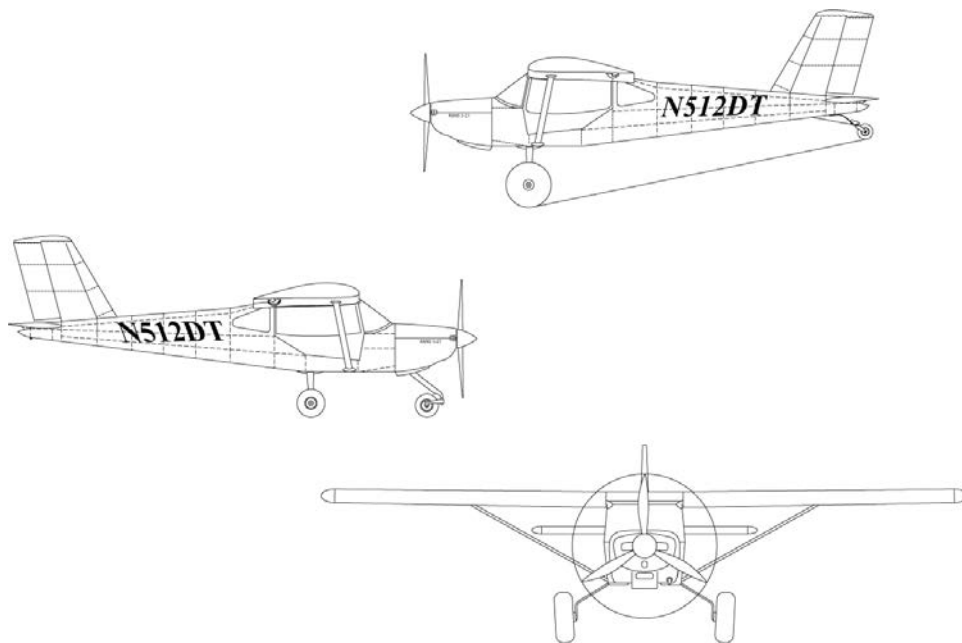


# RANS

## ***S-21 OUTBOUND*** **ROTAX 912ULS INSTALLATION** **FIGURES MANUAL**

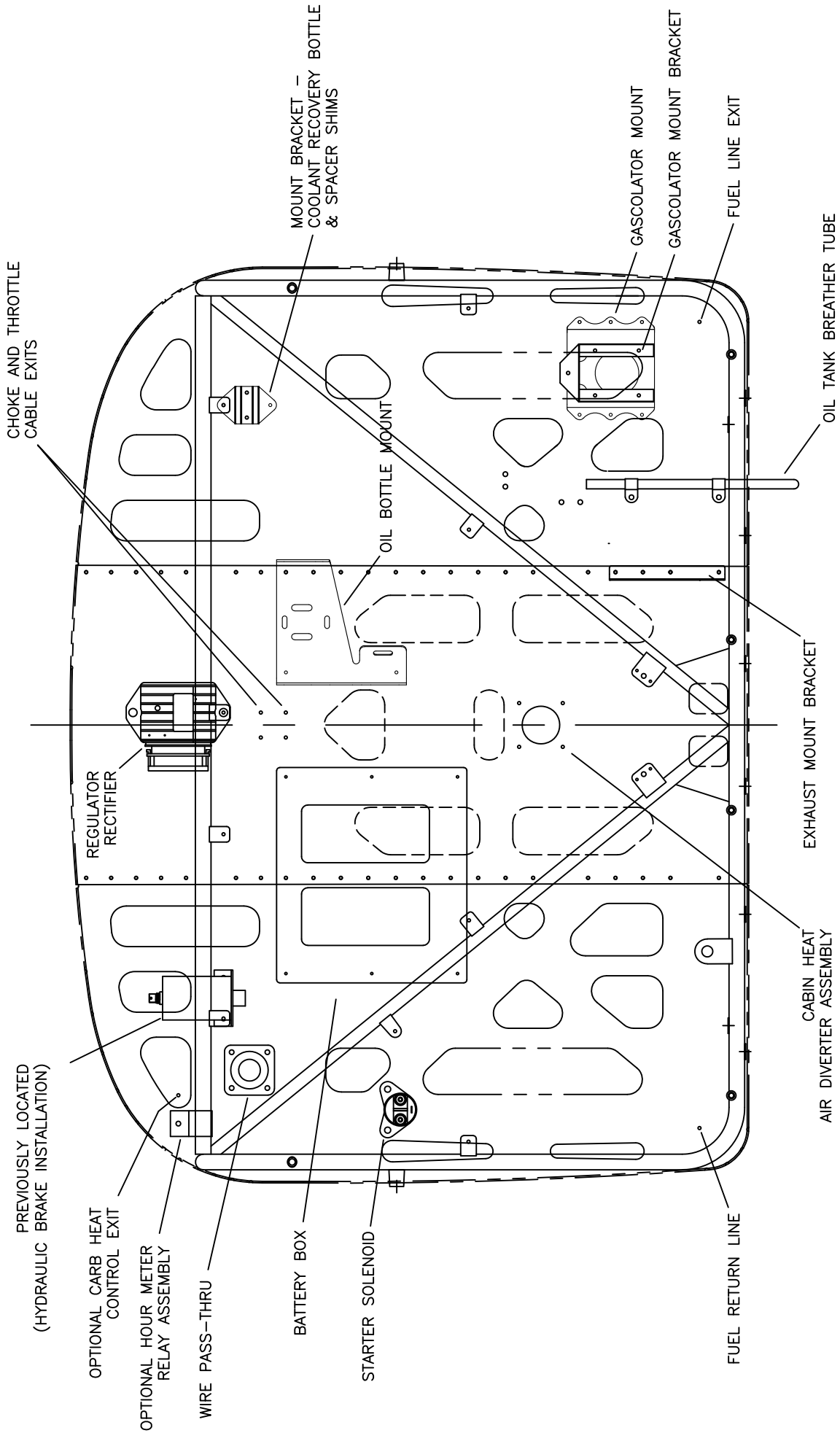


Serial Number: \_\_\_\_\_

Registration Number: \_\_\_\_\_

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4600 HWY 183 Alt  
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785-625-6346  
**WWW.RANS.COM**

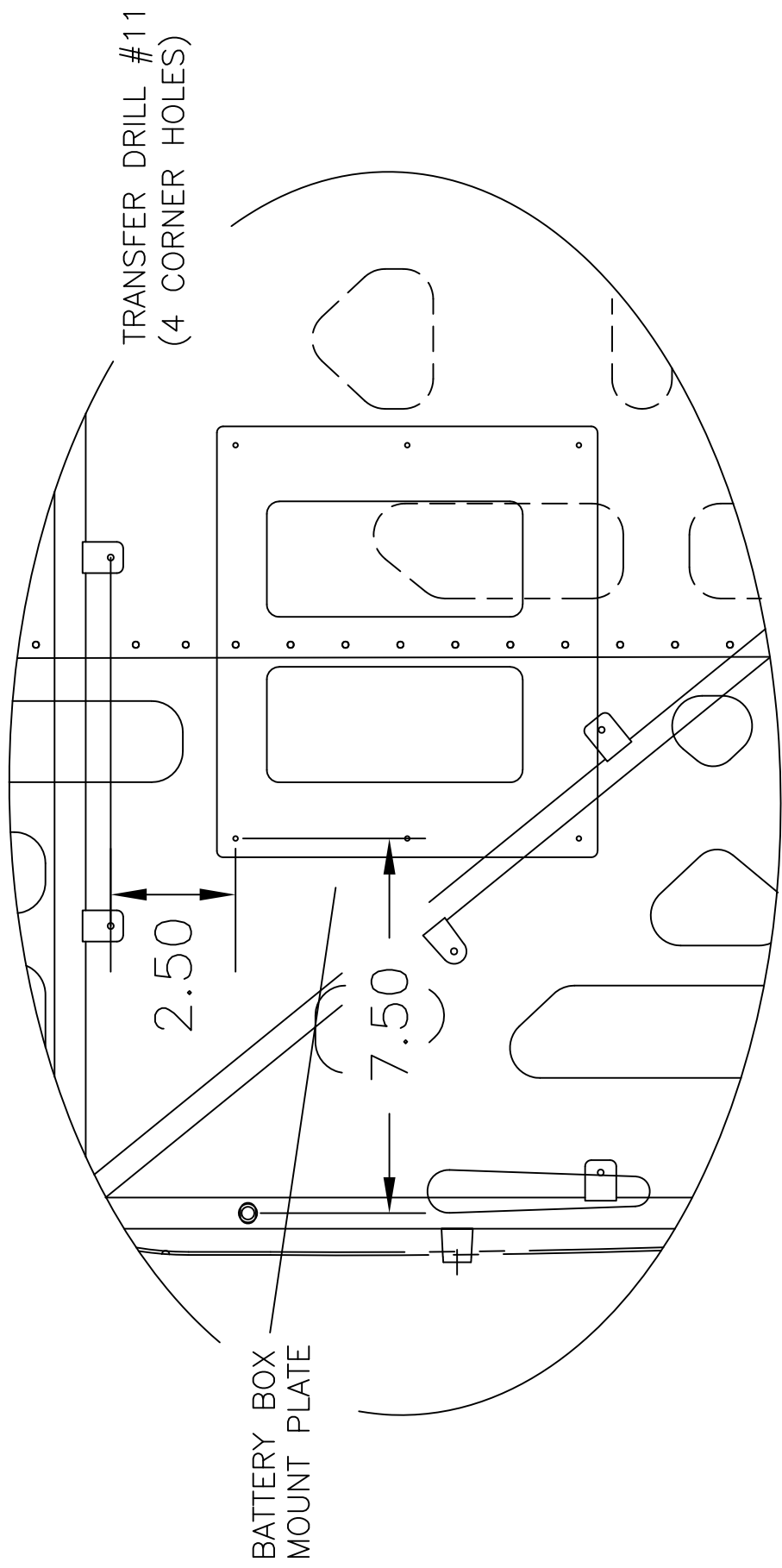
This manual conforms to FAA Evaluated date 9/11/2018



VIEWED FROM FRONT

MD5575  
REV. -- ORIG

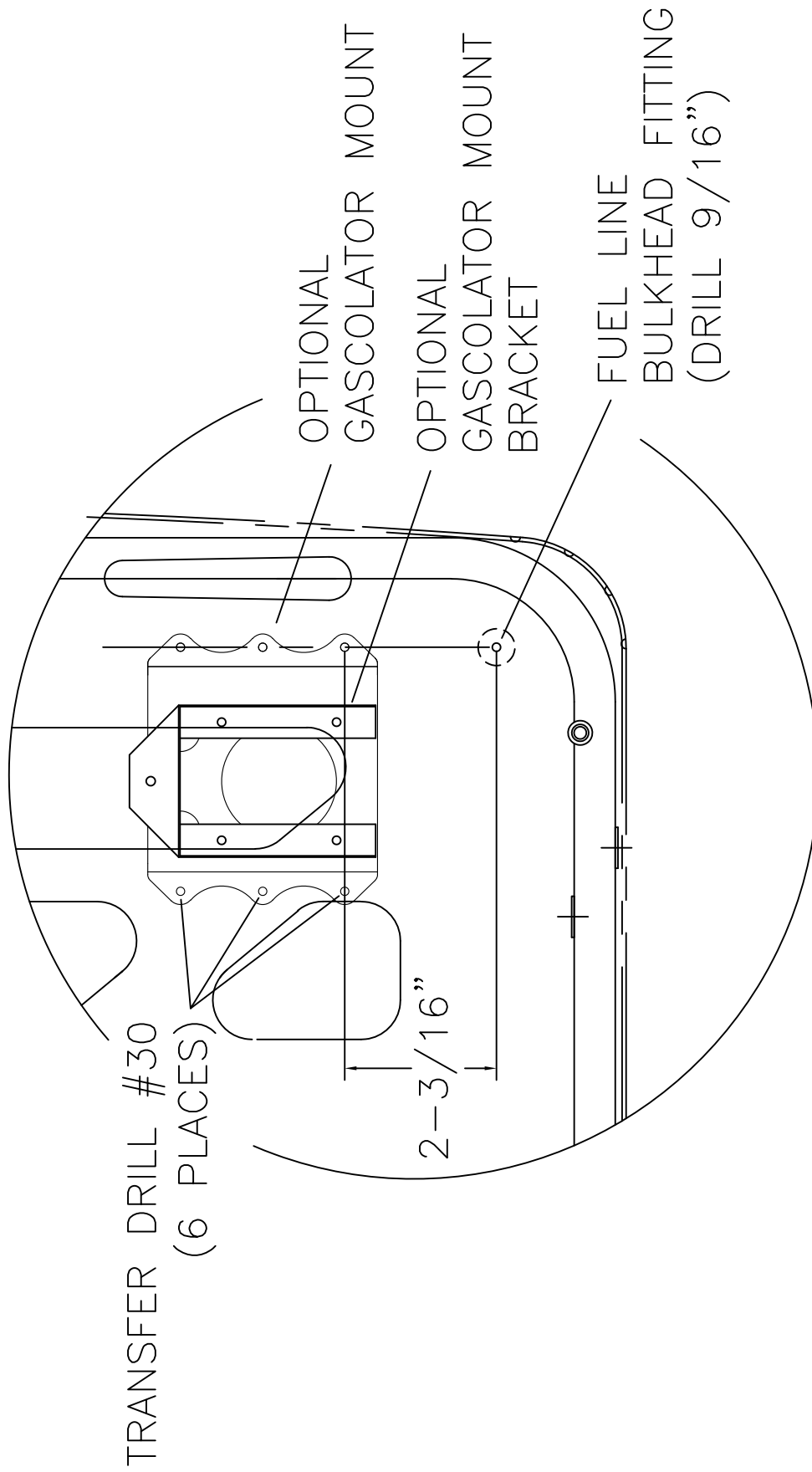
**RAMS S-21 OUTBOUND  
 FIREWALL OVERVIEW**  
 FIGURE 11-01/912



