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SECTION 1
INTRODUCTION

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CONSTRUCTION NOTES

GENERAL NOTES

Assembly of your QUICKSILVER aircraft can easily be accomolished in 45 hours, although accuracy and thoroughness are factors more important than time spent. All of the difficult fabrication details have been pre-finished at the factory, including drilling, anodizing, cable swaging, sewing of wing, tail and aileron surfaces, etc.

This manual describes and illustrates the assembly of the aircraft, and the sub-assembly and installation of component parts, in the order of tasks to be performed. Read through this manual thoroughly to familiarize yourself with the terminology, the assembly drawings and detail breakdowns. You will also discover that a helper will be useful in a number of instances such as lifting the tail section into position, alignment or leveling of some items, installation of sail covers, etc.

WHENEVER POSSIBLE, THE ASSEMBLY ILLUSTRATIONS ARE SHOWN IN THE RELATIVE POSITION THE AIRPLANE WILL BE IN WHEN YOU ARE WORKING ON IT--SUCH AS NOSE-DOWN, WING INVERTED, OR UPRIGHT.

GETTING READY

Inventory and inspect the parts comprising the aircraft package, and assemble the tools required. (SEE 'BASIC TOOLS NEEDED FOR CONSTRUCTION.')

NICO'S

IMPORTANT! Before assembly, check all swaged Nico's with the Nico Sleeve Gauge provided. (SEE 'NICO SLEEVE GAUGE PROCEDURE.') The procedure is also diagrammed on the tool.

WIRES

Untwist wires before making final attachment. A twisted wire is more prone to jamming or twisting a wire thimble during field assembly of your plane.

BOLTS

Check the OWNER'S MANUAL for proper Torque Values of engine bolts. (See 'TORQUE VALUES.')

'AN' quality bolts are used throughout the construction of this airplane for structural integrity. To determine proper sizes, use the 'AN BOLT GAUGE' page for reference.

Bolts that pass through tubes with no solid internal support should be tightened until the tube shows just a "slight" distortion. The bolt should then be backed off a minimal amount. Be particularly careful when installing all Grade 5, forkbolts and eyebolts in the wing and aileron spars.

Before installing bolts, check that the grip length is correct. Using washers as shown, at least one bolt thread should extend out of the nut. One or more washers may be added to prevent the bolt from bottoming out before producing a snug fit. Generally, a washer is installed under a nut to prevent it from turning and digging into the aluminum.

CONSTRUCTION NOTES (CONT'D.)

LOCTITE

Locknuts, wing nuts and castle nuts with safety rings are considered to be locking devices and DO NOT require the application of LOCTITE. This adhesive/sealant SHOULD be applied to the threads of all bolts that DO NOT have a locking device; e.g., coarse-thread bolts. Use LOCTITE sparingly and carefully; a small drop on each bolt is sufficient. The liquid can also make a permanent stain on sail fabric.

Where wing nuts are used, be sure to use SAFETY RINGS as specified.

A FINAL NOTE

Work slowly and carefully, and follow the assembly procedures closely and in the sequence presented. DO NOT use substitute materials or initiate design changes. If you have any construction problems or questions, do not hesitate to contact your dealer or the factory for assistance.

Your safety, assured by highest quality materials, thorough testing, proper construction techniques and supplemental information, is of paramount concern to QUICKSILVER ENTERPRISES, INC.

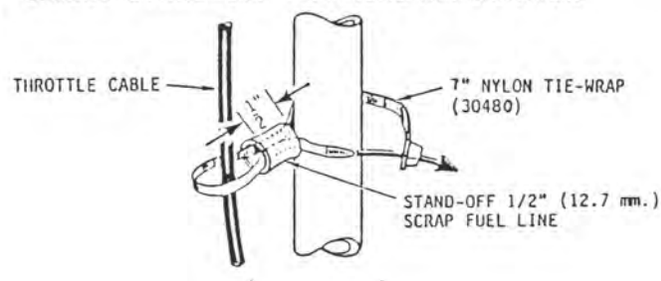
ENJOY BUILDING YOUR NEW QUICKSILVER AIRCRAFT WITH THE CONFIDENCE THAT YOU OWN THE FINEST ULTRALIGHT ON THE MARKET TODAY!

STAND-OFF ASSEMBLY

This is an anti-vibration fitting used to isolate Gas Lines, Throttle Cable, Teleflex Cable, Brake Cables and some Electrical Wires throughout the aircraft. The exact locations and numbers used are detailed in the relevant assembly instructions.

1. Refer to illustration 'A', which shows a single Stand-Off in a typical application (Throttle Cable). Cut a 1/2" (12.7 mm.) piece of scrap Fuel Line. Thread the 7" Nylon Tie-Wrap (30480) around the part, thru the scrap Fuel Line and around the Tube as shown. Pull tight, cut off excess and touch the cut end with the Hot Knife to remove sharp edges.

(A) SINGLE STAND-OFF - TYPICAL APPLICATION



BASIC TOOLS NEEDED FOR ASSEMBLY

(2) C-Clamps

Center punch

Hammer

Hand riveting tool for 1/8" and 3/16" rivets

Tape measure & marking pencil

Masking tape (min. 1" - 2.5 mm.)

Rope (10 ft. x 1/4" diameter) (3.3 m. x 6.4 mm.)

Open end (or socket) wrenches: 3/16"-1/4"-3/8"-7/16"-1/2"-5/16"-11/16" (2 ea.)
METRIC: 5 mm.-6 mm.-10 mm.-11 mm.-13 mm.-16 mm.-17 mm.

Allen wrenches: 1/8" (3.2 mm.) and 6 mm.

Scissors or razor knife

Torque wrench (optional) (Ft/lb)

Screwdrivers (flat edge, phillips)

Straight edge - 6 ft. (2 m.)

(2) 1" x 4" x 5' boards

Soldering iron w/ blade edge or sailmaker's hot knife

Fine flat, 1/2 round and rat-tail files

Hacksaw

Duct Tape

Drill motor or hand drill with: 3/32" 1/8"-3/16"-1/4"-5/16"-1/2" bits.

Lubricant (3-in-1 Oil or equivalent)

Level

(2) Approx. 10 lb. - 4.5 kilo weights

TUBE CAPS

TUBE CAPS: BE SURE TO INSTALL ALL TUBE CAPS. IT IS RECOMMENDED THAT THE CAPS BE INSTALLED WITH 3M ADHESIVE (60592) SUPPLIED WITH YOUR KIT. TUBE CAPS WITH A LOOSE FIT SHOULD BE POP RIVETED ON WITH THE SMALL 1/8" RIVETS (20200). RIVETING THE CAPS WILL KEEP THEM FROM VIBRATING LOOSE AND POSSIBLY GOING INTO THE PROP. THE FOLLOWING TUBES RECEIVE CAPS:

7/8" TUBE CAP (20400)

1. TAIL BRACE TUBES
2. RUDDER BRACE TUBE
3. STABILIZER T.E.
4. ELEVATOR L.E.
5. TOP OF TAIL SKID
6. RUDDER FRAME (top & bottom)

1" TUBE CAP (20410)

1. BOTTOM OF TAIL SKID
2. AILERONS

WARNING

BOLTS ON THE AIRCRAFT WHICH ARE SUBJECT TO ROTATION IN USE WILL CALL FOR "CASTLE NUTS." A CASTLE NUT RELIES ON A SAFETY RING TO KEEP IT FROM BACKING OFF. MAKE SURE ALL CASTLE NUTS ARE SECURED WITH SAFETY RINGS!!

TORQUE VALUES

SPECIFIED TORQUE VALUES

	in./lbs.	ft./lbs.	Newton/Meters
3/16" — (AN3) —	20-25	1.5-2.0	2.25-2.75
With Thin Locknut	12-15	1.0-1.25	1.25-1.75
1/4" — (AN4) —	50-70	4.0-5.75	5.5-8.0
With Thin Locknut	30-40	2.5-3.25	3.5-4.5
1/4-20 Thread	40-50	3.25-4.0	4.5-5.50
5/16" — (AN5) —	100-140	8.25-11.5	11.25-15.75
With Thin Locknut	60-85	5.0-7.0	6.75-9.5
7/16" — (AN7) —	450-500	37.5-41.5	51.0-56.5

PROPER TORQUE = TORQUE SPECIFICATION + RUN-ON TORQUE


←ALL WING NUTS HAND TIGHTEN ONLY

RUN-ON TORQUE - amount of resistance encountered in order to thread a nut onto a given bolt once the bolt threads appear past the nut.

Because of minute machining differences, varying degrees of resistance may be encountered when threading a nut to a bolt. Remember, run-on torque value can vary widely even within the same size or gauge of bolts and nuts.

If, for example, it takes 20 inch/lbs. for you to run a nut onto a 3/16" (AN-3) bolt so that threads appear past the nut, you add the (RUN-ON) 20 inch/lbs. to the 20-25 inch/lbs. (TORQUE VALUE) to arrive at (and use) the (PROPER TORQUE) for the individual bolt within that size or gauge.

Therefore, ALL BOLTS SHOULD BE TIGHTENED TO PROPER TORQUE RATHER THAN SPECIFIED TORQUE.

Self-locking nuts can be torqued to the proper torque.

Self-locking nuts should not be removed and installed more than once. Generally, they become less vibration resistant with each removal.

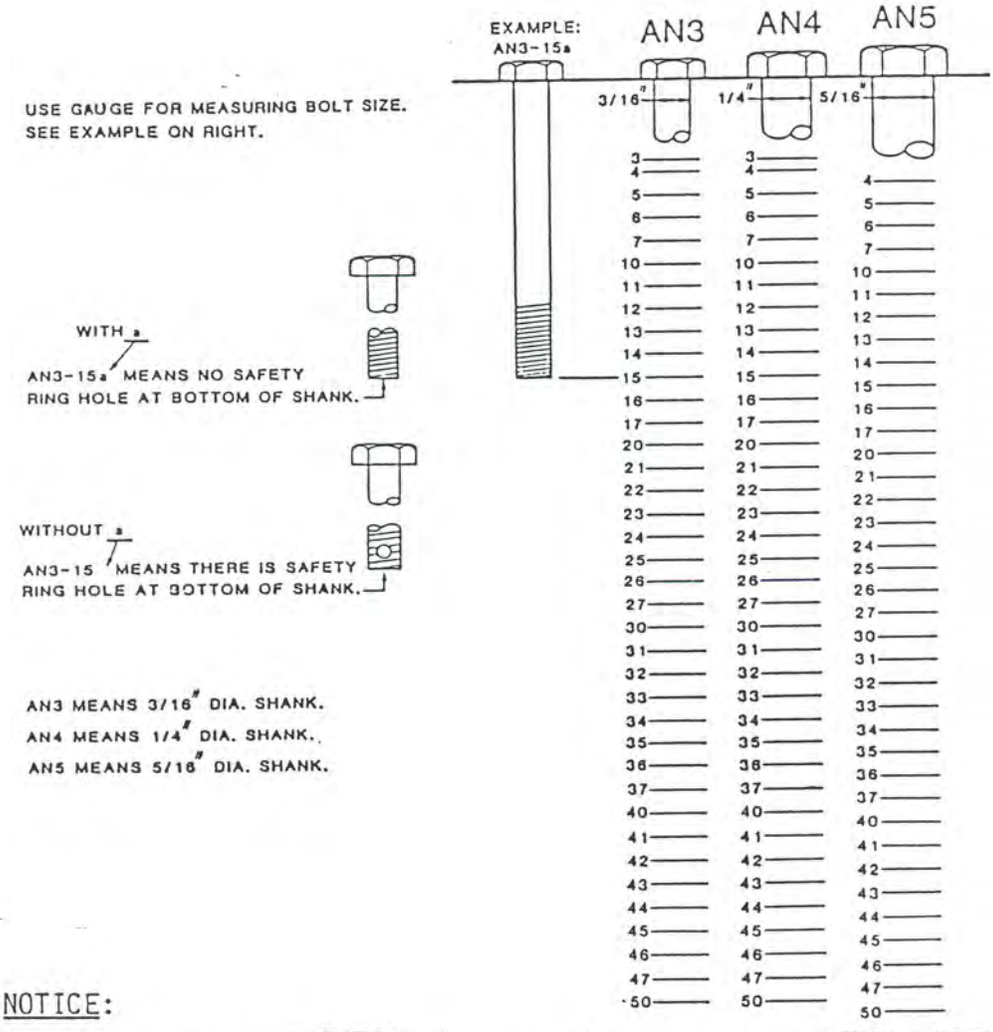
Apply a smooth even pull when applying torque pressure. If chattering or a jerking motion occurs during final torque, back off and re-torque.

Main Torque Specifications - ROTAX **447** Engine.

	Nm	in/lbs.
Cylinder Head Nuts M8	18 to 24	160 to 210
Crankcase Screws M6	8 " 10	70 " 88
" " M8	18 " 24	160 " 210
Magneto Housing Nut (M22x1,5)	80 " 90	710 " 800
Fan Nut M16 x 1,5	60 " 70	530 " 620
Crankcase Nuts (or screws) M10	36 " 40	320 " 354
Exhaust Manifold Screws M8	18 " 24	160 " 210

AN BOLT GAUGE

THE GAUGE BELOW WILL AID YOU IN DETERMINING THE TYPE AND LENGTH OF BOLTS



NOTICE:

The "AN" Bolts are used throughout the construction of this airplane for structural integrity.

DO NOT use substitutes. See your dealer for replacements if necessary.

TO DETERMINE THE CORRESPONDING 'AN' NUMBER OF A BOLT USE THIS QUICK AND EASY METHOD IF A 'AN' BOLT GUAGE IS NOT AVAILABLE.

A 'AN' BOLT WITH A DESCRIPTION OF '3-13' IS 3/16 OF AN INCH IN DIAMETER AND APPROXIMATELY 1 3/8 INCHES LONG. A '4-27' BOLT WOULD BE 1/4 INCH IN DIAMETER AND APPROXIMATELY 2 7/8 INCHES LONG.

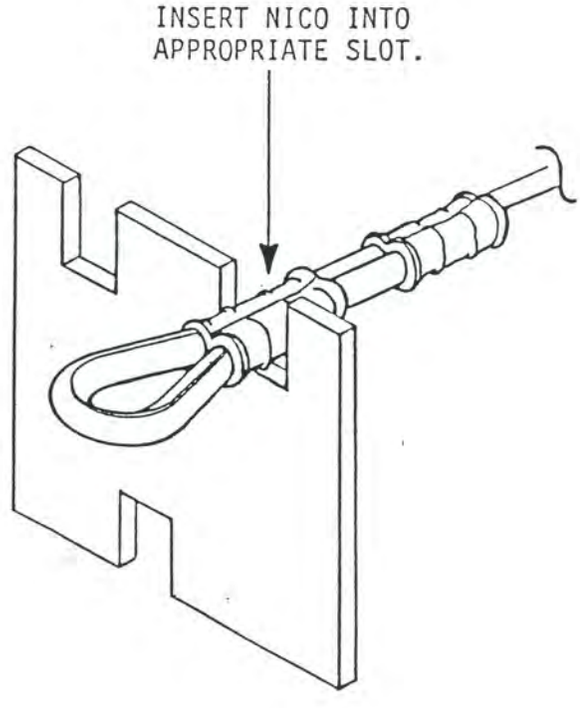
NICO SLEEVE GAUGE PROCEDURE

The Nico Sleeve Gauge (20447) is a measuring device which determines the size accuracy of sleeves swaging various dimension cables to thimbles, cable bushings, tangs, etc.

The gauge has precision machined notches for measuring swaged nico sleeves having 1/8" (3.2 mm), 1/16" (1.6 mm), and 3/32" (2.4 mm) sizes. It should be used when making a cable inventory upon receipt of your aircraft assembly kit.

TO USE...

1. Insert the swaged portions of the sleeve into the appropriate notch on the sleeve gauge.
2. Inability to insert the swaged part of the sleeve indicates improper swage. REPLACE THROUGH YOUR DEALER.
3. In addition, check the positioning of the cables swaged within the sleeve. Cables are properly swaged when they lie directly side-by-side and the sleeve opening has a symmetrical shape.



SECTION 2

TAIL GROUP

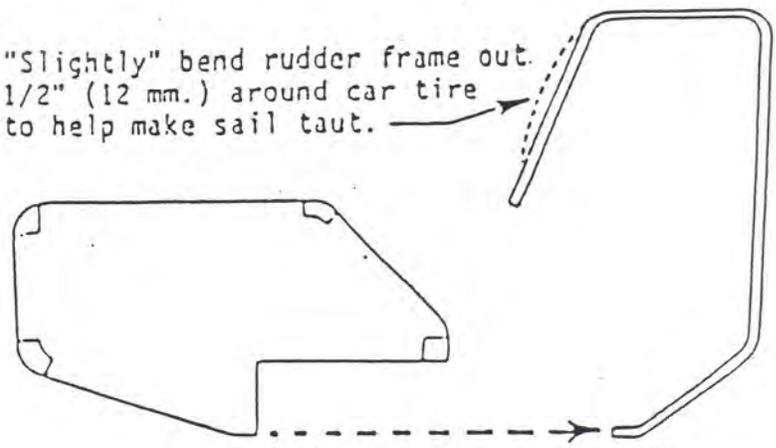
RUDDER ASSEMBLY ---------- 2-2
ELEVATOR ASSEMBLY ---------- 2-6
STABILIZER ASSEMBLY ---------- 2-7
TAIL ASSEMBLY ---------- 2-8

RUDDER ASSEMBLY

Bend tube as described at right, then slip sail cover over rudder frame (40329) as shown.
It will be necessary to bunch up sail to negotiate going around corners of rudder frame.

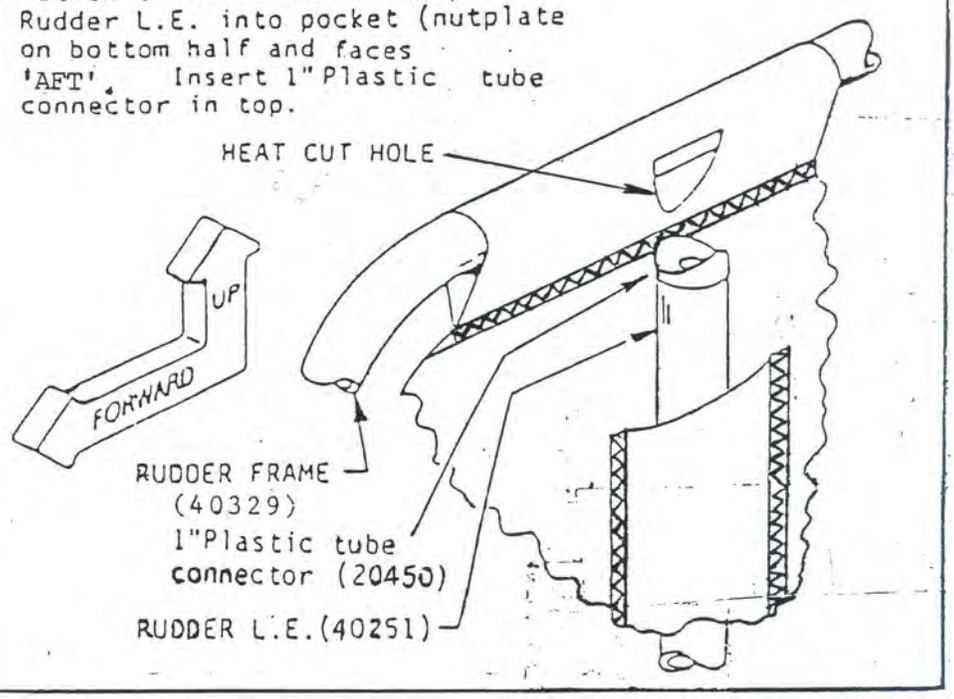
Follow the sequence of drawings as shown below to complete the rudder assembly.

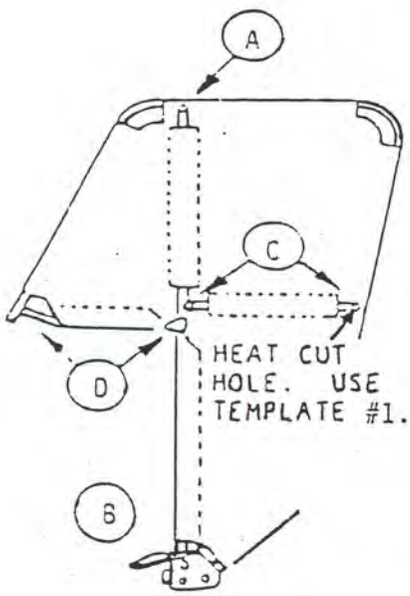
"Slightly" bend rudder frame out 1/2" (12 mm.) around car tire to help make sail taut.



(A)

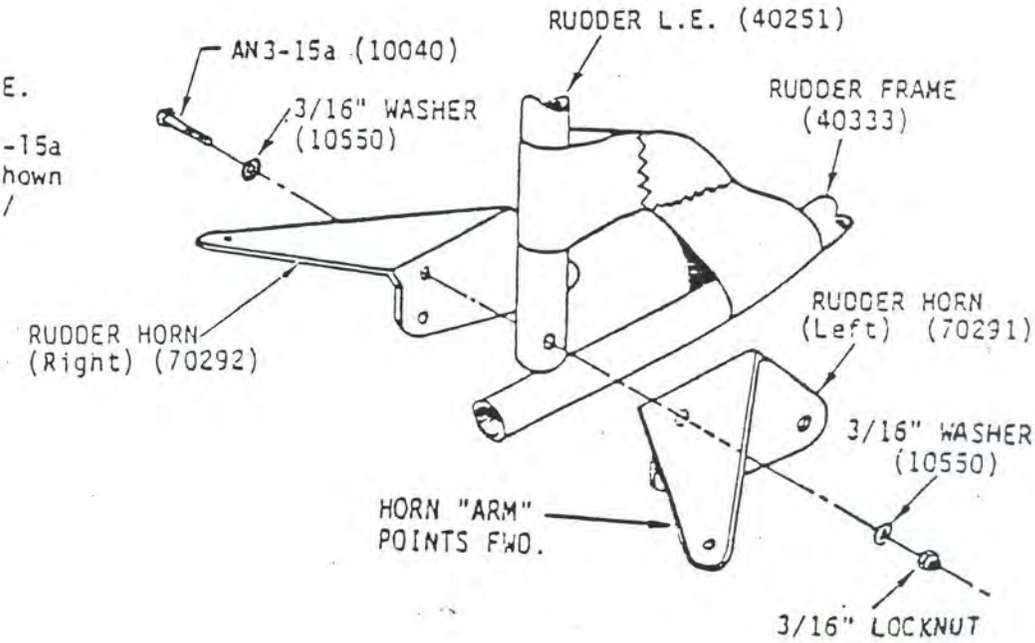
Heat cut hole as shown for installation of Rudder L.E. Slip Rudder L.E. into pocket (nutplate on bottom half and faces 'AFT'. Insert 1" Plastic tube connector in top.



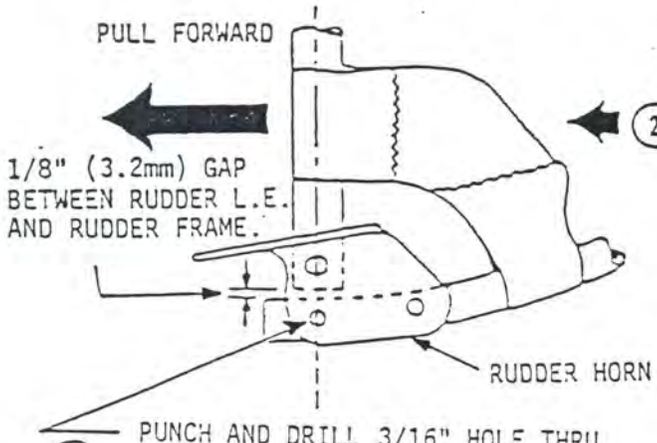


(B)

(1) "Sandwich" Rudder L.E. between Rudder Horn halves. Install AN3-15a bolt with hardware shown through horns' UPPER/FORWARD mount hole.



RUDDER ASSEMBLY (CONT'D.)

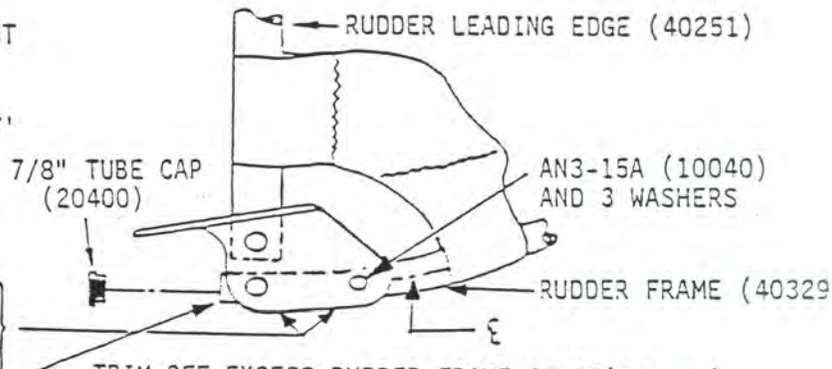


(2) HOLD RUDDER FRAME FIRM WHILE PULLING RUDDER LEADING EDGE FORWARD TO MAKE RUDDER COVER TAUT AND TO ALIGN L.E. CENTERLINE WITH RUDDER HORN BOTTOM/FORWARD MOUNT HOLES. MARK BOTTOM/ FORWARD HOLE POSITION, THEN SWING HORN ASIDE TO REVEAL THE MARK.

(3) PUNCH AND DRILL 3/16" HOLE THRU BOTH WALLS OF THE RUDDER FRAME. (MAKE SURE DRILL BIT IS STRAIGHT TO ALIGN THE HOLES).

(4) ADJUST ANGLE OF HORN SO THAT 'AFT' HOLE LINES UP WITH RUDDER FRAME CENTERLINE. BACK-DRILL THE 3/16" HOLE AND INSERT THE AN3-15A BOLT AND HARDWARE AS IN STEP 1.

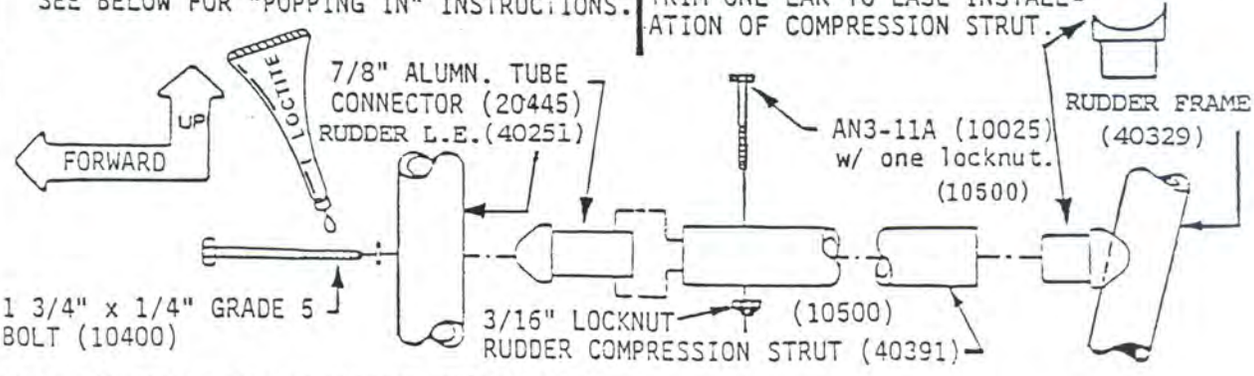
(NOTE: ON RUDDER FRAME FORWARD/ BOTTOM & REAR MOUNT HOLES, INSTALL 3/16" WASHER BETWEEN HORN AND RUDDER FRAME.) (4 PLACES)



TRIM OFF EXCESS RUDDER FRAME 3/16"(4.8 mm) FORWARD OF THE RUDDER LEADING EDGE. INSTALL TUBE CAP (20400).

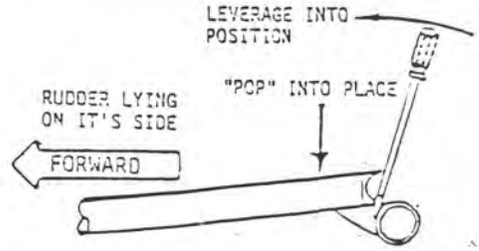
(C) ASSEMBLE HARDWARE AS SHOWN BELOW. SEE BELOW FOR "POPPING IN" INSTRUCTIONS.

7/8" TUBE CONNECTOR (20440) TRIM ONE EAR TO EASE INSTALLATION OF COMPRESSION STRUT.

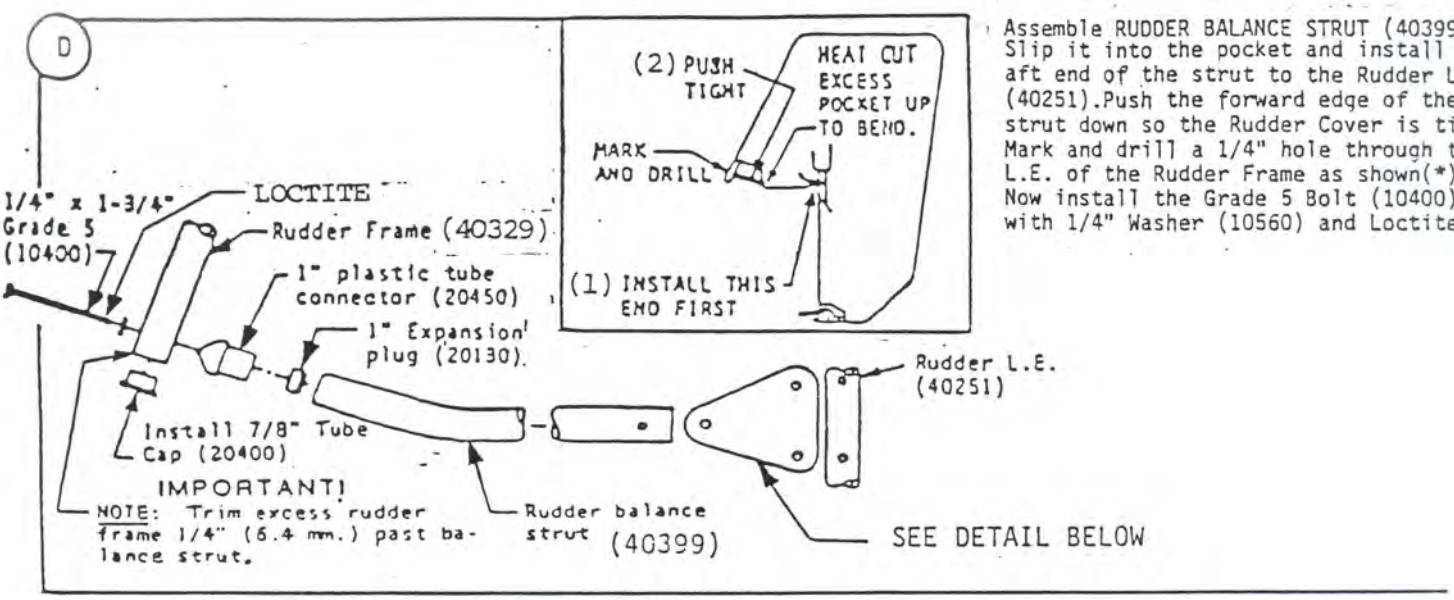


HEAT CUT TEMPLATE FOR RUDDER COMPRESSION STRUT IN REAR OF MANUAL. USE TEMPLATE #2

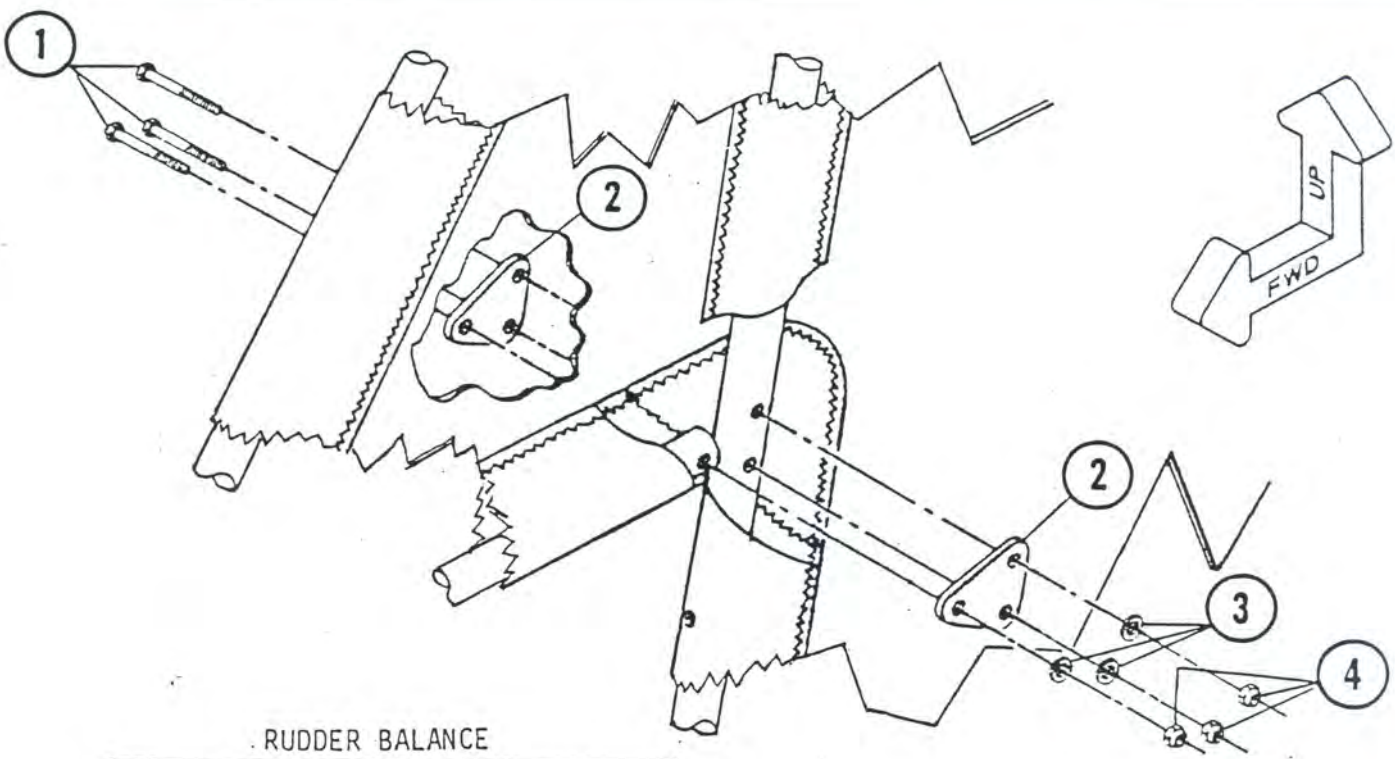
HEAT CUT HOLE FOR COMPRESSION STRUT AS WAS DONE FOR RUDDER LEADING EDGE IN ILLUSTRATION 'A'. WITH HARDWARE ASSEMBLED FOR DRAWING 'B' YOU ARE NOW READY TO "POP" COMPRESSION STRUT INTO PLACE. USE LARGE SCREWDRIVER TO LEVER STRUT INTO POSITION, THEN "POP" STRUT INTO RUDDER FRAME AS SHOWN.



REV. 'B'



Assemble RUDDER BALANCE STRUT (40399). Slip it into the pocket and install th aft end of the strut to the Rudder L.E (40251).Push the forward edge of the strut down so the Rudder Cover is tigh Mark and drill a 1/4" hole through the L.E. of the Rudder Frame as shown(*). Now install the Grade 5 Bolt (10400) with 1/4" Washer (10560) and Loctite.

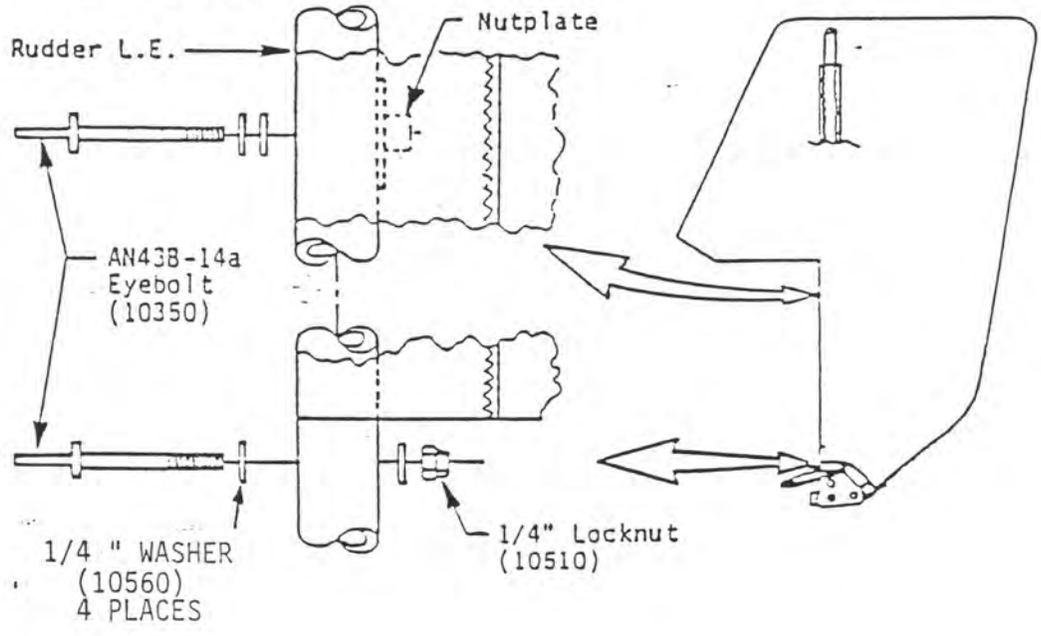


RUDDER BALANCE

PART	PART NO.	DESCRIPTION
1.	10035	AN 3-14a
2.	45083	GUSSET PLATE
3.	10550	3/16" WASHER
4.	10500	3/16" LOCKNUT

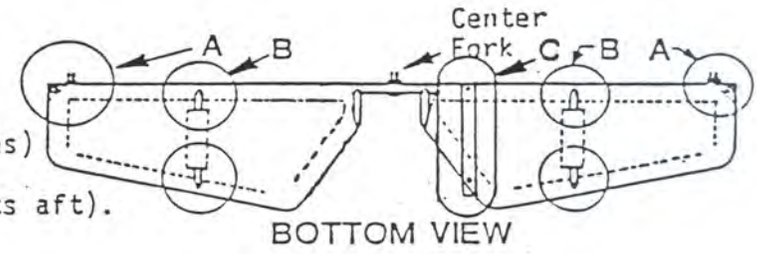
RUDDER EYEBOLT ASSY.

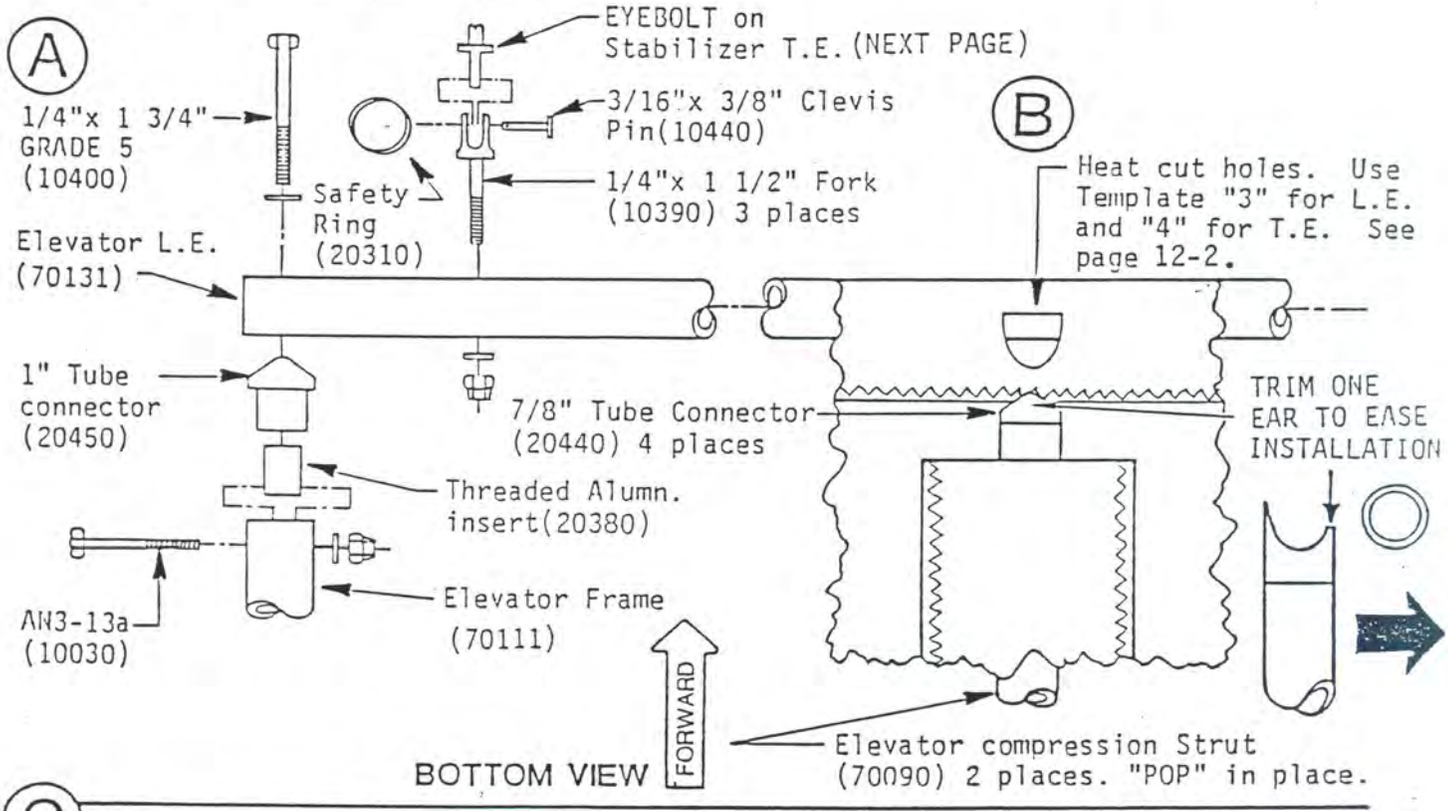
Heat cut hole for upper eyebolt.
Use 1/4" washers as shown.

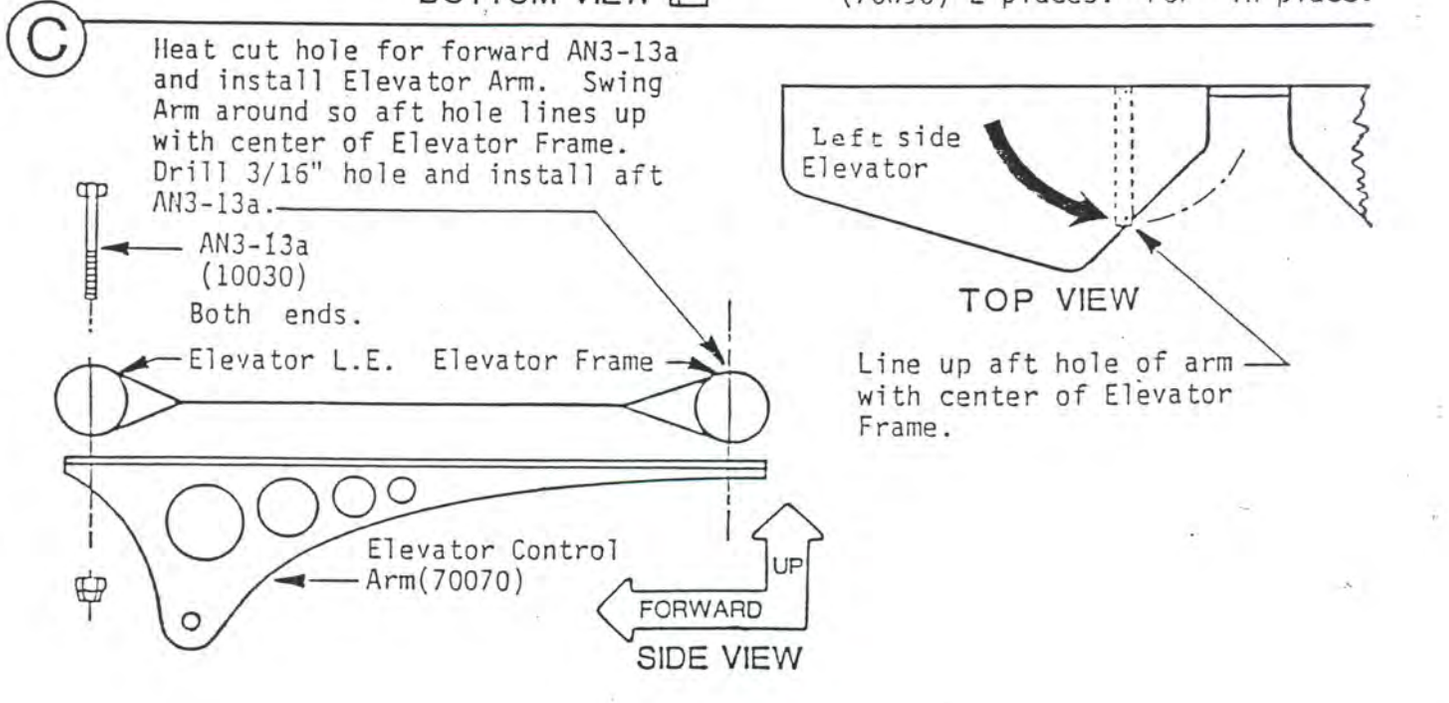


ELEVATOR ASSEMBLY

DRAWING "A". Slip ELEVATOR covers over ELEVATOR FRAMES(Pockets on bottom). Install TUBE CONNECTOR hardware(4 places) then slide ELEVATOR L.E. into sail. (ELEVATOR ARM hole on Left & POP rivets aft). Install GRADE 5's and FORKS as shown. Do DRAWINGS "B" and "C" as shown.

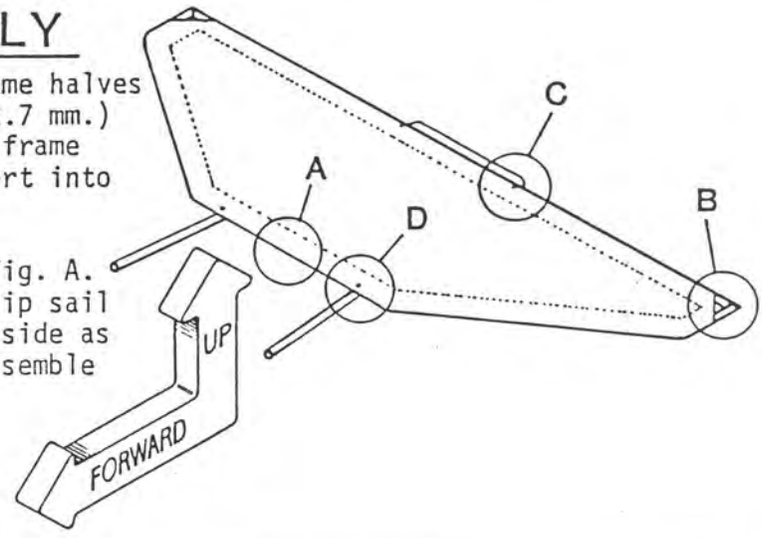


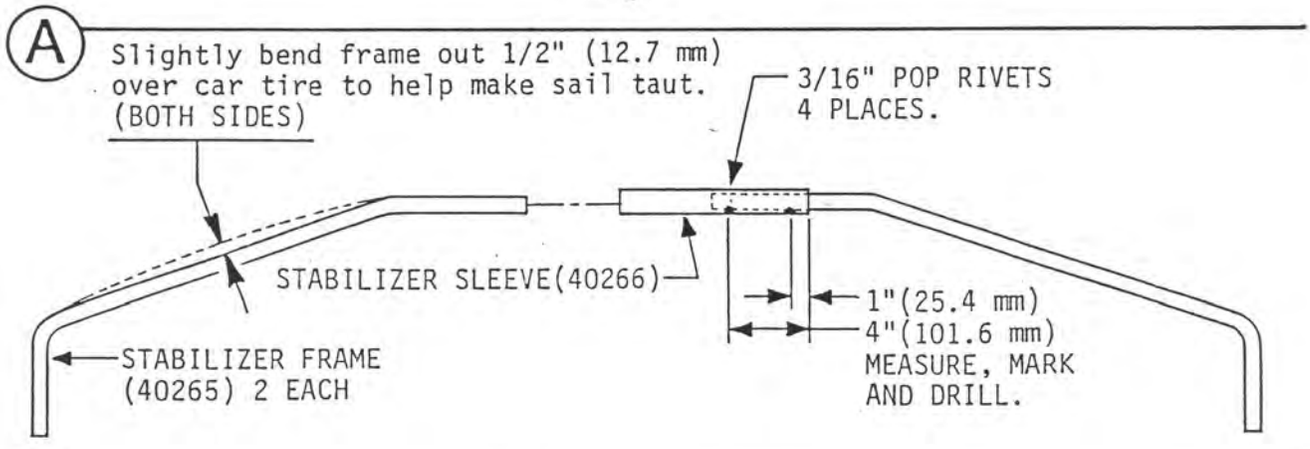


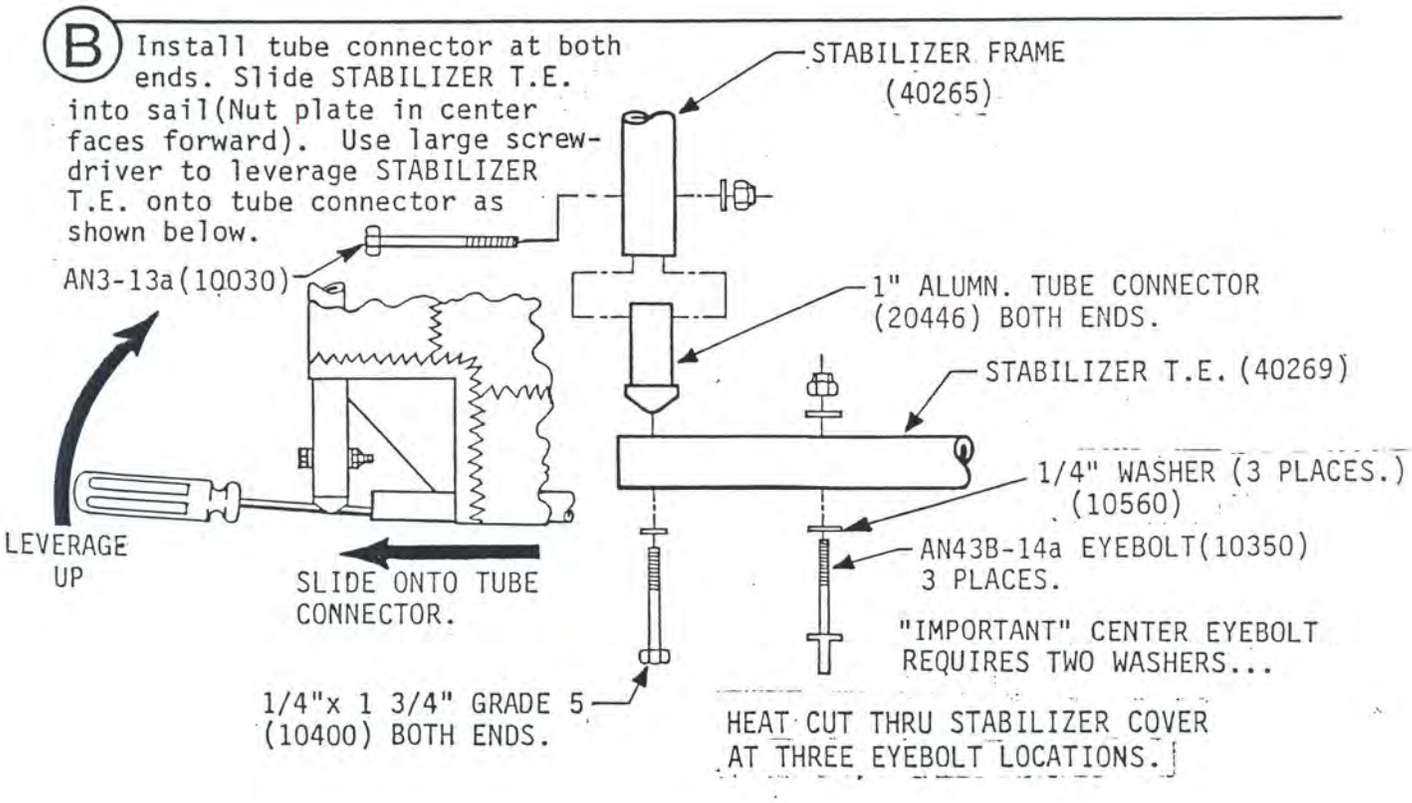


STABILIZER ASSEMBLY

DRAWING "A" - Bend stabilizer frame halves "SLIGHTLY" over car tire 1/2" (12.7 mm.) to help make sail taut. Lay the frame halves on the floor flat and insert into STABILIZER SLEEVE.
Measure, mark and drill 3/16" holes for both halves as shown, Fig. A. Install 3/16" Rivets (20225). Slip sail onto frame (SEAM of sail on same side as rivets). DRAWINGS "B" - "D" - Assemble as shown.







TAIL ASSEMBLY

NOTE: Refer to Detail 'A' for proper positioning of Tail Mount Tube (2) and Rudder Brace (11) with respect to the Tail Skid (1).

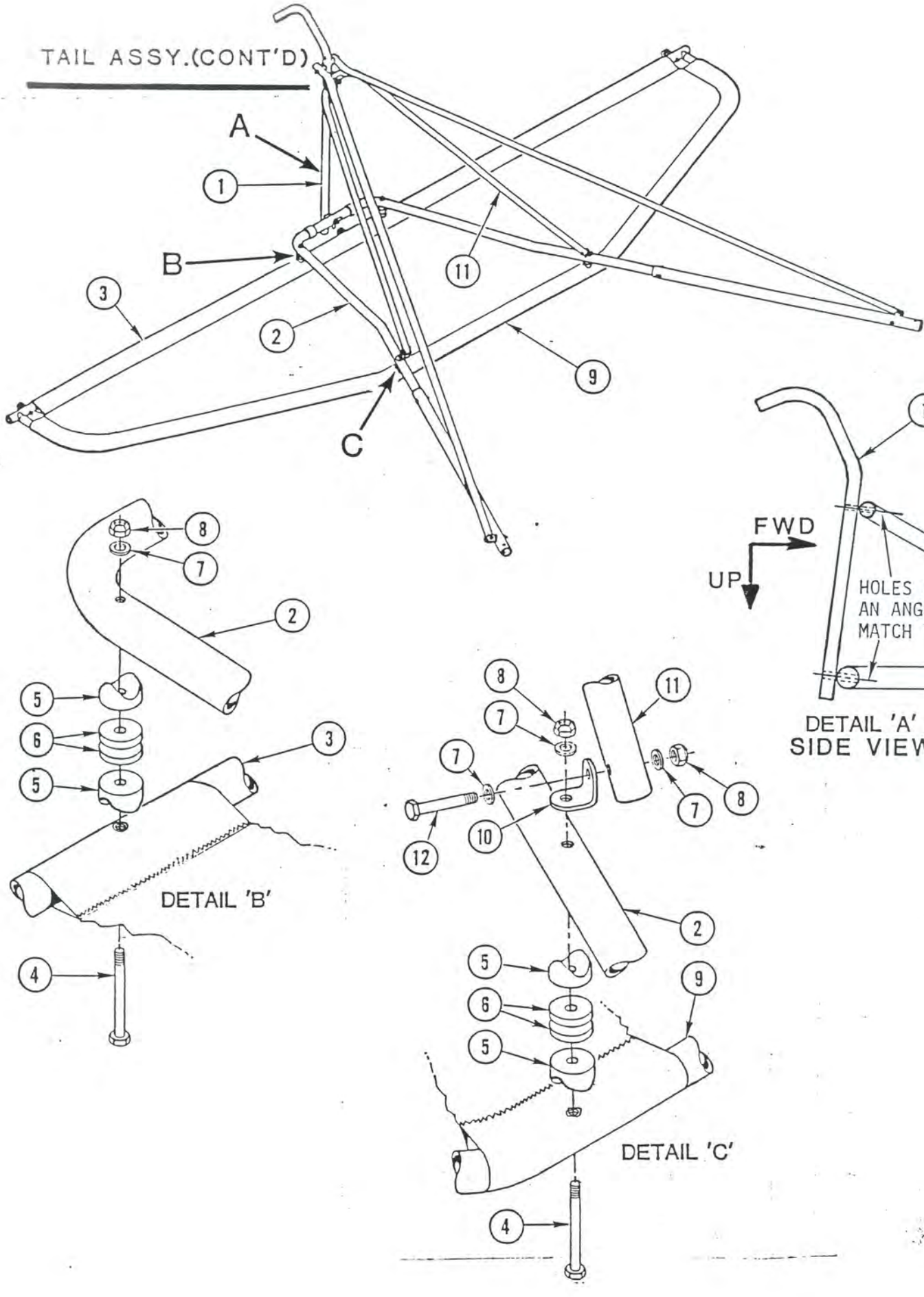
1. Refer to Detail 'B'. Place the Horizontal Stabilizer UPSIDE DOWN on work surface. Attach the Tail Mount Tube (2) to the Stabilizer Trailing Edge (3) using the hardware (4,5,6,7,8) - 2 places. Tighten to proper torque. Don't crush the tube.

2. Refer to Detail 'C'. Attach the Tail Mount Tube (2) to the Stabilizer Frame (9) using the hardware (4,5,6,10,7,8) - 2 places - as shown. Tighten to proper torque. Don't crush the tube.

9. Attach Rudder Brace (11) to the 90 Degree Tang (10) with the hardware (12,7,8). Tighten to proper torque. Don't crush the tube.

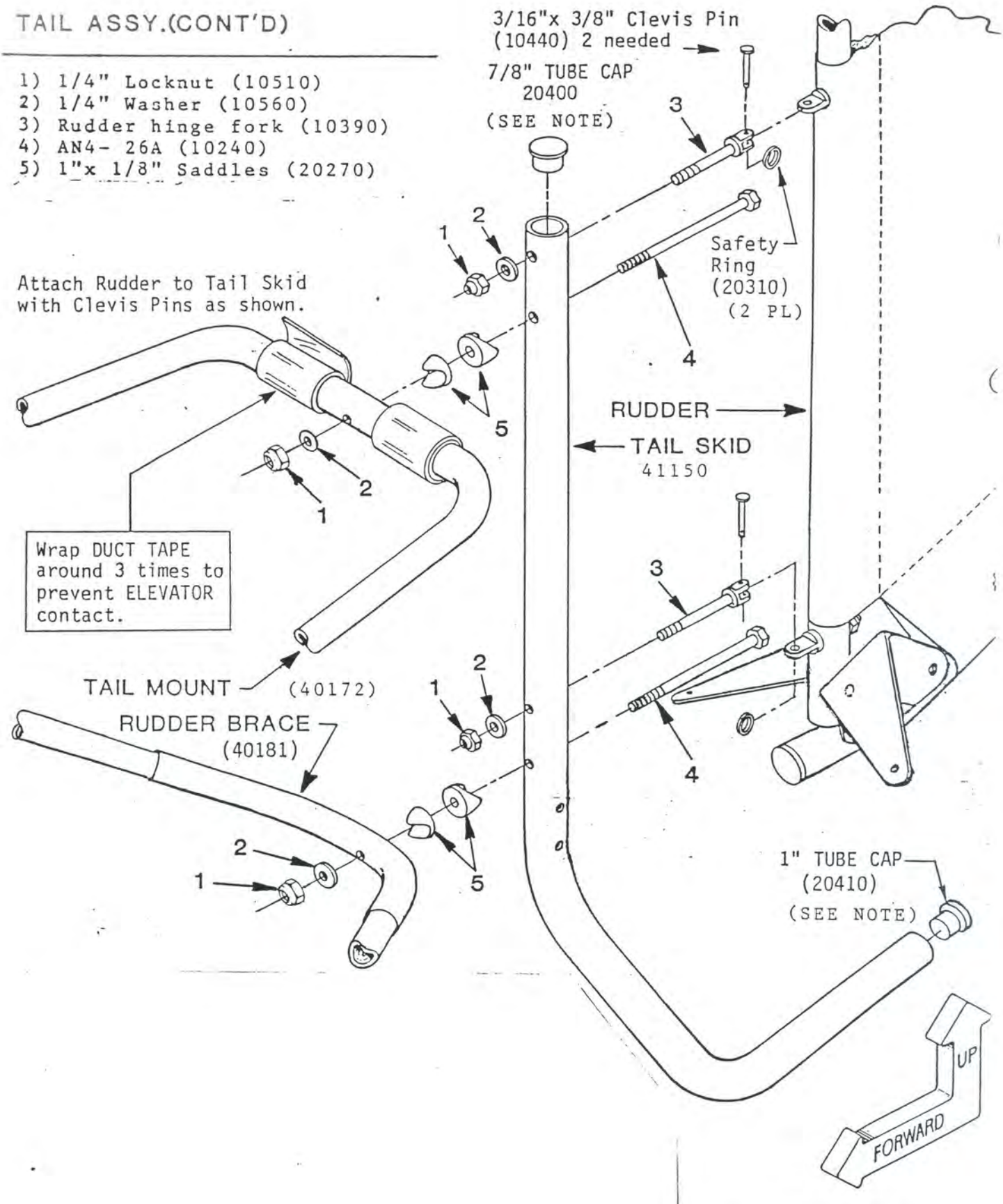
Pt.	P.N.	Description.
1.	41150	Tail Skid
2.	40172	Tail Mount Tube
3.	40269	Stabilizer Trailing Edge
4.	10291	AN4-35A Bolt
5.	20280	1/4" x 1" Saddle
6.	20346	Nylon Washer, 1/4" x 1"
7.	10560	1/4" washer
8.	10510	1/4" Locknut
9.	40265	Stabilizer Frame
10.	20365	90 Degree Tang
11.	40181	Rudder Brace
12.	10100	AN4-14A Bolt

TAIL ASSY.(CONT'D)



TAIL ASSY.(CONT'D)

1) 1/4" Locknut (10510)
2) 1/4" Washer (10560)
3) Rudder hinge fork (10390)
4) AN4- 26A (10240)
5) 1"x 1/8" Saddles (20270)



TUBE CAP NOTE:
Secure with adhesive (60592)

TAIL ASSEMBLY (CONT.)

