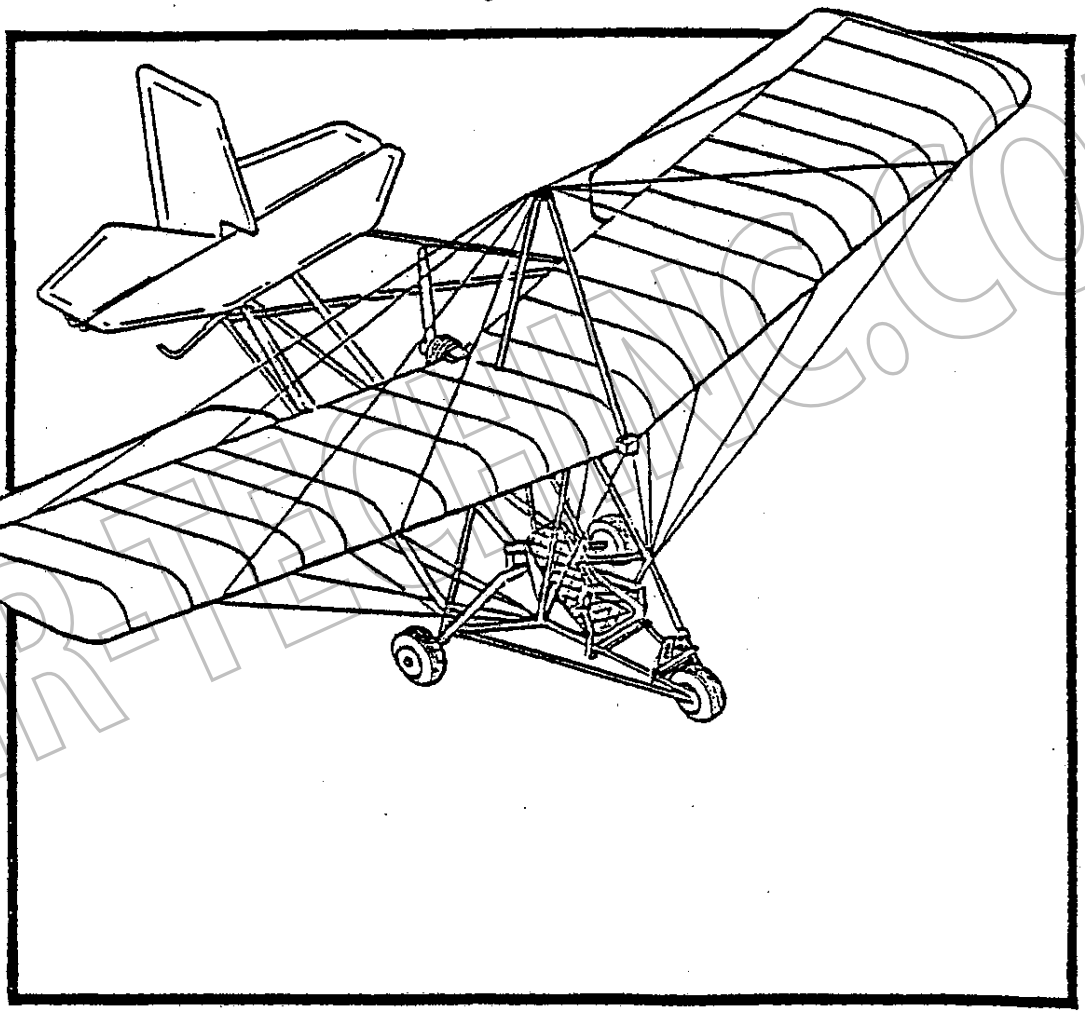
QUICKSILVER®

MX Sport



ASSEMBLY INSTRUCTIONS

DOC.# 882-01

FOR KIT # 99120

QUICKSILVER®

World's Largest Manufacturer of

WARNING

YOU HAVE JUST WASTED A LOT OF MONEY UNLESS YOU FIRST FOLLOW THESE INSTRUCTIONS.

CLAIMS FOR DAMAGED OR MISSING PARTS

1. Completely inventory the kit using the supplied packing list. Do not remove any parts from the blister-packed boards until you have finished counting everything. The exception is parts such as nuts, washers and pop rivets which you may have to remove for accurate counting.

2. If you believe you are missing any parts or have damaged parts, inspect the boxes for holes or damage. Actually, you should have inspected the boxes prior to opening. For lost or damaged parts, you must file a claim with the freight carrier.

3. Your kit was double quality control inspected in our factory to ensure the accuracy of its contents. However, if you believe some parts were omitted at our factory, you need to do the following:
   a. Itemize the part number, quantity and description of each part.
   b. Note the aircraft model, serial number and date received.
   c. Report the claim to your dealer. All claims must be processed through your dealer. Upon receipt of claim, we will compare it to our original packaging records.

4. Only one claim per kit will be reviewed. "**DO NOT**" begin assembly until you have completed your inventory. The packing list is the most accurate representation of the parts required. Making a list during assembly will not work and will not be accepted. People have been known to use the wrong size bolt as compared to what is called for by the assembly instructions. This leads you to think parts are missing. Also, bits and pieces tend to roll under countertops, are borrowed, or inadvertently disappear. You best protection to build a complete airplane is to make sure you have all the parts before you start.

YOU HAVE 30 DAYS FROM RECEIPT OF KIT TO FILE A CLAIM.

If you do not adhere to the above procedures, the company reserves the right to dismiss any claim. Replacement parts would then be treated as a normal spare parts order.

We hope you enjoy building your kit, and thank you for your patronage. If you have any questions, please contact your dealer. If they are unable to answer your questions, the dealer can contact our customer service department for assistance.

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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 supoort 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.

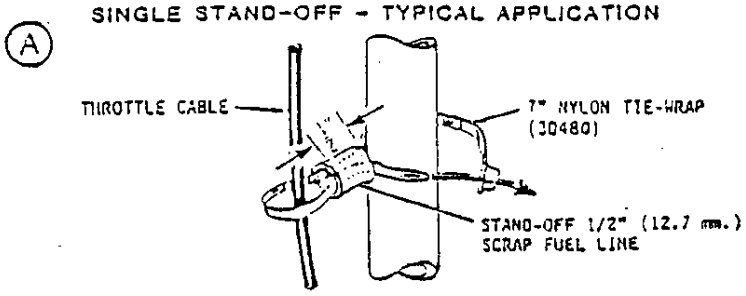
Your safety, assured by highest quality materials, thorough testing, proper construction techniques and supplemental information, is of paramount concern to QUICKSILVER ENTERPRISES. INC.

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.



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.

Rubber Bands (Medium to Large size)

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.

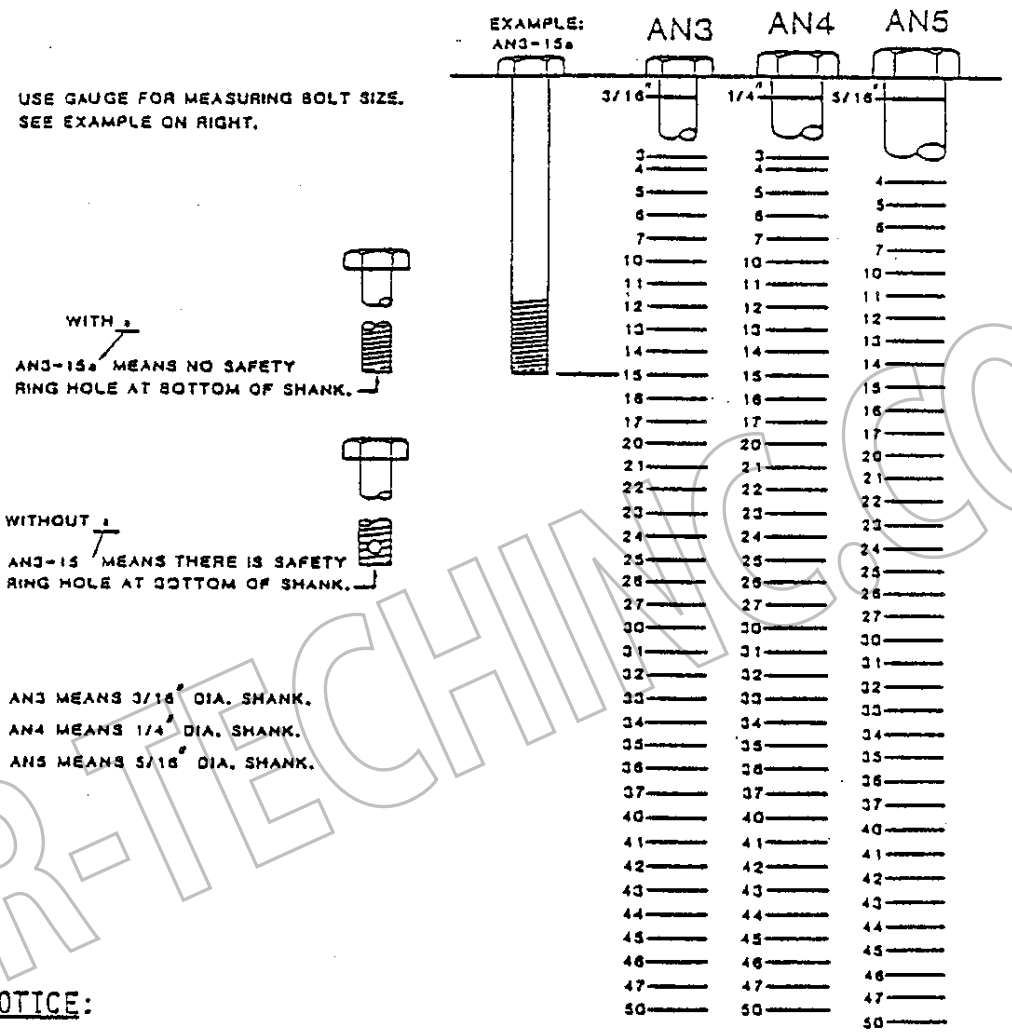
Apply a smooth even pull when applying torque pressure. If chattering or a jerking motion occurs during final torque, back off and re-torque.

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 IDENTIFY THE 'AN' NUMBER OF A BOLT IF A 'AN' BOLT GUAGE IS NOT AVAILABLE, FOLLOW THE FOLLOWING METHOD.

1. MEASURE THE BOLT DIAMETER. A BOLT WITH A DIAMETER OF 3/16" IS AN 'AN-3, 1/4" IS A 'AN-4', 5/16" IS A 'AN-5'. THE FIRST NUMBER DESIGNATES BOLT DIAMETER IN 1/16" INCREMENTS.
2. MEASURE THE BOLT LENGTH. THE SECOND SET OF NUMBERS DESIGNATES THE LENGTH IN INCHES AND/OR 1/8" INCREMENTS. EXAMPLE: A BOLT WITH A DESIGNATION OF 'AN4-27' IS 1/4" IN DIAMETER AND 2 7/8" LONG. A 'AN3-20' HAS A 3/16" DIAMETER AND IS 2 INCHES LONG.

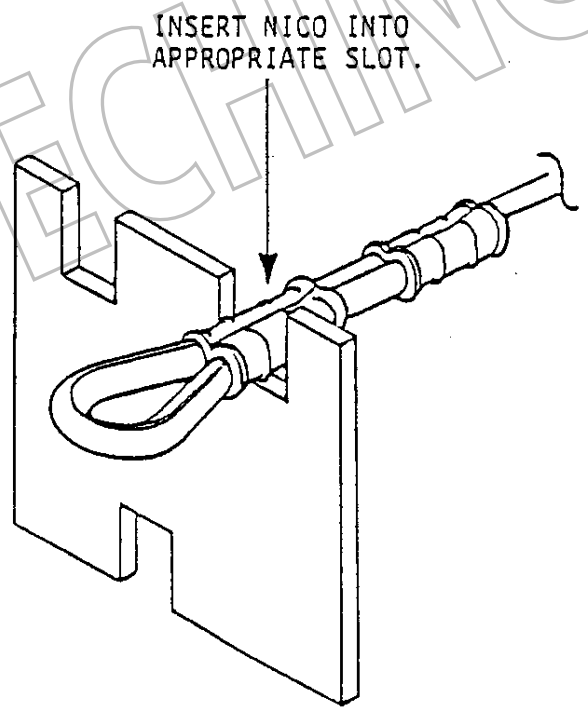
NICO SLEEVE GAUGE PROCEDURE

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.



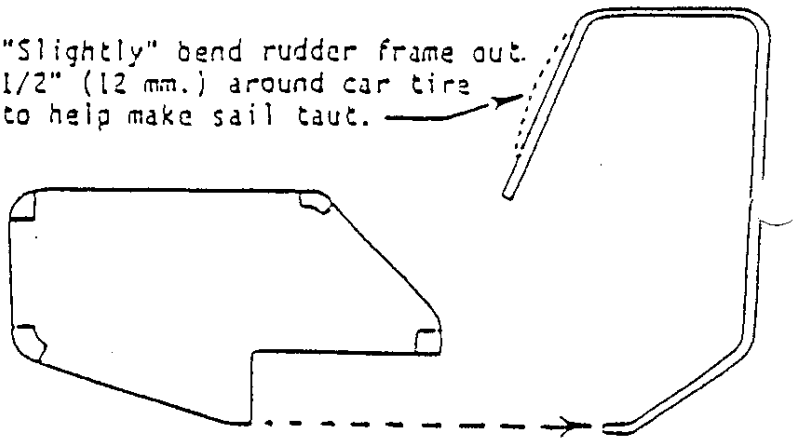
SECTION 2

TAIL GROUP

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.

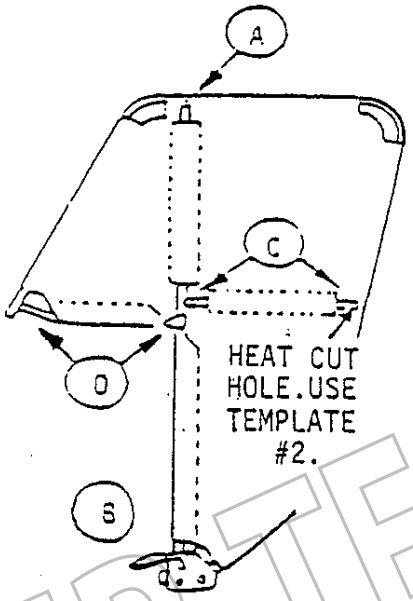
Follow the sequence of drawings as shown below to complete the rudder assembly.

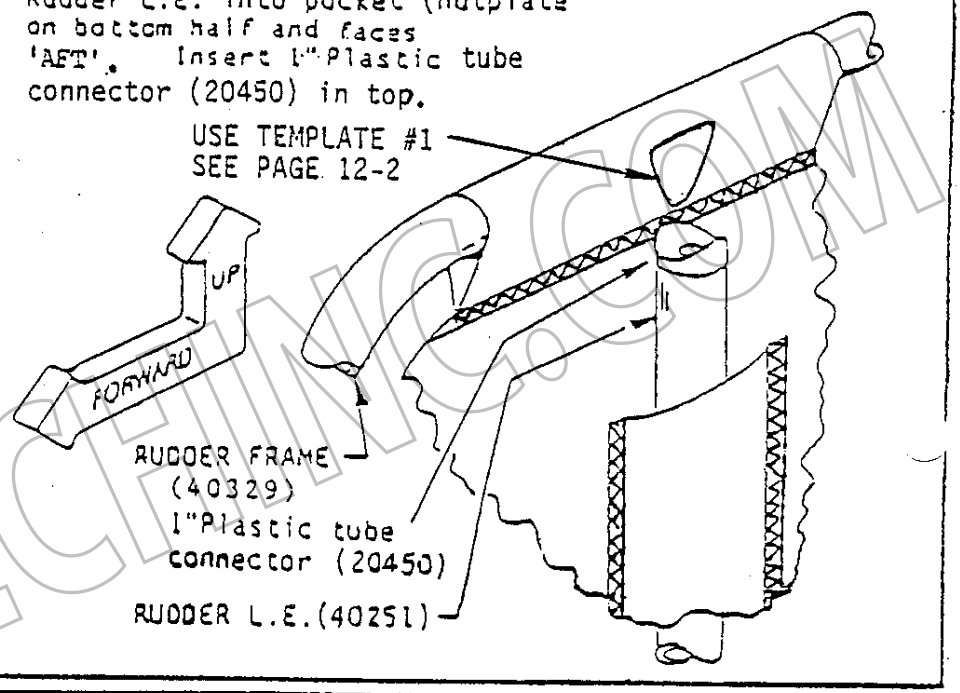
"Slightly" bend rudder frame out 1/2" (12 mm.) around car tire to help make sail taut.



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 (20450) in top.

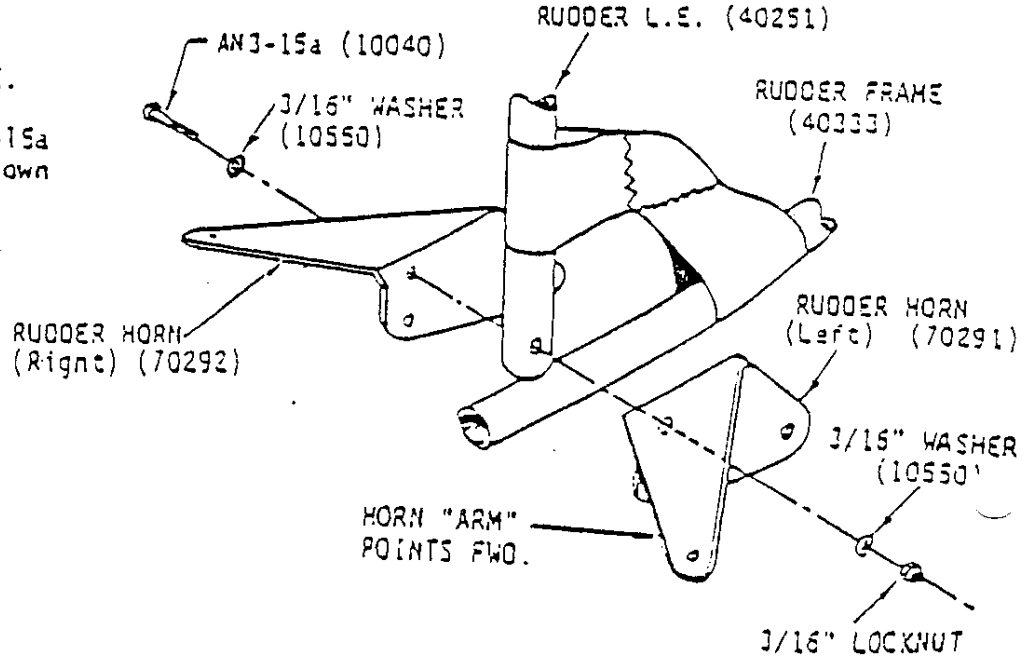




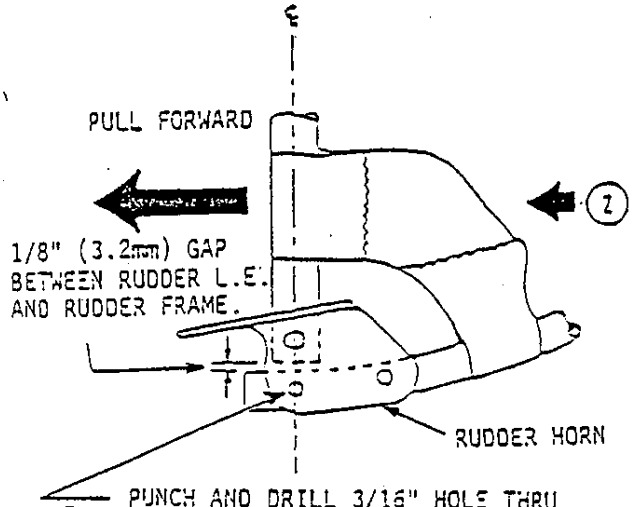
B

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.)

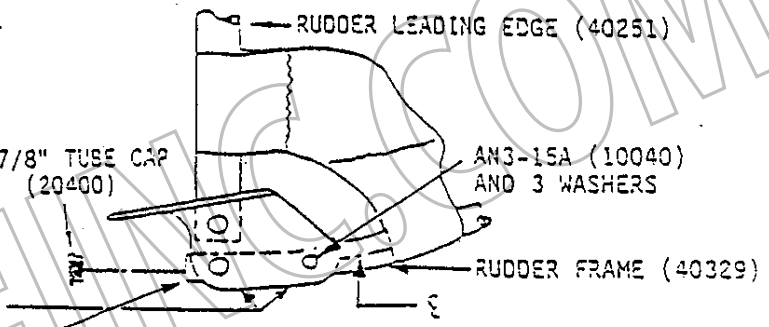


(2) HOLD RUDDER FRAME FIRM WHILE PULLING RUDDER LEADING EDGE FORWARD TO MAKE RUDDER COVER TAUT AND TO ALIGN L.E. CENTERLINE WITH RUDDER HORN BOTTOM/FORWARD MOUNT HOLES. MARK BOTTOM/ FORWARD HOLE POSITION,THEN SWING HORN ASIDE TO REVEAL THE MARK.

(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.

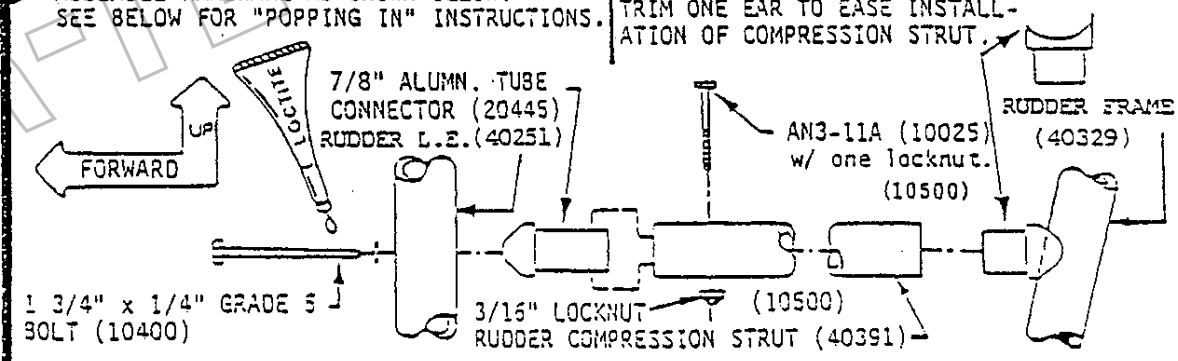
(NOTE: ON RUDDER FRAME FORWARD/ BOTTOM & REAR MOUNT HOLES, INSTALL 3/16" WASHER BETWEEN HORN AND RUDDER FRAME.) (4 PLACES)



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

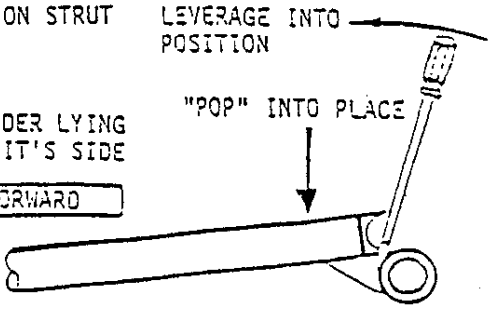
(C) ASSEMBLE HARDWARE AS SHOWN BELOW. SEE BELOW FOR "POPPING IN" INSTRUCTIONS.

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

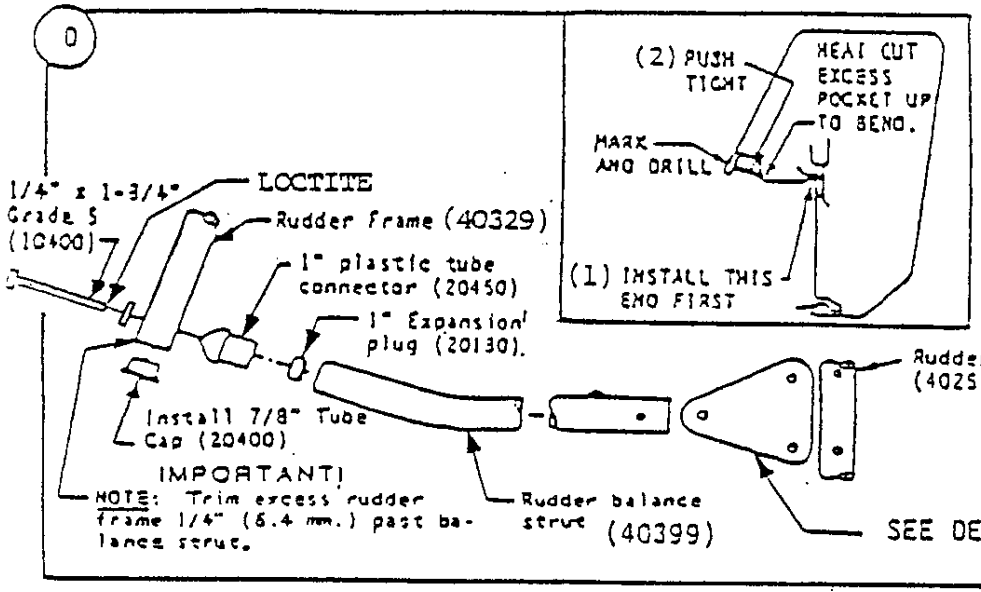


USE TEMPLATE #2 (PAGE 12-2) FOR RUDDER COMPRESSION STRUT

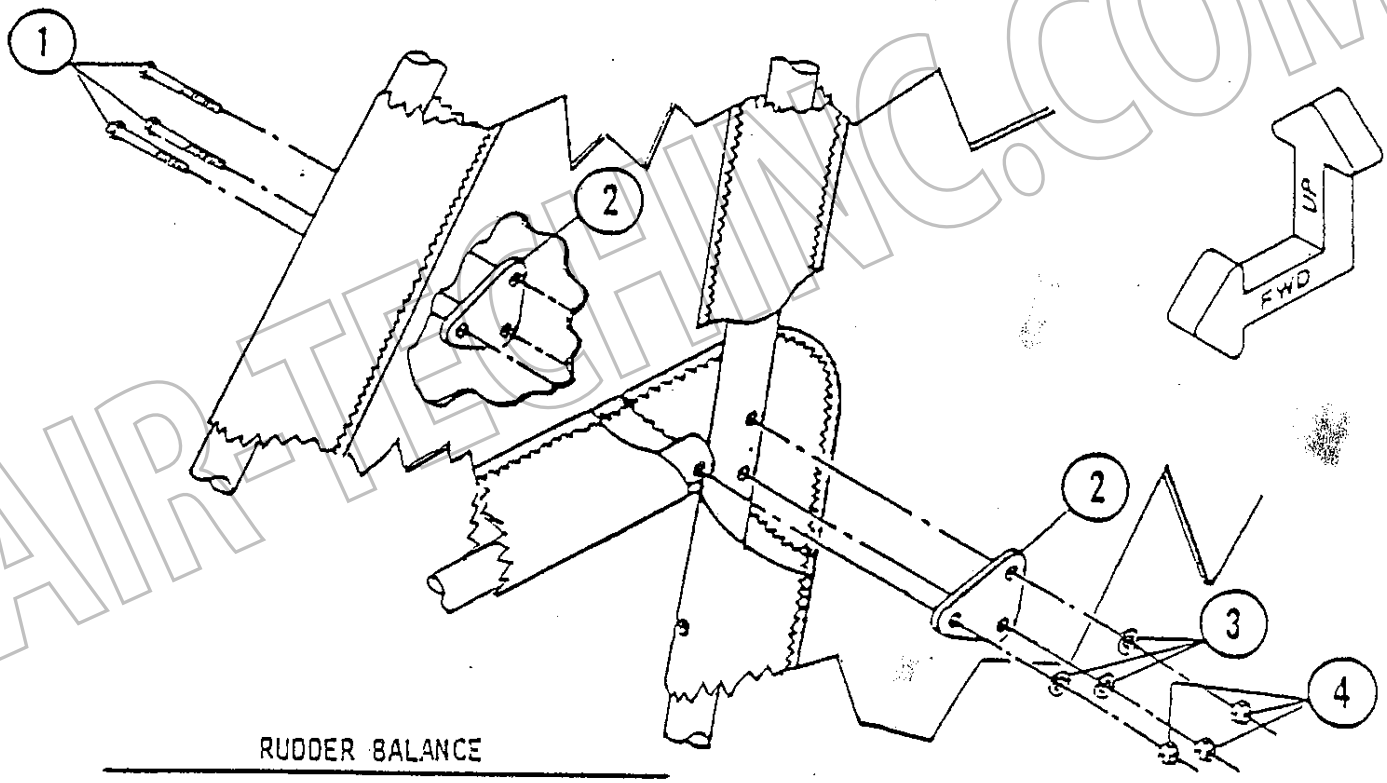
HEAT CUT HOLE FOR COMPRESSION STRUT AS WAS DONE FOR RUDDER L.E. IN DRAWING 'A'. WITH HARDWARE ASSEMBLED FOR DRAWING 'B' YOU ARE NOW READY TO "POP" COMPRESSION STRUT INTO PLACE. USE LARGE SCREWDRIVER TO LEVER STRUT INTO POSITION, THEN "POP" STRUT INTO RUDDER FRAME AS SHOWN.



RUDDER ASSEMBLY (CONT'D.)



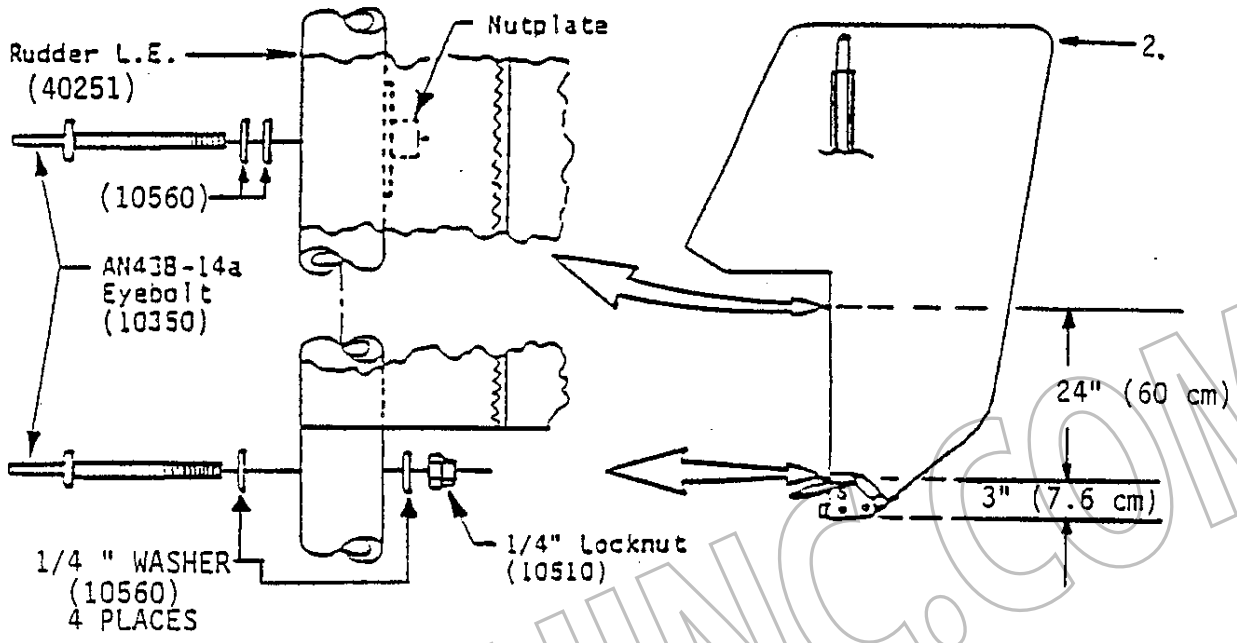
Assemble RUDDER BALANCE STRUT (40[illegible]). Slip it into the pocket and insta[illegible]th aft end of the strut to the Rudder L.E. (40251). Push the forward edge of the strut down so the Rudder Cover is tigh Mark and drill a 1/4" hole through the L.E. of the Rudder Frame as shown(*). Now install the 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 ASSEMBLY

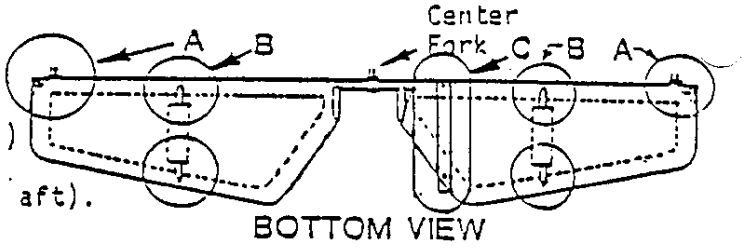


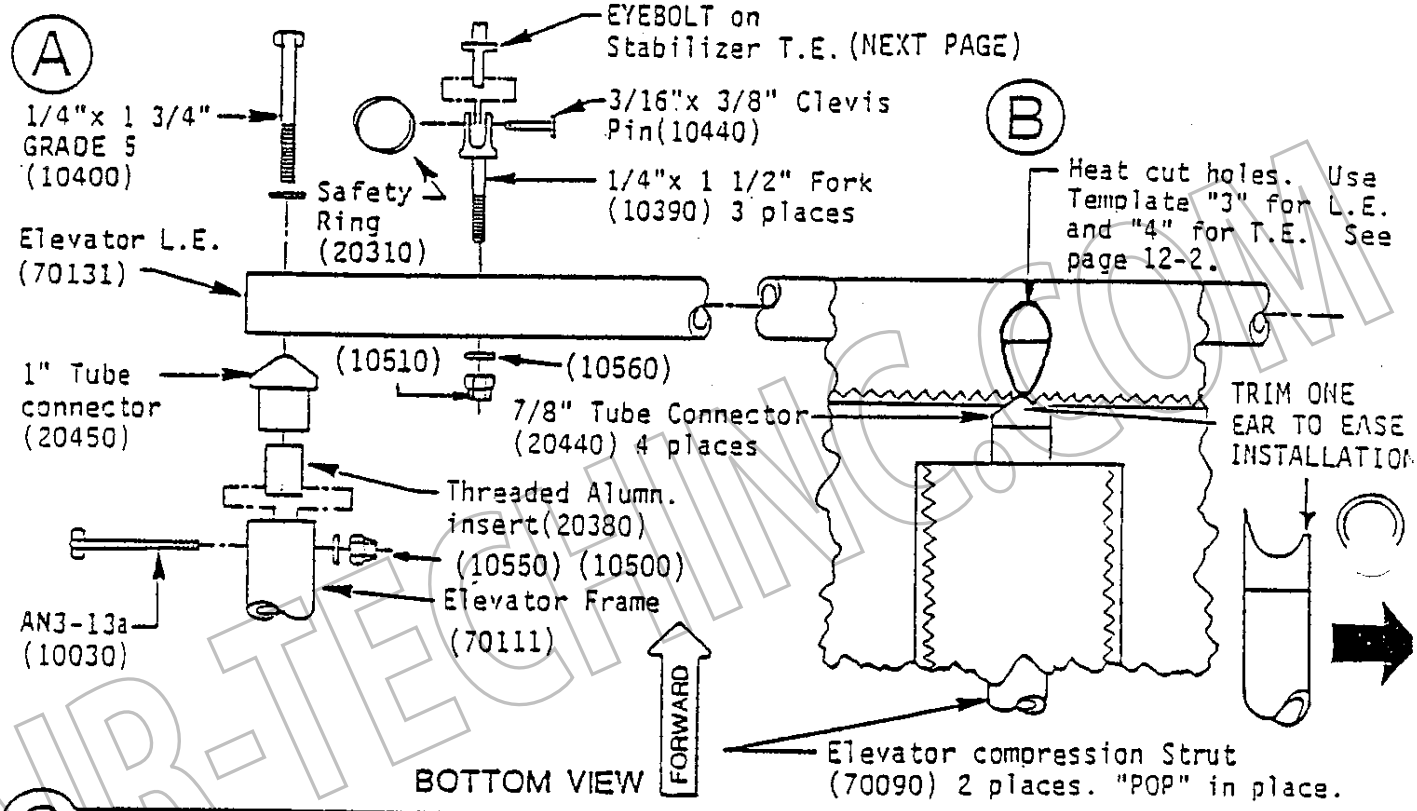
1. HEAT CUT HOLE FOR UPPER EYEBOLT. USE 1/4" WASHERS (10560) AS SHOWN.

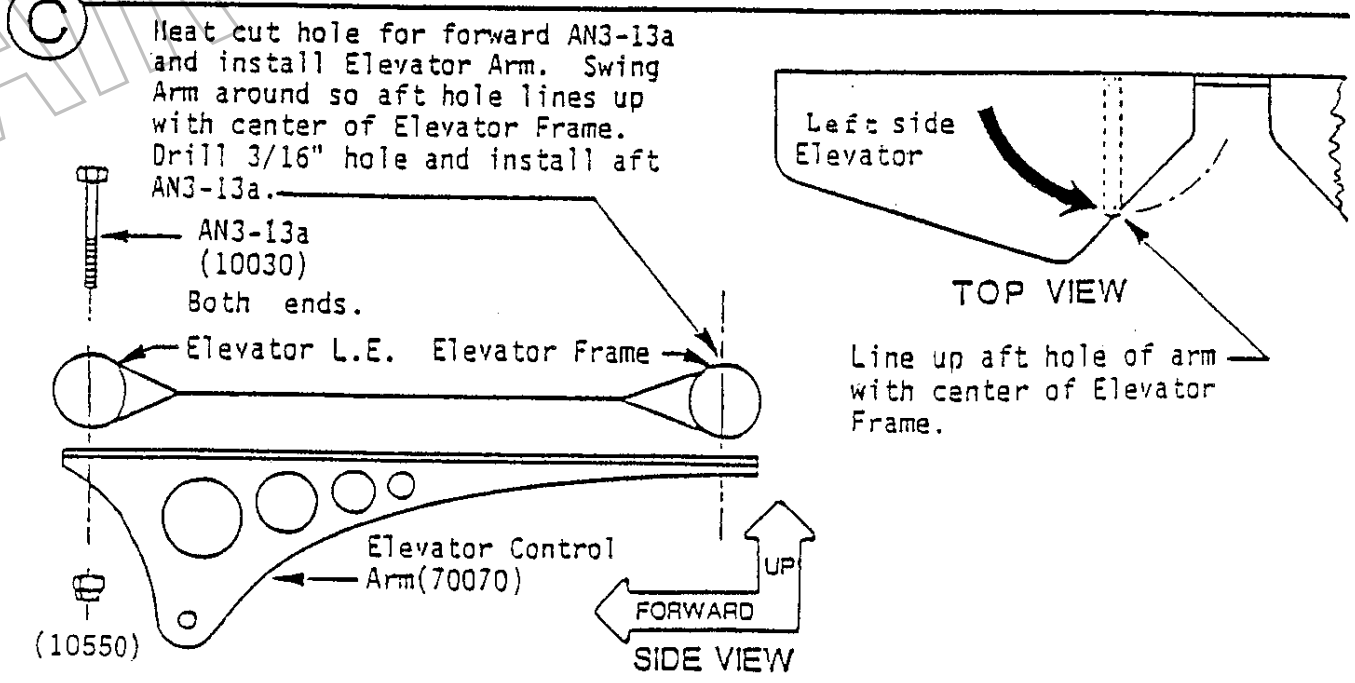
2. SECURE VELCRO STRAPS LOCATED AT CORNERS OF RUDDER. USE A HOT KNIFE TO TRIM EXCESS VELCRO STRAPS AS NECESSARY.

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.

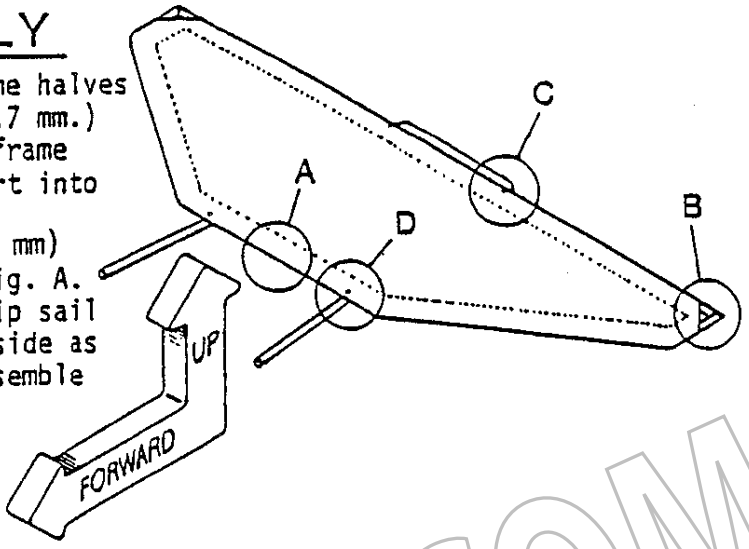




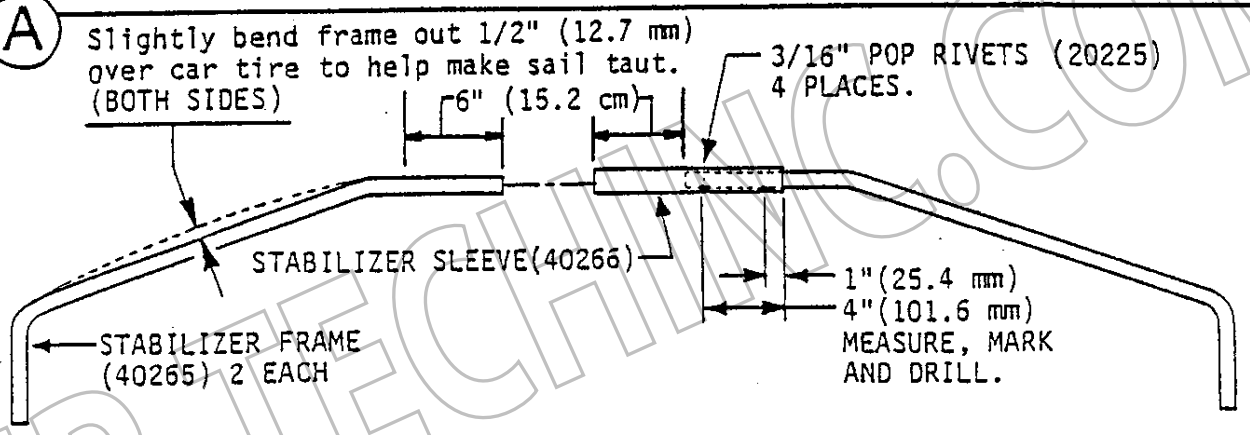


STABILIZER ASSEMBLY

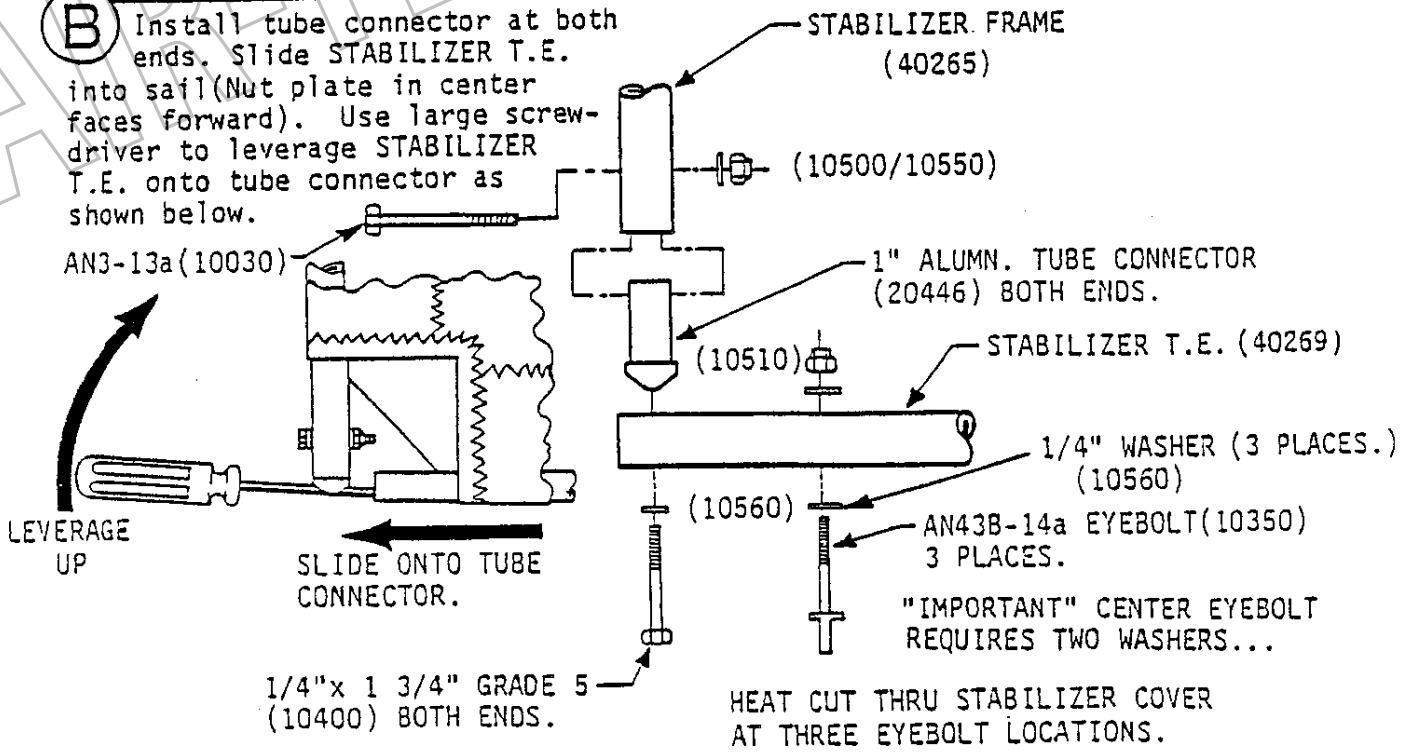
DRAWING "A" - Bend stabilizer frame halves "SLIGHTLY" over car tire 1/2" (12.7 mm.) to help make sail taut. Lay the frame halves on the floor flat and insert into STABILIZER SLEEVE.
Measure, mark and drill 3/16" (4.7 mm) holes for both halves as shown, Fig. A. Install 3/16" Rivets (20225). Slip sail onto frame (SEAM of sail on same side as rivets). DRAWINGS "B" - "D" - Assemble as shown.



A Slightly bend frame out 1/2" (12.7 mm) over car tire to help make sail taut. (BOTH SIDES)



B Install tube connector at both ends. Slide STABILIZER T.E. into sail(Nut plate in center faces forward). Use large screwdriver to leverage STABILIZER T.E. onto tube connector as shown below.



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).

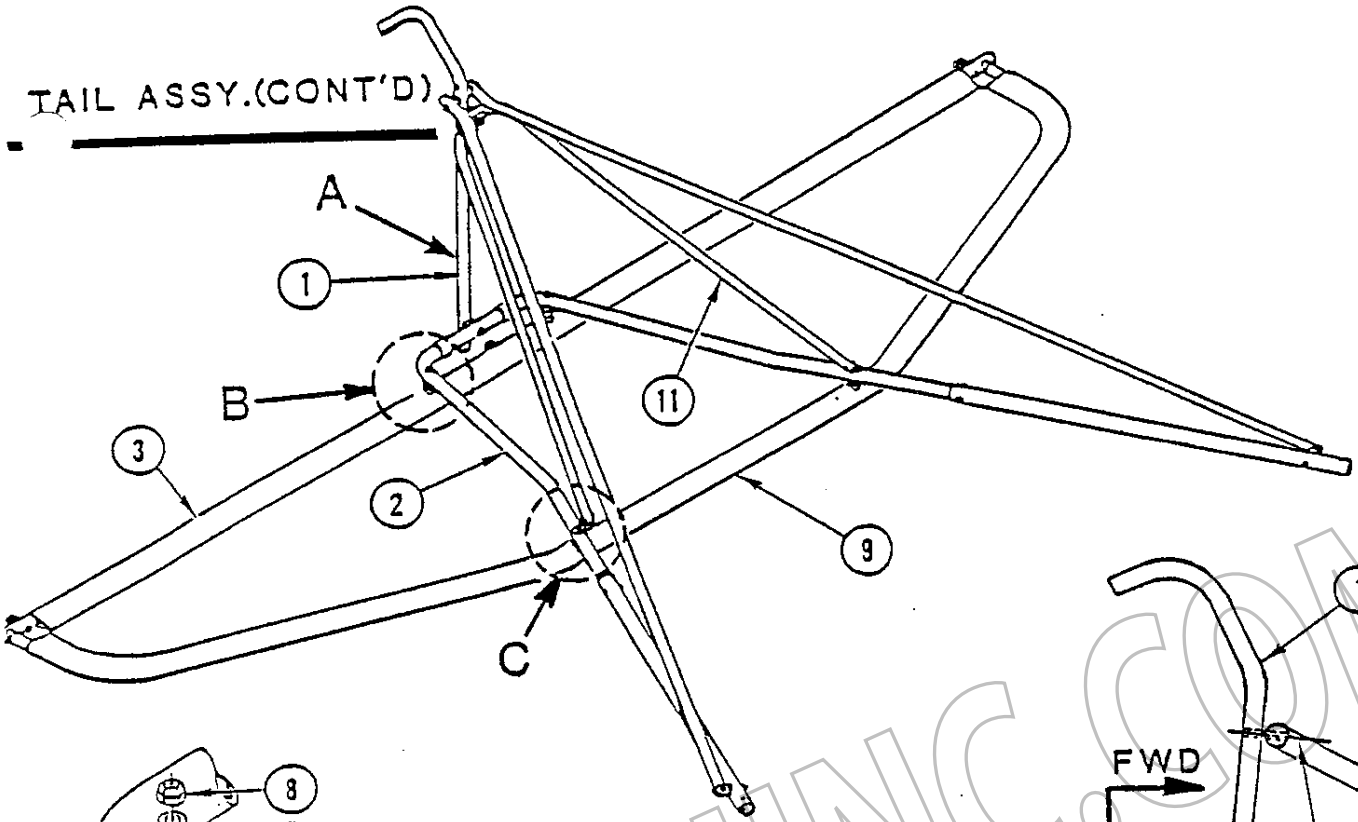
1. Refer to Detail 'B'. Place the Horizontal Stabilizer UPSIDE DOWN on work surface. Attach the Tail Mount Tube (2) to the Stabilizer Trailing Edge (3) using the hardware (4,5,6,7,8) - 2 places. Tighten to proper torque. Don't crush the tube.

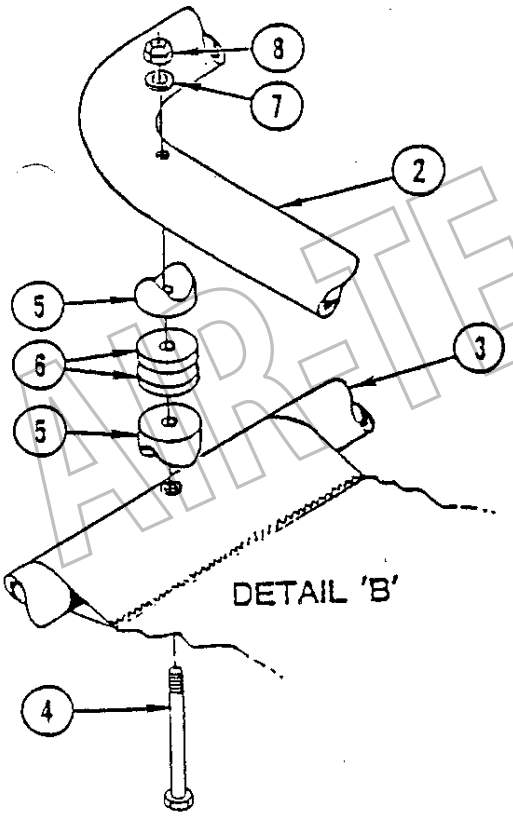
2. Refer to Detail 'C'. Attach the Tail Mount Tube (2) to the Stabilizer Frame (9) using the hardware (13,7,5,10,7,8) - 2 places - as shown. Tighten to proper torque. Don't crush the tube.

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.

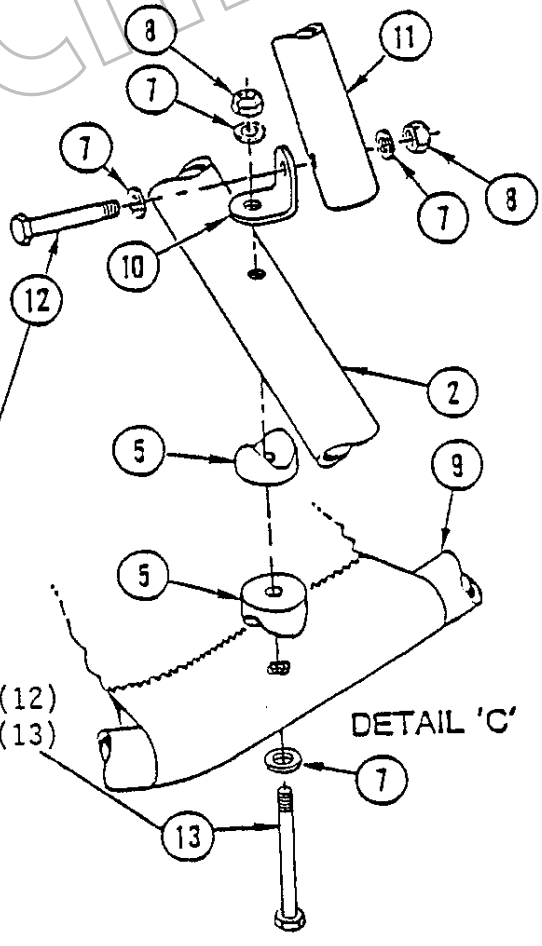
Pt.	P.N.	Description.
1.	41150	Tail Skid
2.	40172	Tail Mount Tube
3.	40269	Stabilizer Trailing Edge
4.	10290	AN4-34A Bolt
5.	20280	1/4" x 1" Saddle
6.	20346	Nylon Washer, 1/4" x 1"
7.	10560	1/4" washer
8.	10510	1/4" Locknut
9.	40265	Stabilizer Frame
10.	20365	90 Degree Tang
11.	40181	Rudder Brace
12.	10100	AN4-14A Bolt
13.	10280	AN4-31A Bolt

TAIL ASSY.(CONT'D)



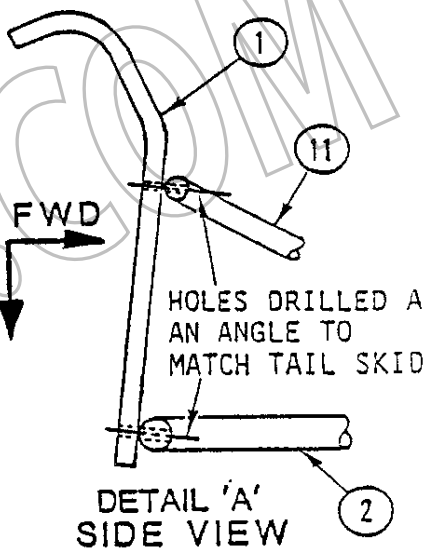


DETAIL 'B'



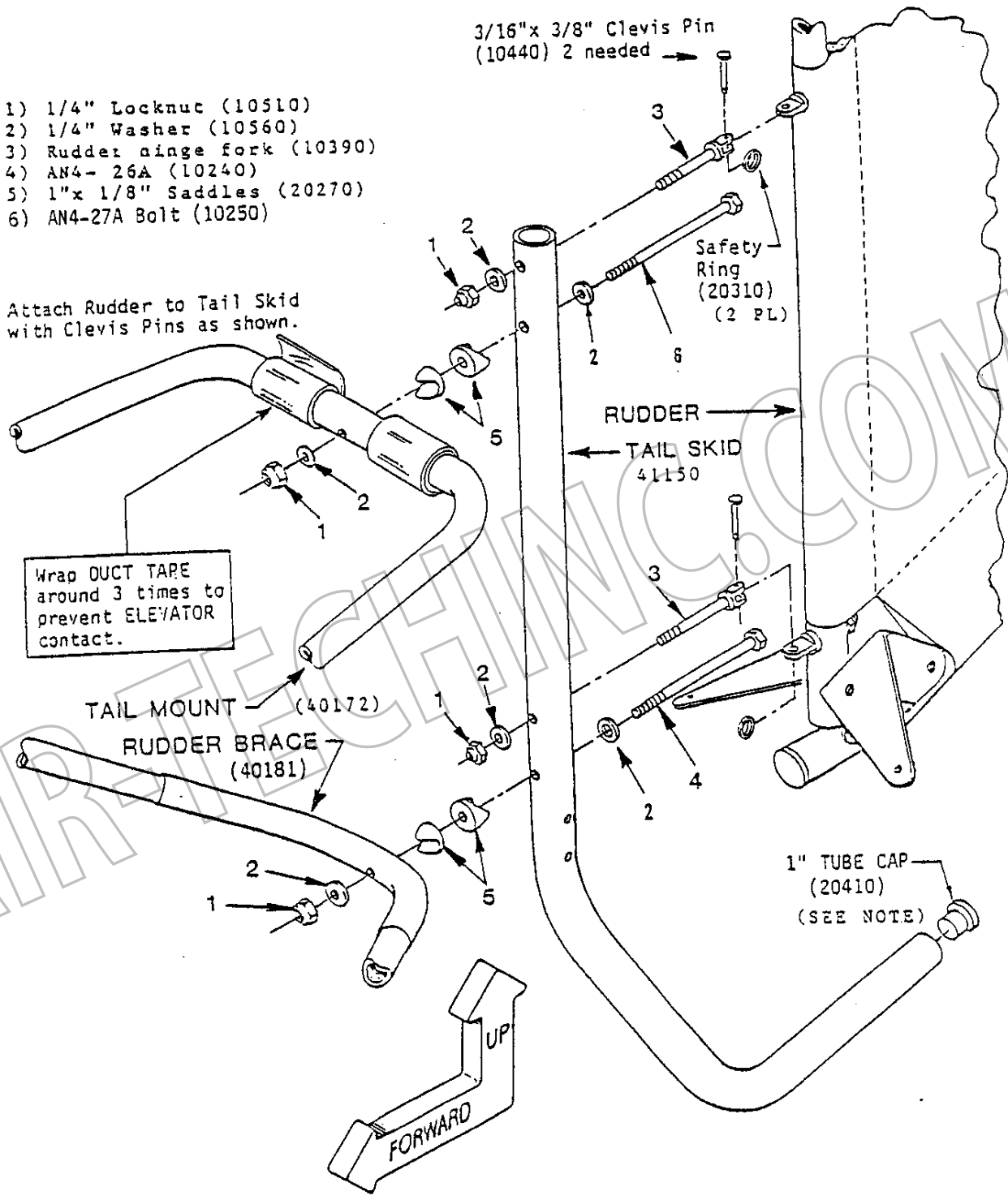
NOTE:
ATTACH BOLT (12)
BEFORE BOLT (13)

DETAIL 'C'



DETAIL 'A'
SIDE VIEW

TAIL ASSEMBLY (CONT.)