VIEWED FROM FRONT

MD5575  
REV. - ORIG

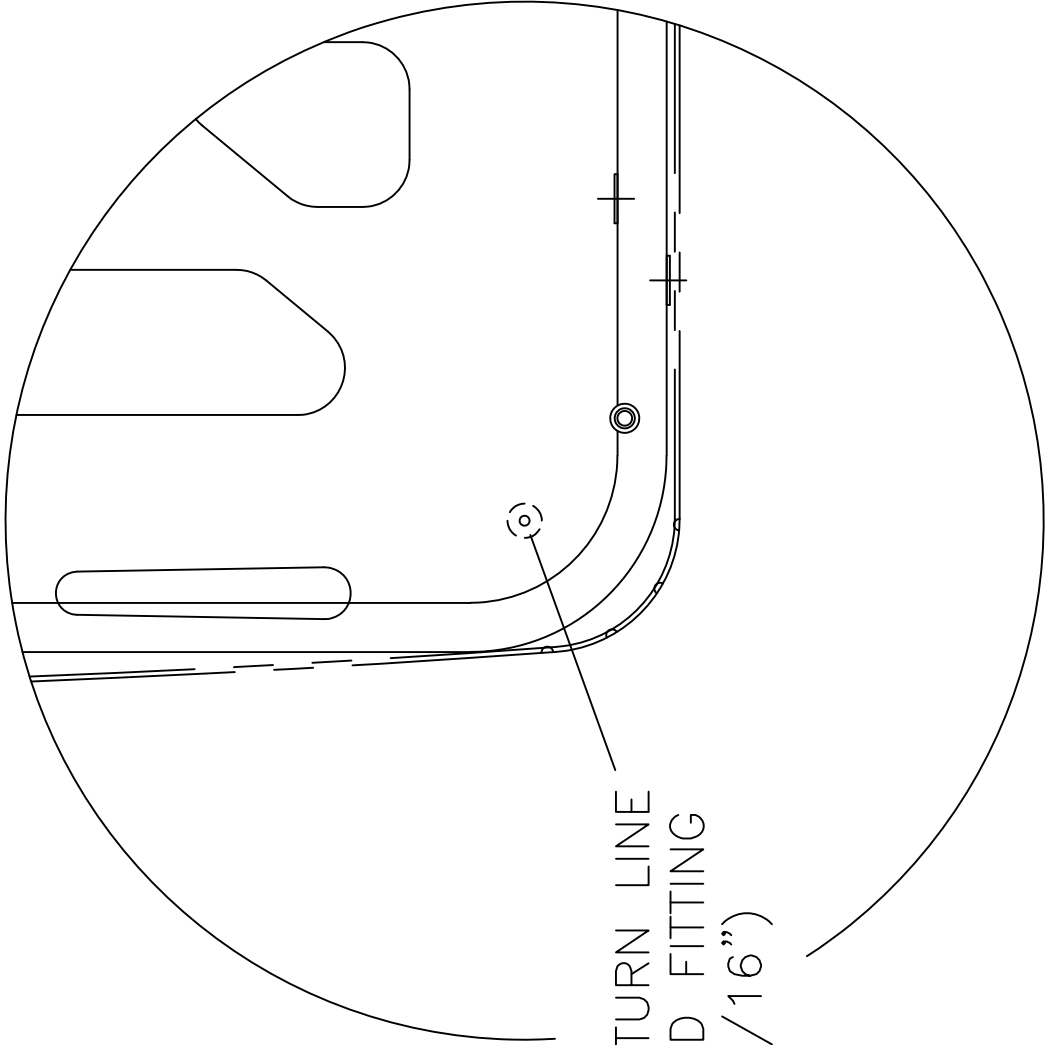
**RRR** S-21 OUTBOUND  
BATTERY BOX LOCATION  
FIGURE 11-02/912



VIEWED FROM FRONT

MD5575  
REV. - ORIG

**RRR** S-21 OUTBOUND  
**GASCOLATOR MOUNT AND FUEL LINE BULKHEAD LOCATION**  
**FIGURE 11-03/912**

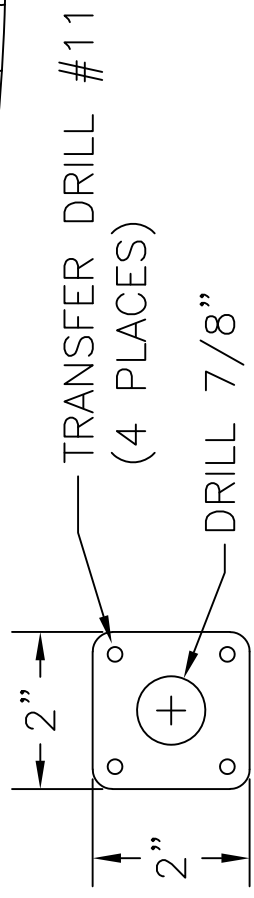
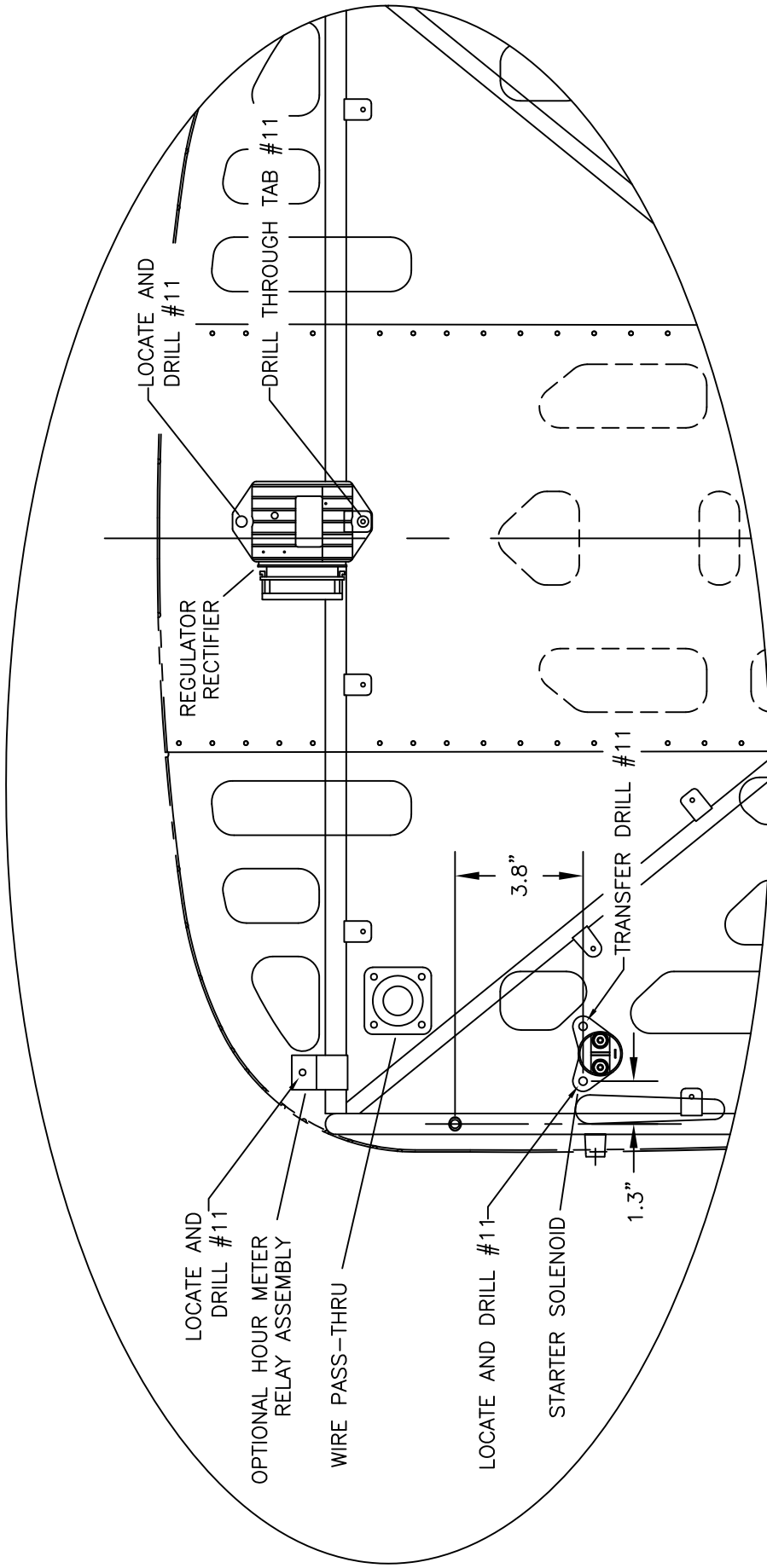


FUEL RETURN LINE  
BULKHEAD FITTING  
(DRILL 7/16")

VIEWED FROM FRONT

MD5575  
REV. - ORIG

**RAMS** S-21 OUTBOUND  
RETURN FUEL LINE BULKHEAD LOCATION  
FIGURE 11-04/912

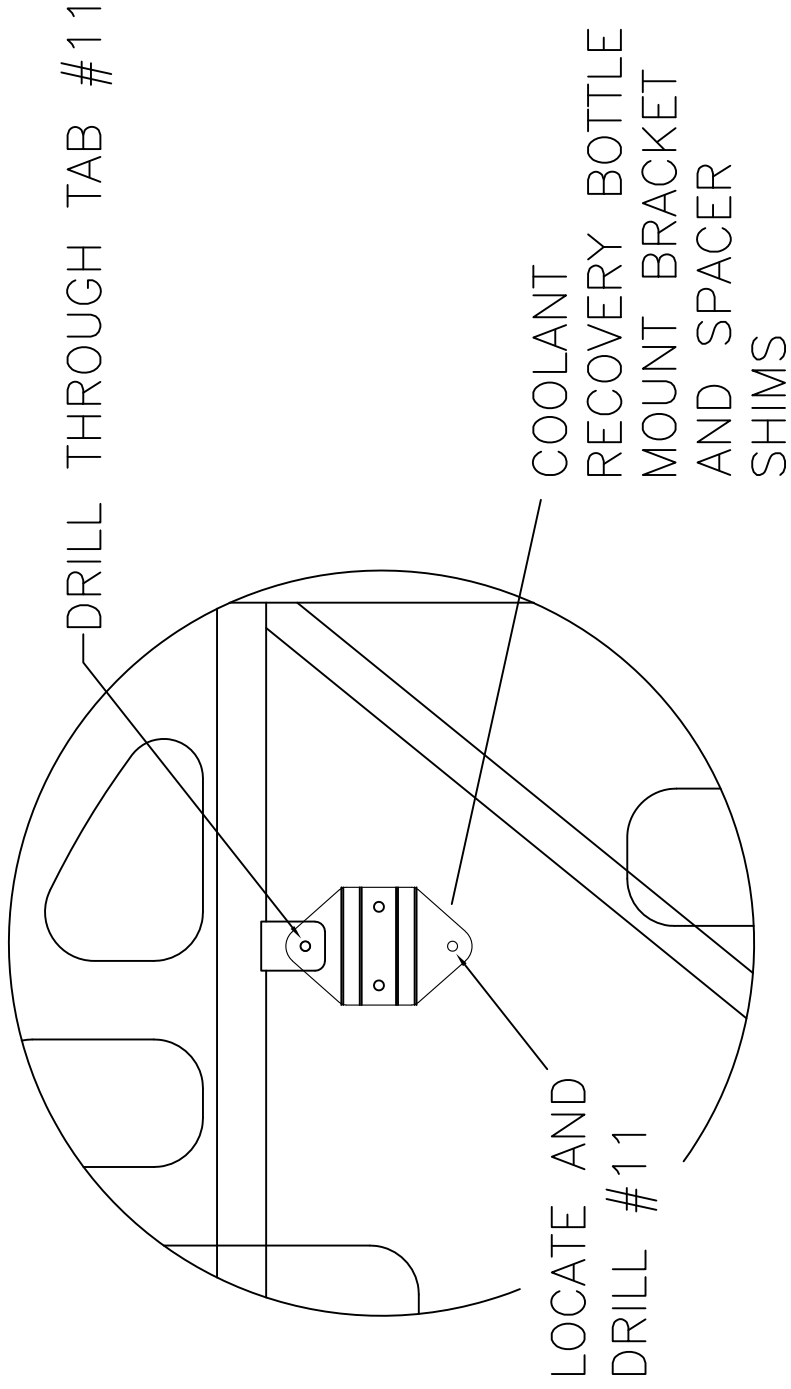


WIRE PASS-THRU  
FABRICATION

VIEWED FROM FRONT

MD5575  
REV. - ORIG

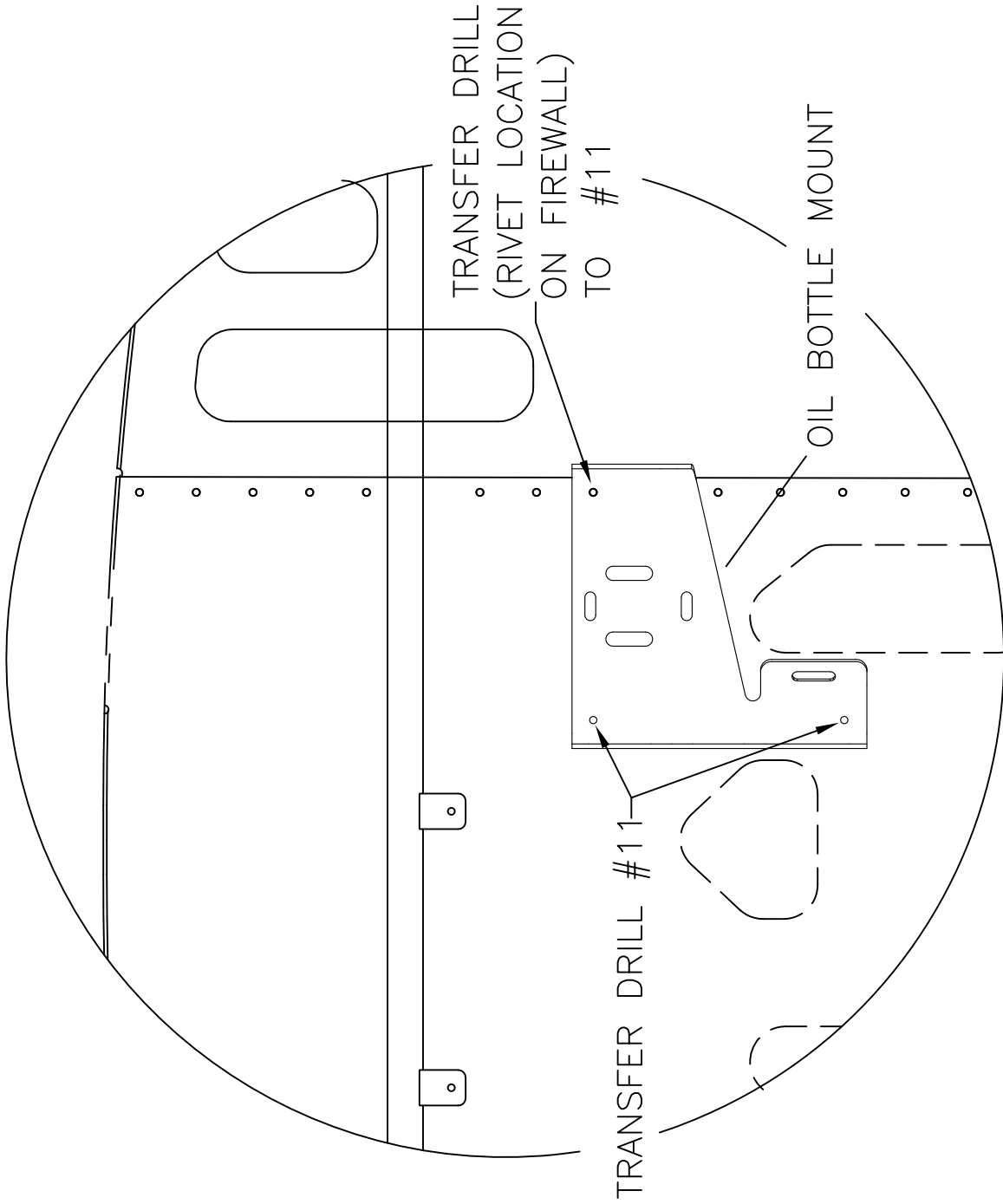
**RAMS S-21 OUTBOUND**  
**ELECTRICAL ACCESSORIES LOCATION**  
**FIGURE 11-05/912**



