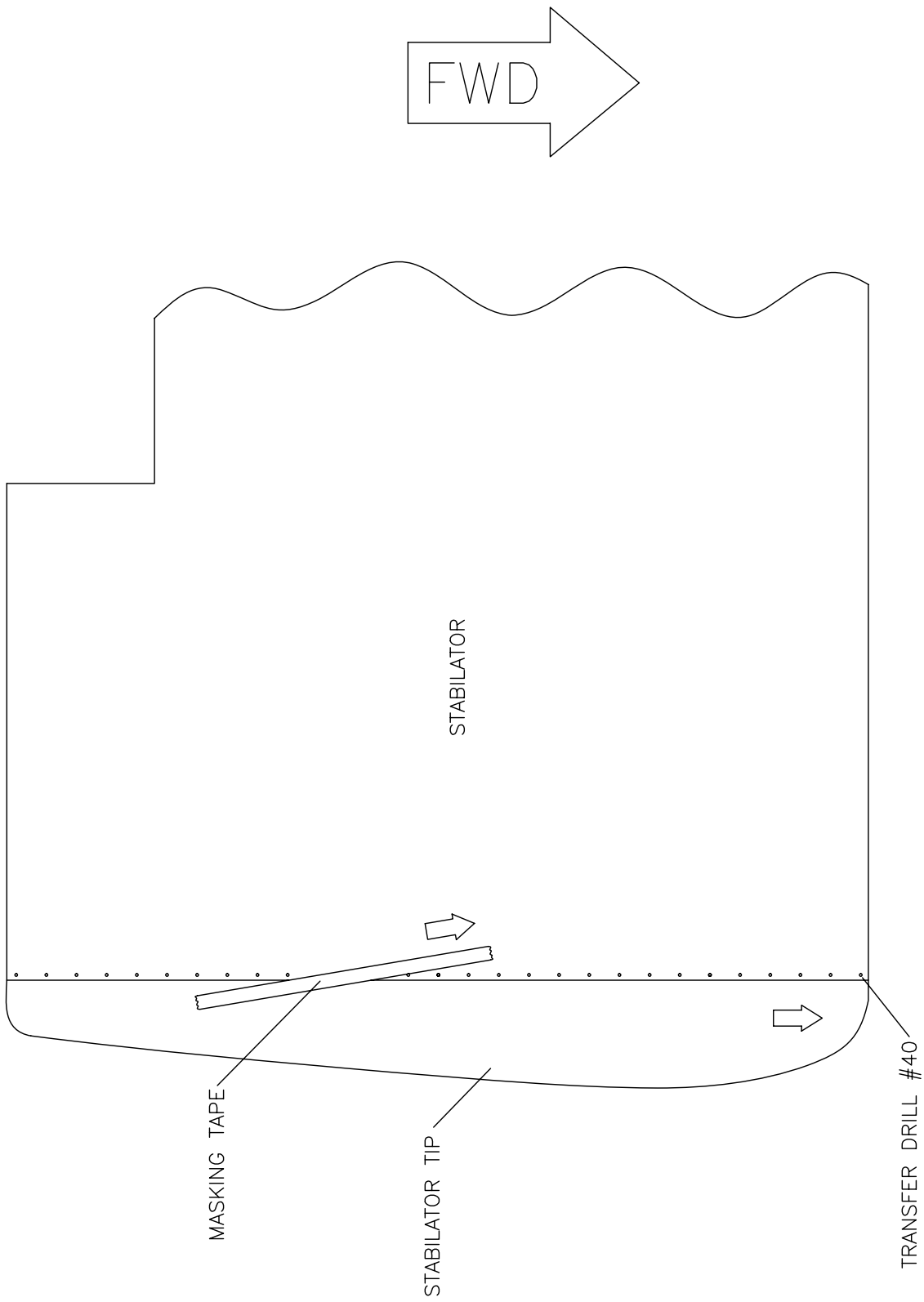
RAMS S-19 VENTERRA
STABILATOR CHANNEL INSTALLATION
FIGURE 02B-26



TOP VIEW

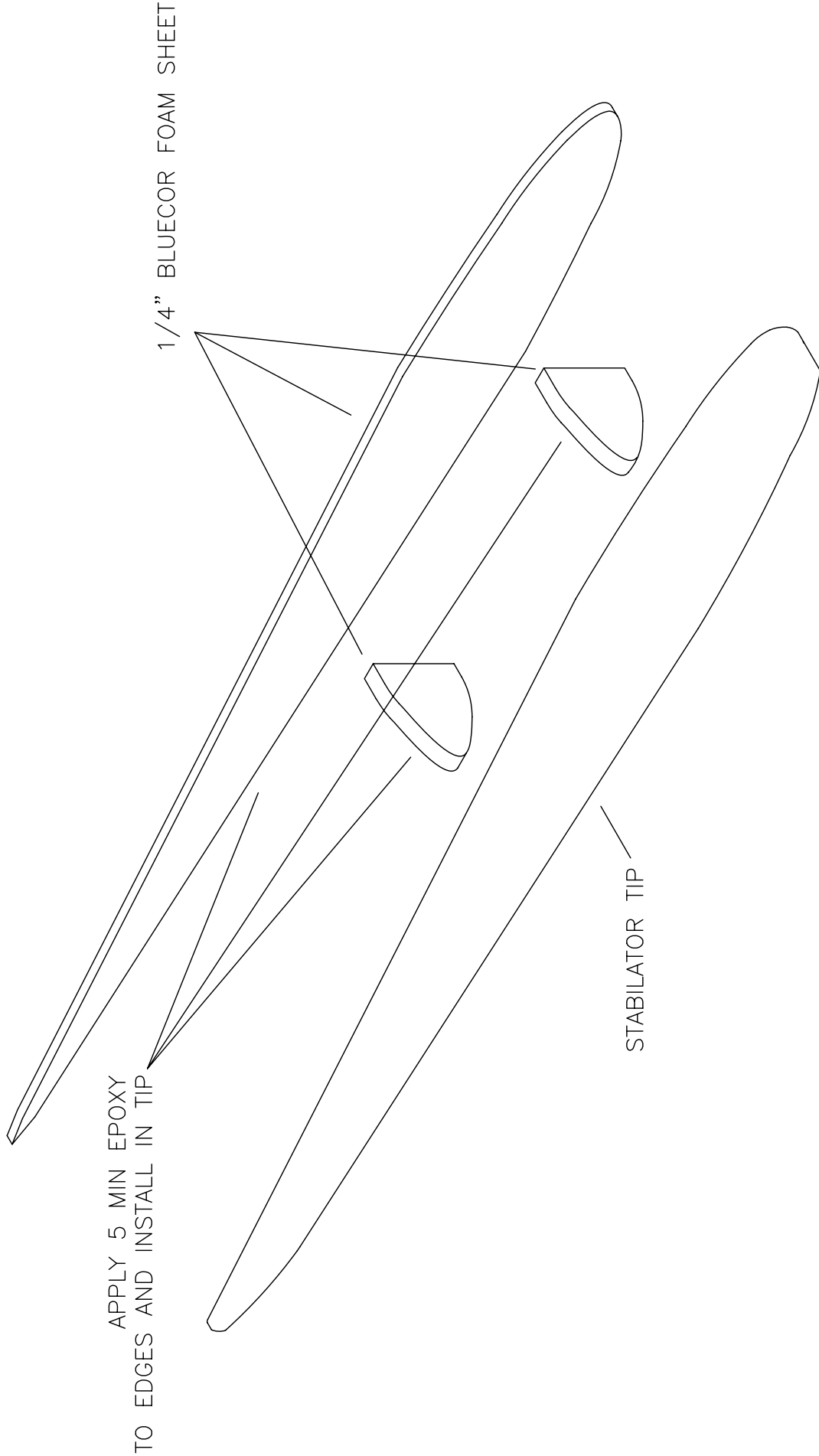
RAMS S-19 VENTERRA
