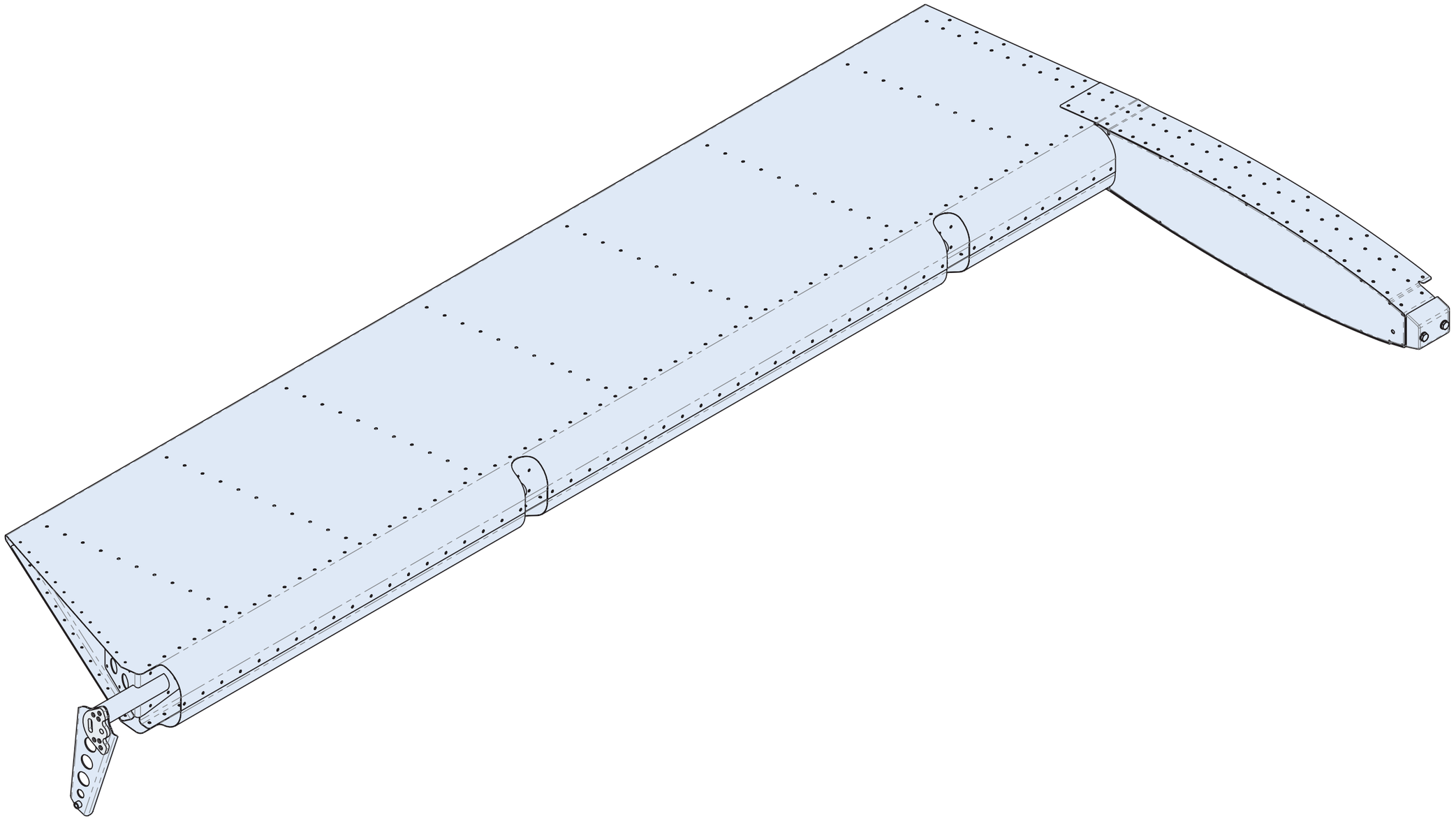
SECTION 09

RV-15
VAN'S AIRCRAFT



E-15504

ELEVATOR ASSEMBLY

ASSM PARTS LIST					
ITEM NO.	PART NUMBER	DESCRIPTION	MATERIAL	-L ASSM QTY.	-R ASSM QTY.
1	E-15001-001	SKIN, ELEV	.020 2024-T3 ALCLAD SHEET	1	1
2	E-15002-001	SPAR, ELEV	.032 2024-T3 ALCLAD SHEET	1	1
3	E-15003-001	RIB, ELEV OTBD TIP	.025 2024-T3 ALCLAD SHEET	1	1
4	E-15004-001	RIB, ELEV INBD TIP	.025 2024-T3 ALCLAD SHEET	1	1
5	E-15005-001	RIB, ELEV ROOT	.032 2024-T3 ALCLAD SHEET	1	1
6	E-15006-001	SHEAR CLIP, ELEVATOR	.032 2024-T3 ALCLAD SHEET	1	1
7	E-15007-001	RIB, MID, ELEV	.025 2024-T3 ALCLAD SHEET	7	7
8	E-15008-001	SKIN, ELEV COUNTERBALANCE	.020 2024-T3 ALCLAD SHEET	1	1
9	E-15009-001	DOUBLER, ELEVATOR HINGE	.063 2024-T3 ALCLAD SHEET	2	2
10	E-15010-001	COUNTERWEIGHT, ELEV	LEAD	1	1
11	E-15012-001	STOP, ELEV	2024-T351	1	1
12	WD-15001-001	WELDMENT, ELEV HORN	4130 STEEL	1	-
13	WD-15001-002	WELDMENT, ELEV HORN	4130 STEEL	-	1
14	AN3H-12A	AN3-12 BOLT	CADMIUM PLATED STEEL	2	2
15	AN316-6R	JAM NUT, THIN	CADMIUM PLATED STEEL	2	2
16	AN426AD3-3.5	RIVET, SOLID COUNTERSUNK	ALUMINUM	7	7
17	AN426AD4-7	RIVET, SOLID COUNTERSUNK	ALUMINUM	6	6
18	AN470AD3-3	RIVET, SOLID UNIVERSAL	ALUMINUM	26	26
19	AN470AD4-4	RIVET, SOLID UNIVERSAL	ALUMINUM	21	21
20	AN470AD4-4.5	RIVET, SOLID UNIVERSAL	ALUMINUM	20	20
21	AN470AD4-5.5	RIVET, SOLID UNIVERSAL	ALUMINUM	4	4
22	K1000-3D	NUTPLATE, 10-32 DIMPLED	STEEL	2	2
23	K1000-6	NUTPLATE, 3/8-24	STEEL	2	2
24	MD3614M	BEARING, ROD END	STEEL	2	2
25	NAS1149F0332P	FLAT WASHER, THIN, 3/16" ID	STEEL	2	2
26	RIVET-LP4-3	RIVET, BLIND	ALUMINUM	467	467

RV-15
VAN'S AIRCRAFT

NOTE: Except where separate instructions and/or figures exist for both left and right sides of the aircraft, only the left side parts, assemblies, or installations will be shown.

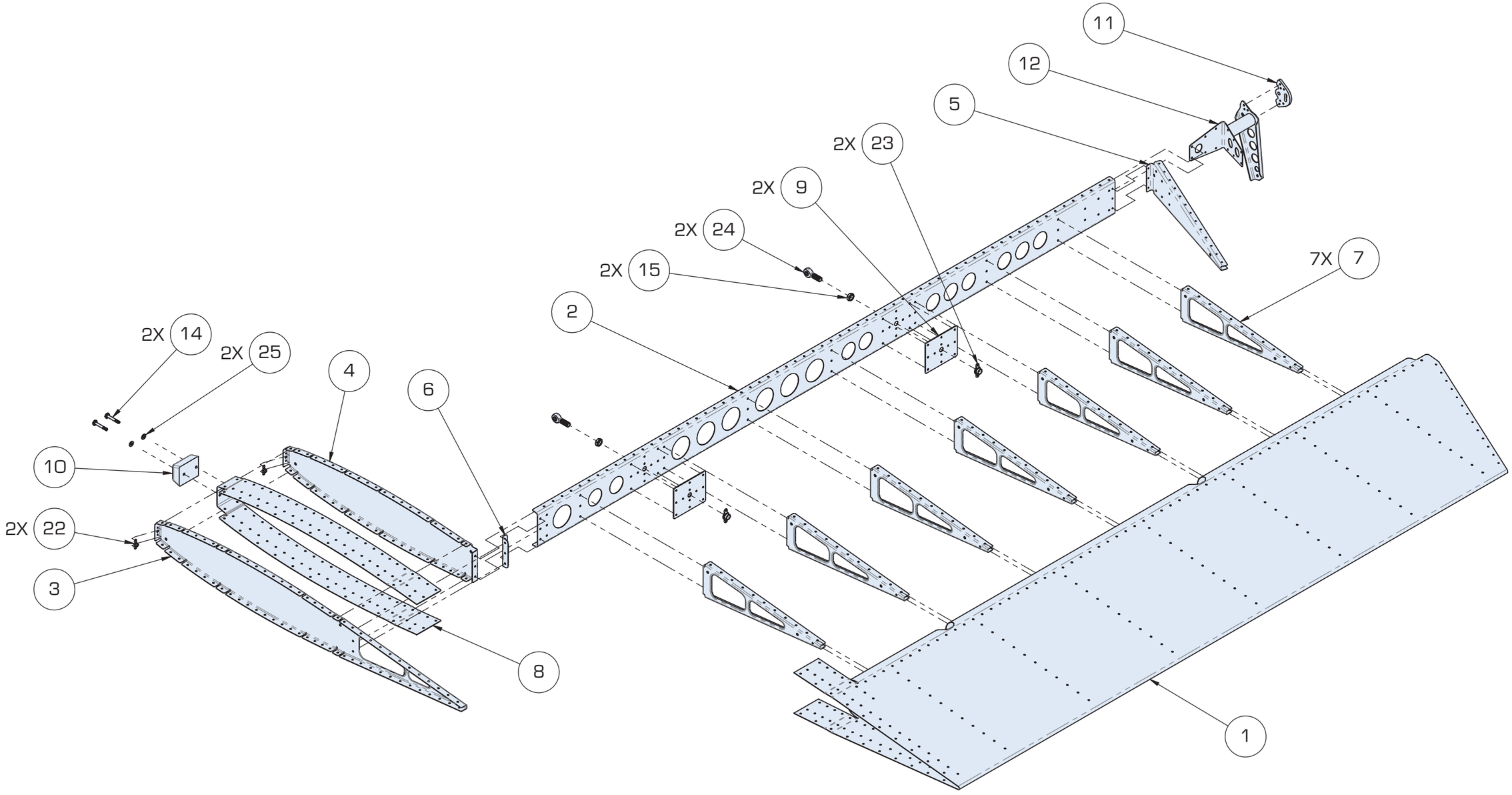
Left and right elevator sides are symmetrical until elevator horn is attached, so it is the builder's choice as to whether to complete all steps for the left side before repeating those steps for the right side or to complete each step for both left and right sides before moving to the next step.

SUBASSEMBLIES BUILT IN THIS SECTION				
ITEM. NO.	ASSM NUMBER	DESCRIPTION	-L ASSM QTY.	-R ASSM QTY.
A1	E-15500-001	ELEV SPAR ASSM	1	1
A2	E-15501-001	ELEV SPAR & RIBS ASSM	1	1
A3	E-15502-001	ELEV SPAR, RIBS & HORN ASSM	1	-
A4	E-15502-002	ELEV SPAR, RIBS & HORN ASSM	-	1
A5	E-15503-001	ELEV SPAR & SKIN ASSM	1	-
A6	E-15503-002	ELEV SPAR & SKIN ASSM	-	1

E-15504 ASSEMBLY

ISO EXPLODED VIEW

RV-15
VAN'S AIRCRAFT



E-15504 ASSEMBLY

Applicable Section References:

- **Section 5.1** - Aluminum Priming & Painting
- **Section 5.2** - Edge Finishing, Deburring & Scratch Removal
- **Section 5.3** - Marking Parts
- **Section 5.4** - Riveting
- **Section 5.5** - Countersinking & Dimpling
- **Section 5.7** - Folded Trailing Edges
- **Section 5.10** - Lap Joints
- **Section 5.12** - Vinyl Coating
- **Section 5.13** - Fluting
- **Section 5.16** - Installing Nutplates
- **Section 5.20** - Nut & Bolt Torques
- **Section 5.25** - Dimensions
- **Section 5.26** - Hardware Reference

Part Preparation:

- ☐ **Step 1:** Layout all parts
- ☐ **Step 2:** Deburr all edges
- ☐ **Step 3:** Flute and straighten all rib flanges
- ☐ **Step 4:** Prime all parts as required

Tools & Consumables Used This Section:

- #30 Drill Bit
- Crowfoot Wrench [9/16]
- Deburring Tools
- Die Set [Flush Head, Universal Head]
- Edge Breaking Tools
- Fluting Tools
- Open-end Wrench [5/16]
- Rivet Puller
- Rivet Squeezer
- Safety Wire
- Spring Clecos [3/32 VANS P/N "TOOL CL332", 1/8 VANS P/N "TOOL CL 18"]
- Torque Wrench [in-lbs]

