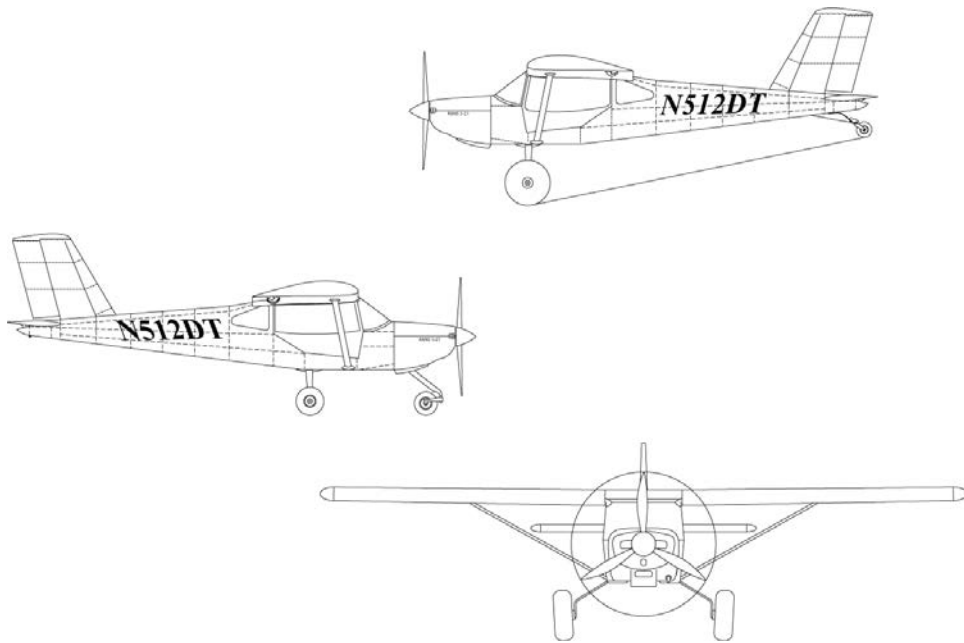


# RANS

## AIRCRAFT

### **S-21 OUTBOUND** **TITAN X-340 INSTALLATION** **PARTS MANUAL**



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

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

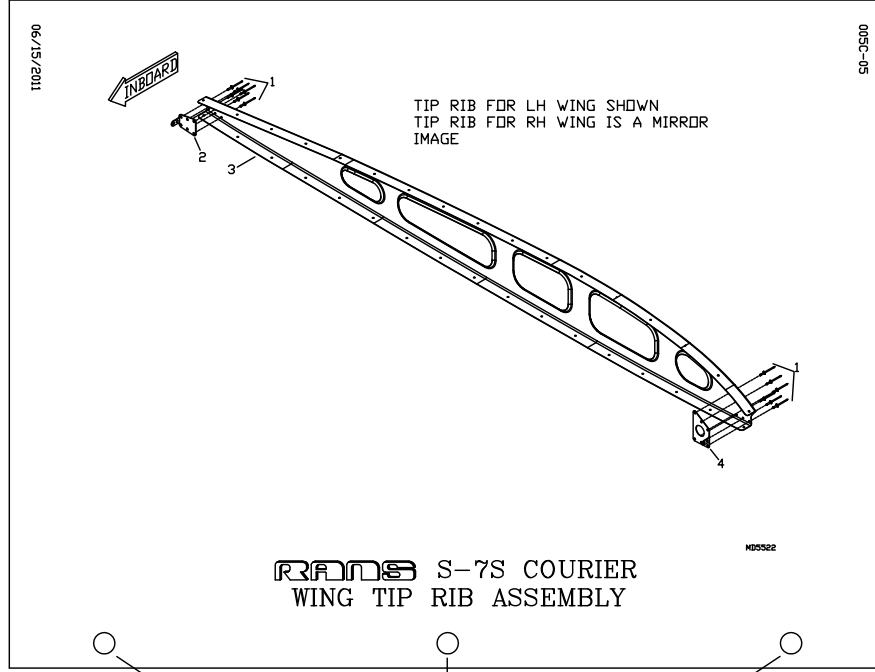
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HAYS, KANSAS, USA 67601  
785-625-6346  
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This manual conforms to FAA Evaluated date 9/11/2018

STEP 1:

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

PARTS DRAWING PAGE



3-HOLE PUNCH

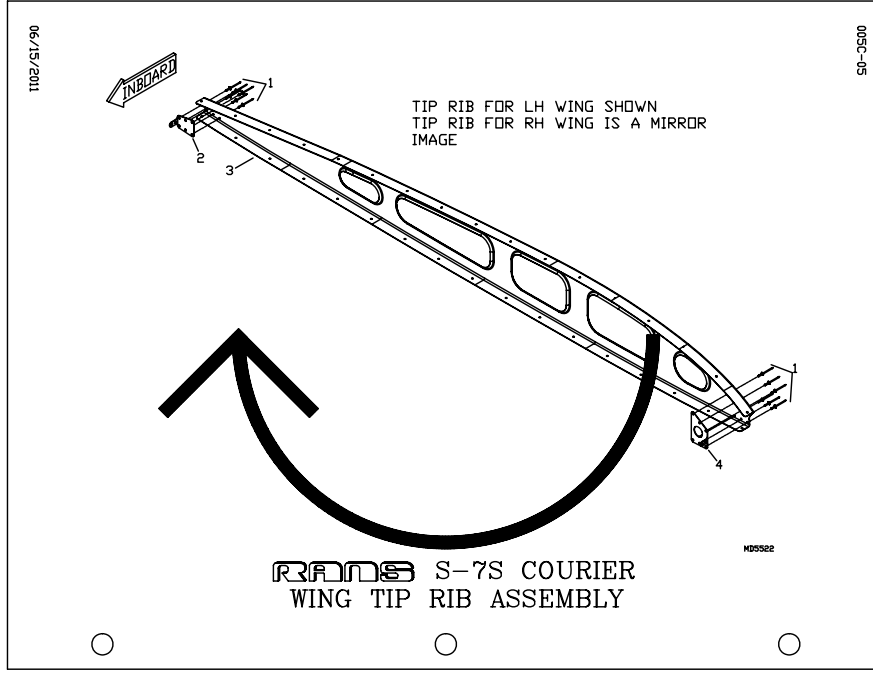
EXAMPLE ONLY.  
MAY NOT REPRESENT ACTUAL PAGES  
FROM YOUR MANUAL.

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

PAGE 005C-06

S-7S COURIER - WING - TIP RIB ASSEMBLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	1/8" ALUMINUM RIVET	AAQC-41	24
2.	RIB CLIP TRAILING EDGE - LH	KPW0372-L	4
2.	RIB CLIP TRAILING EDGE - RH	KPW0372-R	4
3.	WING TIP RIB - LH	KPW0544-L	1
3.	WING TIP RIB - RH	KPW0544-R	1
4.	RIB CLIP LEADING EDGE - LH	KPW0373-L	1
4.	RIB CLIP LEADING EDGE - RH	KPW0373-R	1

6/15/2011

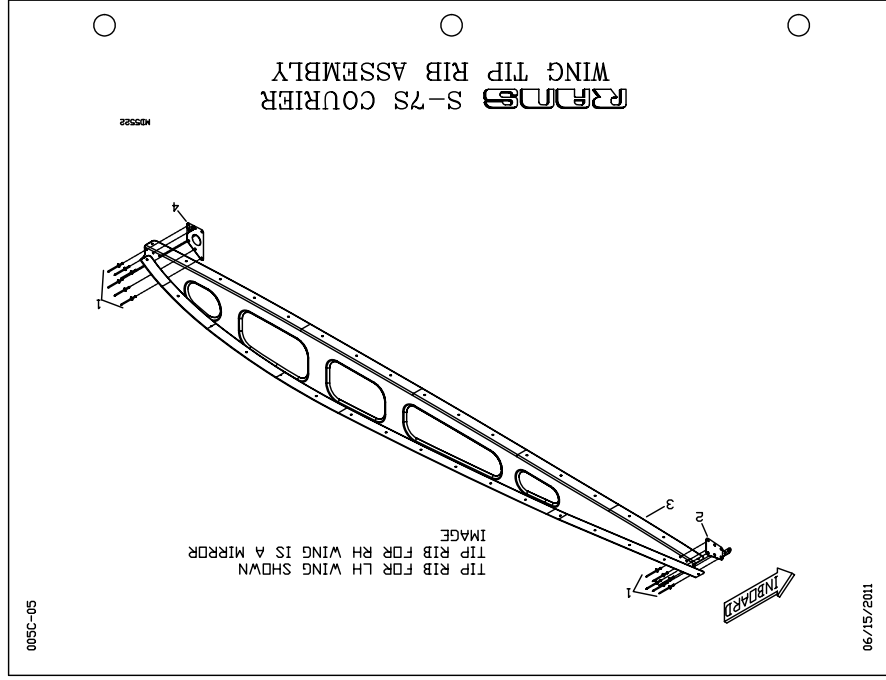
EXAMPLE ONLY.  
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FROM YOUR MANUAL.

SEE NEXT PAGE

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-75 COURIER - WING - TIP RIB ASSEMBLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	1/8" ALUMINUM RIVET	AAPQ-41	24
2.	RIB CLIP TRAILING EDGE - LH	KPW0372-L	4
2.	RIB CLIP TRAILING EDGE - RH	KPW0372-R	1
3.	WING TIP RIB - LH	KPW0544-L	1
3.	WING TIP RIB - RH	KPW0544-R	1
4.	RIB CLIP LEADING EDGE - LH	KPW0373-L	1
4.	RIB CLIP LEADING EDGE - RH	KPW0373-R	1

6/15/2011

EXAMPLE ONLY.  
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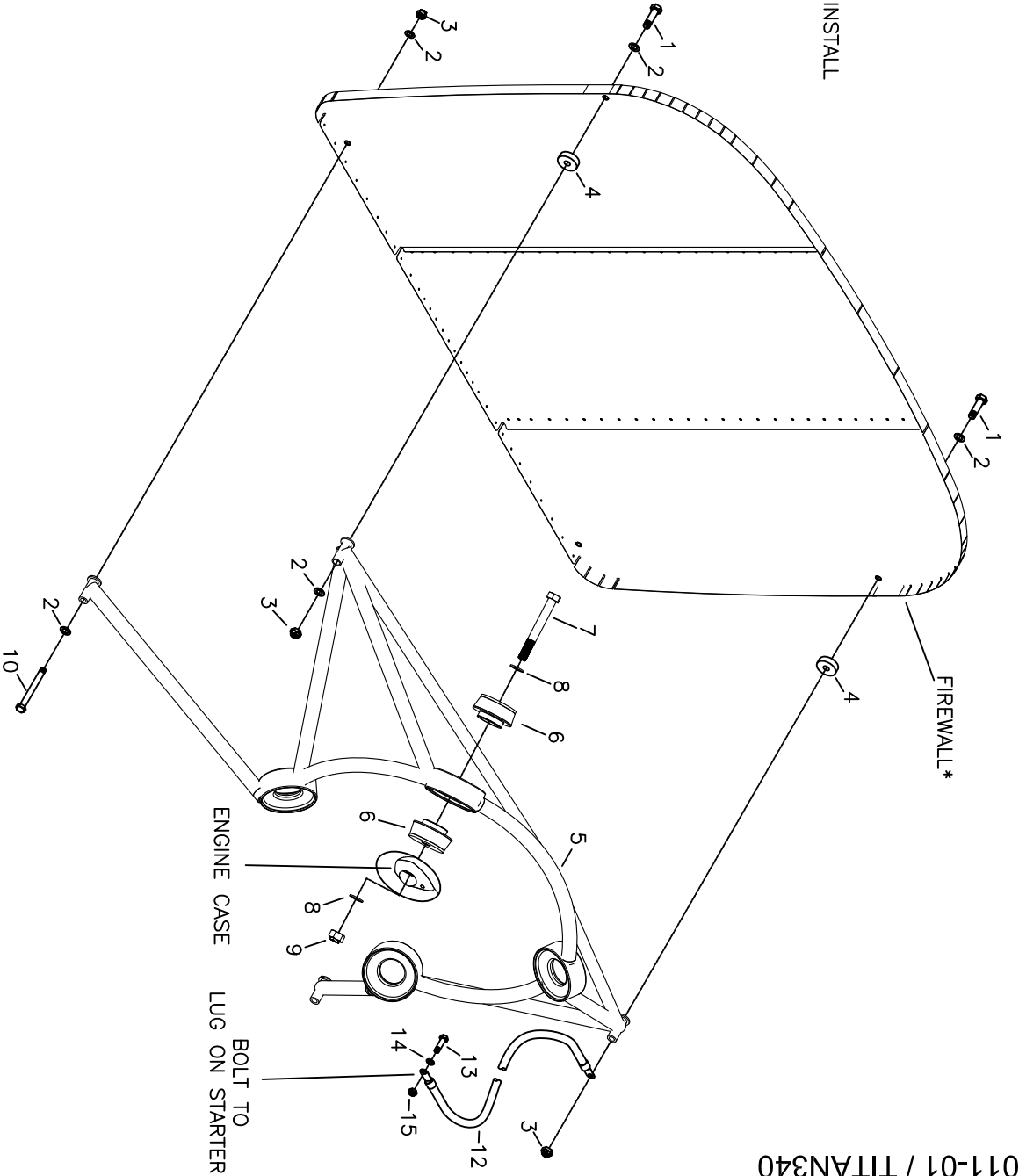
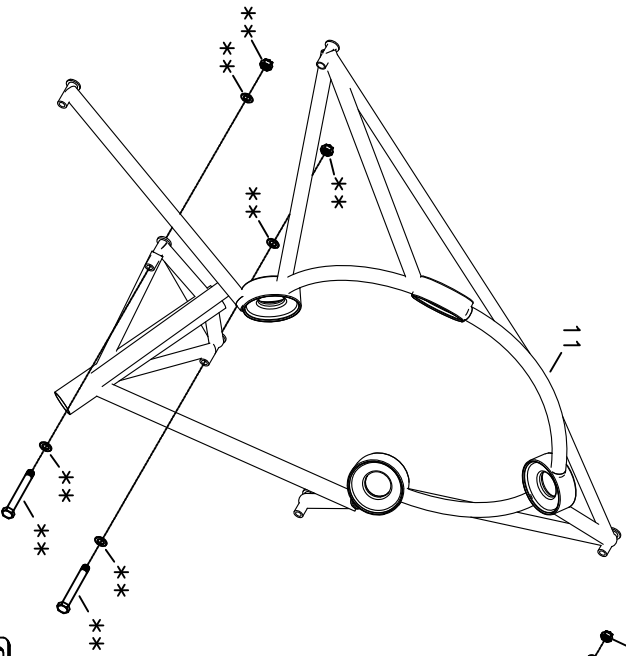
# **RANS S-21 OUTBOUND – TITAN X340**

## **PARTS MANUAL**

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TITAN X-340 - WHIRLWIND PROPELLER INSTALLATION -----	011L-01 / TITAN340

\* REFER TO BOOT COWL ASSEMBLY FOR FIREWALL ASSEMBLY.  
\*\* REFER TO TRIKE - NOSE GEAR INSTALL NOT ALL DUPLICATED HARDWARE SHOWN FOR CLARITY



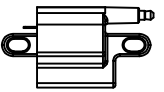
# RRRPPMMS S-21 OUTBOUND TITAN X-340 ENGINE MOUNT INSTALLATION

MD5084  
REV. - ORIG

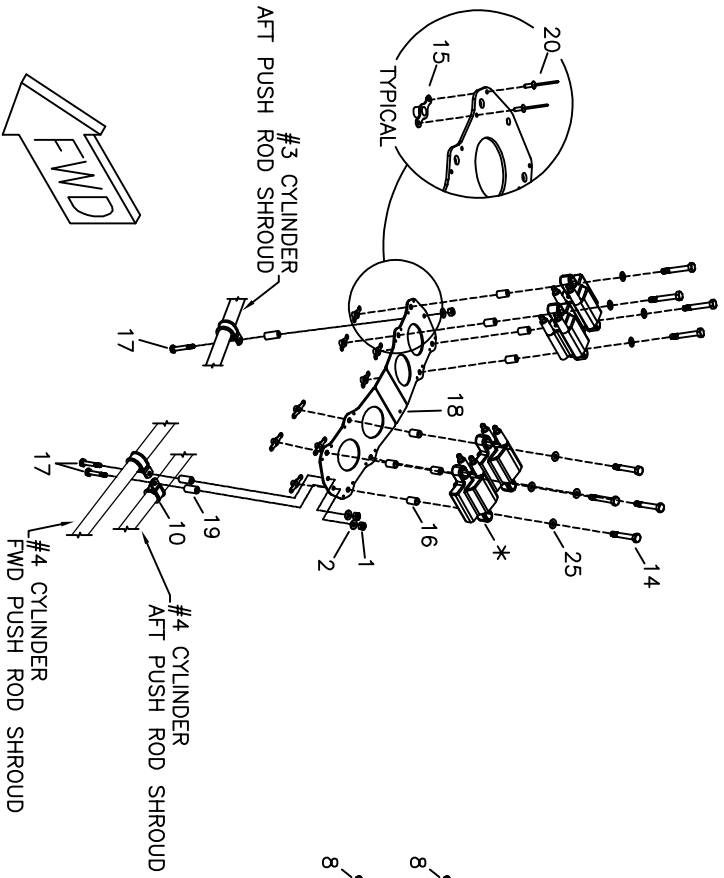
# RANS S-21 OUTBOUND

## TITAN X-340 - ENGINE MOUNT INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	5/16" Bolt	AN5-37A	2
2.	5/16" Thick Washer	AN960-516	7
3.	5/16" Tensile Nut	AN365-524A	4
4.	Engine Mount Spacer	KPAC0273	2
5.	Engine Mount (TAILDRAGGER ONLY)	KAPW0072	1
6.	Rubber Engine Mount	KSPW0097	4
7.	7/16" Bolt	AN7-35A	4
8.	7/16" Thick Washer	AN960-716	8
9.	7/16" Tensile Nut - Steel	MS20365-720C	4
10.	5/16" Bolt	AN5-34A	2
11.	Engine Mount (TRIKE ONLY)	KAPW0074	1
12.	Engine Ground Cable	KAES0023	1
13.	1/4" Bolt	AN4-7A	1
14.	1/4" Thin Washer	AN960-416L	1
15.	1/4" Shear Nut	AN364-428C	1