1. Refer to Detail 'A'. Attach the Upper Tail Boom Tube (1) to the Tail Mount Tube (2) with hardware (3,4) Tighten to proper torque. Don't crush the tube. Repeat for the opposite side.

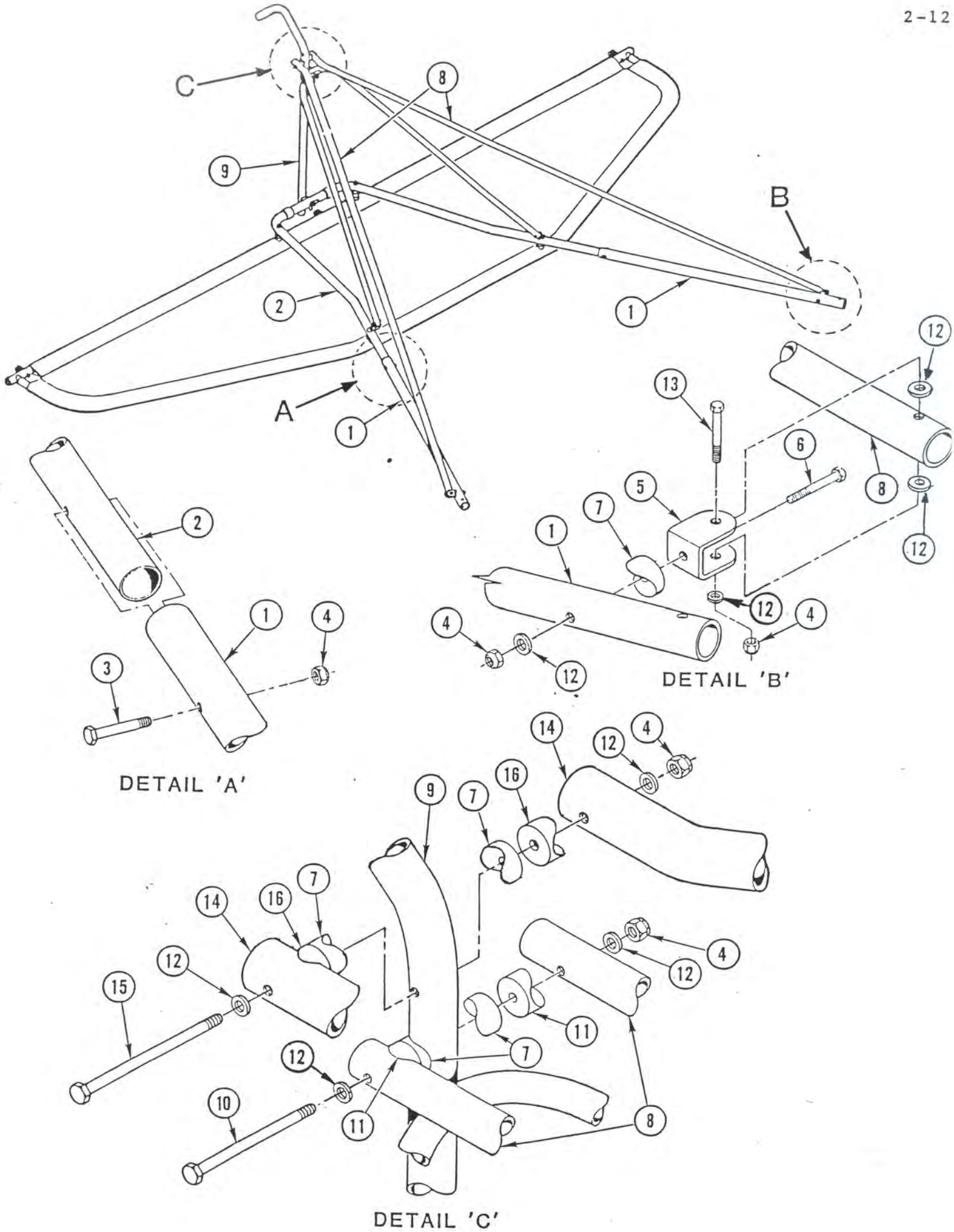
2. Refer to Detail 'B'. Assemble the Channel (5) to the Upper Tail Boom Tube (1) with hardware (6,7,4). Tighten to proper torque. Don't crush the tube. Repeat for the opposite side.

3. Refer to Detail 'C'. Attach the Tail Brace Tubes (8) to the Tail Skid (9) with hardware (10,11,7,12,4). Tighten to proper torque. Don't crush the tube.

4. Refer to Detail 'B'. Attach the Tail Brace Tube (8) to the Channel (5) with hardware(13,12,4), Tighten Nut (4), do not deform the Channels. Repeat for the opposite side.

5. Attach the Lower Tail Boom Tubes (14) to the Tail Skid (9) with hardware (15,12,16,7,12,4). Tighten to proper torque. Don't crush the tubes.

Pt.	P.N.	Description.
1.	40179	Upper Tail Boom Tube
2.	40172	Tail Mount Tube
3.	10120	AN4-15A Bolt
4.	10510	1/4" Locknut
5.	20080	I-75 Channel
6.	10170	AN4-20A Bolt
7.	20270	1/8" x 1" Saddle
8.	40425	Tail Brace Tube
9.	41150	Tail Skid
10.	10294	AN4-36A Bolt
11.	20265	7/8"Plastic saddle
12.	10560	1/4" Washer
13.	10140	AN4-16A Bolt
14.	40421	Lower Tail Boom Tube
15.	10302	AN4-45A Bolt
16.	20289	1 1/2" Plastic Saddle


C
8
9
B
2
1
A
1
2
1
4
3
DETAIL 'A'
12
13
6
8
5
7
1
12
4
12
4
12
DETAIL 'B'
14
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8
DETAIL 'C'

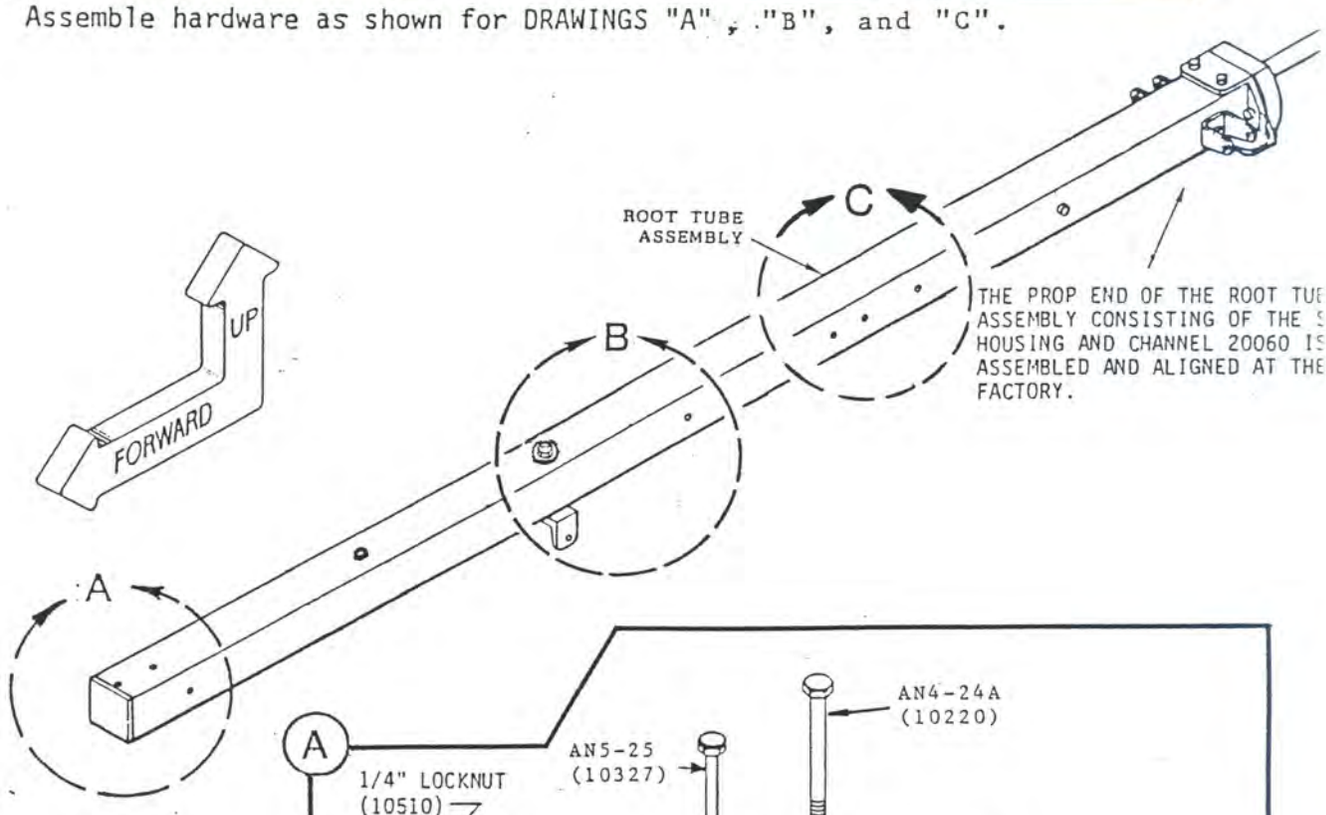
SECTION 3
ROOT TUBE ASSEMBLY

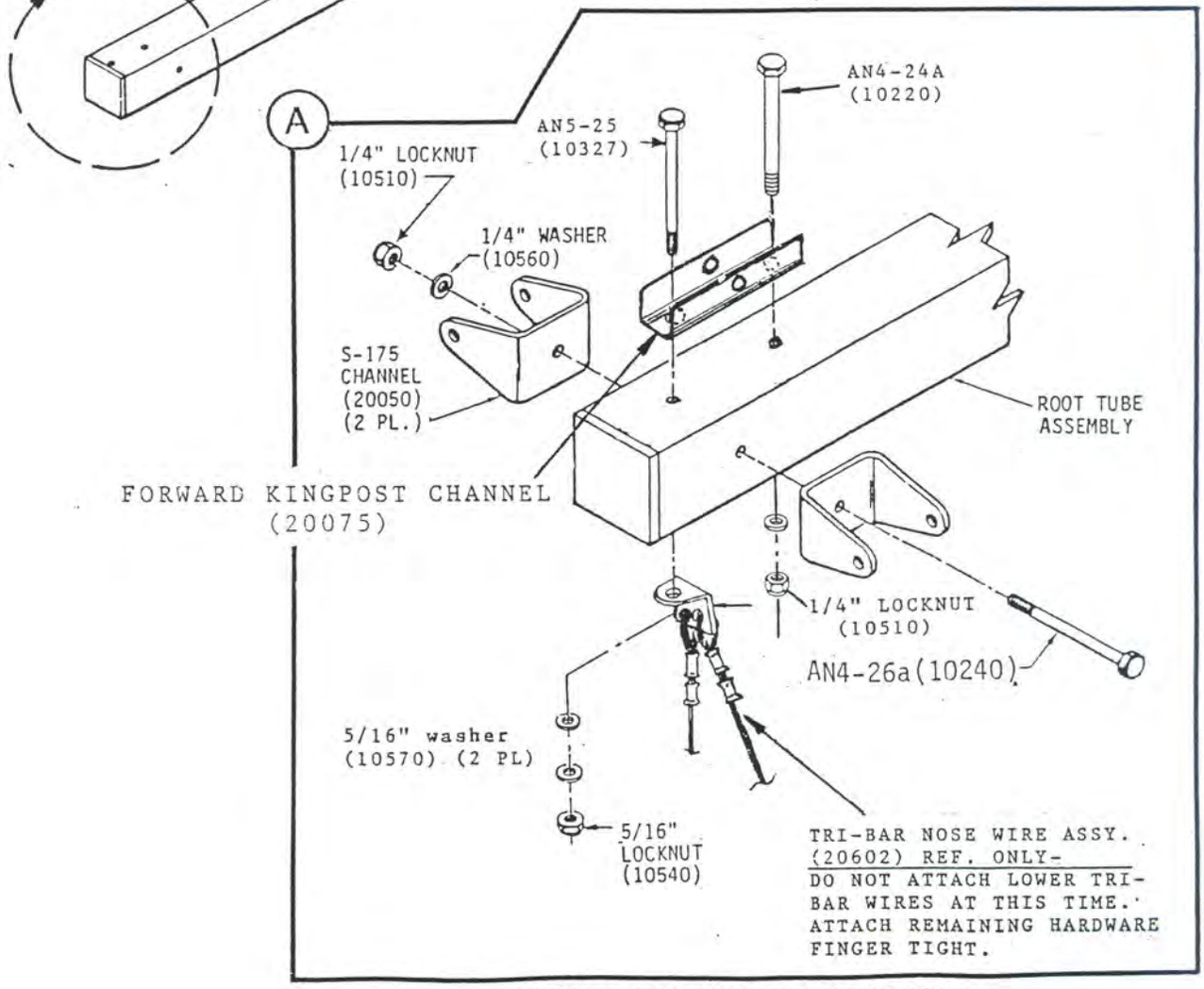
FORWARD CHANNELS AND NOSE WIRE ATTACHMENT---------- 3-2

TRI-BAR AND AFT KING POST CHANNEL ATTACHMENT------- 3-3

FOWARD CHANNELS/ NOSE WIRE ATTACHMENT

Assemble hardware as shown for DRAWINGS "A", "B", and "C".

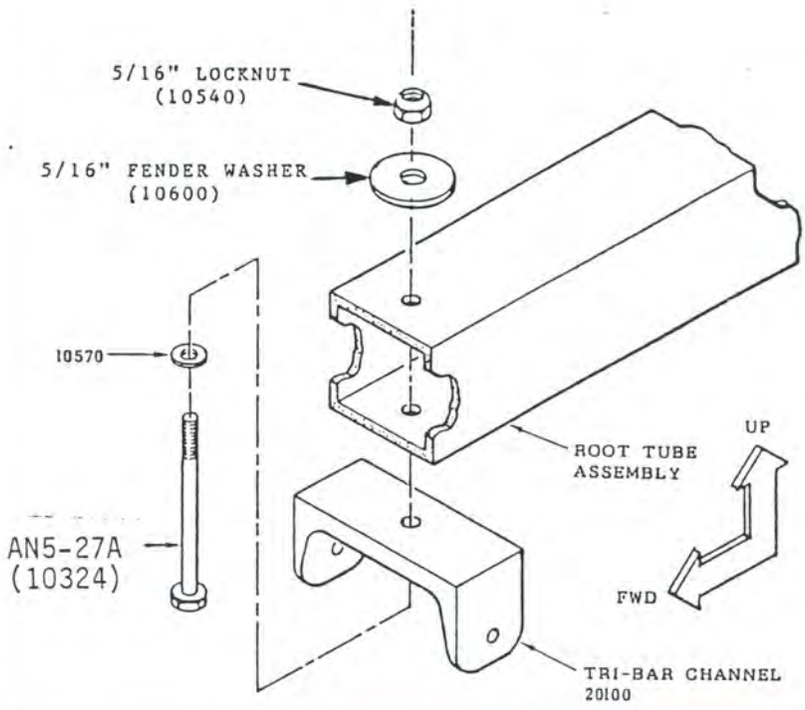




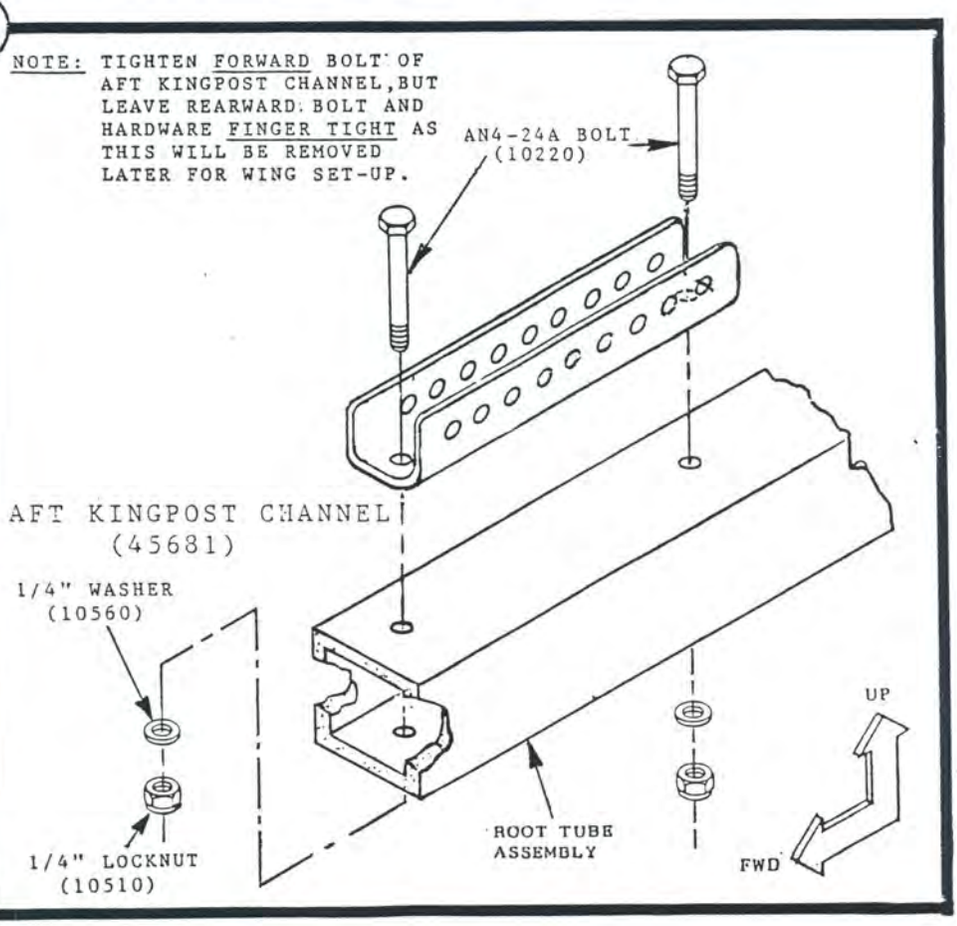
DETAILS CONTINUED ON NEXT PAGE.

TRI-BAR/AFT KINGPOST ATTACHMENT

B



C



SECTION 4
WING ASSEMBLY

BELLCRANK AND COMPRESSION STRUT ASSEMBLIES -------- 4-2

GENERAL ARRANGEMENT ------------------------------ 4-4

ROOT TUBE ATTACHMENT ----------------------------- 4-5

WING COVER ATTACHMENT ---------------------------- 4-6

COMPRESSION STRUT ATTACHMENT ---------------------- 4-9

DIAGONAL STRUT ATTACHMENT ------------------------ 4-10

RIB INSERTION ------------------------------------ 4-11

OUTBOARD L.E. WIRE TEMPLATE ---------------------- 4-12

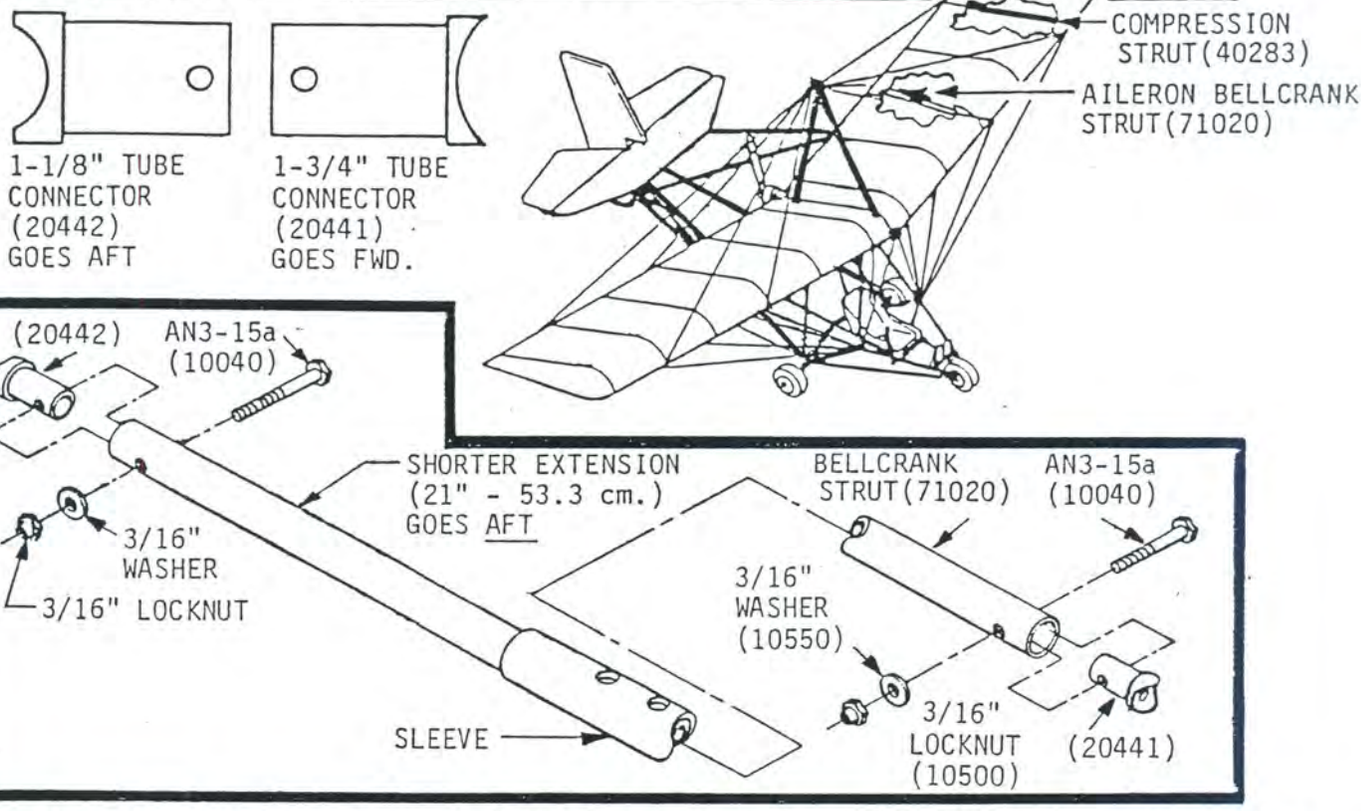
UPPER WIRE GENERAL ARRANGEMENT -------------------- 4-14

WING WIRE ATTACHMENT ----------------------------- 4-15

FORK BOLT INSERTION ------------------------------ 4-18

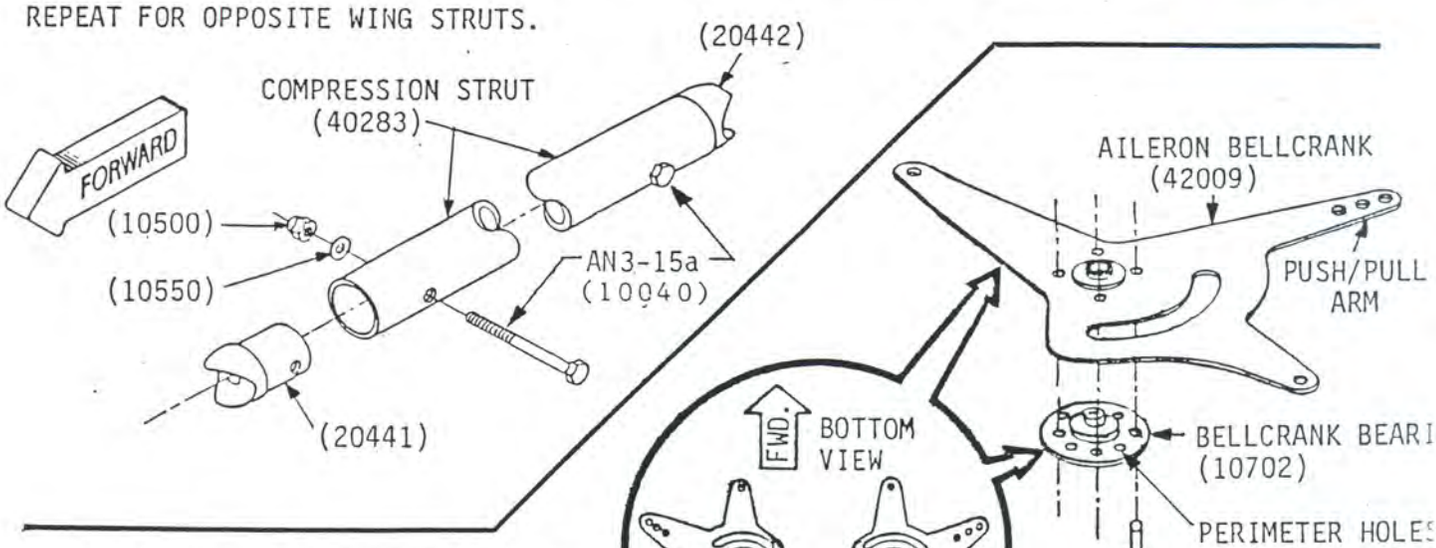
TIP STRUT ATTACHMENT ----------------------------- 4-19

BELLCRANK STRUT/COMPRESSION STRUT AND AILERON BELLCRANK ASSY.



Assemble Aileron Bellcrank Strut (ABOVE) and Comp. Strut (BELOW LEFT) as shown using 1-3/4" Alum. Tube Conn. on forward end and 1-1/8" Alum. Tube Conn. on aft end of struts. (NOTE: AFT END OF BELLCRANK STRUT IS THE SHORTER LENGTH FROM STRUT SLEEVE.)

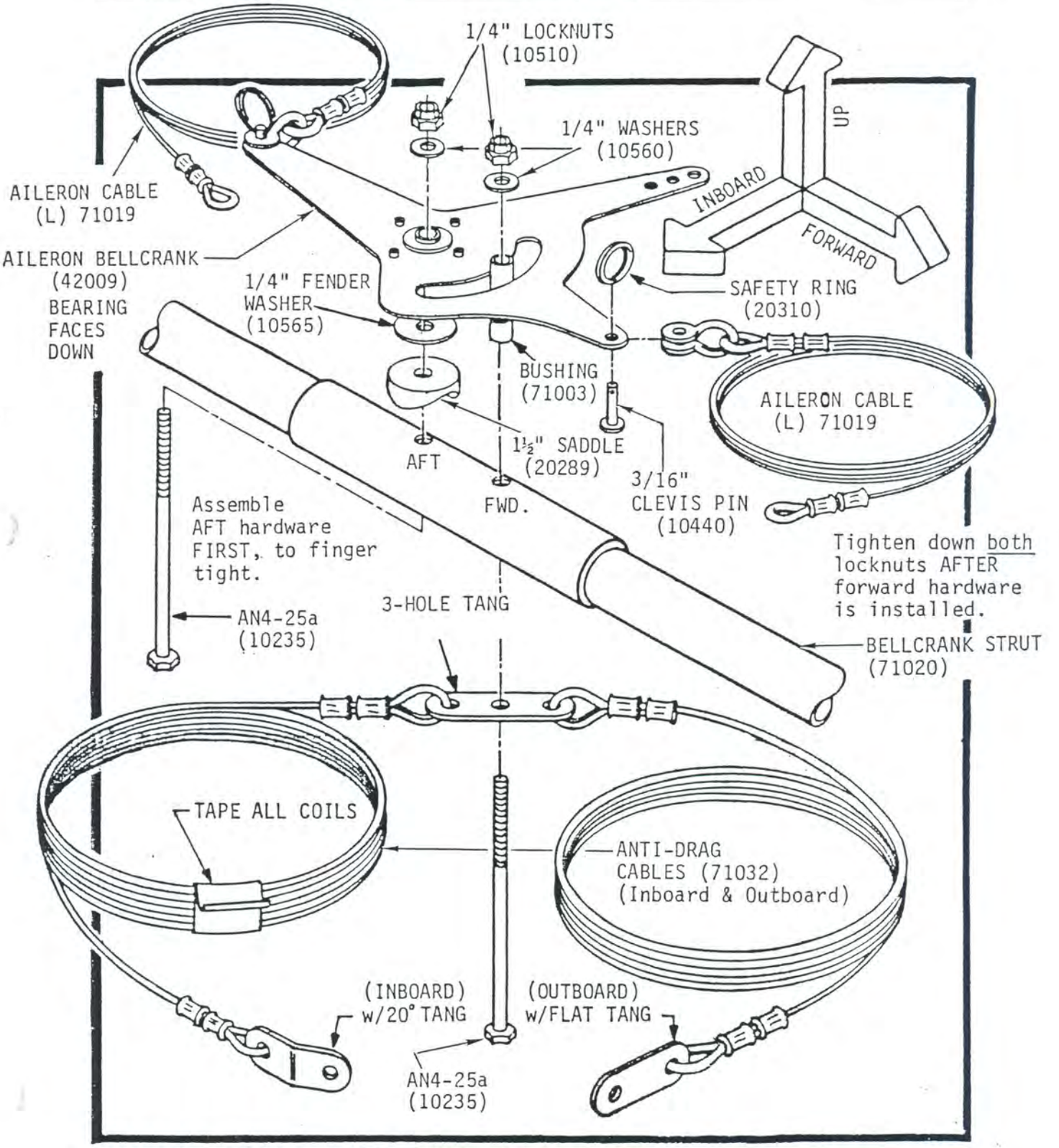
REPEAT FOR OPPOSITE WING STRUTS.



Place Bellcrank Bearing on Bellcrank and use four of small perimeter holes at 90° positions to mark, punch and drill 1/8" holes in bellcrank. Install rivets. REPEAT with other bellcrank's PUSH/PULL arm extending in opposite direction, as shown.

BELLCRANKS WILL BE INSTALLED WITH BEARING ON BOTTOM.

AILERON BELLCRANK
ATTACH TO BELLCRANK STRUT

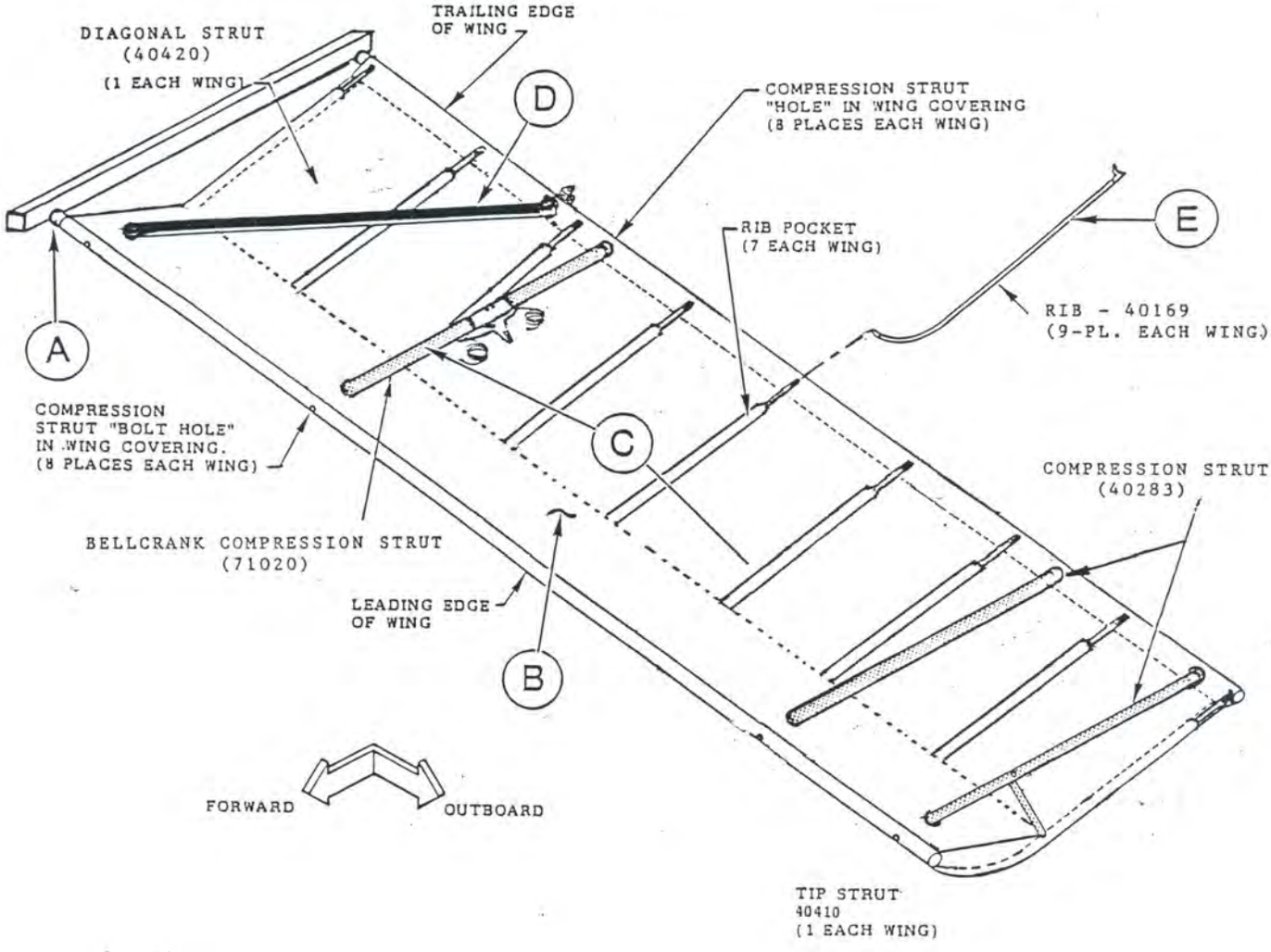


LEFT SIDE ASSEMBLY SHOWN. REPEAT FOR RIGHT SIDE.

WING ASSEMBLY

GENERAL ARRANGEMENT

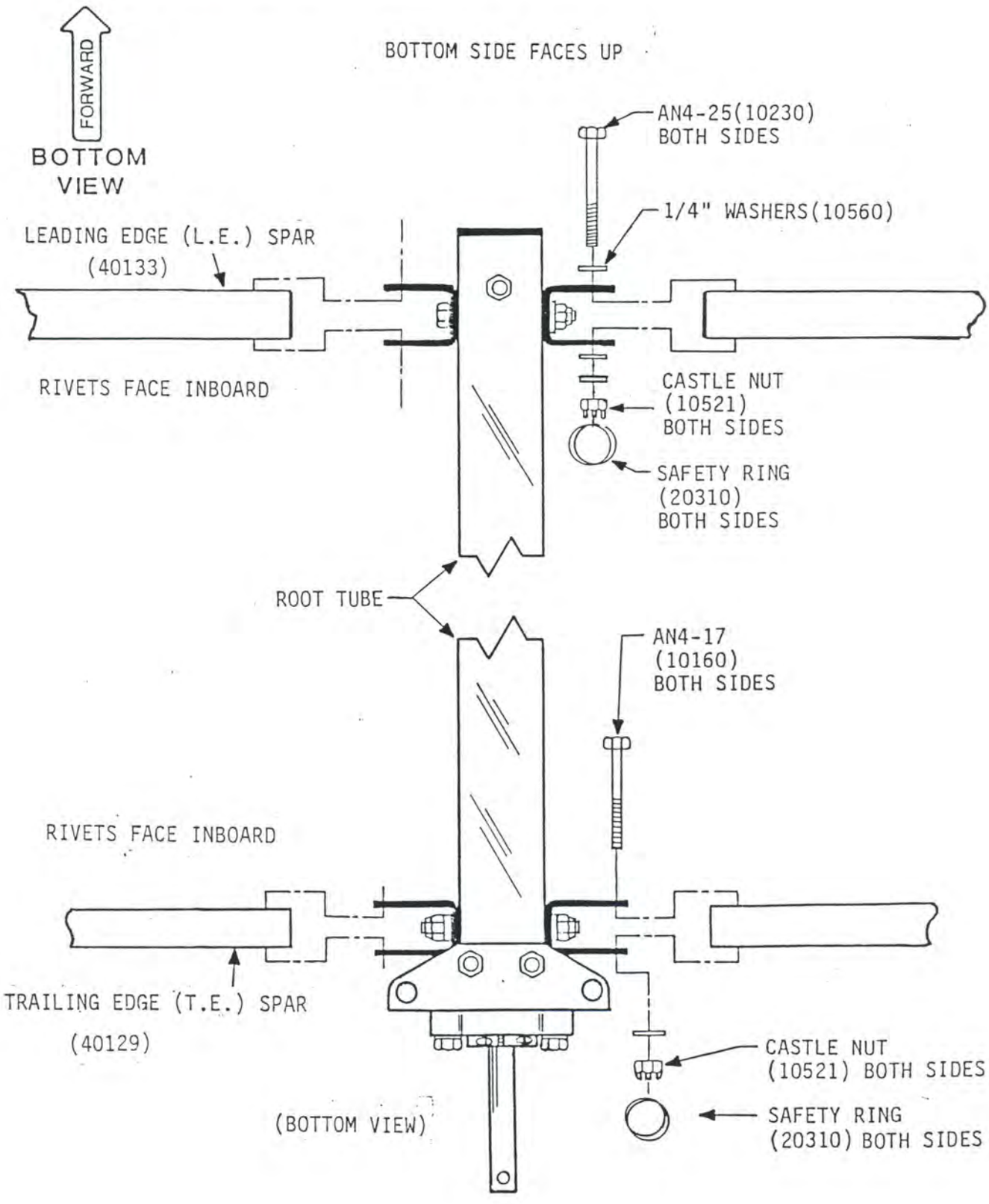
STUDY THIS GENERAL WING ARRANGEMENT. THEN START ASSEMBLY WITH DETAIL "A". REMEMBER THE WING IS UPSIDE DOWN. DO NOT CONFUSE THE COMPRESSION STRUT "HOLES" WITH THE COMPRESSION STRUT "BOLT HOLES".



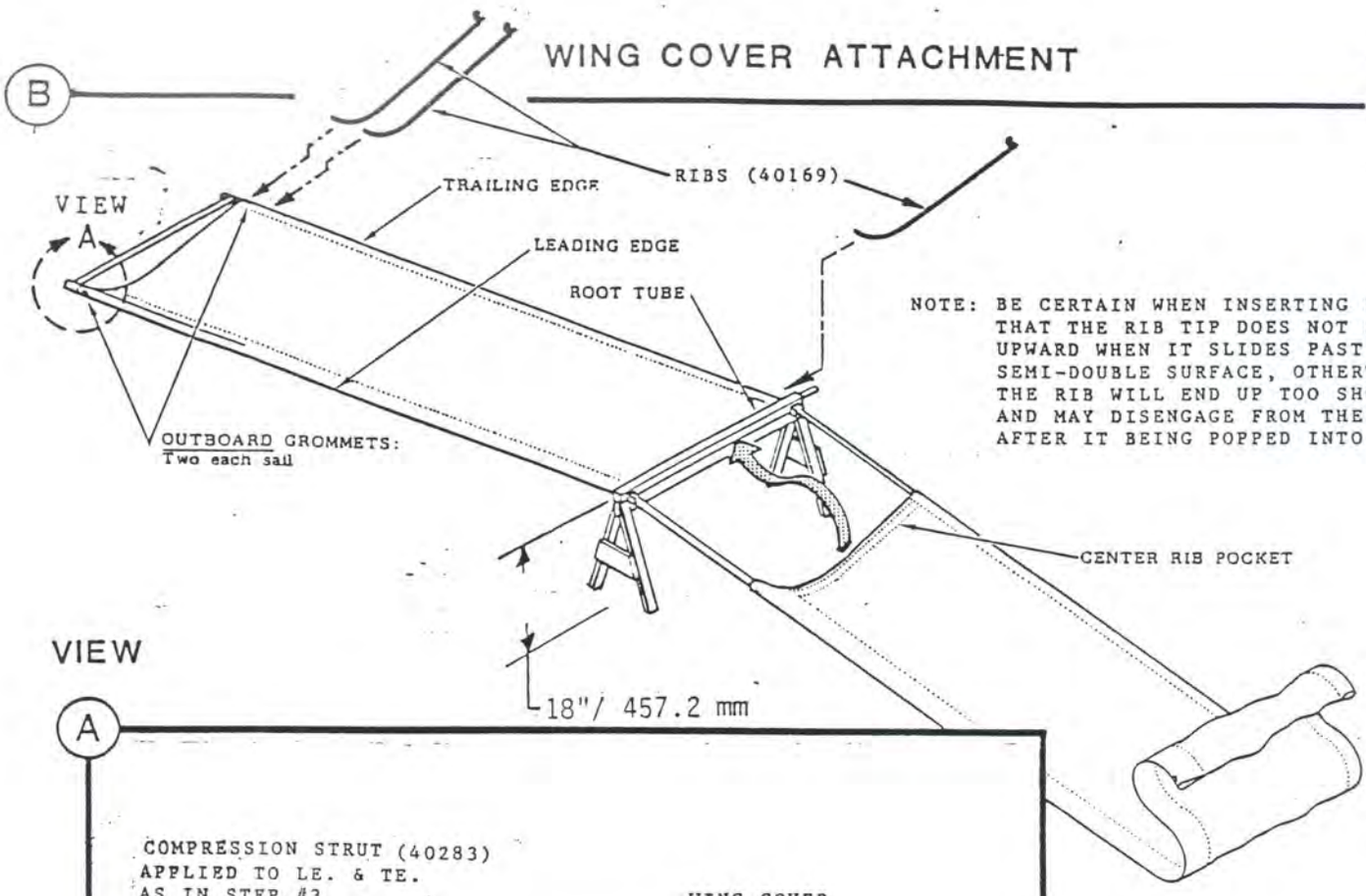
WING ASSEMBLY

(A) ROOT TUBE ATTACH

Install SPARS to ROOT TUBE as shown.

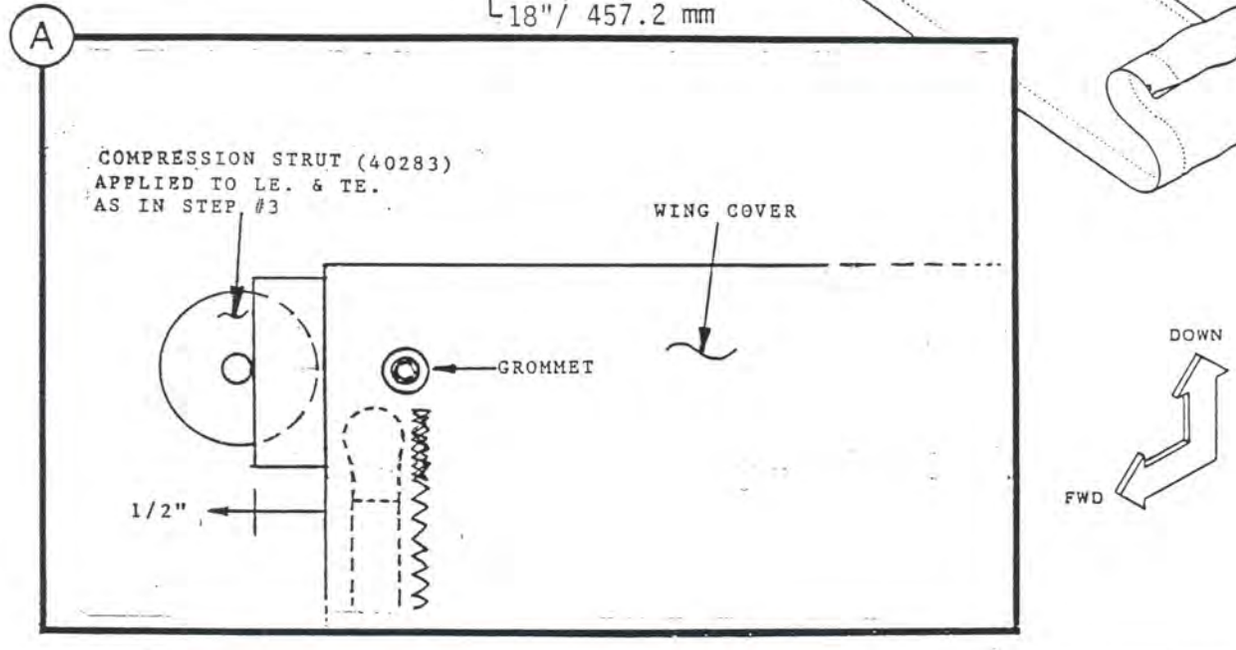


WING COVER ATTACHMENT



NOTE: BE CERTAIN WHEN INSERTING RIBS THAT THE RIB TIP DOES NOT BEND UPWARD WHEN IT SLIDES PAST THE SEMI-DOUBLE SURFACE, OTHERWISE THE RIB WILL END UP TOO SHORT AND MAY DISENGAGE FROM THE TE. AFTER IT BEING POPPED INTO PLACE.

VIEW A



1) WITH ROOT TUBE AND SPAR ASSY. INVERTED AND SUPPORTED AS SHOWN, SLIDE WING COVER OVER SPARS AND ATTACH BUCKLES LOOSELY.

2) INSERT 3 RIBS IN EACH WING; 1 AT THE INBOARD MOST RIB STATION AND 2 AT THE OUTBOARD MOST RIB STATIONS.

3) TAKE 1 PREVIOUSLY ASSEMBLED COMPRESSION STRUT (40283) AND APPLY TO THE LE. AND TE. SPARS JUST TO THE OUTSIDE OF THE WING COVER.

4) MARK A DISTANCE OF 1/2" OUT AT THE TIPS OF LE. & TE.. PULL WING COVER UP TO THESE MARKS AND MARK ONCE MORE, THE OUTBOARD GROMMET LOCATIONS.

5) SLIDE COVER BACK AND DRILL 3/16" HOLES IN SPARES WHERE INDICATED. POP RIVET INTO PLACE.

WING COVER ATTACHMENT (CONT'D.)

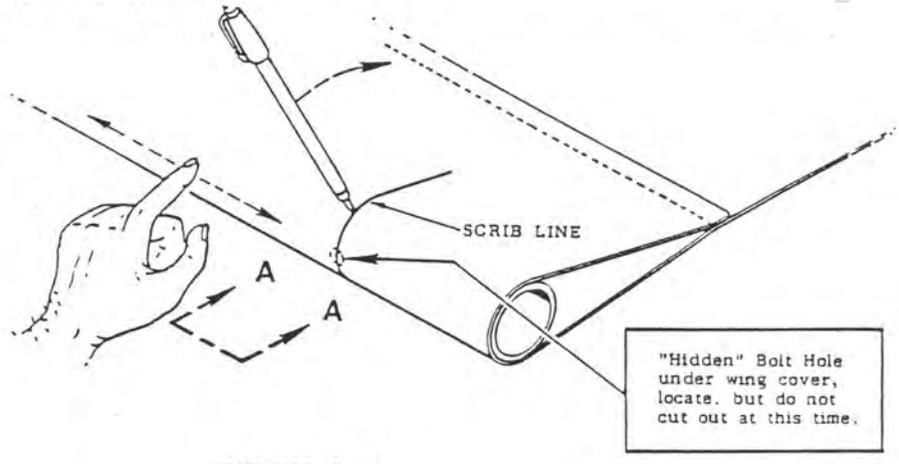
B

USE THE TEMPLATE PATTERN ON THE NEXT PAGE, DETAIL (B-CONTINUED), LOCATE THE HOLES IN THE WING COVER FOR THE DIAGONAL AND COMPRESSION STRUTS.

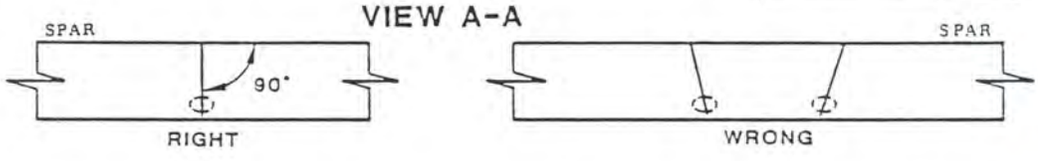
(1) SNUG BUCKLES UP TO PUT TENSION ON THE WING COVER.

(2) LOCATE THE "HIDDEN" FACTORY PREDRILLED BOLT HOLES IN SPAR BY RUNNING FINGER OVER SPAR AS SHOWN.

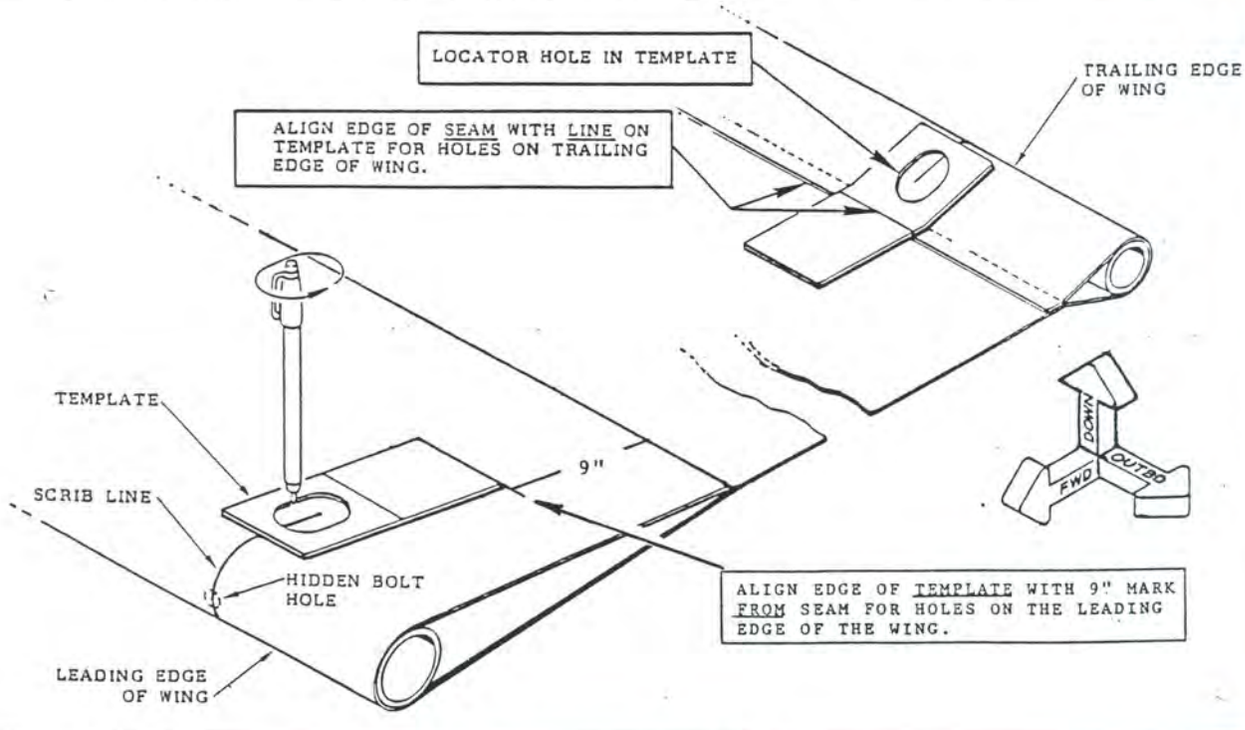
MARK THE CENTER OF THE "HIDDEN" BOLT HOLE AND SCRIB A LINE AT RIGHT ANGLE TO SPAR WITH A PENCIL. SEE VIEW "A-A" BELOW



VIEW A-A



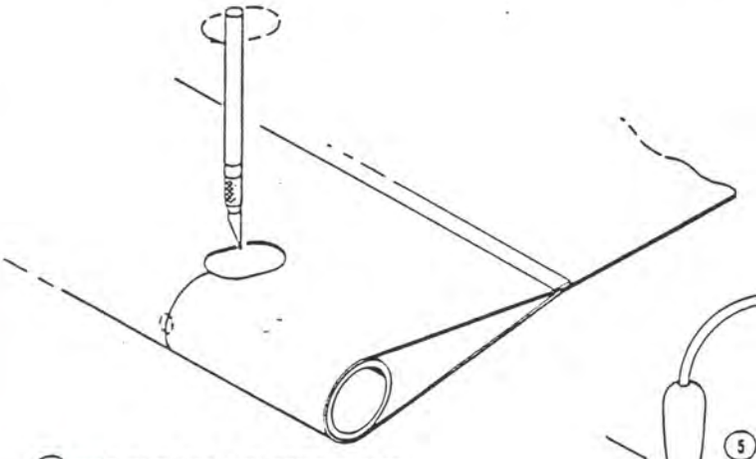
(3) CENTER THE LOCATER HOLE IN THE TEMPLATE OVER THE SCRIBED LINE. MOVE THE TEMPLATE FORWARD OR AFT AS INDICATED BELOW AND MARK LOCATION ON THE WING COVER THRU HOLE IN THE TEMPLATE WITH A PENCIL. NOTICE THAT THE USE OF THE TEMPLATE IS DIFFERENT ON THE LEADING EDGE SPAR AND THE TRAILING EDGE SPAR. REPEAT AT 8 PLACES ON EACH WING.



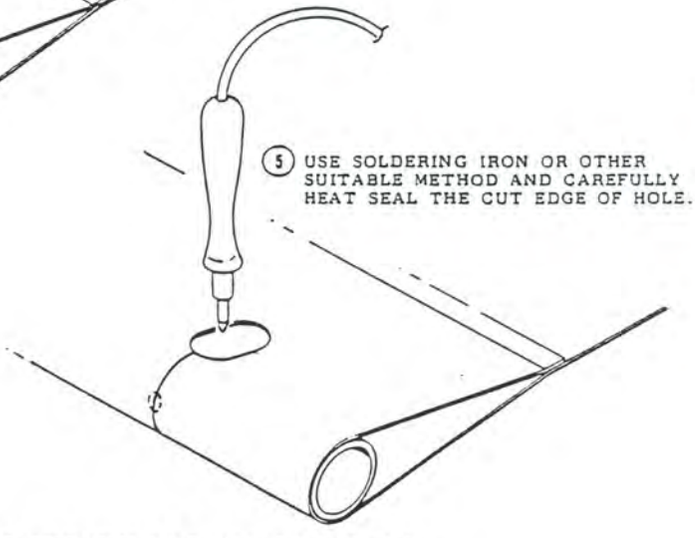
DETAILS CONTINUED NEXT PAGE

WING COVER ATTACHMENT (CONT'D.)

B



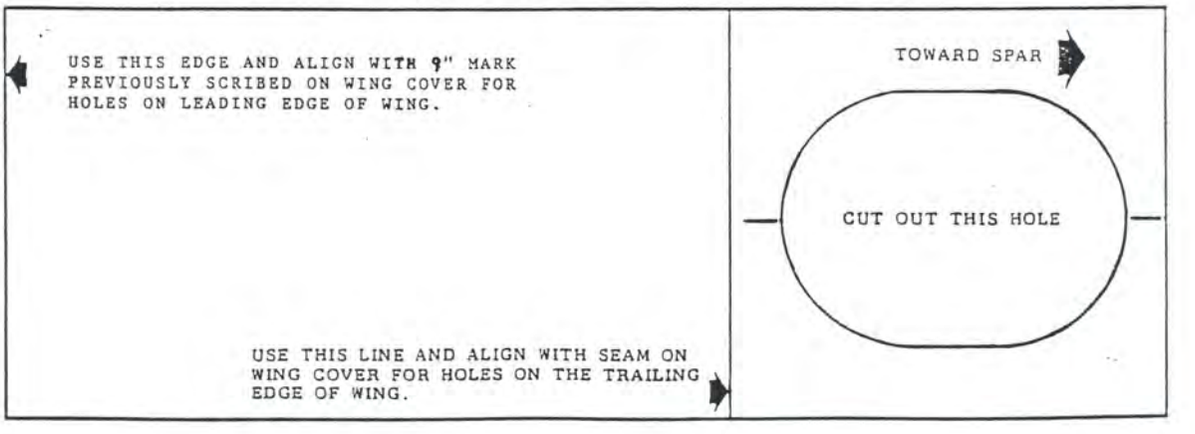
(4) CUT OUT HOLE IN WING COVER



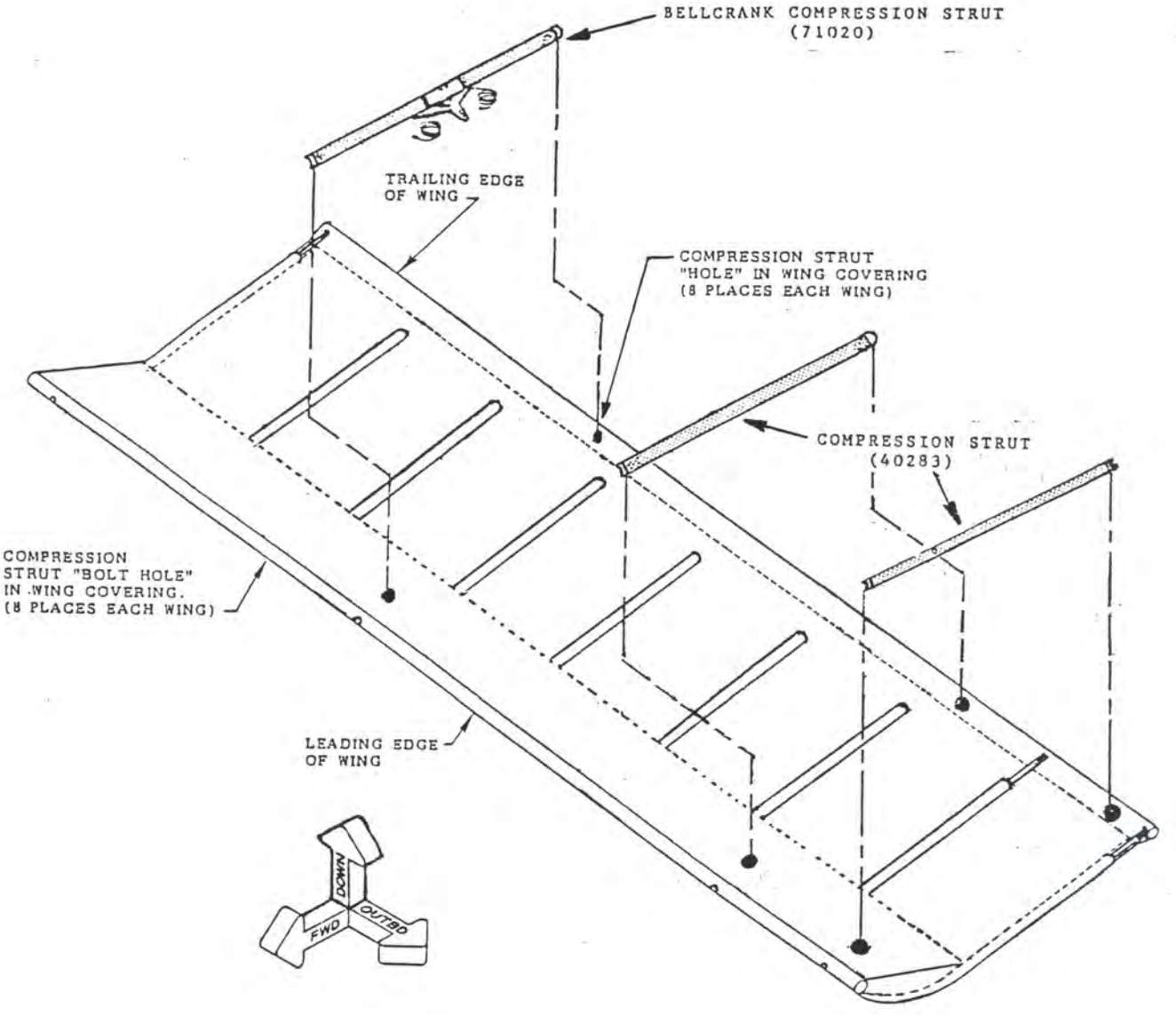
(5) USE SOLDERING IRON OR OTHER SUITABLE METHOD AND CAREFULLY HEAT SEAL THE CUT EDGE OF HOLE.