BUILDER FEEDBACK QR CODE

www.vansaircraft.com/kit-assembly-instructions-feedback/

E-15504 ASSEMBLY

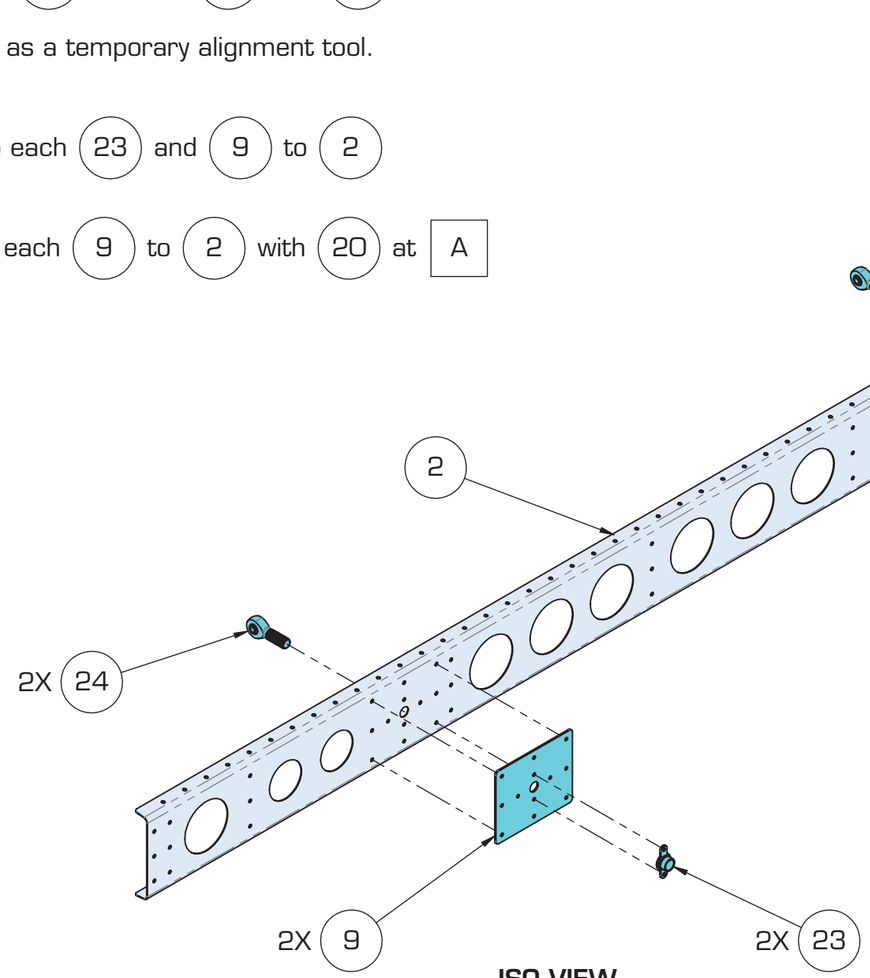
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
2	E-15002-001	SPAR, ELEV	1
9	E-15009-001	DOUBLER, ELEVATOR HINGE	2
20	AN470AD4-4.5	RIVET, SOLID UNIVERSAL	20
23	K1000-6	NUTPLATE, 3/8-24	2
24	MD3614M	BEARING, ROD END	2

RV-15
VAN'S AIRCRAFT

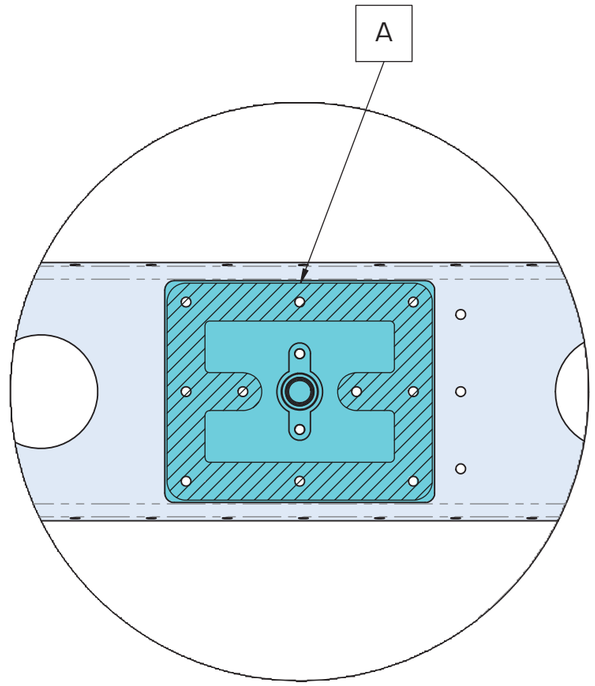
☐ **Step 1:** Insert (24) through (2) and (9) then thread into (23) to function as a temporary alignment tool.

☐ **Step 2:** Cleco each (23) and (9) to (2)

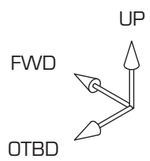
☐ **Step 3:** Rivet each (9) to (2) with (20) at [A]



ISO VIEW



AFT VIEW LOOKING FORWARD

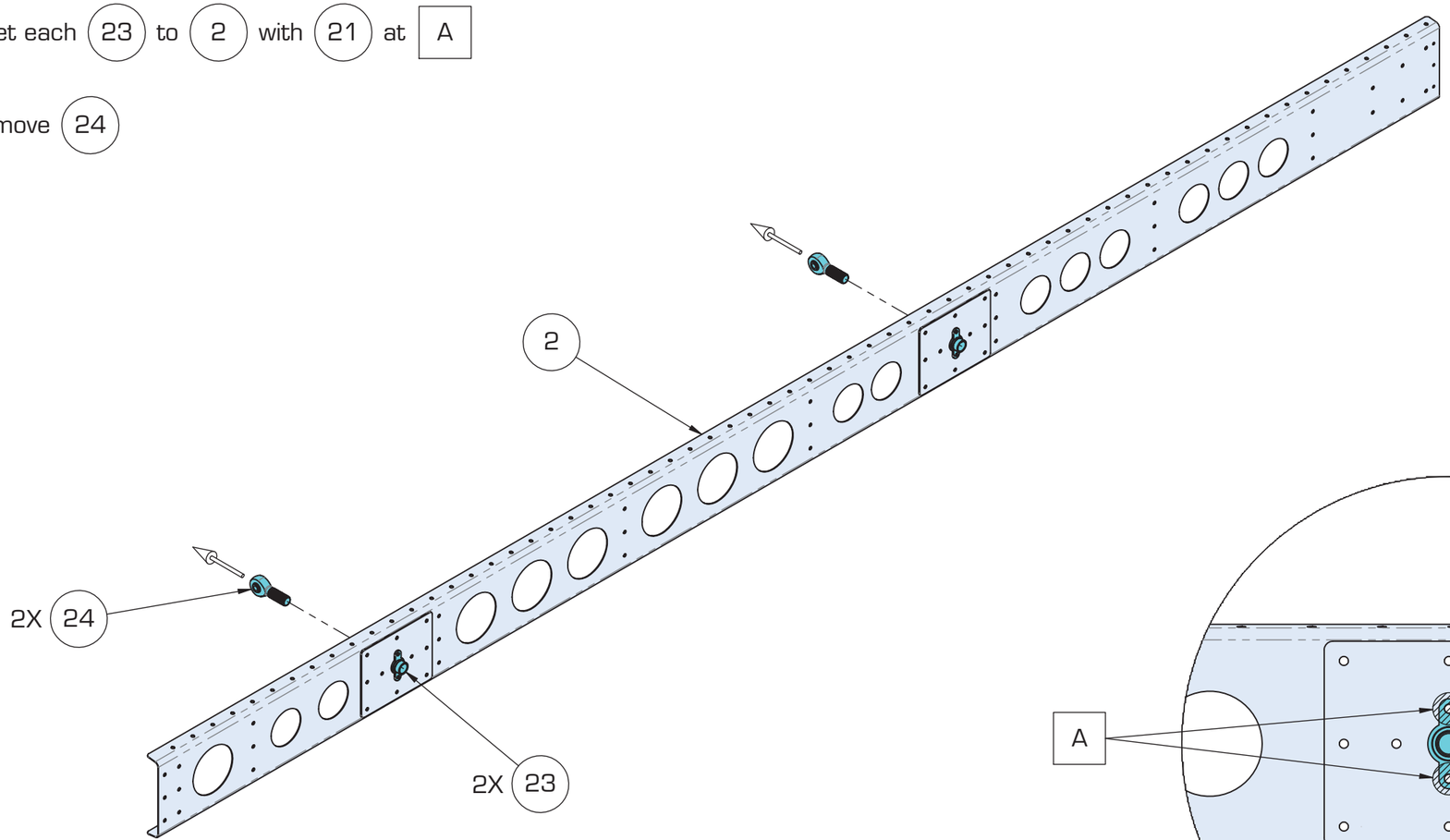


E-15500 ASSEMBLY

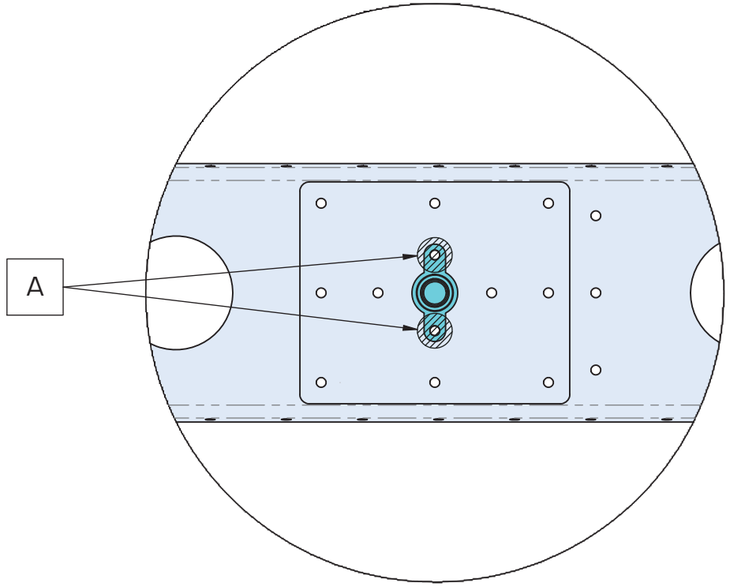
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
2	E-15002-001	SPAR, ELEV	1
21	AN470AD4-5.5	RIVET, SOLID UNIVERSAL	4
23	K1000-6	NUTPLATE, 3/8-24	2
24	MD3614M	BEARING, ROD END	2

☐ **Step 1:** Rivet each (23) to (2) with (21) at [A]

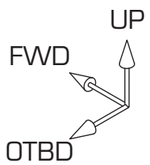
☐ **Step 2:** Remove (24)



ISO VIEW



AFT VIEW LOOKING FORWARD



E-15500 ASSEMBLY

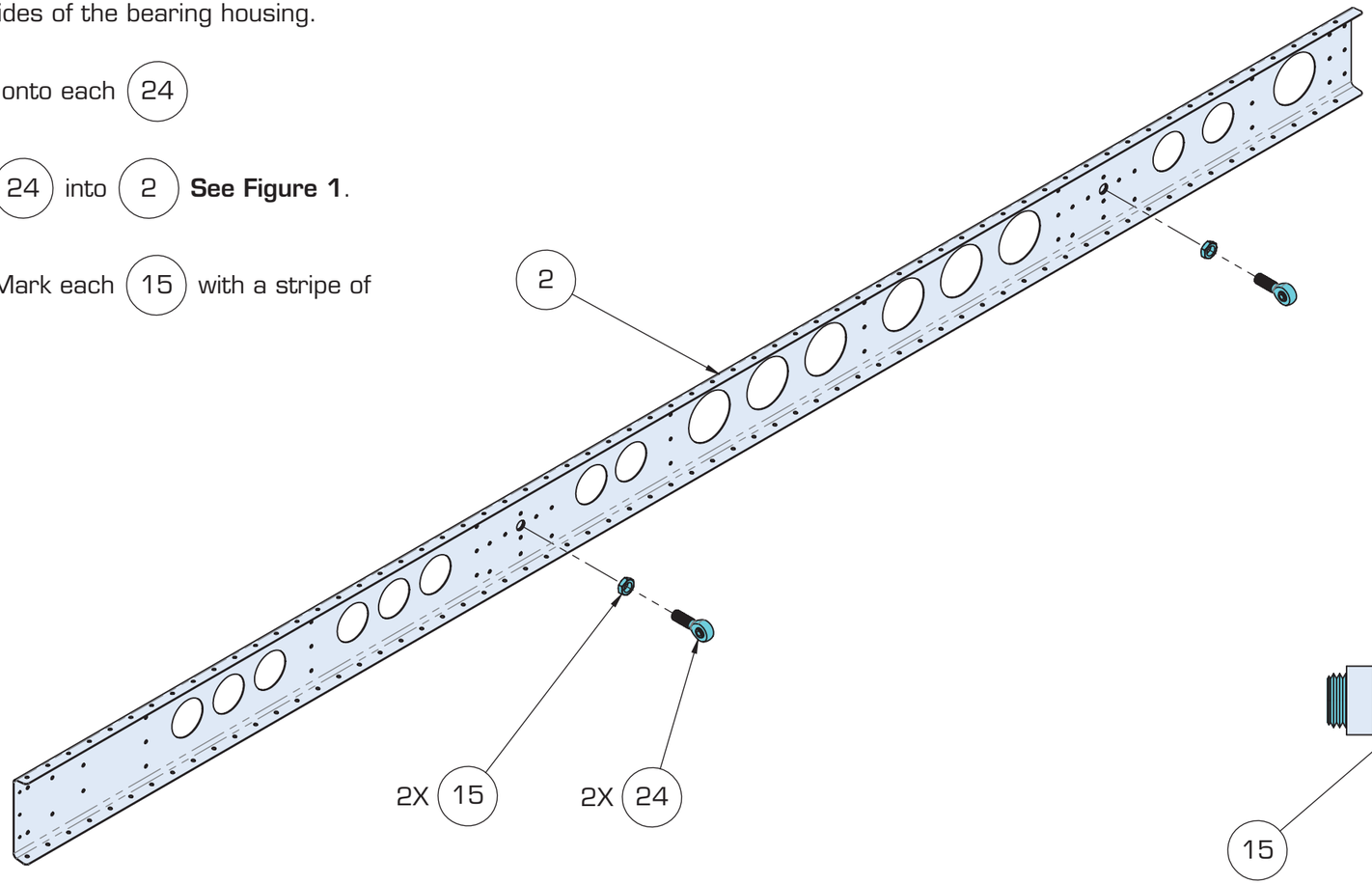
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
2	E-15002-001	SPAR, ELEV	1
15	AN316-6R	JAM NUT, THIN	2
24	MD3614M	BEARING, ROD END	2

CAUTION: Take care not to damage the inner spherical bearing of (24) when tightening. Use an open-end wrench only on the flat sides of the bearing housing.

