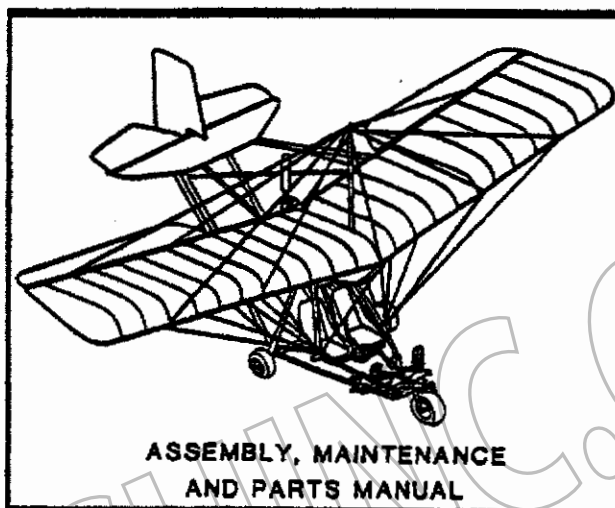


QUICKSILVER
THE ORIGINAL

MXL III
Sport



QUICKSILVER
ENTERPRISES, INC.
A Public Corporation

World's Largest Manufacturer of Recreational Aircraft and Vehicles

Model Year _____

Serial # _____

Engine # _____

Registration # _____

Airworthiness Category _____

Airworthiness Certificate # _____

This manual includes the material required to be furnished
by the AIR NAVIGATION ORDERS PART 101, DEPARTMENT OF
TRANSPORT AND COMMUNICATIONS, COMMONWEALTH OF AUSTRALIA.

Approving Agency Signature _____

DATE _____

AIR-TECHINC.COM

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. Your 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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INTRODUCTION

This manual is designed to provide the MXL II SPORT pilot and/or owner with Aircraft descriptions, data, Assembly Instructions, maintenance procedures, maintenance schedules, service, handling and Airworthiness Limitations in order to operate and maintain the MXL II SPORT in reasonable and proper manner.

Section 1 is the MXL II SPORT Basic Aircraft Information and Data.

Sections 2-13 are the Initial Assembly Instructions, and Basic Maintenance and Service Disassembly and Reassembly instructions. These sections also are to be used for Replacement Part identification and specific part descriptions.

Section 14 is the Basic Maintenance Instructions with maintenance schedules. It also includes information on Aircraft Handling and Service.

Section 15 is the Airworthiness Limitations.

*****IMPORTANT NOTICE*****

The preceding page is the revision form to record all revisions and amendments. Upon receiving revisions and amendments remove obsolete pages and insert new pages where applicable.

**YOUR QUICKSILVER KIT HAS BEEN SHIPPED WITH ALL
THE PARTS NECESSARY TO COMPLETE ITS CONSTRUCTION.**

**IT IS RECOMMENDED THAT YOU READ THE FOLLOWING
ASSEMBLY INSTRUCTIONS IN ITS ENTIRETY
BEFORE BEGINNING CONSTRUCTION
OF YOUR AIRCRAFT KIT.**

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INTRODUCTION

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CONSTRUCTION NOTES
-----**GENERAL NOTES**

Note that this Aircraft is NOT an Ultralight in the United States and does not conform to the definitions of the Federal Aviation Regulation (FAR) Part 103. Contact the Experimental Aircraft Association (EAA) DIRECTLY in Oshkosh, Wisconsin on how to obtain a copy of the "EAA Custom-Built Sport Aircraft Handbook" for information on Aircraft inspection and registration procedures under (FAR) Part 21, Part 47 and Part 91. Outside the U.S.A. refer to local Aviation Authorities.

This manual clearly describes and illustrates the assembly of the QUICKSILVER MXL II Sport Aircraft, the sub-assembly 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 Assembly into position, alignment or leveling of some items, inserting the Wing Ribs, and attaching the Powerplant, adjusting the Brakes, etc.

Assembly of your QUICKSILVER Aircraft can easily be accomplished in 85 hours for the first time builder and considerably less for an experienced QUICKSILVER builder. Although accuracy and thoroughness are factors more important than time spent constructing your Aircraft. Care and patience will be rewarded by better control response, higher reliability and greater confidence in your Aircraft.

Whenever possible, the Assembly Illustrations are shown in the relative positions the Aircraft will be in when you are working on it, such as nosedown, wing inverted, or upright, unless stated on the Illustration.

GETTING READY

Before starting, inventory and inspect the parts comprising the Aircraft Kit, and assemble the tools required. Refer to 'BASIC TOOLS REQUIRED FOR ASSEMBLY' on Page 1-14).

CONSTRUCTION NOTES (CONT'D.)**WIRES**

Untwist ALL Wires BEFORE making a Final Attachment. A twisted Wire is more prone to jamming or twisting a Wire Thimble during Field Assembly of your Aircraft. However, there are exceptions where Wire twisting is allowed before Final Attachment to 'fine tune' the exact length necessary for proper attachment.

BOLTS

'AN' quality Bolts are used throughout the construction of this Aircraft for structural integrity. To determine proper sizes, use the 'AN BOLT GAUGE' on Page 1-5 for reference. Refer to Page 1-7 for 'TORQUE SPECIFICATIONS'. Before securing ALL Bolts verify the grip length is correct. After using Washers if illustrated, AT LEAST ONE BOLT THREAD SHOULD EXTEND PAST THE LOCKNUT (THREE THREADS ARE PREFERRED). One or more Washers may be added to prevent the Bolt from 'bottoming out' before producing a snug fit. Generally, a Washer is installed to prevent the Nut from turning and digging into the aluminum or steel part. It is much easier to replace a Washer than a scored or damaged part.

ESSENTIAL: Particular care is necessary during Bolt tightening. Bolts which pass through Tubes without solid internal support should NEVER be overtorqued. When a Nut, Shoulder Bolt Head, or Washer is in contact with a Tube, notice that very little wrench pressure will begin to distort the Tube walls. This is TOO TIGHT. Back off the Nut to allow the Tube to regain its shape. BE PARTICULARLY CAREFUL when installing ALL Grade 5 Bolts, Forkbolts and Eyebolts in the Wing and Aileron Spars. DO NOT OVER TORQUE AND DISTORT THE TUBE OR SPAR. Refer to Page 1-9 for the 'CORRECT TORQUE PROCEDURE'.

NUTS

ALL Non-Locking Nuts, Locking Nuts and Bolts should be clean and dry before installation. Threads should NEVER be oiled. ALL Non-Locking Nuts and Locknuts should be properly torqued (EXCEPT CASTLENUTS). Bolts with damaged threads and rough ends should not be used. When tightening Castle Nuts onto Bolts, the Cotter Pin or Safety Holes may not line up with the slot in the Castle Nuts when the proper torque is reached. Back off to the FIRST available slot. A Castle Nut may NEVER be overtightened to permit lining up the next slot with the hole.

LOCKNUTS: After a Locknut has been tightened, Remember the Bolt threads should extend preferably THREE but at LEAST ONE FULL THREAD past the end of the Locknut.

'AN' BOLTS

NOTICE: 'AN' (Army/Navy) quality Bolts must comply with strict standards and are used throughout the construction of your Aircraft for structural integrity. NEVER USE SUBSTITUTES! See your dealer for replacements if necessary. To identify the 'AN' description of a Bolt when the length is known and an 'AN' Bolt Gauge is not available remember this easy method:

The first number following the 'AN' designation is the Bolt diameter shank size in 1/16" increments.

AN3 = 3/16" Diameter Shank
AN4 = 1/4" Diameter Shank
AN5 = 5/16" Diameter Shank

If there is a single number following the dash (-) it is the length in 1/8" increments LESS than one inch. Example: An 'AN3-7' Bolt is 7/8" in length.

If there are TWO numbers following the dash (-) the first represents the length in inches and the second represents the length in 1/8" fractions. Example: An 'AN4-24' Bolt is approximately 2 4/8" or 2 1/2" in length.

NOTE: To identify the second of TWO digits as an '8' would be incorrect. A callout of 'AN5-28' would be incorrect. It should be properly called AN5-30.

REMEMBER: 'Hardware Store' type Bolts are of inferior quality and DO NOT meet 'AN' Requirements. They are therefore structurally unsafe.

NEVER USE a Locknut on a 'AN 3' Bolt as the primary means of securement. If the hole in the shank is not clearly visible the only approved method of securement is the use of a Castle Nut with a Cotter Pin (bent correctly). When a Locknut covers the safety hole in the BOTTOM of the shank a smaller amount of threads make contact with the Locknut. According to manufacturers specifications you should NEVER use a Locknut with an 'AN 3' (non 'A') type Bolt. This does not meet specifications. The safety hole will not allow enough threads to secure the Locknut properly UNLESS the Locknut is completely located on the 'head' side of the Bolt Safety Hole. The standard procedure regarding 'AN-3' Bolts (with a safety hole) use a Castle Nut and Cotter Pin bent correctly as the primary means of securement.

'AN' BOLT GAUGE

In addition to the 'AN' Bolts, this Aircraft Kit includes the use of 'Grade' Bolts. The main difference is that 'AN' Bolts have a FINE THREAD and 'GRADE' Bolts have a COARSE THREAD. Additionally, the 'AN' Bolt head usually has 'C-X-S' or 'X' embossed on it. Whereas a 'Grade' Bolt usually has THREE radiating lines and a letter or number on its head. DO NOT USE a 'Grade' Bolt unless it is specified!

Use the Gauge below to determine the 'type' and the APPROXIMATE length of 'AN' Bolts.

NOTICE: 'AN' quality Bolts are used throughout the construction of the Aircraft for structural integrity.

NEVER USE SUBSTITUTES!! See your QUICKSILVER Dealer for replacements, if necessary.

A Bolt with designation of AN3-15A (with 'A') means NO safety hole (hole absent) in the BOTTOM of the Shank.



A Bolt designated as AN3-15 (without an 'A') means there IS a safety hole in the BOTTOM of the Bolt Shank.



EXAMPLE: AN3-15A	AN3	AN4	AN5
3/16"	1/4"	1/4"	5/16"
3	3	3	3
5	5	5	5
7	7	7	7
10	10	10	10
11	11	11	11
12	12	12	12
13	13	13	13
14	14	14	14
15	15	15	15
16	16	16	16
17	17	17	17
20	20	20	20
21	21	21	21
22	22	22	22
23	23	23	23
24	24	24	24
25	25	25	25
26	26	26	26
27	27	27	27
30	30	30	30
31	31	31	31
32	32	32	32
33	33	33	33
34	34	34	34
35	35	35	35
36	36	36	36
37	37	37	37
40	40	40	40
41	41	41	41
42	42	42	42
43	43	43	43
44	44	44	44
45	45	45	45
46	46	46	46
47	47	47	47
50	50	50	50

CASTLE NUTS AND COTTER PINS

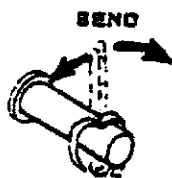
WARNING

ANY BOLT ON THE AIRCRAFT WHICH IS SUBJECT TO ROTATION IN USE, WILL CALL FOR A "CASTLE NUT". A CASTLE NUT RELIES ON A COTTER PIN OR SAFETY RING TO KEEP IT FROM BACKING OFF. MAKE SURE ALL CASTLE NUTS ARE SECURED WITH COTTER PINS! ALL COTTER PINS MUST BE BENT CORRECTLY.

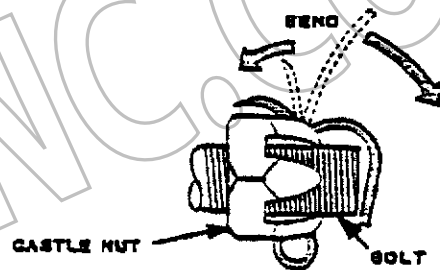
COTTER PINS

Refer to Figures 1 and 2 for the proper method of bending All Cotter Pins (Part Number [P/N] 10635).

CAUTION: NEVER RE-USE A COTTER PIN AFTER IT HAS BEEN BENT.



THROUGH CLEVIS PINS
AND T-HANDLE PINS



THROUGH CASTLE NUTS

TORQUE SPECIFICATIONS

SPECIFIED TORQUE VALUES

	in/lbs	ft/lbs	Newton Meter
3/16" (AN3)	20-25	1.5-2.0	2.25-2.75
" " w/ Thin Locknut	12-15	1.0-1.25	1.25-1.75
1/4" (AN4) or Cap Screw	50-70	4.0-5.75	5.5-8.0
1/4"-20 Thread (Coarse)	40-50	3.25-4.0	4.5-5.5
5/16" (AN5) or Cap Screw	100-140	8.25-11.5	11.25-15.75

RUN-ON TORQUE and PROPER TORQUE.

RUN-ON TORQUE is the amount of resistance encountered when you thread a Locknut onto a Bolt until the Bolt Threads appear through the Nut.

When you thread a new Locknut onto a Bolt, resistance is felt due to minute machining differences. It is sometimes possible to reach the Torque Values in the above chart even before the Bolt Threads appear through the Nut, particularly when working with Locknuts. The effect is that the Torque Wrench shows you the "correct" torque, yet this can be a completely FALSE reading and the Locknut and Bolt will not be correctly tightened!

Therefore, when reading ANY Torque Specification in this Manual we will expect you to use PROPER TORQUE.

Refer to the next page for the formula to achieve Proper Torque and the example.

PROPER TORQUE FORMULA AND THREAD ADHESIVE

PROPER TORQUE FORMULA

PROPER TORQUE = RUN-ON TORQUE + TORQUE VALUE

EXAMPLE: Using the Torque Wrench, run a 3/16" (AN3) Locknut onto a (AN3) Bolt until the threads JUST BEGIN to appear past the Nut. Note the reading on the Torque Wrench - (Lets say, it reads 8 in/lbs). That reading is the "Run-on Torque".

In the Specified Torque Value chart above, the Torque Value for AN3 is 20-25 in/lbs. ADD that to the Torque Wrench reading (8 in/lbs). Therefore, this AN3 Bolt will be correctly tightened when the Torque Wrench shows a reading of 28-33 in/lbs. This is PROPER TORQUE.

IMPORTANT: Nylock Nuts and Locknuts should NEVER be used more than ONCE as they become less vibration resistant with each removal.

When using the Torque Wrench, apply a smooth, even pull. If chattering or a jerking motion occurs during Final Torque, back off and re-torque.

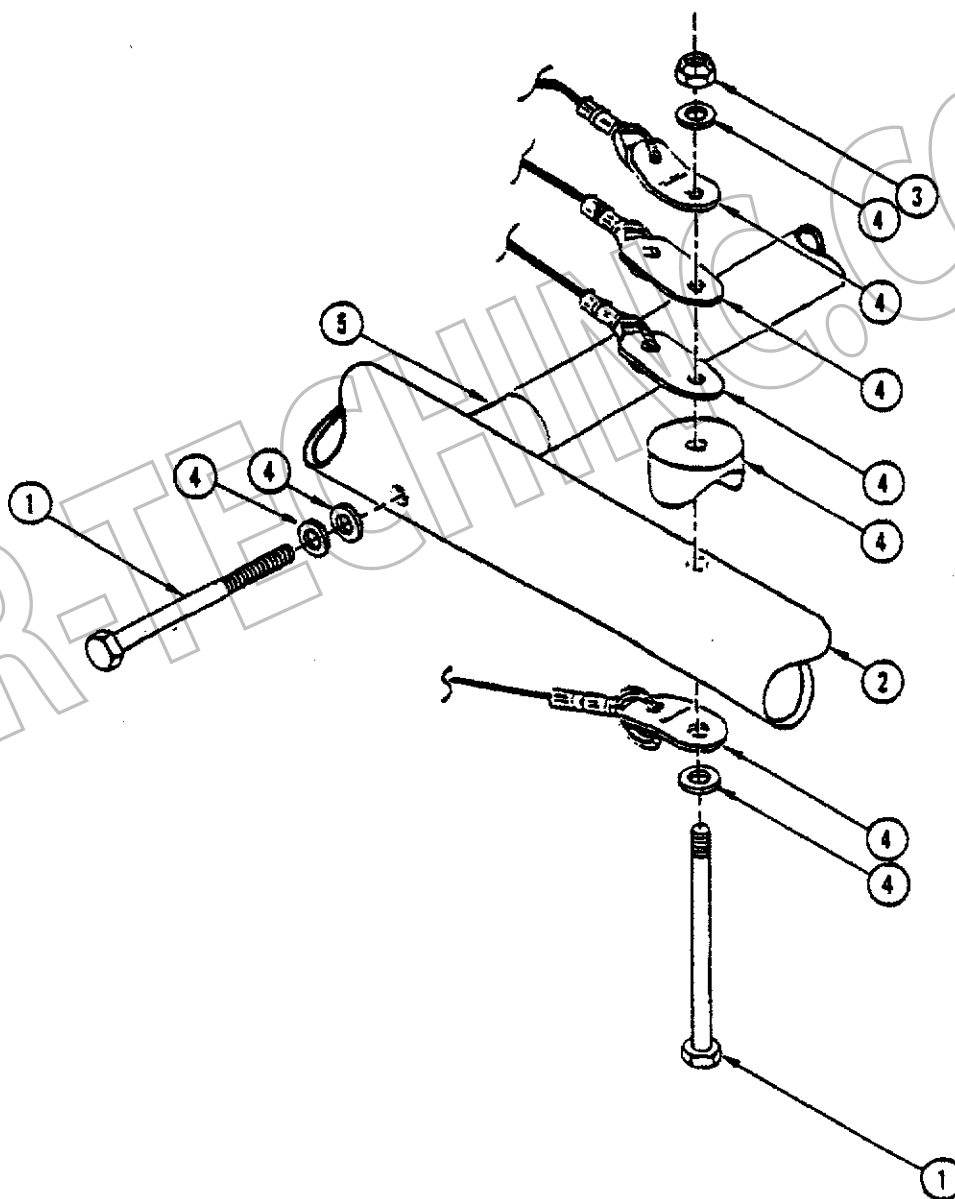
THREAD ADHESIVE

Thread Adhesive is required on ALL Threaded fixtures (Bolts, Push/Pull Cable, etc.) WITHOUT self-locking mechanisms. Examples of Locking Mechanisms are: Locknuts or Castle Nuts secured with a Cotter Pin or Safety Wire.

When using Thread Adhesive during construction ONE drop located mid-range on the threaded portion of the Bolt, Push/Pull Cable, etc. is sufficient.

CORRECT TORQUE AND TIGHTENING PROCEDURE

The correct torque and tightening procedure for a Bolt (1) that passes through a Tube (2) is to tighten the Nut (3) or Bolt (1) only to the point that all the Items (4), between the Nut (3) or Fitting (5) and the Bolt Head (1), come into contact with one another and then continue tightening ONE FULL turn.



PARTS LIST INTERPRETATION AND TYPICAL ABBREVIATIONS

PARTS LIST INTERPRETATION

In each sequence, when an Item in the text is 'called-out', it will have an Item Number which is repeated on the Illustration and corresponds to the Parts List.

```

-----
EXAMPLE: Item   P/N   Description
-----
          1...40143..Root Tube Assembly
  
```

If the Item Number 'call-out' is an Item or a Part that is not listed in your Kit Packing List, it will appear in the Parts List with a dotted line after the Item Number.

```

-----
EXAMPLE: Item   P/N   Description
-----
          1.....Velcro Gap Seal
  
```

TYPICAL ABBREVIATIONS

The following are typical abbreviations called out in the Assembly Instructions:

```

AL.....ALUMINUM
ALUM.....ALUMINUM
ATTACH.....ATTACHMENT
BRKT.....BRACKET
COMP.....COMPRESSION
FWD.....FORWARD
I. B.....INBOARD
INBD.....INBOARD
I. D.....INSIDE DIAMETER
L. E.....LEADING EDGE
MNT.....MOUNT
O. B.....OUTBOARD
OUTBD.....OUTBOARD
O. D.....OUTSIDE DIAMETER
PDL.....PEDAL
R. T.....ROOT TUBE
S. S.....STAINLESS STEEL
T. E.....TRAILING EDGE
  
```

EXAMPLE: L. E. INBD. = LEADING EDGE INBOARD

NICO SLEEVE GAUGE PROCEDURE

The Nico Sleeve Gauge (1) is a simple but accurate measuring device which determines the size accuracy of sleeve swaging.

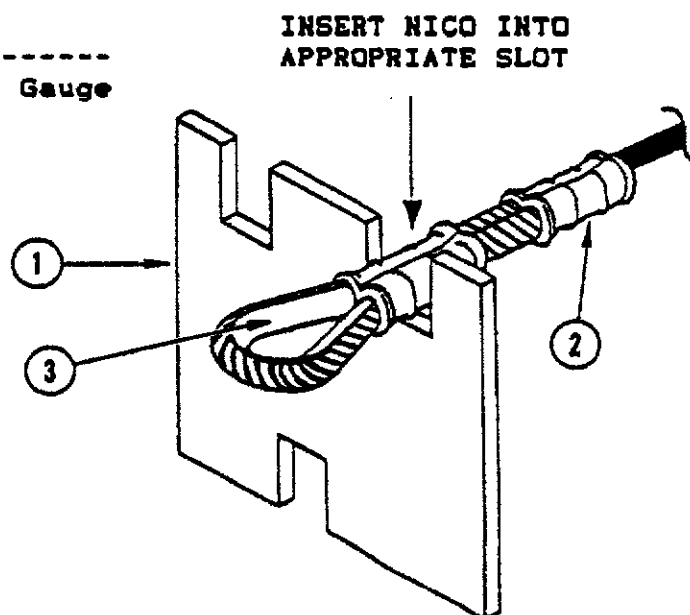
The Gauge has precision machined notches for measuring Swaged Nico Sleeves having 1/16" (1.6 mm), 3/32" (2.4 mm) and 1/8" (3.2 mm) sizes.

IMPORTANT: Check ALL cables BEFORE installation. It should be used when making a Cable inventory upon receipt of your Aircraft Assembly Kit.

1. Insert the swaged portion 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 CABLES 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.

WARNING! DO NOT USE SUBSTITUTES. NEVER INSTALL A CABLE ABOUT WHICH YOU HAVE ANY DOUBTS. ENSURE THAT THE CABLES ARE INSTALLED ONLY IN THEIR DESIGNATED LOCATIONS.

Item	P/N	Description
1...	20447..	Nico Sleeve Gauge
2.....		Nico Sleeve
3.....		Thimble

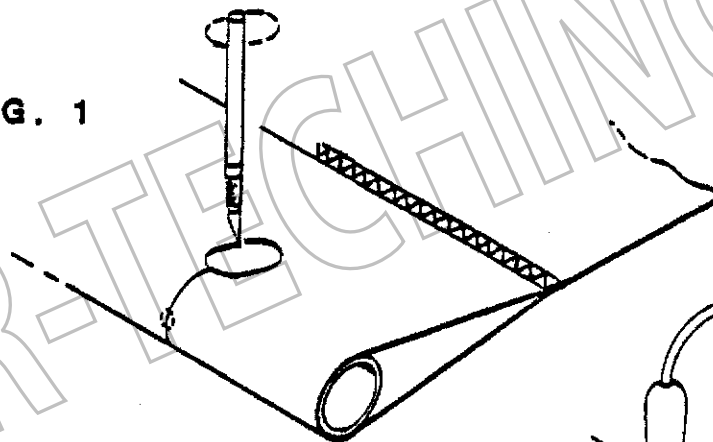
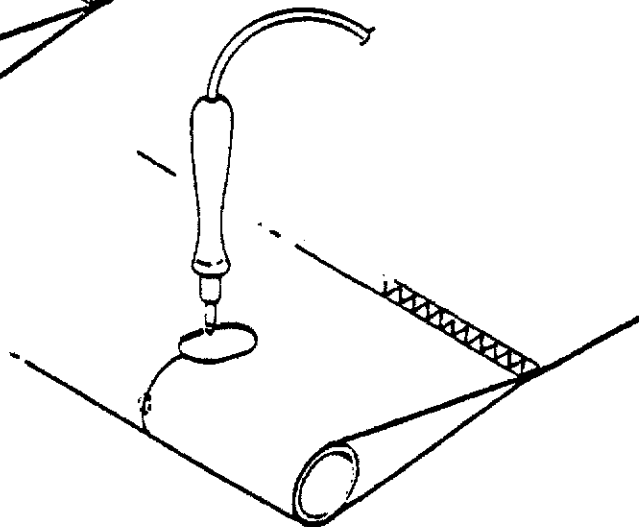


DACRON CUTTING AND HEAT-SEALING

The preferred method to cut the Dacron Wing and Tail surface is by the use of a sailmakers Hot-Knife. A Hot-Knife is a Soldering Iron (pencil) with a blade at the tip which will cut and heat seal in ONE step. However, sometimes the correct tool is not easily available, and therefore some builders may have to improvise.

If you are unable to obtain a Hot-Knife you may carefully cut the Dacron surface with a razor knife or 'x-acto' knife. Refer to Figure 1, then heat-seal the edges with a Soldering Iron, Soldering Gun, or Soldering Pencil. Refer to Figure 2.

Heat sealing is required on ALL cuts in the Dacron Wing or Tail surfaces as a means to keep the Dacron material from fraying.

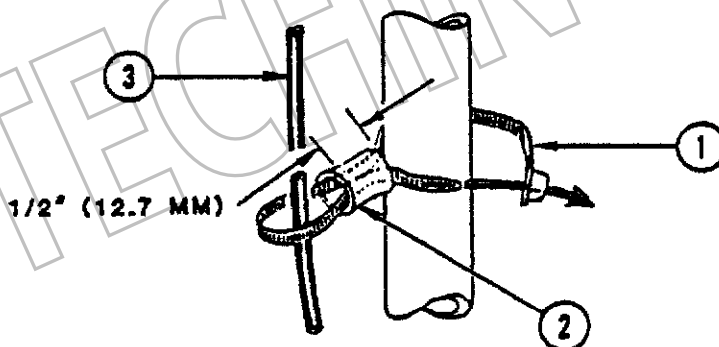
FIG. 1**FIG. 2**

STAND-OFF ASSEMBLY

This is an anti-vibration fitting used to isolate Gas Lines, Throttle Cable, Push/Pull Control Cable, Brake Cables and Electrical Wires throughout the Aircraft. The exact locations and numbers used are detailed in the assembly instructions.

1. Refer to the illustration, which shows a SINGLE Stand-Off in a typical application (Throttle Cable). Cut a 1/2" (12.7 mm) piece of Fuel Line (2). Thread the Nylon Tie Wrap (1) around the part (3), through the Fuel Line and around the Tube as illustrated. Pull tight, cut off the excess Tie Wrap and touch the cut end with a Soldering Iron or Hot Knife to remove the sharp edges.

SINGLE STAND-OFF
TYPICAL APPLICATION



Item	P/N	Description
1...	30480..	7" Nylon Tie Wrap
2...	30220..	1/2" Fuel Line Stand-Off
3...	90280..	Throttle Cable

BASIC TOOLS REQUIRED FOR ASSEMBLY

-
- | | |
|---|---|
| <ul style="list-style-type: none"> * Acetone, Lacquer Thinner or 'Duracryl' * Angle Finder * Awl * C-Clamps (optional) * Center Punch * Electric or Cordless Drill * Drill Bits: 1/16", 1/8", 3/16", 3/8", 1/4" & 5/16" * Duct Tape * Emery Cloth * Exacto Knife, Utility Knife or Razor Blade * Files: Fine Flat, 1/2 Round and Rat Tail * Hacksaw * Hammers: Rawhide or Rubber and Steel * Hot Knife or Soldering Iron * Lubricant (WD-40 or equiv.) | <ul style="list-style-type: none"> * Lithium Grease (optional) * Marking Pencil * Pliers: Regular & Needle Nose * Pop Rivet Tool: for 1/8" and 3/16" Rivets * Rope or String (20 ft) * Sandpaper (medium grit) * Scissors * Screwdrivers: Flat Blades and Phillips * Sidecutters * Silicone Sealant (Clear) * Sparkplug Gapping Tool * Tape: Electrical and Masking * Tape Measure (10 ft or longer) * Torque Wrenches: in/lb to 250 (28.0 Nm) ft/lb to 125 (171.5 Nm) * Vice Grips * Wire Crimpers * Wooden Horse |
|---|---|
-

Wrenches: (SAE) Open End/Box End - 3/8"-7/16"-1/2"-11/16"
 - 3/4" and 1 1/16"
 - 10 mm -17mm

Metric (Refer to Powerplant Tool kit.)
 Sockets: (SAE) - 3/8"-7/16" and 1/2"
 To fit Torque Wrench - 3/4" and 1 1/16"

Allen or Hex Wrench (SAE): 1/4", 1/8" (to fit Torque Wrench)
 Metric: 8 mm

Lumber to be used for Wing Supports. Refer to Page 9-4.
 4 Lengths 2" x 2" x 6" (5 cm x 5 cm x 15 cm)
 2 Lengths 2" x 2" x 7' (5 cm x 5 cm x 213 cm)

Wood screws (optional): (4) 4" long No. 8

Refer to Page 4-8 for additional lumber required.

Clean shop towels, rags or paper towels will come in handy to clean various parts and aid in installation of the Wing Ribs.

Also, some strips of old Carpet, or old Bed Sheets, Painters' Drop Sheets or similar protective cover will be useful in keeping the Wings and other parts clean and free from scratches during assembly.

ENJOY ASSEMBLING YOUR NEW QUICKSILVER MXL II SPORT AIRCRAFT.

AIRCRAFT INFORMATION AND DATA**INTRODUCTION**

This manual is divided into 9 sections. It contains all information and data as required by the Professional Ultralight Manufacturers Association (PUMA) as approved by the and/or other agencies. Quicksilver Enterprises Inc., has included additional information that will assist you in the operation of the Quicksilver MXL IISPORT. For safety, a thorough understanding of this manual is essential.

DESCRIPTIVE DATA AND SPECIFICATIONS

ENGINE : MXL II SPORT
Manufacturer: Bombardier-Rotax
Model: 503
Displacement: 496.7 cc
Type: Twin cyl.
 two-cycle, air-cooled, single magneto ignition
Spark Plug: NGK B8ES, gap- .016-.020 in. (.04-.05 cm.)
Horsepower: 45 hp @ 6500rpm
Recommended Time Before Overhaul: (TBO) 250 hrs.

REDUCTION DRIVE SYSTEM :

Type: MXL II SPORT
Number of Belts: V-BELT
Belt Type: 5
Reduction Ratio: 3V X 300
 2.58 to 1

PROPELLER: MXL II SPORT
Type: Fixed pitch, two blade, wooden
 Quicksilver Part# 30347
Diameter: 66 in. (1676 mm)
Pitch: 40 in. (1016 mm)-LH
Maximum Speed: 2800 rpm

AILERON TRAVEL

UP.....27 degrees

DOWN.....16 degrees

RUDDER TRAVEL (Measured Perpendicular to Hinge Line)

RIGHT.....25 degrees

LEFT.....25 degrees

ELEVATOR TRAVEL

UP.....39 degrees

DOWN.....25 degrees

STABILIZER INCIDENCE

UP.....1 degree negative

DOWN.....5 degrees negative

FUEL

Approved Fuel: Automobile gasoline (83 octane or higher)
 Fuel Capacity: 6.5 gallons (24.6) litres
 Useable Fuel: 6.25 gallons (23.7) litres
 Unuseable Fuel: .25 gallons (.007) litres

OIL**Fuel Mixture**

Approved Type of Oil: BIA-TC-W-2 two-cycle oil
 Fuel/Oil Ratio: 50:1

MXL II SPORT WEIGHTS:

Maximum Takeoff Weight:	720 lbs.	(326 kilograms)
Maximum Landing Weight:	720 lbs.	(326 kilograms)
Empty Weight:		
Cable Braced:	348 lbs *	(158 kilograms)
Maximum Useful Load:		
Cable Braced:	372 lbs	(169 kilograms)

* The empty weight is shown with a pilot/vehicle recovery system. When computing weight values, the actual weight of the aircraft, as equipped, should be determined. For accurate computation, refer to WEIGHT and BALANCE .

SPECIFIC LOADINGS :**MXL II SPORT**

Wing Loading:	4.0 lbs/sq ft	(6 kg/sq m)
Pover Loading:	15 lbs/hp	(7.24 kg/hp)

TIRE PRESSURE

Main Wheel Tires: 25 - 30 PSI * (172-206 kpa)
 Nose Wheel Tire: 25 - 30 PSI * (172-206 kpa)
 * Check raised lettering on tire sidewall for maximum allowable PSI (lbs/in2).
 Ground Turning Clearance.....68 ft. (20.722 meters)
 (Wing tip to Wing tip)

**** SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE ****

This section provides description and operation of the aircraft and its systems. Only equipment that is considered standard equipment is detailed in this section.

AIRFRAME

Note: For Servicing as prescribed by Legend 1 in the Maintenance Schedules for all hinged points and movable connections use General Purpose Oil Mil-1-7078-A or equivalent.

The primary construction material of the airframe is of tubular aircraft grade aluminum. Major items of structure are the forward fuselage tubes and tail boom tubes. The flight controls, nose wheel, and seat are attached to the forward fuselage tube. The mounting structure for the root tube is attached to the aft section of the forward fuselage tubes. The main landing gear carry-thru is the jointing structure of the forward and aft tubes. The empennage (tail assembly) is attached to the aft section of the tail boom tubes.

The externally braced wings are constructed of a front (leading edge) and rear (trailing edge) spar held in place by compression and diagonal struts. The airfoil shape is maintained by formed tubular ribs contained in upper and lower pockets in the Dacron wing covering. The leading edge and trailing edge spars are equipped with wing-to-root tube and wing-to-cable attachment fittings. Conventional hinged ailerons are attached to the outboard section of the trailing edge of the wings.

The tail assembly consists of a conventional vertical stabilizer, rudder, adjustable horizontal stabilizer, and elevator. The tail assembly flight surfaces are covered with Dacron. An adjustable angle of incidence is incorporated into the horizontal stabilizer (refer to the SECTION 4 for proper adjustment procedures).

FLIGHT CONTROLS

The aircraft's flight control system consists of conventional aileron, rudder, and elevator control surfaces. The control surfaces are manually operated through mechanical linkage using the control stick for the ailerons and elevator, and rudder pedals for the rudder.

GROUND CONTROL (TAXIING)

Effective ground control while taxiing is accomplished through the rudder pedals. Nose wheel steering and the propeller wash over the rudder will cause the aircraft to turn in the desired direction (i.e. - Left rudder pedal to steer Left and Right rudder pedal to steer Right). When a rudder pedal is depressed, a steering spring (which is connected from the rudder pedal to the nose wheel) will turn the nose wheel through an arc of approximately 15 degrees each side of center.

LANDING GEAR SYSTEM and BRAKE SYSTEM

The landing gear is of the tricycle type with a steerable nose wheel and two main wheels. The main wheel brakes are friction band type operated by independent pedals located next the rudder pedals. Each main wheel brake can be operated independently or both at the same time.

SEAT

The seat is attached to the forward fuselage by a seat rail. It is adjustable fore and aft.

The aircraft is equipped with a pilot restraint system. At any time the pilot is seated in the aircraft with the intent of moving it, the pilot restraint system must be securely fastened.

TRIM SYSTEM

The lever for the trim system is located between the two pilots seats. It uses bungy chords to apply tension to the elevator push/pull tube. The lever must be moved laterally to release it from its locked position and then forward to trim the nose down and aft to trim the nose up.

ENGINE

The MXL II SPORT is powered by a twin cylinder, air-cooled two-cycle Otto engine. The engine is a Rotax 503 - 496.7 cc Displacement, rated at 45 horsepower at 6500 RPM. Major components include V-belt Drive system, exhaust system, and a mechanical rewind manual starter.

THROTTLE CONTROL

The throttle is a cable controlled system with the throttle control lever located to the each side of the pilot's seat. Moving the lever forward increases RPM; moving the lever aft decreases RPM. For Servicing the throttle cable as prescribed by Legend 1 of the Powerplant Maintenance Schedule use Oil specification VV-L-800A or Equivalent.

CHOKE CONTROL

The choke system is the standard Rotax choke Lever mounted the on carburator. The choke is used to enrichen the fuel/air mixture to aid in cold engine starts.

ENGINE BREAK-IN AND OPERATION

It is required that the proper engine break-in procedures be followed exactly as described in the Rotax Operator's Manual. Any deviation from this procedure could cause engine malfunction and/or failure. It is also suggested that continuous engine operation at RPM's above 6300 RPM for periods in excess of 5 minutes be avoided.

FUEL/OIL MIXTURE

The fuel to oil mixture ratio is 50:1. The fuel must have a minimum rating of 83 octane. The oil must meet or exceed B.I.A. or T.C.W. specifications. The oil container must be marked BIA-TCW-2 cycle. The mixing procedure should be followed as described in the Rotax Operator's Manual.

AIR FILTER

The Air Filter for the carburator should be cleaned as prescribed by Legend 1 of the Powerplant Maintenance Schedule with regular gasoline.

IGNITION-STARTER SYSTEM

The ignition is a single magneto type with twin spark plugs. The spark plug used is an NGK B8ES (or equivalent). The ignition switch is a LEVER switch located above the pilot's seat. The starter is a manual mechanical revind starter. The starter cord condition must be checked every 10 hours and replaced when worn or frayed. DO NOT operate the engine if the revind starter is defective. Refer to the Rotax Operator's Manual for specific information.

CARBURETOR and Fuel System

A Bing carburetor is used on the engine. This is a piston type carburetor with float chamber. The carburetor is fed by an engine driven vacuum fuel pump. Refer to the Rotax Operator's Manual for specific information on carburetor adjustment and care. When Servicing the Carburetor as prescribed in Legend 1 of the Powerplant Maintenance Schedule remove the fuel bowl; drain, clean and replace. A fuel cut off valve is located on the rear bottom of the fuel tank. Inspect the fuel sumps for water or contamination.

PROPELLER

The aircraft has a wooden, two-bladed, fixed pitch propeller. The MXL II SPORT uses a V-Belt Drive system with a reduction ratio of 2.58 to 1.

FUEL SYSTEM

The fuel system consists of a 6.5 gallon (24.6 litres) fuel tank, fuel filter, carburetor, engine driven vacuum fuel pump. Although the system is gravity fed, a fuel shut off valve is installed. The fuel shut off valve is on when the lever is pointing down. It is off when the lever is horizontal. The fuel tank is mounted above the pilots seat. The tank is vented at the top. The vent must be unobstructed to allow for proper operation of the fuel system. **CAUTION:** **Failure to ensure fuel tank venting will result in Engine Failure!** The see-through fuel filter is located in the fuel line between the fuel tank and the fuel pump. It should be inspected prior to each flight to ensure that it does not contain contaminants. The see-through fuel line must also be inspected for contaminants and air bubbles. If air bubbles exist, run the engine on the ground until all bubbles are gone before flight. If contaminants exist, the fuel system must be drained and flushed prior to running the engine.

AIRSPEED INDICATOR

The aircraft is equipped standard with an Hall Windmeter airspeed indicator located on forward down tubes. See SECTION 2 for specific definitions of airspeed limitations. The airspeed indicator operates by displaying the difference in pressure of ram air entering through the tube and static air pressure. In order to operate properly, the pitot tube and static port on top of the instrument must be free of obstructions. The airspeed indicator **MUST NOT** be used as the **SOLE** reference of actual airspeed since it is subject to variation and error. The feel and sound of the aircraft should be a primary consideration in the determination of actual airspeed.

SECTION 2

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World's Largest Manufacturer of Recreational Aircraft and Vehicles

RUDDER COVER AND RUDDER LEADING EDGE ATTACHMENT

1. Refer to Figure 1. Bend the FORWARD Edge of the Rudder Frame (1) out 1/2" (12.7 mm) around a car tire to help make the Rudder Cover (2) taut.

2. Insert the Rudder Frame (1) into the pocket of the Rudder Cover (2) as illustrated. [It will be necessary to bunch up the Rudder Cover (2) to negotiate around the corners of the Rudder Frame (1)].

3. Refer to Fig. 2, Detail 'A'. Insert the Rudder Leading Edge (4) into the appropriate Rudder Cover (2) pockets.

NOTE: The Anchor [Blind] Nut on the Rudder Leading Edge (4) faces AFT and will be located on the LOWER half of the Rudder Leading Edge (4)].

4. Notice where the TOP of the Rudder Leading Edge (4) makes contact with the Rudder Frame UNDER the Rudder Cover (2) pocket. Partially pull out the Rudder Leading Edge (4) and mark the contact point on the cover with a pencil.

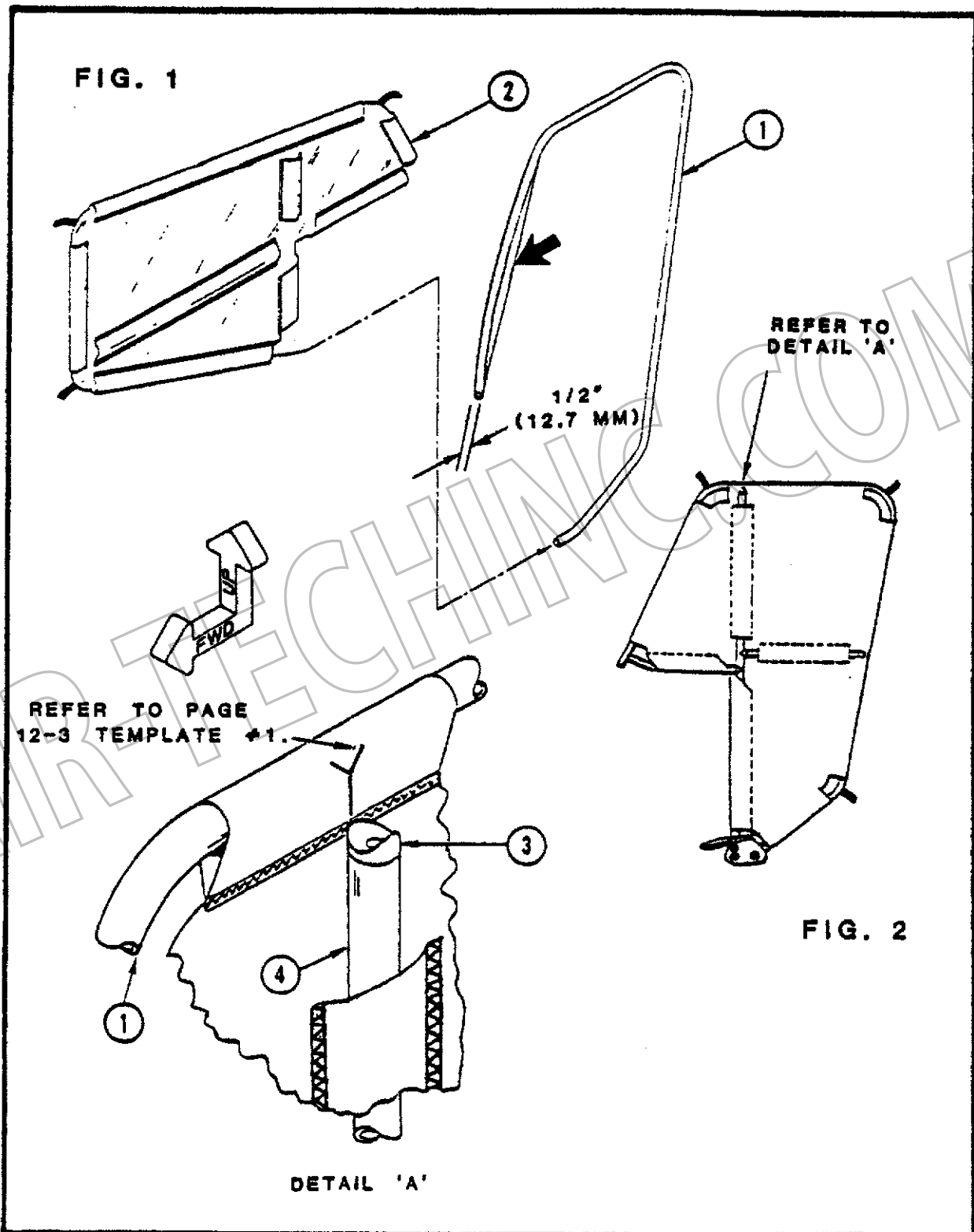
5. Locate Template #1 on Page 12-3. Remove the Template from the Assembly Instructions and follow the instructions on the Template. The TOP edge of the Template should align with the TOP 'crease' of the Rudder Frame Pocket. The pencil mark should be CENTERED in the Template 'cut-out' area. Cut and heat-seal at the proper location.

6. Slide the Rudder Leading Edge (4) back toward the TOP of the Rudder Frame (1) and insert a Tube Connector (3) into the TOP of the Rudder Leading Edge (4).