REPEAT THE ABOVE OPERATIONS 8 PLACES ON EACH WING

TRACE THIS TEMPLATE ON HARD THIN CARDBOARD AND CUT OUT

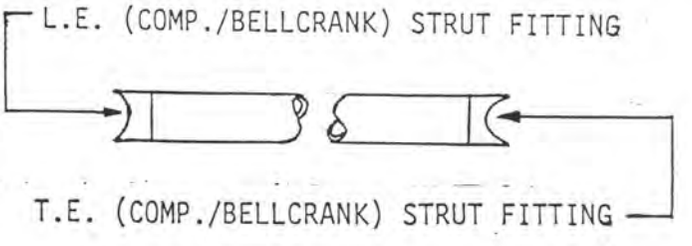


(C) COMPRESSION STRUT ATTACHMENT

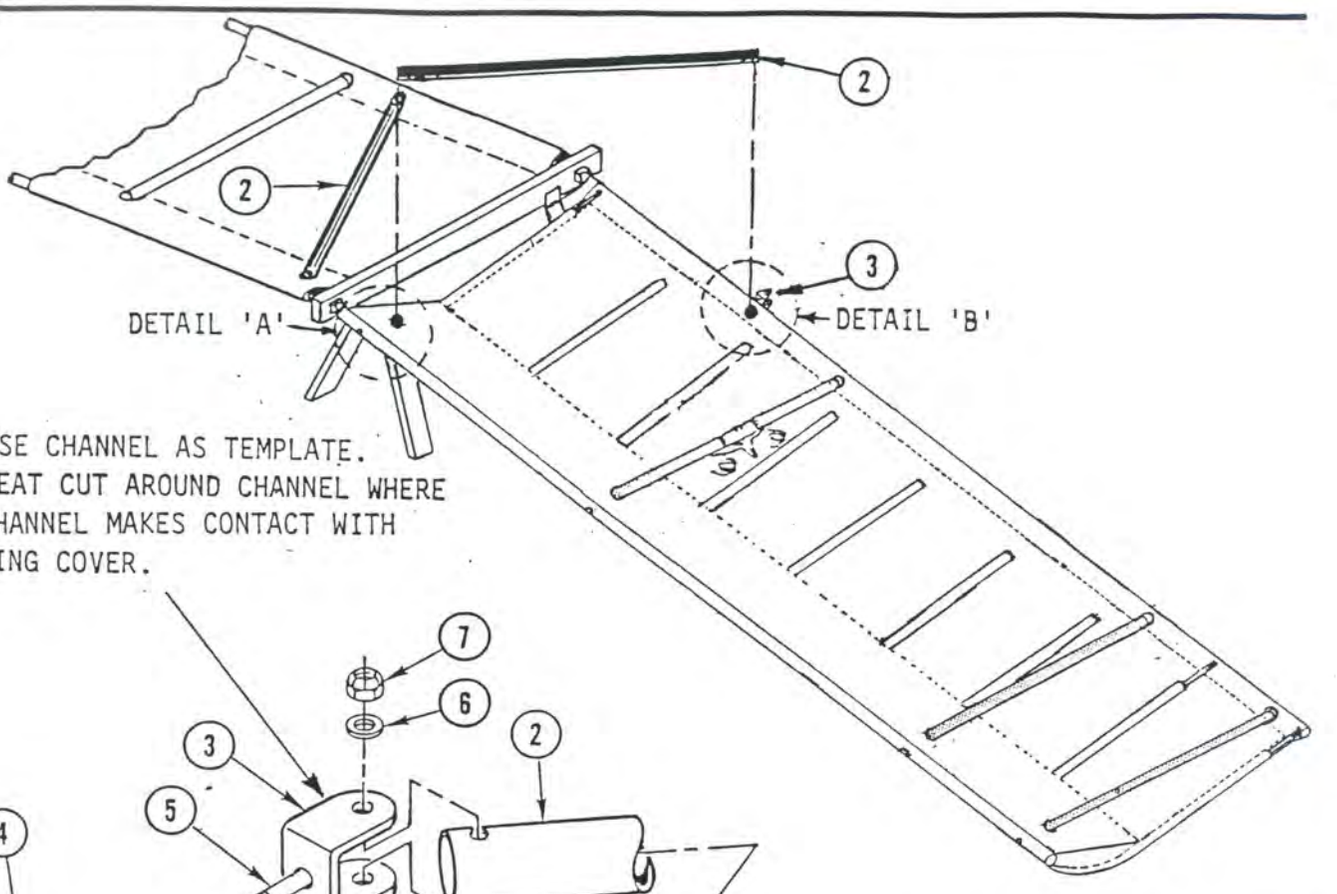


POP 1 BELLCRANK COMPRESSION STRUT (71020) AND 2 COMPRESSION STRUTS (40283) INTO PLACE ON EACH WING.

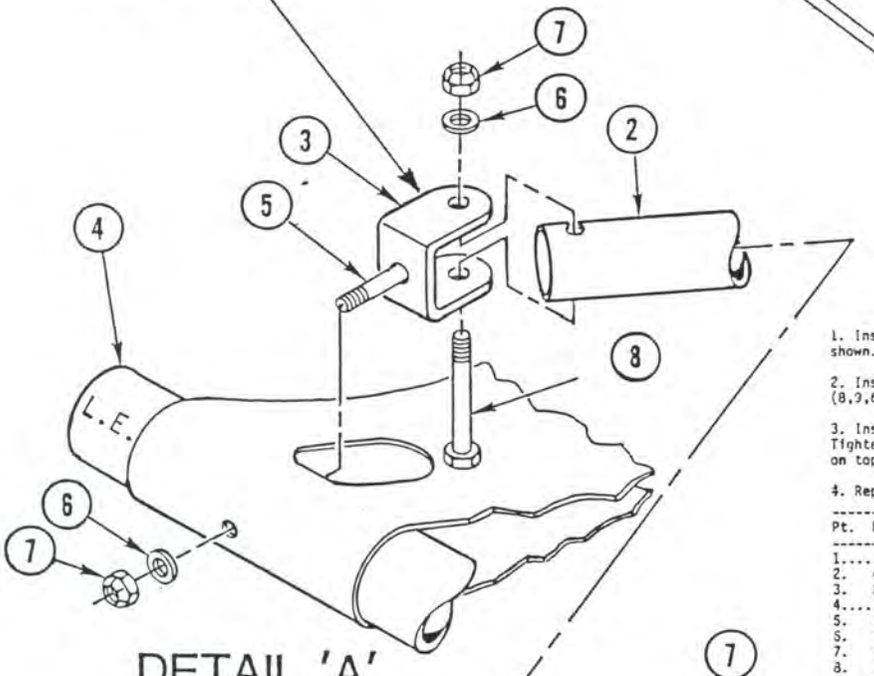
RIGHT WING SHOWN HERE



(D) DIAGONAL STRUT ATTACHMENT



USE CHANNEL AS TEMPLATE. HEAT CUT AROUND CHANNEL WHERE CHANNEL MAKES CONTACT WITH WING COVER.



DETAIL 'A'

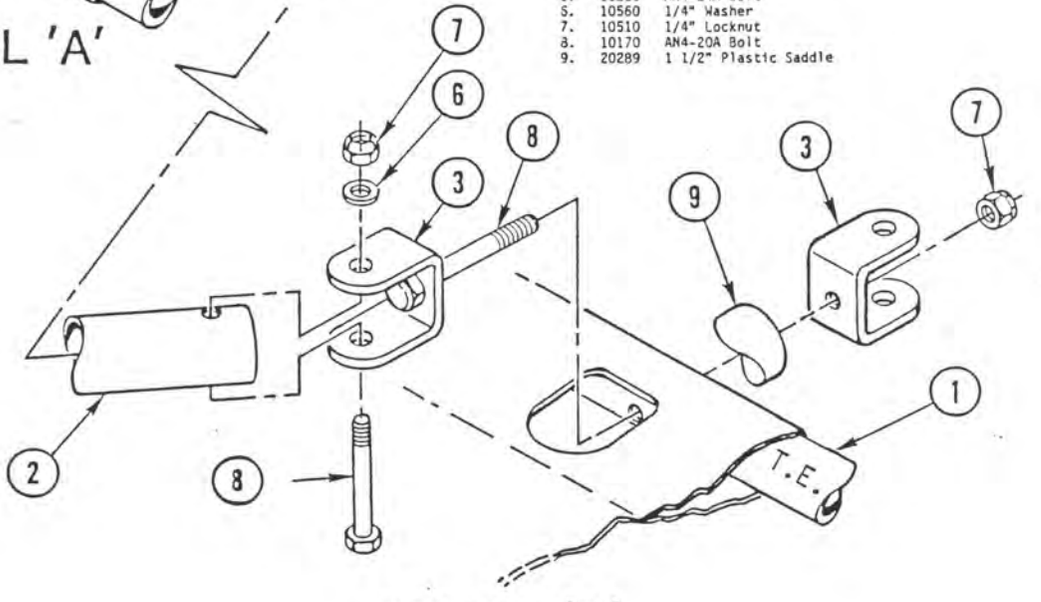
1. Install Channel (3) on Leading Edge Spar (4) with hardware (5,6,7) shown. Tighten the hardware. Do not crush tube.

2. Install two Channels (3) on Trailing Edge Spar (1) with hardware (8,9,6,7) as shown. Tighten the hardware. Do not crush tube.

3. Install Diagional Strut (2) and secure with hardware (10,6,7) shown. Tighten to proper torque, do not crush tube. NOTE: Burn a 1/4" hole on top of Wing Cover to allow bolt access to the Channel.

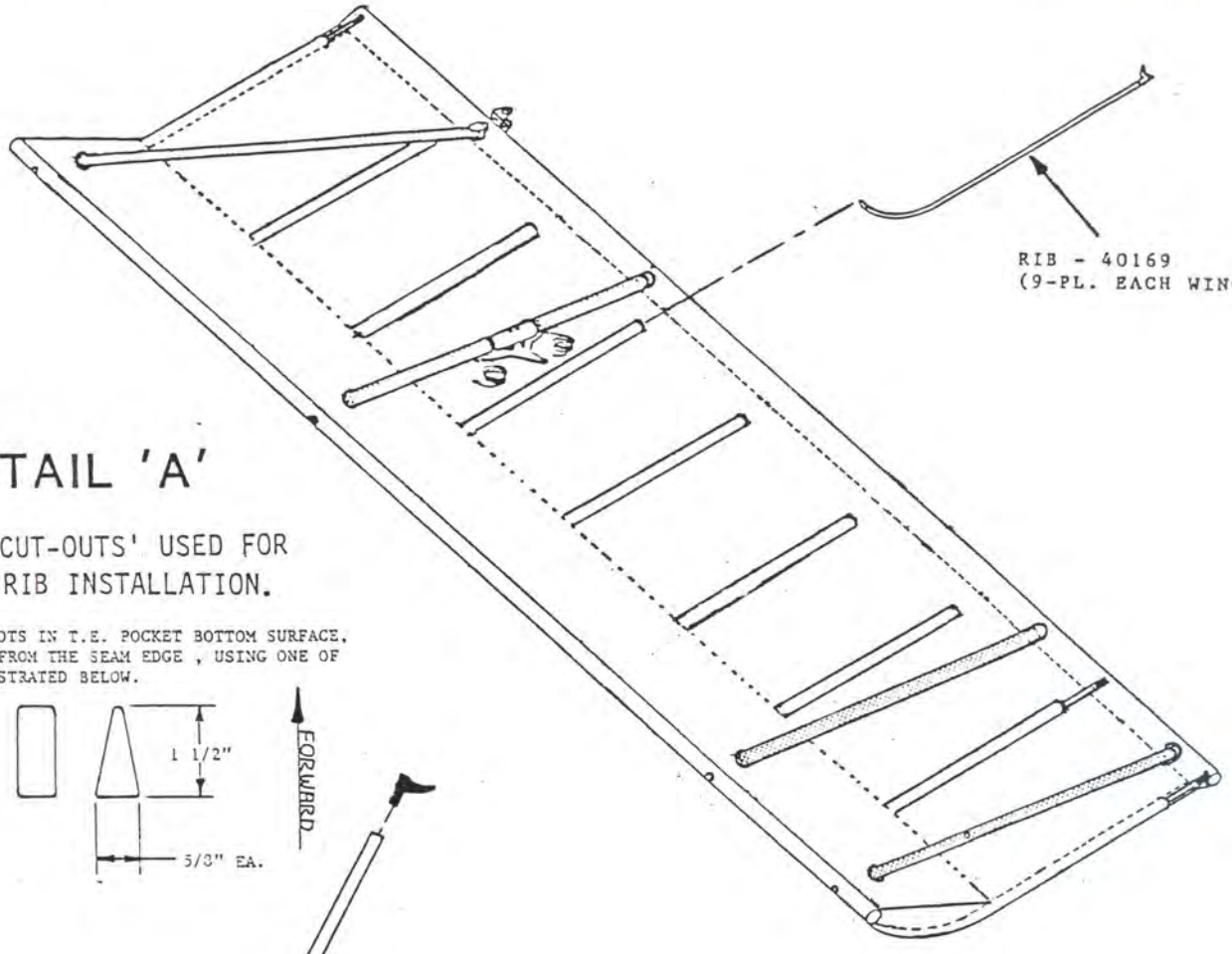
4. Repeat assembly sequence for opposite Wing.

Pt.	P.N.	Description.
1		.....Trailing Edge Spar
2.	40420	1 1/4" Diagonal Strut
3.	20090	1 1/4" Channel
4		.....Leading Edge Spar
5.	10220	AN4-24A Bolt
6.	10560	1/4" Washer
7.	10510	1/4" Locknut
8.	10170	AN4-20A Bolt
9.	20289	1 1/2" Plastic Saddle



DETAIL 'B'

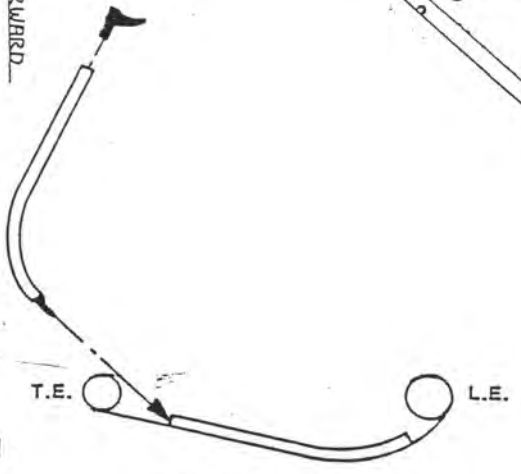
(E) RIB INSERTION



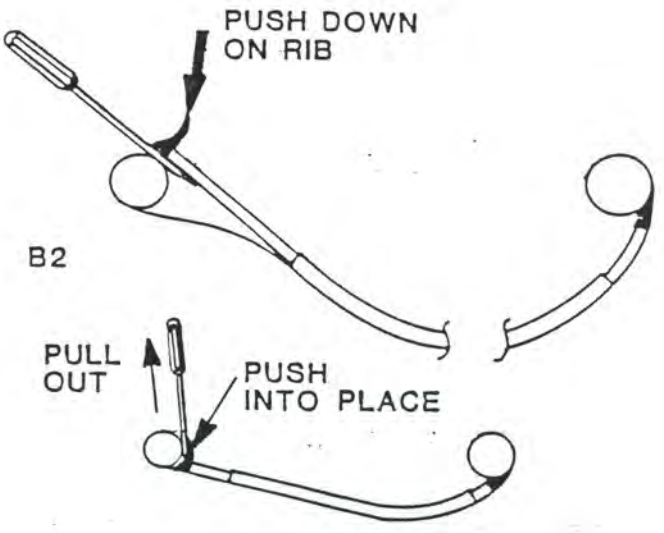
DETAIL 'A'

NOTE 'CUT-OUTS' USED FOR RIB INSTALLATION.

HEAT CUT RIB SLOTS IN T.E. POCKET BOTTOM SURFACE, STARTING 5/16" FROM THE SEAM EDGE , USING ONE OF THE STYLES ILLUSTRATED BELOW.



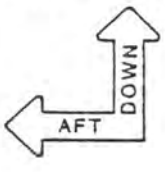
B1



B2

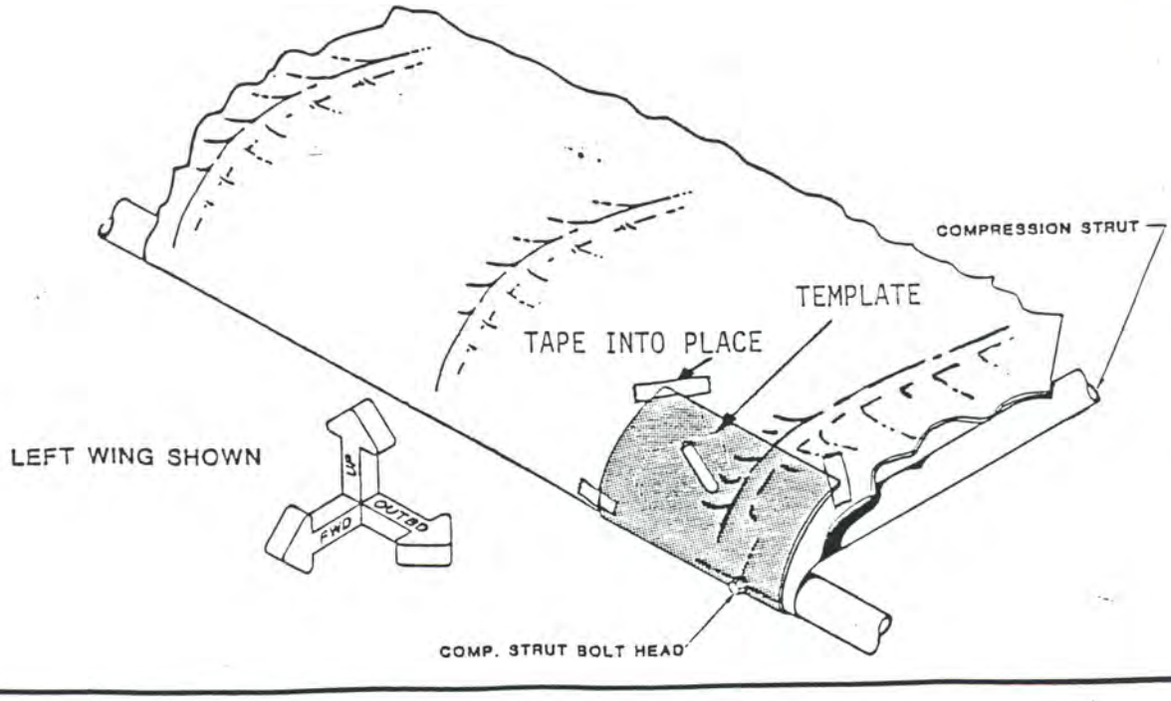
DETAIL 'B'

SIDE VIEW



LEADING EDGE OUTBOARD UPPER WIRE TEMPLATE ARRANGEMENT

FULL SIZE TEMPLATE ALONG WITH INSTRUCTIONS ON THE FOLLOWING PAGE.

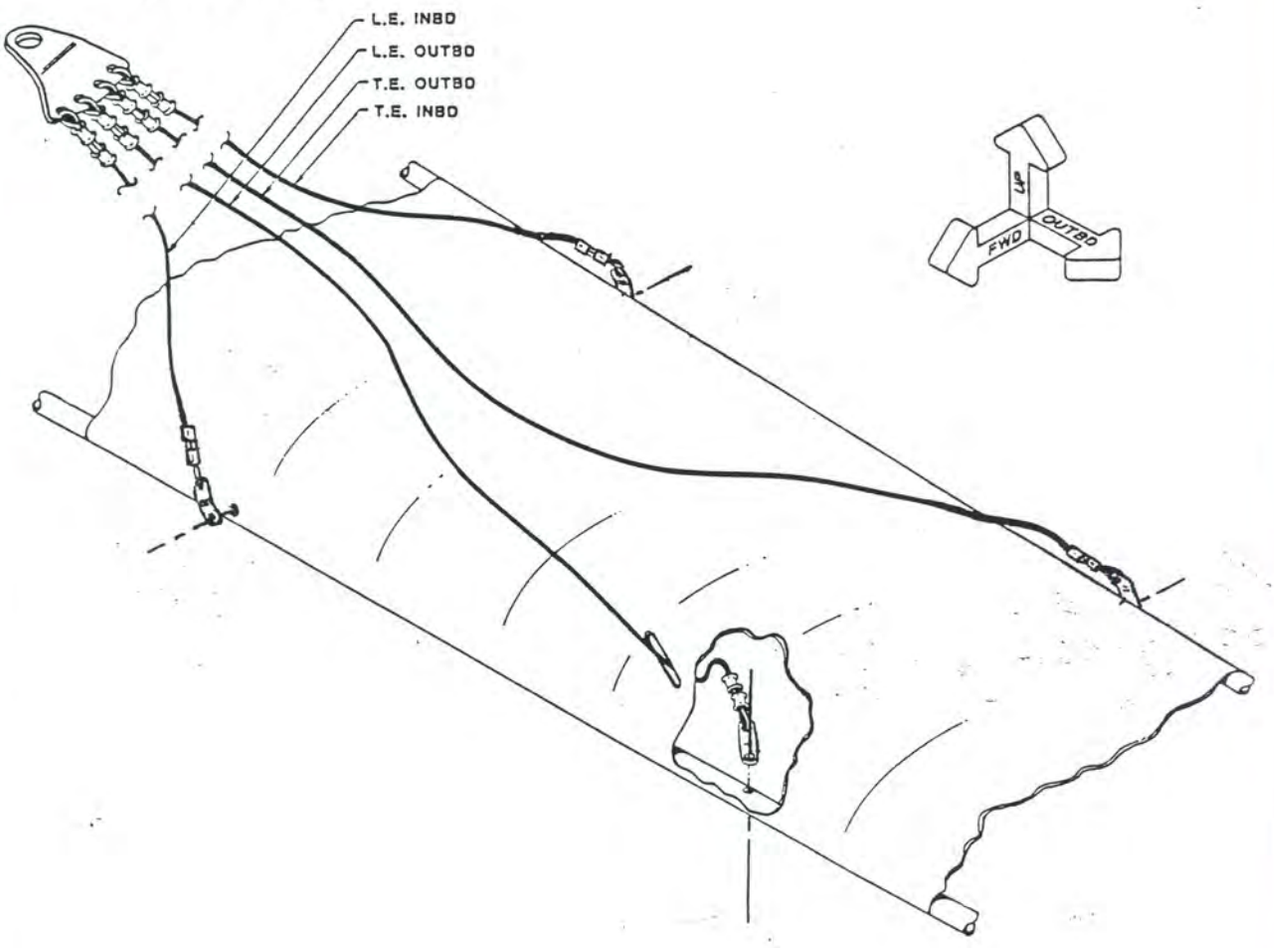


REV. 'B'

UPPER WIRE

GENERAL ARRANGEMENT

LEFT UPPER WIRE SET
(20586)

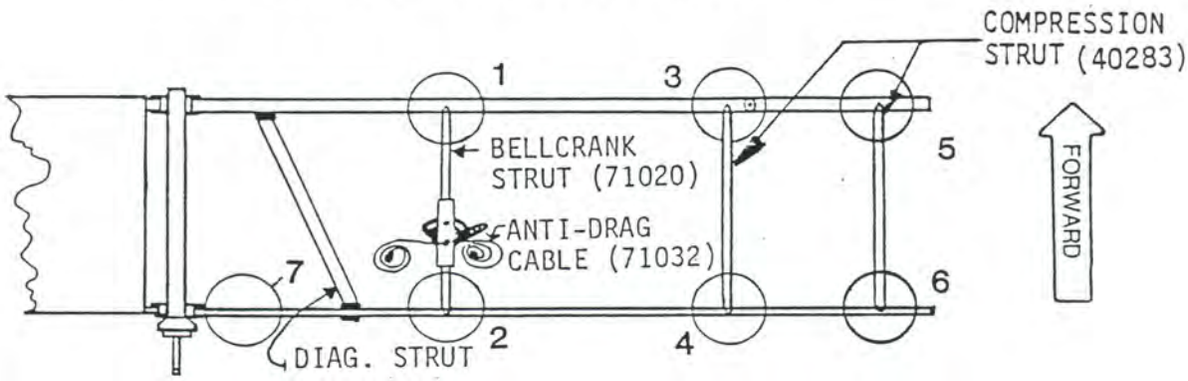


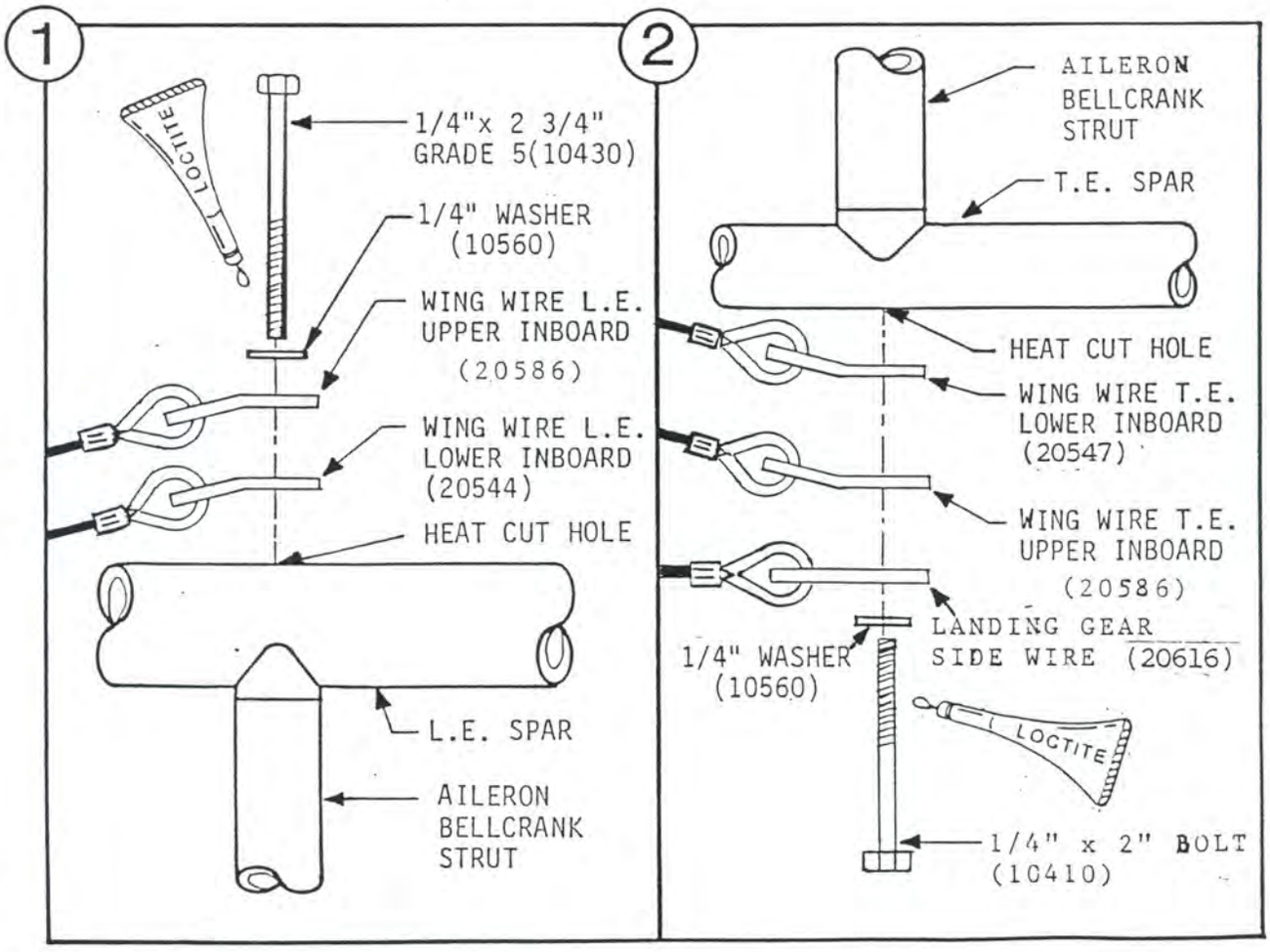
(LEFT WING SHOWN HERE)

WING WIRE ATTACHMENT
BELLCRANK/COMPRESSION STRUT/

Heat cut holes for GRADE 5 BOLTS, then make sure compression and aileron bellcrank struts are in line with holes. Assemble hardware in the sequence shown below and in the following pages (Steps 1 - 7).

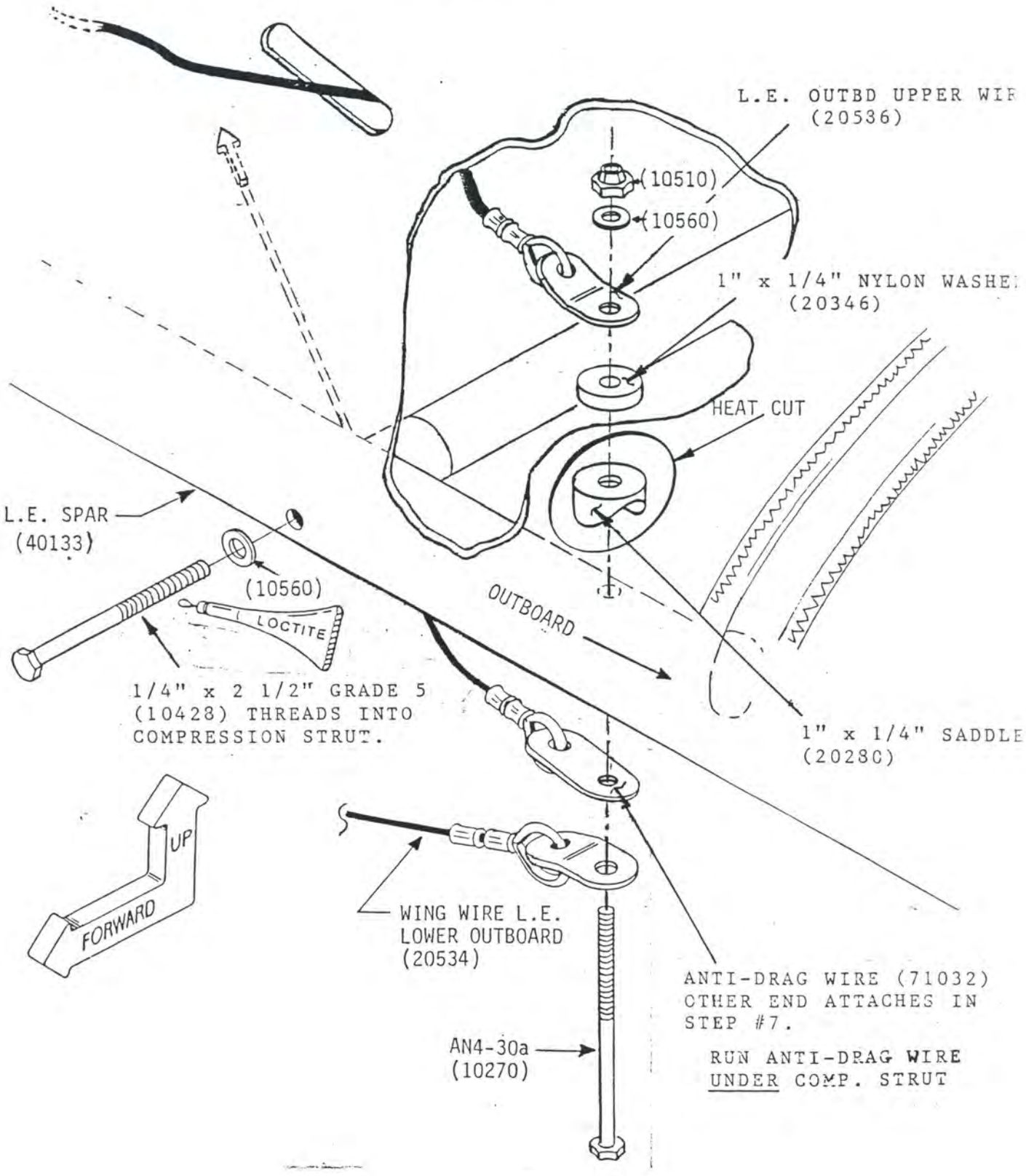
RIBS AND WING COVER NOT SHOWN FOR CLARITY
(BOTTOM VIEW OF LEFT WING SHOWN)





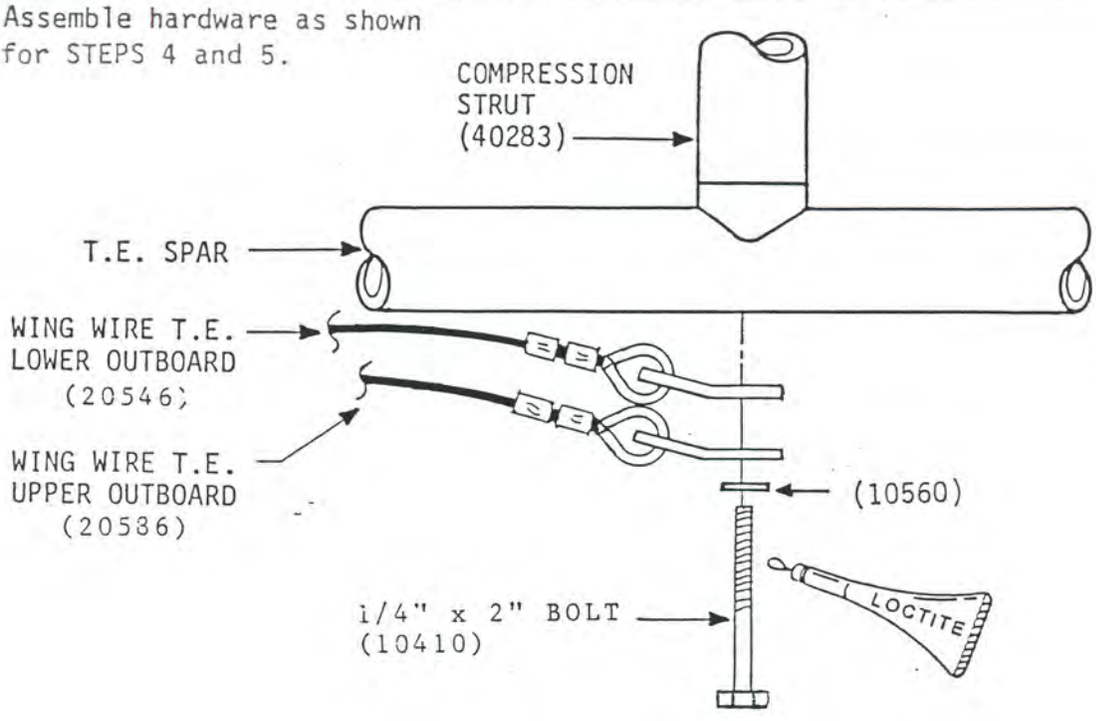
3 WING WIRES / COMPRESSION STRUTS CON'T.

"VERY NEATLY" heat cut hole for wire hardware and assemble as shown.

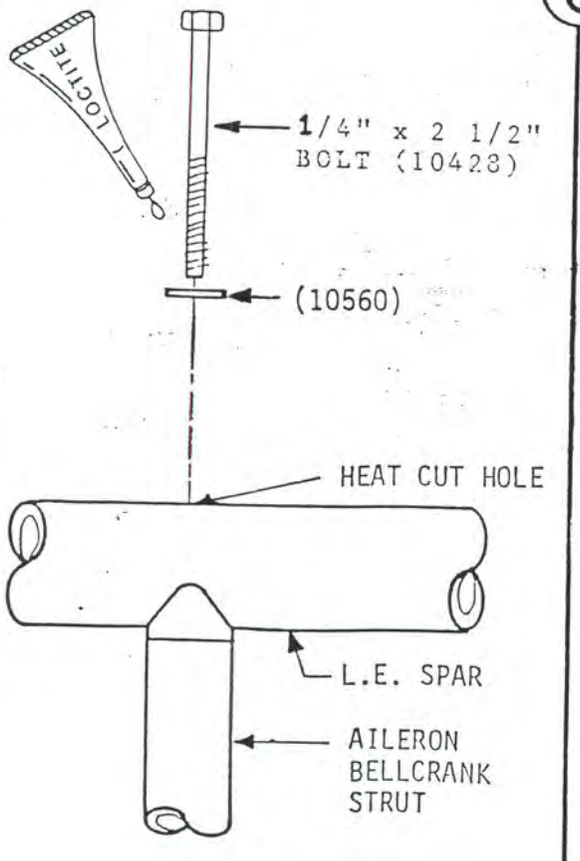


WING WIRES / COMPRESSION STRUTS CON'T.

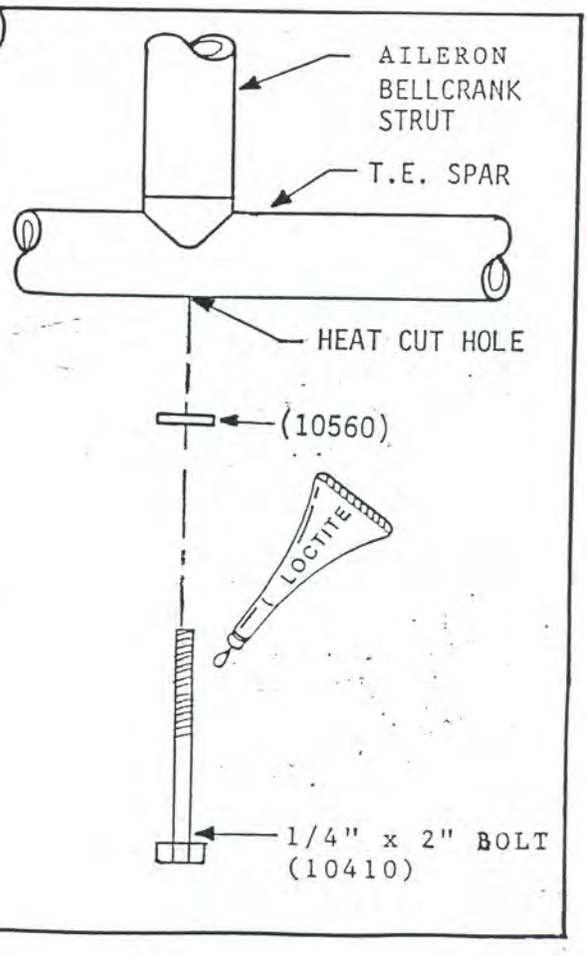
4 Assemble hardware as shown for STEPS 4 and 5.



5

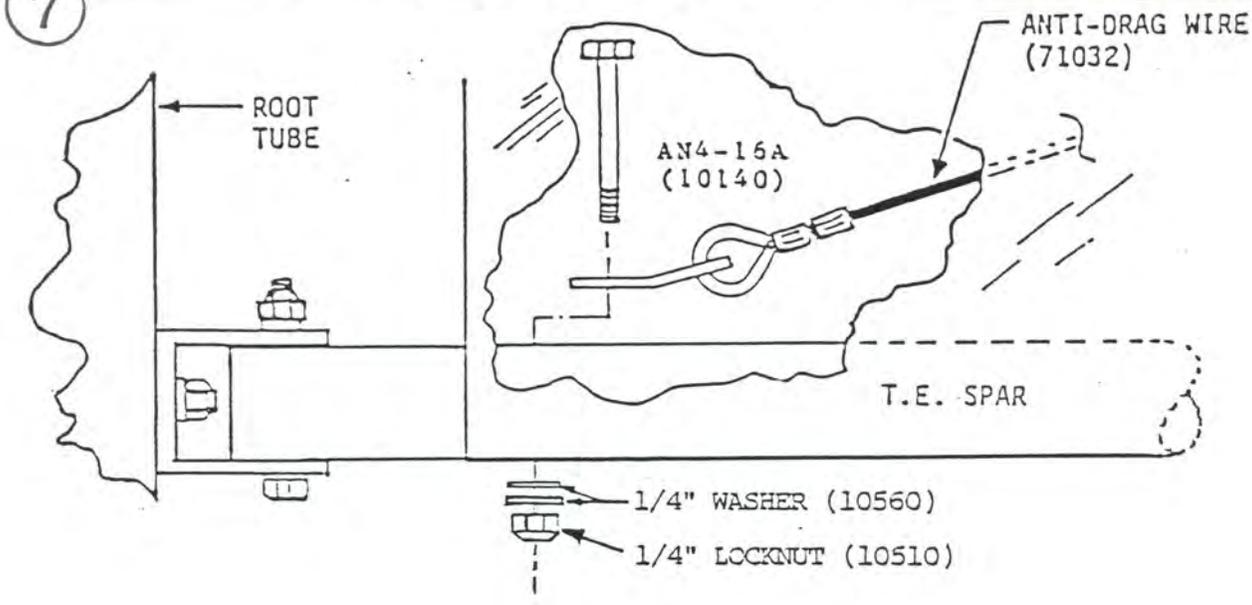


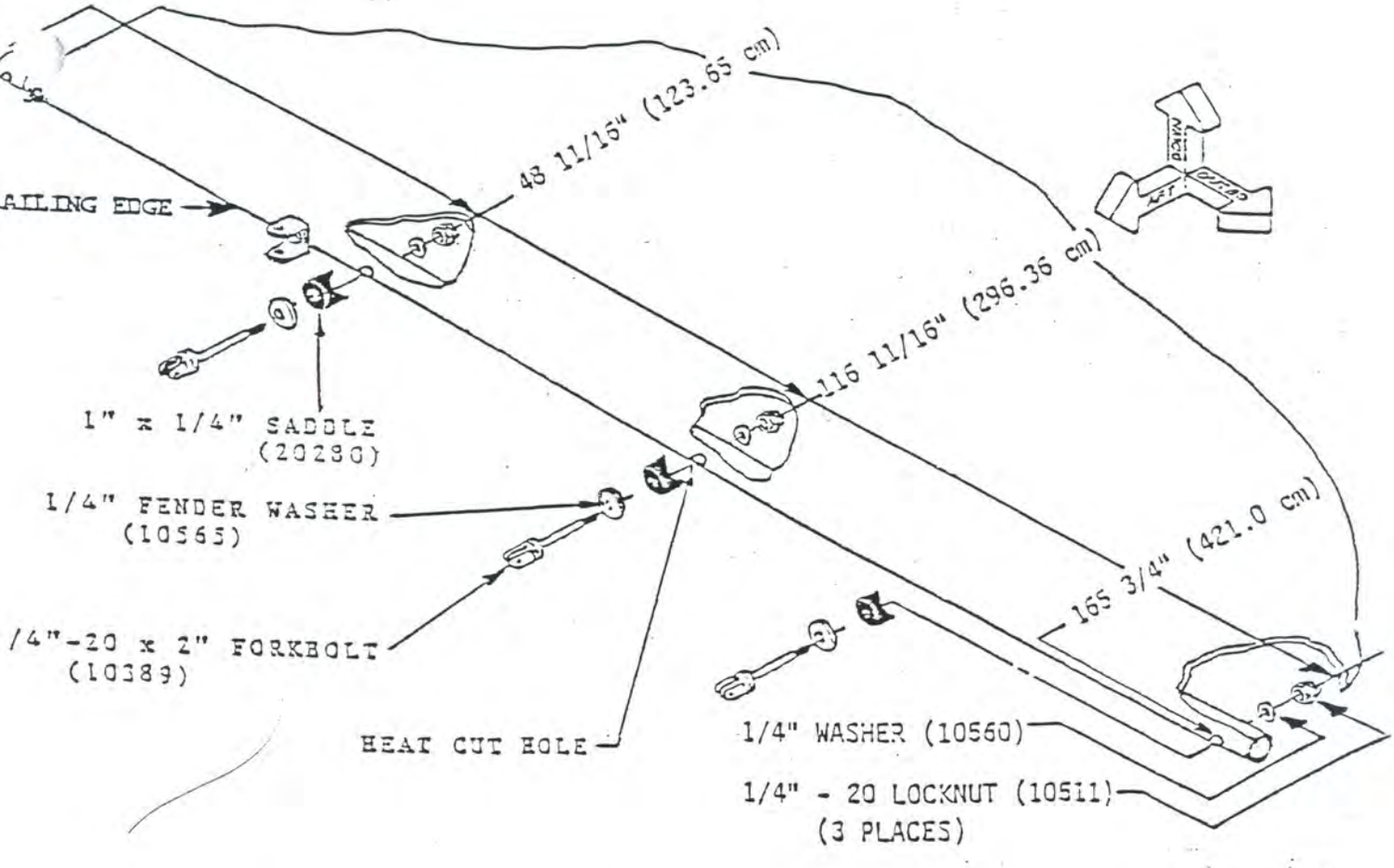
6



WING WIRES CONT./ FORKBOLT INSERTION

7

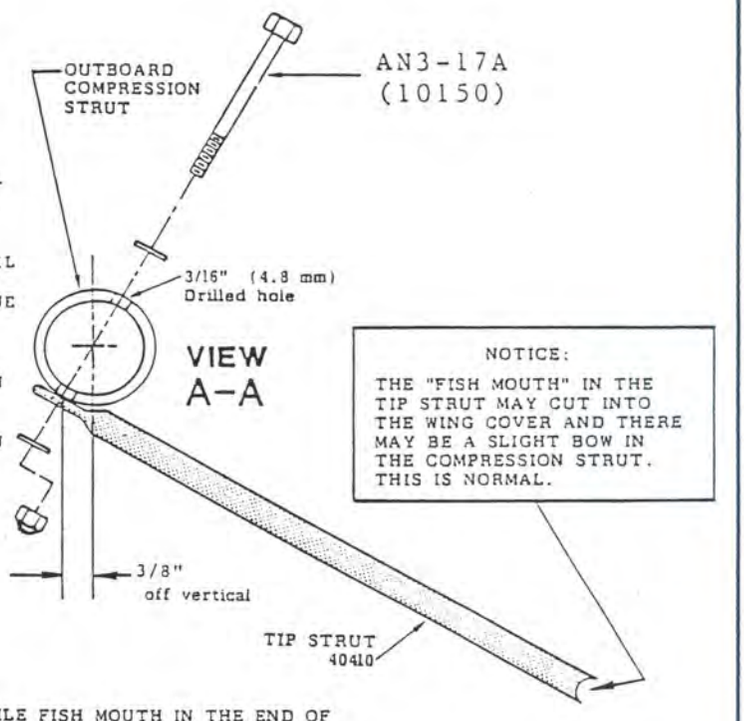


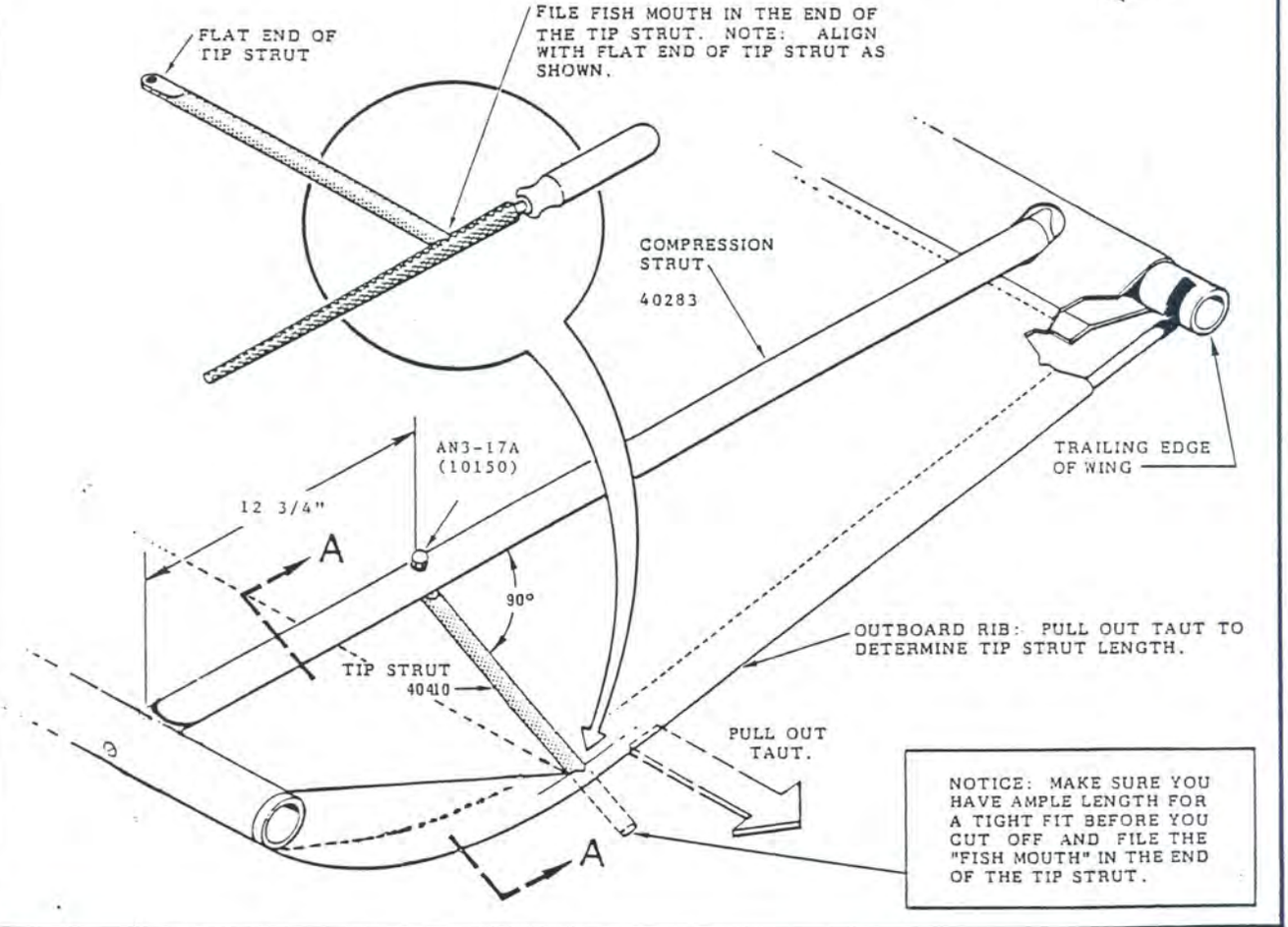


REV. 'B'

TIP STRUT ATTACHMENT

1. DRILL A 3/16" HOLE IN THE OUTBOARD COMPRESSION STRUT, 12 3/4" FROM THE FWD END AND 3/8" OFF VERTICAL AS SHOWN IN VIEW "A-A" AND DETAIL BELOW.
2. ATTACH TIP STRUT TO OUTBOARD COMPRESSION STRUT.
3. THE TIP STRUT HAS EXCESSIVE LENGTH. TO DETERMINE THE PROPER LENGTH, PULL THE OUTBD RIB OUT TAUT AS SHOWN AND MARK.
4. CUT OFF EXCESSIVE LENGTH AND USE A RAT TAIL FILE TO FORM A "FISH MOUTH" ON THE END OF THE TIP STRUT. NOTE: FILE IN THE SAME PLANE AS THE FLAT ON THE OTHER END OF THE TIP STRUT.
5. REINSTALL THE TIP STRUT ON THE COMPRESSION STRUT AND SADDLE THE "FISH MOUTH" ON THE OUTBOARD RIB AT A 90° ANGLE TO THE OUTBD. COMPRESSION STRUT AS SHOWN BELOW. (TENSION WILL HOLD IN PLACE)
6. REPEAT PROCEDURE FOR OTHER WING HALF.





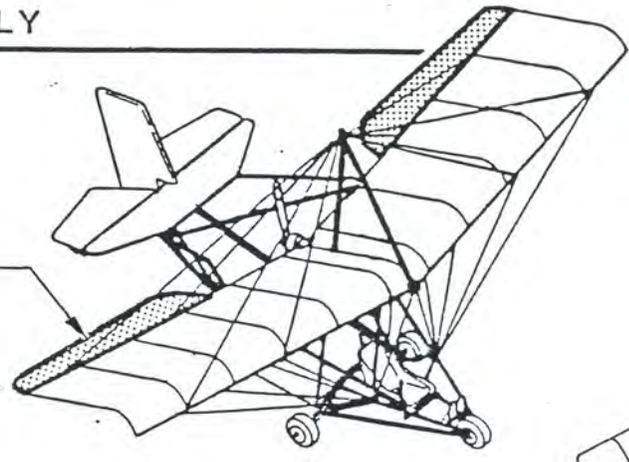
SECTION 5
AILERON ASSEMBLY

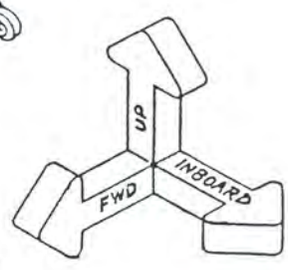
AILERON TRAILING EDGE ASSEMBLY ---------- 5-2
NUTPLATE AND COMPRESSION STRUT ASSEMBLY ---------- 5-3
AILERON LEADING EDGE ASSEMBLY ---------- 5-4
AILERON TRAILING EDGE TO COMPRESSION STRUT ASSEMBLY 5-5
AILERON COVER ATTACHMENT ---------- 5-6
AILERON EYEBOLT AND HORN ATTACHMENT ---------- 5-7
AILERON STOP AND TUBE CAP ATTACHMENT ---------- 5-8

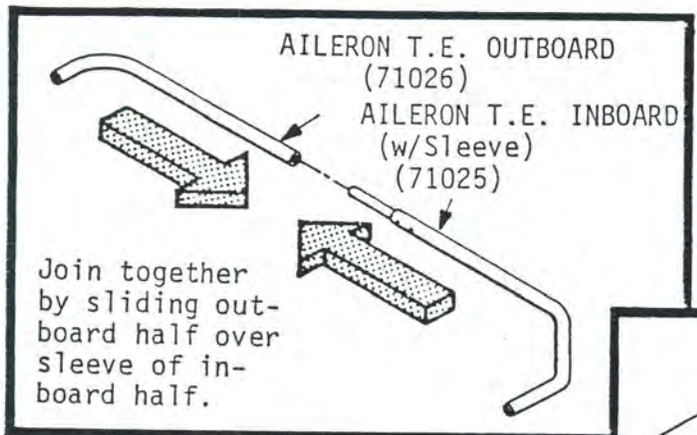
AILERON ASSEMBLY

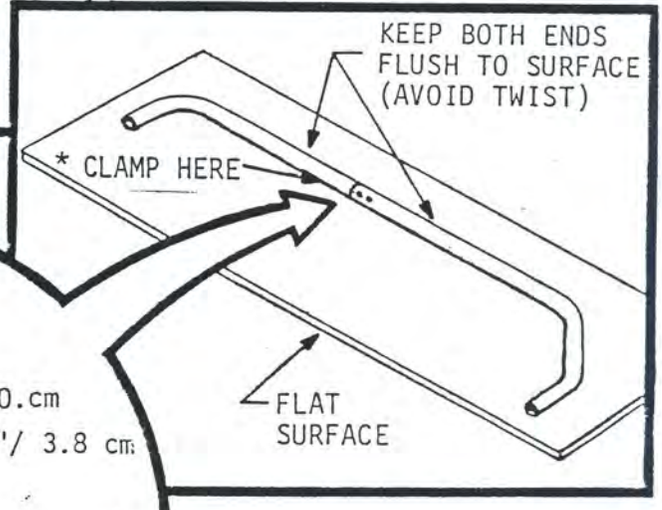
TRAILING EDGE ASSEMBLY

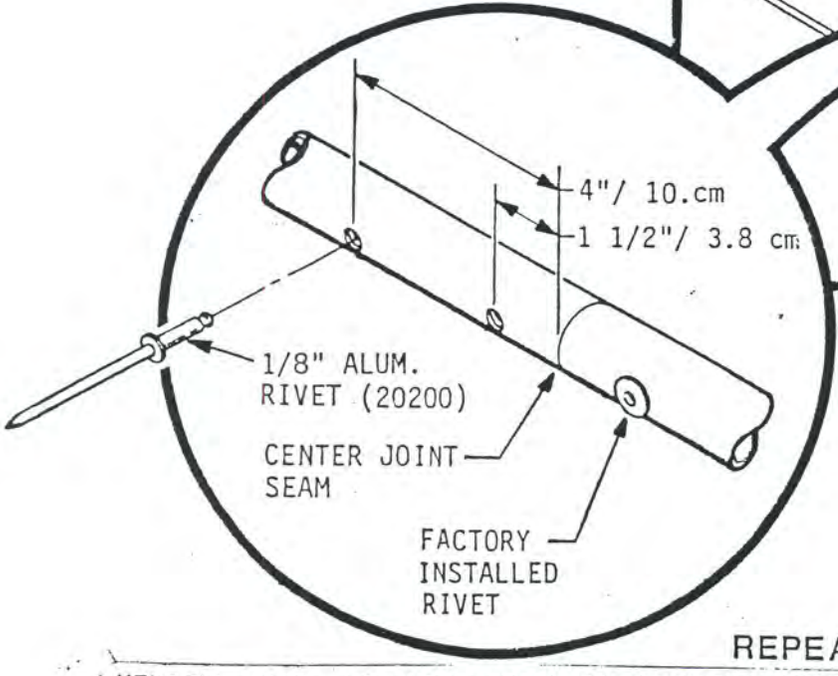
Work on a flat surface. Inboard T.E. spar has connecting SLEEVE factory-installed with 1/8" RIVETS.











Measure distances shown from center joint seam (same as factory-installed rivets - one shown).

Punch and drill 1/8" holes and install rivets as shown.

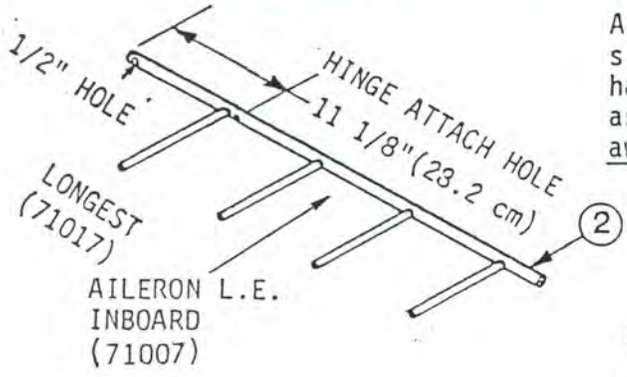
REPEAT ON OPPOSITE SIDE

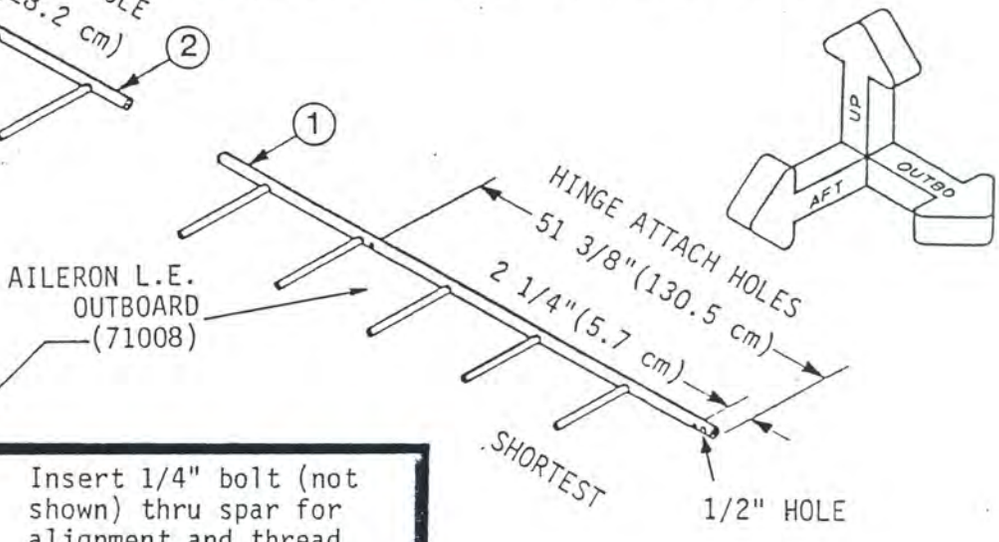
* HELPFUL HINT: USE VISE GRIPS TO SECURELY HOLD AILERON HALVES TOGETHER BEFORE DRILLING RIVET HOLES.

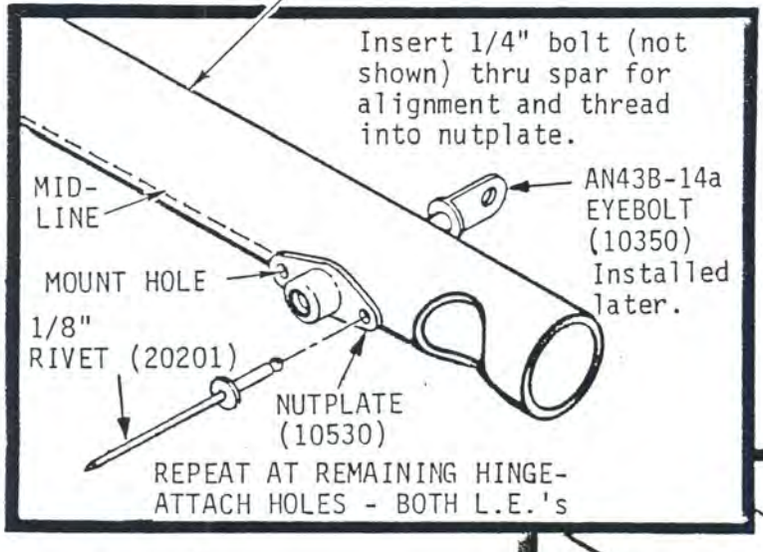
AILERON ASSEMBLY (CONT'D.)