☐ **Step 1:** Install (15) onto each (24)

☐ **Step 2:** Install each (24) into (2) **See Figure 1**.

☐ **Step 3:** Torque and Mark each (15) with a stripe of Torque Seal.



ISO VIEW

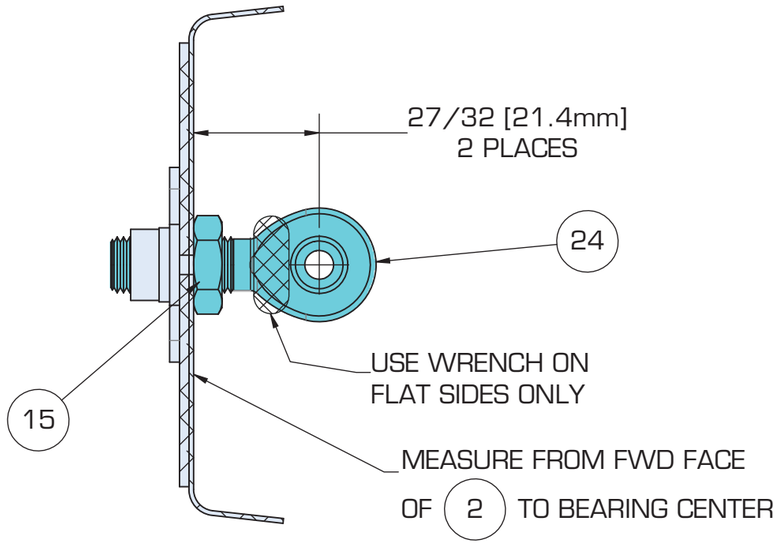
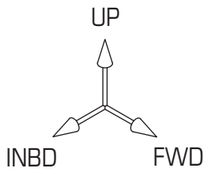
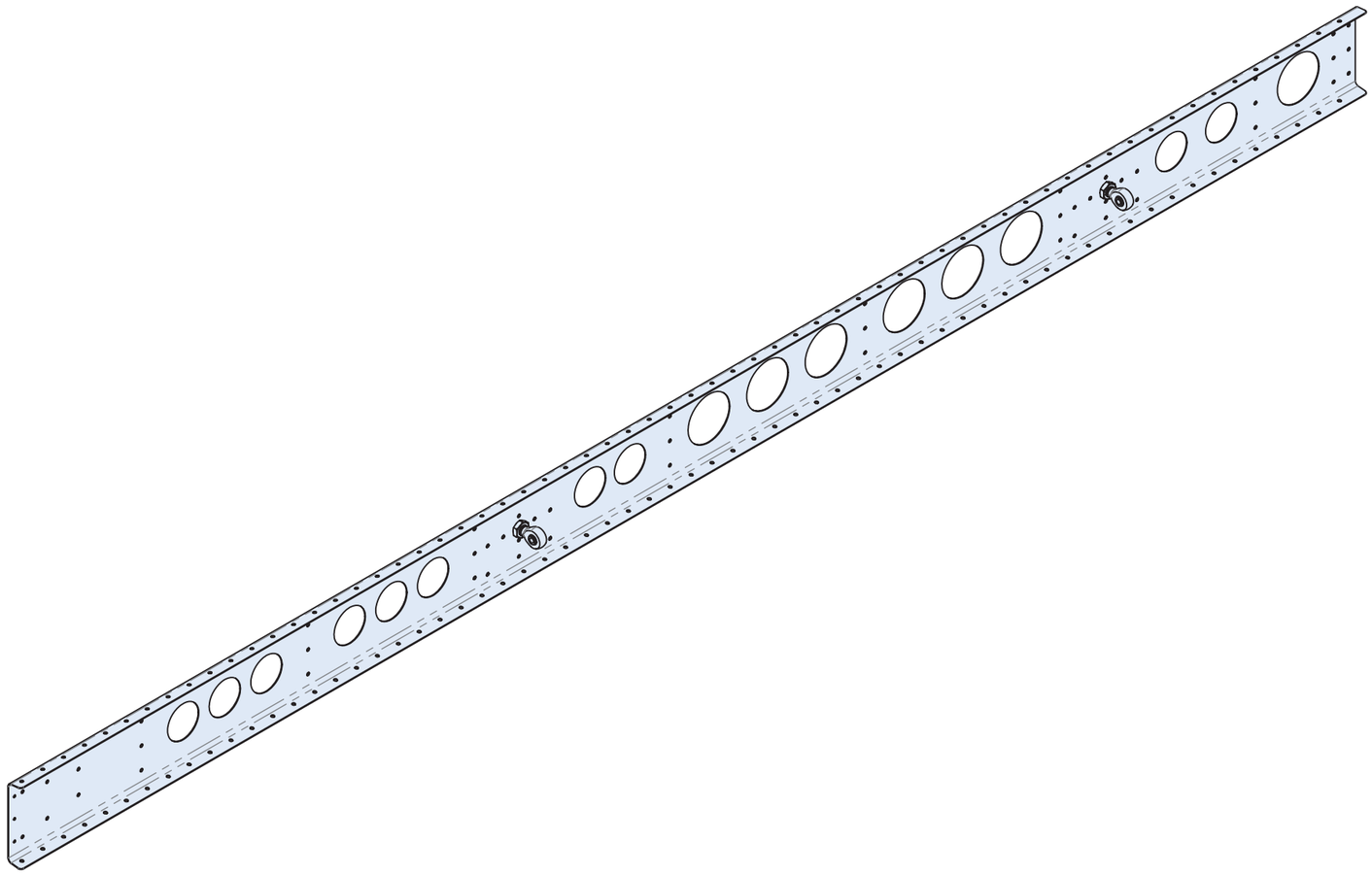


FIGURE 1



E-15500 ASSEMBLY



E-15500 ASSEMBLY

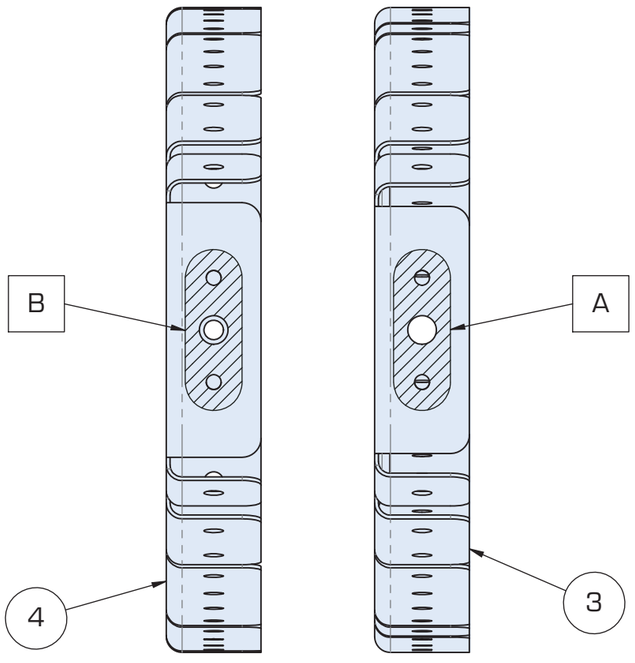
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
3	E-15003-001	RIB, ELEV OTBD TIP	1
4	E-15004-001	RIB, ELEV INBD TIP	1
16	AN426AD3-3.5	RIVET, SOLID COUNTERSUNK	4
22	K1000-3D	NUTPLATE, 10-32 DIMPLED	2

☐ **Step 1:** Cleco (22) to (3)

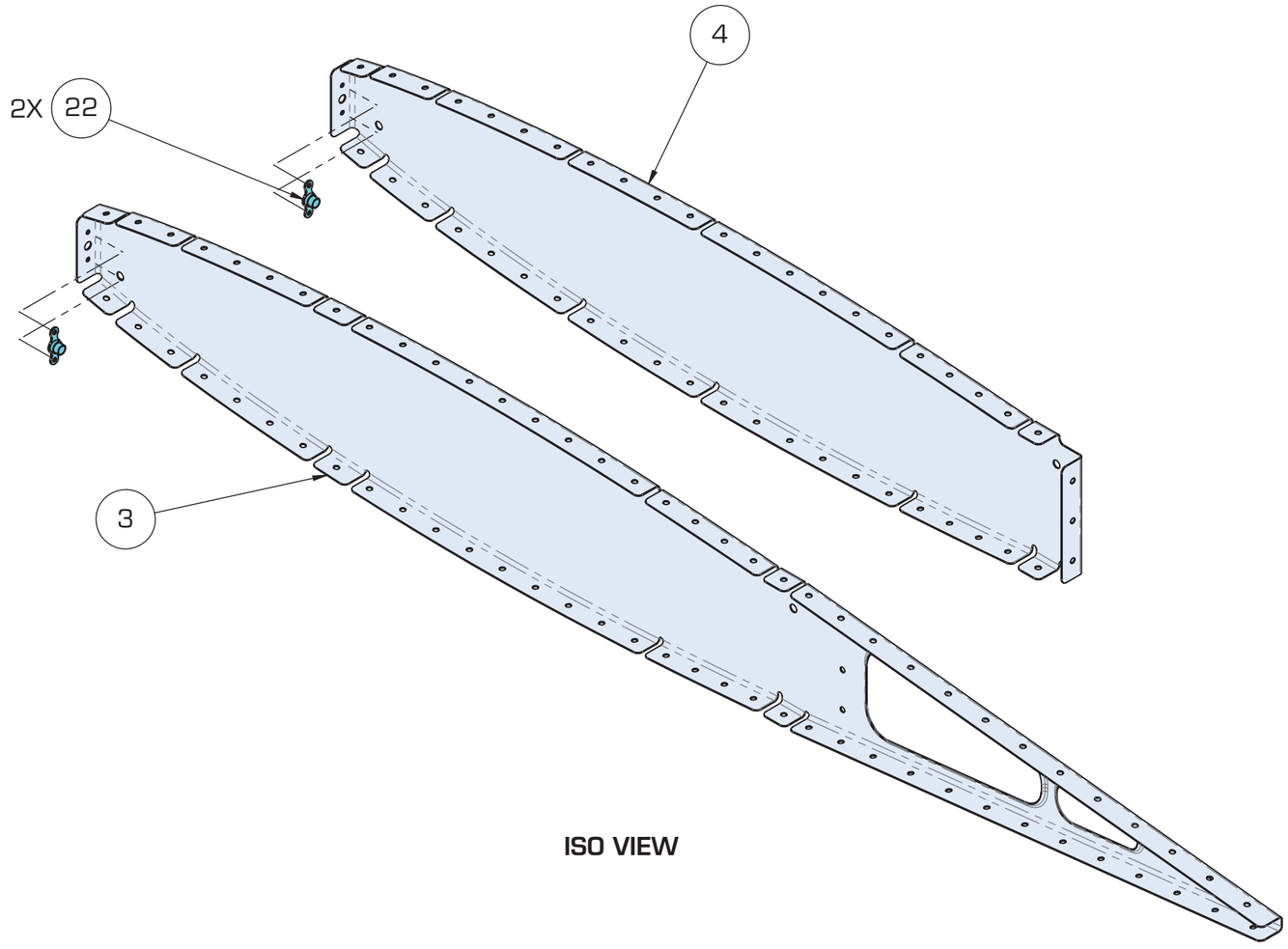
☐ **Step 2:** Cleco (22) to (4)

☐ **Step 3:** Rivet (22) to (3) with (16) in [A] from the **Forward Side**.

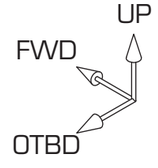
☐ **Step 4:** Rivet (22) to (4) with (16) in [B] from the **Forward Side**.



FORWARD VIEW LOOKING AFT



ISO VIEW



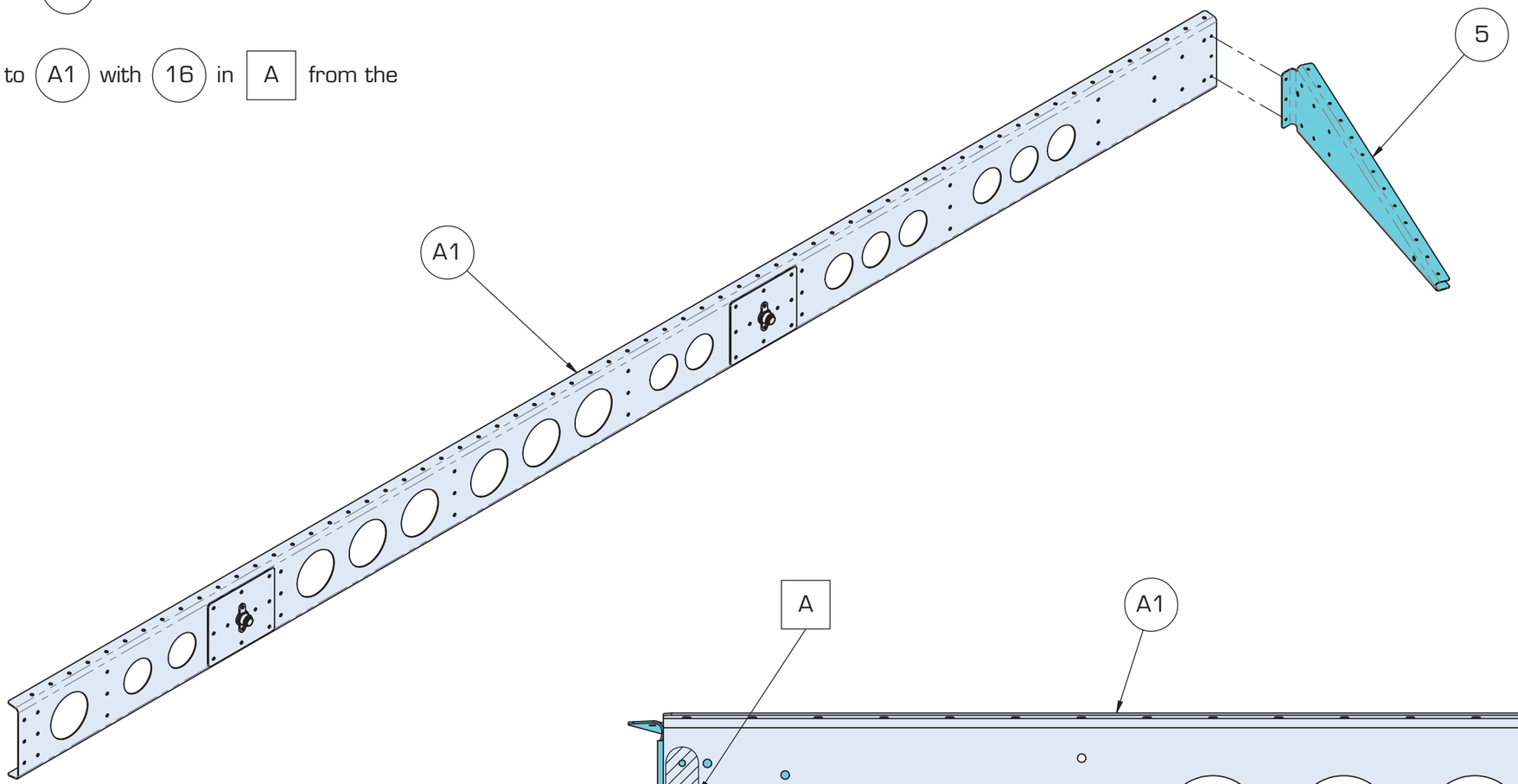
E-15501 ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
A1	E-15500-001	ELEV SPAR ASSM	1
5	E-15005-001	RIB, ELEV ROOT	1
16	AN426AD3-3.5	RIVET, SOLID COUNTERSUNK	3