TUBE CAP NOTE: SECURE WITH ADHESIVE (60592) AND RIVET (20200).

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 (6,7,12,4). Tighten to proper torque. Don't crush the tube. Repeat for the opposite side.

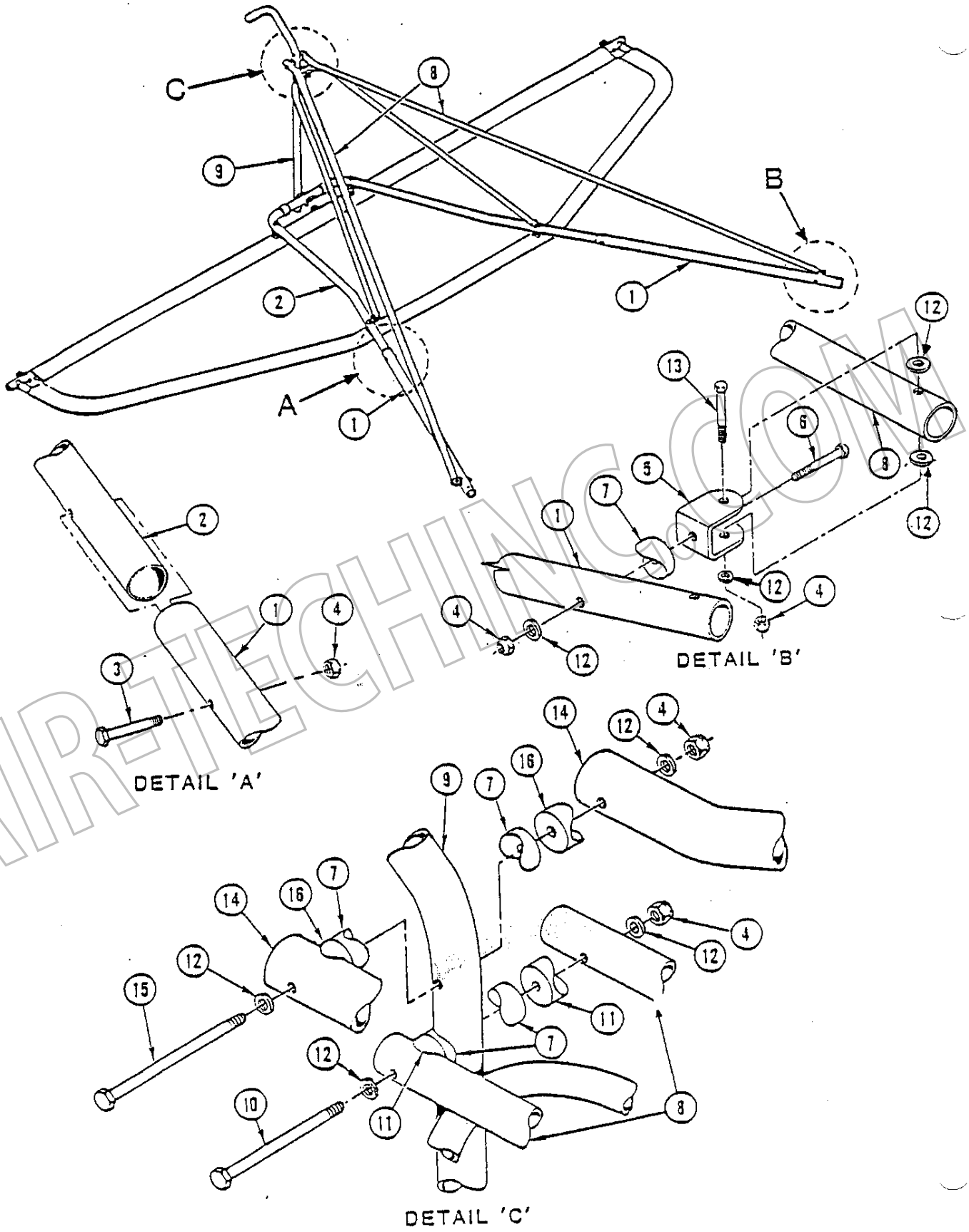
3. Refer to Detail 'C'. Attach the Tail Brace Tubes (8) to the Tail Skid (9) with hardware (10,11,7,12,4). Tighten to proper torque. Don't crush the tube.

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.	10140	AN4-16A 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

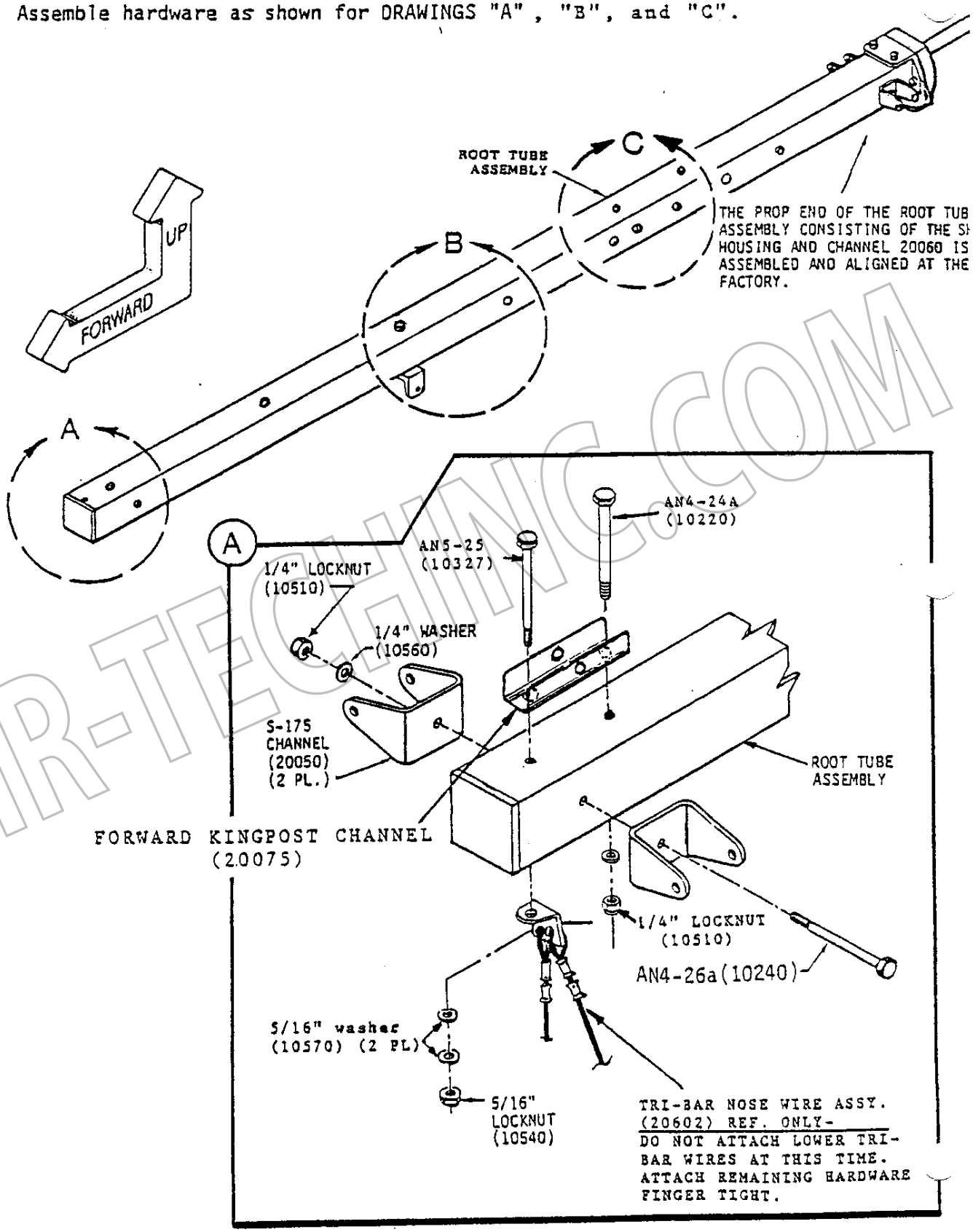
TAIL ASSEMBLY (CONT.)



SECTION 3
ROOT TUBE ASSEMBLY

FOWARD CHANNELS/ NOSE WIRE ATTACHMENT

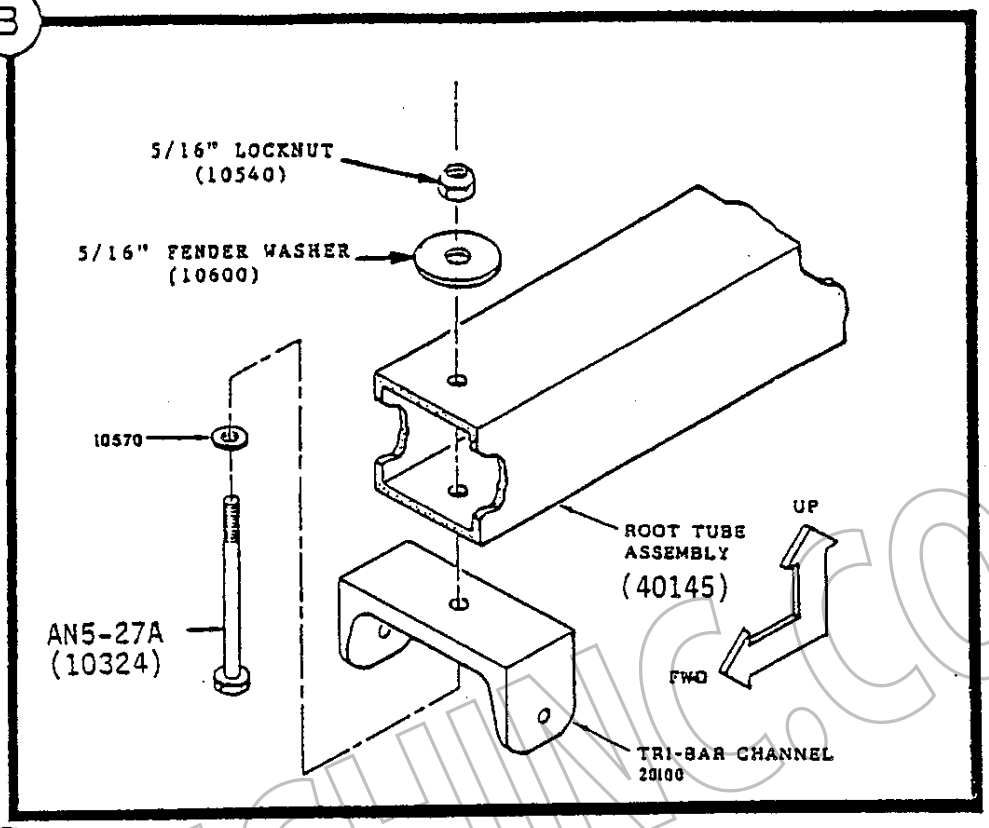
Assemble hardware as shown for DRAWINGS "A" , "B", and "C".



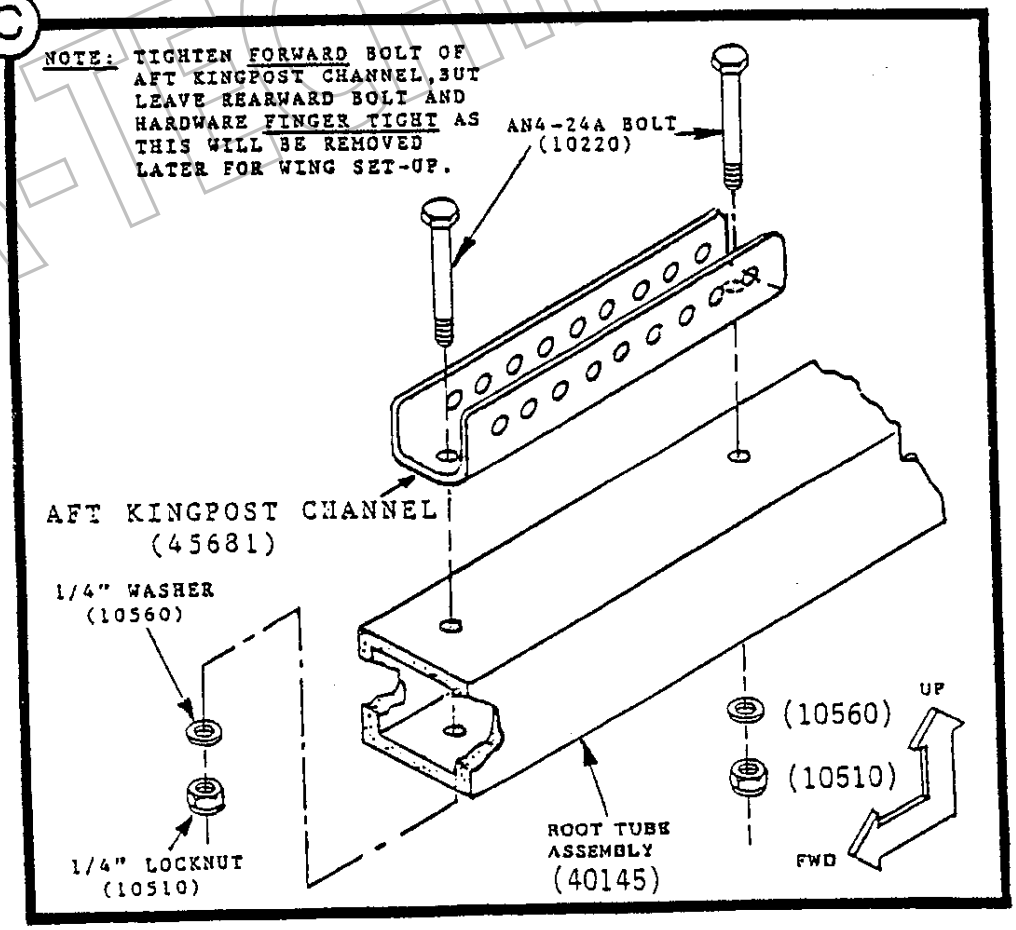
DETAILS CONTINUED ON NEXT PAGE.

TRI-BAR/AFT KINGPOST ATTACHMENT

B

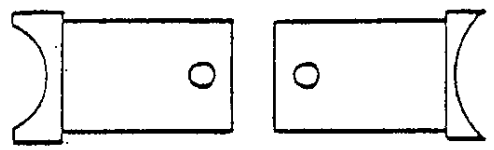


C



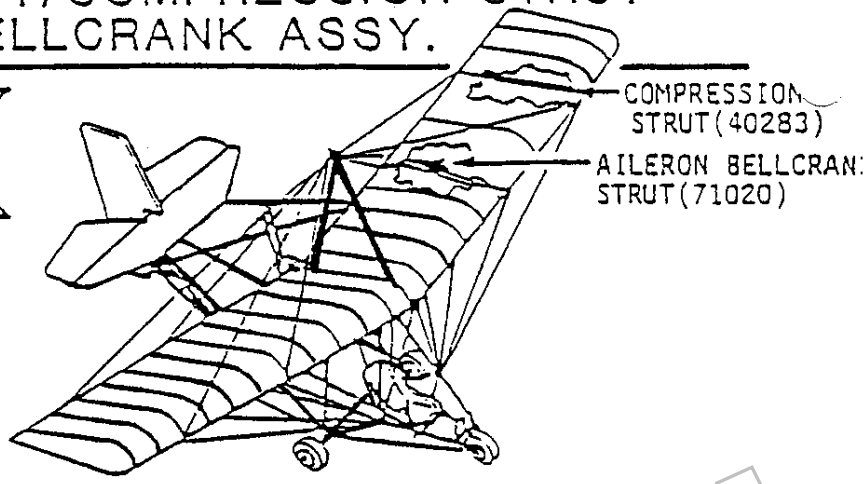
SECTION 4
WING ASSEMBLY

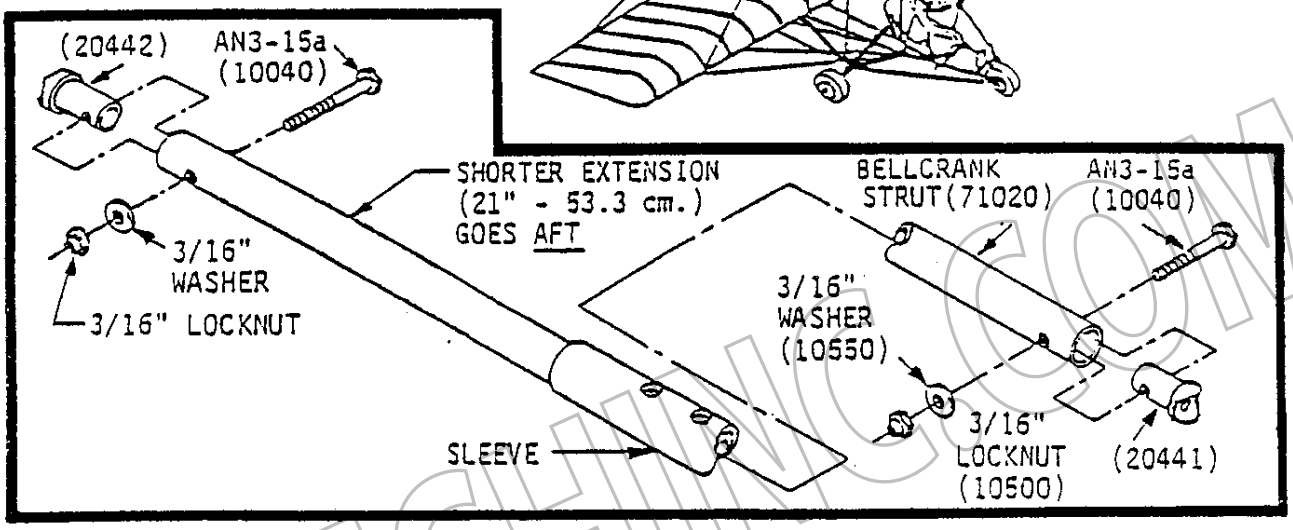
BELLCRANK STRUT/COMPRESSION STRUT AND AILERON BELLCRANK ASSY.



1-1/8" TUBE CONNECTOR (20442) GOES AFT

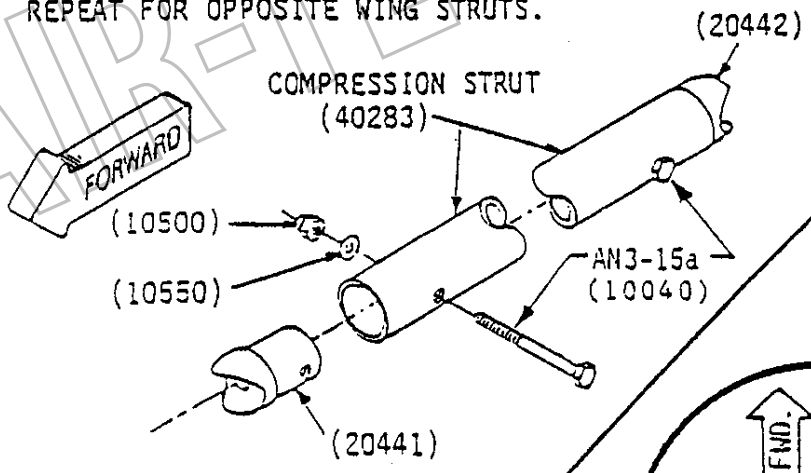
1-3/4" TUBE CONNECTOR (20441) GOES FWD.



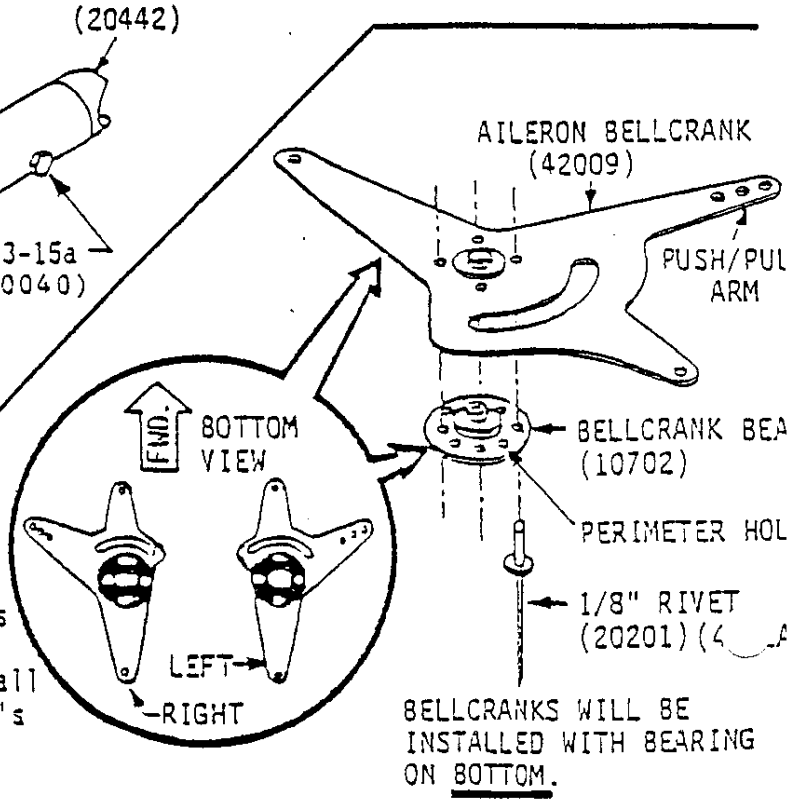


Assemble Aileron Bellcrank Strut (ABOVE) and Comp. Strut (BELOW LEFT) as shown using 1-3/4" Alum. Tube Conn. on forward end and 1-1/8" Alum. Tube Conn. on aft end of struts. (NOTE: AFT END OF BELLCRANK STRUT IS THE SHORTER LENGTH FROM STRUT SLEEVE.)

REPEAT FOR OPPOSITE WING STRUTS.



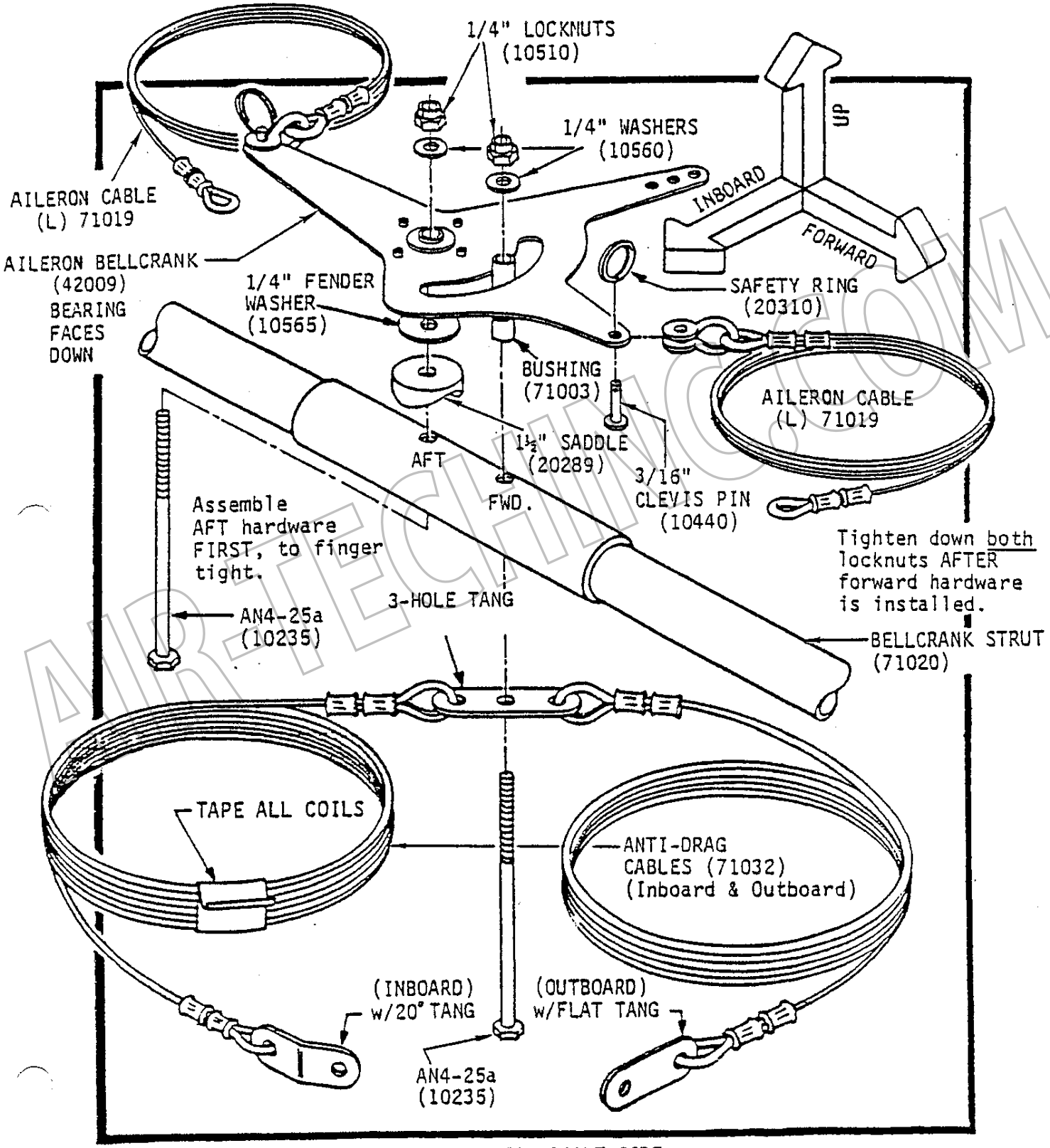
LOCKNUTS SHOULD FACE INBOARD.



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

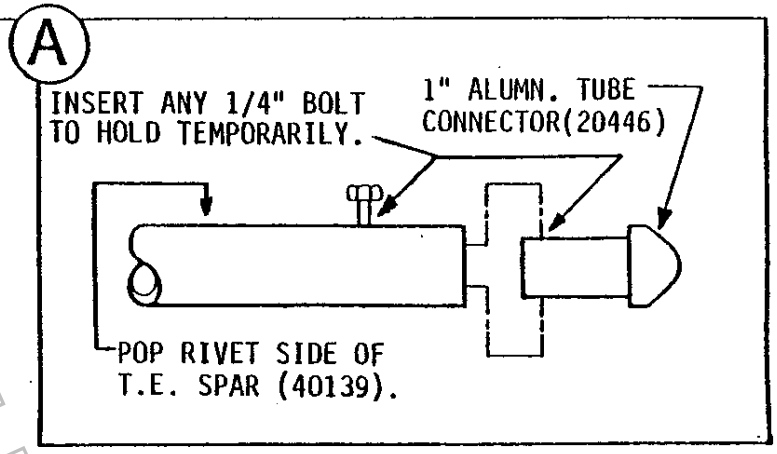
SPAR ASSEMBLY.

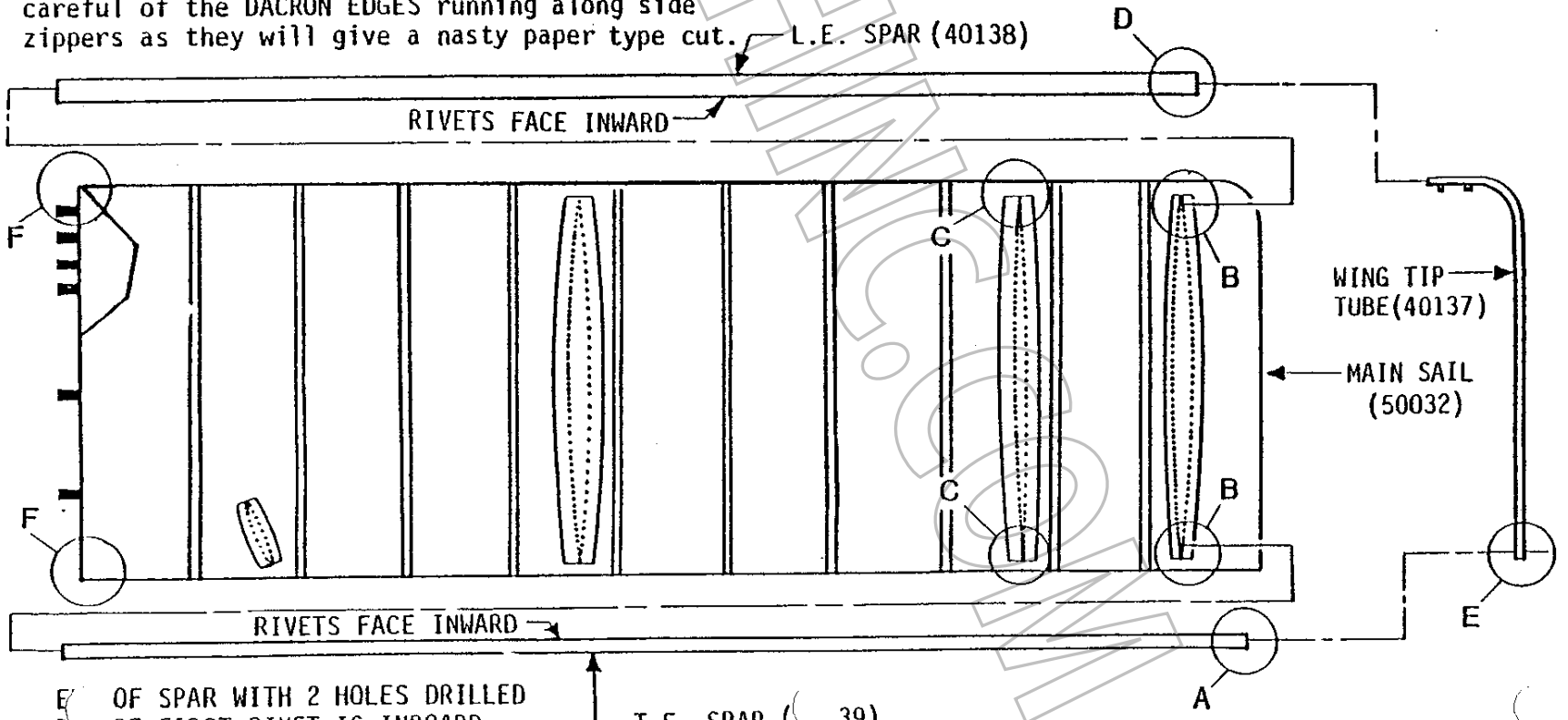
Lay one of two MAIN SAILS on ground with bottom side of (Zippers) facing up.
HELPFUL HINT: Take old bed sheets, blankets, or rugs, etc. and lay under sail to keep it clean and to prevent wear & tear.

DRAWING "A" Assemble hardware as shown and be sure to install at end of SPAR with 1/4" hole.

Assemble as per drawings shown.

CAUTION ! When opening and closing ZIPPERS, be careful of the DACRON EDGES running along side zippers as they will give a nasty paper type cut.





E OF SPAR WITH 2 HOLES DRILLED BEFORE FIRST RIVET IS INBOARD.

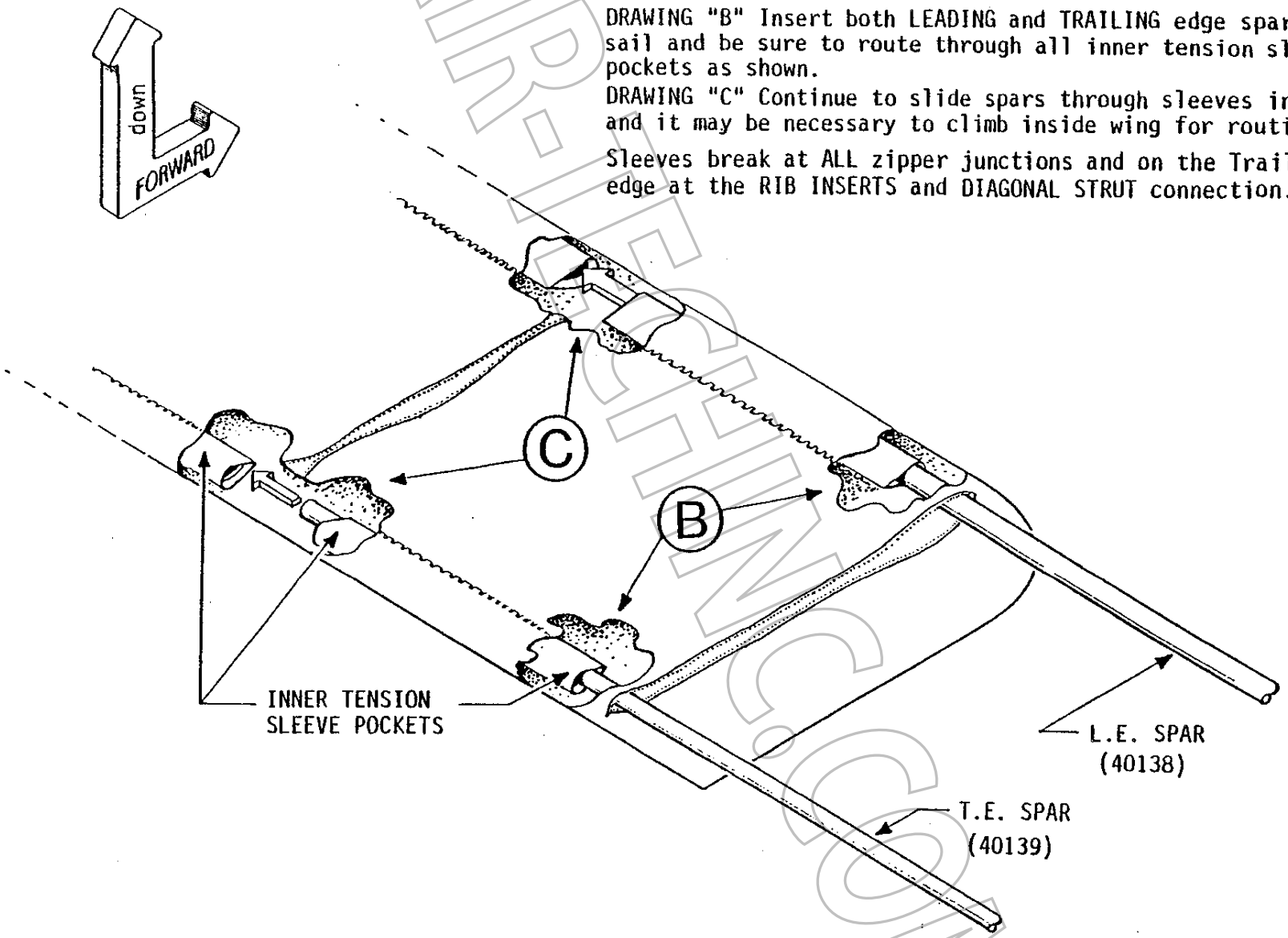
BOTTOM VIEW - LEFT WING SURFACE SHOWN.

SPAR ASSY. DRAWINGS "B" & "C"

DRAWING "B" Insert both LEADING and TRAILING edge spars into sail and be sure to route through all inner tension sleeve pockets as shown.

DRAWING "C" Continue to slide spars through sleeves in wing and it may be necessary to climb inside wing for routing.

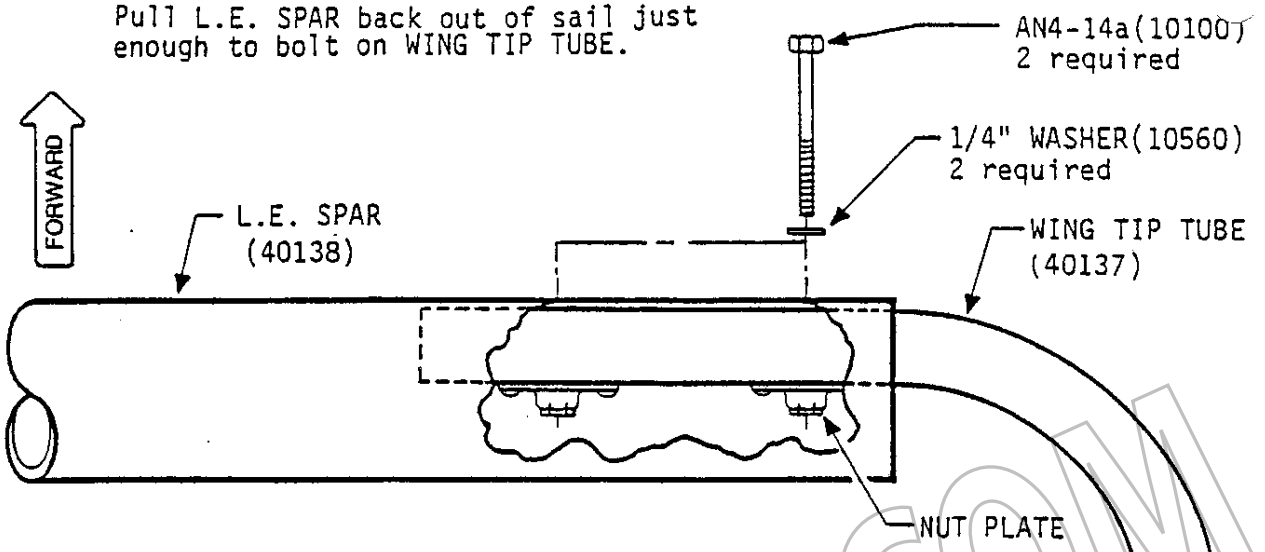
Sleeves break at ALL zipper junctions and on the Trailing edge at the RIB INSERTS and DIAGONAL STRUT connection.



WING ASSEMBLY (CONT'D.)

D WING TIP TUBE.

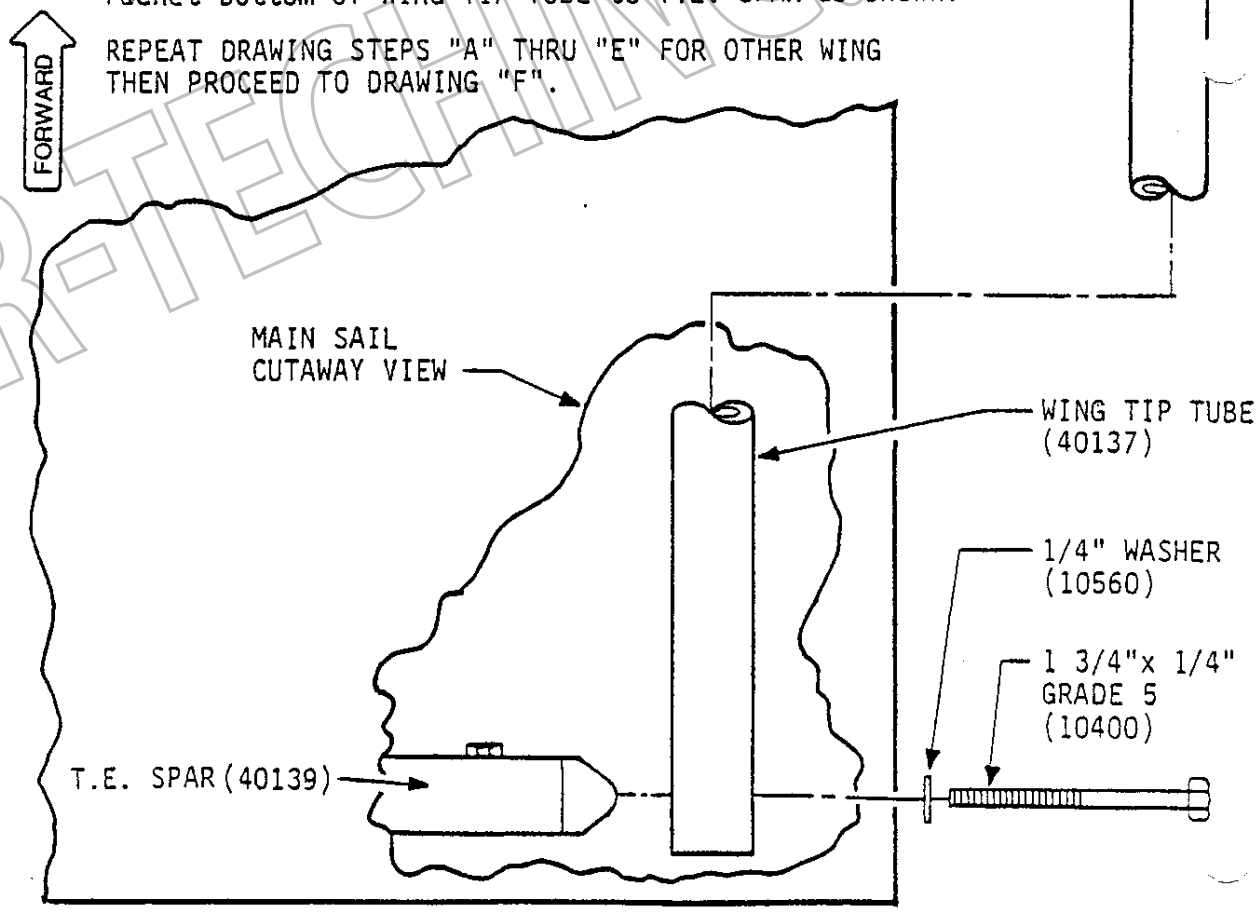
Pull L.E. SPAR back out of sail just enough to bolt on WING TIP TUBE.



E

With WING TIP TUBE now attached to L.E., slide assembly back into sail and angle around to get all of TUBE inside sail. Reach inside sail through ZIPPER and rachet bottom of WING TIP TUBE to T.E. SPAR as shown.

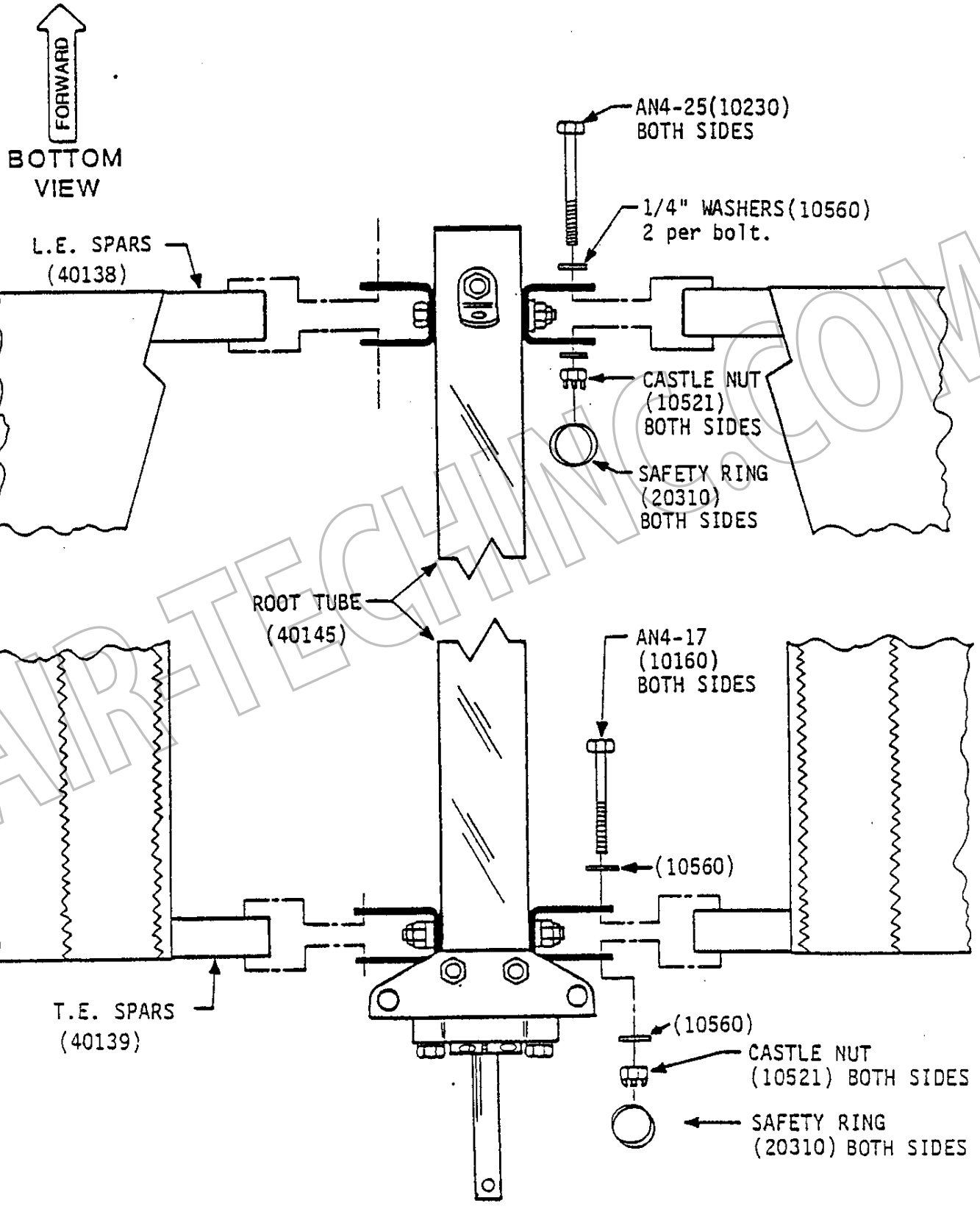
REPEAT DRAWING STEPS "A" THRU "E" FOR OTHER WING THEN PROCEED TO DRAWING "F".



WING ASSEMBLY (CONT'D.)

(F) ROOT TUBE ATTACH

Install SPARS to ROOT TUBE as shown.

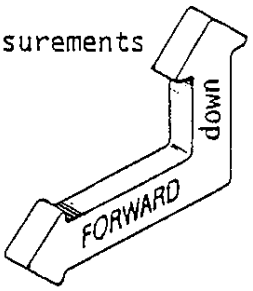


WING RIB & STRUT ASSY.

DRAWING "1" Set wings up on wooden horse as shown below.

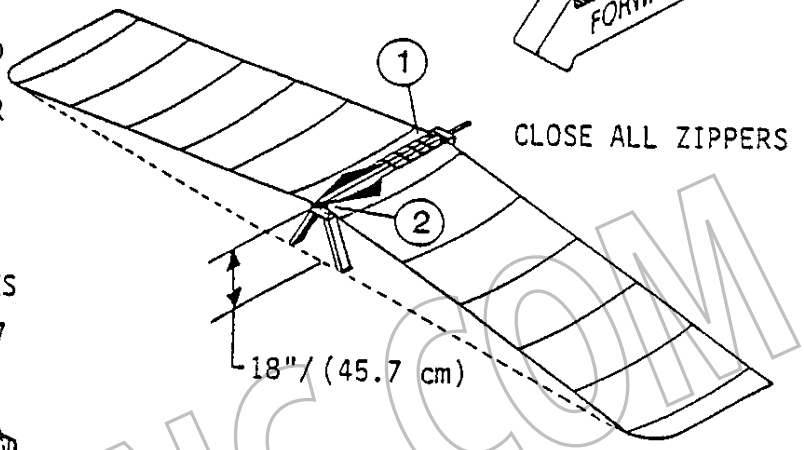
DRAWING "2" Pull sail tight with BUCKLES and ROPE to the measurements given below.

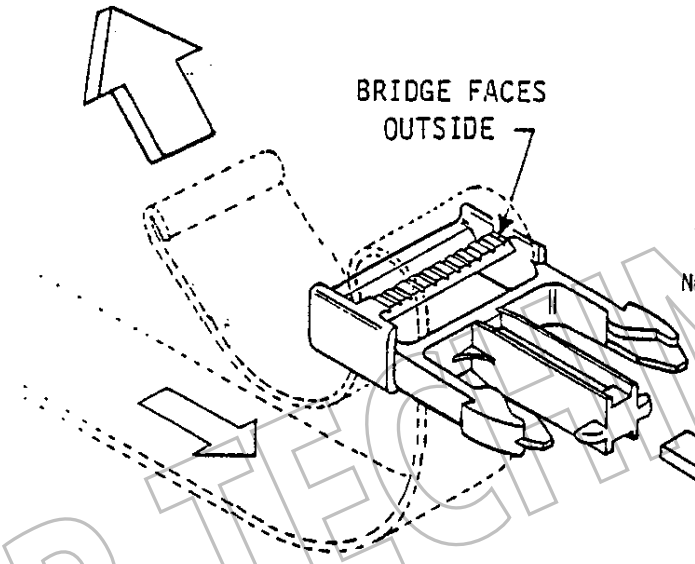
NOTE: Eyelets are for initial sail tightening only. Trailing edge eyelets may line up with ANTI-DRAG WIRE holes. If this is the case then go ahead and run anti-drag wire bolt through eyelet. See Page 4-19.



1

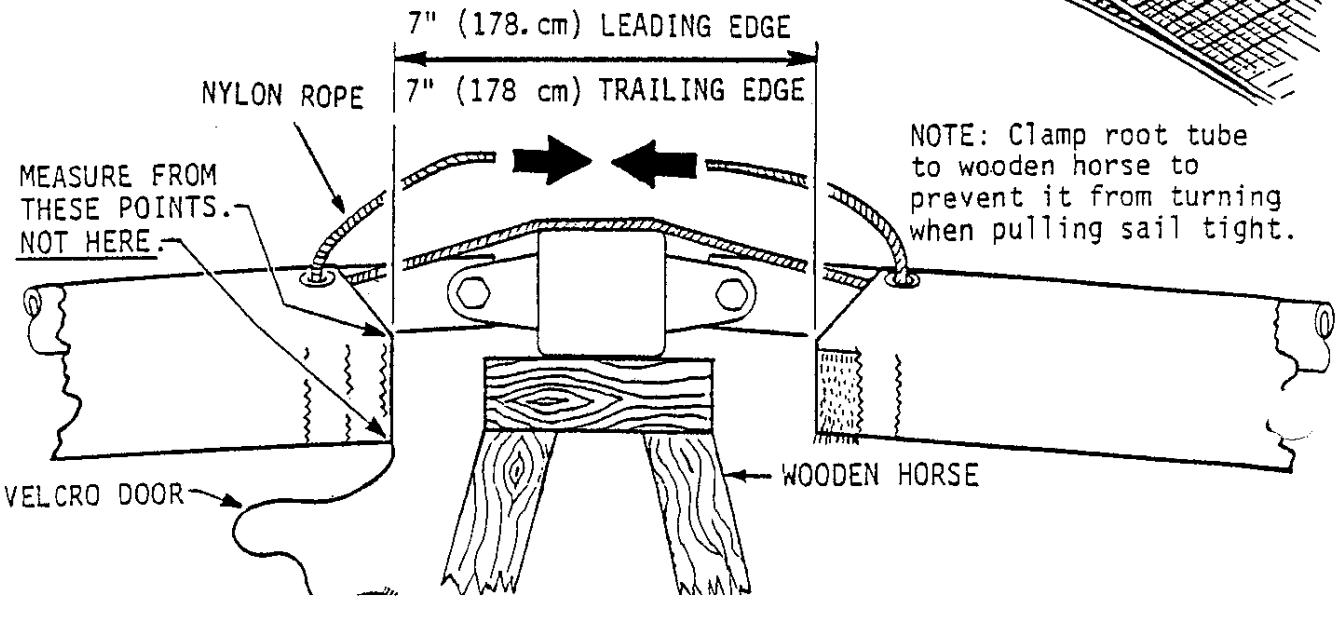
NOTE: If you are going to use a wooden horse, take off KING POST and TRI-BAR channels.





NOTE: IT IS BEST TO SUPPORT WING TIPS ON BOXES AT TIP TUBE ONLY. IF WING IS SUPPORTED ON UPPER RIBS INSTALLED LATER THE WEIGHT OF THE WING MAY FLATTEN THE RIBS RESULTING IN A LO OF AIRFOIL.

2

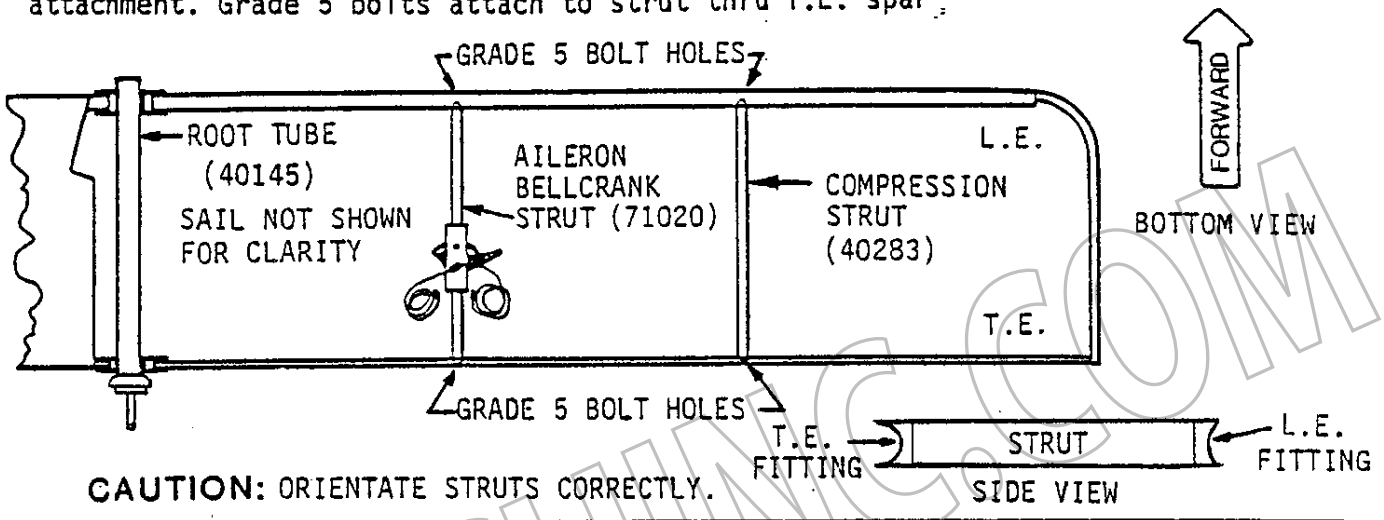


NOTE: Clamp root tube to wooden horse to prevent it from turning when pulling sail tight.