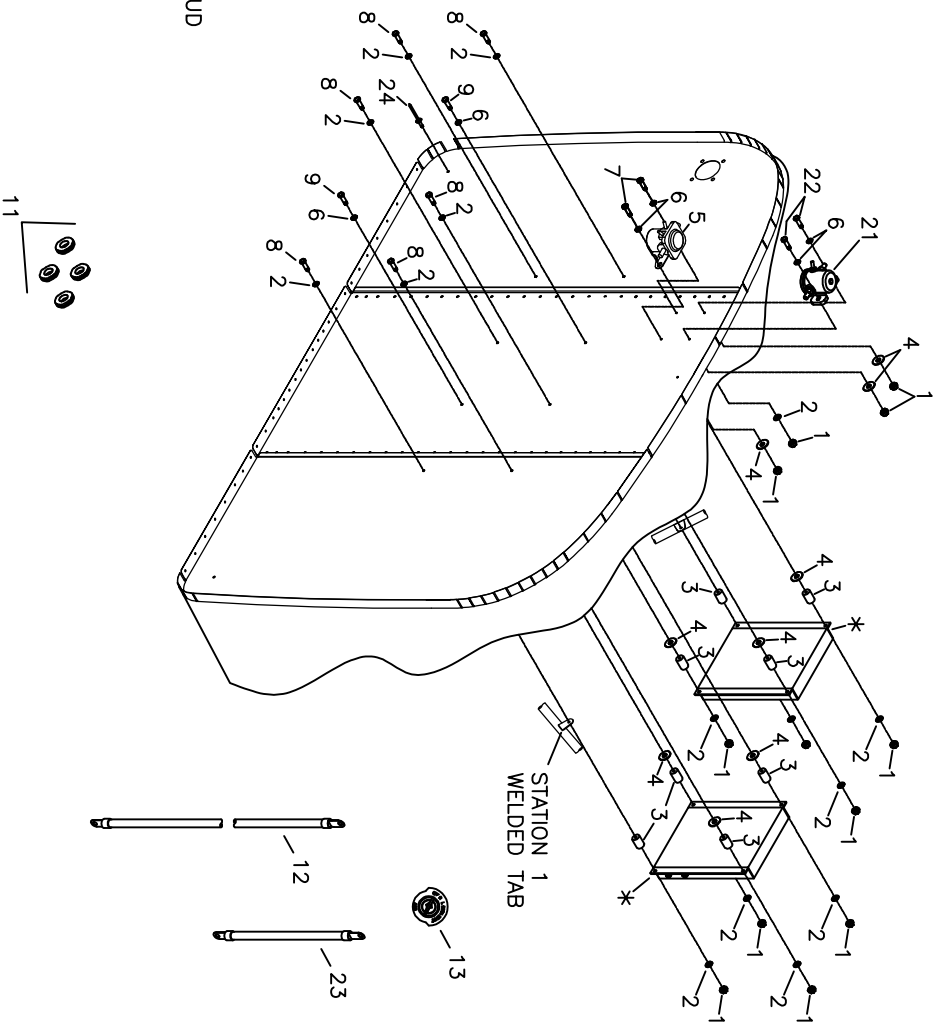


# MOUNTING SYSTEM FOR CENTER LINE MOUNT IGNITION COILS ONLY



SOME DUPLICATED ASSEMBLY ITEMS NOT NUMBERED

\* Items provided with LIGHTSPEED Ignition System



## REPOINDERS S-21 OUTBOUND TITAN X-340 ENGINE ELECTRICAL ACCESSORY INSTALLATION

MD5135  
REV. C



# RANS S-21 OUTBOUND

## TITAN X-340 - ENGINE ELECTRICAL ACCESSORY INSTALLATION

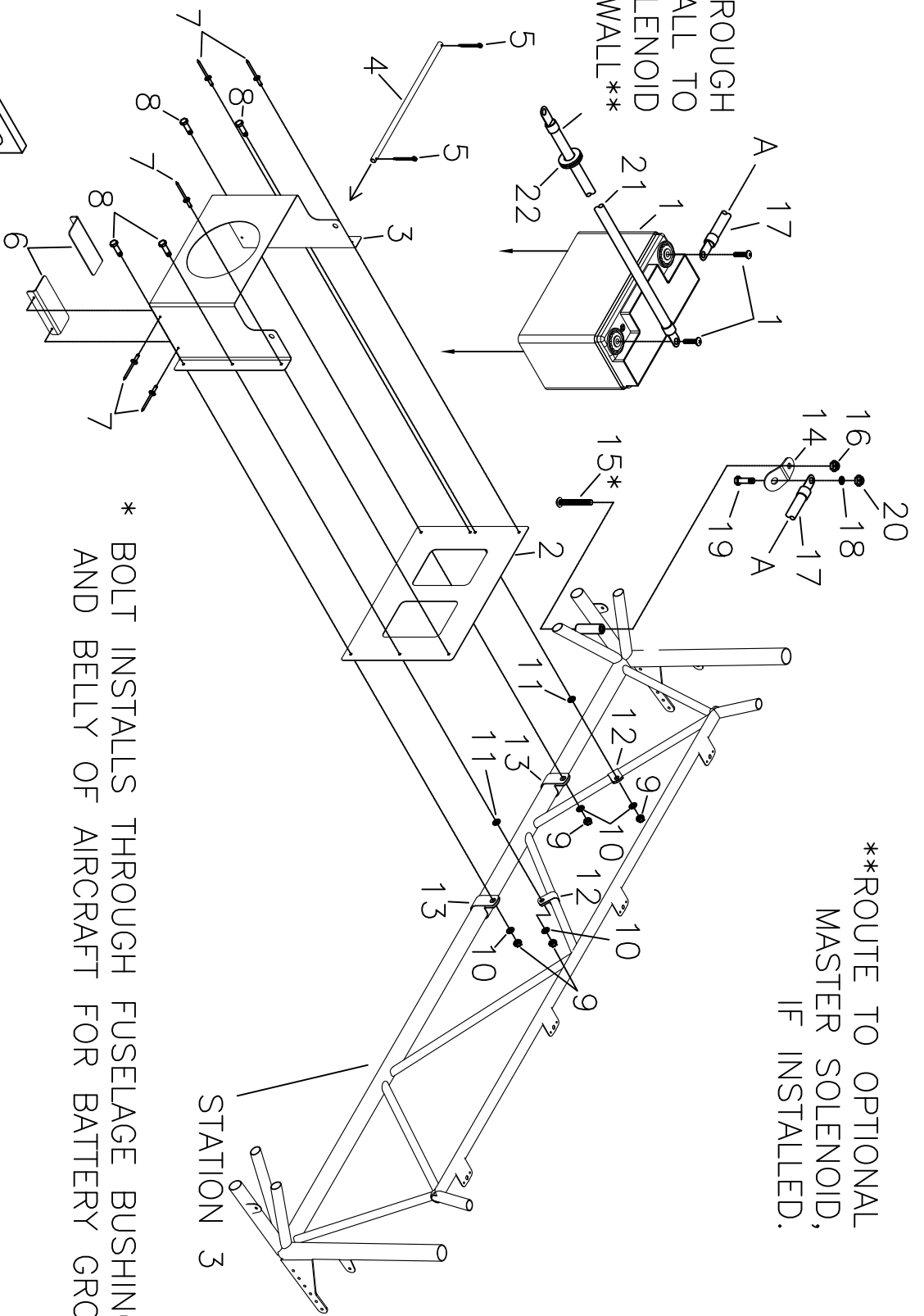
PAGE 011A-02 / TITAN340

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Shear Nut	AN364-1032A	15
2.	3/16" Thin Washer	AN960-10L	18
3.	Aluminum Bushing - 3/8" x .095" x .50" *	KPST0132	1
4.	3/16" Large Washer	AN970-3	9
5.	Starter Solenoid	KSPW0040	1
6.	3/16" Thick Washer	AN960-10	6
7.	3/16" Bolt	AN3-4A	2
8.	3/16" Bolt	AN3-10A	6
9.	3/16" Bolt	AN3-7A	2
10.	3/4" Cushion Clamp	MS21919-DG12	3
11.	3/16" Rubber Grommet	KSAC0002	4
12.	Solenoid / Starter Cable	KAES0025	1
13.	Switch - Ignition	KSES0027	1
14.	1/4" Bolt	AN4-16A	8
15.	1/4" Nut Plate	MS21047-4	8
16.	Aluminum Bushing - 3/8" x .058" x .60" *	KAAC0044-3	1
17.	3/16" Bolt	AN3-12A	3
18.	Ignition Coil Mount Plate	KPPW0376	1
19.	Aluminum Bushing - 3/8" x .095" x .8125" *	KPST0132	0
20.	3/32" Aluminum Rivet	40APR1/8	16
21.	Master Solenoid	KSPW0140	1
22.	3/16" Bolt	AN3-5A	2
23.	Master - Starter Solenoid Cable	KAES0029	1
24.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-41	1
25.	1/4" Thick Washer	AN960-416	8

\* Builder Modifies

9/11/2018  
REV. A

ROUTE THROUGH FIREWALL TO STARTER SOLENOID ON FIREWALL\*\*



\*\*ROUTE TO OPTIONAL MASTER SOLENOID, IF INSTALLED.

\* BOLT INSTALLS THROUGH FUSELAGE BUSHING AND BELLY OF AIRCRAFT FOR BATTERY GROUND

**RRRMMSS S-21 OUTBOUND**  
**TITAN X-340**  
**BATTERY BOX ASSEMBLY AND INSTALLATION**

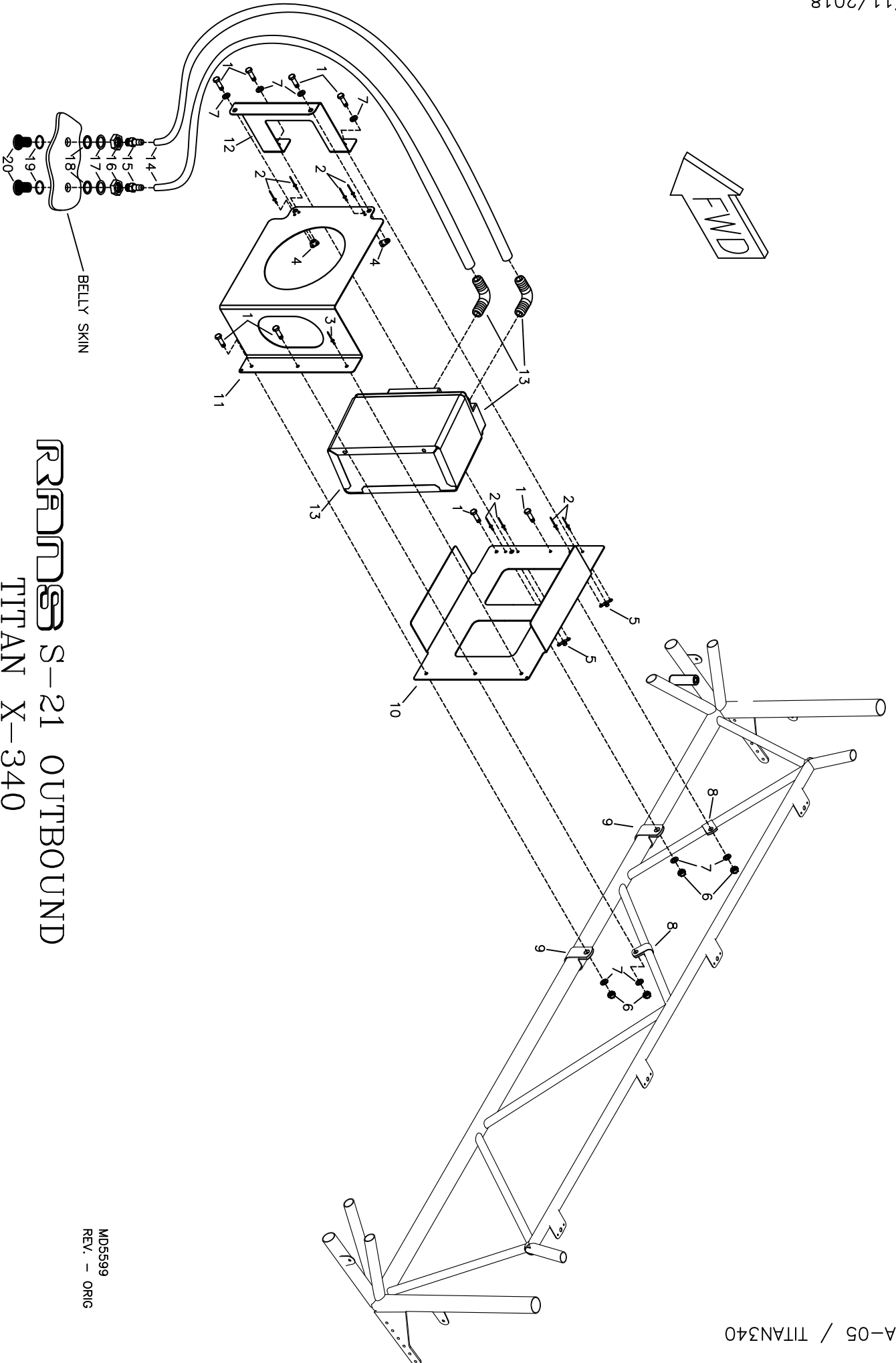
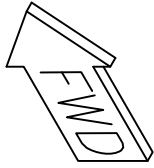
# RANS S-21 OUTBOUND

## TITAN X-340 - BATTERY BOX ASSEMBLY & INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Battery - Odyssey PC-545MJ *	KSPW0103	0
2.	Battery Mount Plate	KPES0038	1
3.	Battery Box Front Plate	KPES0037	1
4.	Battery Bar **	BAT-BAR-503/582	1
5.	Small Cotter Pin	MS24665-134	2
6.	Battery Box Support Angle	BAT-BOX-3	2
7.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-42	7
8.	3/16" Bolt	AN3-3A	4
9.	3/16" Shear Nut	AN364-1032A	4
10.	3/16" Thin Washer	AN960-10L	4
11.	3/16" Thick Washer	AN960-10	2
12.	3/8" Plain Clamp	AN742-D6	2
13.	5/8" Plain Clamp	AN742-D10	2
14.	Tang	FAT-4	1
15.	1/4" Pan Head Bolt	KSHW0113	1
16.	1/4" Shear Nut - Steel	AN364-428C	1
17.	Battery / Ground Cable	KAES0028	1
18.	5/16" Thick Washer	AN960-516	1
19.	5/16" Bolt	AN5-5A	1
20.	5/16" Shear Nut - Steel	AN364-524C	1
21.	Battery / Solenoid Cable	KAES0024	1
22.	3/4" Rubber Grommet	MS35489-11	1

