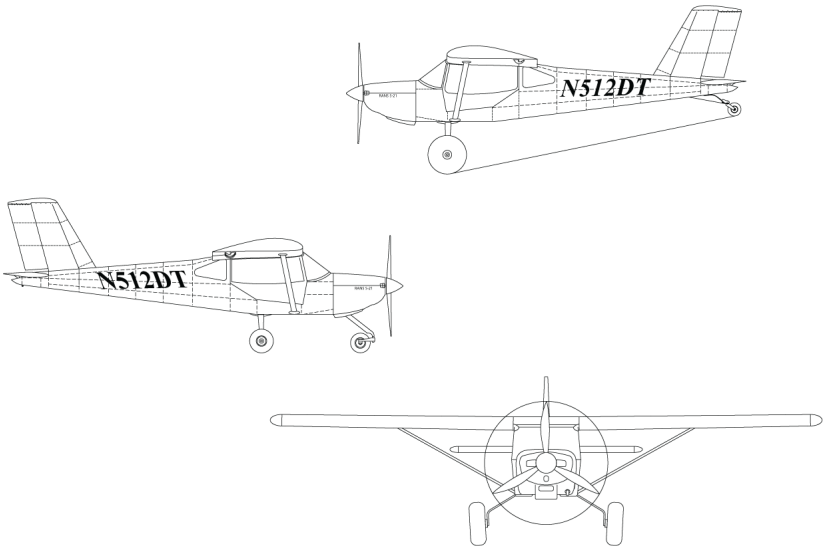
RANS AIRCRAFT

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

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

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

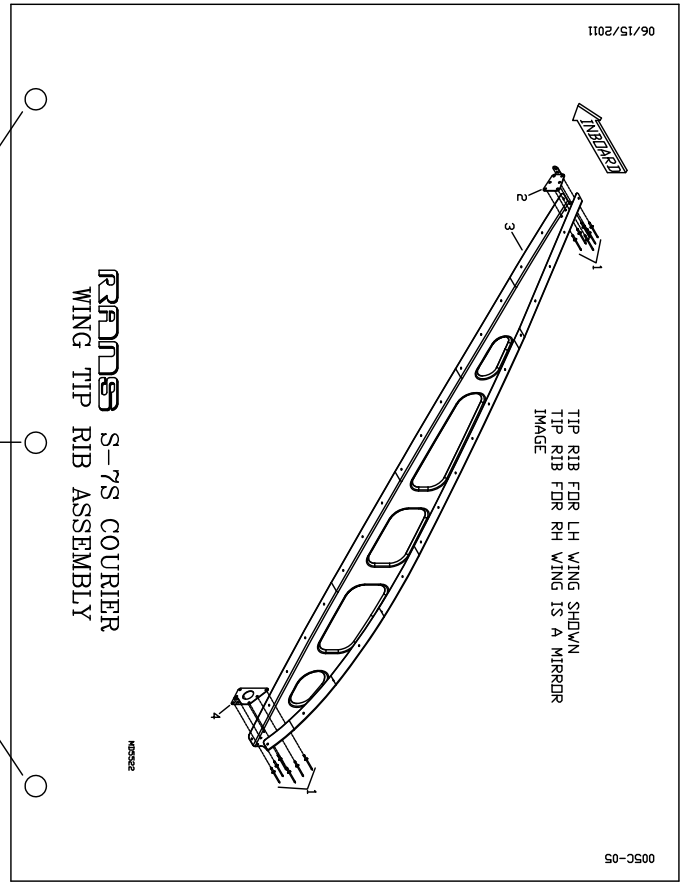
Enclosure— One Amateur-Built Aircraft Fabrication and Assembly Checklist
for RANS S-21 OUTBOUND

STEP 1:

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

PARTS DRAWING PAGE

3-HOLE PUNCH



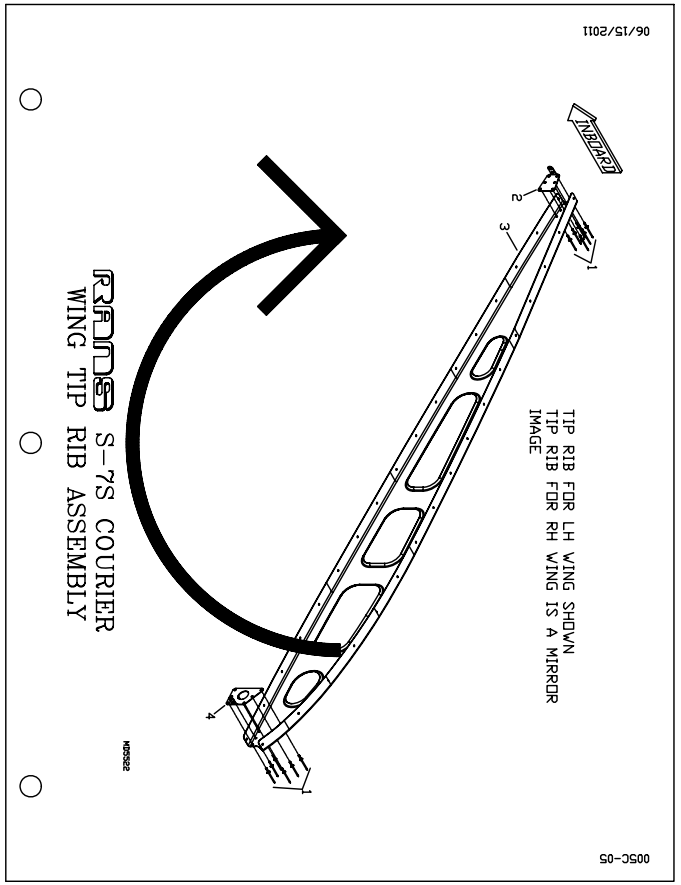
EXAMPLE ONLY.
MAY NOT REPRESENT ACTUAL PAGES
FROM YOUR MANUAL.

SEE NEXT PAGE

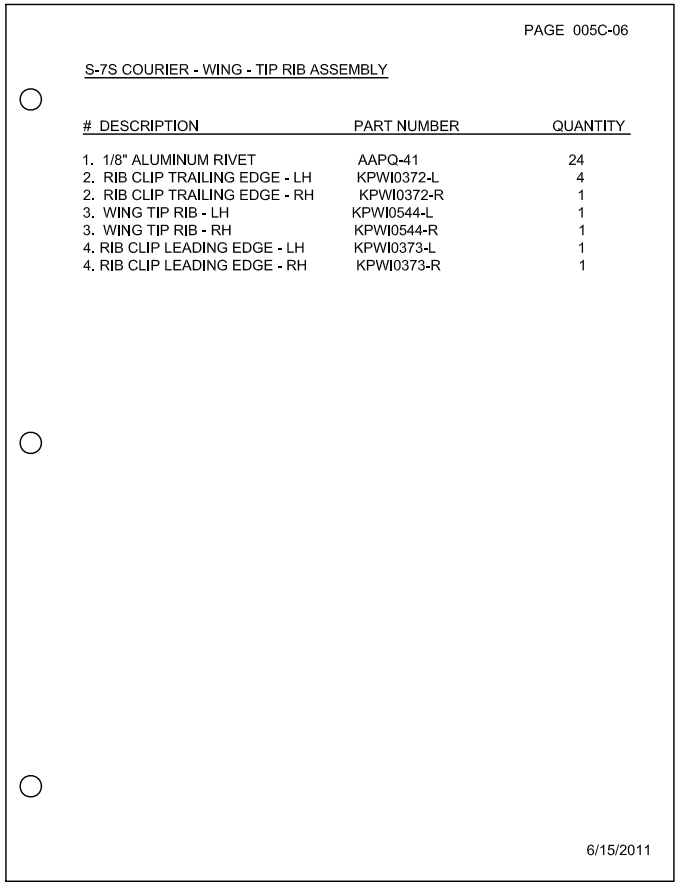
STEP 2:

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



EXAMPLE ONLY.
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FROM YOUR MANUAL.

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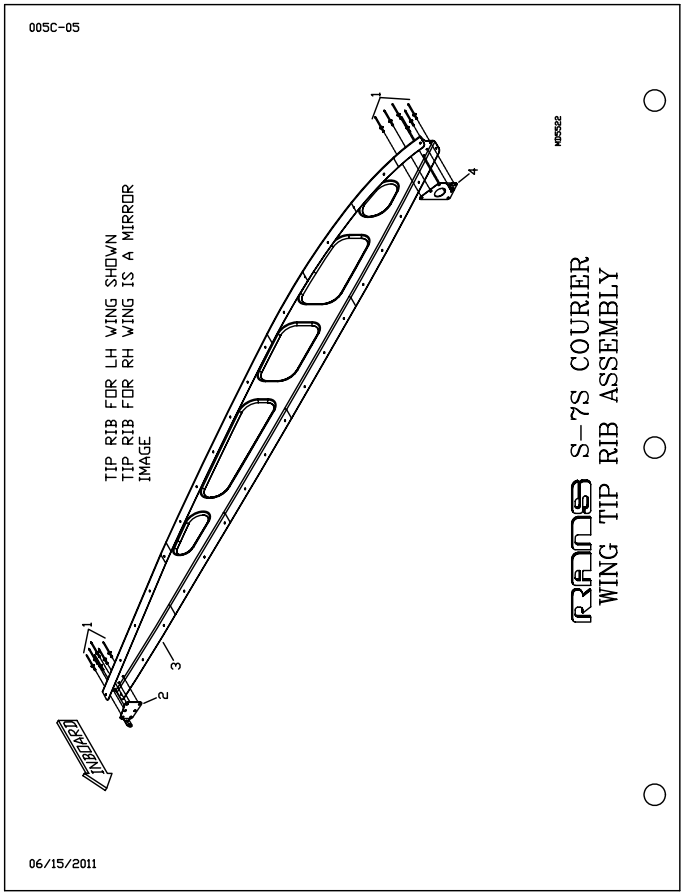
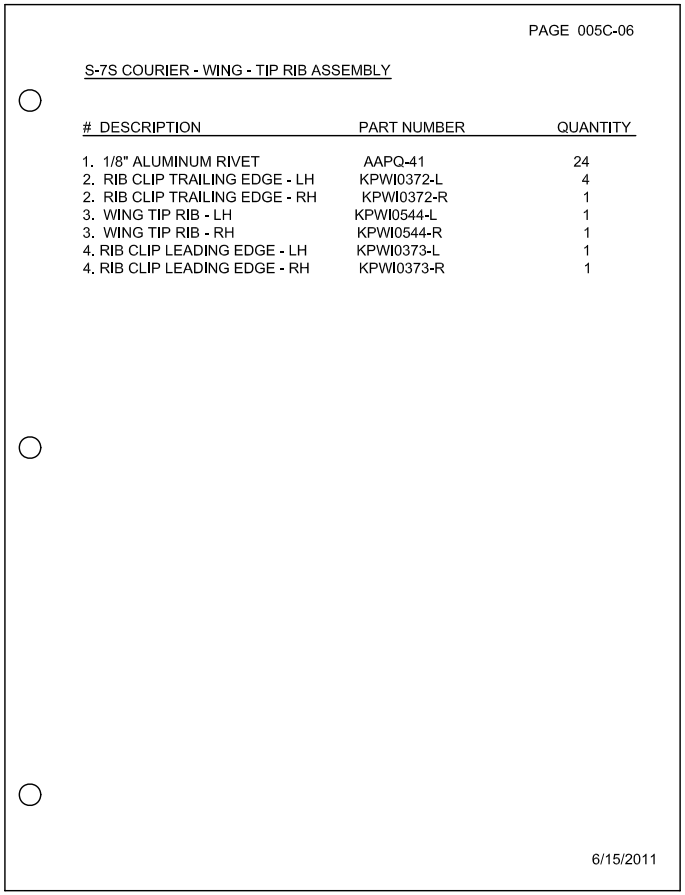
STEP 3:

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

PARTS DRAWING PAGE



PARTS DESCRIPTION PAGE



PAGE 005C-06

S-7S COURIER - WING - TIP RIB ASSEMBLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	1/8" ALUMINUM RIVET	AAPQ-41	24
2.	RIB CLIP TRAILING EDGE - LH	KPWI0372-L	4
2.	RIB CLIP TRAILING EDGE - RH	KPWI0372-R	1
3.	WING TIP RIB - LH	KPWI0544-L	1
3.	WING TIP RIB - RH	KPWI0544-R	1
4.	RIB CLIP LEADING EDGE - LH	KPWI0373-L	1
4.	RIB CLIP LEADING EDGE - RH	KPWI0373-R	1

6/15/2011

EXAMPLE ONLY.
MAY NOT REPRESENT ACTUAL PAGES
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RANS S-21 OUTBOUND - PARTS MANUAL

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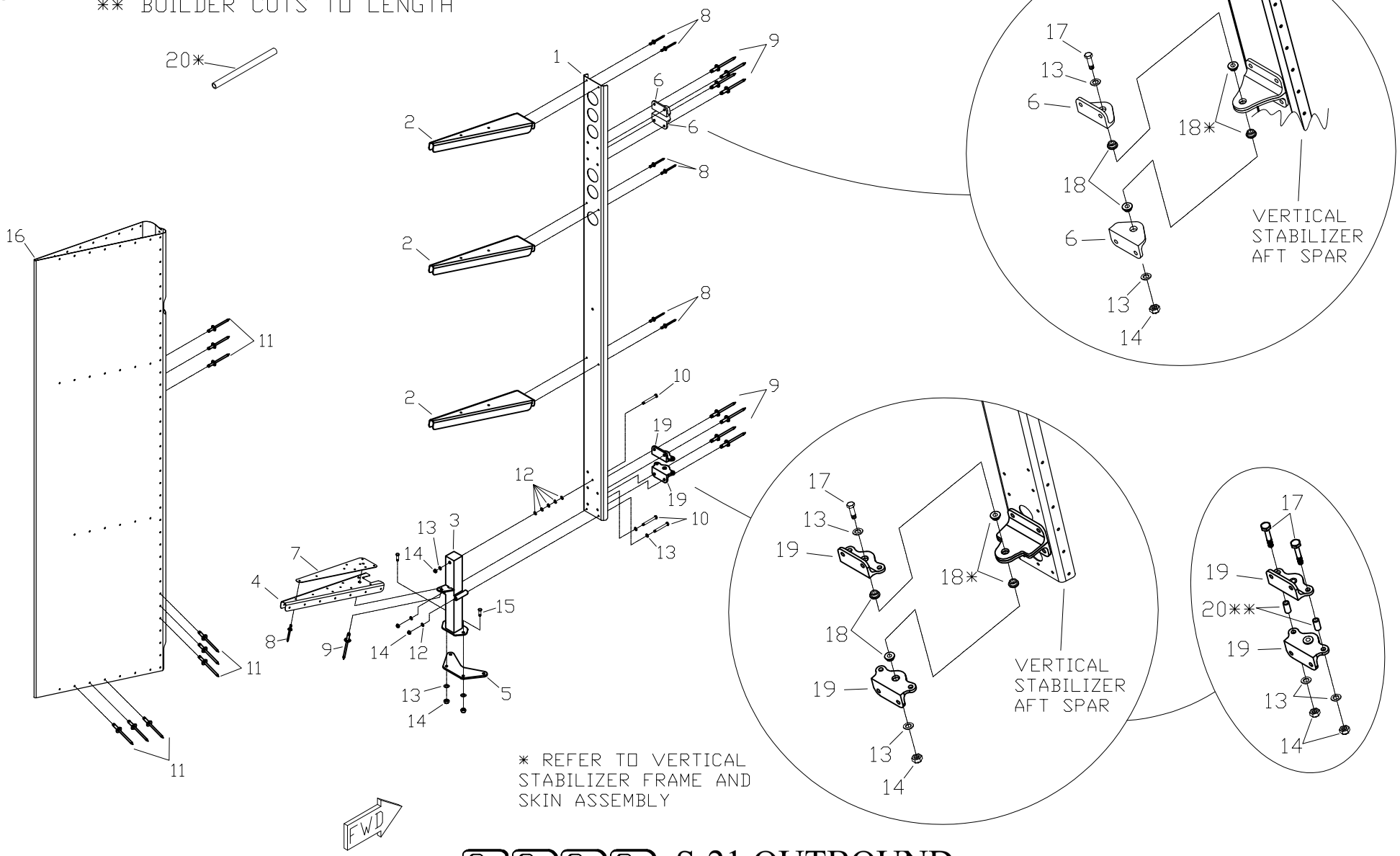
RANS S-21 OUTBOUND

TOOL KIT

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	RANS Tool Kit	KSAC0074	
1.	RANS Tool Kit w/o Pneumatic Riveter	KSAC0082	
2.	RANS Tool Bag *, **	KSTK0001	1
3.	Pneumatic Blind Rivet Puller *	KSTK0002	1
4.	Hand Held Rivet Puller, Swivel Head *, **	KSTK0003	1
5.	Straight Pattern Snips *, **	KSTK0004	1
6.	Fluting Pliers *, **	KSTK0005	1
7.	Safety Wire Pliers, 9" *, **	KSTK0006	1
8.	Cleco Pliers *, **	KSTK0024	1
9.	Edge Forming Tool *, **	KSTK0007	1
10.	Angle Finder *, **	KSTK0008	1
11.	Circle Cutter, 6" *, **	KSTK0009	1
12.	Deburr Tool, DogLeg with Bit *, **	KSTK0010	1
13.	Deburring Tool Set *, **	KSTK0011	1
14.	Half Round File, Second Cut, 8" *, **	KSTK0012	1
15.	120 Degree Dimple Die for 1/8" Pop Rivets *, **	KSTK0013	1
16.	Hand Squeeze, 2" *, **	KSTK0014	1
17.	Step Drill Bit Set & Click Center Punch *, **	KSTK0015	1
18.	Drill Bit - #11 *, **	KSTK0016	6
19.	Drill Bit - #30 *, **	KSTK0017	12
20.	Drill Bit - #40 *, **	KSTK0018	12
21.	Drill Bit - #27 *, **	KSTK0019	2
22.	120° Countersink - #30 *, **	KSTK0020	1
23.	100° Countersink - #11 *, **	KSTK0021	1
24.	MicroStop *, **	KSTK0022	1
25.	Reamer - 3/16" Straight Flute *, **	KSTK0023	1
26.	#30 Cleco (Copper) *, **	KSTK0025	200
27.	#40 Cleco (Silver) *, **	KSTK0026	100
28.	#11 Cleco (Gold) *, **	KSTK0027	30

* Included in Tool Kit (KSAC0074)
** Included in Tool Kit (KSAC0082)

* BUILDER MODIFIES
** BUILDER CUTS TO LENGTH



RANS S-21 OUTBOUND
RUDDER FRAME & SKIN ASSEMBLY

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REV. B

RANS S-21 OUTBOUND

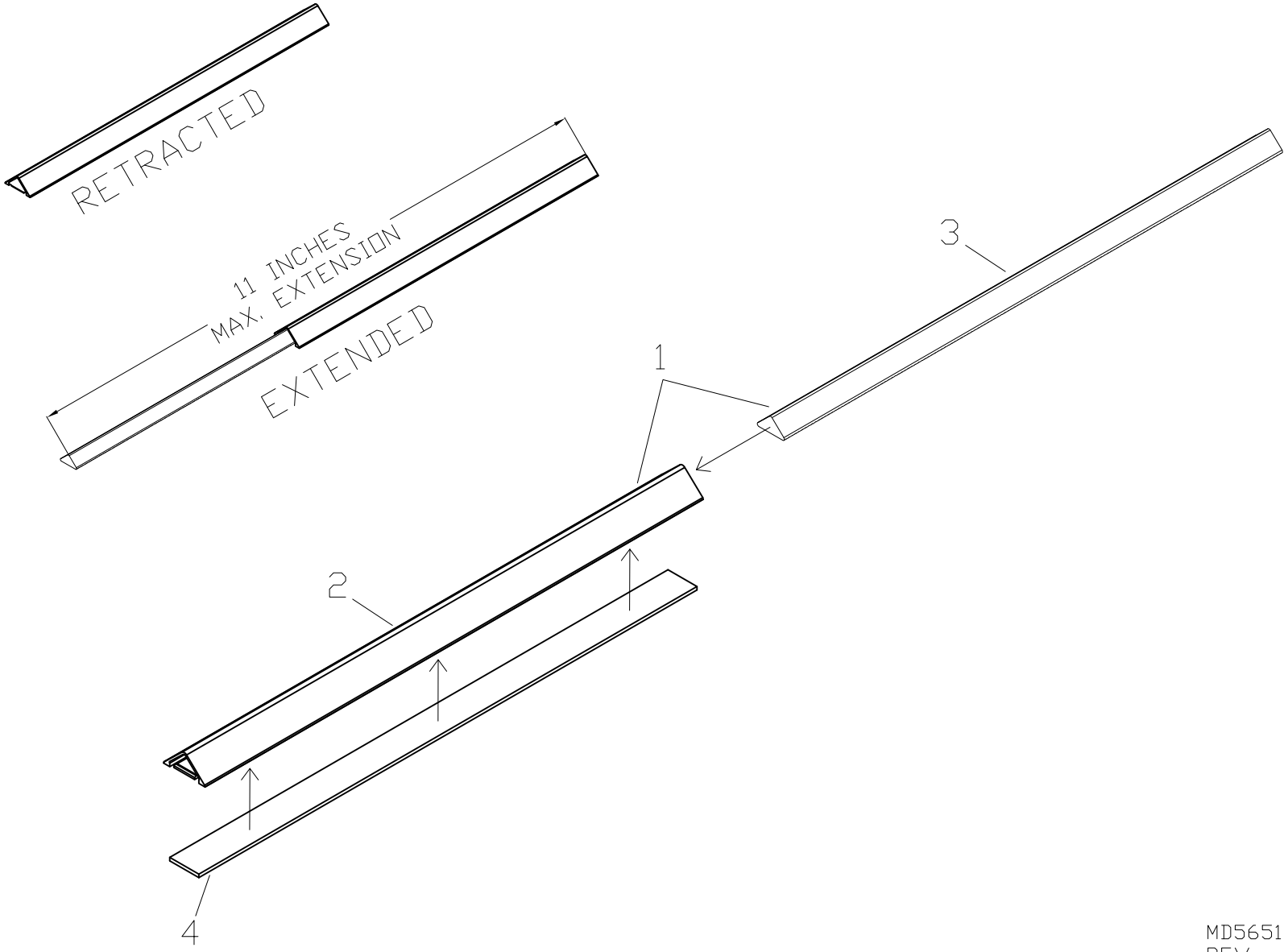
RUDDER FRAME & SKIN ASSEMBLY

#	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	KPRD0113	1
6.	Elevator and Rudder Hinge - Short	KPHS0098	2
7.	Rudder Horn Rib Doubler	KPRD0105	1
8.	1/8" Aluminum Rivet - Cherry Q	AAPQ-42	15
9.	3/16" Stainless Steel Rivet - Cherry Q	CCPQ-64	9
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	11
14.	3/16" Shear Nut	AN364-1032A	9
15.	3/16" Bolt	AN3-4A	2
16.	Rudder Skin	KPRD0110	1
17.	3/16" Bolt	AN3-11A	4
18.	Bronze Flange Bushing	KSAC0019-3	4
19.	Lower Rudder Hinge	KPRD0112	2
20.	Raw Stock - Aluminum Bushing, 1/4" x .028" *	KAAC0044-2	1
20.	Aluminum Bushing, 1/4" x .028" x .52" **	KAAC0044-2	0

* Builder Modifies cuts to length to fit

**Builder

9/11/2018
Rev. A



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RANS S-21 OUTBOUND
OPTIONS - BUMP TRIM KIT - RUDDER & AILERON

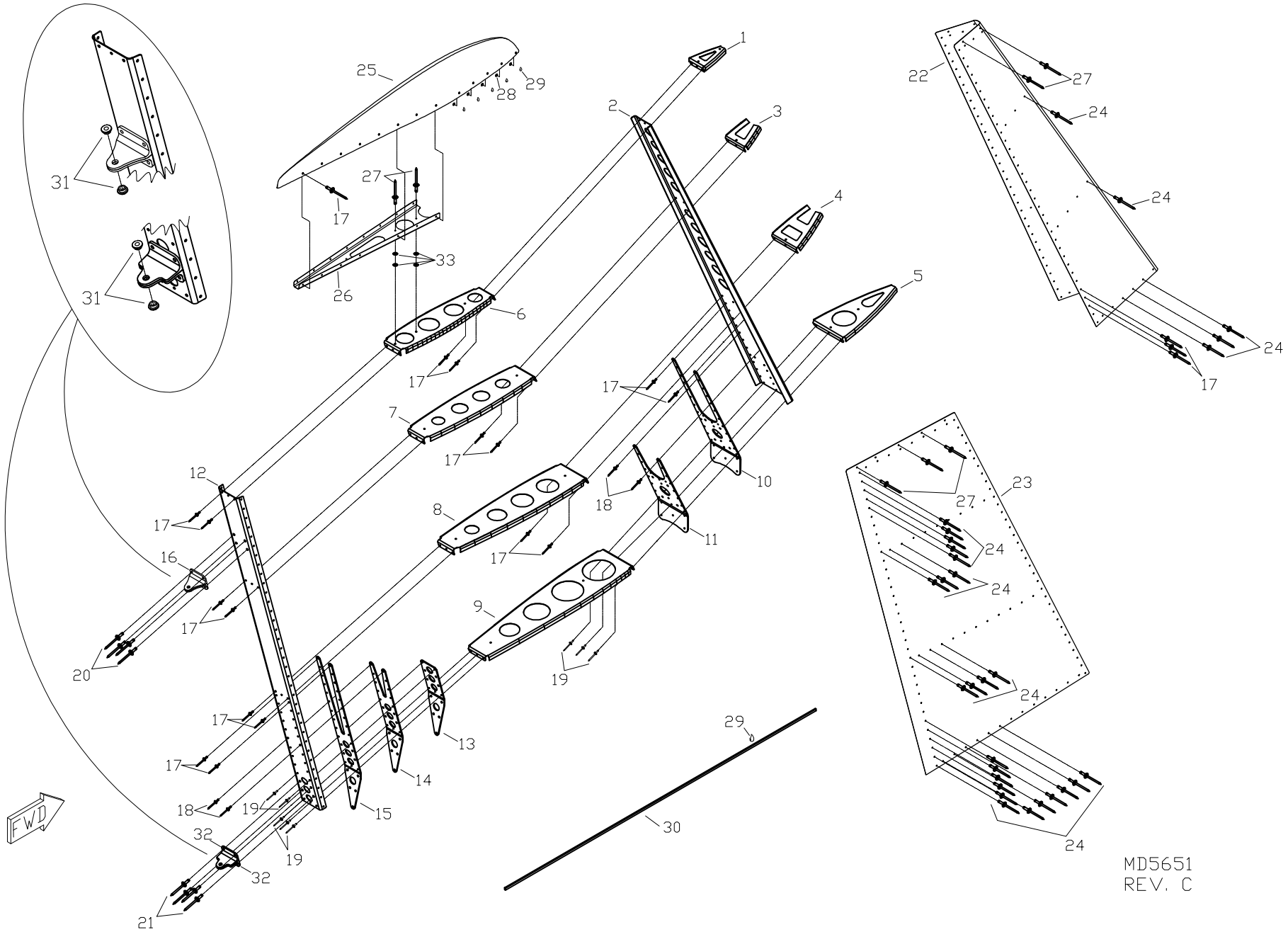
RANS S-21 OUTBOUND

OPTIONS - BUMP TRIM KIT - RUDDER AND AILERON

KAAC0112

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Bump Trim *	KPAC0289	2
2.	Bump Trim Housing *, **	KPAC0289-1	0
3.	Bump Trim Slide *, **	KPAC0289-2	0
4.	1/4" VHB Double Sided Tape *	KSAC0080	22 in

* Included in KAAC0112 Kit
** Part of KPAC0289



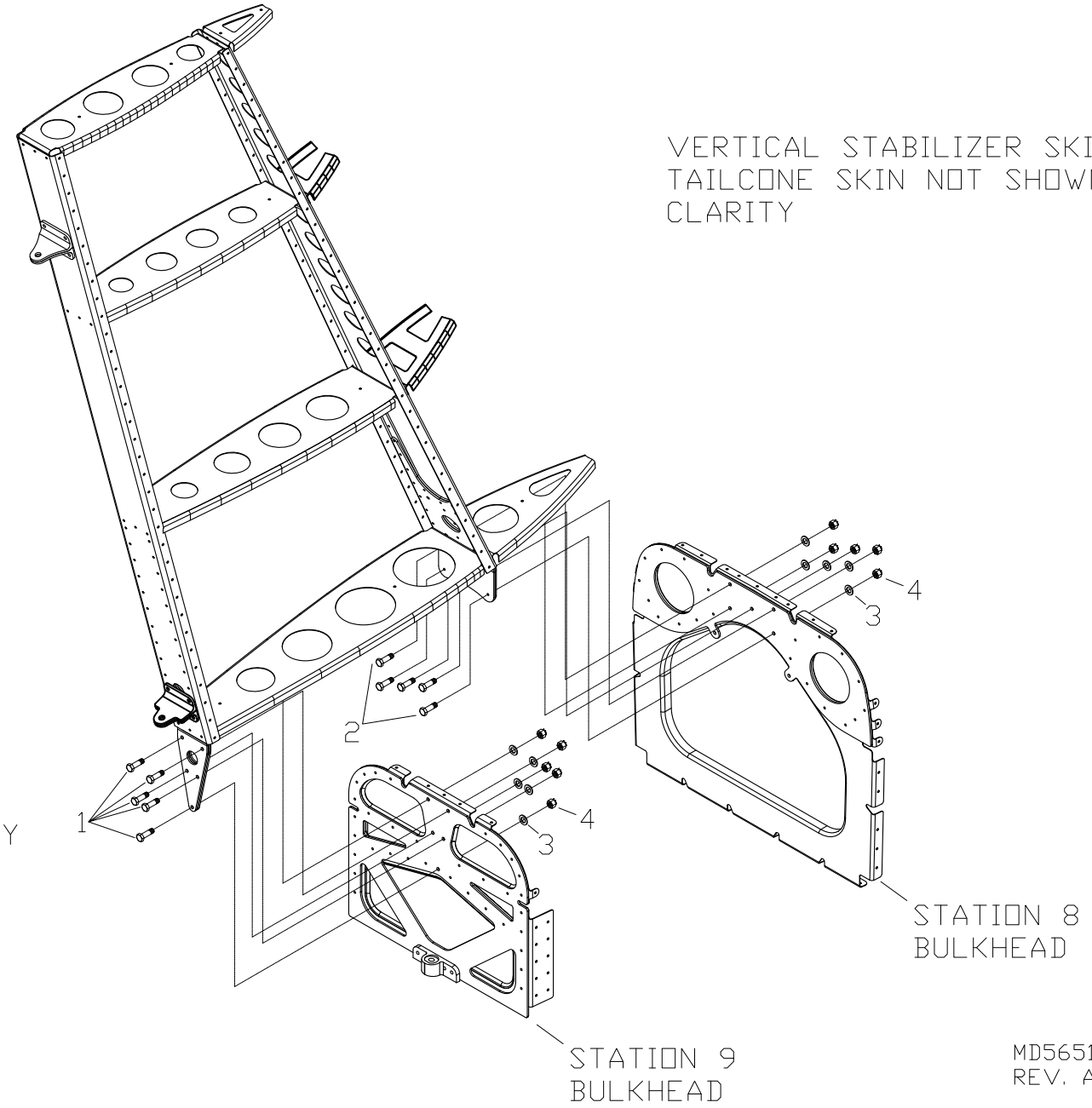
RANS S-21 OUTBOUND
VERTICAL STABILIZER FRAME & SKIN ASSEMBLY

RANS S-21 OUTBOUND

VERTICAL STABILIZER FRAM & 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	2
17.	1/8" Aluminum Rivet - Cherry Q	AAPQ-42	114
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	184
25.	Vertical Stabilizer Tip	KPVS0113	1
26.	Vertical Stabilizer Tip Rib	KPVS0114	1
27.	1/8" Aluminum Rivet - Cherry Q	AAPQ-43	20
28.	1/8" Small Brass Washer	AN960-B4	10
29.	Adhesive - Superglue or Silicone *	-----	0
30.	Rubber Trim	X1011	6 ft
31.	Bronze Flange Bushing	KSAC0019-3	4
32.	Lower Vertical Stabilizer Hinge	KPVS0116	2
33.	3/16" Thick Washer	AN960-10	4

*Builder Supplied

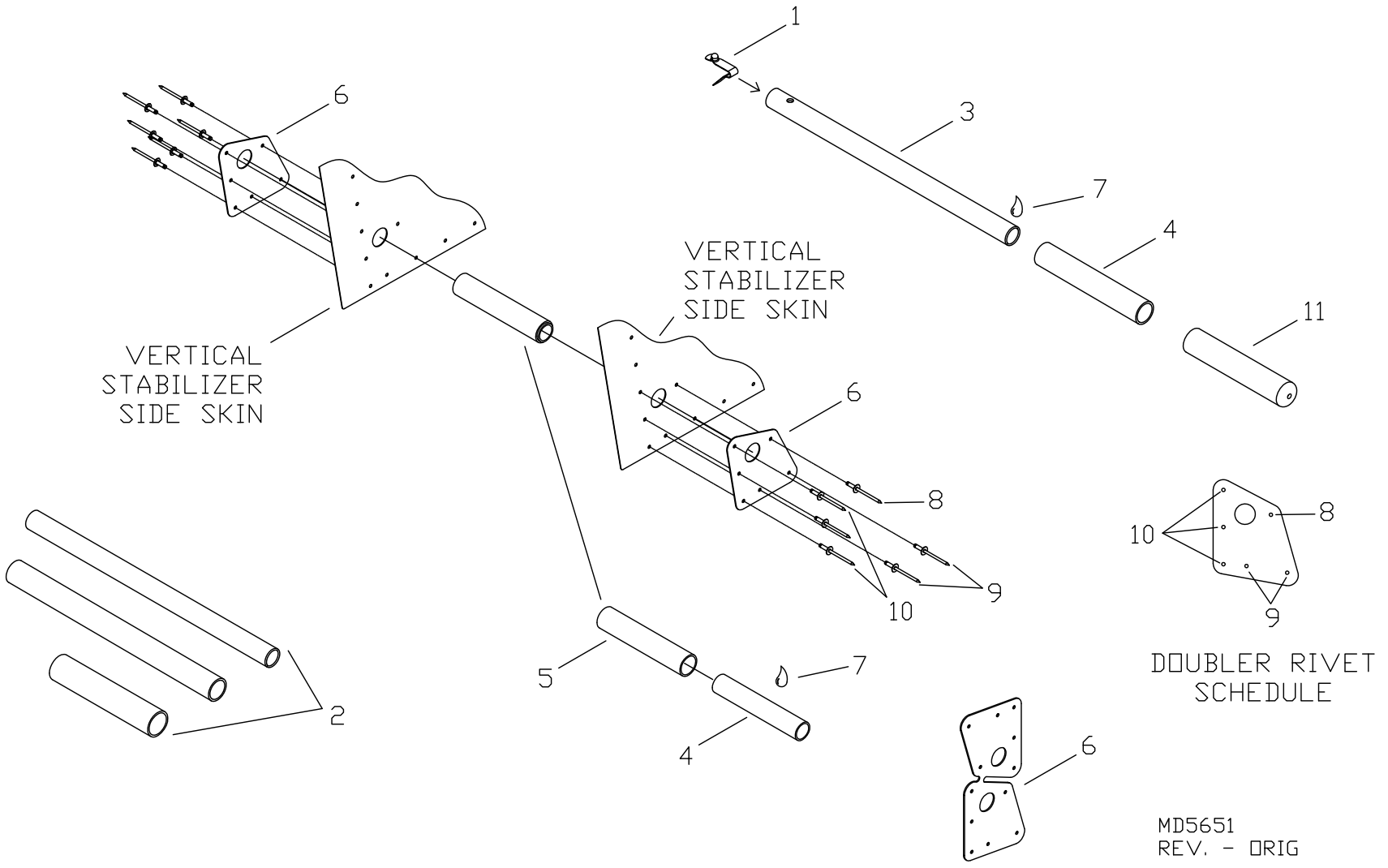


RANS S-21 OUTBOUND
VERTICAL STABILIZER INSTALLATION

RANS S-21 OUTBOUND

VERTICAL STABILIZER INSTALLATION

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



RANS S-21 OUTBOUND
OPTIONAL - TAILDRAGGER - PULL HANDLE ASSEMBLY

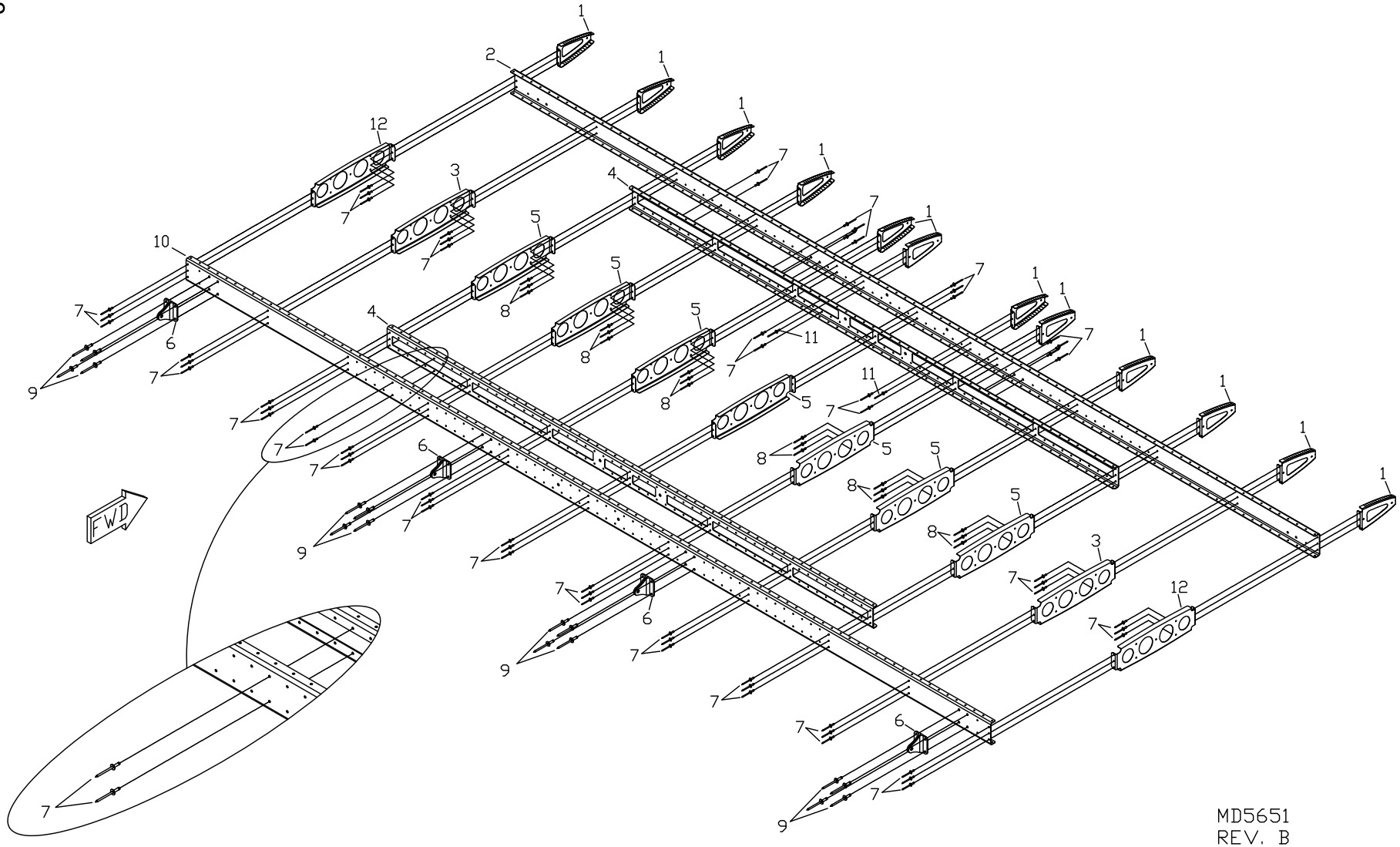
RANS S-21 OUTBOUND

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

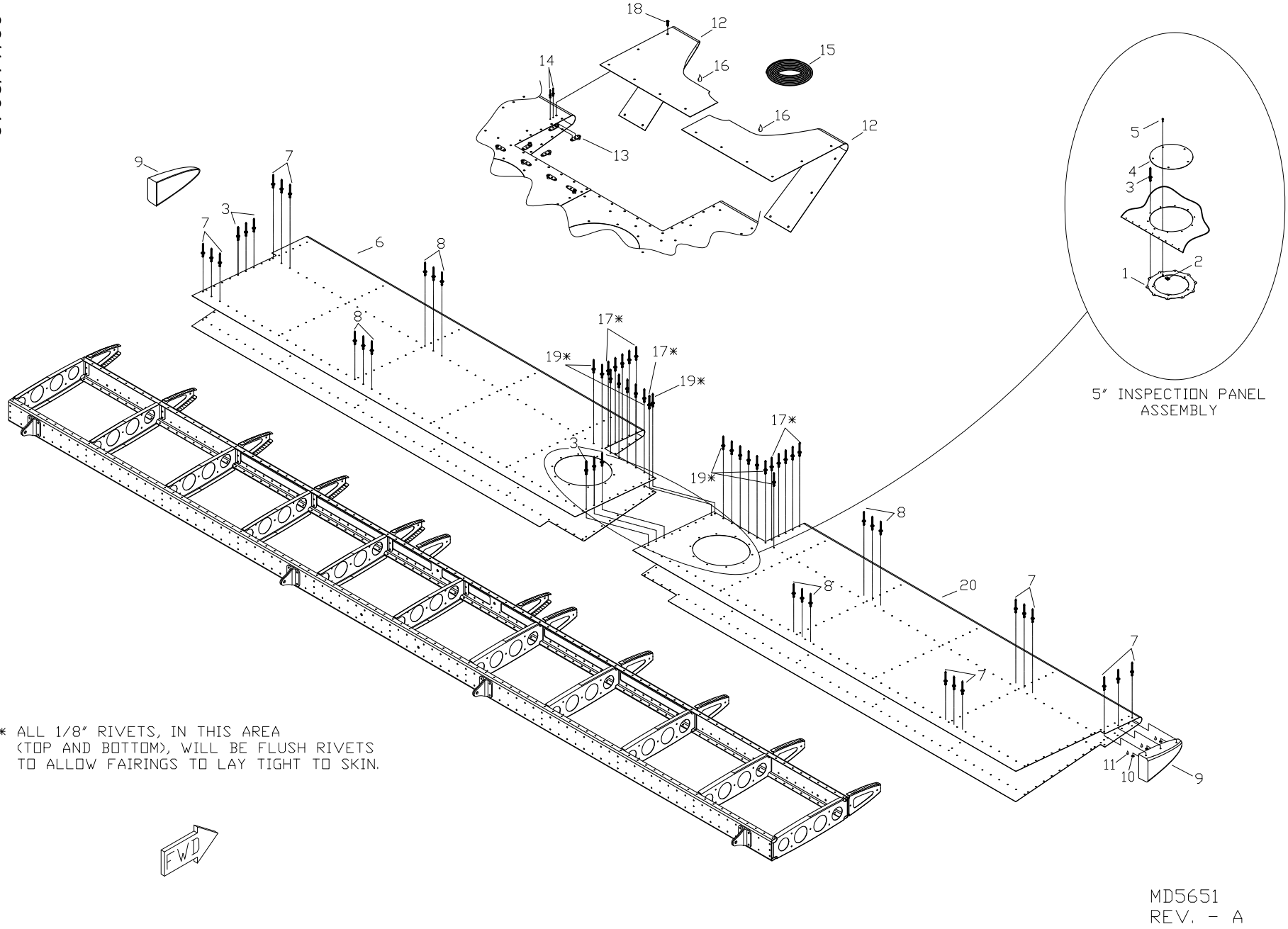
* Part of Raw Stock Kit
** Builder Modifies
*** Builder Supplied



RANS S-21 OUTBOUND
HORIZONTAL STABILIZER FRAME ASSEMBLY

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



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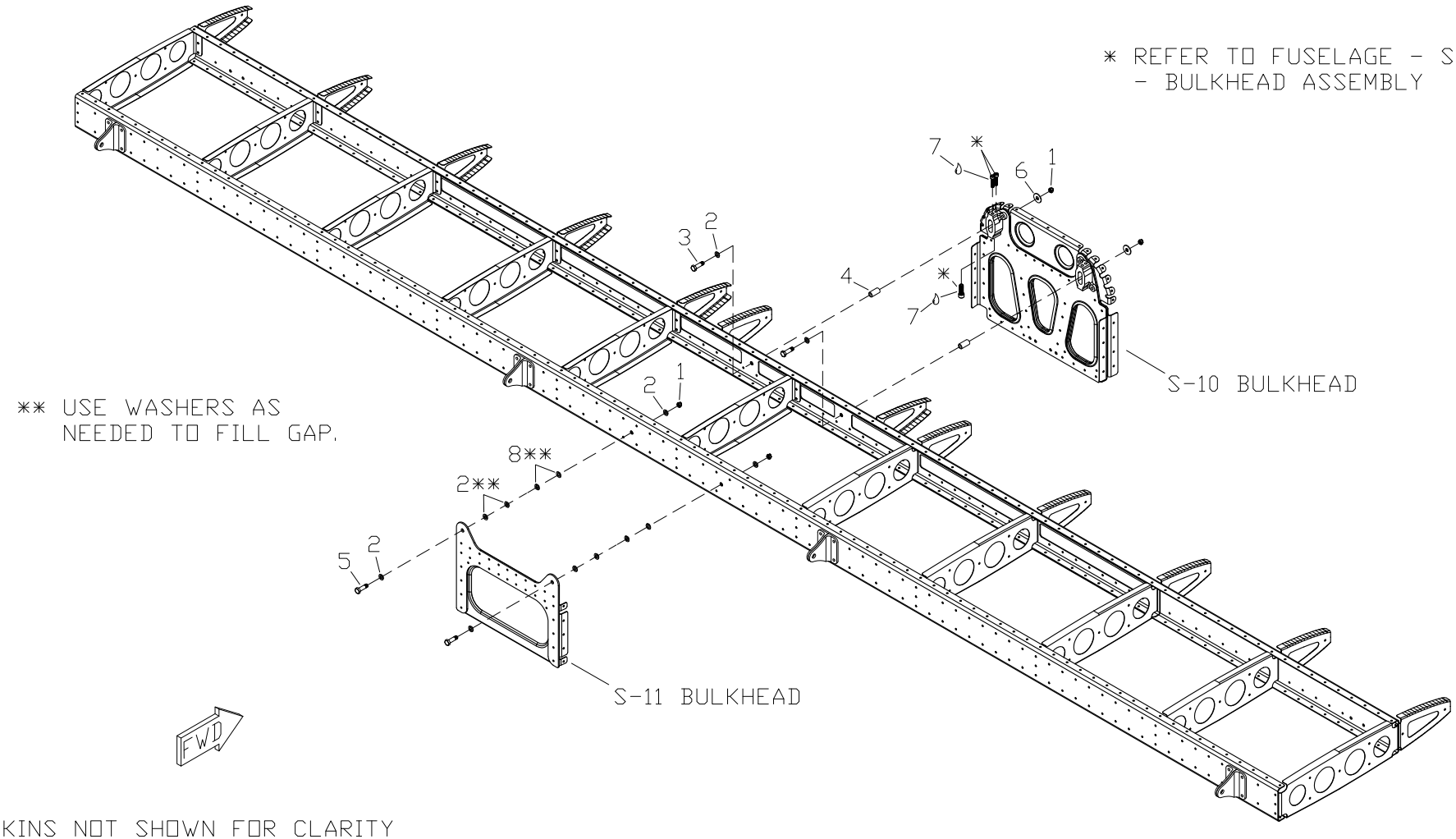
REV. - A

