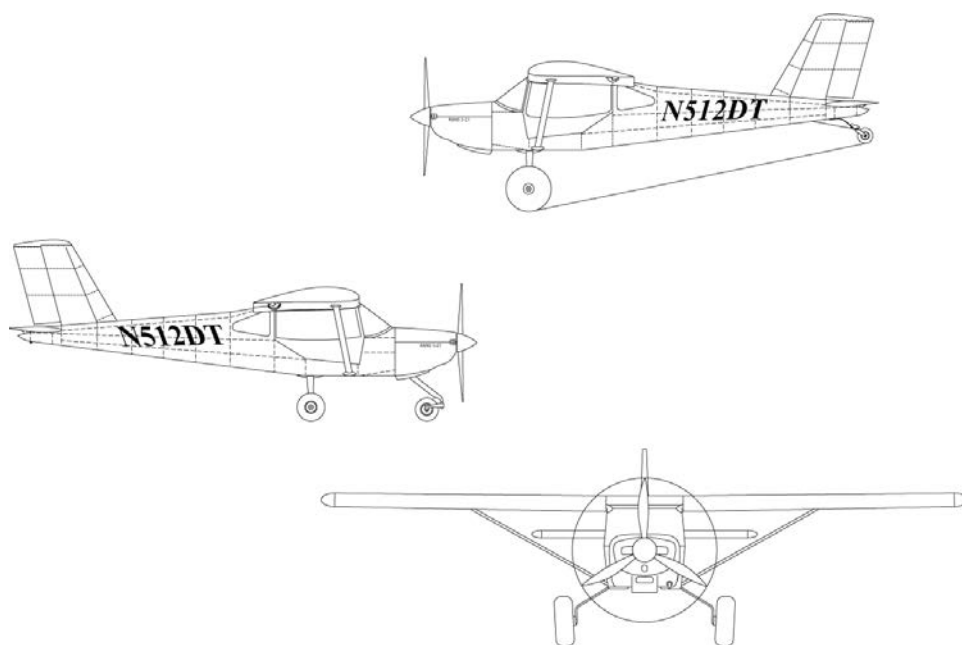




## ***S-21 OUTBOUND***

### **PARTS MANUAL**



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

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

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**RANS DESIGNS**  
4600 HWY 183 Alt  
HAYS, KANSAS, USA 67601  
785-625-6346  
**WWW.RANS.COM**



U.S. Department  
of Transportation

**Federal Aviation  
Administration**

Aviation Safety

10101 Hillwood Parkway  
Fort Worth, TX 76177

September 19, 2018

Mr. Randy Schlitter  
RANS Designs Inc.  
4600 Hwy 183 Alt.  
Hays, KS 67601

Dear Mr. Schlitter:

The Federal Aviation Administration (FAA), National Kit Evaluation Team (NKET) completed an evaluation of the RANS S-21 Outbound, at your facility on September 11, 2018. The kit is defined by the RANS S-21 Outbound Aircraft Bill of Materials, dated September 11, 2018. The team determined that the kit may allow an amateur builder to meet the major portion requirement of Title 14, Code of Federal Regulations Part 21, Certification Procedures for Products and Articles, § 21.191(g).

We will advise the Aircraft Certification Service's Certification Procedures Branch to add the kit to the Revised Listing of Amateur-Built Aircraft Kits (Kit List) located on the FAA website. This evaluation does not mean that the RANS S-21 Outbound is FAA "*certified, certificated, or approved*," and it is inappropriate to represent either as such.

RANS Designs Inc., should notify this office in writing if ownership of the company changes, and or if there are changes made to the evaluated kit that may affect its potential to meet the major portion requirement. Failure to notify this office may result in removal of the kit from the Kit List.

If you have any questions, please contact the Southwest Manufacturing Inspection Office (MIO) Branch at (817) 222-5180.

Sincerely,

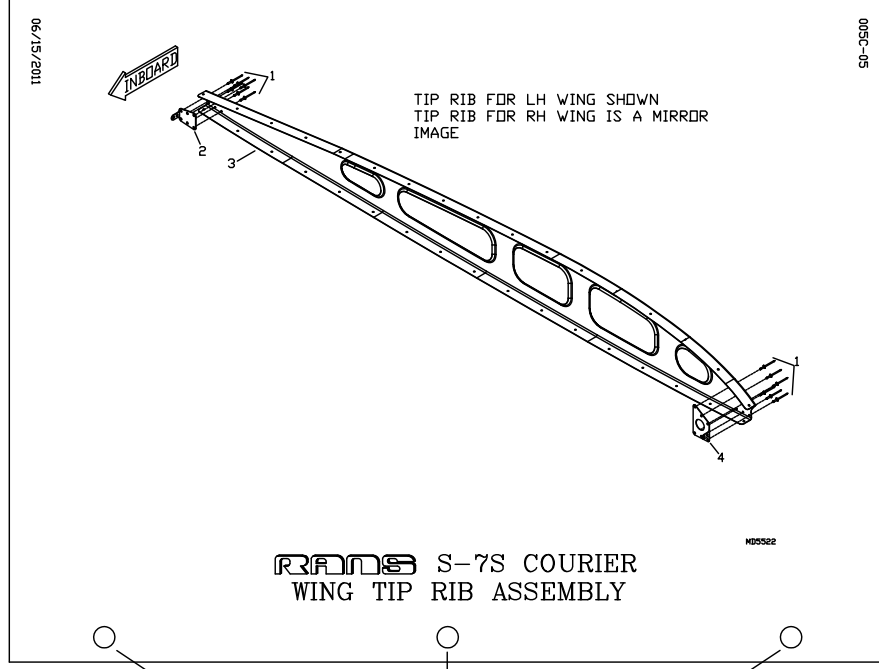
Bruce Cain  
Aviation Safety  
Manager, Southwest MIO Branch, AIR-880

Enclosure— One Amateur-Built Aircraft Fabrication and Assembly Checklist  
for RANS S-21 OUTBOUND

STEP 1:

PARTS MANUAL AS SHIPPED or PRINTED.  
PLACE IN 3-RING BINDER TO SECURE.

PARTS DRAWING PAGE



3-HOLE PUNCH

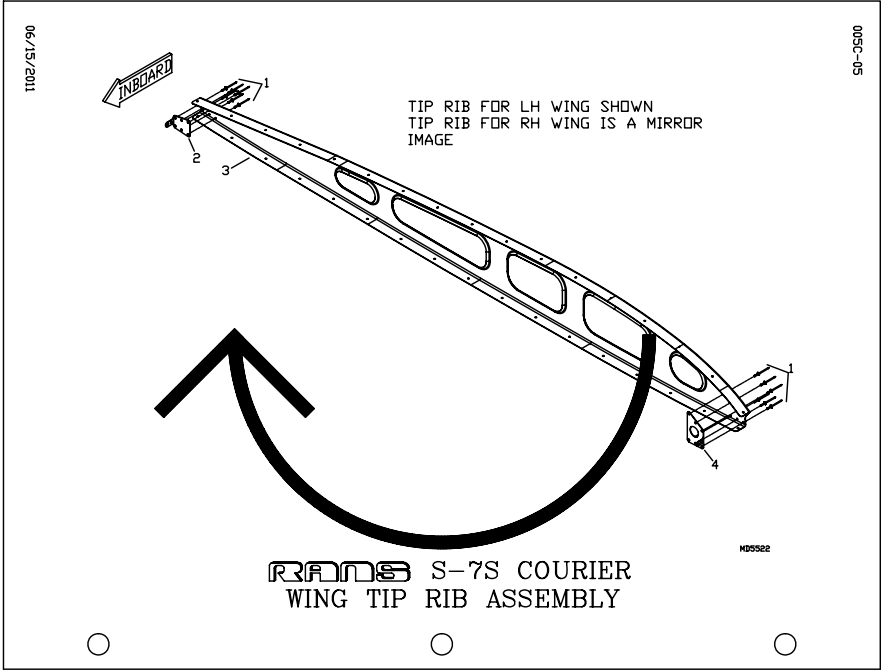
EXAMPLE ONLY.  
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FROM YOUR MANUAL.

SEE NEXT PAGE

STEP 2:

OPEN 3-RING BINDER.  
REMOVE PARTS DRAWING PAGE AND  
ROTATE 180° TO FACE  
CORRESPONDING  
PARTS DESCRIPTION PAGE.  
REPEAT FOR REMAINING PAGES

PARTS DRAWING PAGE



PARTS DESCRIPTION PAGE

| S-7S COURIER - WING - TIP RIB ASSEMBLY |                             |             |          | PAGE 005C-06 |
|----------------------------------------|-----------------------------|-------------|----------|--------------|
| #                                      | DESCRIPTION                 | PART NUMBER | QUANTITY |              |
| 1.                                     | 1/8" ALUMINUM RIVET         | AAQ-41      | 24       |              |
| 2.                                     | RIB CLIP TRAILING EDGE - LH | KPW0372-L   | 4        |              |
| 2.                                     | RIB CLIP TRAILING EDGE - RH | KPW0372-R   | 1        |              |
| 3.                                     | WING TIP RIB - LH           | KPW0544-L   | 1        |              |
| 3.                                     | WING TIP RIB - RH           | KPW0544-R   | 1        |              |
| 4.                                     | RIB CLIP LEADING EDGE - LH  | KPW0373-L   | 1        |              |
| 4.                                     | RIB CLIP LEADING EDGE - RH  | KPW0373-R   | 1        |              |

6/15/2011

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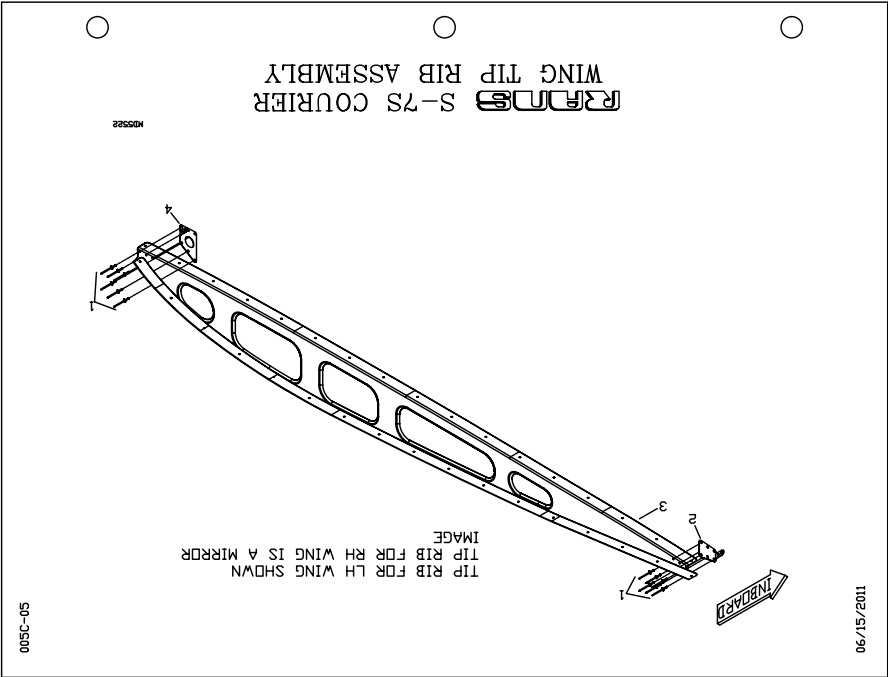
SEE NEXT PAGE



STEP 3:

PARTS DRAWING PAGE  
FACES CORRESPONDING  
PARTS DESCRIPTION PAGE  
WHEN FINAL SECURED IN  
BINDER

PARTS DRAWING PAGE



PARTS DESCRIPTION PAGE

| S-7S COURIER - WING - TIP RIB ASSEMBLY |                             |             |          |
|----------------------------------------|-----------------------------|-------------|----------|
| #                                      | DESCRIPTION                 | PART NUMBER | QUANTITY |
| 1.                                     | 1/8" ALUMINUM RIVET         | AAPO41      | 24       |
| 2.                                     | RIB CLIP TRAILING EDGE - LH | KPW0372-L   | 4        |
| 2.                                     | RIB CLIP TRAILING EDGE - RH | KPW0372-R   | 1        |
| 3.                                     | WING TIP RIB - LH           | KPW0544-L   | 1        |
| 3.                                     | WING TIP RIB - RH           | KPW0544-R   | 1        |
| 4.                                     | RIB CLIP LEADING EDGE - LH  | KPW0373-L   | 1        |
| 4.                                     | RIB CLIP LEADING EDGE - RH  | KPW0373-R   | 1        |

EXAMPLE ONLY.  
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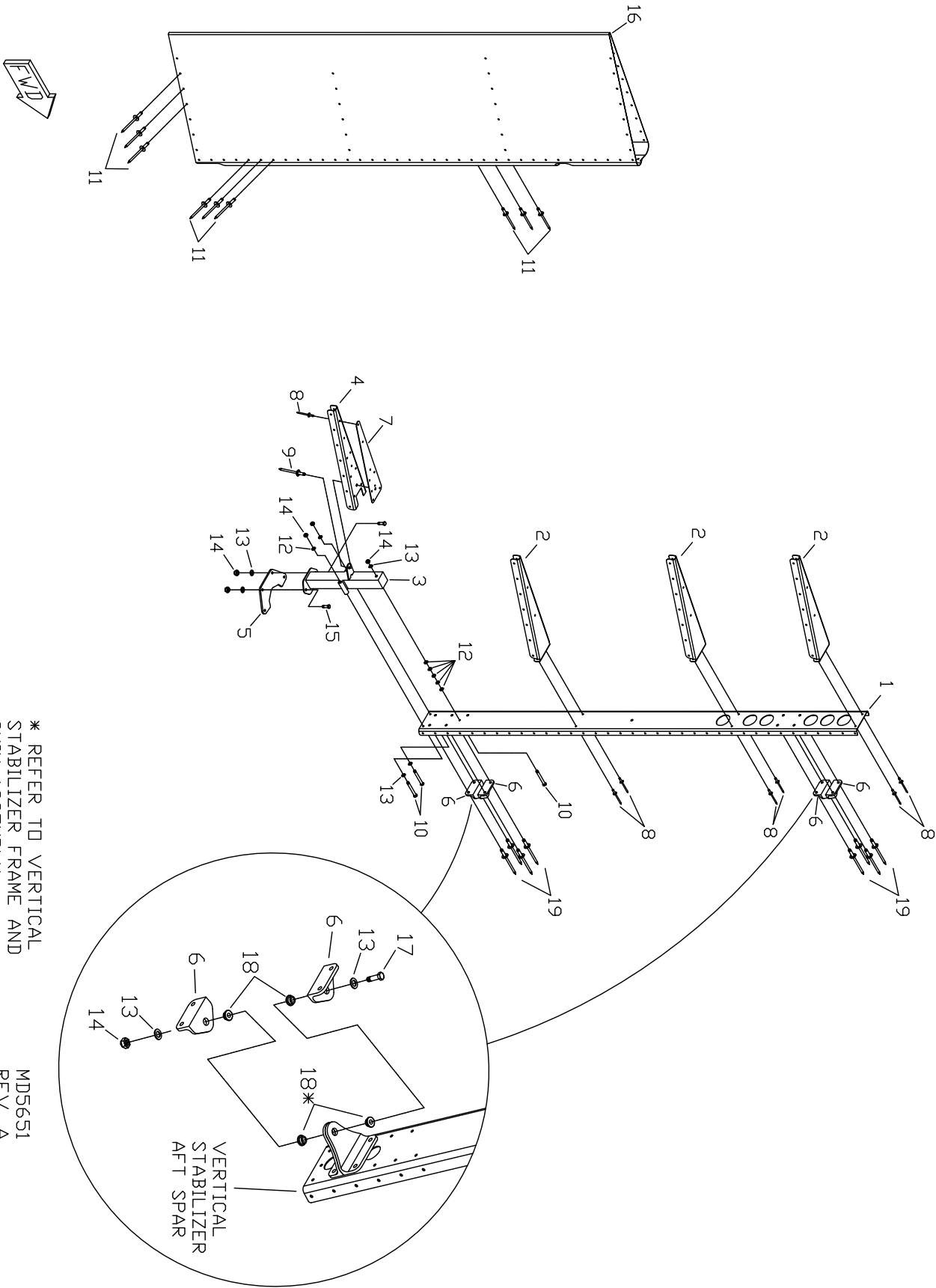
# **RANS S-21 OUTBOUND - PARTS MANUAL**

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\* REFER TO VERTICAL  
STABILIZER FRAME AND  
SKIN ASSEMBLY

MD5651  
REV. A

# REF ID: A12345 S-21 OUTBOUND RUDDER FRAME & SKIN ASSEMBLY

**RANS S-21 OUTBOUND**  
**RUDDER FRAME & SKIN ASSEMBLY**

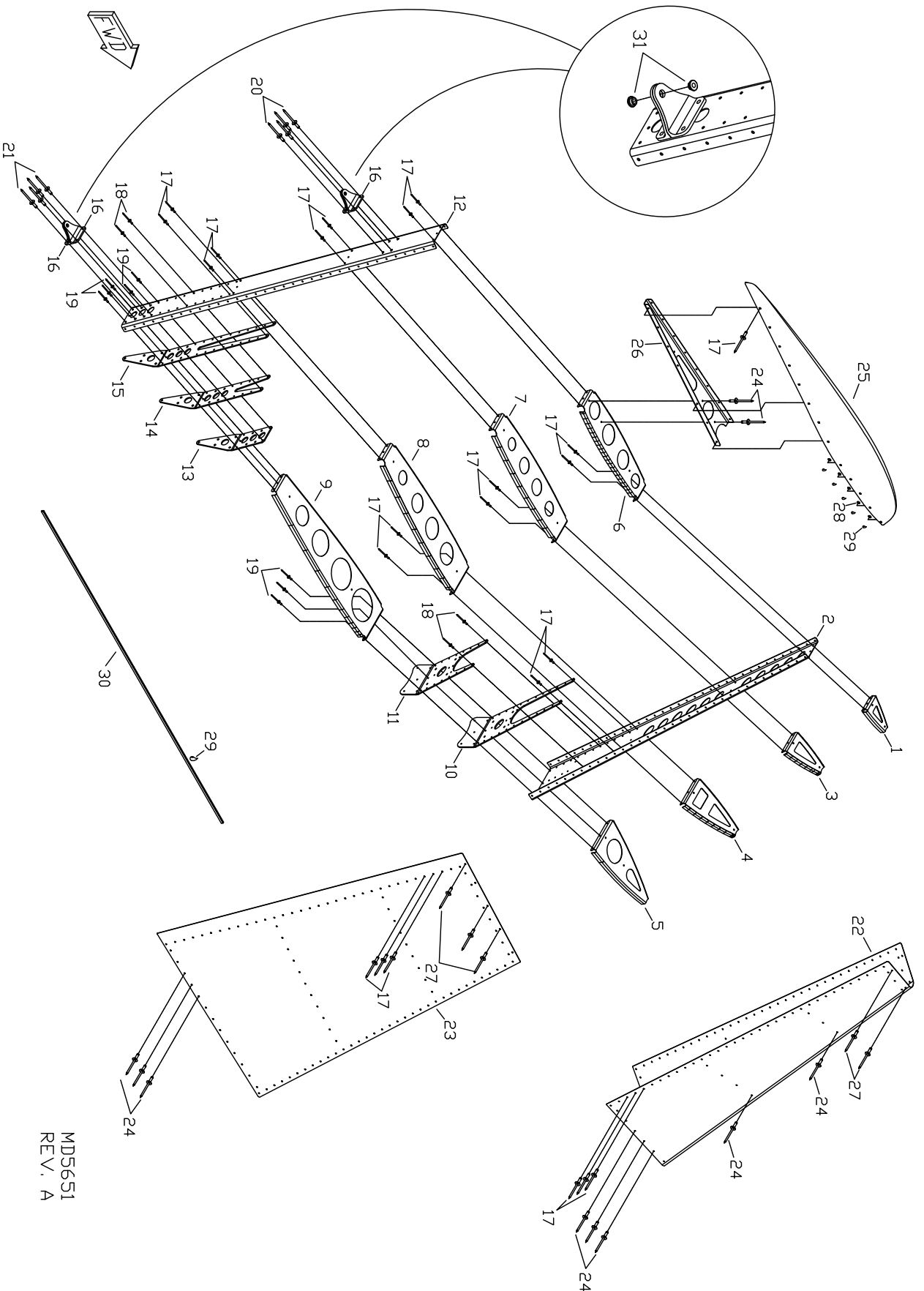
PAGE

002-02

| #   | DESCRIPTION                            | PART NUMBER | QUANTITY |
|-----|----------------------------------------|-------------|----------|
| 1.  | Rudder Spar                            | KPRD0106    | 1        |
| 2.  | Rudder Rib - Upper                     | KPRD0109    | 3        |
| 3.  | Rudder Horn Mount Tube                 | KPRD0103    | 1        |
| 4.  | Rudder Rib - Lower                     | KPRD0107    | 1        |
| 5.  | Rudder Horn                            | KPRD0104    | 1        |
| 6.  | Elevator and Rudder Hinge - Short      | KPHS0098    | 4        |
| 7.  | Rudder Horn Rib Doubler                | KPRD0105    | 1        |
| 8.  | 1/8" Aluminum Rivet - Cherry Q         | AAPQ-42     | 15       |
| 9.  | 3/16" Aluminum Rivet - Cherry Q        | AAPQ-62     | 1        |
| 10. | 3/16" Bolt                             | AN3-16A     | 3        |
| 11. | 1/8" Aluminum Rivet - Cherry Q         | AAPQ-41     | 148      |
| 12. | 3/16" Thick Washer                     | AN960-10    | 7        |
| 13. | 3/16" Thin Washer                      | AN960-10L   | 9        |
| 14. | 3/16" Shear Nut                        | AN364-1032A | 7        |
| 15. | 3/16" Bolt                             | AN3-4A      | 2        |
| 16. | Rudder Skin                            | KPRD0110    | 1        |
| 17. | 3/16" Bolt                             | AN3-11A     | 2        |
| 18. | Bronze Flange Bushing                  | KSAC0019-3  | 4        |
| 19. | 3/16" Stainless Steel Rivet - Cherry Q | CCPQ-64     | 8        |

9/11/2018

REV. A



# REF ID: A12345 S-21 OUTBOUND VERTICAL STABILIZER FRAME & SKIN ASSEMBLY

VERTICAL STABILIZER FRAME & SKIN ASSEMBLY

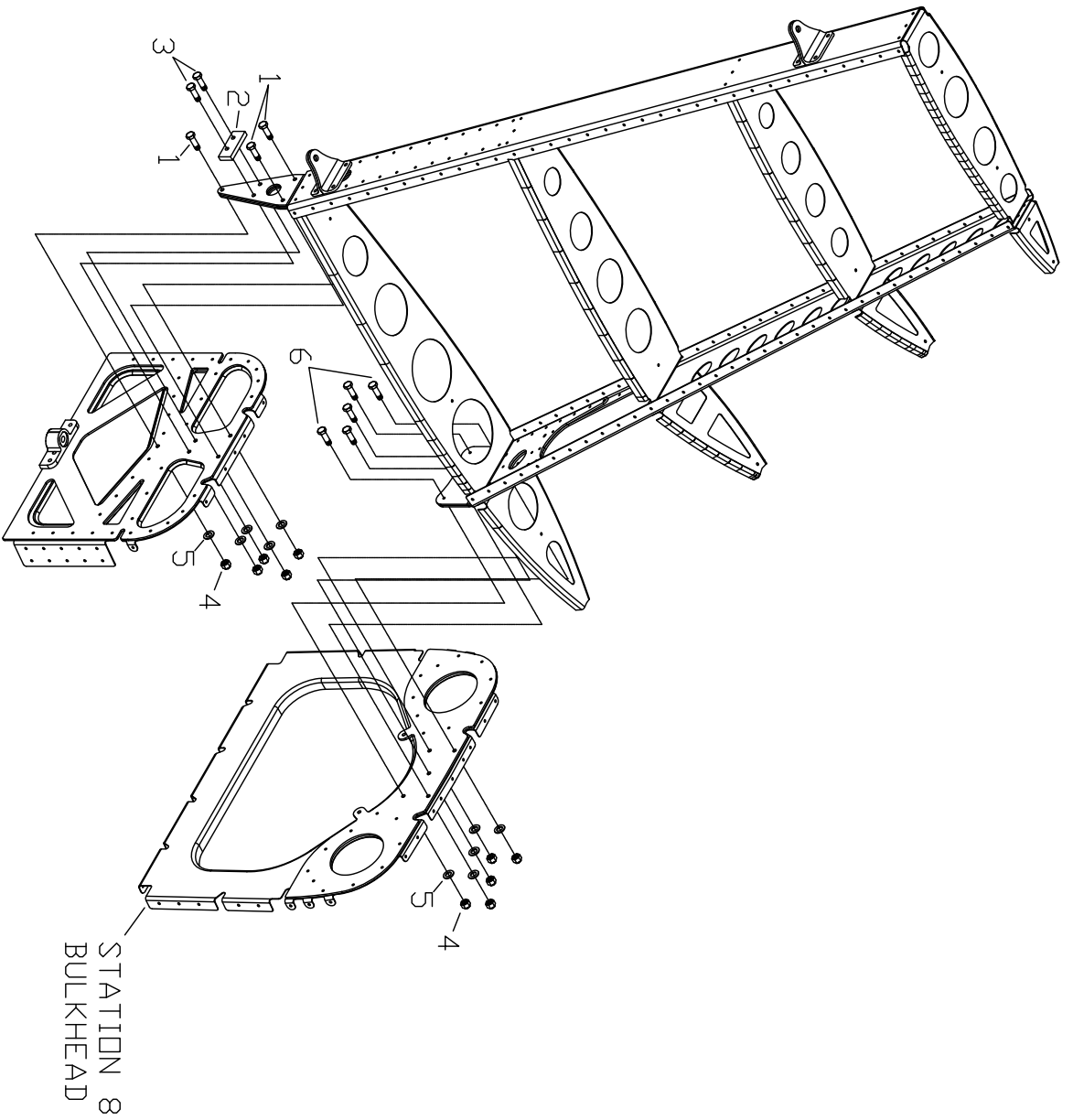
| #   | DESCRIPTION                             | PART NUMBER | QUANTITY |
|-----|-----------------------------------------|-------------|----------|
| 1.  | Vertical Fin Top Nose Rib               | KPVS0100    | 1        |
| 2.  | Vertical Fin FWD Spar                   | KPVS0103    | 1        |
| 3.  | Vertical Fin Nose Rib #3                | KPVS0110    | 1        |
| 4.  | Vertical Fin Nose Rib #2                | KPVS0109    | 1        |
| 5.  | Vertical Fin Bottom Nose Rib            | KPVS0104    | 1        |
| 6.  | Vertical Top Aft Rib                    | KPVS0102    | 1        |
| 7.  | Vertical Aft Rib #3                     | KPVS0112    | 1        |
| 8.  | Vertical AFT Rib #2                     | KPVS0111    | 1        |
| 9.  | Vertical Bottom Aft Rib                 | KPVS0101    | 1        |
| 10. | FWD Vertical Spar Gusset - #1           | KPVS0105    | 1        |
| 11. | FWD Vertical Spar Gusset - #2           | KPVS0106    | 1        |
| 12. | Vertical Fin Aft Spar                   | KPVS0096    | 1        |
| 13. | Vertical Fin Gusset - AFT - #1          | KPVS0097    | 1        |
| 14. | Vertical Fin Gusset - AFT - #2          | KPVS0098    | 1        |
| 15. | Vertical Fin Gusset - AFT - #3          | KPVS0099    | 1        |
| 16. | Elevator and Rudder Hinge - Long        | KPHS0097    | 4        |
| 17. | 1/8" Aluminum Rivet - Cherry Q          | AAPQ-42     | 182      |
| 18. | 1/8" Aluminum Rivet - Cherry Q          | AAPQ-44     | 27       |
| 19. | 1/8" Aluminum Rivet - Cherry Q          | AAPQ-46     | 8        |
| 20. | 3/16" Stainless Steel Rivet - Cherry Q  | CCPQ-64     | 4        |
| 21. | 3/16" Stainless Steel Rivet - Cherry Q  | CCPQ-68     | 4        |
| 22. | Vertical Stabilizer Leading Edge Skin   | KPVS0108    | 1        |
| 23. | Vertical Stabilizer Side Skin           | KPVS0107    | 2        |
| 24. | 1/8" Aluminum Rivet - Cherry Q          | AAPQ-41     | 116      |
| 25. | Vertical Stabilizer Tip                 | KPVS0113    | 1        |
| 26. | Vertical Stabilizer Tip Rib             | KPVS0114    | 1        |
| 27. | 1/8" Aluminum Rivet - Cherry Q          | AAPQ-43     | 16       |
| 28. | 1/8" Small Brass Washer                 | AN960-B4    | 10       |
| 29. | Adhesive - Superglue or Silicone Seal * | -----       | 0        |
| 30. | Rubber Trim                             | X1011       | 6 ft     |
| 31. | Bronze Flange Bushing                   | KSAC0019-3  | 4        |

\*\* Builder Supplied

9/11/2018

REV. A





# REFINISH S-21 OUTBOUND VERTICAL STABILIZER INSTALLATION

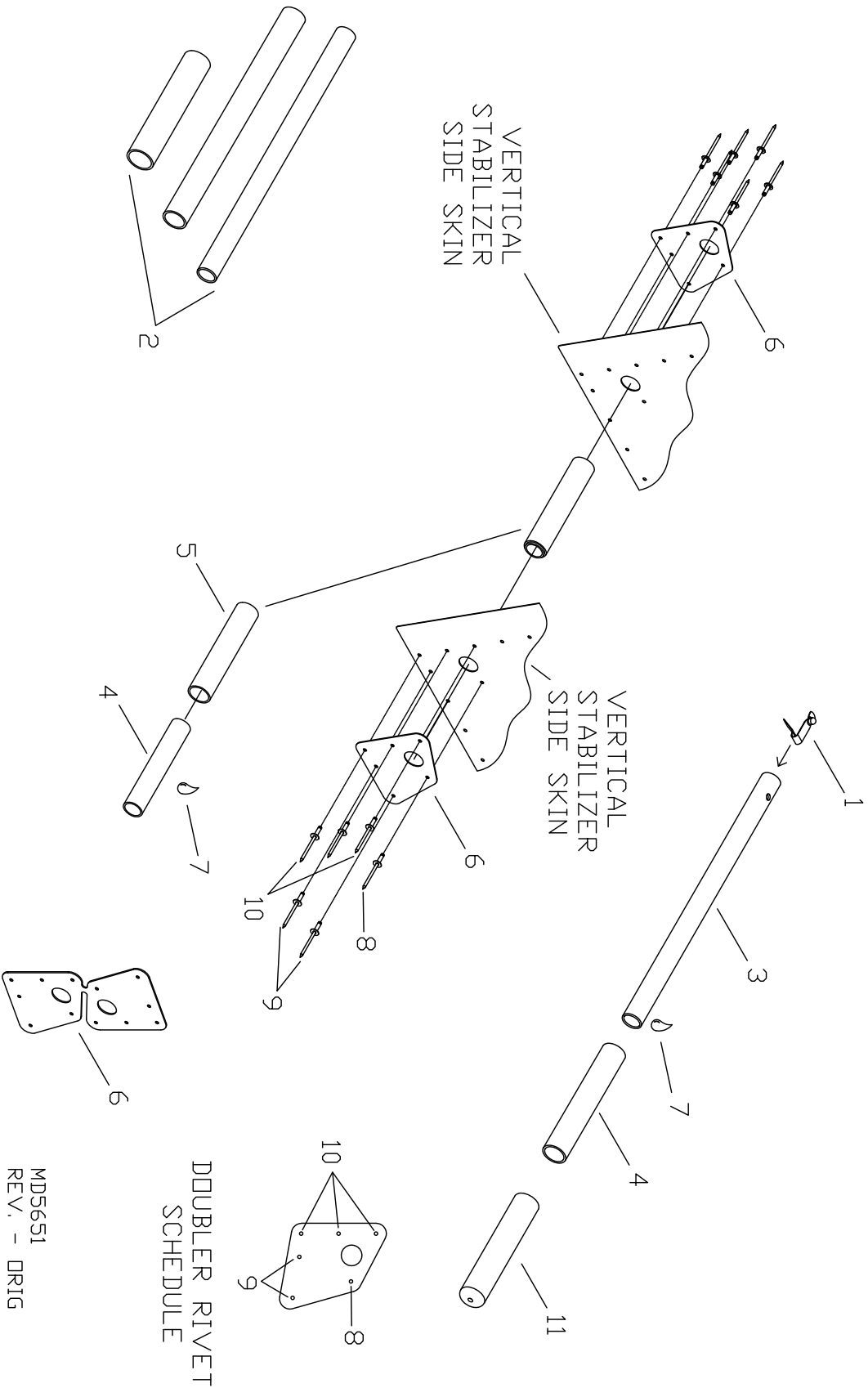
MD5651  
REV. - ORIG

**RANS S-21 OUTBOUND**  
**VERTICAL STABILIZER INSTALLATION**

PAGE

003-04

| #  | DESCRIPTION       | PART NUMBER | QUANTITY |
|----|-------------------|-------------|----------|
| 1. | 3/16" Bolt        | AN3-6A      | 3        |
| 2. | Rudder Stop       | KPRD0111    | 1        |
| 3. | 3/16" Bolt        | AN3-10A     | 2        |
| 4. | 3/16" Shear Nut   | AN364-1032A | 10       |
| 5. | 3/16" Thin Washer | AN960-10L   | 10       |
| 6. | 3/16" Bolt        | AN3-5A      | 5        |



**REF ID: A12345** S-21 OUTBOUND  
OPTIONAL - TAILDRAGGER - PULL HANDLE ASSEMBLY

MD5651  
REV. - ORIG

# RANS S-21 OUTBOUND

PAGE

003-06

## OPTIONAL - TAILDRAGGER - PULL HANDLE ASSEMBLY

KAVS0006

| #   | DESCRIPTION                    | PART NUMBER | QUANTITY |
|-----|--------------------------------|-------------|----------|
| 1.  | Quick-Release Button           | KSHW0112    | 1        |
| 2.  | Pull Handle Raw Stock Kit      | KAAC0106    | 1        |
| 3.  | 5/8" X .058" Aluminum Tube *   | KAAC0106-1  | 1        |
| 4.  | 3/4" X .058" Aluminum Tube *   | KAAC0106-2  | 1        |
| 5.  | 7/8" X .058" Aluminum Tube *   | KAAC0106-3  | 1        |
| 6.  | Pull Handle Doubler **         | KPVS0115    | 1        |
| 7.  | JB Weld Adhesive ***           | -----       | 0        |
| 8.  | 1/8" Aluminum Rivet - Cherry Q | AAPQ-41     | 2        |
| 9.  | 1/8" Aluminum Rivet - Cherry Q | AAPQ-42     | 4        |
| 10. | 1/8" Aluminum Rivet - Cherry Q | AAPQ-43     | 6        |
| 11. | Handle Grip - 3/4"             | KSAC0079    | 1        |

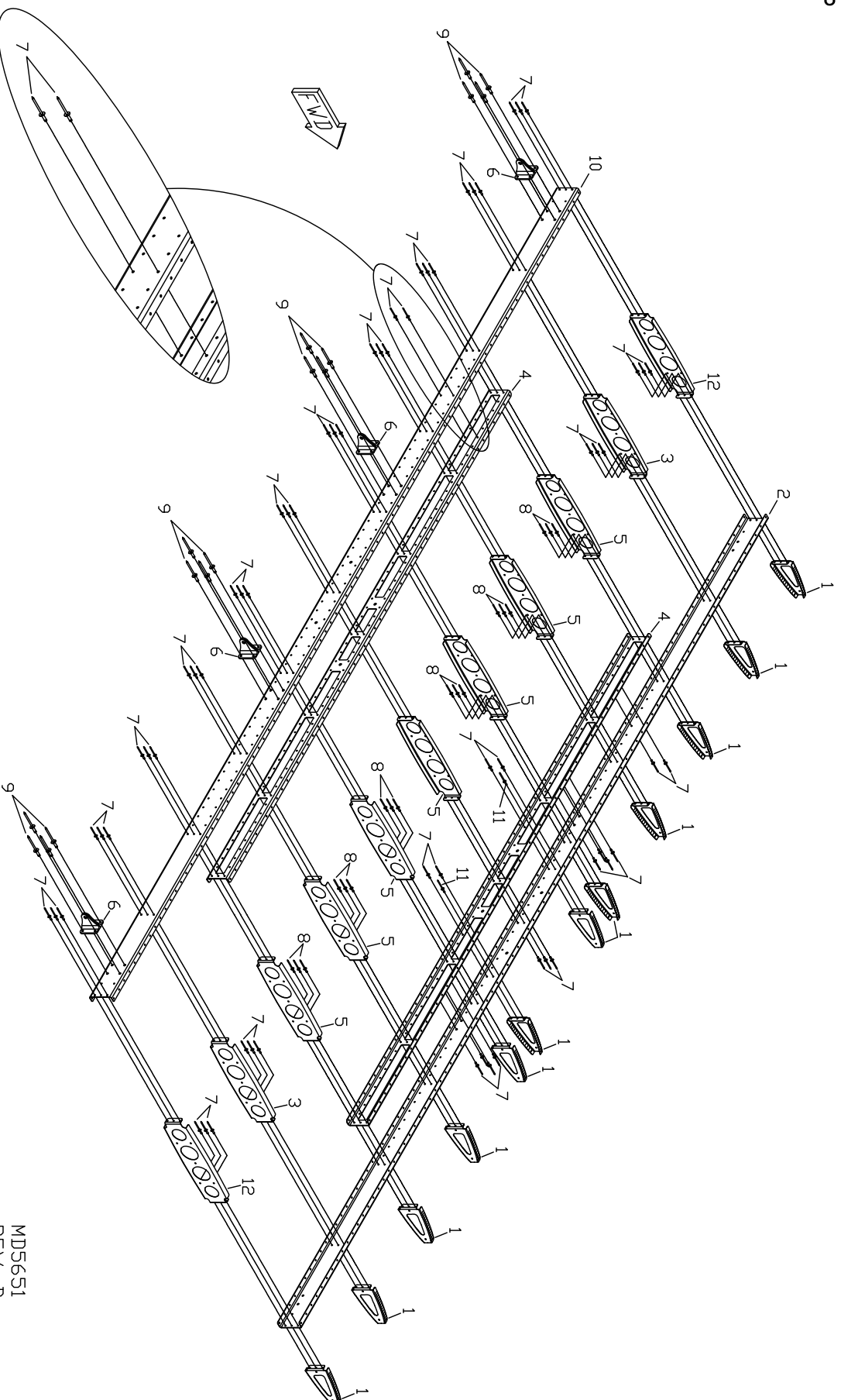
\* Part of Raw Stock Kit

\*\* Builder Modifies

\*\*\* Builder Supplied

9/11/2018

REV. - ORIG



TYPICAL SPAR  
TO DOUBLER

# RRR S-21 OUTBOUND HORIZONTAL STABILIZER FRAME ASSEMBLY

MD5651  
REV. B

# RANS S-21 OUTBOUND

PAGE

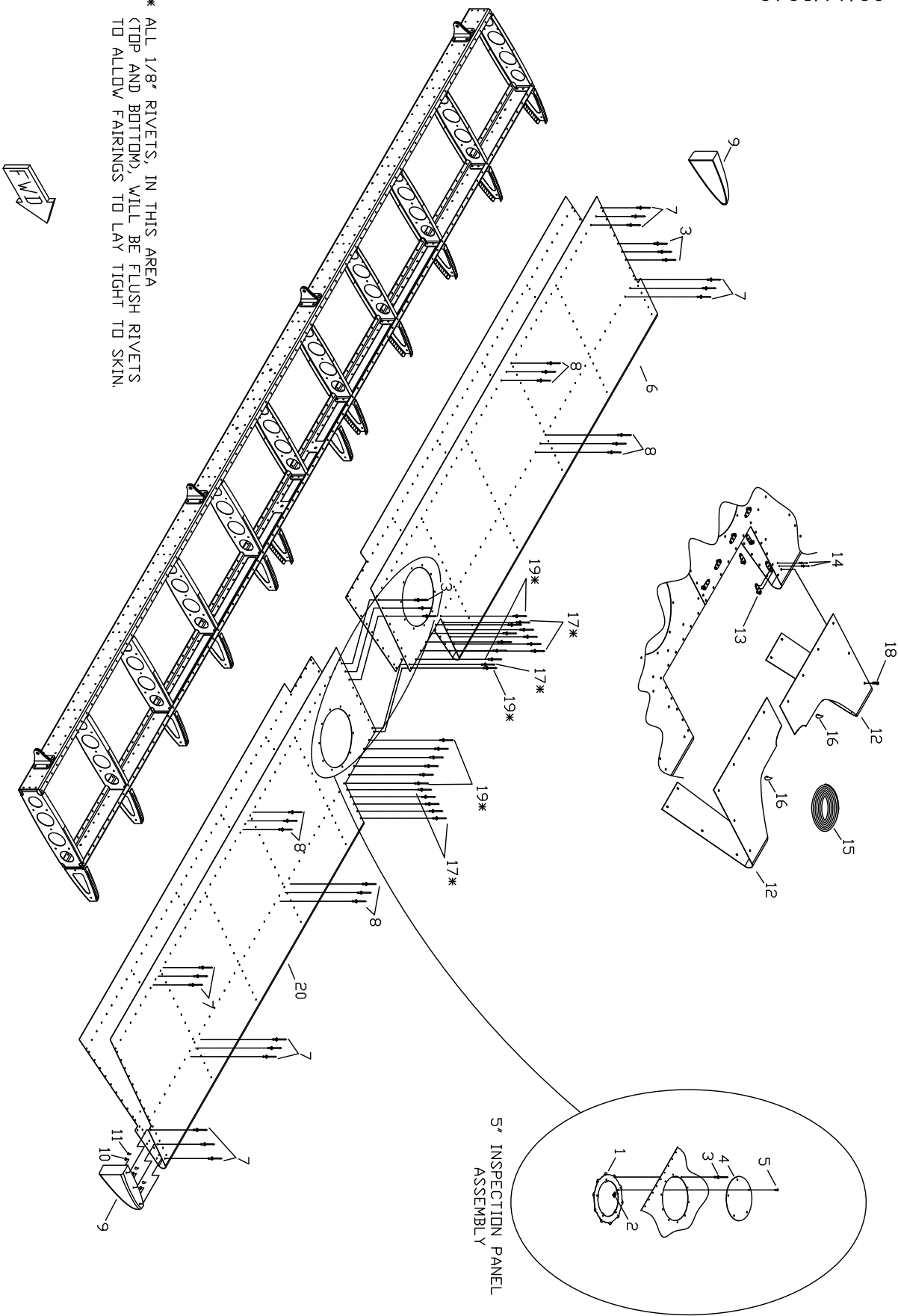
004-02

## HORIZONTAL STABILIZER FRAME ASSEMBLY

| #   | DESCRIPTION                            | PART NUMBER | QUANTITY |
|-----|----------------------------------------|-------------|----------|
| 1.  | Horizontal Stabilizer Nose Rib         | KPHS0085    | 12       |
| 2.  | Horizontal Stabilizer Spar - FWD       | KPHS0088    | 1        |
| 3.  | Horizontal Outboard Rib                | KPHS0082    | 2        |
| 4.  | Horizontal Stabilizer Spar Doubler     | KPHS0089    | 2        |
| 5.  | Horizontal Middle Rib                  | KPHS0084    | 7        |
| 6.  | Elevator and Rudder Hinge - Long       | KPHS0097    | 8        |
| 7.  | 1/8" Aluminum Rivet - Cherry Q         | AAPQ-42     | 236      |
| 8.  | 1/8" Aluminum Rivet - Cherry Q         | AAPQ-43     | 18       |
| 9.  | 3/16" Stainless Steel Rivet - Cherry Q | CCPQ-64     | 16       |
| 10. | Horizontal Stabilizer Spar - AFT       | KPHS0095    | 1        |
| 11. | 1/8" Aluminum Rivet - Cherry Q         | AAPQ-41     | 2        |
| 12. | Horizontal End Rib                     | KPHS0096    | 2        |

9/11/2018

REV. B



MD5651  
REV. - A

REFINISH S-21 OUTBOUND  
HORIZONTAL STABILIZER SKIN INSTALLATION

# RANS S-21 OUTBOUND

## HORIZONTAL STABILIZER SKIN INSTALLATION

PAGE

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| #   | DESCRIPTION                             | PART NUMBER | QUANTITY |
|-----|-----------------------------------------|-------------|----------|
| 1.  | 5" Inspection Cover Tab Ring            | KPWI0656    | 2        |
| 2.  | Tinnerman                               | A1789-8Z-1  | 10       |
| 3.  | 1/8" Aluminum Rivet - Cherry Q          | AAPQ-41     | 338      |
| 4.  | 5" Inspection Cover                     | KPWI0659    | 2        |
| 5.  | #8 Pan Head Screw                       | 8X1/2 PHS   | 10       |
| 6.  | Horizontal Stabilizer Skin - LH         | KPHS0092-L  | 1        |
| 7.  | 1/8" Aluminum Rivet - Cherry Q          | AAPQ-42     | 134      |
| 8.  | 1/8" Aluminum Rivet - Cherry Q          | AAPQ-43     | 194      |
| 9.  | Horizontal Tip                          | KPHS0093    | 2        |
| 10. | 1/8" Small Brass Washer                 | AN960-B4    | 12       |
| 11. | Adhesive - Superglue or Silicone Seal * | -----       | 0        |
| 12. | Horizontal Stabilizer Fairing           | KPHS0094    | 2        |
| 13. | 6-32 Single Ear Nut Plate               | K-2000-06   | 20       |
| 14. | 3/32" Aluminum Rivet                    | 40APR1/8    | 40       |
| 15. | Rubber Edging                           | 8510K11     | 3 ft     |
| 16. | Adhesive - Superglue *                  | -----       | 0        |
| 17. | 1/8" Aluminum Rivet - Flush             | AACQ-42     | 22       |
| 18. | 6-32 Machine Screw                      | AN526-632R6 | 20       |
| 19. | 1/8" Aluminum Rivet - Flush             | AACQ-43     | 26       |
| 20. | Horizontal Stabilizer Skin - RH         | KPHS0092-R  | 1        |

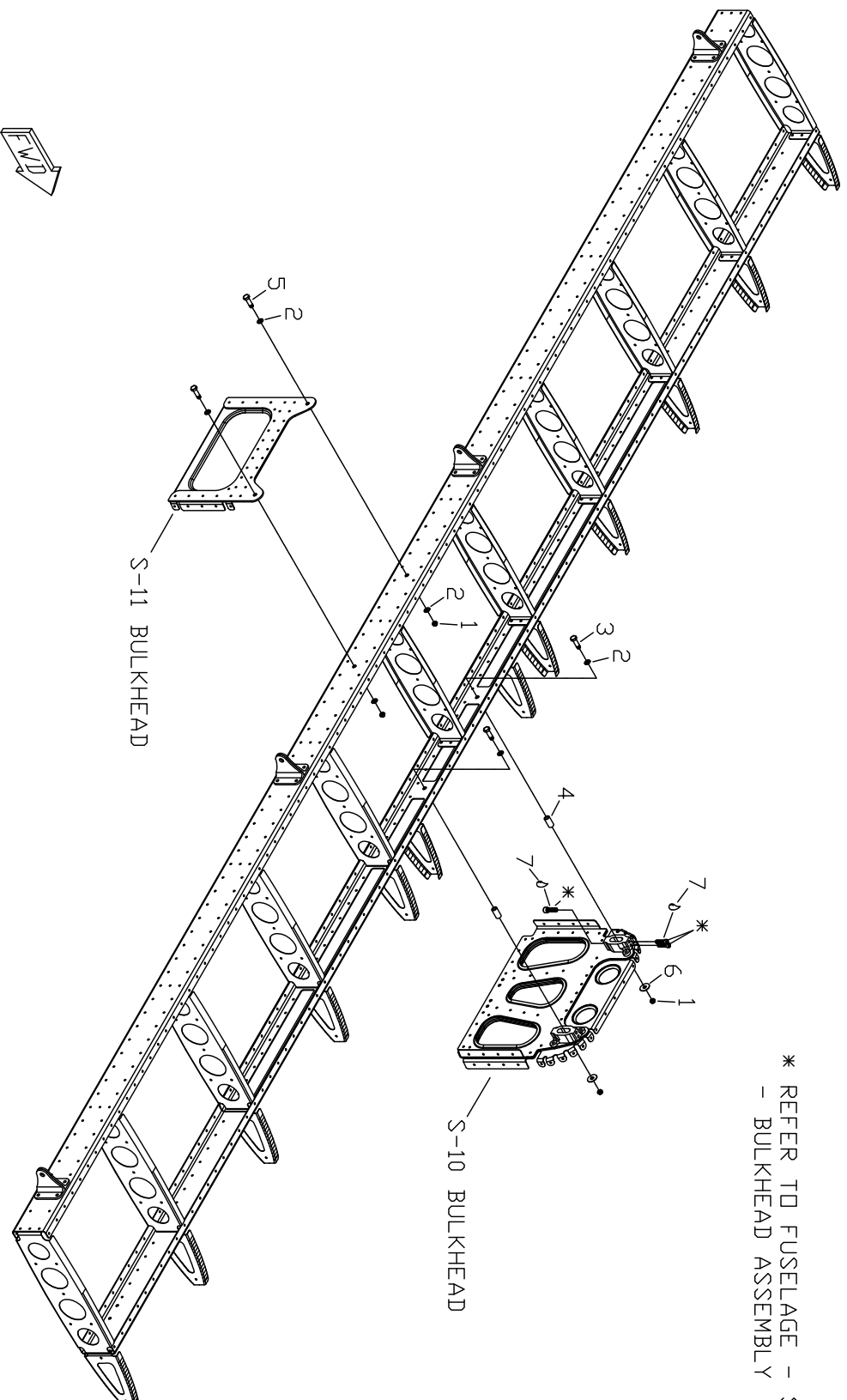
\* Builder Supplied

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\* REFER TO FUSELAGE - STATION 10  
- BULKHEAD ASSEMBLY



# REF ID: A12345 S-21 OUTBOUND HORIZONTAL STABILIZER INSTALLATION

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SKINS NOT SHOWN FOR CLARITY

**RANS S-21 OUTBOUND**  
**HORIZONTAL STABILIZER INSTALLATION**

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| #  | DESCRIPTION                               | PART NUMBER | QUANTITY |
|----|-------------------------------------------|-------------|----------|
| 1. | 1/4" Shear Nut                            | AN364-428A  | 4        |
| 2. | 1/4" Thick Washer                         | AN960-416   | 6        |
| 3. | 1/4" Bolt                                 | AN4-14A     | 2        |
| 4. | Aluminum Bushing - 3/8" x .095" x .935" * | KPAC0060    | 2        |
| 5. | 1/4" Bolt                                 | AN4-6A      | 2        |
| 6. | 1/4" Large Washer                         | AN970-4     | 2        |
| 7. | Loctite Blue **                           | ----        | 0        |

\* Builder Modifies

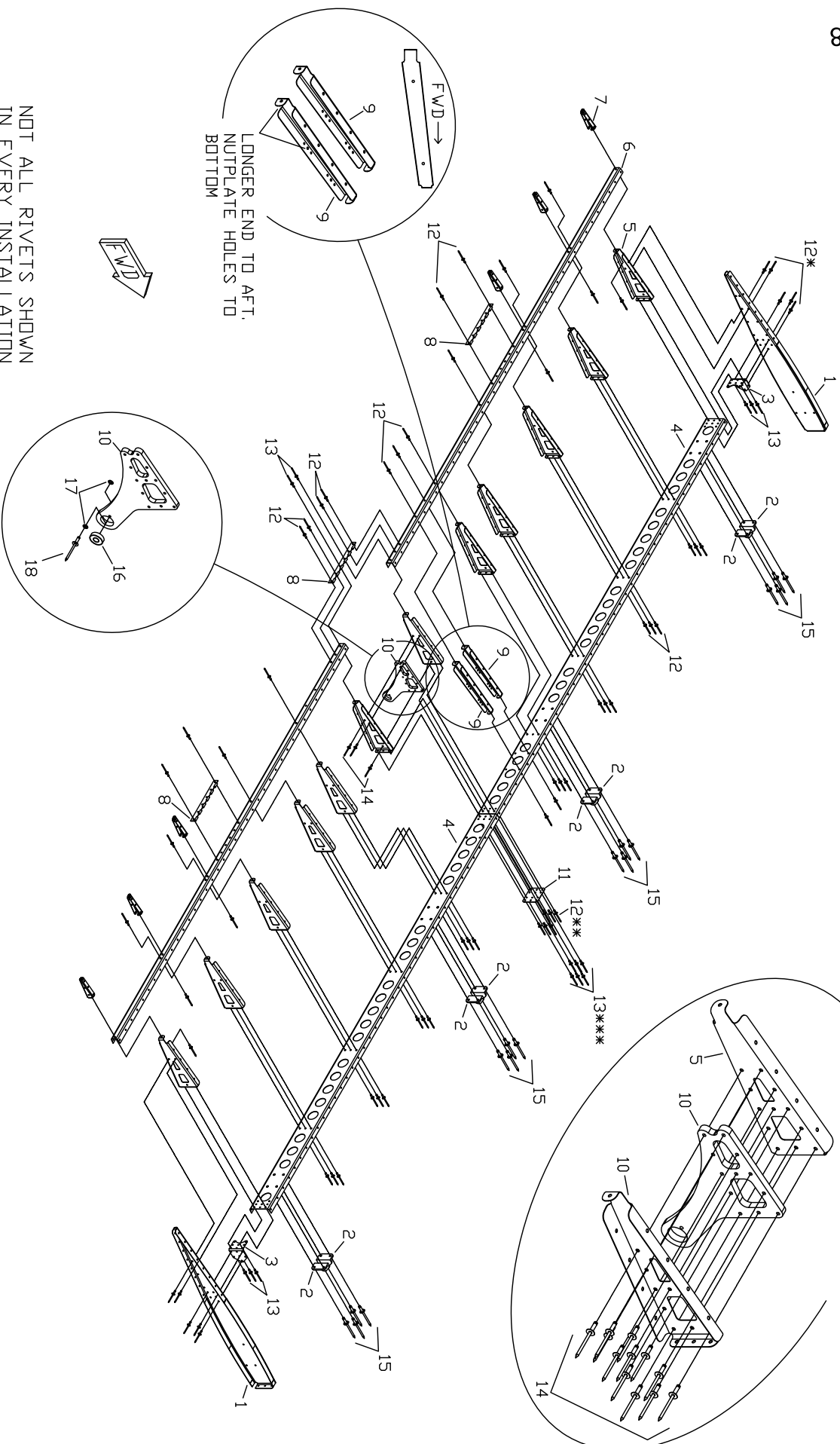
\*\* Builder Supplied

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REV. A

\*\*\* ALL RIVETS AAPQ-41, EXCEPT AS MARKED  
\*\*\* RIVETS THROUGH SPAR CONNECT GUSSET AND SPAR  
\*\*\* RIVETS THROUGH SPAR CONNECT GUSSET, SPAR AND RIB

TRANSFER DRILL #30.  
ALL RIVETS MUST BE  
INSTALLED SECURELY THROUGH RIBS  
AND HORN FOR SAFE OPERATION



# REAR S-21 OUTBOUND ELEVATOR FRAME ASSEMBLY

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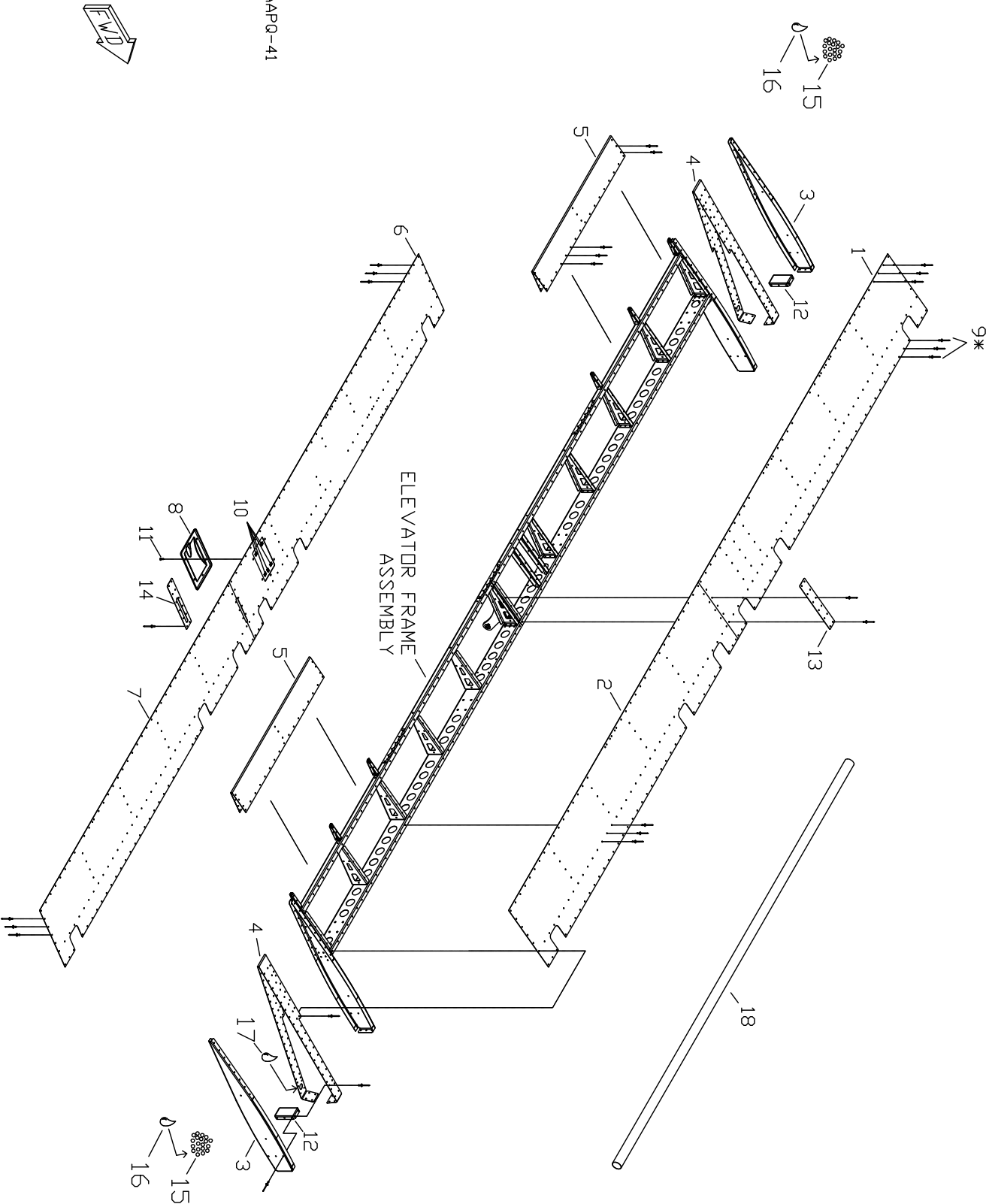
ELEVATOR FRAME ASSEMBLY

| #   | DESCRIPTION                            | PART NUMBER | QUANTITY |
|-----|----------------------------------------|-------------|----------|
| 1.  | Elevator Tip - Inner                   | KPEL0042    | 2        |
| 2.  | Elevator and Rudder Hinge - Short      | KPHS0098    | 8        |
| 3.  | Elevator Tip Attach Angle              | KPEL0044    | 2        |
| 4.  | Elevator FWD Spar                      | KPEL0040    | 2        |
| 5.  | Elevator Rib                           | KPEL0038    | 12       |
| 6.  | Elevator AFT Spar                      | KPEL0039    | 2        |
| 7.  | Elevator Trailing Edge Rib             | KPEL0037    | 6        |
| 8.  | Elevator Trim Tab Hinge *              | KPTR0067    | 1        |
| 9.  | Elevator Trim Servo Rib                | KPEL0045    | 2        |
| 10. | Elevator Horn                          | KPEL0048    | 1        |
| 11. | Elevator FWD Spar Connect Gusset       | KPEL0041    | 1        |
| 12. | 1/8" Aluminum Rivet - Cherry Q         | AAPQ-41     | 106      |
| 13. | 1/8" Aluminum Rivet - Cherry Q         | AAPQ-42     | 20       |
| 14. | 1/8" Aluminum Rivet - Cherry Q         | AAPQ-46     | 12       |
| 15. | 3/16" Stainless Steel Rivet - Cherry Q | CCPQ-64     | 16       |
| 16. | Bearing                                | SR4APP      | 1        |
| 17. | 1/8" Small Brass Washer                | AN960-B4    | 2        |
| 18. | 1/8" Aluminum Rivet - Cherry Q         | AAPQ-45     | 1        |

\* Builder Modifies

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**S-21 OUTBOUND  
ELEVATOR SKIN INSTALLATION**

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**RANS S-21 OUTBOUND**  
**ELEVATOR SKIN INSTALLATION**

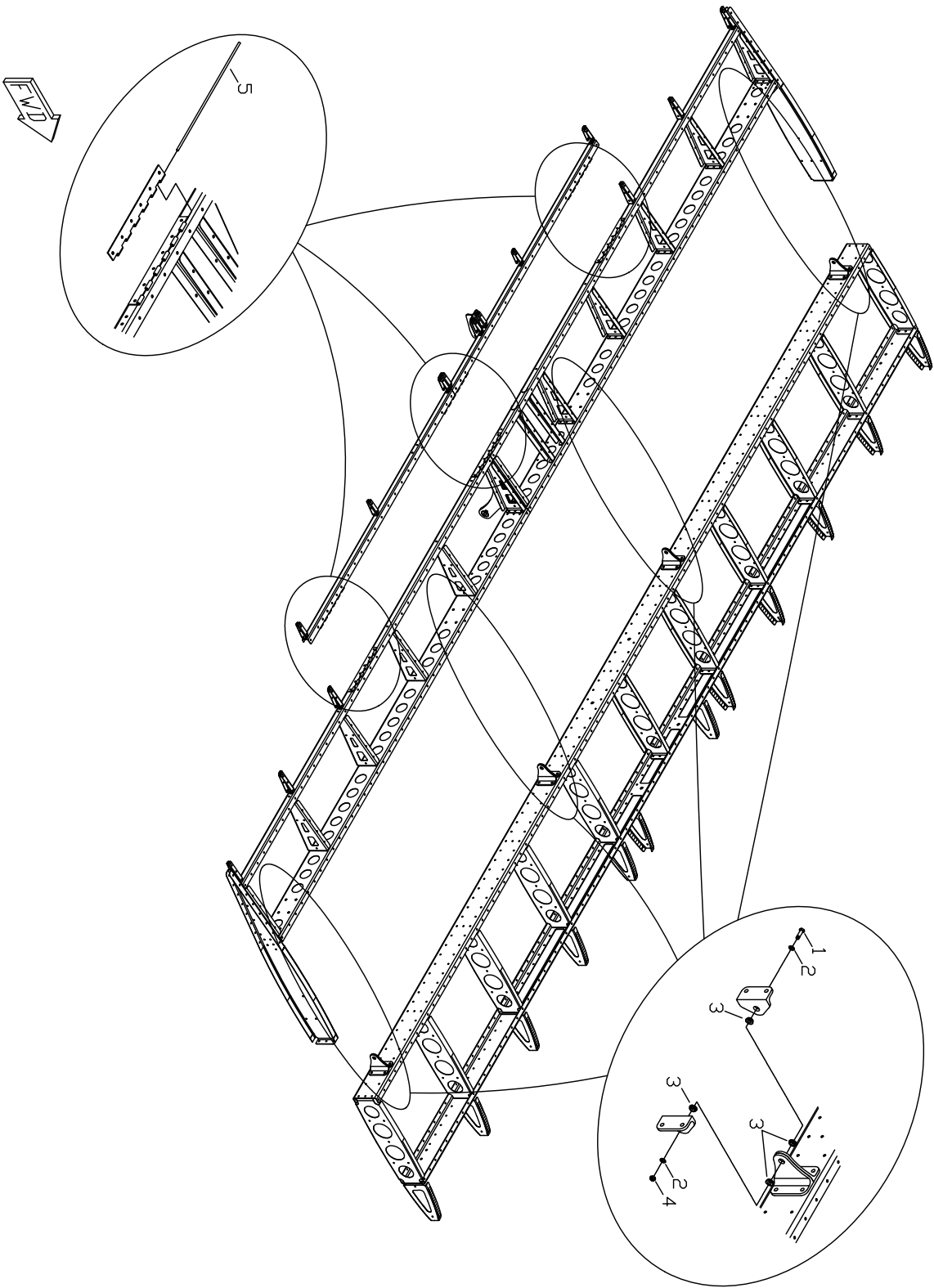
PAGE

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| #   | DESCRIPTION                    | PART NUMBER | QUANTITY |
|-----|--------------------------------|-------------|----------|
| 1.  | Elevator Top Skin - LH         | KPEL0035-L  | 1        |
| 2.  | Elevator Top Skin - RH         | KPEL0035-R  | 1        |
| 3.  | Elevator Tip - Outer           | KPEL0043    | 2        |
| 4.  | Elevator Tip Skin              | KPEL0047    | 2        |
| 5.  | Elevator Trailing Edge Skin    | KPEL0034    | 2        |
| 6.  | Elevator Bottom Skin - LH      | KPEL0036-L  | 1        |
| 7.  | Elevator Bottom Skin - RH      | KPEL0036-R  | 1        |
| 8.  | Trim Servo Cover               | KPEL0046    | 1        |
| 9.  | 1/8" Aluminum Rivet - Cherry Q | AAPQ-41     | 715      |
| 10. | Tinnerman                      | A1789-8Z-1  | 5        |
| 11. | #8 Pan Head Screw              | 8x1/2 PHS   | 5        |
| 12. | Elevator Balance Rib           | KPEL0049    | 2        |
| 13. | Elevator Top Skin Splice       | KPEL0050    | 1        |
| 14. | Elevator Bottom Skin Splice    | KPEL0051    | 1        |
| 15. | Lead Shot or BB's *            | ----        | 0        |
| 16. | Epoxy *                        | ----        | 0        |
| 17. | Bondo / Filler *               | ----        | 0        |
| 18. | 1-1/4" Tube for forming *      | ----        | 0        |

\* Builder Supplied

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REF S-21 OUTBOUND  
ELEVATOR AND ELEVATOR TRIM TAB INSTALLATION

ELEVATOR AND ELEVATOR TRIM TAB INSTALLATION

| #  | DESCRIPTION                        | PART NUMBER | QUANTITY |
|----|------------------------------------|-------------|----------|
| 1. | 3/16" Bolt                         | AN3-11A     | 4        |
| 2. | 3/16" Thin Washer                  | AN960-10L   | 8        |
| 3. | Bronze Flange Bushing              | KSAC0019-3  | 16       |
| 4. | 3/16" Shear Nut                    | AN364-1032A | 4        |
| 5. | Pin - Elevator Trim Tab Hinge * ** | KPTR0067    | 0        |

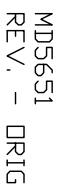
\* Part of KPTR0067

\*\* Refer to Elevator Frame Assembly and Elevator Trim Tab Assembly

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# REINOS S-21 OUTBOUND ELEVATOR TRIM TAB ASSEMBLY

ELEVATOR TRIM TAB ASSEMBLY

| #   | DESCRIPTION                           | PART NUMBER  | QUANTITY |
|-----|---------------------------------------|--------------|----------|
| 1.  | Elevator Trim Tab Spar - LH           | KPTR0064-L   | 1        |
| 2.  | Elevator Trim Tab Spar - RH           | KPTR0064-R   | 1        |
| 3.  | Elevator Trim Tab Rib                 | KPTR0063     | 8        |
| 4.  | Elevator Trim Tab Skin                | KPTR0065     | 1        |
| 5.  | Elevator Trim Tab Horn - LH           | KPTR0066-L   | 1        |
| 6.  | Elevator Trim Tab Horn - RH           | KPTR0066-R   | 1        |
| 7.  | Elevator Trim Tab Hinge * **          | KPTR0067     | 0        |
| 8.  | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-41      | 126      |
| 9.  | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-42      | 6        |
| 10. | Trim Servo Kit                        | KSTR0001     | 1        |
| 11. | Trim Servo ***                        | -----        | 0        |
| 12. | 8-32 Nut Plate                        | MS21047-08   | 4        |
| 13. | 3/32" Aluminum Rivet                  | 40APR1/8     | 8        |
| 14. | 8-32 Machine Screw                    | AN526-832R10 | 4        |
| 15. | Cotter Pin ***                        | -----        | 0        |
| 16. | 1/8" Small Brass Washer               | AN960-B4     | 2        |
| 17. | Clevis Pin ***                        | -----        | 0        |
| 18. | Clevis ***                            | -----        | 0        |
| 19. | Jam Nut ***                           | -----        | 0        |
| 20. | Push Rod ***                          | -----        | 0        |
| 21. | Trim Position Indicator ***           | -----        | 0        |
| 22. | Control Stick Grip                    | KSCS0016     | 1        |
| 23. | 5-Wire Bundle - 26 Gauge - White Wire | KSES0022     | 24 ft.   |
| 24. | 20 Gauge - White Wire ****            | -----        | 0        |
| 25. | 3/16" Rubber Grommet                  | KSAC0002     | 3        |

\* Builder Modifies

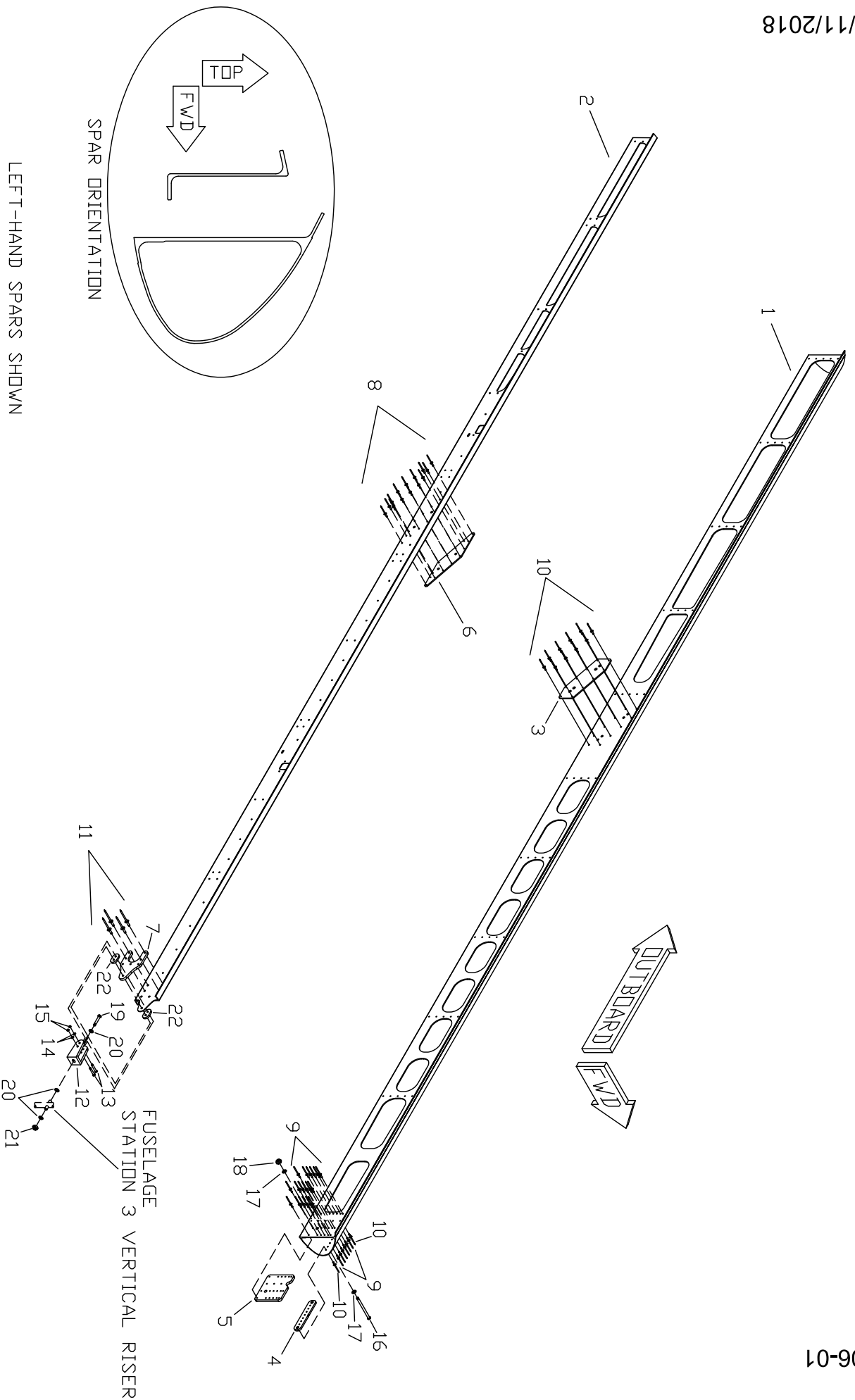
\*\* Refer to Elevator Frame Assembly

\*\*\* Included in Trim Servo Kit

\*\*\*\* Builder Supplied

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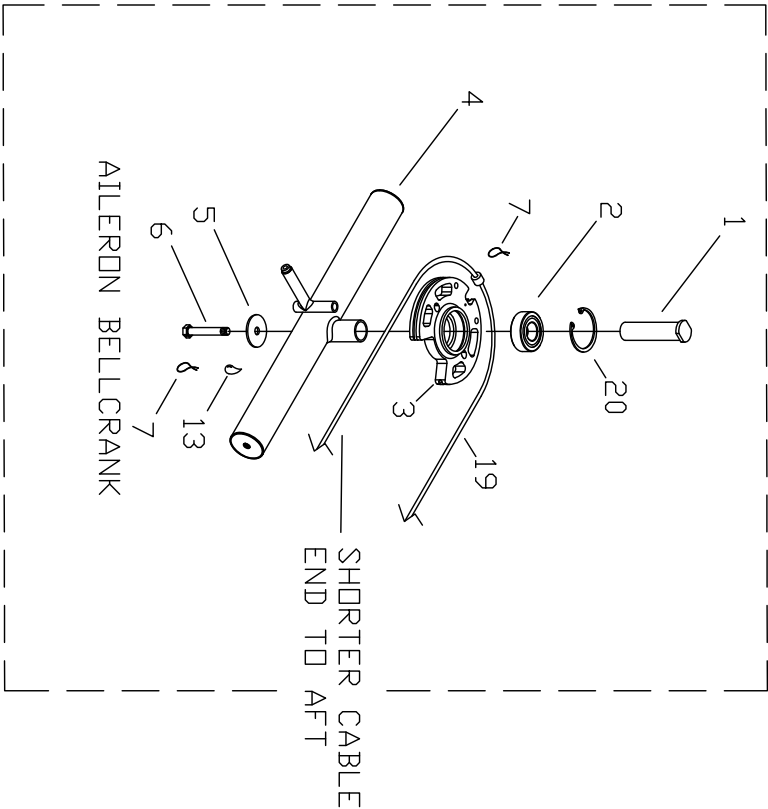


**S-21 OUTBOUND  
141 WING - SPAR ASSEMBLY**

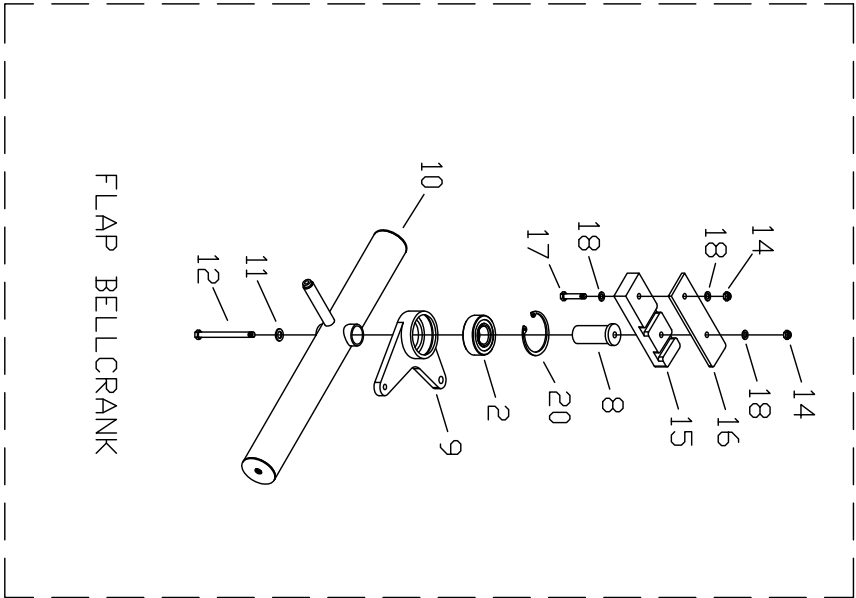
MD5649  
REV. - ORIG

141 WING - SPAR ASSEMBLY

| #   | DESCRIPTION                            | PART NUMBER | QUANTITY |
|-----|----------------------------------------|-------------|----------|
| 1.  | Forward Wing Spar - RH                 | KPWI0650-R  | 1        |
| 1.  | Forward Wing Spar - LH                 | KPWI0650-L  | 1        |
| 2.  | Rear Wing Spar - RH                    | KPWI0649-R  | 1        |
| 2.  | Rear Wing Spar - LH                    | KPWI0649-L  | 1        |
| 3.  | FWD Spar Truss Doubler                 | KPWI0642    | 2        |
| 4.  | FWD Spar FWD Attach Doubler            | KPWI0667    | 2        |
| 5.  | FWD Spar AFT Attach Doubler            | KPWI0678    | 2        |
| 6.  | AFT Spar Truss Doubler                 | KPWI0643    | 2        |
| 7.  | AFT Spar Attach Doubler                | KPWI0671    | 2        |
| 8.  | 1/8" Stainless Steel Rivet - Cherry Q  | CCPQ-43     | 28       |
| 9.  | 1/8" Stainless Steel Rivet - Cherry Q  | CCPQ-46     | 48       |
| 10. | 1/8" Stainless Steel Rivet - Cherry Q  | CCPQ-44     | 24       |
| 11. | 3/16" Stainless Steel Rivet - Cherry Q | CCPQ-66     | 8        |
| 12. | AFT Spar Attach Fitting                | KPWI0672    | 2        |
| 13. | 3/16" Bolt                             | AN3-15A     | 4        |
| 14. | 3/16" Thick Washer                     | AN960-10    | 4        |
| 15. | 3/16" Shear Nut                        | AN364-1032A | 4        |
| 16. | 3/8" Bolt                              | AN6-35A     | 2        |
| 17. | 3/8" Thick Washer                      | AN960-616   | 4        |
| 18. | 3/8" Tensile Nut                       | AN365-624A  | 2        |
| 19. | 5/16" Bolt                             | AN5-20A     | 2        |
| 20. | 5/16" Thick Washer                     | AN960-516   | 6        |
| 21. | 5/16" Tensile Nut                      | AN365-524A  | 2        |
| 22. | AFT Spar Attach Shim                   | KPWI0688    | 4        |



LEFT-HAND BELLCRANKS SHOWN



REF S-21 OUTBOUND  
141 WING - BELLCRANK ASSEMBLIES

# RANS S-21 OUTBOUND

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## 141 WING - BELLCRANK ASSEMBLIES

| #   | DESCRIPTION               | PART NUMBER | QUANTITY |
|-----|---------------------------|-------------|----------|
| 1.  | Aileron Bellcrank Spindle | KPAL0138    | 2        |
| 2.  | Bearing                   | KSCS0019    | 4        |
| 3.  | Aileron Bellcrank Pulley  | KPAL0137    | 2        |
| 4.  | Aileron Bellcrank Mount   | KPAL0139    | 2        |
| 5.  | 1/4" Large Washer         | AN970-4     | 2        |
| 6.  | 1/4" Bolt - Drilled Head  | AN4H-7A     | 2        |
| 7.  | Safety Wire *             | -----       | 0        |
| 8.  | Flap Bellcrank Spindle    | KPFL0169    | 2        |
| 9.  | Flap Bellcrank - RH       | KPFL0163-R  | 1        |
| 9.  | Flap Bellcrank - LH       | KPFL0163-L  | 1        |
| 10. | Flap Bellcrank Mount - RH | KPFL0164-R  | 1        |
| 10. | Flap Bellcrank Mount - LH | KPFL0164-L  | 1        |
| 11. | 3/16" Thick Washer        | AN960-10    | 2        |
| 12. | 3/16" Bolt                | AN3-31A     | 2        |
| 13. | Loctite Blue *            | -----       | 0        |
| 14. | 3/16" Shear Nut           | AN364-1032A | 4        |
| 15. | Aileron Cable Guide - LH  | KPFL0170-L  | 1        |
| 15. | Aileron Cable Guide - RH  | KPFL0170-R  | 1        |
| 16. | Aileron Cable Guide Top   | KPFL0171    | 2        |
| 17. | 3/16" Bolt                | AN3-10A     | 2        |
| 18. | 3/16" Thin Washer         | AN960-10L   | 6        |
| 19. | Aileron Cable             | KPCS0303    | 2        |
| 20. | 1 3/8" Retaining Ring     | KSHW0101    | 4        |

\* Builder Supplied

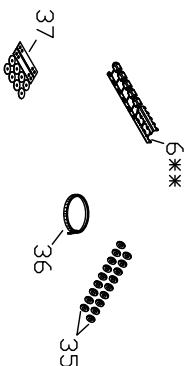
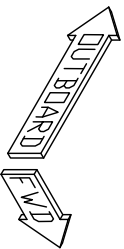
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FLANGE BUSHING WILL INSTALL TO  
OUTBOARD SIDE OF OUTBOARD AILERON  
HINGE ARM AND TO INBOARD SIDE OF  
INBOARD AILERON HINGE ARM.