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

\*\* Builder Modifies



**RRRNDSS S-21 OUTBOUND**  
**TITAN X-340**  
**EARTH-X BATTERY BOX ASSEMBLY AND INSTALLATION**

MDS599  
 REV. - ORIG

# RANS S-21 OUTBOUND

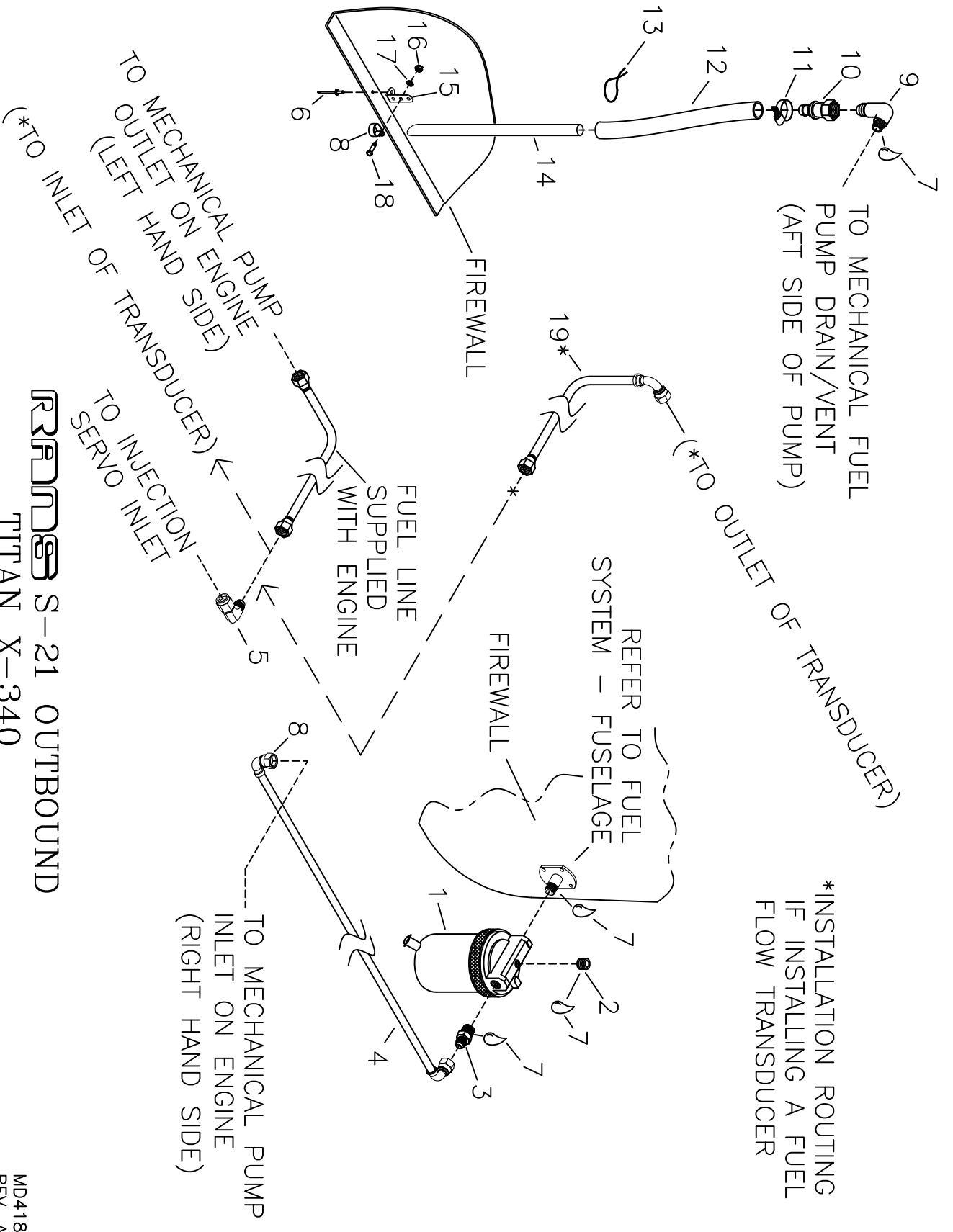
## TITAN X-340 - OPTIONS - EARTH X BATTERY BOX ASSEMBLY AND INSTALLATION

PAGE 011A-06/TITAN 340

(Kit # KPES0052)

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Bolt	AN3-3A	8
2.	3/32" Aluminum Rivet	40APR1/8	8
3.	1/8" Stainless Steel Rivet	CCPQ-41	1
4.	3/16" Corner Nut Plate	MS21086L3	2
5.	3/16" Nut Plate	K-1000-3	2
6.	3/16" Shear Nut	AN364-1032A	4
7.	3/16" Thin Washer	AN960-10L	8
8.	3/8" Plain Clamp	AN742-D6	2
9.	5/8" Plain Clamp	AN742-D10	2
10.	Earth X Battery Box Mount Plate	KPES0051	1
11.	Earth X Battery Box Front Plate	KPES0046	1
12.	Earth X Batter Retainer Angle	KPES0047	1
13.	ETX900-VNT Battery	KSPW0161	1
14.	Battery Vent Tubing	KSPW0165	2ft.
15.	1/4" Straight Barb Fitting	8330	2
16.	Bulkhead Nut - LH Thread	KPFS0118	2
17.	1/2" Washer	AN960-816	2
18.	Rubber Washer	KSFS0010	2
19.	O-Ring	KSFS0009	2
20.	Bulkhead Fitting - LH Thread	KPFS0117	2

9/11/2018  
REV. A



**RAND S-21 OUTBOUND  
TITAN X-340  
FUEL SYSTEM INSTALLATION - FIREWALL FORWARD**

MD4187  
REV. A

# RANS S-21 OUTBOUND

PAGE 011B-02 / TITAN340

## TITAN X-340 - FUEL SYSTEM - FIREWALL FORWARD

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Gascolator - High Pressure	KSPW0109	1
2.	1/8" Pipe Plug	PIPE-PLUG 1/8	1
3.	Straight Fitting	AN816-6D	1
4.	Fuel Line Assembly - Gascolator to Pump	KSPW0131	1
5.	90 Degree -6 AN Swivel Fitting	KSFS0041	1
6.	3/16" Stainless Steel Rivet - Cherry Q	CCPQ-62	1
7.	Thread Sealant *	----	0
8.	1/4" Plain Clamp	AN742-D4	1
9.	90-degree Elbow - Flare 1/4" Tube to 1/8" NPT	AN822-4D	1
10.	1/4" Hose Fitting	30682-4-4	1
11.	Hose Clamp - 5/8"	5-6202	1
12.	Black Fuel Line - 1/4"	KSFS0002	1 ft
13.	Safety Wire *	----	0
14.	Fuel Pump Drain Line, 1/4" x .028" x 5" Aluminum Tube **	KAAC0044-2	1
15.	Angle Bracket	KPAC0004	1
16.	3/16" Shear Nut	AN364-1032A	1
17.	3/16" Thin Washer	AN960-10L	1
18.	3/16" Bolt	AN3-3A	1
19.	Optional - Fuel Line Assembly - Transducer to Fuel Servo ***	KSPW0132	0

\* Builder Supplied

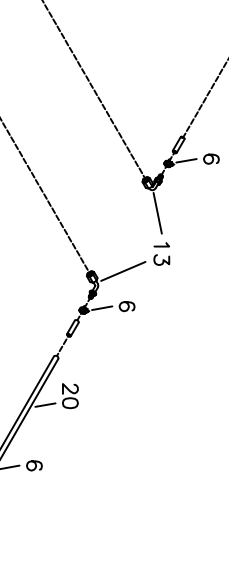
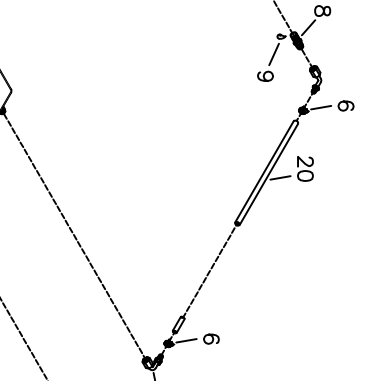
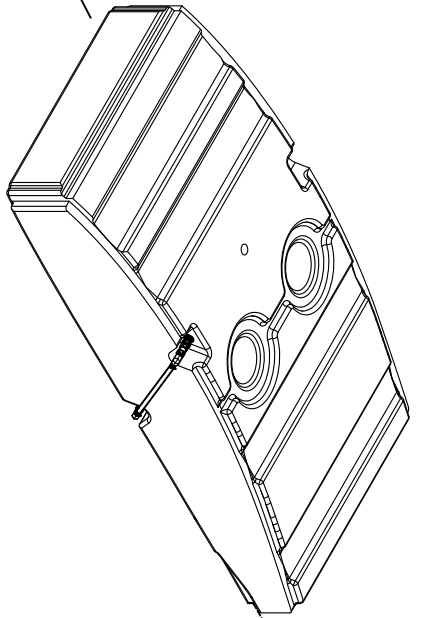
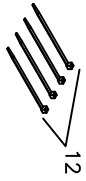
\*\* Builder Modifies

\*\*\* Optional for installing a Fuel Flow Transducer

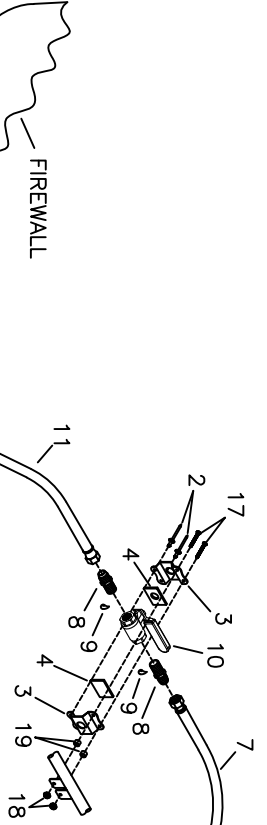
9/11/2018

REV. A

REFER TO FUEL TANK INSTALLATION - SECTION 006 - FOR FUEL TANK FITTINGS



REFER TO ELECTRIC FUEL PUMP



HEADER TANK

# RRRND S-21 OUTBOUND TITAN X-340 FUEL SYSTEM - FUSELAGE

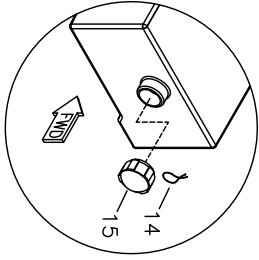
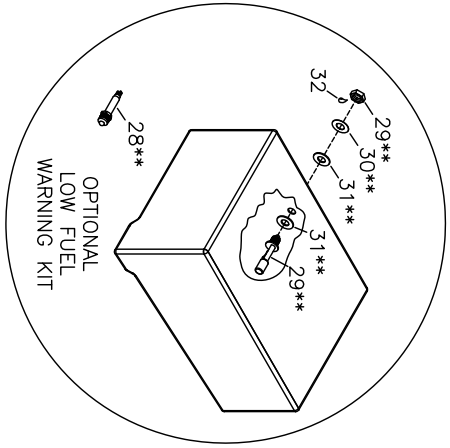
MD4186  
REV. C



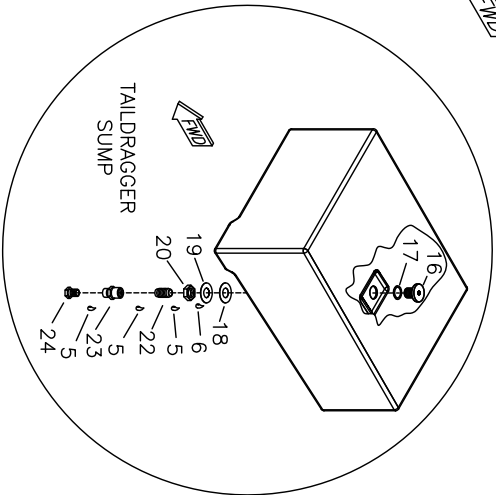
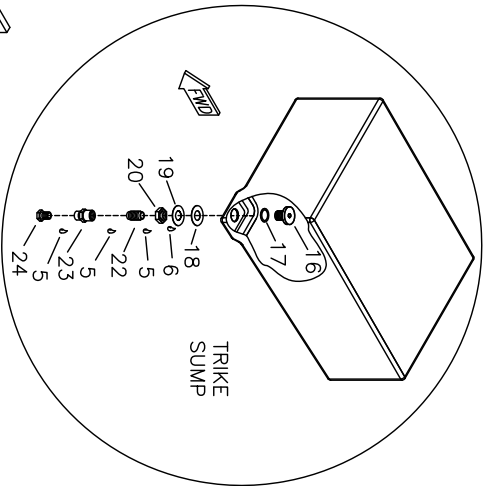
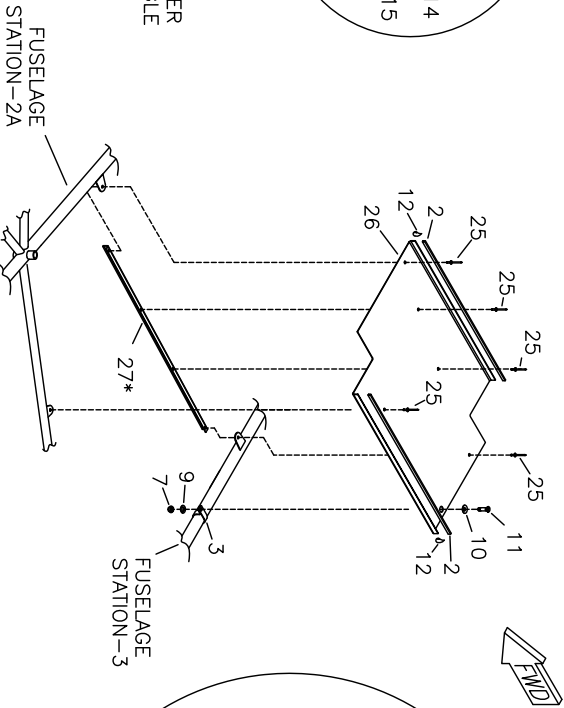
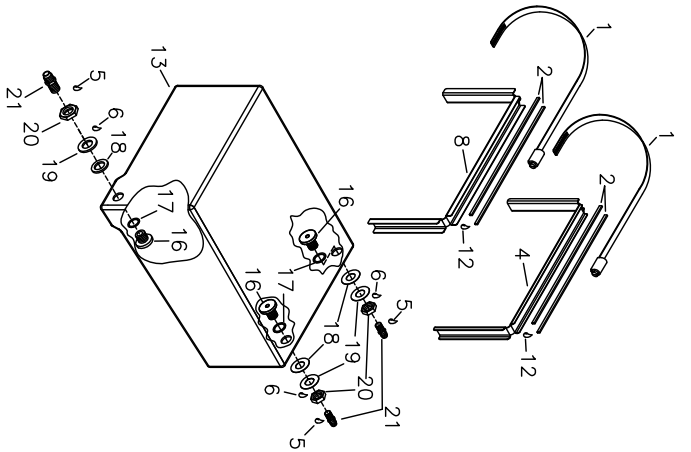
**RANS S-21 OUTBOUND**  
**TITAN X-340 - FUEL SYSTEM - FUSELAGE**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Gascolator Mount - High Pressure	KSPW0110	1
2.	1/8" Aluminum Rivet - Cherry Q	AAPQ-42	4
3.	Fuel Valve Mount Bracket	KPFS0037	2
4.	Fuel Valve Silicone Pad *	KPFS0106	1
5.	Fuel Line Assembly - Header Tank to Filter	KSPW0143	1
6.	Hose Clamp - 7/8"	5-6203	4
7.	Fuel Line Assembly - Fuel Pump to Fuel Valve	KSPW0144	1
8.	Nipple - Flared Tube & Pipe Thread	AN816-6D	4
9.	Thread Sealant **	----	0
10.	Fuel Valve	KSFS0018	1
11.	Fuel Line Assembly - Fuel Valve to Gascolator	KSPW0145	1
12.	Plastic Tie - 7.5"	N-TIES	4
13.	90 Degree 3/8" Hose Fitting	33982-6-6	4
14.	3/16" Bolt	AN3-4A	4
15.	3/16" Thin Washer	AN960-10L	4
16.	3/16" Shear Nut	AN364-1032A	4
17.	Brass Bolt	MS35214-20	2
18.	#4-40 Nut	AN364-440A	2
19.	Aluminum Bushing, 1/4" x .028" x .160" *	KAAC0044-2	0
20.	Black Fuel Line - 3/8"	27004	13 ft