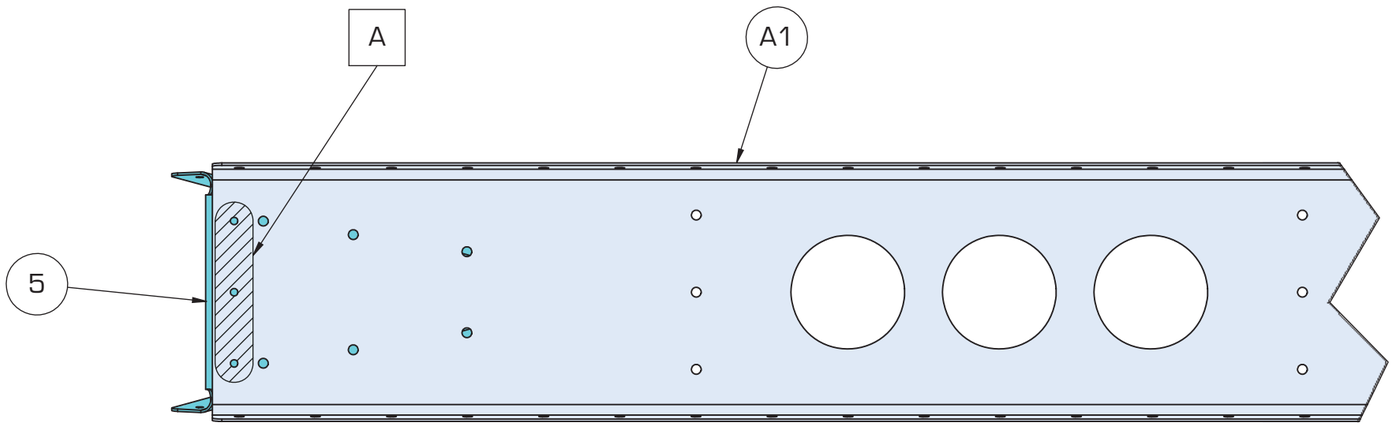
RV-15
VAN'S AIRCRAFT

☐ **Step 1:** Cleco (5) to (A1)

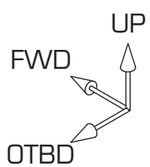
☐ **Step 2:** Rivet (5) to (A1) with (16) in [A] from the **Forward Side**.



ISO VIEW



FORWARD VIEW LOOKING AFT



E-15501 ASSEMBLY

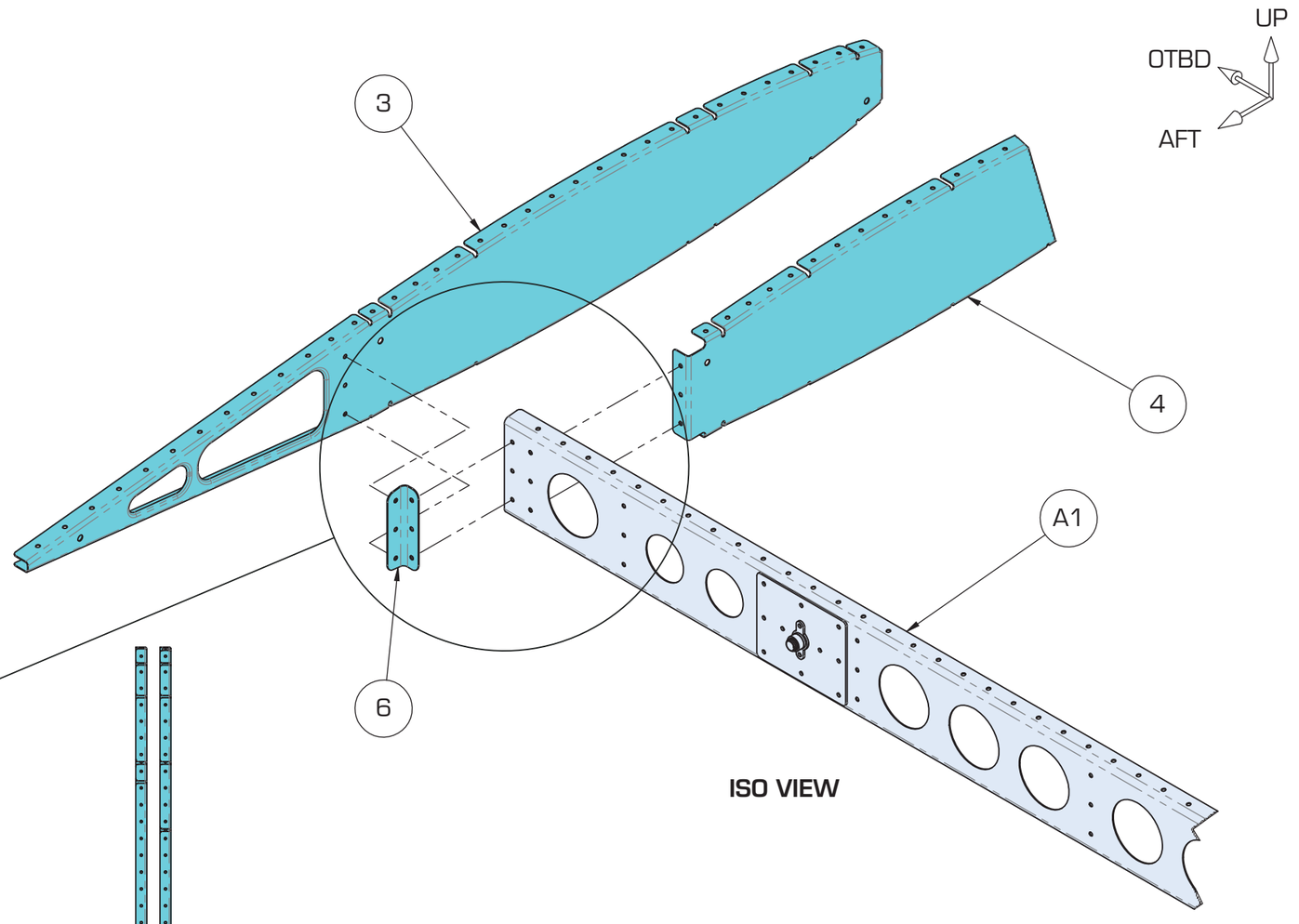
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
A1	E-15500-001	ELEV SPAR ASSM	1
3	E-15003-001	RIB, ELEV OTBD TIP	1
4	E-15004-001	RIB, ELEV INBD TIP	1
6	E-15006-001	SHEAR CLIP, ELEVATOR	1
19	AN470AD4-4	RIVET, SOLID UNIVERSAL	9

NOTE: Item No. (6) is a directional part with tapered tab facing **Outboard**.

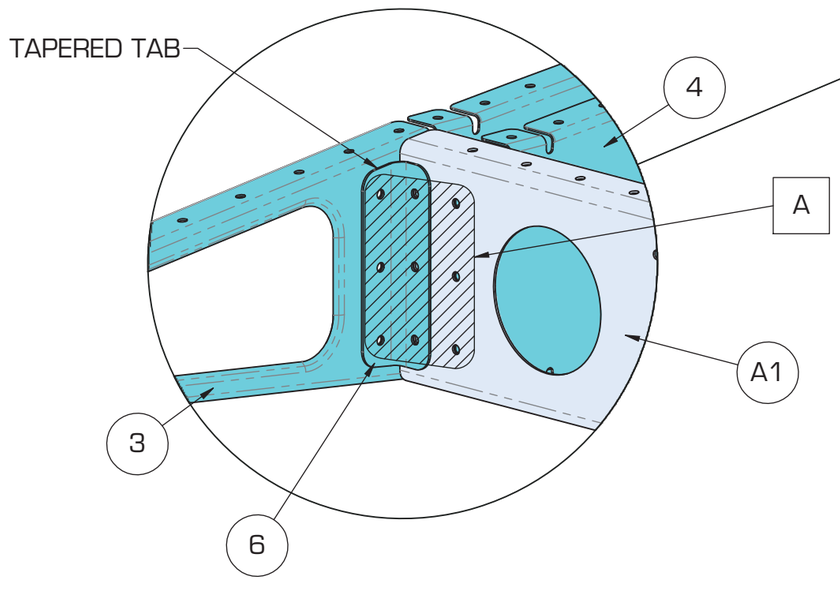
☐ **Step 1:** Cleco and rivet (4) to (A1) with (19) in [A]

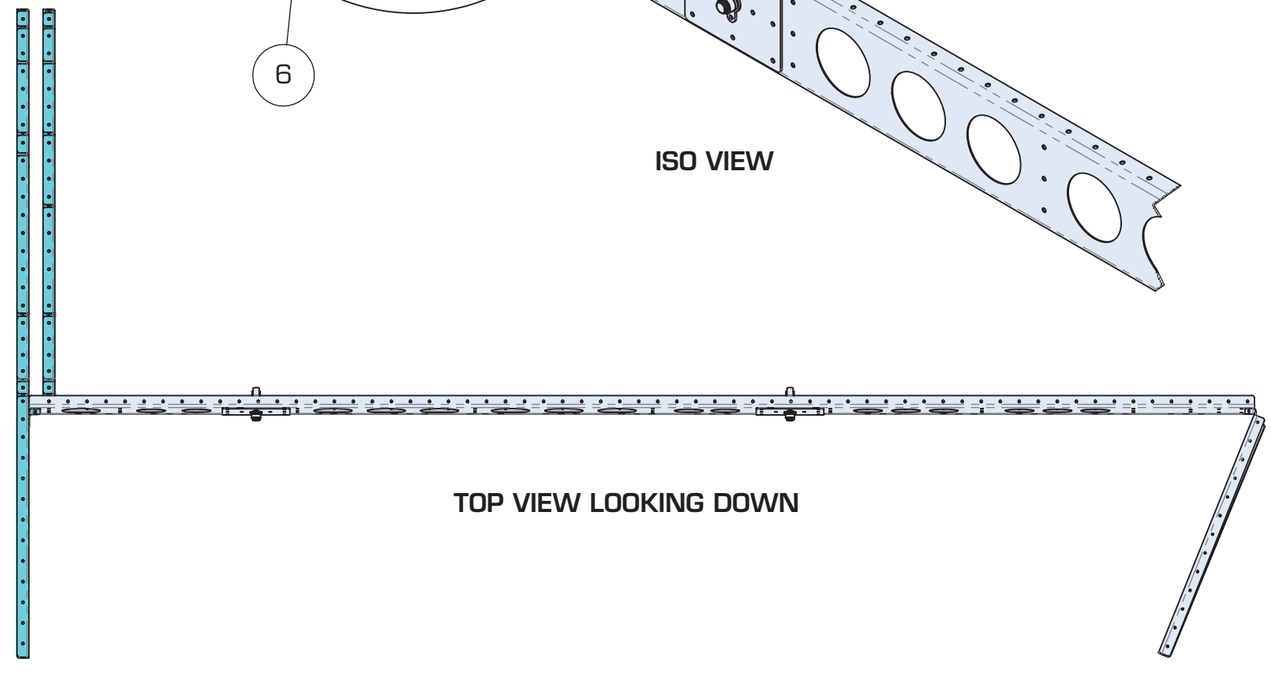
☐ **Step 2:** Cleco and rivet (6) to (A1) with (19) in [A]

☐ **Step 3:** Cleco and rivet (3) to (6) with (19) in [A]