VIEWED FROM FRONT

**RRR** S-21 OUTBOUND  
 COOLANT RECOVER BOTTLE MOUNT LOCATION  
 FIGURE 11-06/912

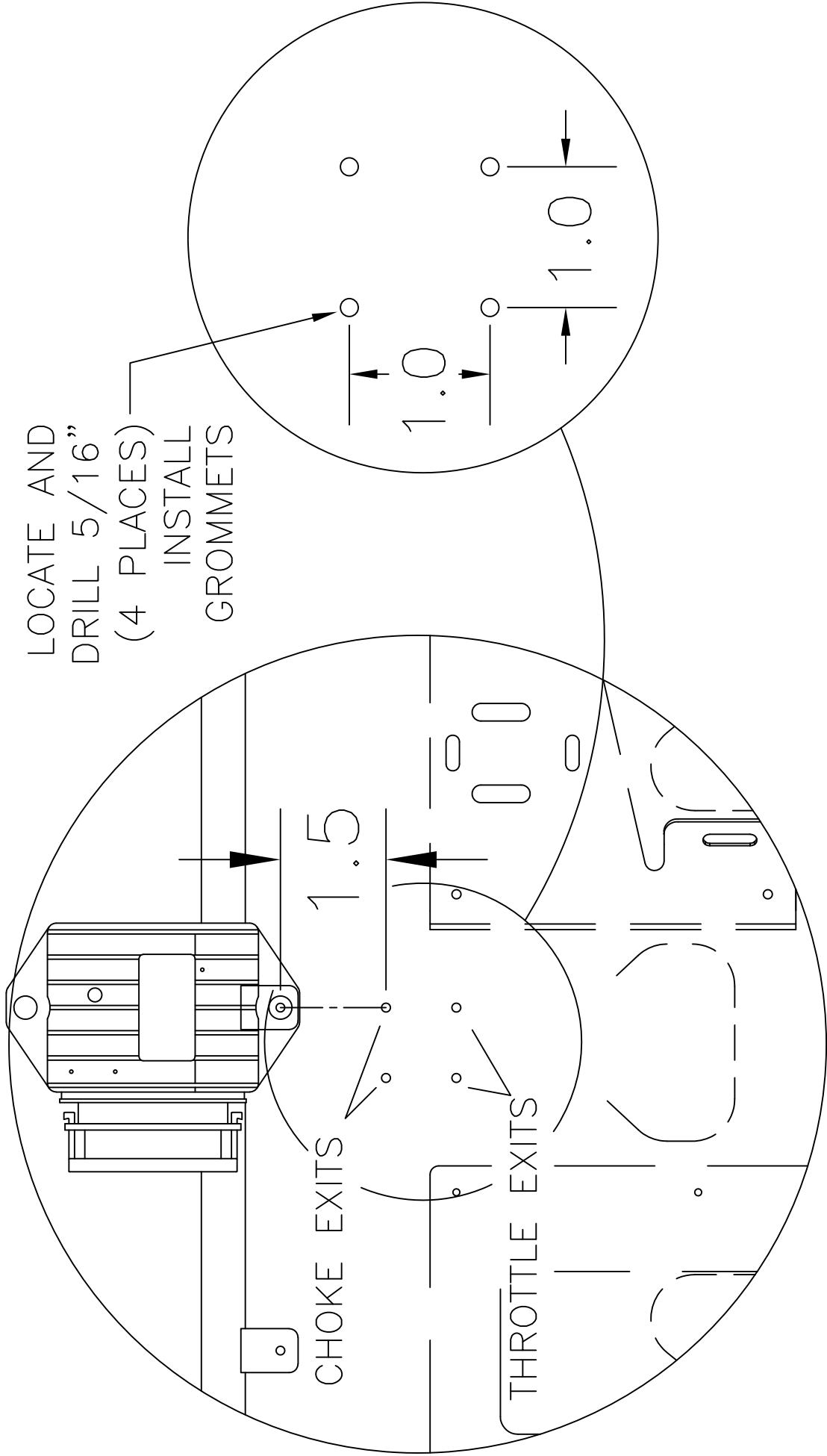
MD5575  
 REV. - ORIG



VIEWED FROM FRONT

**RRR** S-21 OUTBOUND  
**OIL BOTTLE MOUNT LOCATION**  
**FIGURE 11-07/912**





LOCATE AND  
 DRILL 5/16"  
 (4 PLACES)  
 INSTALL  
 GROMMETS

CHOKES EXITS

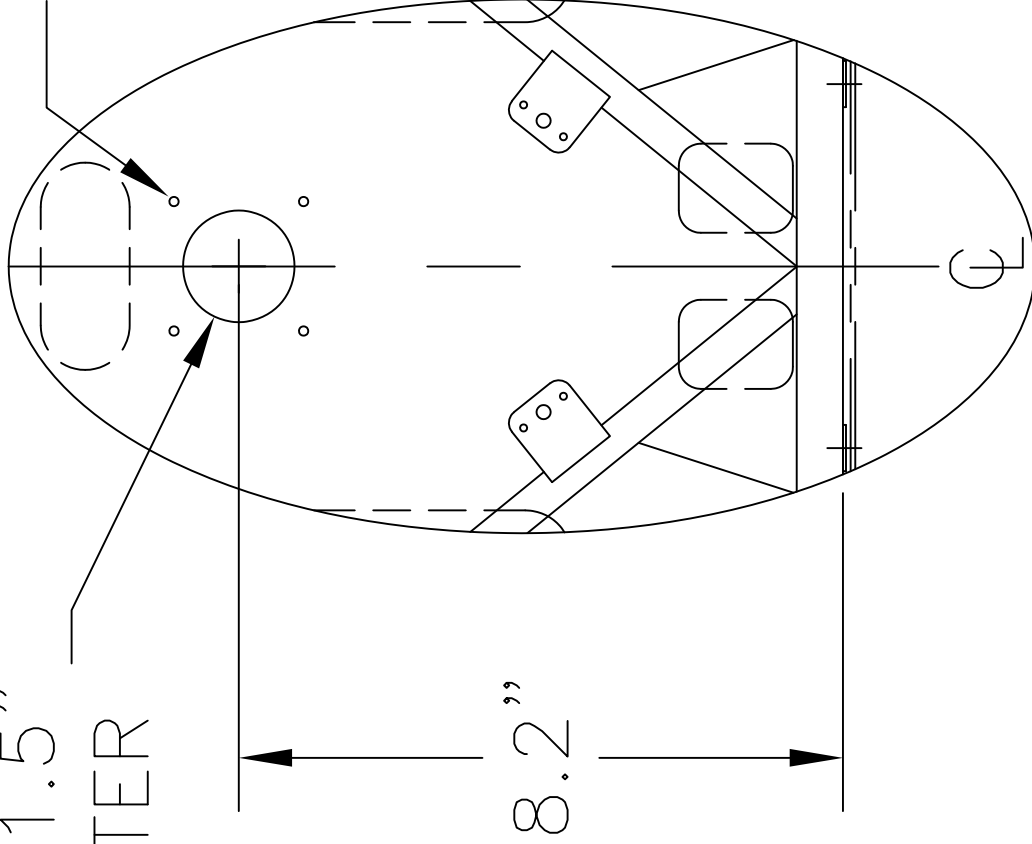
THROTTLE EXITS

VIEWED FROM FRONT

MD5575  
 REV. - ORIG

**RRRAMES S-21 OUTBOUND**  
**THROTTLE & CHOKES FIREWALL CABLE EXIT LOCATION**  
**FIGURE 11-08/912**

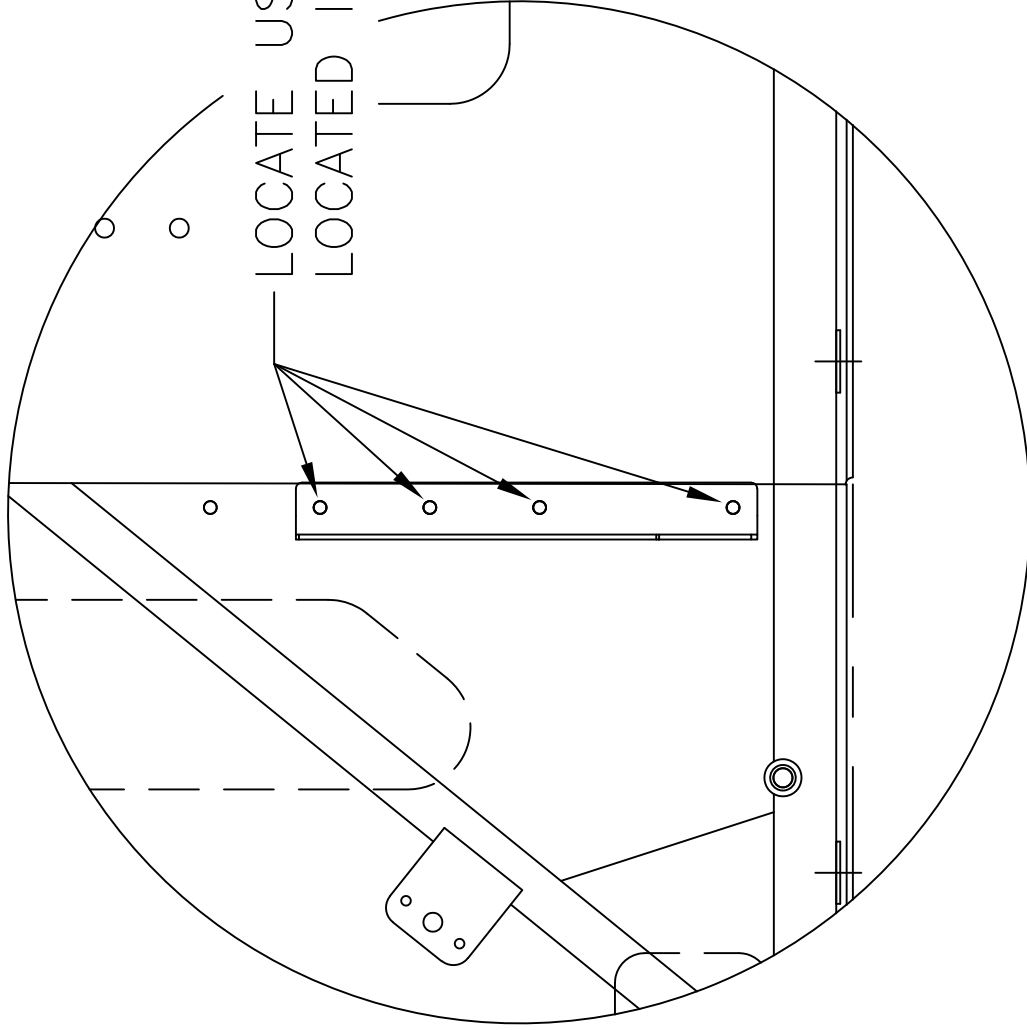
DRILL 1.5"  
DIAMETER



TRANSFER DRILL  
#30 USING  
FLANGE OF  
AIR DIVERTER

VIEWED FROM FRONT

**RRR** S-21 OUTBOUND  
AIR DIVERTER LOCATION  
FIGURE 11-09/912



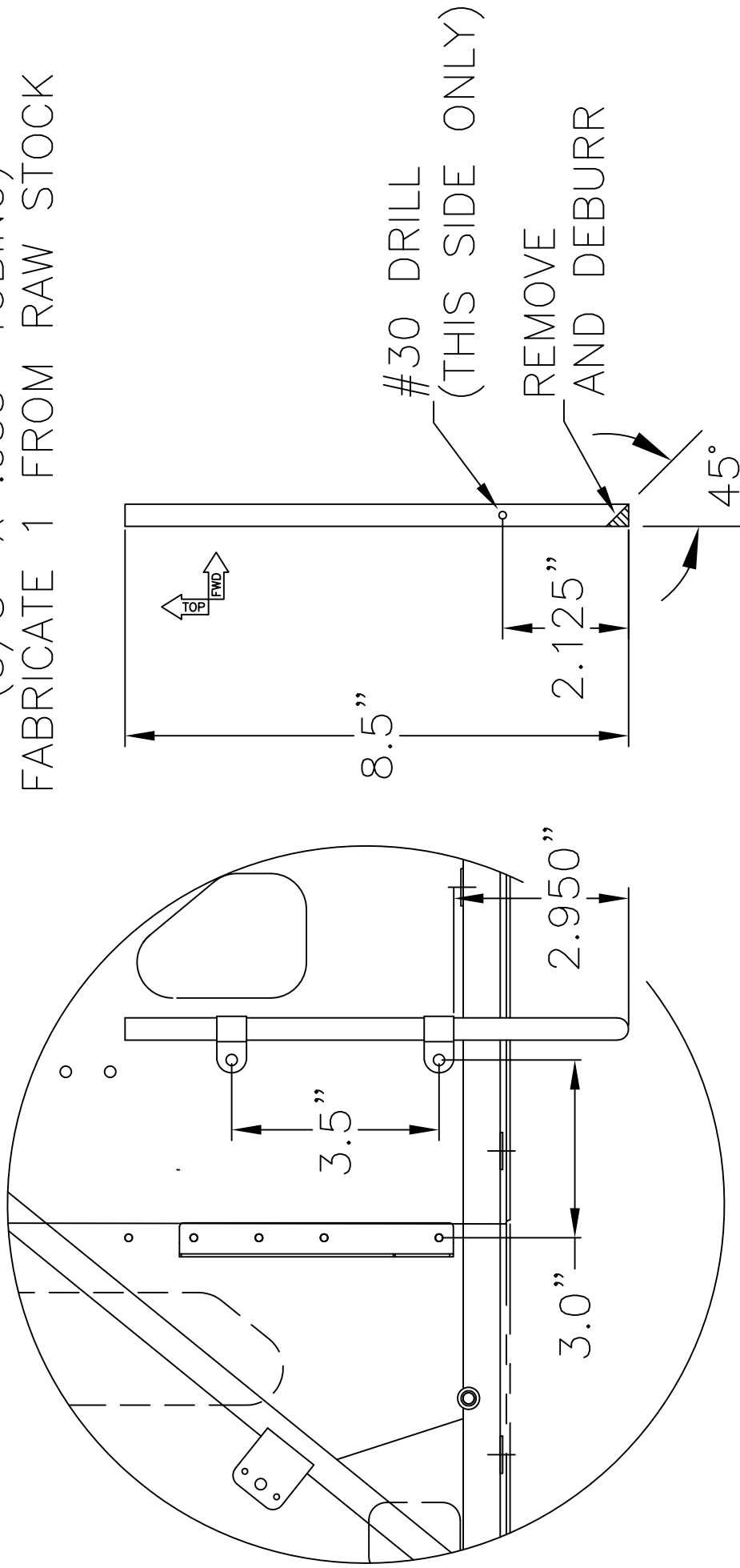
LOCATE USING HOLES  
LOCATED IN FIREWALL

VIEWED FROM FRONT

**RRR** S-21 OUTBOUND  
EXHAUST MOUNT BRACKET LOCATION  
FIGURE 11-10/912

MD5575  
REV. - ORIG

OIL TANK VENT TUBE  
 (3/8" X .035" TUBING)  
 FABRICATE 1 FROM RAW STOCK

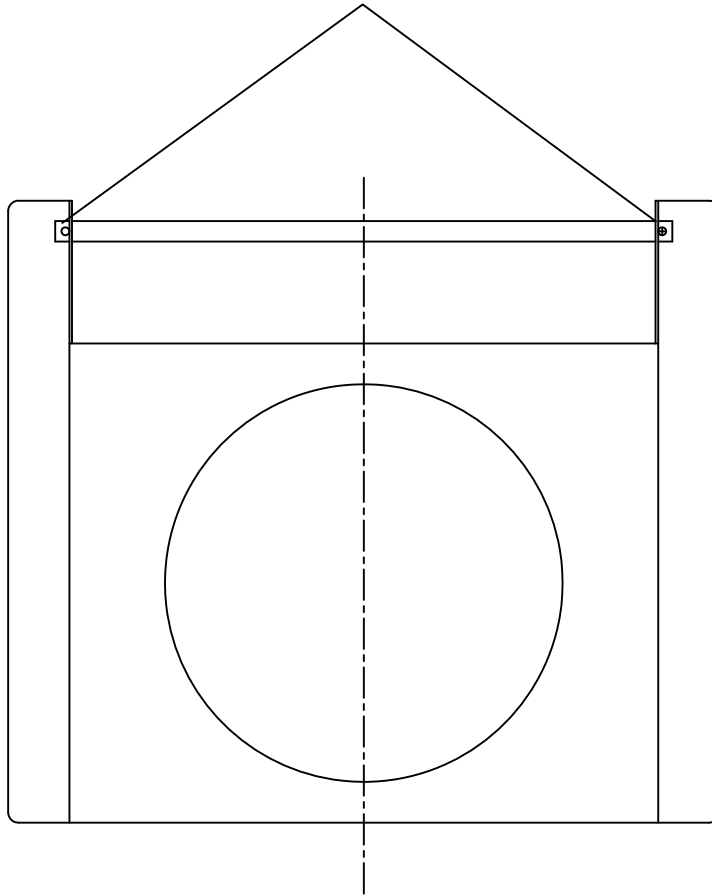


VIEWED FROM FRONT

**RRR** S-21 OUTBOUND  
 OIL TANK VENT TUBE INSTALLATION  
 FIGURE 11-11/912

MD5575  
 REV. - ORIG

CENTER BATTERY BAR AND DRILL #40  
AS NECESSARY

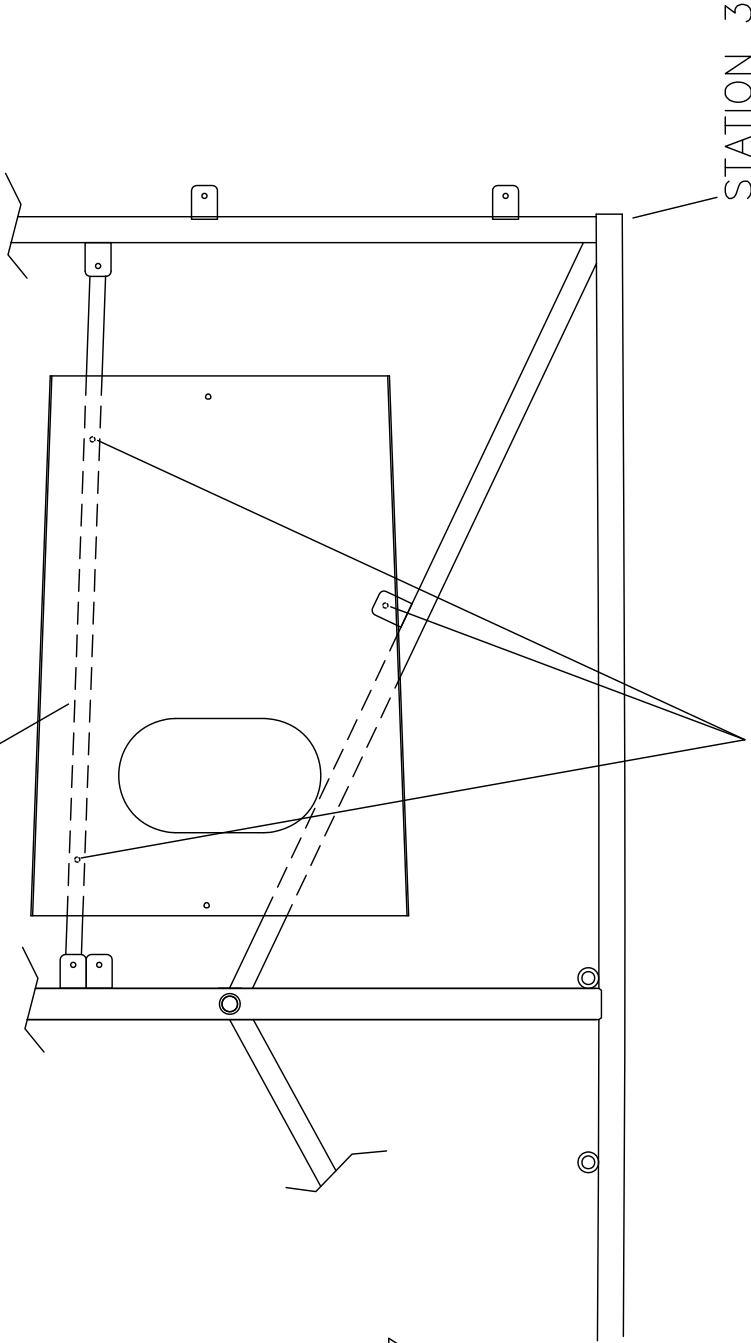
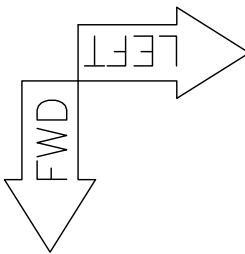