TYPICAL ALL AILERON &  
FLAP HINGE ARMS  
(EXCEPT ROOT)

\* USE AS NECESSARY TO FILL GAP  
\*\* BUILDER MODIFIES

LEFT-HAND WING SHOWN

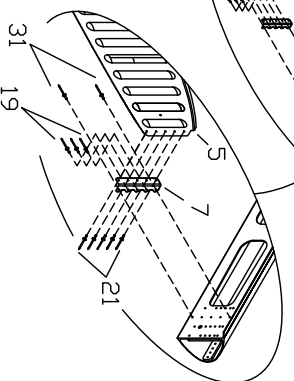
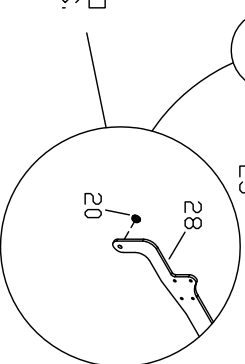


FLANGE BUSHINGS WILL INSTALL TO  
OUTBOARD SIDE OF ALL FLAP HINGE ARMS.

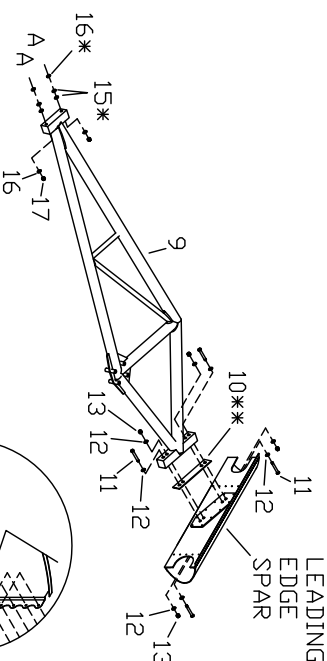
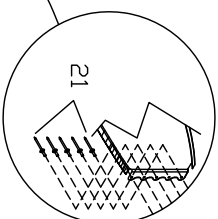
# 141 WING - FRAME ASSEMBLY

FLAP HINGE  
ARM - ROOT

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REV. - ORIG



TYPICAL RIBS #2 THRU  
#6 AND #8 THRU #11



141 WING - FRAME ASSEMBLY

| #   | DESCRIPTION                            | PART NUMBER | QUANTITY |
|-----|----------------------------------------|-------------|----------|
| 1.  | Wing Tip Rib - LH                      | KPWI0641-L  | 1        |
| 1.  | Wing Tip Rib - RH                      | KPWI0641-R  | 1        |
| 2.  | Inner Wing Rib - LH                    | KPWI0638-L  | 8        |
| 3.  | Inner Wing Rib - RH                    | KPWI0638-R  | 8        |
| 4.  | Outside Root Rib - LH                  | KPWI0640-L  | 1        |
| 4.  | Outside Root Rib - RH                  | KPWI0640-R  | 1        |
| 5.  | Inside Root Rib - LH                   | KPWI0639-L  | 1        |
| 5.  | Inside Root Rib - RH                   | KPWI0639-R  | 1        |
| 6.  | Attach Angle - Part Assembly *         | KAWI0037    | 1        |
| 7.  | Root Rib FWD Attach Angle **           | KPWI0670    | 0        |
| 8.  | Rib AFT Attach Angle **                | KPWI0669    | 0        |
| 9.  | Wing Truss                             | KPWI0664    | 2        |
| 10. | Lexan Shim Sheet - Truss ***           | KPWI0645    | 0        |
| 11. | 5/16" Bolt                             | AN5-16A     | 8        |
| 12. | 5/16" Thick Washer                     | AN960-516   | 16       |
| 13. | 5/16" Tensile Nut                      | AN365-524A  | 8        |
| 14. | 1/4" Bolt                              | AN4-16A     | 4        |
| 15. | 1/4" Thick Washer                      | AN960-416   | 8        |
| 16. | 1/4" Thin Washer                       | AN960-416L  | 16       |
| 17. | 1/4" Tensile Nut                       | AN365-428A  | 4        |
| 18. | Wing Tie Down Angle - LH               | KPWI0677-L  | 1        |
| 18. | Wing Tie Down Angle - RH               | KPWI0677-R  | 1        |
| 19. | 1/8" Stainless Steel Rivet - Cherry Q  | CCPQ-46     | 16       |
| 20. | Bronze Flange Bushing                  | KSAC0071    | 12       |
| 21. | 1/8" Stainless Steel Rivet - Cherry Q  | CCPQ-42     | 180      |
| 22. | Aileron Hinge Arm                      | KPWI0654    | 4        |
| 23. | Aileron Bellcrank Outer Rib Support    | KPWI0653    | 2        |
| 24. | Flap Hinge Arm                         | KPWI0655    | 6        |
| 25. | 1/8" Aluminum Rivet - Cherry Q         | AAPQ-43     | 168      |
| 26. | 1/8" Aluminum Rivet - Cherry Q         | AAPQ-45     | 14       |
| 27. | 1/8" Aluminum Rivet - Cherry Q         | AAPQ-44     | 20       |
| 28. | Flap Hinge Arm - Root                  | KPWI0683    | 2        |
| 29. | 3/16" Stainless Steel Rivet - Cherry Q | CCPQ-66     | 4        |
| 30. | Flap Teleflex and Bellcrank Mount      | KPWI0652    | 2        |
| 31. | 1/8" Stainless Steel Rivet - Cherry Q  | CCPQ-43     | 4        |
| 32. | 3/16" Bolt                             | AN3-5A      | 2        |
| 33. | 3/16" Thin Washer                      | AN960-10L   | 2        |
| 34. | 3/16" Shear Nut                        | AN364-1032A | 2        |
| 35. | 3/4" Rubber Grommet                    | MS35489-11  | 18       |
| 36. | Serrated Grommet Strip                 | KSAC0023    | 4 ft     |
| 37. | Lexan Wing Parts Sheet                 | KAWI0041    | 1        |
| 38. | Grommet                                | KSAC0076    | 2        |

\* Builder Modifies

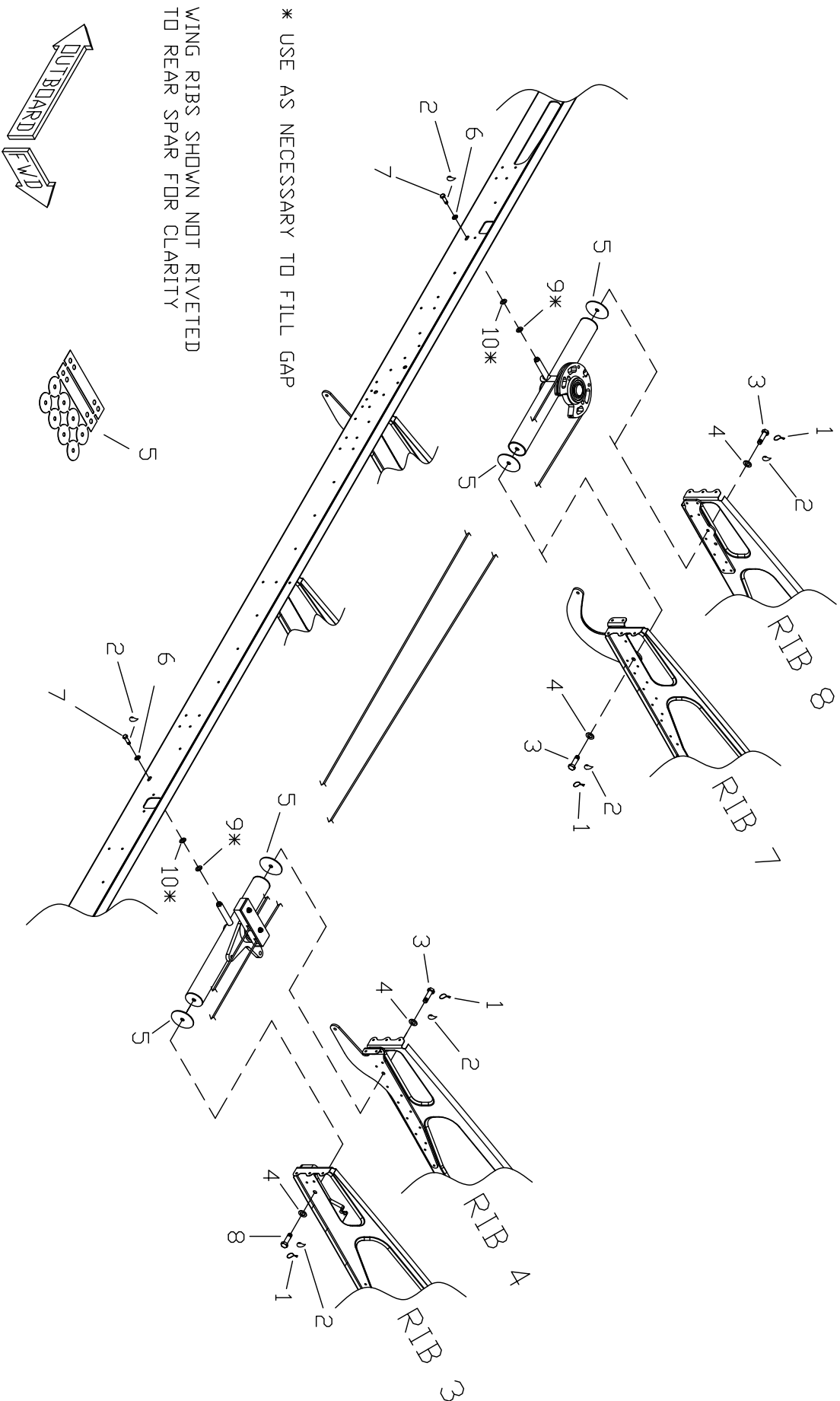
\*\* Part of KAWI0037

\*\*\* Part of KAWI0041

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LEFT-HAND WING SHOWN

# REFINISHED S-21 OUTBOUND 141 WING - BELLCRANK INSTALLATION

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**RANS S-21 OUTBOUND**  
**141 WING - BELLCRANK INSTALLATION**

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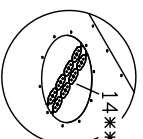
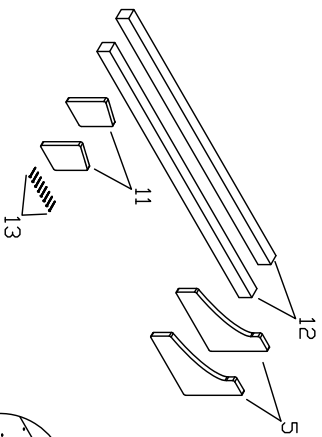
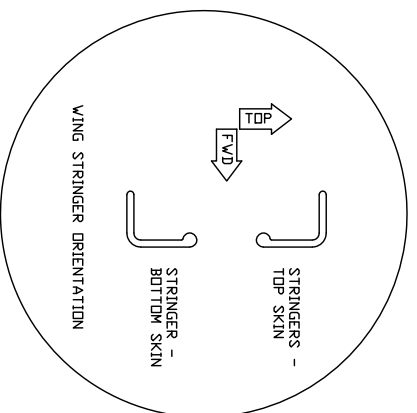
| #   | DESCRIPTION                           | PART NUMBER | QUANTITY |
|-----|---------------------------------------|-------------|----------|
| 1.  | Safety Wire *                         | ----        | 0        |
| 2.  | Loctite Blue *                        | ----        | 0        |
| 3.  | 1/4" Bolt - Drilled Head              | AN4H-5A     | 6        |
| 4.  | 1/4" Thick Washer                     | AN960-416   | 8        |
| 5.  | Lexan Shim Sheet - Bellcrank Mount ** | KPWI0684    | 0        |
| 6.  | 3/16" Star Lock Washer                | MS35333-39  | 4        |
| 7.  | 3/16" Bolt                            | AN3-3A      | 4        |
| 8.  | 1/4" Bolt - Drilled Head              | AN4H-6A     | 2        |
| 9.  | 3/16" Thick Washer                    | AN960-10    | 4        |
| 10. | 3/16" Thin Washer                     | AN960-10L   | 4        |

\* Builder Supplied

\*\* Part of KAWI0041

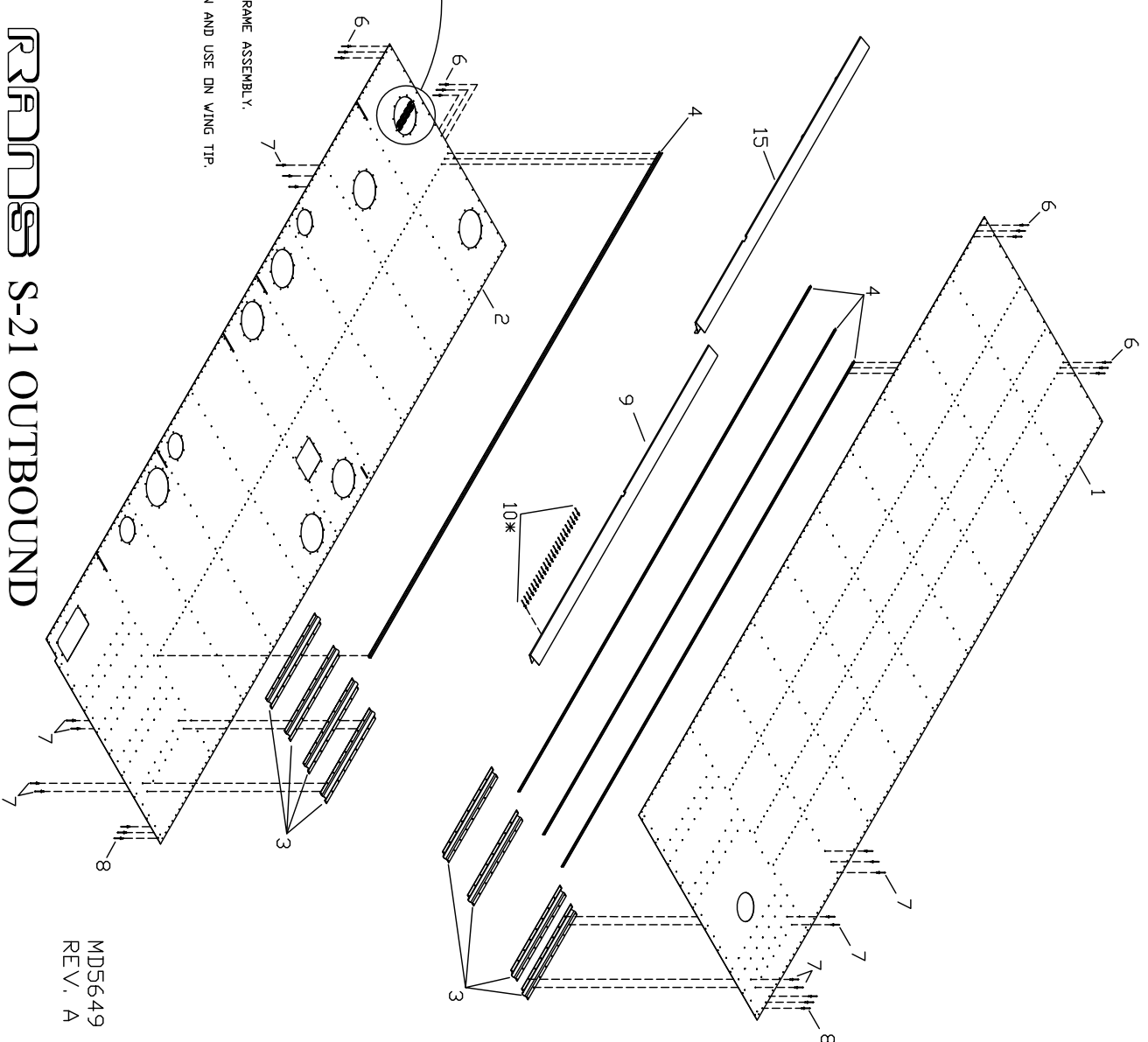
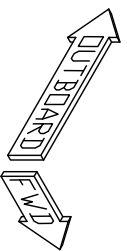
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- \* ADDITIONAL RIVETS NOT CALLED OUT IN SPAR OR FRAME ASSEMBLY.
- \* NUT PLATE SUPPORTS. REMOVE FROM BOTTOM SKIN AND USE ON WING TIP.



# REFINING S-21 OUTBOUND 141 WING - SKIN INSTALLATION

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REV. A

## 141 WING - SKIN INSTALLATION

| #   | DESCRIPTION                           | PART NUMBER | QUANTITY |
|-----|---------------------------------------|-------------|----------|
| 1.  | Wing Skin - Top                       | KPWI0646    | 2        |
| 2.  | Wing Skin - Bottom                    | KPWI0647    | 2        |
| 3.  | Tank Support                          | KPWI0651    | 16       |
| 4.  | Tailcone & Wing Stringer              | KPFU0743    | 8        |
| 5.  | Wing Jig - FWD                        | KPWI0687-A  | 2        |
| 6.  | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-42     | 884      |
| 7.  | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-41     | 1068     |
| 8.  | 1/8" Stainless Steel Rivet - Flush    | CCC-42      | 412      |
| 9.  | Wing Gap Seal - inboard - LH          | KPWI0706-L  | 1        |
| 9.  | Wing Gap Seal - Inboard - RH          | KPWI0706-R  | 1        |
| 10. | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-42     | 52       |
| 11. | Wing Jig - AFT                        | KPWI0687-B  | 2        |
| 12. | Wood - 2" x 2" *                      | -----       | 0        |
| 13. | Wood Screws *                         | -----       | 0        |
| 14. | Nut Plate Support **                  | KPWI0703    | 0        |
| 15. | Wing Gap Seal - Outboard - LH         | KPWI0707-L  | 1        |
| 15. | Wing Gap Seal - Outboard - RH         | KPWI0707-R  | 1        |

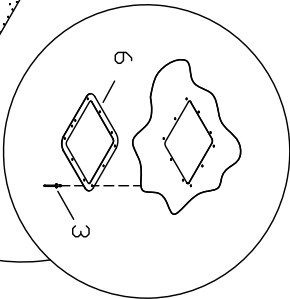
\* Builder Supplied

\*\* Part of KPWI0647. Used on Wing Tips

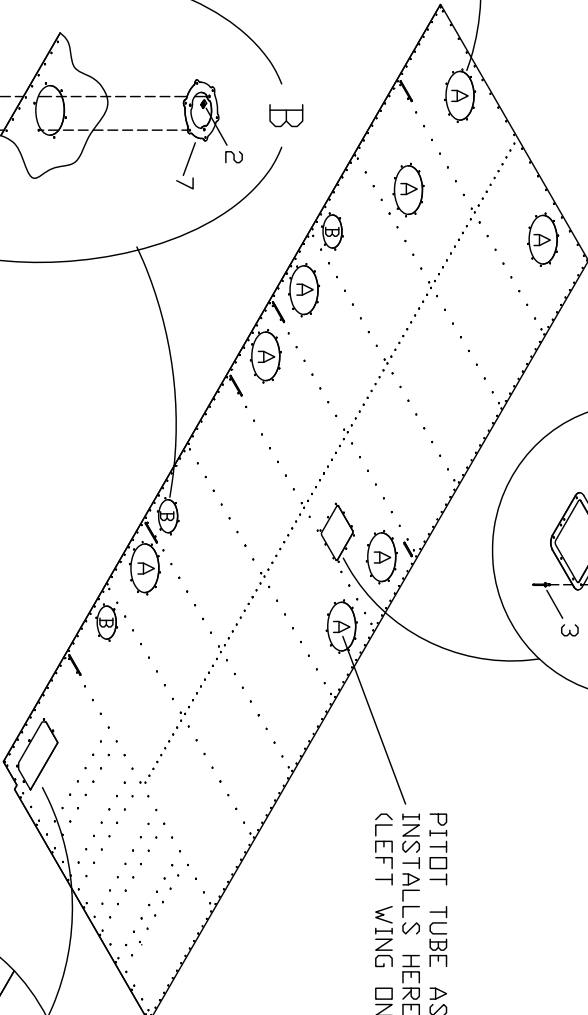
9/11/2018

REV. A

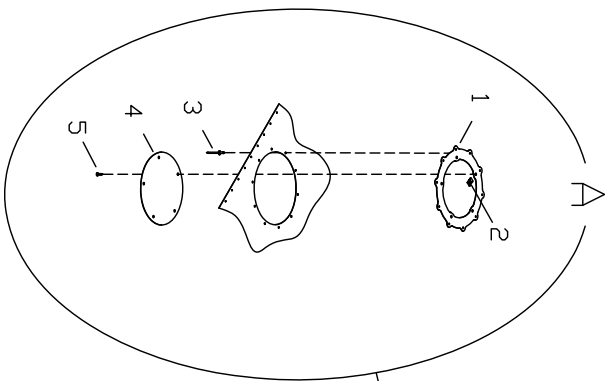
LIFT STRUT EXIT  
DOUBLER INSTALLATION



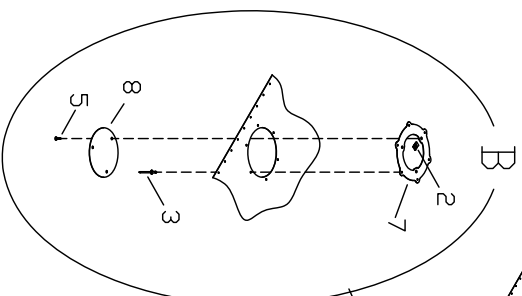
PITOT TUBE ASSEMBLY  
INSTALLS HERE  
(LEFT WING ONLY)



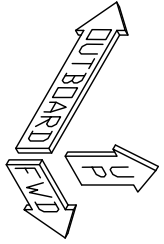
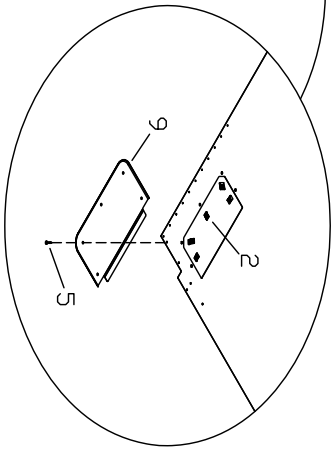
5" INSPECTION PANEL  
ASSEMBLY



3" INSPECTION PANEL  
ASSEMBLY



FUEL WITHDRAWAL  
ACCESS PLATE  
INSTALLATION



LEFT-HAND WING SHOWN

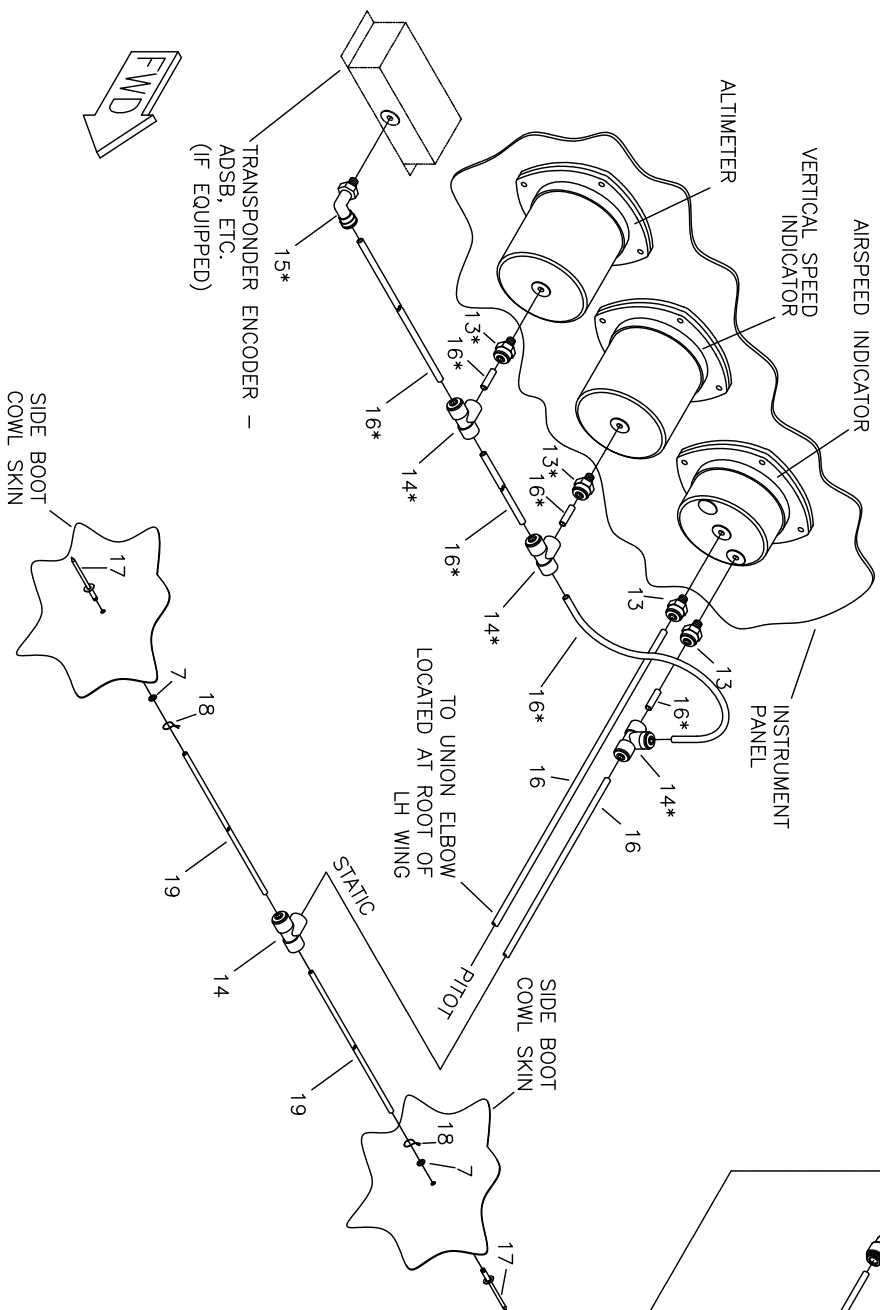
# REPAIR S-21 OUTBOUND 141 WING - BOTTOM SKIN INSPECTION PANEL INSTALLATION

MD5649  
REV. - ORIG

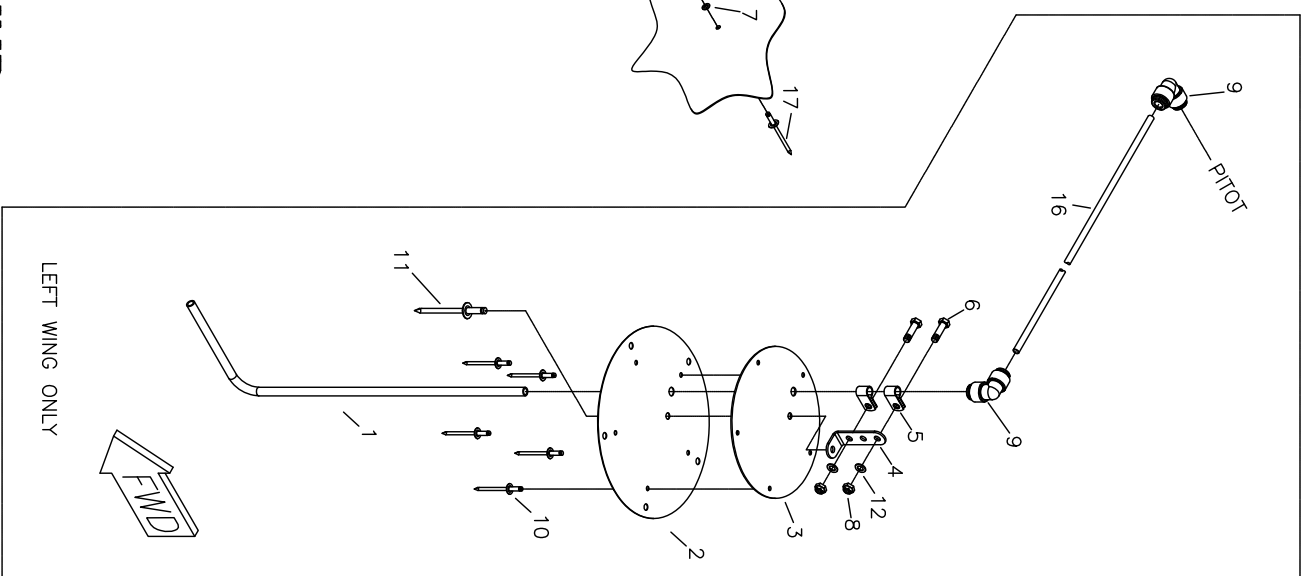
141 WING - BOTTOM SKIN - INSPECTION PANEL INSTALLATION

| #  | DESCRIPTION                    | PART NUMBER | QUANTITY |
|----|--------------------------------|-------------|----------|
| 1. | 5" Inspection Cover Tab Ring   | KPWI0656    | 16       |
| 2. | Tinnerman                      | A1789-8Z-1  | 108      |
| 3. | 1/8" Aluminum Rivet - Cherry Q | AAPQ-41     | 216      |
| 4. | 5" Inspection Cover            | KPWI0659    | 16       |
| 5. | #8 Pan Head Screw              | 8X1/2 PHS   | 108      |
| 6. | Lift Strut Exit Doubler        | KPWI0662    | 2        |
| 7. | 3" Inspection Cover Tab Ring   | KPWI0680    | 6        |
| 8. | 3" Inspection Cover            | KPWI0682    | 6        |
| 9. | Fuel Withdrawal Access Plate   | KPWI0674    | 2        |

# TYPICAL ANALOG INSTRUMENT INSTALLATION SHOWN



\* THESE ITEMS BUILDER SUPPLIED, AS NEEDED FOR ADDITIONAL INSTRUMENTS.



## REPLACES S-21 OUTBOUND 141 WING - OPTIONS - PITOT/STATIC SYSTEM

MD4200  
REV. - ORIG

141 WING - OPTIONS - PITOT/STATIC SYSTEM

| #   | DESCRIPTION                           | PART NUMBER | QUANTITY |
|-----|---------------------------------------|-------------|----------|
| 1.  | Pitot Tube                            | KPPT0014    | 1        |
| 2.  | 5" Inspection Cover * **              | KPWI0659    | 0        |
| 3.  | Pitot Doubler Plate                   | KPPT0015    | 1        |
| 4.  | Angle Bracket                         | KPAC0004    | 1        |
| 5.  | 1/4" Conduit Clamp                    | S1-CC       | 2        |
| 6.  | 3/16" Bolt                            | AN3-4A      | 2        |
| 7.  | 1/8" Small Brass Washer               | AN960-B4    | 2        |
| 8.  | 3/16" Shear Nut                       | AN364-1032A | 2        |
| 9.  | Union Elbow                           | KSPT0005    | 2        |
| 10. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-42     | 5        |
| 11. | 3/16" Aluminum Rivet - Cherry Q       | AAPQ-62     | 1        |
| 12. | 3/16" Thin Washer                     | AN960-10L   | 2        |
| 13. | Male Connector ***                    | KSPT0002    | 2        |
| 14. | Union Tee ***                         | KSPT0003    | 1        |
| 15. | 90 Degree Elbow ***                   | KSPT0006    | 2        |
| 16. | Pitot/Static Tubing ***               | KSPT0004    | 22 ft    |
| 17. | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-46     | 2        |
| 18. | Safety Wire ****                      | -----       | 0        |
| 19. | 1/8" Primer Line                      | PRIMER LINE | 4 ft     |

\* Refer to 141 Wing - Bottom Skin Inspection Panel Installation

\*\* Builder Modifies

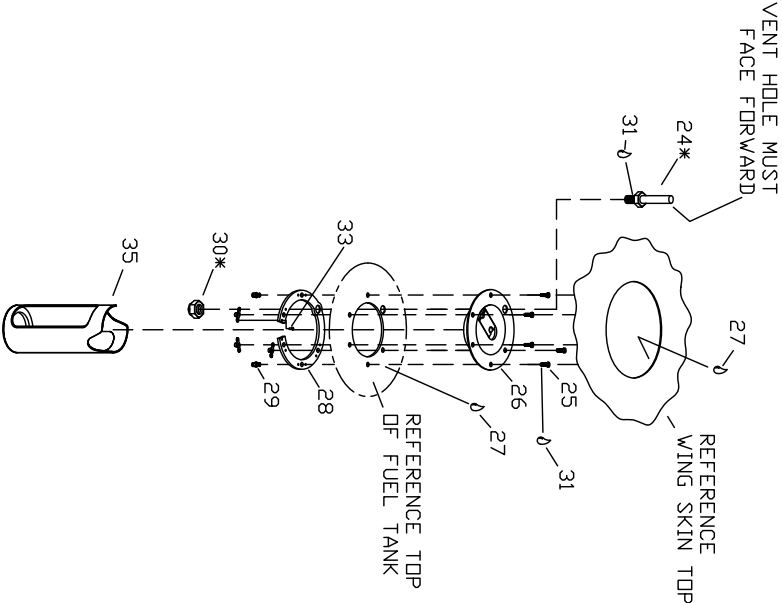
\*\*\* May be purchased seperately, call RANS Parts Dept. for pricing

\*\*\*\* Builder Supplied

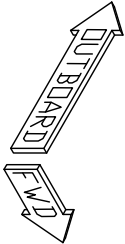
9/11/2018

REV. - ORIG

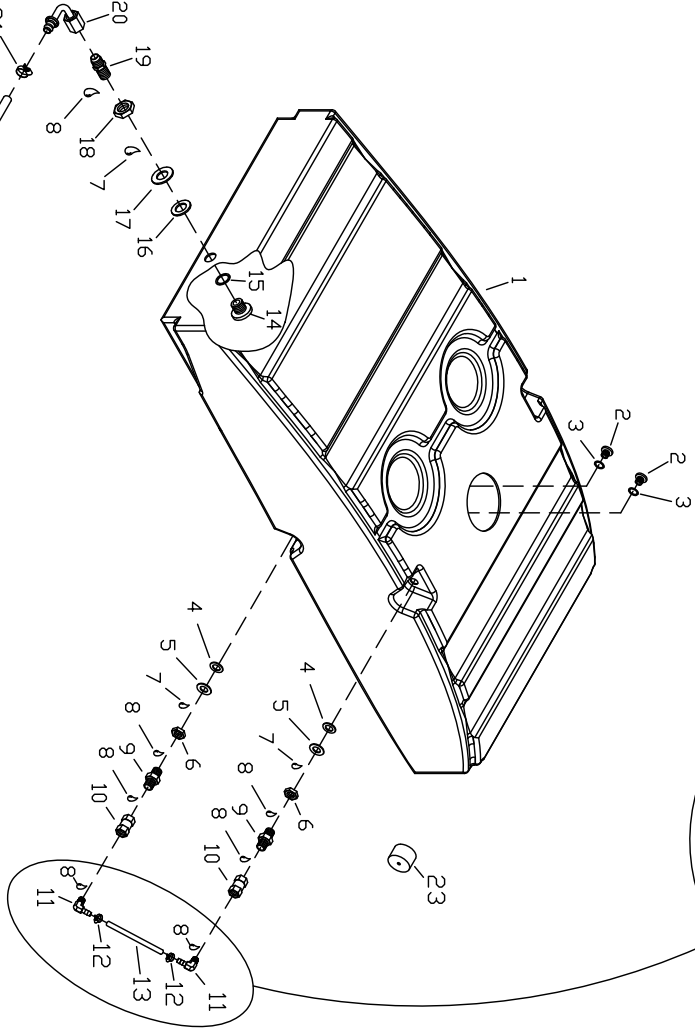
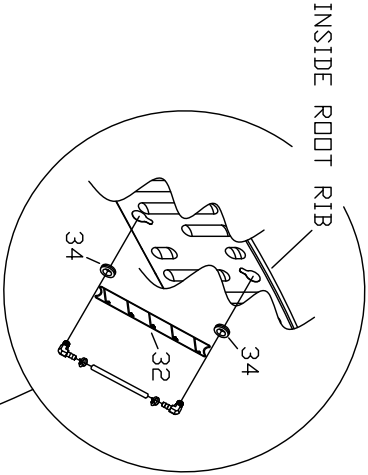




\* INSTALL AFTER TANK INSTALLATION



LEFT-HAND TANK SHOWN



RUBBER GROMMET INSTALLED IN ROOT FLAP HINGE ARM

MD5649  
REV. A

# S-21 OUTBOUND 141 WING - FUEL TANK ASSEMBLY

# RANS S-21 OUTBOUND

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## 141 WING - FUEL TANK ASSEMBLY

| #   | DESCRIPTION                          | PART NUMBER | QUANTITY |
|-----|--------------------------------------|-------------|----------|
| 1.  | Fuel Tank                            | KPFS0112    | 2        |
| 2.  | Tank Withdrawal Fitting              | KPFS0017    | 4        |
| 3.  | O-Ring                               | KSFS0009    | 4        |
| 4.  | Rubber Washer                        | KSFS0010    | 4        |
| 5.  | 1/2" Thick Washer                    | AN960-816   | 4        |
| 6.  | Nut - Flared Tube Bulkhead           | AN924-5D    | 4        |
| 7.  | Loctite Blue *                       | -----       | 0        |
| 8.  | Thread Sealant *                     | -----       | 0        |
| 9.  | 1/8" NPT Nipple                      | KSAC0032    | 4        |
| 10. | 1/8" Coupler                         | AN910-1D    | 4        |
| 11. | 90-Degree Withdrawal Fitting         | 8342        | 4        |
| 12. | Hose Clamp - 5/8"                    | 5-6202      | 4        |
| 13. | Clear Fuel Line - 1/4"               | KSFS0008    | 18 in    |
| 14. | 3/4" Bulkhead Fitting                | KSFS0037    | 2        |
| 15. | O-Ring - 3/4" Bulkhead               | KSFS0039    | 2        |
| 16. | Rubber Washer                        | KSFS0016    | 2        |
| 17. | 3/4" Thick Washer                    | AN960-1216  | 2        |
| 18. | Nut - 3/4" Bulkhead - Reverse Thread | KSFS0038    | 2        |
| 19. | Nipple - Flared Tube & Pipe Thread   | AN816-6D    | 2        |
| 20. | 90 Degree 3/8" Hose Fitting          | 33982-6-6   | 2        |
| 21. | Hose Clamp - 7/8"                    | 5-6203      | 2        |
| 22. | Black Fuel Line - 3/8"               | 27004       | 13 ft    |
| 23. | 1" Dia. Wood Dowel *                 | -----       | 0        |
| 24. | Fuel Vent                            | KPFS0101    | 2        |
| 25. | 3/16" Countersunk Machine Screw      | MS24694-S53 | 10       |
| 26. | Fuel Cap Assembly - Flush            | KSFS0035    | 2        |
| 27. | Pro-Seal Sealant *                   | -----       | 0        |
| 28. | Retainer                             | KPWI0614    | 2        |
| 29. | 3/16" Nut Plate                      | K-1000-3    | 10       |
| 30. | 3/8" Shear Nut                       | AN364-624A  | 2        |
| 31. | PRC or DOW 730 Sealant *             | -----       | 0        |
| 32. | Fuel Sight Gauge Decal - LH          | KPPL0024-L  | 1        |
| 32. | Fuel Sight Gauge Decal - RH          | KPPL0024-R  | 1        |
| 33. | 3/32" Solid Rivet - Flush            | AN426AD-3-5 | 20       |
| 34. | Rubber Grommet                       | MS35489-17  | 4        |
| 35. | Fuel Tank Support                    | KPFS0115    | 2        |

\* Builder Supplied

9/11/2018

REV. A



141 WING - FLAP ASSEMBLY AND INSTALLATION

| #   | DESCRIPTION                     | PART NUMBER | QUANTITY |
|-----|---------------------------------|-------------|----------|
| 1.  | Flap Spar                       | KPFL0167    | 2        |
| 2.  | Flap Hinge - Part Assembly * ** | KAFL0019    | 1        |
| 3.  | Flap Push-Pull Tube Attach      | KPFL0165    | 4        |
| 4.  | Aileron / Flap Rib - RH         | KPAL0146-R  | 6        |
| 5.  | Aileron / Flap Rib - LH         | KPAL0146-L  | 6        |
| 6.  | Aileron / Flap Action Rib - LH  | KPAL0147-L  | 2        |
| 7.  | Aileron / Flap Action Rib - RH  | KPAL0147-R  | 2        |
| 8.  | Flap Skin - LH                  | KPFL0168-L  | 1        |
| 8.  | Flap Skin - RH                  | KPFL0168-R  | 1        |
| 9.  | Bronze Flange Bushing           | KSAC0071    | 8        |
| 10. | 3/16" Aluminum Rivet - Cherry Q | AAPQ-62     | 48       |
| 11. | 1/8" Aluminum Rivet - Cherry Q  | AAPQ-41     | 420      |
| 12. | Female Rod End                  | NF-3        | 2        |
| 13. | 3/16" Bolt                      | AN3-10A     | 2        |
| 14. | 3/16" Thin Washer               | AN960-10L   | 24       |
| 15. | 3/16" Shear Nut                 | AN364-1032A | 16       |
| 16. | 3/16" Plain Nut                 | AN345-10    | 4        |
| 17. | 3/16" Bolt                      | AN3-6A      | 8        |
| 18. | Flap Push-Pull Tube             | KPFL0172    | 2        |
| 19. | #10 Stainless Steel Washer      | BSHW0022    | 4        |
| 20. | 3/16" Male Rod End              | CM-3        | 4        |
| 21. | Safety Wire ***                 | -----       | 0        |
| 22. | 12' Teleflex Cable              | TELEFLEX-12 | 2        |
| 23. | 3/16" Bolt                      | AN3-7A      | 4        |

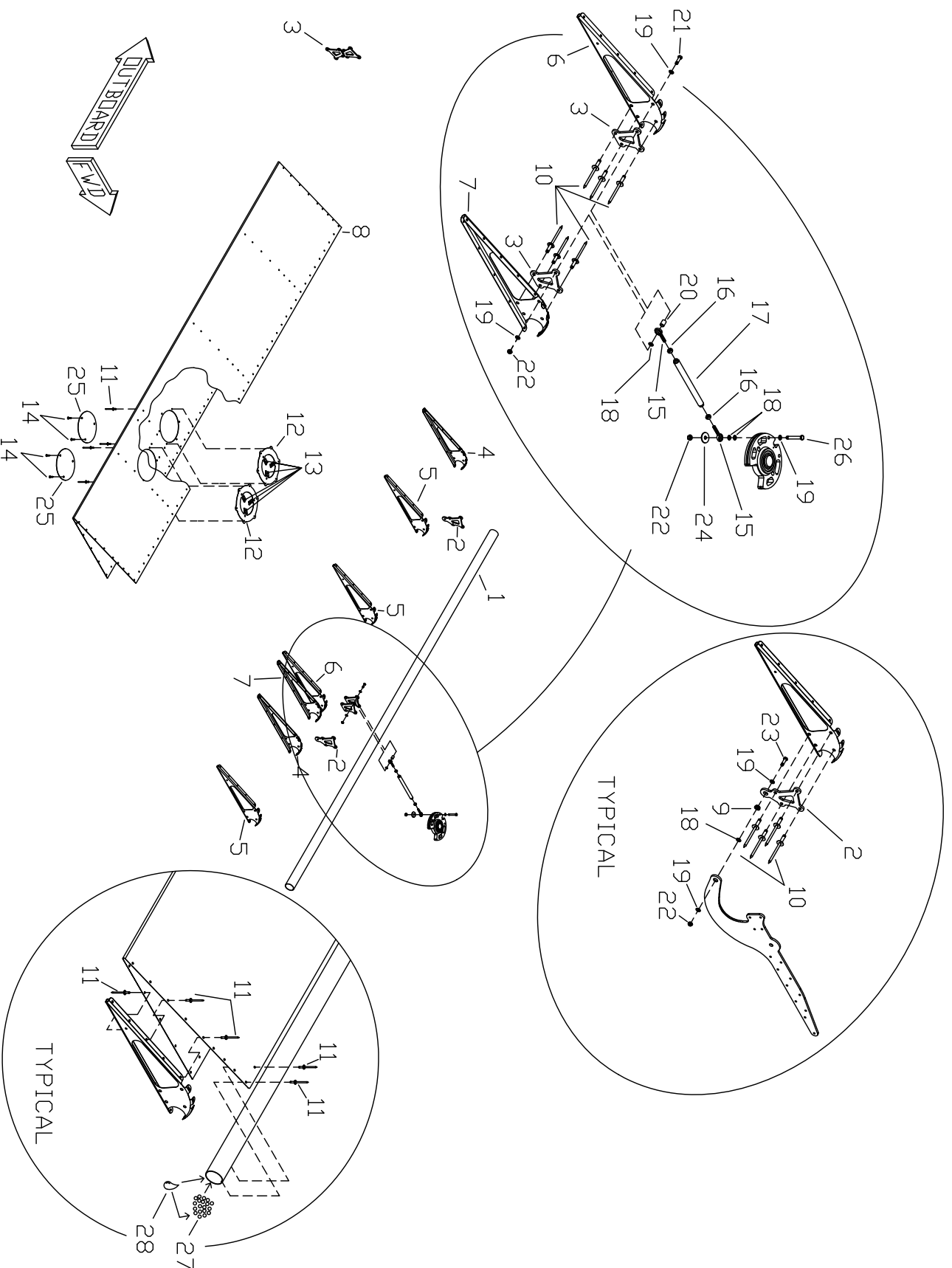
\* Builder Modifies

\*\* Individual parts may be purchased as KPFL0166

\*\*\* Builder Supplied

9/11/2018

REV. - ORIG



MD5649  
REV. A

141 WING - AILERON ASSEMBLY AND INSTALLATION

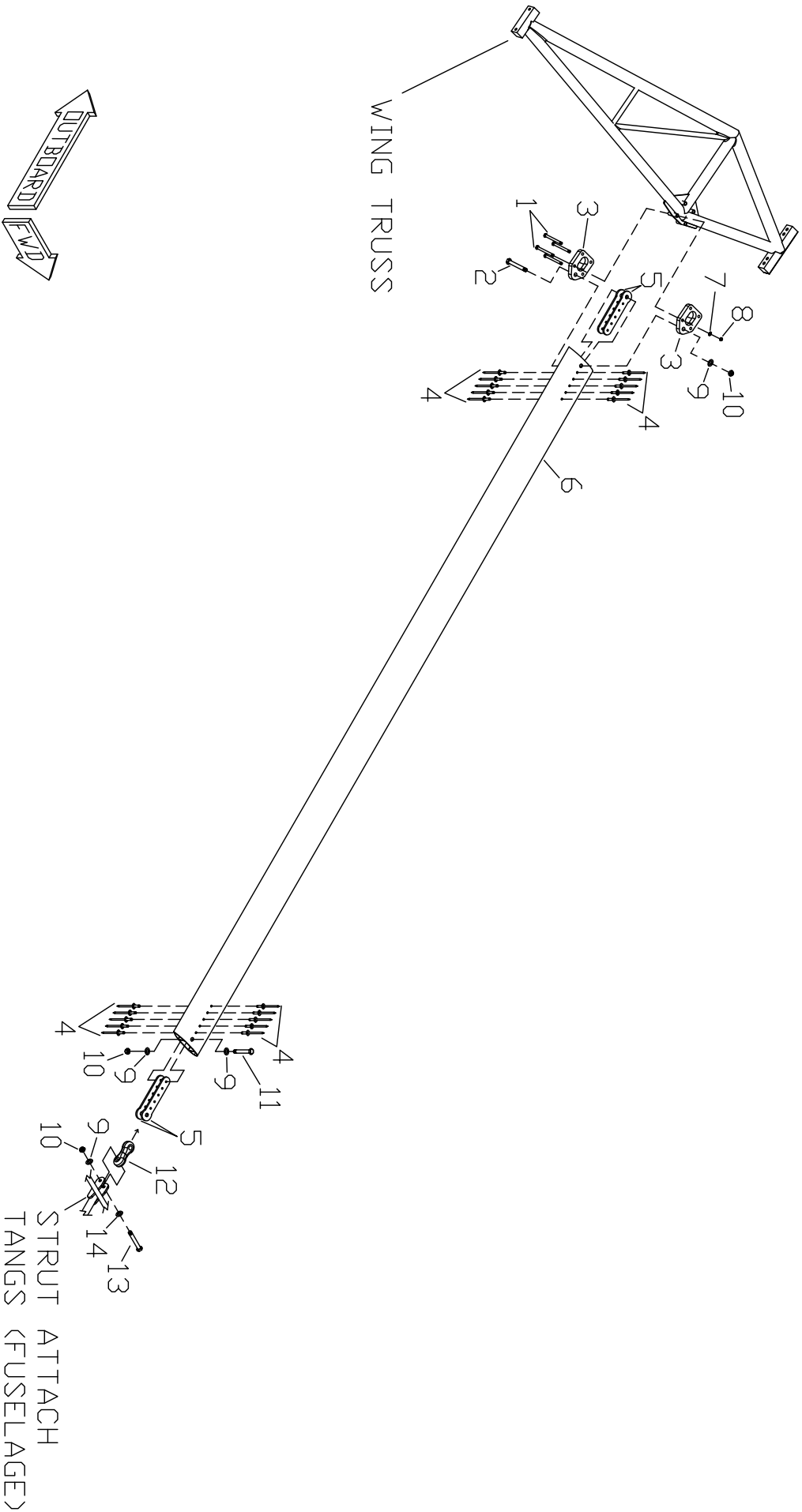
| #   | DESCRIPTION                       | PART NUMBER | QUANTITY |
|-----|-----------------------------------|-------------|----------|
| 1.  | Aileron Spar                      | KPAL0140    | 2        |
| 2.  | Aileron Hinge                     | KPAL0144    | 4        |
| 3.  | Aileron Push-Pull Attach *        | KPAL0143    | 2        |
| 4.  | Aileron / Flap Rib - RH           | KPAL0146-R  | 5        |
| 5.  | Aileron / Flap Rib - LH           | KPAL0146-L  | 5        |
| 6.  | Aileron / Flap Action Rib - LH    | KPAL0147-L  | 2        |
| 7.  | Aileron / Flap Action Rib - RH    | KPAL0147-R  | 2        |
| 8.  | Aileron Skin - LH                 | KPAL0145-L  | 1        |
| 8.  | Aileron Skin - RH                 | KPAL0145-R  | 1        |
| 9.  | Bronze Flange Bushing             | KSAC0071    | 4        |
| 10. | 3/16" Aluminum Rivet - Cherry Q   | AAPQ-62     | 28       |
| 11. | 1/8" Aluminum Rivet - Cherry Q    | AAPQ-41     | 402      |
| 12. | 3" Inspection Cover Tab Ring      | KPWI0680    | 4        |
| 13. | Tinnerman                         | A1789-8Z-1  | 12       |
| 14. | #8 Pan Head Screw                 | 8X1/2 PHS   | 12       |
| 15. | 3/16" Male Rod End                | CM-3        | 4        |
| 16. | 3/16" Plain Nut                   | AN345-10    | 4        |
| 17. | Aileron Push-Pull Tube            | KPAL0148    | 2        |
| 18. | 3/16" Thick Washer                | AN960-10    | 10       |
| 19. | 3/16" Thin Washer                 | AN960-10L   | 14       |
| 20. | Aluminum Bushing - 3/8" x .095" * | KPAC0060    | 1        |
| 21. | 3/16" Bolt                        | AN3-16A     | 2        |
| 22. | 3/16" Shear Nut                   | AN364-1032A | 8        |
| 23. | 3/16" Bolt                        | AN3-6A      | 4        |
| 24. | #10 Stainless Steel Washer        | BSHW0022    | 2        |
| 25. | 3" Inspection Cover               | KPWI0682    | 4        |
| 26. | 3/16" Bolt                        | AN3-11A     | 2        |
| 27. | Lead Shot or BB's **              | -----       | 0        |
| 28. | Expanding Foam Sealant **         | -----       | 0        |

\* Builder Modifies

\*\* Builder Supplied

9/11/2018

REV. A



LEFT-HAND SHOWN

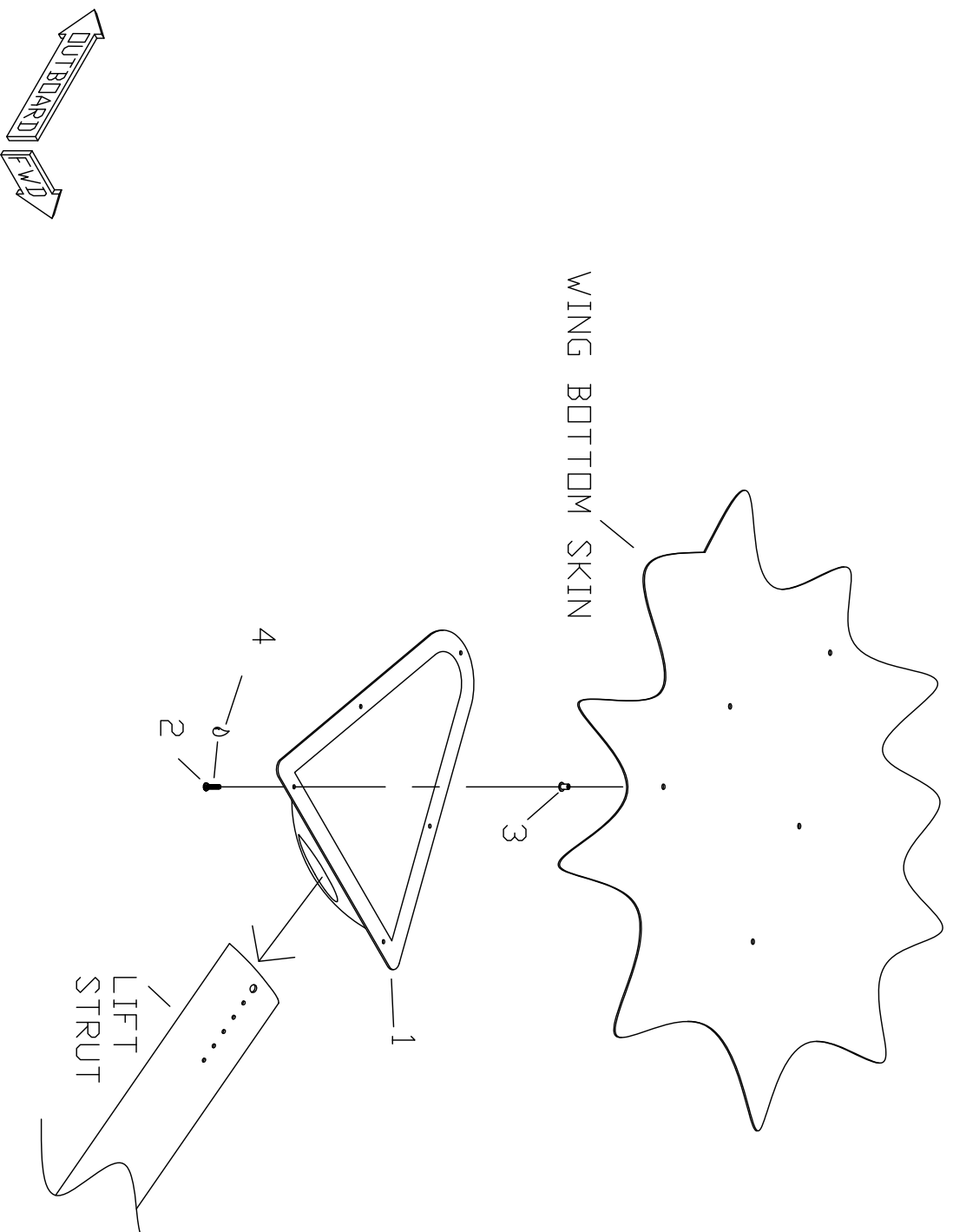
# REF S-21 OUTBOUND 141 WING - LIFT STRUT ASSEMBLY

MD5649  
REV. - A

**141 WING - LIFT STRUT ASSEMBLY & INSTALLATION**

| <b>#</b> | <b>DESCRIPTION</b>                     | <b>PART NUMBER</b> | <b>QUANTITY</b> |
|----------|----------------------------------------|--------------------|-----------------|
| 1.       | 1/4" Bolt                              | AN4-26A            | 8               |
| 2.       | 7/16" Bolt                             | AN7-30A            | 2               |
| 3.       | Strut Truss Fitting                    | KPLS0055           | 4               |
| 4.       | 3/16" Stainless Steel Rivet - Cherry Q | CCPQ-66            | 40              |
| 5.       | Strut Fitting Doubler                  | KPLS0053           | 8               |
| 6.       | Lift Strut                             | KPLS0054           | 2               |
| 7.       | 1/4" Thick Washer                      | AN960-416          | 8               |
| 8.       | 1/4" Shear Nut                         | AN364-428A         | 8               |
| 9.       | 7/16" Thick Washer                     | AN960-716          | 8               |
| 10.      | 7/16" Shear Nut                        | AN364-720A         | 6               |
| 11.      | 7/16" Bolt                             | AN7-20A            | 2               |
| 12.      | Lower Strut Fitting                    | KPLS0056           | 2               |
| 13.      | 7/16" Bolt                             | AN7-16A            | 2               |
| 14.      | 7/16" Thin Washer                      | AN960-716L         | 2               |





LEFT-HAND SHOWN

REF ID: A12345 S-21 OUTBOUND

141 WING - OPTIONS - UPPER LIFT STRUT FAIRING

MD5649  
REV. - ORIG

# RANS S-21 OUTBOUND

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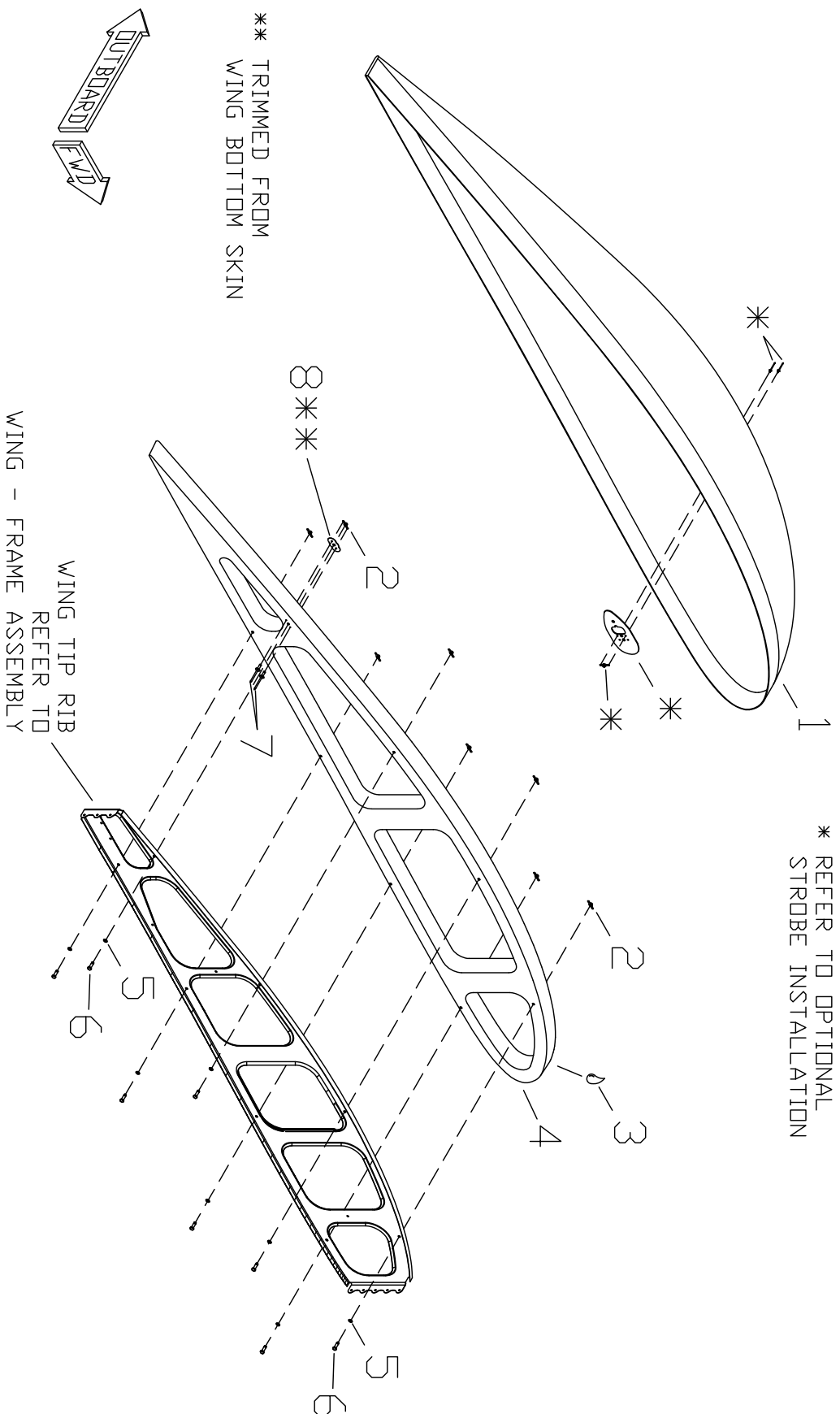
## 141 WING - OPTIONS - UPPER LIFT STRUT FAIRING

KAWI0042

| #   | DESCRIPTION                   | PART NUMBER     | QUANTITY |
|-----|-------------------------------|-----------------|----------|
| 1 . | Upper Lift Strut Fairing - RH | KPWI0692-R      | 1        |
| 1 . | Upper Lift Strut Fairing - LH | KPWI0692-L      | 1        |
| 2 . | 3/16" Truss Head Screw        | AN526-C1032-R12 | 10       |
| 3 . | 3/16" Rivet Nut               | MS27130-A25K    | 10       |
| 4 . | Loctite Blue *                | -----           | 0        |

\* Builder Supplied

9/11/2018  
REV. - ORIG



LEFT-HAND SHOWN

141 WING - WINGTIP ASSEMBLY

141 WING - WING TIP ASSEMBLY AND INSTALLATION

| #  | DESCRIPTION               | PART NUMBER | QUANTITY |
|----|---------------------------|-------------|----------|
| 1. | Wing Tip - LH             | KPWI0685-L  | 1        |
| 1. | Wing Tip - RH             | KPWI0685-R  | 1        |
| 2. | 8-32 Nut Plate            | MS21047-08  | 16       |
| 3. | PVC Cement *              | -----       | 0        |
| 4. | Wing Tip Support Rib - LH | KPWI0686-L  | 1        |
| 4. | Wing Tip Support Rib - RH | KPWI0686-R  | 1        |
| 5. | #8 Washer                 | AN960-8     | 16       |
| 6. | 8-32 Bolt                 | KSHW0102    | 16       |
| 7. | 3/32" Aluminum Rivet      | 40APR1/8    | 32       |
| 8. | Nut Plate Support **      | KPWI0703    | 0        |

\* Builder Supplied

\*\* Trimmed from KPWI0647

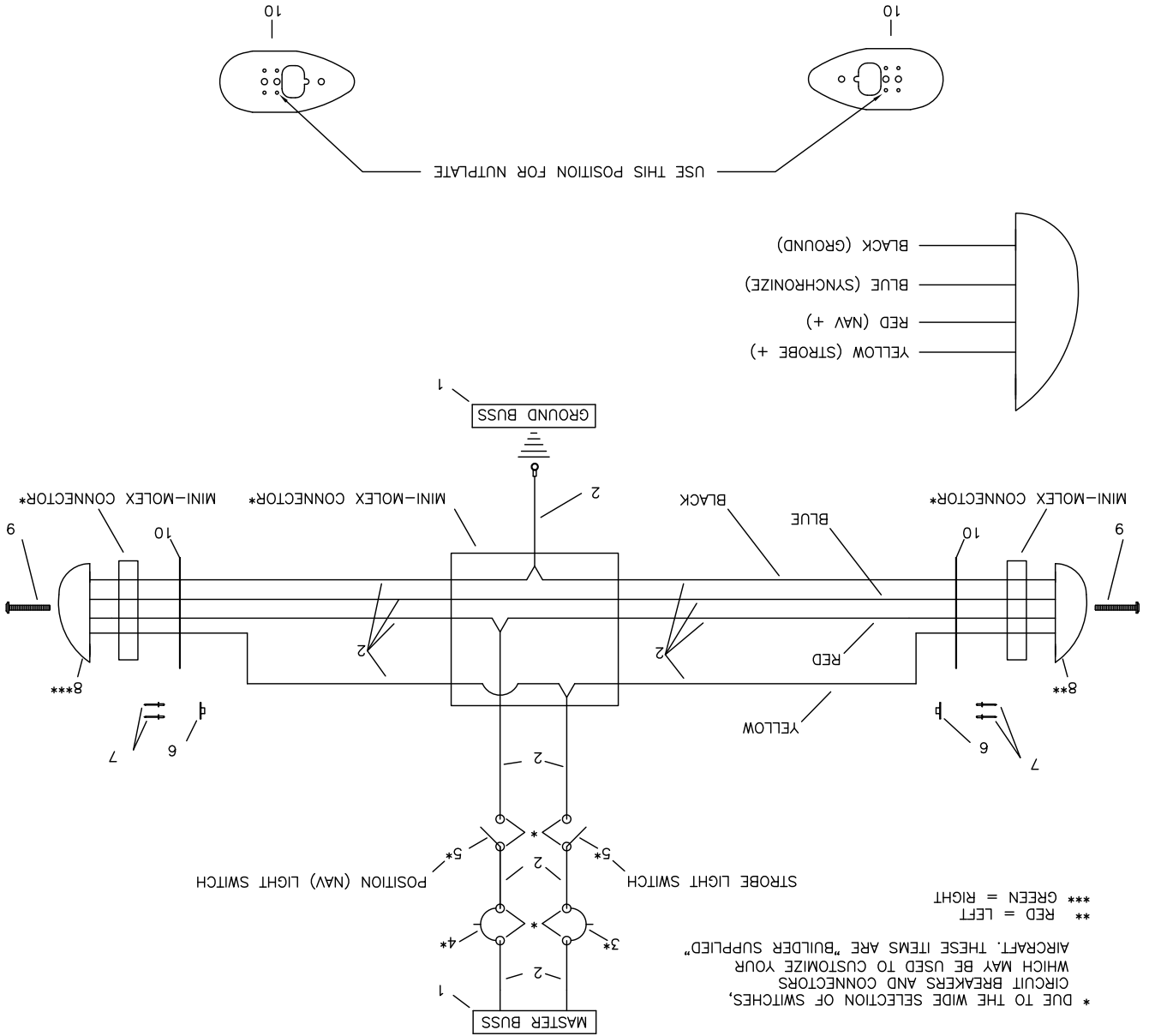
9/11/2018

REV. - ORIG

# RRMS S-21 OUTBOUND 141 WING - OPTIONS AVEO STROBE INSTALLATION

MD2668  
REV. - ORIG

REFER TO STROBE INSTALLATION MANUAL FOR MORE INFORMATION  
& POTENTIAL CHANGES TO INSTALLATION PROCEDURES



# RANS S-21 OUTBOUND

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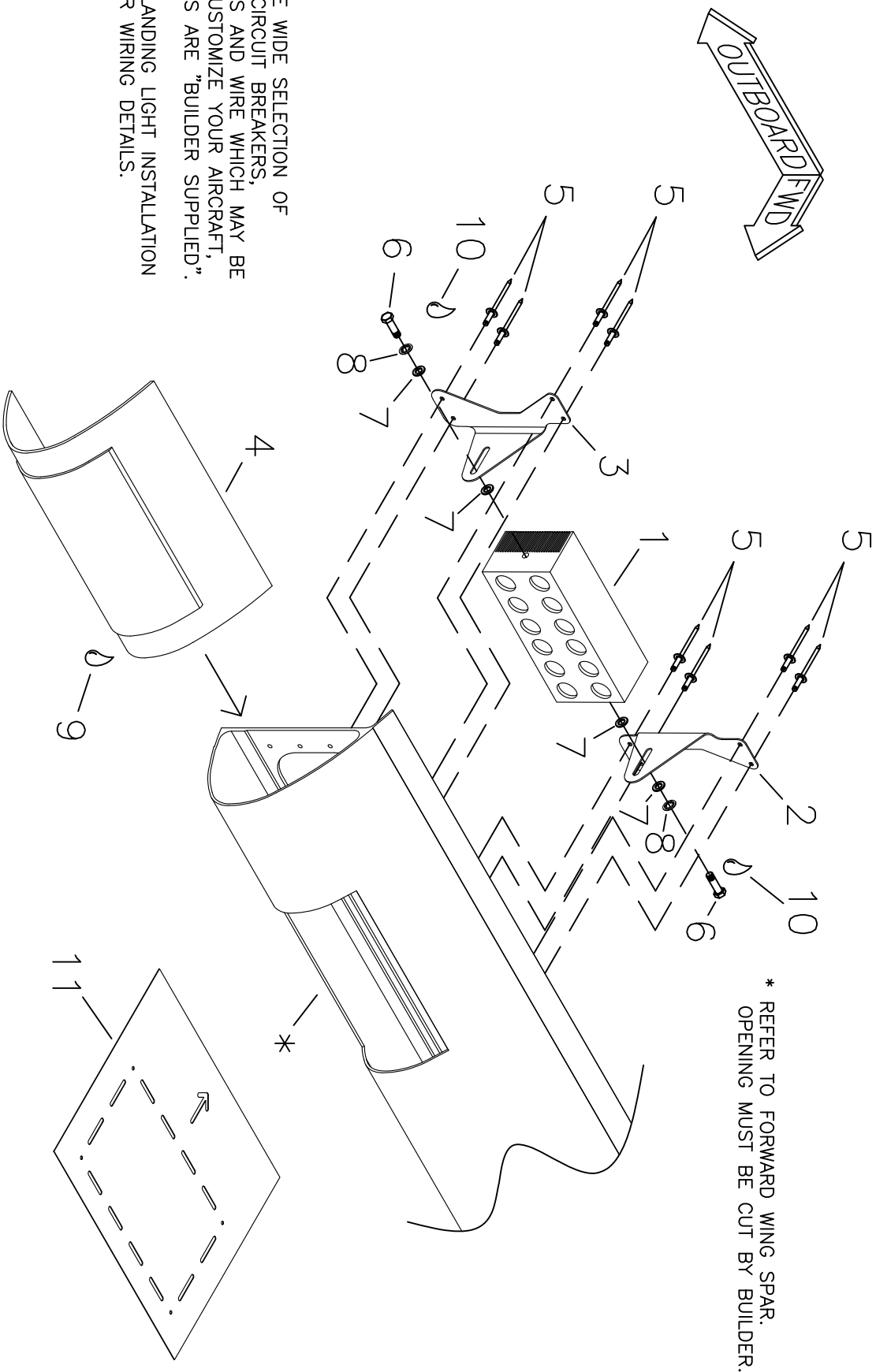
## 141 WING - OPTIONS - AVEO STROBE INSTALLATION

| #   | DESCRIPTION                 | PART NUMBER | QUANTITY |
|-----|-----------------------------|-------------|----------|
| 1.  | Electrical Buss Bar * **    | AMW 636     | 0        |
| 2.  | 18 Gauge Wire *             | -----       | 0        |
| 3.  | Circuit Breaker - 5 amp *   | -----       | 0        |
| 4.  | Circuit Breaker - 5 amp *   | -----       | 0        |
| 5.  | Switch *                    | -----       | 0        |
| 6.  | 3/16" Nut Plate             | K-1000-3    | 2        |
| 7.  | 3/32" Aluminum Rivet        | 40APR1/4    | 4        |
| 8.  | Strobe Light Set - AVEO     | KSES0059    | 1 set    |
| 9.  | 10-32 Socket Head Cap Screw | KSHW0115    | 2        |
| 10. | Strobe Light Mount - AVEO   | KPWI0541    | 2        |

\* Builder Supplied

\*\* May be purchased seperately, call RANS Parts Dept. for pricing

9/11/2018  
REV. - ORIG



DUE TO THE WIDE SELECTION OF SWITCHES, CIRCUIT BREAKERS, CONNECTORS AND WIRE WHICH MAY BE USED TO CUSTOMIZE YOUR AIRCRAFT, THESE ITEMS ARE "BUILDER SUPPLIED". REFER TO LANDING LIGHT INSTALLATION MANUAL FOR WIRING DETAILS.