ISO VIEW





TOP VIEW LOOKING DOWN

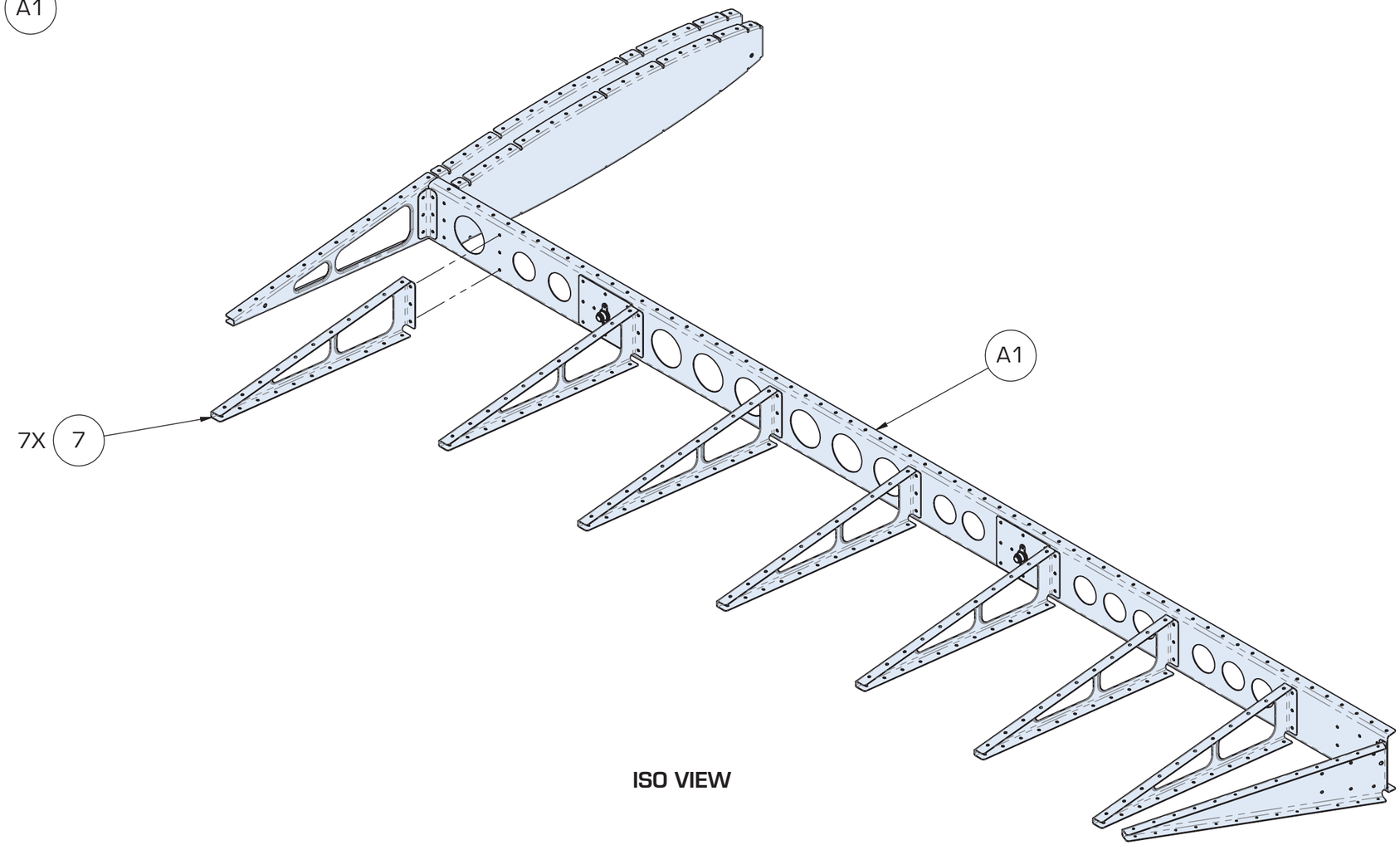
E-15501 ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
A1	E-15500-001	ELEV SPAR ASSM	1
7	E-15007-001	RIB, MID, ELEV	7
26	RIVET-LP4-3	RIVET, BLIND	21

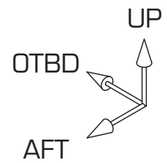
NOTE: Rib flanges face **Inboard**.

☐ **Step 1:** Cleco each (7) to (A1)

☐ **Step 2:** Rivet with (26)



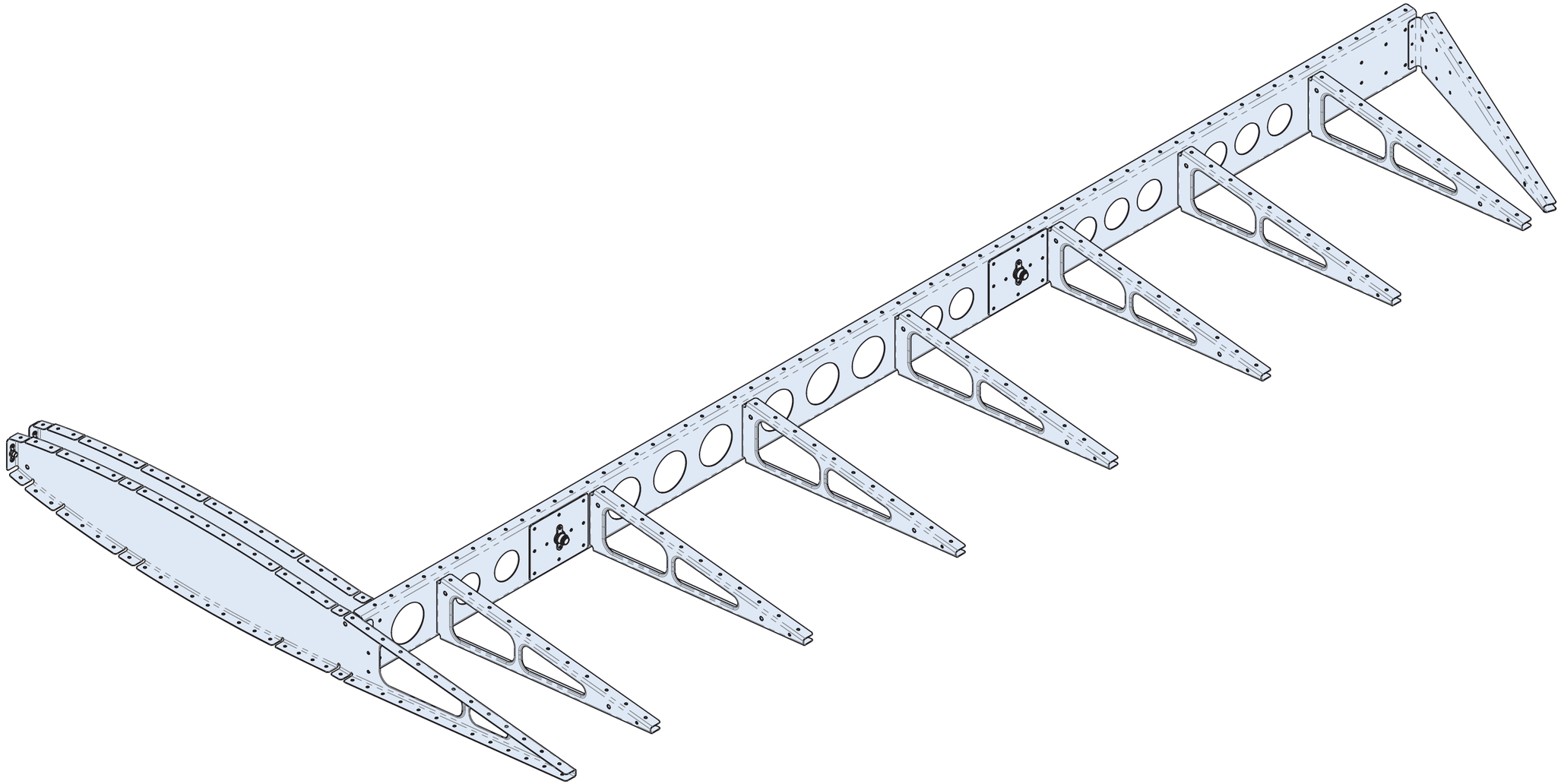
ISO VIEW



E-15501 ASSEMBLY

A2 E-15501-001 ELEVATOR SPAR & RIBS SUBASSEMBLY COMPLETE

RV-15
VAN'S AIRCRAFT



E-15501 ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
A2	E-15501-001	ELEV SPAR & RIBS ASSM	1
12	WD-15001-001	WELDMENT, ELEV HORN	1
19	AN470AD4-4	RIVET, SOLID UNIVERSAL	12

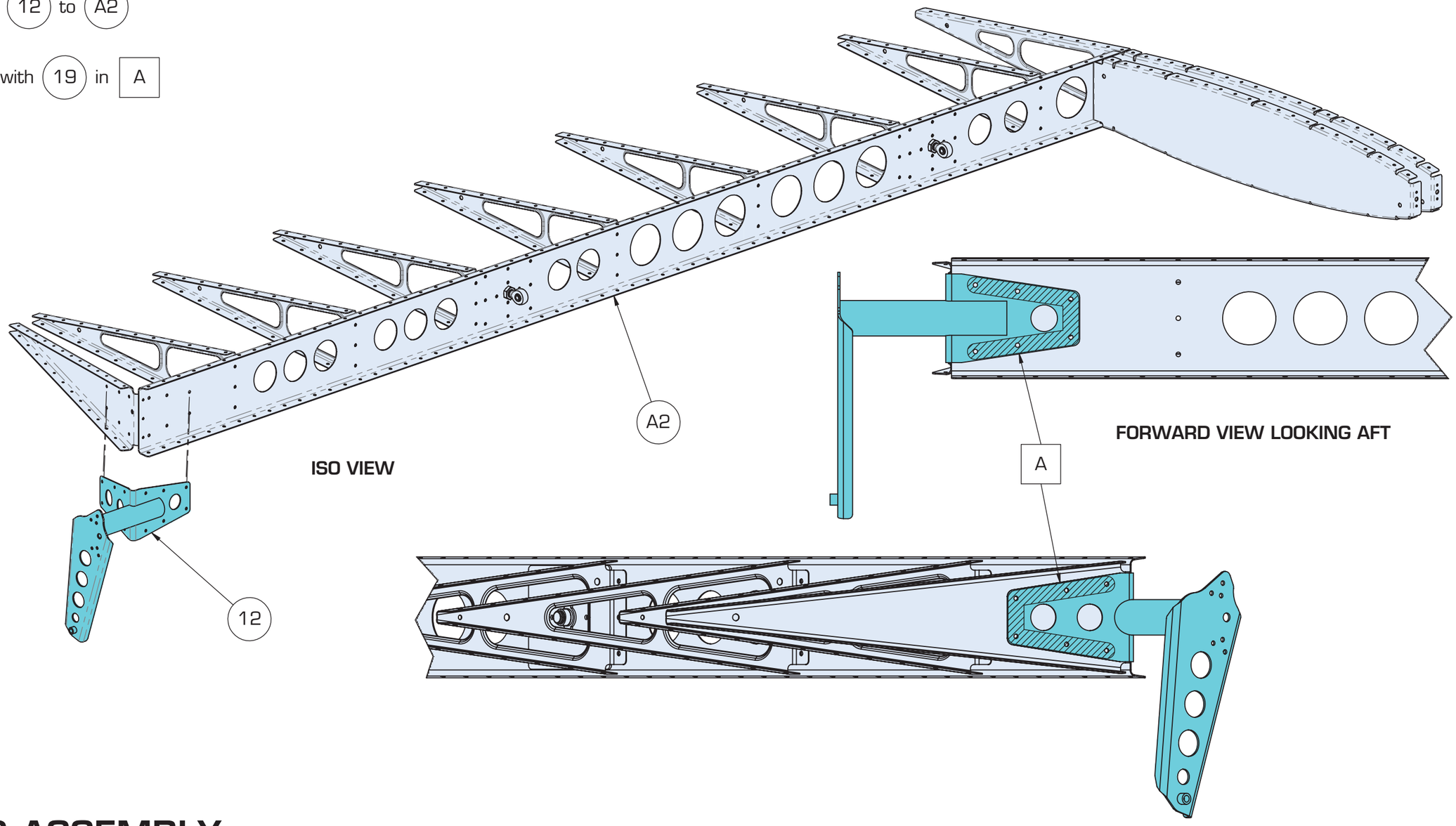
RV-15
VAN'S AIRCRAFT

UP
INBD
FWD

☐ **Step 1:** #30 Final-Drill holes through (12) to remove powder coat.

☐ **Step 2:** Cleco (12) to (A2)

☐ **Step 3:** Rivet with (19) in [A]