7. Push the Rudder Leading Edge (4) up against the Rudder Frame (1) through the cut-out.

Item	P/N	Description
1...	40333..	Rudder Frame
2...	50016..	Rudder Cover
3...	20450..	1" Tube Connector
4...	40251..	Rudder Leading Edge

RUDDER LEADING EDGE ATTACHMENT



RUDDER LEADING EDGE AND CONTROL ARM (HORN) ATTACHMENT

1. Refer to Fig. 1, Detail 'A'. 'Sandwich' the Rudder Leading Edge (1) between the Rudder Horns (2) and (3). With the Hardware (4) and (5) as illustrated.

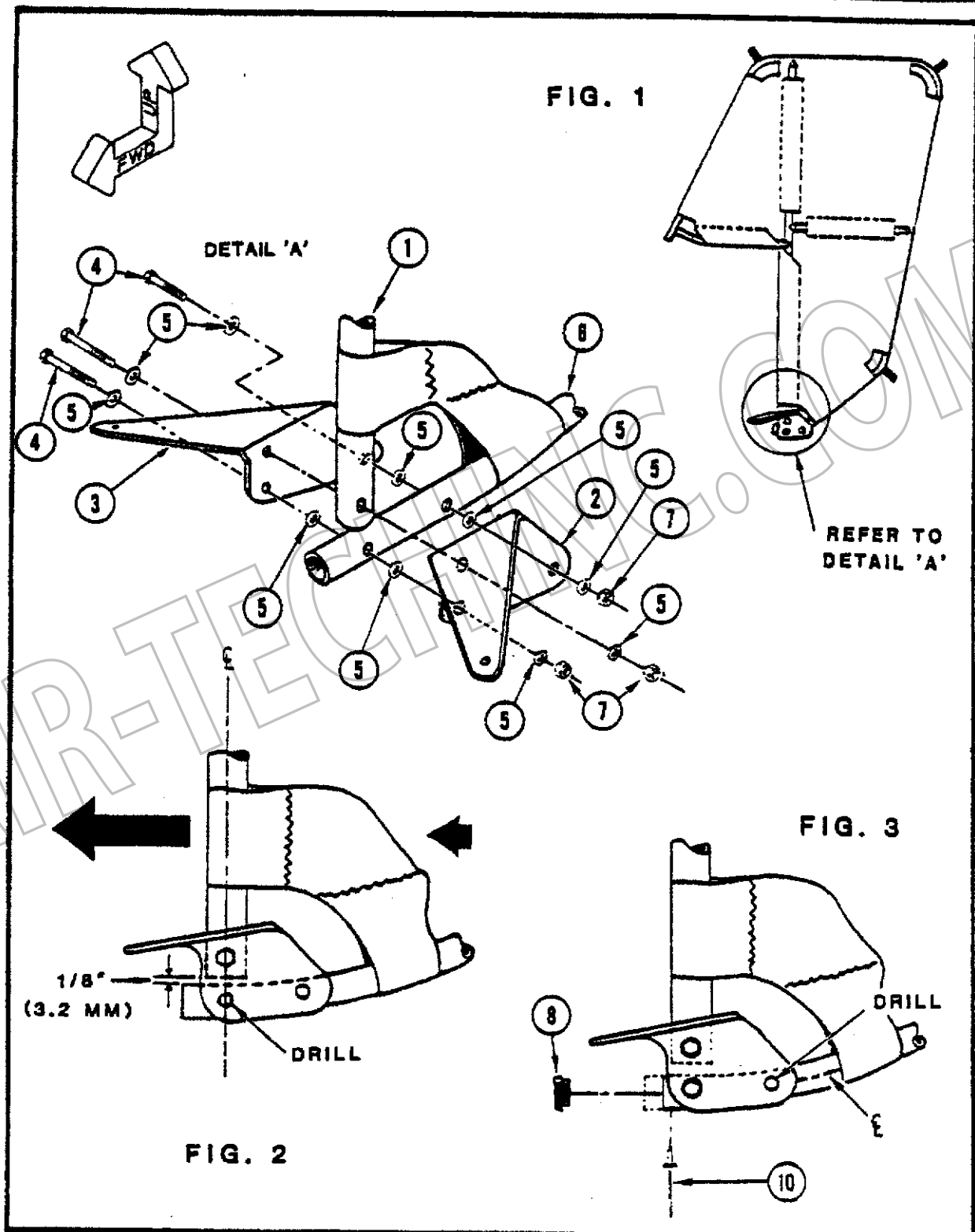
2. Refer to Figure 2. Hold the Rudder Frame (6) firm while pulling the Rudder Leading Edge (1) FORWARD to make the Rudder Cover taut, and to align the Rudder Leading Edge (1) CENTERLINE with the Rudder Horns (2) and (3) LOWER FORWARD mount holes. Leave a 1/8" (3.2 mm) gap between the Rudder Leading Edge (1) and the Rudder Frame (6).

3. Mark the LOWER FORWARD hole position, then swing the Rudder Horn (2) or (3) aside to reveal the mark. Punch, drill and deburr a 3/16" (4.7 mm) hole through BOTH walls of the Rudder Frame (6). (Make sure the drill bit is STRAIGHT to align the holes). Install the Hardware (4) and (5) through the LOWER FORWARD 3/16" (4.7 mm) hole in the Rudder Horn (3). Add a Washer (5). Continue through the Rudder Frame (6). Add another Washer (5), continue through the Rudder Horn (2), Washer (5) and secure with a Locknut (7). Assemble the same as Figure 1, EXCEPT ONE Washer (5) on each side of the Rudder Frame (6) between the Rudder Horns (2) and (3). Tighten to correct torque. DO NOT DISTORT THE TUBE. Adjust the angle of the Rudder Horn (2) or (3) so that the AFT 3/16" (4.7 mm) hole in the Rudder Horn (2) or (3) aligns with the Rudder Frame (6) CENTERLINE. Back-drill a 3/16" (4.7 mm) hole through the Rudder Horn (2) or (3). Insert another Bolt (4) in the same direction as Step 1 with Washer (5) through the Rudder Frame (6). Add another Washer (5) and continue through the Rudder Horn (2), Washer (5) and secure with Locknut (7). Tighten to correct torque. DO NOT DISTORT THE TUBE.

4. Refer to Figure 3. Trim off the EXCESS Rudder Frame (6) 3/16" (4.7 mm) FORWARD of the Rudder Leading Edge (1). Install a Tube Cap (8) with Contact Cement (9) [not illustrated] and a Rivet (10) to further secure the Tube Cap (8) if desired.

Item	P/N	Description	Item	P/N	Description
1...	40251..	Rudder Leading Edge	6...	40333..	Rudder Frame
2...	70291..	Rudder Horn (Left)	7...	10500..	3/16" Locknut
3...	70292..	Rudder Horn (Right)	8...	20400..	7/8" Tube Cap
4...	10040..	AN3-15A Bolt	9...	60592..	Contact Cement
5...	10550..	3/16" Washer	10...	20200..	1/8" Al. Rivet

AND CONTROL ARM (HORN) ATTACHMENT



RUDDER COMPRESSION STRUT ATTACHMENT

1. Refer to Figure 1, Detail 'A'. Insert an Aluminum Tube Connector (1) into the Rudder Compression Strut (2). Insert the Bolt (3) as illustrated through the 3/16" (4.7 mm) hole in the Rudder Compression Strut (2) and secure with the Locknut (4). Tighten to proper torque.
2. Insert the Rudder Compression Strut (2) into the from the FORWARD end of the pocket in the Rudder Cover (10). Notice where the Rudder Compression Strut (2) makes contact with the Rudder Cover (10) pocket at the AFT/CENTER of the Rudder Frame (7).
3. Back the Rudder Compression Strut (2) out slightly. Locate Template # 2, Page 12-2, and follow the instructions on the Template. Heat-cut the hole for the Rudder Compression Strut (2) just as was done for the Rudder Leading Edge previously.
5. Locate a Tube Connector (5). Trim one 'ear' to ease installation of the Rudder Compression Strut (2).
6. Insert the Tube Connector (5) into the Rudder Compression Strut (2). You are now ready to 'pop' the Rudder Compression Strut (2) into place.
7. Refer to Figure 2. Lay the Rudder on its side. Use the palm of your hand or your foot if necessary, and 'pop' the Rudder Compression Strut (2) into the Rudder Frame (7) as illustrated.
8. Insert a Bolt (8) through a Washer (9). Add ONE drop of Thread Adhesive (11) to the END of the Threads. Tighten to correct torque. DO NOT DISTORT THE TUBE.

Item	P/N	Description	Item	P/N	Description
1...	20445..	7/8" Alum. Tube Conn.	7...	40333..	Rudder Frame
2...	40391..	Rudder Comp. Strut	8...	10400..	1 3/4" x 1/4"
3...	10025..	AN3-11A Bolt			Grade 5 Bolt
4...	10516..	3/16" Thin Locknut	9...	10560..	1/4" Washer
5...	20440..	7/8" Tube Connector	10...	30016..	Rudder Cover
6...	40251..	Rudder Leading Edge	11...	60591..	Thread Adhesive

RUDDER COMPRESSION STRUT ATTACHMENT

FIG. 1

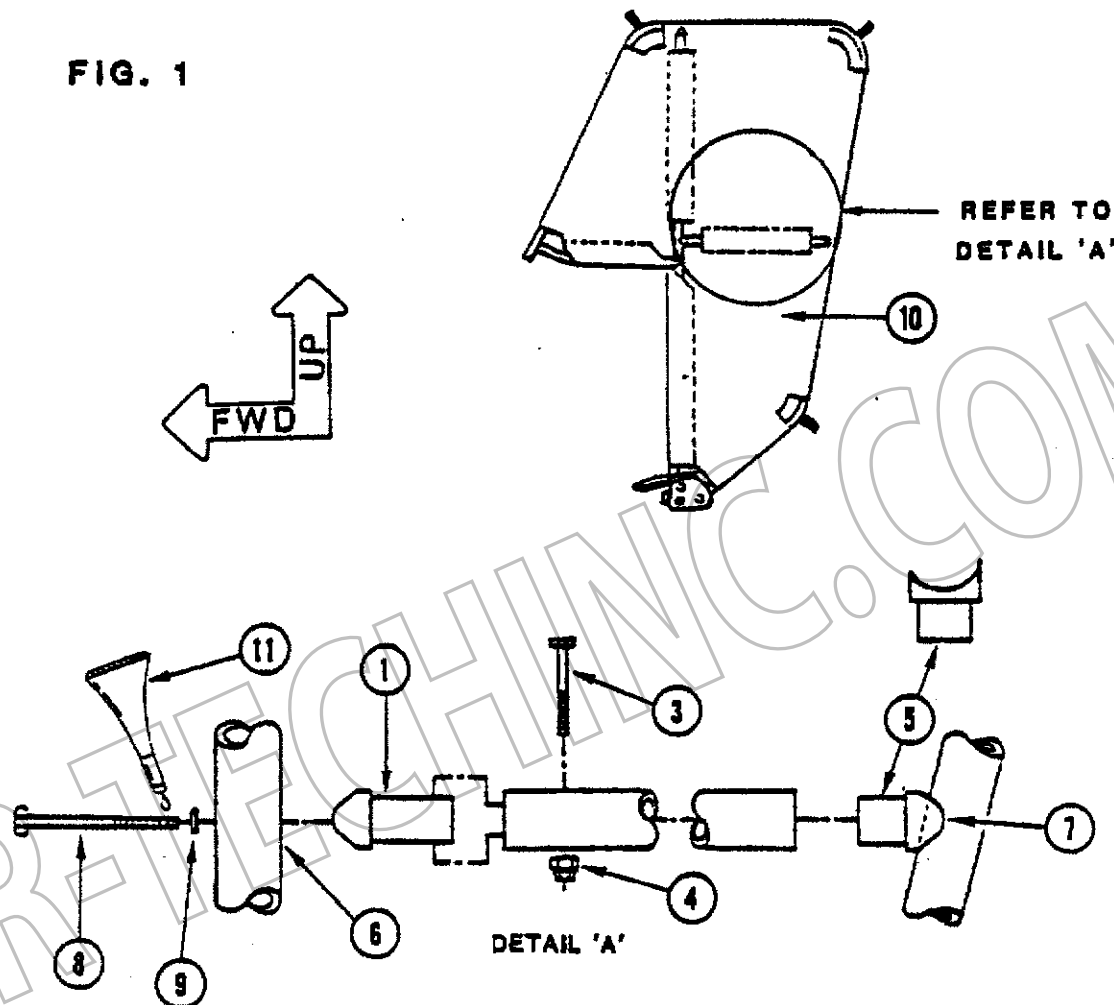
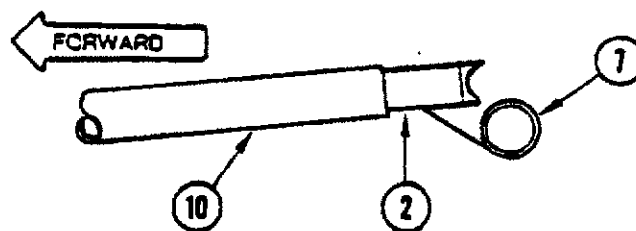


FIG. 2



RUDDER BALANCE STRUT ATTACHMENT

1. Refer to Figure 1. Position the Expansion Plug (1) into the Tube Connector (2) continue into the FORWARD end of the Rudder Balance Strut (3) as illustrated.

2. Refer to Figure 2. Attach Gusset Plates (5) with the Hardware (4,7 and 8) as illustrated. Do not secure at this time. Insert the Rudder Balance Strut (3) and 'sandwich' it between the TWO previously installed Gusset Plates (5). Secure all THREE Locknuts (8). Tighten to correct torque. DO NOT DISTORT THE TUBES.

3. Refer to Figure 1. Position the Rudder Balance Strut (3) CENTERED or seated against the Rudder Frame (11). Push DOWNWARD on the FORWARD end of the Rudder Balance Strut (3) and verify the Rudder Cover is taut, but not overly tight as to create excess wrinkles in the Rudder Cover. Mark the location on the Rudder Frame (11) where the Bolt (9) should be located so as to align with the FORWARD bend in the Rudder Balance Strut (3). Push the Rudder Balance Strut (3) UP and out of the way temporarily. Center-punch, drill and deburr a 1/4" (6.4 mm) hole.

4. Insert the Hardware (9) and (10). Add Thread Adhesive (14) to the Bolt threads and insert Bolt (9) through the hole in the Rudder Frame (11) and continue through the Tube Connector (2) and the Expansion Plug (1) by pushing DOWNWARD on the Rudder Balance Strut (3). DO NOT DISTORT THE TUBE.

5. Trim the EXCESS Rudder Frame (11) 1/4" (6.4 mm) past the Rudder Balance Strut (3) and deburr.

6. Add Contact Cement (14) to a 7/8" Tube Cap (12) and insert into the end of the Rudder Frame (11). Excess Contact Cement may be wiped off IMMEDIATELY with Lacquer Thinner or 'Duracryl'. Drill a 1/8" (3.2 mm) diameter hole and add a Rivet (13) to further secure the Tube Cap (12) at location indicate if desired.

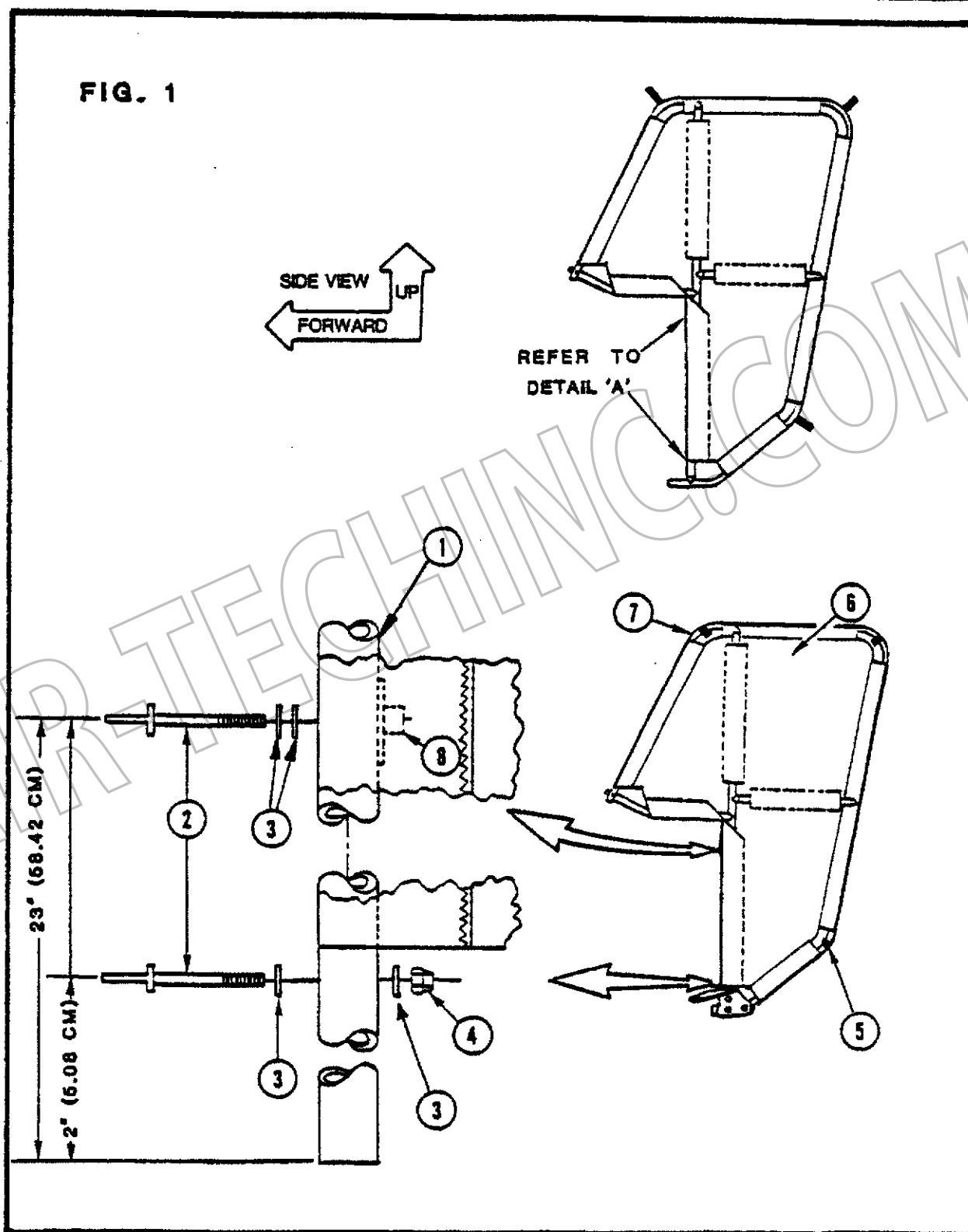
Item	P/N	Description	Item	P/N	Description
1...	20130..	1" Expansion Plug	9...	10400..	1/4" x 1 3/4" Grade 5 Bolt
2...	20450..	1" Tube Connector	10...	10560..	1/4" Washer
3...	40399..	Rudder Balance Strut	11...	40333..	Rudder Frame
4...	10035..	AN3-14A Bolt	12...	20400..	7/8" Tube Cap
5...	45083..	Gusset Plate	13...	20200..	1/8" Alum. Rivet
6...	40251..	Rudder Leading Edge	14...	60591..	Thread Adhesive
7...	10550..	3/16" Washer	15...	60592..	Contact Cement
8...	10500..	3/16" Locknut			

RUDDER EYBOLT ATTACHMENT

1. Refer to Fig. 1, Detail 'A'. Locate the Rudder Hinge Attach Points located at 2" (5.08 cm) and 23" (58.42 cm) from the BOTTOM end of the Rudder Leading Edge (1).
2. Reveal the UPPER hinge attach hole and heat-seal.
3. Insert an Eyebolt (2) with TWO Washers (3) through the UPPER Hinge Attach Point and into the factory-installed Anchor (Blind) Nut (8). Position the Eyebolt (2) as illustrated. Tighten to correct torque. DO NOT DISTORT THE TUBE.
4. Insert another Eyebolt (2) with ONE Washer (3) and continue through the LOWER Rudder Leading Edge (1) Hinge Attach Point. Add another Washer (3) and secure with a Locknut (4). Tighten to correct torque. DO NOT DISTORT THE TUBE. Position the Eyebolt (2) as illustrated.
5. Cut and heat-seal the EXCESS Velcro Tabs (5) attached to the THREE corners of the Rudder Cover (6) as necessary to wrap around the Rudder Frame (7) and secure properly.

Item	P/N	Description
1...	40251..	Rudder Leading Edge
2...	10350..	AN43B-14A Eyebolt
3...	10560..	1/4" Washer
4...	10510..	1/4" Locknut
5.....		Velcro Tabs
6...	50016..	Rudder Cover
7...	40333..	Rudder Frame
8.....		Anchor (Blind) Nut

RUDDER EYEBOLT ATTACHMENT



ELEVATOR ASSEMBLY

1. Refer to Figure 1. Slip the Covers (1) onto BOTH Elevator Frames (2).
2. Refer to Detail 'A'. Install the Hardware (3,4,5,6 and 7) as as illustrated FOUR Places.
3. Refer to Figure 2. Slip the Elevator Leading Edge (8) into the Elevator Pocket. Note: The FORWARD Elevator Control Arm Attachment Hole (19) located 7" (17.78 cm) off CENTER is on the RIGHT side.
4. Insert the Bolts (11) and Washers (13) with Thread Adhesive (16) [not illustrated] into the Leading Edge Assembly (8) FOUR places and tighten to correct torque.
5. Insert the Tube Connectors (18) into TWO Elevator Compression Struts (17). Refer to Page 2-6, Item 5. Trim ONE ear only.
6. Refer to Page 12-3. Remove the Templates #3 and #4. Follow the directions on the Templates. Align the appropriate Edge of the Template with the 'crease' in the Elevator Frame Pocket. Cut and heat-seal for the Compression Struts (17).
7. Slip the Compression Struts (17) into the Pockets and 'pop' into place.
8. Refer to Figure 2, Detail 'A'. Attach the Forkbolts (12) to the Leading Edge THREE places [CENTER and END locations].
9. Attach the Tube Caps (15) at each end of the Trailing Edge Assembly with Contact Cement (10) [not illustrated]. Remove any excess Contact Cement IMMEDIATELY with cleaning solvent. Secure with a Rivet (9).

Item	P/N	Description	Item	P/N	Description
1.	50046.	Elevator Cover	11.	10400.	1/4" x 1 3/4"
2.	70110.	Elevator Frame			Grade 5 Bolt
3.	10030.	AN3-13A Bolt	12.	10390.	1/4" x 1 1/2"
4.	20450.	1" Tube Connector			Forkbolt
5.	20380.	Threaded Aluminum Insert	13.	10560.	1/4" Washer
6.	10530.	3/16" Washer	14.	10510.	1/4" Locknut
7.	10500.	3/16" Locknut	15.	20400.	7/8" Tube Cap
8.	70130.	Elev. L.E. Assy.	16.	60591.	Thread Adhesive
9.	20200.	1/8" Alum. Rivet	17.	70090.	Elev. Comp. Strut
10.	60592.	Contact Cement	18.	20440.	7/8" Tube Connector
			19.	FWD Elevator Control Arm Attachment Hole

ELEVATOR ASSEMBLY

FIG. 1

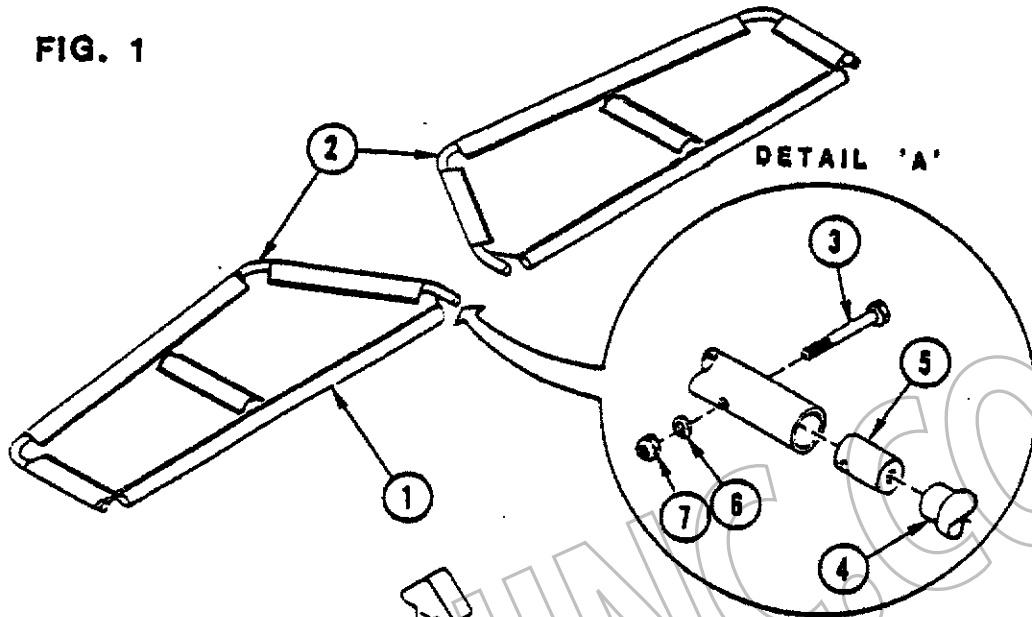
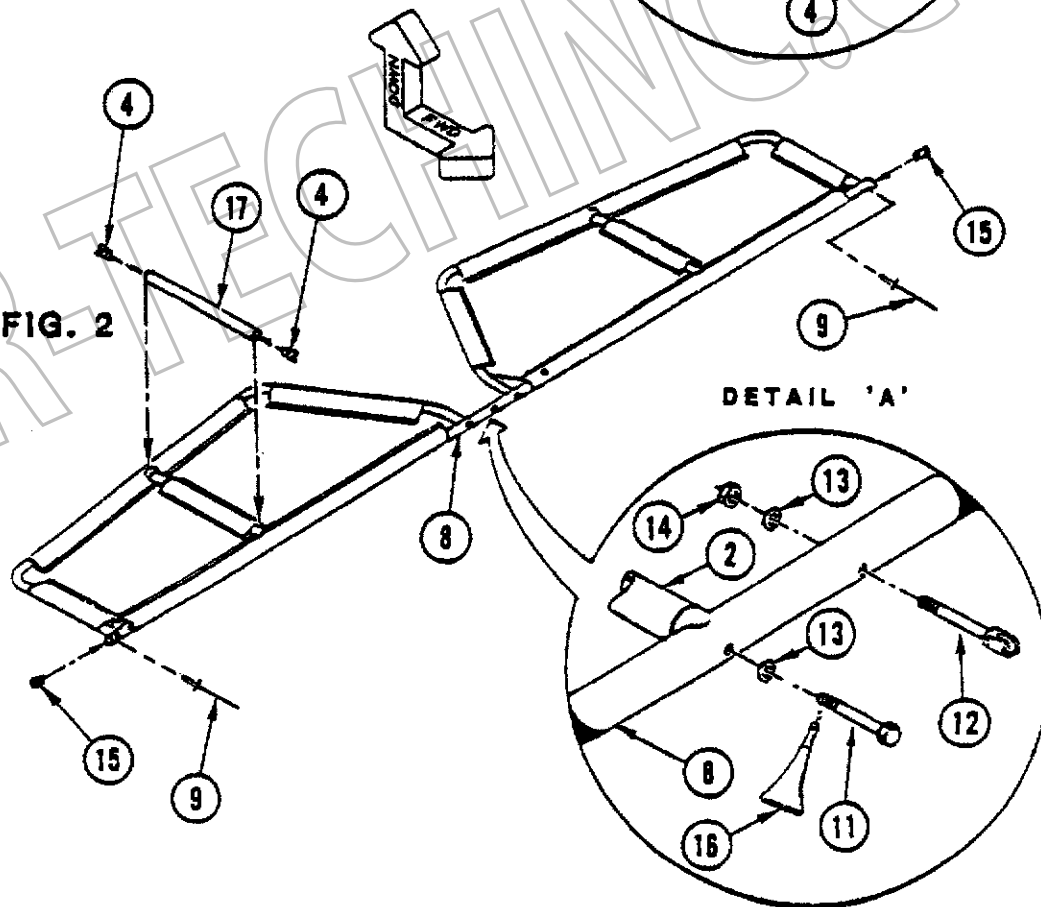


FIG. 2



ELEVATOR CONTROL ARM (HORN) ATTACHMENT

Before starting the following sequence, position the Elevator Assembly UPSIDE DOWN (Compression Strut Pockets facing UPWARD).

1. Refer to Figure 1. Locate the 3/16" (4.7 mm) diameter hole 7" (17.78 cm) OFF CENTER on the RIGHT side of the Elevator Leading Edge Assembly (3). Reveal the hole and heat-seal.

2. Refer to Figure 2. Measure 11 7/16" (29.05 cm) AFT from the CENTER of the (factory drilled) 3/16" (4.7 mm) FORWARD attachment hole. Mark this location. Measure and mark the CENTER of the Flange or mounting surface. Drill and deburr a 3/16" (4.7 mm) diameter hole at this location.

3. Measure 11 3/4" (29.8 cm) AFT from the CENTER of the EXISTING FORWARD attachment hole of the Horn (1).

IMPORTANT: There must be a MINIMUM of 3/16" (4.7 mm) of Horn remaining past the AFT of the EDGE of the AFT hole. DO NOT cut off too much of the Horn.

Mark and cut off the EXCESS Elevator Horn (1). Round the edges with a file. Use semi-flat black paint or a black WATERPROOF permanent felt-tip marker to touch up the end of the Horn.

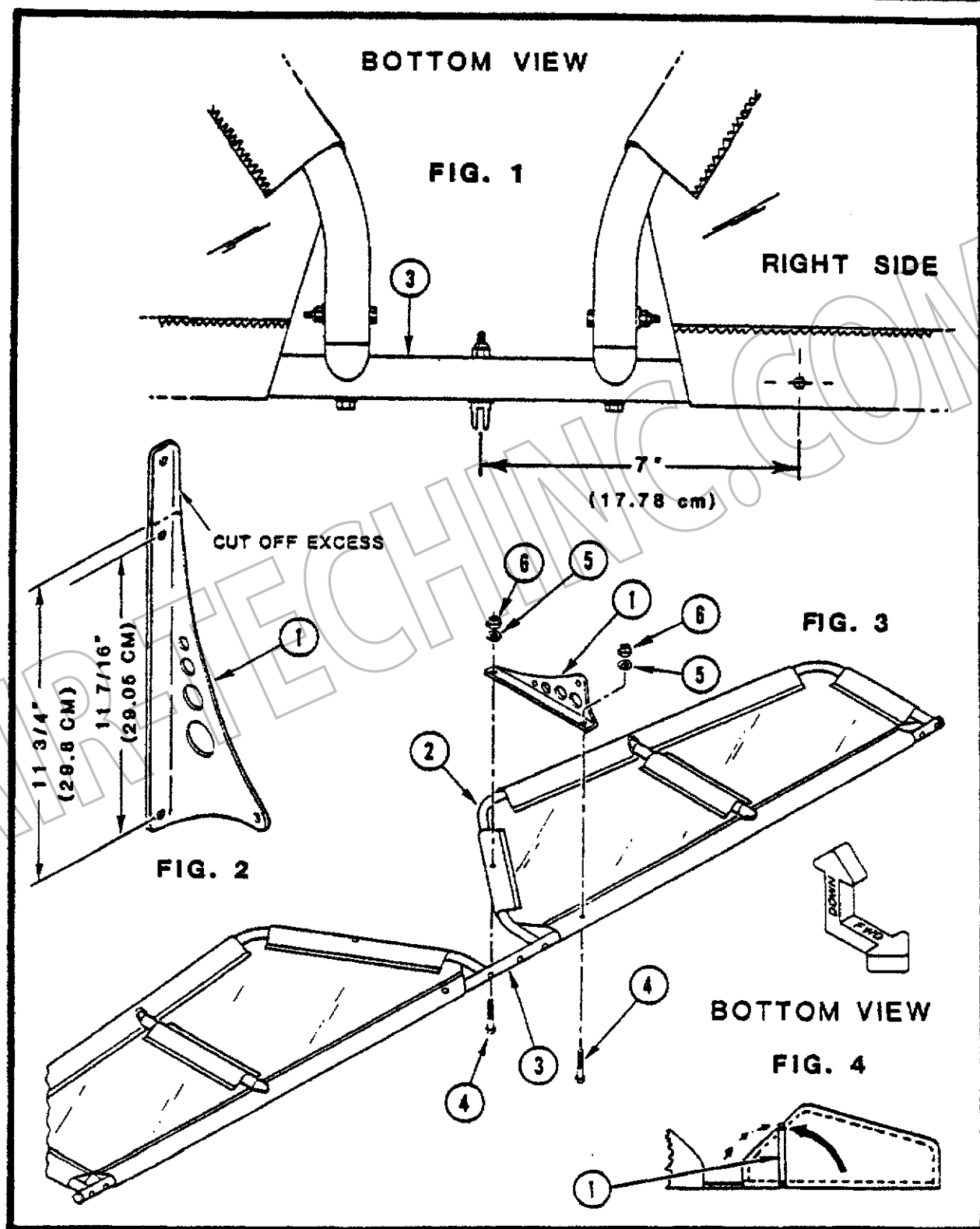
4. Refer to Figure 3. Attach the FORWARD end of the Horn (1) to the Elevator Leading Edge (3) with Hardware (4,5 and 6) as illustrated. Tighten to correct torque. DO NOT DISTORT THE TUBE.

5. Refer to Figures 3 and 4. Swing the AFT end of the Elevator Horn so that the AFT hole just drilled aligns over the CENTERLINE of the Elevator Frame (2). Drill and deburr a 3/16" (4.7 mm) hole at this location through BOTH walls in the Elevator Frame using the AFT Elevator Horn hole as a guide. Deburr then heat seal the hole.

6. Attach the AFT end of the Horn to the Elevator Frame with Hardware (4,5 and 6) as illustrated. Tighten to correct torque. DO NOT DISTORT THE TUBE.

Item	P/N	Description
1...	70070..	Elevator Control Arm (Horn)
2...	70110..	Elevator Frame
3...	70130..	Elevator Leading Edge Spar Assembly
4...	10035..	AN3-14A Bolt
5...	10550..	3/16" Washer
6...	10500..	3/16" Locknut

ELEVATOR CONTROL ARM (HORN) ATTACHMENT



STABILIZER LEADING EDGE ASSEMBLY

1. Refer to Figure 2. Slightly bend each Stabilizer Frame half (1) as illustrated a 1/2" (12.7 mm) [around a car tire] to help tension the Stabilizer Cover (4) to be installed later.
2. Mark, center-punch, drill and deburr FOUR 3/16" (4.7 mm) diameter holes through ONE side ONLY located at 1" (2.54 cm) and 4" (10.16 cm) INBOARD from each END of the Sleeve (2).
3. Place the Stabilizer Frame halves (1) on a flat surface and insert each one EXACTLY HALFWAY into the Sleeve (2).
4. Rotate the Sleeve (2) until ALL FOUR holes are 45 degrees AFT from the TOP CENTERLINE of the Stabilizer Frame.
5. Mark the Frame through the holes or back-drill FOUR 3/16" (4.7 mm) holes through the Sleeve into ONE side of the Stabilizer Frame (1) ONLY. Deburr and secure with FOUR Rivets (3).

Item	P/N	Description
1...	40265..	Stabilizer Frame
2...	40266..	Stabilizer Sleeve
3...	20210..	3/16" Aluminum Rivet
4...	50047..	Stabilizer Cover
5.....		Center-Punch

STABILIZER LEADING EDGE ASSEMBLY

FIG. 1 GENERAL ARRANGEMENT

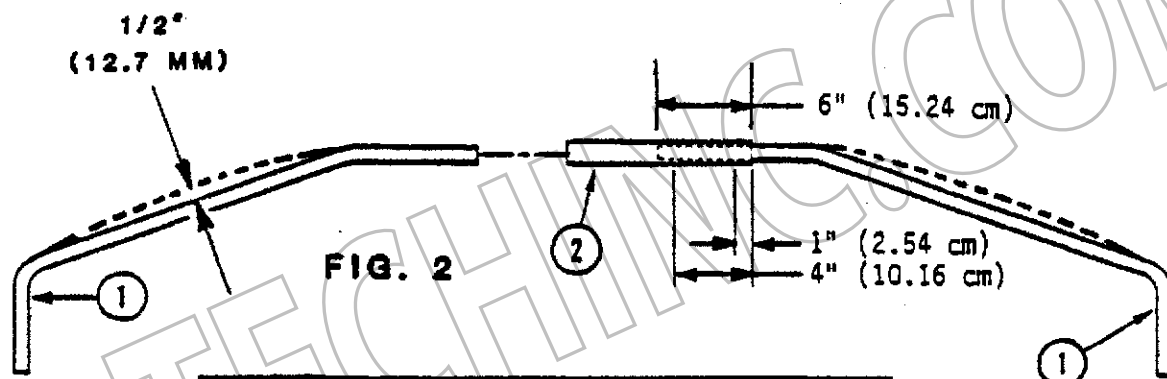
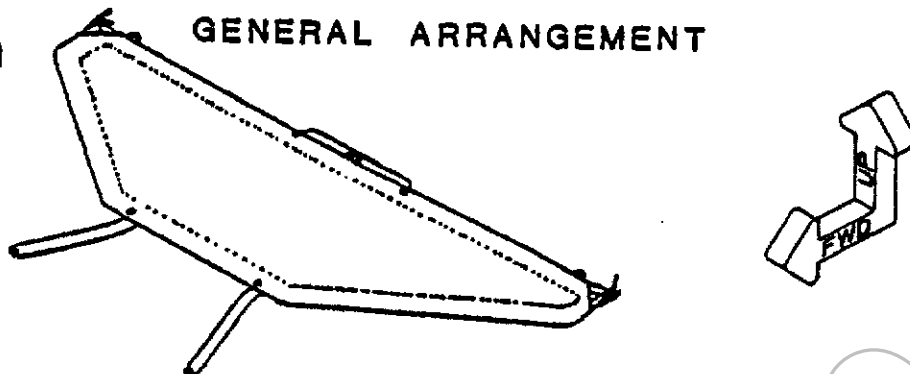


FIG. 3

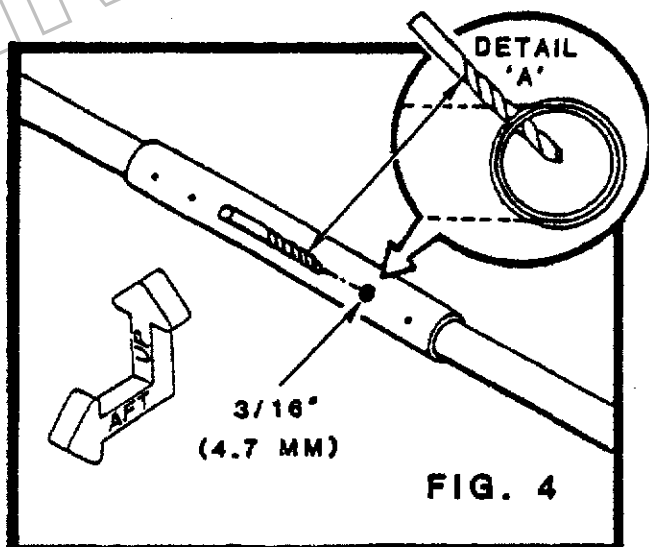
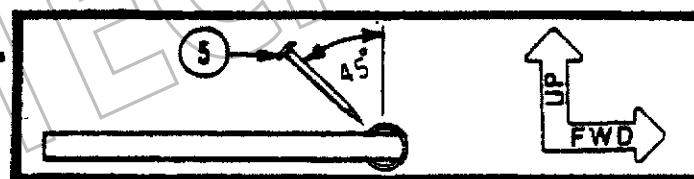


FIG. 4

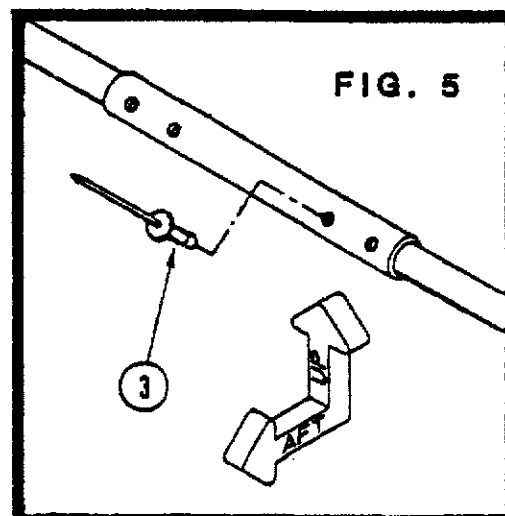


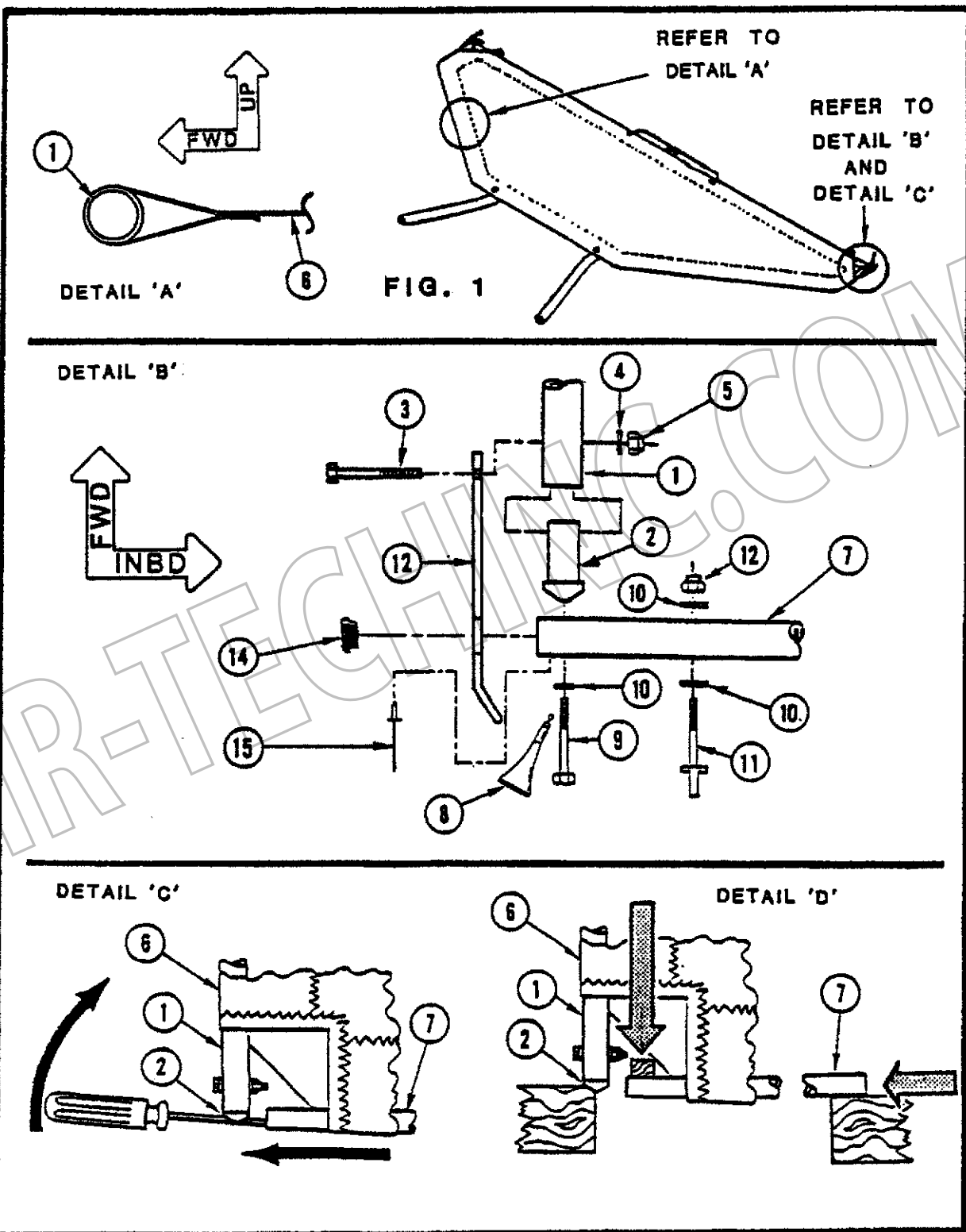
FIG. 5

STABILIZER ASSEMBLY

1. Slide the Stabilizer Frame Assembly into the FORWARD Leading Edge Pocket of the Stabilizer Cover (6). [The Edge of the fold is on the BOTTOM surface.] Refer to Figure 1. Detail 'A'.
2. Temporarily attach a Tube Connector (2) with a Bolt (3). Repeat on the opposite side.
3. Refer to Detail 'C'. Slide the Stabilizer Trailing Edge (7) into the AFT Pocket of the Stabilizer Cover (6). [Nutplate in CENTER and Rivets face INBOARD or FORWARD]. Use a large screwdriver carefully to lever the Stabilizer Trailing Edge (7) onto the Tube Connector (2) as illustrated or refer to Step 4 for another method.
4. Detail 'D' illustrates another method of levering the Stabilizer Trailing Edge (7) into place. Rest the Tube Connector (2) on a block of wood. Support the opposite end of the Stabilizer Trailing Edge (7) on another block of wood. Insert a smaller block of wood over the Stabilizer Trailing Edge (7) as illustrated. Use your foot and/or body weight to push the Stabilizer Trailing Edge (7) into alignment with the Tube Connector (2) and push or pull the Stabilizer Trailing Edge (7) into the Tube Connector (2).
5. Insert a Bolt (9) and Washer (10). Add a drop of Thread Adhesive (8) to the end of the Bolt Threads. Continue through the Stabilizer Trailing Edge (7). Tighten to correct torque. DO NOT DISTORT THE TUBE.
6. TEMPORARILY remove the Bolt (3) and attach an Elevator Stop Bracket (13) as illustrated.

