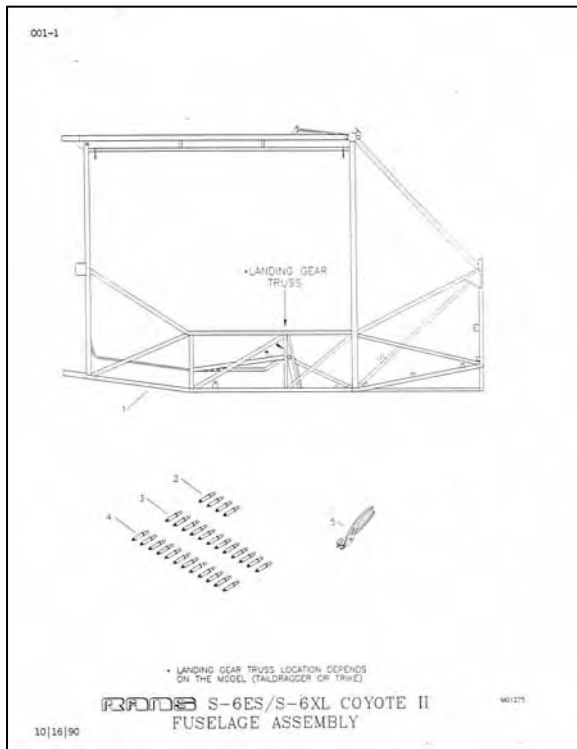


The RANS CD manual is designed to be printable on 3-hole punched paper on your home printer. If you have the pre-printed manual, follow the directions for rotation below.

If you desire to NOT print the pages, you may use the features available with ADOBE Reader to rotate the pages on your computer screen.

After the manual pages are printed, rotate the Parts Drawing page 180° to face the Parts List page. See the diagram below.



Parts Drawing page

001-2

S-6ES COYOTE II - FUSELAGE

#	DESCRIPTION	PART NUMBER	QUANTITY
1	S-6ES Fuselage (Taildragger)	KAFU0003	1
1	S-6ES Fuselage (Trike)	KAFU0005	1
2	#40 Silver Clecos	#40CLECOS	4
3	#30 Copper Clecos	#30CLECOS	12
4	#11 Gold Clecos	#11CLECOS	12
5	Cleco Pliers	CLECO PLIERS	1

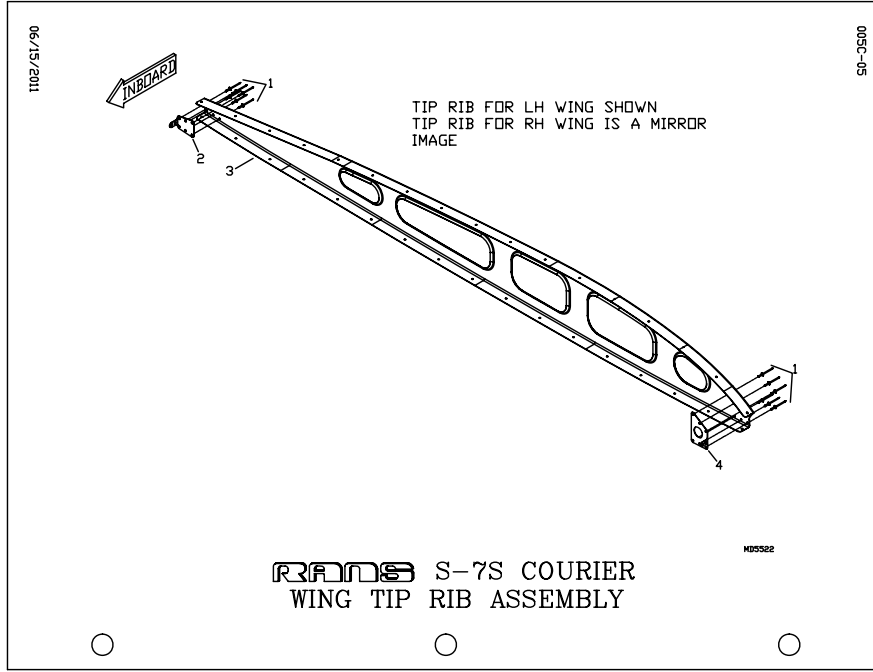
224/98

Parts List page

STEP 1:

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

PARTS DRAWING PAGE



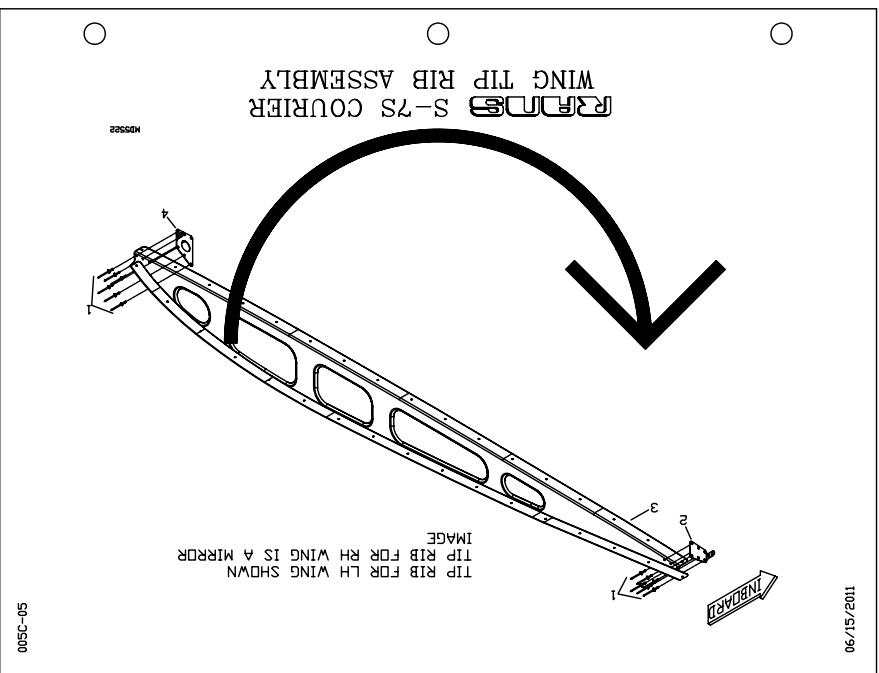
EXAMPLE ONLY.  
MAY NOT REPRESENT ACTUAL PAGES  
FROM YOUR MANUAL.

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
3. RIB CLIP TRAILING EDGE - RH	KPW0372-R	1
4. RIB CLIP LEADING EDGE - LH	KPW0544-L	1
5. RIB CLIP LEADING EDGE - RH	KPW0544-R	1
6. WING TIP RIB - LH	KPW0373-L	1
7. WING TIP RIB - RH	KPW0373-R	1

6/15/2011

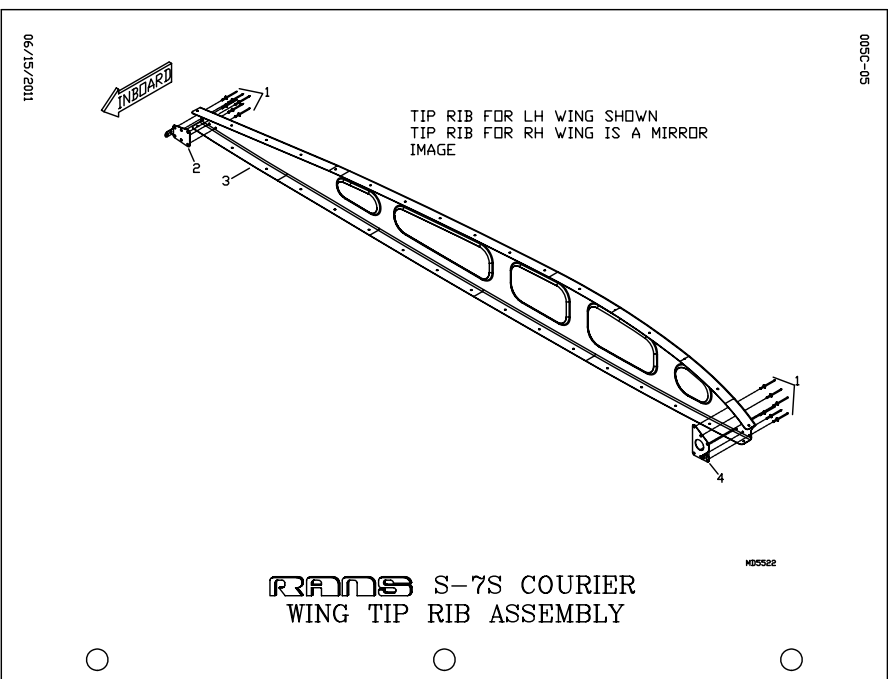
**EXAMPLE ONLY.  
 MAY NOT REPRESENT ACTUAL PAGES  
 FROM YOUR MANUAL.**

**SEE NEXT PAGE**

STEP 3:

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

PARTS DRAWING PAGE



PARTS DESCRIPTION PAGE

S-7S COURIER - WING - TIP RIB ASSEMBLY

PAGE 005C-06

#	DESCRIPTION	PART NUMBER	QUANTITY
1	1/8" ALUMINUM RIVET	AAPO-41	24
2	RIB CLIP TRAILING EDGE - LH	KPW10372-L	4
2	RIB CLIP TRAILING EDGE - RH	KPW10372-R	1
3	WING TIP RIB - LH	KPW10544-L	1
3	WING TIP RIB - RH	KPW10544-R	1
4	RIB CLIP LEADING EDGE - LH	KPW10373-L	1
4	RIB CLIP LEADING EDGE - RH	KPW10373-R	1

6/15/2011

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

**S-12XL AIRAILE - GENERAL INFORMATION**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Flight Log	FLIGHT LOG	1
2.	Maintenance Log Book	MAINTENANCE LOG	1
3.	Assembly Manual	ASSEMBLY MANUAL	1
4.	Raw Stock Kit	KAAC0001	1
4.	7/8" x .058 x 6' Anodized Aluminum Tubing *	KAAC0001-1	1
4.	1/2" x .083 x 3" Aluminum Tubing *	KAAC0001-2	1
4.	3/4" x .058 x 11" Anodized Aluminum Tubing *	KAAC0001-3	1
4.	3/8" x .058 x 6" Aluminum Tubing *	KAAC0001-4	1
4.	1/2" x .035 x 12' Anodized Aluminum Tubing *	KAAC0001-5	2 stk
4.	1/4" x .028 x 24" Aluminum Tubing *	KAAC0001-6	1
4.	1/2" x .058 x 3" Aluminum Tubing *	KAAC0001-7	1
4.	1" x .049 x 9' Anodized Aluminum Tubing *	KAAC0001-8	1
4.	1" x .032 x 8" Aluminum Strip *	KAAC0001-9	1
4.	3/8" x .095 x 8" Anodized Aluminum Tubing *	KAAC0001-10	1
5.	Foam Rubber Strip, 3/8" x 3/16" x 17'	WS-FS(KAAC0001)	1 rls
6.	Experimental Decal Sheets	EXPER-DECAL	1
7.	Range Decal	RANGE DECAL	1
8.	#40 Silver Clecos	#40CLECOS	6
9.	#30 Copper Clecos	#30CLECOS	12
10.	#11 Gold Clecos	#11CLECOS	6
11.	Decals	PP-DECAL	2
12.	Safety Wire	SAFETY WIRE	1 ft
13.	Loctite Blue	LOC-TITE	1
14.	Epoxy	EPOXY	1
15.	Cleco Pliers	CLECO PLIERS	1
16.	1/4" Clear Fuel Line, 2'	KSFS0008	2 ft
17.	Warning Label	KPPL0001	1

\*Supplied in Raw Stock Kit.

DATE: 5/22/95

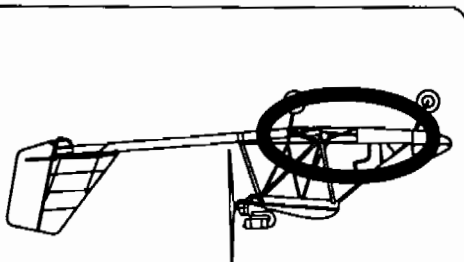
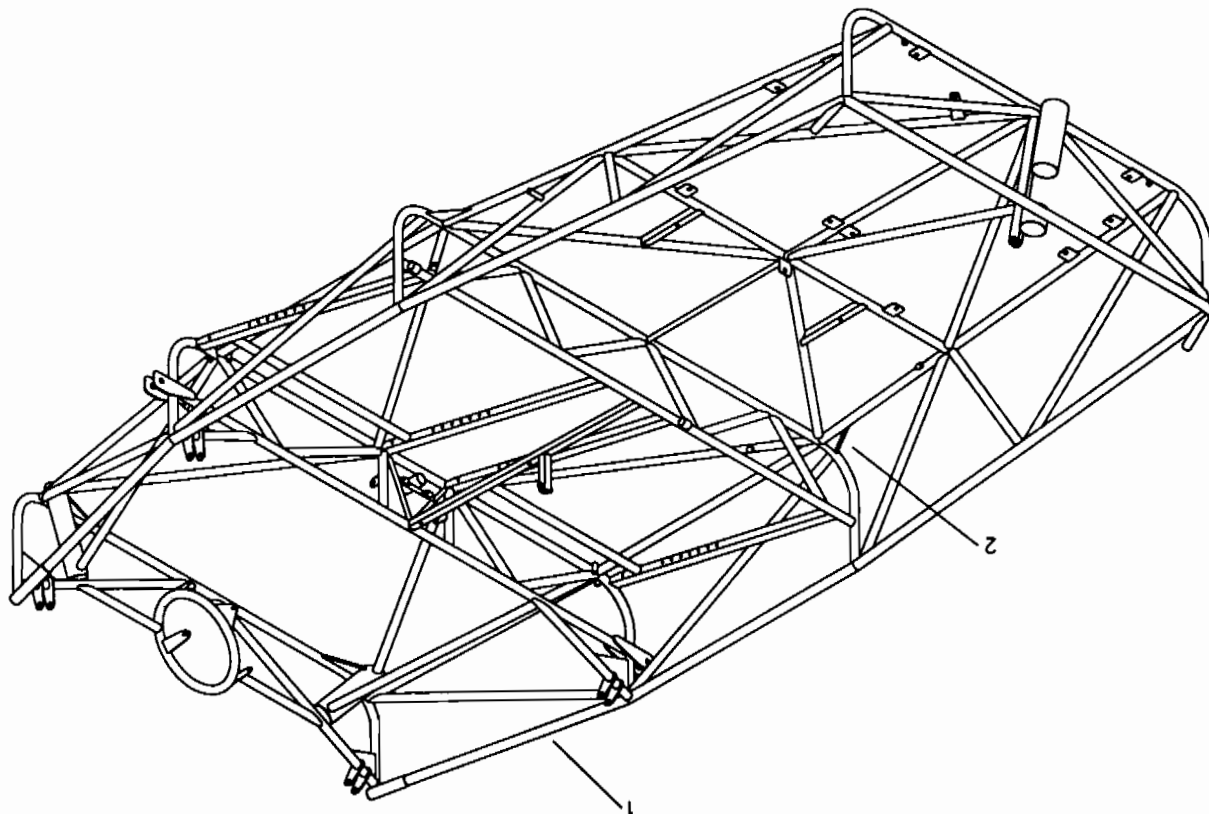
MANUAL DRAWING #: MD1926

S-12 AIRAILE

RPNDS

Made in the USA

FWD



FUSELAGE ASSEMBLY

COCKPIT CAGE

SECTION:

DETAIL:

PAGE: 01-03

NOTES:

**Section:**

**FUSELAGE ASSEMBLY**

**Detail:**

**COCKPIT CAGE**

**Page:**

01-04

**Date:**

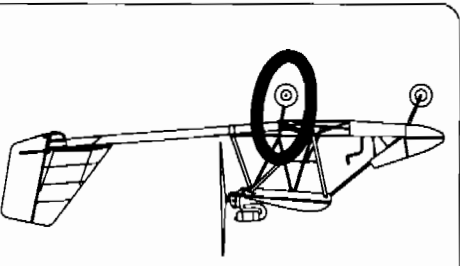
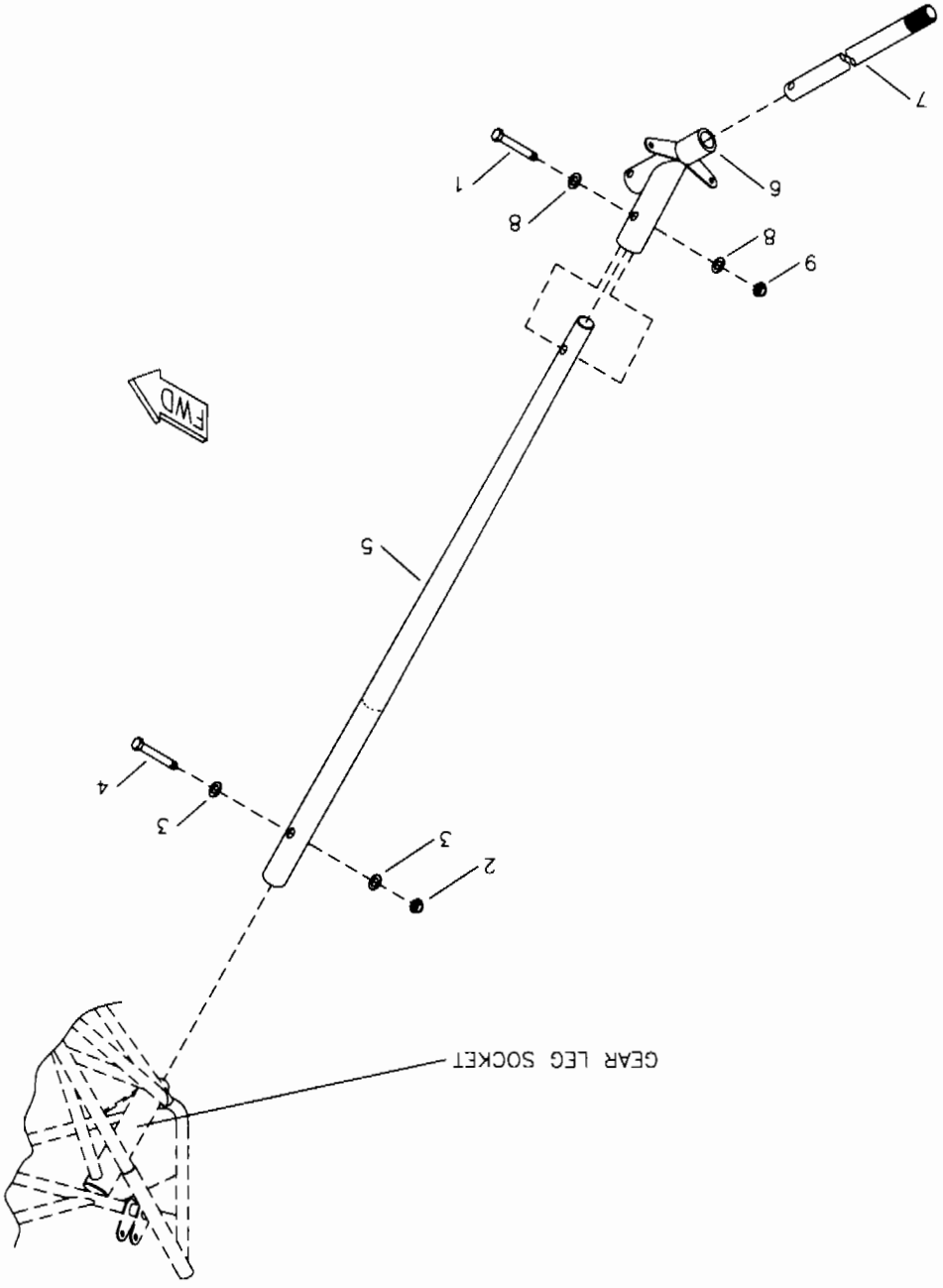
7/11/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Cockpit Cage	KAFU0015	1
2.	Serial Number Location	----	0

**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

001-4



MAIN GEAR LEG ASSEMBLY

DETAIL:

FUSELAGE ASSEMBLY

SECTION:

NOTES:

PAGE: 01-05

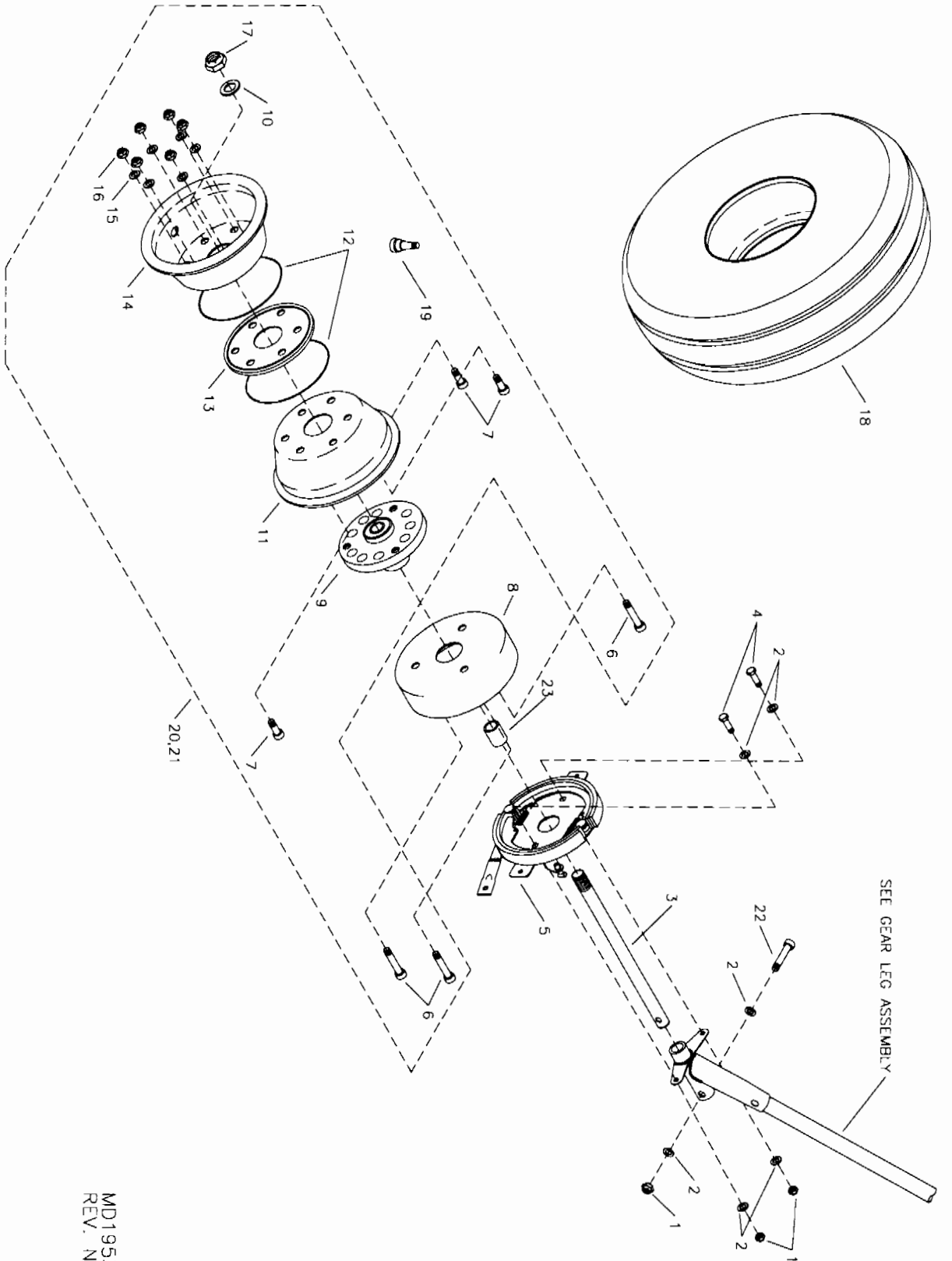
PAGE:



**S-12XL AIRAILE - MAIN GEAR LEG ASSEMBLY**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	1/4" Bolt	AN4-14A	2
2.	5/16" Shear Nut	AN364-524A	2
3.	5/16" Thin Washer	AN960-516L	4
4.	5/16" Bolt	AN5-16A	2
5.	Gear Leg	KPMG0064	2
6.	Axle Socket	KPMG0099	2
7.	Axle *	----	0
8.	1/4" Thin Washer	AN960-416L	4
9.	1/4" Shear Nut	AN364-428A	2

\*See wheel and brake assembly for part number.



**RRADMS S-12 AIRRAIL**  
**WHEEL AND MECHANICAL BRAKE**  
**ASSEMBLY-STOCK TIRES WITHOUT WHEEL PANTS**

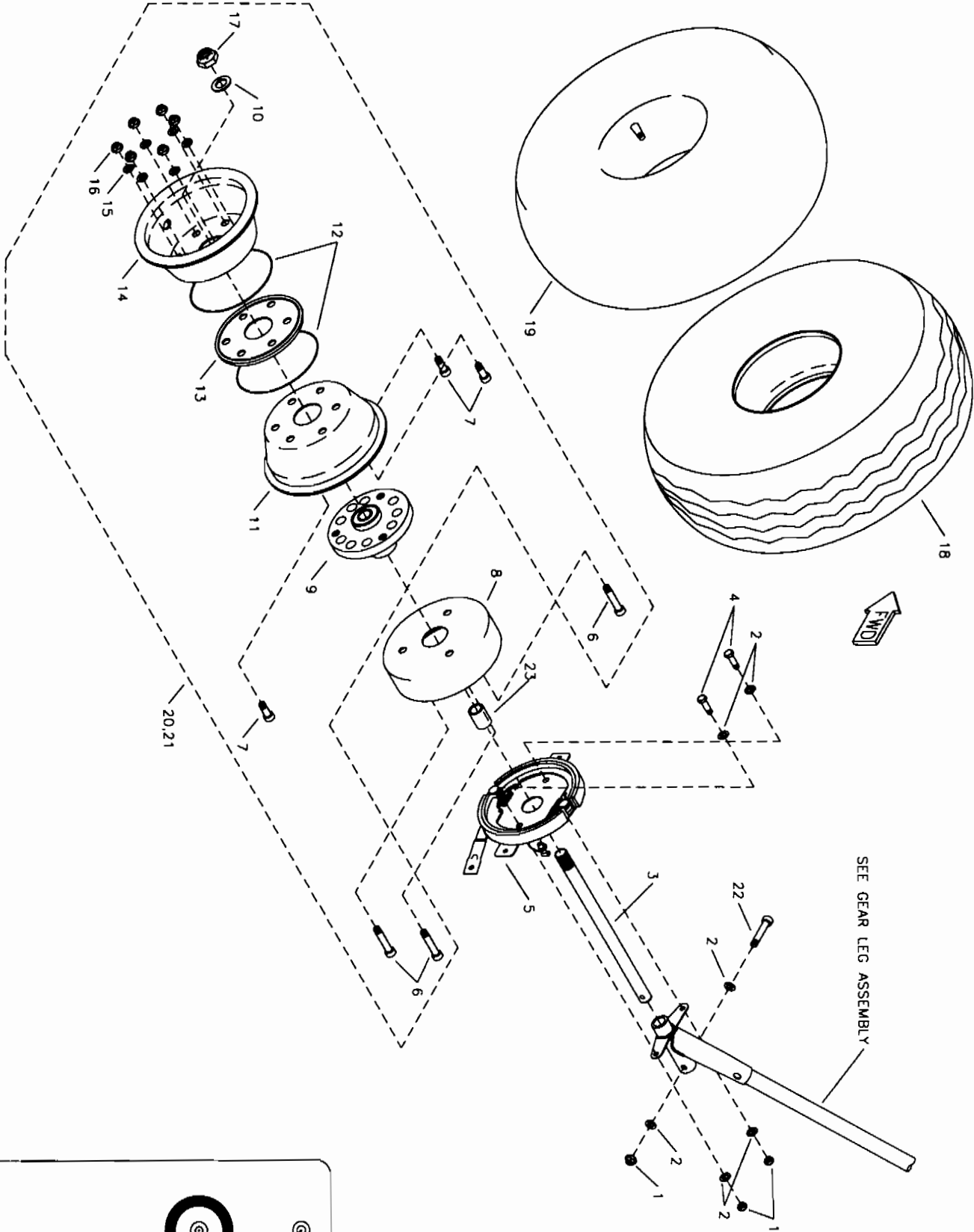
MD1953  
 REV. N/A

**S-12XL AIRAILE - WHEEL & MECHANICAL BRAKE ASSEMBLY**  
**STOCK TIRES WITHOUT WHEEL PANTS**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Shear Nut	AN364-1032A	6
2.	3/16" Thick Washer	AN960-10	12
3.	Main Gear-Axle	LG-AXLE	2
4.	3/16" Bolt	AN3-5A	4
5.	4 1/2" Brake (LH/RH)	2269	2
6.	Socket Head Cap Screw, 1 3/4" *	LG-MW-HUB-1	6
7.	Socket Head Cap Screw, 1 *	LG-MW-HUB-2	6
8.	4 1/2" Brake Drum	2211	2
9.	Wheel Hub *	LG-MW-HUB-3	2
10.	5/8" Shim	5/8 SHIM	2
11.	Inside Rim **	LG-MW-RIM-1	2
12.	O Ring *	LG-MW-HUB-4	4
13.	Seal Plate *	LG-MW-HUB-5	2
14.	Outer Rim **	LG-MW-RIM-2	2
15.	Washer *	LG-MW-HUB-6	12
16.	Nut *	LG-MW-HUB-7	12
17.	5/8" Loc Nut	5/8 LOC NUT	2
18.	6" Tire	LG-T	2
19.	Valve Stem *	LG-MW-HUB-8	2
20.	6" Hegar Main Gear Rim Kit	LG-MW-RIM-6	2
21.	6" Hegar Main Gear Hub Kit	LG-MW-HUB	2
22.	3/16" Bolt	AN3-12A	2
23.	Inner Spacer Bushing	3/4X1/2 SLEEVE	2

\*Supplied in hub kit (LG-MW-HUB).

\*\*Supplied in rim kit (LG-MW-RIM).

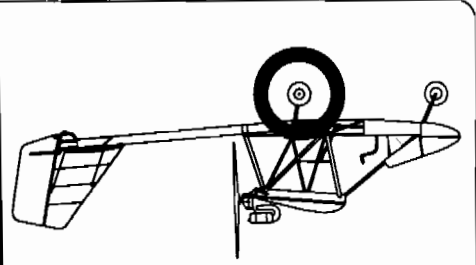


DETAIL: WHEEL AND MECHANICAL BRAKE ASSEMBLY - WITH TUNDRA TIRES

FUSELAGE ASSEMBLY

SECTION:

NOTES:



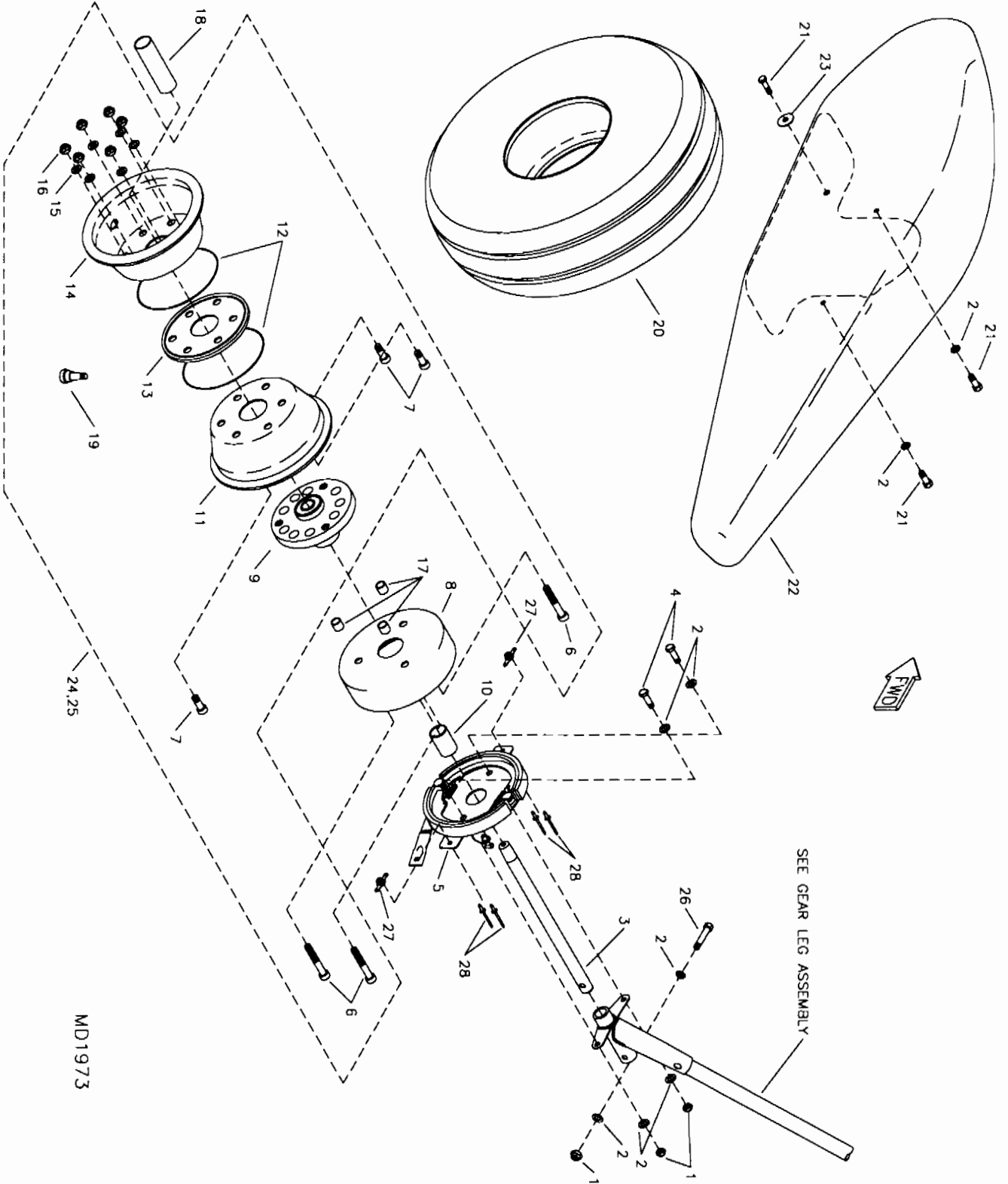
**S-12XL AIRAILE - WHEEL & MECHANICAL BRAKE ASSEMBLY**  
**TUNDRA TIRES**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Shear Nut	AN364-1032A	6
2.	3/16" Thick Washer	AN960-10	12
3.	Main Gear-Axle	LG-AXLE	2
4.	3/16" Bolt	AN3-5A	4
5.	4 1/2" Brake (LH/RH)	2269	2
6.	Socket Head Cap Screw, 1 3/4" *	LG-MW-HUB-1	6
7.	Socket Head Cap Screw, 1" *	LG-MW-HUB-2	6
8.	4 1/2" Brake Drum	2211	2
9.	Wheel Hub *	LG-MW-HUB-3	2
10.	5/8" Shim	5/8 SHIM	2
11.	Inside Rim **	LG-MW-RIM-1	2
12.	O Ring *	LG-MW-HUB-4	4
13.	Seal Plate *	LG-MW-HUB-5	2
14.	Outside Rim **	LG-MW-RIM-2	2
15.	Washer *	LG-MW-HUB-6	12
16.	Nut *	LG-MW-HUB-7	12
17.	5/8" Loc Nut	5/8 LOC NUT	2
18.	6" Tundra Tire	KSMG0002	2
19.	6" Tundra Tube	KSMG0003	2
20.	6" Hegar Main Gear Rim Kit	LG-MW-RIM-6	2
21.	6" Hegar Main Gear Hub Kit	LG-MW-HUB	2
22.	3/16" Bolt	AN3-12A	2
23.	Inner Spacer Bushing	3/4X1/2 SLEEVE	2

\*Supplied in hub kit (LG-MW-HUB).

\*\*Supplied in rim kit (LG-MW-RIM).

# RPM S-12 AIRLIFT WHEEL AND MECHANICAL BRAKE ASSEMBLY- STOCK TIRES WITH WHEEL PANTS



MD1973

**S-12XL AIRAILE - WHEEL & MECHANICAL BRAKE ASSEMBLY**  
**STOCK TIRES WITH WHEEL PANTS**

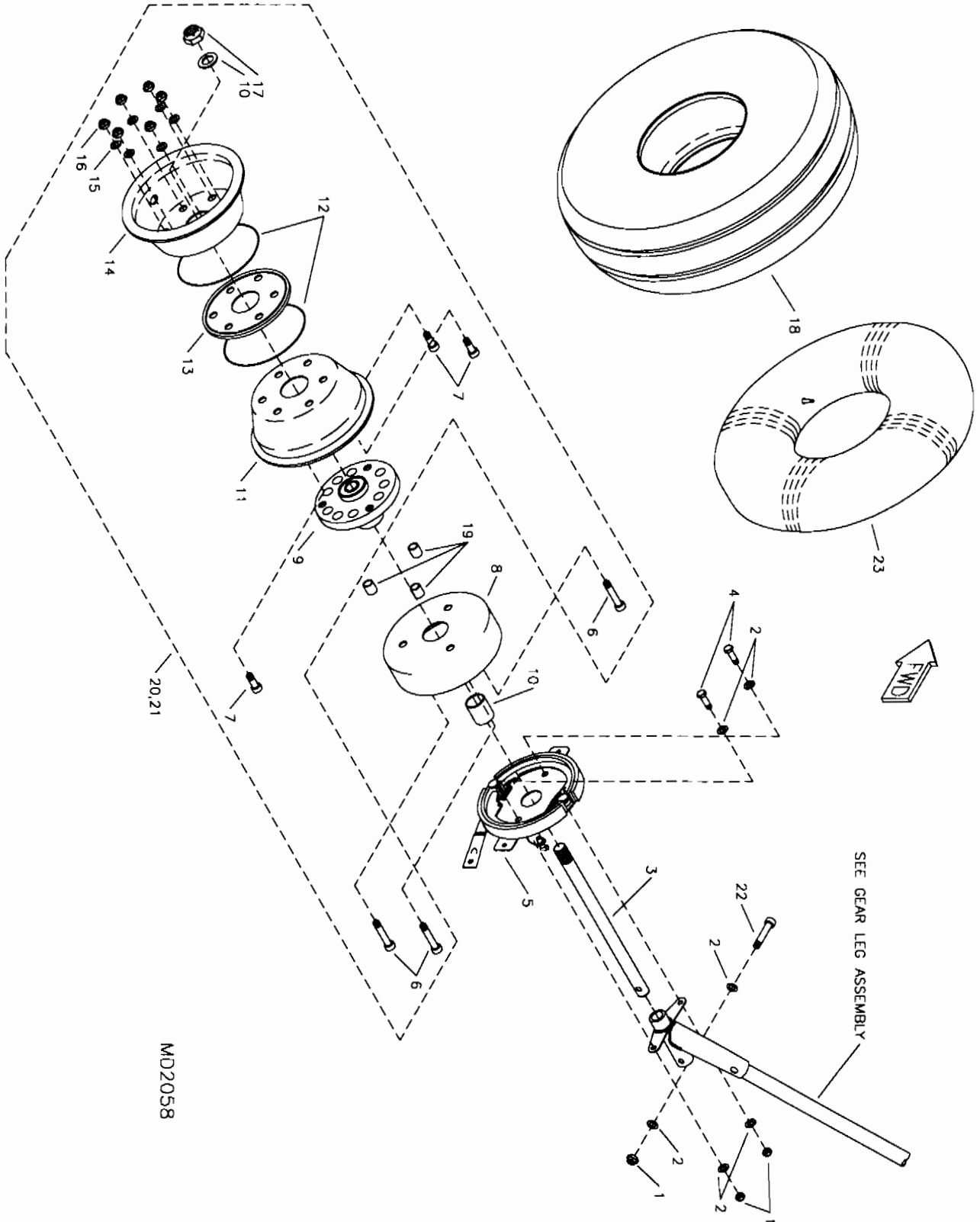
<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	3/16" Shear Nut	AN364-1032A	6
2.	3/16" Thick Washer	AN960-10	16
3.	Main Wheel Pant - Axle	MWP-AXLE	2
4.	3/16" Bolt	AN3-5A	4
5.	4 1/2" Brake (LH/RH)	2269	2
6.	Socket Head Cap Screw, 2 1/4" *	KSMG0004-1	6
7.	Socket Head Cap Screw, 1" *	KSMG0004-2	6
8.	4 1/2" Brake Drum	2211	2
9.	Wheel Hub *	KSMG0004-3	2
10.	Inner Spacer Bushing	KPAC0057	2
11.	Inside Rim **	LG-MW-RIM-1	2
12.	O Ring *	KSMG0004-4	4
13.	Seal Plate *	KSMG0004-5	2
14.	Outside Rim **	LG-MW-RIM-2	2
15.	Washer *	KSMG0004-6	12
16.	Nut *	KSMG0004-7	12
17.	Drum Spacer	MWP-DS	6
18.	Outside Spacer	MWP-OS	2
19.	Valve Stem *	KSMG0004-8	2
20.	6" Tire	LG-T	2
21.	3/16" Bolt	AN3-4A	6
22.	Main Wheel Pant, 5"	MWP	2
23.	3/16" Large Washer	AN970-3	2
24.	6" Hegar Main Gear Rim Kit	LG-MW-RIM-6	2
25.	Main Gear Hub Kit (Wheel Pant)	KSMG0004	2
26.	3/16" Bolt	AN3-12A	2
27.	3/16" Nut Plate	K-1000-3	4
28.	3/32" Aluminum Pop Rivet	40APR1/8	8

\*Supplied in hub kit (KSMG0004).

\*\*Supplied in rim kit (LG-MW-RIM).

**RRMS S-12 AIRAILE**  
**WHEEL AND MECHANICAL BRAKE ASSEMBLY**  
**STANDARD 5" AERO-TRAINER TIRES**  
**WITHOUT WHEEL PANTS**

6/29/00



MD2058



**S-12XL AIRAILE - WHEEL AND MECHANICAL BRAKE ASSEMBLY**  
**STD 5" - AERO-TRAINER TIRES WITHOUT WHEEL PANTS**

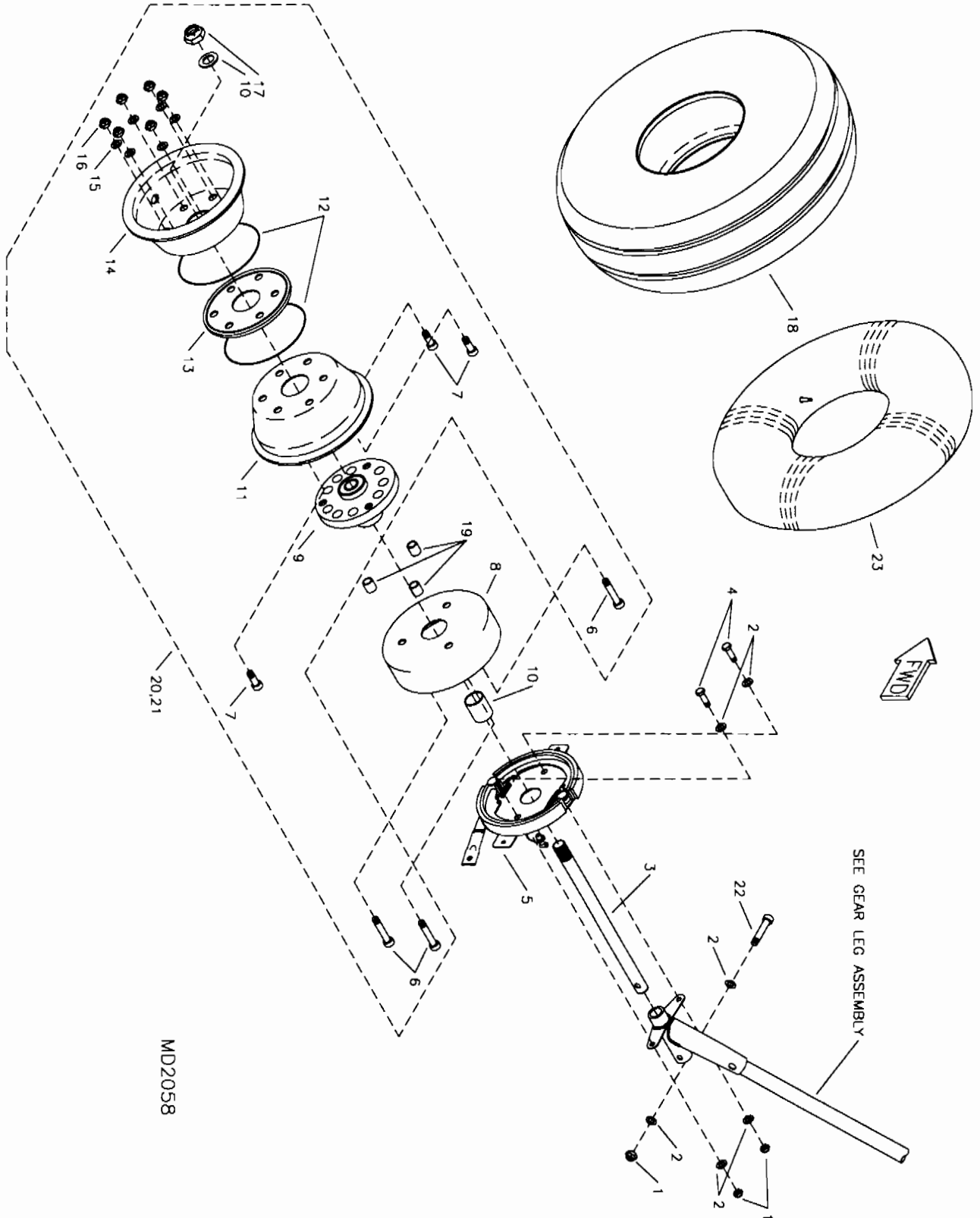
#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Shear Nut	AN364-1032A	6
2.	3/16" Thick Washer	AN960-10	12
3.	Main Gear-Axle	LG-AXLE	2
4.	3/16" Bolt	AN3-5A	4
5.	4 1/2" Brake (LH/RH)	2269	2
6.	Socket Head Cap Screw, 2 1/4" *	KSMG0006-1	6
7.	Socket Head Cap Screw, 1" *	KSMG0006-2	6
8.	4 1/2" Brake Drum	2211	2
9.	Wheel Hub *	KSMG0006-3	2
10.	Inner Spacer Bushing	KPAC0057	2
11.	Inside Rim **	LG-MW-RIM-1	2
12.	O Ring *	KSMG0006-4	4
13.	Seal Plate *	KSMG0006-5	2
14.	Outer Rim **	LG-MW-RIM-2	2
15.	Washer *	KSMG0006-6	12
16.	Nut *	KSMG0006-7	12
17.	5/8" Loc Nut	5/8 LOC NUT	2
18.	Aero-Trainer Tire, 5"	KSMG0005	2
19.	Drum Spacer	MWP-DS	6
20.	5" Hegar Main Gear Rim Kit	LG-MW-RIM-5	2
21.	Aero-Trainer Main Gear Hub Kit	KSMG0006	2
22.	3/16" Bolt	AN3-12A	2
23.	Aero-Trainer Tube, 5"	KSMG0007	2

\*Supplied in hub kit (KSMG0006).

\*\*Supplied in rim kit (LG-MW-RIM-5).

RRMS S-12 AIRAILE  
 WHEEL AND MECHANICAL BRAKE ASSEMBLY  
 OPTIONAL 6" AERO-TRAINER TIRES  
 WITHOUT WHEEL PANTS

6/29/00



MD2058

01-14A

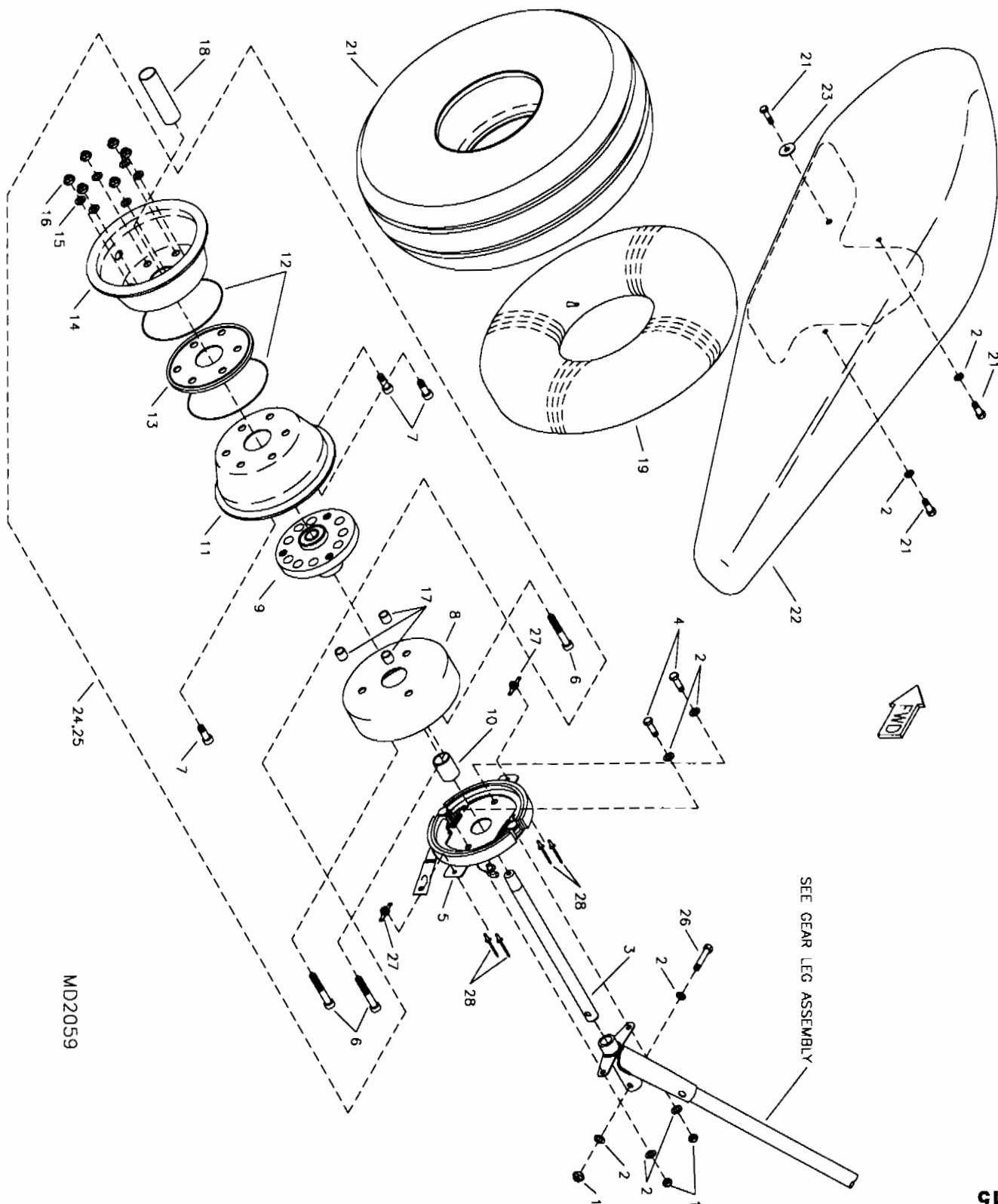
**S-12XL AIRAILE - WHEEL AND MECHANICAL BRAKE ASSEMBLY**  
**OPTIONAL 6" - AERO-TRAINER TIRES WITHOUT WHEEL PANTS**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Shear Nut	AN364-1032A	6
2.	3/16" Thick Washer	AN960-10	12
3.	Main Gear-Axle	LG-AXLE	2
4.	3/16" Bolt	AN3-5A	4
5.	4 1/2" Brake (LH/RH)	2269	2
6.	Socket Head Cap Screw, 2 1/4" *	KSMG0006-1	6
7.	Socket Head Cap Screw, 1" *	KSMG0006-2	6
8.	4 1/2" Brake Drum	2211	2
9.	Wheel Hub *	KSMG0006-3	2
10.	Inner Spacer Bushing	KPAC0057	2
11.	Inside Rim **	LG-MW-RIM-1	2
12.	O Ring *	KSMG0006-4	4
13.	Seal Plate *	KSMG0006-5	2
14.	Outer Rim **	LG-MW-RIM-2	2
15.	Washer *	KSMG0006-6	12
16.	Nut *	KSMG0006-7	12
17.	5/8" Loc Nut	5/8 LOC NUT	2
18.	Air Trac Tire, 6"	KSMG0013	2
19.	Drum Spacer	MWP-DS	6
20.	6" Hegar Main Gear Rim Kit	LG-MW-RIM-6	2
21.	Aero-Trainer Main Gear Hub Kit	KSMG0006	2
22.	3/16" Bolt	AN3-12A	2
23.	Aero-Trainer Tube, 6"	KSMG0016	2

\*Supplied in hub kit (KSMG0006).

\*\*Supplied in rim kit (LG-MW-RIM-6).

# RAMS S-12 AIRRALE WHEEL AND MECHANICAL BRAKE ASSEMBLY WITH WHEEL PANTS



MD2059

**S-12XL AIRAILE - WHEEL AND MECHANICAL BRAKE ASSEMBLY**  
**STD 5" - AERO-TRAINER TIRES WITH WHEEL PANTS**

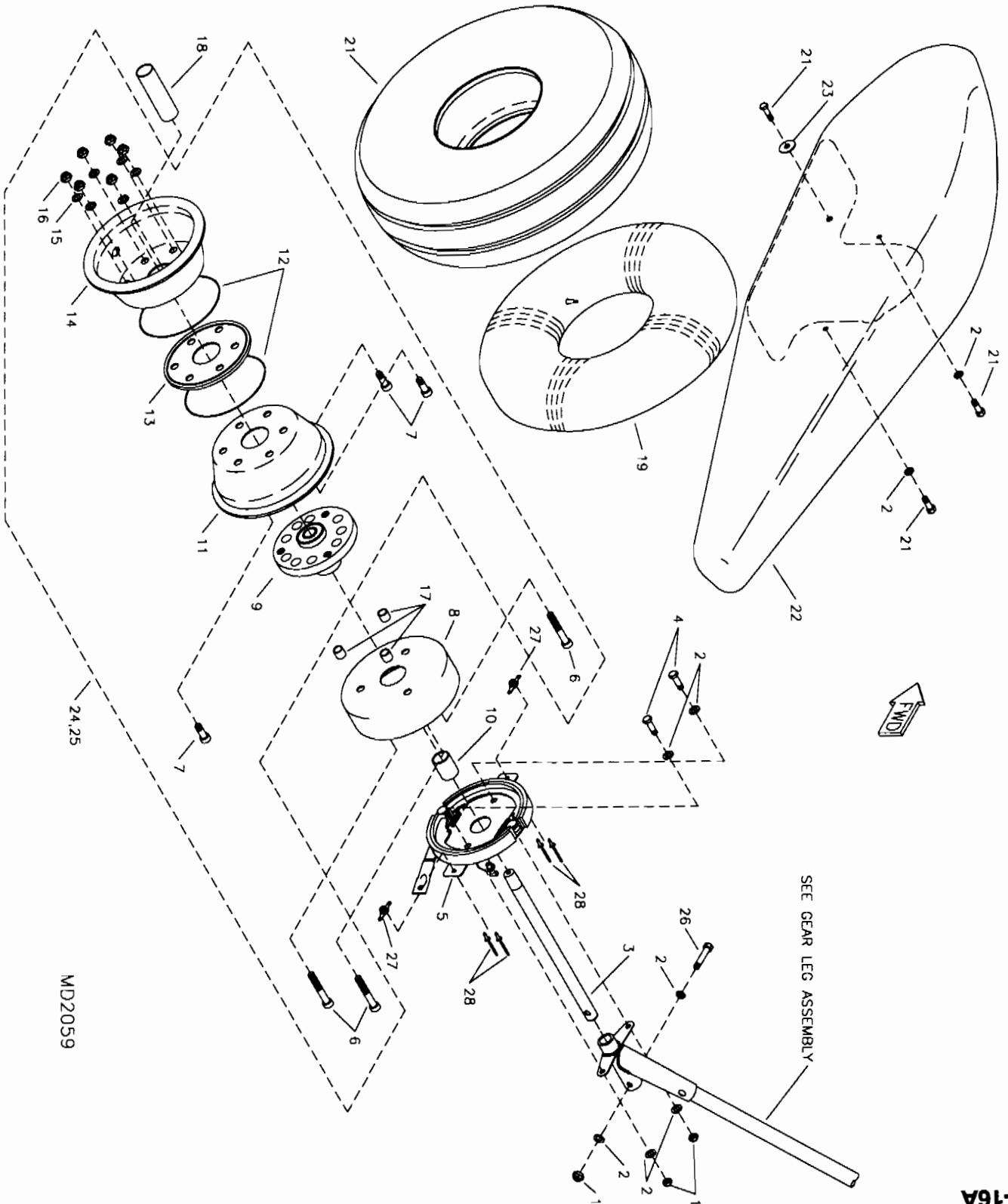
#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Shear Nut	AN364-1032A	6
2.	3/16" Thick Washer	AN960-10	16
3.	Main Wheel Pant - Axle	MWP-AXLE	2
4.	3/16" Bolt	AN3-5A	4
5.	4 1/2" Brake (LH/RH)	2269	2
6.	Socket Head Cap Screw, 2 1/4" *	KSMG0006-1	6
7.	Socket Head Cap Screw, 1" *	KSMG0006-2	6
8.	4 1/2" Brake Drum	2211	2
9.	Wheel Hub *	KSMG0006-3	2
10.	Inner Spacer Bushing	KPAC0057	2
11.	Inside Rim **	LG-MW-RIM-1	2
12.	O Ring *	KSMG0006-4	4
13.	Seal Plate *	KSMG0006-5	2
14.	Outside Rim **	LG-MW-RIM-2	2
15.	Washer *	KSMG0006-6	12
16.	Nut *	KSMG0006-7	12
17.	Drum Spacer	MWP-DS	6
18.	Outside Spacer	MWP-OS	2
19.	Aero-Trainer Tube, 5"	KSMG0007	2
20.	Aero-Trainer Tire, 5"	KSMG0005	2
21.	3/16" Bolt	AN3-4A	6
22.	Main Wheel Pant, 5"	MWP	2
23.	3/16" Large Washer	AN970-3	2
24.	5" Hegar Main Gear Rim Kit	LG-MW-RIM-5	2
25.	Aero-Trainer Main Gear Hub Kit	KSMG0006	2
26.	3/16" Bolt	AN3-12A	2
27.	3/16" Nut Plate	K-1000-3	4
28.	3/32" Aluminum Pop Rivet	40APR1/8	8

\*Supplied in hub kit (KSMG0006).

\*\*Supplied in rim kit (LG-MW-RIM-5).

# WHEEL AND MECHANICAL BRAKE ASSEMBLY OPTIONAL 6" AERO-TRAINER TIRES WITH WHEEL PANTS

RRMS S-12 AIRRALE



MD2059

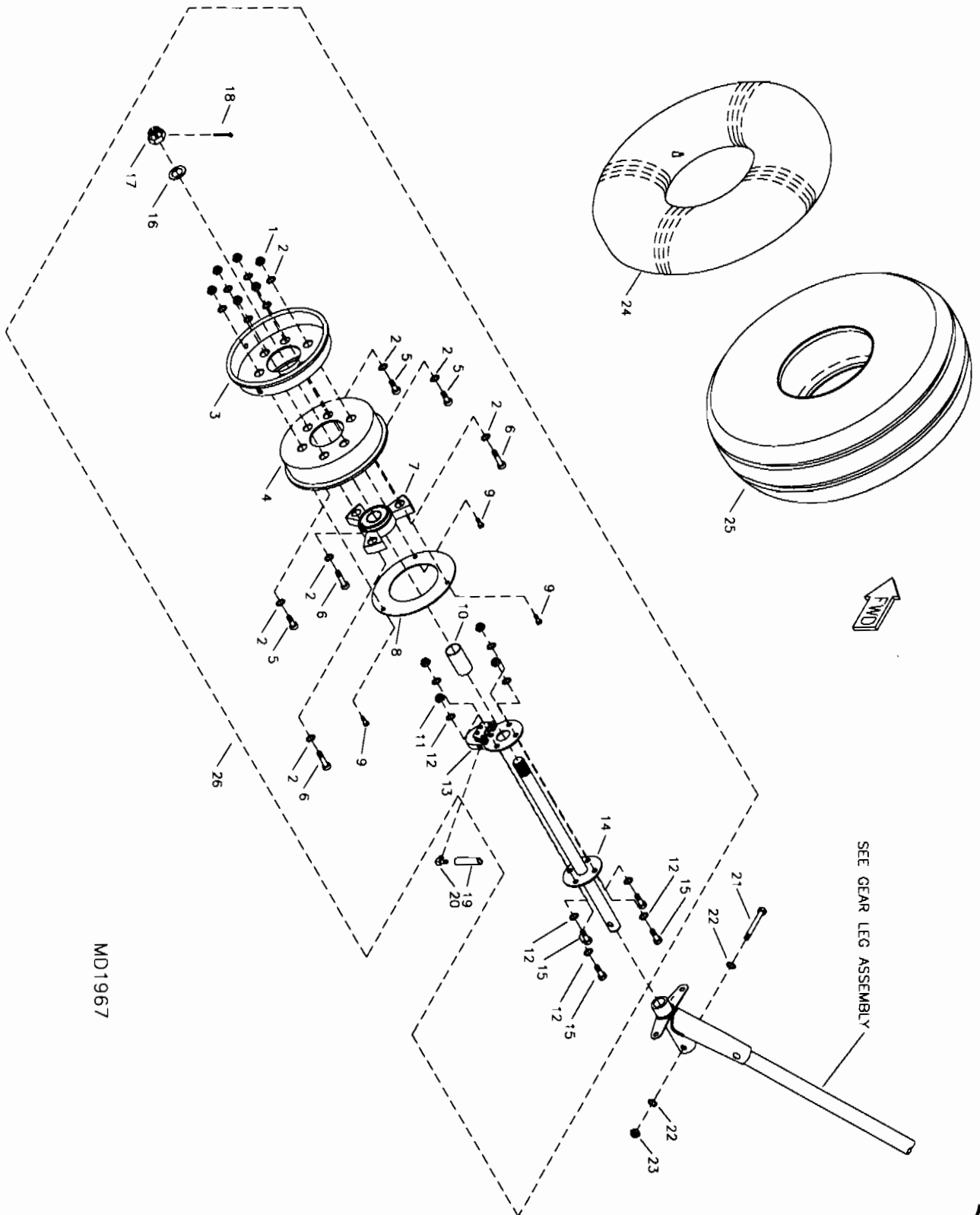
**S-12XL AIRAILE - WHEEL AND MECHANICAL BRAKE ASSEMBLY**  
**OPTIONAL 6" - AERO-TRAINER TIRES WITH WHEEL PANTS**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Shear Nut	AN364-1032A	6
2.	3/16" Thick Washer	AN960-10	16
3.	Main Wheel Pant - Axle	MWP-AXLE	2
4.	3/16" Bolt	AN3-5A	4
5.	4 1/2" Brake (LH/RH)	2269	2
6.	Socket Head Cap Screw, 2 1/4" *	KSMG0006-1	6
7.	Socket Head Cap Screw, 1" *	KSMG0006-2	6
8.	4 1/2" Brake Drum	2211	2
9.	Wheel Hub *	KSMG0006-3	2
10.	Inner Spacer Bushing	KPAC0057	2
11.	Inside Rim **	LG-MW-RIM-1	2
12.	O Ring *	KSMG0006-4	4
13.	Seal Plate *	KSMG0006-5	2
14.	Outside Rim **	LG-MW-RIM-2	2
15.	Washer *	KSMG0006-6	12
16.	Nut *	KSMG0006-7	12
17.	Drum Spacer	MWP-DS	6
18.	Outside Spacer	MWP-OS	2
19.	Aero-Trainer Tube, 5"	KSMG0007	2
20.	Aero-Trainer Tire, 5"	KSMG0005	2
21.	3/16" Bolt	AN3-4A	6
22.	Main Wheel Pant, 6"	KPMG0105	2
23.	3/16" Large Washer	AN970-3	2
24.	5" Hegar Main Gear Rim Kit	LG-MW-RIM-5	2
25.	Aero-Trainer Main Gear Hub Kit	KSMG0006	2
26.	3/16" Bolt	AN3-12A	2
27.	3/16" Nut Plate	K-1000-3	4
28.	3/32" Aluminum Pop Rivet	40APR1/8	8

\*Supplied in hub kit (KSMG0006).

\*\*Supplied in rim kit (LG-MW-RIM-5).

# RRMS S-12 AIRRALE WHEEL AND HYDRAULIC BRAKE ASSEMBLY- STANDARD 6" AERO-TRAINER TIRES WITHOUT WHEEL PANTS



MD1967

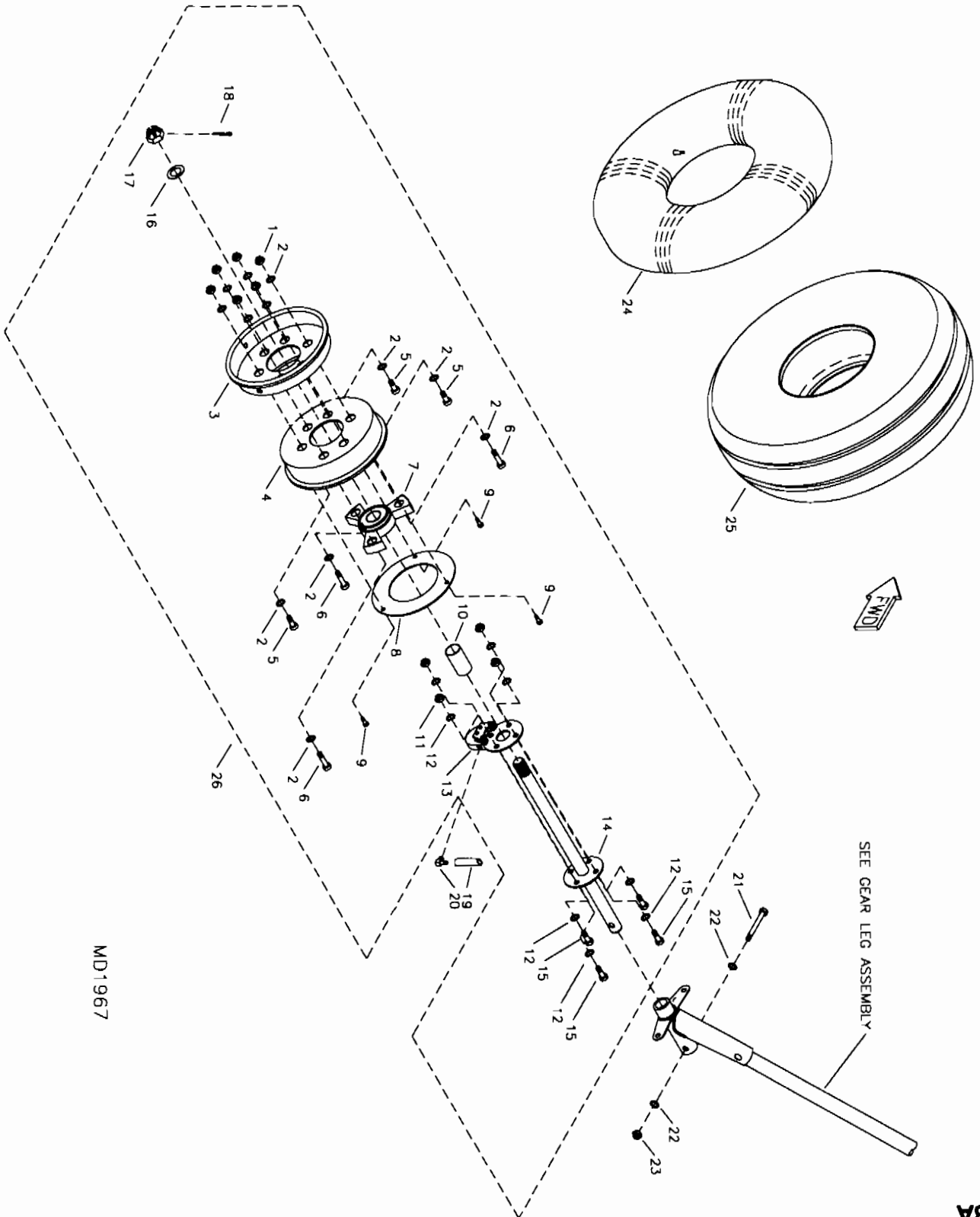


**S-12XL AIRAILE - WHEEL & HYDRAULIC BRAKE ASSEMBLY**  
**STD 6" - AERO-TRAINER TIRES WITHOUT WHEEL PANTS**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Loc Nut *	KSBS0005-1	12
2.	Washer *	KSBS0005-2	24
3.	Wheel - Outside *	KSBS0005-3	2
4.	Wheel - Inside *	KSBS0005-4	2
5.	Short Hub Bolt *	KSBS0005-5	6
6.	Long Hub Bolt *	KSBS0005-6	6
7.	Bearing Hub *	KSBS0005-7	2
8.	Brake Disc *	KSBS0005-8	2
9.	Disc Attach Bolt *	KSBS0005-9	6
10.	Sleeve *	KSBS0005-10	2
11.	Loc Nut *	KSBS0005-11	8
12.	Washer *	KSBS0005-12	16
13.	Caliper Assembly *	KSBS0005-13	2
14.	Axle *	KSBS0005-14	2
15.	Spindle Bolt *	KSBS0005-15	8
16.	Washer *	KSBS0005-16	2
17.	Castle Nut *	KSBS0005-17	2
18.	Cotter Pin *	KSBS0005-18	2
19.	Brake Line, See Toe Brake Assembly	KSBS0004	0 ft
20.	90 Fitting	KSBS0016	2
21.	1/4" Bolt	AN4-12A	2
22.	1/4" Thick Washer	AN960-416	4
23.	1/4" Shear Nut	AN364-428A	2
24.	Aero-Trainer Tube, 6"	KSMG0016	2
25.	Air Trac Tire, 6"	KSMG0013	2
26.	Hydraulic Brake Assembly, 6"	KSBS0005	1

\*Supplied pre-assembled to KSBS0005.

# RPM S-12 AIRAILE WHEEL AND HYDRAULIC BRAKE ASSEMBLY- OPTIONAL 6" AERO-TRAINER TIRES WITHOUT WHEEL PANTS

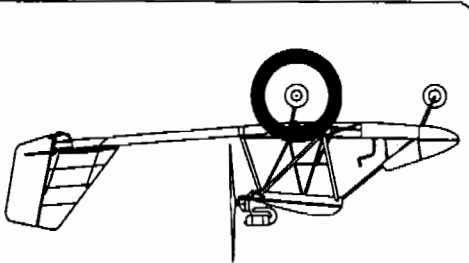
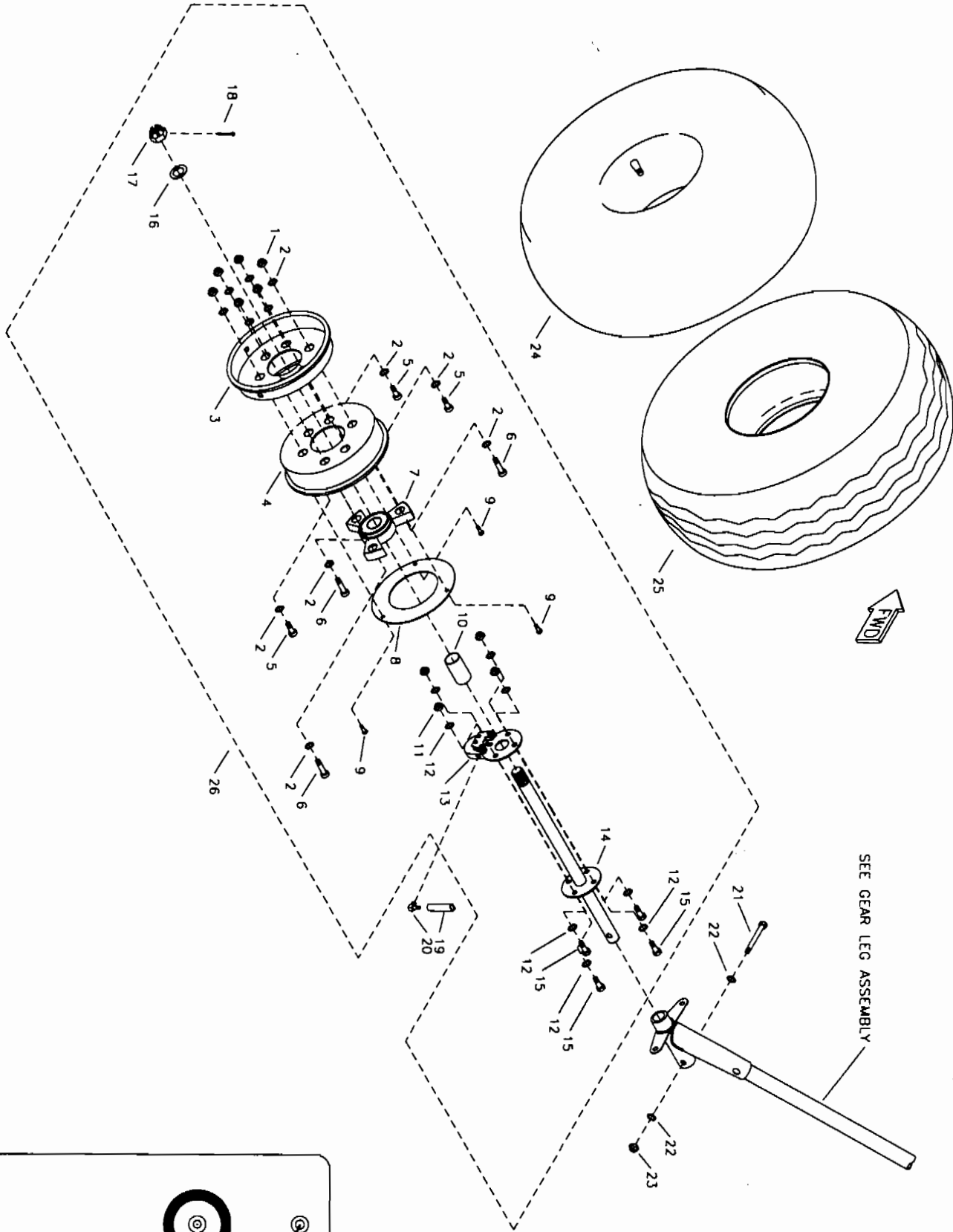


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**S-12XL AIRAILE - WHEEL & HYDRAULIC BRAKE ASSEMBLY**  
**OPTIONAL 5" - AERO-TRAINER TIRES WITHOUT WHEEL PANTS**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Loc Nut *	KSBS0008-1	12
2.	Washer *	KSBS0008-2	24
3.	Wheel - Outside *	KSBS0008-3	2
4.	Wheel - Inside *	KSBS0008-4	2
5.	Short Hub Bolt *	KSBS0008-5	6
6.	Long Hub Bolt *	KSBS0008-6	6
7.	Bearing Hub *	KSBS0008-7	2
8.	Brake Disc *	KSBS0008-8	2
9.	Disc Attach Bolt *	KSBS0008-9	6
10.	Sleeve *	KSBS0008-10	2
11.	Loc Nut *	KSBS0008-11	8
12.	Washer *	KSBS0008-12	16
13.	Caliper Assembly *	KSBS0008-13	2
14.	Axle *	KSBS0008-14	2
15.	Spindle Bolt *	KSBS0008-15	8
16.	Washer *	KSBS0008-16	2
17.	Castle Nut *	KSBS0008-17	2
18.	Cotter Pin *	KSBS0008-18	2
19.	Brake Line, See Toe Brake Assembly	KSBS0004	0 ft
20.	90 Fitting	KSBS0016	2
21.	1/4" Bolt	AN4-12A	2
22.	1/4" Thick Washer	AN960-416	4
23.	1/4" Shear Nut	AN364-428A	2
24.	Aero-Trainer Tube, 5"	KSMG0007	2
25.	Aero-Trainer Tire, 5"	KSMG0005	2
26.	Hydraulic Brake Assembly, 5"	KSBS0008	1

\*Supplied pre-assembled to KSBS0008.



WHEEL AND HYDRAULIC BRAKE ASSEMBLY - WITH TUNDRA TIRES

FUSELAGE ASSEMBLY

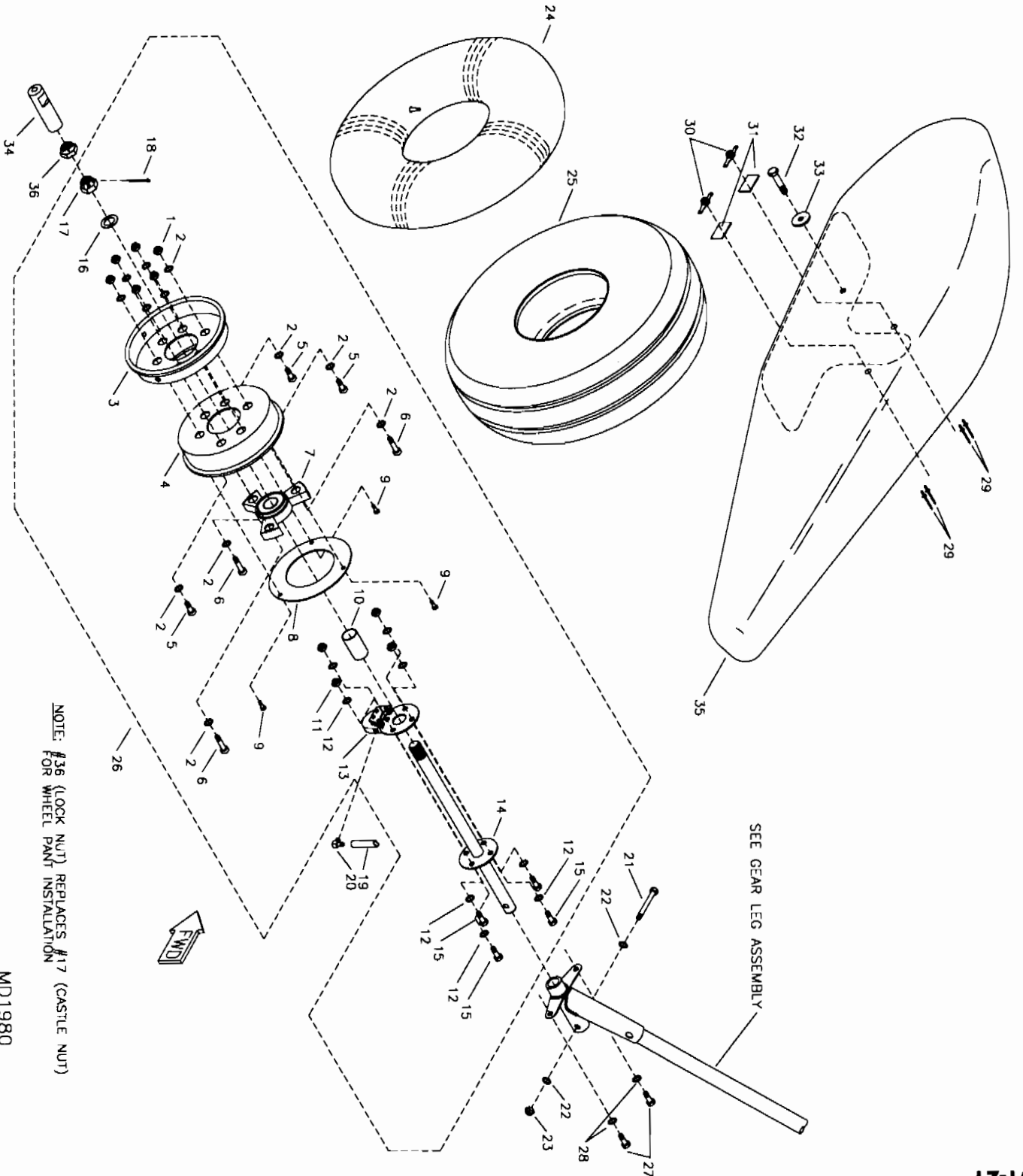
SECTION:

**S-12XL AIRAILE - WHEEL & HYDRAULIC BRAKE ASSEMBLY**  
**TUNDRA TIRES**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Loc Nut *	KSBS0005-1	12
2.	Washer *	KSBS0005-2	24
3.	Wheel-Outside *	KSBS0005-3	2
4.	Wheel-Inside *	KSBS0005-4	2
5.	Short Hub Bolt *	KSBS0005-5	6
6.	Long Hub Bolt *	KSBS0005-6	6
7.	Bearing Hub *	KSBS0005-7	2
8.	Brake Disc *	KSBS0005-8	2
9.	Disc Attach Bolt *	KSBS0005-9	6
10.	Sleeve *	KSBS0005-10	2
11.	Loc Nut *	KSBS0005-11	8
12.	Washer *	KSBS0005-12	16
13.	Caliper Assembly *	KSBS0005-13	2
14.	Axle *	KSBS0005-14	2
15.	Spindle Bolt *	KSBS0005-15	8
16.	Washer *	KSBS0005-16	2
17.	Castle Nut *	KSBS0005-17	2
18.	Cotter Pin *	KSBS0005-18	2
19.	Brake Line, See Toe Brake Assembly	KSBS0004	0 ft
20.	90 Fitting	KSBS0016	2
21.	1/4" Bolt	AN4-12A	2
22.	1/4" Thick Washer	AN960-416	4
23.	1/4" Shear Nut	AN364-428A	2
24.	6" Tundra Tube	KSMG0003	2
25.	6" Tundra Tire	KSMG0002	2
26.	Hydraulic Brake Assembly, 6"	KSBS0005	2

\*Supplied pre-assembled to KSBS0005.

# RAMP S-12 AIRLIE WHEEL AND HYDRAULIC BRAKE ASSEMBLY STANDARD 6" AERO-TRAINER TIRES WITH WHEEL PANTS



NOTE: #36 (LOCK NUT) REPLACES #17 (CASTLE NUT)  
FOR WHEEL PANT INSTALLATION

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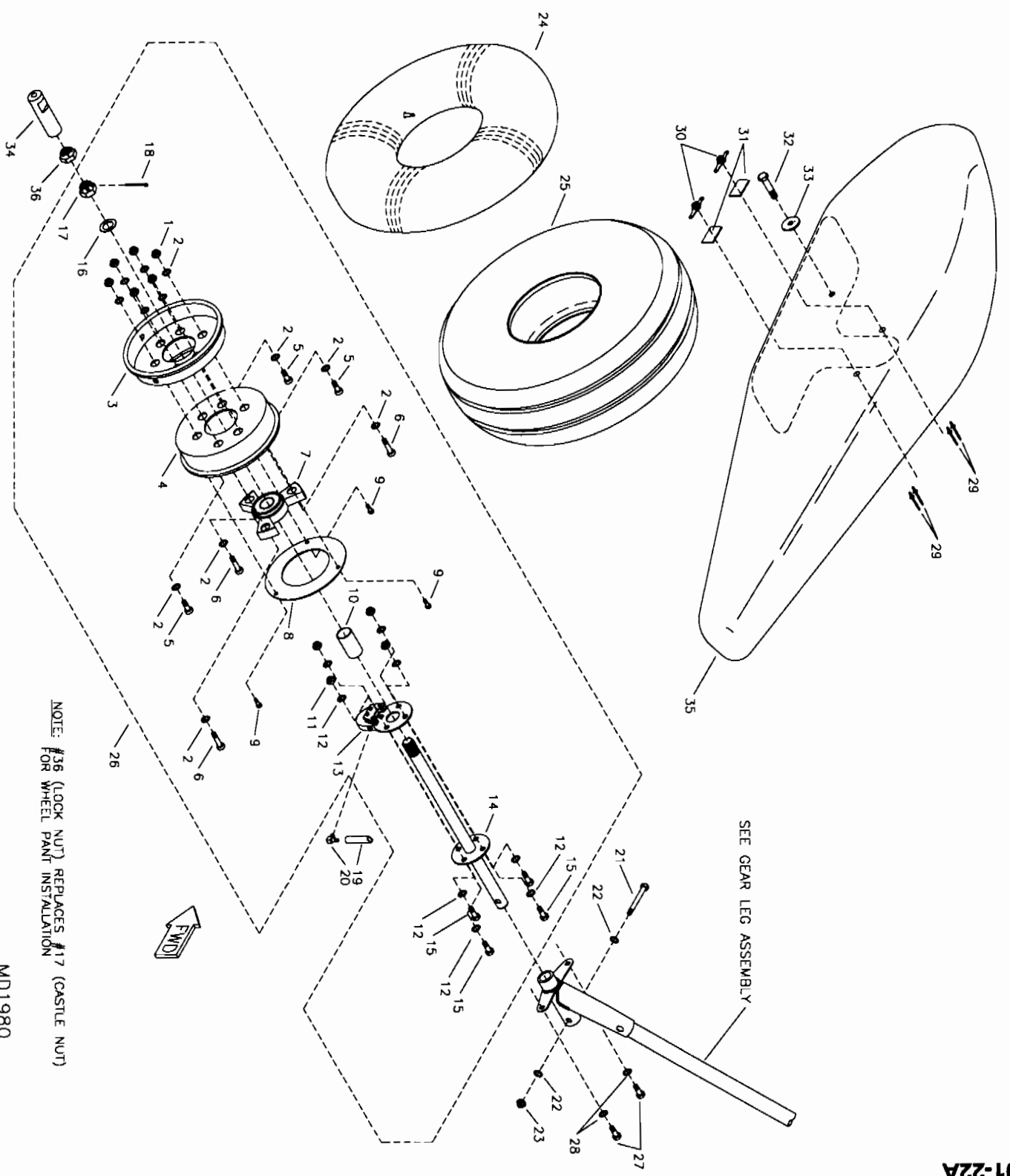
**S-12XL AIRAILE - WHEEL & HYDRAULIC BRAKE ASSEMBLY**  
**STD 6" - AERO-TRAINER TIRES WITH WHEEL PANTS**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Loc Nut *	KSBS0005-1	12
2.	Washer *	KSBS0005-2	24
3.	Wheel - Outside *	KSBS0005-3	2
4.	Wheel - Inside *	KSBS0005-4	2
5.	Short Hub Bolt *	KSBS0005-5	6
6.	Long Hub Bolt *	KSBS0005-6	6
7.	Bearing Hub *	KSBS0005-7	2
8.	Brake Disc *	KSBS0005-8	2
9.	Disc Attach Bolt *	KSBS0005-9	6
10.	Sleeve *	KSBS0005-10	2
11.	Loc Nut *	KSBS0005-11	8
12.	Washer *	KSBS0005-12	16
13.	Caliper Assembly *	KSBS0005-13	2
14.	Axle *	KSBS0005-14	2
15.	Spindle Bolt *	KSBS0005-15	8
16.	Washer *	KSBS0005-16	2
17.	Castle Nut *	KSBS0005-17	2
18.	Cotter Pin *	KSBS0005-18	2
19.	Brake Line, See Toe Brake Assembly	KSBS0004	0 ft
20.	90 Fitting	KSBS0016	2
21.	1/4" Bolt	AN4-12A	2
22.	1/4" Thick Washer	AN960-416	4
23.	1/4" Shear Nut	AN364-428A	2
24.	Aero-Trainer Tube, 6"	KSMG0016	2
25.	Air Trac Tire, 6"	KSMG0013	2
26.	Hydraulic Brake Assembly, 6"	KSBS0005	1
27.	3/16" Bolt	AN3-5A	4
28.	3/16" Thick Washer	AN960-10	4
29.	3/32" Aluminum Pop Rivet	40APR1/8	8
30.	3/16" Nut Plate	K-1000-3	4
31.	Reinforcement Plate, 1" x 1" x .032 Alum Strip **	KAAC0011-1	1
31.	Raw Stock Kit - Optional Main Wheel Pants	KAAC0011	1
32.	1/4" Bolt	MS51957-88	2
33.	1/4" Large Washer	AN970-4	2
34.	Wheel Pant Axle Extender 6" WH	KPMG0104	2
35.	Main Wheel Pant, 6"	KPMG0105	2
36.	5/8" Loc Nut	5/8 LOC NUT	2

\*Supplied pre-assembled to KSBS0005.