NUTPLATE/COMPRESSION STRUT ASSEMBLY

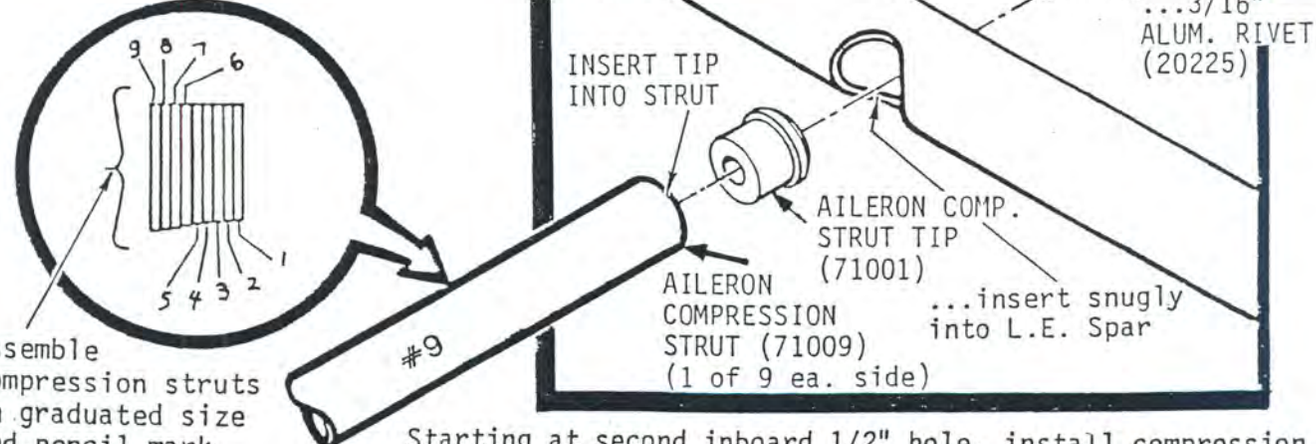
Aileron L.E. inboard spar has four 1/2" compression strut insert holes; Aileron L.E. outboard has five. Position spars with holes facing you, as shown, and with hinge-attach holes facing away and at distances shown from spar ends.







Hold nutplate in place along L.E. spar aft wall mid-line. Drill & enlarge nutplate mount hole; install 1/8" rivet. Re-check alignment, then repeat for other mount hole. Remove alignment bolt and install eyebolt vertically.

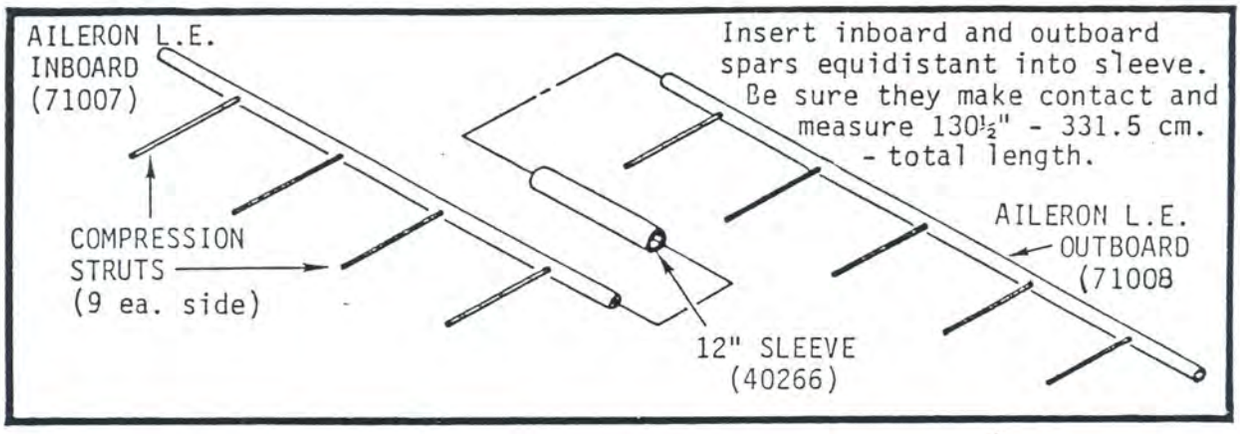


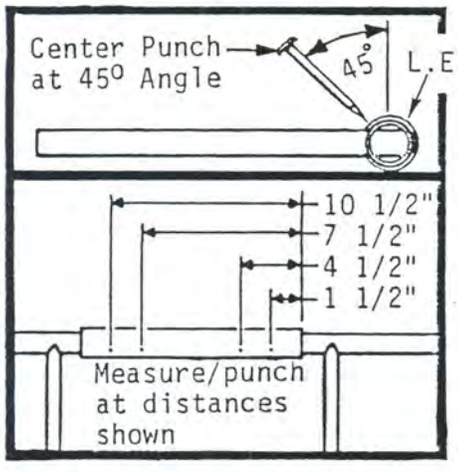
Assemble compression struts in graduated size and pencil mark each (#9-longest to #1-shortest)

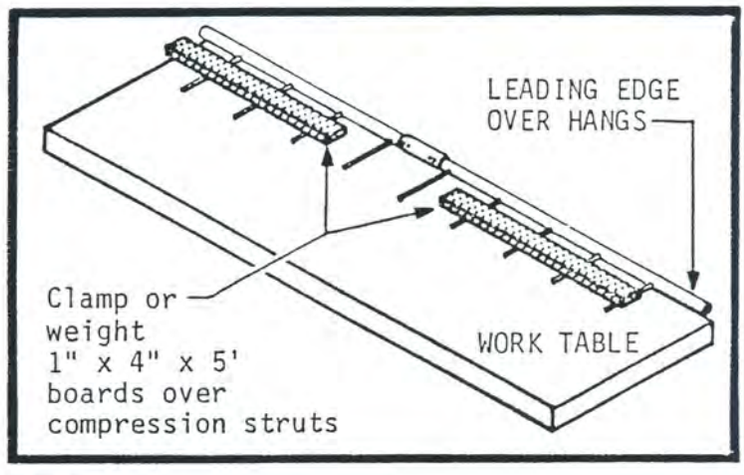
Starting at second inboard 1/2" hole, install compression strut #9 (longest) and work in graduated sequence to the shortest strut #1. Repeat assembly for other aileron.

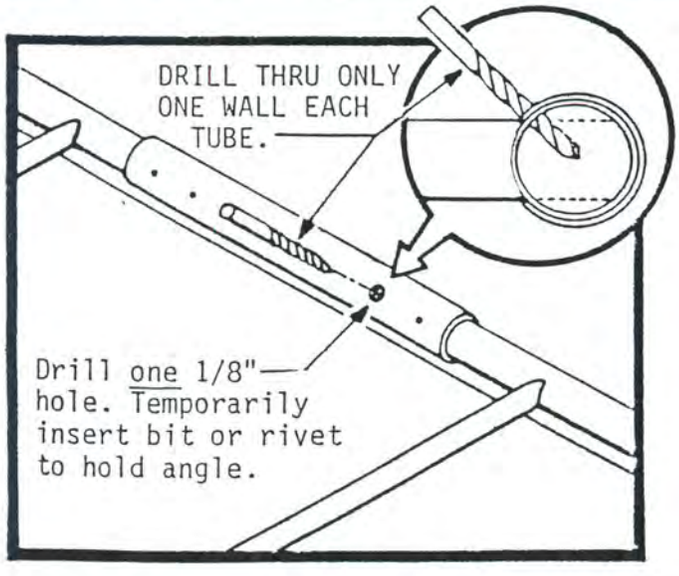
AILERON ASSEMBLY (CONT'D.)

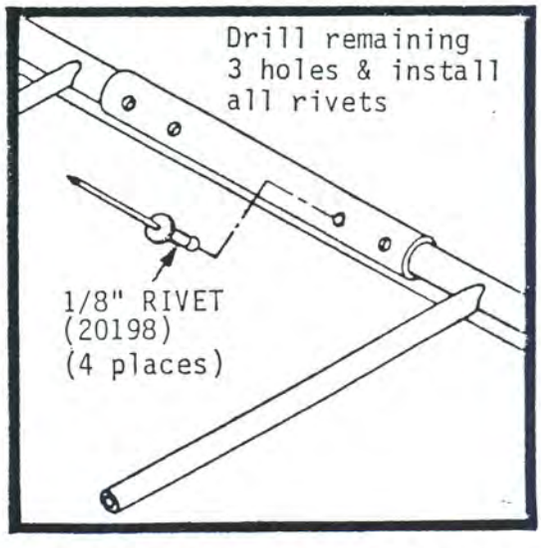
LEADING EDGE ASSEMBLY







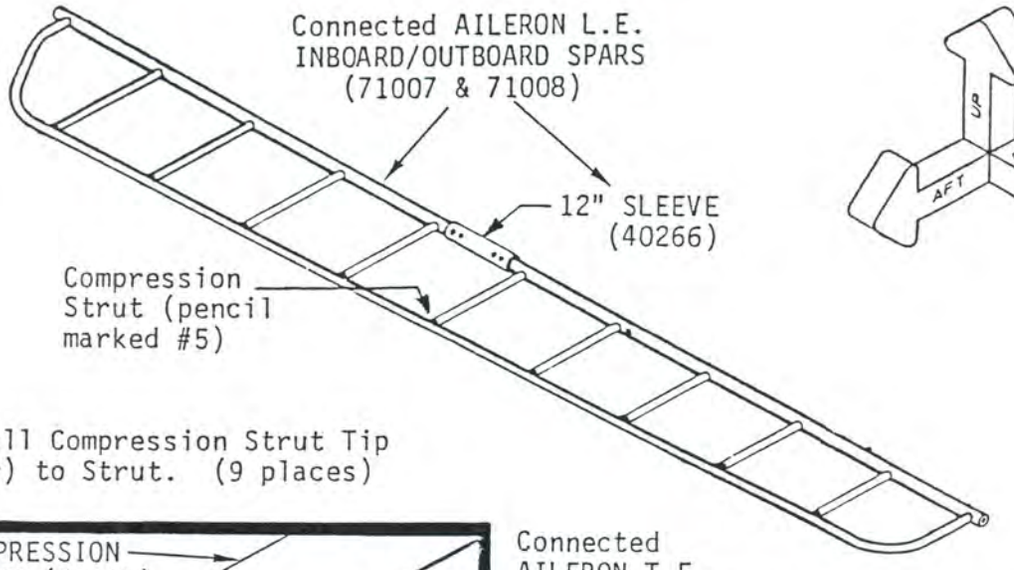




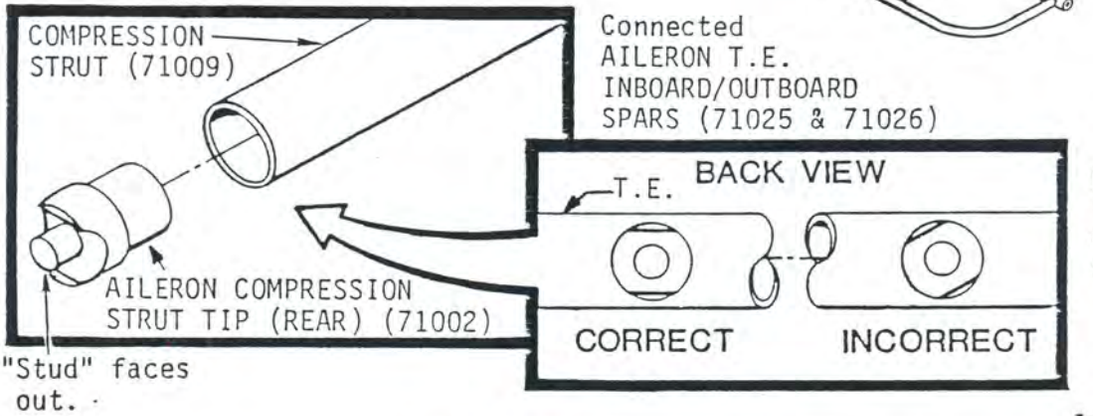
REPEAT ON OPPOSITE SIDE

AILERON ASSEMBLY (CONT'D.)

TRAILING EDGE/COMPRESSION STRUT ASSY.



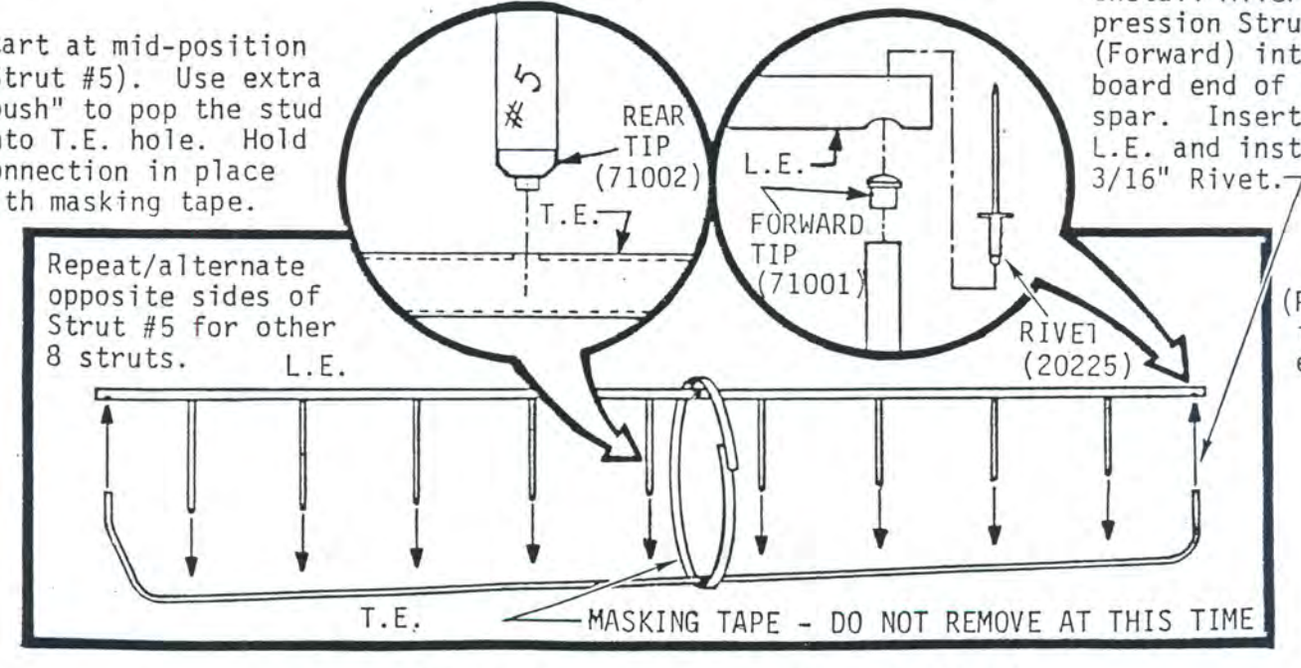
Install Compression Strut Tip (Rear) to Strut. (9 places)



Check against "twist" or misalignment of tip to T.E. spar.

"Stud" faces out.

Start at mid-position (Strut #5). Use extra "push" to pop the stud into T.E. hole. Hold connection in place with masking tape.



Install Aileron Compression Strut Tip (Forward) into outboard end of T.E. spar. Insert into L.E. and install 3/16" Rivet.

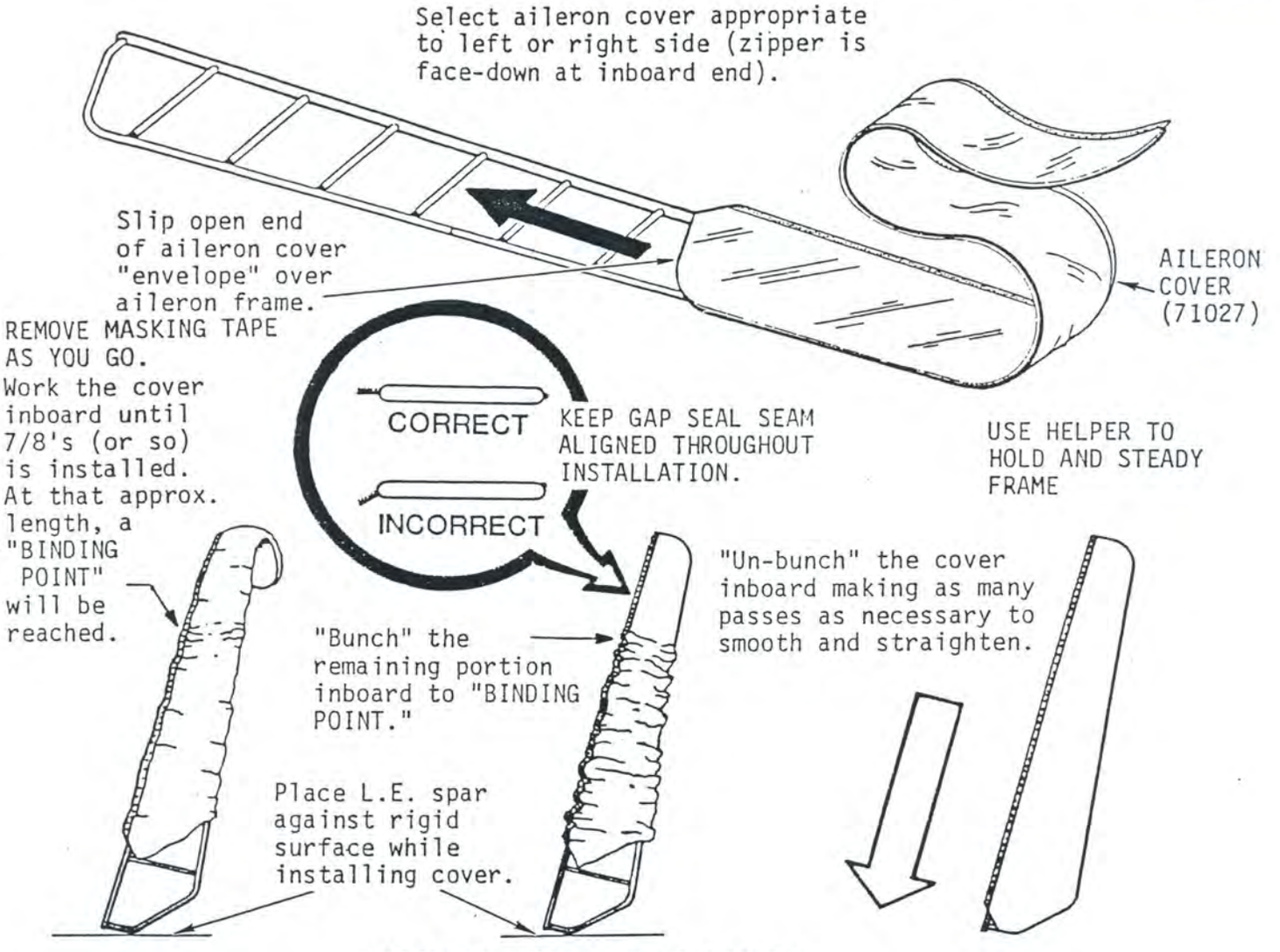
(Repeat inboard end)

REPEAT ON OPPOSITE SIDE AILERON

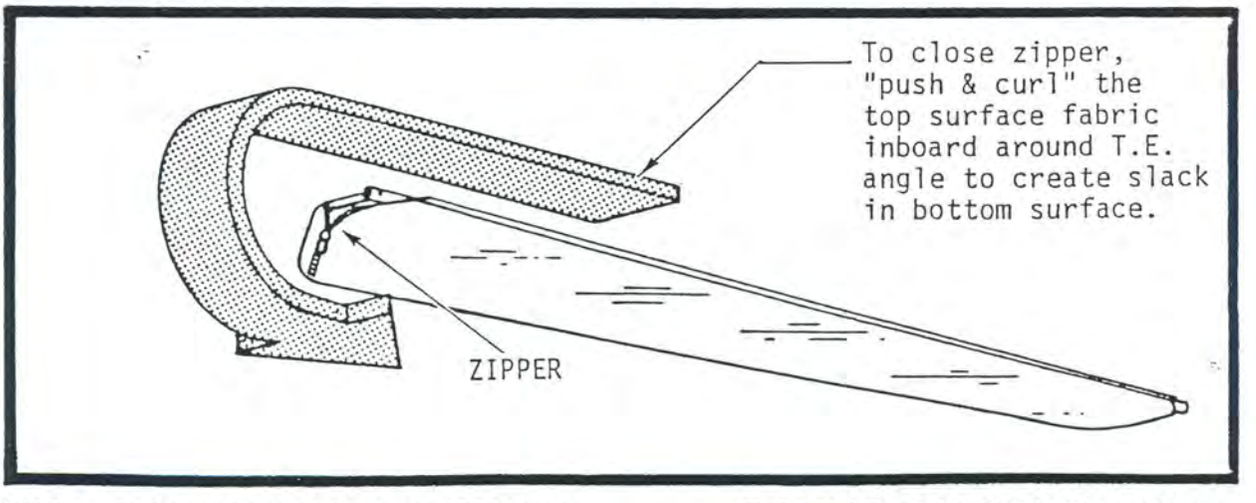
AILERON ASSEMBLY (CONT'D.)

AILERON COVER ATTACHMENT

NOTE: THE APPLICATION OF A SILICONE SPRAY TO THE AILERON FRAME WILL MAKE SLIDING THE COVER ON MUCH EASIER.



INSTALLATION SEQUENCE



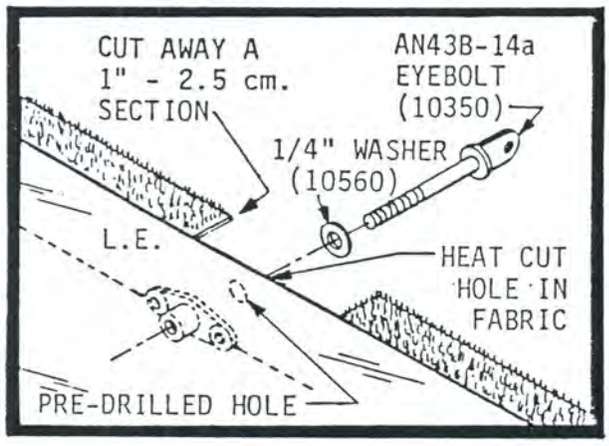
(NOTE: FRAME NOT PERFECTLY STRAIGHT UNTIL ATTACHED TO WING.)

REPEAT ON OTHER SIDE

AILERON COVER (L) (71028) not shown.

AILERON ASSEMBLY (CONT'D.)
AILERON EYEBOLT & HORN ATTACHMENT

(3 PLACES EACH L.E.)



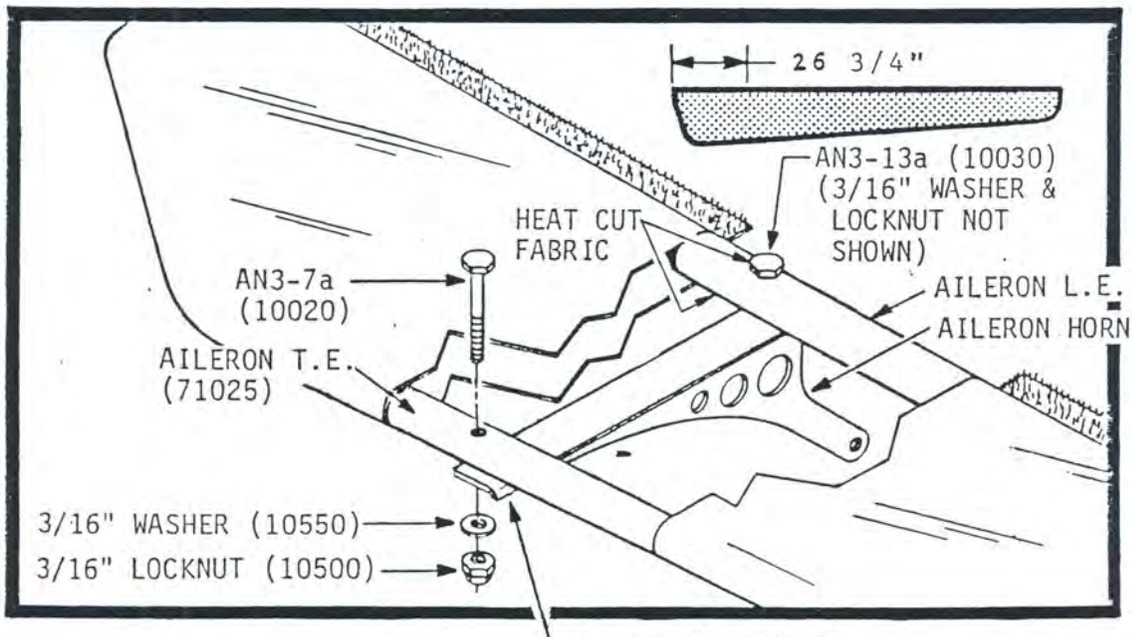
Locate the 3 hinge-attached holes under fabric on Aileron L.E.

Distances from L.E. Outboard spar end are: 2¼" - 5.7 cm., 51-3/8"- 129.2 cm., and 119-3/8" - 303.2 cm.

Cut away 1" wide - 2.5 cm. section in front of each hole position. Heat cut fabric in front of hole and install washer and eyebolt.

NOTE: Make sure eyebolts are secured vertically for later attachment to wing T.E. forkbolts.

Measure from L.E. Inboard end (SHADED DRAWING DISTANCE) to locate pre-drilled hole through L.E. spar underneath cover fabric. HEAT CUT hole for bolt insertion through both surfaces.



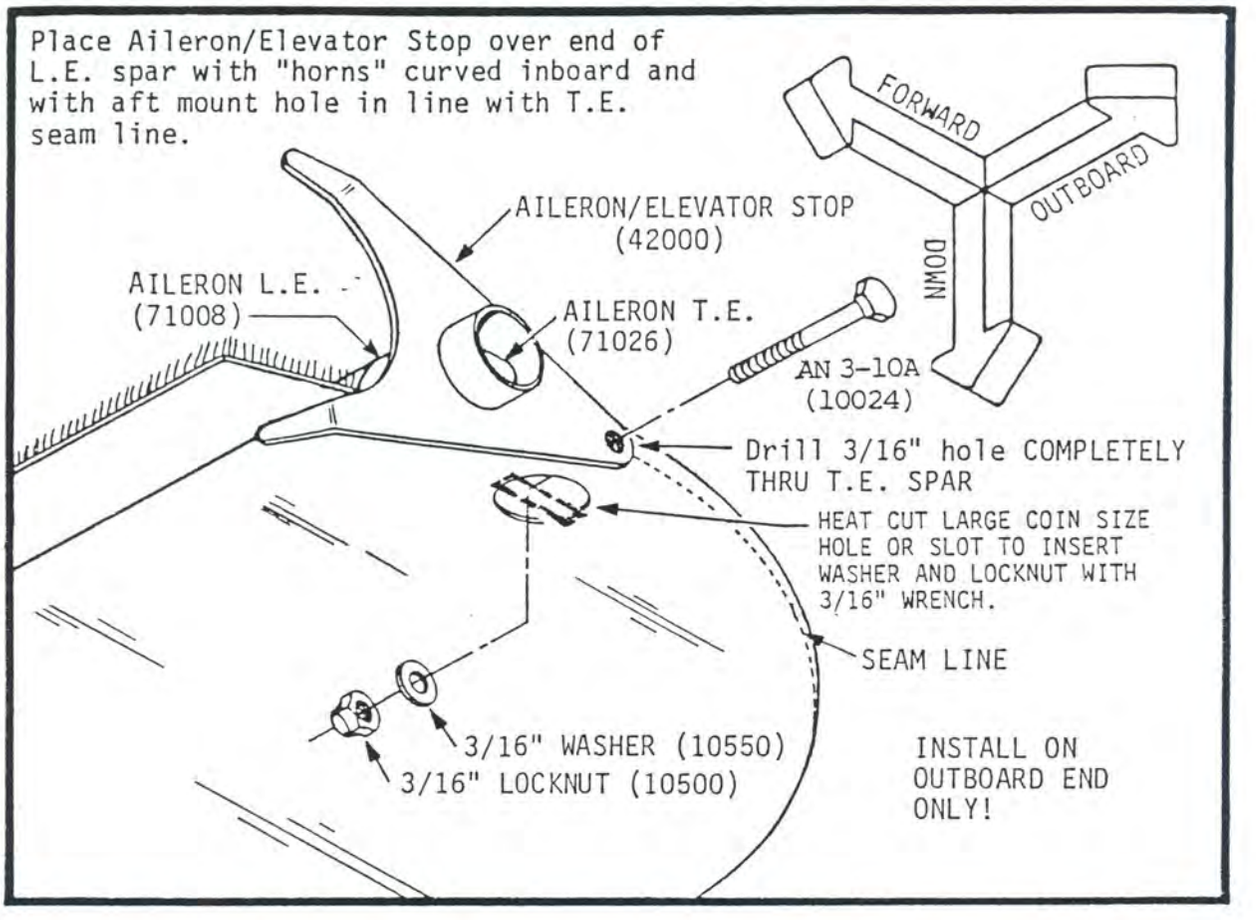
Swing aft end of Aileron Horn perpendicular to T.E. spar, then...

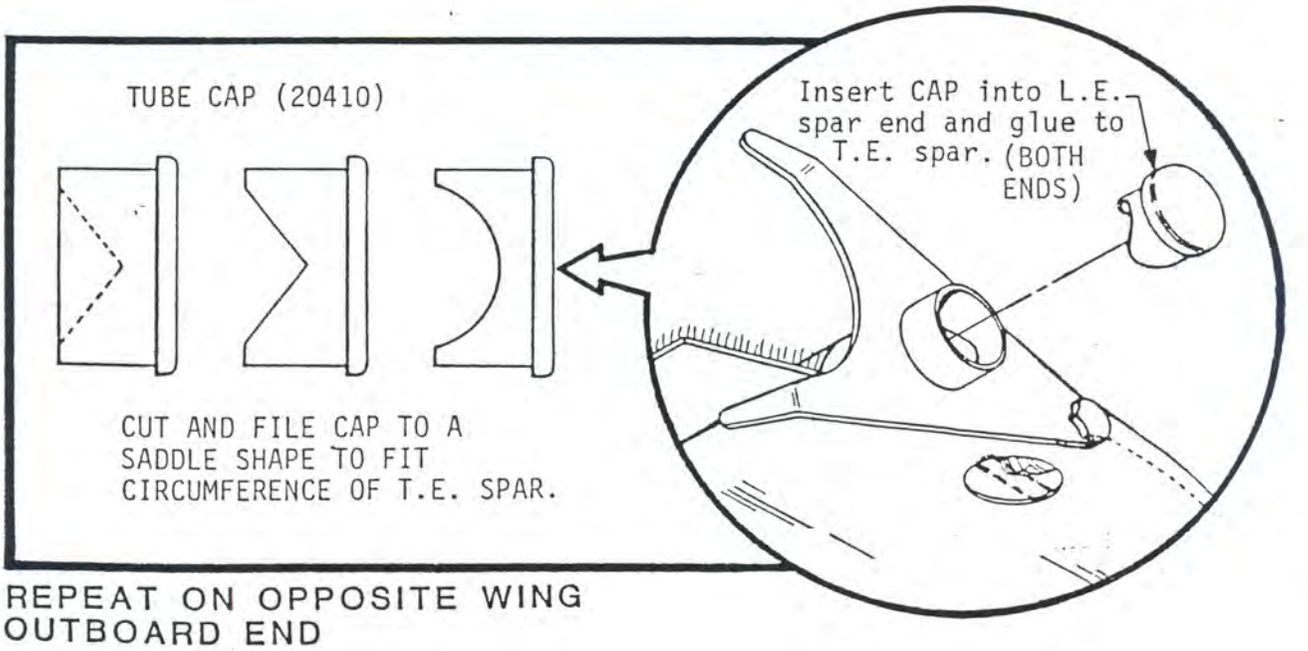
drill 3/16" hole through horn and Aileron T.E. Center

NOTE: ATTACH HORN TO SAME SURFACE AS ZIPPER.

REPEAT ON OPPOSITE SIDE

AILERON ASSEMBLY (CONT'D.)
AILERON STOP/TUBE CAP ATTACHMENT



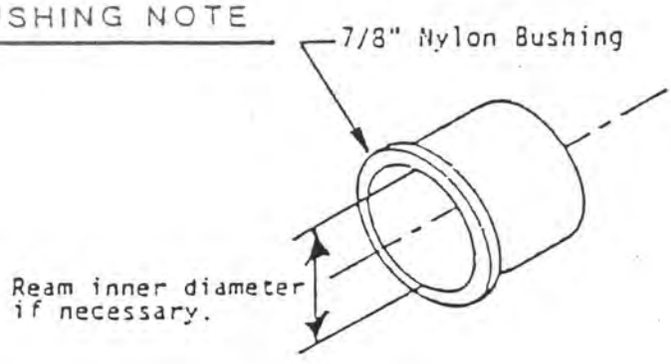


REPEAT ON OPPOSITE WING OUTBOARD END

SECTION 6
TRIKE SUB-ASSEMBLIES

GENERAL NOTES FOR TRIKE AND TRIKE SUB-ASSEMBLIES.....6-2
TRIKE GENERAL ARRANGEMENT.....6-3
WHEEL / TIRE ASSEMBLY / ATTACHMENT.....6-4
NOSE GEAR ASSEMBLY.....6-5
FOOT PEDAL AND NOSE BRAKE ASSEMBLY / ATTACHMENT.....6-6
RUDDER PEDAL STOP ASSEMBLY 6-7
LANDING GEAR ASSEMBLY.....6-9
TRI-BAR ASSEMBLY / ATTACHMENT.....6-10
LANDING GEAR / AXLE STRUT ATTACHMENT.....6-11
NOSE GEAR ATTACHMENT.....6-12
LOWER ROOT TUBE WIRE (AFT) ATTACHMENT.....6-13
FUEL TANK ASSEMBLY / ATTACHMENT.....6-14
AFT RUDDER CABLE PULLEY ASSEMBLY / ATTACHMENT.....6-15

NYLON BUSHING NOTE



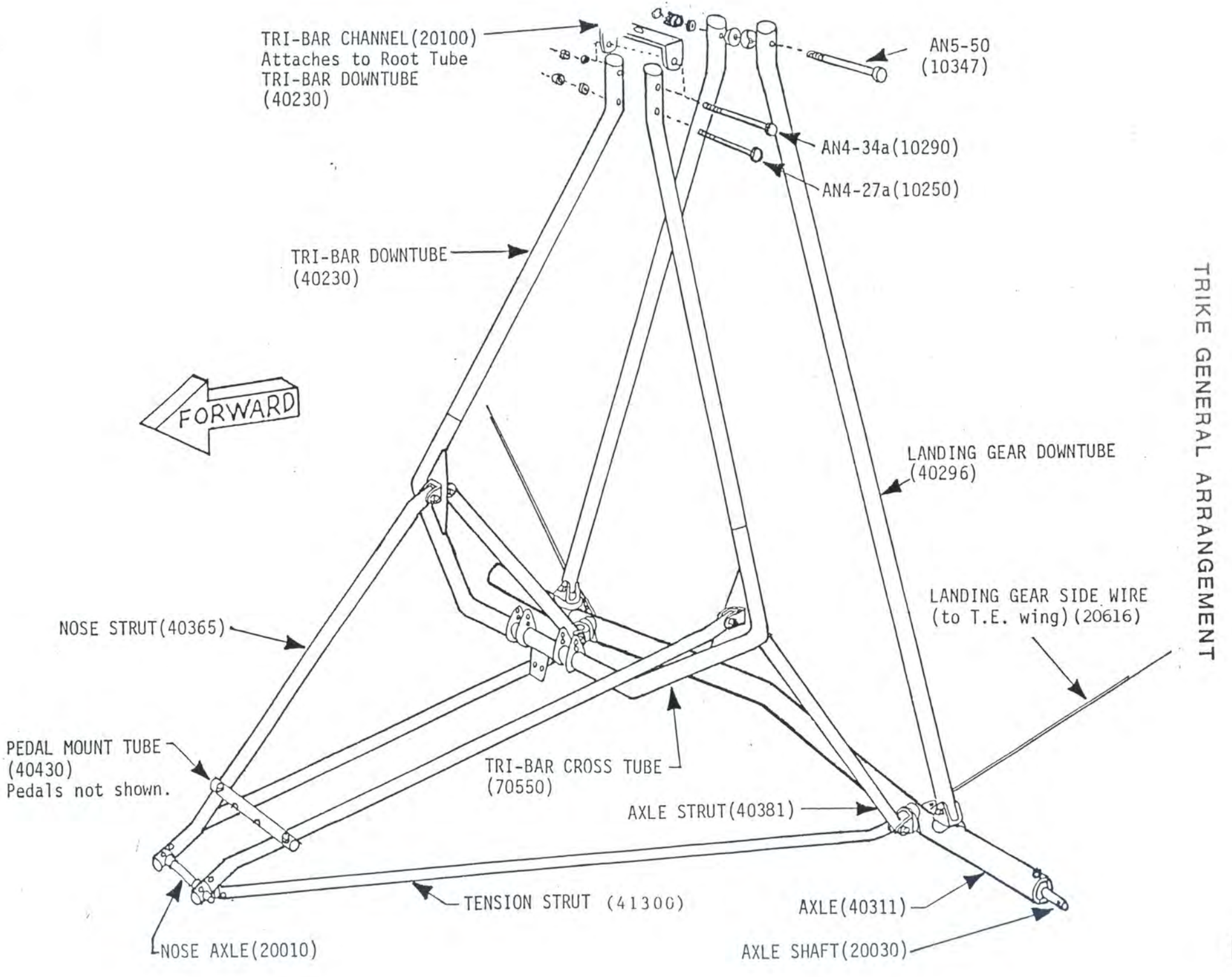
The NYLON BUSHINGS may need some reaming out to rotate freely on the PEDALS, and STICK ATTACH TUBE,
After the bushings have been put in there respective places, see if rotation is easy. If this is not the case then REAM out inner diameter with rat tail file or 3/4"dia. wood dowel with sand paper wrapped around it until bushings move freely.

When mounting pedals onto pedal mount tube, DO NOT bolt into place until NYLON BUSHINGS rotate freely on tube.

TRIKE SUB-ASSEMBLIES

IN THE FOLLOWING SECTION YOU WILL BE SUB-ASSEMBLING COMPONENTS FOR THE TRIKE ASSY.

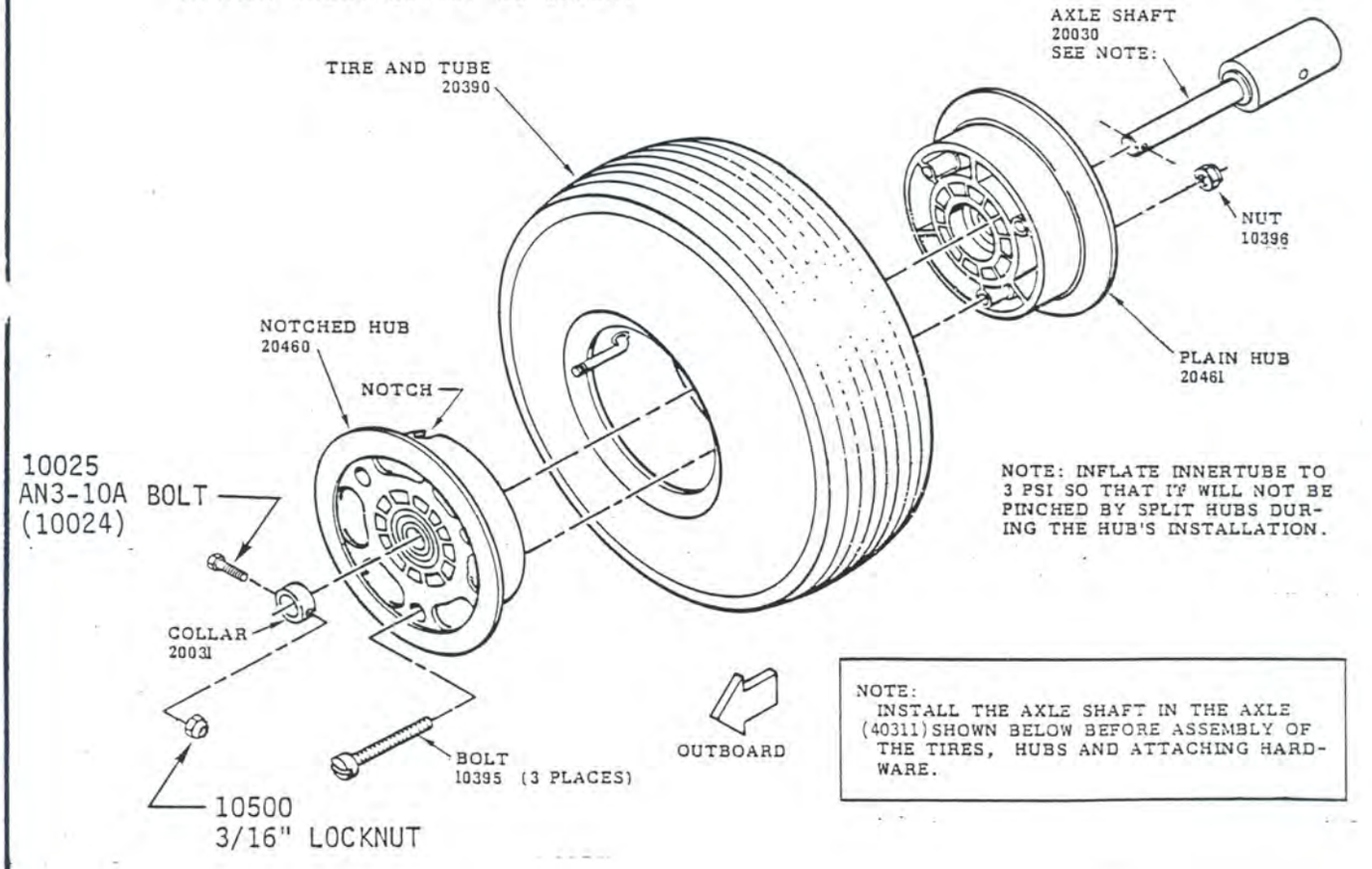
1. Refer to the "Trike Arrangement" Drawing for an overall view.
2. Sub-assemble main wheels/tires and nose wheel/tire.
3. Sub-assemble the main axle adding all saddles, channels, wires, tangs, axle stubs, etc. as called out.
4. Sub-assemble nose forks/nose wheel. Add tension struts and completed rudder pedal assy.
5. Sub-assemble tri-bar adding nose wire & necessary hardware.
6. Attach channels, hardware, and wires to root tube as shown.


TRI-BAR CHANNEL(20100)
Attaches to Root Tube
TRI-BAR DOWNTUBE
(40230)
AN5-50
(10347)
AN4-34a(10290)
AN4-27a(10250)
TRI-BAR DOWNTUBE
(40230)
FORWARD
LANDING GEAR DOWNTUBE
(40296)
LANDING GEAR SIDE WIRE
(to T.E. wing)(20616)
NOSE STRUT(40365)
PEDAL MOUNT TUBE
(40430)
Pedals not shown.
TRI-BAR CROSS TUBE
(70550)
AXLE STRUT(40381)
TENSION STRUT (41300)
AXLE(40311)
NOSE AXLE(20010)
AXLE SHAFT(20030)

WHEEL / TIRE ASSEMBLY ATTACHMENT

Take the two wheel halves and insert into tire then assemble as shown. Remember that the notched half for the air valve stem goes outboard when putting the tires onto the axle.

ATTACH wheel collar as shown.

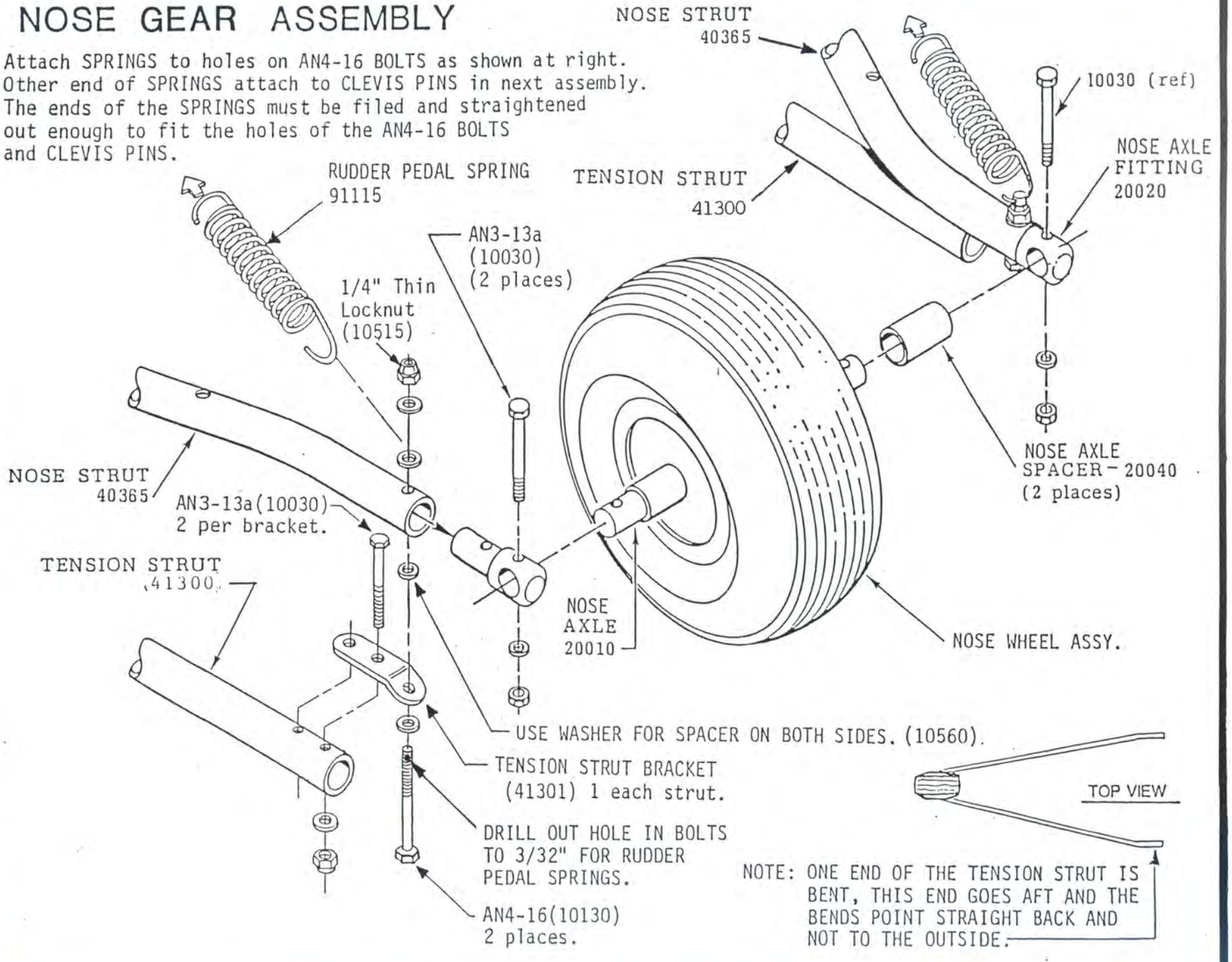


NOTE: INFLATE INNERTUBE TO 3 PSI SO THAT IT WILL NOT BE PINCHED BY SPLIT HUBS DURING THE HUB'S INSTALLATION.

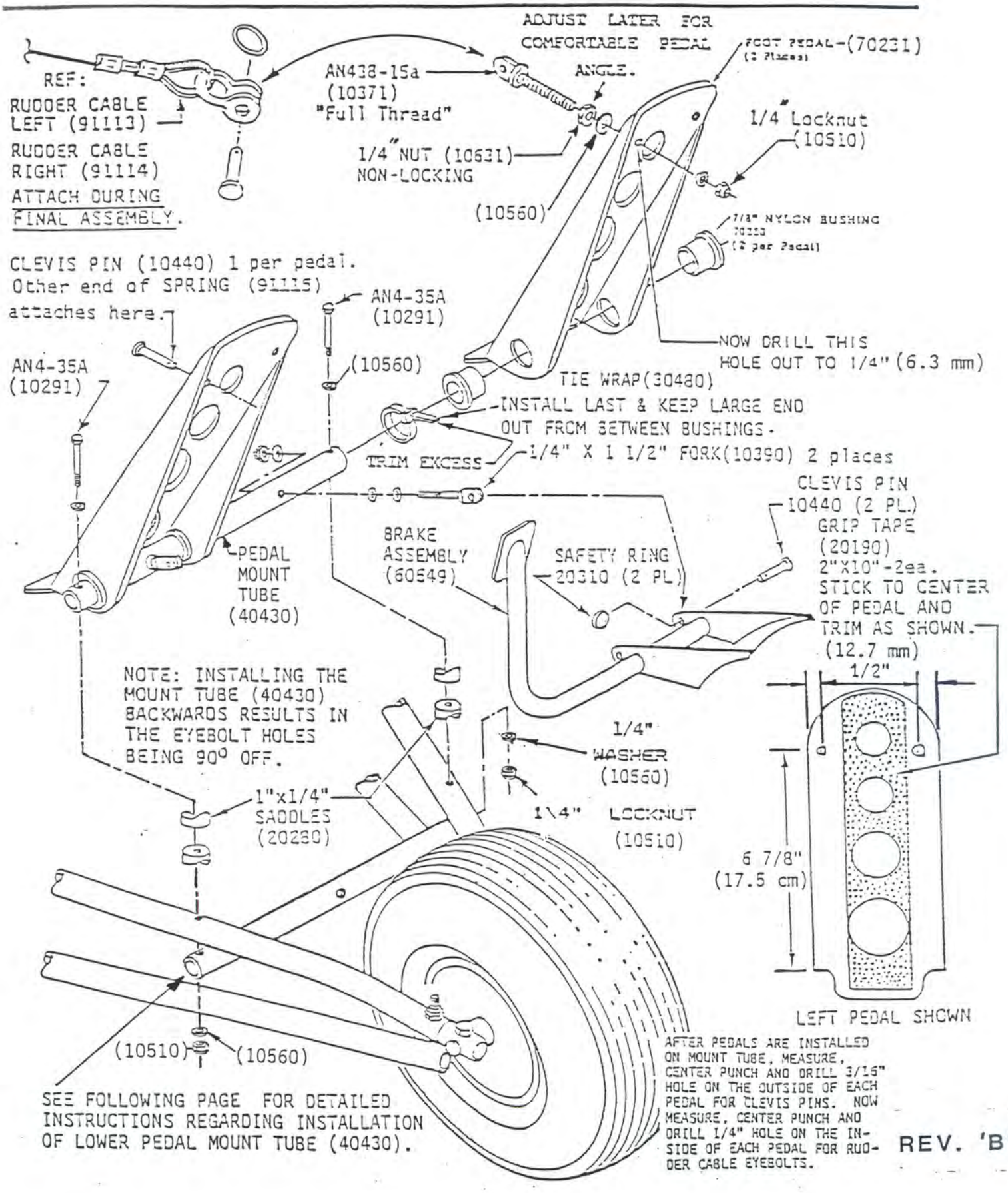
NOTE:
INSTALL THE AXLE SHAFT IN THE AXLE (40311) SHOWN BELOW BEFORE ASSEMBLY OF THE TIRES, HUBS AND ATTACHING HARDWARE.

NOSE GEAR ASSEMBLY

Attach SPRINGS to holes on AN4-16 BOLTS as shown at right. Other end of SPRINGS attach to CLEVIS PINS in next assembly. The ends of the SPRINGS must be filed and straightened out enough to fit the holes of the AN4-16 BOLTS and CLEVIS PINS.



FOOT PEDAL & NOSE BRAKE ASSY./ ATTACHMENT



SEE FOLLOWING PAGE FOR DETAILED INSTRUCTIONS REGARDING INSTALLATION OF LOWER PEDAL MOUNT TUBE (40430).

REV. 'B'

RUDDER PEDAL STOP ASSEMBLY

1. ASSEMBLE PEDAL MOUNT TUBE (3A) AS SHOWN ON PREVIOUS PAGE WITH RUDDER PEDALS AND TIE WRAP. (PEDALS AND TIE WRAP NOT SHOWN FOR CLARITY). SEE ILLUSTRATION FOR CORRECT HOLE ORIENTATION.

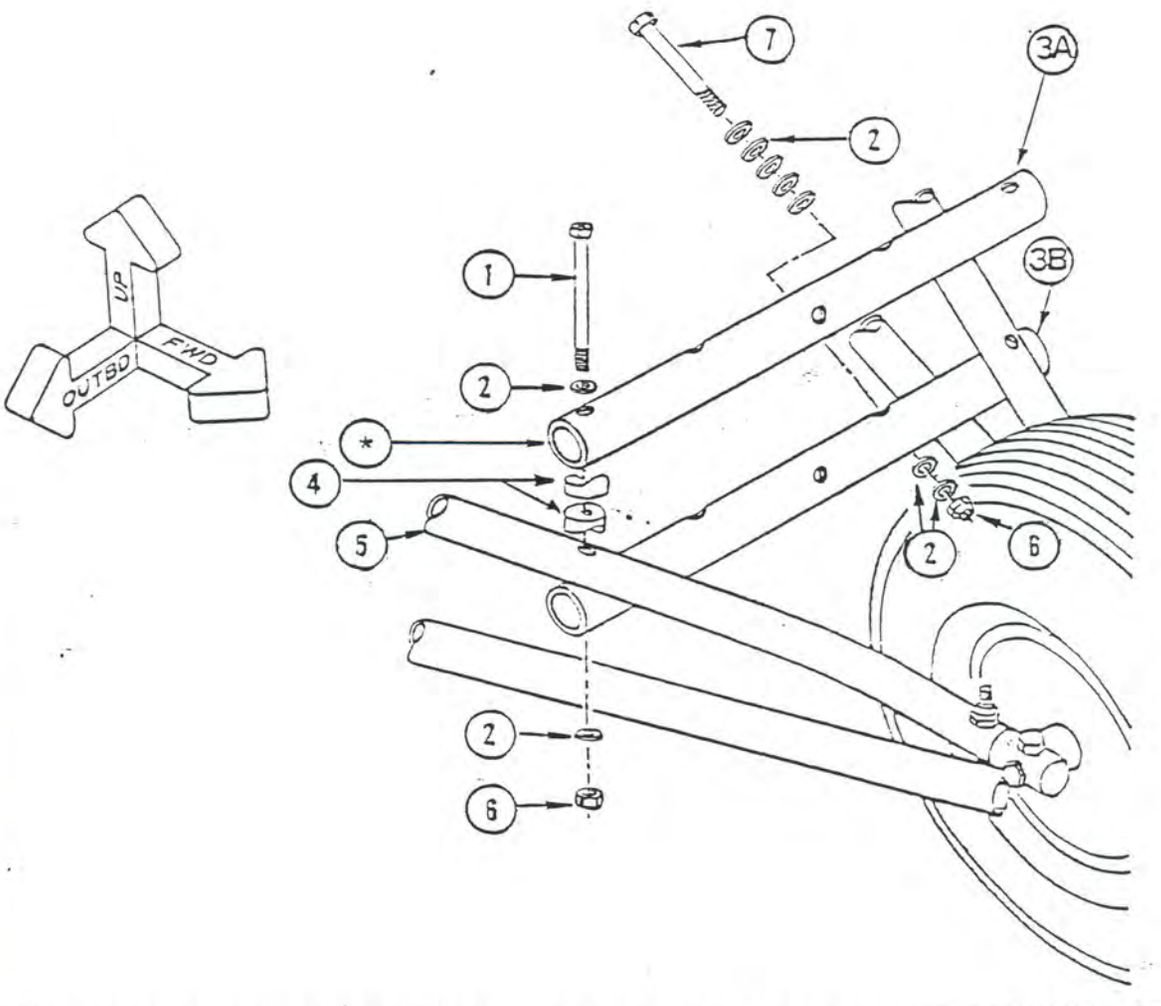
2. PASS BOLT (1) THRU WASHER (2),CONTINUE THRU PEDAL MOUNT TUBE (3A), SADDLES (4), NOSE STRUT (5), PEDAL MOUNT TUBE (3B), AND WASHER (2). SECURE WITH LOCKNUT (6).

3. PASS BOLT (7) THRU 5 WASHERS (2). CONTINUE BOLT WITH WASHERS THRU APPROPRIATE HOLE IN PEDAL MOUNT TUBE (3B). ADD TWO WASHERS (2) AND LOCKNUT (6). DO NOT SECURE LOCKNUT. THIS IS TO BE DONE DURING FINAL ASSEMBLY. REPEAT FOR OTHER SIDE OF PEDAL MOUNT TUBE (3B).

4. AFTER FINAL ASSEMBLY AND RUDDER CABLES ARE ATTACHED, CHECK TO SEE THAT THE 'HEEL' PORTION OF THE RUDDER PEDALS MAKE CONTACT WITH THE HEAD OF BOLT (7) BEFORE THE RUDDER COMES IN CONTACT WITH THE ELEVATOR. THE RUDDER SHOULD COME CLOSE TO BUT NOT TOUCH THE ELEVATOR WHEN EACH RUDDER PEDAL IS FULLY DEPRESSED ON EITHER SIDE. ADD OR SUBTRACT WASHERS (2) FROM UNDER HEAD OF BOLT (7) AS REQUIRED. WHEN ADJUSTED CORRECTLY, SECURE LOCKNUT (6). BOTH SIDES OF PEDAL MOUNT TUBE (3B).

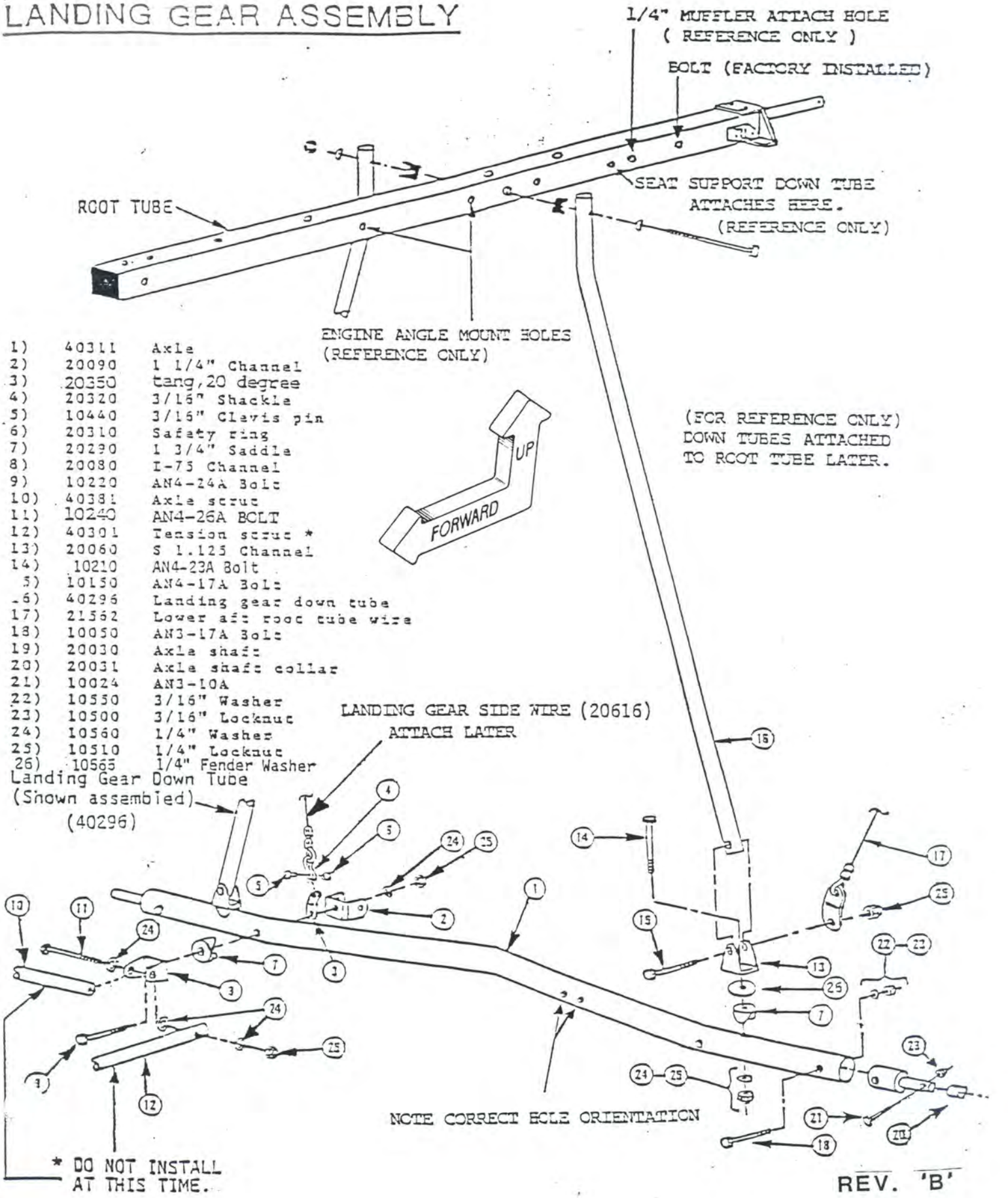
ITEM #	P/N	DESCRIPTION
1	10291	AN4-35A BOLT
2	10560	WASHER, 1/4"
3A	40430	TUBE, PEDAL MOUNT
3B	40430	TUBE, PEDAL MOUNT
4	20280	SADDLE, 1" x 1/4"
5	40365	NOSE STRUT
6	10510	LOCKNUT, 1/4"
7	10120	AN4-15A BOLT

RUDDER PEDAL STOP ASSEMBLY



* NOTE: RUDDER PEDALS AND TIE WRAP NOT SHOWN FOR CLARITY. SEE PREVIOUS PAGE.