RIGHT HAND FORWARD WING SPAR SHOWN

# REFINISH S-21 OUTBOUND 141 WING - OPTIONS LANDING LIGHTS INSTALLATION

# RANS S-21 OUTBOUND

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006H-06

## 141 WING - OPTIONS - LANDING LIGHTS INSTALLATION

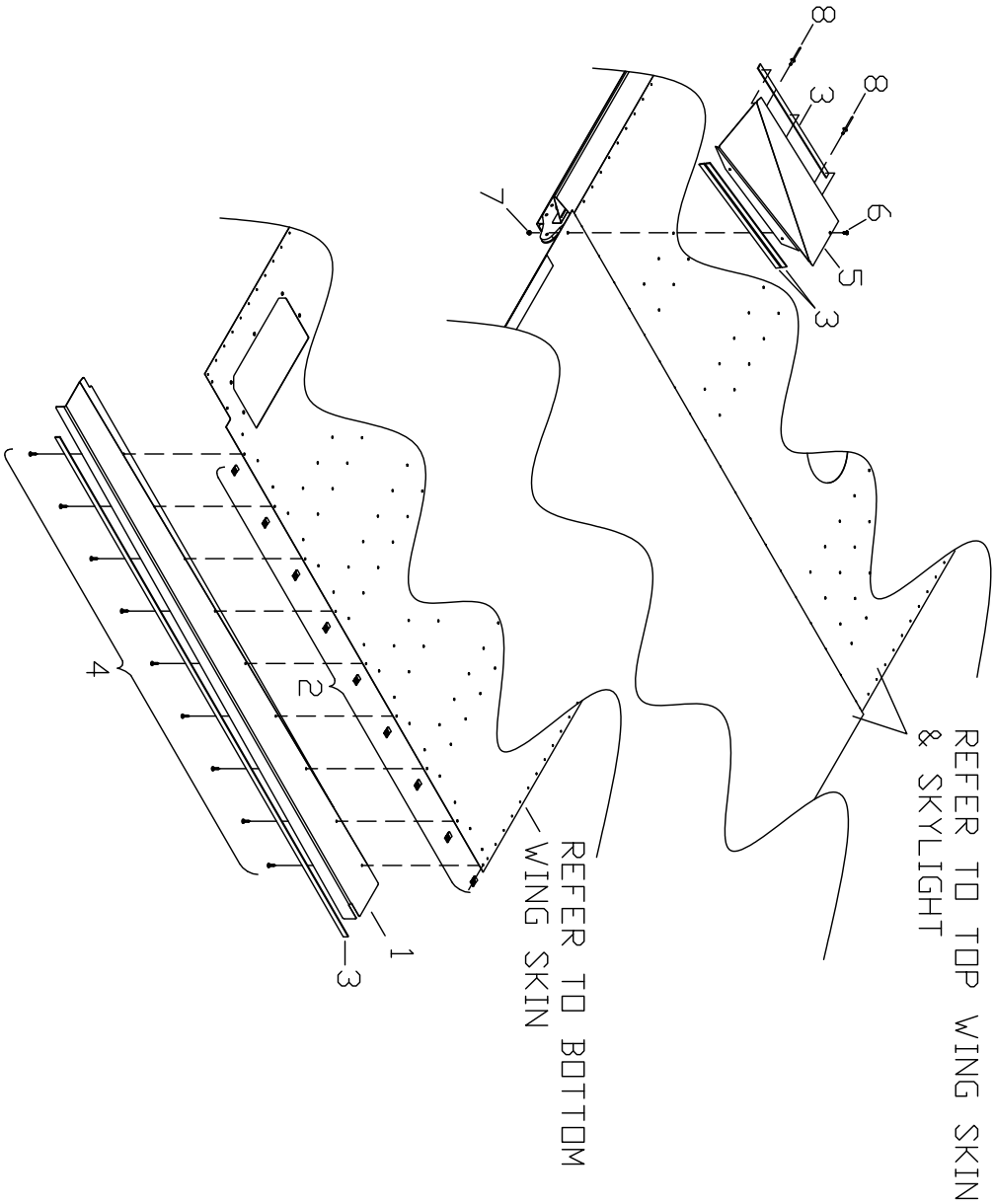
KAAC0109

| #   | DESCRIPTION                    | PART NUMBER | QUANTITY |
|-----|--------------------------------|-------------|----------|
| 1.  | Landing Light                  | KSES0077    | 2        |
| 2.  | Landing Light Mount - LH       | KPWI0704-L  | 2        |
| 3.  | Landing Light Mount - RH       | KPWI0704-R  | 2        |
| 4.  | Landing Light Lens             | KPWI0705    | 2        |
| 5.  | 1/8" Aluminum Rivet - Cherry Q | AAPQ-43     | 16       |
| 6.  | 3/16" Bolt                     | AN3-3A      | 4        |
| 7.  | 3/16" Thick Washer             | AN960-10    | 8        |
| 8.  | 3/16" Star Lock Washer         | MS35333-39  | 4        |
| 9.  | Silicone Seal *                | -----       | 0        |
| 10. | Loctite Blue *                 | -----       | 0        |
| 11. | Landing Light Cut-Out Template | KPWI0708    | 1        |

\* Builder Supplied

9/11/2018  
REV. - ORIG





**REFINISH S-21 OUTBOUND  
141 WING - ROOT SEAL INSTALLATION**

MD5649  
REV. - ORIG

**RANS S-21 OUTBOUND**  
**141 WING - ROOT SEAL INSTALLATION**

PAGE

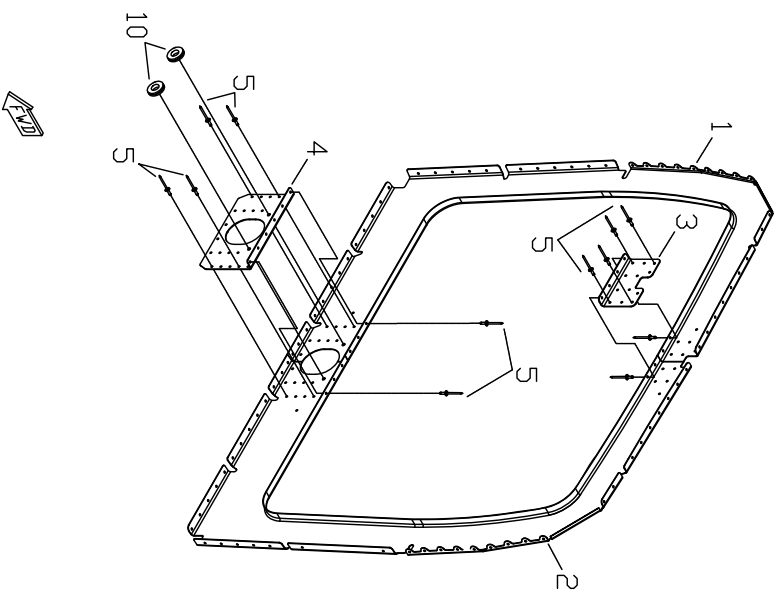
006I-02

| #  | DESCRIPTION                    | PART NUMBER | QUANTITY |
|----|--------------------------------|-------------|----------|
| 1. | Wing Root Bottom Gap Seal - RH | KPWI0690-R  | 1        |
| 1. | Wing Root Bottom Gap Seal - LH | KPWI0690-L  | 1        |
| 2. | Tinnerman                      | A1789-8Z-1  | 18       |
| 3. | 1/2" Black Foam Tape *         | -----       | 0        |
| 4. | #8 Pan Head Screw              | 8X1/2 PHS   | 18       |
| 5. | Flap Gap Seal - LH             | KPWI0691-L  | 1        |
| 5. | Flap Gap Seal - RH             | KPWI0691-R  | 1        |
| 6. | #6-32 Pan Head Machine Screw   | MS35206-228 | 2        |
| 7. | #6-32 Nut                      | AN364-632A  | 2        |
| 8. | 1/8" Aluminum Rivet - Avex     | 1691-0410   | 4        |

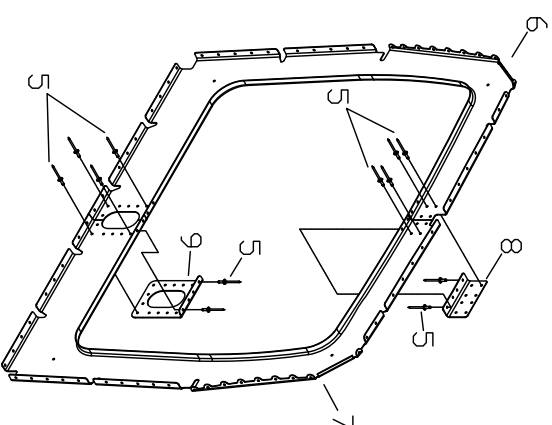
\* Builder Supplied

9/11/2018  
REV. - ORIG

STATION 4



STATION 5



MD5651  
REV. - ORIG

RAIDERS S-21 OUTBOUND  
FUSELAGE - STATION 4 & 5 - BULKHEAD ASSEMBLY

# RANS S-21 OUTBOUND

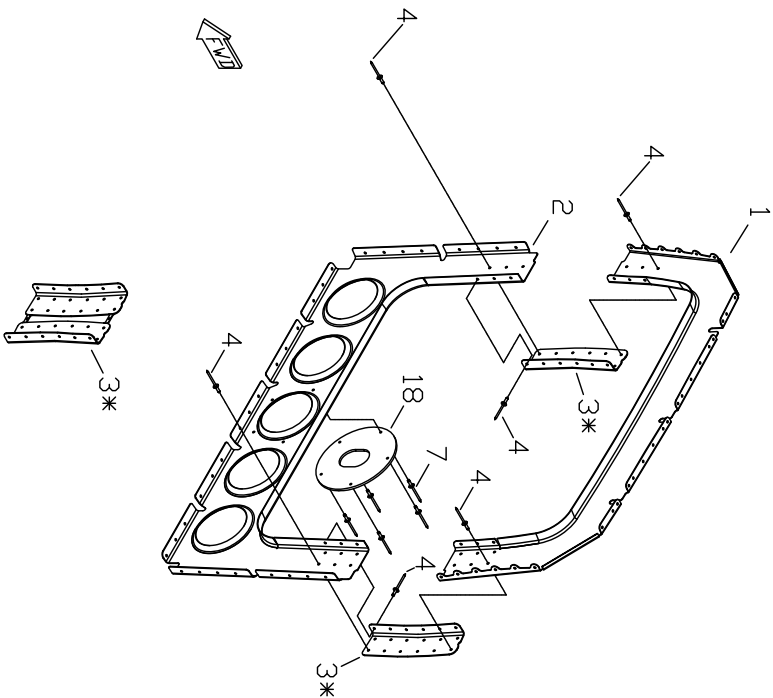
PAGE

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## FUSELAGE - STATION 4 & 5 - BULKHEAD ASSEMBLY

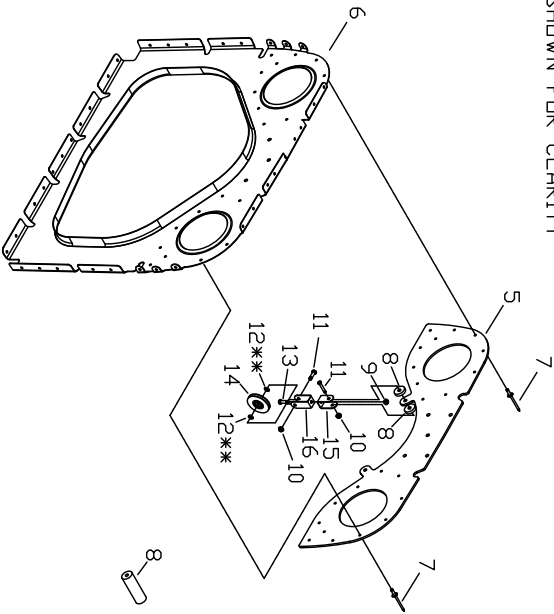
| #   | DESCRIPTION                    | PART NUMBER | QUANTITY |
|-----|--------------------------------|-------------|----------|
| 1.  | S-4 Bulkhead - RH              | KPFU0707-R  | 1        |
| 2.  | S-4 Bulkhead - LH              | KPFU0707-L  | 1        |
| 3.  | S-4 Top Doubler                | KPFU0724    | 1        |
| 4.  | S-4 Lower Doubler              | KPFU0723    | 1        |
| 5.  | 1/8" Aluminum Rivet - Cherry Q | AAPQ-42     | 74       |
| 6.  | S-5 Bulkhead - RH              | KPFU0728-R  | 1        |
| 7.  | S-5 Bulkhead - LH              | KPFU0728-L  | 1        |
| 8.  | S-5 Top Doubler                | KPFU0730    | 1        |
| 9.  | S-5 Lower Doubler              | KPFU0729    | 1        |
| 10. | 3/4" Rubber Grommet            | MS35489-11  | 2        |

STATION 6

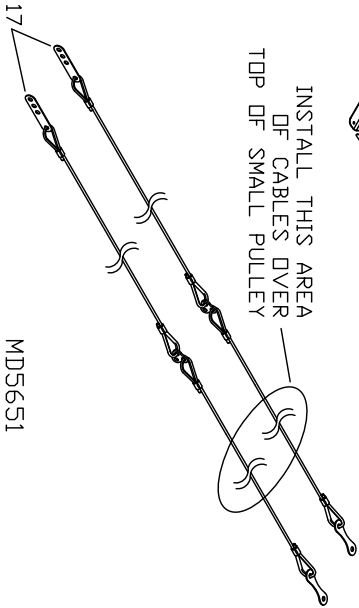


STATION 8

ONLY RIGHT SIDE  
OF RUDDER PULLEY SYSTEM  
SHOWN FOR CLARITY



INSTALL THIS AREA  
OF CABLES OVER  
TOP OF SMALL PULLEY



\* SEPARATE AND ORIENTATE NOTCH TO TOP  
\*\* REPLACED BY KPAC0038 ON TAILDRAGGER

REF S-21 OUTBOUND

FUSELAGE - STATION 6 & 8 - BULKHEAD ASSEMBLY

MD5651  
REV. - ORIG

# RANS S-21 OUTBOUND

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## FUSELAGE - STATION 6 & 8 - BULKHEAD ASSEMBLY

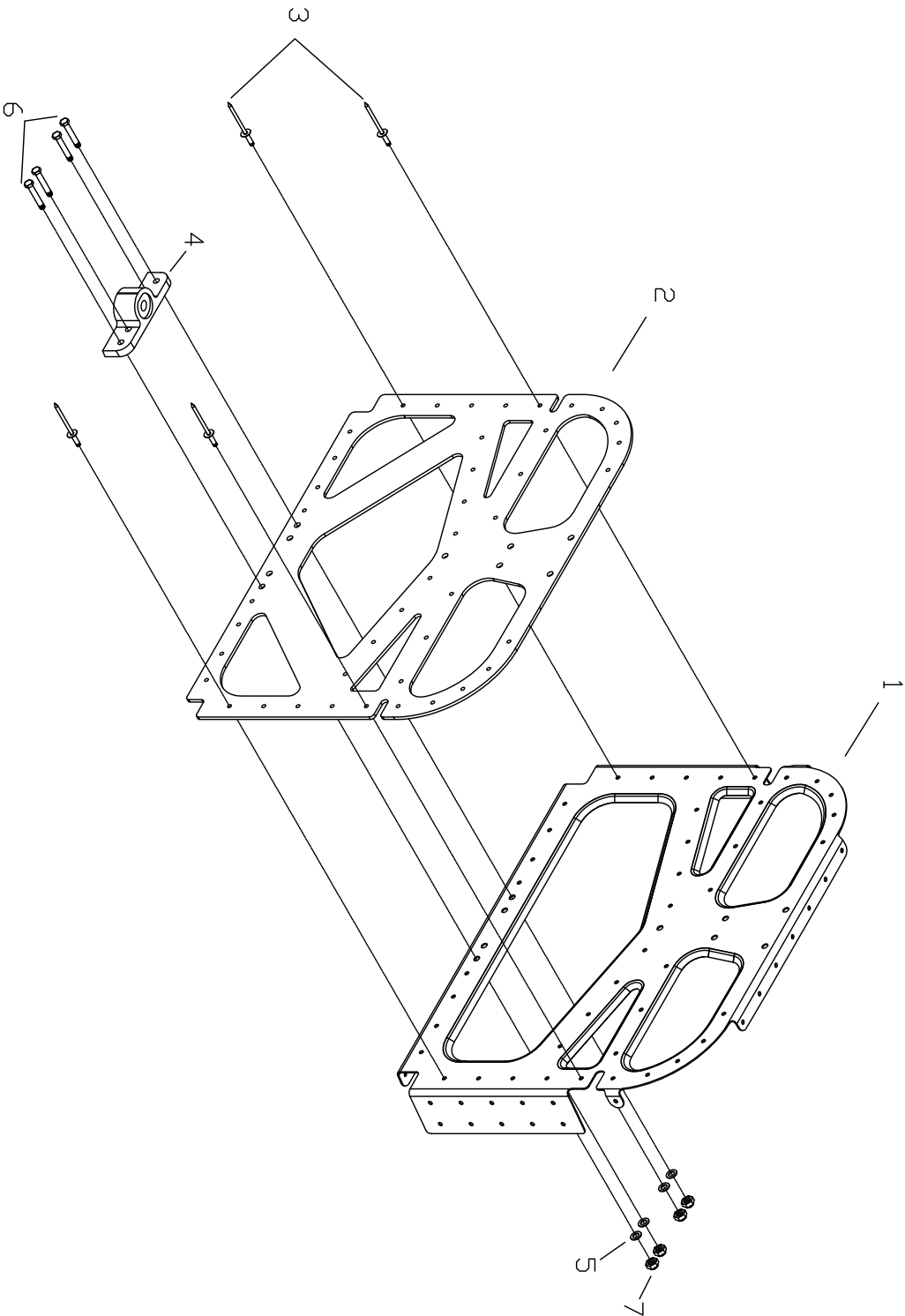
| #   | DESCRIPTION                               | PART NUMBER | QUANTITY |
|-----|-------------------------------------------|-------------|----------|
| 1.  | S-6 Bulkhead - Upper                      | KPFU0705    | 1        |
| 2.  | S-6 Bulkhead - Lower                      | KPFU0706    | 1        |
| 3.  | S-6 Doubler *                             | KPFU0725    | 1        |
| 4.  | 1/8" Aluminum Rivet - Cherry Q            | AAPQ-42     | 36       |
| 5.  | S-8 Doubler                               | KPFU0716    | 1        |
| 6.  | S-8 Bulkhead                              | KPFU0704    | 1        |
| 7.  | 1/8" Aluminum Rivet - Cherry Q            | AAPQ-43     | 27       |
| 8.  | Aluminum Bushing - 3/8" x .095" x .15" ** | KPAC0060    | 1        |
| 9.  | 3/16" Tensile Nut                         | AN365-1032A | 2        |
| 10. | 3/16" Shear Nut                           | AN364-1032A | 4        |
| 11. | 3/16" Bolt                                | AN3-7A      | 4        |
| 12. | 3/16" Thick Washer                        | AN960-10    | 4        |
| 13. | 3/16" Bolt                                | AN3-3A      | 2        |
| 14. | Small Pulley                              | AN210-1A    | 2        |
| 15. | U-Bracket                                 | RL-205-T    | 2        |
| 16. | Pulley Shackle                            | KPCS0309    | 2        |
| 17. | Rudder Cable Assembly                     | KPCS0307    | 2        |
| 18. | Elevator Push-Pull Tube Guide             | KPFU0756    | 1        |

\* Builder modifies to make LH / RH parts

\*\* Builder Modifies

9/11/2018

REV. - ORIG



MD5651  
REV. - ORIG

**REF ID: A111111**  
**S-21 OUTBOUND**  
**FUSELAGE - STATION 9 - BULKHEAD ASSEMBLY**

# RANS S-21 OUTBOUND

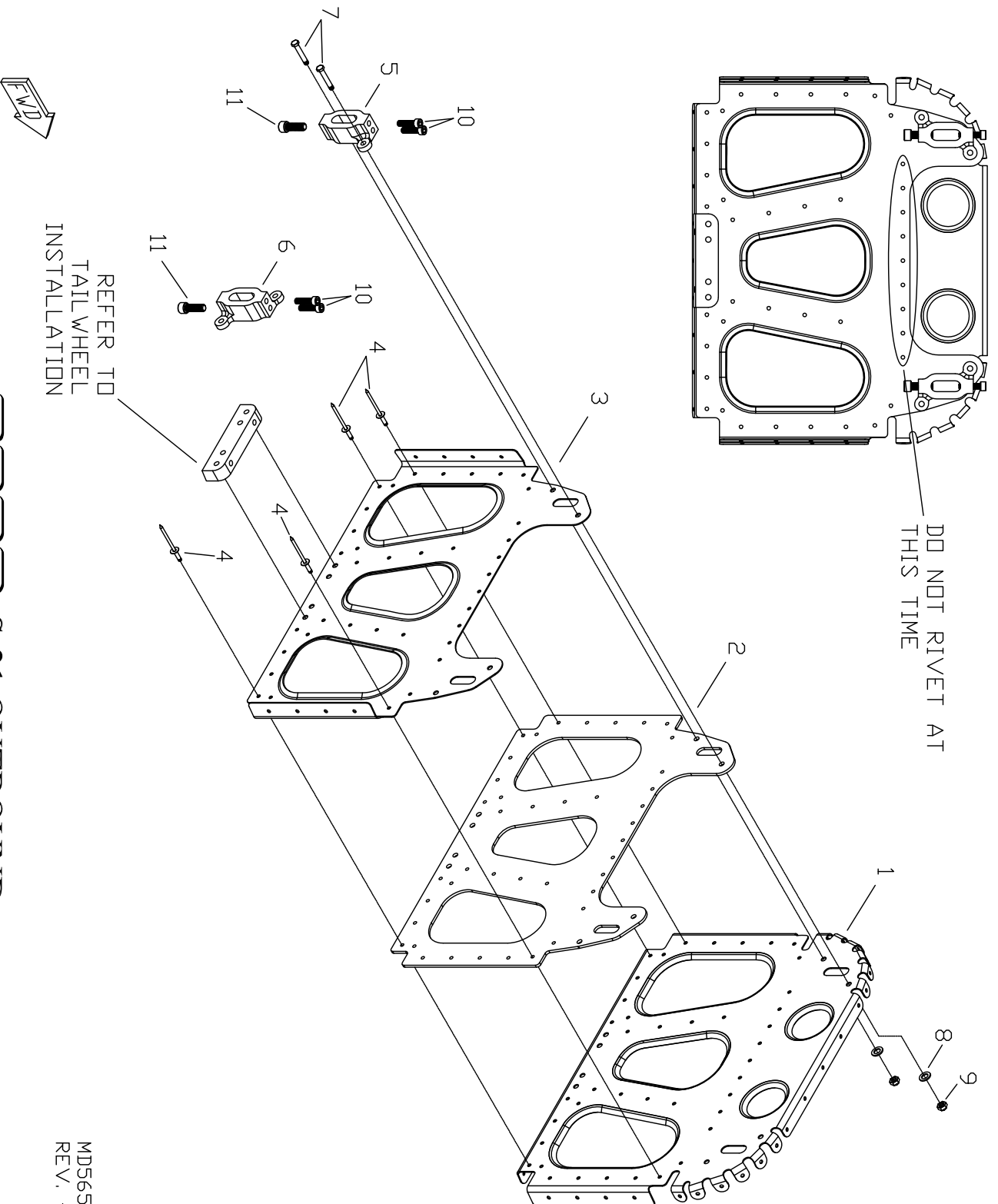
PAGE

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## FUSELAGE - STATION 9 - BULKHEAD ASSEMBLY

| #  | DESCRIPTION                    | PART NUMBER | QUANTITY |
|----|--------------------------------|-------------|----------|
| 1. | S-9 Bulkhead                   | KPFU0702    | 1        |
| 2. | S-9 Bulkhead Doubler           | KPFU0703    | 1        |
| 3. | 1/8" Aluminum Rivet - Cherry Q | AAPQ-43     | 42       |
| 4. | FWD Attach Block               | KPFU0697    | 1        |
| 5. | 3/16" Thin Washer              | AN960-10L   | 4        |
| 6. | 3/16" Bolt                     | AN3-5A      | 4        |
| 7. | 3/16" Shear Nut                | AN364-1032A | 4        |





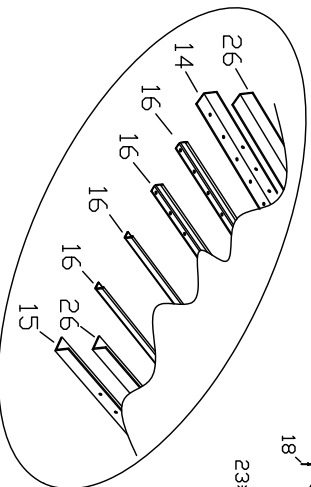
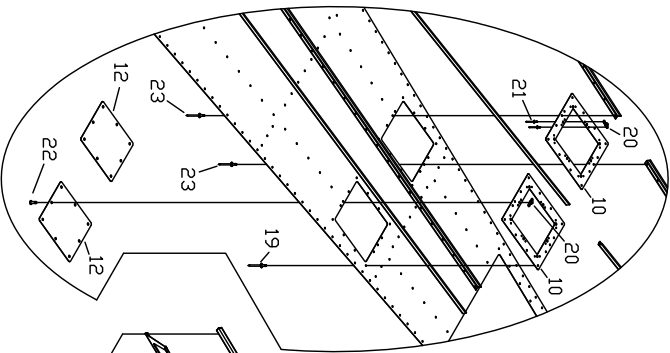
**REFINISH S-21 OUTBOUND  
FUSELAGE - STATION 10 - BULKHEAD ASSEMBLY**

MD5651  
REV. - ORIG

FUSELAGE - STATION 10 - BULKHEAD ASSEMBLY

| #   | DESCRIPTION                                   | PART NUMBER | QUANTITY |
|-----|-----------------------------------------------|-------------|----------|
| 1.  | S-10 Bulkhead                                 | KPFU0701    | 1        |
| 2.  | S-10 Bulkhead Doubler - FWD                   | KPFU0727    | 1        |
| 3.  | S-10 Bulkhead Doubler - AFT                   | KPFU0726    | 1        |
| 4.  | 1/8" Aluminum Rivet - Cherry Q                | AAPQ-43     | 32       |
| 5.  | Horizontal Stabilizer Incidence Adjustor - LH | KPHS0091-L  | 1        |
| 6.  | Horizontal Stabilizer Incidence Adjustor - RH | KPHS0091-R  | 1        |
| 7.  | 3/16" Bolt                                    | AN3-5A      | 4        |
| 8.  | 3/16" Thin Washer                             | AN960-10L   | 4        |
| 9.  | 3/16" Shear Nut                               | AN364-1032A | 4        |
| 10. | 3/16" Socket Head Cap Screw                   | KSHW0109    | 4        |
| 11. | 1/4" Socket Head Cap Screw                    | KSHW0110    | 2        |

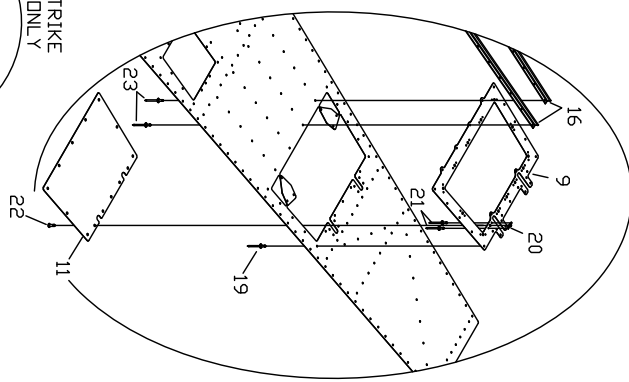
FWD TAILCONE ACCESS  
COVER ASSEMBLY



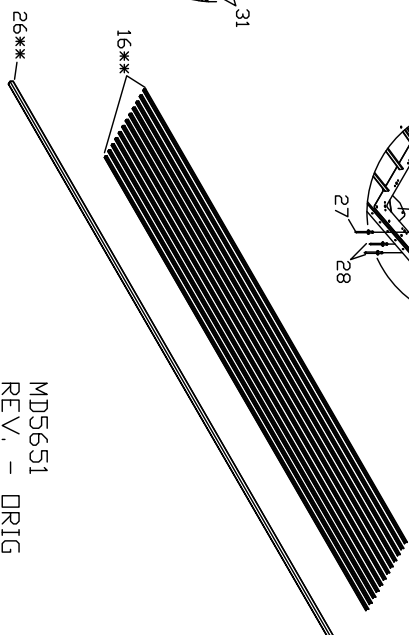
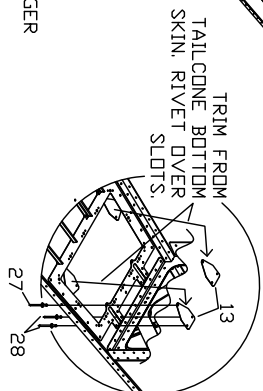
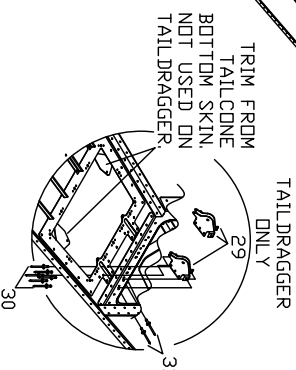
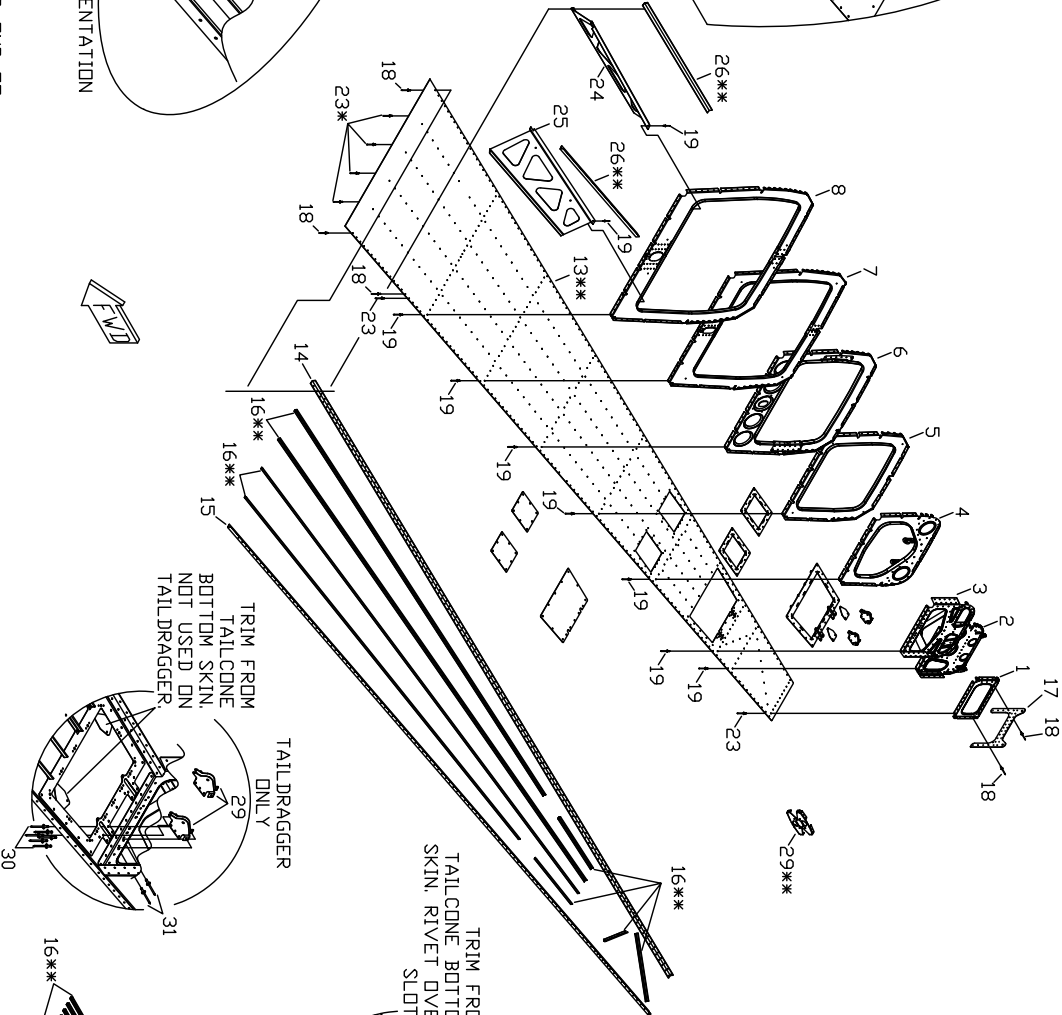
STRINGER & LONGERON ORIENTATION

\*DO NOT RIVET FORWARD END OF  
STRINGERS UNTIL MATED TO FUSELAGE  
CAGE & FUSELAGE BOTTOM SKIN

\*\* BUILDER MODIFIES



AFT TAILCONE  
ACCESS COVER  
ASSEMBLY



MD5651  
REV. - ORIG

S-21 OUTBOUND  
FUSELAGE - TAILCONE - BOTTOM SKIN ASSEMBLY

FUSELAGE - TAILCONE - BOTTOM SKIN ASSEMBLY

| #   | DESCRIPTION                          | PART NUMBER | QUANTITY |
|-----|--------------------------------------|-------------|----------|
| 1.  | S-11 Bulkhead                        | KPFU0732    | 1        |
| 2.  | Station 10 Bulkhead Assembly *       | -----       | 0        |
| 3.  | Station 9 Bulkhead Assembly *        | -----       | 0        |
| 4.  | Station 8 Bulkhead Assembly *        | -----       | 0        |
| 5.  | S-7 Bulkhead                         | KPFU0731    | 1        |
| 6.  | Station 6 Bulkhead Assembly *        | -----       | 0        |
| 7.  | Station 5 Bulkhead Assembly *        | -----       | 0        |
| 8.  | Station 4 Bulkhead Assembly *        | -----       | 0        |
| 9.  | Tailcone Access Cover Tab Ring - AFT | KPFU0736    | 1        |
| 10. | Tailcone Access Cover Tab Ring - FWD | KPFU0746    | 2        |
| 11. | Tailcone Access Cover - AFT          | KPFU0735    | 1        |
| 12. | Tailcone Access Cover - FWD          | KPFU0747    | 2        |
| 13. | Bottom Skin - Tailcone **            | KPFU0711    | 1        |
| 14. | Lower Longeron - RH                  | KPFU0709-R  | 1        |
| 15. | Lower Longeron - LH                  | KPFU0709-L  | 1        |
| 16. | Tailcone & Wing Stringer **          | KPFU0743    | 12       |
| 17. | AFT Horizontal Stabilizer Mount      | KPFU0733    | 1        |
| 18. | 1/8" Aluminum Rivet - Cherry Q       | AAPQ-43     | 51       |
| 19. | 1/8" Aluminum Rivet - Cherry Q       | AAPQ-41     | 144      |
| 20. | 8-32 Nut Plate                       | MS21047-08  | 30       |
| 21. | 3/32" Aluminum Rivet                 | 40APR1/8    | 60       |
| 22. | 8-32 Machine Screw                   | AN526-832R6 | 30       |
| 23. | 1/8" Aluminum Rivet - Cherry Q       | AAPQ-42     | 432      |
| 24. | S-3 to S-4 Support - R               | KPFU0708-R  | 1        |
| 25. | S-3 to S-4 Support - L               | KPFU0708-L  | 1        |
| 26. | Stiffener Angle - Tailcone **        | KPFU0748    | 1        |
| 27. | 1/8" Aluminum Rivet - Flush ***      | AACQ-42     | 2        |
| 28. | 1/8" Aluminum Rivet - Cherry Q ***   | AAPQ-41     | 4        |
| 29. | Tailwheel Cable Pulley Mount ** **** | KPFU0754    | 1        |
| 30. | 1/8" Aluminum Rivet - Cherry Q ****  | AAPQ-42     | 12       |
| 31. | 1/8" Aluminum Rivet - Cherry Q ****  | AAPQ-43     | 4        |

\* Refer to respective Bulkhead Assembly Parts pages

\*\* Builder Modifies

\*\*\* Trike only - Supplied with Trike Gear Kit

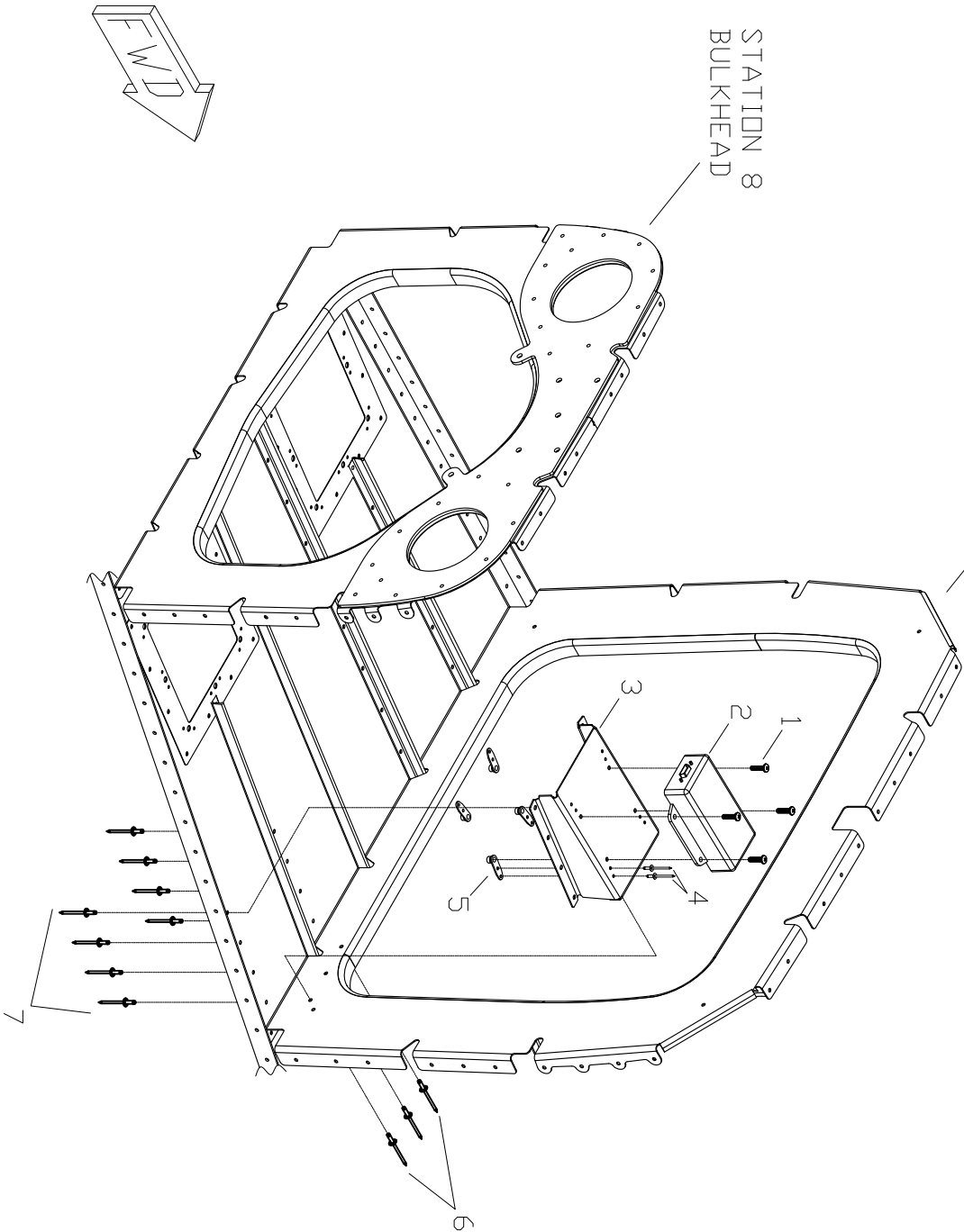
\*\*\*\* Taildragger Only - Supplied with Taildragger Gear Kit

9/11/2018

REV. - ORIG

STATION 7  
BULKHEAD

STATION 8  
BULKHEAD



REVISION S-21 OUTBOUND

FUSELAGE - OPTIONS - GARMIN GMU11 MAGNETOMETER MOUNT

MD5651  
REV. - ORIG

FUSELAGE - OPTIONS - GARMIN GMU11 MAGNETOMETER MOUNT

KAAV0004

| #  | DESCRIPTION                        | PART NUMBER | QUANTITY |
|----|------------------------------------|-------------|----------|
| 1. | #6 Stainless Steel Machine Screw * | ----        | 0        |
| 2. | GARMIN GMU11 Magnetometer * **     | ----        | 0        |
| 3. | Magnetometer Mount (Garmin GMU11)  | KPFU0763    | 1        |
| 4. | 3/32" Aluminum Rivet               | 40APR1/8    | 8        |
| 5. | 6-32 Single-Ear Nut Plate          | K-2000-06   | 4        |
| 6. | 1/8" Aluminum Rivet - Cherry Q     | AAPQ-42     | 3        |
| 7. | 1/8" Aluminum Rivet - Cherry Q     | AAPQ-41     | 8        |

\* Supplied with Garmin GMU11

\*\* Builder Supplied



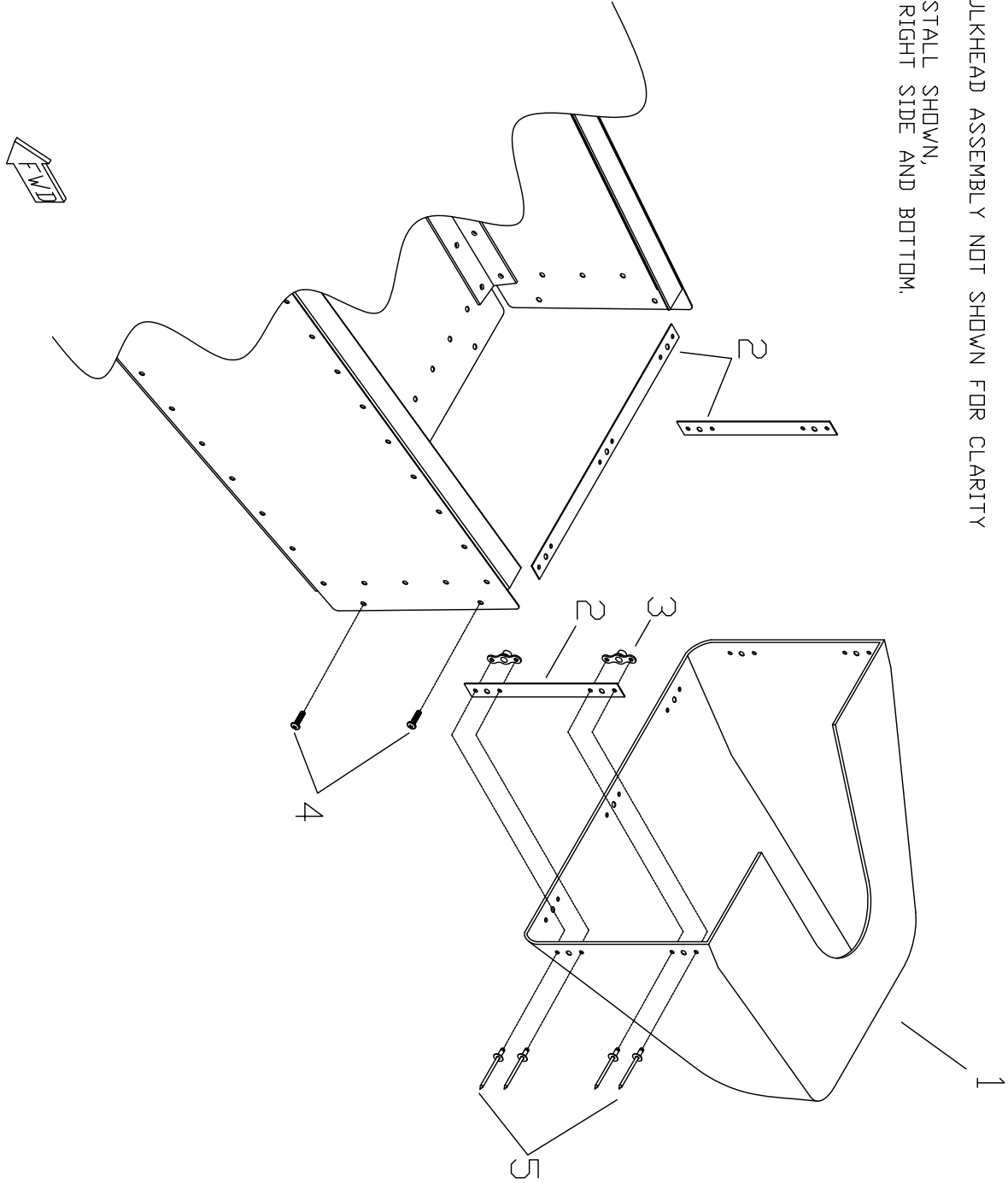
FUSELAGE - TAILCONE - SIDE & TOP SKIN ASSEMBLY

| #   | DESCRIPTION                           | PART NUMBER | QUANTITY |
|-----|---------------------------------------|-------------|----------|
| 1.  | S-10/11 Closeout                      | KPFU0765    | 1        |
| 2.  | Tailcone & Wing Stringer *            | KPFU0743    | 0        |
| 3.  | Top Skin - Tailcone - LH              | KPFU0699-L  | 1        |
| 4.  | Top Skin - Tailcone - RH              | KPFU0699-R  | 1        |
| 5.  | Side Longeron - LH                    | KPFU0710-L  | 1        |
| 6.  | Side Longeron - RH                    | KPFU0710-R  | 1        |
| 7.  | Side Skin - Tailcone                  | KPFU0700    | 2        |
| 8.  | Stiffener Angle - Tailcone *          | KPFU0748    | 0        |
| 9.  | Window Retainer - Tailcone            | KPFU0738    | 2        |
| 10. | Window - Tailcone                     | KPFU0722    | 2        |
| 11. | Window Spacer - Tailcone              | KPFU0737    | 2        |
| 12. | Top FWD Skin - Tailcone - LH          | KPFU0698-L  | 1        |
| 13. | Top FWD Skin - Tailcone - RH          | KPFU0698-R  | 1        |
| 14. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-41     | 259      |
| 15. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-42     | 782      |
| 16. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-43     | 37       |
| 17. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-44     | 13       |
| 18. | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-43     | 6        |
| 19. | S-10/11 Closeout Angle                | KPFU0764    | 1        |

\* Builder Modifies



STATION 11 BULKHEAD ASSEMBLY NOT SHOWN FOR CLARITY  
LEFT SIDE INSTALL SHOWN,  
TYPICAL FOR RIGHT SIDE AND BOTTOM.



**REFUND S-21 OUTBOUND**

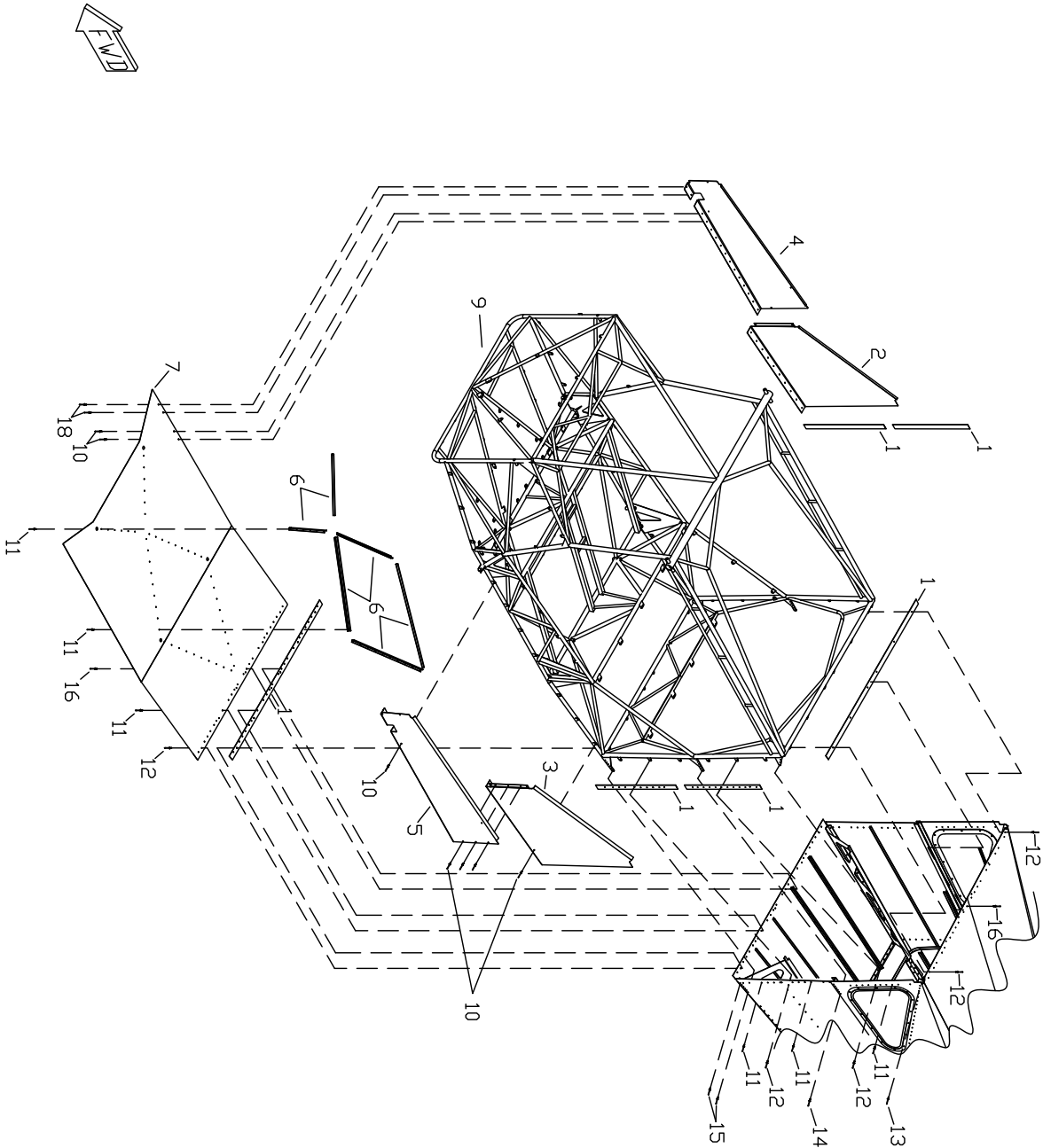
**FUSELAGE - TAILCONE - AFT CLOSEOUT INSTALLATION**

MD5651  
REV. - ORIG

FUSELAGE - TAILCONE - AFT CLOSEOUT INSTALLATION

| #  | DESCRIPTION                        | PART NUMBER  | QUANTITY |
|----|------------------------------------|--------------|----------|
| 1. | Tailcone AFT Closeout              | KPFU0757     | 1        |
| 2. | Aft Closeout Reinforcement Strip * | KPFU0760     | 1        |
| 3. | 8-32 Nut Plate                     | MS21047-08   | 7        |
| 4. | 8-32 Machine Screw                 | AN526-832R10 | 7        |
| 5. | 3/32" Aluminum Rivet               | 40APR1/8     | 14       |

\* Builder Modifies



S-21 OUTBOUND

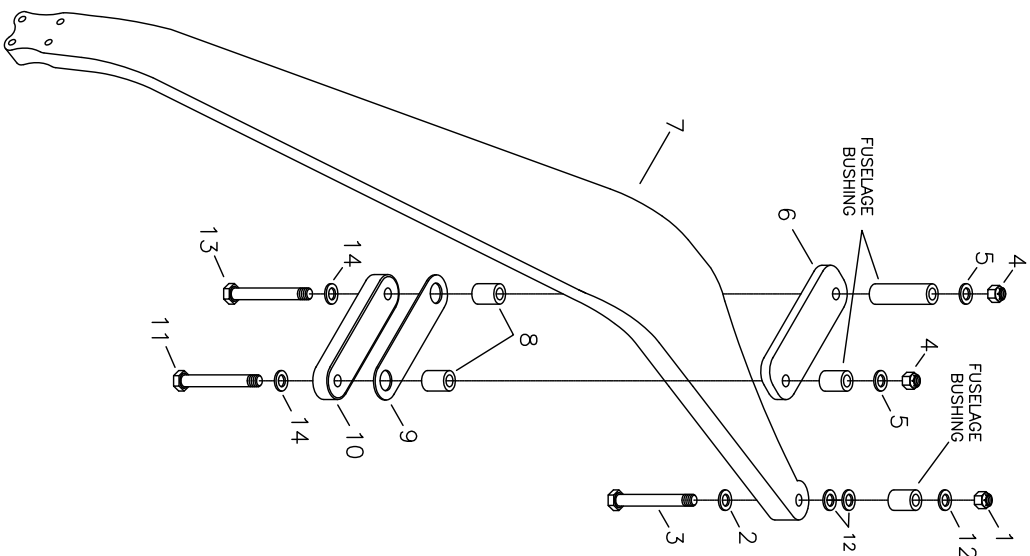
FUSELAGE - SKINS AND TAILCONE MATING INSTALLATION

MD5651  
REV. - ORIG

FUSELAGE - SKINS AND TAILCONE MATING INSTALLATION

| #   | DESCRIPTION                           | PART NUMBER | QUANTITY |
|-----|---------------------------------------|-------------|----------|
| 1.  | Tailcone Spacer Strip                 | KPFU0749    | 4        |
| 2.  | Fuselage Side Skin - Rear - RH        | KPFU0713-R  | 1        |
| 3.  | Fuselage Side Skin - Rear - LH        | KPFU0713-L  | 1        |
| 4.  | Fuselage Side Skin - Front - RH       | KPFU0712-R  | 1        |
| 5.  | Fuselage Side Skin - Front - LH       | KPFU0712-L  | 1        |
| 6.  | Tailcone & Wing Stringer *            | KPFU0743    | 0        |
| 7.  | Fuselage Bottom Skin                  | KPFU0745    | 1        |
| 9.  | S-21 Fuselage Cage Assembly           | KAFU0062    | 1        |
| 10. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-41     | 66       |
| 11. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-42     | 124      |
| 12. | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-42     | 25       |
| 13. | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-43     | 6        |
| 14. | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-44     | 12       |
| 15. | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-45     | 12       |
| 16. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-43     | 9        |
| 17. | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-41     | 14       |
| 18. | 1/8" Aluminum Rivet - Flush           | AACQ-42     | 20       |

\* Builder Modifies



REF S-21 OUTBOUND  
TAILDRAGGER - MAIN GEAR INSTALLATION

MD5581  
REV. - ORIG

# RANS S-21 OUTBOUND

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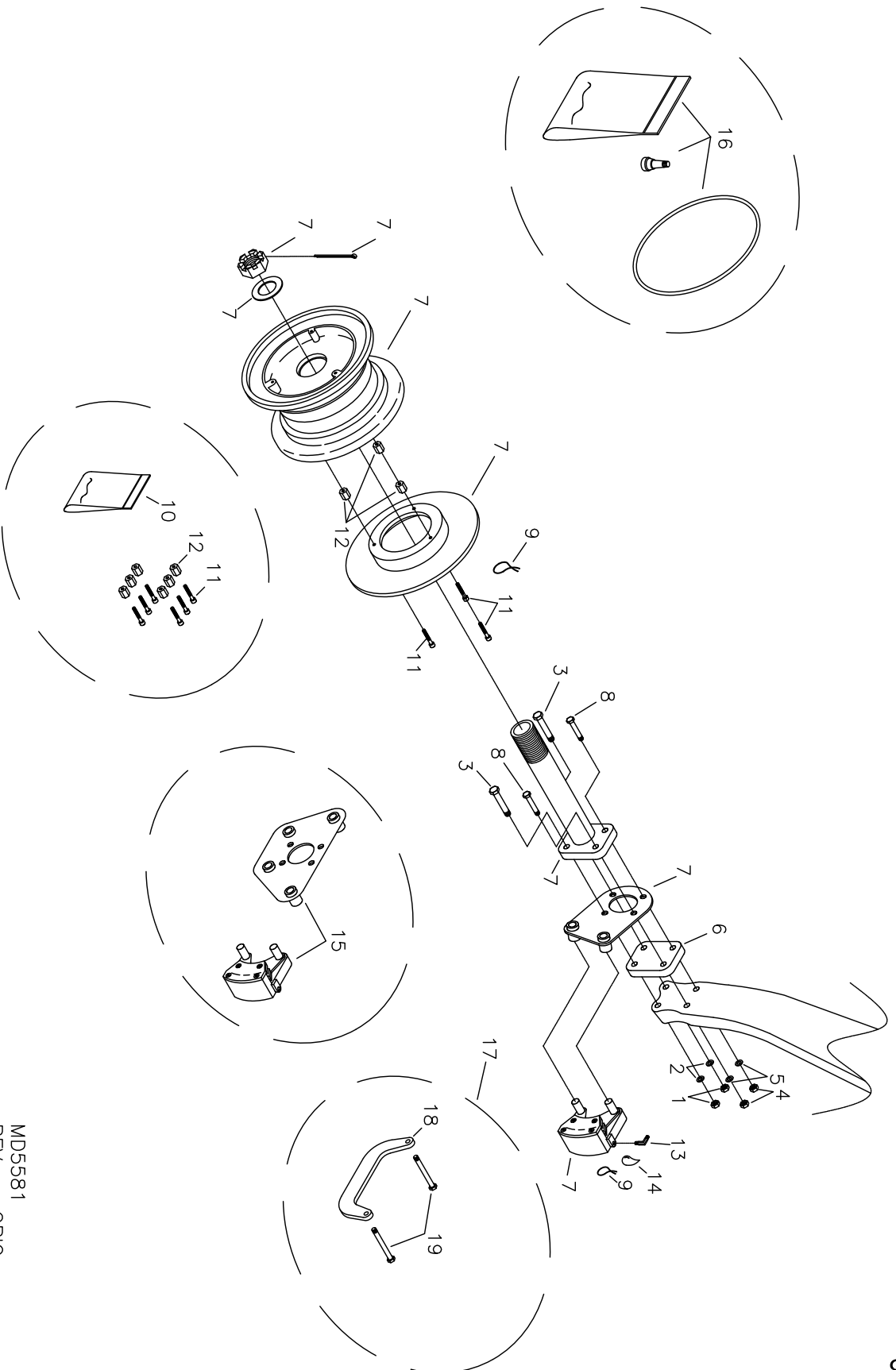
## TAILDRAGGER - MAIN GEAR INSTALLATION

### TAILDRAGGER ONLY

| #   | DESCRIPTION                  | PART NUMBER | QUANTITY |
|-----|------------------------------|-------------|----------|
| 1.  | 3/8" Tensile Nut             | AN365-624A  | 2        |
| 2.  | 3/8" Thin Washer             | AN960-616L  | 2        |
| 3.  | 3/8" Bolt                    | AN6-31A     | 2        |
| 4.  | 5/16" Tensile Nut            | AN365-524A  | 4        |
| 5.  | 5/16" Thick Washer           | AN960-516   | 4        |
| 6.  | Top Main Gear Clamp Plate    | KPMG0206    | 2        |
| 7.  | Gear Leg - Taildragger - RH  | KPMG0227-R  | 1        |
| 7.  | Gear Leg - Taildragger - LH  | KPMG0227-L  | 1        |
| 8.  | Landing Gear Spacer Bushing  | KPMG0179    | 4        |
| 9.  | Main Gear Anti-chafe Strip   | KPMG0216    | 2        |
| 10. | Bottom Main Gear Clamp Plate | KPMG0208    | 2        |
| 11. | 5/16" Bolt                   | AN5-32A     | 2        |
| 12. | 3/8" Thick Washer            | AN960-616   | 6        |
| 13. | 5/16" Bolt                   | AN5-40A     | 2        |
| 14. | 5/16" Thin Washer            | AN960-516L  | 4        |