\*\*Builder must fabricate from raw stock.

# RAMP S-12 AIRRALE WHEEL AND HYDRAULIC BRAKE ASSEMBLY OPTIONAL 5" AERO-TRAINER TIRES WITH WHEEL PANTS



NOTE: #36 (LOCK NUT) REPLACES #17 (CASTLE NUT)  
FOR WHEEL PANT INSTALLATION

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**S-12XL AIRAILE - WHEEL & HYDRAULIC BRAKE ASSEMBLY**  
**OPTIONAL 5" - AERO-TRAINER TIRES WITH WHEEL PANTS**

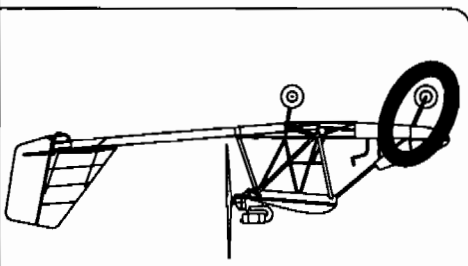
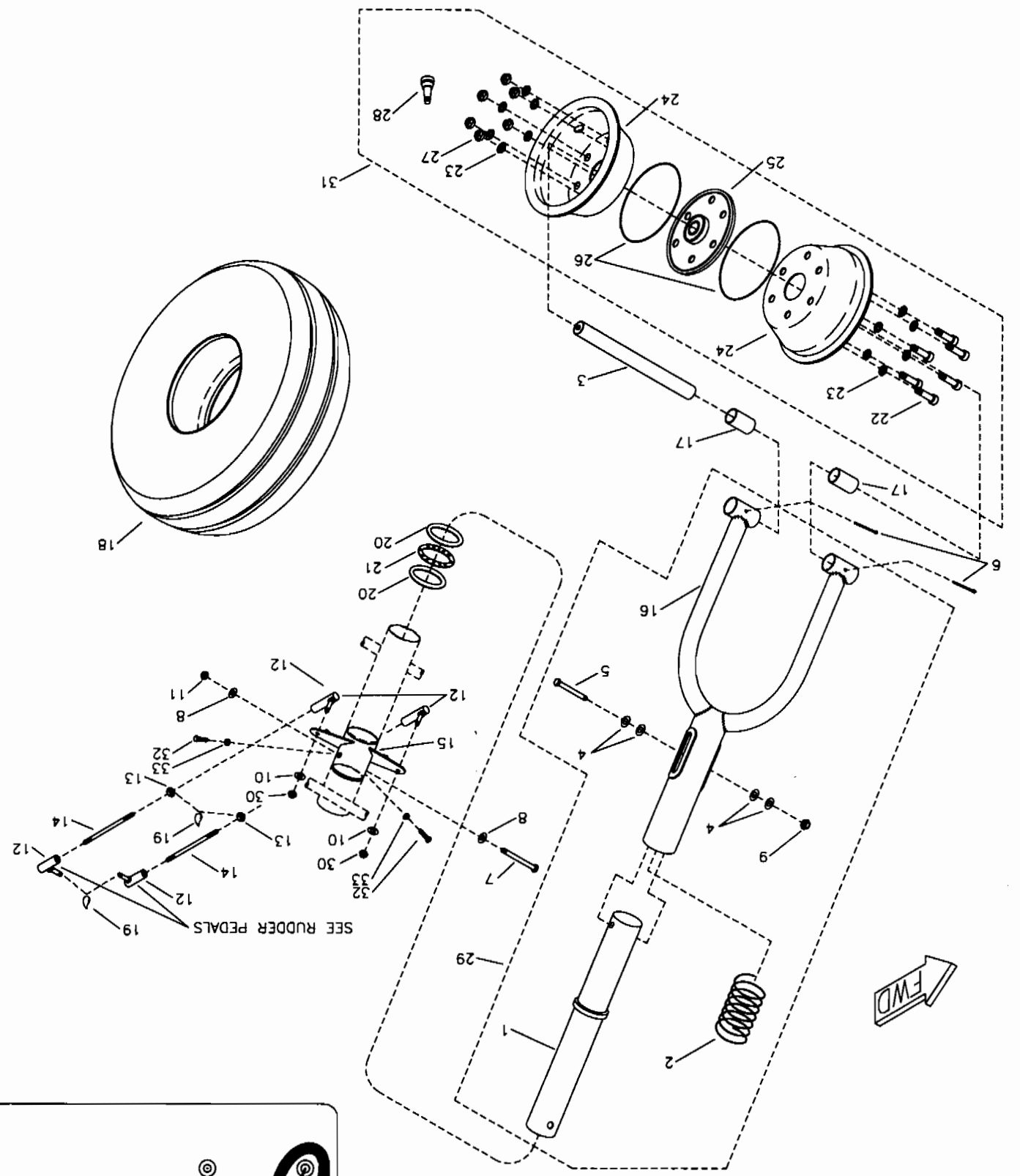
#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Loc Nut *	KSBS0008-1	12
2.	Washer *	KSBS0008-2	24
3.	Wheel - Outside *	KSBS0008-3	2
4.	Wheel - Inside *	KSBS0008-4	2
5.	Short Hub Bolt *	KSBS0008-5	6
6.	Long Hub Bolt *	KSBS0008-6	6
7.	Bearing Hub *	KSBS0008-7	2
8.	Brake Disc *	KSBS0008-8	2
9.	Disc Attach Bolt *	KSBS0008-9	6
10.	Sleeve *	KSBS0008-10	2
11.	Loc Nut *	KSBS0008-11	8
12.	Washer *	KSBS0008-12	16
13.	Caliper Assembly *	KSBS0008-13	2
14.	Axle *	KSBS0008-14	2
15.	Spindle Bolt *	KSBS0008-15	8
16.	Washer *	KSBS0008-16	2
17.	Castle Nut *	KSBS0008-17	2
18.	Cotter Pin *	KSBS0008-18	2
19.	Brake Line, See Toe Brake Assembly	KSBS0004	0 ft
20.	90 Fitting	KSBS0016	2
21.	1/4" Bolt	AN4-12A	2
22.	1/4" Thick Washer	AN960-416	4
23.	1/4" Shear Nut	AN364-428A	2
24.	Aero-Trainer Tube, 5"	KSMG0007	2
25.	Aero-Trainer Tire, 5"	KSMG0005	2
26.	Hydraulic Brake Assembly, 5"	KSBS0008	1
27.	3/16" Bolt	AN3-5A	4
28.	3/16" Thick Washer	AN960-10	4
29.	3/32" Aluminum Pop Rivet	40APR1/8	8
30.	3/16" Nut Plate	K-1000-3	4
31.	Reinforcement Plate, 1" x 1" x .032 Alum Strip **	KAAC0011-1	1
31.	Raw Stock Kit - Optional Main Wheel Pants	KAAC0011	1
32.	1/4" Bolt	MS51957-88	2
33.	1/4" Large Washer	AN970-4	2
34.	Wheel Pant Axle Extender 5" WH	KPMG0103	2
35.	Main Wheel Pant, 5"	MWP	2
36.	5/8" Loc Nut	5/8 LOC NUT	2

\*Supplied pre-assembled to KSBS0008.

\*\*Builder must fabricate from raw stock.

# RPMRS S-12 AIRRALE

Made in the USA



## NOSE GEAR ASSEMBLY

## FUSELAGE ASSEMBLY

DETAIL:

SECTION:

NOTES:

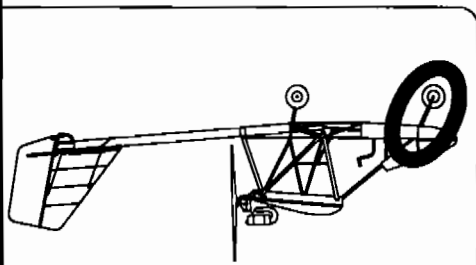
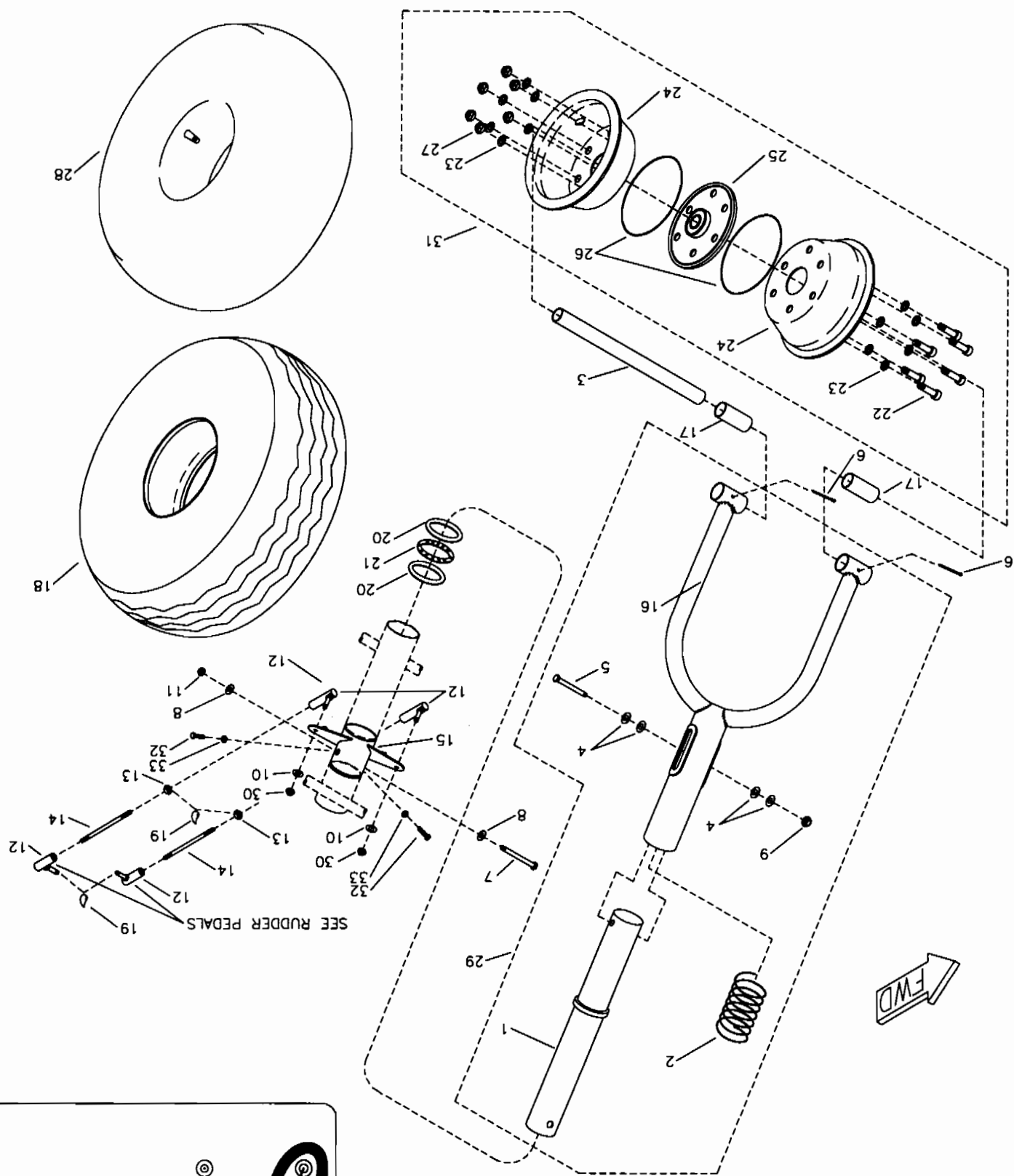
**S-12XL AIRAILE - NOSE GEAR ASSEMBLY**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Nose Gear Strut *	NG-STRUT	1
2.	Spring *	10372	1
3.	Nose Gear Axle	KPNG0074	1
4.	1/4" Plastic Washer *	PW-4	4
5.	1/4" Bolt *	AN4-24A	1
6.	Large Cotter Pin	MS24665-285	2
7.	3/16" Bolt	AN3-20A	1
8.	3/16" Thin Washer	AN960-10L	2
9.	1/4" Shear Nut *	AN364-428A	1
10.	1/4" Thin Washer	AN960-416L	2
11.	3/16" Shear Nut	AN364-1032A	1
12.	Steering Linkage	NG-SL	4
13.	1/4" Plain Nut	AN345-416	2
14.	Steer Rod	KPNG0039	2
15.	Steer Horn	KPNG0035	1
16.	Fork *	KPNG0073	1
17.	Aluminum Bushing, 3/4" x .058 x X ***	KAAC0001	0
18.	6" Tire	LG-T	1
19.	Loctite Blue	LOC-TITE	0
20.	Bearing Washer	TRA2435	2
21.	Thrust Bearing	NTA2435	1
22.	Socket Head Cap Screw **	LG-NW-HUB-1	6
23.	Washer **	LG-NW-HUB-2	12
24.	6" Hegar Nosewheel Rim Set	LG-NW-RIM	1
25.	Seal Plate **	LG-NW-HUB-3	1
26.	O Ring **	LG-NW-HUB-4	2
27.	Loc Nut **	LG-NW-HUB-5	6
28.	Valve Stem **	LG-NW-HUB-6	1
29.	Nose Gear Assembly	KANG0012	1
30.	1/4" Shear Nut	AN364-428A	2
31.	Hegar Nosewheel Hub Kit	LG-NW-HUB	1
32.	1/4" Plain Bolt	1/4X1 BOLT	2
33.	1/4" Plain Nut	AN345-416	2

\*Supplied pre-assembled to KANG0012.

\*\*Supplied in hub kit (LG-NW-HUB).

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



SECTION: 01-25  
 FUSELAGE ASSEMBLY -  
 NOSE GEAR ASSEMBLY -  
 WITH TUNDRA TIRES

NOTES:

**S-12XL AIRAILE - NOSE GEAR ASSEMBLY**  
**TUNDRA TIRES**

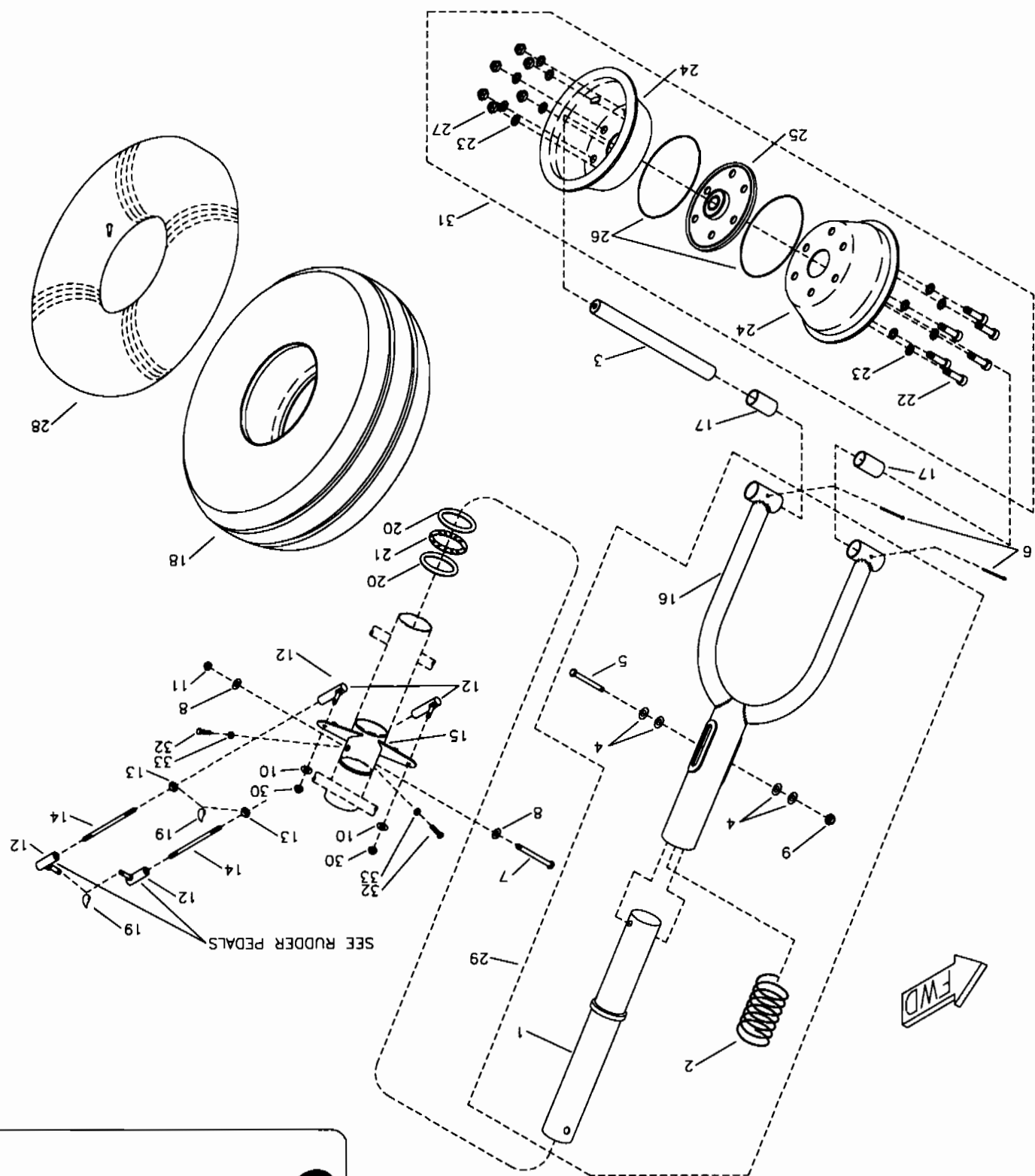
<b># DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1. Nose Gear Strut *	NG-STRUT	1
2. Spring *	10372	1
3. Nose Gear Axle	KPNG0038	1
4. 1/4" Plastic Washer *	PW-4	4
5. 1/4" Bolt *	AN4-24A	1
6. Large Cotter Pin	MS24665-285	2
7. 3/16" Bolt	AN3-20A	1
8. 3/16" Thin Washer	AN960-10L	2
9. 1/4" Shear Nut *	AN364-428A	1
10. 1/4" Thin Washer	AN960-416L	2
11. 3/16" Shear Nut	AN364-1032A	1
12. Steering Linkage	NG-SL	4
13. 1/4" Plain Nut	AN345-416	2
14. Steer Rod	KPNG0039	2
15. Steer Horn	KPNG0035	1
16. Fork-Tundra *	NG-FORK-12-T	1
17. Wheel Bushing	NG-WB-T	2
18. 6" Tundra Tire	KSMG0002	1
19. Loctite Blue	LOC-TITE	0
20. Bearing Washer	TRA2435	2
21. Thrust Bearing	NTA2435	1
22. Socket Head Cap Screw **	KSNG0001-1	6
23. Washer **	KSNG0001-2	12
24. 6" Hegar Nosewheel Rim Set	LG-NW-RIM	1
25. Seal Plate **	KSNG0001-3	1
26. O Ring **	KSNG0001-4	2
27. Loc Nut **	KSNG0001-5	6
28. 6" Tundra Tube	KSMG0003	1
29. Nose Gear Assembly - Tundra	KANG0007	1
30. 1/4" Shear Nut	AN364-428A	2
31. Hegar Nosewheel Hub Kit	KSNG0001	1
32. 1/4" Plain Bolt	1/4X1 BOLT	2
33. 1/4" Plain Nut	AN345-416	2

\*Supplied pre-assembled to KANG0007.

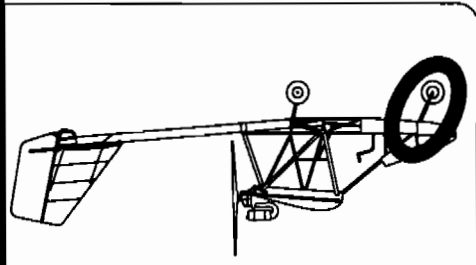
\*\*Supplied in hub kit (KSNG0001).

# RANDS S-12 AIRRAIL

Made in the USA



SEE RUDDER PEDALS



SECTION: **FUSELAGE ASSEMBLY**

DETAIL: **NOSE GEAR ASSEMBLY WITH AERO-TRAINER TIRE**

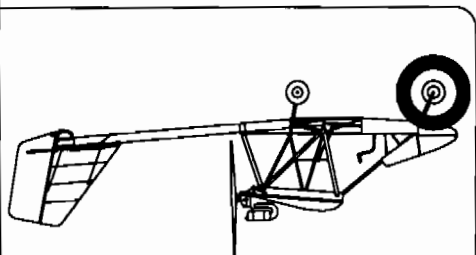
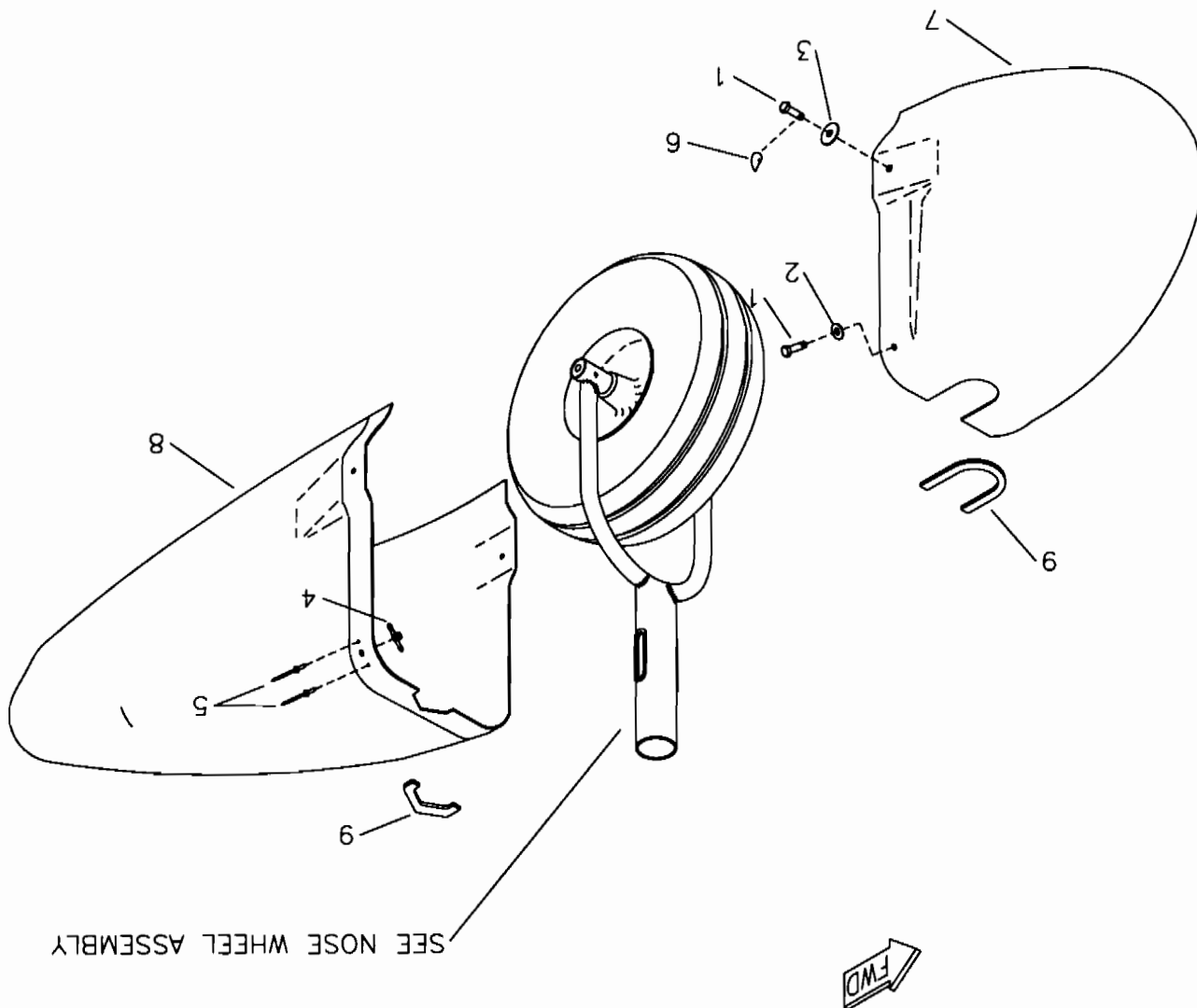
**S-12XL AIRAILE - NOSE GEAR ASSEMBLY**  
**AERO-TRAINER TIRES**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Nose Gear Strut *	NG-STRUT	1
2.	Spring *	10372	1
3.	Nose Gear Axle	KPNG0074	1
4.	1/4" Plastic Washer *	PW-4	4
5.	1/4" Bolt *	AN4-24A	1
6.	Large Cotter Pin	MS24665-285	2
7.	3/16" Bolt	AN3-20A	1
8.	3/16" Thin Washer	AN960-10L	2
9.	1/4" Shear Nut *	AN364-428A	1
10.	1/4" Thin Washer	AN960-416L	2
11.	3/16" Shear Nut	AN364-1032A	1
12.	Steering Linkage	NG-SL	4
13.	1/4" Plain Nut	AN345-416	2
14.	Steer Rod	KPNG0039	2
15.	Steer Horn	KPNG0035	1
16.	Fork *	KPNG0073	1
17.	Aluminum Bushing, 3/4" x .058 x X ***	KAAC0001	0
18.	Aero-Trainer Tire, 5"	KSMG0005	1
19.	Loctite Blue	LOC-TITE	0
20.	Bearing Washer	TRA2435	2
21.	Thrust Bearing	NTA2435	1
22.	Socket Head Cap Screw **	KSNG0001-1	6
23.	Washer **	KSNG0001-2	12
24.	5" Hegar Nosewheel Rim Set	LG-NW-RIM-5	1
25.	Seal Plate **	KSNG0001-3	1
26.	O Ring **	KSNG0001-4	2
27.	Loc Nut **	KSNG0001-5	6
28.	Aero-Trainer Tube, 5"	KSMG0007	1
29.	Nose Gear Assembly	KANG0012	1
30.	1/4" Shear Nut	AN364-428A	2
31.	Hegar Nosewheel Hub Kit	KSNG0001	1
32.	1/4" Plain Bolt	1/4X1 BOLT	2
33.	1/4" Plain Nut	AN345-416	2

\*Supplied pre-assembled to KANG0012.

\*\*Supplied in hub kit (KSNG0001).

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



NOSE GEAR WHEEL PANT ASSEMBLY

DETAIL:

FUSELAGE ASSEMBLY

SECTION:



**Section:**

**FUSELAGE ASSEMBLY**

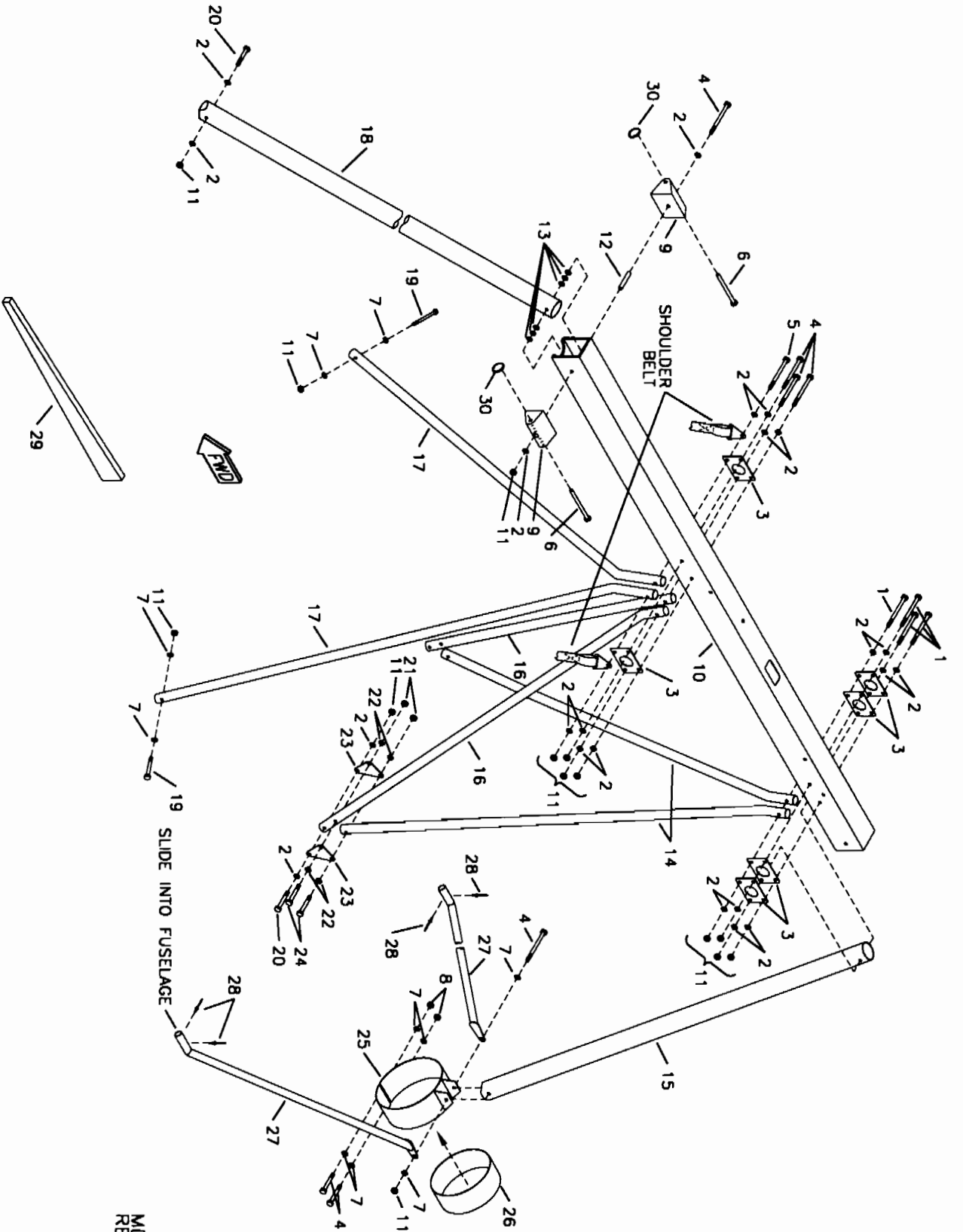
**Detail:**

**NOSE GEAR WHEEL PANT ASSEMBLY**

**Page:**  
01-30

**Date:**  
8/22/96

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	3/16" Bolt	AN3-5A	4
2.	3/16" Thick Washer	AN960-10	2
3.	3/16" Large Wood Washer	AN970-3	2
4.	3/16" Nut Plate	K-1000-3	2
5.	3/32" Aluminum Pop Rivet	40APR1/8	4
6.	Loctite Blue	LOC-TITE	0
7.	Nose Wheel Pant, FWD	NWP-FWD	1
8.	Nose Wheel Pant, AFT	NWP-AFT	1
9.	Rubber Edging	X1011	12 in



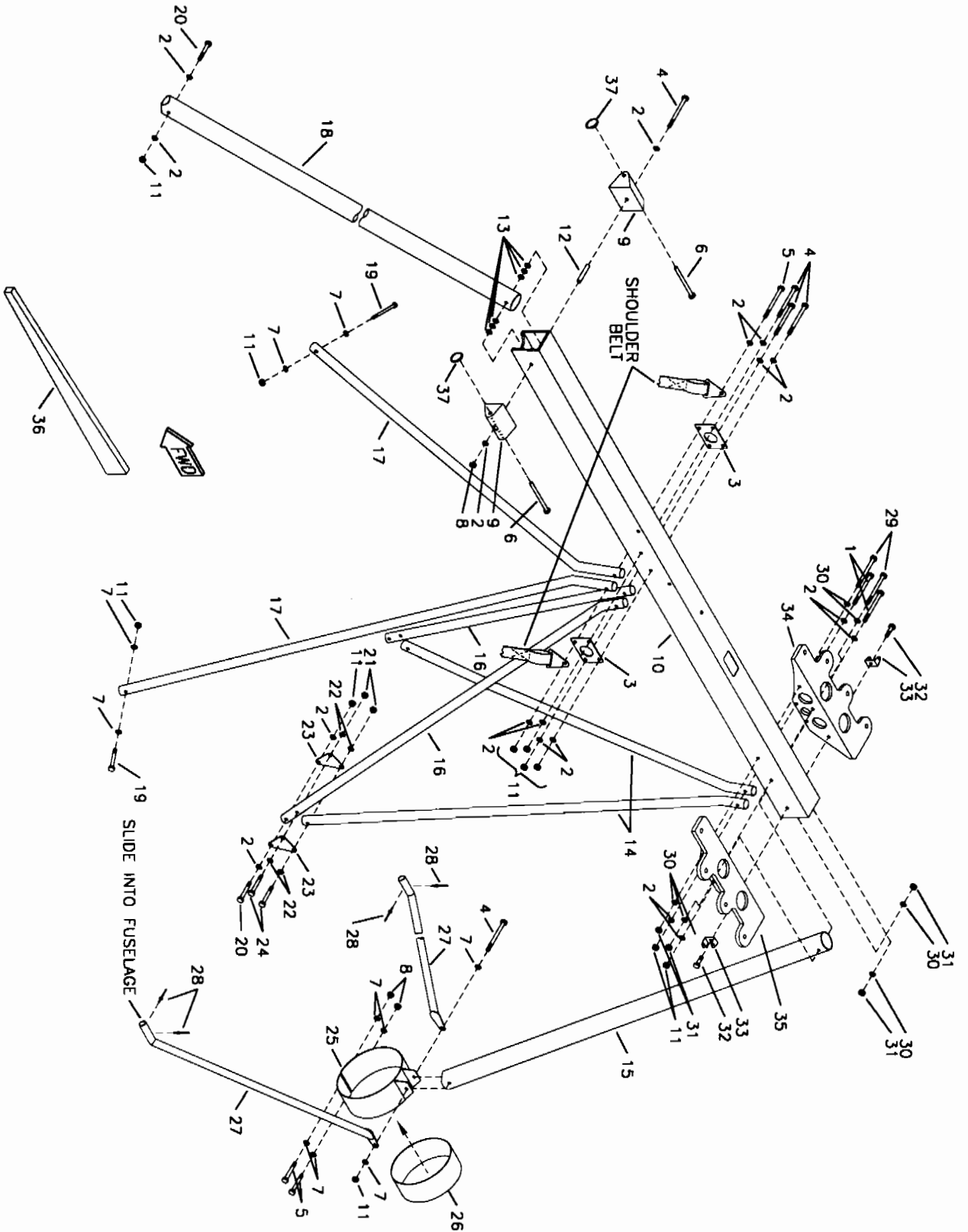
**RRRMD88 S-12 AIRAILLE  
SUPER STRUCTURE ASSEMBLY**

MD1923  
REV. A

**S-12XL AIRAILE - SUPER STRUCTURE ASSEMBLY - 503/582**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	1/4" Bolt	AN4-30A	4
2.	1/4" Thick Washer	AN960-416	24
3.	Keel Plate	K-KP	6
4.	1/4" Bolt	AN4-26A	7
5.	1/4" Bolt	AN4-27A	1
6.	3/8" Clevis Pin	MS20392-5C97	2
7.	1/4" Thin Washer	AN960-416L	12
8.	1/4" Tensile Nut	AN365-428A	2
9.	Bracket	W-BRKT	2
10.	Keel	KPFU0043	1
11.	1/4" Shear Nut	AN364-428A	15
12.	Spacer Bushing, 3/8" x .058 x 2"	SB-3/8X2	1
13.	3/8" Thick Washer	AN960-616	6
14.	AFT Cabane, LH	KPFU0048-LH	1
14.	AFT Cabane, RH	KPFU0048-RH	1
15.	AFT Strut	KPFU0045	1
16.	Middle Cabane, LH	KPFU0047-LH	1
16.	Middle Cabane, RH	KPFU0047-RH	1
17.	Forward Cabane, LH	KPFU0046-LH	1
17.	Forward Cabane, RH	KPFU0046-RH	1
18.	Forward Strut	KPFU0044	1
19.	1/4" Bolt	AN4-15A	2
20.	1/4" Bolt	AN4-17A	3
21.	3/16" Shear Nut	AN364-1032A	4
22.	3/16" Thin Washer	AN960-10L	8
23.	Triangle Plate	AUF-13	4
24.	3/16" Bolt	AN3-15A	4
25.	Tail Boom Bracket	KPFU0035	1
26.	Plastic Strip	K-PS	1
27.	Tail Boom - Brace Tube	KPFU0049	2
28.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	4
29.	Keel Template	KPFU0070	1
30.	Loc Ring	RL 27 1/4	2

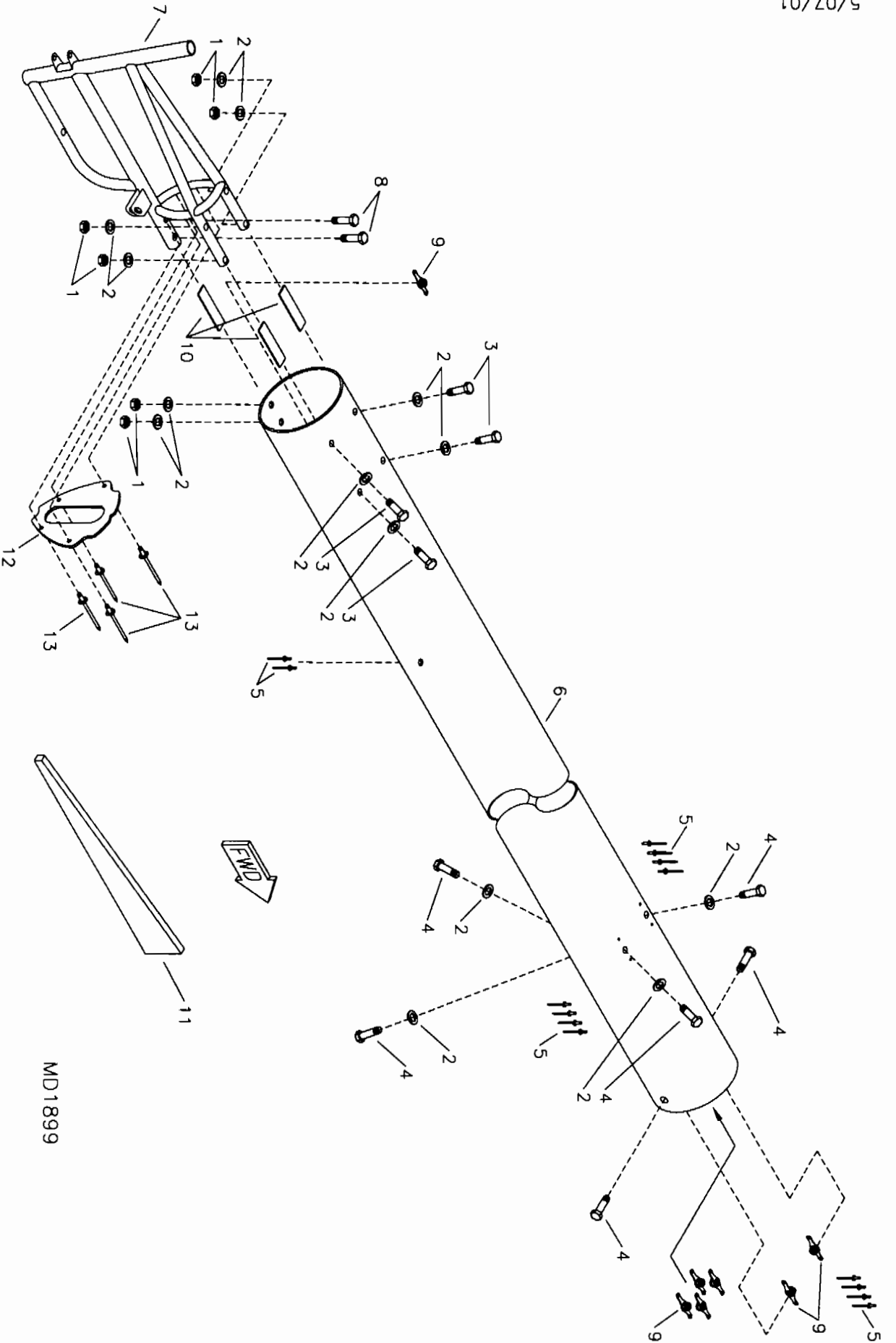
# RRRMD S-12 AIRRAIL SUPER STRUCTURE ASSEMBLY - 912 ENGINE



MD1924  
REV. B

**S-12XL AIRAILE - SUPER STRUCTURE ASSEMBLY - 912**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	1/4" Bolt	AN4-32A	2
2.	1/4" Thick Washer	AN960-416	20
3.	Keel Plate	K-KP	2
4.	1/4" Bolt	AN4-26A	5
5.	1/4" Bolt	AN4-27A	3
6.	3/8" Clevis Pin	MS20392-5C97	2
7.	1/4" Thin Washer	AN960-416L	12
8.	1/4" Tensile Nut	AN365-428A	3
9.	Bracket	W-BRKT	2
10.	Keel	KPFU0043	1
11.	1/4" Shear Nut	AN364-428A	13
12.	3/8" x .058 x 2" Bushing	SB-3/8X2	1
13.	3/8" Thick Washer	AN960-616	6
14.	AFT Cabane, LH	KPFU0048-LH	1
14.	AFT Cabane, RH	KPFU0048-RH	1
15.	AFT Strut	KPFU0045	1
16.	Middle Cabane, LH	KPFU0047-LH	1
16.	Middle Cabane, RH	KPFU0047-RH	1
17.	Forward Cabane, LH	KPFU0046-LH	1
17.	Forward Cabane, RH	KPFU0046-RH	1
18.	Forward Strut	KPFU0044	1
19.	1/4" Bolt	AN4-15A	2
20.	1/4" Bolt	AN4-17A	3
21.	3/16" Shear Nut	AN364-1032A	4
22.	3/16" Thin Washer	AN960-10L	8
23.	Triangle Plate	AUF-13	4
24.	3/16" Bolt	AN3-15A	4
25.	Tail Boom Bracket	KPFU0035	1
26.	Plastic Strip	K-PS	1
27.	Tail Boom - Brace Tube	KPFU0049	2
28.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	4
29.	5/16" Bolt	AN5-32A	2
30.	5/16" Thin Washer	AN960-516L	6
31.	5/16" Tensile Nut	AN365-524A	4
32.	5/16" Bolt	AN5-10A	2
33.	Stainless Steel U Bracket	SU-118	2
34.	912 Engine Mount Angle, RH	KPPW0035-R	1
35.	912 Engine Mount Angle, LH	KPPW0035-L	1
36.	Keel Template	KPFU0070	1
37.	Loc Ring	RL 27 1/4	2

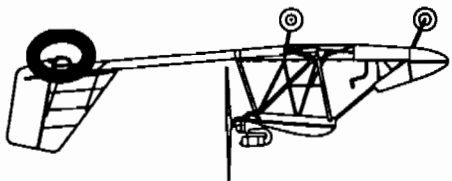
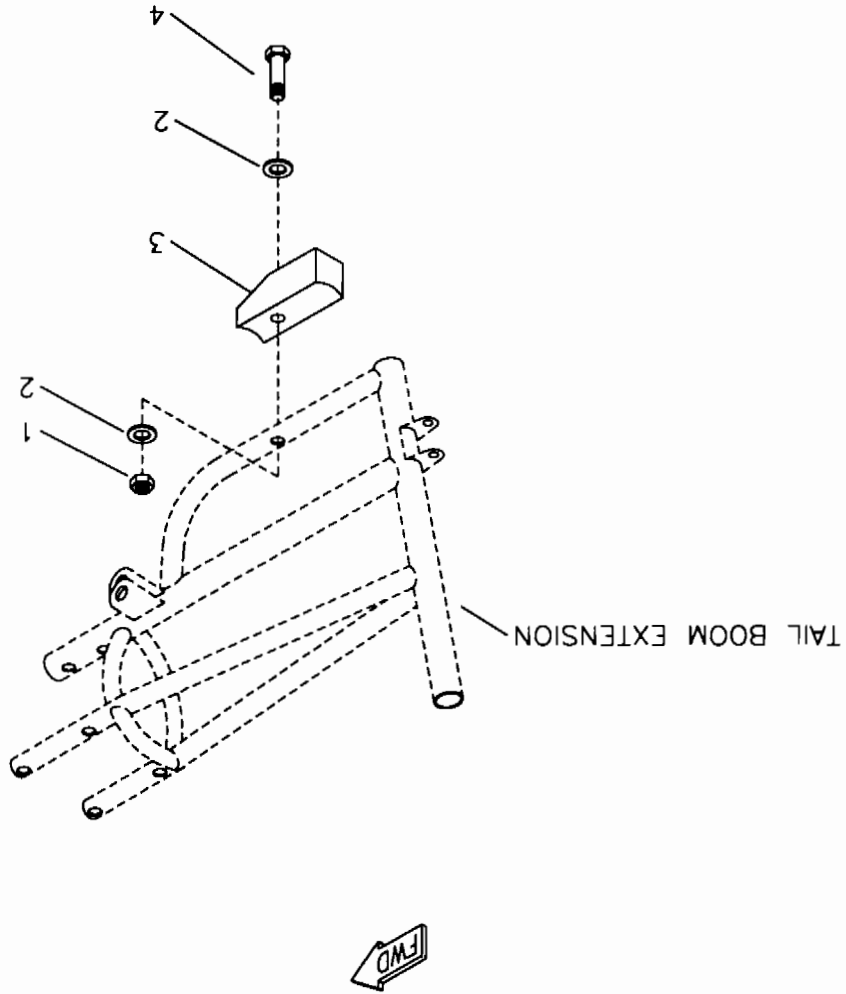


**RFA108 S-12 AIRRAIL  
TAIL BOOM ASSEMBLY**

MD1899

**S-12XL AIRAILE - TAIL BOOM ASSEMBLY**

<b># DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1. 3/16" Shear Nut	AN364-1032A	6
2. 3/16" Thin Washer	AN960-10L	14
3. 3/16" Bolt	AN3-10A	4
4. 3/16" Bolt	AN3-4A	6
5. 3/32" Aluminum Pop Rivet	40APR1/8	14
6. Tail Boom	KAFU0016	1
7. Tail Boom Extension	TB-EXT	1
8. 3/16" Bolt	AN3-12A	2
9. 3/16" Nut Plate	K-1000-3	7
10. Tape	KSAC0003	12 in
11. Boom Template	KPFU0069	1
12. Elevator Push Pull Tube Guide	KPFU0329	1
13. 1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-44	4



SKID BLOCK INSTALLATION

DETAIL:

FUSELAGE ASSEMBLY

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**Section:**

**FUSELAGE ASSEMBLY**

**Detail:**

**SKID BLOCK INSTALLATION**

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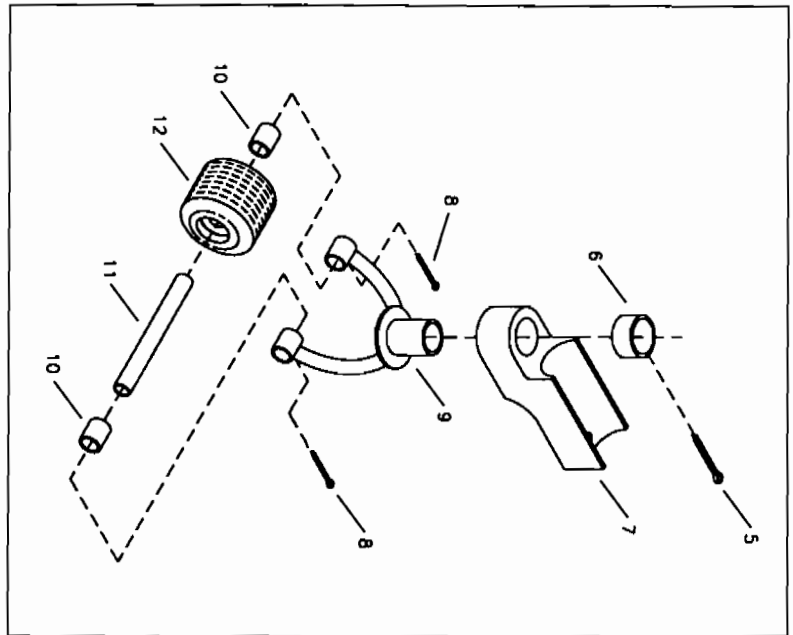
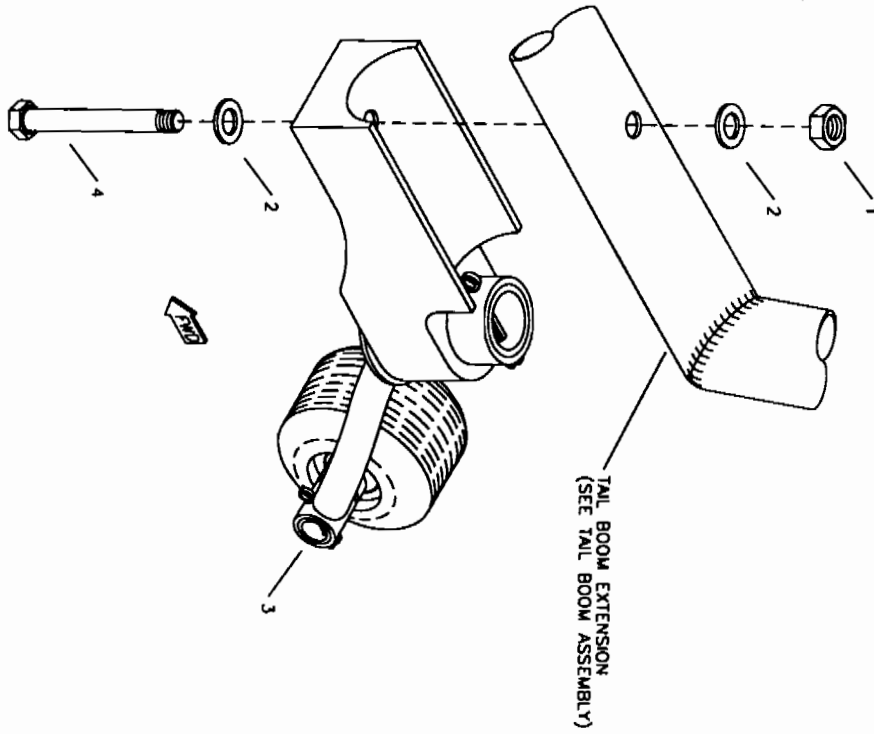
7/25/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	3/16" Shear Nut	AN364-1032A	1
2.	3/16" Thin Washer	AN960-10L	2
3.	Skid Block	TB-SB	1
4.	3/16" Bolt	AN3-20A	1

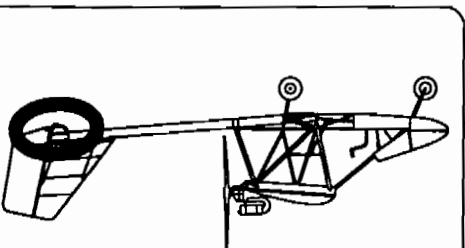
**RANS, Inc.**  
**S-12 Airaile**

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TAILWHEEL ASSEMBLY DETAIL



TAILWHEEL INSTALLATION

FUSELAGE ASSEMBLY

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**FUSELAGE ASSEMBLY**

**Detail:**

**TAILWHEEL INSTALLATION**

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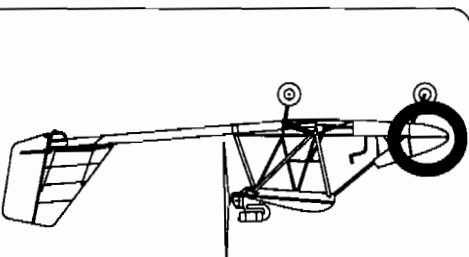
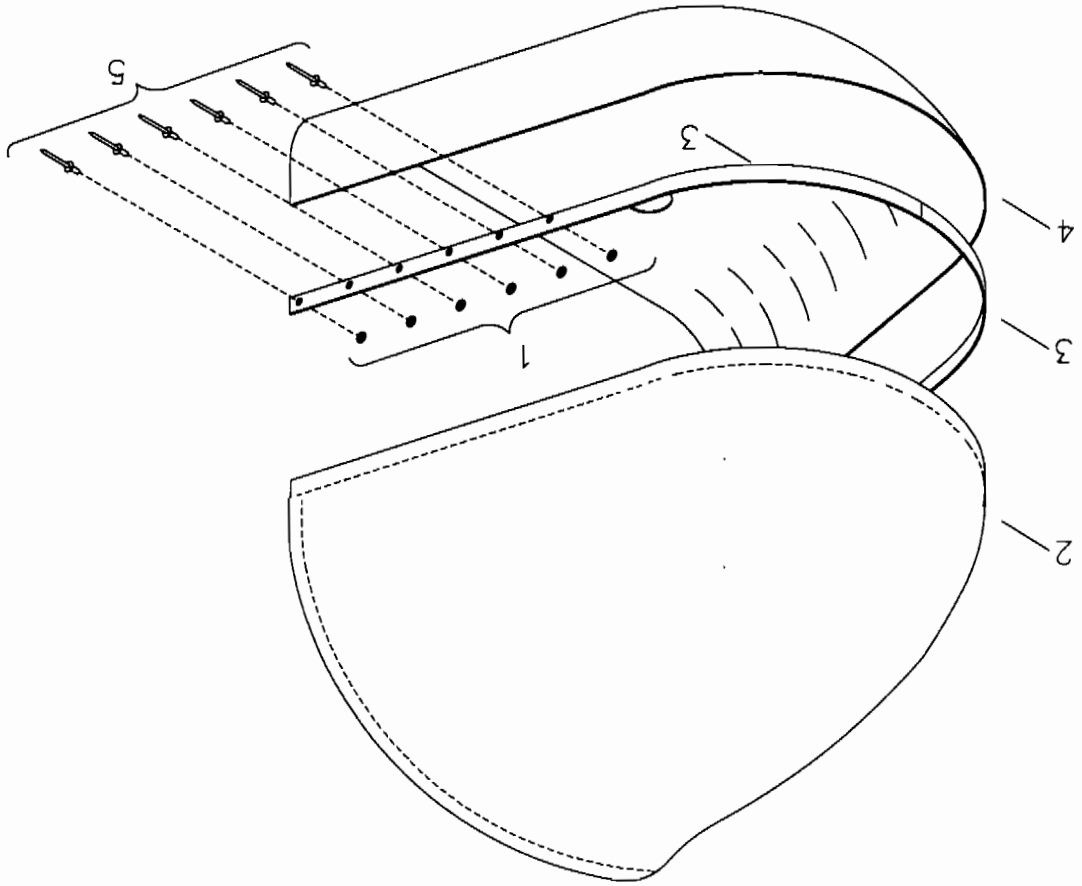
#	Description	Part Number	Quantity
1.	3/16" Shear Nut	AN364-1032A	1
2.	3/16" Thin Washer	AN960-10L	2
3.	Tailwheel Assembly	KATG0003	1
4.	3/16" Bolt	AN3-17A	1
5.	Large Cotter Pin*	MS24665-287	1
6.	Bushing*	KPAC0035	1
7.	Tailwheel Swivel Block*	KPTG0002	1
8.	Small Cotter Pin*	MS24665-134	2
9.	Tailwheel Fork*	KPTG0001	1
10.	Bushing*	KPAC0034	2
11.	Tailwheel-Axle*	KPTG0008	1
12.	Tailwheel*	KSTG0001	1

\*Comes pre-assembled to KATG0003.

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**S-12 Airaille**

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SECTION:  
FUSELAGE ENCLOSURE  
DETAIL:  
NOSE POD ASSEMBLY  
- MINI-POD

SECTION:

**Section:**

**FUSELAGE ENCLOSURE**

**Detail:**

**NOSE POD ASSEMBLY - MINI POD**

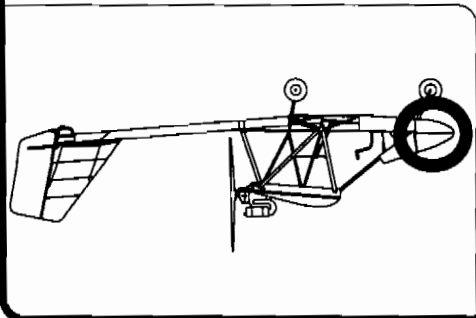
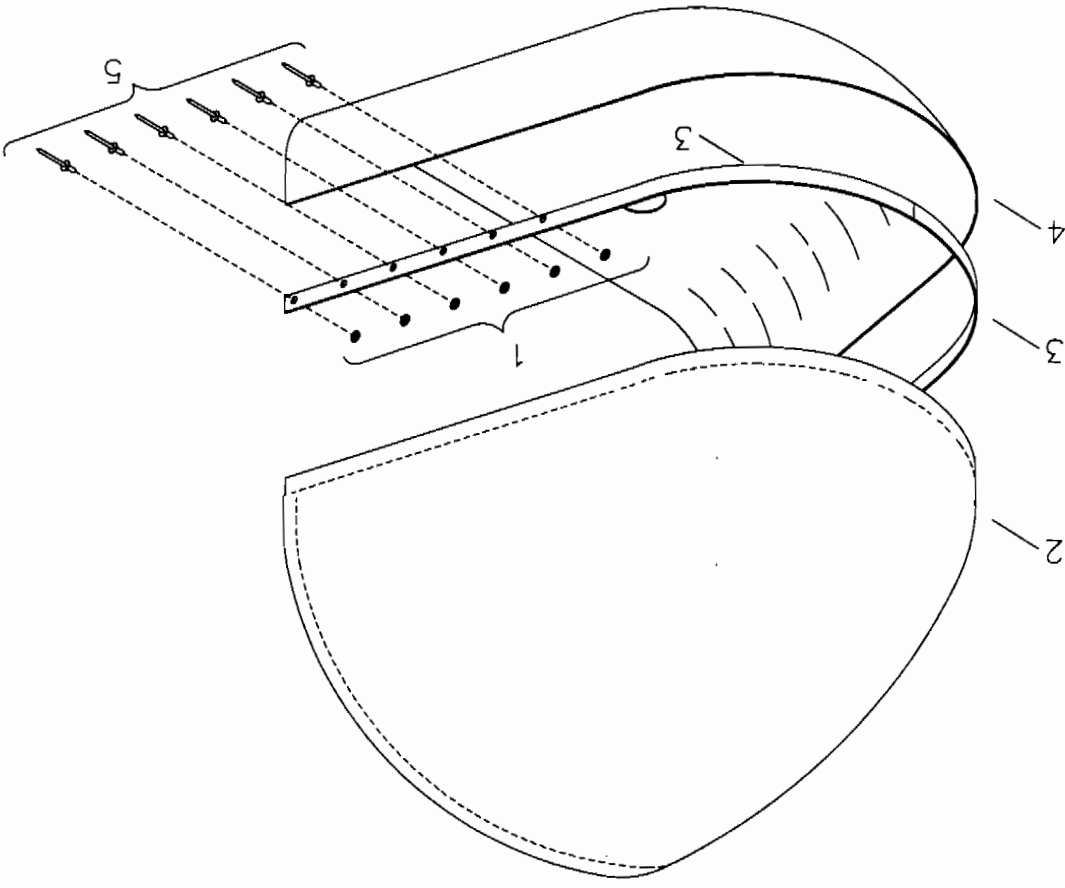
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<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	1/8" Brass Washer	AN960-B4	24
2.	Nose Cone Top	PP-NCTOP	1
3.	Nose Cone Mating Strip	PP-NCMS	2
4.	Nose Cone Bottom	PP-NCBOT	1
5.	1/8" Aluminum Pop Rivet	1691-0410	24

**RANS, Inc.**  
**S-12 Airaile**

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SECTION: FUSELAGE ENCLOSURE  
 DETAIL: NOSE POD ASSEMBLY - PARTIAL OR FULL ENCLOSURE

**Section:**

**FUSELAGE ENCLOSURE**

**Detail:**

**NOSE POD ASSEMBLY  
WITH PARTIAL OR FULL ENCLOSURE**

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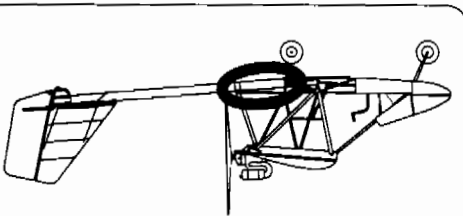
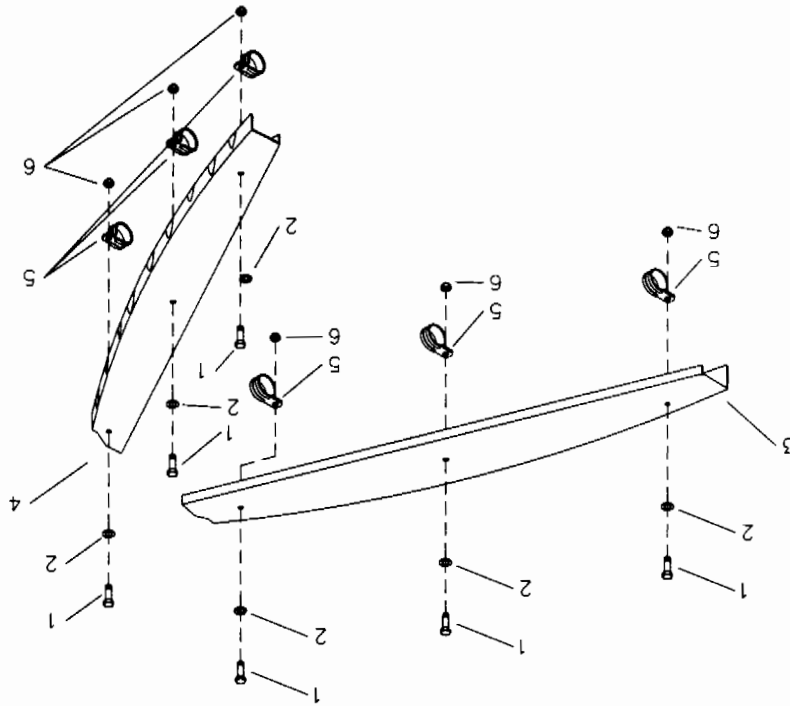
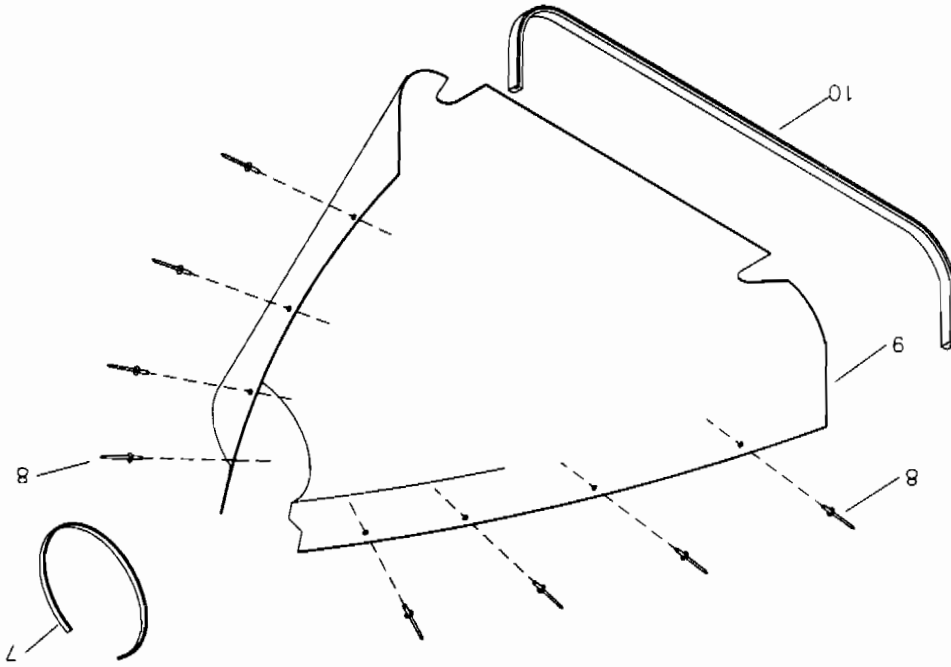
**8/15/96**

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	1/8" Brass Washer	AN960-B4	24
2.	Nose Cone Top	KPFU0107	1
3.	Nose Cone Mating Strip	PP-NCMS	2
4.	Nose Cone Bottom	PP-NCBOT	1
5.	1/8" Aluminum Pop Rivet	1691-0410	24

**RANS, Inc.  
S-12 Airaile**

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# 4 BELLY PAN INSTALLATION

DETAIL

FUSELAGE ENCLOSURE

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**Section:**

**FUSELAGE ENCLOSURE**

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**#4 BELLY PAN INSTALLATION**

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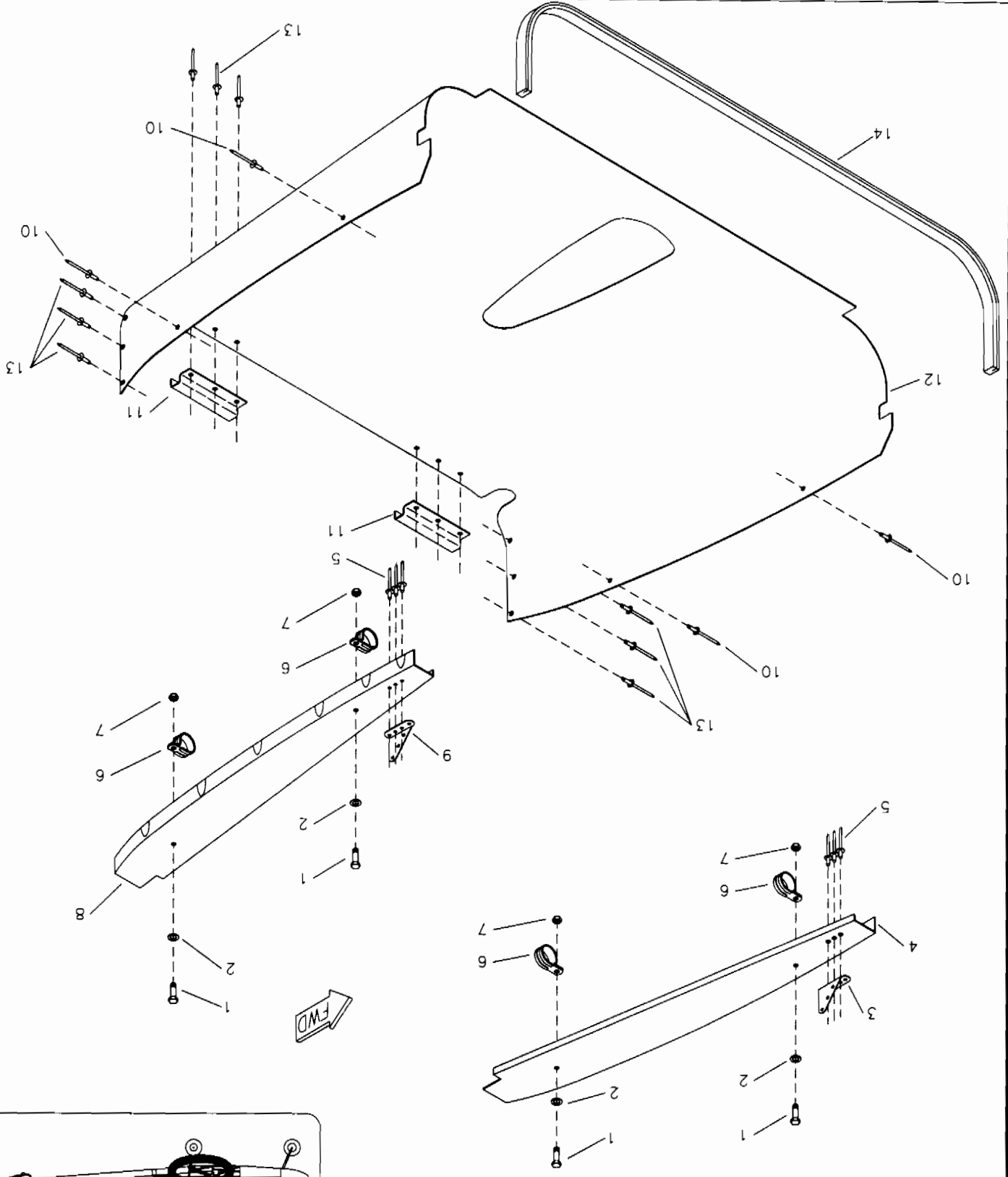
<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1 .	3/16" Bolt	AN3-3A	6
2 .	3/16" Thick Washer	AN960-10	6
3 .	#4 Belly Pan Former - RH	KPFU0085-R	1
4 .	#4 Belly Pan Former - LH	KPFU0085-L	1
5 .	5/8" Cushioned Tube Clamp	MS21919-DG10	6
6 .	3/16" Shear Nut	AN364-1032A	6
7 .	Rubber Edging	X1011	13 in
8 .	3/32" Aluminum Pop Rivet	40APR1/8	8
9 .	#4 Belly Pan	KPFU0095	1
10 .	Foam Strip, 3/16" x 3/8" x X *	KAAC0001	0

\*Builder cuts from raw stock.

**RANS, Inc.**  
**S-12 Airaile**

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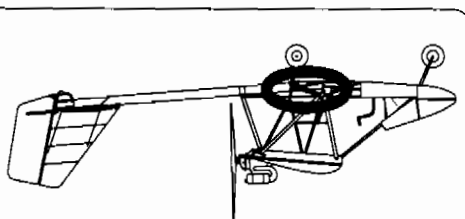


#3 BELLY PAN INSTALLATION

FUSELAGE ENCLOSURE

SECTION:

DETAIL:



**Section:**

**FUSELAGE ENCLOSURE**

**Detail:**

**#3 BELLY PAN INSTALLATION**

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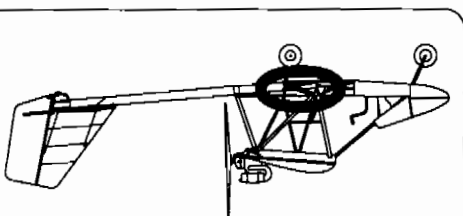
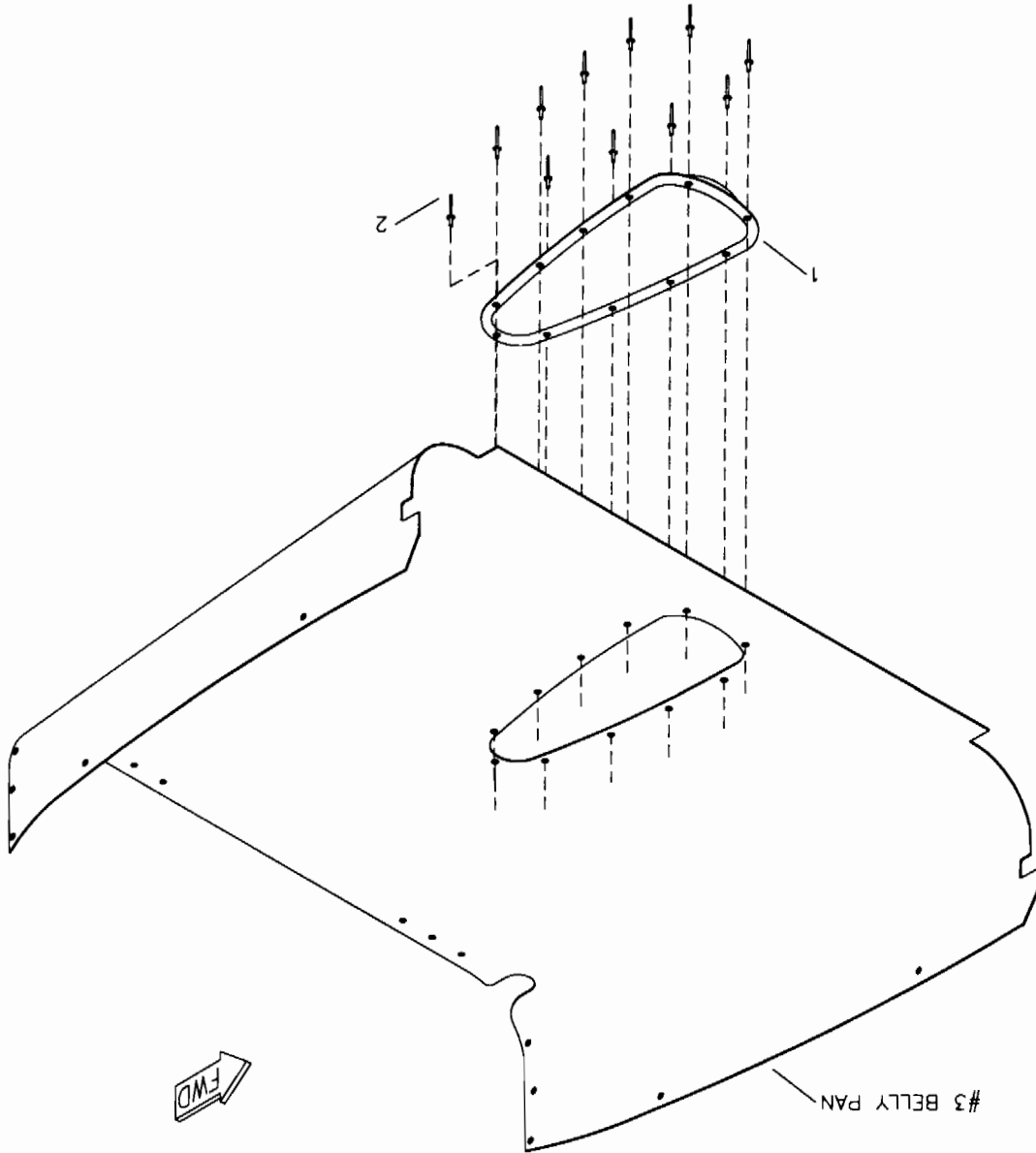
<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1 .	3/16" Bolt	AN3-3A	4
2 .	3/16" Thick Washer	AN960-10	4
3 .	Gusset - RH	KPAC0065-R	1
4 .	#3 Belly Pan Former - RH	KPFU0084-R	1
5 .	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-41	6
6 .	5/8" Cushioned Tube Clamp	MS21919-DG10	4
7 .	3/16" Shear Nut	AN364-1032A	4
8 .	#3 Belly Pan Former - LH	KPFU0084-L	1
9 .	Gusset - LH	KPAC0065-L	1
10 .	3/32" Aluminum Pop Rivet	40APR1/8	4
11 .	Z Strip	KPAC0067	2
12 .	#3 Belly Pan	KPFU0096	1
13 .	1/8" Aluminum Pop Rivet - Avex	1691-0410	14
14 .	Foam Strip, 3/16" x 3/8" x X *	KAAC0001	0

\*Builder cuts from raw stock.

**RANS, Inc.**  
**S-12 Airaile**

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BOOM SEAL INSTALLATION

DETAIL:

FUSELAGE ENCLOSURE

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**Section:**

**FUSELAGE ENCLOSURE**

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**BOOM SEAL INSTALLATION**

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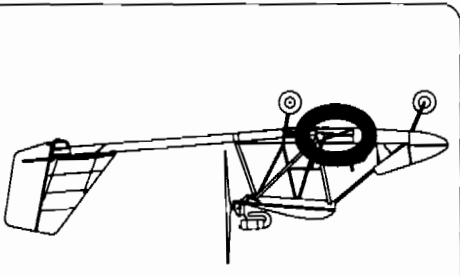
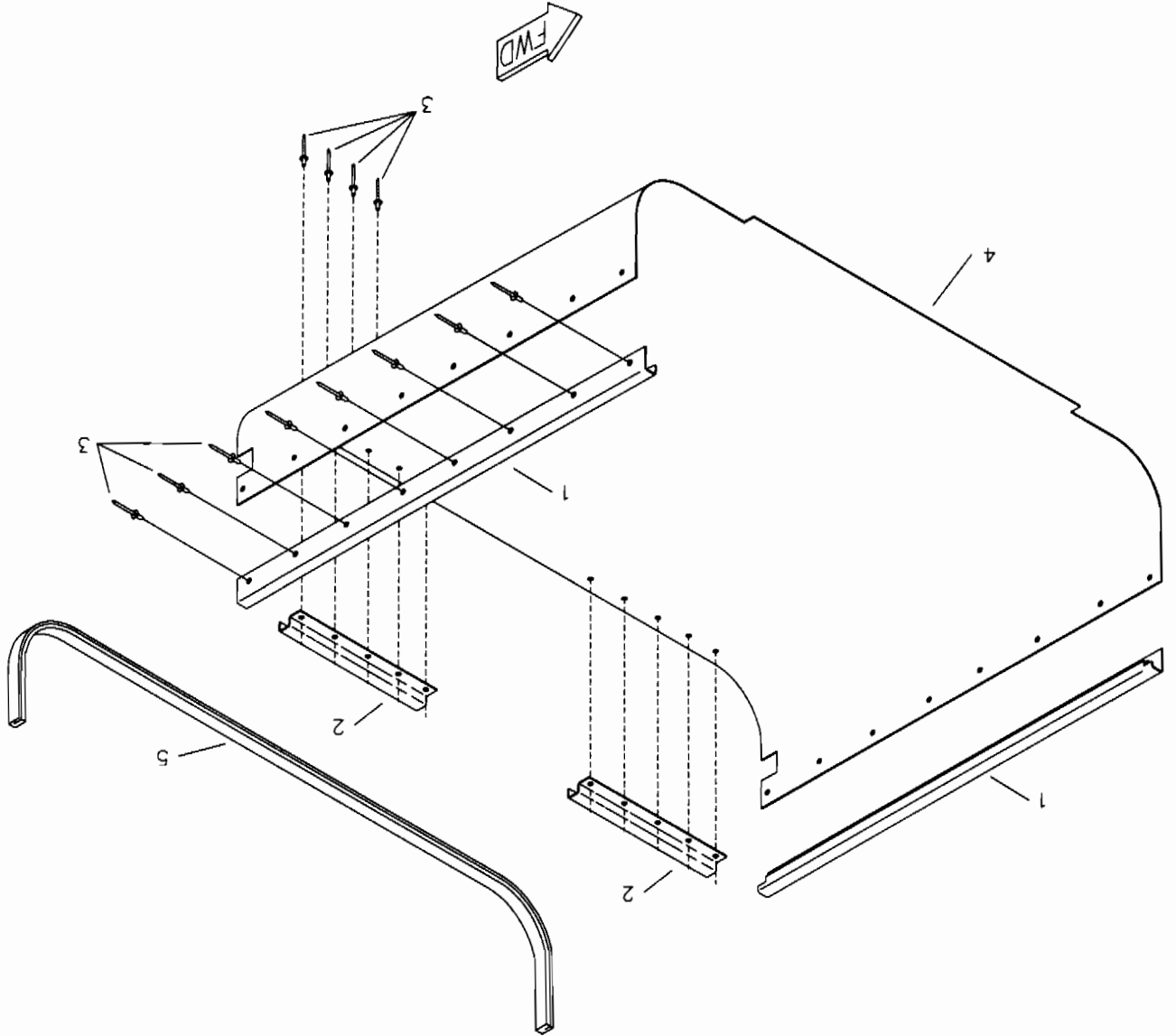
<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Radiator/Boom Seal*	KPPW0049	1
2.	1/8" Aluminum Pop Rivet	1691-0410	12

\*This part is called out & hardware is supplied on the cooling system drawing for 582/912.

**RANS, Inc.**  
**S-12 Airaile**

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#2 BELLY PAN INSTALLATION

DETAIL:

FUSELAGE ENCLOSURE

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**Section:**

**FUSELAGE ENCLOSURE**

**Detail:**

**#2 BELLY PAN INSTALLATION**

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<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Top Channel, LH	KPFU0060-LH	1
1.	Top Channel, RH	KPFU0060-RH	1
2.	Z Strip	KPAC0039	2
3.	1/8" Aluminum Pop Rivet	1691-0410	26
4.	#2 Belly Pan	KPFU0061	1
5.	Foam Strip, 3/16" *	KAAC0001	6 ft

\*Builder cuts from raw stock.

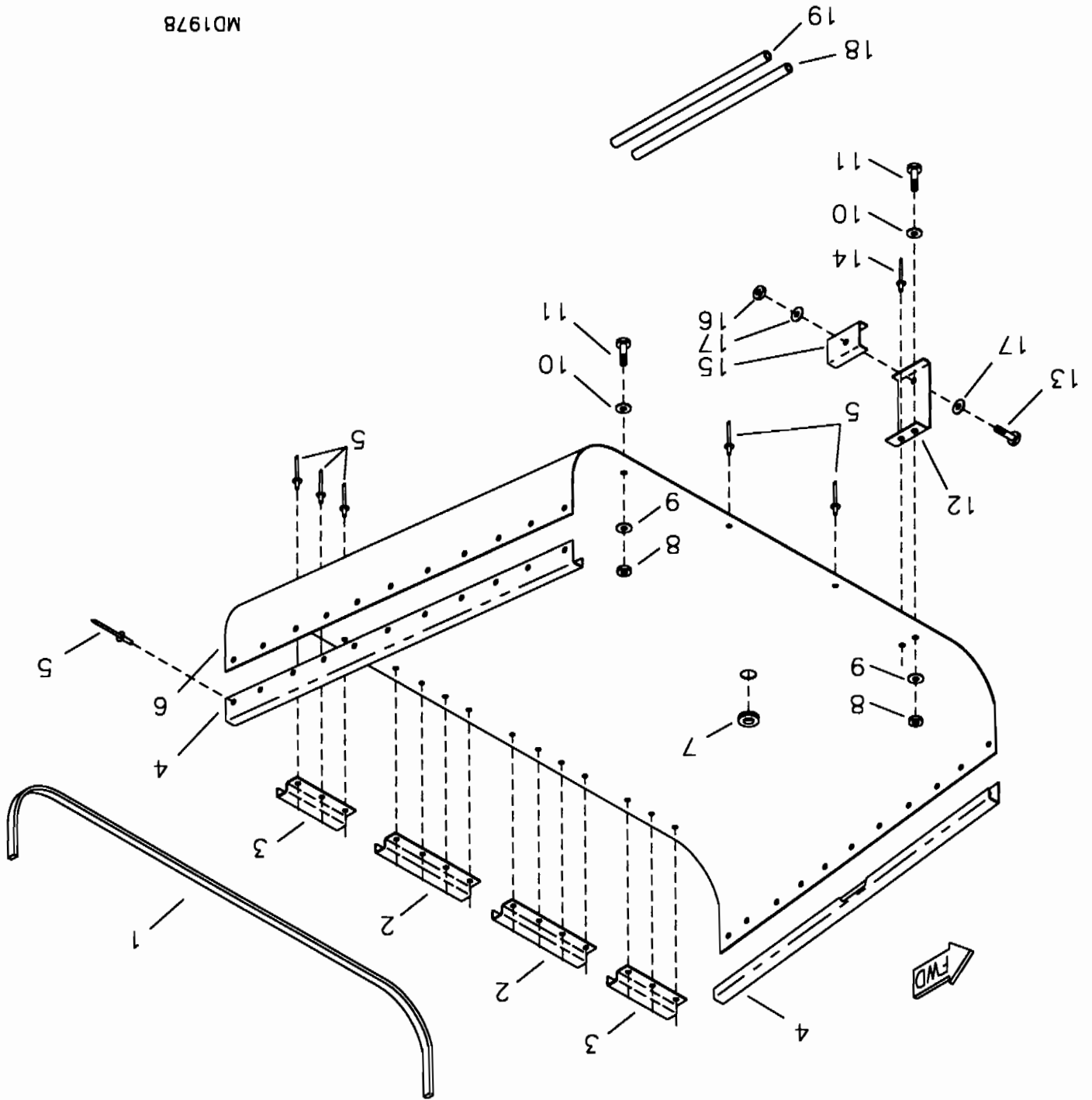
**RANS, Inc.**  
**S-12 Airaile**

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# RANDS S-12 AIRAILE #1 BELLY PAN INSTALLATION

MD1978





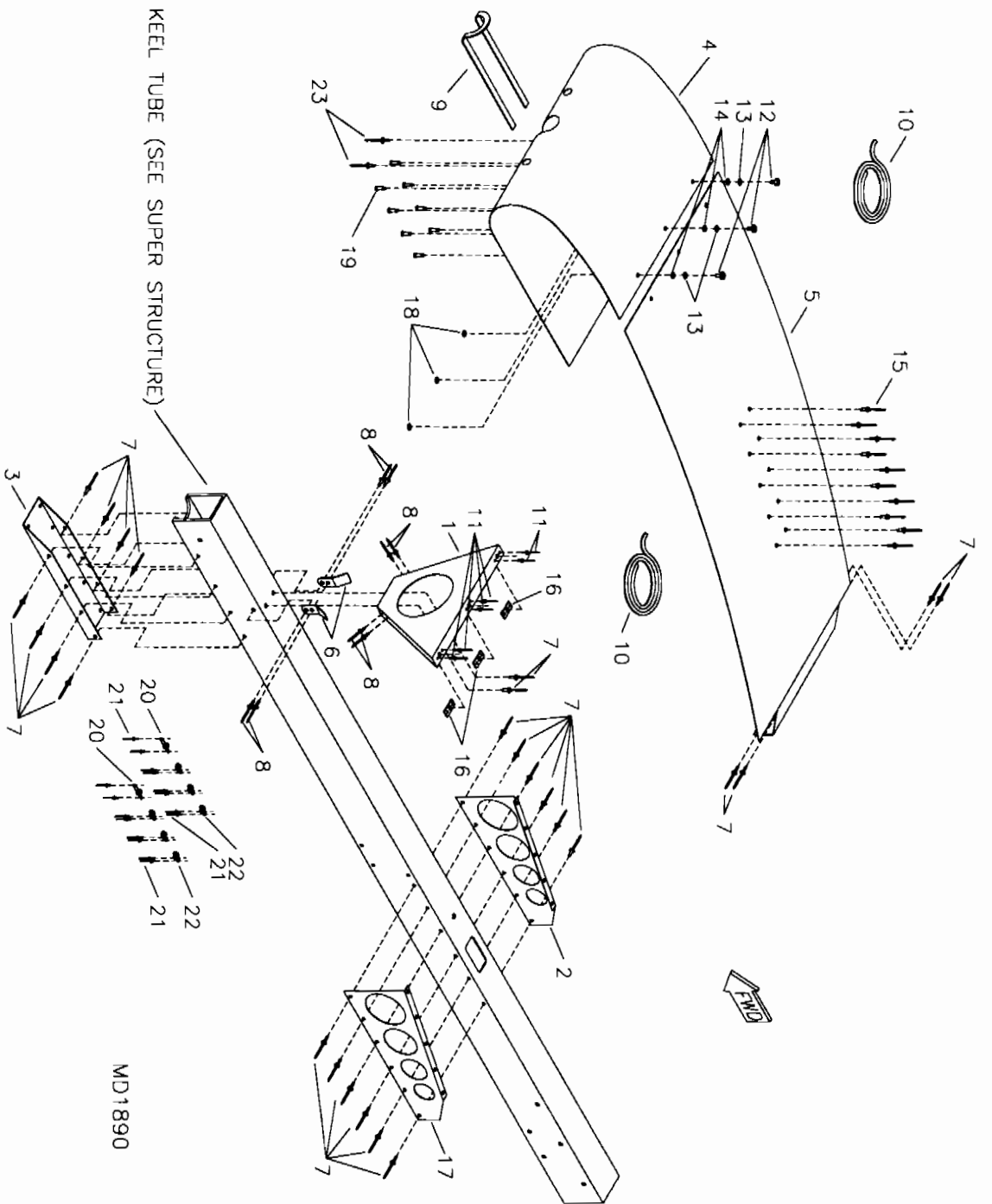
**S-12XL AIRAILE - #1 BELLY PAN INSTALLATION**

<b># DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1. Foam Strip, 3/16" *	WS-FS(KAAC0001)	6 ft
2. 8" Z Strip	PP-8Z	2
3. Z Strip	KPAC0040	2
4. Top Channel, LH	KPFU0062-LH	1
4. Top Channel, RH	KPFU0062-RH	1
5. 1/8" Aluminum Pop Rivet - Avex	1691-0410	38
6. #1 Belly Pan	KPFU0063	1
7. Rubber Grommet	MS35489-17	1
8. 3/16" Shear Nut **	AN364-1032A	0
9. 3/16" Large Washer **	AN970-3	0
10. 3/16" Thick Washer **	AN960-10	0
11. 3/16" Bolt **	AN3-12A	0
12. Static/Pitot Mount	IP-SPM	1
13. 3/16" Bolt	AN3-5A	1
14. 3/16" Aluminum Pop Rivet - Cherry Q	AAPQ-62	1
15. Static/Pitot Mount Clamp	IP-SPMC	1
16. 3/16" Shear Nut	AN364-1032A	1
17. 3/16" Thick Washer	AN960-10	2
18. Static Tube	W-ST	1
19. Pitot Tube ***	W-ST	0

\*Builder cuts from raw stock.