STABILATOR RIVET SCHEDULE
FIGURE 02B-36

04/01/2011



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RAMS S-19 VENTERRA
STABILATOR TIP FITTING
FIGURE 02B-45



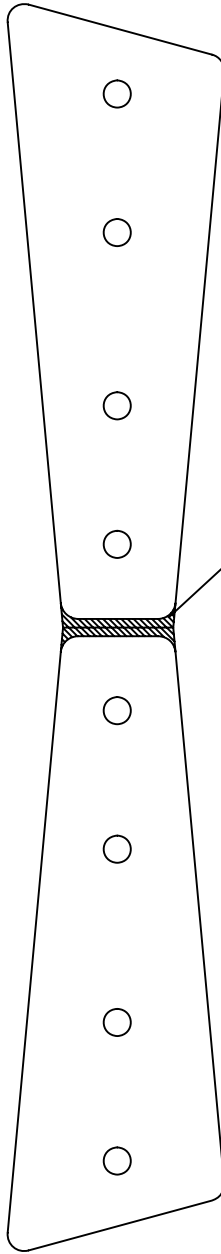
APPLY 5 MIN EPOXY
TO EDGES AND INSTALL IN TIP

1/4" BLUECOR FOAM SHEET

STABILATOR TIP

MD4873

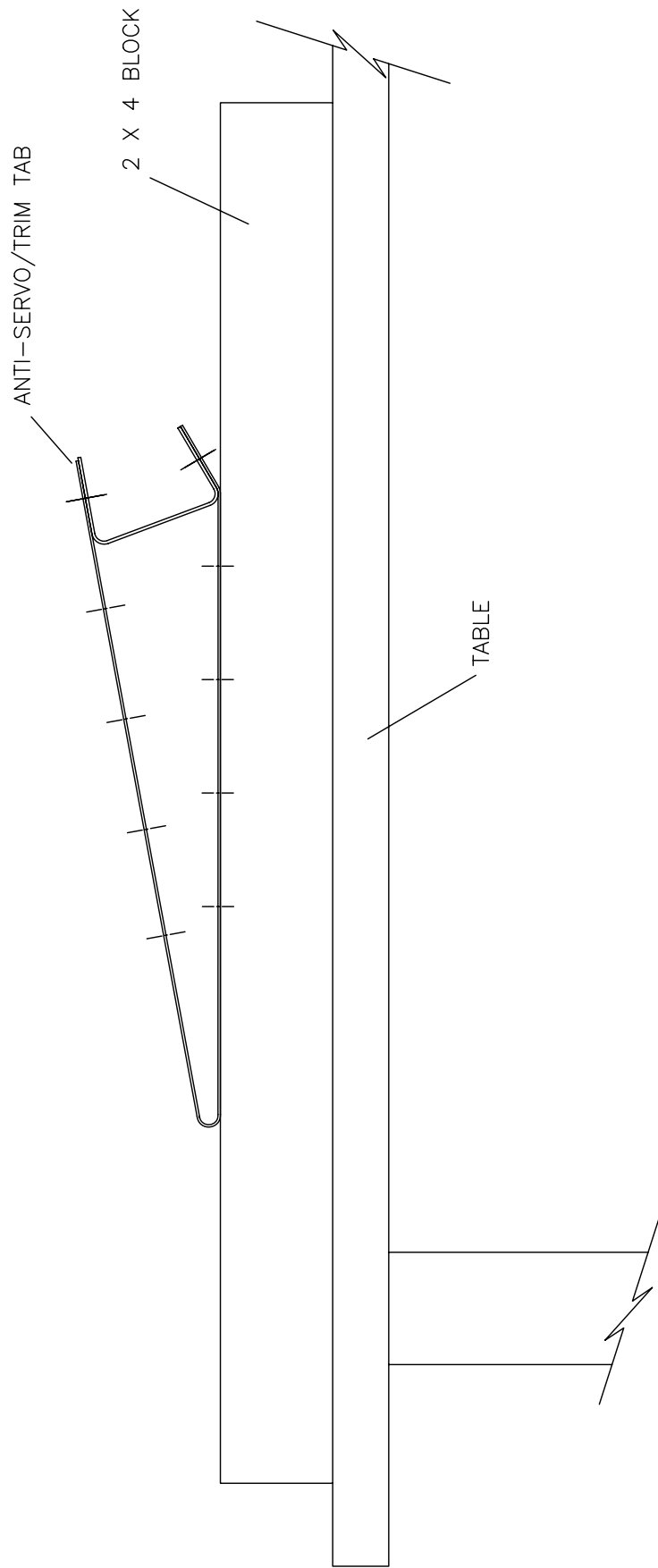