COMPRESSION & AILERON BELLCRANK STRUT INSTALL.

COMPRESSION STRUTS

Look through zipper openings to locate holes in wing L.E. spar for Grade 5 bolts (for both aileron bellcrank and compression strut forward end attach - 1 ea. per wing), and to locate the corresponding wing T.E. holes for Grade 5-to-strut aft end attachment. Grade 5 bolts attach to strut thru T.E. spar.

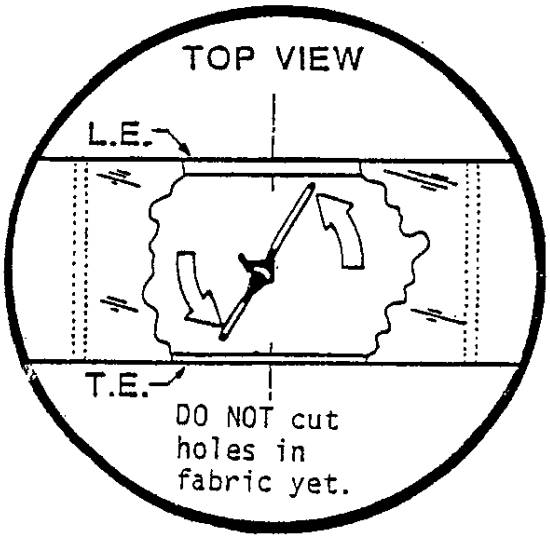


CAUTION: ORIENTATE STRUTS CORRECTLY.

STRUT INSERTION METHOD

1. Insert struts into position through zipper openings at an angle, with strut forward end extending OUTBOARD.

2. Maneuver strut into position between spars until lined up with L.E. and T.E. attach holes.



3. DO NOT HEAT CUT bolt insertion holes in fabric on outside of L.E. and T.E. spars for Grade 5 bolts. It will be done at a later step.

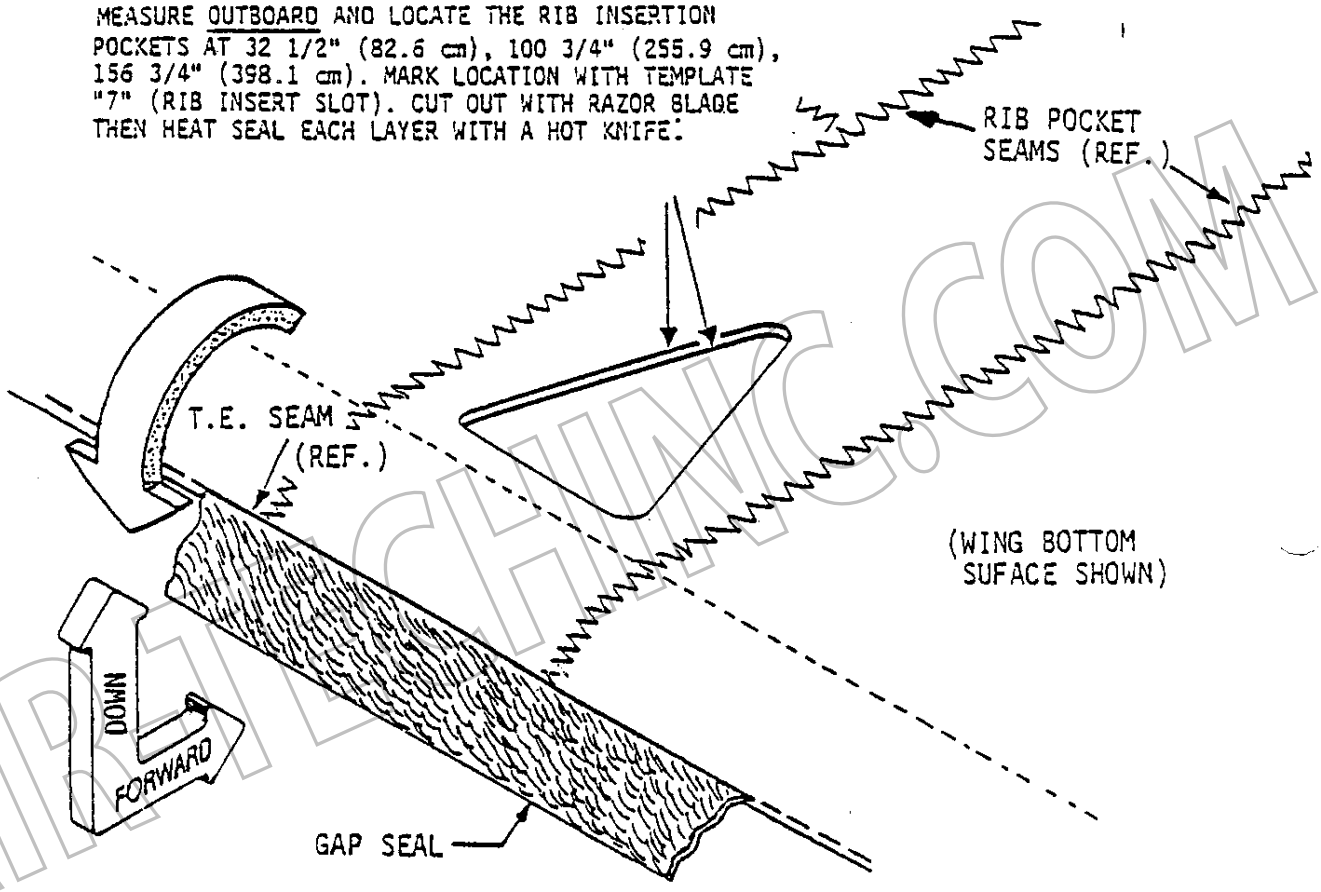
REPEAT ON OTHER WING

RIB INSERT SLOT CUTTING

Refer to TEMPLATE (Page 12-3). Cut out Template "5" (RIB INSERT SLOT). You may wish to transfer template to poster board. Place template, as indicated, on wing bottom surface with template aft end on wing T.E. seam. "cut out" section on fabric with pencil, cut and heat seal.

THE FOLLOWING RIB POCKETS REQUIRE SPECIAL ATTENTION.

LOCATE THE INBOARD END OF THE TRAILING EDGE SPAR. MEASURE OUTBOARD AND LOCATE THE RIB INSERTION POCKETS AT 32 1/2" (82.6 cm), 100 3/4" (255.9 cm), 156 3/4" (398.1 cm). MARK LOCATION WITH TEMPLATE "7" (RIB INSERT SLOT). CUT OUT WITH RAZOR BLADE THEN HEAT SEAL EACH LAYER WITH A HOT KNIFE.



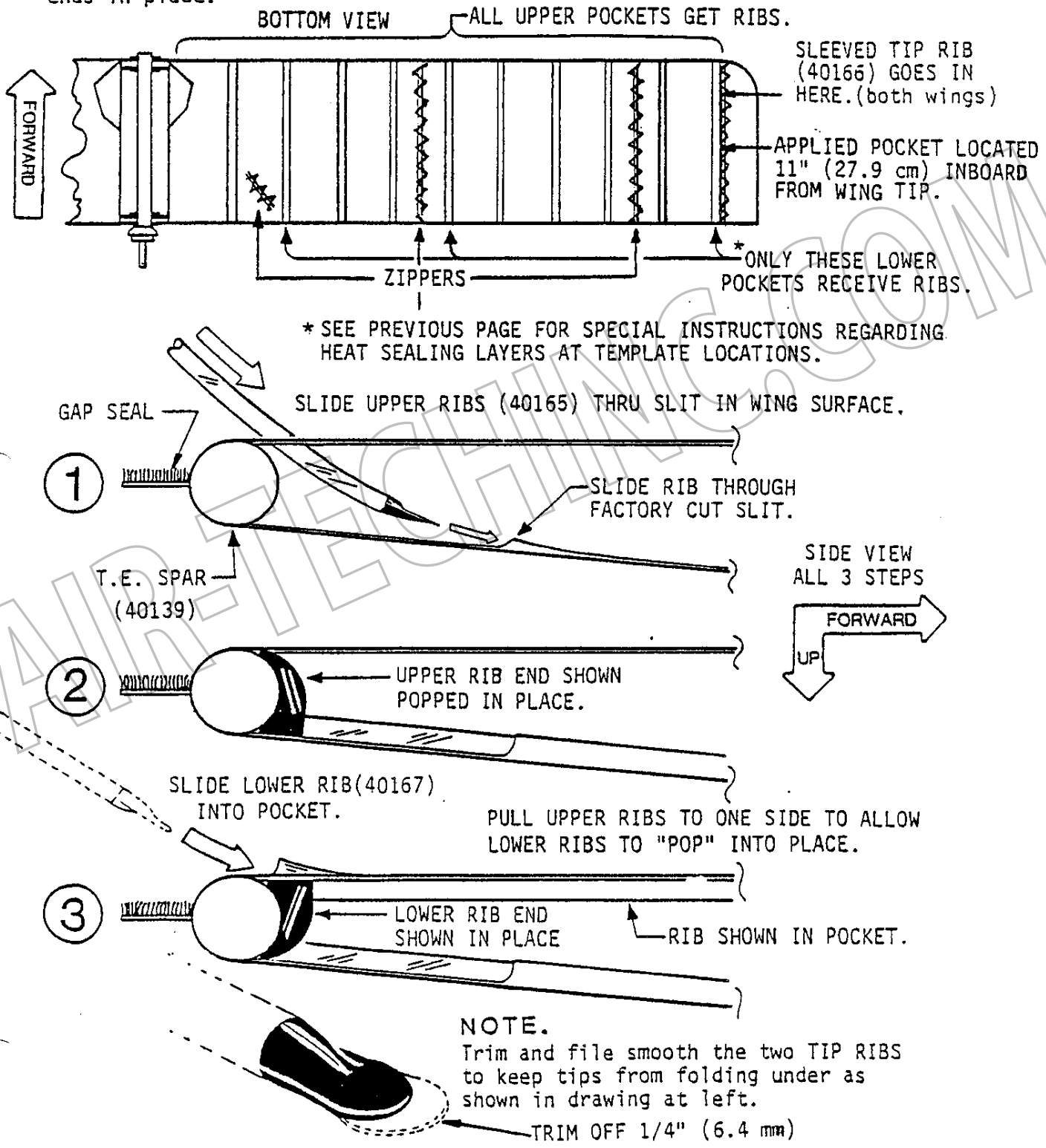
IMPORTANT!
ALIGN TEMPLATE VERTICAL LINES WITH RIB POCKET SEAMS.

ALL OTHER TEMPLATE LOCATIONS MAY BE CUT WITH A HOT KNIFE SEALING BOTH LAYERS TOGETHER. AS THESE OTHER LOCATIONS DO NOT RECEIVE LOWER RIBS.

REPEAT FOR A TOTAL OF 10 SLOTS IN RIB INSERTION POSITIONS ON EACH WING AFT END BOTTOM SURFACE. REFER TO ILLUSTRATION ON PAGE 4-11.

RIB INSERTING

The wing diagram below shows where to place ribs.
STEP "1": Insert ALL upper ribs by going thru SLIT, then slide ribs thru factory-cut slit as shown. NOTE: Upper wing tip pockets get sleeved tip ribs (40166). STEP "2": POP rib ends in place and push off to one side so lower ribs can be installed thru SLIT, also. STEP "3": Install lower ribs as shown and again, "POP" in place. Screwdriver may be used to PUSH rib ends in place.



DIAGONAL STRUT ATTACHMENT

1. SEE DETAIL 'A'. LOCATE THE HOLE IN THE LEADING EDGE SPAR (4). REVEAL THE HOLE AND HEAT SEAL. PASS BOLT (5) THRU CHANNEL (3) (NOTE CORRECT ORIENTATION). CONTINUE THRU LEADING EDGE SPAR (4). ADD WASHER (6) AND SECURE WITH LOCKNUT (7). TIGHTEN TO PROPER TORQUE. DO NOT CRUSH TUBE.

2. SEE DETAIL 'B', LOCATE THE HOLE IN THE TRAILING EDGE SPAR (1). REVEAL THE HOLE AND HEAT SEAL. INSTALL BOLT (8) THRU CHANNEL (3) AS ORIENTED. CONTINUE THRU TRAILING EDGE (1),SADDLE (9), CHANNEL (3), WASHER (6). SECURE WITH LOCKNUT (7). TIGHTEN TO PROPER TORQUE. DO NOT CRUSH TUBE.

3. POSITION CHANNEL (3), (THE ONE TO BE ATTACHED TO DIAGONAL STRUT (2)), PARALLEL TO THE TRAILING EDGE SPAR (1). LOCATE THE HOLES AT BOTH THE TOP AND BOTTOM OF THE CHANNEL. USING THE HOLES AS A GUIDE,CUT AND HEAT SEAL THE HOLE LOCATIONS THRU BOTH THE UPPER AND LOWER WING SURFACE. THIS ALLOWS THE BOLT (10) TO PASS THRU THE CHANNEL (3).

4. INSTALL THE DIAGONAL STRUT (2) TO THE TRAILING EDGE SPAR (1) USING BOLT (10), CHANNEL (3), WASHER (6). SECURE WITH LOCKNUT (7). TIGHTEN TO PROPER TORQUE. DO NOT DEFORM CHANNEL (3).

5. PULL APART THE VELCRO DOOR (NOT SHOWN) LOCATED AT THE FUEL TANK CUT-OUT ON THE BOTTOM OF THE WING SURFACE. SWING THE DIAGONAL STRUT (2) INTO CHANNEL (3). SEE DETAIL 'A'. PASS BOLT (10) THRU CHANNEL (3), DIAGONAL STRUT (2), WASHER (6) AND SECURE WITH LOCKNUT (7). TIGHTEN TO PROPER TORQUE. DO NOT DEFORM THE CHANNEL (3).

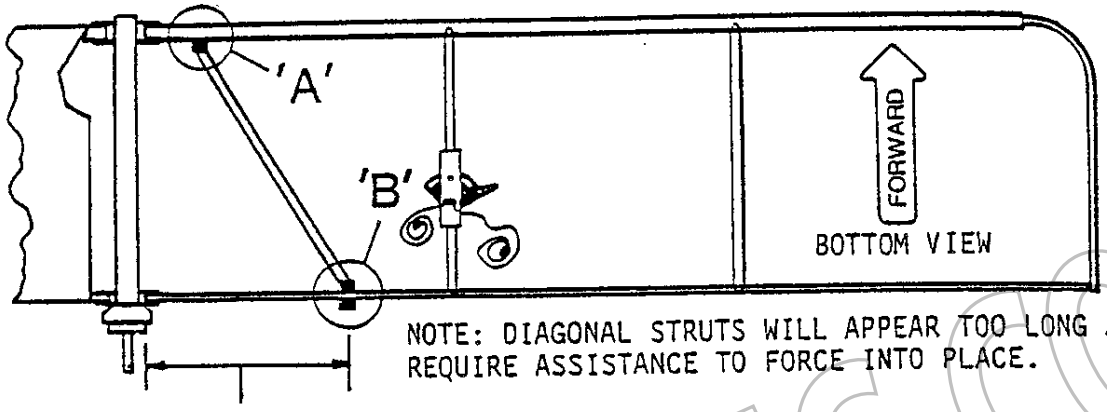
6. WRAP THE VELCRO DOOR SNUGGLY AROUND THE DIAGONAL STRUT (2) AND RESEAL THE DOOR TO THE ORIGINAL POSITION.

7. REPEAT ASSEMBLY SEQUENCE 1-6 FOR THE OPPOSITE WING.

Pt.	P.N.	Description
1.	40139	Trailing Edge Spar
2.	40420	1 1/4" Diagonal Strut
3.	20090	1 1/4" Channel
4.	40138	Leading Edge Spar
5	10220	AN4-24A Bolt
6.	10560	1/4" Washer
7.	10510	1/4" Locknut
8.	10185	AN4-21A Bolt
9.	20289	1 1/2" Plastic Saddle
10.	10170	AN4-20A Bolt

DIAGONAL STRUTS

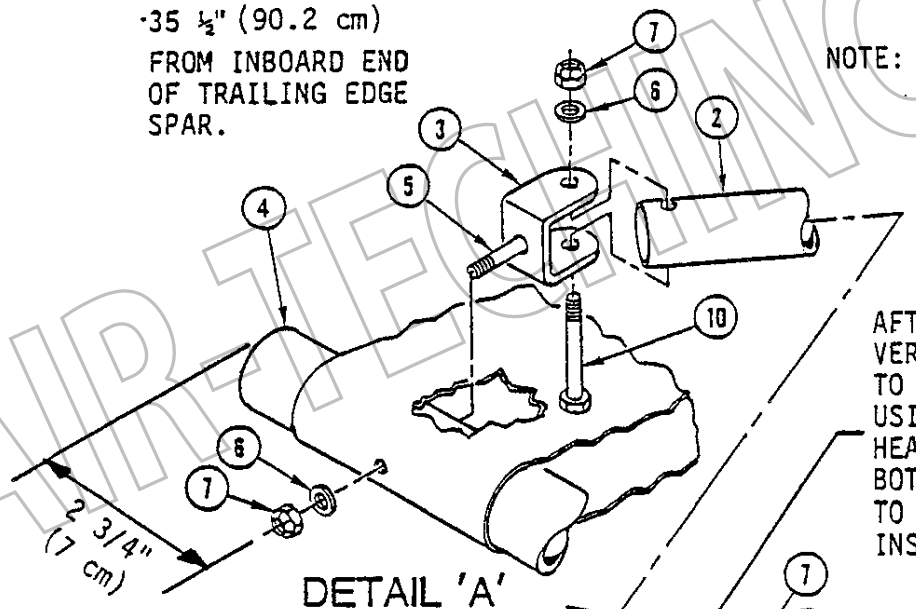
Pull buckles tight again making sure sail is very taut.



NOTE: DIAGONAL STRUTS WILL APPEAR TOO LONG AND MAY REQUIRE ASSISTANCE TO FORCE INTO PLACE.

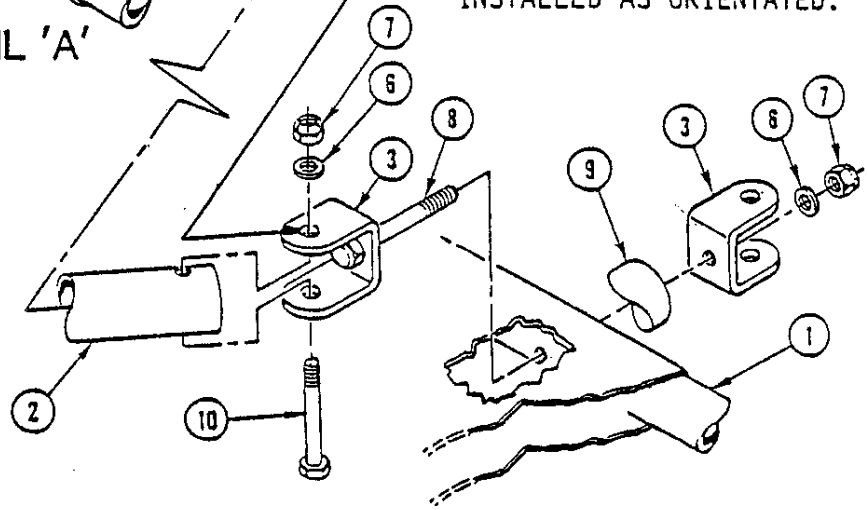
35 ½" (90.2 cm) FROM INBOARD END OF TRAILING EDGE SPAR.

NOTE: Install the Trailing Edge End of Diagonal Strut first.



DETAIL 'A'

AFTER CHANNEL INSTALLATION VERIFY CHANNEL IS PARALLEL TO THE TRAILING EDGE SPAR. USING HOLES IN CHANNEL, HEAT CUT THRU THE TOP AND BOTTOM SURFACE OF THE WING TO ALLOW BOLT (10) TO BE INSTALLED AS ORIENTATED.

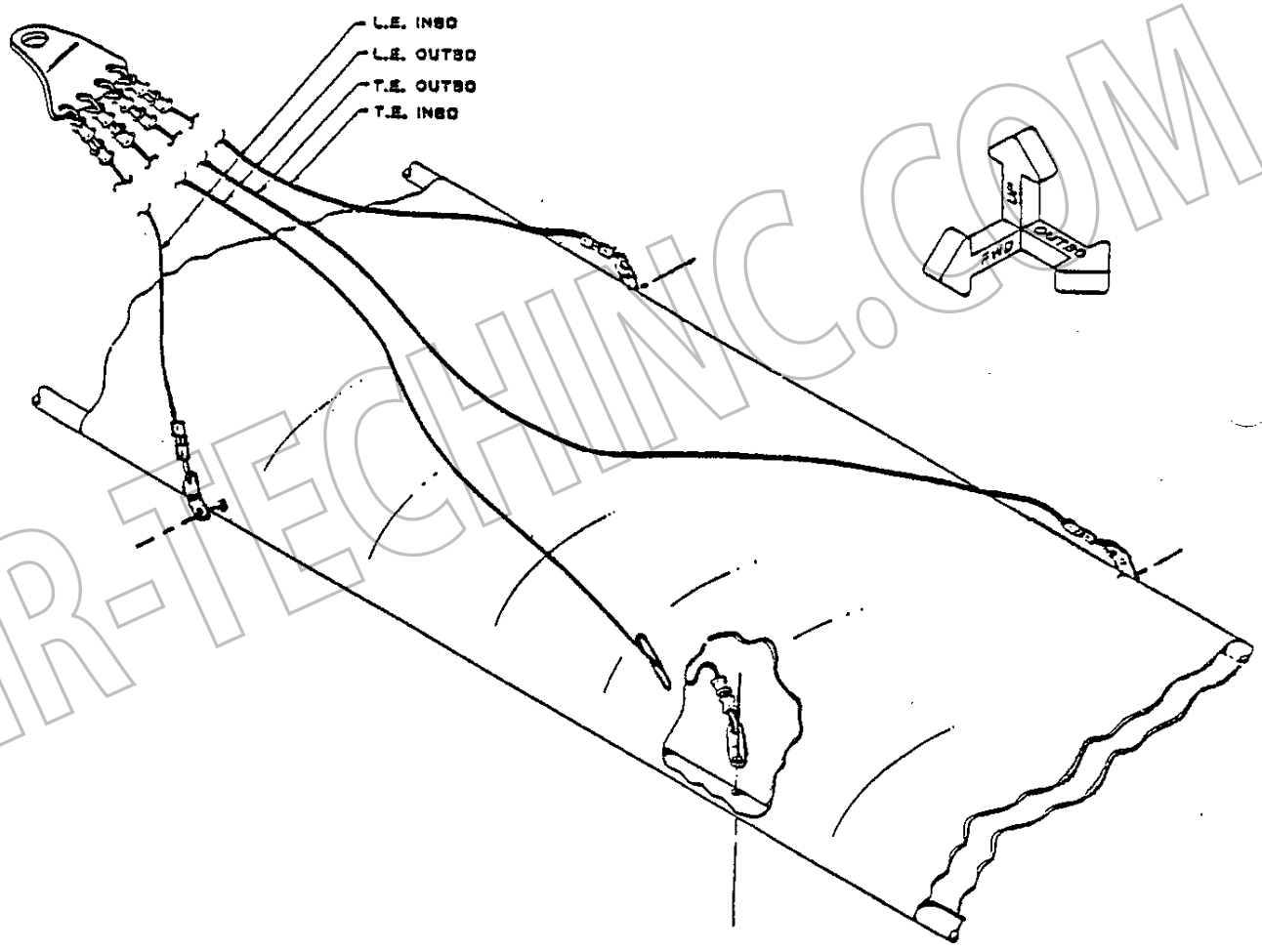


DETAIL 'B'

UPPER WIRE

GENERAL ARRANGEMENT

LEFT UPPER WIRE SET
(20586)



(LEFT WING SHOWN HERE)

HAVE YOU CHECKED THE NICO SLEEVES YET?

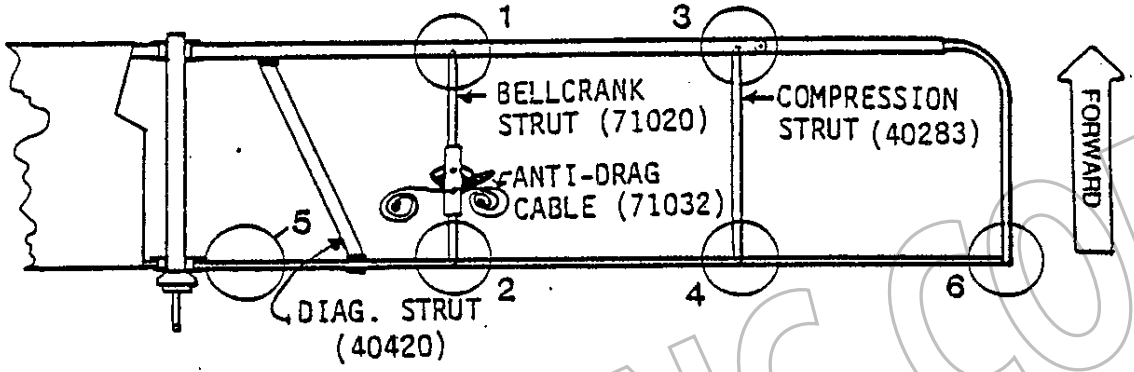
WING WIRE INSTALLATION
BELLCRANK/COMPRESSION STRUT/

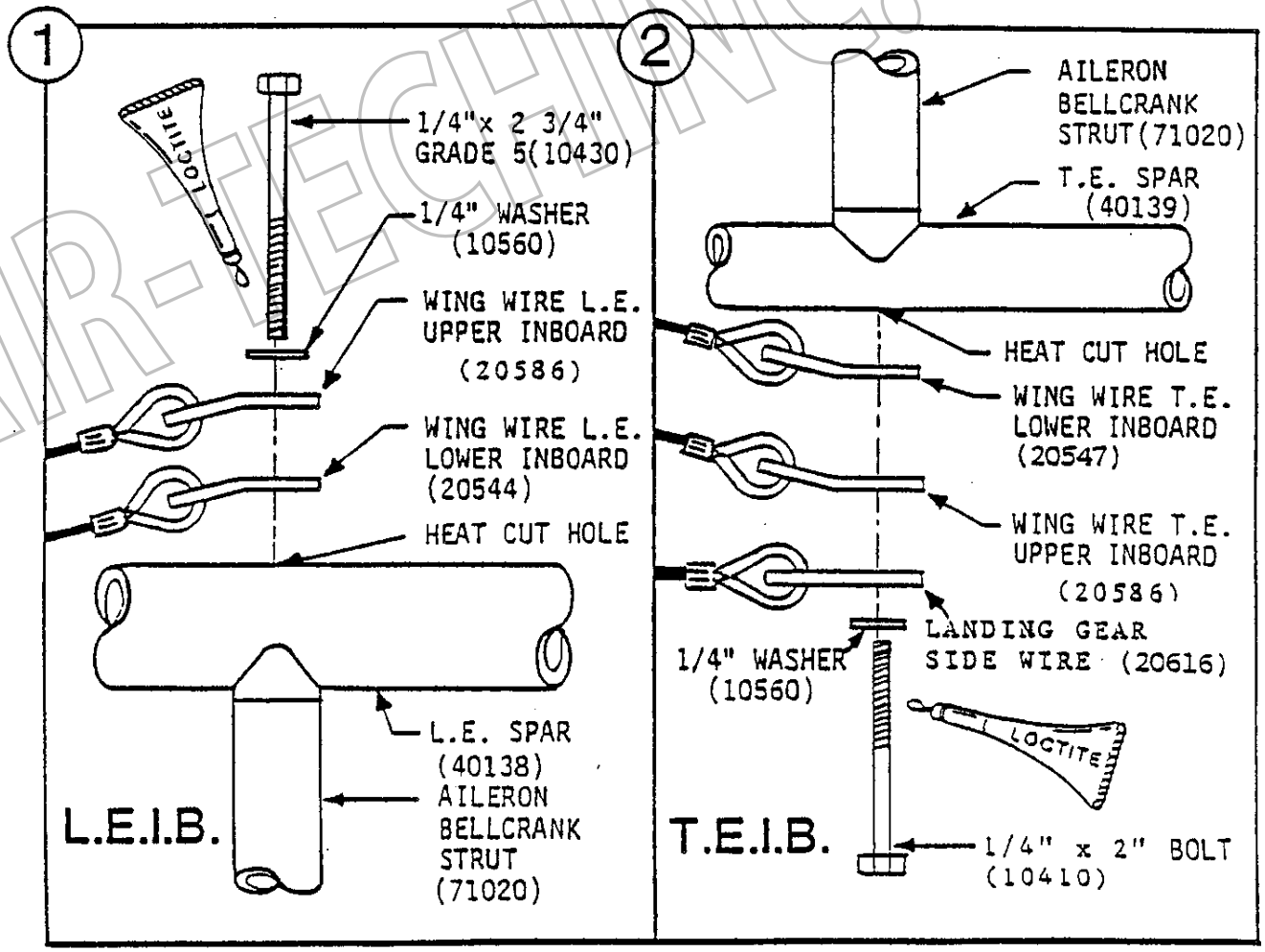
Heat cut holes for GRADE 5 BOLTS, then make sure compression and aileron bellcrank struts are in line with holes. Assemble hardware in the sequence shown below and in the following pages (Steps 1 - 6).

USE AN AWL TO HELP ALIGN SPAR HOLES AND COMPRESSION STRUT FITTING HOLES.

(BOTTOM VIEW-LEFT WING SHOWN)

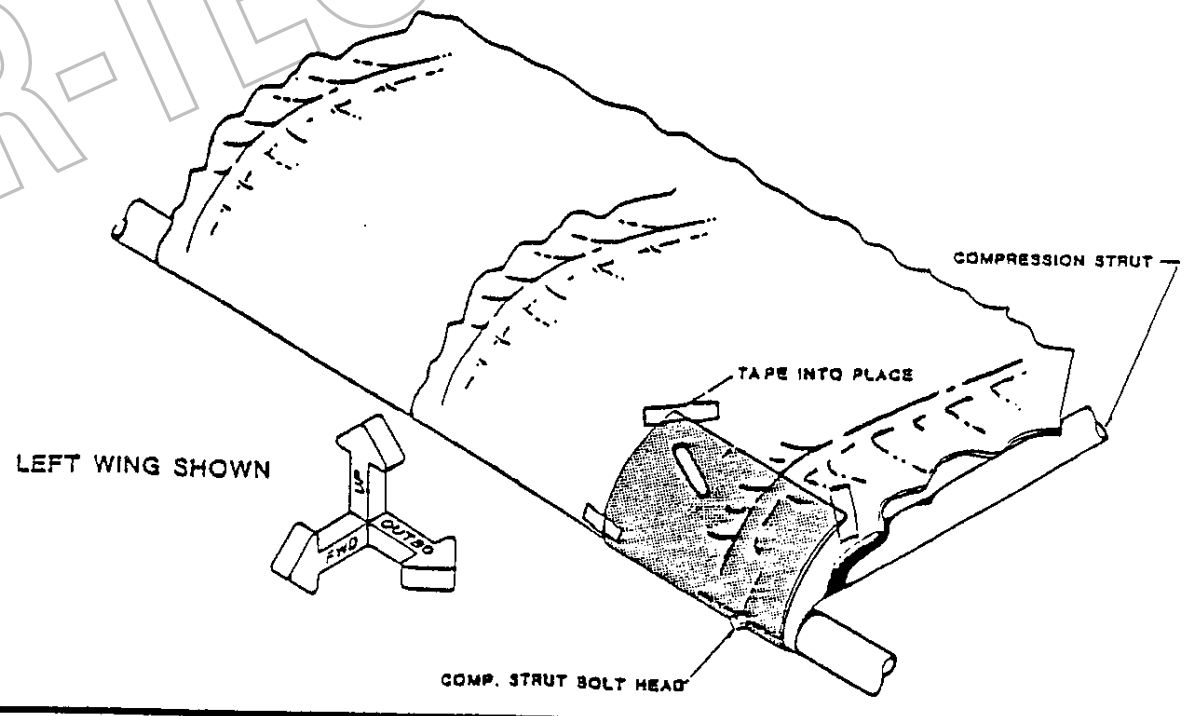
RIBS AND SAIL NOT SHOWN FOR CLARITY





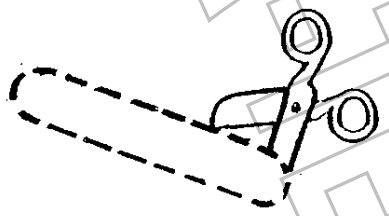
L.E. OUTBD UPPER WIRE TEMPLATE ARRANGEMENT

FULL SIZE TEMPLATE ALONG WITH INSTRUCTIONS ON THE FOLLOWING PAGE.



LEADING EDGE OUTBOARD UPPER WIRE TEMPLATE

THIS SIDE OF TEMPLATE TO BE USED FOR LEFT WING ONLY.
FLIP THIS TEMPLATE OVER AND USE THE BACK SIDE FOR USE ON THE RIGHT WING.



'SPORT'

REFERENCE ONLY

INBOARD

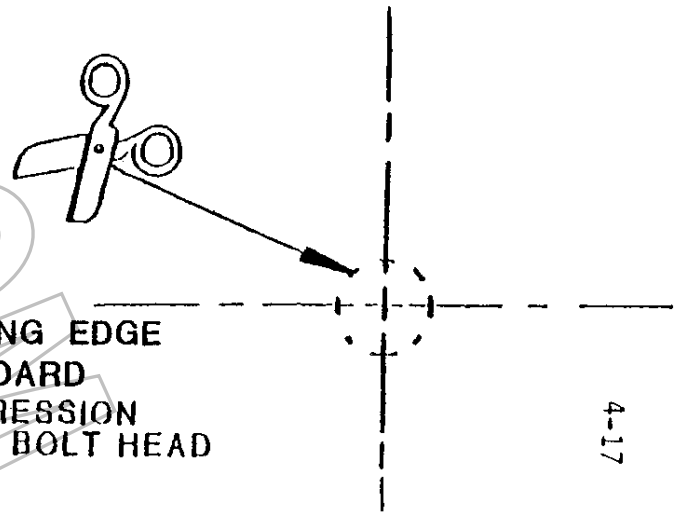
1. REMOVE TEMPLATE PAGE FROM MANUAL.
2. CAREFULLY CUT OUT SLOT AND HOLE ON DOTTED LINES.
3. ALIGN HOLE #1 ONTO THE COMPRESSION STRUT BOLT HEAD.
4. ALIGN "PERPENDICULAR" AND "PARALLEL" EDGES WITH RESPECT TO L.E.
5. TAPE TEMPLATE INTO PLACE.
6. MARK SLOT ONTO WING COVER.
7. REMOVE TEMPLATE FOR USE ON RIGHT WING.
8. NEAT CUT SLOT IN WING.
9. REPEAT PROCEDURE IN MIRROR IMAGE FOR RIGHT WING.

PERPENDICULAR

ALIGN — WITH RESPECT TO L.E.

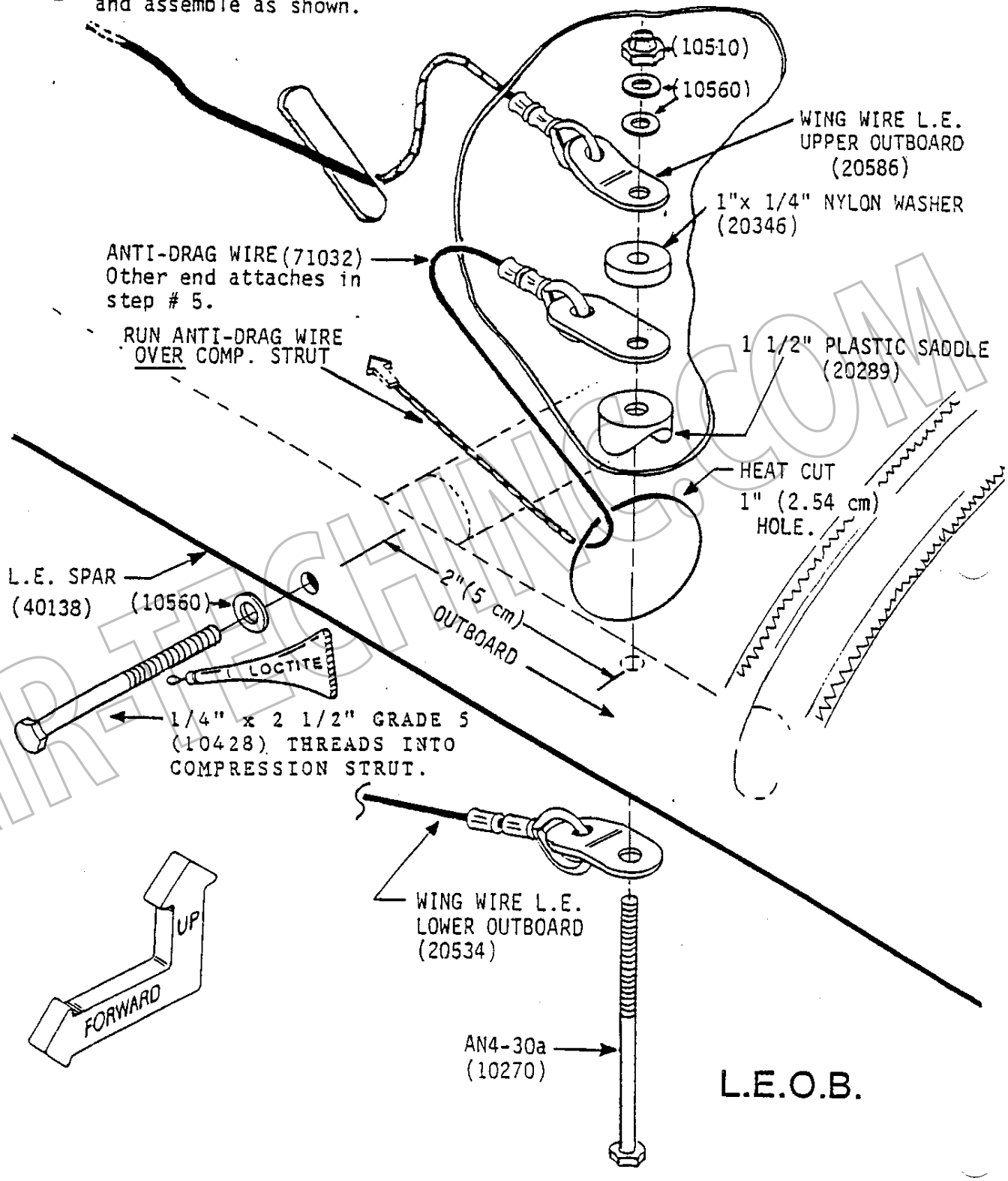
PARALLEL

HOLE #1



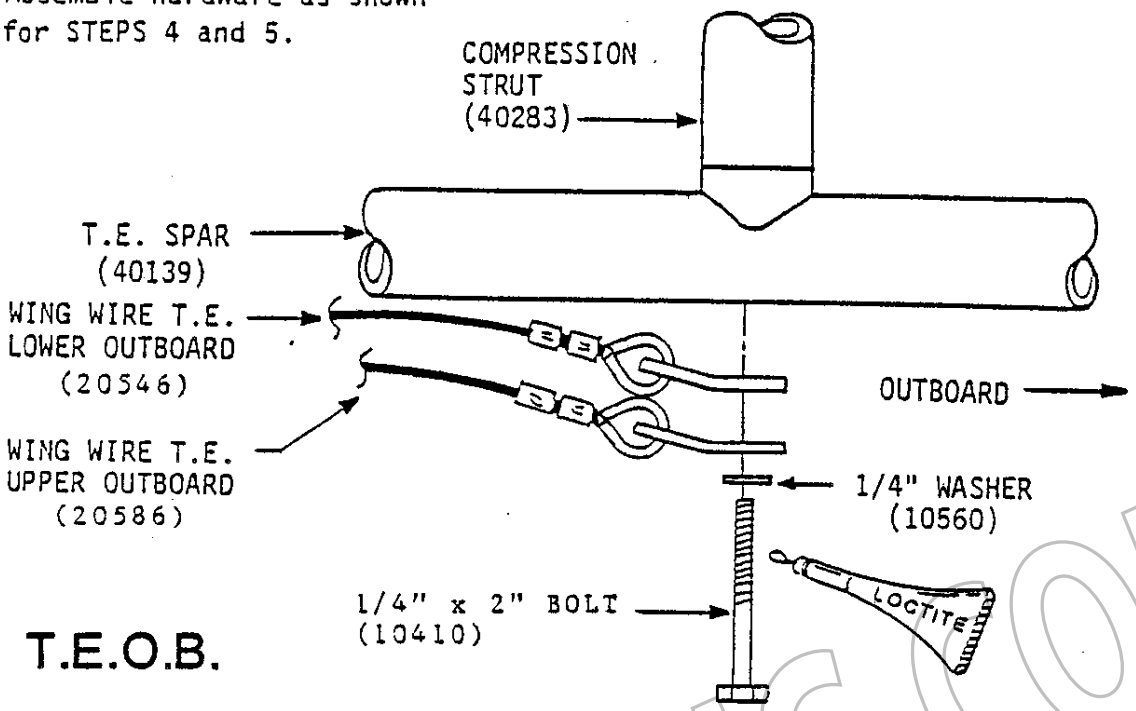
3 WING WIRES / COMPRESSION STRUTS CON'T.

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

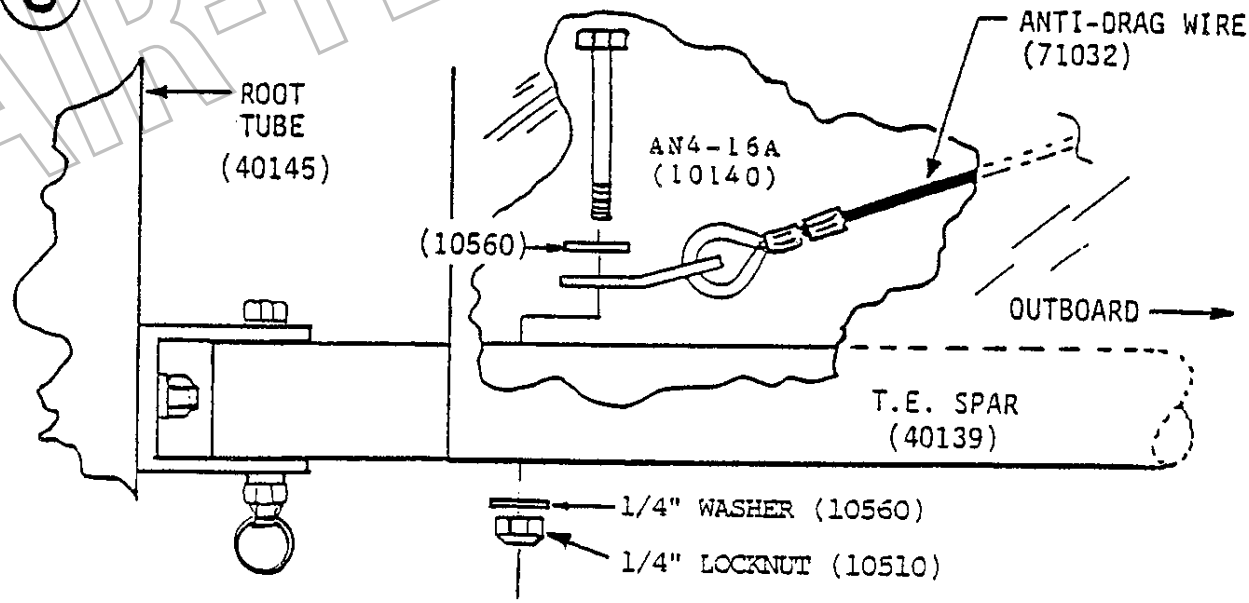


4 WING WIRES / COMPRESSION STRUTS CON'T.

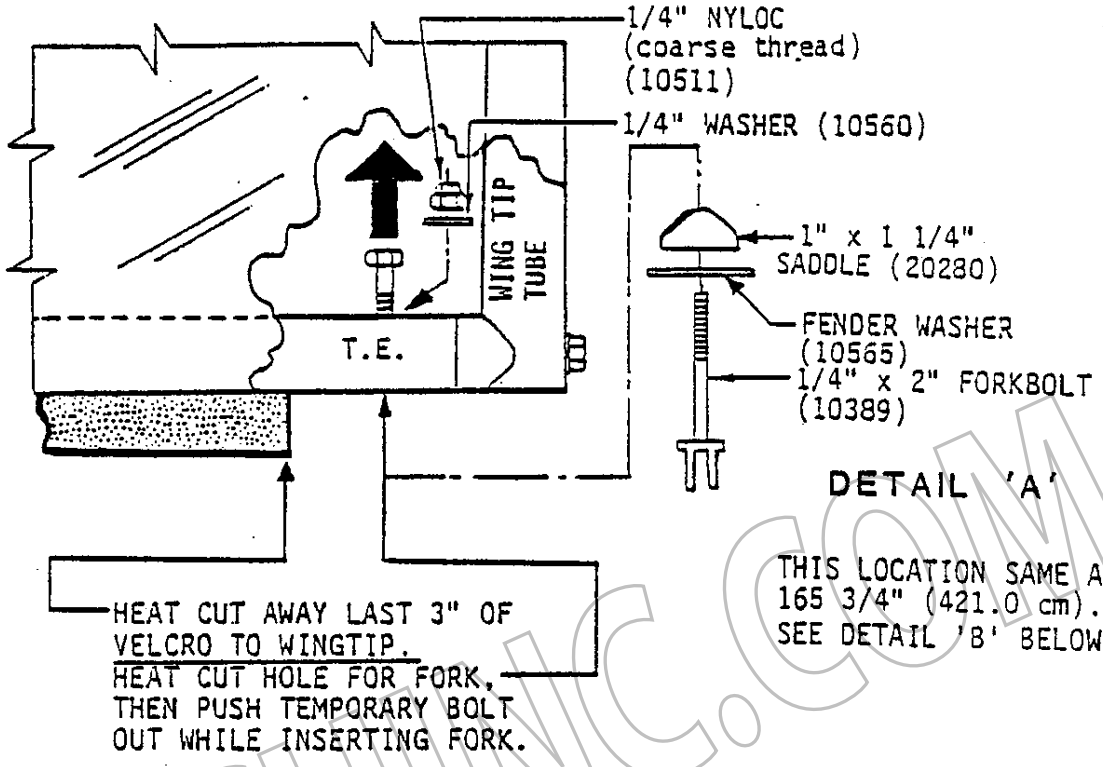
Assemble hardware as shown for STEPS 4 and 5.

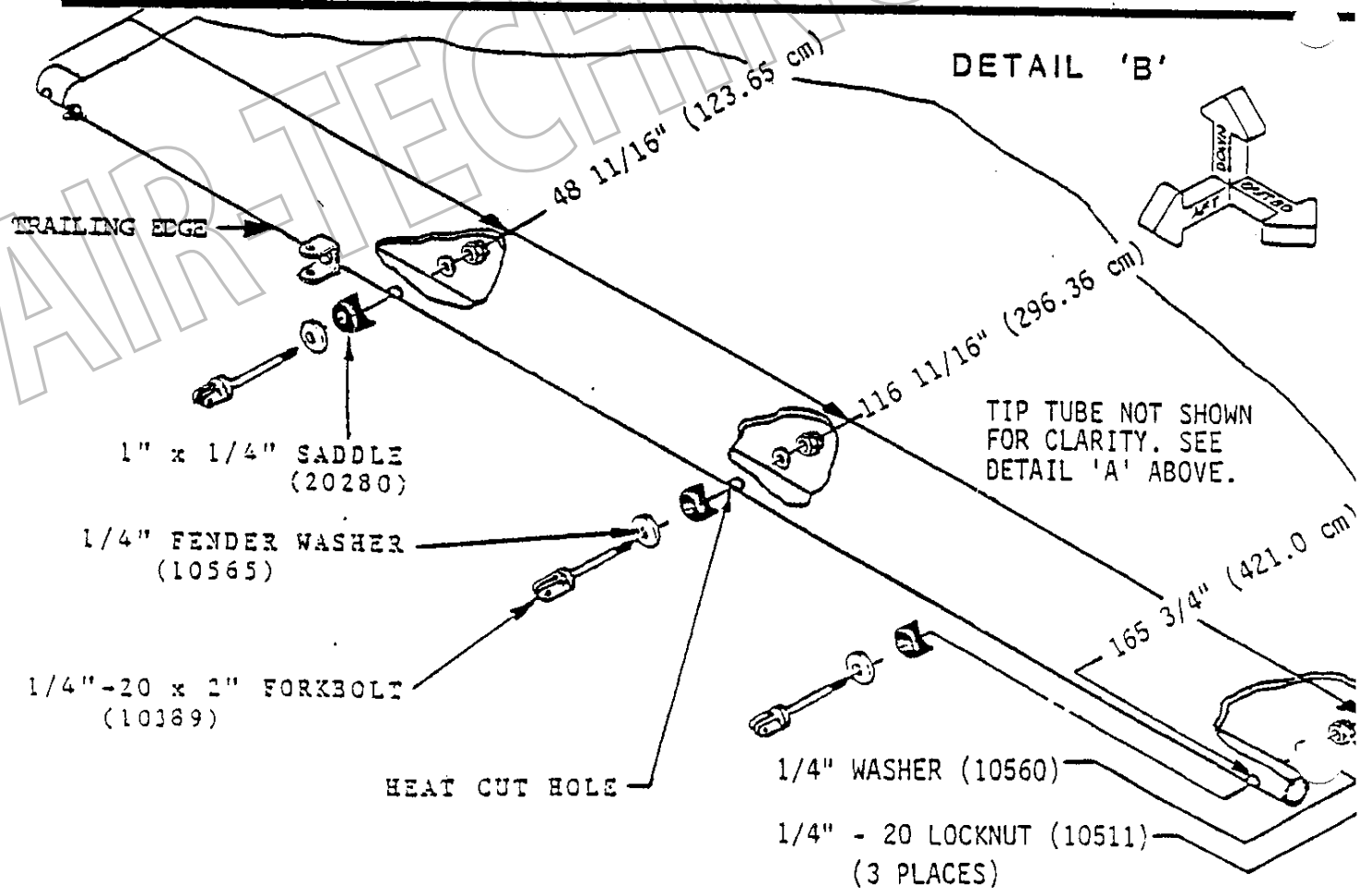


5 WING WIRES CONT./ANTI-DRAG WIRE ATTACH TO TRAILING EDGE



TRAILING EDGE FORKBOLT ATTACH



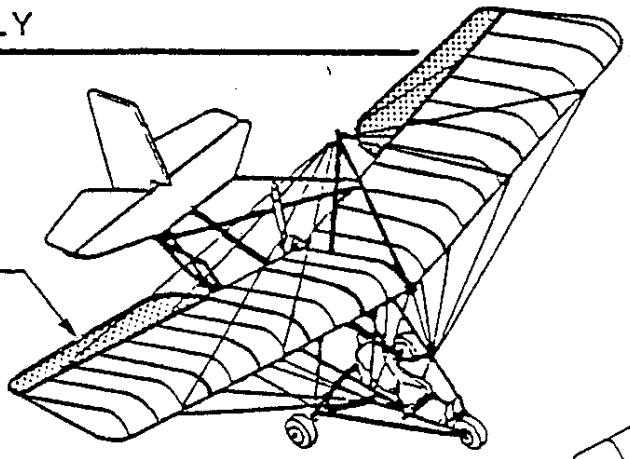


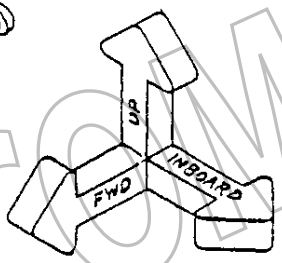
SECTION 5
AILERON ASSEMBLY

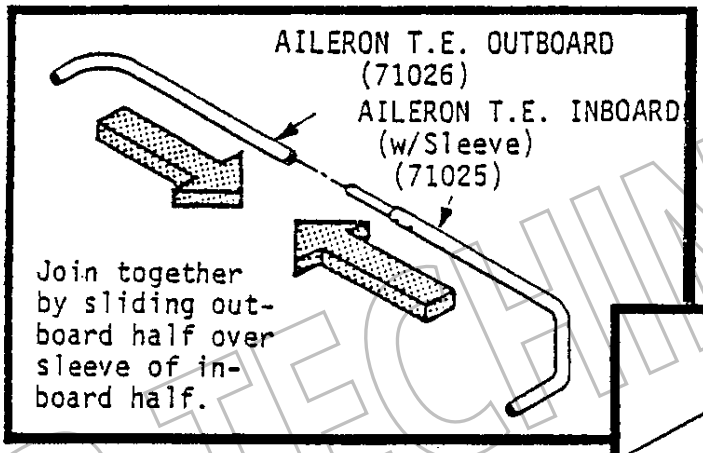
AILERON ASSEMBLY

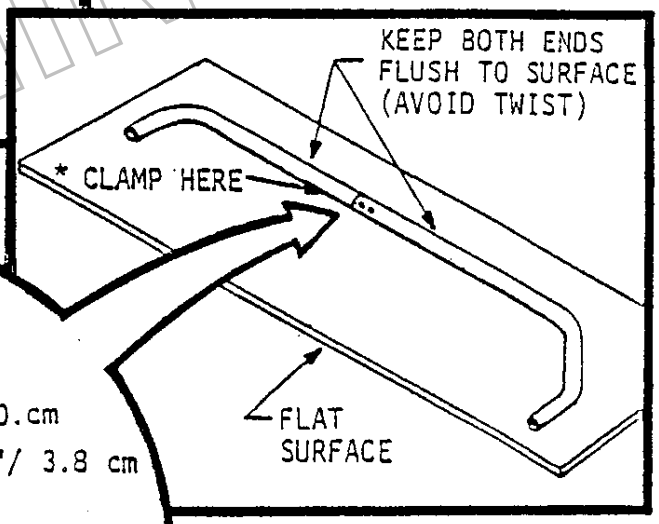
TRAILING EDGE ASSEMBLY

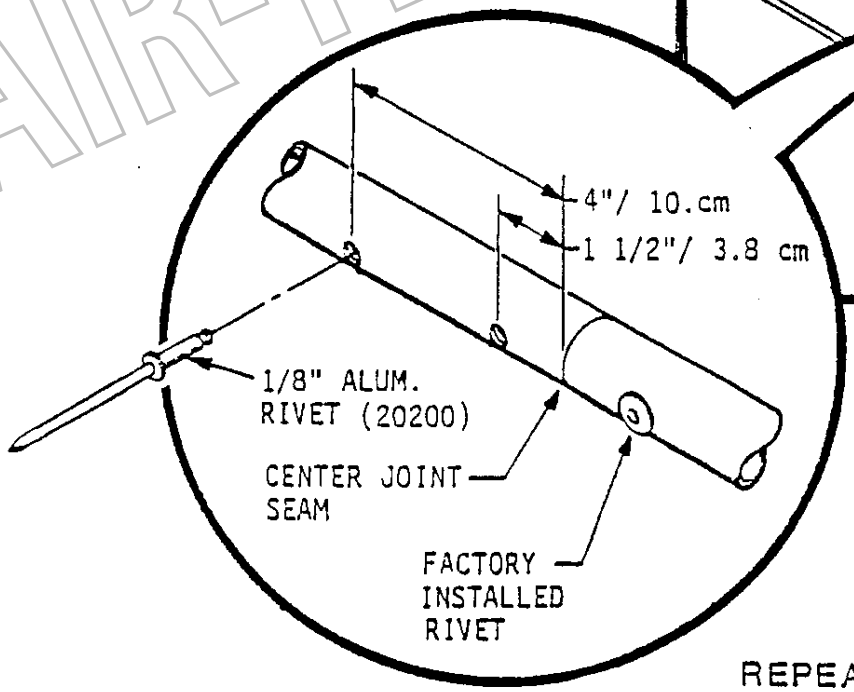
Work on a flat surface. Inboard T.E. spar has connecting SLEEVE factory-installed with 1/8" RIVETS.











