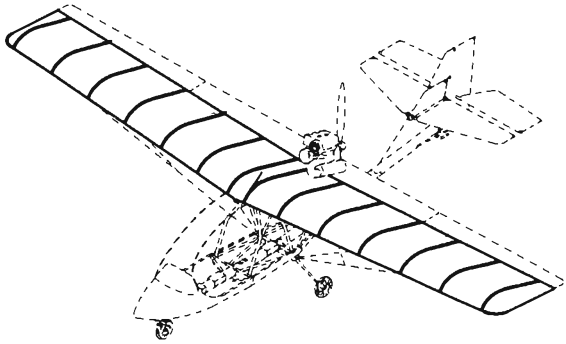
SECTION 5 - WINGS



DOC # 902-1 DATE 03/28/90

SECTION 5

WINGS

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WING JIG ASSEMBLY

1. Assemble as illustrated. The distance between the Channels MUST BE EXACTLY the SAME as they would be on the Root Tube.

NOTE: This Jig is designed to ease Wing construction. The main objective is to locate the Channels (1) should be EXACTLY 4' 1 5/16" (125.25 cm) apart CENTER to CENTER and APPROXIMATELY 3' 0" (91.44 cm) off the floor. If you have a carpenters sawhorse attach the crossbeam which simulates the Root Tube to it. The Jig then becomes unneccessary. Maybe your workbench is high enough and wide enough to construct a Wing ? As long as you can adequately tighten the Wing Covers it should work. You can even suspend the crossbeam from the ceiling. Otherwise construct the Jig as illustrated

We have given American sizes for lumber required with EXACT metric equivalents. Materials will vary in size from country to country. Adapt our sizes to suit.

In the following sequence we assume your work area is the about the SAME size as the AVERAGE garage: 25'0" x 15'0" x 8'0" (7.62 m x 4.57 m x 2.43 m) - in which you can build ONE Wing at a time. If you have the space it is easier to build BOTH Wings at the SAME time. The Full Wing Span on the Jig EXCEEDS 30 Feet (9.14 m). Detail 'C' illustrates the cross beam set up for the FULL span.

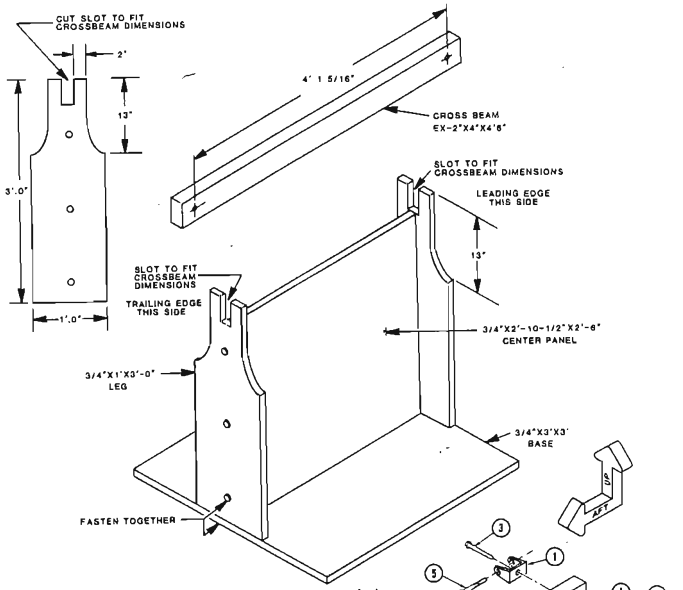
The Channels (1) and Hardware (3,4,5,and 6) will be attached to the REAL Root Tube in a later sequence.

FORMULA: To convert inches (") to centimeters (cm): Multiply by 2.54. There are 12 inches (") in ONE foot (').

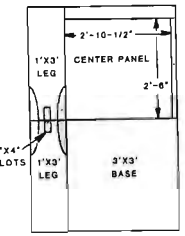
Crossbeam: 2" x 4" x 4'6" (5.08 cm x 10.16 cm x (137.16 cm)
Support: Plywood or Particle Board. Cut as per Detail "B".
3/4" x 4'0" x 6'0" (1.9 cm x121.9 cm x 182.8 cm)

Plus: Wood Glue and APPROXIMATELY 20 Wood Screws.

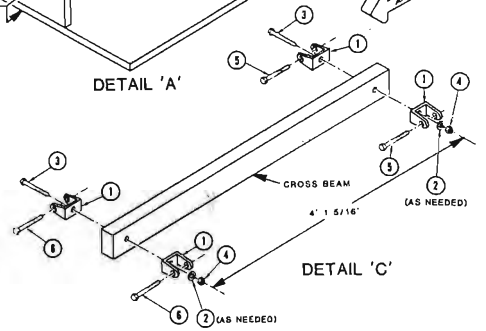
Item	P/N	Qty	Description
1	20050	4	S-1.75 Channel
2	10560	2	1/4" Washer
3	10250	2	AN4-27A Bolt
4	10521	2	1/4" Castle Nut
5	10260	2	AN4-27 Bolt (Leading Edge)
6	10205	2	AN4-23 Bolt (Trailing Edge)



DETAIL 'A'



DETAIL 'B'



DETAIL 'C'

WING SPAR ASSEMBLY

1. Assemble as illustrated. Tighten Locknuts (9) to proper torque. Tighten Locknuts (17) to correct torque. DO NOT DISTORT THE TUBE.

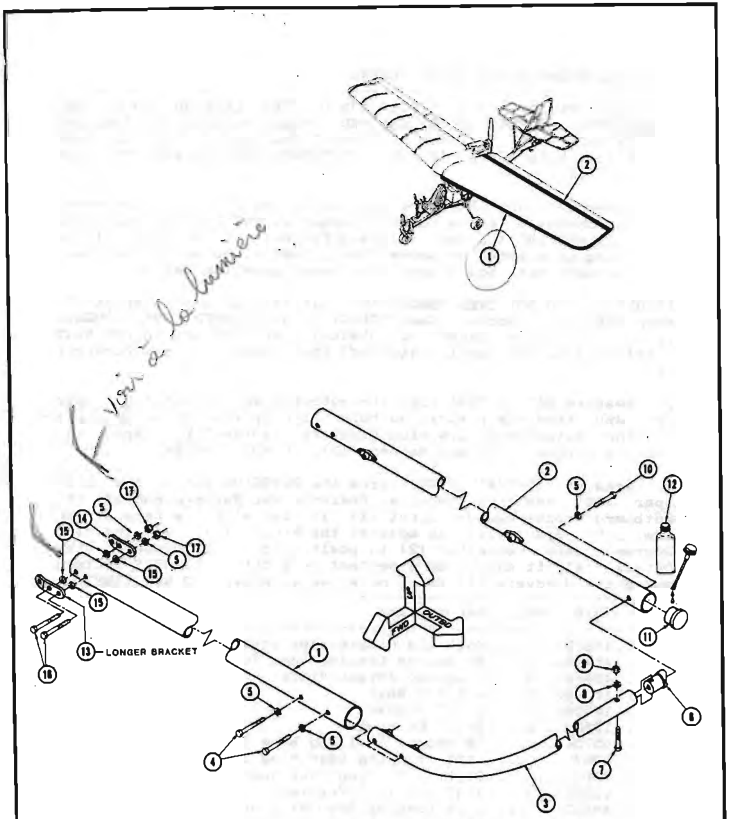
2. The Leading Edge Bracket (FORWARD) (13) and the Leading Edge Bracket (AFT) (14) are bent to slightly different angles.

IMPORTANT: Ensure they are correctly oriented.

OPTIONAL: You may attach the Bolt (7) with Hardware and at this time and heat cut a hole around the Bolt in a later sequence (refer to pages 5-20 and 5-21) or you may wait to attach the Bolt (7) with Hardware (8) and (9) until pages 5-20 and 5-21. As is may be installed AFTER the Wing Cover has been attached. Refer to pages 5-20 and 5-21.

NOTE 2: DO NOT attach the Tube Cap (11) at this time. It is shown for reference only . It is be attached AFTER the Wing Cover has beeen attached. Refer to pages 5-20 and 5-21.

Item	P/N	Qty	Description
1	45623	1	Left Leading Edge Wing Spar Assembly
	45624		Right Leading Edge Wing Spar Assembly (not illustrated)
2	45625	1	Left Trailing Edge Wing Spar Assembly
	45626		Right Trailing Edge Wing Spar Assembly
3	45666	1	Wing Tip Tube Assembly
4	10140	2	AN4-16A Bolt
5	10560	5	1/4" Washer
6	45751	1	90 Degree 1.25 to 1.75 Tube Connector
7	10040	1	AN3-15A Bolt
8	10550	1	3/16" Washer
9	10500	1	3/16" Locknut
10	10420	1	1/4" x 2 1/4" Grade 5 Bolt
11	20422	1	1 3/4" Tube Cap
12	60592		Contact Cement (Optional-not supplied)
13	45690	1	Forward Leading Edge Spar Root Bracket
14	45691	1	Aft Leading Edge Spar Root Bracket
15	20340	4	5/8" x 1/16" Nylon Washer
16	10250	2	AN4-27A Bolt
17	10510	2	1/4" Locknut
18	20200	1	1/8" x 1/4" Grip Aluminum Rivet (AAP-44)


Voir à la lumière
LONGER BRACKET

OUTBOARD COMPRESSION STRUT ASSEMBLY

CAUTION: POSITIVE IDENTIFICATION OF THE LEADING EDGE TUBE CONNECTORS (2) MUST BE ESTABLISHED BEFORE PROCEEDING! THERE ARE TWO ON EACH WING. THEY ARE NOT SYMETRICAL. DAMAGE TO THE WING SPARS (10) WILL RESULT IF THE TUBE CONNECTORS (2) ARE INSTALLED INCORRECTLY.