RANS S-21 OUTBOUND
HORIZONTAL STABILIZER SKIN INSTALLATION

HORIZONTAL STABILIZER SKIN INSTALLATION

#	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	316
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	156
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 (120 degree)	AACQ-42	22
18.	6-32 Machine Screw	AN526-632R6	20
19.	1/8" Aluminum Rivet - Flush (120 degree)	AACQ-43	30
20.	Horizontal Stabilizer Skin - RH	KPHS0092-R	1

* Builder Supplied



SKINS NOT SHOWN FOR CLARITY

NOT ALL DUPLICATED HARDWARE SHOWN FOR CLARITY

MD5651
REV. B

RANS S-21 OUTBOUND
HORIZONTAL STABILIZER INSTALLATION

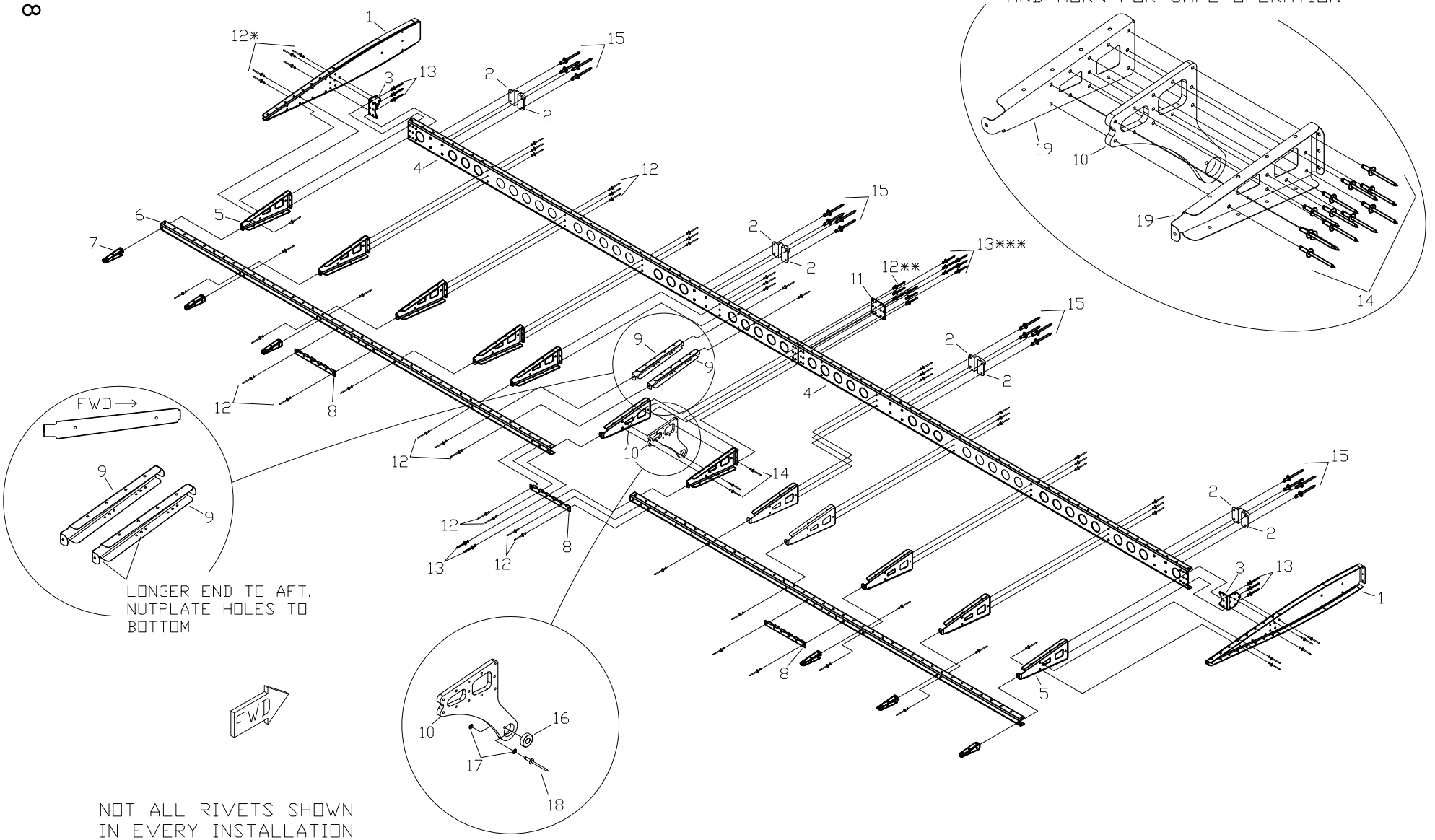
RANS S-21 OUTBOUND

HORIZONTAL STABILIZER INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	1/4" Shear Nut	AN364-428A	4
2.	1/4" Thick Washer	AN960-416	10
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
8.	1/4" Thin Washer	AN960-416L	4

* Builder Modifies
** Builder Supplied

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



RANS S-21 OUTBOUND ELEVATOR FRAME ASSEMBLY

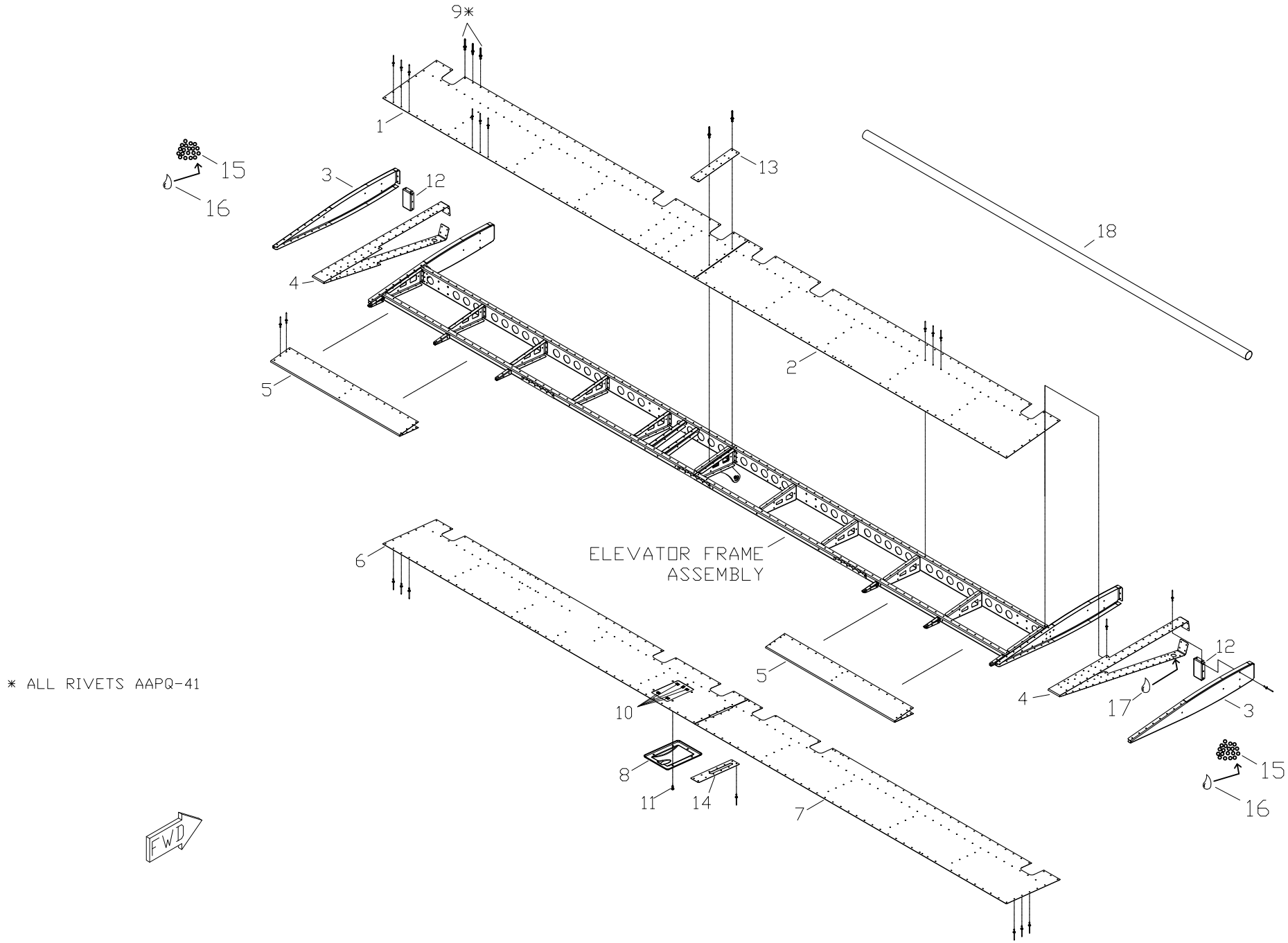
MD5651
REV. B

RANS S-21 OUTBOUND

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	10
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
19.	Elevator Horn Rib	KPEL0053	2

* Builder Modifies



* ALL RIVETS AAPQ-41

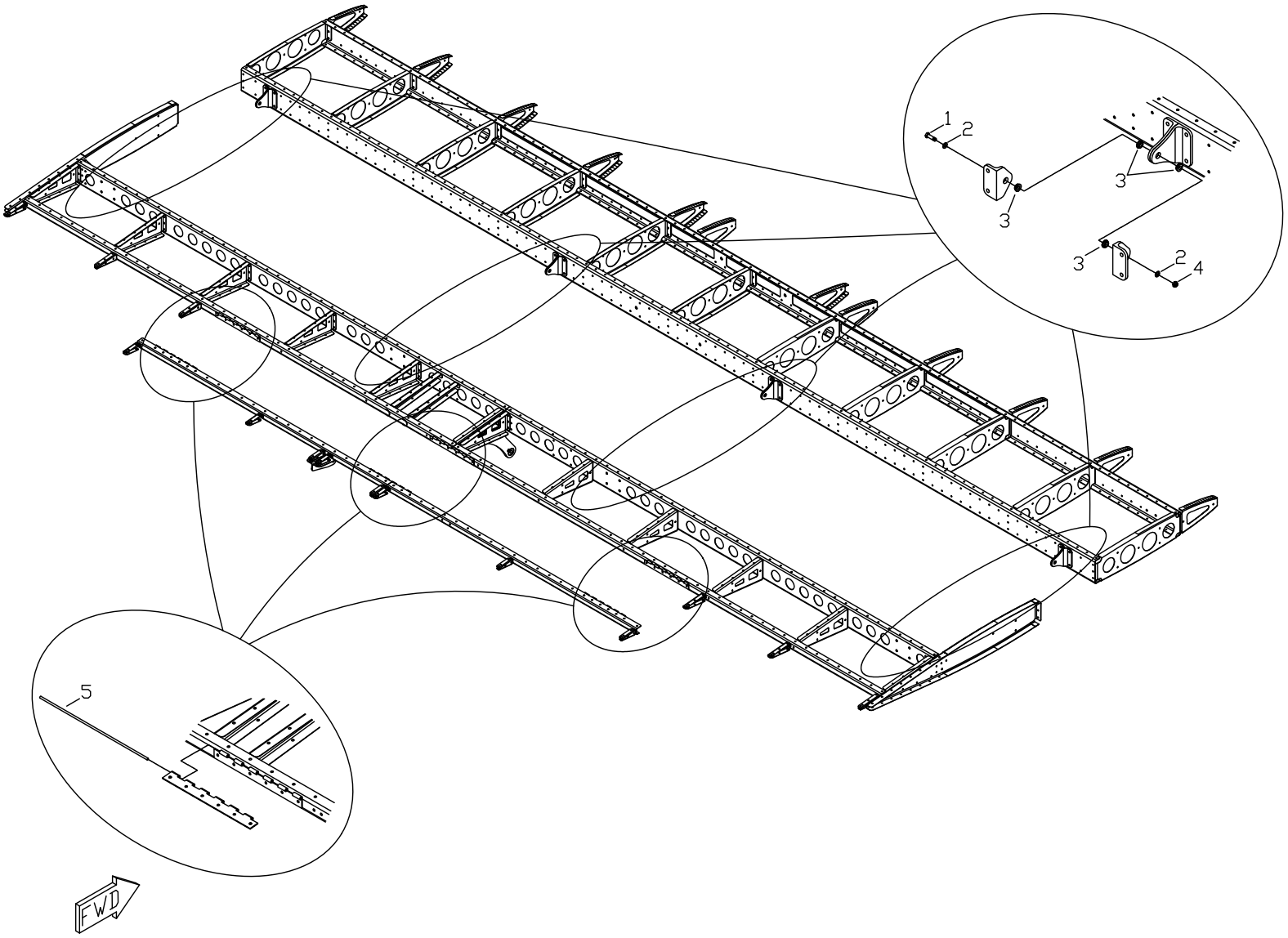
RANS S-21 OUTBOUND
ELEVATOR SKIN INSTALLATION

MD5651
REV. A

ELEVATOR SKIN INSTALLATION

#	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



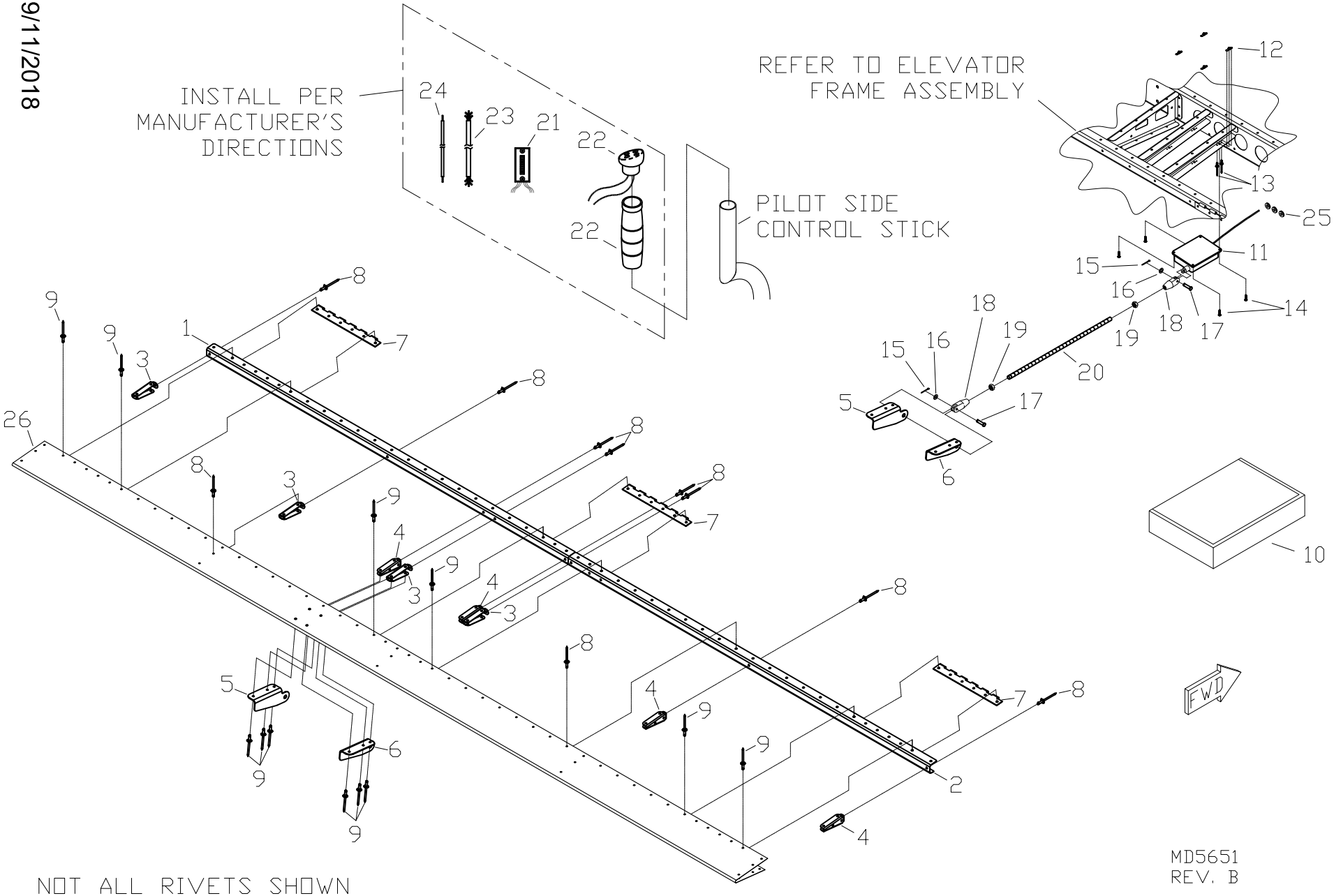
MD5651
REV. - ORIG

RANS 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



NOT ALL RIVETS SHOWN IN EVERY INSTALLATION POSITION FOR CLARITY

RANS S-21 OUTBOUND
ELEVATOR TRIM TAB ASSEMBLY

RANS S-21 OUTBOUND

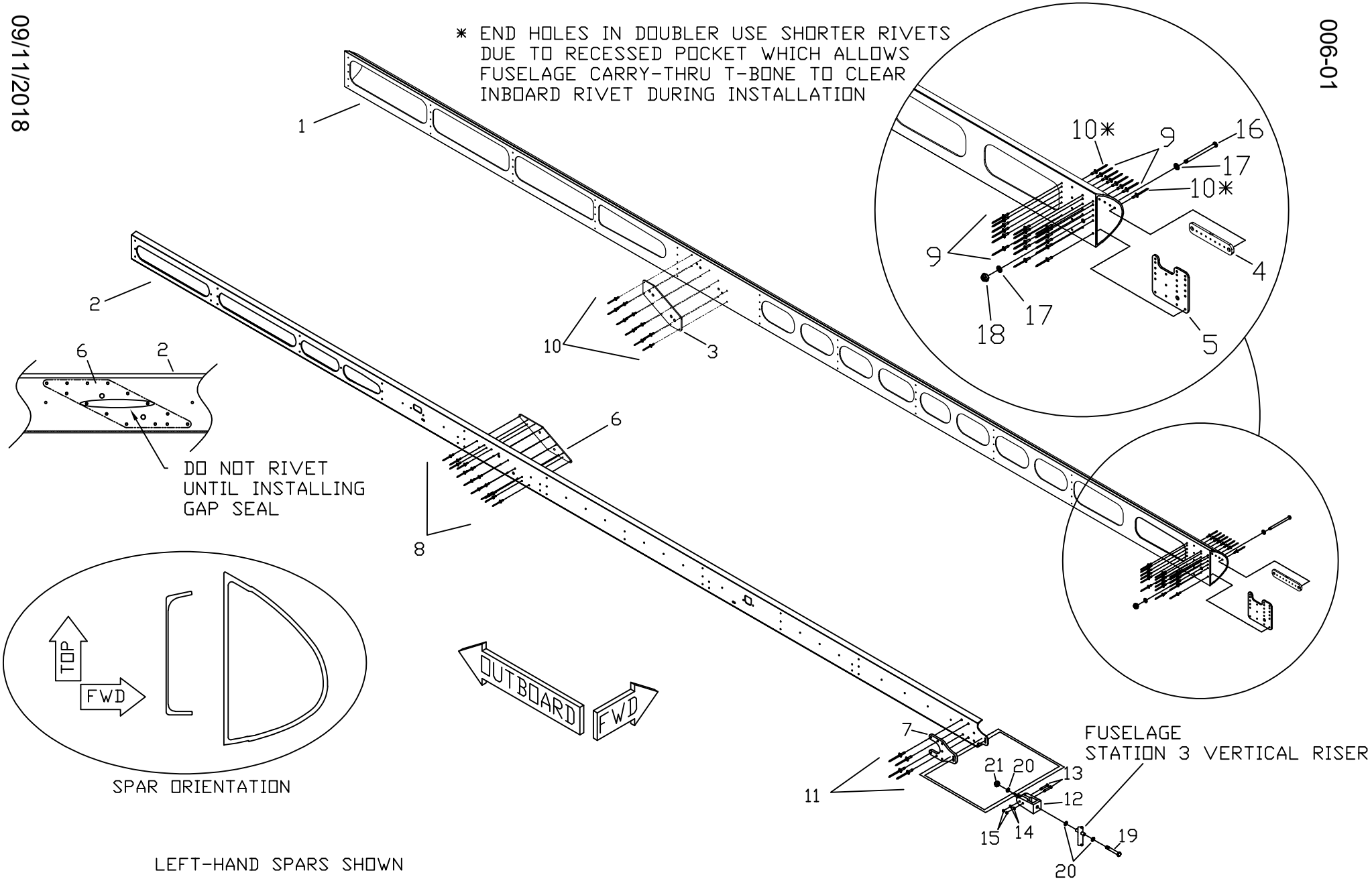
ELEVATOR TRIM TAB ASSEMBLY

#	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 - LH	KPTR0063-L	4
4.	Elevator Trim Tab Rib - RH	KPTR0063-R	4
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	108
9.	1/8" Aluminum Rivet - Cherry Q	AAPQ-42	24
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
26.	Elevator Trim Tab Skin	KPTR0065	1

* Builder Modifies
** Refer to Elevator Frame Assembly
*** Included in Trim Servo Kit
**** Builder Supplied

09/11/2018

006-01



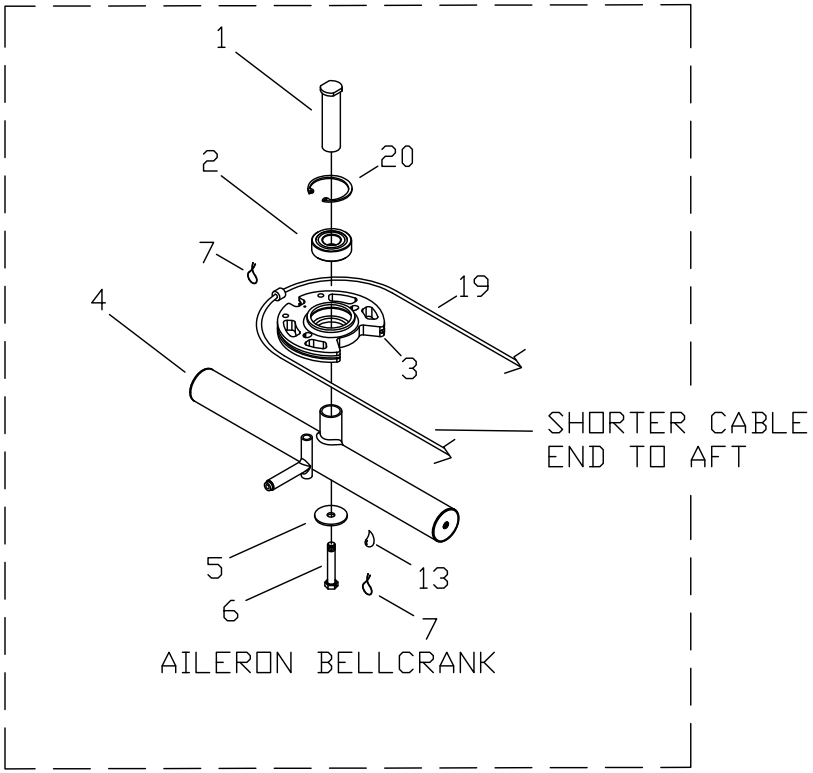
MD5649
REV. B

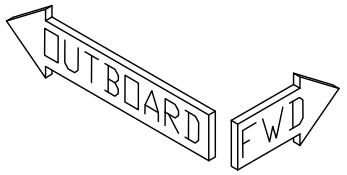
RANS S-21 OUTBOUND
141 WING - SPAR ASSEMBLY

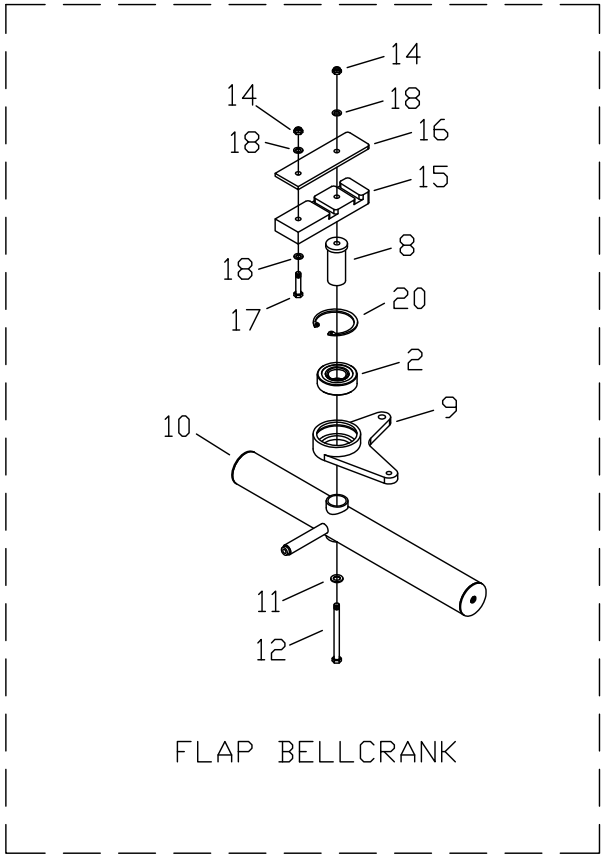
RANS S-21 OUTBOUND

141 WING - SPAR ASSEMBLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Forward Wing Spar - RH	KPWI0738-R	1
1.	Forward Wing Spar - LH	KPWI0738-L	1
2.	Rear Wing Spar - RH	KPWI0739-R	1
2.	Rear Wing Spar - RH	KPWI0739-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







LEFT-HAND BELLCRANKS SHOWN

MD5649
REV. - ORIG

RANS S-21 OUTBOUND
141 WING - BELLCRANK ASSEMBLIES

RANS S-21 OUTBOUND

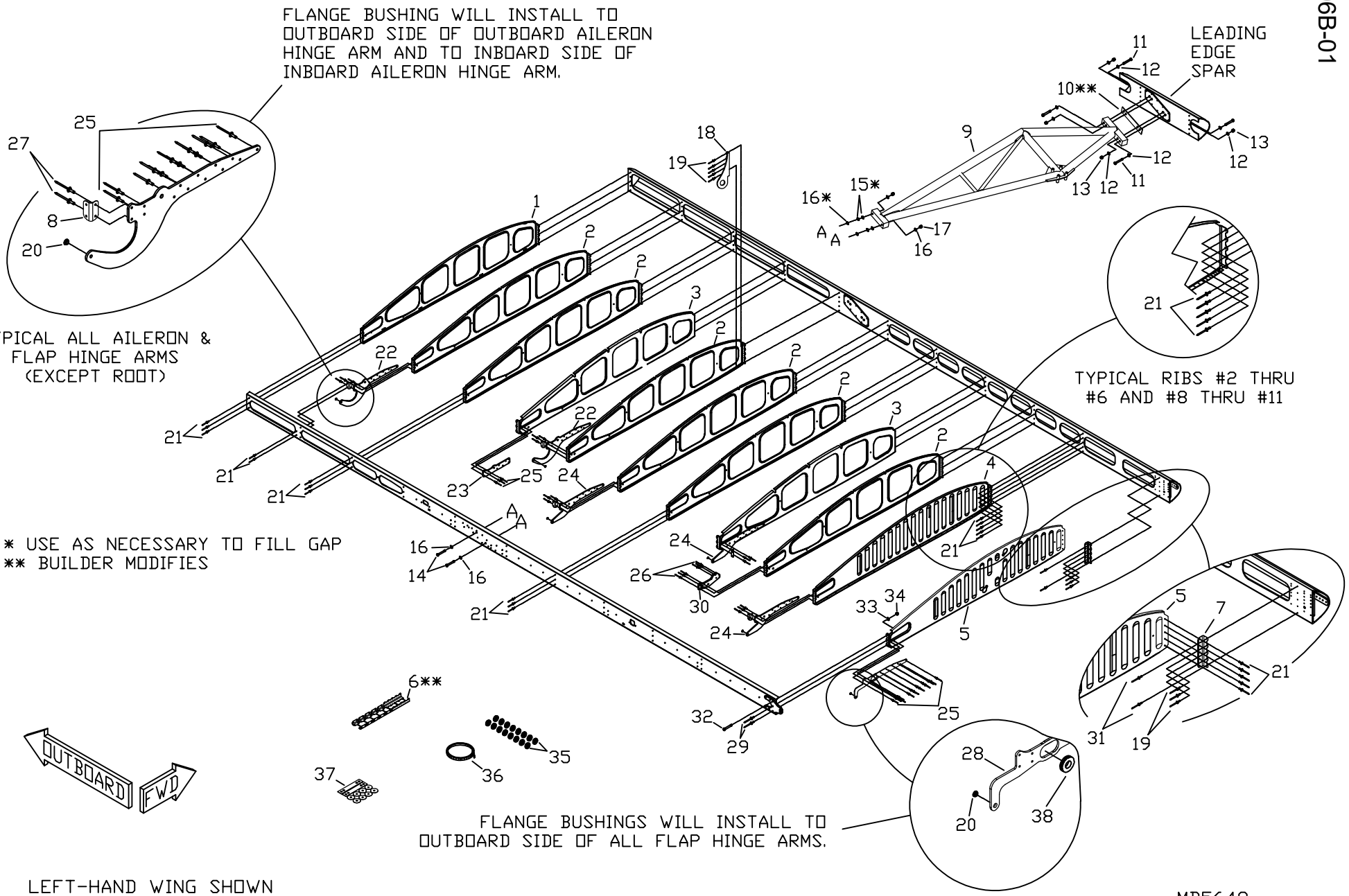
141 WING - BELLCRANK ASSEMBLIES

#	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

09/11/2018

006B-01



LEFT-HAND WING SHOWN

RANS S-21 OUTBOUND
141 WING - FRAME ASEMBLY

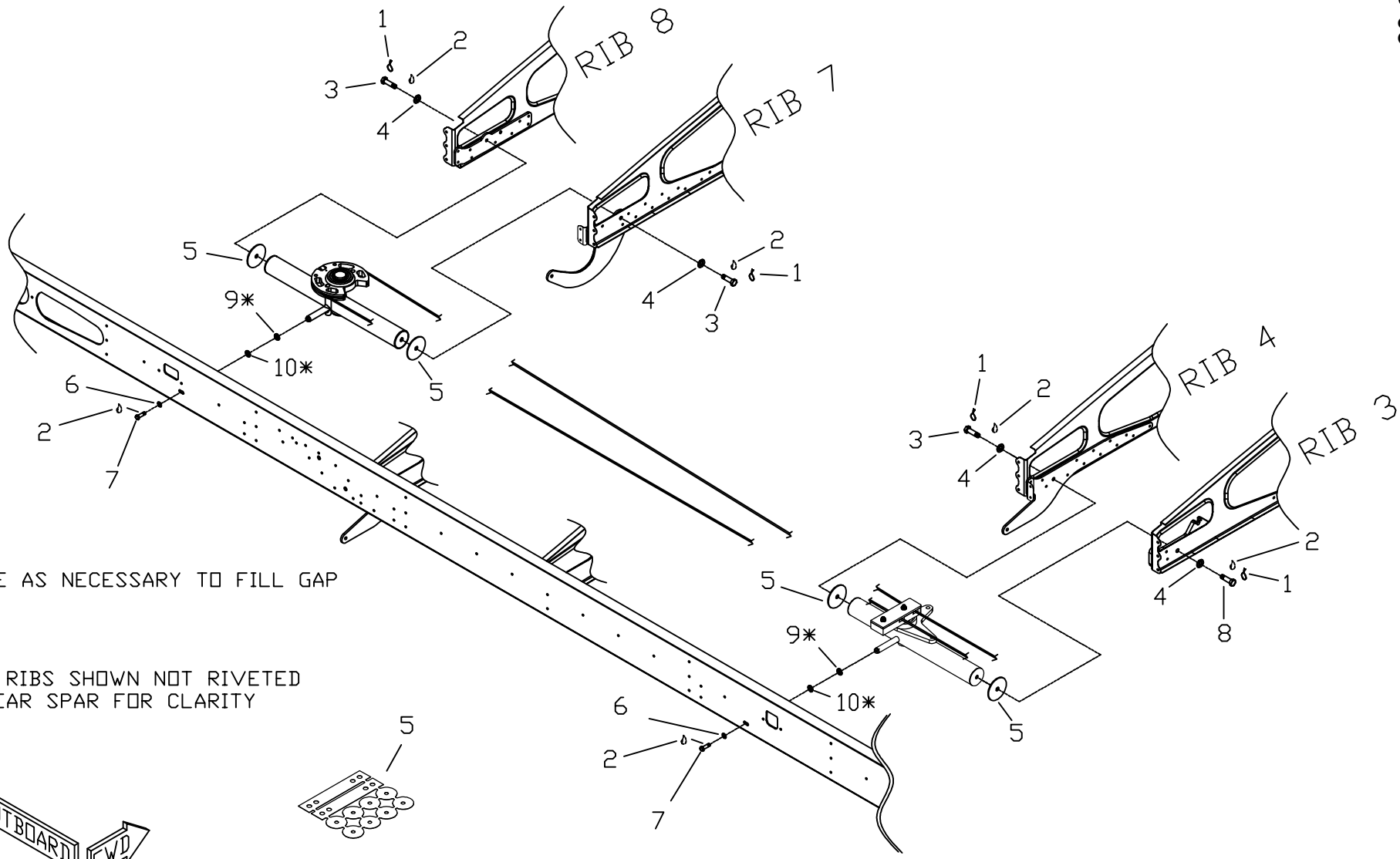
MD5649
REV. - ORIG

RANS S-21 OUTBOUND

141 WING - FRAME ASSEMBLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Wing Tip Rib - LH	KPWI0736-L	1
1.	Wing Tip Rib - RH	KPWI0736-R	1
2.	Inner Wing Rib - LH	KPWI0733-L	8
3.	Inner Wing Rib - RH	KPWI0733-R	8
4.	Outside Root Rib - LH	KPWI0735-L	1
4.	Outside Root Rib - RH	KPWI0735-R	1
5.	Inside Root Rib - LH	KPWI0734-L	1
5.	Inside Root Rib - RH	KPWI0734-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	KSAC0019-3	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	16
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



LEFT-HAND WING SHOWN

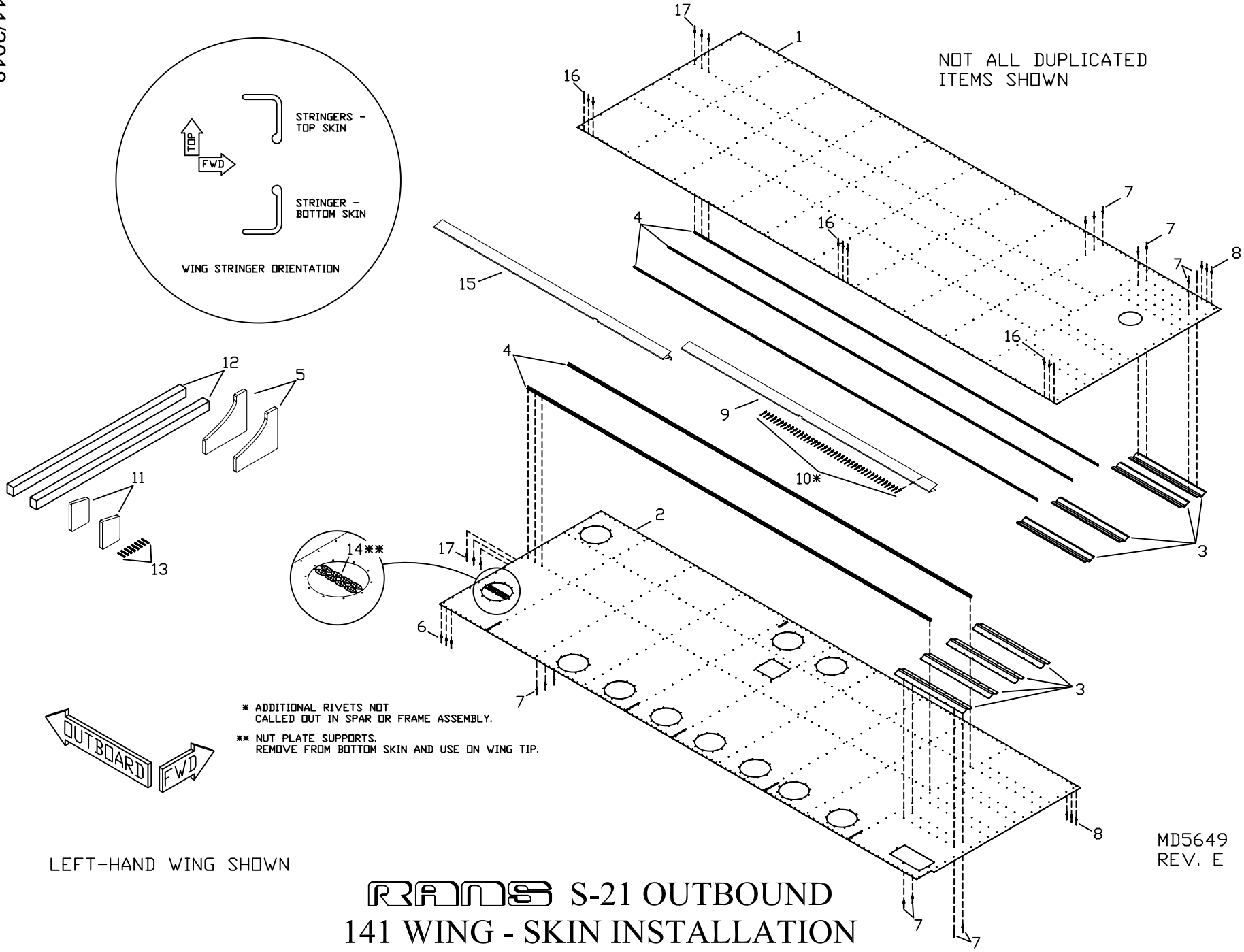
RANS S-21 OUTBOUND
141 WING - BELLCRANK INSTALLATION

141 WING - BELLCRANK INSTALLATION

#	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

NOT ALL DUPLICATED
ITEMS SHOWN



* ADDITIONAL RIVETS NOT
CALLED OUT IN SPAR OR FRAME ASSEMBLY.