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

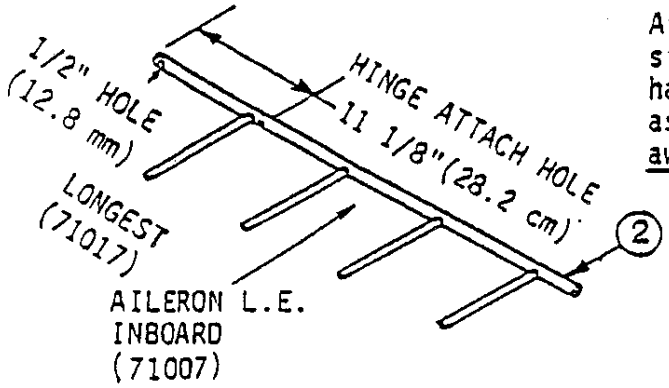
Punch and drill 1/8" holes and install rivets as shown.

REPEAT ON OPPOSITE AILERON

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

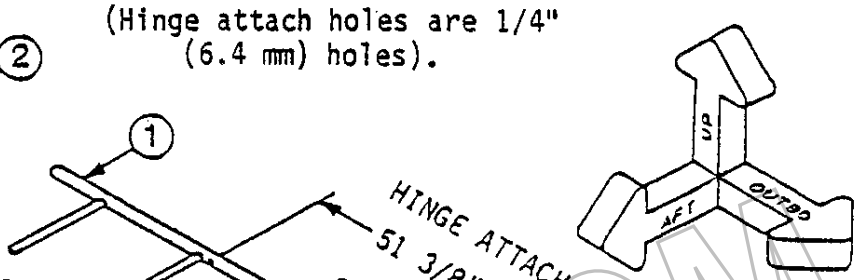
AILERON ASSEMBLY (CONT'D.)

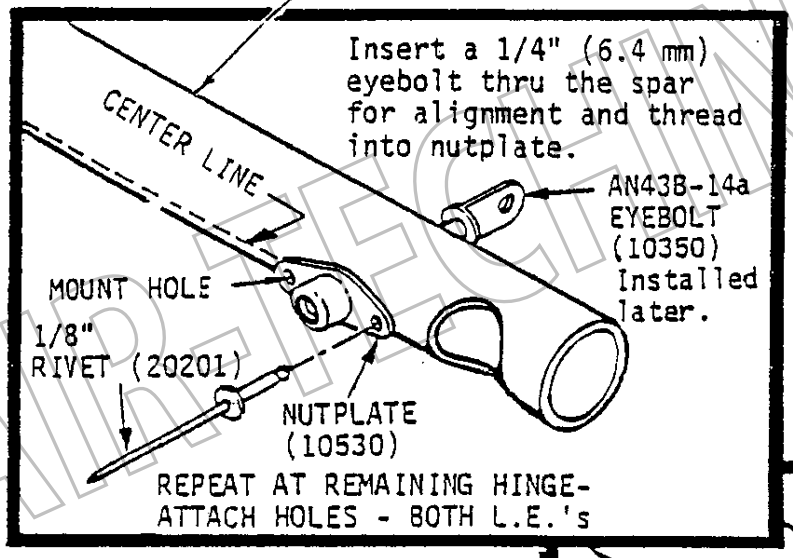
NUTPLATE/COMPRESSION STRUT ASSEMBLY



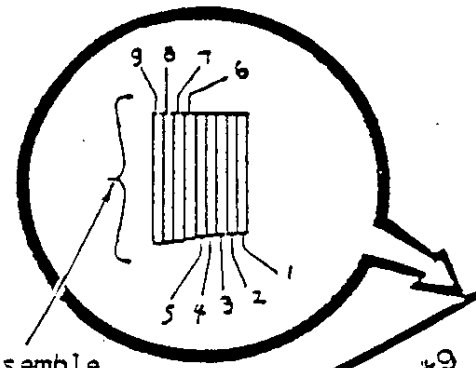
Aileron L.E. inboard spar has four 1/2" compression strut insert holes; Aileron L.E. outboard has five. Position spars with holes facing you, as shown, and with hinge-attach holes facing away and at distances shown from spar ends.

(Hinge attach holes are 1/4" (6.4 mm) holes).

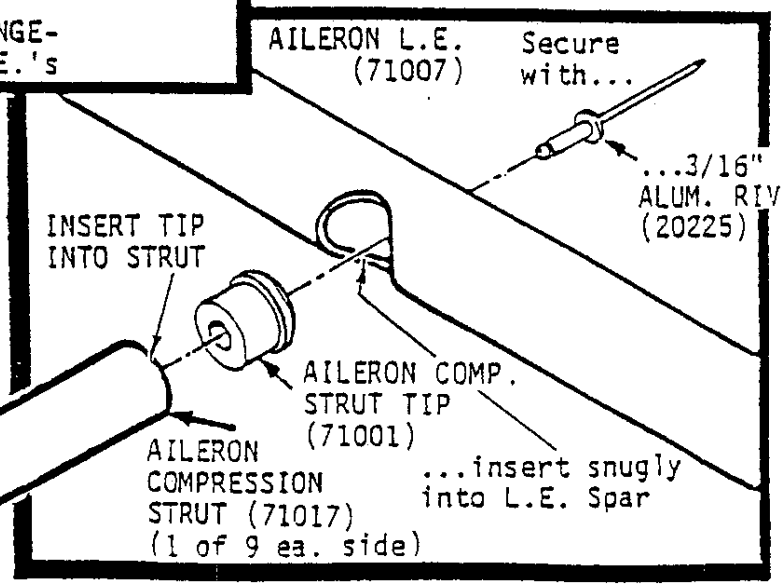




Hold nutplate in place along L.E. spar aft wall mid-line. Drill & enlarge nutplate mount hole; install 1/8" rivet. Re-check alignment, then repeat for other mount hole. Remove alignment bolt.



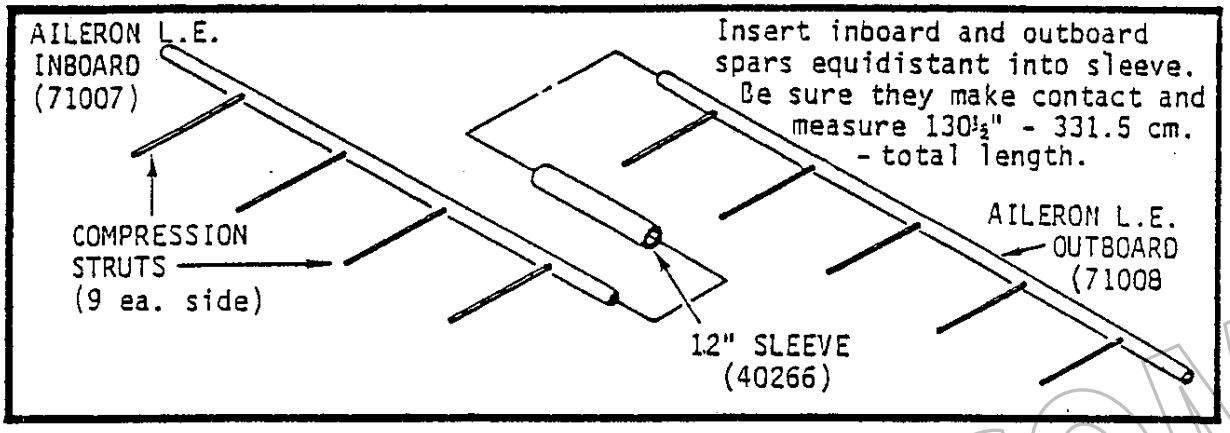
Assemble compression struts in graduated size and pencil mark each (#9-longest to #1-shortest)

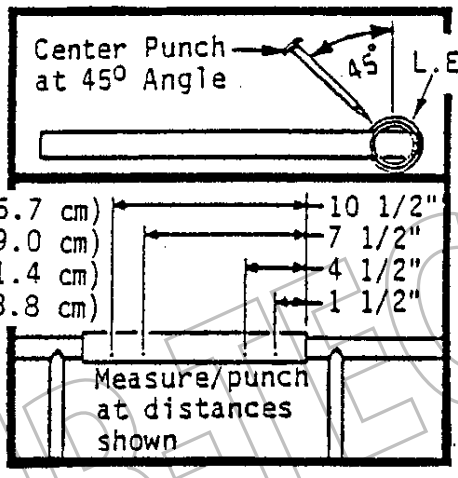


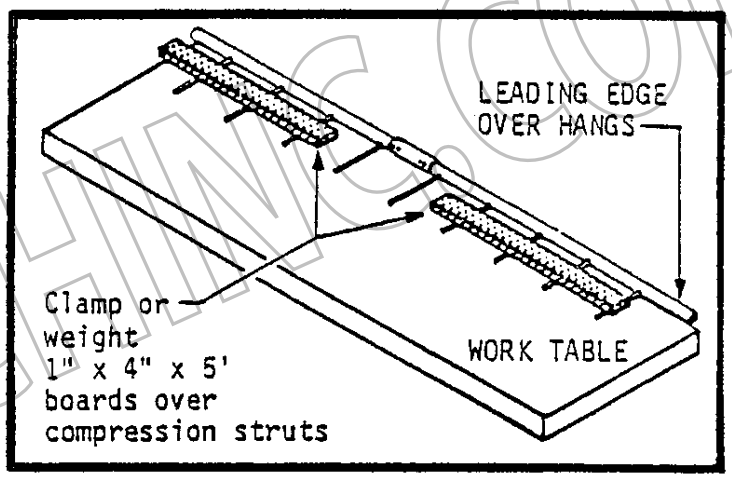
Starting at second inboard 1/2" hole, install compression strut #9 (longest) and work in graduated sequence to the shortest strut #1. Repeat assembly for other aileron.

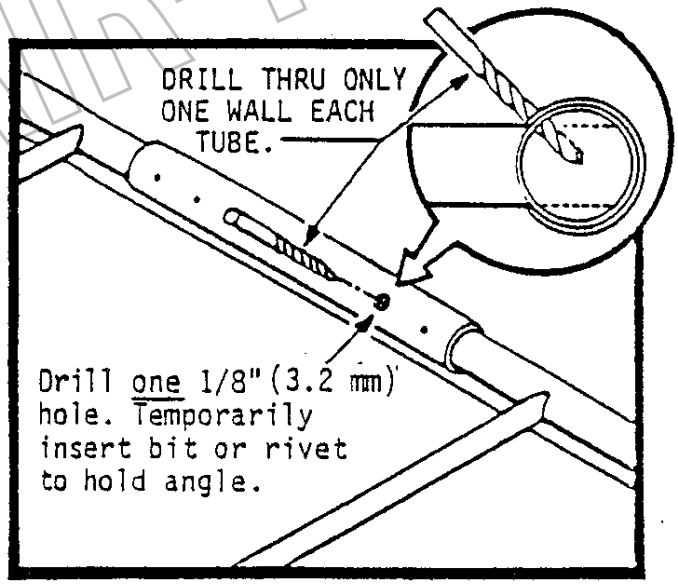
AILERON ASSEMBLY (CONT'D.)

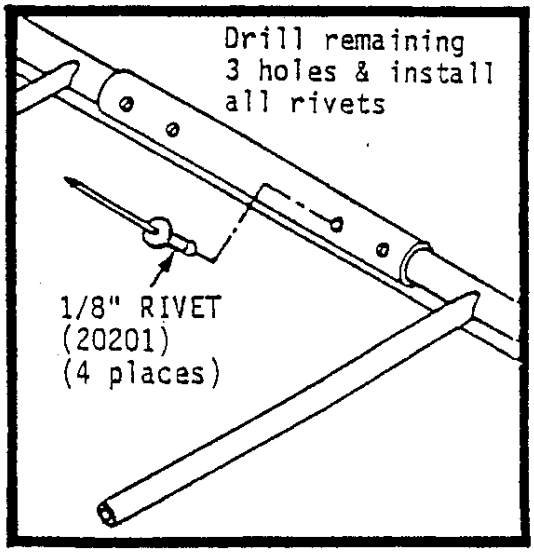
LEADING EDGE ASSEMBLY







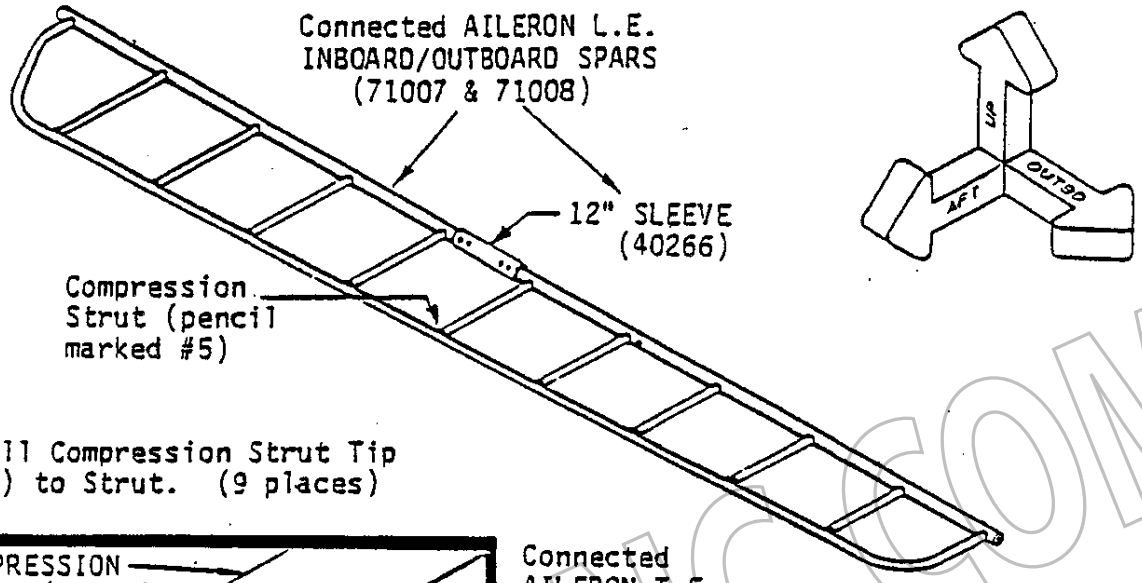




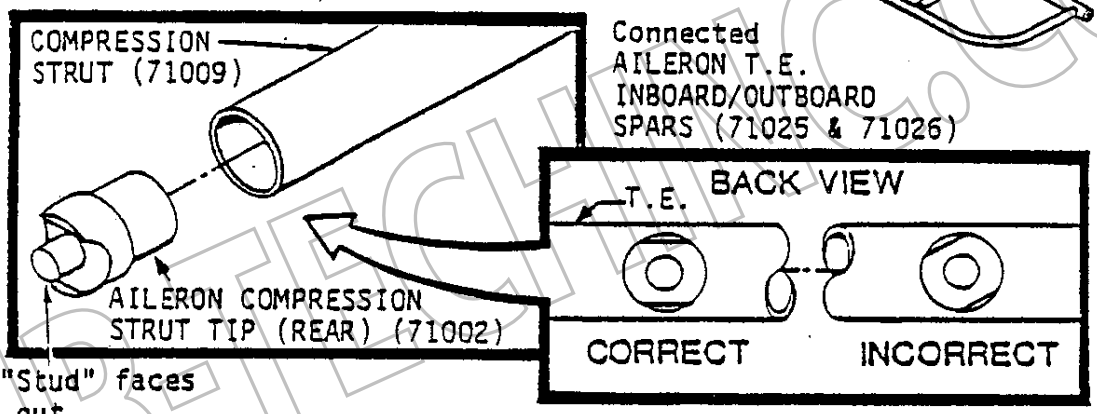
REPEAT ON OPPOSITE SIDE

AILERON ASSEMBLY (CONT'D.)

TRAILING EDGE/COMPRESSION STRUT ASSY.



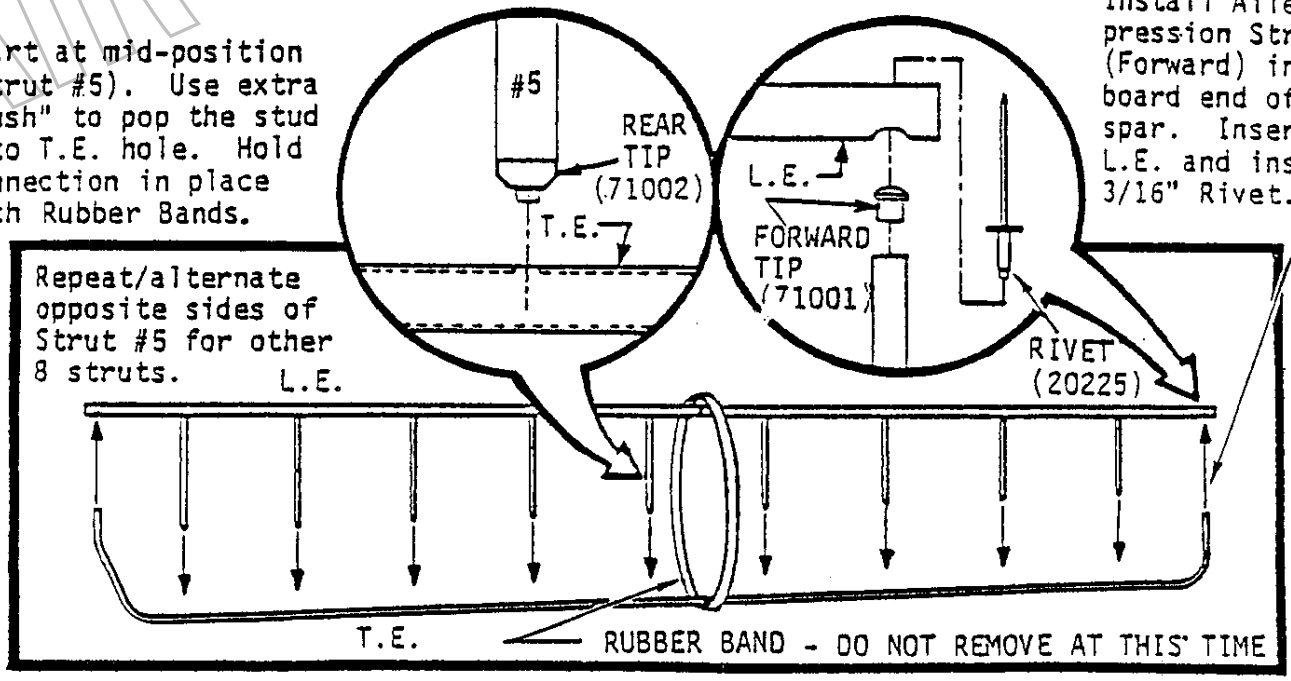
Install Compression Strut Tip (Rear) to Strut. (9 places)



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

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

Install Aileron C
pression Strut Ti
(Forward) into ou
board end of T.E.
spar. Insert int
L.E. and install
3/16" Rivet.



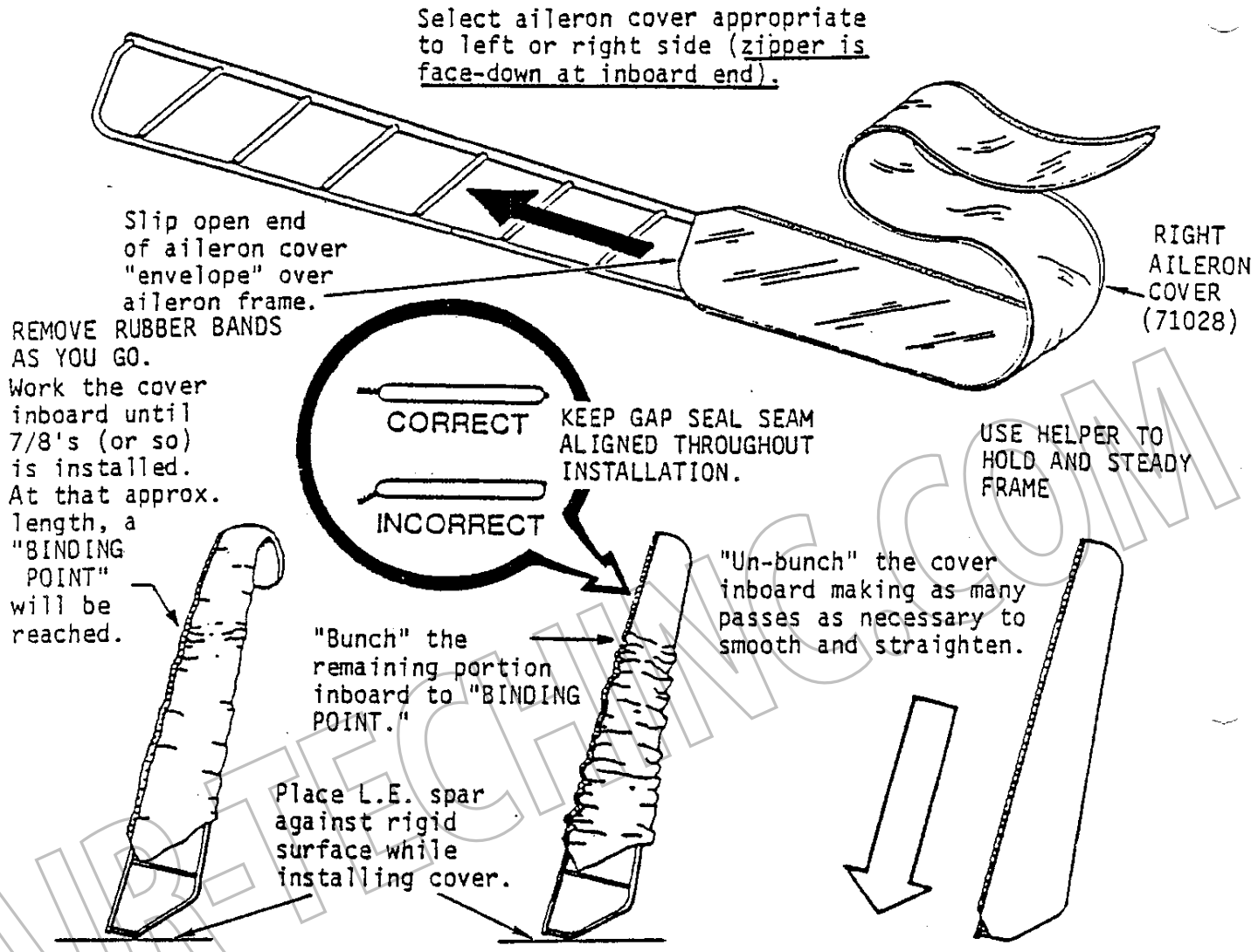
(Repe
inbo
end)

REPEAT ON OPPOSITE SIDE AILERON

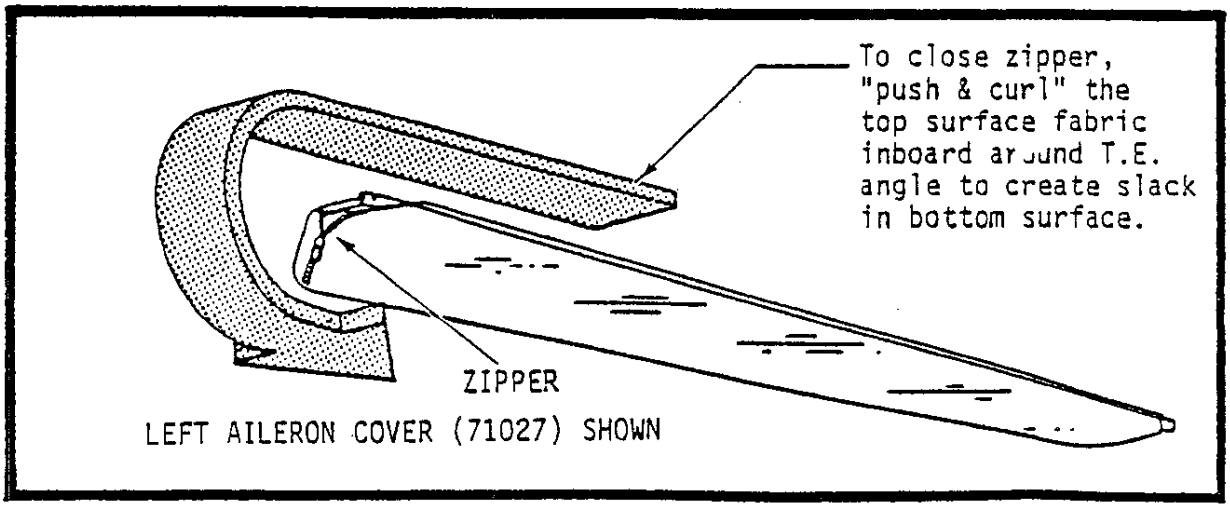
AILERON ASSEMBLY (CONT'D.)

AILERON COVER ATTACHMENT

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



INSTALLATION SEQUENCE



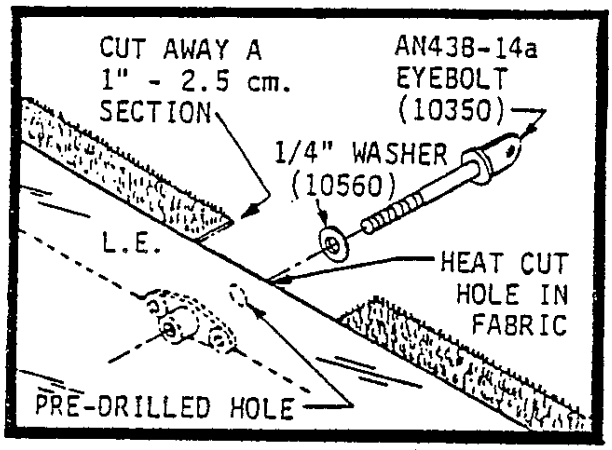
LEFT AILERON COVER (71027) SHOWN

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

REPEAT ON OTHER SIDE

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

(3 PLACES EACH L.E.)



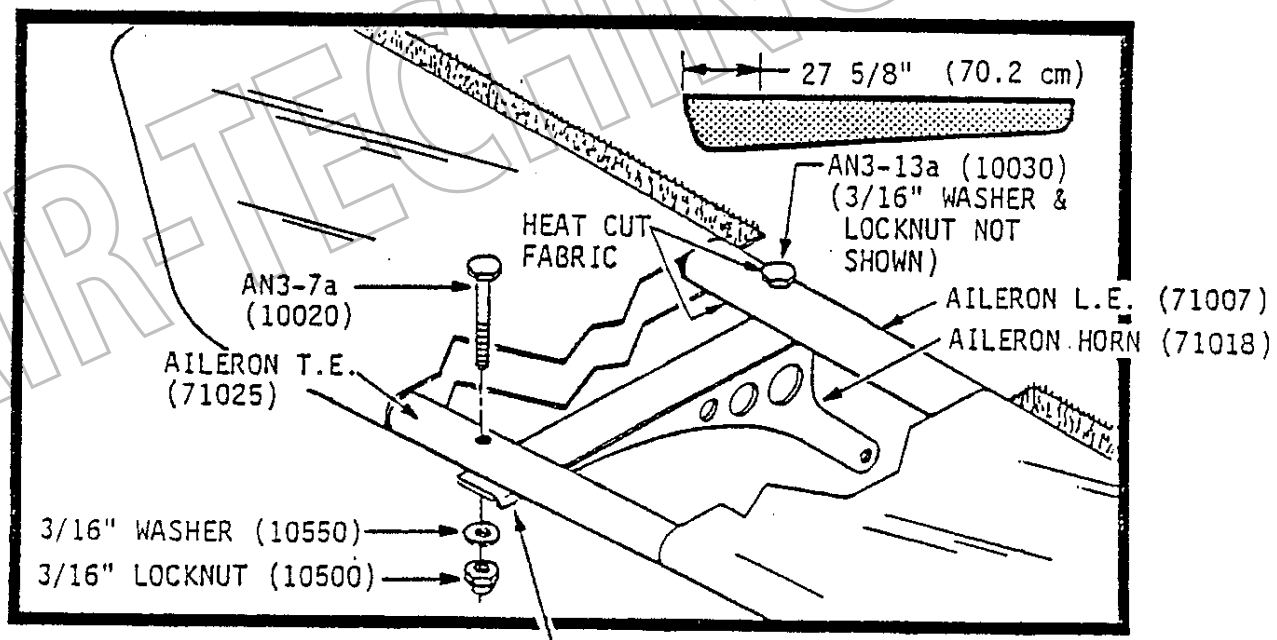
Locate the 3 hinge-attached holes under fabric on Aileron L.E.

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.



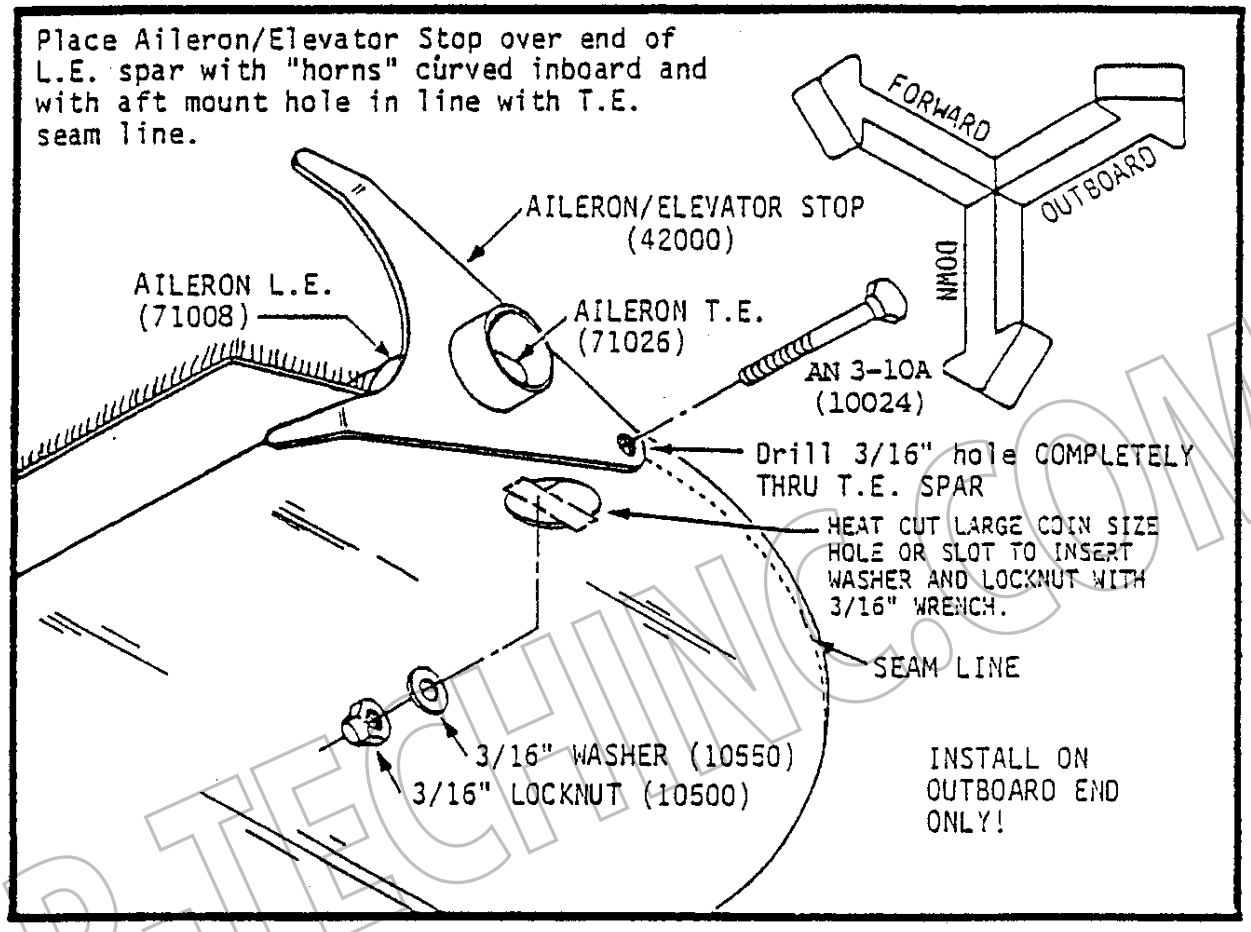
Swing aft end of Aileron Horn perpendicular to T.E. spar, then...

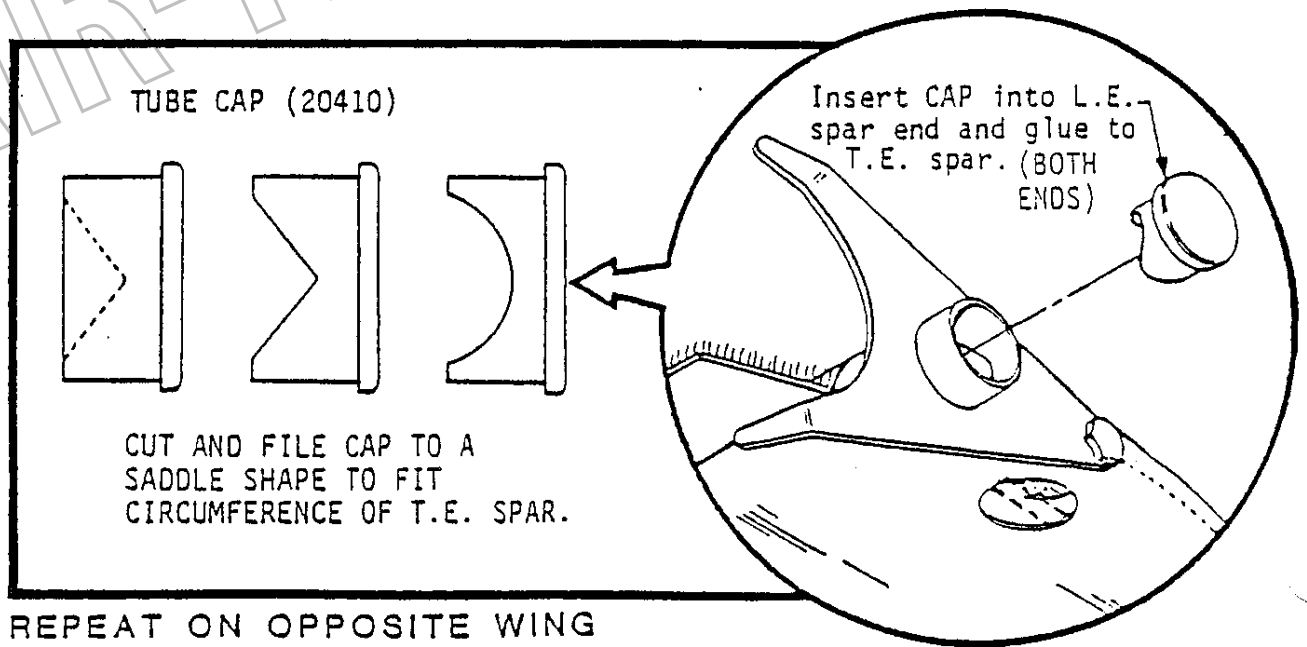
drill 3/16" hole through horn and Aileron T.E. Center

NOTE: ATTACH HORN TO SAME SURFACE AS ZIPPER.

REPEAT ON OPPOSITE SIDE

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

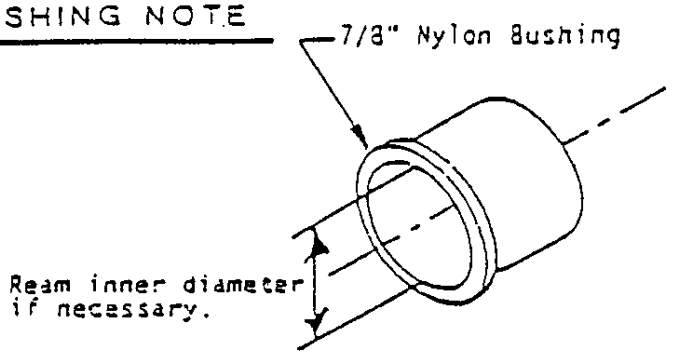




REPEAT ON OPPOSITE WING OUTBOARD END

SECTION 6
TRIKE SUB-ASSEMBLIES

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.

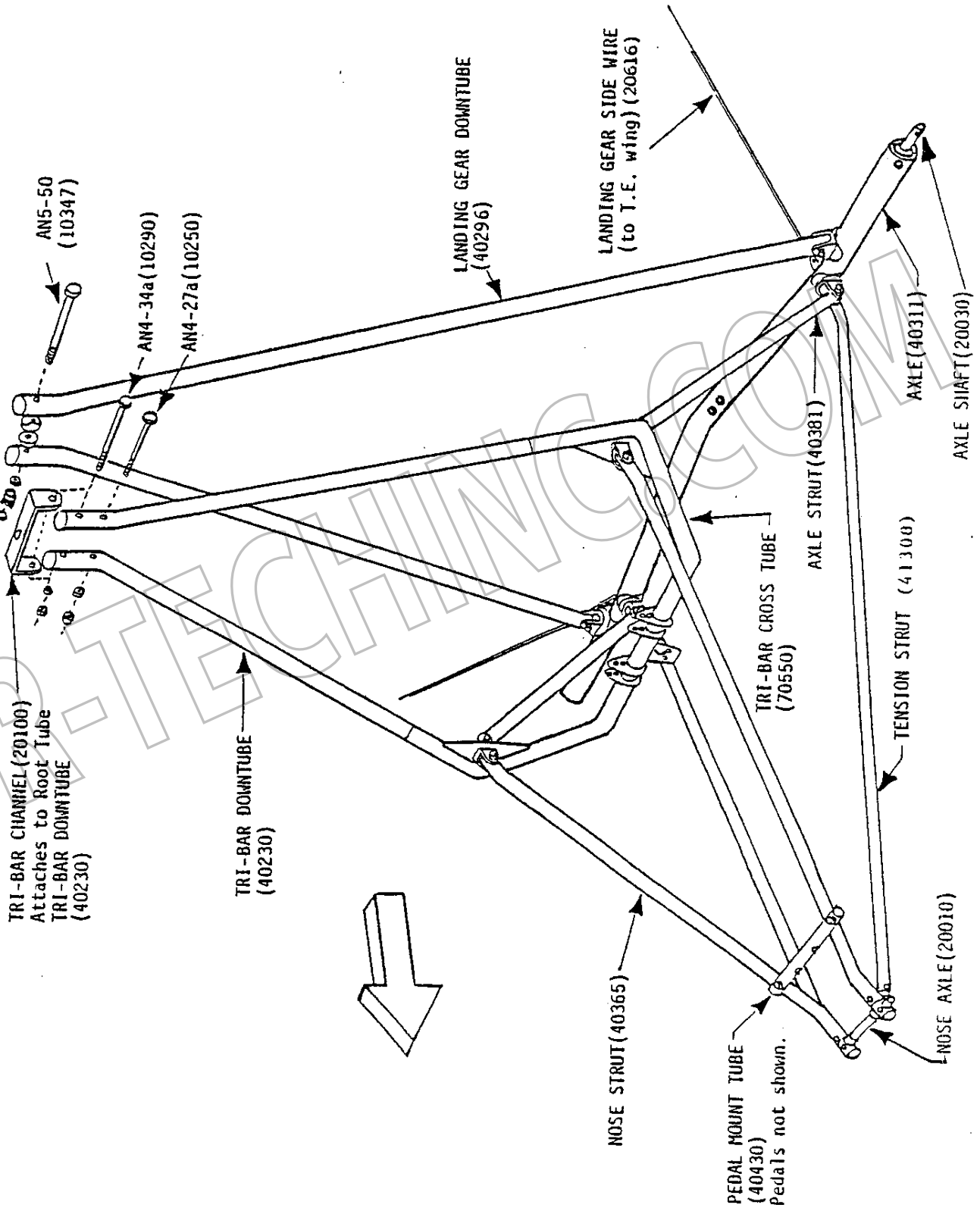
When mounting pedals onto pedal mount tube, DO NOT bolt into place until NYLON BUSHINGS rotate freely on tube.

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.

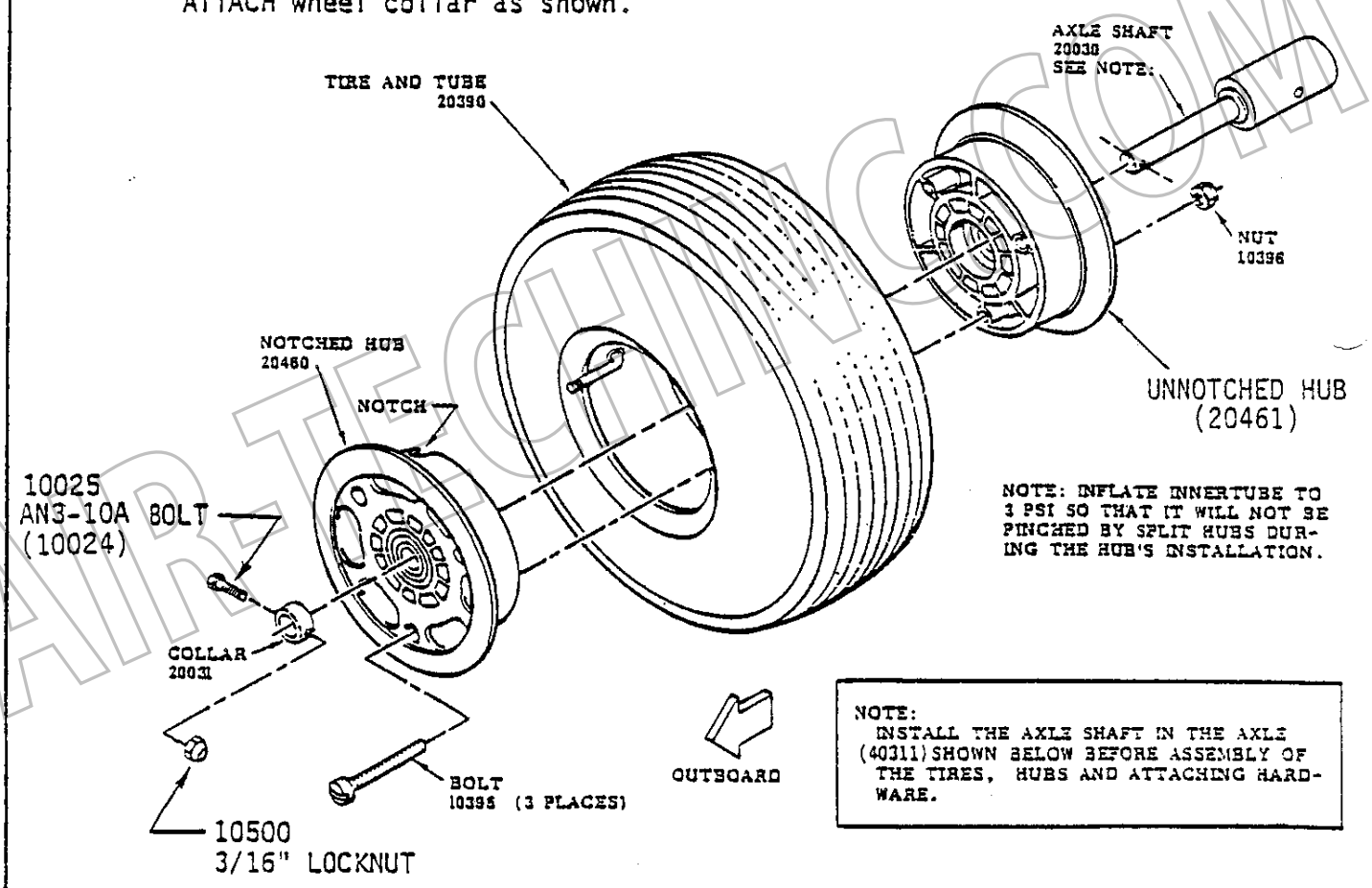
TRIKE - GENERAL ARRANGEMENT



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.

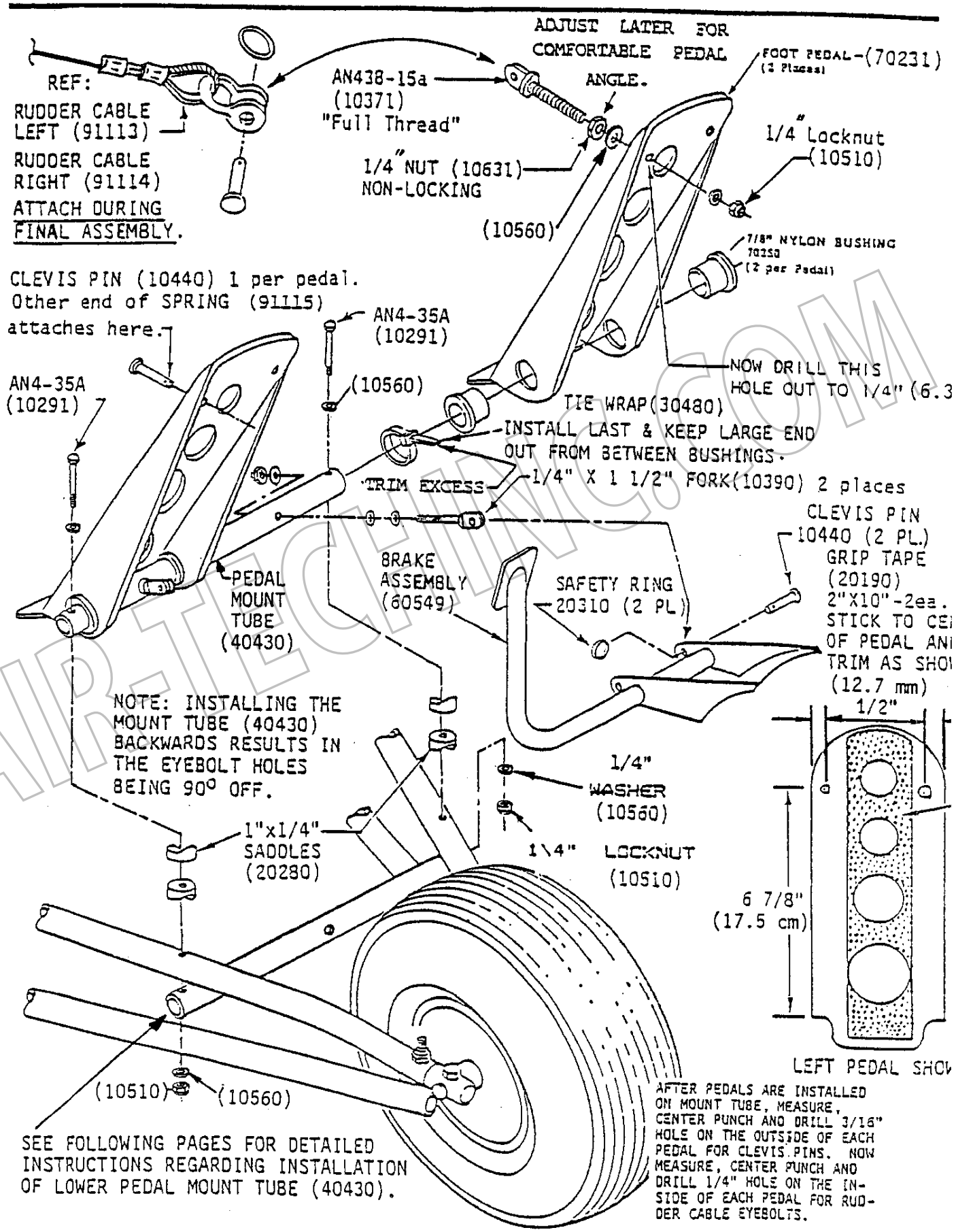
ATTACH wheel collar as shown.



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

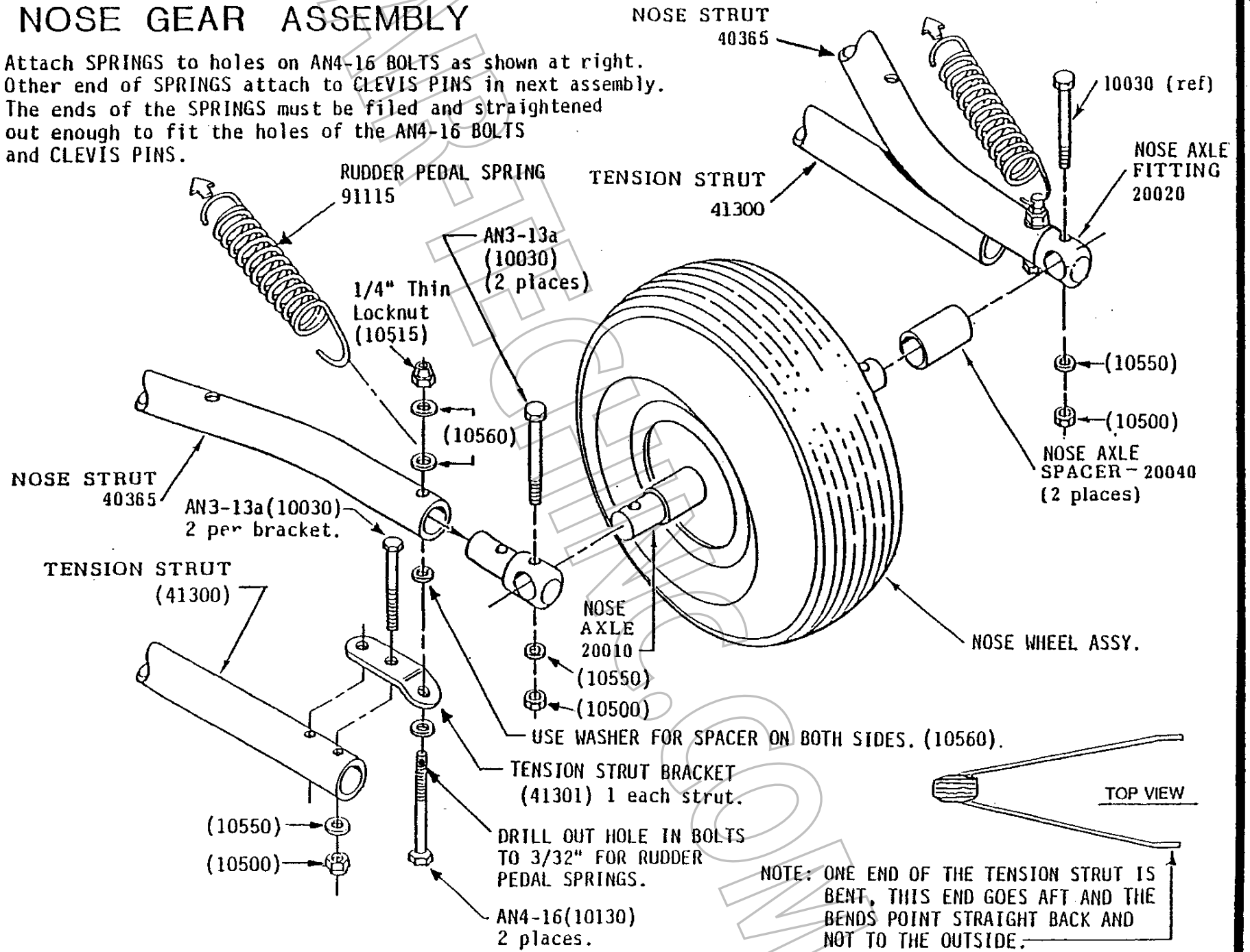
NOTE:
INSTALL THE AXLE SHAFT IN THE AXLE (40311) SHOWN BELOW BEFORE ASSEMBLY OF THE TIRES, HUBS AND ATTACHING HARDWARE.

FOOT PEDAL & NOSE BRAKE ASSY./ ATTACHMENT



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.



TRI-BAR SUPPORT WIRE FWD./ RUDDER PEDAL STOP ASSY.

1. PASS BOLT (1) THRU WASHER (2), TRI-BAR CROSS TUBE (3), FORWARD TRI-BAR SUPPORT WIRE (4), WASHER (2) AND SECURE WITH LOCKNUT (5).

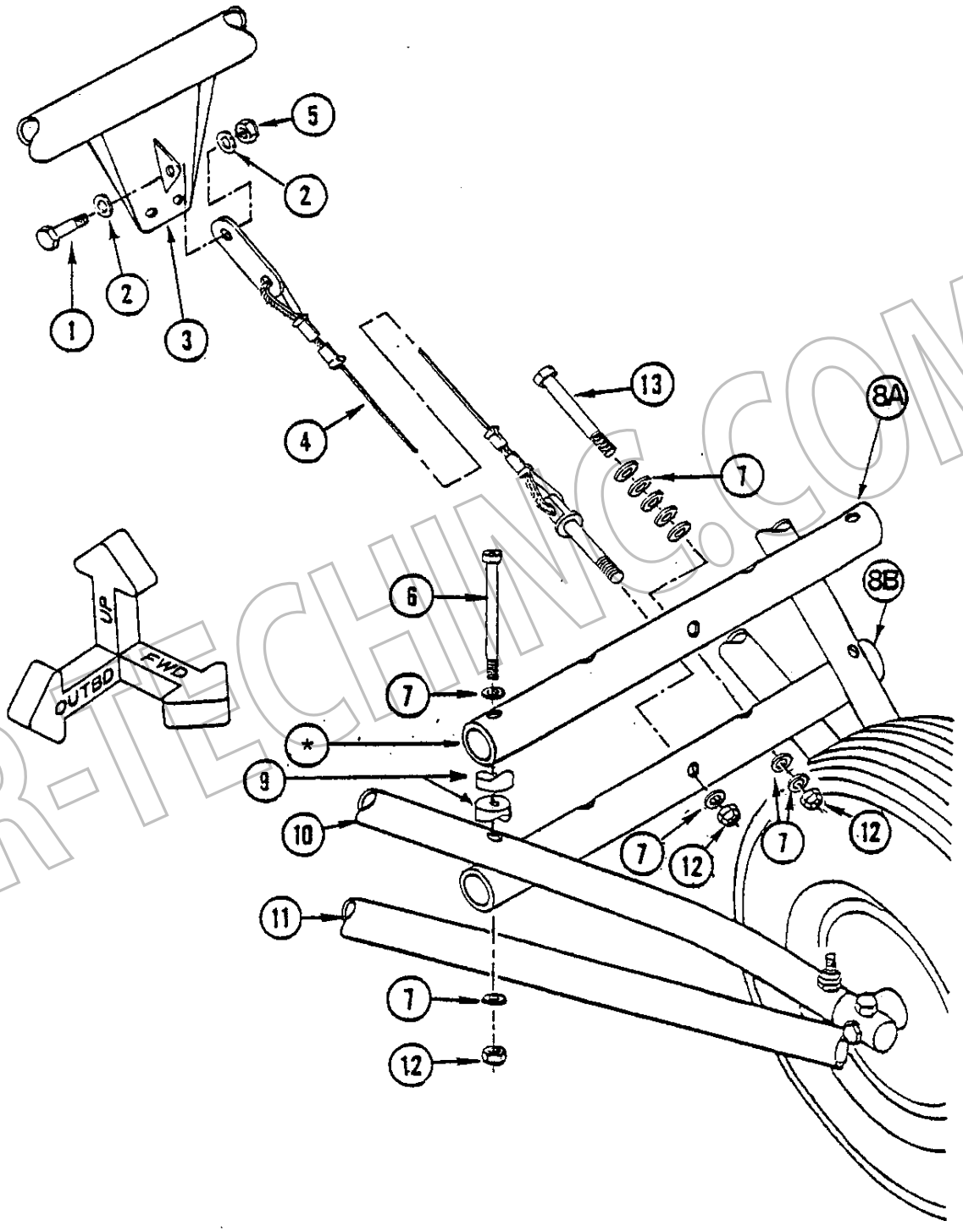
2. ASSEMBLE PEDAL MOUNT TUBE (8A) AS SHOWN ON PREVIOUS PAGE WITH RUDDER PEDALS AND TIE WRAP. (NOTE: PEDALS AND TIE WRAP NOT SHOWN ON THIS PAGE FOR CLARITY). NOTE CORRECT HOLE ORIENTATION. PASS BOLT (6) THRU WASHER (7), CONTINUE THRU PEDAL MOUNT TUBE (8A), SADDLES (9), NOSE STRUT (10), PEDAL MOUNT TUBE (8B) AND WASHER (7). SECURE WITH LOCKNUT (12).