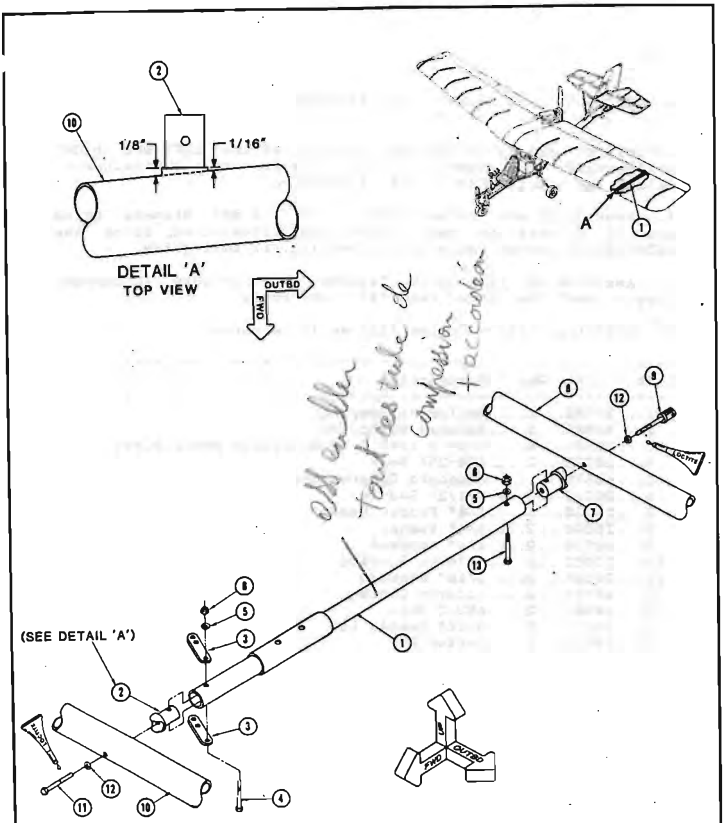
1. Assemble ONLY Hardware (4,2,3,5,6 and 7) as illustrated. Tighten Locknuts (6) to CORRECT torque. DO NOT DISTORT THE TUBE. NOTE: DO NOT INSTALL Bolt (11) and Forkbolt (9) as they will be installed in a later sequence. The illustration is to familiarize yourself with the proper attachment location ONLY!!!

IMPORTANT: DO NOT OVER TORQUE the Bolt (11) or the Forkbolt (9) when they are attached. Use CORRECT torque. NEVER OVER TORQUE. If correct torque CANNOT be obtained then back off to the NEXT VERTICAL position [as illustrated] when installing the Forkbolt (9).

2. Measure 66" (1.68m) from the outboard end of the T.E. Spar (8) and find the predrilled hole. Lightly attach the AFT end of the Outboard compression Strut (1) to the T.E. Spar (8) using a Forkbolt (9) and Washer (12). DO NOT TIGHTEN.

3. Measure 55-3/4" (1.46m) from the OUTBOARD end of the L.E. Spar (10) and find the hole. Position the Forward end of the Outboard cpompression Strut (1) in line with the hole. Push the L.E. Spar (10) up against the Strut (1). If the (87 Degree) Tube connector (2) is positioned in accordance with Detail 'A' it should be a perfect snug fit. LIGHTLY attach using the Hardware (11,12) - oriented as shown. DO NOT TIGHTEN.

Item	P/N	Qty	Description
1	45679	1	Outboard Compression Strut
2	45750	1	87 Degree Leading Edge Tube Connector
3	45692	2	Diagonal Attach Plate
4	10050	1	AN3-17A Bolt
5	10550	2	3/16" Washer
6	10500	2	3/16" Locknut
7	45751	1	90 Degree Trailing Edge Tube Connector
8	45625	1	Left Trailing Edge Wing Spar Assembly
	45626		Right T.E. Wing Spar Assy. (not illustrated)
9	10387	1	1/4" x 2 1/4" Forkbolt
10	45623	1	Left Leading Edge Wing Spar Assembly
	45624		Right L.E. Wing Spar Assy. (not illustrated)
11	10428	1	1/4" x 2 1/2" Grade 5 Bolt
12	10560	2	1/4" Washer
13	10040	1	AN3-15A Bolt
14	60591		Thread Adhesive


2
10
1/8"
1/16"
DETAIL 'A'
TOP VIEW
OUTBD
FWD
A
1
8
9
12
Ocm
6
5
7
13
(SEE DETAIL 'A')
3
4
11
AFT
FWD
OUTBD

AILERON BELLCRANK ASSEMBLY AND ATTACHMENT

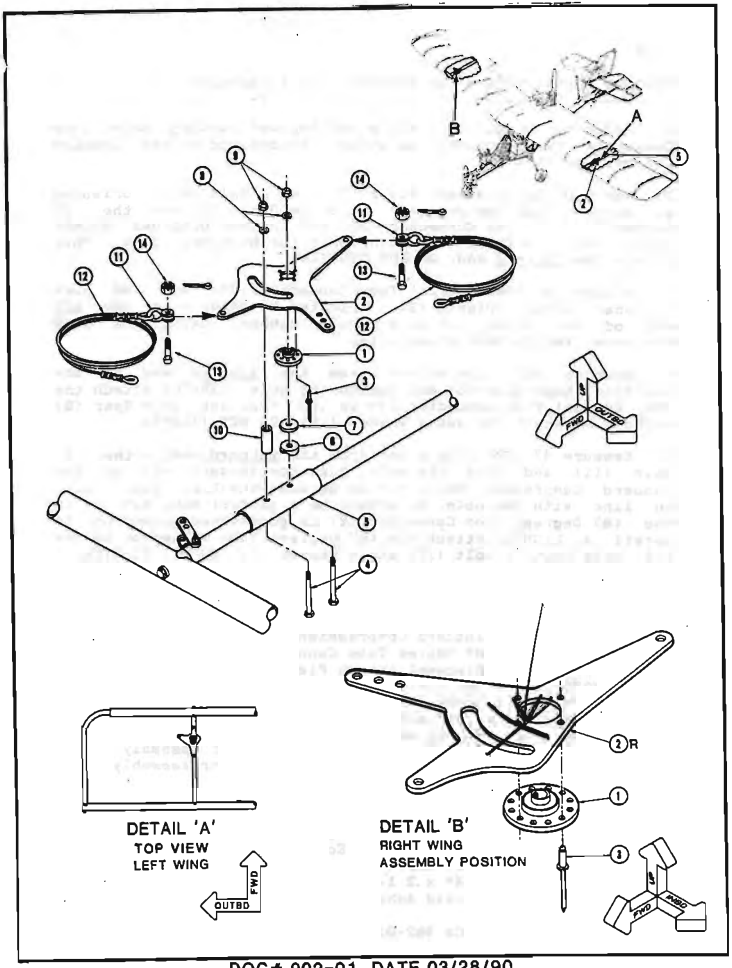
IMPORTANT: Verify the correct position of the LEFT and RIGHT Bellcrank/Bearing assembly BEFORE the Bearing (1) attachment. Attach the Bearing EXACTLY as illustrated.

1. Back-drill and deburr FOUR 1/8" (3.2 mm) diameter holes [at 90 Degrees to each other], as illustrated, using the EXISTING perimeter holes in the Bearing (1) as a guide.

2. Assemble as illustrated. Tighten ALL Locknuts to correct torque. Bend the Cotter Pins (14) correctly.

3. Coil the Aileron Cables (12) as illustrated.

Item	P/N	Qty	Description
1	10702	1	Bellcrank Bearing
2	42009	1	Aileron Bellcrank
3	20201	4	1/8" x 1/4" Grip Stainless Steel Rivet
4	10235	2	AN4-25A Bolt
5	45679		Outboard Compression Strut
6	20289	1	1 1/2" Saddle
7	10565	1	1/4" Fender Washer
8	10560	2	1/4" Washer
9	10510	2	1/4" Locknut
10	71003	1	Aileron Bushing
11	20320	2	3/16" Shackle
12	45713	2	Aileron Cable
13	10009	2	AN3-5 Bolt
14	10517	2	3/16" Castle Nut
15	10635	2	Cotter Pin


B
A
5
2
9
8
14
11
12
13
1
3
10
7
6
4
OUTER
FWD
DETAIL 'A'
TOP VIEW
LEFT WING
OUTBD
FWD
2R
1
3
DETAIL 'B'
RIGHT WING
ASSEMBLY POSITION
INBD
FWD

INBOARD COMPRESSION STRUT ASSEMBLY AND ATTACHMENT

1. Refer to Detail 'A'. Add a (87 Degree) Leading Edge Tube Connector (2) - oriented as shown - to one end of the Inboard Compression Strut (1).