\*\*Referenced from floorboard assembly.

\*\*\*Builder makes pitot tube by cutting static tube in half.

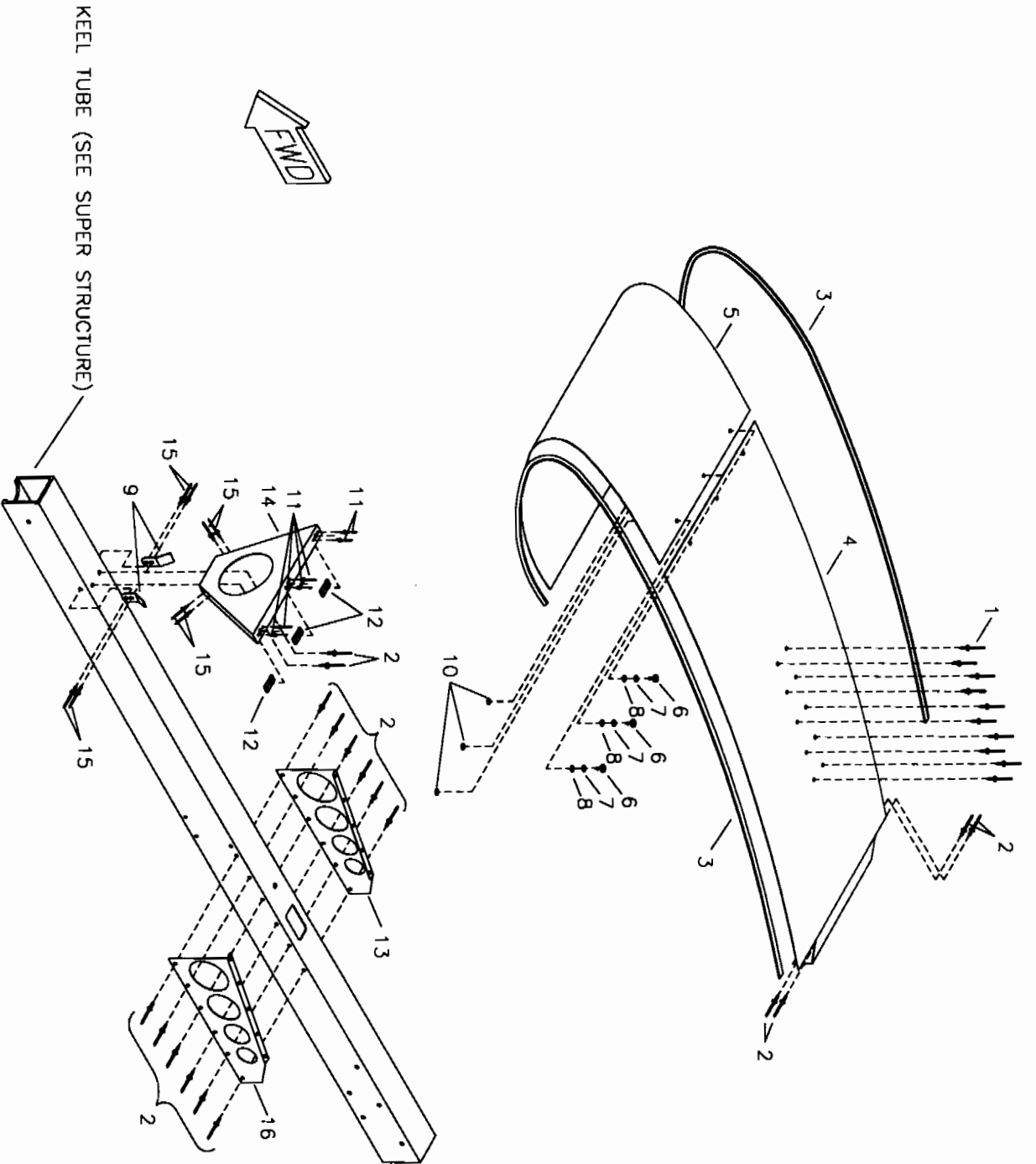


**RRRMM S-12 AIRRAILE**  
**CENTER COVER ASSEMBLY WITH MINI-POD**  
**STANDARD DACRON COVERING**

MD1890

**S-12XL AIRAILE - CENTER COVER ASSEMBLY**  
**WITH MINI-POD - STANDARD DACRON COVERING**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Center Cover - FWD Mount	KPFU0038	1
2.	Center Cover AFT Mount, RH	KPFU0039-R	1
3.	Center Cover Bottom Mount	KPFU0040	1
4.	Center Cover Forward Wrap	KPFU0041	1
5.	Center Cover - AFT Wrap	KPFU0042	1
6.	Reinforcement Tang	KPAC0041	2
7.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-44	24
8.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	8
9.	Small Rubber Edging	8510K11	24 in
10.	Rubber Edging	X1011	120 in
11.	3/32" Aluminum Pop Rivet	40APR1/4	6
12.	1/4 Turn Stud	#200	3
13.	Rubber Washer	#201	3
14.	Wear Washer Nylon	#103	3
15.	1/8" Aluminum Pop Rivet - Avex	1691-0410	12
16.	1/4 Turn Receptacle	#302	3
17.	Center Cover AFT Mount, LH	KPFU0039-L	1
18.	Snap Ring	#101	3
19.	8-32 Machine Bolt	AN526-832R6	8
20.	8-32 Nut Plate	MS21047-08	6
21.	3/32" Aluminum Pop Rivet	40APR1/8	16
22.	8-32 Single Ear Nut Plate	MS21051-08	2
23.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-41	2

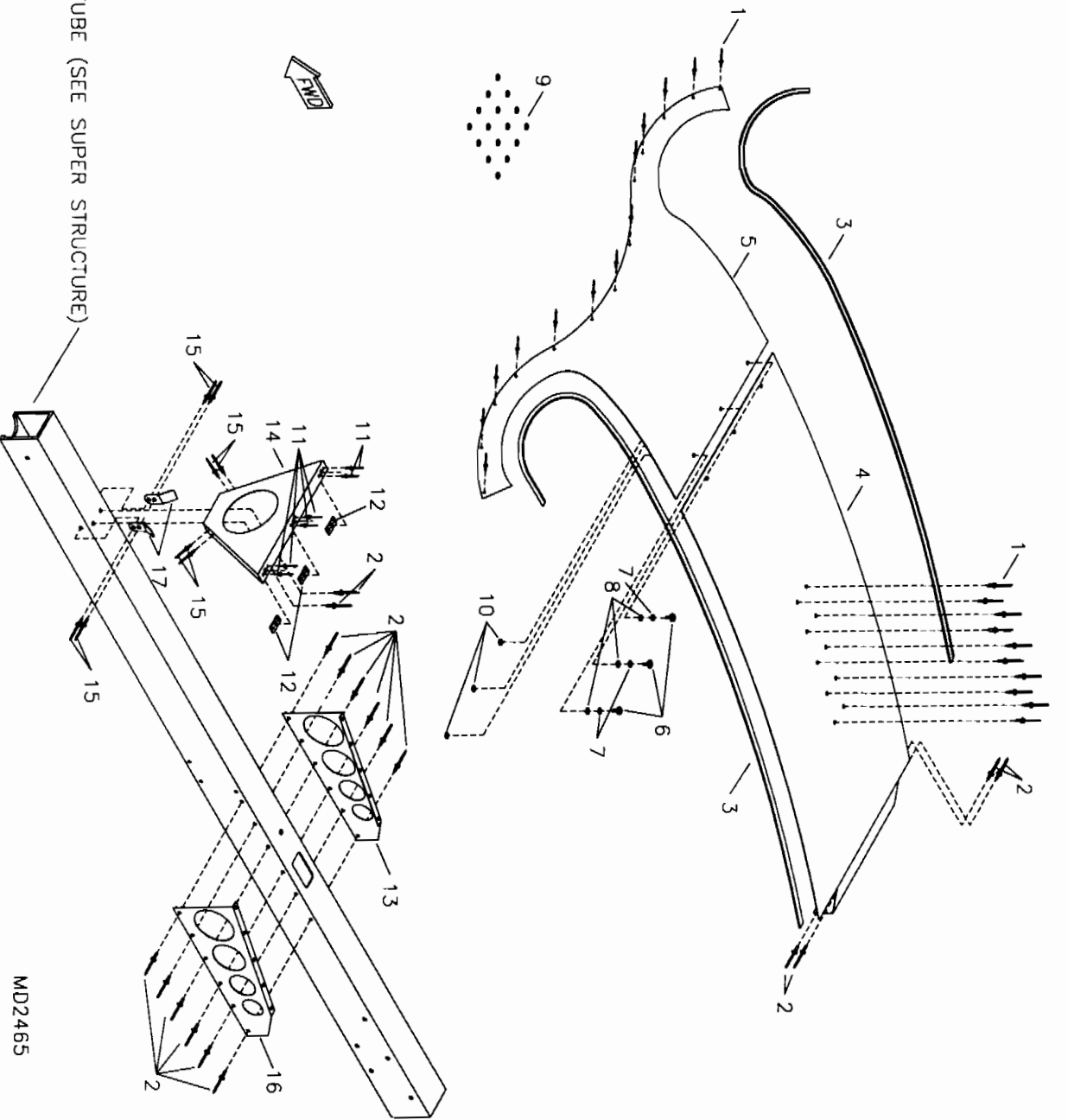


**RRRMMMS S-12XL AIRRAILE**  
**CENTER COVER ASSEMBLY WITH MINI-POD**  
**AND OPTIONAL DOPE & FABRIC COVERING**

MD3942

**S-12XL AIRAILE - CENTER COVER ASSEMBLY**  
**WITH MINI-POD - OPTIONAL DOPE & FABRIC COVERING**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	1/8" Aluminum Pop Rivet - Avex	1691-0410	10
2.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-44	18
3.	Rubber Edging	X1011	120 in
4.	Center Cover - AFT Wrap	KPFU0262	1
5.	Center Cover - FWD Wrap	KPFU0321	1
6.	1/4 Turn Stud	#200	3
7.	Rubber Washer	#201	3
8.	Wear Washer Nylon	#103	3
9.	Reinforcement Tang	KPAC0041	2
10.	Snap Ring	#101	3
11.	3/32" Aluminum Pop Rivet	40APR1/4	6
12.	Receptacle	#302	3
13.	Center Cover AFT Mount, RH	KPFU0261-R	1
14.	Center Cover - FWD Mount	KPFU0260	1
15.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	8
16.	Center Cover AFT Mount, LH	KPFU0261-L	1

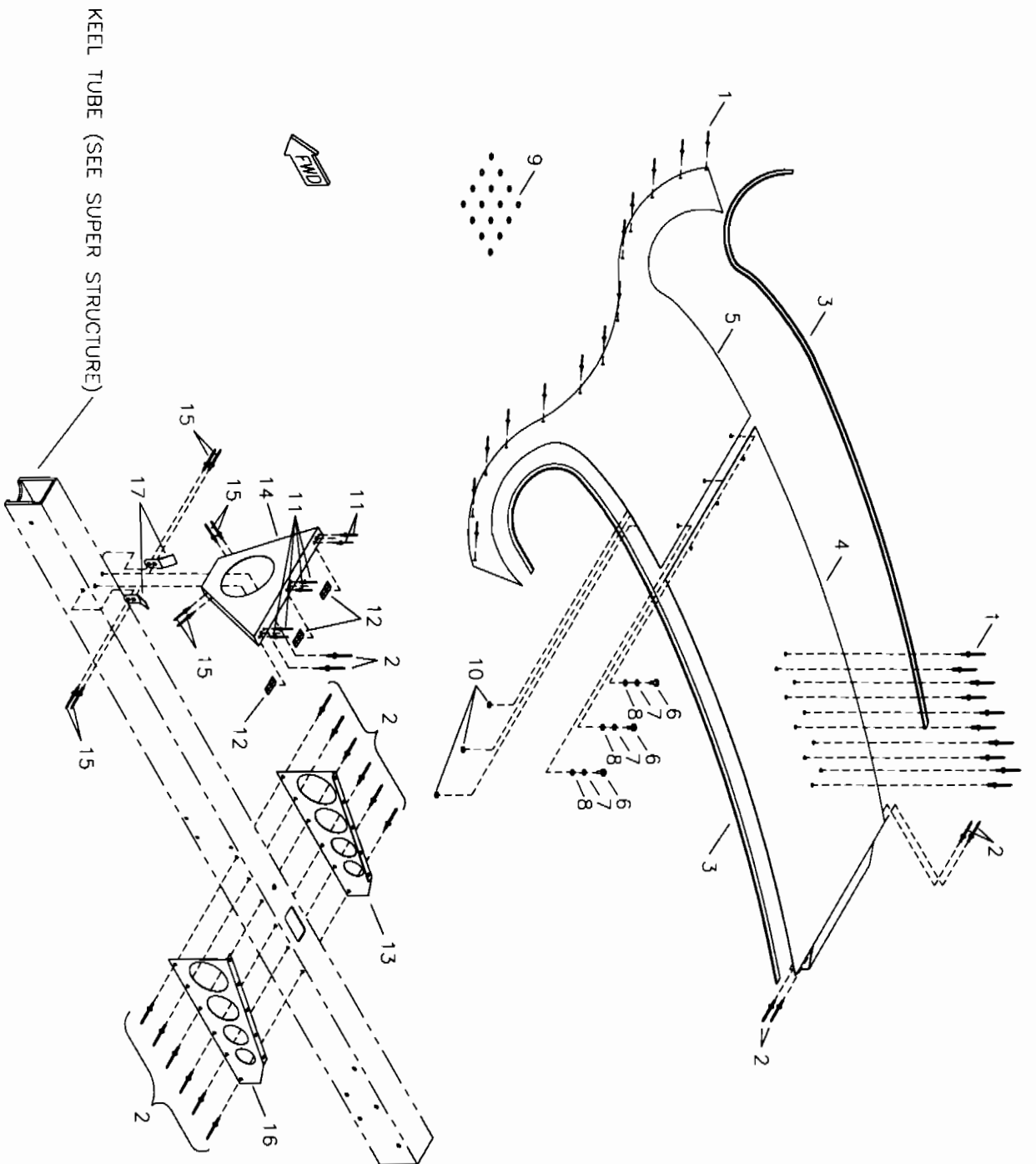


**RRDMS S-12 AIRRAIL**  
**CENTER COVER ASSEMBLY WITH PARTIAL OR FULL**  
**ENCLOSURE—STANDARD DACRON COVERING**

MD2465

**S-12XL AIRAILE - CENTER COVER ASSEMBLY**  
**WITH PARTIAL OR FULL ENCLOSURE - STANDARD DACRON COVERING**

<b># DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1. 1/8" Aluminum Pop Rivet - Avex	1691-0410	23
2. 1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-44	18
3. Rubber Edging	X1011	120 in
4. Center Cover - AFT Wrap	KPFU0042	1
5. Center Cover - FWD Enclosure	KPFU0114	1
6. 1/4 Turn Stud	#200	3
7. Rubber Washer	#201	3
8. Wear Washer Nylon	#103	3
9. 1/8" Small Brass Washer	AN960-B4	11
10. Snap Ring	#101	3
11. 3/32" Aluminum Pop Rivet	40APR1/4	6
12. 1/4 Turn Receptacle	#302	3
13. Center Cover AFT Mount, RH	KPFU0039-R	1
14. Center Cover - FWD Mount	KPFU0038	1
15. 1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	8
16. Center Cover AFT Mount, LH	KPFU0039-L	1
17. Reinforcement Tang	KPAC0041	2



**RRRMMMS S-12XL AIRRAILE**  
**CENTER COVER ASSEMBLY WITH PARTIAL OR**  
**FULL ENCLOSURE AND DOPE & FABRIC COVERING**

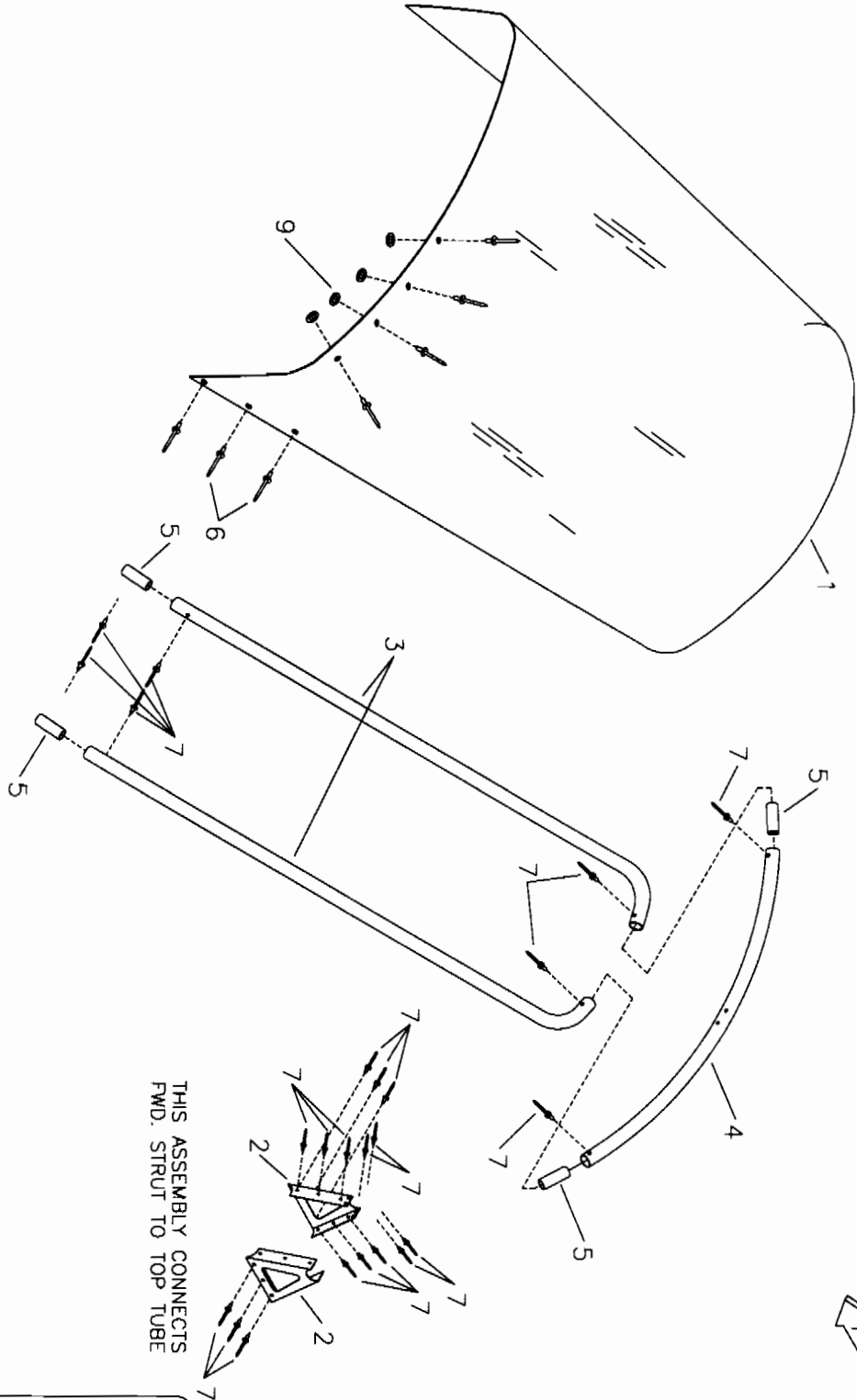
MD3943



**S-12XL AIRAILE - CENTER COVER ASSEMBLY**

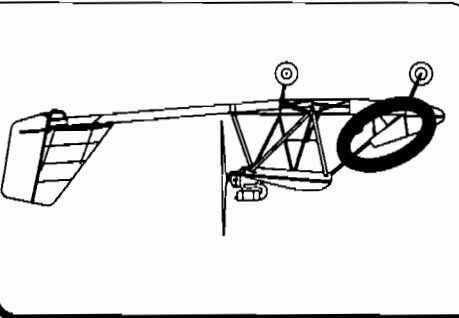
WITH PARTIAL OR FULL ENCLOSURE - OPTIONAL DOPE &amp; FABRIC COVERING

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	1/8" Aluminum Pop Rivet - Avex	1691-0410	23
2.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-44	18
3.	Rubber Edging	X1011	120 in
4.	Center Cover - AFT Wrap	KPFU0262	1
5.	Center Cover - FWD Wrap	KPFU0322	1
6.	1/4 Turn Stud	#200	3
7.	Rubber Washer	#201	3
8.	Wear Washer Nylon	#103	3
9.	1/8" Small Brass Washer	AN960-B4	11
10.	Snap Ring	#101	3
11.	3/32" Aluminum Pop Rivet	40APR1/4	6
12.	Receptacle	#302	3
13.	Center Cover AFT Mount, RH	KPFU0261-R	1
14.	Center Cover - FWD Mount	KPFU0260	1
15.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	8
16.	Center Cover AFT Mount, LH	KPFU0261-L	1
17.	Reinforcement Tang	KPAC0041	2



FWD

THIS ASSEMBLY CONNECTS  
FWD. STRUT TO TOP TUBE



SECTION: FUSELAGE ENCLOSURE  
 DETAIL: MINI-POD WINDSHIELD  
 INSTALLATION

**Section:**

**FUSELAGE ENCLOSURE**

**Detail:**

**MINI-POD WINDSHIELD INSTALLATION**

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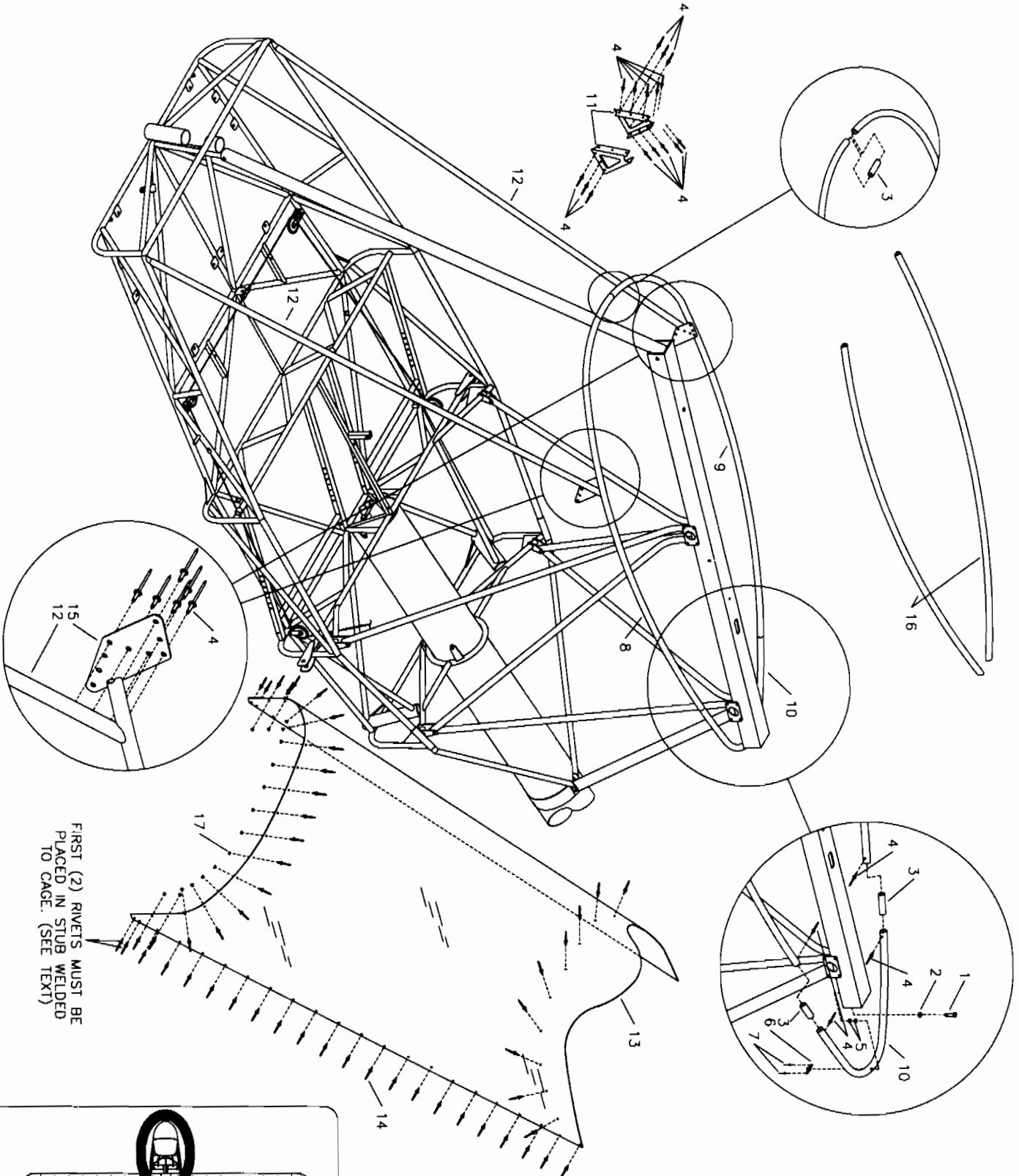
<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Mini-Pod Windshield	KPWS0007	1
2.	Mini-Pod Frame Support	KPFU0053	2
3.	Mini-Pod Side Tube	KPFU0033	2
4.	Mini-Pod Top Tube	KPFU0034	1
5.	Mini-Pod Splice Tube*	KAAC0001	4
6.	1/8" Aluminum Pop Rivet	1691-0410	44
7.	1/8" Stainless Steel Pop Rivet	CCPQ-42	24
8.	1/8" Brass Washer	AN960-B4	17

\*Builder cuts from raw stock.

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**S-12 Airaile**

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FIRST (2) RIVETS MUST BE PLACED IN STUB WELDED TO CAGE. (SEE TEXT)

WINDSHIELD INSTALLATION

FUSELAGE ENCLOSURE

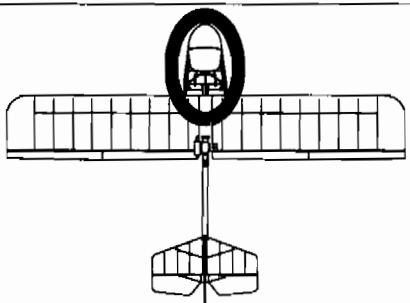
DETAIL

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**FUSELAGE ENCLOSURE**

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**WINDSHIELD INSTALLATION**

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#	Description	Part Number	Quantity
1.	3/16" Bolt	AN3-13A	1
2.	3/16" Thick Washer	AN960-10	1
3.	Splice Tube*	KPFU0110	1
4.	1/8" Aluminum Pop Rivet	AAPQ-42	32
5.	3/16" Plastic Washer	PW-3	2
6.	3/16" Nut Plate	K-1000-3	1
7.	3/32" Aluminum Pop Rivet	40APR1/8	2
8.	Top Former, LH	KPFU0108-L	1
9.	Top Former, RH	KPFU0108-R	1
10.	Top Former - AFT	KPFU0109	1
11.	Top Former Support	KPFU0086	2
12.	Windshield Side Tube	KPFU0111	2
13.	Windshield (Tinted or Clear)	KPFU0103	1
14.	1/8" Aluminum Pop Rivet	1691-0410	64
15.	Gusset	FE-DF-ST-GUS	4
16.	Foam Seal	KSAC0013	9 ft
17.	1/8" Washer	AN960-B4	17

\*Builder cuts into (3) equal pieces, see text.

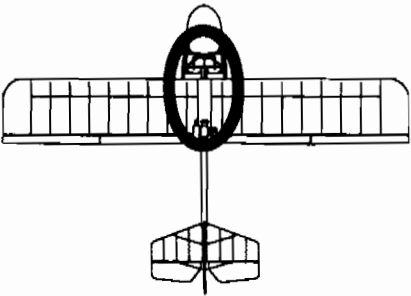
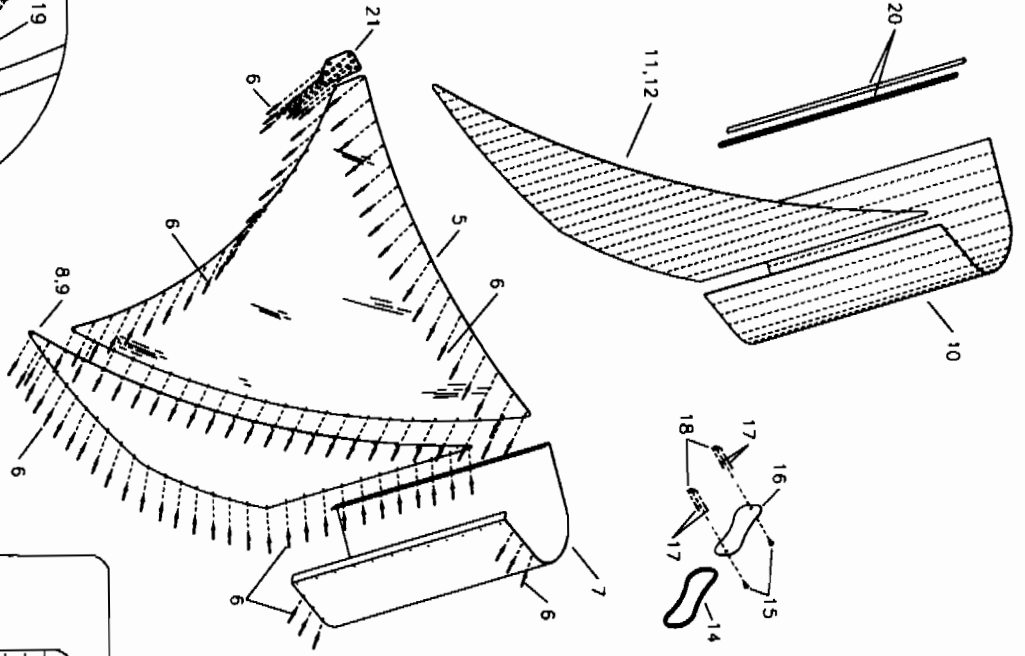
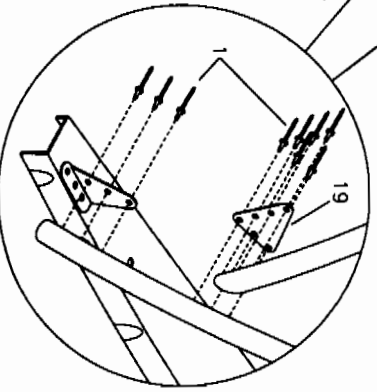
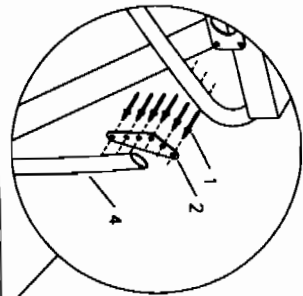
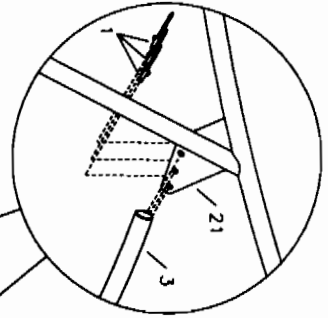
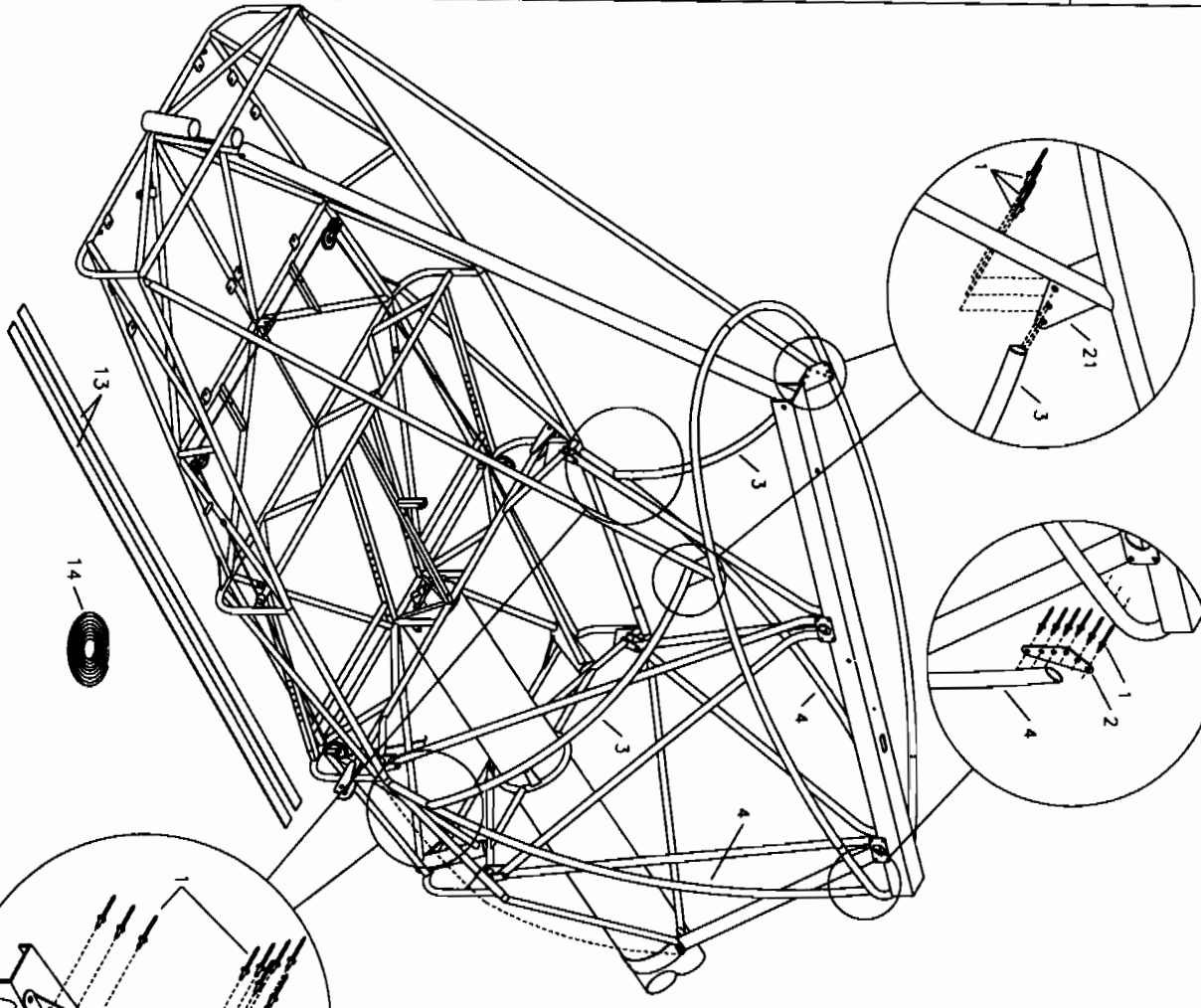
**RANS, Inc.**  
**S-12 Airaile**

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# RFRMS S-12 AIRAILE

Made in the USA



## AFT ENCLOSURE INSTALLATION

DETAIL

## FUSELAGE ENCLOSURE

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**FUSELAGE ENCLOSURE**

**Detail:**

**AFT ENCLOSURE INSTALLATION**

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#	Description	Part Number	Quantity
1.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-42	36
2.	Gusset	FE-WF-TF-GUS	2
3.	Door Former	KPFU0112	2
4.	AFT Window Former	KPFU0113	2
5.	AFT Window (Tinted or Clear)	KPFU0104	2
6.	1/8" Aluminum Pop Rivet - Avex	1691-0410	192
7.	AFT Enclosure	KPFU0102	1
8.	Upper Panel, LH	KPFU0101-L	1
9.	Upper Panel, RH	KPFU0101-R	1
10.	Soundproofing - AFT	KPAC0068	1
11.	Soundproofing - LH	KPAC0069-L	1
12.	Soundproofing - RH	KPAC0069-R	1
13.	Seal Strip	KPAC0070	2
14.	Small Rubber Edging	8510K11	120 in
15.	8-32 Machine Bolt	AN526-832R8	2
16.	Tail Boom Access Panel	KPFU0106	1
17.	3/32" Aluminum Pop Rivet	40APR1/8	4
18.	8-32 Nut Plate	MS21047-08	2
19.	Gusset	D-CG	2
20.	Rubber Edging	X1011	60 in
21.	Gusset *	FE-DF-ST-GUS	0

\*Referenced from Windshield Installation.

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**S-12 Airaile**

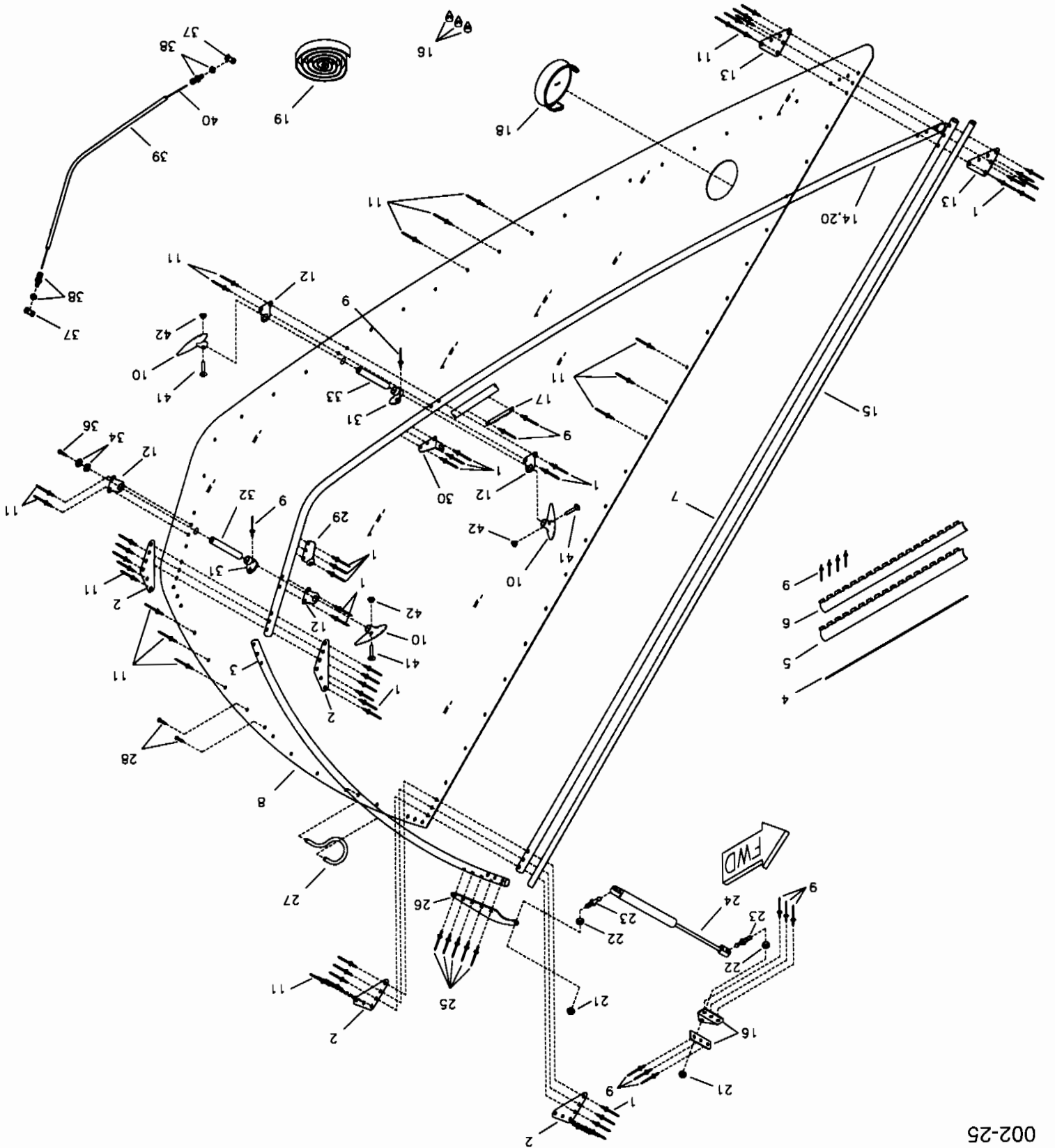
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# RRMS S-12 AIRAILE FULL DOOR ASSEMBLY

11/10/00

MD2423  
REV A



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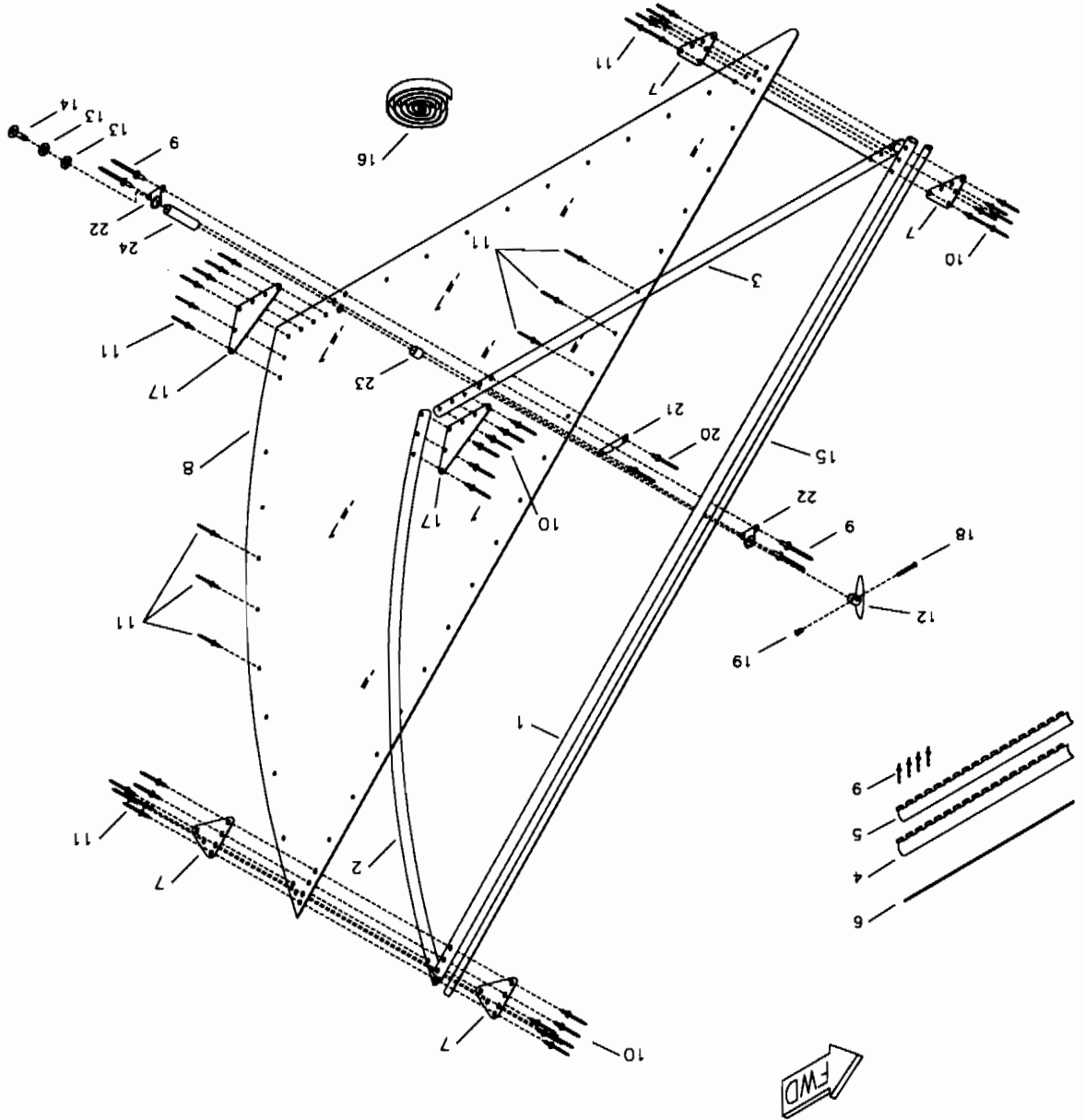
**S-12XL AIRAILE - FULL DOOR ASSEMBLY**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-42	52
2.	Gusset	D-CG	8
3.	Door - Upper Frame Tube	KPDR0033	2
4.	1/8" Stainless Steel Wire Hinge Pin	D-HP	1
5.	Formed Hinge - 3/4"	KPDR0032	1
6.	Formed Hinge - 1/2"	KPDR0031	1
7.	Door Hinge - Tube	KPDR0034	2
8.	Door - Lexan (Tinted or Clear)	KPFU0105	2
9.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	52
10.	Door Handle	KPDR0026	6
11.	1/8" Aluminum Pop Rivet - Avex	1691-0410	128
12.	Door Handle Gusset	D-DHG	8
13.	Gusset	KPAC0064	4
14.	Door - Lower Frame Tube, LH	KPDR0035-L	1
15.	Foam Seal	KSAC0013	9 ft
16.	Mount Bracket	KPFU0026	4
17.	Door Rub Block	D-RB	2
18.	Air Vent	AIR-VENT	2
19.	1" Black Foam Tape	KSAC0011	10 ft
20.	Door - Lower Frame Tube, RH	KPDR0035-R	1
21.	5/16" Loc Nut - Coarse	KSHW0022	4
22.	5/16" Thick Washer	AN960-516	4
23.	Ball Stud	KSHW0021	4
24.	Gas Strut	KSHW0023	2
25.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-44	10
26.	Lift Bracket	KPDR0036	2
27.	Upper Door Handle	D-UDH	2
28.	3/16" Countersunk Machine Bolt	AN509-1032R14	4
29.	Housing Mount Bracket	KPAC0072	2
30.	Housing Mount Bracket	KPAC0075	2
31.	Pivot Arm	KPAC0071	4
32.	Door Handle Bushing, 3/8" x .095 x 1 1/4" *	KAAC0001-10	0
33.	Aluminum Spacer, 3/8" x .095 x 2" *	KAAC0001-10	0
34.	3/16" Plastic Washer	PW-3	2
35.	3/16" Thin Washer	AN960-10L	2
36.	Button Head Cap Screw	BSHW0010	2
37.	Wire Swivel/Screw Stop	2361	4
38.	Adjustable Cable Ferrule/Nut	12553	4
39.	Door Handle - Link Tube	KPDR0037	2
40.	Stainless Steel Rod, 3/32"	TG-SSW3/32	2
41.	Button Head Screw	KSHW0024	6
42.	Brass Flange Nut	KSHW0025	6

\*Builder cuts to length, see text.

# RANDS S-12 AIRAILE HALF DOOR ASSEMBLY

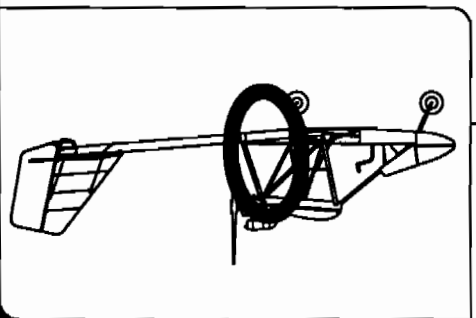
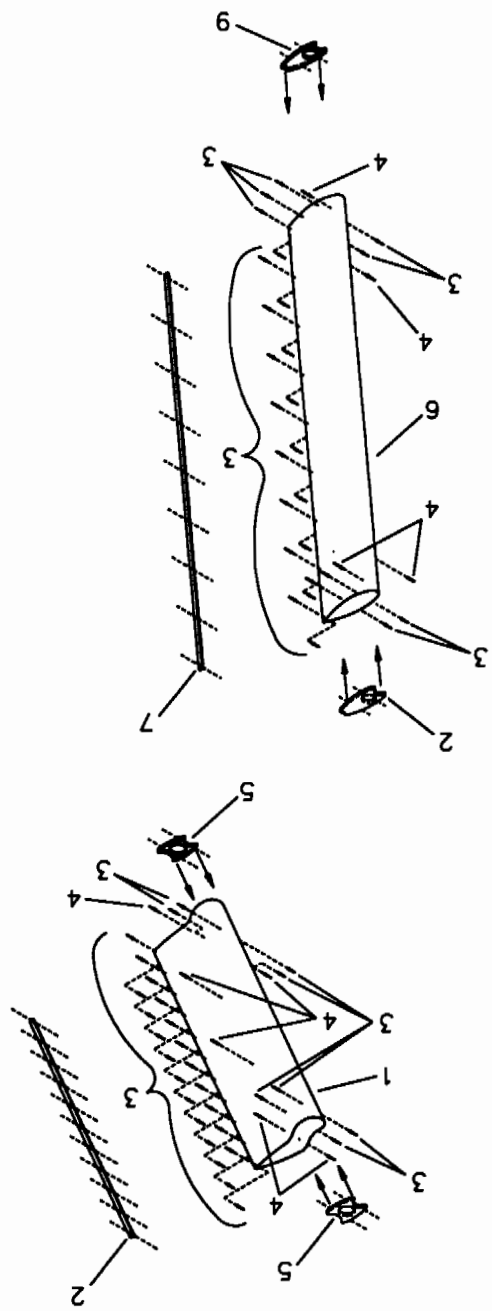
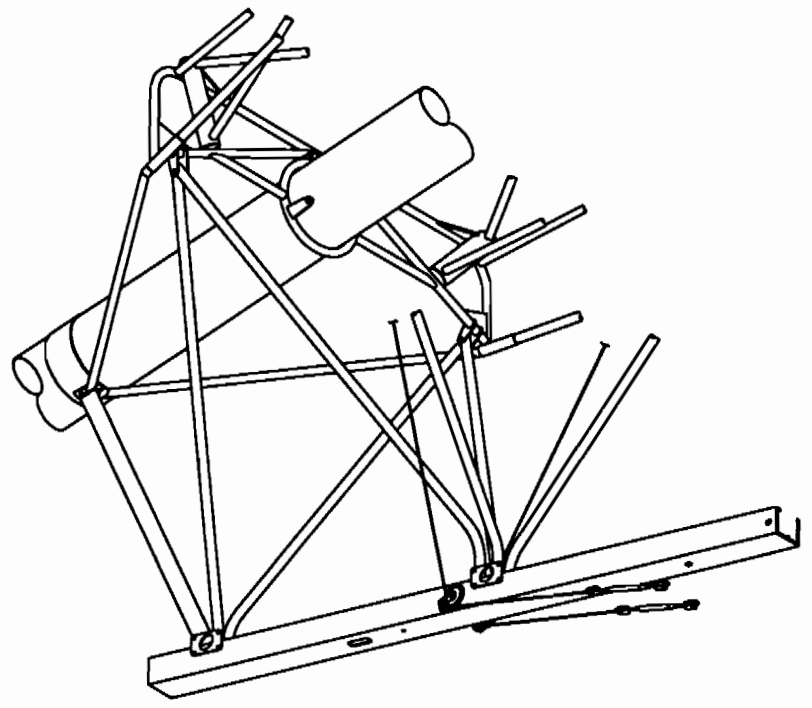
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**S-12XL AIRAILE - HALF-DOOR ASSEMBLY**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Half Door - Hinge Tube	KPDR0038	2
2.	Half Door - Frame Tube	KPDR0039	2
3.	Half Door - Frame Tube	KPDR0041	2
4.	Formed Hinge - 3/4"	KPDR0032	1
5.	Formed Hinge - 1/2"	KPDR0031	1
6.	1/8" Stainless Steel Wire Hinge Pin	D-HP	1
7.	Gusset	KPAC0064	8
8.	Half Door - Lexan	KPDR0040	2
9.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	44
10.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-41	36
11.	1/8" Aluminum Pop Rivet - Avex	1691-0410	108
12.	Door Handle	KPDR0026	2
13.	3/16" Plastic Washer	PW-3	4
14.	Button Head Cap Screw (M5 x .8mm)	BSHW0010	2
15.	Foam Seal	KSAC0013	10 ft
16.	1" Black Foam Tape	KSAC0011	6 ft
17.	Gusset	KPAC0014	4
18.	Button Head Screw	KSHW0024	2
19.	Brass Flange Nut	KSHW0025	2
20.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-45	4
21.	Door Rub Block	D-RB	2
22.	Door Handle Gusset	D-DHG	4
23.	Aluminum Bushing, 1/2" x .058 x 5/8" *	KAAC0001-7	0
24.	Aluminum Bushing, 3/8" x .095 x 1 1/4" *	KAAC0001-10	0

\*Builder must fabricate from raw stock.



DETAIL: CABANE/STRUT FAIRING INST. - 503 PARTIAL ENCLOSURE

FUSELAGE ENCLOSURE

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**FUSELAGE ENCLOSURE**

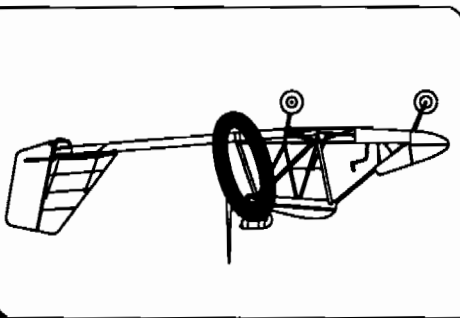
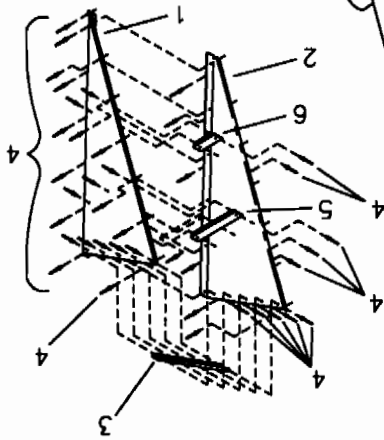
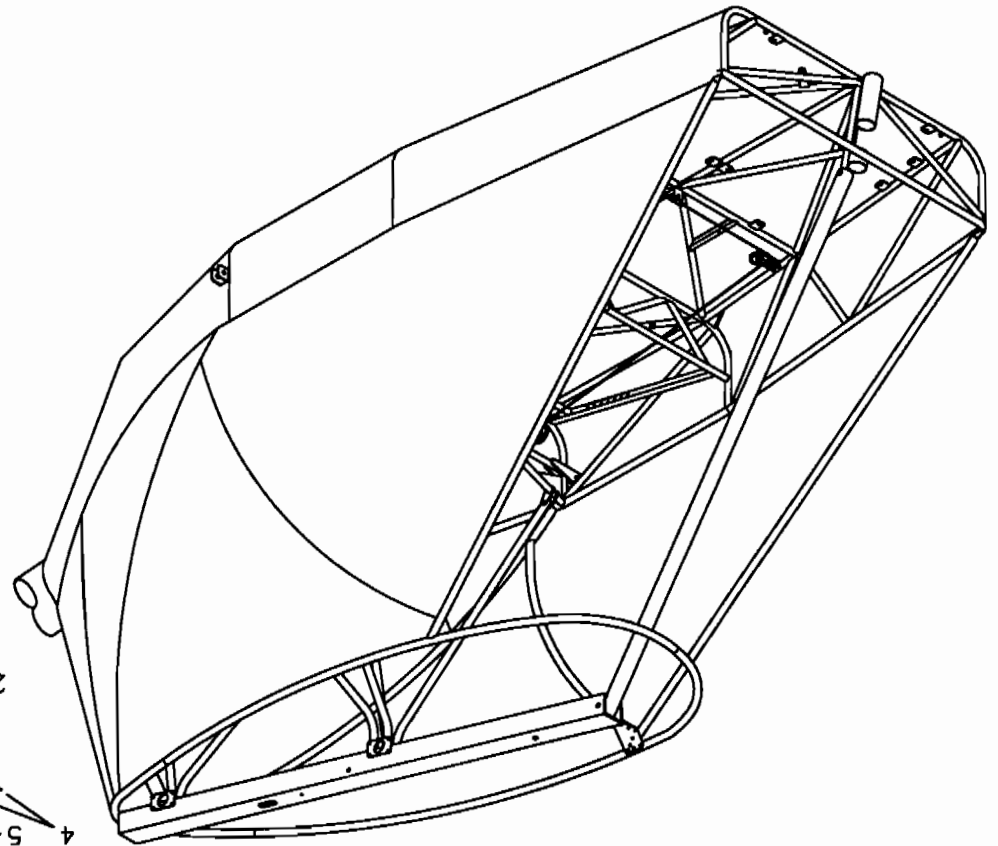
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503 PARTIAL**

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<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	AFT Strut Fairing	KPFU0125	1
2.	Rivet Strip - AFT Strut Fairing	KPFU0127	1
3.	3/32" Aluminum Pop Rivet	40APR1/8	82
4.	1/8" Stainless Steel Pop Rivet	CCPQ-42	16
5.	Plastic Rib - AFT Strut Fairing	KPFU0129	2
6.	Cabane Fairing	KPFU0124	2
7.	Rivet Strip - Cabane Fairing	KPFU0126	2
8.	Plastic Rib - Cabane Fairing Top	KPFU0128	2
9.	Plastic Rib - Cabane Fairing Bottom	KPFU0130	2



DETAIL: FLOW FENCE INSTALLATION - 503 FULL ENCLOSURE

FUSELAGE ENCLOSURE

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503 FULL ENCLOSURE**

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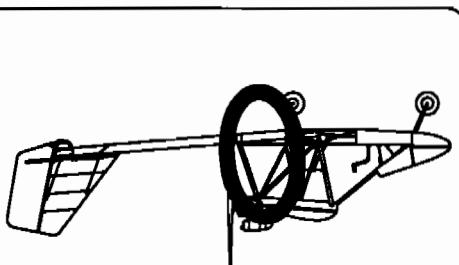
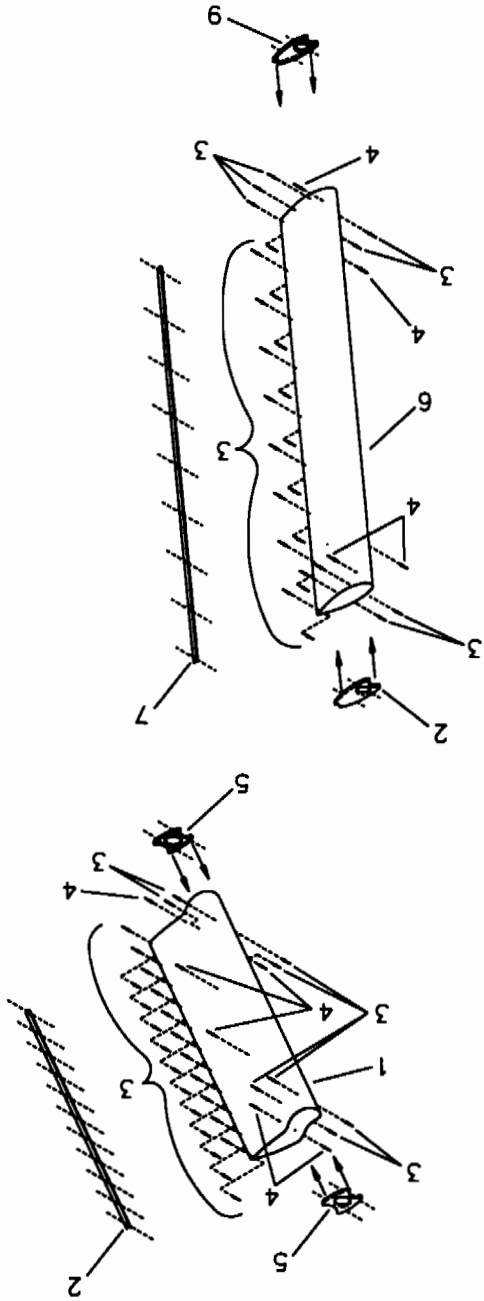
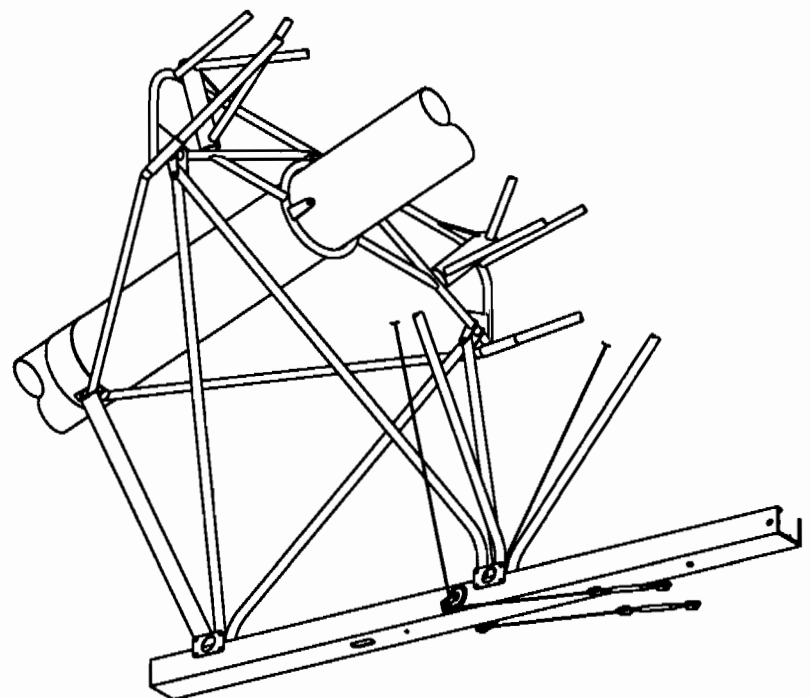
**8/29/96**

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Vertical Fence - LH	KPFU0115-L	1
2.	Vertical Fence - RH	KPFU0115-R	1
3.	Vertical Fence - Top Rib	KPFU0132	1
4.	1/8" Aluminum Pop Rivet	1691-0410	42
5.	Vertical Fence - Rib	KPFU0131	1
6.	Vertical Fence - Rib	KPFU0117	1

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DETAIL: CABANE/STRUT FAIRING INST. - 582 PARTIAL ENCLOSURE

FUSELAGE ENCLOSURE

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**FUSELAGE ENCLOSURE**

**Detail:**

**CABANE/STRUT FAIRING INSTALLATION  
582 PARTIAL**

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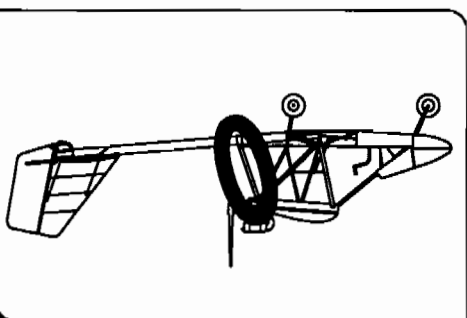
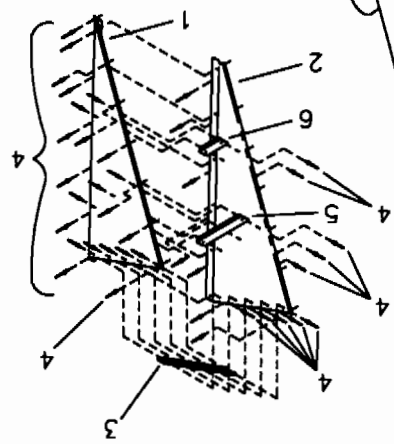
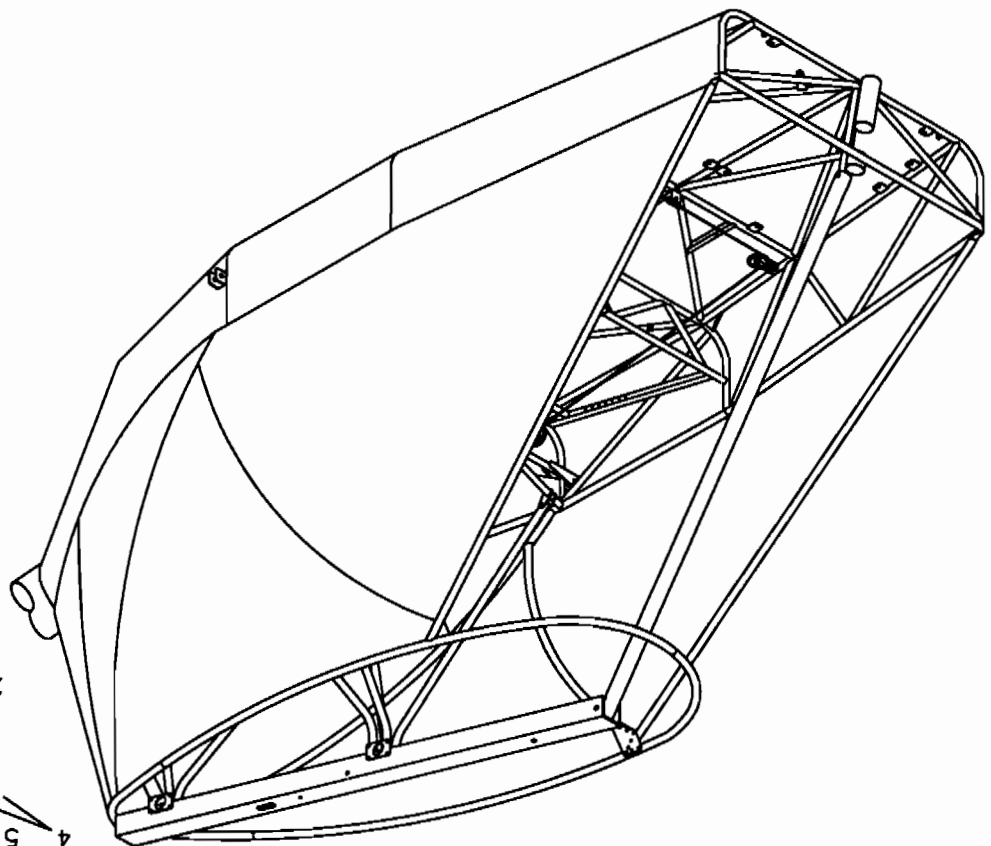
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<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	AFT Strut Fairing	KPFU0125	1
2.	Rivet Strip - AFT Strut Fairing	KPFU0127	1
3.	3/32" Aluminum Pop Rivet	40APR1/8	82
4.	1/8" Stainless Steel Pop Rivet	CCPQ-42	16
5.	Plastic Rib - AFT Strut Fairing	KPFU0129	2
6.	Cabane Fairing	KPFU0124	2
7.	Rivet Strip - Cabane Fairing	KPFU0126	2
8.	Plastic Rib - Cabane Fairing Top	KPFU0128	2
9.	Plastic Rib - Cabane Fairing Bottom	KPFU0130	2

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 DETAIL: FLOW FENCE INSTALLATION - 582 FULL ENCLOSURE

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**FUSELAGE ENCLOSURE**

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**FLOW FENCE INSTALLATION  
582 FULL ENCLOSURE**

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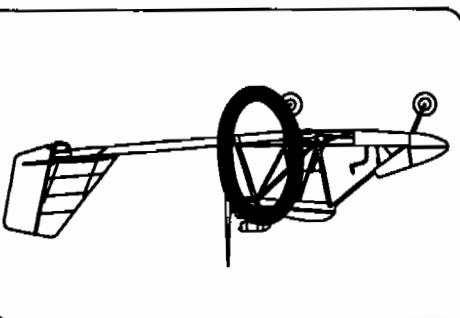
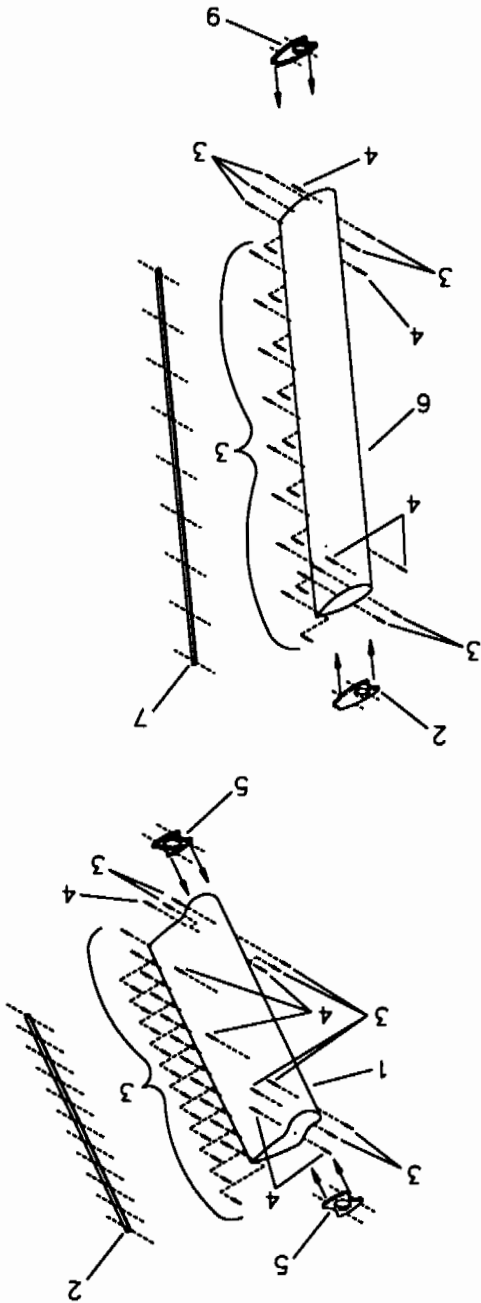
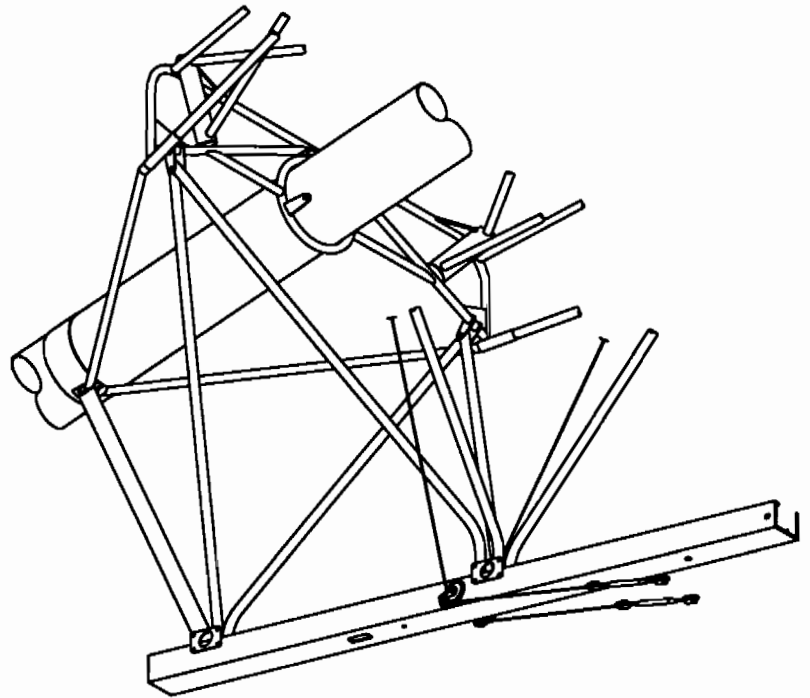
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<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Vertical Fence - LH	KPFU0115-L	1
2.	Vertical Fence - RH	KPFU0115-R	1
3.	Vertical Fence - Top Rib	KPFU0132	1
4.	1/8" Aluminum Pop Rivet	1691-0410	42
5.	Vertical Fence - Rib	KPFU0131	1
6.	Vertical Fence - Rib	KPFU0117	1

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DETAIL: CABANE/STRUT FAIRING INST. - 912 PARTIAL ENCLOSURE

FUSELAGE ENCLOSURE

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**FUSELAGE ENCLOSURE**

**Detail:**

**CABANE/STRUT FAIRING INSTALLATION  
912 PARTIAL**

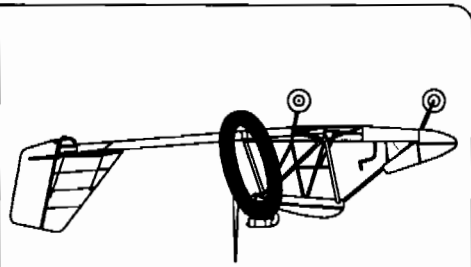
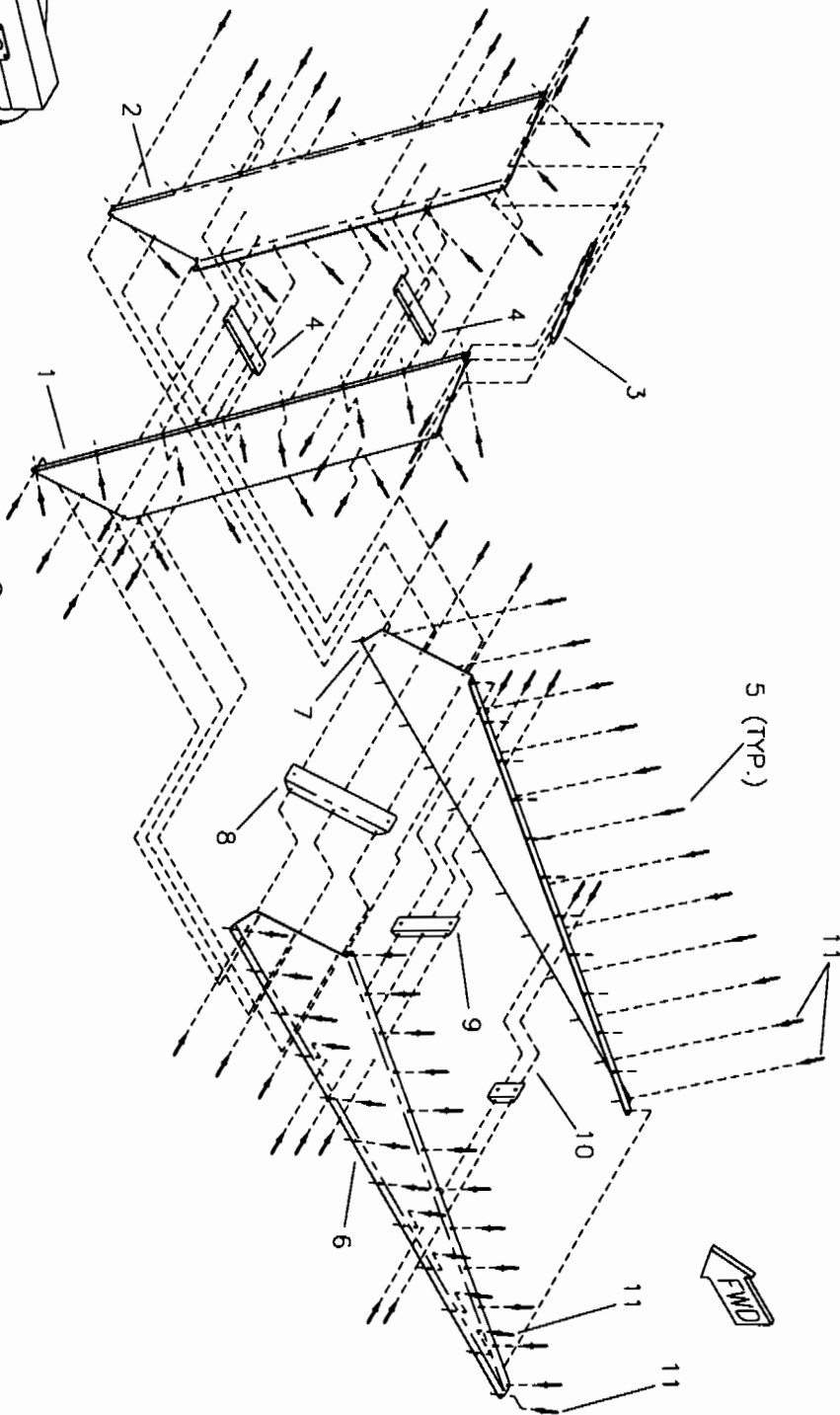
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<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	AFT Strut Fairing	KPFU0125	1
2.	Rivet Strip - AFT Strut Fairing	KPFU0127	1
3.	3/32" Aluminum Pop Rivet	40APR1/8	82
4.	1/8" Stainless Steel Pop Rivet	CCPQ-42	16
5.	Plastic Rib - AFT Strut Fairing	KPFU0129	2
6.	Cabane Fairing	KPFU0124	2
7.	Rivet Strip - Cabane Fairing	KPFU0126	2
8.	Plastic Rib - Cabane Fairing Top	KPFU0128	2
9.	Plastic Rib - Cabane Fairing Bottom	KPFU0130	2



DETAIL  
FLOW FENCE INSTALLATION  
- 912 FULL ENCLOSURE

FUSELAGE ENCLOSURE

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912 FULL ENCLOSURE**

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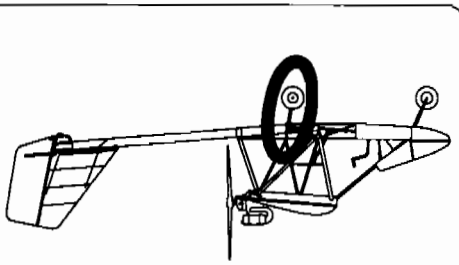
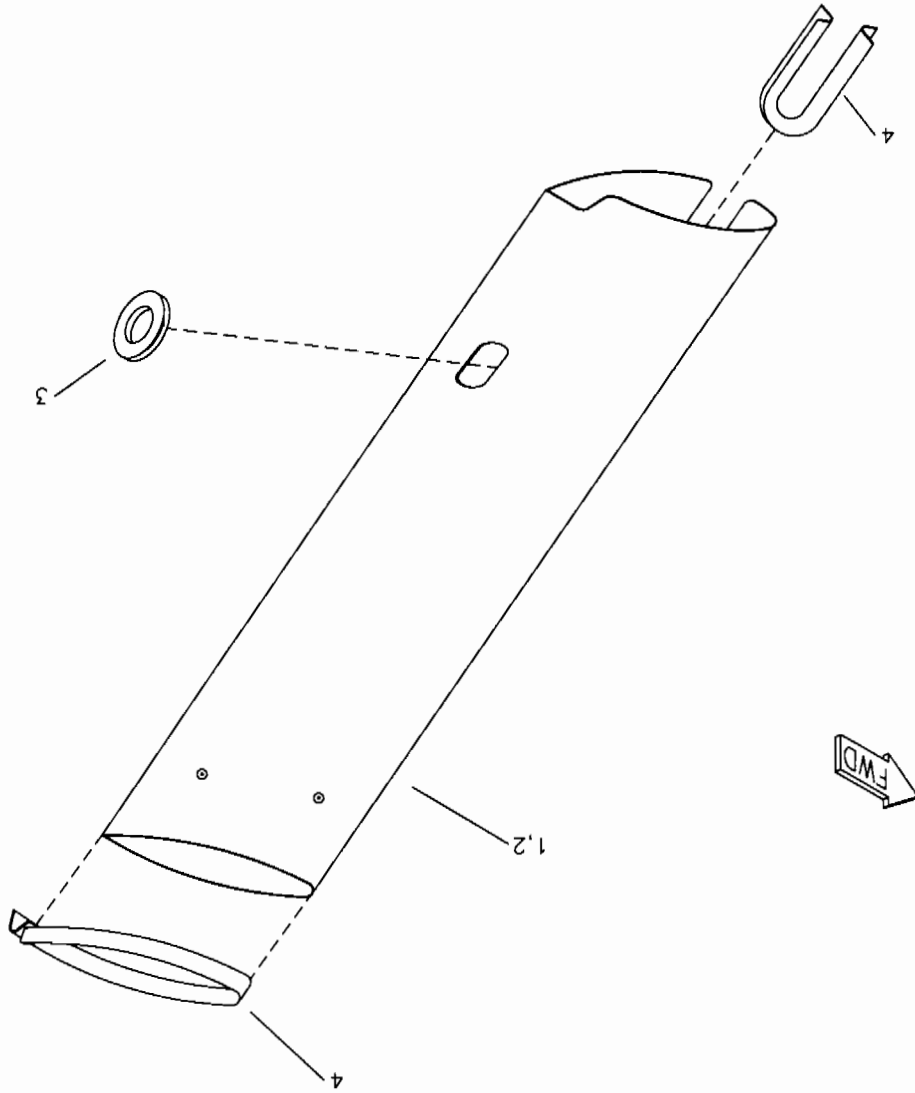
<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Vertical Fence - LH	KPFU0123-L	1
2.	Vertical Fence - RH	KPFU0123-R	1
3.	Vertical Fence - Top Rib	KPFU0120	1
4.	Vertical Fence - Middle Rib	KPFU0118	2
5.	1/8" Aluminum Pop Rivet - Avex	1691-0410	91
6.	Horizontal Fence - LH	KPFU0122-L	1
7.	Horizontal Fence - RH	KPFU0122-R	1
8.	Horizontal Fence - FWD Rib	KPFU0121	1
9.	Horizontal Fence - Middle Rib	KPFU0119	1
10.	Horizontal Fence - AFT Rib	KPFU0117	1
11.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	4

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RPM S-12 AIRAILE

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MAIN GEAR LEG  
FAIRING INSTALLATION

FUSELAGE ENCLOSURE

DETAIL

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**FUSELAGE ENCLOSURE**

**Detail:**

**MAIN GEAR LEG FAIRING INSTALLATION**

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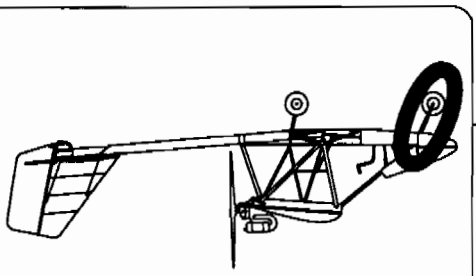
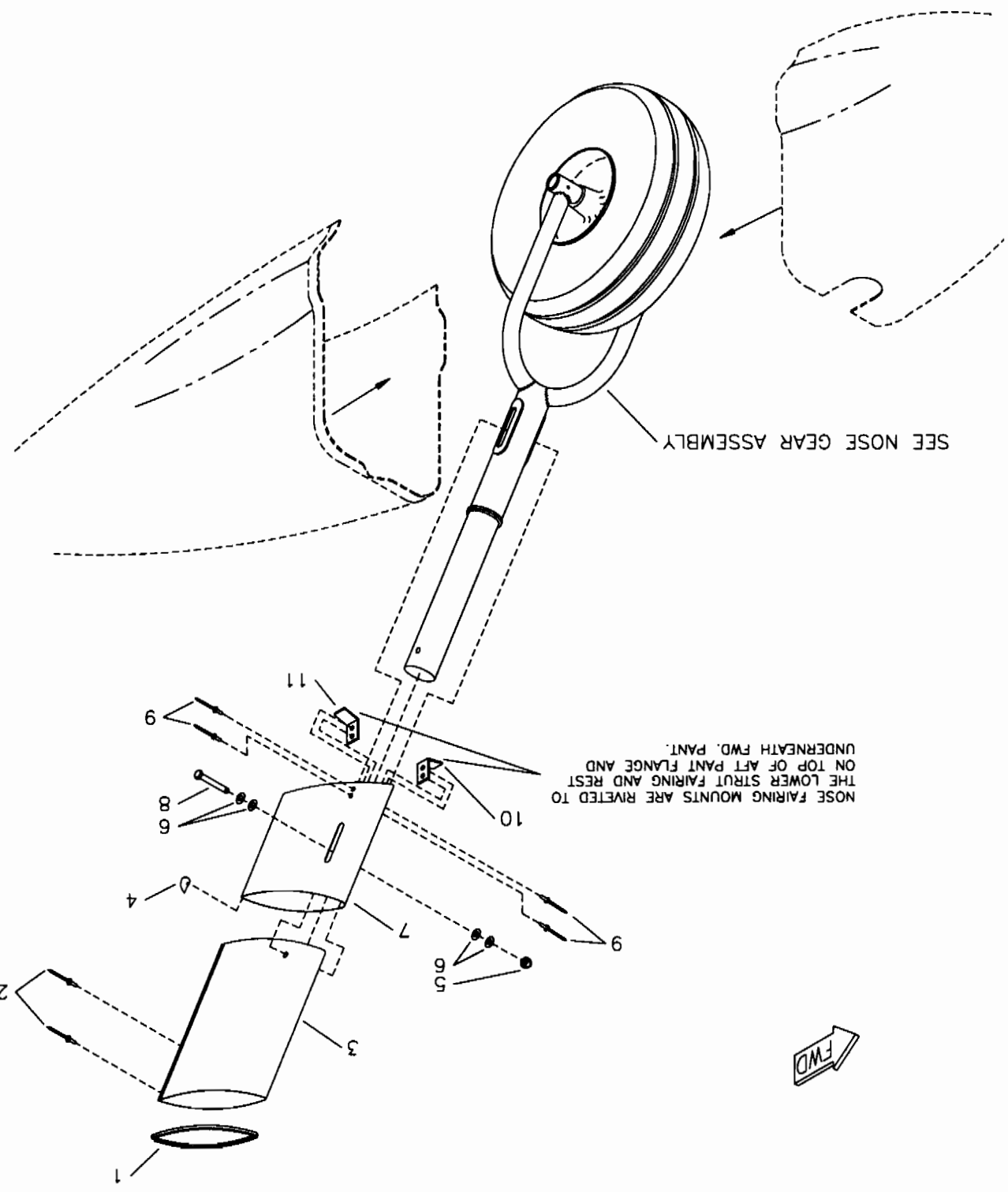
8/15/96

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Gear Leg Fairing, LH	KPMG0055-LH	1
2.	Gear Leg Fairing, RH	KPMG0055-RH	1
3.	Grommet	MS35489-17	2
4.	Rubber Edging	X1011	40 in

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SECTION: FUSELAGE ENCLOSURE  
 DETAIL: NOSE GEAR STRUT FAIRING

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**FUSELAGE ENCLOSURE**

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**NOSE GEAR STRUT FAIRING INSTALLATION**

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<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1	Small Rubber Edging	8510K11	12 in
2	3/32" Aluminum Pop Rivet	40APR1/8	2
3	Upper Fairing	12-LG-UN-FAIR	1
4	J & B Weld Epoxy *	J & B	0
5	1/4" Shear Nut **	AN364-428A	0
6	1/4" Plastic Washer **	PW-4	0
7	Lower Fairing	LG-LN-FAIR	1
8	1/4" Bolt **	AN4-24A	0
9	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-41	4
10	Nose Fairing Mount, RH	LG-NFMNT-R	1
11	Nose Fairing Mount, LH	LG-NFMNT-L	1

\*Use J & B Weld packed with original kit.