3. POSITION THE EYEBOLT OF THE TRI-BAR SUPPORT WIRE (4) THRU THE CENTER HOLE OF THE PEDAL MOUNT TUBE (8B). CONTINUE WITH WASHER (7) AND SECURE WITH LOCKNUT (12).

4. PASS BOLT (13) THRU 5 WASHERS (7), PEDAL MOUNT TUBE (8B), 2 MORE WASHERS (7) AND LOCKNUT (12). DO NOT SECURE LOCKNUT (12) AT THIS TIME. REPEAT FOR OTHER 1/4" (6.4 mm) HOLE IN PEDAL MOUNT TUBE (8B) 'MIRROR IMAGE'. AFTER FINAL ASSEMBLY AND RUDDER PEDAL CABLES ARE ATTACHED, CHECK TO SEE THAT THE HEEL PORTION OF THE RUDDER PEDALS MAKE CONTACT WITH THE HEAD OF BOLT (13) BEFORE THE RUDDER MAKES CONTACT WITH THE ELEVATOR. THE RUDDER SHOULD COME CLOSE TO BUT NOT TOUCH THE ELEVATOR WHEN THE PEDALS ARE FULLY DEPRESSED ON EITHER SIDE. ADD OR SUBTRACT WASHERS (7) FROM UNDER THE HEAD OF BOLT (13) AS REQUIRED. WHEN ADJUSTED CORRECTLY, SECURE LOCKNUT (12). BOTH SIDES OF PEDAL MOUNT TUBE (8B).

ITEM	P/N	DESCRIPTION
1	10100	AN3-5A BOLT
2	10550	WASHER, 3/16"
3	70550	TRI-BAR CROSS TUBE
4	20606	TRI-BAR SUPPORT WIRE, FWD
5	10500	LOCKNUT, 3/16"
6	10291	AN4-35A BOLT
7	10560	WASHER, 1/4"
8A	40430	TUBE,PEDAL MOUNT
8B	40430	TUBE,PEDAL MOUNT
9	20280	SADDLE, 1" x 1/4"
10	40365	NOSE STRUT
11	41300	TENSION STRUT
12	10510	LOCKNUT, 1/4"
13	10120	AN4-15A BOLT

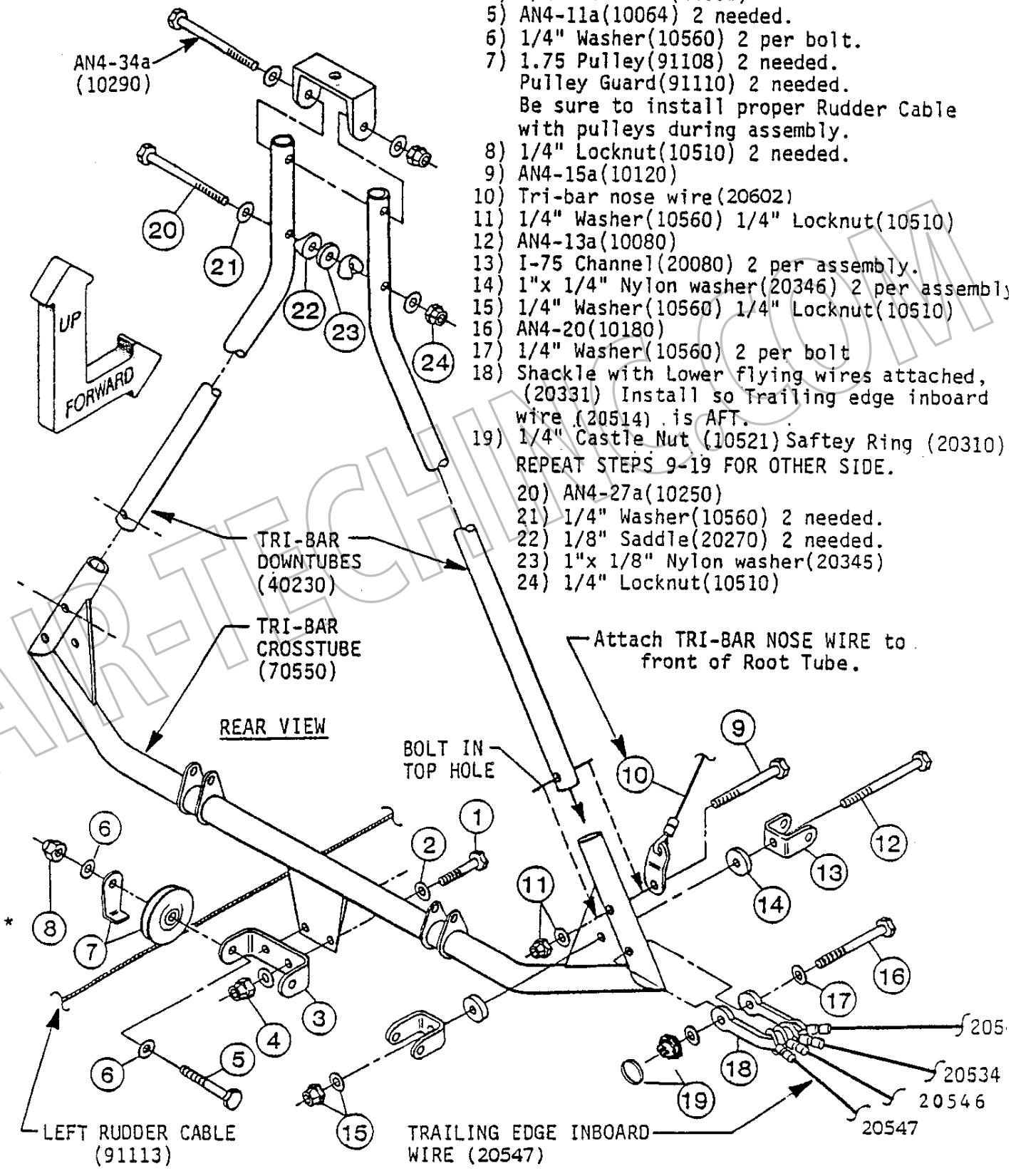
TRI-BAR SUPPORT WIRE FWD. ASSY. / RUDDER PEDAL STOP ASSY.



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

TRI-BAR ASSEMBLY/ ATTACHMENT

Install TRI-BAR to aircraft.



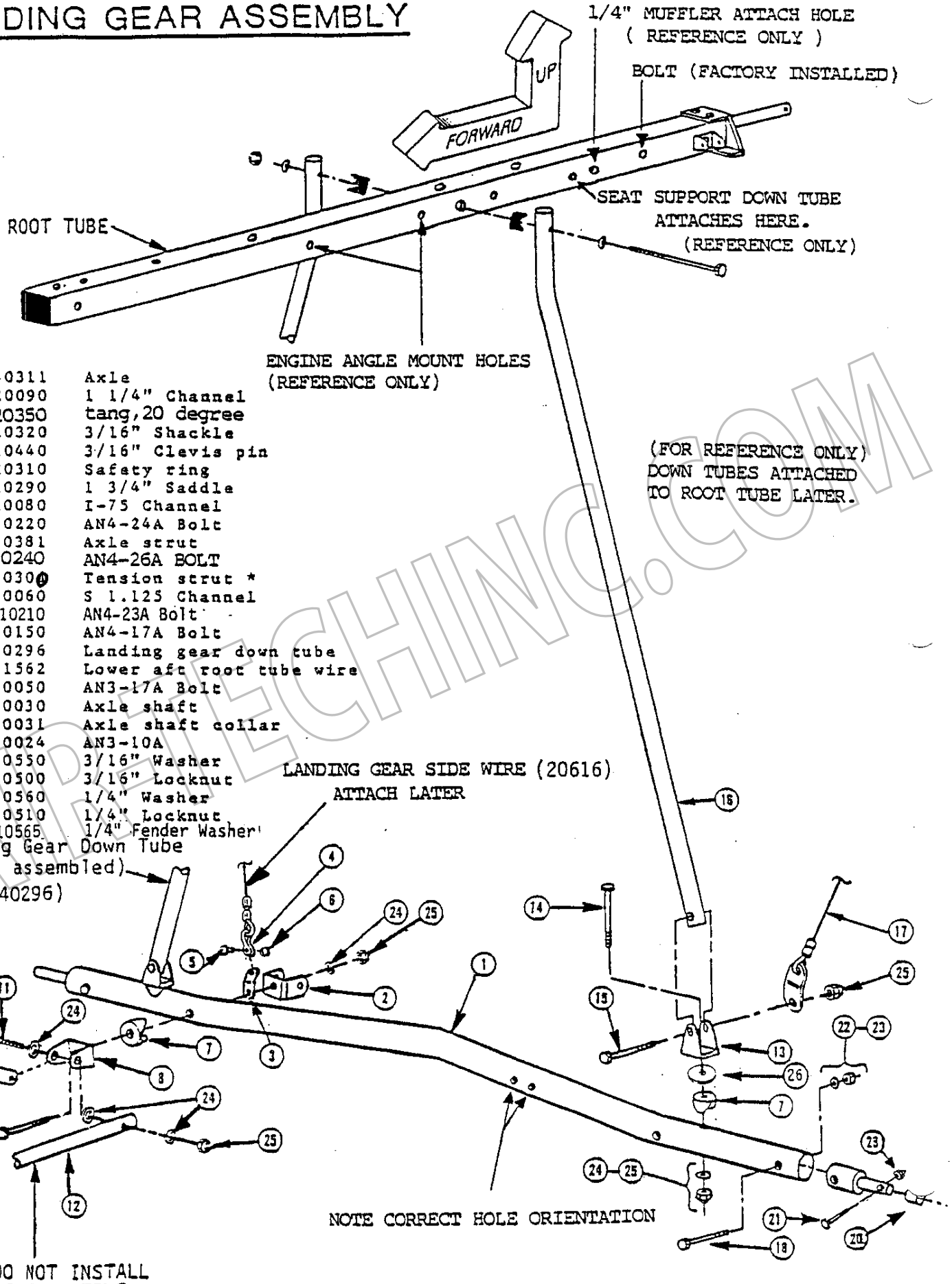
1) AN3-5a(10010) 2 needed.
2) 3/16" Washer(10550) 2 per bolt.
3) Rudder pulley mount(91106)
4) 3/16" Locknut(10500)
5) AN4-11a(10064) 2 needed.
6) 1/4" Washer(10560) 2 per bolt.
7) 1.75 Pulley(91108) 2 needed.
   Pulley Guard(91110) 2 needed.
   Be sure to install proper Rudder Cable with pulleys during 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)

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

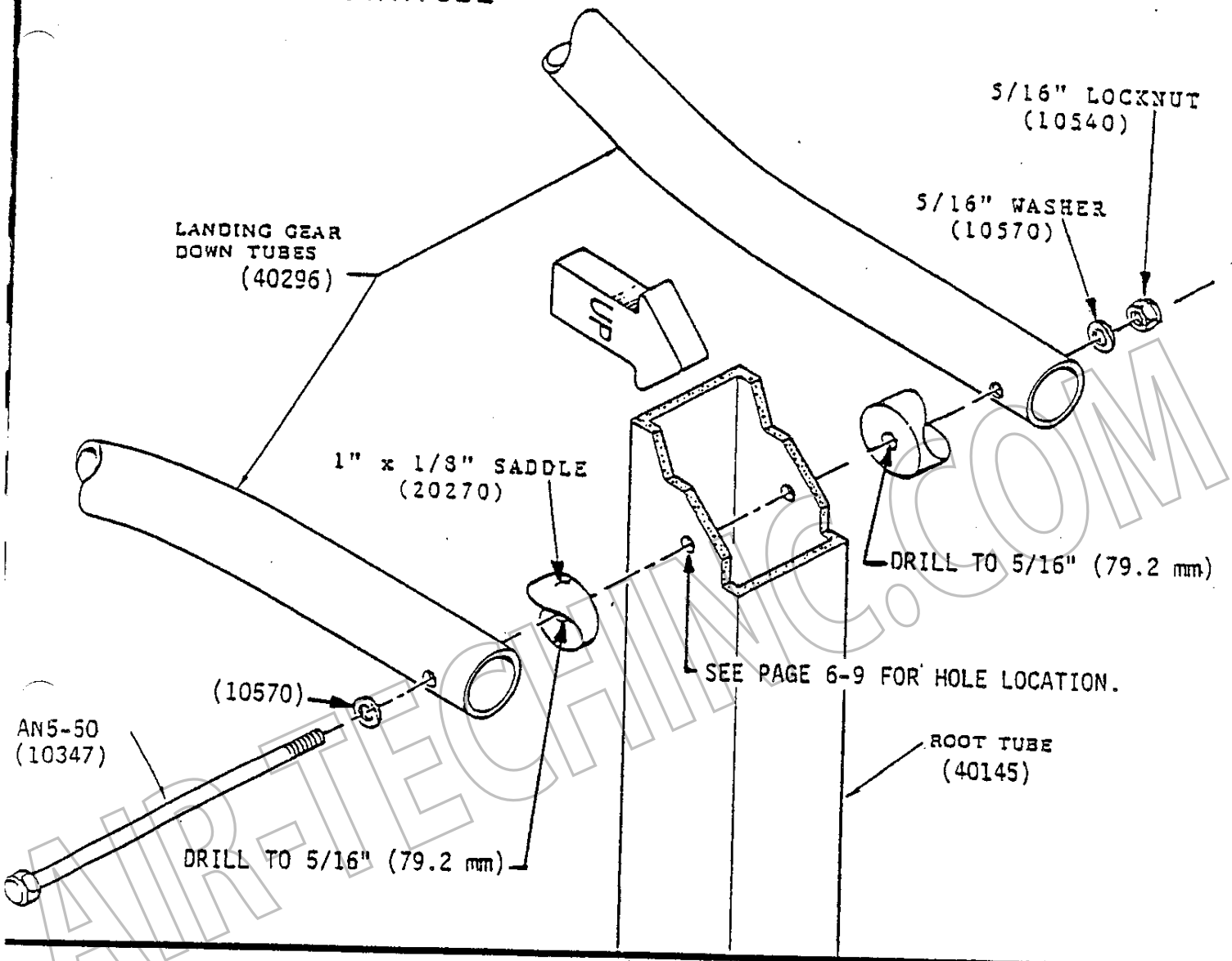
LANDING GEAR ASSEMBLY



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)	40300	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

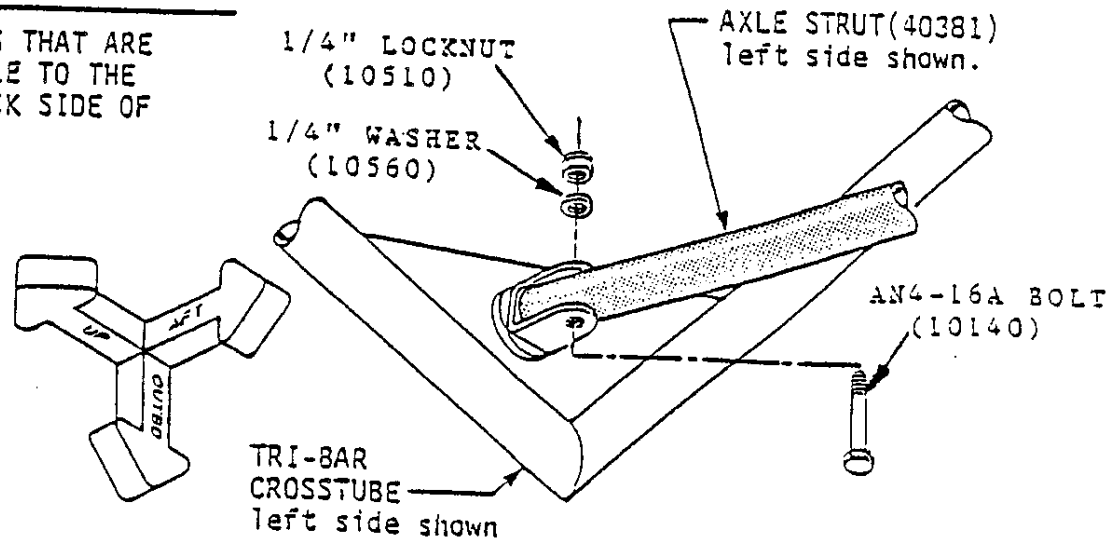
LANDING GEAR / AXLE STRUT ATTACHMENT

LANDING GEAR DOWNTUBE

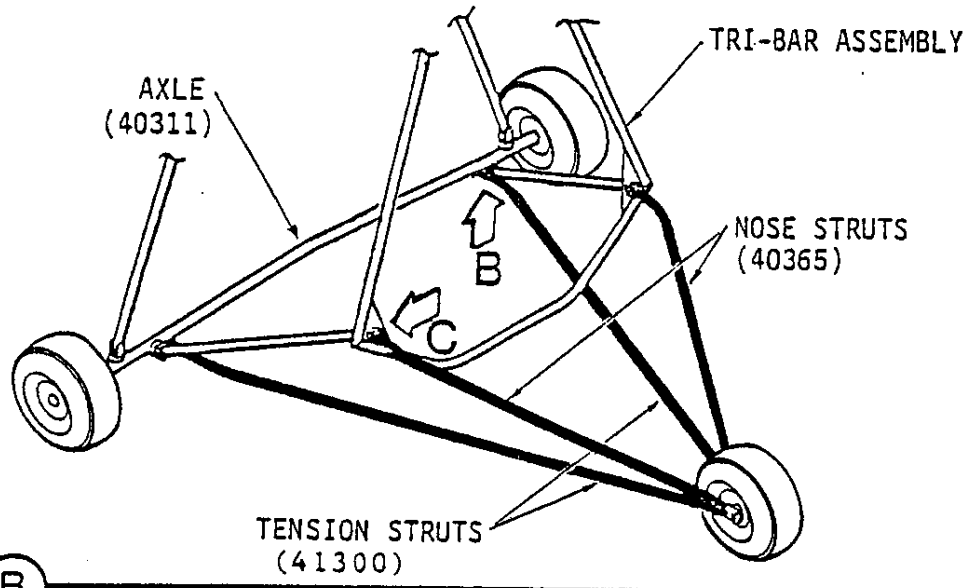


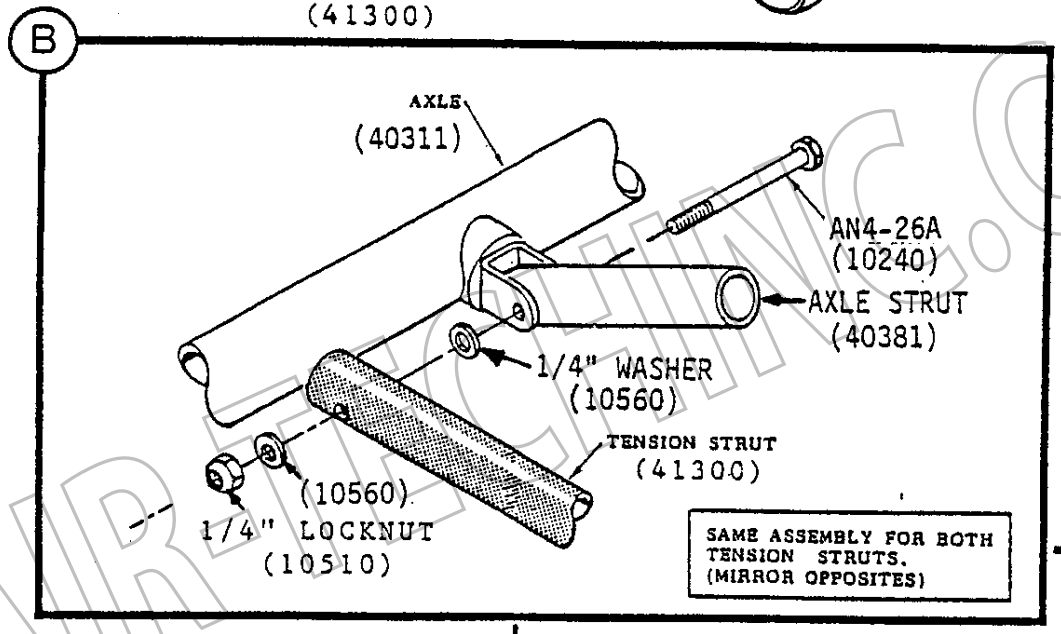
AXLE STRUT

INSTALL BOTH AXLE STRUTS THAT ARE ATTACHED TO THE MAIN AXLE TO THE 1-75 CHANNELS ON THE BACK SIDE OF THE TRI-BAR CROSSTUBE.

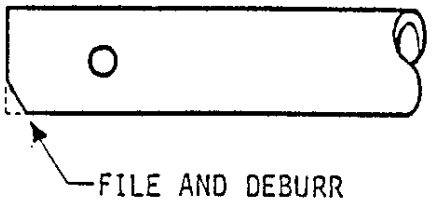


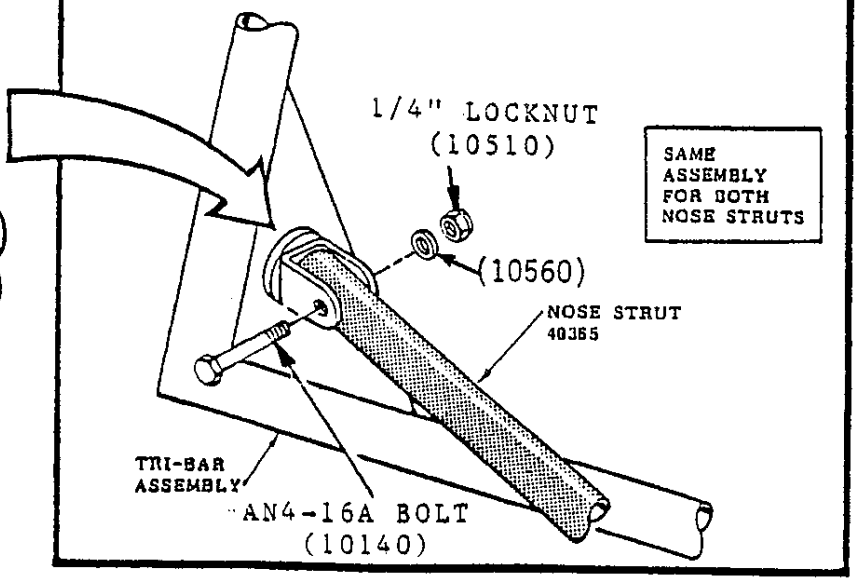
NOSE GEAR ATTACH.



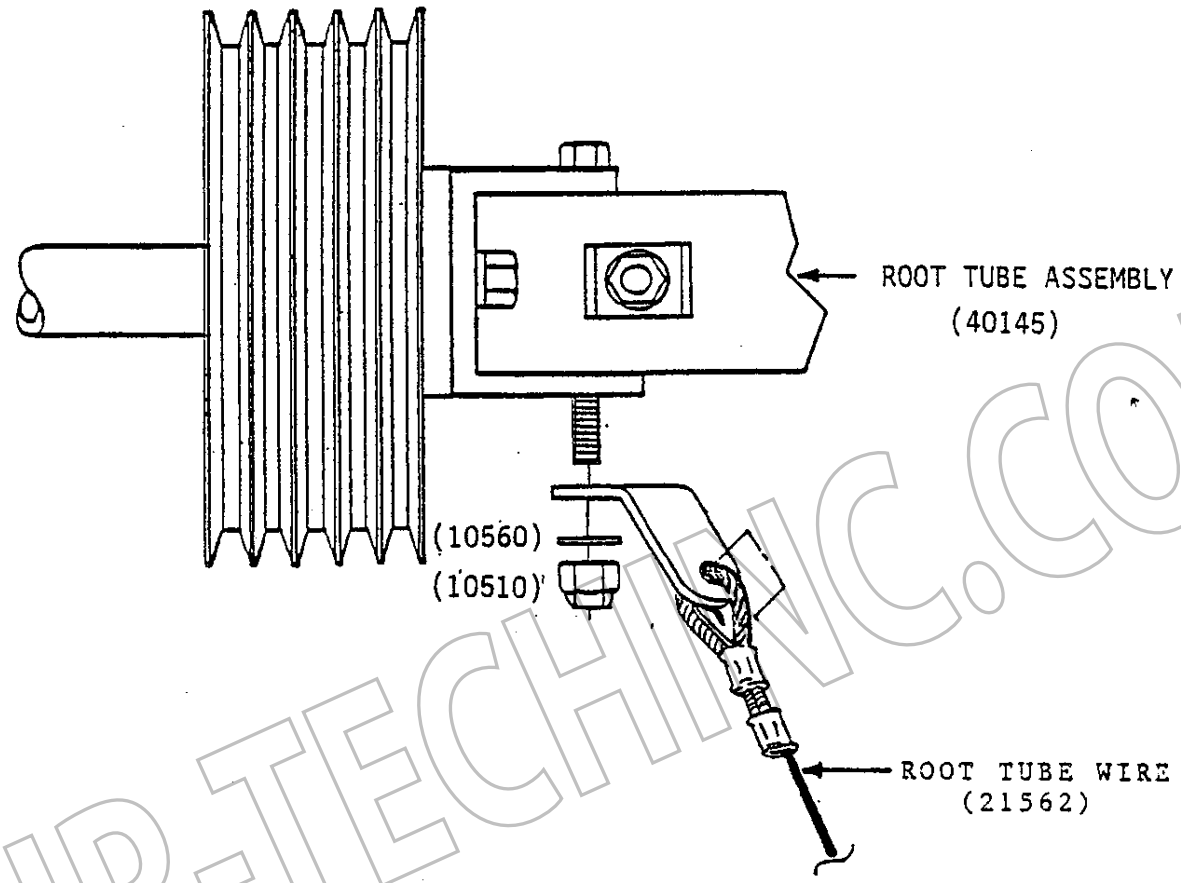


File down and DEBURR both NOSE STRUTS as shown so they may clear the channel bolt heads.





ROOT TUBE WIRE/ LOWER NOSE WIRE ATTACHMENT

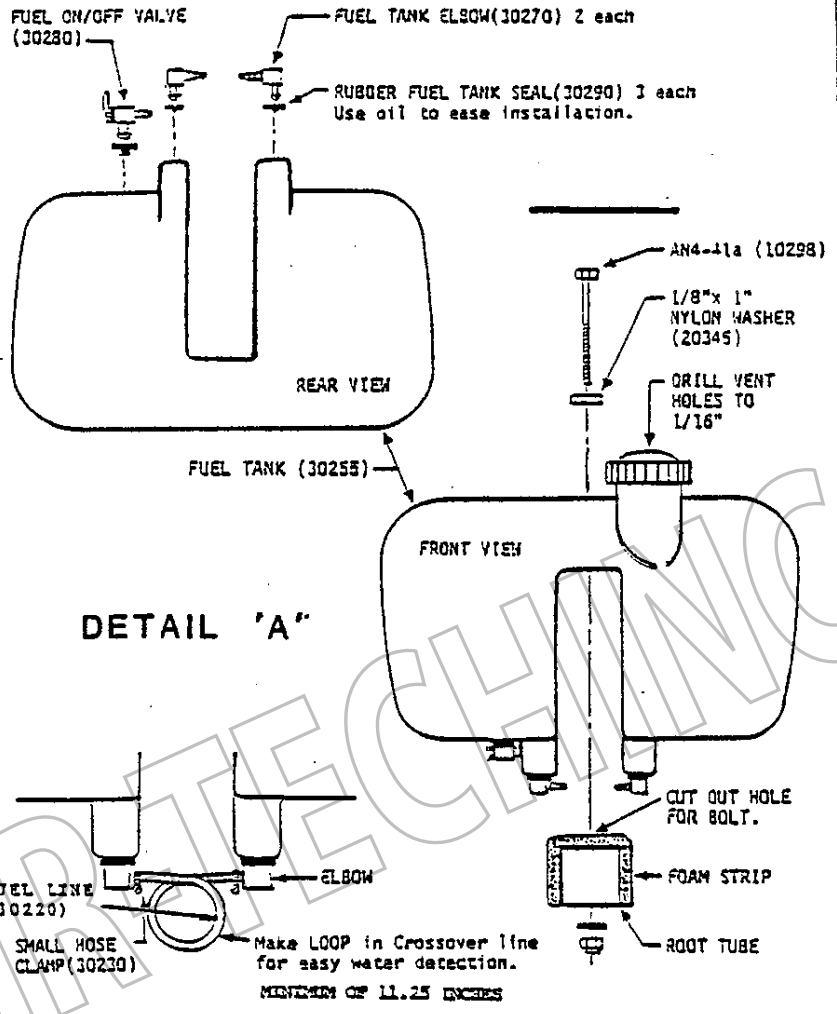


NOTE

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.

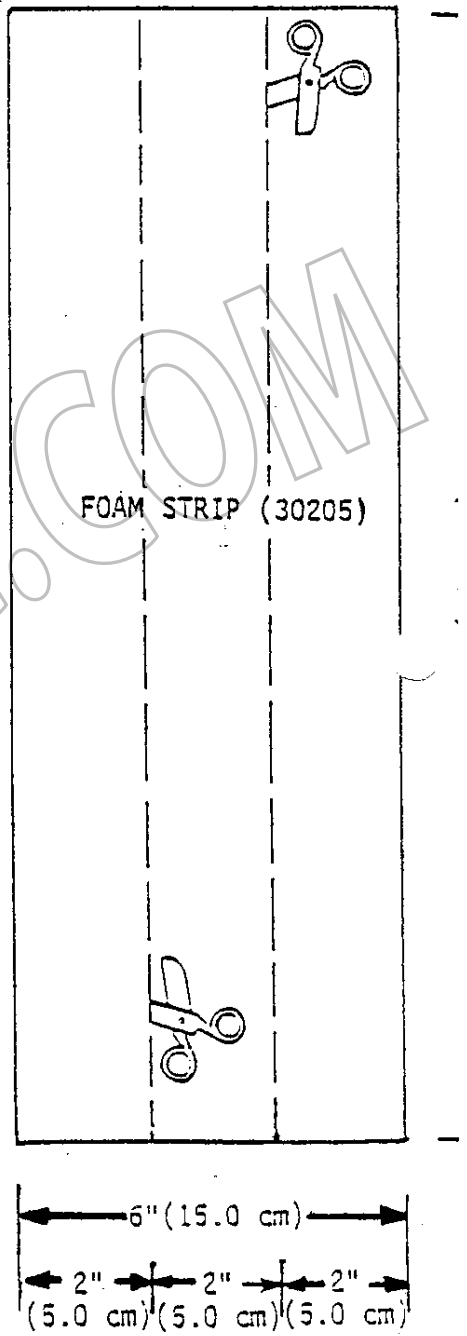
FUEL TANK ASSEMBLY / ATTACHMENT

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(30280)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.

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.

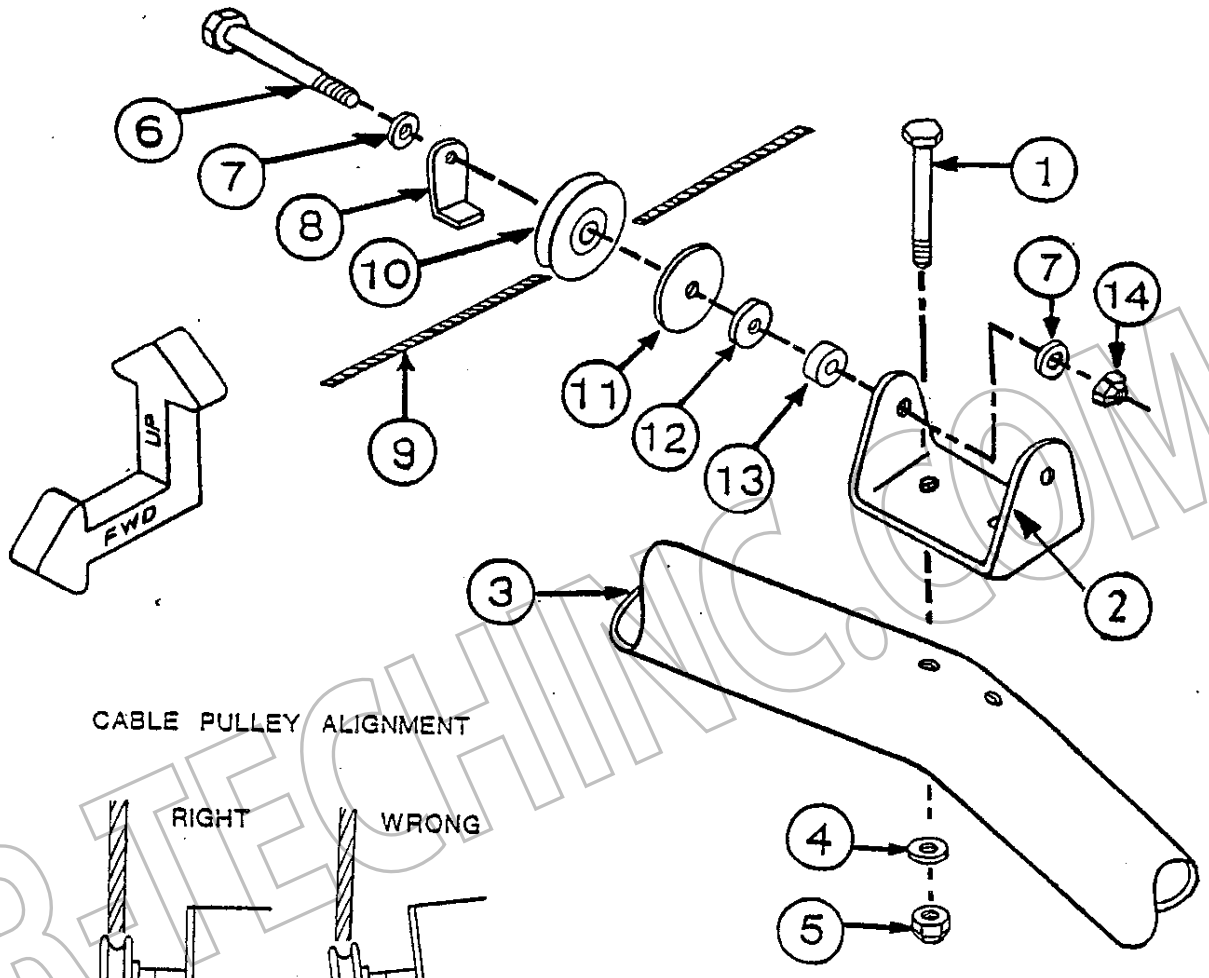
3. PASS BOLT (6) THRU WASHER (7) AND PULLEY GUARD (8). POSITION RUDDER CABLE (9) INTO GROOVE OF PULLEY (10). CONTINUE BOLT (6) THRU PULLEY (10), FENDER WASHER (11), 1/8 " NYLON WASHER (12) AND 1/4" NYLON WASHER (13). PASS BOLT (6) THRU 1/4" (6.4 mm) HOLE IN CHANNEL (2), ADD WASHER (7) AND SECURE WITH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

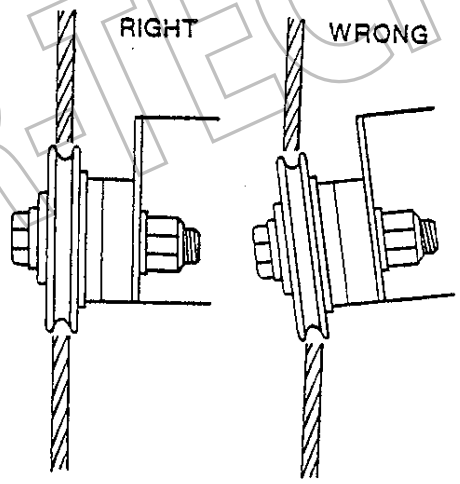
ITEM	P/N	DESCRIPTION
1.	10053	AN3-20A BOLT
2.	40173	CHANNEL,PULLEY, RUDDER
3.	40311	AXLE
4.	10550	WASHER, 3/16"
5.	10500	LOCKNUT, 3/16"
6.	10100	AN4-14A BOLT
7.	10560	WASHER, 1/4"
8.	91110	GUARD,CABLE,PULLEY
9.	91114	CABLE, RUDDER, RIGHT
	91113	CABLE, RUDDER, LEFT
10.	91108	PULLEY, 1 3/4"
11.	10565	WASHER, 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.

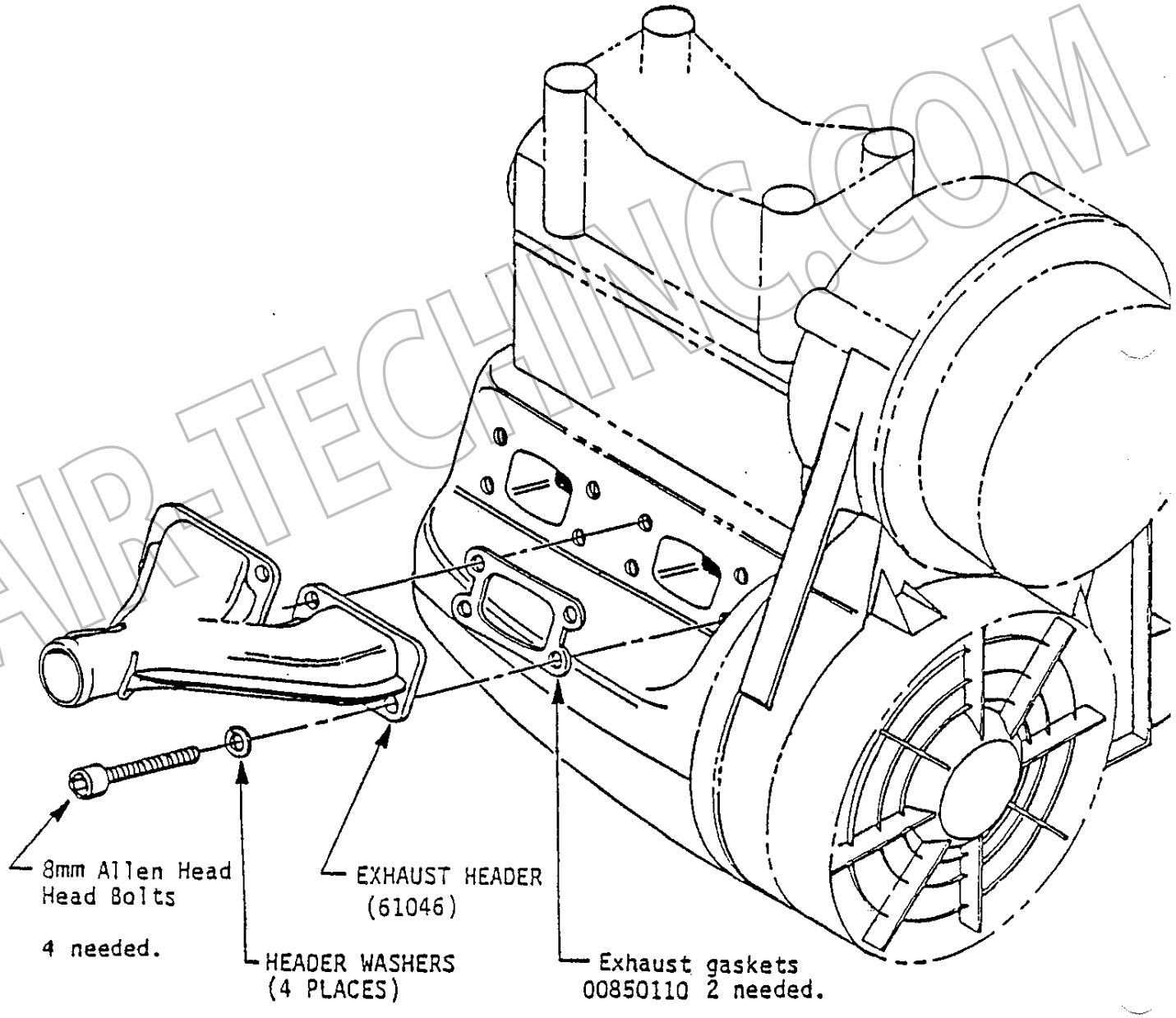
IF PULLEYS ARE NOT ALIGNED PROPERLY THE RUDDER CONTROL CABLES COULD BIND UP AND/OR CAUSE EXCESSIVE WEAR TO PULLEYS AND CABLES.

SECTION 7
ENGINE, DRIVESHAFT, AND REDUCTION ASSEMBLY

EXHAUST HEADER ATTACHMENT

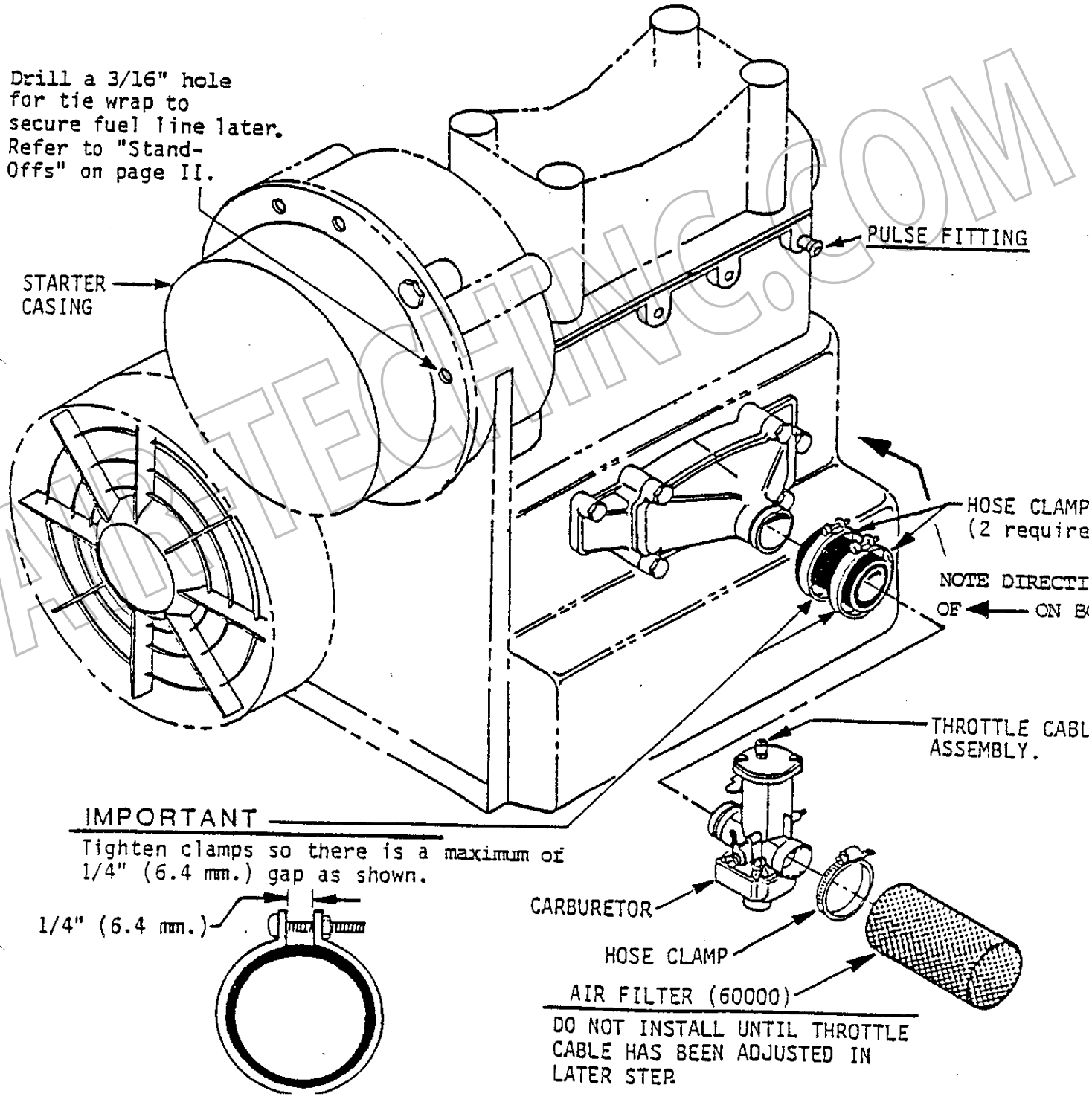
INSTALL EXHAUST HEADER AS SHOWN:

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.



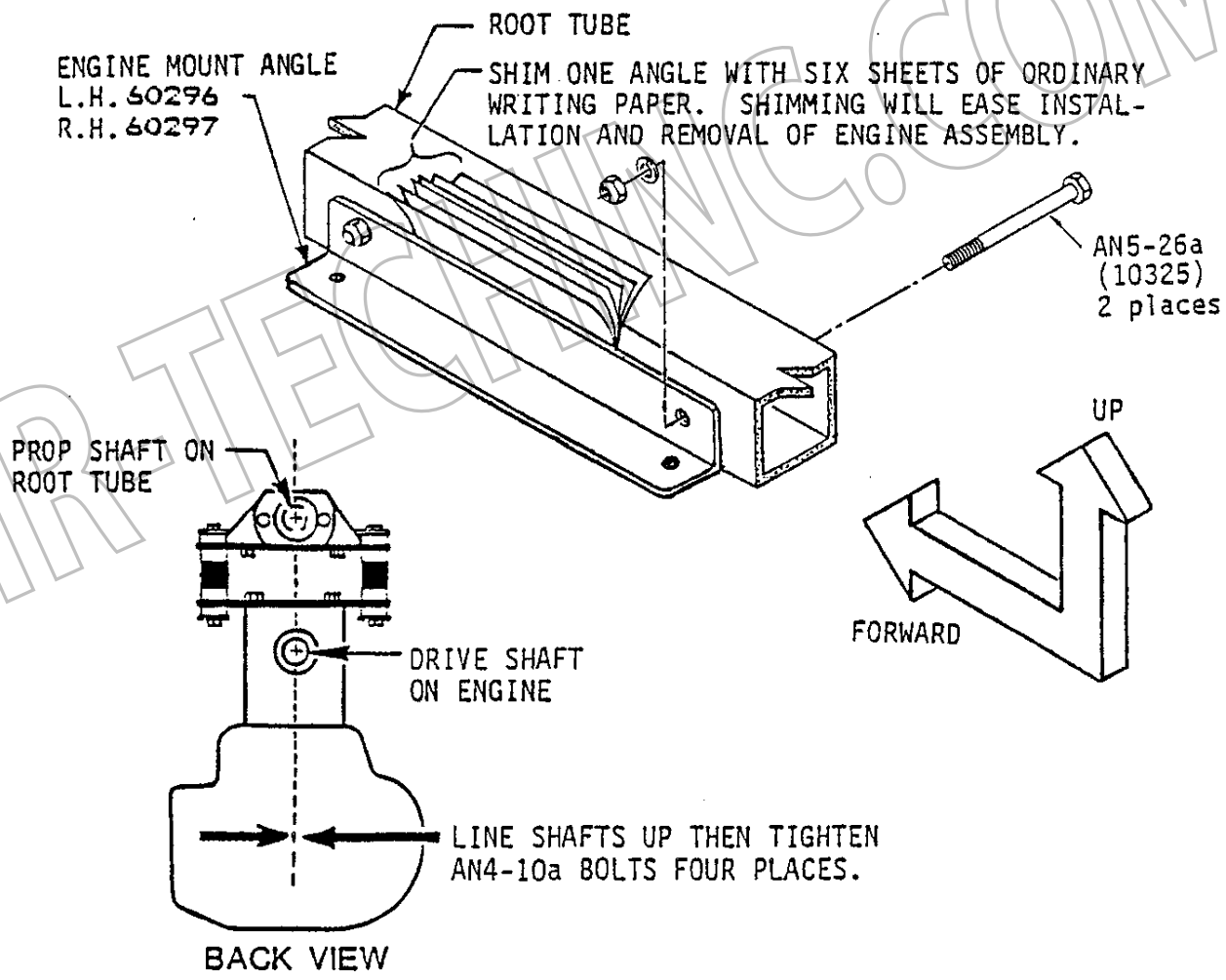
ENGINE MOUNT PROCEDURE

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'.

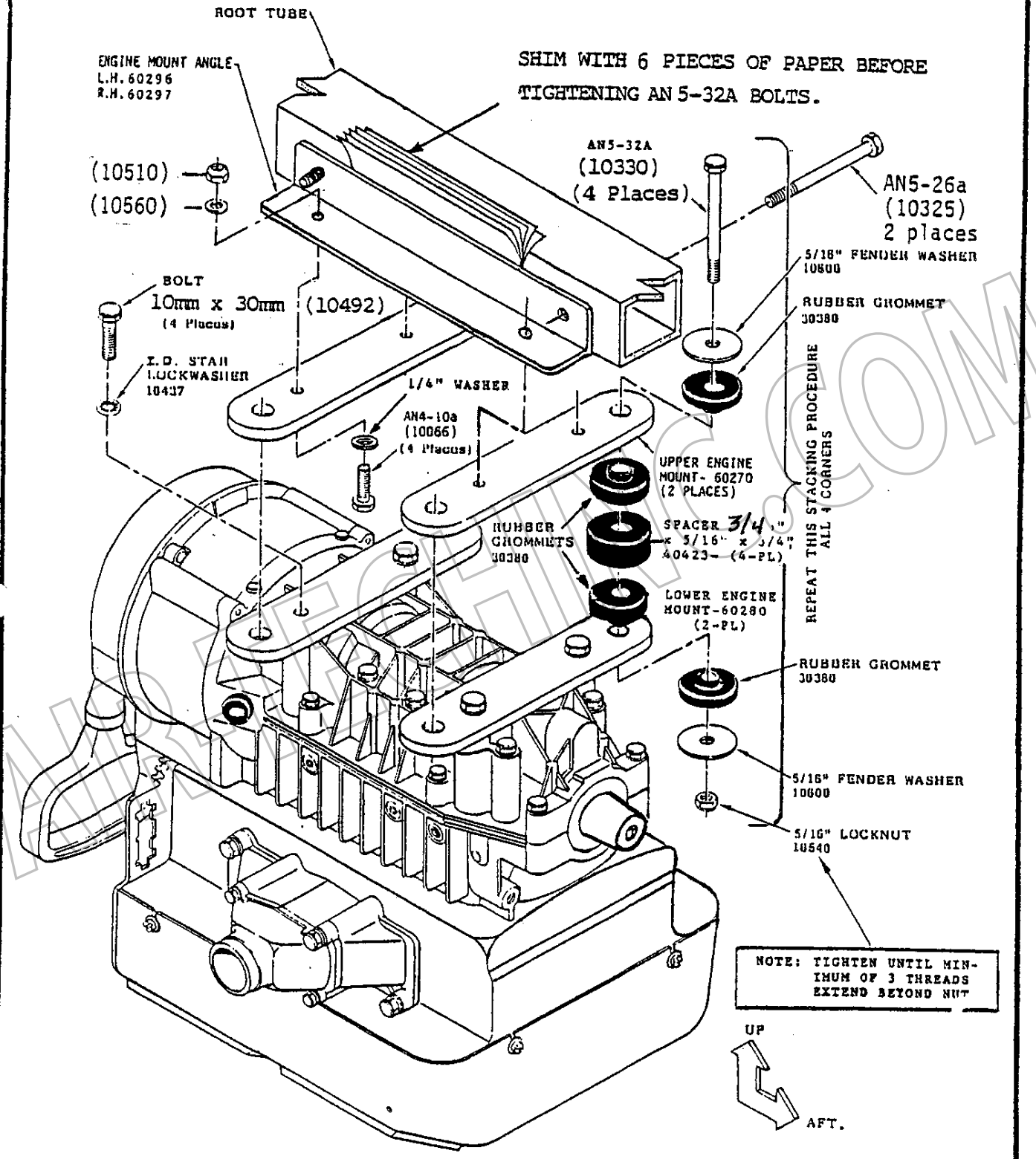
(1) Install lower engine mounts(60280) to engine. Torque to 18-23 ft./lbs. (25-32
(2) Install upper engine mounts(60270) to engine mount angles (60296-60297) but DO NOT tighten the four AN4-10a bolts yet.
(3) Assemble the upper engine mounts(60270) to the lower engine mounts (60280) with the rubber grommets.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

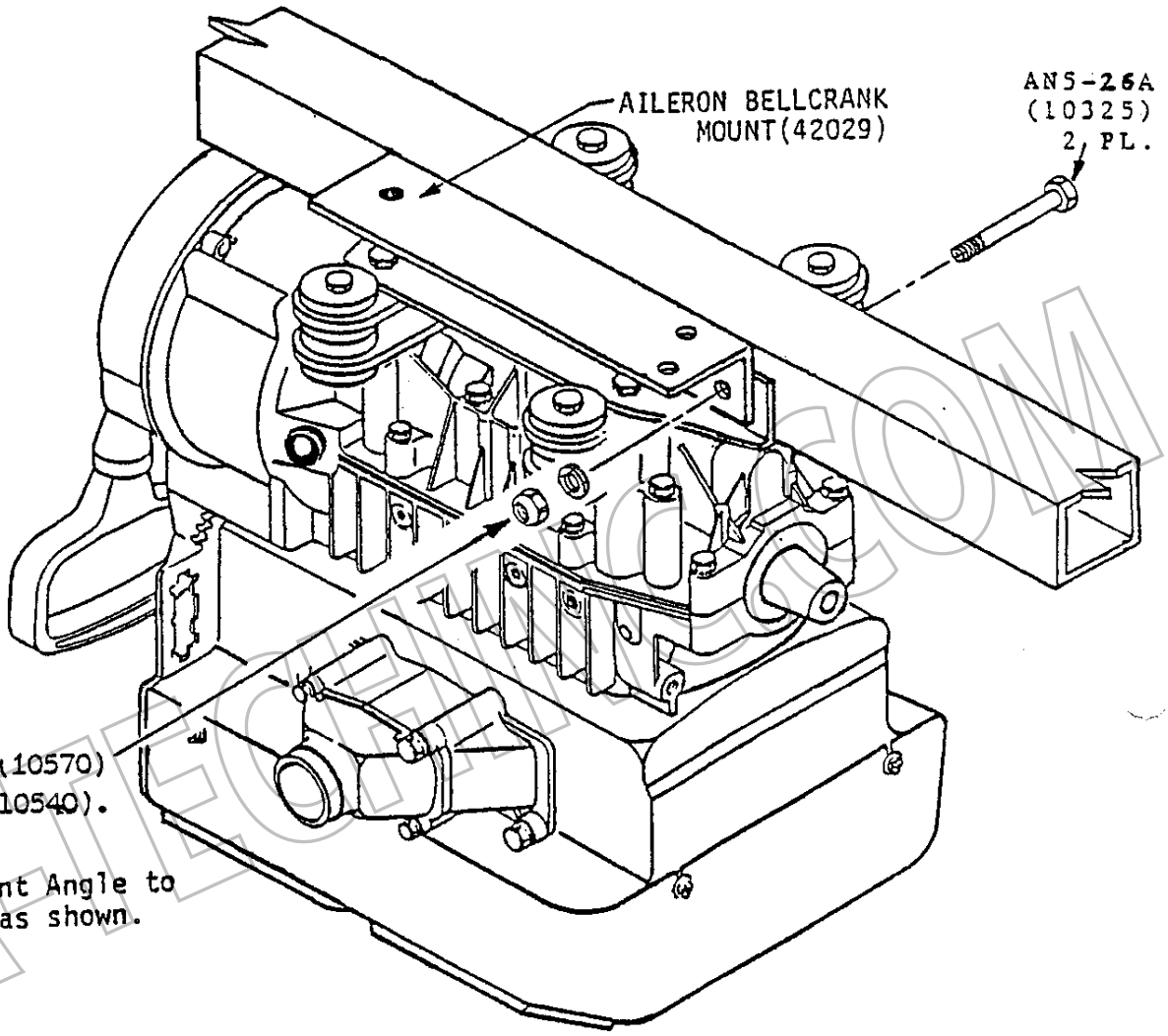


ENGINE MOUNT ASSY./ATTACHMENT



DETAIL 'A'

ENGINE MOUNT ANGLE ATTACHMENT

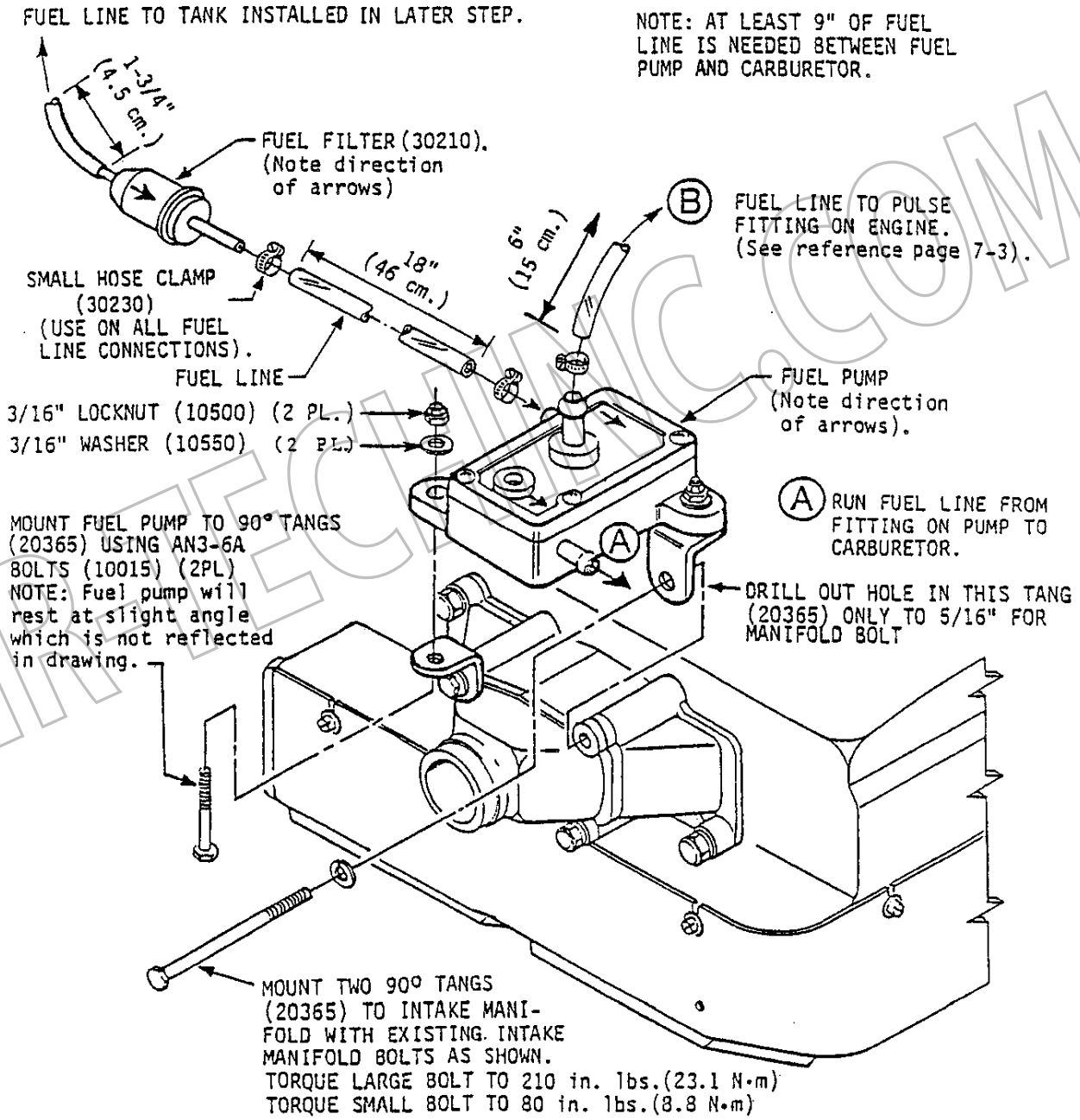


DETAIL 'B'

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.