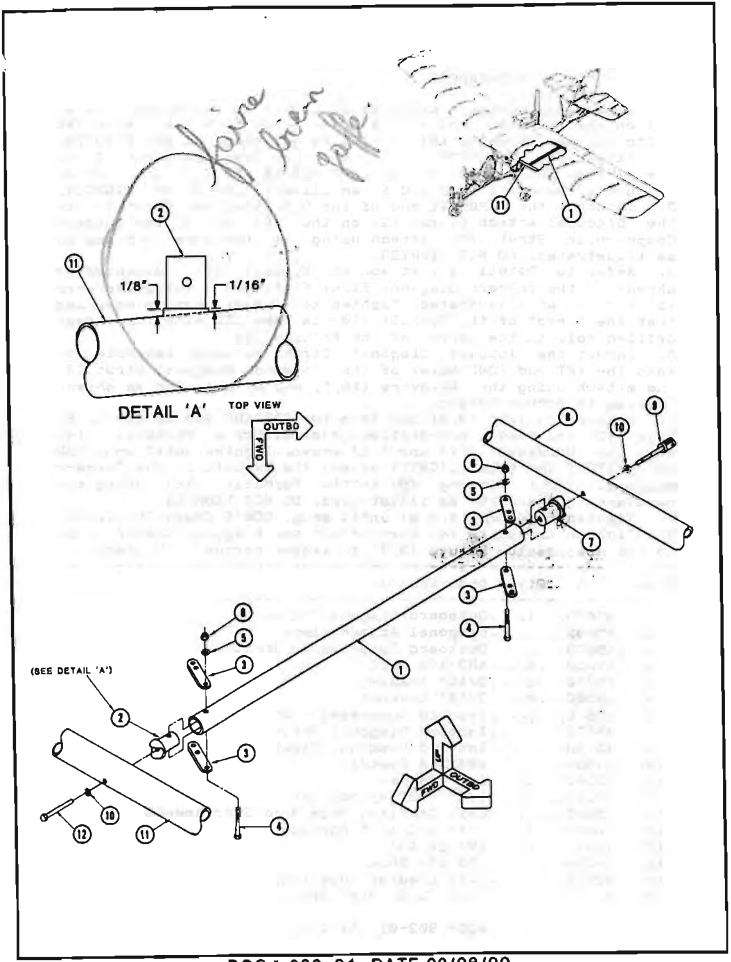
2. Add a Diagonal Attach Plate (3) - to a Bolt (4) - oriented as shown. Push the Bolt (4) thru the Strut (1) and the (87 Degree) L.E. Tube Connector (2). Add another Diagonal Attach Plate (3) - oriented as shown - and the Hardware (5,6). This is now the **Forward** end. DO NOT TIGHTEN.

3. Attach a (90 Degree) Tube Connector (7) and TWO more Diagonal Attach Plates (3) - oriented as shown - to the **AFT** end of the Strut (1) in a similar manner, using the SAME Hardware. Verify Bolt orientation.

4. Measure 49" (124.46 cm) from the **inboard** end of the Trailing Edge Spar (8) and locate the hole. LIGHTLY attach the (90 Degree) Tube Connector (7) to the Trailing Edge Spar (8) using a Forkbolt (9) and a Washer (10). DO NOT TIGHTEN.

5. Measure 47 1/2" (121.6 cm) from the **inboard** end of the L.E. Spar (11) and find the hole. Push the forward end of the Inboard Compresson Strut (1) up against the L.E. Spar (11), in line with the hole. It should be a perfect snug fit - if the (87 Degree) Tube Connector (2) is positioned according to Detail A. LIGHTLY attach the (87 Degree) Tube connector to the L.E. Spar using a Bolt (12) and a Washer (5). DO NOT TIGHTEN.

Item	P/N	Qty	Description
1	45676	1	Inboard Compression Strut
2	45750	1	87 Degree Tube Connector
3	45692	4	Diagonal Attach Plate
4	10050	2	AN3-17A Bolt
5	10550	2	3/16" Washer
6	10500	2	3/16" Locknut
7	45751	1	90 Degree Tube Connector
8	45625		Left Trailing Edge Wing Spar Assembly
	45626		Right Trailing Edge Wing Spar Assembly (not illustrated)
9	10387	1	1/4" x 2 1/4" Forkbolt
10	10560	2	1/4" Washer
11	45623		Left Leading Edge Wing Spar Assembly
	45624		Right Leading Edge Wing Spar Assembly (not illustrated)
12	10428	1	1/4" x 2 1/2" Grade 5 Bolt
13	60591		Thread Adhesive

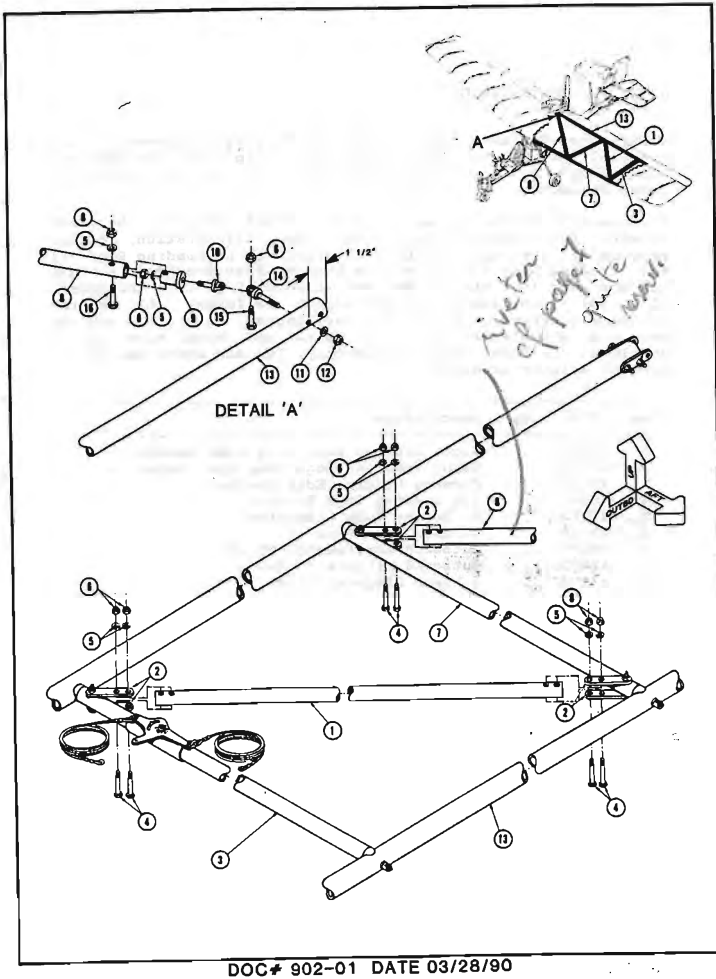

DETAIL 'A'
TOP VIEW
OUTBD
FWD
1/8"
1/16"
(SEE DETAIL 'A')
FWD
OUTBD

DIAGONAL STRUT ATTACHMENT

---

1. Attach the Outboard Diagonal Strut (1) to the Attach Plates (2) on the FORWARD end of the O. B. Comp. Strut (3), with TWO Bolts (4) and Hardware (5) and (6) as oriented. DO NOT TIGHTEN.
2. Attach the OPPOSITE end of the O.B Diagonal Strut (1) to the Attach Plates (2) on the AFT end of the I.B. Comp. Strut (7) using Hardware (4,5 and 6) as illustrated. DO NOT TIGHTEN.
3. Connect the OPPOSITE end of the O.B. Diagonal Strut (1) to the Diagonal Attach Plates (2) on the AFT end of the Inboard Compression Strut (7). Attach using the Hardware (4,5 and 6) as illustrated. DO NOT TIGHTEN.
4. Refer to Detail 'A'. Attach an Eyebolt (10) - oriented as shown- to the Inboard Diagonal Strut Fitting (9) using Hardware (5) and (6) as illustrated. Tighten to proper torque ensuring that the " eye" of the Eyebolt (10) is PARALLEL with the cross-drilled hole in the barrel of the Fitting (9).
5. Insert the Inboard Diagonal Strut Fitting. Assemble (9) into the AFT end (ONE hole) of the Inboard Diagonal Strut (8) and attach using the Hardware (16,5, and 6) oriented as shown. Tighten to proper torque.
6. Measure 1-1/2" (3.81 cm) from the INBOARD end of the T. E. Spar (13) and find a pre-drilled hole. Attach a Forkbolt (14) with the Hardware (11) and (12) shown. Tighten until snug. DO NOT DISTORT the tube. LIGHTLY attach the Eyebolt in the Inboard Diagonal Strut Fitting (9) to the Forkbolt (14) using the Hardware (15) and (6) as illustrated. DO NOT TIGHTEN.
7. Tighten Hardware (4,5,6) until snug. DON'T CRUSH THE TUBES.
8. Tighten the Bolts (4) that attach the Diagonal Struts (1,8) to the compression Struts (3,7) to proper torque - (3 places).

Item	P/N	Qty	Description
1	45673	1	Outboard Diagonal Strut
2	45692		Diagonal Attach Plate
3	45679		Outboard Compression Strut
4	10050	6	AN3-17A Bolt
5	10550	8	3/16" Washer
6	10500	8	3/16" Locknut
7	45676		Inboard Compression Strut
8	45670		Inboard Diagonal Strut
9	45720		Inboard Diagonal Strut Fitting
10	11080	1	AN42B-4 Eyebolt
11	10560	1	1/4" Washer
12	10511	1	1/4" - 20 Nylock Nut
13	45625		Left Trailing Edge Wing Spar Assembly
14	10387	1	1/4" x 2 1/4" Forkbolt
15	10010	1	AN3-5A Bolt
16	10040	1	AN3-15A Bolt
17	45623		Left Leading Edge Wing Spar Assembly
18	45624		Right L.E. Wing Spar Assy. (not illustrated)

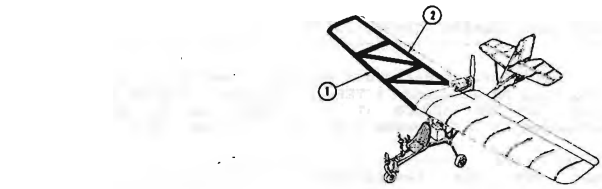

A
1 1/2"
DETAIL 'A'

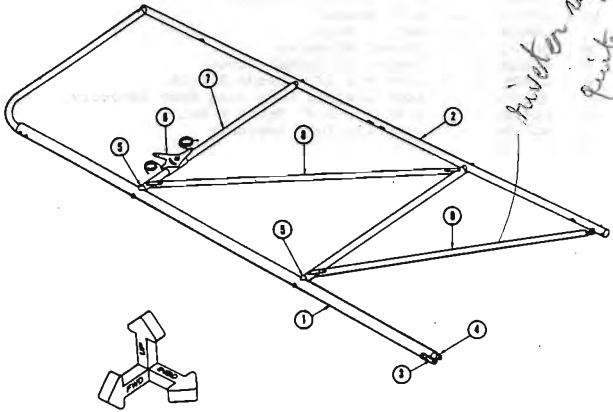
RIGHT WING ORIENTATION

NOTE: The Sub-assembly of the LEFT Wing Compression and Diagonal Struts is now complete. Tag the Sub-assembly "LEFT-Wing" at the Bellcrank and store for further work in a later sequence.