Item	P/N	Description	Item	P/N	Description
1...	40263..	Stabilizer Frame	10...	10560..	1/4" Washer
2...	20446..	1" Al. Tube Connector	11...	10350..	AN43B-14A Eyebolt
3...	10035..	AN3-13A Bolt	12...	10510..	1/4" Locknut
4...	10550..	3/16" Washer	13...	42000..	Elev. Stop Brckt.
5...	10500..	3/16" Locknut	14...	20400..	7/8" Tube Cap
6...	50047..	Stabilizer Cover	15...	20200..	1/16" Alum. Rivet
7...	40275..	Stabilizer T.E.	16...	60592..	Contact Cement
8...	60591..	Thread Adhesive			
9...	10400..	1/4" x 1 3/4" Grade 5 Bolt			

STABILIZER ASSEMBLY



STABILIZER TO TAIL MOUNT ATTACHMENT

1. Refer to Figure 1. and Page 2-27. Slide TWO Sleeves (13) onto the Tail Mount Tube (2) and locate each as illustrated. NOTE: The CENTER of each Sleeve should be located 3 1/2" (8.25 cm) from the CENTER of the Tail Skid attachment hole. Attach with Contact Cement (14) not illustrated.

2. Place the Horizontal Stabilizer UP-SIDE DOWN on the work surface to attach the Tail Mount Tube (2) to the Stabilizer Trailing Edge (3). Pull the Stabilizer Cover (1) FORWARD and tight against the Stabilizer Trailing Edge (3). Verify that the 'Crease' or 'Fold Line' on the AFT OUTSIDE edge of the Stabilizer Cover Trailing Edge Pocket is CENTERED on the LONGITUDINAL CENTERLINE of the Stabilizer Trailing Edge (3).

3. Refer to Figure 2. Pull the Leading Edge of the Stabilizer Cover (1) AFT and tight against the Stabilizer Frame (9). Center the 'Crease' or 'Fold-line' of the Stabilizer Cover Leading Edge Pocket on the LONGITUDINAL CENTERLINE of the Stabilizer Frame (9). Locate, reveal and heat-seal BOTH 1/4" (6.4 mm) holes near the CENTER of the Stabilizer Leading Edge Assembly (9).

4. Refer to Figure 1. Locate and reveal BOTH 1/4" (6.4 mm) holes through the Stabilizer Cover (1), near the CENTER of the Stabilizer Trailing Edge (3) and heat-seal. Insert a Bolt (4) through the AFT Tail Mount Hole as illustrated, and continue through the Stabilizer Trailing Edge (3). Add a Saddle (5), TWO Washers (6), another Saddle (5) and continue through the Tail Mount Tube (2), and Washer (7). Secure with a Locknut (8). Repeat for the opposite side of the Stabilizer Trailing Edge (3).

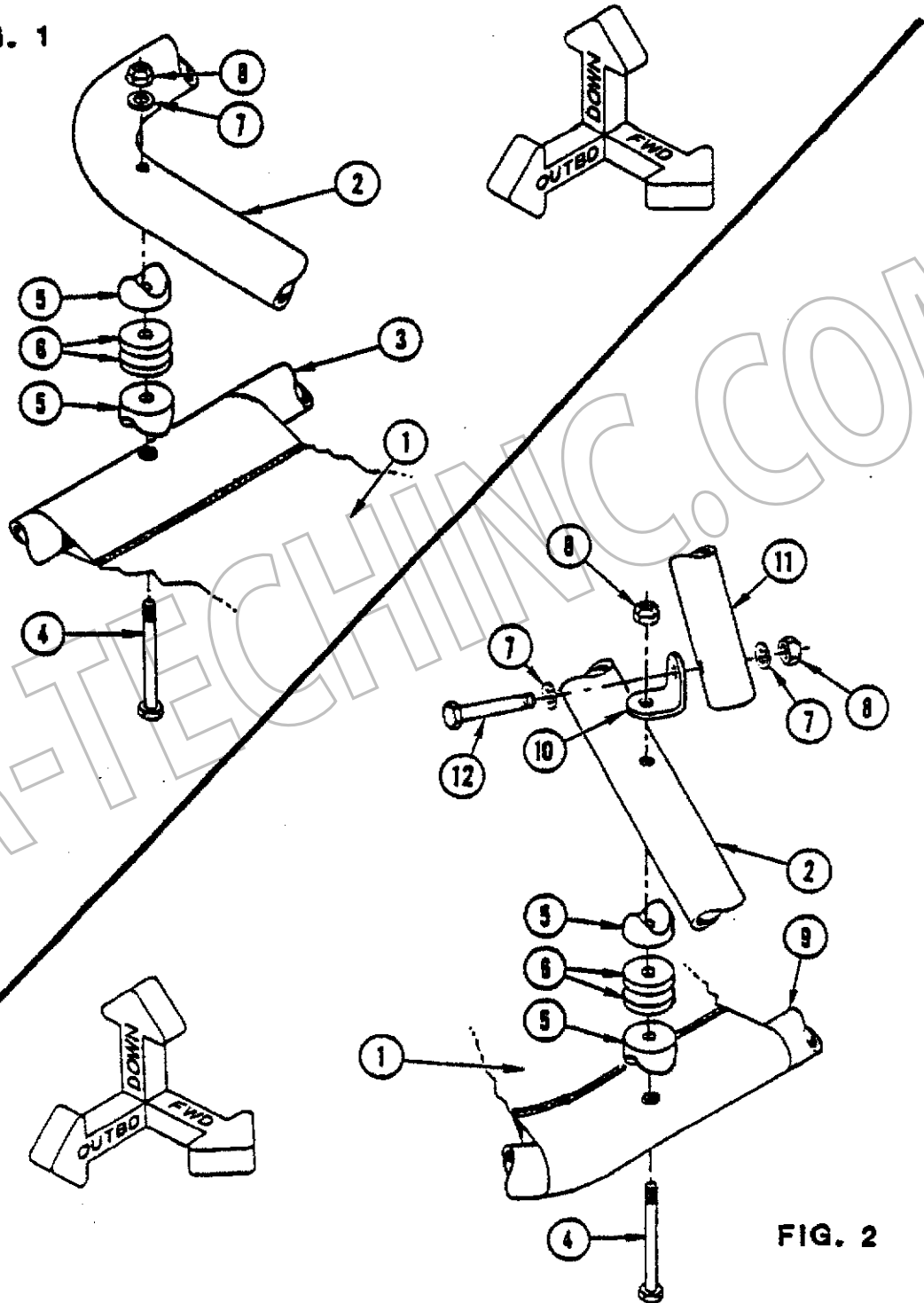
5. Refer to Figure 2. Insert a Bolt (4) through ONE of the 1/4" (6.4 mm) holes in the Stabilizer Frame (4). Continue through a Saddle (5), TWO Washers (6) and another Saddle (5). If it is difficult to achieve hole alignment between the Stabilizer Frame (9) and Tail Mount Tube (2) at this time, turn to the next page for ONE method of completing the attachment of this assembly.

6. Continue Bolt (4) through the Tail Mount Tube (2) and Tang (10). Secure with Locknut (8). Tighten to correct torque. DO NOT DISTORT THE TUBE. Repeat for the opposite side of the Frame (9).

Item	P/N	Description	Item	P/N	Description
1...	50047..	Stabilizer Cover	8...	10510..	1/4" Locknut
2...	40172..	Tail Mount Tube	9...	40265..	Stabilizer L.E.
3...	40273..	Stabilizer T.E.	10...	20365..	90 Degree Tang
4...	10290..	AN4-34A Bolt	11...	40181..	Rudder Brace
5...	20280..	1" x 1/4" Saddle	12...	10100..	AN4-14A Bolt
6...	20346..	1" x 1/4" Nylon Washer	13...	20397..	Flexible Sleeve
7...	10560..	1/4" Washer	14...	60592..	Contact Cement

STABILIZER TO TAIL MOUNT ATTACHMENT

FIG. 1



STABILIZER TO TAIL MOUNT ATTACHMENT (CONT'D.)

NOTE: Use the following procedure to help insert the Bolts (4) through the Stabilizer Leading Edge (9) and into the Tail Mount Tube Assembly (2). Refer back to Page 2-20, Figure 2.

1. Refer to Figure 1. Position the head of the Bolt (4) through the Stabilizer Leading Edge (9). Pull up on the Bolt and insert it into the FIRST 1/4" (6.4 mm) hole on the Tail Mount (2).
2. Refer to Figure 2. Rest the Bolt head on the edge of a work bench.
3. Push DOWN on the Tail Mount (2). Use your foot on the AFT end of the Tail Mount to assist in pushing DOWN.
4. Push FORWARD to insert the Bolt (4).
5. Refer to Page 2-20 for Final Tightening and Securement procedures.

Item	P/N	Description
2...	40172..	Tail Mount Tube Assembly
4...	10290..	AN4-34A Bolt
9...	40263..	Stabilizer Leading Edge Assembly

STABILIZER TO

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TAIL MOUNT ATTACHMENT (CONT'D.)

FIG. 1

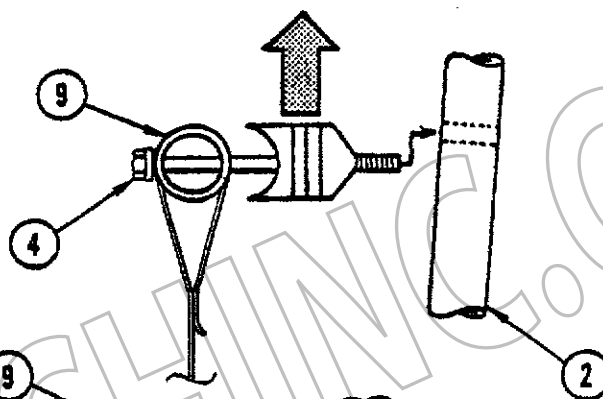
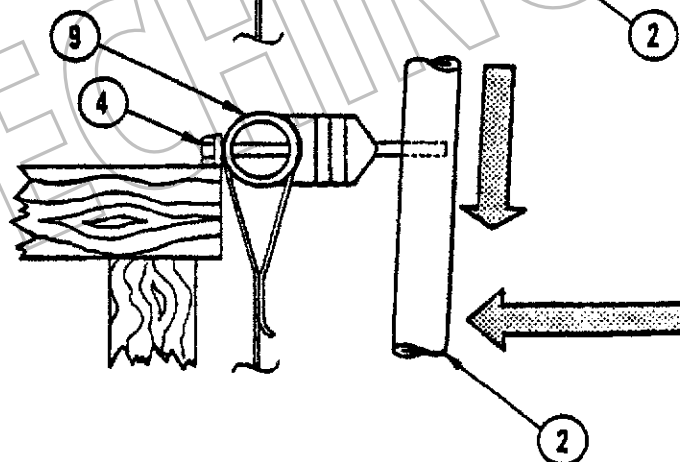


FIG. 2



SIDE VIEW

TAIL ASSEMBLY - GENERAL ARRANGEMENT
UPPER TAIL BOOM TO TAIL MOUNT TUBE ATTACHMENT

1. Refer to Figure 1, Detail 'A'. Slide the Upper Tail Boom Assembly (1) over the end of the Tail Mount Tube (2) until the holes align.
2. Attach with Hardware (3,4 and 5) as illustrated. Tighten to correct torque. DO NOT DISTORT THE TUBES.
3. Repeat on the opposite (Right) side, 'mirror image'.

Item	P/N	Description
1...	40179..	Upper Tail Boom Tube Assembly
2...	40172..	Tail Mount Tube
3...	10140..	AN4-16A Bolt
4...	10560..	1/4" Washer
5...	10510..	1/4" Locknut

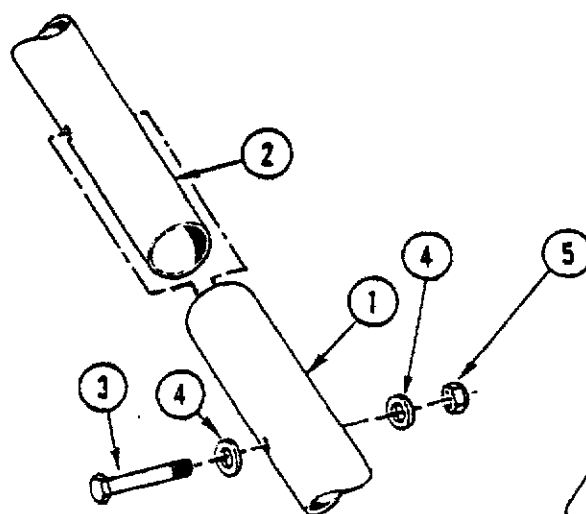
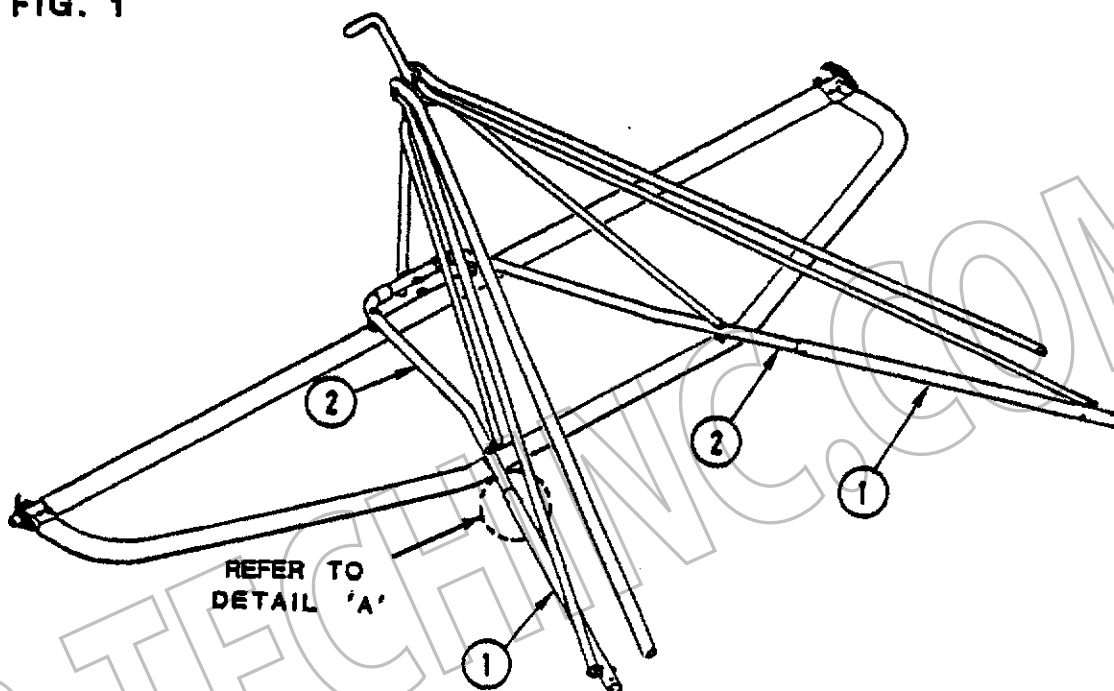
TAIL ASSEMBLY - UPPER TAIL

2-25

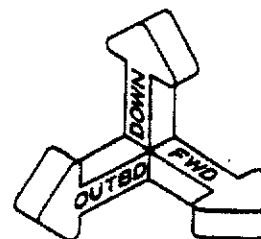
BOOM TO TAIL MOUNT TUBE ATTACHMENT

GENERAL ARRANGEMENT

FIG. 1



DETAIL 'A'



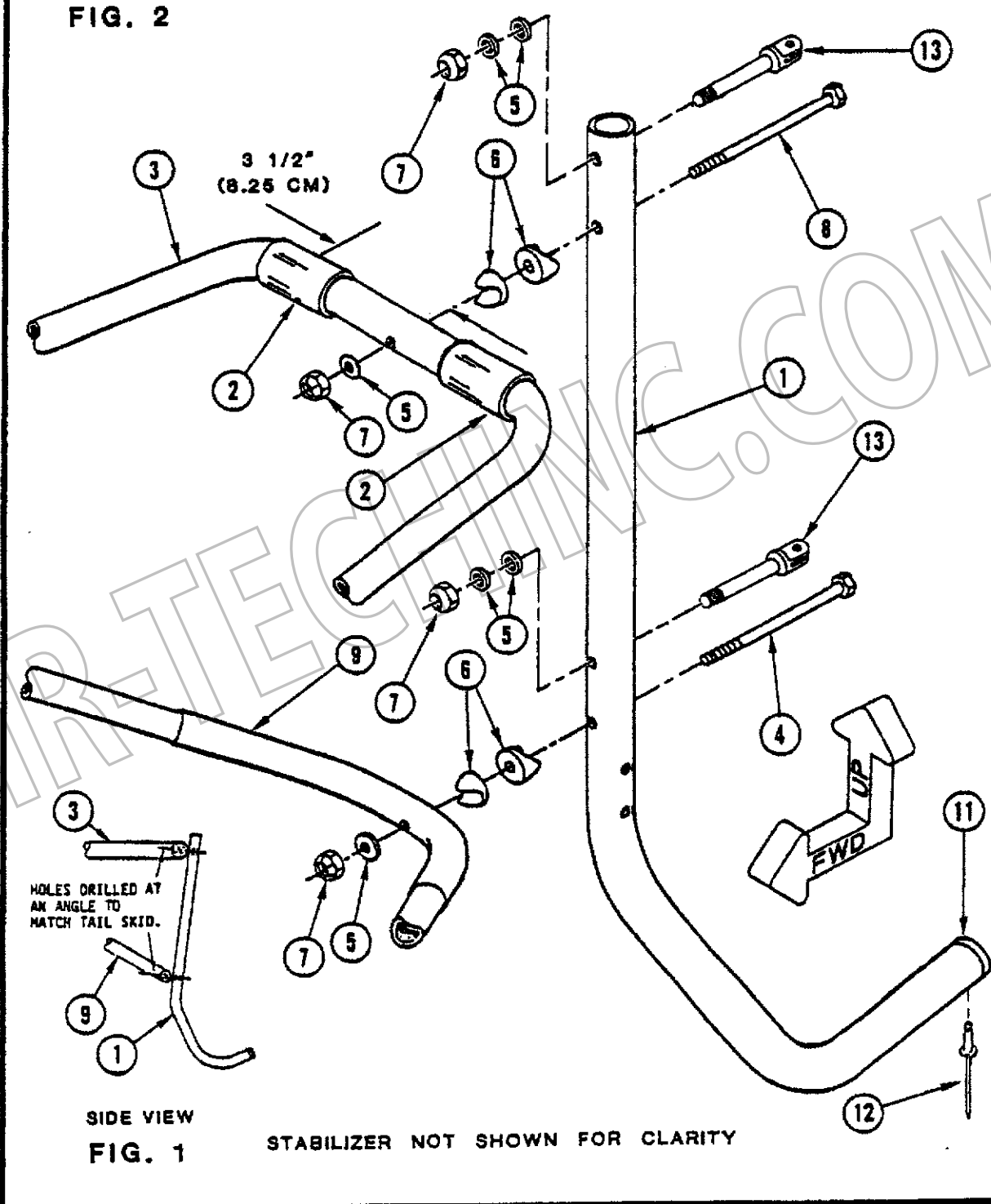
TAIL SKID ATTACHMENT

1. Refer to Figure 1. IMPORTANT: The Tail Skid Attachment holes in the Tail Mount (3) and the Rudder Brace (9) are drilled at an angle. It is important that the Tail Mount and the Rudder Brace are installed EXACTLY as illustrated.
2. Assemble as illustrated. Secure ALL the Locknuts. Tighten to correct torque. DO NOT DISTORT THE TUBES.
3. Attach a Tube Cap (11) into the BOTTOM end of the Tail Skid (1) with Contact Cement (10) [not illustrated]. Use a Rivet (12) for additional securement if desired.
4. Install BOTH Forkbolts (13) and Washers (5) as illustrated. Secure each with a Locknut (7). Tighten to correct torque. DO NOT CRUSH THE TUBES.

Item	P/N	Description
1...	41150..	Tail Skid
2...	20397..	Flexible Sleeve
3...	40172..	Tail Mount
4...	10235..	AN4-25A Bolt
5...	10560..	1/4" Washer
6...	20270..	1" x 1/8" Saddle
7...	10510..	1/4" Locknut
8...	10240..	AN4-26A Bolt
9...	40181..	Rudder Brace
10...	60592..	Contact Cement
11...	20410..	1" Tube Cap
12...	20200..	1/8" Aluminum Rivet
13...	10390..	1/4" x 1 1/2" Forkbolt

TAIL SKID ATTACHMENT

FIG. 2



**LOWER TAIL BOOM AND
RUDDER BRACE TO TAIL SKID ATTACHMENT**

1. Refer to Figure 1 and Detail 'A'. Attach a Tube Cap (11) to each end of BOTH Tail Brace Tubes (1) with Contact Cement (12) [not illustrated]. Remove any EXCESS Contact Cement IMMEDIATELY with cleaning solvent (Lacquer Thinner, etc.). Secure with a Rivet (13).

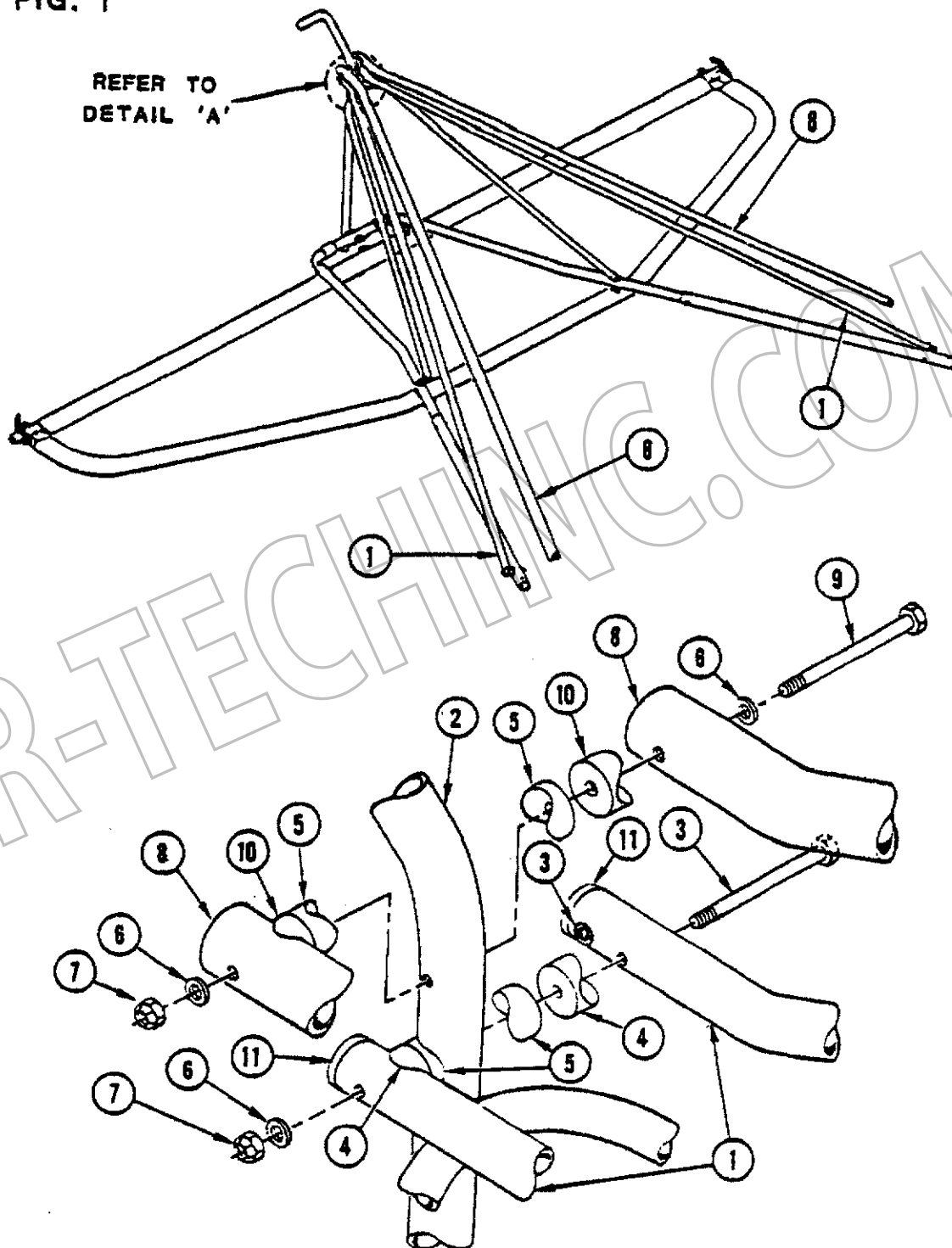
2. Assemble as illustrated. Tighten BOTH Locknuts (7) to correct torque. DO NOT DISTORT THE TUBES.

Item	P/N	Description
1...	40425..	Tail Brace Tube
2...	41150..	Tail Skid
3...	10294..	AN4-36A Bolt
4...	20265..	7/8" Plastic Saddle
5...	20270..	1/8" x 1" Plastic Saddle
6...	10560..	1/4" Washer
7...	10510..	1/4" Locknut
8...	40421..	Lower Tail Boom Tube
9...	10302..	AN4-45A Bolt
10...	20289..	1 1/2" Plastic Saddle
11...	20410..	1" Tube Cap
12...	60592..	Contact Cement
13...	20200..	1/8" Aluminum Rivet

LOWER TAIL BOOM AND RUDDER BRACE TO TAIL SKID ATTACHMENT

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FIG. 1



TAIL BRACE TUBE TO UPPER TAIL BOOM ATTACHMENT

1. Refer to Figure 1 and Detail 'A'. Attach as illustrated. Tighten BOTH Locknuts (4) to correct torque. DO NOT DISTORT THE TUBES.

2. Repeat for the opposite (Left) side, 'mirror image'.

Item P/N Description

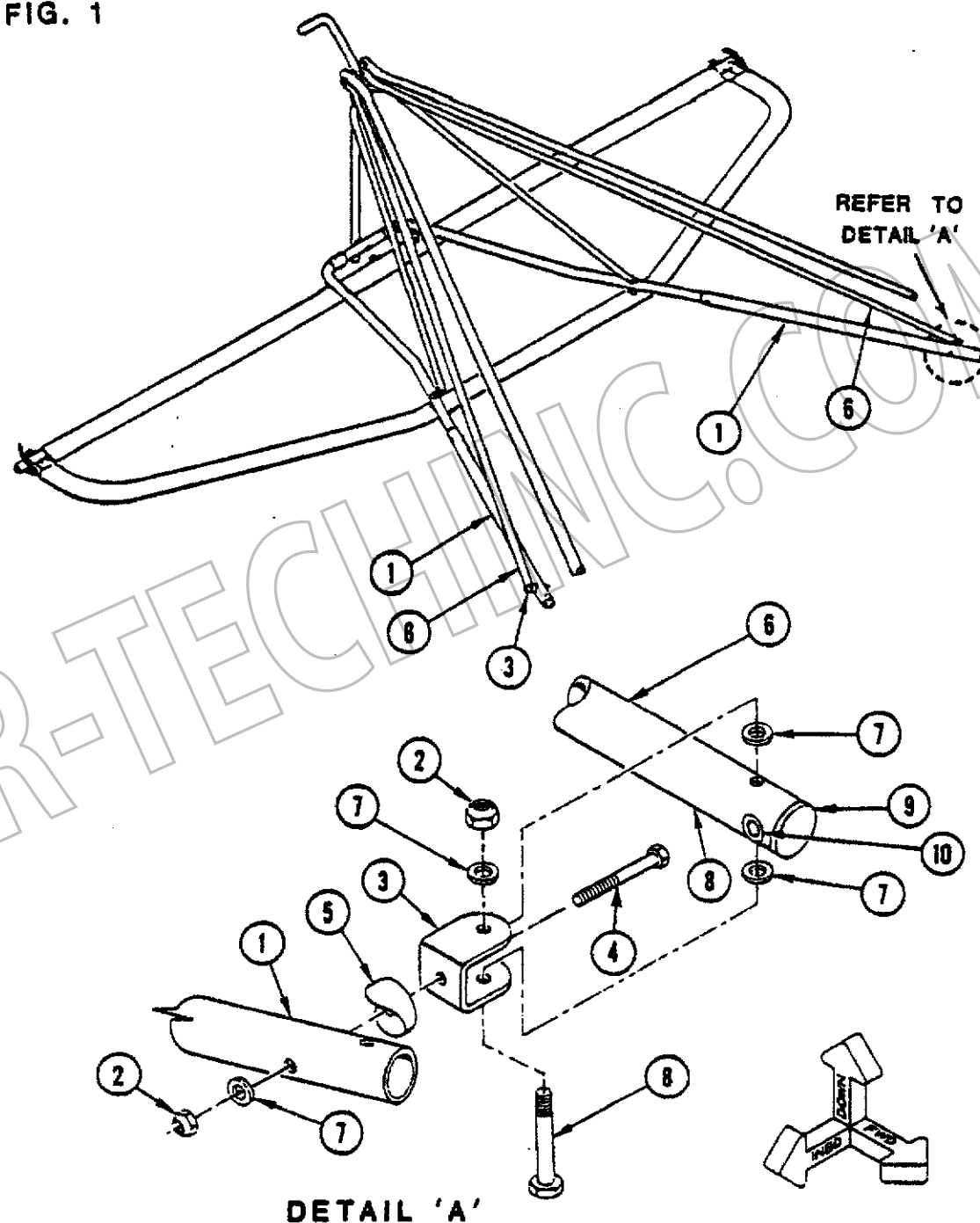
- 1...40179..Upper Tail Boom Tube Assembly
- 2...10510..1/4" Locknut
- 3...20080..I-75 Channel
- 4...10170..AN4-20A Bolt
- 5...20270..1/8" x 1" Saddle
- 6...40425..Tail Brace Tube
- 7...10560..1/4" Washer
- 8...10140..AN4-16A Bolt

TAIL BRACE TUBE

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TO UPPER TAIL BOOM ATTACHMENT

FIG. 1



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SECTION 3

ROOT TUBE ASSEMBLY

ROOT TUBE ASSEMBLY GENERAL ARRANGEMENT.....	3-2
ROOT TUBE ASSEMBLY AND NOSE CABLE ATTACHMENT.....	3-4
TRI-BAR/KINGPOST CHANNEL ATTACHMENT TO ROOT TUBE.....	3-6



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ROOT TUBE ASSEMBLY - GENERAL ARRANGEMENT

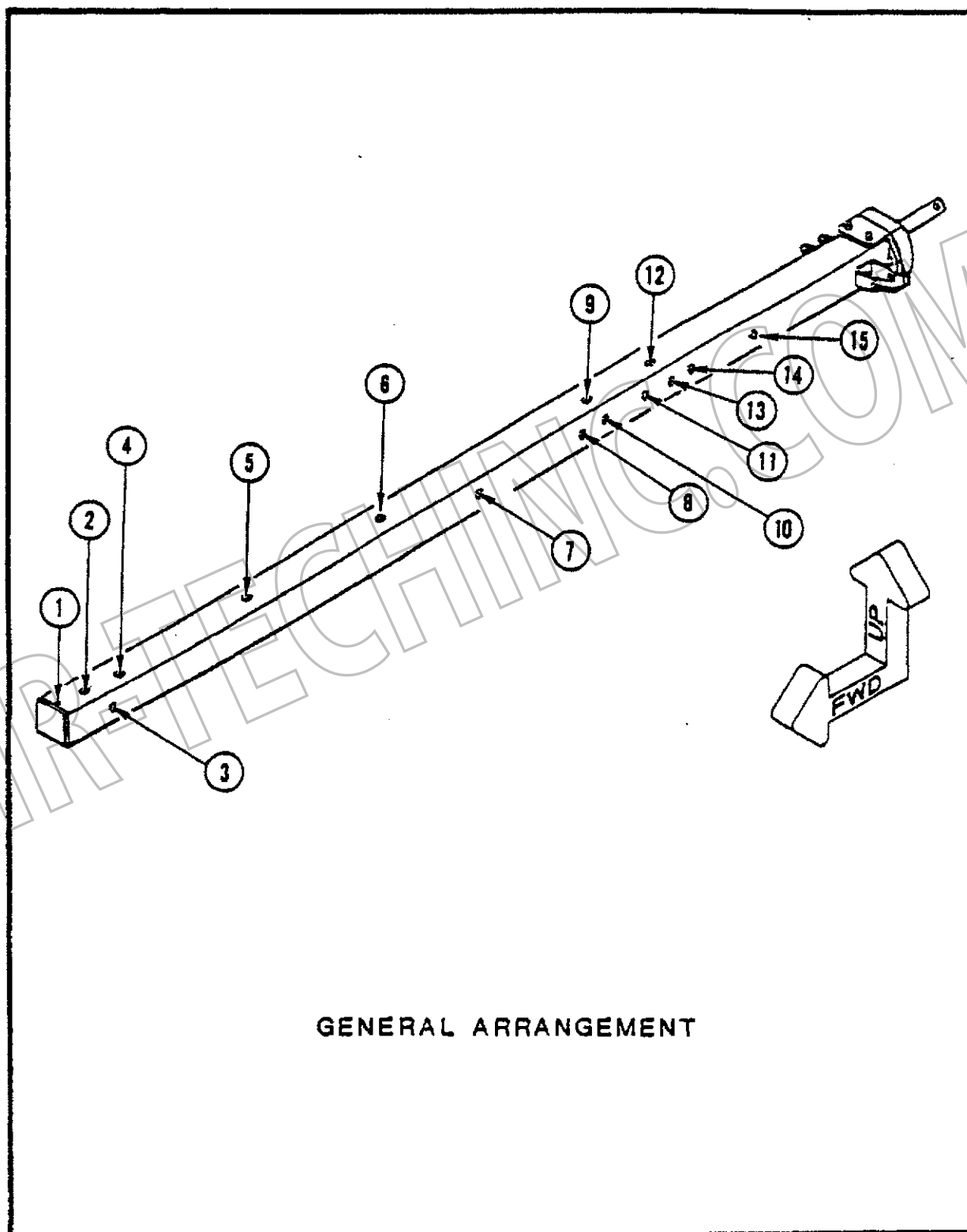
Study the Root Tube Assembly General Arrangement. This should answer questions which may arise during construction of the 'Trike' Assembly.

ALL QUICKSILVER MX and MXL (Sprint and Sport) Series Aircraft utilize the SAME Root Tube Assembly (P/N 40143). However, not all Aircraft utilize the SAME hole locations. Therefore, some parts including the Root Tube Assembly may contain extra holes that "do not apply to the construction of your Aircraft".

ALL LOCATIONS ARE APPROXIMATE and measured AFT from the FORWARD end of the Root Tube Assembly.

Item	Attachment/Location	Inches Aft	Metric Aft
1...	Rivet (factory-installed).....	1/4"	6.4 mm
2...	King Post Nose Cable and Tri-Bar Nose Cable Attachment.....	2 1/8"	5.4 cm
3...	L.E. Wing Spar/Channel Attachment.....	3 1/8"	7.94 cm
4...	Does not apply to your aircraft.....	4 3/8"	11.11 cm
5...	Fuel Tank Attachment.....	13 3/8"	33.97 cm
6...	Kingpost/Tri-Bar Attachment.....	24 1/8"	61.28 cm
7...	Engine Mount - Forward Attachment....	31 3/8"	79.69 cm
8...	Engine Mount - Aft Attachment.....	39 7/8"	101.28 cm
9...	Does not apply to your aircraft.....	40 11/16"	103.35 cm
10...	Landing Gear Downtube Attachment.....	41 5/8"	105.73 cm
11...	Does not apply to your aircraft.....	44 5/8"	113.35 cm
12...	Does not apply to your aircraft.....	46 3/16"	117.30 cm
13...	Seat Support Downtube Attachment.....	48 5/8"	123.51 cm
14...	Muffler Attach Strap Attachment.....	50 1/8"	127.31 cm
15...	Factory Installed Bolt.....	55 5/8"	141.29 cm

ROOT TUBE ASSEMBLY



GENERAL ARRANGEMENT

ROOT TUBE ASSEMBLY AND NOSE CABLE ATTACHMENT

1. Insert a Bolt (1) through a Washer (4) and Channel (2) as illustrated. Measure 3 1/8" (7.94 cm) AFT from the FORWARD end of the Root Tube Assembly (3). Continue through the hole in the Root Tube Assembly (3). Add a Channel (2) and a Washer (4) as illustrated. Secure with the Locknut (5).

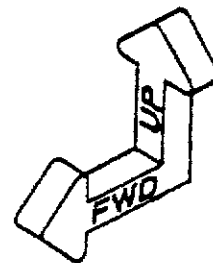
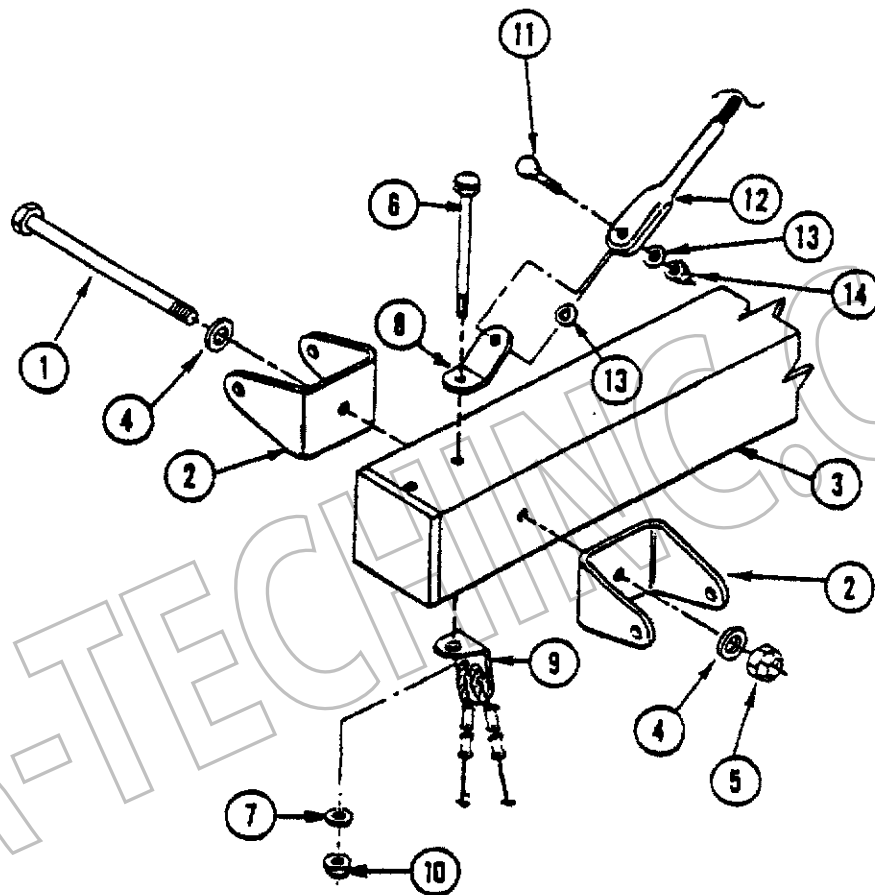
2. Ensure the Channel (2) holes are EXACTLY parallel to the Root Tube Assembly (3). If the Channels are not parallel you may have trouble installing the Compression Struts in a later step. Tighten but DO NOT DISTORT the Root Tube Assembly (3).

3. Insert a Bolt (6) through the SHORT leg of the Tang (8) as illustrated. Continue through the Root Tube (3), add the Tri-Bar Nose Cable (9), a Washer (7) and a Locknut (10). DO NOT SECURE AT THIS TIME. Attach the Locknut (10) FINGER TIGHT ONLY.

NOTE: The opposite end of the Tri-Bar Nose Cable (9) attaches to the Tri-Bar Assembly in a later step.

4. Pass a Bolt (11) through the Fork in the Kingpost Nose Cable (12), and the Tang (8), adding ONE Washer (13) INSIDE the Fork of the Cable (12). Add another Washer (13) and secure with a Locknut (14). Tighten to proper torque.

Item	P/N	Description
1...	10240..	AN4-26A Bolt
2...	20050..	S-1.75 Channel
3...	40145..	Root Tube Assembly
4...	10560..	1/4" Washer
5...	10510..	1/4" Locknut
6...	10312..	AN5-25A Bolt
7...	10570..	5/16" Washer
8...	20356..	75 degree Tang with 5/16" hole
9...	21600..	Tri-Bar Nose Cable
10...	10540..	5/16" Locknut
11...	10015..	AN3-6A Bolt
12...	20595..	Kingpost Nose Cable
13...	10550..	3/16" Washer
14...	10500..	3/16" Locknut



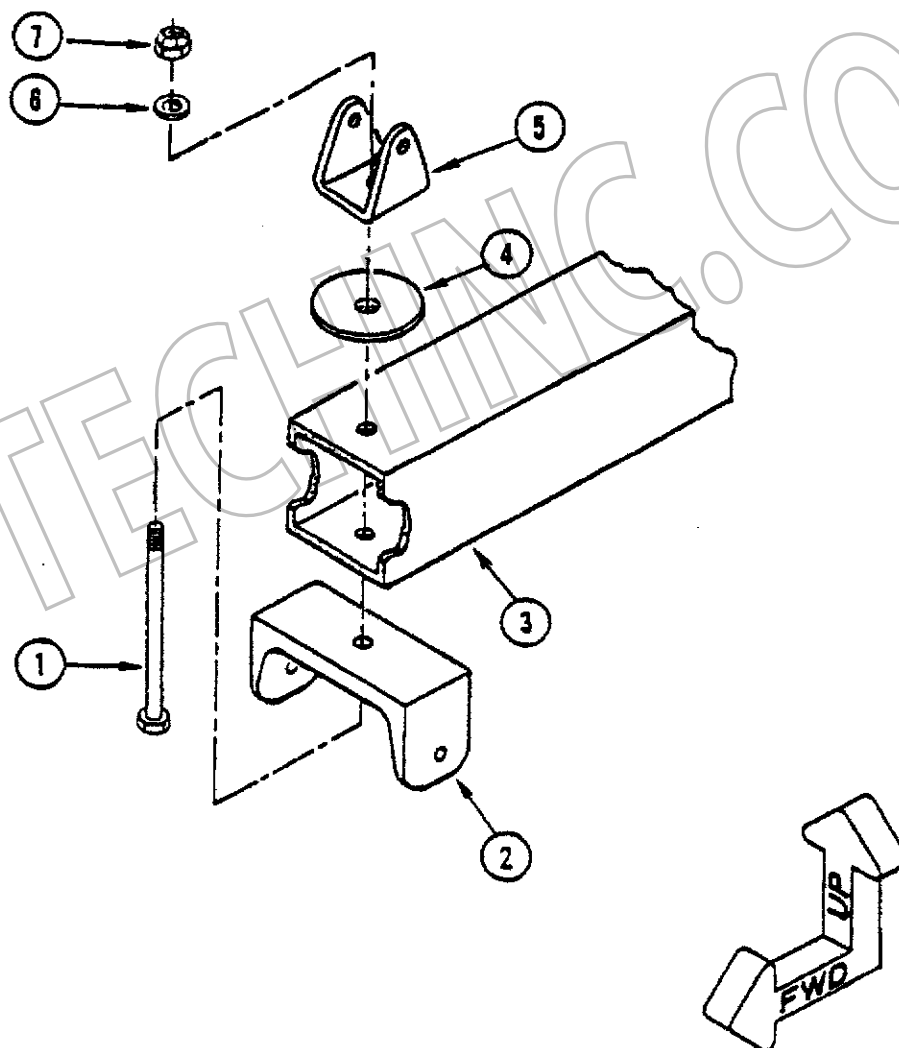
TRI-BAR/KINGPOST CHANNEL ATTACHMENT TO ROOT TUBE

1. Measure 24 1/8" (61.28 cm) AFT from the FORWARD end of the Root Tube Assembly (3) and locate the hole. Refer to Page 3-2 if necessary.
2. Attach the Tri-Bar Channel (2) to the BOTTOM side of the Root Tube Assembly (3) and the Kingpost Channel (5) to the TOP side of the Root Tube Assembly as illustrated, using the Hardware (1,4,6 and 7). Assure the Channel (6) is aligned PARALLEL with the Root Tube Assembly as illustrated. Tighten but DO NOT DISTORT the Root Tube Assembly (3).