LANDING GEAR ASSEMBLY



1)	40311	Axle
2)	20090	1 1/4" Channel
3)	20350	tang,20 degree
4)	20320	3/16" Shackle
5)	10440	3/16" Clevis pin
6)	20310	Safety ring
7)	20290	1 3/4" Saddle
8)	20080	I-75 Channel
9)	10220	AN4-24A Bolt
10)	40381	Axle strut
11)	10240	AN4-26A BOLT
12)	40301	Tension strut *
13)	20060	S 1.125 Channel
14)	10210	AN4-23A Bolt
15)	10150	AN4-17A Bolt
16)	40296	Landing gear down tube
17)	21562	Lower aft root tube wire
18)	10050	AN3-17A Bolt
19)	20030	Axle shaft
20)	20031	Axle shaft collar
21)	10024	AN3-10A
22)	10550	3/16" Washer
23)	10500	3/16" Locknut
24)	10560	1/4" Washer
25)	10510	1/4" Locknut
26)	10565	1/4" Fender Washer

REV. 'B'

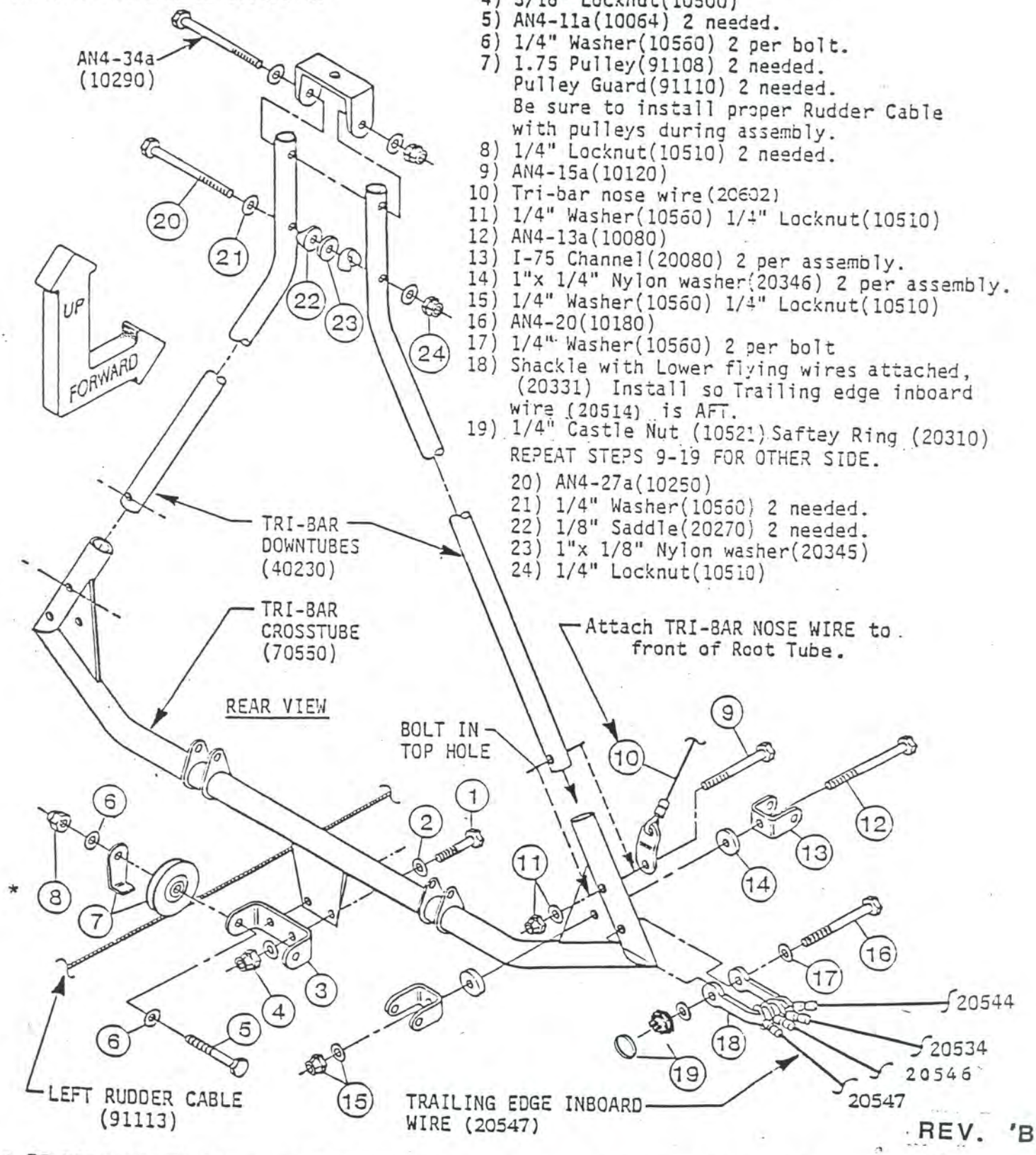
TRI-BAR ASSEMBLY/ ATTACHMENT

Install TRI-BAR to aircraft.

1) AN3-5a(10010) 2 needed.
2) 3/16" Washer(10550) 2 per bolt.
3) Rudder pulley mount(91106)
4) 3/16" Locknut(10500)
5) AN4-11a(10064) 2 needed.
6) 1/4" Washer(10560) 2 per bolt.
7) 1.75 Pulley(91108) 2 needed.
   Pulley Guard(91110) 2 needed.
   Be sure to install proper Rudder Cable with pulleys during assembly.
8) 1/4" Locknut(10510) 2 needed.
9) AN4-15a(10120)
10) Tri-bar nose wire(20602)
11) 1/4" Washer(10560) 1/4" Locknut(10510)
12) AN4-13a(10080)
13) I-75 Channel(20080) 2 per assembly.
14) 1"x 1/4" Nylon washer(20346) 2 per assembly.
15) 1/4" Washer(10560) 1/4" Locknut(10510)
16) AN4-20(10180)
17) 1/4" Washer(10560) 2 per bolt
18) Shackle with Lower flying wires attached, (20331) Install so Trailing edge inboard wire (20514) is AFT.
19) 1/4" Castle Nut (10521) Saftey Ring (20310)

REPEAT STEPS 9-19 FOR OTHER SIDE.

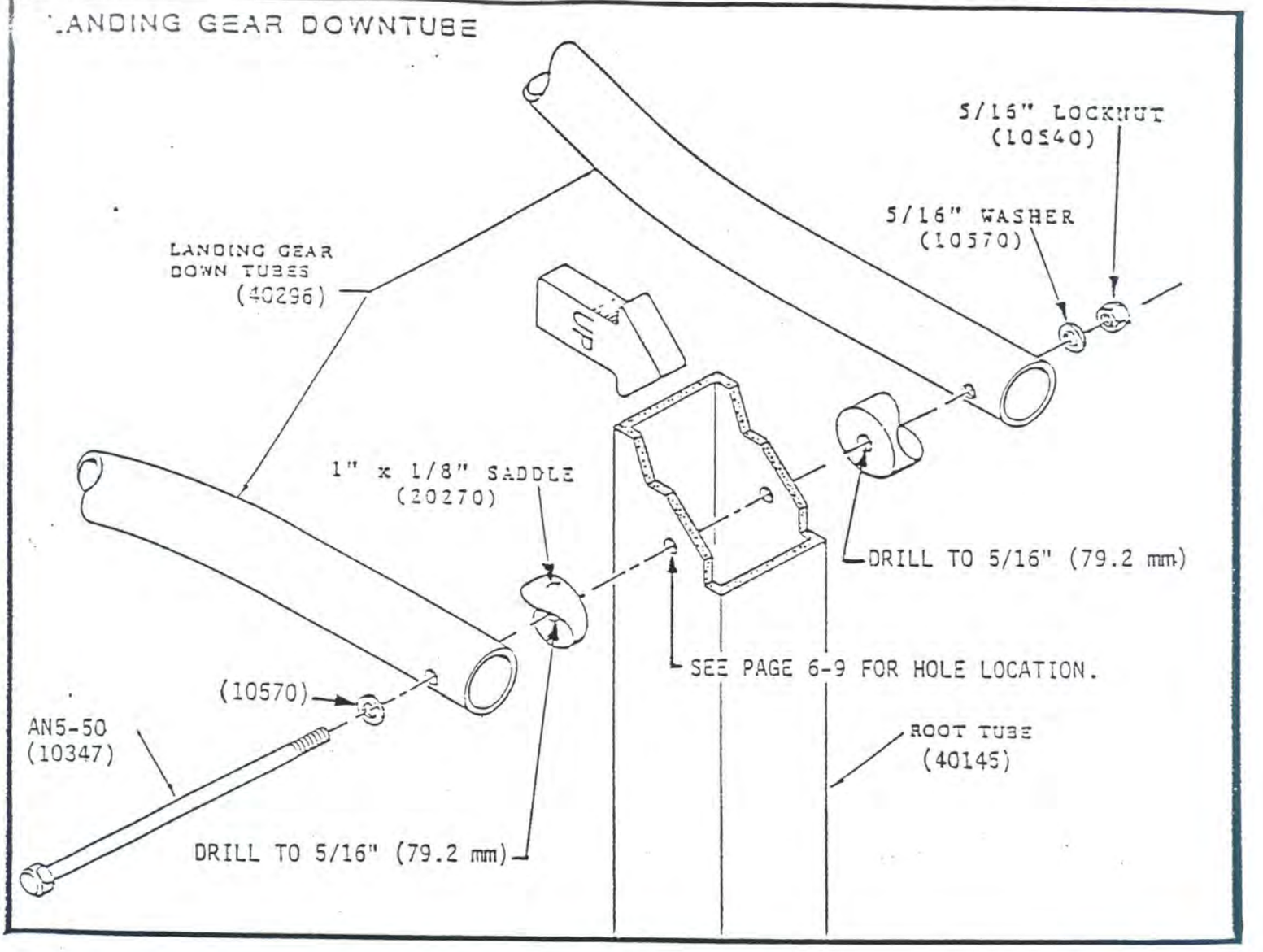
20) AN4-27a(10250)
21) 1/4" Washer(10560) 2 needed.
22) 1/8" Saddle(20270) 2 needed.
23) 1"x 1/8" Nylon washer(20345)
24) 1/4" Locknut(10510)



REV. 'B'

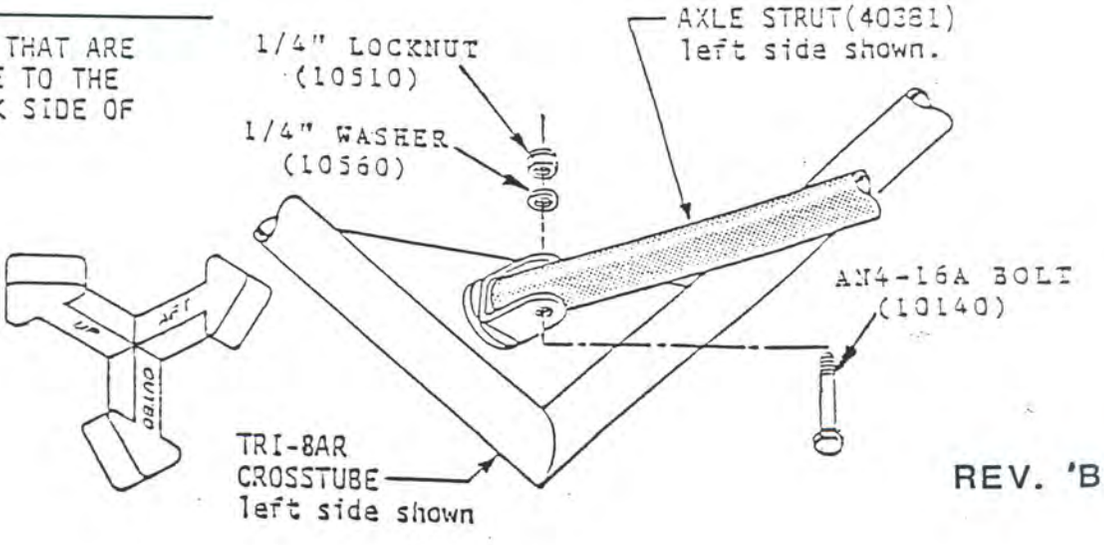
* DO NOT TIGHTEN (8) UNTIL CABLE IS LOCATED PROPERLY BETWEEN PULLEY AND PULLEY GUARD.

LANDING GEAR / AXLE STRUT ATTACHMENT



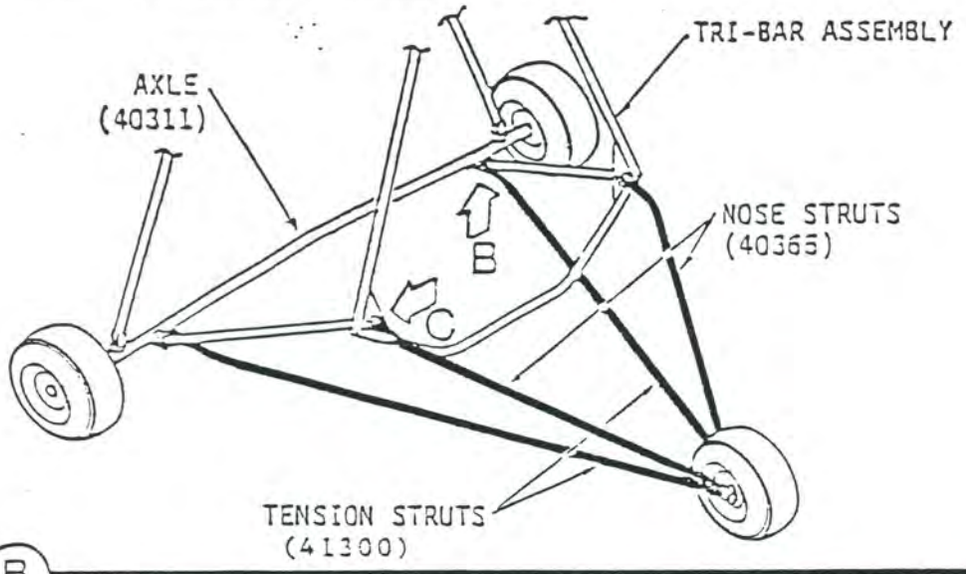
AXLE STRUT

INSTALL BOTH AXLE STRUTS THAT ARE ATTACHED TO THE MAIN AXLE TO THE I-75 CHANNELS ON THE BACK SIDE OF THE TRI-BAR CROSSTUBE.

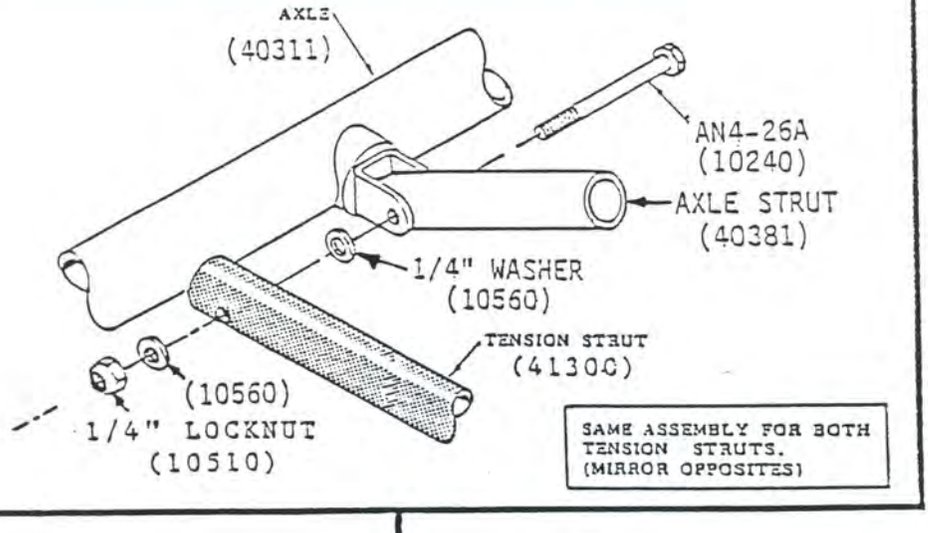


REV. 'B'

NOSE GEAR ATTACH.

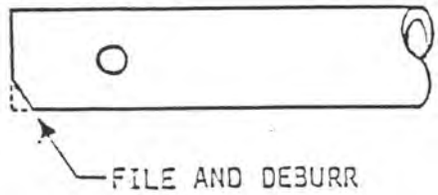


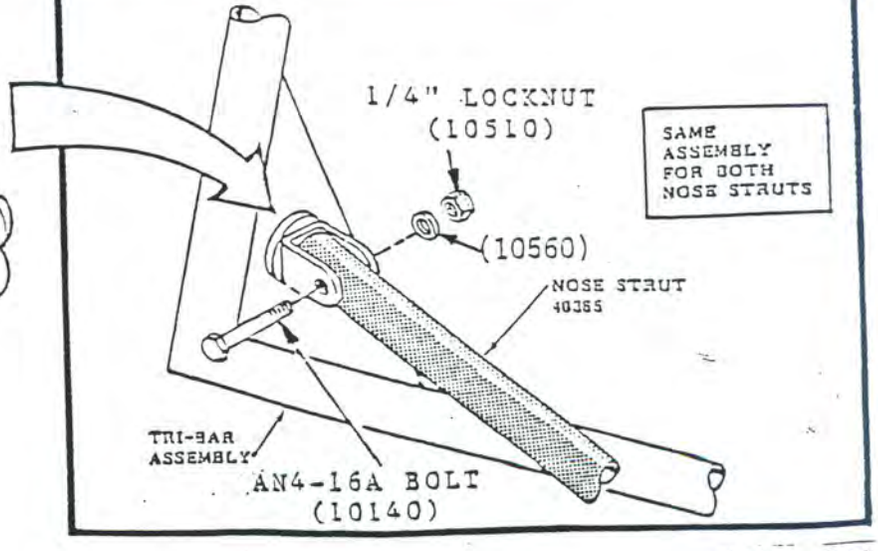
B



C

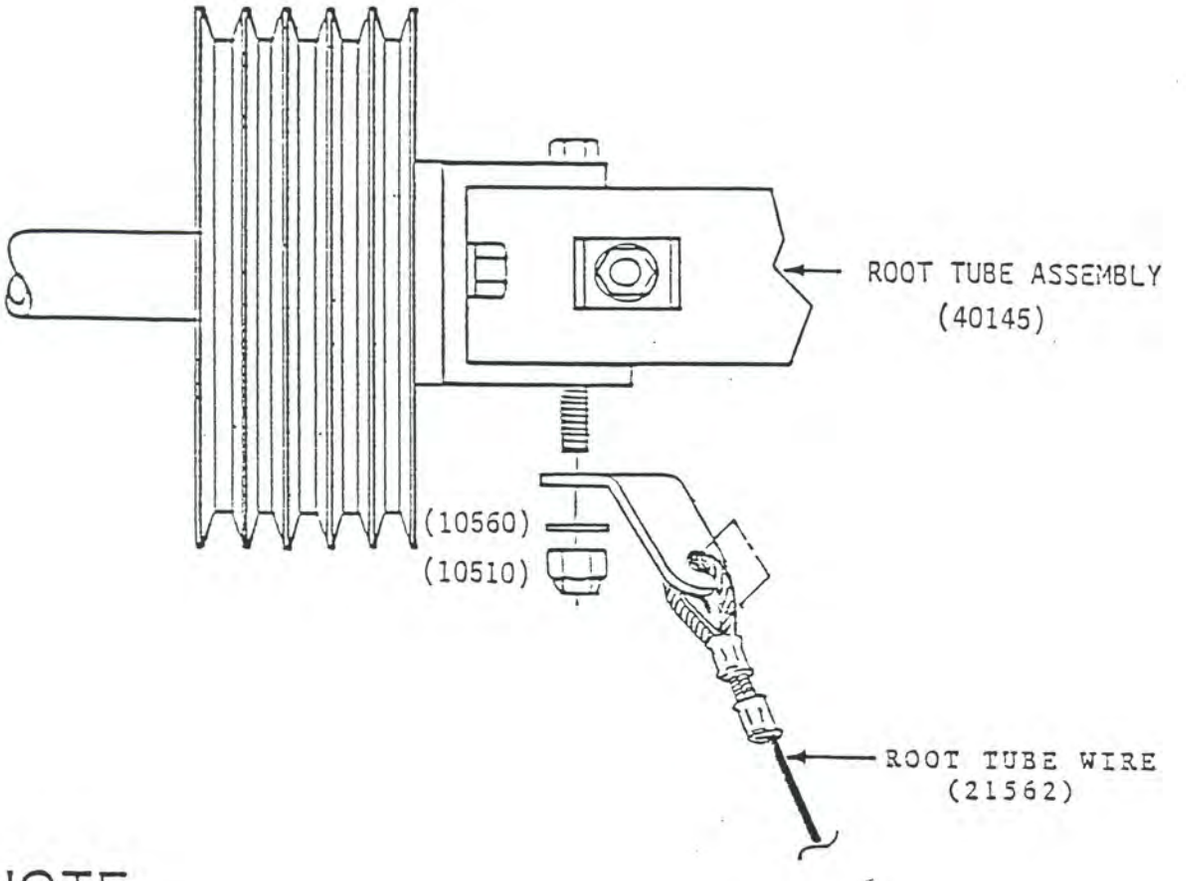
File down and DEBURR both NOSE STRUTS as shown so they may clear the channel bolt heads.





REV. 'B'

ROOT TUBE WIRE/ LOWER NOSE WIRE ATTACHMENT

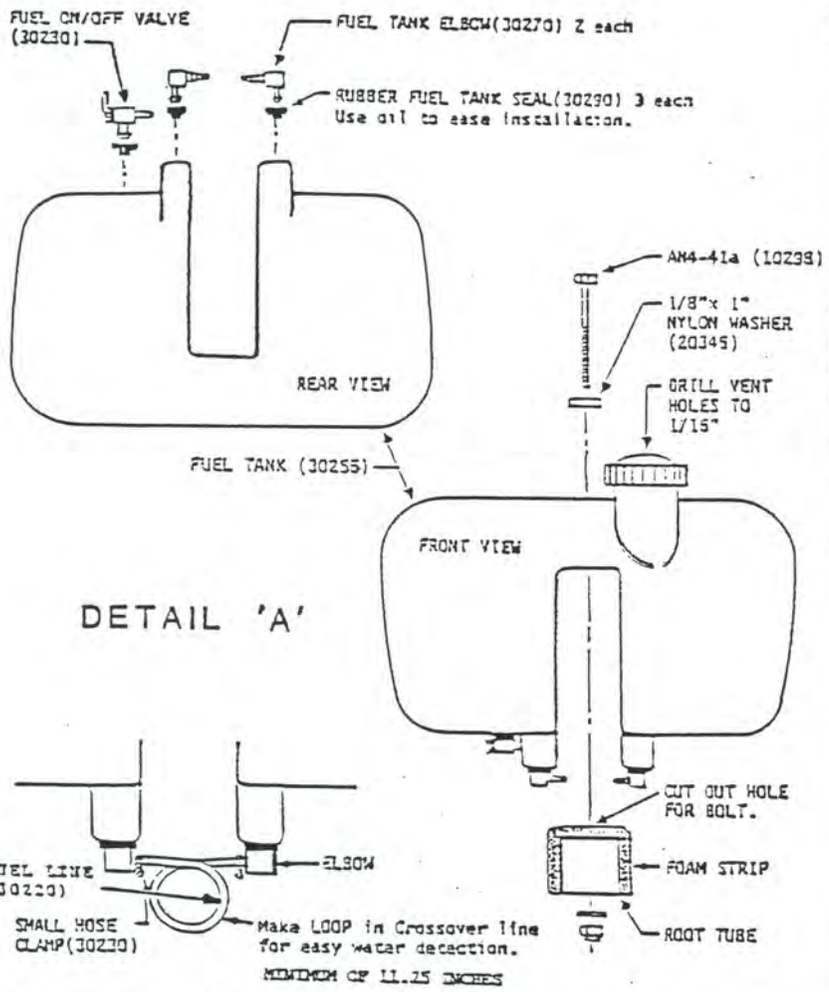


NOTE

THESE WIRES ALLOW YOU TO REMOVE THE WINGS AND LEAVE THE LANDING GEAR IN THE "TRIKE" FORM. TO AID IN INSTALLING THE ROOT TUBE WIRES DISCONNECT THE LOWER NOSE WIRE FROM ROOT TUBE.REINSTALL AFTER COMPLETING THE ABOVE PROCESS.

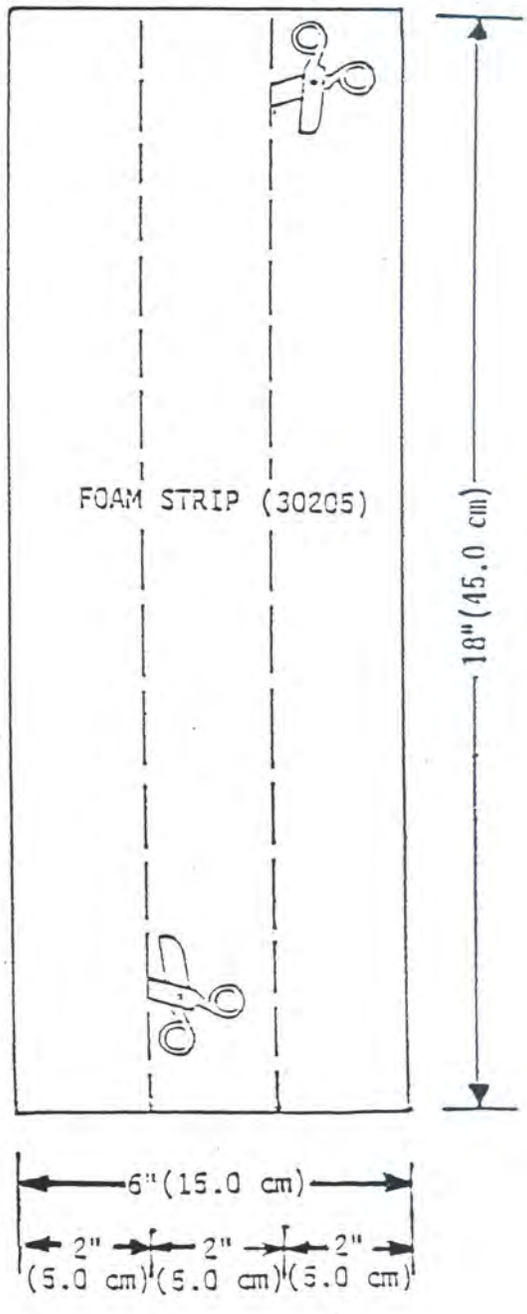
FUEL TANK ASSEMBLY / ATTACHMENT

Install fuel fittings as shown below.



1. REMOVE ANY FOREIGN MATERIAL (PLASTIC SHAVINGS,ETC.) FROM FUEL TANK (30255).
2. INSTALL FUEL TANK SEALS (30290) WITH SOAP TO EASE INSTALLATION.
3. INSTALL FUEL TANK ELBOWS (30270) AND ON/OFF VALVE(30220)INTO SEALS.HIT WITH A BLOCK OF WOOD IF NECESSARY. MAKE SURE ELBOWS AND VALVE ARE CORRECTLY SEATED.
4. TURN ELBOWS FORWARD OR AFT.
5. SEE BELOW FOR DETAIL 'B'.
6. ATTACH FUEL CROSSOVER LINE AND SECURE WITH CLAMPS (30230).

DETAIL 'B'



1. CUT FOAM STRIP (30205) AS SHOWN IN DETAIL 'B'.
2. POSITION FOAM PIECES ON ROOT TUBE ASSEMBLY (40145) WHERE FUEL TANK MAKES CONTACT WITH THE ROOT TUBE. TRIM FOAM AS NECESSARY AT EITHER END OF THE FUEL TANK (30255).(HOLE LOCATION IS 13 1/4" AFT OF END.
3. APPLY ADHESIVE (60592) TO ONE SIDE OF THE FOAM. POSITION AND ATTACH TO THE ROOT TUBE.
4. ALLOW GLUE TO DRY.
5. ATTACH FUEL TANK WITH HARDWARE (10298,20345,10560, 10510) AS SHOWN.

REV. 'B'

AFT RUDDER CABLE PULLEY ASSEMBLY

1. PASS BOLT (1) THRU CHANNEL (2),(NOTE: ANGLED EDGE OF CHANNEL FACES FORWARD), AXLE (3) AND WASHER (4). SECURE WITH LOCKNUT (5). SEE DETAIL 'A'.

2. REPEAT STEP 1. FOR OTHER 3/16" (4.8 mm) HOLE IN CHANNEL.

3. PASS BOLT (6) THRU WASHER (7) AND PULLEY GUARD (8). POSITION RUDDER CABLE (9) INTO GROOVE OF PULLEY (10). CONTINUE BOLT (6) THRU PULLEY (10), FENDER WASHER (11), 1/8 " NYLON WASHER (12) AND 1/4" NYLON WASHER (13). PASS BOLT (6) THRU 1/4" (6.4 mm) HOLE IN CHANNEL (2), ADD WASHER (7) AND SECURE WITH LOCKNUT (14). TIGHTEN TO PROPER TORQUE.

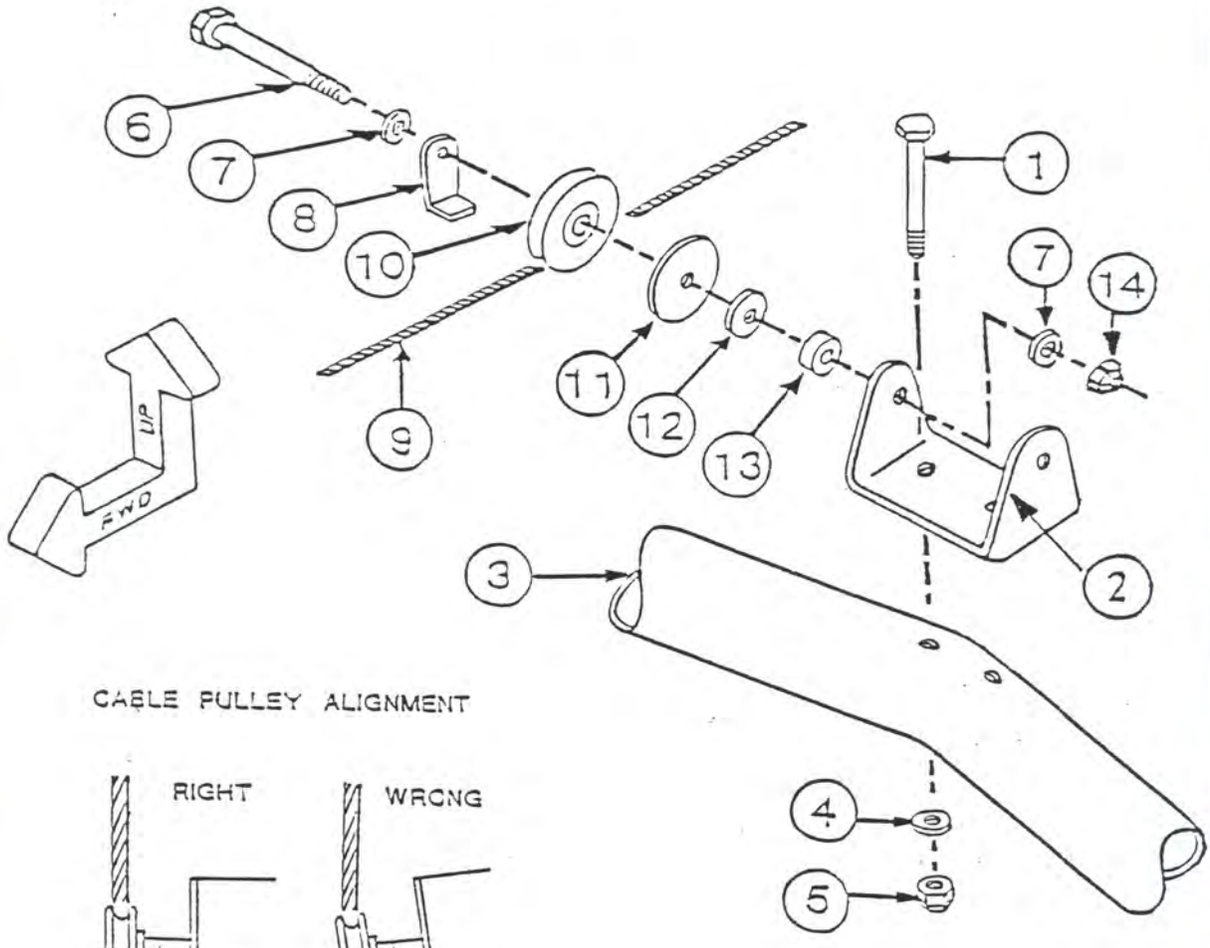
4. REPEAT STEP 3. FOR OTHER 1/4" (6.4 mm) HOLE IN CHANNEL. INSTALL BOLT (6) AND ITEMS 7-14 IN "MIRROR IMAGE" TO STEP 3.

ITEM	P/N	DESCRIPTION
1.	10053	AN3-20A BOLT
2.	40173	CHANNEL,PULLEY, RUDDER
3.	40311	AXLE
4.	10550	WASHER, 3/16"
5.	10500	LOCKNUT, 3/16"
6.	10100	AN4-14A BOLT
7.	10560	WASHER, 1/4"

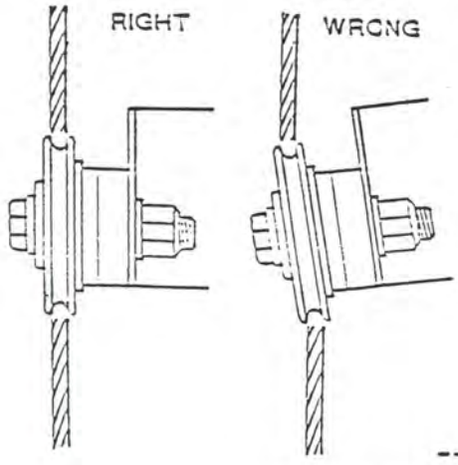
ITEM	P/N	DESCRIPTION
8.	91110	GUARD,CABLE,PULLEY
9.	91114	CABLE, RUDDER, RIGHT
	91113	CABLE, RUDDER, LEFT
10.	91108	PULLEY, 1 3/4"
11.	10565	WASHER, FENDER, 1/4"
12.	20345	WASHER, 1" x 1/8" THK, NYLON
13.	20346	WASHER, 1" x 1/4" THK, NYLON
14.	10510	LOCKNUT, 1/4"

AFT RUDDER CABLE PULLEY ASSY.(CONT.)

DETAIL 'A'



CABLE PULLEY ALIGNMENT



-----CAUTION-----

CABLE PULLEY ALIGNMENT IS CRITICAL

IF PULLEYS ARE NOT PROPERLY ALIGNED THE RUDDER CONTROL CABLES COULD BIND UP AND/OR CAUSE EXCESSIVE WEAR TO PULLEYS AND CABLES.

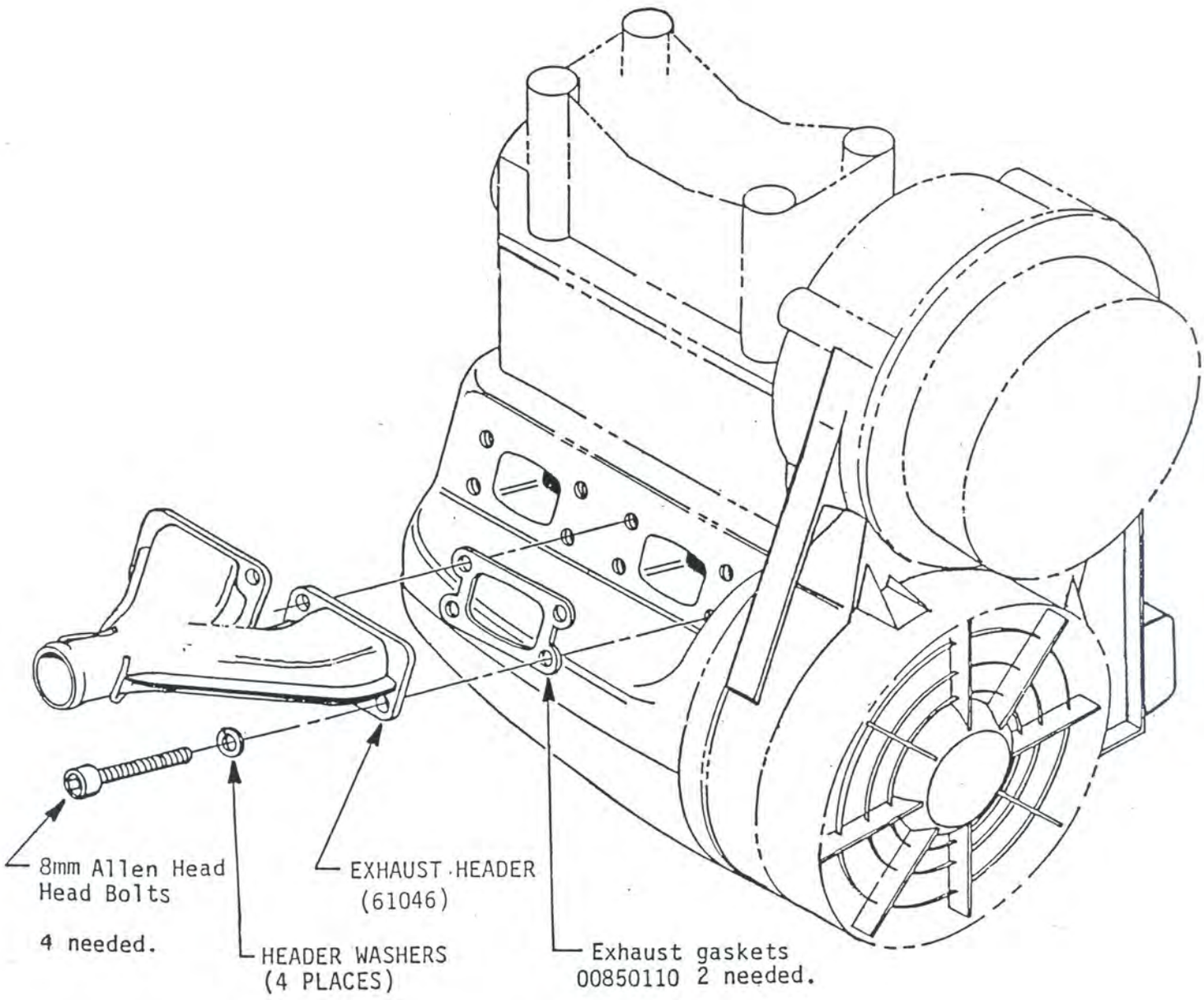
SECTION 7
ENGINE, DRIVESHAFT, AND REDUCTION ASSEMBLY

EXHAUST HEADER ATTACHMENT ---------- 7-2
FUEL SYSTEM ATTACHMENT ---------- 7-3
ENGINE MOUNT PROCEDURE ---------- 7-4
ENGINE MOUNT ASSEMBLY/ ATTACHMENT---------- 7-5
ENGINE MOUNT ANGLE ATTACHMENT ---------- 7-6
FUEL PUMP ATTACHMENT ---------- 7-7
REDUCTION DRIVE SYSTEM ATTACHMENT ---------- 7-8
REDUCTION DRIVE BELT ADJUSTMENT ---------- 7-12
MUFFLER ATTACHMENT ---------- 7-13

EXHAUST HEADER ATTACHMENT

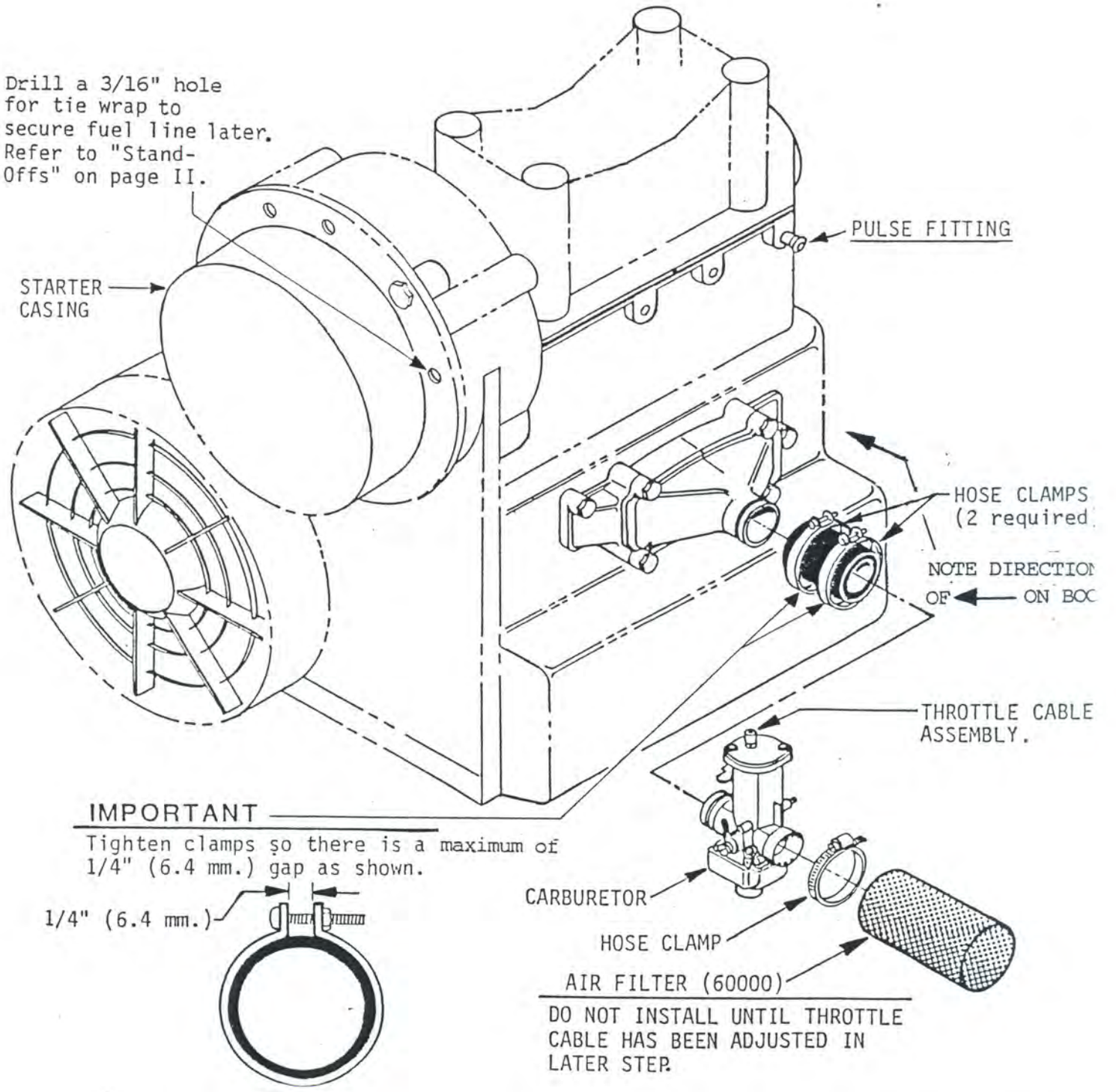
INSTALL EXHAUST HEADER AS SHOWN:

NOTE: AFTER ENGINE HAS BEEN BROKEN IN, RETIGHTEN EXHAUST HEADER BOLTS.



FUEL SYSTEM ATTACHMENT

Mount CARBURETOR as shown below. Drill out STARTER CASING HOLES as shown for routing of electric and fuel lines.



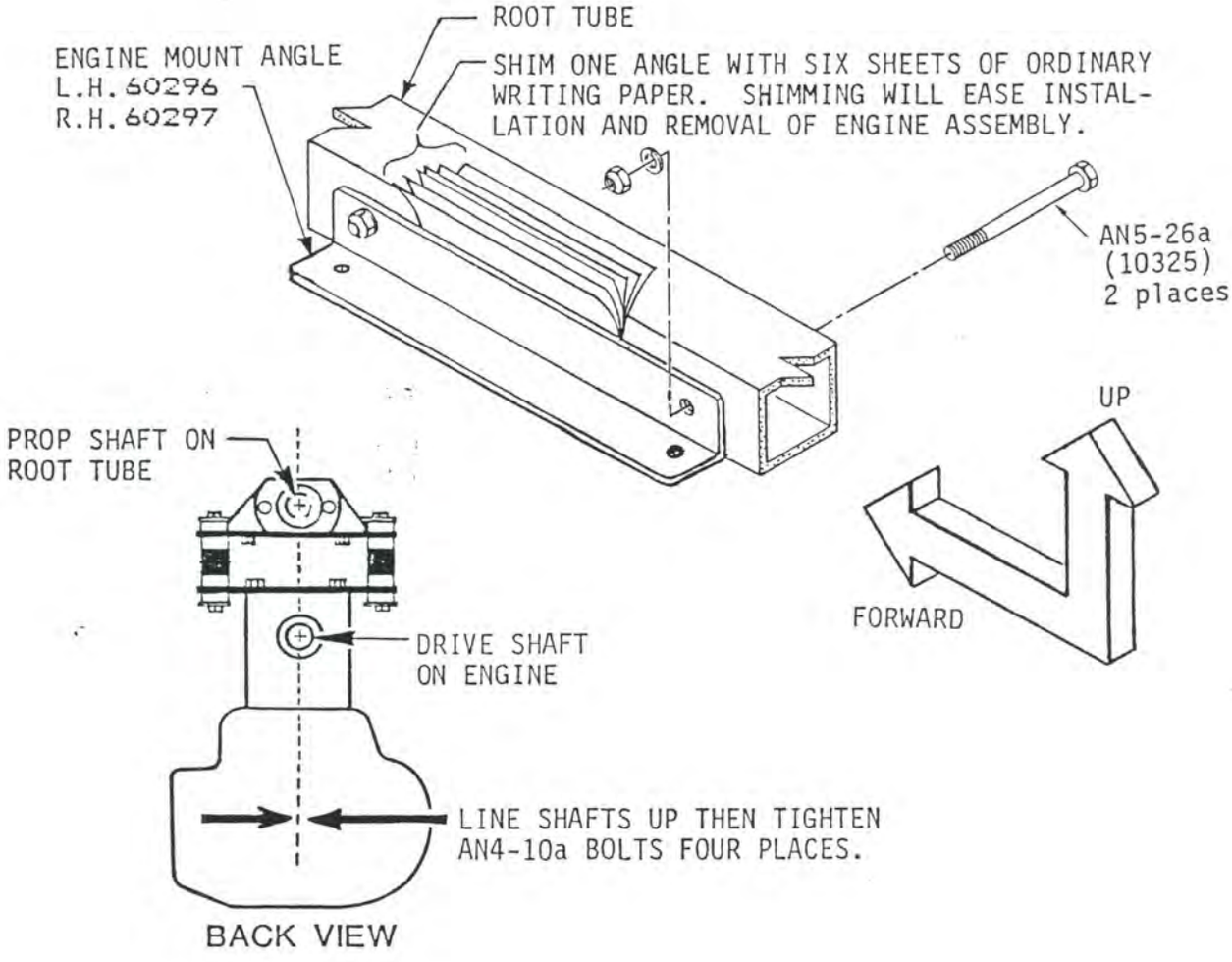
ENGINE MOUNT PROCEDURE

Remove any studs that may still be in the engine.
Follow assembly sequence below for engine mounting drawing on next page.
REFER TO FOLLOWING PAGES DETAIL 'A' AND DETAIL 'B'.

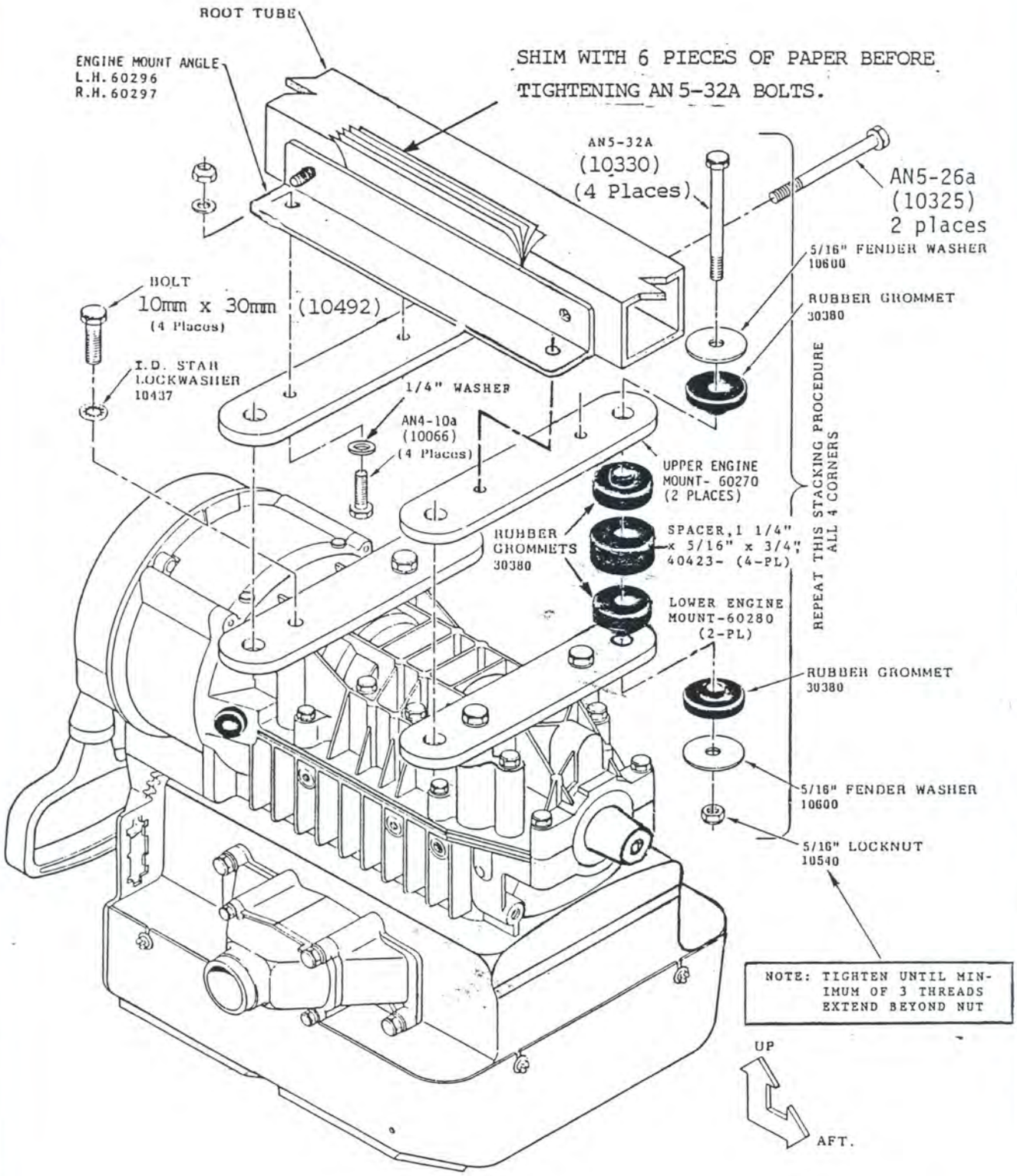
(1) Install lower engine mounts(60280) to engine. Torque to 18-23 ft./lbs. (25-32 N
(2) Install upper engine mounts(60270) to engine mount angles (60296-60297) but DO NOT tighten the four AN4-10a bolts yet.
(3) Assemble the upper engine mounts(60270) to the lower engine mounts (60280) with the rubber grommets. etc. Final tighten after step 5.

4. Align motor up to Root tube and install AN5-26A bolts (10325) (2-PL.) from the right side.

5. Install the Aileron Bellcrank Mount (42029) on the left side and tighten with remainder of hardware.

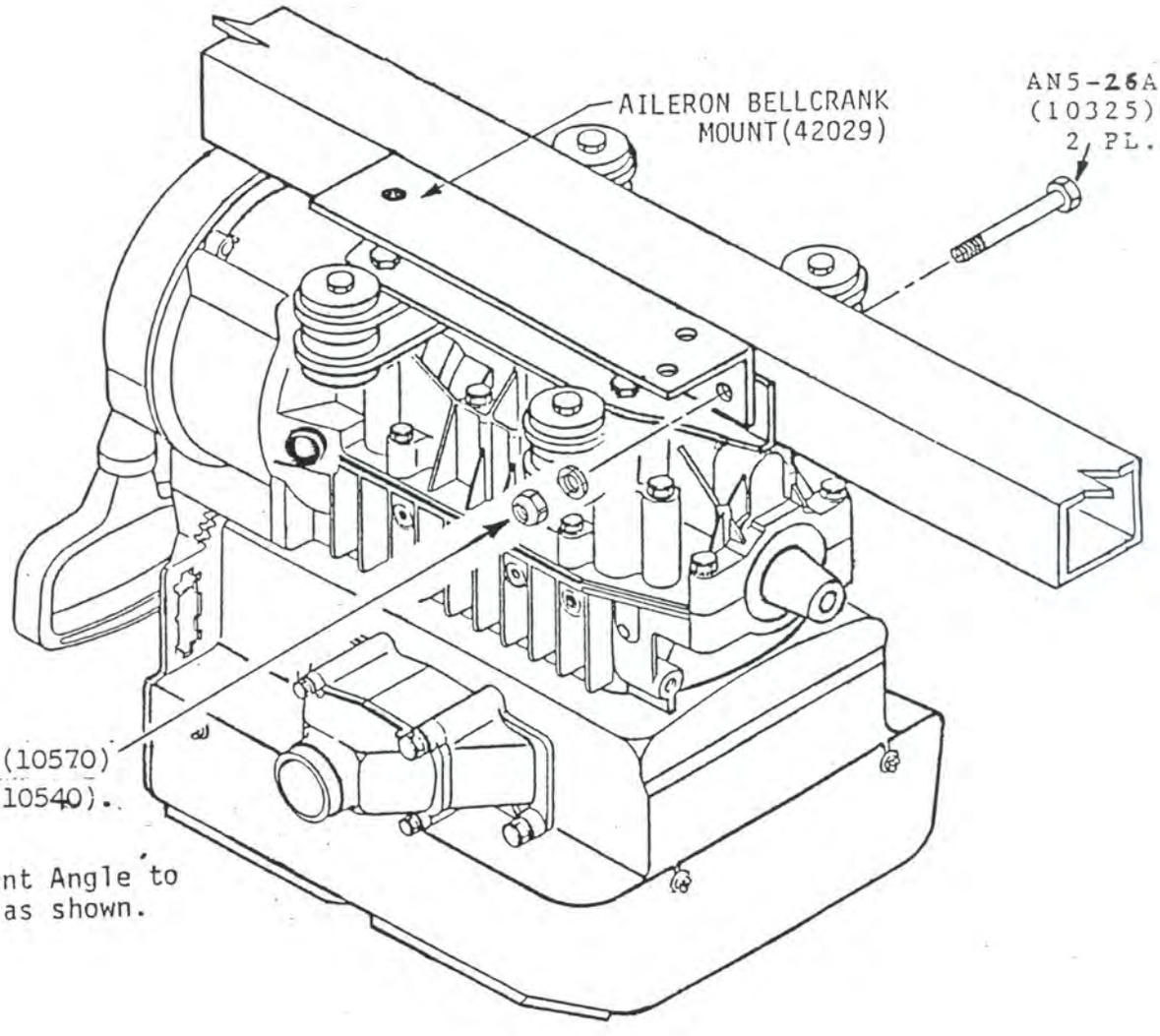


ENGINE MOUNT ASSY./ATTACHMENT



DETAIL 'A'

ENGINE MOUNT ANGLE ATTACHMENT

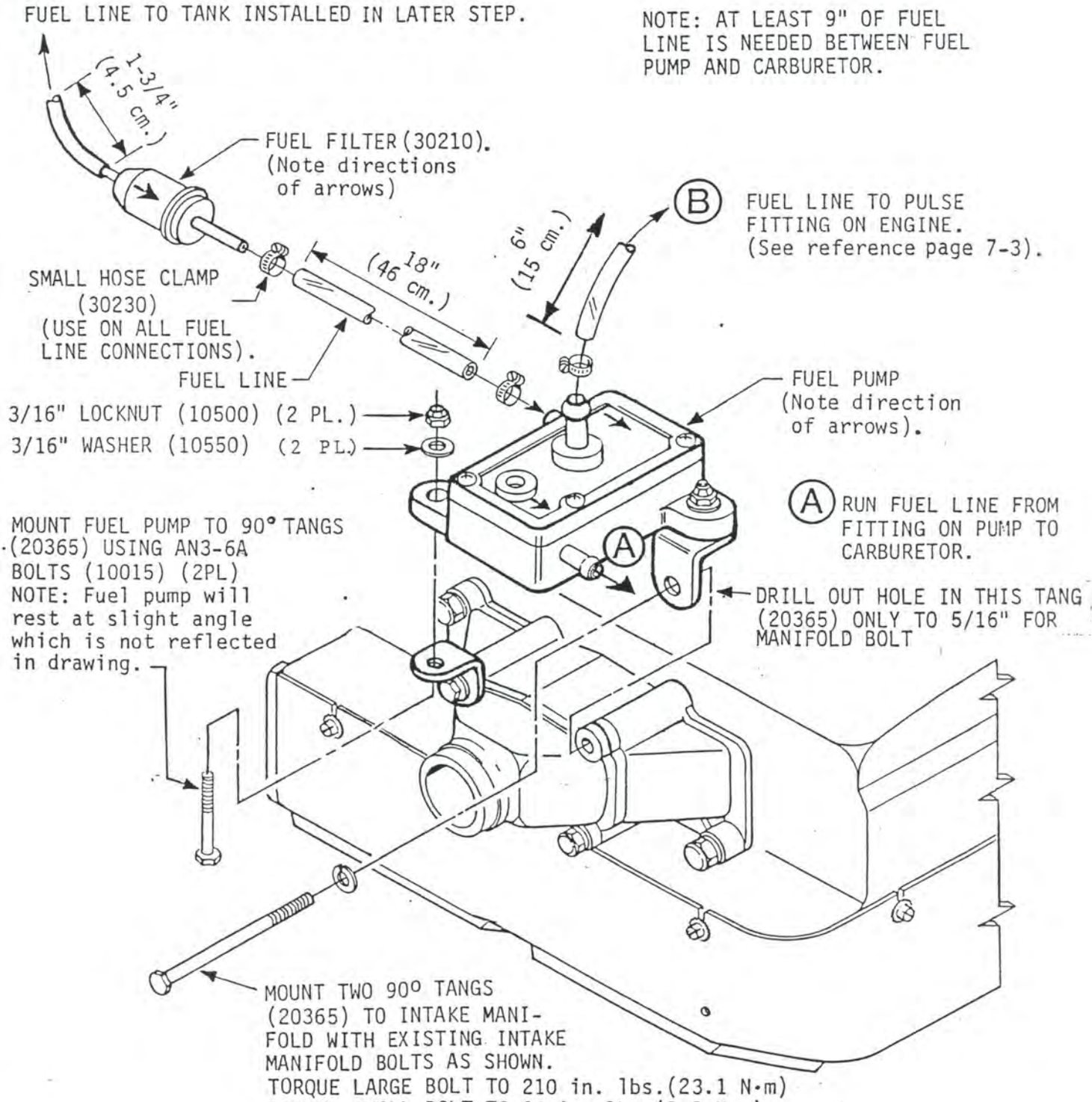


DETAIL 'B'

FUEL PUMP ATTACHMENT

1 Install FUEL PUMP to INTAKE MANIFOLD as described below.

2 Hook up FUEL LINES to FUEL and ENGINE as shown.



REDUCTION DRIVE SYSTEM ATTACHMENT

SEE NOTE* BELOW REGARDING PROCEDURE TO EXPELL CORK PLUGS FROM CYLINDER HEADS.