Now complete the Sub-assembly of the RIGHT Wing in the SAME manner, in "mirror image". In the illustration, notice especially the "handing" LEFT-to-RIGHT of the Leading Edge (1) and Trailing Edge (2) Spars, the Leading Edge Brackets, Forward (3) and Aft (4), the (87 Degree) Leading Edge Tube Connectors (5), the (previously sub-assembled) Bellcrank (6) on the Outboard Compression Strut (7), the Diagonal Struts (8) and (9) and the orientation of ALL Bolts and Nuts. When you've completed the RIGHT Wing Sub-assembly, Tag and store for futher work in a later sequence.

Item	P/N	Qty	Description
1	45624		Right Leading Edge Wing Spar Assembly
2	45626		Right Trailing Edge Wing Spar Assembly
3	45690		Forward Leading Edge Bracket
4	45691		Aft Leading Edge Bracket
5	45750		87 Degree Tube Connector
6	42009		Aileron Bellcrank
7	45679		Outboard Compression Strut
8	45673		Outboard Diagonal Strut
9	45670		Inboard Diagonal Strut

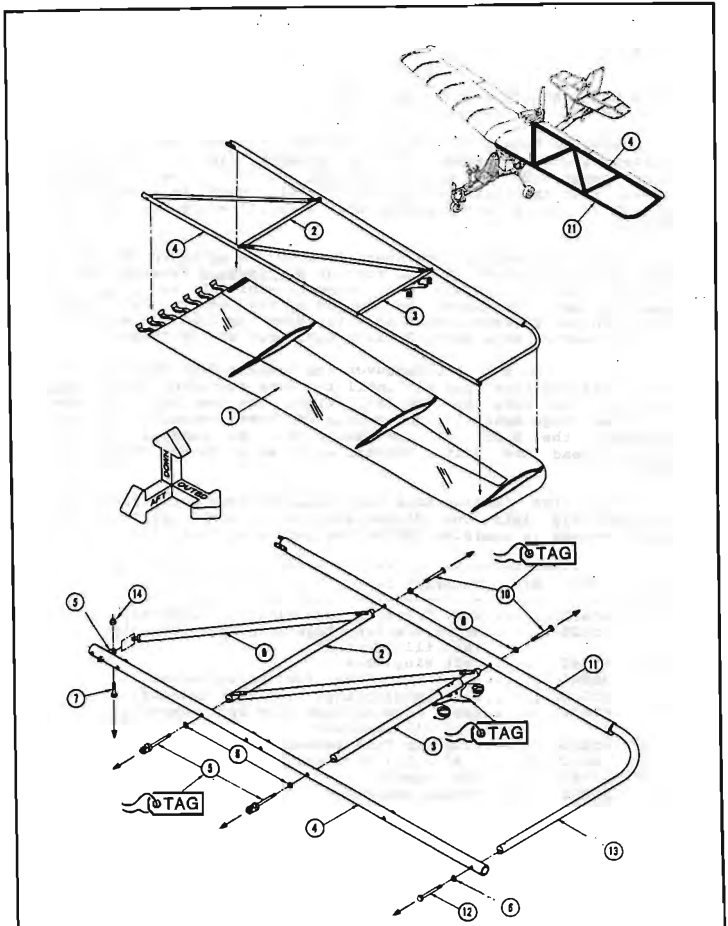

2
1


7
6
5
8
2
5
8
1
4
3

LEFT WING [GENERAL CONSTRUCTION]

1. The illustration shows how the internal structure of the Wing will be attached AFTER it has been slipped into the Wing Cover. DO NOT ATTACH AT THIS TIME. Tag the Bolts (10) and Forkbolts (5) if necessary to identify them later.

Item	P/N	Qty	Description
1	45640		Left Wing Cover
2	45676		Inboard Compression Stut
3	45679		Outboard Compression Strut
4	45625		Left Trailing Edge Wing Spar Assembly
5	10387		1/4" x 2 1/4" Forkbolt
6	10560		1/4" Washer
7	10010		AN3-5A Bolt
8	60591		Thread Adhesive
9	45670		Inboard Diagonal Strut
10	10428		1/4" x 2 1/2" Grade 5 Bolt
11	45623		Left Leading Edge Wing Spar Assembly
12	10420		1/4" x 2 1/4" Grade 5 Bolt
13	45666		Wing Tip Tube Assembly


4
11
4
2
3
1
TAG
14
5
10
8
9
2
11
7
TAG
3
8
5
TAG
4
13
12
6

WING SPAR INSERTION INTO WING COVER

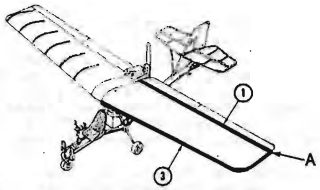
1. Refer to Detail 'A'. Slide the Trailing Edge Spar (1) - Nut Plates facing **inwards** - into the **outboard** Zipper of the Left Wing cover (2) and through **all aft** Tension sleeve Pockets (seen into the INSIDE of the Wing cover), until only the OUTER 6" (15.2 cm) of the Trailing Edge Spar (1) shows out of the Zipper.

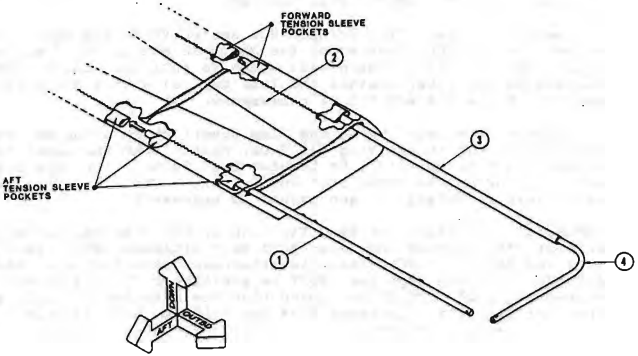
2. Slide the Leading Edge Spar (3) into the **outboard** Zipper of the Left Wing cover (2) and through **all forward** Tension Sleeve Pockets (as in Detail 'A'), being careful not to snag the Leading Edge Brackets (on the end of the Leading Edge Spar (3)) on the pockets, until only the Wing Tip Tube (4) attached to the Leading Edge Spar (3) is visible out of the Zipper.

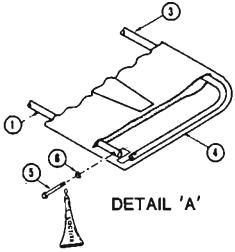
3. Refer to Detail 'A'. Maneuver the Leading Edge Spar (3) and the Trailing Edge Spar (1) until the Tube connector in the **aft** end of the Wing Tip Tube (4), aligns with its hole in the Trailing Edge Spar (1). Add a drop of Thread Adhesive (7) and reinsert the Bolt (5) and Washer (6). Be careful not to cross-thread the Bolt. Tighten until snug. DO NOT CRUSH THE TUBE.

4. Slide the Leading Edge Spar/Trailing Edge Spar/ Wing Tip sub-assembly into the Zipper and pull it back until it is fully housed in position INSIDE the Left Wing Cover (2).

Item	P/N	Qty	Description
1	45625		Left Trailing Edge Wing Spar Assembly
	45626		Right Trailing Edge Wing Spar Assembly (not illustrated)
2	45640		Left Wing Cover
	45641		Right Wing Cover (not illustrated)
3	45623		Left Leading Edge Wing Spar Assembly
	45624		Right Leading Edge Wing Spar Assembly (not illustrated)
4	45666		Wing Tip Tube Assembly
5	10420	1	1/4" x 2 1/4" Grade 5 Bolt
6	10560	1	1/4" Washer
7	60591		Thread Adhesive


1
3
A


FORWARD TENSION SLEEVE POCKETS
2
3
AFT TENSION SLEEVE POCKETS
1
4
AMIDSHIPS
OUTBD


3
1
4
6
5
DETAIL 'A'

WING COVER ATTACHMENT

1. With the help of a volunteer "from the studio audience", positon the L.E. Spar (3) and the T.E. Spar (4) each into a Channel (5) on the "Wing Jig" (2). Insert the Bolts (6) and (7) through their respective Channels and Spars to hold their positions. Weight-down the "Wing Jig" to prevent it from moving. Pad the Wing Tip to prevent damage to the Wing Cover (1).