\* Builder Modifies  
 \*\* Builder Supplied



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



**RRRNDSS-21 OUTBOUND**  
**TITAN X-340**  
**FUEL SYSTEM - HEADER TANK**

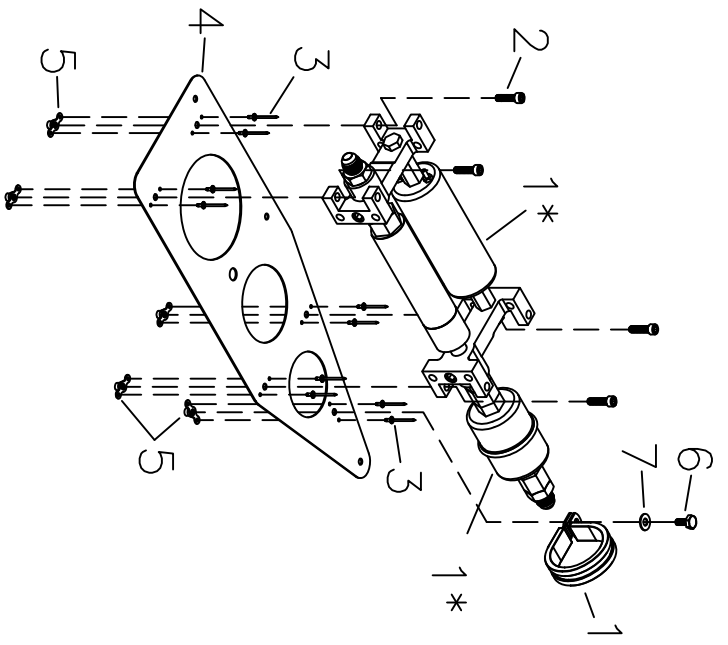
# RANS S-21 OUTBOUND

## TITAN X-340 - FUEL SYSTEM - HEADER TANK

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	15" Hose Clamp	KSHW0100	2
2.	Rubber Edging	8510K11	7 ft
3.	5/8" Plain Clamp	AN742-D10	1
4.	6.9 Gal. Header Tank Mount Channel - AFT	KPFS0110	1
5.	Thread Sealant *	----	0
6.	Loctite Blue *	----	0
7.	3/16" Shear Nut	AN364-1032A	1
8.	6.9 Gal. Header Tank Mount Channel - FWD	KPFS0111	1
9.	3/16" Thick Washer	AN960-10	1
10.	3/16" Countersunk Washer (100 degree)	NAS1169-10L	1
11.	3/16" Countersunk Machine Screw (100 degree)	MS24694-S50	1
12.	Adhesive - Superglue *	----	0
13.	Header Tank - 6.9 Gal.	KPFS0103	1
14.	Safety Wire *	----	0
15.	Fuel Cap	KSFS0007	1
16.	3/4" Bulkhead Fitting	KSFS0037	4
17.	O-Ring - 3/4" Bulkhead	KSFS0039	4
18.	Rubber Washer	KSFS0016	4
19.	3/4" Thick Washer	AN960-1216	4
20.	Nut - 3/4" Bulkhead - Reverse Thread	KSFS0038	4
21.	Nipple - Flared Tube & Pipe Thread	AN816-6D	3
22.	Close Nipple	KSFS0021	1
23.	Reducer	KSFS0022	1
24.	Flush Valve	KSFS0011	1
25.	1/8" Stainless Steel Rivet - Cherry Q	CCPQ-42	5
26.	6.9 Gal. Header Tank Mount	KPFS0109	1
27.	Header Tank Mount Angle	KPFU0758	1
28.	Red LED Indicator Light, 12V **	KSES0071	1
29.	Low Fuel Warning Switch **	KSES0072	1
30.	5/8" Thick Washer (AN960-1016) **	TW-5/8-W	1
31.	5/8" Rubber Washer **	KSFS0040	2
32.	DOW 730 Sealant *	----	0

\* Builder Supplied

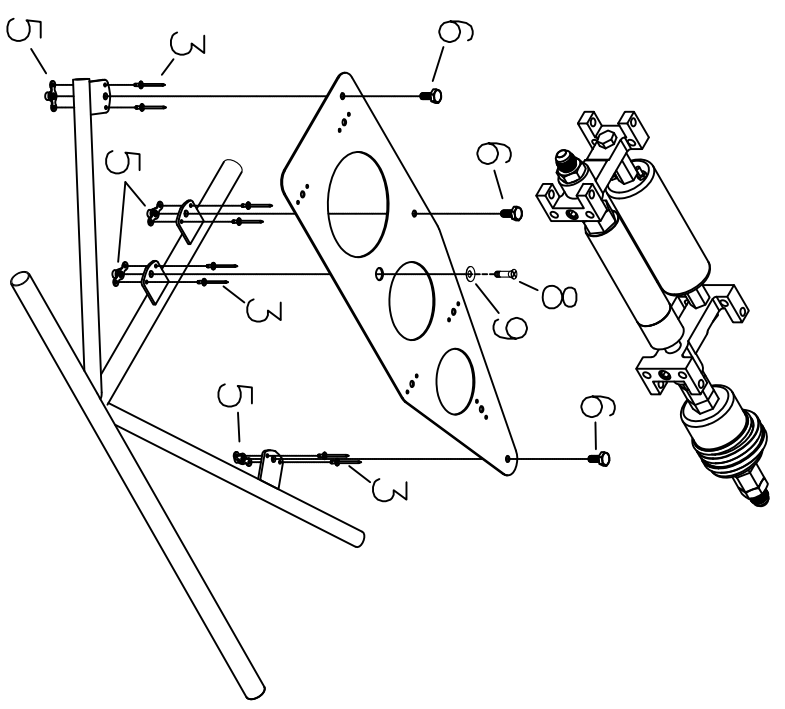
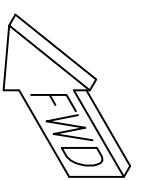
\*\* KAFS0003 - Low Fuel Warning Kit is Optional



PUMP TO MOUNT PLATE INSTALL

\* PUMP ASSEMBLED IN SHORT CONFIGURATION  
 PER DOCUMENTATION AT LINK BELOW.  
<https://www.flyefii.com/products/boost-pump/installation-tips/>

SOME DUPLICATED ITEMS  
 NOT NUMBERED FOR SIMPLICITY



MOUNT PLATE TO FUSELAGE INSTALL  
UNDER LEFT PILOT SEAT

**RRR** S-21 OUTBOUND  
 TITAN X-340  
 FUEL SYSTEM – ELECTRIC FUEL PUMP

# RANS S-21 OUTBOUND

PAGE 011B-08 / TITAN340

## TITAN X-340 - FUEL SYSTEM - ELECTRIC FUEL PUMP

<u>#</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>QUANTITY</u>
1.	Electric Fuel Pump - High Pressure	KSPW0104	1
2.	3/16" Socket Head Cap Screw	KSHW0111	4
3.	3/32" Aluminum Rivet	40APR1/8	18
4.	Fuel Pump Mounting Plate	KPFS0116	1
5.	3/16" Nut Plate	K-1000-3	9
6.	3/16" Bolt	AN3-3A	4
7.	3/16" Thin Washer	AN960-10L	1
8.	3/16" Countersunk Machine Screw (100 degree)	MS24694-S50	1
9.	3/16" Countersunk Washer (100 degree)	NAS1169-10L	1

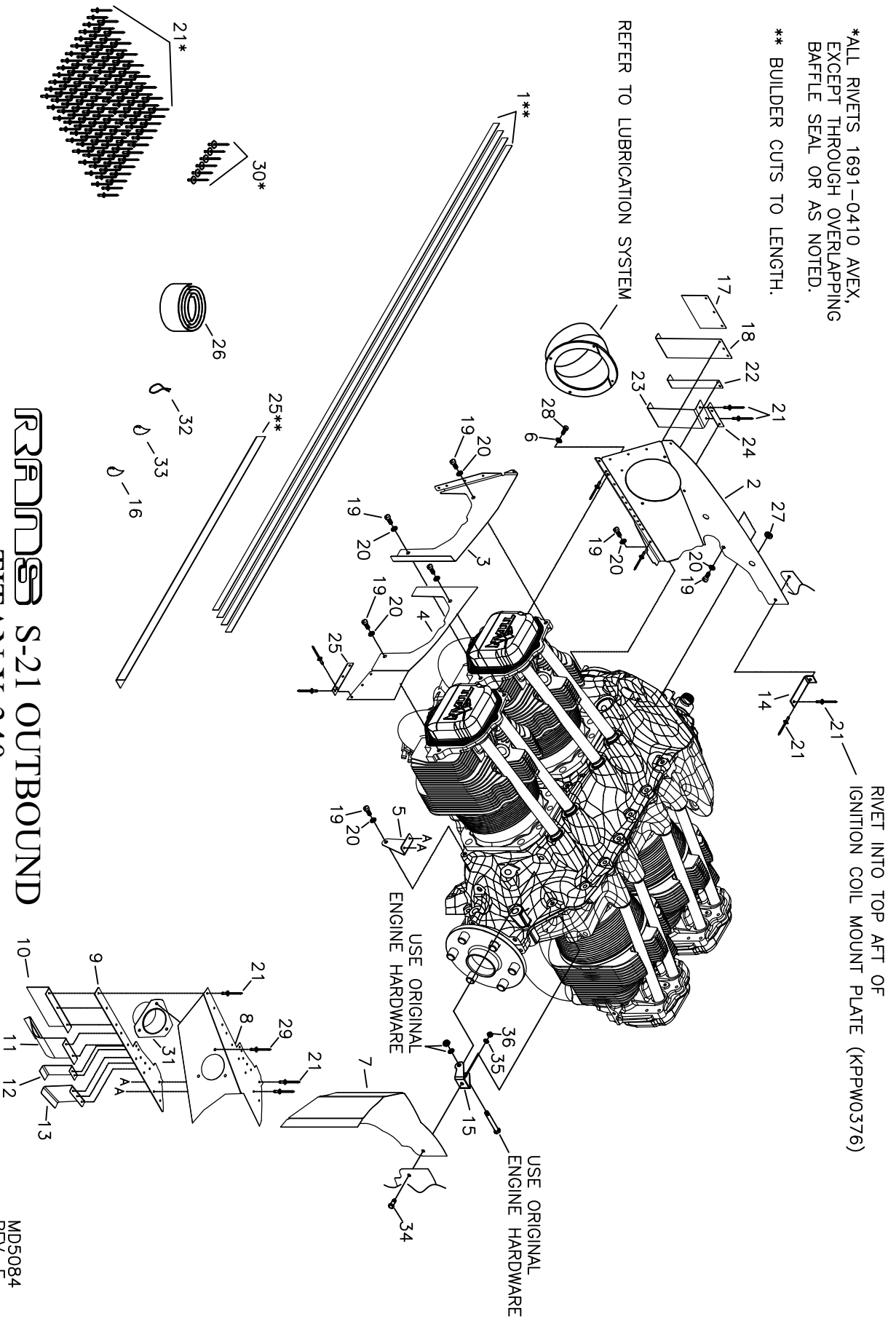
9/11/2018

REV. A

\*ALL RIVETS 1691-0410 AVEX,  
EXCEPT THROUGH OVERLAPPING  
BAFFLE SEAL OR AS NOTED.

\*\* BUILDER CUTS TO LENGTH.

REFER TO LUBRICATION SYSTEM



**RRRMMSS S-21 OUTBOUND  
TITAN X-340  
BAFFLE - RIGHT INSTALLATION**

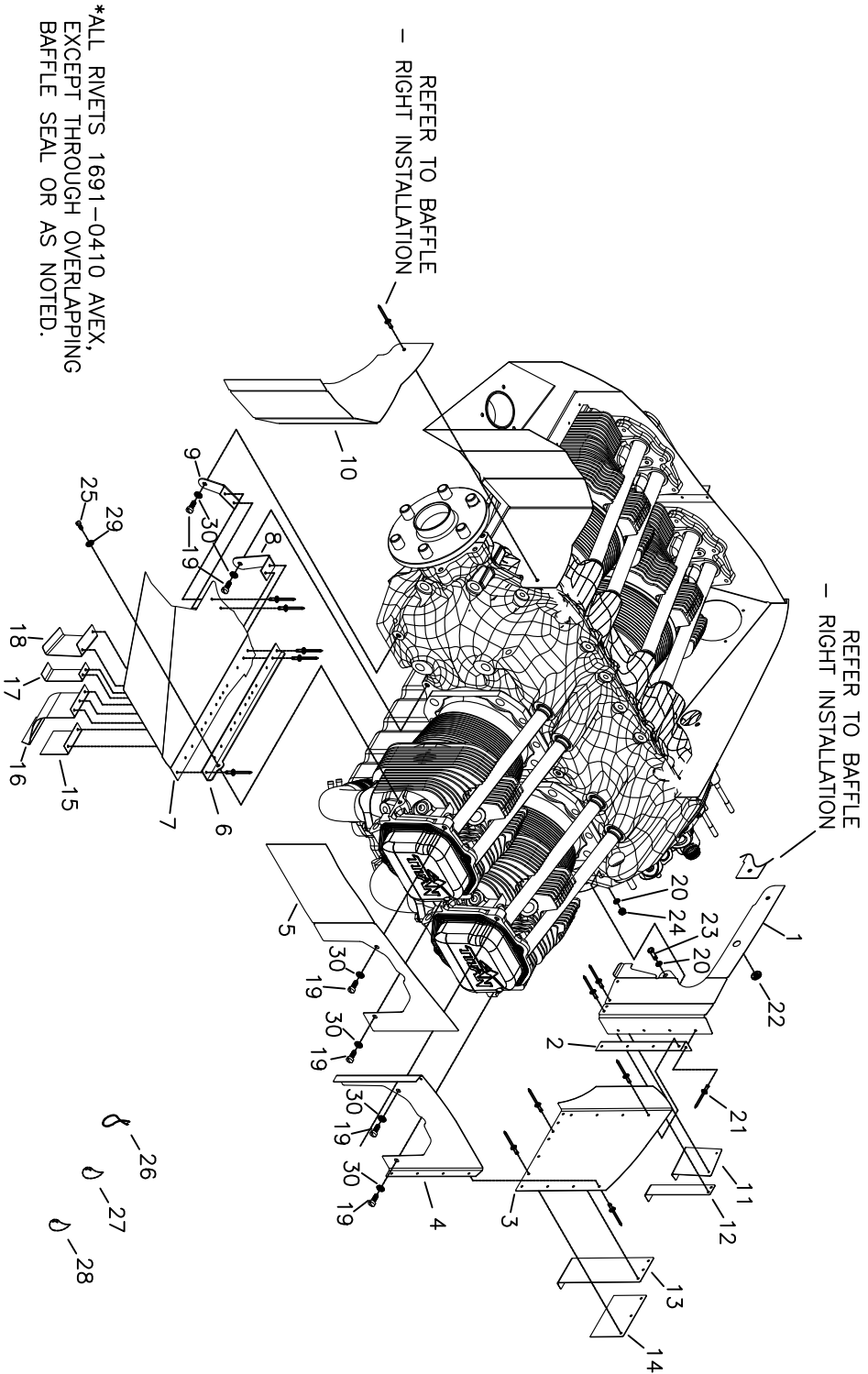
MD5084  
REV. F

# RANS S-21 OUTBOUND

**TITAN X-340 - BAFFLE - RIGHT INSTALLATION**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Baffle Seal Capture Strip	KPPW0343	4
2.	Cooling Baffle - AFT - Right	KPPW0380	1
3.	Cooling Baffle - Side - Right - Aft	KPPW0326-3	1
4.	Cooling Baffle - Side - Right - Fwd	KPPW0326-4	1
5.	Cooling Baffle - Support Angle - Right - Fwd	KPPW0326-18	1
6.	#8 Loc Washer	KSHW0120	1
7.	Cooling Baffle - FWD - Right	KPPW0326-12	1
8.	Cooling Baffle - Inlet Floor - Right	KPPW0326-10	1
9.	Cooling Baffle - Inlet Floor - Reinforcement	KPPW0326-9	1
10.	Cooling Baffle - Outer Cylinder Plate - FWD	KPPW0326-19	1
11.	Cooling Baffle - Inner Cylinder Plate - FWD	KPPW0326-20	1
12.	Cooling Baffle - Outer Barrel Plate - FWD	KPPW0326-22	1
13.	Cooling Baffle - Inner Barrel Plate - RH	KPPW0326-21R	1
14.	AFT Ignition Brace *	KPES0036	1
15.	Cooling Baffle - FWD Support Bracket	KPPW0377	1
16.	Silicone Seal - High Temp - Red **	----	0
17.	Cooling Baffle - Outer Cylinder Plate - AFT	KPPW0326-31	1
18.	Cooling Baffle - Inner Cylinder Plate - AFT	KPPW0326-25	1
19.	1/4" Course Thread Screw	KSHW0103	7
20.	1/4" Loc Washer	AN935-416L	7
21.	1/8 Aluminum Rivet - Avex	1691-0410	126
22.	Cooling Baffle - Outer Barrel Plate - AFT	KPPW0326-26	1
23.	Cooling Baffle - Inner Barrel Plate - LH	KPPW0326-21L	1
24.	Cooling Baffle - Inner Barrel Plate - Mount	KPPW0326-28	1
25.	Inlet Support Angle *	KPPW0326-30	1
26.	Baffle Seal Material *	KPPW0328	14 ft.
27.	Rubber Grommet	MS35489-6	1
28.	8-32 Bolt	KSHW0102	1
29.	3/16 Aluminum Rivet - Cherry Q	AAPQ-62	3
30.	Aluminum Fabric Rivet	ABL4-2AV	6
31.	Cabin Heat Inlet	KPPW0324	1
32.	Safety Wire **	----	0
33.	Loctite Blue **	----	0
34.	3/16" Bolt	AN3-3A	1
35.	3/16" Thin Washer	AN960-10L	1
36.	3/16" Shear Nut	AN364-1032A	1