9/11/2018

REV. - ORIG



# REAR S-21 OUTBOUND

## TAILDRAGGER - WHEEL AND BRAKE INSTALLATION

MD5581  
REV. - ORIG

TAILDRAGGER - WHEEL & BRAKE INSTALLATION

## TAILDRAGGER ONLY

| #   | DESCRIPTION                                        | PART NUMBER           | QUANTITY |
|-----|----------------------------------------------------|-----------------------|----------|
| 1.  | 3/8" Tensile Nut                                   | AN365-624A            | 4        |
| 2.  | 3/8" Thick Washer                                  | AN960-616             | 4        |
| 3.  | 3/8" Bolt                                          | AN6-30A               | 4        |
| 4.  | 5/16" Tensile Nut                                  | AN365-524A            | 4        |
| 5.  | 5/16" Thick Washer                                 | AN960-516             | 4        |
| 6.  | Axle Spacer - 1/2"                                 | KSMG0027              | 2        |
| 7.  | Hydraulic Brake Assembly - 6"                      | KSBS0030              | 2        |
| 8.  | 5/16" Bolt                                         | AN5-27A               | 4        |
| 9.  | Safety Wire *                                      | -----                 | 0        |
| 10. | MATCO Adaptor Kit                                  | KSBS0032              | 1        |
| 11. | Socket Head Cap Screw **                           | -----                 | 0        |
| 12. | Disc Spacer **                                     | -----                 | 0        |
| 13. | 45-degree Elbow - Flare 1/4" Tube to 1/8" NPT      | AN823-4D              | 2        |
| 14. | Thread Sealant *                                   | -----                 | 0        |
| 15. | MATCO Dual Caliper Conversion Kit - OPTIONAL ***   | KSBS0047              | 0        |
| 16. | MATCO Tubeless Kit for 6" Wheel (-2 if tubes) **** | KSBS0043              | 2        |
| 17. | Knight Rock Guard Kit - OPTIONAL ***               | KNIGHT ROCK GUARD KIT | 1        |
| 18. | Dual Brake Rock Guard *****                        | KPMG0231              | 0        |
| 19. | 1/4" Bolt *****                                    | AN4-20A               | 0        |

\* Builder Supplied    \*\* Supplied with KSBS0032

\*\*\* May be purchased seperately, call RANS Parts Dept. for pricing

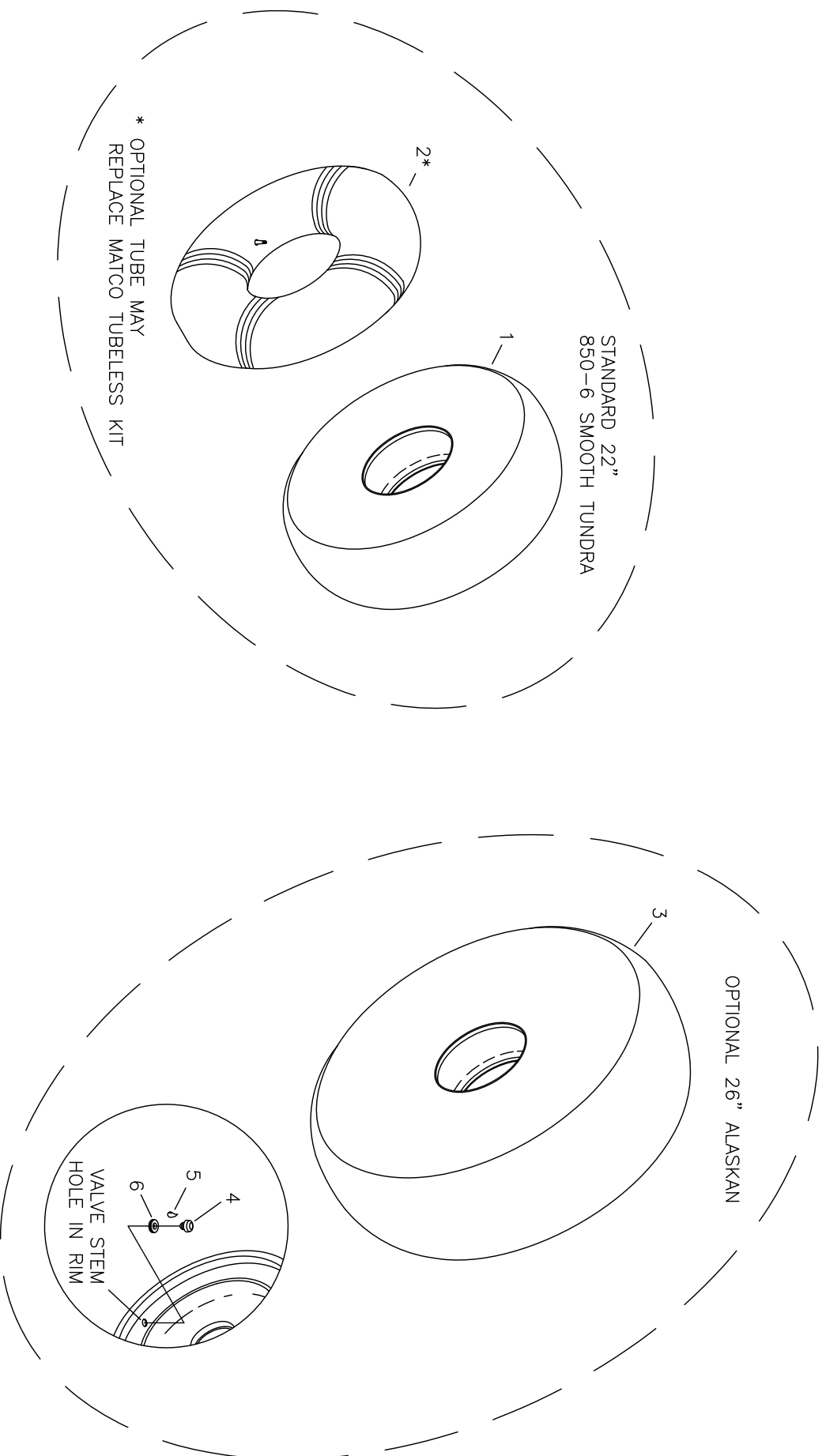
\*\*\*\* Tubeless Kit Standard - Tube may replace Tubeless Kit

\*\*\*\*\* Supplied with KNIGHT ROCK GUARD KIT

9/11/2018

REV. - ORIG





**REAR S-21 OUTBOUND  
TAILDRAGGER - 6" TIRES**

# RANS S-21 OUTBOUND

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## TAILDRAGGER - 6" TIRES

### TAILDRAGGER ONLY

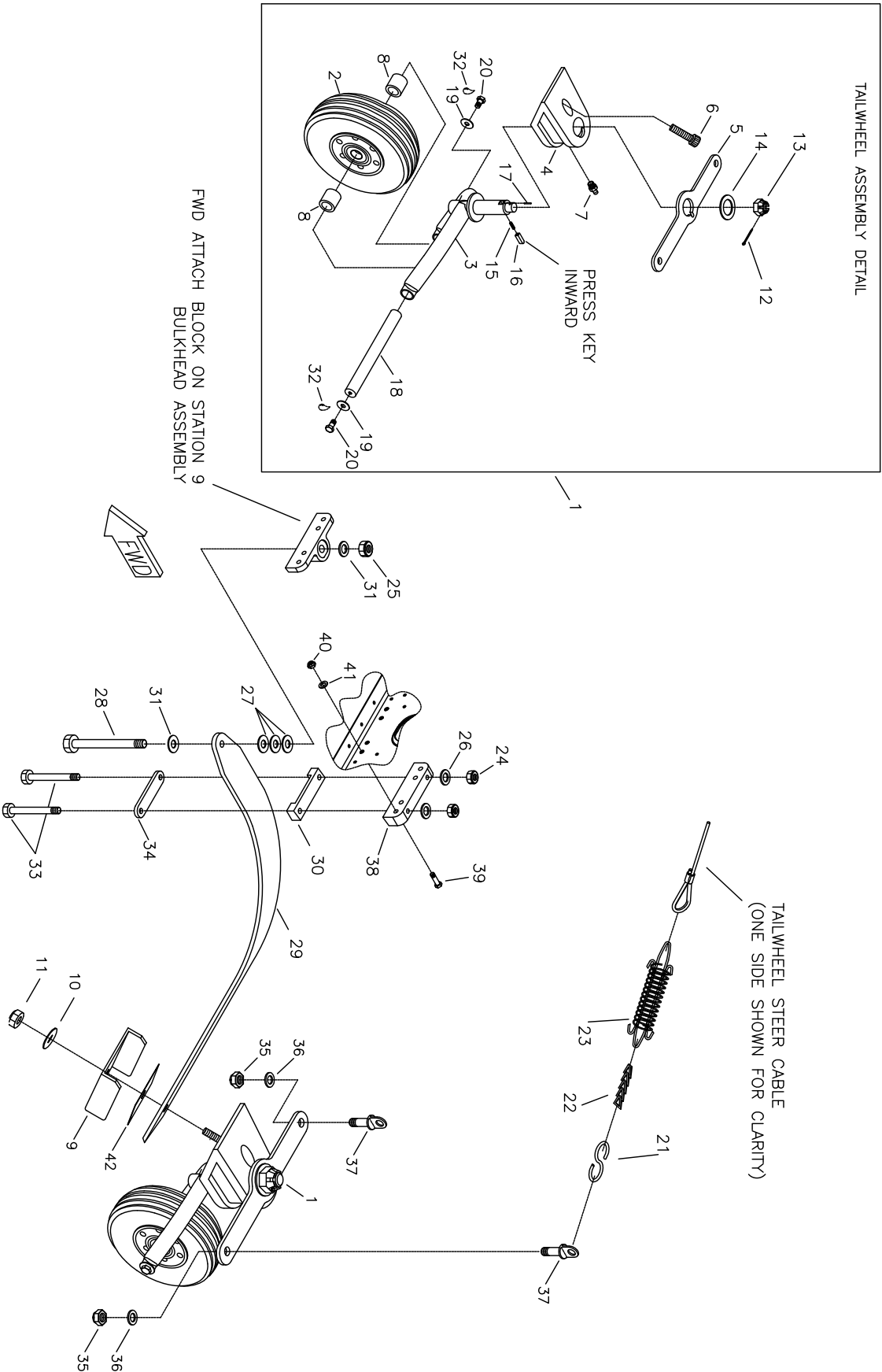
| #  | DESCRIPTION                                               | PART NUMBER | QUANTITY |
|----|-----------------------------------------------------------|-------------|----------|
| 1. | 22" 850-6 Smooth Tundra Tire                              | KSMG0030    | 2        |
| 2. | 850-6 Tundra Tube - OPTIONAL (-2 KSBS0043) *              | KSMG0031    | 2        |
| 3. | 26" Alaskan Tire - OPTIONAL (-2 KSMG0030 & -2 KSBS0043) * | KSMG0028    | 2        |
| 4. | Grommet Plug                                              | 9K13-DRBUMP | 2        |
| 5. | Adhesive - Superglue **                                   | -----       | 0        |
| 6. | Rubber Grommet                                            | MS35489-6   | 2        |

\* May be purchased separately, call RANS Parts Dept. for pricing

\*\* Builder Supplied

9/11/2018

REV. - ORIG



**REVISION S-21 OUTBOUND  
TAILDRAGGER - 8" TAILWHEEL INSTALLATION**

MD4170  
REV. - ORIG

# RANS S-21 OUTBOUND

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## TAILDRAGGER - 8" TAILWHEEL INSTALLATION

### TAILDRAGGER ONLY

| #   | DESCRIPTION                               | PART NUMBER  | QUANTITY |
|-----|-------------------------------------------|--------------|----------|
| 1.  | 8" Pneumatic Tailwheel Assembly           | KATG0006     | 1        |
| 2.  | Tailwheel *                               | KSTG0010     | 0        |
| 3.  | Tailwheel - Fork *                        | KPTG0039     | 0        |
| 4.  | Tailwheel - Swivel Block *                | KPTG0003     | 0        |
| 5.  | Tailwheel - Steer Horn *                  | KPTG0004     | 0        |
| 6.  | Socket Head Cap Screw *                   | KSHW0058     | 0        |
| 7.  | Grease Fitting *                          | 11-151       | 0        |
| 8.  | Spacer Bushing - 3/4" X .058" Alum Tube * | -----        | 0        |
| 9.  | Tailwheel - Spring Channel *              | KPTG0007     | 0        |
| 10. | 3/8" Thick Washer *                       | AN960-616    | 0        |
| 11. | 3/8" Tensile Loc Nut *                    | AN363-624A   | 0        |
| 12. | Large Cotter Pin *                        | MS24665-285  | 0        |
| 13. | 1/2" Castle Nut *                         | AN320-8      | 0        |
| 14. | 1/2" Thick Washer *                       | MS27183-17   | 0        |
| 15. | Tailwheel - Tension Spring *              | KSTG0003     | 0        |
| 16. | Tailwheel - Tension Key *                 | KPTG0006     | 0        |
| 17. | Tailwheel - Spring Pin *                  | T19-094-0625 | 0        |
| 18. | Axle *                                    | KPTG0040     | 0        |
| 19. | 3/16" Large Washer *                      | AN970-3      | 0        |
| 20. | 3/16" Bolt *                              | AN3-3A       | 0        |
| 21. | S-Hook - Steer Horn                       | TW-SHOOK     | 2        |
| 22. | Chain - Steer Horn **                     | TW-C         | 1        |
| 23. | Spring - Steer Horn                       | TW-S-SPR     | 2        |
| 24. | 3/16" Tensile Nut                         | AN365-1032A  | 2        |
| 25. | 5/16" Tensile Nut                         | AN365-524A   | 1        |
| 26. | 3/16" Thick Washer                        | AN960-10     | 2        |
| 27. | 5/16" Thick Washer                        | AN960-516    | 3        |
| 28. | 5/16" Bolt                                | AN5-16A      | 1        |
| 29. | Tail Spring                               | KPTG0042     | 1        |
| 30. | Tailspring - AFT Lower Saddle Block       | KPTG0041     | 1        |
| 31. | 5/16" Thin Washer                         | AN960-516L   | 2        |
| 32. | Loctite Blue ***                          | -----        | 0        |
| 33. | 3/16" Bolt                                | AN3-17A      | 2        |
| 34. | Gear Strap                                | KPTG0036     | 1        |
| 35. | 1/4" Shear Nut                            | AN364-428A   | 2        |
| 36. | 1/4" Thick Washer                         | AN960-416    | 2        |
| 37. | 1/4" Eyebolt                              | AN43B-5A     | 2        |
| 38. | Tailspring - AFT Attach Block             | KPFU0739     | 1        |
| 39. | 3/16" Bolt                                | AN3-10A      | 4        |
| 40. | 3/16" Shear Nut                           | AN364-1032A  | 4        |
| 41. | 3/16" Thin Washer                         | AN960-10L    | 4        |
| 42. | Tailwheel Channel Shim                    | KPTG0043     | 1        |

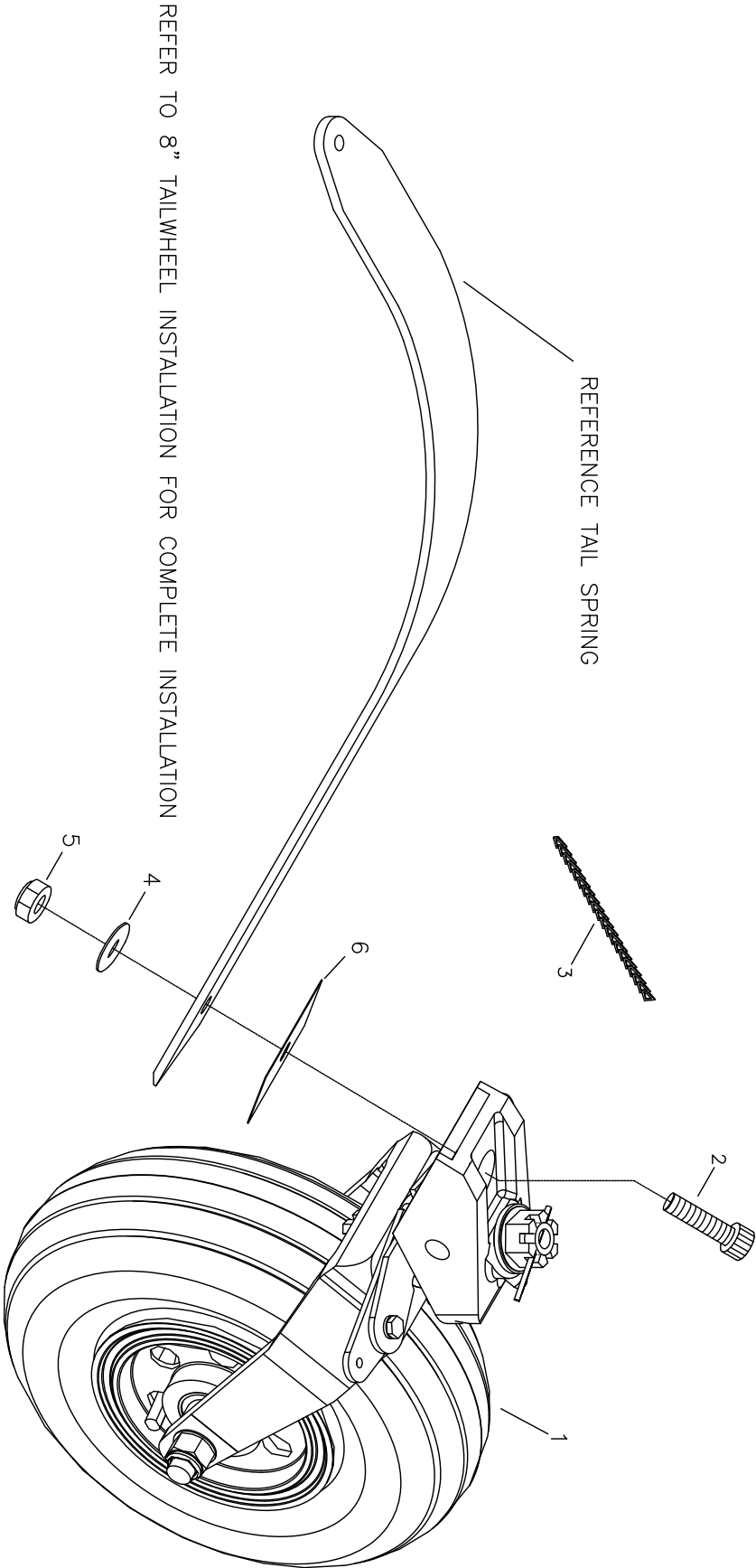
\* Part of 8" Pneumatic Tailwheel Assembly (KATG0006).

\*\* Builder Modifies

\*\*\* Builder Supplied

9/11/2018

REV. - ORIG



REFER TO 8" TAILWHEEL INSTALLATION FOR COMPLETE INSTALLATION



REFINDES S-21 OUTBOUND

TAILDRAGGER - OPTIONS - 10" TAILWHEEL INSTALLATION

MD4170  
REV. - ORIG

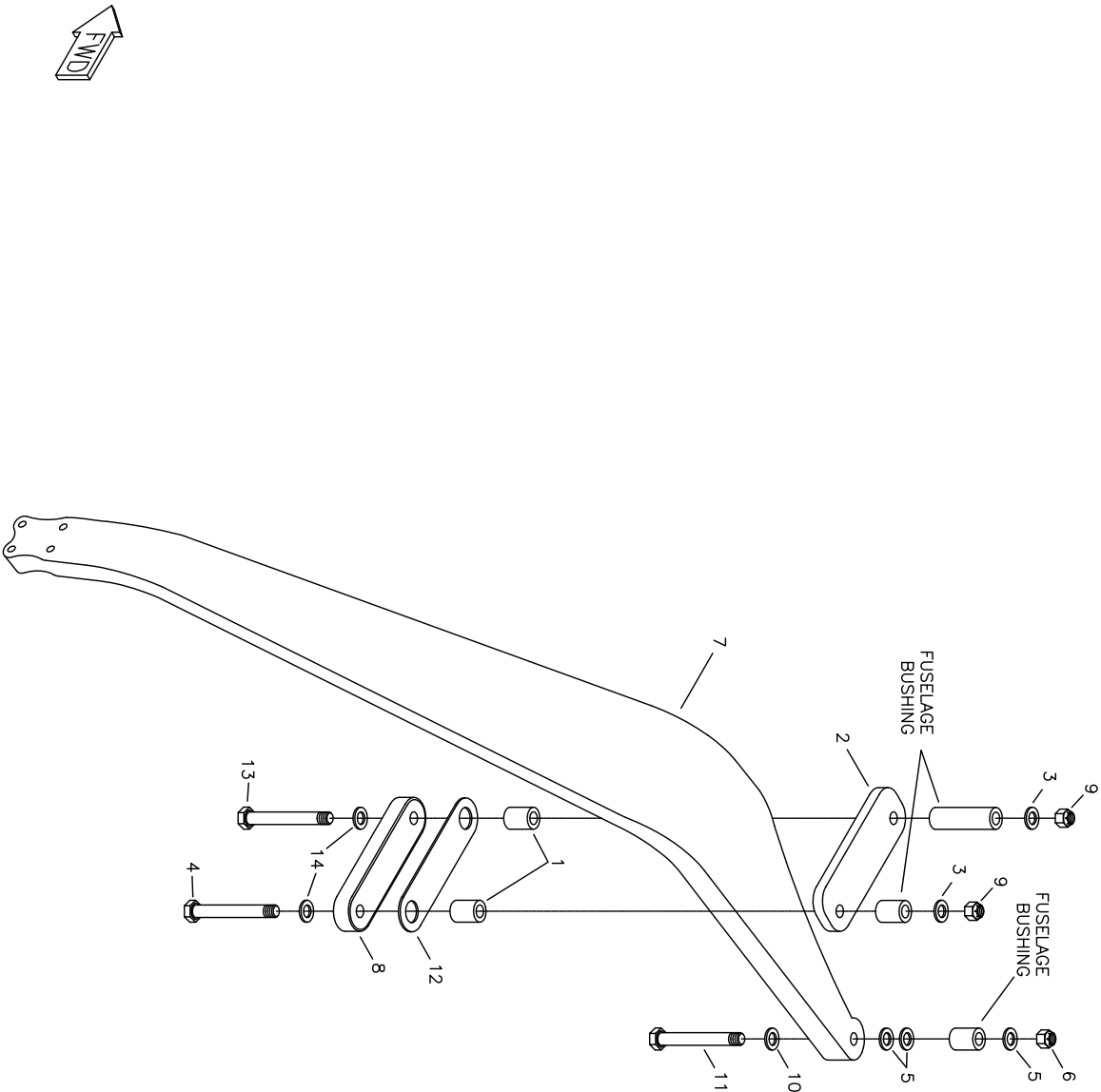
MD4170

TAILDRAGGER - OPTIONS - 10" TAILWHEEL INSTALLATION

## TAILDRAGGER ONLY

| #  | DESCRIPTION                                      | PART NUMBER | QUANTITY |
|----|--------------------------------------------------|-------------|----------|
| 1. | 10" Pneumatic Tailwheel Assembly * (-1 KATG0006) | KSTG0011    | 1        |
| 2. | Socket head Cap Screw                            | KSHW0058    | 1        |
| 3. | Chain - Steer Horn                               | TW-C        | 1        |
| 4. | 3/8" Thick Washer                                | AN960-616   | 1        |
| 5. | 3/8" Tensile Loc-Nut                             | AN363-624A  | 1        |
| 6. | Tailwheel Channel Shim                           | KPTG0043    | 1        |

\* Replaces KATG0006 Tailwheel Assembly



REF ID: A12345 S-21 OUTBOUND  
TRIKE - MAIN GEAR INSTALLATION

# RANS S-21 OUTBOUND

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008A-02

## TRIKE - MAIN GEAR INSTALLATION

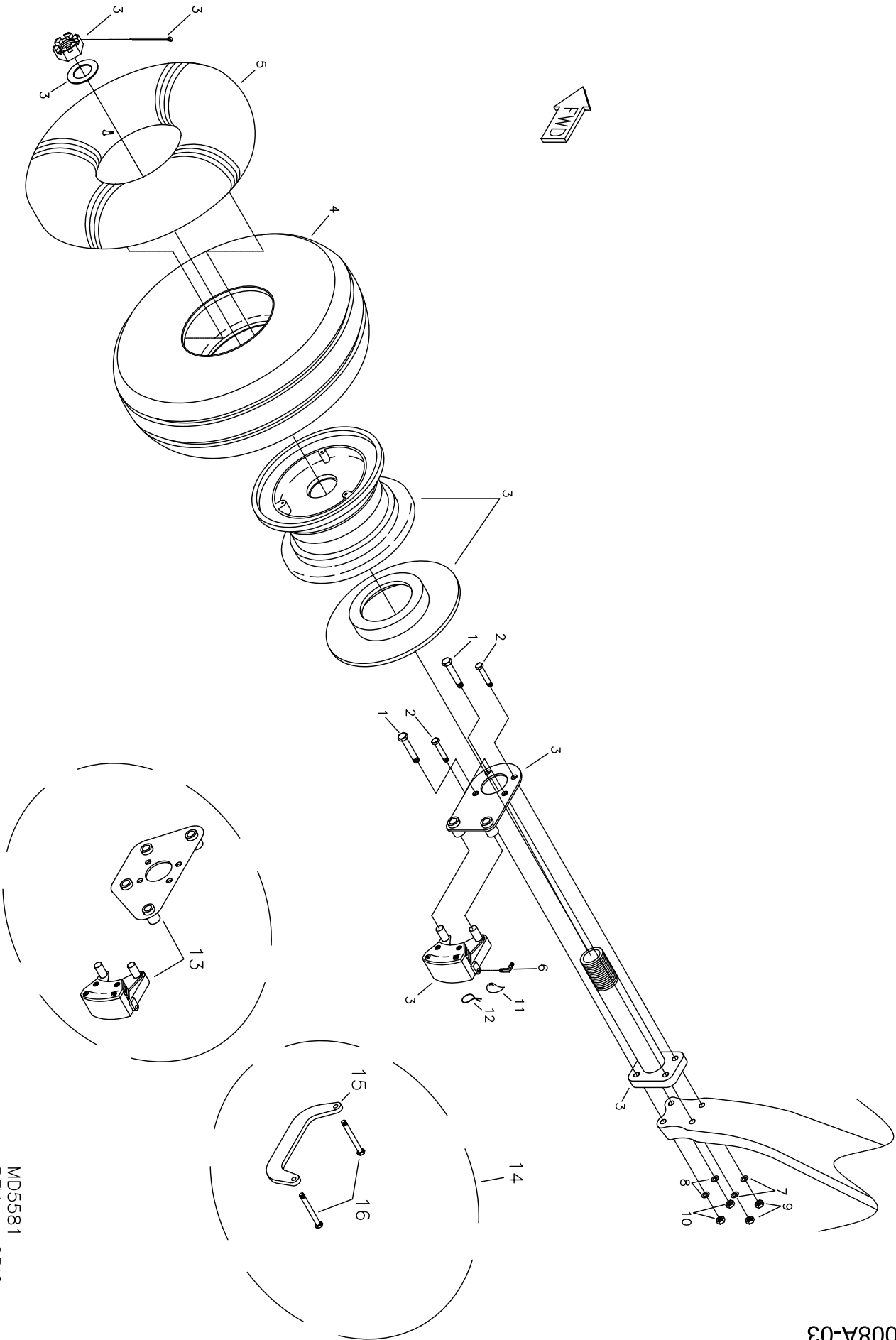
### TRIKE ONLY

| #   | DESCRIPTION                  | PART NUMBER | QUANTITY |
|-----|------------------------------|-------------|----------|
| 1.  | Landing Gear Spacer Bushing  | KPMG0179    | 4        |
| 2.  | Top Main Gear Clamp Plate    | KPMG0206    | 2        |
| 3.  | 5/16" Thick Washer           | AN960-516   | 4        |
| 4.  | 5/16" Bolt                   | AN5-32A     | 2        |
| 5.  | 3/8" Thick Washer            | AN960-616   | 6        |
| 6.  | 3/8" Tensile Nut             | AN365-624A  | 2        |
| 7.  | Gear Leg - Trike - LH        | KPMG0228-L  | 1        |
| 7.  | Gear Leg - Trike - RH        | KPMG0228-R  | 1        |
| 8.  | Bottom Main Gear Clamp Plate | KPMG0208    | 2        |
| 9.  | 5/16" Tensile Nut            | AN365-524A  | 4        |
| 10. | 3/8" Thin Washer             | AN960-616L  | 2        |
| 11. | 3/8" Bolt                    | AN6-31A     | 2        |
| 12. | Main Gear Anti-chafe Strip   | KPMG0216    | 2        |
| 13. | 5/16" Bolt                   | AN5-40A     | 2        |
| 14. | 5/16" Thin Washer            | AN960-516L  | 4        |

9/11/2018

REV. - ORIG





# REFINISH S-21 OUTBOUND

## TRIKE - STANDARD - WHEEL AND BRAKE INSTALLATION

MD5581  
REV. — ORIG

# RANS S-21 OUTBOUND

PAGE

008A-04

## TRIKE - STANDARD - WHEEL AND BRAKE INSTALLATION

### TRIKE ONLY

| #   | DESCRIPTION                                     | PART NUMBER           | QUANTITY |
|-----|-------------------------------------------------|-----------------------|----------|
| 1.  | 3/8" Bolt                                       | AN6-24A               | 4        |
| 2.  | 5/16" Bolt                                      | AN5-23A               | 4        |
| 3.  | Hydraulic Brake Assembly, 6"                    | KSBS0030              | 2        |
| 4.  | 600 x 6 Tire                                    | KSMG0008              | 2        |
| 5.  | 600 x 6 Tube                                    | KSMG0016              | 2        |
| 6.  | 45-degree Elbow - Flare 1/4" Tube to 1/8" NPT   | AN823-4D              | 2        |
| 7.  | 5/16" Thick Washer                              | AN960-516             | 4        |
| 8.  | 3/8" Thick Washer                               | AN960-616             | 4        |
| 9.  | 5/16" Tensile Nut                               | AN365-524A            | 4        |
| 10. | 3/8" Tensile Nut                                | AN365-624A            | 4        |
| 11. | Thread Sealant *                                | -----                 | 0        |
| 12. | Safety Wire *                                   | -----                 | 0        |
| 13. | MATCO Dual Caliper Conversion Kit - OPTIONAL ** | KSBS0047              | 0        |
| 14. | Knight Rock Guard Kit - OPTIONAL **             | KNIGHT ROCK GUARD KIT | 1        |
| 15. | Dual Brake Rock Guard ***                       | KPMG0231              | 0        |
| 16. | 1/4" Bolt ***                                   | AN4-20A               | 0        |

\* Builder Supplied

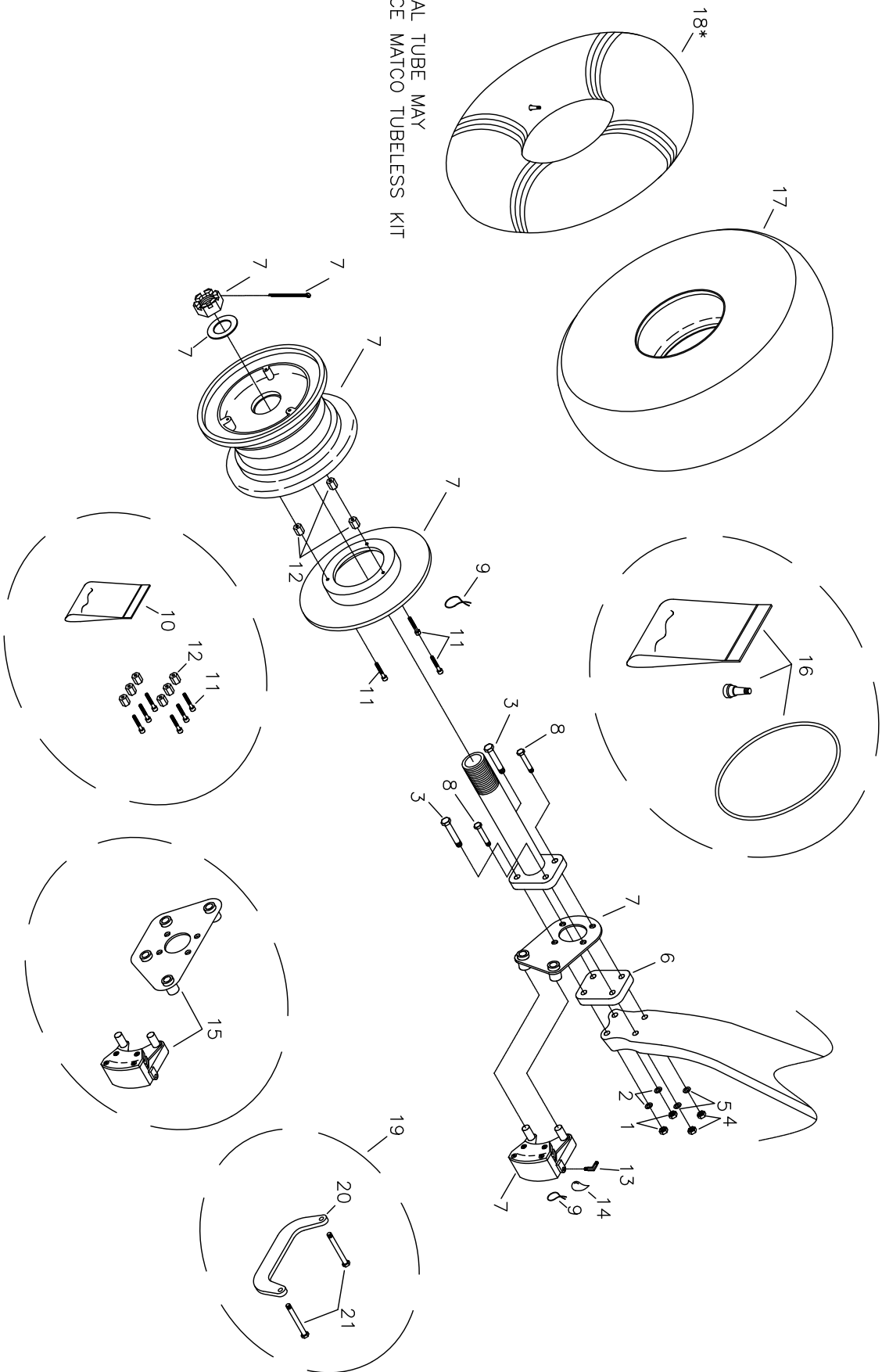
\*\* May be purchased seperately, call RANS Parts Dept. for pricing

\*\*\* Supplied with KNIGHT ROCK GUARD KIT

9/11/2018

REV. - ORIG

\* OPTIONAL TUBE MAY  
REPLACE MATCO TUBELESS KIT



RRR S-21 OUTBOUND

TRIKE - OPTIONS - TUNDRA - WHEEL AND BRAKE INSTALLATION

MD5581  
REV. - ORIG

# RANS S-21 OUTBOUND

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008A-04B

## TRIKE - OPTIONS - TUNDRA - WHEEL AND BRAKE INSTALLATION

TRIKE ONLY KAAC0110

| #   | DESCRIPTION                                            | PART NUMBER           | QUANTITY |
|-----|--------------------------------------------------------|-----------------------|----------|
| 1.  | 3/8" Tensile Nut                                       | AN365-624A            | 4        |
| 2.  | 3/8" Thick Washer                                      | AN960-616             | 4        |
| 3.  | 3/8" Bolt                                              | AN6-30A               | 4        |
| 4.  | 5/16" Tensile Nut                                      | AN365-524A            | 4        |
| 5.  | 5/16" Thick Washer                                     | AN960-516             | 4        |
| 6.  | Axle Spacer - 1/2"                                     | KSMG0027              | 2        |
| 7.  | Hydraulic Brake Assembly - 6"                          | KSBS0030              | 2        |
| 8.  | 5/16" Bolt                                             | AN5-27A               | 4        |
| 9.  | Safety Wire *                                          | -----                 | 0        |
| 10. | MATCO Adaptor Kit                                      | KSBS0032              | 1        |
| 11. | Socket Head Cap Screw **                               | -----                 | 0        |
| 12. | Disc Spacer **                                         | -----                 | 0        |
| 13. | 45-degree Elbow - Flare 1/4" Tube to 1/8" NPT          | AN823-4D              | 2        |
| 14. | Thread Sealant *                                       | -----                 | 0        |
| 15. | MATCO Dual Caliper Conversion Kit                      | KSBS0047              | 1        |
| 16. | MATCO Tubeless Kit for 6" Wheel (delete if tubes) **** | KSBS0043              | 2        |
| 17. | 22" 850-6 Smooth Tundra Tire                           | KSMG0030              | 2        |
| 18. | 850-6 Tundra Tube - OPTIONAL (-2 KSBS0043) ***, ****   | KSMG0031              | 2        |
| 19. | Knight Rock Guard Kit - OPTIONAL ***                   | KNIGHT ROCK GUARD KIT | 1        |
| 20. | Dual Brake Rock Guard *****                            | KPMG0231              | 0        |
| 21. | 1/4" Bolt *****                                        | AN4-20A               | 0        |

\* Builder Supplied

\*\* Supplied with KSBS0032

\*\*\* May be purchased seperately, call RANS Parts Dept. for pricing

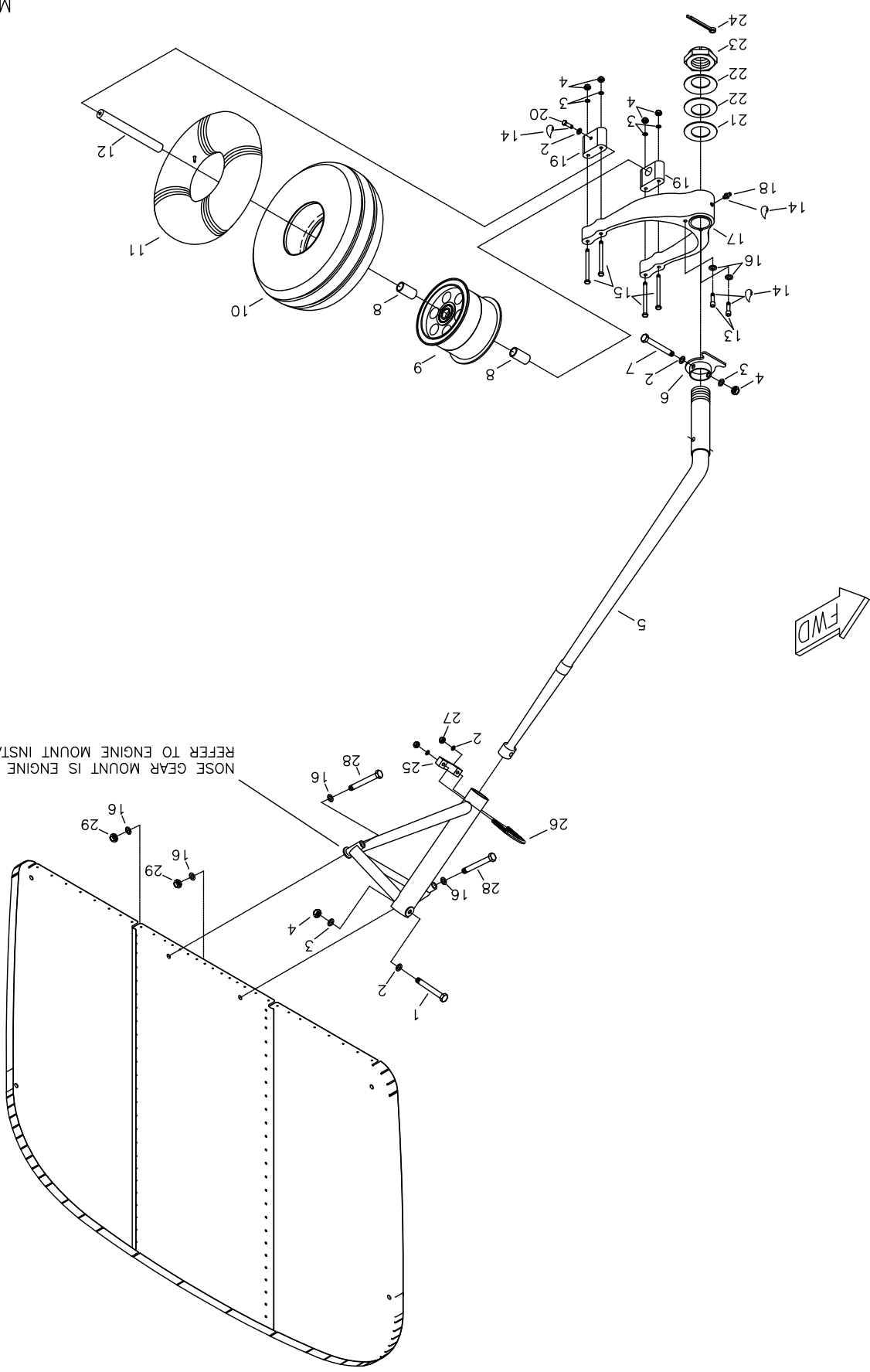
\*\*\*\* Tubeless Kit Standard - Tube may replace Tubeless Kit

\*\*\*\*\* Supplied with KNIGHT ROCK GUARD KIT

9/11/2018

REV. - ORIG

NOSE GEAR MOUNT IS ENGINE SPECIFIC.  
REFER TO ENGINE MOUNT INSTALLATION.



MD5085  
REV. A

# RFD S-21 OUTBOUND TRIKE - STANDARD - NOSE GEAR INSTALLATION

# RANS S-21 OUTBOUND

PAGE

008A-06

## TRIKE - STANDARD - NOSE GEAR INSTALLATION

### TRIKE ONLY

| #   | DESCRIPTION                 | PART NUMBER  | QUANTITY |
|-----|-----------------------------|--------------|----------|
| 1.  | 1/4" Bolt - Close Tolerance | NAS6604-25   | 1        |
| 2.  | 1/4" Thin Washer            | AN960-416L   | 6        |
| 3.  | 1/4" Thick Washer           | AN960-416    | 6        |
| 4.  | 1/4" Tensile Nut            | AN365-428A   | 6        |
| 5.  | Nose Gear                   | KPNG0090     | 1        |
| 6.  | Nose Gear Collar            | KPNG0087     | 1        |
| 7.  | 1/4" Bolt - Close Tolerance | NAS6604-23   | 1        |
| 8.  | Nose Gear Spacer Bushing *  | KPNG0108     | 1        |
| 9.  | Nose Wheel - 5"             | KSNG0009     | 1        |
| 10. | Tire - 5"                   | KSMG0005     | 1        |
| 11. | Tire Tube - 5"              | KSMG0014     | 1        |
| 12. | Axle - Nose Wheel           | KPNG0110     | 1        |
| 13. | 5/16" Sockethead Capscrew   | KSHW0083     | 2        |
| 14. | Loctite Blue **             | -----        | 0        |
| 15. | 1/4" Bolt                   | AN4-35A      | 4        |
| 16. | 5/16" Thick Washer          | AN960-516    | 6        |
| 17. | Nose Gear Fork Assembly     | KANG0020     | 1        |
| 18. | Grease Fitting              | 11-151       | 1        |
| 19. | Axle Block - Nose Gear      | KPNG0106     | 2        |
| 20. | 1/4 " Plain Bolt            | 1/4 X 1 BOLT | 2        |
| 21. | 1 1/4" Washer               | AN960-2016   | 1        |
| 22. | Spring Washer               | KSHW0084     | 2        |
| 23. | 1 1/4" Castle Nut           | MS21025-20   | 1        |
| 24. | Cotter Pin - Large          | MS24665-360  | 1        |
| 25. | Nose Gear Clamp Block       | KPNG0104     | 1        |
| 26. | 1/4" U-bolt                 | KSHW0107     | 1        |
| 27. | 1/4" Course Thread Nut      | KSHW0108     | 2        |
| 28. | 5/16" Bolt                  | AN5-34A      | 2        |
| 29. | 5/16" Tensile Nut           | AN365-524A   | 2        |

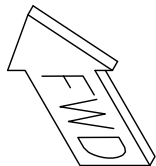
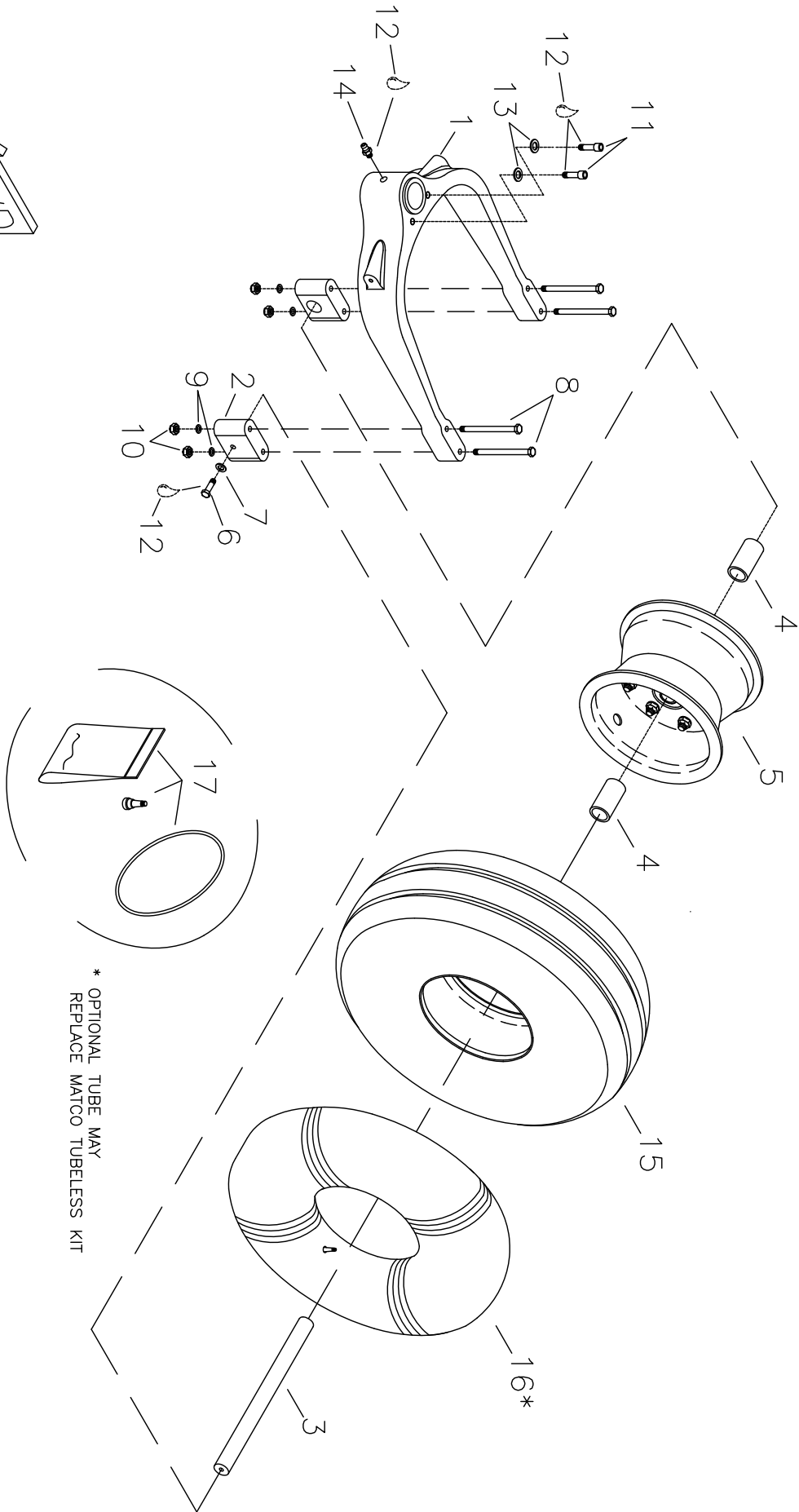
\* Builder Modifies

\*\* Builder Supplied

9/11/2018

REV. A

REFER TO STANDARD NOSE GEAR INSTALLATION FOR ADDITIONAL MOUNTING INFORMATION



RRR S-21 OUTBOUND

TRIKE - OPTIONS - TUNDRA - NOSE FORK INSTALLATION

MD5085  
REV. - ORIG

# RANS S-21 OUTBOUND

PAGE

008A-06B

## TRIKE - OPTIONS - TUNDRA - NOSE FORK INSTALLATION

TRIKE ONLY KAAC0110

| #   | DESCRIPTION                                          | PART NUMBER  | QUANTITY |
|-----|------------------------------------------------------|--------------|----------|
| 1.  | Nose Gear Fork Assembly - Tundra                     | KANG0022     | 1        |
| 2.  | Axle Block - Nose Gear - Tundra                      | KPNG0106     | 2        |
| 3.  | Axle - Nose Wheel - Tundra                           | KPNG0107     | 1        |
| 4.  | Axle Spacer - Nose Wheel - Tundra                    | KPNG0108     | 1        |
| 5.  | Nose Wheel - 6"                                      | KSNG0008     | 1        |
| 6.  | 1/4" Plain Bolt                                      | 1/4 X 1 BOLT | 2        |
| 7.  | 1/4" Thin Washer                                     | AN960-416L   | 2        |
| 8.  | 1/4" Bolt                                            | AN4-35A      | 4        |
| 9.  | 1/4" Thick Washer                                    | AN960-416    | 4        |
| 10. | 1/4" Tensile Nut                                     | AN365-428A   | 4        |
| 11. | 5/16" Sockethead Capscrew                            | KSHW0083     | 2        |
| 12. | Loctite Blue *                                       | -----        | 0        |
| 13. | 5/16" Thick Washer                                   | AN960-516    | 2        |
| 14. | Grease Fitting                                       | 11-151       | 1        |
| 15. | 21" 800-6 Tundra Tire                                | KSMG0024     | 1        |
| 16. | 800-6 Tube - OPTIONAL (-1 KSBS0043) **, ***          | KSMG0023     | 1        |
| 17. | MATCO Tubeless Kit for 6" Wheels (delete if tube) ** | KSBS0043     | 1        |

\* Builder Supplied

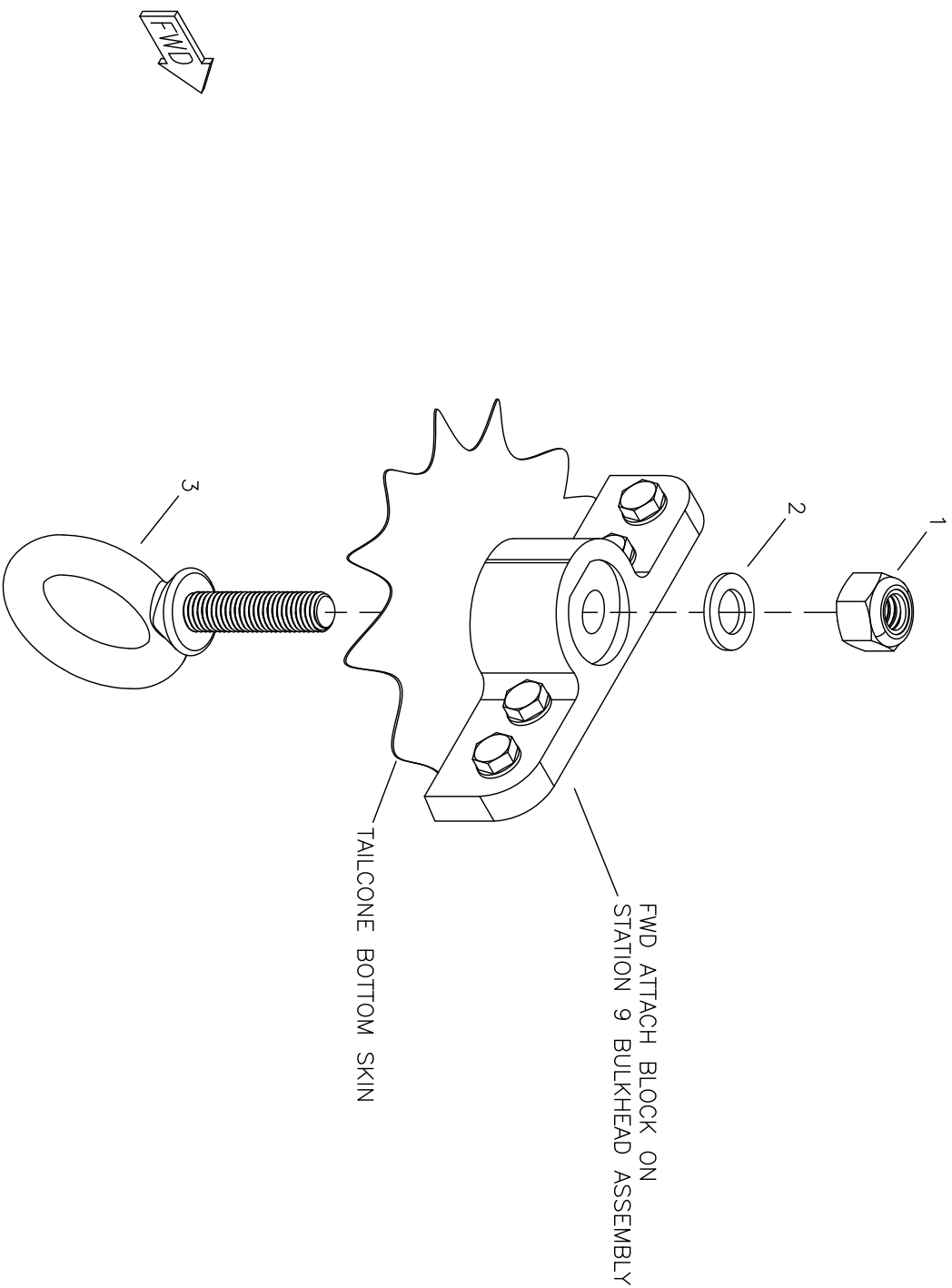
\*\* Tubeless Kit Standard - Tube may replace Tubeless Kit

\*\*\* May be purchased separately, call RANS Parts Dept. for pricing

9/11/2018

REV. - ORIG





MD55594  
REV. - ORIG

# REFUND S-21 OUTBOUND TRIKE - TAIL TIE-DOWN INSTALLATION

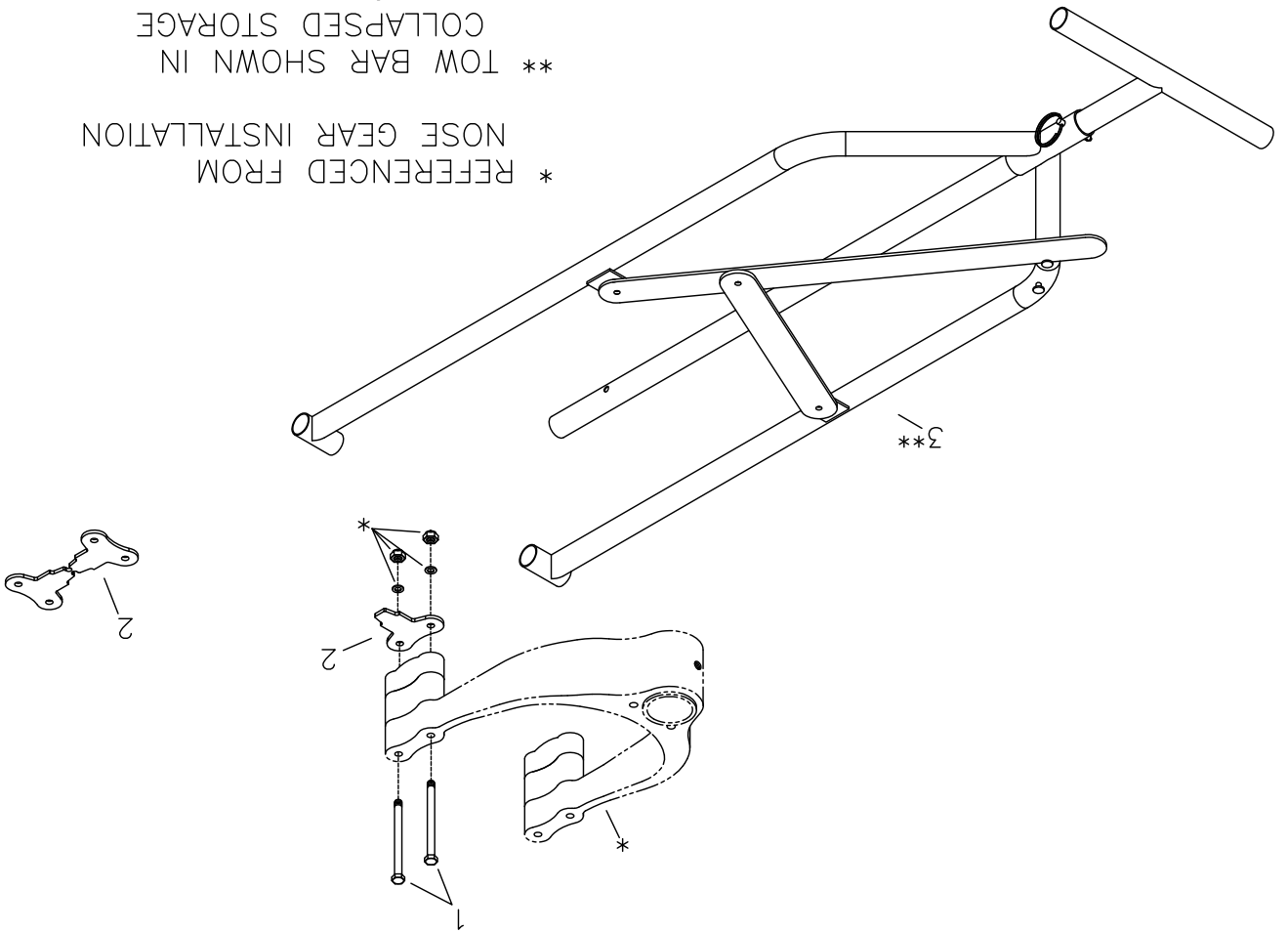
**RANS S-21 OUTBOUND**  
**TRIKE - TAIL TIE-DOWN INSTALLATION**  
**TRIKE ONLY**

PAGE

008A-08

| #  | DESCRIPTION                     | PART NUMBER | QUANTITY |
|----|---------------------------------|-------------|----------|
| 1. | 5/16" Course Thread Tensile Nut | KSHW0106    | 1        |
| 2. | 5/16" Thin Washer               | AN960-516L  | 1        |
| 3. | Trike Tie-Down Eye Bolt         | KSHW0105    | 1        |

ONLY LEFT HAND SIDE SHOWN FOR CLARITY



\* REFERENCED FROM  
NOSE GEAR INSTALLATION

\*\* TOW BAR SHOWN IN  
COLLAPSED STORAGE  
CONFIGURATION

MD5480  
REV. - ORIG

# RRD S-21 OUTBOUND TRIKE - OPTIONS - TOW BAR INSTALLATION

# RANS S-21 OUTBOUND

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008A-10

## TRIKE - OPTIONS - TOW BAR INSTALLATION

### TRIKE ONLY

| #   | DESCRIPTION              | PART NUMBER | QUANTITY |
|-----|--------------------------|-------------|----------|
| 1 . | 1/4" Bolt                | AN4-36A     | 4        |
| 2 . | Nose Gear Tow Plate *    | KPNG0101    | 1        |
| 3 . | Tow Bar & Storage Bag ** | KPAC0233    | 0        |

\* Builder modifies

\*\* May be purchased seperately, call RANS Parts Dept. for pricing

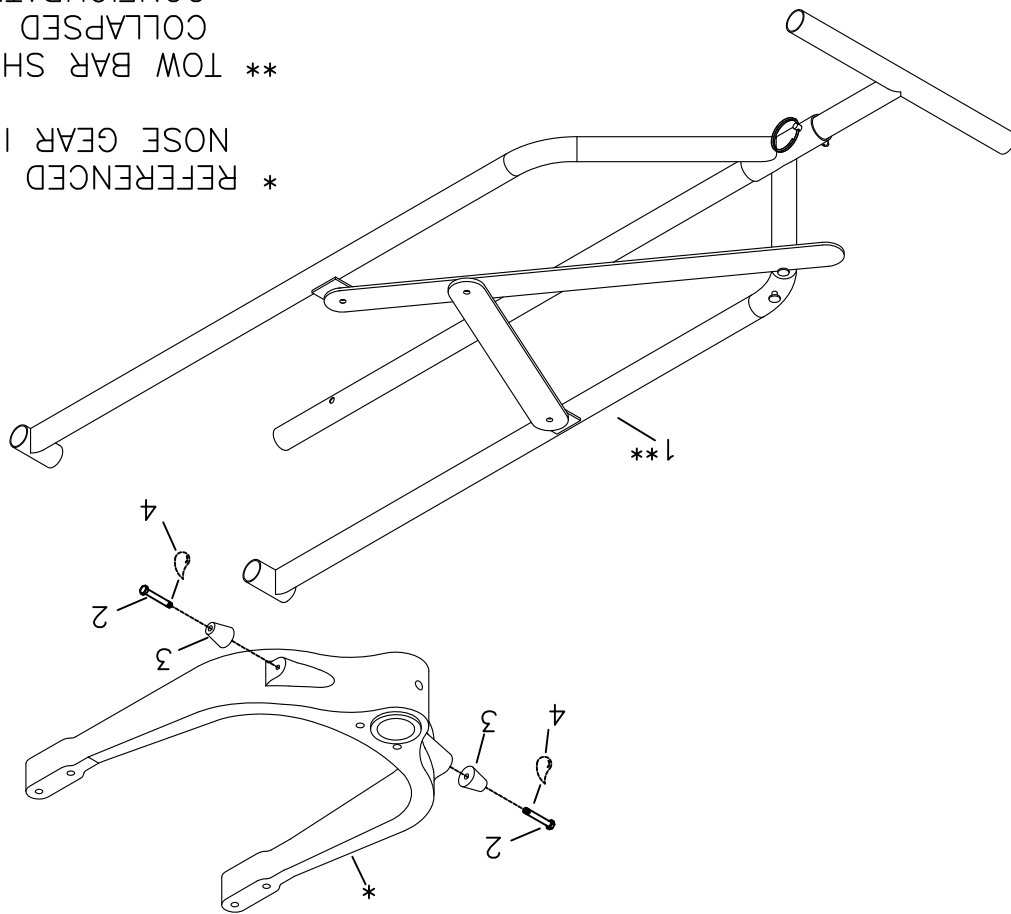
9/11/2018

REV. - ORIG

# RAMS S-21 OUTBOUND TRIKE - OPTIONS - TUNDRA NOSE GEAR TOW BAR INSTALLATION

MD5480  
REV. - ORIG

\* REFERENCED FROM  
NOSE GEAR INSTALLATION  
\*\* TOW BAR SHOWN IN  
COLLAPSED STORAGE  
CONFIGURATION



TRIKE - OPTIONS - TUNDRA NOSE GEAR - TOW BAR INSTALLATION

## TRIKE ONLY

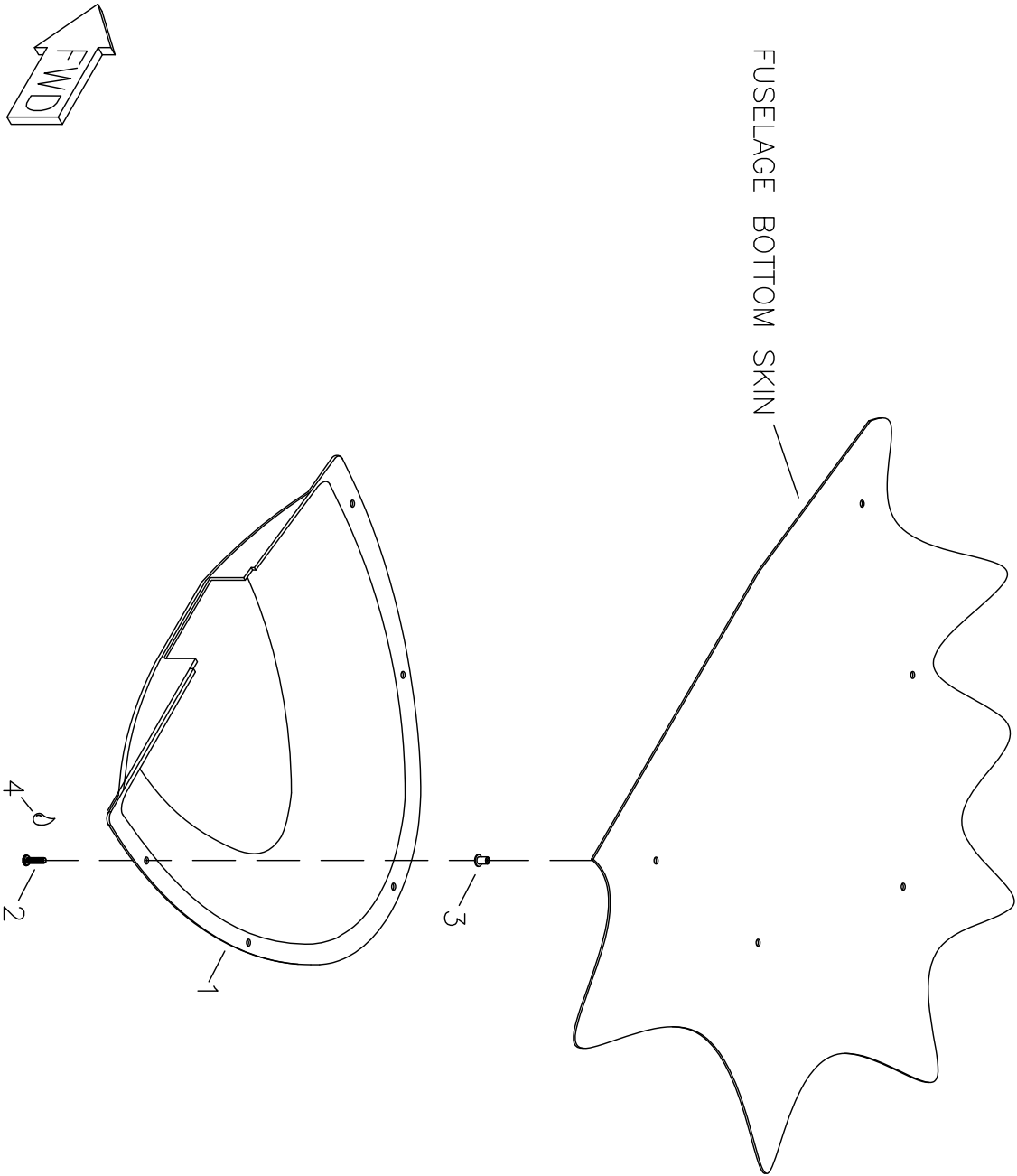
| #   | DESCRIPTION             | PART NUMBER | QUANTITY |
|-----|-------------------------|-------------|----------|
| 1 . | Tow Bar & Storage Bag * | KPAC0233    | 0        |
| 2 . | 1/4" Bolt               | AN4-11A     | 2        |
| 3 . | Tow Bar Bushing         | KPNG0109    | 2        |
| 4 . | Loctite Blue **         | -----       | 0        |

\* May be purchased separately, call RANS Parts Dept. for pricing

\*\* Builder Supplied

9/11/2018

REV. - ORIG



LEFT-HAND SHOWN

REF ID: A12345 S-21 OUTBOUND  
OPTIONS - BELLY FAIRINGS

MD5581  
REV. - ORIG

**RANS S-21 OUTBOUND**  
**OPTIONS - BELLY FAIRINGS**

PAGE

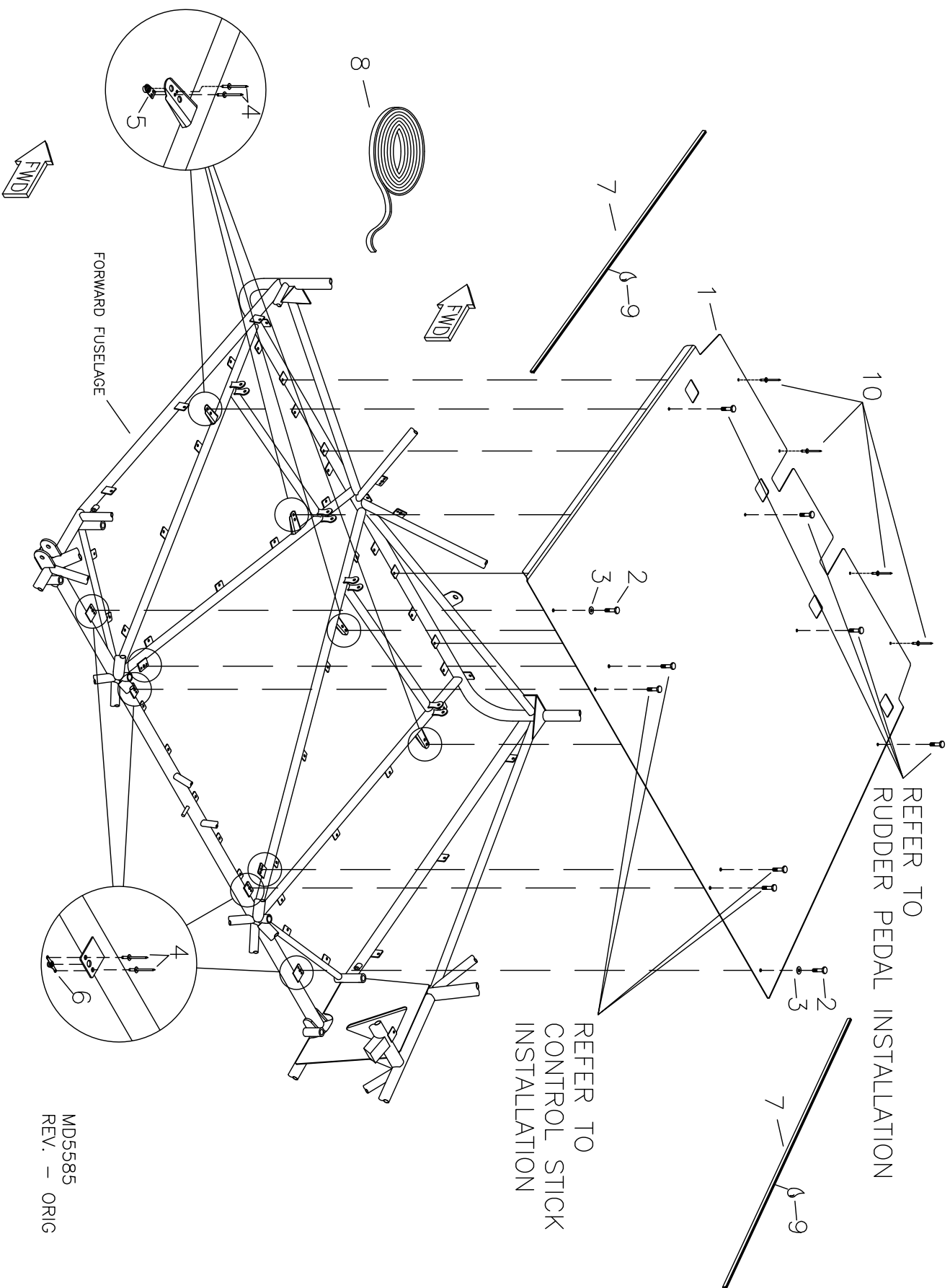
008B-02

| #  | DESCRIPTION            | PART NUMBER     | QUANTITY |
|----|------------------------|-----------------|----------|
| 1. | Belly Fairing - RH     | KPFU0753-R      | 1        |
| 1. | Belly Fairing - LH     | KPFU0753-L      | 1        |
| 2. | 3/16" Truss Head Screw | AN526-C1032-R12 | 10       |
| 3. | 3/16" Rivet Nut        | MS27130-A25K    | 10       |
| 4. | Loctite Blue *         | -----           | 0        |