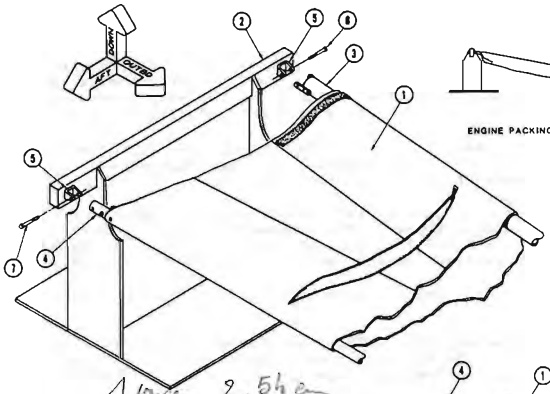
2. Refer to Detail 'A'. Pass a length of Nylon Rope thru the round, Brass Grommets sewn into the INBOARD ends (Leading Edge and Trailing Edge) of the Wing Cover (1). Pull the Wing Cover toward the Channels (5) until "snug". Hold the tension. Tie off the Leading Edge rope to the Jig. Tighten the Trailing Edge rope until "snug". DO NOT OVER TIGHTEN.

3. Refer to Detail 'B'. Using a Hot Knife, VERY CAREFULLY cut around the INSIDE diameter of the OUTBOARD end of the Trailing Edge Spar (4). The tension will begin to pull the Cover OVER the end of the Tube. Install the Tube Cap (8) with a Rivet (9). Refer to Pages 5-4 and 5-5 if necessary.

4. Locate the hole (UNDER the Wing Cover) which attaches the Tube Connector to the Wing Tip Tube. Neatly trim the Cover (1) around the T.E. Spar (4). Re-tension the Cover (1) at the L.E. and T.E. end of the "Wing Jig" until "snug". Check the Measurement shown in Detail 'A' and adjust as necessary.

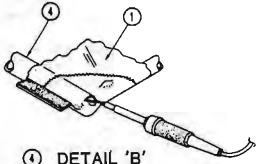
IMPORTANT: Position the Wing Tip with proper dihedral and Wing Washout. The Leading Edge Spar MUST be positioned NINE inches (9") (22.86 cm) LOWER than the attachment height at the Wing Jig. The Trailing Edge Spar MUST be positioned TEN and ONE-HALF inches (10 1/2") (26.67 cm) LOWER than the attachment height at the Wing Jig. Refer to pages 7-14 and 7-15 for Wing Washout.

Item	P/N	Qty	Description
1	45640		Left Wing Cover
	45641		Right Wing Cover (not illustrated)
2			Wing Jig
3	45623		Left Leading Edge Wing Spar Assembly
	45624		Right Leading Edge Wing Spar Assembly (not illustrated)
4	45625		Left Trailing Edge Wing Spar Assembly
	45626		Right Trailing Edge Wing Spar Assembly (not illustrated)
5	20050		S-1.75 Channel
6	10260		AN4-27 Bolt
7	10205		AN4-23 Bolt
8	20422		1 5/8" x .035 Tube Cap
9	20200		1/8" x 1/4" Grip Aluminum Rivet (AAP-44)



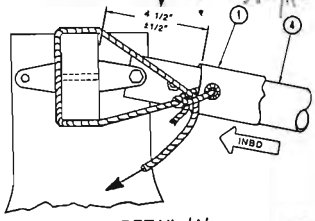
1 pouce 2,54 cm

1/2 pouces 1/2

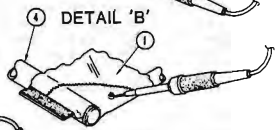


After Completing STEPS 3 & 4:
Check the Dimension shown
along each Spar.

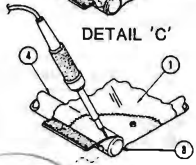
9 11/16



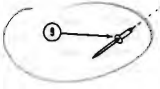
DETAIL 'A'
BACK VIEW



DETAIL 'B'



DETAIL 'C'



DETAIL 'D'

COMPRESSION STRUT AND
DIAGONAL STRUT INSERTION/RIB POCKET CUT-OUT LOCATIONS

IMPORTANT: Due to manufacturing tolerances, slight variations of Rib pocket postions will occur. Use the measurements shown as a guide to find the Rib Pockets in your Wing covers, then position Template W-1 on your Rib Pocket **centerlines**.

1. Position the - previously assembled - Compression Strut/Diagonal Strut Sub-assembly (1) **down-side up** and insert it - oriented as shown - INSIDE the Wing Cover (2).

2. The Outboard Compression Strut (6) will position just INSIDE the **second** Zipper INBOARD from the Wing Tip. Spread the L.E. Spar (7) and the T.E. Spar (5) apart until the Outboard Compression Strut (6) "snaps" between them. DO NOT ATTACH!!!

3. Position the Inboard Compression Strut (8) in the SAME way. DO NOT ATTACH!!!

4. Refer to Detail 'A'. LIGHTLY re-attach the Inboard Diagonal Strut (3) to the Forkbolt/Eyebolt sub-assembly (4) at the INBOARD end of the Trailing Edge Spar (5). DO NOT TIGHTEN!!!

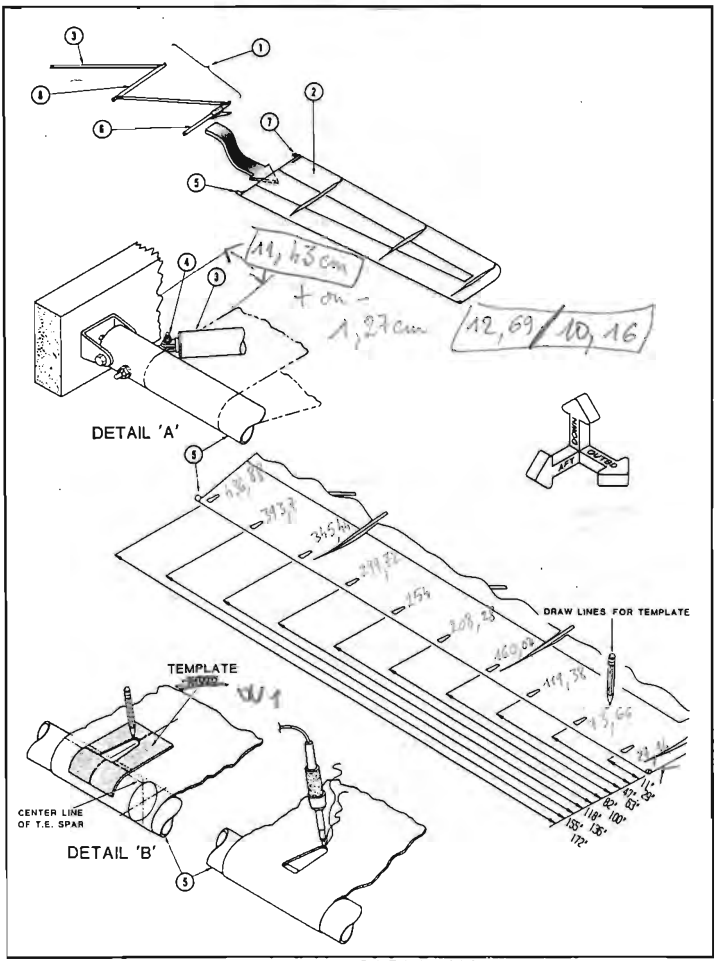
5. Measure as shown form the **outboard** tip of the Trailing Edge Spar (5) Tube Cap. Draw a pencil line on the Wing cover (2) at each point, 90 degrees to the Trailing Edge Spar (5).

6. Refer to Detail 'B'. Position Template W-1 on the pencil lines and Mark for the Rib Pocket holes, as shown. (Reminder: Slight position adustments to align with internal Rib Pockets may be necessary due to Wing cover manufacturing tolerances). Neatly cut with the Hot Knife. Use the SAME sequence, in "mirror image" for the RIGHT Wing.

METRIC CONVERSION:

Formula: Multiply inches x 2.54 to give equivalent centimeters.

Item	P/N	Qty	Description
1			Compression/Diagonal Strut Sub-assembly
2	45640		Left Wing Cover
3	45670		Inboard Diagonal Strut
4			Forkbolt/Eyebolt Sub-assembly
5	45625		Left Trailing Edge Wing Spar Assembly
6	45679		Outboard Compresson Strut
7	45623		Left Leading Edge Spar Assembly
8	45676		Inboard Compression Strut


11,43cm
+ or -
1,27cm
12,69 / 10,16
DETAIL 'A'
DOWN
OUTBD
AFT
DRAW LINES FOR TEMPLATE
TEMPLATE
CENTER LINE OF T.E. SPAR
DETAIL 'B'

RIB INSERTION

IMPORTANT: The TWO OUTBOARD UPPER WING RIBS are packaged SEPARATELY in the kit. These are reinforced with INNER Sleeves. They are to be used ONLY in the UPPER OUTBOARD Rib Pockets CLOSEST to the Wing Tips. (ONE per Wing). NOTE: They are HEAVIER than the standard Upper Rib.

CAUTION: Use of EXCESSIVE force can damage the Forward Rib Tips.

1. Refer to Detail 'A'. CAREFULLY cut the lenghts illustrated from ONE [1] OUTBOARD Upper Wing Rib (1) and NINE [9] of the CURVED Upper Wing Ribs (2). Cut EIGHT [8] of the STRAIGHT Lower Ribs (3). Tag each Rib for position if necessary. Ensure ALL cuts are ACCURATE and DEBURRED. Insert the Rib Tips (4) into the AFT end of the Ribs. Refer to Detail 'B1'. LIGHTLY center-punch ("dimple") each Rib Tip (4) to prevent it from falling out.

Note the DIFFERENT orientation of the Rib Tips (4) in the UPPER and LOWER Ribs. The Pockets tend to stick together. Work the Rib GENTLY back and forth in the Pocket until it slides in easily.