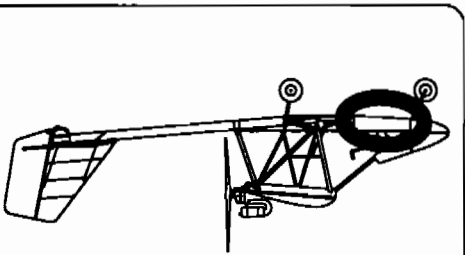
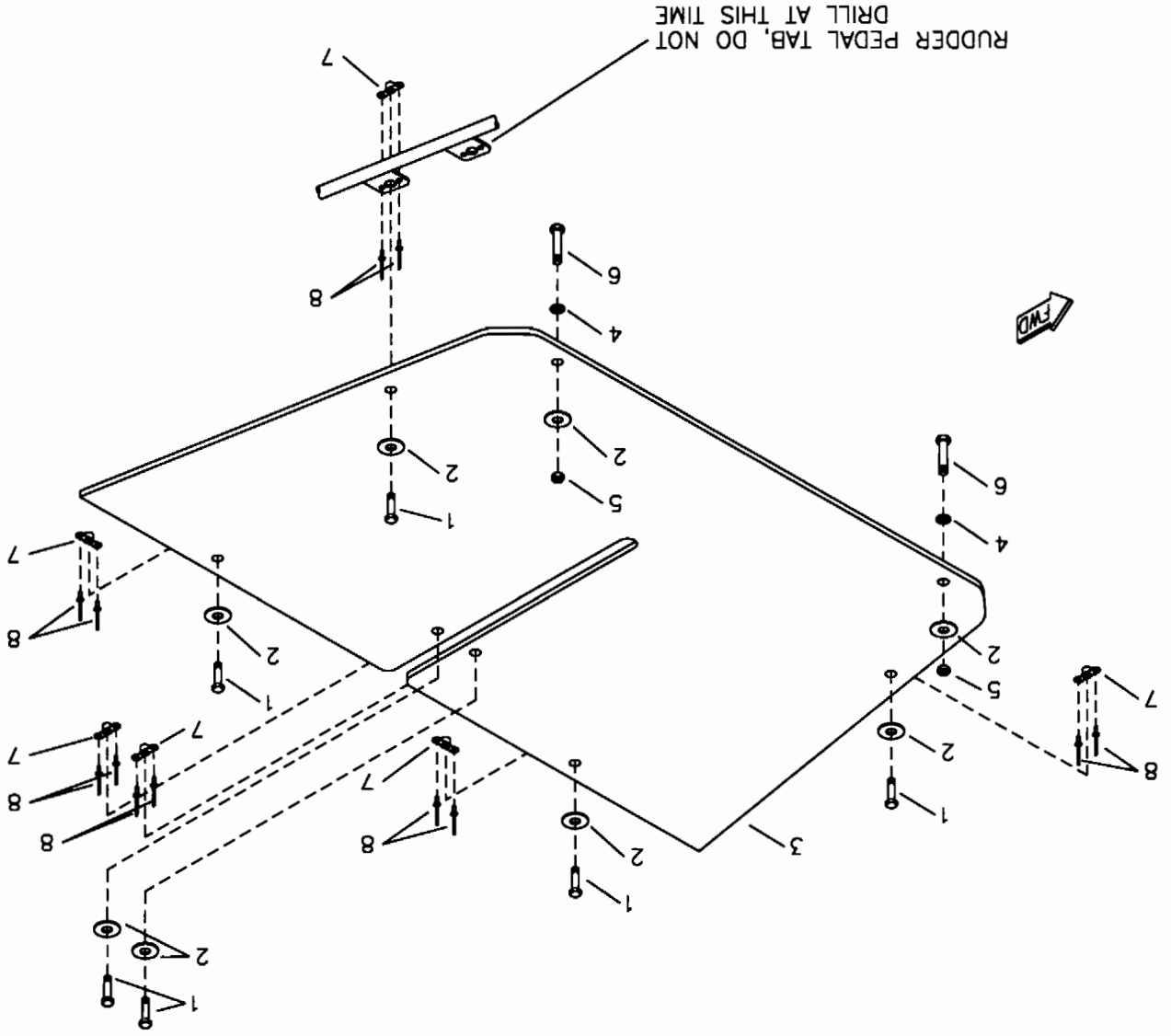
\*\*Referenced from nose gear assembly.

**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**  
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# RPM S-12 AIRRAIL

Made in the USA



## FLOORBOARD INSTALLATION

DETAIL:

## INTERNAL SYSTEMS

SECTION:

NOTES:

PAGE 03-01

PAGE

**Section:**

**INTERNAL SYSTEMS**

**Detail:**

**FLOORBOARD INSTALLATION**

**Page:**

03-02

**Date:**

8/14/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	3/16" Bolt	AN3-5A	6
2.	3/16" Large Wood Washer	AN970-3	8
3.	Floorboard	KPFU0058	1
4.	3/16" Thick Washer	AN960-10	2
5.	3/16" Shear Nut	AN364-1032A	2
6.	3/16" Bolt	AN3-12A	2
7.	3/16" Nut Plate	K-1000-3	6
8.	3/32" Aluminum Pop Rivet	40APR1/8	12

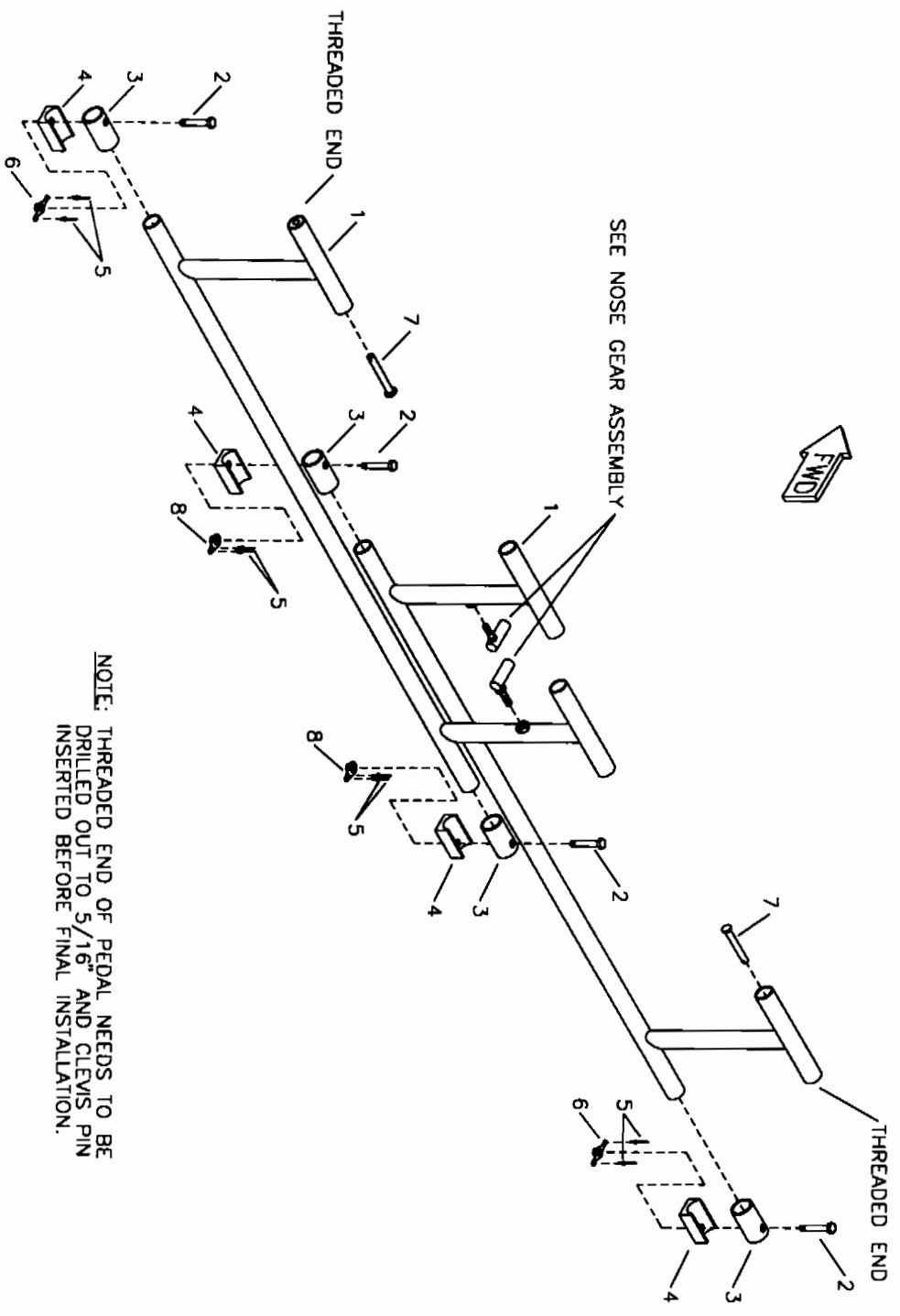
**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

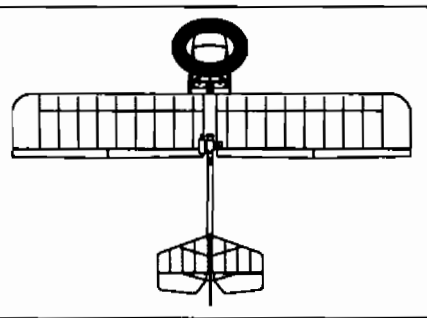
003-2

**RAMS**  
 S-12 AIRRAIL

Made in the USA



**NOTE:** THREADED END OF PEDAL NEEDS TO BE DRILLED OUT TO 5/16" AND CLEVIS PIN INSERTED BEFORE FINAL INSTALLATION.



**SECTION:** INTERNAL SYSTEMS  
**DETAIL:** RUDDER PEDAL ASSEMBLY - WITHOUT TOE BRAKES

**Section:**

**INTERNAL SYSTEMS**

**Detail:**

**RUDDER PEDAL ASSEMBLY  
WITHOUT TOE BRAKES**

**Page:**

03-04

**Date:**

2/ 9/96

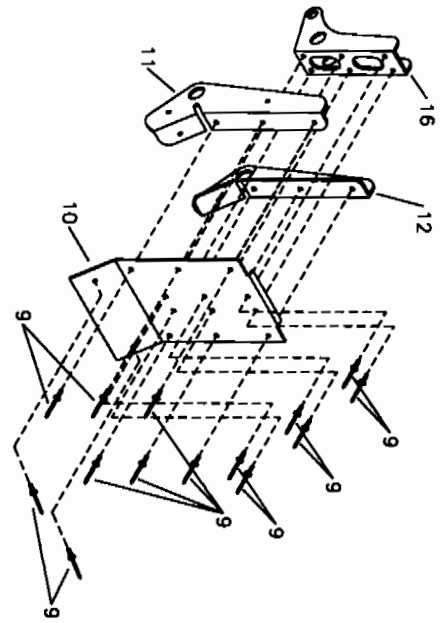
<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Rudder Pedals	KPCS0028	2
2.	3/16" Bolt	AN3-13A	4
3.	Rudder Pedal Bushing	KPCS0017	4
4.	Brake Saddle	KPCS0024	4
5.	3/32" Aluminum Pop Rivet	40APR1/8	8
6.	3/16" Nut Plate	K-1000-3	2
7.	5/16" Clevis Pin*	MS20392-4C65	0
8.	3/16" Single Ear Nut Plate	MS21051-L3	2

\*Referenced from rudder cable system.

**RANS, Inc.  
S-12 Airaile**

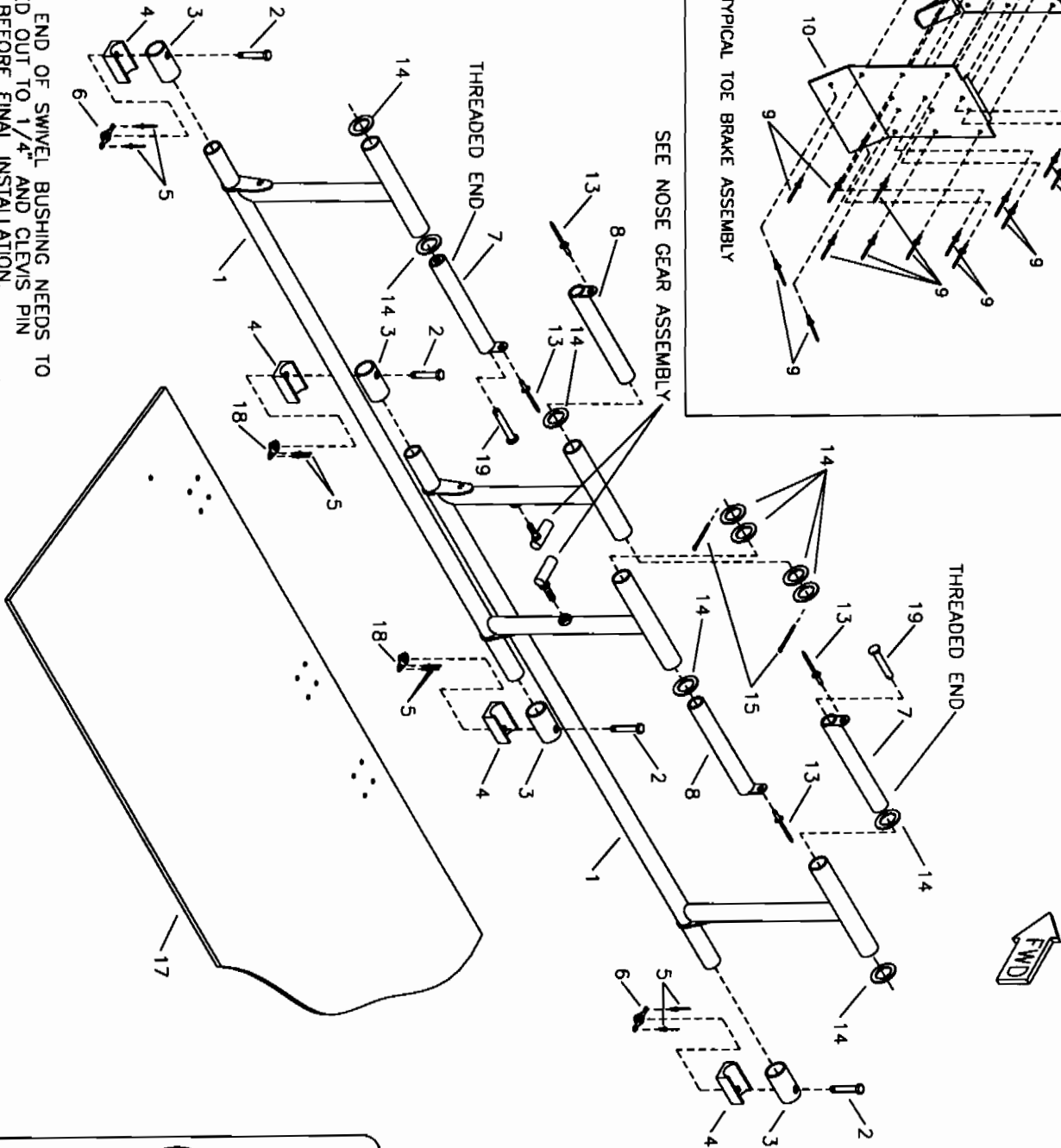
**dBase Page #:**

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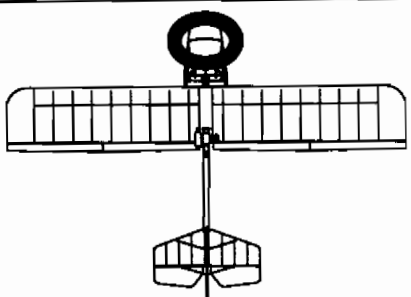
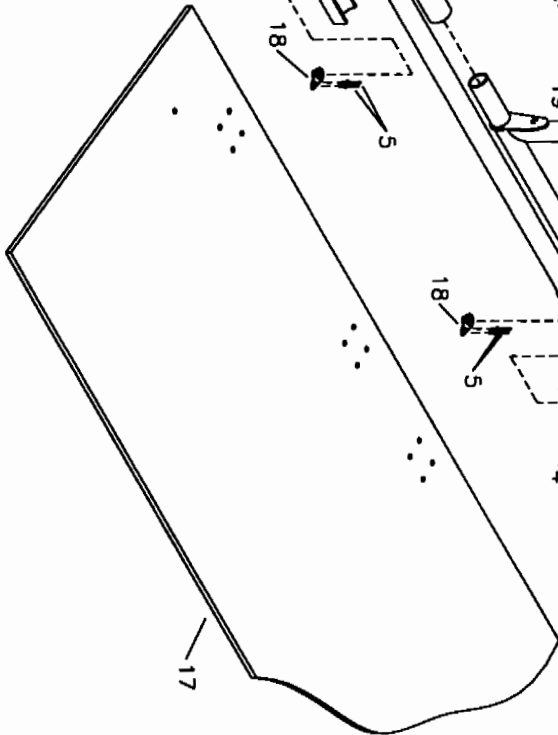


TYPICAL TOE BRAKE ASSEMBLY

NOTE: THREADED END OF SWIVEL BUSHING NEEDS TO BE DRILLED OUT TO 1/4" AND CLEVIS PIN INSERTED BEFORE FINAL INSTALLATION.



SEE NOSE GEAR ASSEMBLY



INTERNAL SYSTEMS - WITH HYDRAULIC TOE BRAKES

DETAIL:

INTERNAL SYSTEMS

SECTION:

NOTES:



**Section:**

**INTERNAL SYSTEMS**

**Detail:**

**RUDDER PEDAL ASSEMBLY  
WITH HYDRAULIC TOE BRAKES**

**Page:**

03-06

**Date:**

2/ 9/96

#	Description	Part Number	Quantity
1.	Rudder Pedal	KPCS0066	2
2.	3/16" Bolt	AN3-13A	4
3.	Rudder Pedal Bushing	KPCS0017	4
4.	Brake Saddle	KPCS0024	4
5.	3/32" Aluminum Pop Rivet	40APR1/8	8
6.	3/16" Nut Plate	K-1000-3	2
7.	Swivel Bushing	KPCS0055	2
8.	Swivel Bushing	KPCS0056	2
9.	1/8" Aluminum Pop Rivet	AAPQ-42	56
10.	Rudder Pedal-Web	KPCS0063	4
11.	Rudder Pedal-Hinge Plate, LH	KPCS0064-LH	4
12.	Rudder Pedal-Hinge Plate, RH	KPCS0064-RH	4
13.	3/16" Stainless Steel Pop Rivets	CCPQ-62	4
14.	1/2" Plastic Washer	KSAC0005	10
15.	Large Cotter Pin	MS24665-285	2
16.	Rudder Pedal-Cylinder Attach Bracket	KPCS0065	4
17.	Wear Plate	KPFU0064	1
18.	Single Ear Nut Plate	MS21051-L3	2
19.	5/16" Clevis Pin*	MS20392-4C65	0

\*Referenced from rudder cable system.

**RANS, Inc.  
S-12 Airaille**

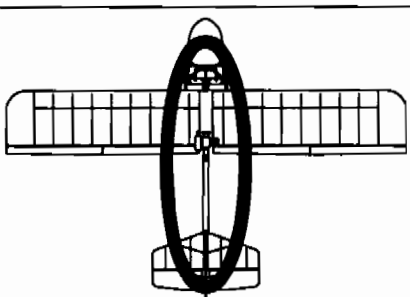
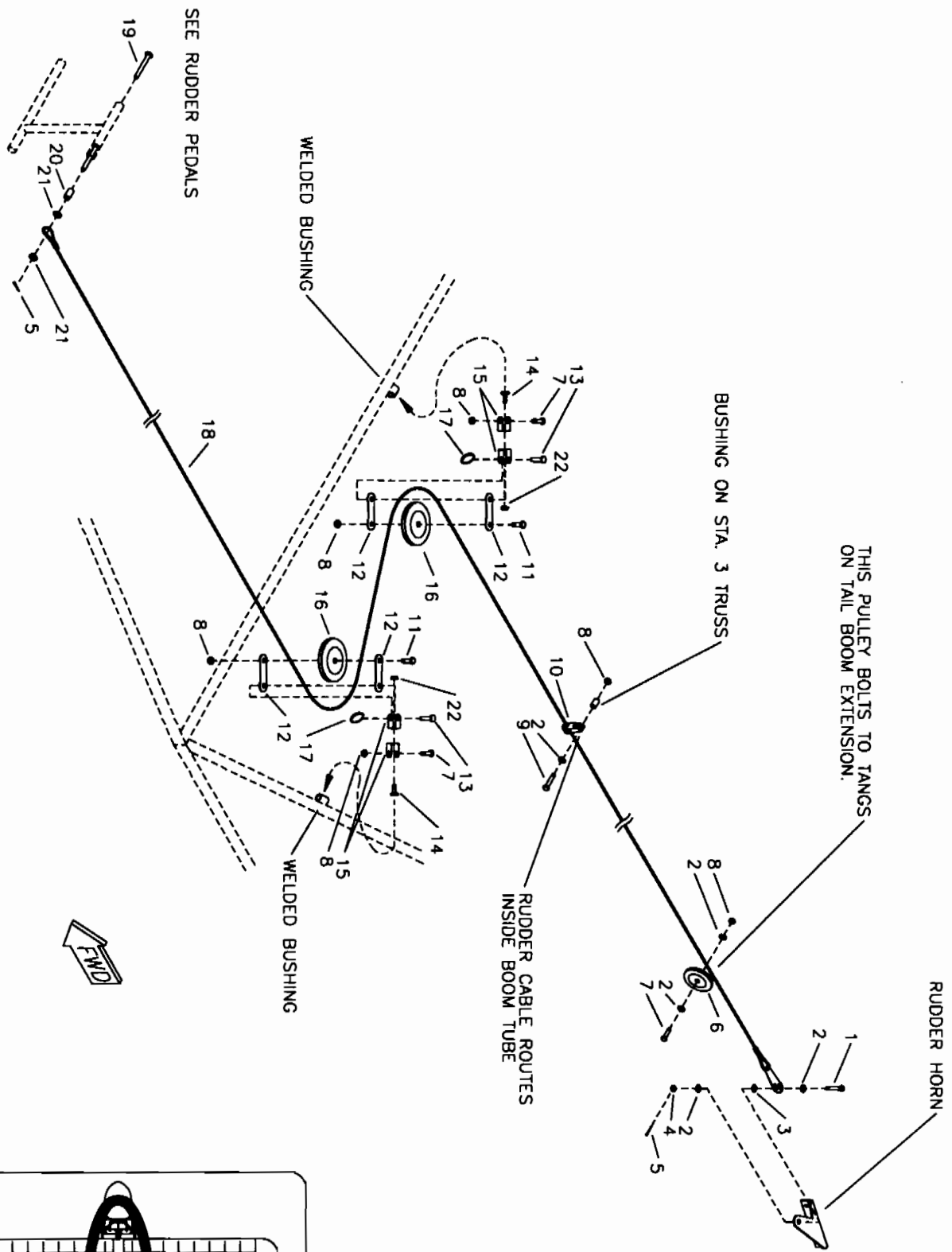
**dBase Page #:**

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S-12 AIRRAIL



Made in the USA



RUDDER CABLE SYSTEM

DETAIL:

INTERNAL SYSTEMS

SECTION:

NOTES: LEFT SIDE OF ASSEMBLY SHOWN

**Section:**

**INTERNAL SYSTEMS**

**Detail:**

**RUDDER CABLE SYSTEM ASSEMBLY**

**Page:**

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**Date:**

2/ 9/96

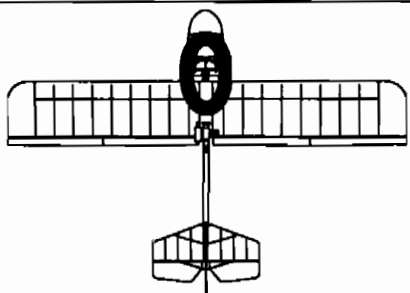
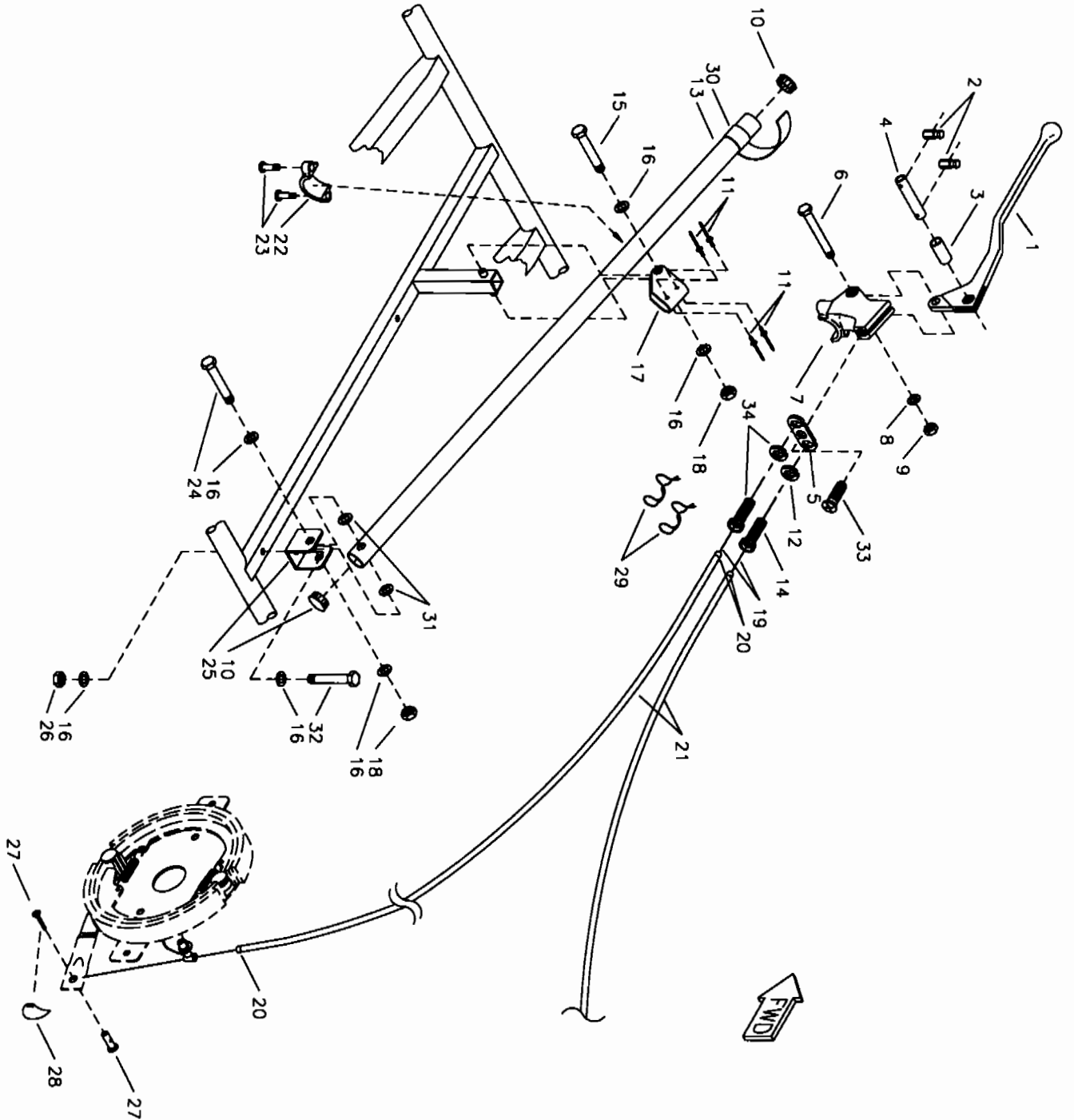
#	Description	Part Number	Quantity
1.	3/16" Bolt	AN3-5	2
2.	3/16" Thin Washer	AN960-10L	10
3.	3/16" Thick Washer	AN960-10	2
4.	3/16" Castle Nut	AN310-3	2
5.	Small Cotter Pin	MS24665-134	4
6.	Small Pulley	AN210-1A	2
7.	3/16" Bolt	AN3-7A	4
8.	3/16" Shear Nut	AN364-1032A	12
9.	3/16" Bolt	AN3-13A	2
10.	Cable Guide	HA-144	2
11.	3/16" Bolt	AN3-6A	4
12.	Hummertang	T12-HT6	8
13.	Clevis Pin	MS20392-2C17	4
14.	3/16" Bolt	AN3-3A	4
15.	Shackle	RL-205-T	8
16.	Pulley	AN210-2A	4
17.	Loc Ring	RL 27 1/4	4
18.	Rudder Cable	KARD0002	2
19.	5/16" Clevis Pin	MS20392-4C65	2
20.	Spacer Bushing, 1/2" X .083 X 1"	KAAC0001	2
21.	5/16" Thick Washer	AN960-516	4
22.	3/16" Tensile Nut	AN365-1032A	4

\*Builder fabricates from raw stock.

**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

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INTERNAL SYSTEMS  
 BRAKE SYSTEM -  
 HAND BRAKE ASSEMBLY

DETAIL:

SECTION:

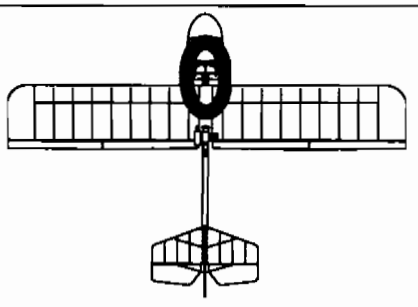
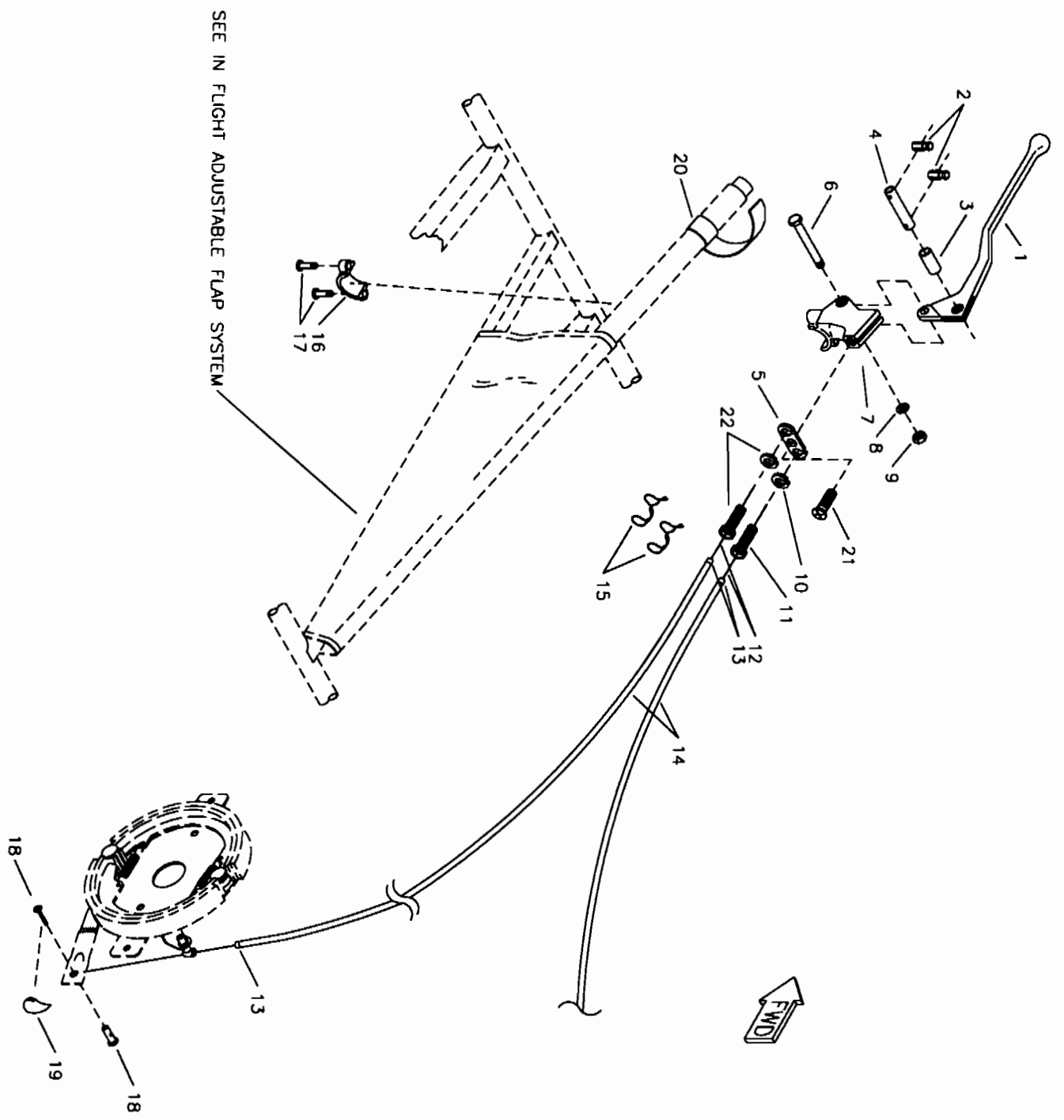
NOTES:

**S-12XL AIRAILE - BRAKE SYSTEM**  
**HAND BRAKE ASSEMBLY**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Brake Lever	KSBS0009	1
2.	Wire Stop/Screw	2360	2
3.	Aluminum Bushing, 3/8" x .058 **	KAAC0001-4	1
4.	Wire Attach Rod	KPBS0011	1
5.	Brake Cable Adjustment	KPBS0021	1
6.	Bolt *	KSBS0011-1	1
7.	Brake Lever Bracket	KSBS0011	1
8.	Loc Washer *	KSBS0011-2	1
9.	Nut *	KSBS0011-3	1
10.	7/8" End Cap	CS-EC	2
11.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	4
12.	Ferrule Nut *	KSBS0011-4	1
13.	Brake Lever Mount Tube	KPBS0012	1
14.	Ferrule *	KSBS0011-5	1
15.	3/16" Bolt	AN3-13A	1
16.	3/16" Thick Washer	AN960-10	6
17.	U Bracket	KPAC0043	1
18.	3/16" Shear Acorn Nut	22NKM02	2
19.	Wire	TR-PW	12 ft
20.	Cable Conduit Ferrule End Cap	80-0002-01	4
21.	Large Cable Housing	B-CH	12 ft
22.	Bracket Clamp *	KSBS0011-6	1
23.	Bolt *	KSBS0011-7	2
24.	3/16" Bolt	AN3-14A	1
25.	Attach Bracket	S2-SAB	1
26.	3/16" Shear Nut	AN364-1032A	1
27.	Wire Swivel/Screw Stop	2361	2
28.	Loctite Blue	LOC-TITE	0
29.	Safety Wire	SAFETY WIRE	0 ft
30.	Parking Brake Strap	KPBS0013	1
31.	3/16" Plastic Washer	PW-3	2
32.	3/16" Bolt	AN3-7A	1
33.	Countersunk Socket Head Screw	KSHW0017	1
34.	Cable Ferrule/Nut	KSBS0012	1

\*Supplied pre-assembled with KSBS0011.

\*\*Builder must fabricate from raw stock.



DETAIL: BRAKE SYSTEM HAND BRAKE ASSEMBLY IN FLIGHT ADJUSTABLE FLAPS

INTERNAL SYSTEMS

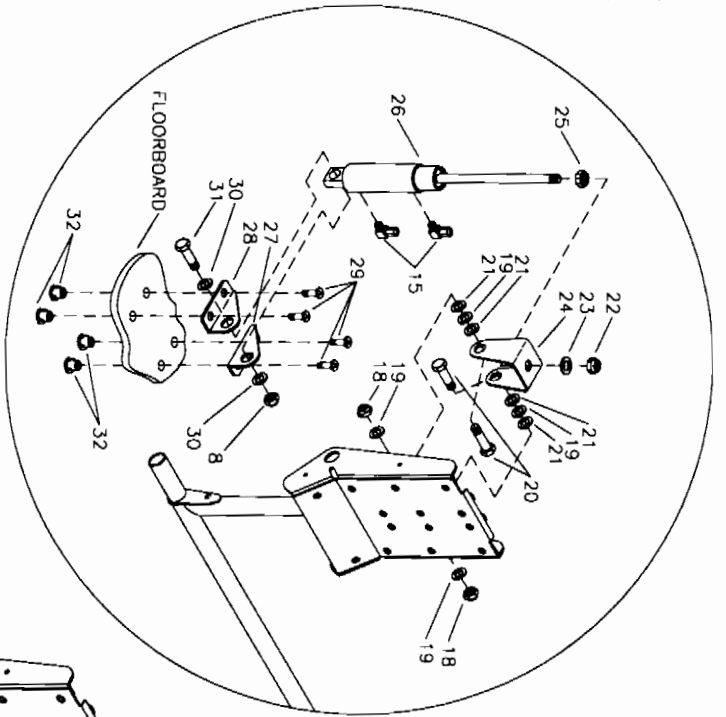
SECTION:

**S-12XL AIRAILE - BRAKE SYSTEM****HAND BRAKE ASSEMBLY WITH INFLIGHT ADJUSTABLE FLAP**

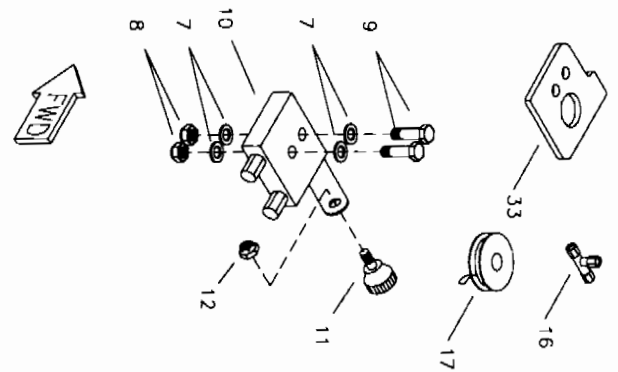
<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Brake Lever	KSBS0009	1
2.	Wire Stop/Screw	2360	2
3.	Aluminum Bushing, 3/8" x .058 **	KAAC0001-4	1
4.	Wire Attach Rod	KPBS0011	1
5.	Brake Cable Adjustment	KPBS0021	1
6.	Bolt *	KSBS0011-1	1
7.	Brake Lever Bracket	KSBS0011	1
8.	Loc Washer *	KSBS0011-2	1
9.	Nut *	KSBS0011-3	1
10.	Ferrule Nut *	KSBS0011-4	1
11.	Ferrule *	KSBS0011-5	1
12.	Wire	TR-PW	12 ft
13.	Cable Conduit Ferrule End Cap	80-0002-01	4
14.	Large Cable Housing	B-CH	12 ft
15.	Safety Wire	SAFETY WIRE	0 ft
16.	Bracket Clamp *	KSBS0011-6	1
17.	Bolt *	KSBS0011-7	2
18.	Wire Swivel/Screw Stop	2361	2
19.	Loctite Blue	LOC-TITE	0
20.	Parking Brake Strap	KPBS0013	1
21.	Countersunk Socket Head Screw	KSHW0017	1
22.	Cable Ferrule/Nut	KSBS0012	1

\*Supplied pre-assembled with KSBS0011.

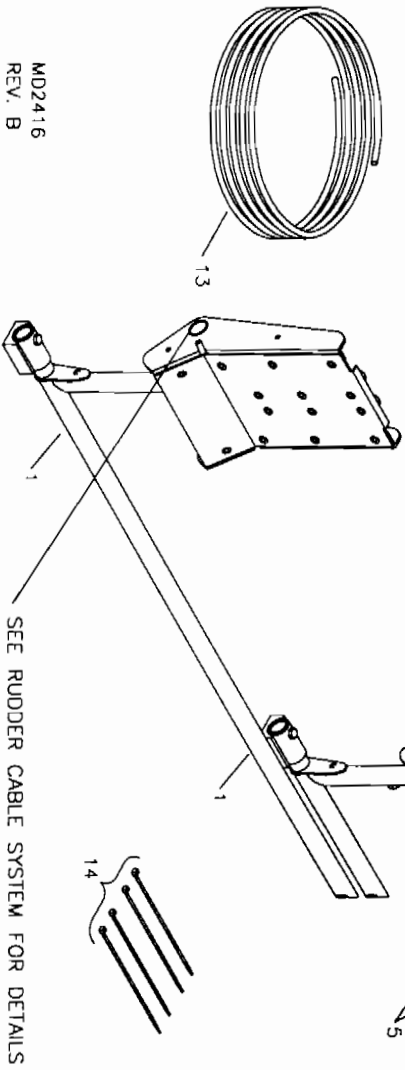
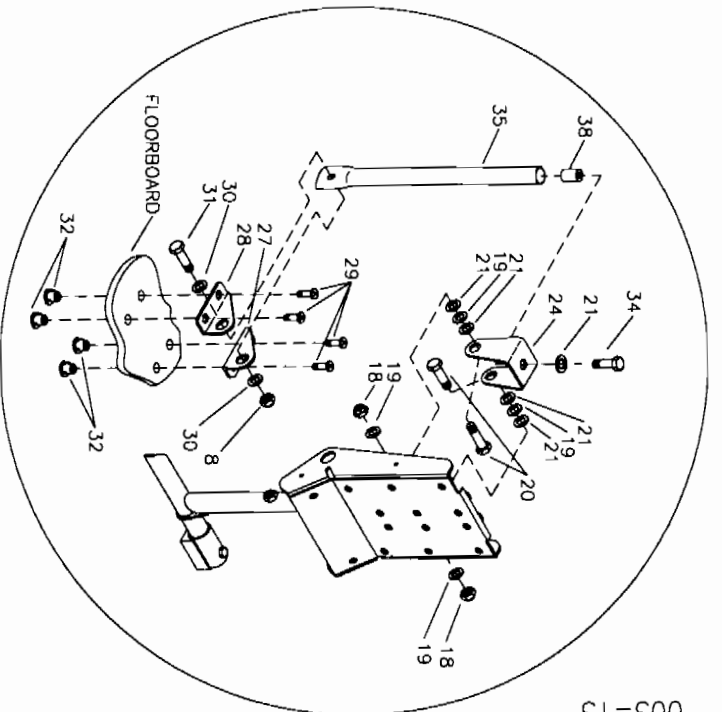
\*\*Builder must fabricate from raw stock.



PILOT'S SIDE HYDRAULIC BRAKE ASSEMBLY



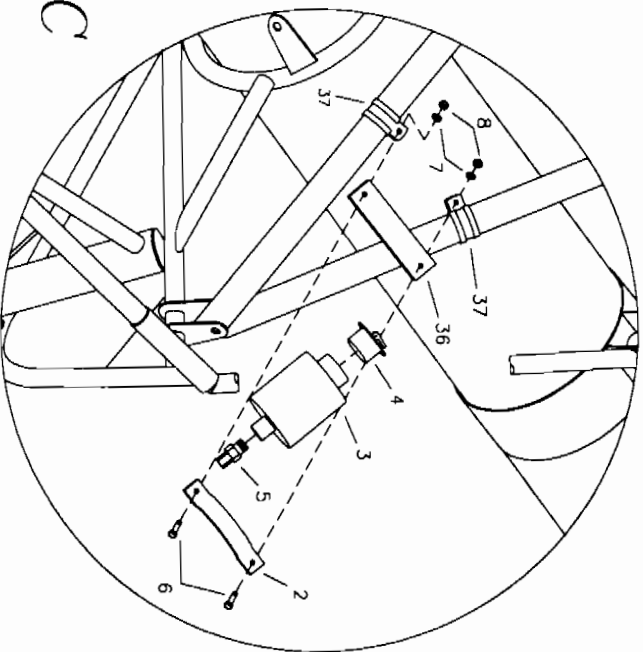
PASSENGER'S SIDE TOE PEDAL ASSEMBLY



SEE RUDDER CABLE SYSTEM FOR DETAILS

MD2416  
REV. B

# RRANDERS S-12 AIRAILE BRAKE SYSTEM SINGLE HYDRAULIC TOE BRAKES





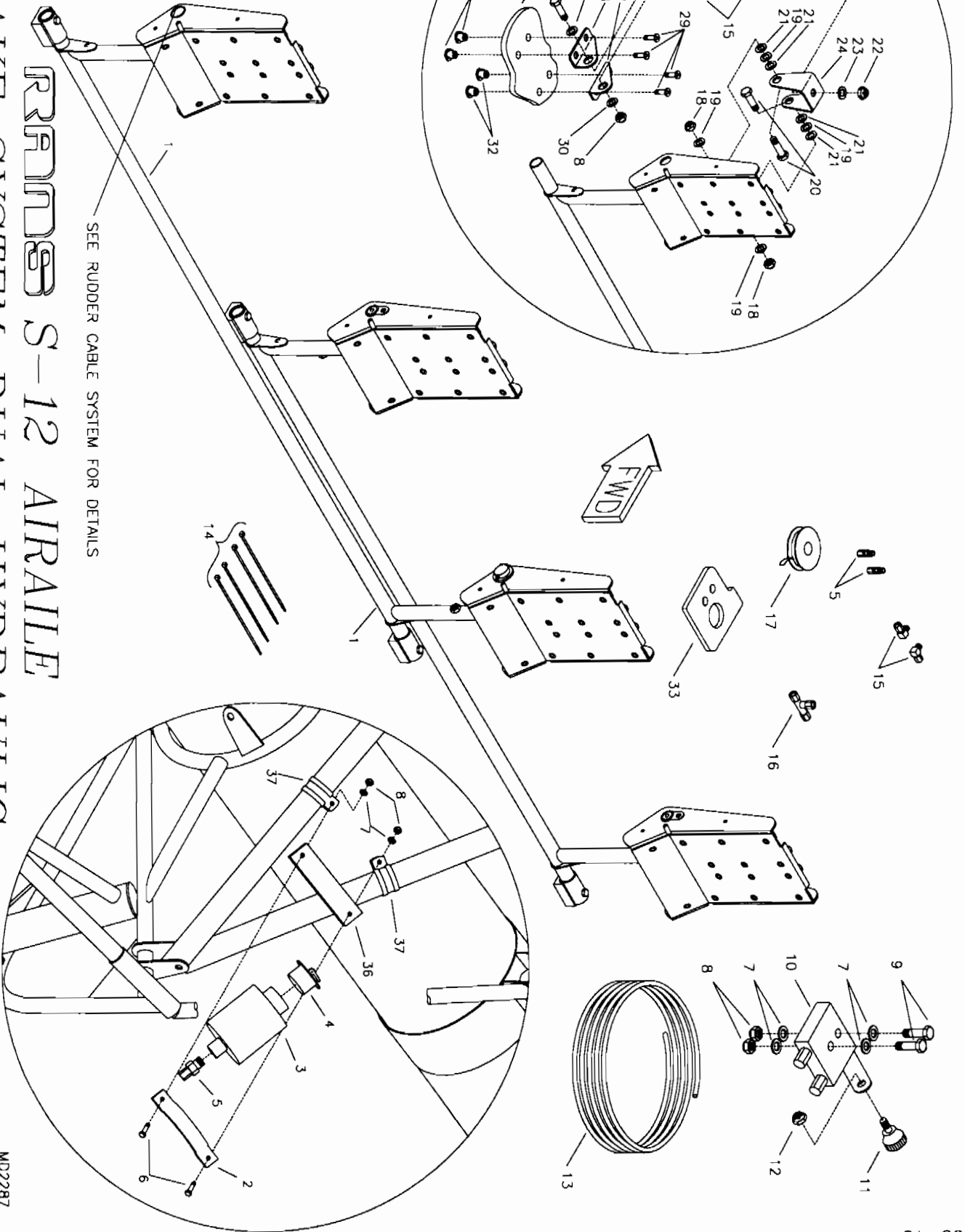
**S-12XL AIRAILE - BRAKE SYSTEM**  
**SINGLE HYDRAULIC TOE BRAKES**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Rudder Pedals *	KPCS0066	0
2.	Hydraulic Reservoir Clamp	FS-HS	1
3.	Hydraulic Brake Reservoir	KPBS0007	1
4.	7/8" Expansion Cap	2598K29	1
5.	Straight Fitting	KSBS0002	3
6.	3/16" Bolt	AN3-3A	3
7.	3/16" Thin Washer	AN960-10L	6
8.	3/16" Shear Nut	AN364-1032A	8
9.	3/16" Bolt	AN3-15A	2
10.	Parking Brake	KSBS0007	1
11.	Knob	KSAC0012	1
12.	3/16" Shear Acorn Nut	22NKM02	1
13.	Hydraulic Brake Line	KSBS0004	20 ft
14.	Zip Ties	ZIP TIES	10
15.	90 Fitting	KSBS0001	6
16.	Tee Fitting	KSBS0003	1
17.	Teflon Tape **	TEFLON TAPE	0
18.	1/4" Shear Nut	AN364-428A	8
19.	1/4" Thick Washer	AN960-416	16
20.	1/4" Bolt	AN4-5A	8
21.	1/4" Thin Washer	AN960-416L	18
22.	5/16" Shear Nut	AN364-524A	4
23.	5/16" Thin Washer	AN960-516L	4
24.	Stainless Steel U Bracket	SU-118	4
25.	5/16" Plain Nut ***	----	0
26.	Master Cylinder - Brake	KSBS0015	2
27.	Brake Mount Bracket, LH	B-MBRKT-L	4
28.	Brake Mount Bracket, RH	B-MBRKT-R	4
29.	8-32 Pan Head Machine Screw	KSHW0008	16
30.	3/16" Thick Washer	AN960-10	8
31.	3/16" Bolt	AN3-10A	4
32.	8-32 Tee Nut	KSHW0007	16
33.	Parking Brake Stop Plate	KPBS0018	1
34.	1/4" Bolt	AN4-4A	2
35.	Aluminum Tube, 1/2" x .035 x 7" ****	KAAC0001-5	0
36.	Aluminum Strap, 1" x .032 x X ****	KAAC0001-9	0
37.	Cushioned Clamp	MS21919-DG18	2
38.	3/16" Insert Nut	I-NUT	2

\*Referenced from rudder pedals.  
 \*\*\*Supplied with Master Cylinder.

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

# RRR-119 S-12 AIRRAIL BRAKE SYSTEM DUAL HYDRAULIC TOE BRAKES



MD2287  
REV. B

**S-12XL AIRAILE - BRAKE SYSTEM**  
**DUAL HYDRAULIC TOE BRAKES**

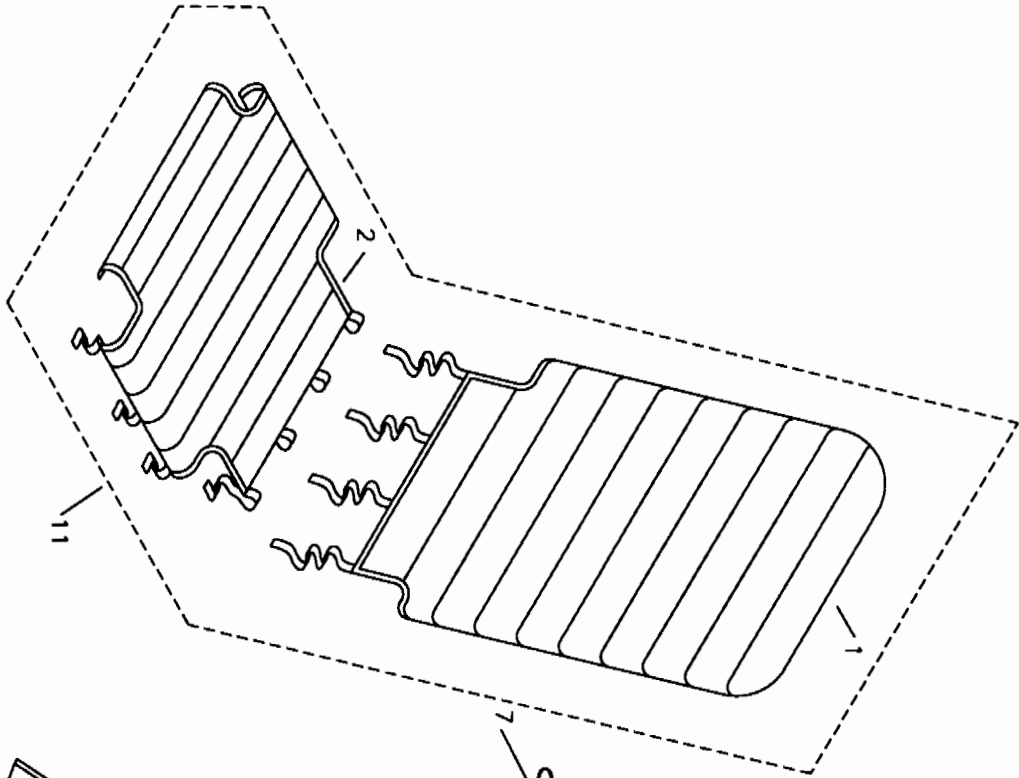
#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Rudder Pedal *	KPCS0066	0
2.	Hydraulic Reservoir Clamp	FS-HS	1
3.	Hydraulic Brake Reservoir	KPBS0007	1
4.	7/8" Expansion Cap	2598K29	1
5.	Straight Fitting	KSBS0002	3
6.	3/16" Bolt	AN3-3A	3
7.	3/16" Thin Washer	AN960-10L	6
8.	3/16" Shear Nut	AN364-1032A	8
9.	3/16" Bolt	AN3-15A	2
10.	Parking Brake	KSBS0007	1
11.	Knob	KSAC0012	1
12.	3/16" Shear Acorn Nut	22NKM02	1
13.	Hydraulic Brake Line	KSBS0004	25 ft
14.	Zip Ties	ZIP TIES	10
15.	90 Fitting	KSBS0001	10
16.	Tee Fitting	KSBS0003	1
17.	Teflon Tape **	TEFLON TAPE	0
18.	1/4" Shear Nut	AN364-428A	8
19.	1/4" Thick Washer	AN960-416	16
20.	1/4" Bolt	AN4-5A	8
21.	1/4" Thin Washer	AN960-416L	16
22.	5/16" Shear Nut	AN364-524A	4
23.	5/16" Thin Washer	AN960-516L	4
24.	Stainless Steel U Bracket	SU-118	4
25.	5/16" Plain Nut ***	----	0
26.	Master Cylinder - Brake	KSBS0015	4
27.	Brake Mount Bracket, LH	B-MBRKT-L	4
28.	Brake Mount Bracket, RH	B-MBRKT-R	4
29.	8-32 Pan Head Machine Screw	KSHW0008	16
30.	3/16" Thick Washer	AN960-10	8
31.	3/16" Bolt	AN3-10A	4
32.	8-32 Tee Nut	KSHW0007	16
33.	Parking Brake Stop Plate	KPBS0018	1
34.	Aluminum Strap, 1" x .032 x X ****	KAAC0001-9	0
35.	Cushioned Clamp	MS21919-DG18	2

\*Referenced from rudder pedals.

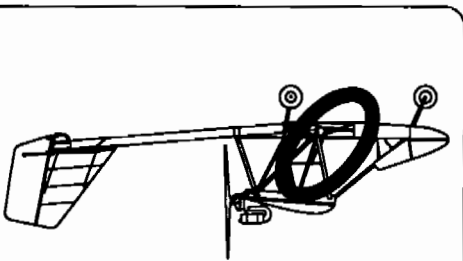
\*\*\*Supplied with Master Cylinder.

\*\*Builder provides.

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



FWD



SEAT ASSEMBLY

INTERNAL SYSTEMS

DETAIL:

SECTION:

NOTES:

**Section:**

**INTERNAL SYSTEMS**

**Detail:**

**SEAT ASSEMBLY**

**Page:**

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**Date:**

10/18/95

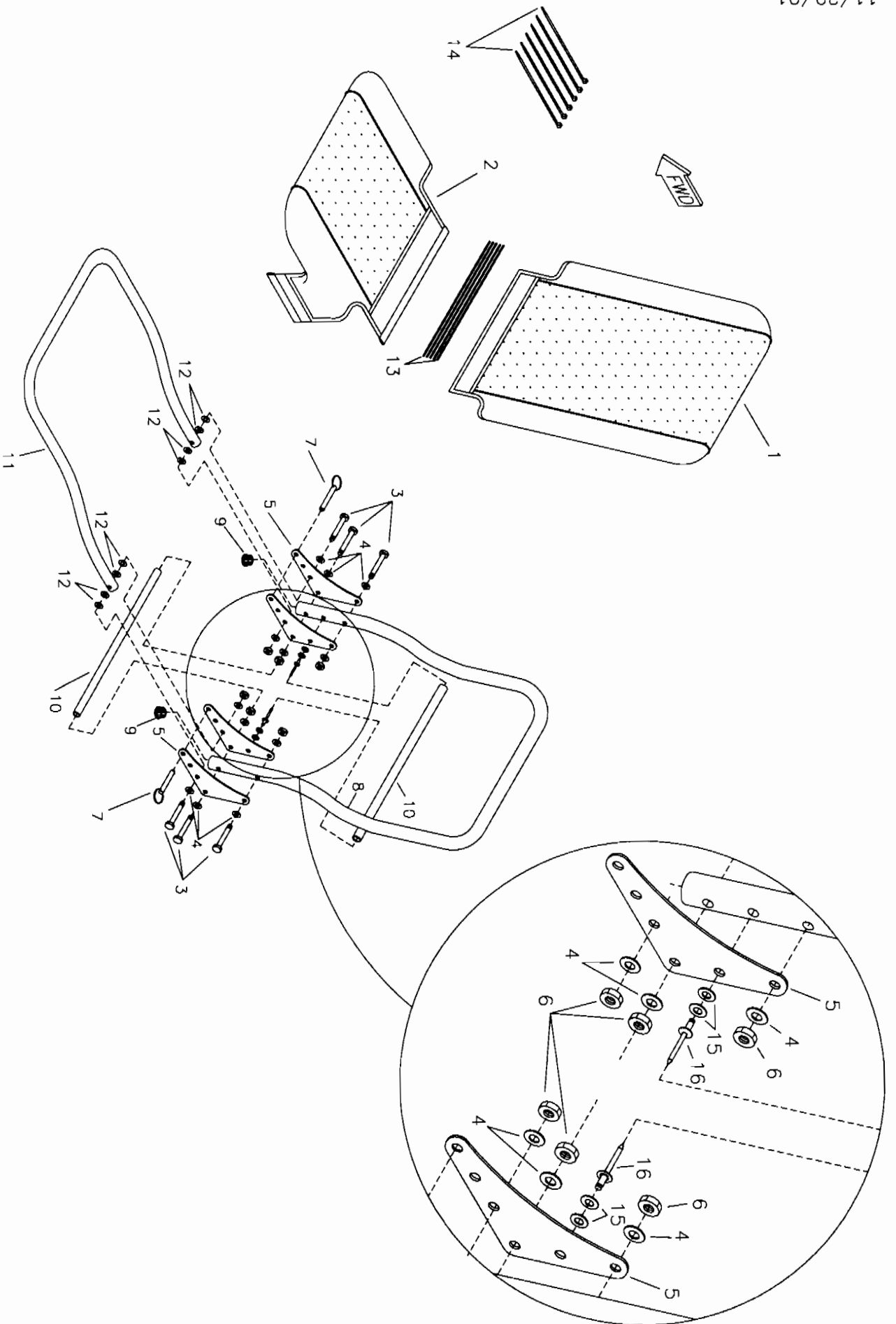
<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Seat Back Cover	ST-SBC	2
2.	Seat Bottom Cover	ST-SBOT	2
3.	3/16" Bolt	AN3-14A	8
4.	3/16" Thin Washer	AN960-10L	16
5.	Seat Back Gusset	ST-GUS	8
6.	3/16" Shear Nut	AN364-1032A	8
7.	1/4" Quick Pin	PIN 1/4X1/2	4
8.	Seat Back Frame	ST-SBF	2
9.	7/8" End Cap	CS-EC	4
10.	Seat Back Lower Tube*	KAAC0001	2

\*Builder fabricates from raw stock (KAAC0001).

**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

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MD4162

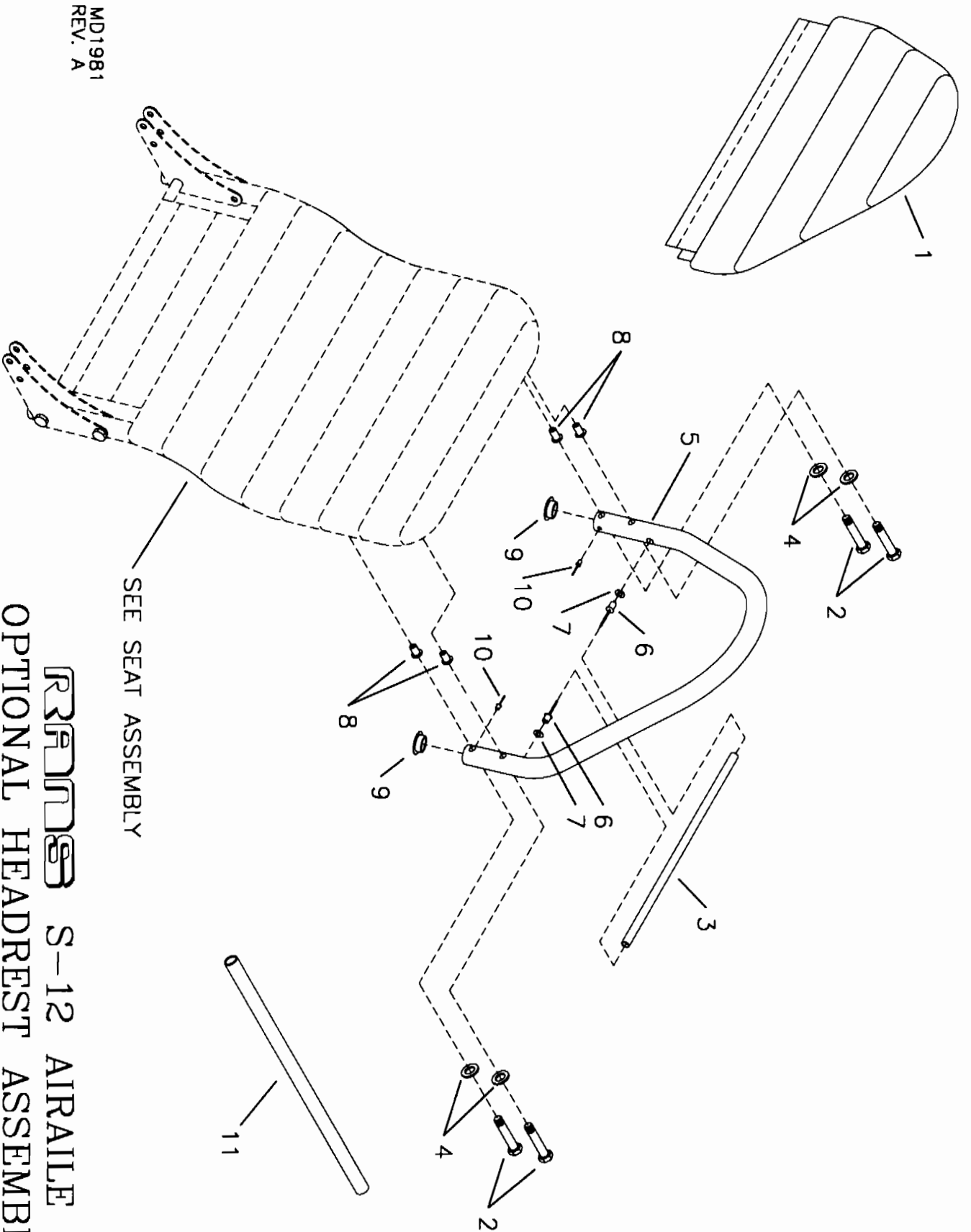
**RRRPNR S-12XL AIRAILE**  
**OPTIONAL FLIP-UP SEAT ASSEMBLY**

**S-12XL AIRAILE - OPTIONAL FLIP-UP SEAT ASSEMBLY**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Seat Back Cover	ST-SBC-A	2
2.	Seat Bottom Cover	ST-SBTC-A	2
3.	3/16" Bolt	AN3-14A	12
4.	3/16" Thin Washer	AN960-10L	24
5.	Seat Back Gusset	ST-GUS	8
6.	3/16" Shear Nut	AN364-1032A	12
7.	1/4" Quick Pin	PIN 1/4X1.2	4
8.	Seat Back Frame	ST-SBF	2
9.	7/8" End Cap	CS-EC	4
10.	Seat Back Lower Tube, 1/2" x .035 x X *	KAAC0001-5	4
11.	Seat Bottom Frame	KPST0001	2
12.	3/16" Plastic Washer	PW-3	16
13.	Lacing Wire (Stick) 36" x 1/16"	TG-LW-1/16	5
14.	Long Zip Ties	LONG ZIP TIES	40
15.	3/16" Thick Washer	AN960-10	8
16.	3/16" Aluminum Rivet - Cherry Q	AAPQ-64	4

\*Builder must fabricate from raw stock (KAAC0001).

12/04/2001



MD1981  
REV. A

SEE SEAT ASSEMBLY

**RRRND S-12 AIRRAIL**  
**OPTIONAL HEADREST ASSEMBLY**

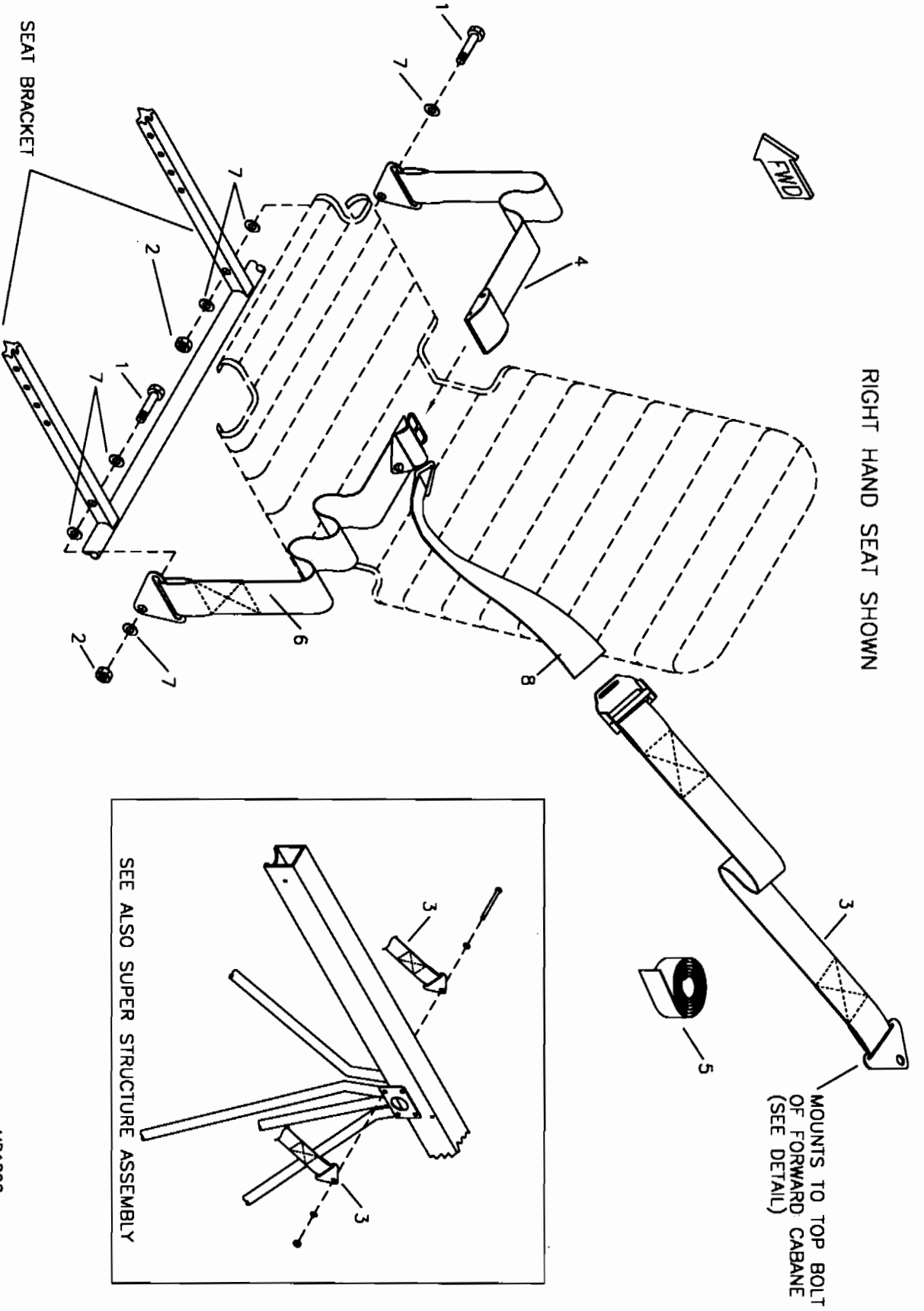


**S-12XL AIRAILE - OPTIONAL HEADREST ASSEMBLY**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Headrest Cover	ST-HRC	2
2.	3/16" Bolt	AN3-13A	8
3.	Aluminum Internal Brace *	KAAC0014-1	0
4.	3/16" Thin Washer	AN960-10L	8
5.	Headrest Frame	ST-HRF(6/12)	2
6.	3/16" Aluminum Pop Rivet - Cherry Q	AAPQ-62	4
7.	3/16" Thick Washer	AN960-10	4
8.	3/16" Rivet Nut	MS27130-A25K	8
9.	1" End Cap	1 CAP	4
10.	3/32" Aluminum Pop Rivet	40APR1/8	4
11.	Headrest - Raw Stock Kit	KAAC0014	1

\*Builder must fabricate from raw stock.

RIGHT HAND SEAT SHOWN



MOUNTS TO TOP BOLT  
OF FORWARD CABANE  
(SEE DETAIL)

SEE ALSO SUPER STRUCTURE ASSEMBLY

SEAT BRACKET

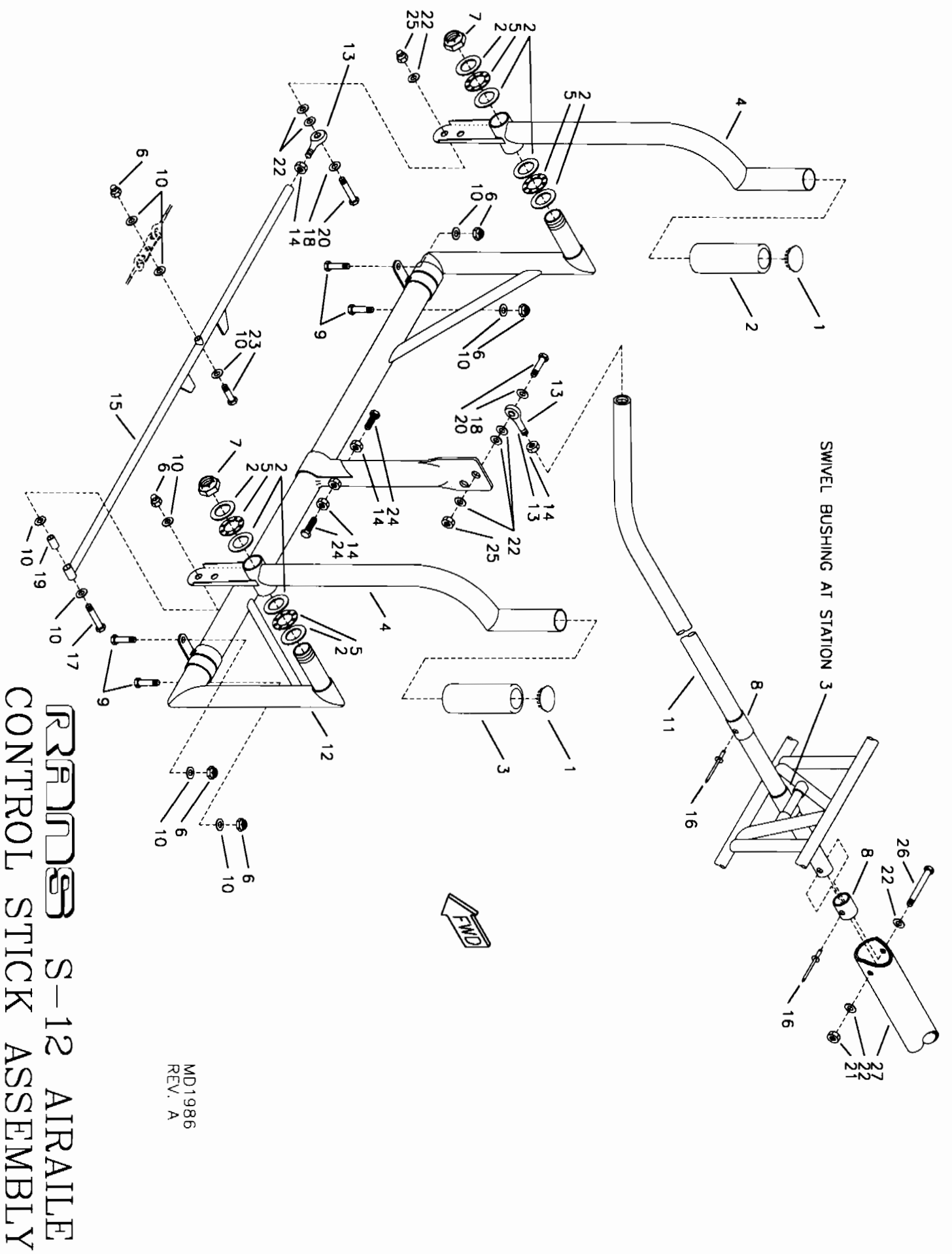
**RRRNDG S-12 AIRRAILE**  
**SEAT BELT INSTALLATION**

MD1892  
REV. B

**S-12XL AIRAILE - SEAT BELT INSTALLATION**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	1/4" Bolt	AN4-12A	4
2.	1/4" Shear Nut	AN364-428A	4
3.	Shoulder Belt - Slider End *	KAST0025-4	0
4.	Lap Belt - Clip Side *	KAST0025-1	0
5.	Seat Belt Kit	KAST0025	1
6.	Lap Belt - Buckle Side *	KAST0025-2	0
7.	1/4" Thick Washer	AN960-416	12
8.	Shoulder Belt - Swivel Clip End *	KAST0025-3	0

\*Supplied in seat belt kit.

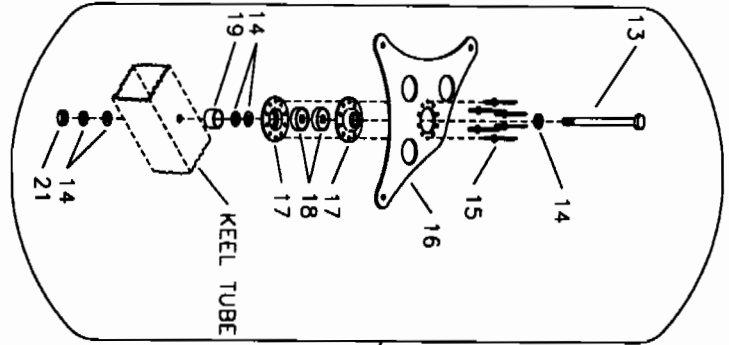
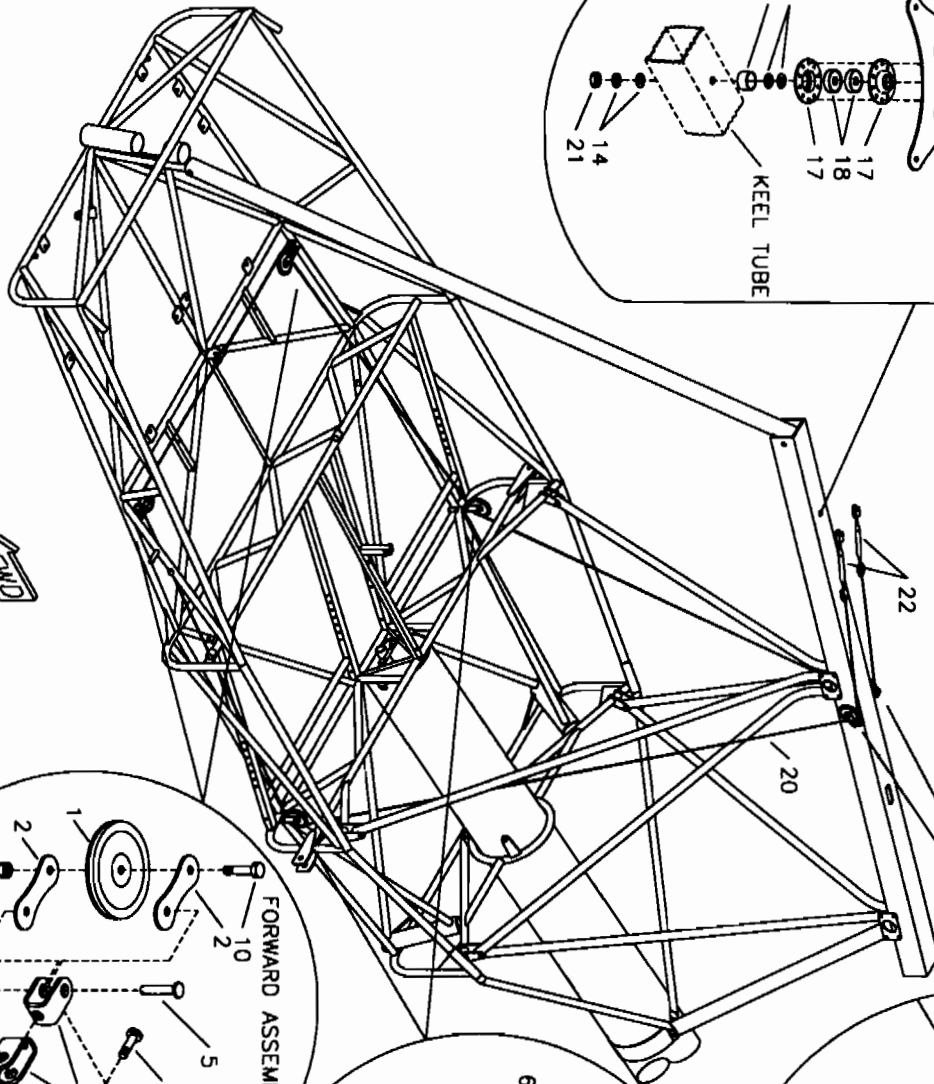


**S-12XL AIRAILE - CONTROL STICK MOUNT & ASSEMBLY**

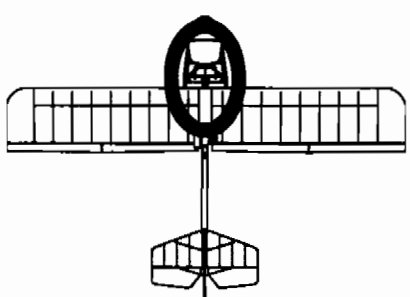
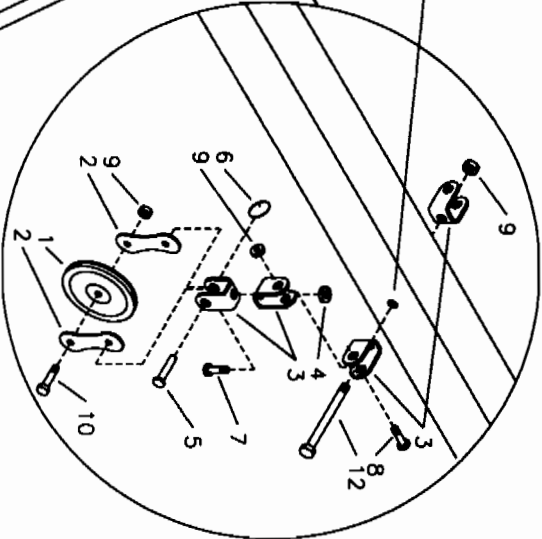
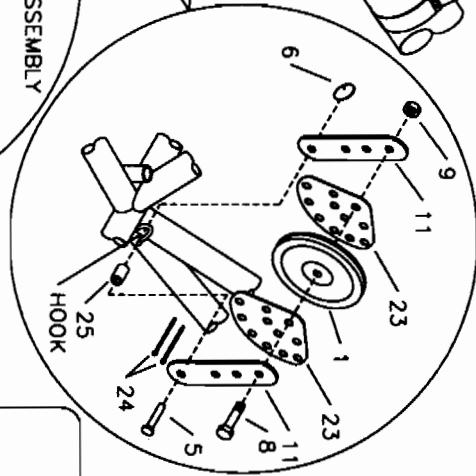
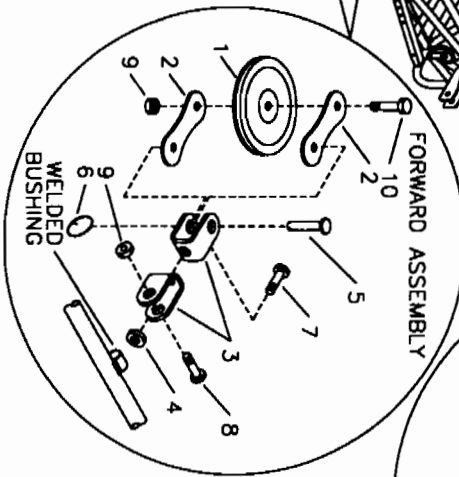
<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	7/8" End Cap	CS-EC	2
2.	Bearing Washer	CS-BW	8
3.	Control Stick Grip	CS-G	2
4.	Control Stick	KPCS0072	2
5.	Thrust Bearing	CS-TB	4
6.	3/16" Shear Nut	AN364-1032A	6
7.	3/4" Nyloc Nut	CS-3/4LOCNUT	2
8.	Elevator Stop, 3/4" x .058 x 3/4" *	KAAC0001-3	0
9.	3/16" Bolt	AN3-10A	4
10.	3/16" Thin Washer	AN960-10L	10
11.	5/8" Push Pull Tube	CS-5/8PPT(12)	1
12.	Control Stick Torque Tube	CS-TT-A	1
13.	Male Rod End, 1/4" X 1/4"	NM-4	2
14.	1/4" Plain Nut	AN345-416	4
15.	Control Stick Link Tube	CS-CSLT-3	1
16.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-41	2
17.	3/16" Bolt	AN3-10A	1
18.	1/4" Plastic Washer	PW-4	2
19.	Spacer Bushing, 1/4" x .028 x 17/32" *	KAAC0001-6	1
20.	1/4" Bolt	AN4-10A	2
21.	1/4" Shear Nut	AN364-428A	1
22.	1/4" Thick Washer	AN960-416	8
23.	3/16" Bolt	AN3-12A	1
24.	1/4" Plain Bolt	1/4X1 BOLT	2
25.	1/4" Shear Acorn Nut	52NKTE-048	2
26.	1/4" Bolt	AN4-15A	1
27.	1 1/4" Push Pull Tube **	TG 1 1/4PPT-141 5/8	0

\*Builder must fabricate from raw stock.

\*\*Referenced from elevator assembly.