Item	P/N	Description
1...	10328..	AN5-30A Bolt
2...	20100..	Tri-Bar Channel
3...	40145..	Root Tube Assembly
4...	10600..	5/16" Fender Washer
5...	20070..	Kingpost Channel
6...	10570..	5/16" Washer
7...	10540..	5/16" Locknut

TRI-BAR / KINGPOST CHANNEL ATTACHMENT TO ROOT TUBE

3-7



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SECTION 4

WING ASSEMBLY

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WING ASSEMBLY - GENERAL ARRANGEMENT

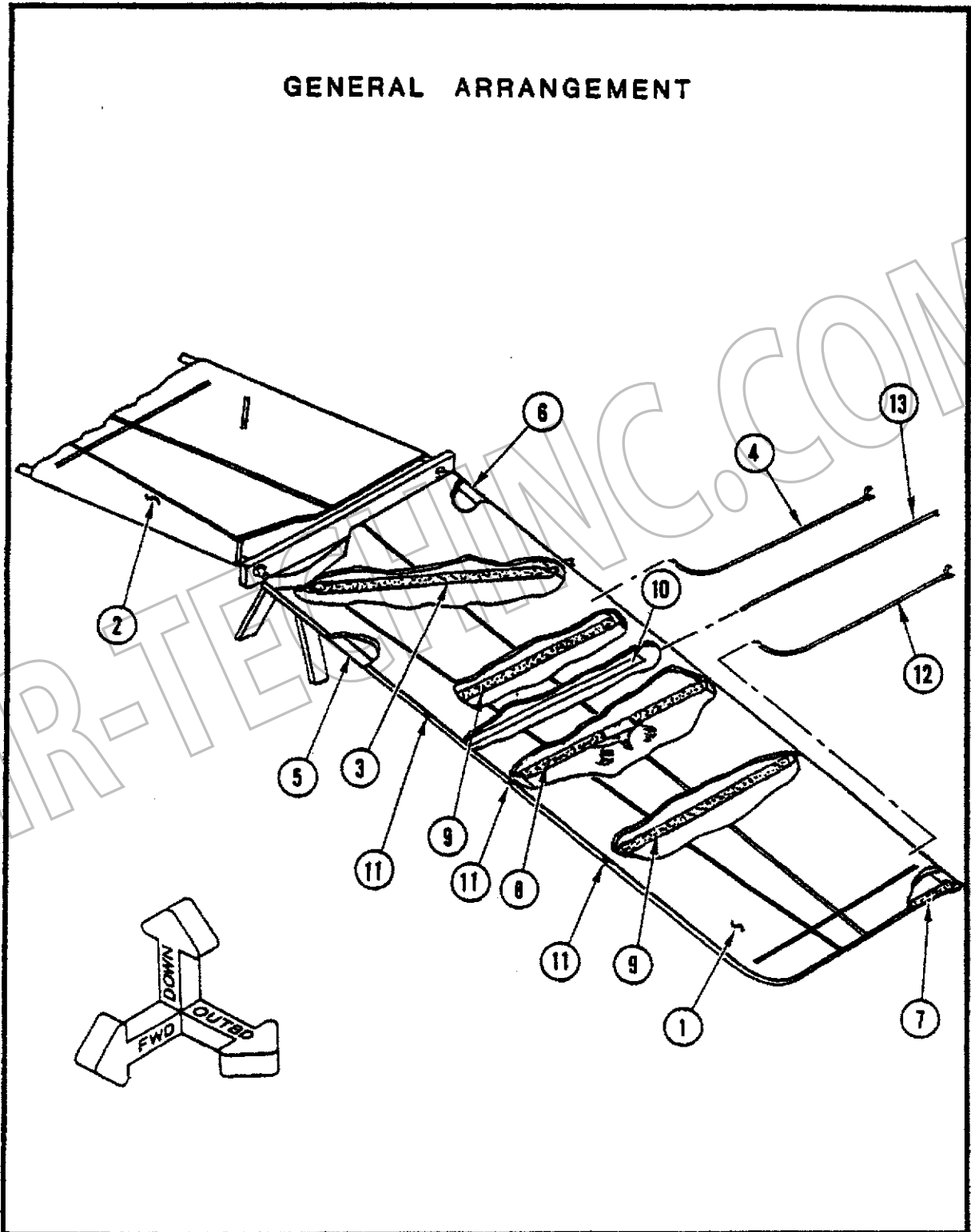
NOTE: The following sequence illustrates assembly of ONE Wing ONLY. You may construct the opposite Wing (mirror image) at the SAME time or finish ONE Wing COMPLETELY then start the other, depending on space available to construct your aircraft.

IMPORTANT: The Wing illustrated is the RIGHT Wing and it is illustrated UPSIDE DOWN (or DOWNSIDE UP).

Item	P/N	Description
1...	50042..	Wing Cover (Right)
2...	50041..	Wing Cover (Left)
3...	40420..	Diagonal Strut
4...	40462..	Upper Rib
5...	80200..	Leading Edge Spar Assembly
6...	80201..	Trailing Edge Spar Assembly
7...	80207..	Wing Tip Tube
8...	71020..	Bellcrank Compression Strut
9...	40283..	Compression Strut
10.....		Applied Rib Pocket
11.....		Compression Strut Attachment Hole
12...	40463..	Upper Tip Rib
13...	40167..	Lower Rib

WING ASSEMBLY

GENERAL ARRANGEMENT



BELLCRANK AND COMPRESSION STRUT ASSEMBLY

1. Refer to Figure 1. Assemble a Bellcrank Compression Strut (2) as illustrated.

NOTE: The end of the Bellcrank Compression Strut (2) with the SHORTER extension [21" (53.3 cm)] is the AFT end.

IMPORTANT: Refer to Detail 'A'. Ensure the correct Aluminum Tube Connectors (1) and (6) are installed in the appropriate ends with hardware (3, 4 and 5). Tighten to proper torque.

2. Assemble another Bellcrank Strut in 'mirror image'.

3. Assemble FOUR Compression Struts (10) [not illustrated and which DO NOT have an Outer Sleeve] as was done in Step 1, [Bellcrank Compression Struts (2)], using the same Tube Connectors (1) and (6) with Hardware (3, 4 and 5). Tighten to proper torque.

4. Refer to Figure 2. Note: the LEFT Bellcrank Assembly is shown. Clamp a Bellcrank Bearing (8) onto the BOTTOM side of a Bellcrank (7). Use FOUR of the perimeter holes at 90 degree positions to mark, punch, drill and deburr 1/8" (3.2 mm) holes in the Bellcrank (7). Attach the Bellcrank Bearing (8) to the BOTTOM side of the Bellcrank (7) with FOUR Rivets (9) EXACTLY as illustrated.

5. Repeat Step 4 on the RIGHT Aileron Bellcrank Assembly, 'mirror image'.

Item	P/N	Description
1...	20441..1	3/4" Aluminum Tube Connector (Forward)
2...	71020..	Bellcrank Compression Strut
3...	10400..	AN3-15A Bolt
4...	10550..	3/16" Washer
5...	10500..	3/16" Locknut
6...	20442..1	1/8" Aluminum Tube Connector (Aft)
7...	42009..	Aileron Bellcrank
8...	10702..	Bellcrank Bearing
9...	20201..	1/8" Rivet (Steel)
10...	40283..	Compression Strut [not illustrated]

4-5



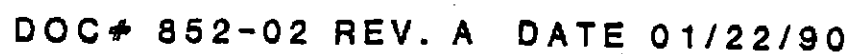
AILERON BELLCRANK TO BELLCRANK STRUT ATTACHMENT

NOTE: The following assembly sequence is for construction of the LEFT Wing. Construct the the RIGHT Wing in 'mirror image'.

1. Identify the FORWARD and AFT ends of the Bellcrank Strut.
(1). The OUTER Sleeve (17) is positioned closer to the Aft end.
2. Assemble as illustrated. NOTE: The Aileron Cable (12) is used on the LEFT Wing Bellcrank and the Aileron Cable (12A) is used on the RIGHT Wing Bellcrank.
3. Tighten Locknuts (7) to correct torque. DO NOT DISTORT THE STRUT.
4. After securing Castle Nuts (15), bend BOTH Cotter Pins (16) correctly.

Item	P/N	Description
1...	71020..	Bellcrank Strut
2...	10235..	AN4-25A Bolt
3...	20289..	1 1/2" Saddle
4...	10565..	1/4" Fender Washer
5...	42009..	Aileron Bellcrank
6...	10560..	1/4" Washer
7...	10510..	1/4" Locknut
8...	10250..	AN4-27A Bolt
9...	21560..	Bellcrank Strut Brace Cable
10...	71003..	Aileron Bushing
11...	20320..	3/16" Shackle
12...	91129..	Aileron Cable, Left
12A...	91130..	Aileron Cable, Right
13...	10009..	AN3-5 Bolt
14...	10500..	3/16" Washer
15...	10517..	3/16" Castle Nut
16...	10635..	Cotter Pin
17.....		Outer Sleeve

4-7



ROOT TUBE SUPPORT

1. Attach TWO 2" x 4" (4.13 cm x 9.21 cm) [APPROXIMATE] pieces of wood. 15 1/2" to 16" (39.37 cm to 40.64 cm) long to the SAME side of a wooden horse. [ONE PIECE AT EACH END]. Ensure there is at least 12" (30.48 cm) between the TOP of the wooden horse and the TOP end of BOTH wooden supports. This will give adequate clearance allowing for the camber of the Ribs which will be installed later.

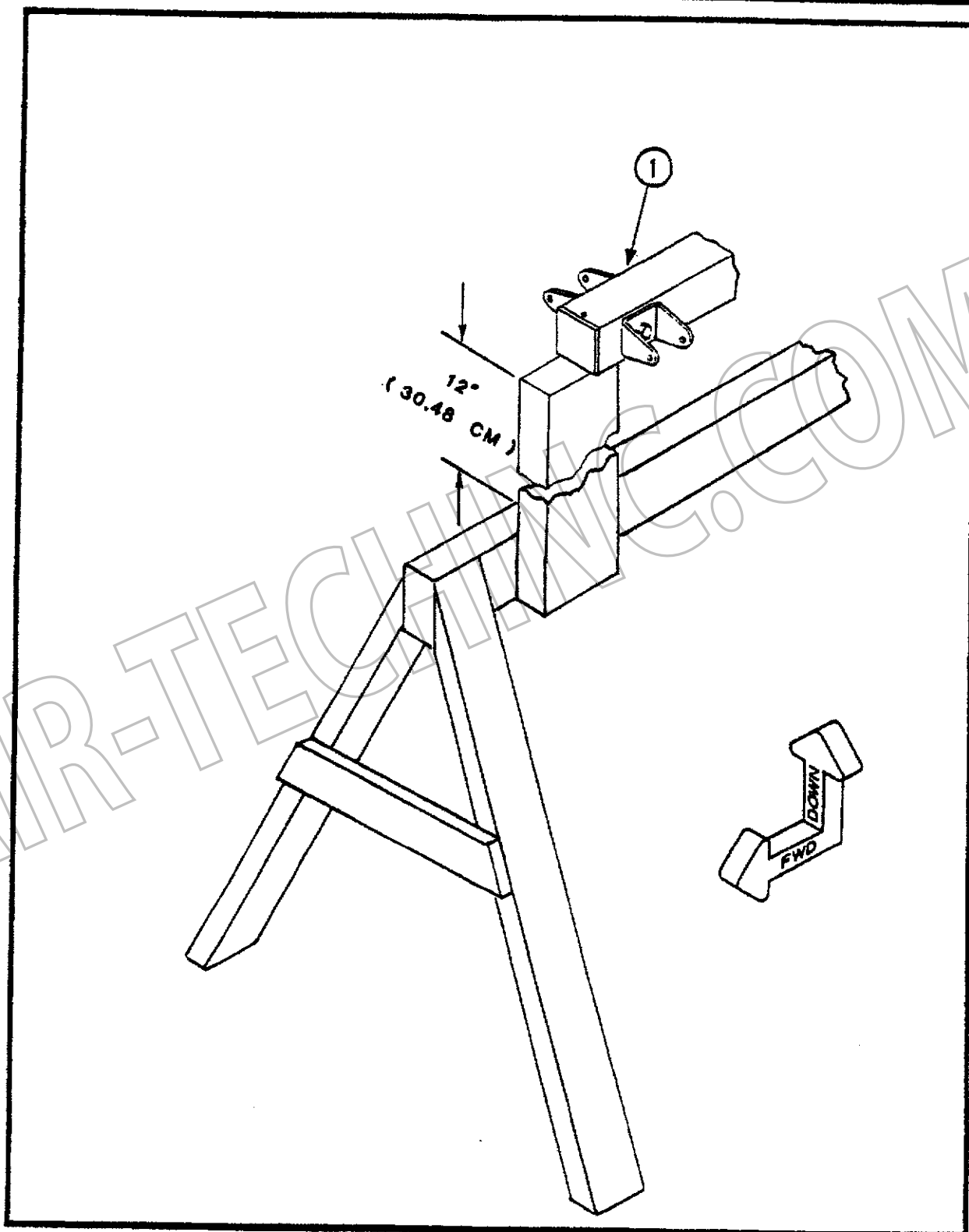
2. Attach the Root Tube Assembly (1) in the INVERTED position (UPSIDE DOWN or BOTTOM SIDE UP) by either clamping, attaching with rope or other means, to the wooden supports. Ensure the Root Tube Assembly (1) is secure BEFORE proceeding to the next step.

OPTIONAL: If you DO NOT have a Wooden Horse an alternative method of supporting the Root Tube Assembly is to suspend the Root Tube Assembly from the ceiling of your work area with Rope or Nylon 'Leech' Line if possible.

Item P/N Description

1...40145..Root Tube Assembly

ROOT TUBE SUPPORT



WING SPAR INSERTION

NOTE: During the following procedure old CLEAN bed sheets, blankets, carpet or the CLEAN cardboard airframe boards etc. should be placed UNDER the Wing Cover to keep it clean and to prevent unnecessary damage which may occur when it comes into contact with the ground.

The end of each Wing Spar with the SMALLER diameter tube is the INBOARD end.

1. Lay ONE of the TWO Wing Covers on a CLEAN FLAT surface with the BOTTOM side (Zippers) facing UPWARD.

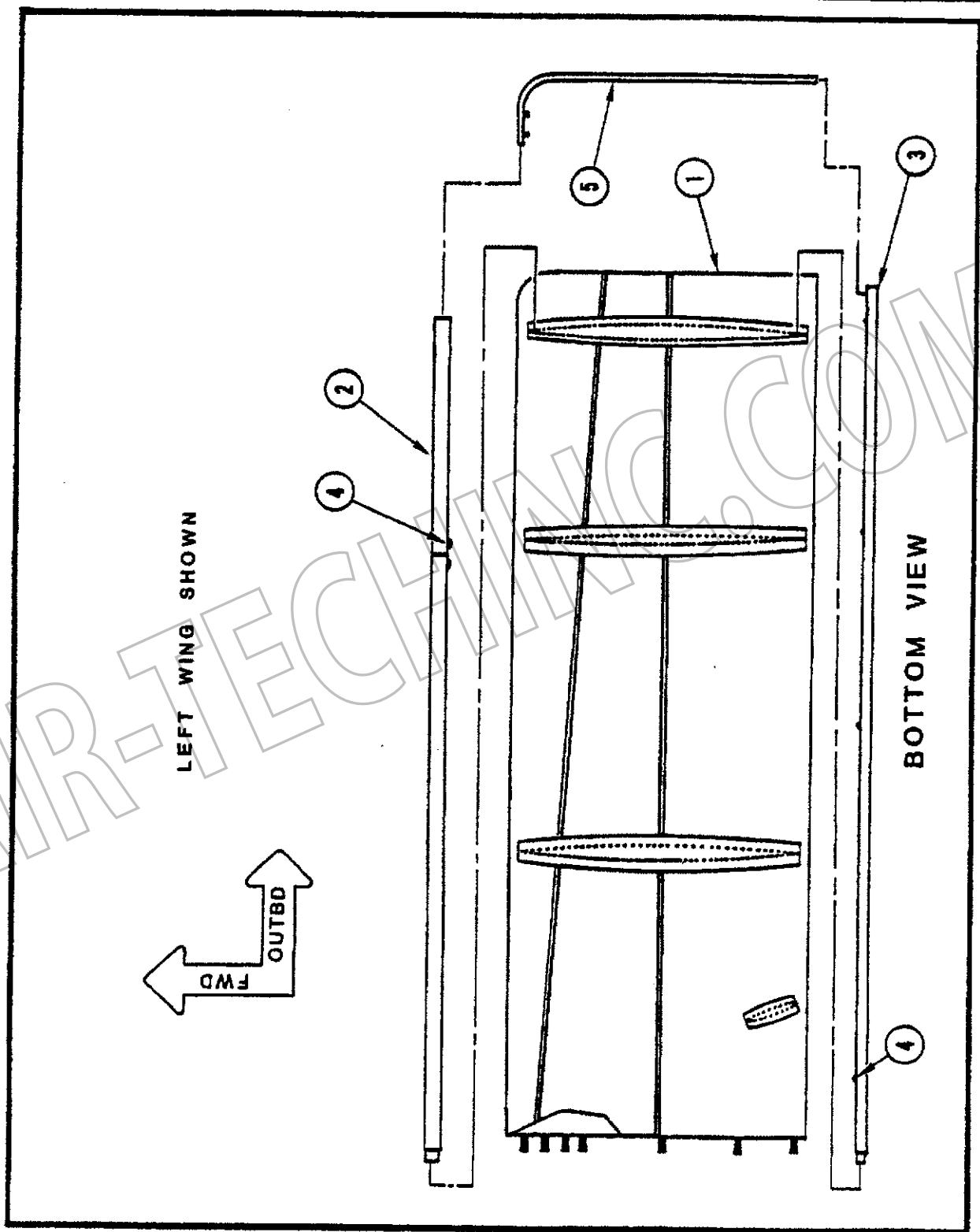
CAUTION: When opening and closing any Zippers BE CAREFUL. The Dacron edges can give a nasty cut.

2. Insert the Leading Edge Spar (2) into the Wing Cover (1). Rivets on the Spar face AFT or INWARD.

3. Insert the Trailing Edge Spar (3) into the Wing Cover(1). Rivets on the Spar face FORWARD or INWARD.

Item	P/N	Description
1...	50041..	Wing Cover (Left)
	50042..	Wing Cover. (Right) [not illustrated]
2...	80200..	Leading Edge Spar
3...	80201..	Trailing Edge Spar
4.....	3/16"	Rivet
5...	80207..	Wing Tip Tube

WING SPAR INSERTION



WING SPAR INSERTION (CONT'D.)

1. Ensure ALL Zippers (5) are OPEN on the BOTTOM Surface of the Wing Cover (3). Locate the Tension Sleeves (4) for the Leading and Trailing Edge Wing Spars (1) and (2).

2. Insert each Leading Edge (1) and Trailing Edge Wing Spar (2) into the Wing Cover (3) as illustrated. Route each Spar through ALL of the appropriate INNER Sleeves as illustrated.

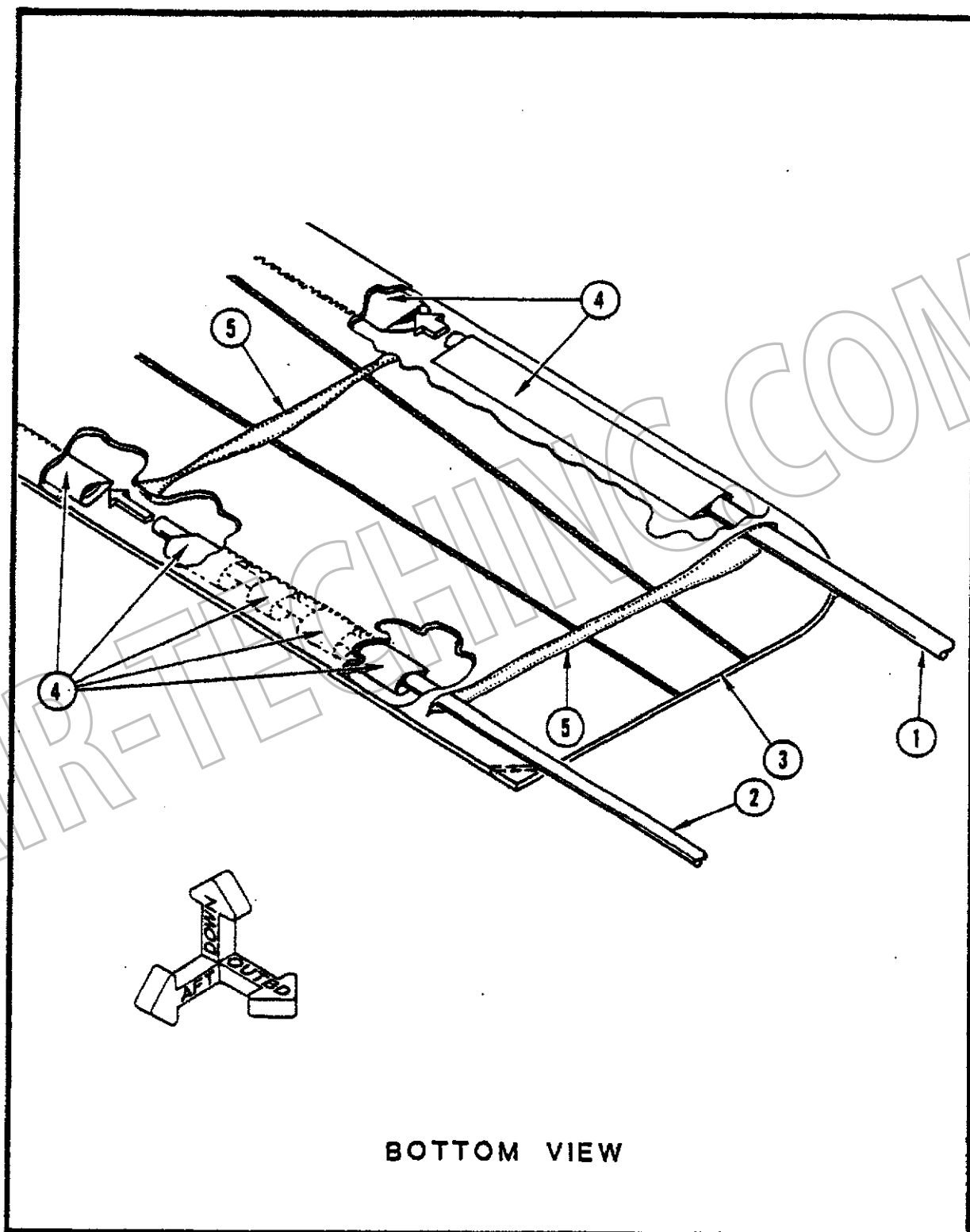
NOTE: The Inner Tension Sleeves break at ALL Zipper locations on the Trailing Edge and at the Rib Insert and Diagonal Strut attachment locations.

It may be necessary to climb INSIDE the Wing Cover to route the Spars correctly through ALL of the Inner Tension Sleeves.

Item P/N Description

- 1...80200..Leading Edge Spar
- 2...80201..Trailing Edge Spar
- 3...50041..Wing Cover (Left)
- 50042..Wing Cover (Right) [not illustrated]
- 4.....Inner Tension Sleeves
- 5.....Zipper

WING SPAR INSERTION (CONT'D.)



WING TIP TUBE ATTACHMENT

1. Pull the OUTBOARD end of the Leading Edge Spar (1) back out of the Wing Cover (2) far enough to attach the Tip Tube (3).

2. Refer to Figure 1. Attach the Tip Tube (3) to the Leading Edge Spar (1) with hardware (4) and (5) as illustrated. When securing the Bolt (4) to the factory installed Anchor Nut (6) tighten to correct torque. DO NOT DISTORT THE TUBE.

3. Slide the completed assembly back into the Wing Cover (2). Position ALL of the Tip Tube (3) INSIDE the Wing Cover.

4. Refer to Figure 2. Insert the Tube Connector (7) into the OPPOSITE end of the Wing Tip Tube (3).

5. Refer to Figures 3 and 4. Now decide if you want to cut and heat seal APPROXIMATELY 1" to 1 1/2" (2.54 - 3.81 cm) [as required] off the OUTBOARD Trailing Edge corner of the Wing Cover to ease attachment of the Tip Tube to the Trailing Edge Spar.

NOTE: Before securing the Tube Connector (7) the Bolt (10) head may be located UNDER the Wing Cover or EXPOSED as illustrated.

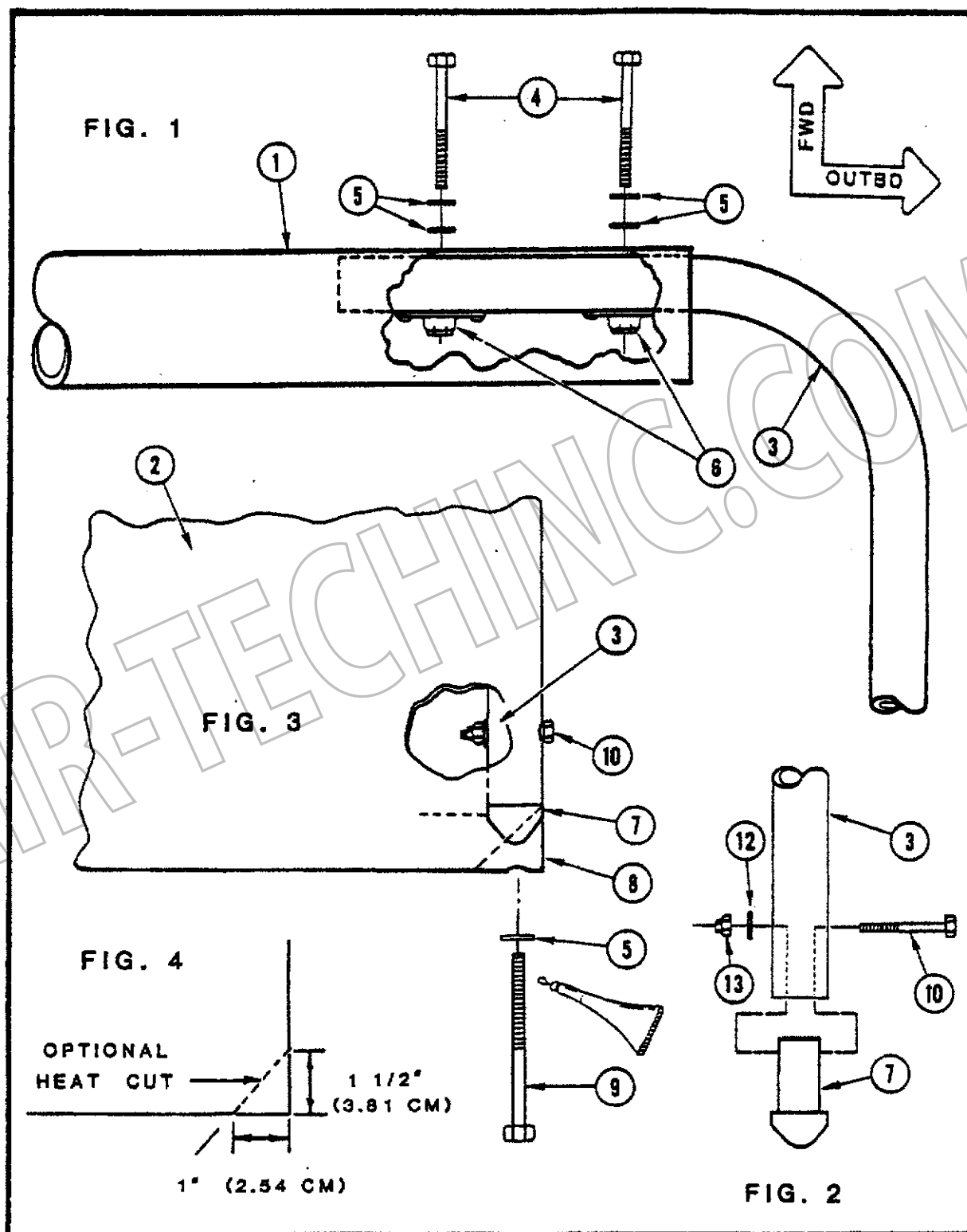
5. AFTER the Tip Tube (3) has been located properly INSIDE the Wing Cover and the Cover has been pulled TIGHT, use an Awl to locate then heat cut to reveal the hole for Bolt (10).

If you do not wish to cut the corner of the Wing Cover insert the Tip Tube. Pull the Wing Cover TIGHT. Locate the hole for the Bolt (10) with an Awl. Reveal the hole with a Hot Knife. Attach hardware (10, 12 and 13). Access the Nut (13) through the OUTBOARD Zipper opening. Tighten to correct torque.

6. Attach the Tip Tube (3) to the Spar (8) with hardware (9 and 5) using Thread Adhesive (11). Tighten to correct torque.

Item	P/N	Description	Item	P/N	Description
1...	80200..	Leading Edge Spar	7...	20442..	1 1/4" Alum. Tube
2...	50041..	Wing Cover (Left)			Tube Connector
	50042..	Wing Cover (Right)	8...	80201..	Trailing Edge Spar
		[not illustrated]	9...	10410..	1/4" x 2" Gr. 5 Bolt
3...	80207..	Wing Tip Tube	10...	10040..	AN3-15A Bolt
4...	10140..	AN4-16A Bolt	11...	60591..	Thread Adhesive
5...	10560..	1/4" Washer	12...	10550..	3/16" Washer
6...	10530..	1/4-28 Anchor Nut	13...	10500..	3/16" Locknut

WING TIP TUBE ATTACHMENT



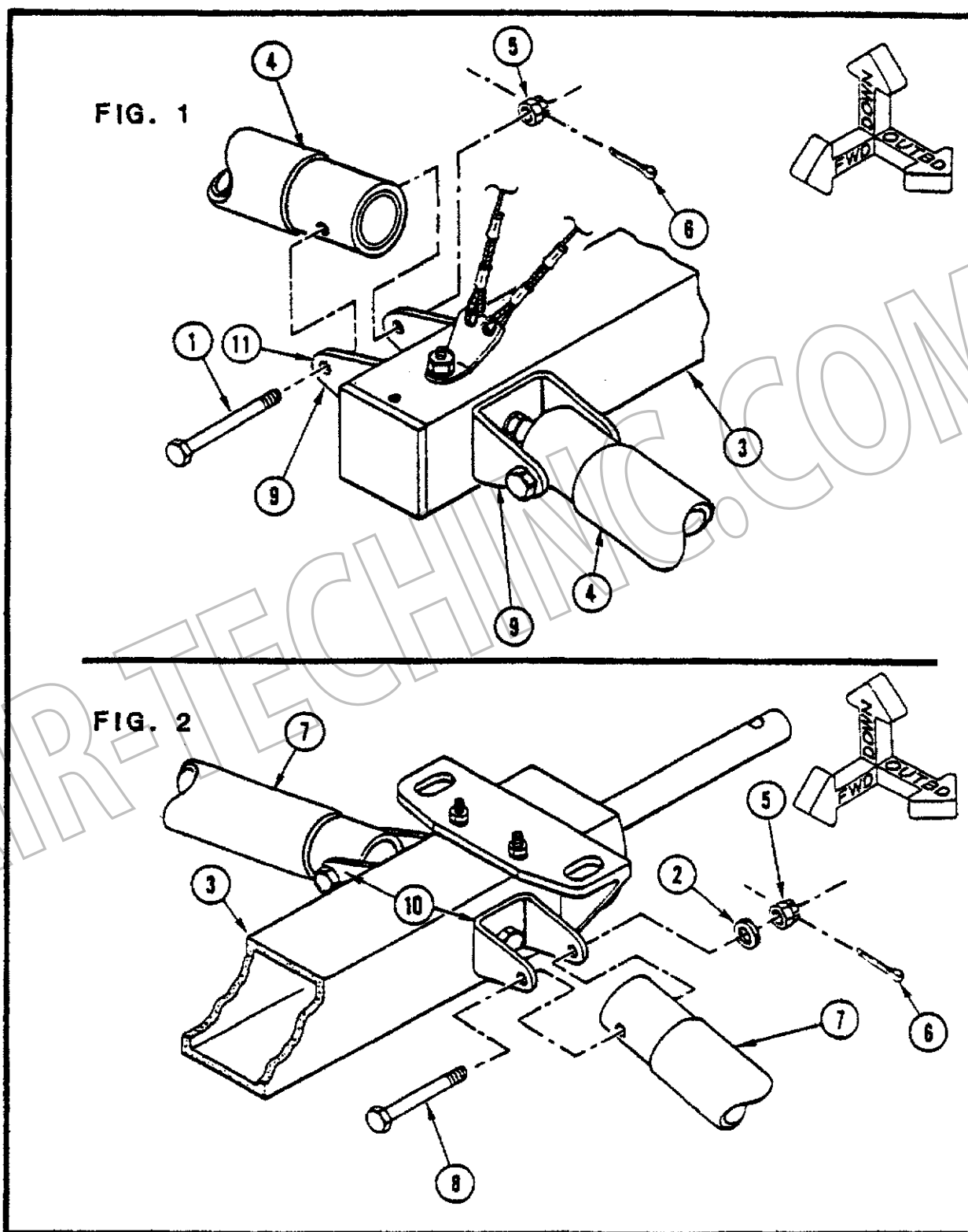
WING SPAR ATTACHMENT TO ROOT TUBE

1. Refer to Figure 1. Attach the Leading Edge Spars (4) to the FORWARD Channels (9) on the Root Tube Assembly (3) [Rivets (not illustrated) on Spars face AFT] with Hardware (1,5, and 6) as illustrated. Do not bend the Cotter Pin (6) until Page 9-6.

2. Refer to Figure 2. Attach the Trailing Edge Spars (7) to the AFT Channels (10) on the Root Tube Assembly (3) [Rivets (not illustrated) on the Spars face FORWARD] with Hardware (8,2,5 and 6) as illustrated. Do not bend the Cotter Pin (6) until instructed on Page 9-6.

Item	P/N	Description
1...	10205..	AN4-23 Bolt
2...	10560..	1/4" Washer
3...	40145..	Root Tube Assembly
4...	80200..	Leading Edge Spar
5...	10521..	1/4" Castle Nut
6...	10635..	Cotter Pin
7...	80201..	Trailing Edge Spar
8...	10160..	AN4-17 Bolt
9...	20050..	1 3/4" Channel
10...	20060..	1 1/8" Channel

WING SPAR ATTACHMENT TO ROOT TUBE



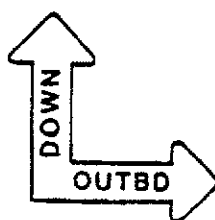
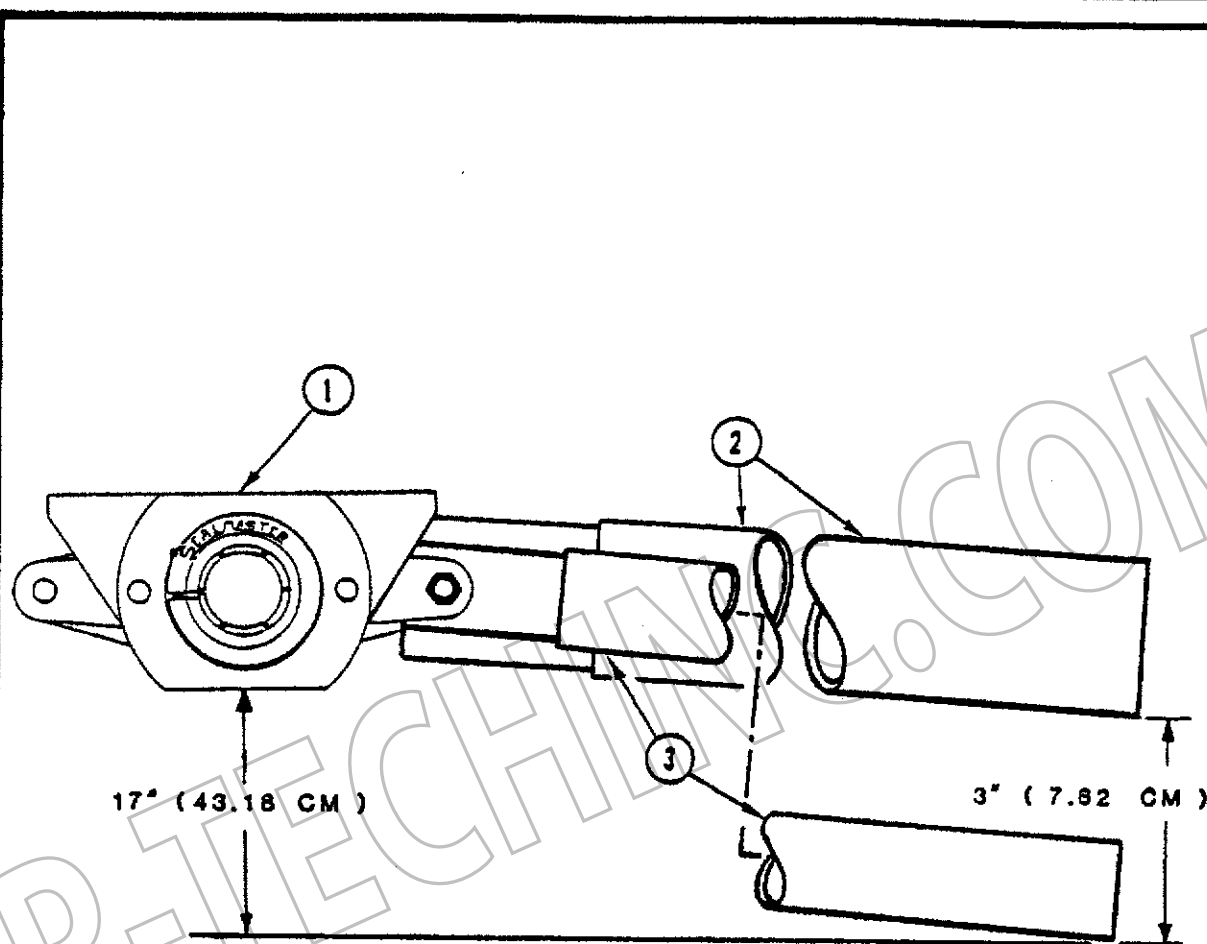
ESTABLISHING CORRECT WING WASHOUT

IMPORTANT: The OUTBOARD ends of the Leading Edge Spars (2) must be supported at least 12" (30.48 cm) off the floor during assembly of the Wing to allow for the camber set by the Ribs when they are installed. The OUTBOARD ends of the Trailing Edge Spars (3) must be 3" (7.62 cm) LOWER than the Leading Edge Spars (2) at the OUTBOARD ends to preset wing washout. The Root Tube Assembly (1) must be LEVEL and 17" (43.18 cm) ABOVE the OUTBOARD ends of the Trailing Edge Spars (3) as illustrated.

Item P/N Description

1...40145..Root Tube Assembly
2...80200..Leading Edge Spar
3...80201..Trailing Edge Spar

ESTABLISHING CORRECT WING WASHOUT



REAR VIEW

WING COVER AND TIP TUBE NOT SHOWN FOR CLARITY.

ESTABLISHING CORRECT WING COVER TENSION

NOTE: The following procedure (on this page only) applies to construction of BOTH Wings at the same time.

1. Refer to Figures 1 and 2. Attach ALL the Male Buckles (1) to the corresponding Female Buckles (2) and pull on the loose ends of the Straps (3) to establish tension on the Wing Covers.

NOTE: The Bridge faces OUTSIDE on the Male Buckle.

2. Tighten ALL of the Straps (3) EVENLY, a little at a time, until the Leading Edge Gap Dimension is APPROXIMATELY 8" (20.32 cm) and the Trailing Edge Gap Dimension is APPROXIMATELY 7 1/2" (19.05 cm) or until the Velcro on the Gap Cover (4) matches (as closely as possible) with the Velcro on the opposite half of the Wing (5).

The main objective is to pull the Wing Covers as close together as possible or as close to the dimensions noted in Step 3 as to also allow the Gap Seal to fit properly. A tight Wing Cover is more likely to be wrinkle free and give the aircraft much better performance.

NOTE: If you are UNABLE to build BOTH halves of the Wing at the SAME time as shown then pull the Cover to ONE HALF of the dimensions shown in the illustration using rope through the Grommets (6) located in BOTH the FORWARD and AFT INBOARD edges of the Wing Covers.

Item	P/N	Description
1.....		Male Buckle
2.....		Female Buckle
3.....		Tensioning Strap
4.....		Gap Cover Velcro (Hook)
5.....		Wing Cover Velcro (Loop)
6.....		Grommet

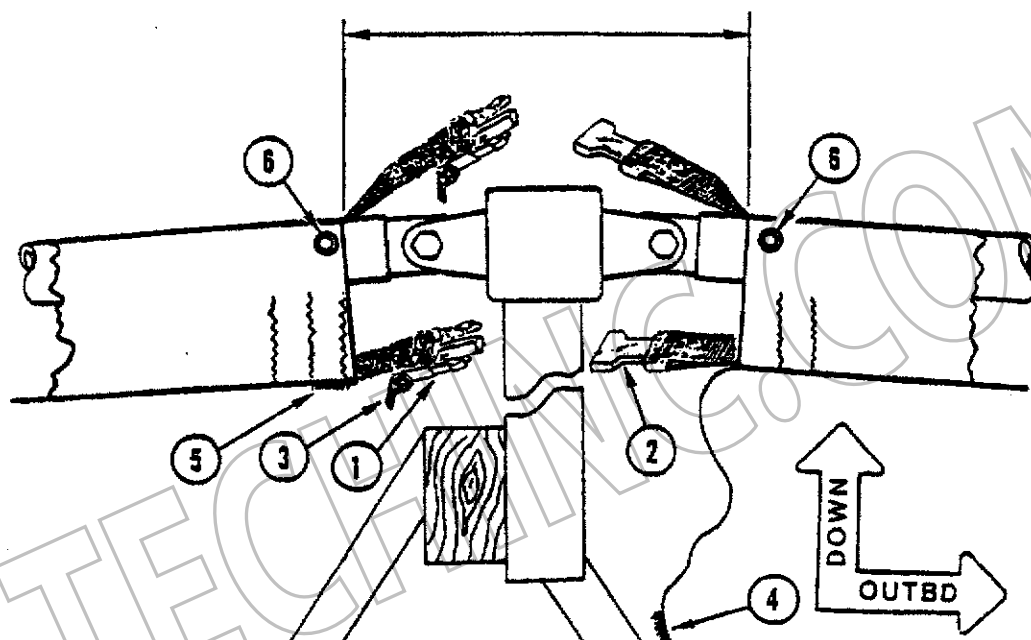
ESTABLISHING CORRECT WING COVER TENSION

4-21

FIG. 1

LEADING EDGE 8" (20.32 CM)

TRAILING EDGE 7 1/2" (19.05 CM)



FRONT VIEW

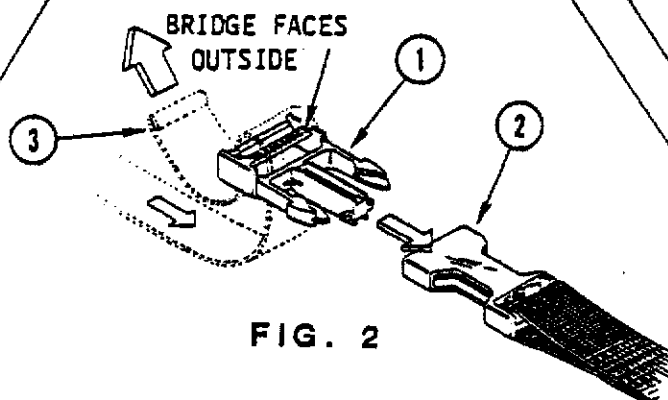


FIG. 2

BELLCRANK STRUT AND COMPRESSION STRUT PLACEMENT

1. Refer to Figure 1. Look **INSIDE** the Zippers of the Wing Cover [not illustrated] to locate the holes in the Leading Edge (1) and Trailing Edge Spar (2) for the Grade 5 Bolts [not illustrated] that will be used to attach the Bellcrank Strut (3) and Compression Struts (4).