** NUT PLATE SUPPORTS.
REMOVE FROM BOTTOM SKIN AND USE ON WING TIP.

LEFT-HAND WING SHOWN

MD5649
REV. E

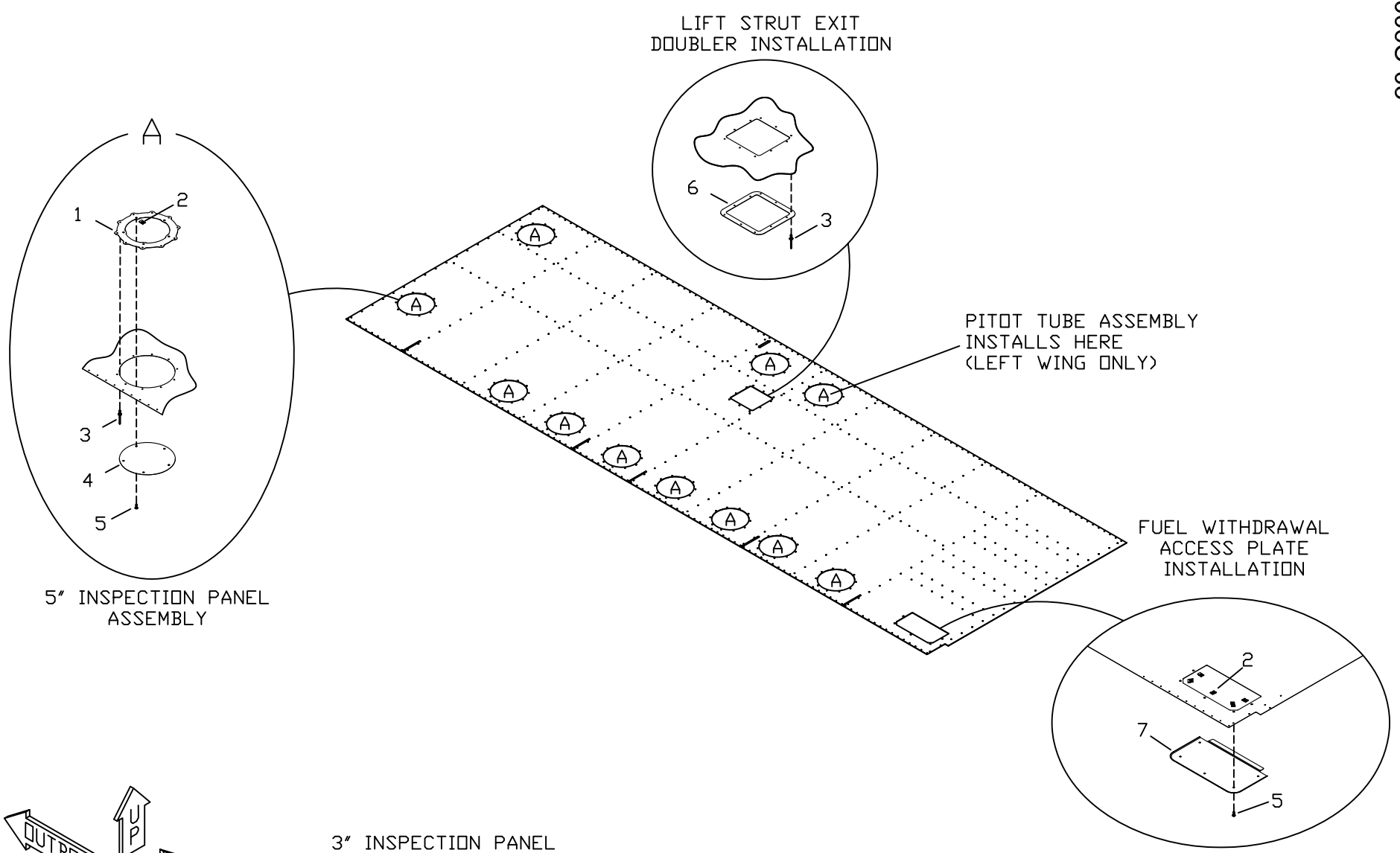
RANS S-21 OUTBOUND
141 WING - SKIN INSTALLATION

RANS S-21 OUTBOUND

141 WING - WING SKIN INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Wing Skin - Top	KPWI0737	2
2.	Wing Skin - Bottom	KPWI0647	2
3.	Tank Support	KPWI0651	16
4.	Tailcone & Wing Stringer ***	KPFU0743	11
5.	Wing Jig - FWD	KPWI0687-A	2
6.	1/8" Aluminum Rivet - Cherry Q	AAPQ-42	206
7.	1/8" Aluminum Rivet - Cherry Q	AAPQ-41	1068
8.	1/8" Stainless Steel Rivet - Flush (120 Degree)	CCCQ-43	412
9.	Wing Gap Seal - Inboard - LH	KPWI0740-L	1
9.	Wing Gap Seal - Inboard - RH	KPWI0740-R	1
10.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-42	82
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	KPWI0741-L	1
15.	Wing Gap Seal - Outboard - RH	KPWI0741-R	1
16.	1/8" Aluminum Rivet - Cherry Q	AAPQ-43	206
17.	1/8" Aluminum Rivet - Avex	1691-0410	590

* Builder Supplied
** Part of KPWI0647. Used on Wing Tips
*** One extra KPFU0743 is included with the wing kit



MD5649
REV. B

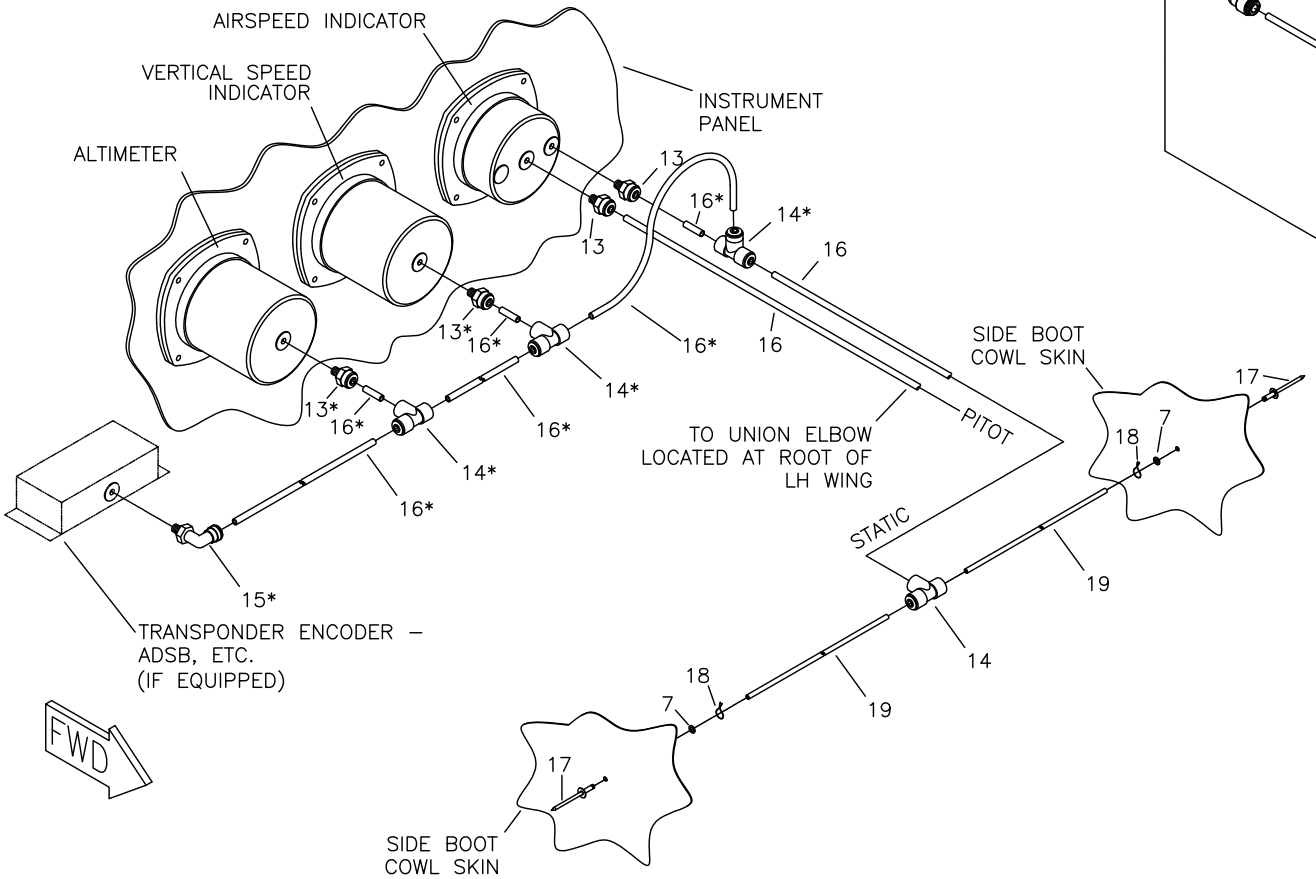
LEFT-HAND WING SHOWN

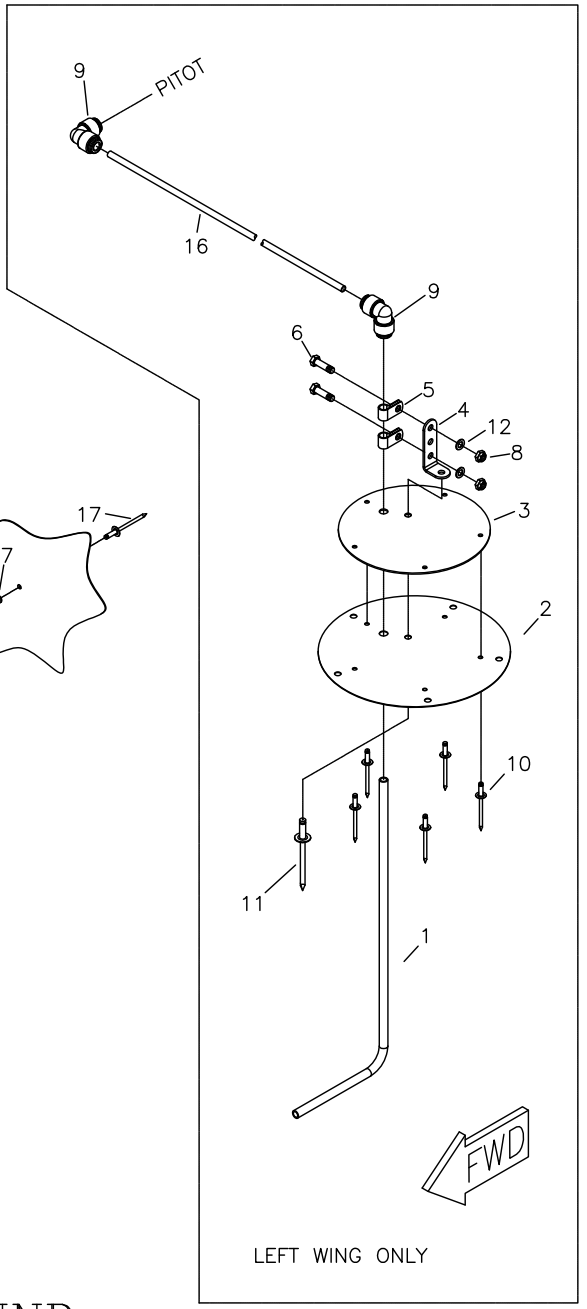
RANS S-21 OUTBOUND
141 WING - BOTTOM SKIN
INSPECTION PANEL INSTALLATION

141 WING - BOTTOM SKIN - INSPECTION PANEL INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	5" Inspection Cover Tab Ring	KPWI0656	22
2.	Tinnerman	A1789-8Z-1	120
3.	1/8" Aluminum Rivet - Cherry Q	AAPQ-41	240
4.	5" Inspection Cover	KPWI0659	22
5.	#8 Pan Head Screw	8X1/2 PHS	120
6.	Lift Strut Exit Doubler	KPWI0662	2
7.	Fuel Withdrawal Access Plate	KPWI0674	2

TYPICAL ANALOG INSTRUMENT
INSTALLATION SHOWN





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

RANS S-21 OUTBOUND
141 WING – OPTIONS – PITOT/STATIC SYSTEM

MD4200
REV. – ORIG

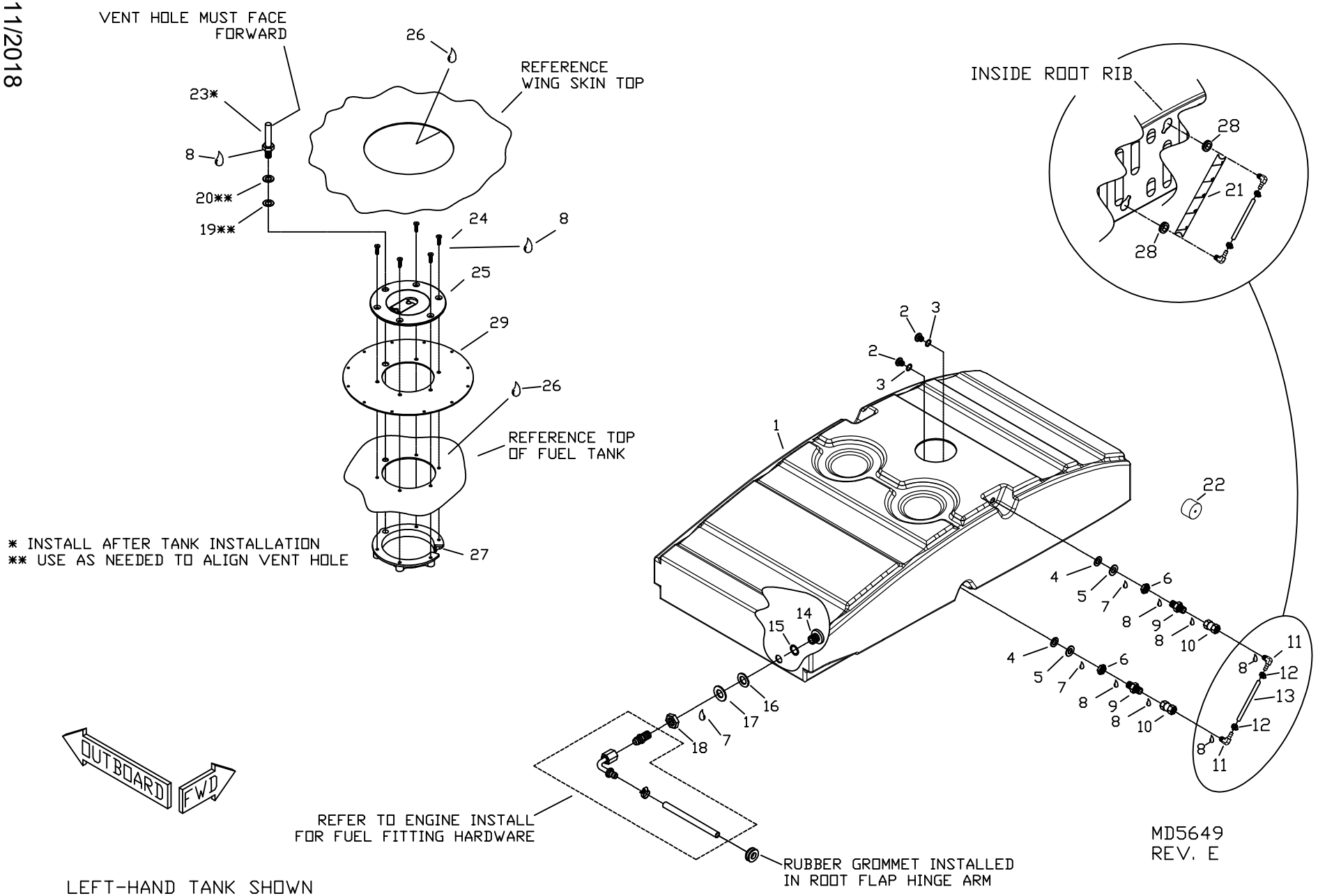
RANS S-21 OUTBOUND

141 WING - OPTIONS - PITOT/STATIC SYSTEM

KAPT0003

#	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



LEFT-HAND TANK SHOWN

RANS S-21 OUTBOUND
141 WING - FUEL TANK ASSEMBLY

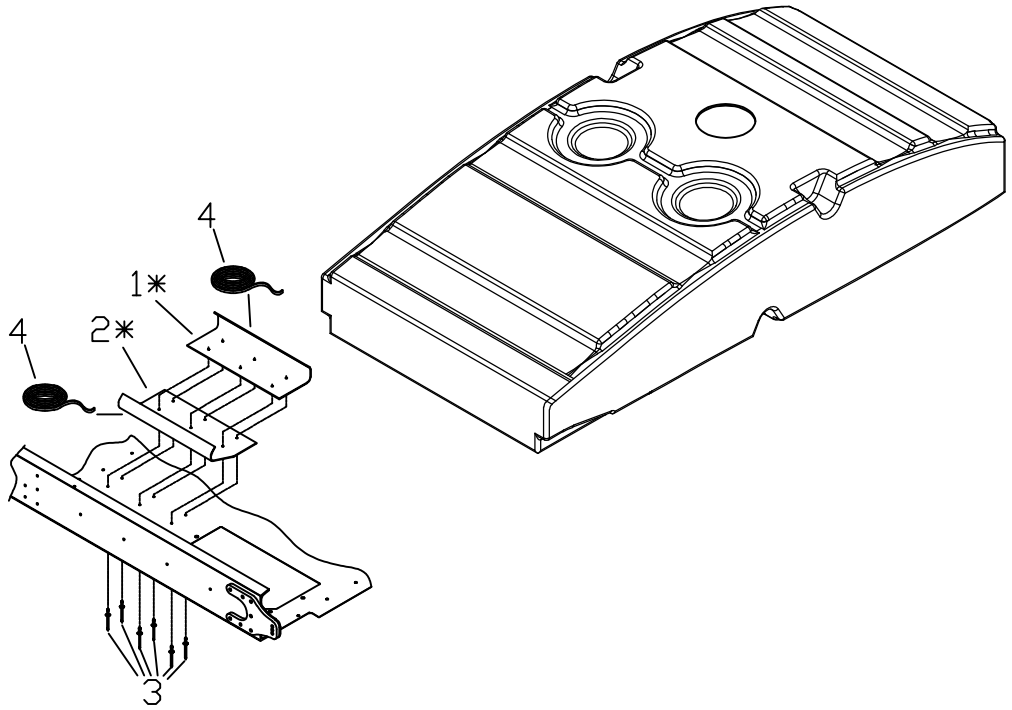
RANS S-21 OUTBOUND

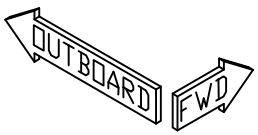
141 WING - FUEL TANK ASSEMBLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Fuel Tank	KPFS0112	2
2.	1/2" Tank Withdrawal Fitting - LH Thread	KPFS0117	4
3.	O-Ring	KSFS0009	4
4.	Rubber Washer	KSFS0010	4
5.	1/2" Thick Washer	AN960-816	4
6.	Nut - 1/2" Bulkhead - LH Thread	KPFS0118	4
7.	Loctite Blue *	-----	0
8.	Thread Sealant * (DOW 730, Pro Seal or Permatex PTFE Fuel Compatible)	-----	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	5-6202	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 - LH Thread	KSFS0038	2
19.	3/8" Thin Washer	AN960-616L	2
20.	3/8" Thick Washer	AN960-616L	2
21.	Fuel Sight Guage Decal - LH	KPPL0024-L	1
21.	Fuel Sight Guage Decal - RH	KPPL0024-R	1
22.	1" Dia. Wood Dowel *	-----	0
23.	Fuel Vent	KPFS0101	2
24.	3/16" Countersunk Machine Screw (100 Degree)	MS24694-S53	10
25.	Fuel Cap Assembly - Flush	KSFS0035	2
26.	Pro - Seal *	-----	0
27.	Retainer Ring	KPWI0712	2
28.	Rubber Grommet	MS35489-17	4
29.	Fuel Scupper	KPWI0615	2

* Builder Supplied

* INSTALL AFTER TANK INSTALLATION





MD5649

LEFT-HAND TANK SHOWN

RANS S-21 OUTBOUND
141 WING - FUEL TANK RETENTION BRACKET ASSEMBLY

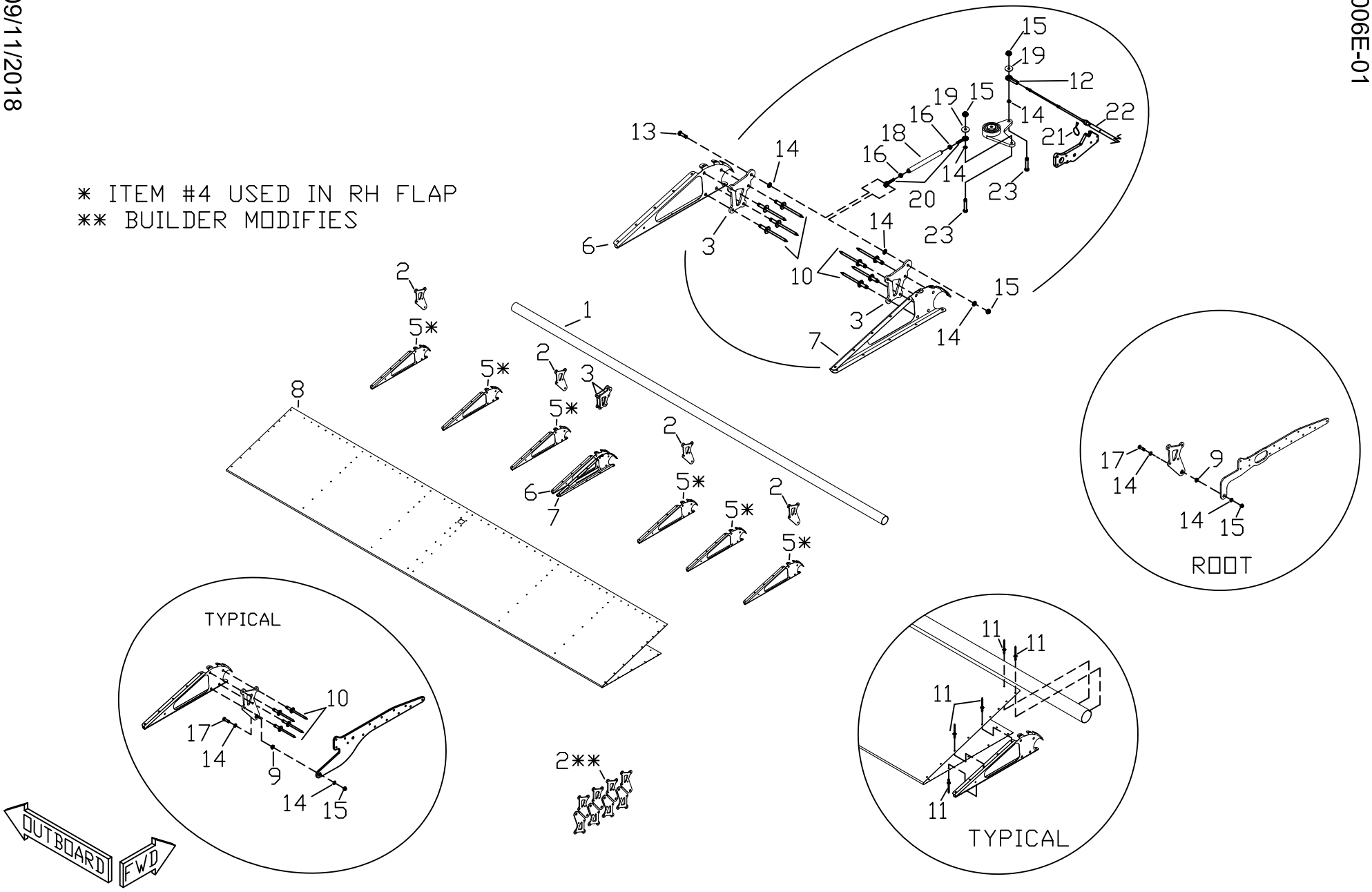
RANS S-21 OUTBOUND

141 WING - FUEL TANK RETENTION BRACKET ASSEMBLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Forward Tank Retention Bracket	KPFS0122	2
2.	Aft Tank Retention Bracket	KPFS0121	2
3.	1/8" Aluminum Rivet - Cherry Q	AAPQ-42	12
4.	Anti Chafe Tape *	-----	0

*Builder Supplied

* ITEM #4 USED IN RH FLAP
** BUILDER MODIFIES



LEFT-HAND FLAP SHOWN

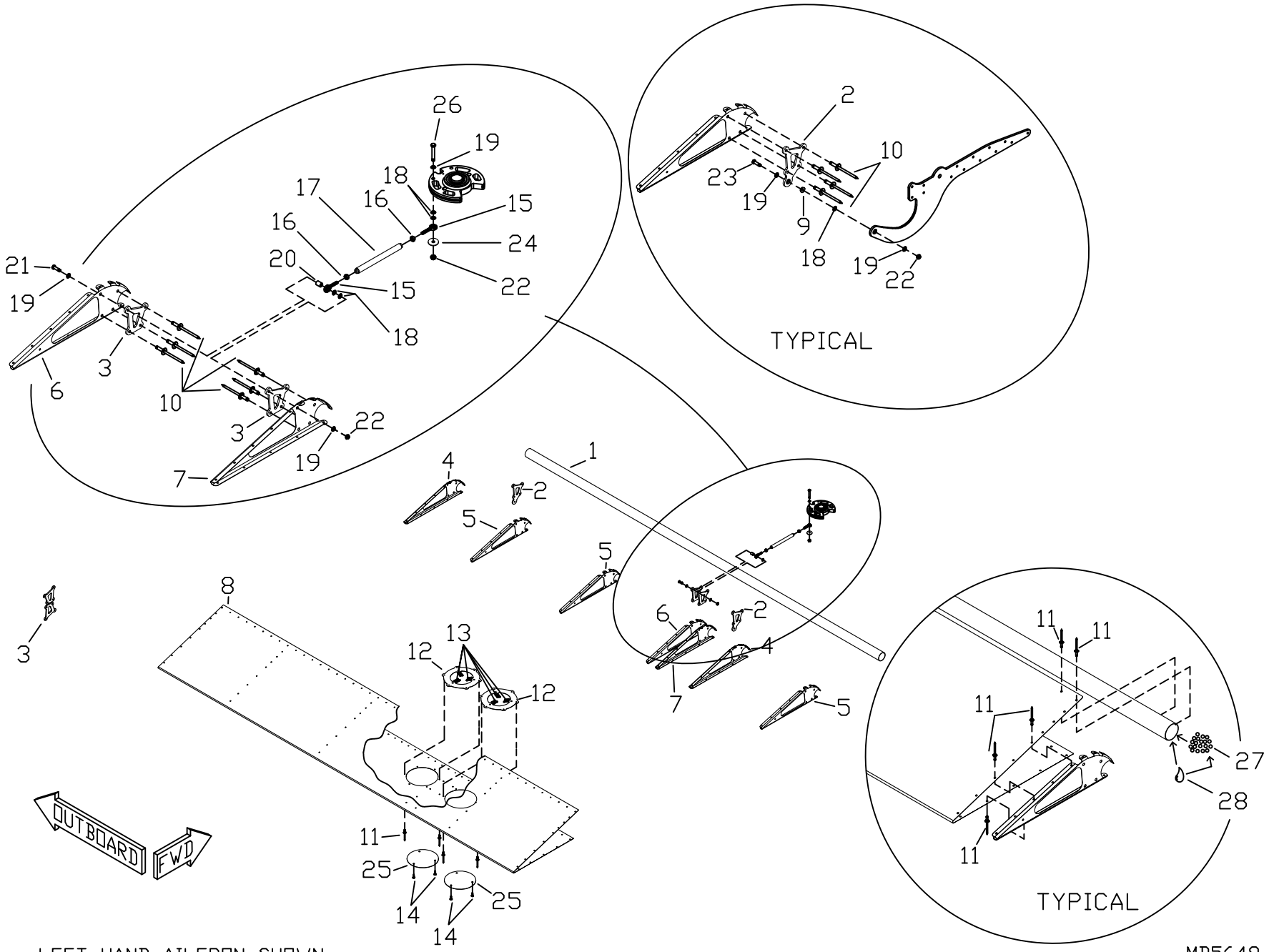
RANS S-21 OUTBOUND
141 WING - FLAP ASSEMBLY

MD5649
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	KSAC0019-3	8
10.	3/16" Aluminum Rivet - Cherry Q	AAPQ-64	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	26
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

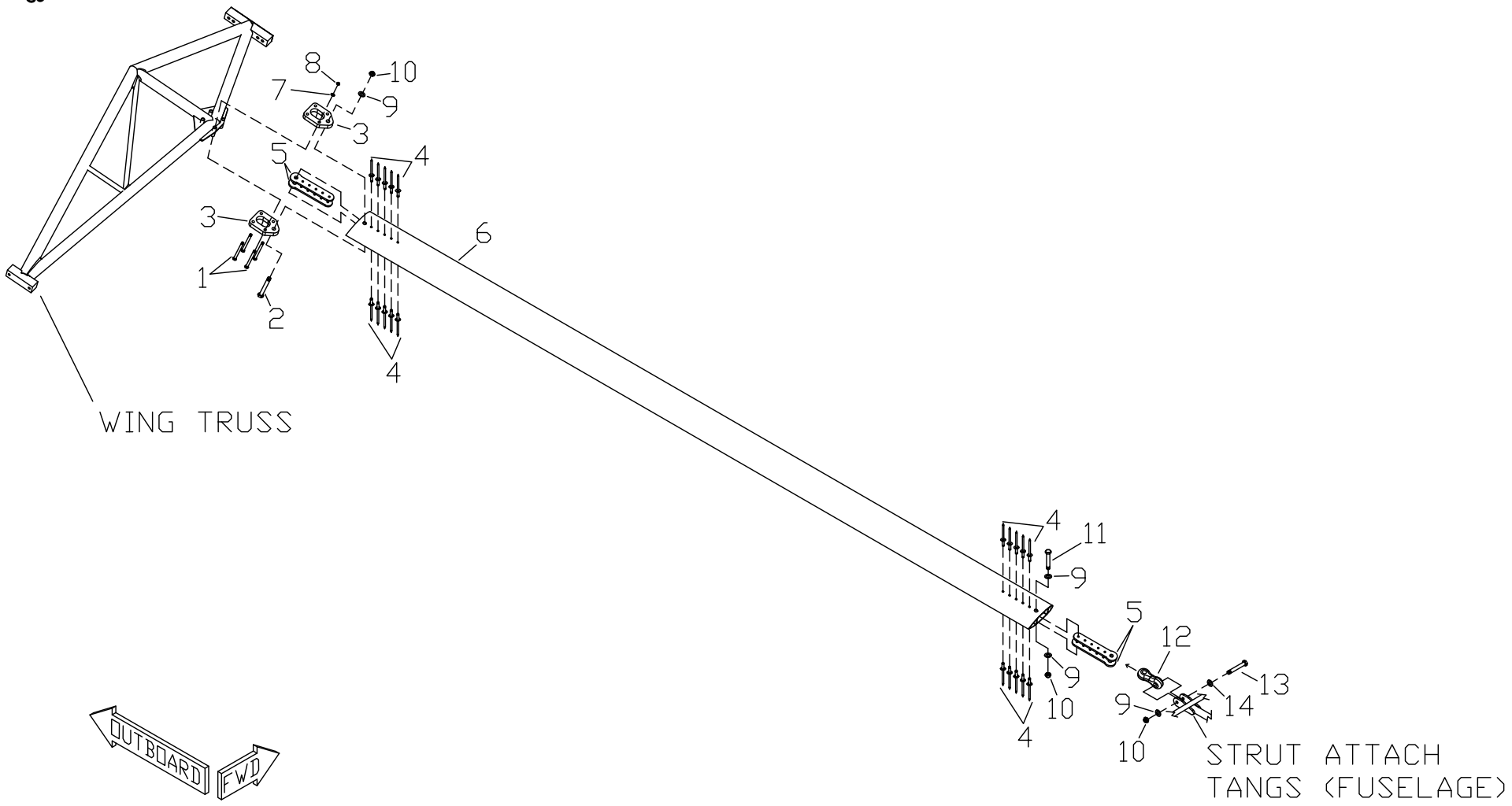


RANS S-21 OUTBOUND
141 WING - AILERON ASSEMBLY

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	4
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	KSAC0019-3	4
10.	3/16" Aluminum Rivet - Cherry Q	AAPQ-64	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	12
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



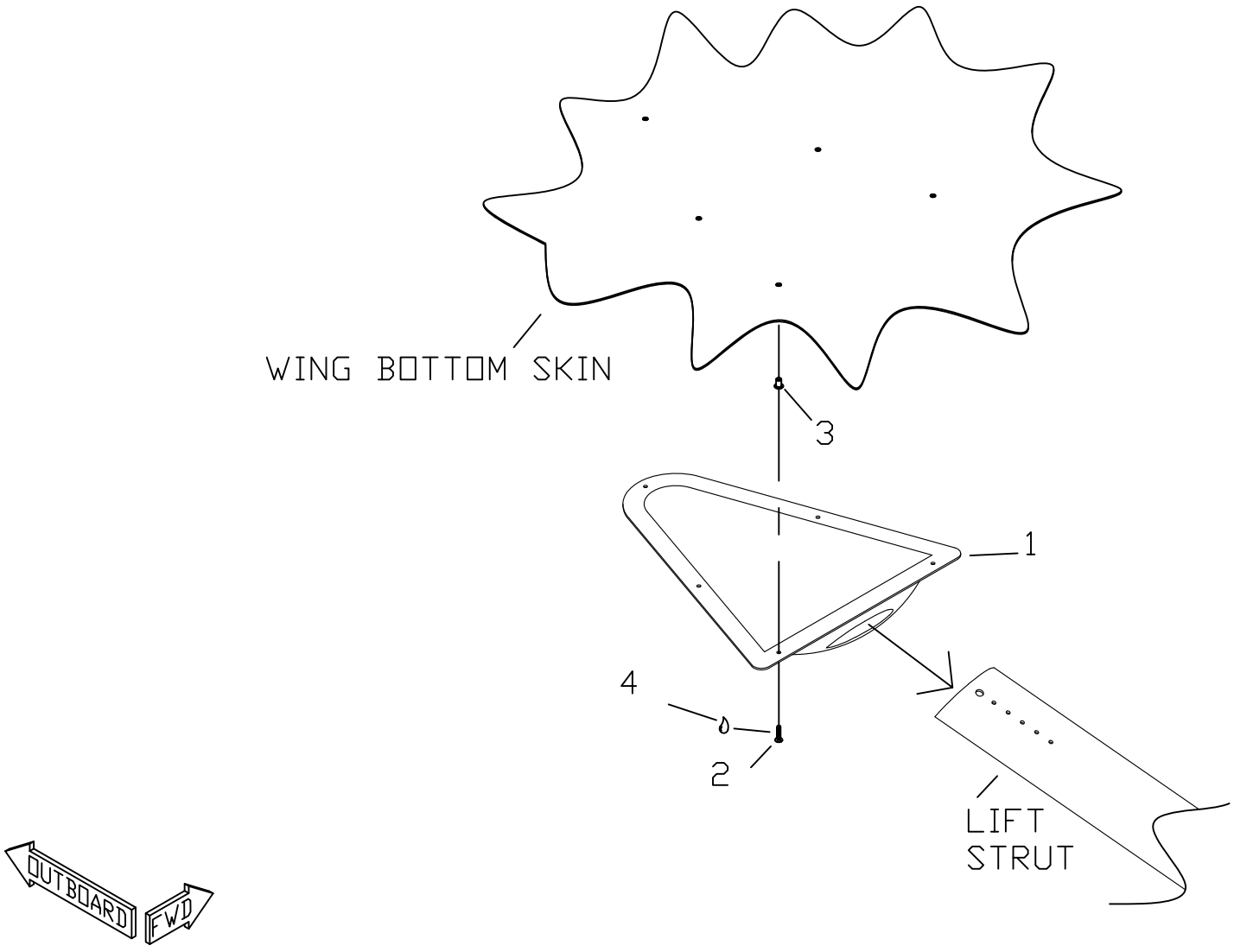
LEFT-HAND SHOWN

MD5649
REV. - A

RANS S-21 OUTBOUND
141 WING - LIFT STRUT ASSEMBLY

141 WING - LIFT STRUT ASSEMBLY & INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	1/4" Bolt	AN4-27A	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

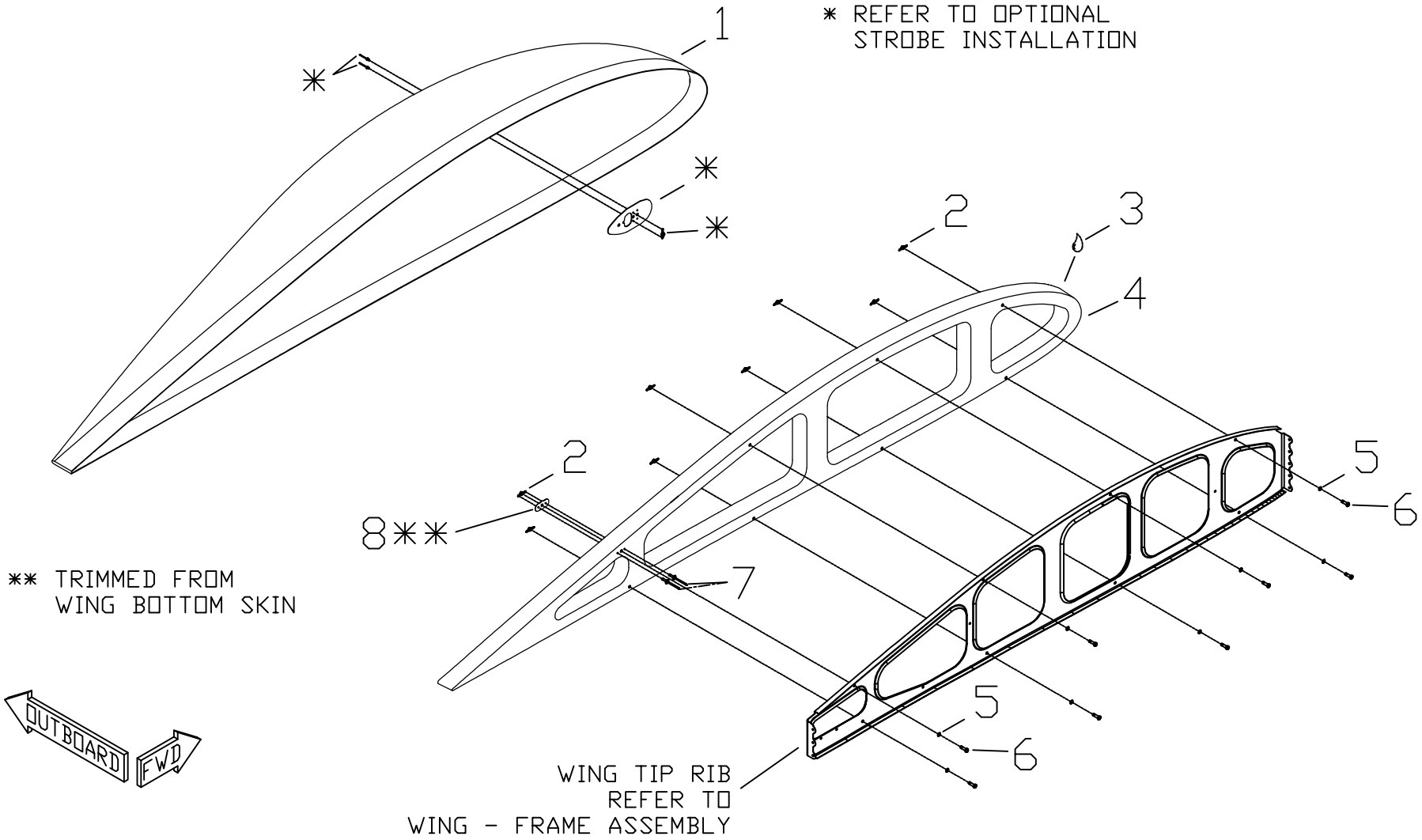
MD5649
REV. A

RANS S-21 OUTBOUND
141 WING - UPPER LIFT STRUT FAIRING

141 WING - UPPER LIFT STRUT FAIRING

#	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



LEFT-HAND SHOWN

MD5649
REV. - ORIG

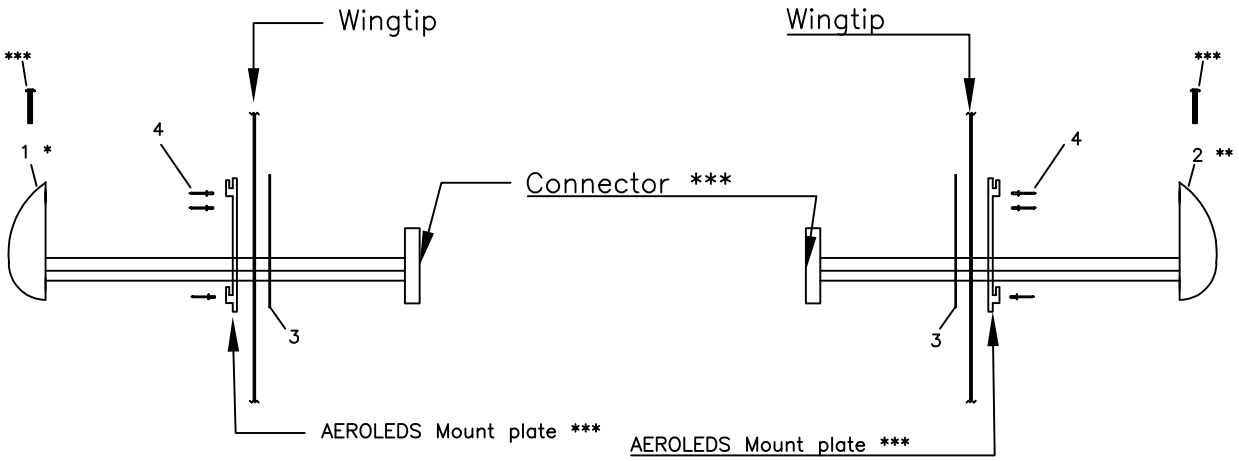
RANS S-21 OUTBOUND
141 WING - WINGTIP ASSEMBLY

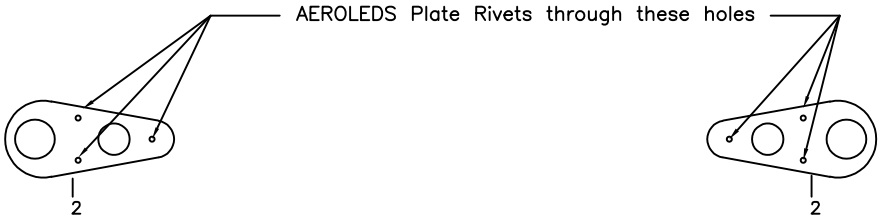
141 WING - WING TIP ASSEMBLY AND INSTALLATION

#	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

* RED = LEFT
** GREEN = RIGHT
*** Provided with light



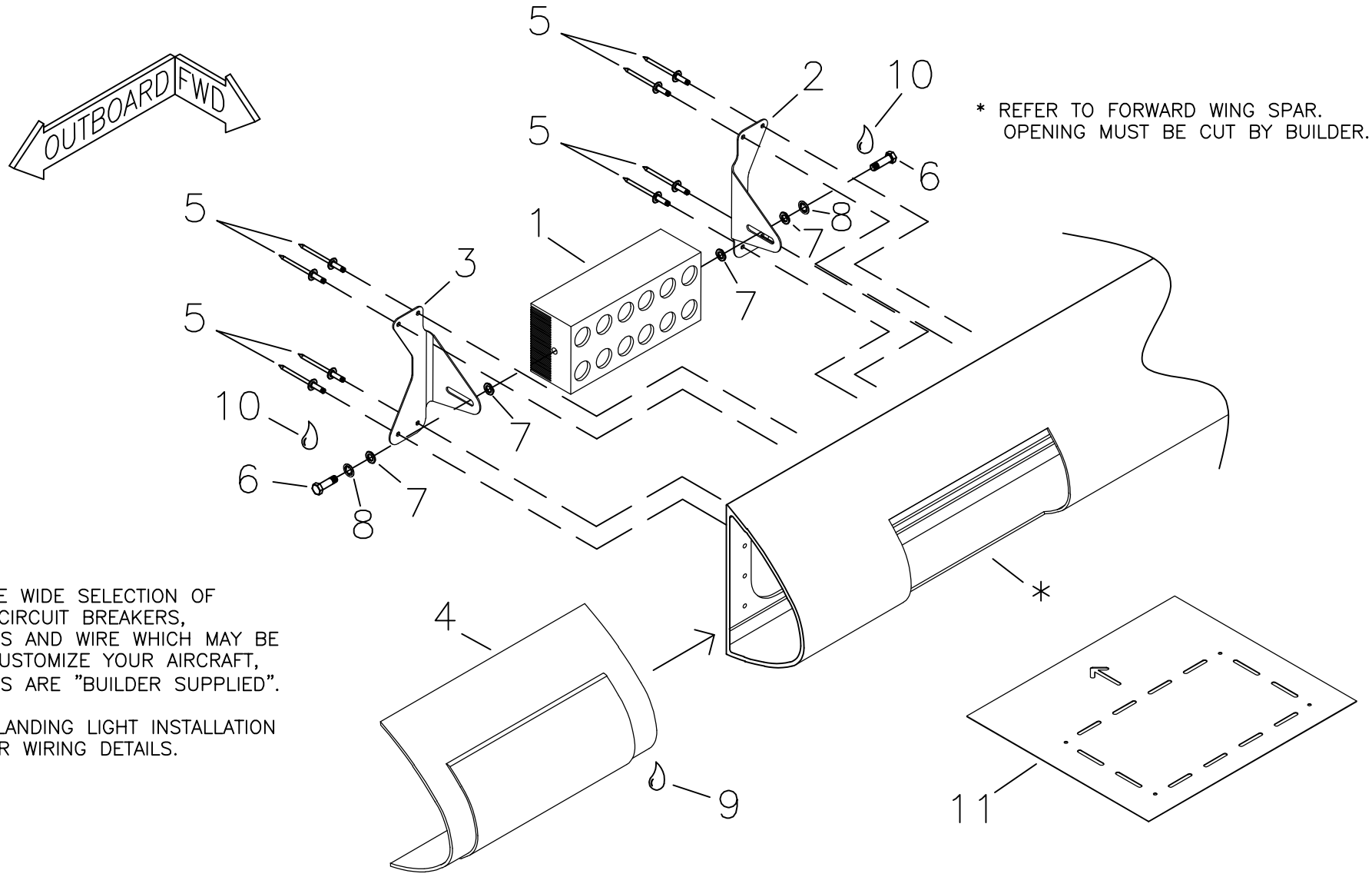


REFER TO STROBE INSTALLATION MANUAL FOR WIRING SCHEMATICS

MD2668
REV. – ORIG

RANS S-21 OUTBOUND
141 WING - OPTIONS
AEROLED NSP INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	AEROLEDS PULSAR NSP (12V)	KPES0061-L	1
2.	AEROLEDS PULSAR NSP (12V)	KPES0061-R	1
3.	AEROLEDS PULSAR NSP MOUNT	KPWI0777	2
4.	ALUMINUM FLUSH 120 DEGREE RIVET	AACQ-43	6



* REFER TO FORWARD WING SPAR. OPENING MUST BE CUT BY BUILDER.