THIS HOLE IS 24 1/8" FROM THE FRONT OF TUBE



INTERNAL CABLE SYSTEM

INTERNAL SYSTEMS

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**AILERON CABLE SYSTEM**

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#	Description	Part Number	Quantity
1.	Pulley	AN210-2A	6
2.	Hummertang	T12-HT6	8
3.	Shackle	RL-205-T	10
4.	3/16" Tensile Nut	AN365-1032A	4
5.	Clevis Pin	MS20392-2C17	6
6.	Loc Ring	RL 27 1/4	6
7.	3/16" Bolt	AN3-3A	4
8.	3/16" Bolt	AN3-7A	6
9.	3/16" Shear Nut	AN364-1032A	12
10.	3/16" Bolt	AN3-6A	4
11.	Tang	ST-16	4
12.	3/16" Bolt	AN3-24A	1
13.	1/4" Bolt	AN4-37A	1
14.	1/4" Thick Washer	AN960-416	5
15.	1/8" Aluminum Pop Rivet	AAPQ-44	6
16.	Control Stick Tee	CS-TEE14	1
17.	Bearing Flange	BR-FLNG	2
18.	Bearing	SR4APP	2
19.	Stand Off, 3/4" X 3/4"	SO-3/4X3/4	1
20.	Aileron Cable	KACS0009	1
21.	1/4" Acorn Nut, Shear	52NKTE-048	1
22.	Turnbuckle (W/Pins & Loc Rings)	RL-335-AT	2
23.	Cable Keeper	SP-CK	4
24.	Small Cotter Pin	MS24665-134	4
25.	Bushing, 1/4" X .028 X 3/8"	KAAC0001	2

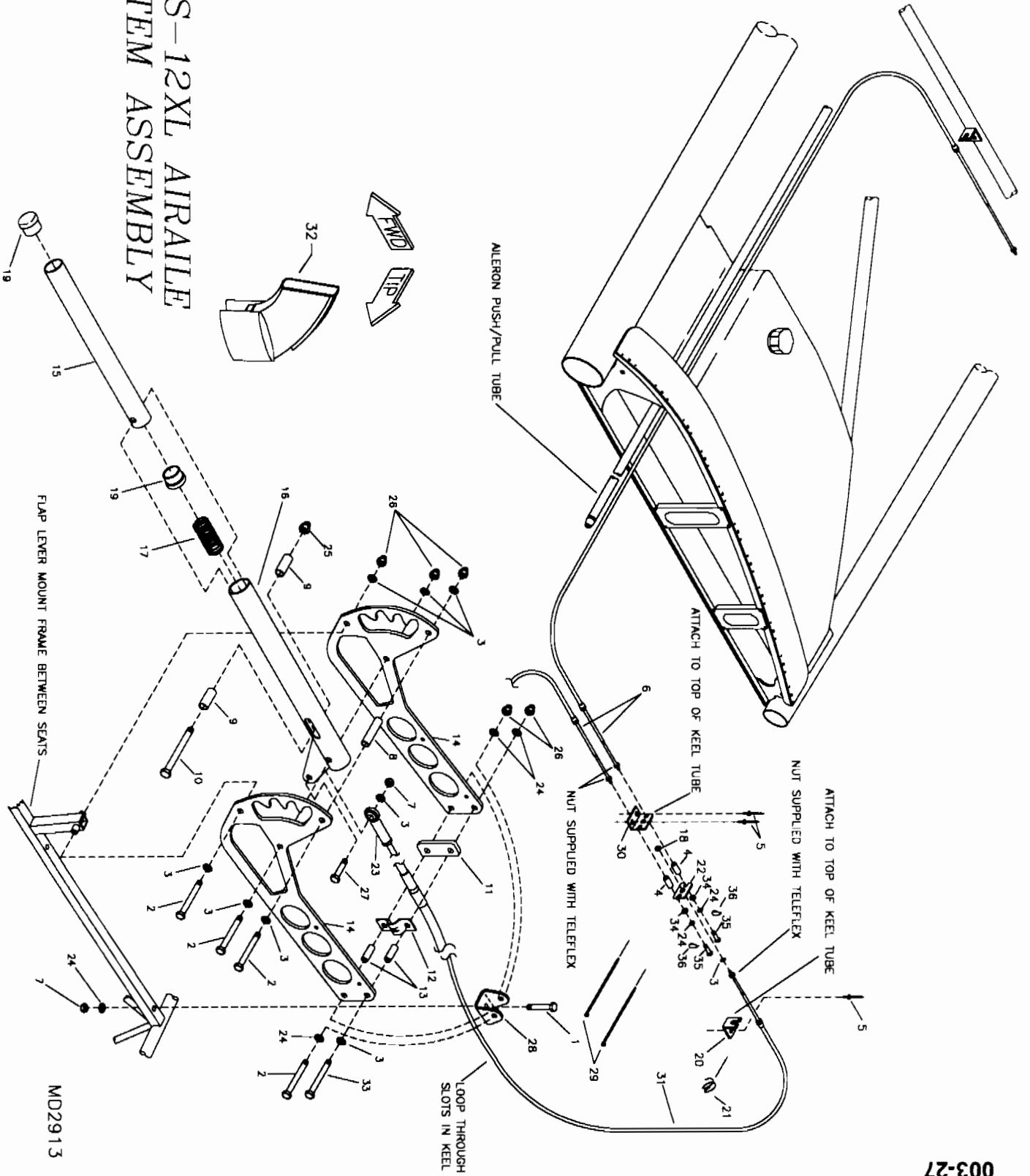
\*Builder fabricates from raw stock.

**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

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# RRRMO S-12XL AIRRAIL FLAP SYSTEM ASSEMBLY



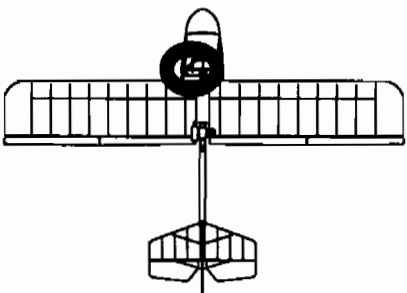
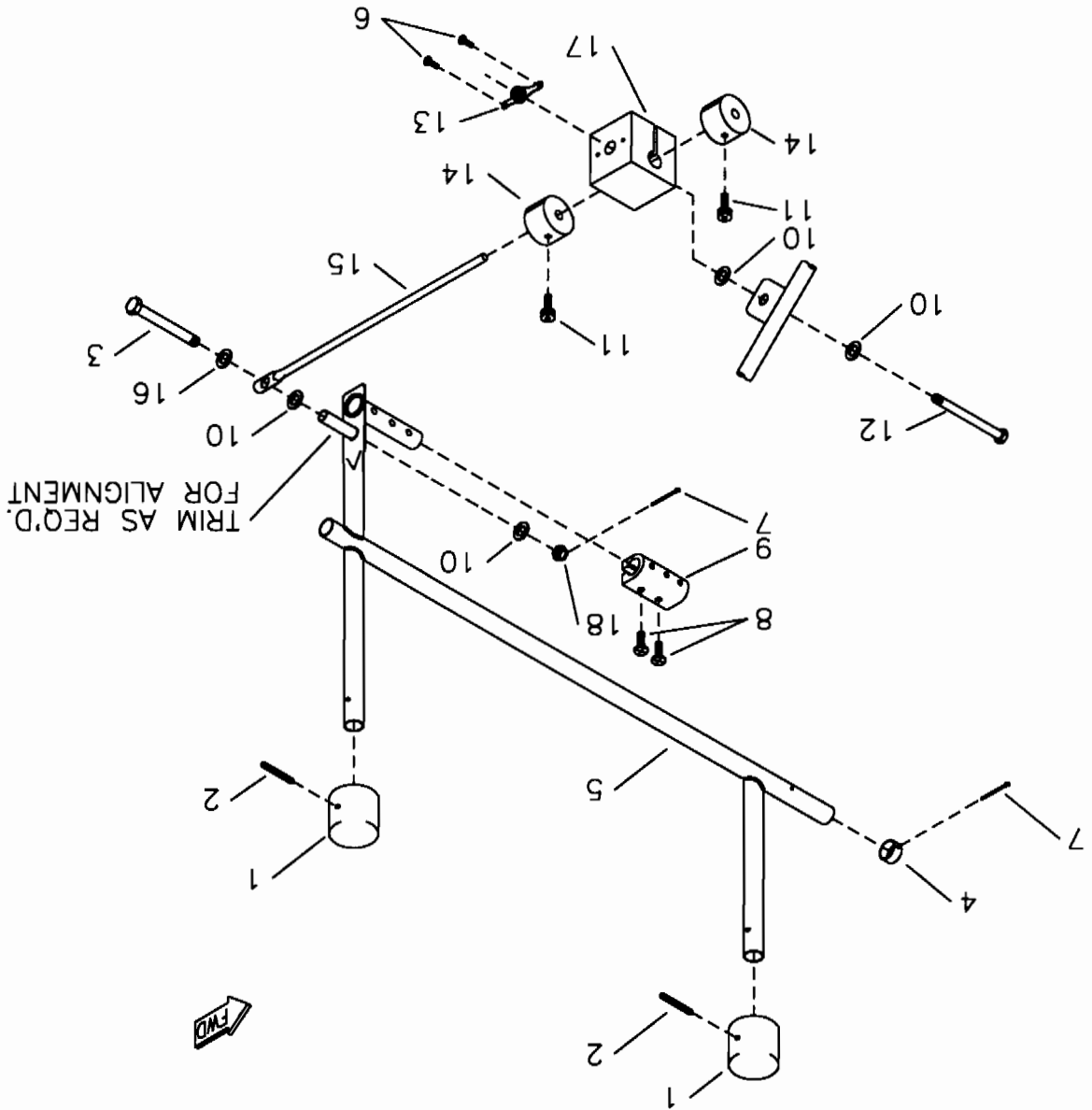
MD2913



**S-12XL AIRAILE - FLAP SYSTEM ASSEMBLY**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/16" Bolt	AN3-7A	1
2.	3/16" Bolt	AN3-14A	4
3.	3/16" Thick Washer	AN960-10	9
4.	Insert Nut	KPAC0012	2
5.	3/16" Stainless Steel Pop Rivet - Cherry Q	CCPQ-64	3
6.	Flap Teleflex, 8'	W-F-TELFX-8	2
7.	3/16" Shear Nut	AN364-1032A	2
8.	Aluminum Bushing, 1/4" x .028 x 7/8" *	KAAC0001-6	0
9.	Aluminum Bushing, 3/8" x .058 x 3/8" *	KAAC0001-4	0
10.	1/4" Bolt	AN4-20A	1
11.	Plastic Shim	KPAC0121	1
12.	Teleflex Retainer Bracket	KSCS0001	1
13.	Aluminum Bushing, 1/4" x .028 x 9/16" *	KAAC0001-6	0
14.	Flap Lever Side Plate	KPFL0046	2
15.	Flap Trip Release Tube	KPFL0045	1
16.	Flap Lever	KPFL0044	1
17.	Spring	C-21	1
18.	3/16" Tensile Nut	AN365-1032A	1
19.	3/4" Endcap	3/4 ENDCAP	2
20.	Teleflex Retainer	W-TEL-R	1
21.	Safety Wire	SAFETY WIRE	0 ft
22.	Flap Dual Teleflex Retainer, AFT	FL-DTR-AFT	1
23.	Female Rod End	NF-3	1
24.	3/16" Thin Washer	AN960-10L	6
25.	1/4" Shear Acorn Nut	52NKTE-048	1
26.	3/16" Shear Acorn Nut	22NKM02	5
27.	3/16" Bolt	AN3-6A	1
28.	Horizontal Stabilizer Attach Bracket	S2-SAB	1
29.	Zip Ties	ZIP TIES	2
30.	Flap Dual Teleflex Retainer (FWD S-12 Style)	FL-DTR-FWD	1
31.	Flap Teleflex, 7'	W-F-TELFX-7	1
32.	Flap Lever Cover	KAFL0004	1
33.	3/16" Bolt	AN3-13A	1
34.	Aluminum Bushing, 1/4" X .028 X 1/8" *	KAAC0001-6	0
35.	3/16" Bolt	AN3-3A	2
36.	Loctite Blue	LOC-TITE	0

\*Builder must fabricate from raw stock.



THROTTLE LEVER MOUNT

INTERNAL SYSTEMS

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**THROTTLE LEVER MOUNT**

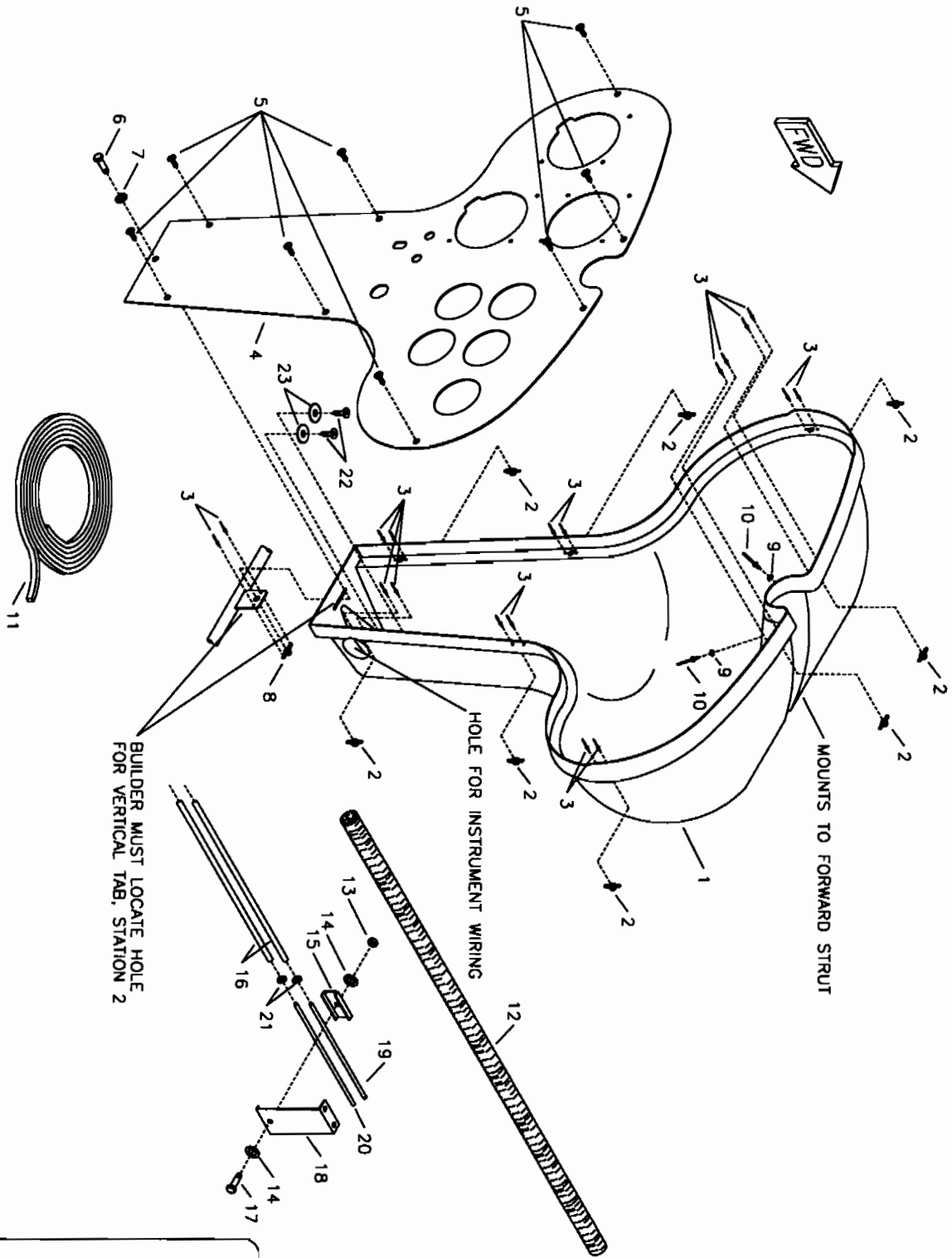
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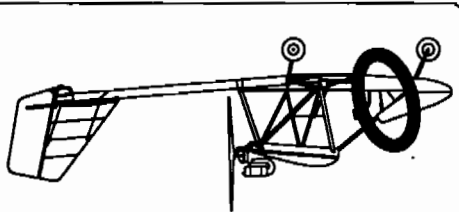
8/18/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Throttle Knob	T-KNOB	2
2.	1/8" Roll Pin, 1"	20032446	2
3.	3/16" Bolt	AN3-6	1
4.	Stop Ring, 5/8" X .058 X 1/2"	T-SR-5/8	1
5.	Throttle Lever	T-TL	1
6.	Small Pan Head Screw	PHS-4X1/4	2
7.	Small Cotter Pin	MS24665-134	2
8.	Machine Screw	MS35206-218	2
9.	Throttle Retension Block	T-RB	1
10.	3/16" Thick Washer	AN960-10	3
11.	Set Screw	T-SC	2
12.	3/16" Bolt	AN3-14A	1
13.	3/16" Nut Plate	K-1000-3	1
14.	Throttle Stop	T-STOP	2
15.	Friction Rod	T-FR	1
16.	3/16" Thin Washer	AN960-10L	2
17.	Friction Block	T-FB	1
18.	3/16" Castle Nut	AN310-3	1



SECTION: 503/582 INSTRUMENT PANEL ASSEMBLY WITHOUT PANEL TRIM

INTERNAL SYSTEMS

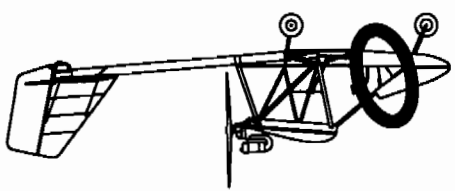
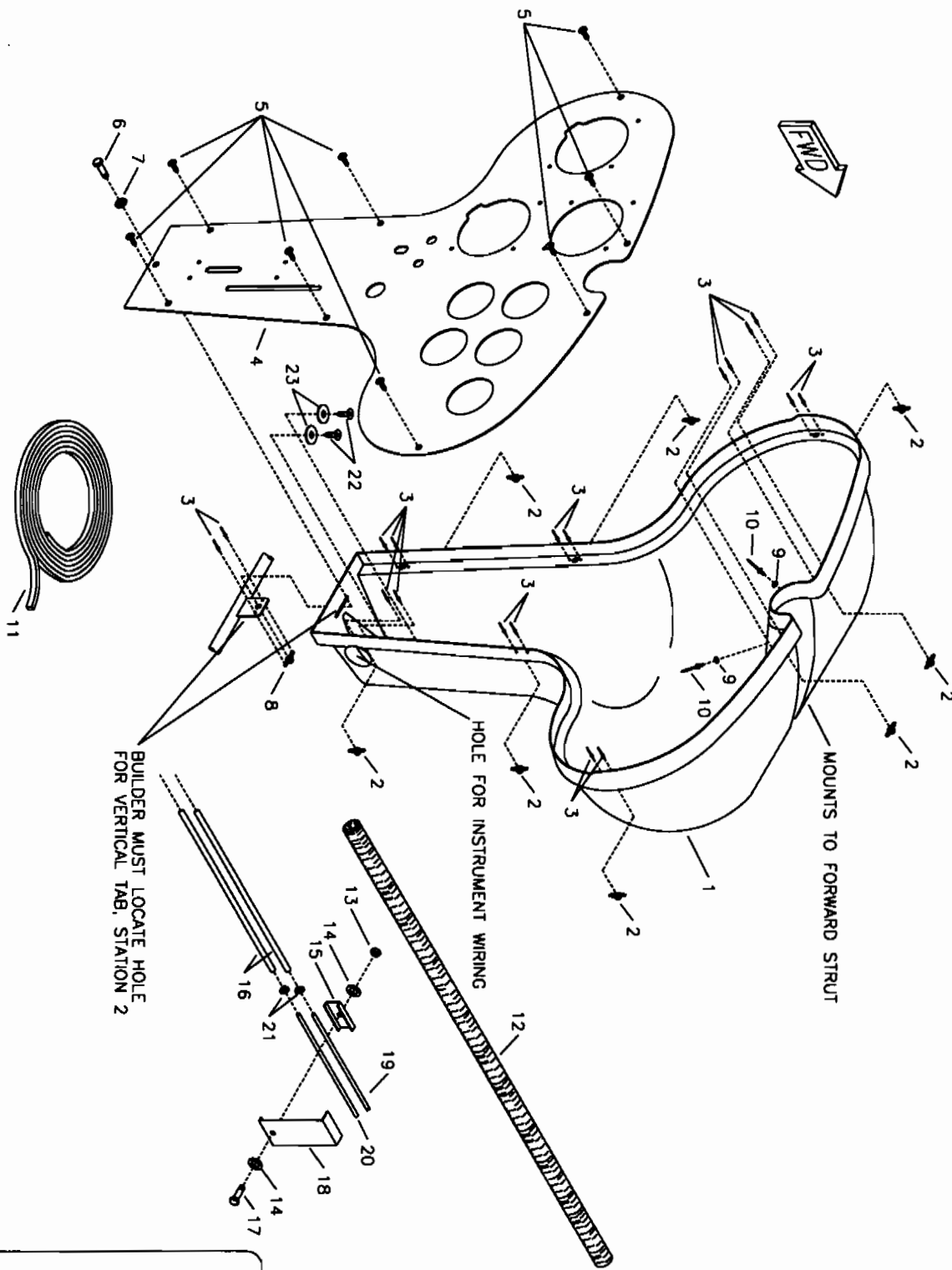


**S-12XL AIRAILE - 503/582 INSTRUMENT PANEL ASSEMBLY**  
**WITHOUT PANEL TRIM**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Instrument Panel Housing	KPIP0014	1
2.	8-32 Nut Plate	MS21047-08	8
3.	3/32" Aluminum Pop Rivet	40APR1/8	16
4.	Instrument Panel, 503/582	KPIP0013	1
5.	8-32 Machine Bolt	AN526-832R8	8
6.	3/16" Bolt	AN3-4A	1
7.	3/16" Thin Washer	AN960-10L	1
8.	3/16" Nut Plate	K-1000-3	1
9.	1/8" Small Brass Washer	AN960-B4	2
10.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-44	2
11.	Trim Loc	TRIM-LOC	7 ft
12.	Wire Casing	IP-WCASE	13 ft
13.	3/16" Shear Nut **	AN364-1032A	0
14.	3/16" Thick Washer **	AN960-10	0
15.	Static/Pitot Mount Clamp **	IP-SPMC	0
16.	1/4" Blue Static/ASI Line *	FS-FL	0
17.	3/16" Bolt **	AN3-5A	0
18.	Static/Pitot Mount **	IP-SPM	0
19.	Static Tube **	W-ST	0
20.	Pitot Tube **	W-ST	0
21.	Line Clamp, 3/8" *	FS-LCL 3/8	2
22.	#8 Pan Head Screw	8X1/2 PHS	2
23.	3/16" Large Washer	AN970-3	2

\*Referenced from instrument schematic.

\*\*Referenced from #1 Belly Pan Assembly.



503/582 INSTRUMENT PANEL ASSEMBLY WITH PANEL TRIM

INTERNAL SYSTEMS

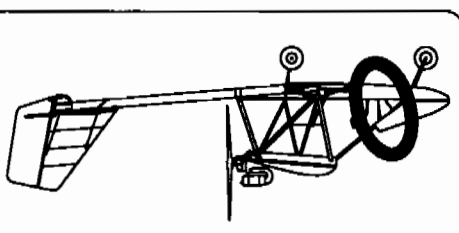
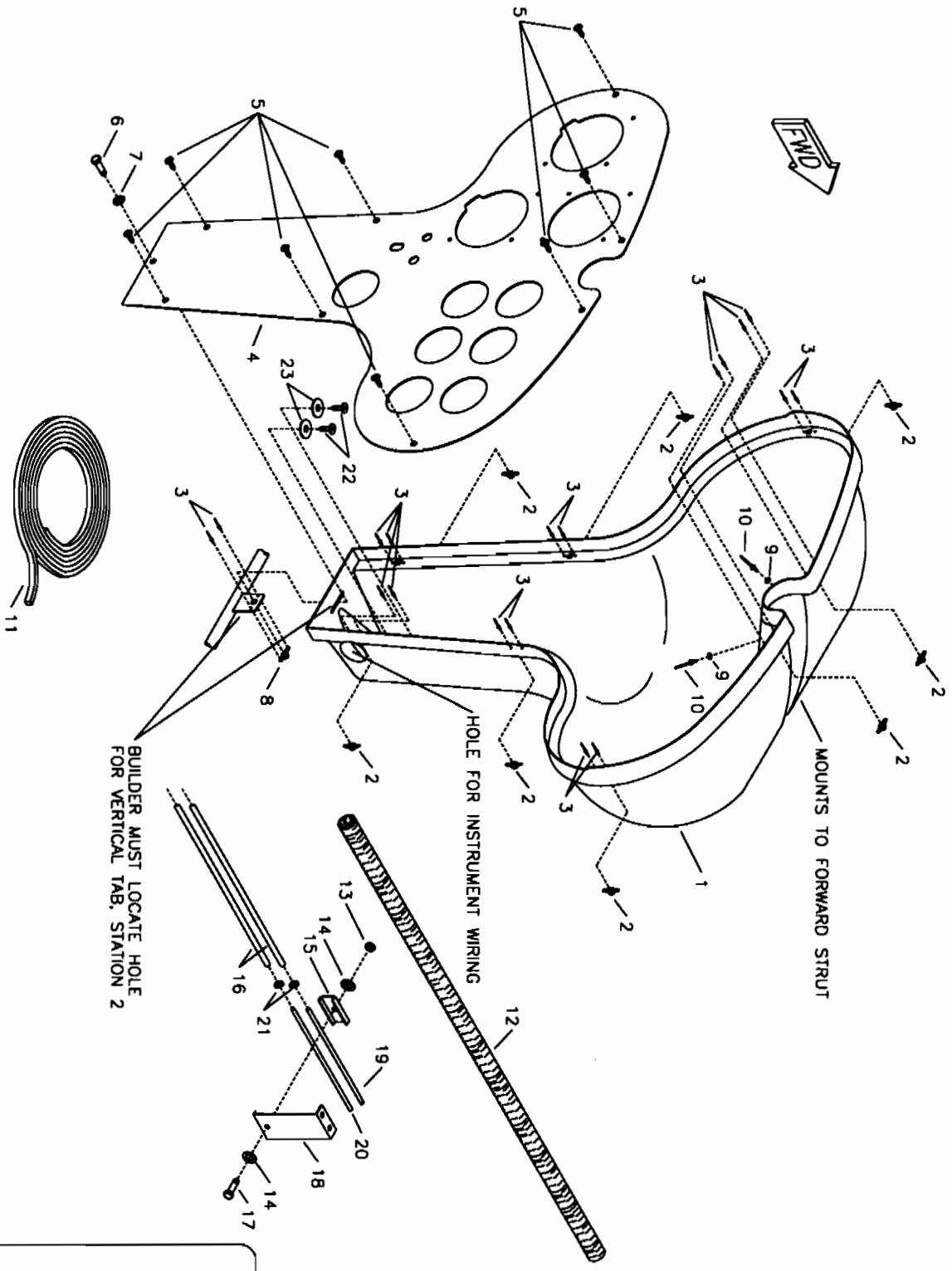
SECTION:

**S-12XL AIRAILE - 503/582 INSTRUMENT PANEL ASSEMBLY  
WITH PANEL TRIM**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Instrument Panel Housing	KPIP0014	1
2.	8-32 Nut Plate	MS21047-08	8
3.	3/32" Aluminum Pop Rivet	40APR1/8	16
4.	Instrument Panel, 503/582 (W/Trim)	KPIP0012	1
5.	8-32 Machine Bolt	AN526-832R8	8
6.	3/16" Bolt	AN3-4A	1
7.	3/16" Thin Washer	AN960-10L	1
8.	3/16" Nut Plate	K-1000-3	1
9.	1/8" Small Brass Washer	AN960-B4	2
10.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-44	2
11.	Trim Loc	TRIM-LOC	7 ft
12.	Wire Casing	IP-WCASE	13 ft
13.	3/16" Shear Nut **	AN364-1032A	0
14.	3/16" Thick Washer **	AN960-10	0
15.	Static/Pitot Mount Clamp **	IP-SPMC	0
16.	1/4" Blue Static/ASI Line *	FS-FL	0
17.	3/16" Bolt **	AN3-5A	0
18.	Static/Pitot Mount **	IP-SPM	0
19.	Static Tube **	W-ST	0
20.	Pitot Tube **	W-ST	0
21.	Line Clamp, 3/8" *	FS-LCL 3/8	2
22.	#8 Pan Head Screw	8X1/2 PHS	2
23.	3/16" Large Washer	AN970-3	2

\*Referenced from instrument schematic.

\*\*Referenced from #1 Belly Pan Assembly.



912 - INSTRUMENT PANEL ASSEMBLY  
 WITHOUT PANEL TRIM

INTERNAL SYSTEMS

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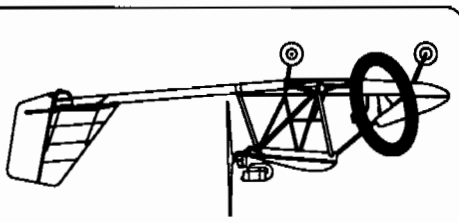
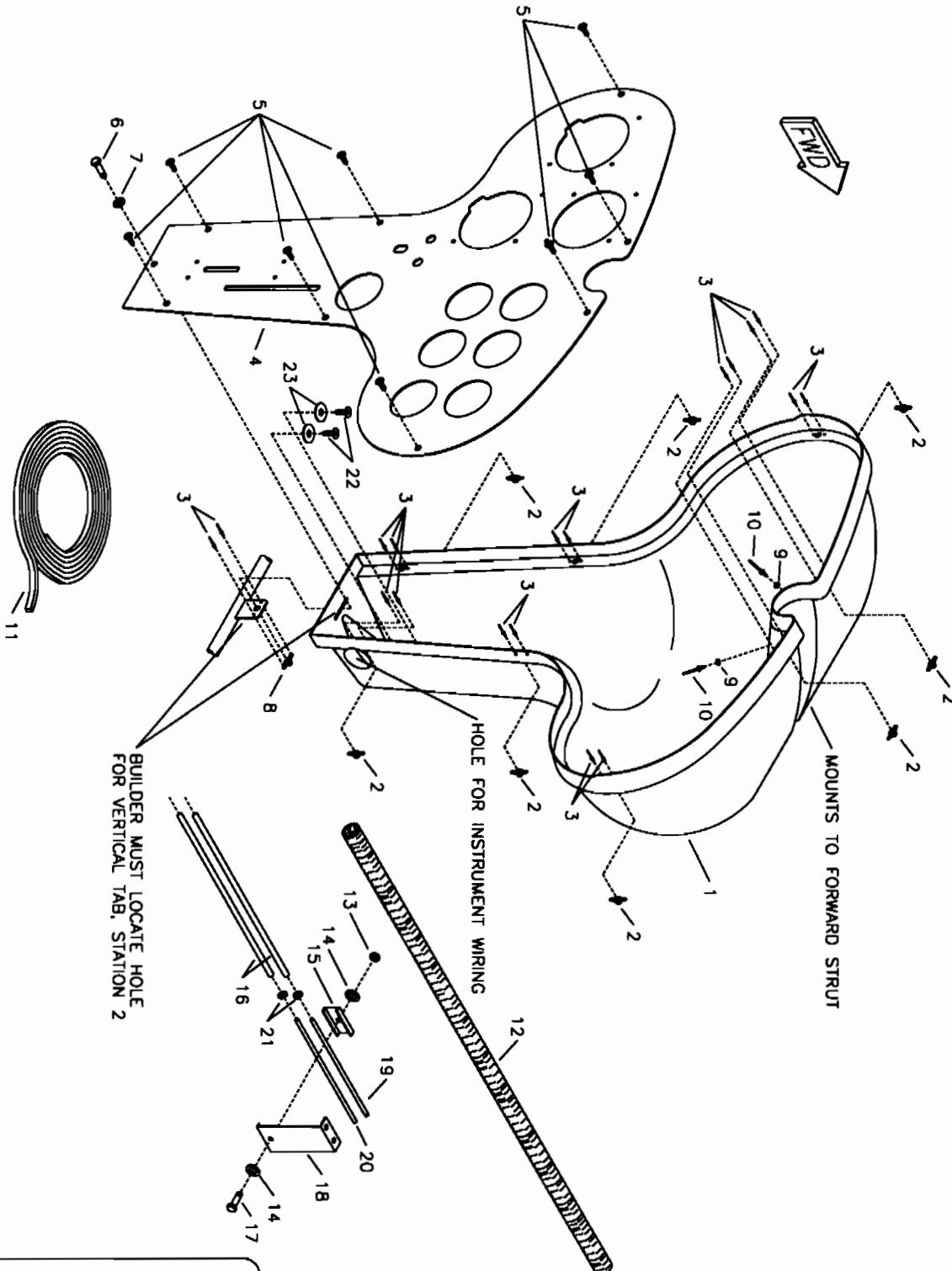


**S-12XL AIRAILE - 912 INSTRUMENT PANEL ASSEMBLY**  
**WITHOUT PANEL TRIM**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Instrument Panel Housing	KPIP0014	1
2.	8-32 Nut Plate	MS21047-08	8
3.	3/32" Aluminum Pop Rivet	40APR1/8	18
4.	Instrument Panel, 912 (W/OTrim)	KPIP0027	1
5.	8-32 Machine Bolt	AN526-832R8	8
6.	3/16" Bolt	AN3-4A	1
7.	3/16" Thin Washer	AN960-10L	1
8.	3/16" Nut Plate	K-1000-3	1
9.	1/8" Small Brass Washer	AN960-B4	2
10.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-44	2
11.	Trim Loc	TRIM-LOC	7 ft
12.	Wire Casing	IP-WCASE	13 ft
13.	3/16" Shear Nut **	AN364-1032A	0
14.	3/16" Thick Washer **	AN960-10	0
15.	Static/Pitot Mount Clamp **	IP-SPMC	0
16.	1/4" Blue Static/ASI Line *	FS-FL	0
17.	3/16" Bolt **	AN3-5A	0
18.	Static/Pitot Mount **	IP-SPM	0
19.	Static Tube **	W-ST	0
20.	Pitot Tube **	W-ST	0
21.	Line Clamp, 3/8" *	FS-LCL 3/8	2
22.	#8 Pan Head Screw	8X1/2 PHS	2
23.	3/16" Large Washer	AN970-3	2

\*Referenced from instrument schematic.

\*\*Referenced from #1 Belly Pan Assembly.



912 - INSTRUMENT PANEL ASSEMBLY WITH PANEL TRIM

INTERNAL SYSTEMS

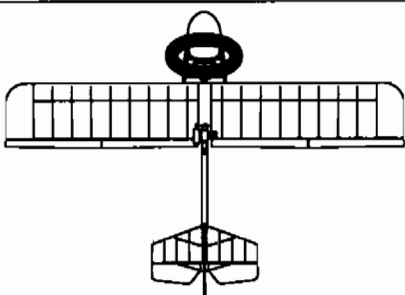
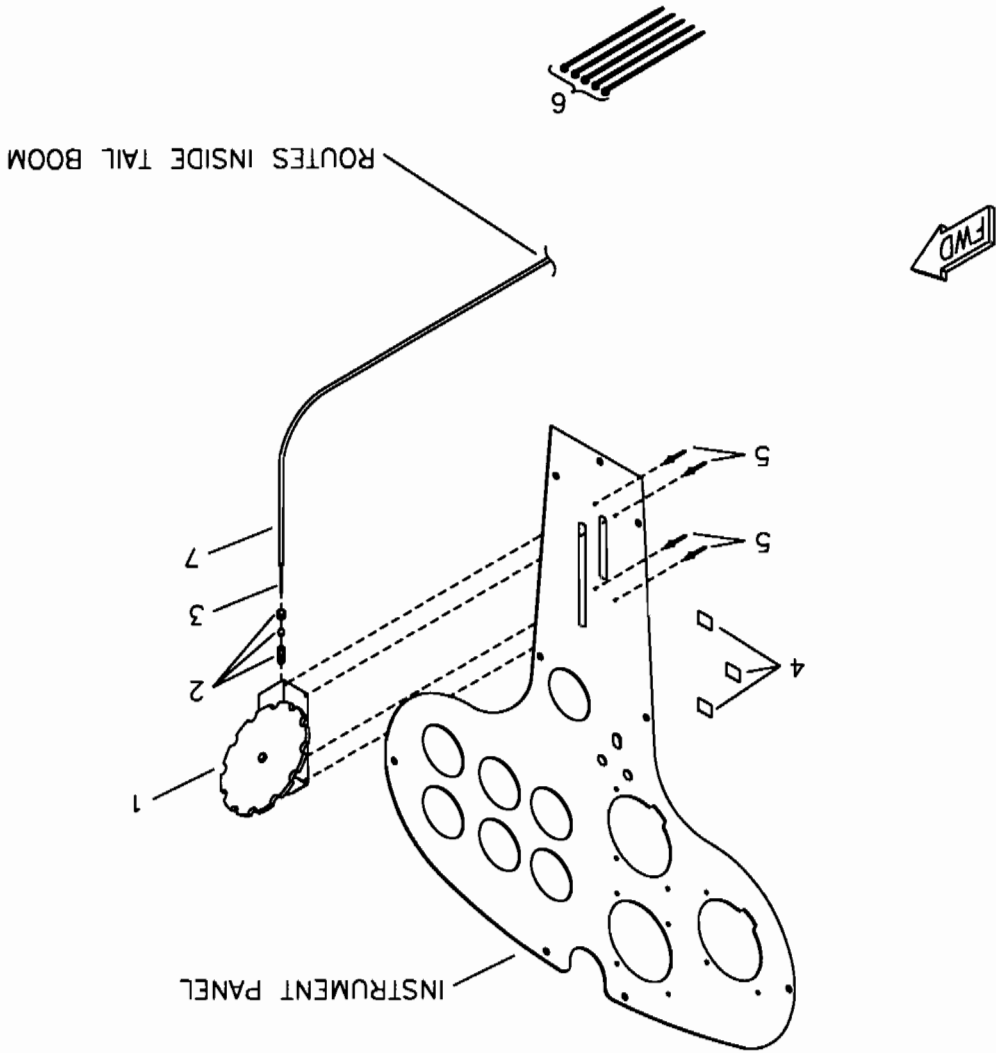
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**S-12XL AIRAILE - 912 INSTRUMENT PANEL ASSEMBLY**  
**WITH PANEL TRIM**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Instrument Panel Housing	KPIP0014	1
2.	8-32 Nut Plate	MS21047-08	8
3.	3/32" Aluminum Pop Rivet	40APR1/8	18
4.	Instrument Panel, 912 (W/Trim)	KPIP0011	1
5.	8-32 Machine Bolt	AN526-832R8	8
6.	3/16" Bolt	AN3-4A	1
7.	3/16" Thin Washer	AN960-10L	1
8.	3/16" Nut Plate	K-1000-3	1
9.	1/8" Small Brass Washer	AN960-B4	2
10.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-44	2
11.	Trim Loc	TRIM-LOC	7 ft
12.	Wire Casing	IP-WCASE	13 ft
13.	3/16" Shear Nut **	AN364-1032A	0
14.	3/16" Thick Washer **	AN960-10	0
15.	Static/Pitot Mount Clamp **	IP-SPMC	0
16.	1/4" Blue Static/ASI Line *	FS-FL	0
17.	3/16" Bolt **	AN3-5A	0
18.	Static/Pitot Mount **	IP-SPM	0
19.	Static Tube **	W-ST	0
20.	Pitot Tube **	W-ST	0
21.	Line Clamp, 3/8" *	FS-LCL 3/8	2
22.	#8 Pan Head Screw	8X1/2 PHS	2
23.	3/16" Large Washer	AN970-3	2

\*Referenced from instrument schematic.

\*\*Referenced from #1 Belly Pan Assembly.



INTERNAL SYSTEMS  
 TRIM WHEEL ASSEMBLY -  
 PANEL MOUNT

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PANEL MOUNT**

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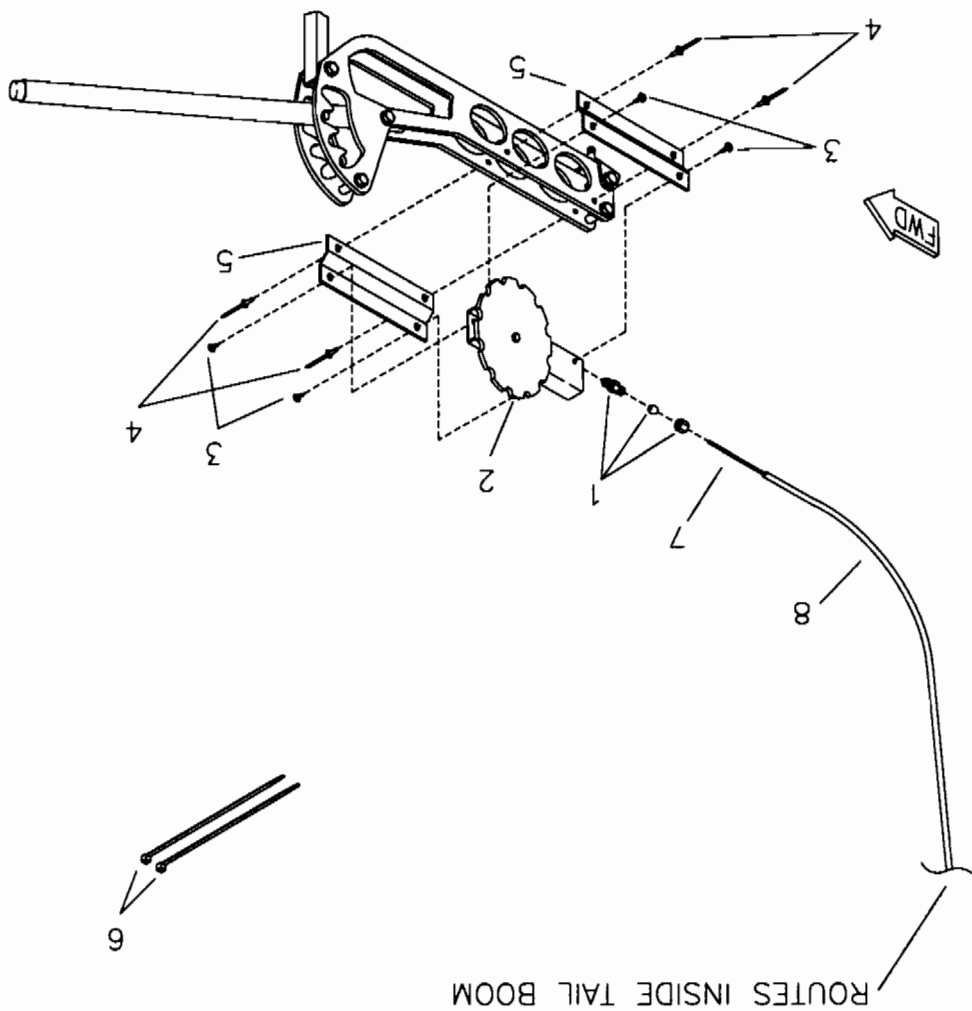
<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Trim Wheel Assembly	TR-WA	1
2.	Fitting	IMP68-3/16X1/8	1
3.	Trim Push Wire	TR-PW	22 ft
4.	Panel Decals *	DECAL	0
5.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	4
6.	Zip Ties	ZIP TIES	5
7.	Trim Cable Housing	KSAC0008	22 ft

\*On main decal sheet.

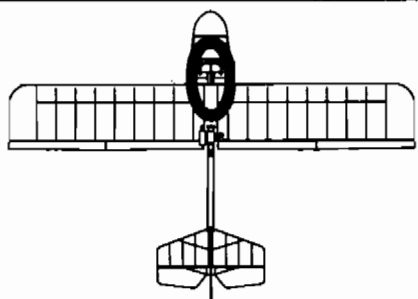
**RANS, Inc.  
S-12 Airaile**

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ROUTES INSIDE TAIL BOOM



TRIM WHEEL ASSEMBLY -  
FLAP LEVER MOUNT

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**TRIM WHEEL ASSEMBLY  
FLAP LEVER MOUNT**

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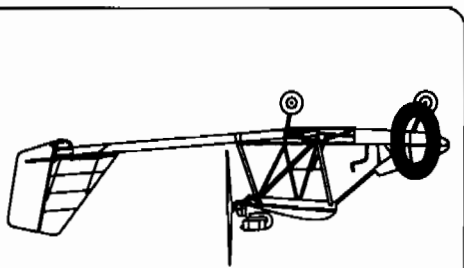
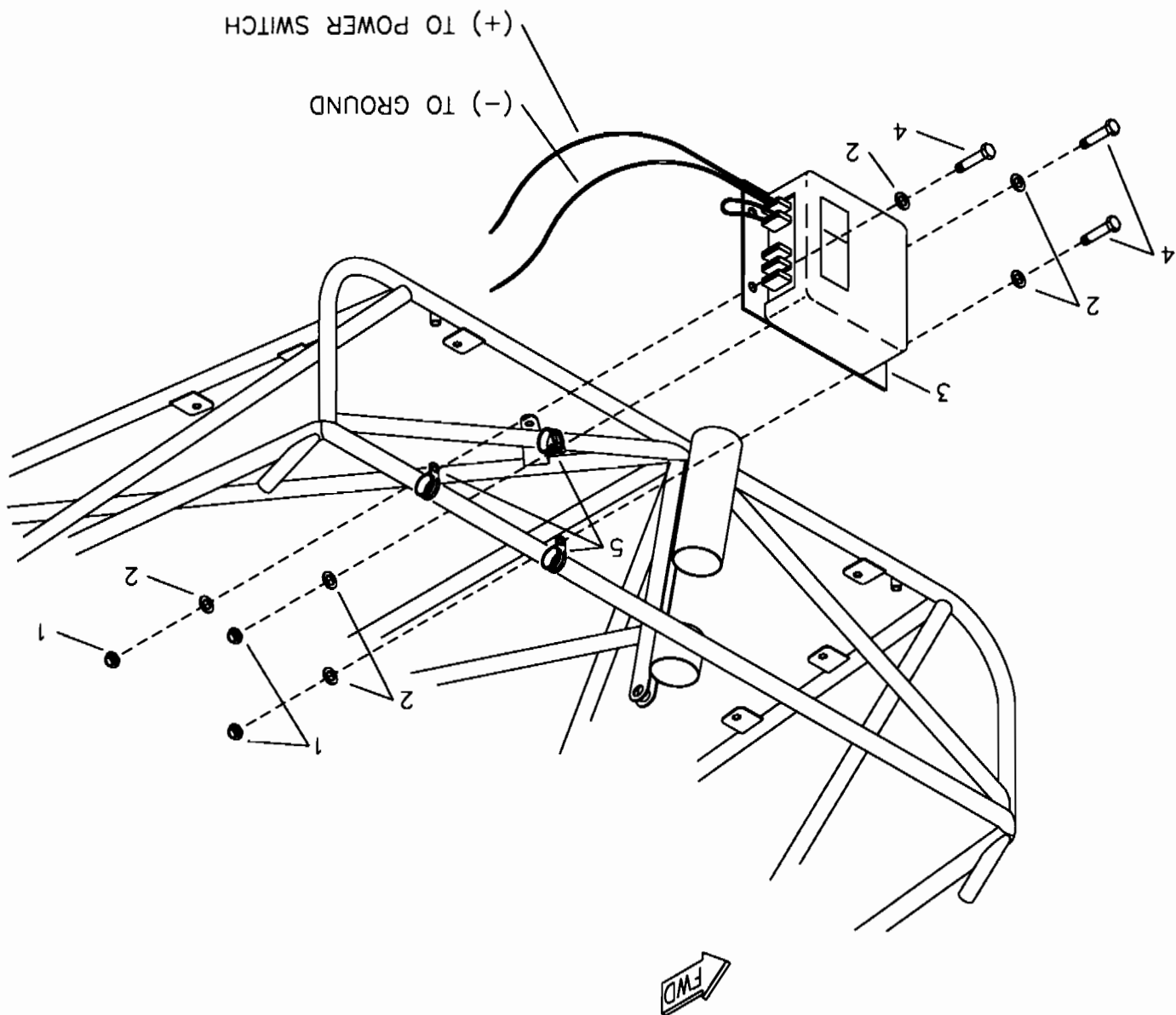
3/23/98

<b># Description</b>	<b>Part Number</b>	<b>Quantity</b>
1. Fitting	IMP68-3/16X1/8	1
2. Trim Wheel Assembly	TR-WA	1
3. #4 Small Pan Head Screw	4X1/4 PHS	4
4. 1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-44	4
5. Attach Angle - Trim Wheel	KPTR0025	2
6. Zip Ties	ZIP TIES	2
7. Trim Push Wire	TR-PW	22 ft
8. Trim Cable Housing	KSAC0008	22 ft

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S-12 Airaile**

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STROBE BOX MOUNT

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**STROBE BOX MOUNT**

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<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	3/16" Shear Nut	AN364-1032A	3
2.	3/16" Thick Washer	AN960-10	6
3.	Whelen Strobe Light Power Supply *	A413A, HDA-DF	0
4.	3/16" Bolt	AN3-5A	3
5.	1/2" Cushioned Tube Clamp	MS21919-DG8	3

\*Referenced from strobe system schematic.

**RANS, Inc.**  
**S-12 Airaile**

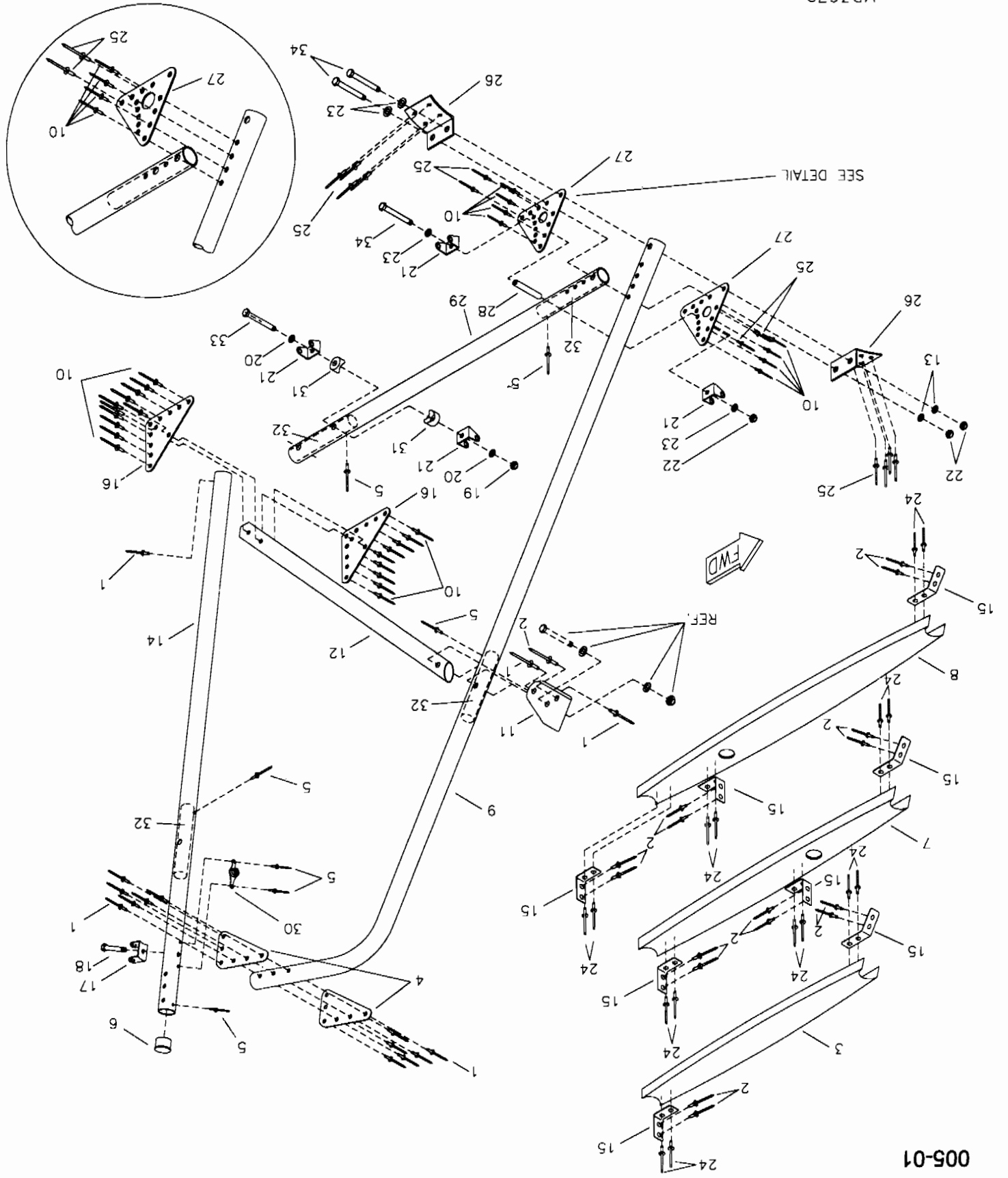
**dBase Page #:**

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# RPM S-12XL AIRAILE VERTICAL STABILIZER FRAME ASSEMBLY

5/2/00

MD3679



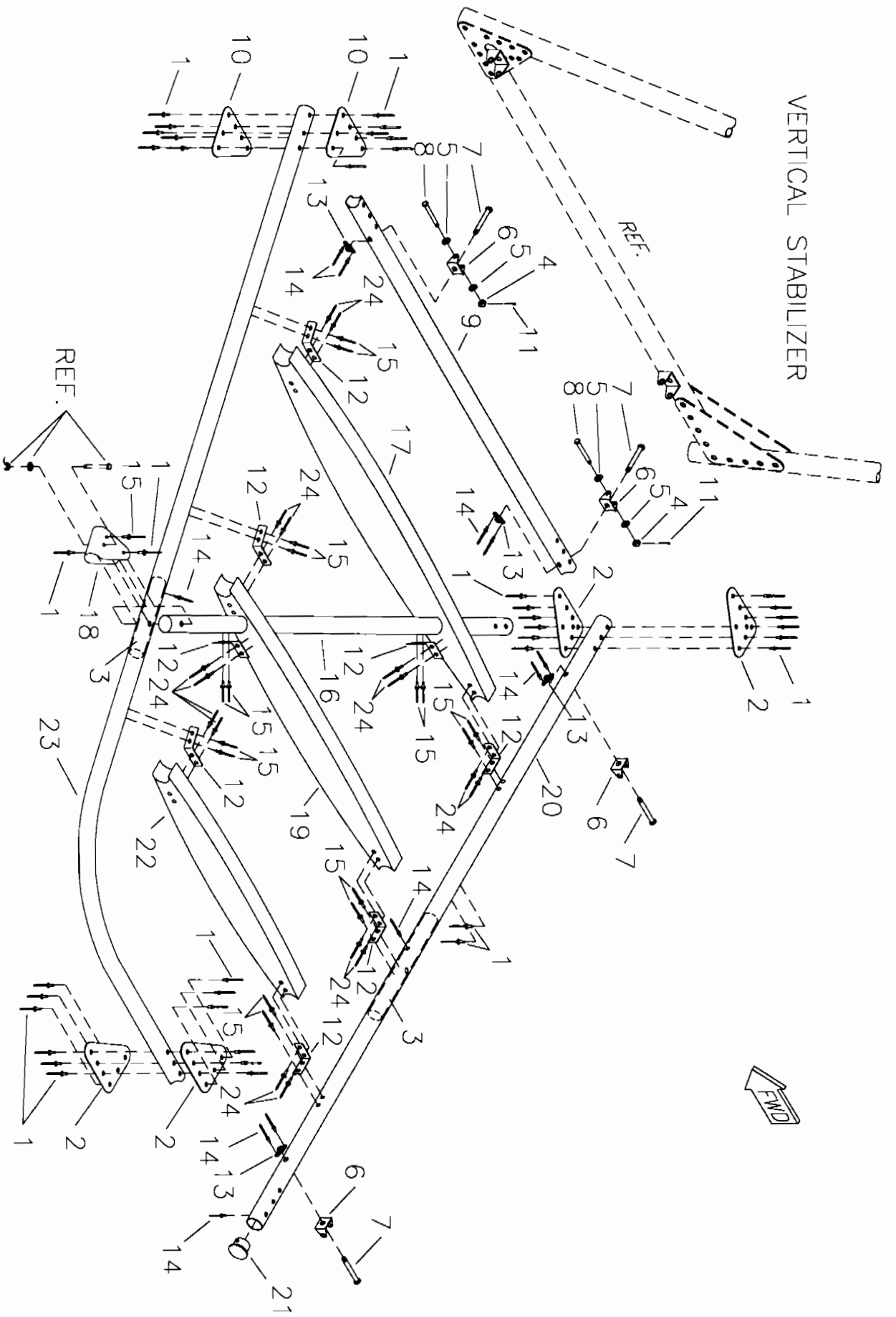
005-01

**S-12XL AIRAILE - VERTICAL STABILIZER FRAME ASSEMBLY**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	18
2.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-42	18
3.	Vertical Stabilizer - Top Rib	KPVS0035	1
4.	Gusset	KPAC0044	2
5.	3/32" Aluminum Pop Rivet	40APR1/8	8
6.	1" End Cap	1 CAP	1
7.	Vertical Stabilizer - Middle Rib	KPVS0040	1
8.	Vertical Stabilizer - Bottom Rib	KPVS0039	1
9.	Vertical Stabilizer - Leading Edge	KPVS0042	1
10.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-44	28
11.	U-Bracket	KPAC0055	1
12.	Aluminum Brace, 1" x .049 x X *	KAAC0001	0
13.	3/16" Thick Washer	AN960-10	2
14.	Vertical Stabilizer - Trailing Edge	KPVS0043	1
15.	Attach Tang	U-ST001	8
16.	Gusset	KPAC0149	2
17.	Hinge Bracket	W-HB	1
18.	3/16" Bolt	AN3-13A	1
19.	1/4" Shear Nut	AN364-428A	1
20.	1/4" Thin Washer	AN960-416L	2
21.	U Bracket	KPAC0036	4
22.	3/16" Shear Nut	AN364-1032A	3
23.	3/16" Thin Washer	AN960-10L	9
24.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-41	16
25.	3/16" Stainless Steel Pop Rivet - Cherry Q	CCPQ-64	12
26.	Horizontal Stabilizer - Boom Bracket	KPHS0008	2
27.	Horizontal Stabilizer - Adjust Bracket	KPHS0010	2
28.	Aluminum Bushing, 1/4" x .028 x 1 3/16" *	KAAC0001	0
29.	Vertical Stabilizer - Spreader Tube	KPVS0038	1
30.	3/16" Nut Plate	K-1000-3	1
31.	1" Saddle	1-NS	2
32.	Aluminum Doubler, 7/8" x .058 x 6" *	KAAC0001	0
33.	1/4" Bolt	AN4-17A	1
34.	3/16" Bolt	AN3-16A	3

\*Builder must fabricate from raw stock.

VERTICAL STABILIZER



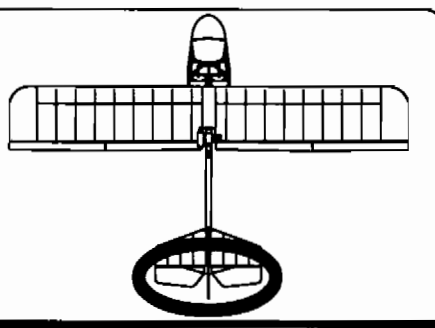
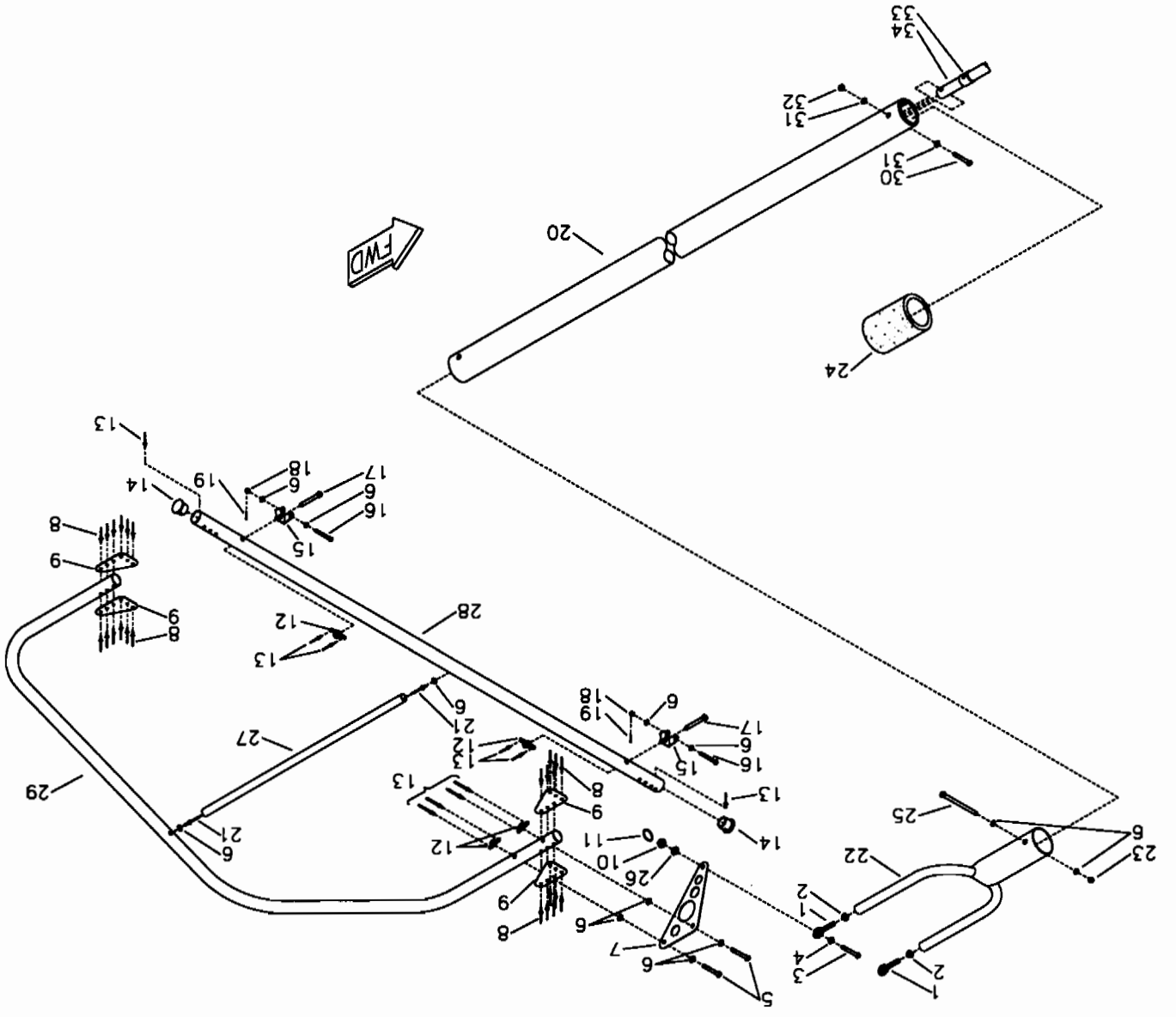
**RR Donner S-12XL AIRRAILE**  
**HORIZONTAL STABILIZER ASSEMBLY**

MD3678

**S-12XL AIRAILE - HORIZONTAL STABILIZER FRAME ASSEMBLY**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	84
2.	Gusset	KPAC0044	8
3.	Aluminum Doubler, 7/8" x .058 x 6" & 10" *	KAAC0001-1	0
4.	3/16" Castle Nut	AN310-3	4
5.	3/16" Thin Washer	AN960-10L	8
6.	Stainless Steel Hinge	W-HB	8
7.	3/16" Bolt	AN3-13A	8
8.	3/16" Bolt	AN3-15	4
9.	Horizontal Stabilizer Spreader Tube, LH	KPHS0031-LH	1
9.	Horizontal Stabilizer Spreader Tube, RH	KPHS0031-RH	1
10.	Gusset	KPAC0045	4
11.	Small Cotter Pin	MS24665-134	4
12.	Attach Tang	U-ST001	16
13.	3/16" Nut Plate	K-1000-3	8
14.	3/32" Aluminum Pop Rivet	40APR1/8	22
15.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-42	36
16.	Aluminum Brace, 1" x .049 x X *	KAAC0001-8	0
17.	Horizontal Stabilizer - Inboard Rib	KPHS0028	2
18.	U Bracket	KPAC0055	2
19.	Horizontal Stabilizer - Middle Rib	KPHS0029	2
20.	Horizontal Stabilizer - Trailing Edge	KPHS0032	2
21.	1" End Cap	1 CAP	2
22.	Vertical Stabilizer - Top Rib	KPVS0035	2
23.	Horizontal Stabilizer - Leading Edge	KPHS0033	2
24.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-41	32

\*Builder must fabricate from raw stock.



SECTION: TAIL GROUP FRAME ASSEMBLY  
 DETAIL: ELEVATOR FRAME ASSEMBLY

**S-12XL AIRAILE - ELEVATOR FRAME ASSEMBLY**

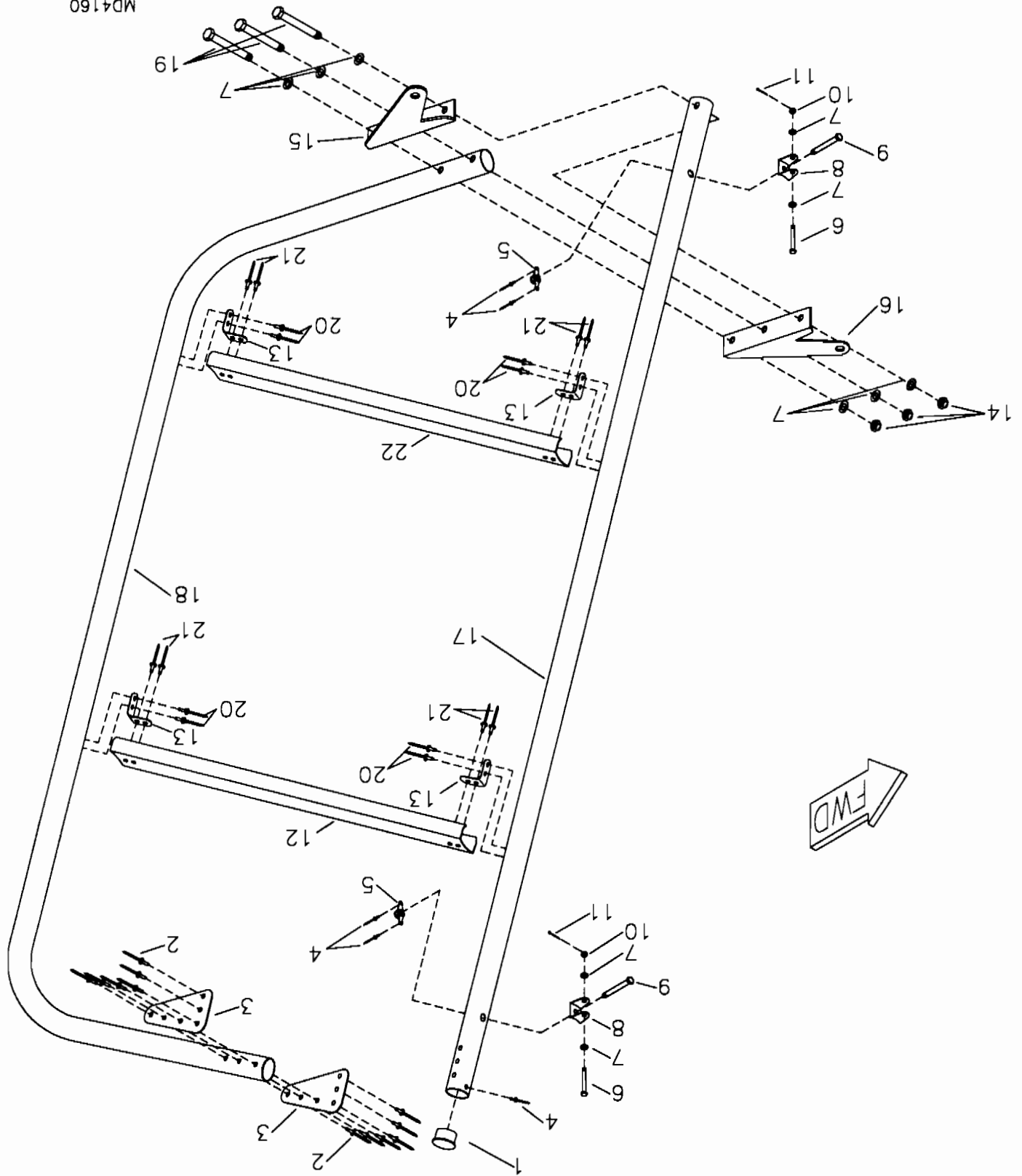
#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Male Rod End, 1/4" X 1/4"	NM-4	2
2.	1/4" Plain Nut	AN345-416	2
3.	1/4" Bolt	AN4-7	2
4.	1/4" Plastic Washer	PW-4	2
5.	3/16" Bolt	AN3-14A	4
6.	3/16" Thick Washer	AN960-10	21
7.	Elevator Horn	TG-EH-A	2
8.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	48
9.	Gusset	KPAC0044	8
10.	1/4" Castle Nut	AN310-4	2
11.	Loc Ring	RL 27 5/16	2
12.	3/16" Nut Plate	K-1000-3	8
13.	3/32" Aluminum Pop Rivet	40APR1/8	20
14.	1" End Cap	1 CAP	4
15.	Stainless Steel Hinge	W-HB	4
16.	3/16" Bolt	AN3-15	4
17.	3/16" Bolt	AN3-13A	4
18.	3/16" Castle Nut	AN310-3	4
19.	Small Cotter Pin	MS24665-134	4
20.	1 1/4" Push Pull Tube	TG 1 1/4PPT-141 5/8	1
21.	3/16" Aluminum Pop Rivet - Cherry Q	AAPQ-62	4
22.	Elevator Yoke	KPEL0015	1
23.	3/16" Shear Nut	AN364-1032A	1
24.	Foam Rubber Insulator	TG-FRI	1
25.	3/16" Bolt	AN3-15A	1
26.	1/4" Thin Washer	AN960-416L	2
27.	Internal Brace, 1/2" x .035 x X *	KAAC0001-5	0
28.	Elevator-Leading Edge	KPEL0012	2
29.	Elevator-Trailing Edge	KPEL0013	2
30.	1/4" Bolt **	AN4-17A	0
31.	1/4" Thick Washer **	AN960-416	0
32.	1/4" Shear Nut **	AN364-428A	0
33.	Forward Elevator Stop Bushing, 3/4" x .058 x 3/4"***	KAAC0001-3	0
34.	5/8" Push Pull Tube **	CS-5/8PPT(12)	0

\*Builder must fabricate from raw stock.

\*\*Referenced from control stick assembly.

# RRMS-12XL AIRAILE RUDDER FRAME ASSEMBLY

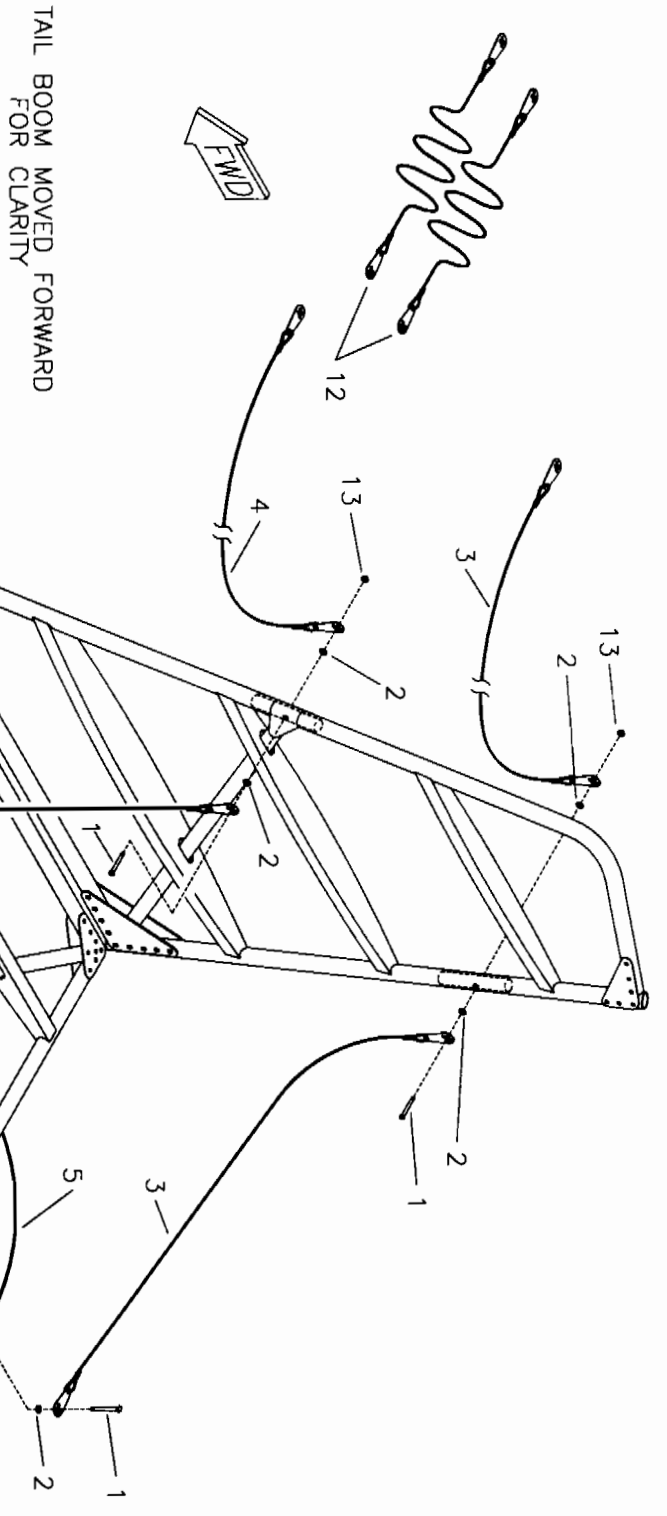
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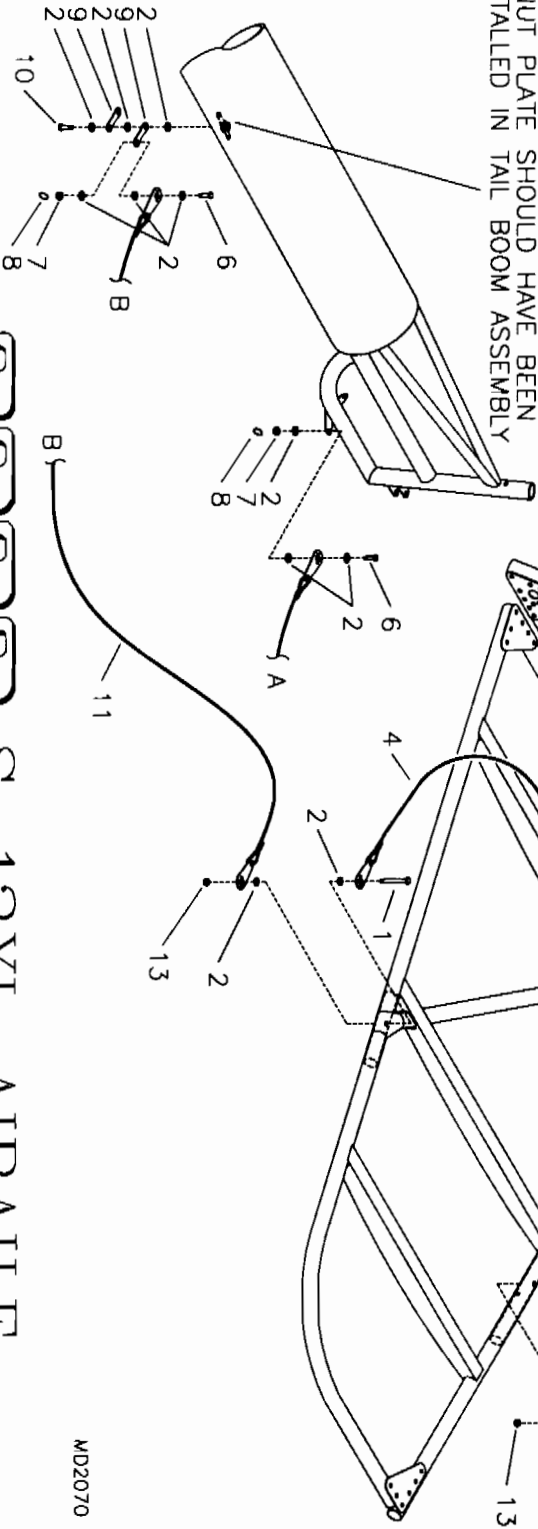
**S-12XL AIRAILE - RUDDER FRAME ASSEMBLY**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	1" End Cap	1 CAP	1
2.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	12
3.	Gusset	KPAC0044	2
4.	3/32" Aluminum Pop Rivet	40APR1/8	5
5.	3/16" Nut Plate	K-1000-3	2
6.	3/16" Bolt	AN3-15	2
7.	3/16" Thick Washer	AN960-10	14
8.	Stainless Steel Hinge	W-HB	2
9.	3/16" Bolt	AN3-13A	2
10.	3/16" Castle Nut	AN310-3	2
11.	Small Cotter Pin	MS24665-134	2
12.	Rudder Rib - Upper	KPRD0061	1
13.	Attach Tang	U-ST001	4
14.	3/16" Shear Nut	AN364-1032A	3
15.	Rudder Horn, LH	TG-RHL	1
16.	Rudder Horn, RH	TG-RHR	1
17.	Rudder-Leading Edge	KPRD0016	1
18.	Rudder-Trailing Edge	KPRD0017	1
19.	3/16" Bolt	AN3-15A	3
20.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-42	8
21.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-41	8
22.	Rudder Rib - Lower	KPRD0062	1



TAIL BOOM MOVED FORWARD FOR CLARITY

NUT PLATE SHOULD HAVE BEEN INSTALLED IN TAIL BOOM ASSEMBLY



# RRRND08 S-12XL AIRRAIL TAIL CABLE ASSEMBLY

MD2070

**Section:**

TAIL GROUP FRAME ASSEMBLY

**Detail:**

TAIL GROUP CABLE ASSEMBLY

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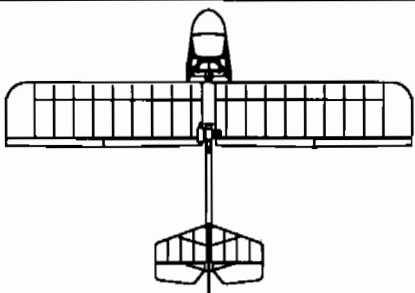
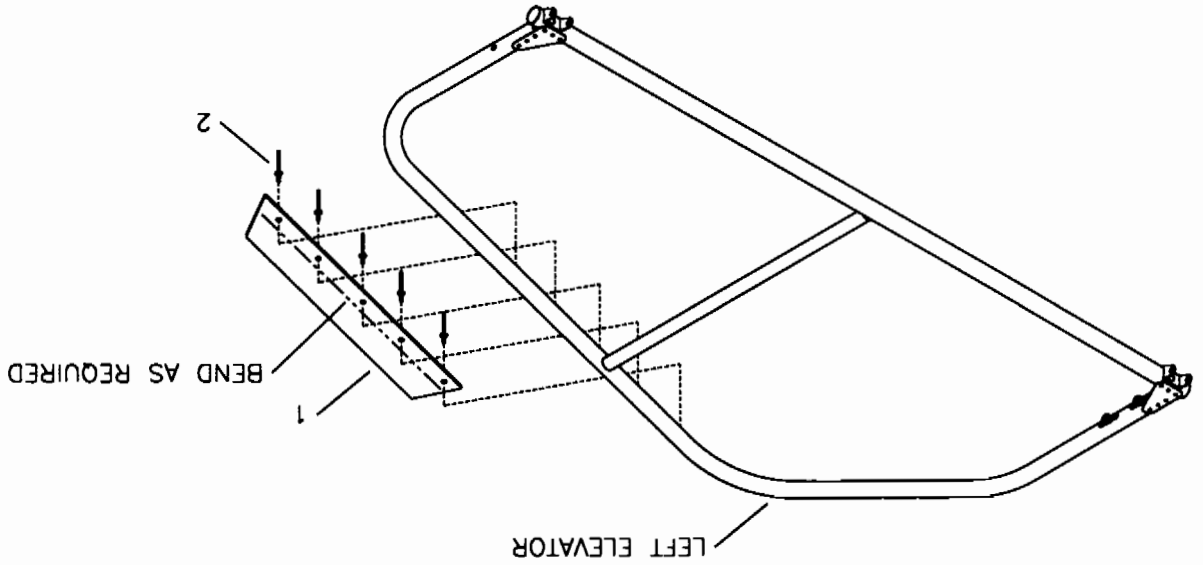
#	Description	Part Number	Quantity
1.	3/16" Bolt	AN3-15A	6
2.	3/16" Thick Washer	AN960-10	27
3.	Top AFT Cable	KAHS0011	2
4.	Top FWD Cable (1, 2, 3)	KAHS0012	2
5.	Lower AFT Cable	KAHS0014	2
6.	3/16" Bolt	AN3-5	4
7.	3/16" Castle Nut	AN310-3	4
8.	Loc Ring	RL 27 1/4	4
9.	Tang	KPAC0038	2
10.	3/16" Bolt	AN3-6A	1
11.	Lower FWD Cable	KAHS0015	2
12.	Top FWD Cable (4, 5, 6) *	KAHS0013	2
13.	3/16" Tensile Nut	AN365-1032A	6

\*These cables are not supplied with the kit.  
Order these only if flight testing necessitates them.

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**S-12 Airaile**

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TRIM TAB MOUNT

TAIL GROUP FRAME ASSEMBLY

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**Section:**

**TAIL GROUP FRAME ASSEMBLY**

**Detail:**

**TRIM TAB MOUNT**

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<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Trim Tab	KPTR0001	1
2.	1/8" Stainless Steel Pop Rivet	CCPQ-42	5

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**S-12 Airaile**

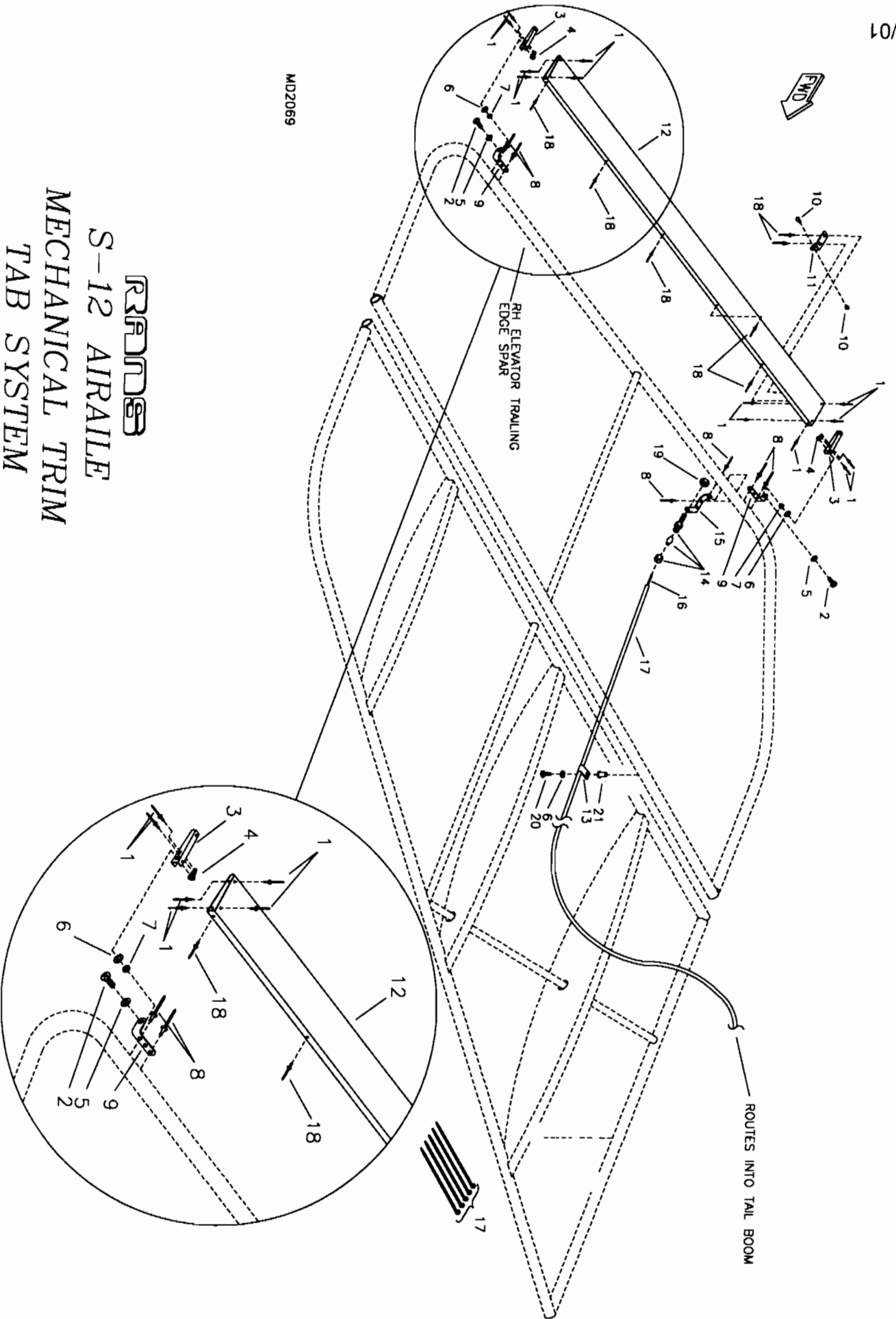
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MD2069

# RRRND8 S-12 AIRRAIL MECHANICAL TRIM TAB SYSTEM



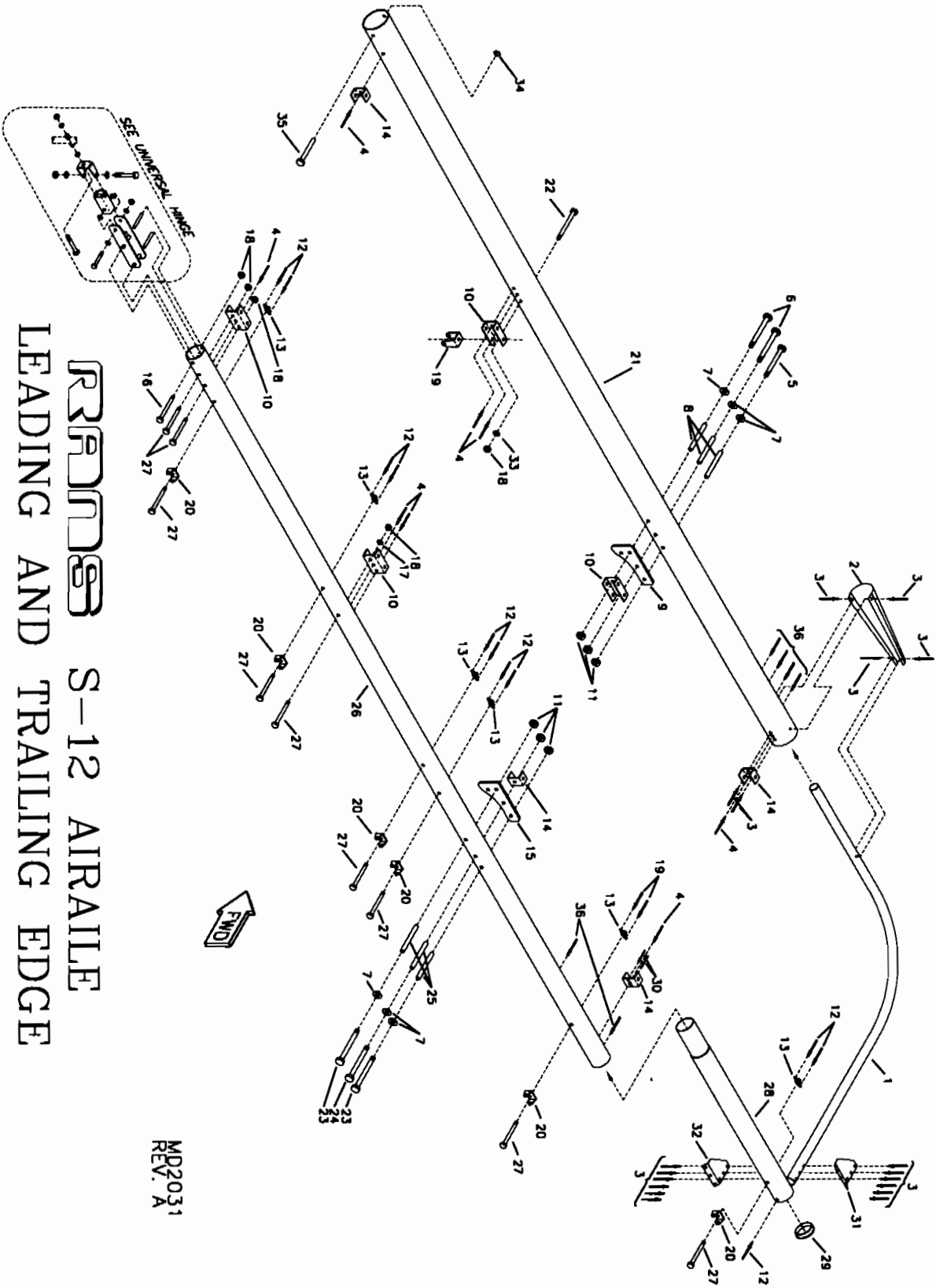
**S-12XL AIRAILE - MECHANICAL TRIM TAB MOUNT**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	3/32" Aluminum Pop Rivet	40APR1/8	13
2.	3/16" Truss Head Bolt	AN526-C1032R12	2
3.	Trim Tab End Rib	KPTR0007	2
4.	3/16" Single Ear Nut Plate	MS21051-L3	2
5.	3/16" Thin Washer	AN960-10L	2
6.	3/16" Thick Washer	AN960-10	3
7.	Aluminum Bushing, 1/4" x .028 x 1/16" **	KAAC0001-6	0
8.	3/16" Aluminum Pop Rivet - Cherry Q	AAPQ-62	6
9.	Trim Tab Hinge	ST-16-BENT	2
10.	Wire Swivel/Screw Stop	2361	1
11.	Trim Tab Horn	KPTR0008	1
12.	Trim Tab	KPTR0009	1
13.	Cushioned Tube Clamp	MS21919WDG3	1
14.	Conduit Adjuster Assembly	KSFS0014	1
15.	Cable Housing Stop Bracket	KPTR0005	1
16.	Trim Push Wire *	TR-PW	0
17.	Trim Cable Housing *	KSAC0008	0
18.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-41	7
19.	1/4" Plain Nut	AN345-416	1
20.	3/16" Bolt	AN3-3A	1
21.	3/16" Rivet Nut	MS27130-A25K	1

\*Reference from trim wheel assembly.