NOTE: A Zipper is located at each APPROXIMATE location.

IMPORTANT: DO NOT HEAT CUT ANY HOLES IN THE WING COVER AT THIS TIME.

2. Measuring **OUTBOARD** from the **INBOARD** edge of the Spars a hole should be located at 62" (157.48 cm), 96" (243.84 cm) and 130" (330.2 cm) in each Wing Spar.

CAUTION: ALL STRUTS MUST BE INSTALLED CORRECTLY.

3. Refer to Figure 2. If the Struts are installed **INCORRECTLY** the Tube Connectors (6) located in **ONE** end of the Struts **WILL DAMAGE** the Leading Edge Wing Spar when the Grade 5 attachment Bolts are tightened later.

4. Refer to Figure 1. Install the **FORWARD** end of the **OUTBOARD** Compression Strut as illustrated with the **FORWARD** end located near or slightly **INBOARD** of the Leading Edge Bolt hole.

5. Swing the **AFT** end of the Strut into correct position **OVER** the Trailing Edge Bolt hole location as illustrated. Slide the Strut into position and closely **ESTIMATE** the alignment position of the hole in the Spars and the Struts. Verify the Leading Edge and Trailing Edge Channels at the Root Tube are **PARALLEL** or in correct alignment.

NOTE: A final Strut alignment will be made later using an Av1 **AFTER** the holes are heat-cut in a later sequence.

6. Position the remaining Compression and Bellcrank Strut as illustrated ensuring the Tube Connectors (5) and (6) are making proper contact with the Spars.

Item	P/N	Description
1...	80200..	Leading Edge Spar
2...	80201..	Trailing Edge Spar
3...	71020..	Bellcrank Strut
4...	40283..	Compression Strut
5...	20441..	1 3/4" Aluminum Tube Connector (Forward)
6...	20442..	1 1/8" Aluminum Tube Connector (Aft)

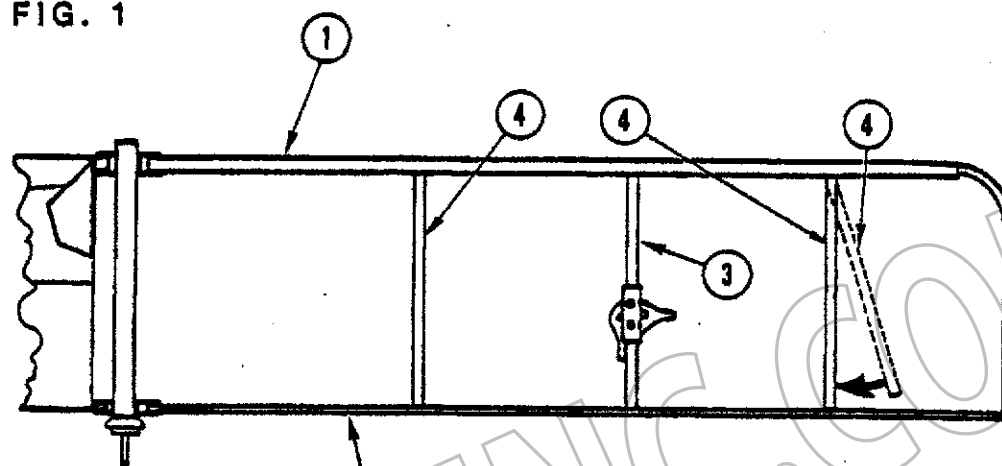
BELLCRANK STRUT AND

4-23

COMPRESSION STRUT PLACEMENT

WING COVER NOT SHOWN FOR CLARITY.

FIG. 1



BOTTOM VIEW

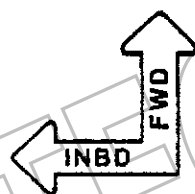
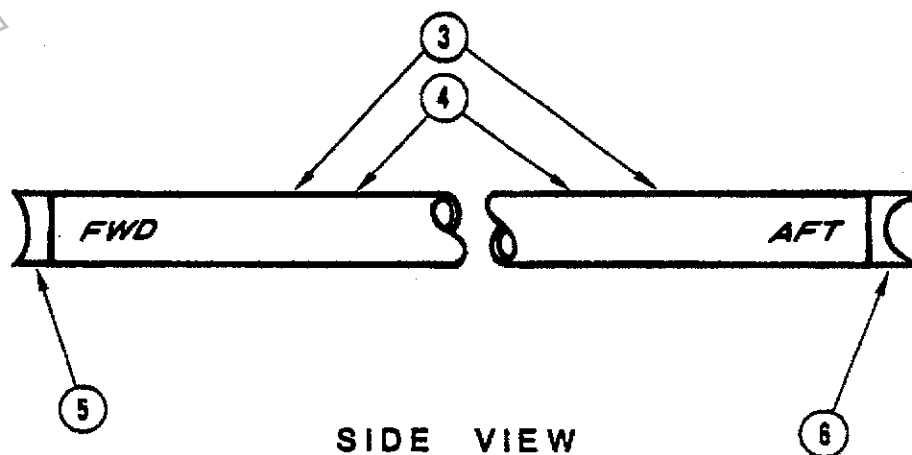


FIG. 2



SIDE VIEW

RIB POCKET TEMPLATE PLACEMENT

1. Refer to Page 12-5 and remove EITHER Template #5 or #6 from the Assembly Instructions.
2. Follow the instructions on EITHER Template and cut out the 'Slit' or OPTIONAL 'T' as desired FROM THE TEMPLATE.
3. When instructed to position the Template (on the next page) and align it, REMEMBER to align it 1" (2.54 cm) INBOARD of the Applied Rib Pocket Seam. The AFT edge of the Template should be against the Velcro Aileron Gap Seal or EVEN with the Trailing Edge Seam.
4. You will be marking a TOTAL of TEN (10) locations per Wing. EIGHT (8) Upper Ribs and FIVE (5) Lower Ribs will be installed in each Wing.

NOTE: The TWO OUTBOARD Upper Ribs and the TWO OUTBOARD Lower Ribs will be inserted through the SAME cut out 'Slit' or 'T'. No 'Slit' or 'T' needs to be cut at the INBOARD MOST Upper Rib location as this Upper Rib ONLY can be easily installed from the INBOARD edge of the Wing Cover.

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RIB INSERTING - TEMPLATE LOCATIONS

NOTE: Before beginning the following sequence REMOVE ALL of the Part Number Labels from the Ribs. Clean any residue with 'Duracryl', Lacquer Thinner or a similar solvent to ease installation. If any Label residue is present on a Rib installation may be more difficult. Spraying a LIGHT layer of dry silicone lubricant onto the Ribs will ease installation considerably. NOTE: If you plan on spraying your flying surfaces with an Ultraviolet Inhibitor (such as 'Stits') any labels will bleed through and be clearly visible under the Wing Cover.

1. Refer to Figures 1 and 2. Look INSIDE the Wing Cover at the Zipper locations and visually locate the Applied Rib Pockets BEFORE making ANY marks or heat cuts. DO NOT HEAT CUT AT THIS TIME. The Applied Rib Pockets are sewn onto the Wing Cover at these APPROXIMATE locations as measured from the INBOARD end of the Trailing Edge Spar. These LOCATIONS WILL VARY SLIGHTLY as they are dependent on how tight the Wing Cover has been pulled onto the framework. Measure and mark the following locations on the BOTTOM side ONLY of the Trailing Edge of the Wing Cover for BOTH Upper and Lower Rib locations. The Applied Pocket Seams should be located at these APPROXIMATE locations. Position the CENTER of the Template cut-out 1" (2.54 cm) INBOARD of these APPROXIMATE Seam locations.

Upper Rib Locations

A.	4 3/4"	(12.06 cm)
B.	27"	(68.58 cm)
C.	49 1/2"	(125.75 cm)
D.	76"	(193.04 cm)
E.	102 3/8"	(260.03 cm)
F.	128 3/4"	(327.02 cm)
G.	155 1/2"	(394.97 cm)
H.	183 1/4"	(463.45 cm)

Lower Rib Locations

I.	38"	(96.52 cm)
J.	79"	(200.66 cm)
K.	113"	(287.02 cm)
L.	155 1/2"	(394.97 cm)
M.	183 1/4"	(463.45 cm)

NOTE: 'Slit' Locations 'G'/'L' and 'H'/'M' are the SAME.

OPTIONAL: You may wish to transfer Template #5 or #6 on Page 12-5 onto poster board, mylar or other more durable material.

2. Refer to Figure 3. Follow instructions on Template #5 or #6 and align the Template VERTICAL Lines 1" (2.54 cm) INBOARD of each Rib Pocket Seam (4). Heat cut the Rib 'Slit' or 'T' (6).

Item	P/N	Description	Item	P/N	Description
1...	80201..	Trailing Edge Spar	4.....		Rib Pocket Seam
2...	50041..	Wing Cover (Left)	5.....		Template #5 or #6
	50042..	Wing Cover (Right)	6.....		'Slit' or 'T'
3.....		Aileron Gap Seal			

RIB INSERTING

1. Refer to Figure 1. Insert an Upper Tip Rib (2) [which is INTERNALLY Sleeved and weighs about TWICE as much as a normal Upper Rib] through the appropriate Template cut-out 'T' or 'slit' at the FARTHEST OUTBOARD location. Refer to location 'H' on Pages 4-26 and 4-27. Continue into the opening of the Applied Rib Pocket (4) located on the AFT UPPER surface of the Wing Cover near the Trailing Edge (5) of the Wing. Push DOWNWARD on the FRONT of the Rib (1) with the palm of your hand to ease installation as the Rib is pushed through the Pocket.

Helpful Hint: It is easier to have TWO persons insert the Ribs (1) and (2). One person inserts the Rib and the other applies pressure and pushes DOWNWARD on the FRONT of the Rib to ease installation as it slides through the pocket. If a second person is NOT available to help with Rib insertion, put a loop at the end of a piece of nylon leech line or rope and position yourself FORWARD of the Leading Edge (6). Wrap the line around a handle (wood or a tool handle) and pull the AFT end of the Rib FORWARD with ONE hand only, keeping the line as low or as close to the Wing as possible. With the other hand, apply DOWNWARD pressure on the FORWARD end of the Rib as it slides through the Applied Rib Pocket (4).

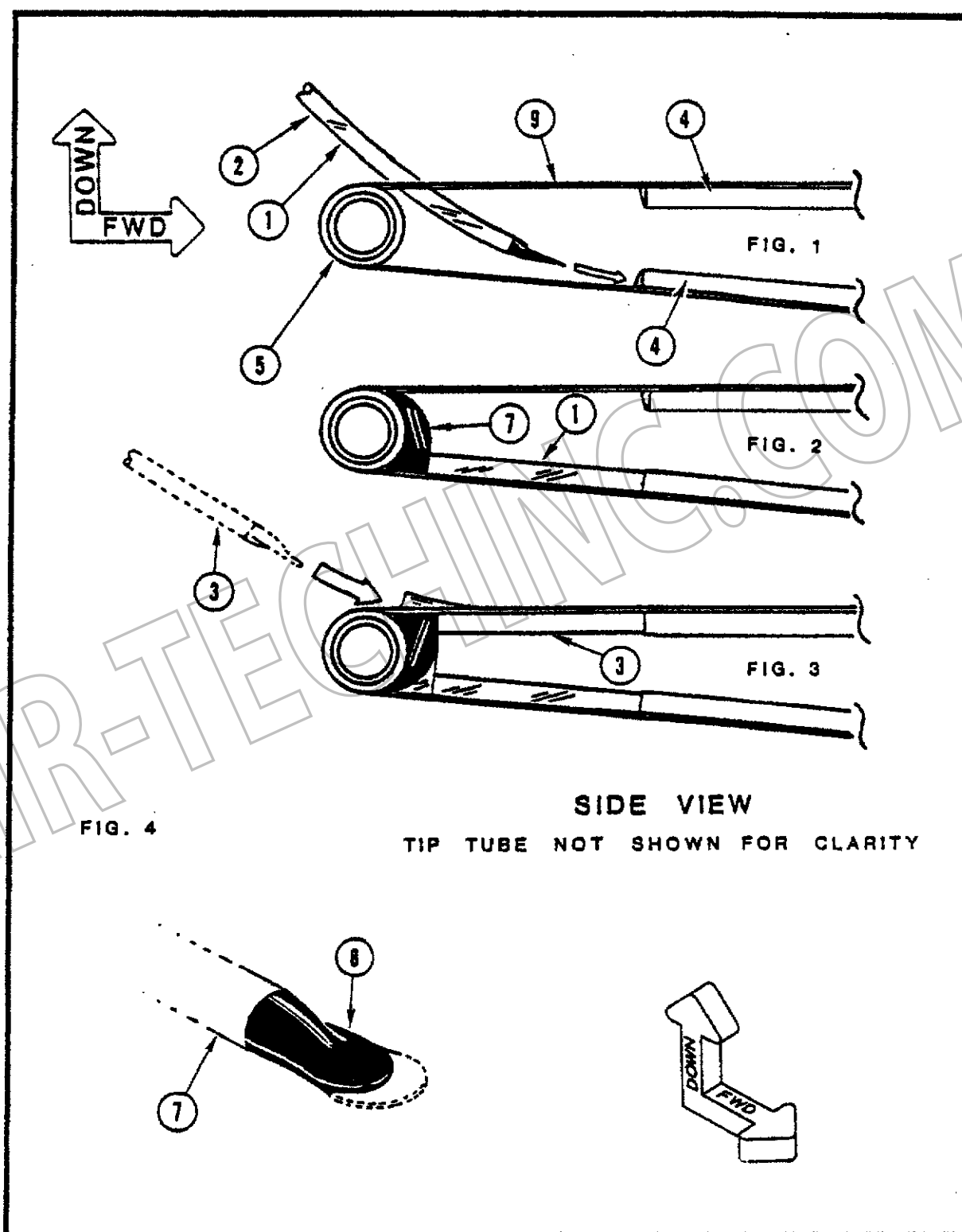
2. Place a CLEAN towel or rag OVER the Rear Rib Tip (7) and use the palm of your hand to 'pop' the Ribs into place. If you are experiencing difficulty refer to Pages 4-30 and 4-31. Use a LARGE Flat Head or Straight Slot Screwdriver VERY CAREFULLY and lay it on the Trailing Edge Spar (5). Lever the AFT end of the Rib (1) into place. BE CAREFUL. DO NOT allow the Screwdriver to slip as you may accidentally tear your NEW Wing Cover.

3. Repeat the sequence above for ALL remaining Upper Ribs (1).

4. Insert the Lower Ribs (3) through the appropriate cut-outs. Slide the Rear Rib Tips at the AFT end of the Upper Ribs to the side to allow the Ribs (3) to be popped or levered into place.

Item	P/N	Description	Item	P/N	Description
1...	40462..	Upper Rib	6...	80200..	Leading Edge Spar
2...	40463..	Upper Tip Rib	7...	20261..	Rear Rib Tip
3...	40167..	Lower Rib	8...	20250..	Front Rib Tip
4.....		Applied Rib Pocket	9...	50041..	Wing Cover (Left)
5...	80201..	Trailing Edge Spar		50042..	Wing Cover (Right)
					[not illustrated]

RIB INSERTING



RIB INSERTING (CONT'D.)

1. Refer to Figures 1, 2 and 3. If you are unable to position the Upper Ribs correctly use the following method. Insert the Rib as illustrated into the Upper Applied Rib Pocket (6). CAREFULLY insert a LARGE Flat Head or Straight Slot Screwdriver between the Trailing Edge Spar (4) and the Rear Rib Tip (5) and lever the Rib into position. 'Pop' the Rib (1) into place and pull out the Screwdriver.

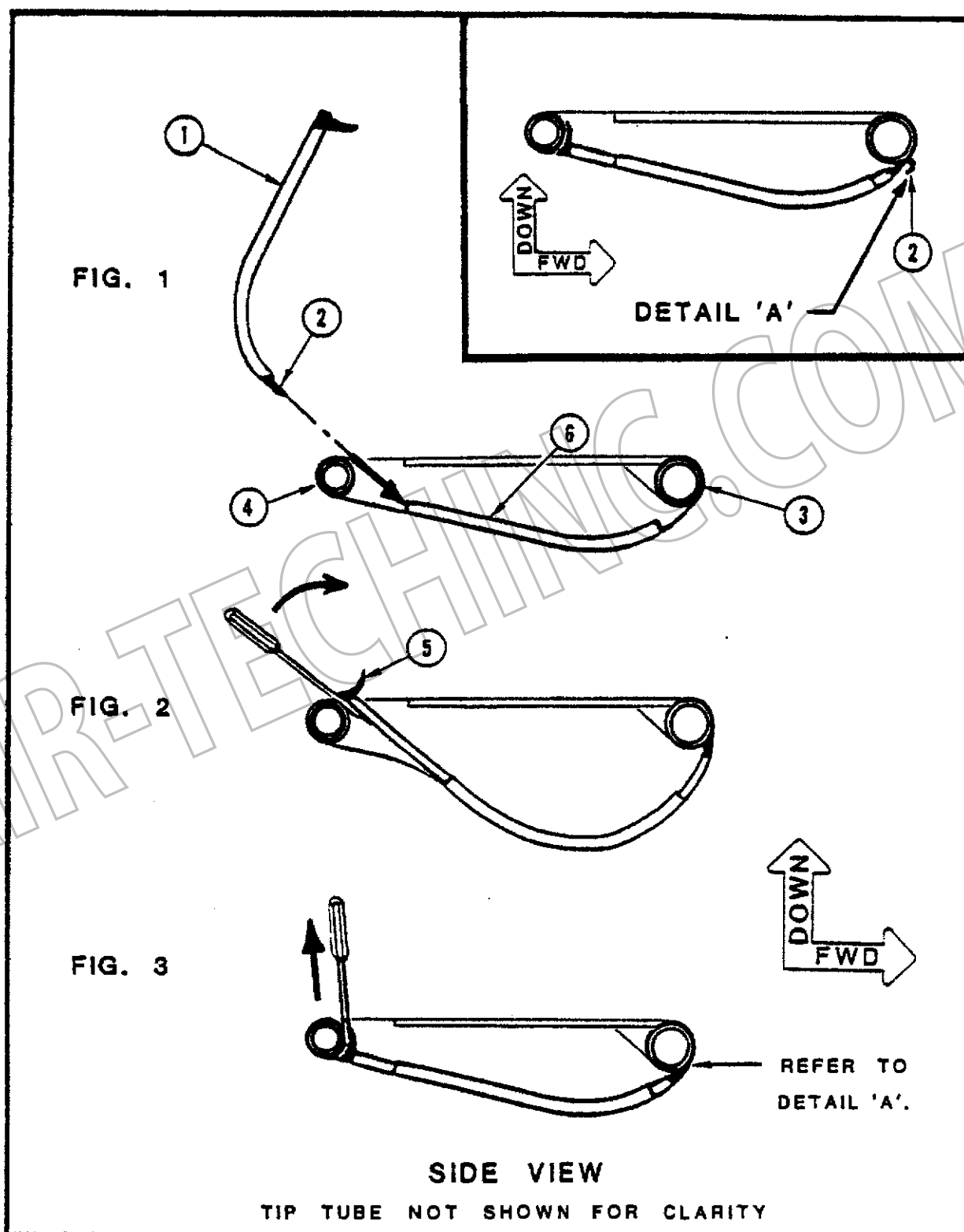
2. Refer to Detail 'A'. Ensure the Front Rib Tip (2) DOES NOT curl at the Leading Edge Spar (3) as illustrated.

3. If the Front Rib Tip (2) continues to curl and CANNOT be corrected with reinsertion then the Front Rib Tip must be cut and filed as per Figure 4 on Page 4-29.

Item P/N Description

- 1...40462..Upper Rib
- 2...20250..Front Rib Tip
- 3...80200..Leading Edge Spar
- 4...80201..Trailing Edge Spar
- 5...20261..Rear Rib Tip
- 6.....Applied Rib Pocket

RIB INSERTING (CONT'D.)



DIAGONAL STRUT ATTACHMENT - GENERAL ARRANGEMENT

1. The AFT end of the Diagonal Strut (1) attaches into a Channel with the Hardware on the Trailing Edge Spar (3) approximately 35 1/2" (90.17 cm) OUTBOARD as measured from the INBOARD end of the Spar. Refer to Detail 'A' Page 4-35.

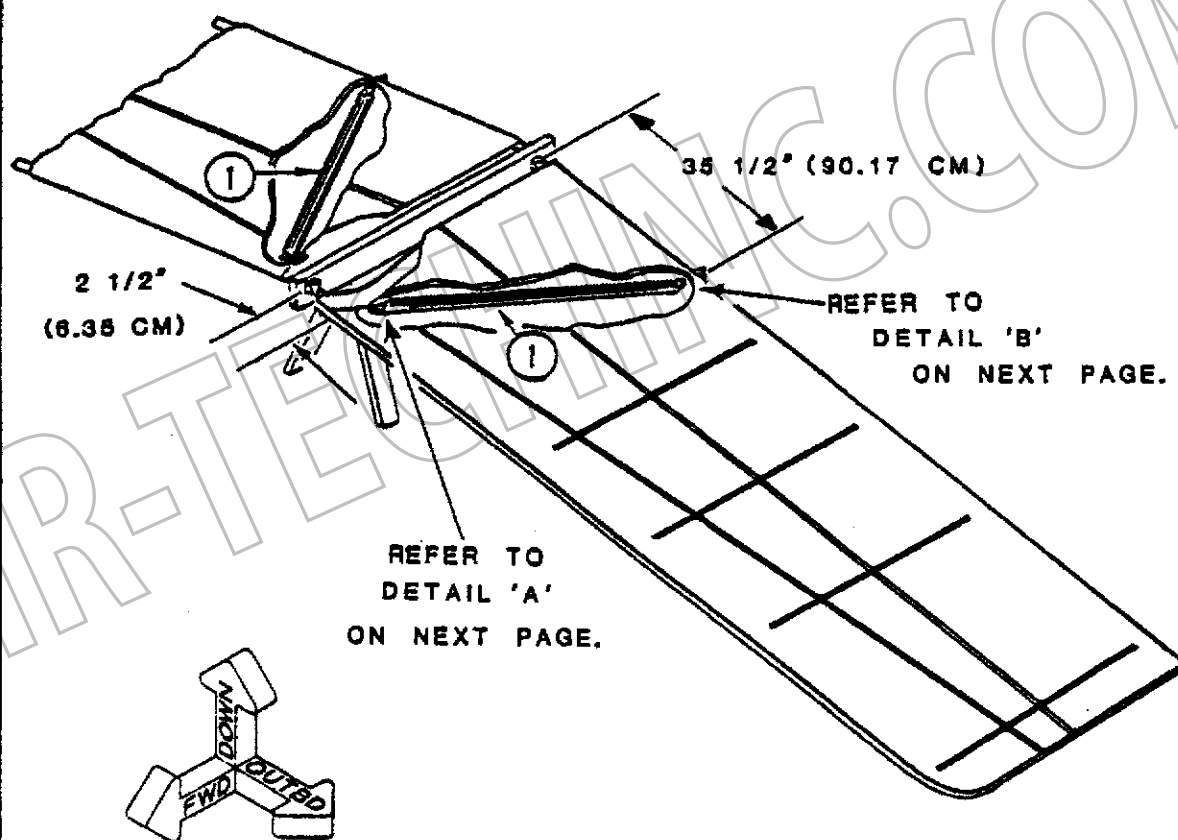
2. The FORWARD end of the Diagonal Strut (1) attaches into a Channel with the Hardware on the Leading Edge Spar (2) approximately 2 1/2" (6.35 cm) OUTBOARD as measured from the INBOARD end of the Spar. Refer to Detail 'B' Page 4-35.

Item P/N Description

1...40420..Diagonal Strut
2...80200..Leading Edge Spar
3...80201..Trailing Edge Spar

DIAGONAL STRUT ATTACHMENT

GENERAL ARRANGEMENT

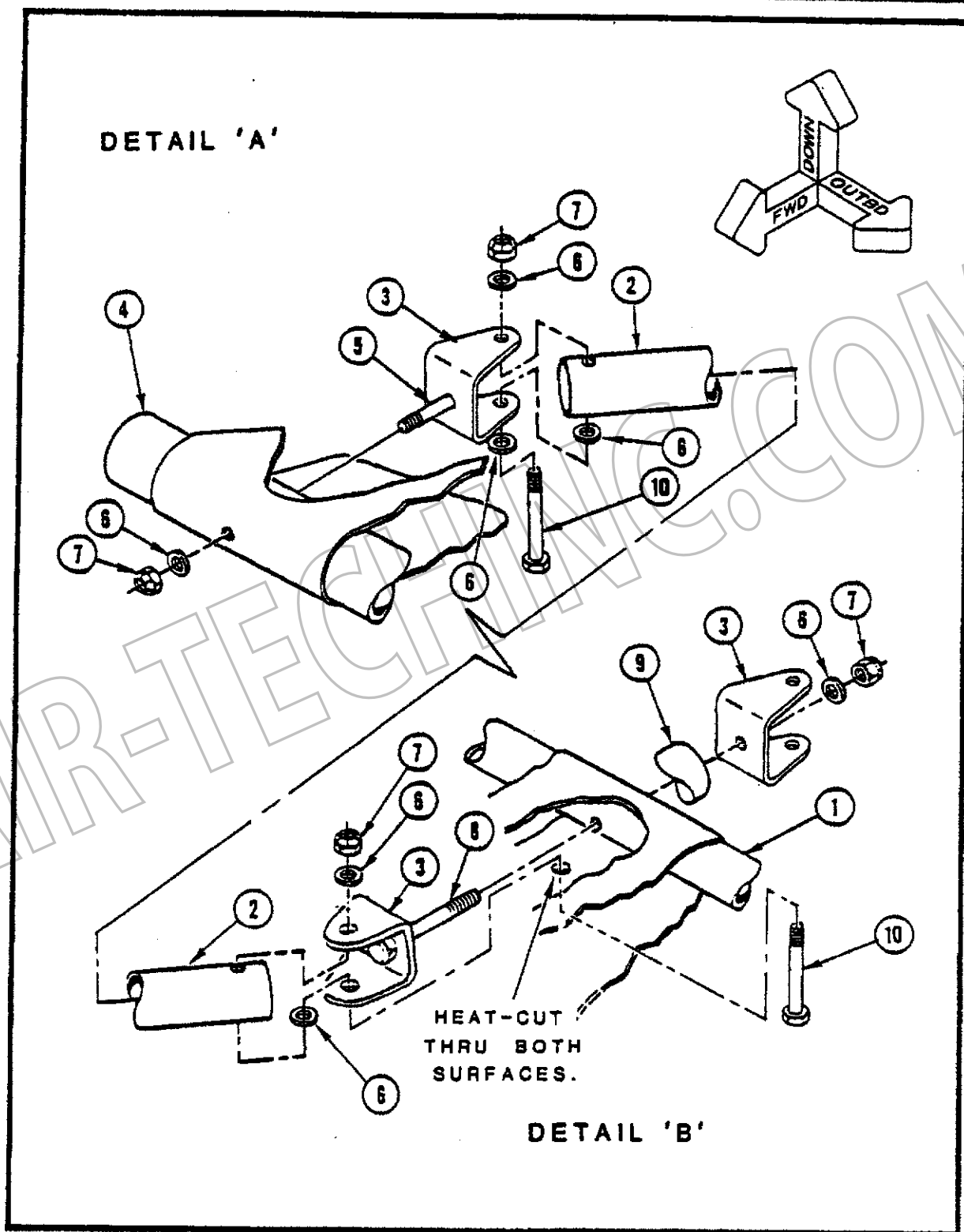


DIAGONAL STRUT ATTACHMENT

1. Refer to Detail 'A'. Locate the hole in Trailing Edge Spar (1) 35 1/2" (90.17 cm) OUTBOARD from the INBOARD end of the Spar. Reveal the hole and heat-seal.
2. Attach the Channels (3) with the Hardware (8,9,6 and 7) as illustrated. Tighten to correct torque. DO NOT DISTORT THE SPAR.
3. Align the Channel (3). Using the EXISTING 1/4" (6.4 mm) hole in the Channel as a guide heat-cut a hole through BOTH surfaces of the Wing Cover. Insert a Bolt (10) as illustrated through the Wing Cover and then into the Channel (3). Add a Diagonal Strut (2) with ONE Washer (6) INSIDE the Channel (3) and Hardware (6) and (7). Tighten to correct torque. DO NOT DEFORM THE CHANNEL.
4. Refer to Detail 'B'. Locate the 1/4" (6.4 mm) hole in the Leading Edge Spar (4) at 2 1/2" (6.35 cm) OUTBOARD from the INBOARD end of the Spar (4). Reveal and heat-seal the hole if necessary.
5. Attach the Channel (3) with the Hardware (5, 6 and 7) as illustrated. Tighten to correct torque. DO NOT DISTORT THE SPAR.
6. Install the Hardware (10) and (6). Continue through Channel (3) attaching the FORWARD end of the Diagonal Strut (2) and ONE Washer (6). Add the Hardware (6) and (7) as illustrated. Align the holes in the Channel and the Diagonal Strut with an Avl if necessary. Tighten to correct torque. DO NOT DEFORM THE CHANNEL.

Item	P/N	Description	Item	P/N	Description
1...	80201..	Trailing Edge Spar	6...	10560..	1/4" Washer
2...	40420..	Diagonal Strut	7...	10510..	1/4" Locknut
3...	20090..	1 1/4" Channel	8...	10190..	AN4-22A Bolt
4...	80200..	Leading Edge Spar	9...	20289..	1 1/2" Saddle
5...	10220..	AN4-24A Bolt	10...	10185..	AN4-21A Bolt

DIAGONAL STRUT ATTACHMENT



WING CABLES AND COMPRESSION STRUT ATTACHMENT [LEADING EDGE INBOARD]

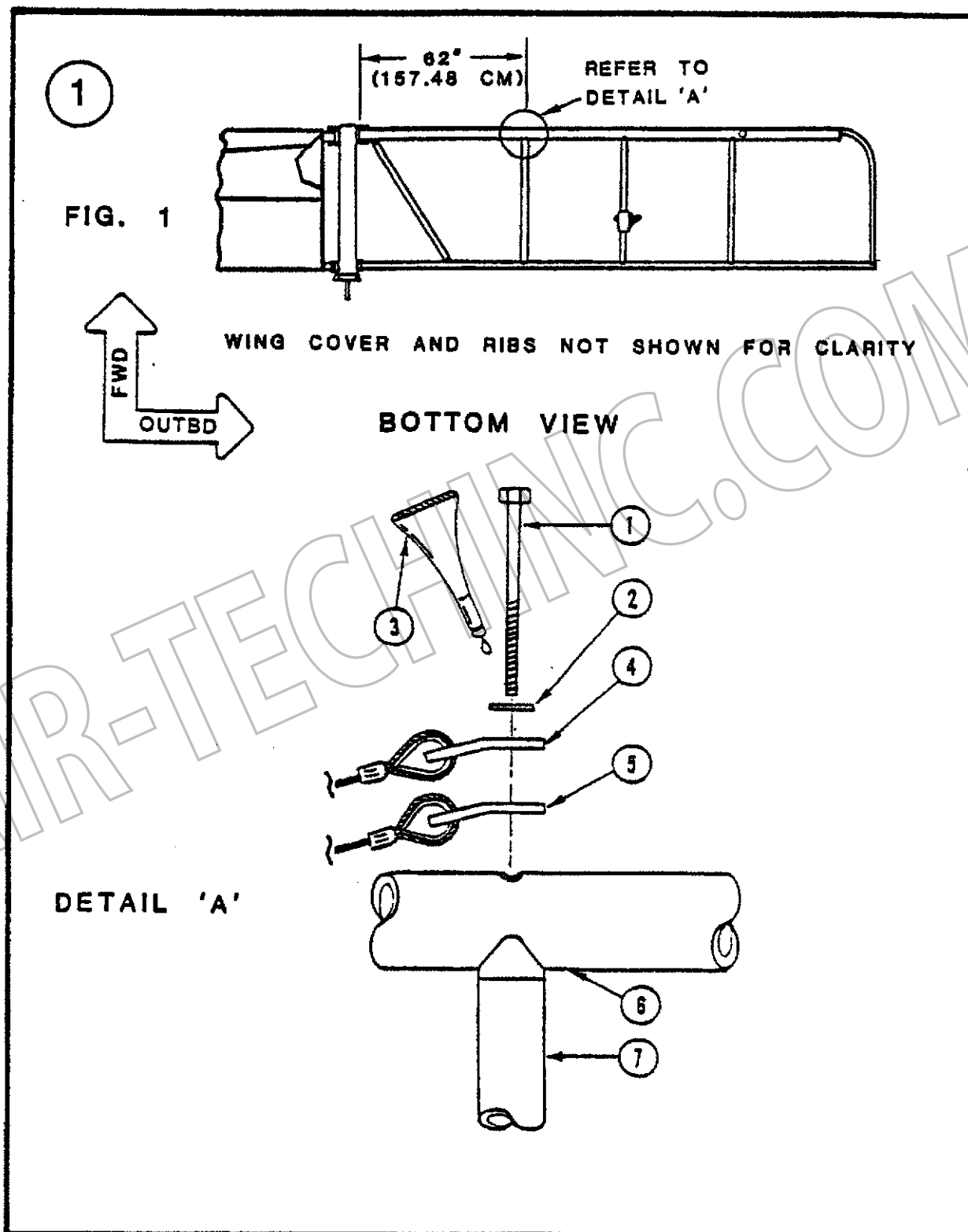
IMPORTANT: Before starting the following assembly sequences, verify the holes in the Leading Edge and Trailing Edge Spar Channels located on the Root Tube Assembly [not illustrated] are aligned EXACTLY PARALLEL to the Root Tube Assembly.

1. When attaching ALL UPPER and LOWER Wing Cables to the Leading and Trailing Edge Spars during the following sequence, remember to angle all UPPER Cable Tangs INBOARD and UPWARD. Respectively, ALL LOWER Cable Tangs should be angled INBOARD and DOWNWARD.
2. Refer to Illustration 1 Figure 1 and Detail 'A'. Measure 62" (157.48 cm) OUTBOARD from the INBOARD end of the Leading Edge Spar (6). Locate the 1/4" (6.4 mm) hole. Mark, reveal and heat-seal the hole.
3. Use an Avl to align the hole in the Compression Strut (7) with the hole in the Leading Edge Spar (6).
4. Insert a Bolt (1) through a Washer (2). Add Thread Adhesive (3) and the Cables (4) and (5), EXACTLY AS ILLUSTRATED.
5. Tighten the Bolt (1) to correct torque. DO NOT DISTORT the Spar.

Item	P/N	Description
1...	10430..	1/4" x 2 3/4" Grade 5 Bolt
2...	10560..	1/4" Washer
3...	60591..	Thread Adhesive
4...	21554..	Upper Leading Edge Inboard Cable
5...	21550..	Lower Leading Edge Inboard Cable
6...	80200..	Leading Edge Spar
7...	40283..	Compression Strut

WING CABLES AND COMPRESSION STRUT ATTACHMENT

4-37



**WING CABLES AND COMPRESSION STRUT ATTACHMENT (CONT'D.)
[TRAILING EDGE INBOARD]**

1. Refer to Illustration 2, Figure 1 and Detail 'A'. Measure 62" (157.48 cm) OUTBOARD from the INBOARD end of the Trailing Edge Spar (1). Locate the 1/4" (6.4 mm) hole. Mark, reveal and heat-seal the hole.

2. Insert a Bolt (2) through the Tang at the end of the Cables (4, 5 and 6) EXACTLY AS ILLUSTRATED. Add Thread Adhesive (3) to the Bolt (2). Use an Avl to align the Compression Strut (7) with the Trailing Edge Spar (1). Tighten to proper torque. DO NOT DISTORT THE SPAR.

Item	P/N	Description
1...	80201..	Trailing Edge Spar
2...	10420..	1/4" x 2 1/4" Grade 5 Bolt
3...	60591..	Thread Adhesive
4...	21558..	Landing Gear Side Cable
5...	21556..	Upper Trailing Edge Inboard Cable
6...	21552..	Lower Trailing Edge Inboard Cable
7...	40283..	Compression Strut

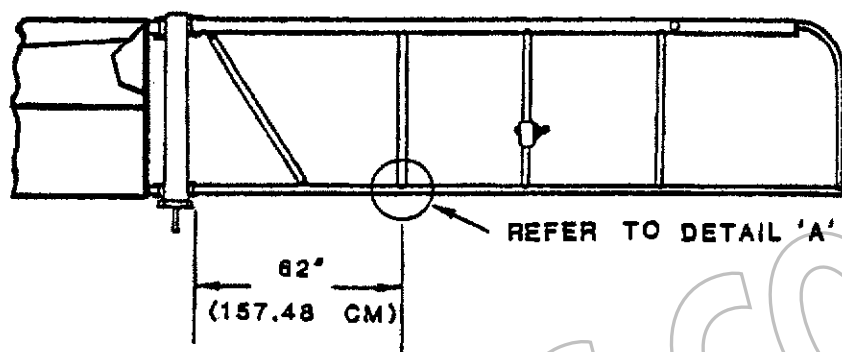
WING CABLES AND COMPRESSION STRUT ATTACHMENT (CONT'D.)

4-39

②

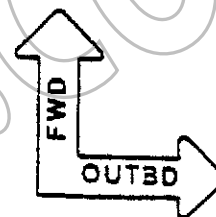
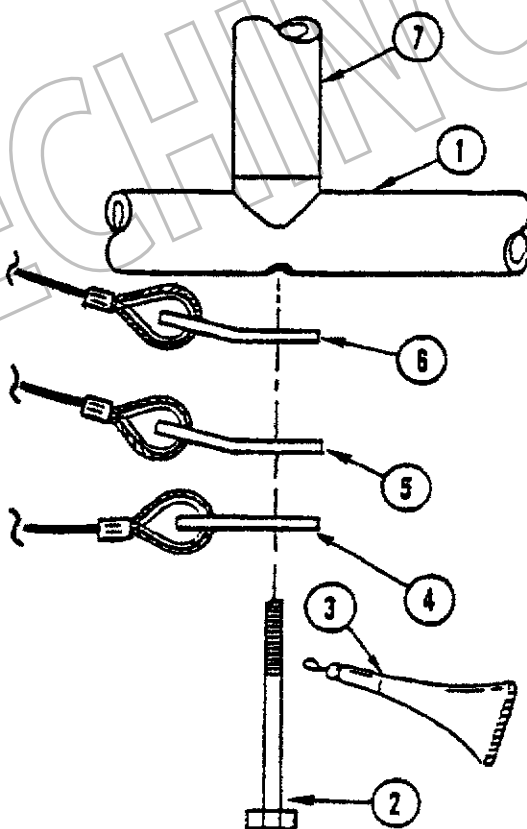
WING COVER AND RIBS NOT SHOWN FOR CLARITY

FIG. 1



BOTTOM VIEW

DETAIL 'A'



TEMPLATE PLACEMENT - UPPER LEADING EDGE OUTBOARD WING CABLE

1. Cut-out and attach the FULL SIZE Template #7 (1) located on Page 12-7 as illustrated. Follow the instructions on the Template. Refer to Pages 4-42 and 4-43.

IMPORTANT: The Template, as printed, is to be used on the LEFT WING ONLY. The Template must be FLIPPED OVER to be used on the RIGHT Wing, mirror image.

Item P/N Description

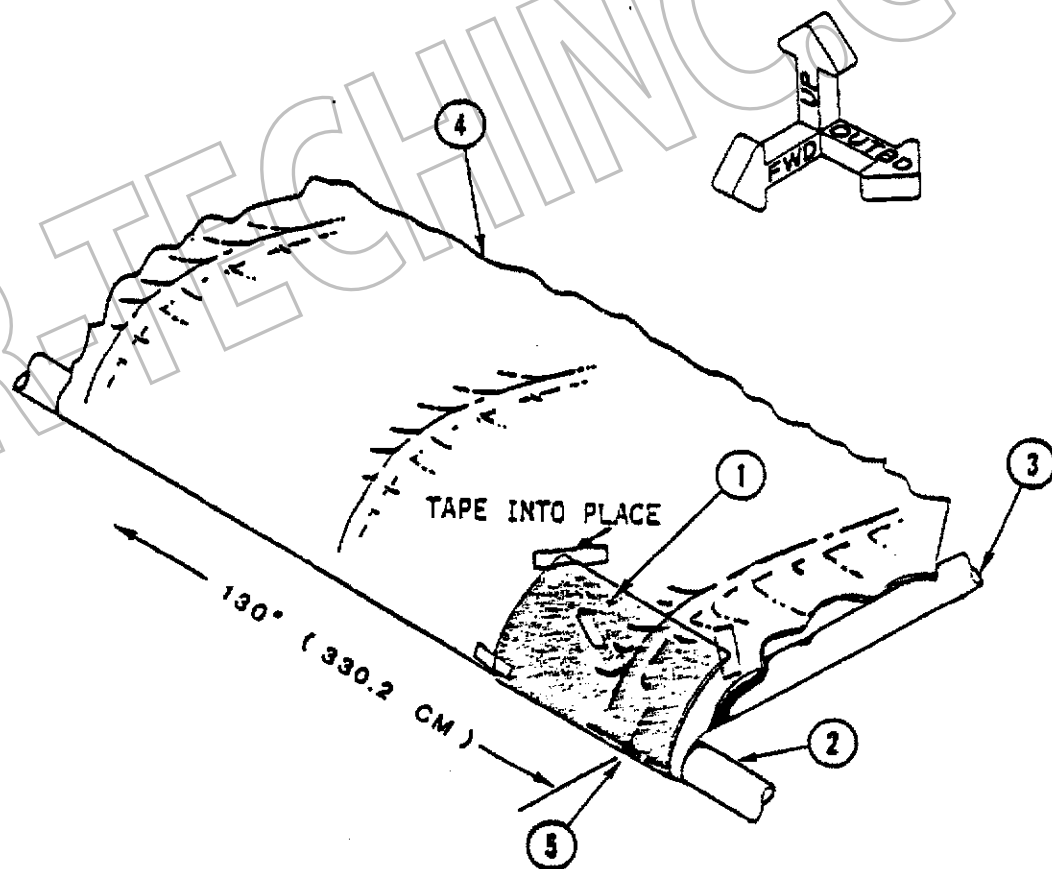
- 1.....Template #7
- 2...80200..Leading Edge Spar
- 3...40283..Compression Strut
- 4...50041..Wing Cover (Left)
- 50042..Wing Cover (Right) [not illustrated]
- 5.....Compression Strut Bolt Hole

TEMPLATE PLACEMENT -

4-41

UPPER LEADING EDGE OUTBOARD

FULL SIZE TEMPLATE WITH INSTRUCTIONS
ON PAGE 12-7.



LEFT WING SHOWN

WING CABLES AND COMPRESSION STRUT ATTACHMENT (CONT'D.)
 (LEADING EDGE OUTBOARD)

1. Refer to Illustration 3, Figure 1 and Detail 'A'.

NOTE: Illustration 3, Detail 'A' is illustrated RIGHT SIDE UP.

Measure 130" (330.2 cm) OUTBOARD from the INBOARD end of the Leading Edge Spar (6). Locate the 1/4" (6.4 mm) hole. Mark, reveal and heat-seal the hole.

2. Measure 132" (335.28 cm) OUTBOARD from the INBOARD end of the Spar (6). Locate the 5/16" (7.9 mm) hole on the BOTTOM surface ONLY of the Wing. Reveal and heat-seal the hole.

3. Refer to Page 12-7 and remove Template #7. Follow the directions on the Template and on the following page.

IMPORTANT: The Template, as printed, is designed for use on the LEFT Wing ONLY. It must be FLIPPED OVER to be used correctly on the RIGHT Wing.