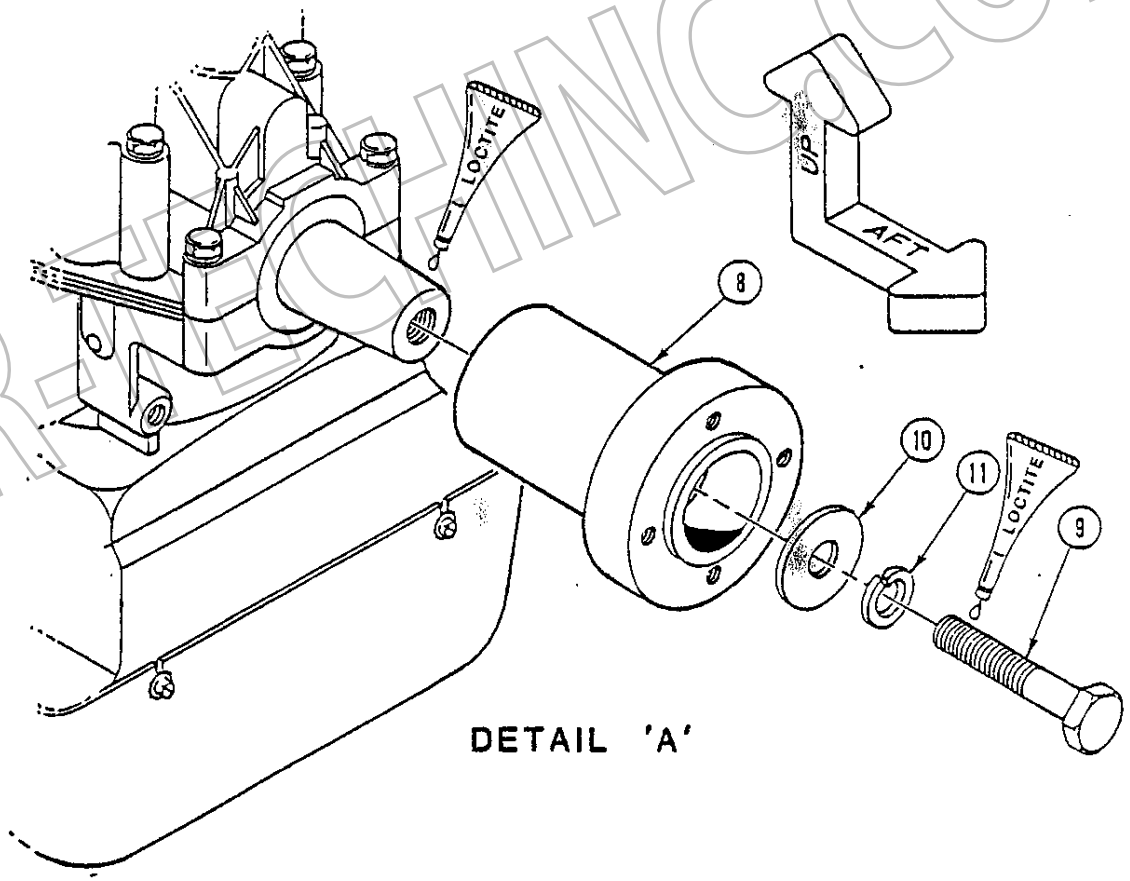
Refer to Detail 'A' . Install the Drive Shaft Adapter (8) to the Engine Crankshaft using hardware shown (9,11,10). Tighten Bolt (9) to 50 ft.lbs.

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 HOL

1. WEAR EYE PROTECTION
2. CLEAR IMMEDIATE AREA IN THE DIRECT 'LINE OF FIRE' A
   A CORK PROJECTILE MAY CAUSE INJURY OR PROPERTY DAMA
   IT IS RECOMMENDED THAT A TOWEL BE USED TO COVER THE
   CYLINDER HEADS WHEN THE CORK PLUGS ARE EXPELLED.THE
   FORE KEEPING THE CORK PLUGS CONTAINED.
3. PULL THE HANDLE ATTACHED TO THE END OF THE STARTER
4. GAP SPARK PLUGS TO .015" TO .020". INSTALL SPARK P



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).

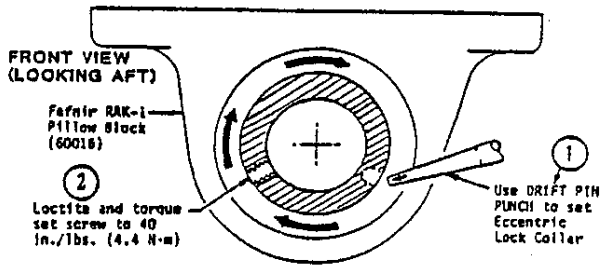
6. Secure the Eccentric Locking Collar (1) onto the Bearing as per Assembly Instructions.

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

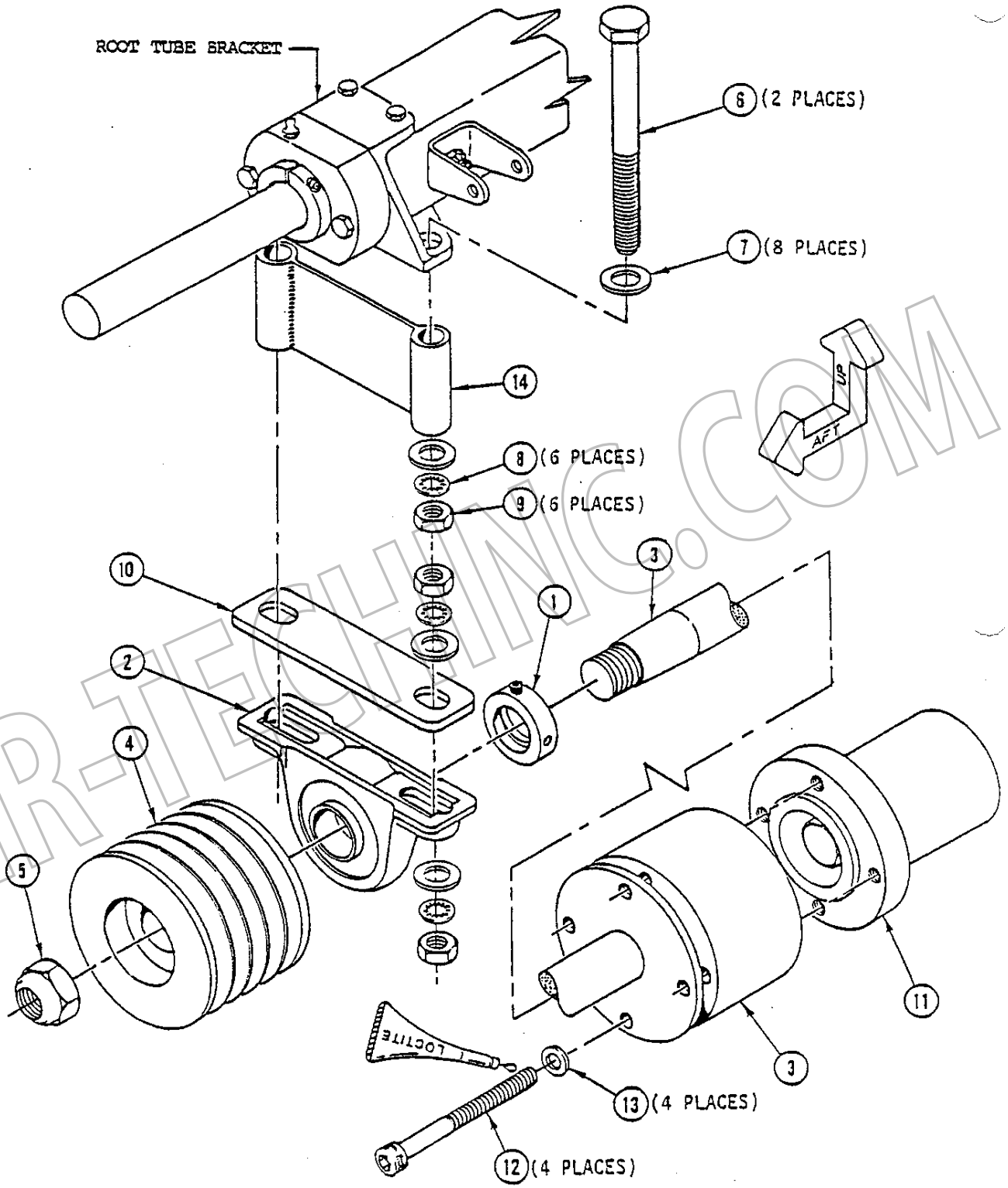
Pt.	P.N.	Description.
1.	..	Eccentric Locking Collar
2.	60016	Pillow Block
3.	60182	Drive Shaft and Flex-Coupling Assy.
4.	20233	Pulley, 3" Five Groove
5.	10529	Nut, 3/4"X 16 thin Locknut
6.	10494	Bolt, 7/16"X 20X 5"
7.	10439	Washer, 7/16"
8.	10437	Washer, 7/16" Star
9.	10503	Nut, 7/16" Jam
10.	60065	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.)



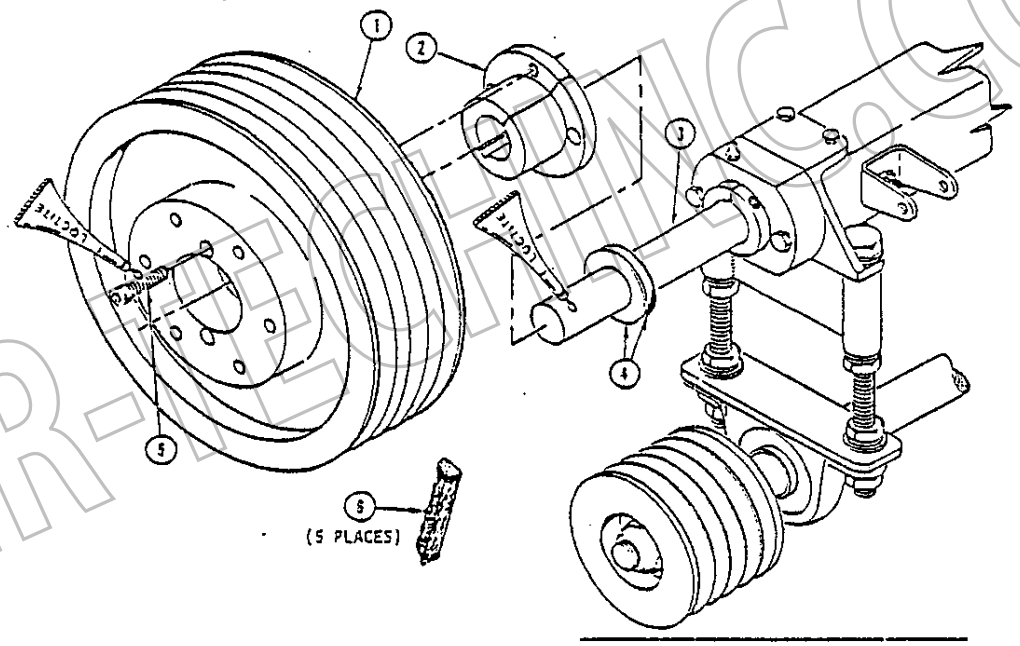
DRIVE SYSTEM (CONT.)

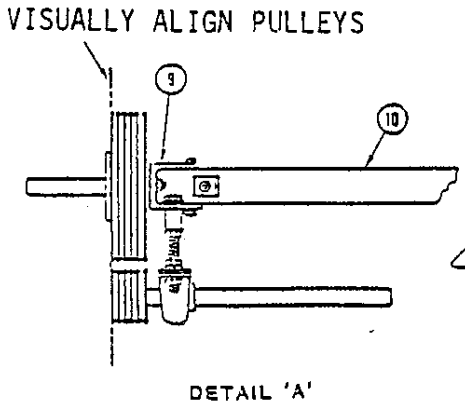
1. Slide the 8" Five Groove Pulley (1) and Taper Loc Bushing (2) on the Prop Shaft (3) until it bottoms out against the Bearing. Use a straight edge to align the upper and lower pulleys, as shown in Detail 'A'. Add Shim Washers (4) as necessary for alignment. Note: Add two additional Washers (4) to shaft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

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

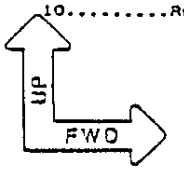
NOTE: Tighten each Screw alternately a little at a time to prevent the Taper Loc from binding. To remove the Pulley from the Taper Loc, remove the Cap Screws (5) and insert <u>two</u> 5/16" Coarse Thread Bolts into the threaded holes in the Pulley. Tighten until the Pulley comes off the Taper Loc.

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





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 ⌄ X 1"
6.	30033	Belt, Drive 7V 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'

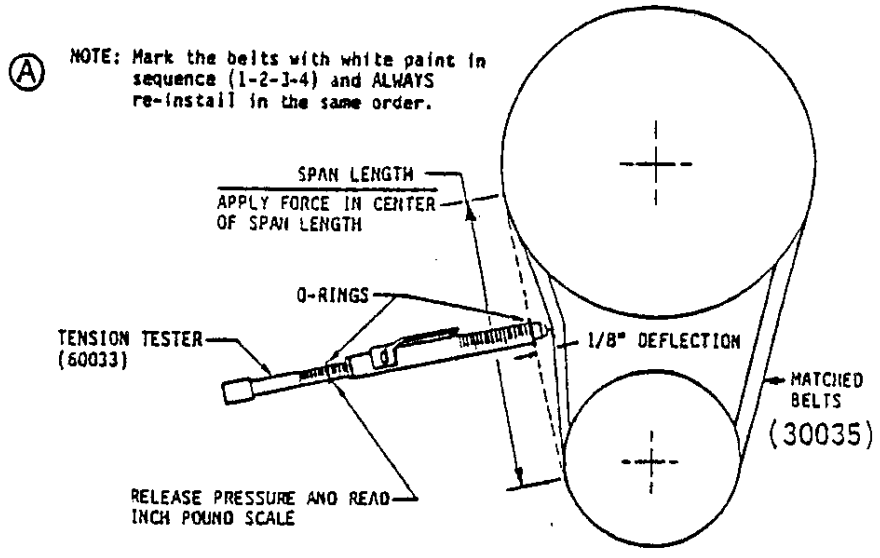
A1. Look at the Tension Tester (60033). Notice that it consists of a narrow shaft which will push into a thick shaft. See that when pushed, the narrow shaft has a spring resistance. Notice that both shafts have measured graduations on them. The thick one has inches and centimeters. The narrow has pounds 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.).



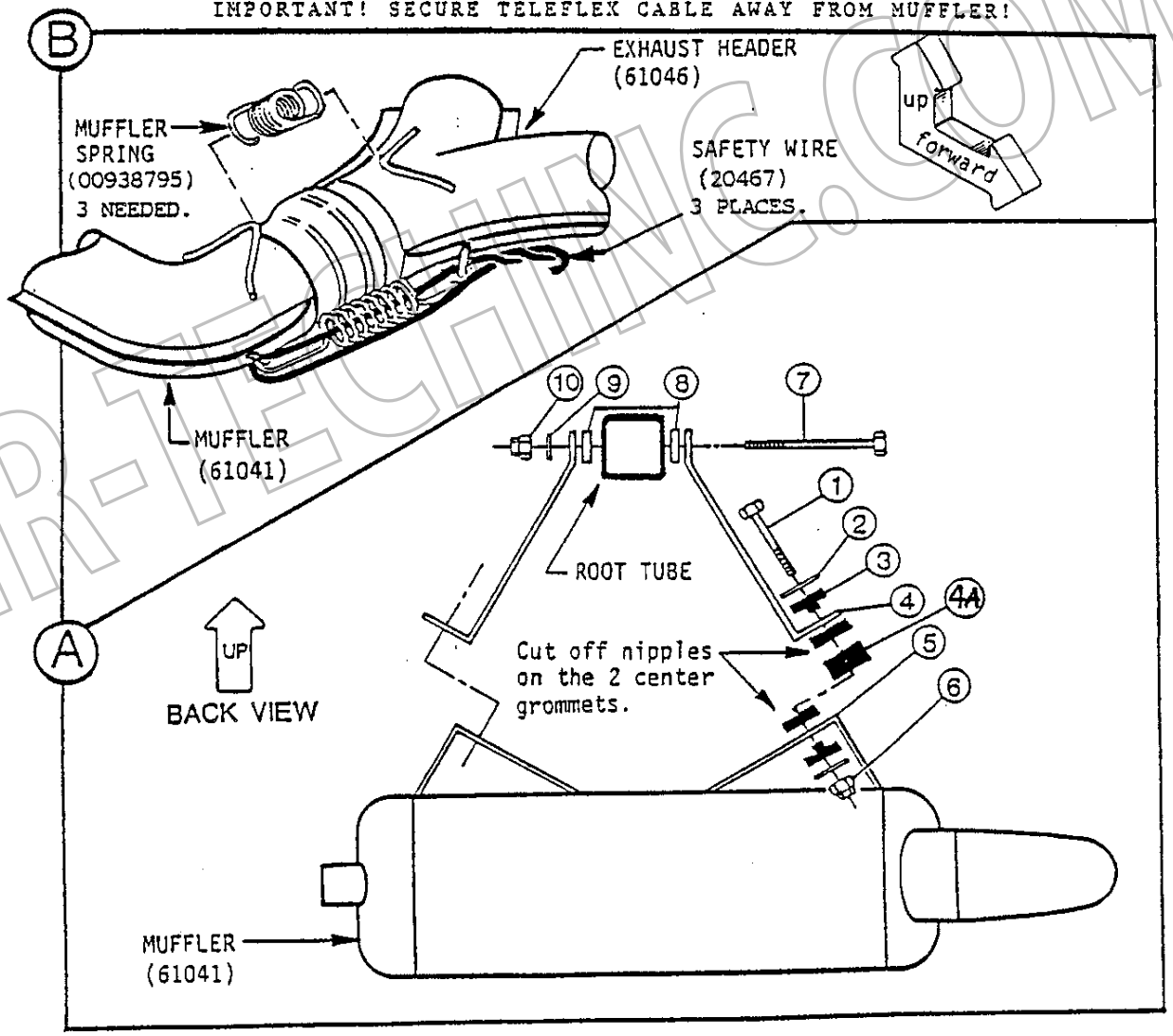
MUFFLER ATTACHMENT

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) AN4-27A (10250). 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.

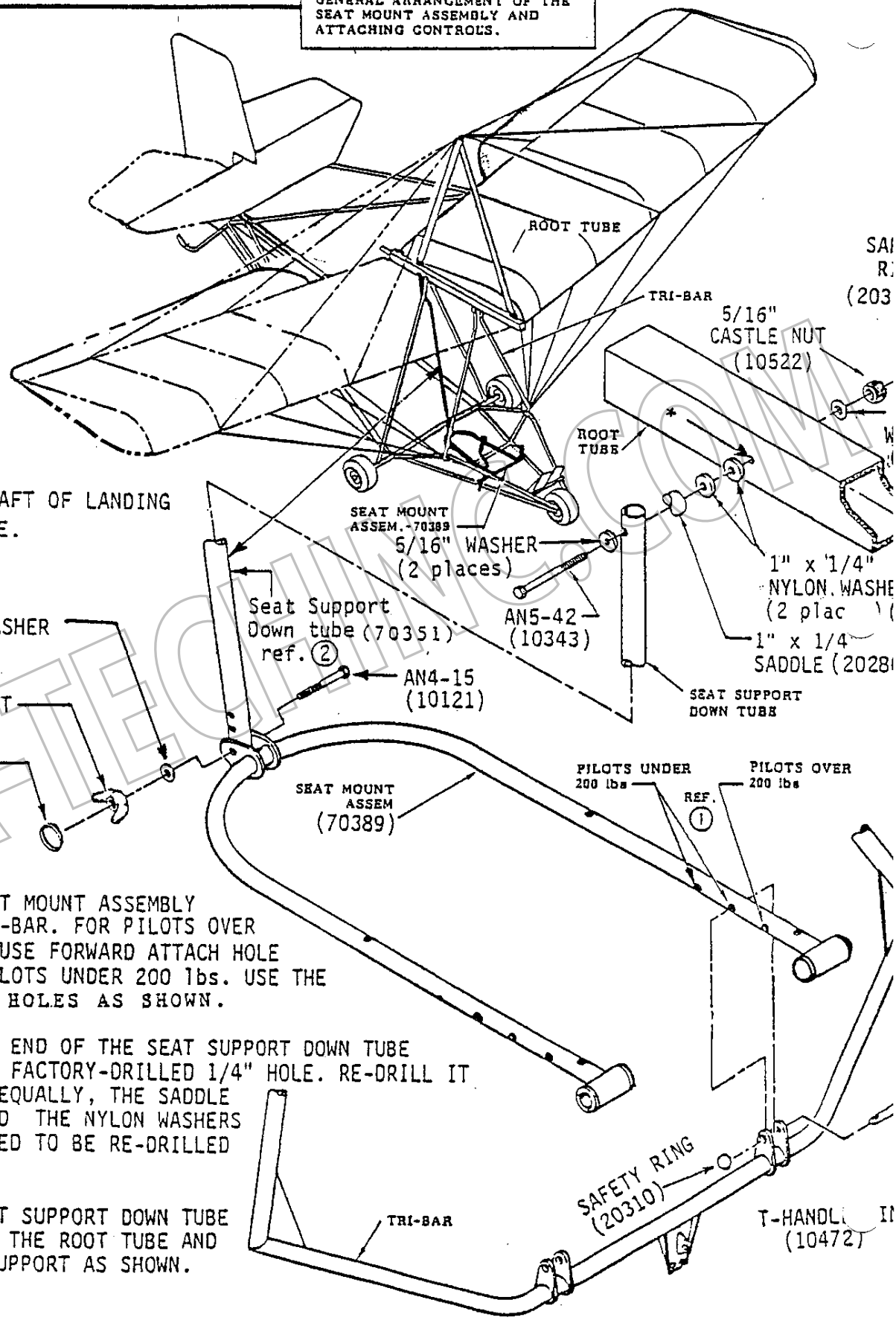
IMPORTANT! SECURE TELEFLEX CABLE AWAY FROM MUFFLER!



SECTION 8
SEAT MOUNTING AND CONTROL SYSTEM

SEAT MOUNT & SUPPORT TUBE ATTACHMENT

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



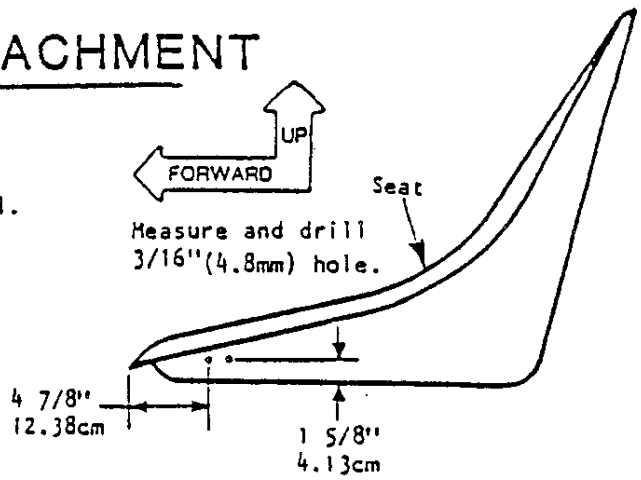
(1) ATTACH SEAT MOUNT ASSEMBLY ON THE TRI-BAR. FOR PILOTS OVER 200 LBS., USE FORWARD ATTACH HOLE AND FOR PILOTS UNDER 200 lbs. USE THE AFT ATTACH HOLES AS SHOWN.

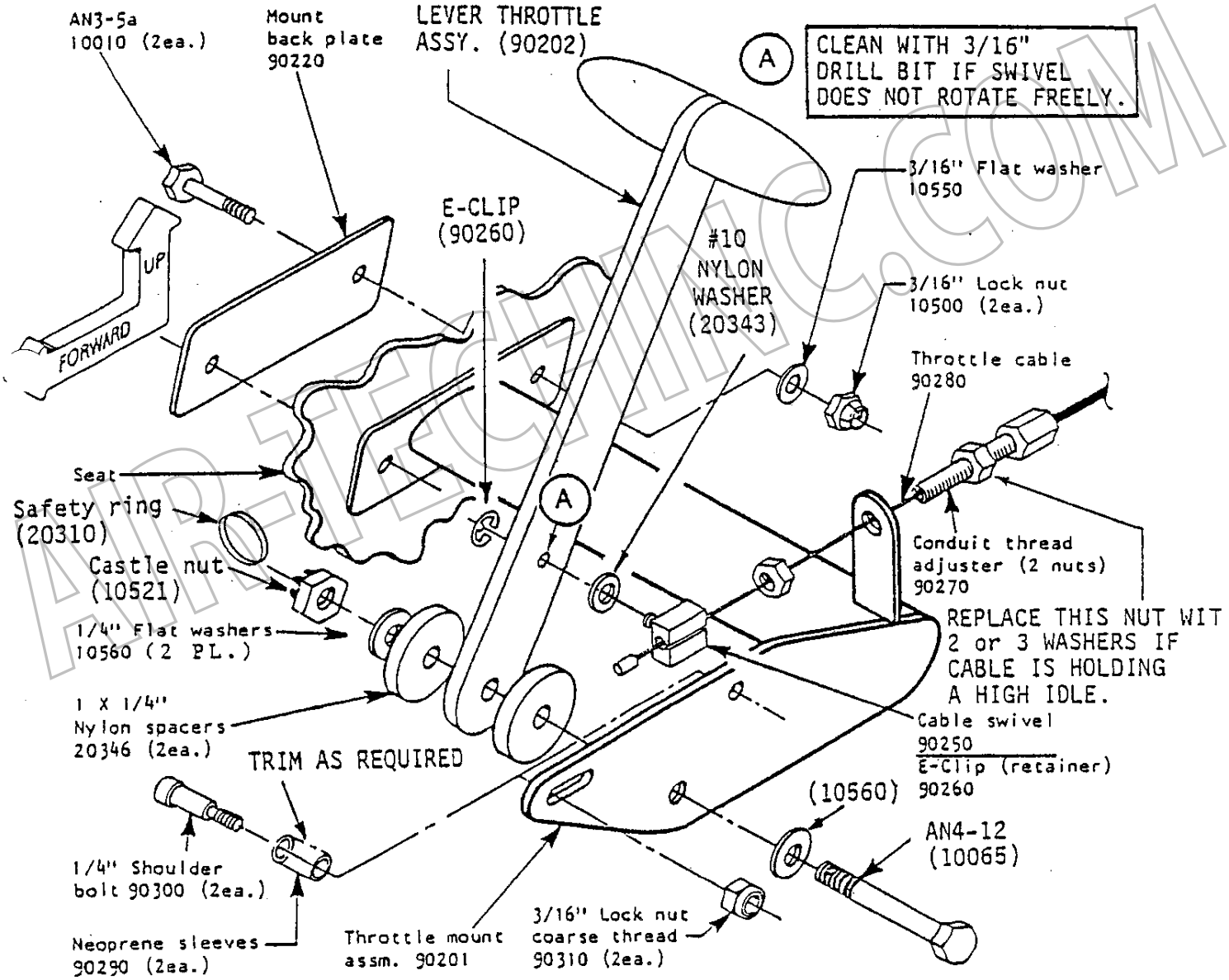
(2) AT THE TOP END OF THE SEAT SUPPORT DOWN TUBE THERE IS A FACTORY-DRILLED 1/4" HOLE. RE-DRILL IT TO 5/16", EQUALLY, THE SADDLE (20280) AND THE NYLON WASHERS (20346) NEED TO BE RE-DRILLED TO 5/16".

(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.





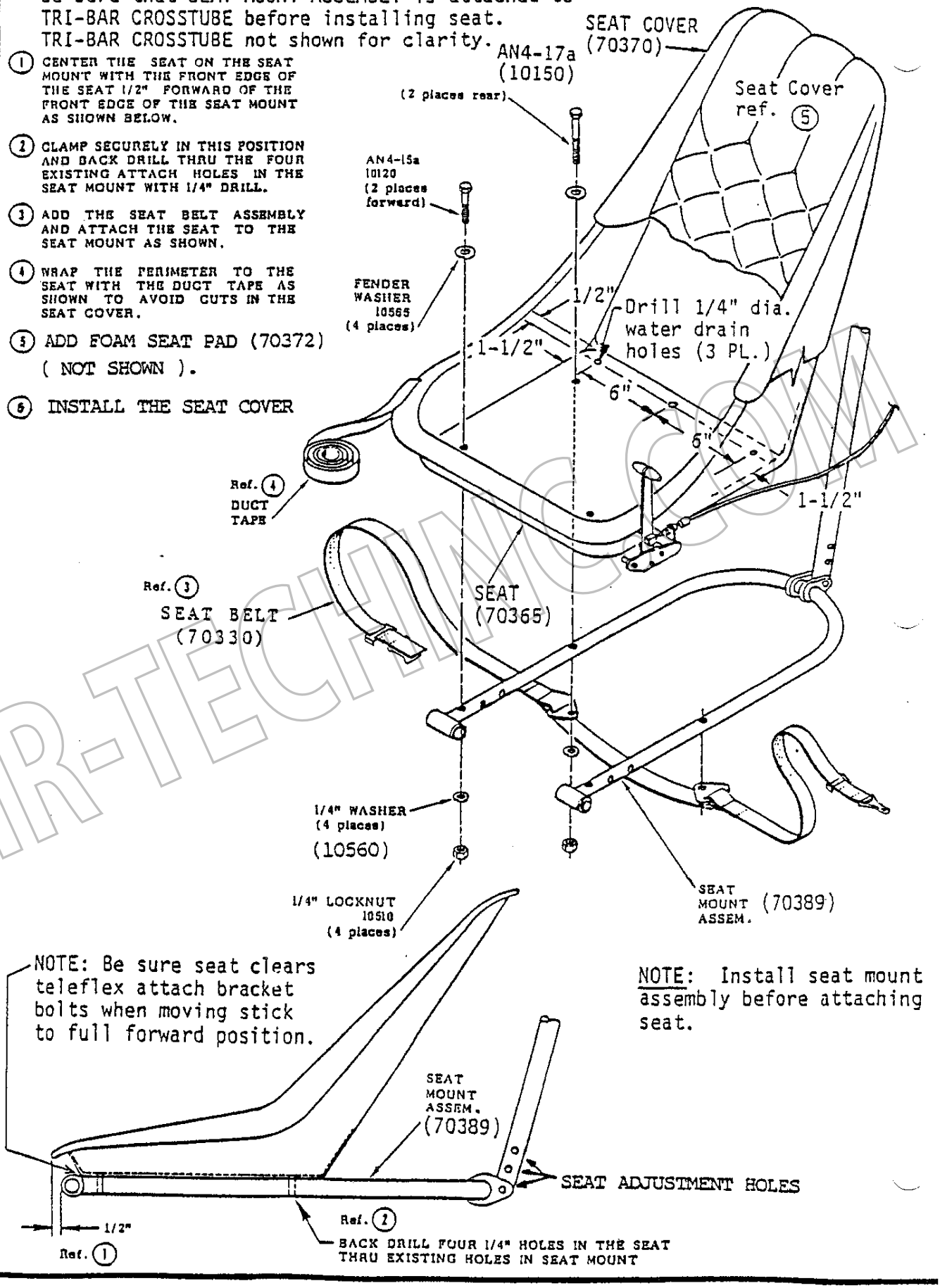
NOTE:

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

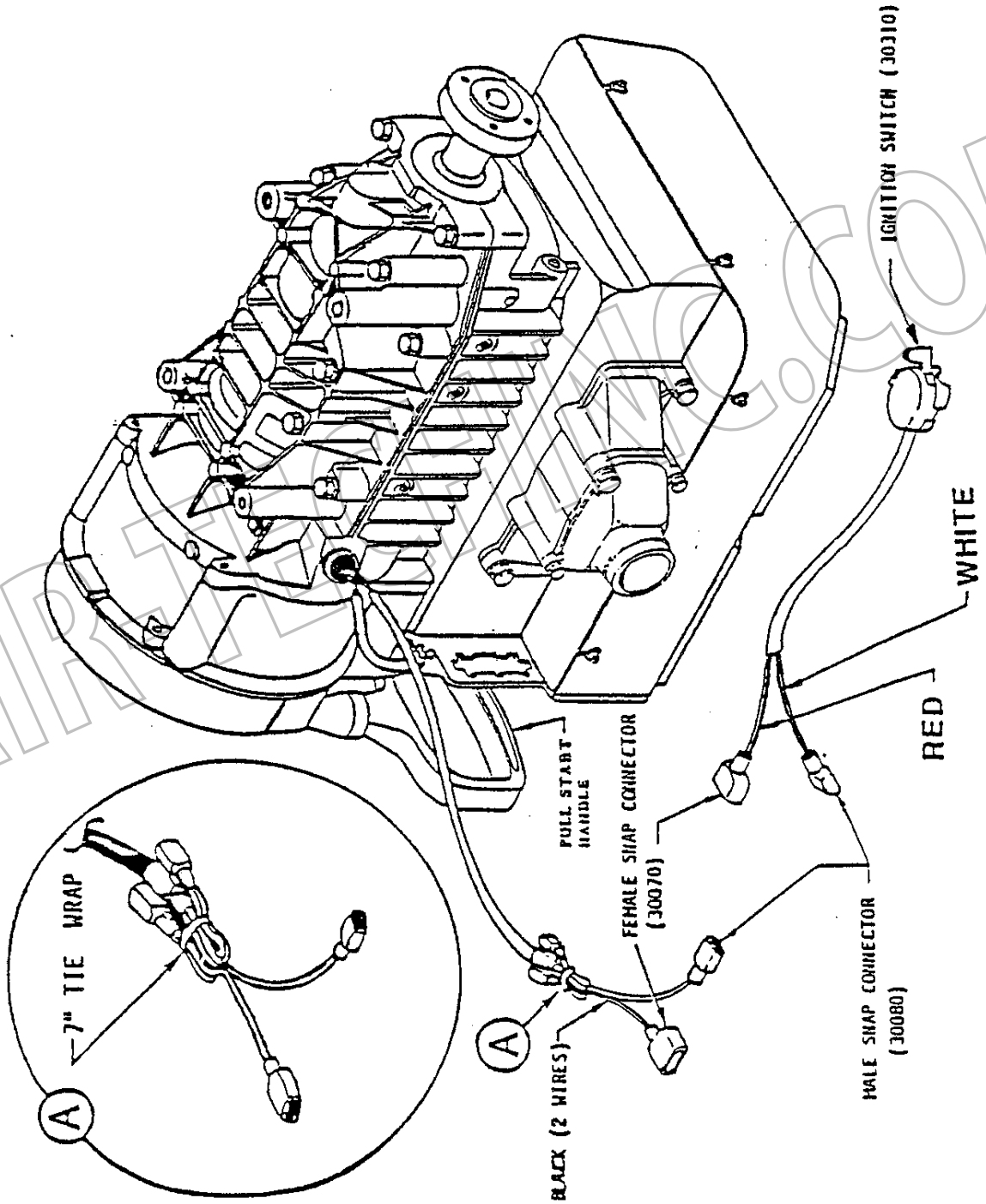


NOTE: Install seat mount assembly before attaching seat.

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.

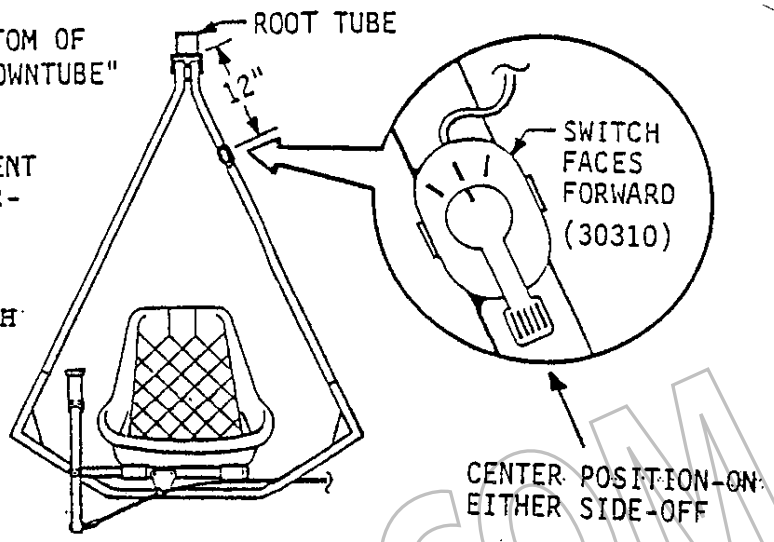


IGNITION SWITCH ATTACHMENT

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.



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

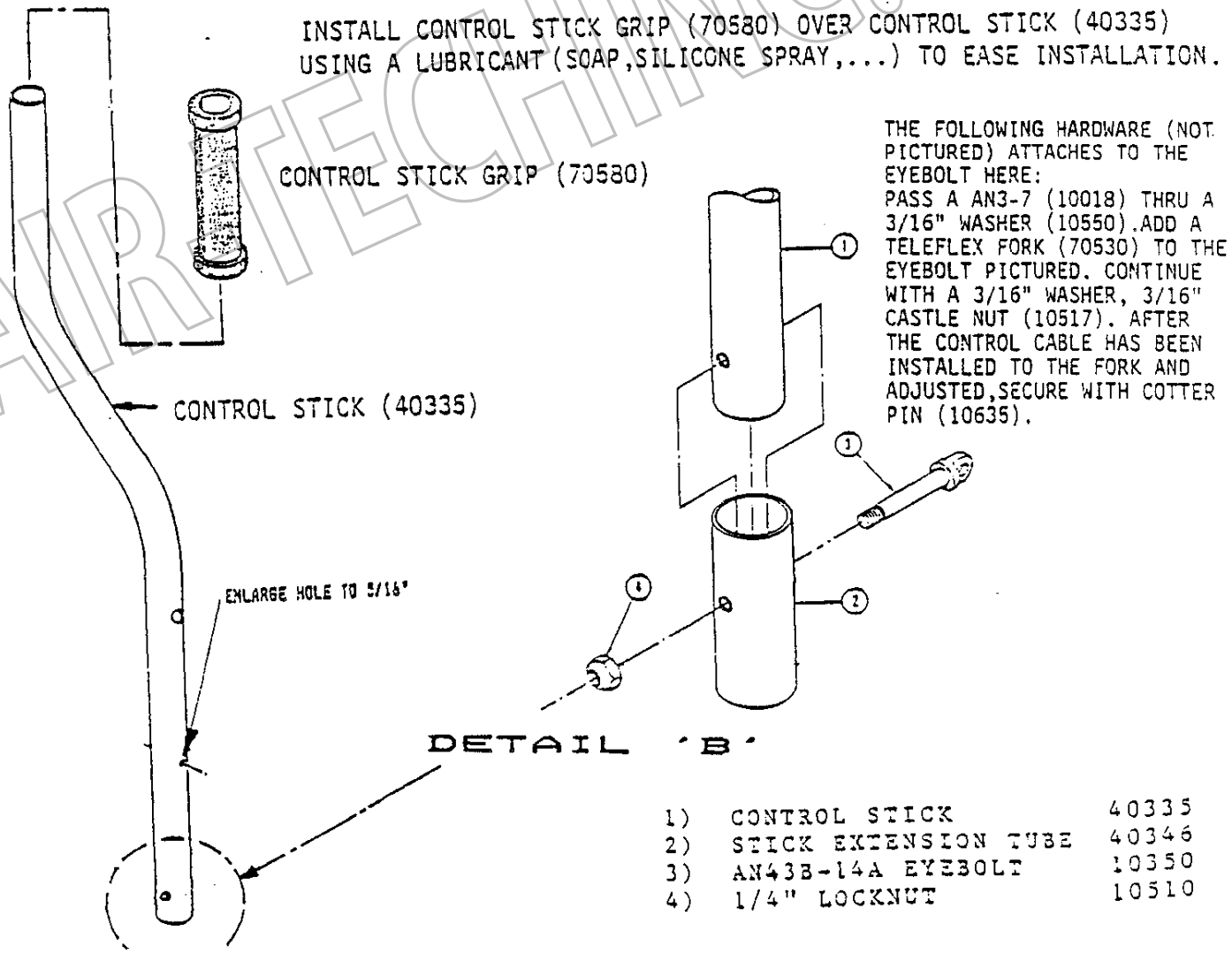
3) 1" x 1/8" SADDLE - 2ea. - 20270

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.



THE FOLLOWING HARDWARE (NOT PICTURED) ATTACHES TO THE EYEBOLT HERE:
PASS A AN3-7 (10018) THRU A 3/16" WASHER (10550). ADD A TELEFLEX FORK (70530) TO THE EYEBOLT PICTURED. CONTINUE WITH A 3/16" WASHER, 3/16" CASTLE NUT (10517). AFTER THE CONTROL CABLE HAS BEEN INSTALLED TO THE FORK AND ADJUSTED, SECURE WITH COTTER PIN (10635).

DETAIL 'B'

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

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. SECURE (9).

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 Cabl (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 (3A) using Bolt (16) and Hardware (6,17,18,19,6,9) . 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.

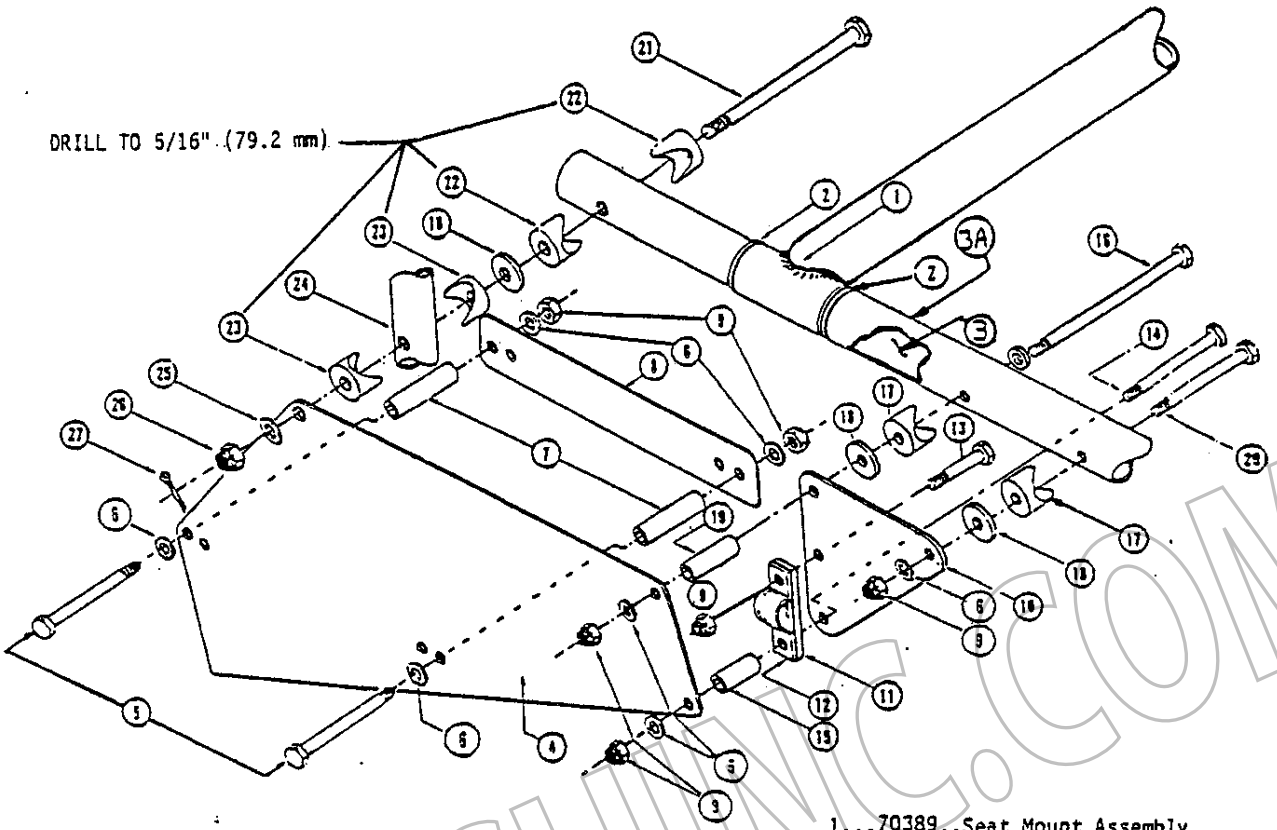
9. **Adjust Teleflex as follows:**
Thread 10-32 Nut (10495) all the way onto the Teleflex Cable.
Thread Teleflex Fork (70530) onto the same end 14 turns.
Attach Teleflex Fork to Eyebolt with AN3-7 Bolt, 3/16" Castle Nut and secure with Cotter Pin (10635).
Center Root Tube Bellcrank or Rudder(depending 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.

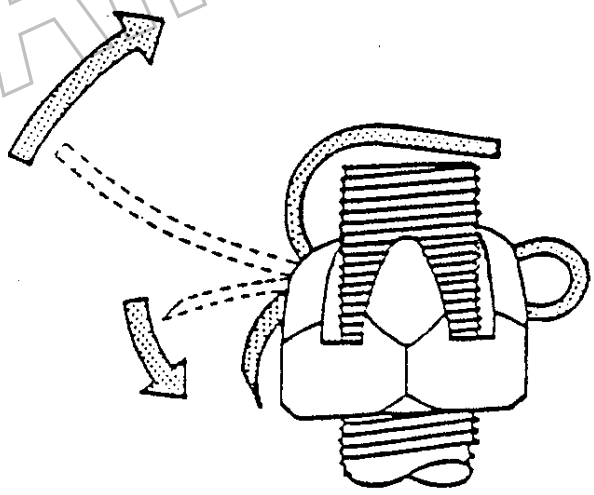
CONTROL STICK ASSY. CONT..



1...70389..Seat Mount Assembly
2...70250..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..70511..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. 20270..Saddle, 1/8" x 1"
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..20255..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.

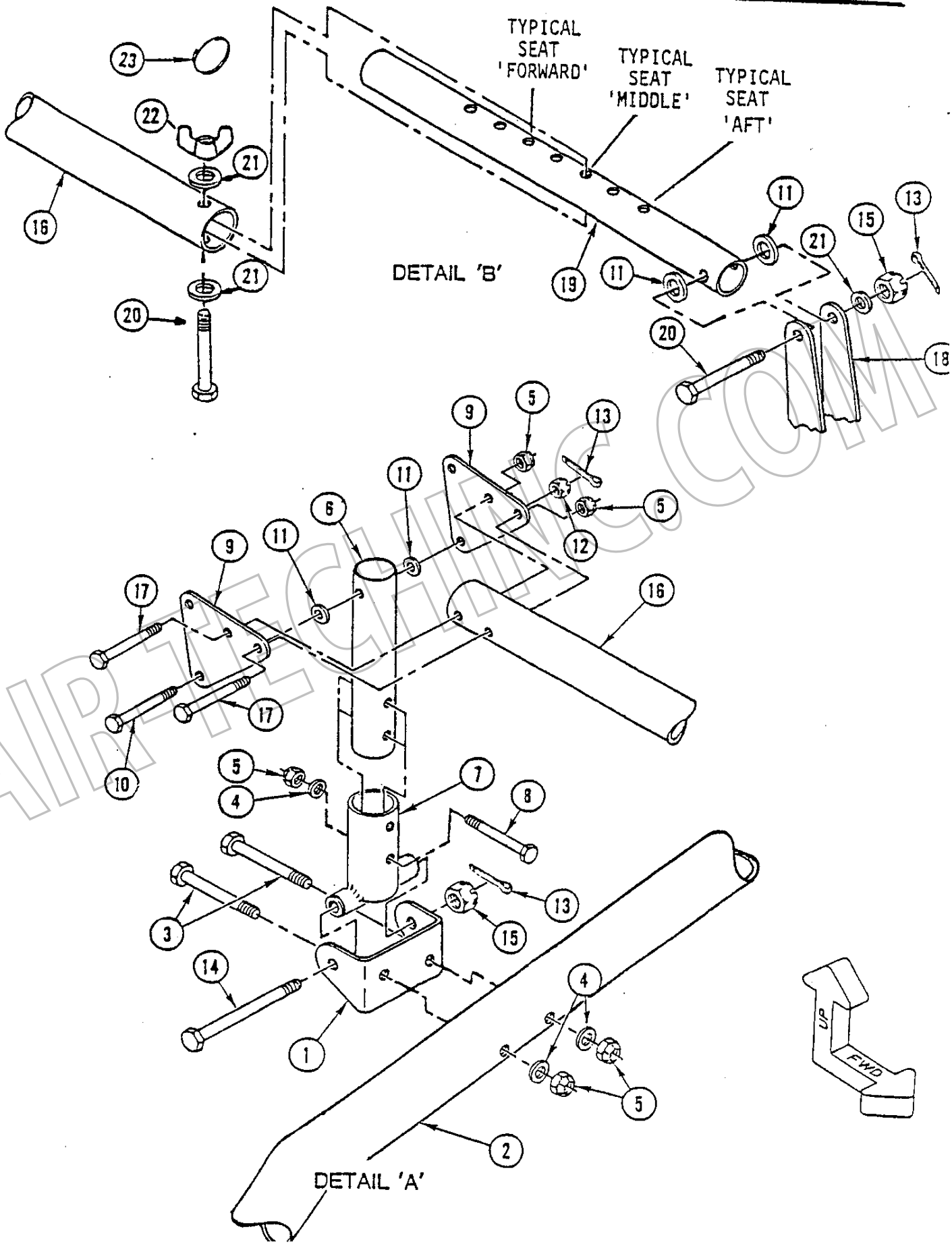
5. Refer to Detail 'B'. Insert the Elevator Adjust Tube (19) into the Forward Elevator Push/Pull Tube (16) as shown and secure with hardware (20,21,22,23). NOTE: The location shown in Detail 'B' where bolt (20) attaches the Forward Elevator Push/Pull Tube (16) to the Elevator Adjust Tube (19) should 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"

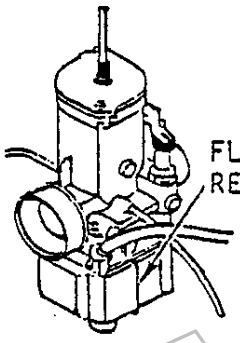
Rt.	P.N.	Description.
12.	10517	3/16" Castle Nut
13.	10635	Cotter Pin
14.	10260	AN4-27 Bolt
15.	10521	1/4" Castle Nut
16.	40177	Fwd. Elevator Push/pull Tube
17.	10040	AN3-15A Bolt
18.	Q80122:1	Stick Attach Tube
19.	80027	Elevator Adjust Tube
20.	10121	AN4-15 Bolt
21.	10560	1/4" Washer
22.	10520	1/4" Wing Nut
23.	20310	Safety Ring

ELEVATOR CONTROL SYSTEM ASSY./ ATTACHMENT CON'T.