\*\*Builder must fabricate from raw stock.

# RRRND S-12 AIRRAIL LEADING AND TRAILING EDGE SPAR ASSEMBLY



MD2031  
REV. A

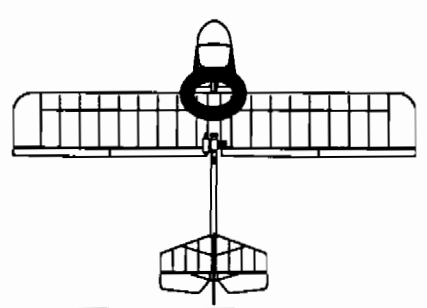
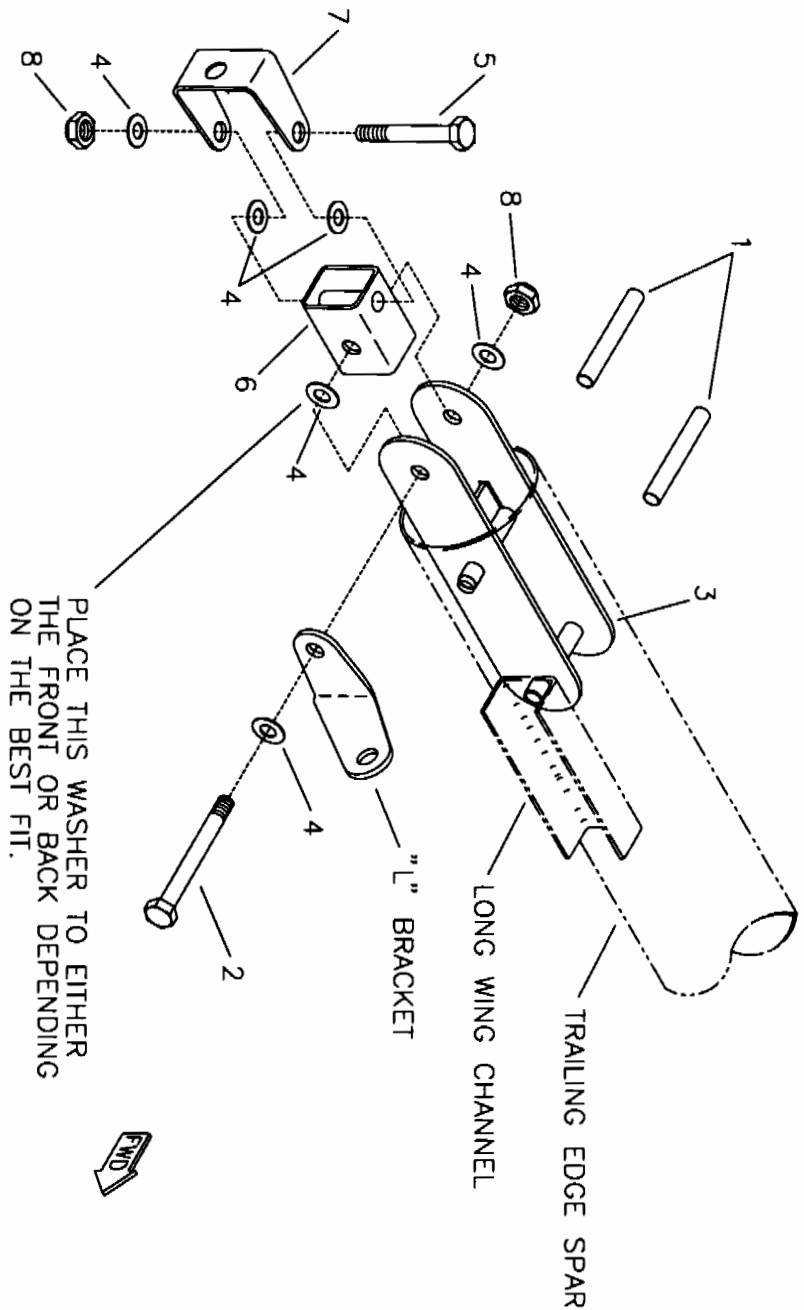


**S-12XL AIRAILE - LEADING & TRAILING EDGE SPAR ASSEMBLY**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Tip Bow	W-TIP(12)	2
2.	Tip Wrap	W-TW-F	2
3.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	36
4.	3/16" Stainless Steel Pop Rivet - Cherry Q	CCPQ-64	16
5.	1/4" Bolt *	AN4-35ALP	2
6.	1/4" Bolt *	AN4-36ALP	4
7.	1/4" Thin Washer	AN960-416L	12
8.	Spacer Bushing, 3/8" x .058 x 3"	SB-3/8X3	6
9.	FWD Strut Plate	W-SAP-LE	2
10.	Long Wing Channel	W-WCL	8
11.	1/4" Shear Nut	AN364-428A	12
12.	3/32" Aluminum Pop Rivet	40APR1/8	22
13.	3/16" Nut Plate	K-1000-3	12
14.	Horizontal Stabilizer Attach Bracket	S2-SAB	8
15.	AFT Strut Plate	W-SAP-TE	2
16.	3/16" Bolt	AN3-22A	2
17.	3/16" Thin Washer	AN960-10L	2
18.	3/16" Tensile Nut	AN365-1032A	10
19.	3/32" Aluminum Pop Rivet	40APR1/4	4
20.	Stainless Steel Hinge	W-HB	12
21.	Leading Edge Spar	W-LES	2
22.	3/16" Bolt *	AN3-34ALP	2
23.	1/4" Bolt *	AN4-25ALP	4
24.	1/4" Bolt *	AN4-26ALP	2
25.	Spacer Bushing, 3/8" x .058 x 2"	SB-3/8X2	6
26.	Trailing Edge Spar	KPWI0139	2
27.	3/16" Bolt	AN3-23A	18
28.	Trailing Edge Spar Tip	KPWI0140	2
29.	2" End Cap	EC-10	2
30.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-45	4
31.	Tip Gusset Top	W-TG-T	2
32.	Tip Gusset Bottom	W-TG-B	2
33.	3/16" Thick Washer	AN960-10	2
34.	Loc Ring **	RL 27 1/4	0
35.	3/8" Clevis Pin **	MS20392-5C97	0
36.	3/16" Stainless Steel Pop Rivet - Cherry Q	CCPQ-62	12

\*These bolts have a special thin head painted.  
They must be used to allow the wing skins to slide on.

\*\*Referenced from Super Structure Assembly.



UNIVERSAL HINGE ASSEMBLY

DETAIL:

WING FRAME ASSEMBLY

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**WING FRAME ASSEMBLY**

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**UNIVERSAL HINGE ASSEMBLY**

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<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Spacer Bushing*	KAAC0001	4
2.	1/4" Bolt	AN4-17A	2
3.	Trailing Edge Spar Root Fittings	W-TES-RF	2
4.	1/4" Thick Washer	AN960-416	12
5.	1/4" Bolt	AN4-16A	2
6.	Hinge Cube	W-H-CUBE	2
7.	Stainless Steel U Bracket**	SU-118	0
8.	1/4" Shear Nut	AN364-428A	4

\*Builder fabricates from raw stock.

\*\*Referenced from engine mount or 912 super structure.

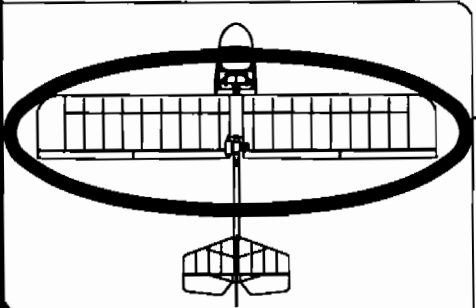
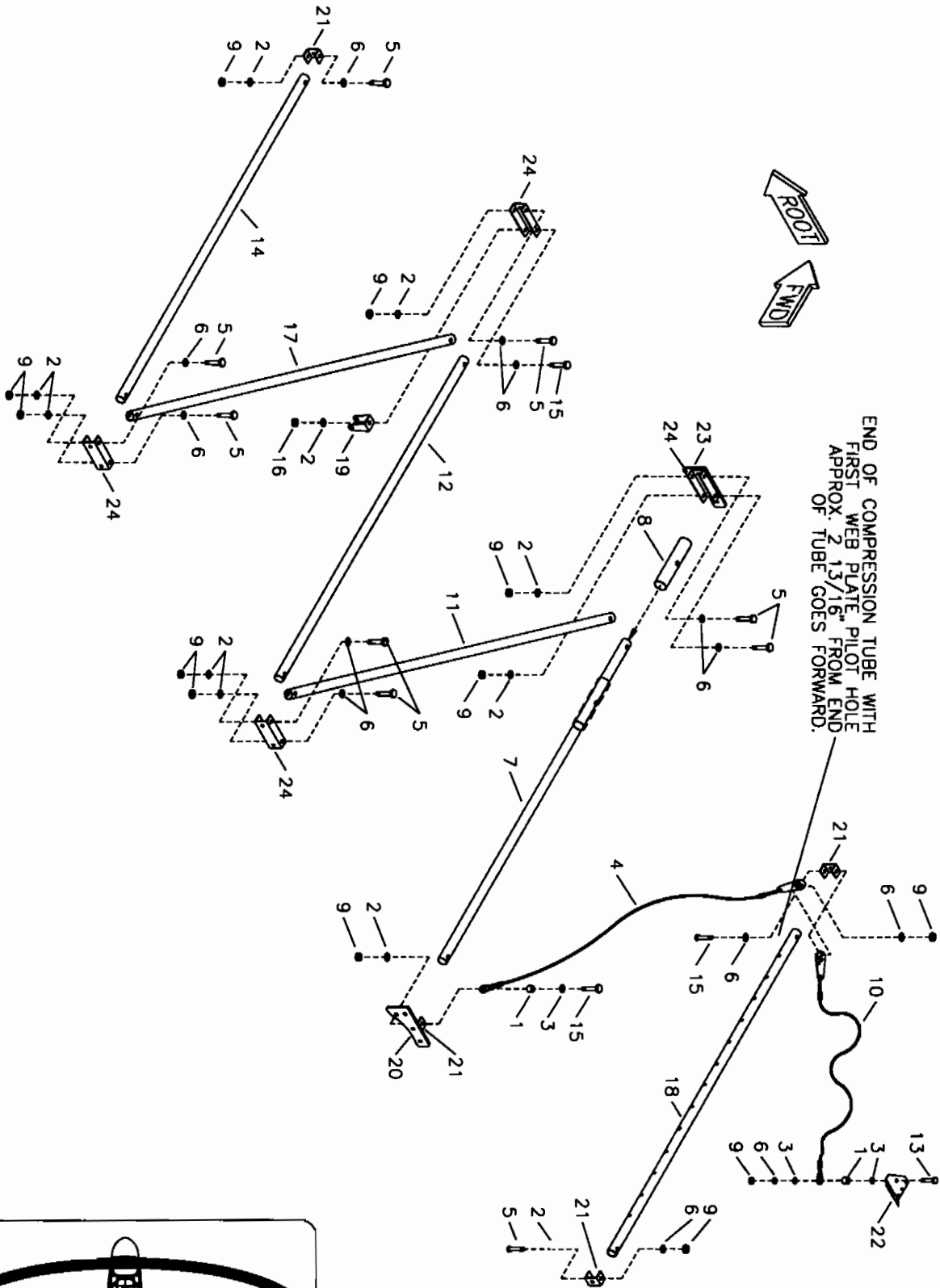
**RANS, Inc.**  
**S-12 Airaile**

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# RRMS S-12 AIRRALE

Made in the USA



## WING FRAME ASSEMBLY INTERNAL STRUCTURE

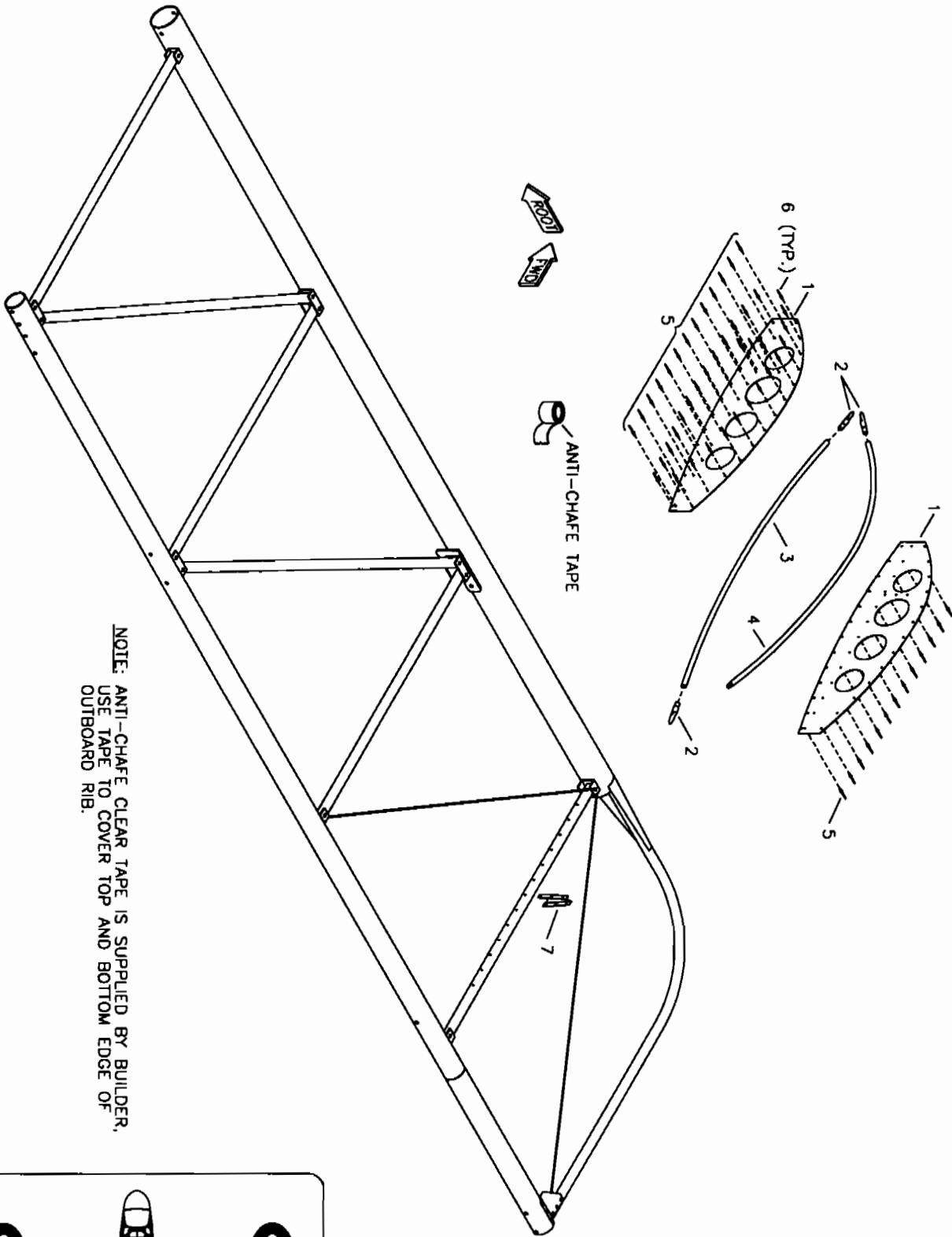
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DETAIL:

**S-12XL AIRAILE - INTERNAL STRUCTURE**

<b># DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1. Spacer Bushing, 1/4" .028 x 3/16" *	KAAC0001-6	0
2. 3/16" Thick Washer	AN960-10	22
3. 3/16" Plastic Washer	PW-3	6
4. Wing Cable, 51"	W-WC-51	2
5. 3/16" Bolt	AN3-15A	18
6. 3/16" Thin Washer	AN960-10L	26
7. Middle Compression Tube	W-MC-151	2
8. Compression Tube Doubler	CS-CTD	2
9. 3/16" Shear Nut	AN364-1032A	24
10. Wing Cable, 61	W-WC-59	2
11. Drag Brace	W-DB-151	2
12. Flap Compression Tube	W-FCT-151	2
13. 3/16" Bolt	AN3-4A	2
14. Inner Compression Tube	W-IO-151	2
15. 3/16" Bolt	AN3-16A	6
16. 3/16" Tensile Nut	AN365-1032A	2
17. Drag Brace Root	W-DBR-151	2
18. Outer Compression Tube	KPW10117	2
19. Jury Strut Bracket	JS-BK	2
20. AFT Strut Plate **	W-SAP-TE	0
21. Attach Bracket **	S2-SAB	0
22. Tip Gusset Top **	W-TG-T	0
23. FWD Strut Plate **	W-SAP-LE	0
24. Long Wing Channel **	W-WCL	0

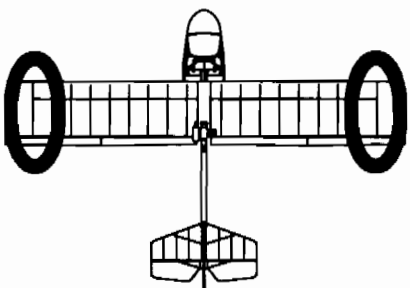
\*Builder must fabricate from raw stock.

\*\*Referenced from leading and trailing edge spar assembly.



ANTI-CHAFE TAPE

NOTE: ANTI-CHAFE CLEAR TAPE IS SUPPLIED BY BUILDER. USE TAPE TO COVER TOP AND BOTTOM EDGE OF OUTBOARD RIB.



OUTBOARD RIB ASSEMBLY

DETAIL

WING FRAME ASSEMBLY

SECTION

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**WING FRAME ASSEMBLY**

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**OUTBOARD RIB ASSEMBLY**

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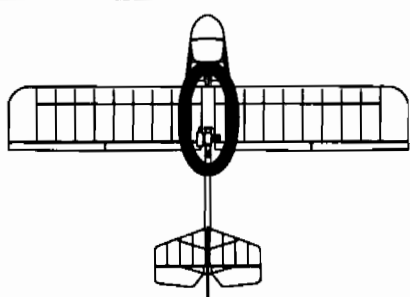
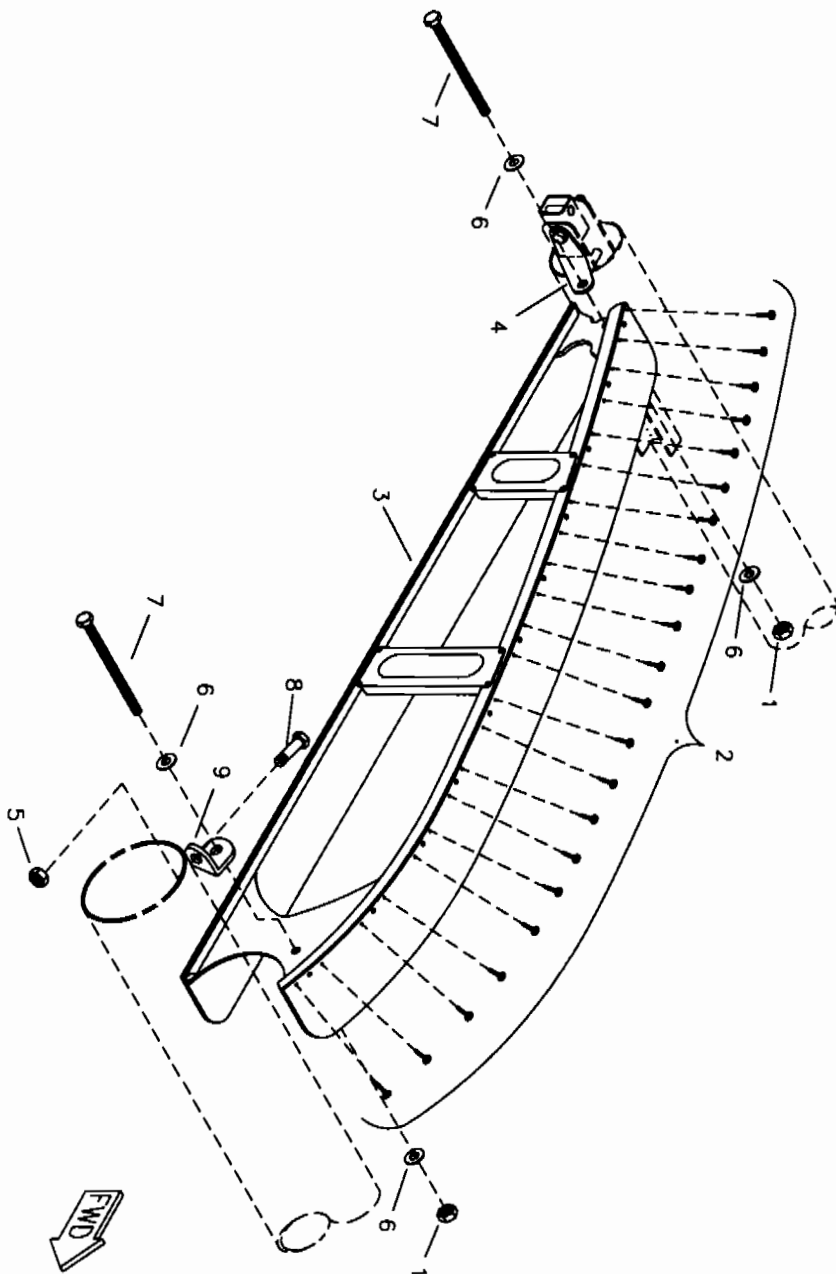
7/27/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Outboard Rib-Web Plate, LH	KPWI0096-LH	2
1.	Outboard Rib-Web Plate, RH	KPWI0096-RH	2
2.	Rip Tip	RIB-TIP	6
3.	Outboard Rib-Bottom Tube	KPWI0145	2
4.	Outboard Rib-Top Tube	KPWI0095	2
5.	1/8" Aluminum Pop Rivet	AAPQ-42	36
6.	1/8" Aluminum Pop Rivet	AAPQ-41	80
7.	Outboard Rib-Web Cap	KPWI0118	2

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ROOT RIB TENSIONING SYSTEM

DETAIL:

WING FRAME ASSEMBLY

SECTION:



**Section:**

**WING FRAME ASSEMBLY**

**Detail:**

**ROOT RIB TENSIONING SYSTEM**

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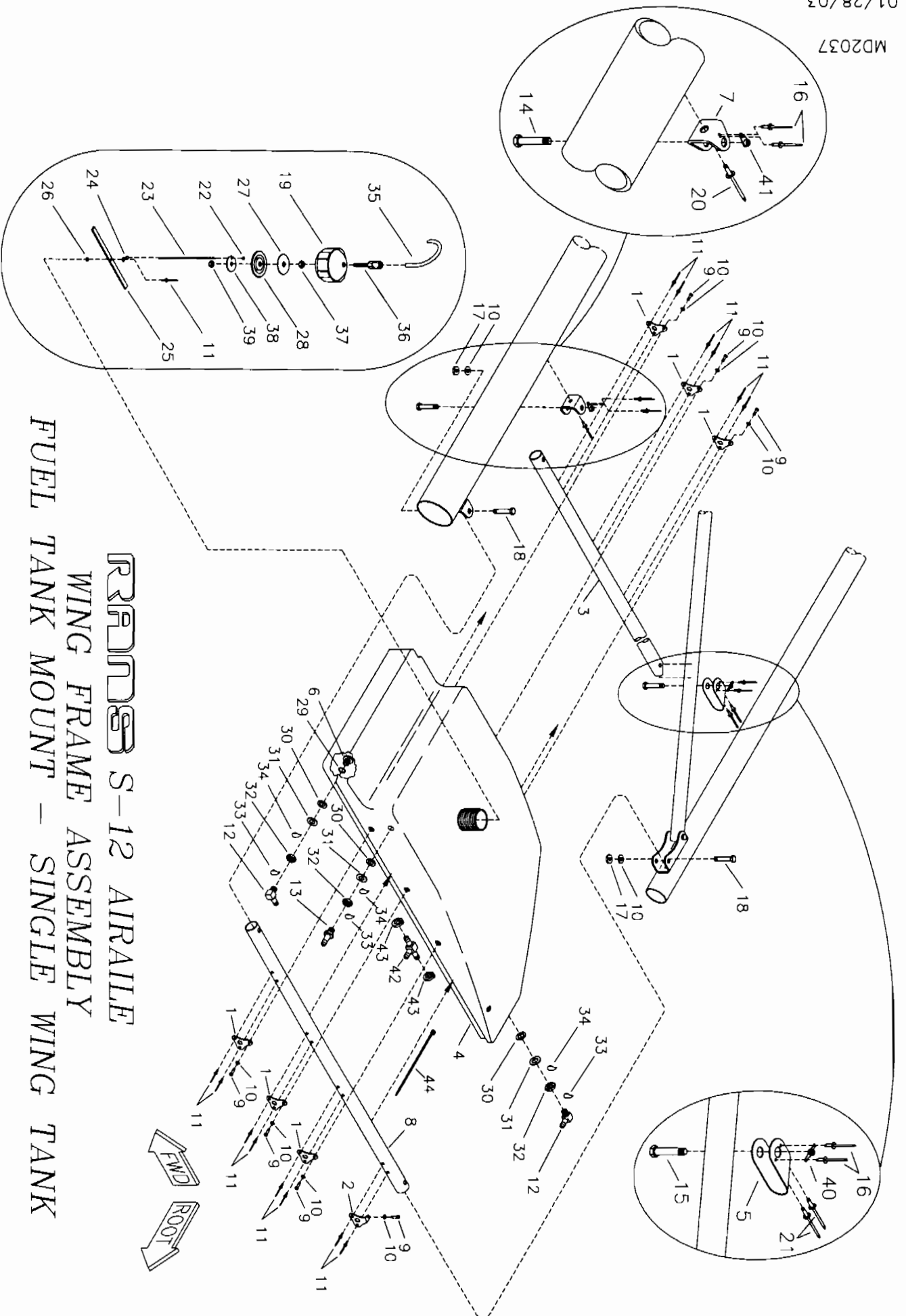
<b># Description</b>	<b>Part Number</b>	<b>Quantity</b>
1. 1/4" Tensile Nut	AN365-428A	4
2. #8 Pan Head Screw	8X1/2 PHS	102
3. Root Rib, LH	KAWI0011-L	1
3. Root Rib, RH	KAWI0011-R	1
4. "L" Bracket	KPWI0169-L	1
4. "L" Bracket	KPWI0169-R	1
5. 3/16" Shear Nut	AN364-1032A	2
6. 1/4" Thin Washer	AN960-416L	8
7. 1/4" Bolt *	KSHW0049	4
8. 3/16" Bolt	AN3-5A	2
9. "L" Bracket	KPWI0170	2

\*This bolt is nearly threaded it's whole length.

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**S-12 Airaile**

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**S-12 AIRRAIL**  
**WING FRAME ASSEMBLY**  
**FUEL TANK MOUNT - SINGLE WING TANK**

**S-12XL AIRAILE - FUEL TANK MOUNT****SINGLE WING TANK**

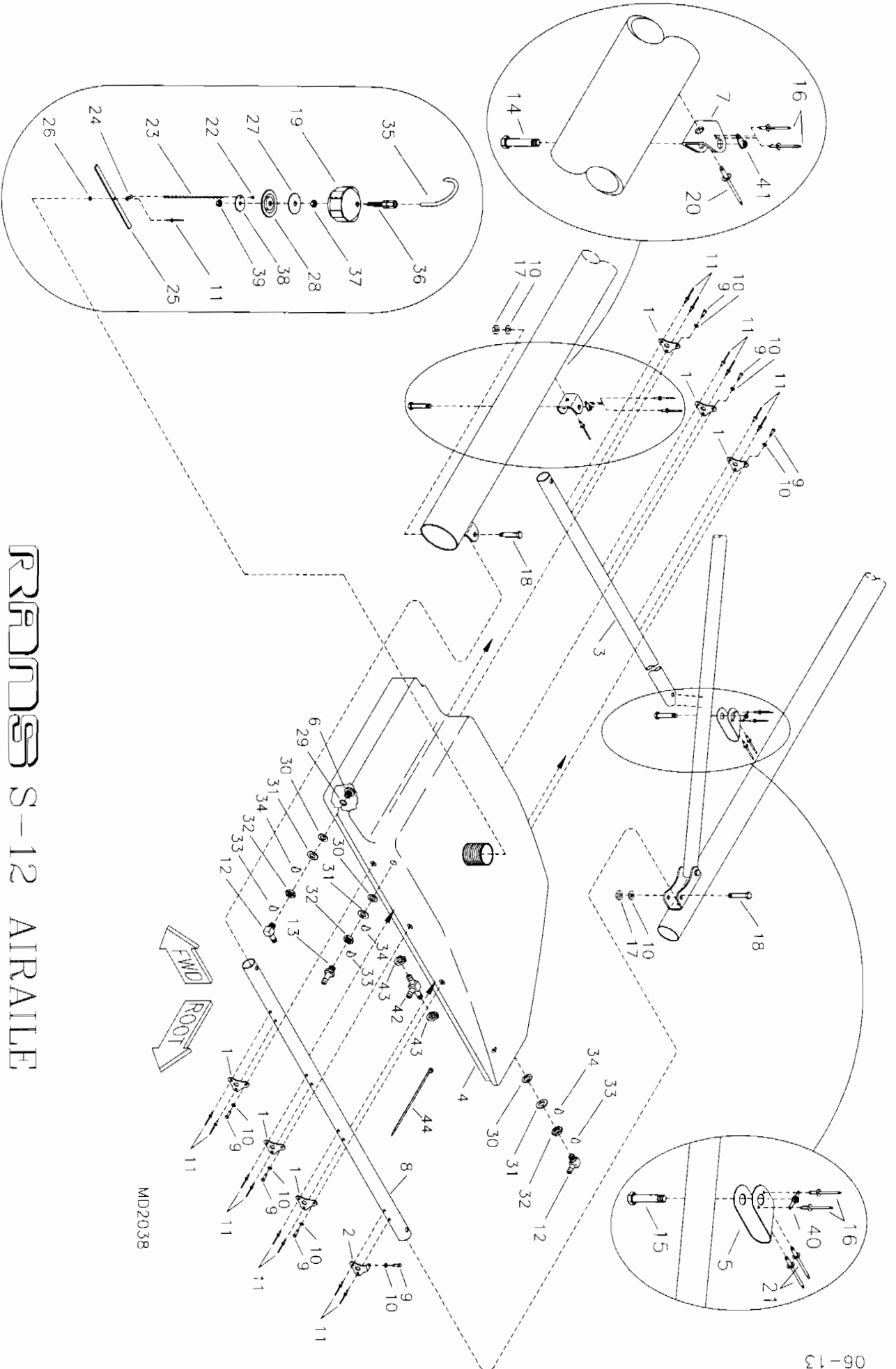
#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Wing Tank - Mount Bracket	KPFS0007	6
2.	Wing Tank - AFT Mount Bracket, RH	KPFS0011-R	1
3.	Outer Tank Support	KPFS0043	1
4.	Fuel Tank, RH	KPFS0005-R	1
5.	U Bracket	KPAC0055	1
6.	Tank Withdrawal Fitting	KPFS0017	3
7.	Attach Bracket	S2-SAB	1
8.	Inner Compression Tube *	W-IO-151	0
9.	3/16" Bolt	AN3-3A	7
10.	3/16" Thick Washer	AN960-10	9
11.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-44	15
12.	90 Withdrawal Fitting	8342	2
13.	Straight Withdrawal Fitting	8330	1
14.	3/16" Bolt	AN3-15A	1
15.	3/16" Bolt	AN3-14A	1
16.	3/32" Aluminum Pop Rivet	40APR1/8	4
17.	3/16" Shear Nut *	AN364-1032A	0
18.	3/16" Bolt *	AN3-15A	0
19.	Fuel Cap	KSFS0007	1
20.	3/16" Stainless Steel Pop Rivet - Cherry Q	CCPQ-64	1
21.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	2
22.	Bead Chain - Retainer Sleeve	KSHW0014	1
23.	#3 Bead Chain	KSHW0012	7 in
24.	Bead Chain - End Coupling	KSHW0013	1
25.	Plastic Retainer	KPFS0012	1
26.	1/8" Small Brass Washer	AN960-B4	1
27.	Plastic Baffle ***	KSFS0012	0
28.	Rubber Gasket ***	KSFS0013	0
29.	O-Ring	KSFS0009	3
30.	Rubber Washer	KSFS0010	3
31.	1/2" Thick Washer	AN960-816	3
32.	Nut-Flared Tube Bulkhead	AN924-5D	3
33.	Thread Sealant **	KSAC0014	0
34.	Loctite Blue	LOC-TITE	0
35.	Vent Tube	KPFS0020	1
36.	Conduit Adjuster Assembly	KSFS0014	1
37.	1/4" Plain Nut	AN345-416	1
38.	1/4" Large Washer	AN970-4	1
39.	1/4" Shear Nut	AN364-428C	1
40.	3/16" Nut Plate	K-1000-3	1
41.	3/16" Single Ear Nut Plate	MS21051-L3	1
42.	1/4" Tee	8338	1
43.	Line Clamp, 5/16" ID	FS-LCL 5/16ID	2
44.	Long Nylon Tie	LG-N-TIE	1

\*Referenced from wing tank assembly.

\*\*Thread Sealant (builder provides) is recommended but Loctite Blue can also be used.

\*\*\*Supplied with Fuel Cap.

12/24/2004



**F-16S-12 AIRCRAFT**  
**FUEL TANK MOUNT - DUAL WING TANK**

MD2038

**S-12XL AIRAILE - FUEL TANK MOUNT****DUAL WING TANKS**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Wing Tank - Mount Bracket	KPFS0007	12
2.	Wing Tank - AFT Mount Bracket, LH	KPFS0011-L	1
2.	Wing Tank - AFT Mount Bracket, RH	KPFS0011-R	1
3.	Outer Tank Support	KPFS0043	2
4.	Fuel Tank, LH	KPFS0005-L	1
4.	Fuel Tank, RH	KPFS0005-R	1
5.	U Bracket	KPAC0055	2
6.	Tank Withdrawal Fitting	KPFS0017	6
7.	Attach Bracket	S2-SAB	2
8.	Inner Compression Tube *	W-IO-151	0
9.	3/16" Bolt	AN3-3A	14
10.	3/16" Thick Washer	AN960-10	18
11.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-44	30
12.	90 Withdrawal Fitting	8342	4
13.	Straight Withdrawal Fitting	8330	2
14.	3/16" Bolt	AN3-15A	2
15.	3/16" Bolt	AN3-14A	2
16.	3/32" Aluminum Pop Rivet	40APR1/8	8
17.	3/16" Shear Nut *	AN364-1032A	0
18.	3/16" Bolt *	AN3-15A	0
19.	Fuel Cap	KSFS0007	2
20.	3/16" Stainless Steel Pop Rivet - Cherry Q	CCPQ-64	2
21.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	4
22.	Bead Chain - Retainer Sleeve	KSHW0014	2
23.	#3 Bead Chain	KSHW0012	14 in
24.	Bead Chain - End Coupling	KSHW0013	2
25.	Plastic Retainer	KPFS0012	2
26.	1/8" Small Brass Washer	AN960-B4	2
27.	Plastic Baffle ***	KSFS0012	0
28.	Rubber Gasket ***	KSFS0013	0
29.	O-Ring	KSFS0009	6
30.	Rubber Washer	KSFS0010	6
31.	1/2" Thick Washer	AN960-816	6
32.	Nut-Flared Tube Bulkhead	AN924-5D	6
33.	Thread Sealant **	KSAC0014	0
34.	Loctite Blue	LOC-TITE	0
35.	Vent Tube	KPFS0020	2
36.	Conduit Adjuster Assembly	KSFS0014	2
37.	1/4" Plain Nut	AN345-416	2
38.	1/4" Large Washer	AN970-4	2
39.	1/4" Shear Nut	AN364-428C	2
40.	3/16" Nut Plate	K-1000-3	2
41.	3/16" Single Ear Nut Plate	MS21051-L3	2
42.	1/4" Tee	8338	2
43.	Line Clamp, 5/16" ID	FS-LCL 5/16ID	4
44.	Long Nylon Tie	LG-N-TIE	2

\*Referenced from wing tank assembly.

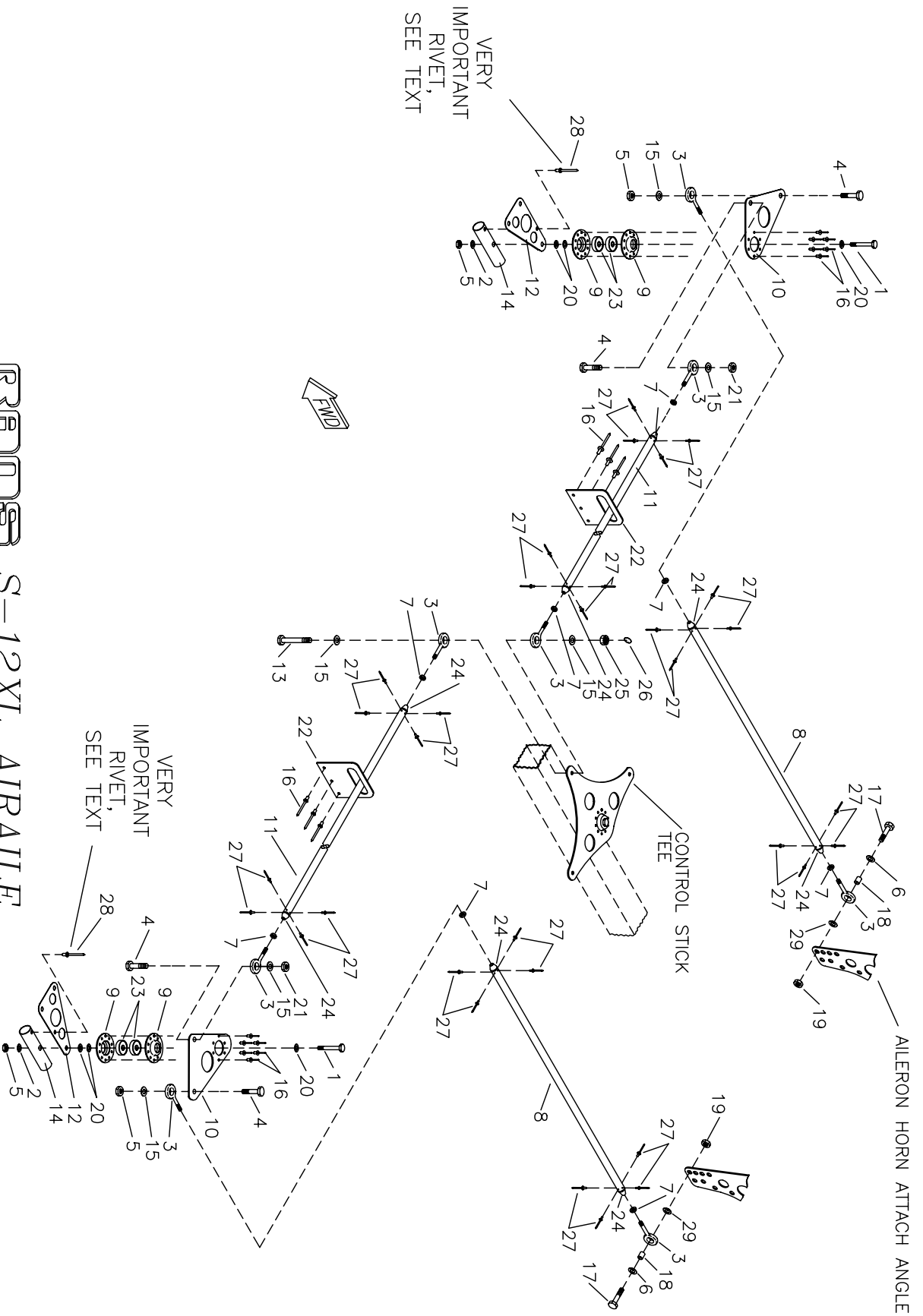
\*\*Thread Sealant (builder provides) is recommended but Loctite Blue can also be used.

\*\*\*Supplied with Fuel Cap.

12/24/2004

# RRRMM S-12XL AIRRAIL AILERON PUSH PULL SYSTEM

MD2034  
REV. A



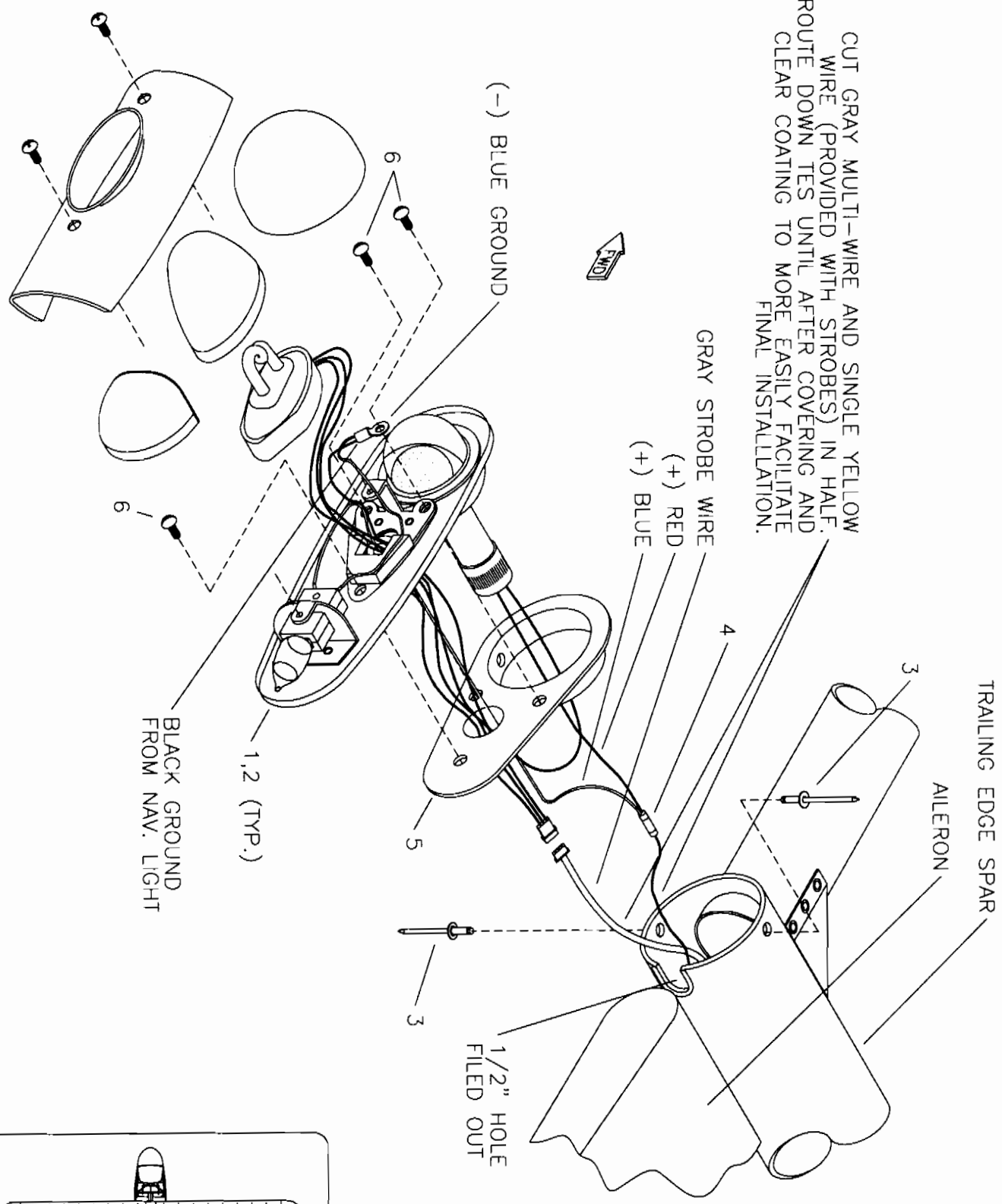
**S-12XL AIRAILE - AILERON PUSH PULL SYSTEM**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	1/4" Bolt	AN4-22A	2
2.	1/4" Thin Washer	AN960-416L	2
3.	Male Rod End, 1/4" X 1/4"	NM-4	8
4.	1/4" Bolt	AN4-7A	4
5.	1/4" Shear Nut	AN364-428A	4
6.	#10 SS Washer	BSHW0022	2
7.	1/4" Plain Nut	AN345-416	8
8.	Aileron Push Pull Tube, 42 1/8"	CS-42PPT	2
9.	Bearing Flange	BR-FLNG	4
10.	Bell Crank	AIL-2/1BC	2
11.	Aileron Push Pull Tube, 109"	CS-109PPT	2
12.	Bell Crank Gusset, RH	CS-BELGU-RH	1
12.	Bell Crank Gusset, LH	CS-BELGU-LH	1
13.	1/4" Bolt	AN4-13	1
14.	Compression Tube Doubler *	CS-CTD	0
15.	1/4" x 5/8" Zinc Plated Washer	KSHW0075	6
16.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-44	18
17.	3/16" Bolt	AN3-7A	2
18.	Spacer Bushing, 1/4" x 3/8" **	KAAC0001-6	2
19.	3/16" Shear Acorn Nut	22NKM02	2
20.	1/4" Thick Washer	AN960-416	6
21.	1/4" Shear Nut	AN364-428A	2
22.	Push Pull Tube Guide	KPCS0150	2
23.	Bearing	SR4APP	4
24.	Push Pull Tube End Fitting	CS-3/4PTEF	8
25.	1/4" Castle Nut	AN310-4	1
26.	Loc Ring	RL 27 1/4	1
27.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	32
28.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-44	2
29.	3/16" Thick Washer	AN960-10	2

\*Referenced from internal structure.

\*\*Builder must fabricate from raw stock.

CUT GRAY MULTI-WIRE AND SINGLE YELLOW WIRE (PROVIDED WITH STROBES) IN HALF. ROUTE DOWN TES UNTIL AFTER COVERING AND CLEAR COATING TO MORE EASILY FACILITATE FINAL INSTALLATION.

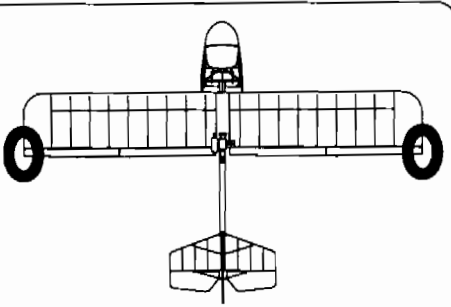


NOTES: LEFT ASSEMBLY SHOWN

WING FRAME ASSEMBLY

DETAIL:

STROBE MOUNT

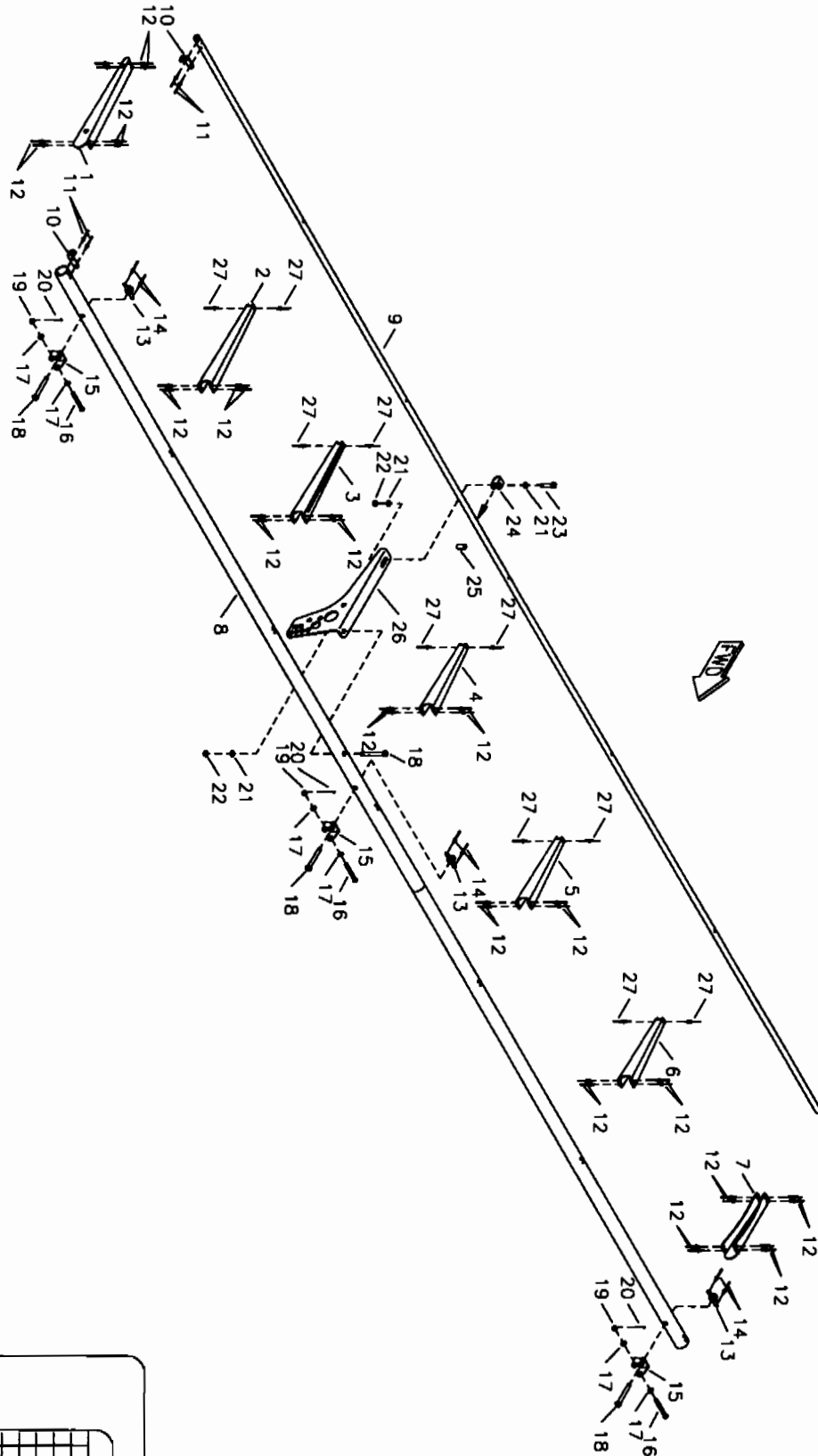




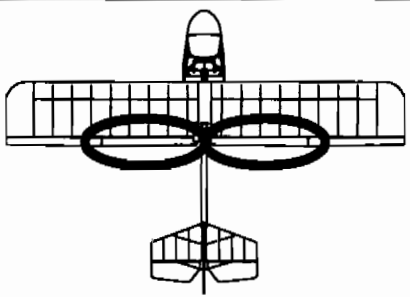
**S-12XL AIRAILE - STROBE MOUNT**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Whelen Left Strobe Light	A600-PR	1
2.	Whelen Right Strobe Light	A600-PG	1
3.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-42	4
4.	14 Gauge Splice, Butt Connector *	IP-7132	0
5.	Navigation Light Tip Mount	NAV-TIP-MT	2
6.	8/32" Truss Head Bolt	AN515-8R7	6

\*Referenced from strobe system schematic.



END



FLAP FRAME ASSEMBLY

WING FRAME ASSEMBLY

DETAIL

SECTION

RIGHT SIDE OF ASSEMBLY SHOWN

NOTES:

**S-12XL AIRAILE - FLAP FRAME ASSEMBLY**

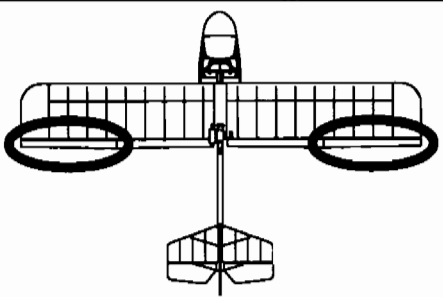
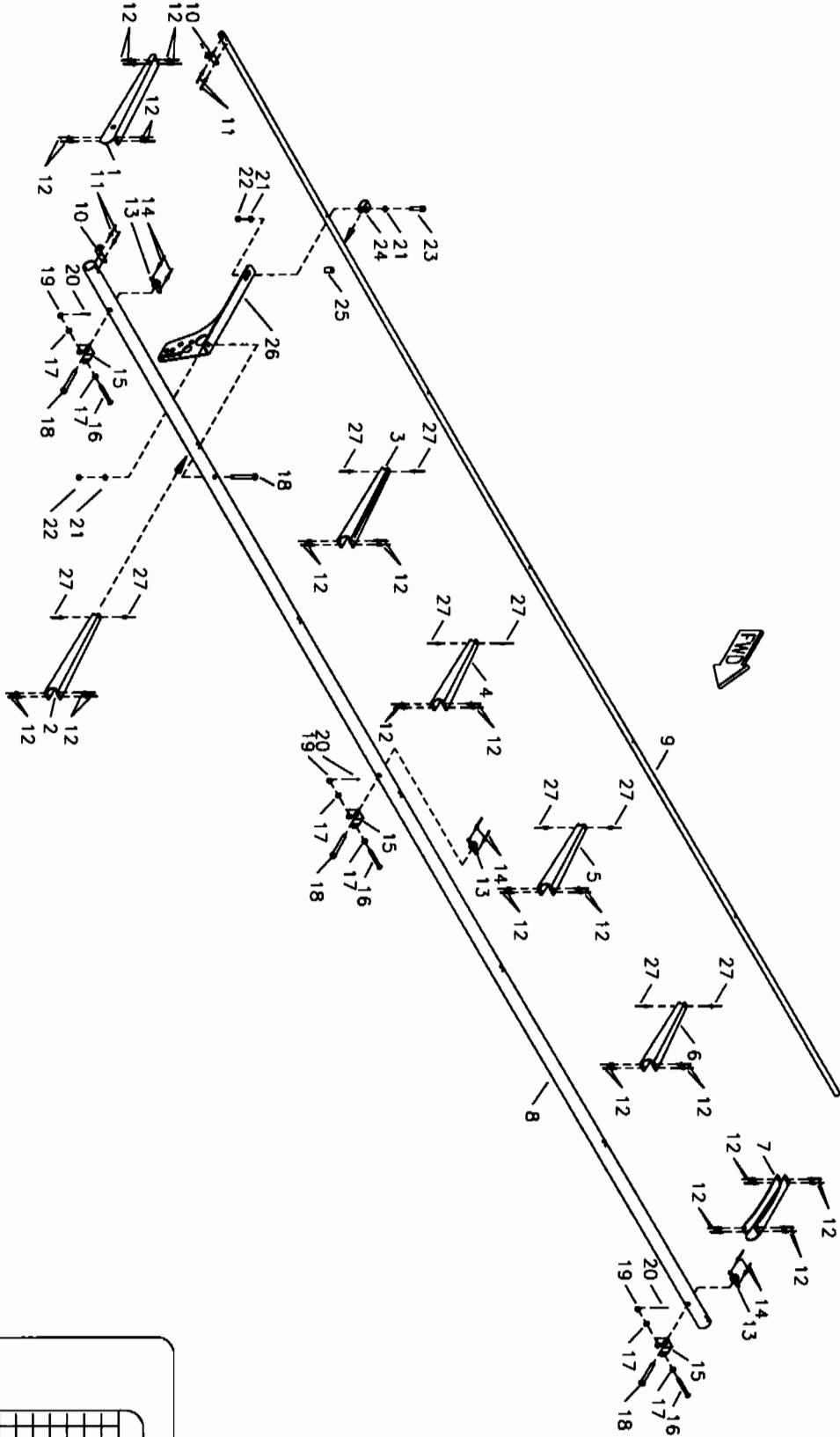
<b># DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1. Flap/Aileron Rib #1	KPAL0006	2
2. Flap/Aileron Rib #2	KPAL0007	2
3. Flap/Aileron Rib #3	KPAL0008	2
4. Flap/Aileron Rib #4	KPAL0009	2
5. Flap/Aileron Rib #5	KPAL0010	2
6. Flap/Aileron Rib #6	KPAL0011	2
7. Flap/Aileron Rib #7	KPAL0012	2
8. Flap Spar Assembly	KPFL0030	2
9. Flap/Aileron Trailing Edge Spar	KPAL0014	2
10. Trim Tab Hinge	ST-16-BENT	4
11. 3/16" Aluminum Pop Rivet - Cherry Q	AAPQ-62	8
12. 1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-42	72
13. 3/16" Nut Plate	K-1000-3	6
14. 3/32" Aluminum Pop Rivet	40APR1/8	12
15. Hinge Bracket	W-HB	6
16. 3/16" Bolt	AN3-15	6
17. 3/16" Thick Washer	AN960-10	12
18. 3/16" Bolt	AN3-14A	8
19. 3/16" Castle Nut	AN310-3	6
20. Small Cotter Pin	MS24665-134	6
21. 3/16" Thin Washer	AN960-10L	6
22. 3/16" Shear Acorn Nut	22NKM02	4
23. 3/16" Bolt	AN3-10A	2
24. Aileron Clip	W-A-CLIP	2
25. Spacer Bushing, 1/4" x 0.28 x 1/2" *	KAAC0001-6	2
26. Flap/Aileron Horn Attach Angle, LH	KPAL0015-L	2
27. 1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-41	20

\*Builder must fabricate from raw stock.

# S-12 AIRRALE

## RPM 8

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### WING FRAME ASSEMBLY

### AILERON FRAME ASSEMBLY

SECTION:

DETAIL:

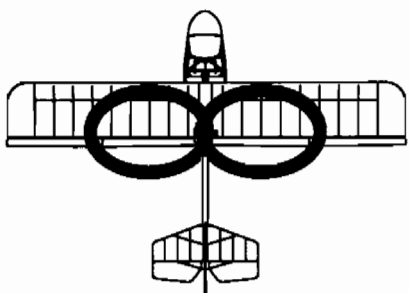
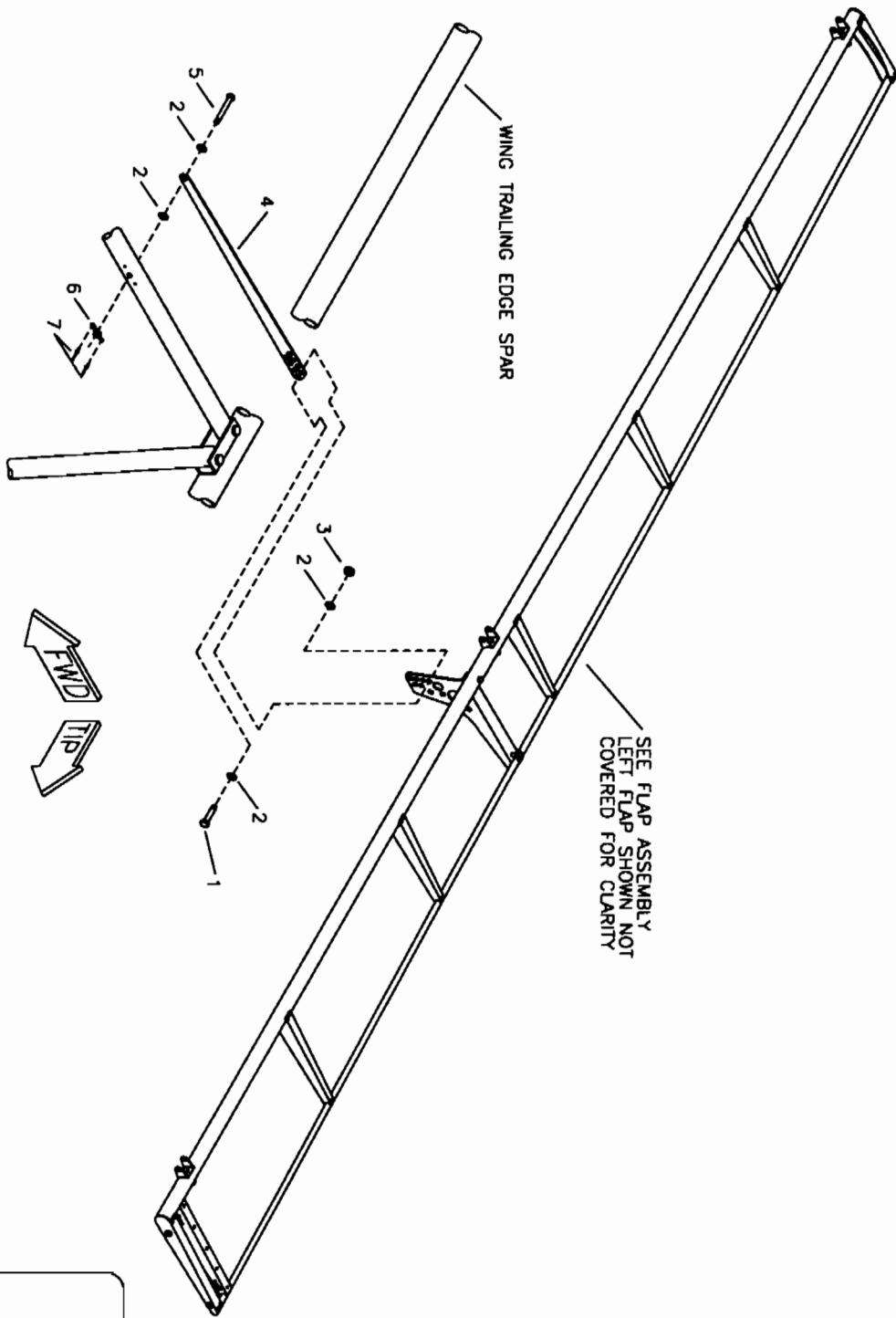
LEFT SIDE OF ASSEMBLY SHOWN

NOTES:

**S-12XL AIRAILE - AILERON FRAME ASSEMBLY**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Flap/Aileron Rib #1	KPAL0006	2
2.	Flap/Aileron Rib #2	KPAL0007	2
3.	Flap/Aileron Rib #3	KPAL0008	2
4.	Flap/Aileron Rib #4	KPAL0009	2
5.	Flap/Aileron Rib #5	KPAL0010	2
6.	Flap/Aileron Rib #6	KPAL0011	2
7.	Flap/Aileron Rib #7	KPAL0012	2
8.	Aileron Spar	KPAL0005	2
9.	Flap/Aileron Trailing Edge Spar	KPAL0014	2
10.	Trim Tab Hinge	ST-16-BENT	4
11.	3/16" Aluminum Pop Rivet - Cherry Q	AAPQ-62	8
12.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-42	72
13.	3/16" Nut Plate	K-1000-3	6
14.	3/32" Aluminum Pop Rivet	40APR1/8	12
15.	Hinge Bracket	W-HB	6
16.	3/16" Bolt	AN3-15	6
17.	3/16" Thick Washer	AN960-10	12
18.	3/16" Bolt	AN3-14A	8
19.	3/16" Castle Nut	AN310-3	6
20.	Small Cotter Pin	MS24665-134	6
21.	3/16" Thin Washer	AN960-10L	6
22.	3/16" Shear Acorn Nut	22NKM02	4
23.	3/16" Bolt	AN3-10A	2
24.	Aileron Clip	W-A-CLIP	2
25.	Spacer Bushing, 1/4" x 0.28 x 1/2" *	KAAC0001-6	2
26.	Flap/Aileron Horn Attach Angle, RH	KPAL0015-R	2
27.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-41	20

\*Builder must fabricate from raw stock.



SECTION: WING FRAME ASSEMBLY

DETAIL: FLAP SYSTEM - GROUND ADJUSTABLE

NOTES: LEFT ASSEMBLY SHOWN

**Section:**

**WING FRAME ASSEMBLY**

**Detail:**

**FLAP SYSTEM  
GROUND ADJUSTABLE**

**Page:**

06-24

**Date:**

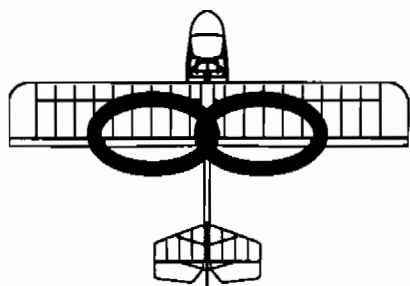
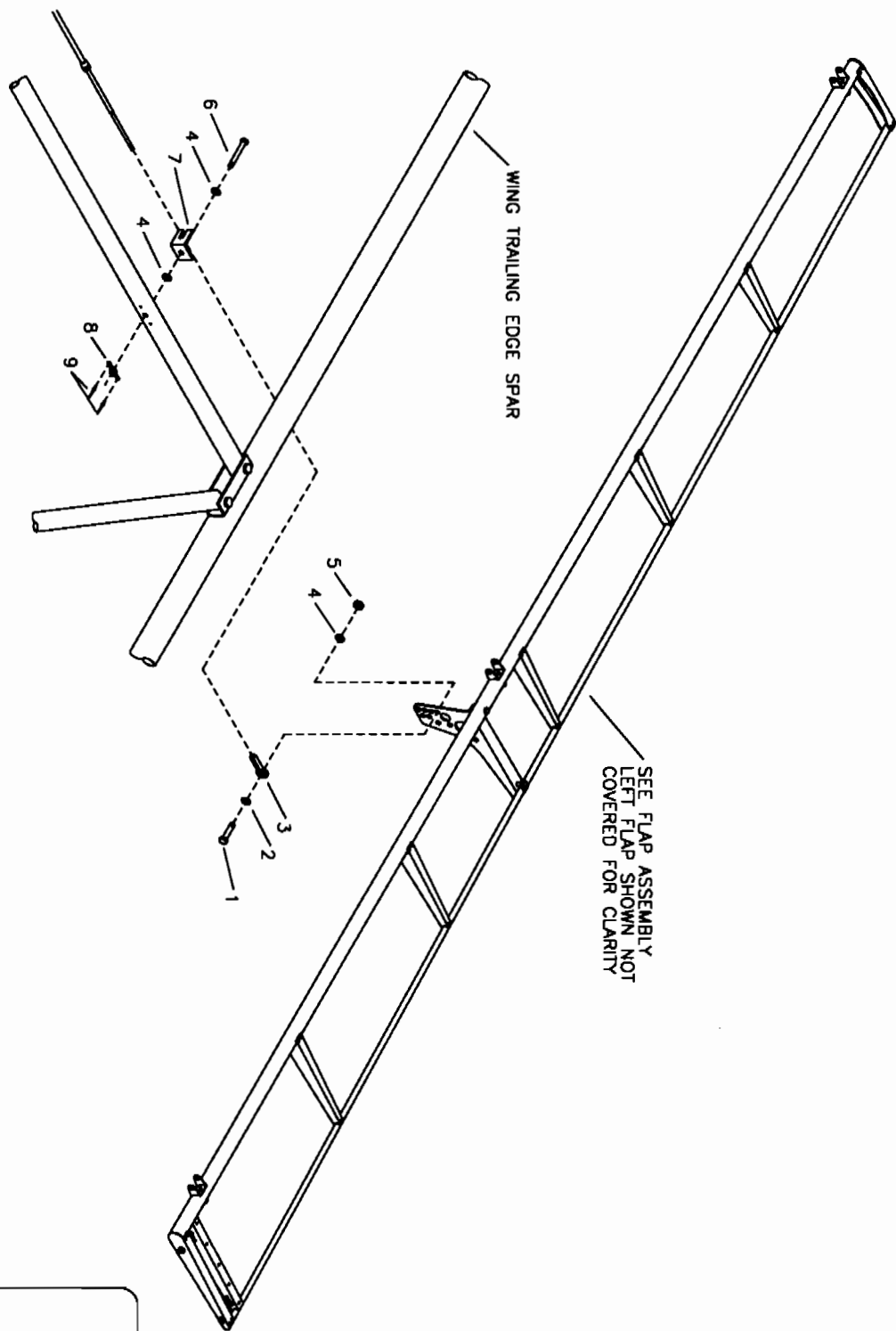
7/27/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	3/16" Bolt	AN3-4A	2
2.	3/16" Thin Washer	AN960-10L	8
3.	3/16" Shear Acorn Nut	22NKM02	2
4.	Fixed Flap Mount	KPFL0015	2
5.	3/16" Bolt	AN3-13A	2
6.	3/16" Nut Plate	K-1000-3	2
7.	3/32" Aluminum Pop Rivet	40APR1/8	4

**RANS, Inc.  
S-12 Airaile**

**dBase Page #:**

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SECTION: WING FRAME ASSEMBLY  
 DETAIL: FLAP SYSTEM - IN FLIGHT ADJUSTABLE

NOTES: LEFT ASSEMBLY SHOWN



**Section:**

**WING FRAME ASSEMBLY**

**Detail:**

**FLAP SYSTEM  
IN FLIGHT ADJUSTABLE**

**Page:**

06-26

**Date:**

7/27/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	3/16" Bolt	AN3-7A	2
2.	3/16" Plastic Washer	PW-3	2
3.	Female Rod End	NF-3	2
4.	3/16" Thin Washer	AN960-10L	6
5.	3/16" Shear Acorn Nut	22NKM02	2
6.	3/16" Bolt	AN3-14A	2
7.	Teleflex Retainer	W-TEL-R	2
8.	3/16" Nut Plate	K-1000-3	2
9.	3/32" Aluminum Pop Rivet	40APR1/8	4

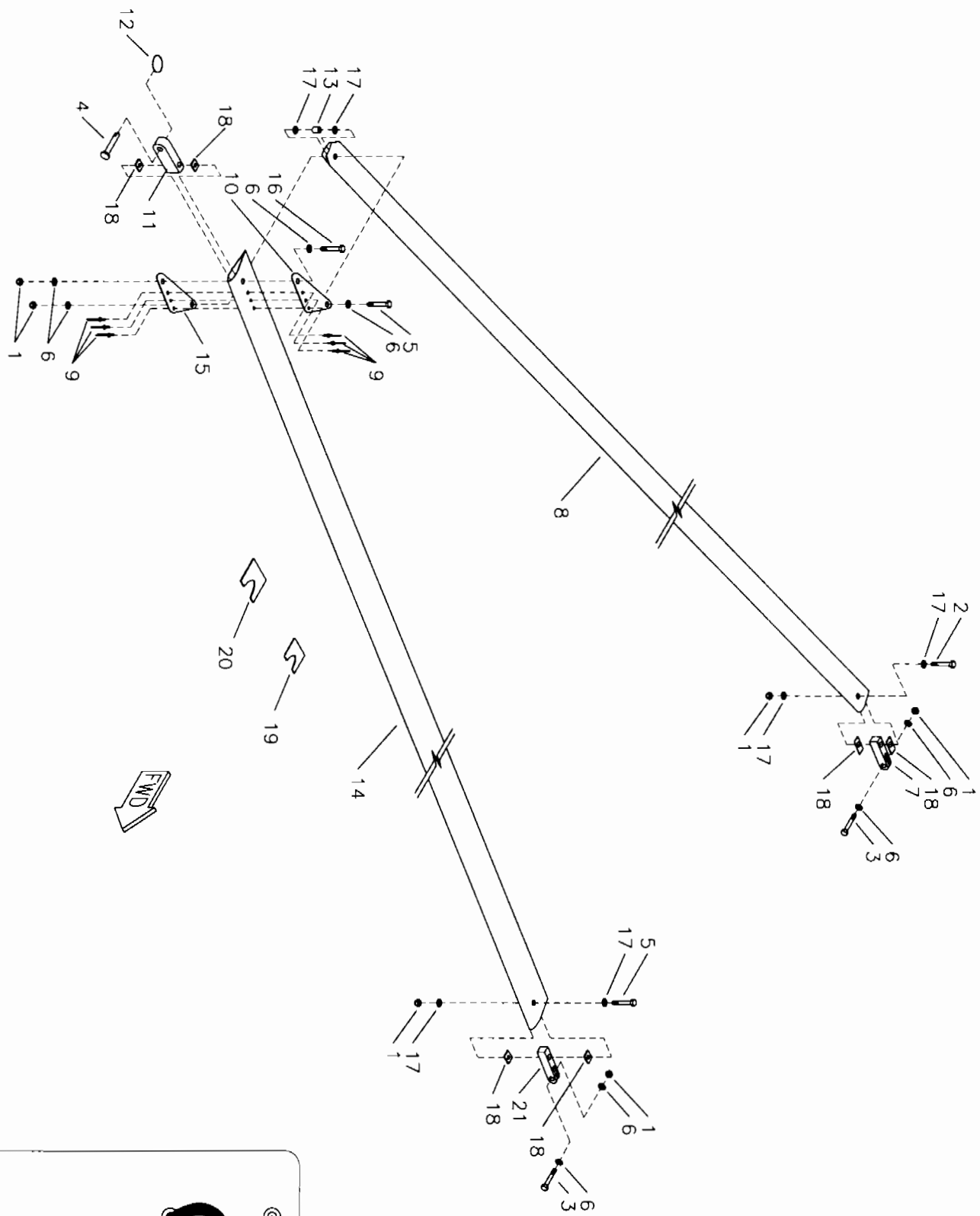
**RANS, Inc.  
S-12 Airaille**

**dBase Page #:**

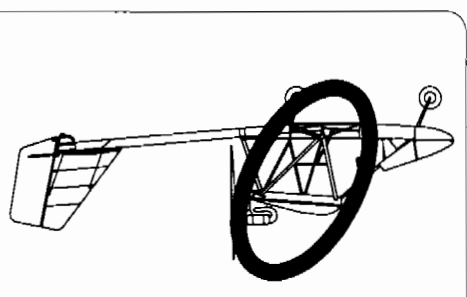
008-26

# RPMBS S-12 AIRAILE

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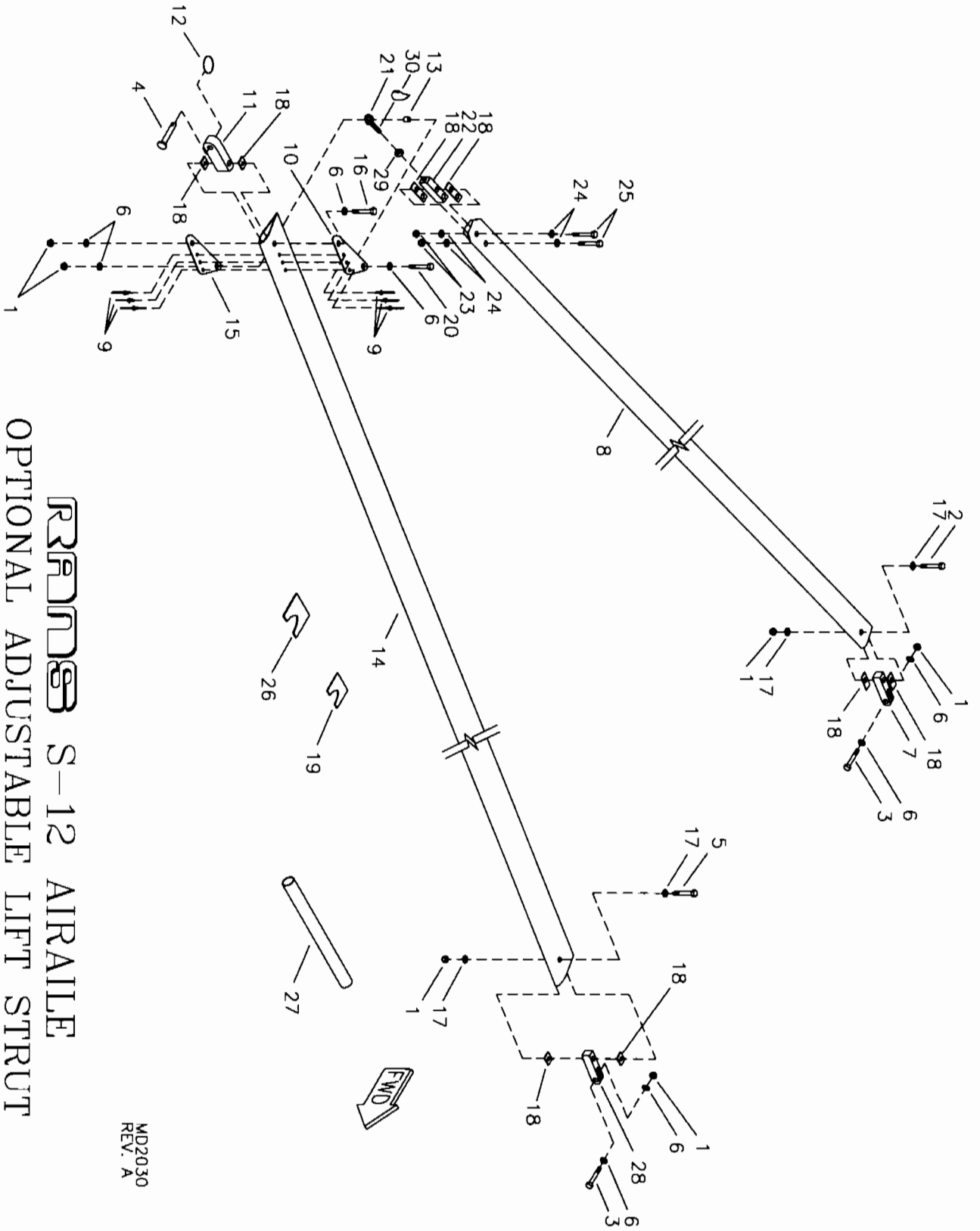
SECTION: WING FRAME ASSEMBLY  
 DETAIL: LIFT STRUT ASSEMBLY



**S-12XL AIRAILE - LIFT STRUT ASSEMBLY****NON-ADJUSTABLE**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	5/16" Shear Nut	AN364-524A	12
2.	5/16" Bolt	AN5-13A	2
3.	5/16" Bolt	AN5-12A	4
4.	5/16" Clevis Pin	MS20392-4C33	2
5.	5/16" Bolt	AN5-15A	4
6.	5/16" Thick Washer	AN960-516	16
7.	AFT Upper Lift Strut Connector	LS-ACU-2	2
8.	AFT Lift Strut	KPWI0144	2
9.	3/16" Stainless Steel Pop Rivet - Cherry Q	CCPQ-64	12
10.	AFT Lift Strut Gusset	W-ALS-G-2A	2
11.	Lower Strut Fitting - FWD RH	KPLS0013-R	1
11.	Lower Strut Fitting - FWD LH	KPLS0013-L	1
12.	Loc Ring	RL 27 5/16	2
13.	Anti-Crush Bushing	W-ANTI-CB	2
14.	FWD Lift Strut	KPWI0143	2
15.	AFT Lift Strut Gusset	W-ALS-G-2B	2
16.	5/16" Bolt	AN5-17A	2
17.	5/16" Thin Washer	AN960-516L	12
18.	Shim *	UNV-SHIM	4
19.	Small Lift Strut Chord Template	KPLS0004	1
20.	Large Lift Strut Chord Template	KPLS0003	1
21.	Upper Strut Fitting - FWD	KPLS0012	2

\*Make shim from .020 blank provided if necessary.



**RRRND S-12 AIRRAILE**  
**OPTIONAL ADJUSTABLE LIFT STRUT**

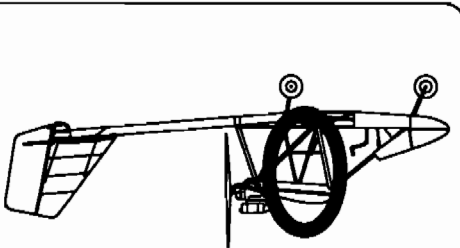
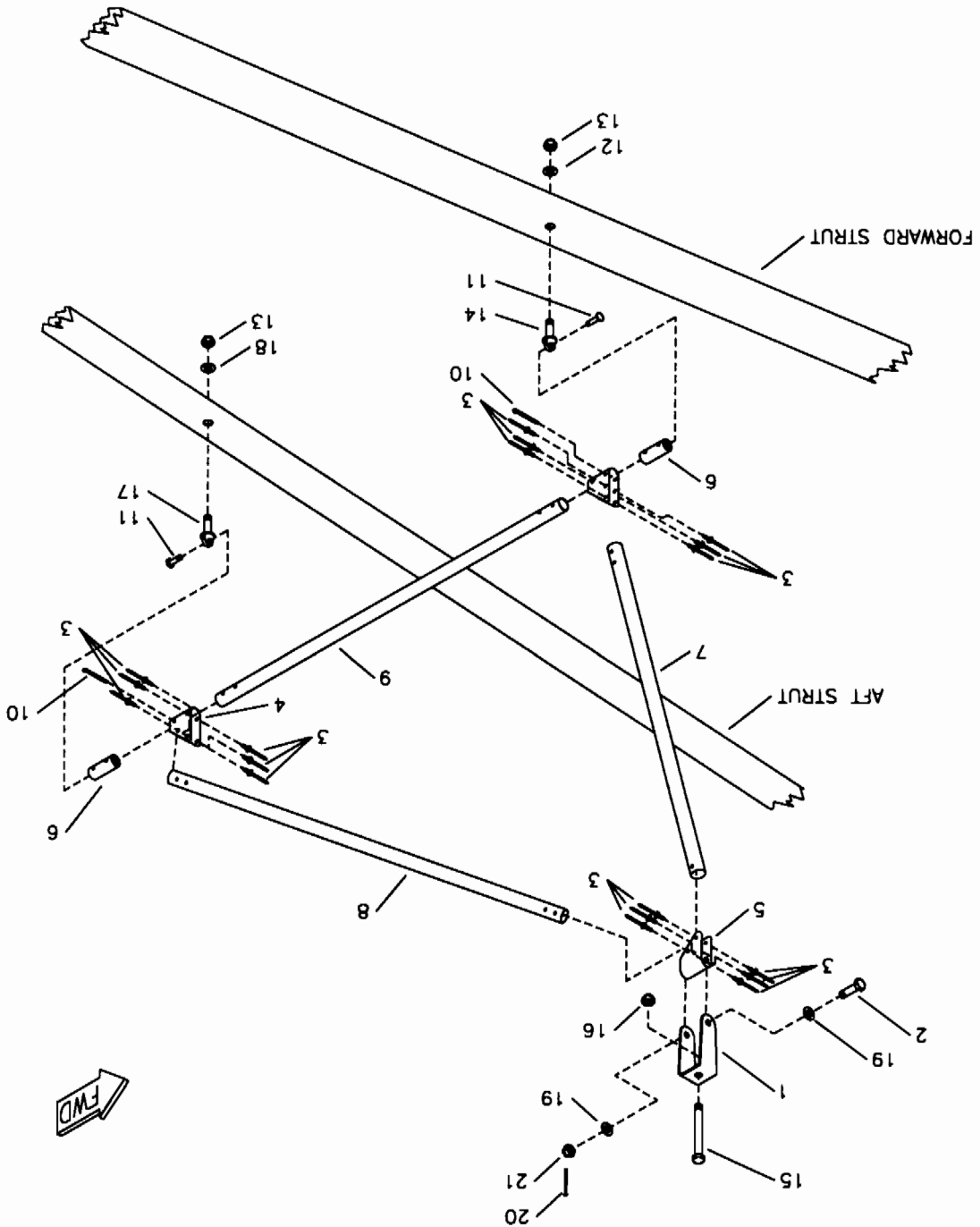
MD2030  
 REV. A

**S-12XL AIRAILE - LIFT STRUT ASSEMBLY****OPTIONAL ADJUSTABLE**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	5/16" Shear Nut	AN364-524A	12
2.	5/16" Bolt	AN5-13A	2
3.	5/16" Bolt	AN5-12A	4
4.	5/16" Clevis Pin	MS20392-4C33	2
5.	5/16" Bolt	AN5-15A	2
6.	5/16" Thick Washer	AN960-516	16
7.	AFT Upper Lift Strut Connector	LS-ACU-2	2
8.	AFT Lift Strut	KPW10144	2
9.	3/16" Stainless Steel Pop Rivet - Cherry Q	CCPQ-64	12
10.	AFT Lift Strut Gusset	116-S-GUSS-A	2
11.	Lower Strut Fitting - FWD - LH	KPLS0013-L	1
11.	Lower Strut Fitting - FWD - RH	KPLS0013-R	1
12.	Loc Ring	RL 27 5/16	2
13.	Aluminum Bushing, 3/8" x .035 x 1/2" **	KAAC0020-1	0
14.	FWD Lift Strut	KPW10143	2
15.	AFT Lift Strut Gusset	116-S-GUSS-B	2
16.	5/16" Bolt	AN5-17A	2
17.	5/16" Thin Washer	AN960-516L	8
18.	Shim *	UNV-SHIM	4
19.	Small Lift Strut Chord Template	KPLS0004	1
20.	5/16" Bolt	AN5-11A	2
21.	Rod End	3/8X24 ROD END	2
22.	Adjustor End	S-AE-3/4	2
23.	3/16" Shear Acorn Nut	22NKM02	4
24.	3/16" Thick Washer	AN960-10	8
25.	3/16" Bolt	AN3-13A	4
26.	Large Lift Strut Chord Template	KPLS0003	1
27.	Adjustable Lift Strut - Raw Stock Kit	KAAC0020	1
28.	Upper Strut Fitting - FWD	KPLS0012	2
29.	3/8" Plain Nut	MS35650-3382	2
30.	Loctite Blue	LOC-TITE	0

\*Make shim from .020 blank provided if necessary.