**RANS S-21 OUTBOUND**  
**ROTAX 912ULS**  
**BATTERY BAR MODIFICATION**  
**FIGURE 11A-07/912**

MD5468  
REV. - ORIG

09/11/2018

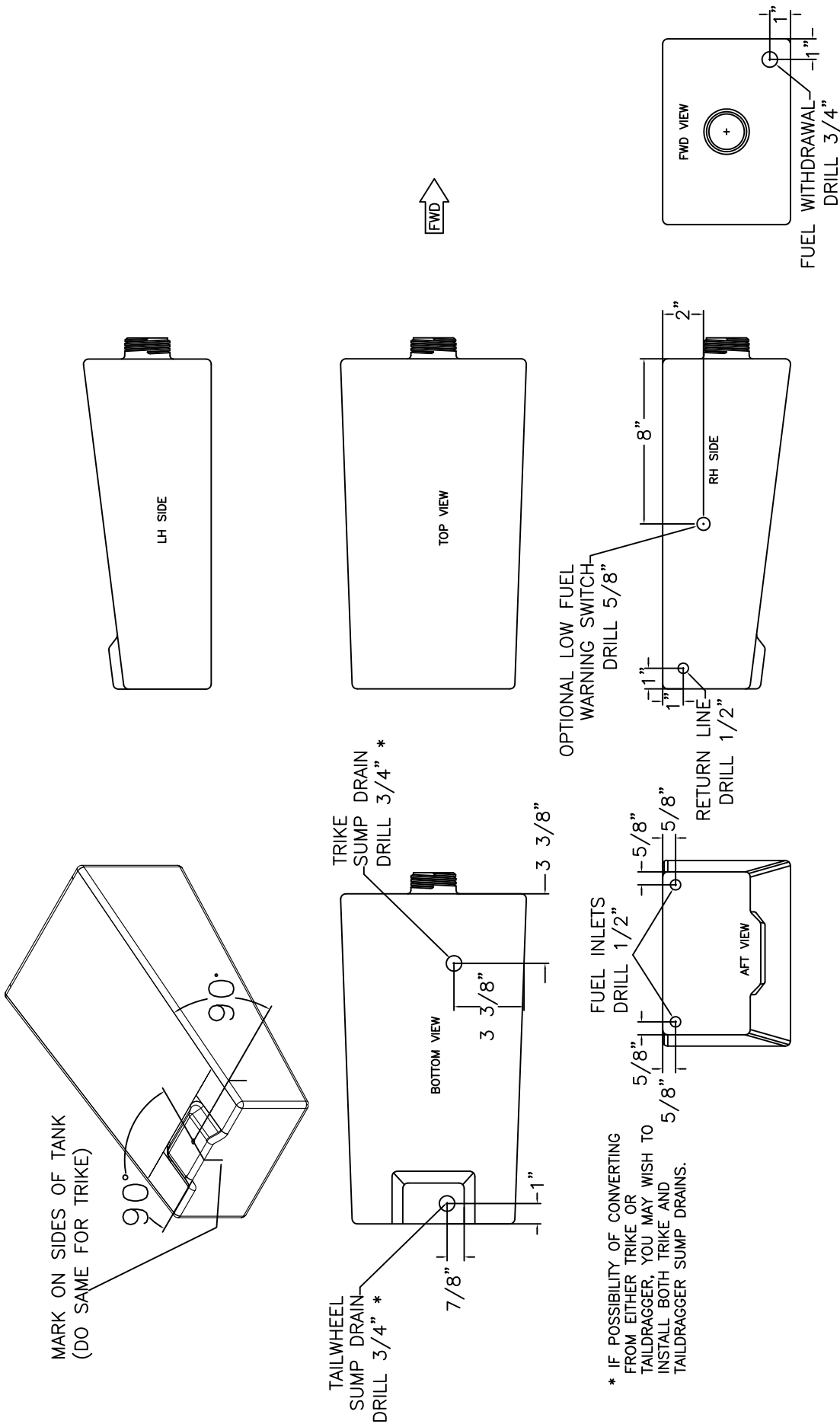
HEADER TANK SUPPORT ANGLE  
RIVETED TO BOTTOM OF TABS



LOCATE AND  
DRILL #30 (3 PLACES).

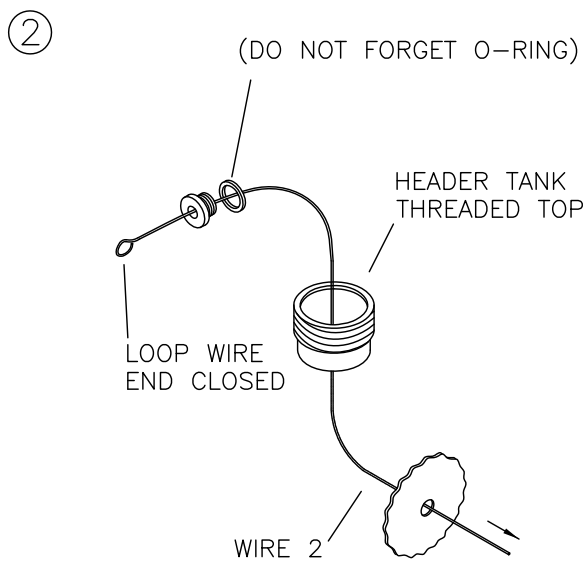
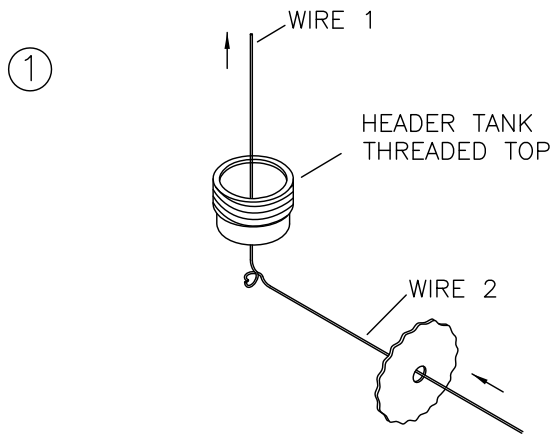
MD5616  
REV - ORIG

**RRF** S-21 OUTBOUND  
ROTAX 912ULS  
HEADER TANK MOUNT  
FIGURE 11B-01/912



MD2861  
REV. A

**RAMSES S-21 OUTBOUND**  
**ROTAX 912ULS**  
**2.75 GALLON HEADER TANK MODIFICATION**  
**FIGURE 11B-02/912**



③ INSTALL RUBBER WASHER, STEEL WASHER, LOCTITE, AND NUT.

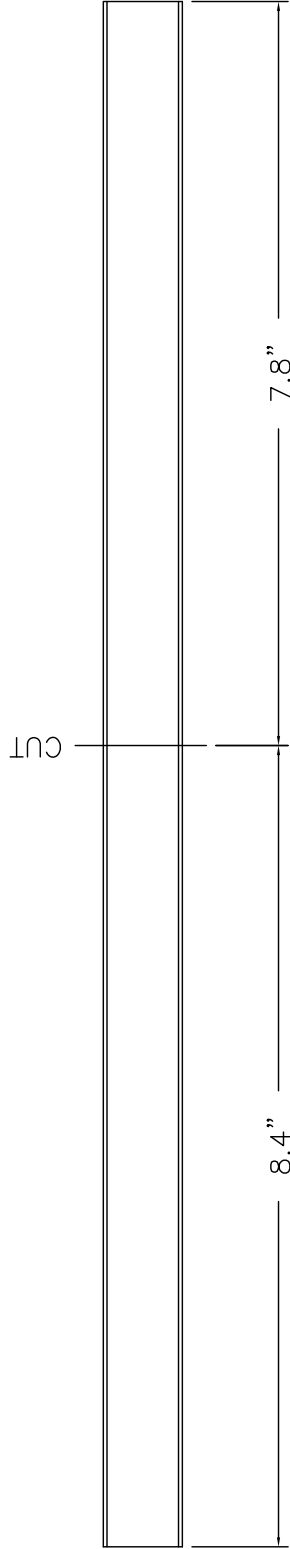
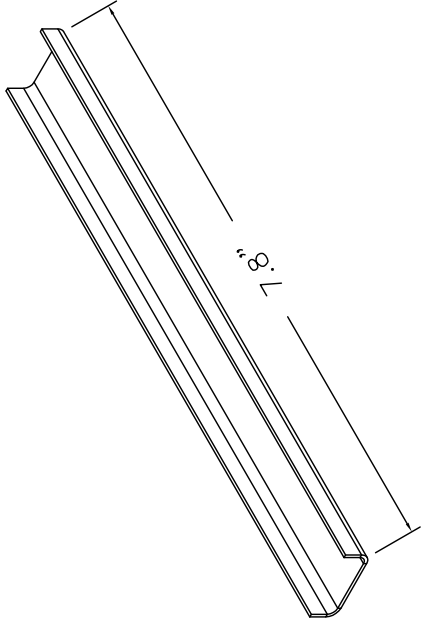
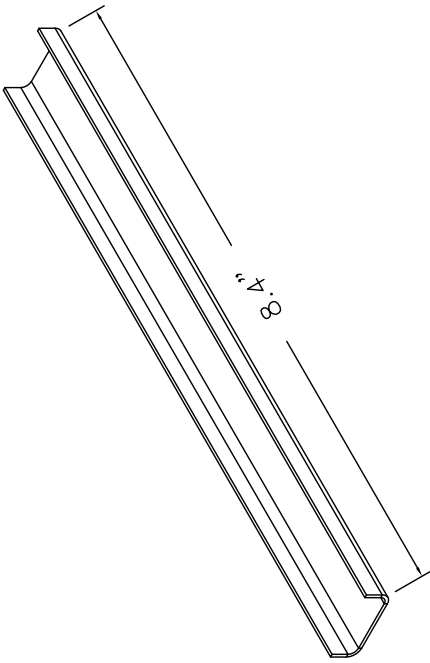
④ REMOVE WIRE.

**RANS S-21 OUTBOUND**  
**ROTAX 912ULS**  
**HEADER TANK FITTING INSTALLATION**  
**FIGURE 11B-03/912**

MD4832  
 REV. - ORIG

09/11/2018





CUT TO INDICATED LENGTHS

MD5616  
REV. - ORIG

**RAMBER** S-21 OUTBOUND  
ROTAX 912ULS

**HEADER TANK MOUNT CHANNEL MODIFICATION  
FIGURE 11B-08/912**

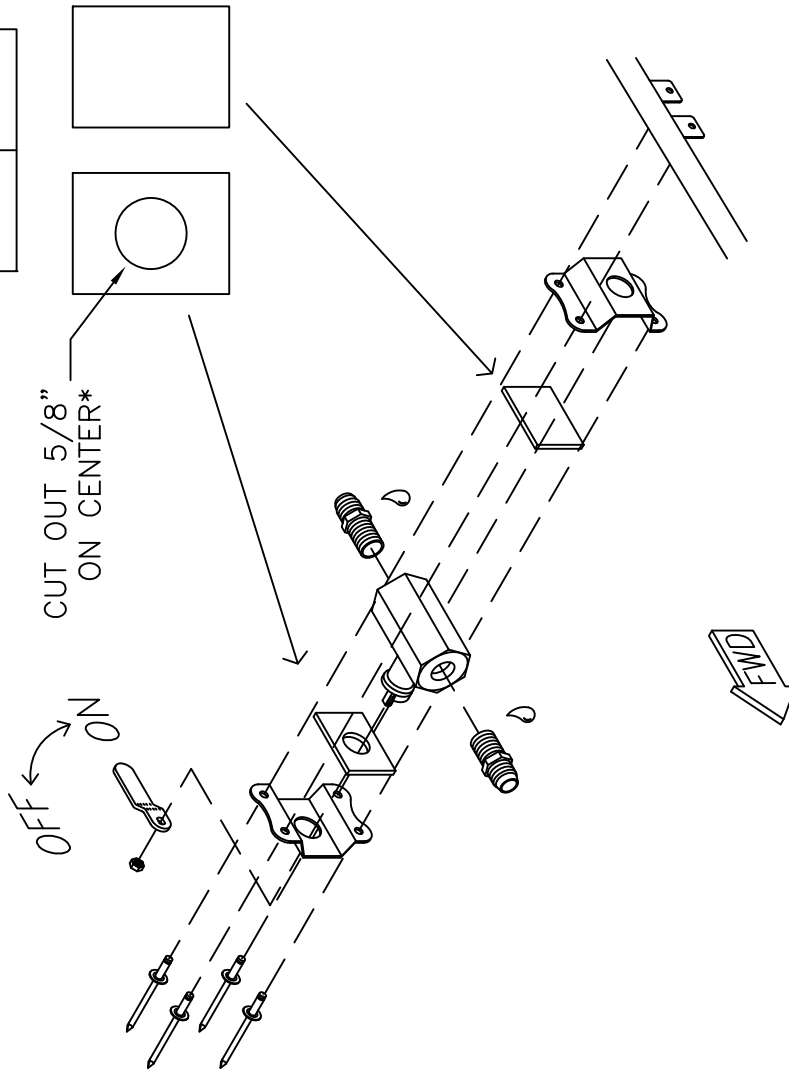
FUEL VALVE  
SILICONE PAD  
(KPFS0106)

CUT INTO 2 PIECES  
ON CENTERLINE

OFF ←  
ON →

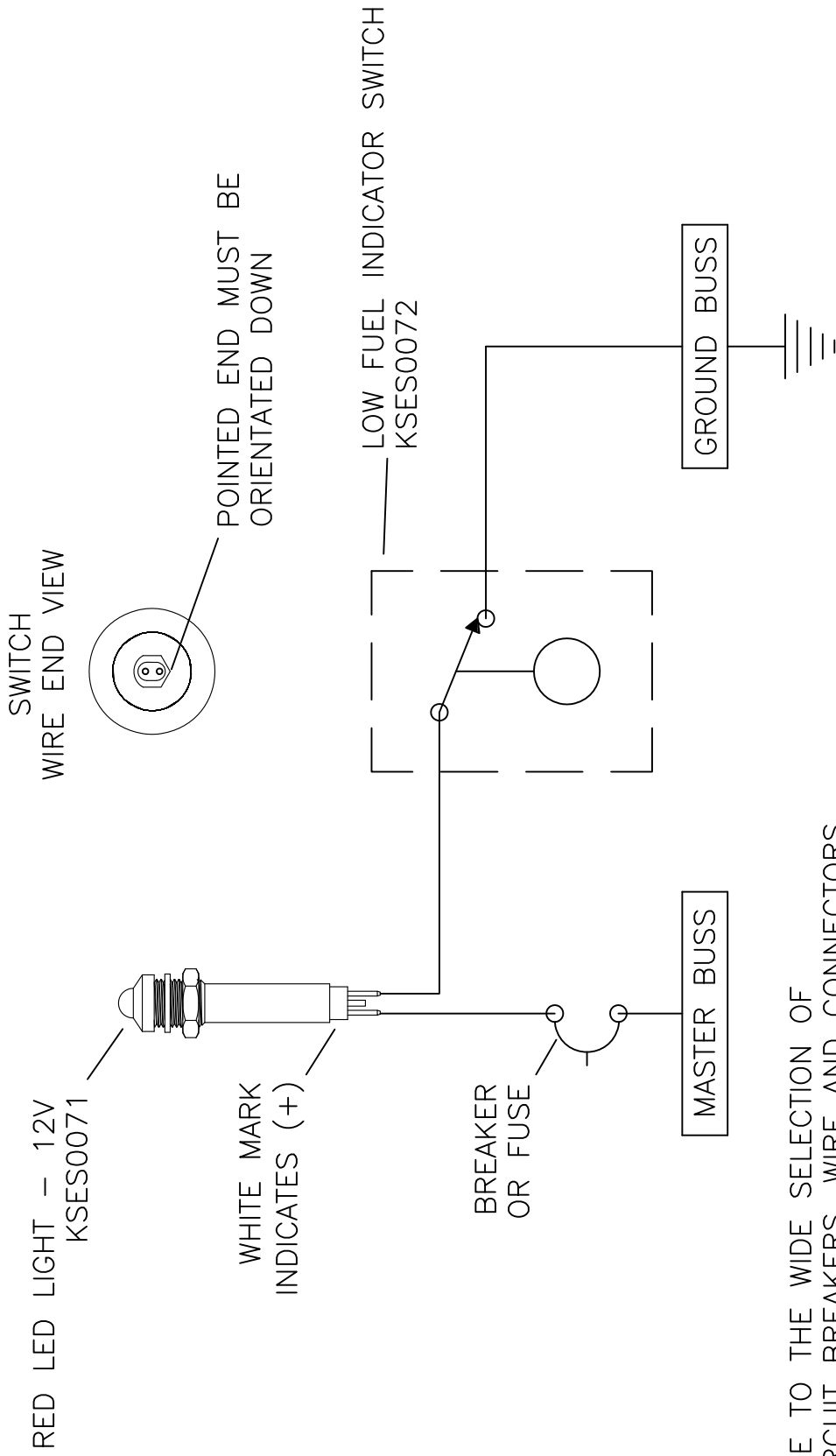
CUT OUT 5/8"  
ON CENTER\*

\* HINT: USE A 5/8" TUBE  
SHARPENED ON INSIDE AS  
A PUNCH TO CUT HOLE.