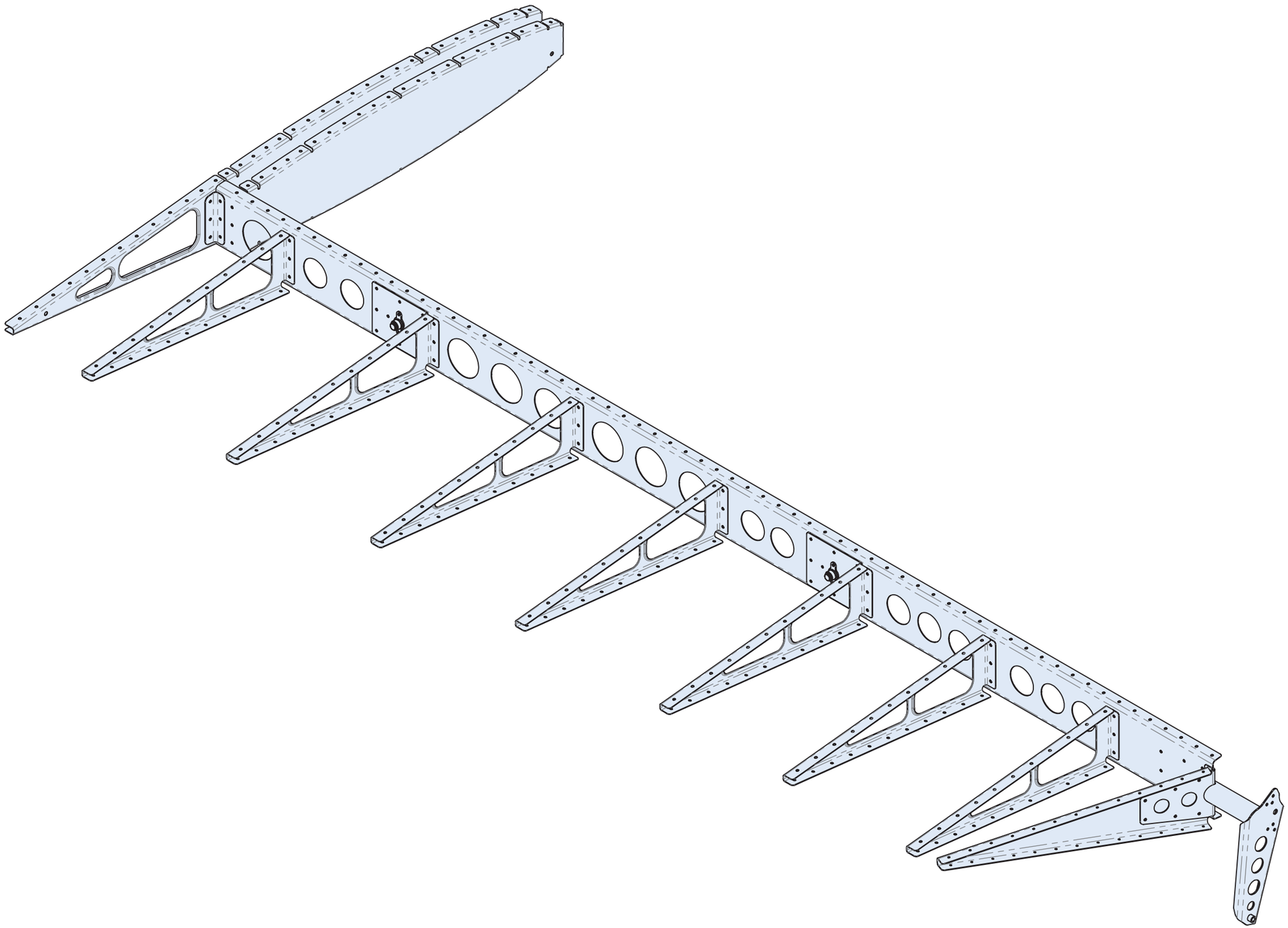
ISO VIEW

FORWARD VIEW LOOKING AFT

E-15502 ASSEMBLY

A3 E-15502-001 ELEVATOR SPAR, RIBS, & HORN SUBASSEMBLY COMPLETE

RV-15
VAN'S AIRCRAFT



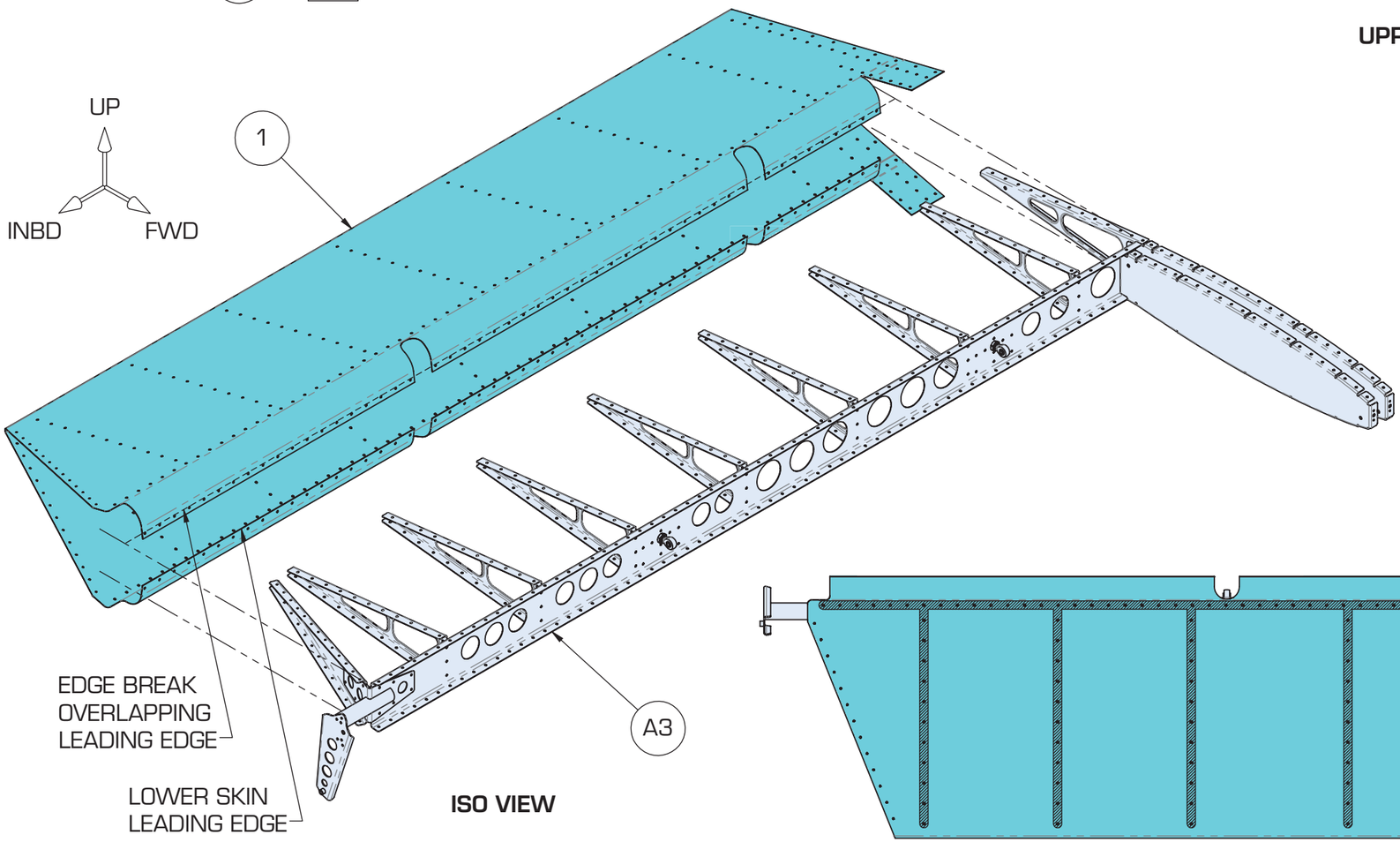
E-15502 ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
A3	E-15502-001	ELEV SPAR, RIBS & HORN ASSM	1
1	E-15001-001	SKIN, ELEV	1
26	RIVET-LP4-3	RIVET, BLIND	300

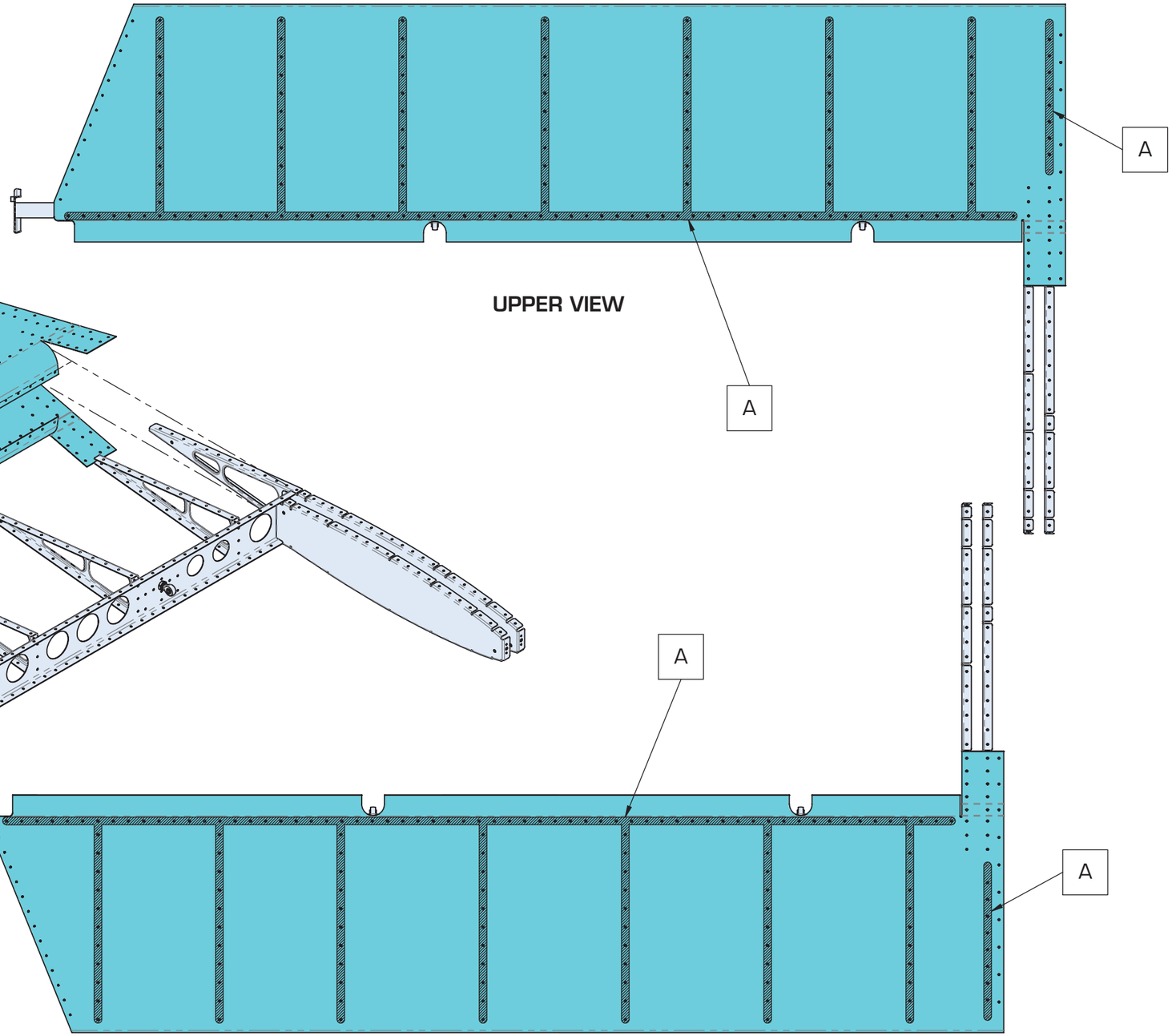
☐ **Step 1:** Edge break upper overlapping **Leading Edge** of (1) so it pushes tight against **Lower Skin** after riveting.

☐ **Step 2:** Install (A3) into (1) and cleco together.

☐ **Step 3:** Rivet with (26) in [A]



ISO VIEW



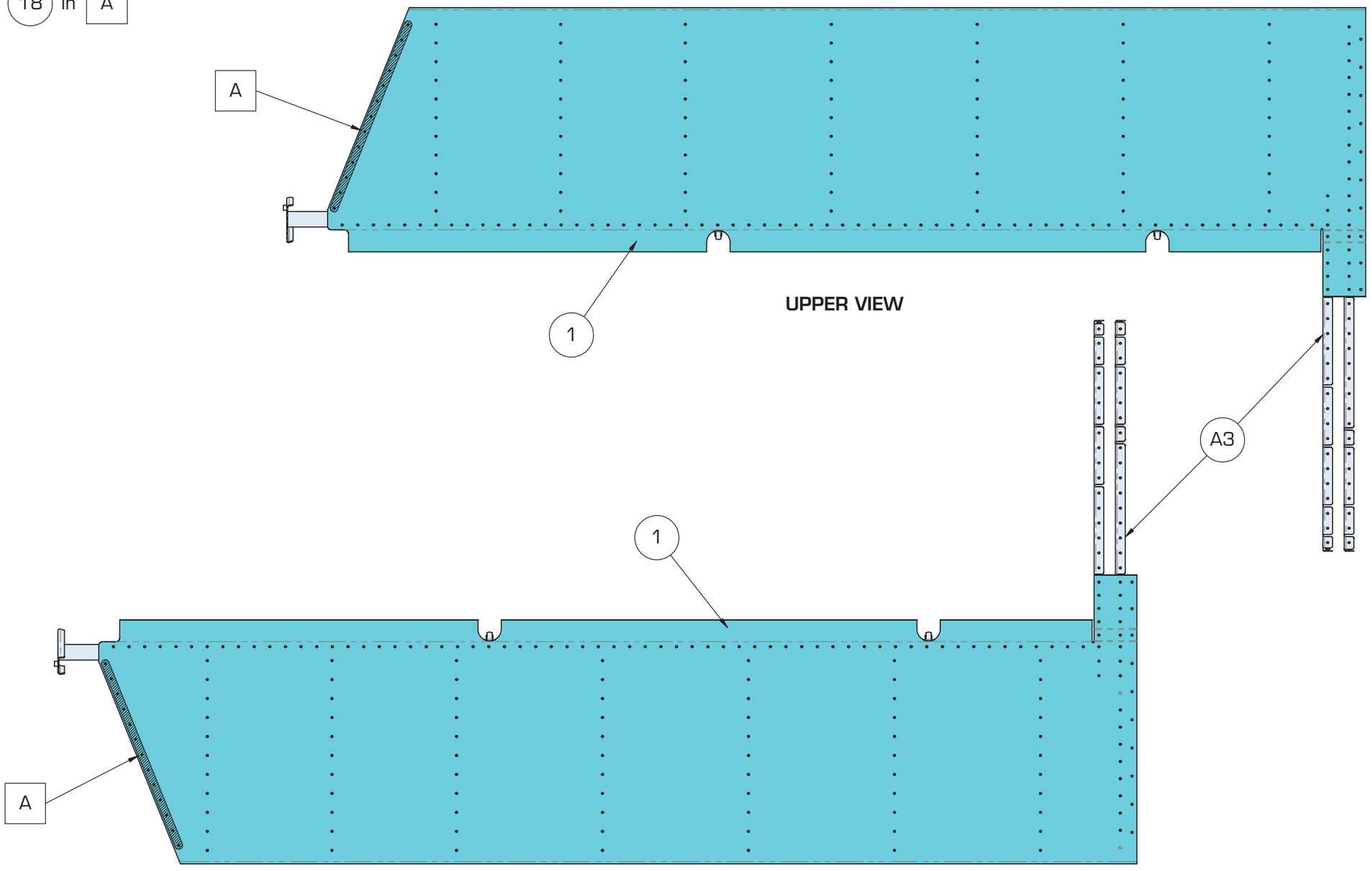
UPPER VIEW

LOWER VIEW

E-15503 ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
A3	E-15502-001	ELEV SPAR, RIBS & HORN ASSM	1
1	E-15001-001	SKIN, ELEV	1
18	AN470AD3-3	RIVET, SOLID UNIVERSAL	26

☐ **Step 1:** Rivet with (18) in [A]