\* Builder Supplied

9/11/2018  
REV. - ORIG





# REFINING S-21 OUTBOUND FUSELAGE - FLOORBOARD INSTALLATION

MD5585  
REV. - ORIG

**RANS S-21 OUTBOUND**  
**FUSELAGE - FLOORBOARD INSTALLATION**

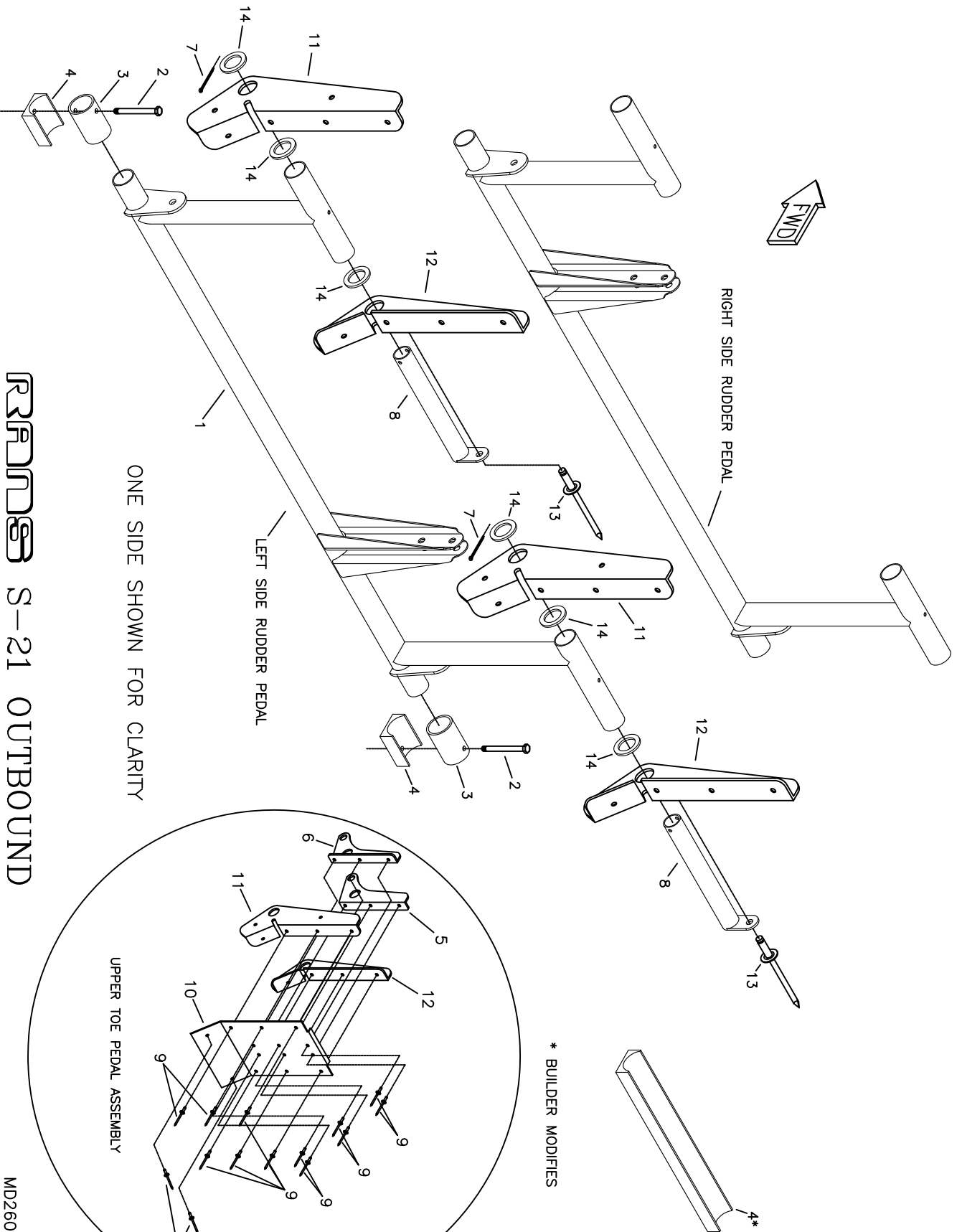
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| #   | DESCRIPTION                  | PART NUMBER | QUANTITY |
|-----|------------------------------|-------------|----------|
| 1.  | Floorboard                   | KPIN0139    | 1        |
| 2.  | 3/16" Bolt                   | AN3-3A      | 2        |
| 3.  | 3/16" Thin Washer            | AN960-10L   | 2        |
| 4.  | 3/32" Aluminum Rivet         | 40APR1/8    | 20       |
| 5.  | 3/16" Side by Side Nut Plate | MS21086-L3  | 4        |
| 6.  | 3/16" Nut Plate              | K-1000-3    | 6        |
| 7.  | Rubber Trim                  | X1011       | 4 ft     |
| 8.  | 1/2" Black Foam Tape *       | -----       | 0        |
| 9.  | Adhesive - Superglue *       | -----       | 0        |
| 10. | 1/8" Aluminum Rivet - Avex   | 1691-0410   | 4        |

\* Builder Supplied

9/11/2018  
REV. - ORIG



# RRR S-21 OUTBOUND FUSELAGE - RUDDER PEDAL INSTALLATION

**RANS S-21 OUTBOUND**  
**FUSELAGE - RUDDER PEDAL INSTALLATION**

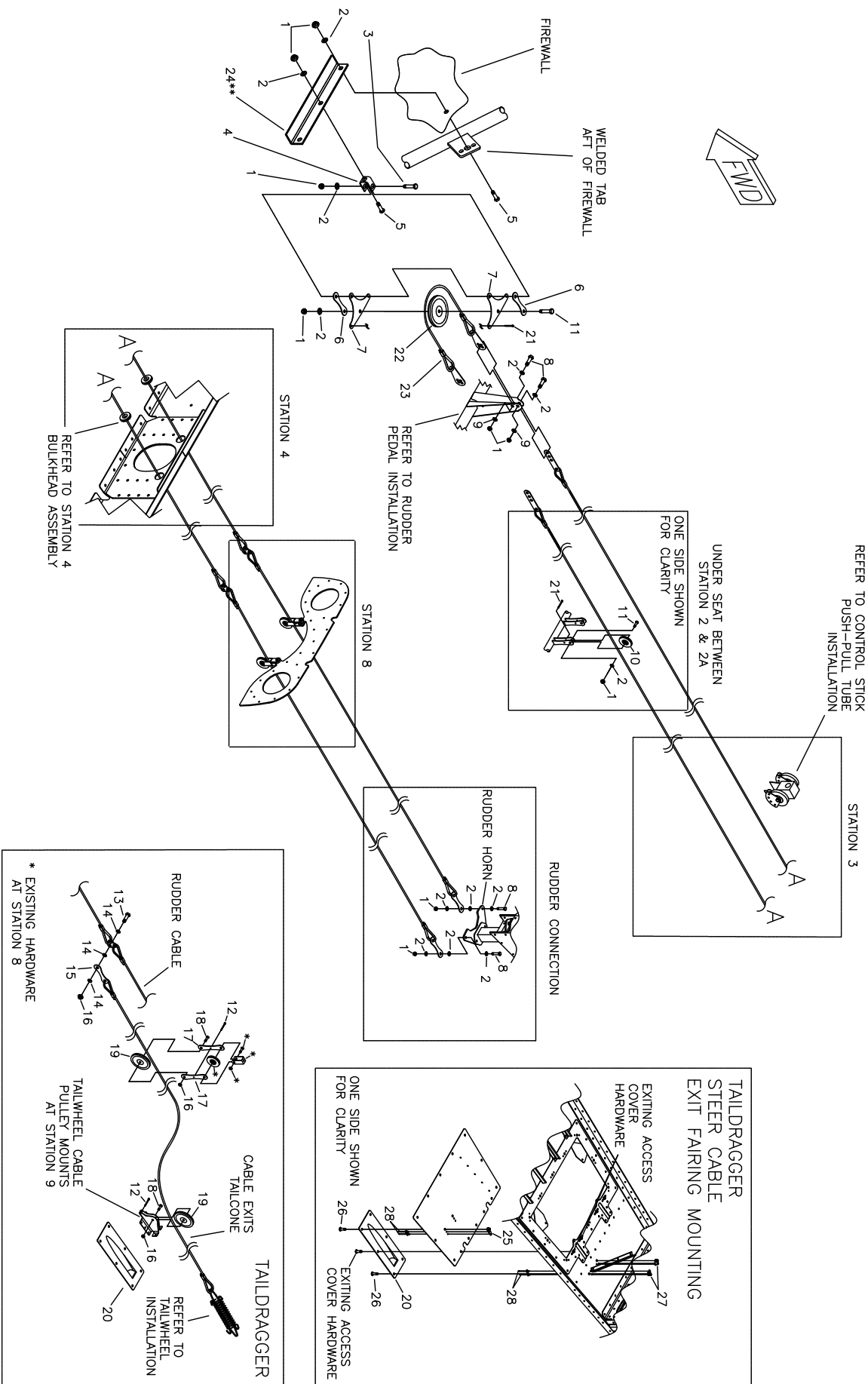
PAGE

009A-02

| #   | DESCRIPTION                                 | PART NUMBER | QUANTITY |
|-----|---------------------------------------------|-------------|----------|
| 1.  | Rudder Pedal                                | KPCS0306    | 2        |
| 2.  | 3/16" Bolt                                  | AN3-12A     | 4        |
| 3.  | Rudder Pedal Bushing                        | KPCS0017    | 4        |
| 4.  | Brake Saddle *                              | KPCS0319    | 1        |
| 5.  | Rudder Pedal - Cylinder Attach Bracket - RH | KPCS0300-R  | 4        |
| 6.  | Rudder Pedal - Cylinder Attach Bracket - LH | KPCS0300-L  | 4        |
| 7.  | Large Cotter Pin                            | MS24665-285 | 4        |
| 8.  | Swivel Bushing                              | KPCS0056    | 4        |
| 9.  | 1/8" Stainless Steel Rivet - Cherry Q       | CCPQ-42     | 56       |
| 10. | Rudder Pedal - Web                          | KPCS0301    | 4        |
| 11. | Rudder Pedal - Hinge Plate - LH             | KPCS0302-L  | 4        |
| 12. | Rudder Pedal - Hinge Plate - RH             | KPCS0302-R  | 4        |
| 13. | 3/16" Stainless Steel Rivet - Cherry Q      | CCPQ-62     | 4        |
| 14. | 1/2" Plastic Washer                         | KSAC0005    | 12       |

\* Builder Modifies

9/11/2018  
REV. - A



\*\* BUILDER MODIFIES

# RUDDER S-21 OUTBOUND FUSELAGE - RUDDER SYSTEM INSTALLATION

FUSELAGE - RUDDER SYSTEM INSTALLATION

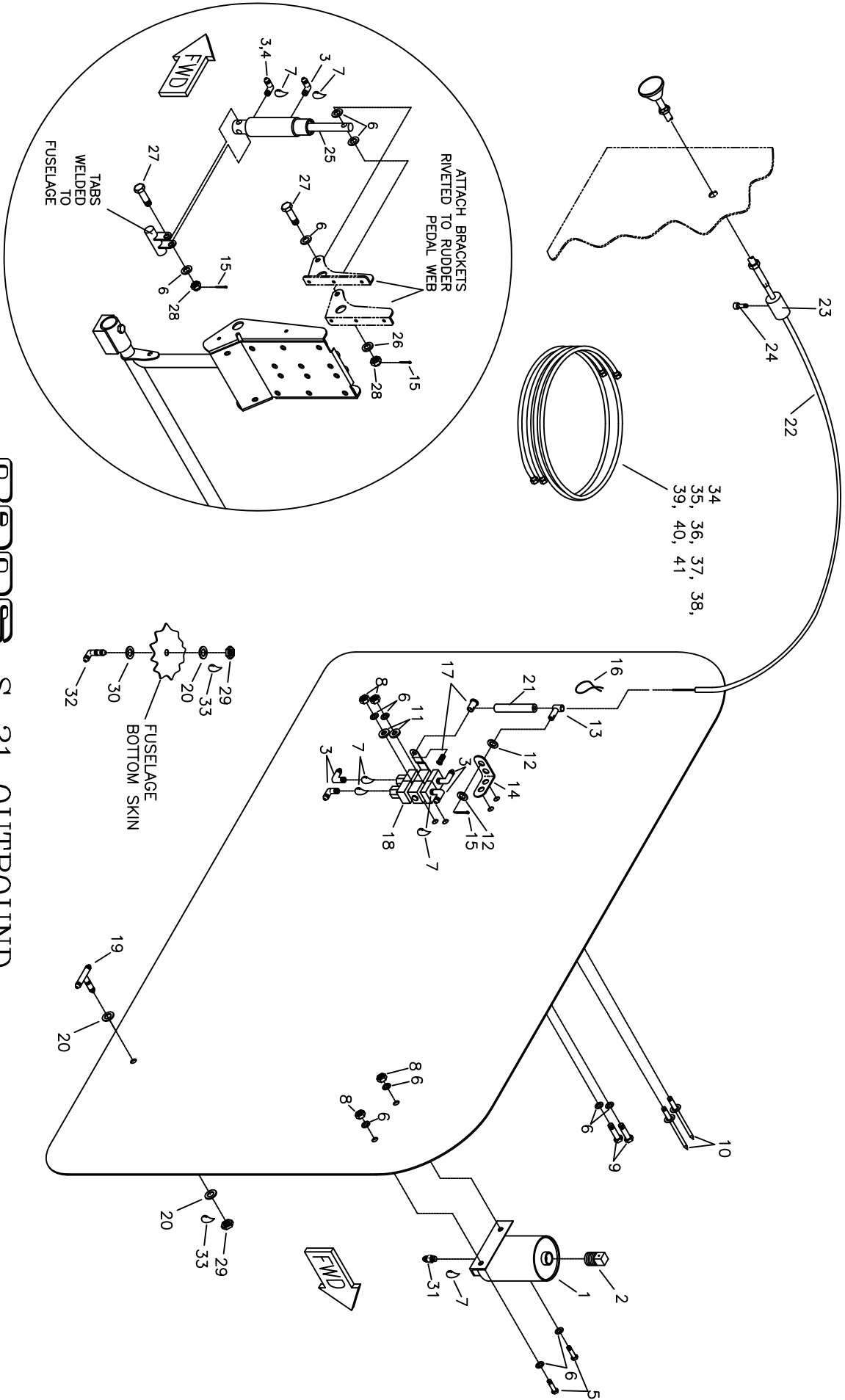
| #   | DESCRIPTION                          | PART NUMBER | QUANTITY |
|-----|--------------------------------------|-------------|----------|
| 1.  | 3/16" Shear Nut                      | AN364-1032A | 11       |
| 2.  | 3/16" Thin Washer                    | AN960-10L   | 17       |
| 3.  | 3/16" Bolt                           | AN3-7A      | 1        |
| 4.  | U-Bracket                            | RL-205-T    | 1        |
| 5.  | 3/16" Bolt                           | AN3-4A      | 3        |
| 6.  | Hummer Tang                          | T12-HT6     | 2        |
| 7.  | Pulley Cable Keeper                  | KPCS0317    | 2        |
| 8.  | 3/16" Bolt                           | AN3-5A      | 6        |
| 9.  | 3/16" Thick Washer                   | AN960-10    | 4        |
| 10. | Small Pulley                         | AN210-1A    | 2        |
| 11. | 3/16" Bolt                           | AN3-6A      | 3        |
| 12. | Small Cotter Pin *                   | MS24665-134 | 4        |
| 13. | 3/16" Bolt *                         | AN3-5A      | 2        |
| 14. | 3/16" Thin Washer *                  | AN960-10L   | 6        |
| 15. | Tailwheel Steer Cable Assembly *     | KPCS0308    | 2        |
| 16. | 3/16" Shear Nut *                    | AN364-1032A | 6        |
| 17. | Tang * **                            | KPAC0038    | 4        |
| 18. | 3/16" Bolt *                         | AN3-6A      | 4        |
| 19. | Pulley *                             | AN210-2A    | 4        |
| 20. | Tailwheel Steer Cable Exit Fairing * | KPFU0755    | 2        |
| 21. | Small Cotter Pin                     | MS24665-134 | 4        |
| 22. | Pulley                               | AN210-2A    | 1        |
| 23. | Rudder Pedal Return Cable            | KACS0036    | 1        |
| 24. | Return Pulley Mount Angle **         | KPCS0318    | 1        |
| 25. | 8-32 Single-Ear Nut Plate *          | MS21051-08  | 4        |
| 26. | 8-32 Machine Screw *                 | AN526-832R6 | 8        |
| 27. | 8-32 Corner Nut Plate *              | K-3000-08   | 4        |
| 28. | 3/32" Aluminum Rivet *               | 40APR1/8    | 16       |

\* Taildragger Only - Supplied with Taildragger Gear Kit

\*\* Builder Modifies

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**RRR S-21 OUTBOUND**  
**FUSELAGE – HYDRAULIC BRAKE INSTALLATION**

MD2600  
REV. – ORIG

FUSELAGE - HYDRAULIC BRAKE INSTALLATION

| #   | DESCRIPTION                                          | PART NUMBER | QUANTITY |
|-----|------------------------------------------------------|-------------|----------|
| 1.  | Hydraulic Brake Reservoir                            | KSBS0034    | 1        |
| 2.  | Vented 1/8" Cap Plug *                               | -----       | 0        |
| 3.  | 90-degree Elbow - Flare 1/4" Tube to 1/8" NPT        | AN822-4D    | 11       |
| 4.  | 45-degree Elbow - Flare 1/4" Tube to 1/8" NPT        | AN823-4D    | 1        |
| 5.  | 3/16" Bolt                                           | AN3-3A      | 2        |
| 6.  | 3/16" Thin Washer                                    | AN960-10L   | 16       |
| 7.  | Thread Sealant **                                    | -----       | 0        |
| 8.  | 3/16" Shear Nut                                      | AN364-1032A | 4        |
| 9.  | 3/16" Bolt                                           | AN3-11A     | 2        |
| 10. | 3/16" Stainless Steel Rivet - Cherry Q               | CCPQ-62     | 2        |
| 11. | Rubber Washer ***                                    | -----       | 0        |
| 12. | 1/4" Thick Washer                                    | AN960-416   | 2        |
| 13. | Cable Housing Swivel Stop                            | KPBS0009    | 1        |
| 14. | Cable Housing Swivel Stop Bracket                    | KPBS0010    | 1        |
| 15. | Small Cotter Pin                                     | MS24665-134 | 13       |
| 16. | Safety Wire **                                       | -----       | 0        |
| 17. | Cable Swivel Stop & Screw                            | 2361        | 1        |
| 18. | Parking Brake                                        | KSBS0007    | 1        |
| 19. | Bulkhead Tee - Flare 1/4" Tube                       | AN834-4D    | 1        |
| 20. | 7/16" Thick Washer                                   | AN960-716   | 2        |
| 21. | Blue Fuel Line - 1/4"                                | FS-FL       | 2 in     |
| 22. | Control Cable                                        | 4-336       | 1        |
| 23. | Cable Friction Block                                 | T-STOP      | 1        |
| 24. | Socket Head Cap Screw                                | T-SC        | 1        |
| 25. | Master Brake Cylinder w/ Drilled Shaft               | KSBS0048    | 4        |
| 26. | 3/16" Thick Washer                                   | AN960-10    | 4        |
| 27. | 3/16" Bolt - Drilled Shank                           | AN3-10      | 8        |
| 28. | 3/16" Castle Nut                                     | AN310-3     | 8        |
| 29. | Nut - Flared Tube Bulkhead                           | AN924-4D    | 3        |
| 30. | 7/16" Thin Washer                                    | AN960-716L  | 2        |
| 31. | Straight Fitting - Flare 1/4" Tube to 1/8" NPT       | AN816-4D    | 1        |
| 32. | Bulkhead 90-degree Elbow - Flare 1/4" Tube           | AN833-4D    | 2        |
| 33. | Loctite Blue **                                      | -----       | 0        |
| 34. | Braided Brake Line Kit - S-20 / S-21                 | KSBS0038    | 1        |
| 35. | Braided Line - 22" - Reservoir to Bulkhead Tee ****  | KSBS0038-1  | 0        |
| 36. | Braided Line - 9" - Bulkhead Tee to Cylinders ****   | KSBS0038-2  | 0        |
| 37. | Braided Line - 18.75" - RH to LH Cylinders ****      | KSBS0038-3  | 0        |
| 38. | Braided Line - 15" - LH Cylinders to Park Valve **** | KSBS0038-4  | 0        |
| 39. | Braided Line - 87" - Park Valve to RH Bulkhead ****  | KSBS0038-5  | 0        |
| 40. | Braided Line - 69" - Park Valve to LH Bulkhead ****  | KSBS0038-6  | 0        |
| 41. | Braided Line - 30" - Bulkhead to Wheel Brakes ****   | KSBS0038-7  | 0        |

\* Supplied with Brake Reservoir.

\*\* Builder supplied

\*\*\* Supplied with Parking Brake

\*\*\*\* Supplied with KSBS0038

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# RANS S-21 OUTBOUND

## FUSELAGE - SLIDING SEAT ASSEMBLY

PAGE

009D-02

| #   | DESCRIPTION                                    | PART NUMBER  | QUANTITY |
|-----|------------------------------------------------|--------------|----------|
| 1.  | Seat Back Cushion                              | ST-SBC-A     | 2        |
| 2.  | Seat Back Frame                                | ST-SBF       | 2        |
| 3.  | 3/16" Countersunk Machine Screw                | MS24694-S67  | 8        |
| 4.  | 3/16" Thin Washer                              | AN960-10L    | 12       |
| 5.  | 1/4" Quick Pin                                 | PIN 1/4X1.2  | 4        |
| 6.  | Seat Side Plate                                | KPST0130     | 8        |
| 7.  | 1/4" Plastic Washer                            | PW-4         | 8        |
| 8.  | 3/16" Thick Washer                             | AN960-10     | 16       |
| 9.  | 3/16" Shear Nut                                | AN364-1032A  | 12       |
| 10. | Seat & Headrest - Raw Stock Kit                | KAAC0014     | 2        |
| 11. | Seat Internal Tube, 1/2" x .035" x 13.75" * ** | KAAC0014-1   | 0        |
| 12. | Seat Bottom Pan                                | KPST0131     | 2        |
| 13. | Sliding Seat Bottom Frame                      | KPST0127     | 2        |
| 14. | Seat Bottom Cushion                            | ST-SBTC-A    | 2        |
| 15. | Lacing Wires (stick), 36" x 1/16"              | TG-LW-1/16   | 5        |
| 16. | Heavy-Duty Plastic Tie - Long                  | BSBK0001     | 40       |
| 17. | Slider Block                                   | KPST0124     | 4        |
| 18. | Sliding Seat Position Rail                     | KPST0128     | 4        |
| 19. | 3/16" Rivet Nut                                | MS27130-A25K | 8        |
| 20. | Seat Stop Tube, 3/8" x .095" x 1/2" *          | KPST0132     | 1        |
| 21. | Sliding Seat Rail Plate                        | KPST0129     | 4        |
| 22. | 3/16" Bolt                                     | AN3-11A      | 8        |
| 23. | 3/16" Stainless Steel Rivet - Cherry Q         | CCPQ-64      | 4        |
| 24. | Seat Back Plate - Upper                        | KPST0073-1   | 2        |
| 25. | Seat Back Plate - Middle                       | KPST0073-2   | 2        |
| 26. | Seat Back Plate - Lower                        | KPST0073-3   | 2        |
| 27. | Multi-Hole Tang                                | ST-16-FLAT   | 8        |
| 28. | Bearing                                        | SR4APP       | 8        |
| 29. | 1/4" Countersunk Machine Screw                 | MS24694-S111 | 4        |
| 30. | 1/4" Thin Washer                               | AN960-416L   | 20       |
| 31. | 1/4" Shear Nut                                 | AN364-428A   | 4        |
| 32. | 1/8" Aluminum Rivet - Avex                     | 1691-0410    | 62       |
| 33. | 1/8" Stainless Steel Rivet - Flush             | CCC-42       | 12       |
| 34. | 3/16" Stainless Steel Rivet - Cherry Q         | CCPQ-62      | 16       |

\* Fabricate from Raw Stock

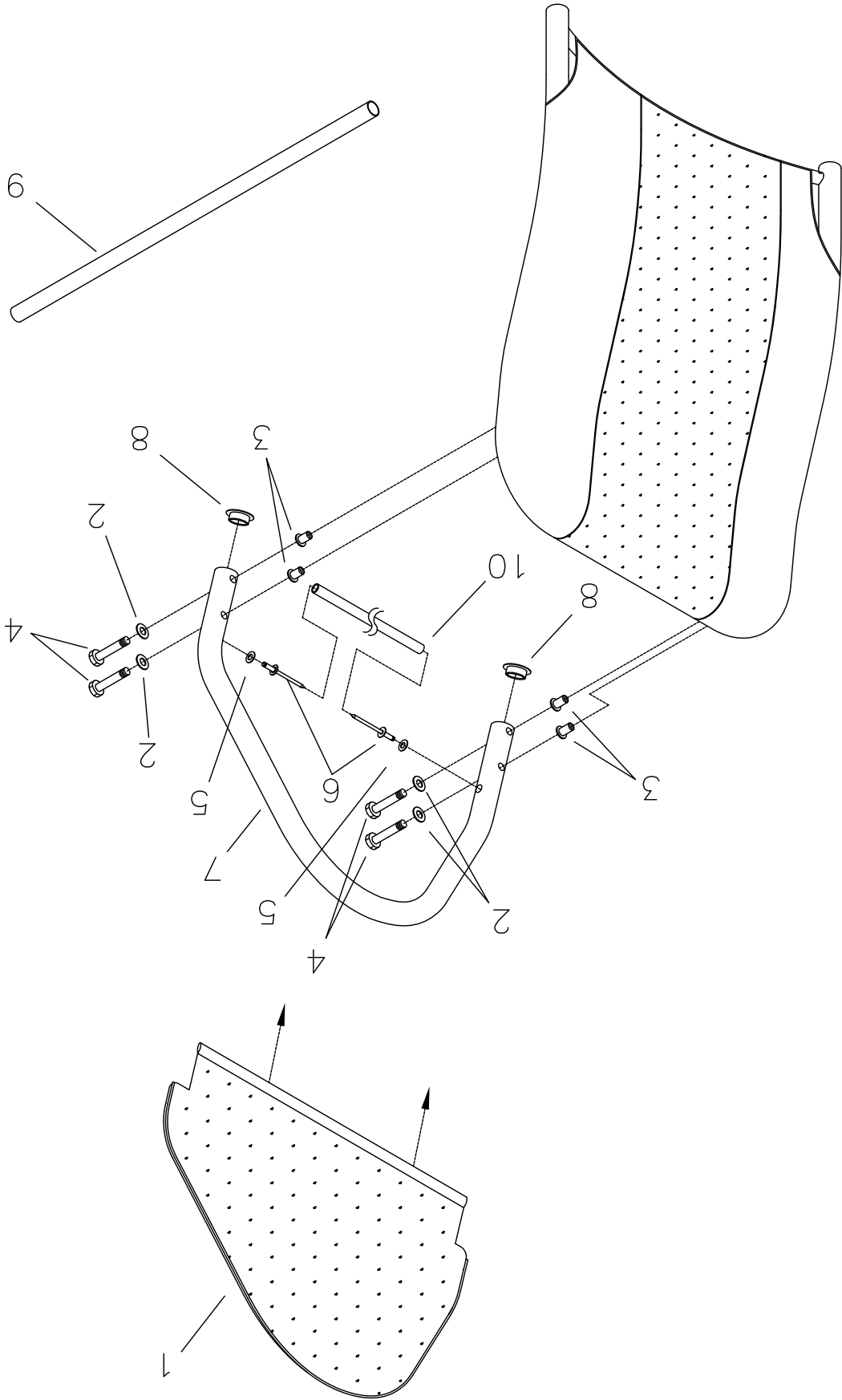
\*\* Builder determines length

9/11/2018

REV. - B

# FUSELAGE - OPTIONS - HEADREST ASSEMBLY

MD5108



FUSELAGE - OPTIONS - SEAT HEADREST INSTALLATION

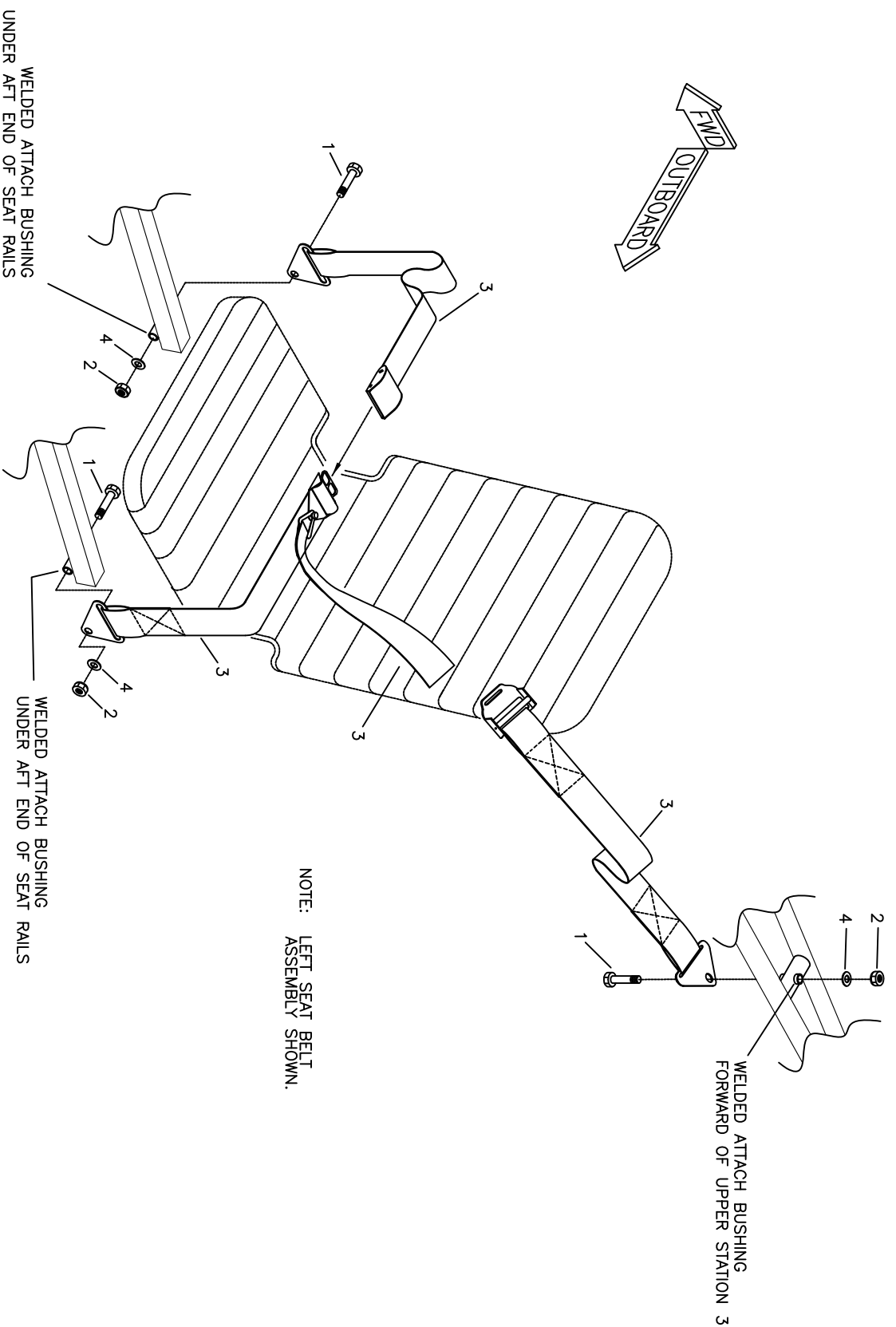
| #   | DESCRIPTION                                  | PART NUMBER  | QUANTITY |
|-----|----------------------------------------------|--------------|----------|
| 1.  | Headrest Cover                               | ST-HRC-A     | 2        |
| 2.  | 3/16" Thin Washer                            | AN960-10L    | 8        |
| 3.  | 3/16" Rivet Nut                              | MS27130-A25K | 8        |
| 4.  | 3/16" Bolt                                   | AN3-13A      | 8        |
| 5.  | 3/16" Thick Washer                           | AN960-10     | 4        |
| 6.  | 3/16" Aluminum Rivet - Cherry Q              | AAPQ-64      | 4        |
| 7.  | Headrest Frame                               | ST-HRF(6/12) | 2        |
| 8.  | 1" End Cap                                   | 1 CAP        | 4        |
| 9.  | Seat & Headrest - Raw Stock Kit              | KAAC0014     | 2        |
| 10. | Headrest Internal Tube, 1/2" x .035 x X * ** | KAAC0014-1   | 0        |

\* Fabricate from Raw Stock

\*\* Builder determines length

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# RRM S-21 OUTBOUND FUSELAGE - SEAT BELT INSTALLATION

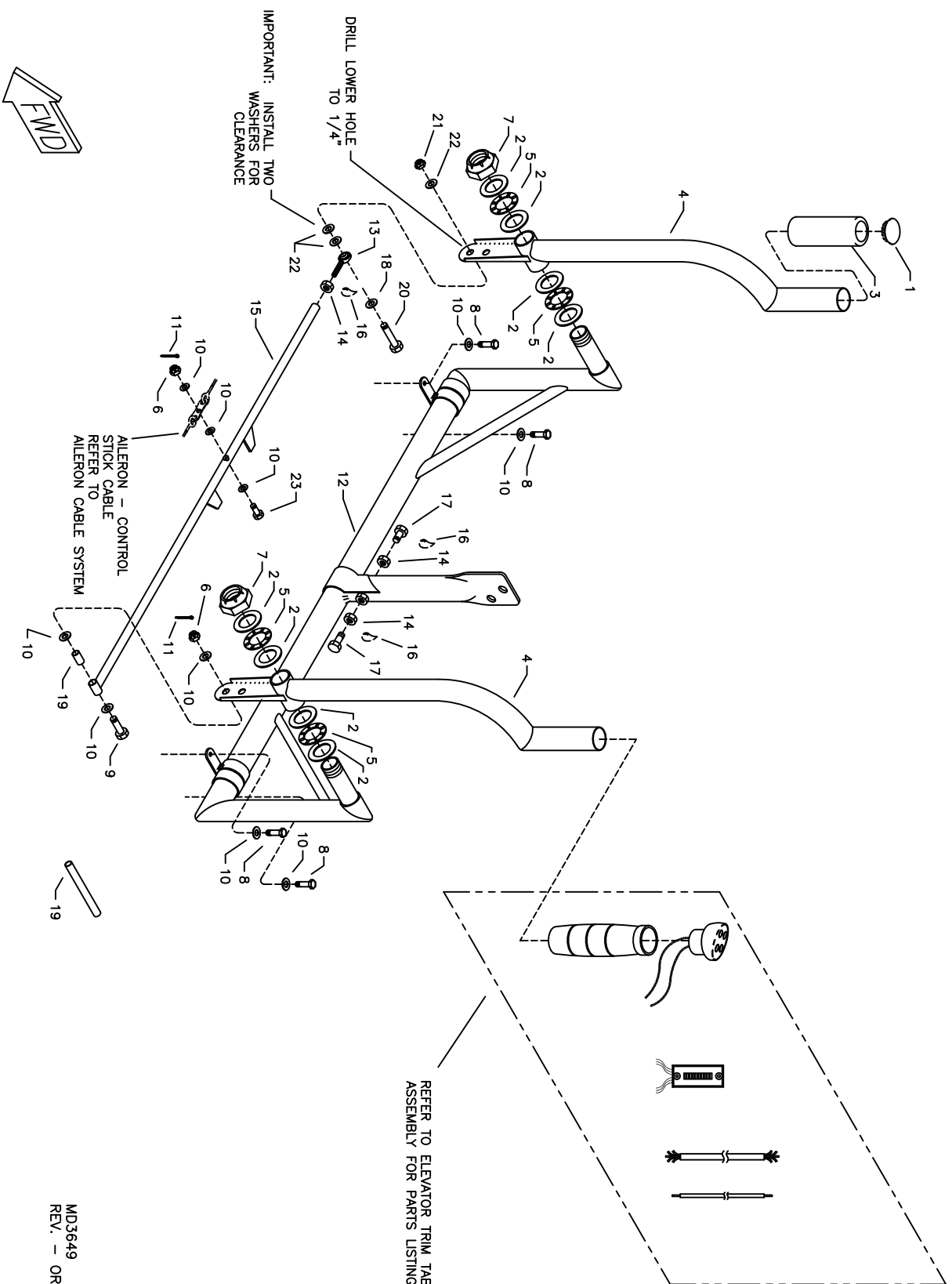
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**RANS S-21 OUTBOUND**  
**FUSELAGE - SEAT BELT INSTALLATION**

PAGE

009D-06

| #  | DESCRIPTION       | PART NUMBER | QUANTITY |
|----|-------------------|-------------|----------|
| 1. | 5/16" Bolt        | AN5-15A     | 6        |
| 2. | 5/16" Shear Nut   | AN364-524A  | 6        |
| 3. | Seat Belt Kit     | KAST0025    | 2        |
| 4. | 5/16" Thin Washer | AN960-516L  | 6        |



# R3FINDUS S-21 OUTBOUND FUSELAGE - CONTROL STICK INSTALLATION

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FUSELAGE - CONTROL STICK INSTALLATION

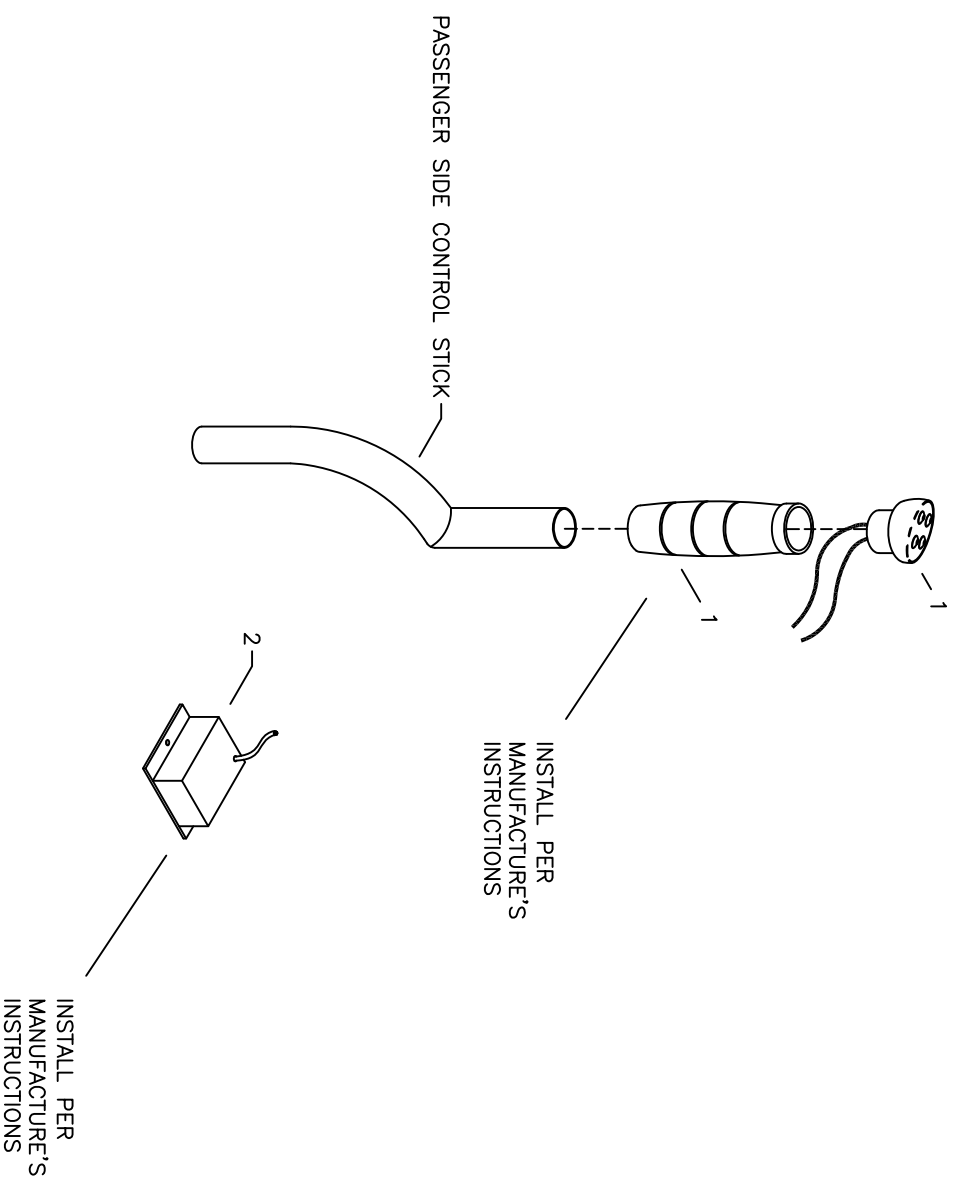
| #   | DESCRIPTION                                | PART NUMBER  | QUANTITY |
|-----|--------------------------------------------|--------------|----------|
| 1.  | 7/8" End Cap                               | CS-EC        | 1        |
| 2.  | Bearing Washer                             | CS-BW        | 8        |
| 3.  | Control Stick Grip                         | CS-G         | 1        |
| 4.  | Control Stick                              | KPCS0072     | 2        |
| 5.  | Thrust Bearing                             | CS-TB        | 4        |
| 6.  | 3/16" Castle Nut                           | AN310-3      | 2        |
| 7.  | 3/4" Nyloc Nut                             | CS-3/4LOCNUT | 2        |
| 8.  | 3/16" Bolt                                 | AN3-6A       | 4        |
| 9.  | 3/16" Bolt - Drilled Shank                 | AN3-10       | 1        |
| 10. | 3/16" Thin Washer                          | AN960-10L    | 10       |
| 11. | Small Cotter Pin                           | MS24665-134  | 2        |
| 12. | Control Stick Torque Tube                  | CS-TT-A      | 1        |
| 13. | Male Rod End, 1/4" x 1/4"                  | NM-4         | 1        |
| 14. | 1/4" Plain Nut                             | AN345-416    | 3        |
| 15. | Control Stick Link Tube                    | CS-CSLT-3    | 1        |
| 16. | Loctite Blue ***                           | -----        | 0        |
| 17. | 1/4" Plain Bolt                            | KSHW0094     | 2        |
| 18. | 1/4" X 5/8" Steel Washer                   | KSHW0075     | 1        |
| 19. | Raw Stock - Aluminum Bushing, 1/4" x .028" | KAAC0044-2   | 1        |
| 19. | Aluminum Bushing, 1/4" x .028" x 17/32" *  | KAAC0044-2   | 0        |
| 20. | 1/4" Bolt                                  | AN4-10A      | 1        |
| 21. | 1/4" Shear Nut                             | AN364-428A   | 1        |
| 22. | 1/4" Thick Washer                          | AN960-416    | 3        |
| 23. | 3/16" Bolt - Drilled Shank                 | AN3-12       | 1        |

\* Fabricate from Raw Stock

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MD3649  
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# REVISION S-21 OUTBOUND FUSELAGE - OPTION - PASSENGER SEAT ELECTRIC ELEVATOR TRIM

# RANS S-21 OUTBOUND

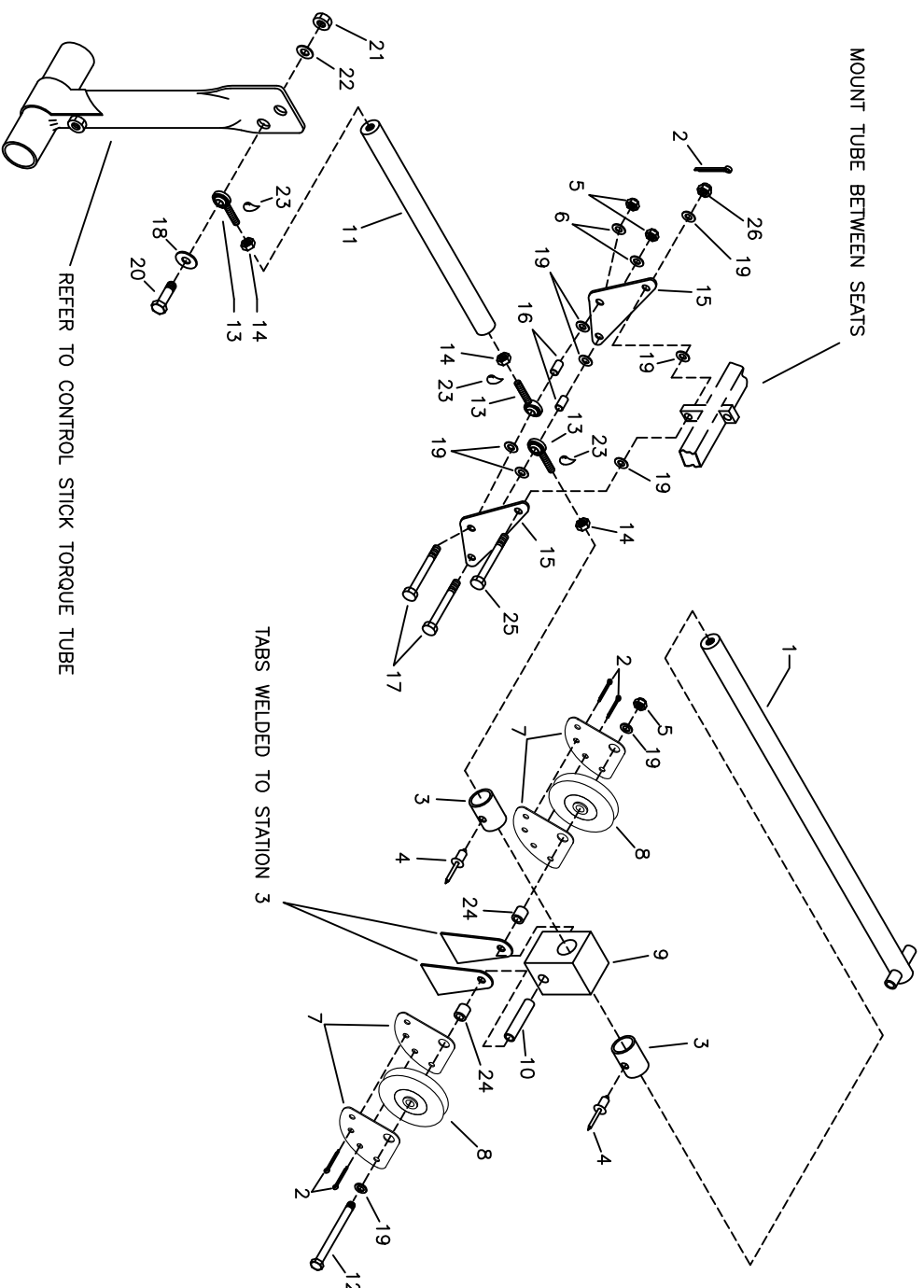
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## FUSELAGE - OPTIONS - PASSENGER SEAT ELECTRIC ELEVATOR TRIM

KAAC0054

| #   | DESCRIPTION            | PART NUMBER | QUANTITY |
|-----|------------------------|-------------|----------|
| 1 . | MAC Control Stick Grip | KSCS0016    | 1        |
| 2 . | Servo Relay Deck       | KSCS0027    | 1        |



# REFINISHED S-21 OUTBOUND FUSELAGE - CONTROL STICK PUSH-PULL TUBE INSTALLATION

FUSELAGE - CONTROL STICK PUSH-PULL TUBE INSTALLATION

| #   | DESCRIPTION                                        | PART NUMBER | QUANTITY |
|-----|----------------------------------------------------|-------------|----------|
| 1.  | 5/8" Push Pull Tube, 35"                           | KPCS0268    | 1        |
| 2.  | Small Cotter Pin                                   | MS24665-134 | 5        |
| 3.  | Push-Pull Tube Stop Sleeve, 3/4" x .058" x 3/4" ** | KPAC0277    | 1        |
| 4.  | 1/8" Stainless Steel Rivet - Cherry Q              | CCPQ-42     | 2        |
| 5.  | 3/16" Shear Nut                                    | AN364-1032A | 3        |
| 6.  | 3/16" Thin Washer                                  | AN960-10L   | 2        |
| 7.  | Small Cable Keeper **                              | KPCS0207    | 1        |
| 8.  | Small Pulley                                       | AN210-1A    | 2        |
| 9.  | Sliding Block                                      | KPCS0263    | 1        |
| 10. | Aluminum Bushing, 1/4" x .028" x 1.125" *          | KAAC0044-2  | 0        |
| 11. | 5/8" Push Pull Tube, 12"                           | KPCS0267    | 1        |
| 12. | 3/16" Bolt                                         | AN3-31A     | 1        |
| 13. | Male Rod End, 1/4" x 1/4"                          | NM-4        | 3        |
| 14. | 1/4" Plain Nut                                     | AN345-416   | 3        |
| 15. | Side Plate                                         | KPAC0154    | 2        |
| 16. | Aluminum Bushing, 1/4" x .028" x 3/8" *            | KAAC0044-2  | 0        |
| 17. | 3/16" Bolt                                         | AN3-11A     | 2        |
| 18. | 1/4" X 5/8" Steel Washer                           | KSHW0075    | 1        |
| 19. | 3/16" Thick Washer                                 | AN960-10    | 9        |
| 20. | 1/4" Bolt                                          | AN4-10A     | 1        |
| 21. | 1/4" Shear Nut                                     | AN364-428A  | 1        |
| 22. | 1/4" Thick Washer                                  | AN960-416   | 1        |
| 23. | Loctite Blue ***                                   | -----       | 0        |
| 24. | Aluminum Bushing - 3/8" x .095" x .33" **          | KPAC0060    | 1        |
| 25. | 3/16" Bolt - Drilled Shank                         | AN3-11      | 1        |
| 26. | 3/16" Castle Nut                                   | AN310-3     | 1        |

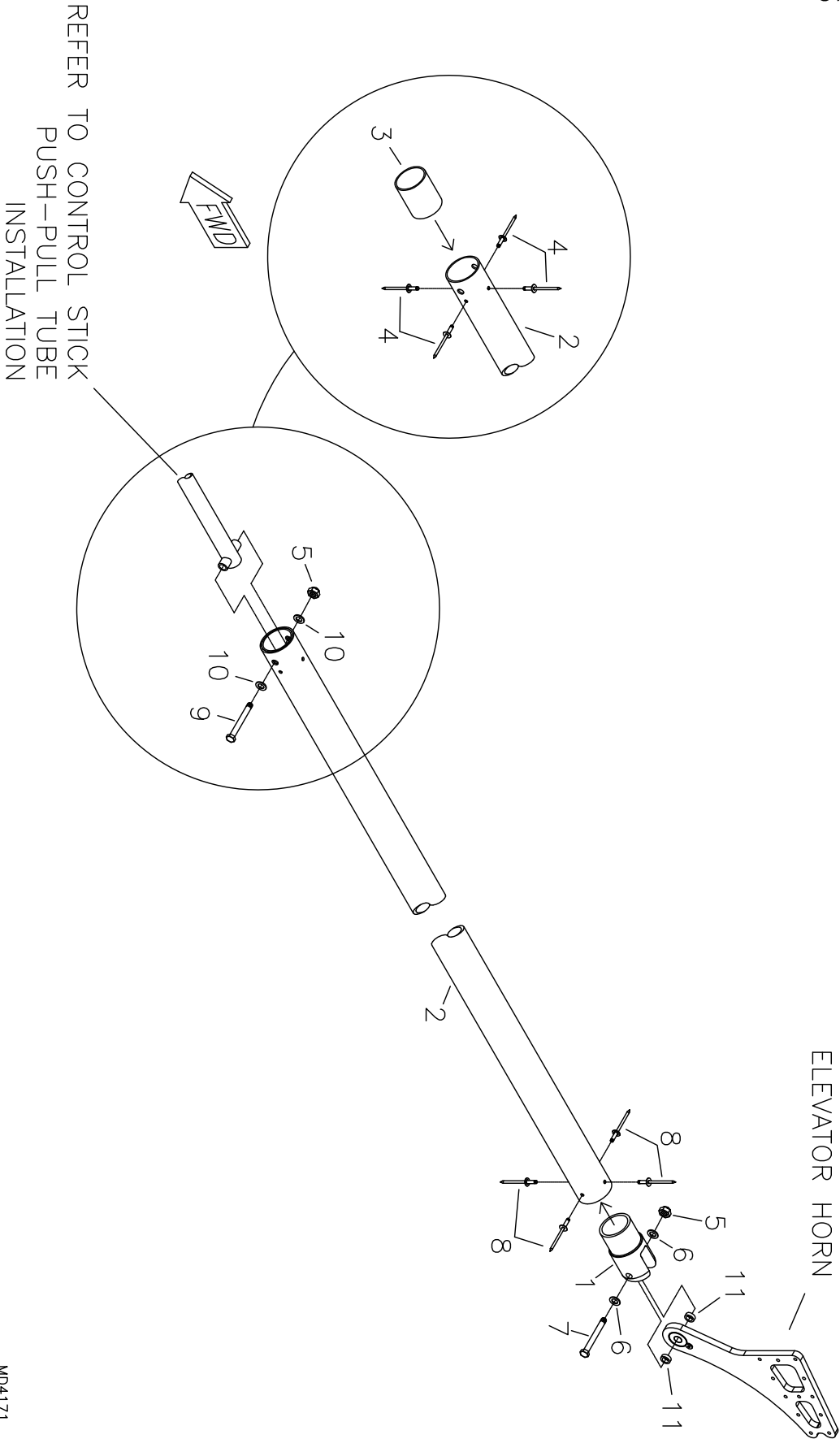
\* Fabricate from Raw Stock

\*\* Builder Modifies

\*\*\* Builder Supplied

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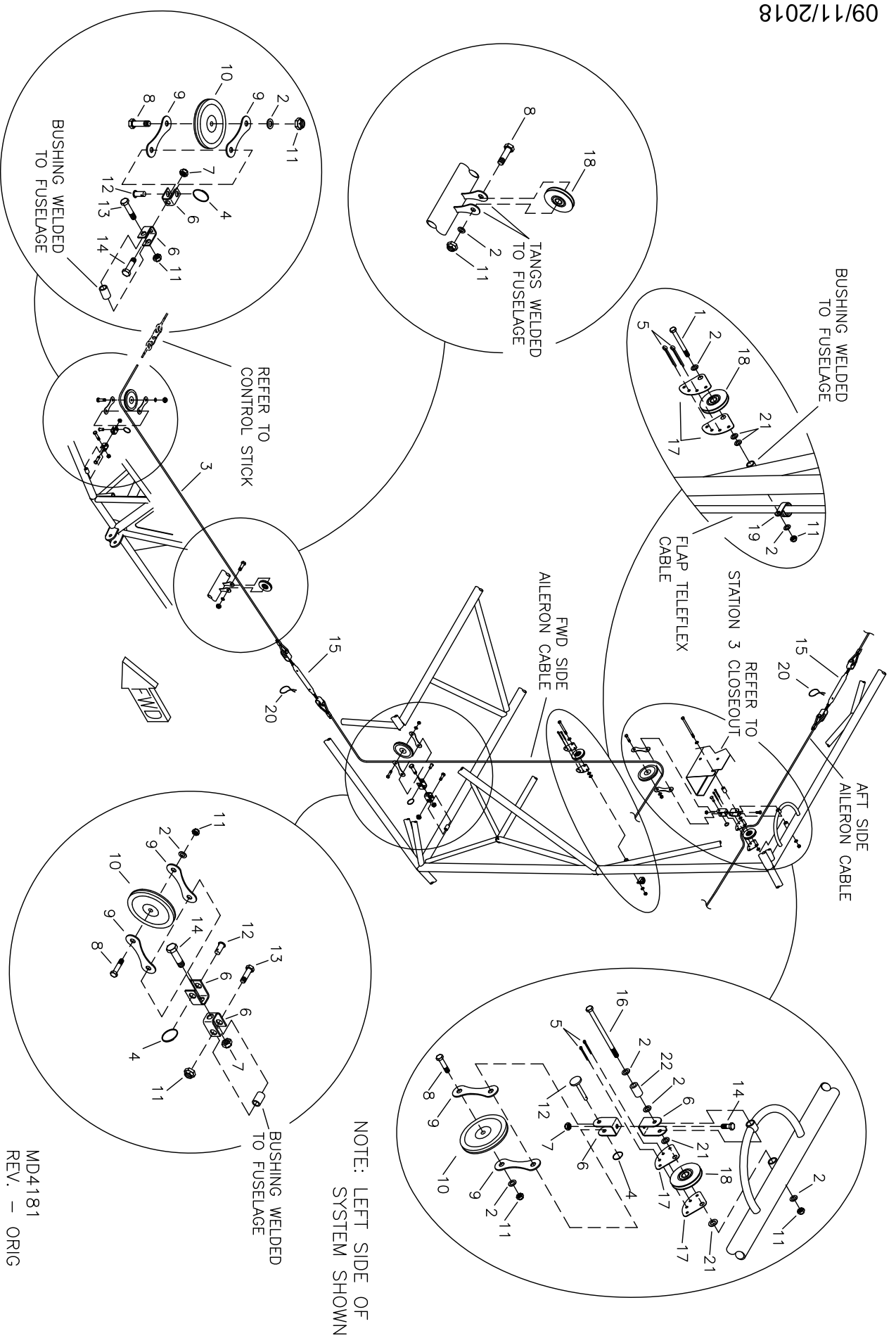
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**REPLACES S-21 OUTBOUND**  
**FUSELAGE - ELEVATOR PUSH-PULL TUBE INSTALLATION**

FUSELAGE - ELEVATOR PUSH-PULL TUBE INSTALLATION

| #   | DESCRIPTION                           | PART NUMBER | QUANTITY |
|-----|---------------------------------------|-------------|----------|
| 1.  | Elevator Push-Pull Tube Fitting       | KPCS0304    | 1        |
| 2.  | Elevator Push-Pull Tube               | KPCS0305    | 1        |
| 3.  | Elevator Push-Pull Tube Doubler       | KPCS0311    | 1        |
| 4.  | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-42     | 4        |
| 5.  | 1/4" Shear Nut                        | AN364-428A  | 2        |
| 6.  | 1/4" Thin Washer                      | AN960-416L  | 2        |
| 7.  | 1/4" Bolt                             | AN4-16A     | 2        |
| 8.  | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-43     | 4        |
| 9.  | 1/4" Bolt                             | AN4-17A     | 1        |
| 10. | 1/4" Thick Washer                     | AN960-416   | 2        |
| 11. | Spacer Bushing, 3/8" x .058" x 1/8"   | SB-3/8x1/8  | 2        |



# S-21 OUTBOUND FUSELAGE - AILERON CABLE SYSTEM INSTALLATION

MD4181  
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FUSELAGE - AILERON CABLE SYSTEM INSTALLATION

| #   | DESCRIPTION                              | PART NUMBER  | QUANTITY |
|-----|------------------------------------------|--------------|----------|
| 1.  | 3/16" Bolt                               | AN3-16A      | 2        |
| 2.  | 3/16" Thin Washer                        | AN960-10L    | 16       |
| 3.  | Aileron - Control Stick Cable            | KPCS0269     | 1        |
| 4.  | Loc Ring                                 | RL 27 1/4    | 6        |
| 5.  | Small Cotter Pin                         | MS24665-134  | 8        |
| 6.  | U-Bracket                                | RL-205-T     | 12       |
| 7.  | 3/16" Tensile Nut                        | AN365-1032A  | 6        |
| 8.  | 3/16" Bolt                               | AN3-6A       | 8        |
| 9.  | Hummer Tang                              | T12-HT6      | 12       |
| 10. | Pulley                                   | AN210-2A     | 6        |
| 11. | 3/16" Shear Nut                          | AN364-1032A  | 16       |
| 12. | 3/16" Clevis Pin                         | MS20392-2C17 | 6        |
| 13. | 3/16" Bolt                               | AN3-7A       | 4        |
| 14. | 3/16" Bolt                               | AN3-3A       | 6        |
| 15. | Turnbuckle                               | RL-335-AT    | 3        |
| 16. | 3/16" Bolt                               | AN3-32A      | 2        |
| 17. | Small Cable Keeper *                     | KPCS0207     | 2        |
| 18. | Small Pulley                             | AN210-1A     | 6        |
| 19. | 3/8" Cushion Clamp                       | MS21919-WDG6 | 2        |
| 20. | Safety Wire **                           | -----        | 0        |
| 21. | 3/16" Thick Washer                       | AN960-10     | 8        |
| 22. | Aluminum Bushing - 3/8" x .095" x 7/8" * | KPAC0060     | 2        |

\* Builder Modifies

\*\* Builder Supplied

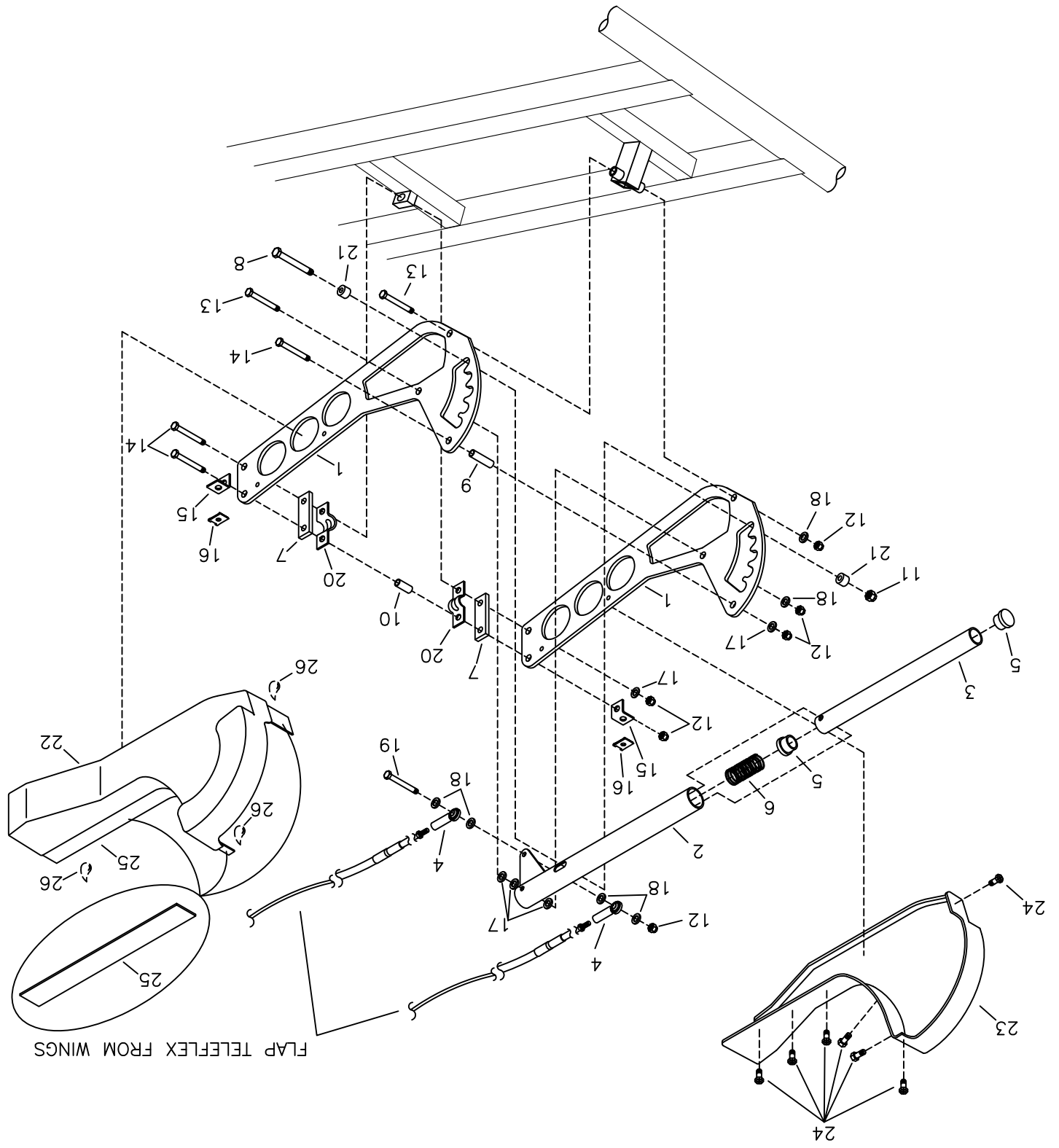
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# RRMS S-21 OUTBOUND FUSELAGE - FLAP LEVER ASSEMBLY

MD5592  
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# RANS S-21 OUTBOUND

## FUSELAGE - FLAP LEVER INSTALLATION

PAGE

010D-02

| #   | DESCRIPTION                            | PART NUMBER | QUANTITY |
|-----|----------------------------------------|-------------|----------|
| 1.  | Flap Lever Side Plate                  | KPFL0159    | 2        |
| 2.  | Flap Handle                            | KPFL0044    | 1        |
| 3.  | Flap Trip Release Tube                 | KPFL0045    | 1        |
| 4.  | Female Rod End                         | NF-3        | 2        |
| 5.  | Endcap                                 | 3/4 ENDCAP  | 2        |
| 6.  | Spring                                 | C-21        | 1        |
| 7.  | Plastic Shim                           | KPAC0121    | 2        |
| 8.  | 1/4" Bolt                              | AN4-20A     | 1        |
| 9.  | Spacer Bushing, 1/4" x .028" x 1.00" * | KAAC0044-2  | 0        |
| 10. | Spacer Bushing, 1/4" x .028" x .625" * | KAAC0044-2  | 0        |
| 11. | 1/4" Shear Nut                         | AN364-428A  | 1        |
| 12. | 3/16" Shear Nut                        | AN364-1032A | 6        |
| 13. | 3/16" Bolt                             | AN3-14A     | 2        |
| 14. | 3/16" Bolt                             | AN3-15A     | 3        |
| 15. | Angle Bracket ** ***                   | KPAC0004    | 2        |
| 16. | Tinnerman ***                          | A1789-8Z-1  | 2        |
| 17. | 3/16" Thick Washer                     | AN960-10    | 5        |
| 18. | 3/16" Thin Washer                      | AN960-10L   | 6        |
| 19. | 3/16" Bolt                             | AN3-11A     | 1        |
| 20. | Teleflex Retainer Bracket              | KSCS0001    | 2        |
| 21. | Roller Bushing, 3/8" x .058" x 3/8" *  | SB-3/8x2    | 1        |
| 22. | Flap Lever Cover - LH ***              | KPIN0118-L  | 1        |
| 23. | Flap Lever Cover - RH ***              | KPIN0118-R  | 1        |
| 24. | #4 Small Pan Head Screw ***            | 4X1/4 PHS   | 7        |
| 25. | Flap Lever Cover Splice **             | KPIN0125    | 1        |
| 26. | PVC Cement ****                        | -----       | 0        |

\* Fabricate from Raw Stock

\*\* Builder Modifies

\*\*\* Part of Interior Installation

\*\*\*\* Builder Supplied

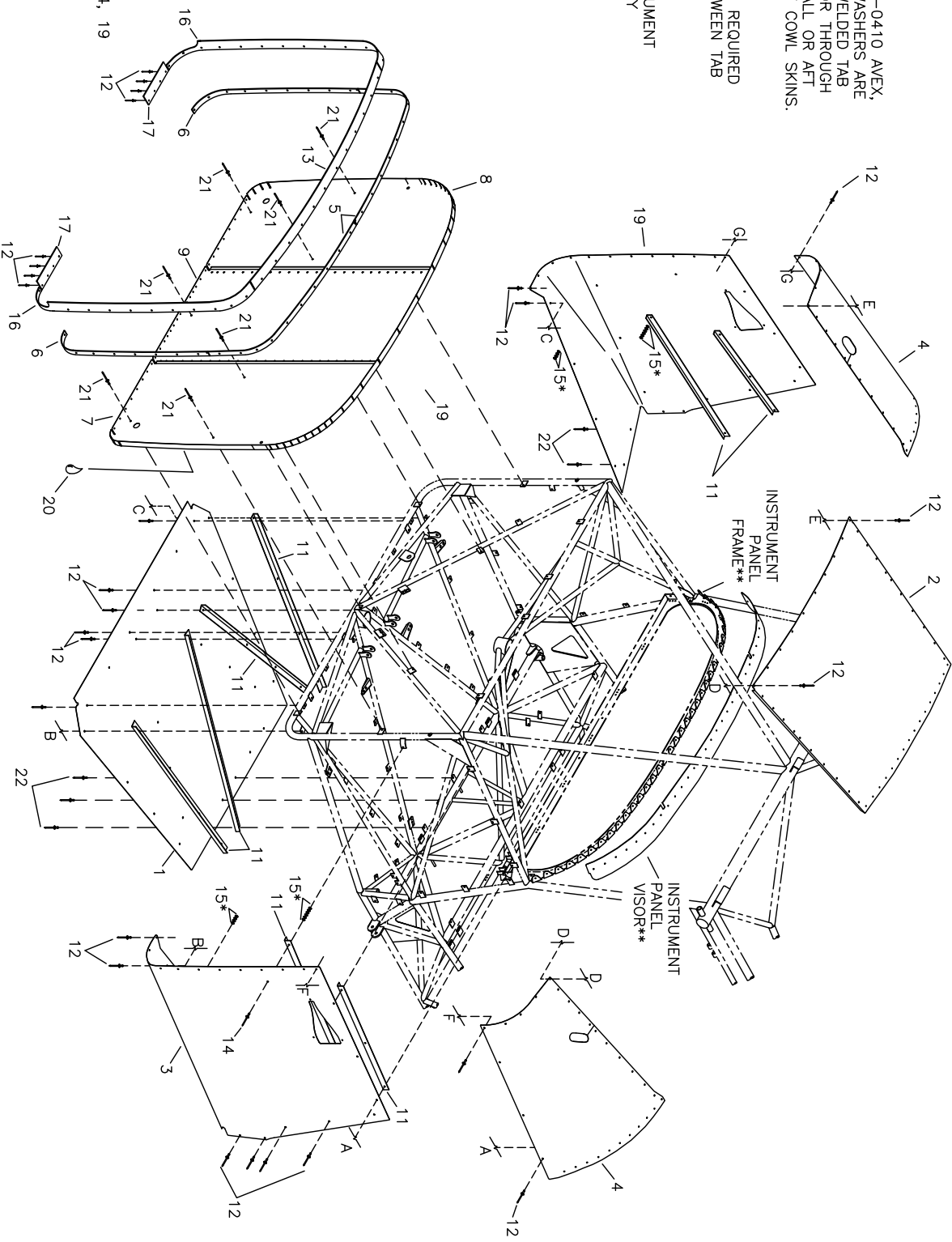
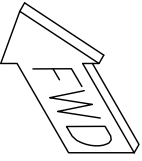
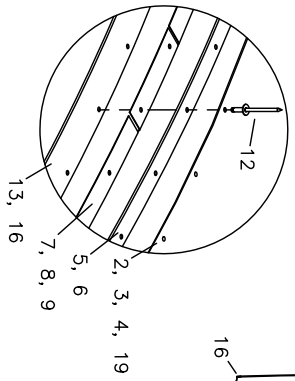
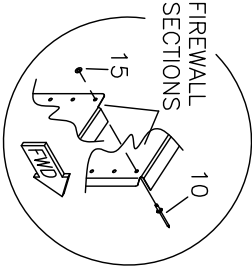
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NOTE: ALL RIVETS 1691-0410 AVEX,  
EXCEPT WHERE WASHERS ARE  
USED BETWEEN WELDED TAB  
AND STIFFENER OR THROUGH  
FRONT OF FIREWALL OR AFT  
OF BOTTOM BOOT COWL SKINS.

\* USE WASHERS AS REQUIRED  
TO FILL GAP BETWEEN TAB  
AND STIFFENER.