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

RANS S-21 OUTBOUND
141 WING - OPTIONS
LANDING LIGHTS INSTALLATION

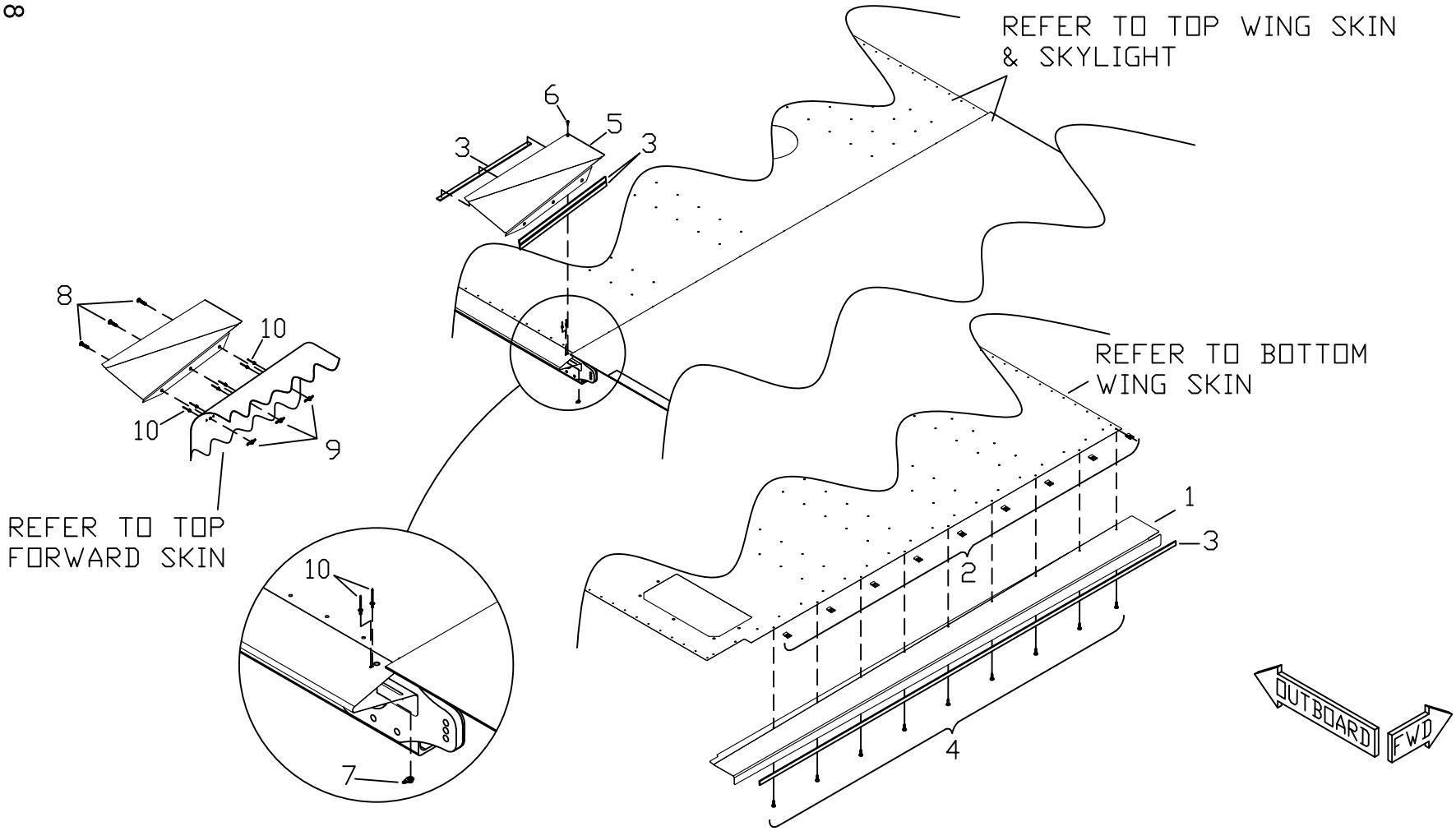
MD5498
REV. – ORIG

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



LEFT-HAND SHOWN

MD5649
REV. B

RANS S-21 OUTBOUND
141 WING - ROOT SEAL INSTALLATION

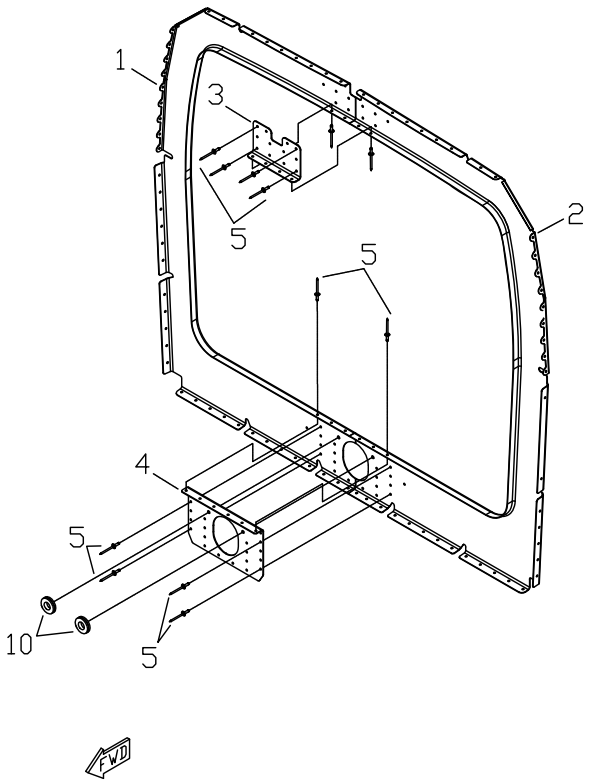
RANS S-21 OUTBOUND

141 WING - ROOT SEAL INSTALLATION

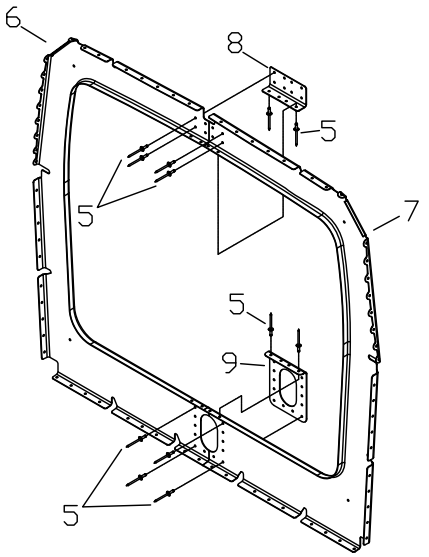
#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Wing Root Bottom Gap Seal - RH	KPWI0690-R	1
1.	Wing Root Bottom Gap Seal - LH	KPWI0690-L	1
2.	Tinnerman	A1789-8Z-1	18
3.	1/2" Black Foam Tape*	-----	0
4.	#8 Pan Head Screw	8 x 1/2 PHS	18
5.	Flap Gap Seal - RH	KPWI0691-R	1
5.	Flap Gap Seal - LH	KPWI0691-L	1
6.	6-32 Pan Head Machine Screw	MS35206-228	2
7.	6-32 Single Ear Nut Plate	K-2000-06	2
8.	8-32 Machine Screw	AN526-832R6	6
9.	8-32 Nut Plate	MS21047-08	6
10.	3/32" Aluminum Rivet	40APR1/8	16

* Builder Supplied

STATION 4



STATION 5



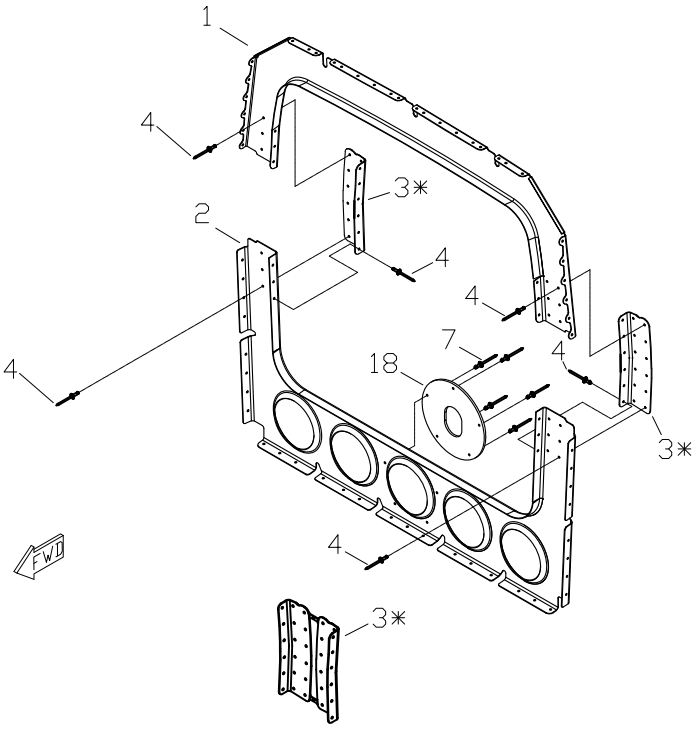
MD5651
REV. - ORIG

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

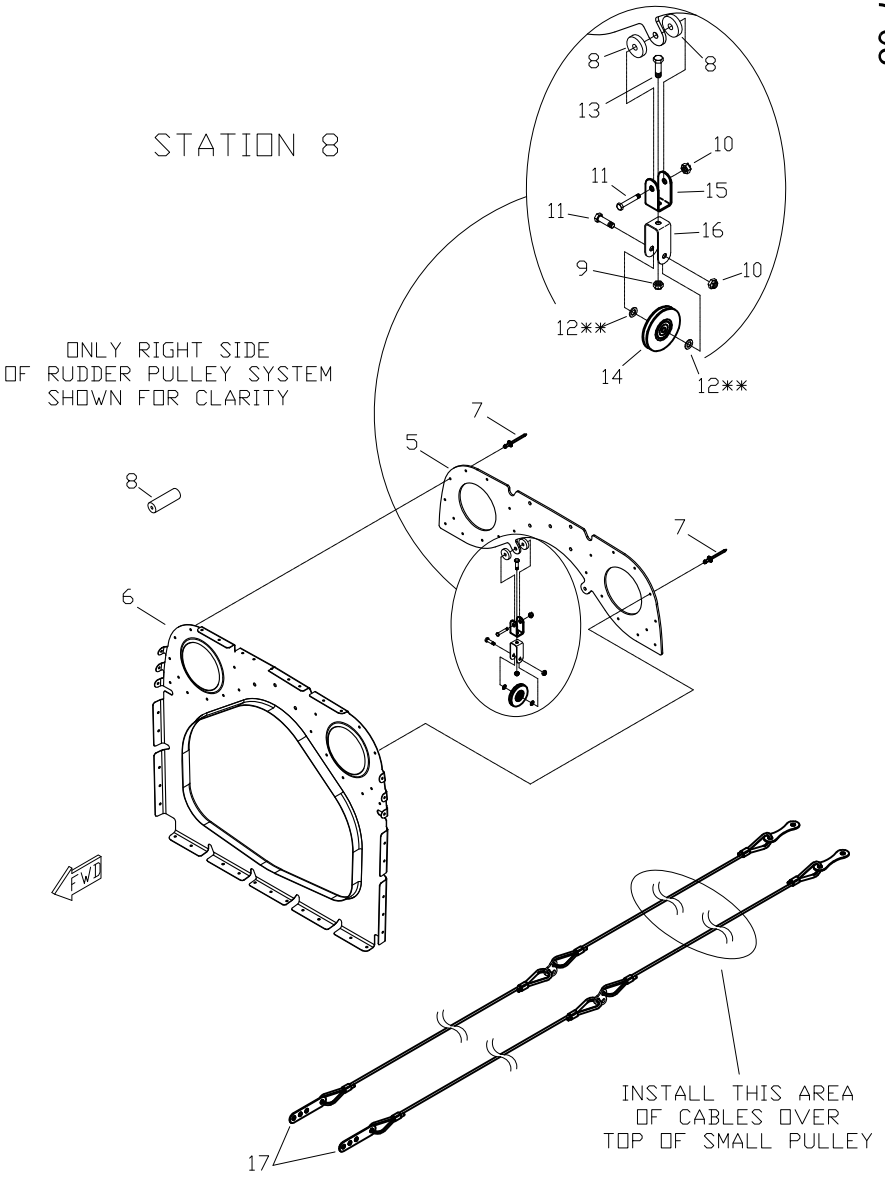
FUSELAGE - STATION 4 & 5 - BULKHEAD ASSEMBLY

#	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.	Rubber Grommet	MS35489-17	2

STATION 6



STATION 8



* SEPARATE AND ORIENTATE NOTCH TO TOP
** REPLACED BY KPAC0038 ON TAILDRAGGER.
REFER TO RUDDER SYSTEM INSTALLATION

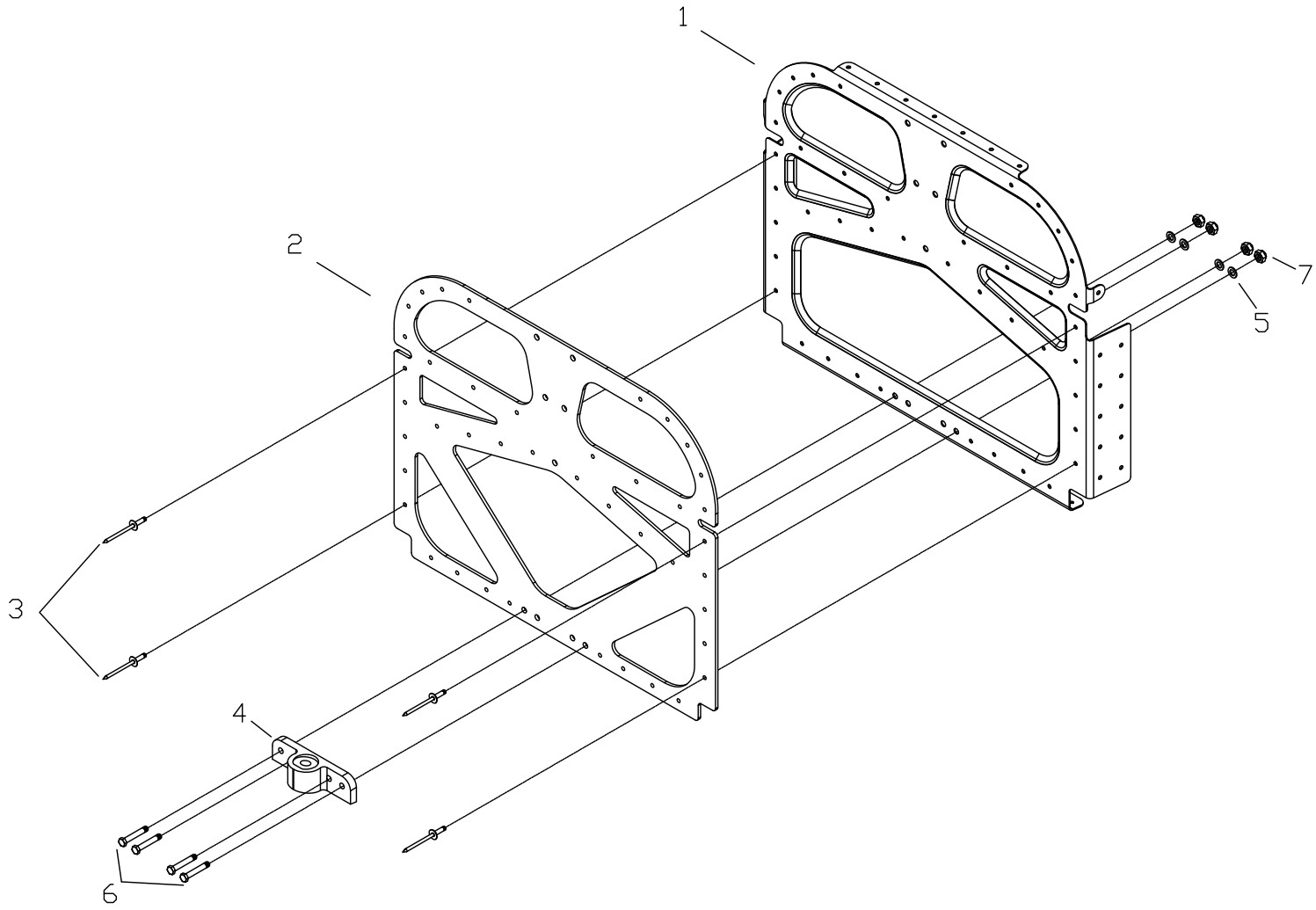
MD5651
REV. - ORIG

RANS S-21 OUTBOUND
FUSELAGE - STATION 6 & 8 - BULKHEAD ASSEMBLY

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

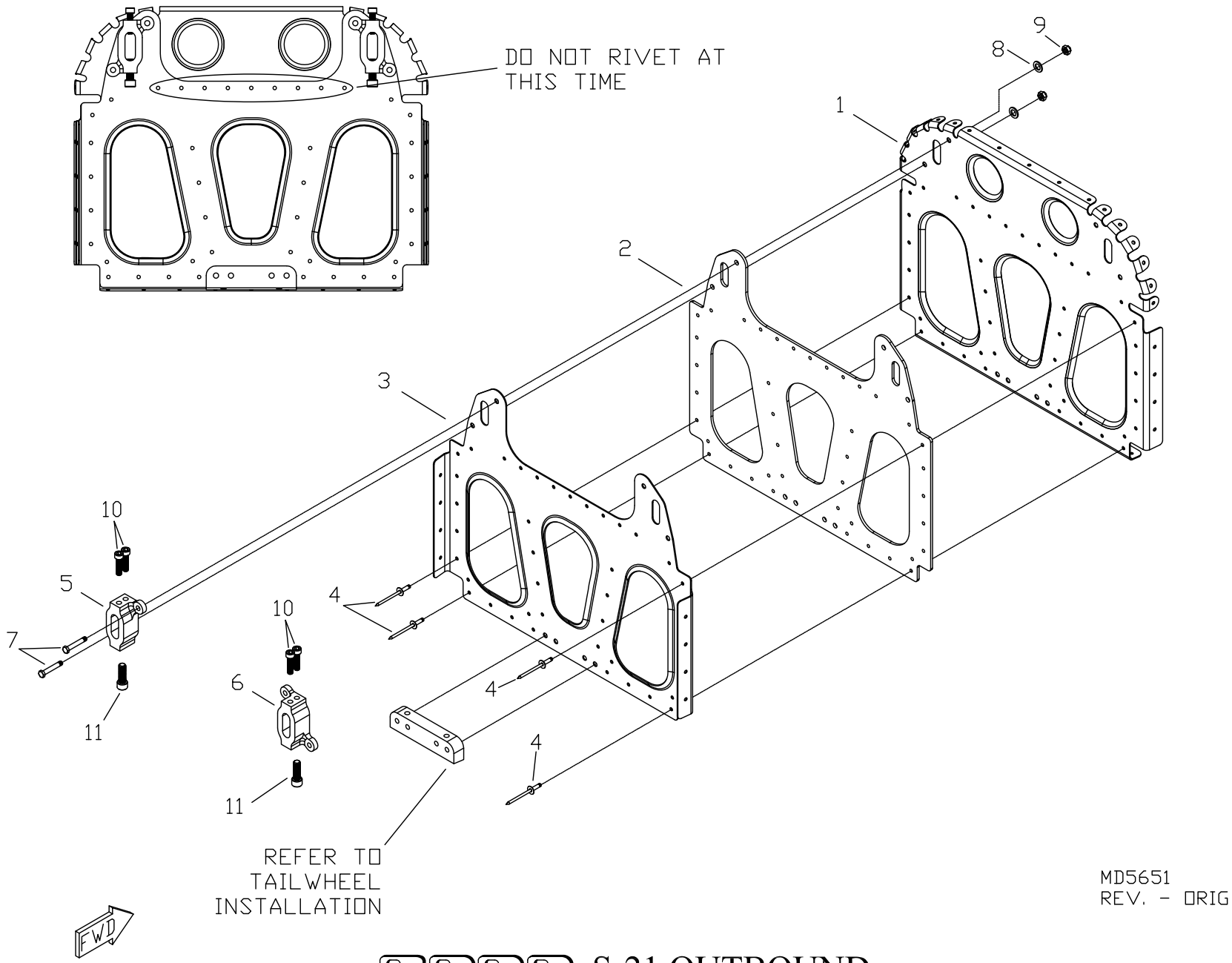


MD5651
REV. - ORIG

RANS S-21 OUTBOUND
FUSELAGE - STATION 9 - BULKHEAD ASSEMBLY

FUSELAGE - STATION 9 - BULKHEAD ASSEMBLY

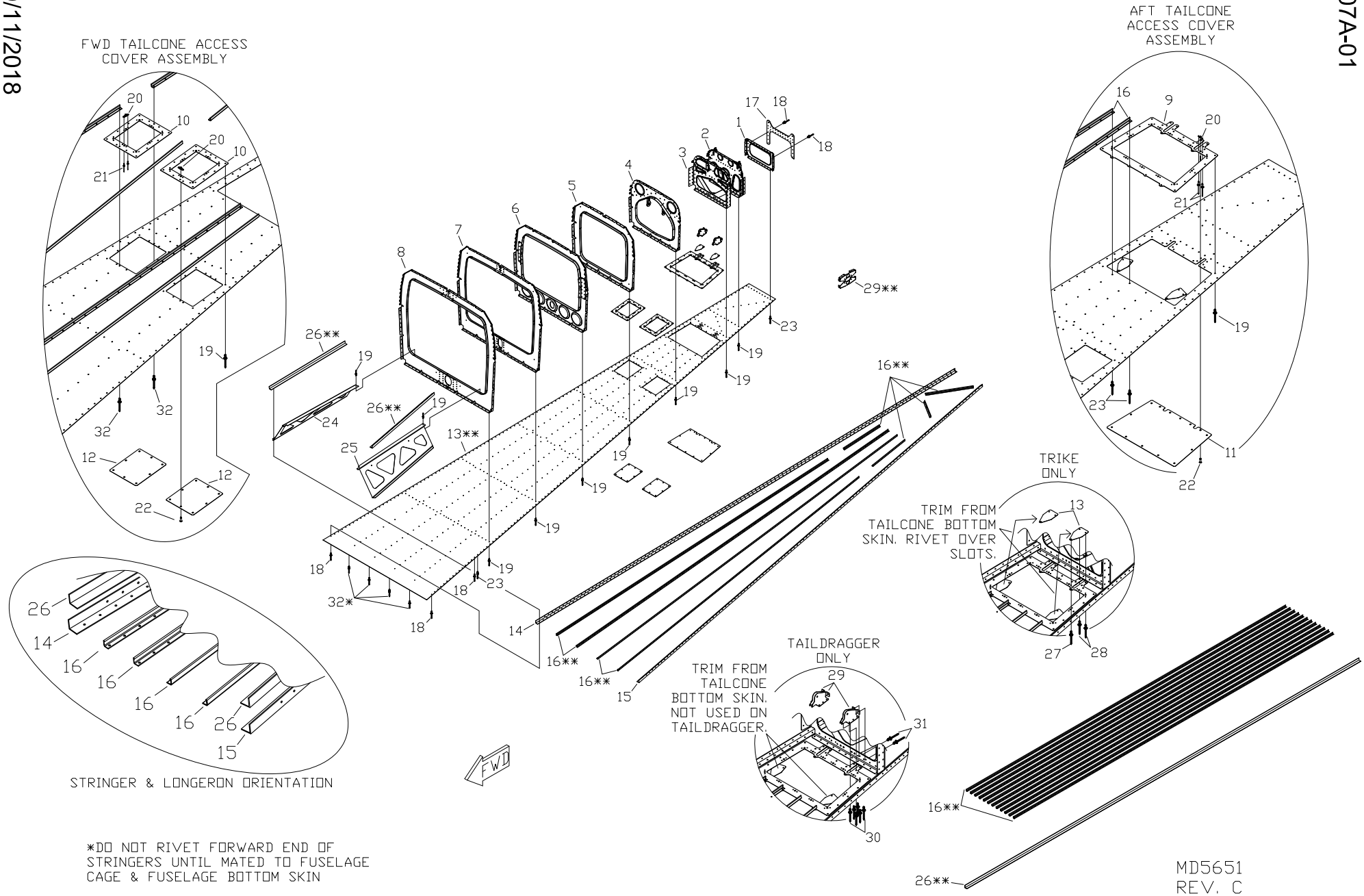
#	DESCRIPTION	PART NUMBER	QUANTITY
1.	S-9 Bulkhead	KPFU0702	1
2.	S-9 Bulkhead Doubler	KPFU0703	1
3.	1/8" Aluminum Rivet - Cherry Q	AAPQ-43	42
4.	FWD Attach Block	KPFU0697	1
5.	3/16" Thin Washer	AN960-10L	4
6.	3/16" Bolt	AN3-5A	4
7.	3/16" Shear Nut	AN364-1032A	4



RANS S-21 OUTBOUND
FUSELAGE - STATION 10 - BULKHEAD ASSEMBLY

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



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

** BUILDER MODIFIES

MD5651
REV. C

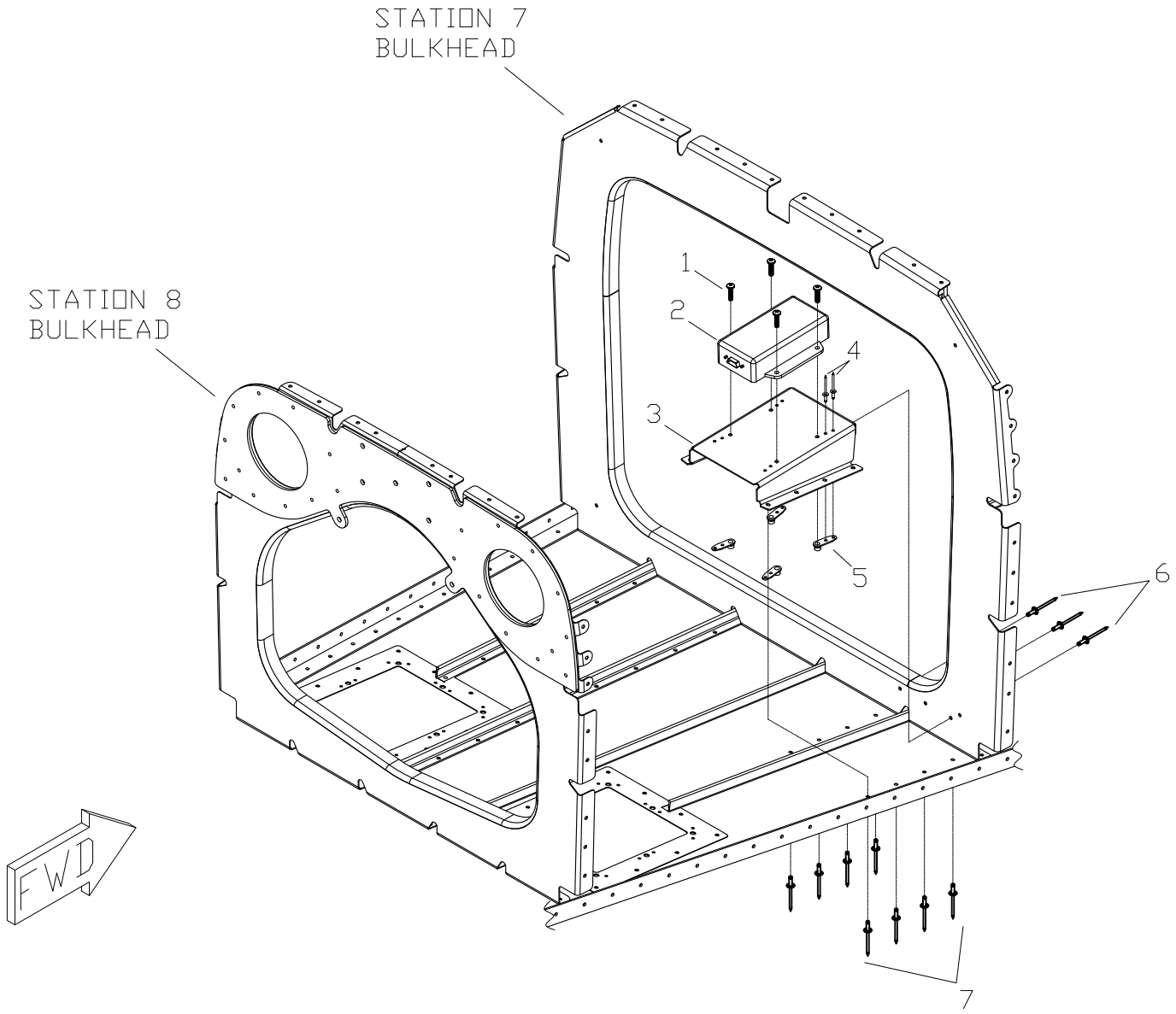
RANS S-21 OUTBOUND
FUSELAGE - TAILCONE - BOTTOM SKIN ASSEMBLY

RANS S-21 OUTBOUND

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	197
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 (120 degree) ***	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
32.	1/8" Aluminum Rivet - Avex	1691-0410	235

* Refer to respective Bulkhead Assembly Parts pages
** Builder Modifies
*** Trike only - Supplied with Trike Gear Kit
**** Taildragger Only - Supplied with Taildragger Gear Kit



MD5651
REV. - ORIG

RANS S-21 OUTBOUND
FUSELAGE - OPTIONS - GARMIN GMU11 MAGNETOMETER MOUNT

FUSELAGE - OPTIONS - GARMIN GMU11 MAGNETOMETER MOUNT

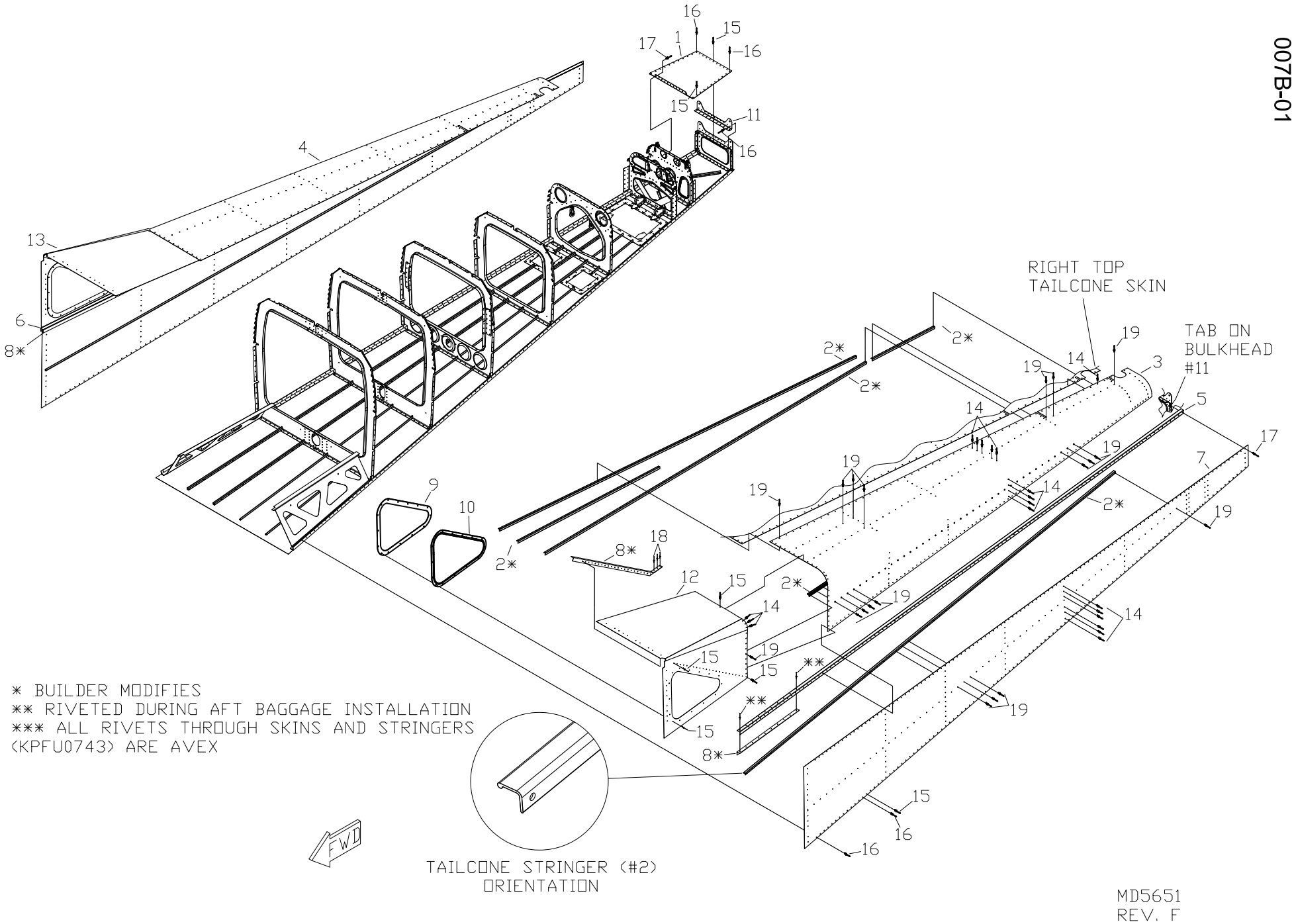
KAAV0004

#	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

09/11/2018

007B-01



MD5651
REV. F

RANS S-21 OUTBOUND
FUSELAGE - TAILCONE - SIDE & TOP SKIN ASSEMBLY

RANS S-21 OUTBOUND

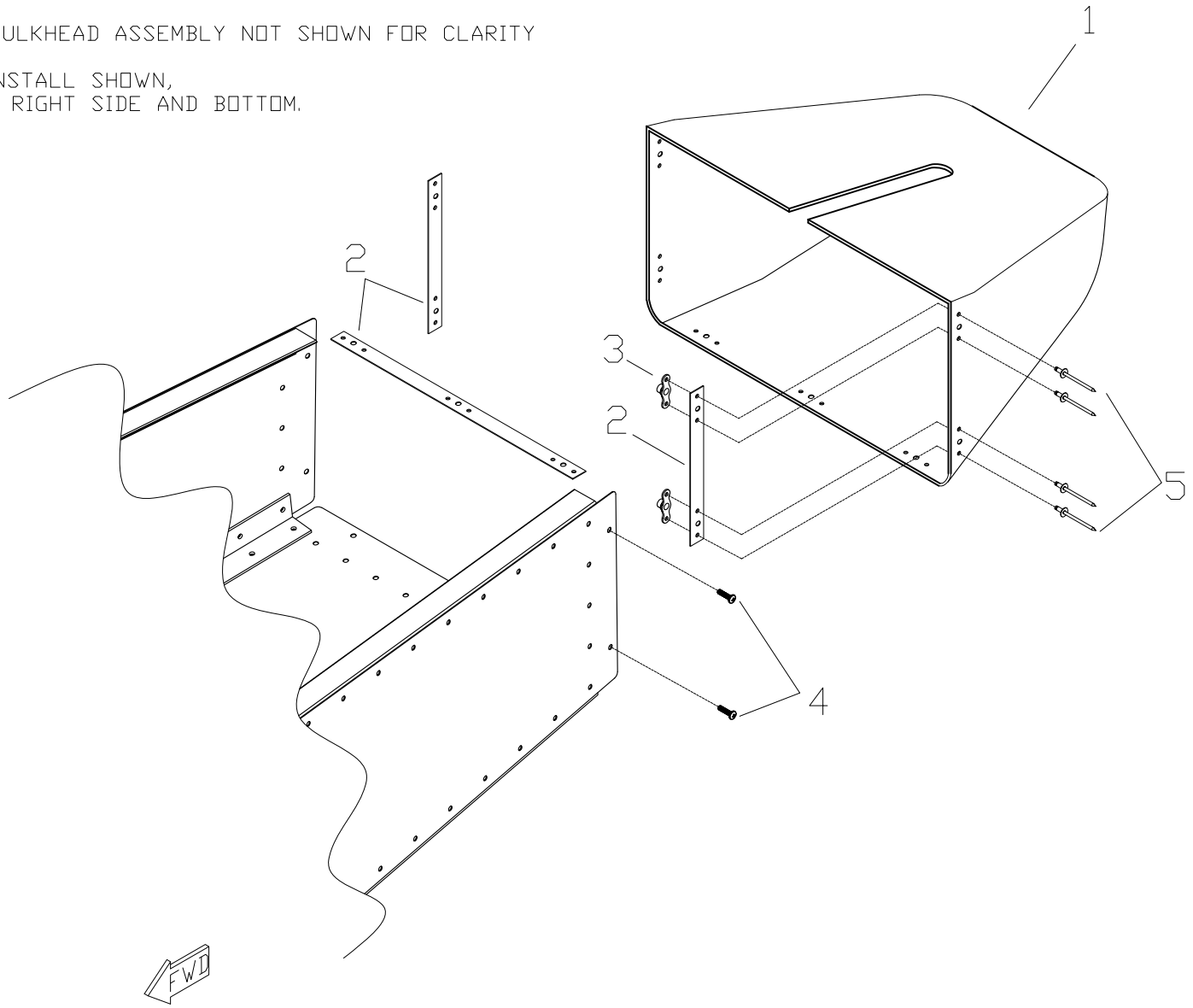
FUSELAGE - TAILCONE - SIDE & TOP SKIN ASSEMBLY

#	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	KPFU0770	2
11.	S-10/11 Closeout Angle	KPFU0764	1
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	392
16.	1/8" Aluminum Rivet - Cherry Q	AAPQ-43	29
17.	1/8" Aluminum Rivet - Cherry Q	AAPQ-44	13
18.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-43	6
19.	1/8" Aluminum Rivet - Avex	1691-0410	494

* Builder Modifies

STATION 11 BULKHEAD ASSEMBLY NOT SHOWN FOR CLARITY

LEFT SIDE INSTALL SHOWN,
TYPICAL FOR RIGHT SIDE AND BOTTOM.



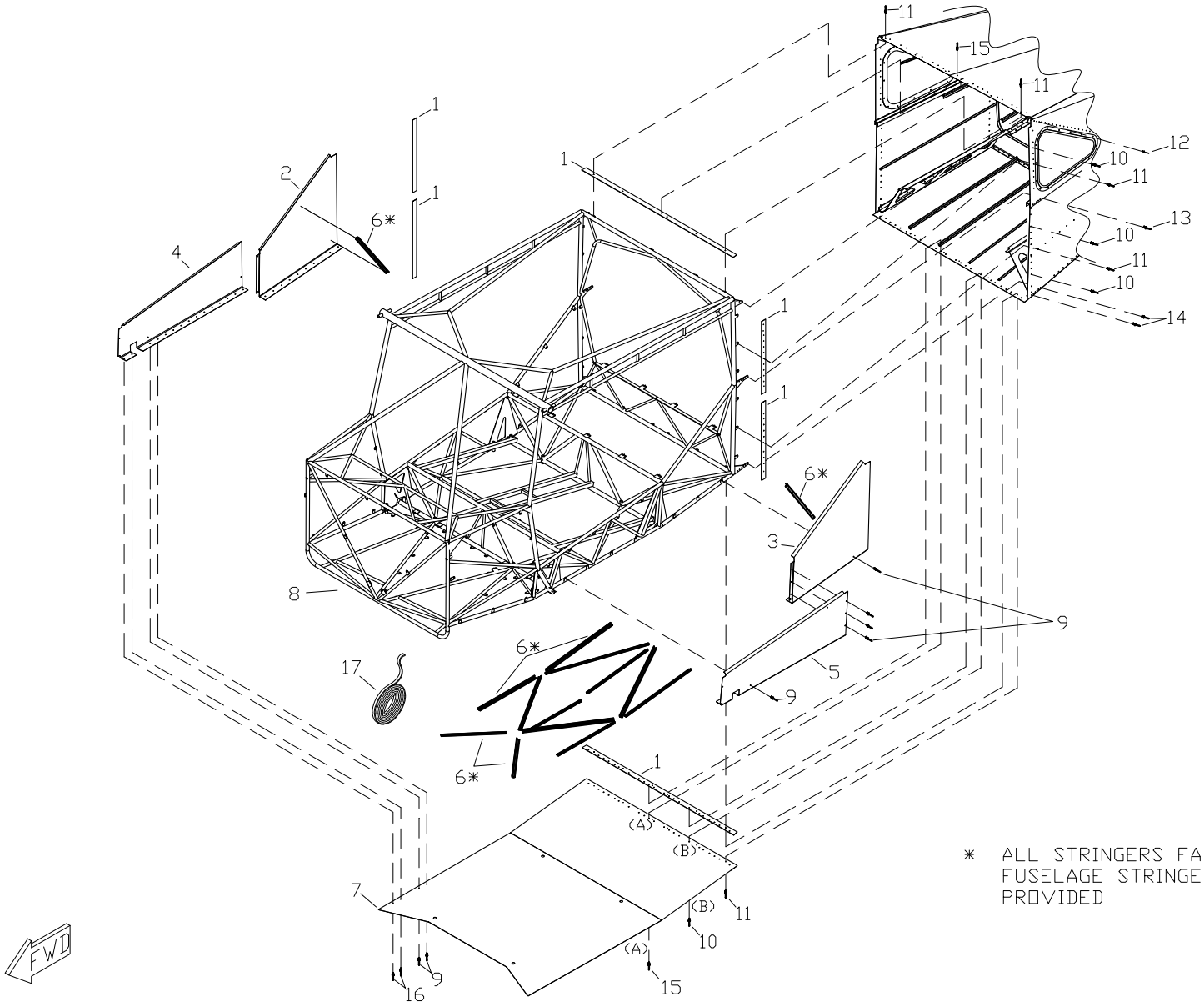
MD5651
REV. A

RANS S-21 OUTBOUND
FUSELAGE - TAILCONE - AFT CLOSEOUT INSTALLATION

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



* ALL STRINGERS FABRICATED FROM FUSELAGE STRINGER MATERIAL PROVIDED

MD5651
REV. A

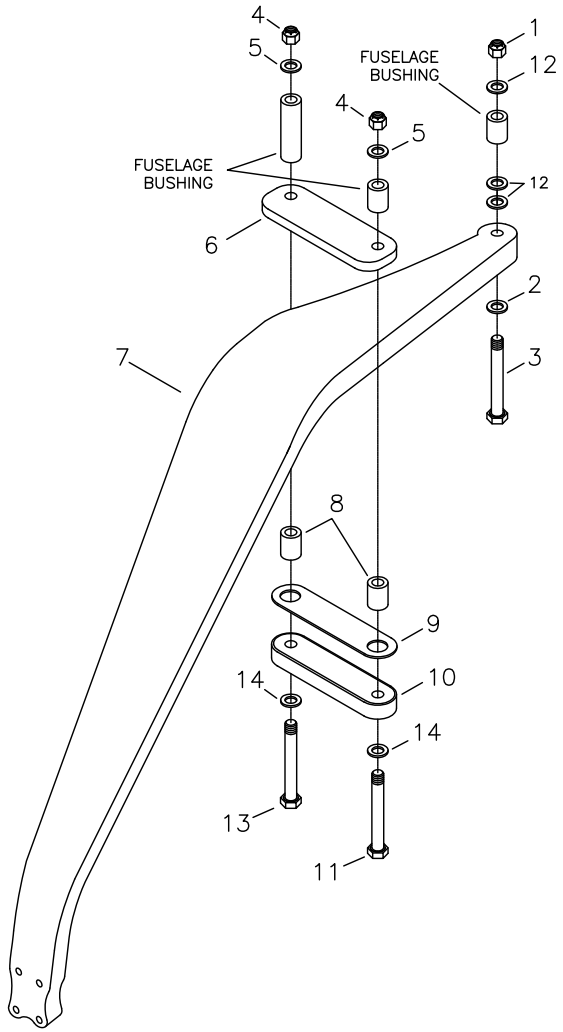
RANS S-21 OUTBOUND
FUSELAGE - SKINS AND TAILCONE MATING INSTALLATION

RANS S-21 OUTBOUND

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.	Fuselage Stringer*	KPFU0767	13
7.	Fuselage Bottom Skin	KPFU0745	1
8.	Fuselage Cage Assembly	KAFU0062	1
9.	1/8" Aluminum Rivet - Cherry Q	AAPQ-41	66
10.	1/8" Aluminum Rivet - Cherry Q	AAPQ-42	74
11.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-42	25
12.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-43	6
13.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-44	12
14.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-45	12
15.	1/8" Aluminum Rivet - Cherry Q	AAPQ-43	9
16.	1/8" Aluminum Rivet - Flush	AACQ-42	20
17.	1/2" 3M VHB Tape**	-----	0

* Builder Modifies
** Builder Supplied



MD5581
REV. – ORIG

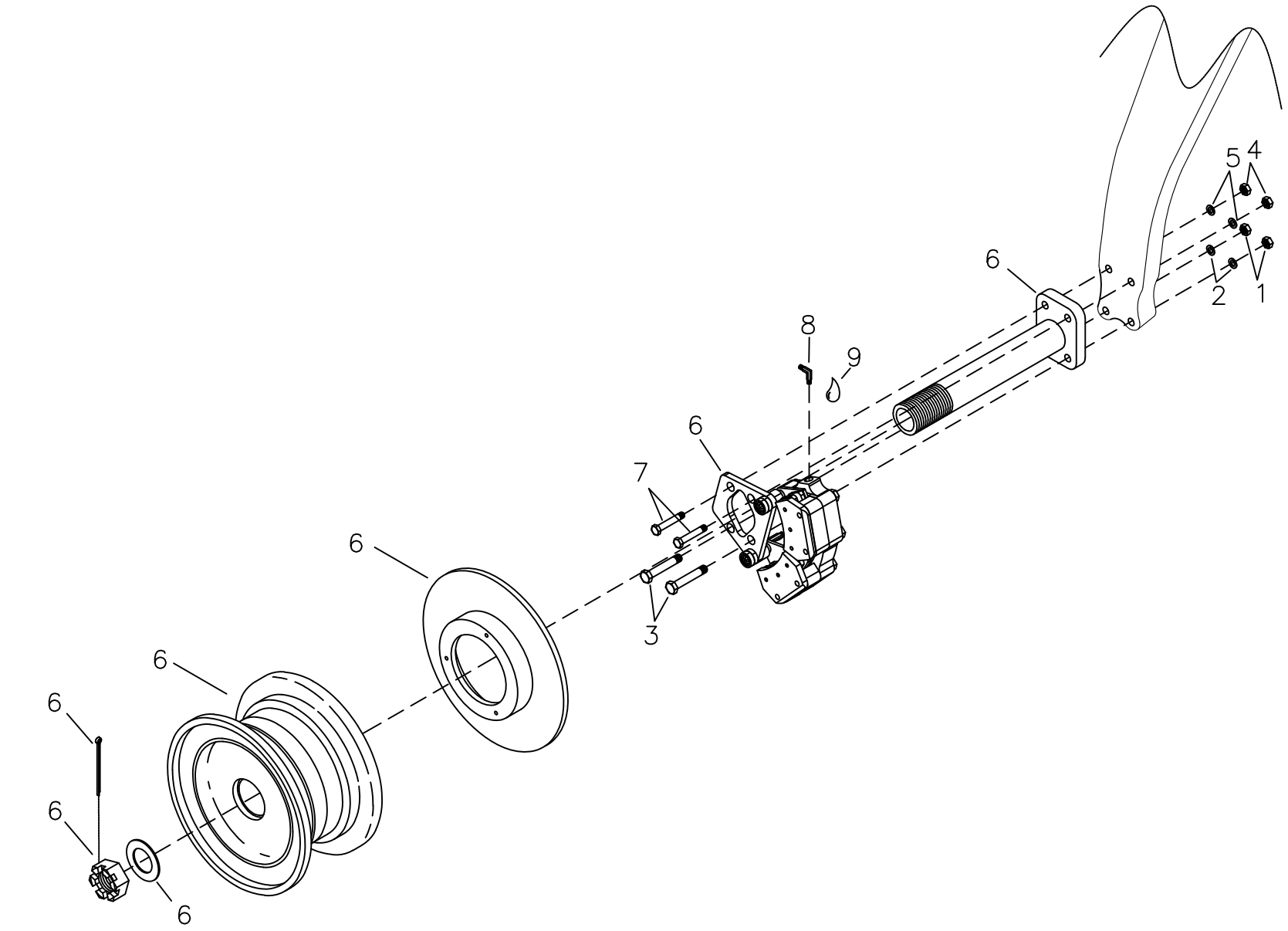
FWD

RANS S-21 OUTBOUND
TAILDRAGGER - MAIN GEAR INSTALLATION

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 -Tall - RH	KPMG0227-R	1
7.	Gear Leg - Tall - 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



MD5581
REV. C

RANS S-21 OUTBOUND

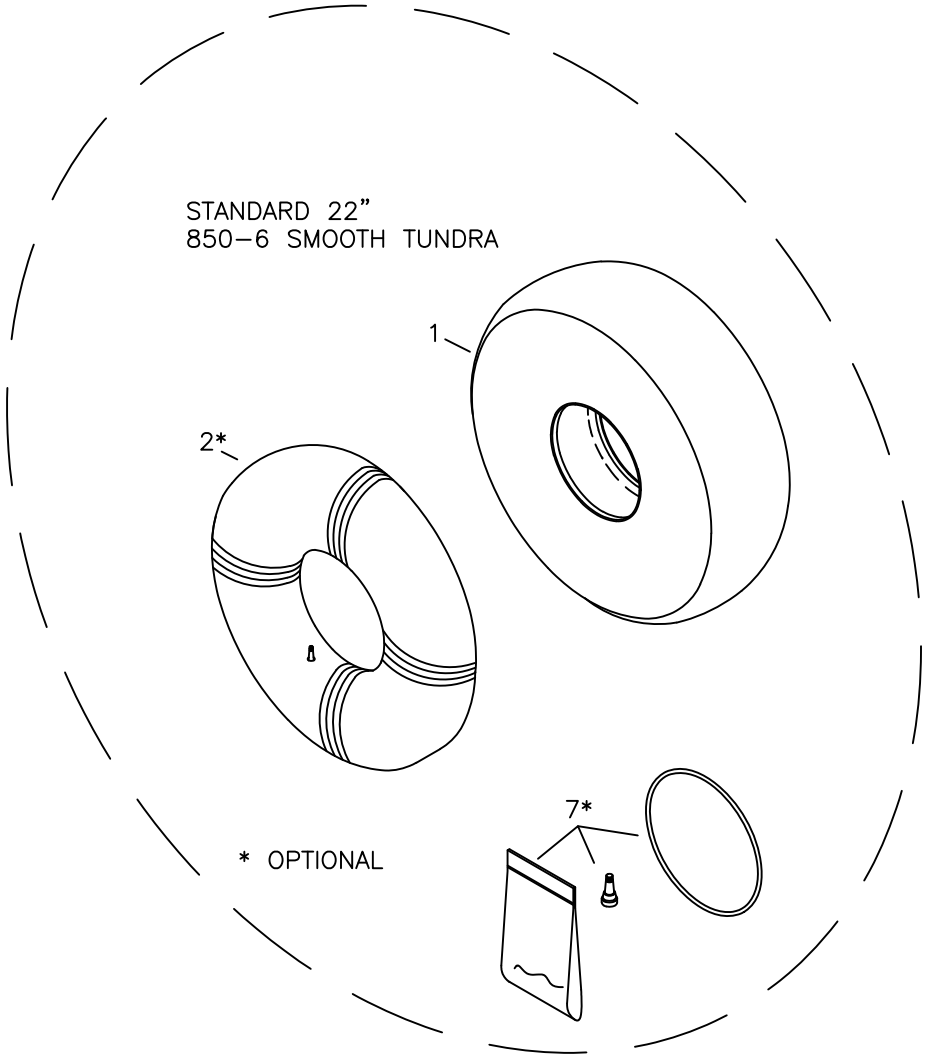
TAILDRAGGER - WHEEL AND BRAKE INSTALLATION