MD4388  
REV. - ORIG

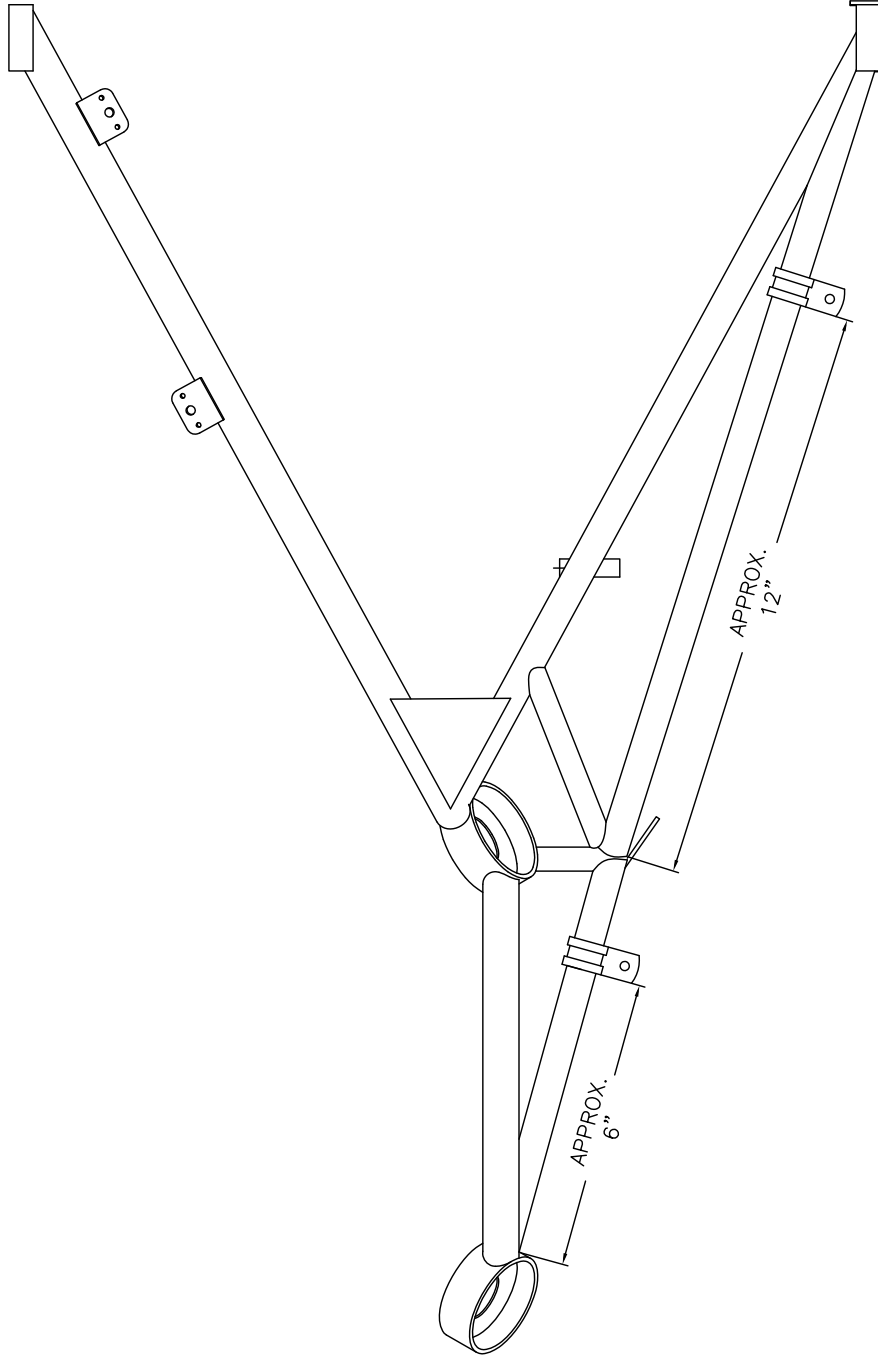
**RAMBO** S-21 OUTBOUND  
ROTAX 912ULS  
FUEL VALVE MOUNTING  
FIGURE 11B-09/912



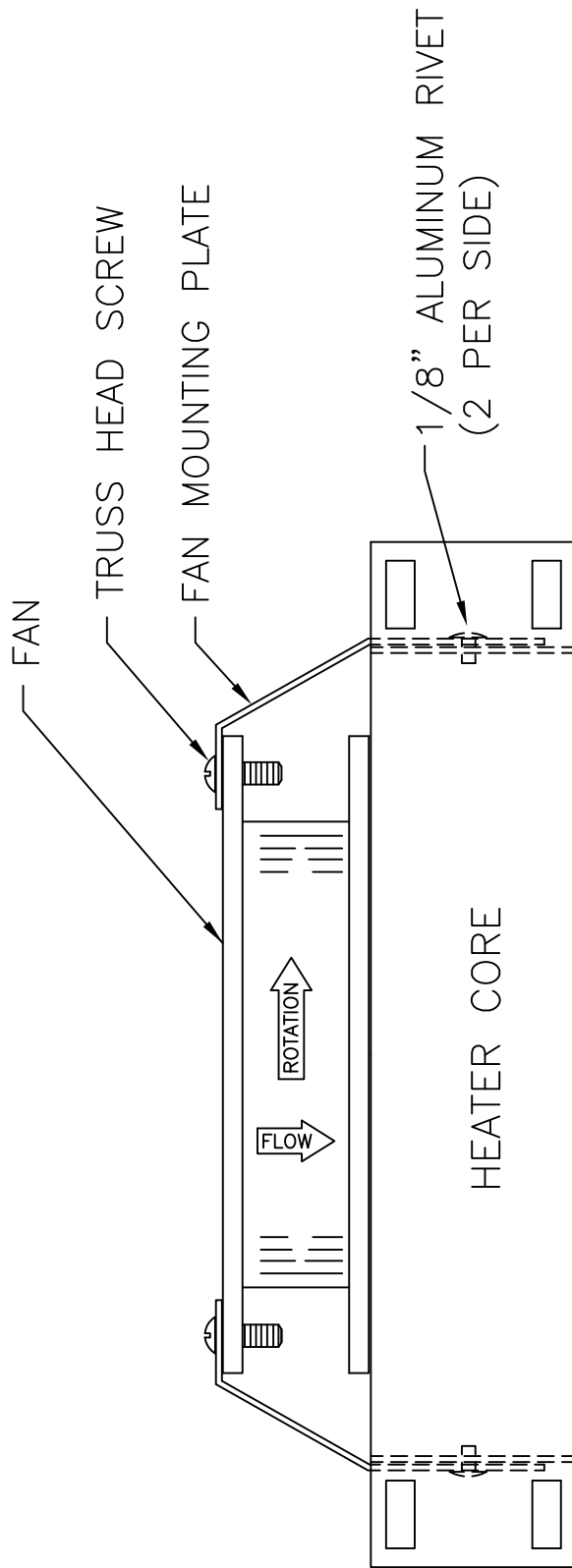
DUE TO THE WIDE SELECTION OF  
CIRCUIT BREAKERS, WIRE AND CONNECTORS  
WHICH MAY BE USED TO CUSTOMIZE YOUR  
AIRCRAFT. THESE ITEMS ARE "BUILDER SUPPLIED"

**RAMS** S-21 OUTBOUND  
ROTAX 912ULS  
LOW FUEL WARNING SYSTEM WIRING  
FIGURE 11B-10/912

MD2861  
REV. - ORIG

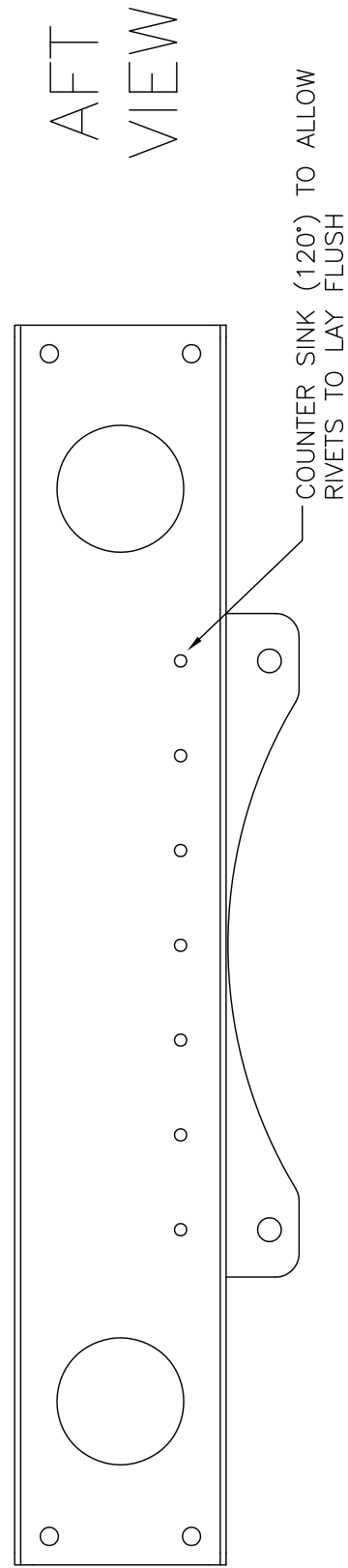
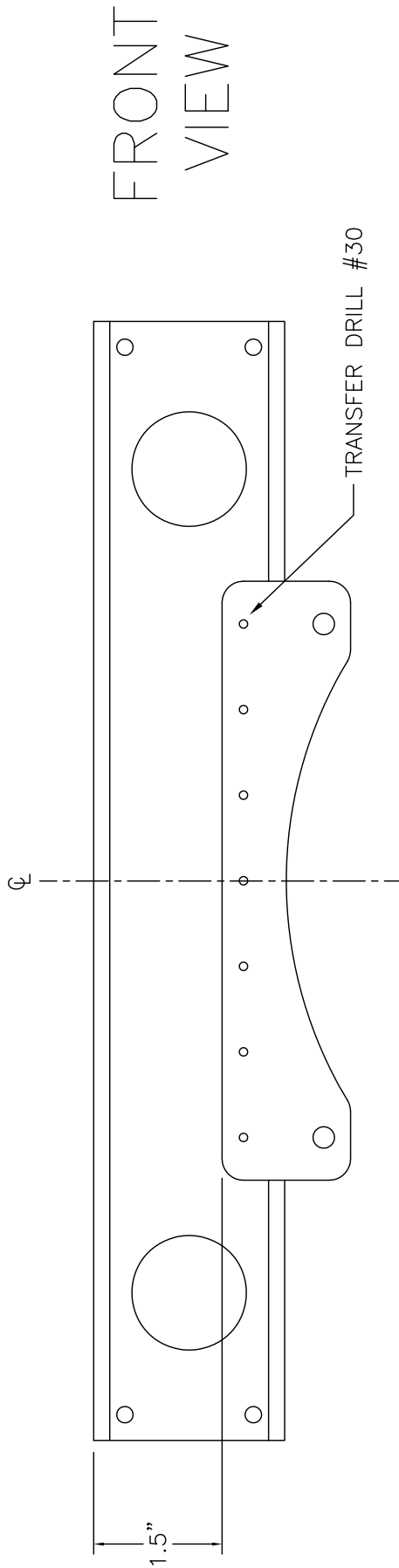