\*\* REFER TO INSTRUMENT  
PANEL ASSEMBLY



**RRRND S-21 OUTBOUND**  
**FUSELAGE - BOOT COWL ASSEMBLY**

MD5588  
REV. - ORIG

# RANS S-21 OUTBOUND

## FUSELAGE - BOOT COWL ASSEMBLY

PAGE

010E-02

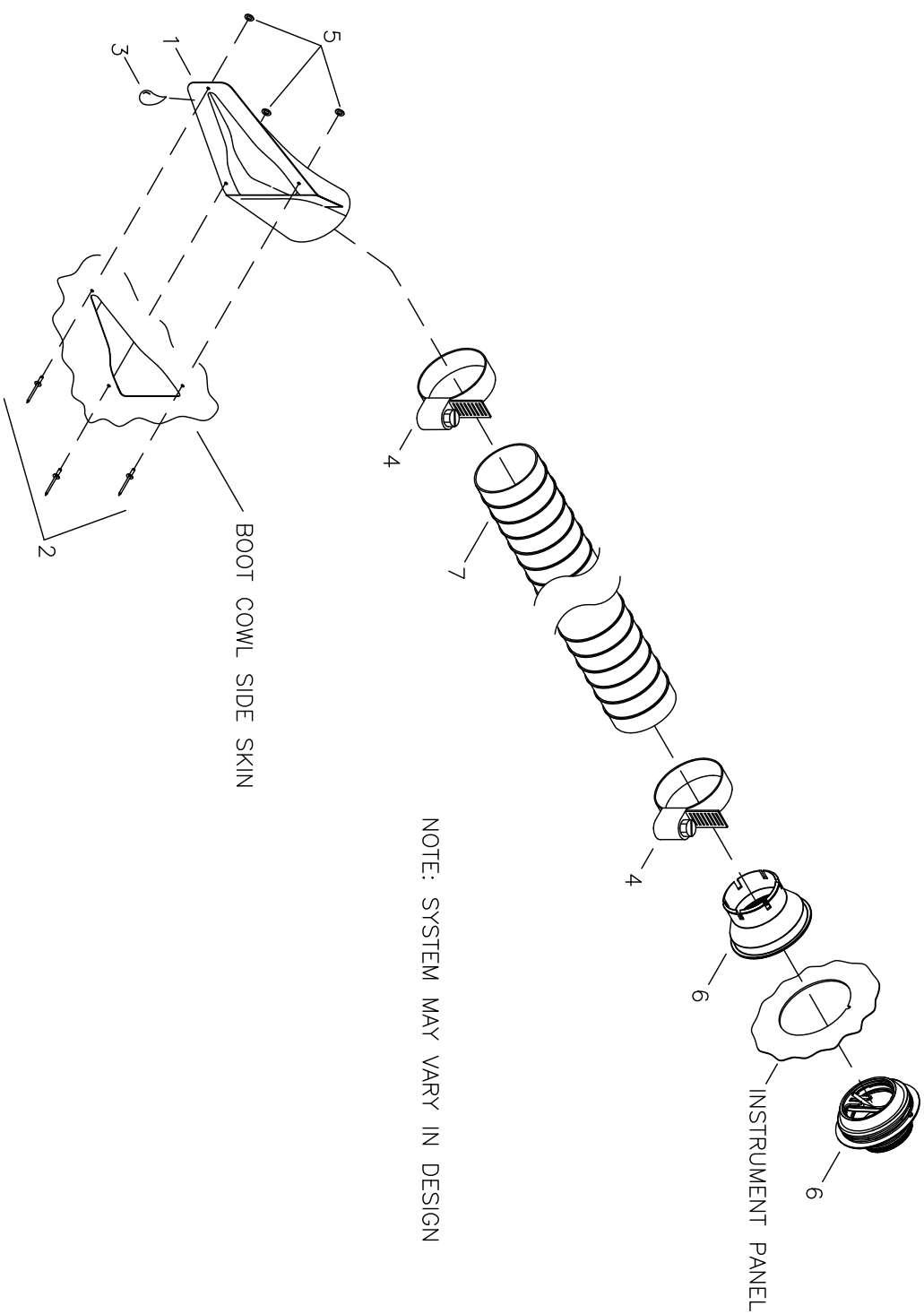
| #   | DESCRIPTION                           | PART NUMBER | QUANTITY |
|-----|---------------------------------------|-------------|----------|
| 1.  | Bottom Boot Cowl Skin                 | KPFU0744    | 1        |
| 2.  | Forward Top Boot Cowl Skin            | KPFU0688    | 1        |
| 3.  | Side Boot Cowl Skin - LH              | KPFU0750-L  | 1        |
| 4.  | Top Side Boot Cowl Skin               | KPFU0690    | 2        |
| 5.  | Boot Cowl Spacer Strip - Top          | KPFU0691    | 2        |
| 6.  | Boot Cowl Spacer Strip - Side         | KPFU0692    | 2        |
| 7.  | Firewall - Side - Left                | KPFW0037-L  | 1        |
| 8.  | Firewall - Side - Right               | KPFW0037-R  | 1        |
| 9.  | Firewall - Center                     | KPFW0038    | 1        |
| 10. | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-41     | 44       |
| 11. | Skin Stiffener - Boot Cowl            | KPFU0685    | 8        |
| 12. | 1/8" Aluminum Rivet - Avex            | 1691-0410   | 211      |
| 13. | Cowling Attach Strap - Top            | KPFU0694    | 1        |
| 14. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-45     | 2        |
| 15. | 1/8" Small Brass Washer               | AN960-B4    | 64       |
| 16. | Cowling Attach Strap - Side           | KPFU0695    | 2        |
| 17. | Cowling Attach Strap - Bottom *       | KPFU0584    | 1        |
| 18. | Double Stick Foam Tape **             | -----       | 0        |
| 19. | Side Boot Cowl Skin - RH              | KPFU0750-R  | 1        |
| 20. | Truck Bed Liner Spray **              | -----       | 0        |
| 21. | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-42     | 7        |
| 22. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-42     | 9        |

\* Builder Modifies

\*\* Builder Supplied

9/11/2018

REV. - ORIG



**RANS S-21 OUTBOUND**  
**FUSELAGE - VENT SYSTEM INSTALLATION**

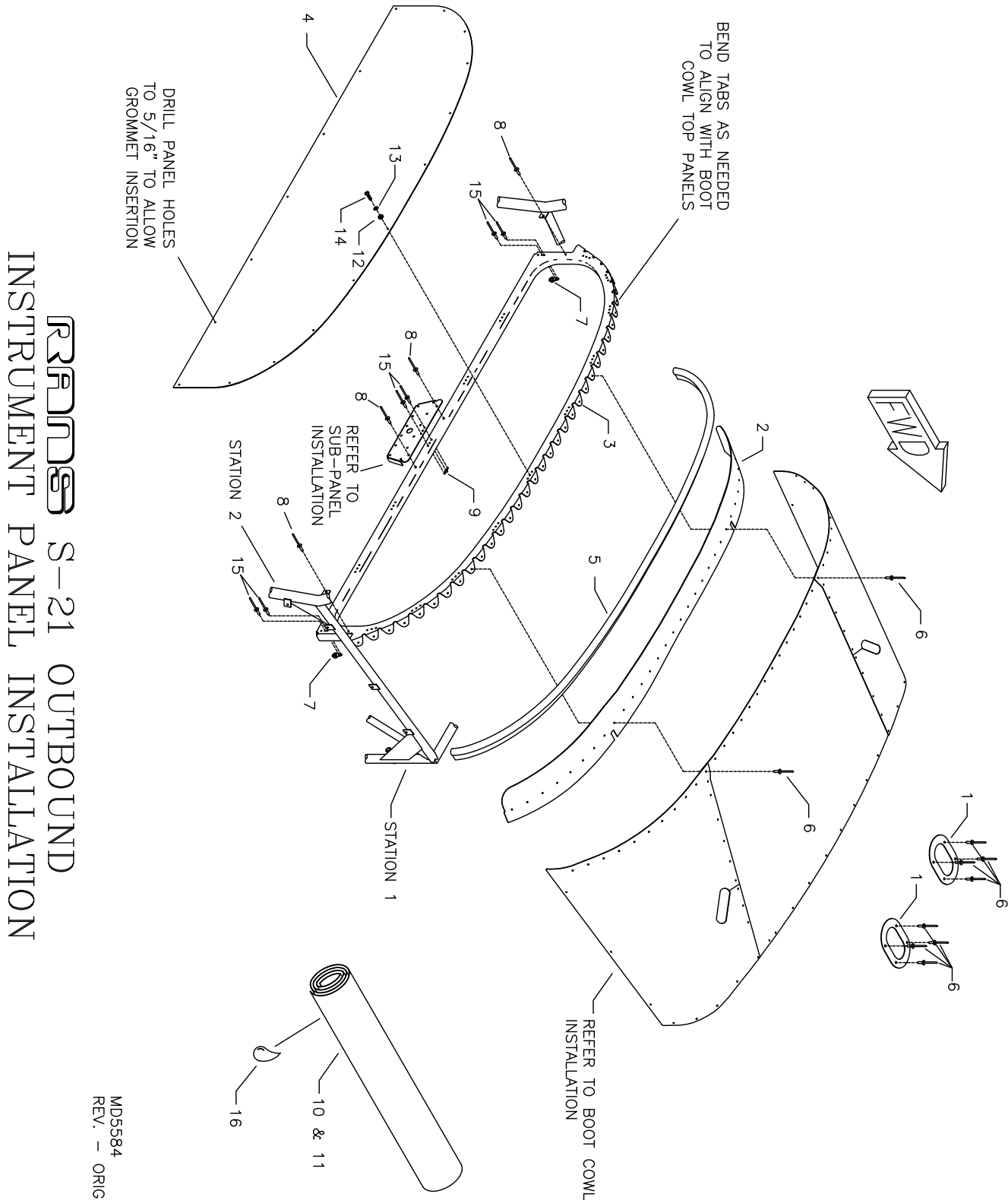
PAGE

010E-04

| #  | DESCRIPTION                | PART NUMBER | QUANTITY |
|----|----------------------------|-------------|----------|
| 1. | Air Vent NACA Scoop        | KSFU0004    | 2        |
| 2. | 1/8" Aluminum Rivet - Avex | 1691-0410   | 6        |
| 3. | Silicone Seal *            | -----       | 0        |
| 4. | Hose Clamp - 2 1/4"        | 5-5228      | 4        |
| 5. | 1/8" Small Brass Washer    | AN960-B4    | 6        |
| 6. | Eyeball Air Vent           | KSFU0006    | 2        |
| 7. | 2" Fresh Air Duct          | KSFU0005    | 1        |

\* Builder Supplied

9/11/2018  
REV. - A



**FWD S-21 OUTBOUND  
INSTRUMENT PANEL INSTALLATION**

MD5584  
REV. - ORIG

FUSELAGE - INSTRUMENT PANEL INSTALLATION

| #   | DESCRIPTION                                    | PART NUMBER  | QUANTITY |
|-----|------------------------------------------------|--------------|----------|
| 1.  | Oval Glare Shield Ring                         | KPIP0147     | 2        |
| 2.  | Instrument Panel Visor                         | KPIP0143     | 1        |
| 3.  | Instrument Panel Frame                         | KPIP0140     | 1        |
| 4.  | Instrument Panel - Standard Blank              | KPIP0134     | 1        |
| 5.  | Trimlock Cushion Lip                           | 4100C-1/16   | 5 ft     |
| 6.  | 1/8" Aluminum Rivet - Avex                     | 1691-0410    | 38       |
| 7.  | 8-32 Single-Ear Nut Plate                      | MS21051-08   | 2        |
| 8.  | 1/8" Stainless Steel Rivet - Cherry Q          | CCPQ-42      | 4        |
| 9.  | 8-32 Nut Plate                                 | MS21047-08   | 15       |
| 10. | Dash Cover Fabric - Optional *                 | KPIN0127     | 0        |
| 11. | Dash Foam - Optional *                         | KPIN0128     | 0        |
| 12. | 3/16" Rubber Grommet                           | KSAC0002     | 17       |
| 13. | #8 Small Brass Washer                          | AN960-B8     | 17       |
| 14. | #8 Pan Head Machine Screw                      | MS27039-0809 | 17       |
| 15. | 3/32" Aluminum Rivet                           | 40APR1/8     | 34       |
| 16. | Contact Cement Adhesive - 3M Super 77 Spray ** | -----        | 0        |

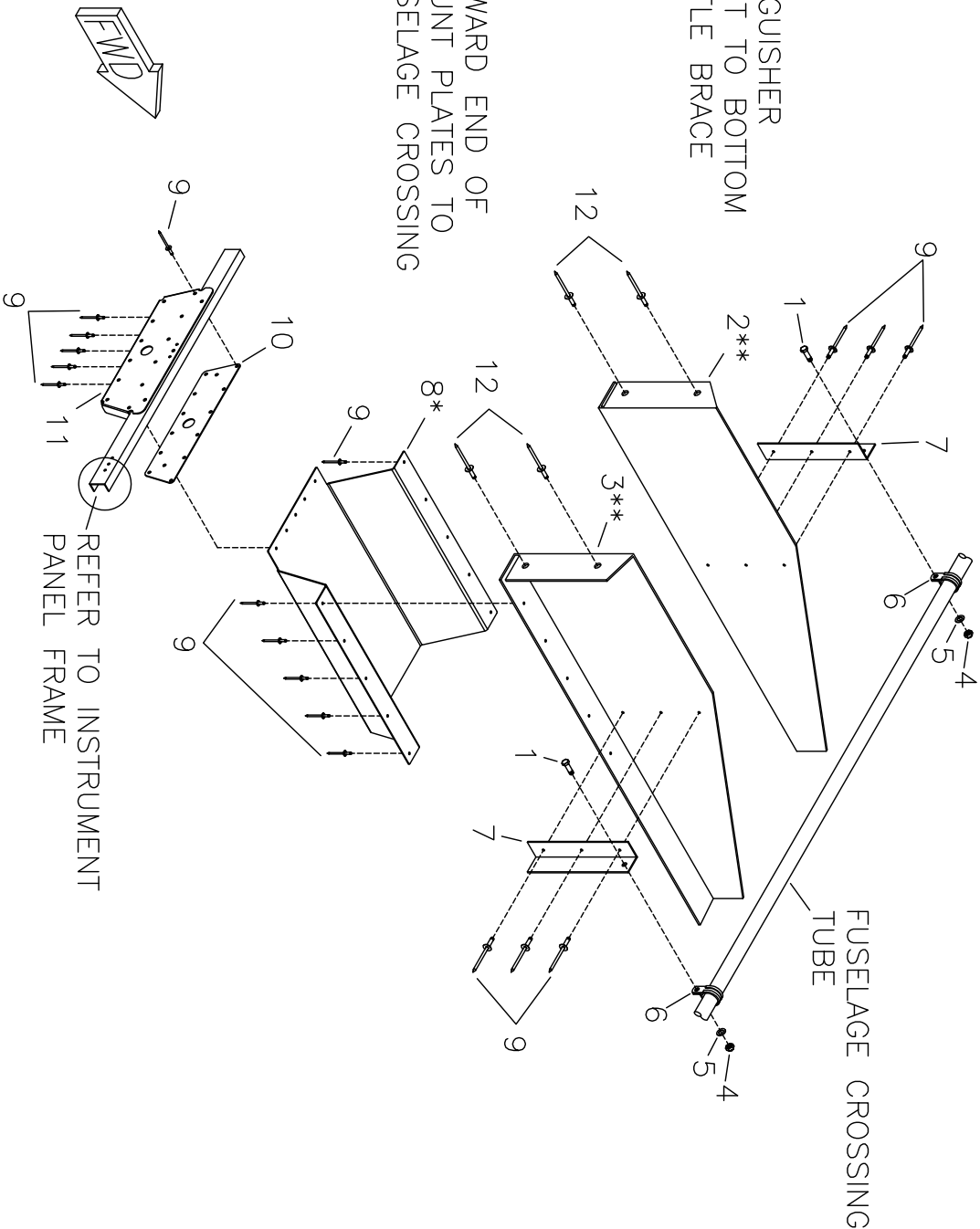
\* May be purchased separately, call RANS Parts Dept. for pricing

\*\* Builder Supplied



\*FIRE EXTINGUISHER  
MAY MOUNT TO BOTTOM  
OF THROTTLE BRACE

\*\*TRIM FORWARD END OF  
RADIO MOUNT PLATES TO  
CLEAR FUSELAGE CROSSING  
TUBE

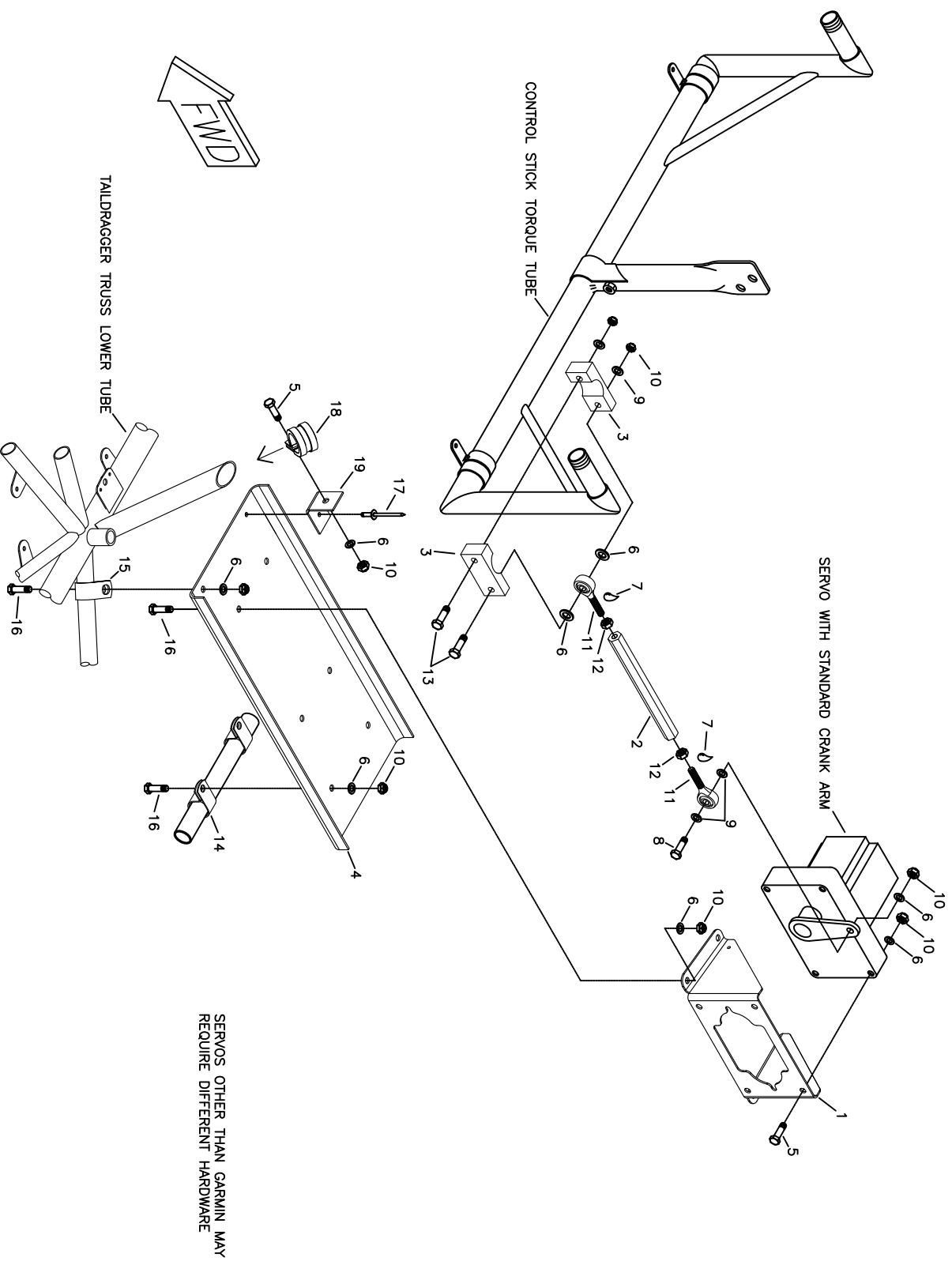


**REMOVE S-21 OUTBOUND  
INSTRUMENT SUB-PANEL &  
RADIO MOUNT PLATES INSTALLATION**

FUSELAGE - INSTRUMENT SUB-PANEL & RADIO MOUNT PLATES INSTALLATION

| #   | DESCRIPTION                                | PART NUMBER | QUANTITY |
|-----|--------------------------------------------|-------------|----------|
| 1.  | 3/16" Bolt                                 | AN3-4A      | 2        |
| 2.  | Radio Mount Plate - Double - LH            | KPAV0003-L  | 1        |
| 3.  | Radio Mount Plate - Double - RH            | KPAV0003-R  | 1        |
| 4.  | 3/16" Shear Nut                            | AN364-1032A | 2        |
| 5.  | 3/16" Thin Washer                          | AN960-10L   | 2        |
| 6.  | 1/2" Cushion Clamp                         | MS21919-DG8 | 2        |
| 7.  | 3/4" x 3/4" x .063" Aluminum Angle *       | KAAC0044-12 | 1        |
| 8.  | Throttle Brace and Fire Extinguisher Mount | KPIP0149    | 1        |
| 9.  | 1/8" Aluminum Rivet - Cherry Q             | AAPQ-42     | 33       |
| 10. | Sub-Panel Reinforcement                    | KPIP0150    | 1        |
| 11. | Instrument Sub-Panel                       | KPIP0151    | 1        |
| 12. | 1/8" Stainless Steel Rivet - Cherry Q      | CCPQ-42     | 4        |

\* Fabricate from Raw Stock



# Garmin S-21 OUTBOUND FUSELAGE - OPTIONS - PITCH SERVO INSTALLATION

# RANS S-21 OUTBOUND

PAGE

010F-06

## FUSELAGE - OPTIONS - PITCH SERVO INSTALLATION

KAFU0064

| #   | DESCRIPTION                                 | PART NUMBER  | QUANTITY |
|-----|---------------------------------------------|--------------|----------|
| 1.  | Autopilot Servo Mount                       | KPFU0665     | 1        |
| 2.  | Autopilot Control Link Tube                 | KPCS0298     | 1        |
| 3.  | Autopilot Control Stick Clamp               | KPCS0294     | 2        |
| 4.  | Autopilot Control Stick Mount               | KPCS0297     | 1        |
| 5.  | 3/16" Bolt                                  | AN3-3A       | 5        |
| 6.  | 3/16" Thin Washer                           | AN960-10L    | 15       |
| 7.  | Loctite Blue *                              | -----        | 0        |
| 8.  | 3/16" Bolt                                  | AN3-7A       | 1        |
| 9.  | 3/16" Thick Washer                          | AN960-10     | 4        |
| 10. | 3/16" Shear Nut                             | AN364-1032A  | 15       |
| 11. | 3/16" Male Rod End                          | CM-3         | 2        |
| 12. | 3/16" Plain Nut                             | AN345-10     | 2        |
| 13. | 3/16" Bolt                                  | AN3-13A      | 2        |
| 14. | 5/8" Plain Clamp                            | AN742-D10    | 2        |
| 15. | 1/2" Plain Clamp                            | AN742-D8     | 1        |
| 16. | 3/16" Bolt                                  | AN3-4A       | 7        |
| 17. | 1/8" Stainless Steel Rivet - Cherry Q       | CCPQ-42      | 1        |
| 18. | 5/8" Cushion Clamp                          | MS21919-DG10 | 1        |
| 19. | Support Angle - Baggage Compartment **, *** | KPIN0096     | 0        |

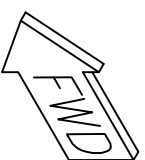
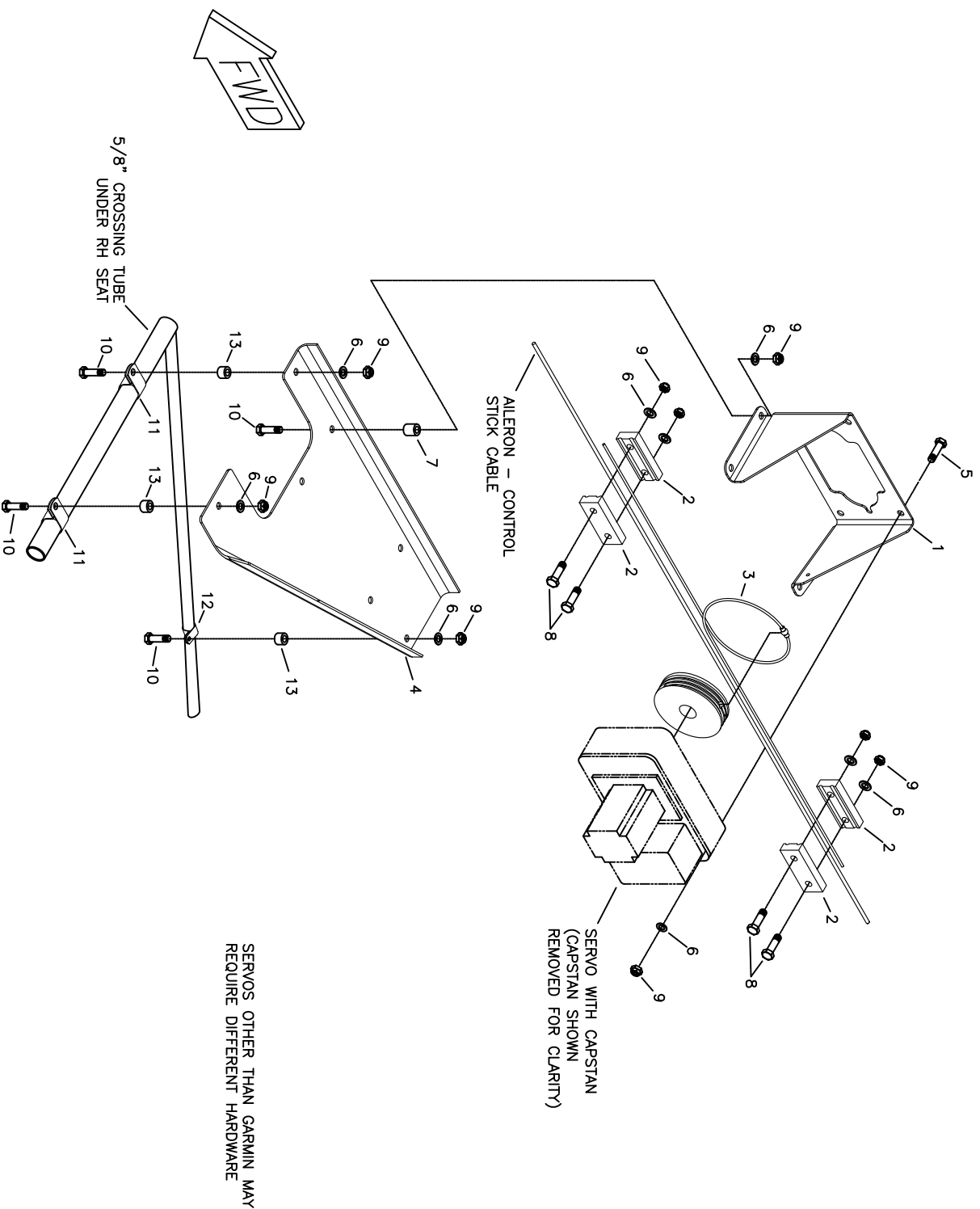
\* Builder Supplied

\*\* Builder Modifies

\*\*\* Use Drop-off from KPIN0096

9/11/2018

REV. - ORIG



# RRM S-21 OUTBOUND

## FUSELAGE - OPTIONS - ROLL SERVO INSTALLATION

# RANS S-21 OUTBOUND

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## FUSELAGE - OPTIONS - ROLL SERVO INSTALLATION

KAFU0064

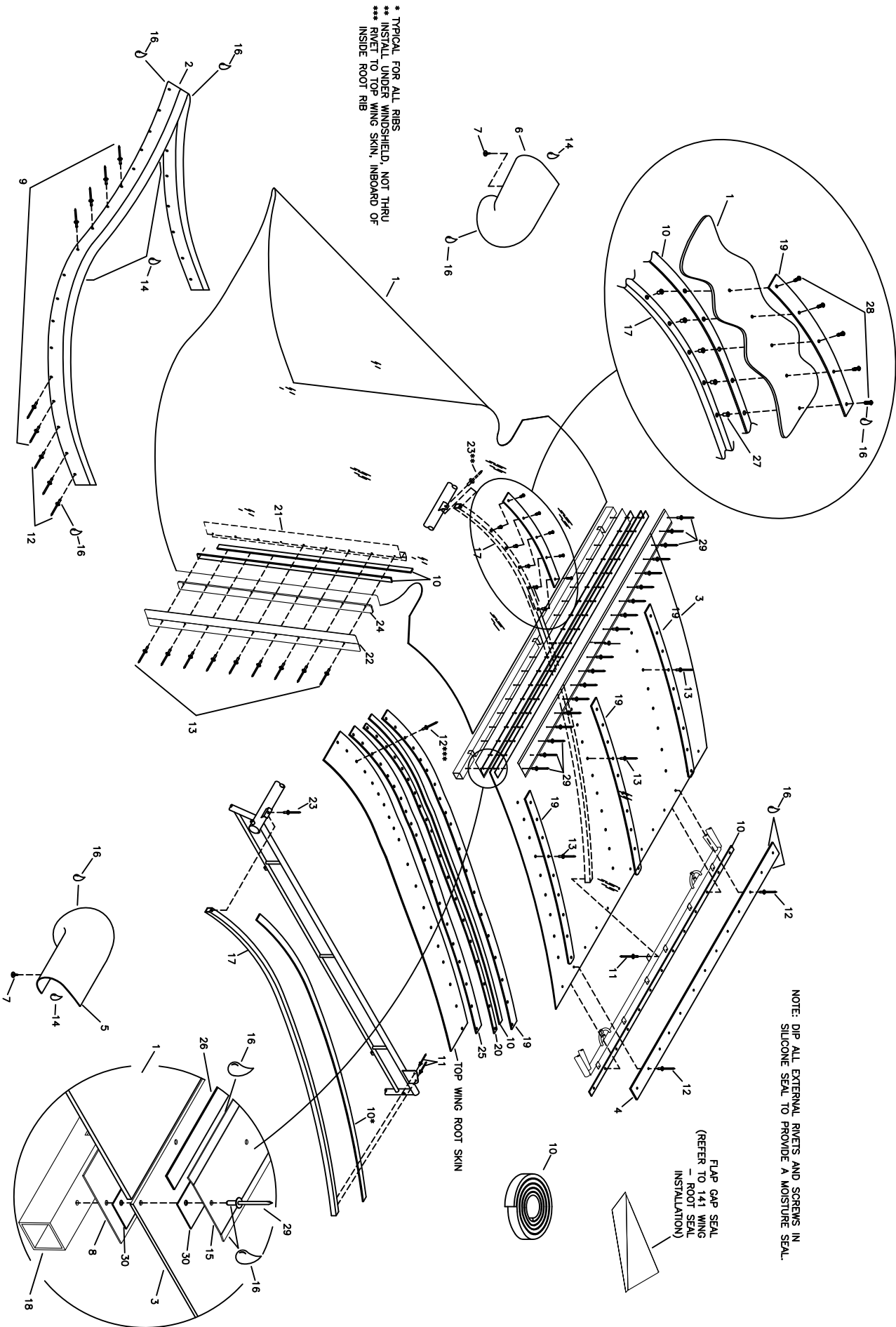
| #   | DESCRIPTION                               | PART NUMBER | QUANTITY |
|-----|-------------------------------------------|-------------|----------|
| 1.  | Autopilot Servo Mount                     | KPFU0665    | 1        |
| 2.  | Autopilot Cable Clamp                     | KPCS0295    | 4        |
| 3.  | Autopilot Roll Control Cable              | KPCS0316    | 1        |
| 4.  | Autopilot Cable Control Mount             | KPCS0296    | 1        |
| 5.  | 3/16" Bolt                                | AN3-3A      | 4        |
| 6.  | 3/16" Thin Washer                         | AN960-10L   | 15       |
| 7.  | Aluminum Bushing - 3/8" x .095" x 3/8" *  | KPST0132    | 1        |
| 8.  | 3/16" Bolt                                | AN3-7A      | 4        |
| 9.  | 3/16" Shear Nut                           | AN364-1032A | 11       |
| 10. | 3/16" Bolt                                | AN3-6A      | 7        |
| 11. | 5/8" Plain Clamp                          | AN742-D10   | 2        |
| 12. | 1/2" Plain Clamp                          | AN742-D8    | 1        |
| 13. | Aluminum Bushing - 3/8" x .095" x 5/16" * | KPST0132    | 0        |

\* Builder Modifies

9/11/2018

REV. A

# REFINISHED S-21 OUTBOUND FORMED WINDSHIELD & SKYLIGHT INSTALLATION



MD4934  
REV. A

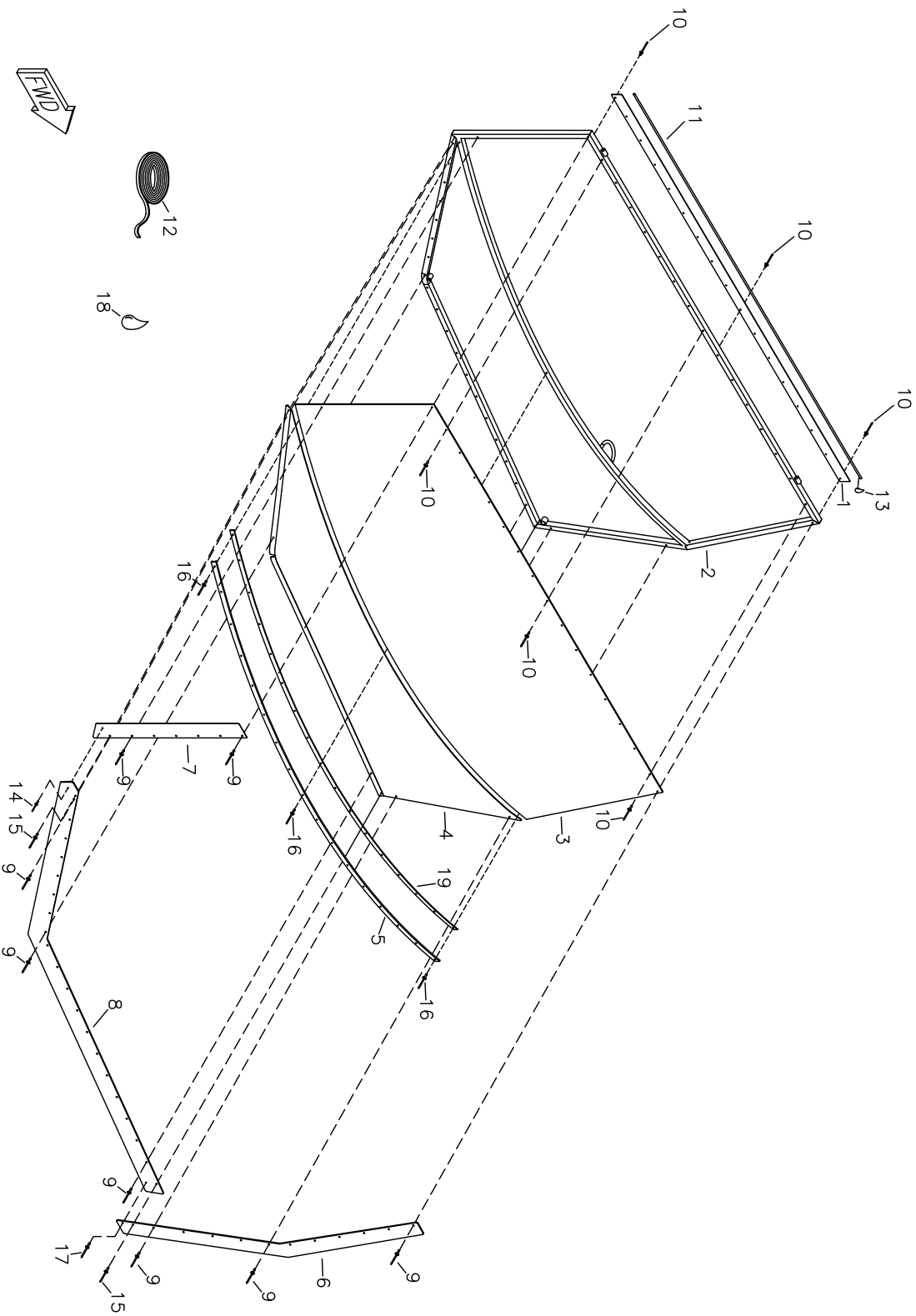
FUSELAGE - FORMED WINDSHIELD & SKYLIGHT INSTALLATION

| #   | DESCRIPTION                           | PART NUMBER | QUANTITY |
|-----|---------------------------------------|-------------|----------|
| 1.  | Windshield                            | KWS0003     | 1        |
| 2.  | Windshield Hold Down Strip            | KPWS0063    | 1        |
| 3.  | Skylight                              | KPWS0059    | 1        |
| 4.  | AFT Trim Strip                        | WS-WSSLS    | 1        |
| 5.  | Wing Cuff - LH                        | WS-CUFF-LH  | 1        |
| 6.  | Wing Cuff - RH                        | WS-CUFF-RH  | 1        |
| 7.  | #6 Pan Head Screw                     | 6RX1/2 PHS  | 2        |
| 8.  | Windshield Mating Strip - Lower       | KPWS0072    | 1        |
| 9.  | 1/8" Aluminum Rivet - Avex            | 1691-0410   | 38       |
| 10. | 1/2" Black Foam Tape *                | ----        | 0        |
| 11. | 1/8" Stainless Steel Rivet - Cherry Q | CCPQ-42     | 5        |
| 12. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-44     | 57       |
| 13. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-43     | 46       |
| 14. | 3M 2216 Adhesive - 4 ounce *          | ----        | 0        |
| 15. | Windshield Mating Strip - Upper       | KPWS0071    | 1        |
| 16. | Silicone Seal - Clear *               | ----        | 0        |
| 17. | Cabin Rib                             | KPWS0074    | 3        |
| 18. | Mating Strip Support Tube             | KPWS0077    | 1        |
| 19. | Skylight Trim Strip **                | KPWS0010    | 5        |
| 20. | Windshield Outer Hold Down Spacer     | KPWS0076    | 2        |
| 21. | Z Strip                               | KPWS0070    | 2        |
| 22. | Z Clamp Strip                         | KPWS0068    | 2        |
| 23. | 1/8" Stainless Steel Rivet - Flush    | CCC-42      | 3        |
| 24. | Z Strip Spacer                        | KPWS0069    | 2        |
| 25. | Windshield Outer Hold Down Strip      | KPWS0075    | 2        |
| 26. | 1/2" Acrylic Foam Tape                | KSAC0078    | 4 ft     |
| 27. | 8-32 Rivet Nut                        | KSHW0116    | 5        |
| 28. | 8-32 Button Head Screw                | KSHW0117    | 5        |
| 29. | 1/8" Aluminum Rivet - Cherry Q        | AAPQ-46     | 19       |
| 30. | Skylight Spacer Strip                 | KPWS0078    | 2        |

\* Builder Supplied

\*\* Builder Modifies





**RRR S-21 OUTBOUND**  
**DOOR ASSEMBLY, LEXAN & TRIM**

MD5582  
REV. - A

# RANS S-21 OUTBOUND

## DOOR ASSEMBLY, LEXAN AND TRIM

PAGE

010H-02

### LEXAN & TRIM

| #   | DESCRIPTION                    | PART NUMBER | QUANTITY |
|-----|--------------------------------|-------------|----------|
| 1.  | Upper Trim Strip *             | KPDR0077    | 2        |
| 2.  | Door Frame Assembly - RH       | KADR0012-R  | 1        |
| 2.  | Door Frame Assembly - LH       | KADR0012-L  | 1        |
| 3.  | Door - Lexan - Upper *         | KPDR0129    | 2        |
| 4.  | Door - Lexan - Lower - LH *    | KPDR0130-L  | 1        |
| 4.  | Door - Lexan - Lower - RH *    | KPDR0130-R  | 1        |
| 5.  | Channel Extrusion *            | KPDR0131    | 2        |
| 6.  | Door Trim - FWD *              | KPDR0126    | 2        |
| 7.  | Door Trim - AFT *              | KPDR0127    | 2        |
| 8.  | Door Trim - Lower *            | KPDR0128    | 2        |
| 9.  | 1/8" Aluminum Rivet - Cherry Q | AAPQ-43     | 72       |
| 10. | 1/8" Aluminum Rivet - Avex     | 1691-0410   | 64       |
| 11. | Rubber Edging                  | 8510K11     | 8 ft     |
| 12. | 1/2" Black Foam Tape **        | -----       | 0        |
| 13. | Adhesive - Superglue **        | -----       | 0        |
| 14. | 3/32" Aluminum Rivet           | 40APR1/8    | 2        |
| 15. | 1/8" Aluminum Rivet - Cherry Q | AAPQ-44     | 4        |
| 16. | 1/8" Aluminum Rivet - Cherry Q | AAPQ-45     | 34       |
| 17. | 1/8" Aluminum Rivet - Cherry Q | AAPQ-41     | 2        |
| 18. | Silicone Seal **               | -----       | 0        |
| 19. | 1/2" Acrylic Foam Tape         | KSAC0078    | 8.5 ft   |

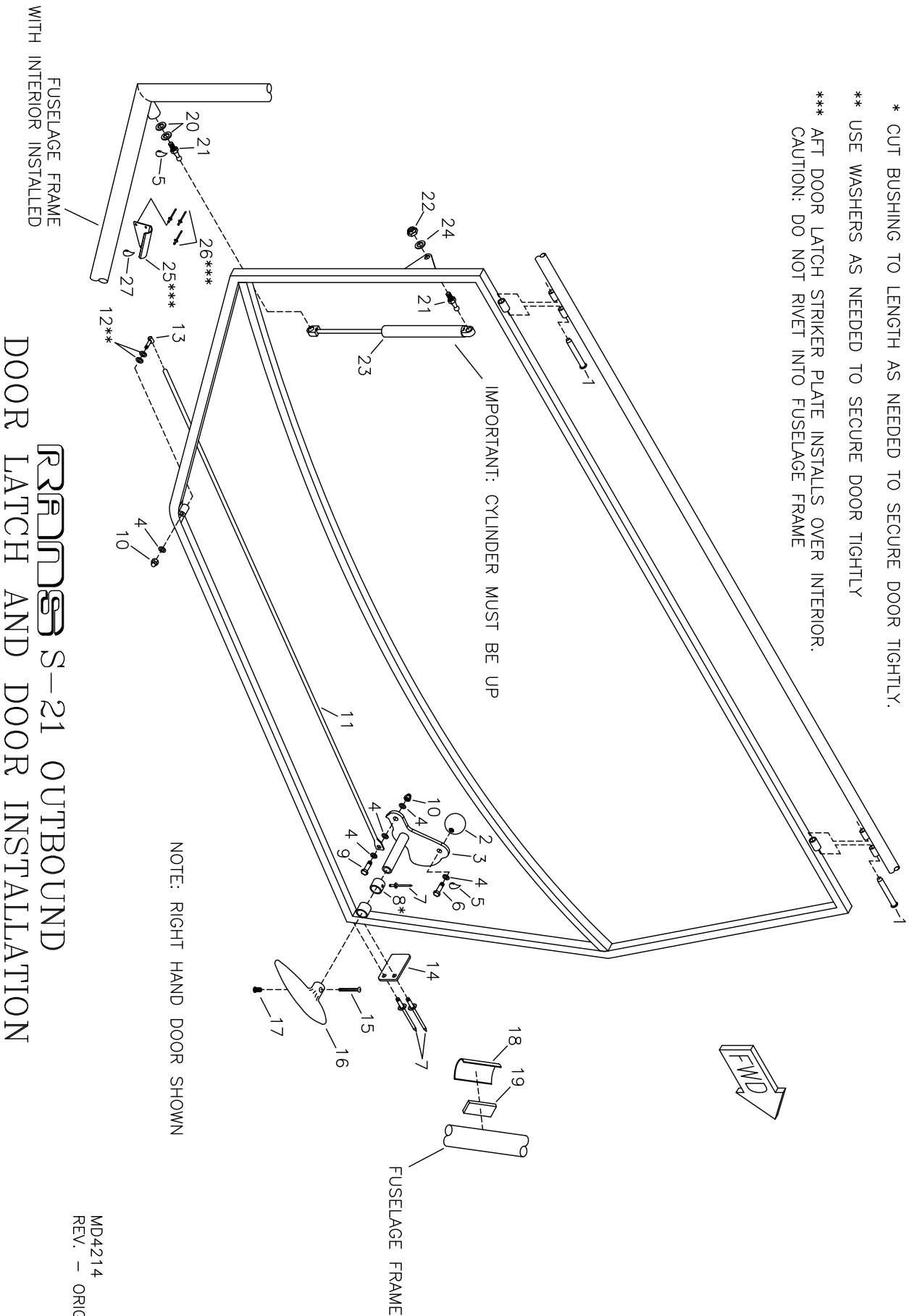
\* Builder Modifies

\*\* Builder Supplied

9/11/2018

REV. A

- \* CUT BUSHING TO LENGTH AS NEEDED TO SECURE DOOR TIGHTLY.
  - \*\* USE WASHERS AS NEEDED TO SECURE DOOR TIGHTLY
  - \*\*\* AFT DOOR LATCH STRIKER PLATE INSTALLS OVER INTERIOR.
- CAUTION: DO NOT RIVET INTO FUSELAGE FRAME



MD4214  
REV. - ORIG

# RANS S-21 OUTBOUND

## DOOR LATCH AND DOOR INSTALLATION

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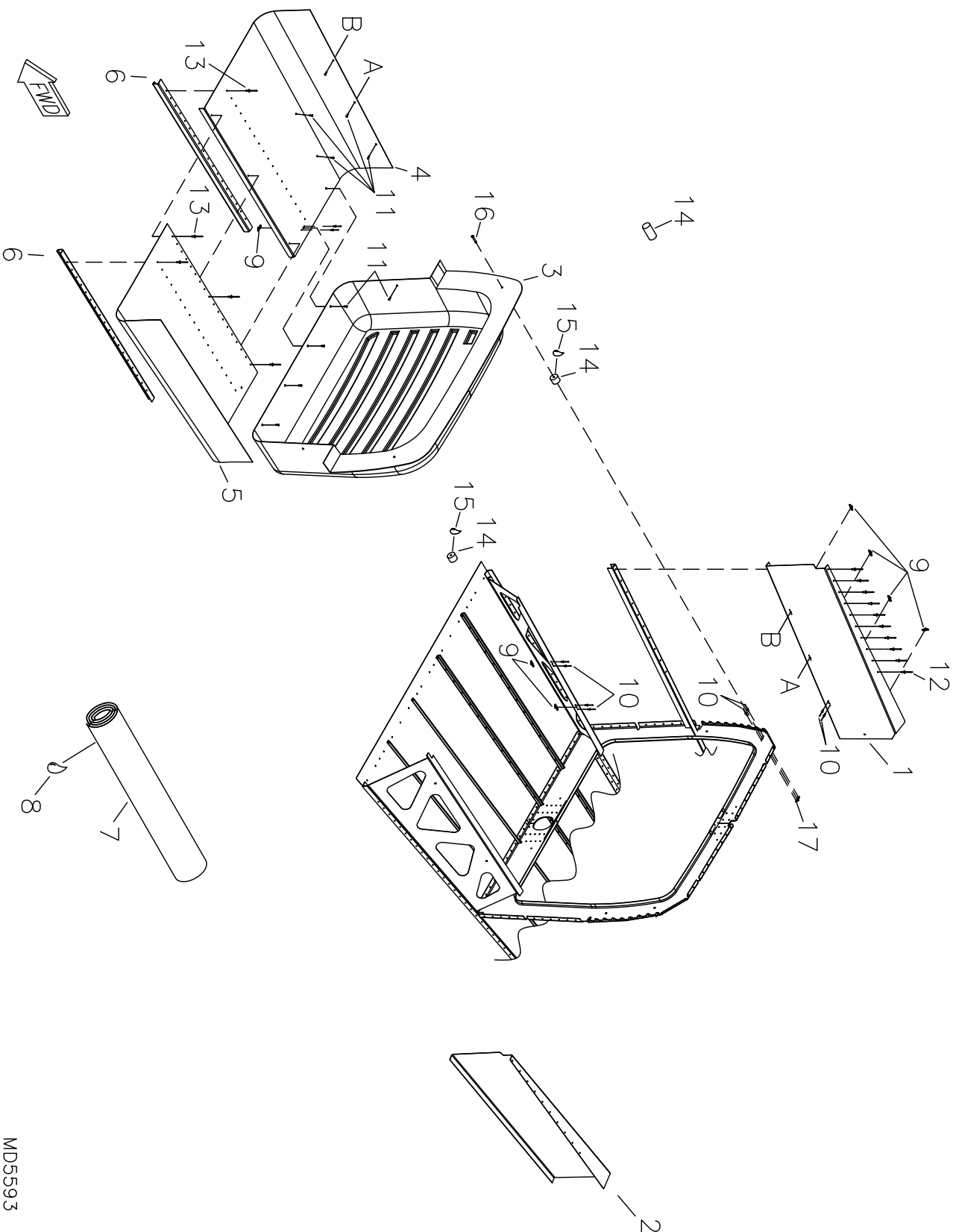
| #   | DESCRIPTION                                | PART NUMBER | QUANTITY |
|-----|--------------------------------------------|-------------|----------|
| 1.  | Self-Locking Clevis Pin                    | KSHW0045    | 4        |
| 2.  | Door Knob - 1" Black                       | KSHW0093    | 2        |
| 3.  | Handle Plate - LH                          | KPDR0110-L  | 1        |
| 3.  | Handle Plate - RH                          | KPDR0110-R  | 1        |
| 4.  | 3/16" Thin Washer                          | AN960-10L   | 10       |
| 5.  | Loctite Blue *                             | -----       | 0        |
| 6.  | 3/16" Bolt                                 | AN3-3A      | 2        |
| 7.  | 1/8" Stainless Steel Rivet - Cherry Q      | CCPQ-42     | 6        |
| 8.  | Door Spacer Bushing, 1/2" x .058 x 3/8" ** | KPAC0278    | 1        |
| 9.  | 3/16" Bolt                                 | AN3-4A      | 2        |
| 10. | 3/16" Shear Acorn Nut                      | 22NKM02     | 4        |
| 11. | Door Latch                                 | KPDR0113    | 2        |
| 12. | 3/16" Thick Washer                         | AN960-10    | 4        |
| 13. | Door Pivot Bushing                         | KPDR0057    | 2        |
| 14. | Handle Stop Plate                          | KPDR0111    | 2        |
| 15. | Button Head Screw                          | KSHW0024    | 2        |
| 16. | Door Handle                                | KPDR0026    | 2        |
| 17. | Brass Flange Nut                           | KSHW0025    | 2        |
| 18. | Door Latch Striker Plate                   | KPDR0122    | 2        |
| 19. | 3/4" Acrylic Foam Tape *                   | -----       | 0        |
| 20. | 5/16" Thick Washer                         | AN960-516   | 4        |
| 21. | Ball Stud                                  | KSHW0021    | 4        |
| 22. | 5/16" Loc-Nut - Course                     | KSHW0022    | 2        |
| 23. | Gas Spring                                 | KSHW0078    | 2        |
| 24. | 5/16" Thin Washer                          | AN960-516L  | 2        |
| 25. | Aft Door Latch Striker Plate - LH          | KPDR0125-L  | 1        |
| 25. | Aft Door Latch Striker Plate - RH          | KPDR0125-R  | 1        |
| 26. | 1/8" Aluminum Rivet - Avex                 | 1691-0410   | 6        |
| 27. | Adhesive or Double Stick Tape *            | -----       | 0        |

\* Builder Supplied

\*\* Builder fabricates from raw stock

9/11/2018

REV. - ORIG



# REFINISH S-21 OUTBOUND FUSELAGE - AFT BAGGAGE COMPARTMENT INSTALLATION

MD55593  
REV. - ORIG

# RANS S-21 OUTBOUND

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## AFT BAGGAGE COMPARTMENT INSTALLATION

| #   | DESCRIPTION                                        | PART NUMBER  | QUANTITY |
|-----|----------------------------------------------------|--------------|----------|
| 1.  | Aft Side - Baggage - RH                            | KPIN0136-R   | 1        |
| 2.  | Aft Side - Baggage - LH                            | KPIN0136-L   | 1        |
| 3.  | S-4 Closeout                                       | KPIN0137     | 1        |
| 4.  | Aft Bottom - Baggage - RH                          | KPIN0135     | 1        |
| 5.  | Aft Bottom - Baggage - LH                          | KPIN0134     | 1        |
| 6.  | Aft Baggage Bottom Support                         | KPIN0138     | 2        |
| 7.  | Baggage Compartment Fabric - Optional - 2.5 yards* | -----        | 0        |
| 8.  | Contact Cement Adhesive - 3M Super 77 Spray **     | -----        | 0        |
| 9.  | 8-32 Nut Plate                                     | MS21047-08   | 16       |
| 10. | 3/32" Aluminum Rivet                               | 40APR1/8     | 36       |
| 11. | 8-32 Machine Screw                                 | AN526-832R10 | 16       |
| 12. | 1/8" Aluminum Rivet - Cherry Q                     | AAPQ-43      | 20       |
| 13. | 1/8" Aluminum Rivet - Avex                         | 1691-0410    | 54       |
| 14. | Spacer - Station 4 Closeout - 0.75" ***            | KPIN0141     | 1        |
| 15. | PVC Cement **                                      | -----        | 0        |
| 16. | 3/16" Bolt                                         | AN3-12A      | 2        |
| 17. | 3/16" Nut Plate                                    | K-1000-3     | 2        |

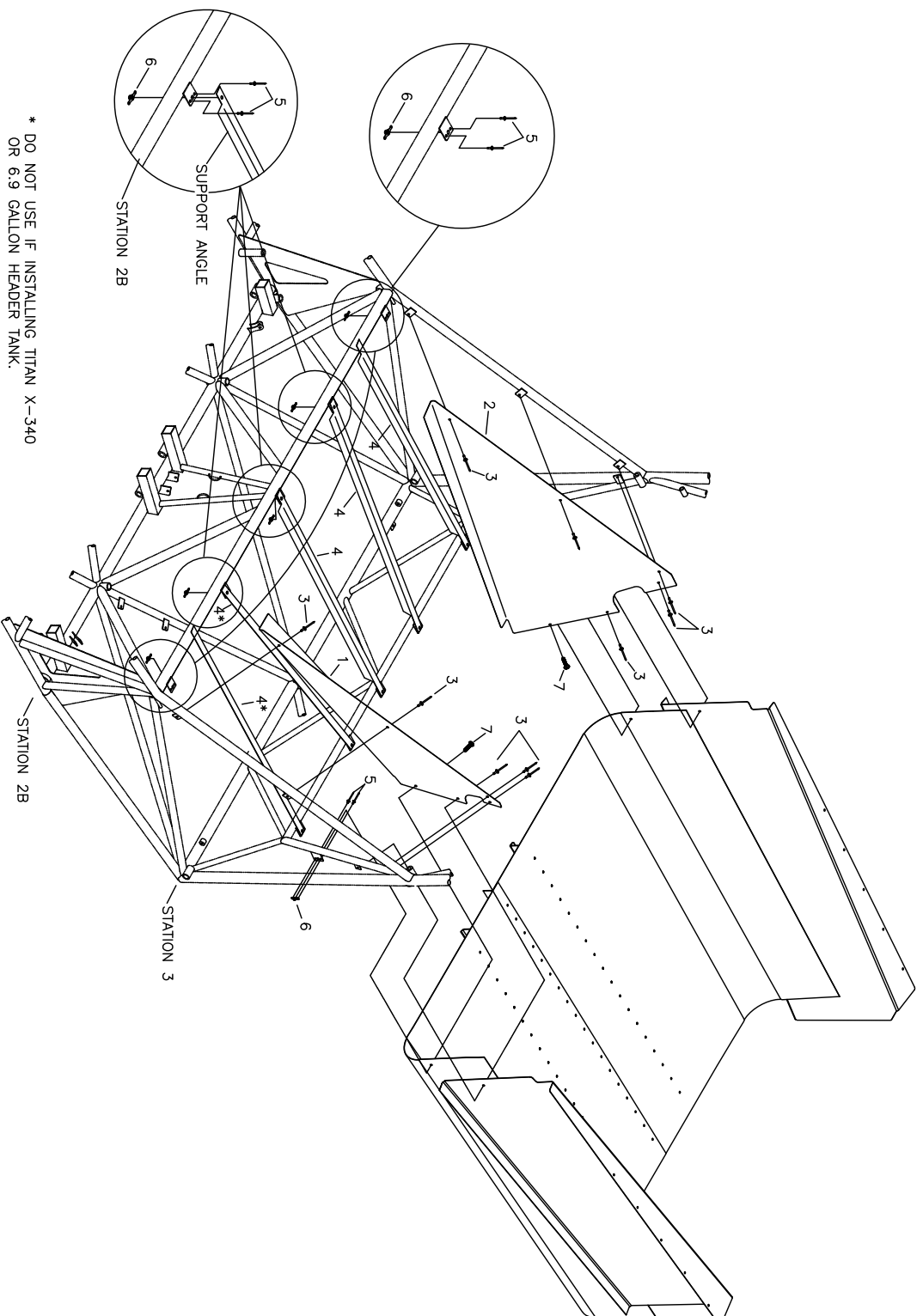
\* May be purchased separately, call RANS Parts Dept. for pricing

\*\* Builder Supplied

\*\*\* Builder Modifies

9/11/2018

REV. - ORIG



\* DO NOT USE IF INSTALLING TITAN X-340  
OR 6.9 GALLON HEADER TANK.

# REFINOS S-21 OUTBOUND SIDES - FORWARD BAGGAGE COMPARTMENT INSTALLATION

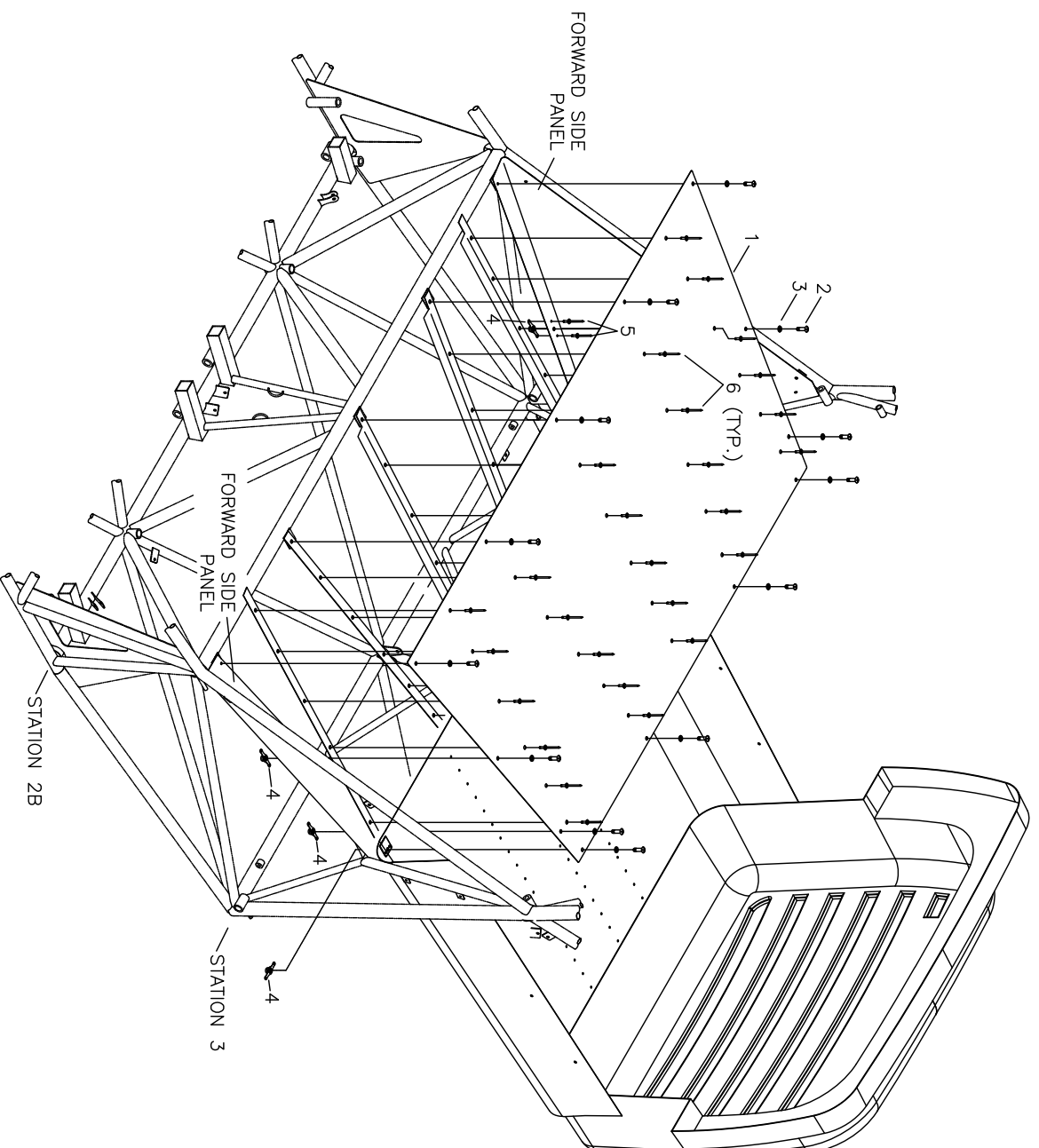
MD5593  
REV. - ORIG

SIDES - FORWARD BAGGAGE COMPARTMENT INSTALLATION

| #  | DESCRIPTION                             | PART NUMBER  | QUANTITY |
|----|-----------------------------------------|--------------|----------|
| 1. | Forward Side - Baggage Compartment - LH | KPIN0094-L   | 1        |
| 2. | Forward Side - Baggage Compartment - RH | KPIN0094-R   | 1        |
| 3. | 1/8" Aluminum Rivet - Avex              | 1691-0410    | 12       |
| 4. | Support Angle - Baggage Compartment *   | KPIN0096     | 3        |
| 5. | 3/32" Aluminum Rivet                    | 40APR1/8     | 14       |
| 6. | 8-32 Nut Plate                          | MS21047-08   | 7        |
| 7. | 8-32 Machine Screw                      | AN526-832R10 | 2        |

\* Builder Modifies





NOTE: ALL RIVETS  
1691-0410 AVEX  
EXCEPT AS NOTED

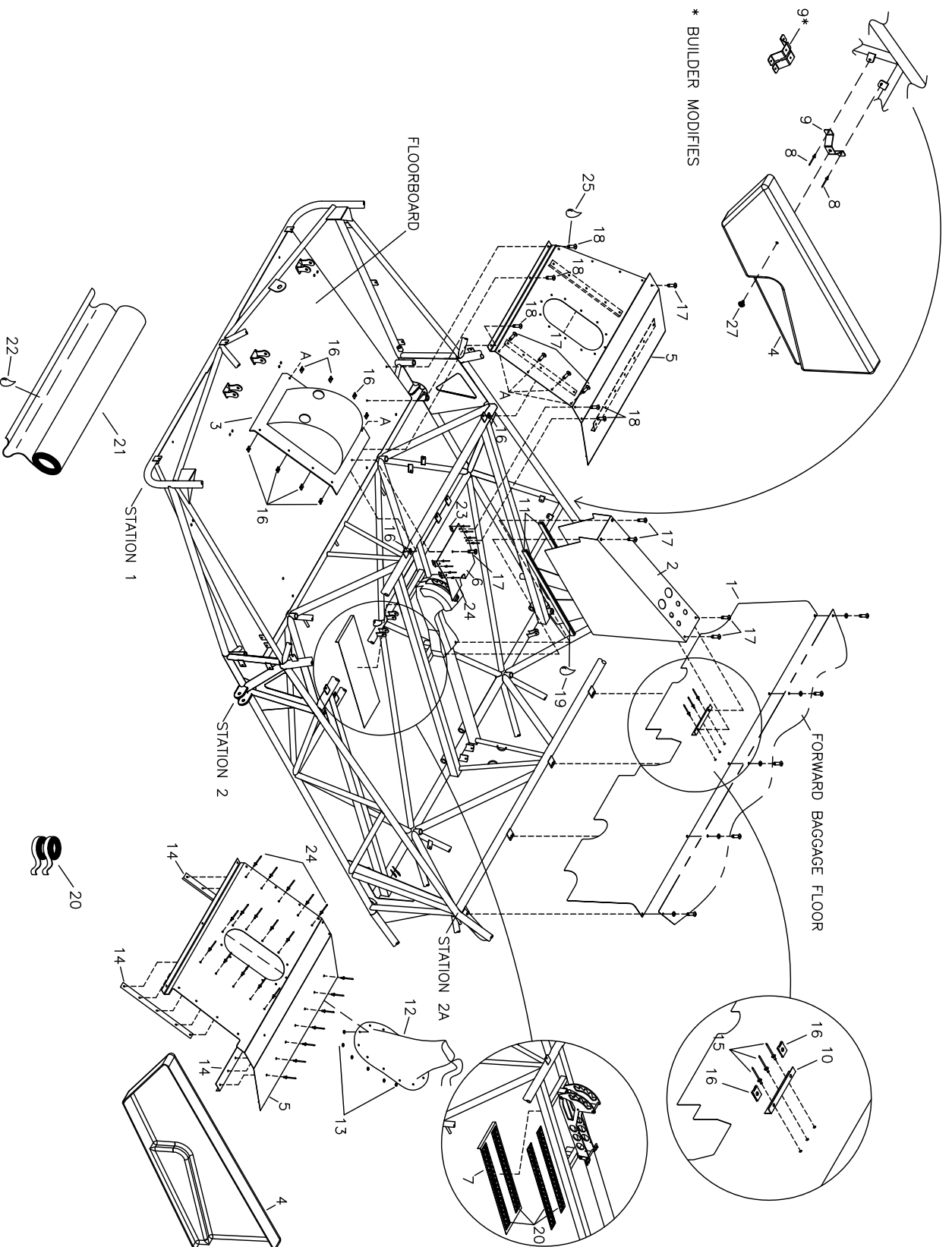
# REFUND S-21 OUTBOUND

## FLOOR - FORWARD BAGGAGE COMPARTMENT INSTALLATION

MD5593  
REV. A

**FLOOR - FORWARD BAGGAGE COMPARTMENT INSTALLATION**

| <b>#</b> | <b>DESCRIPTION</b>                   | <b>PART NUMBER</b> | <b>QUANTITY</b> |
|----------|--------------------------------------|--------------------|-----------------|
| 1.       | Forward Bottom - Baggage Compartment | KPIN0090           | 1               |
| 2.       | 8-32 Machine Screw                   | AN526-832R10       | 13              |
| 3.       | #8 Small Brass Washer                | AN960-B8           | 13              |
| 4.       | 8-32 Nut Plate                       | MS21047-08         | 8               |
| 5.       | 3/32" Aluminum Rivet                 | 40APR1/8           | 16              |
| 6.       | 1/8" Aluminum Rivet - Avex           | 1691-0410          | 27              |



# REFINISH S-21 OUTBOUND INTERIOR INSTALLATION - AFT

MD5595  
REV. - ORIG

# RANS S-21 OUTBOUND

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010I-08

## INTERIOR INSTALLATION - AFT

| #   | DESCRIPTION                                    | PART NUMBER | QUANTITY |
|-----|------------------------------------------------|-------------|----------|
| 1.  | Station 2A Closeout                            | KPIN0099    | 1        |
| 2.  | Middle Console                                 | KPIN0122    | 1        |
| 3.  | Rudder Cable Closeout                          | KPIN0101    | 1        |
| 4.  | Seat Side Closeout - RH                        | KPIN0142-R  | 1        |
| 4.  | Seat Side Closeout - LH                        | KPIN0142-L  | 1        |
| 5.  | Control Stick Closeout - LH                    | KPIN0126-L  | 1        |
| 5.  | Control Stick Closeout - RH                    | KPIN0126-R  | 1        |
| 6.  | Flap Lever / Control Stick Closeout            | KPIN0124    | 1        |
| 7.  | Lower Flap Lever Closeout                      | KPIN0110    | 1        |
| 8.  | 1/8" Aluminum Rivet - Cherry Q                 | AAPQ-42     | 4        |
| 9.  | Side Closeout Retainer *****                   | KPIN0143    | 1        |
| 10. | Support Angle - Baggage Compartment *          | KPIN0096    | 0        |
| 11. | Rubber Trim                                    | X1011       | 2 ft     |
| 12. | Control Stick Boot                             | KPIN0013    | 2        |
| 13. | 1/8" Small Brass Washer                        | AN960-B4    | 24       |
| 14. | Skin Stiffener - Boot Cowl **                  | KPFU0685    | 1        |
| 15. | 1/8" Aluminum Rivet - Avex                     | 1691-0410   | 27       |
| 16. | Tinnerman                                      | A1789-8Z-1  | 21       |
| 17. | #8 Pan Head Screw                              | 8X1/2 PHS   | 15       |
| 18. | #6 Pan Head Screw                              | 6RX1/2 PHS  | 10       |
| 19. | Adhesive - Superglue ***                       | ----        | 0        |
| 20. | Velcro - Adhesive Back ***                     | ----        | 0        |
| 21. | Interior Fabric - Optional - 2 yards *** ***** | ----        | 0        |
| 22. | Contact Cement Adhesive - Brush On ***         | ----        | 0        |
| 23. | Tinnerman                                      | A6196-6Z-1  | 4        |
| 24. | 3/32" Aluminum Rivet                           | 40APR1/8    | 32       |
| 25. | Loctite Blue ***                               | ----        | 0        |
| 26. | Flap Lever Cover - LH ****                     | KPIN0118-L  | 0        |
| 26. | Flap Lever Cover - RH ****                     | KPIN0118-R  | 0        |
| 27. | Screw Rivet                                    | M60-0580-01 | 2        |

\* Use Drop-Off from Baggage Compartment Installation

\*\* Also Use Drop-Off from Boot Cowl Assembly \*\*\* Builder Supplied

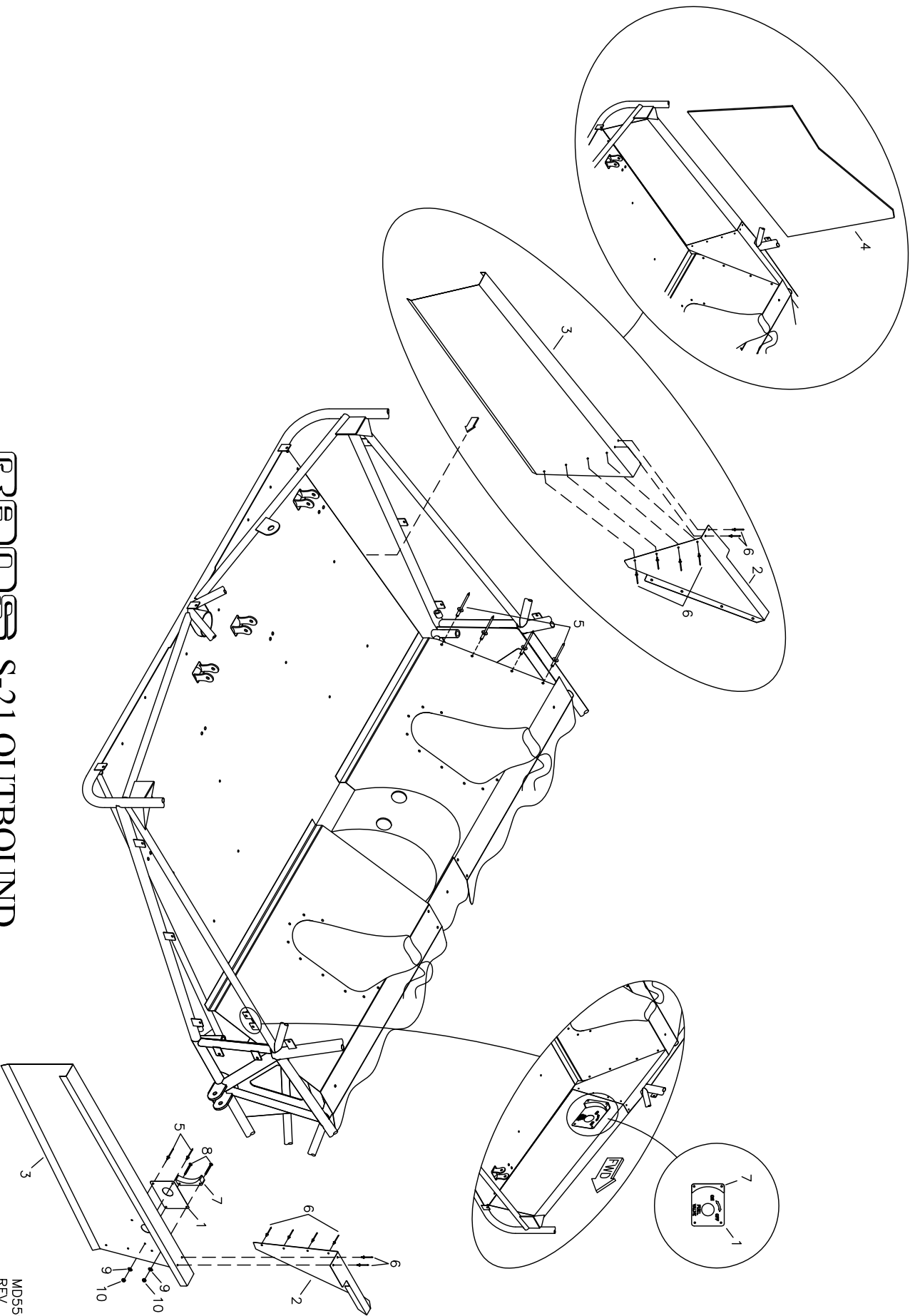
\*\*\*\* Refer to Flap Lever Assembly \*\*\*\*\* May be purchased seperately, call RANS Parts Dept.