RRR S-19 VENTERRA
OPTIONAL STABILATOR TIP REINFORCEMENT
FIGURE 02B-47

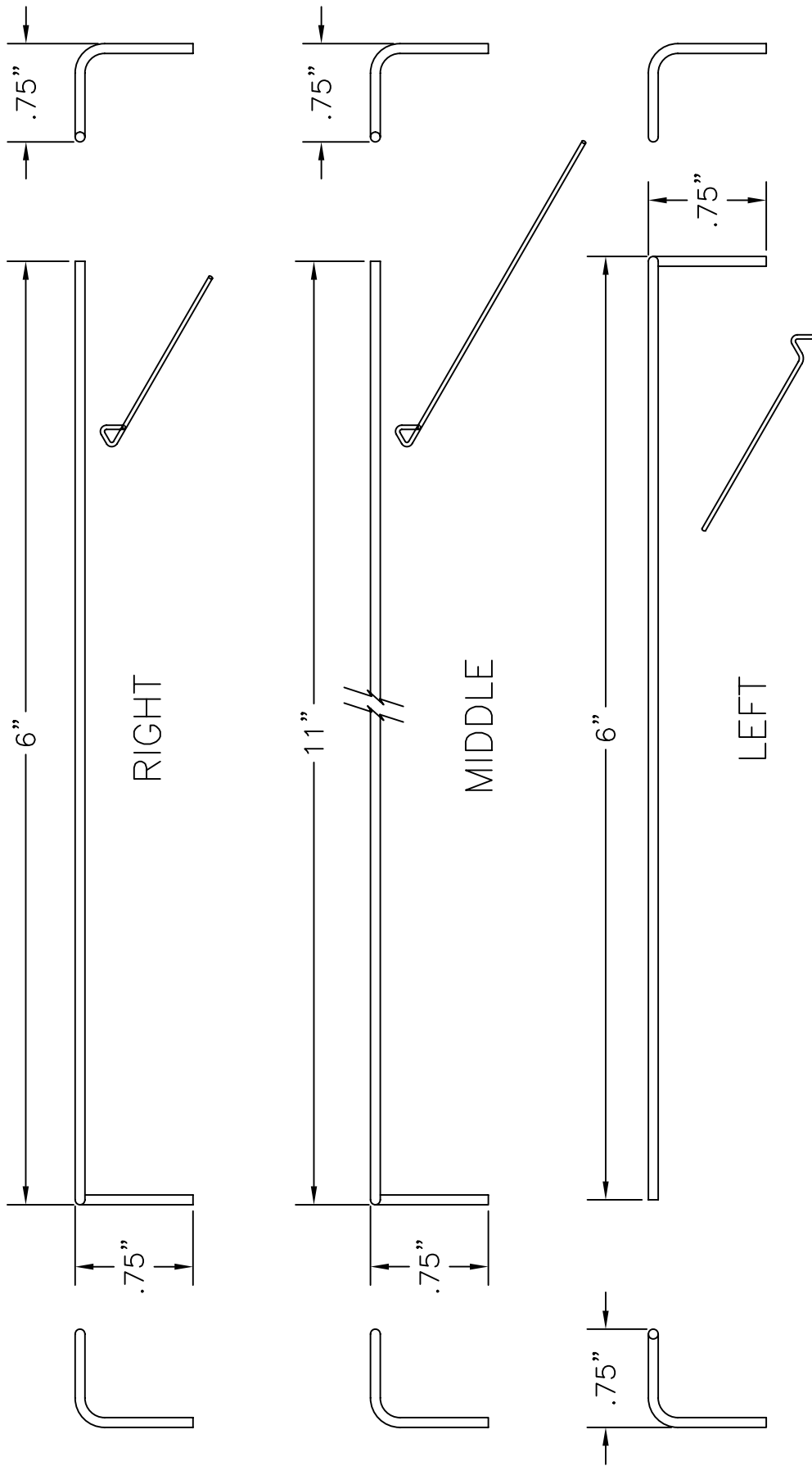


CUT IN HALF AND
RADIUS EDGES AS
SHOWN

MD5010

RRR S-19 VENTERRA