2. Remove ALL Labels and residue from the Ribs with Solvent.

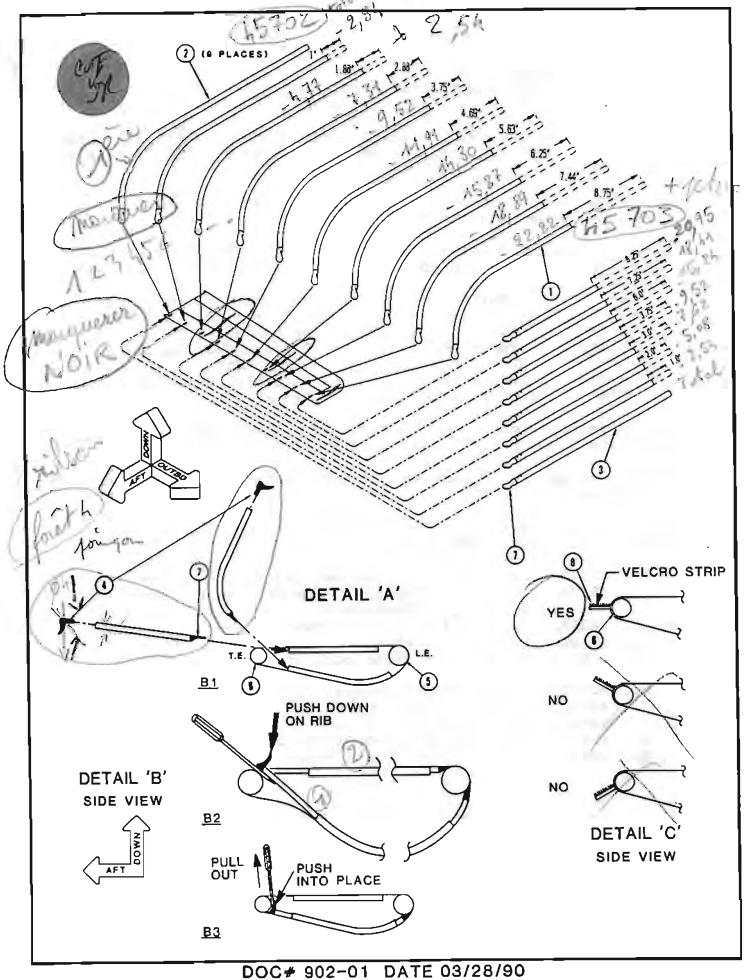
OPTIONAL: Spray Ribs with a DRY Silicone Lubricant Spray such as "Fabriglide" by Dow Corning.

3. Install the Upper Ribs (2). " Pop" them into place using a towel to protect the heel of your palm. Ensure the Forward Rib Tips (7) are positioned correctly around the Leading Edge Spar (5) and the Rib Tip has NOT curled back.

4. Use a LARGE Screwdriver ONLY if the Ribs CANNOT be inserted with the palm of your hand. Use a cloth or towel to protect your hand.

5. Ensure the Velcro Gap Seal (8) is aligned correctly.

Item	P/N	Qty	Description
1	45703	1	Upper Tip Rib
2	45702	9	Upper Rib
3	45707	8	Lower Rib
4	20262	18	Aft Rib Tip
5	45623		Leading Edge Wing Spar Assembly (Left)
6	45625		Trailing Edge Wing Spar Assembly (Left)
7			Forward Rib Tip
8			Velcro Gap Seal


2 (6 PLACES)
1
3
7
DOWN
AFT
OUTER
DETAIL 'A'
4
7
T.E.
L.E.
5
5
B1
PUSH DOWN ON RIB
2
4
B2
DETAIL 'B'
SIDE VIEW
DOWN
AFT
PULL OUT
PUSH INTO PLACE
B3
8
VELCRO STRIP
YES
6
NO
NO
DETAIL 'C'
SIDE VIEW

FORKBOLT ATTACHMENT/
AILERON AND FLAP HINGE POINT LOCATIONS

1. Refer to Figure 1. Locate the 1/4" (6.4 mm) attachment holes in the Trailing Edge Wing Spar (1) at the dimensions illustrated.

2. Refer to Detail 'A'. Heat cut the Gap Seal and the Wing Cover as illustrated to reveal the holes.

NOTE: Trailing Edge Hole Locations (Hinge Points) as measured OUTBOARD from the INBOARD end of the Trailing Edge Wing Spar.

SAE	METRIC	Forkbolt attachment to:
4 1/2"	(11.43 cm)	Nylock Nut
48 7/8"	(124.14 cm)	Inboard Compression Strut
107 3/8"	(272.73 cm)	Nylock Nut
111 7/8"	(284.16 cm)	Outboard Compression Strut
161 7/8"	(411.16 cm)	Nylock Nut

3. Refer to Detail 'B'. Attach as illustrated. Tighten ALL Locknuts to correct torque. DO NOT DISTORT THE TUBE.

NOTE: Align ALL Forkbolts (2) VERTICALLY as illustrated AFTER tightening.

Item	P/N	Qty	Description
1	45625		Left Trailing Edge Wing Spar Assembly
	45626		Right Trailing Edge Wing Spar Assembly (not illustrated)
2	10387		1/4" X 2 1/4" Forkbolt
3	10560		1/4" Washer
4	10511		1/4" - 20 Nylock Nut
5			Gap Seal
6	45670		Inboard Diagonal Strut
7	45640		Left Wing Cover
	45641		Right Wing Cover (not illustrated)
8	45676		Inboard Compression Strut
9	45679		Outboard Compression Strut

QUICKSILVER
ENTERPRISES, INC.
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SUPPLEMENT

(DOC# 913-06)

AFT RIB TIP CHANGE

AIRCRAFT AFFECTED: GT 400 (P/N 99602-R447)
(P/N 99602-R503)
GT 500 (P/N 99702-R503)
(P/N 99702-R582)

DOCUMENTS AFFECTED: DOC # 892-02
GT 400 Assembly Instructions
Pages 5-24 and 5-25

DOC # 902-01
GT 500 Assembly Instructions
Pages 5-24 and 5-25

The Aft Rib Tip P/N 20262 has been replaced by Aft Rib Tip P/N 20261. Aft Rib Tip P/N 20262 is currently not available.

Follow the instructions contained in this supplement to modify the Aft Rib Tips P/N 20261 appropriately for proper fit and function.

NOTE: The Packing List for your Kit has been revised to reflect this change.

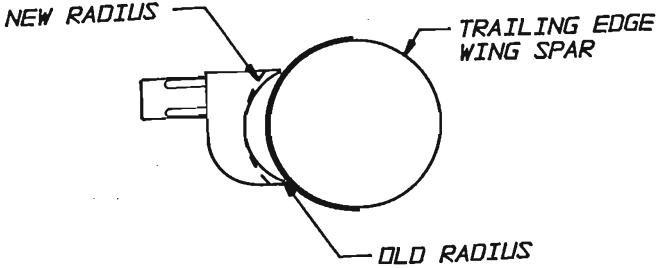
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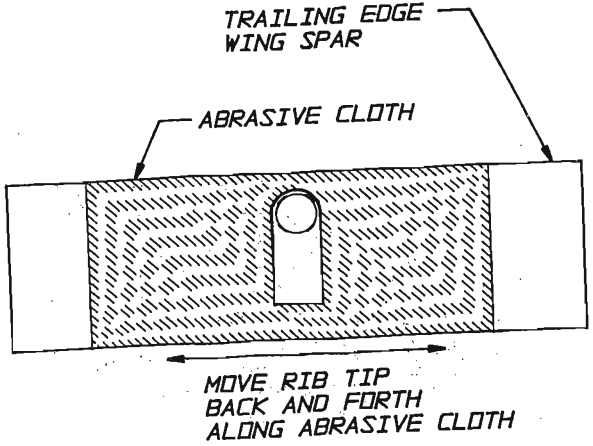
AFT RIB TIP CHANGE (DOC# 913-06)

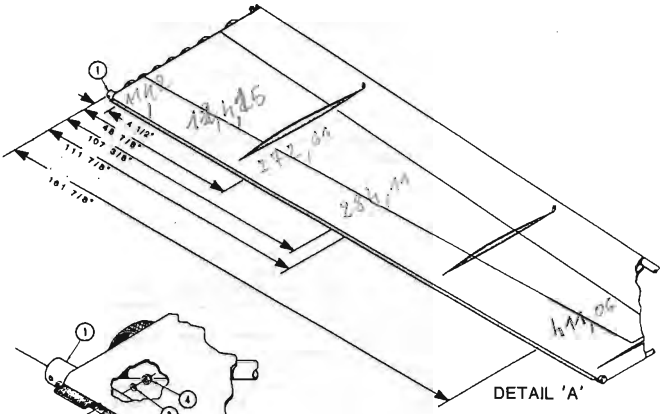
1. Refer to the illustrations on the following page.

2. Wrap a piece of Sandpaper or Emery Cloth (150 Grit recommended) around the Trailing Edge Wing Spar (Or any 1 3/4" dia tube). Rub the Aft Rib Tip back-and-forth along the Abrasive Cloth only enough to match the radius of the Trailing Edge Wing Spar.

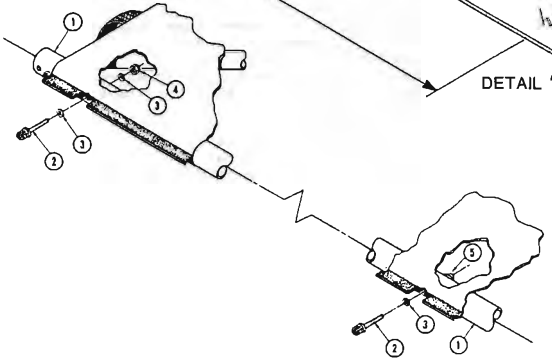
3. Continue on with the assembly of your aircraft following the instructions provided.