\* Builder Modifies  
 \*\* Builder Supplied



**RRRND S-21 OUTBOUND  
TITAN X-340  
BAFFLE - LEFT INSTALLATION**

MD5084  
REV. B



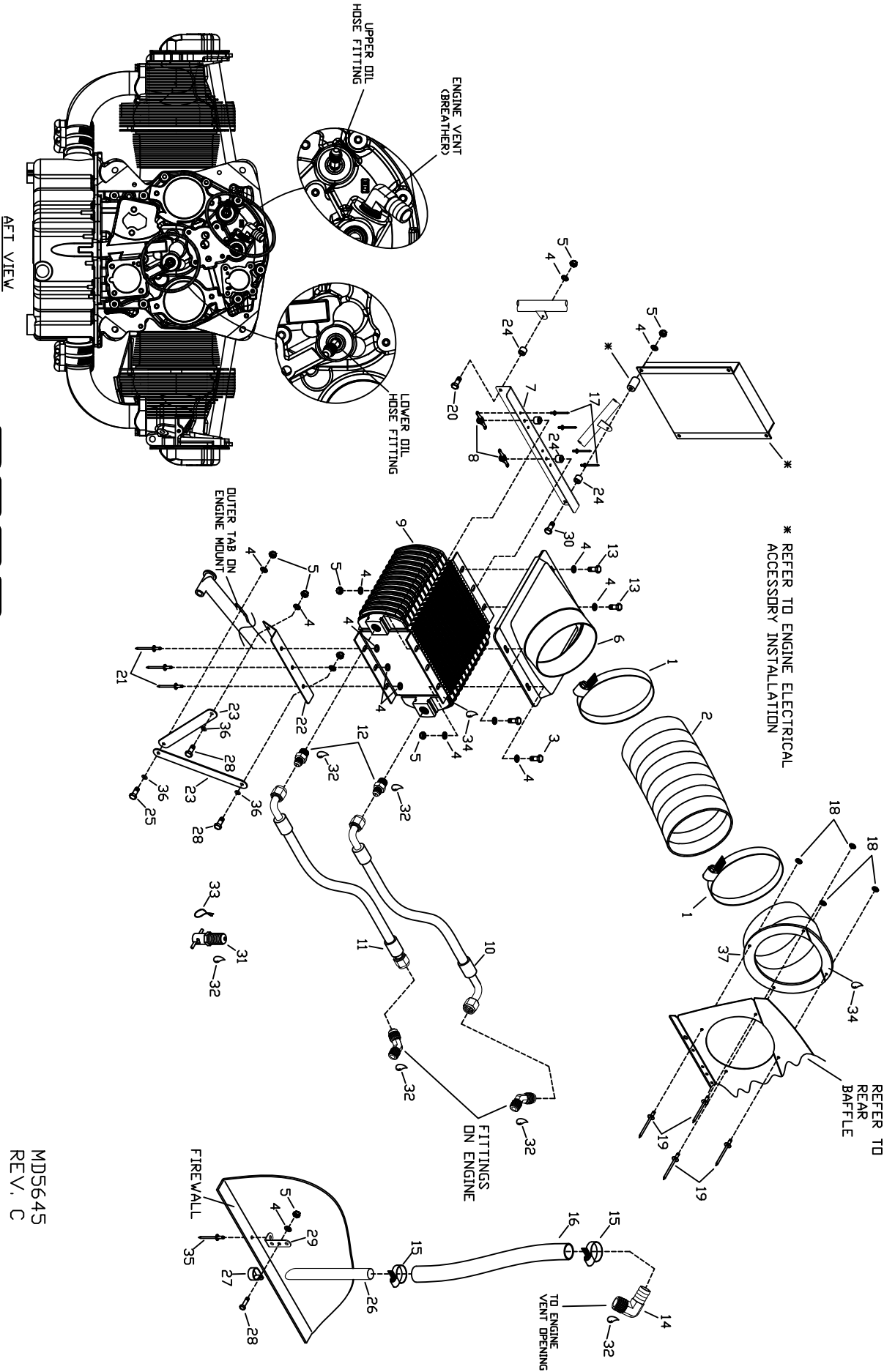
**RANS S-21 OUTBOUND**  
**TITAN X-340 - BAFFLE - LEFT INSTALLATION**

PAGE 011C-04 / TITAN340

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Cooling Baffle - AFT Inner Left	KPPW0326-7	1
2.	Cooling Baffle - AFT Support Angle	KPPW0326-29	1
3.	Cooling Baffle - AFT - Outer Left	KPPW0326-6	1
4.	Cooling Baffle - Side - Left - AFT	KPPW0326-1	1
5.	Cooling Baffle - Side - Left - FWD	KPPW0326-2	1
6.	Cooling Baffle - Support Angle - Left - FWD	KPPW0326-14	1
7.	Cooling Baffle - Inlet Floor - Left	KPPW0326-13	1
8.	Cooling Baffle - Support Angle - Left - AFT	KPPW0326-15	1
9.	Cooling Baffle - Support Angle - Left - FWD	KPPW0326-17	1
10.	Cooling Baffle - FWD - Left	KPPW0326-16	1
11.	Cooling Baffle - Inner Barrel Plate - AFT	KPPW0326-27	1
12.	Cooling Baffle - Outer Barrel Plate - AFT	KPPW0326-26	1
13.	Cooling Baffle - Inner Cylinder Plate - AFT	KPPW0326-25	1
14.	Cooling Baffle - Outer Barrel Plate - AFT	KPPW0326-24	1
15.	Cooling Baffle - Outer Cylinder Plate - AFT	KPPW0326-23	1
16.	Cooling Baffle - Inner Cylinder Plate - FWD	KPPW0326-20	1
17.	Cooling Baffle - Outer Barrel Plate - FWD	KPPW0326-22	1
18.	Cooling Baffle - Inner Barrel Plate - LH	KPPW0326-21L	1
19.	1/4" Course Thread Screw	KSHW0103	6
20.	1/4" Thin Washer	AN960-416L	2
21.	1/8" Aluminum Rivet - Avex	1691-0410	52
22.	Rubber Grommet	MS35489-6	1
23.	1/4" Bolt	AN4-6A	1
24.	1/4" Shear Nut	AN364-428A	1
25.	8-32 Bolt	KSHW0102	1
26.	Safety Wire *	----	0
27.	Loctite Blue *	----	0
28.	Silicone Seal - High Temp - Red *	----	0
29.	#8 Loc Washer	KSHW0120	1
30.	1/4" Loc Washer	AN935-416L	6

\*Builder Supplied

9/11/2018  
REV. A



**RRANDOLPH S-21 OUTBOUND**  
**TITAN X-340**  
**LUBRICATION SYSTEM INSTALLATION**

AFT VIEW

MDS645  
REV. C

# RANS S-21 OUTBOUND

PAGE 011D-02 / TITAN340

## TITAN X-340 - LUBRICATION SYSTEM ASSEMBLY & INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Hose Clamp - 4 1/2"	5-5264	2
2.	Hose - 4"	KPPW0378	1 ft
3.	3/16" Bolt	AN3-4A	2
4.	3/16" Thin Washer	AN960-10L	15
5.	3/16" Shear Nut	AN364-1032A	8
6.	Oil Cooler - Lower Shroud - 4"	KPPW0375	1
7.	Oil Cooler Mount Angle	KPPW0325	1
8.	3/16" Nut Plate	K-1000-3	2
9.	Oil Cooler - 13 Row	KSPW0141	1
10.	Oil Hose Assembly - Upper	KSPW0122	1
11.	Oil Hose Assembly - Lower	KSPW0123	1
12.	Straight Adapter - AN-8 Male to 3/8" NPT Male - SS	KSPW0146	2
13.	3/16" Bolt	AN3-7A	2
14.	5/8" Hose x 1/2" Male NPT 90° Elbow Barb	KSPW0098	1
15.	Hose Clamp - 1 1/16"	5-5210	2
16.	Oil Line - 5/8"	KSPW0117	2 ft
17.	3/32" Aluminum Rivet	40APR1/8	4
18.	1/8" Small Brass Washer	AN960-B4	4
19.	1/8" Aluminum Rivet - Avex	1691-0410	4
20.	3/16" Bolt	AN3-6A	1
21.	3/16" Stainless Steel Rivet - Cherry Q	CCPQ-64	3
22.	FWD Oil Cooler Support	KPPW0379	1
23.	Mount Bracket - Radiator *	KPAC0174	2
24.	Spacer Bushing, 3/8" x .095" x .30" *	KPAC0060	1
25.	3/16" Bolt	AN3-5A	1
26.	Engine Breather Vent Tube	KPPW0332	1
27.	5/8" Plain Clamp	AN742-D10	1
28.	3/16" Bolt	AN3-3A	3
29.	Angle Bracket	KPAC0004	1
30.	3/16" Bolt	AN3-13A	1
31.	Oil Drain Valve	KSPW0114	1
32.	Thread Sealant **	----	0
33.	Safety Wire **	----	0
34.	Silicone Seal - High Temp - Red **	----	0
35.	3/16" Stainless Steel Rivet - Cherry Q	CCPQ-62	1
36.	Spacer Bushing, 1/4" x .028" x .125" *	KAAC0044-2	0
37.	Oil Cooler - Upper Duct - 4"	KPPW0373	1

\* Builder Modifies

\*\* Builder Supplied

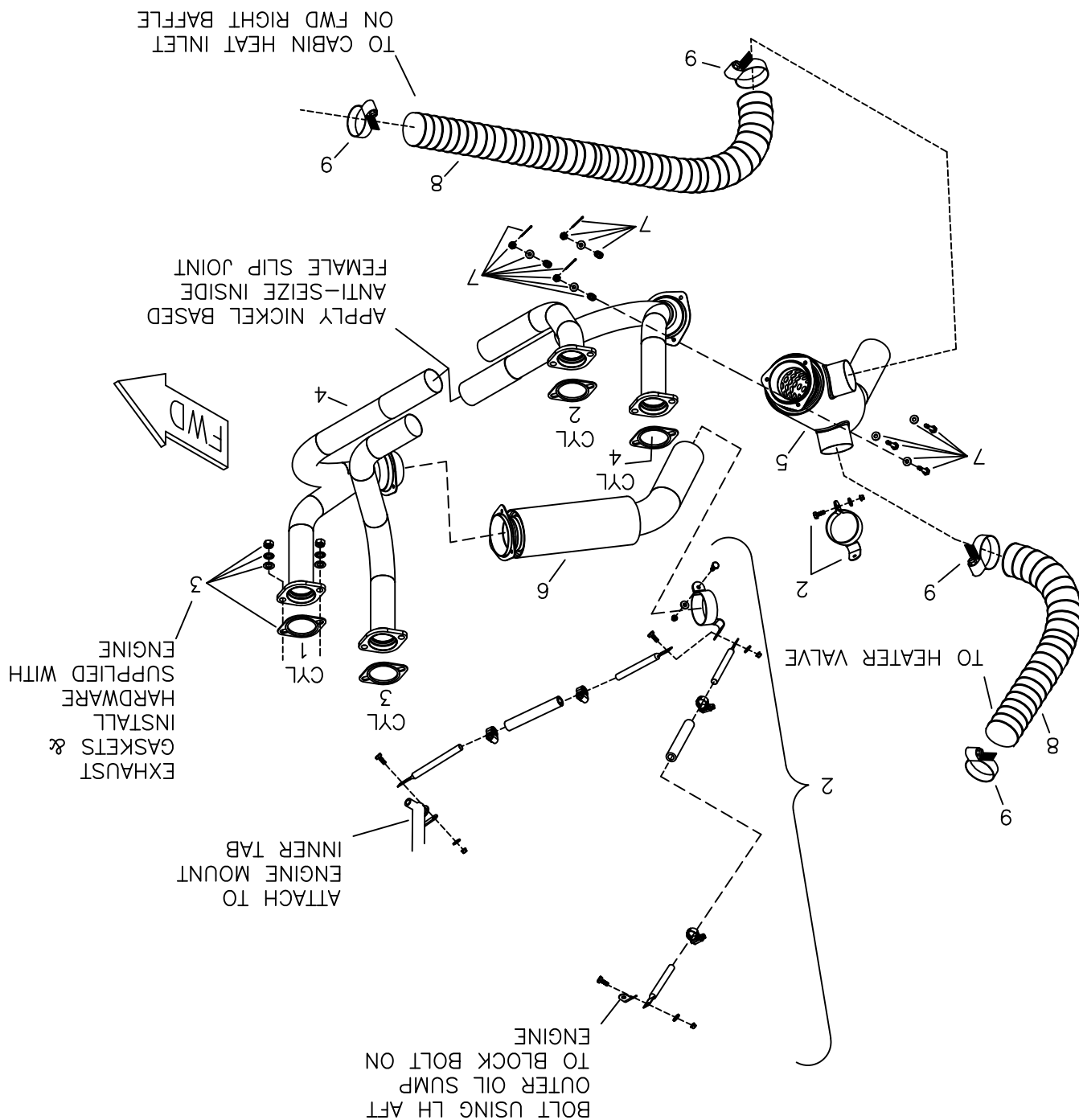
9/11/2018

REV. C

# RANDS S-21 OUTBOUND TITAN X-340 CROSS-OVER EXHAUST ASSEMBLY

MD5644  
REV. B

DUPPLICATED PARTS FOR LEFT AND RIGHT  
ASSEMBLIES NOT CALLED OUT INDIVIDUALLY.



# RANS S-21 OUTBOUND

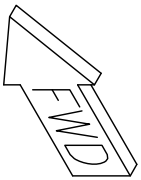
## TITAN X-340 - CROSS-OVER EXHAUST ASSEMBLY

KSEX0017

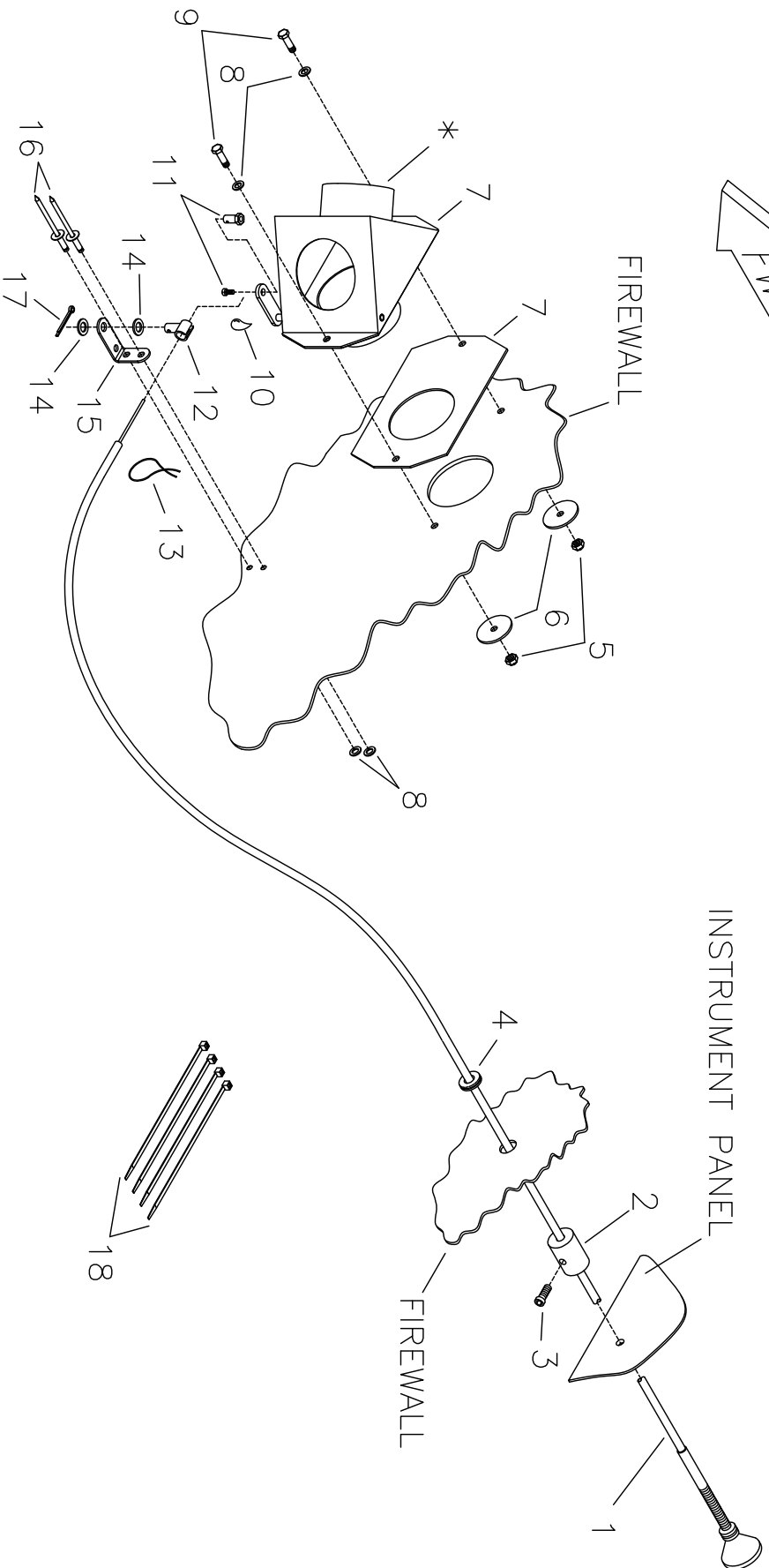
<u>#</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>QUANTITY</u>
1.	Titan X-340 Cross-over Exhaust Assembly (Complete)	KSEX0017	1
2.	Tailpipe Support System Kit *	KSEX0017-1	0
3.	Gaskets & Install Hardware **	-----	0
4.	Crossover Exhaust System , Cylinders 1,2,3,4 *	KSEX0017-3	0
5.	Right Muffler with Cabin Heat Shroud and Tailpipe *	KSEX0017-4	0
6.	Left Muffler and Tailpipe *	KSEX0017-5	0
7.	Ball Joint Hardware Kit *	KSEX0017-6	0
8.	2" Duct Hose	KPSY0046	6 ft
9.	Hose Clamp - 2 1/4"	5-5228	4