SPACER PLATE MODIFICATION
FIGURE 02C-03

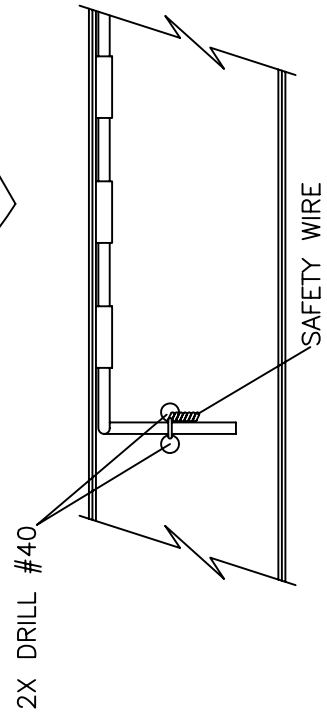
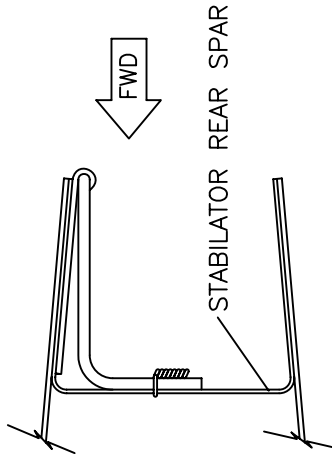
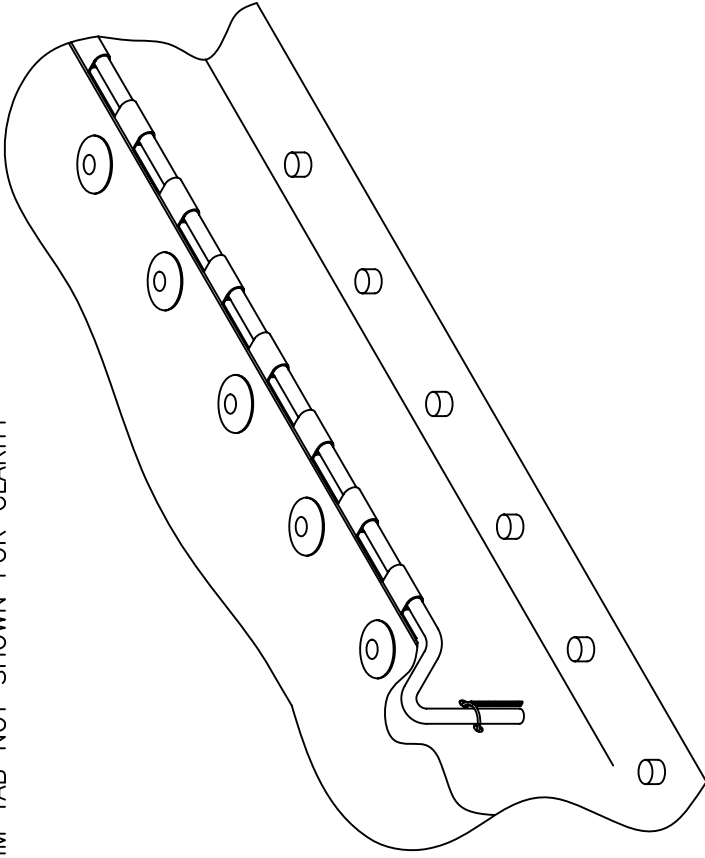