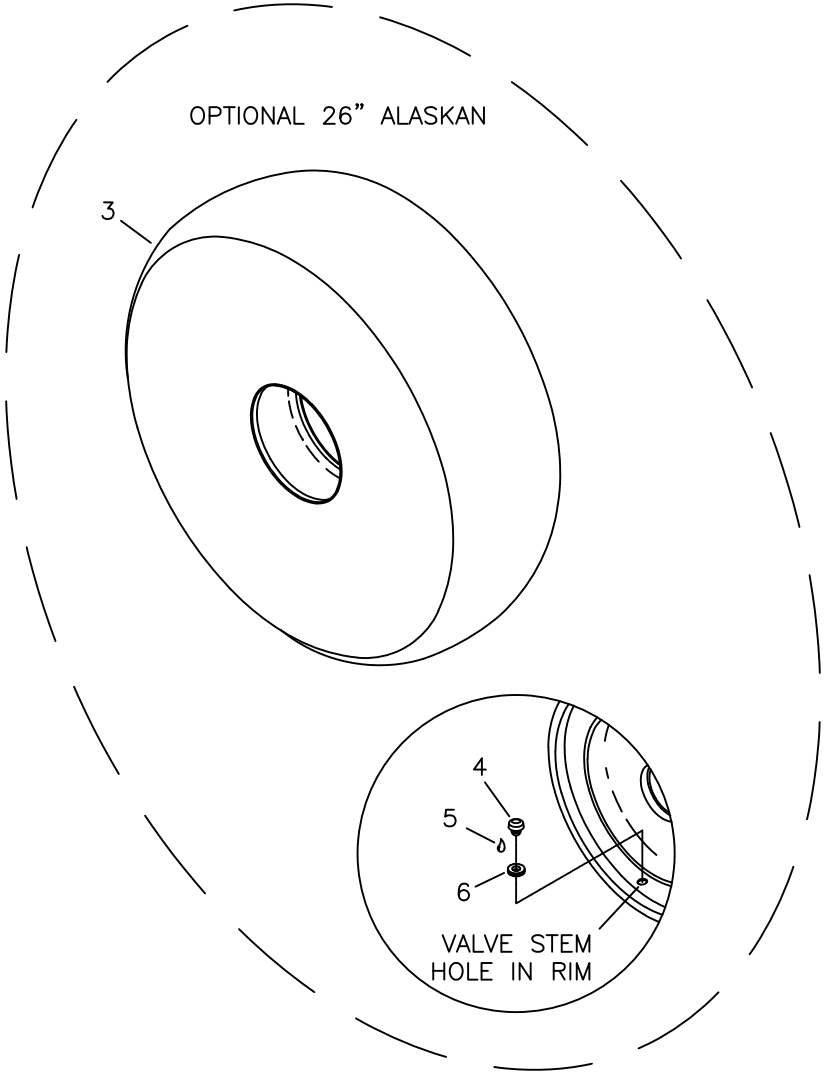
TAILDRAGGER - WHEEL & BRAKE INSTALLATION

TAILDRAGGER ONLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/8" Tensile Nut	AN365-624A	4
2.	3/8" Thin Washer	AN960-616L	4
3.	3/8" Bolt	AN6-26A	4
4.	5/16" Tensile Nut	AN365-524A	4
5.	5/16" Thin Washer	AN960-516L	4
6.	Hyd Brake Assy - 6" Dual Piston	KSBS0050	2
7.	5/16" Bolt	AN5-25A	4
8.	45-degree Elbow - Flare 1/4" Tube to 1/8" NPT	AN823-4D	2
9.	Thread Sealant *	-----	0

* Builder Supplied





MD5581
REV. B

RANS S-21 OUTBOUND
TAILDRAGGER - 6" TIRES

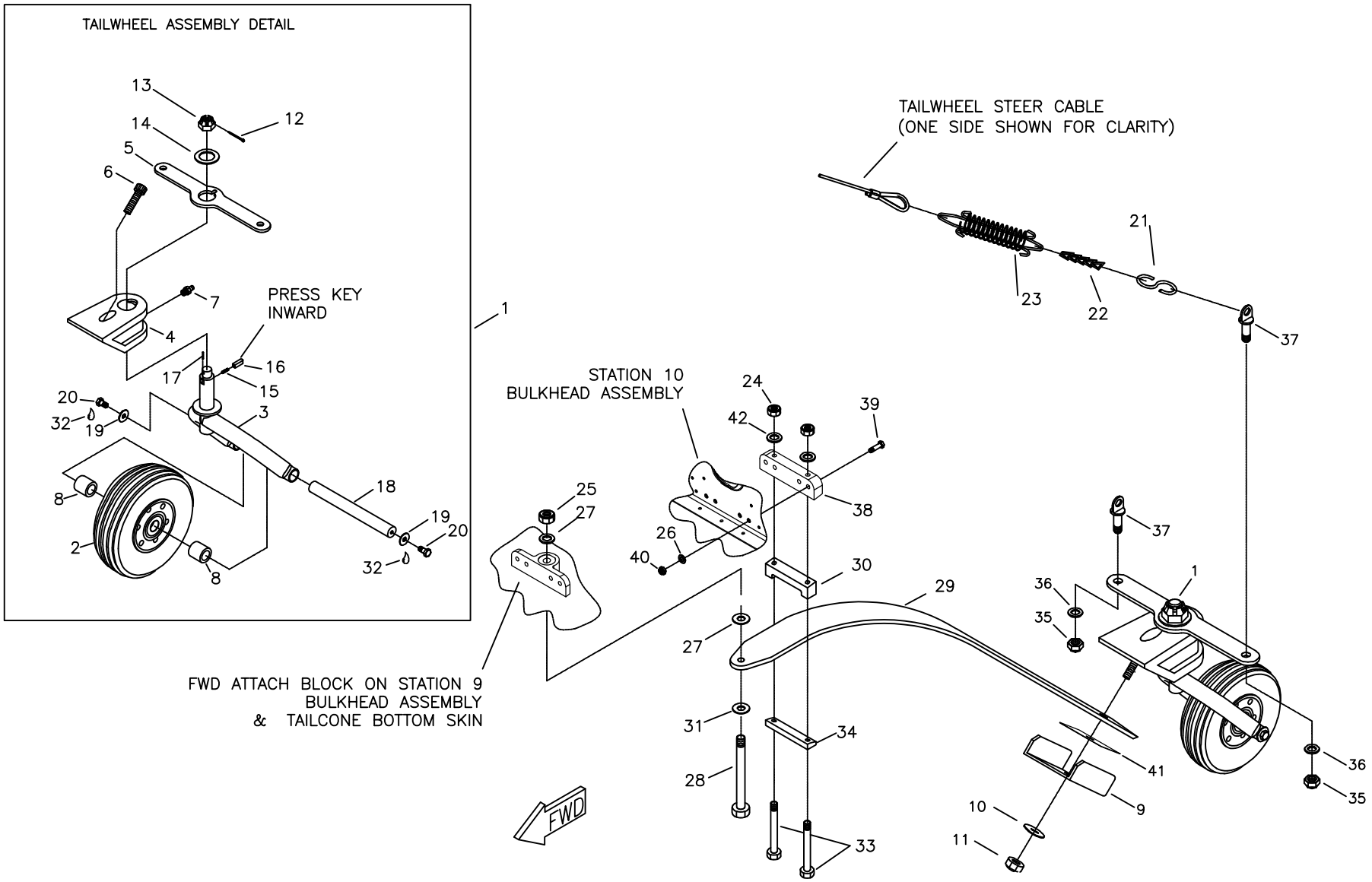
RANS S-21 OUTBOUND

TAILDRAGGER - 6" TIRES

TAILDRAGGER ONLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	22" 850-6 Smooth Tundra Tire	KSMG0030	2
2.	Optional - 850-6 Tundra Tube * (-2 KSBS0043)	KSMG0031	2
3.	26" Alaskan Tire - OPTIONAL (-2 KSMG0030 & -2 KSBS0031) *	KSMG0028	2
4.	Grommet Plug	9K13-DRBUMP	2
5.	Adhesive - Superglue **	-----	0
6.	Rubber Grommet	MS35489-6	2
7.	Optional - MATCO Tubeless Kit for 6" Wheel * (-2 KSMG0031)	KSBS0043	2

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



MD4170
REV. B

RANS S-21 OUTBOUND
TAILDRAGGER - 8" TAILWHEEL INSTALLATION

RANS S-21 OUTBOUND

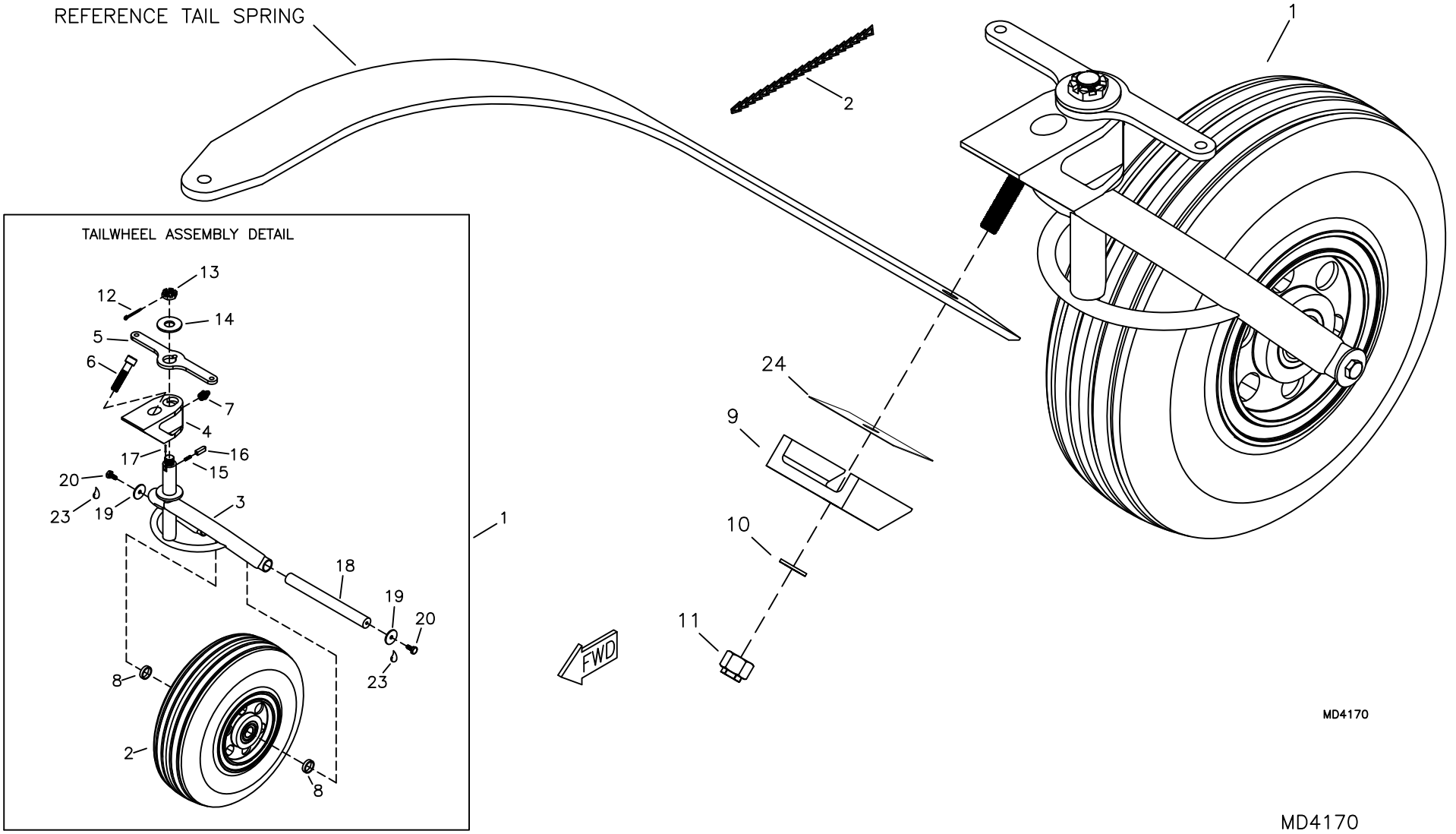
TAILDRAGGER - 8" TAILWHEEL INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	8" Pneumatic Tailwheel Assembly	KATG006	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 *	AN960-616L	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 *	NS27183-17	0
15.	Tailwheel - Tension Spring *	KSTG0003	0
16.	Tailwheel - Tension Key *	KPTG0006	0
17.	Tailwheel - Spring Pin *	KPTG0006	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.	1/4" Tensile Nut	AN365-428A	2
25.	5/16" Tensile Nut	AN365-1032A	1
26.	3/16" Thin Washer	AN960-10L	4
27.	5/16" Thick Washer	AN960-516	2
28.	5/16" Bolt	AN5-15A	1
29.	Tail Spring	KPTG0042	1
30.	Tailspring - AFT Lower Saddle Block	KPTG0041	1
31.	5/16" Thin Washer	AN960-516L	1
32.	Loctite Blue ***	-----	0
33.	1/4" Bolt	AN4-23A	2
34.	Gear Strap	KPTG0059	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.	Tailwheel Channel Shim	KPTG0043	1
42.	1/4" Thin Washer	AN960-416L	2

* Part of 8" Pneaumatic Tailwheel Assembly (KATG0006)
** Builder Modifies
*** Builder Supplied

9/11/2018
Rev. A

REFER TO 8" TAILWHEEL INSTALLATION FOR COMPLETE INSTALLATION DETAILS



MD4170
REV. A

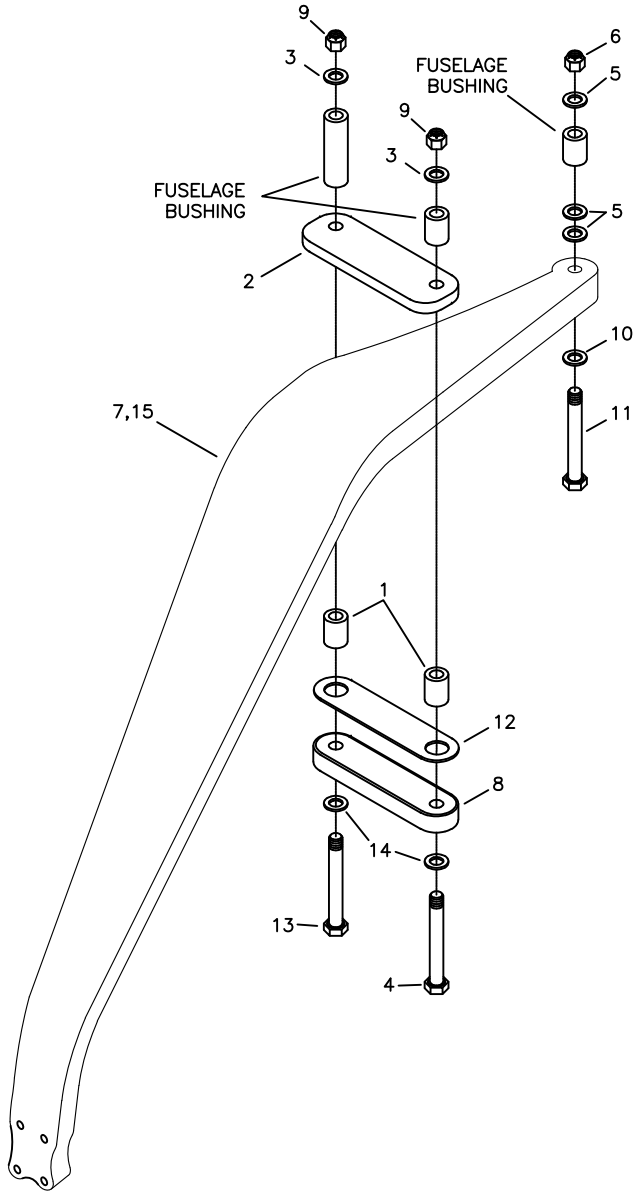
RANS S-21 OUTBOUND
TAILDRAGGER - OPTIONS - 10" TAILWHEEL INSTALLATION

TAILDRAGGER - OPTIONS - 10" TAILWHEEL INSTALLATION

TAILDRAGGER ONLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	10" Pneumatic Tailwheel Assembly - OPTION	KATG0008	1
2.	Tailwheel *	KSTG0012	0
3.	Tailwheel - Fork *	KPTG0056	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 *	KPTG0058	0
19.	3/16" Large Washer *	AN970-3	0
20.	3/16" Bolt *	AN3-3A	0
22.	Chain - Steer Horn **	TW-C	1
23.	Loctite Blue ***	-----	0
24.	Tailwheel Channel Shim	KPTG0043	1

* Part of Optional 10" Pneumatic Tailwheel Assembly (KATG0008).
** Builder Modifies
*** Builder Supplied



RANS S-21 OUTBOUND
TRIKE - MAIN GEAR INSTALLATION

MD5581
REV. A

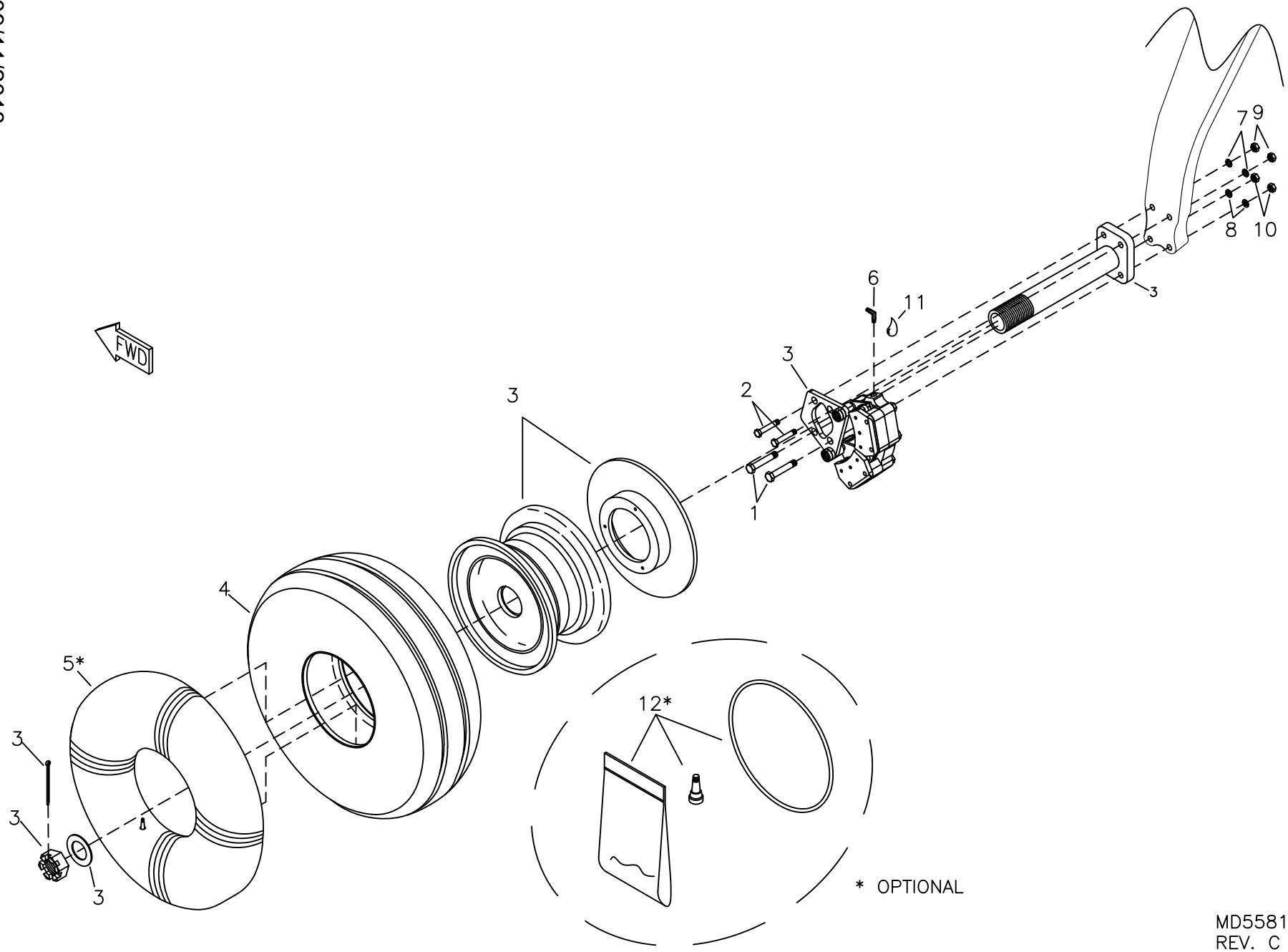
RANS S-21 OUTBOUND

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 - Short - LH * (-1 KPMG0227-L)	KPMG0228-L	1
7.	Gear Leg - Short - RH * (-1 KPMG0227-R)	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
15.	Gear Leg - Tall - RH ** (-1 KPMG0228-R)	KPMG0227-R	1
15.	Gear Leg - Tall - LH ** (-1 KPMG0228-L)	KPMG0227-L	1

* Standard Trike only
** Tundra Trike Only



MD5581
REV. C

RANS S-21 OUTBOUND
TRIKE - STANDARD - WHEEL AND BRAKE INSTALLATION

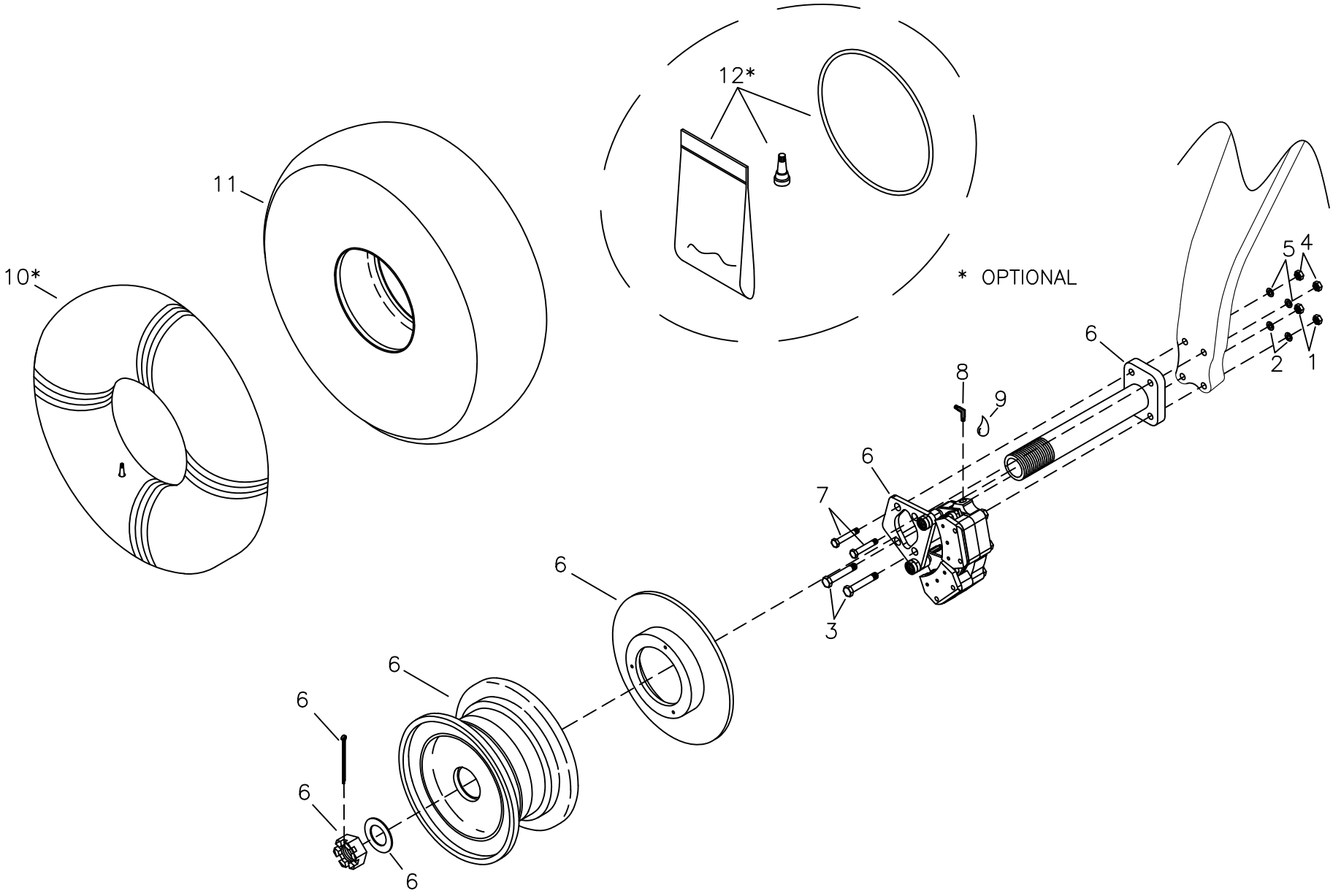
RANS S-21 OUTBOUND

TRIKE - STANDARD - WHEEL AND BRAKE INSTALLATION

TRIKE ONLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/8" Bolt	AN6-26A	4
2.	5/16" Bolt	AN5-25A	4
3.	Hyd Brake Assy - 6" Dual Piston	KSBS0050	2
4.	600 x 6 Tire	KSMG0008	2
5.	Optional - 600 x 6 Tube * (-2 KSBS0043)	KSMG0034	2
6.	45-degree Elbow - Flare 1/4" Tube to 1/8" NPT	AN823-4D	2
7.	5/16" Thin Washer	AN960-516L	4
8.	3/8" Thin Washer	AN960-616L	4
9.	5/16" Tensile Nut	AN365-524A	4
10.	3/8" Tensile Nut	AN365-624A	4
11.	Thread Sealant **	-----	0
12.	Optional - MATCO Tubeless Kit for 6" Wheel * (-2 KSMG0034)	KSBS0043	2

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



MD5581
REV. B

RANS S-21 OUTBOUND

TRIKE - OPTIONS - TUNDRA - WHEEL AND BRAKE INSTALLATION

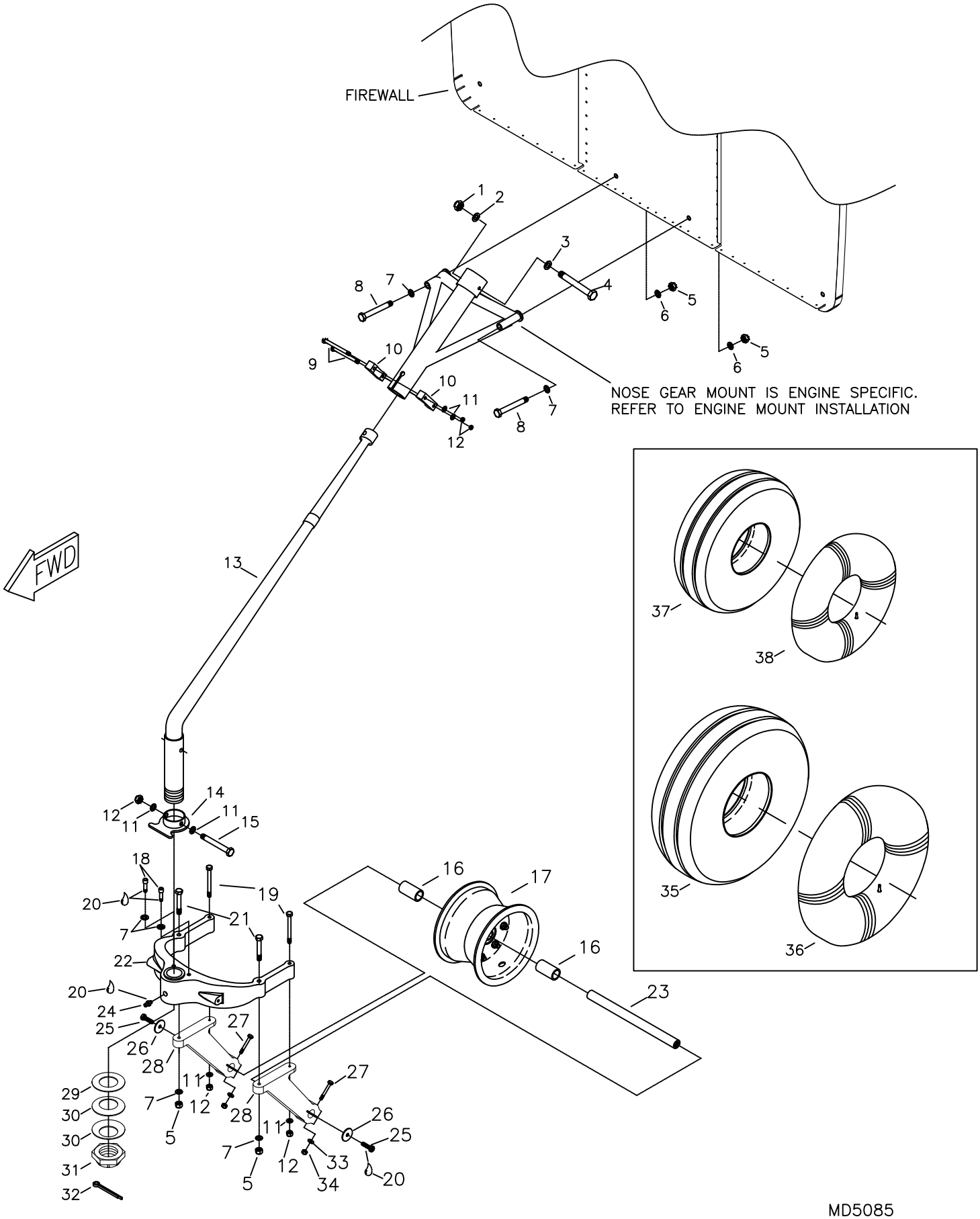
TRIKE - OPTIONS - TUNDRA - WHEEL AND BRAKE INSTALLATION

TRIKE ONLY KAAC0110

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/8" Tensile Nut	AN365-624A	4
2.	3/8" Thin Washer	AN960-616L	4
3.	3/8" Bolt	AN6-26A	4
4.	5/16" Tensile Nut	AN365-524A	4
5.	5/16" Thin Washer	AN960-516L	4
6.	Hyd Brake Assy-6" Dual Piston	KSBS0050	2
7.	5/16" Bolt	AN5-25A	4
8.	45-degree Elbow - Flare 1/4" Tube to 1/8" NPT	AN823-4D	2
9.	Thread Sealant *	-----	0
10.	Optional - 850-6 Tundra Tube** (-2 KSBS0043)	KSMG0031	2
11.	22" 850-6 Smooth Tundra Tire	KSMG0030	2
12.	Optional - MATCO Tubeless Kit for 6" Wheels ** (-2 KSMG0031	KSBS0043	2

* Builder Supplied

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



MD5085
REV. B

RANS S-21 OUTBOUND
NOSE GEAR INSTALLATION (standard and tundra)

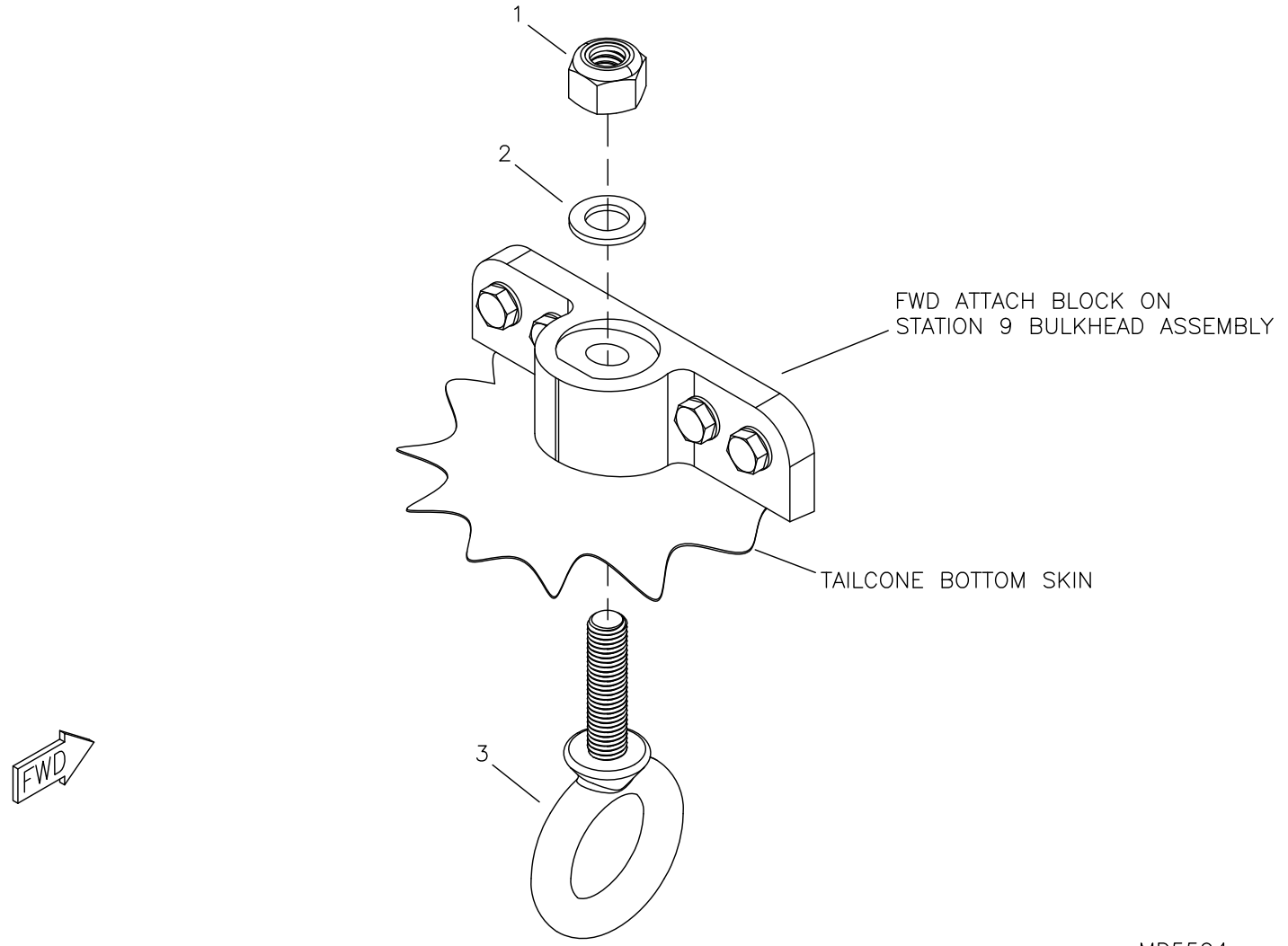
RANS S-21 OUTBOUND

TRIKE - NOSE GEAR INSTALLATION

TRIKE ONLY (Standard and Tundra)

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/8" Tensile Nut	AN365-624A	1
2.	3/8" Thick Washer	AN960-616	1
3.	3/8" Thin Washer	AN960-616L	1
4.	3/8" Close Tolerance Bolt	NAS6606-25	1
5.	5/16" Tensile Nut	AN365-524A	4
6.	5/16" Thick Washer	AN960-516	2
7.	5/16" Thin Washer	AN960-516L	6
8.	5/16" Bolt	AN5-34A	2
9.	1/4" Bolt	AN4-23A	2
10.	Nose Gear Clamp Block	KPNG0104	2
11.	1/4" Thin Washer	AN960-416L	6
12.	1/4" Tensile Nut	AN365-428A	5
13.	Nose Gear Strut	KPNG0090	1
14.	Nose Gear Collar	KPNG0087	1
15.	1/4" Close Tolerance Bolt	NAS6604-23	1
16.	Axle Spacer - Nose Wheel	KPNG0108*	1
17.	Nose Wheel 6"	KSNG0008	1
18.	5/16" Socket Head Screw	KSHW0083	2
19.	1/4" Bolt	AN4-20A	2
20.	Loc-tite Blue **	-----	0
21.	5/16" Bolt	AN5-23A	2
22.	Nose Gear Fork Assembly	KANG0023	1
23.	Nose Wheel Axle	KPNG0114	1
24.	Grease Fitting	11-151	1
25.	1/4" Plain Bolt	1/4 x 1 BOLT	2
26.	1/4" Large Washer	AN970-4	2
27.	3/16" Bolt	AN3-14A	2
28.	Fork Blade	KPNG0113	2
29.	1 1/4" Washer	AN960-2016	1
30.	Spring Washer	KSHW0084	2
31.	1 1/4" Castle Nut	MS21025-20	1
32.	Cotter Pin - Large	MS24665-360	1
33.	3/16" Thin Washer	AN960-10L	2
34.	3/16" Shear Nut	AN364-1032A	2
35.	Tundra Nose Wheel Tire ****	KSMG0024	1
36.	Tundra Nose Wheel Tube ****	KSMG0023	1
37.	Standard Nose Wheel Tire ***	KSMG0008	1
38.	Standard Nose Wheel Tube ***	KSMG0016	1

*Builder Modifies
**Builder Supplied
***Standard Option Only
****Tundra Option Only



MD5594
REV. – ORIG

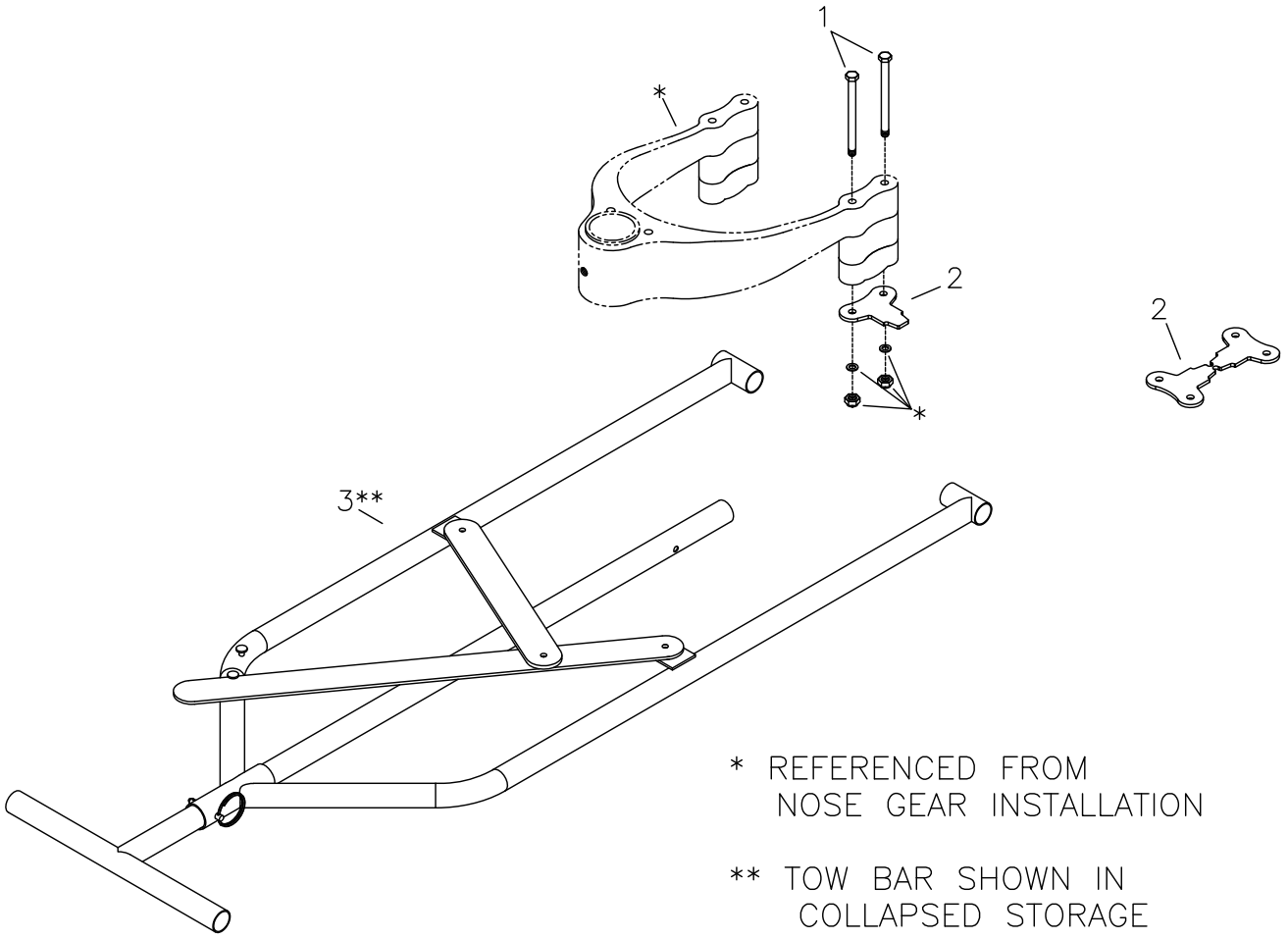
RANS S-21 OUTBOUND
TRIKE - TAIL TIE-DOWN INSTALLATION

TRIKE - TAIL TIE-DOWN INSTALLATION

TRIKE ONLY

#	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

RANS S-21 OUTBOUND
TRIKE - OPTIONS - TOW BAR INSTALLATION

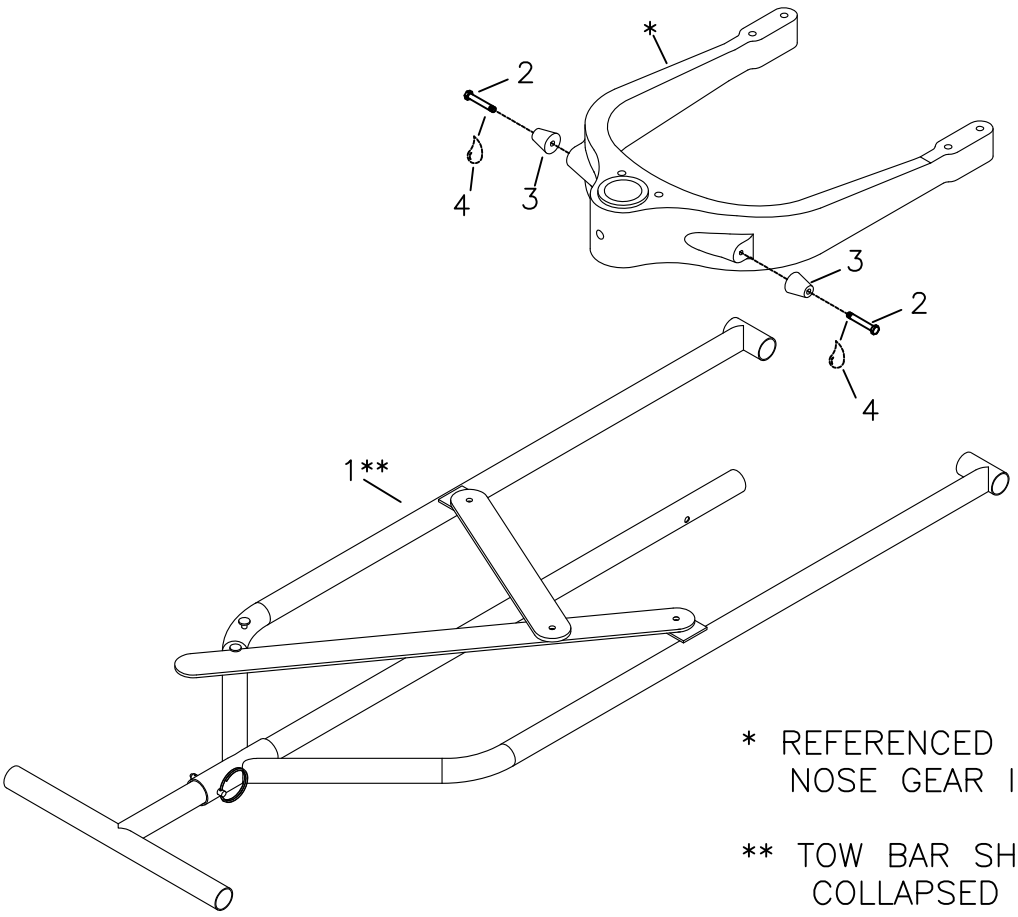
TRIKE - OPTIONS - TOW BAR INSTALLATION

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



* REFERENCED FROM
NOSE GEAR INSTALLATION

** TOW BAR SHOWN IN
COLLAPSED STORAGE
CONFIGURATION

MD5480
REV. – ORIG

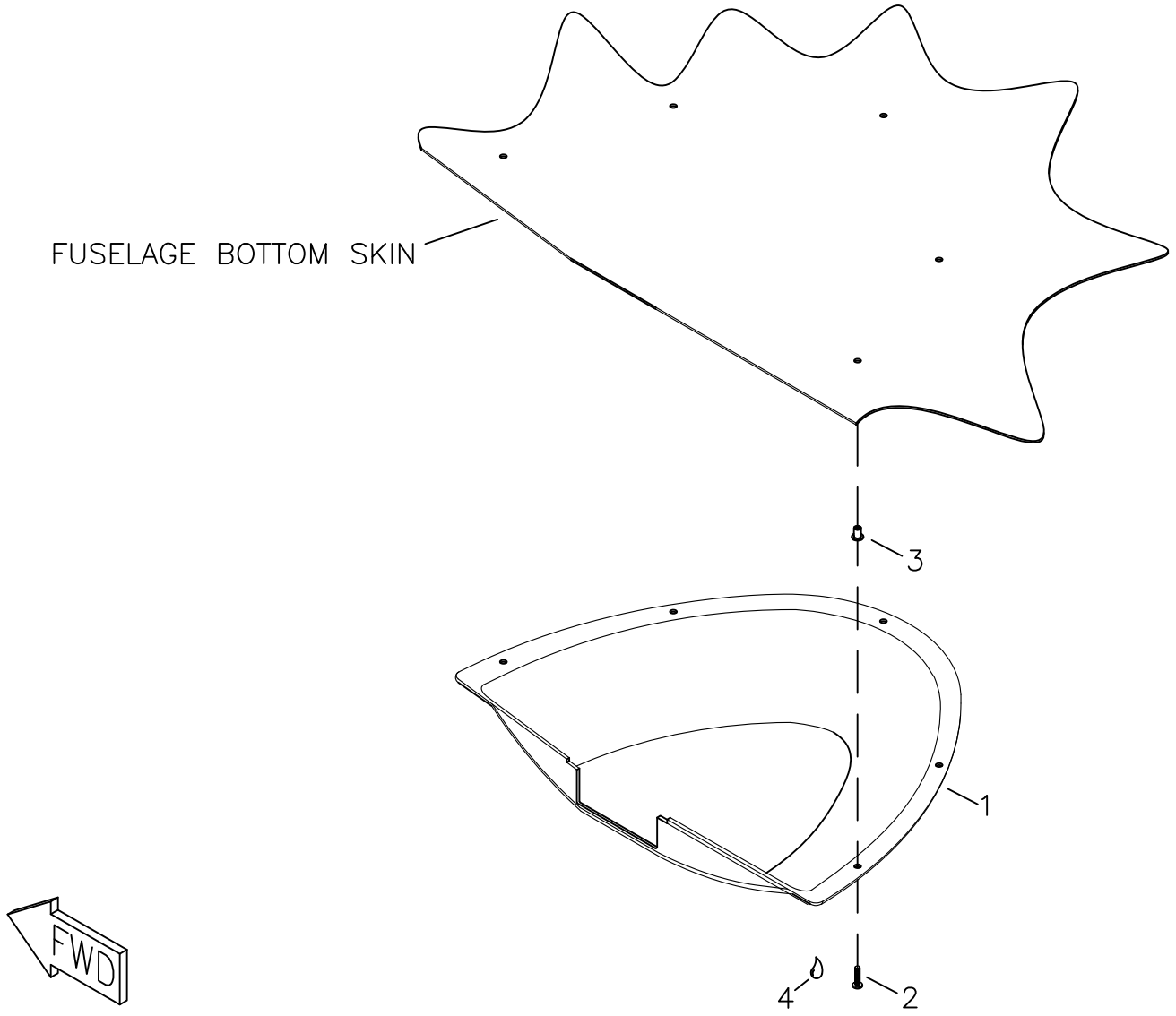
RANS S-21 OUTBOUND
TRIKE - OPTIONS - TUNDRA NOSE GEAR
TOW BAR INSTALLATION

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 seperately, call RANS Parts Dept. for pricing
** Builder Supplied