4. Cut and heat-seal the Slot in the UPPER Wing Surface for the Cable (10).

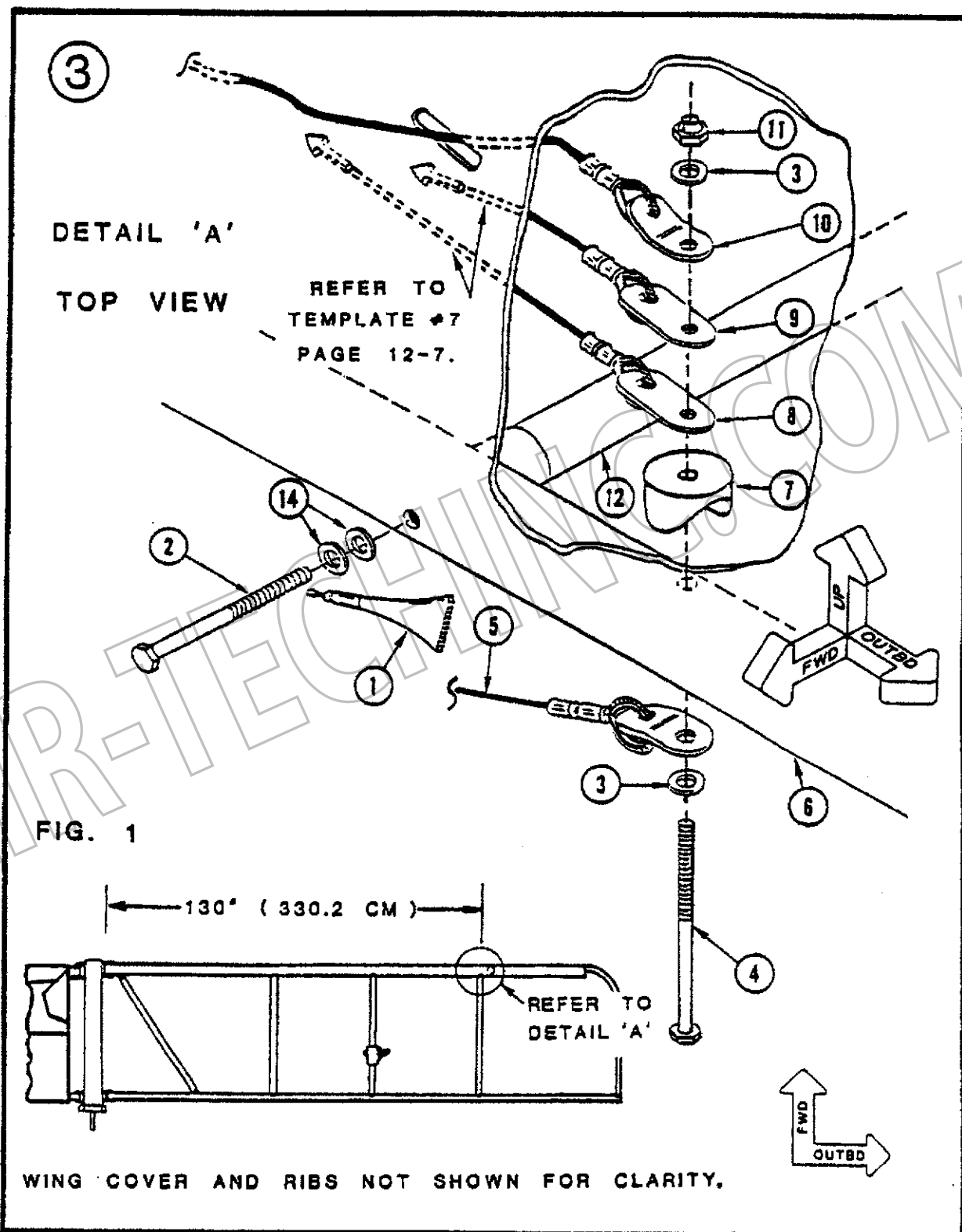
5. The Anti-Drag Cable is to be routed on the UPSIDE or OVER the TOP of ALL Compression Struts (12). Attach the Cables (5, 8, 9 and 10) to the Bolt (4) EXACTLY AS ILLUSTRATED, [Bolt Head on the BOTTOM] with Hardware (3, 7 and 11). Tighten to correct torque. DO NOT DISTORT THE SPAR.

6. Add Thread Adhesive (1) to the Bolt (2). Attach with Hardware (2) and TWO Washers (14). Tighten to correct torque. DO NOT DISTORT THE SPAR.

Item	P/N	Description	Item	P/N	Description
1...	60591..	Thread Adhesive	8...	20618..	Anti-Drag Cable
2...	10430..	1/4" x 2 3/4" Grade 5 Bolt	9...	21560..	Blcrk. Strut Cable
3...	10570..	5/16" Washer	10...	21555..	Upr. L. E. O. B. Cable
4...	10328..	AN5-30A Bolt	11...	10540..	5/16" Locknut
5...	21551..	Lvr. L. E. O. B. Cable	12...	40283..	Compression Strut
6...	80200..	Leading Edge Spar	13...	40462..	Upper Rib
7...	20290..	1 3/4" Saddle	14...	10560..	1/4" Washer

WING CABLES AND COMPRESSION STRUT ATTACHMENT (CONT'D.)

4-43



WING CABLES AND COMPRESSION STRUT ATTACHMENT (CONT'D.)
[TRAILING EDGE OUTBOARD]

NOTE: During the following assembly sequences, if any of the Forkbolts (1) are past the Vertical position when tightened to correct torque, loosen the Forkbolts sufficiently to allow them to return to the NEAREST vertical position. DO NOT OVER TORQUE.

1. Refer to Illustration 4. Figure 1 and Detail 'A'. Measure 130" (330.2 cm) OUTBOARD from the INBOARD end of the Trailing Edge Spar (5). Reveal and heat-seal the hole.

2. Install a Forkbolt (1) and THREE Washers (2). Add Cables (3) and (4). Secure the Forkbolt (1). DO NOT DISTORT THE SPAR.

Item P/N Description

- 1...10387..1/4" x 2 1/4" Forkbolt
- 2...10560..1/4" Washer
- 3...21557..Upper Trailing Edge Outboard Cable
- 4...21553..Lower Trailing Edge Outboard Cable
- 5...80201..Trailing Edge Spar
- 6...40283..Compression Strut

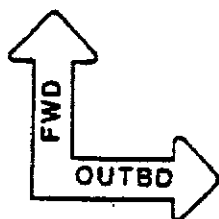
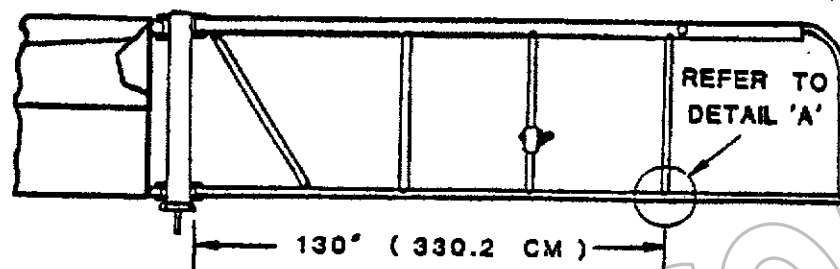
WING CABLES AND COMPRESSION STRUT ATTACHMENT (CONT'D.)

4-45

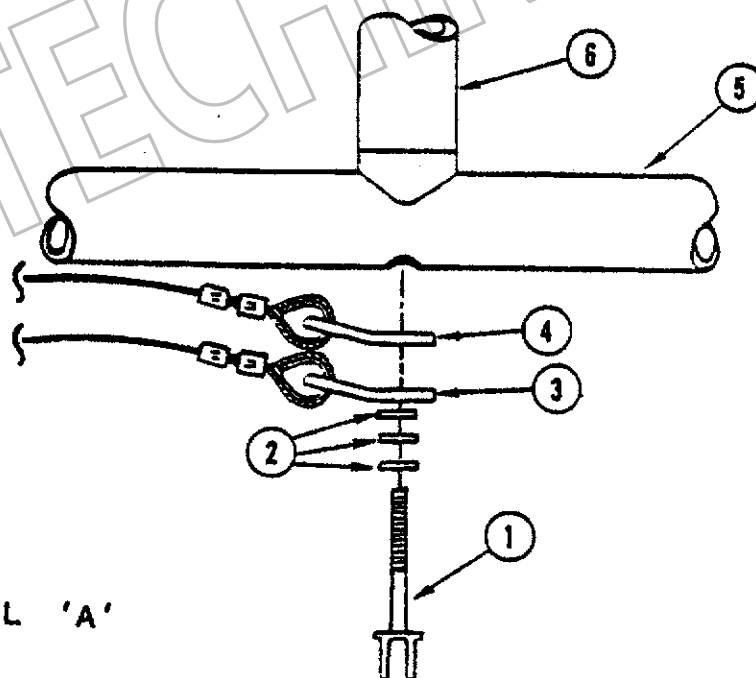
4

WING COVER AND RIBS NOT SHOWN FOR CLARITY

FIG. 1



BOTTOM VIEW



DETAIL 'A'

WING CABLES AND COMPRESSION STRUT ATTACHMENT (CONT'D.)
(ANTI-DRAG CABLE ATTACHMENT)

1. Refer to Illustration 5, Figure 1 and Detail 'A'. Measure 2" (5.08 cm) OUTBOARD from the INBOARD end of the Trailing Edge Spar (1) and locate the hole.

2. Twist the Anti-Drag Cable (3) in the direction necessary to remove any slack out of the Cable or to lengthen the Cable as necessary.

3. Install an Anti-Drag Cable (3) with Hardware (2, 4 and 5).

NOTE: The Grommets (not illustrated) in the Wing Cover located at the INBOARD end of the Trailing Edge Spar may appear to align with the Anti-Drag Cable attachment hole. If the alignment can be made insert the Bolt (2) through the Grommet.

Tighten to correct torque. DO NOT DISTORT THE SPAR.

Item P/N Description

- 1...80201..Trailing Edge Spar
- 2...10140..AN4-16A Bolt
- 3...20618..Anti-Drag Cable
- 4...10560..1/4" Washer
- 5...10510..1/4" Locknut
- 6...40145..Root Tube Assembly

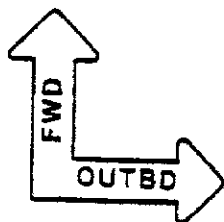
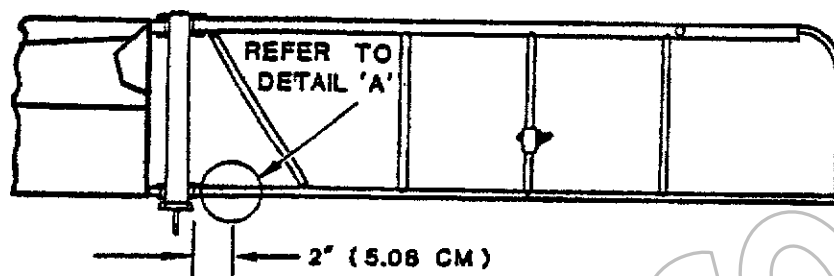
WING CABLES AND COMPRESSION STRUT ATTACHMENT (CONT'D.)

4-47

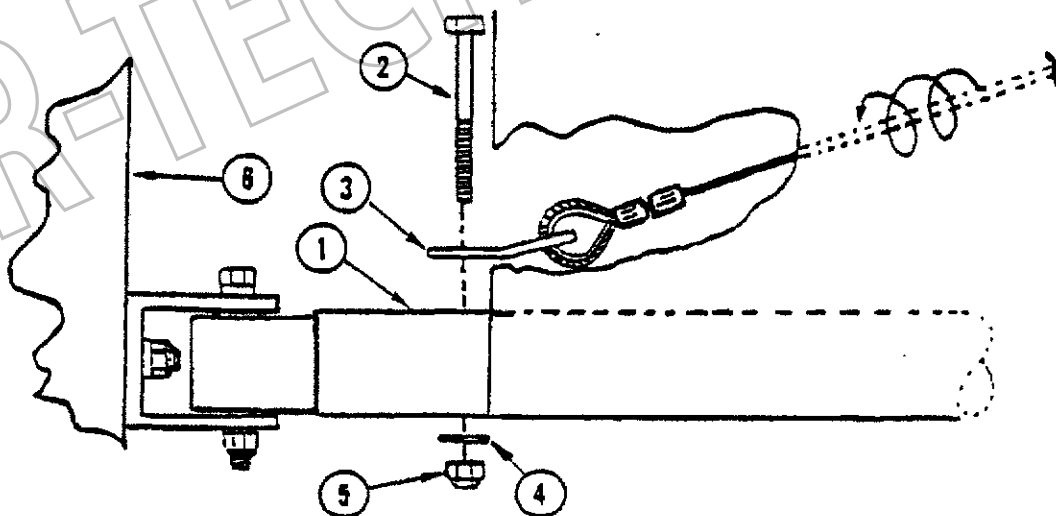
5

WING COVER AND RIBS NOT SHOWN FOR CLARITY

FIG. 1



BOTTOM VIEW



DETAIL 'A'

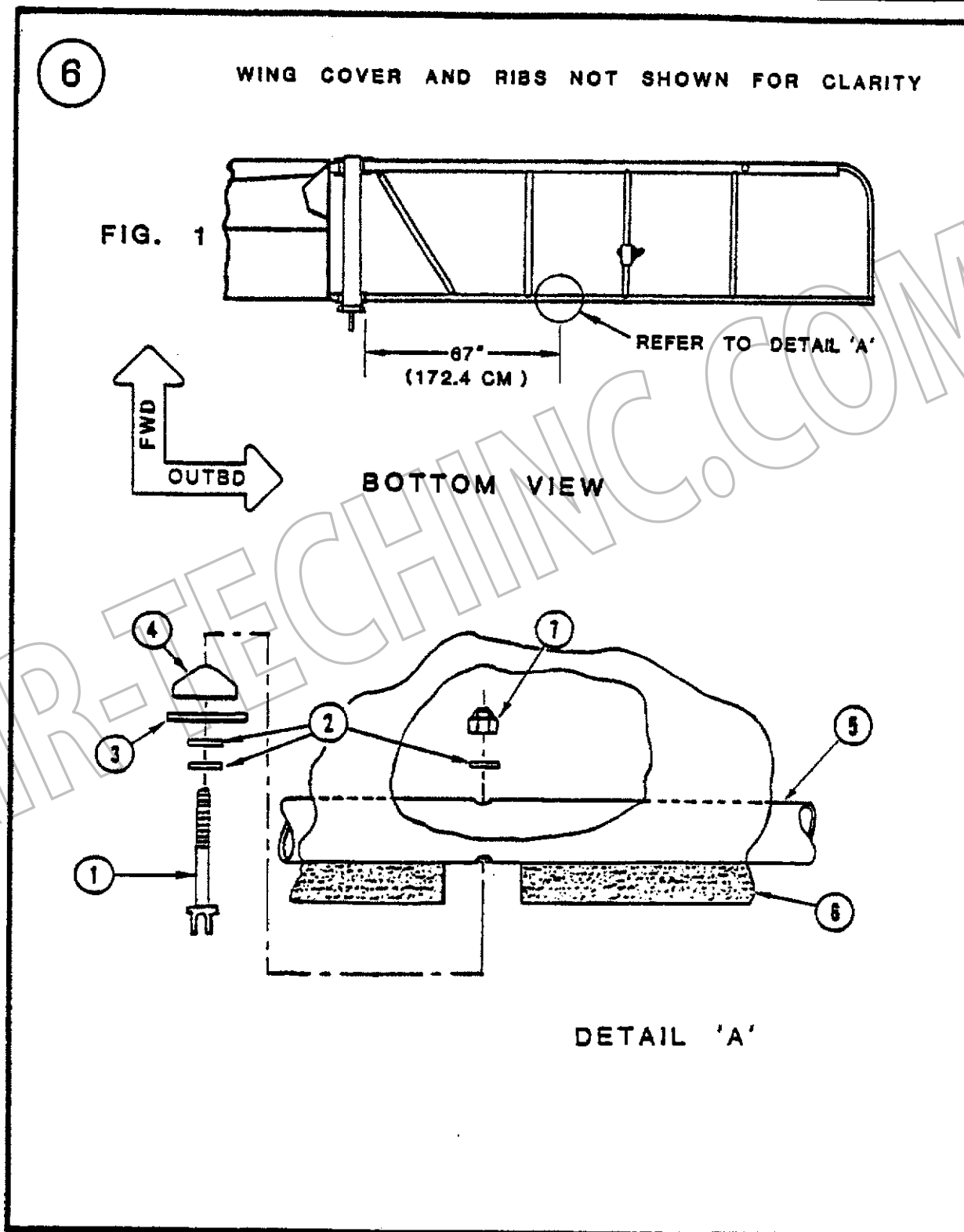
**WING CABLES AND COMPRESSION STRUT ATTACHMENT (CONT'D.)
[INBOARD AILERON ATTACHMENT]**

1. Refer to Illustration 6, Figure 1 and Detail 'A'. Measure 67 7/8" (172.4 cm) OUTBOARD from the INBOARD end of the Trailing Edge Spar (5). Reveal and heat-seal the hole.
2. Cut and heat-seal a 1 1/8" (2.86 cm) wide gap (centered on the hole) in the Velcro Gap Seal (6).
3. Install the Hardware (1,2,3 and 4). Add a Washer (2) and Locknut (7). Tighten to correct torque. DO NOT DISTORT THE SPAR. Align the Forkbolt (1) VERTICALLY with the Trailing Edge Spar (5) as illustrated.

Item	P/N	Description
1...	10387..	1/4" x 2 1/4" Forkbolt
2...	10560..	1/4" Washer
3...	10510..	1/4" Fender Washer
4...	20289..	1 1/2" Saddle
5...	80201..	Trailing Edge Spar
6.....		Velcro Gap Seal
7...	10511..	1/4 - 20 Locknut

WING CABLES AND COMPRESSION STRUT ATTACHMENT (CONT'D.)

4-49



WING CABLES AND COMPRESSION STRUT ATTACHMENT (CONT'D.)
 (BELLCRANK STRUT ATTACHMENT)

1. Refer to Illustration 7, Figure 1 and Detail 'A'. Measure 96" (243.84 cm) OUTBOARD from the INBOARD end of the Leading Edge Spar (1) and reveal and heat-seal the hole. Install a Bolt (2) with TWO Washers (3) and Thread Adhesive (4) into the Leading Edge Spar (1) and Bellcrank Strut (5). Tighten to correct torque. DO NOT DISTORT THE SPAR.

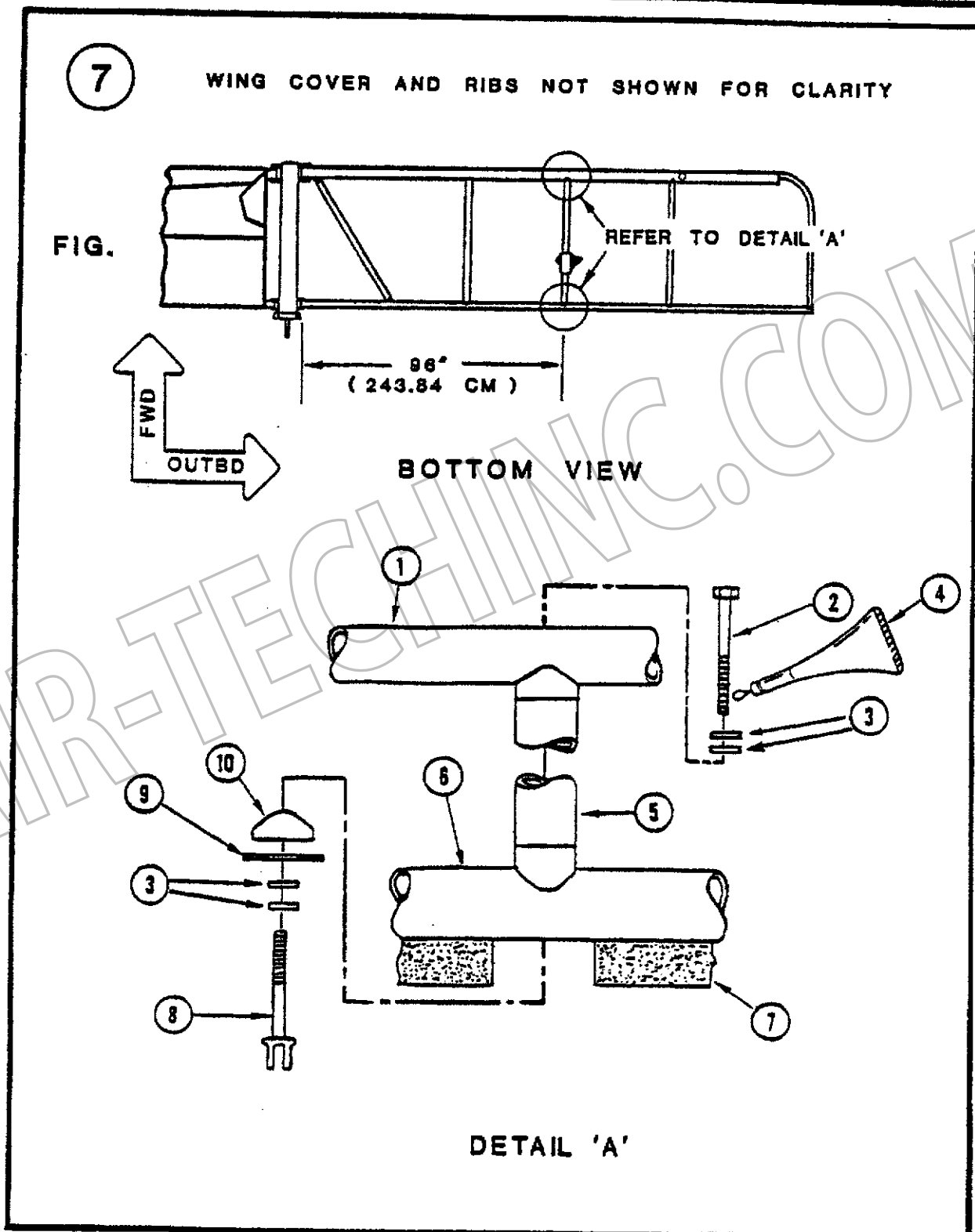
2. Reveal the adjacent hole in the Trailing Edge Spar (6) and heat-cut a 1/8" (3.2 mm) gap (centered on the Bolt hole) in the Velcro Gap Seal.

3. Install Hardware, Forkbolt (8) with TWO Washers (3), Fender Washer (9) and Saddle (10). Tighten to correct torque. DO NOT DISTORT THE SPAR. Align Forkbolt (1) as illustrated.

Item	P/N	Description
1...	80200..	Leading Edge Spar
2...	10430..	1/4" x 2 3/4" Grade 5 Bolt
3...	10560..	1/4" Washer
4...	60591..	Thread Adhesive
5...	71020..	Bellcrank Strut
6...	80201..	Trailing Edge Spar
7.....		Velcro Gap Seal
8...	10387..	1/4" x 2 1/4" Forkbolt
9...	10565..	1/4" Fender Washer
10...	20289..	1 1/2" Saddle

WING CABLES AND COMPRESSION STRUT ATTACHMENT (CONT'D.)

4-51



WING CABLE AND COMPRESSION STRUT ATTACHMENT (CONT'D.)
[OUTBOARD AILERON ATTACHMENT]

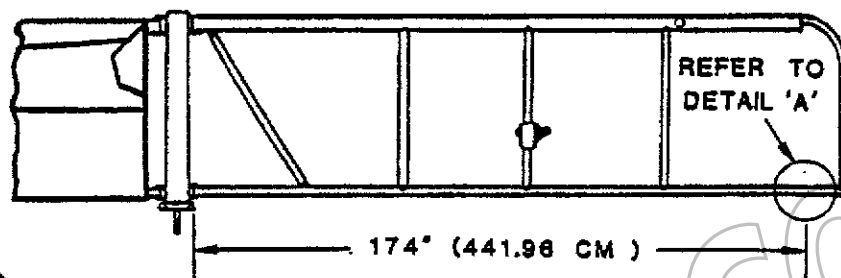
1. Refer to Illustration 8, Figure 1 and Detail 'A'. Measure 174" (441.96 cm) OUTBOARD from the INBOARD end of the Trailing Edge Spar (5). Reveal and heat-seal the hole.
2. Cut and heat-seal a 1 1/8" (2.86 cm) wide gap (centered on the hole) in the Velcro Gap Seal (6).
3. Install the Hardware (1,2,3 and 4). Add a Washer (2) and Locknut (7). Tighten to correct torque. DO NOT DISTORT THE SPAR. Align the Forkbolt (1) VERTICALLY with the Trailing Edge Spar (5) as illustrated.

Item	P/N	Description
1...	10387..	1/4" x 2 1/4" Forkbolt
2...	10560..	1/4" Washer
3...	10565..	1/4" Fender Washer
4...	20289..	1 1/2" Saddle
5...	80220..	Trailing Edge Spar
6.....		Velcro Gap Seal
7...	10511..	1/4 - 20 Locknut

4-53

8

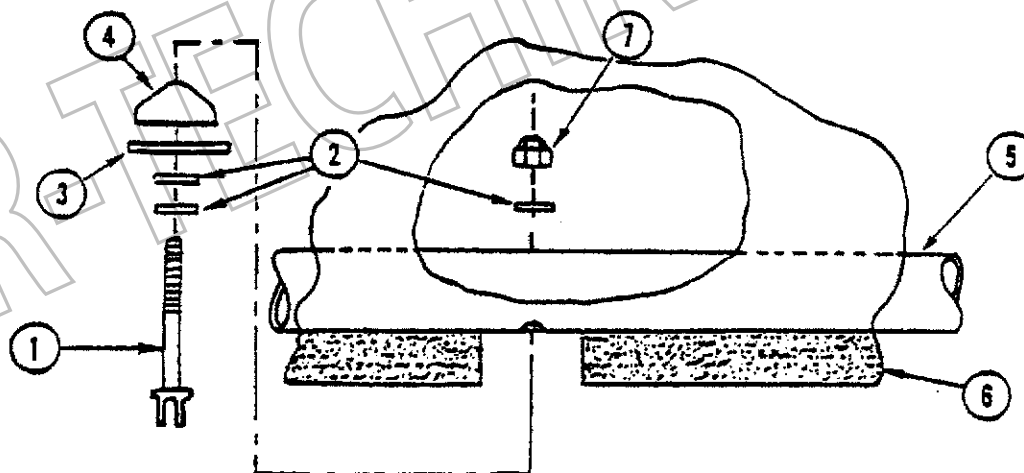
FIG. 1



FWD

OUTBD

BOTTOM VIEW



DETAIL 'A'

ANTI-DRAG CABLE STAND-OFF ATTACHMENT

1. Refer to Figure 1 and Detail 'A'. Note where the Anti-Drag Cable (1) makes contact with the Diagonal Strut (2).

2. Refer to Detail 'A'. Use a Tie Wrap (3) and cut a 1/2" (12.7 mm) length of Fuel Line (4). Make a Stand-Off at this location as illustrated. Refer to Page 1-13 if necessary.

3. Repeat the COMPLETE Assembly sequence Pages 4-4 thru 4-52 if necessary to construct the OPPOSITE Wing, 'mirror image'.

OPTIONAL: At this time you may wish to refer to Pages 10-6 and 10-7 ('Aileron Pushrod Template Cut-Out Placement'). This page may be easier to complete with the Wing in its present position.

4. Remove the Wings and set them aside if you need the space to complete the Ailerons and Trike assembly.

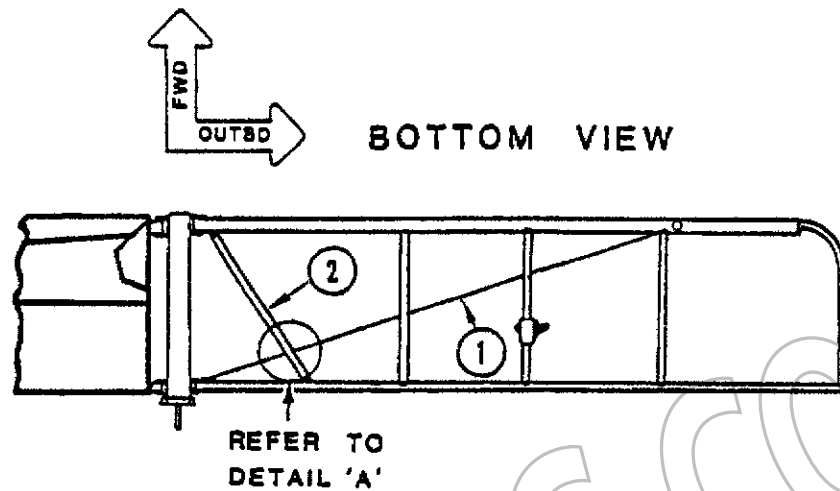
Item	P/N	Description
1...	20618..	Anti-Drag Cable
2...	40420..	Diagonal Strut
3...	30480..	7" Tie Wrap
4...	30220..	1/2" Fuel Line Stand-Off

ANTI-DRAG CABLE

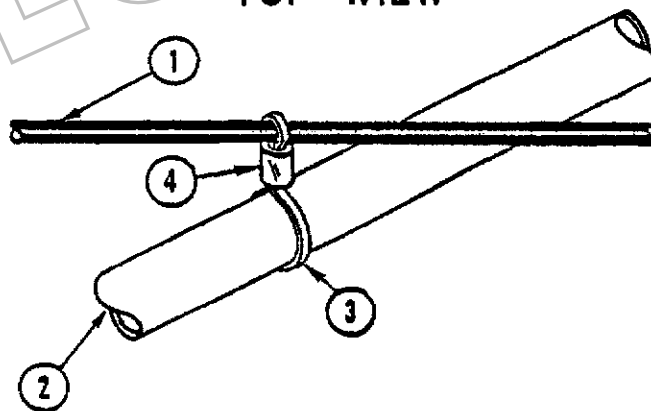
4-55

STAND-OFF ATTACHMENT

FIG. 1



TOP VIEW



DETAIL 'A'

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SECTION 5

AILERON ASSEMBLY

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AILERON ANCHOR (BLIND) NUT ATTACHMENT.....	5-4
AILERON COMPRESSION STRUT ATTACHMENT.....	5-6
AILERON LEADING EDGE ASSEMBLY.....	5-8
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AILERON COVER ATTACHMENT.....	5-12
AILERON EYEBOLT ATTACHMENT.....	5-14
AILERON CONTROL ARM (HORN) ATTACHMENT.....	5-16
AILERON STOP ATTACHMENT.....	5-18
AILERON TUBE CAP ATTACHMENT.....	5-20



World's Largest Manufacturer of Recreational Aircraft and Vehicles

AILERON TRAILING EDGE ASSEMBLY

1. Refer to Figure 1. Place the TWO halves of the Aileron Trailing Edge Spar so that they curve TOWARD you. Position them so that the OUTBOARD half (1) is to your LEFT and the INBOARD half is to your RIGHT.

NOTE: The INBOARD half (2) contains a factory installed Inner connecting Sleeve with Rivets secured at TWO places.

2. Refer to Figure 2. Make sure your work surface, whether a floor or a table top, is FLAT. Join the halves (1) and (2) together as illustrated and check that BOTH halves (as a unit) lie FLUSH to the FLAT surface. Avoid any twists. BOTH curves should be in full contact with the work surface.

3. Refer to Figure 2. Detail 'A'. Measuring from the CENTER Connect Joint Seam, mark, center-punch, drill and deburr the TWO 1/8" (3.2 mm) diameter holes at 1 1/2" (3.81 cm) and 4" (10.16 cm) distances through ONE side of the tube ONLY.

NOTE: The marks are APPROXIMATELY the SAME distances from the CENTER Connect Joint Seam (4) as the Factory-Installed Rivets (5). (One illustrated). Lay the connected Aileron Trailing Edge aside for the moment.

4. Repeat Steps 1 through 3 for the opposite Aileron.

Item	P/N	Description
1...	71026..	Aileron Trailing Edge (OUTBOARD)
2...	71025..	Aileron Trailing Edge (INBOARD)
3.....		Center Connect Joint Seam
4.....		Factory Installed Rivet

AILERON TRAILING EDGE ASSEMBLY

FIG. 1

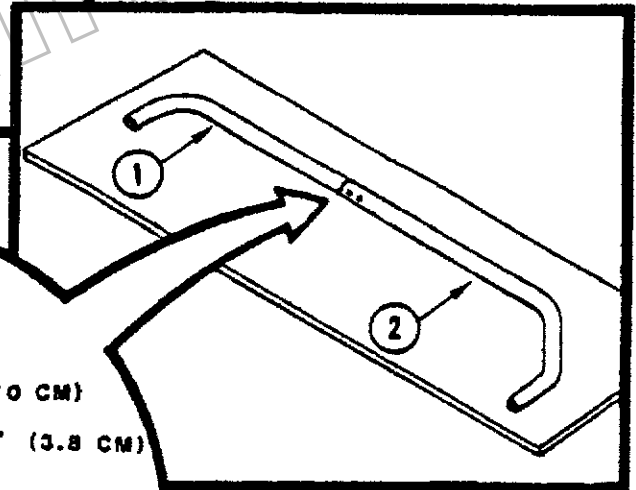
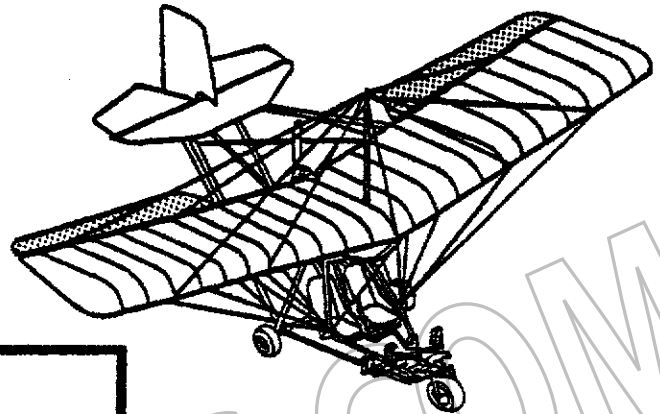
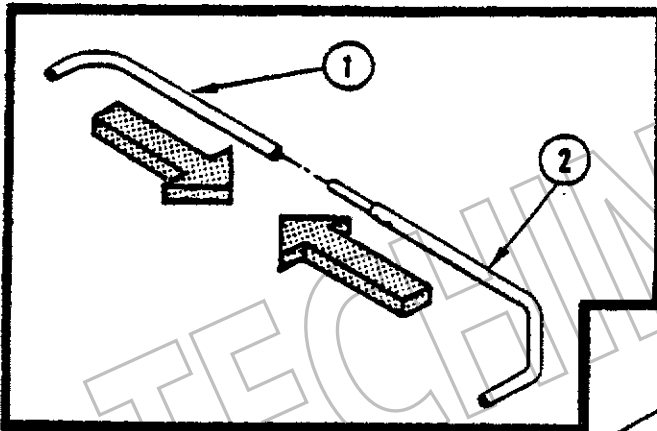
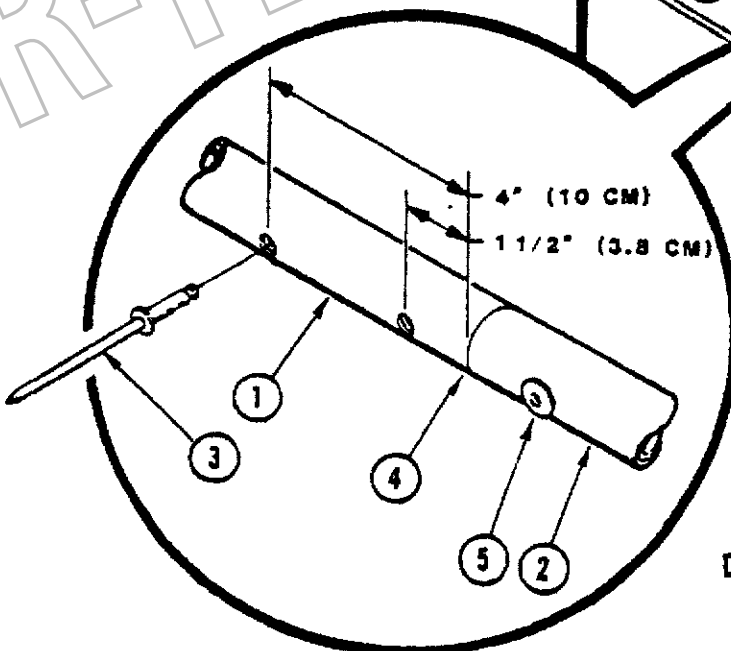


FIG. 2



DETAIL 'A'

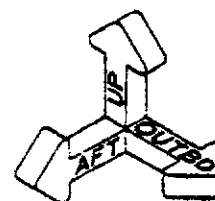
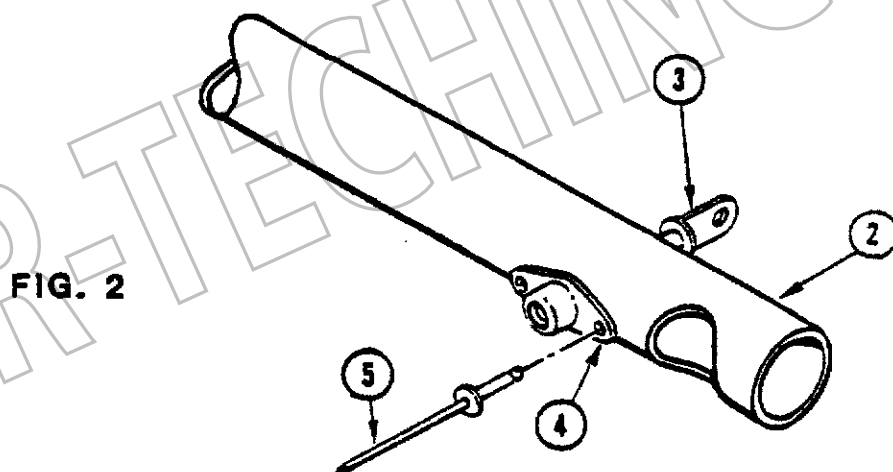
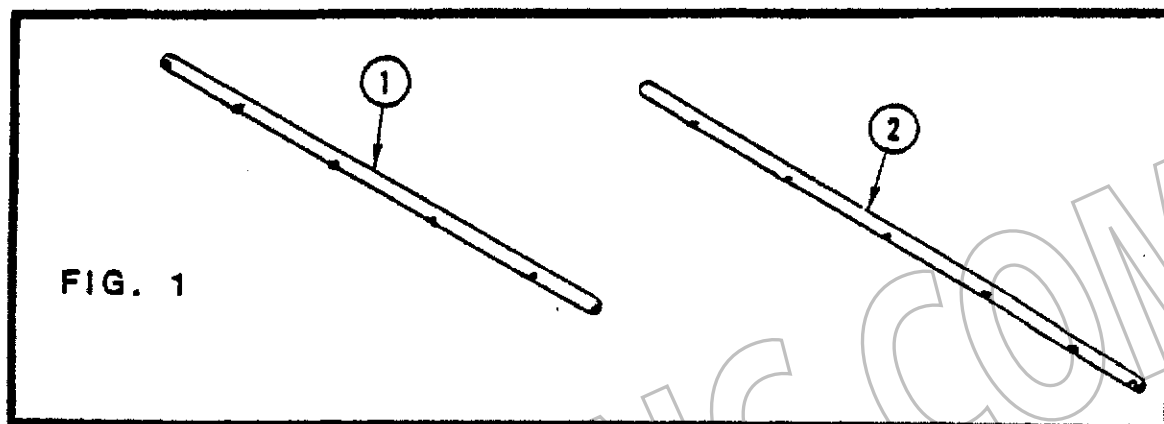
AILERON ANCHOR (BLIND) NUT ATTACHMENT

1. Refer to Figure 1. The Aileron Leading Edge INBOARD Spar (1) has FOUR 1/2" (12.7 mm) Aileron Compression Strut Insert Holes. The Leading Edge OUTBOARD Spar has FIVE.
2. Position the Aileron Leading Edge Spars (1) and (2) with the 1/2" (12.7 mm) holes on the AFT Side, FACING YOU, as illustrated.
3. The approximate locations for the FOUR 1/4" (6.3 mm) Hinge Attach Holes are 4" (10.16 cm), 32 1/8" (81.59 cm), 66 1/8" (167.95 cm), and 110 1/8" (279.71 cm) as measured from the INBOARD end when both Spars (1) and (2) are "butted" against each other correctly. Insert an Eyebolt (3) through the FRONT side of any one of the FOUR Hinge Attach Holes and thread on a Anchor (Blind) Nut (4) [on the side with the 1/2" (12.7 mm) holes] only part way.
4. Align the 1/8" (3.2 mm) attachment holes in the Blind Nut (4) with the Center Line of the Spar (1) or (2).
5. Back-drill through ONE of the Blind Nut attachment holes only and check the alignment. Secure with ONE Rivet (5).
6. Back-drill through the remaining attachment hole and secure with another Rivet (5).
7. Repeat for the remaining Hinge Point Locations (Refer to Step 3) on BOTH Leading Edge Spars (1) and (2).

----- Item P/N Description -----

- 1...71007..Aileron Leading Edge Spar (INBOARD)
- 2...71008..Aileron Leading Edge Spar (OUTBOARD)
- 3...10350..AN438-14A Eyebolt
- 4...10530..1/4" Anchor (Blind) Nut
- 5...20201..1/8" Steel Rivet

AILERON ANCHOR (BLIND) NUT ATTACHMENT



AILERON COMPRESSION STRUT ATTACHMENT

1. Refer to Figure 1. Insert a FORWARD Aileron Compression Strut Tip (1) into each Aileron Compression Strut (2). Measure 3/16" (4.7 mm) AFT and 'dimple' the FORWARD end of the Compression Strut (2) with a Center Punch (6) to secure the Strut Tip (1) if necessary.

2. Insert the Aileron Compression Strut Tips (Rear) into the OPPOSITE ends of the Aileron Compression Struts (2). Measure 3/16" (4.7 mm) FORWARD and dimple with a Center Punch to secure the Tip (3) into place if necessary.

3. Refer to Figure 2, Detail 'A'. Assemble ALL the Compression Struts (2) in graduated size and pencil-mark each Compression Strut (2). (#1 being the SHORTEST and #9 being the LONGEST).

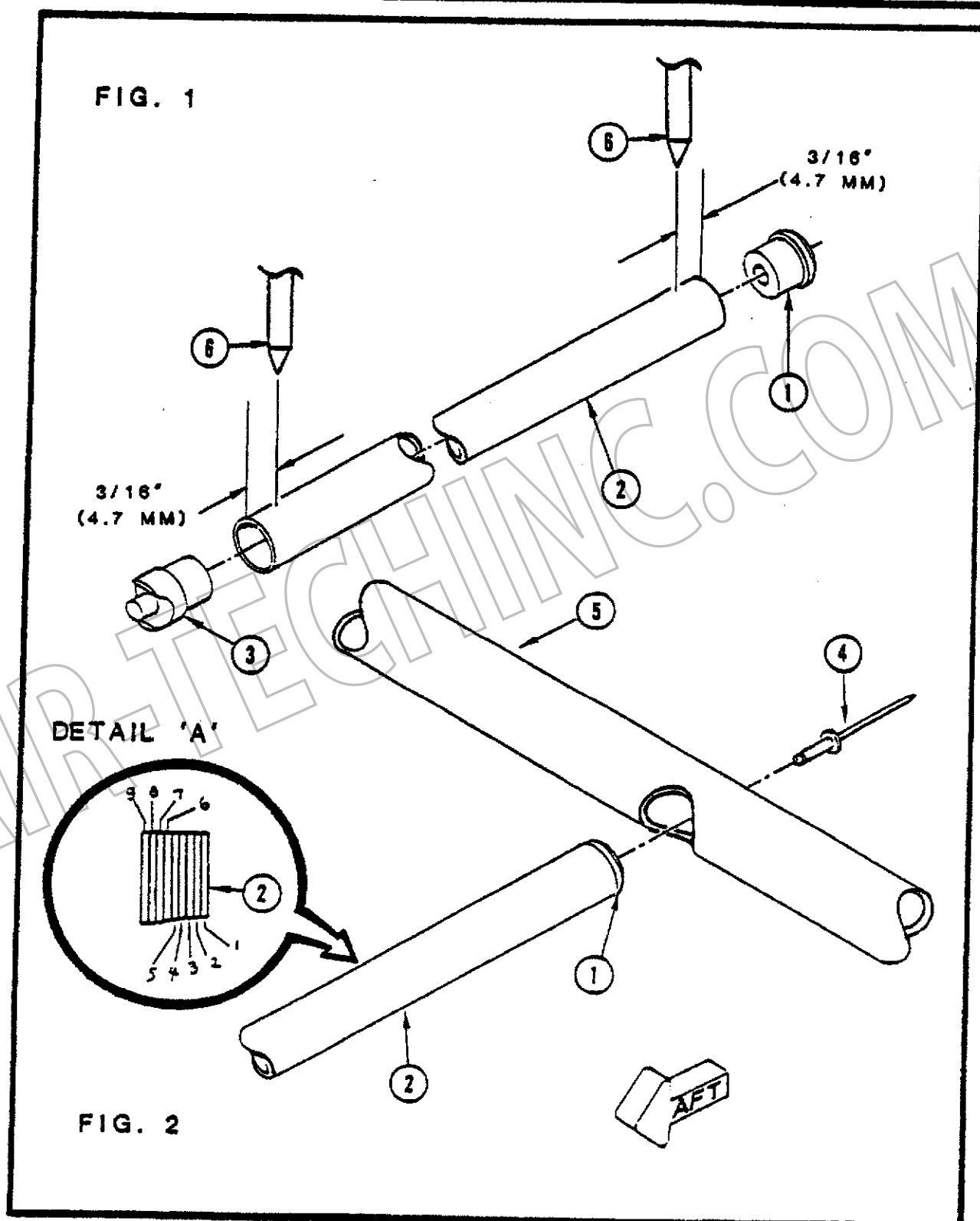
4. Refer to Figure 2. Starting at the SECOND INBOARD 1/2" (12.7 mm) hole in the Aileron Leading Edge Assembly (5), install Aileron Compression Strut #9 (LONGEST) and work in graduated sequence to the (SHORTEST) Strut #1.