MD5019

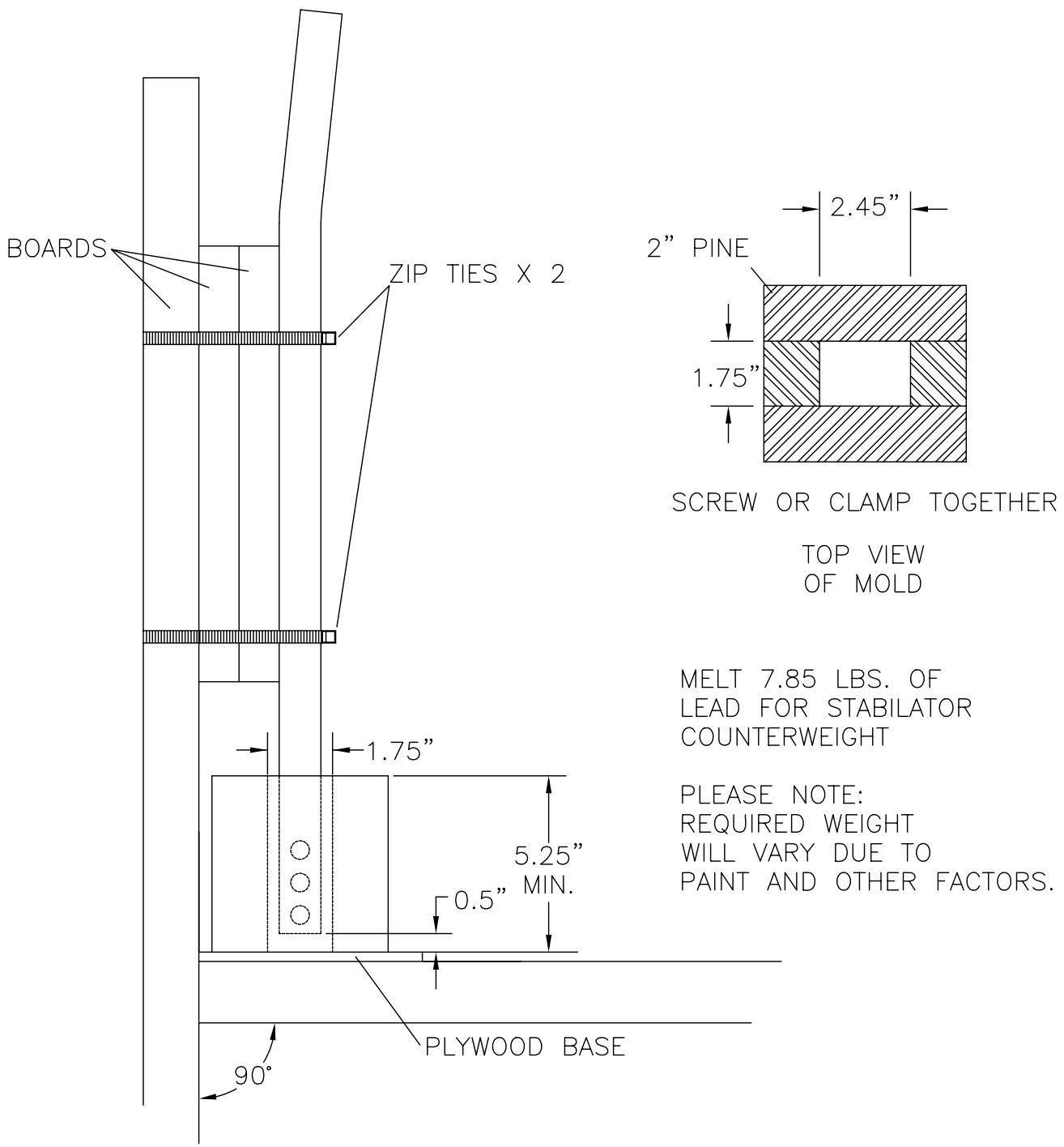
RRR S-19 VENTERRA
 ANTI-SERVO/TRIM TAB HINGE PIN MODIFICATION
 FIGURE 02C-17

* ANTI-SERVO/TRIM TAB NOT SHOWN FOR CLARITY



MD5018

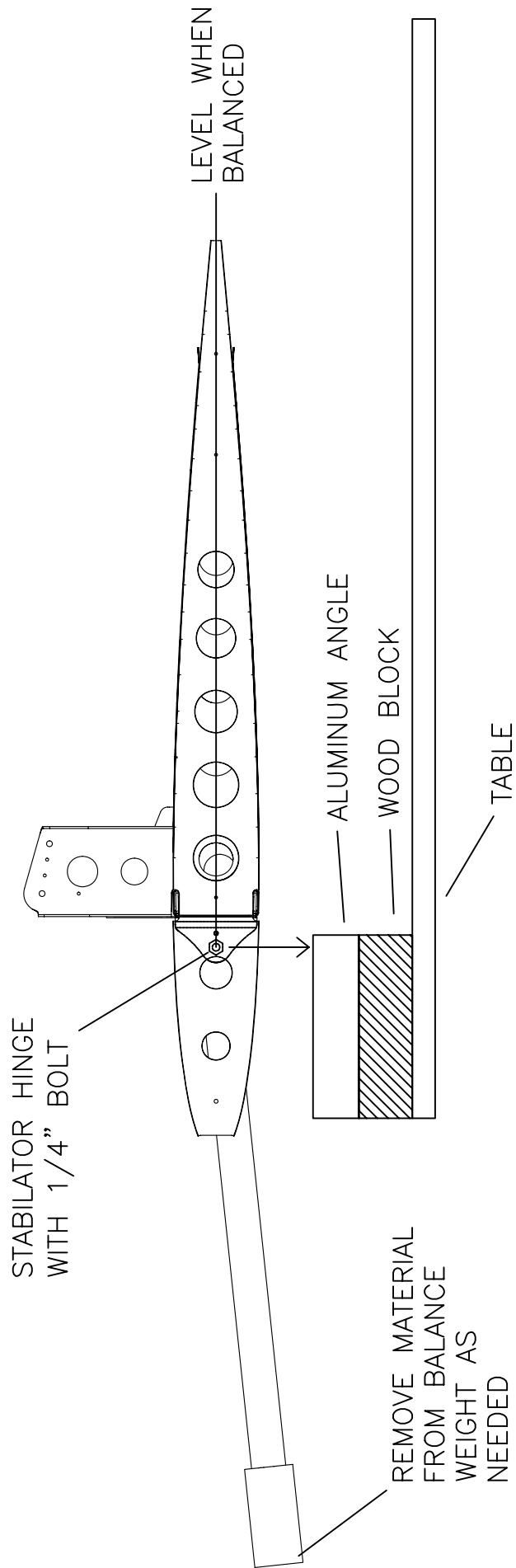
RAMS S-19 VENTERRA
ANTI-SERVO/TRIM TAB HINGE PIN SAFETY WIRE
FIGURE 02C-18



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**RAMS S-19 VENTERRA
STABILATOR COUNTERWEIGHT
FIGURE 02D-02**

04/01/2011



IMPORTANT: STABILATOR MUST BE 100% STATIC MASS BALANCED IN REFERENCE TO THE HINGE LINE.

MD5191

RAMS S-19 VENTERRA
STABILATOR BALANCING
FIGURE 02D-12