MD5581
REV. A

LEFT–HAND SHOWN

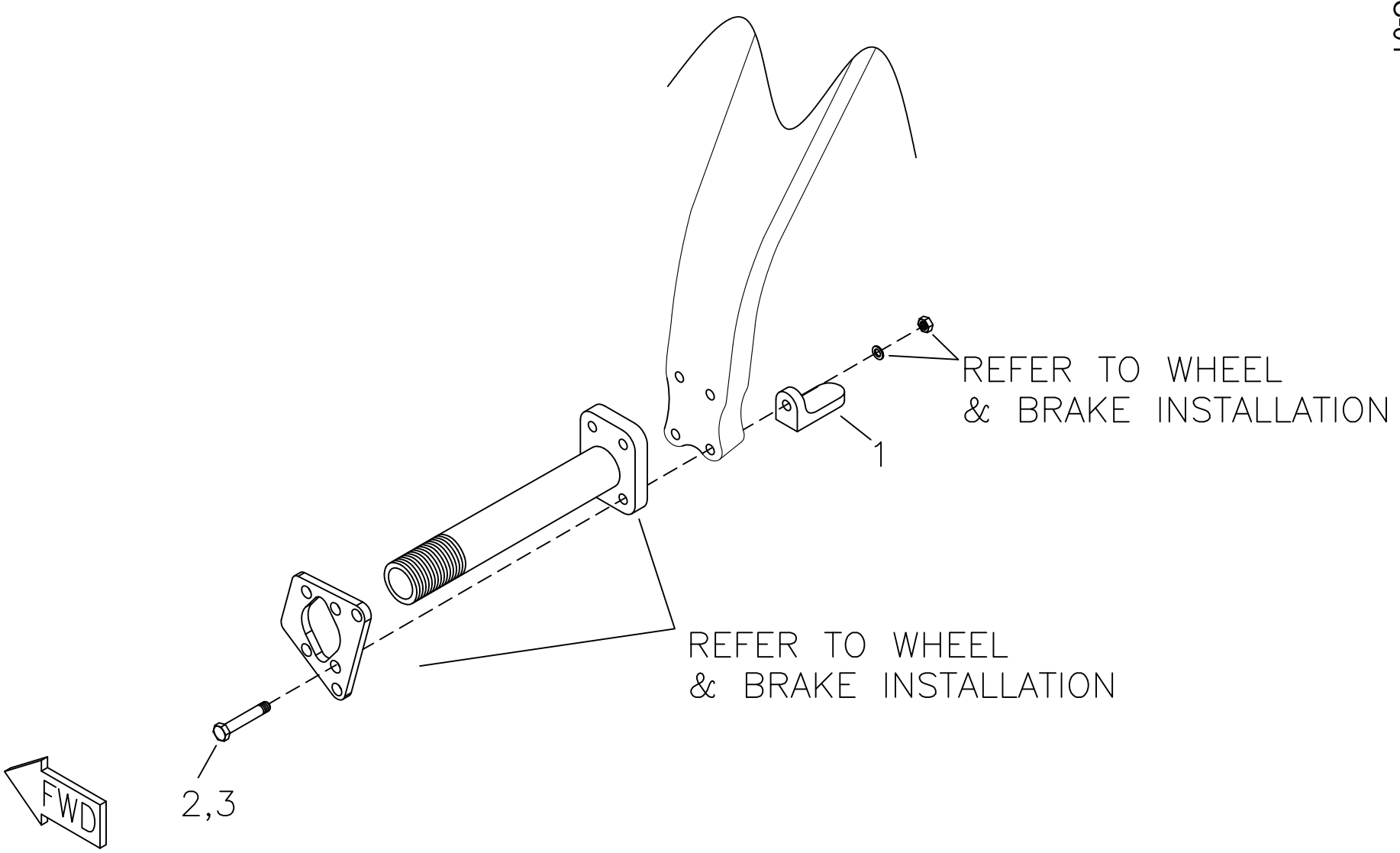
RANS S-21 OUTBOUND
BELLY FAIRINGS

RANS S-21 OUTBOUND

BELLY FAIRINGS

#	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



MD5581
REV. – ORIG

LEFT–HAND SHOWN

RANS S-21 OUTBOUND
OPTIONS - JACK LUG

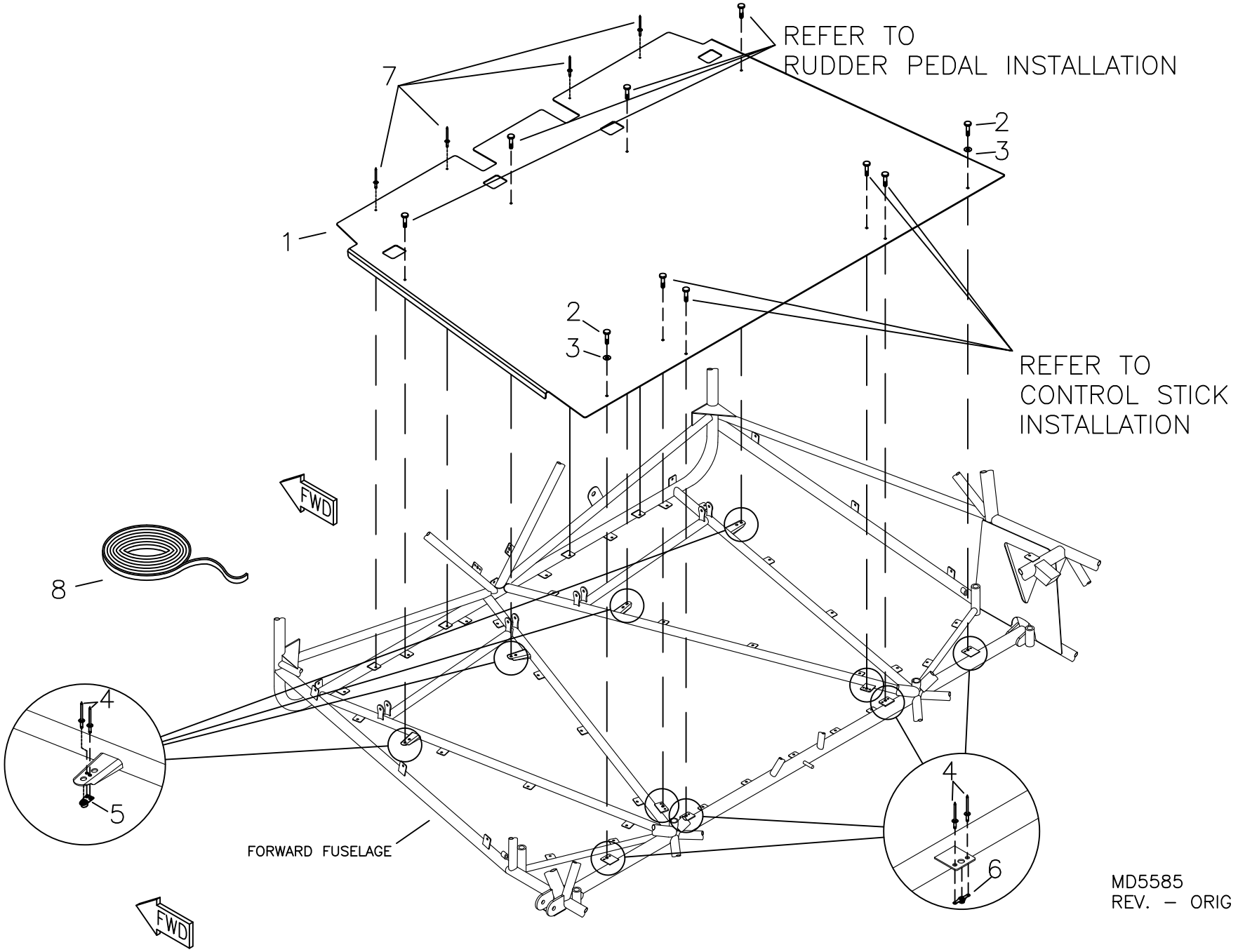
RANS S-21 OUTBOUND

OPTIONS - JACK LUG

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Jack Lug *	KPMG0240	2
2.	3/8" Bolt ** (-2 AN6-26A)	AN6-30A	2
3.	3/8" Bolt *** (-2 AN6-30A) (Dual Piston Hardware)	AN6-31A	2

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

** On Wheels other than KSBS0049 / 50, use a bolt 3 dashes longer than originally supplied

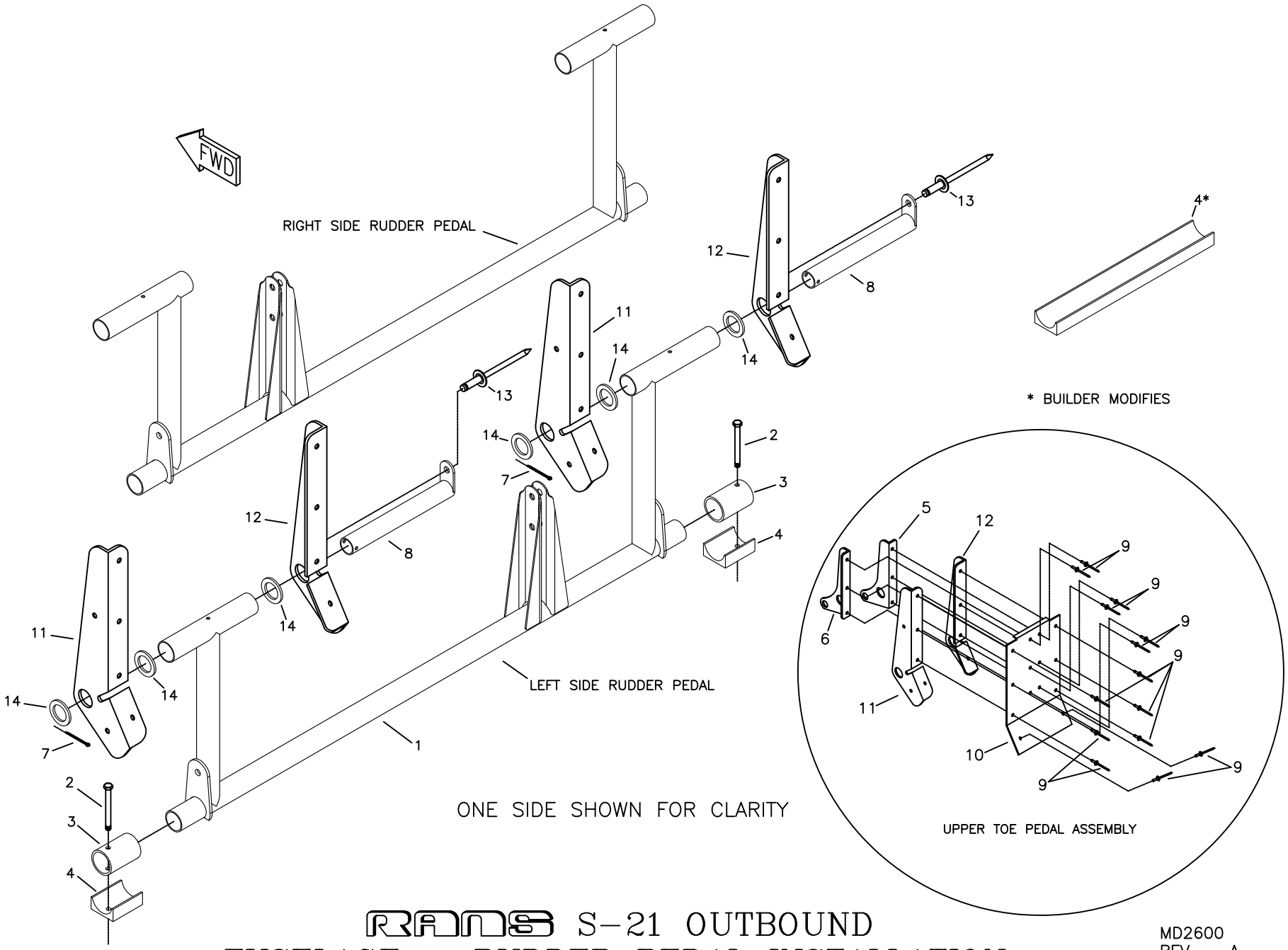


RANS S-21 OUTBOUND
FUSELAGE - FLOORBOARD INSTALLATION

FUSELAGE - FLOORBOARD INSTALLATION

#	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.	1/8" Aluminum Rivet - Avex	1691-0410	4
8.	1/2" Black Foam Tape *	-----	0

* Builder Supplied



RANS S-21 OUTBOUND
FUSELAGE – RUDDER PEDAL INSTALLATION

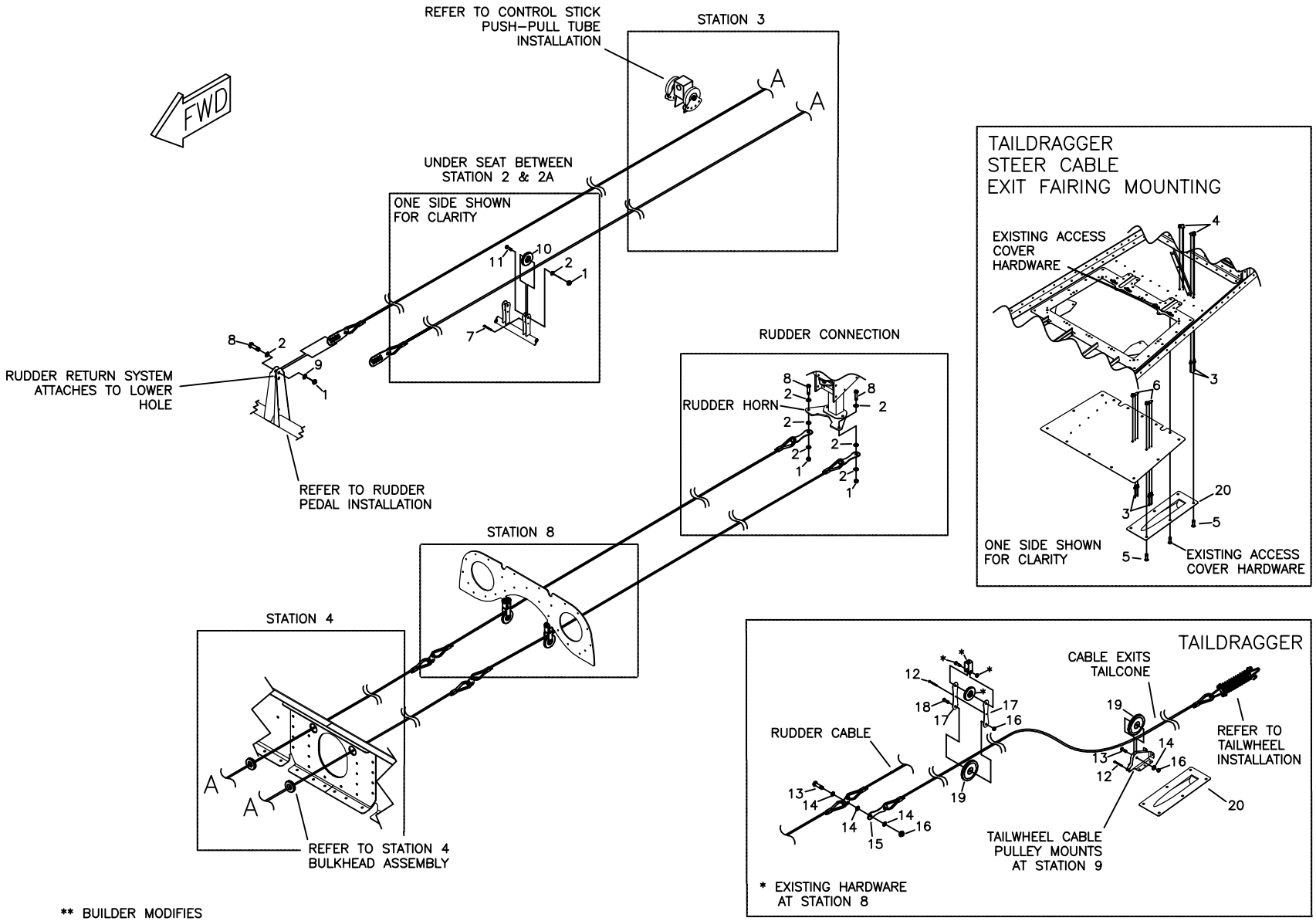
MD2600
REV. – A

RANS S-21 OUTBOUND

FUSELAGE - RUDDER PEDAL INSTALLATION

#	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



** BUILDER MODIFIES

RANS S-21 OUTBOUND
FUSELAGE - RUDDER SYSTEM INSTALLATION

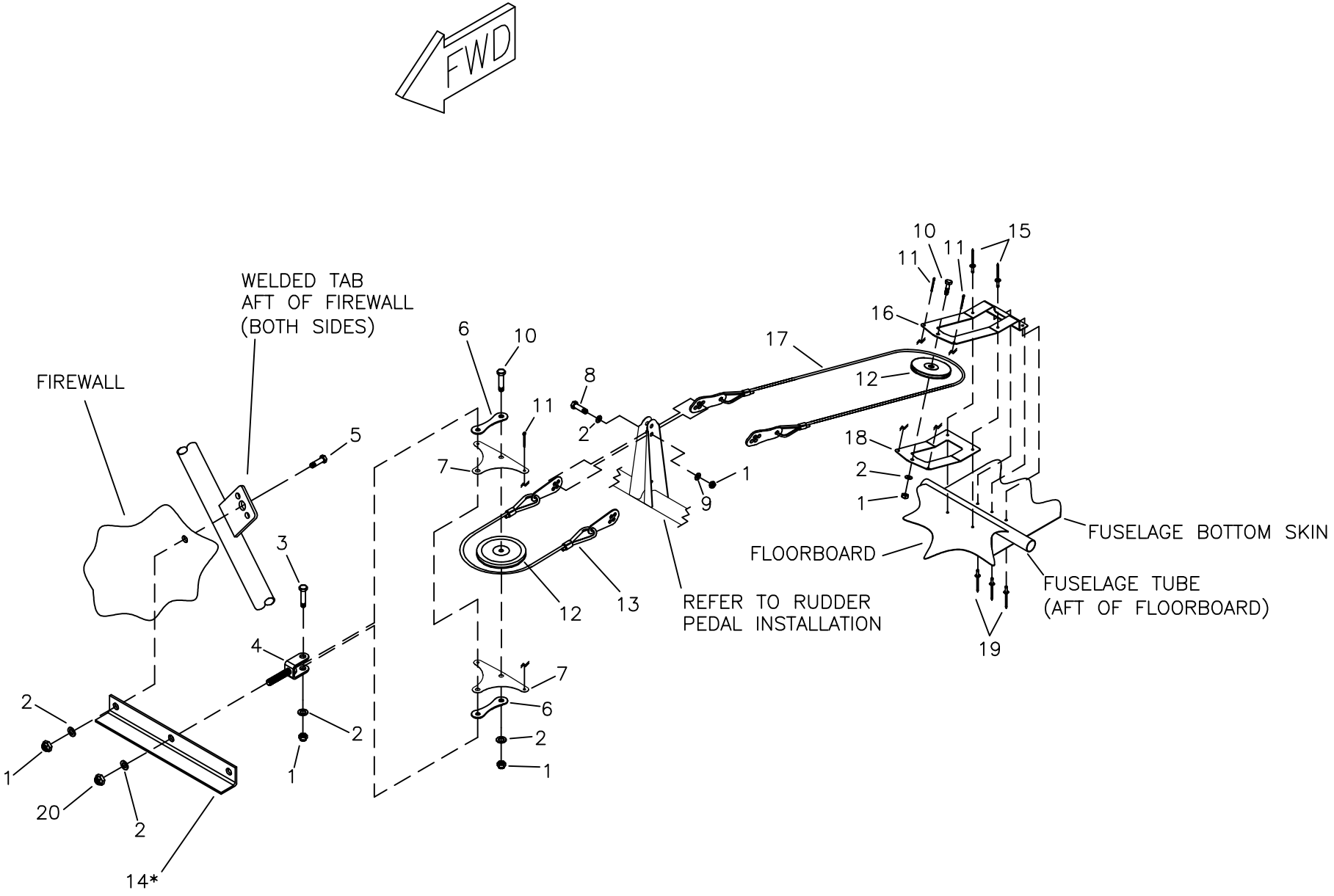
MD5591
REV. A

RANS S-21 OUTBOUND

FUSELAGE - RUDDER SYSTEM INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Shear Nut	AN364-1032A	4
2.	3/16" Thin Washer	AN960-10L	10
3.	3/32" Aluminum Rivet *	40APR1/8	16
4.	8-32 Corner Nut Plate *	K-3000-08	4
5.	8-32 Machine Screw *	AN526-832R6	8
6.	8-32 Single-Ear Nut Plate	MS21051-08	4
7.	Small Cotter Pin	MS24665-134	2
8.	3/16" Bolt	AN3-5A	4
9.	3/16" Thick Washer	AN960-10	2
10.	Small Pulley	AN210-1A	2
11.	3/16" Bolt	AN3-6A	2
12.	Small Cotter Pin *	MS24665-134	4
13.	3/16" Bolt *	AN3-5A	4
14.	3/16" Thin Washer	AN960-10L	8
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	2
19.	Pulley *	AN210-2A	4
20.	Tailwheel Steer Cable Exit Fairing *	KPFU0755	2

* Taildragger Only - Supplied with Taildragger Gear Kit
** Builder Modifies



* BUILDER MODIFIES

RANS S-21 OUTBOUND
FUSELAGE - RUDDER RETURN SYSTEM

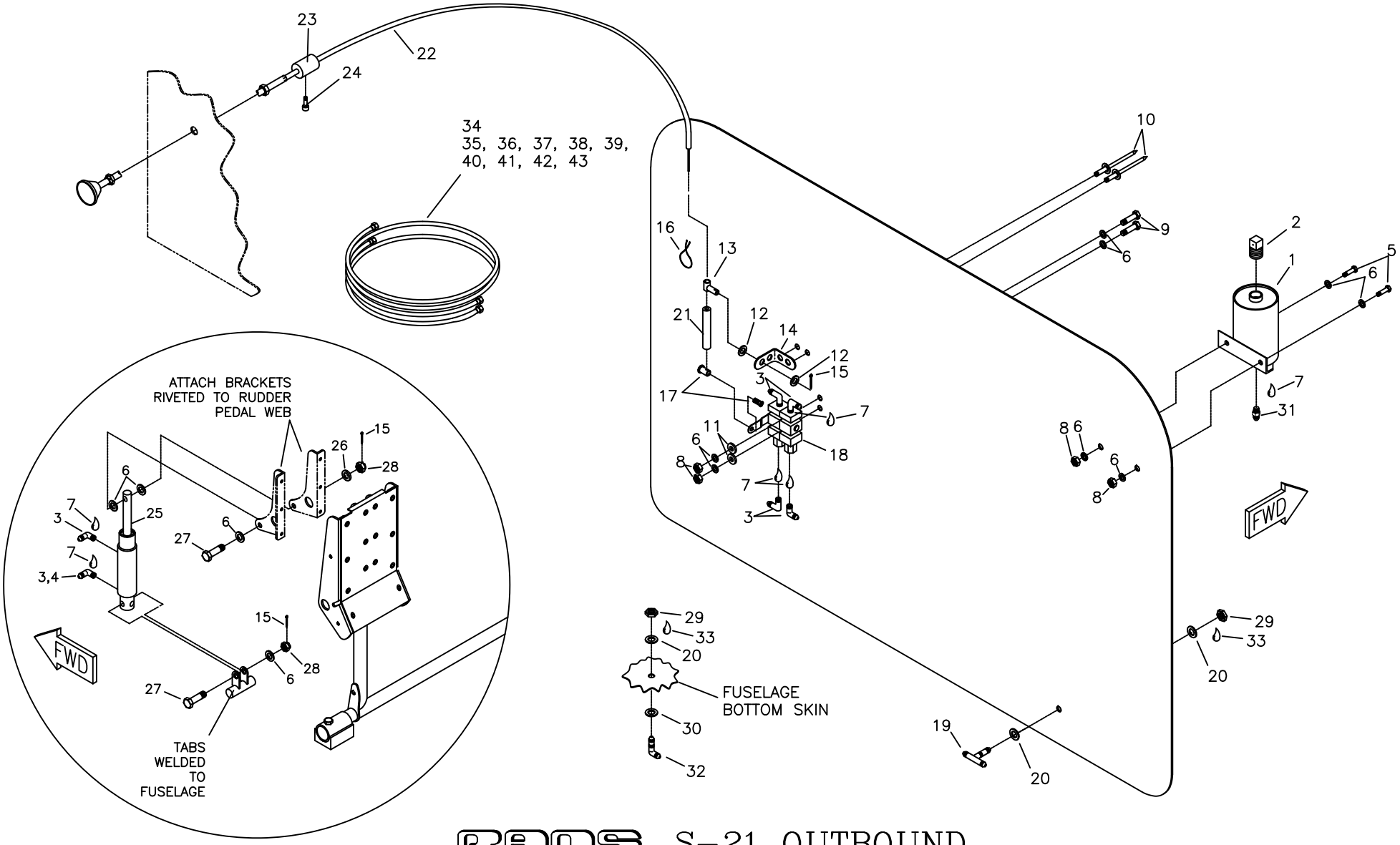
MD5591
REV. - ORIG

RANS S-21 OUTBOUND

FUSELAGE - RUDDER RETURN SYSTEM

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Shear Nut	AN364-1032A	6
2.	3/16" Thin Washer	AN960-10L	8
3.	3/16" Bolt	AN3-7A	1
4.	Rudder Return Tension Fitting	KPCS0334	1
5.	3/16" Bolt	AN3-4A	2
6.	Hummer Tang	T12-HT6	2
7.	Pulley Cable Keeper	KPCS0317	2
8.	3/16" Bolt	AN3-5A	2
9.	3/16" Thick Washer	AN960-10	2
10.	3/16" Bolt	AN3-6A	2
11.	Small Cotter Pin	MS24665-134	4
12.	Pulley	AN210-2A	2
13.	Rudder Pedal Return Cable	KACS0036	1
14.	Return Pulley Mount Angle *	KPCS0318	1
15.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-43	2
16.	AFT Rudder Return Pulley - Upper Keeper	KPCS0323	1
17.	AFT Rudder Return Cable	KACS0037	1
18.	AFT Rudder Return Pulley - Lower Keeper	KPCS0324	1
19.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-42	3
20.	3/16" Tensile Nut	AN365-1032A	1

* Builder Modifies



RANS S-21 OUTBOUND
FUSELAGE – HYDRAULIC BRAKE INSTALLATION

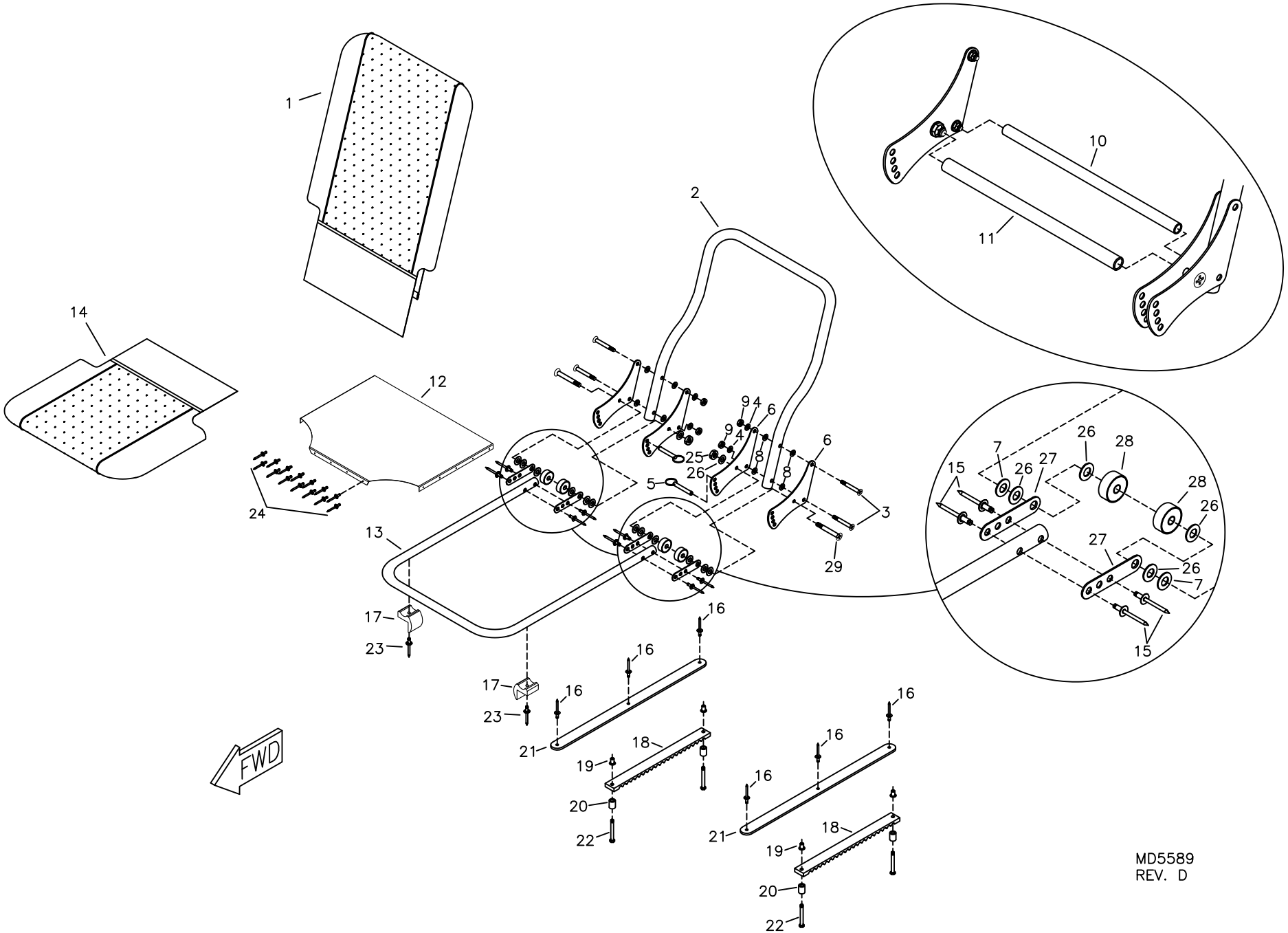
MD2600
REV. A

RANS S-21 OUTBOUND

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	4
21.	Clear Fuel Line - 1/4"	KSFS0008	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 - 30" - Bulkhead to Wheel Brakes ****	KSBS0038-7	0
40.	Braided Line - 87" - Park Valve to RH Bulkhead - TR *****	KSBS0051	1
41.	Braided Line - 69" - Park Valve to LH Bulkhead - TR *****	KSBS0052	1
42.	Braided Line - 43" - Park Valve to RH Bulkhead - TD *****	KSBS0053	1
43.	Braided Line - 63" - Park Valve to LH Bulkhead - TD *****	KSBS0054	1

* Supplied with Brake Reservoir.
** Builder supplied *** Supplied with Parking Brake
**** Supplied with KSBS0038
***** Supplied with Gearleg



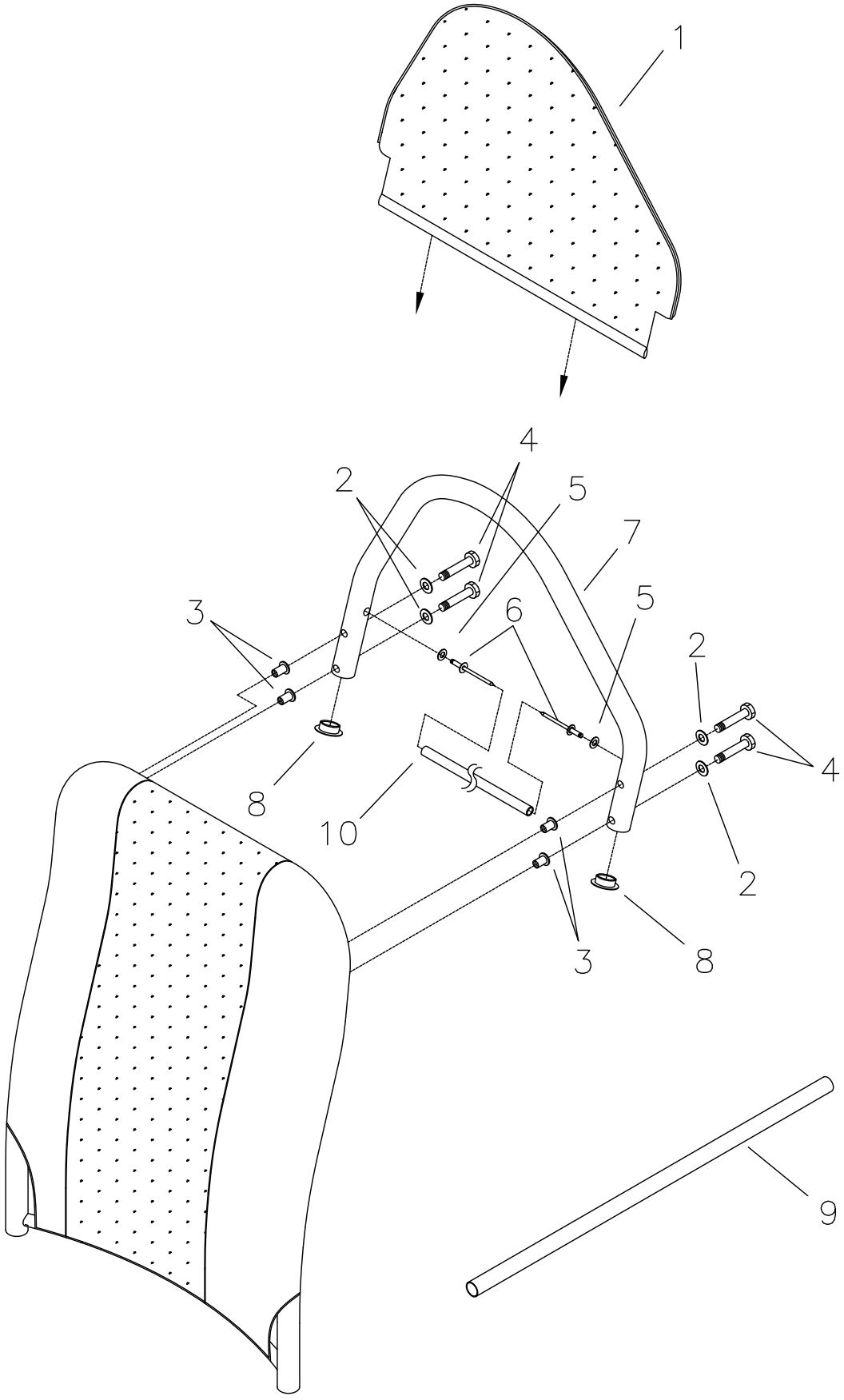
RANS S-21 OUTBOUND
FUSELAGE - SLIDING SEAT ASSEMBLY

RANS S-21 OUTBOUND

FUSELAGE - SLIDING SEAT ASSEMBLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Seat Back Cushion	KAST0035	2
2.	Seat Back Frame	ST-SBF	2
3.	3/16" Countersunk Machine Screw (100 degree)	MS24694-S67	8
4.	3/16" Thin Washer	AN960-10L	8
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	8
10.	Seat Back Tube	KPST0136	2
11.	Seat Bottom Tube	KPST0135	2
12.	Seat Bottom Pan	KPST0131	2
13.	Sliding Seat Bottom Frame	KPST0127	2
14.	Seat Bottom Cushion	KAST0036	2
15.	3/16" Stainless Steel Rivet - Cherry Q	CCPQ-62	16
16.	1/8" Stainless Steel Rivet - Flush (120 degree)	CCC-42	12
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.	1/8" Aluminum Rivet - Avex	1691-0410	28
25.	1/4" Shear Nut	AN364-428A	4
26.	1/4" Thin Washer	AN960-416L	20
27.	Multi-Hole Tang	ST-16-FLAT	8
28.	Bearing	SR4APP	8
29.	1/4" Countersunk Machine Screw (100 degree)	MS24694-S111	4

* Fabricate from Raw Stock
** Builder determines length



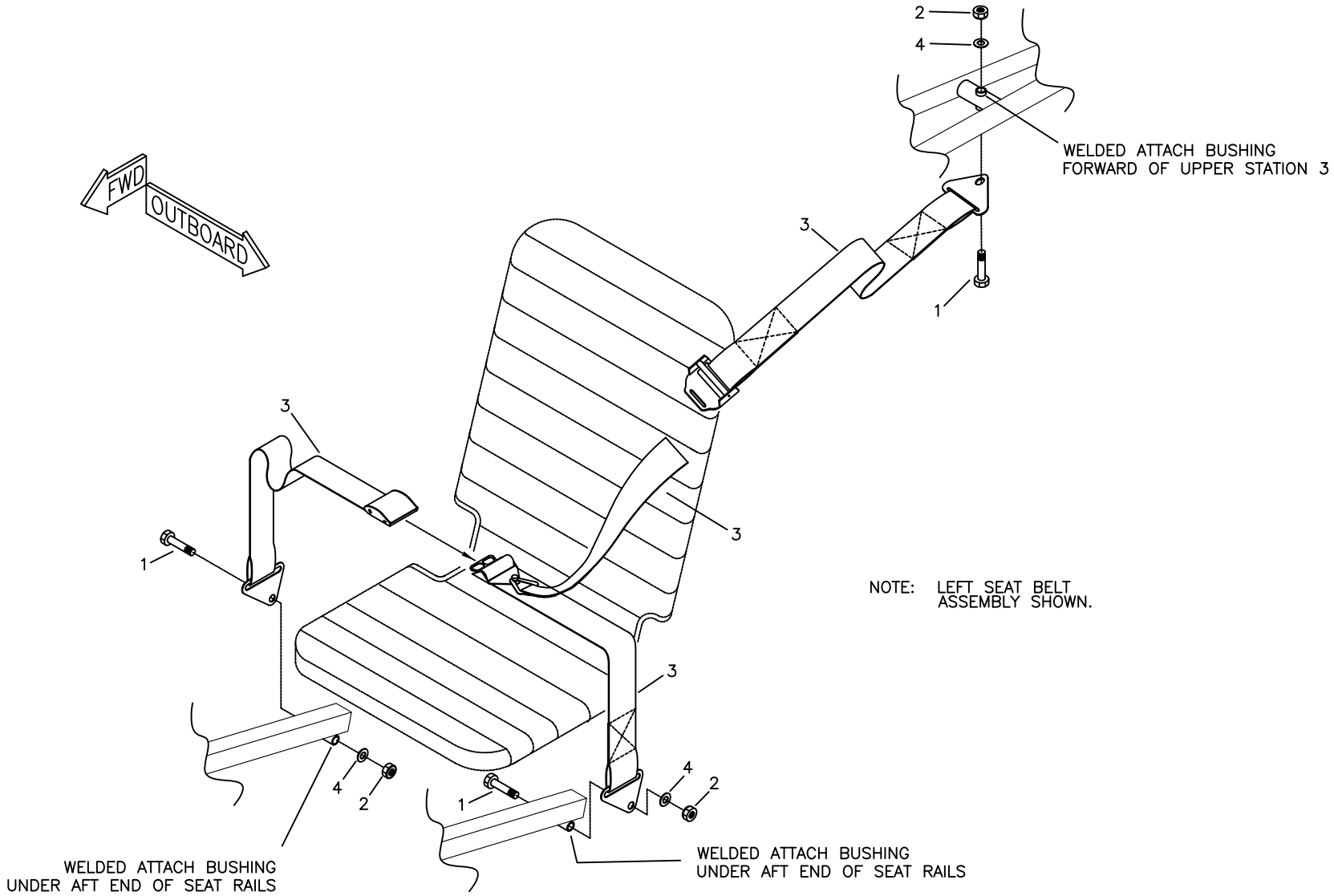
MD5108

RANS S-21 OUTBOUND
FUSELAGE - OPTIONS - HEADREST ASSEMBLY

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

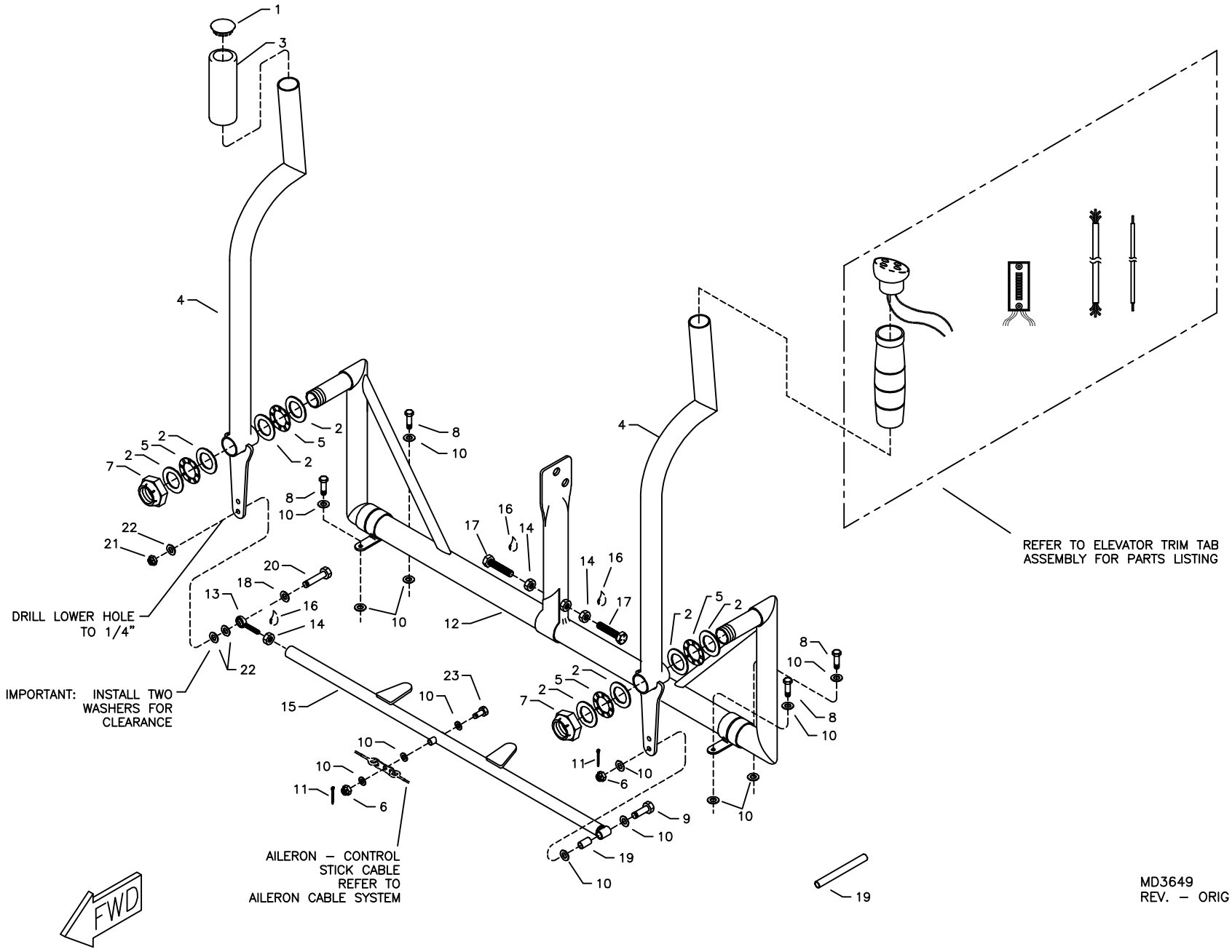


MD5590
REV. – ORIG

RANS S-21 OUTBOUND
FUSELAGE – SEAT BELT INSTALLATION

FUSELAGE - SEAT BELT INSTALLATION

#	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



RANS S-21 OUTBOUND

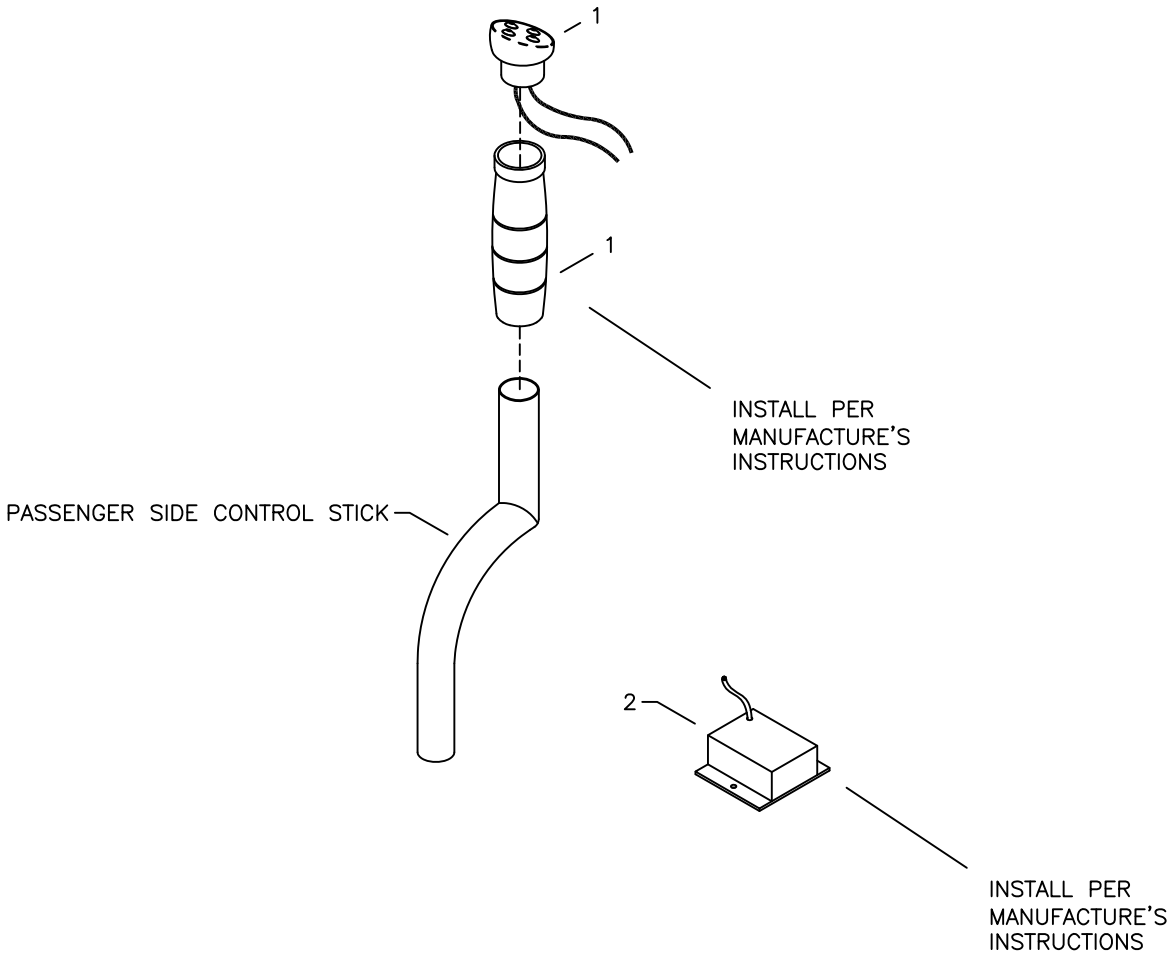
FUSELAGE - CONTROL STICK INSTALLATION

RANS S-21 OUTBOUND

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	AN3-11	1
10.	3/16" Thin Washer	AN960-10L	14
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	KSHW0119	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