**ROTAX S-21 OUTBOUND**  
**ROTAX 912ULS**  
**CUSHION CLAMP LOCATIONS**  
**FIGURE 11C-03/912**



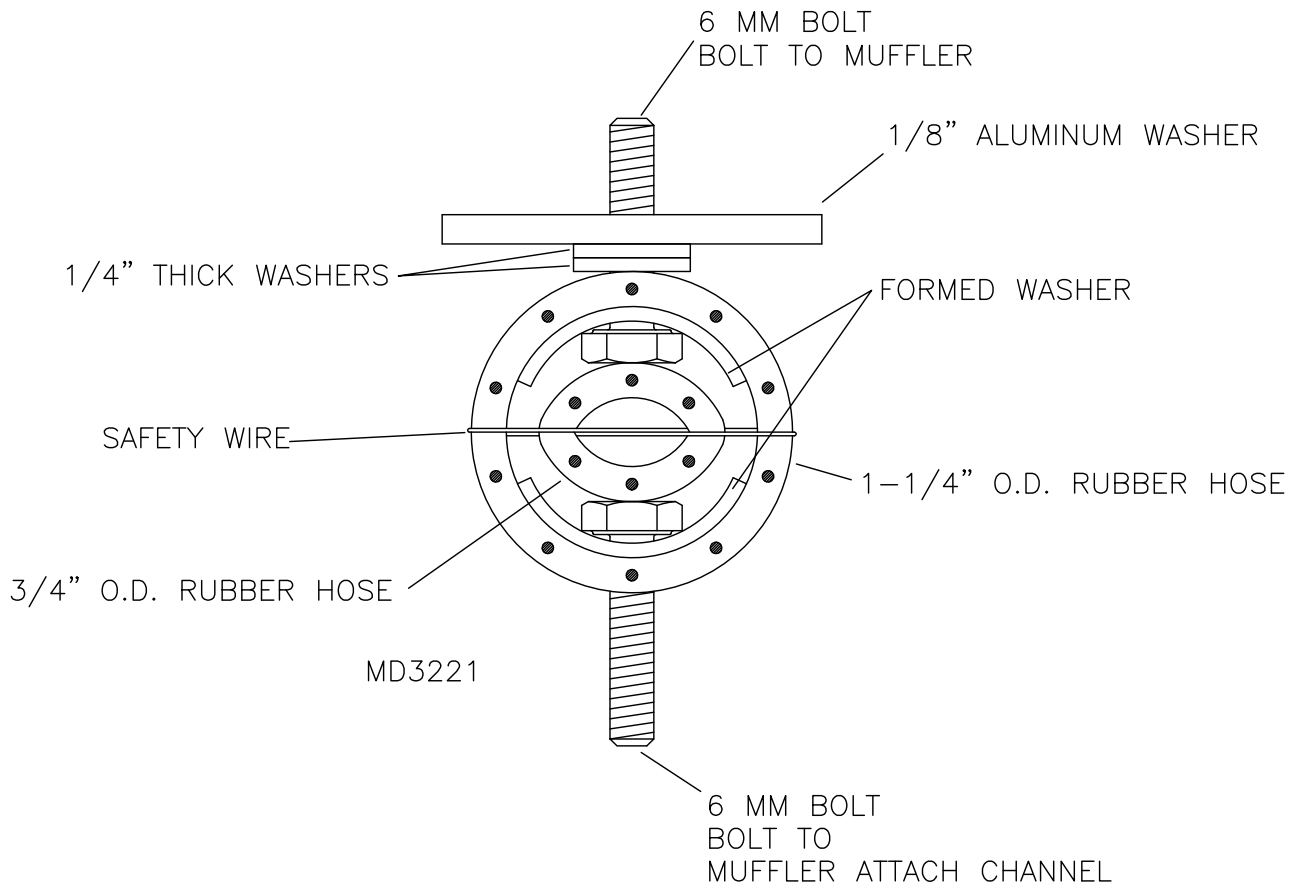
MD434  
 REV. - ORIG

**RRR** S-21 OUTBOUND  
 ROTAX 912ULS  
 HEATER CORE ASSEMBLY  
 FIGURE 11C-14/912



**RRR** S-21 OUTBOUND  
 ROTAX 912ULS  
 UPPER OIL COOLER MOUNT  
 FIGURE 11D-06/912

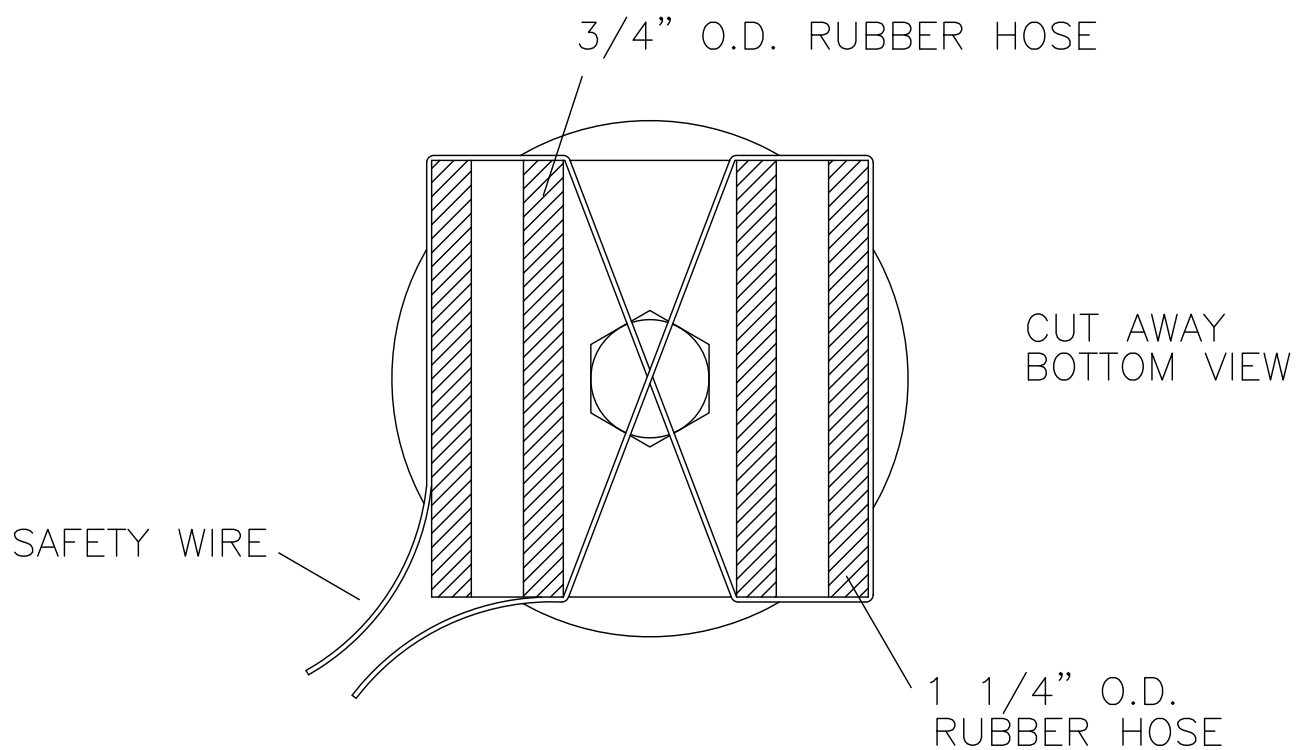
MD5459  
 REV. - ORIG



MD3221  
REV. - ORIG

**RANS S-21 OUTBOUND  
ROTAX 912ULS  
MUFFLER ISOLATOR  
FIGURE 11E-02/912**

09/11/2018

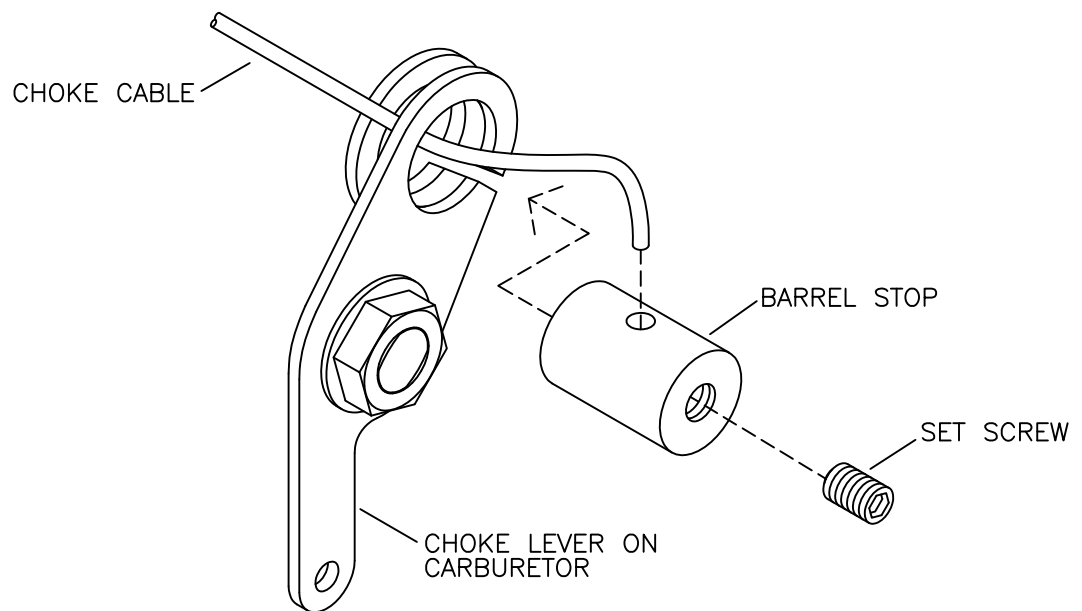


**RANS S-21 OUTBOUND  
ROTAX 912ULS  
MUFFLER ISOLATOR SAFETY WIRE  
FIGURE 11E-03/912**

MD3222  
REV. - ORIG

09/11/2018



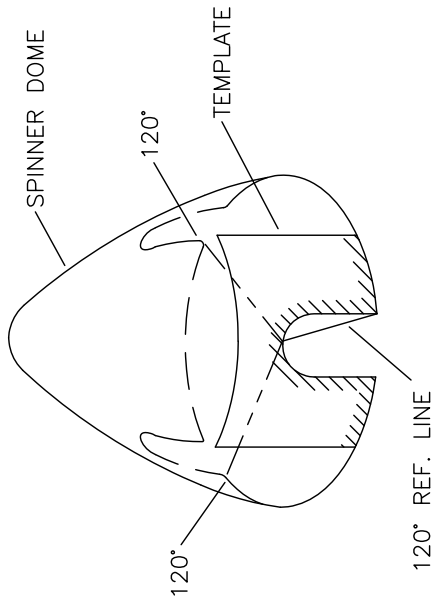


MD4440

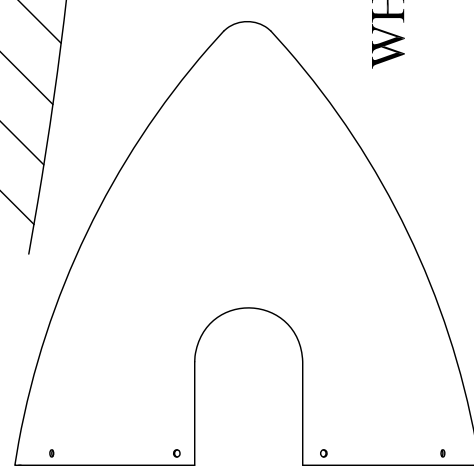
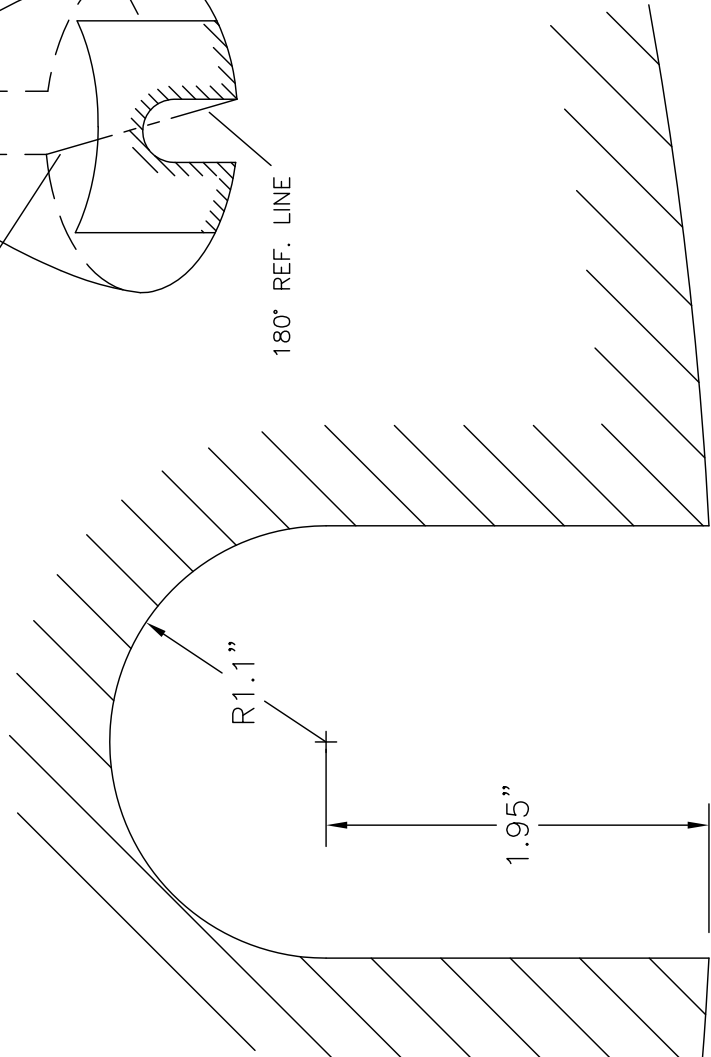
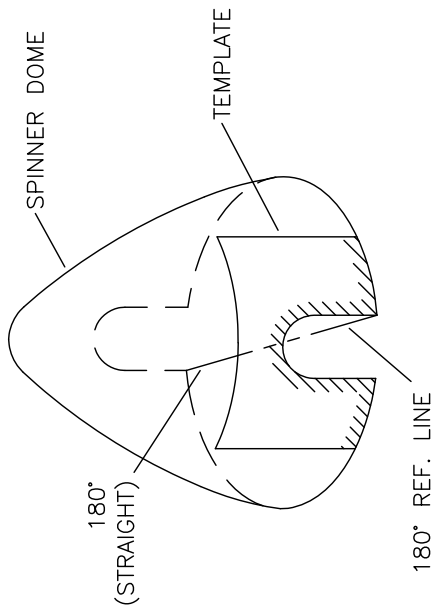
**RANS S-21 OUTBOUND**  
**ROTAX 912ULS**  
**CHOKE CABLE INSTALLATION**  
**FIGURE 11G-07/912**

09/11/2018

3-BLADE



2-BLADE



PLOT 1:1

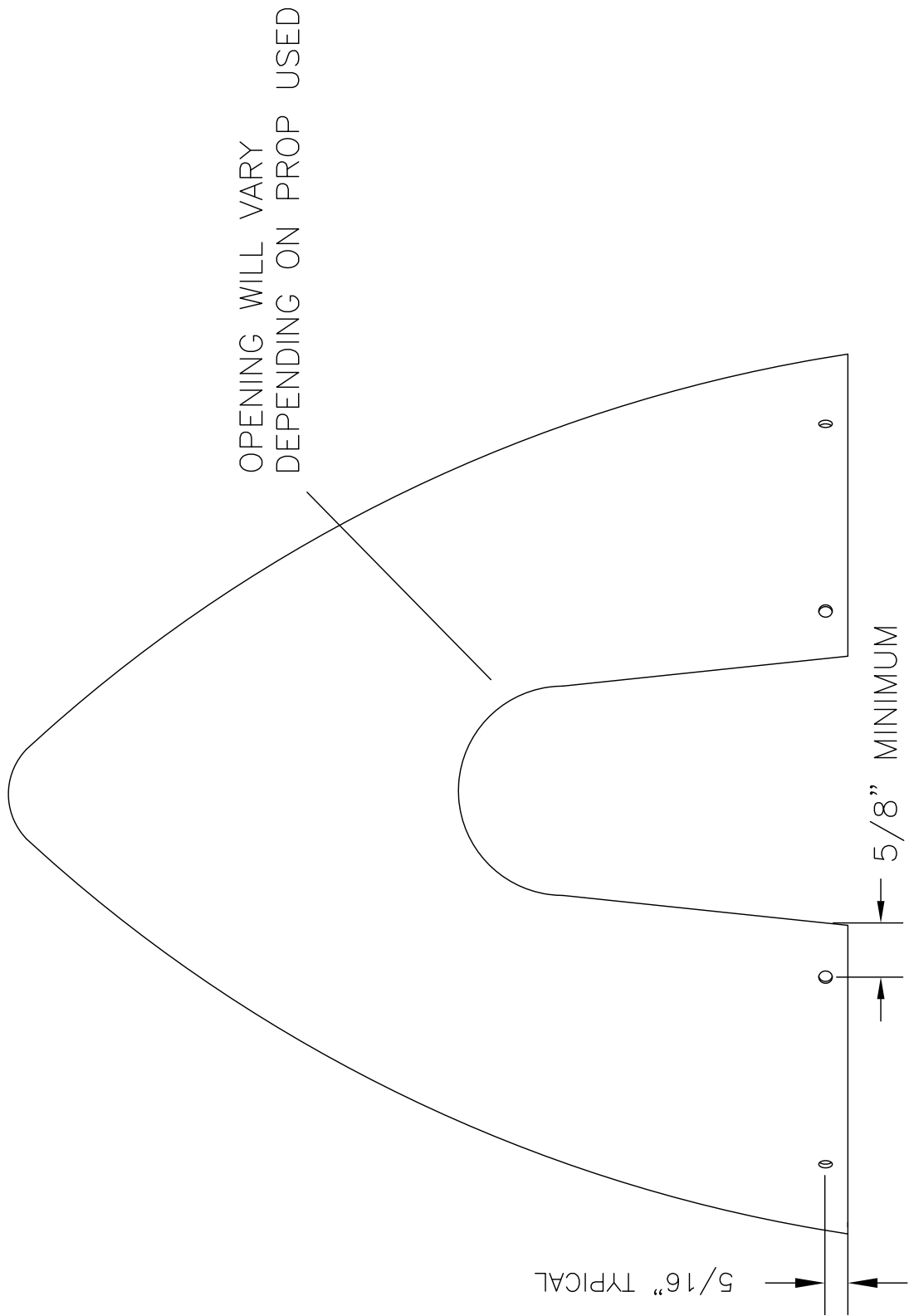
**RAMOS** S-21 OUTBOUND

ROTAX 912ULS

MD5228

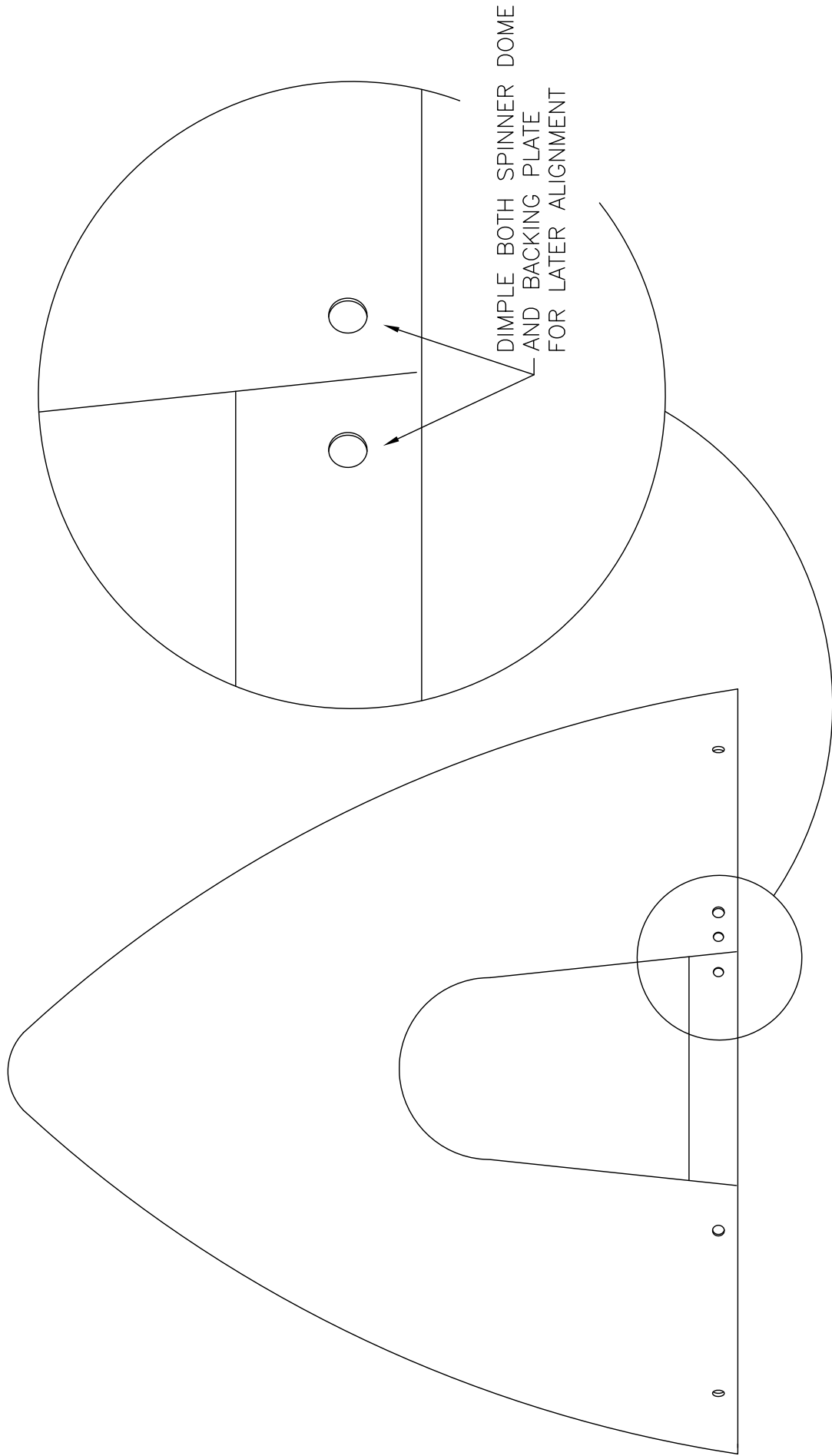
WHIRL WIND PROP - 11.3" SPINNER TEMPLATE