\* Supplied with KSEX017, may be purchased seperately from RANS Parts Dept

\*\* Supplied with Engine



\* CONNECTS TO DUCT HOSE.  
REFER TO EXHAUST ASSEMBLY



**RRRINDS S-21 OUTBOUND**  
**TITAN X-340**  
**CABIN HEATER INSTALLATION**

MD5596  
REV. - ORIG

# RANS S-21 OUTBOUND

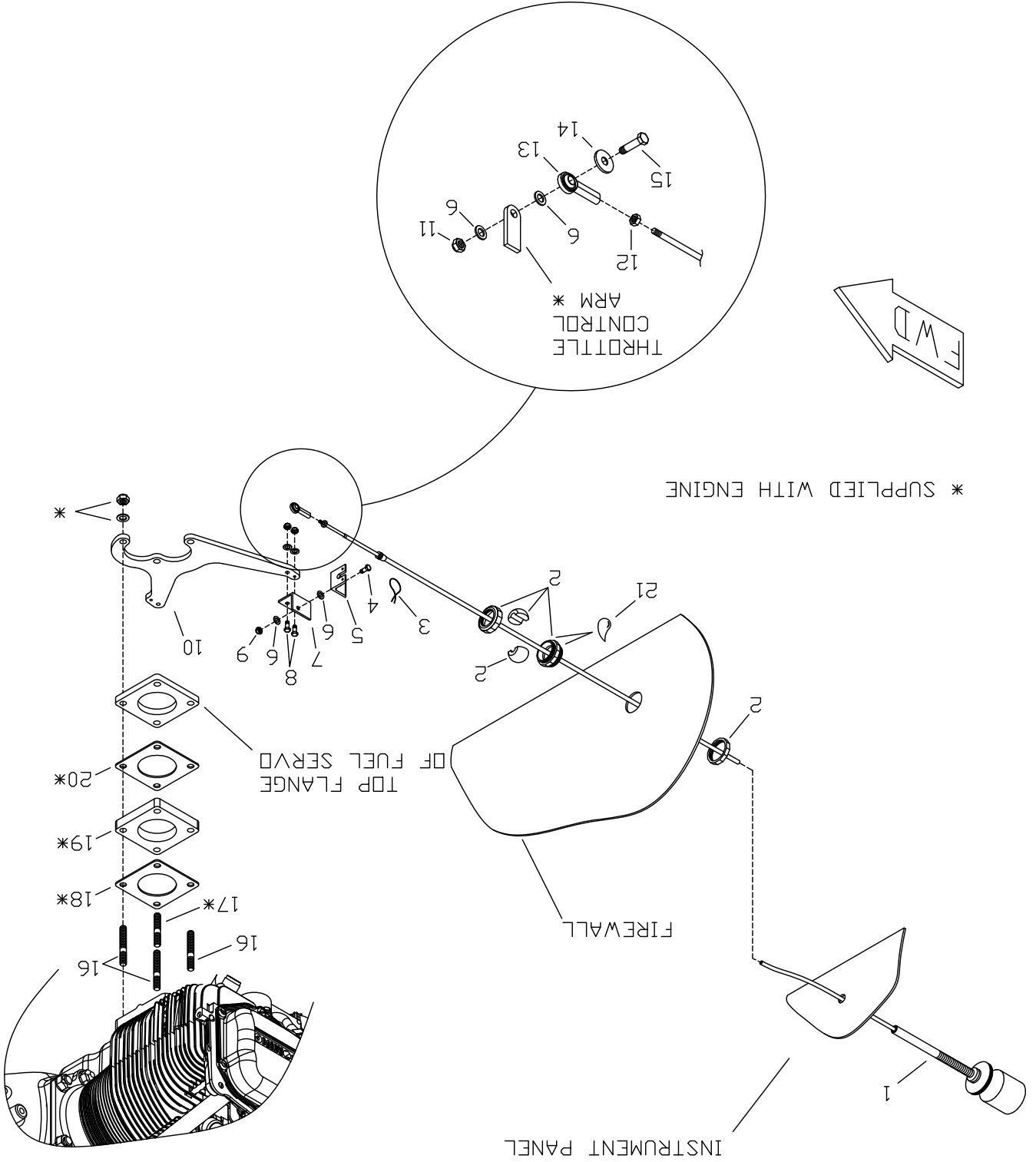
## TITAN X-340 - CABIN HEATER INSTALLATION

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Control Cable	4-336	1
2.	Cable Friction Block	T-STOP	1
3.	Socket Head Cap Screw	T-SC	1
4.	3/16" Rubber Grommet	KSAC0002	1
5.	3/16" Shear Nut	AN364-1032A	2
6.	3/16" Large Washer	AN970-3	2
7.	Heater Tri-Box	KSSY0005	1
8.	3/16" Thin Washer	AN960-10L	4
9.	3/16" Bolt	AN3-3A	2
10.	Loctite Blue *	----	0
11.	Cable Swivel Stop & Screw	2361	1
12.	Cable Housing Swivel Stop	KPBS0009	1
13.	Safety Wire *	----	0
14.	1/4" Thick Washer	AN960-416	2
15.	Cable Housing Swivel Stop Bracket	KPBS0010	1
16.	3/16" Stainless Steel Rivet - Cherry Q	CCPQ-62	2
17.	Small Cotter Pin	MS24665-134	1
18.	Plastic Tie - 7.5"	N-TIES	4

\* Builder Supplied

# RPM S-21 OUTBOUND TITAN X-340 THROTTLE ASSEMBLY

MDS645  
REV. A





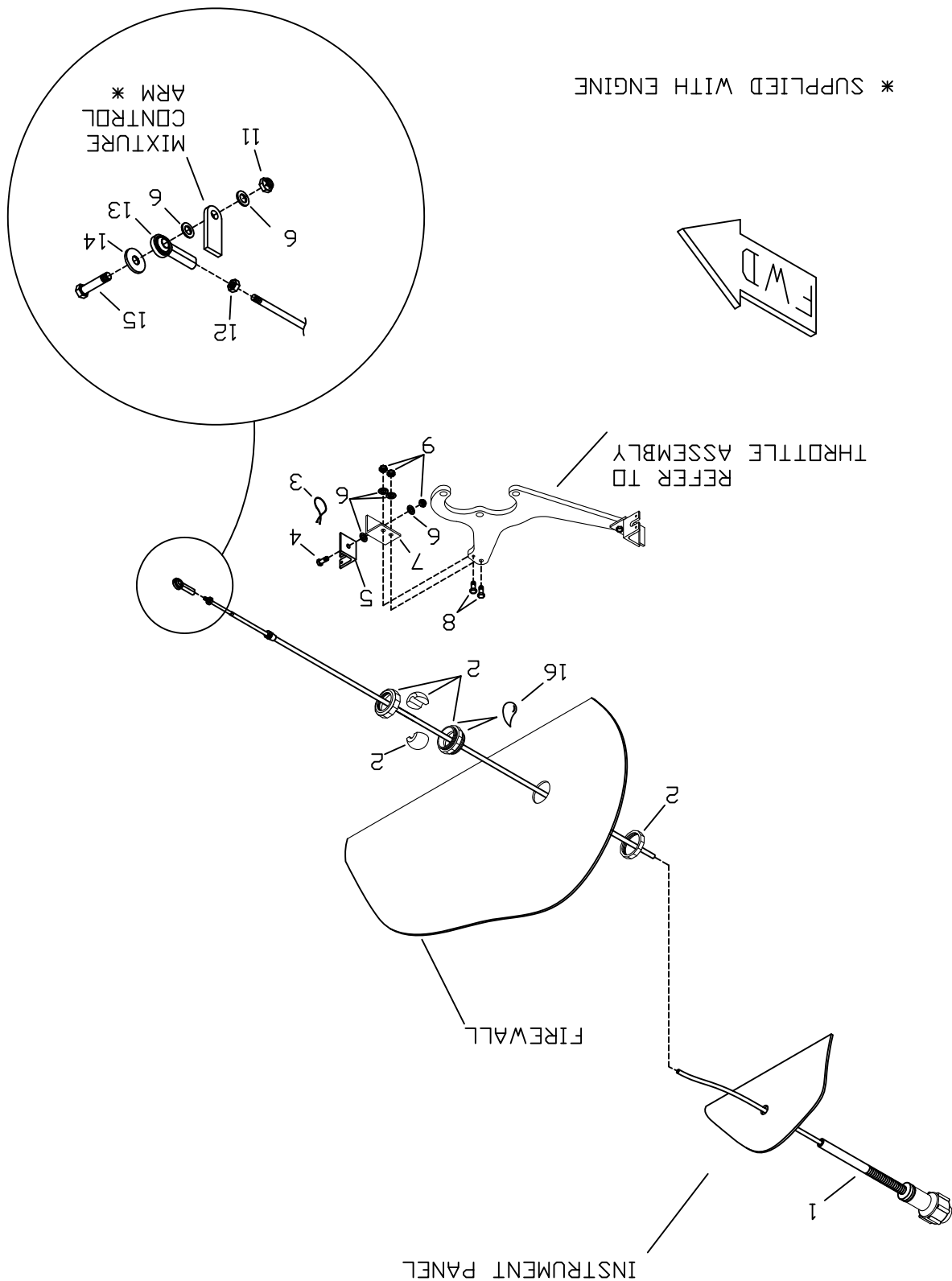
**RANS S-21 OUTBOUND**  
**TITAN X-340 - THROTTLE ASSEMBLY**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Throttle Control Cable	KSCS0028	1
2.	Eyeball Firewall Fitting	KSHW0118	1
3.	Safety Wire *	-----	0
4.	3/16" Bolt	AN3-4A	1
5.	Teleflex Retainer	W-TEL-R	1
6.	3/16" Thin Washer	AN960-10L	6
7.	Retainer Angle - 1" x 1" x 1.25" **	KPPW0341	1
8.	3/16" Bolt	AN3-5A	2
9.	3/16" Shear Nut	AN364-1032A	3
10.	Throttle / Mixture Control Mount	KPPW0340	1
11.	3/16" Shear Nut - Steel	AN364-1032C	1
12.	3/16" Plain Nut	AN345-10	1
13.	Female Rod End	NF-3	1
14.	#10 Washer - Stainless Steel	BSHW0022	1
15.	3/16" Bolt	AN3-7A	1
16.	Fuel Servo Mount Stud - Longer	KSHW0114	3
17.	Fuel Servo Mount Stud - Long ***	-----	0
18.	Gasket ***	-----	0
19.	Fuel Servo Spacer ***	-----	0
20.	Gasket ***	-----	0
21.	Loctite Blue *	-----	0

\* Builder Supplied  
 \*\* Builder Modifies  
 \*\*\* Supplied with Engine

# RAND S-21 OUTBOUND TITAN X-340 MIXTURE CONTROL ASSEMBLY

MDS645  
REV. B



# RANS S-21 OUTBOUND

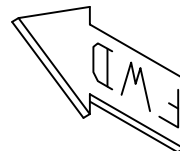
## TITAN X-340 - MIXTURE CONTROL ASSEMBLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Mixture Control Cable	KSCS0029	1
2.	Eyeball Firewall Fitting	KSHW0118	1
3.	Safety Wire *	----	0
4.	3/16" Bolt	AN3-4A	1
5.	Teleflex Retainer	W-TEL-R	1
6.	3/16" Thin Washer	AN960-10L	6
7.	Retainer Angle - 1" x 1" x 1.25" **	KPPW0341	0
8.	3/16" Bolt	AN3-5A	2
9.	3/16" Shear Nut	AN364-1032A	3
10.	3/16" Thick Washer	AN960-10	2
11.	3/16" Shear Nut - Steel	AN364-1032C	1
12.	3/16" Plain Nut	AN345-10	1
13.	Female Rod End	NF-3	1
14.	#10 Washer - Stainless Steel	BSHW0022	1
15.	3/16" Bolt	AN3-7A	1
16.	Loctite Blue *	----	0