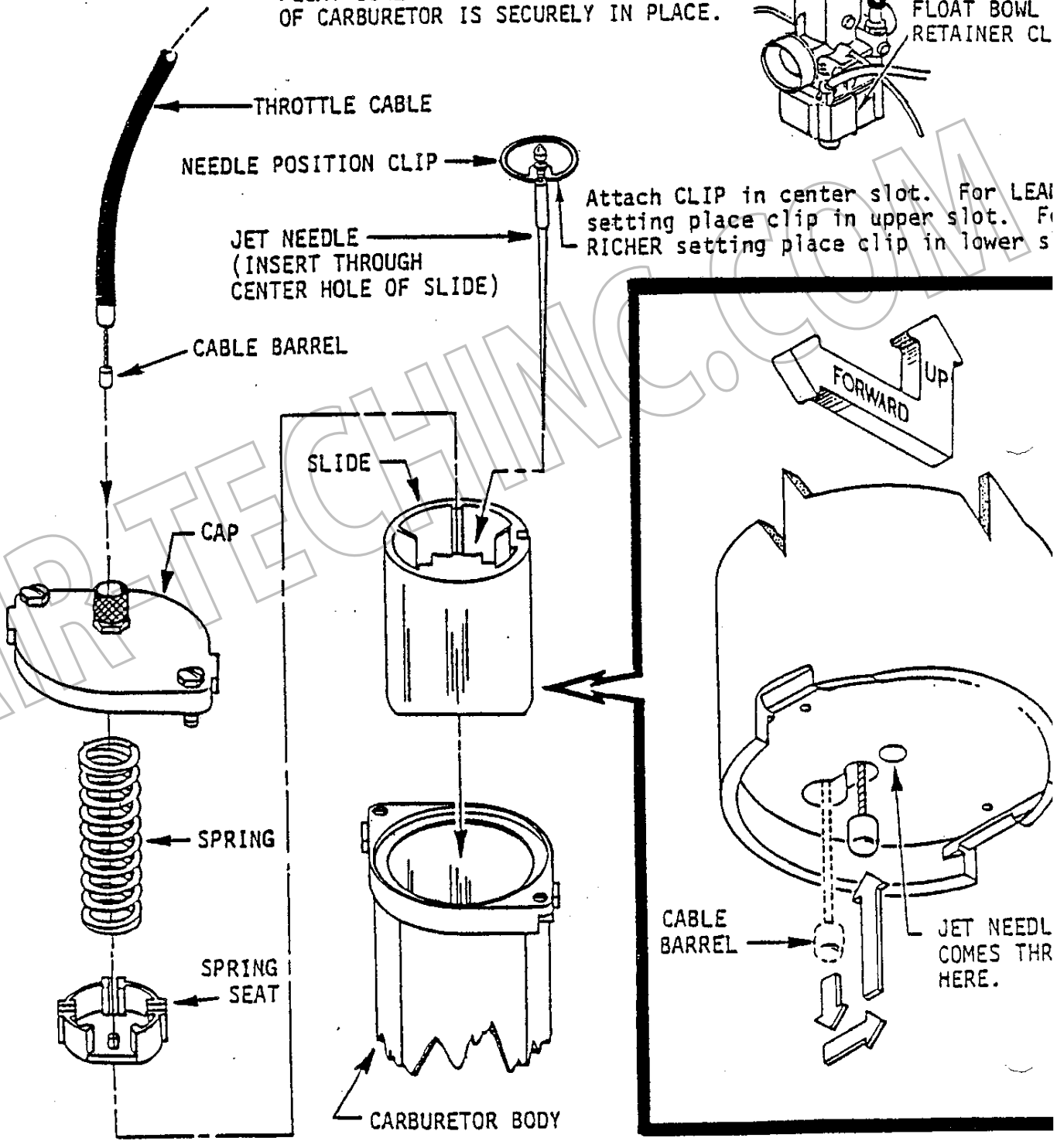


THROTTLE CABLE ATTACHMENT

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 screw After assembly is complete, install AIR FILTER (60000). See fuel system Assembly on page



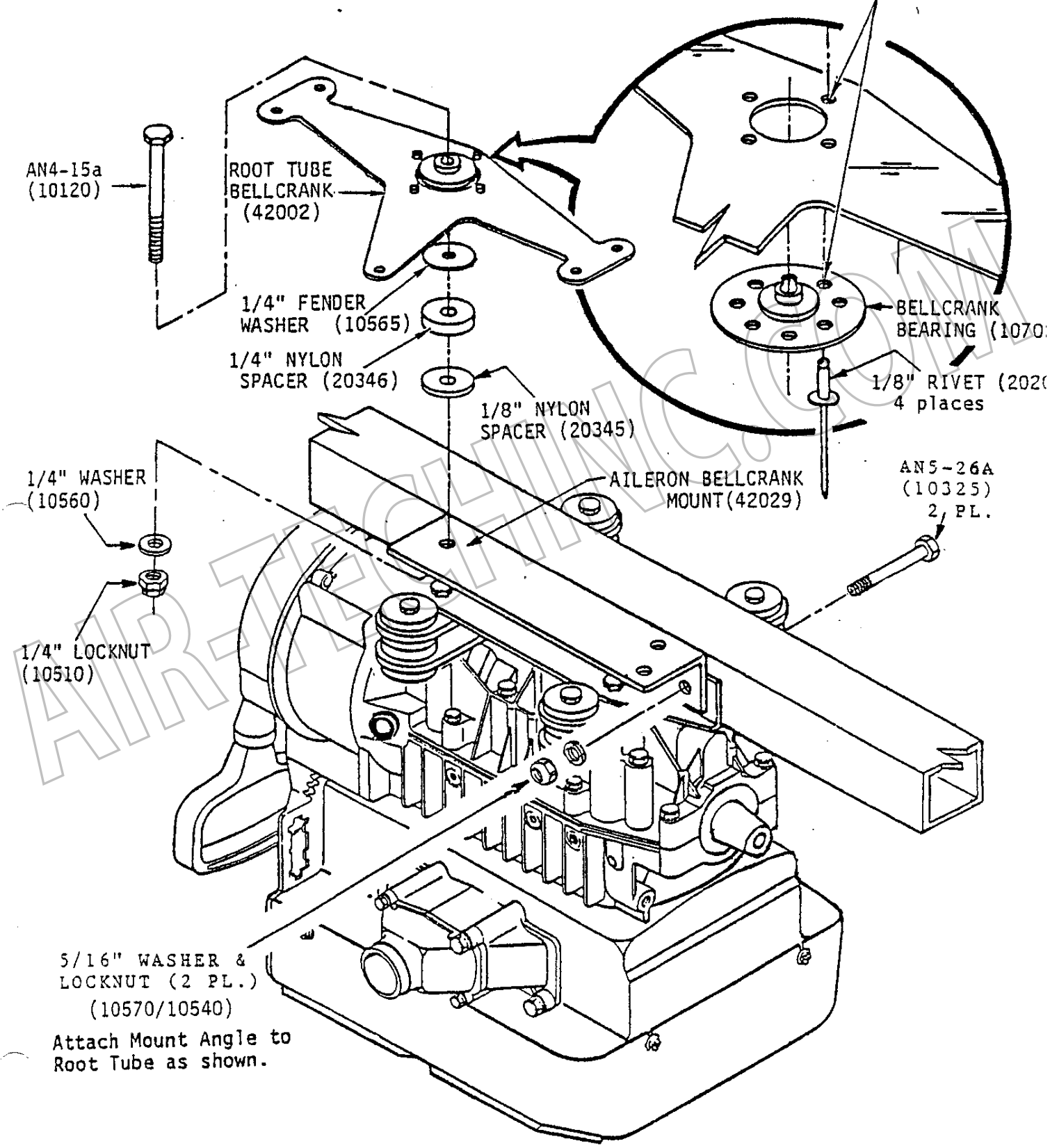
NOTE: BE SURE TO CHECK AND SEE THAT FLOAT BOWL RETAINER CLIP ON BOTTOM OF CARBURETOR IS SECURELY IN PLACE.



ROOT TUBE BELLCRANK ASSY./ ATTACHMENT

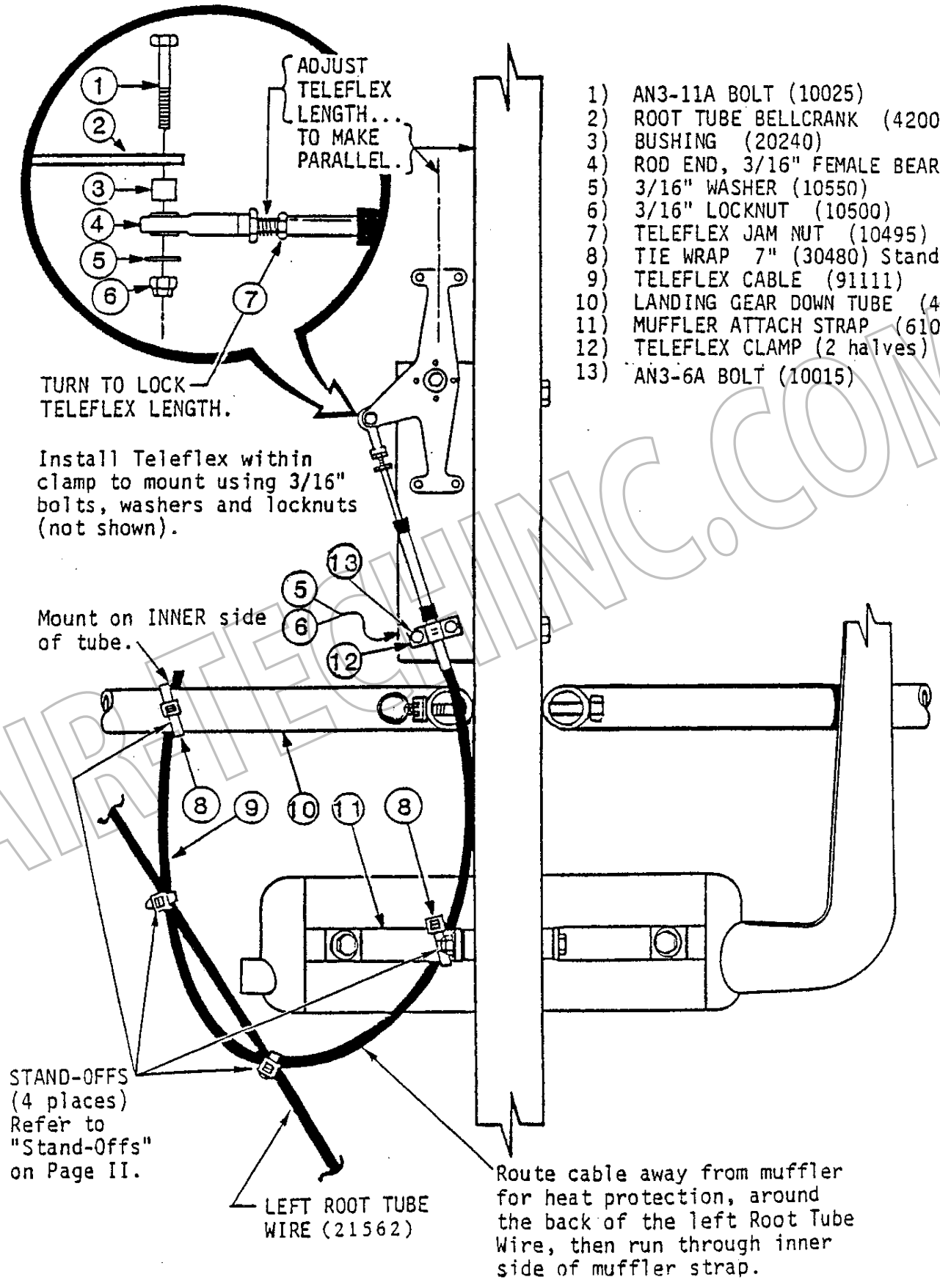
Install Root Tube Bellcrank with attached bearing (face down) to Aileron Bellcrank Mount with hardware shown.

Drill 1/8" holes at 4 places using perimeter holes at 90° as guides.



Attach Mount Angle to Root Tube as shown.

ROOT TUBE BELLCRANK/TELEFLEX ATTACHMENT

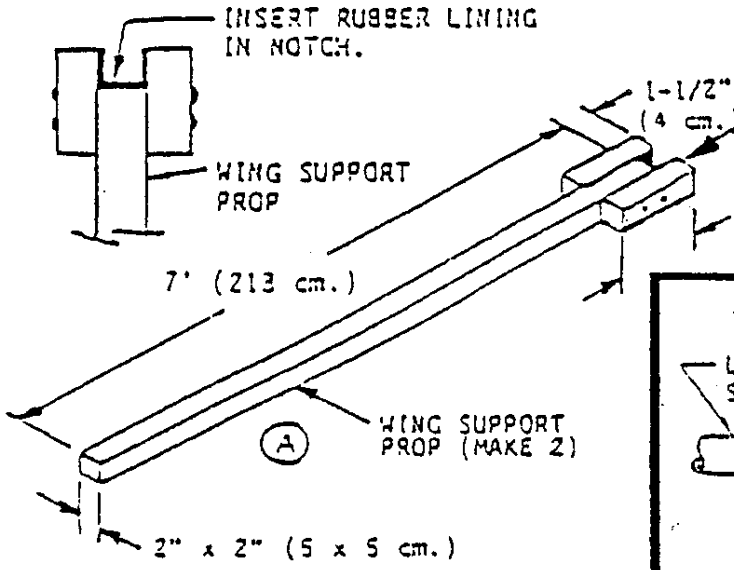


1) AN3-11A BOLT (10025)
2) ROOT TUBE BELLCRANK (42002)
3) BUSHING (20240)
4) ROD END, 3/16" FEMALE BEARING (107
5) 3/16" WASHER (10550)
6) 3/16" LOCKNUT (10500)
7) TELEFLEX JAM NUT (10495)
8) TIE WRAP 7" (30480) Stand-Offs Re
9) TELEFLEX CABLE (91111)
10) LANDING GEAR DOWN TUBE (40296)
11) MUFFLER ATTACH STRAP (61042)
12) TELEFLEX CLAMP (2 halves) (70510)
13) AN3-6A BOLT (10015)

SECTION 9
WING AND TAIL ATTACH

WINGS TO TRIKE ATTACHMENT

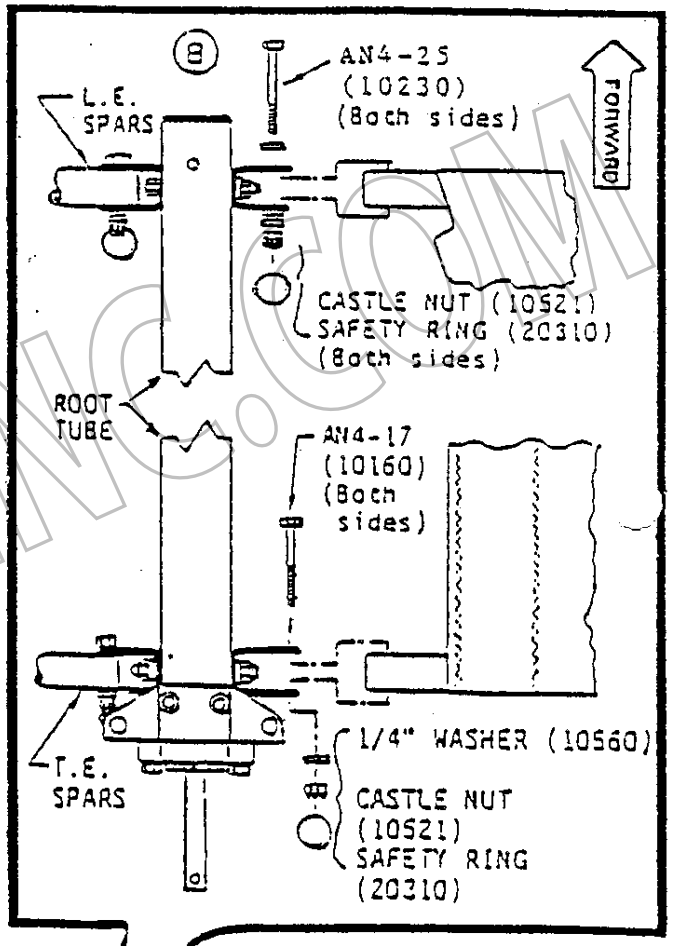
Perform the following attachment sequence in an area large enough to accommodate the full wingspan of your aircraft. Face your plane tail to the wind.



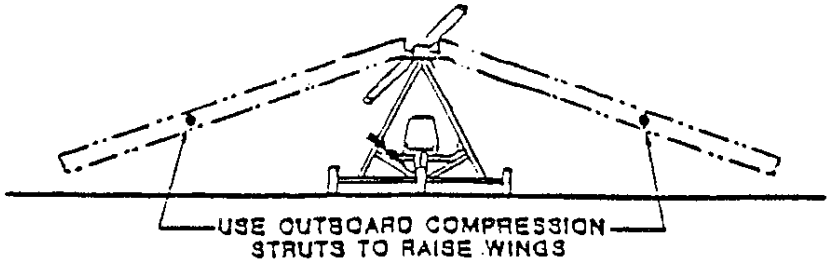
OPTIONAL — PLAN 'A'

PLAN 'A'- ONE PERSON SET-UP.
PLAN 'B'- ONE PERSON SET-UP.
(THE WAY WE DO IT AT THE FACTOR
SEE PAGE 9-8.

1. Build two Wing Supports from one each 2"x2"x7' (5cm.x5cm.x213cm.) and two each 2"x2"x6" (5cm.x5cm.x 15cm.) pieces of lumber, as shown in illustration 'A'.
2. Attach wings to Root Tube as in illustration 'B'.
3. Leave the wingtips resting on strips of carpet on the ground.



TOP VIEW



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.

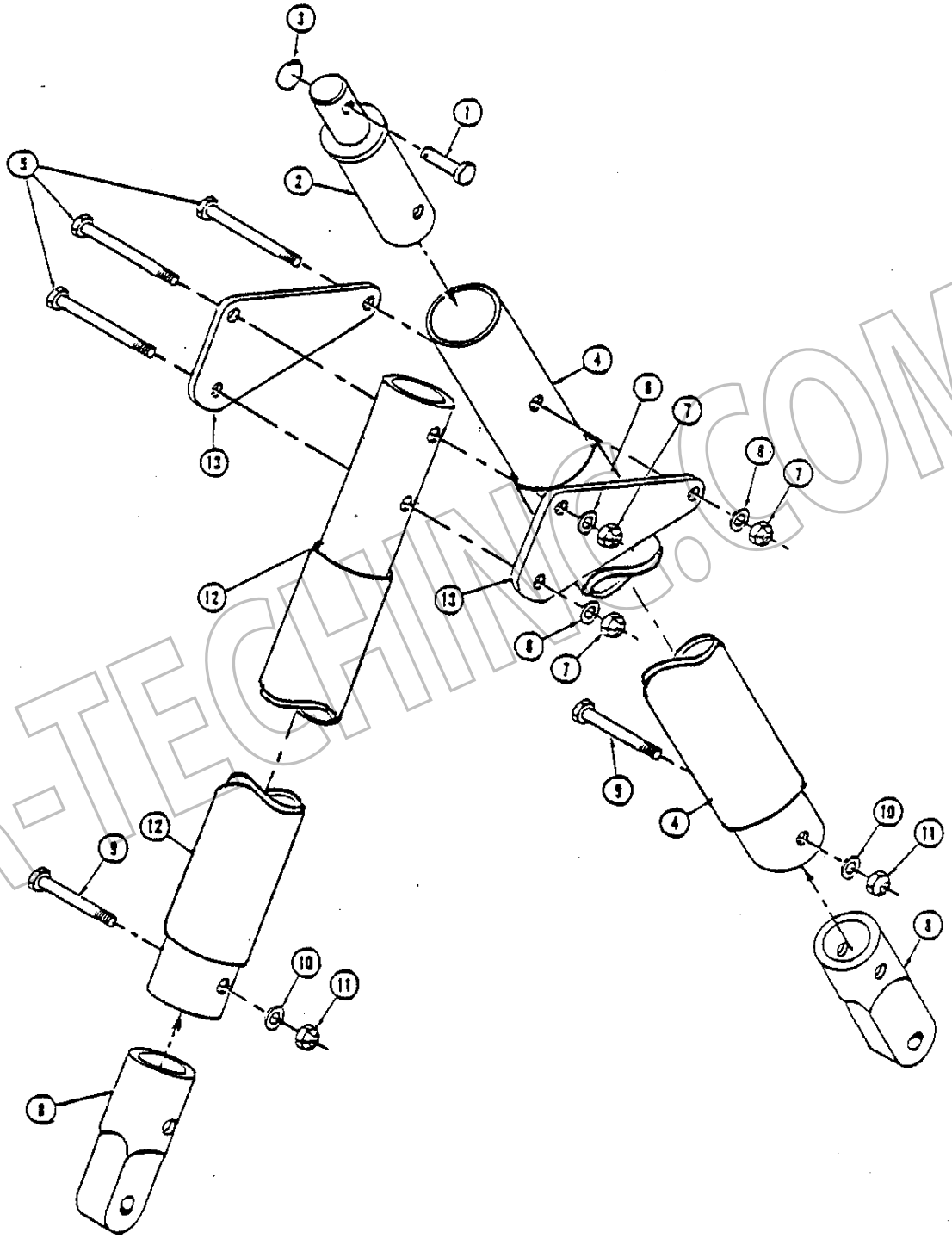
3. Attach a King Post Bottom Fitting (8) to the bottom end of the AFT King Post (4) using the hardware (9,10,11) shown. Tighten to proper torque.

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.	10441	3/16" Clevis Pin 17/32" (12.7 mm) Long.
2.	45717	King Post Top Fitting.
3.	20310	Safety Ring.
4.	40205	AFT King Post Tube.
5.	10040	AN3-15a Bolt.
6.	10530	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



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.

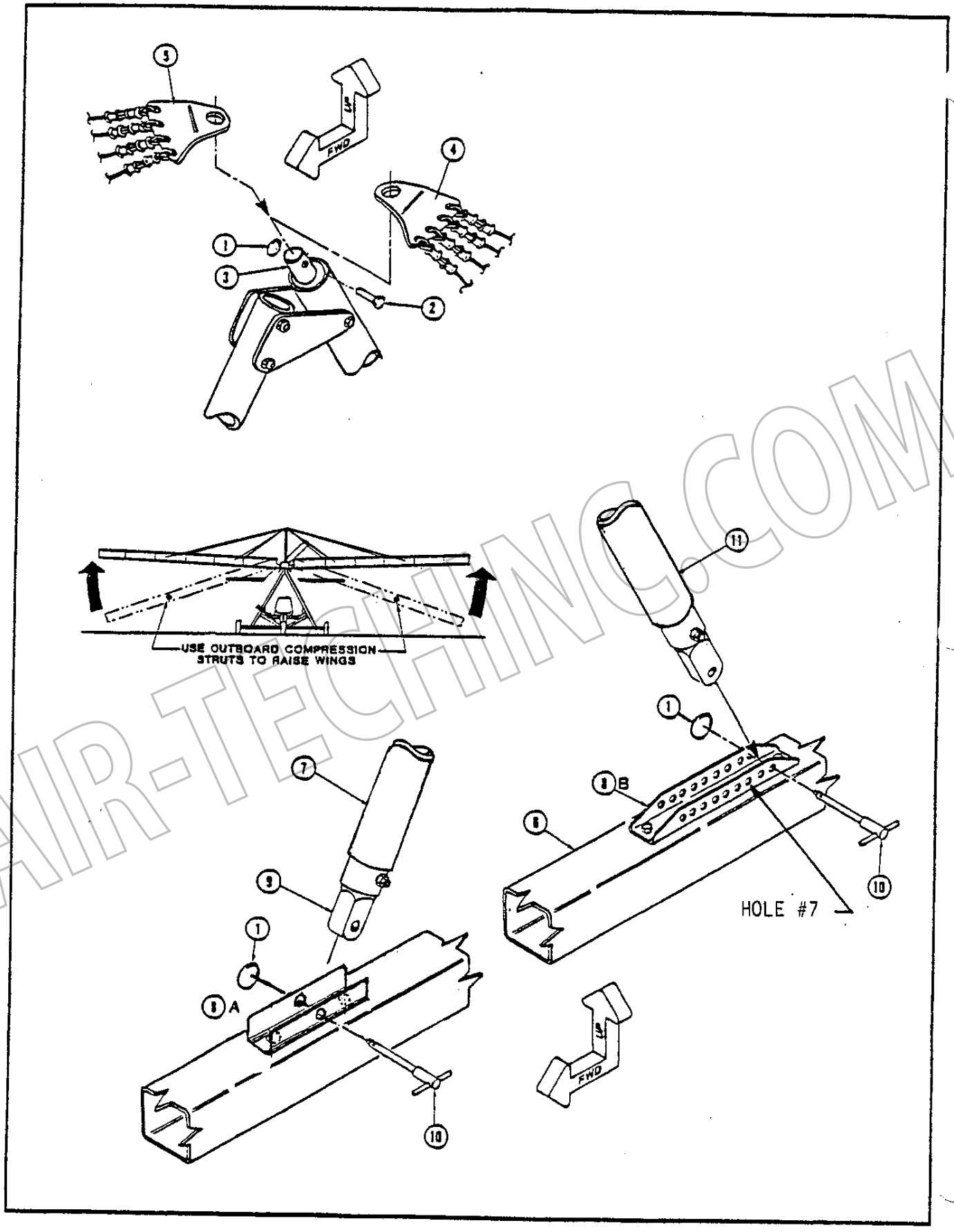
4. Raise the King Post Sub-assembly above the Root Tube (6) and position the forward King Post (7) in the forward King Post Channel Track (8A). Align the hole in the King Post Bottom Fitting (9) with the hole in the Track. Attach using a 'T' Handle Pin (10).

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.

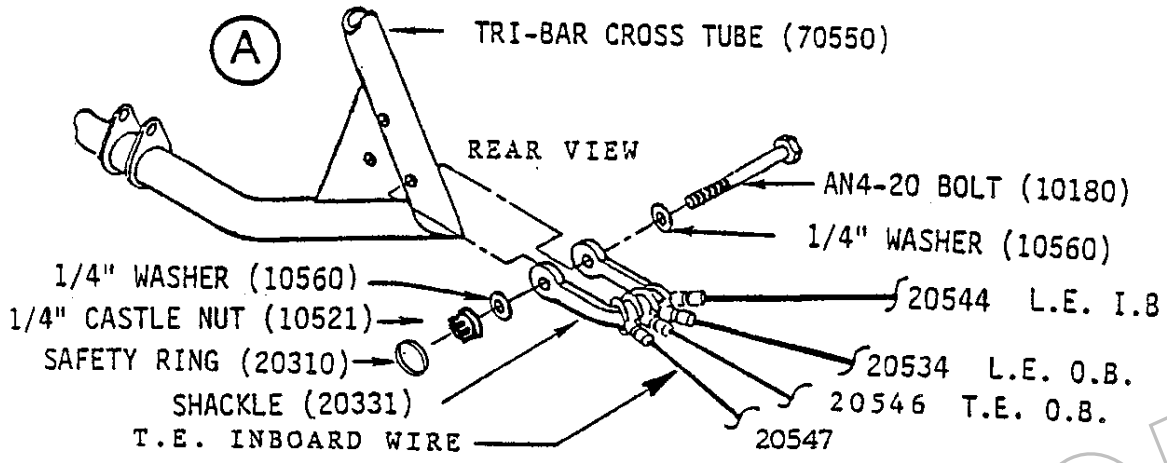
5. Position the Aft King Post (11) in the <u>most aft</u> hole in the aft King Post Channel Track (8B) and attach using a 'T' Handle Pin (10). Check that the Upper Wire sets (4) and (5) are untwisted.

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.

DETAIL 'B'



LOWER WING WIRE ATTACHMENT/ TENSION ADJUSTMENT



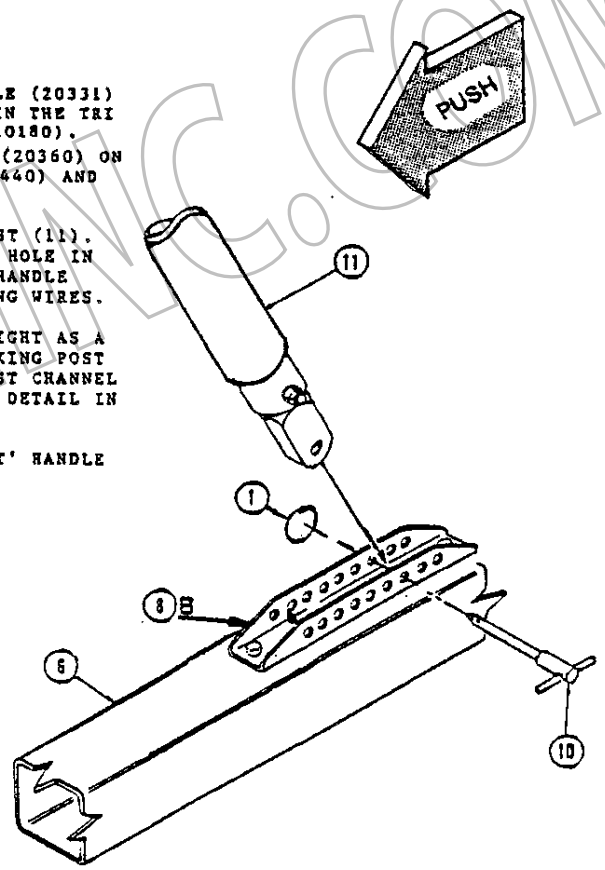
(A) ATTACH LOWER WING WIRES (20547, 46, 34, 44) TO SHACKLE (20331) IN ORDER SHOWN. INSTALL SHACKLES TO THE LOWER HOLES IN THE TRI BAR CROSS TUBE ON BOTH SIDES USING THE AN4-20 BOLT (10180).

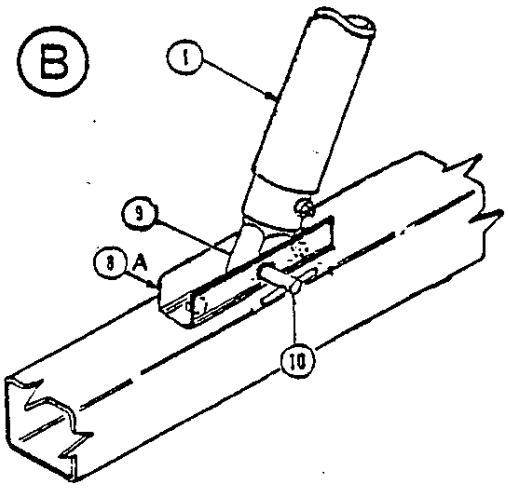
ATTACH LANDING GEAR SIDE WIRE (20614) TO FLAT TANG (20360) ON MAIN GEAR AXLE WITH SHACKLE (20320), CLEVIS PIN (10440) AND SAFETY RING (20310).

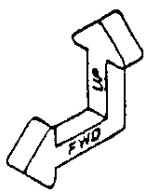
(B) REMOVE THE 'T' HANDLE PIN (10) FROM THE AFT KING POST (11). REALIGN THE AFT KING POST (11) WITH THE NEXT FORWARD HOLE IN THE KING POST CHANNEL TRACK (8B). RE-INSERT THE 'T' HANDLE PIN(10). CHECK THE TENSION ON THE UPPER AND LOWER WING WIRES.

NOTE: THE WIRE SETS SHOULD BE TIGHT, BUT NOT AS TIGHT AS A GUITAR STRING. THE NORMAL FINAL POSITION OF THE AFT KING POST (11) IS IN THE THIRD FORWARD HOLE IN THE AFT KING POST CHANNEL TRACK (8B). YOUR QUICKSILVER DEALER WILL ADJUST THIS DETAIL IN HIS FINAL INSPECTION.

WHEN THE WIRES ARE CORRECTLY TENSIONED, SECURE THE 'T' HANDLE PINS (10) WITH SAFETY RINGS (1).







Pt.	P.N.	Description.
1.	20310	Safety Ring.
6.		Root Tube.
7.		Forward King Post.
8A.		FORWARD KING POST CHANNEL TRACK
8B.		AFT KING POST CHANNEL TRACK
9.		King Post Bottom Fitting.
10.	10472	'T' Handle Pin.
11.		Aft King Post.

WINGS TO TRIKE ATTACHMENT (CONT.)

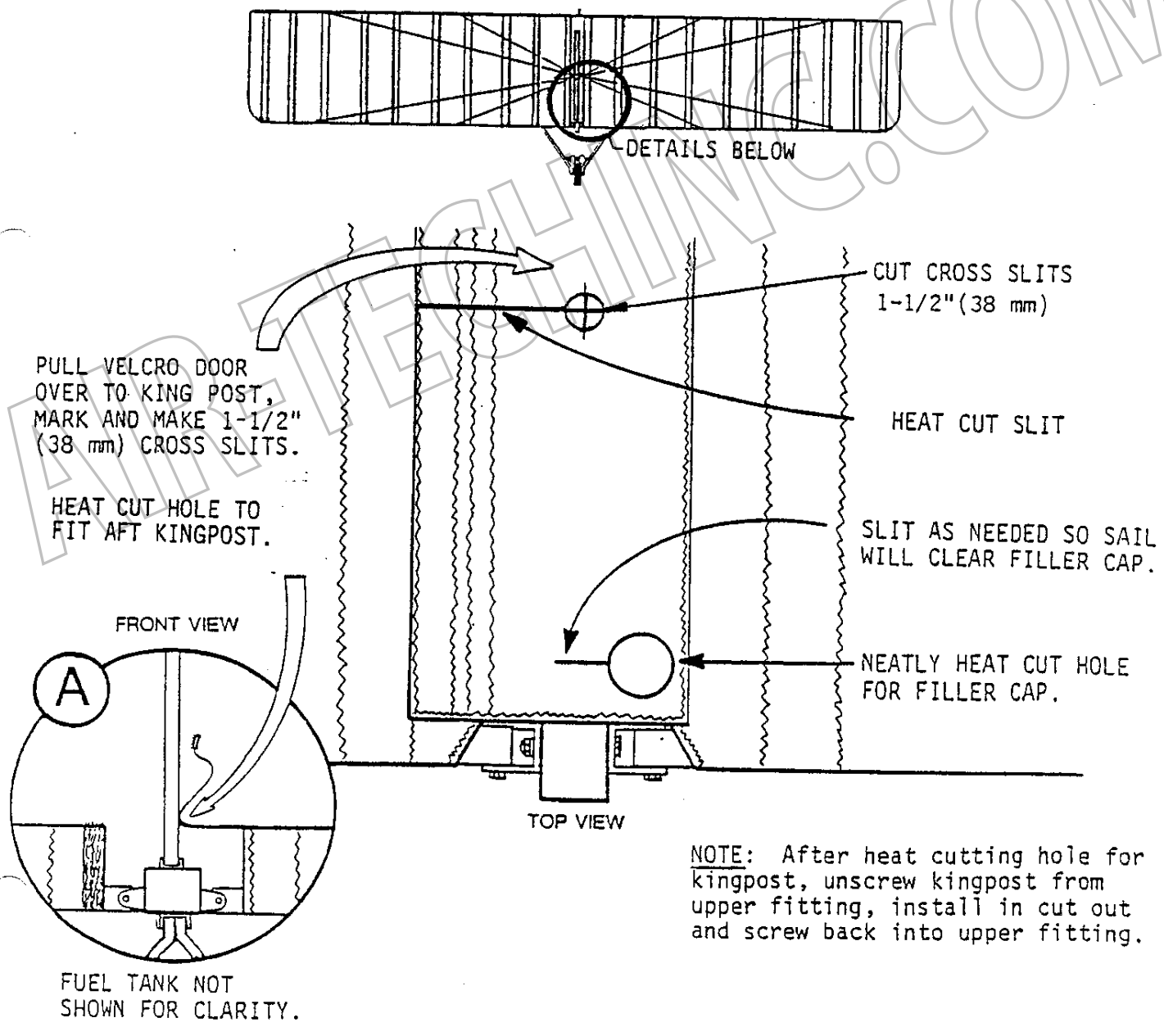
PLAN 'B'

1. SINCE THE AILERONS AND PROP HAVE NOT BEEN MOUNTED YET THE 'TRIKE' CAN BE TILTED BACK AND WINGS ATTACHED IN THIS CONFIGURATION. BE SURE TO REST PROP SHAFT ON A BLOCK OF WOOD OR CARDBOARD TO KEEP IT BEING DAMAGED FROM CONTACT WITH THE GROUND.
2. LAY EMPTY AIRFRAME BOARDS ON THE GROUND TO PROTECT WINGS FROM DIRECT CONTACT WITH THE GROUND. ATTACH WINGS TO ROOT TUBE. PROP UP WING TIPS AT THE TRAILING EDGE WITH THE SMALLER CARDBOARD BOXES IN YOUR KIT.
3. ATTACH THE UPPER WIRE SET TO THE KINGPOST ASSEMBLY. SECURE WITH CLEVIS PIN (10441) AND SAFETY RING (20310). INSTALL KINGPOST ASSEMBLY INTO FORWARD KINGPOST CHANNEL. SECURE WITH T-HANDLE PIN (10472) AND SAFETY RING (20310). INSTALL AFT END OF KINGPOST ASSEMBLY INTO AFT KINGPOST CHANNEL. SLIP T-HANDLE PIN (10472) INTO FARTHEST HOLE AFT. DO NOT INSTALL SAFETY RING YET.
4. RETURN THE 'TRIKE' TO THE UPRIGHT POSITION. ATTACH THE LOWER WING WIRES TO THE TRI-BAR CROSS TUBE VIA THE SHACKLES AND HARDWARE.
5. LAY 'TRIKE' DOWN AGAIN RESTING ON THE PROP SHAFT. DON'T FORGET THE WOOD OR CARDBOARD. USE YOUR FOOT TO SECURELY HOLD DOWN THE TRAILING EDGE SPAR ON EITHER SIDE OF THE ROOT TUBE. REMOVE T-HANDLE PIN FROM AFT CHANNEL.LIFT UP ON AFT KINGPOST ASSEMBLY AND ALIGN THE LOWER AFT KING POST FITTING WITH THE #7 HOLE.(SEE PAGE 'B' PAGE 9-7). A LARGE FLAT HEAD SCREWDRIVER MAY BE NECESSARY TO HELP ALIGN THE AFT KINGPOST FITTING HOLE WITH THE CORRESPONDING HOLE IN THE AFT KINGPOST CHANNEL. WHEN HOLES ARE ALIGNED INSERT T-HANDLE PIN AND SECURE WITH SAFETY RING.
6. HEAT CUT KINGPOST AND FUEL TANK LOCATIONS AS REQUIRED. (SEE PAGE 9-8).
7. YOU ARE NOW READY TO ATTACH THE TAIL SECTION TO THE 'TRIKE'.

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.

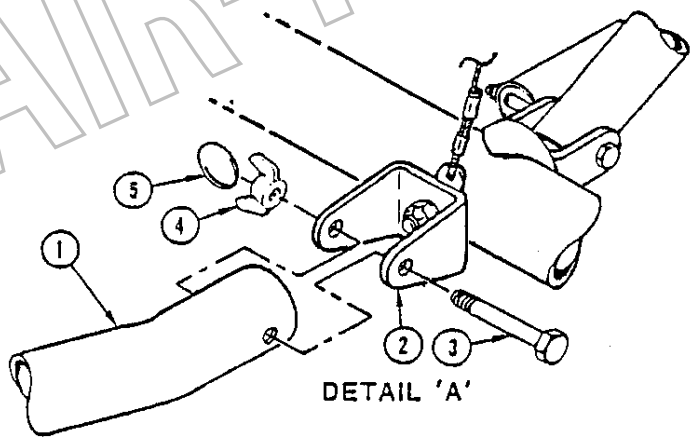
TAIL ASSEMBLY ATTACHMENT

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.

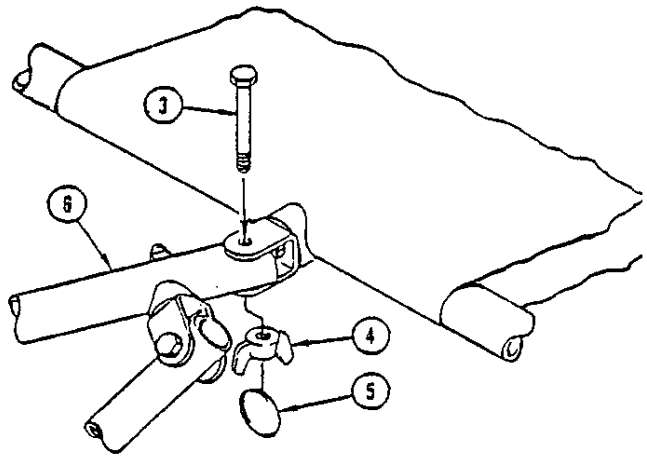
1. Refer to Detail 'A'. Move the completed tail assembly into position behind the trike and wings and insert the Lower Tail Booms (1) into their corresponding Channels (2) on the Axle. Secure with hardware (3,4,5) as shown.

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
7		Elev. Tube Clevis
8.	40178	Aft Elev. Push/Pull Tube
9.	10035	AN3-14A Bolt
10		3/16" Washer
11.	10500	3/16" Locknut
12		Elevator Control Arm
13.	10110	AN4-14 Bolt
14		1/4" Washer



DETAIL 'A'



DETAIL 'B'

SECTION 10
CONTROL SURFACES ATTACH AND ADJUST

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)

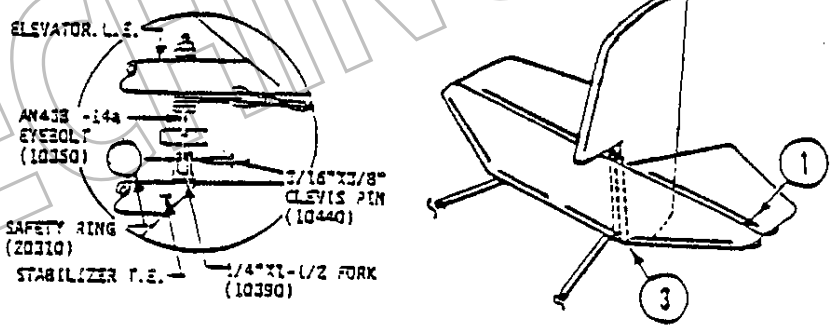
2. ROUTE BOTH RUDDER CABLES, LEFT (91113) AND RIGHT (91114), AFT THROUGH PULLEYS, OVER AXLE AND UP TO RUDDER. ATTACH RUDDER CABLE EXTENSION (91112) TO RIGHT RUDDER HORN WITH A AN3-6A BOLT (10015) AND HARDWARE (10550/10500). NEXT ATTACH RIGHT RUDDER CABLE TO RUDDER CABLE EXTENSION WITH CLEVIS PIN AND 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 CONTA ANY PART OF THE TRI-BAR, SEAT MOUNT, TELEFLEX, ETC. DURING OPERATION OF THE PEDALS. FINAL TIGHTEN THE CLAMPS AND PULLEYS.

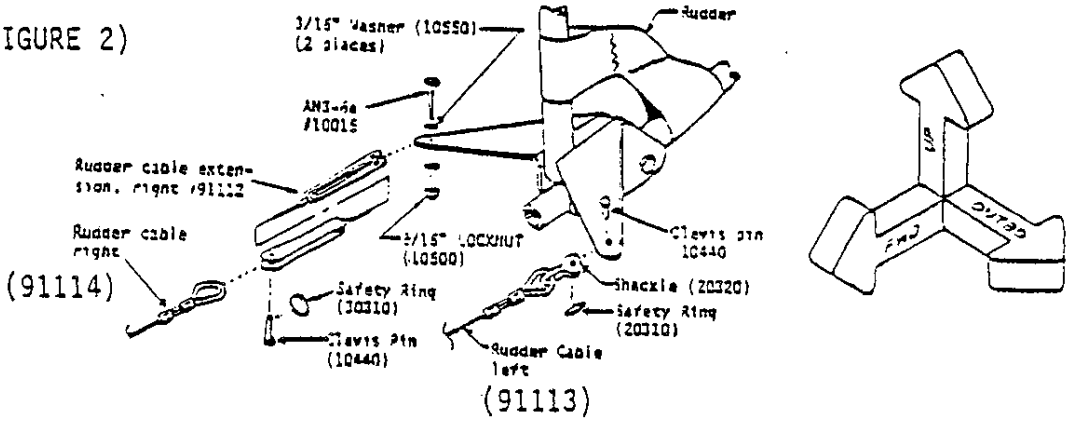
4. ADJUST THE LOCKNUTS ON THE AN43B-15A RUDDER CABLE EYEBOLTS (10371) UNTI BOTH OF THE PEDALS AND THE RUDDER ARE "NEUTRAL".

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

FIGURE 1

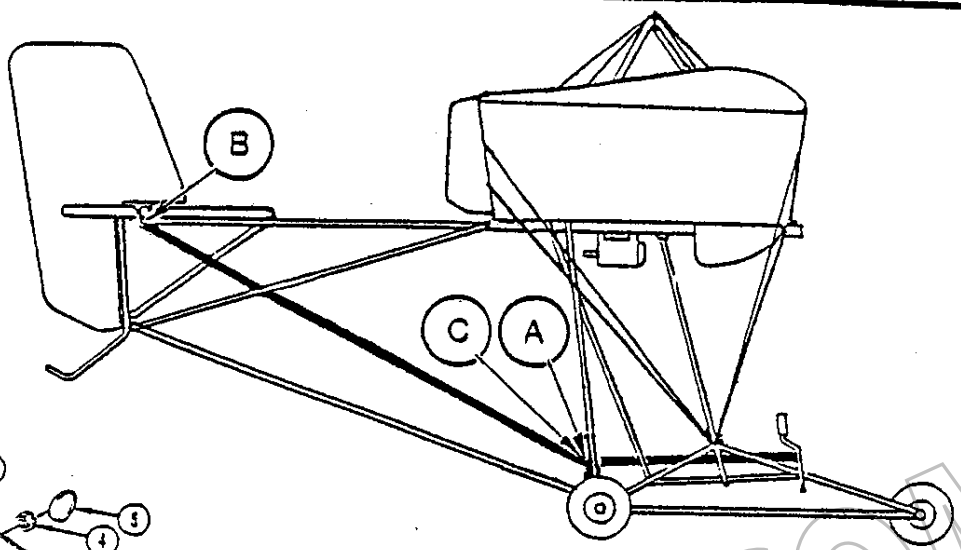


(FIGURE 2)

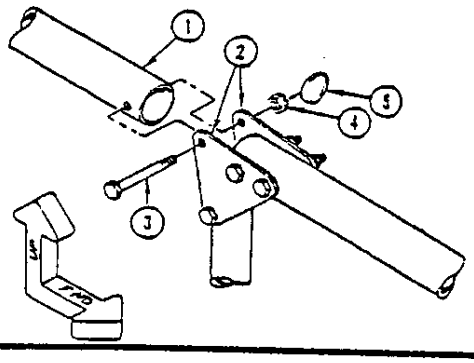


ELEVATOR AFT PUSH/PULL TUBE ATTACHMENT

REF. ONLY

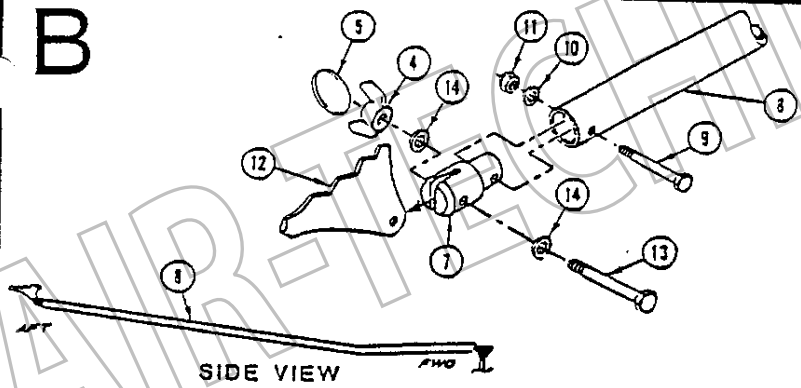


A



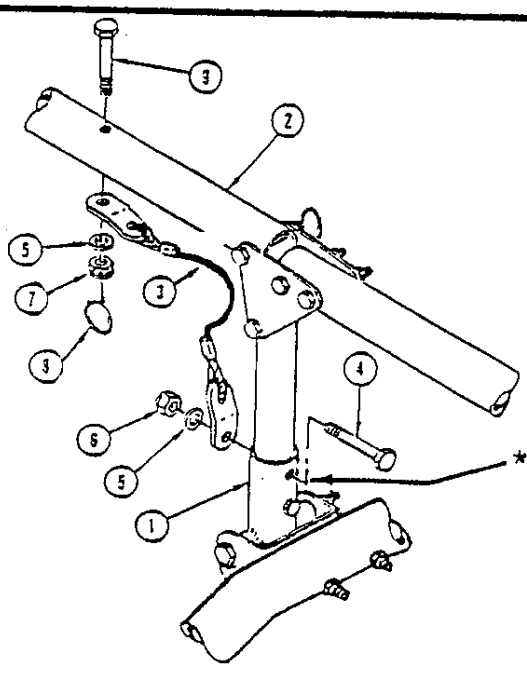
Pt.	P.N.	Description
1..	40178	Tube, Aft Elevator Push/Pull
2	70600	Teleflex Attach Bracket
3.	10042	AN3-13 Bolt
4.	10517	3/16" Castle Nut
5.	20310	Safety Ring

B



Pt.	P.N.	Description.
4.	10520	Wingnut, 1/4"
5.	20310	Safety Ring
7.	70190	Elev. Tube Clevis
8.	40178	Aft Elev. Push/Pull Tube
9.	10033	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

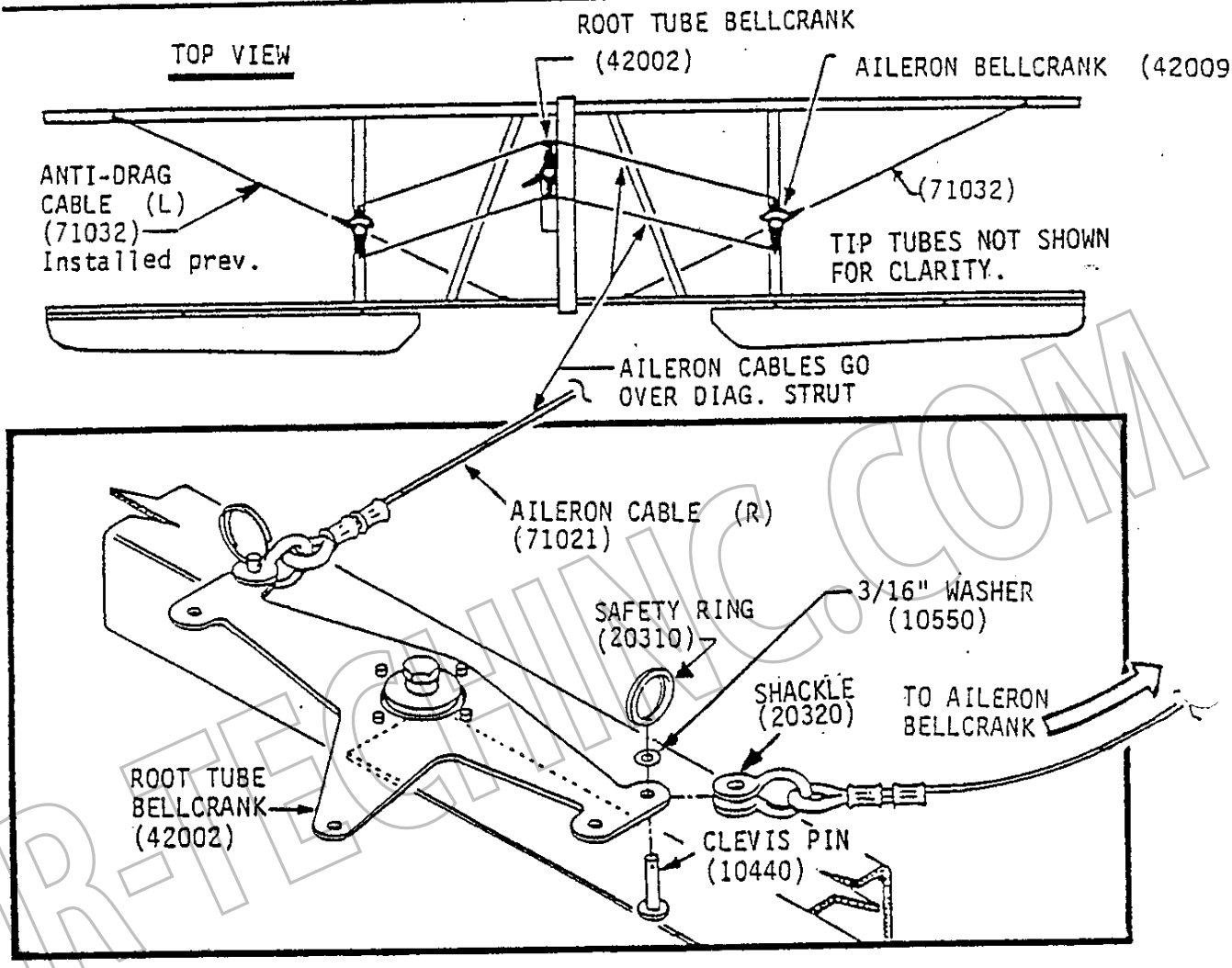
C



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).

AILERON CABLE ATTACHMENT



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

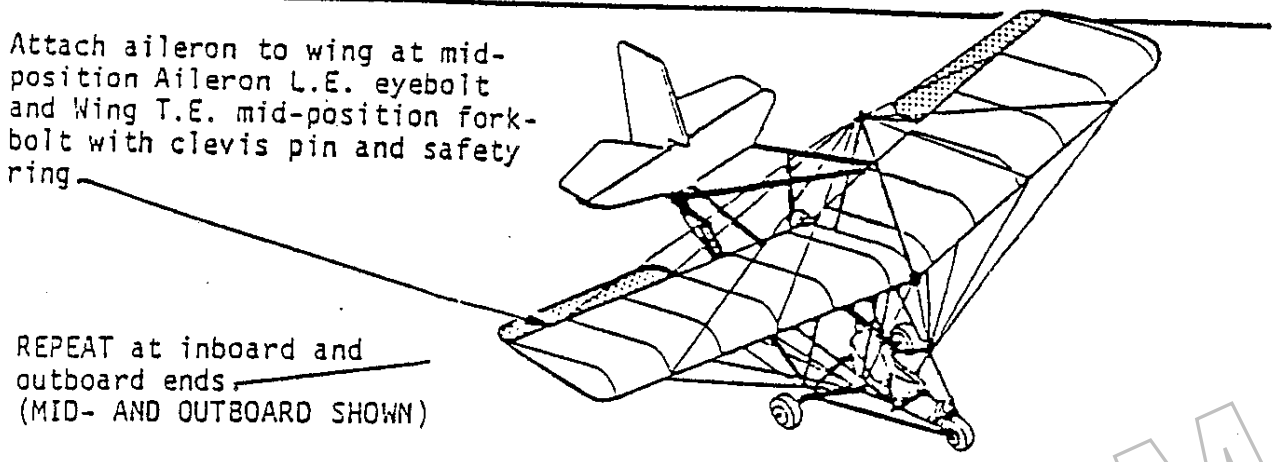
AILERON CABLE-RIGHT (71021)
AILERON CABLE-LEFT (71019)

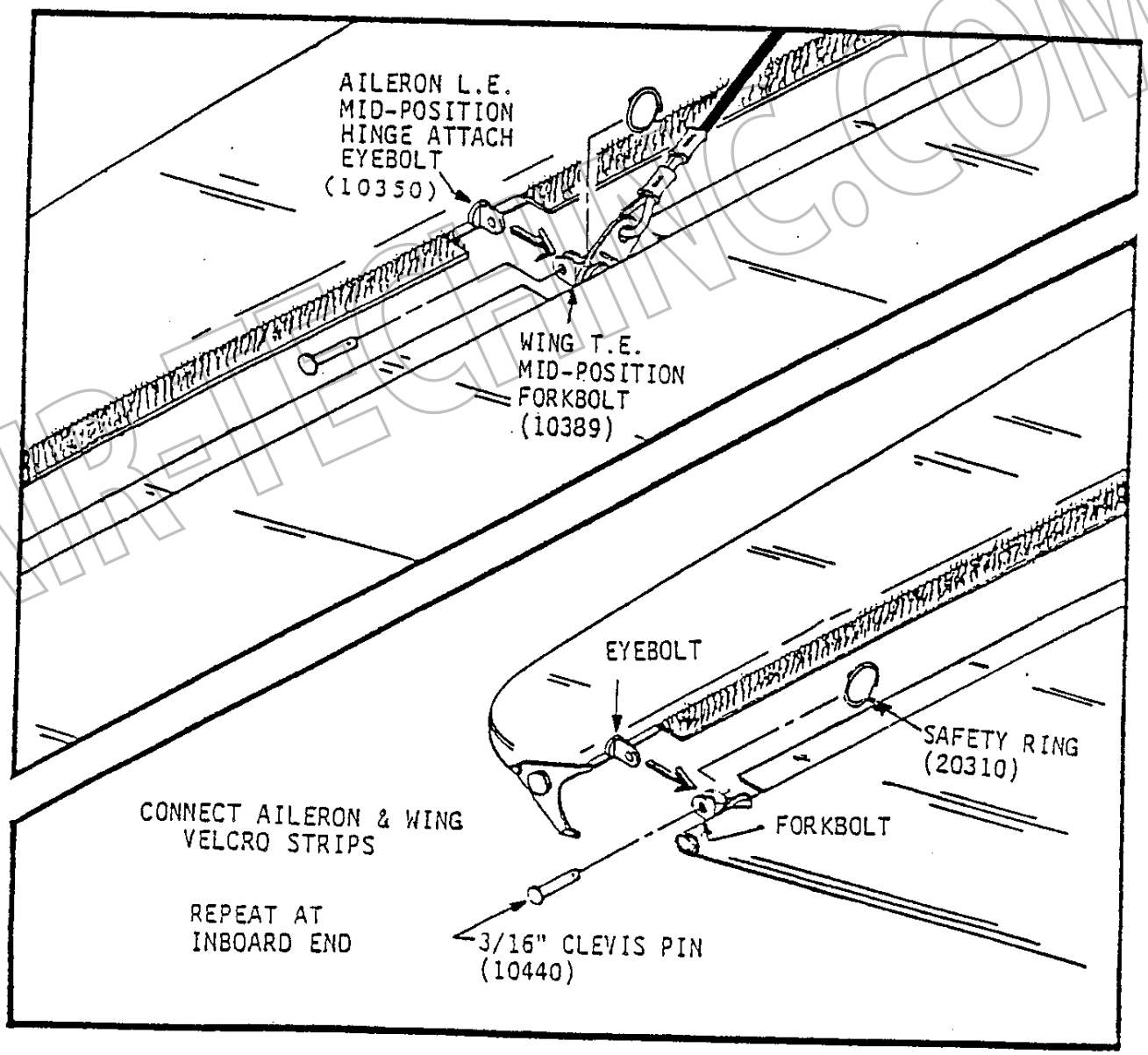
Uncoil cables hanging from Aileron Bellcrank. Pass them through wing surfaces (and over diagonal strut) to Root Tube Bellcrank.