FIGURE 11J-04/912



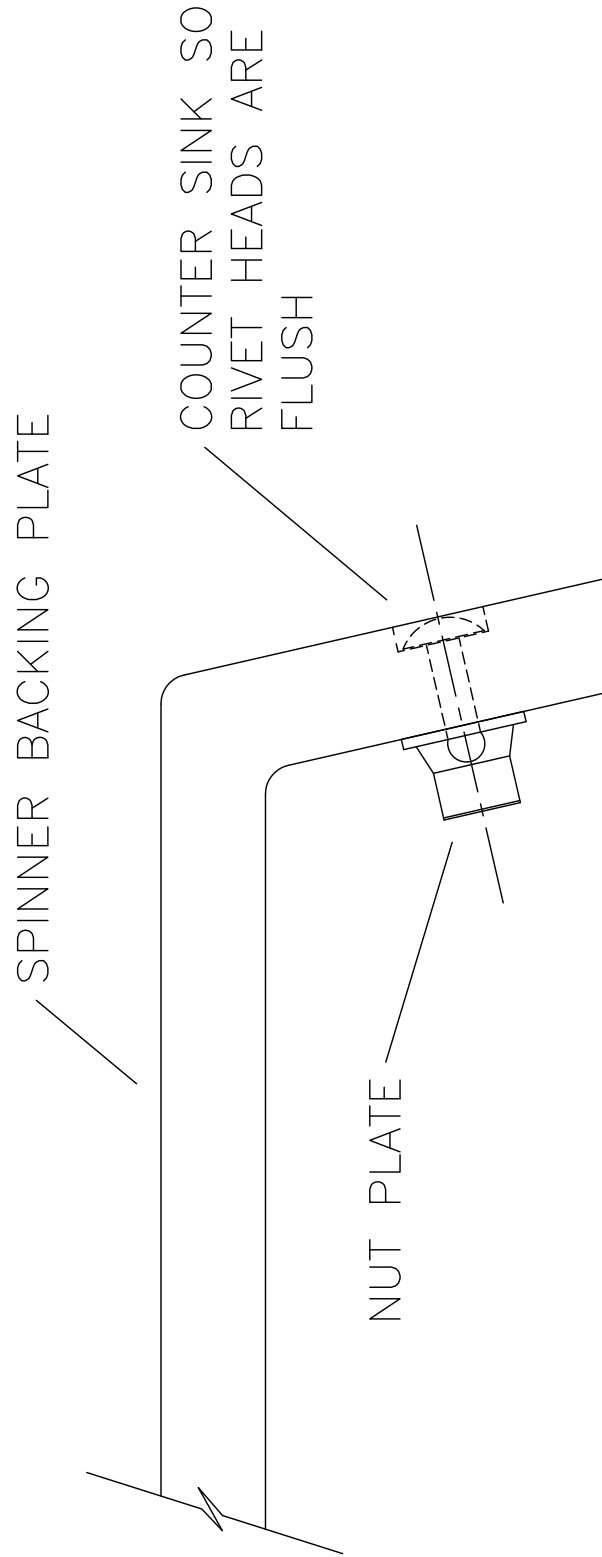
**RAMPS S-21 OUTBOUND**  
**ROTAX 912ULS**  
**SPINNER DRILLING**  
**FIGURE 11J-08/912**

MD5228  
 REV. - ORIG



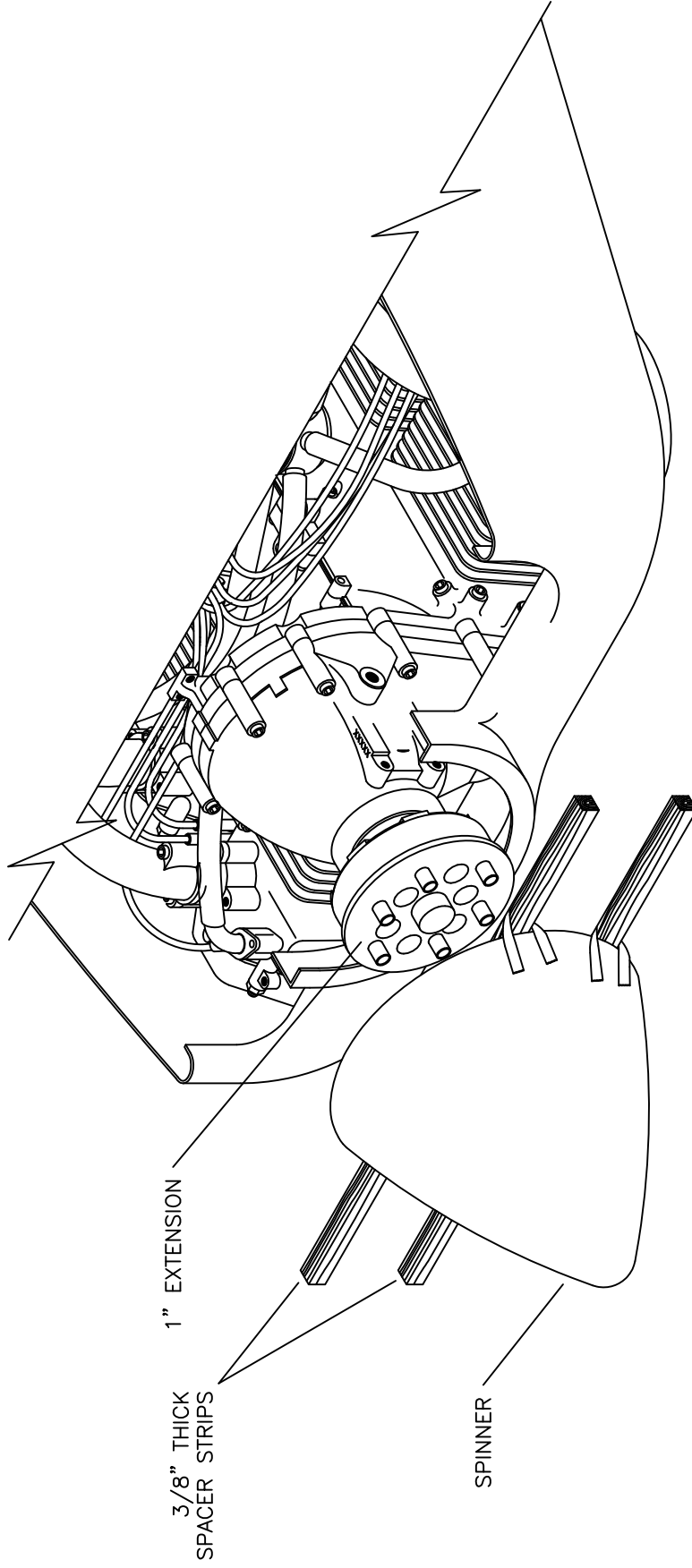
**RRR** S-21 OUTBOUND  
 ROTAX 912ULS  
 SPINNER ALIGNMENT MARKS  
 FIGURE 11J-12/912

MD5228  
 REV. - ORIG



**RAVEN S-20 RAVEN**  
**ROTAX 912ULS**  
**SPINNER NUT PLATE INSTALLATION**  
**FIGURE 11J-15/912**

MD5228  
 REV. - ORIG



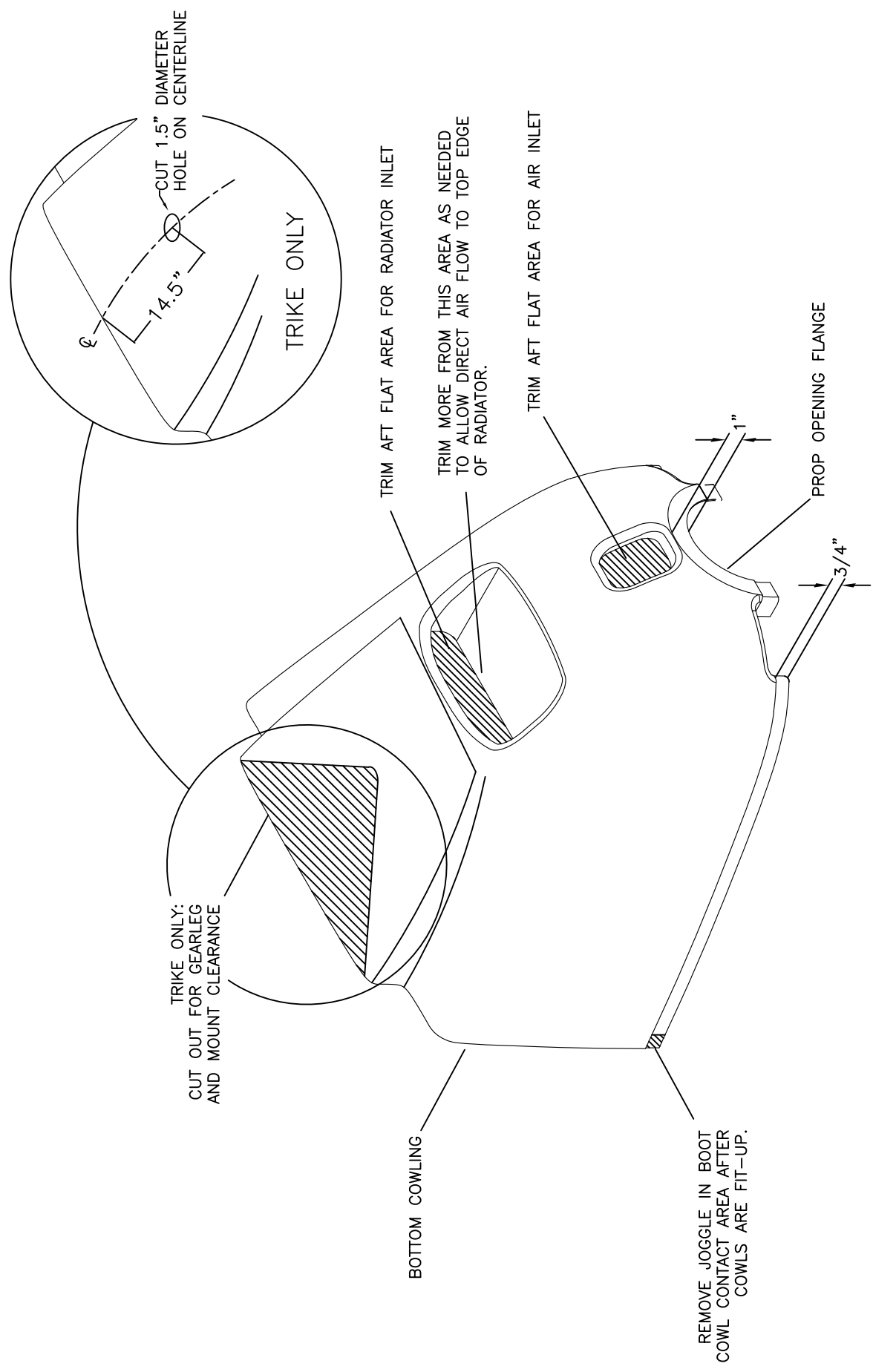
IMPORTANT: INSTALLATION OF COWLING REQUIRES ENGINE, PROP EXTENSION AND SPINNER BACKING PLATE TO BE INSTALLED.

MD4402  
REV. - ORIG

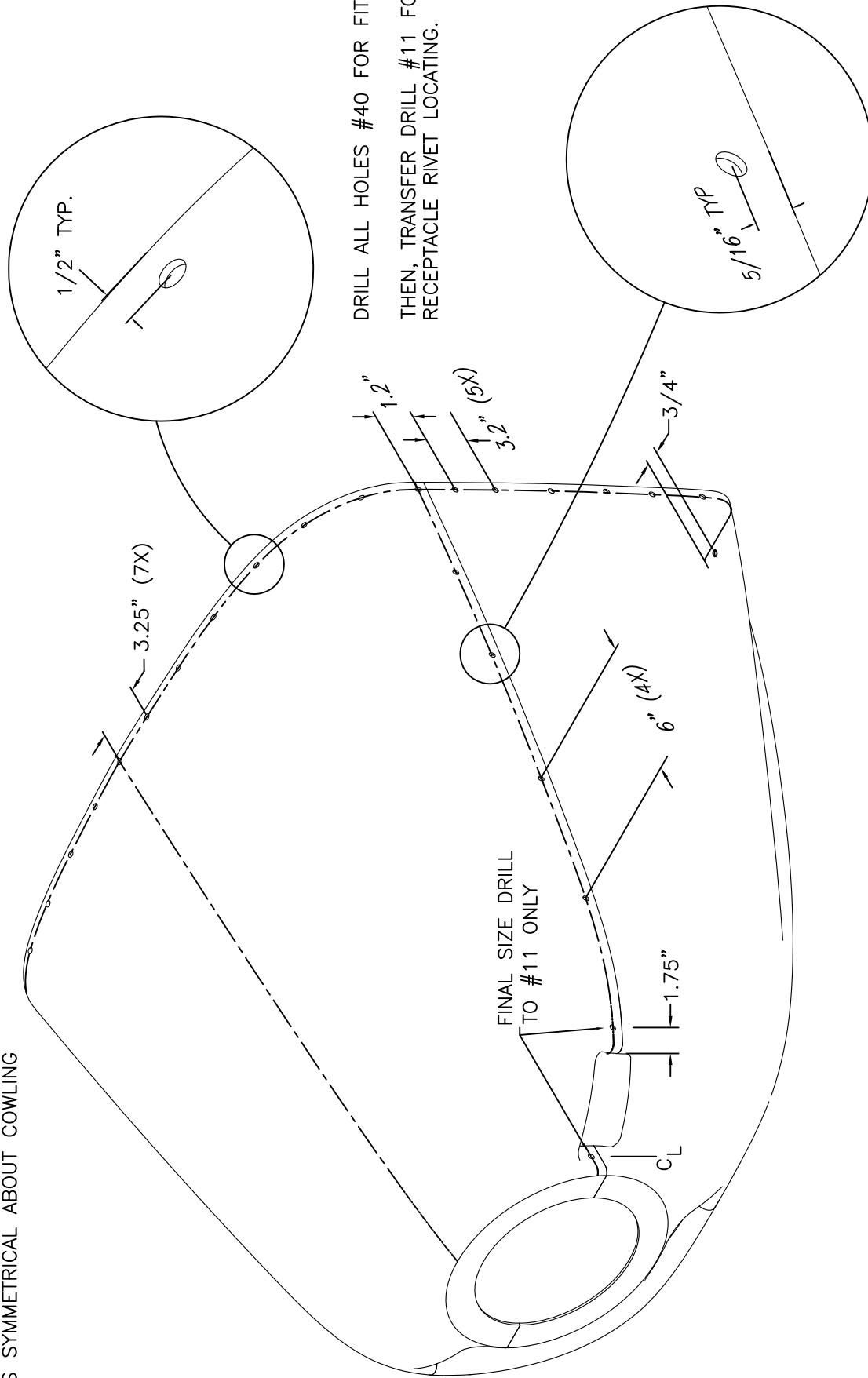
**RRR** S-21 OUTBOUND  
 ROTAX 912ULS  
 COWLING TO SPINNER SPACING  
 FIGURE 11K-02/912