UPPER VIEW

LOWER VIEW

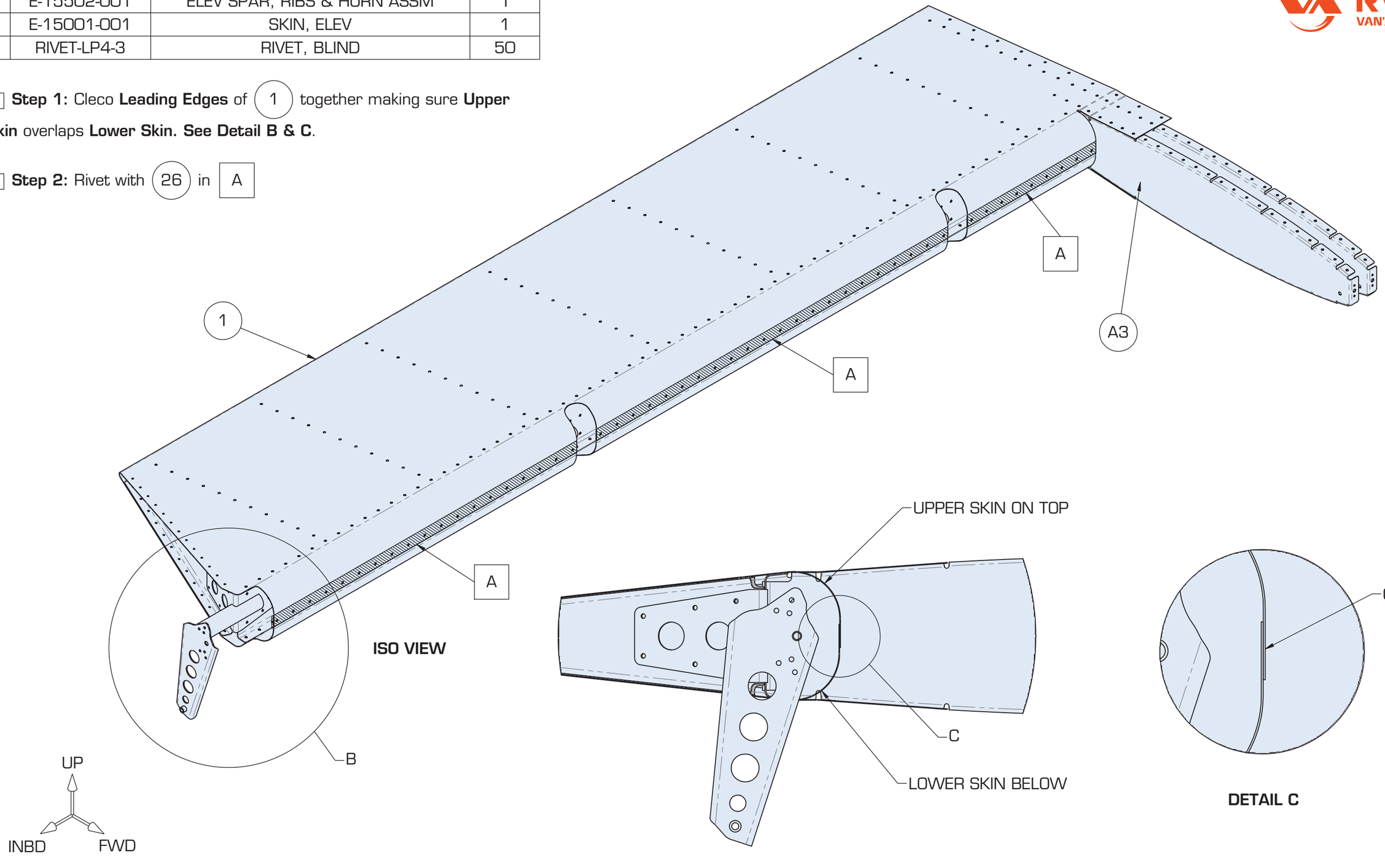
E-15503 ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
A3	E-15502-001	ELEV SPAR, RIBS & HORN ASSM	1
1	E-15001-001	SKIN, ELEV	1
26	RIVET-LP4-3	RIVET, BLIND	50

RV-15
VAN'S AIRCRAFT

☐ **Step 1:** Cleco **Leading Edges** of (1) together making sure **Upper Skin** overlaps **Lower Skin. See Detail B & C**.

☐ **Step 2:** Rivet with (26) in [A]



ISO VIEW

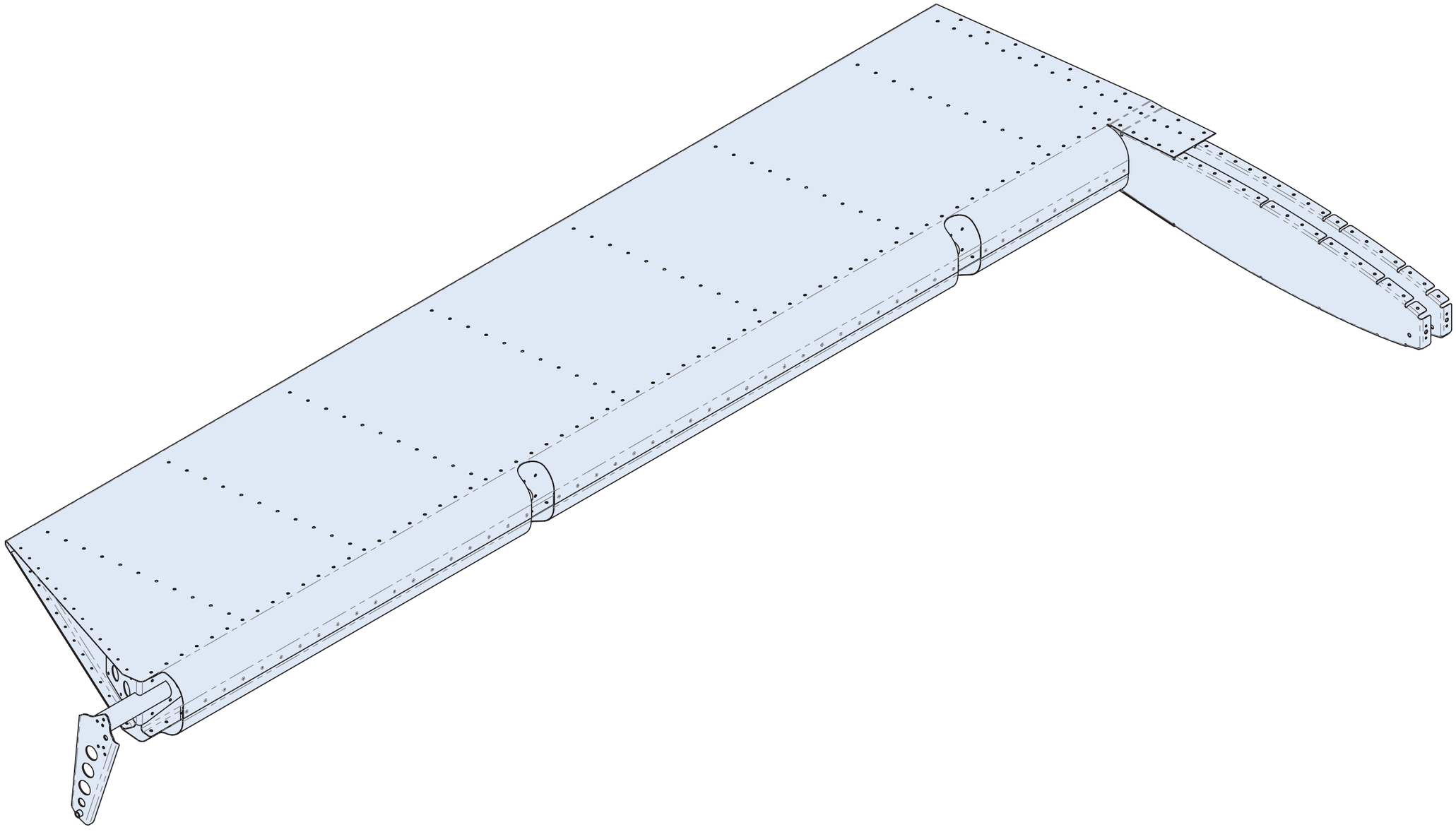
DETAIL B

DETAIL C

E-15503 ASSEMBLY

A5 E-15503-001 ELEVATOR SPAR & SKIN SUBASSEMBLY COMPLETE

RV-15
VAN'S AIRCRAFT



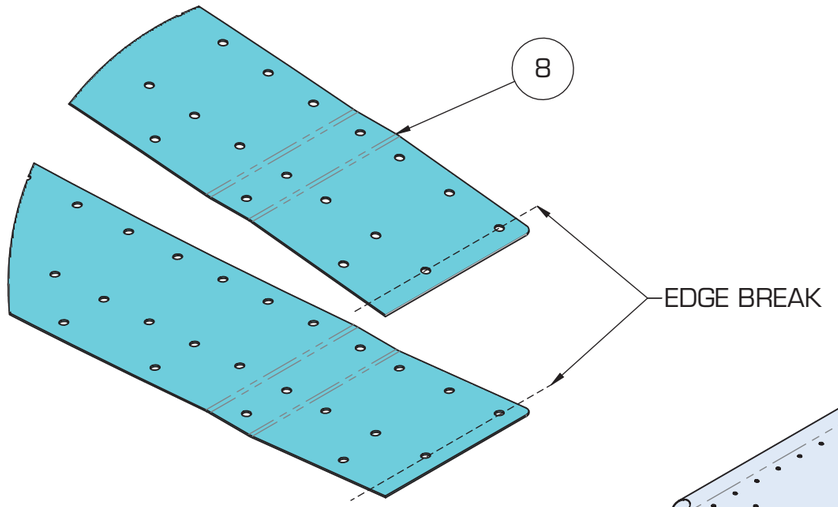
E-15503 ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
A5	E-15503-001	ELEV SPAR & SKIN ASSM	1
8	E-15008-001	SKIN, ELEV COUNTERBALANCE	1
26	RIVET-LP4-3	RIVET, BLIND	96

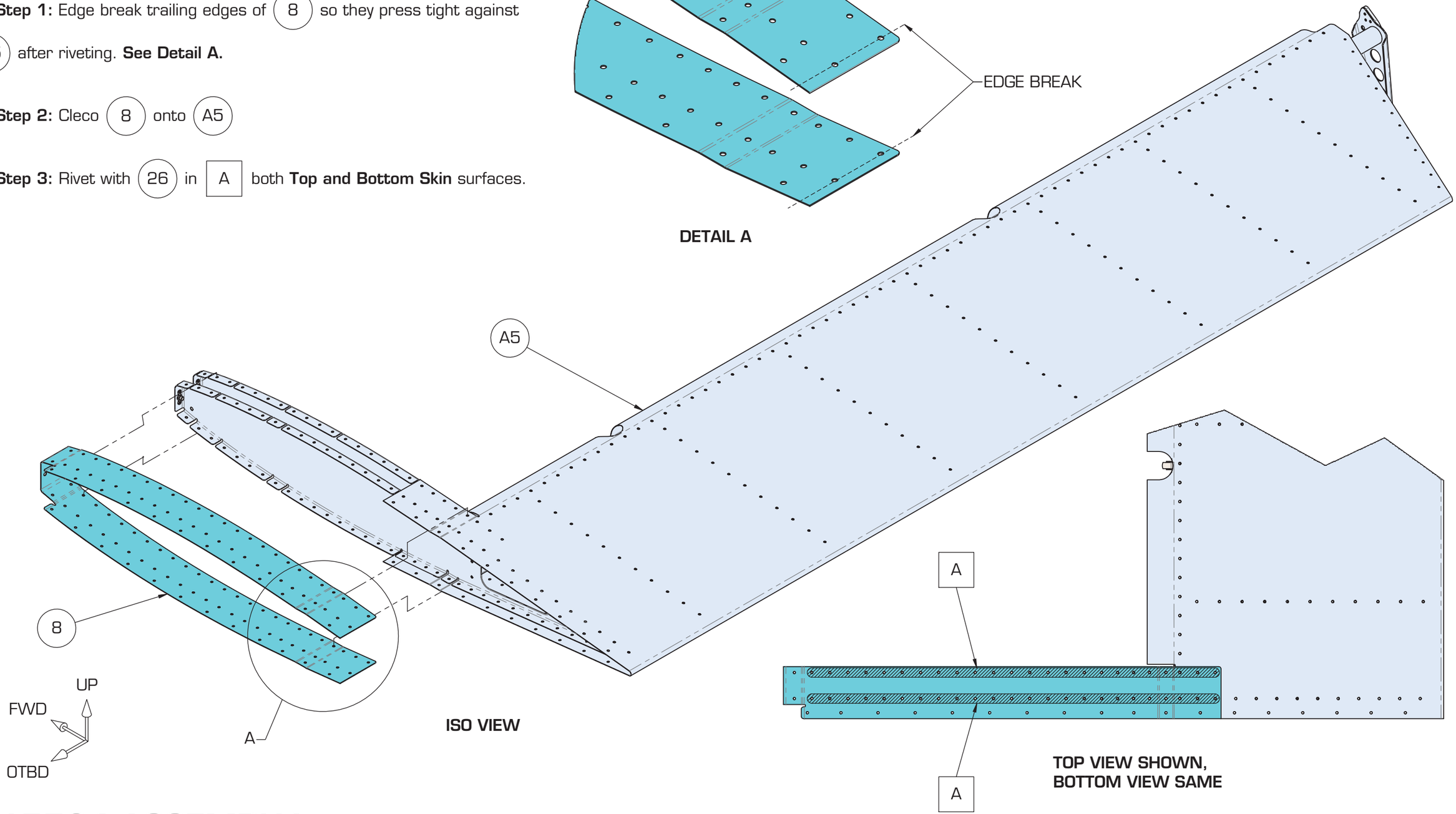
☐ **Step 1:** Edge break trailing edges of (8) so they press tight against (A5) after riveting. **See Detail A.**

☐ **Step 2:** Cleco (8) onto (A5)

☐ **Step 3:** Rivet with (26) in [A] both **Top and Bottom Skin** surfaces.