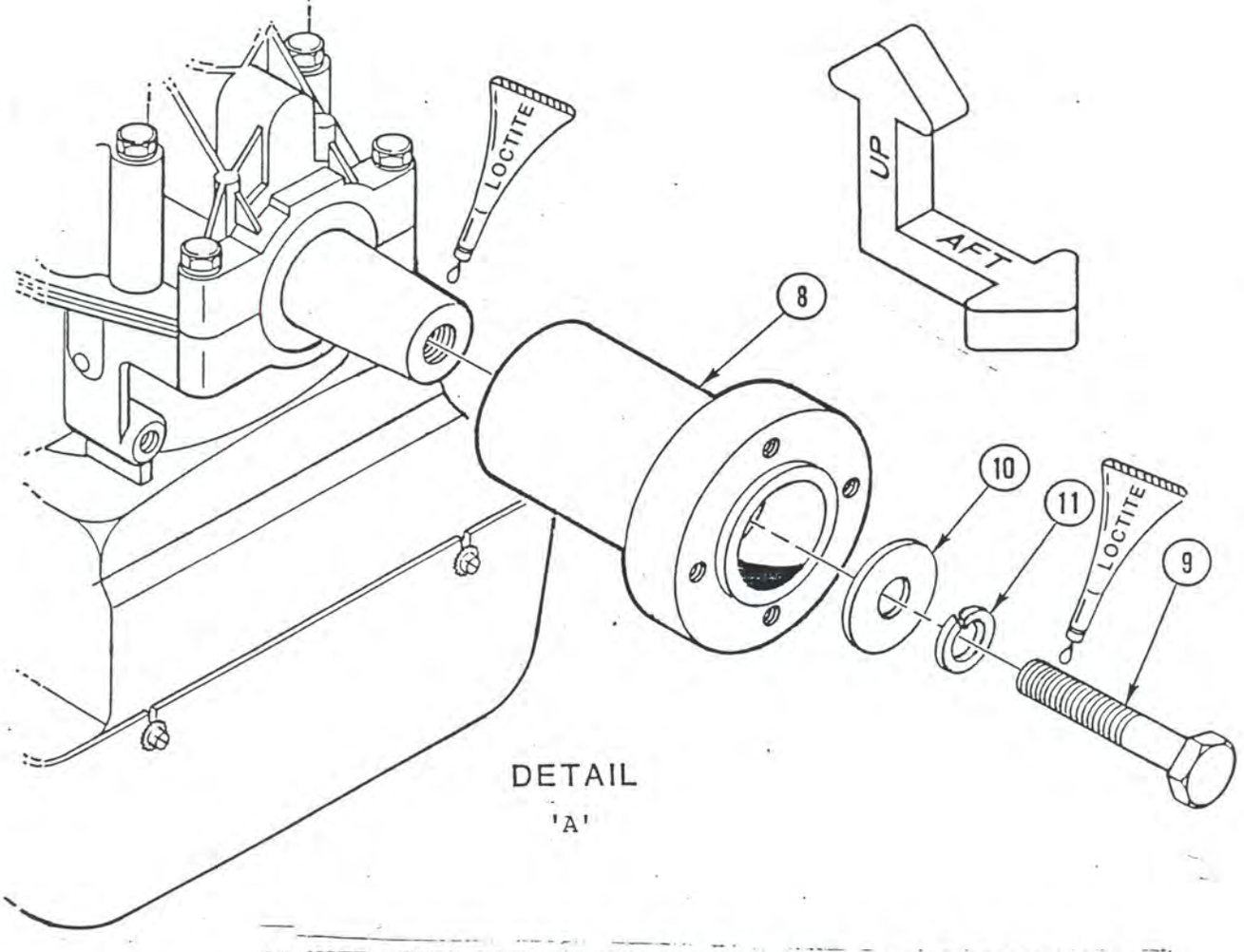
Refer to Detail 'A' . Install the Drive Shaft Adapter (8) to the Engine Crankshaft using hardware shown (9,11,10). Tighten Bolt (9) to 50 ft.lbs.

NOTE: The Crankshaft must be locked into position by inserting the Crankshaft Fixation Pin (located in tool kit) into the pulse line fitting located on the LEFT side of the engine block. Gently pull the Starter Handle and at the same time lightly push in the Crankshaft Fixation Pin. The Pin will slide into the block when the Crank has rotated to the proper position.

Pt.	P.N.	Description.
**8.	60188	Drive Shaft Adapter
9.	10625	Bolt, 1/2"X 20X 2"
10.	60187	Washer; Drive Shaft Adaptor
11.	10438	Washer, 1/2" Lock

*TO EXPELL CORK PLUGS FROM CYLINDER HEAD SPARK PLUG HOLES:

1. WEAR EYE PROTECTION
2. CLEAR IMMEDIATE AREA IN THE DIRECT 'LINE OF FIRE' AS A CORK PROJECTILE MAY CAUSE INJURY OR PROPERTY DAMAGE. IT IS RECOMMENDED THAT A TOWEL BE USED TO COVER THE CYLINDER HEADS WHEN THE CORK PLUGS ARE EXPELLED.THEREFORE KEEPING THE CORK PLUGS CONTAINED.
3. PULL THE HANDLE ATTACHED TO THE END OF THE STARTER ROP



DETAIL
'A'

** NOTE: THIS PART IS NOT LABELED WITH A PART NUMBER AS IT IS PART OF FLEX DRIVE SHAFT ASSEMBLY (60182).

DRIVE SYSTEM (CONT.)

1. Slide Eccentric Locking Collar (1) and Pillow Block (2) onto Drive Shaft and Flex Coupler Assembly (3).

2. Attach the Drive Shaft (3) to the Drive Shaft Adapter (11) with hardware (12,13). Tighten to proper torque. 8.25-11.5 FT/LBS 11.25-15.75 N.M.

3. Install new 7/16" Bolts (6) into the Root Tube Bracket. Add 'H' Truss (14) and secure with hardware (7,8,9), in the proper order - as shown.

4. Add the Lower Bearing Plate (10), Pillow Block (2), Nut (9) and Washers (8,7) to the Bolts (6). Do not final tighten at this time.

5. Install the 3" Five Groove Pulley (4) to Drive Shaft (3) and secure with Locknut (5). Tighten the Locknut to 125 ft. lbs. **CAUTION: after initial 30 min. run re-tighten Locknut (5).**

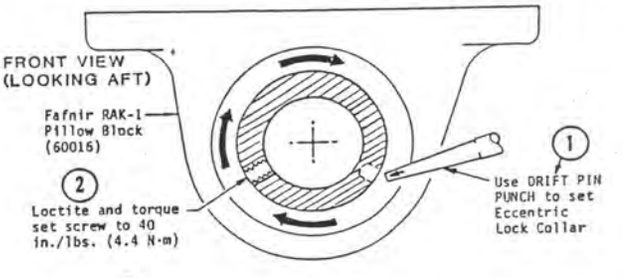
6. Secure the Eccentric Locking Collar (1) onto the Bearing as per Assembly Instructions.

NOTE: The Crank Shaft must be locked to complete STEP 5.

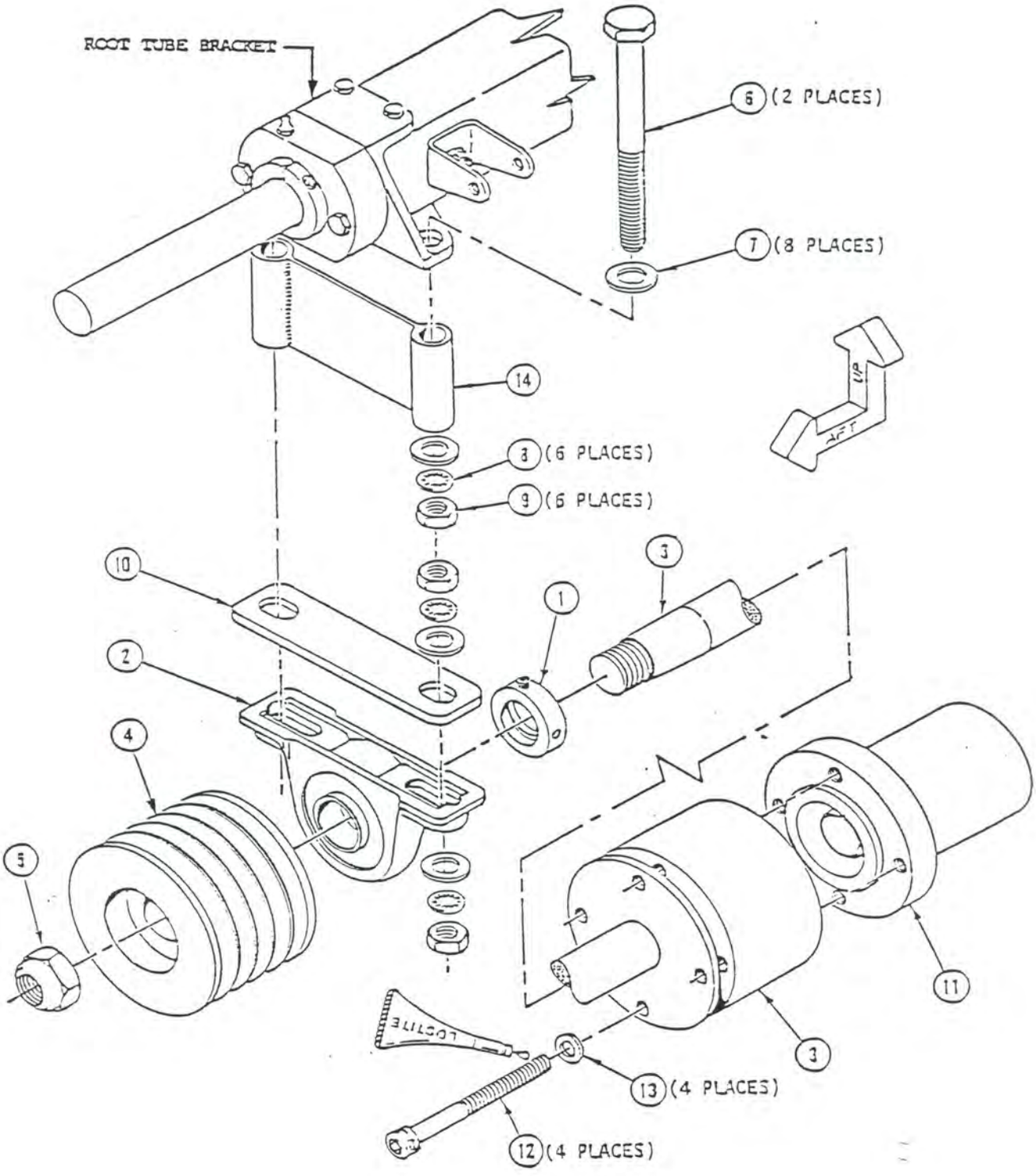
Pt.	P.N.	Description.
1.	60016	Eccentric Locking Collar
2.	60182	Pillow Block
3.		Drive Shaft and Flex-Coupling Assy.
4.	20233	Pulley, 3" Five Groove
5.	10529	Nut, 3/4"X 16 thin Locknut
6.	10494	Bolt, 7/16"X 20X 5"
7.	10439	Washer, 7/16"
8.	10437	Washer, 7/16" Star
9.	10503	Nut, 7/16" Jam
10.	60065	Lower Bearing Plate
11.		Drive Shaft Adaptor
12.	10393	Socket Head Cap Screw, 5/16" X 18 X 2 1/2"
13.	10570	5/16" Washer
14.	60064	Truss, 'H', Steel

STEP #6

IMPORTANT: Rotate Eccentric Lock-Collar in DIRECTION OF SHAFT ROTATION (clockwise, when standing in front of Pillow Block Bearing looking aft.)



DRIVE SYSTEM (CONT.)



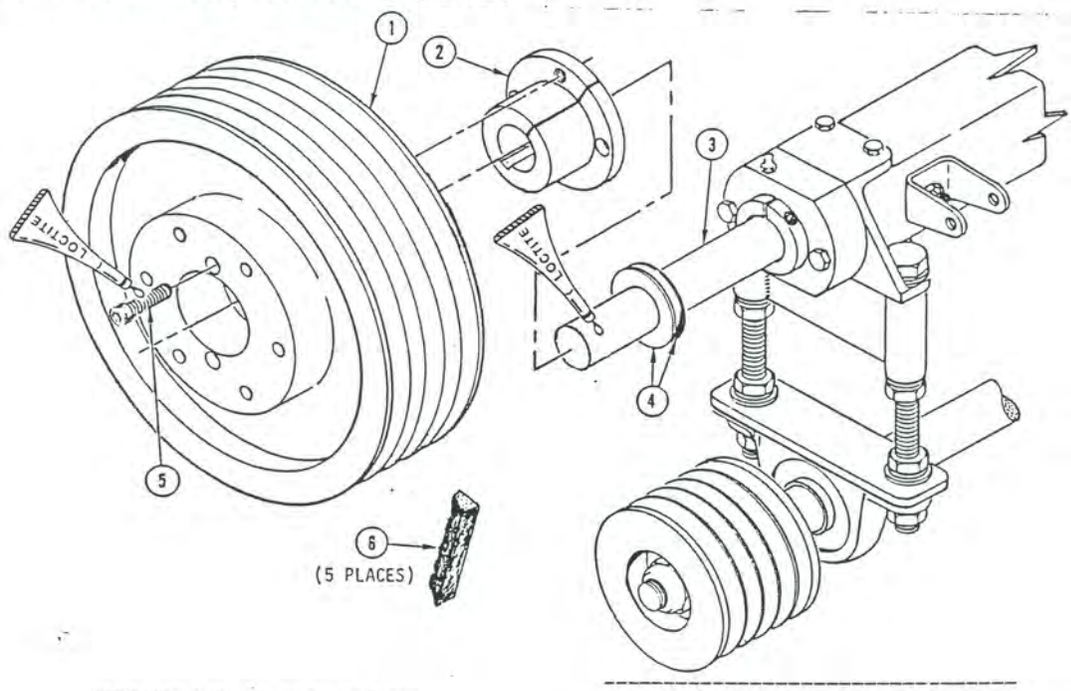
DRIVE SYSTEM (CONT.)

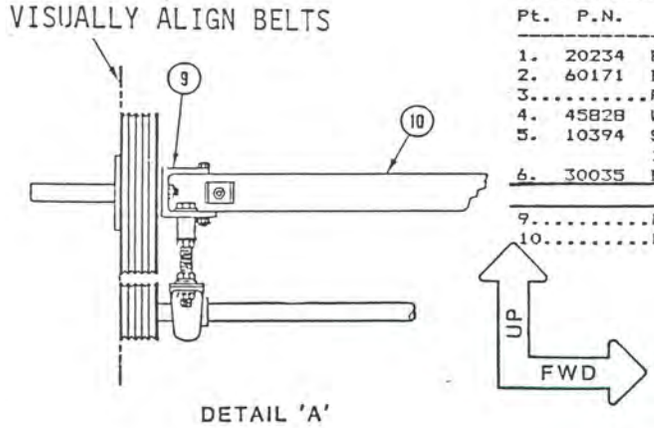
1. Slide the 8" Five Groove Pulley (1) and Taper Loc Bushing (2) on the Prop Shaft (3) until it bottoms out against the Bearing. Use a straight edge to align the upper and lower pulleys, as shown in Detail 'A'. Add Shim Washers (4) as necessary for alignment. **Note: Add two additional Washers (4) to shaft after alignment is complete.**

2. Tighten the two Socket Head Cap Screws (5) to 12 ft.lbs.(16.3 Nm).

NOTE: Tighten each Screw alternately a little at a time to prevent the Taper Loc from binding. To remove the Pulley from the Taper Loc, remove the Cap Screws (5) and insert <u>two</u> 5/16" Coarse Thread Bolts into the threaded holes in the Pulley. Tighten until the Pulley comes off the Taper Loc.

3. Install the 5 Drive Belts (6) and tension as described in your Aircraft Assembly Instructions.





DETAIL 'A'

Pt.	P.N.	Description.
1.	20234	Pulley, 8" Five Groove
2.	60171	Bushing, 1" Taper Loc
3.	.....	Propeller Shaft
4.	45828	Washer, Shim 1"I.D.
5.	10394	Socket Head Cap Screw 1/4" X 20 X 1"
6.	30035	Belt, Drive 3V X 300
9.	.....	Root Tube Bracket
10.	.....	Root Tube

REDUCTION DRIVE BELT ADJUSTMENT

IMPORTANT! READ COMPLETE SEQUENCE BEFORE ATTEMPTING ASSEMBLY

1. Locate the Tension Tester (60033) supplied with the kit. Read the instructions for its use in illustration 'A' below. Now refer to illustrations 'D' and 'E' in the Engine Mount Procedure. Adjust the tension on the Reduction Drive Belts (60034) very carefully, starting loose and tightening gradually. The distance between the underside of the Root Tube Bracket (60540) and the upper surface of the Lower Bearing Plate (60065) should be equalized by adjusting the Lower Inner Jam Nuts. While adjusting, repeatedly use the Tension Tester as illustration 'A' until the exact tension is achieved.

illustration 'A'

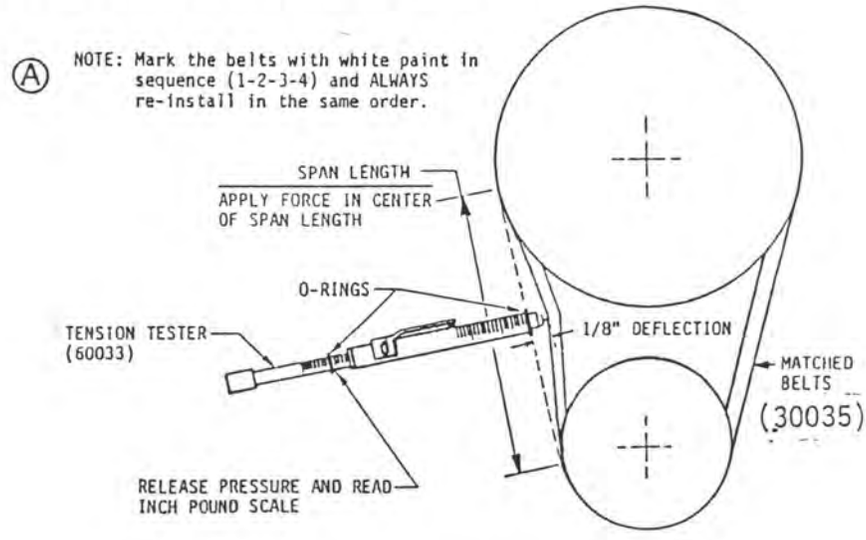
A1. Look at the Tension Tester (60033). Notice that it consists of a narrow shaft which will push into a thick shaft. See that when pushed, the narrow shaft has a spring resistance. Notice that both shafts have measured graduations on them. The thick one has inches and centimeters. The narrow has pounds and kilograms. Notice that both shafts have rubber "O" Rings on them. Push the narrow shaft "O" Ring down to its zero mark. Position the thick shaft "O" Ring 1/8" from the tip of the thick shaft. The Tension Tester is now set for use. Readjust the "O" Rings before each test.

A2. Position the tip of the thick shaft in the center of the aft Belt span length (see illustration 'A' on next page) and the tip of the narrow shaft in the palm of your hand. Apply pressure through your hand to the Belt until the "O" Ring on the thick shaft touches the adjacent Belt. Release the pressure.

A3. The "O" Ring on the narrow shaft will have been moved back from Zero by the pressure.

A4. Read the pounds/kg. measurement. Carefully adjust the Belt tension until the narrow shaft "O" Ring shows a reading of 8 lb. (3.6 kg.). The Reduction Drive Belts are correctly tensioned.

A5. After 30 minute break-in, re-adjust to 6 lb. (2.72 kg.).



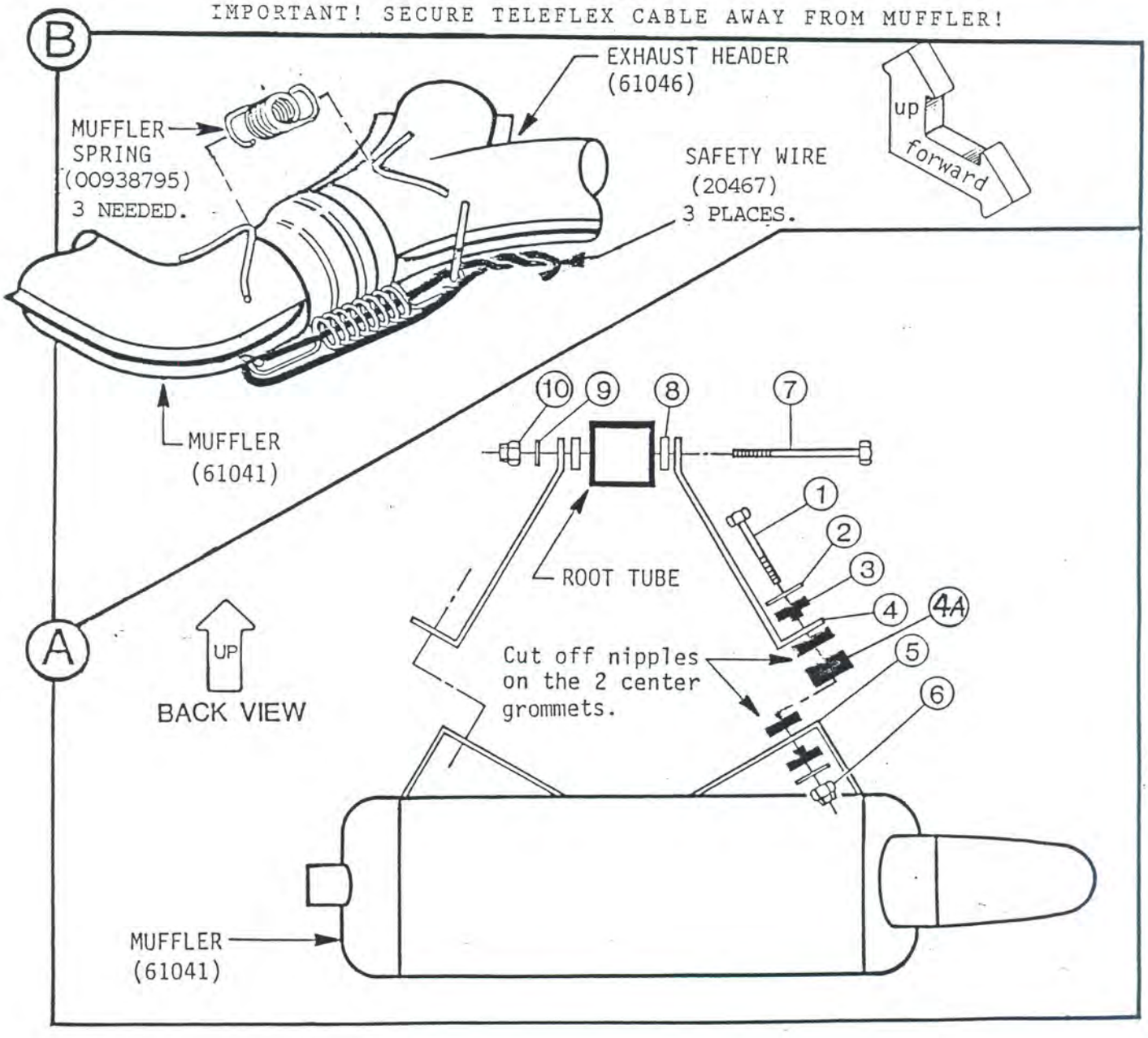
MUFFLER ATTACHMENT

ASSEMBLE HARDWARE BELOW BY SEQUENCE AND NOTES.

1) AN5-27A Bolt (10324)
2) Fender Washer (10600) 2PL.
3) Rubber Grommet (30380) 4PL. Note direction of first and last nipples. Cut off center nipples.
4) Muffler attach strap (61042)
4A) Spacer (40423)
5) Muffler bracket.
6) 5/16" Locknut (10540)
Repeat steps 1-6 for other side.
7) AN4-27 (10260). USE FIRST HOLE AFT OF SEAT SUPPORT DOWN TUBE.
8) 1"x 1/8" NYLON WASHER (20345)
9) 1/4" WASHER (10560)
10) 1/4" LOCKNUT (10510)

JOIN MUFFLER TO EXHAUST HEADER, ATTACH SPRINGS TO TABS THEN FEED SAFETY WIRE THROUGH TAB, DOWN THE SPRING TO THE OTHER TAB, AROUND AND BACK UP TO THE FIRST TAB.

IMPORTANT! SECURE TELEFLEX CABLE AWAY FROM MUFFLER!

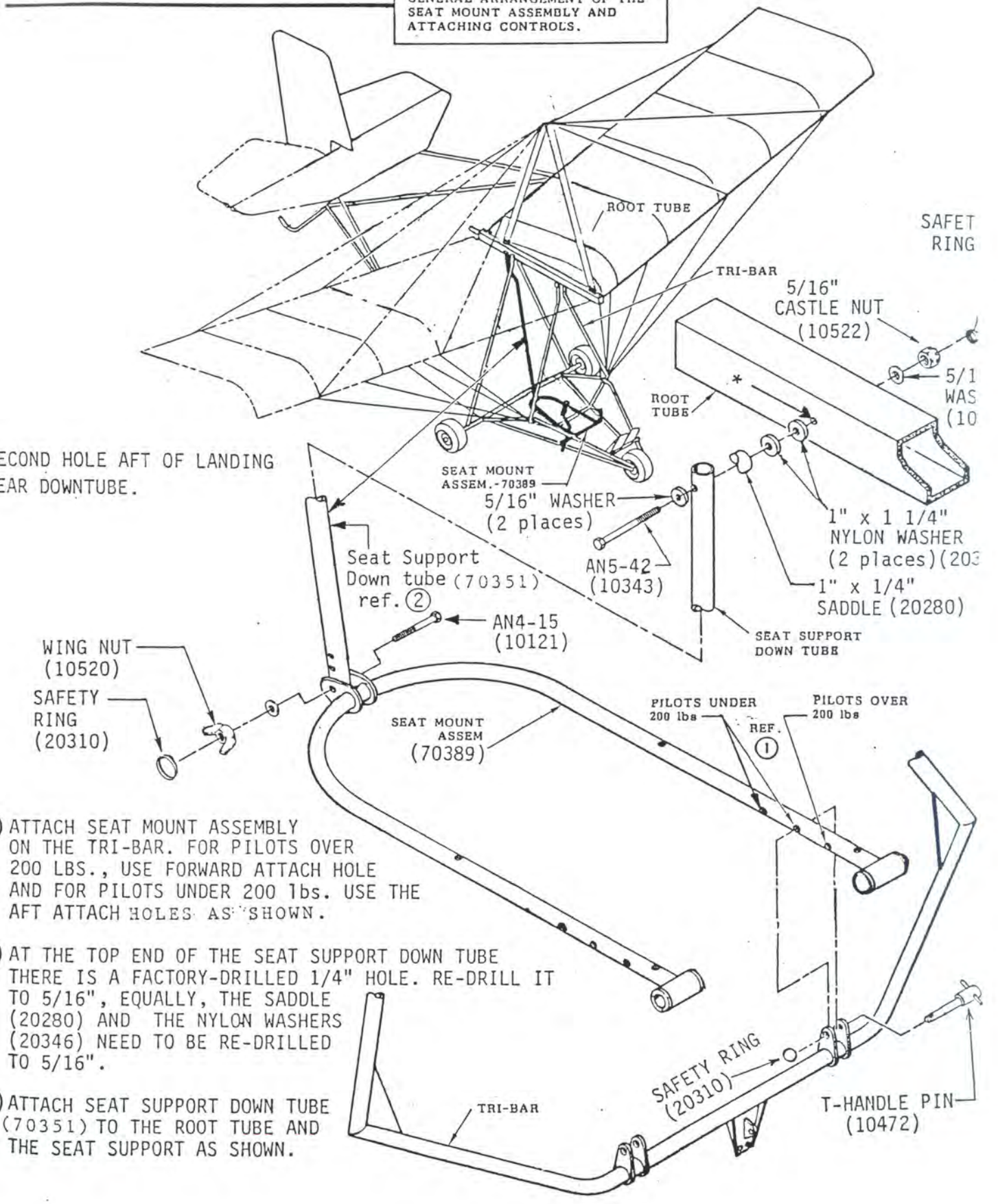


SECTION 8
SEAT MOUNTING AND CONTROL SYSTEM

SEAT MOUNT AND SUPPORT TUBE ATTACHMENT ---------- 8-2
THROTTLE ASSEMBLY/ ATTACHMENT ---------- 8-3
SEAT AND SEAT BELT ATTACHMENT ---------- 8-4
IGNITION SWITCH WIRING DIAGRAM ---------- 8-5
IGNITION SWITCH ATTACHMENT ---------- 8-6
CONTROL STICK ASSEMBLY/ ATTACHMENT ---------- 8-7
ELEVATOR CONTROL SYSTEM ASSEMBLY/ ATTACHMENT ------ 8-10
THROTTLE CABLE ATTACHMENT ---------- 8-12
ROOT TUBE BELLCRANK ASSEMBLY/ ATTACHMENT ---------- 8-13
TELEFLEX ATTACHMENT ---------- 8-14

SEAT MOUNT & SUPPORT TUBE ATTACHMENT

THIS ILLUSTRATION SHOWS THE GENERAL ARRANGEMENT OF THE SEAT MOUNT ASSEMBLY AND ATTACHING CONTROLS.



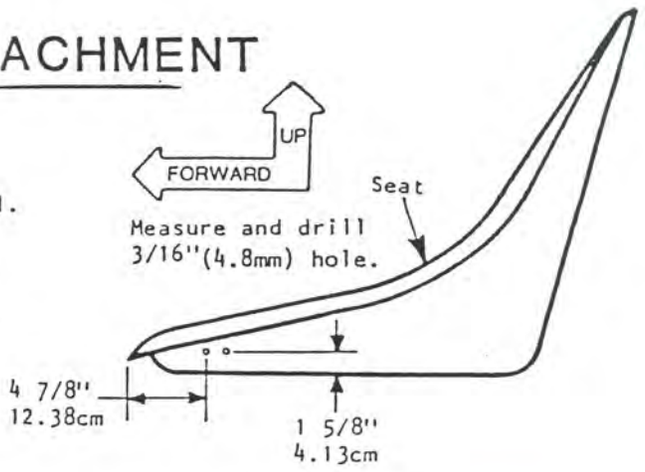
(1) ATTACH SEAT MOUNT ASSEMBLY ON THE TRI-BAR. FOR PILOTS OVER 200 LBS., USE FORWARD ATTACH HOLE AND FOR PILOTS UNDER 200 lbs. USE THE AFT ATTACH HOLES AS SHOWN.

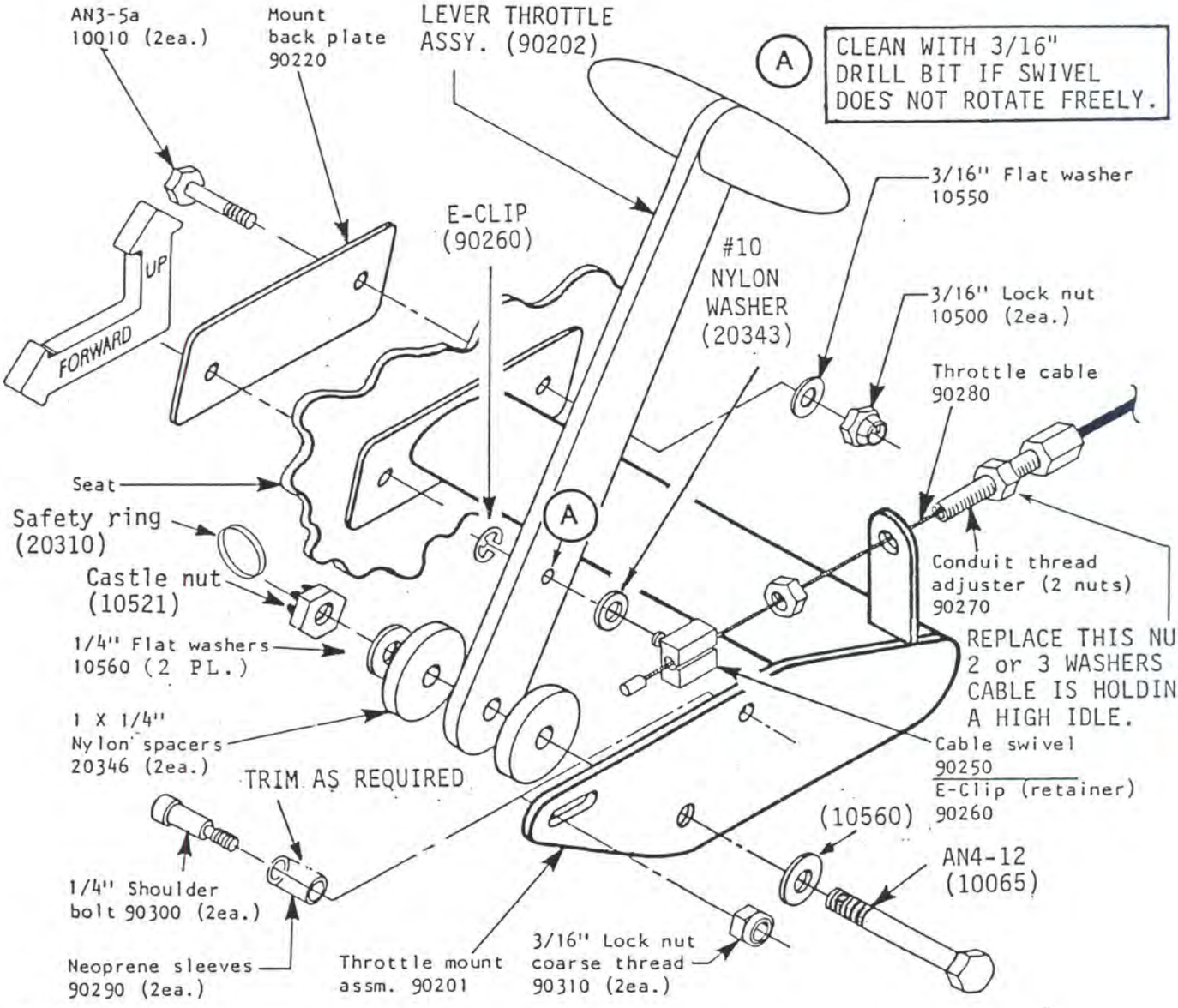
(2) AT THE TOP END OF THE SEAT SUPPORT DOWN TUBE THERE IS A FACTORY-DRILLED 1/4" HOLE. RE-DRILL IT TO 5/16", EQUALLY, THE SADDLE (20280) AND THE NYLON WASHERS (20346) NEED TO BE RE-DRILLED TO 5/16".

(3) ATTACH SEAT SUPPORT DOWN TUBE (70351) TO THE ROOT TUBE AND THE SEAT SUPPORT AS SHOWN.

THROTTLE ASSY. / ATTACHMENT

Drill and assemble as shown. (Leave cable and conduit adjuster for last.) For cable installation, place Throttle lever fully aft and insert cable slide into cable swivel. Pull conduit adjuster aft until throttle cable is taut. Tighten down conduit nuts and now place throttle lever as forward as cable allows. Adjust forward shoulder bolt to rest against throttle lever and tighten.





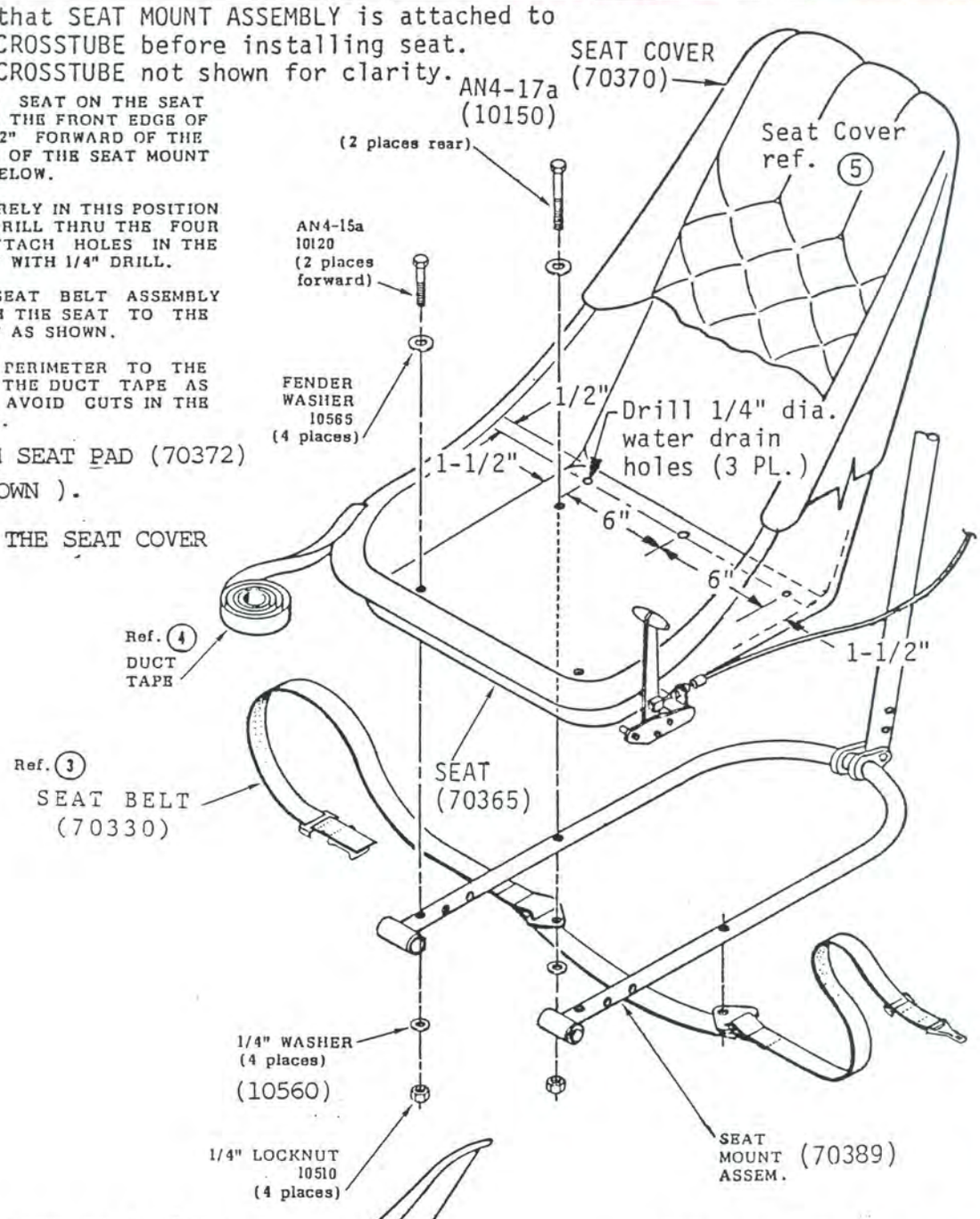
NOTE:

Tighten castle nut until desired friction is obtained and secure with safety ring thru "slot" in nut and hole in bolt.

SEAT & SEAT BELT ATTACHMENT

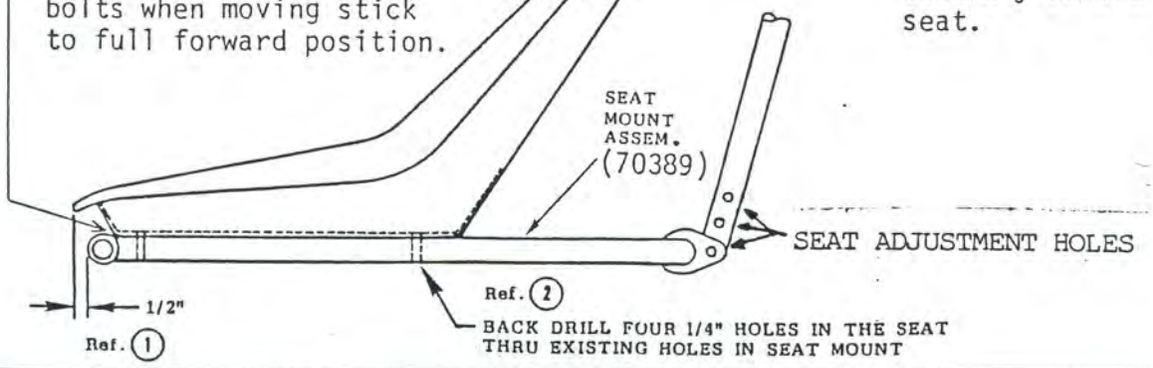
Be sure that SEAT MOUNT ASSEMBLY is attached to TRI-BAR CROSSTUBE before installing seat. TRI-BAR CROSSTUBE not shown for clarity.

1. CENTER THE SEAT ON THE SEAT MOUNT WITH THE FRONT EDGE OF THE SEAT 1/2" FORWARD OF THE FRONT EDGE OF THE SEAT MOUNT AS SHOWN BELOW.
2. CLAMP SECURELY IN THIS POSITION AND BACK DRILL THRU THE FOUR EXISTING ATTACH HOLES IN THE SEAT MOUNT WITH 1/4" DRILL.
3. ADD THE SEAT BELT ASSEMBLY AND ATTACH THE SEAT TO THE SEAT MOUNT AS SHOWN.
4. WRAP THE PERIMETER TO THE SEAT WITH THE DUCT TAPE AS SHOWN TO AVOID CUTS IN THE SEAT COVER.
5. ADD FOAM SEAT PAD (70372) (NOT SHOWN).
6. INSTALL THE SEAT COVER



NOTE: Be sure seat clears teleflex attach bracket bolts when moving stick to full forward position.

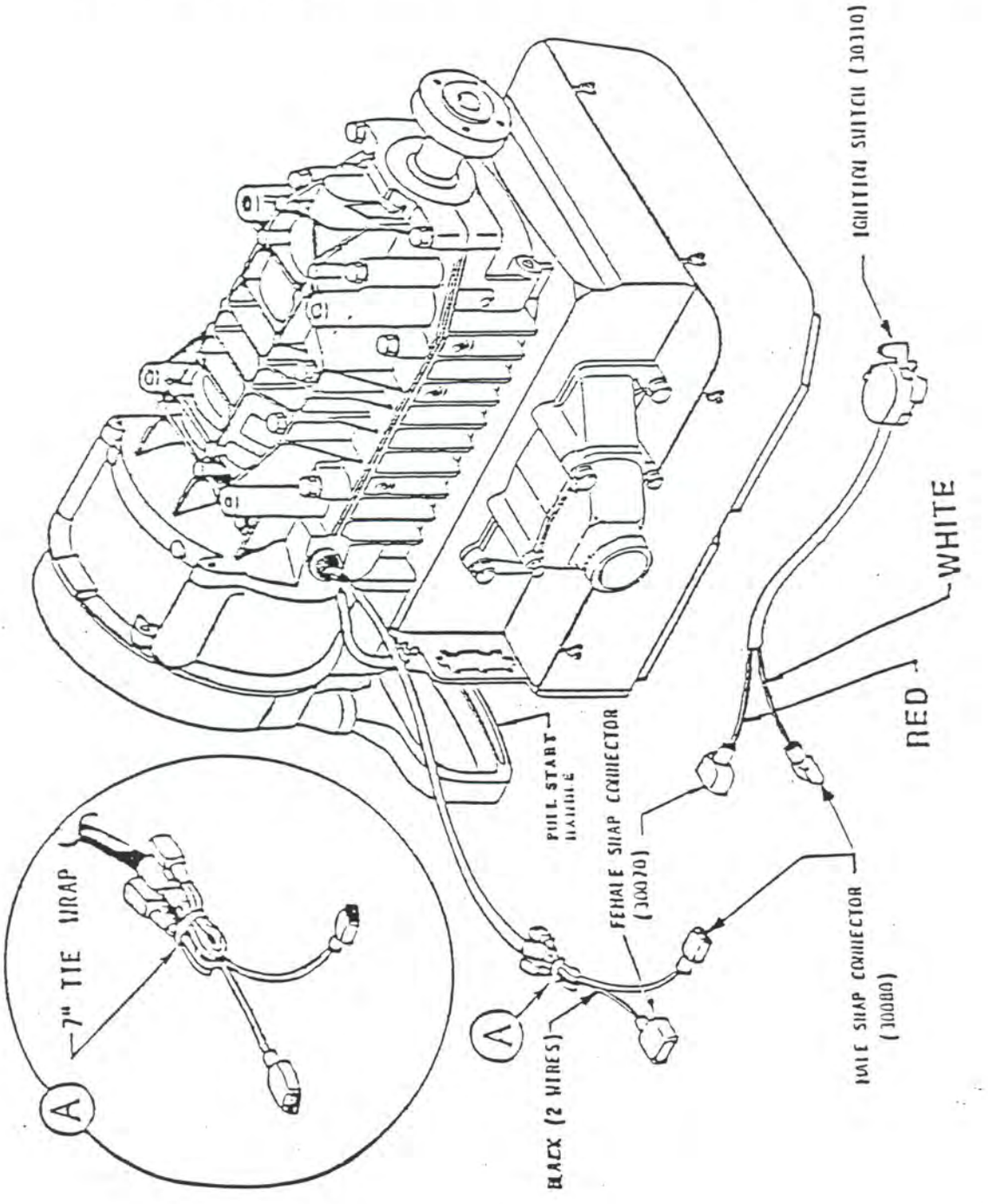
NOTE: Install seat mount assembly before attaching seat.



IGNITION SWITCH WIRING DIAGRAM

1. Install one female snap connector (30070) on the Black wire coming from the coil. Install one male snap connector (30080) on the seconed Black wire. Fold back the remaining wires and secure with a 7" tie wrap (30480).

2. Plug the male and female snap connectors of the ignition wiring harness (30310) into the male and female connectors of the engine wires.

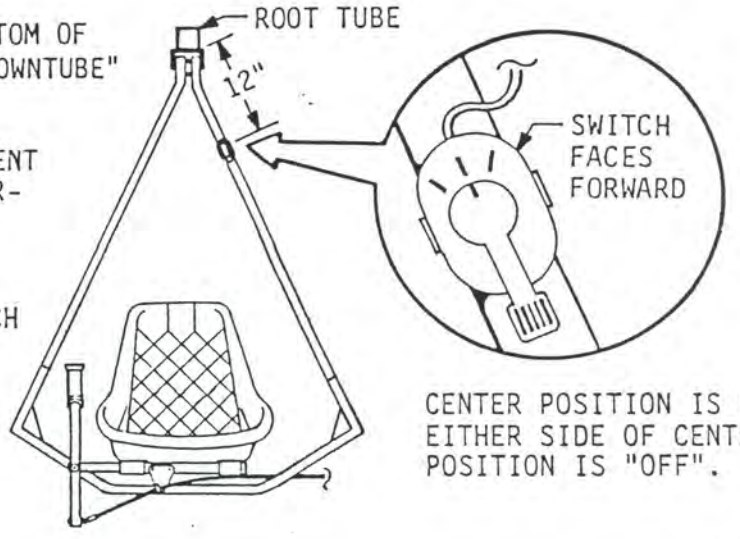


IGNITION SWITCH ATTACHMENT

MEASURE 12"(30. cm.) FROM THE BOTTOM OF THE ROOT TUBE DOWN THE "TRI-BAR DOWNTUBE" AND INSTALL KILL SWITCH (30310).

KILL SWITCH FACES FORWARD TO PREVENT ACCIDENTAL TURNING OFF BY INTERFERENCE FROM HELMET OR PULL STARTER HANDLE ON THE ENGINE.

USE TIE WRAPS TO SECURE KILL SWITCH WIRING TO TRI-BAR DOWN TUBE.



CENTER POSITION IS "ON". EITHER SIDE OF CENTER POSITION IS "OFF".

CONTROL STICK ASSY. / ATTACHMENT

DRAW THE FOLLOWING PARTS OUT OF THE KIT BEFORE READING ON:

1) CONTROL STICK - 1ea. - 40335

2) 7/8" SADDLE - 2ea. - 20265

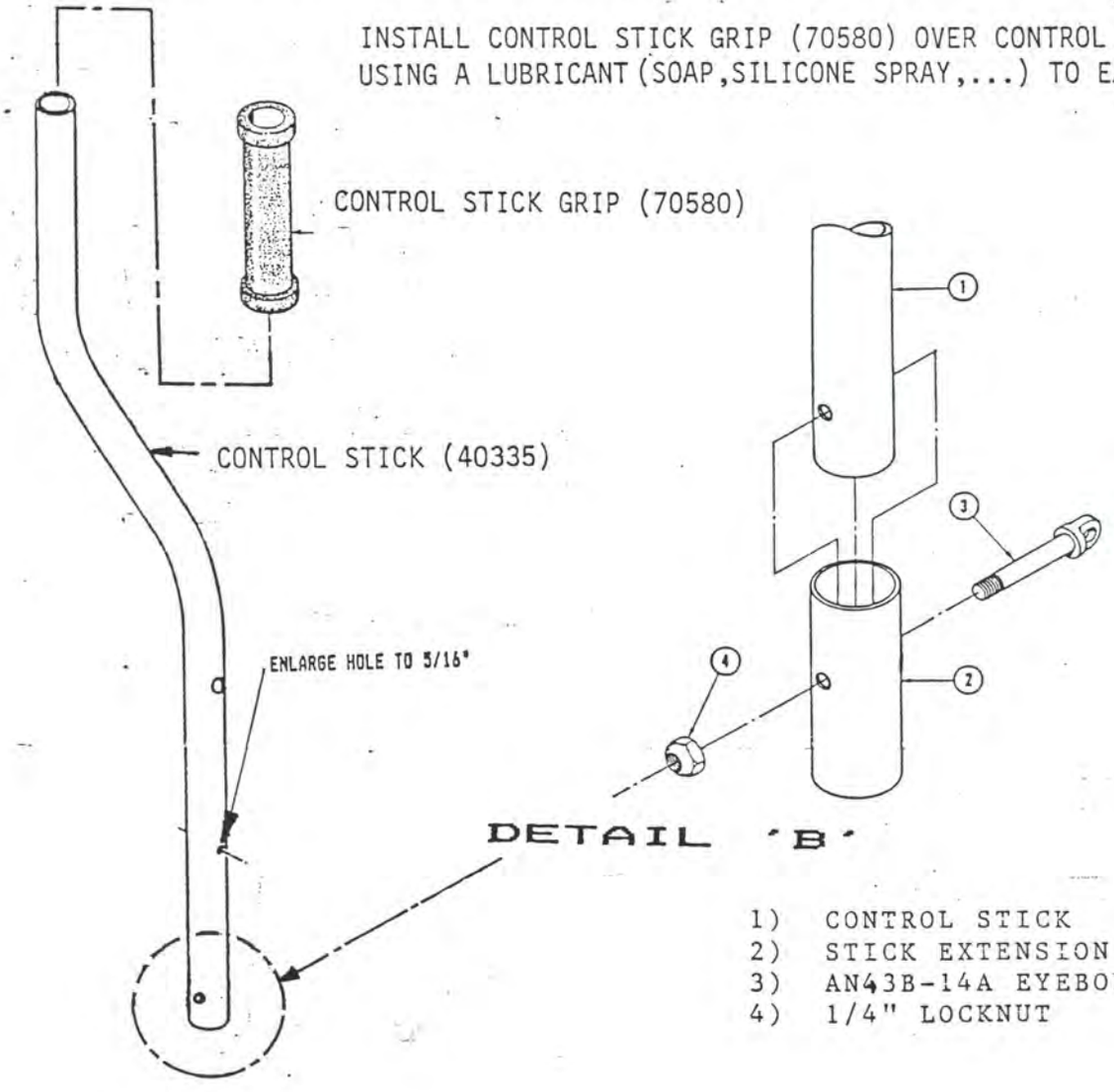
3) 1" x 1/8" SADDLE - 2ea. - 20270

1. Enlarge the 1/4" pivot hole in the Control Stick to 5/16".

2. Enlarge the 1/4" hole, in the two 7/8" Saddles (14), two 1"x1/8" Saddles (15) and two 1"x1/8" Nylon Washer (20345), to 5/16".

3.Refer to Detail 'B'. Install the Stick Extension Tube (2) as shown. Note: The hole drilled in the Stick Extension Tube is drilled off center lengthwise. If the bottom hole in your Control Stick is up .50" from the bottom use the short end of the Stick Extension Tube facing down.If the bottom hole in your Control Stick is up 1" from the bottom use the long end of the Stick Extension Tube facing down. Secure with 1/4" locknut (4).

INSTALL CONTROL STICK GRIP (70580) OVER CONTROL STICK (40335) USING A LUBRICANT (SOAP,SILICONE SPRAY,...) TO EASE INSTALLATION.



DETAIL 'B'

1)	CONTROL STICK	40335
2)	STICK EXTENSION TUBE	40346
3)	AN43B-14A EYEBOLT	10350
4)	1/4" LOCKNUT	10510

CONTROL STICK ASSY. CONT..

4. Refer to Detail 'C'. Install 7/8" Nylon Bearing Flanges (2) into Seat Mount Assembly (1). Then insert Stick Attach Tube(3) and Stick Attach Tube Spacer (3A) into Seat Mount Assembly and align holes.

5. Refer to Detail 'C'. Pre-assemble Teleflex Guard (4) with Hardware (5,6,7,8,9). **NOTE: Assemble using inside holes if bottom hole in stick is 1/2" up from bottom. Use outside holes if bottom hole is 1" up from bottom.

6. Orient Teleflex Attach Bracket (10) so the side with three holes is on your left. Attach Teleflex Clamp (11) and (12) to Teleflex Bracket (10) with one Bolt (13), installed from the rear, through the middle hole with a Nut (9). Before tightening this Bolt, insert Teleflex Cable (not shown) making sure the notch in the Teleflex Cable seats in the Clamp. Add a Bolt (14) from the rear, through the lower hole in the Teleflex Attach Bracket (10)and Teleflex Clamp. Add a Spacer (15), Washer (6)and a Locknut (9). Finger tighten and do not attach Teleflex Guard at this time.

7. Attach the Teleflex Attach Bracket (10) to the Stick Attach Tube Spacer (3) using Bolt (16) and Hardware (17,18,19,8,9,). Finger tighten Nut (9) at this time. Also install Bolt (20) and Hardware (17,18,) thru Teleflex Attach Bracket (10) and Secure with Hardware (6,9) Tighten to proper torque.

8. Install Control Stick (24) using a Bolt (21) and Hardware (22,18,23,25,26). Do not install the Teleflex Guard or Cotter Pin at this time.

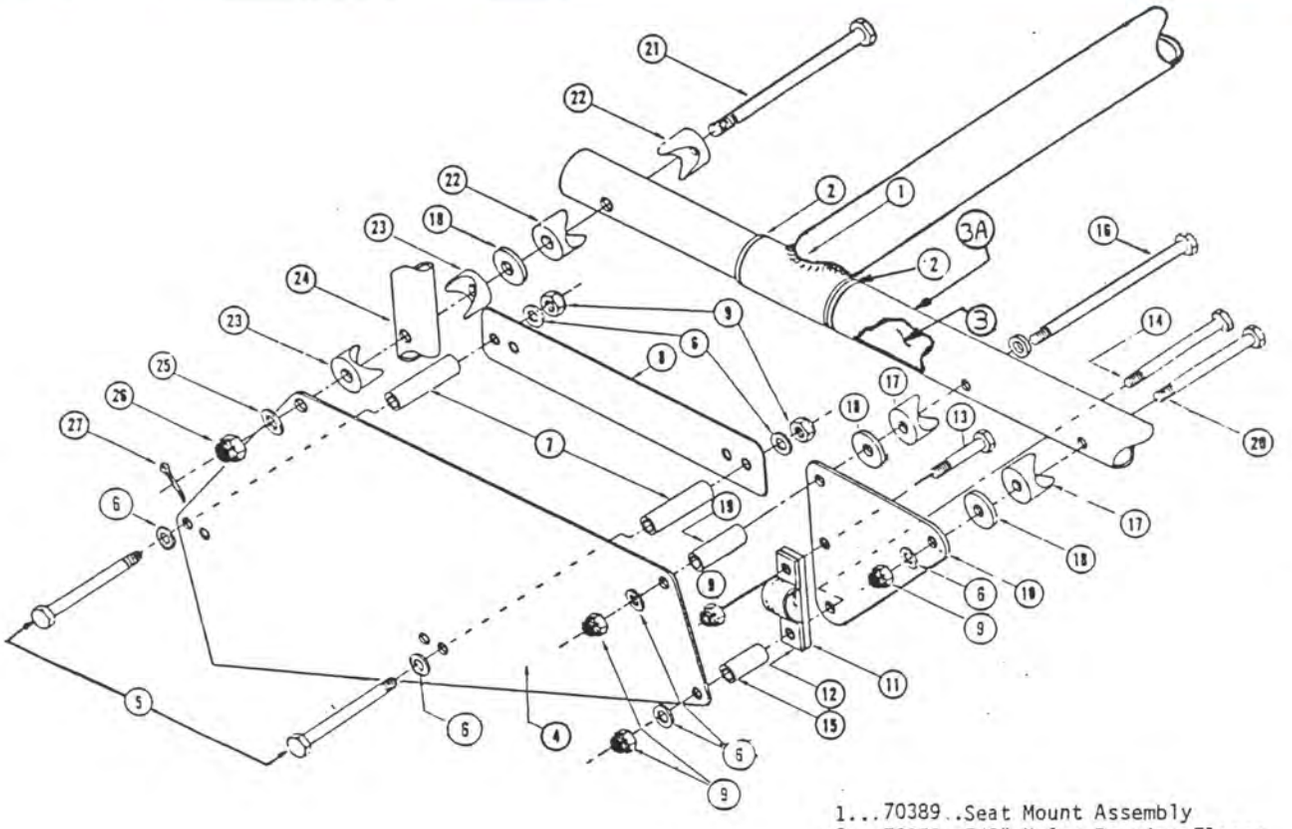
9. **Adjust Teleflex as follows:**
Thread 10-32 Nut (10495) all the way onto the Teleflex Cable.
Thread Teleflex Fork (70530) onto the same end 14 turns.
Attach Teleflex Fork to Eyebolt with AN3-7 Bolt, 3/16" Castle Nut and secure with Cotter Pin (10635).
Center Root Tube Bellcrank or Rudder(depending on aircraft model) and check Control Stick position. It should be straight up and down.
Adjust Teleflex Forks and/or Rod end Bearings if necessary.
CAUTION The Teleflex Fork must maintain a minimum of seven turns onto the Teleflex Cable.

10. After proper adjustment is achieved make sure the Teleflex Fork is attached to the Eyebolt on the Control Stick with the Clevis Pin forward, then run the safety Jamnuts down to the Teleflex Forks and/or Rod End Bearings and tighten.

11. Remove the Castle Nut (26) and Washer (25) from the Control Stick. Remove the two Locknuts (9) and Washers (6) from the Teleflex Attach Bracket (10). Place the assembled Teleflex Guard in position and secure with the Locknuts (9) and Washers (6). Re-install the Castle Nut (26) and Washer (25), tighten until just snug and safety it with a Cotter Pin (27). Bend Cotter Pin (27) as shown in Detail 'D'. Tighten Nut (9) on Bolt (13) to proper torque.

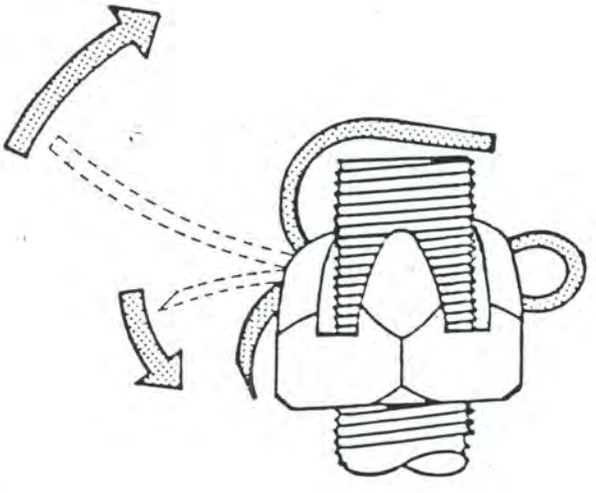
12. Move the stick from side to side. The stick extension should now contact the spacers (7) and provide the aircraft with lateral control stops and protection for the Teleflex Cable.

CONTROL STICK ASSY. CONT..



1...70389..Seat Mount Assembly
2...70350..7/8" Nylon Bearing Flange
3...80122..Stick Attach Tube
3A..40337..Stick Attach Tube Spacer
4...70407..Teleflex Guard
5...10053..AN3-20A Bolt
6...10550..3/16" Washer
7...40345..3/8"x 1 1/2" Spacer
8...40342..Teleflex Guard Plate
9...10500..3/16" Locknut
10..70600..Teleflex Attach Bracket
11..70510..Teleflex Clamp Lower
12.. " ..Teleflex Clamp Upper
13..10010..AN3-5A Bolt
14..10040..AN3-15ABolt
15..40343..3/8"x 7/8" Spacer
16..10056..AN3-27A Bolt
17. 20265..Saddle, 7/8" Plastic
18..20345..1"x 1/8" Nylon Washer
19..40344..3/8"x 1" Spacer
20..10045..AN3-16A Bolt
21..10332..AN5-30 Bolt
22..20265..Saddle, 7/8" Plastic
23..20270..Saddle,1"x 1 1/8
24..40335..Control Stick
25..10570..5/16" Washer
26..10522..5/16" Castle Nut
27..10635..Cotter Pin (AN380-2-2)

DETAIL 'C'



DETAIL 'D'

ELEVATOR CONTROL SYSTEM ASSY./ ATTACHMENT

1. Refer to Detail 'A'. Attach Idler Pivot Channel (1) to Axle (2) with hardware (3,4,5) as shown. Tighten to proper torque.

2. Insert Idler Tube (6) into Base Mount Assembly (7) and attach using hardware (8,4,5). Tighten to proper torque. Add <u>two</u> Teleflex Attach Brackets (9) to the Idler Tube (6) using hardware (10,11,12) as shown. Secure the Castle Nut (12) with Cotter Pin (13) and bend correctly.

3. Attach the Base Mount Assembly (7) to the Idler Pivot Channel (1) with hardware (14,15,13) shown. Bend the Cotter Pin (13) correctly.