\*\*\*\*\* Builder Modifies

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# RRR S-21 OUTBOUND INTERIOR INSTALLATION - FWD



MD5595  
REV. A

# RANS S-21 OUTBOUND

PAGE

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## INTERIOR INSTALLATION - FWD

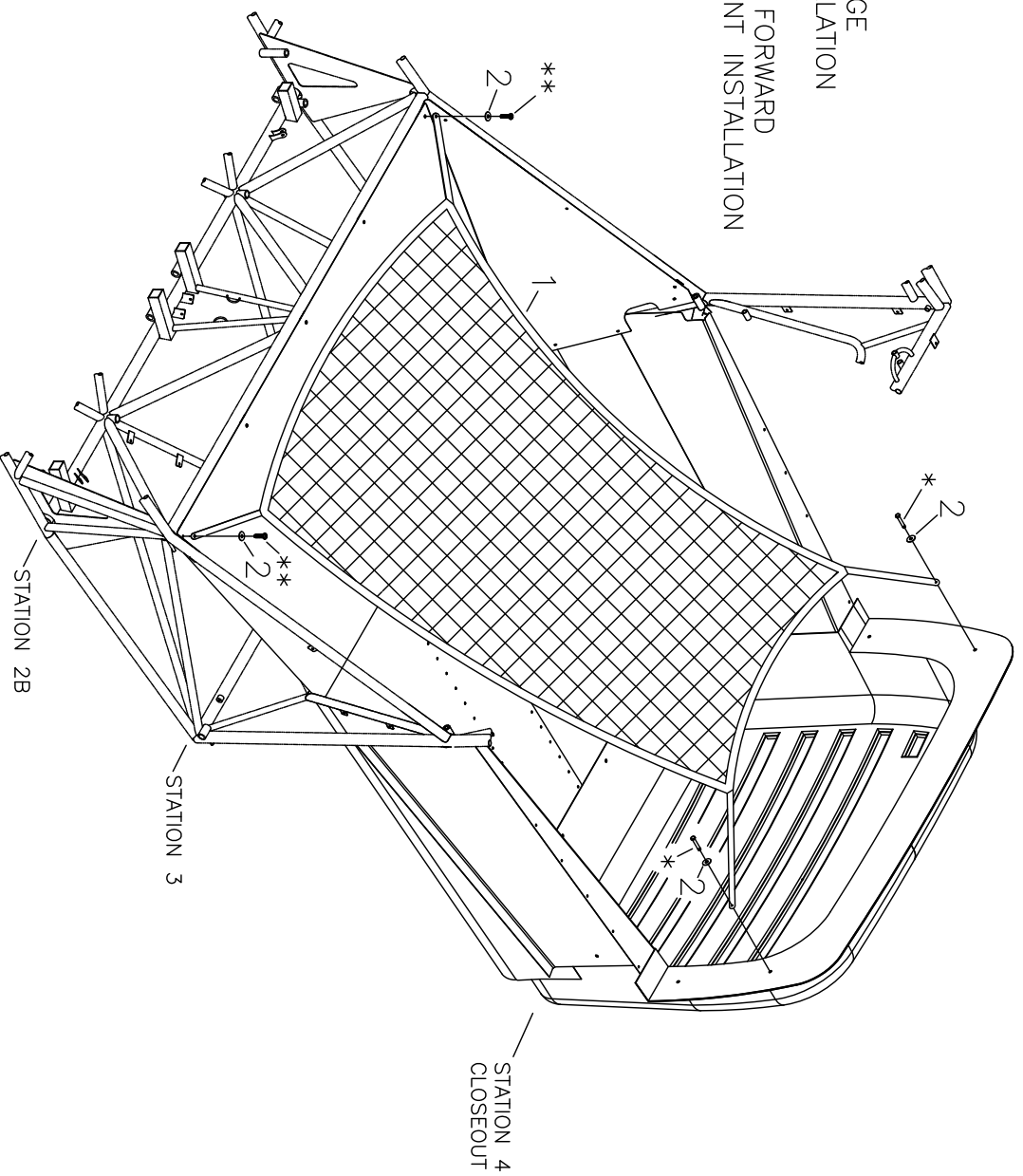
| #   | DESCRIPTION                | PART NUMBER | QUANTITY |
|-----|----------------------------|-------------|----------|
| 1.  | Fuel Valve Indicator Plate | KPIN0131    | 1        |
| 2.  | AFT Side Kick Panel - RH   | KPIN0120-R  | 1        |
| 2.  | AFT Side Kick Panel - LH   | KPIN0120-L  | 1        |
| 3.  | FWD Side Kick Panel - RH   | KPIN0121-R  | 1        |
| 3.  | FWD Side Kick Panel - LH   | KPIN0121-L  | 1        |
| 4.  | Side Kick Panel *          | KPIN0123    | 0        |
| 5.  | 1/8" Aluminum Rivet - Avex | 1691-0410   | 10       |
| 6.  | 3/32" Aluminum Rivet       | 40APR1/8    | 12       |
| 7.  | Fuel Valve Guard           | KPIN0130    | 1        |
| 8.  | Brass Bolt                 | MS35214-20  | 2        |
| 9.  | 1/8" Small Brass Washer    | AN960-B4    | 2        |
| 10. | #4-40 Nut                  | AN364-440A  | 2        |
| 13. | #8 Pan Head Screw          | 8X1/2 PHS   | 8        |

\* Builder Supplied

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REV. - ORIG

\* REFER TO AFT BAGGAGE  
COMPARTMENT INSTALLATION

\*\* REFER TO FLOOR – FORWARD  
BAGGAGE COMPARTMENT INSTALLATION



# REFINISH S-21 OUTBOUND OPTIONS - CARGO NET INSTALLATION

**RANS S-21 OUTBOUND**  
**OPTIONS - CARGO NET INSTALLATION**

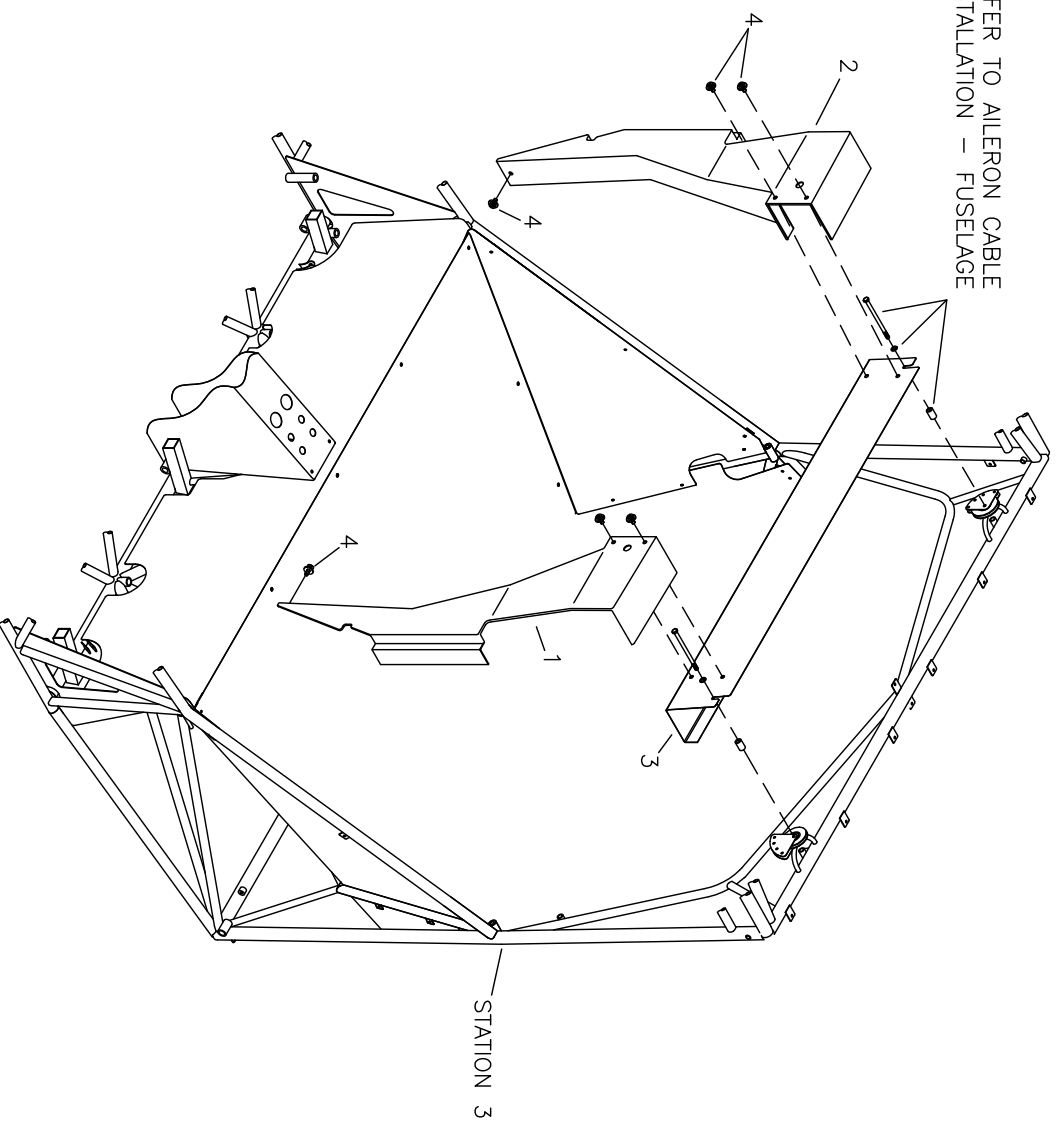
PAGE

010I-12

| #  | DESCRIPTION                  | PART NUMBER | QUANTITY |
|----|------------------------------|-------------|----------|
| 1. | Cargo Net                    | KPIN0105    | 1        |
| 2. | #10 Washer - Stainless Steel | BSHW0022    | 4        |



REFER TOAILERON CABLE  
SYSTEM INSTALLATION – FUSELAGE



RRR0083 S-21 OUTBOUND  
STATION 3 CLOSEOUT

**RANS S-21 OUTBOUND**  
**STATION 3 CLOSEOUT**

PAGE

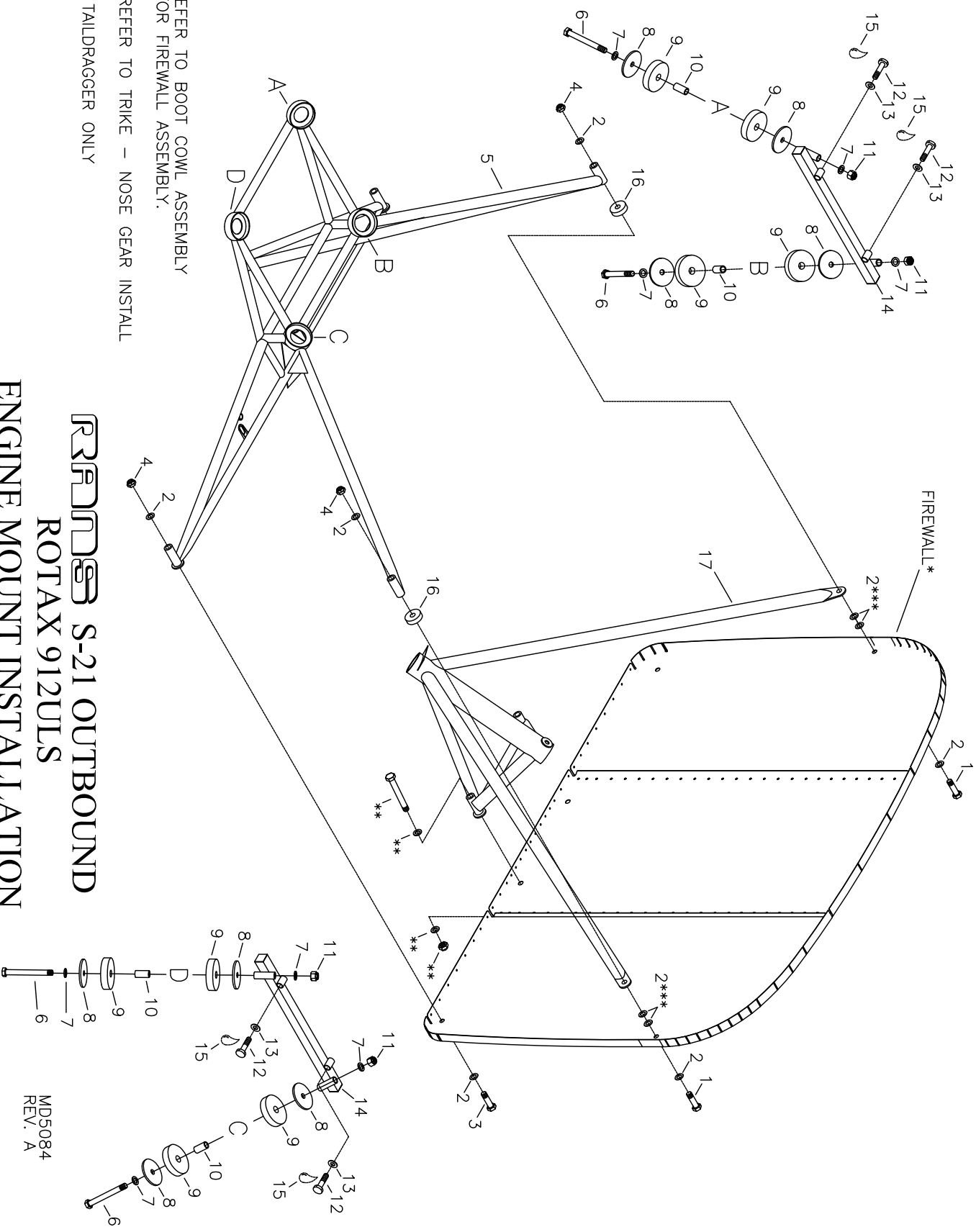
010J-02

| #  | DESCRIPTION                    | PART NUMBER | QUANTITY |
|----|--------------------------------|-------------|----------|
| 1. | Station 3 Closeout - Side - LH | KPIN0113-L  | 1        |
| 2. | Station 3 Closeout - Side - RH | KPIN0113-R  | 1        |
| 3. | Station 3 Closeout - Upper     | KPIN0115    | 1        |
| 4. | Screw Rivet                    | M60-0580-01 | 6        |

\* REFER TO BOOT COWL ASSEMBLY  
FOR FIREWALL ASSEMBLY.  
\*\* REFER TO TRIKE - NOSE GEAR INSTALL

\*\*\* TAILDRAGGER ONLY

# ROTAX S-21 OUTBOUND ROTAX 912ULS ENGINE MOUNT INSTALLATION



MD5084  
REV. A

# RANS S-21 OUTBOUND

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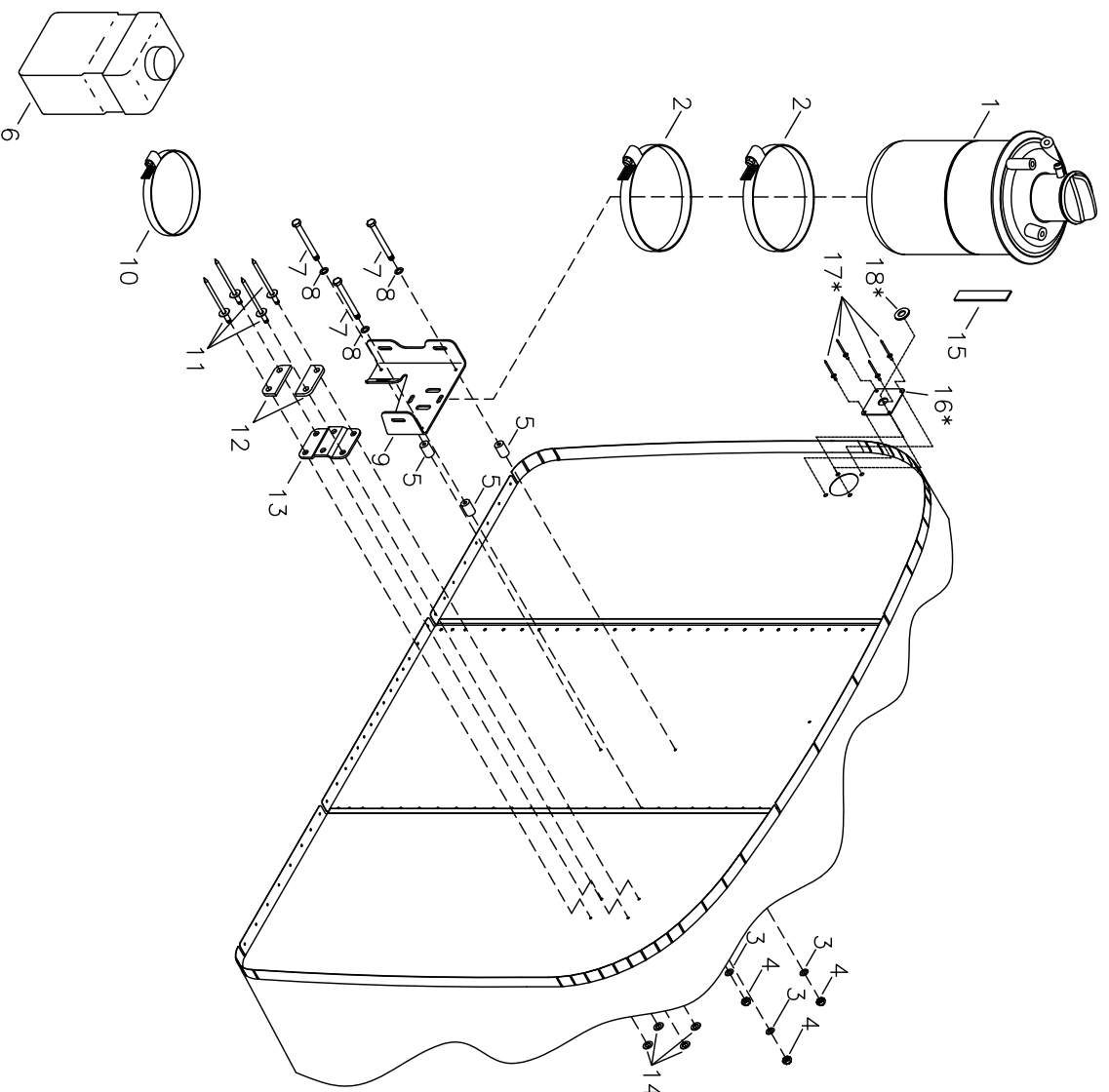
## ROTAX 912ULS - ENGINE MOUNT INSTALLATION

| #   | DESCRIPTION                                 | PART NUMBER | QUANTITY |
|-----|---------------------------------------------|-------------|----------|
| 1.  | 5/16" Bolt                                  | AN5-35A     | 2        |
| 2.  | 5/16" Thick Washer                          | AN960-516   | 12       |
| 3.  | 5/16" Bolt                                  | AN5-34A     | 2        |
| 4.  | 5/16" Tensile Nut                           | AN365-524A  | 4        |
| 5.  | Engine Mount                                | KPPW0274    | 1        |
| 6.  | 3/8" Bolt                                   | AN6-33A     | 4        |
| 7.  | 3/8" Thick Washer                           | AN960-616   | 8        |
| 8.  | Washer                                      | 912DONUT-2  | 8        |
| 9.  | Rubber Washer                               | 912DONUT-3  | 8        |
| 10. | Bushing                                     | 912DONUT-4  | 4        |
| 11. | 3/8" Tensile Loc Nut                        | AN363-624A  | 4        |
| 12. | 10mm Bolt                                   | 875-550     | 4        |
| 13. | 10mm Loc-Washer                             | 945-753     | 4        |
| 14. | 912 Engine Attachment                       | EG-FEA-912  | 2        |
| 15. | Loctite Blue *                              | -----       | 0        |
| 16. | Engine Mount Spacer                         | KPAC0279    | 2        |
| 17. | Nose Gear Mount - Rotax 912ULS (TRIKE ONLY) | KAPW0075    | 1        |

\* Builder Supplied

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REV. A



\* AMP STANDARD SQUARE FLANGE  
24 PIN RECEPTACLE & PLUG  
MAY ALSO BE USED

# RROR S-21 OUTBOUND ROTAX 912ULS FIREWALL ITEMS INSTALLATION

MD5135  
REV. — ORIG

# RANS S-21 OUTBOUND

PAGE 011A-02 / 912ULS

## ROTAX 912ULS - FIREWALL ITEMS INSTALLATION

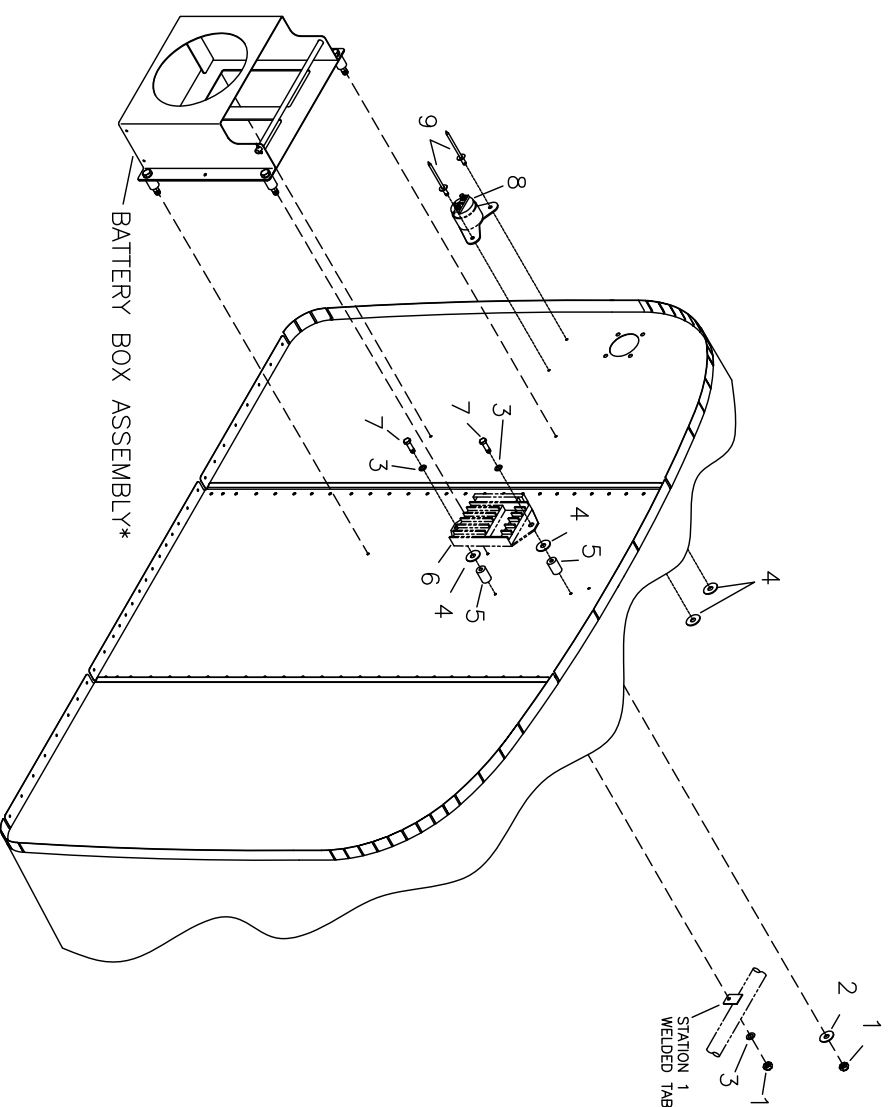
| #   | DESCRIPTION                              | PART NUMBER | QUANTITY |
|-----|------------------------------------------|-------------|----------|
| 1.  | Oil Tank *                               | -----       | 0        |
| 2.  | Hose Clamp - 6"                          | 5-5288      | 2        |
| 3.  | 3/16" Thick Washer                       | AN960-10    | 3        |
| 4.  | 3/16" Tensile Nut                        | AN365-1032A | 3        |
| 5.  | 3/8" x 0.058" x 1/2" Aluminum Bushing ** | KAAC0044-3  | 0        |
| 5.  | Raw Stock - 3/8" x 0.058" Aluminum Tube  | KAAC0044-3  | 0        |
| 6.  | Overflow Bottle                          | KSPW0072    | 1        |
| 7.  | 3/16" Bolt                               | AN3-10A     | 3        |
| 8.  | 3/16" Thin Washer                        | AN960-10L   | 3        |
| 9.  | Oil Bottle Mount                         | KPPW0261    | 1        |
| 10. | Hose Clamp - 4"                          | 5-5256      | 1        |
| 11. | 1/8" Stainless Steel Rivet - Cherry Q    | CCPQ-44     | 4        |
| 12. | Spacer Shim - Mount Bracket              | KPPW0230    | 2        |
| 13. | Mount Bracket - Coolant Recovery Bottle  | KPPW0231    | 1        |
| 14. | 1/8" Small Brass Washer                  | AN960-B4    | 4        |
| 15. | 1" Black Foam Tape                       | KSAC0011    | 3 in     |
| 16. | .025 " Sheet (2" x 2") **                | KAAC0042-12 | 1        |
| 17. | 3/16" Stainless Steel Rivet - Cherry Q   | CCPQ-62     | 4        |
| 18. | Rubber Grommet                           | MS35489-17  | 1        |

\* Supplied with Engine

\*\* Builder must fabricate from raw stock

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\* REFER TO BATTERY BOX ASSEMBLY AND INSTALLATION

# ROTAX S-21 OUTBOUND ROTAX 912ULS ENGINE ELECTRICAL ACCESSORY INSTALLATION

# RANS S-21 OUTBOUND

PAGE 011A-04 / 912ULS

## ROTAX 912ULS - ENGINE ELECTRICAL ACCESSORY INSTALLATION

| #  | DESCRIPTION                             | PART NUMBER | QUANTITY |
|----|-----------------------------------------|-------------|----------|
| 1. | 3/16" Shear Nut                         | AN364-1032A | 2        |
| 2. | 3/16" Large Washer                      | AN970-3     | 1        |
| 3. | 3/16" Thin Washer                       | AN960-10L   | 3        |
| 4. | #10 Washer - Stainless Steel            | BSHW0022    | 4        |
| 5. | 3/8" x .058" x 3/16" Aluminum Bushing * | KAAC0044-3  | 0        |
| 6. | Regulator / Rectifier **                | -----       | 0        |
| 7. | 3/16" Bolt                              | AN3-7A      | 2        |
| 8. | Starter Solenoid **                     | -----       | 0        |
| 9. | 3/16" Aluminum Rivet - Cherry Q         | AAPQ-62     | 2        |

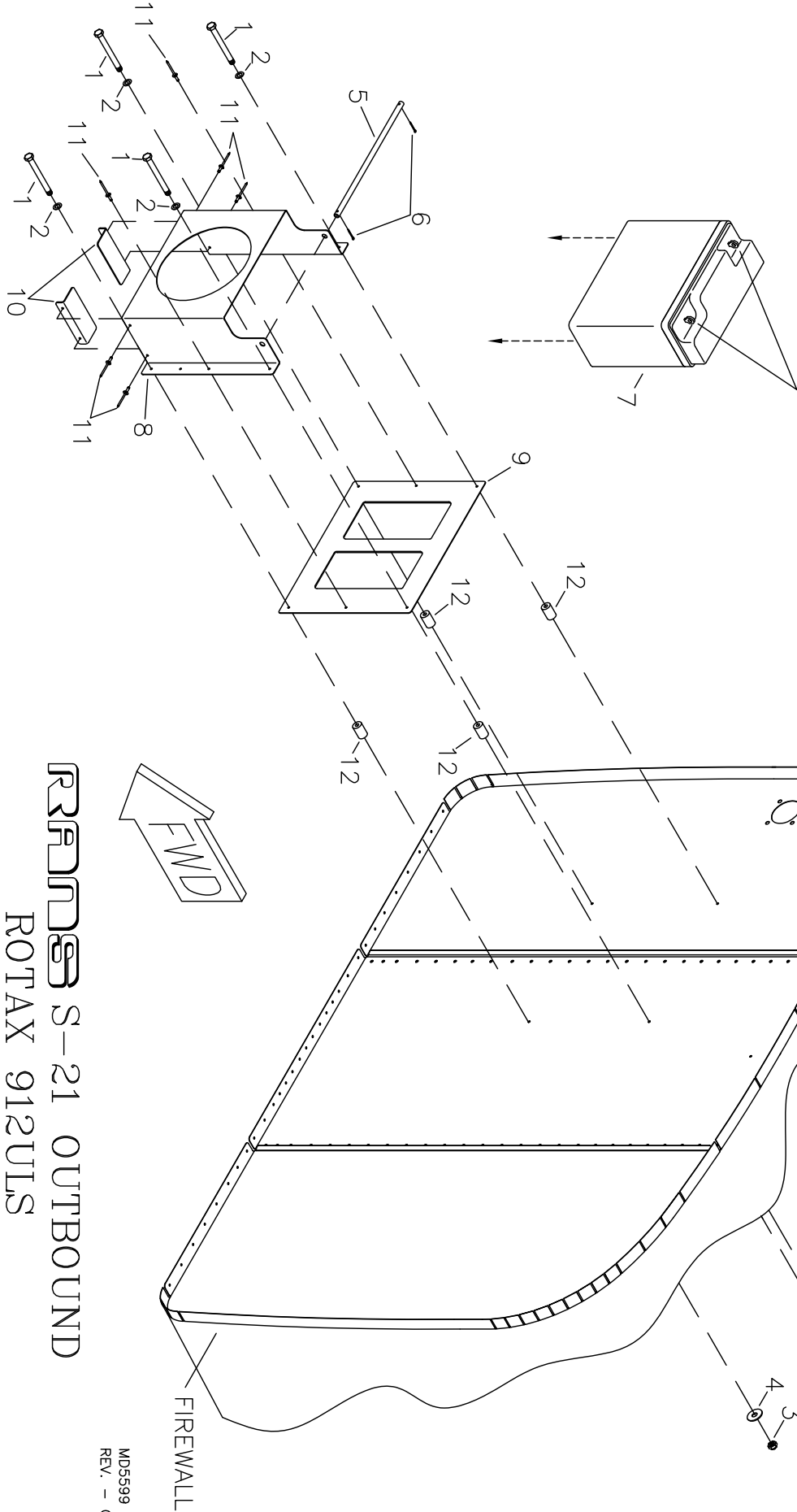
\* Fabricate from Raw Stock

\*\* Supplied with Engine

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REV. - ORIG



REFER TO ENGINE  
ELECTRICAL FOR  
BATTERY CONNECTIONS



ROTAX S-21 OUTBOUND  
ROTAX 912ULS  
BATTERY BOX ASSEMBLY AND INSTALLATION

MD5599  
REV. - ORIG

# RANS S-21 OUTBOUND

PAGE 011A-06 / 912ULS

## ROTAX 912ULS - BATTERY BOX ASSEMBLY AND INSTALLATION

| #   | DESCRIPTION                              | PART NUMBER     | QUANTITY |
|-----|------------------------------------------|-----------------|----------|
| 1.  | 3/16" Bolt                               | AN3-10A         | 4        |
| 2.  | 3/16" Thin Washer                        | AN960-10L       | 4        |
| 3.  | 3/16" Shear Nut                          | AN364-1032A     | 4        |
| 4.  | 3/16" Large Washer                       | AN970-3         | 4        |
| 5.  | Battery Bar *                            | BAT-BAR-503/582 | 1        |
| 6.  | Small Cotter Pin                         | MS24665-134     | 2        |
| 7.  | Battery **                               | PS12150-NB      | 0        |
| 8.  | Battery Box Front Plate                  | BAT-BOX-1       | 1        |
| 9.  | Battery Box Mount Plate                  | BAT-BOX-2       | 1        |
| 10. | Battery Box Support Angle                | BAT-BOX-3       | 2        |
| 11. | 1/8" Stainless Steel Rivet - Cherry Q    | CCPQ-42         | 6        |
| 12. | 3/8" x .058" x 1/2" Aluminum Bushing *** | KAAC0044-3      | 0        |

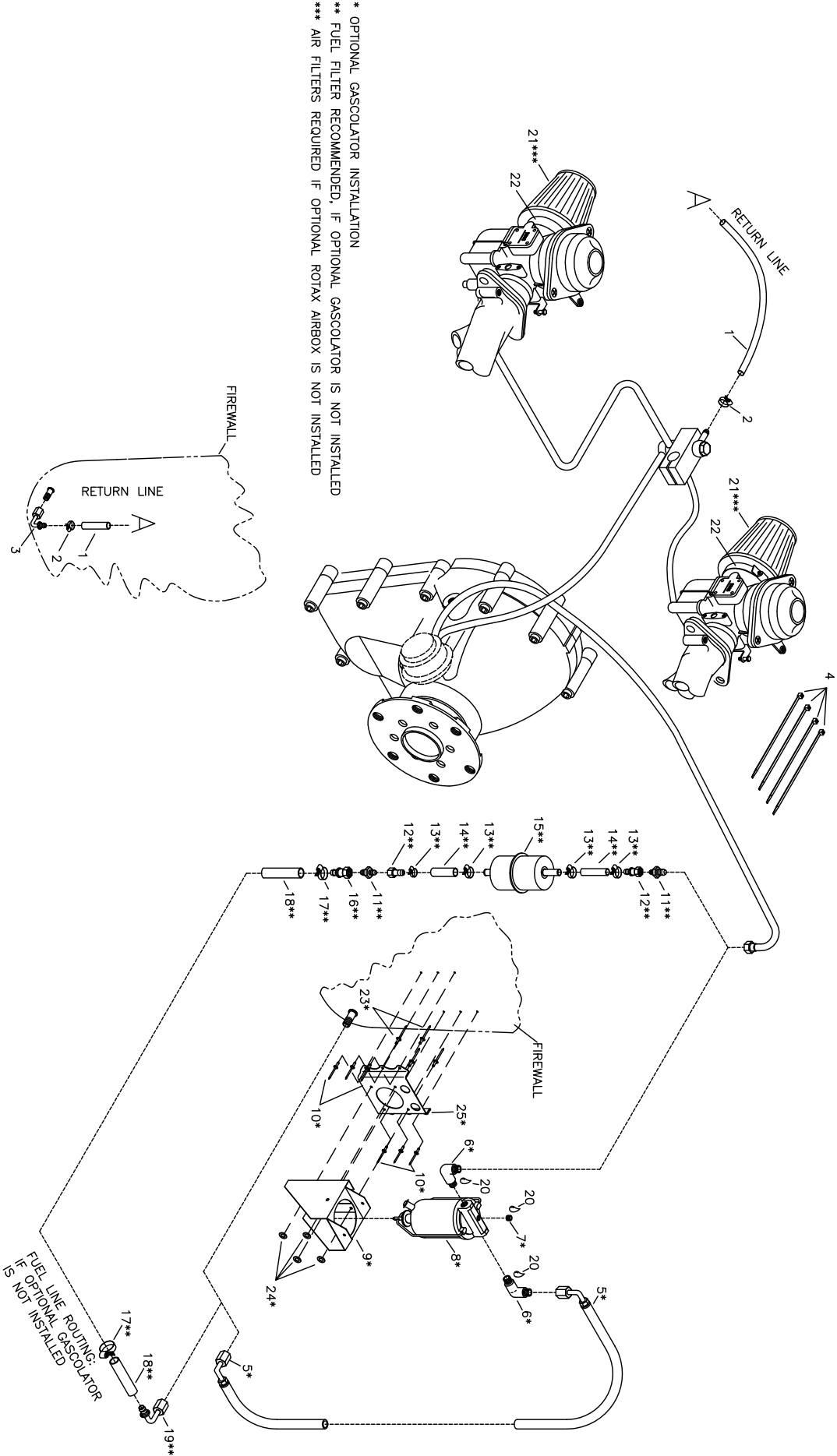
\* Builder Modifies

\*\* May be purchased seperately, call RANS Parts Dept. for pricing

\*\*\* Fabricate from Raw Stock

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RED BULL S-21 OUTBOUND  
ROTAX 912ULS  
FUEL SYSTEM INSTALLATION – FIREWALL FORWARD

# RANS S-21 OUTBOUND

PAGE 011B-02 / 912ULS

## ROTAX 912ULS - FUEL SYSTEM - FIREWALL FORWARD

### WITH OPTIONAL GASCOLATOR

| #   | DESCRIPTION                                   | PART NUMBER   | QUANTITY |
|-----|-----------------------------------------------|---------------|----------|
| 1.  | Black Fuel Line - 1/4"                        | KSFS0002      | 3 ft     |
| 2.  | Hose Clamp - 5/8"                             | 5-6202        | 2        |
| 3.  | 45 degree 1/4" Hose Fitting                   | KSFS0023      | 1        |
| 4.  | Plastic Tie - 7.5"                            | N-TIES        | 4        |
| 5.  | Fuel Line Assembly - Firewall to Gascolator * | KPFS0102      | 1        |
| 6.  | 90 Degree Fitting *                           | AN822-6D      | 2        |
| 7.  | 1/8" Pipe Plug *                              | PIPE-PLUG 1/8 | 1        |
| 8.  | Gascolator *                                  | KSPW0067      | 1        |
| 9.  | Gascolator Bracket *                          | KSPW0066      | 1        |
| 10. | 1/8" Stainless Steel Rivet - Cherry Q *       | CCPQ-41       | 6        |
| 11. | Reducer - External Thread - Flared Tube ***   | AN919-6D      | 2        |
| 12. | 1/4" Hose Fitting ***                         | 30682-4-4     | 1        |
| 13. | Hose Clamp - 5/8" ***                         | 5-6202        | 4        |
| 14. | Black Fuel Line - 1/4" ***                    | KSFS0002      | 0.5 ft   |
| 15. | Fuel Filter **, ***, ****                     | -----         | 0        |
| 16. | 3/8" Hose Fitting ***                         | 30682-6-6     | 1        |
| 17. | Hose Clamp - 7/8" ***                         | 5-6203        | 2        |
| 18. | Black Fuel Line - 3/8" ***                    | 27004         | 2 ft     |
| 19. | 90 degree 3/8" Hose Fitting ***               | 33982-6-6     | 1        |
| 20. | Thread Sealant ****                           | -----         | 0        |
| 21. | Air Filter ****, *****                        | EG-AF-912     | 0        |
| 22. | 63mm Clamp *****                              | -----         | 0        |
| 23. | 1/8" Stainless Steel Rivet - Cherry Q *       | CCPQ-42       | 4        |
| 24. | 1/8" Small Brass Washer *                     | AN960-B4      | 4        |
| 25. | Gascolator Mount *                            | KPPW0277      | 1        |

\* Optional Gascolator    \*\* Contact ROTAX for recommended fuel filter

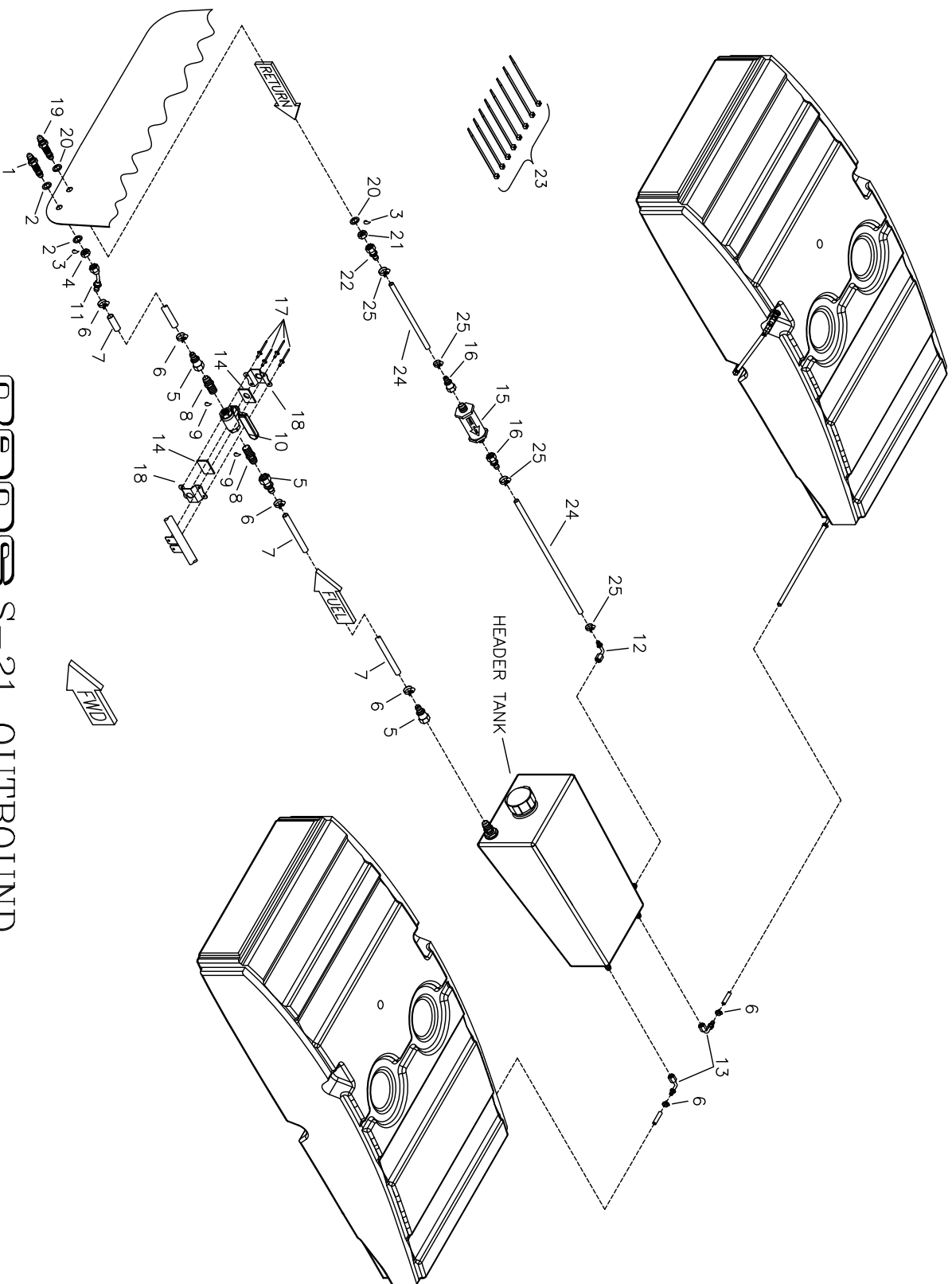
\*\*\* Fuel Filter recommended if Optional Gascolator is not installed.

\*\*\*\* Builder Supplied    \*\*\*\*\* Supplied with Air Filter

\*\*\*\*\* Available from RANS Parts Dept.

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Rotax S-21 OUTBOUND  
ROTAX 912ULS  
FUEL SYSTEM - FUSELAGE

# RANS S-21 OUTBOUND

## ROTAX 912ULS - FUEL SYSTEM - FUSELAGE

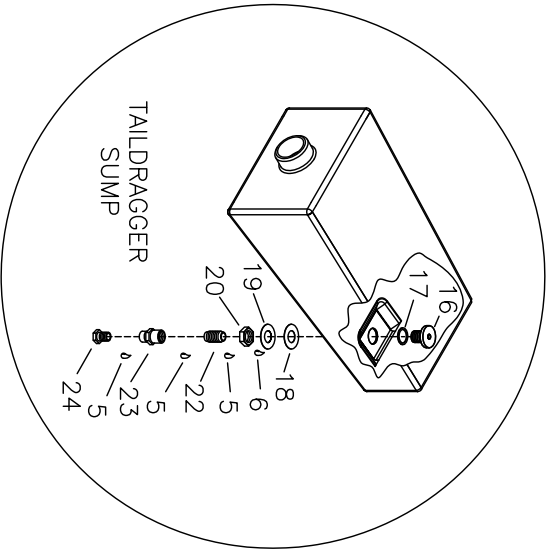
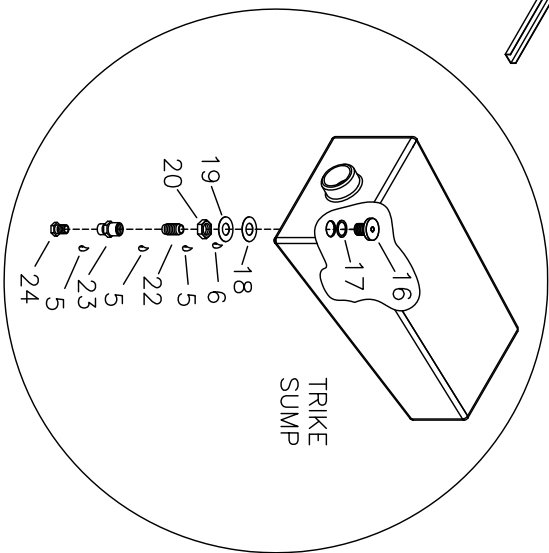
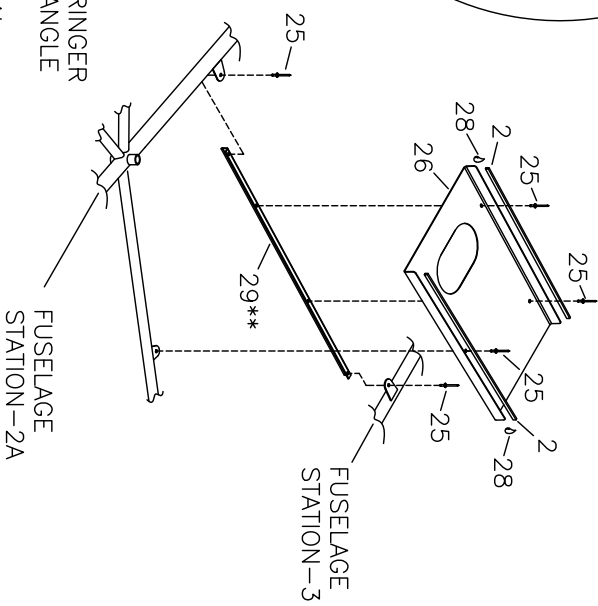
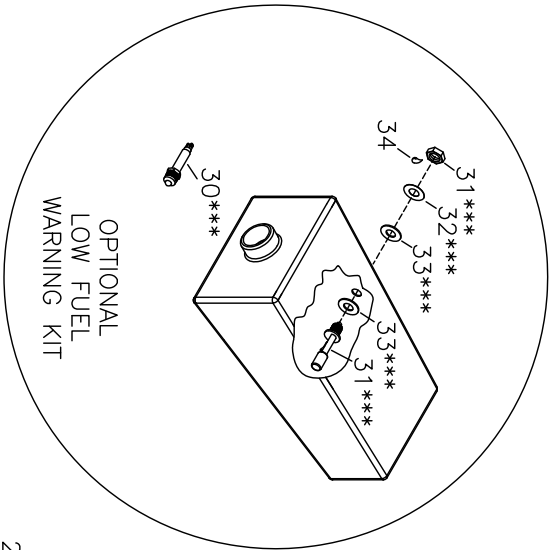
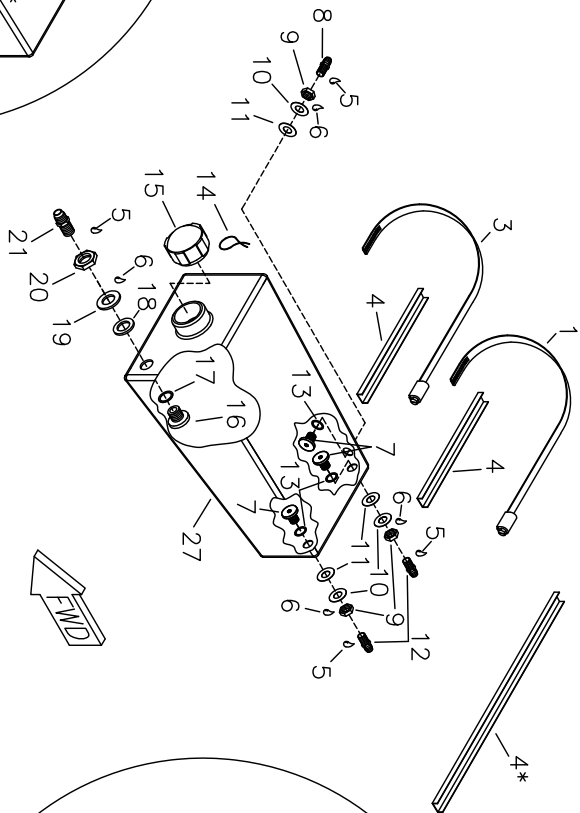
PAGE 011B-04 / 912ULS

| #   | DESCRIPTION                        | PART NUMBER | QUANTITY |
|-----|------------------------------------|-------------|----------|
| 1.  | Union - Flared Tube - Bulkhead     | AN832-6D    | 1        |
| 2.  | 9/16" Thick Washer                 | AN960-916   | 2        |
| 3.  | Loctite Blue *                     | -----       | 0        |
| 4.  | Nut - Flared Tube Bulkhead         | AN924-6D    | 1        |
| 5.  | 3/8" Hose Fitting                  | 30682-6-6   | 3        |
| 6.  | Hose Clamp - 7/8"                  | 5-6203      | 6        |
| 7.  | Black Fuel Line - 3/8"             | 27004       | 5 ft     |
| 8.  | Nipple - Flared Tube & Pipe Thread | AN816-6D    | 2        |
| 9.  | Thread Sealant *                   | -----       | 0        |
| 10. | Fuel Valve                         | KSFS0018    | 1        |
| 11. | 45 Degree Fitting                  | 33782-6-6   | 1        |
| 12. | 90 degree 1/4" Hose Fitting        | 33982-4-4   | 1        |
| 13. | 90 degree 3/8" Hose Fitting        | 33982-6-6   | 2        |
| 14. | Fuel Valve Silicone Pad **         | KPFS0106    | 1        |
| 15. | Check Valve                        | KSFS0036    | 1        |
| 16. | 1/4" Hose Fitting                  | 30682-6-4B  | 2        |
| 17. | 1/8" Aluminum Rivet - Cherry Q     | AAPQ-42     | 4        |
| 18. | Fuel Valve Mount Bracket           | KPFS0037    | 2        |
| 19. | Union - Flared Tube - Bulkhead     | AN832-4D    | 1        |
| 20. | 7/16" Thick Washer                 | AN960-716   | 2        |
| 21. | Nut - Flared Tube Bulkhead         | AN924-4D    | 1        |
| 22. | 1/4" Hose Fitting                  | 30682-4-4   | 1        |
| 23. | Plastic Tie - 7.5"                 | N-TIES      | 8        |
| 24. | Black Fuel Line - 1/4"             | KSFS0002    | 6 ft     |
| 25. | Hose Clamp - 5/8"                  | 5-6202      | 4        |

\* Builder Supplied

\*\* Builder Modifies

9/11/2018  
REV. - ORIG



- \* MUST MODIFY
- \*\* NOTCH FUSELAGE BOTTOM SKIN STRINGER TO CLEAR HEADER TANK SUPPORT ANGLE
- \*\*\* LOW FUEL WARNING KIT IS OPTIONAL

# RRR S-21 OUTBOUND ROTAX 912ULS FUEL SYSTEM - HEADER TANK

# RANS S-21 OUTBOUND

PAGE 011B-06 / 912ULS

## ROTAX 912ULS - FUEL SYSTEM - HEADER TANK

| #   | DESCRIPTION                                    | PART NUMBER | QUANTITY |
|-----|------------------------------------------------|-------------|----------|
| 1.  | 8" Hose Clamp                                  | KSHW0091    | 1        |
| 2.  | Rubber Edging                                  | 8510K11     | 3 ft     |
| 3.  | 10" Hose Clamp                                 | KSHW0047    | 1        |
| 4.  | 2.75 Gal. Header Tank Mount Channel *          | KPFS0108    | 1        |
| 5.  | Thread Sealant **                              | -----       | 0        |
| 6.  | Loctite Blue **                                | -----       | 0        |
| 7.  | Tank Withdrawal Fitting                        | KPFS0017    | 3        |
| 8.  | Straight Fitting - Flare 1/4" Tube to 1/8" NPT | AN816-4D    | 1        |
| 9.  | Nut - Flared Tube Bulkhead                     | AN924-5D    | 3        |
| 10. | 1/2" Thick Washer                              | AN960-816   | 3        |
| 11. | Rubber Washer                                  | KSFS0010    | 3        |
| 12. | Straight Fitting                               | AN816-6-2D  | 2        |
| 13. | O-Ring                                         | KSFS0009    | 3        |
| 14. | Safety Wire **                                 | -----       | 0        |
| 15. | Fuel Cap                                       | KSFS0007    | 1        |
| 16. | 3/4" Bulkhead Fitting                          | KSFS0037    | 2        |
| 17. | O-Ring - 3/4" Bulkhead                         | KSFS0039    | 2        |
| 18. | Rubber Washer                                  | KSFS0016    | 2        |
| 19. | 3/4" Thick Washer                              | AN960-1216  | 2        |
| 20. | Nut - 3/4" Bulkhead - Reverse Thread           | KSFS0038    | 2        |
| 21. | Nipple - Flared Tube & Pipe Thread             | AN816-6D    | 1        |
| 22. | Close Nipple                                   | KSFS0021    | 1        |
| 23. | Reducer                                        | KSFS0022    | 1        |
| 24. | Flush Valve                                    | KSFS0011    | 1        |
| 25. | 1/8" Stainless Steel Rivet - Cherry Q          | CCPQ-42     | 5        |
| 26. | 2.75 Gal. Header Tank Mount                    | KPFS0107    | 1        |
| 27. | Header Tank - 2.75 Gal.                        | KPFS0104    | 1        |
| 28. | Adhesive - Superglue **                        | -----       | 0        |
| 29. | Header Tank Support Angle                      | KPFU0758    | 1        |
| 30. | Red LED Indicator Light, 12V ***               | KSES0071    | 1        |
| 31. | Low Fuel Warning Switch ***                    | KSES0072    | 1        |
| 32. | 5/8" Thick Washer (AN960-1016) ***             | TW-5/8-W    | 1        |
| 33. | 5/8" Rubber Washer ***                         | KSFS0040    | 2        |
| 34. | DOW 730 Sealant **                             | -----       | 0        |

\* Builder Modifies

\*\* Builder Supplied

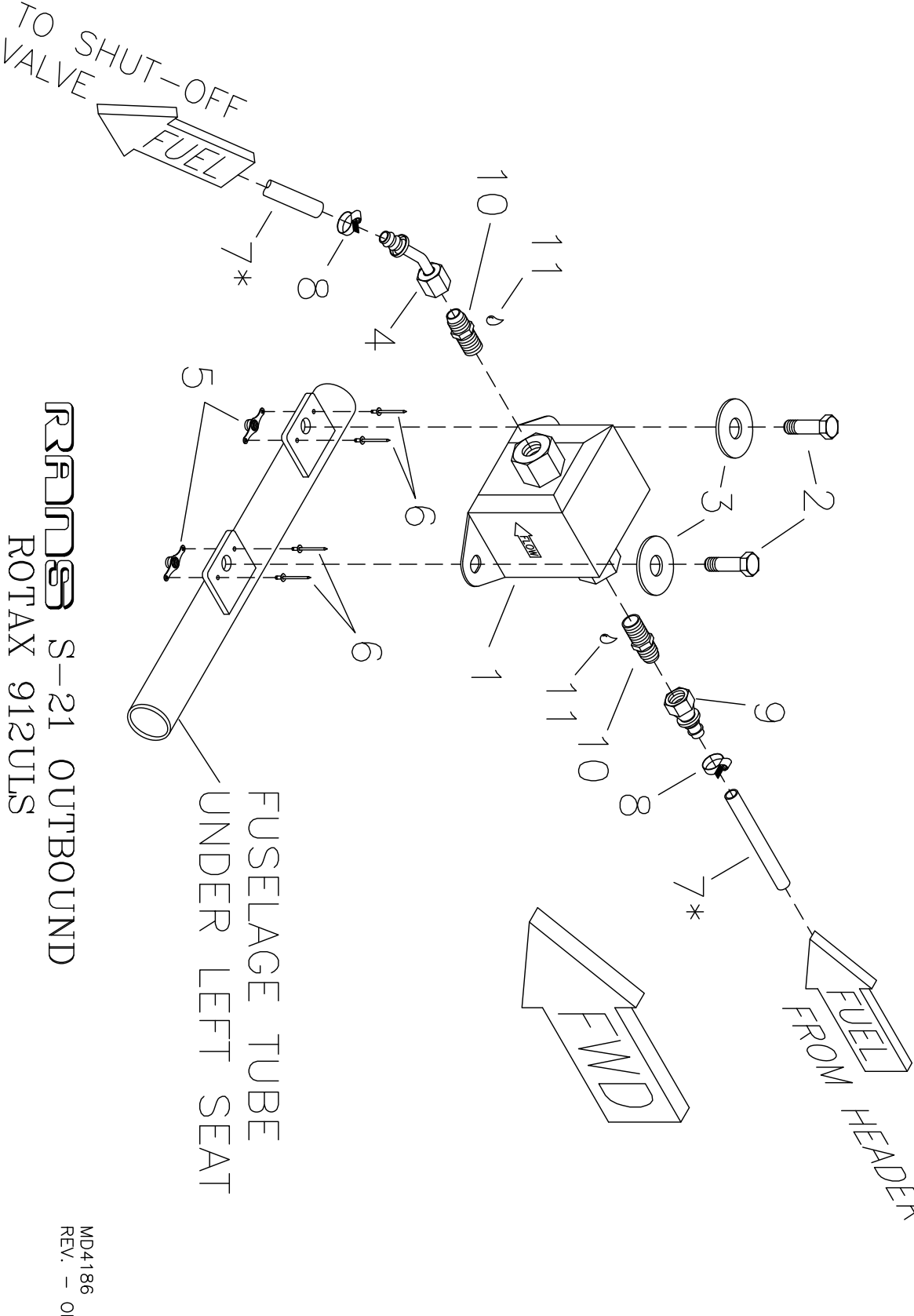
\*\*\* KAFS0003 - Low Fuel Warning Kit is Optional

9/11/2018

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\* EXISTING FUEL LINE



RAMS S-21 OUTBOUND  
ROTAX 912ULS  
FUEL SYSTEM - OPTIONAL ELECTRIC FUEL PUMP

# RANS S-21 OUTBOUND

PAGE 011B-08 / 912ULS

## ROTAX 912ULS - FUEL SYSTEM - OPTIONAL ELECTRIC FUEL PUMP

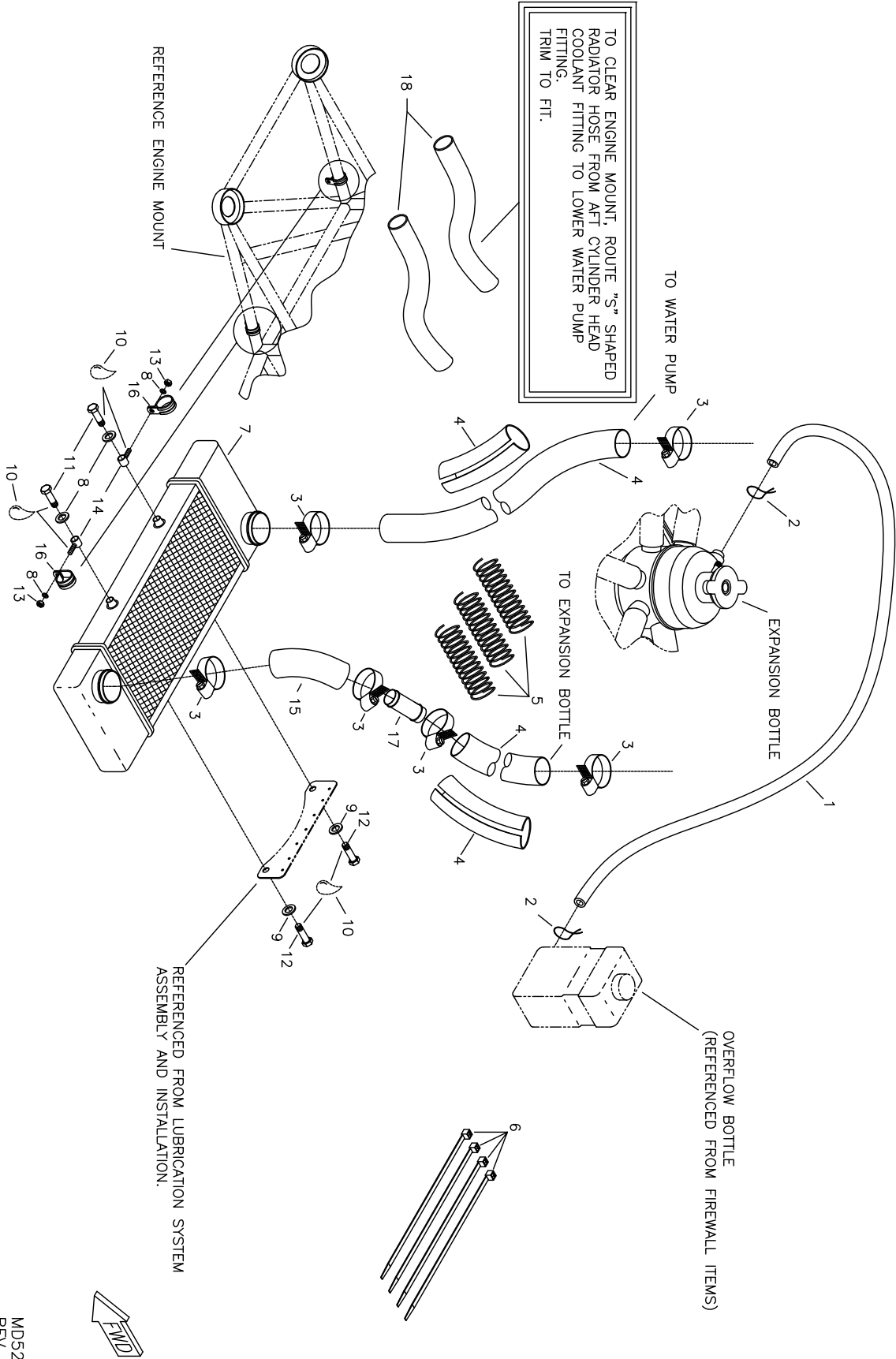
| #   | DESCRIPTION                  | PART NUMBER | QUANTITY |
|-----|------------------------------|-------------|----------|
| 1.  | Fuel Pump - Electric         | KSPW0077    | 1        |
| 2.  | 3/16" Bolt                   | AN3-3A      | 2        |
| 3.  | #10 Washer - Stainless Steel | BSHW0022    | 2        |
| 4.  | 45 Degree Fitting            | 33782-6-6   | 1        |
| 5.  | 3/16" Nut Plate              | K-1000-3    | 2        |
| 6.  | 3/32" Aluminum Rivet         | 40APR1/8    | 4        |
| 7.  | Black Fuel Line - 3/8" *     | 27004       | 0        |
| 8.  | Hose Clamp - 7/8"            | 5-6203      | 2        |
| 9.  | 3/8" Hose Fitting            | 30682-6-6   | 1        |
| 10. | Straight Fitting             | AN816-6-2D  | 2        |
| 11. | Thread Sealant **            | -----       | 0        |

\* Existing fuel line

\*\* Builder Supplied

9/11/2018

REV. - ORIG



**ROTAX S-21 OUTBOUND**  
**ROTAX 912ULS**  
**COOLING SYSTEM INSTALLATION**

MD5205  
REV. - ORIG



# RANS S-21 OUTBOUND

PAGE 011C-02 / 912ULS

## ROTAX 912ULS - COOLING SYSTEM INSTALLATION

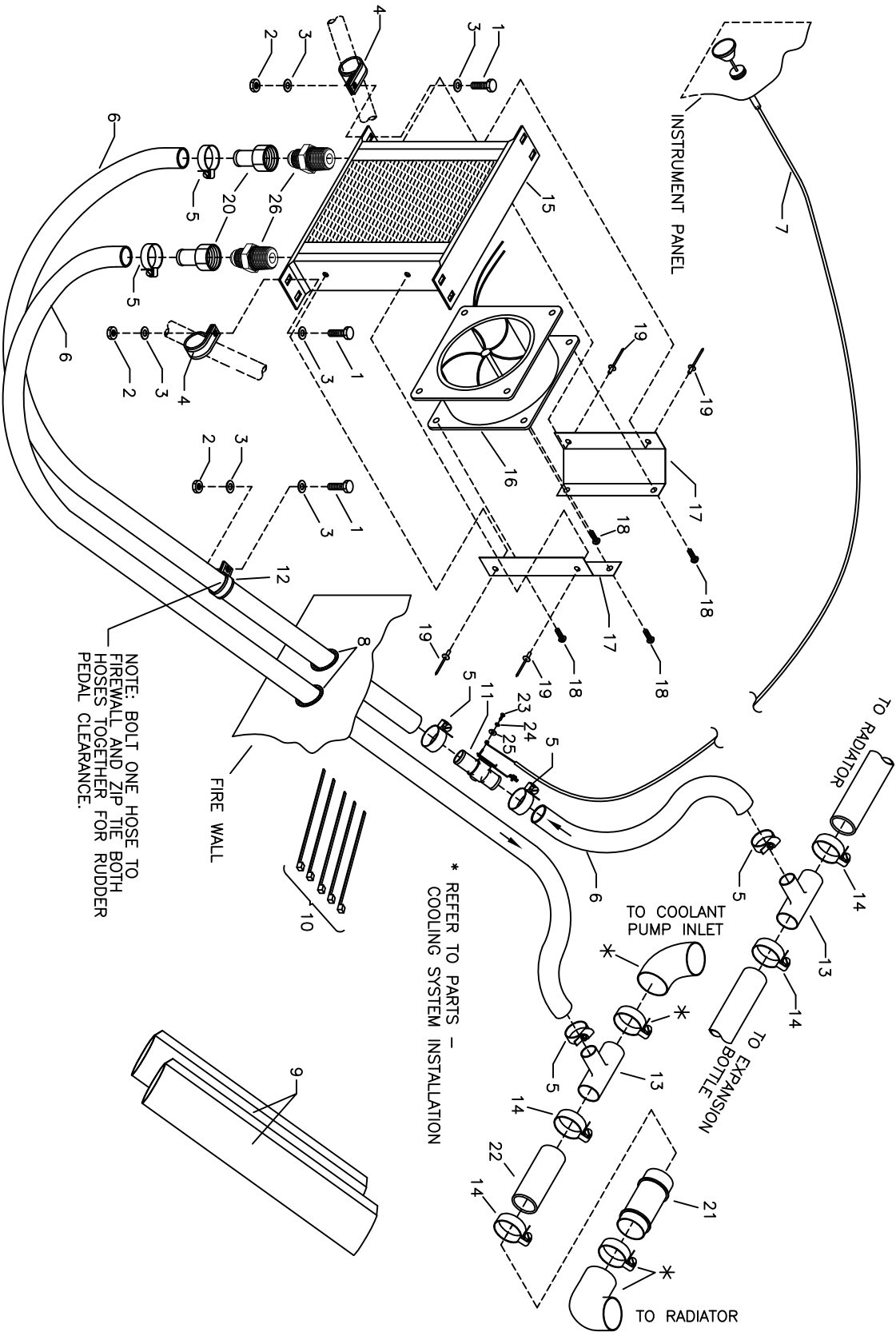
| #   | DESCRIPTION                            | PART NUMBER   | QUANTITY |
|-----|----------------------------------------|---------------|----------|
| 1.  | 5/16" Overflow Hose                    | EGCS-OFH      | 3 ft     |
| 2.  | Safety Wire *                          | -----         | 0        |
| 3.  | Hose Clamp - 1 1/2"                    | 5-5216        | 6        |
| 4.  | Radiator Hose - 1"                     | RADIATOR HOSE | 3 ft     |
| 5.  | Hose Spring                            | EGCS-HS       | 3        |
| 6.  | Nylon Tie                              | N-TIES        | 4        |
| 7.  | Radiator                               | KSPW0071      | 1        |
| 8.  | 1/4" Thick Washer                      | AN960-416     | 4        |
| 9.  | 1/4" Thin Washer                       | AN960-416L    | 2        |
| 10. | Loctite Blue *                         | -----         | 0        |
| 11. | 6MM Bolt                               | M6X16 BOLT    | 2        |
| 12. | 6MM Bolt                               | M6X12 BOLT    | 2        |
| 13. | 6mm Hex Nut                            | 6MM HEX NUT   | 2        |
| 14. | Radiator Mount                         | KPPW0278      | 2        |
| 15. | Pre-formed Radiator "U" Shaped Hose ** | KSPW0075      | 1        |
| 16. | 5/8" Cushion Clamp                     | MS21919-DG10  | 2        |
| 17. | Cooling Tube Union                     | KPPW0189      | 1        |
| 18. | Pre-formed Radiator "S" Hose **        | KSPW0025      | 2        |