MD3649
REV. – ORIG

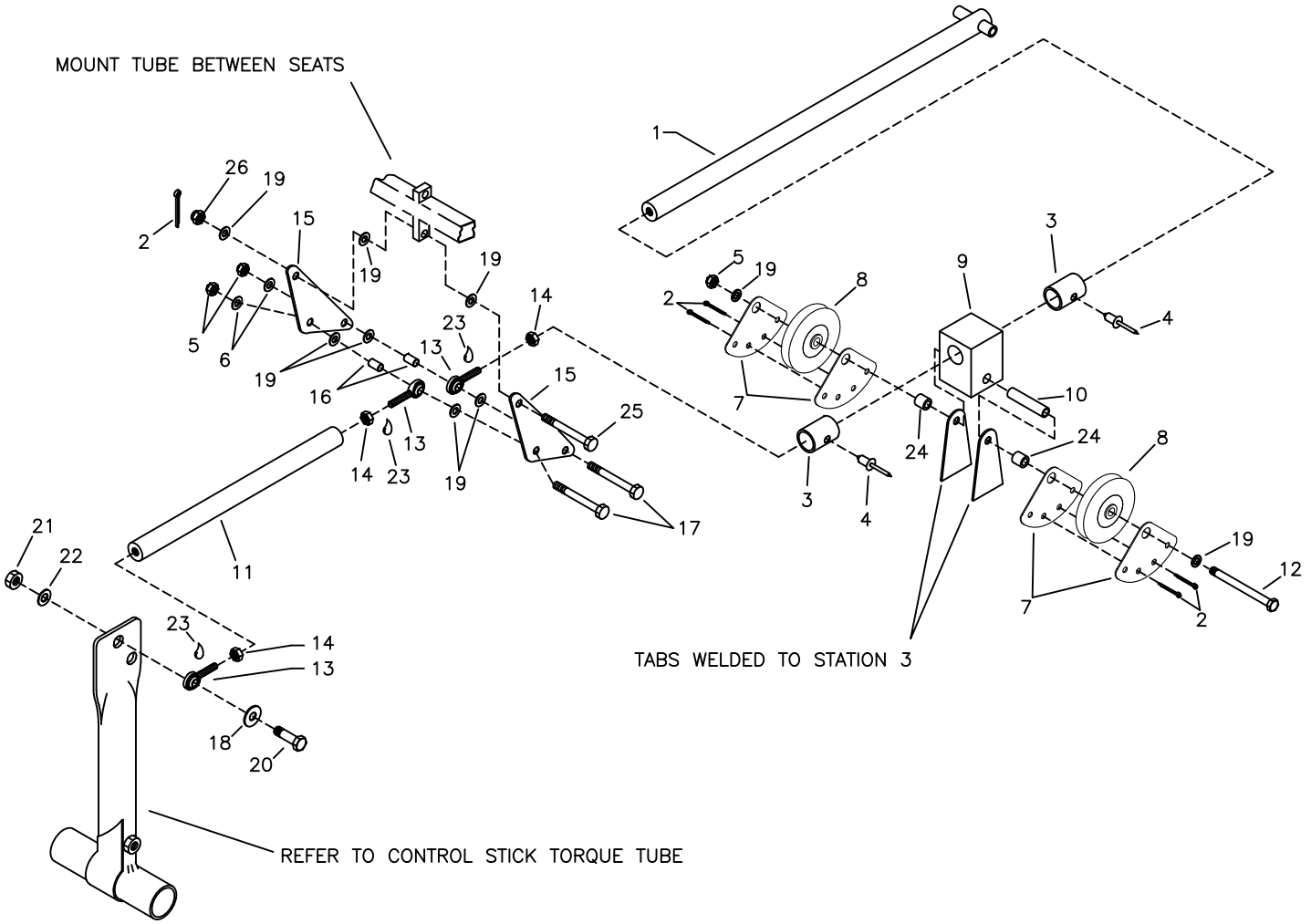
RANS S-21 OUTBOUND

FUSELAGE - OPTION - PASSENGER SEAT ELECTRIC ELEVATOR TRIM

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



MD3649
REV. – ORIG

RANS S-21 OUTBOUND

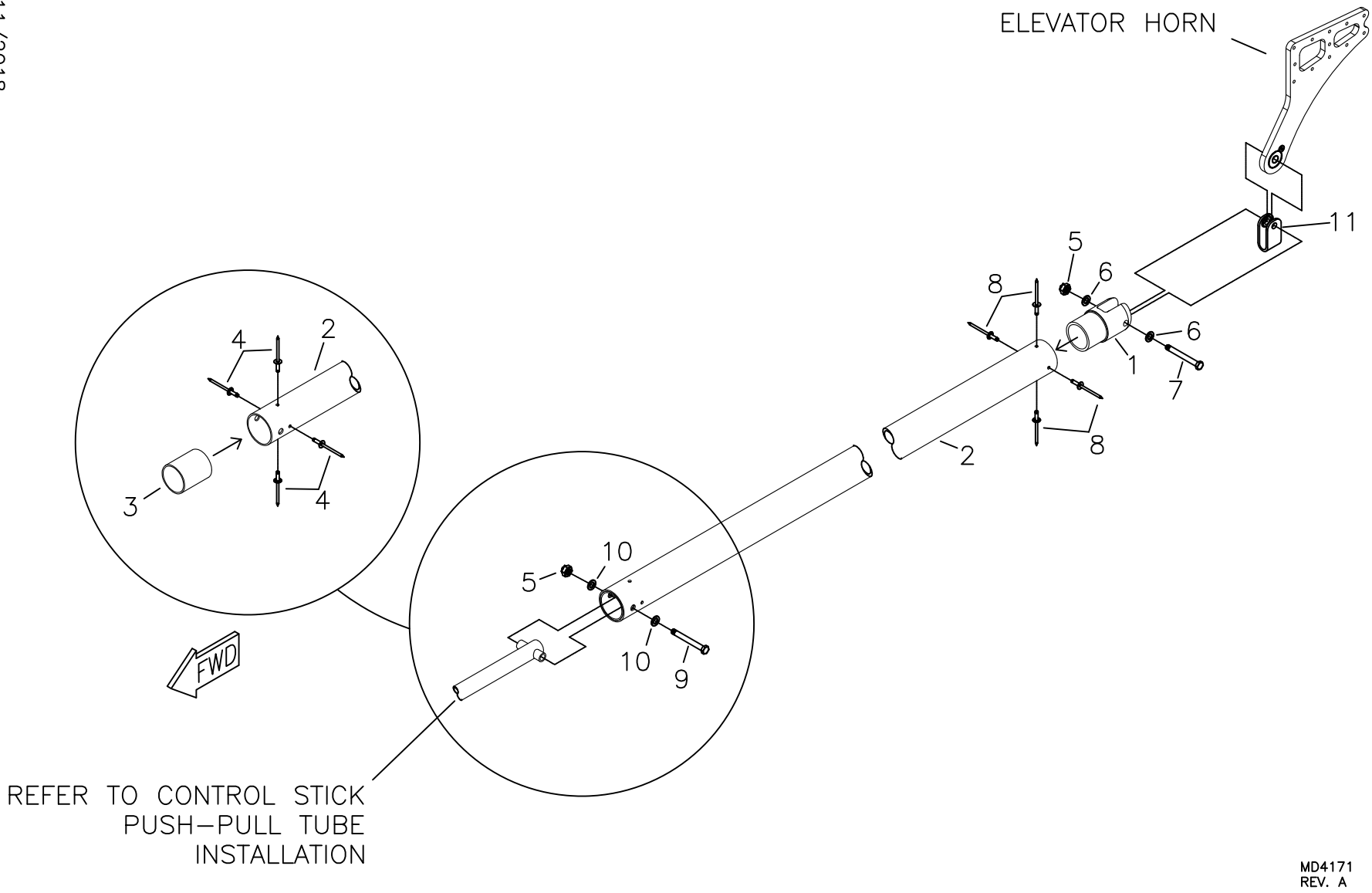
FUSELAGE - CONTROL STICK PUSH-PULL TUBE INSTALLATION

RANS S-21 OUTBOUND

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

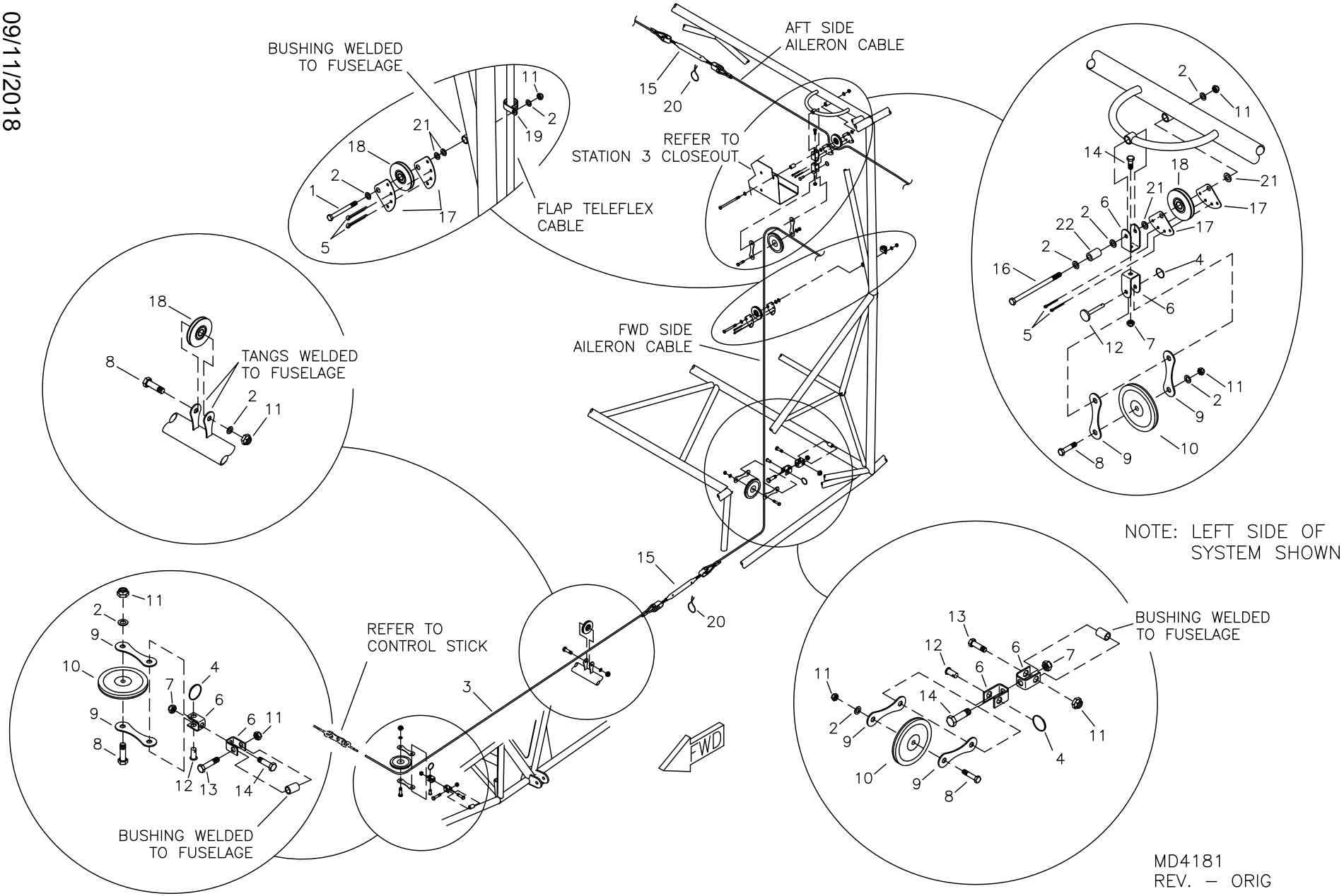
* Fabricate from Raw Stock
** Builder Modifies
*** Builder Supplied



RANS 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	1
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.	Elevator Bushing Clip	KPEL0052	1



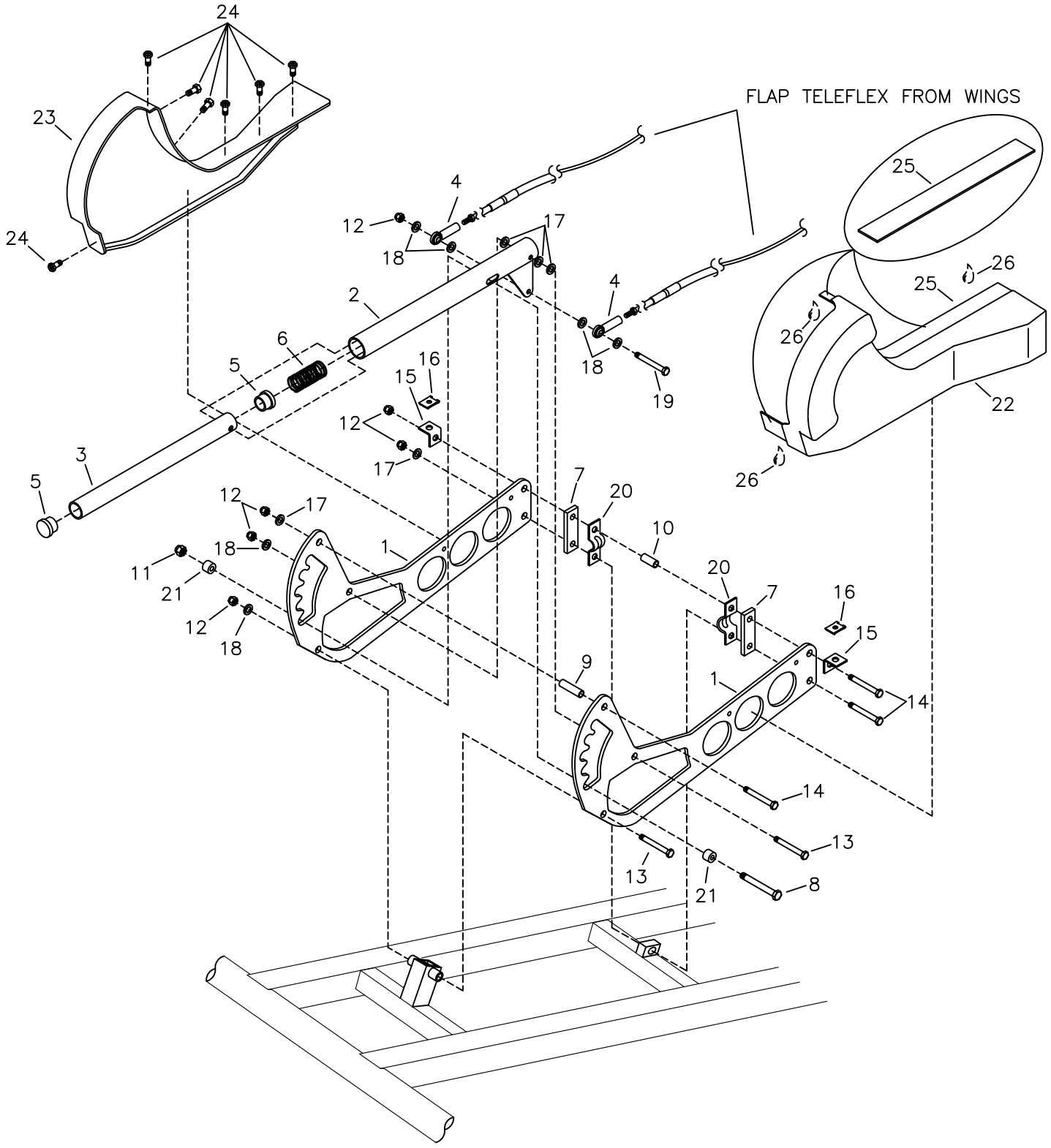
RANS S-21 OUTBOUND
FUSELAGE - AILERON CABLE SYSTEM INSTALLATION

RANS S-21 OUTBOUND

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



RANS S-21 OUTBOUND
FUSELAGE – FLAP LEVER ASSEMBLY

RANS S-21 OUTBOUND

FUSELAGE - FLAP LEVER INSTALLATION

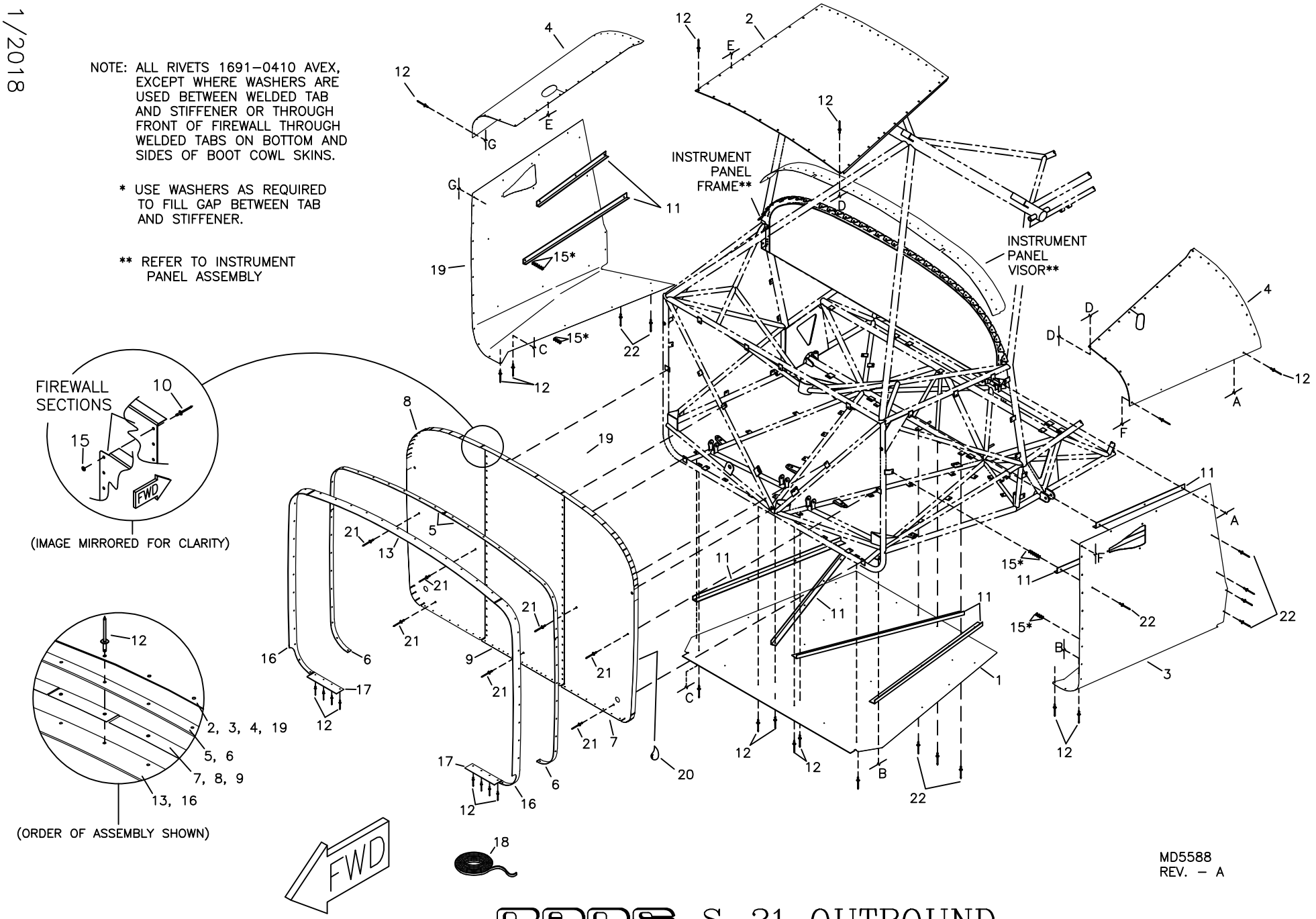
#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Flap Lever Side Plate	KPFL0159	2
2.	Flap Handle	KPFL0044	1
3.	Flap Trip Release Tube	KPFL0045	1
4.	Female Rod End	NF-3	2
5.	Endcap	3/4 ENDCAP	2
6.	Spring	C-21	1
7.	Plastic Shim	KPAC0121	2
8.	1/4" Bolt	AN4-20A	1
9.	Spacer Bushing, 1/4" x .028" x 1.00" *	KAAC0044-2	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

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

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

** REFER TO INSTRUMENT PANEL ASSEMBLY



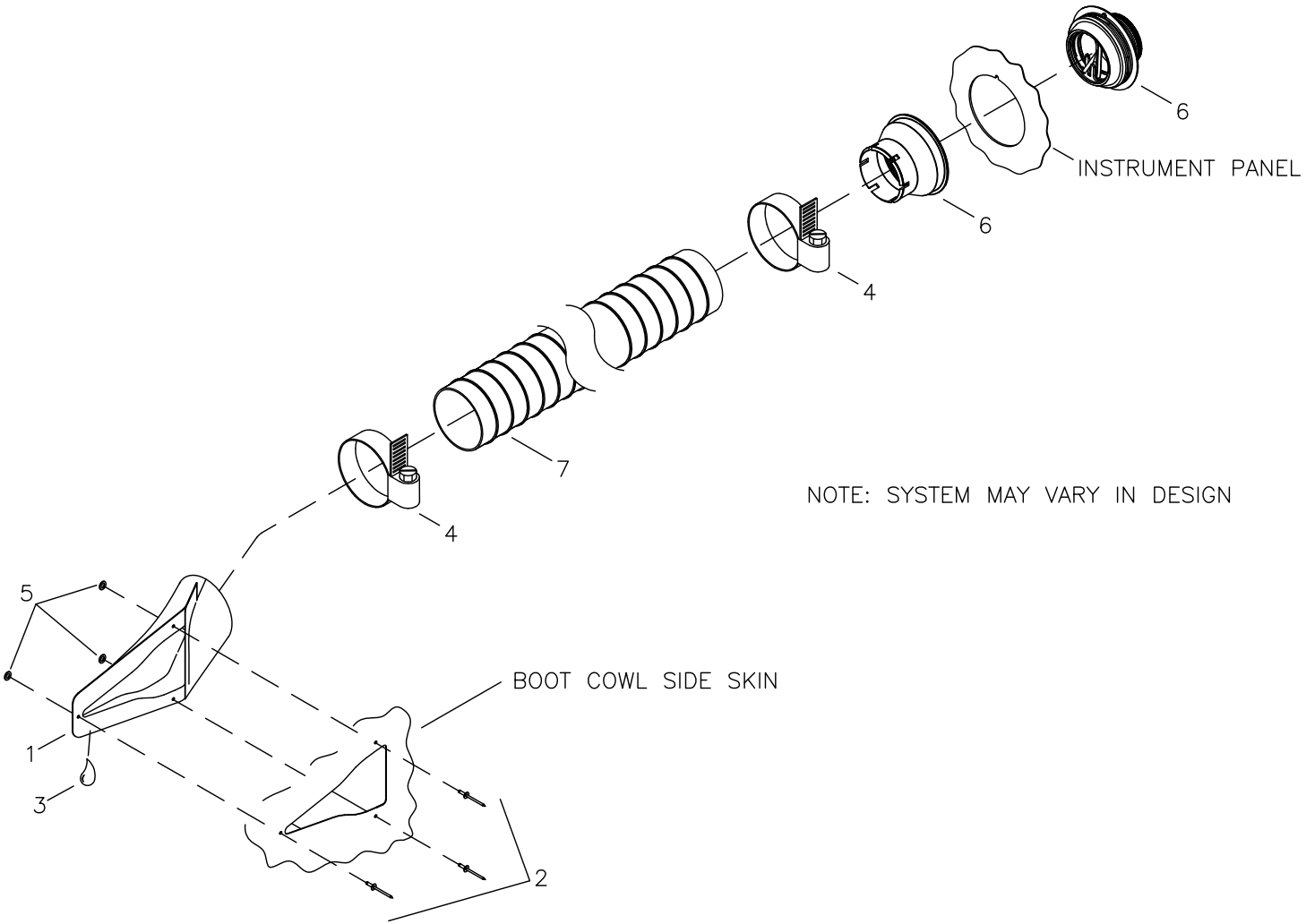
RANS S-21 OUTBOUND
FUSELAGE - BOOT COWL ASSEMBLY

RANS S-21 OUTBOUND

FUSELAGE - BOOT COWL ASSEMBLY

#	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 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	173
13.	Cowling Attach Strap - Top	KPFU0694	1
14.	-----	-----	-----
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	50

* Builder Modifies
** Builder Supplied



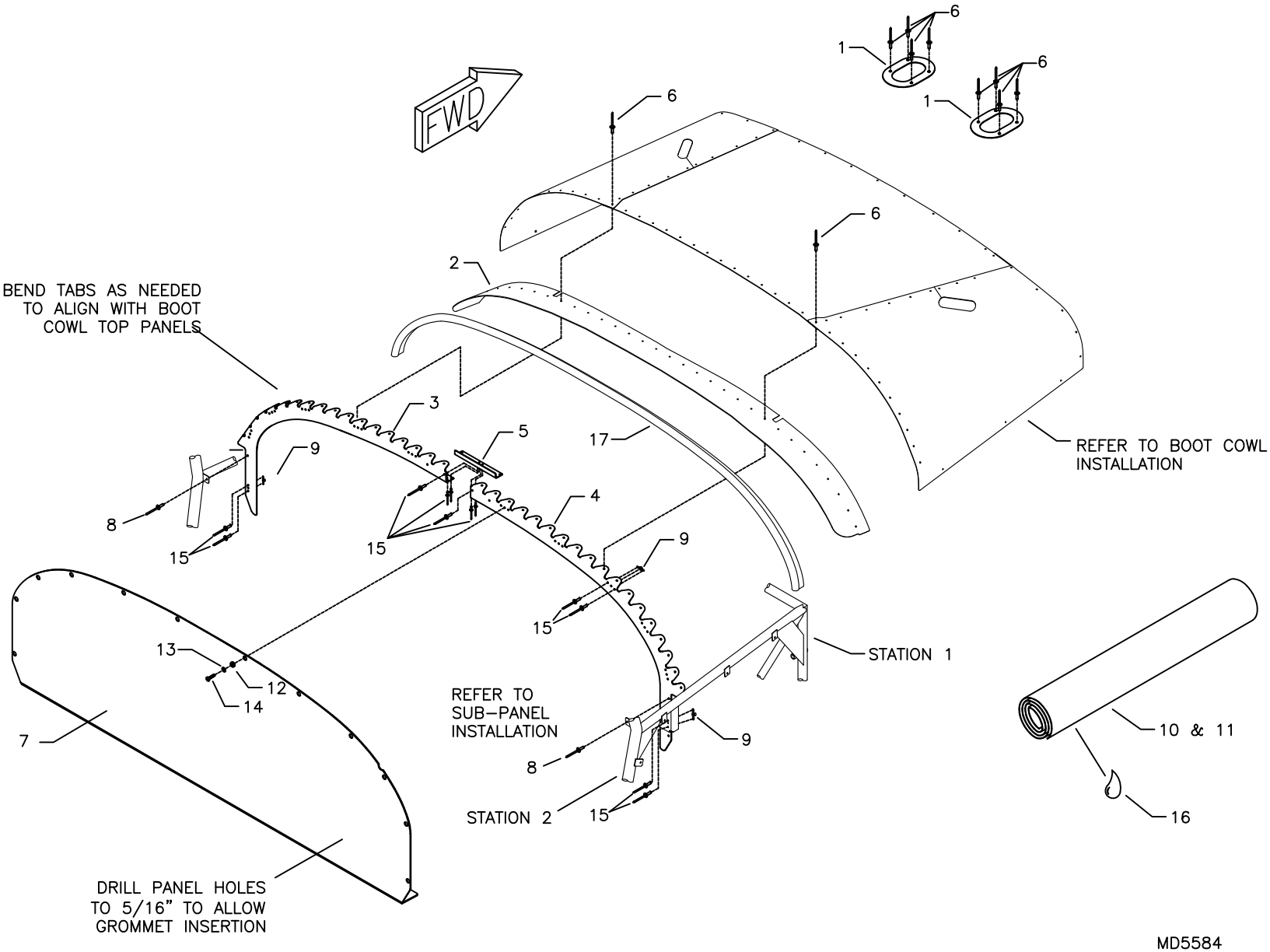
RANS S-21 OUTBOUND
VENT SYSTEM INSTALLATION

MD5062
REV. – A

FUSELAGE - VENT SYSTEM INSTALLATION

#	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



RANS S-21 OUTBOUND
INSTRUMENT PANEL INSTALLATION

RANS S-21 OUTBOUND

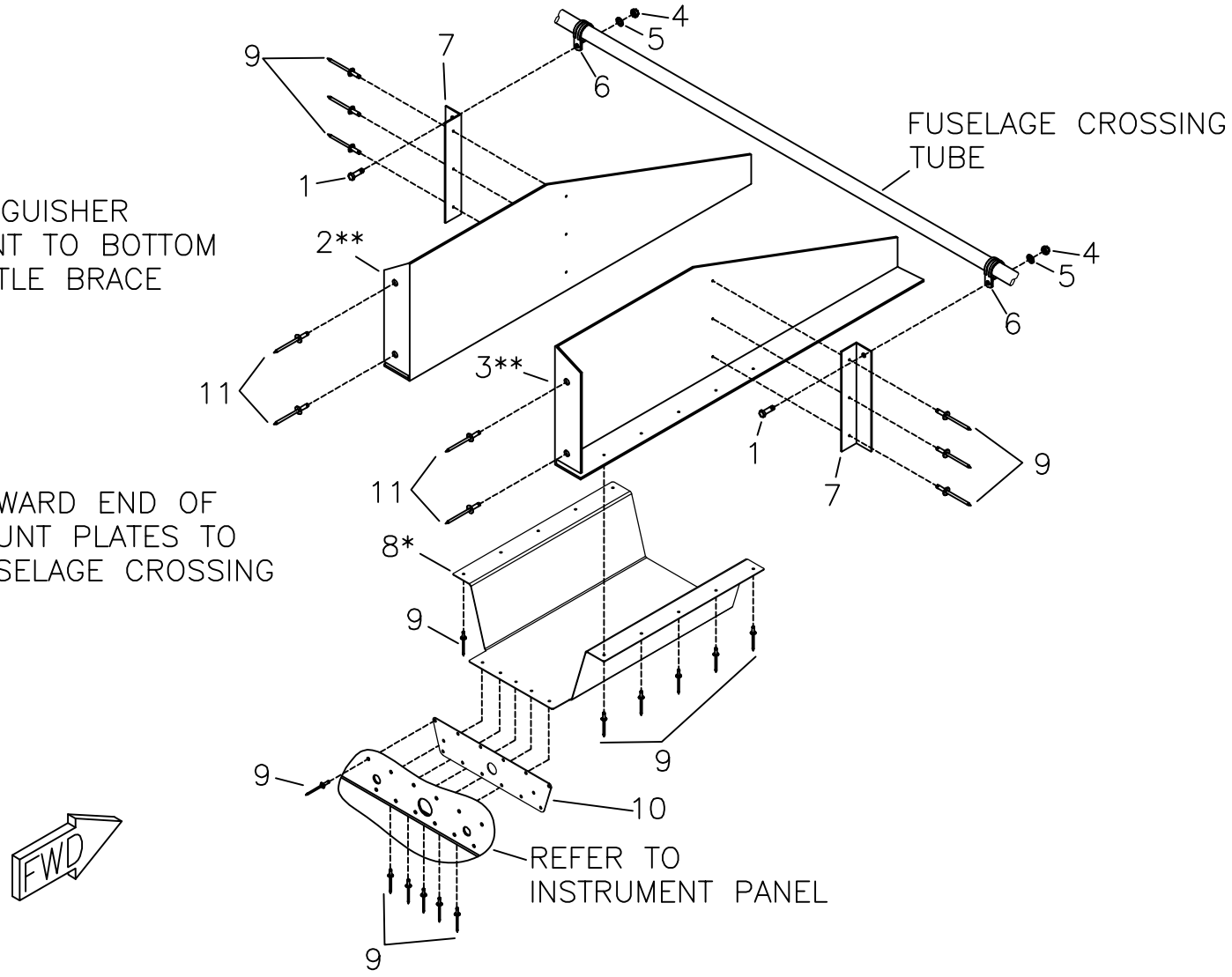
FUSELAGE - INSTRUMENT PANEL INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Oval Glare Shield Ring	KPIP0147	2
2.	Instrument Panel Visor	KPIP0143	1
3.	Instrument Panel Frame - LH	KPIP0157-L	1
4.	Instrument Panel Frame - RH	KPIP0157-R	1
5.	Instrument Panel Frame Doubler	KPIP0158	1
6.	1/8" Aluminum Rivet - Avex	1691-0410	38
7.	Instrument Panel - Blank	KPIP0156	1
8.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-42	2
9.	8-32 Nut Plate	MS21047-08	12
10.	Dash Cover Fabric - Optional *	KPIN0127	0
11.	Dash Foam - Optional *	KPIN0128	0
12.	3/16" Rubber Grommet	KSAC0002	12
13.	#8 Washer	AN960-8	12
14.	#8 Pan Head Machine Screw	MS27039-0809	12
15.	3/32" Aluminum Rivet	40APR1/8	36
16.	Contact Spray Adhesive - 3m Super 77 Spray **	-----	0
17.	Trimlock Cusion Lip	4100C-1/16	5ft

* May be purchased seperately, 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



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

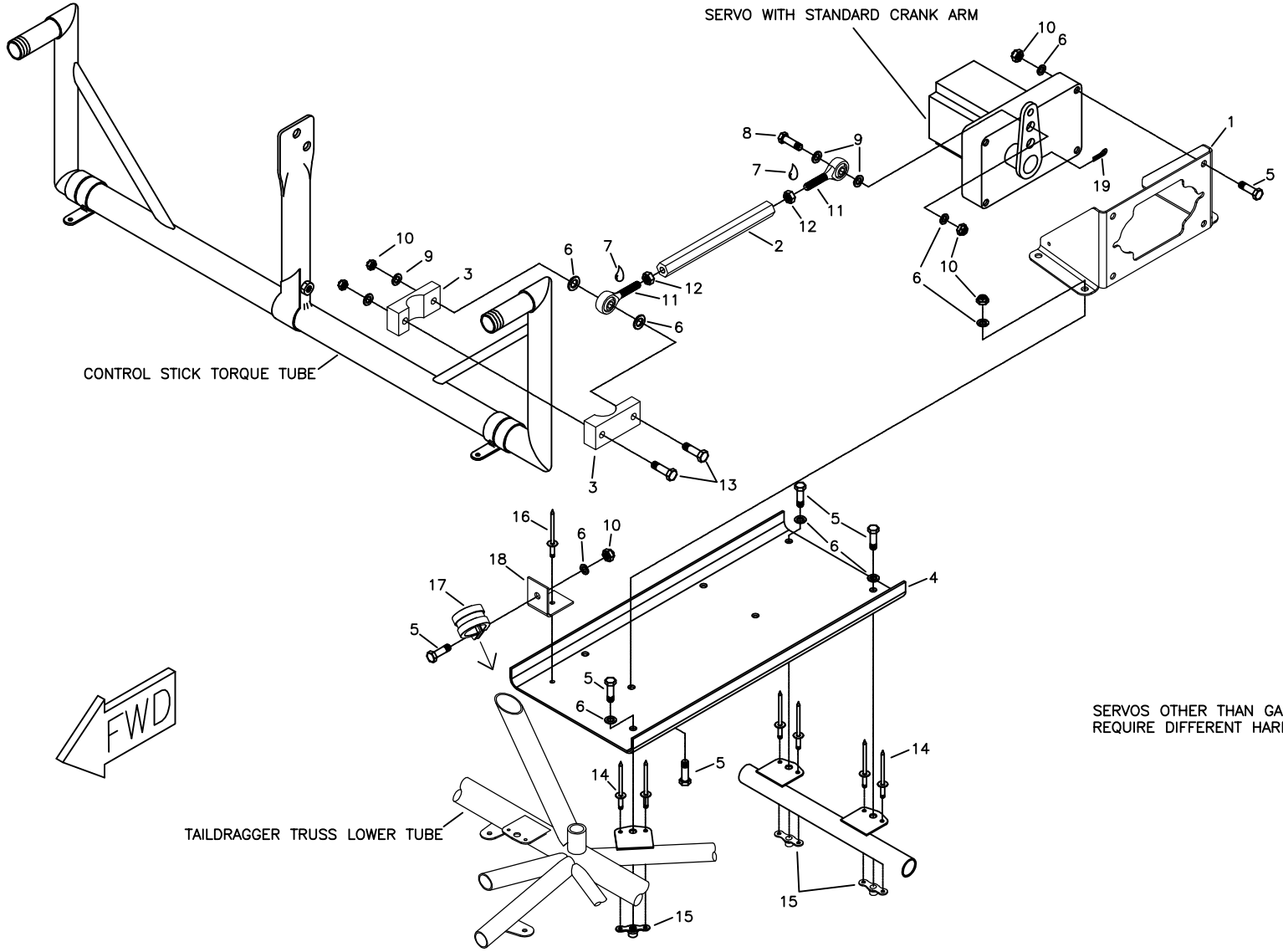
MD5584
REV. - A

RANS S-21 OUTBOUND

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.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-42	4

* Fabricate from Raw Stock



MD3649
REV. A

RANS S-21 OUTBOUND

FUSELAGE - OPTIONS - PITCH SERVO INSTALLATION

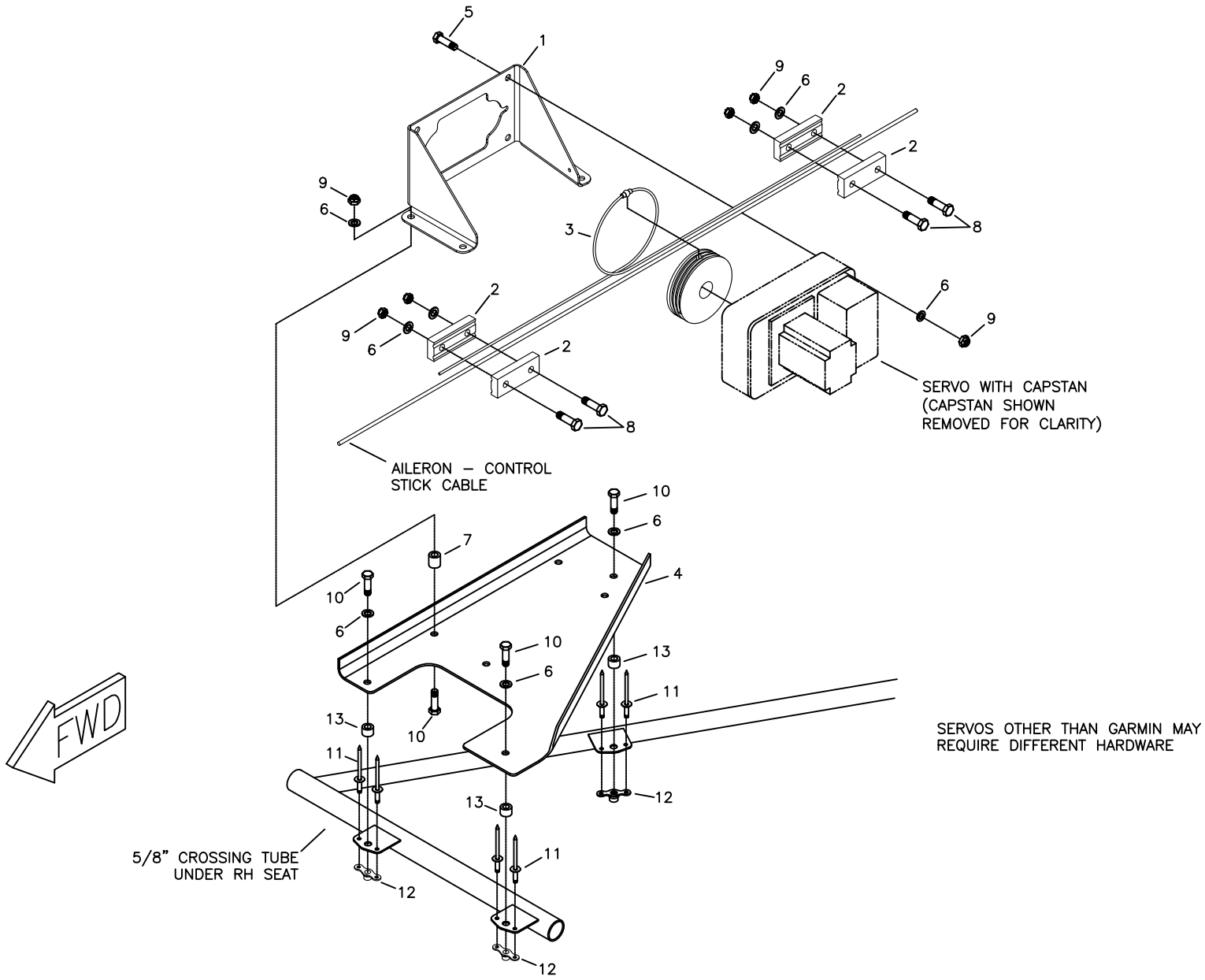
RANS S-21 OUTBOUND

FUSELAGE - OPTIONS - PITCH SERVO INSTALLATION

KAFU0064

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Autopilot Servo Mount	KPFU0655	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	12
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	12
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.	3/32" Aluminum Rivet	40APR1/8	6
15.	3/16" Nut Plate	K-1000-3	3
16.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-42	1
17.	5/8" Cushion Clamp	MS21919-DG10	1
18.	Support Angle - Baggage Compartment ** ***	KPIN0096	0
19.	Small Cotter Pin	MS24665-134	1

* Supplied with Fuel Servo
** Builder Supplied
*** Use Drop-off from KPIN0096



MD3649
REV. B

RANS S-21 OUTBOUND

FUSELAGE - OPTIONS - ROLL SERVO INSTALLATION

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	7
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	12
10.	3/16" Bolt	AN3-6A	7
11.	3/32" Aluminum Rivet	40APR1/8	6
12.	3/16" Nut Plate	K-1000-3	3
13.	Aluminum Bushing - 3/8" x .095" x 5/16" *	KPST0132	0