5. Secure each Compression Strut (2) with a Rivet (4).

6. Repeat this assembly sequence for constructing the opposite Aileron.

Item	P/N	Description
1...	71001.....	Aileron Compression Strut Tip (FORWARD)
2...	71009-71017..	Aileron Compression Struts
3...	71002.....	Aileron Compression Strut Tip (REAR)
4...	20225.....	3/16" Aluminum Rivet
5.....		Aileron Leading Edge Assembly
6.....		Center Punch

AILERON COMPRESSION STRUT ATTACHMENT

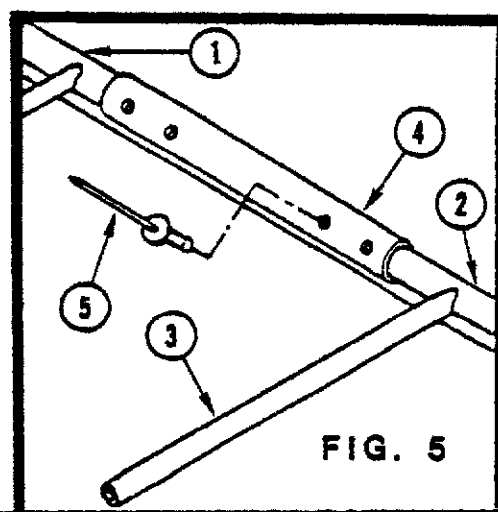
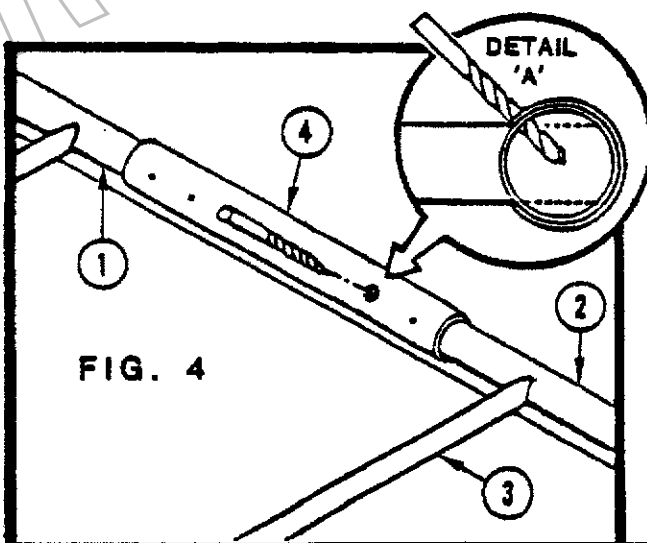
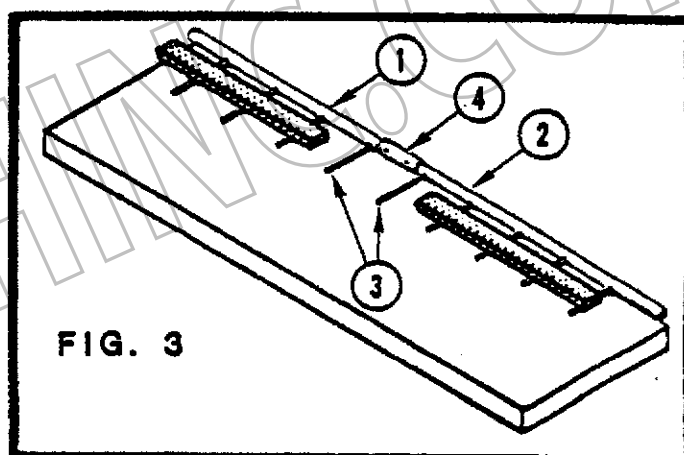
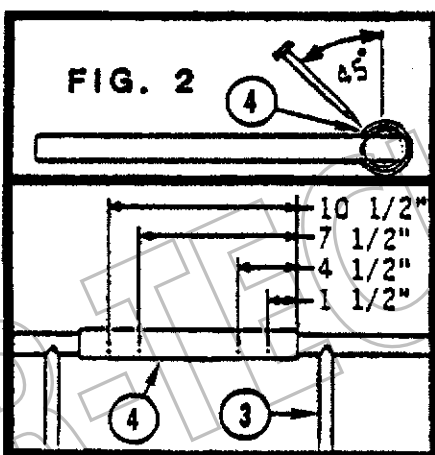
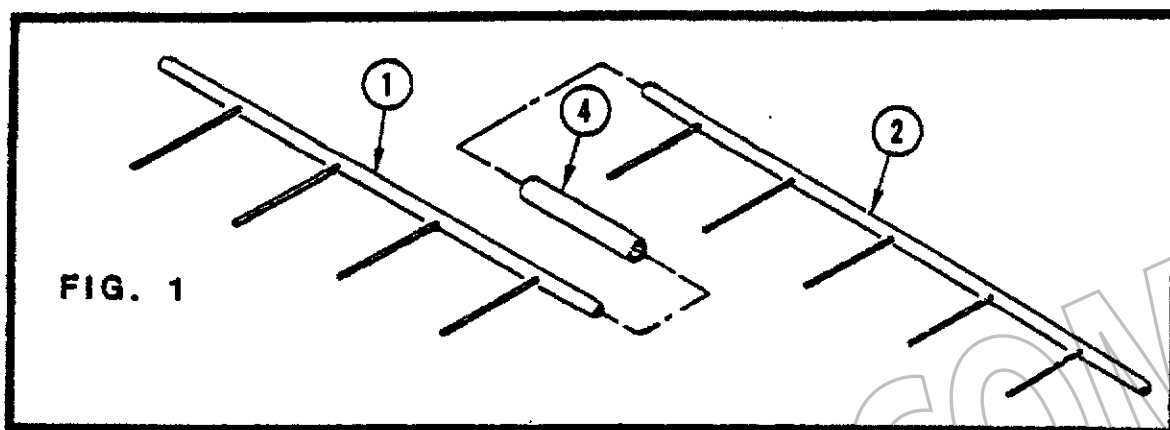


AILERON LEADING EDGE ASSEMBLY

1. Refer to Figure 1. Insert the Inboard (1) and Outboard (2) Aileron Leading Edge Spars EQUIDISTANT into the Sleeve (4), 6" (15.24 cm) from each end. Be sure BOTH Spars (1) and (2) make contact and measure 130 1/2" (331.47 cm) in total length.
2. Refer to Figure 2. Center-punch at approximately 45 degrees as illustrated, FOUR Rivet hole locations on the Sleeve (4) at the following points: 1 1/2" (3.81 cm), 4 1/2" (11.43 cm), 7 1/2" (19.05 cm), and 10 1/2" (26.67 cm).
3. Refer to Figure 3. Let the Leading Edge Assembly (1) and (2) OVERHANG the work table as illustrated. You may clamp or weight TWO 1" (2.54 cm) x 4" (10.16 cm) x 5" (12.7 cm) boards on TOP of the Compression Struts (3) as illustrated.
4. Refer to Figure 4, Detail 'A'. Drill and deburr ONE 1/8" (3.2 mm) diameter hole through ONE side only.
5. Refer to Figure 5. Temporarily insert a Rivet (5) to hold the angle. Drill the remaining THREE holes, install and secure Rivets (5).
6. Repeat Steps 1 through 5 for the opposite side.

Item	P/N	Description
1...	71007..	Aileron Leading Edge (Inboard)
2...	71008..	Aileron Leading Edge (Outboard)
3.....		Aileron Compression Strut
4...	40266..	Sleeve
5...	20201..	1/8" Stainless Steel Rivet

AILERON LEADING EDGE ASSEMBLY



AILERON TRAILING EDGE ASSEMBLY TO LEADING EDGE ASSEMBLY ATTACHMENT

1. Insert a Forward Aileron Compression Strut Tip (3) into the INBOARD and OUTBOARD ends of the Aileron Trailing Edge Assembly (4). 'Dimple' with a Center Punch to secure as necessary.

2. Refer to Figure 2, Detail 'A'. Rotate each Compression Strut (2) until the Saddle portion or AFT end of the Strut Tip (1) is in the CORRECT position or parallel to the Aileron Leading Edge Assembly (6) as illustrated.

3. Refer to Figure 3, Detail 'B'. Install the Forward Aileron Compression Strut Tip (3) into the INBOARD and OUTBOARD ends of the Trailing Edge Assembly (4). [OUTBOARD END ILLUSTRATED].

4. Refer to Figure 3, Detail 'A'. Start in the CENTER of the Aileron Assembly. Locate the CENTER Compression Strut #5 (7) and insert its AFT tip 'Stud' into the corresponding hole in the Aileron Trailing Edge Assembly (4). Extra pressure may be required to 'pop' the stud into place. Work OUTWARD from the CENTER in BOTH directions for each of the remaining Aileron Compression Struts (2).

5. Insert the Aileron Trailing Edge Assembly (4) into the corresponding 1/2" (12.7 mm) hole in the Aileron Leading Edge Assembly (6) INBOARD location.

6. Refer to Figure 3, Detail 'B'. Repeat Step 5 at the OUTBOARD location. Attach the INBOARD end of the Trailing Edge Assembly (4) to the Leading Edge Assembly (6) and secure with a Rivet (5). OPTIONAL: Use large Rubber Bands (8) to hold the completed assembly together until the Aileron Covers are installed later.

NOTE: After each Rivet (5) is 'popped' into place shake the Aileron Assembly to expell any loose Rivet mandrels that may be trapped INSIDE.

7. Repeat the assembly sequence for the opposite Aileron.

Item P/N Description

- 1...71002..Aileron Compression Strut Tip (Rear)
- 2.....Aileron Compression Strut
- 3...71001..Aileron Compression Strut Tip (Forward)
- 4.....Aileron Trailing Edge Assembly
- 5...20225..3/16" Aluminum Rivet
- 6.....Aileron Leading Edge Assembly
- 7.....Center Aileron Compression Strut #5
- 8.....Rubber Band (optional)

AILERON TRAILING EDGE ASSEMBLY

5-11

TO LEADING EDGE ASSEMBLY ATTACHMENT

FIG. 1

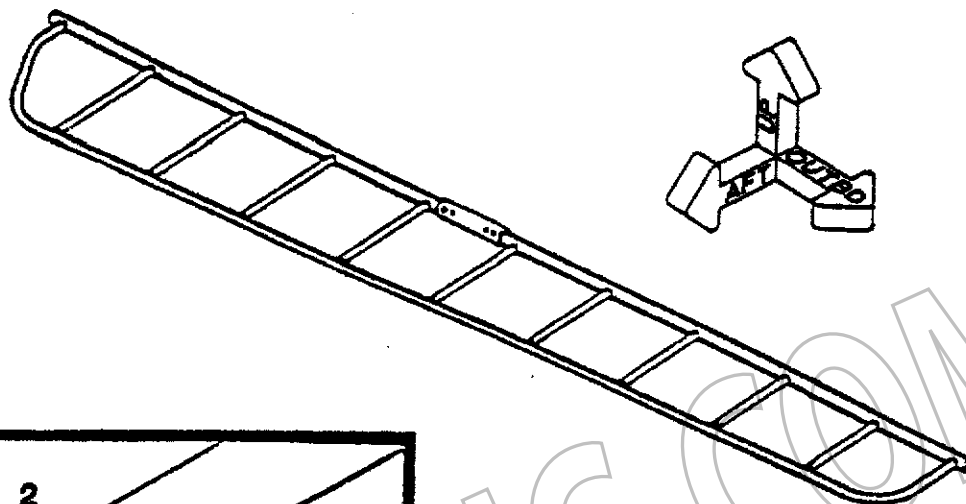
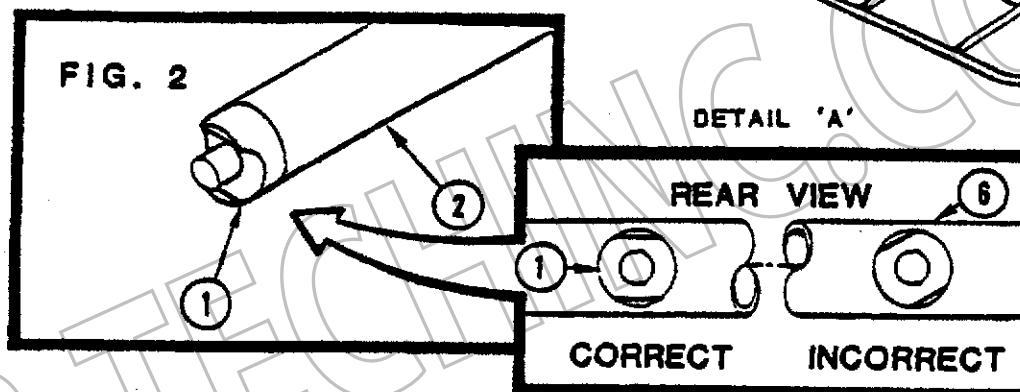


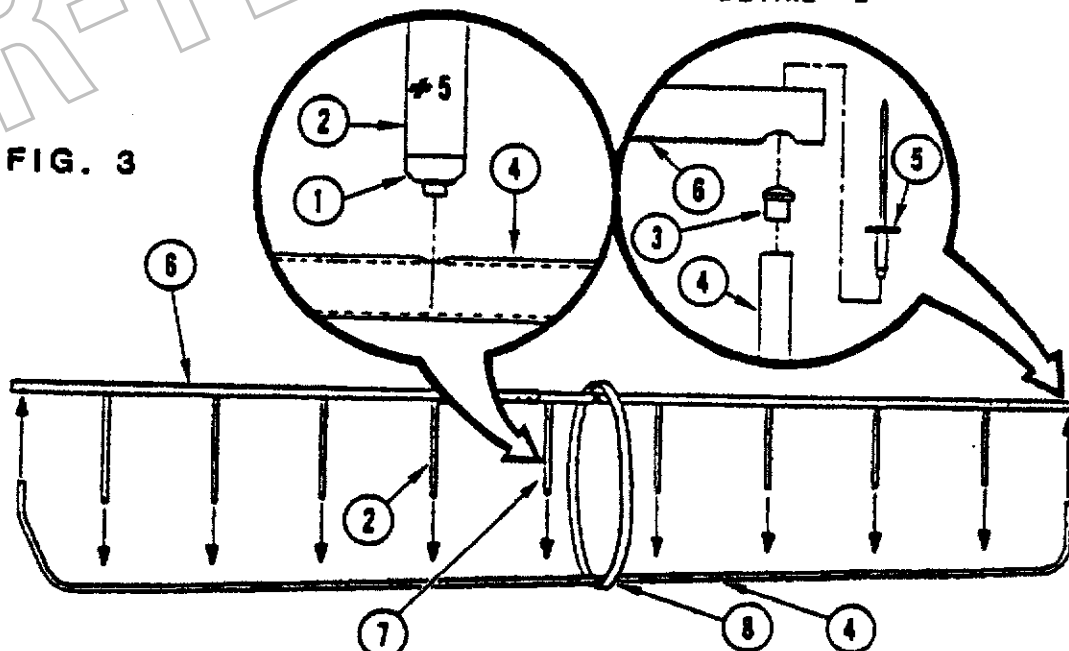
FIG. 2



DETAIL 'A'

DETAIL 'B'

FIG. 3



AILERON COVER ATTACHMENT

Before beginning the following sequence, you may wish to remove ALL Part Number Labels from any of the Aileron Frame Components as the Labels may 'bleed' through if an ultraviolet inhibitor (such as 'Stits') is applied at a later date. Clean the Tubes with Laquer Thinner or Acetone. OPTIONAL: Apply to the Tubes a silicone based dry lubricant spray such as 'Fabric Glide' (Dow Corning). This will greatly ease installation of the Aileron Covers (1) and (3).

1. Select the Aileron Cover appropriate to the Left or Right Side. Zipper should be located FACE-DOWN or on the BOTTOM side and INBOARD End. Slip the OPEN end of the Aileron Cover (1) over the Aileron Frame.

2. Refer to Figure 1. Remove the large Rubber Bands [optional] as you go. Work the Cover (1) INBOARD until approximately 80 percent has been installed. At this approximate length, a 'binding point' (5) will be reached. Place the Aileron Leading Edge Spar Assembly (4) against a rigid surface while installing the Aileron Cover (1). Do not make contact with the Aileron Trailing Edge (2) as it may be damaged easily.

3. Refer to Figure 2 and Detail A. Keep the Gap Seal correctly aligned as illustrated throughout installation. Pull the remaining portion of the Cover (1) INBOARD to the 'Binding Point' (5) as illustrated.

4. Refer to Figure 3. Continue to pull the Cover (1) INBOARD, making as many passes as necessary to smooth out ALL the wrinkles.

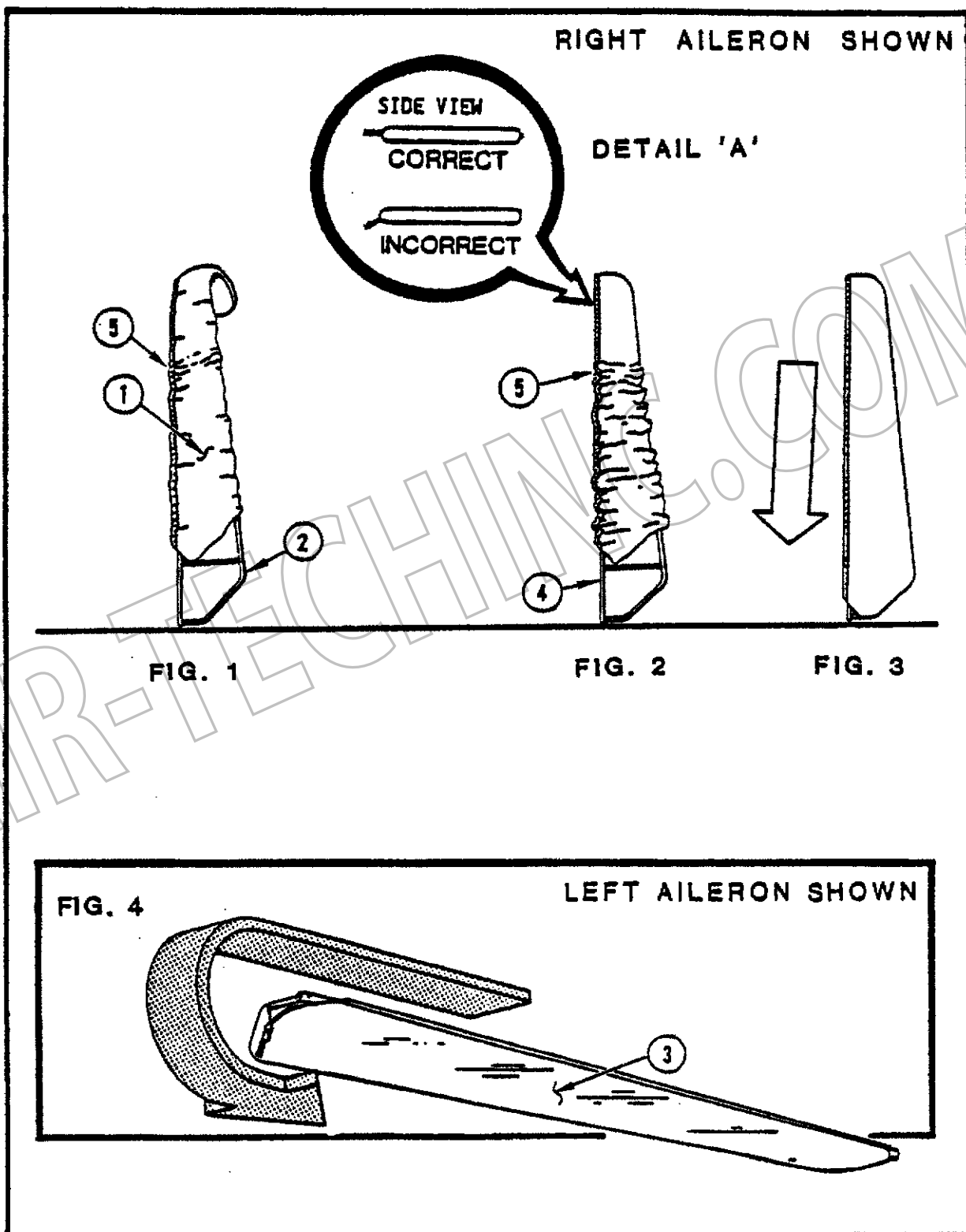
5. Refer to Figure 4. Pull and curl the TOP Surface of the Cover (1) INBOARD and AROUND the Trailing Edge (2), and close the Zipper.

6. Repeat on the OPPOSITE Aileron.

NOTE: After the Aileron Cover has been installed the Aileron Frame may not be perfectly straight until it is later attached to the Wing.

Item	P/N	Description	Item	P/N	Description
1...	71028..	Aileron Cover (RIGHT)	4.....		Aileron L.E. Spar Assembly
2...	71025..	Aileron T.E. (INBOARD)	5.....		Binding Point
3...	71027..	Aileron Cover (LEFT)			

AILERON COVER ATTACHMENT



AILERON EYEBOLT ATTACHMENT

1. Refer to Figure 1. Measure 4" (10.16 cm), 32 1/8" (81.59 cm) 66 1/8" (167.95 cm) and 110 1/8" (279.71 cm) OUTBOARD from the INBOARD end of the Aileron Leading Edge Assembly (1) and mark the location.

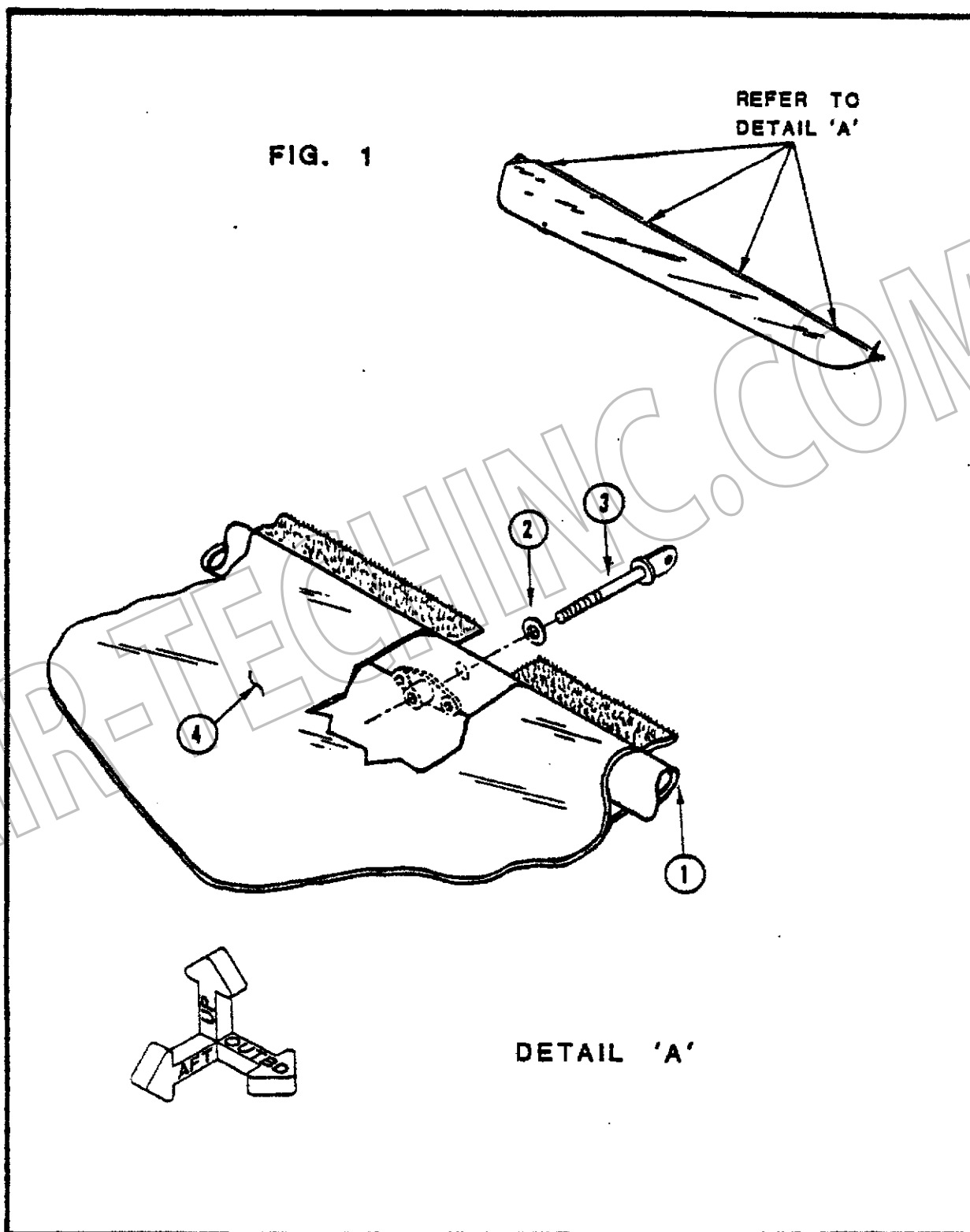
2. The Hinge Attach Points can be located by feeling for the hole depressions through the Aileron Cover (4) on the Leading Edge Assembly (1) with your fingertips. Reveal each hole location with an Avl and heat-seal the hole.

3. Refer to Detail 'A. Cut a 1/8" (2.85 cm) wide gap in the Velcro Gap Seal at each of the FOUR hole locations. Install a Washer (2) and Eyebolt (3) vertically at each location. Tighten to correct torque. DO NOT DISTORT THE TUBE.

NOTE: Eyebolt (3) should NEVER be OVER-TORQUED to achieve the VERTICAL position. It is ALWAYS better to back off to the next vertical position rather than to overtorque the Eyebolt (3) and crush the Spar.

Item	P/N	Description
1.....		Aileron Leading Edge Assembly
2...	10560..	1/4" Washer
3...	10350..	AN43B-14A Eyebolt
4...	71028..	Aileron Cover (Right)

AILERON EYEBOLT ATTACHMENT



AILERON CONTROL ARM (HORN) ATTACHMENT

1. Refer to Figure 1. Measure 35 1/4" (89.5 cm) OUTBOARD from the INBOARD end of the Aileron Leading Edge Assembly (1) to locate the pre-drilled 3/16" (4.7 mm) hole UNDER the Aileron Cover (2).

2. Reveal and heat-seal the hole.

3. Attach the FORWARD end of the Aileron Horn (3) to the BOTTOM surface (same as the zipper) of the Aileron Assembly first with a Bolt (4) and a Washer (5) UNDER the Bolt head. Continue through the Aileron Leading Edge Assembly (1) and add another Washer (5) and Locknut (6). ATTACH FINGER TIGHT ONLY.

4. Swing the AFT end of the Aileron Horn (3) 90 degrees (perpendicular) to the Aileron Leading Edge Assembly (1) and mark the location where the Aileron Trailing Edge Assembly (7) intersects the Aileron Horn (3). Drill and deburr a 3/16" (4.7 mm) diameter hole through the Aileron Horn (3) and Aileron Trailing Edge Assembly (7).

5. TEMPORARILY remove the Aileron Horn (3).

6. Trim the EXCESS Aileron Horn 3/8" (9.3 mm) past the EDGE of the 3/16" (4.7 mm) Aileron Trailing Edge attachment hole. Touch up the end with a black felt tip permanent (water proof) marker or semi-flat black paint if desired.

7. Re-attach the FORWARD end of the Aileron Horn (3) with the Hardware in Step 3. Tighten to correct torque. DO NOT DISTORT THE TUBE.

8. Attach the AFT end of the Aileron Horn (3) with Hardware (8, 5 and 6). Tighten to correct torque. DO NOT DISTORT THE TUBE.

9. Repeat on the opposite (Left) Aileron.

Item	P/N	Description
1.....		Aileron Leading Edge Assembly
2...71026..		Aileron Cover
3...71018..		Aileron Control Arm (Horn)
4...10030..		AN 3-13A Bolt
5...10550..		3/16" Washer
6...10500..		3/16" Locknut
7.....		Aileron Trailing Edge Assembly
8...10024..		AN 3-10A Bolt

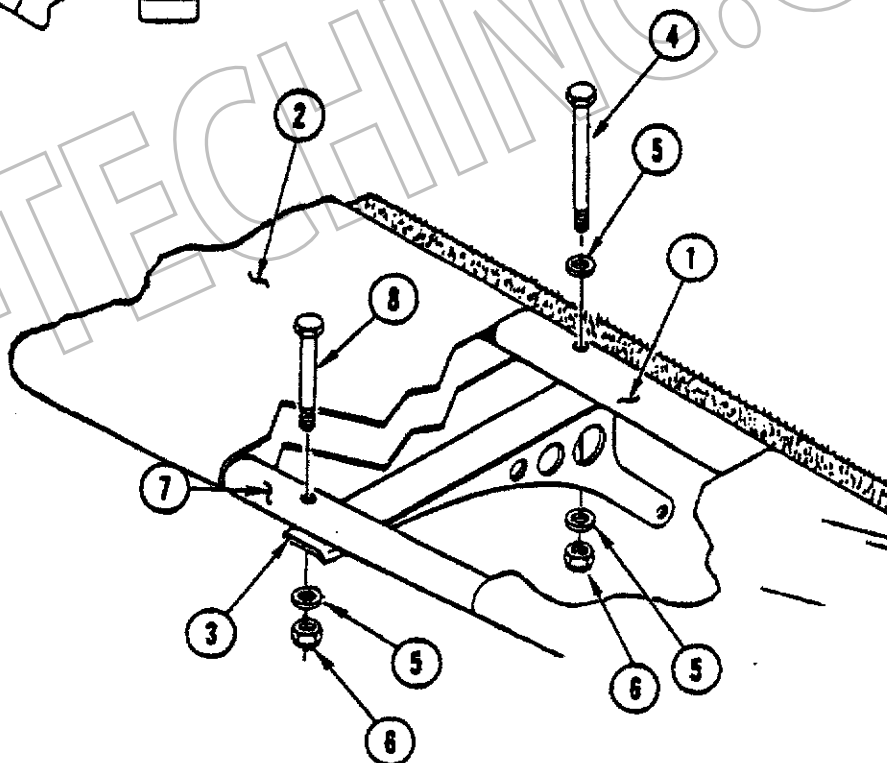
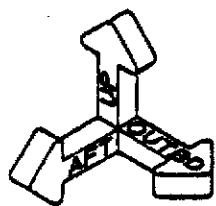
AILERON CONTROL ARM (HORN) ATTACHMENT

FIG. 1

RIGHT AILERON SHOWN

35 1/4" (89.5 CM)

REFER TO
DETAIL 'A'



DETAIL 'A'

AILERON STOP ATTACHMENT

1. Position the Aileron Stop (1) onto the OUTBOARD End of the Aileron Leading Edge (2). NOTE: The Bent Ends (10) of the Aileron Stop (1) curve INBOARD.

2. Center the 3/16" (4.7 mm) hole in the AFT End of the Aileron Stop (1) while holding the Aileron Stop (1) FIRMLY against the Aileron Cover (7) Trailing Edge Seam (8) OUTBOARD End.

3. With a 3/16 (4.7 mm) drill bit, back-drill through BOTH walls of the Aileron Trailing Edge (3), using the AFT hole in the Aileron Stop (1) as a guide. BE CAREFUL. If the drill bit slips, it may tear the Aileron Cover (7).

4. Temporarily remove the Aileron Stop (1) deburr and heat-seal the hole.

5. Re-attach the Aileron Stop (1) and insert a Bolt (4) as illustrated.

NOTE: It is humanly possible to install the Washer (5) and the Locknut (6) without heat-cutting the optional Hole or Slot (9) in the LOWER surface of the Aileron Cover (7) as illustrated by inserting these Parts through the gap located at the FORWARD OUTBOARD corner of the Aileron Cover (7). If this proves to be too difficult, you may wish to proceed to Step 7. If, however, a Washer (5) and a Locknut (6) can be attached and secured to the Bolt (4), you may wish to skip Step 7 and proceed directly to Step 8.

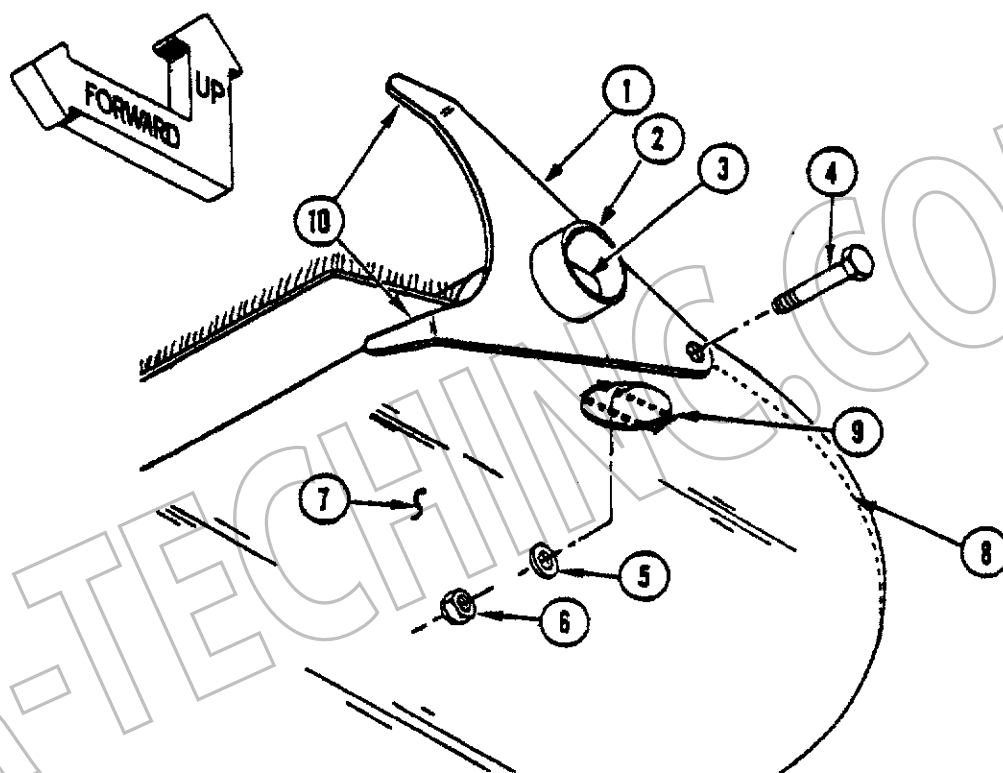
6. With your finger, feel where the end of the Bolt (4) is located. Reveal and heat-seal a Slot or Hole (9) large enough to install a Washer (5) and Locknut (6) where illustrated.

7. Tighten the Locknut (6) to correct torque. DO NOT DISTORT THE TUBE.

8. Repeat on the opposite (Right) Aileron.

Item	P/N	Description	Item	P/N	Description
1...	42000..	Aileron Stop	6...	10500..	3/16" Locknut
2...	71008..	Aileron L. E.	7...	71027..	Aileron Cover (LEFT)
3...	71026..	Aileron T. E.	8.....		Trailing Edge Seam
4...	10024..	AN3-10A Bolt	9.....		Optional Hole or Slot
5...	10550..	3/16" Washer	10.....		Bent Ends

AILERON STOP ATTACHMENT



LEFT AILERON SHOWN

AILERON TUBE CAP ATTACHMENT

1. Refer to Figure 1, Detail A. Cut a Tube Cap (1) on BOTH sides with Side Cutters or Wire Cutters as illustrated.

OPTIONAL: You may wish to file the Tube Cap (1) with a rat-tail file as illustrated to a saddle shape to fit the circumference of the Aileron Trailing Edge (2).

2. Add Contact Cement (3) [not illustrated] to the sides of the Tube Cap (1) and insert the Tube Cap into place INSIDE the Aileron Leading Edge (4).

3. Wipe off any EXCESS Contact Cement (3) from the Tube Cap (1) IMMEDIATELY with Lacquer Thinner or Acetone.

4. Drill and deburr a 1/8" (3.2 mm) hole [through ONE wall ONLY] in each end of the Aileron Leading Edge (2) and Rivet the Tube Cap (1) into place with a Rivet (5) for additional security if desired.

NOTE: Locate the Rivet hole far enough away from the Aileron Stop (6) as to allow the head of the Rivet (gun) Tool to be positioned to install the Rivet correctly.

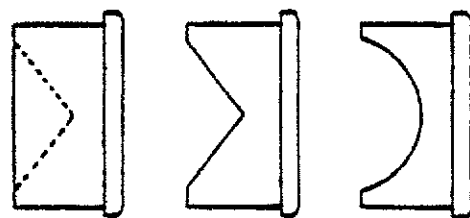
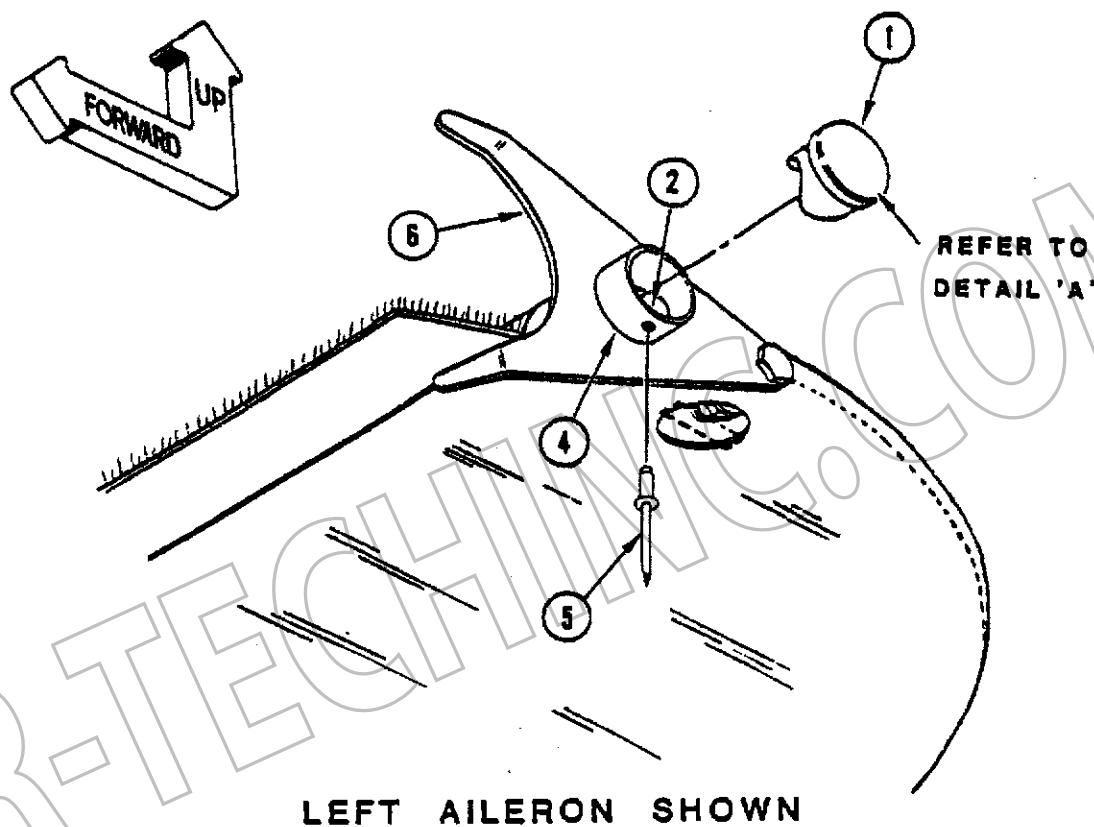
5. Repeat Steps 1-4 and attach another Tube Cap (1) into the opposite end of the Aileron Leading Edge (4).

6. Repeat on the opposite (RIGHT) Aileron Assembly.

Item	P/N	Description
1...	20410..	1" Tube Cap
2...	71026..	Aileron Trailing Edge (OUTBOARD)
3...	60592..	Contact Cement (not illustrated)
4...	71008..	Aileron Leading Edge (OUTBOARD)
5...	20200..	1/8" Aluminum Rivet
6...	42000..	Aileron Stop

AILERON TUBE CAP ATTACHMENT

FIG. 1



DETAIL 'A'

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SECTION 6

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SECTION 6

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TRIKE ARRANGEMENT

Study this General Arrangement. It may help in giving you some insight into the construction of the 'Trike' Assembly.

ITEM	P/N	DESCRIPTION
1.....	40360.....	Nose Strut
2.....	40438.....	Pedal Mount Tube
3.....	20030.....	Axle Shaft
4.....	41300.....	Tension Strut
5.....	80090.....	Axle Strut
6.....	40310.....	Axle
7.....	40291.....	Landing Gear Downtube
8.....	41230.....	Tri-Bar Downtube
9.....	70555.....	Tri-Bar Crosstube
10.....	80170.....	Upper Tri-Bar Assembly
11.....	20100.....	Tri-Bar Channel
12.....	40145.....	Root Tube Assembly

TRI-BAR BRACE CABLE ATTACHMENT

1. At this point you must decide from which Seat you will control the Brakes from and modify the corresponding Tri-Bar Crosstube (2) Brake Cable Attach Tab (6). The following illustration represents Brakes controlled from the LEFT Seat. For Brakes to be operated from the RIGHT Seat attach to the RIGHT Tri-Bar Crosstube Tab, mirror image.

2. Refer to Figure 1. The Left Brake Cable Attach Tab (6) is illustrated mirror image if the Brakes are to be controlled from the RIGHT Seat, drill the RIGHT Tab. Drill BOTH Brake Cable Attach Holes (7) to 1/4" (6.4 mm). Drill a 3/16" (4.7 mm) hole at the point illustrated for attaching the Tri-Bar Brace Cable (1) illustrated in Figure 2.

3. Refer to Figure 2. Attach the Tri-Bar Brace Cable (1) to the Tab with the Hardware (3) and (4) as illustrated. Tighten to proper torque.