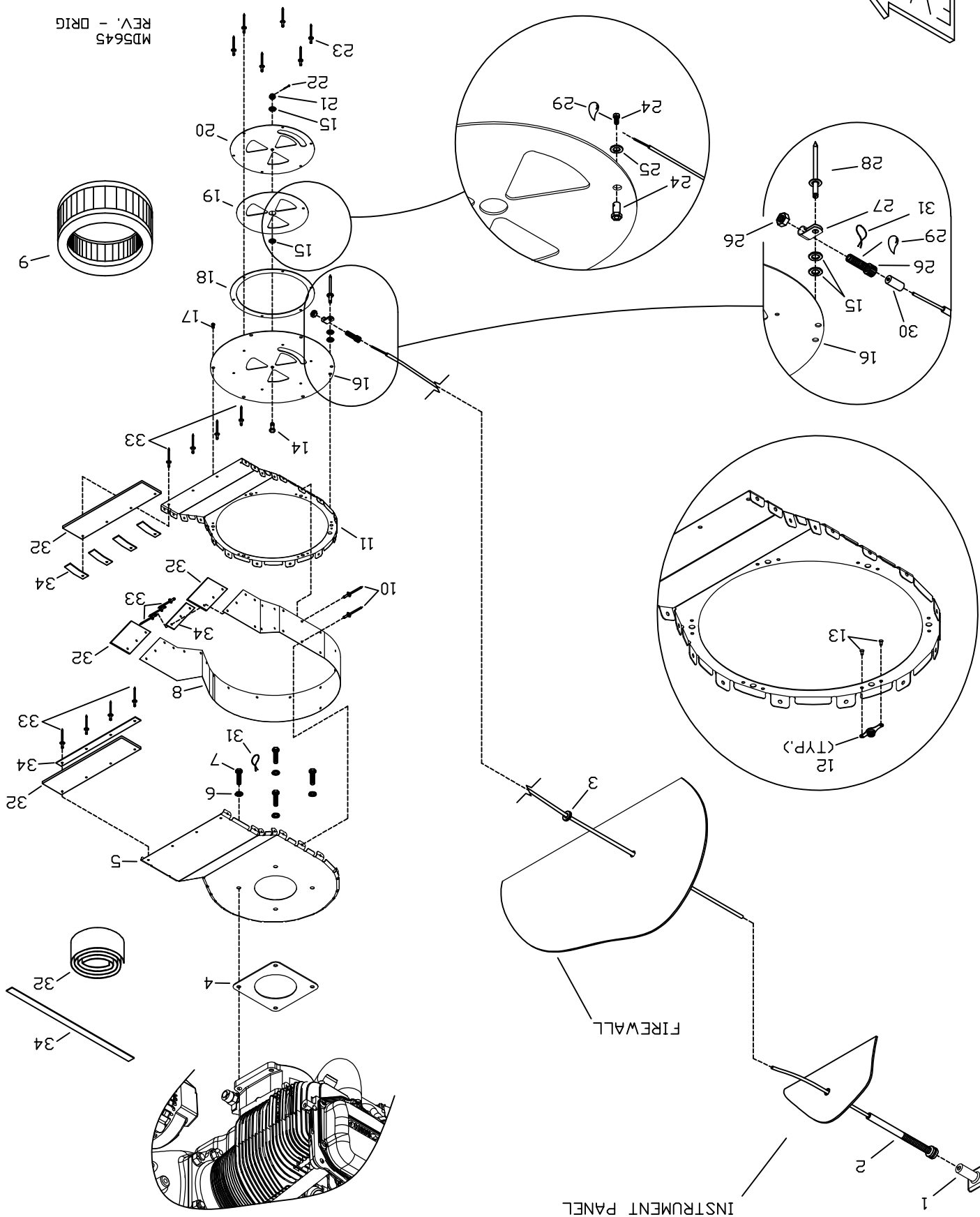
\* Builder Supplied

\*\* Builder Modifies

# RRRMS S-21 OUTBOUND TITAN X-340 AIRBOX ASSEMBLY



MDS645  
REV. - DRIG



# RANS S-21 OUTBOUND

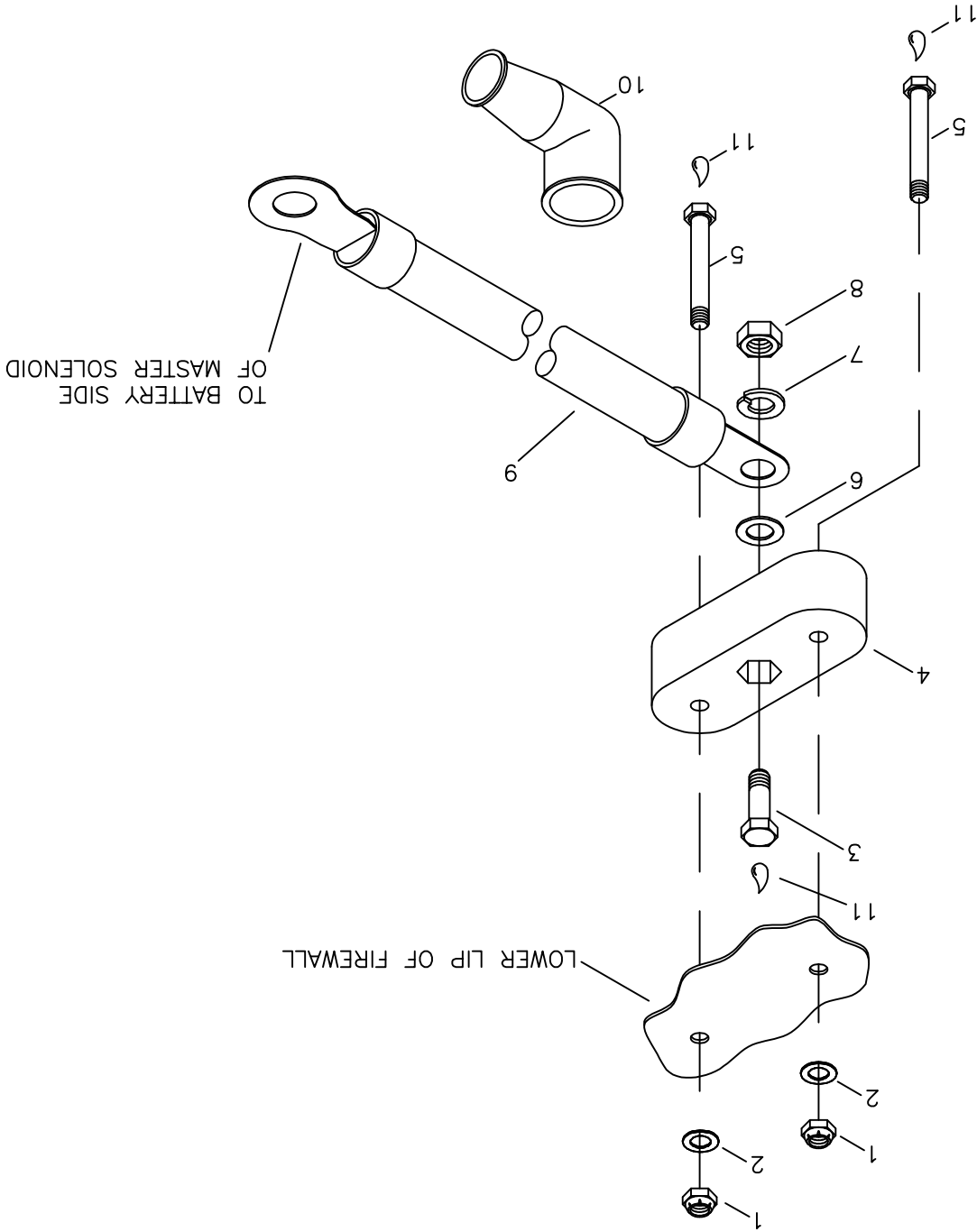
## TITAN X-340 - AIRBOX ASSEMBLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Alternate Air Knob	KSCS0032	1
2.	Alternate Air Control Cable Assembly	KSCS0030	1
3.	3/16" Rubber Grommet	KSAC0002	1
4.	Gasket *	----	0
5.	Airbox Top	KPPW0333	1
6.	1/4" Loc Washer	AN935-416L	4
7.	1/4" Drilled Head Bolt - Course - .625"	KSHW0127	4
8.	Airbox Side	KPPW0337	1
9.	Air Filter	KSPW0113	1
10.	1/8" Aluminum Rivet - Cherry Q	AAPQ-41	38
11.	Airbox Bottom	KPPW0334	1
12.	8-32 Nut Plate	MS21047-08	6
13.	3/32" Solid Rivet - Flush (100 Degree)	AN426-AD-3-5	12
14.	3/16" Bolt - Drilled Shank	AN3-4	1
15.	3/16" Thick Washer	AN960-10	4
16.	Airbox Filter Cover	KPPW0335	1
17.	8-32 Machine Screw	AN526-832R6	6
18.	Alternate Air Spacer Ring	KPPW0336	1
19.	Alternate Air Valve	KPPW0339	1
20.	Alternate Air Valve Retainer	KPPW0338	1
21.	3/16" Castle Nut	AN310-3	1
22.	Small Cotter Pin	MS24665-134	1
23.	1/8" Aluminum Rivet - Cherry Q	AAPQ-42	6-
24.	Cable Swivel Stop & Screw	2361	1
25.	1/4" Thin Washer	AN960-416L	1
26.	Adjustable Cable Ferrule	12553	1
27.	1/4" Plain Clamp	AN742-D4	1
28.	3/16" Aluminum Rivet - Cherry Q	AAPQ-64	1
29.	Loctite Blue **	----	0
30.	Cable Housing Endcap	ENDCAP-12000	1
31.	Safety Wire **	----	0
32.	Baffle Seal Material ***	KPPW0328	0
33.	1/8" Aluminum Rivet - Avex	1691-0410	14
34.	Baffle Seal Capture Strip ***	KPPW0343	0

\* Supplied with Fuel Servo  
 \*\* Builder Supplied  
 \*\*\* Builder Modifies

# OPTIONS - REMOTE CHARGING POST INSTALLATION TITAN X-340 RRMS S-21 OUTBOUND

MD5501  
REV. - ORIG



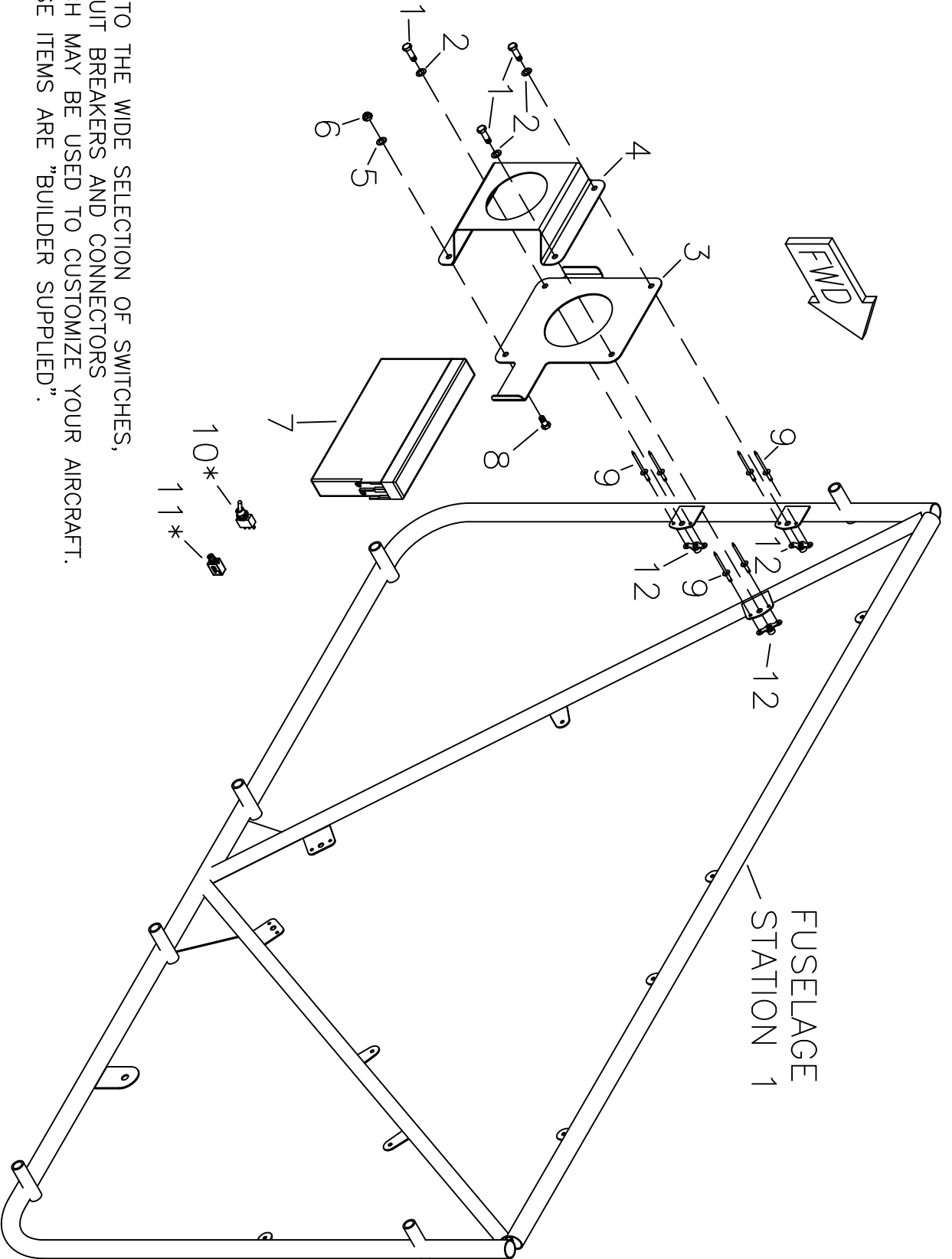
# RANS S-21 OUTBOUND

## TITAN X-340 - OPTIONS - REMOTE CHARGING POST

KPES0043

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Shear Nut -Steel	AN364-1032C	2
2.	3/16" Thin Washer	AN960-10L	2
3.	1/4" Plain Bolt	1/4 X 1 BOLT	1
4.	Isolator Block	KPES0026	1
5.	3/16" Bolt	AN3-7A	2
6.	1/4" Thick Washer	AN960-416	1
7.	1/4" Loc Washer	AN935-416L	1
8.	1/4" Plain Nut	AN345-416	1
9.	Remote Battery Charger Cable	KAES0023	1
10.	Terminal Boot	MS25171-3S	1
11.	Silicone Seal *	----	0

\* Builder Supplied



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

**RRRMMMS S-21 OUTBOUND**  
**TITAN X-340**  
**OPTIONS - IGNITION BACKUP BATTERY INSTALLATION**

MD5501  
 REV. A



# RANS S-21 OUTBOUND

PAGE 0111-08 / TITAN340

## TITAN X-340 - OPTIONS - IGNITION BACKUP BATTERY INSTALLATION

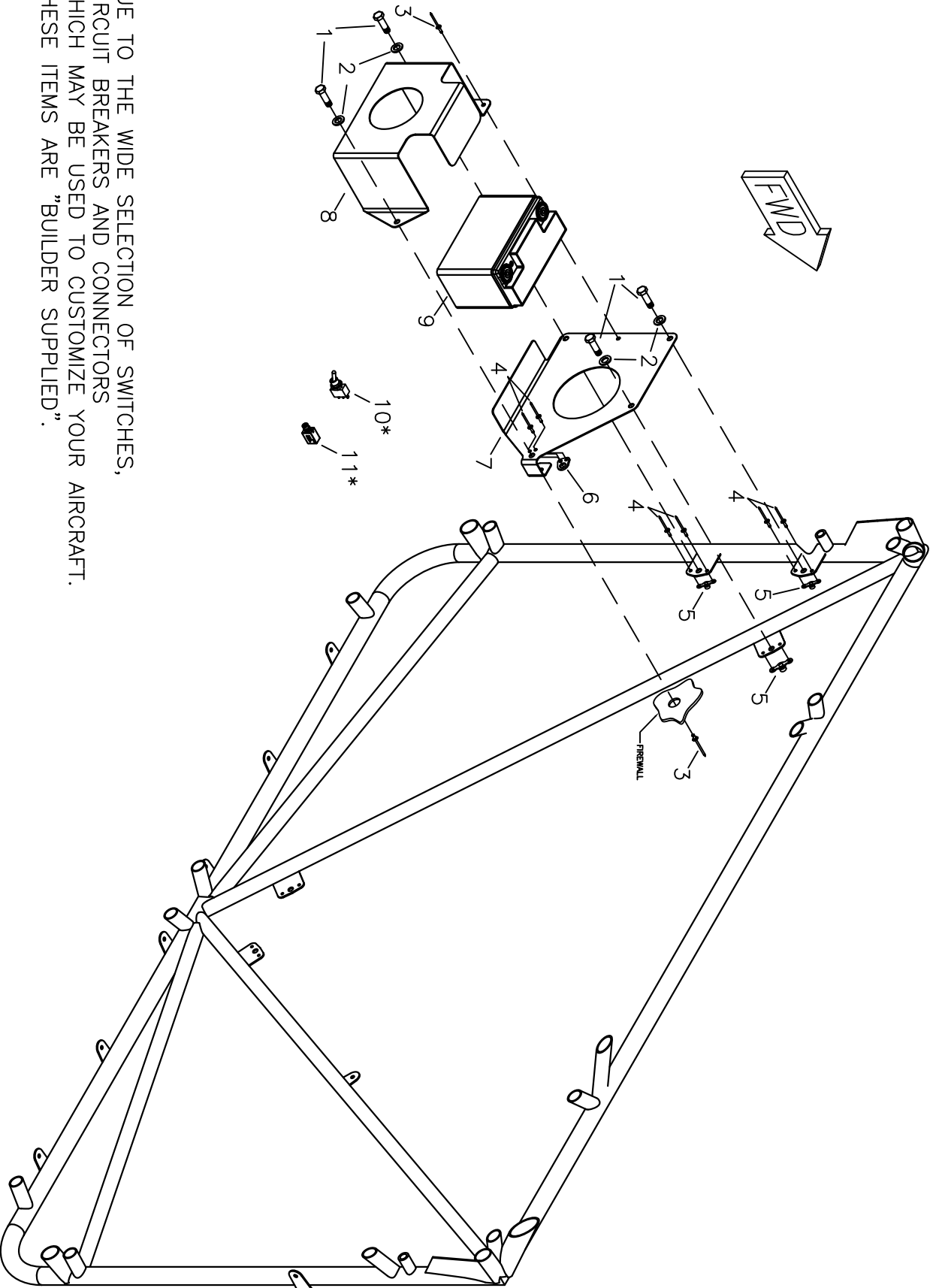
KPES0044

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Bolt	AN3-4A	3
2.	3/16" Thin Washer	AN960-10L	3
3.	Backup Battery Mount Plate	KPES0041	1
4.	Backup Battery Cover	KPES0042	1
5.	3/16" Thick Washer	AN960-10	1
6.	3/16" Shear Nut	AN364-1032A	1
7.	Backup Battery	KSES0078	1
8.	3/16" Bolt	AN3-3A	1
9.	3/32" Aluminum Rivet	40APR1/8	6
10.	SPDT Switch (ON-ON) *	----	0
11.	10 Amp Breaker *	----	0
12.	3/16" Nut Plate	K-1000-3	3

\* Builder Supplied

9/11/2018

REV. A



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

**RRRMMSS S-21 OUTBOUND  
TITAN X-340**

**OPTIONS - EARTH-X - IGNITION BACKUP BATTERY INSTALLATION**

MD5501  
REV. ORIG

# RANS S-21 OUTBOUND

## TITAN X-340 - OPTIONS - EARTH X IGNITION BACKUP BATTERY INSTALLATION

PAGE 0111-10/TITAN 340

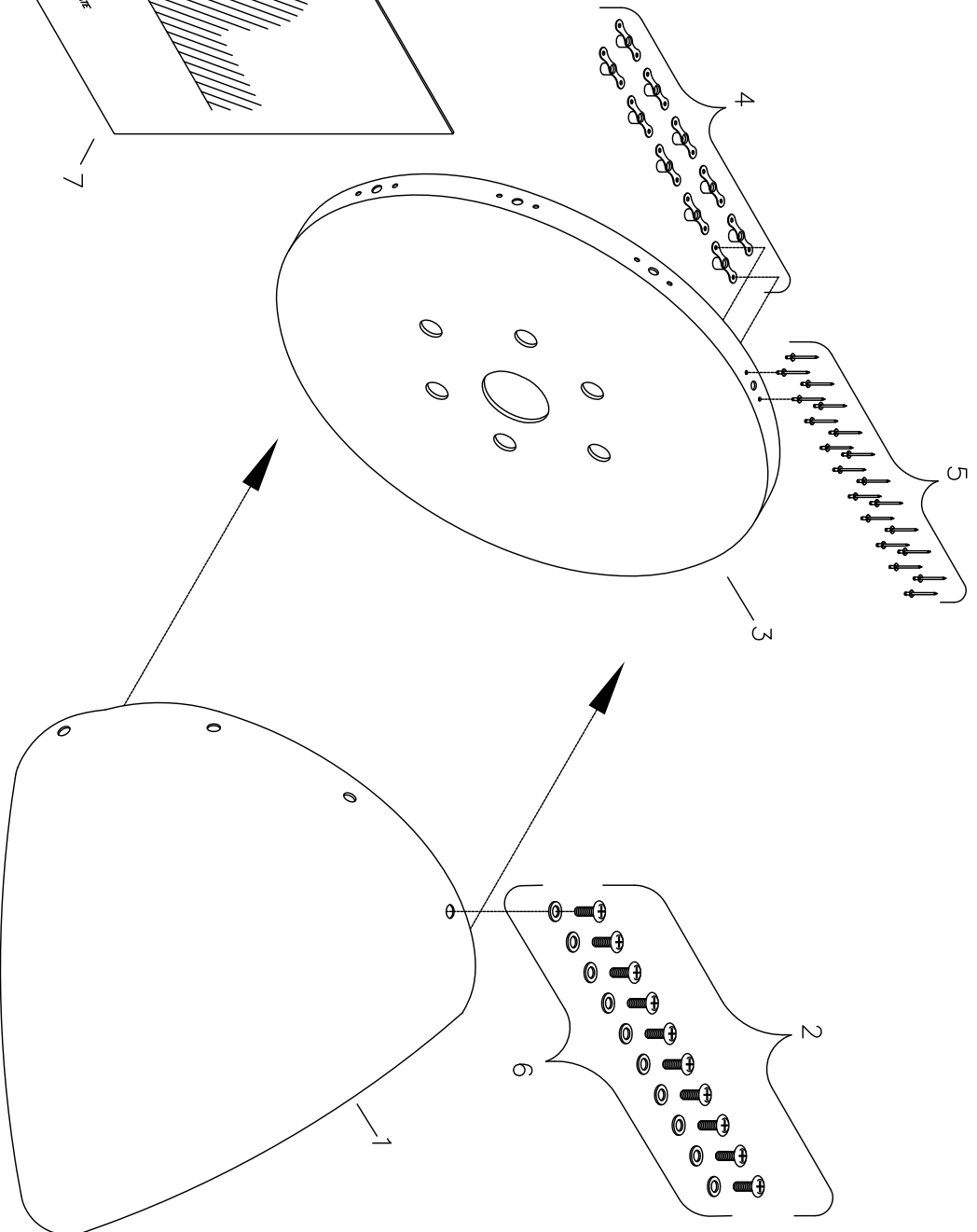
(Kit # KPES0053)