* Builder Modifies

09/11/2018

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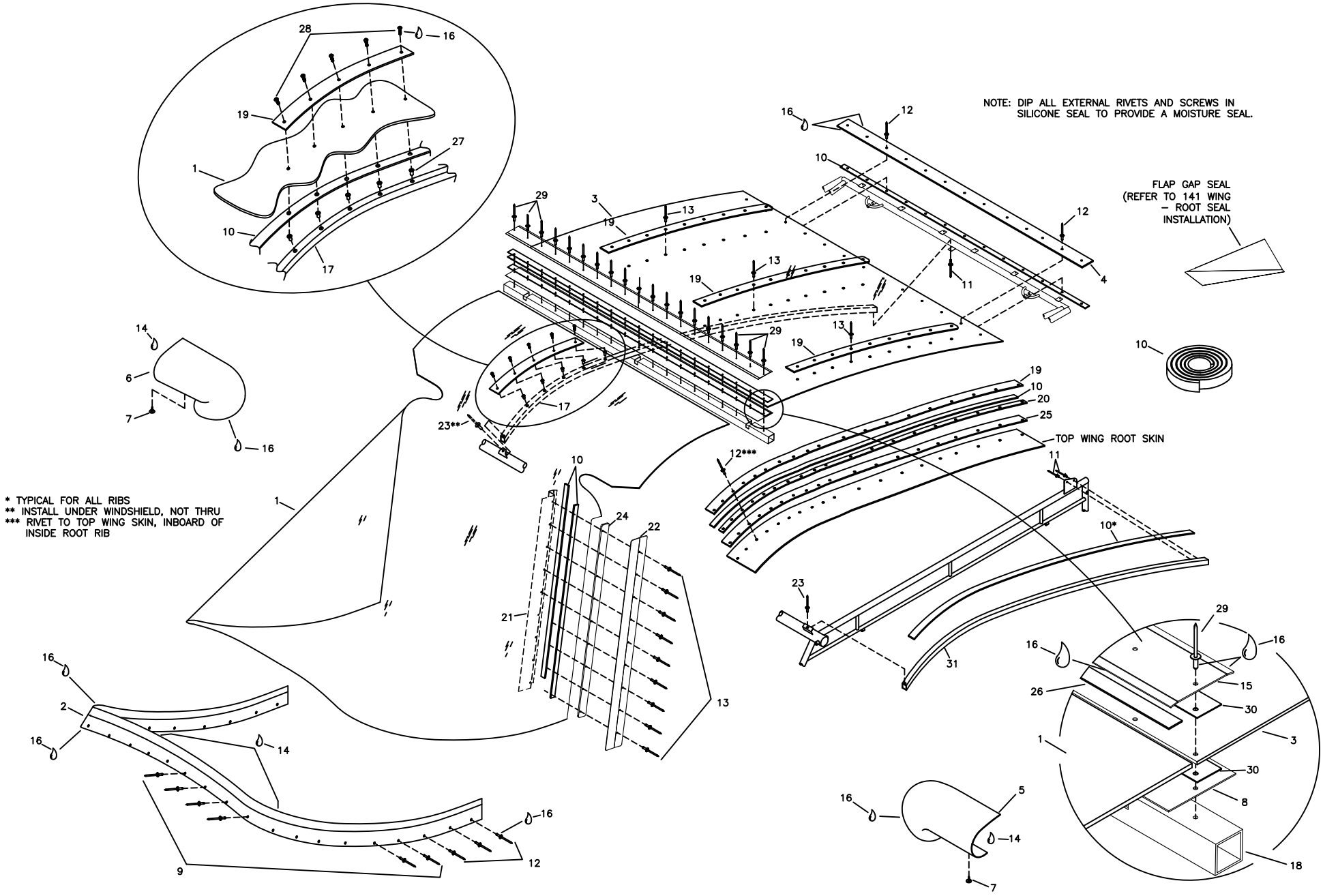


RANS S-21 OUTBOUND
FORMED WINDSHIELD & SKYLIGHT INSTALLATION

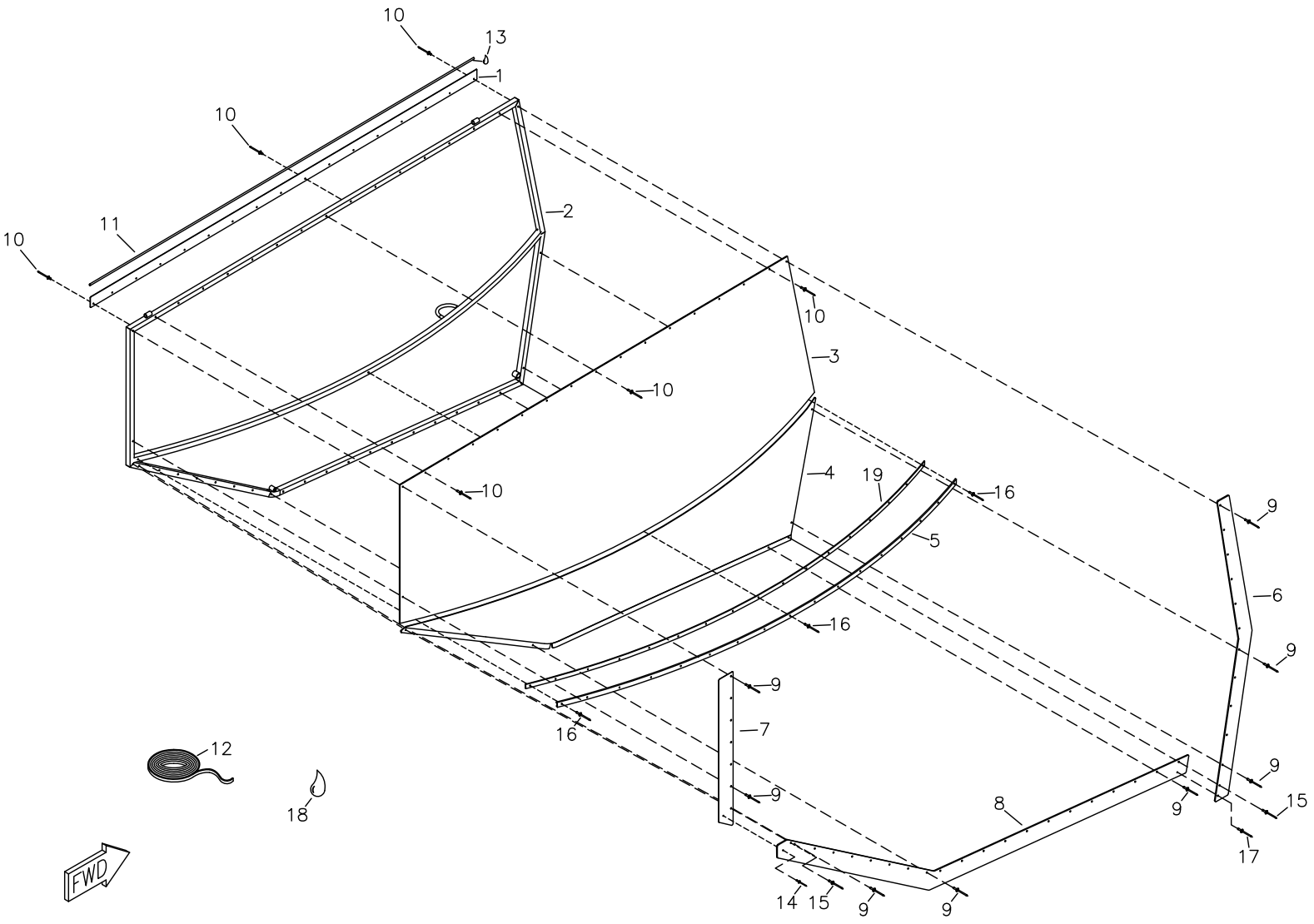
MD4934
REV. B

RANS S-21 OUTBOUND

FUSELAGE - FORMED WINDSHIELD & SKYLIGHT INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Windshield	KSWS0003	1
2.	Windshield Hold Down Strip	KPWS0063	1
3.	Skylight	KPWS0059	1
4.	AFT Trim Strip	WS-WSSLS	1
5.	Wing Cuff - LH	KPWI0724-L	1
6.	Wing Cuff - RH	KPWI0724-R	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 - Middle	KPWS0074	1
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 (120 degree)	CCC-42	3
24.	Z Strip Spacer	KPWS0069	2
25.	Windshield Outer Hold Down Strip	KPWS0075	2
26.	1/2" 3M VHB 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
31.	Cabin Rib - Outer	KPWS0080	2

* Builder Supplied
** Builder Modifies



RANS S-21 OUTBOUND
DOOR ASSEMBLY, LEXAN & TRIM

MD5582
REV. – A

RANS S-21 OUTBOUND

DOOR ASSEMBLY, LEXAN AND TRIM

LEXAN & TRIM

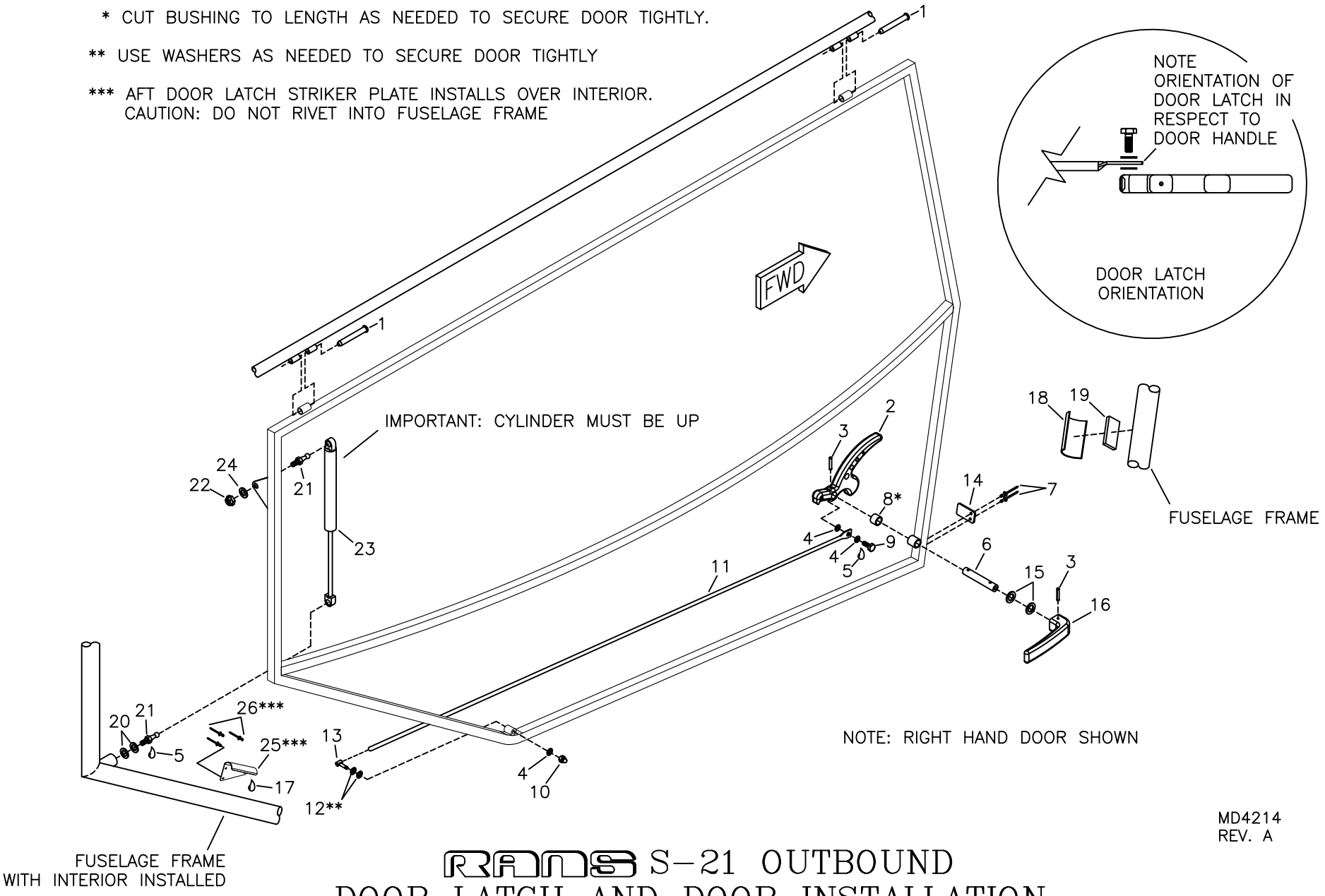
#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Upper Trim Strip *	KPDR0077	2
2.	Door Frame Assembly - RH	KADR0012-R	1
2.	Door Frame Assembly - LH	KADR0012-L	1
3.	Door - Lexan - Upper *	KPDR0129	2
4.	Door - Lexan - Lower - LH *	KPDR0130-L	1
4.	Door - Lexan - Lower - RH *	KPDR0130-R	1
5.	Channel Extrusion *	KPDR0131	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" 3M VHB Tape	KSAC0078	8.5 ft

* Builder Modifies
** Builder Supplied

* 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. A

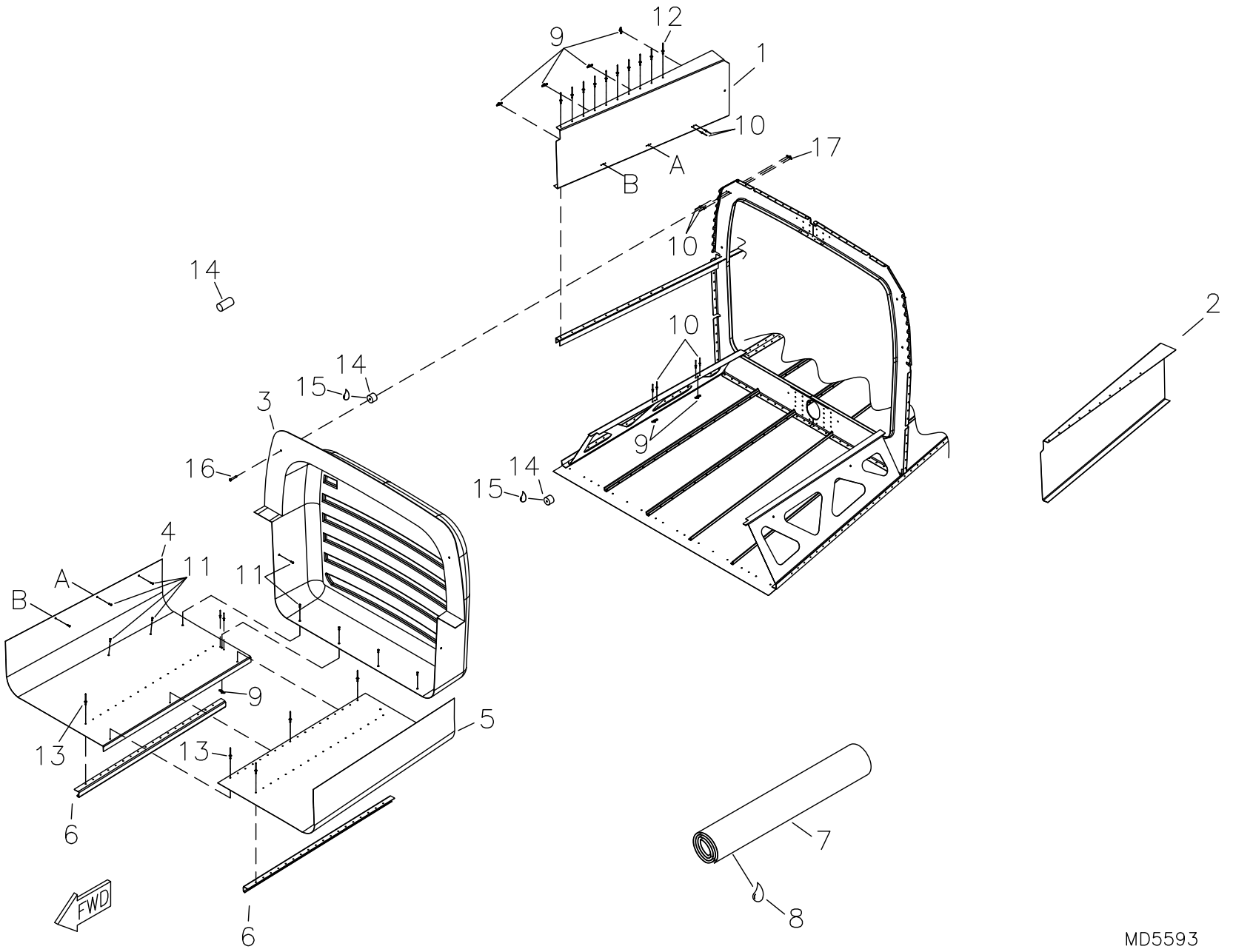
RANS S-21 OUTBOUND
DOOR LATCH AND DOOR INSTALLATION

RANS S-21 OUTBOUND

DOOR LATCH AND DOOR INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Self-Locking Clevis Pin	KSHW0045	4
2.	Door Handle - Inner	KPDR0143	2
3.	1/8" X 3/4" Roll Pin	KSHW0090	4
4.	3/16" Thin Washer	AN960-10L	6
5.	Loctite Blue *	-----	0
6.	Raw Stock - 3/8" x .095" Aluminum Tube	KPST0132	1
6.	Axle Tube - 3/8" x .095 x 2-1/4" **	KPST0132	0
7.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-42	4
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	2
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.	3/8" Thick Washer	AN960-616	4
16.	Door Handle - Outer	KPDR0144	2
17.	Adhesive or Double Stick Tape *	-----	0
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

* Builder Supplied
** Builder fabricates from raw stock



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REV. – ORIG

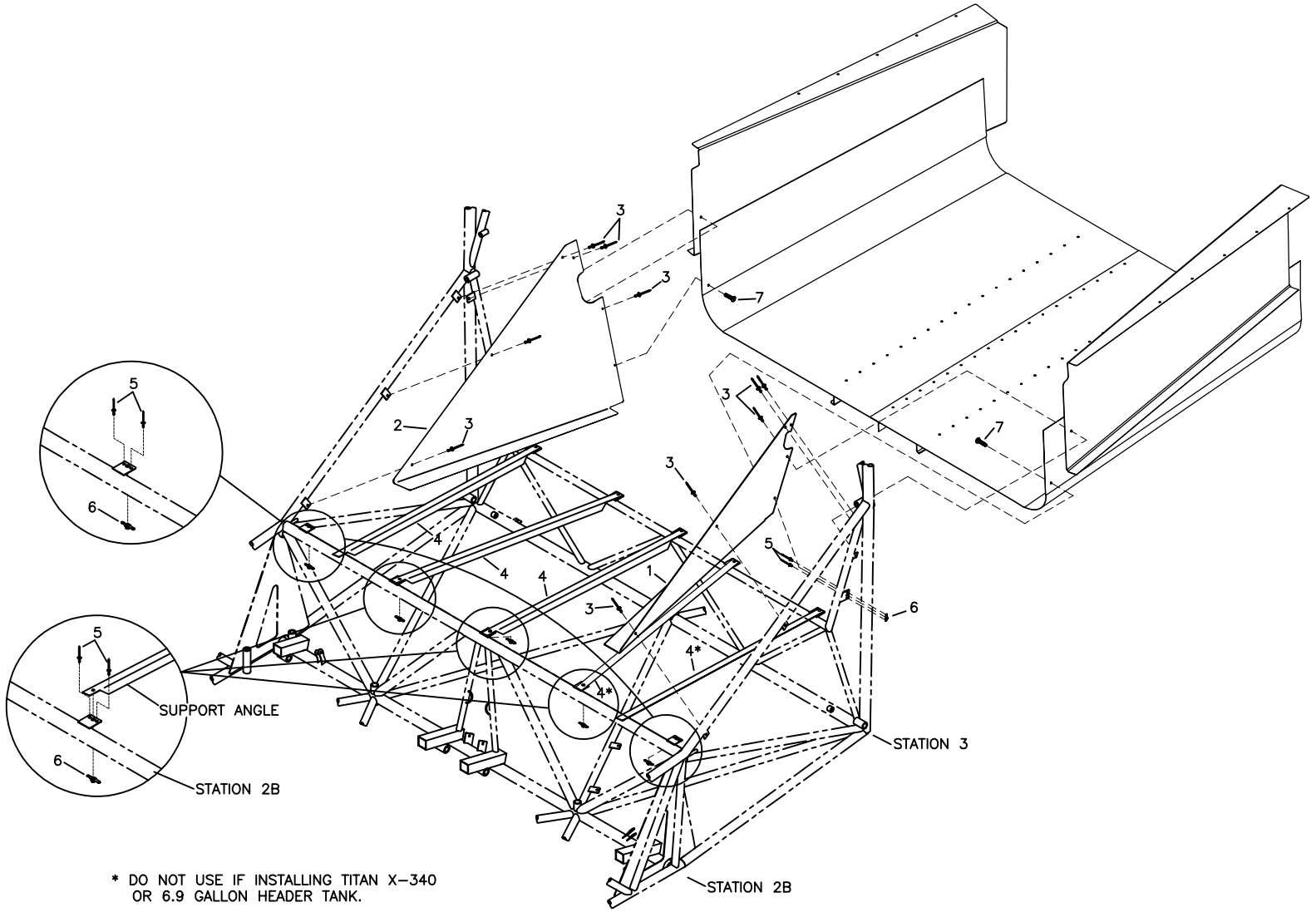
RANS S-21 OUTBOUND
FUSELAGE - AFT BAGGAGE COMPARTMENT INSTALLATION

RANS S-21 OUTBOUND

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 seperately, call RANS Parts Dept. for pricing
** Builder Supplied
*** Builder Modifies



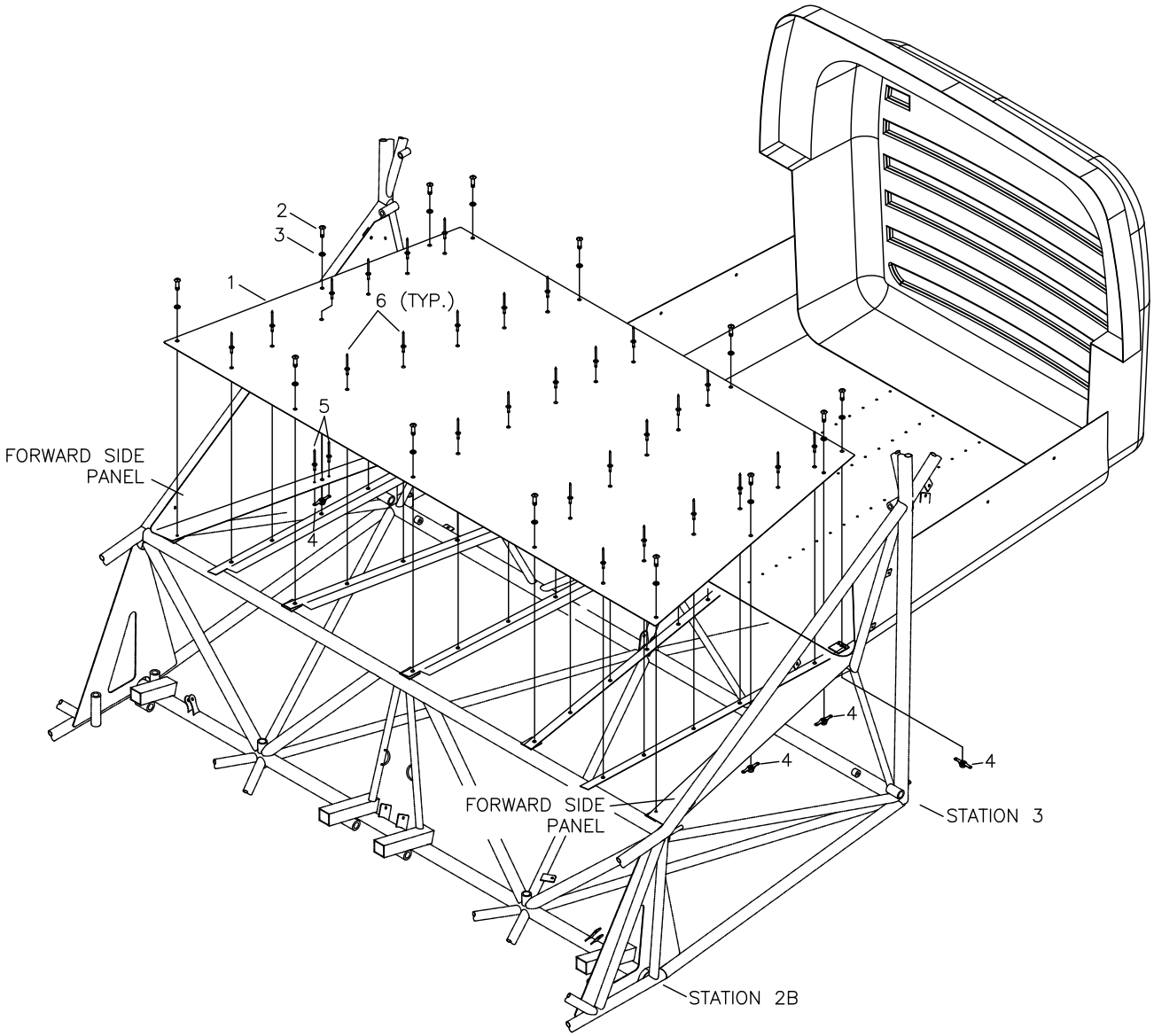
MD5593
REV. – ORIG

RANS S-21 OUTBOUND
SIDES - FORWARD BAGGAGE COMPARTMENT INSTALLATION

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



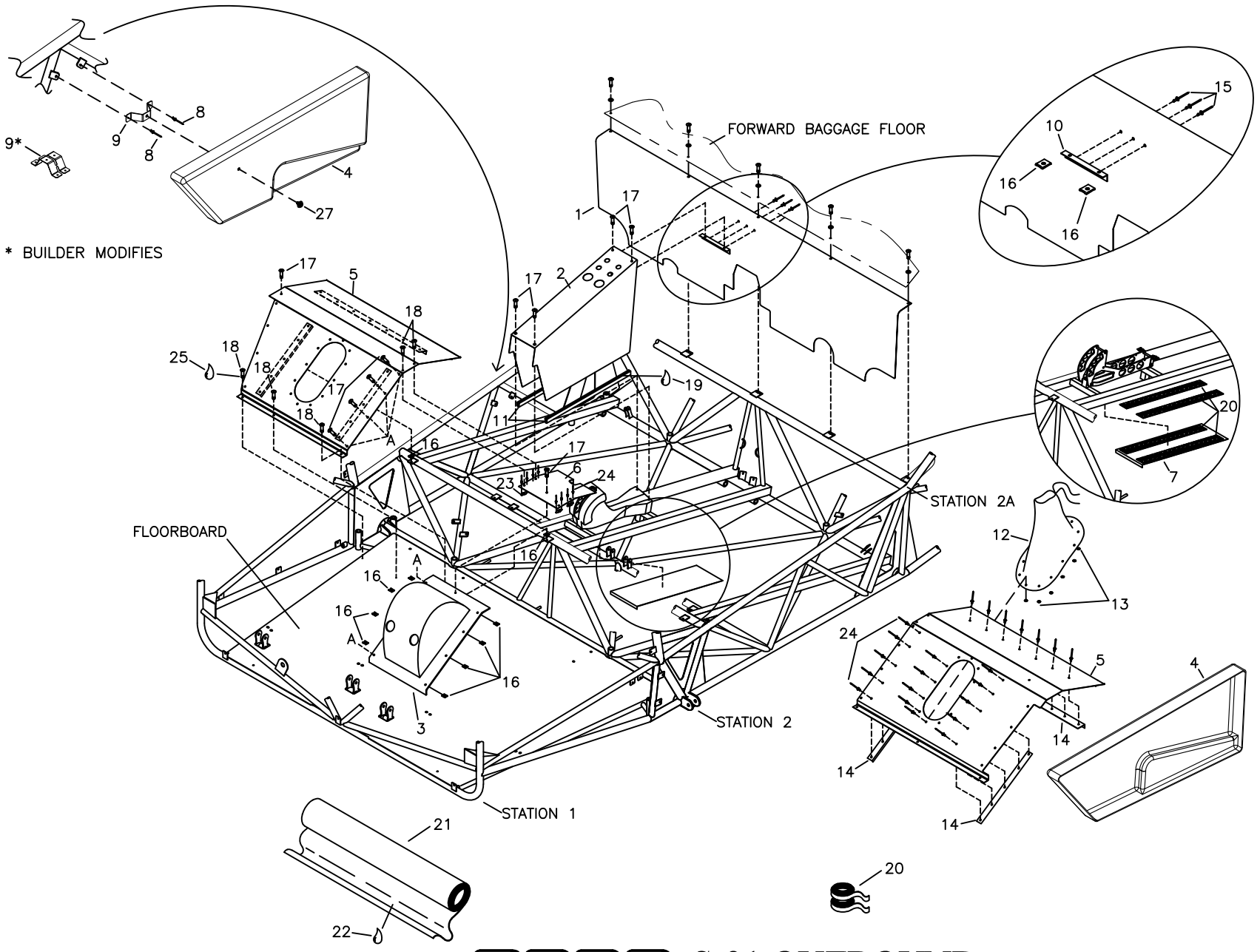
NOTE: ALL RIVETS
1691–0410 AVEX
EXCEPT AS NOTED

MD5593
REV. A

RANS S-21 OUTBOUND
FLOOR - FORWARD BAGGAGE COMPARTMENT INSTALLATION

FLOOR - FORWARD BAGGAGE COMPARTMENT INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Forward Bottom - Baggage Compartment	KPIN0090	1
2.	8-32 Machine Screw	AN526-832R10	13
3.	#8 Washer	AN960-8	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



RANS S-21 OUTBOUND
INTERIOR INSTALLATION - AFT

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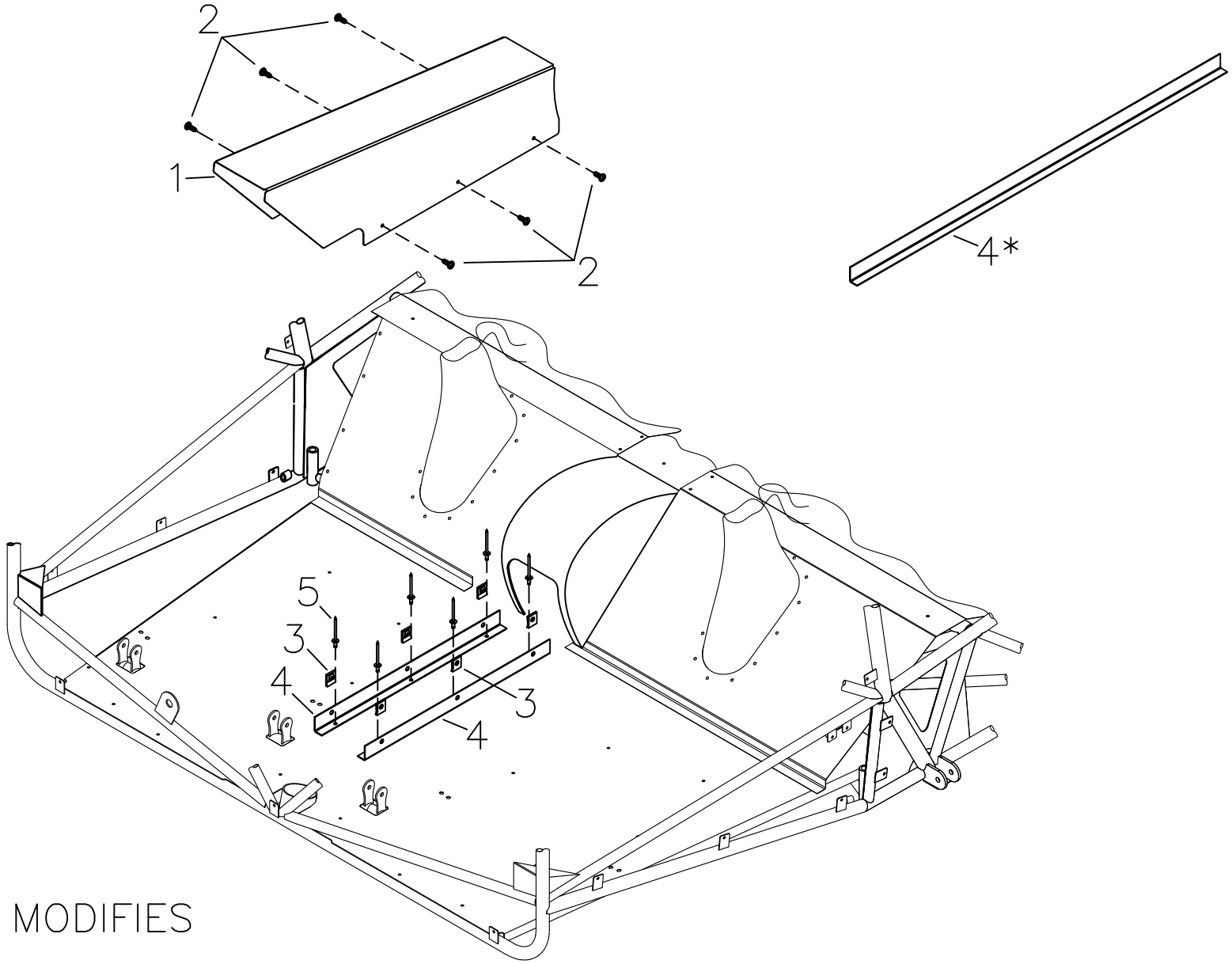
REV. A

RANS S-21 OUTBOUND

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	A6195-6Z-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



* BUILDER MODIFIES

RAMS S-21 OUTBOUND

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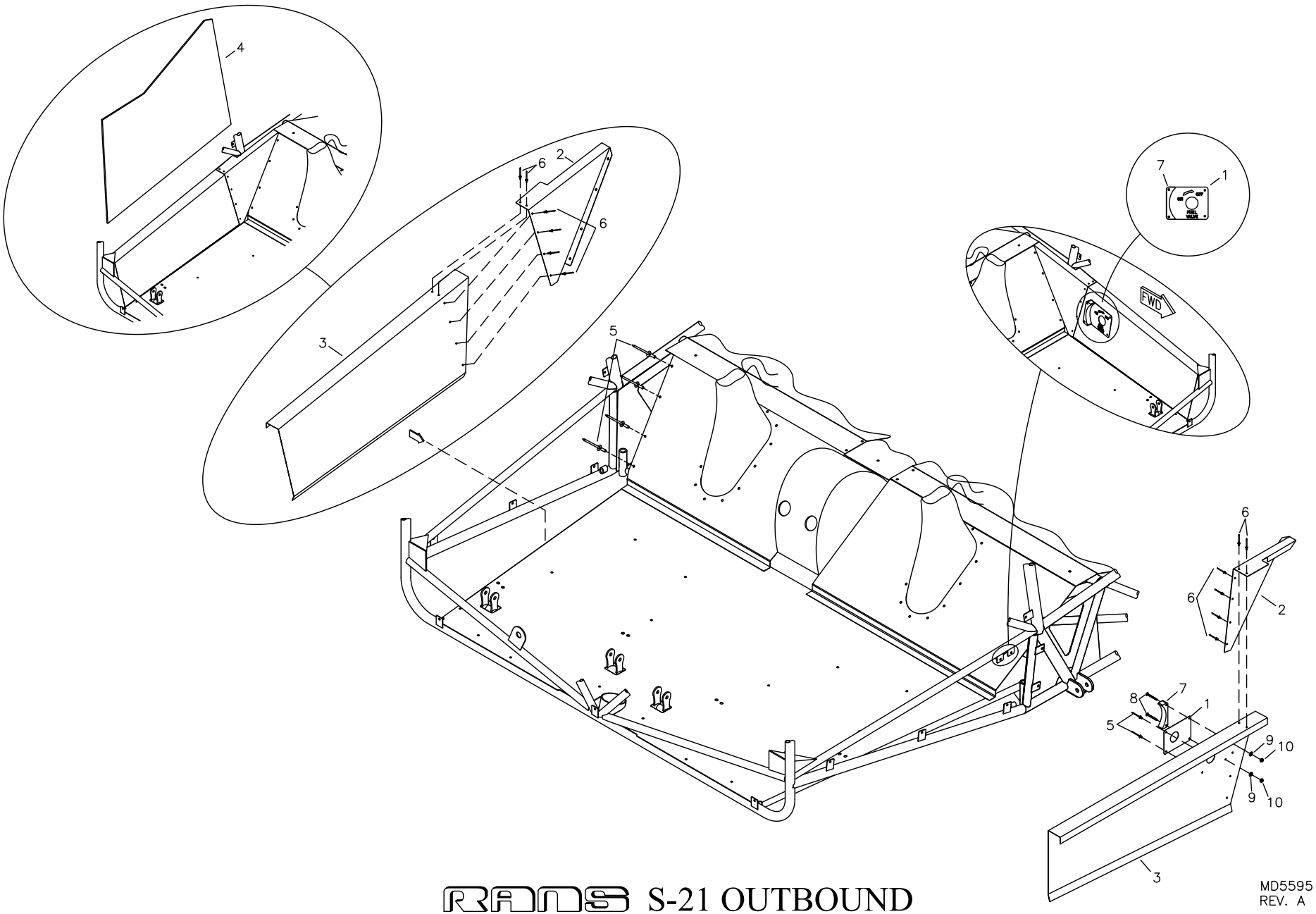
REV. – ORIG

INTERIOR INSTALLATION - RUDDER CABLE COVER

INTERIOR INSTALLATION - RUDDER CABLE COVER

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Rudder Cable Cover	KPIN0145	1
2.	#8 Pan Head Screw	8X1/2 PHS	6
3.	Tinnerman	A1789-8Z-1	6
4.	Skin Stiffener - Boot Cowl *	KPFU0685	1
5.	1/8" Aluminum Rivet - Avex	1691-0410	6

* Builder Modifies



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REV. A

RAMS S-21 OUTBOUND
INTERIOR INSTALLATION - FWD

RANS S-21 OUTBOUND

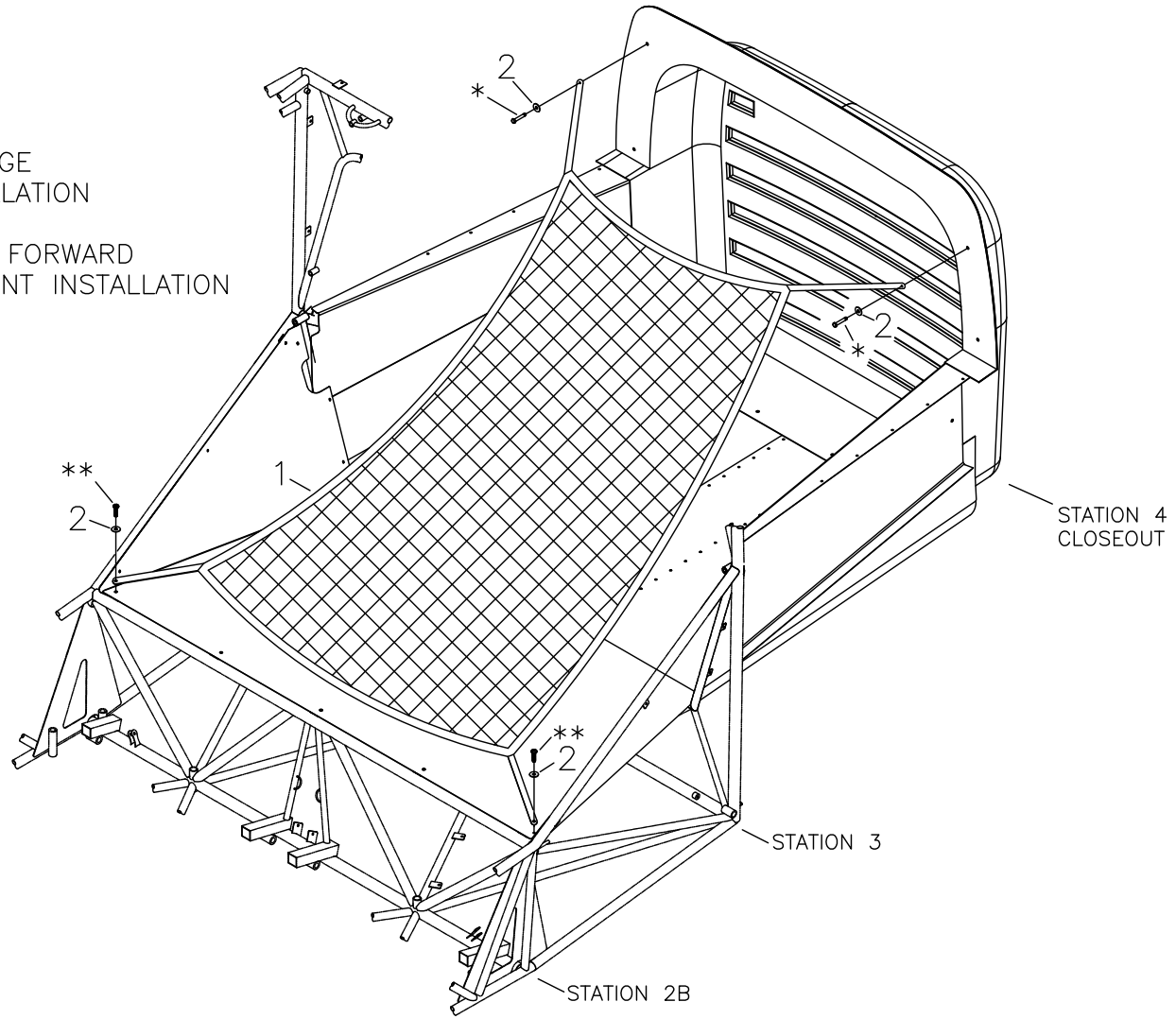
INTERIOR INSTALLATION - FWD

#	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

* REFER TO AFT BAGGAGE COMPARTMENT INSTALLATION

** REFER TO FLOOR – FORWARD BAGGAGE COMPARTMENT INSTALLATION



RANS S-21 OUTBOUND
OPTIONS - CARGO NET INSTALLATION

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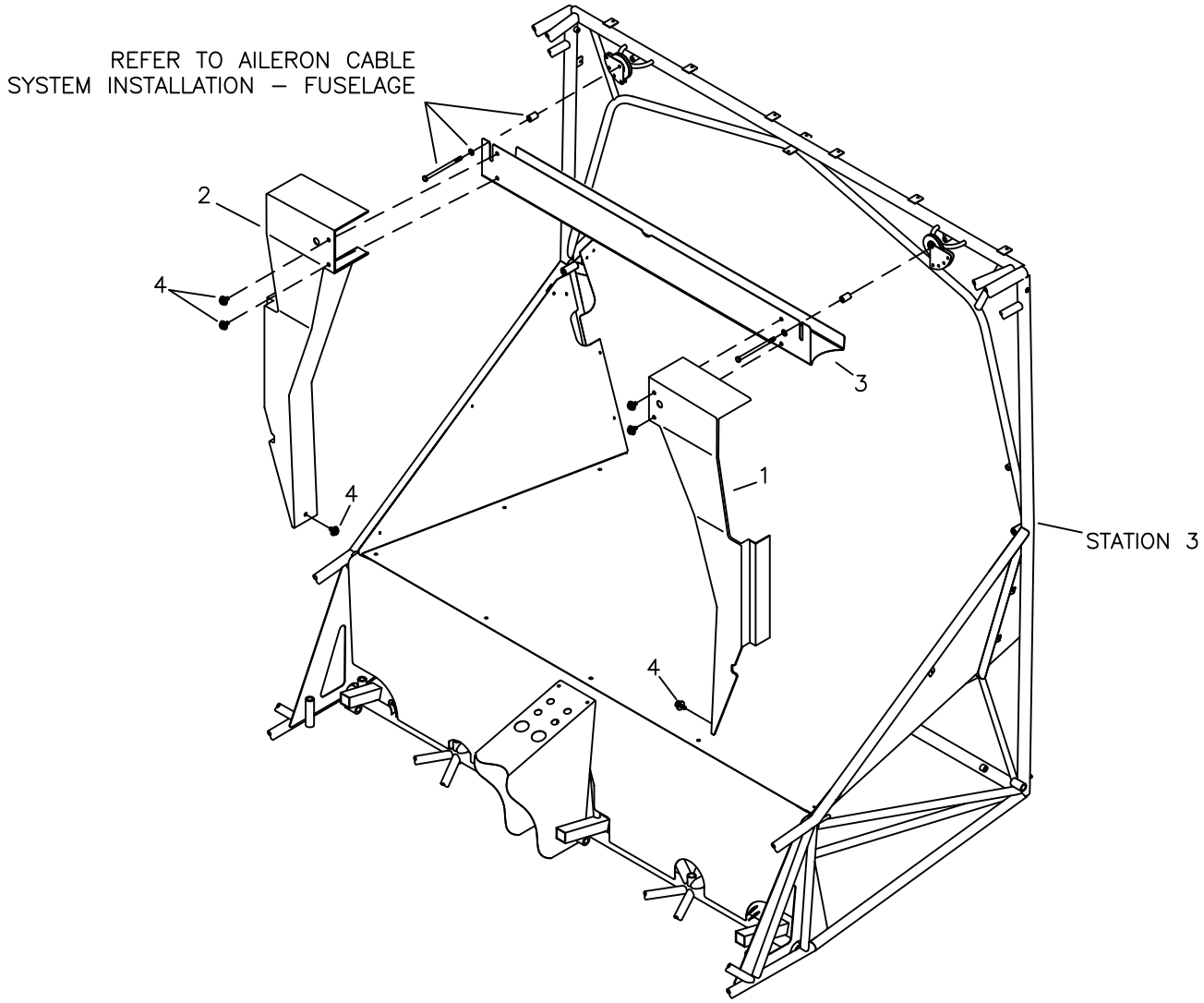
OPTIONS - CARGO NET INSTALLATION

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



RANS S-21 OUTBOUND
STATION 3 CLOSEOUT

MD5595
REV. A

RANS S-21 OUTBOUND

STATION 3 CLOSEOUT

#	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