DETAIL A



ISO VIEW

**TOP VIEW SHOWN,
BOTTOM VIEW SAME**

E-15504 ASSEMBLY

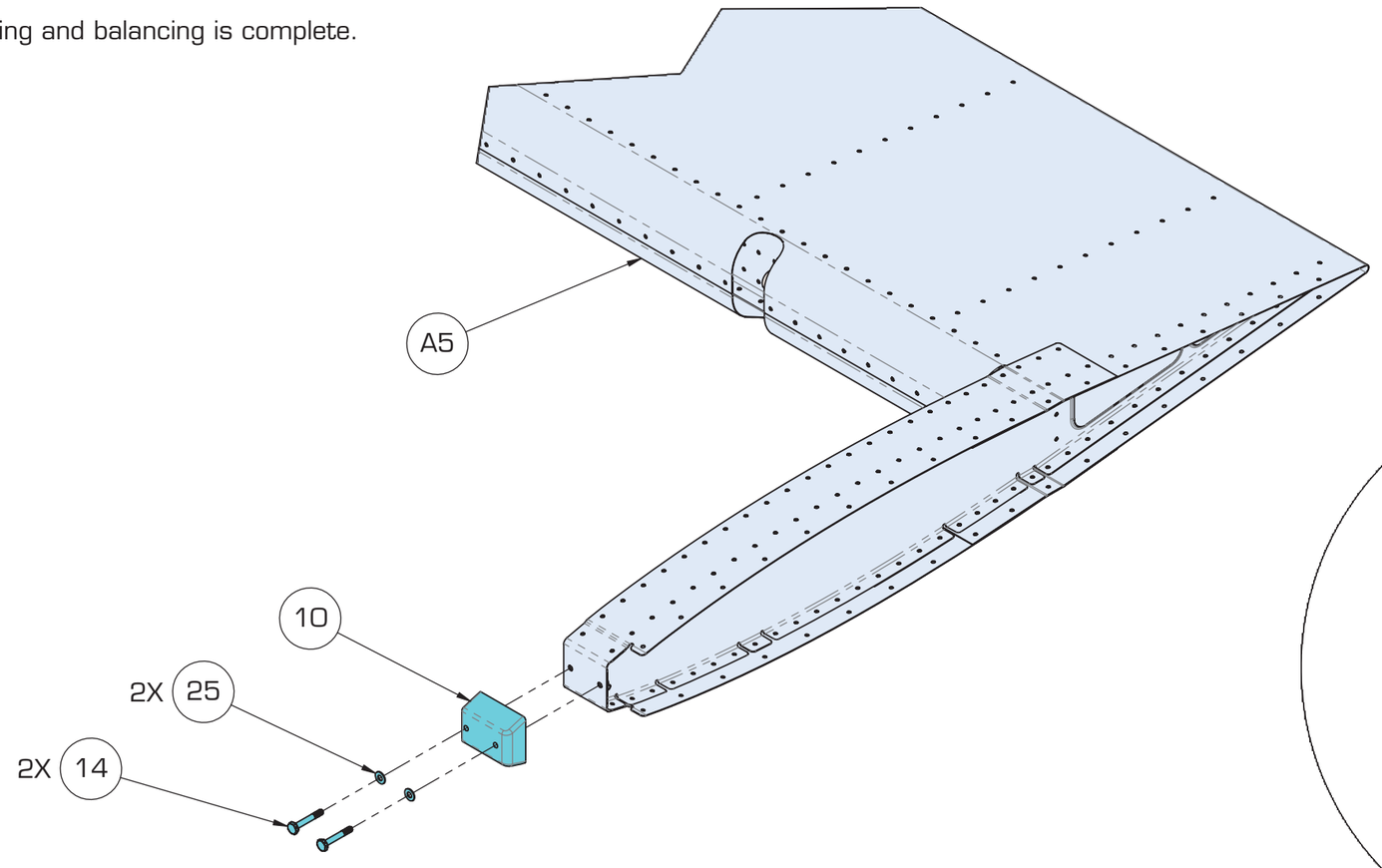
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
A5	E-15503-001	ELEV SPAR & SKIN ASSM	1
10	E-15010-001	COUNTERWEIGHT, ELEV	1
14	AN3H-12A	AN3-12 BOLT	2
25	NAS1149F0332P	FLAT WASHER, THIN, 3/16" ID	2

RV-15
VAN'S AIRCRAFT

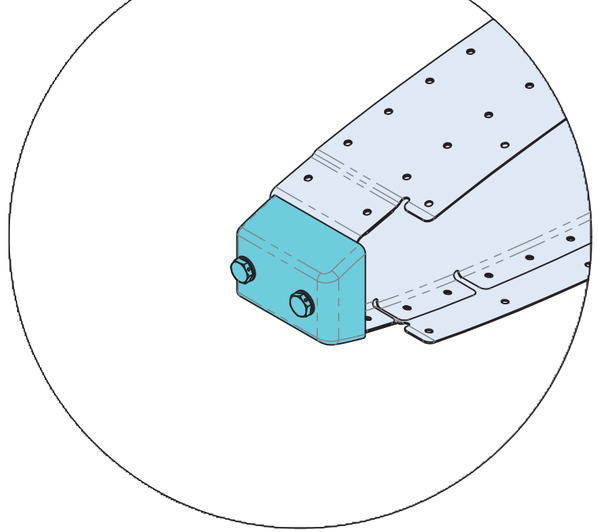
☐ **Step 1:** Attach (10) to (A5) with (14) and (25)

☐ **Step 2:** Safety Wire each (14) together.

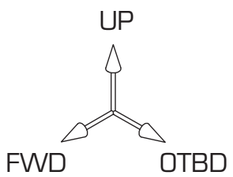
NOTE: Safety Wire after painting and balancing is complete.



ISO VIEW



COUNTERWEIGHT INSTALLED



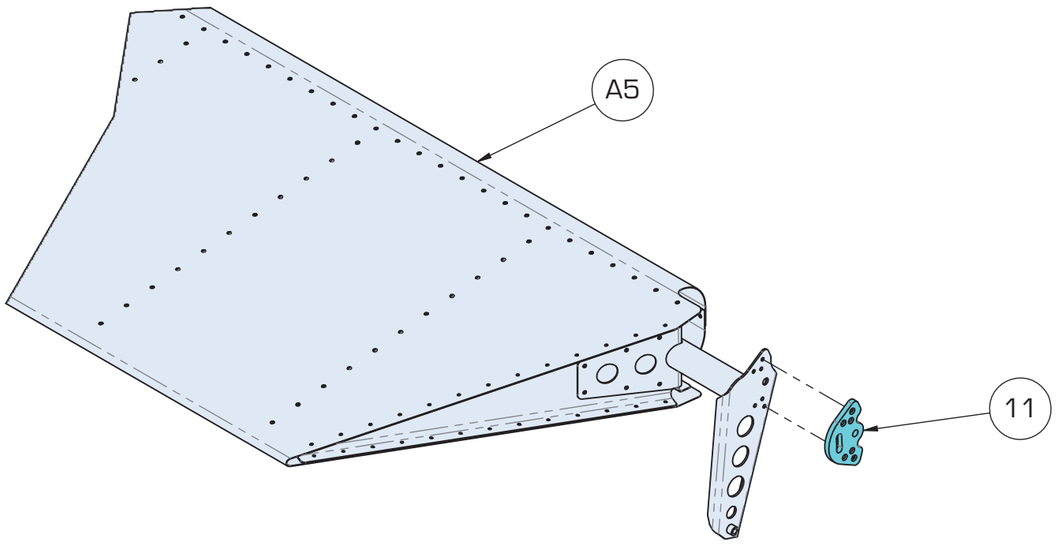
E-15504 ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
A5	E-15503-001	ELEV SPAR & SKIN ASSM	1
11	E-15012-001	STOP, ELEV	1
17	AN426AD4-7	RIVET, SOLID COUNTERSUNK	6

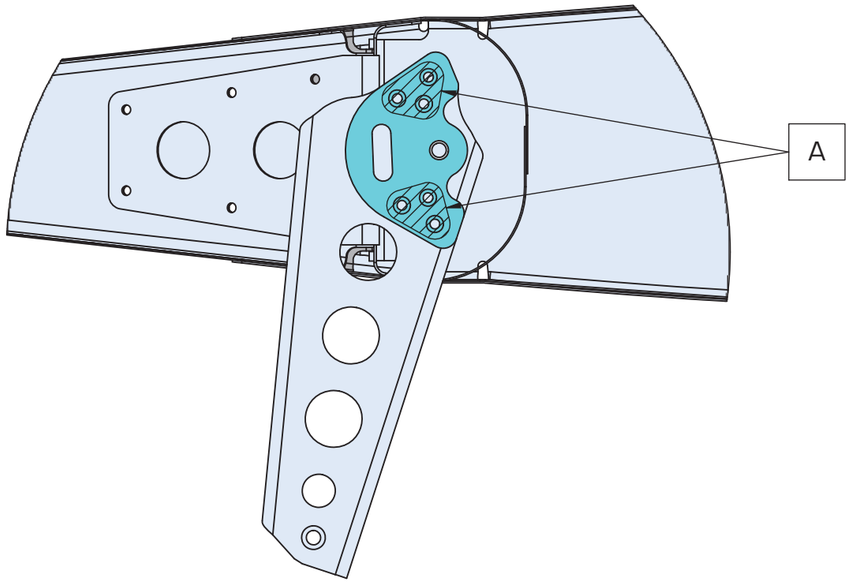
Note: Position (11) countersinks facing **Inboard**.

☐ **Step 1:** Cleco (11) to (A5)

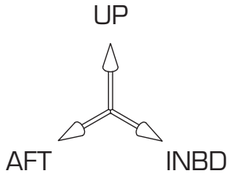
☐ **Step 2:** Rivet with (17) in [A] from **Inboard Side**.



ISO VIEW

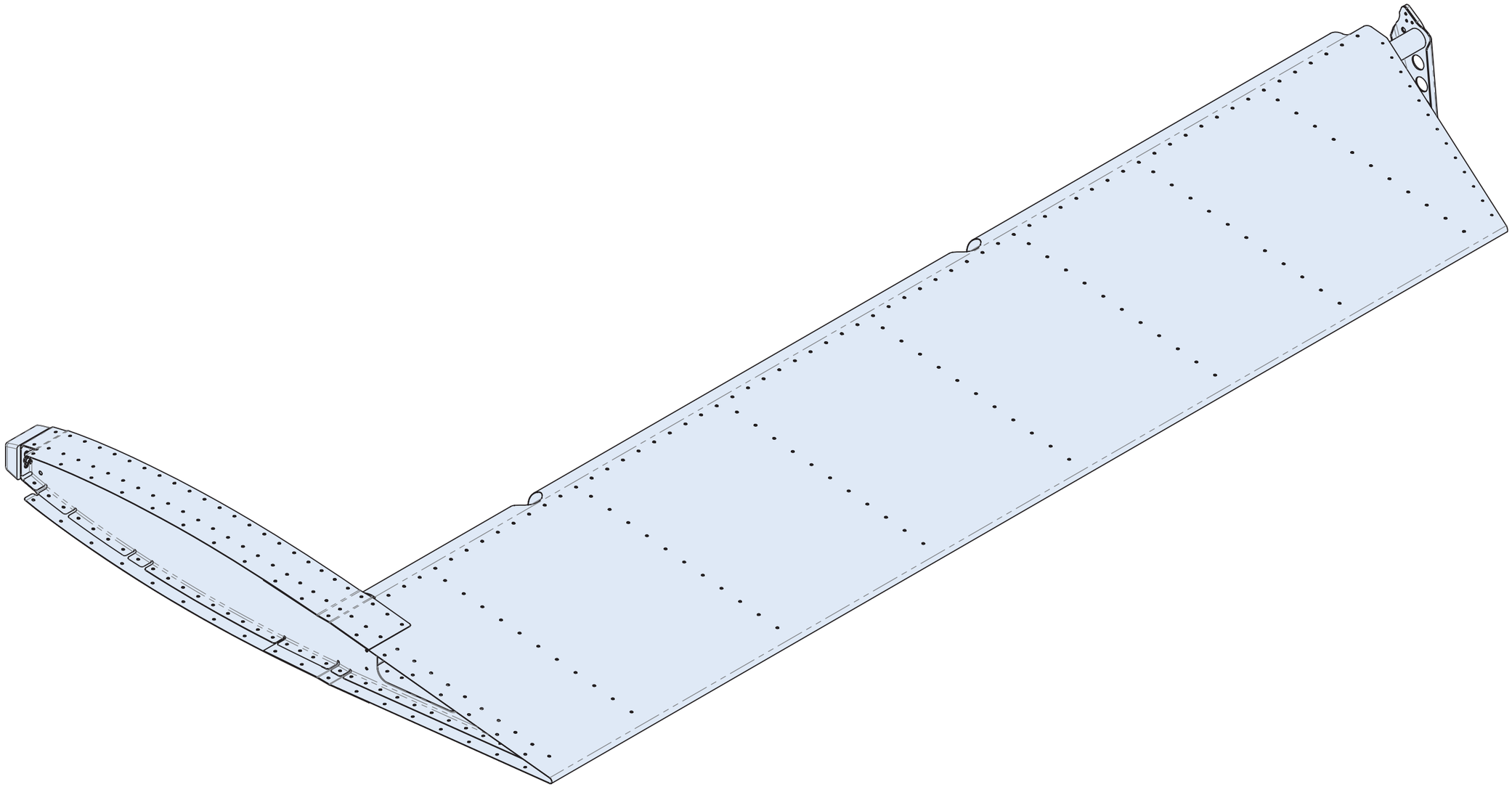


INBOARD VIEW LOOKING OUTBOARD



E-15504 ASSEMBLY

RV-15
VAN'S AIRCRAFT



E-15504 ASSEMBLY

BUILDER 1 NAME _____ SIGNATURE _____ DATE _____

BUILDER 2 NAME _____ SIGNATURE _____ DATE _____

START DATE DATE _____

END DATE DATE _____

HOURS QTY _____

INSPECTED BY NAME _____ SIGNATURE _____ DATE _____

RV-15
VAN'S AIRCRAFT

MODIFICATIONS _____

REPAIRS _____

ISSUES _____

NAME _____ SIGNATURE _____ DATE _____

E-15504 ASSEMBLY

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