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Bolt	AN3-3A	4
2.	3/16" Thin Washer	AN960-10L	4
3.	1/8" Stainless Steel Rivet	CCPQ-41	2
4.	3/32" Aluminum Rivet	40APR1/8	8
5.	3/16" Nut Plate	K-1000-3	3
6.	3/16" Corner Nut Plate	MS21086L3	1
7.	Earth X - Backup Battery Mount Plate	KPES0048	1
8.	Earth X - Backup Battery Front Plate	KPES0049	1
9.	Earth X Battery - ETX104	KSES0079	1
10.	SPDT Switch (ON-ON) *	----	0
11.	10 Amp Breaker *	----	0

\* Builder Supplied

9/11/2018  
REV. A

NOTE: PROP EXTENSION REQUIRED.  
REFER TO PROPELLER INSTALLATION



**RRRNNNS S-21 OUTBOUND**  
**TITAN X-340**  
**13" SPINNER ASSEMBLY**

MD5146  
 REV. - ORIG

# RANS S-21 OUTBOUND

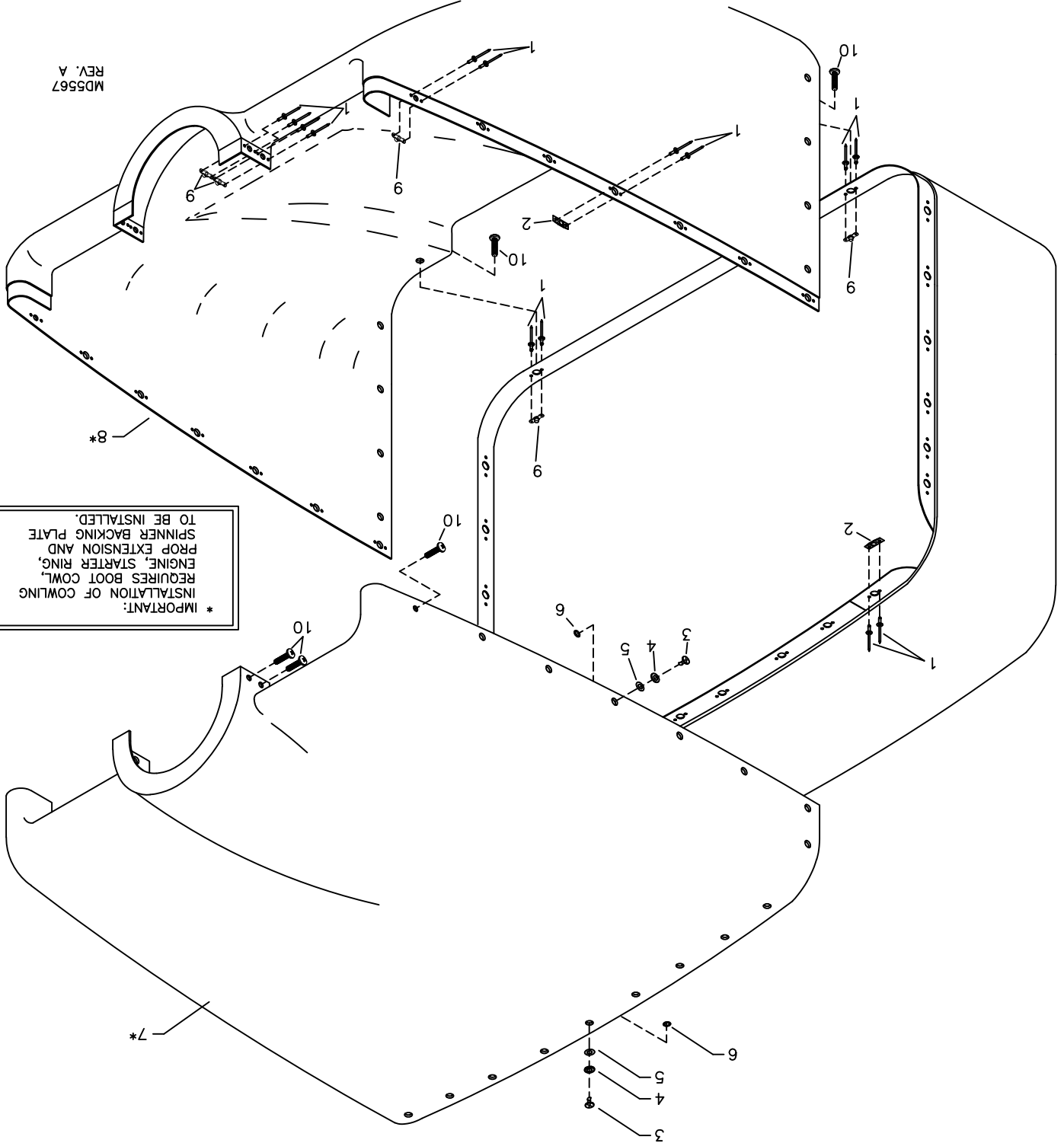
## TITAN X-340 - 13" SPINNER ASSEMBLY

KAPR0001

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Spinner Dome - 13"	KPPW0232	1
2.	Pan Head Phillips Bolt (5/8" long)	KSHW0071	10
3.	Spinner Backing Plate - 13" (SAE#2)	KPPW0305	1
4.	3/16" Nut Plate	K-1000-3	10
5.	3/32" Aluminum Rivet	40APR1/4	20
6.	3/16" Thin Washer	AN960-10L	10
7.	Spinner Cut-out Template *	-----	0

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

# RPM S-21 OUTBOUND TITAN X-340 COWLING ASSEMBLY & INSTALLATION



MDS567  
REV. A

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

# RANS S-21 OUTBOUND

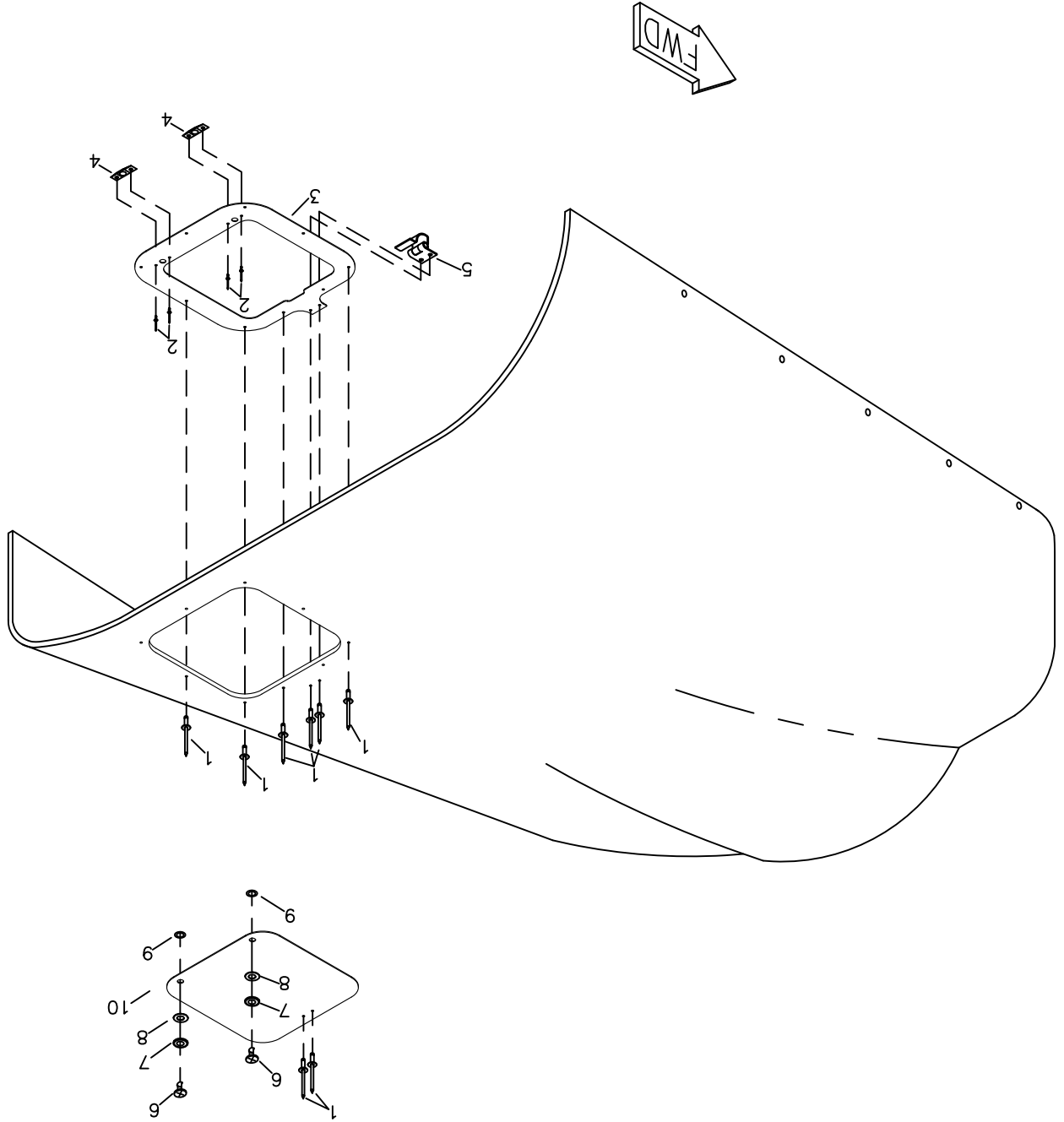
## TITAN X-340 - COWLING ASSEMBLY & INSTALLATION

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	3/32" Aluminum Rivet	40APR1/4	78
2.	1/4 Turn Receptacle	#302	31
3.	1/4 Turn Stud *	#220	16
3.	1/4 Turn Stud *	#180	2
3.	1/4 Turn Stud *	#240	11
3.	1/4 Turn Stud *	#200	16
3.	1/4 Turn Stud *	#260	6
4.	Rubber Washer	#201	31
5.	Wear Washer Nylon	#103	31
6.	Snap Ring	#101	31
7.	Cowling - Upper - Titan X-340	KPCW0049	1
8.	Cowling - Lower - Titan X-340	KPCW0050	1
9.	3/16" Nut Plate	K-1000-3	8
10.	Pan Head Phillips Bolt (5/8" long)	KSHW0071	8

\* Use as needed for secure attachment

# RRRDS S-21 OUTBOUND TITAN X-340 OIL CHECK DOOR INSTALLATION

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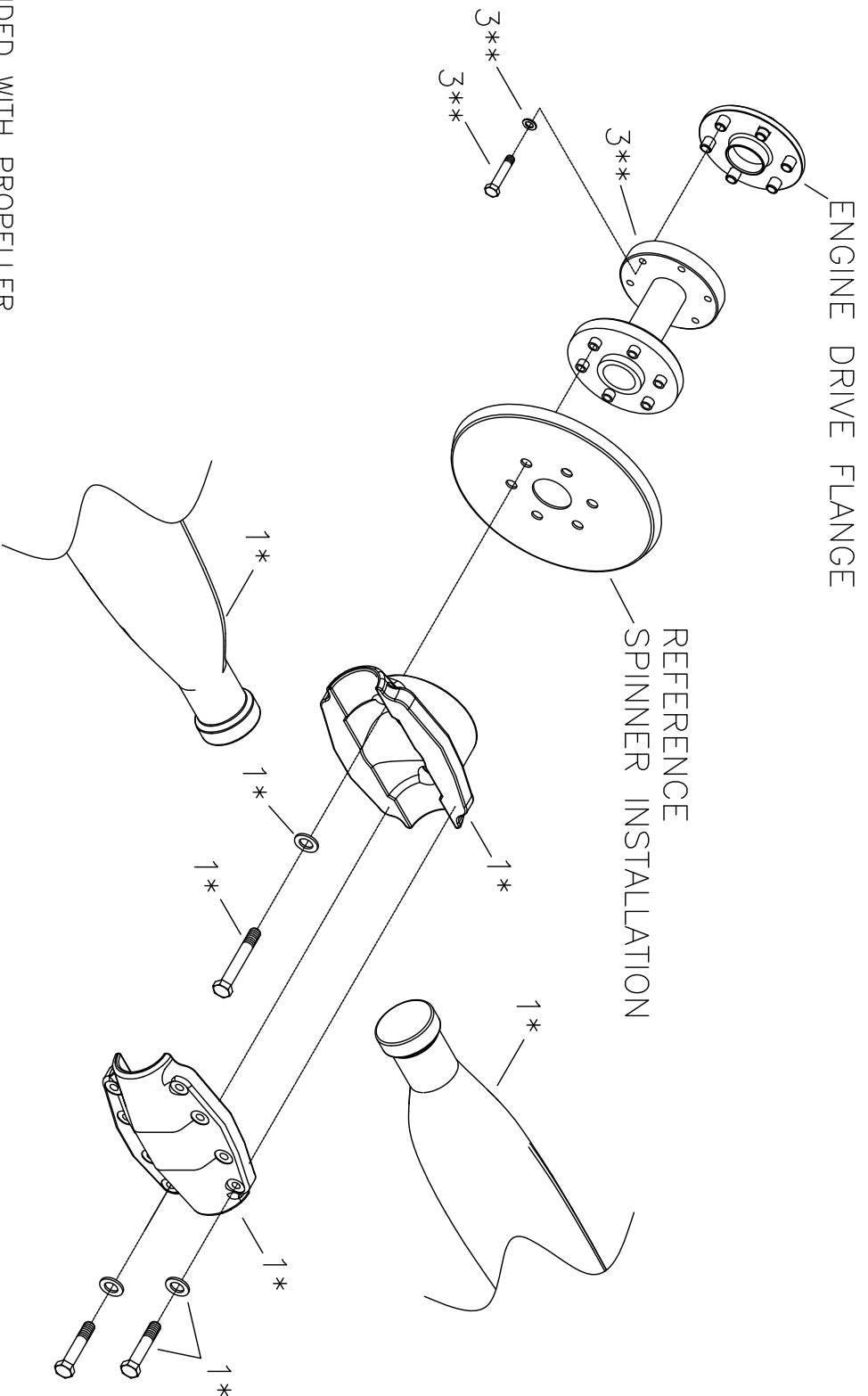
# RANS S-21 OUTBOUND

PAGE 011K-04 / TITAN340

## TITAN X-340 - OIL CHECK DOOR INSTALLATION

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	1/8" Aluminum Rivet - Avex	1691-0410	13
2.	3/32" Aluminum Rivet	40APR1/4	4
3.	Oil Door Frame	KPCW0048	1
4.	1/4 Turn Receptacle	#302	2
5.	Oil Door Hinge	KSHW0053	1
6.	1/4 Turn Stud	#180	2
7.	Rubber Washer	#201	2
8.	Wear Washer Nylon	#103	2
9.	Snap Ring	#101	2
10.	Oil Door	KPCW0047	1

\* INCLUDED WITH PROPELLER  
\*\* INCLUDED WITH EXTENSION ASSEMBLY



**RRRPPDS S-21 OUTBOUND  
TITAN X-340  
WHIRL WIND PROPELLER INSTALLATION**

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REV. - ORIG

# RANS S-21 OUTBOUND

## TITAN X-340 - WHIRLWIND PROPELLER INSTALLATION

<u>#</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>QUANTITY</u>
1.	2-Blade - Propeller	KSPR0004	1
2.	Spinner Backing Plate - 13" **	-----	0
3.	4" Prop Extension Assembly (SAE#2) *	KSPW0108	1

\* Mounting Hardware included with Prop or Extension Assembly

\*\* Referenced from Spinner Assembly