"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

AILERON TO WING ATTACHMENT

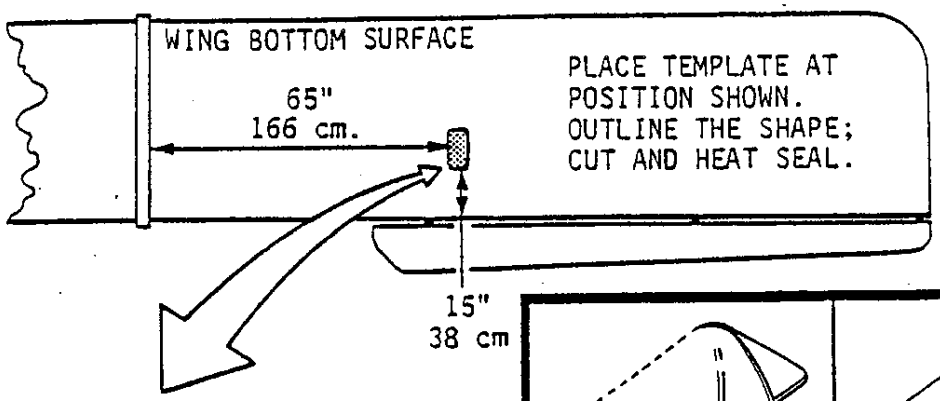




REPEAT ON OPPOSITE SIDE

AILERON INSTALLATION (CONT'D.)

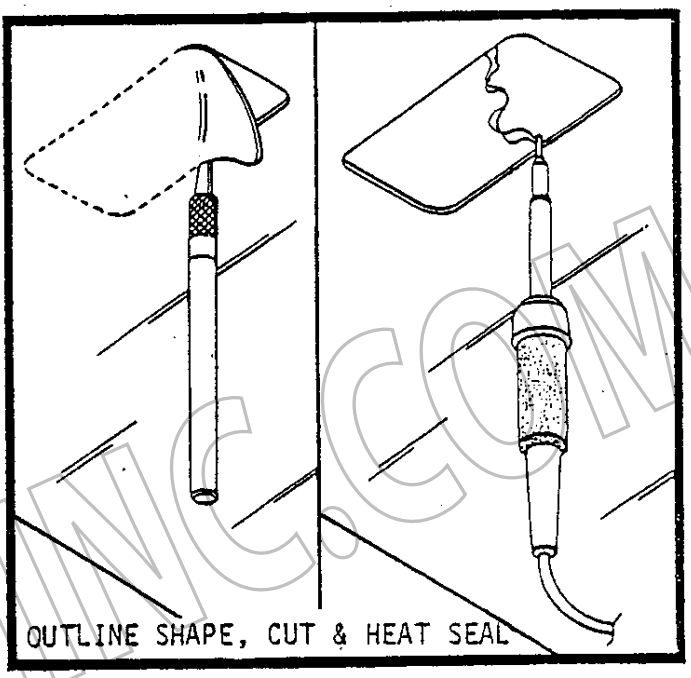
PUSHROD ASSEMBLY INSTALLATION



Measure distances sh
outboard from Root
and forward from
T.E. Mark and pl
template as shown.

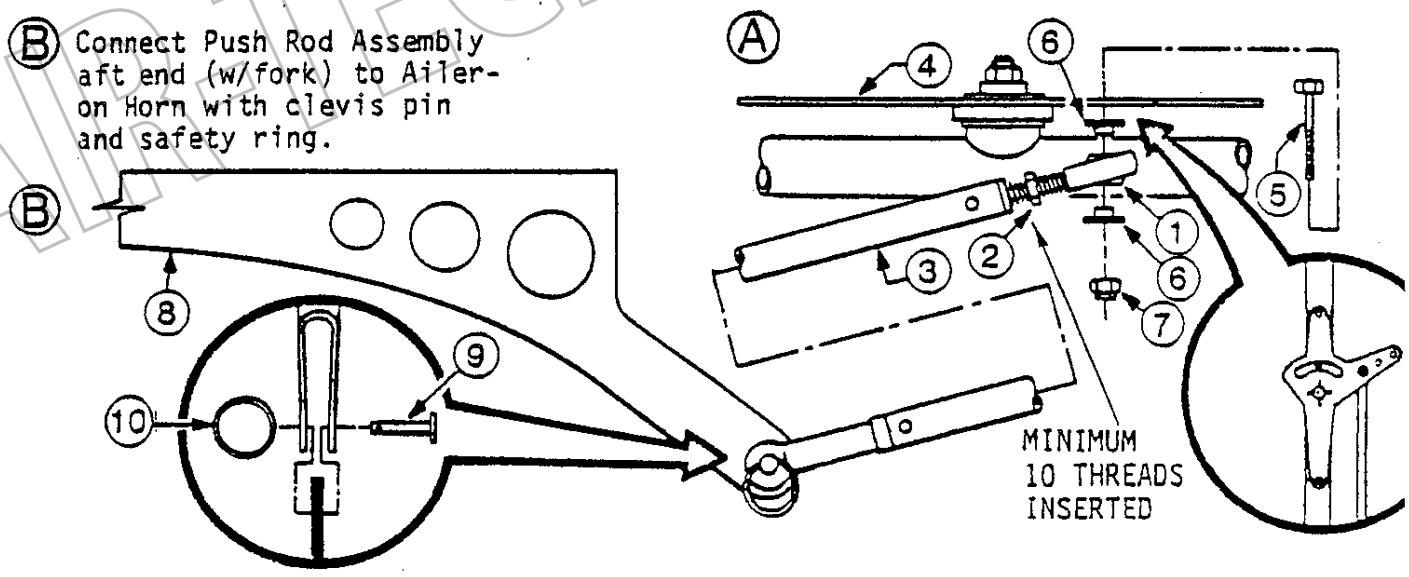
TEMPLATE "6"

← DO NOT USE! Refer to page 12-3 for full-scale template.



Ⓐ 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.

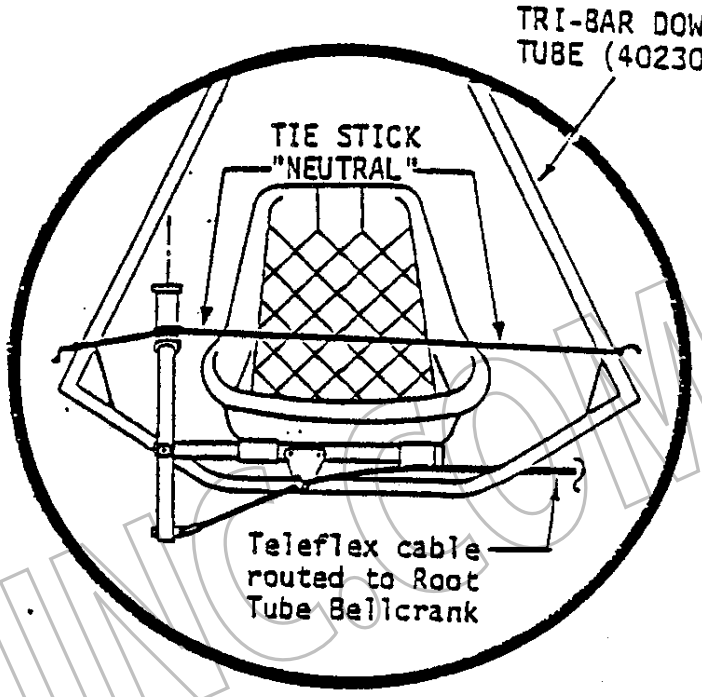


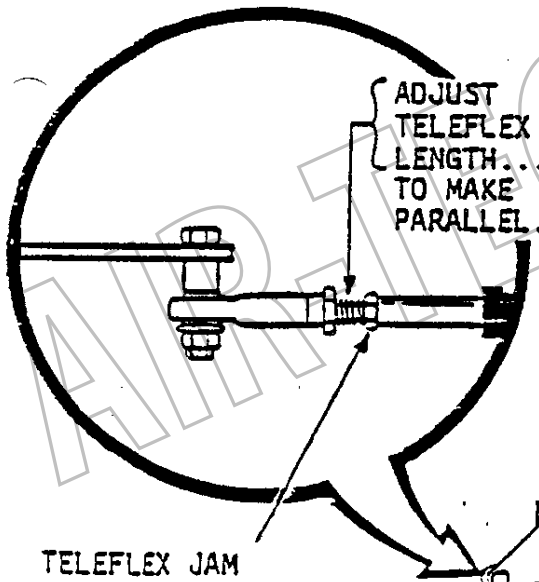
1).	10700	MALE ROD END BEARING	6).	20241	'T' BUSHING
2).	10631	1/4" JAM NUT	7).	10516	3/16" THIN LOCKNUT
3).	71022	PUSHROD ASSEMBLY	8).	71018	AILERON HORN
4).	42009	AILERON BELLCRANK	9).	10440	3/16" CLEVIS PIN
5).	10025	AN3-11a BOLT	10).	20310	SAFETY RING

REPEAT ON OTHER WING

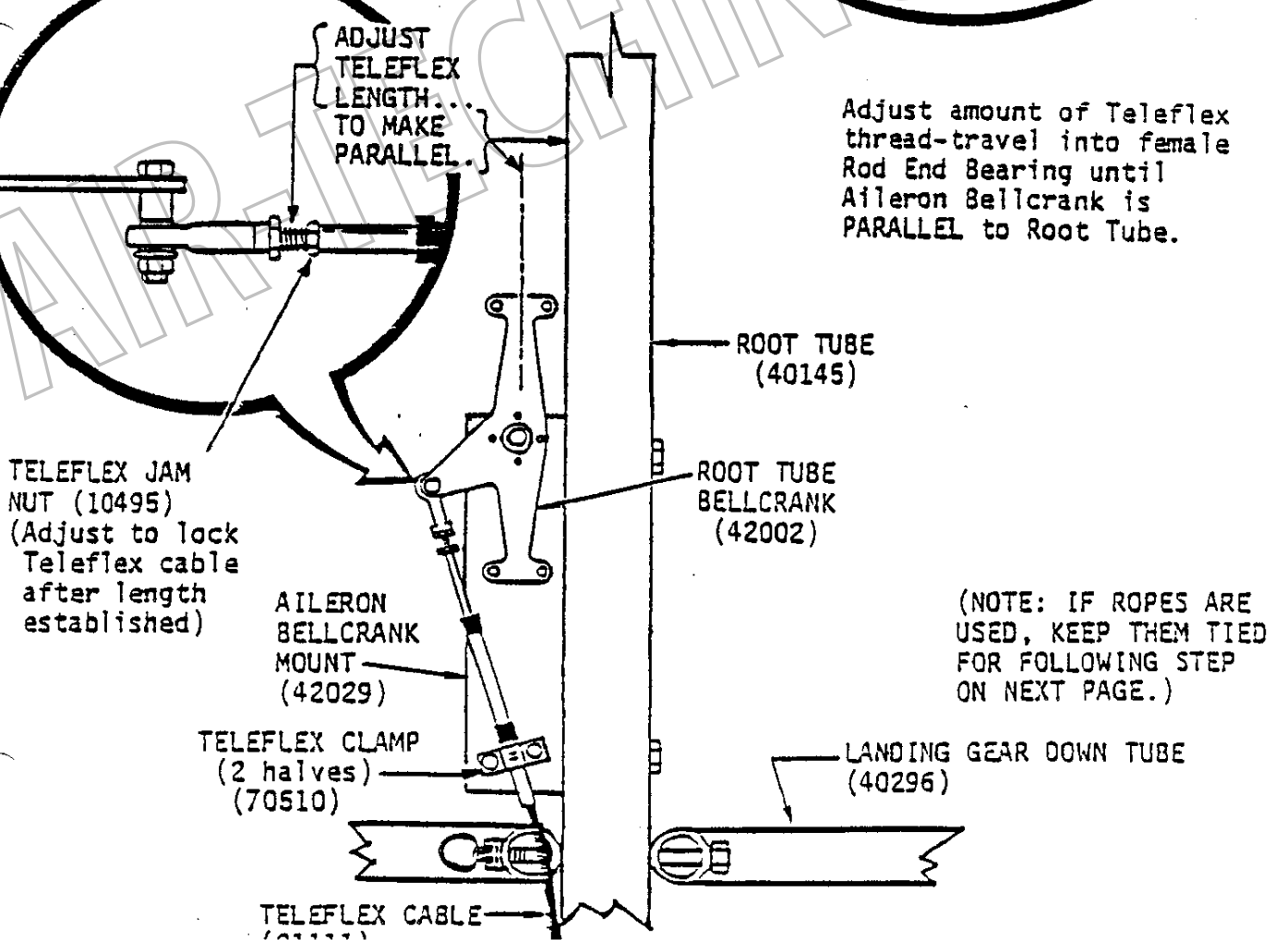
ROOT TUBE BELLCRANK/TELEFLEX ADJUSTMENT

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





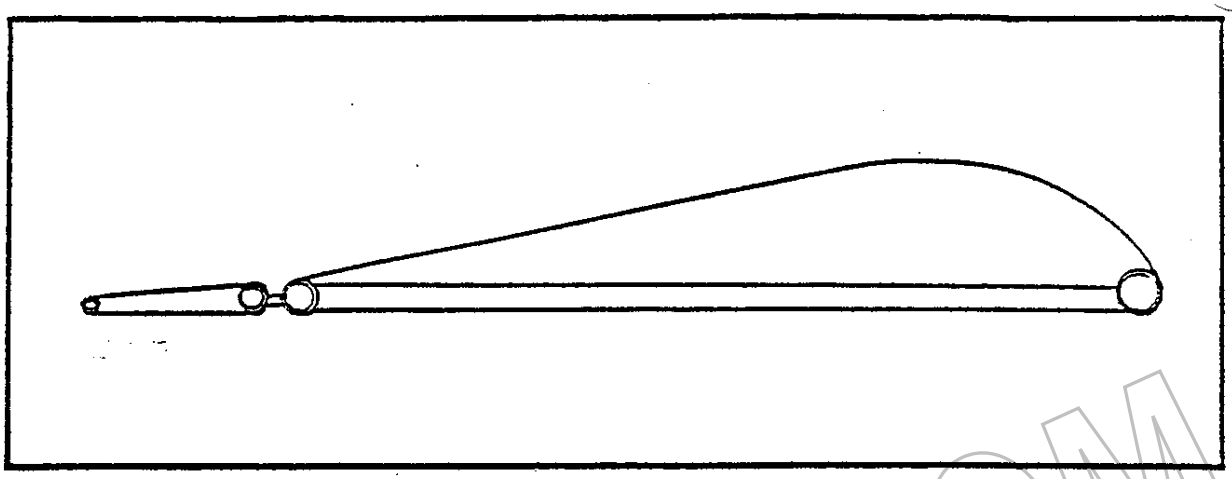
Adjust amount of Teleflex thread-travel into female Rod End Bearing until Aileron Bellcrank is PARALLEL to Root Tube.



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

AILERON DEFLECTION ADJUSTMENT

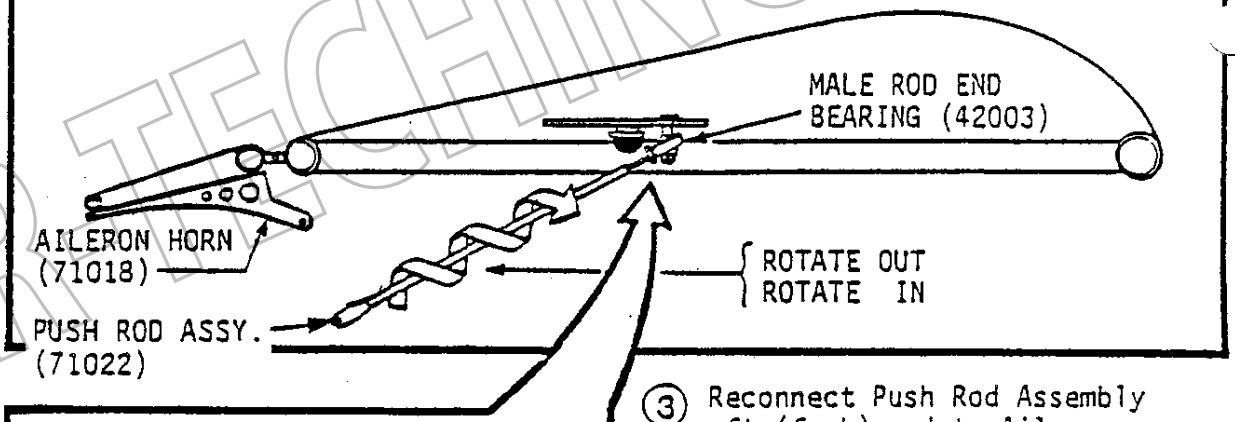
1



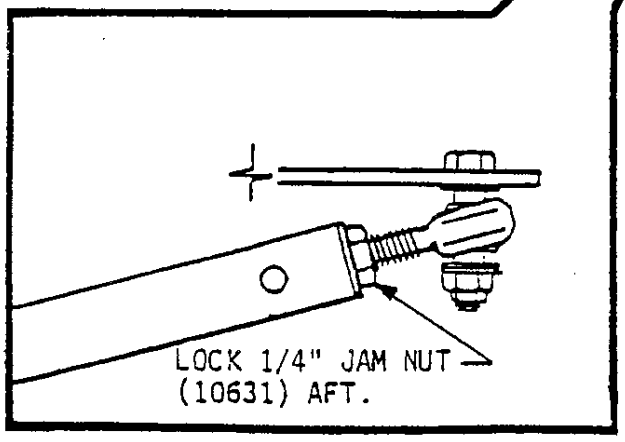
BEGIN WITH STICK HELD "NEUTRAL". INITIALLY, AILERONS MAY BE DEFLECTED UP OR DOWN. PURPOSE: TO ADJUST AILERONS TO 0 DEGREES OF DOWN DEFLECTION FROM BELLCRANK COMPRESSION STRUT OR UNTIL THE MALE ROD END BEARING BOTTOMS OUT COMPLETELY.

2

NOTE: PUSH ROD ASSEMBLY MUST HAVE A MINIMUM OF 10 THREADS OF ROD END BEARING INSTALLED.



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

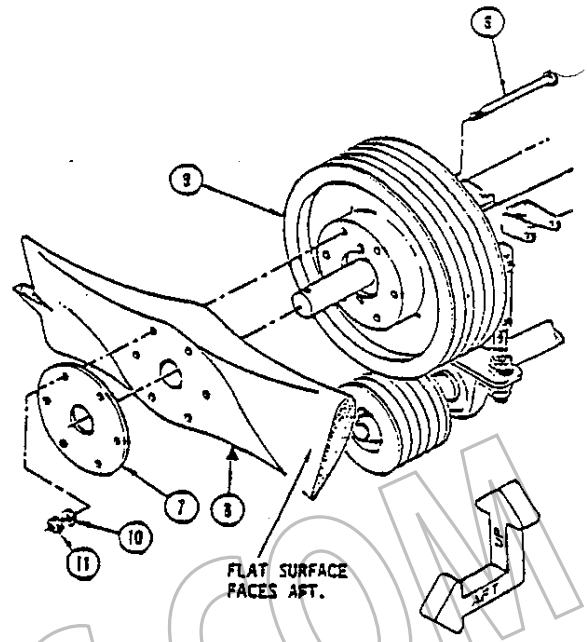
PROPELLER ATTACHMENT

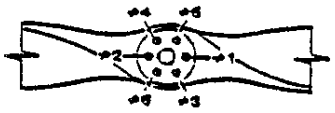
** CAUTION - To insert the Propeller Bolts in STEP you will need to rotate the Propeller & Pulley to access each bolt hole. Disconnect the Spark Plug Wires before beginning. **

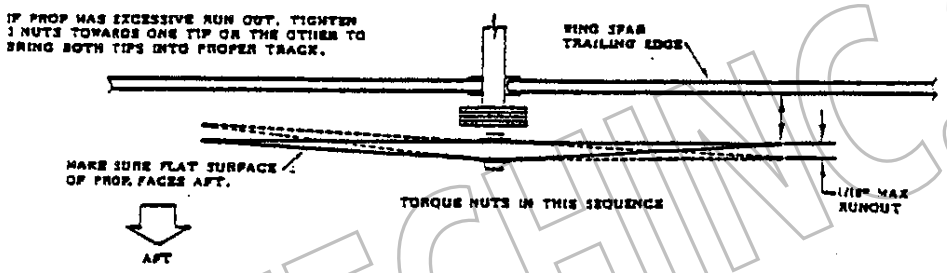
. Slide the Propeller (8) onto the Prop Shaft and align the holes in the Pulley (9) with the Propeller (8). Install six Propeller Bolts (6), one at a time, thru the Pulley (9) and Propeller (8). Add the Backing Plate (7) and the Hardware (10,11) to each Bolt (6) and Tighten in sequence - as shown - until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

. Track the Propeller using method detailed below .

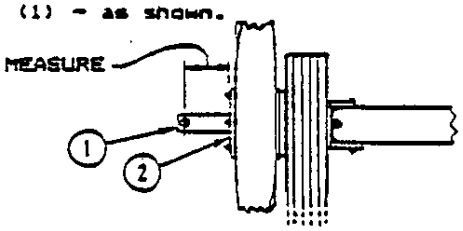
6.	10237	AN4-44A BOLT
7.	45852	Prop Backing Plate
8.	30348	Propeller 66 x J4
9.	60179	Pulley, 8" 5 groove
10.	10560	1/4" Washer
11.	10510	1/4" Locknut







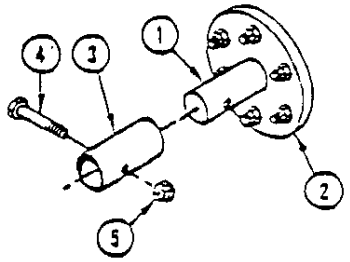
1. Measure along the Prop Shaft (1) the distance between the AFT SIDE of the Propeller Face Plate (2) and the center of the existing 5/16" hole in the Prop Shaft (1) - as shown.



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	AN3-13a Bolt.
5.	10540	5/16" Locknut.

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.

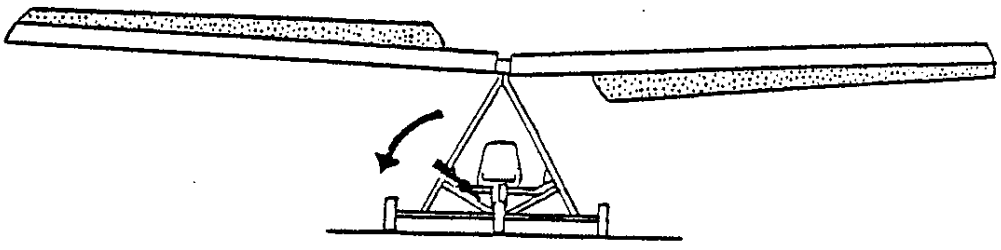
PROPER LUBRICATION OF BEARINGS PREVENTS EXCESSIVE WEAR OF PARTS, PROTECTS BALL RACES, BALLS, ETC. FROM CORROSION AND HELPS IN DISSIPATING INTERNAL HEAT.

USE SPECIFIED LUBRICANT ONLY!

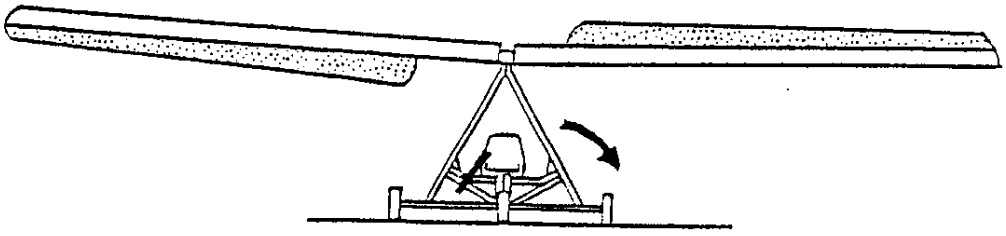
USE ONLY A LUBRICANT CONFORMING TO A NLGI GRADE II CONSISTENCY, IDEALLY A LITHIUM BASED LUBRICANT.

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.

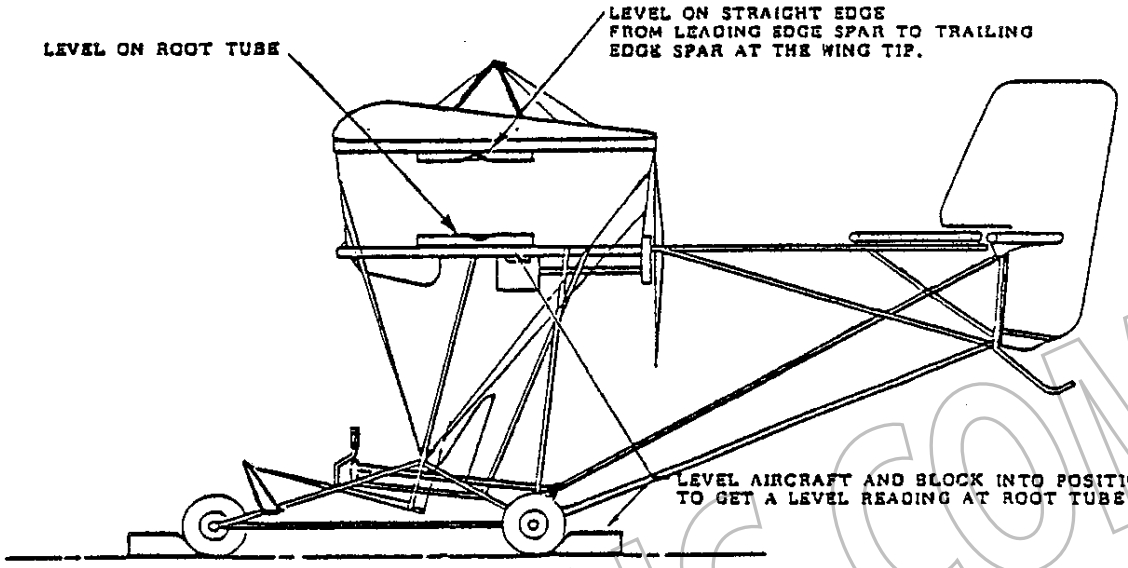


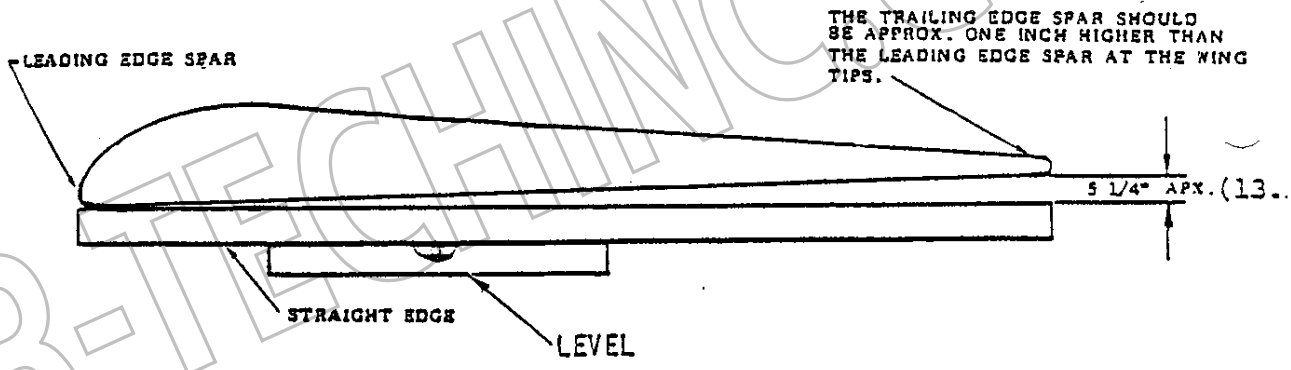
FRONT VIEW



FRONT VIEW

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.

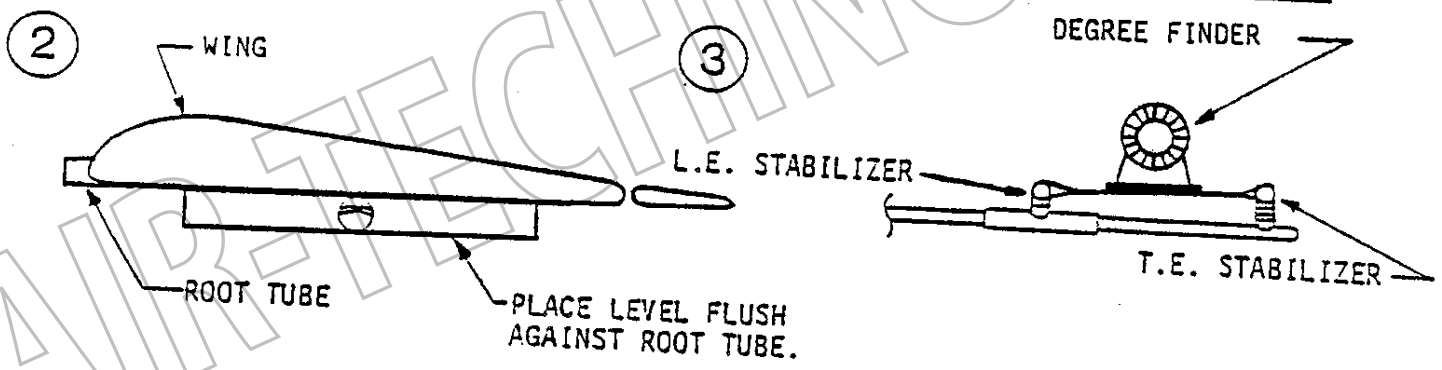
WING/STABILIZER INCIDENCE

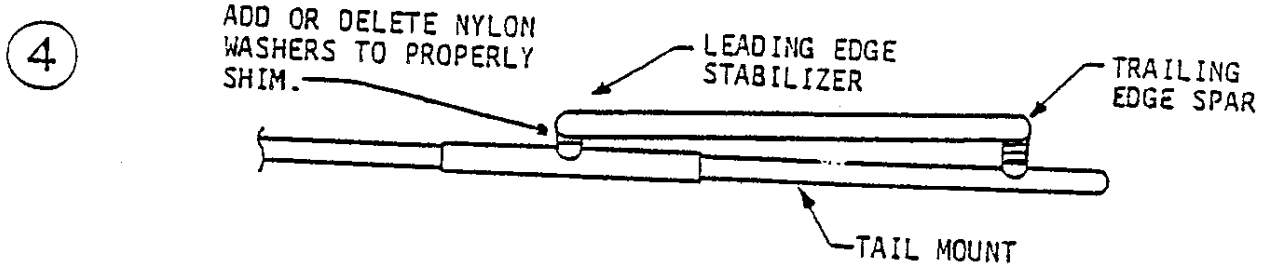
PLACE LEVEL ON THE ROOT TUBE AND BLOCK UP THE MAIN AXLE UNTIL THE ROOT TUBE IS LEVEL.

PLACE AN ANGLE METER (DEGREE FINDER) ON TOP OF THE FLAT SURFACE OF THE STABILIZER AS SHOWN IN FIG.3. THE STABILIZER LEADING EDGE SHOULD BE SLIGHTLY LOWER THAN THE TRAILING EDGE. THE DIFFERENCE BETWEEN THE ROOT TUBE SHOULD BE MINUS ONE DEGREE (-1.0) FOR A PILOT OF AVERAGE WEIGHT. THE ALLOWABLE TOLERANCE FROM THIS MEASUREMENT IS PLUS OR MINUS ONE DEGREE OR FROM -2.0 TO 0.0 DEGREES.

DO NOT NEGLECT THIS PROCEDURE. IT HAS AN EFFECT ON FLIGHT CHARACTERISTICS.

THE ILLUSTRATION BELOW SHOWS INCIDENCE ADJUSTED FOR AVERAGE PILOT WEIGHT.





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.

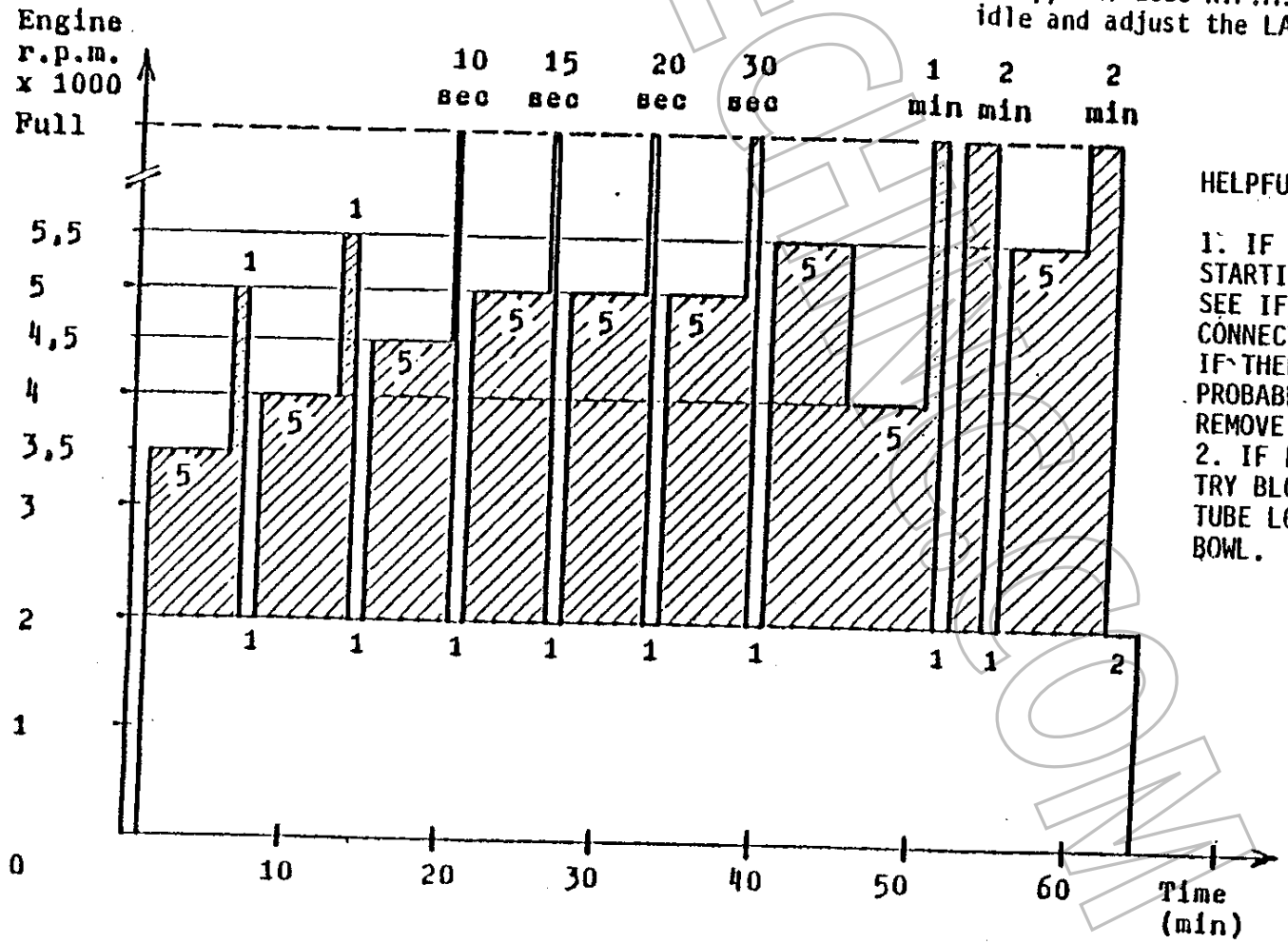
Use the graph below for break-in time/R.P.M.
Use a BIA TCW rated oil with the fuel.
The FUEL to OIL mixture ratio should be 50 to 1.
(ENGLISH) 5 gal. FUEL to 12.8 oz. OIL
(METRIC) 20 liters FUEL to 400 milliliters OIL.

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.



HELPFUL SUGGESTIONS:

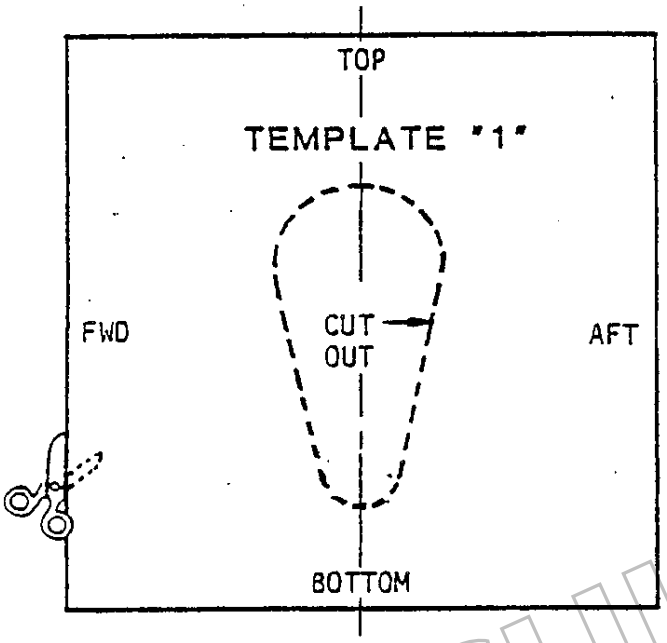
1. IF YOU EXPERIENCE DIFFICULTY STARTING YOUR ENGINE CHECK TO SEE IF THERE IS FUEL IN THE LINE CONNECTED TO THE PULSE FITTING. IF THERE IS FUEL DETECTED YOU'VE PROBABLY FLOODED THE ENGINE. REMOVE PLUGS AND DRY THEM.
2. IF ENGINE IS SLOW STARTING TRY BLOWING INTO EITHER OVER-FLOW TUBE LOCATED IN THE CARB FLOAT BOWL.

SECTION 12
TEMPLATES AND PATTERNS

TEMPLATES

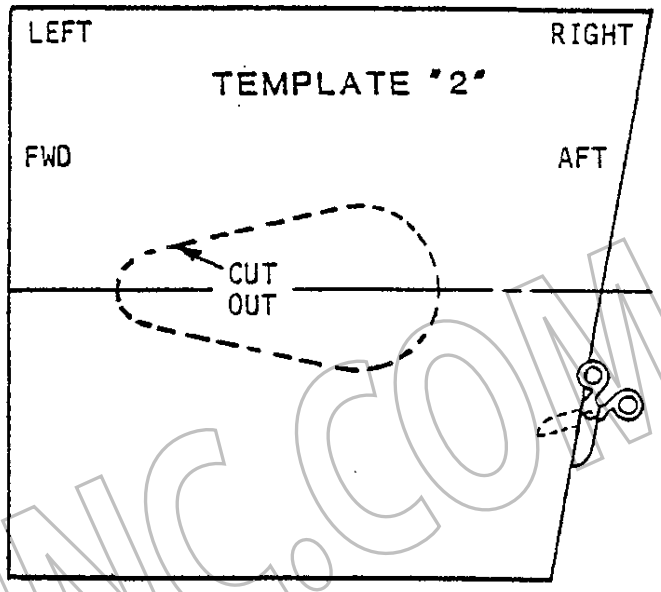
RUDDER TEMPLATES

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



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

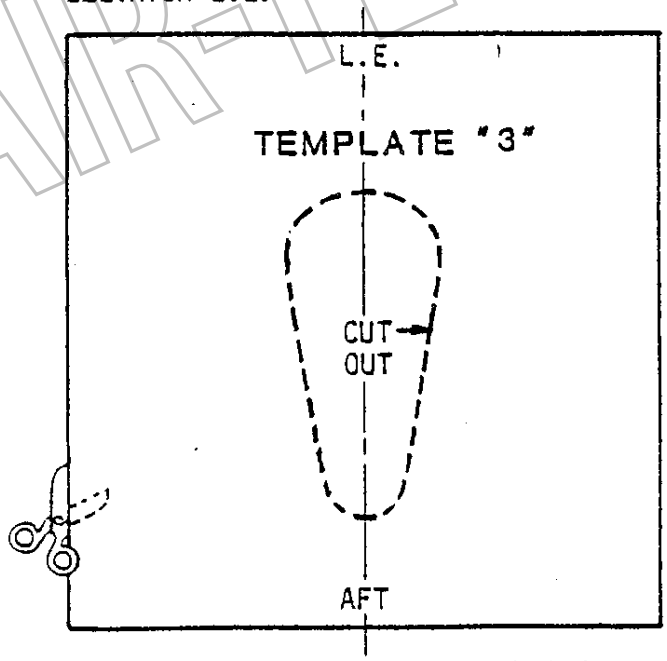
PLACE RIGHT SIDE OF TEMPLATE IN LINE WITH RUDDER FRAME T.E.



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

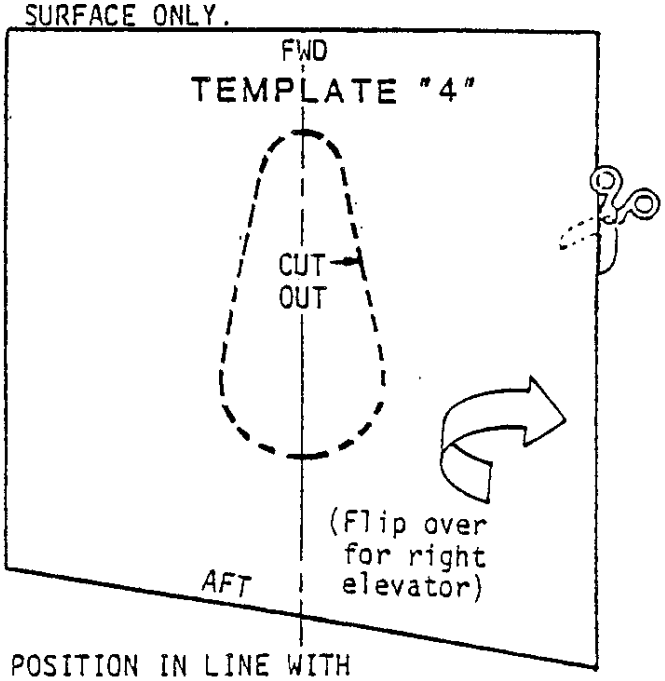
ELEVATOR TEMPLATES

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.



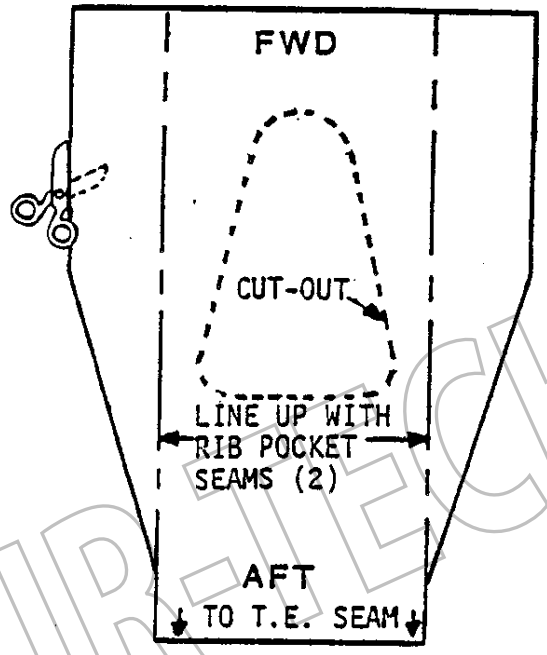
POSITION IN LINE WITH CENTERLINE OF ELEVATOR STRUT (BOTH SIDES).

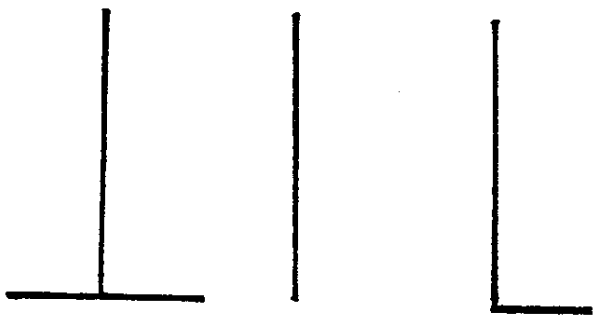
TEMPLATES FOR RIB INSERT SLOT AND PUSH ROD ASSEMBLY

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

TEMPLATE "5"

RIB INSERTION SLOT



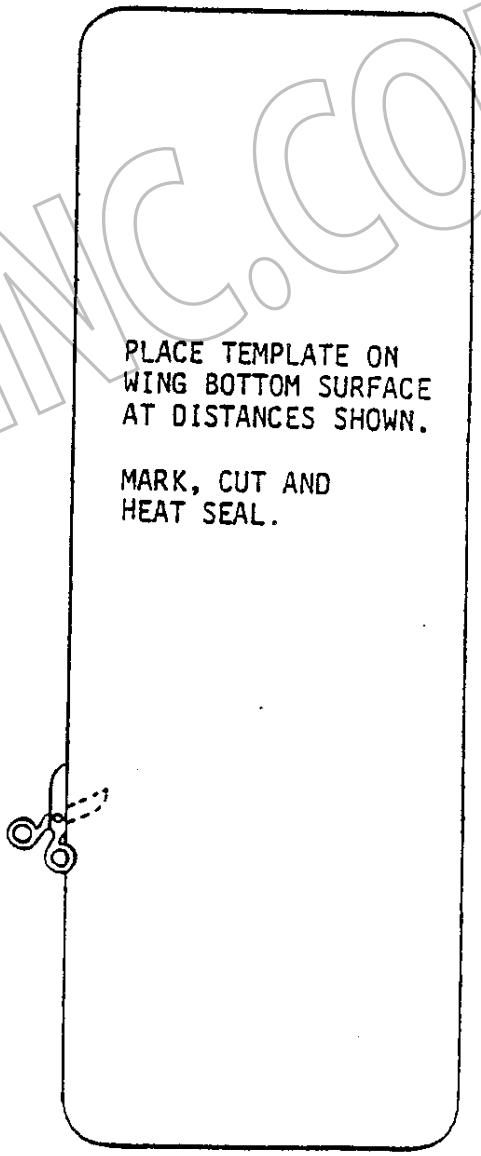


NOTE

EITHER OF THESE RIB INSERTION SLOTS ILLUSTRATED MAY BE SUBSTITUTED FOR THE RIB INSERTION SLOT TEMPLATE #5 ABOVE IF YOU HAVE HAD ANY PREVIOUS EIPPER/QUICKSILVER CONSTRUCTION EXPERIENCE.

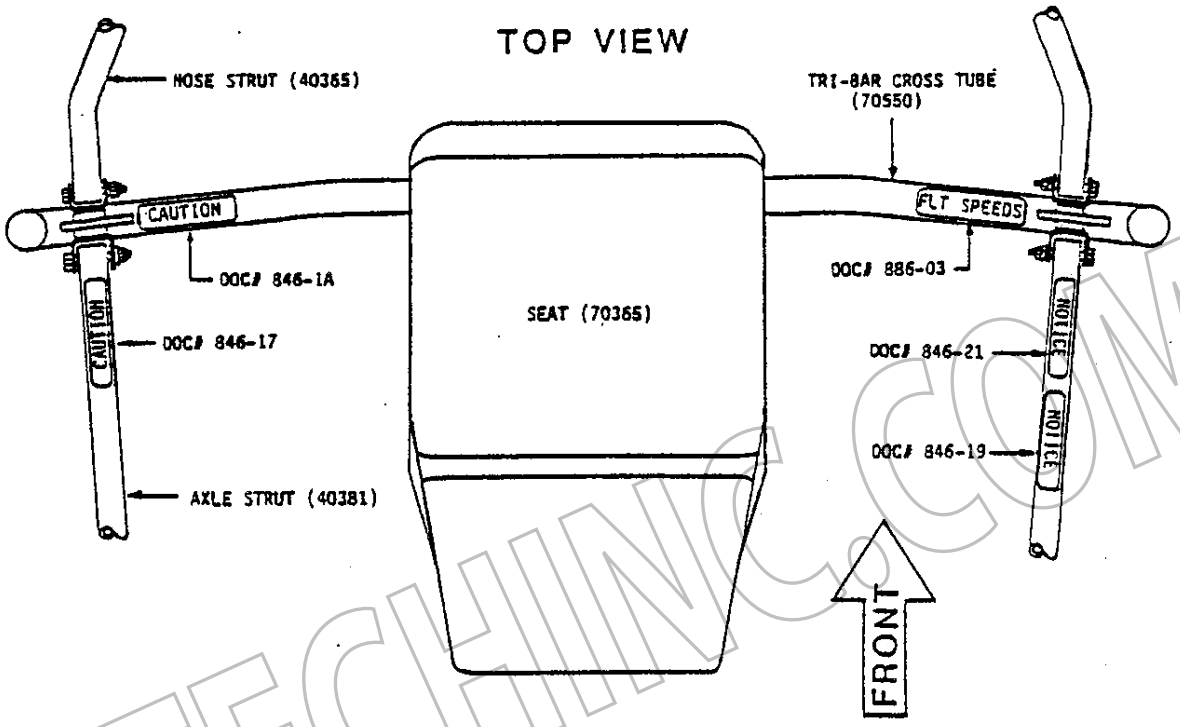
TEMPLATE "6"

PUSH ROD ASSEMBLY INSERT SLOT



SECTION 13
DOCUMENT / LABEL PLACEMENT

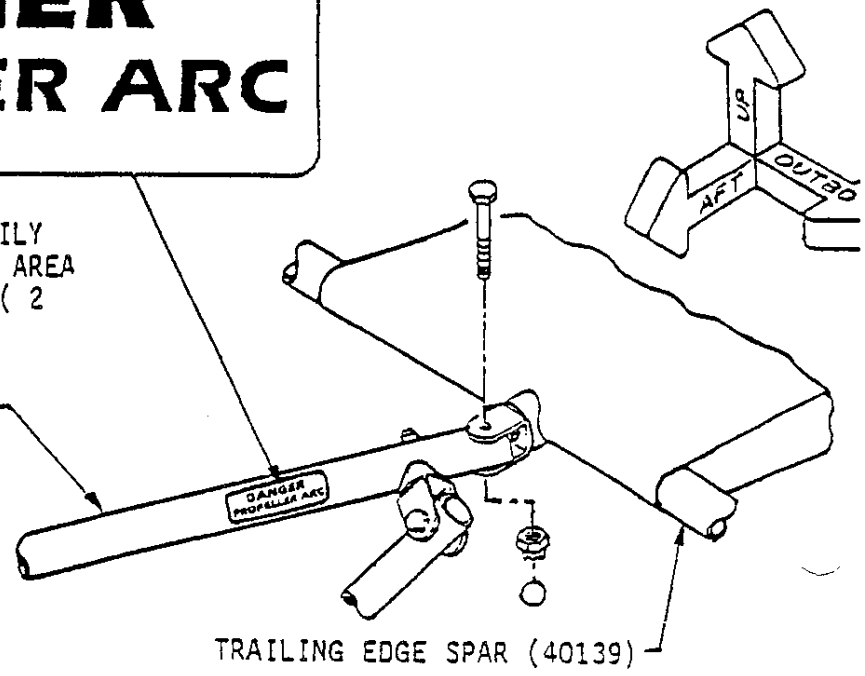
DOCUMENT / LABEL PLACEMENT



DANGER
PROPELLER ARC

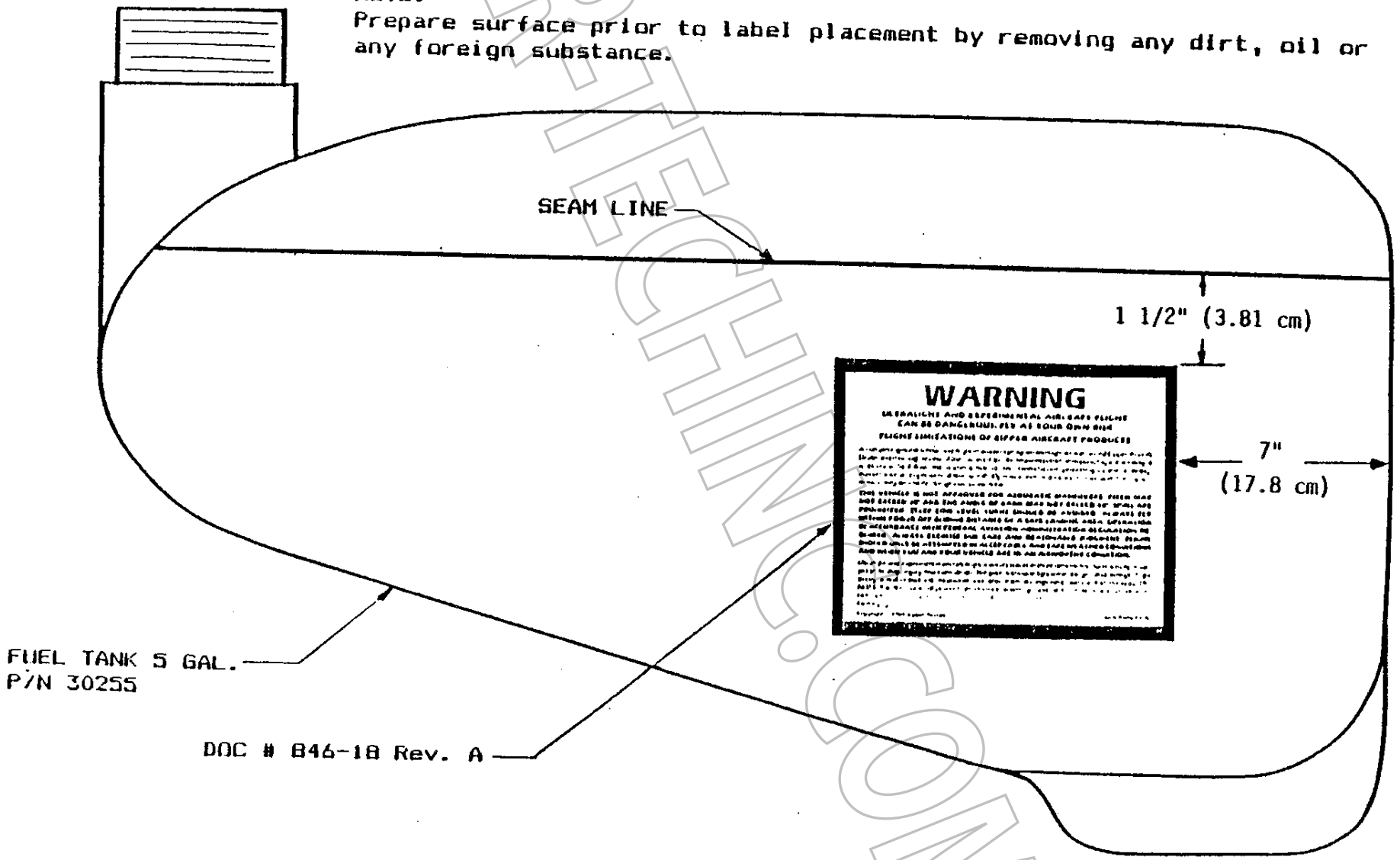
(50420-05)

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



WARNING LABEL / DOCUMENT PLACEMENT

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



SIDE VIEW