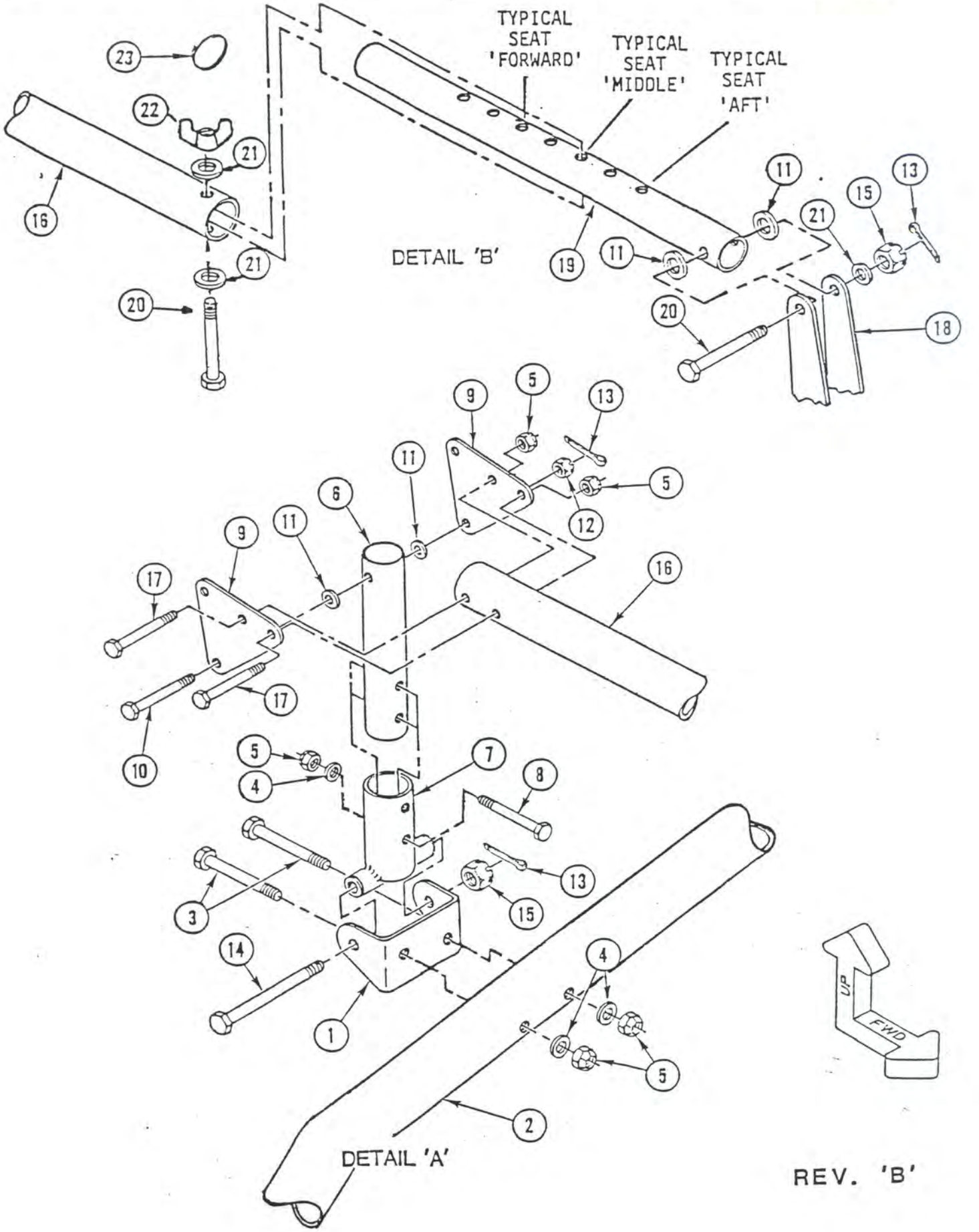
4. Connect the Forward Elevator Push/Pull Tube (16) to the Teleflex Attach Brackets (9) using the hardware (17,5). Tighten to proper torque.

5. Refer to Detail 'B'. Insert the Elevator Adjust Tube (19) into the Forward Elevator Push/Pull Tube (16) as shown and secure with hardware (20,21,22,23). NOTE: The location shown in Detail 'B' where bolt (20) attaches the Forward Elevator Push/Pull Tube (16) to the Elevator Adjust Tube (19) should be used when the seat is in the MIDDLE attach position. Be sure to reposition the Elevator Adjust Tube if other seat attach positions are used. CAUTION: No matter which seat position is used, be sure there is full 'UP' and 'DOWN' Elevator control.

6. Attach the Elevator Adjust Tube (19) to the Stick Attach Tube Assembly (18). Secure with hardware (20,11,21,15,13).

Pt.	P.N.	Description.
1.	40175	Idler Pivot Channel
2.	40311	Axle
3.	10053	AN3-20A Bolt
4.	10550	3/16" Washer
5.	10500	3/16" Locknut
6.	40176	Idler Tube
7.	45507	Base Mount Assembly
8.	10035	AN3-14A Bolt
9.	70600	Teleflex Attach Bracket
10.	10042	AN3-15 Bolt
11.	20340	Nylon Washer, 1/16"
12.	10517	3/16" Castle Nut
13.	10635	Cotter Pin
14.	10260	AN4-27 Bolt
15.	10521	1/4" Castle Nut
16.	40177	Fwd. Elevator Push/pull Tube
17.	10040	AN3-15A Bolt
18.	80021	Stick Attach Tube
19.	80027	Elevator Adjust Tube
20.	10121	AN4-15 Bolt
21.	10560	1/4" Washer
22.	10520	1/4" Wing Nut
23.	20310	Safety Ring

ELEVATOR CONTROL SYSTEM ASSY./ ATTACHMENT CON'T.

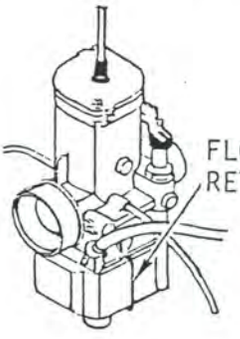


REV. 'B'

THROTTLE CABLE ATTACHMENT

Route throttle cable up the TRI-BAR down tube and secure with plastic tie wraps. take off CAP of CARBURETOR. (be careful of SPRING popping out.) Insert JET NEEDLE down through center hole of slide, then take CABLE BARREL and insert it through hardware as shown. Secure CABLE BARREL in SLIDE as SHOWN in detail on right. Take completed assembly and set into CARBURETOR BODY, then secure Cap with screws. After assembly is complete, install AIR FILTER (60000). See fuel system Assembly on page

NOTE: BE SURE TO CHECK AND SEE THAT FLOAT BOWL RETAINER CLIP ON BOTTOM OF CARBURETOR IS SECURELY IN PLACE.

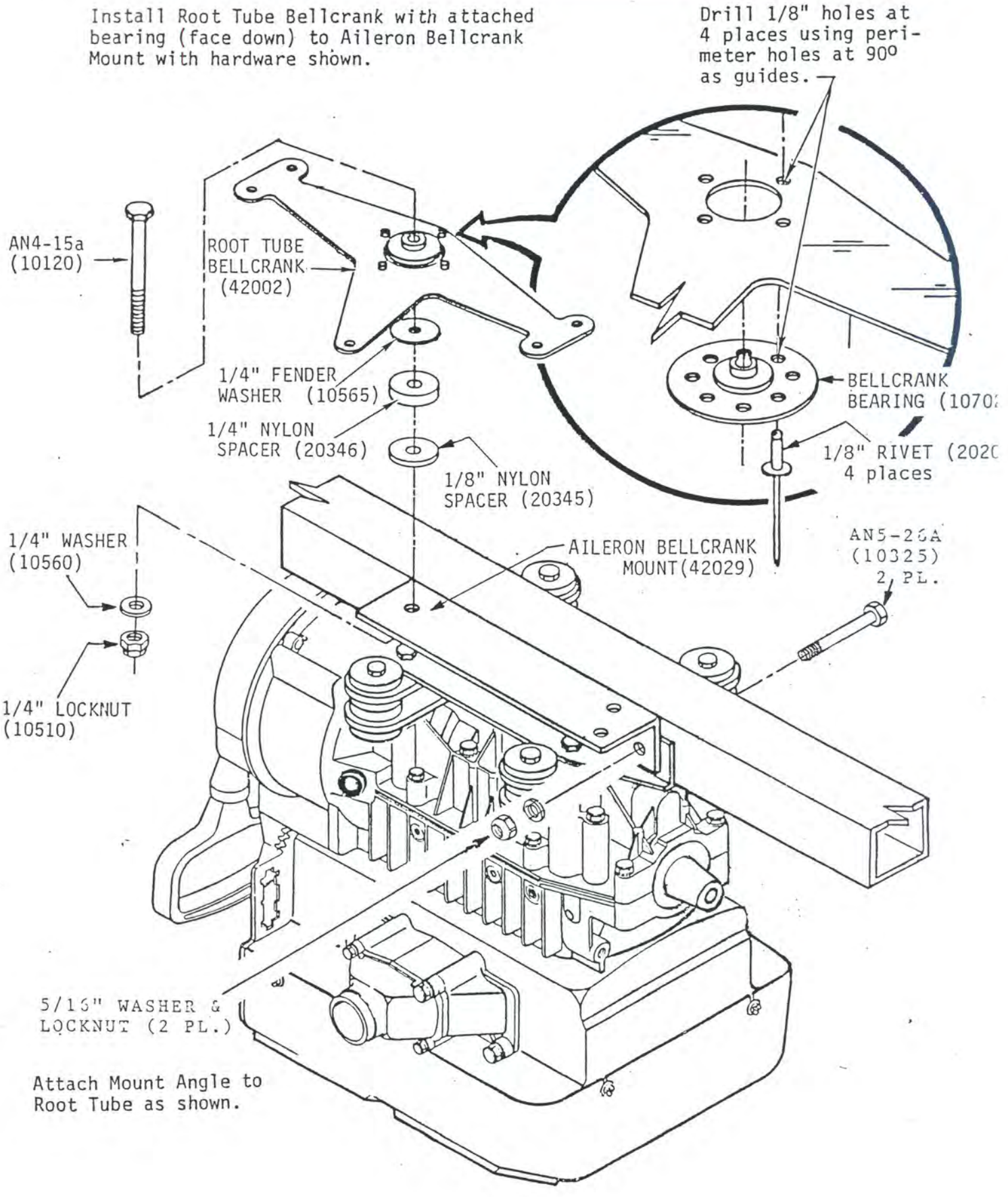


FLOAT BOWL RETAINER CLIP.

Attach CLIP in center slot. For LEANER setting place clip in upper slot. For RICHER setting place clip in lower slot.

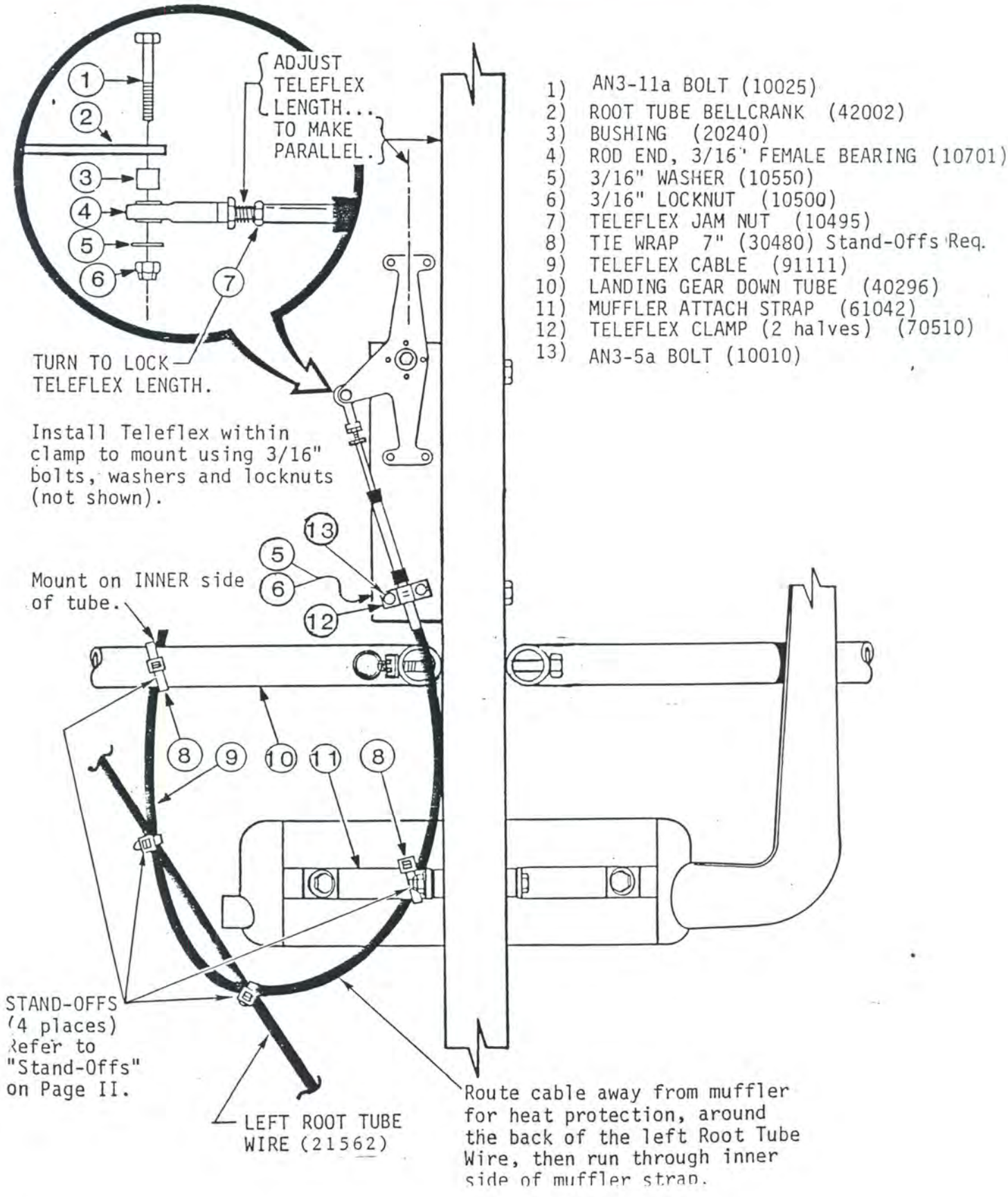
ROOT TUBE BELLCRANK ASSY./ ATTACHMENT

Install Root Tube Bellcrank with attached bearing (face down) to Aileron Bellcrank Mount with hardware shown.



Attach Mount Angle to Root Tube as shown.

ROOT TUBE BELLCRANK/TELEFLEX ATTACHMENT



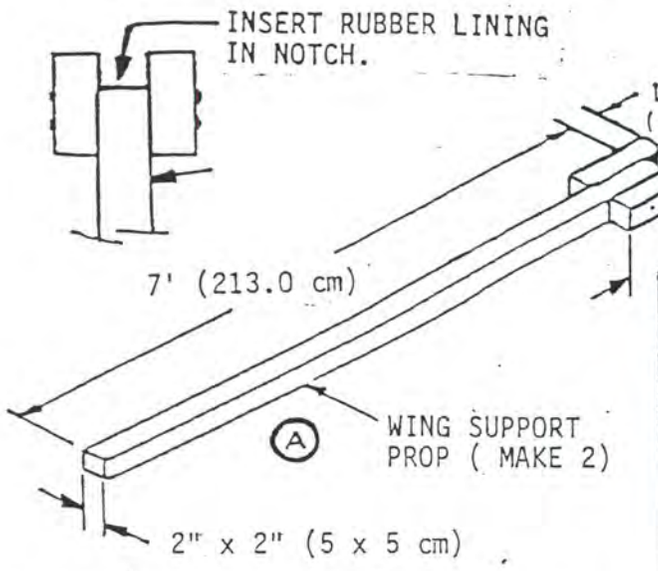
1) AN3-11a BOLT (10025)
2) ROOT TUBE BELLCRANK (42002)
3) BUSHING (20240)
4) ROD END, 3/16" FEMALE BEARING (10701)
5) 3/16" WASHER (10550)
6) 3/16" LOCKNUT (10500)
7) TELEFLEX JAM NUT (10495)
8) TIE WRAP 7" (30480) Stand-Offs Req.
9) TELEFLEX CABLE (91111)
10) LANDING GEAR DOWN TUBE (40296)
11) MUFFLER ATTACH STRAP (61042)
12) TELEFLEX CLAMP (2 halves) (70510)
13) AN3-5a BOLT (10010)

SECTION 9
WING AND TAIL ATTACHMENT

WINGS TO TRIKE ATTACHMENT.....9-2
KINGPOST ASSEMBLY.....9-3
UPPER WING WIRE / KINGPOST / TRIKE ASSEMBLY / ATTACHMENT.....9-5
LOWER WING WIRE ATTACHMENT / TENSION ADJUSTMENT.....9-7
WINGS TO TRIKE ATTCHMENT (CONT.).....9-8
VELCRO DOOR (GAP SEAL WING) HEAT CUTTING.....9-9
TAIL ASSEMBLY ATTACHMENT.....9-10

WINGS TO TRIKE ATTACHMENT

PERFORM THE FOLLOWING ATTACHMENT SEQUENCE IN AN AREA LARGE ENOUGH TO ACCOMMODATE THE FULL WINGSPAN OF YOUR AIRCRAFT. FACE YOUR PLANE TAIL TO THE WIND.



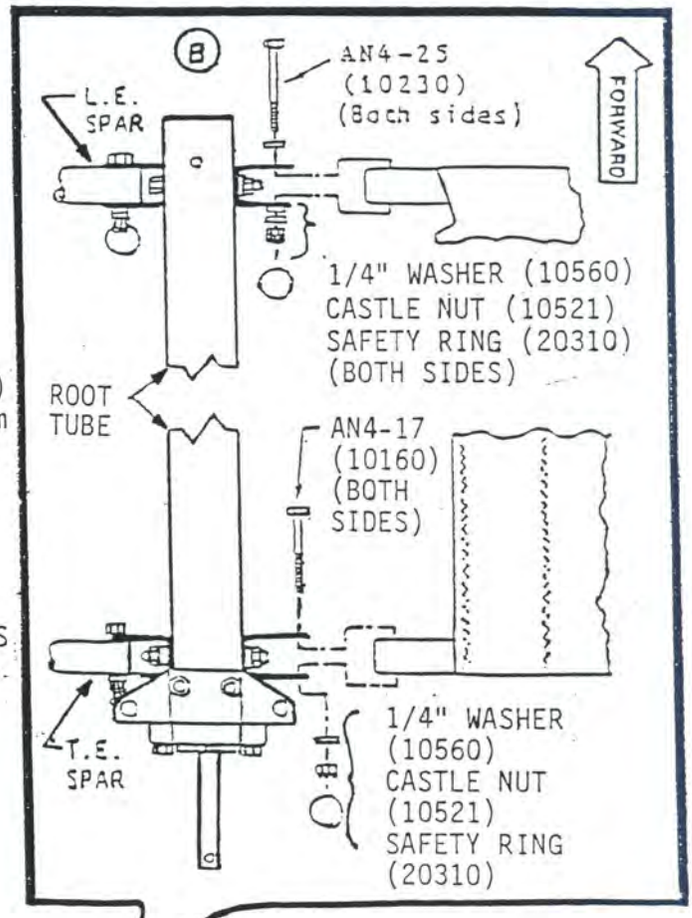
OPTIONAL — PLAN 'A'

PLAN 'A'- ONE PERSON SET-UP.
PLAN 'B'- ONE PERSON SET-UP.
(THE WAY WE DO IT AT THE FACTORY).
SEE PAGE 9-3.

1. BUILD TWO WING SUPPORTS FROM ONE EACH 2"x 2" x 7' (5cm x 5cm x 213 cm) AND TWO EACH 2" x 2" x 6" (5cm x 5 cm x 15cm) PIECES OF LUMBER AS SHOWN IN ILLUSTRATION 'A'.

2. ATTACH WINGS TO ROOT TUBE AS SHOWN IN ILLUSTRATION 'B'.

3. LEAVE THE WING TIPS RESTING ON STRIPS OF CARPET ON THE GROUND.



TOP VIEW



REV. 'B'

KING POST ASSEMBLY

1. Attach a King Post Bottom Fitting (8) to the bottom end of the FORWARD King Post (12) using the hardware (9,10,11) shown. Tighten to proper torque.

REFER TO DETAIL 'A' ON FOLLOWING PAGE

2. Attach two King Post Plates (13) - oriented as shown - to the upper end of the FORWARD King Post (12) using the hardware (5,6,7) shown. Tighten until snug. Don't crush the tube.

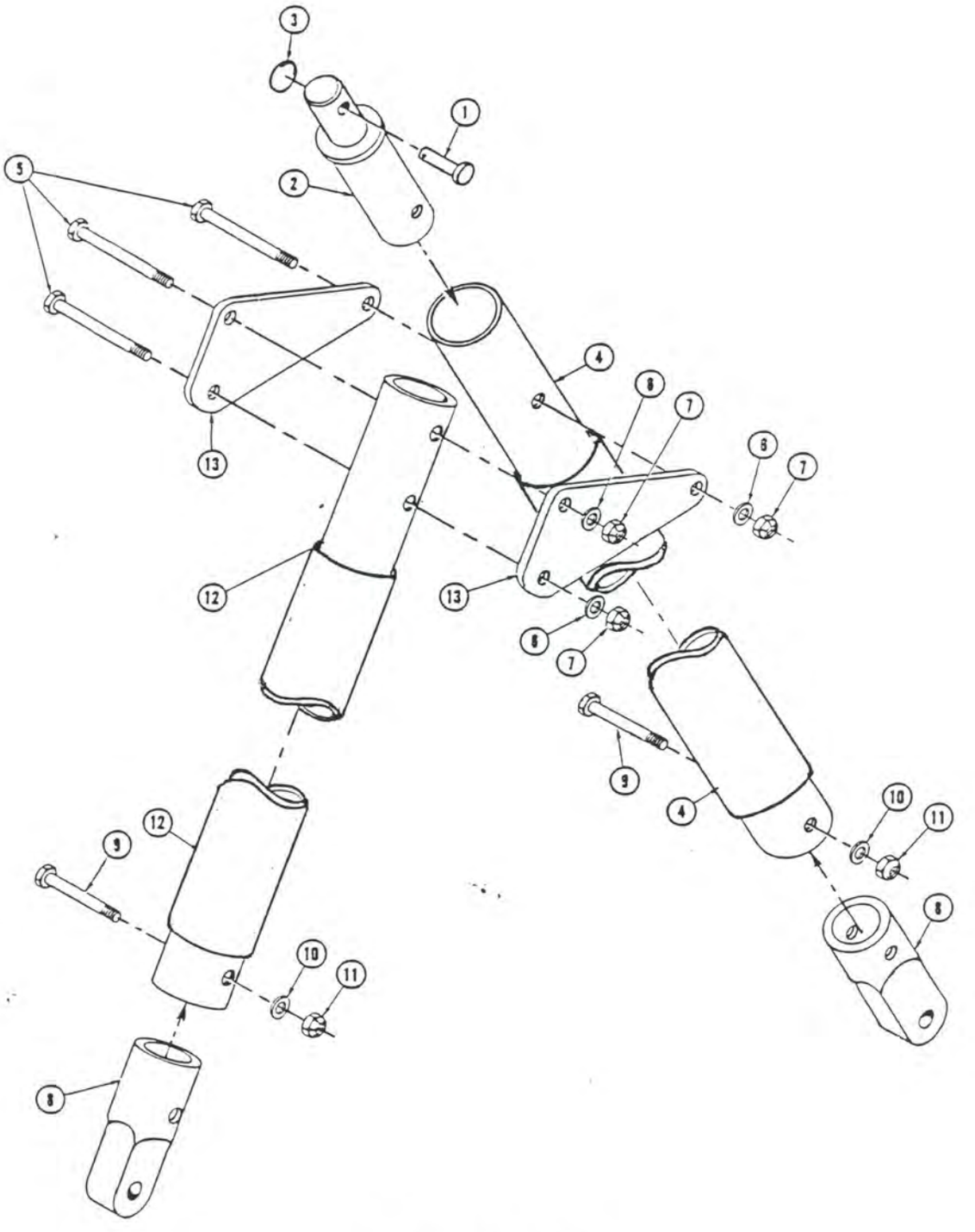
3. Attach a King Post Bottom Fitting (8) to the bottom end of the AFT King Post (4) using the hardware (9,10,11) shown. Tighten to proper torque.

4. Add a Clevis Pin (1) to the King Post Top Fitting (2). Attach using a Safety Ring (3). Insert the King Post Top Fitting (2) into the top of the AFT King Post (4).

5. Attach the FORWARD King Post (12) to the AFT King Post (4) <u>via</u> the King Post Plates (13) <u>and</u> the King Post Top Fitting (2) using the hardware (5,6,7) shown. Tighten until snug. Don't crush the tubes.

Pt.	P.N.	Description.
1.	10450	3/16" Clevis Pin 27/32" (21.43mm) long.
2.	45717	King Post Top Fitting.
3.	20310	Safety Ring.
4.	40205	AFT King Post Tube.
5.	10040	AN3-15a Bolt.
6.	10550	3/16" Flat Washer.
7.	10500	3/16" Locknut.
8.	45718	King Post Bottom Fitting.
9.	10080	AN4-13a Bolt.
10.	10560	1/4" Flat Washer.
11.	10510	1/4" Locknut.
12.	40204	FORWARD King Post Tube.
13.	45694	King Post Plate.

KINGPOST ASSEMBLY (CONT.)



DETAIL 'A'

UPPER WING WIRE/ KINGPOST/ TRIKE ASSY./ ATTACHMENT

REFER TO DETAIL 'B' ON FOLLOWING PAGE

1. Temporarily remove the Safety Ring (1) and the Clevis Pin (2) from the King Post Top Fitting (3). Raise the King Post sub-assembly - oriented as shown - up between the Left Wing and the Root Tube (6).

2. Position the LEFT Upper Wing Wire Assembly (4) and then the RIGHT Upper Wing Wire Assembly (5) onto the King Post Top Fitting (3). Ensure that the wires are untwisted and their Tangs are oriented as shown. Re-attach the Clevis Pin (2) and secure with the Safety Ring (1).

3. Have two friends each raise a Wing <u>via</u> the OUTBOARD WIRE Compression Struts.

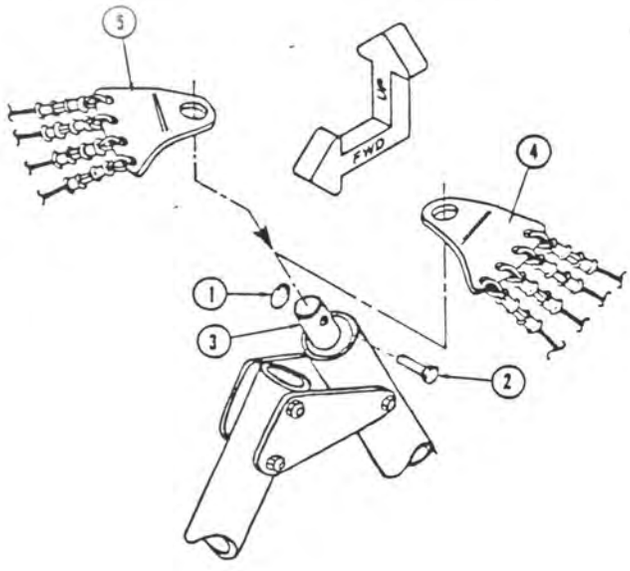
4. Raise the King Post Sub-assembly above the Root Tube (6) and position the forward King Post (7) in the forward King Post Channel Track (8A). Align the hole in the King Post Bottom Fitting (9) with the hole in the Track. Attach using a 'T' Handle Pin (10).

NOTE IN THE NEXT STEP IT MAY BE NECESSARY TO REMOVE THE AFT BOLT IN THE AFT KING POST CHANNEL TO ALLOW THE AFT KING POST TO SLIDE PAST.

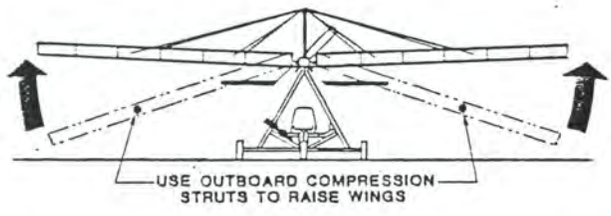
5. Position the Aft King Post (11) in the <u>most aft</u> hole in the aft King Post Channel Track (8B) and attach using a 'T' Handle Pin (10). Check that the Upper Wire sets (4) and (5) are untwisted.

Pt.	P.N.	Description.
1.	20310	Safety Ring.
2.		Clevis Pin.
3.		King Post Top Fitting.
4.		Left Upper Wing Wire Assembly.
5.		Right Upper Wing Wire Assembly.
6.		Root Tube.
7.		Forward King Post.
8.		King Post Channel Track.
9.		King Post Bottom Fitting.
10.	10472	'T' Handle Pin.
11.		Aft King Post.

UPPER WING WIRE/ KINGPOST/ TRIKE ASSY./ ATTACHMENT



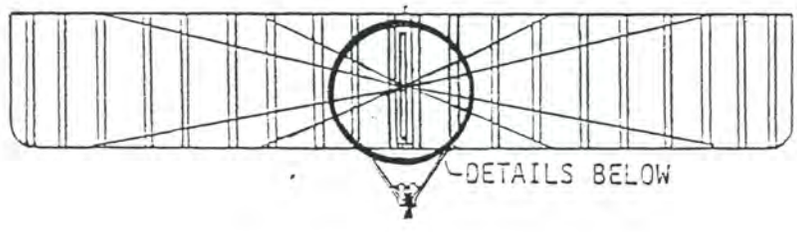
DETAIL 'B'

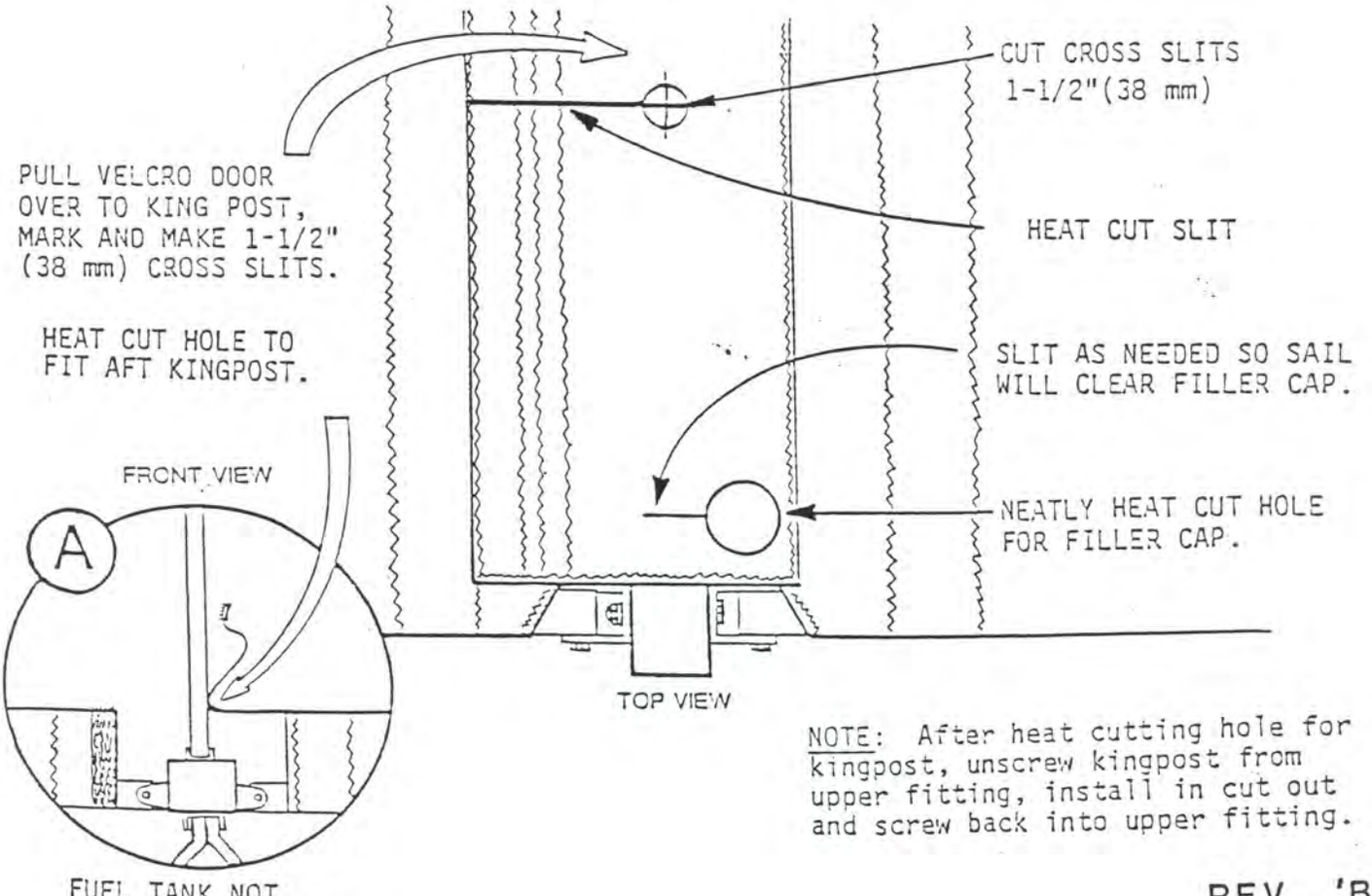


VELCRO DOOR HEAT CUTTING

KING POST: Be sure that all buckles are tight, then pull velcro door over to KING POST and mark for cutting as shown in detail "A".

FILLER CAP: Neatly heat cut hole for filler cap and make slit as shown so sail will clear filler cap when being pulled over.





NOTE: After heat cutting hole for kingpost, unscrew kingpost from upper fitting, install in cut out and screw back into upper fitting.

REV. 'B'

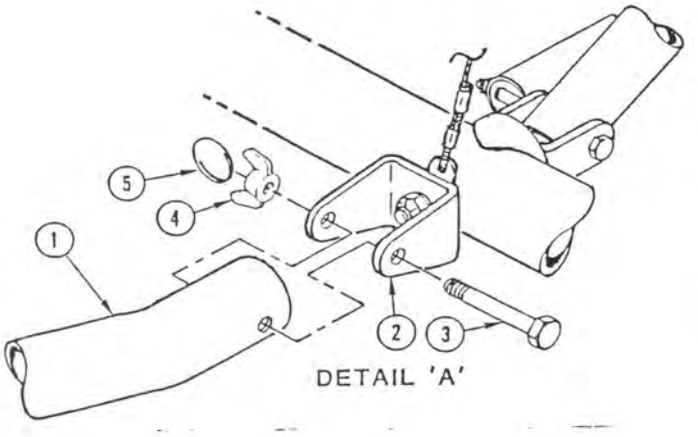
TAIL ASSEMBLY ATTACHMENT

NOTE: Installation of wings to the trike is necessary before proceeding to THIS assembly sequence. See your aircraft assembly instructions for specific instructions. Attach the Elevator to the Stabilizer.

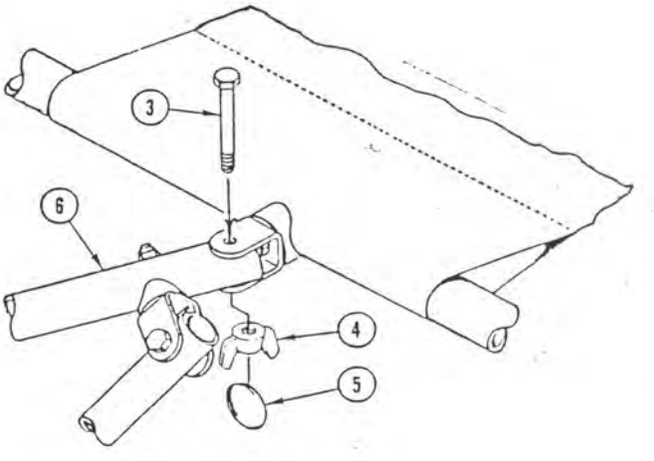
1. Refer to Detail 'A'. Move the completed tail assembly into position behind the trike and wings and insert the Lower Tail Booms (1) into their corresponding Channels (2) on the Axle. Secure with hardware (3,4,5) as shown.

2. Refer to Detail 'B'. With the help of a friend raise the tail high enough to allow the Upper Tail Booms (6) to be easily positioned into their respective Channels on the Trailing Edge. Secure with hardware (3,4,5) as shown.

Pt.	P.N.	Description.
1.		Lower Tail Boom
2.		1 1/4" Channel
3.	10180	AN4-20 Bolt
4.	10520	Wingnut, 1/4"
5.	20310	Safety Ring
6.		Upper Tail Boom



DETAIL 'A'



DETAIL 'B'

SECTION 10
CONTROL SURFACES ATTACH AND ADJUST

ELEVATOR/ RUDDER CABLE ATTACHMENT ---------- 10-2

ELEVATOR AFT PUSH/PULL TUBE ATTACHMENT ---------- 10-3

AILERON CABLE ATTACHMENT ---------- 10-4

AILERON TO WING ATTACHMENT ---------- 10-5

PUSHROD ASSEMBLY ATTACHMENT ---------- 10-6

ROOT TUBE BELLCRANK/ TELEFLEX ADJUSTMENT ---------- 10-7

AILERON DEFLECTION ADJUSTMENT ---------- 10-8

ELEVATOR / RUDDER CABLE ATTACHMENT

(FIGURE 1)

1. LINE UP THE THREE HINGE FORKS ON THE ELEVATOR LEADING EDGE WITH THE THREE HINGE EYEBOLTS ON THE STABILIZER TRAILING EDGE.INSERT A CLEVIS PIN (10440) INTO EACH, BEGINNING IN THE CENTER AND SECURE EACH WITH A SAFETY RING (20310).

(FIGURE 2)

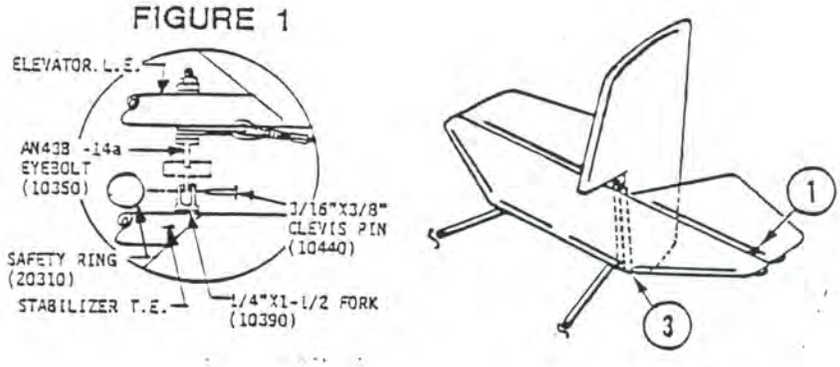
2. ROUTE BOTH RUDDER CABLES, LEFT (91113) AND RIGHT (91114), AFT THROUGH PULLEYS, OVER AXLE AND UP TO RUDDER. ATTACH RUDDER CABLE EXTENSION (91112) TO RIGHT RUDDER HORN WITH CLEVIS PIN (10440) AND SAFETY RING (20310). NEXT ATTACH RIGHT RUDDER CABLE TO RUDDER CABLE EXTENSION WITH CLEVES PIN AND SAFETY RING. FINALLY ATTACH LEFT RUDDER CABLE DIRECTLY TO LEFT RUDDER HORN USING CLEVIS PIN, SHACKLE (20320) AND SAFETY RING.

3. MAKE SURE THE CABLE GUARD IS POSITIONED STRAIGHT DOWN AND DOES NOT INTERFERE WITH OR RUB RUDDER CABLE. ALSO CHECK THAT THE CABLES DO NOT CONTAC ANY PART OF THE TRI-BAR, SEAT MOUNT, TELEFLEX, ETC. DURING OPERATION OF THE PEDALS. FINAL TIGHTEN THE CLAMPS AND PULLEYS.

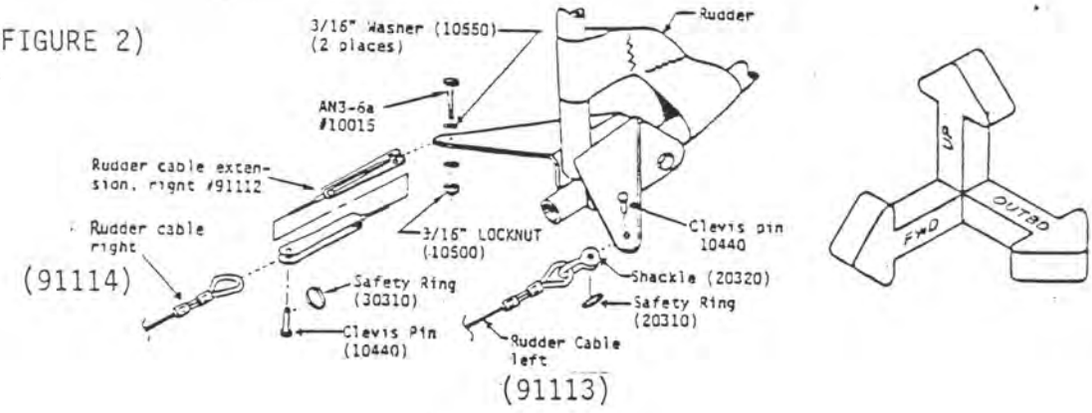
4. ADJUST THE LOCKNUTS ON THE AN43B-15A RUDDER CABLE EYEBOLTS (10371) UNTIL BOTH OF THE PEDALS AND THE RUDDER ARE "NEUTRAL".

5. CHECK THE PEDALS AND RUDDER FOR SMOOTH POSITIVE ACTION. READJUST PEDALS EVENLY FOR FOOT POSITION AND PERSONAL COMFORT.

FIGURE 1

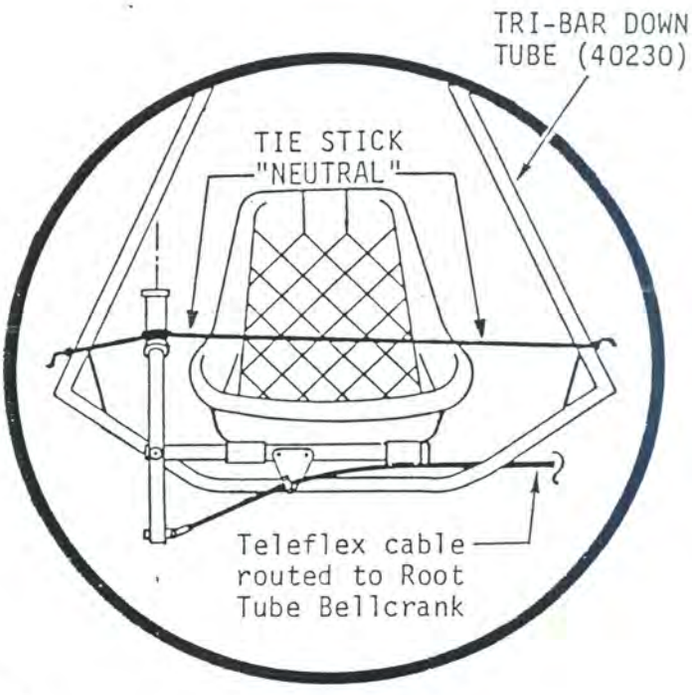


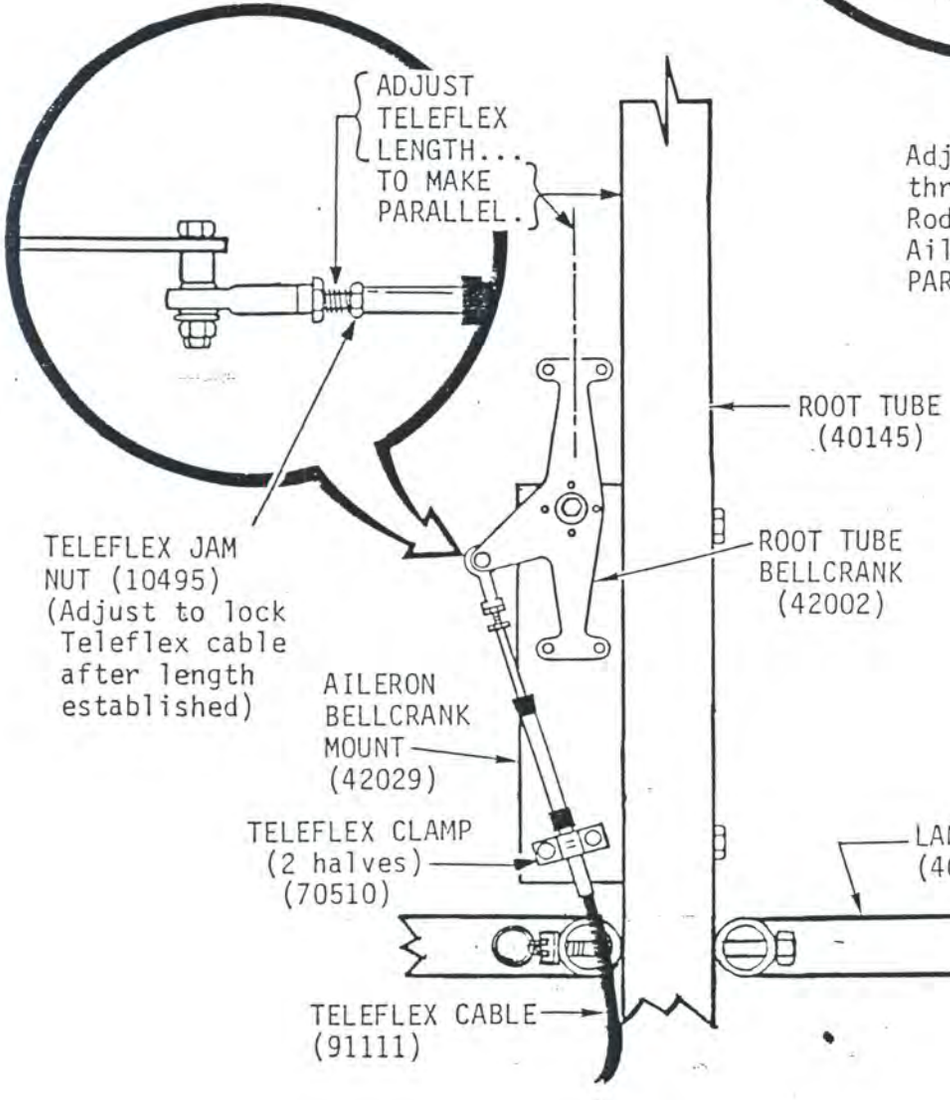
(FIGURE 2)



ROOT TUBE BELLCRANK/TELEFLEX ADJUSTMENT

Tie Control Stick in "neutral" position with separate rope to each Tri-Bar Down Tube, as shown, (or have helper hold stick in position).





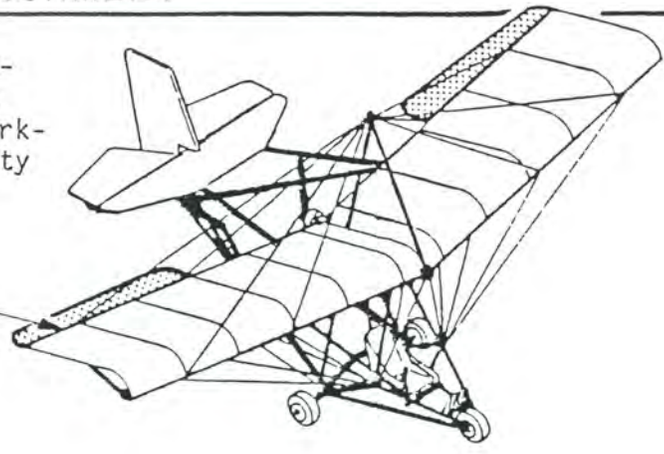
Adjust amount of Teleflex thread-travel into female Rod End Bearing until Aileron Bellcrank is PARALLEL to Root Tube.

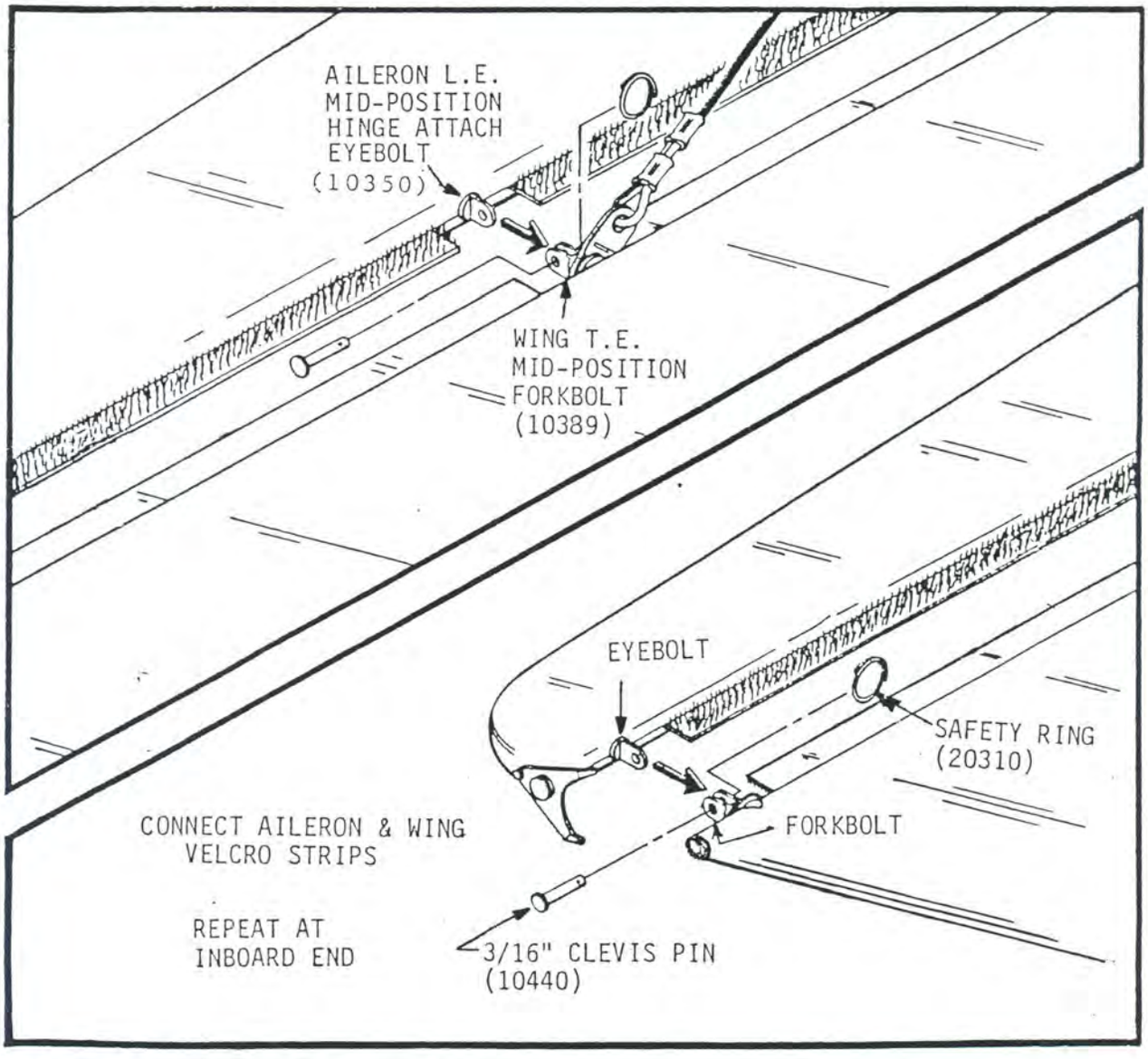
(NOTE: IF ROPES ARE USED, KEEP THEM TIED FOR FOLLOWING STEP ON NEXT PAGE.)

AILERON TO WING ATTACHMENT

Attach aileron to wing at mid-position Aileron L.E. eyebolt and Wing T.E. mid-position fork-bolt with clevis pin and safety ring.

REPEAT at inboard and outboard ends.
(MID- AND OUTBOARD SHOWN)

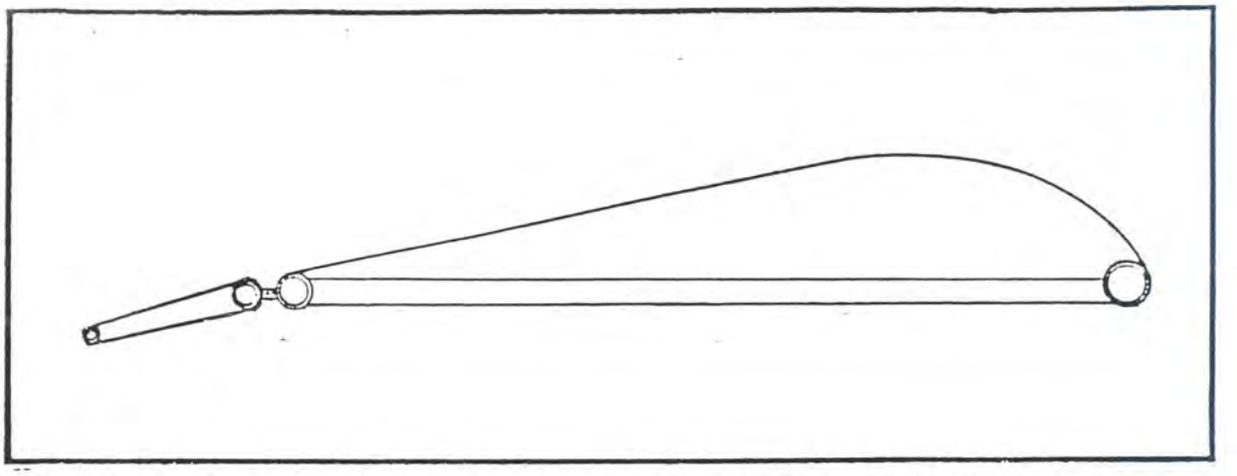




REPEAT ON OPPOSITE SIDE

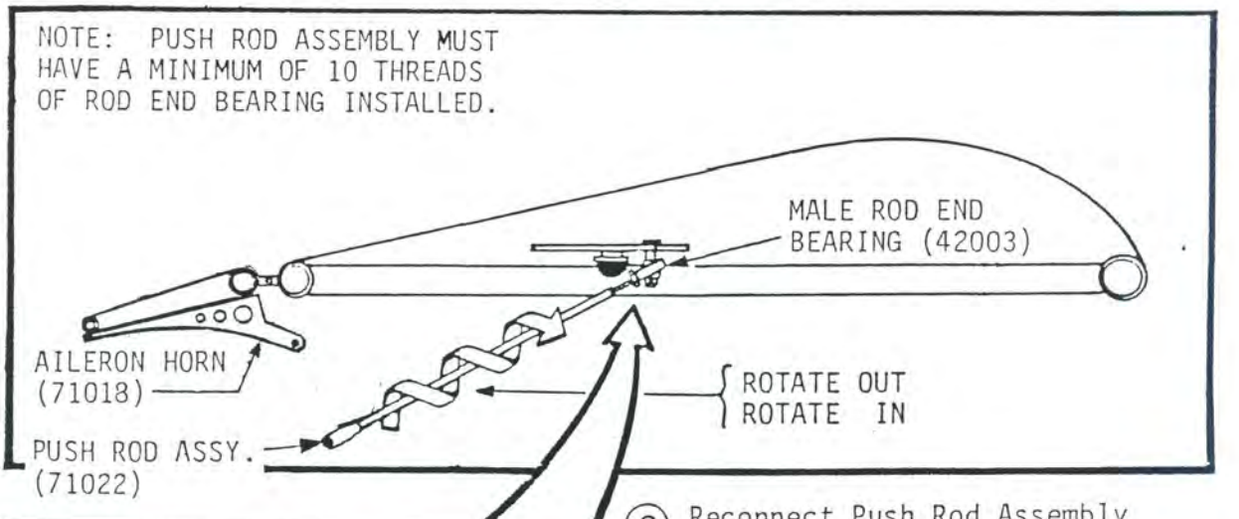
AILERON DEFLECTION ADJUSTMENT

(1)

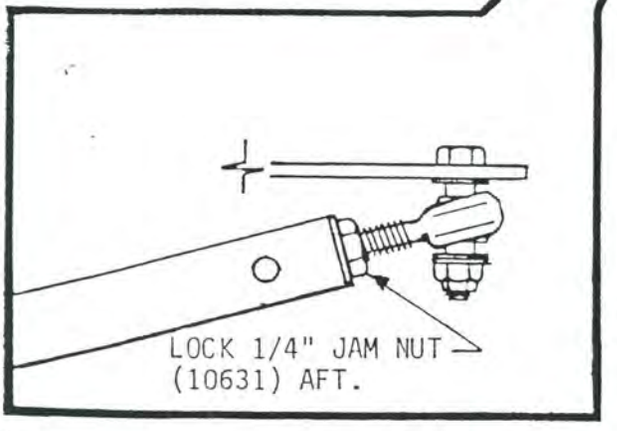


BEGIN WITH STICK HELD "NEUTRAL". INITIALLY, AILERONS MAY BE DEFLECTED UP OR DOWN. PURPOSE: TO ADJUST AILERONS TO 8 DEGREES OF DOWN DEFLECTION FROM BELLCRANK COMPRESSION STRUT OR UNTIL THE MALE ROD END BEARING BOTTOMS OUT COMPLETELY.

(2)



(3)



(3) Reconnect Push Rod Assembly aft (fork) end to Aileron Horn. When adjustment is complete, rotate Jam Nut aft to "lock" Push Rod Assembly length.

REPEAT ON OTHER WING

(NOTE: Subsequent flight testing may show a tendency for the airplane to favor a slight roll in one direction or the other with the control stick held in neutral position. This characteristic simply indicates the need for additional fine-tuning of aileron deflection.)

SECTION 11
FINAL PROCEDURES

PROPELLER ATTACHMENT ---------- 11-2

BEARING LUBRICATION SCHEDULE/ PROCEDURE ---------- 11-3

WING WASHOUT CONFIRMATION ---------- 11-4

WING/ STABILIZER INCIDENCE CONFIRMATION ---------- 11-5

ENGINE START UP PROCEDURE ---------- 11-6

ENGINE BREAK-IN PROCEDURE ---------- 11-7

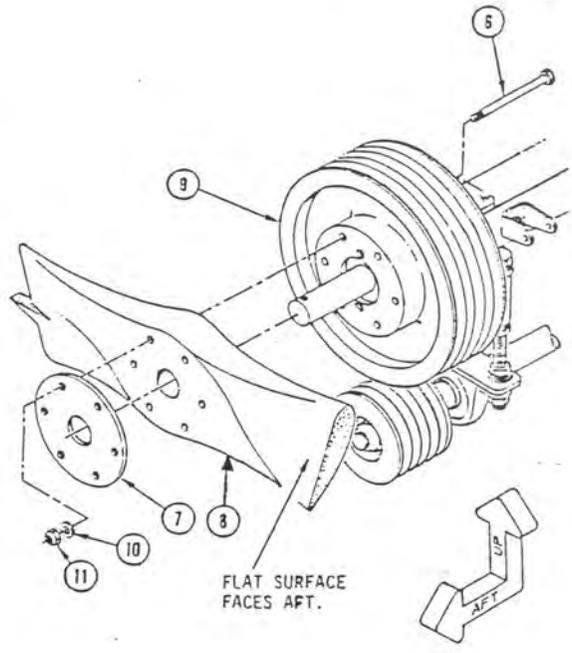
PROPELLER ATTACHMENT

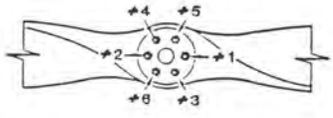
** CAUTION - To insert the Propeller Bolts in STEP you will need to rotate the Propeller & Pulley to access each bolt hole. Disconnect the Spark Plug Wires before beginning. **

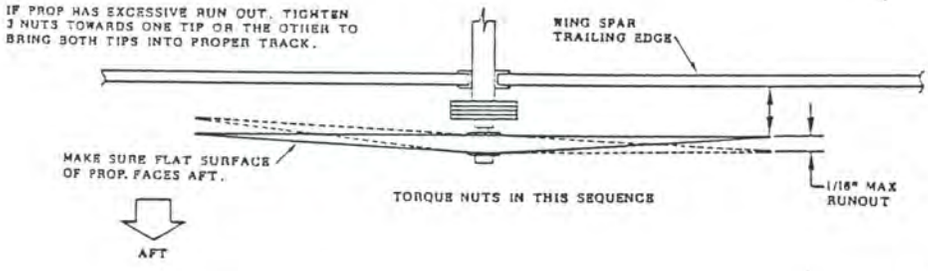
. Slide the Propeller (8) onto the Prop Shaft and align the holes in the Pulley (9) with the Propeller (8). Install six Propeller Bolts (6), one at a time, thru the Pulley (9) and Propeller (8). Add the Backing Plate (7) and the hardware (10,11) to each Bolt (6) and Tighten in sequence - as shown - until snug.

. Track the Propeller using method detailed below .

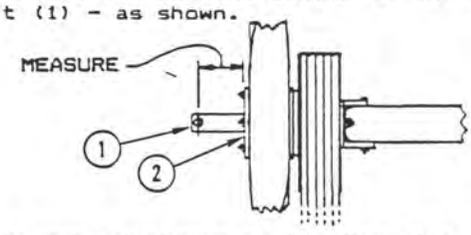
6. 10287 AN4-44A BOLT
7. 45852 Prop Backing Plate
8. 30348 Propeller 66 x 34
9. 60179 Pulley, 8" 5 groove
10. 10560 1/4" Washer
11. 10510 1/4" Locknut







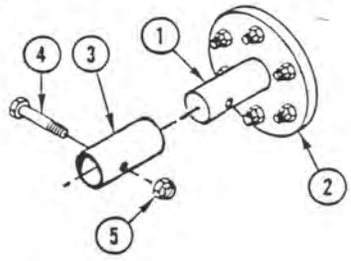
1. Measure along the Prop Shaft (1) the distance between the AFT SIDE of the Propeller Face Plate (2) and the center of the existing 5/16" hole in the Prop Shaft (1) - as shown.