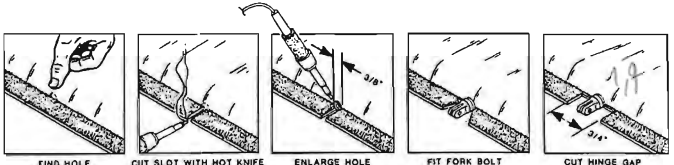

NEW RADIUS
TRAILING EDGE
WING SPAR
OLD RADIUS


TRAILING EDGE
WING SPAR
ABRASIVE CLOTH
MOVE RIB TIP
BACK AND FORTH
ALONG ABRASIVE CLOTH



DETAIL 'A'





FIND HOLE | CUT SLOT WITH HOT KNIFE | ENLARGE HOLE IN CLOTH | FIT FORK BOLT | CUT HINGE GAP

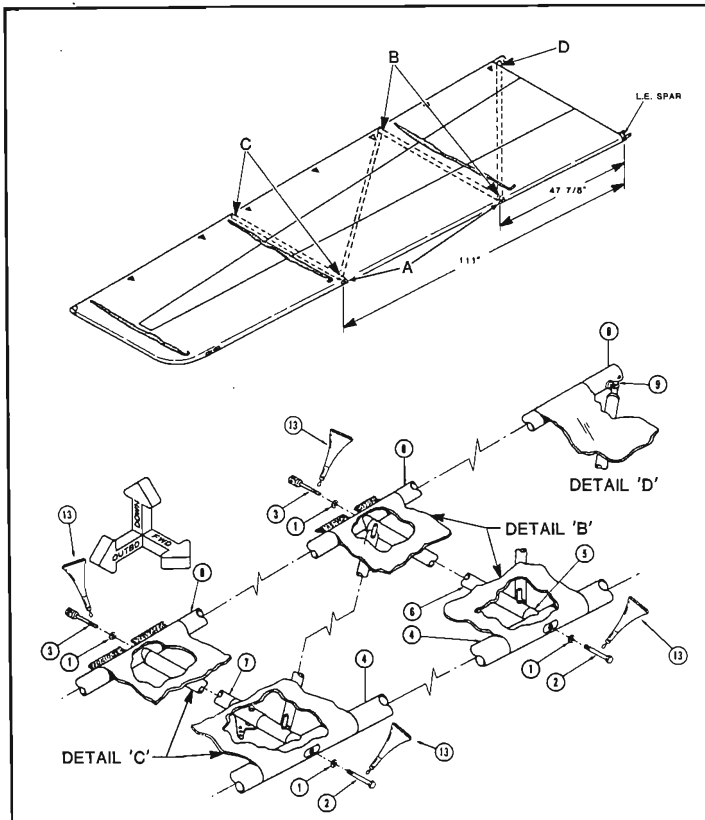
DETAIL 'B'

INBOARD AND OUTBOARD COMPRESSION STRUT ATTACHMENT

1. Locate the holes for Bolts (2) and Forkbolts (3). Heat-cut and reveal the holes.

2. Assemble as illustrated. Tighten ALL Locknuts to correct torque. Position the Forkbolts (3) in a VERTICAL position AFTER torqing. DO NOT OVER TORQUE AND DISTORT THE SPAR.

Item	P/N	Qty	Description
1	10560	4	1/4" Washer
2	10428	2	1/4" x 2 1/2" Grade 5 Bolt
3	10387	2	1/4" x 2 1/4" Forkbolt
4	45623		Left Leading Edge Wing Spar Assembly
	45624		Right Leading Edge Wing Spar Assembly (not illustrated)
5	45750		1 1/4" to 2" 87 Degree Tube Connector
6	45676		Inboard Compression Strut
7	45679		Outboard Compression Strut
8	45625		Left Trailing Edge Wing Spar Assembly
	45626		Right Trailing Edge Wing Spar Assembly (not illustrated)
9	10010		AN3-5A Bolt
10	45670		Inboard Diagonal Strut
11	45673		Outboard Diagonal Strut
12	45751		1 1/4" to 1 3/4" 90 Degree Tube Connector
13	60591		Thread Adhesive


B
D
L.E. SPAR
C
47 7/8"
A
111"
DETAIL 'D'
DETAIL 'B'
DETAIL 'C'

LIFT STRUT FITTING ATTACHMENT TO WING SPARS

NOTE: This illustration shows the LEFT Wing BOTTOM SIDE UP or UPSIDE DOWN.

1. Refer to Page 5-43 and locate Template W-3. Remove and follow the instructions on the Template and remove it.

2. Refer to Figure 1 and Detail 'B'. Measure OUTBOARD from the INBOARD end of the Leading Edge Spar (2) APPROXIMATELY 107 1/2" (273.05 cm) and locate the INBOARD-MOST of the THREE 3/16" (4.7 mm) attachment holes in the LEFT L.E. Spar Assembly (2).

3. Heat cut and reveal the holes. Using Template W-3. Follow the placement instructions on the Template.

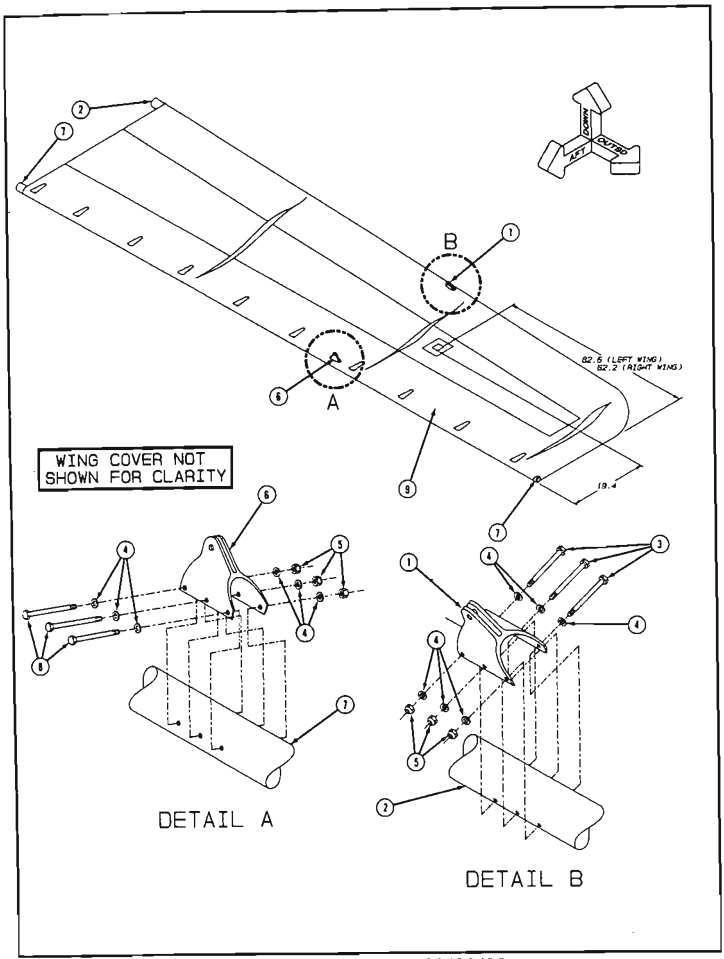
4. Assemble as illustrated. Tighten ALL Locknuts to correct torque. DO NOT DISTORT THE SPAR.

5. Refer to Detail 'A'. Assemble the Trailing Edge (7) the SAME as above. Use Template W-4 Page 5-45. Locate the THREE 3/16" (4.7 mm) holes located OUTBOARD at APPROXIMATELY 108 3/8" (275.27 cm).

6. On the BOTTOM surface of the LEFT Wing Cover (9) ONLY Measure 62 5/8" (159.06 cm) INBOARD from the OUTBOARD edge of the LEFT Wing Tip Tube and make a pencil mark. Measure 19 3/8" (49.21 cm) FORWARD from the AFT edge of the Trailing Edge Spar. (7). Refer to page 5-41. Remove and use Template W-2.

7. Repeat the SAME sequence in "mirror image" for the RIGHT Wing EXCEPT the Aileron Pushrod cut-out will be made at a SLIGHTLY DIFFERENT location. Measure from the Wing Tip INBOARD 62 3/16" (157.96 cm).