\*\*Builder fabricates from 3/8X.058. Drill out bushing to 5/16".



JURY STRUT ASSEMBLY

DETAIL:

WING FRAME ASSEMBLY

SECTION:

**Section:**

**WING FRAME ASSEMBLY**

**Detail:**

**JURY STRUT ASSEMBLY**

**Page:**

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**Date:**

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#	Description	Part Number	Quantity
1.	Jury Strut Bracket**	JS-BK	0
2.	3/16" Bolt	AN3-15	2
3.	1/8" Stainless Steel Pop Rivet	CCPQ-42	36
4.	Gusset	JS-JGN	4
5.	Gusset	JS-JGNW	2
6.	Drilled Bushing Aluminum Insert	JS-BUC-B	4
7.	Forward Jury Strut*	KAAC0001	2
8.	Diagonal Jury Strut*	KAAC0001	2
9.	Cross Strut*	KAAC0001	2
10.	Small Cotter Pin	MS24665-134	4
11.	Clevis Pin	MS20392-2C17	4
12.	1/4" Thin Washer	AN960-416L	2
13.	1/4" Tensile Acorn Nut	42NKE-048	4
14.	Eye Bolt	AN43B-15A	2
15.	3/16" Bolt**	AN3-16A	0
16.	3/16" Tensile Nut**	AN365-1032A	0
17.	Eye Bolt	AN43B-14A	2
18.	1/4" Thick Washer	AN960-416	2
19.	3/16" Thick Washer	AN960-10	4
20.	Small Cotter Pin	MS24665-134	2
21.	3/16" Castle Nut	AN310-3	2

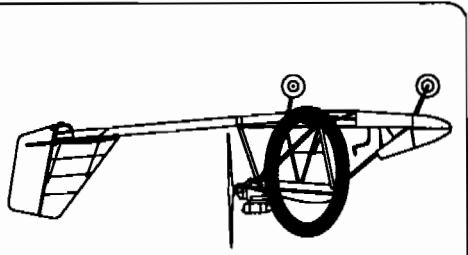
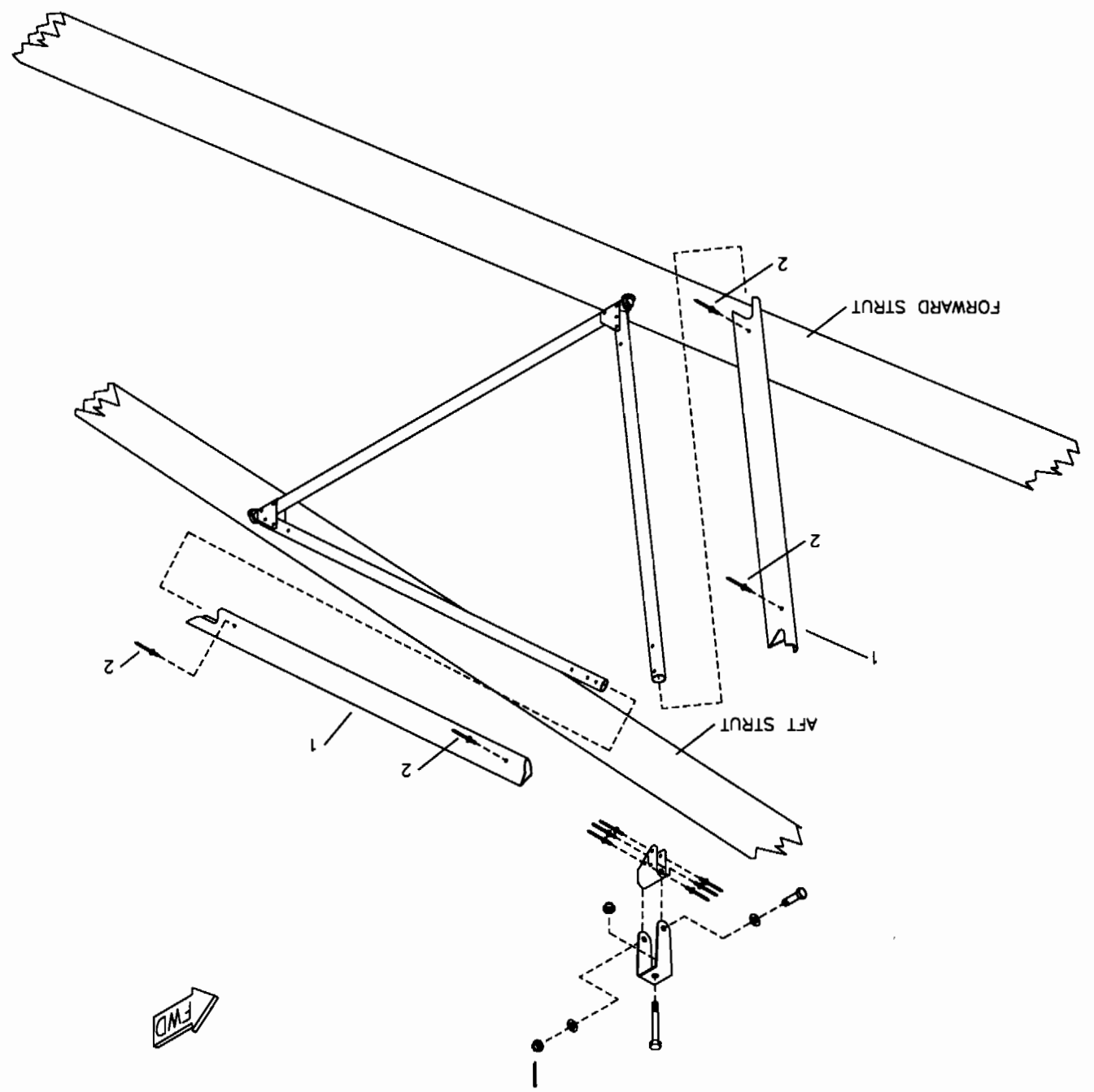
\*Builder fabricates from raw stock.

\*\*Referenced from internal structure.

**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

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SECTION: WING FRAME ASSEMBLY  
 DETAIL: JURY STRUT FAIRING INSTALLATION



**Section:**

**WING FRAME ASSEMBLY**

**Detail:**

**JURY STRUT FAIRING INSTALLATION**

**Page:**

06-34

**Date:**

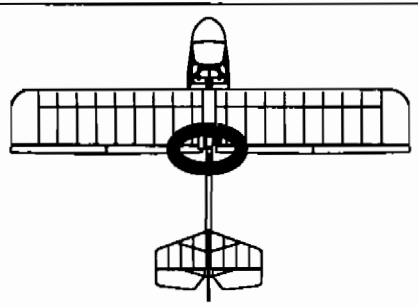
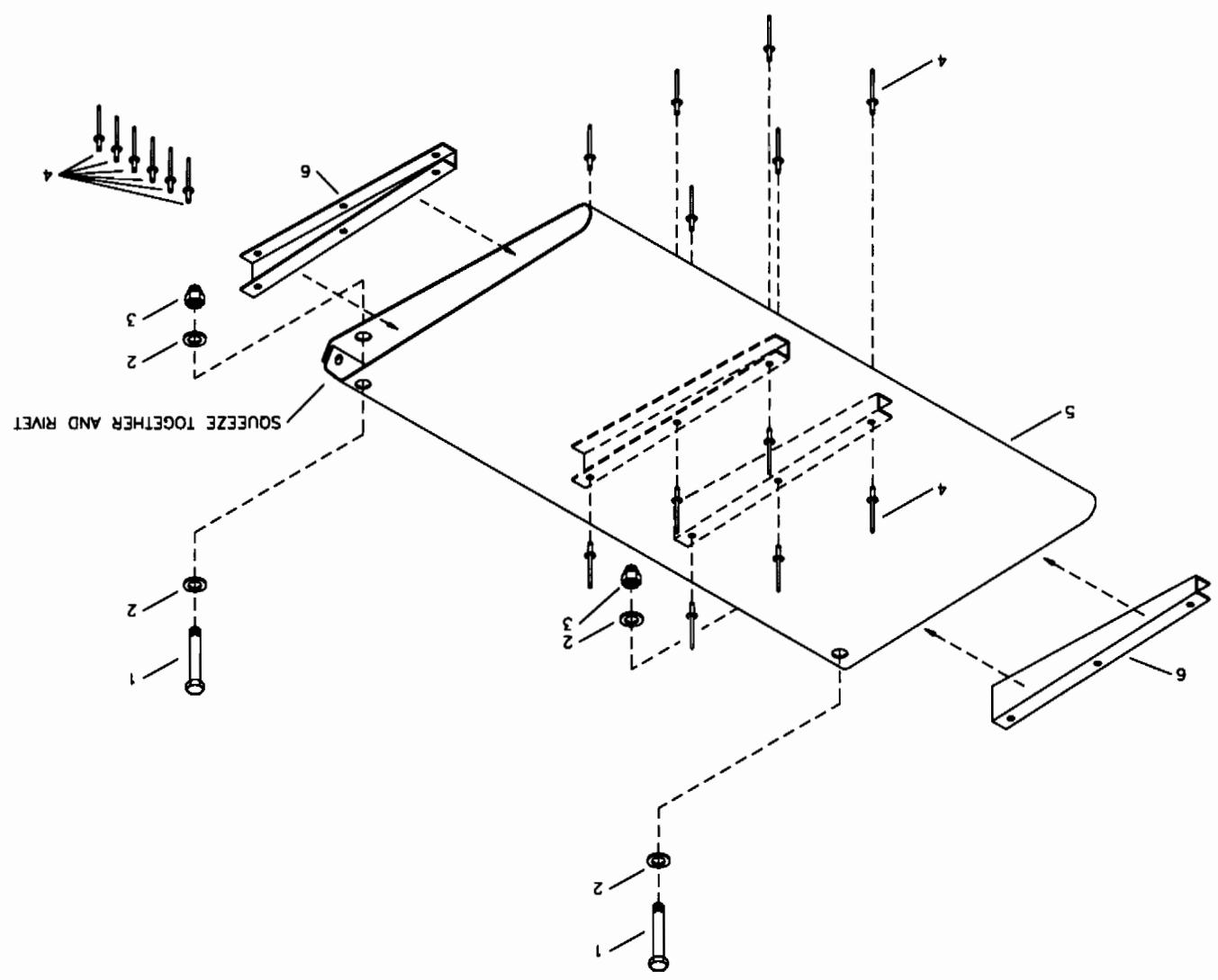
7/27/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Jury Strut Fairing	JS-FAIR	2
2.	3/32" Aluminum Pop Rivet	40APR1/8	8

**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

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FLAP FILETT INSTALLATION

DETAIL:

WING FRAME ASSEMBLY

SECTION:

**Section:**

**WING FRAME ASSEMBLY**

**Detail:**

**FLAP FILLET INSTALLATION**

**Page:**

06-36

**Date:**

4/24/96

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	3/16" Bolt	AN3-13A	2
2.	3/16" Thin Washer	AN960-10L	4
3.	3/16" Shear Acorn Nut	22NKM02	2
4.	1/8" Aluminum Pop Rivet	AAPQ-41	16
5.	Flap Fillet-Outer Wrap	KPFL0028	1
6.	Flap Fillet-Rib	KPFL0029	2

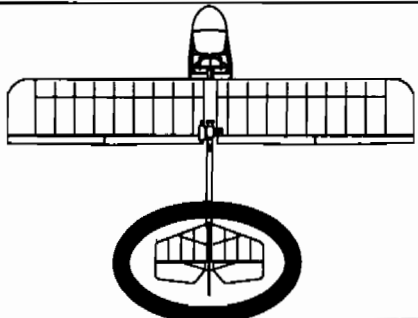
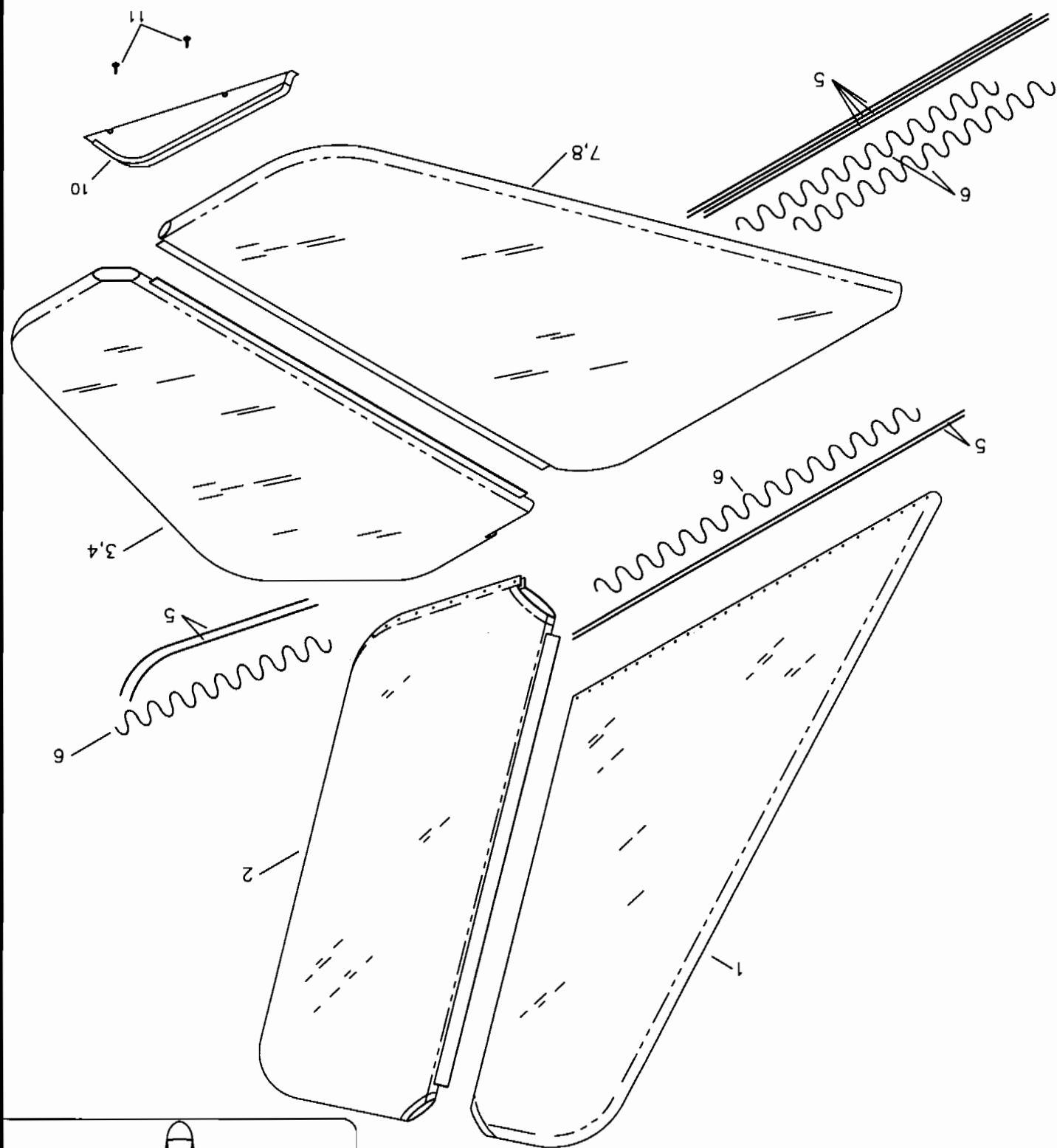
**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

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# RRMS S-12 AIRAILE

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SECTION: COVERING

DETAIL: TAIL GROUP DACRON COVERS AND HARDWARE

**Section:**

**COVERING**

**Detail:**

**TAIL GROUP DACRON COVERS AND HARDWARE**

**Page:**  
07-02

**Date:**  
10/24/97

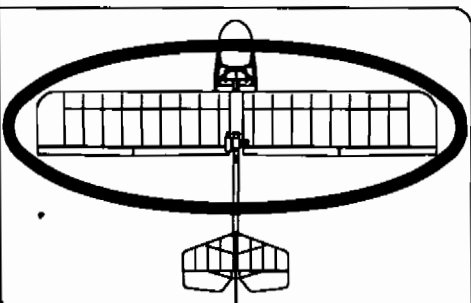
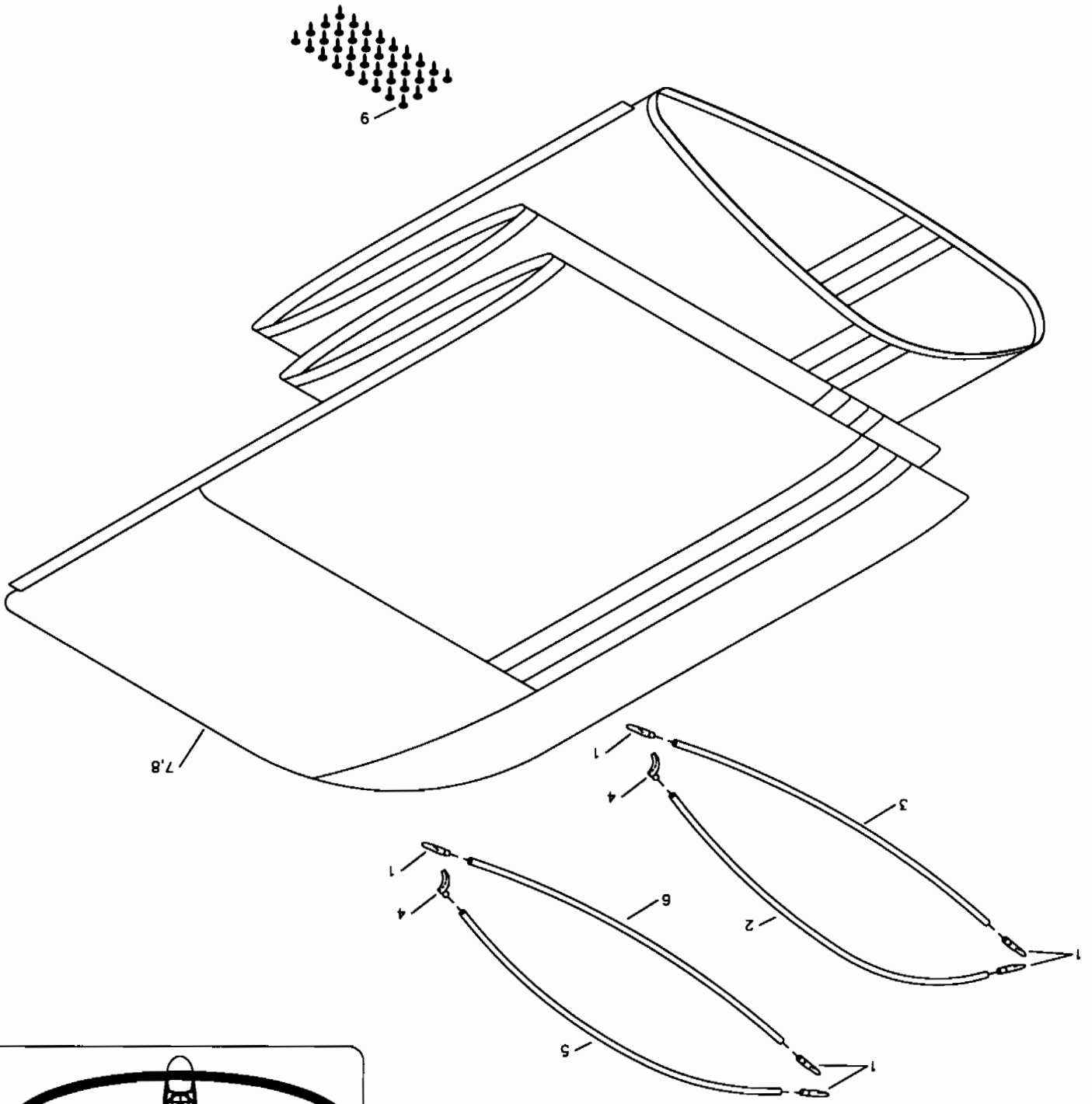
<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Vertical Stabilizer Dacron Cover *	KICV0001-7	1
2.	Rudder Dacron Cover *	KICV0001-8	1
3.	Elevator Dacron Cover, LH *	KICV0001-11	1
4.	Elevator Dacron Cover, RH *	KICV0001-12	1
5.	Lacing Wires, 36" X 1/16" (stick)	TG-LW-1/16	8
6.	Nylon Lace Up Rope	36 SEINE	36 ft
7.	Horizontal Stabilizer Dacron Cover, LH *	KICV0001-9	1
8.	Horizontal Stabilizer Dacron Cover, RH *	KICV0001-10	1
9.	S-12 Airaile Covering Kit	KICV0001	1
10.	Rudder Lacing Cap **	KPRD0035	1
11.	#6 Small Pan Head Screw	6RX1/2 PHS	2

\*Supplied with S-12 Airaile covering kit (KICV0001).

\*\*Builder trims to fit. Refer to text for details.

**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**  
009-2



WING DACRON COVERS AND HARDWARE

DETAIL

COVERING

SECTION

NOTES

**Section:**

**COVERING**

**Detail:**

**WING DACRON COVERS AND HARDWARE**

**Page:**

07-04

**Date:**

7/28/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Rip Tip	RIB-TIP	48
2.	Wing-Top Rib	KPWI0093	14
3.	Wing-Bottom Rib	KPWI0094	14
4.	Rib-Contour Fitting	2-CON	16
5.	Wing-Top Tip Rib	KPWI0098	2
6.	Wing-Bottom Tip Rib	KPWI0097	2
7.	Wing-Dacron Cover, RH*	KICV0001-2	1
8.	Wing-Dacron Cover, LH*	KICV0001-1	1
9.	#8 Stainless Steel Pan Head Screw**	8X1/2-PHS	0

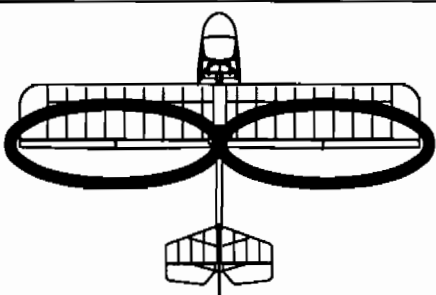
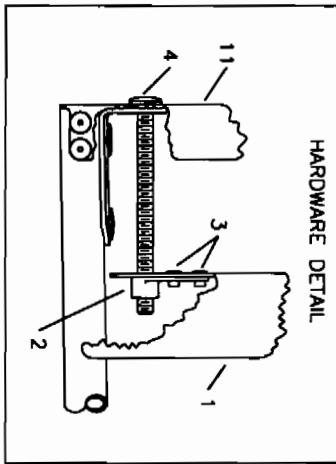
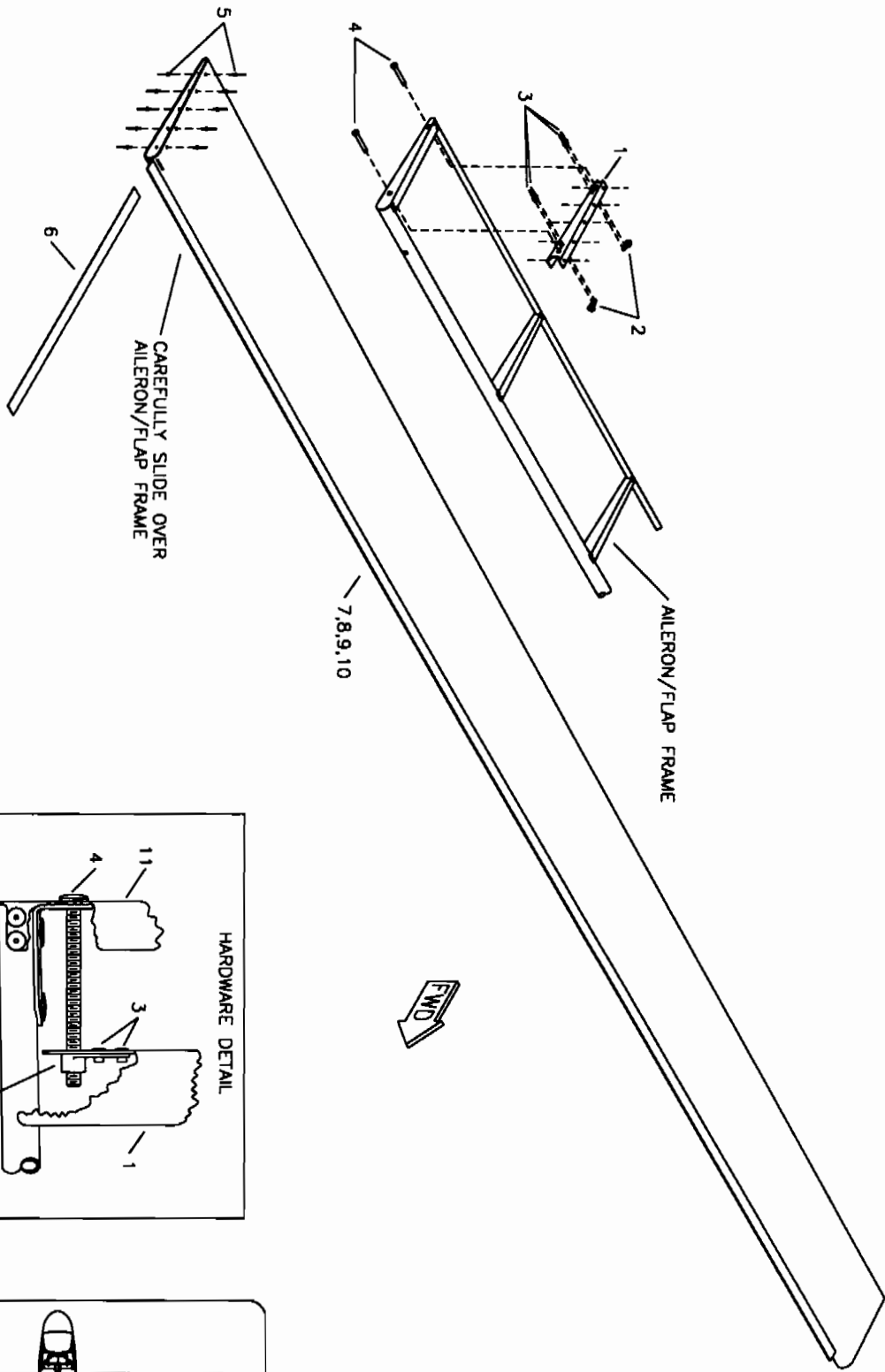
\*Comes with S-12 Airaile covering kit (KICV0001).

\*\*Referenced from root rib tensioning system.

**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

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AILERON/FLAP DACRON COVERS AND HARDWARE

DETAIL:

COVERING

SECTION:

NOTES:



**Section:**

**COVERING**

**Detail:**

**AILERON/FLAP DACRON COVERS AND HARDWARE**

**Page:**

07-06

**Date:**

8/18/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Flap/Aileron Tensioning Rib	KPAL0013	4
2.	3/16" Single Ear Nut Plate	MS21051-L3	8
3.	3/32" Aluminum Pop Rivet	40APR1/8	16
4.	Aileron/Flap Tension Screw	10/32X2 1/2SSPAN	8
5.	1/8" Aluminum Pop Rivet	AAPQ-42	40
6.	Flap/Aileron-Tension Strip	KPFL0031	4
7.	Flap Dacron Cover, LH*	KICV0001-3	1
8.	Flap Dacron Cover, RH*	KICV0001-4	1
9.	Aileron Dacron Cover, RH*	KICV0001-5	1
10.	Aileron Dacron Cover, LH*	KICV0001-6	1
11.	Flap/Aileron Rib #1**	KPAL0006	0

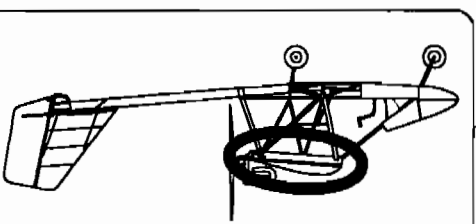
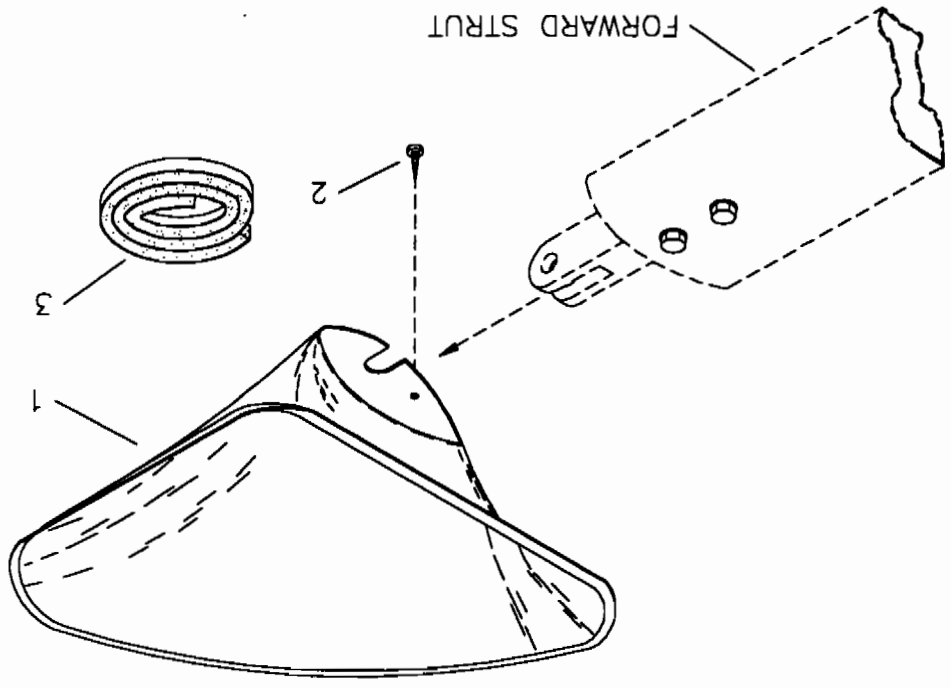
\*Comes with covering kit (KICV0001).

\*\*Referenced from Flap/Aileron Frame Assembly.

**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

009-6



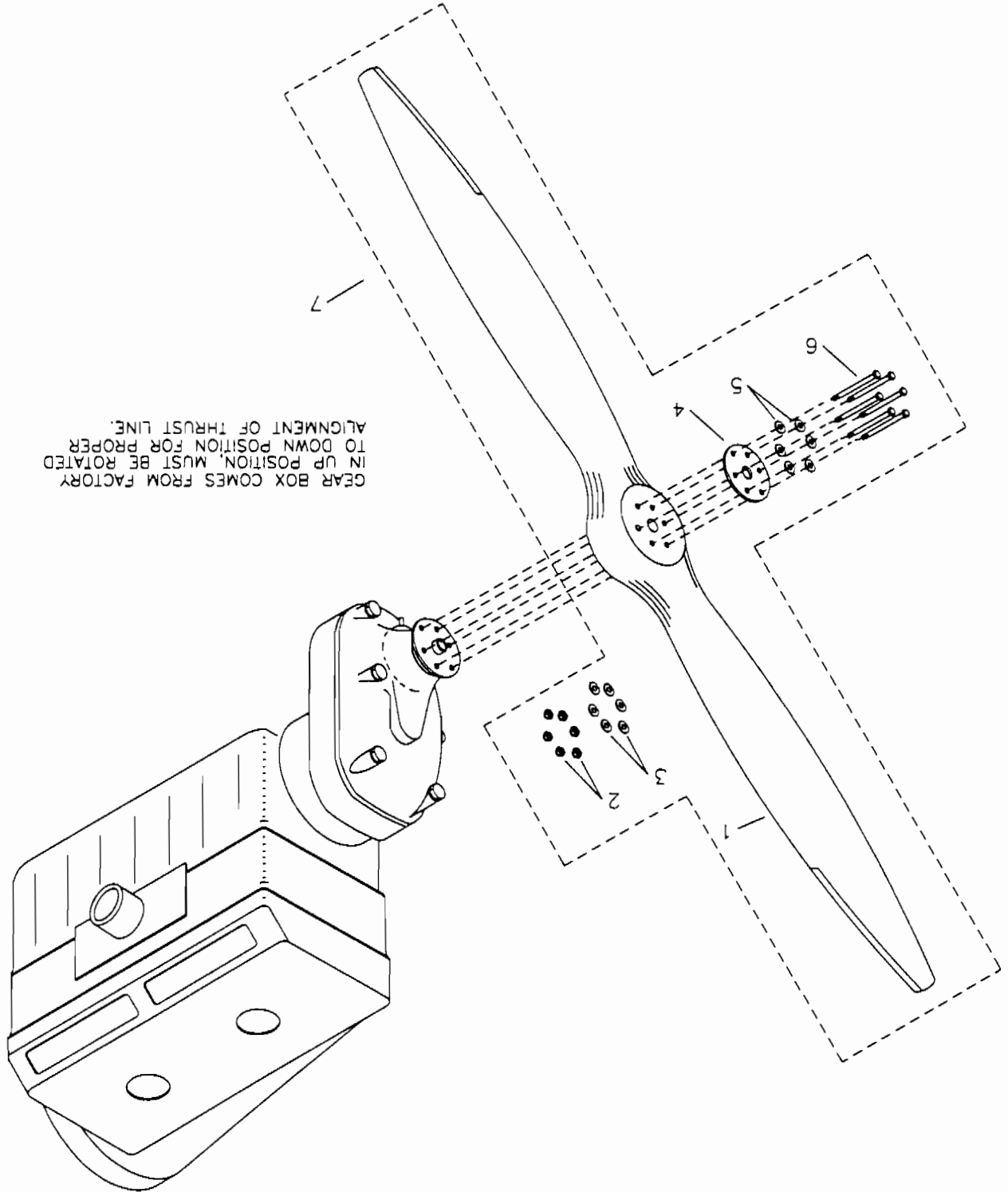
SECTION: COVERING

DETAIL: FILLET FAIRING INSTALLATION

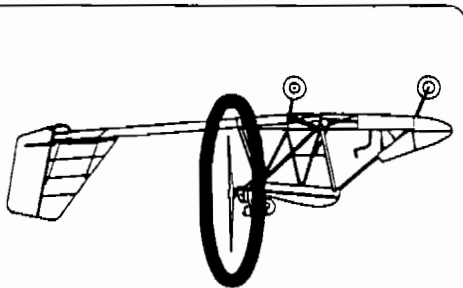
NOTES: LEFT SIDE SHOWN

**S-12XL AIRAILE - FILLET FAIRING INSTALLATION**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Forward Strut Fairing, RH	W-FSFF-RH	1
1.	Forward Strut Fairing, LH	W-FSFF-LH	1
2.	#6 Small Pan Head Screw	6RX1/2 PHS	2
3.	High Density Foam Tape, 1/8" x 1/4"	1/8-FS	4 ft



GEAR BOX COMES FROM FACTORY  
 IN UP POSITION, MUST BE ROTATED  
 TO DOWN POSITION FOR PROPER  
 ALIGNMENT OF THRUST LINE.



503 TENNESSEE WOOD  
 PROP INSTALLATION

DETAIL:

503 ENGINE, INSTRUMENTATION, AND ELECTRICAL

SECTION:

NOTES:

**Section:**

**PROPELLERS**

**Detail:**

**503 TENNESSEE WOOD PROP INSTALLATION**

**Page:**

08-02

**Date:**

8/ 3/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Tennessee Wood Propeller	KIPR0001-1	1
2.	1/4" Tensile Nut*	AN365-428A	6
3.	1/4" Thin Washer*	AN960-416L	6
4.	Crush Plate**	EG-EG-503-11	1
5.	1/4" Thick Washer*	AN960-416	6
6.	1/4" Bolt*	AN4-32A	6
7.	503 Tennessee Wood Propeller Installation Kit	KIPR0001	1

\*Comes in 503 Tennessee Wood Propeller Installation Kit.

\*\*Comes with engine.

**RANS, Inc.**  
**S-12 Airaile**

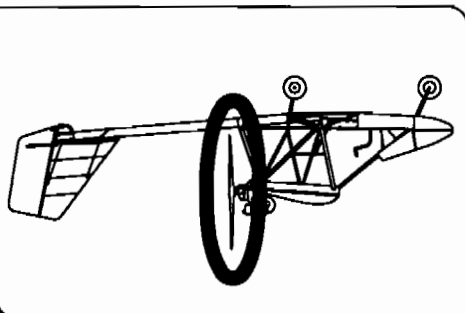
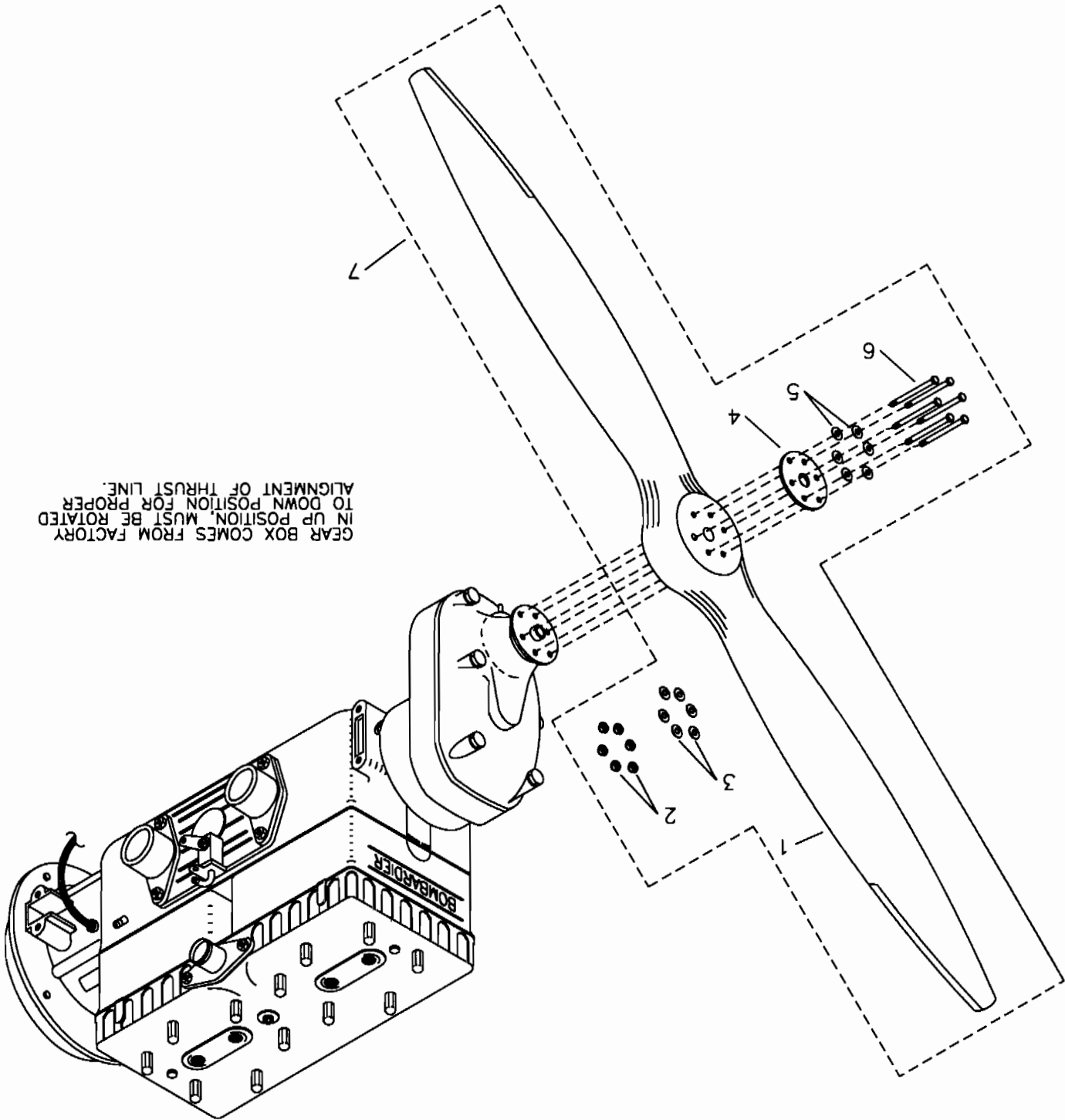
**dBase Page #:**

0010-2

# RPM S-12 AIRRALE

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GEAR BOX COMES FROM FACTORY  
IN UP POSITION. MUST BE ROTATED  
TO DOWN POSITION FOR PROPER  
ALIGNMENT OF THRUST LINE.



SECTION: 08-03

582 ENGINE, INSTRUMENTATION, AND ELECTRICAL

DETAIL: 582 TENNESSEE WOOD PROP INSTALLATION

**Section:**

**PROPELLERS**

**Detail:**

**582 TENNESSEE WOOD PROP INSTALLATION**

**Page:**

08-04

**Date:**

8/ 3/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	Tennessee Wood Propeller	KIPR0002-1	1
2.	1/4" Tensile Nut*	AN365-428A	6
3.	1/4" Thin Washer*	AN960-416L	6
4.	Crush Plate**	EG-EG-582-13	1
5.	1/4" Thick Washer*	AN960-416	6
6.	1/4" Bolt*	AN4-32A	6
7.	582 Tennessee Wood Propeller Installation Kit	KIPR0002	1

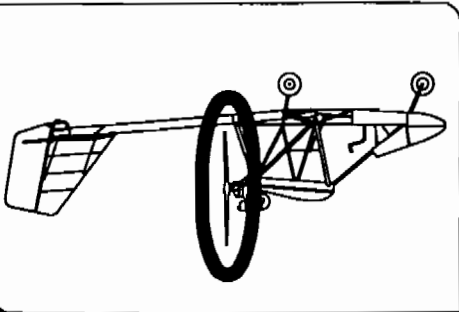
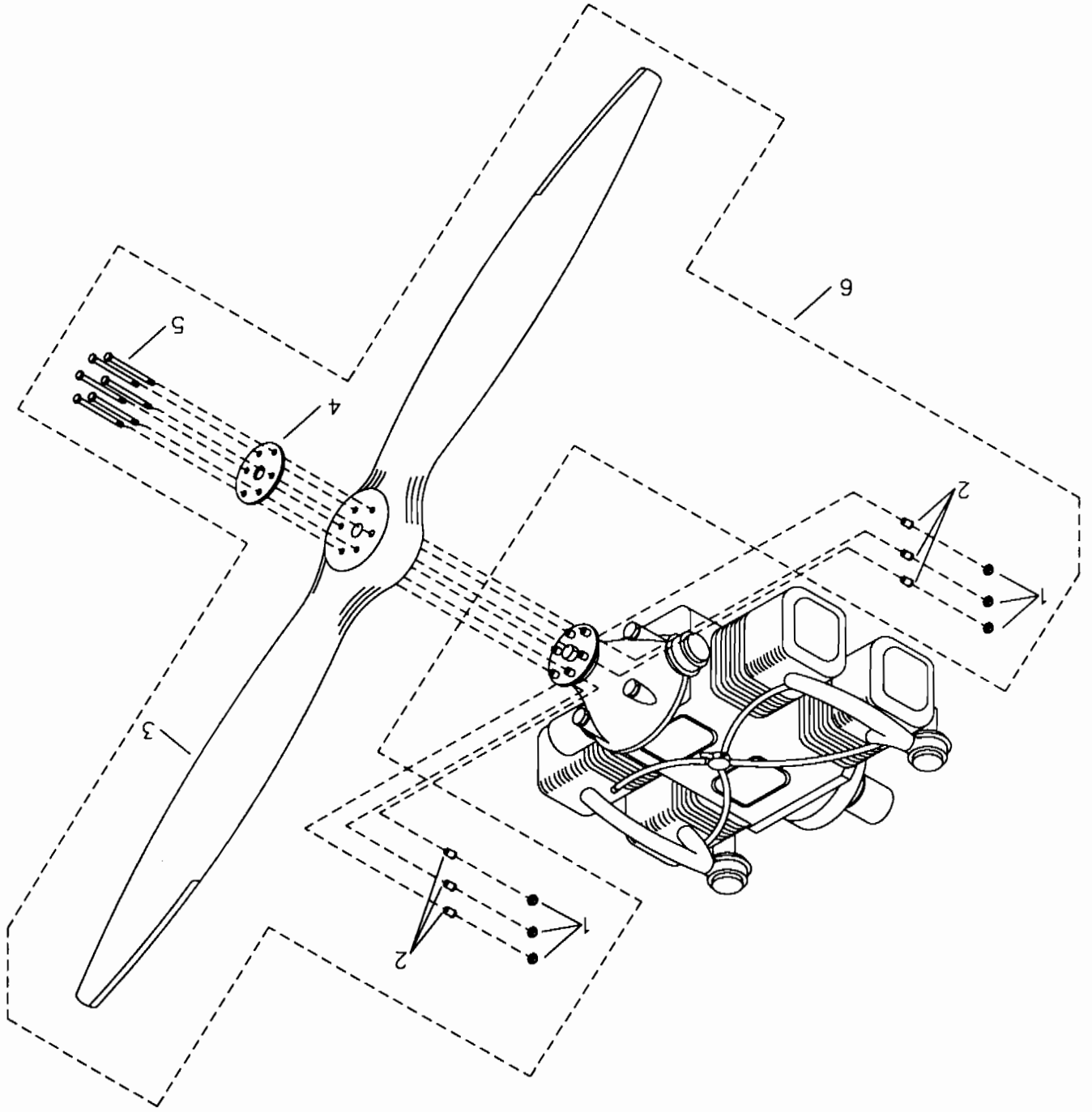
\*Comes in 582 Tennessee Wood Propeller Installation Kit.

\*\*Comes with engine.

**RANS, Inc.**  
**S-12 Airalle**

**dBase Page #:**

0010-4



SECTION: 912 ENGINE, INSTRUMENTATION, AND ELECTRICAL

DETAIL: 912 TENNESSEE WOOD PROP INSTALLATION



**Section:**

**PROPELLERS**

**Detail:**

**912 TENNESSEE WOOD PROP INSTALLATION**

**Page:**

08-06

**Date:**

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<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	5/16" Steel Insert Loc Nut*	AN365-524C	6
2.	Flange Bushing-912*	KPPW0038	6
3.	Tennessee Wood Propeller	KIPR0003-1	1
4.	Crush Plate**	EG-EG-912-5	1
5.	5/16" Bolt*	AN5-37A	6
6.	912 Tennessee Wood Propeller Installation Kit	KIPR0003	1

\*Comes in 912 Tennessee Wood Propeller Installation Kit.

\*\*Comes with engine.

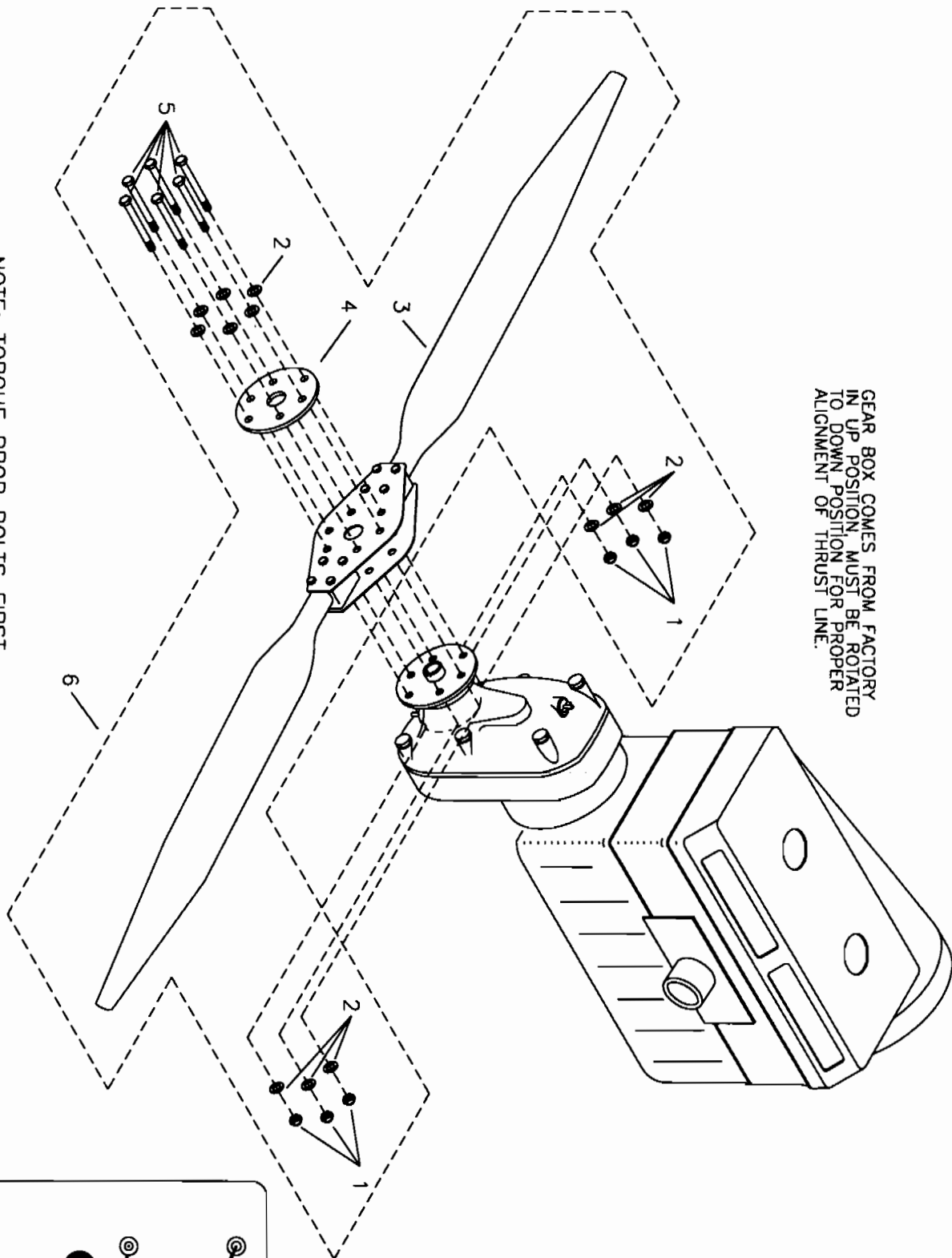
**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

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GEAR BOX COMES FROM FACTORY IN UP POSITION. MUST BE ROTATED TO DOWN POSITION FOR PROPER ALIGNMENT OF THRUST LINE.

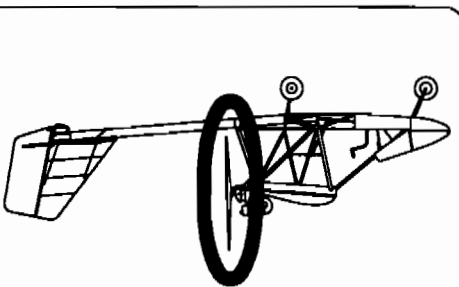
NOTE: TORQUE PROP BOLTS FIRST, THEN TIGHTEN LOCK NUTS.



SECTION: 08-07

503 ENGINE, INSTRUMENTATION, AND ELECTRICAL

DETAIL: 503 WARP DRIVE STANDARD PROP HUB INSTALLATION



**Section:**

**PROPELLERS**

**Detail:**

**503 WARP DRIVE PROP INSTALLATION  
STANDARD HUB**

**Page:**

08-08

**Date:**

8/ 3/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	8MM Tensile Nut*	KIPR0004-2	6
2.	8MM Thick Washer*	KIPR0004-3	12
3.	Warp Drive Propeller, Standard Hub	KIPR0004-1	1
4.	Crush Plate**	EG-EG-503-11	1
5.	8MM X 90MM Bolt*	KIPR0004-4	6
6.	503 Warp Drive Propeller Installation Kit***	KIPR0004	1

\*Comes in 503 Warp Drive Propeller Installation Kit,

\*\*Comes with engine.

\*\*\*Comes with propeller.

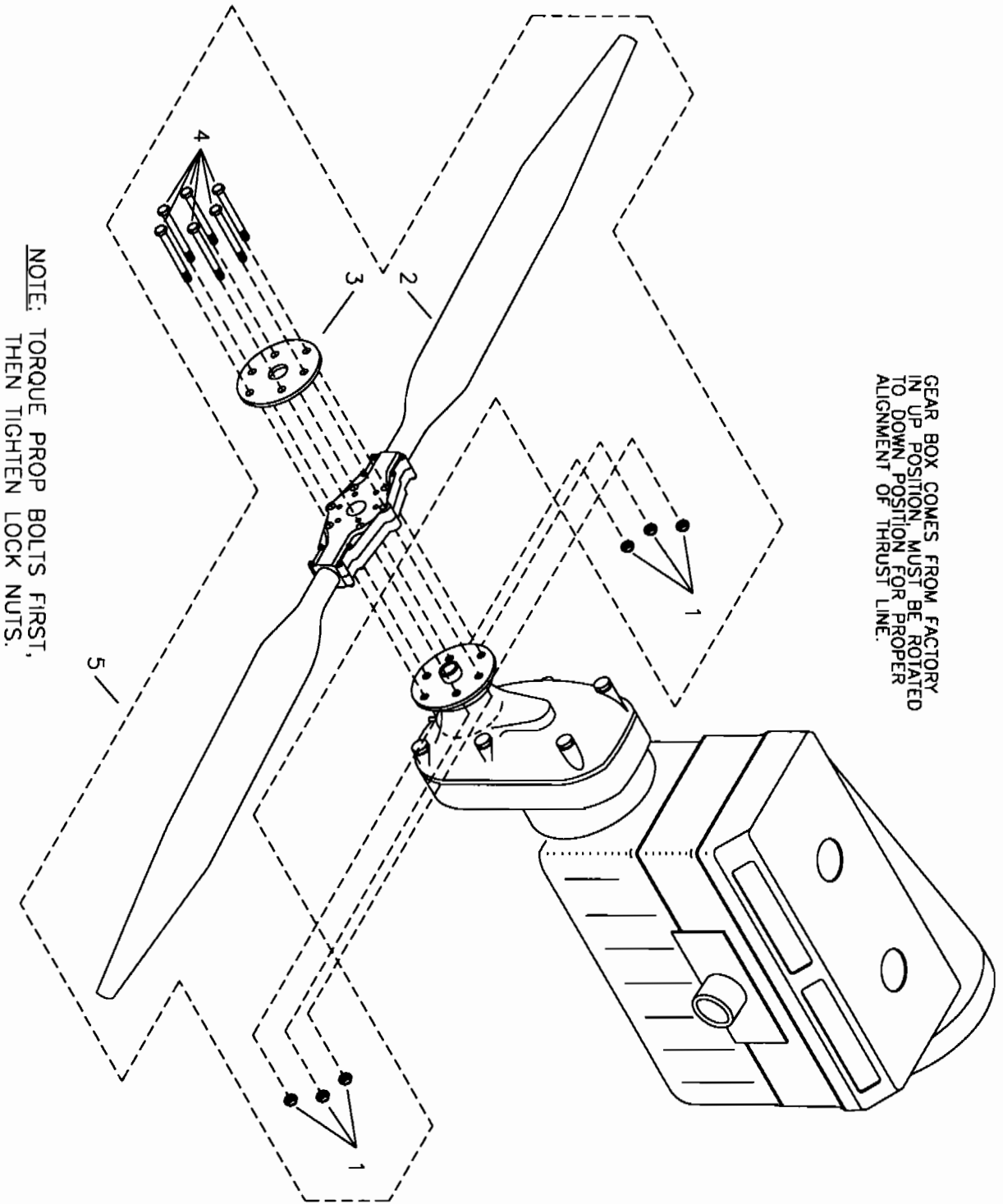
**RANS, Inc.  
S-12 Airaile**

**dBase Page #:**

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# RPMRS S-12 AIRRALE

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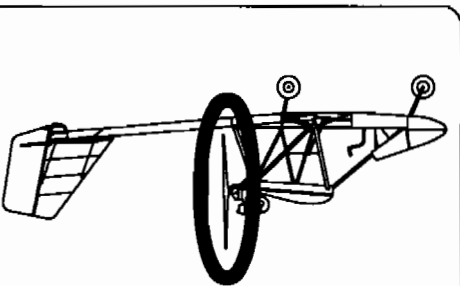


GEAR BOX COMES FROM FACTORY IN UP POSITION. MUST BE ROTATED TO DOWN POSITION FOR PROPER ALIGNMENT OF THRUST LINE.

NOTE: TORQUE PROP BOLTS FIRST, THEN TIGHTEN LOCK NUTS.

SECTION: 503 ENGINE, INSTRUMENTATION, AND ELECTRICAL

DETAIL: 503 WARP DRIVE PROP INSTALLATION HP-L HUB



**Section:**

**PROPELLERS**

**Detail:**

**503 WARP DRIVE PROP INSTALLATION  
HP-L HUB**

**Page:**

08-10

**Date:**

8/ 3/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	8MM Tensile Nut*	KIPR0005-2	6
2.	Warp Drive Propeller, HP-L Hub	KIPR0005-1	1
3.	Crush Plate**	EG-EG-503-11	1
4.	8MM X 75MM Bolt*	KIPR0005-3	6
5.	503 Warp Drive Prop Installation Kit/HP-L Hub***	KIPR0005	1

\*Comes in 503 Warp Drive Propeller Installation Kit.

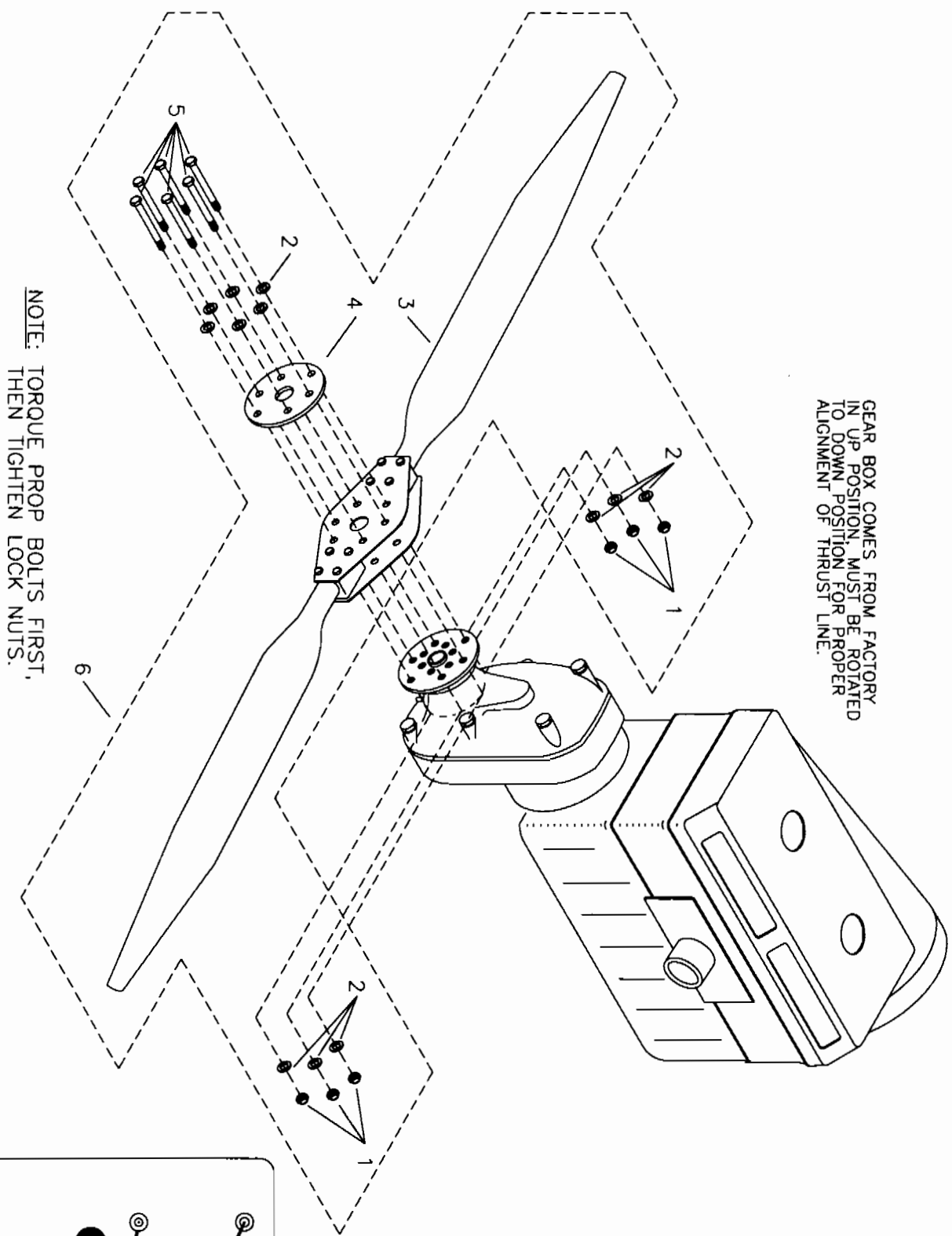
\*\*Comes with engine.

\*\*\*Comes with propeller.

**RANS, Inc.  
S-12 Airaille**

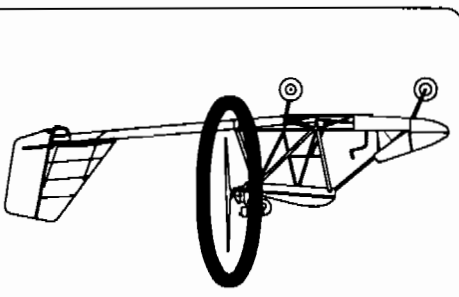
**dBase Page #:**

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GEAR BOX COMES FROM FACTORY  
 IN UP POSITION, MUST BE ROTATED  
 TO DOWN POSITION FOR PROPER  
 ALIGNMENT OF THRUST LINE.

NOTE: TORQUE PROP BOLTS FIRST,  
 THEN TIGHTEN LOCK NUTS.



SECTION: 582 ENGINE, INSTRUMENTATION, AND ELECTRICAL  
 DETAIL: 582 WARP DRIVE PROP INSTALLATION STANDARD HUB

**Section:**

**PROPELLERS**

**Detail:**

**582 WARP DRIVE PROP INSTALLATION  
STANDARD HUB**

**Page:**

08-12

**Date:**

4/10/96

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	8MM Tensile Nut*	KIPR0006-2	6
2.	8MM Thick Washer*	KIPR0006-3	12
3.	Warp Drive Propeller, Standard Hub	KIPR0006-1	1
4.	Crush Plate**	EG-EG-582-13	1
5.	8MM X 90MM Bolt*	KIPR0006-4	6
6.	582 Warp Drive Prop Installation Kit/Std Hub***	KIPR0006	1

\*Comes in 582 Warp Drive Propeller Installation Kit.

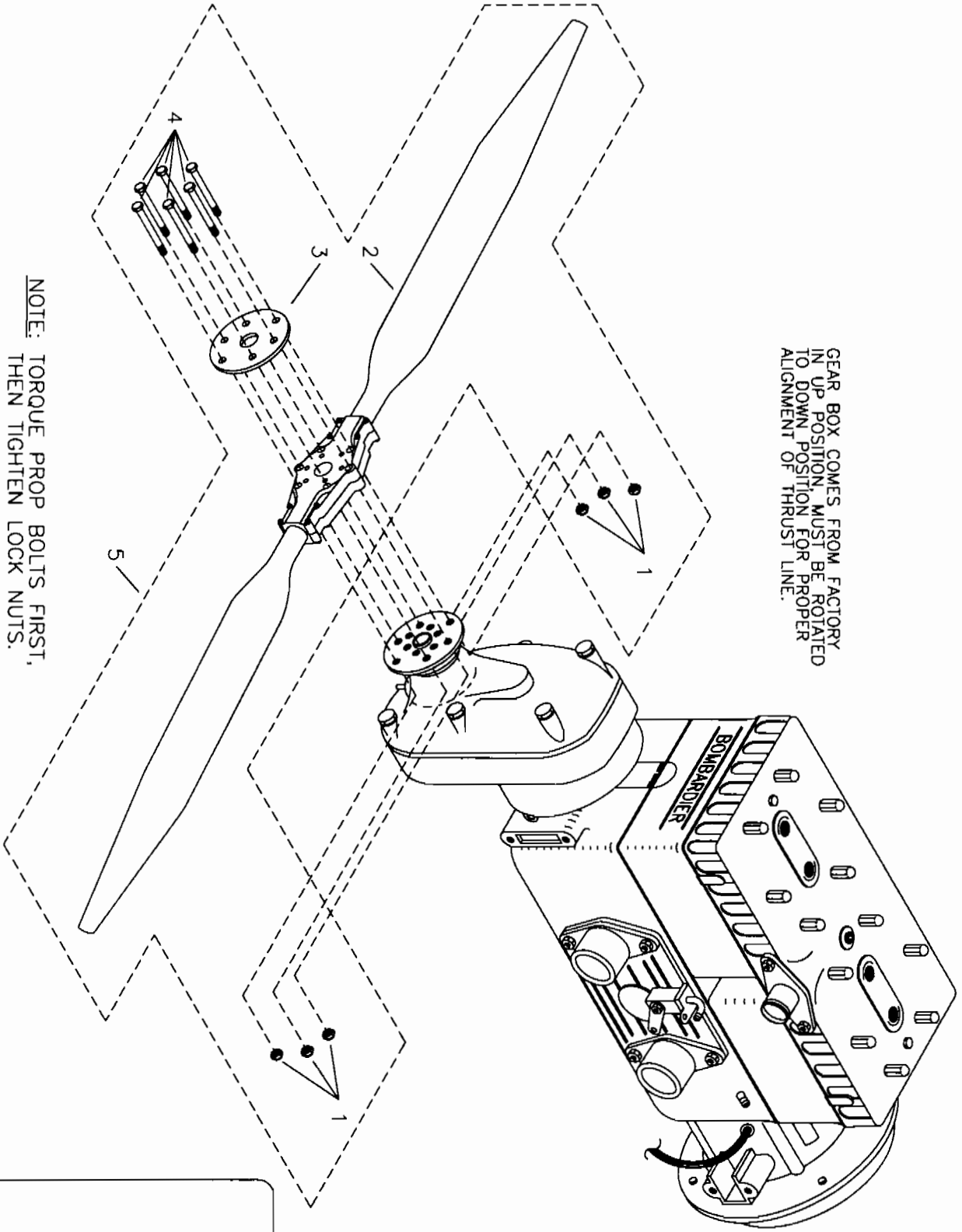
\*\*Comes with engine.

\*\*\*Comes with propeller.

**RANS, Inc.**  
**S-12 Airaile**

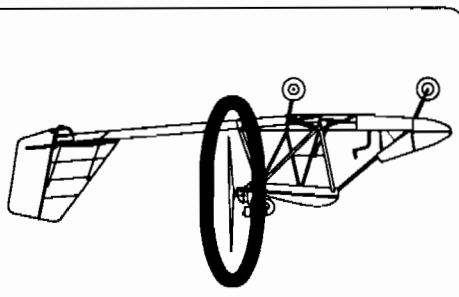
**dBase Page #:**

0010-12



NOTE: TORQUE PROP BOLTS FIRST,  
THEN TIGHTEN LOCK NUTS.

GEAR BOX COMES FROM FACTORY  
IN UP POSITION. MUST BE ROTATED  
TO DOWN POSITION FOR PROPER  
ALIGNMENT OF THRUST LINE.



SECTION: 582 ENGINE, INSTRUMENTATION, AND ELECTRICAL  
DETAIL: 582 WARP DRIVE PROP  
INSTALLATION HP-L HUB



**Section:**

**PROPELLERS**

**Detail:**

**582 WARP DRIVE PROP INSTALLATION  
HP-L HUB**

**Page:**

08-14

**Date:**

8/ 3/95

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	8MM Tensile Nut*	KIPR0007-2	6
2.	Warp Drive Propeller, HP-L Hub	KIPR0007-1	1
3.	Crush Plate**	EG-EG-582-13	1
4.	8MM X 75MM Bolt*	KIPR0007-3	6
5.	582 Warp Drive Prop Installation Kit/HP-L Hub***	KIPR0007	1

\*Comes in 582 Warp Drive Propeller Installation Kit.

\*\*Comes with engine.

\*\*\*Comes with propeller.

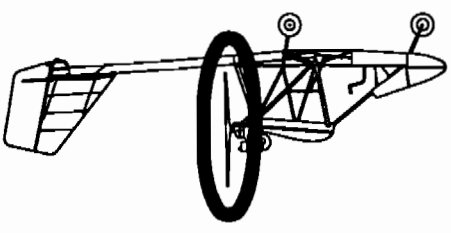
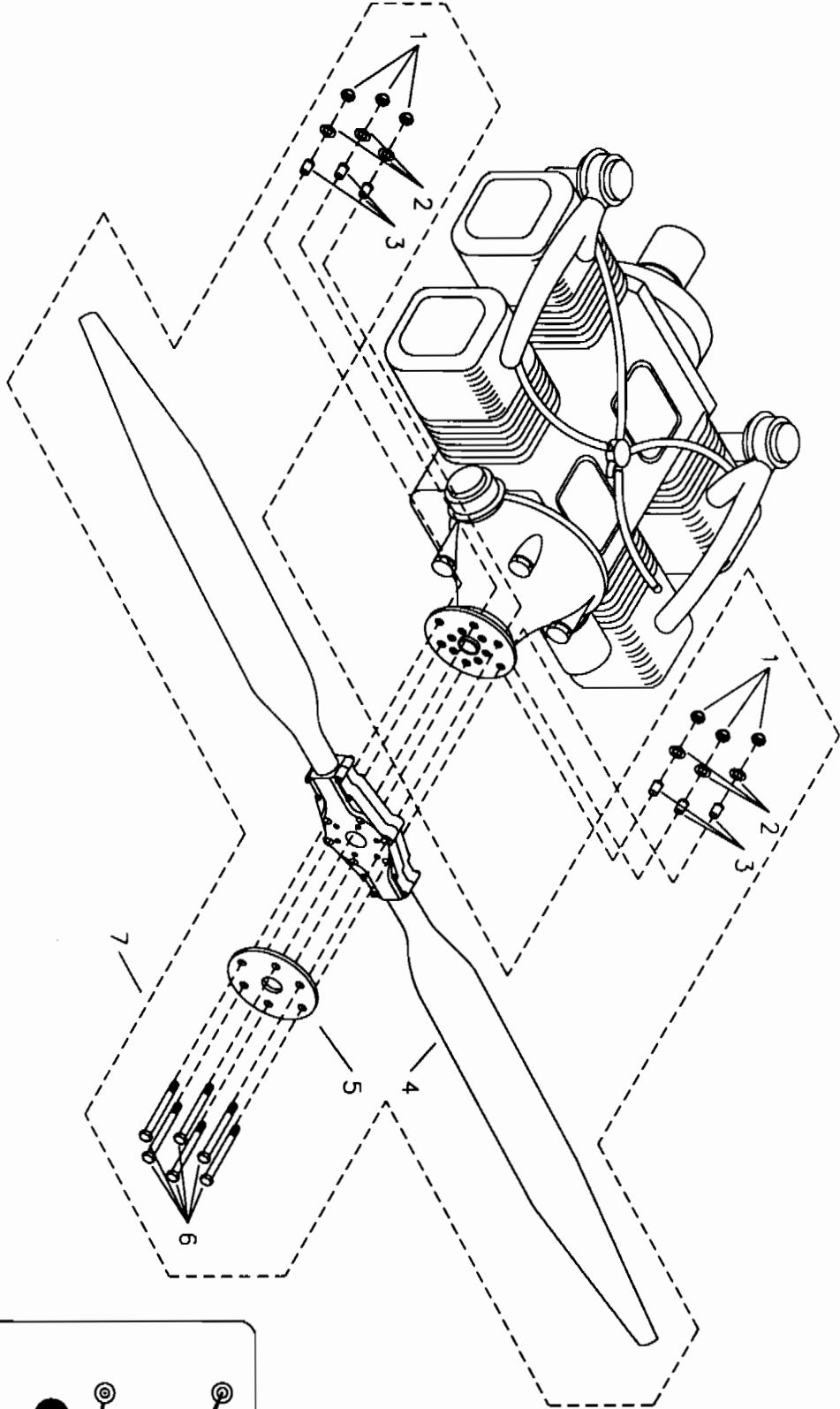
**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

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RPMRS  
S-12 AIRAILE

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USA



SECTION: 912 ENGINE, INSTRUMENTATION, AND ELECTRICAL

DETAIL: 912 WARP DRIVE PROP INSTALLATION

**Section:**

**PROPELLERS**

**Detail:**

**912 WARP DRIVE PROP INSTALLATION  
WITHOUT FULL ENCLOSURE**

**Page:**

08-16

**Date:**

7/23/97

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	5/16" Steel Insert Loc-Nut *	AN365-524C	6
2.	5/16" Thick Washer *	AN960-516	6
3.	Flange Bushing-912 *	KPPW0038	6
4.	Warp Drive Propeller	KIPR0008-1	1
5.	Crush Plate **	EG-EG-912-5	0
6.	5/16" Bolt *	AN5-32A	6
7.	912 Warp Drive Prop Installation Kit/HP-L Hub	KIPR0008	1

\*Comes in 912 Warp Drive Propeller Installation Kit.

\*\*Comes with engine.

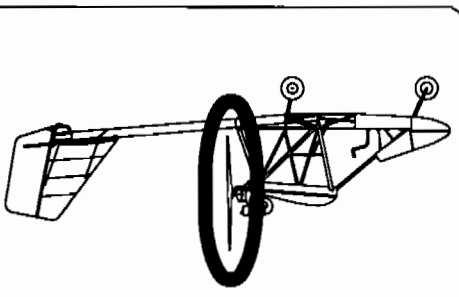
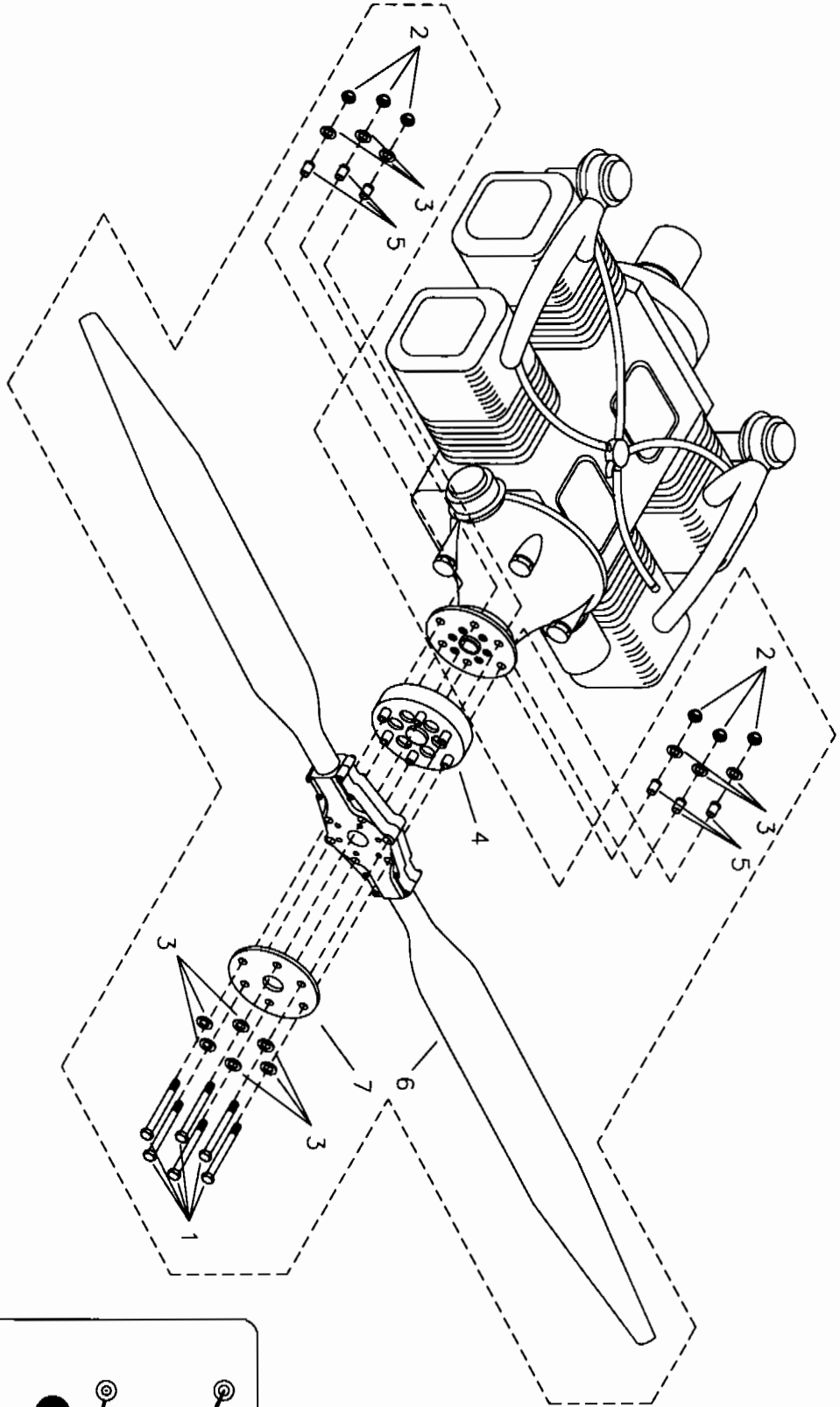
**RANS, Inc.**  
**S-12 Airaile**

**dBase Page #:**

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# RPMBS S-12 AIRAILE

Made in the USA



SECTION: 08-17

912 ENGINE, INSTRUMENTATION, AND ELECTRICAL

DETAIL: 912 WARP DRIVE PROP INSTALLATION WITH FULL ENCLOSURE

**Section:**

**PROPELLERS**

**Detail:**

**912 WARP DRIVE PROP INSTALLATION  
WITH FULL ENCLOSURE**

**Page:**

08-18

**Date:**

8/ 4/97

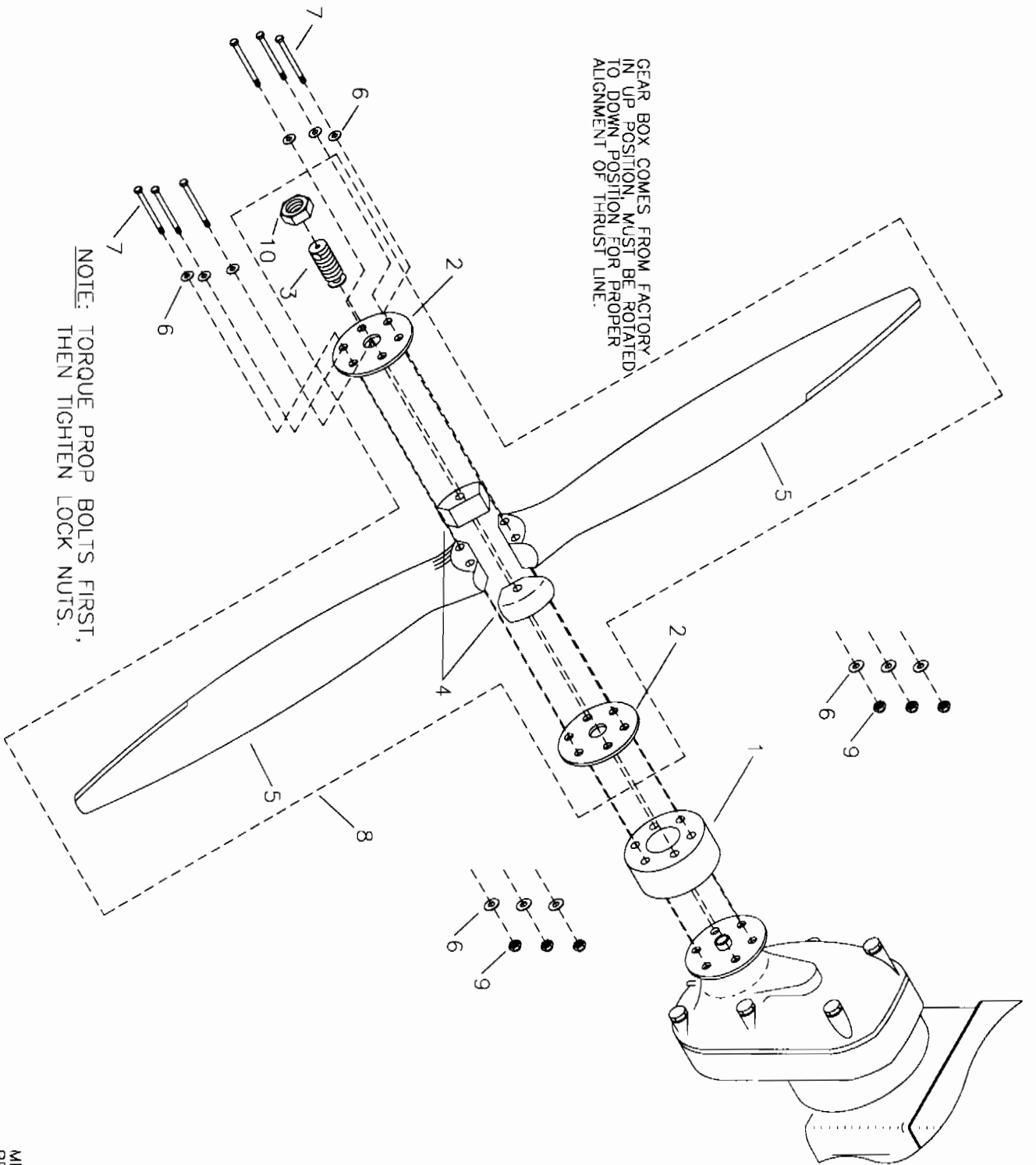
<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	5/16" Bolt	AN5-41A	6
2.	5/16" Steel Insert Loc Nut	AN365-524C	6
3.	5/16" Thin Washer	AN960-516L	12
4.	1" Prop Extension Assembly-912	KAPW0012	1
5.	Flange Bushing-912	KPPW0038	6
6.	Warp Drive Propeller	WARP	1
7.	Crush Plate *	----	0

\*Supplied with Engine.

**RANS, Inc.  
S-12 Airaile**

**dBase Page #:**

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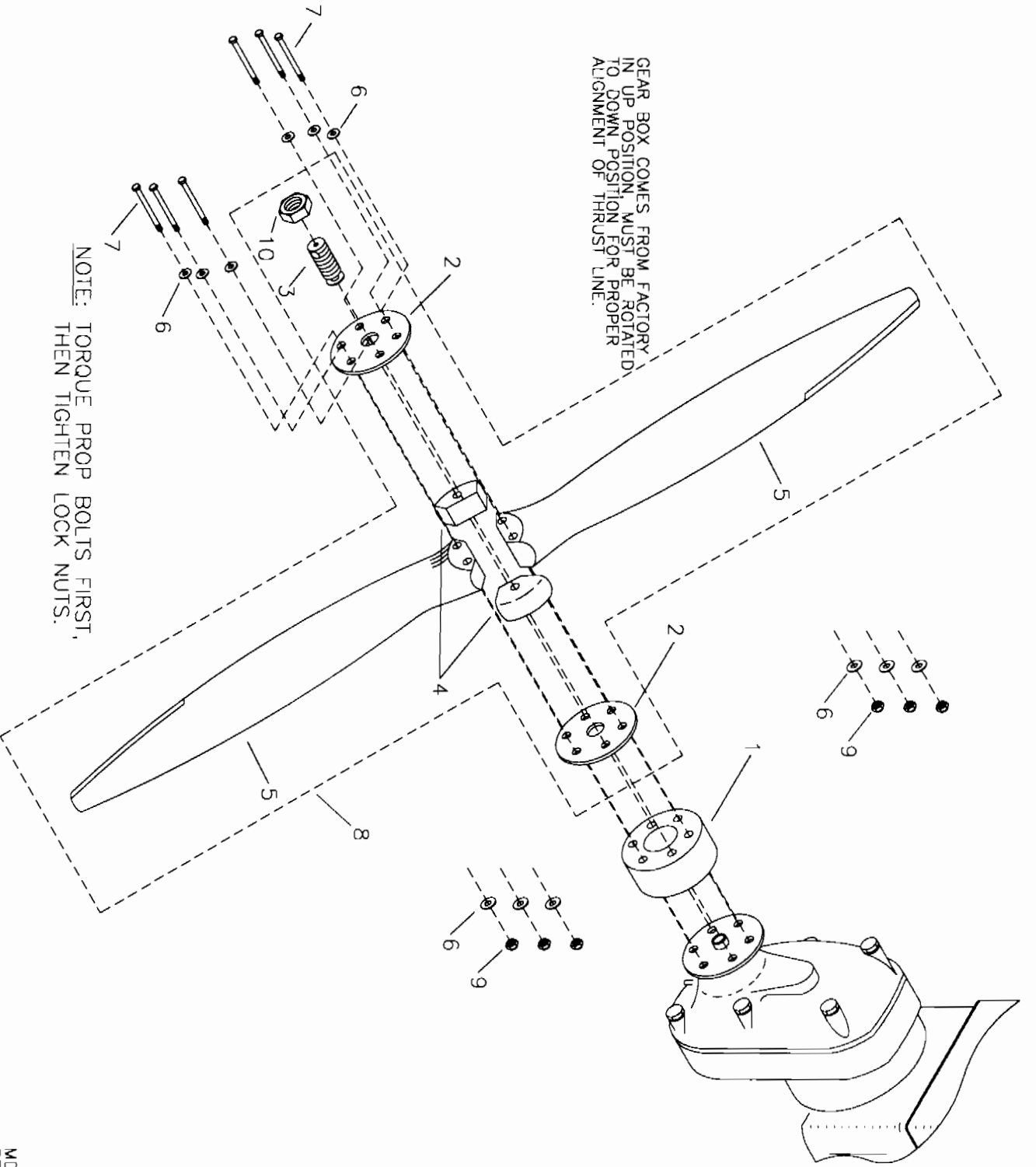
**RR-112S-12 AIRRAILE**  
**503 IVO PROP INSTALLATION**

MD2062  
 REV. A

**S-12XL AIRAILE - 503 IVO PROP INSTALLATION**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	2" IVO Prop Spacer	2-IVO-SP	1
2.	Cam Crush Plate *	----	0
3.	Prop Pitch Adjustment Screw *	----	0
4.	Prop Blade Fillet *	----	0
5.	IVO Prop Blade *	----	0
6.	1/4" Thick Washer	AN960-416	12
7.	8MM x 120MM Bolt	M8X120 BOLT	6
8.	IVO Prop Assembly	KIPR0009	1
9.	8MM Nut	8MMX1.25 NUT	6
10.	Loc Nut *	----	0

\*Supplied with propeller.