MD2833  
REV. A

# RAMBOS S-21 OUTBOUND ROTAX 912ULS BOTTOM COWLING MODIFICATION FIGURE 11K-03/912



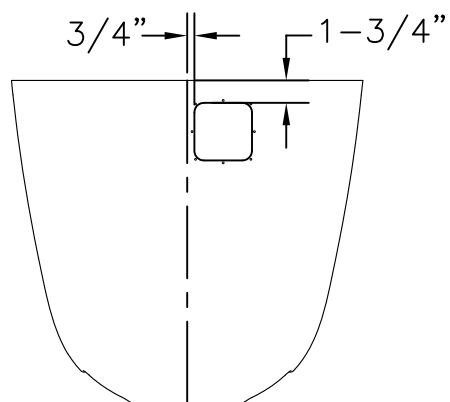
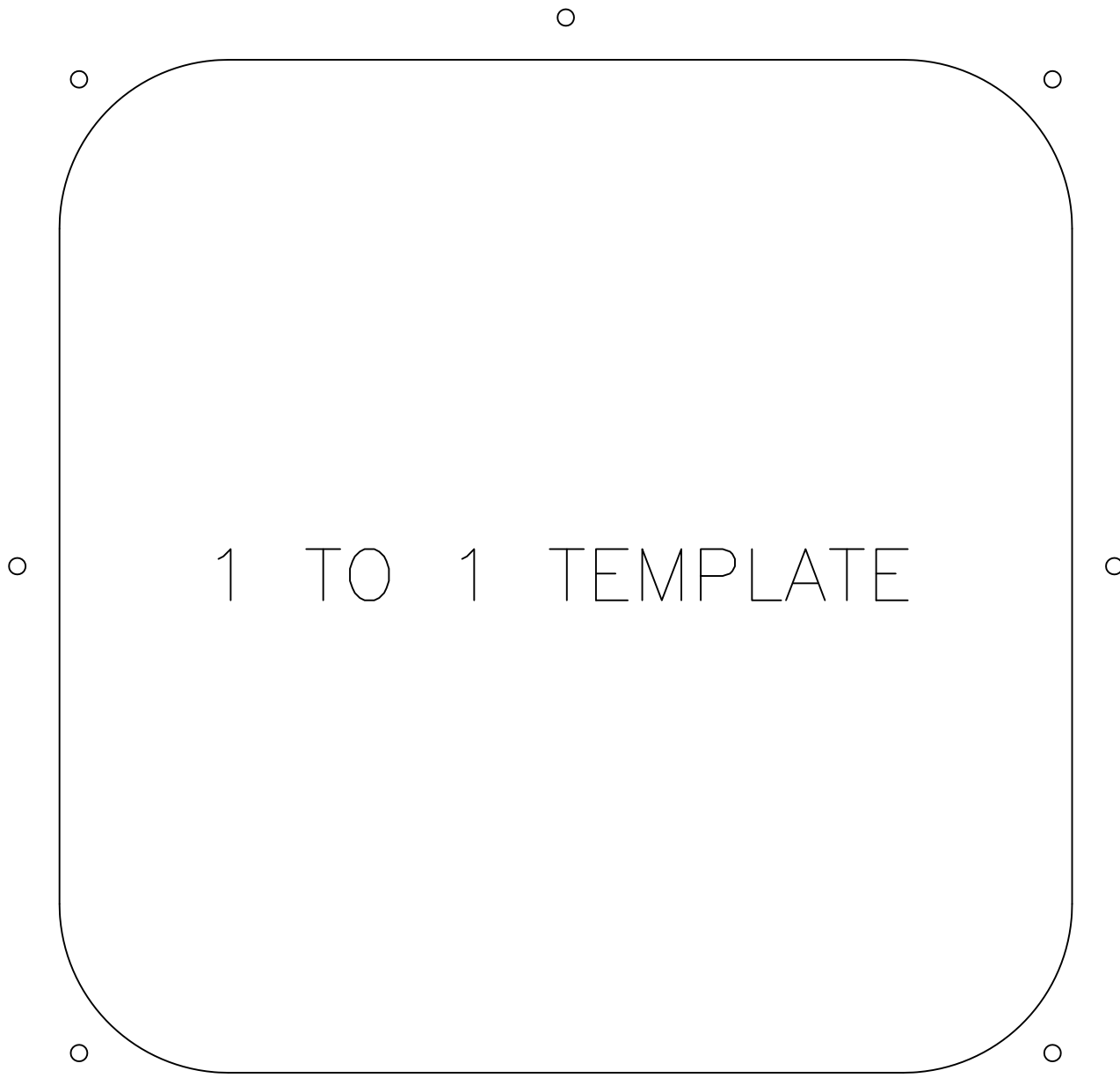
SPACING IS SYMMETRICAL ABOUT COWLING



**RRR** S-21 OUTBOUND  
ROTAX 912ULS  
COWLING FASTENER SPACING  
FIGURE 11K-13/912

MD5138  
REV. - ORIG.





COMPARE TEMPLATE TO:  
 REINFORCEMENT RING  
 (KPCW0015)  
 TO VERIFY 1:1

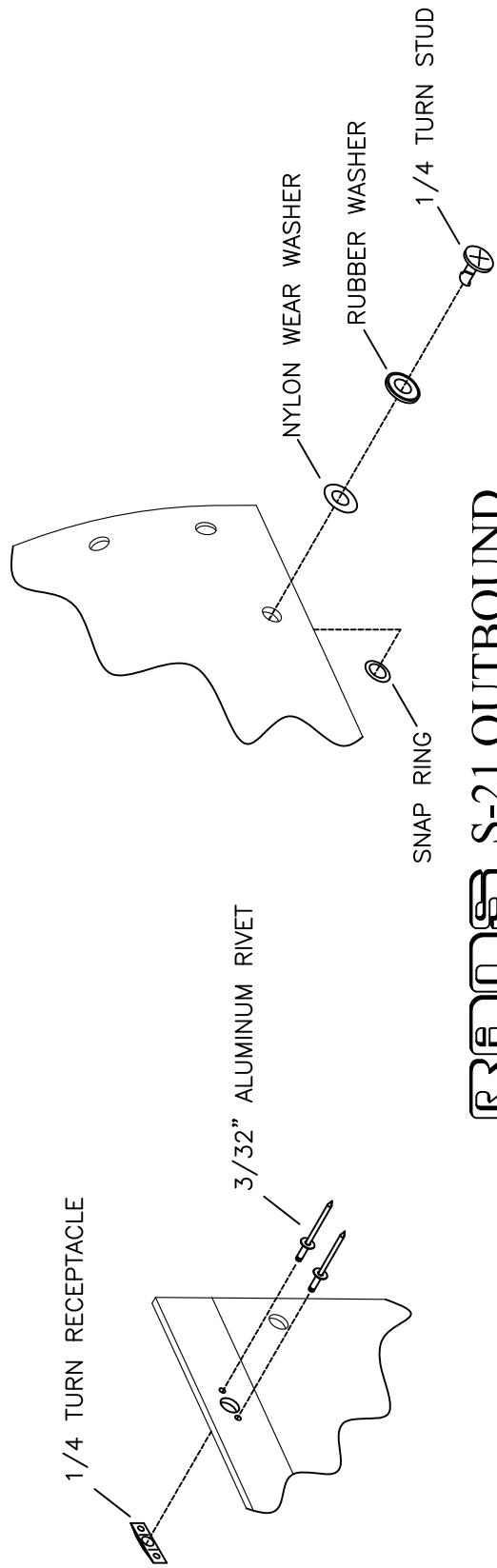
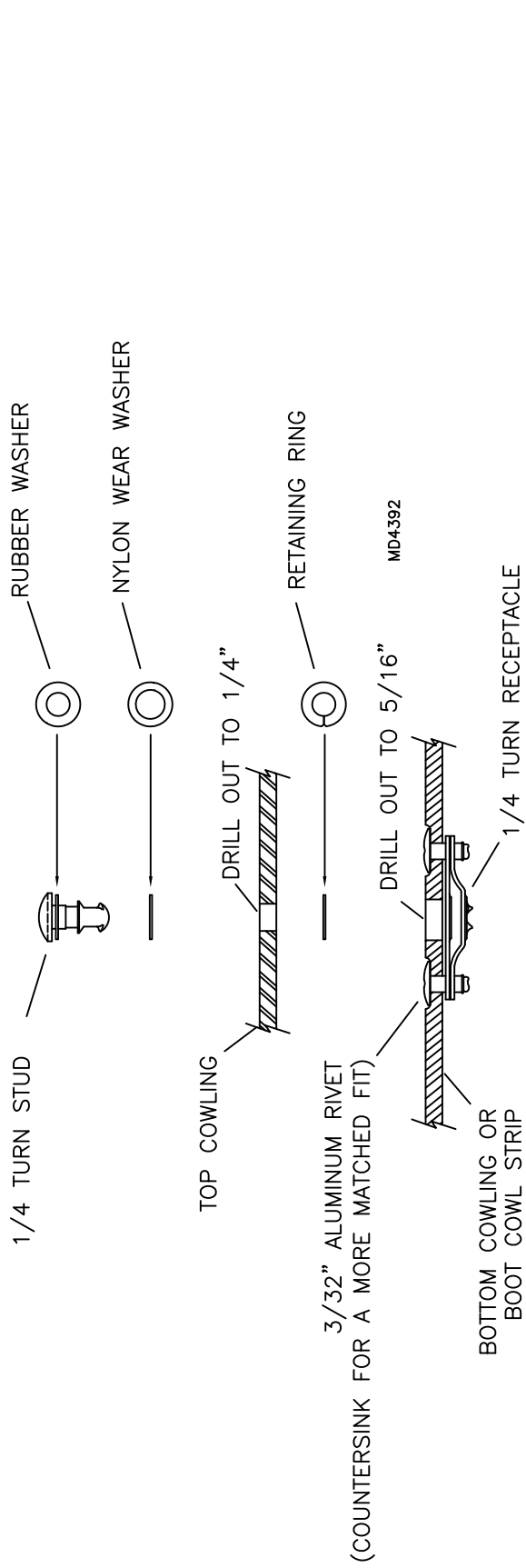
MEASUREMENTS AFTER FINAL COWLING TRIM

MD5142  
 REV. - ORIG

**RANS** S-21 OUTBOUND  
 OIL CHECK DOOR TEMPLATE

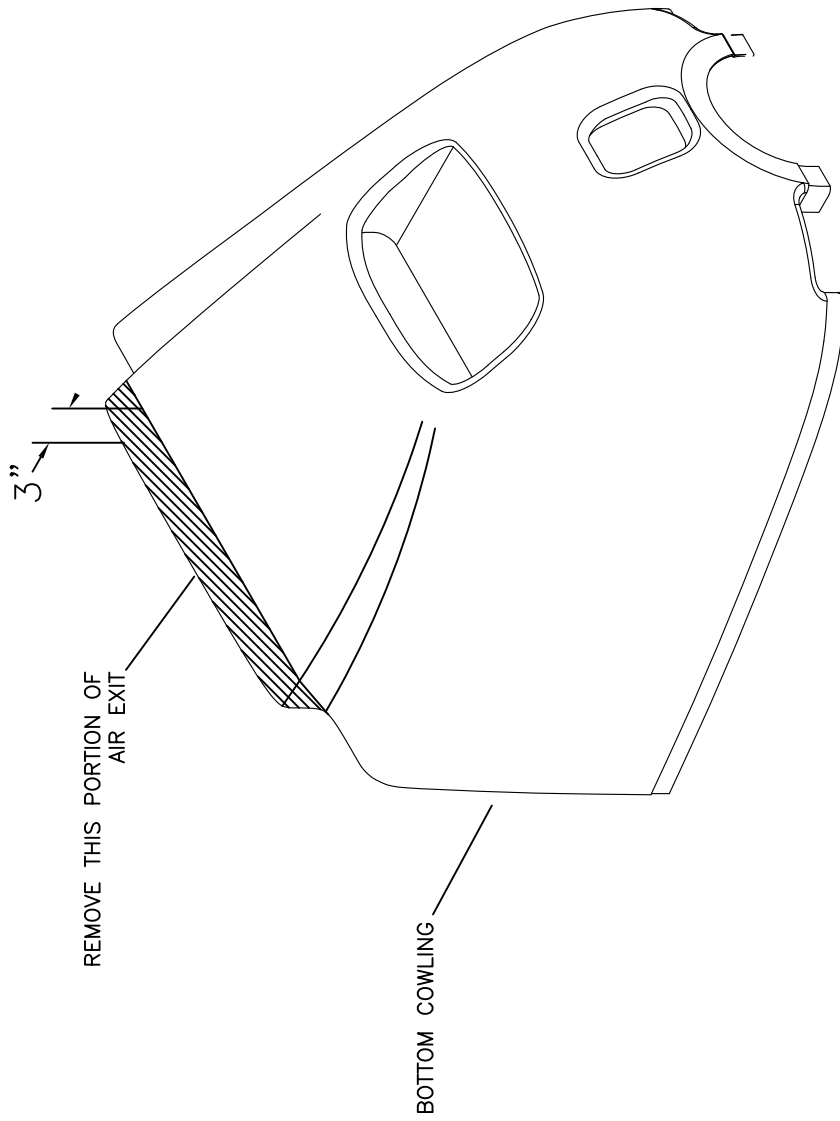
FIGURE 11K-21/912

09/11/2018



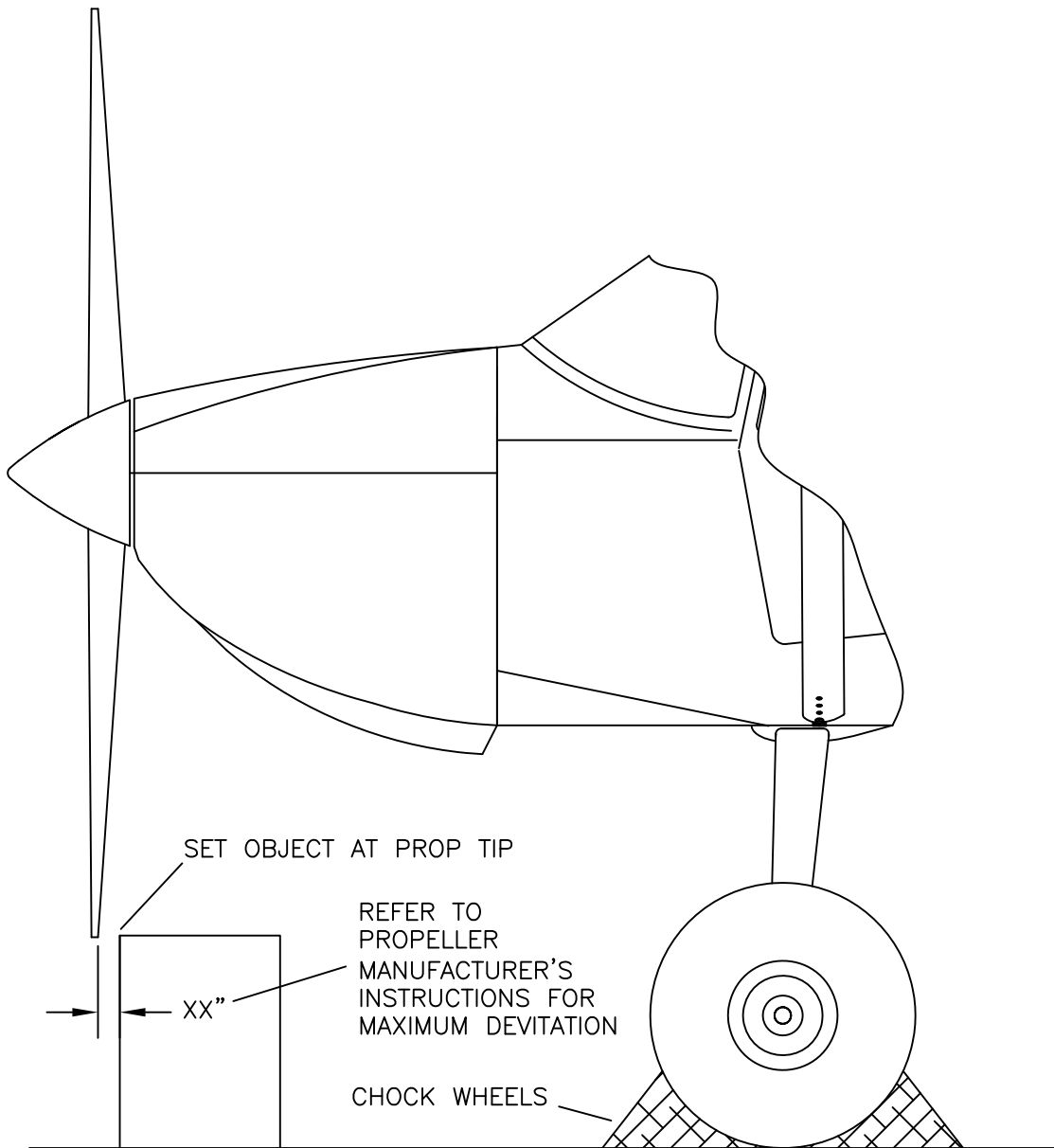
**RAMROB S-21 OUTBOUND**  
**ROTAX 912ULS**  
**1/4 TURN FASTENER INSTALLATION**  
**FIGURE 11K-26/912**

MD5143  
 REV. - ORIG



MD2833  
REV. - ORIG

**RRANES S-21 OUTBOUND**  
**ROTAX 912ULS**  
**AIR EXIT MODIFICATION**  
**FIGURE 11K-28/912**



## IMPORTANT!

RE-CHECK PROPELLER TORQUE PER MANUFACTURE'S RECOMMENDED INSPECTION INTERVAL. FAILURE TO MAINTAIN PROP TORQUE MAY RESULT IN SEPARATION OF THE PROPELLER FROM THE AIRCRAFT AND MAY CAUSE INJURY OR DEATH. REFER TO PROPELLER MANUFACTURER'S INSTRUCTIONS FOR ANY SPECIAL MAINTENANCE REQUIREMENTS.

# RANS S-21 OUTBOUND ROTAX 912ULS PROPELLER TRACKING FIGURE 11L-07/912

MD4380  
REV. - ORIG

09/11/2018