Item	P/N	Qty	Description
1	45721	1	Leading Edge Wing Strut Fitting
2	45623	1	Left Leading Edge Wing Spar Assembly
	45624		Right Leading Edge Wing Spar Assembly (not illustrated)
3	10055	3	AN3-24A Bolt
4	10550	12	3/16" Washer
5	10500	6	3/16" Locknut
6	45722	1	Trailing Edge Wing Strut Fitting
7	45625		Left Trailing Edge Wing Spar Assembly
	45626		Right Trailing Edge Wing Spar Assembly (not illustrated)
8	10054	3	AN3-22A Bolt
9	45640		Left Wing Cover
	45641		Right Wing Cover (not illustrated)

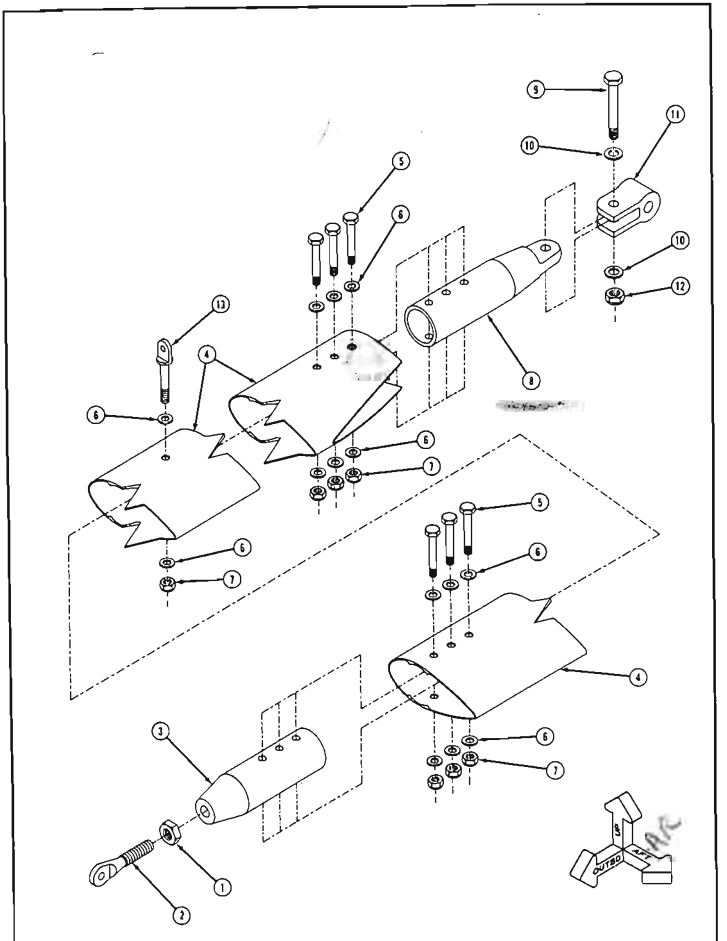

DOWN
AFT
OUTER
B
A
82.6 (LEFT WING)
82.2 (RIGHT WING)
19.4
WING COVER NOT SHOWN FOR CLARITY
DETAIL A
DETAIL B

LEADING EDGE LIFT STRUT ASSEMBLY

1. Assemble as illustrated. Tighten ALL Locknuts to proper torque EXCEPT the Locknut (7) attached to Eyebolt (13). Tighten this Locknut ONLY "snug". DO NOT DISTORT THE STRUT.

2. Repeat Step 1. for the opposite (RIGHT) Strut (4) in "mirror image".

Item	P/N	Qty	Description
1	13132	1	3/8" Jam Nut
2	10382	1	3/8" - 24 Eyebolt
3	45696	1	Threaded Lift Strut Fitting
4	45620	1	Streamlined Leading Edge Lift Strut
5	10150	6	AN4-17A Bolt
6	10560	14	1/4" Washer
7	10515	7	1/4" Thin Locknut
8	45688	1	Lift Strut Fitting
9	10307	1	AN5-12A Bolt
10	10570	2	5/16" Washer
11	45689	1	Lift Strut Clevis
12	10540	1	5/16" Locknut
13	10372	1	AN43B-20A Eyebolt

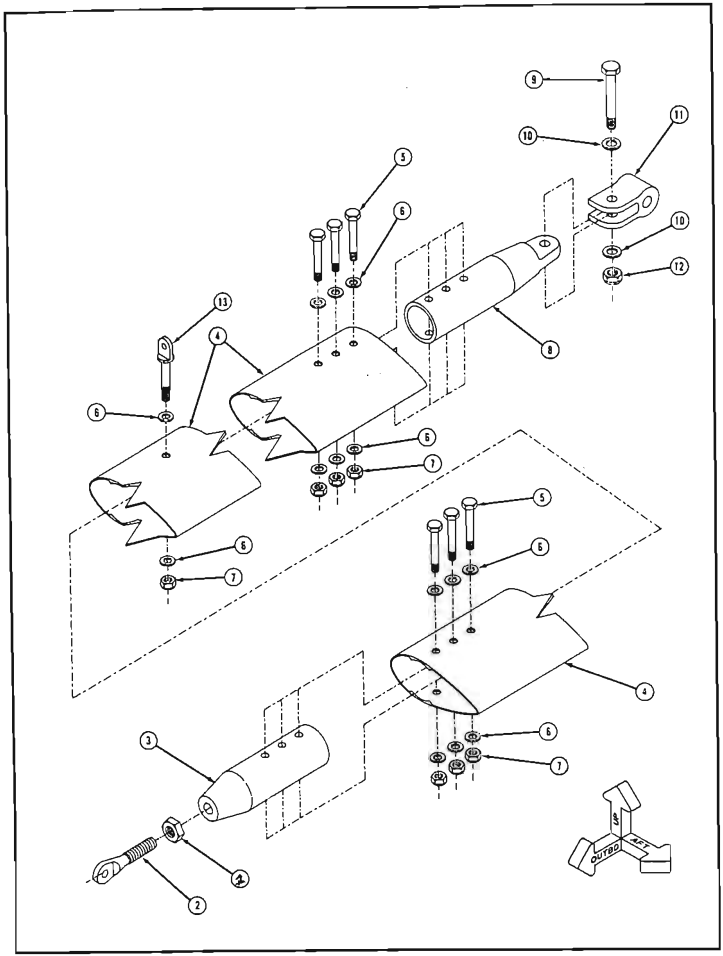

9
11
10
5
6
10
12
13
4
6
8
6
7
6
7
5
6
4
6
7
3
1
2
OUTBD

TRAILING EDGE LIFT STRUT ASSEMBLY

1. Assemble as illustrated. Tighten ALL Locknuts to proper torque EXCEPT the Locknut (7) attached to Eyebolt (13). Tighten this ONLY to correct torque. DO NOT DISTORT THE STRUT.

2. Repeat Step 1. for the opposite (RIGHT) Strut (4) in "mirror image".

Item	P/N	Qty	Description
1	13132	1	3/8" - 24 Jam Nut
2	10382	1	3/8" - 24 Eyebolt
3	45696	1	Threaded Lift Strut Fitting
4	45621	1	Streamlined Trailing Edge Lift Strut
5	10150	6	AN4-17A Bolt
6	10560	14	1/4" Washer
7	10515	7	1/ 4" Thin Locknut
8	45688	1	Lift Strut Fitting
9	10307	1	AN5-12A Bolt
10	10570	2	5/16" Washer
11	45689	1	Lift Strut Clevis
12	10540	1	5/16" Locknut
13	10372	1	AN43B-20A Eyebolt


9
10
11
3
6
10
12
13
4
8
6
6
7
6
7
5
6
4
6
7
3
2
UP
OUTBD
AFT

JURY STRUT ASSEMBLY

NOTE: The Leading Edge Jury Strut (4) is LONGER than the Trailing Edge Jury Strut (8).

1. Refer to Figure 1. Thread the Jam Nut (1) " all the way" onto the Forkbolt (2) FINGER TIGHT ONLY. Insert the Forkbolt "all the way" into the Tube Fitting (3).

NOTE: Leave enough space to get a wrench onto the Jam Nut (1) later for final adjustment.

2. Assemble the Leading Edge Jury Strut (4) as illustrated. Tighten to ALL Locknuts (7) to proper torque.

3. Repeat for the remaining Leading Edge Jury Strut (4).

4. Refer to Figure 2. Assemble BOTH Trailing Edge Jury Struts (8) the SAME as the Leading Edge Struts (4) as illustrated. Tighten to ALL Locknuts (7) to proper torque.

Item	P/N	Qty	Description
1	10631	8	1/4" - 28 Jam Nut
2	10388	8	1/4" x 1" Full Thread Forkbolt
3	45658	4	1/4" - 28 x .75" Streamlined Tube Fitting
4	45728	2	Streamlined Leading Edge Jury Strut
5	10025	16	AN3-11A Bolt
6	10550	32	3/16" Washer
7	10500	16	3/16" Locknut
8	45729	2	Streamlined Trailing Edge Jury Strut
9	45295	4	.75" x .035" Jury Strut Clevis

FIG. 1

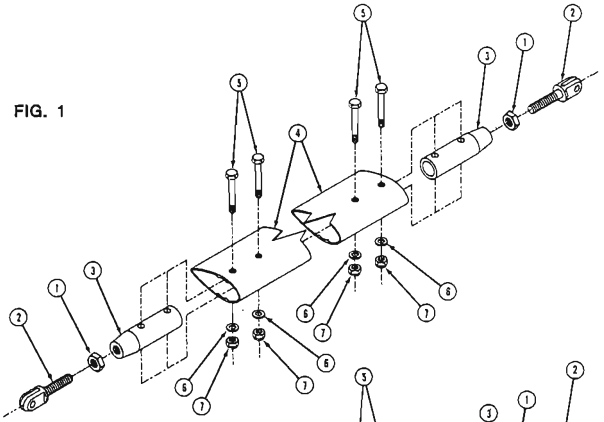
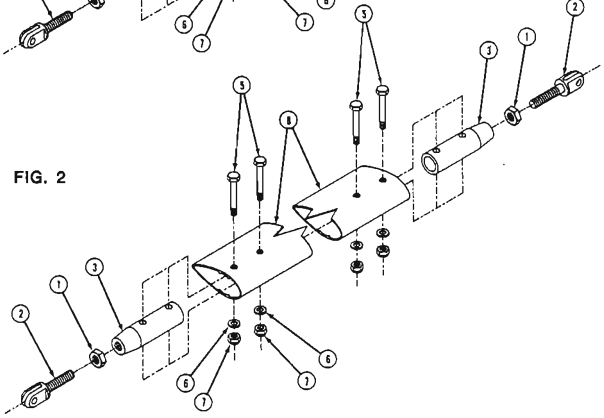


FIG. 2



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