**RRRNNNS S-12 AIRAILE**  
**582 IVO PROP INSTALLATION**

MD2063  
 REV. A



**S-12XL AIRAILE - 582 IVO PROP INSTALLATION**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	2" IVO Prop Spacer	2-IVO-SP	1
2.	Cam Crush Plate *	----	0
3.	Prop Pitch Adjustment Screw *	----	0
4.	Prop Blade Fillet *	----	0
5.	IVO Prop Blade *	----	0
6.	1/4" Thick Washer	AN960-416	12
7.	8MM x 120MM Bolt	M8X120 BOLT	6
8.	IVO Prop Assembly	KIPR0010	1
9.	8MM Nut	8MMX1.25 NUT	6
10.	Loc Nut *	----	0

\*Supplied with propeller.

# RAMP S-12 AIRRALE

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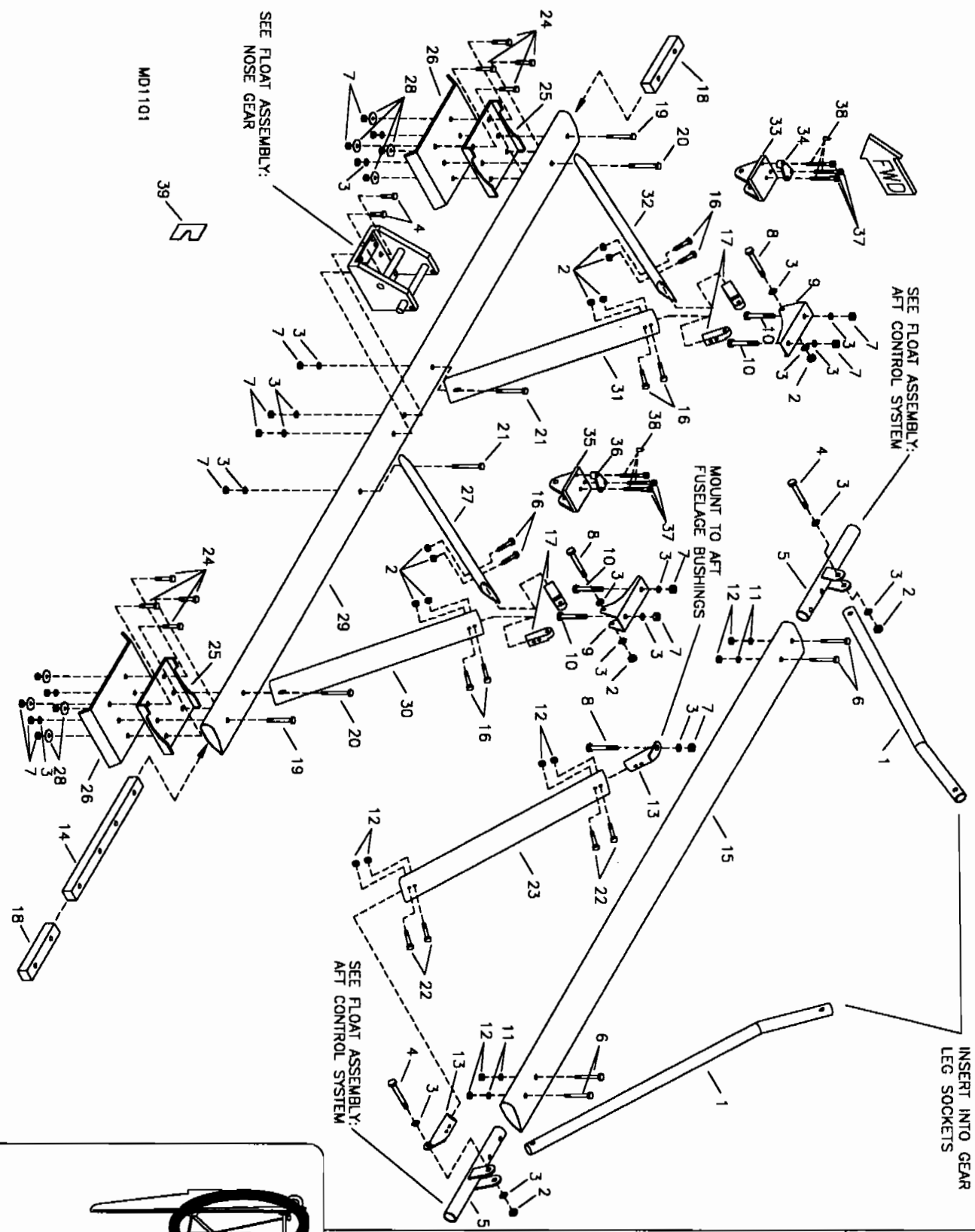
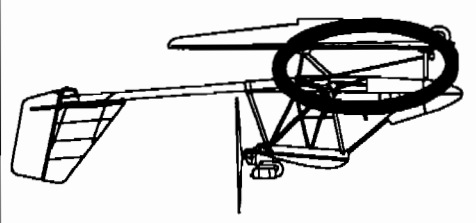
NOTES:

SECTION:

## OPTIONS

DETAIL:

### FLOAT MOUNT ASSEMBLY



MD1101

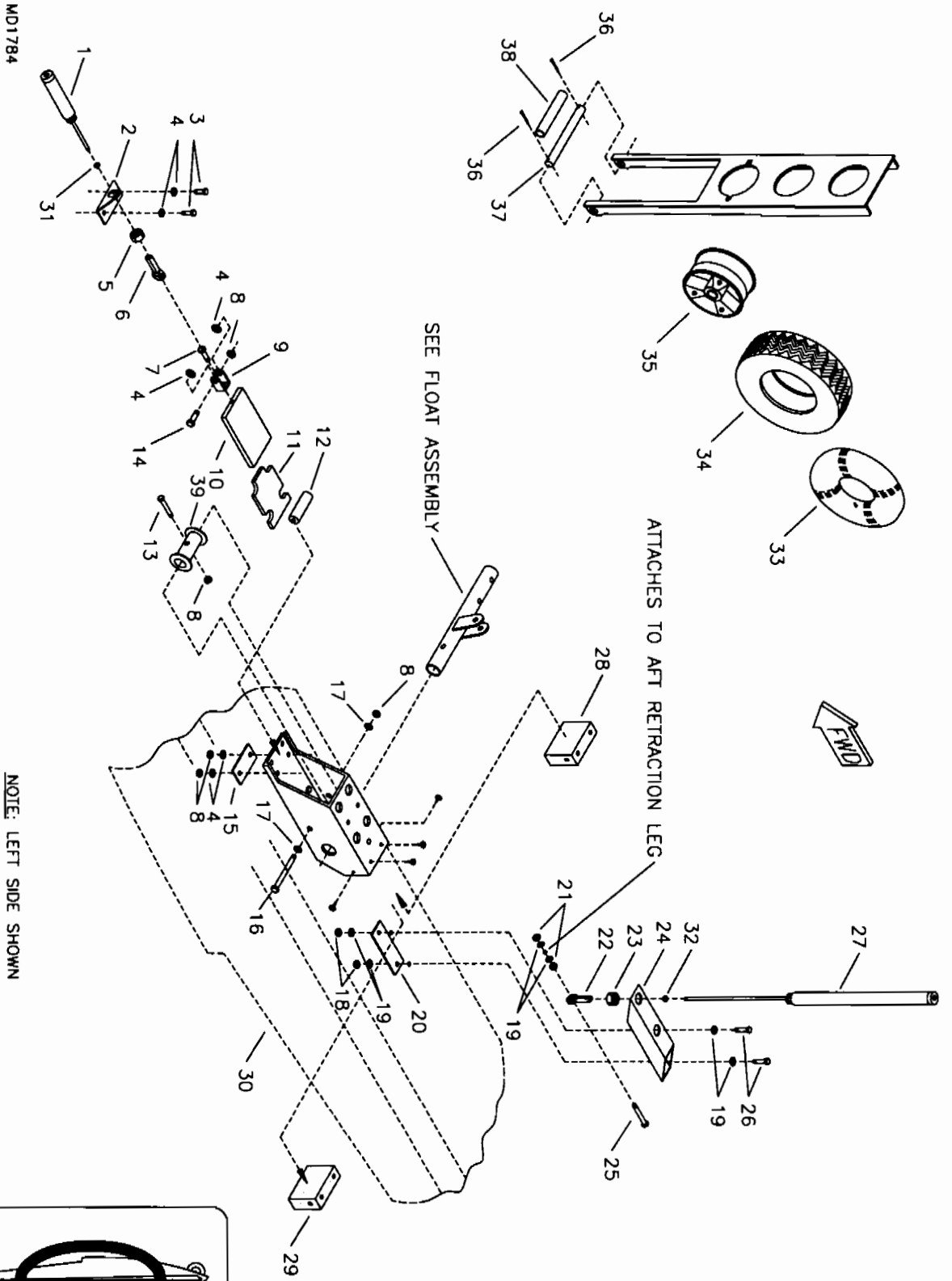
**Section:****OPTIONS****Detail:****PUDDLE JUMPER FLOATS  
FLOAT MOUNT ASSEMBLY****Page:**

09-02

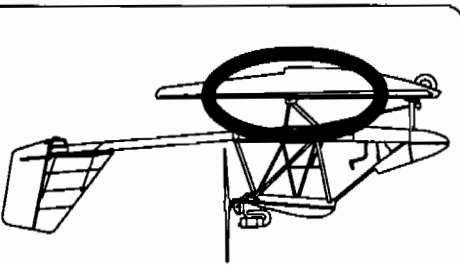
**Date:**

11/18/97

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1	. Float - Main Gear Leg	KPMG0073	2
2	. 1/4" Shear Nut	AN364-428A	12
3	. 1/4" Thick Washer	AN960-416	22
4	. 1/4" Bolt	AN4-20A	4
5	. Float - Main Gear Socket	KPMG0074	2
6	. 3/16" Bolt	AN3-15A	4
7	. 1/4" Tensile Nut	AN365-428A	24
8	. 1/4" Bolt	AN4-12A	4
9	. FWD Attach Channel Used Post Serial #08970808, including #08970808	KPMG0098	2
10	. 1/4" Bolt	AN4-11A	4
11	. 3/16" Thick Washer	AN960-10	4
12	. 3/16" Shear Nut	AN364-1032A	12
13	. Float - Mounting Bracket	KPMG0075	4
14	. PVC Insert - Inner	KPMG0044	1
15	. Float - Cross Brace	KPMG0077	1
16	. 1/4" Bolt	AN4-13A	8
17	. Float - Strut Attach Block	KPMG0004	4
18	. PVC Insert - Outer	KPMG0045	2
19	. 1/4" Bolt	AN4-24A	2
20	. 1/4" Bolt	AN4-33A	2
21	. 1/4" Bolt	AN4-32A	2
22	. 3/16" Bolt	AN3-13A	8
23	. Float - Fuselage Support	KPMG0076	2
24	. 1/4" Bolt	AN4-12A	8
25	. Forward Cross Brace Saddle	KPNG0032	2
26	. Float Doubler Plate	KPNG0033	2
27	. Forward Fuselage Support - Inner LH	KPNG0029-L	1
28	. 1/8" Aluminum Washer	EG-AW	8
29	. Forward Cross Brace	KPNG0031	1
30	. Forward Fuselage Support - Outer LH	KPNG0030-L	1
31	. Forward Fuselage Support - Inner RH	KPNG0029-R	1
32	. Forward Fuselage Support - Outer RH	KPNG0030-R	1
33	. Float Attach Bracket - RH Used Pre Serial #08970807, including #08970807	KPMG0095	1
34	. Float Attach Bracket Top - RH Used Pre Serial #08970807, including #08970807	KPMG0097	1
35	. Float Attach Bracket - LH Used Pre Serial #08970807, including #08970807	KPMG0094	1
36	. Float Attach Bracket Top - LH Used Pre Serial #08970807, including #08970807	KPMG0096	1
37	. 1/4" Bolt Used Pre Serial #08970807, including #08970807	KSHW0050	6
38	. Loctite Blue	LOC-TITE	0
39	. Large Lift Strut Chord Template	KPLS0003	1



NOTE: LEFT SIDE SHOWN  
 NOTE: REPLACE (#29) WOOD BLOCK WITH (#28) POLYETHYLENE BLOCK, INSTALL WITH EXISTING SCREWS.



**S-12XL AIRAILE - OPTIONAL PUDDLE JUMPER FLOATS****MAIN GEAR RETRACTION SYSTEM**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Air Cylinder	KSHW0029	2
2.	Cylinder Mount Angle	KPMG0040	2
3.	3/16" Bolt	AN3-12A	4
4.	3/16" Thick Washer	AN960-10	12
5.	7/16" Stainless Steel Nut *	KSHW0028	2
6.	Female Rod End	NF-3	2
7.	3/16" Bolt	AN3-3A	2
8.	3/16" Shear Nut	AN364-1032A	10
9.	Shackle	RL-205-T	2
10.	Main Gear Lock Plate **	KAMG0004-1	2
11.	Lower Guide	KPMG0032	2
12.	Upper Guide	KPMG0036	2
13.	3/16" Bolt	AN3-13A	2
14.	3/16" Bolt	AN3-7A	2
15.	Cylinder Mount Backing Plate	KPMG0038	2
16.	3/16" Bolt	AN3-32A	2
17.	3/16" Thin Washer	AN960-10L	4
18.	1/4" Tensile Nut	AN365-428A	4
19.	1/4" Thick Washer	AN960-416	12
20.	Cylinder Mount Backing Plate	KPMG0035	2
21.	1/4" Tensile Nut - Stainless	KSHW0001	4
22.	Female Rod End - Stainless Steel	KSHW0035	2
23.	5/8" Stainless Steel Nut	KSHW0027	2
24.	Main Cylinder Mount	KPMG0034	2
25.	1/4" Bolt - Stainless	KSHW0002	2
26.	1/4" Bolt	AN4-10A	4
27.	Air Cylinder	KSHW0030	2
28.	Main Gear Guide Block	KPMG0033	2
29.	Wood Block **	KAMG0004-2	2
30.	Puddle Jumper Float Container	KAMG0004	1
31.	3/16" Stainless Steel Nut	KSHW0033	2
32.	1/4" Stainless Steel Nut	KSHW0034	2
33.	5" Tire Tube	KSMG0010	2
34.	5" Tire	KSMG0011	2
35.	Wheel Assembly	KAMG0005	2
36.	Cotter Pin **	KAMG0004-3	4
37.	Axle **	KAMG0004-4	2
38.	Spacer Bushing **	KAMG0004-5	2
39.	Float - Socket Clamp	KPMG0029	2

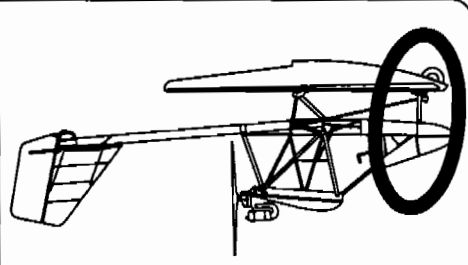
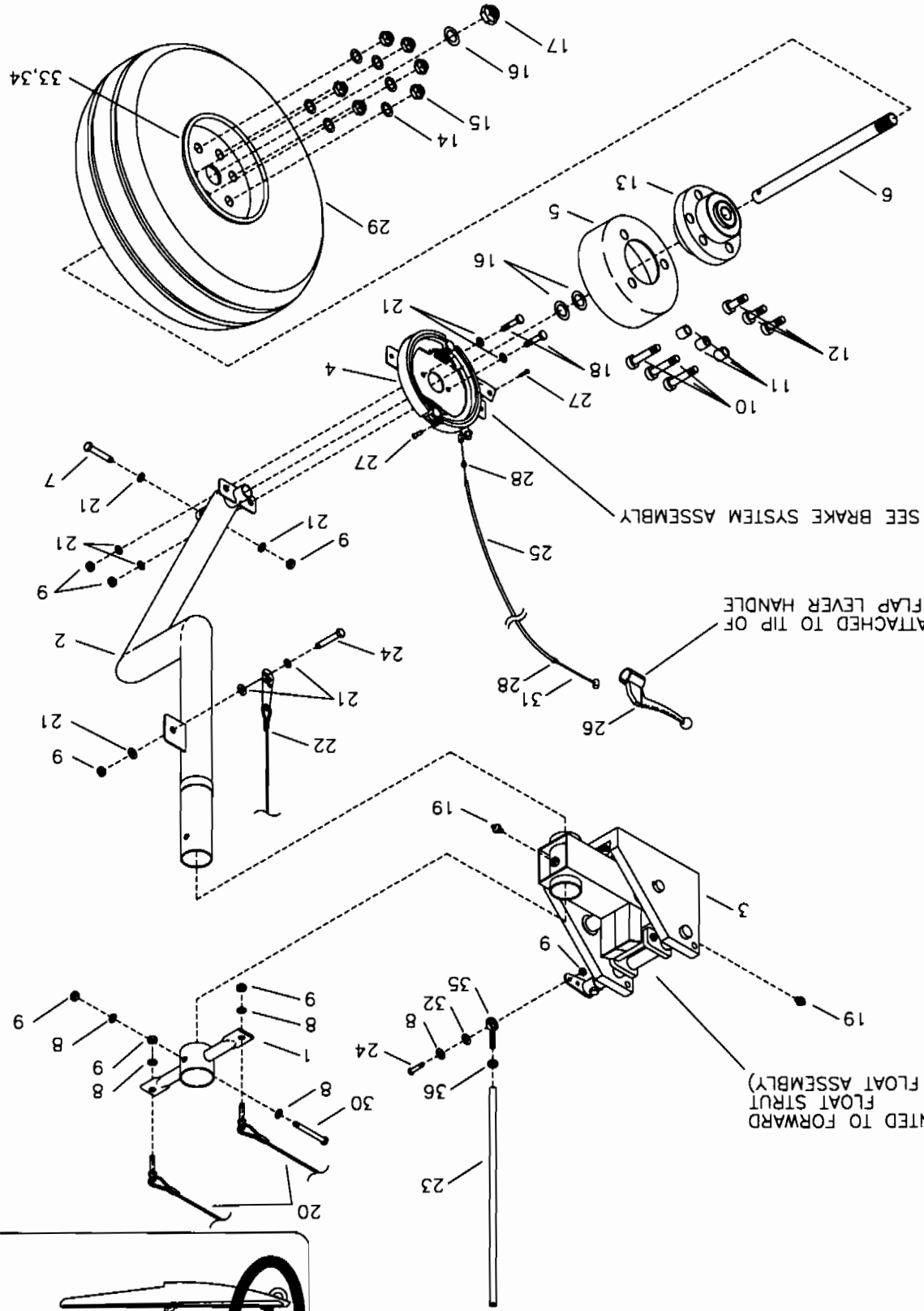
\*Replaces steel nut that comes with cylinder.

\*\*Supplied with Float Assembly.

# RPMBS S-12 AIRRALE

Made in the USA

MD1783



SECTION: OPTIONS

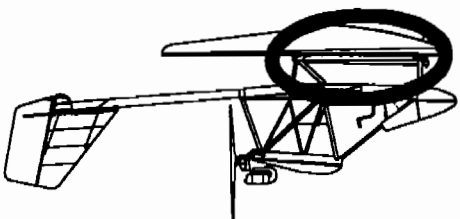
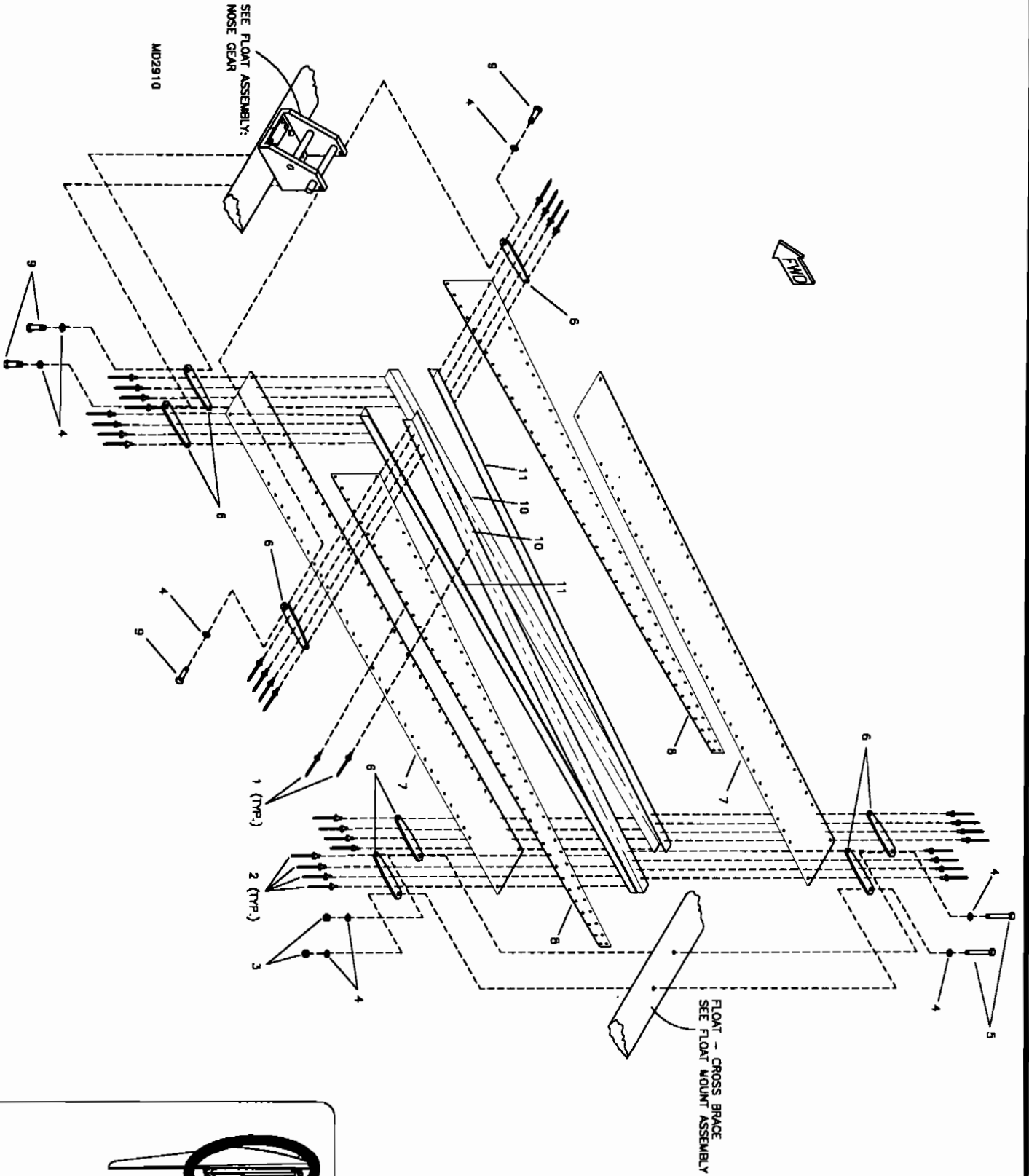
DETAIL: NOSE GEAR

**S-12XL AIRAILE - OPTIONAL PUDDLE JUMPER FLOATS**  
**NOSE GEAR**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Steer Horn	KPNG0025	1
2.	Nose Gear Strut	KPNG0022	1
3.	Nose Gear - Retract Assembly	KANG0001	1
4.	4 1/2" Brake - RH	2269	1
5.	4 1/2" Brake Drum	2211	1
6.	Axle	LG-AXLE	1
7.	3/16" Bolt	AN3-12A	1
8.	3/16" Thin Washer	AN960-10L	5
9.	3/16" Shear Nut	AN364-1032A	7
10.	Socket Head Cap Screw, 1 3/4" *	LG-MW-HUB-1	3
11.	Spacer Bushing	SB-1/2X5/16	3
12.	Socket Head Cap Screw, 1" *	LG-MW-HUB-2	3
13.	Wheel Hub *	LG-MW-HUB-3	1
14.	Washer *	LG-MW-HUB-6	6
15.	Nut *	LG-MW-HUB-7	6
16.	5/8" Shim	5/8 SHIM	3
17.	5/8" Loc Nut	5/8 LOC NUT	1
18.	3/16" Bolt	AN3-5A	2
19.	Grease Fitting	11-101	2
20.	Float - Steering Cable **	KANG0008	0
21.	3/16" Thick Washer	AN960-10	9
22.	Nose Wheel Retracting Cable **	KANG0009	0
23.	Nose Wheel Lock Rod **	KANG0010	0
24.	3/16" Bolt	AN3-6A	1
25.	Large Cable Housing	B-CH	9 ft
26.	Brake Lever	KSBS0009	1
27.	Wire Swivel/Screw Stop	2361	1
28.	Cable Conduit Ferrule End Cap	80-0002-01	2
29.	6" Tire	LG-T	1
30.	3/16" Bolt	AN3-20A	1
31.	Wire	TR-PW	9 ft
32.	3/16" Plastic Washer	PW-3	1
33.	6" Hegar Main Gear Rim Kit	LG-MW-RIM-6	1
34.	6" Hegar Main Gear Hub Kit	LG-MW-HUB	1
35.	3/16" Rod End	MM-3	1
36.	3/16" Stainless Steel Nut	KSHW0033	1

\*Supplied in Hub Kit.

\*\*Referenced from Steer Control System.



SECTION: FLOAT BOX ASSEMBLY

DETAIL: OPTIONS

SECTION:

DETAIL:



**Section:**

**OPTIONS**

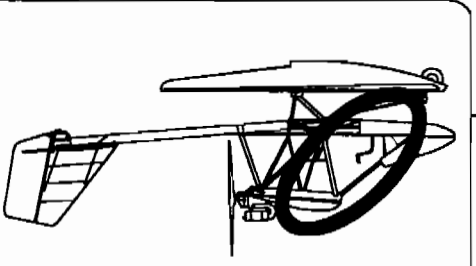
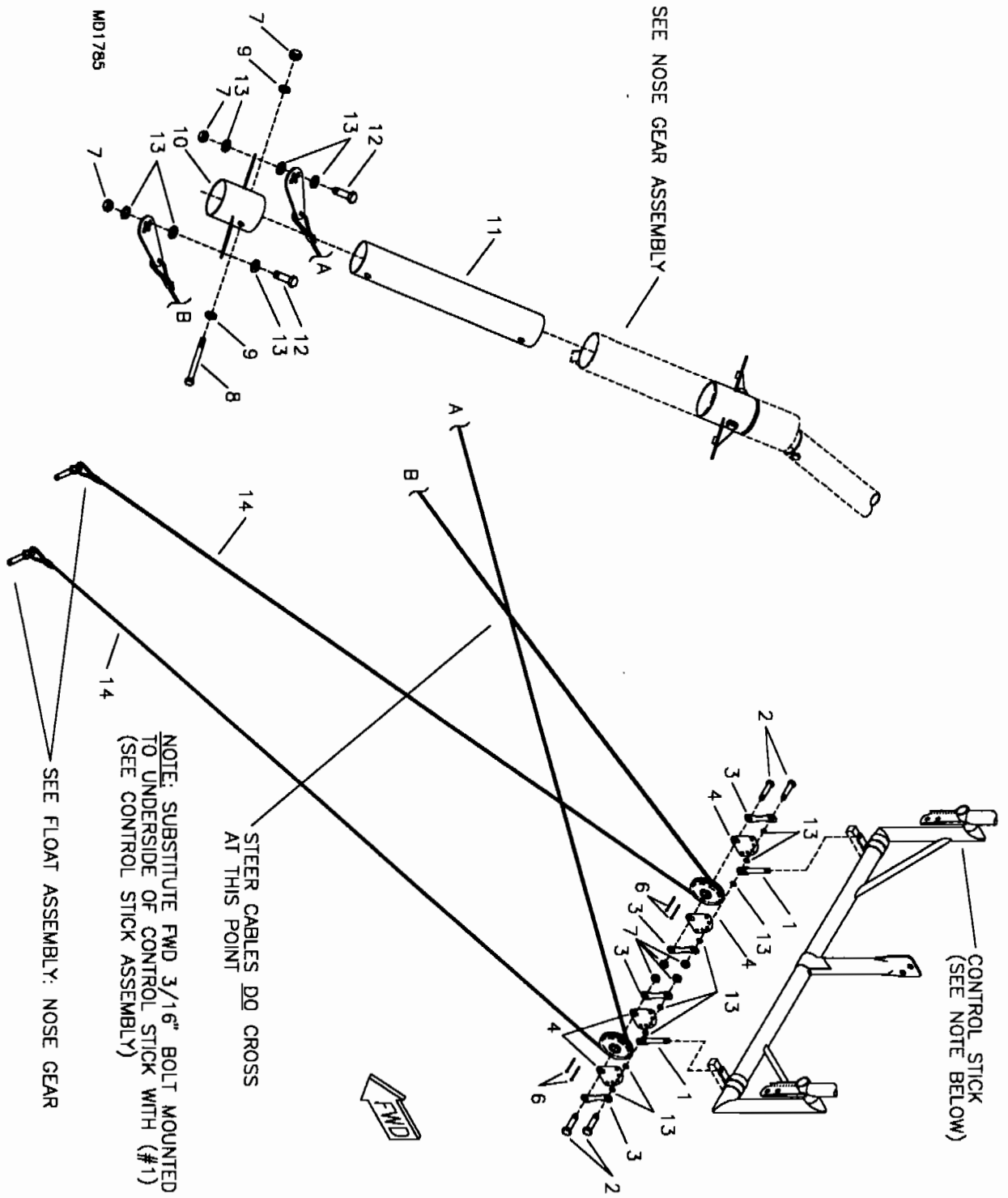
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**PUDDLE JUMPER FLOATS  
FLOAT BOX ASSEMBLY**

**Page:**  
09-08

**Date:**  
11/24/97

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1.	1/8" Aluminum Pop Rivet - Avex	1691-0410	284
2.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-44	32
3.	1/4" Tensile Nut	AN365-428A	2
4.	1/4" Thin Washer	AN960-416L	8
5.	1/4" Bolt	AN4-17A	2
6.	Float Box Attach Lug	KPMG0089	8
7.	Float Box Horizontal Panel	KPMG0087	2
8.	Float Box Vertical Panel	KPMG0086	2
9.	1/4" Bolt	AN4-4A	4
10.	Float Box Panel Angle - RH	KPMG0088-R	2
11.	Float Box Panel Angle - LH	KPMG0088-L	2



SECTION: FLOAT ASSEMBLY: STEER CONTROL SYSTEM

OPTIONS

DETAIL: SECTION:

**Section:**

**OPTIONS**

**Detail:**

**PUDDLE JUMPER FLOATS  
STEER CONTROL SYSTEM**

**Page:**  
09-10

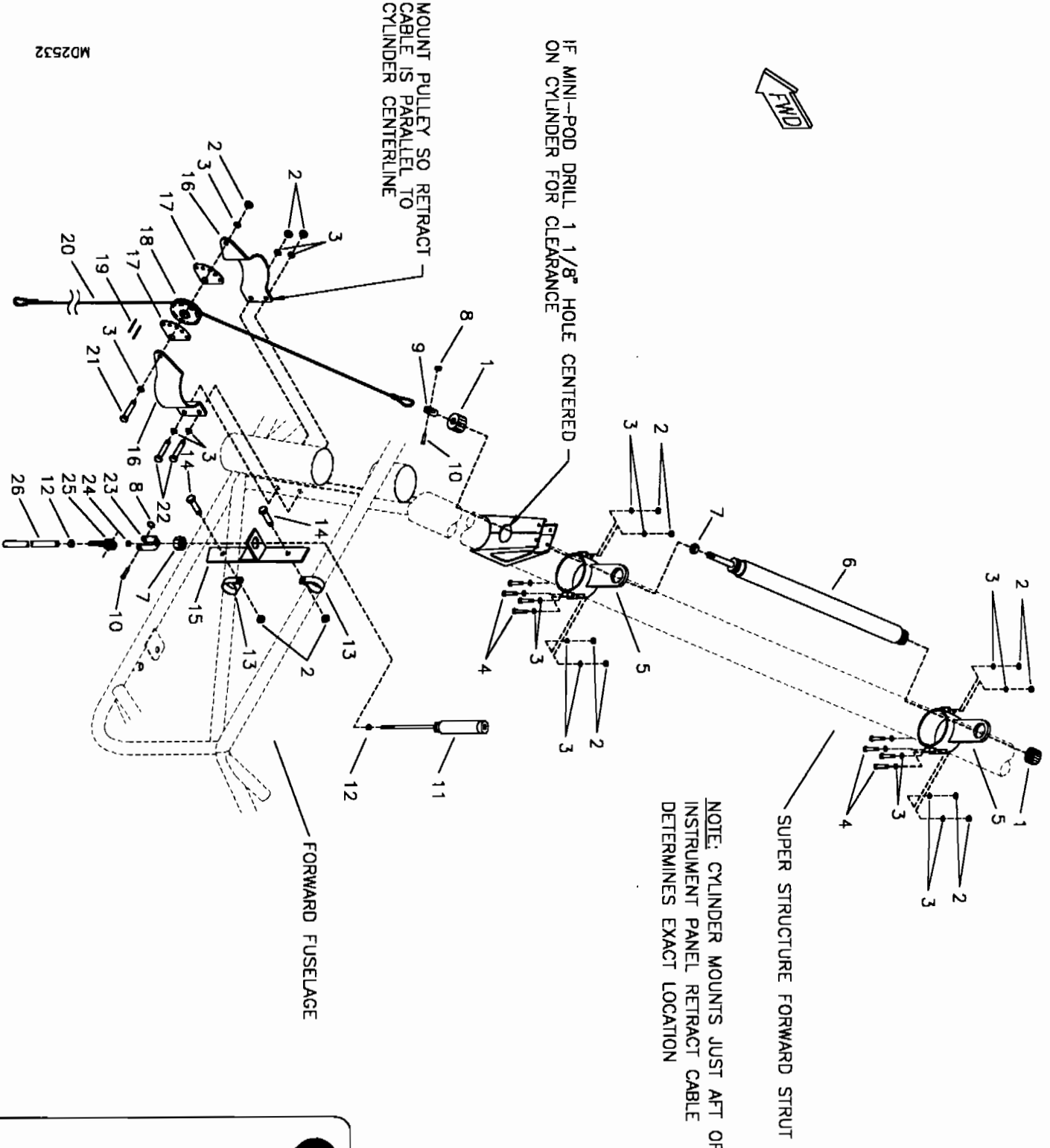
**Date:**  
11/24/97

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1 .	3/16" Eyebolt	AN42B-10A	2
2 .	3/16" Bolt	AN3-6A	4
3 .	Hummertang	T12-HT6	4
4 .	Small Pulley Cable Keeper	SP-CK	4
5 .	Small Pulley	AN210-1A	2
6 .	Small Cotter Pin	MS24665-134	4
7 .	3/16" Shear Nut	AN364-1032A	7
8 .	3/16" Bolt	AN3-20A	1
9 .	3/16" Thin Washer	AN960-10L	2
10 .	Steer Horn	KPNG0051	1
11 .	Float - Nose Gear Insert	KPNG0034	1
12 .	3/16" Bolt	AN3-5A	2
13 .	3/16" Thick Washer	AN960-10	14
14 .	Float - Steering Cable	KANG0008	2

# RPM S-12 AIRRALE

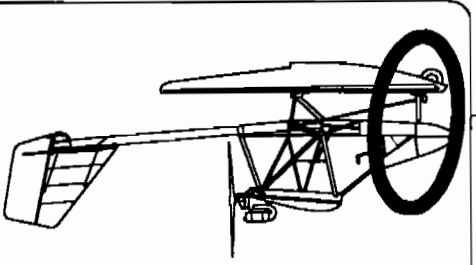
Made in the USA

MD2532



SECTION: OPTIONS

DETAIL: FLOAT ASSEMBLY: NOSE GEAR RETRACTION SYSTEM



**Section:**

**OPTIONS**

**Detail:**

**PUDDLE JUMPER FLOATS  
NOSE GEAR RETRACTION SYSTEM**

**Page:**

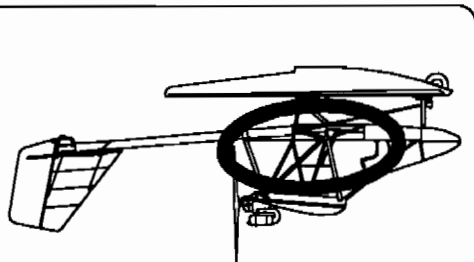
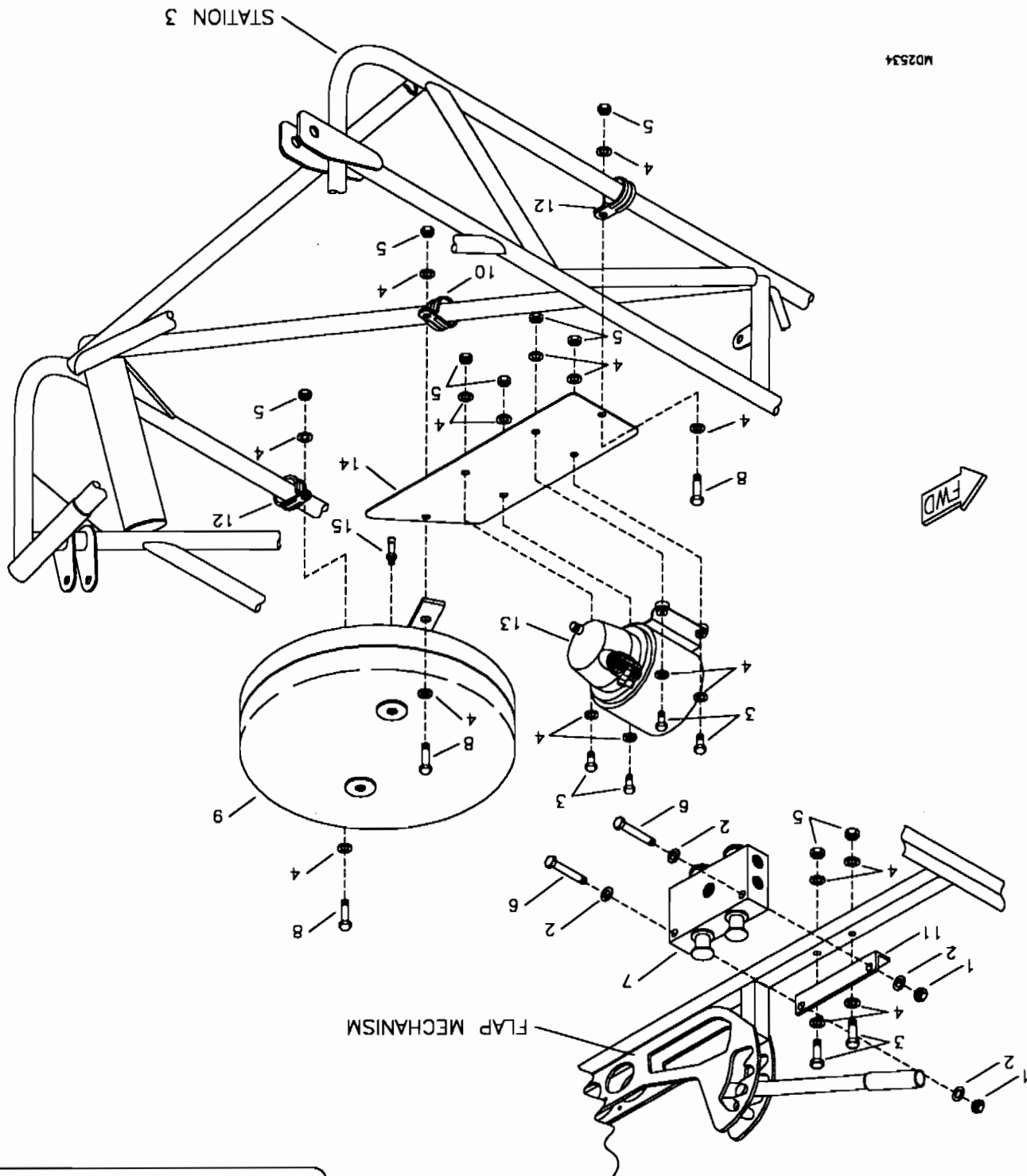
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**Date:**

11/24/97

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1 .	3/4" Stainless Steel Nut	KSHW0026	2
2 .	3/16" Shear Nut	AN364-1032A	13
3 .	3/16" Thin Washer	AN960-10L	14
4 .	3/16" Bolt	AN3-13A	8
5 .	Cylinder Clamp	KPMG0026	2
6 .	Air Cylinder	KSHW0031	1
7 .	7/16" Stainless Steel Nut	KSHW0028	2
8 .	Loc Ring	RL 27 1/4	2
9 .	Clevis Kit	KSAC0025	1
10 .	3/16" Clevis Pin	MS20392-2C17	2
11 .	Air Cylinder	KSHW0032	1
12 .	3/16" Stainless Steel Nut	KSHW0033	2
13 .	1/2" Non-Cushioned Tube Clamp	AN742-D8	2
14 .	3/16" Bolt	AN3-4A	2
15 .	Cylinder Mount Bracket	KPNG0026	1
16 .	Pulley Mount Bracket	KPNG0049	2
17 .	Small Pulley Cable Keeper	SP-CK	2
18 .	Pulley	AN210-2A	1
19 .	Small Cotter Pin	MS24665-134	2
20 .	Nose Wheel Retracting Cable	KANG0009	1
21 .	3/16" Bolt	AN3-6A	1
22 .	3/16" Bolt	AN3-12A	2
23 .	Shackle	RL-205-T	1
24 .	3/16" Tensile Nut	AN365-1032A	1
25 .	3/16" Rod End	MM-3	1
26 .	Nose Wheel Lock Rod	KANG0010	1

MD2534



SECTION: OPTIONS

DETAIL: VALVE TANK AND COMPRESSOR INSTALLATION

**Section:**

**OPTIONS**

**Detail:**

**PUDDLE JUMPER FLOATS  
VALVE, TANK AND COMPRESSOR INSTALLATION**

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**Date:**

11/24/97

<b>#</b>	<b>Description</b>	<b>Part Number</b>	<b>Quantity</b>
1 .	1/4" Shear Nut	AN364-428A	2
2 .	1/4" Thick Washer	AN960-416	4
3 .	3/16" Bolt	AN3-7A	6
4 .	3/16" Thick Washer	AN960-10	18
5 .	3/16" Shear Nut	AN364-1032A	9
6 .	1/4" Bolt	AN4-14A	2
7 .	Air Control Valve	V-88	1
8 .	3/16" Bolt	AN3-5A	3
9 .	Air Tank	1143	1
10 .	1/2" Cushioned Tube Clamp	MS21919-DG8	1
11 .	Float - Air Valve Bracket	KPMG0046	1
12 .	5/8" Cushioned Tube Clamp	MS21919-DG10	2
13 .	Compressor	KSHW0036	1
14 .	Compressor Mount Plate	KPAC0078	1
15 .	Valve Stem Fitting	KSHW0037	1

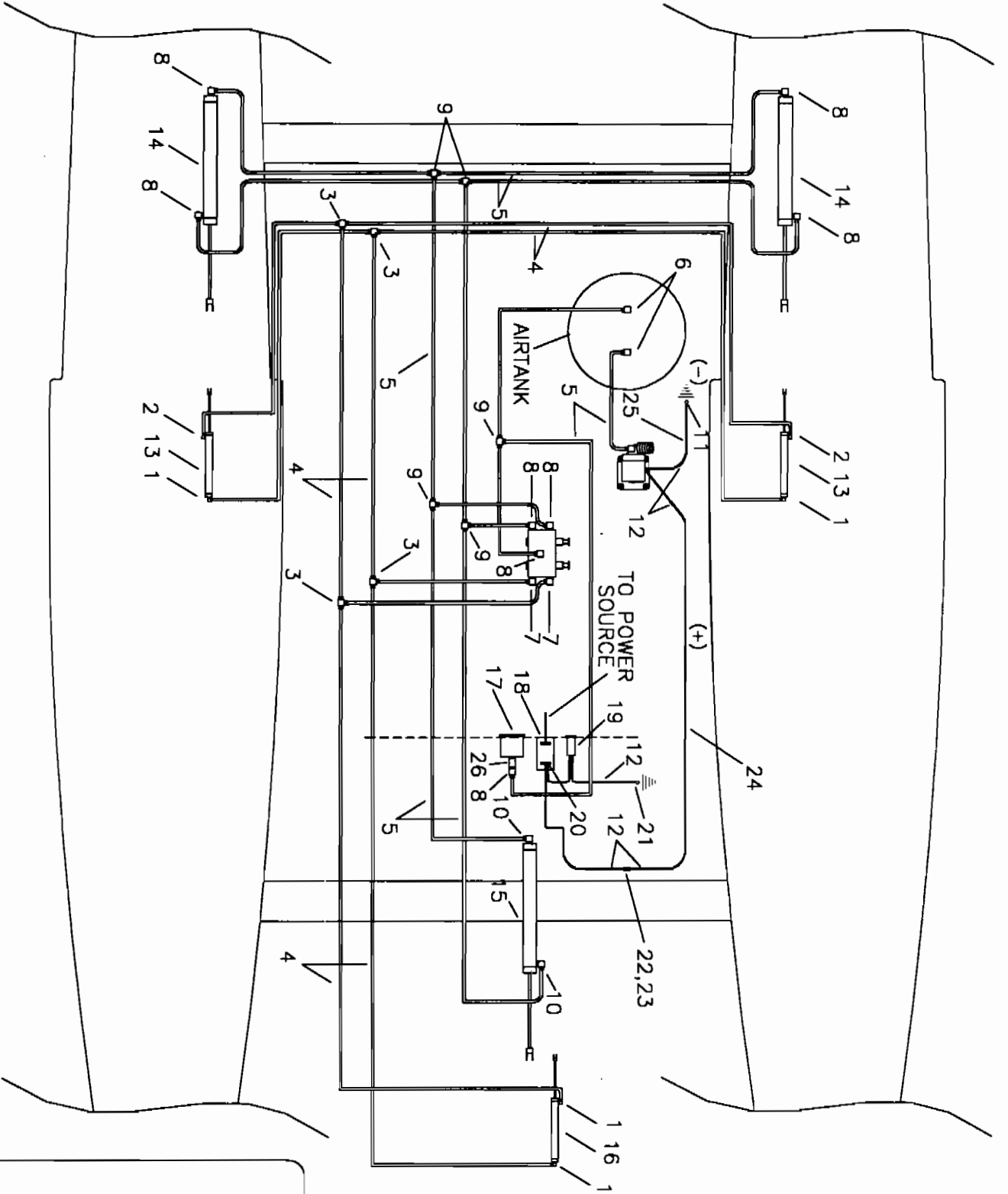
**RANS, Inc.  
S-12 Airaile**

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# RPM'S S-12 AIRRAIL

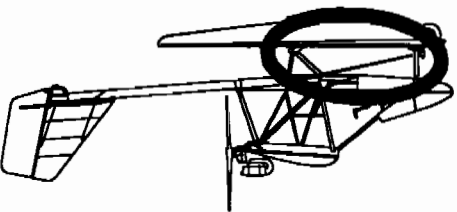
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MD2533

## RETRACTION SYSTEM SCHEMATIC

### OPTIONS





**S-12XL AIRAILE - OPTIONAL PUDDLE JUMPER FLOATS  
RETRACTION SYSTEM SCHEMATIC**

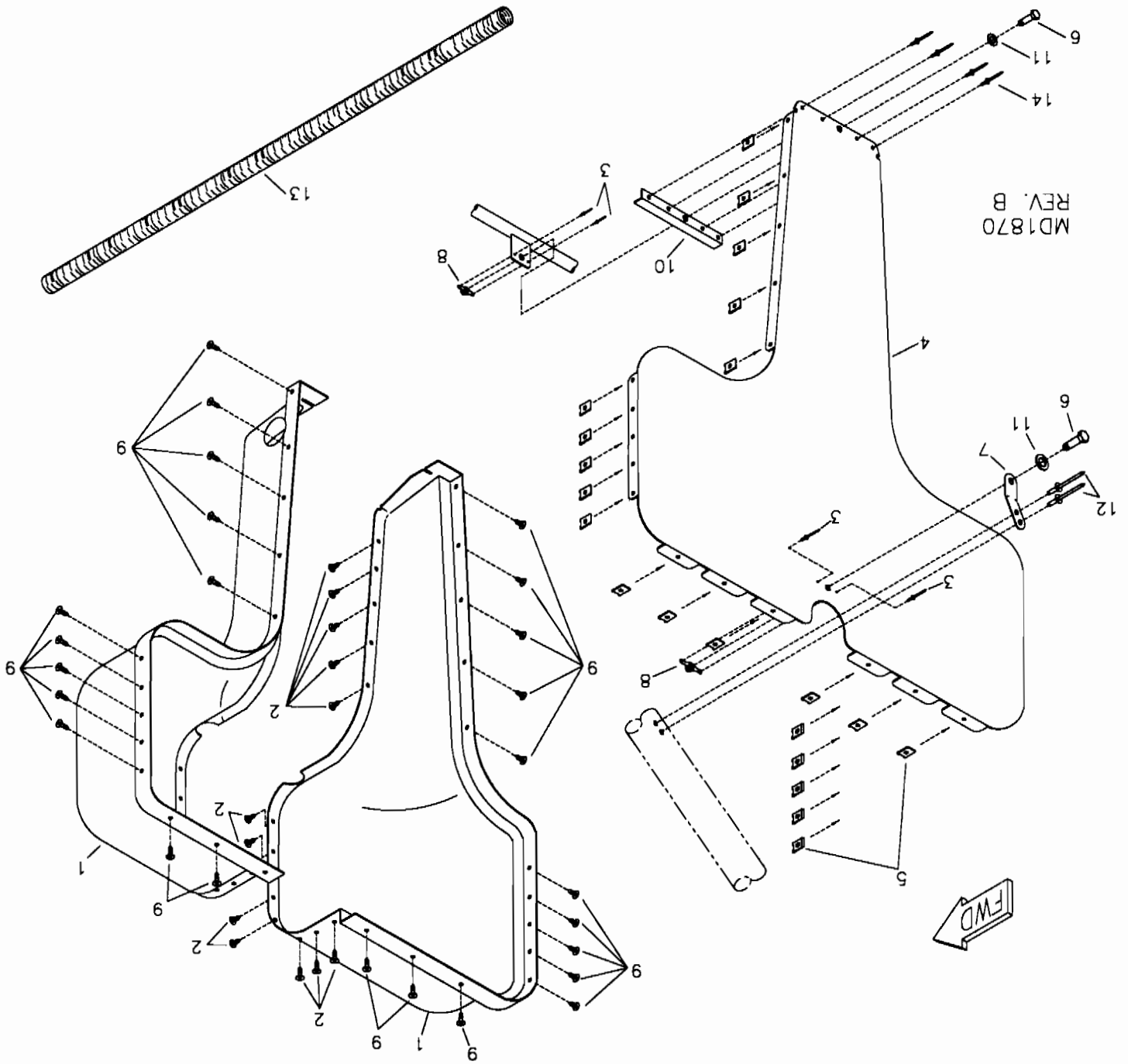
#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Air Fitting - Male Elbow	KQL-01-32	4
2.	Air Fitting - Male Connector	KQH-01-32	2
3.	Air Fitting - Union Tee	KQT-01-00	4
4.	1/8" Air Line	KSAC0015	33 ft
5.	1/4" Air Line	KSAC0016	50 ft
6.	Air Fitting - Male Elbow	KQL-07-35S	2
7.	Air Fitting - Male Elbow	KQL-01-34S	2
8.	Air Fitting - Male Elbow	KQL-07-34S	8
9.	Air Fitting - Union Tee	KQT-07-00	5
10.	Air Fitting - Male Elbow - Regulated	NAS2211F-N01-07S	2
11.	14 Gauge Eye Terminal, Blue 1/4"	1/4 EYE 14 GA	1
12.	14 Gauge Splice, Butt Connector	IP-7132	5
13.	Air Cylinder *	KSHW0029	0
14.	Air Cylinder *	KSHW0030	0
15.	Air Cylinder **	KSHW0031	0
16.	Air Cylinder **	KSHW0032	0
17.	Pressure Gauge	KSIP0004	1
18.	Switch	MS35058-22	1
19.	Indicator Light	KSIP0005	1
20.	14 Gauge Eye Terminal, Blue 5/32"	KSES0003	2
21.	14 Gauge Eye Terminal, Blue 3/16"	IP-7102	1
22.	14 Gauge, In Line Fuse Holder	KSES0019	1
23.	7.5 AMP Fuse	KSES0020-7.5	1
24.	14 Gauge Red Wire	14 GA WIRE/RED	10 ft
25.	14 Gauge Black Wire	14 GA WIRE/BLACK	2 ft
26.	1/8" Union	3-20320	1

\*Referenced from Main Gear Retraction System.

\*\*Referenced from Nose Gear Retraction System.

# RPM S-12 AIRAILE OPTIONAL INSTRUMENT PANEL ASSEMBLY

10/12/99



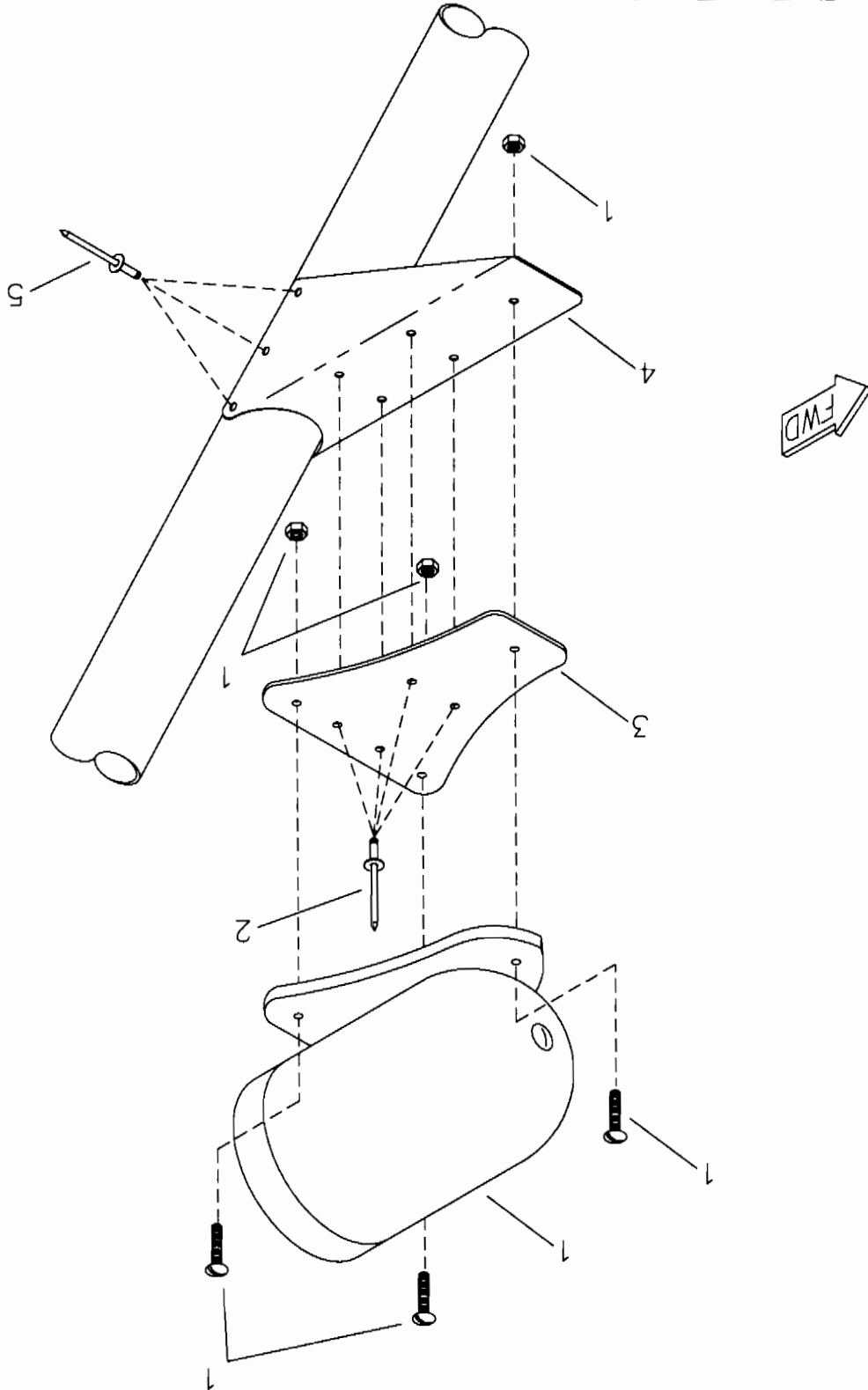
**S-12XL AIRAILE - OPTIONAL INSTRUMENTAL PANEL ASSEMBLY**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Instrument Panel Housing	KPIP0032	1
2.	#6 Small Pan Head Screw	6RX1/2 PHS	15
3.	3/32" Aluminum Pop Rivet	40APR1/8	4
4.	Instrument Panel - Standard Pre-cut	KPIP0035	1
4.	Instrument Panel - Optional	KPIP0030	1
5.	Tinnerman	A1789-8Z-1	30
6.	3/16" Bolt	AN3-3A	2
7.	Mount Tang	ST-16	1
8.	3/16" Nut Plate	K-1000-3	2
9.	#8 Pan Head Screw	8X1/2 PHS	30
10.	Attach Angle	KPIP0031	1
11.	3/16" Thin Washer	AN960-10L	2
12.	3/16" Stainless Steel Pop Rivet - Cherry Q	CCPQ-62	2
13.	Wire Casing	IP-WCASE	13 ft
14.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-42	4

# OPTIONAL COMPASS MOUNT ASSEMBLY

MD3621

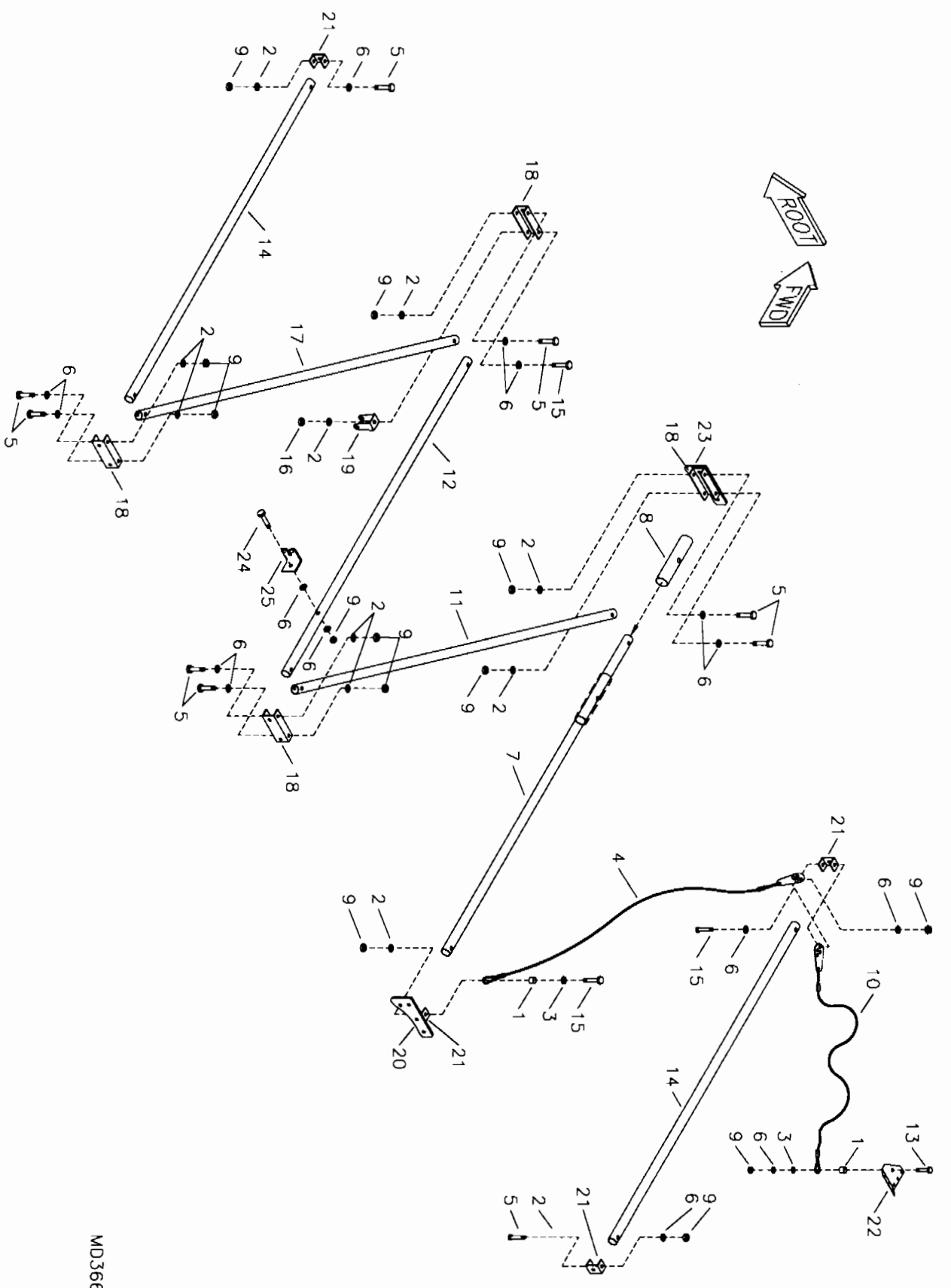
## RRMS S-12XL AIRAILE



**S-12XL AIRAILE - OPTIONAL COMPASS MOUNT ASSEMBLY**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Pedestal Mount Compass & Hardware	KSAV0011	1
2.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-44	4
3.	Compass Mount - Base	KPIP0034	1
4.	Compass Mount	KPIP0033	1
5.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-42	6

# RRRND08 S-12 AIRRAILE OPTIONAL D&F WING FRAME ASSEMBLY INTERNAL STRUCTURE



MD3660

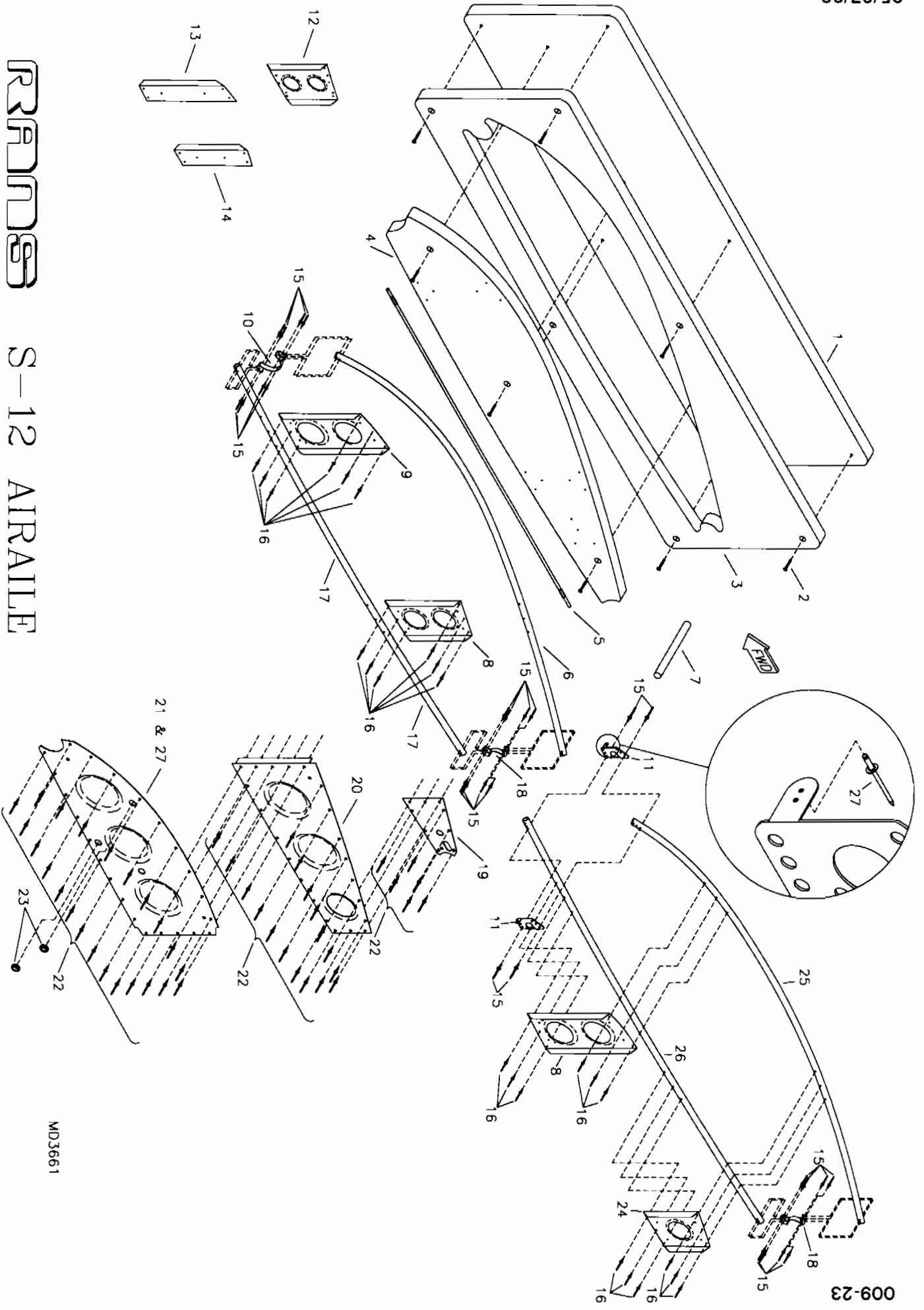
**S-12XL AIRAILE - OPTIONAL DOPE & FABRIC - WING INTERNAL STRUCTURE**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Aluminum Bushing, 1/4" x .028 x 1/4" *	KAAC0026-1	0
2.	3/16" Thick Washer	AN960-10	22
3.	3/16" Plastic Washer	PW-3	4
4.	Wing Cable, 51"	W-WC-51	2
5.	3/16" Bolt	AN3-15A	18
6.	3/16" Thin Washer	AN960-10L	32
7.	Middle Compression Tube	W-MC-151	2
8.	Compression Tube Doubler	CS-CTD	2
9.	3/16" Shear Nut	AN364-1032A	26
10.	Wing Cable, 61	W-WC-59	2
11.	Drag Brace	W-DB-151	2
12.	Flap Compression Tube	W-FCT-151	2
13.	3/16" Bolt	AN3-4A	2
14.	Inner Compression Tube	W-IO-151	4
15.	3/16" Bolt	AN3-16A	6
16.	3/16" Tensile Nut	AN365-1032A	2
17.	Drag Brace Root	W-DBR-151	2
18.	Long Wing Channel **	W-WCL	0
19.	Jury Strut Bracket	JS-BK	2
20.	AFT Strut Plate **	W-SAP-TE	0
21.	Attach Bracket **	S2-SAB	0
22.	Tip Gusset Top **	W-TG-T	0
23.	FWD Strut Plate **	W-SAP-LE	0
24.	3/16" Bolt	AN3-14A	2
25.	Teleflex Retainer	W-TEL-R	2

\*Builder must fabricate from raw stock.

\*\*Referenced from leading and trailing edge spar assembly.

# RRRMM88 S-12 AIRRAIL OPTIONAL D&F WING RIB ASSEMBLY AND JIG



MD3661



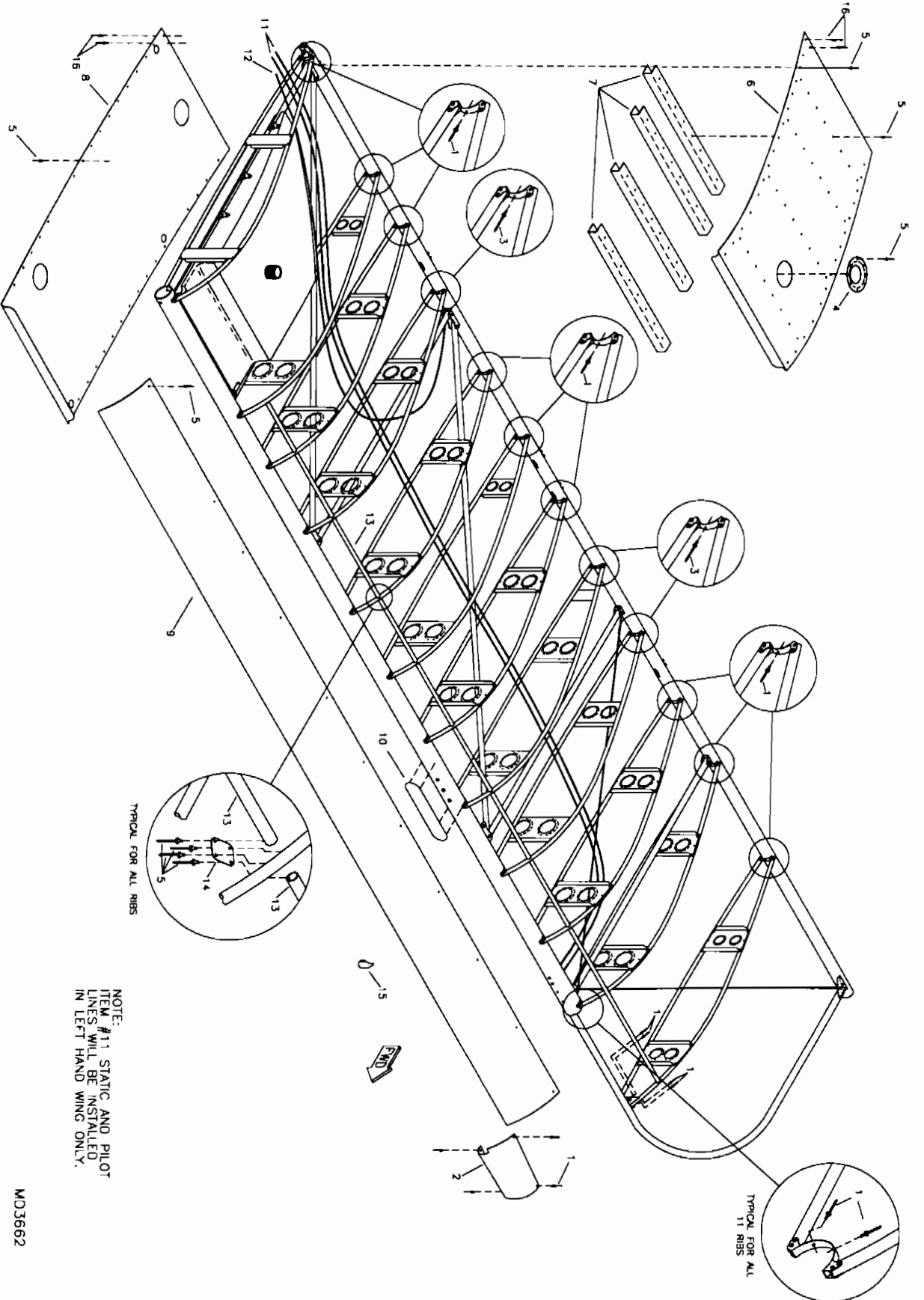
**S-12XL AIRAILE - OPTIONAL DOPE & FABRIC - WING RIB ASSEMBLY & JIG**

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Jig Backing Plate *	JIG PLATE	0
2.	Wood Screw	KSHW0046	9
3.	Outer Jig - Wing Rib	KPWI0289	1
4.	Inner Jig - Wing Rib	KPWI0313	1
5.	1/8" Stainless Steel Wire	KAAC0026-9	0
6.	Upper Rib - Wing	KPWI0287	22
7.	Wooden Dowel **	DOWEL	0
8.	AFT Channel - Wing Rib - RH	KPWI0211-R	9
8.	AFT Channel - Wing Rib - LH	KPWI0211-L	9
9.	Forward Channel - Wing Rib - RH	KPWI0210-R	10
9.	Forward Channel - Wing Rib - LH	KPWI0210-L	10
10.	Rib Clip - Leading Edge	KPWI0214	22
11.	Rib Clip - Leading Edge - RH	KPWI0292-R	2
11.	Rib Clip - Leading Edge - LH	KPWI0292-L	2
12.	AFT Channel - Wing Rib #2 - RH	KPWI0222-R	2
12.	AFT Channel - Wing Rib #2 - LH	KPWI0222-L	2
13.	Forward Channel - Root Rib - RH	KPWI0216-R	1
13.	Forward Channel - Root Rib - LH	KPWI0216-L	1
14.	AFT Channel - Root Rib - RH	KPWI0218-R	1
14.	AFT Channel - Root Rib - LH	KPWI0218-L	1
15.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-42	402
16.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-41	300
17.	Lower Rib - Wing	KPWI0288	22
18.	Rib Clip - Trailing Edge	KPWI0215	24
19.	Root Rib Access Panel - Wing - RH	KPWI0291-R	1
19.	Root Rib Access Panel - Wing - LH	KPWI0291-L	1
20.	AFT Root Rib Skin - Wing - RH	KPWI0220-R	1
20.	AFT Root Rib Skin - Wing - LH	KPWI0220-L	1
21.	Forward Root Rib Skin - Wing - RH	KPWI0290	1
22.	1/8" Aluminum Pop Rivet - Avex	1691-0410	100
23.	Rubber Grommet	MS35489-11	6
24.	Compression Channel - Wing Tip - RH	KPWI0293-R	1
24.	Compression Channel - Wing Tip - LH	KPWI0293-L	1
25.	Tip Rib - Upper	KPWI0294	2
26.	Tip Rib - Lower	KPWI0295	2
27.	FWD Root Rib Skin - Wing - LH	KPWI0297	1

\*Builder must fabricate from 3/8" crate material. Refer to text for instructions.

\*\*Builder provides.

# RRRNDSS S-12 AIRRAILE OPTIONAL D&F WING RIBS AND SHEET METAL



MD3662

**S-12XL AIRAILE - OPTIONAL DOPE & FABRIC - WING RIBS & SHEET METAL**

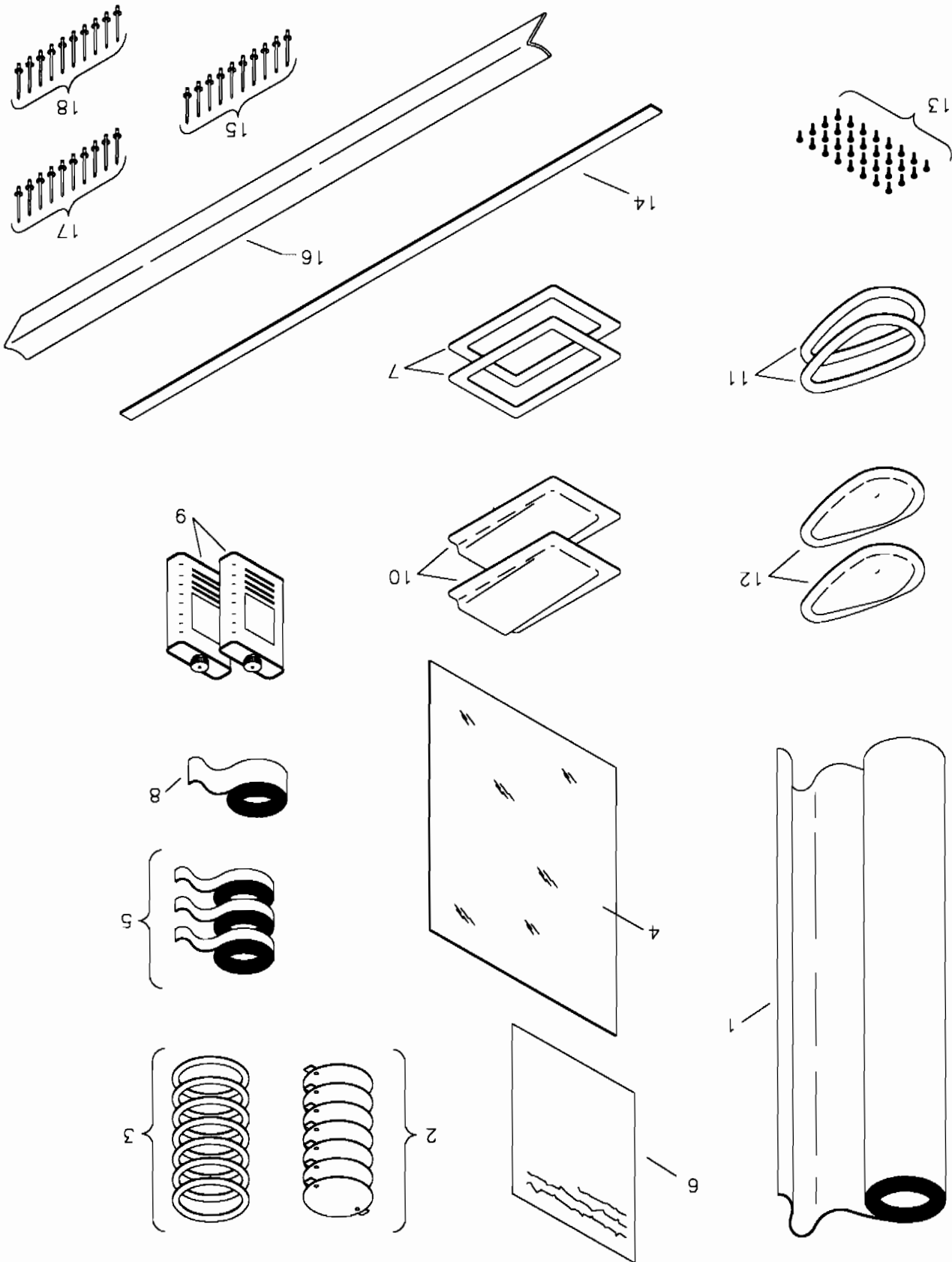
<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-42	80
2.	Leading Edge Tip Wrap - RH	KPWI0296-R	1
2.	Leading Edge Tip Wrap - LH	KPWI0296-L	1
3.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-44	10
4.	Upper Root Skin Scupper - Wing	KPWI0206	2
5.	1/8" Aluminum Pop Rivet - Avex	1691-0410	320
6.	Upper Root Skin - Wing - RH	KPWI0203-R	1
6.	Upper Root Skin - Wing - LH	KPWI0203-L	1
7.	Root Skin Stiffener - Wing	KPWI0207	8
8.	Lower Root Skin - Wing - RH	KPWI0204-R	1
8.	Lower Root Skin - Wing - LH	KPWI0204-L	1
9.	Leading Edge Wrap	W-LE-W	2
10.	Bolt Cover	KPWI0208	2
11.	Pitot/Static Line, Blue	FS-FL	40 ft
12.	Flap Teleflex **	W-F-TELFX-8	2
13.	Aluminum Support Tubes, 1/2" x .028 x X *	KAAC0026-10	0
14.	Gusset	KPWI0255	20
15.	J&B Weld Epoxy	J & B	0
16.	1/8" Stainless Steel Pop Rivet - Cherry Q	CCPQ-42	8

\*Builder must fabricate from raw stock.

\*\*Reference Flap System Assembly.

# RPM S-12 AIRAILE OPTIONAL D&F COVERING SUPPLIES

MD3663



**S-12XL AIRAILE - OPTIONAL DOPE & FABRIC - COVERING SUPPLIES**

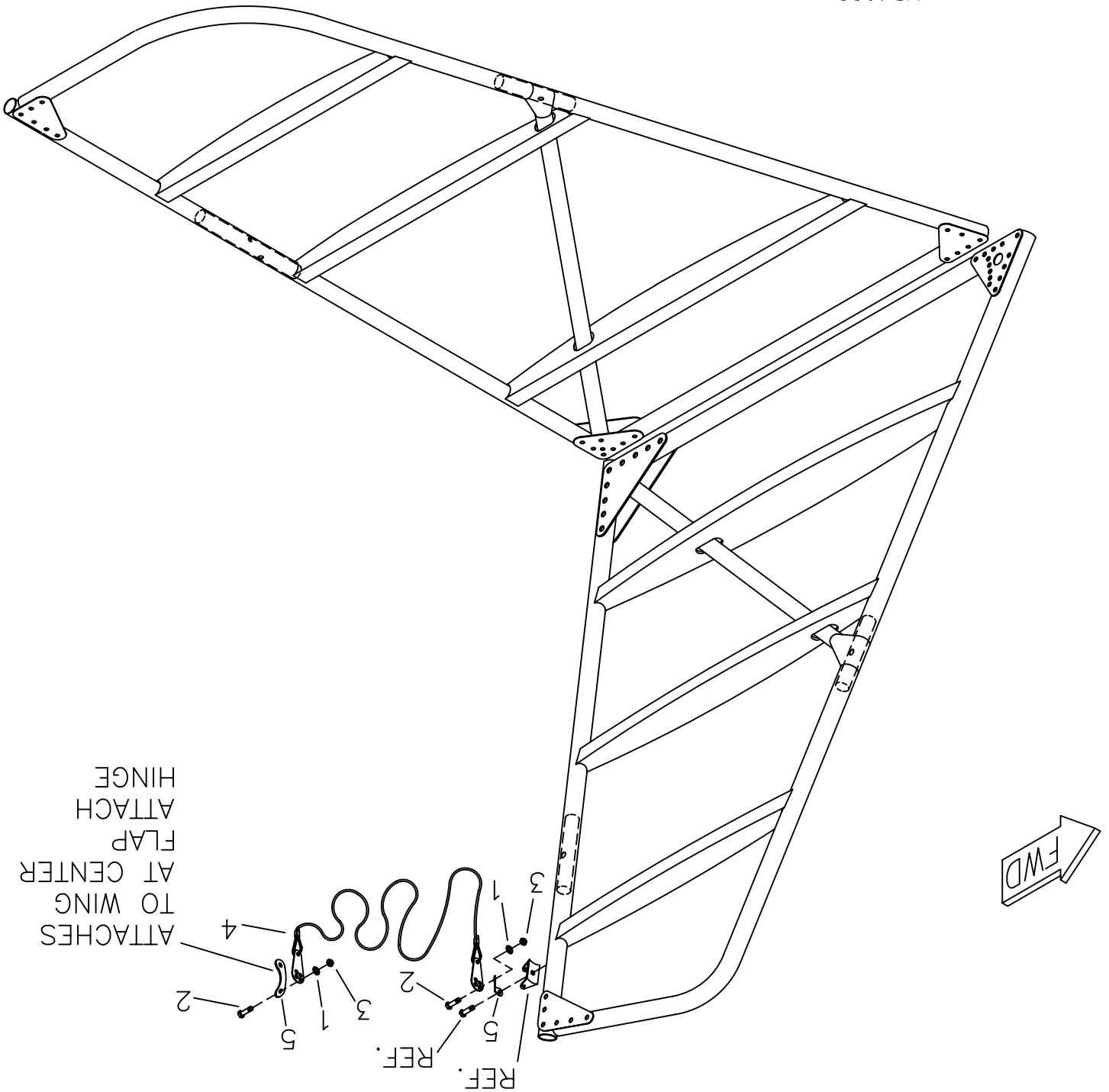
<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Aircraft Fabric	CV-S6S-116	28 yds
2.	Inspection Plate	CV-IP	7
3.	Inspection Ring	CV-IR	7
4.	.020 Lexan 24" x 24"	LEX-24X24	1
5.	2" Surface Tape	2 TAPE	3 rls
6.	Super Flight Covering Manual	KSCV0002	0
7.	Aileron Exit Ring	KPCV0005	2
8.	4" Surface Tape	4 TAPE	10 yds
9.	Aircraft Fabric Adhesive *	KSCV0001	0 gal
10.	Aileron Exit	CV-AX	2
11.	Flap Exit Rings	KPCV0006	2
12.	Flap Exit Fairings	CV-FX	2
13.	#4 Small Pan Head Screw **	4X1/4 PHS	40
14.	Cover Strap	KPCV0012	70
15.	1/8" Aluminum Pop Rivet - Avex	1691-0410	650
16.	Gap Seal	GAP-2	7 pcs
17.	1/8" Aluminum Pop Rivet - Cherry Q	AAPQ-44	52
18.	3/32" Aluminum Pop Rivet	40APR1/8	200

\* Builder Supplied. May be ordered from RANS Parts Department.

\*\* Use to mount removable Exit Fairings and Covers

# RPM S-12XL AIRAILE OPTIONAL TAIL CABLE ASSEMBLY

MD4088



ATTACHES  
TO WING  
AT CENTER  
FLAP  
ATTACH  
HINGE

FWD

**S-12XL AIRAILE - OPTIONAL TAIL CABLE ASSEMBLY**

<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	3/16" Thick Washer	AN960-10	4
2.	3/16" Bolt	AN3-4A	4
3.	3/16" Tensile Nut	AN365-1032A	4
4.	Tail Cable	KPTG0029	2
5.	Hummertang	T12-HT6	4