2. Measure and Mark the same distance on the Propeller Shaft Spacer (3). Drill a 1/8" dia. hole at that location (thru ONE SIDE ONLY of Spacer).

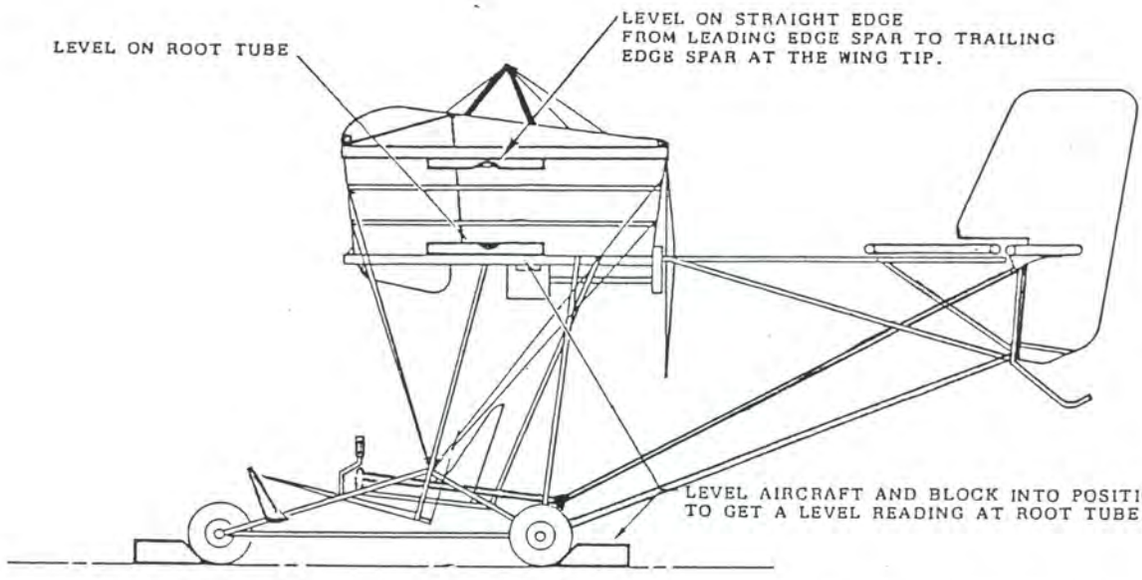
3. Slide the Shaft Spacer (3) onto the Prop Shaft (1). Align the 1/8" hole over the 5/16" hole in the Prop Shaft (1). Ensure that the Shaft Spacer (3) remains in contact with the Face Plate (2) while Drilling out the 1/8" hole to 5/16" dia. Backdrill thru the other side of the Shaft Spacer (3) using the Prop Shaft Hole as a guide.

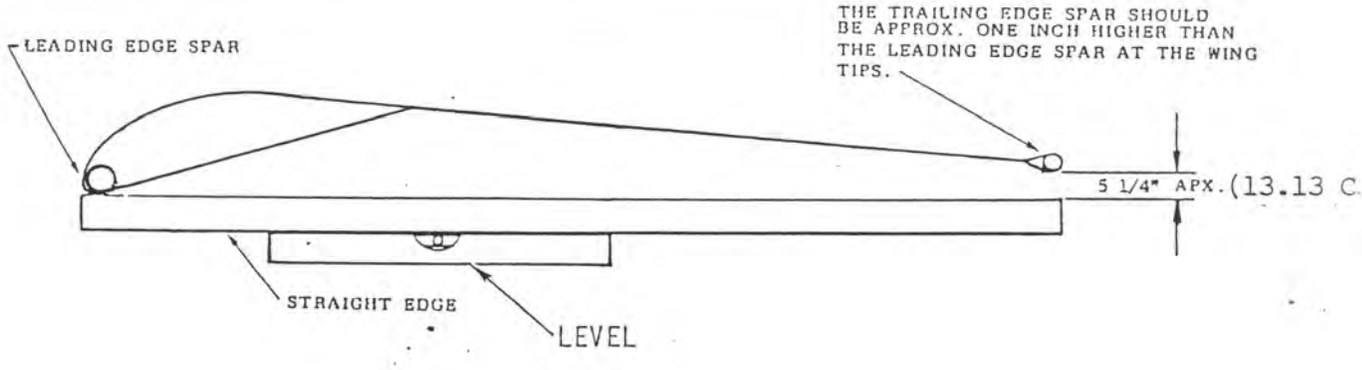
4. Remove the Shaft Spacer (3) and Deburr the holes. Apply a small bead of Silicone around the Prop Shaft (1) next to the Face Plate (2). Slide the Shaft Spacer (3) onto the Prop Shaft (1) and Attach with the Hardware (4,5).
NOTE: If necessary trim the AFT end of the Spacer to match the Prop Shaft.



Pt.	P/N.	Description.
1.		.....Prop Shaft.
2.	45852	Propeller Face Plate.
3.	45855	Propeller Shaft Spacer.
4.	10320	AN3-15a Bolt.
5.	10540	5/16" Locknut.

WING WASHOUT





(1) LEVEL AND BLOCK THE AIRCRAFT AS SHOWN ABOVE TO GET A LEVEL READING ACROSS THE ROOT TUBE FORWARD AND AFT.

(2) USE SAME LEVEL ON A STRAIGHT EDGE TO GET READING AT WING TIPS FORWARD AND AFT. AS SHOWN ABOVE.

CORRECT WING WASHOUT IS AN IMPORTANT FACTOR IN THE STALLING CHARACTERISTICS AND LOW SPEED HANDLING OF YOUR AIRCRAFT. WASHOUT IS SET AT THE FACTORY THROUGH PRECISE WIRE LENGTHS: HOWEVER, IT SHOULD BE CHECKED BEFORE FLIGHT TO BE CERTAIN THAT THE ANGLES ARE WITHIN FACTORY SPECIFICATIONS.

(3) MAKE SURE THE KING POST IS ADJUSTED AND ALL THE SLACK IS OUT OF THE WIRES.

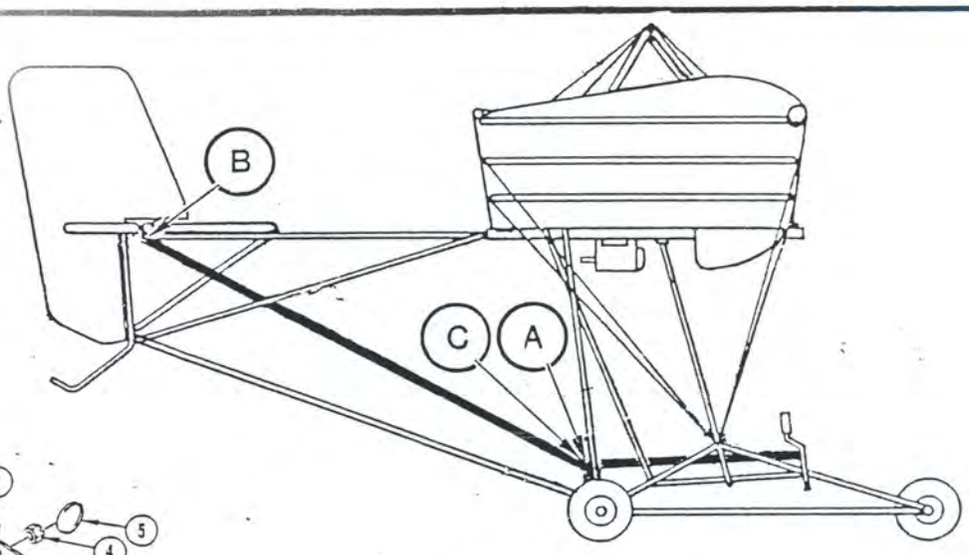
(4) CHECK ALL WIRES FOR IMPROPER LOCATION, TWIST ETC.

WASHOUT AT THE TRAILING EDGE APX. 5 1/4"

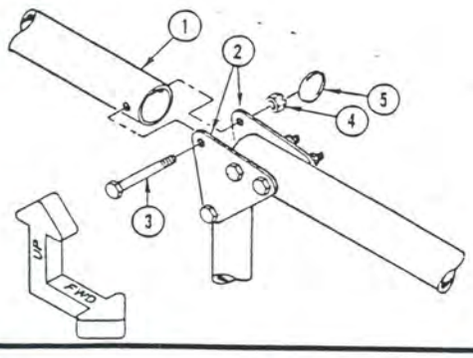
IF PROBLEMS OCCUR FEEL FREE TO CONTACT YOUR DEALER.

ELEVATOR AFT PUSH/PULL TUBE ATTACHMENT

REF. ONLY

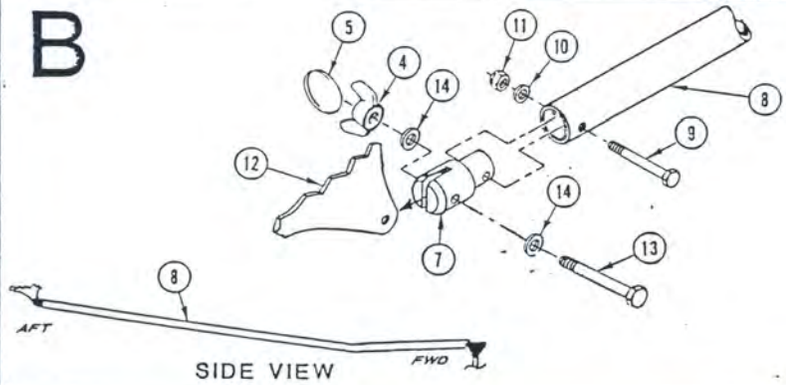


A



Pt.	P.N.	Description
1..	40178	Tube, Aft Elevator Push/Pull
2	70600	Teleflex Attach Bracket
3.	10042	AN3-15 Bolt
4.	10517	3/16" Castle Nut
5.	20310	Safety Ring

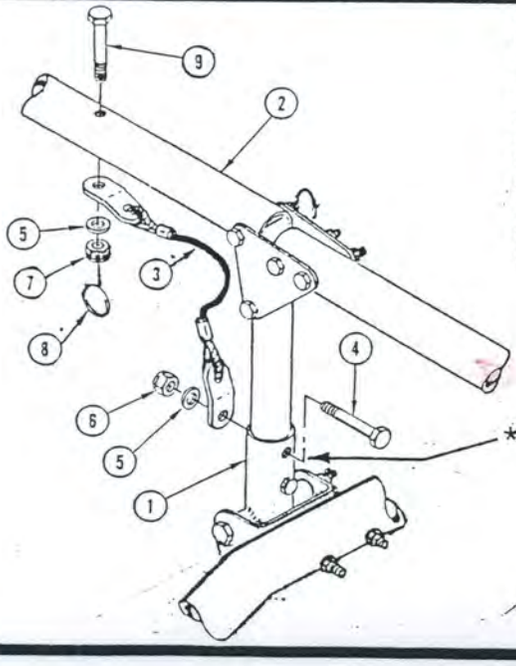
B



SIDE VIEW

Pt.	P.N.	Description.
3.	10180	AN4-20 Bolt
4.	10520	Wingnut, 1/4"
5.	20310	Safety Ring
7.	70190	Elev. Tube Clevis
8.	40178	Aft Elev. Push/Pull Tube
9.	10035	AN3-14A Bolt
10.	10550	3/16" Washer
11.	10500	3/16" Locknut
12.	70070	Elevator Control Arm
13.	10110	AN4-14 Bolt
14.	10560	1/4" Washer

C



Pt.	P/N.	Description.
1.	45507	Base Mount Assy.
2.	40178	Aft Elev. Push/Pull Tube.
3.	21564	Elev. Stop Wire
4.	10120	AN4-15a Bolt
5.	10560	1/4" Washer
6.	10510	1/4" Locknut
7.	10521	1/4" Castle Nut
8.	20310	Safety Ring
9.	10121	AN4-15 Bolt

★ NOTE: DRILL OUT THE UPPER HOLE ON BASE MOUNT ASSEMBLY (45507) TO 1/4" TO ACCEPT AN4-15A BOLT (10210).

BEARING LUBRICATION

NOTE: TOO MUCH GREASE IS AS BAD AS NOT ENOUGH.

BOTH drive shaft and prop shaft bearing MUST BE PERIODICALLY RELUBRICATED to assure long life. The bearings should be lubricated EVERY 50 HOURS OF OPERATION and 30 HOURS IF OPERATED IN EXTREME DIRT/DUST ENVIRONMENT.

REMOVE the propeller and use EXTREME CAUTION as the bearings ideally should be lubricated while in operation (run engine at idle and DO NOT OVERSPEED).

Feed the specified lubricant into the bearing SLOWLY until a slight "bead" (of lubricant) forms around the seal.

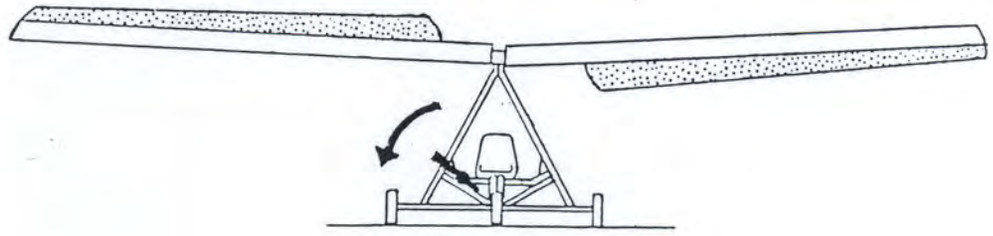
PROPER LUBRICATION OF BEARINGS PREVENTS EXCESSIVE WEAR OF PARTS, PROTECTS BALL RACES, BALLS, ETC. FROM CORROSION AND HELPS IN DISSIPATING INTERNAL HEAT.

USE SPECIFIED LUBRICANT ONLY!

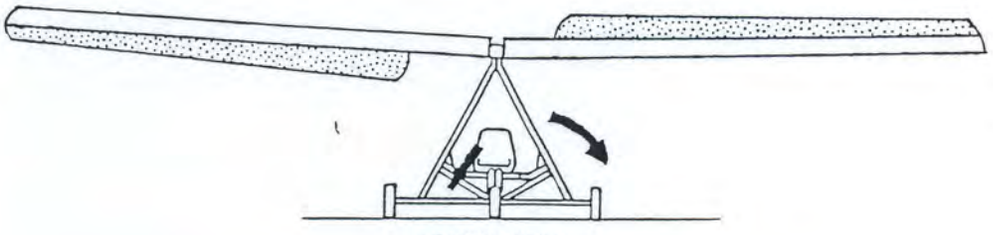
USE ONLY A LUBRICANT CONFORMING TO A NLGI GRADE II CONSISTENCY, IDEALLY A LITHIUM BASED LUBRICANT.

AILERON SYSTEM CHECK-IMPORTANT!

You need to check and see if your aileron system is properly assembled by moving the control stick from one side to the other. The ailerons of course, should acuate in opposite directions, but just as important is when the control stick is to the right, the right aileron should be "UP" and vice versa for the control stick moved to the left. If this is not the case, you must correct the linkage problem before going on to the next assembly.



FRONT VIEW

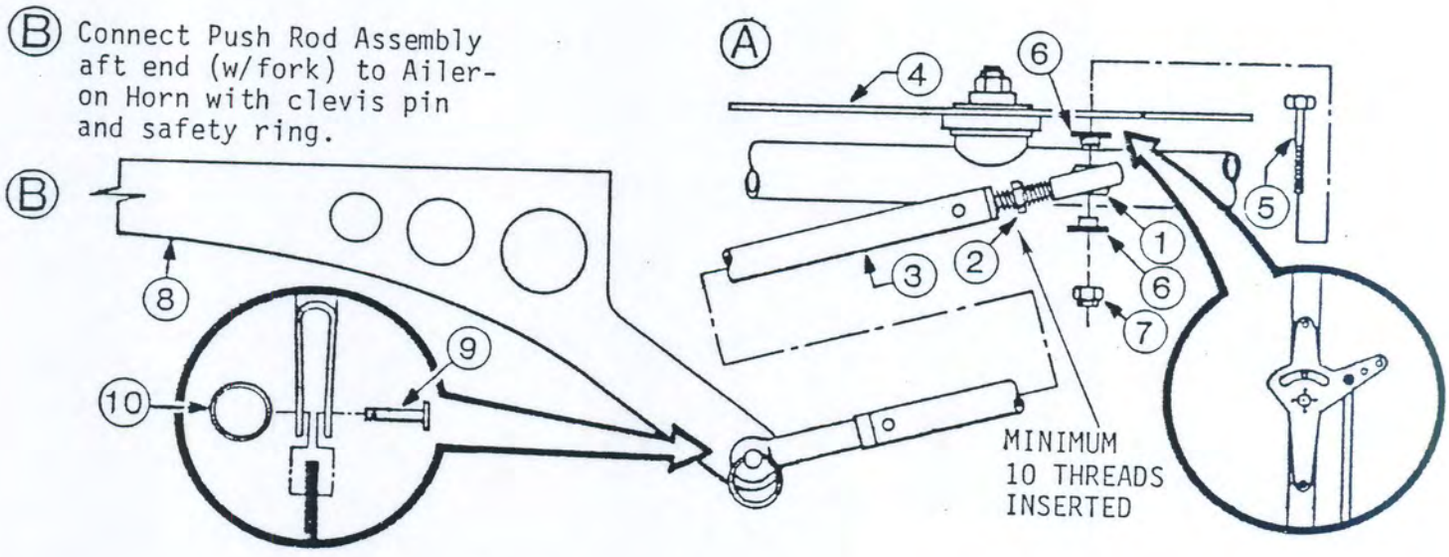


FRONT VIEW

PUSHROD ASSEMBLY ATTACHMENT I

Ⓐ Rotate Male Rod End Bearing a MINIMUM of 10 threads onto Pushrod Assembly. Insert rod through slot (above) and attach to innermost hole on Root Tube Bellcrank.

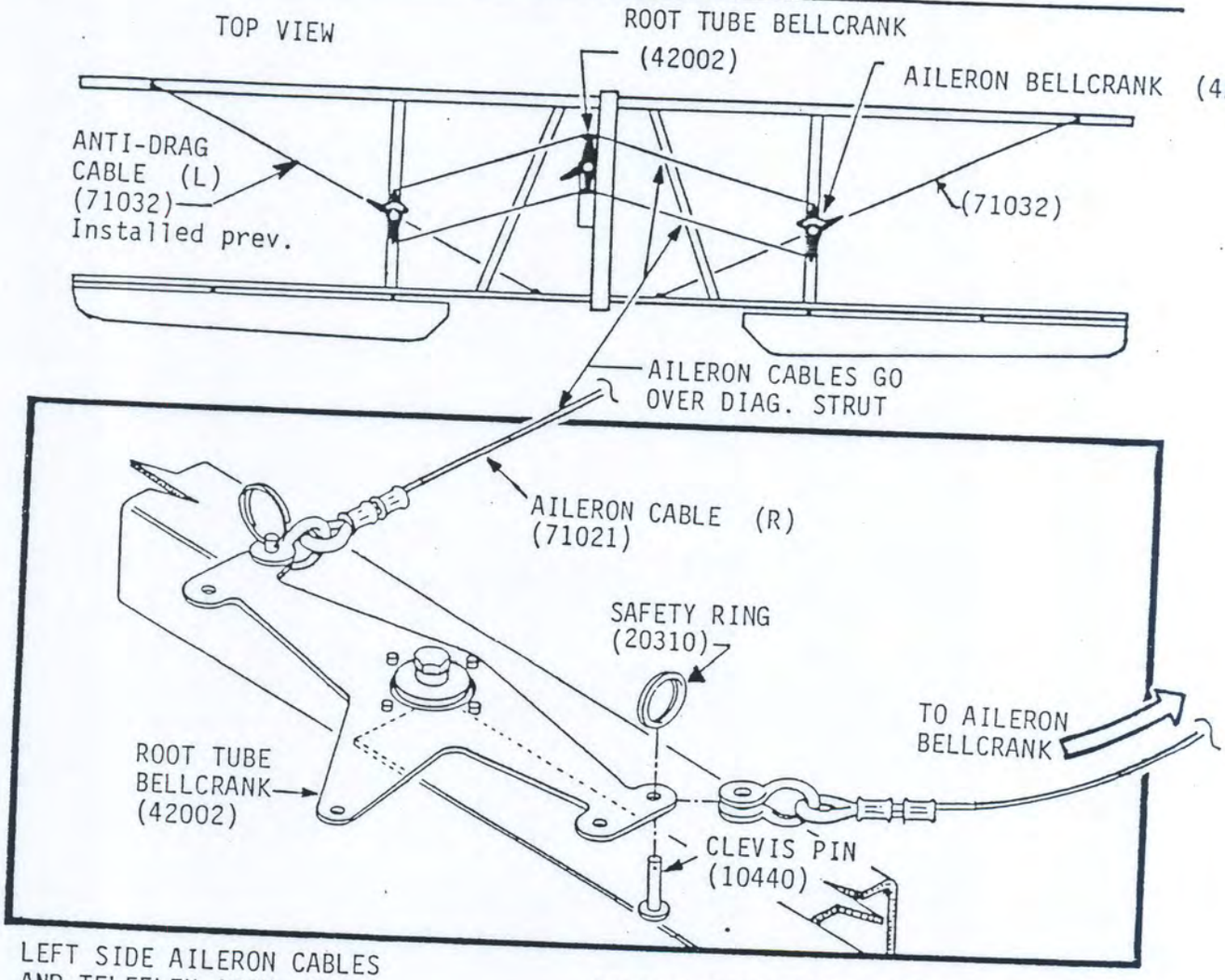
Ⓑ Connect Push Rod Assembly aft end (w/fork) to Aileron Horn with clevis pin and safety ring.



1).	10700	MALE ROD END BEARING
2).	10631	1/4" JAM NUT
3).	71022	PUSHROD ASSEMBLY
4).	42009	AILERON BELLCRANK
5).	10025	AN3-11a BOLT
6).	20241	'T' BUSHING
7).	10516	3/16" THIN LOCKNUT
8).	71018	AILERON HORN
9).	10440	3/16" CLEVIS PIN
10).	20310	SAFETY RING

REPEAT ON OTHER WING

AILERON CABLE ATTACHMENT



LEFT SIDE AILERON CABLES AND TELEFLEX ASSY. NOT SHOWN FOR CLARITY.

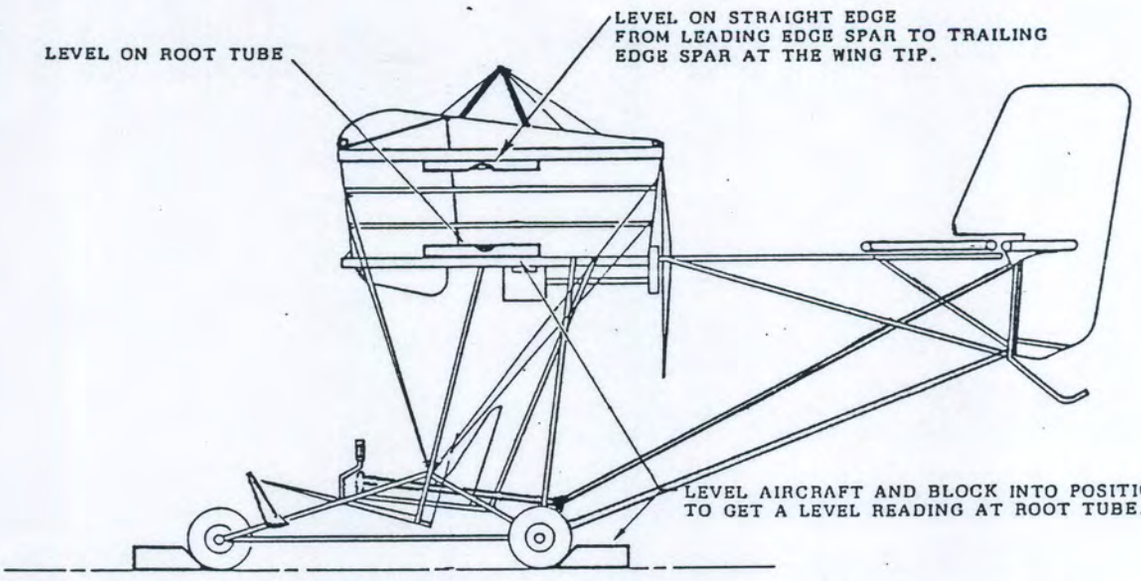
AILERON CABLE-RIGHT (71021)
AILERON CABLE-LEFT (71019)

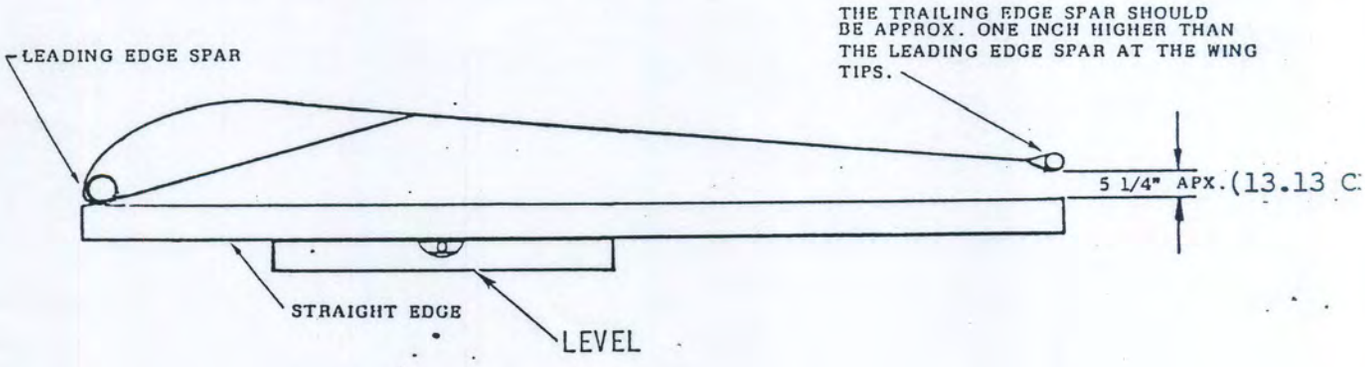
Uncoil cables hanging from Aileron Bellcrank. Pass them through wing surfaces (and over diagonal strut) to Root Tube Bellcrank.

"AVOID CROSSING CABLES" Connect them to the appropriate left/right, fore/aft position on the Root Tube Bellcrank with clevis pins and safety rings, as shown.

REPEAT ON OTHER WING

WING WASHOUT





(1) LEVEL AND BLOCK THE AIRCRAFT AS SHOWN ABOVE TO GET A LEVEL READING ACROSS THE ROOT TUBE FORWARD AND AFT.

(2) USE SAME LEVEL ON A STRAIGHT EDGE TO GET READING AT WING TIPS FORWARD AND AFT. AS SHOWN ABOVE.

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(3) MAKE SURE THE KING POST IS ADJUSTED AND ALL THE SLACK IS OUT OF THE WIRES.

(4) CHECK ALL WIRES FOR IMPROPER LOCATION, TWIST ETC.

WASHOUT AT THE TRAILING EDGE APX. 5 1/4"

IF PROBLEMS OCCUR FEEL FREE TO CONTACT YOUR DEALER.

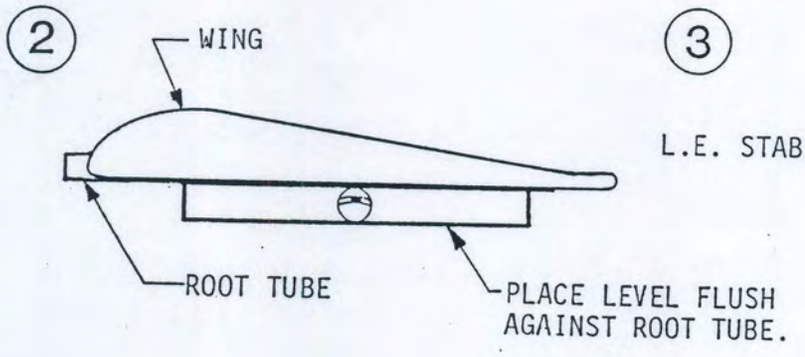
WING/STABILIZER INCIDENCE

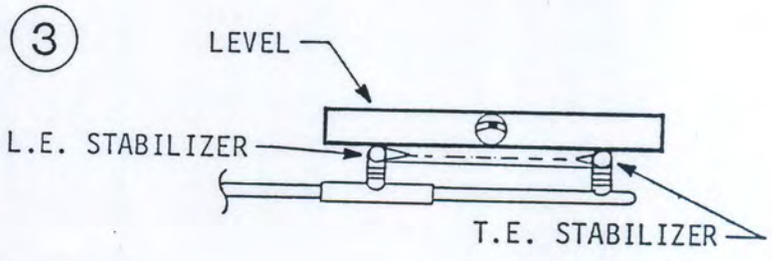
PLACE LEVEL ON THE UNDERSIDE OF THE ROOT TUBE AND BLOCK UP MAIN AXLE UNTIL ROOT TUBE IS LEVEL.

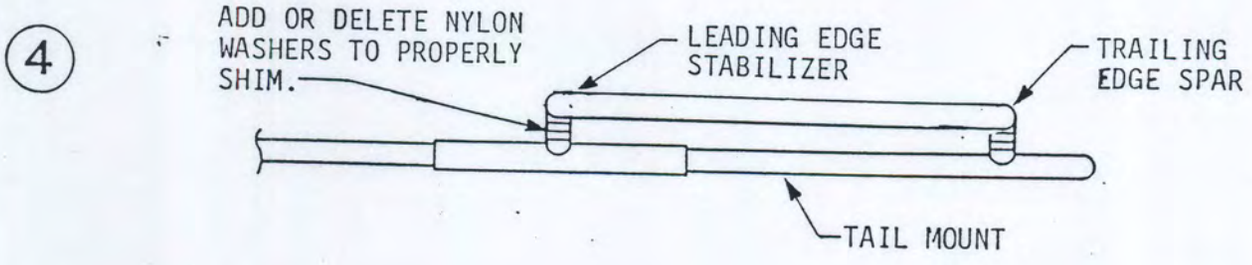
PLACE LEVEL ON TOP OF STABILIZER. STABILIZER LEADING EDGE SHOULD BE LEVEL WITH THE TRAILING EDGE.

IF STABILIZER IS NOT LEVEL THEN ADD OR DELETE NYLON WASHERS TO THE LEADING EDGE TO PROPERLY SHIM AND MAKE STABILIZER LEVEL.

NOTE: DO NOT NEGLECT THIS PROCEDURE. IT HAS AN EFFECT ON FLIGHT PERFORMANCE.







Flight testing will determine whether or not the following procedure is necessary. Flight at normal cruise speed with hands off the stick will demonstrate whether the plane favors a pitch up or a pitch down attitude. If so, SHIM STABILIZER accordingly. To correct for upward pitch, ADD washers to L.E. STABILIZER. To correct for downward pitch, ELIMINATE washers from L.E. STABILIZER. See above for details.

ENGINE START-UP AND TUNING PROCEDURE

To tune the carburetor you will be concerned with 5 adjustments:

1. Main Jet
2. Idler Jet
3. Idler Adjustment Screw
4. Air Regulating Screw
5. Jet Needle and Clip

The main jet in the carburetor will vary in size depending on altitude and atmospheric conditions in your local area. Contact your dealer regarding normal main jet size for your location.

START UP

Close the throttle and depress the choke lever. Start the engine and as it warms up release the choke.

Let the engine warm up for approximately 5 minutes then run at full throttle for about 15 seconds to "clean out engine".

Back off the throttle and adjust the idle adjustment screw to a fast idle, approximately 2000 R.P.M. not so fast; however, that the plane wants to taxi away.

Now adjust the air regulating screw to get a smooth idle.

If the idle runs rough, it is either too "rich" or too "lean". Too rich a mixture will cause heavy smoking and a too lean mixture will cause the engine to want to die out. To correct this, turn your attention to the idler jet. For a too "rich" mixture (smoking) install a smaller numbered idler jet. If the engine runs "lean" install a larger numbered jet.

Now turn to full throttle and mid-range tuning.

Your concern here will be the "main jet". This jet is similar to the idler jet with regards to running too rich or too lean. Generally, use the largest main jet that the engine will run smoothly on. It is advised that a head temperature gauge be used and with the engine at full throttle or at mid-range (1/2 to 3/4 throttle). The temperature should not exceed 400° F. in a 4-5 minute run-up.

If the temperature exceeds 400° F. during this run-up procedure change the holding plate "clip" on the jet needle to a lower groove on the jet needle.

If at full throttle the engine "4 cycles" (fires every other time) or emits heavy blue or black smoke or stutters, change the main jet to a smaller size. If the engine R.P.M. increases when the throttle is backed off slightly from full throttle, the main jet is too small. This causes overheating and could lead to piston seizure.

If at full throttle the engine R.P.M. drops when the throttle is backed off slightly, the main jet is correct or slightly large. This is acceptable.

ROTAX 447 ENGINE BREAK-IN PROCEDURE

The break-in period must be done with the engine on the aircraft and loaded with the prop.
Tie off AXLE (NOT TAIL) to secure aircraft from rolling forward or place aircraft up against bldg.
Be CAUTIOUS of persons and objects in the PROP BLAST AREA.

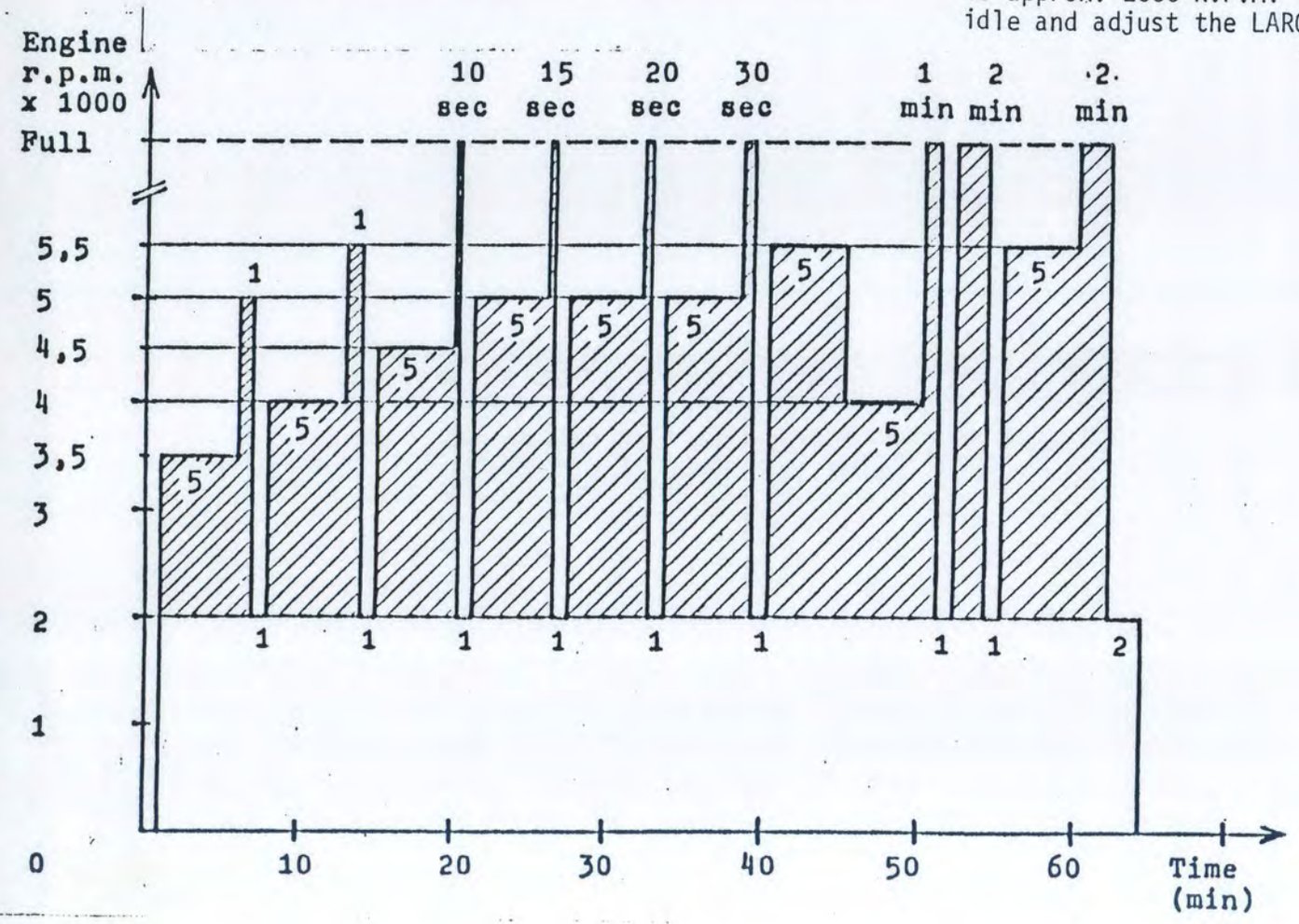
Use the graph below for break-in time/R.P.M.
Use a BIA TCW rated oil with the fuel.
The FUEL to OIL mixture ratio should be 50 to 1.
(ENGLISH) 5 gal. FUEL to 12.8 oz. OIL
(METRIC) 20 liters FUEL to 400 milliliters OIL.

CAUTION! During break-in when the engine heats up it will want to accelerate from about 5000 R.P.M. to 6000 R.P.M. The engine will be running DANGEROUSLY LEAN and may burn up. The throttle must be reduced back to 5000 R.P.M. every time the engine wants to speed up.

IMPORTANT

After engine cools re-torque cylinder heads to 220 in. lbs. (24.5 N-m)

A final note is to adjust the idle after break-in to approx. 2000 R.P.M. Adjust SMALL SCREW for smooth idle and adjust the LARGE SCREW for idle speed.



SECTION 12
TEMPLATES AND PATTERNS

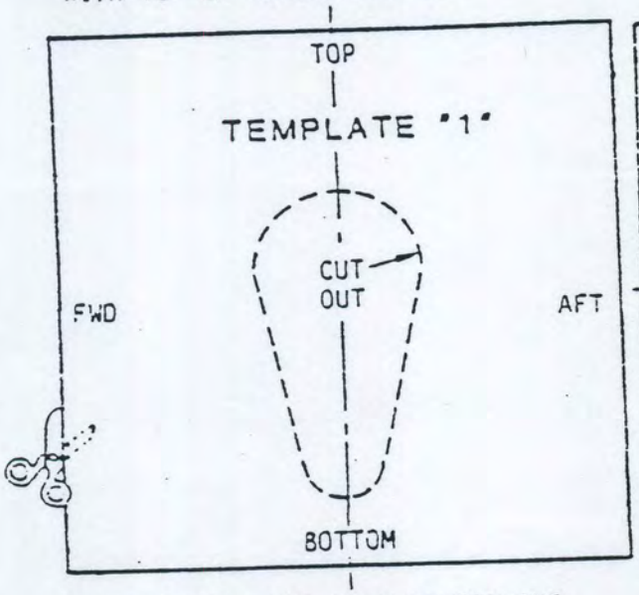
RUDDER AND ELEVATOR TEMPLATES ---------- 12-2

RIB INSERTION ---------- 12-3

TEMPLATES

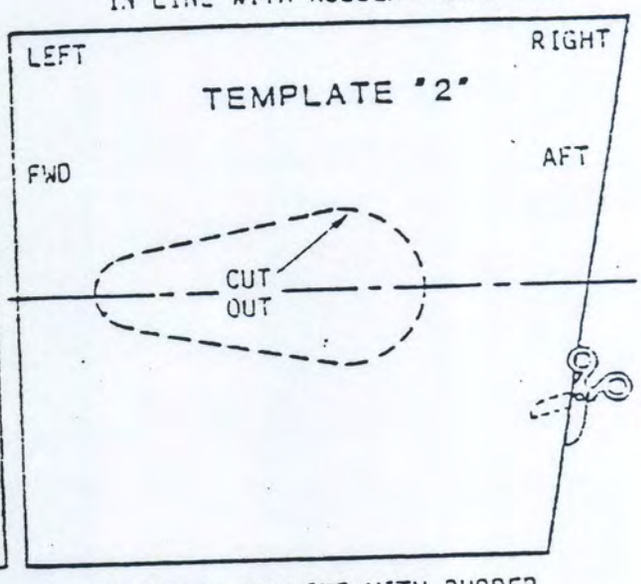
RUDDER TEMPLATES

PLACE TOP OF TEMPLATE IN LINE WITH TOP OF RUDDER FRAME.



POSITION IN LINE WITH CENTERLINE OF RUDDER L.E. ON LEFT SIDE ONLY.

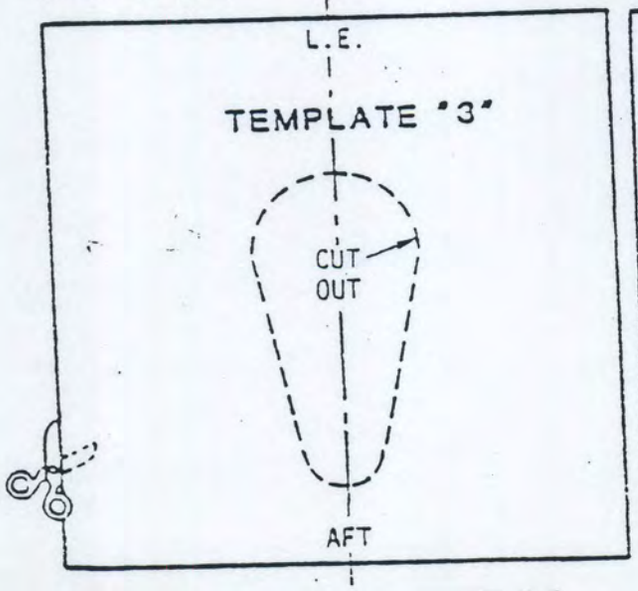
PLACE RIGHT SIDE OF TEMPLATE IN LINE WITH RUDDER FRAME T.E.



POSITION IN LINE WITH RUDDER COMPRESSION STRUT CENTERLINE ON LEFT SIDE ONLY.

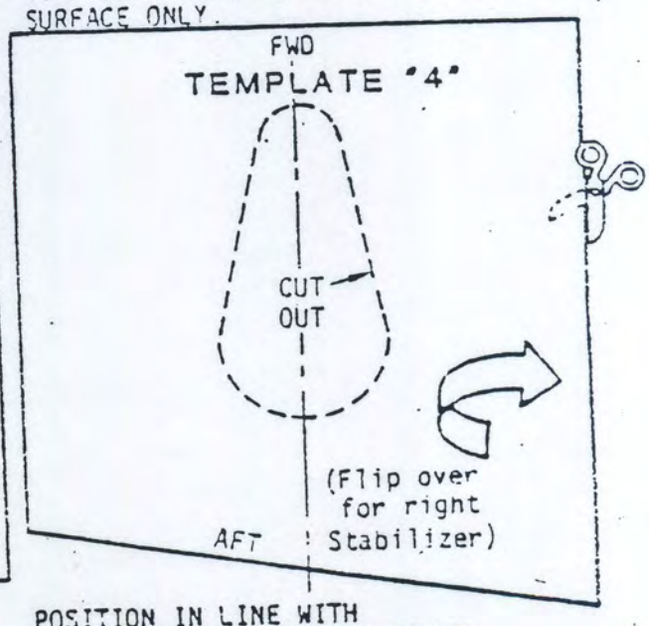
ELEVATOR TEMPLATES

PLACE TEMPLATE IN LINE WITH ELEVATOR L.E.



POSITION IN LINE WITH CENTERLINE OF ELEVATOR COMPRESSION STRUT. (2 PL. EACH SIDE)

PLACE TEMPLATE "ANGLED" SIDE IN LINE WITH LEFT ELEVATOR T.E. ON BOTTOM SURFACE ONLY.



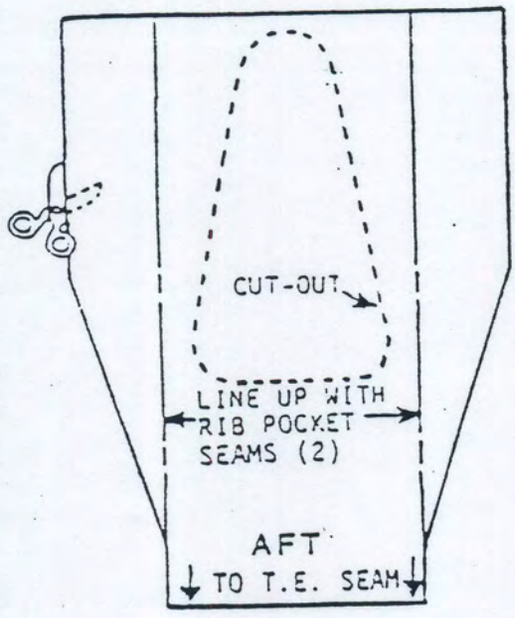
POSITION IN LINE WITH CENTERLINE OF ELEVATOR STRUT (BOTH SIDES).

TEMPLATE FOR RIB INSERT SLOT

CUT OUT TEMPLATE ALONG DASHED LINES AND USE AS GUIDES FOR HOLE PUNCHING AND FABRIC CUTTING PLACEMENT AS INDICATED.

TEMPLATE "7"

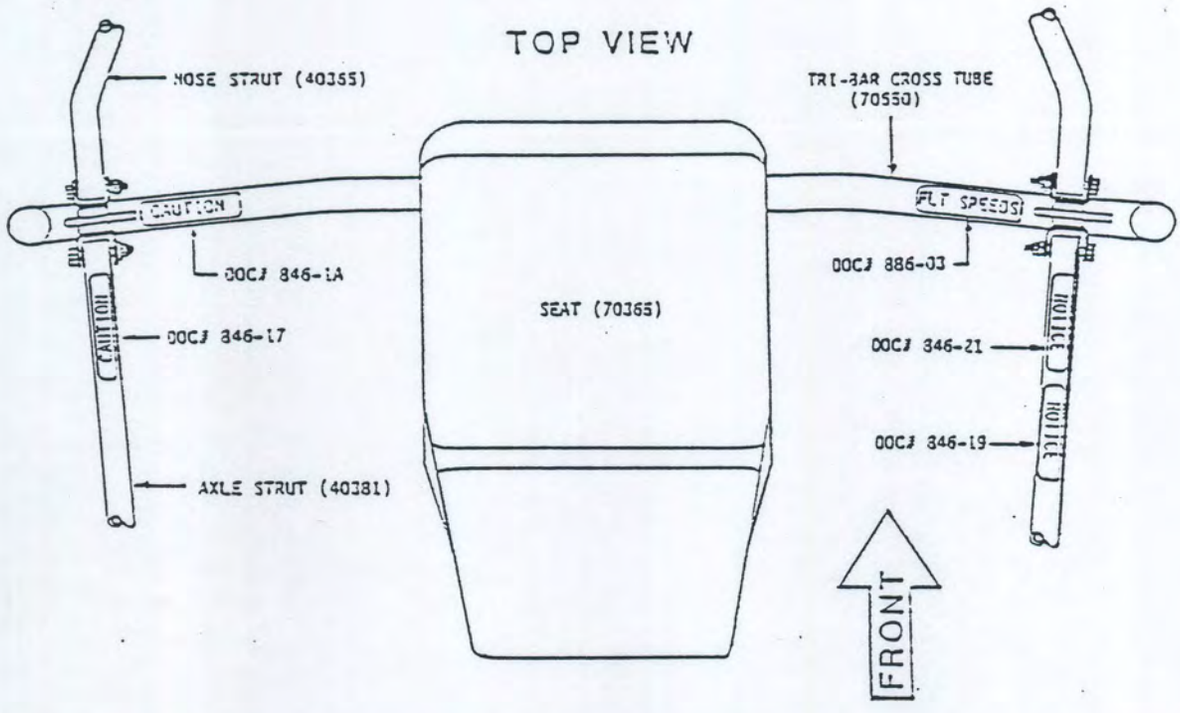
RIB INSERTION SLOT



SECTION 13
DOCUMENT / LABEL PLACEMENT

DOCUMENT / LABEL PLACEMENT - COCKPIT.....13-2
DOCUMENT / LABEL PLACEMENT - PROP ARC.....13-2
DOCUMENT / LABEL PLACEMENT - FUEL TANK.....13-3

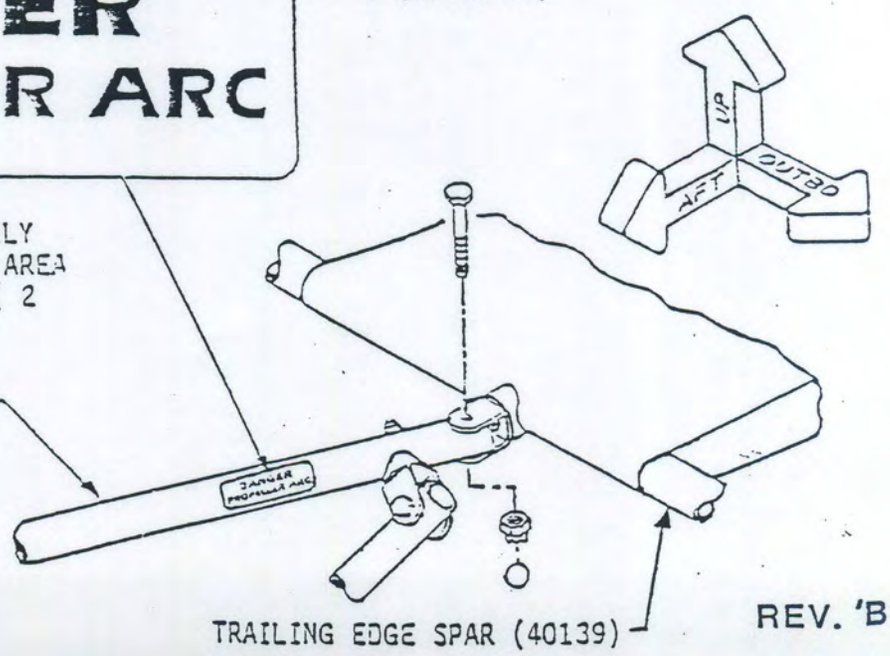
DOCUMENT / LABEL PLACEMENT



DANGER
PROPELLER ARC

(50420-05)

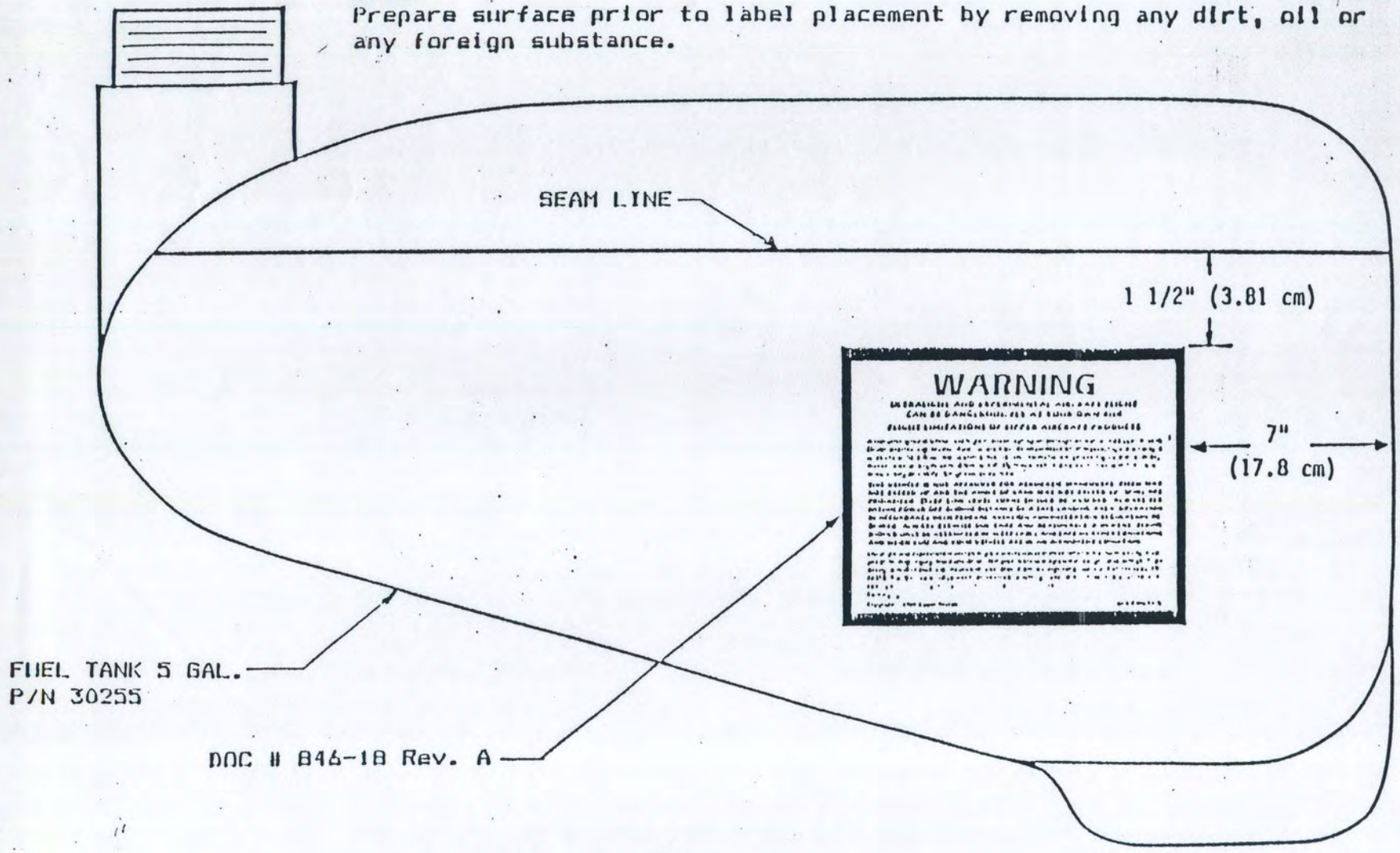
NOTE: POSITION LABEL TO BE EASILY SEEN BY ANYONE APPROACHING THE AREA NEAR OR AROUND THE PROPELLER. (2 LABELS SUPPLIED).



REV. 'B'

WARNING LABEL / DOCUMENT PLACEMENT

NOTE:
Prepare surface prior to label placement by removing any dirt, oil or any foreign substance.



SIDE VIEW

CHAPITRE 1 : PILOTAGE DU QUICKSILVER MX-SPRINT

INTRODUCTION :

Le présent "manuel" de pilotage ne constitue en aucun cas un rappel complet des conditions d'apprentissage et de pratique de pilotage d'un ULM.
Il s'agit simplement d'un rappel appliqué à votre type de QUICKSILVER, des indications figurant dans les manuels ULM et que votre instructeur vous a enseignées.
Quiconque désire piloter un QUICKSILVER doit d'abord suivre une formation sur ce type d'appareil. En outre, la pré-vol et les autres indications du manuel de l'utilisateur doivent être réalisées avant tout vol. En particulier, le respect des limites de centrage est indispensable à la stabilité de l'appareil. Tous les ULMs pivotent sur ce qu'on appelle le centre de gravité. Le QUICKSILVER MX-SPRINT est conçu pour porter des pilotes entre 50 et 115 kg. Le non-respect de ces limitations pourrait causer un déplacement du centre de gravité, amenant une position instable de l'axe de tangage.
Rappel : pour le modèle cité, la table de règlage de la position des sièges et de la gouverne de profondeur est la suivante :
Poids mini pilote : Poids maxi: = position ARRIERE
Poids mini pilote : Poids maxi: = position CENTRAL
Poids mini pilote : Poids maxi: = position AVANT
Le QUICKSILVER n'est pas un avion d'acrobatie. Les manoeuvres violentes doivent être évitées dans tous les cas, les pentes ne doivent pas excéder 30°, les angles d'inclination ne doivent pas excéder 60°
Ne décollez jamais avec un appareil ayant subi un choc en vol ou au sol, et non vérifié préalablement sur la totalité de sa structure. Méfiez-vous des appareils dont vous ne connaissez pas l'historique.
L'emport d'un parachute fiable et correctement monté est une sécurité supplémentaire.

I/ DOMAINE DE VOL :

VH Vitesse maximum:	86km/h
VNO Vitesse maximum de croisière	84km/h
Vitesse de croisière:	70km/h
VSO Vitesse décrochage:	38km/h
VNE:	104km/h
Vitesse d'approche:	50km/h
Inclinaison maximum.:	60°
Assiette montée maxi.:	30°
Limite de vent traversier au décollage:	30km/h
à l'atterissage:	30km/h

II/ DECOLLAGE :

Plusieurs facteurs affectent les performances de l'ULM: l'état du moteur, les vents au sol, l'état de la piste, l'altitude et le poids.

2.1-Performances du moteur :

Le moteur doit être conforme aux spécifications du manuel. Dans le cas d'un manque de puissance, vérifiez les règlages moteur.

CHAPITRE 5: DOSSIER TECHNIQUE

AVERTISSEMENT: Les valeurs citées résultent de mesure et d'essais effectués pour la plupart aux Etats-Unis par le concepteur QUICKSILVER; Leur traduction en valeurs métriques ont été eventuellement arrondies au chiffre inférieur ou supérieur suivant le cas, en choisissant systématiquement de pessimiser les valeurs en cause. Elles sont fondées sur l'utilisation d'un appareil neuf monté par la Société qui les produit dans les conditions d'utilisation standards. Des amplitudes importantes peuvent affecter les valeurs indiquées, tant en fonction de l'environnement de vol, que de la façon dont chaque appareil est monté et entretenu par son distributeur ou utilisateur.

A GENERALITES

ULM TYPE : QUICKSILVER MX-SPRINT

CLASSE D'ULM: monoplace"3-axes", commandes "conventionelles".
VOILURE : type: toile non rigide.
PROFIL : simple surface.
ENVERGURE : 8,40 mètres.
SURFACE : 14,3 M2.
MASSE A VIDE : 113 kgs.
CHARGE UTILE : 123 kgs (=MASSE MAI - MASSE A VIDE)
MASSE MAXIMALE POUR PILOTE DE 75 kgs ET RESERVOIR STANDARD DE 19 LITRES : 236 kgs
MASSE A VIDE AVEC EQUIPEMENTS : masse à vide ci-dessus + options ci-dessous, dans la limite des 160 kgs.

B OPTIONS

1) Hélice tripale

Cette hélice en composite modère les vibrations du moteur et permet de diminuer la consommation. Son pas est réglable au sol. Cette hélice n'entraine pas de modofication de comportement de l'appareil.

2) Parachute

Un parachute à extraction pyrotechnique peut être installé sur le MX-SPRINT. Il est fixé derrière le siège arrière sur la poutre de queue. Son poids est de 8,5 kgs.

3) Flotteur(s)

Les flotteurs pèsent de 32 à 40 kgs suivant les modèles, les plans de montage sont fournis avec cette option.

4) Skis

Les skis nécessitent un montage particulier décrit dans la notice, leurs poids est de 12 kgs.

5) Réservoir supplémentaire

Un siège réservoir d'une capacité de 22 litres est adaptable en place passager en remplacement du siège d'origine, cette option est de 4 kgs à vide.

C EPREUVE EN VOL

	à masse maxi
Distance de roulement au décollage:	20 m
Distance de franchissement des 15 m:	60 m
Distance de roulement à l'atterrissage:	18 m
Distance d'atterrissage après franchissement des 15 m:	60 m
Vitesse de décrochage	38km/h
Vitesse minimal de sustentation avec moteur	40km/h
Vitesse minimal de sustentation sans moteur	40km/h
Vitesse maximum en palier:	86km/h
Vitesse de meilleur angle de montée:	54km/h
Vitesse optimale de montée:	58km/h
Vitesse à ne pas dépasser:	104km/h
Vitesse maximum de croisière:	84km/h
Taux de montée ALT 0:	4,5m/s

Finesse maxi moteur arrêté et vitesse associée: 4,5/1 à 50km/h

Facteurs de charge à rupture à la masse maximale:

Positif : 6g
Négatif : 3g

Charges maximales sur la profondeur : 100 kgs

Charges maximales sur la dérive: 65 kgs

La charge maximum sur les commandes est idem.

Groupe motopropulseur
Puissance maximale : 40 cv.
Régime maximal : 6600 tr/min.

Vitesse de rotation maximale de l'hélice : 2500 tr/min

Type de réduction : 5 courroies.

Rapport de réduction : 1/2,68.

D NIVEAU SONORE

Les mesures ci-dessous ont été effectuées le 10 août 1990 en présence de Pascal KILISKY et Didier HORN conformément à l'arrêté portant sur le bruit des aéronefs ultra-légers-motorisés du 31/07/86.

Niveau de bruit mesuré, masse maxi, régime maxi:	Lm =75 db
Niveau de bruit de référence :	Lr =76 db
Hauteur de passage :	H =80 m

Nous rappellons que le bruit perçu au sol Lh émis lorsque l'appareil vole à la hauteur h, à masse et régime maximal peut être calculé d'après les chiffres précèdents au moyen de la formule :

$$Lh = Lr - 22 \log \frac{h}{H}$$

Il est rappelé que le MX-SPRINT est auto-stable et peut voler, décoller et atterrir par la seule action sur le levier des gaz. Moteur coupé, l'appareil prend spontanément une pente et une assiette qu'entretiennent sa vitesse normale d'approche.
L'équipement fourni en série est un anémomètre à pastille, un compte tour, et un totaliseur d'heure.