\* Builder Supplied

\*\* Builder Modifies

9/11/2018

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# Rotax S-21 OUTBOUND

## ROTAX 912ULS

OPTIONS – CABIN HEATER INSTALLATION – RADIANT STYLE

# RANS S-21 OUTBOUND

PAGE 011C-04 / 912ULS

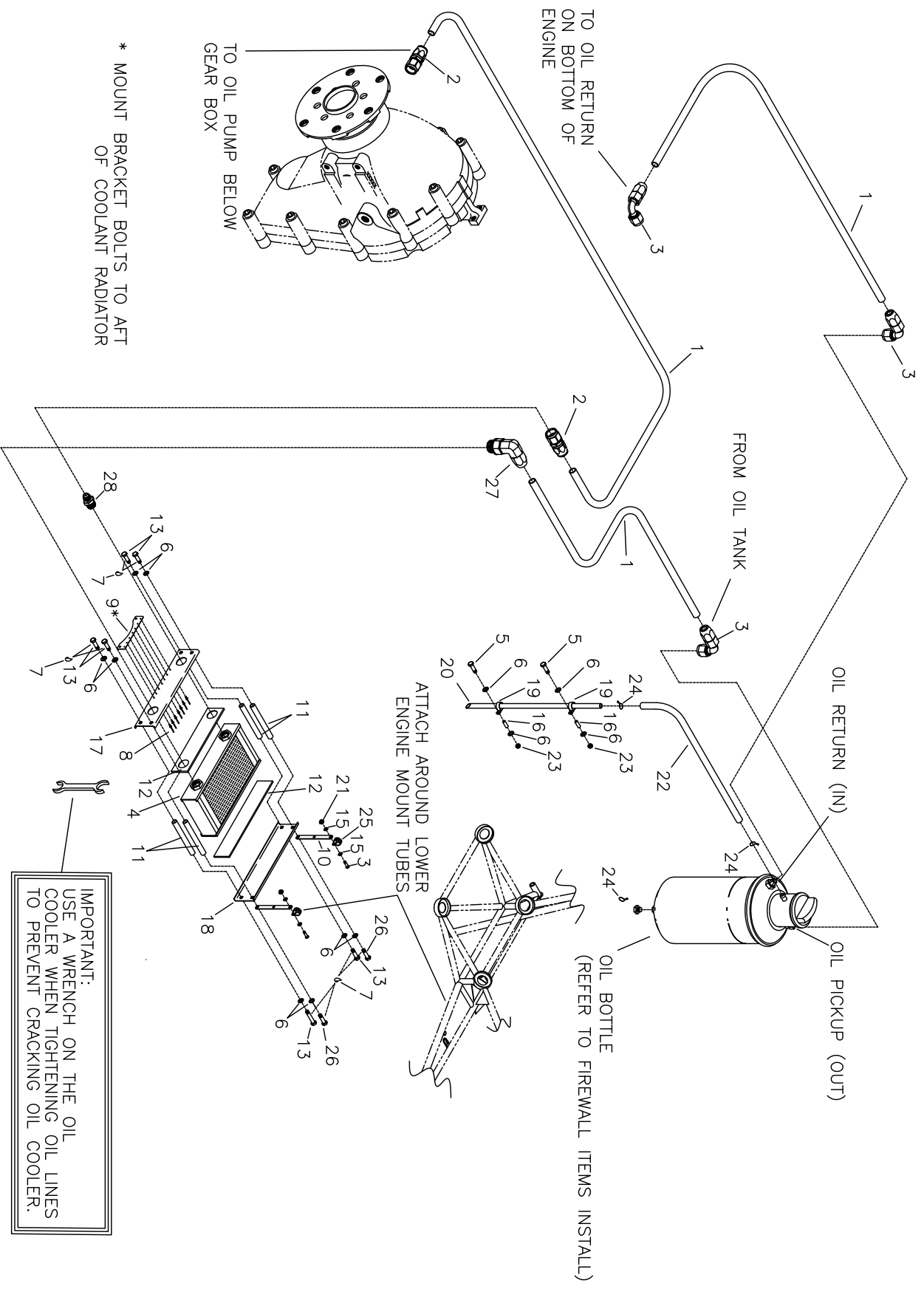
## ROTAX 912ULS - OPTIONS - CABIN HEATER INSTALLATION

### RADIANT STYLE

| #   | DESCRIPTION                    | PART NUMBER     | QUANTITY |
|-----|--------------------------------|-----------------|----------|
| 1.  | 3/16" Bolt                     | AN3-4A          | 3        |
| 2.  | 3/16" Shear Nut                | AN364-1032A     | 3        |
| 3.  | 3/16" Thin Washer              | AN960-10L       | 6        |
| 4.  | 1/2" Cushion Clamp             | MS21919-DG8     | 2        |
| 5.  | Hose Clamp - 1"                | 5-5210          | 6        |
| 6.  | 5/8" Heater Hose               | HEATER HOSE 5/8 | 6 ft     |
| 7.  | Control Cable                  | 4-336           | 1        |
| 8.  | Serrated Grommet Strip         | KSAC0023        | 8 in     |
| 9.  | Hose Cover                     | H-HC            | 2        |
| 10. | Plastic Tie - 7.5"             | N-TIES          | 5        |
| 11. | Control Valve                  | 277813          | 1        |
| 12. | 1" Cushion Clamp               | MS21919-DG16    | 1        |
| 13. | 1" To 5/8" Tee                 | H-TEE           | 2        |
| 14. | Hose Clamp - 1 1/2"            | 5-5216          | 4        |
| 15. | Heater Core                    | 21608           | 1        |
| 16. | Fan                            | 032207          | 1        |
| 17. | Fan Mounting Plate             | H-HFMP          | 2        |
| 18. | 3/16" Truss Head Screw         | AN526-C1032-R12 | 4        |
| 19. | 1/8" Aluminum Rivet - Cherry Q | AAPQ-42         | 4        |
| 20. | 5/8" Nipple                    | 80146           | 2        |
| 21. | Cooling Tube - Union           | KPPW0189        | 1        |
| 22. | 1" Radiator Hose               | RADIATOR HOSE   | 0.5 ft   |
| 23. | #6 Pan Head Screw              | 6RX1/2 PHS      | 1        |
| 24. | #10 Washer - Stainless Steel   | BSHW0022        | 1        |
| 25. | #8 Small Brass Washer          | AN960-B8        | 1        |
| 26. | Oil Cooler Adaptor             | KSPW0112        | 2        |

9/11/2018

REV. A



\* MOUNT BRACKET BOLTS TO AFT OF COOLANT RADIATOR

TO OIL PUMP BELOW  
GEAR BOX

TO OIL RETURN  
ON BOTTOM OF  
ENGINE

FROM OIL TANK

OIL RETURN (IN)

OIL PICKUP (OUT)

OIL BOTTLE  
(REFER TO FIREWALL ITEMS INSTALL)

ATTACH AROUND LOWER  
ENGINE MOUNT TUBES

**IMPORTANT:**  
USE A WRENCH ON THE OIL COOLER WHEN TIGHTENING OIL LINES TO PREVENT CRACKING OIL COOLER.

# REPAIRS S-21 OUTBOUND ROTAX 912ULS LUBRICATION ASSEMBLY AND INSTALLATION

# RANS S-21 OUTBOUND

PAGE 011D-02 / 912ULS

## ROTAX 912ULS - LUBRICATION SYSTEM INSTALLATION

| #   | DESCRIPTION                               | PART NUMBER  | QUANTITY |
|-----|-------------------------------------------|--------------|----------|
| 1.  | Oil Line - Nomex - 1/2"                   | KSPW0100     | 9 ft     |
| 2.  | Straight Fitting                          | KSPW0101     | 2        |
| 3.  | 90-Degree Fitting                         | KSPW0102     | 3        |
| 4.  | Oil Cooler                                | KSPW0085     | 1        |
| 5.  | 3/16" Bolt                                | AN3-11A      | 2        |
| 6.  | 3/16" Thin Washer                         | AN960-10L    | 12       |
| 7.  | Loctite Blue *                            | -----        | 0        |
| 8.  | 1/8" Stainless Steel Rivet - Flush        | CCC-42       | 7        |
| 9.  | Oil Cooler Mount Bracket                  | KPPW0271     | 1        |
| 10. | Mount Bracket - Radiator                  | KPAC0174     | 2        |
| 11. | Threaded Bushing - Oil Cooler             | KPPW0280     | 4        |
| 12. | .093 Silicone Sheet **                    | KPPW0254     | 2        |
| 13. | 3/16" Bolt                                | AN3-4A       | 6        |
| 14. | 1/8" Stainless Steel Rivet - Cherry Q     | CCPQ-42      | 7        |
| 15. | 3/16" Thick Washer                        | AN960-10     | 4        |
| 16. | 3/8" x 0.058" x 3/4" Aluminum Bushing *** | KAAC0044-3   | 0        |
| 17. | Oil Cooler Mount - Upper                  | KPPW0272     | 1        |
| 18. | Oil Cooler Mount - Lower                  | KPPW0276     | 1        |
| 19. | 3/8" Plain Clamp                          | AN742-D6     | 2        |
| 20. | 3/8" x .035" Aluminum Tube ***            | KAAC0044-14  | 1        |
| 21. | 3/16" Shear Nut - Steel                   | AN364-1032C  | 2        |
| 22. | Medium Temperature Tubing                 | KSPW0069     | 2 ft     |
| 23. | 3/16" Shear Nut                           | AN364-1032A  | 2        |
| 24. | Safety Wire *                             | -----        | 0        |
| 25. | 5/8" Cushion Clamp                        | MS21919-DG10 | 2        |
| 26. | 3/16" Bolt                                | AN3-5A       | 4        |
| 27. | 90-Degree Fitting, Swivel                 | KSPW0106     | 1        |
| 28. | Oil Cooler Adaptor                        | KSPW0112     | 1        |

\* Builder Supplied

\*\* Builder Modifies

\*\*\* Builder must fabricate from raw stock

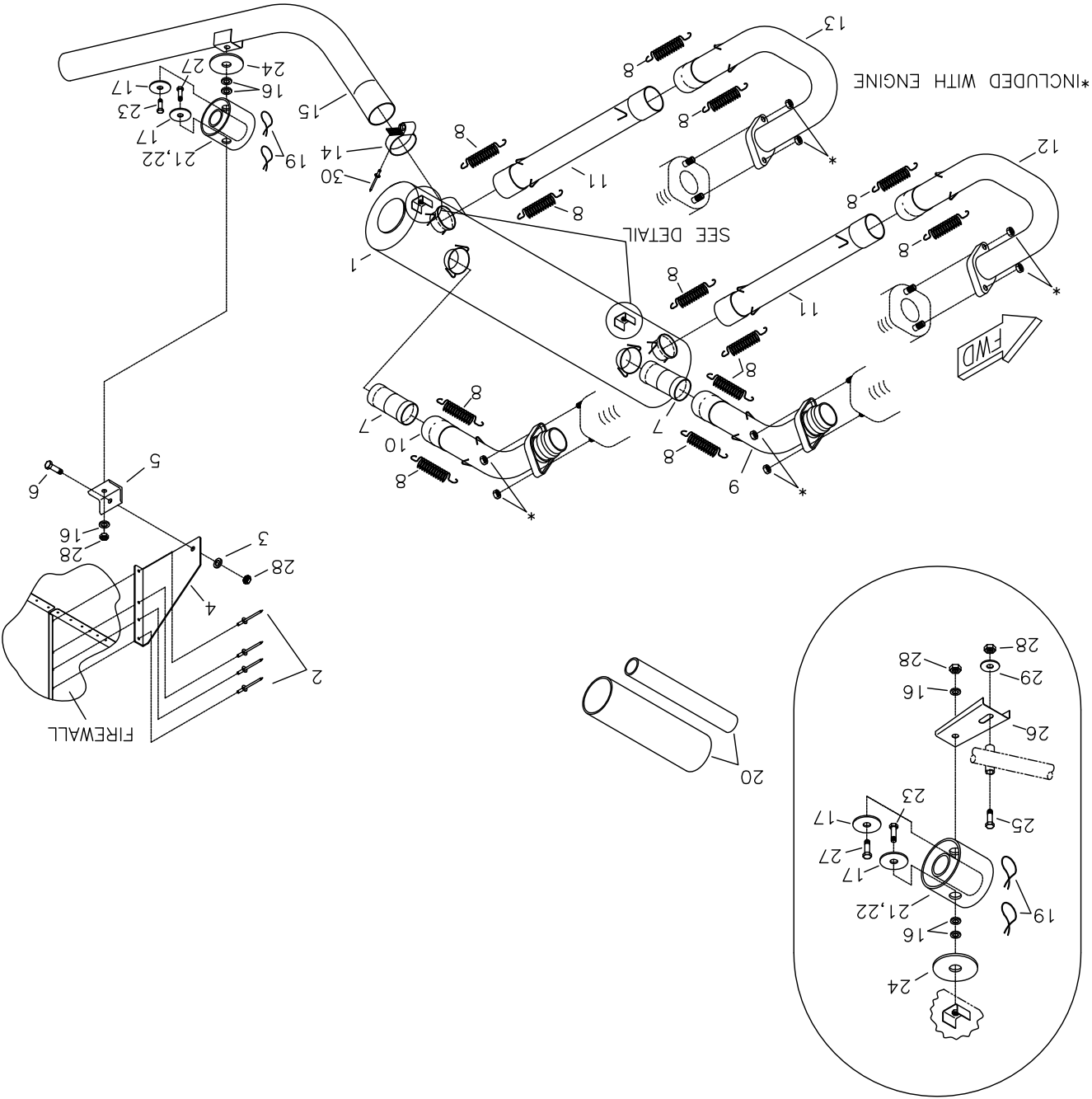
9/11/2018

REV. - ORIG



# RRMS S-21 OUTBOUND ROTAX 912ULS MUFFLER ASSEMBLY

MD5201  
REV. - ORIG



# RANS S-21 OUTBOUND

## ROTAX 912ULS - MUFFLER ASSEMBLY

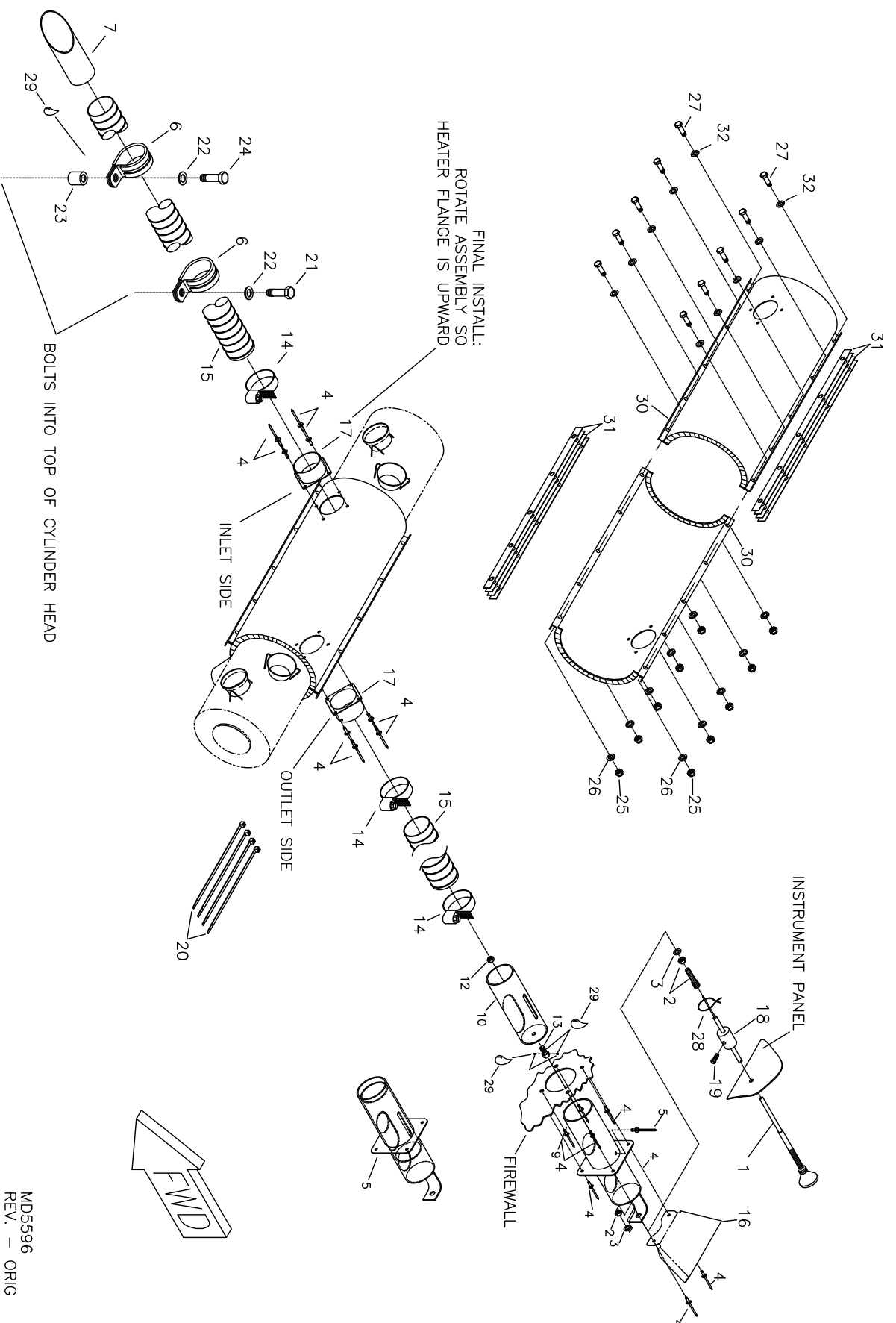
PAGE 011E-02 / 912ULS

| #   | DESCRIPTION                               | PART NUMBER | QUANTITY |
|-----|-------------------------------------------|-------------|----------|
| 1.  | S-19 / S-20 / S-21 Muffler - Rotax 912ULS | KPEX0071    | 1        |
| 2.  | 1/8" Stainless Steel Rivet - Cherry Q     | AAPQ-43     | 4        |
| 3.  | 1/4" Thin Washer                          | AN960-416L  | 1        |
| 4.  | Exhaust Mount Bracket                     | KPEX0076    | 1        |
| 5.  | Tail Pipe Support - Angle                 | KPEX0075    | 1        |
| 6.  | 1/4" Bolt                                 | AN4-5A      | 1        |
| 7.  | Muffler Canister Coupler                  | KPEX0072    | 2        |
| 8.  | Muffler Spring                            | KSEX0002    | 12       |
| 9.  | Aft Top Pipe - RH                         | KPEX0069    | 1        |
| 10. | Aft Top Pipe - LH                         | KPEX0070    | 1        |
| 11. | Forward Manifold #2 Pipe                  | KPEX0068    | 2        |
| 12. | Forward Manifold #1 Pipe - RH             | KPEX0022    | 1        |
| 13. | Forward Manifold #1 Pipe - LH             | KPEX0020    | 1        |
| 14. | Hose Clamp - 2 1/4"                       | 5-5228      | 1        |
| 15. | Tail Pipe Extension                       | KPEX0067    | 1        |
| 16. | 1/4" Thick Washer                         | AN960-416   | 8        |
| 17. | Formed Washer                             | KPAC0053    | 6        |
| 18. | 6mm Hex Nut                               | 6MM HEX NUT | 3        |
| 19. | Safety Wire *                             | -----       | 0        |
| 20. | 912 Muffler Raw Stock Kit                 | KAAC0017    | 1        |
| 21. | Rubber Hose - 3/4" o.d. x 1 3/8" **       | KAAC0017-1  | 0        |
| 22. | Rubber Hose - 1 1/4" o.d. x 1 3/8" **     | KAAC0017-2  | 0        |
| 23. | 6MM Bolt                                  | M6X20 BOLT  | 6        |
| 24. | 1/8" Aluminum Washer                      | EG-AW       | 3        |
| 25. | 1/4" Bolt                                 | AN4-16A     | 2        |
| 26. | Muffler Attach Channel                    | KPEX0027    | 2        |
| 27. | 1/4" Plain Bolt                           | KSHW0016    | 3        |
| 28. | 1/4" Shear Nut - Steel                    | AN364-428C  | 6        |
| 29. | 1/4" Large Washer                         | AN970-4     | 2        |
| 30. | 1/8" Stainless Steel Rivet - Cherry Q     | CCPQ-44     | 1        |

\* Builder Supplied

\*\* Fabricate from Raw Stock

9/11/2018  
REV. - ORIG



# Rotax S-21 OUTBOUND

## ROTAX 912ULS

### OPTIONS - CABIN HEATER INSTALLATION - MUFFLER STYLE

MD5596  
REV. - ORIG

# RANS S-21 OUTBOUND

PAGE 011E-04 / 912ULS

## ROTAX 912ULS - OPTIONS - CABIN HEATER INSTALLATION

### MUFFLER STYLE

| #   | DESCRIPTION                              | PART NUMBER  | QUANTITY |
|-----|------------------------------------------|--------------|----------|
| 1.  | Control Cable                            | 4-336        | 1        |
| 2.  | Adjustable Cable Ferrule                 | 12553        | 1        |
| 3.  | 1/4" Plastic Washer                      | PW-4         | 2        |
| 4.  | 1/8" Stainless Steel Rivet - Cherry Q    | CCPQ-42      | 12       |
| 5.  | 1/8" Aluminum Rivet - Cherry Q *         | AAPQ-42      | 0        |
| 6.  | 1-1/2" Cushioned Clamp                   | MS21919-DG24 | 2        |
| 7.  | Inlet Tube                               | H-OT         | 1        |
| 8.  | Air Diverter Assembly                    | KASY0006     | 1        |
| 9.  | Air Diverter - Slide *                   | KASY0006-1   | 0        |
| 10. | Air Diverter - Body *                    | KASY0006-2   | 0        |
| 11. | Set Screw                                | KSHW0043     | 2        |
| 12. | 6mm Hex Nut                              | 6MM HEX NUT  | 1        |
| 13. | Reverse Cable Stop                       | BPHW0006     | 1        |
| 14. | Hose Clamp - 1 3/4"                      | 5-5220       | 3        |
| 15. | 1 1/2" Heater Duct / Crete Hose          | CREET HOSE   | 5 ft     |
| 16. | Cabin Heat Shield                        | KPFU0653     | 1        |
| 17. | Heater Flange Assembly                   | KPSY0030     | 2        |
| 18. | Cable Friction Block                     | T-STOP       | 1        |
| 19. | Socket Head Cap Screw                    | T-SC         | 1        |
| 20. | Nylon Tie - 15"                          | LONG-N-TIE   | 4        |
| 21. | 6MM Bolt                                 | M6X16 BOLT   | 1        |
| 22. | 1/4" Thin Washer                         | AN960-416L   | 2        |
| 23. | 3/8" x 0.058" x 1/2" Aluminum Bushing ** | KAAC0044-3   | 0        |
| 24. | 6MM Bolt                                 | M6X30 BOLT   | 1        |
| 25. | 3/16" Shear Nut - Steel                  | AN364-1032C  | 10       |
| 26. | 3/16" Thick Washer                       | AN960-10     | 10       |
| 27. | 3/16" Bolt                               | AN3-4A       | 10       |
| 28. | Safety Wire ***                          | -----        | 0        |
| 29. | Loctite Blue ***                         | -----        | 0        |
| 30. | Heater Wrap                              | KPSY0070     | 2        |
| 31. | Shim - Heater Wrap                       | KPSY0071     | 8        |
| 32. | 3/16" Thin Washer                        | AN960-10L    | 10       |

\* Component of KASY0006

\*\* Fabricate from Raw Stock

\*\*\* Builder Supplied

9/11/2018

REV. - ORIG

Diagram illustrating the assembly of the instrument sub-panel. The diagram shows the fire wall, instrument sub-panel, and various components labeled 1, 2, and 3. The components are connected to the carburetors per the manufacturer's instructions.

Labels in the diagram:

- 1: Instrument sub-panel
- 2: Fire wall
- 3: Connect to carburetors per manufacturer's instructions

# RANS S-21 OUTBOUND

PAGE 011F-02 / 912ULS

## ROTAX 912ULS - THROTTLE CONTROL ASSEMBLY

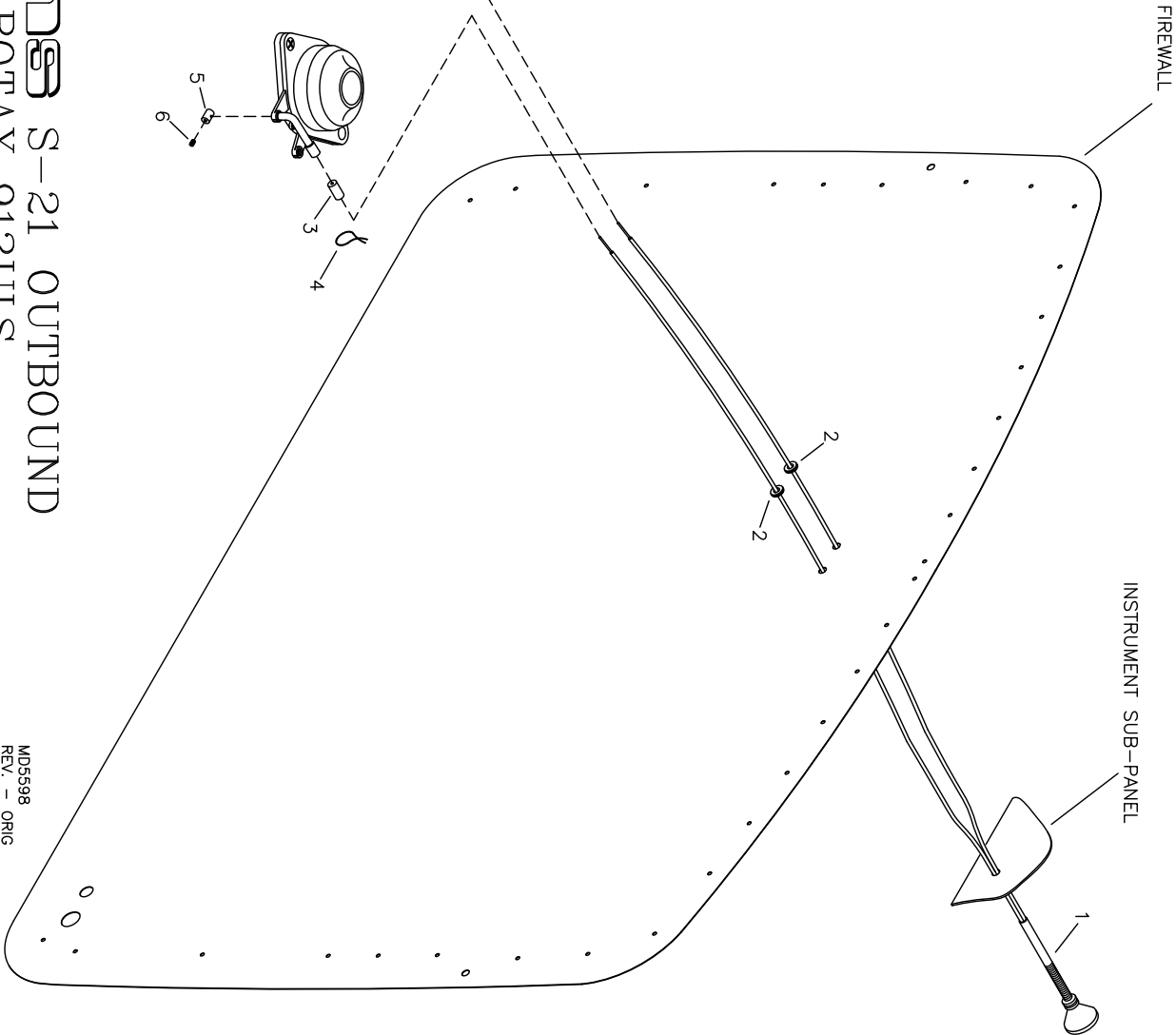
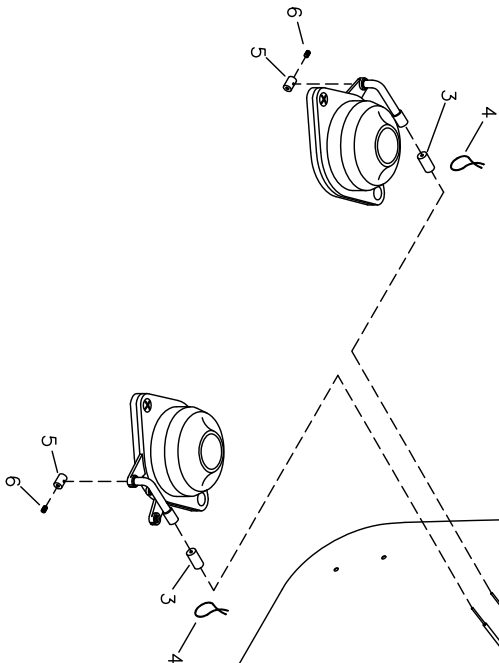
| #  | DESCRIPTION                    | PART NUMBER | QUANTITY |
|----|--------------------------------|-------------|----------|
| 1. | Throttle Cable Assembly - Dual | KSCS0025    | 1        |
| 2. | 3/16" Rubber Grommet           | KSAC0002    | 2        |
| 3. | Plastic Tie - 7.5"             | N-TIES      | 8        |
| 4. | Blue Fuel Line - 1/4" *        | FS-FL       | 12 in    |

\* Builder Modifies

9/11/2018  
REV. - ORIG



CONNECT TO CARBURETORS PER  
MANUFACTURER'S INSTRUCTIONS



RRR S-21 OUTBOUND  
ROTAX 912ULS  
CHOKE CONTROL ASSEMBLY

MD5598  
REV. - ORIG

# RANS S-21 OUTBOUND

PAGE 011G-02 / 912ULS

## ROTAX 912ULS - CHOKE CONTROL ASSEMBLY

| #  | DESCRIPTION                 | PART NUMBER  | QUANTITY |
|----|-----------------------------|--------------|----------|
| 1. | Choke Cable Assembly - Dual | KSCS0026     | 1        |
| 2. | 3/16" Rubber Grommet        | KSAC0002     | 2        |
| 3. | Cable Housing Endcap        | ENDCAP-12000 | 2        |
| 4. | Safety Wire *               | -----        | 0        |
| 5. | Barrel Stop **              | -----        | 0        |
| 6. | Set Screw **                | -----        | 0        |

\* Builder Supplied

\*\* Supplied with Choke Cable Assembly

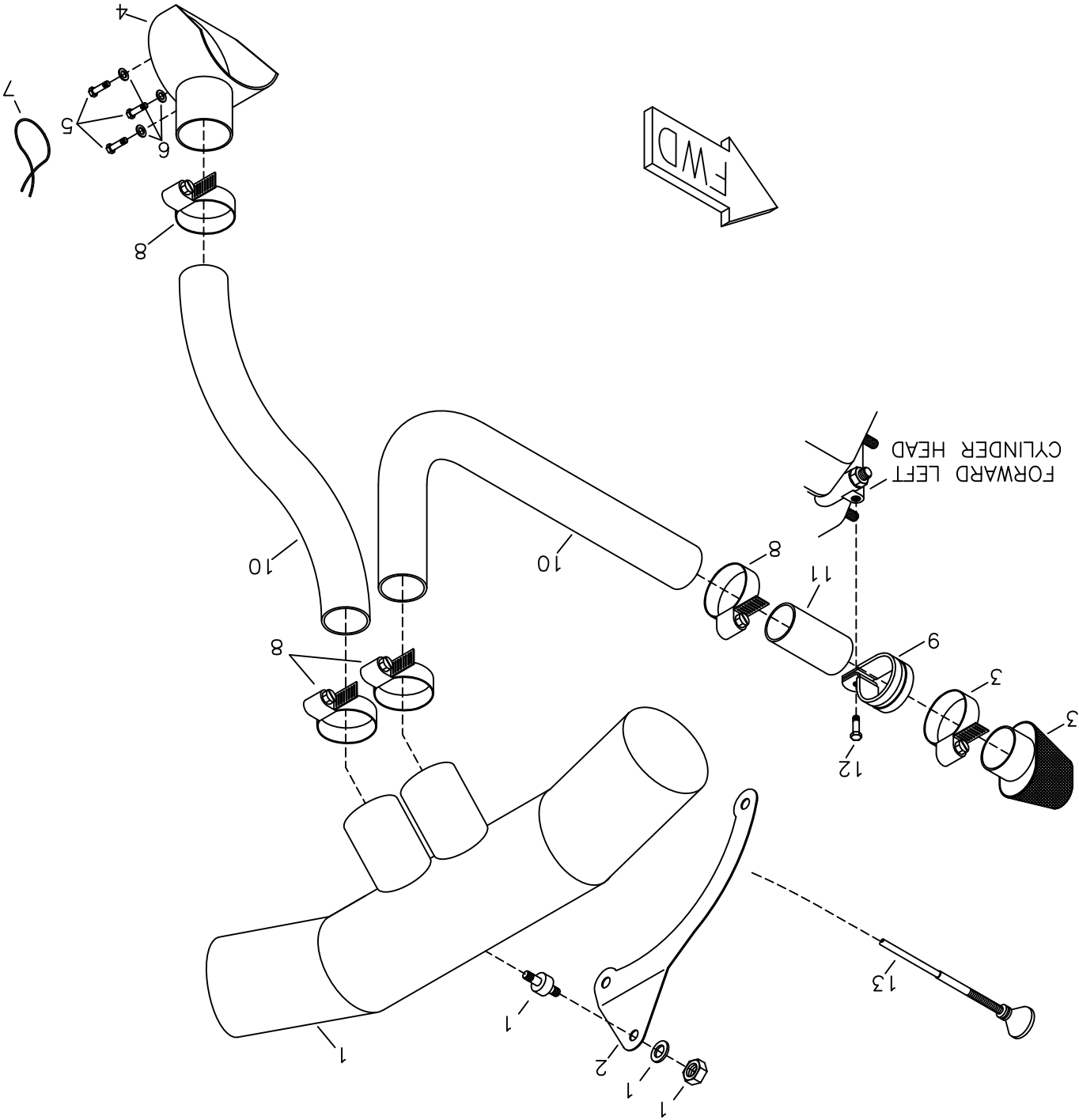
9/11/2018

REV. - ORIG



# RRMS S-21 OUTBOUND ROTAX 912ULS OPTIONS - CARB HEAT ASSEMBLY

MD5464  
REV. - ORIG



# RANS S-21 OUTBOUND

PAGE 011H-02 / 912ULS

## ROTAX 912ULS - OPTIONS - CARB HEAT ASSEMBLY

RANS Part Assembly # KAPW0055 (with Airbox), KAPW0056 (without Airbox)

| #   | DESCRIPTION                        | PART NUMBER  | QUANTITY |
|-----|------------------------------------|--------------|----------|
| 1.  | Rotax Airbox Assembly - OPTIONAL * | KSPW0115     | 1        |
| 2.  | Airbox Support Bracket             | KPPW0264     | 1        |
| 3.  | Air Filter                         | SN-2540      | 1        |
| 4.  | Heat Exchanger                     | KPPW0263     | 1        |
| 5.  | 3/16" Bolt - Drilled Head          | AN3H-4A      | 3        |
| 6.  | 1/4" Thick Washer                  | AN960-416    | 3        |
| 7.  | Safety Wire **                     | -----        | 0        |
| 8.  | Hose Clamp - 2 3/4"                | 5-5236       | 4        |
| 9.  | 2-1/2" Cushioned Clamp             | MS21919-DG40 | 1        |
| 10. | 2-1/2" Duct Hose                   | KSPW0087     | 5 ft     |
| 11. | Intake Splice Tube                 | KPPW0281     | 1        |
| 12. | 6MM Bolt                           | M6x20 BOLT   | 1        |
| 13. | Control Cable                      | 4-336        | 1        |

\* May be purchased seperately, call RANS Parts Dept. for pricing

\*\* Builder Supplied

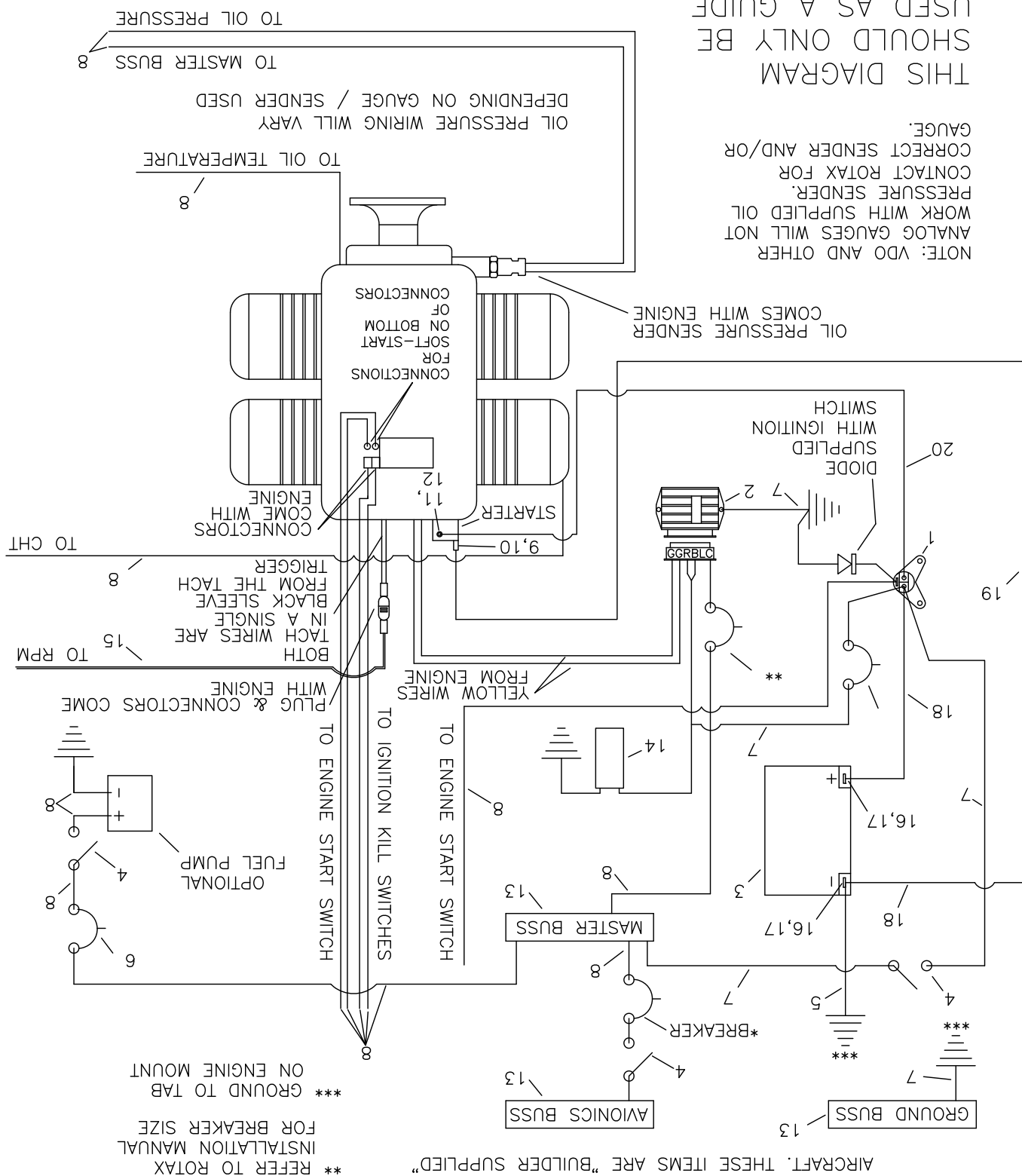
9/11/2018

REV. - ORIG

## RRMS S-21 OUTBOUND

THIS DIAGRAM  
SHOULD ONLY BE  
USED AS A GUIDE

NOTE: VDO AND OTHER  
ANALOG GAUGES WILL NOT  
WORK WITH SUPPLIED OIL  
PRESSURE SENDER.  
CONTACT ROTAX FOR  
CORRECT SENDER AND/OR  
GAUGE.



\* AMPERAGE TO BE DETERMINED BY BUILDER

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

**RANS S-21 OUTBOUND**  
**ROTAX 912ULS - ENGINE ELECTRICAL**  
**SAMPLE SCHEMATIC**

PAGE 011I-02 / 912ULS

| #   | DESCRIPTION                             | PART NUMBER | QUANTITY |
|-----|-----------------------------------------|-------------|----------|
| 1.  | Solenoid *                              | ----        | 0        |
| 2.  | Regulator / Rectifier *                 | ----        | 0        |
| 3.  | Battery **                              | ----        | 0        |
| 4.  | Switch ***                              | ----        | 0        |
| 5.  | Battery / Ground Cable                  | KAES0004    | 1        |
| 6.  | 5 Amp Breaker ***                       | ----        | 0        |
| 7.  | 12 Gauge Wire ***                       | ----        | 0        |
| 8.  | 14 Gauge Wire ***                       | ----        | 0        |
| 9.  | 1/4" Bolt                               | AN4-10A     | 1        |
| 10. | 1/4" Shear Nut - Steel                  | AN364-428C  | 1        |
| 11. | 1/4" Loc Washer                         | AN935-416L  | 2        |
| 12. | 6mm Hex Nut                             | 6MM HEX NUT | 1        |
| 13. | Electrical Buss Bar *** ****            | AMW 636     | 0        |
| 14. | Capacitor - 22,000 microFarad / 25v *** | ----        | 0        |
| 15. | 2 Plex 20 Gauge Wire ***                | ----        | 0        |
| 16. | 3/16" Shear Nut - Steel                 | AN364-1032C | 2        |
| 17. | 3/16" Bolt                              | AN3-3A      | 2        |
| 18. | Battery / Solenoid Cable                | KAES0019    | 1        |
| 19. | Starter / Ground Cable                  | KAES0008    | 1        |
| 20. | Solenoid / Starter Cable                | KAES0007    | 1        |

\* Supplied with Engine

\*\* Referenced from Battery Box Assembly and Installation

\*\*\* Builder Supplied

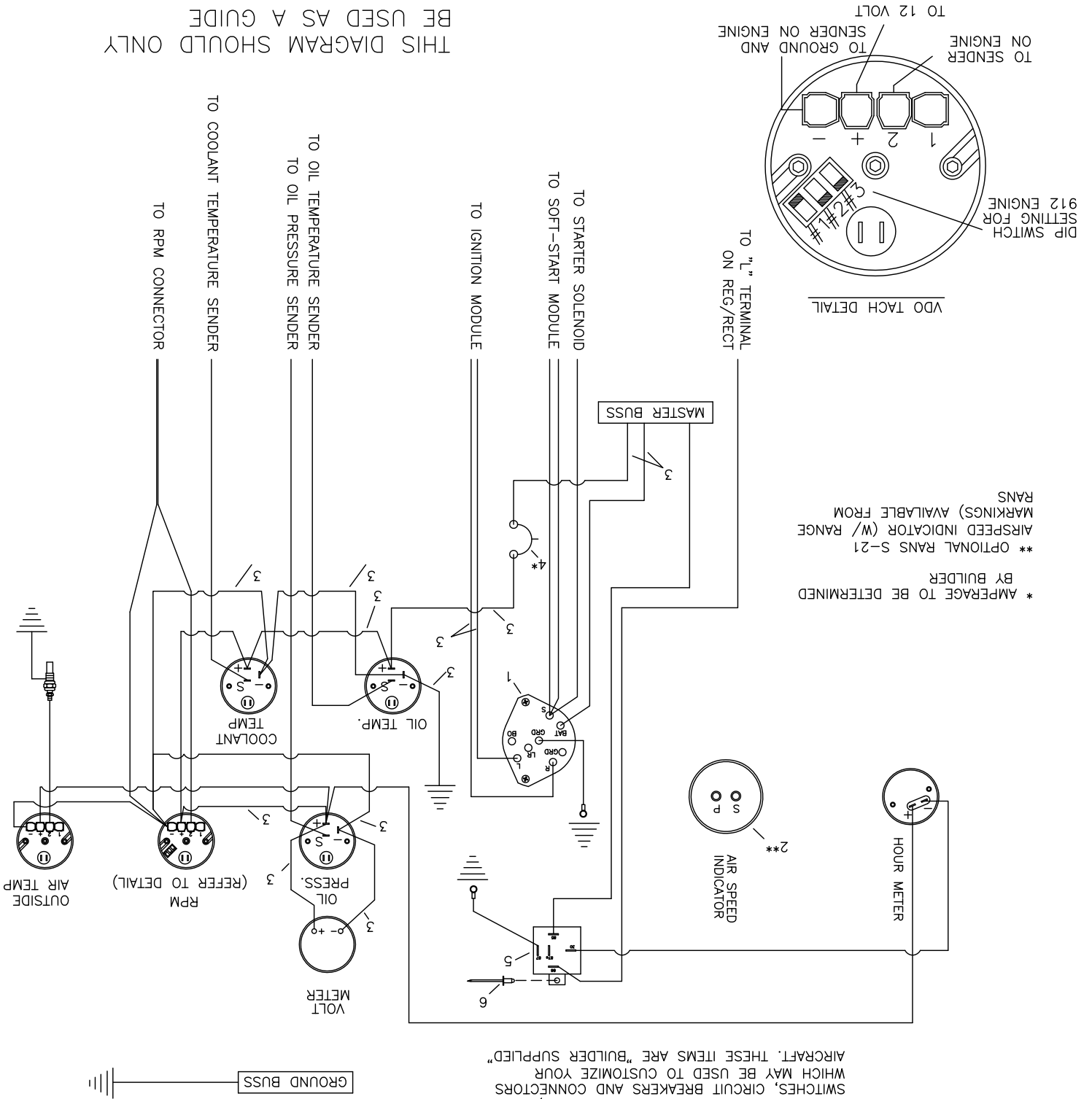
\*\*\*\* May be purchased seperately, call RANS Parts Dept. for pricing

9/11/2018

REV. - ORIG

MD5231  
REV. - ORIG

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



# RANS S-21 OUTBOUND

PAGE 011I-04 / 912ULS

## ROTAX 912ULS - ANALOG INSTRUMENTS / ELECTRICAL

### SAMPLE SCHEMATIC

| #  | DESCRIPTION                                         | PART NUMBER | QUANTITY |
|----|-----------------------------------------------------|-------------|----------|
| 1. | Switch - Ignition                                   | KSES0027    | 1        |
| 2. | Optional RANS S-21 Airspeed Indicator - 3-1/8" * ** | KSAV0031    | 0        |
| 3. | 14 Gauge Wire *                                     | -----       | 0        |
| 4. | Breaker *                                           | -----       | 0        |
| 5. | Optional Hour Meter Relay Assembly ** ***           | KAES0016    | 0        |
| 6. | 3/16" Aluminum Rivet - Cherry Q ** ***              | AAPQ-62     | 0        |

\* Builder supplied

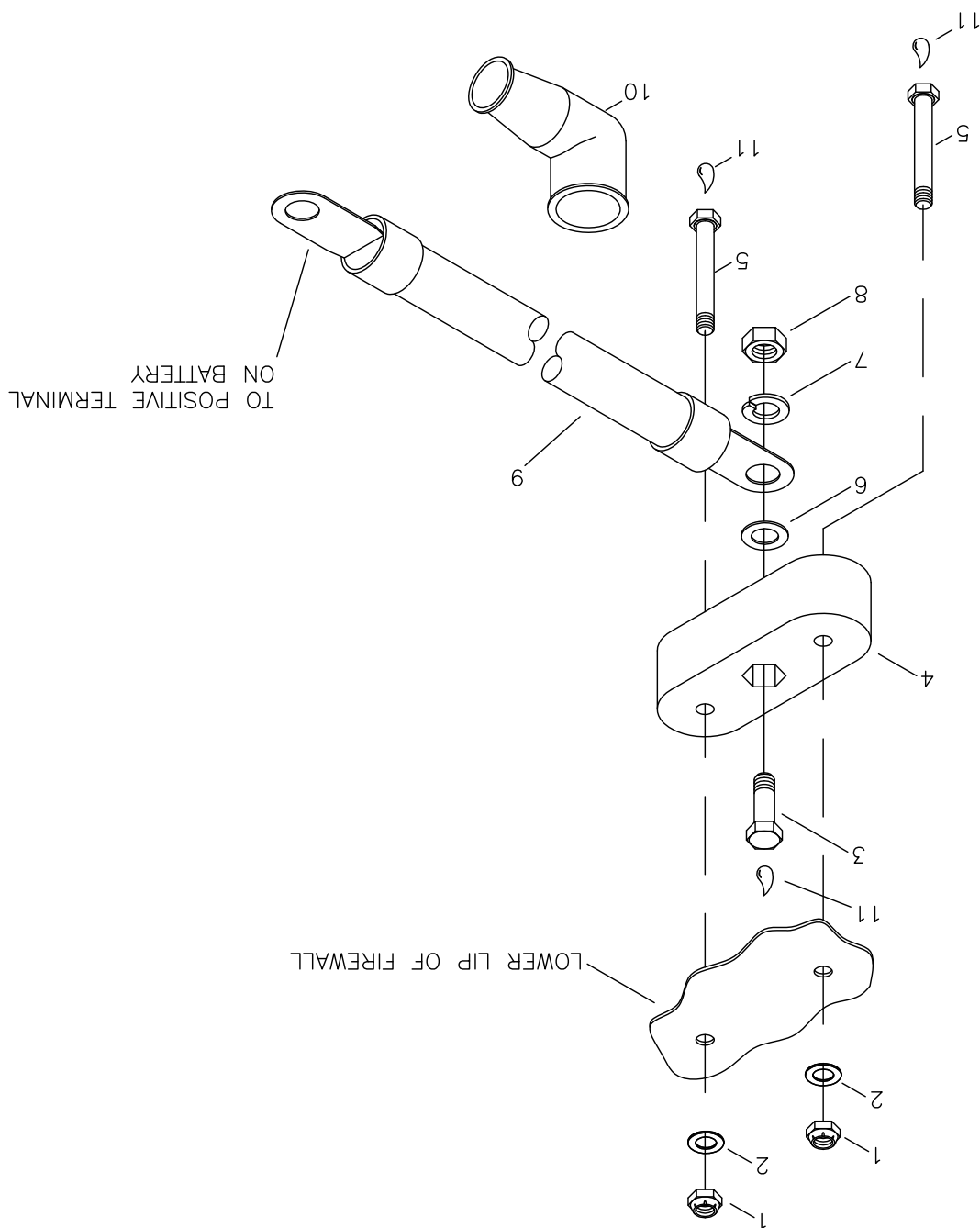
\*\* May be purchased seperately, call RANS Parts Dept. for pricing

\*\*\* Required if installing Analog Instruments - Not required with most Digital Systems

9/11/2018

REV. - ORIG

MD5501  
REV. - ORIG



# RANS S-21 OUTBOUND

PAGE 011I-06 / 912ULS

## ROTAX 912ULS - OPTIONS - REMOTE CHARGING POST INSTALLATION

KPES0029

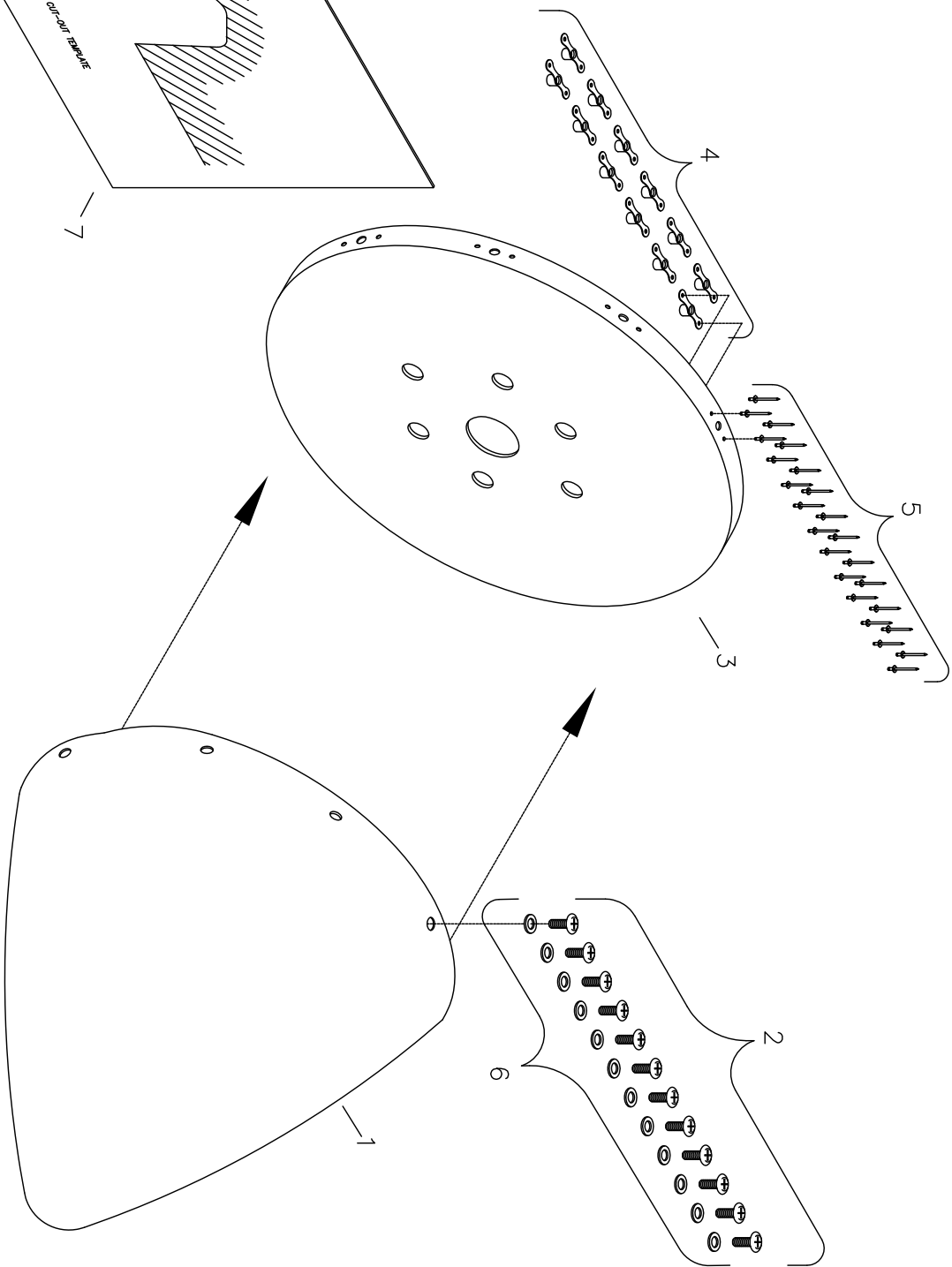
| #   | DESCRIPTION                  | PART NUMBER  | QUANTITY |
|-----|------------------------------|--------------|----------|
| 1.  | 3/16" Shear Nut - Steel      | AN364-1032C  | 2        |
| 2.  | 3/16" Thin Washer            | AN960-10L    | 2        |
| 3.  | 1/4" Plain Bolt              | 1/4 X 1 BOLT | 1        |
| 4.  | Isolator Block               | KPES0026     | 1        |
| 5.  | 3/16" Bolt                   | AN3-7A       | 2        |
| 6.  | 1/4" Thick Washer            | AN960-416    | 1        |
| 7.  | 1/4" Lock Washer             | AN935-416L   | 1        |
| 8.  | 1/4" Plain Nut               | AN345-416    | 1        |
| 9.  | Remote Battery Charger Cable | KAES0017     | 1        |
| 10. | Terminal Boot                | MS25171-3S   | 1        |
| 11. | Silicone Seal *              | -----        | 0        |

\* Builder supplied

9/11/2018  
REV. - ORIG



NOTE: 1" PROP EXTENSION REQUIRED.  
REFER TO PROPELLER INSTALLATION



**ROTAX S-21 OUTBOUND**  
**ROTAX 912ULS**  
**11.3" SPINNER ASSEMBLY**

# RANS S-21 OUTBOUND

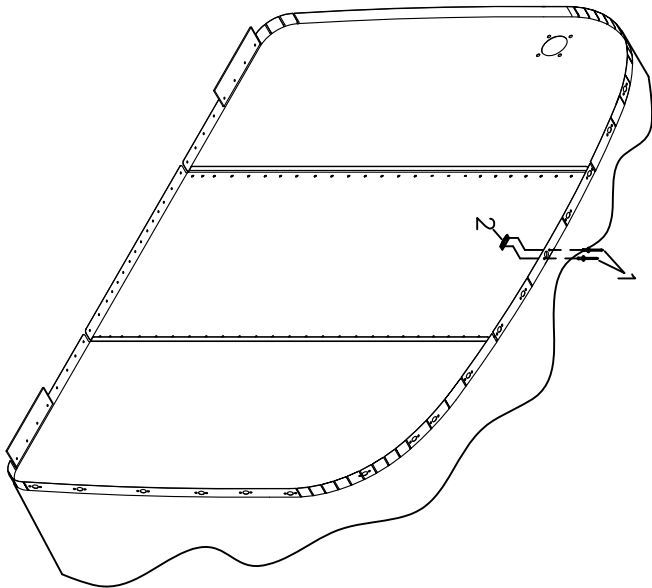
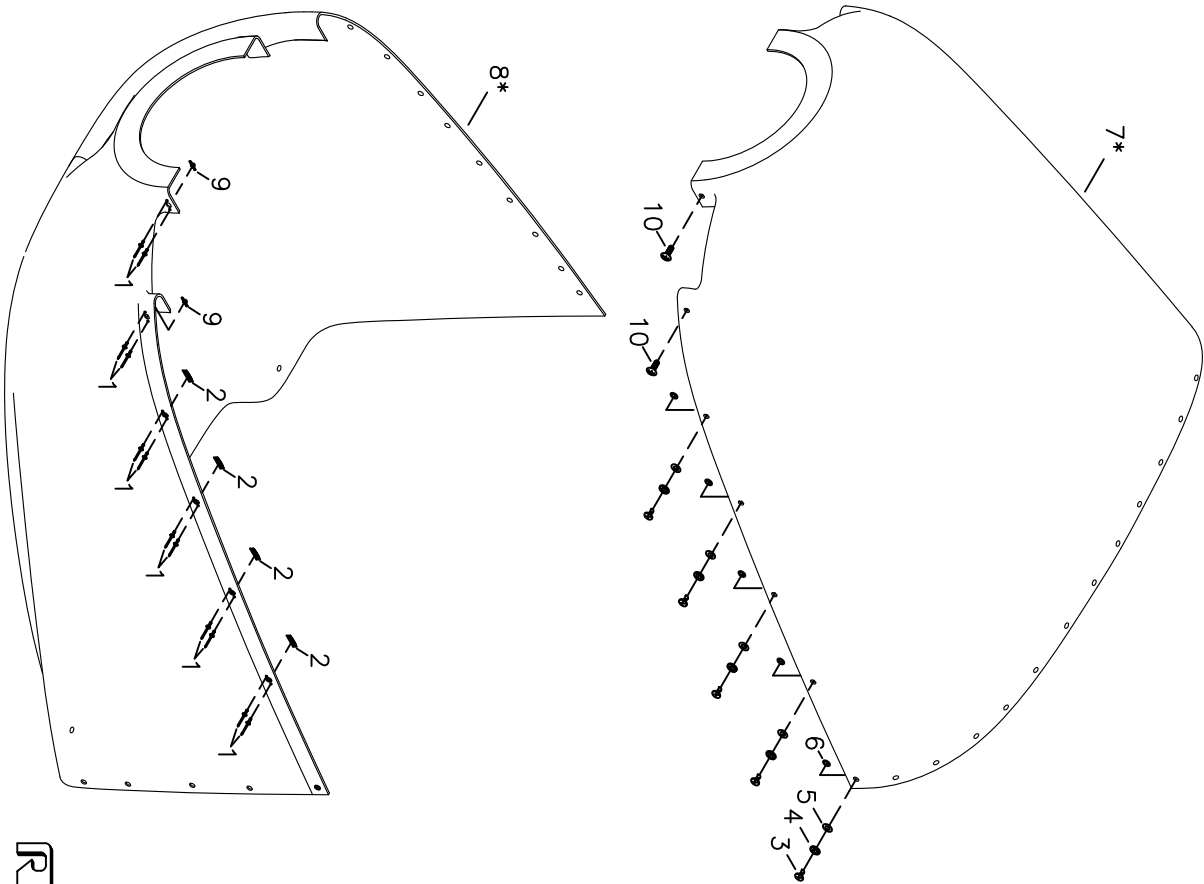
PAGE 011J-02 / 912ULS

## ROTAX 912ULS - 11.3" SPINNER ASSEMBLY

| #  | DESCRIPTION                            | PART NUMBER | QUANTITY |
|----|----------------------------------------|-------------|----------|
| 1. | Spinner Dome - 11.3" - 912ULS          | KSPW0095    | 1        |
| 2. | Pan Head Phillips Bolt (5/8" long)     | KSHW0071    | 12       |
| 3. | Spinner Backing Plate - 11.3" - 912ULS | KPPW0296    | 1        |
| 4. | 3/16" Nut Plate                        | K-1000-3    | 12       |
| 5. | 3/32" Aluminum Rivet                   | 40APR1/4    | 24       |
| 6. | 3/16" Thin Washer                      | AN960-10L   | 12       |
| 7. | Spinner Cut-out Template *             | -----       | 0        |

\* Refer to Figures Manual for Spinner Cut-out Template

9/11/2018  
REV. - ORIG



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

**ROTAX S-21 OUTBOUND**  
**ROTAX 912ULS**  
**COWLING ASSEMBLY AND INSTALLATION**

MD5141  
REV. - ORIG

# RANS S-21 OUTBOUND

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## ROTAX 912ULS - COWLING ASSEMBLY AND INSTALLATION

| #   | DESCRIPTION                                        | PART NUMBER | QUANTITY |
|-----|----------------------------------------------------|-------------|----------|
| 1.  | 3/32" Aluminum Rivet                               | 40APR1/4    | 82       |
| 2.  | 1/4 Turn Receptacle                                | #302        | 37       |
| 3.  | 1/4 Turn Stud *                                    | #180        | 37       |
| 3.  | 1/4 Turn Stud *                                    | #240        | 4        |
| 3.  | 1/4 Turn Stud *                                    | #200        | 4        |
| 4.  | Rubber Washer                                      | #201        | 37       |
| 5.  | Wear Washer Nylon                                  | #103        | 37       |
| 6.  | Snap Ring                                          | #101        | 37       |
| 7.  | Cowling - Upper - Optional - Carbon Fiber - 912 ** | KPCW0040-C  | 1        |
| 7.  | Cowling - Upper - Fiberglass - 912                 | KPCW0040-F  | 1        |
| 8.  | Cowling - Lower - Optional - Carbon Fiber - 912 ** | KPCW0041-C  | 1        |
| 8.  | Cowling - Lower - Fiberglass - 912                 | KPCW0041-F  | 1        |
| 9.  | 8-32 Nut Plate                                     | MS21047-08  | 4        |
| 10. | #8 Truss Head Screw                                | AN515-8R7   | 4        |

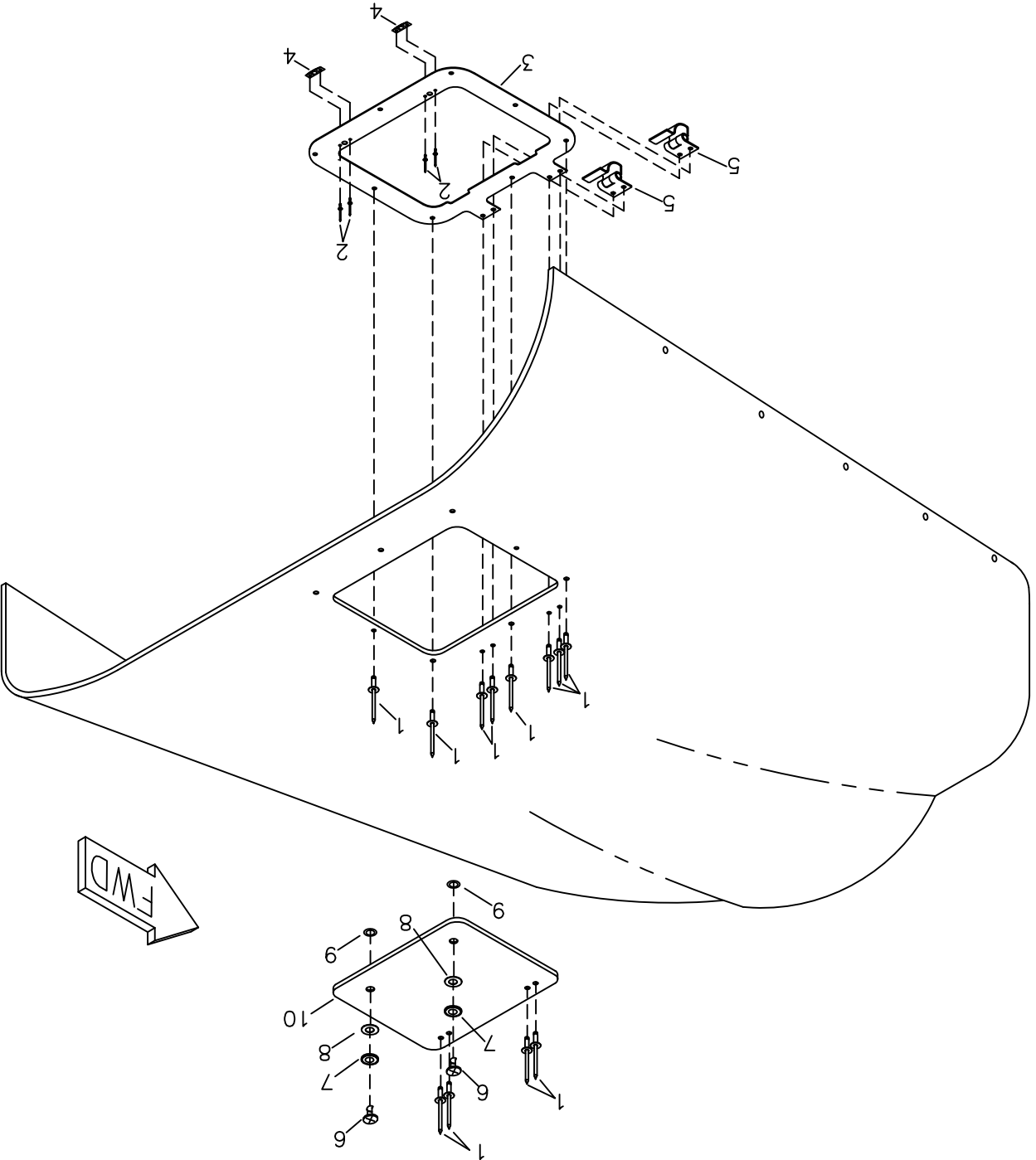
\* Use as needed for secure attachment

\*\* Optional

9/11/2018  
REV. - ORIG

RAMPS S-21 OUTBOUND  
ROTAX 912ULS  
OIL CHECK DOOR INSTALLATION

MDS140  
REV. - ORIG

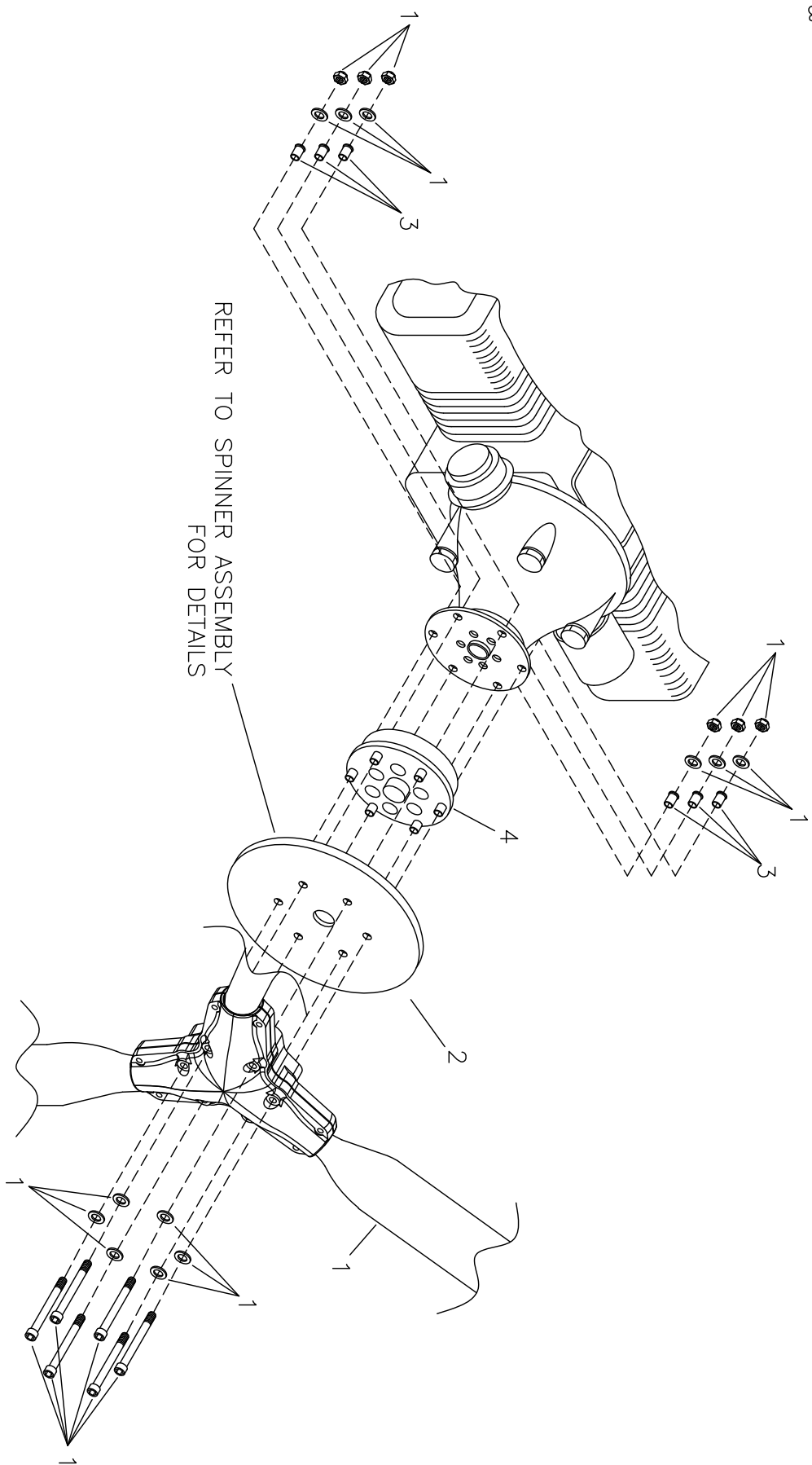


# RANS S-21 OUTBOUND

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## ROTAX 912ULS - OIL CHECK DOOR INSTALLATION

| #   | DESCRIPTION                            | PART NUMBER | QUANTITY |
|-----|----------------------------------------|-------------|----------|
| 1.  | 1/8" Aluminum Rivet - Avex             | 1691-0410   | 18       |
| 2.  | 3/32" Aluminum Rivet                   | 40APR1/4    | 4        |
| 3.  | Reinforcement Ring - Maintenance Hatch | KPCW0015    | 1        |
| 4.  | 1/4 Turn Receptacle                    | #302        | 2        |
| 5.  | Oil Door Hinge                         | KSHW0053    | 2        |
| 6.  | 1/4 Turn Stud                          | #180        | 2        |
| 7.  | Rubber Washer                          | #201        | 2        |
| 8.  | Wear Washer Nylon                      | #103        | 2        |
| 9.  | Snap Ring                              | #101        | 2        |
| 10. | Maintenance Hatch                      | KPCW0036    | 1        |



ROTAX S-21 OUTBOUND  
ROTAX 912ULS  
OPTIONS – WHIRL WIND PROPELLER INSTALLATION

ROTAX 912ULS - OPTIONS - WHIRL WIND PROPELLER INSTALLATION

| #  | DESCRIPTION                                                | PART NUMBER             | QUANTITY |
|----|------------------------------------------------------------|-------------------------|----------|
| 1. | 3-Blade - Propeller - 75" STOL - 912ULS (TAILDRAGGER ONLY) | PROP WHIRLWIND / 3B 75" | 1        |
| 1. | 2-Blade - Propeller - 70" - 912ULS (TRIKE ONLY) *          | PROP WHIRLWIND / 2B 70" | 1        |
| 2. | Spinner Backing Plate **                                   | -----                   | 0        |
| 3. | Flange Bushing - 912                                       | KPPW0038                | 6        |
| 4. | 1" Prop Extension Assembly                                 | KAPW0034                | 1        |

\* Mounting Hardware included with Prop

\*\* Referenced from Spinner Assembly