4. The opposite end of the Brace Cable (1) will be attached later.

Item	P/N	Description
1...	20603..	Tri-Bar Brace Cable
2...	70553..	Tri-Bar Crosstube
3...	10550..	3/16" Washer
4...	10500..	3/16" Locknut
5.....		Tri-Bar Brace Cable Attachment Hole
6.....		Left Brake Cable Attach Tab
7.....		Brake Cable Attach Holes

TRI-BAR BRACE CABLE ATTACHMENT

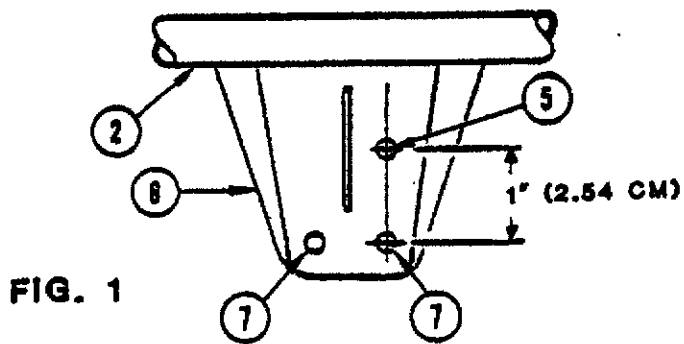
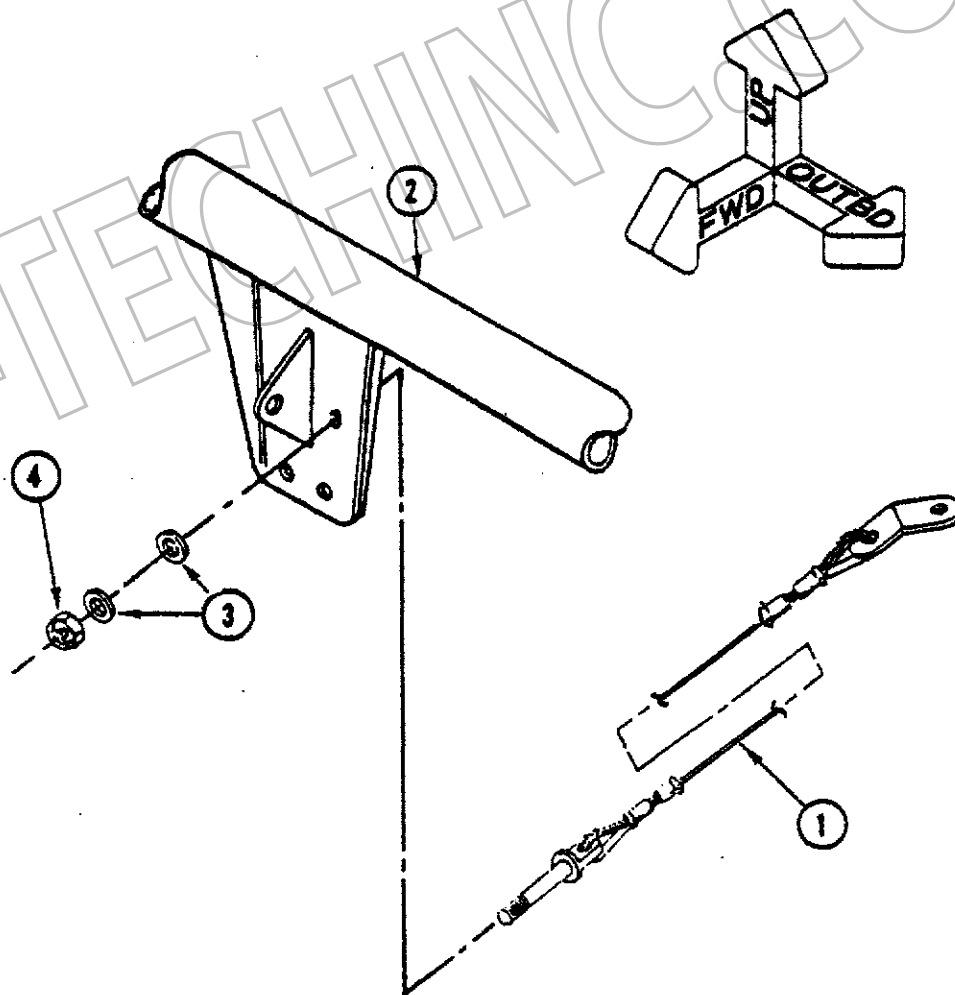


FIG. 2



TRI-BAR ASSEMBLY

1. Lightly lubricate (preferably with a dry Lubricant or Silicone Spray) BOTH INSIDE ends of the Upper Tri-Bar (1) and the Tri-Bar Crosstube (2) Assemblies where the TWO Downtubes (3) will be inserted.

2. Lubricate the FIRST 2" (5.08 cm) of each Downtube (3) and and insert them into the Upper Tri-Bar (1) and the Tri-Bar Crosstube (2) Assemblies about 1/4" (6.4 mm).

3. Refer to Figure 2. Use a Rubber or a Leather Hammer (not Metal) and tap alternately from side to side in 1/4" (6.4 mm) increments until the 1/4" (6.4 mm) holes are aligned.

4. Align the 1/4" (6.4 mm) holes in the Downtubes (3), Upper Tri-Bar (1) and the Tri-Bar Crosstube (2). Assemble as illustrated in Figures 1 and 2. Tighten the Bolts. DO NOT DISTORT THE TUBES.

OPTIONAL: You may wish to lay a bead of Silicone around the Downtubes where they insert into the Tri-Bar Crosstube Assembly (2) to help keep out moisture. DO NOT USE Lacquer Thinner to clean off the excess Silicone as it will dull the powder-paint finish on the Tubes.

5. Refer to Figure 2, Detail 'A'. Attach the Ignition Switch (12) to the Upper Tri-Bar Assembly (1) with the thread end of the Bolt facing UPWARD.

NOTE: The CENTER of the switch is the 'ON' position. Either side of the CENTER position is "OFF".

Item	P/N	Description
1...	80170..	Upper Tri-Bar Assembly
2...	70555..	Tri-Bar Crosstube Assembly
3...	41230..	Tri-Bar Downtube
4...	10120..	AN4-15A Bolt
5...	10560..	1/4" Washer
6...	10510..	1/4" Locknut
7...	10190..	AN4-22A Bolt
8...	20080..	I-75 Channel
9...	21500..	Tri-Bar Nose Cable
10...	20270..	1" x 1/8" Saddle
11...	10565..	1/4" Fender Washer
12...	30310..	Ignition Switch

TRI-BAR ASSEMBLY

FIG. 1

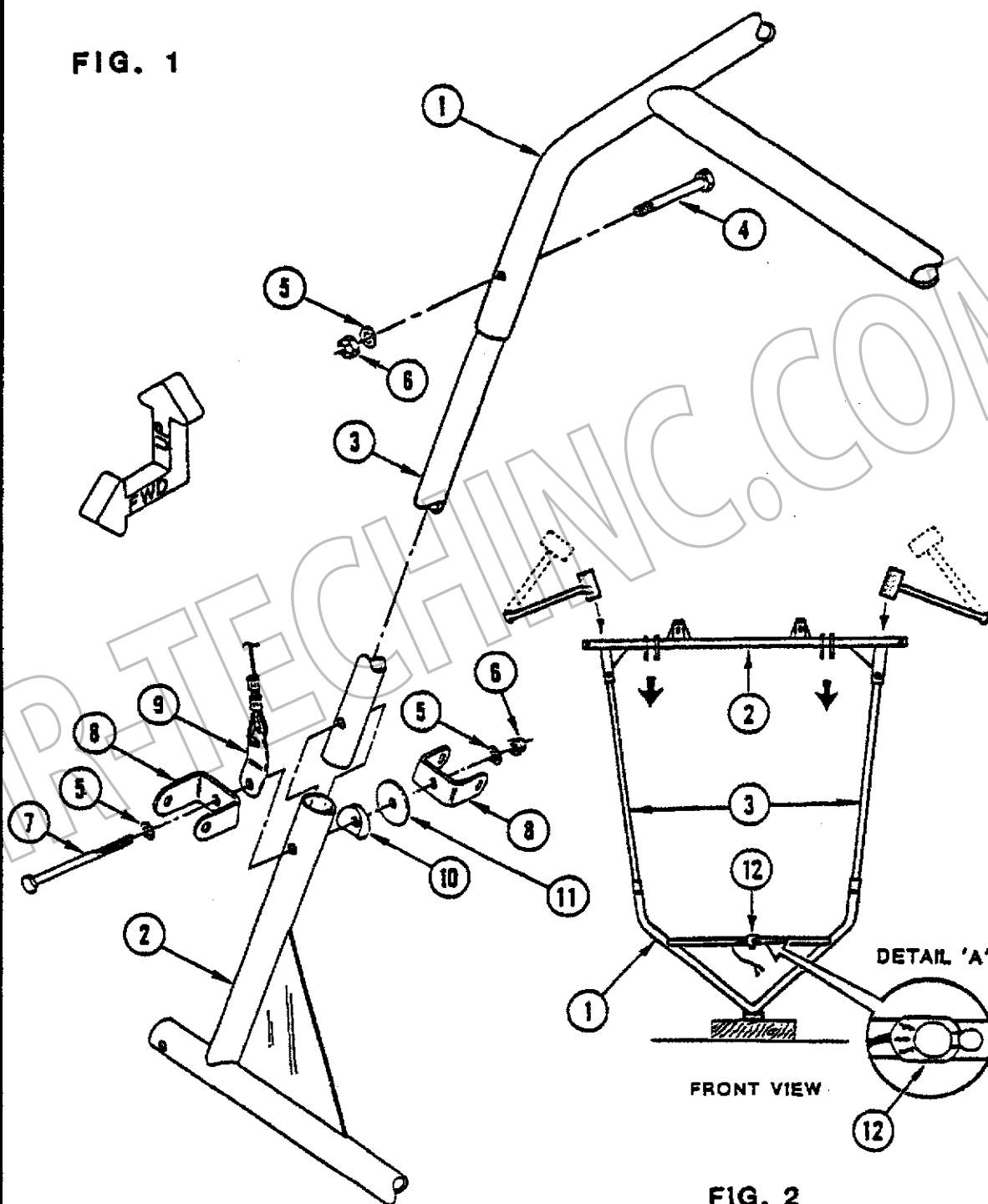


FIG. 2

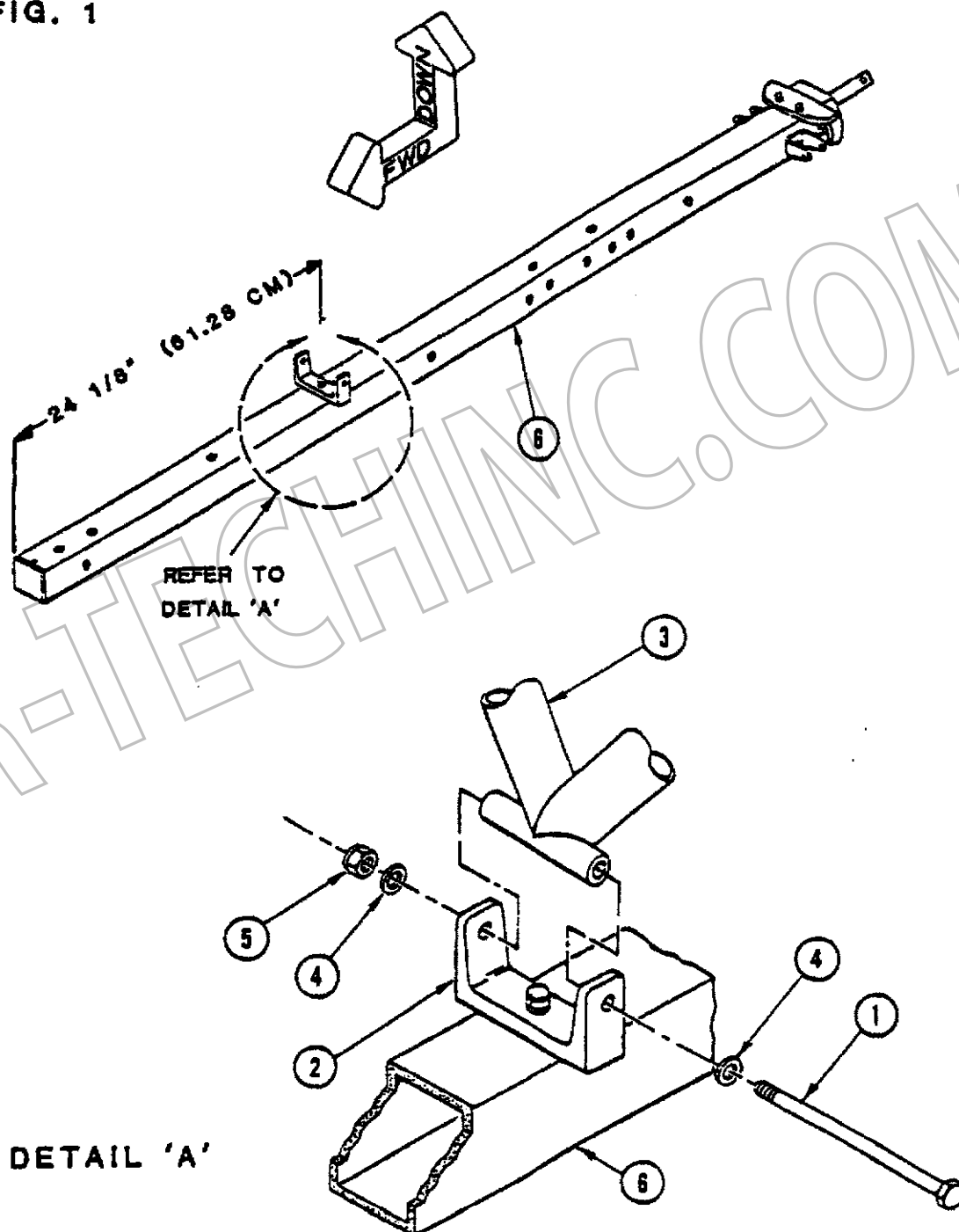
TRI-BAR ATTACHMENT TO ROOT TUBE

1. Refer to Figure 1. Position the Root Tube Assembly (6) UPSIDE DOWN.
2. Refer to Detail 'A'. Insert the Bolt (1) as illustrated through the Tri-Bar Channel (2), the Upper Tri-Bar Assembly (3), the Washer (4) and secure with a Locknut (5). Tighten to proper torque.

Item	P/N	Description
1...	10290..	AN4-34A Bolt
2...	20100..	Tri-Bar Channel
3...	80170..	Upper Tri-Bar Assembly
4...	10560..	1/4" Washer
5...	10510..	1/4" Locknut
6...	40145..	Root Tube Assembly

TRI-BAR ATTACHMENT TO ROOT TUBE

FIG. 1



AXLE SHAFT AND AXLE BRAKE ARM ATTACHMENT

1. Position the Axle (2) with the CENTER BEND pointing UPWARD and the TWO 3/16" (4.8 mm) holes near the CENTER of the Axle to the LEFT side of CENTER as looking AFT.

2. Insert an Axle Shaft (3) into the Axle (2). Install the Bolt (1) through the OUTBOARD-MOST hole in the Axle (2) as illustrated. Continue through the Axle Shaft (3) and secure with a Locknut (4). Tighten to proper torque.

NOTE: There should NOT be any Bolt threads protruding past the Locknut (4). The threaded end of the Bolt (1) should be even or 'flush' with the surface of the Locknut (4). This is the ONLY EXCEPTION in these Assembly Instructions to the MINIMUM 'One Thread Rule'. Refer to 'Locknuts', Page 1-3 if necessary.

3. Repeat Step 2. for the opposite side of the Axle (2), mirror image.

4. Attach the Axle Brake Arm (7) to the Axle (2) as illustrated with Hardware (5, 6 and 8). Tighten BOTH Locknuts (8) to proper torque.

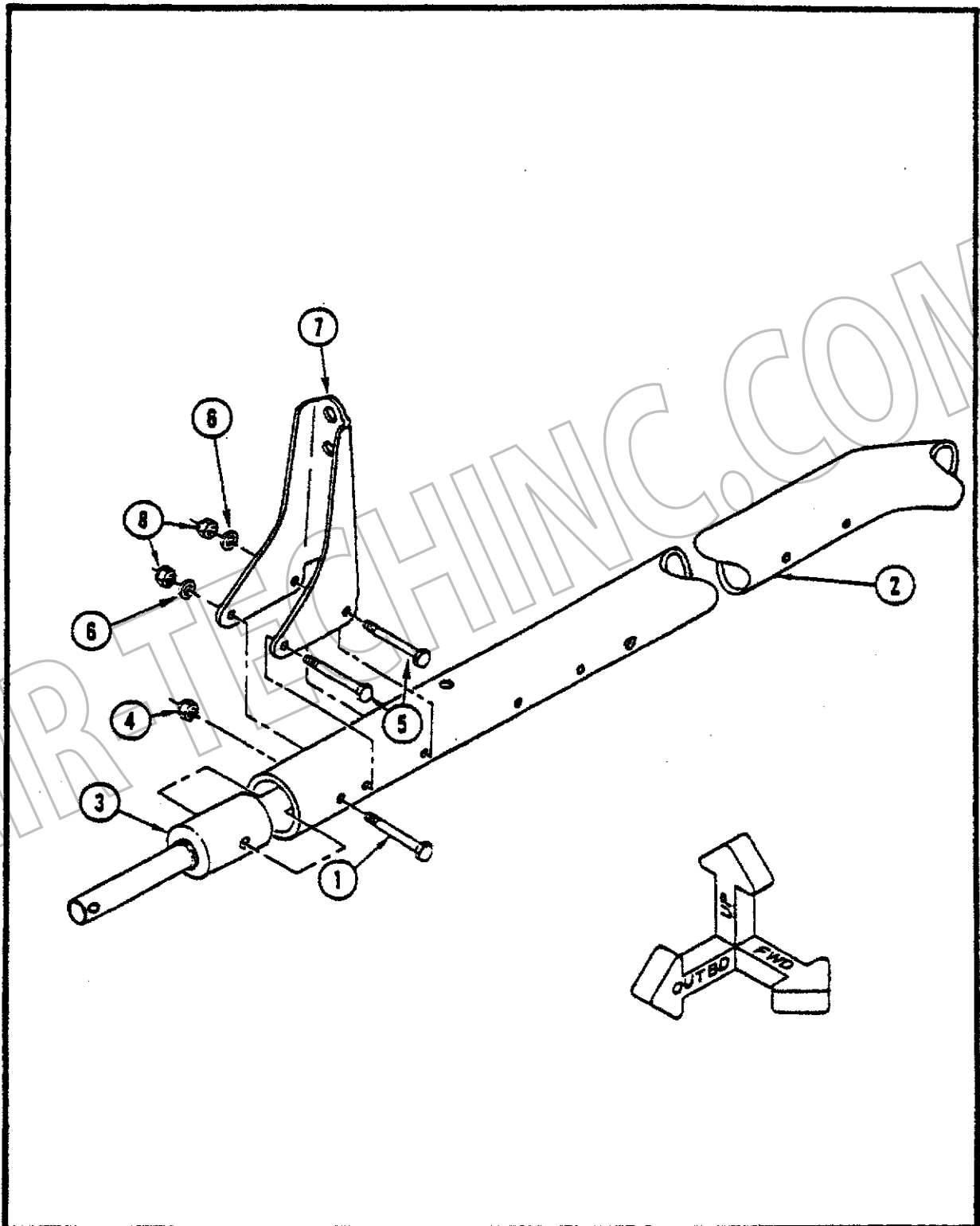
5. Repeat Step 4. for the opposite side of the Axle (2), mirror image.

Item	P/N	Description
1...	10040..	AN3-15A Bolt
2...	40312..	Axle
3...	20030..	Axle Shaft
4...	10516..	3/16" Thin Locknut
5...	10053..	AN3-20A Bolt
6...	10550..	3/16" Washer
7...	91206..	Axle Brake Arm
8...	10500..	3/16" Locknut

AXLE SHAFT AND

6-11

AXLE BRAKE ARM ATTACHMENT



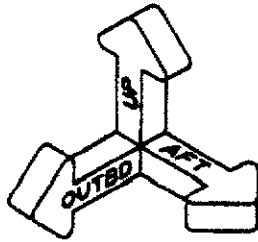


6-10A

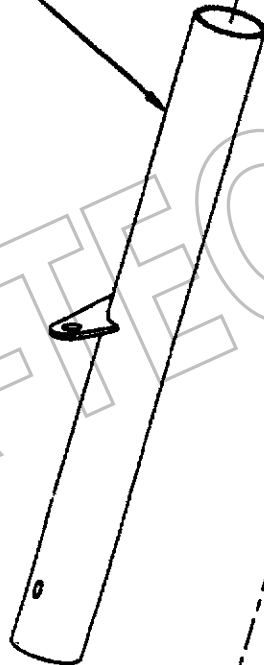
SHOULDER HARNESS TUBE TO LANDING GEAR DOWNTUBE (Optional)

1. Insert Shoulder Harness Tube (1) onto the bottom of Landing Gear Down Tube (2). It may be necessary to clean the inside of the Shoulder Harness Tube (1) with sandpaper.
2. Slide the Shoulder Harness Tube (1) until the Bottom of the tube is 21" (53.34 cm) from the BOTTOM of the Landing Gear Down Tube (2).
3. Rotate the Shoulder Harness Tube (1) where it will face forward on the Landing Gear Down Tube. (The Bracket on the Shoulder Harness Tube should be facing FORWARD and slightly DOWNWARD).
4. Drill a 3/16" (4.8 mm) diameter hole as illustrated in Landing Gear Downtube using the hole in the Shoulder Harness Tube (1) as a guide.
5. Insert a Bolt (3). Add a Washer (4) and Locknut (5). Torque to proper specification. DO NOT DISTORT THE TUBE.

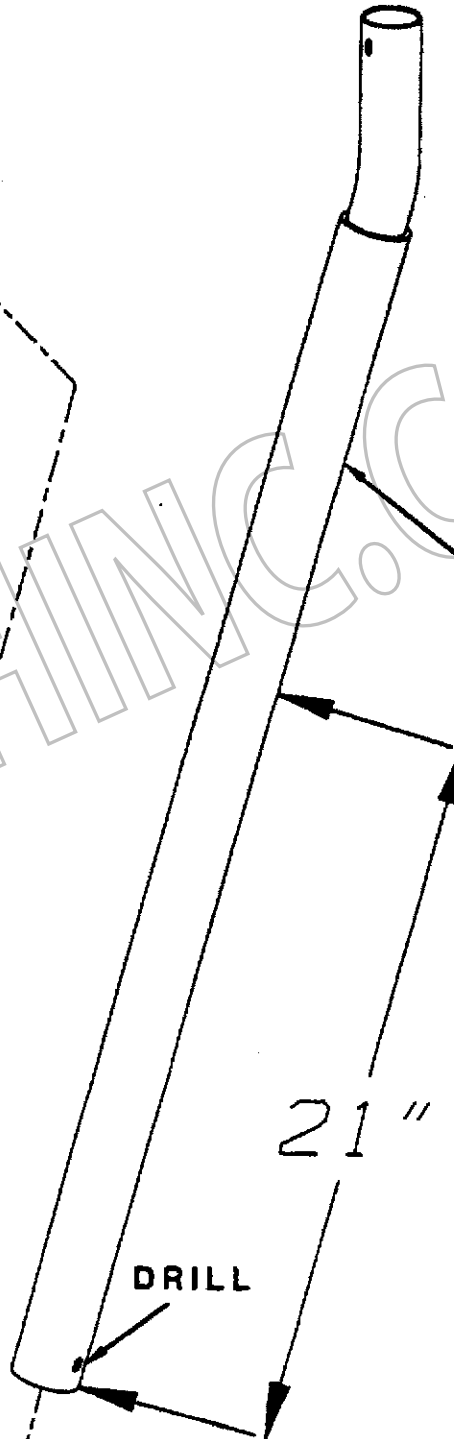
Item	P/N	Qty	Description
1...	70349...	2...	Shoulder Harness Tube Assembly
2...	40291.....		Landing Gear Down Tube
3...	10040...	2...	AN3-15A Bolt
4...	10550...	2....	3/16" Washer
5...	10500...	2....	3/16" Locknut



①



②



21" (53.34 CM)

DRILL

LANDING GEAR DOWNTUBE TO AXLE ATTACHMENT

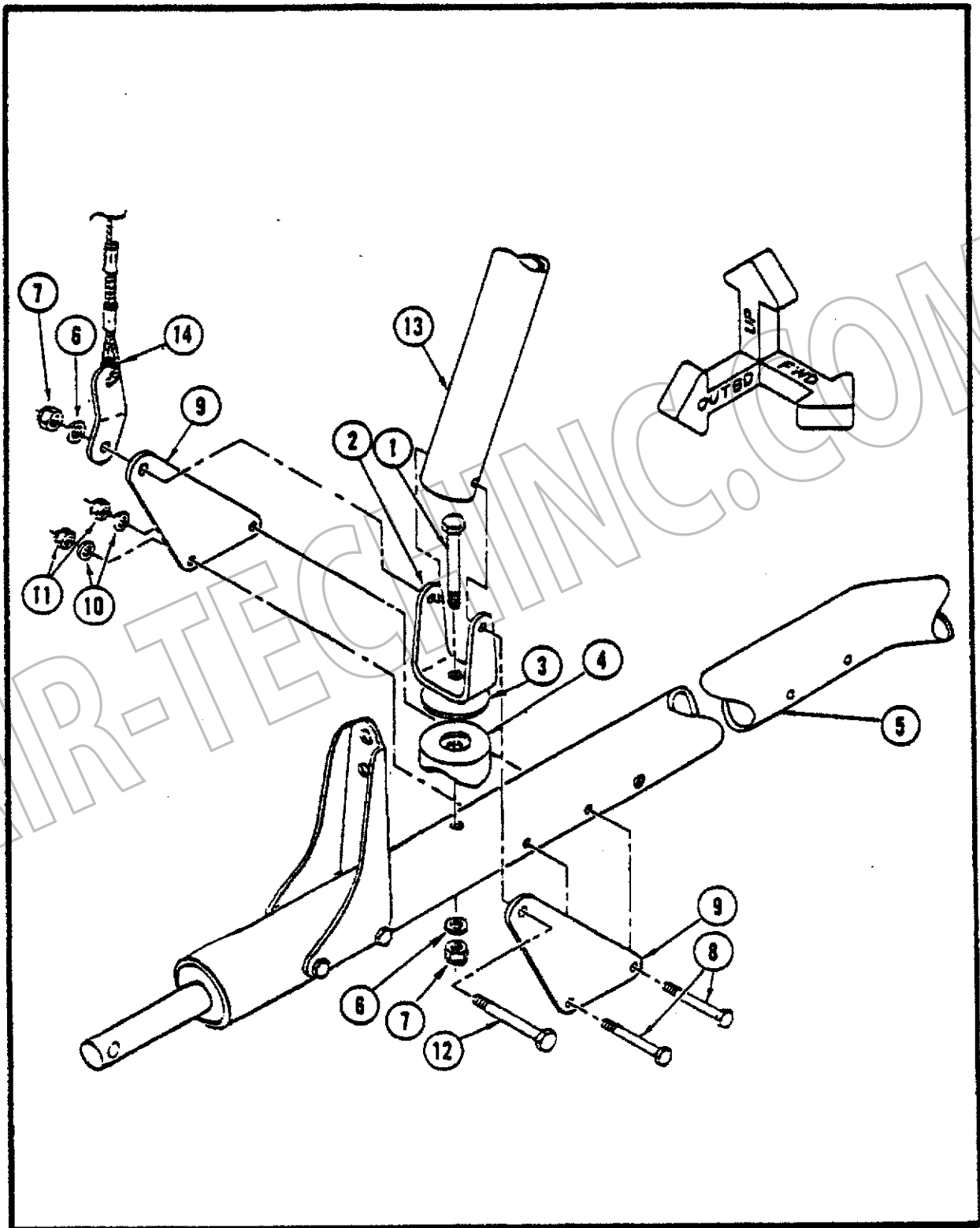
1. Attach the Channel (2) to the Axle (5) using the Hardware (1,3,4,6 and 7). Finger tight only.
2. Attach the TWO Anti-Torque Plates (9) to the Axle (5) using the Hardware (8,10 and 11). Finger tight only.
3. Attach the Landing Gear Downtube (13) to the Channel (2) with a Bolt (12). Add the Lower Aft Root Tube Cable (14) and the Hardware (6) and (7). Finger tight only.
4. Tighten ALL the Locknuts from Steps 1-3 EVENLY to pull or 'draw' the Assembly together.
5. Repeat on the opposite (LEFT) side of the Axle, mirror image.

Item	P/N	Description
1...	10210..	AN4-23A Bolt
2...	20060..	1/8" Channel
3...	10600..	5/16" Fender Washer
4...	20290..	1 3/4" Saddle
5...	40312..	Axle
6...	10560..	1/4" Washer
7...	10510..	1/4" Locknut
8...	10052..	AN3-21A Bolt
9...	91207..	Anti-Torque Plate
10...	10550..	3/16" Washer
11...	10500..	3/16" Locknut
12...	10190..	AN4-22A Bolt
13...	40291..	Landing Gear Downtube
14...	21562..	Lower Aft Root Tube Cable

LANDING GEAR

6-13

DOWNTUBE TO AXLE ATTACHMENT

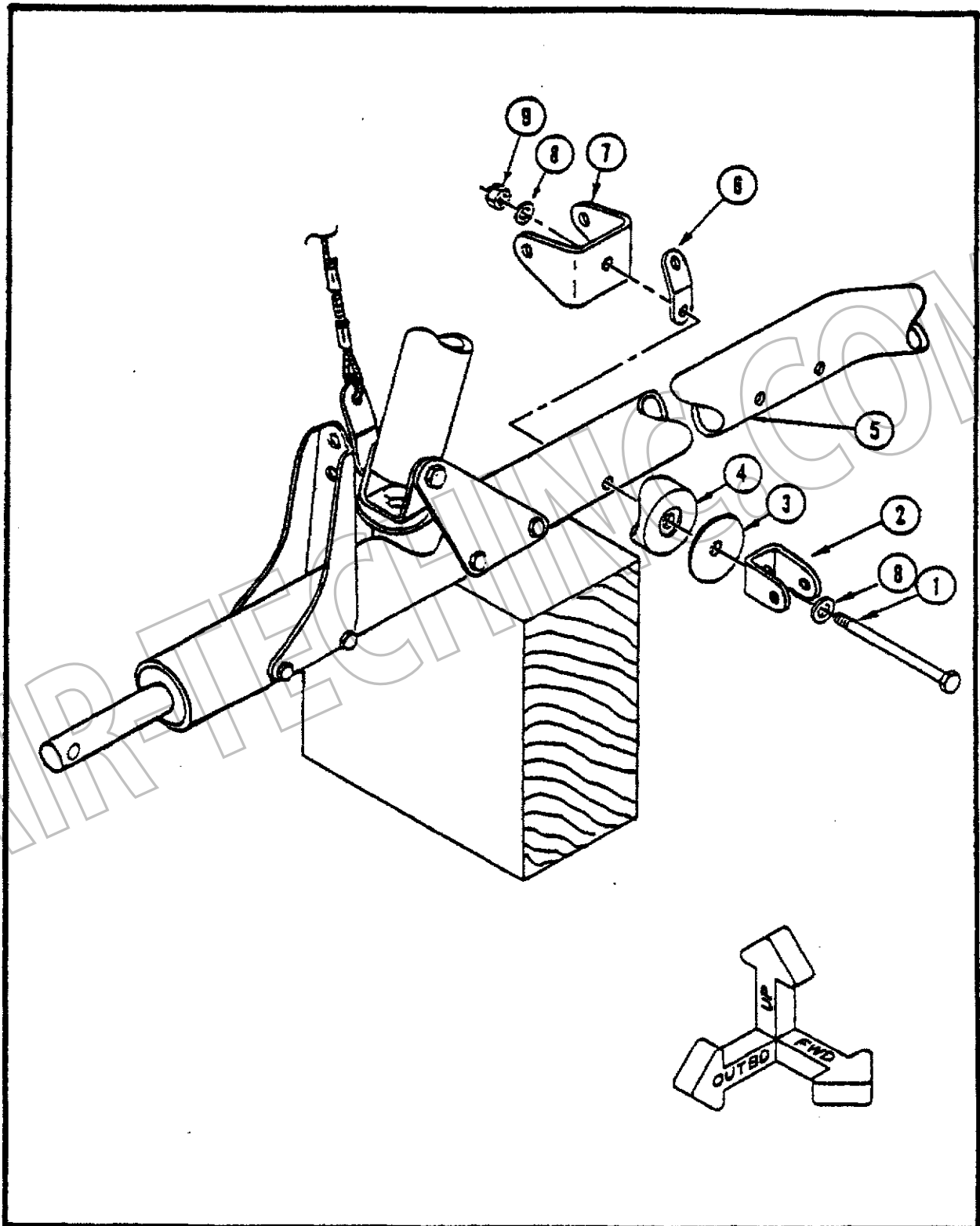


AXLE CHANNEL ATTACHMENT

1. Support each end of the Axle (5) on a block of wood BEFORE beginning Step 2.
2. Insert the Bolt (1) through a Washer (8), and Channel (2) as illustrated. Continue through the Fender Washer (3), Saddle (4), 1/4" (6.4 mm) hole in the Axle (5), Tang (6), Channel (7), Washer (8) and secure with a Locknut (9). Tighten to proper torque.
3. Repeat for the opposite side of the Axle.

Item	P/N	Description
1...	10235..	AN4-25A Bolt
2...	20080..	I-75 Channel
3...	10600..	5/16" Fender Washer
4...	20290..	1 3/4" Saddle
5...	40312..	Axle
6...	20350..	20 Degree Tang
7...	20090..	1 1/4" Channel
8...	10560..	1/4" Washer
9...	10510..	1/4" Locknut

AXLE CHANNEL ATTACHMENT



BRAKE BAND ATTACHMENT

1. Refer to Figure 1. Attach a Brake Band (1) to the Axle Brake Arm (2) as illustrated with the Hardware (3, 4, 5, and 6). Tighten to proper torque.
2. Attach the Eyebolt (7) to the Axle Brake Arm (2) as illustrated with the Hardware (5, 4 and 6). Tighten to proper torque.
3. Refer to Detail 'A'. Thread a Jam Nut (8) all the way onto a Conduit Thread Adjuster (9) until the Jam Nut (8) 'bottoms out'.
4. Insert the Conduit Thread Adjuster (9) and Jam Nut (8) through the Eyebolt (7) as illustrated. Add another Jam Nut (8) and secure FINGER TIGHT ONLY.
5. Repeat on the opposite (LEFT) side, mirror image.

Item	P/N	Description
1...	91203..	Brake Band
2...	91206..	Axle Brake Arm
3...	10331..	AN5-21A Bolt
4...	10570..	5/16" Washer
5...	91208..	5/8" x 1/2" Aluminum Spacer
6...	10540..	5/16" Locknut
7...	10383..	AN44B-11A Eyebolt
8...	10631..	Non-Locking (Jam) Nut
9...	90272..	Conduit Thread Adjuster (part of 90270 Assembly)

UPPER AND LOWER ROOT TUBE CABLE ATTACHMENT

1. Refer to Figures 1 and 2. Remove the Locknuts (7) and the Washers (6) from the TWO Bolts (1) attaching the Root Tube Bracket (3) to the Root Tube (4).

2. Looking FORWARD, remove the Bolt (1) from the RIGHT side of the Root Tube Bracket (3) ONLY! Discard the Washer (6) from UNDER the Bolt head. Reinsert the Bolt (1) through the SHORT end of the 75 degree Tang in the Upper Root Tube Cable (2). Continue the Bolt (1) through the Root Tube Bracket (3) and Root Tube (4). Attach the Lower Root Tube 'Trike' Cables (5), previously attached to the Axle Assembly, to the Bolt (1). Add a Washer (6) and secure with a Locknut (7). Tighten to proper torque.

3. Attach the remaining Lower Root Tube Cable (5) to the remaining Bolt (1). Add a Washer (6) and a Locknut (7). Tighten to proper torque.

Item P/N Description

- 1...10280..AN4-31A Bolt
- 2...21561..Upper Root Tube Cable
- 3...60540..Root Tube Bracket
- 4...40145..Root Tube Assembly
- 5...21562..Lower Root Tube Cable
- 6...10560..1/4" Washer
- 7...10510..1/4" Locknut

UPPER AND LOWER

6-19

ROOT TUBE CABLE ATTACHMENT

FIG. 1

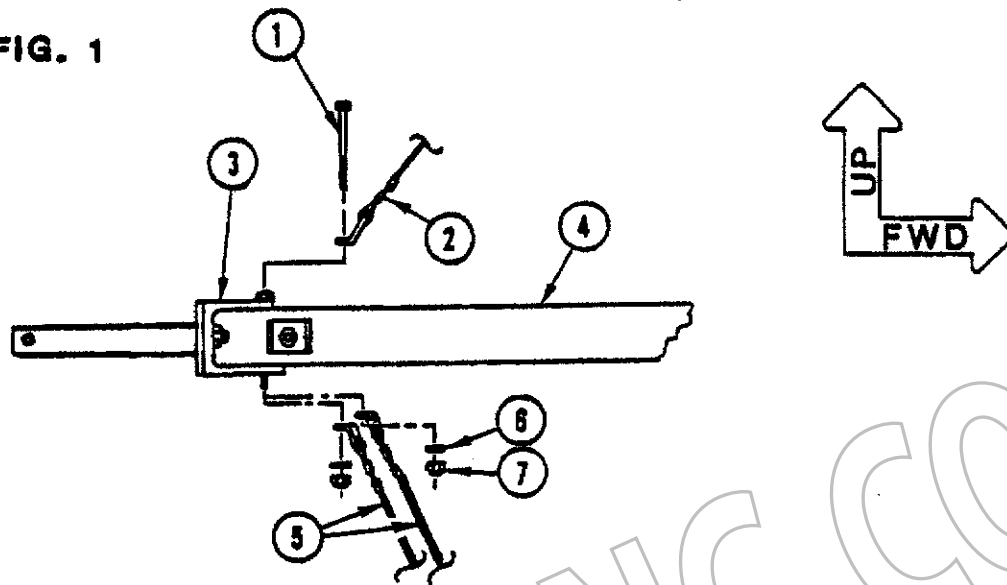
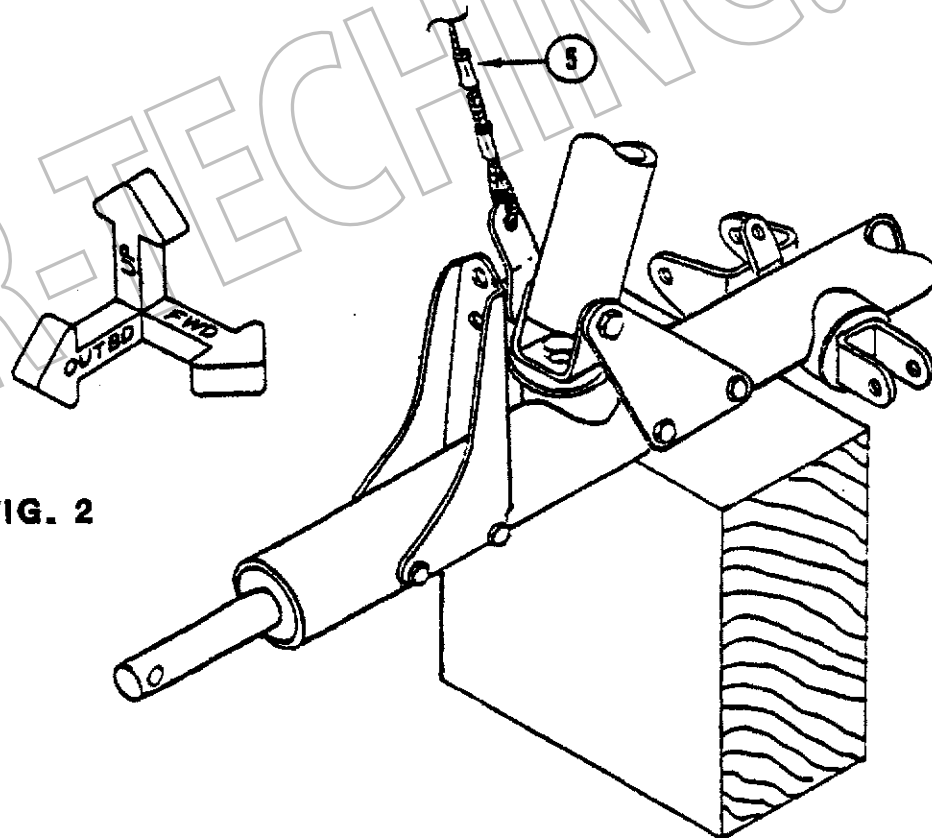


FIG. 2



LANDING GEAR DOWNTUBE TO ROOT TUBE ATTACHMENT

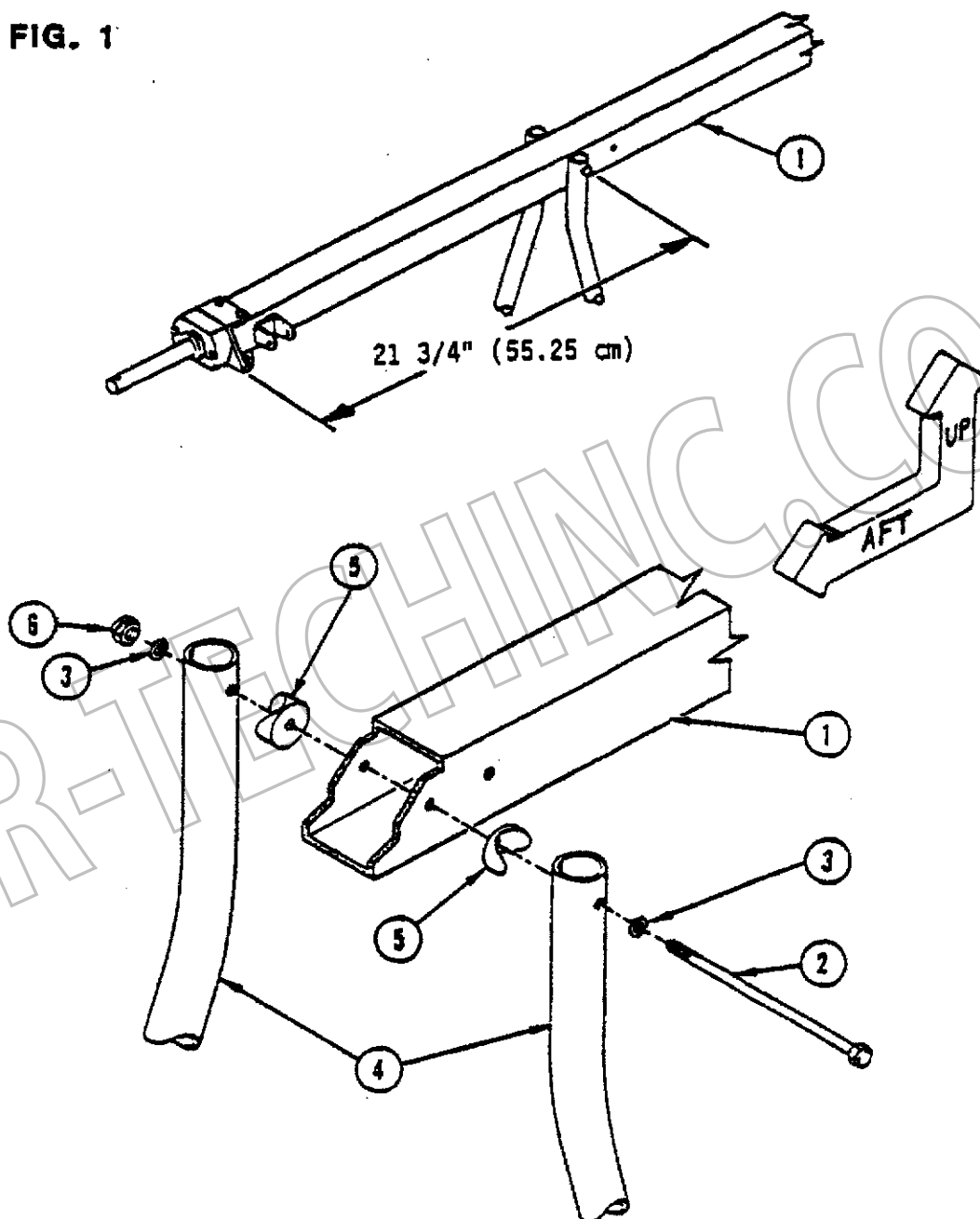
1. Before beginning the following assembly, drill out the 1/4" (6.4 mm) holes in both Saddles (5) to 5/16" (7.9 mm).
2. Refer to Figure 1. Measure 21 3/4" (55.25 cm) from the AFT end of the Root Tube Assembly (1) Bracket as illustrated or measure 41 5/8" (105.71 cm) from the FRONT end of the Root Tube Assembly (1) and locate the 5/16" (7.9 mm) hole.
3. Refer to Detail 'A'. Insert the Bolt (2) as illustrated through the Washer (3). Continue through the Landing Gear Downtube (4), the Saddle (5), the Root Tube Assembly (1), the Saddle (5), the Landing Gear Downtube (4), a Washer (3) and secure with a Locknut (6). Tighten to proper torque.

Item	P/N	Description
1...	40143..	Root Tube Assembly
2...	10344..	AN5-46A Bolt
3...	10570..	5/16" Washer
4...	40201..	Landing Gear Downtube
5...	20270..	1" x 1/8" Saddle
6...	10540..	5/16" Locknut

LANDING GEAR DOWNTUBE TO ROOT TUBE ATTACHMENT

6-21

FIG. 1



DETAIL 'A'

SEAT SUPPORT DOWNTUBE ATTACHMENT TO ROOT TUBE

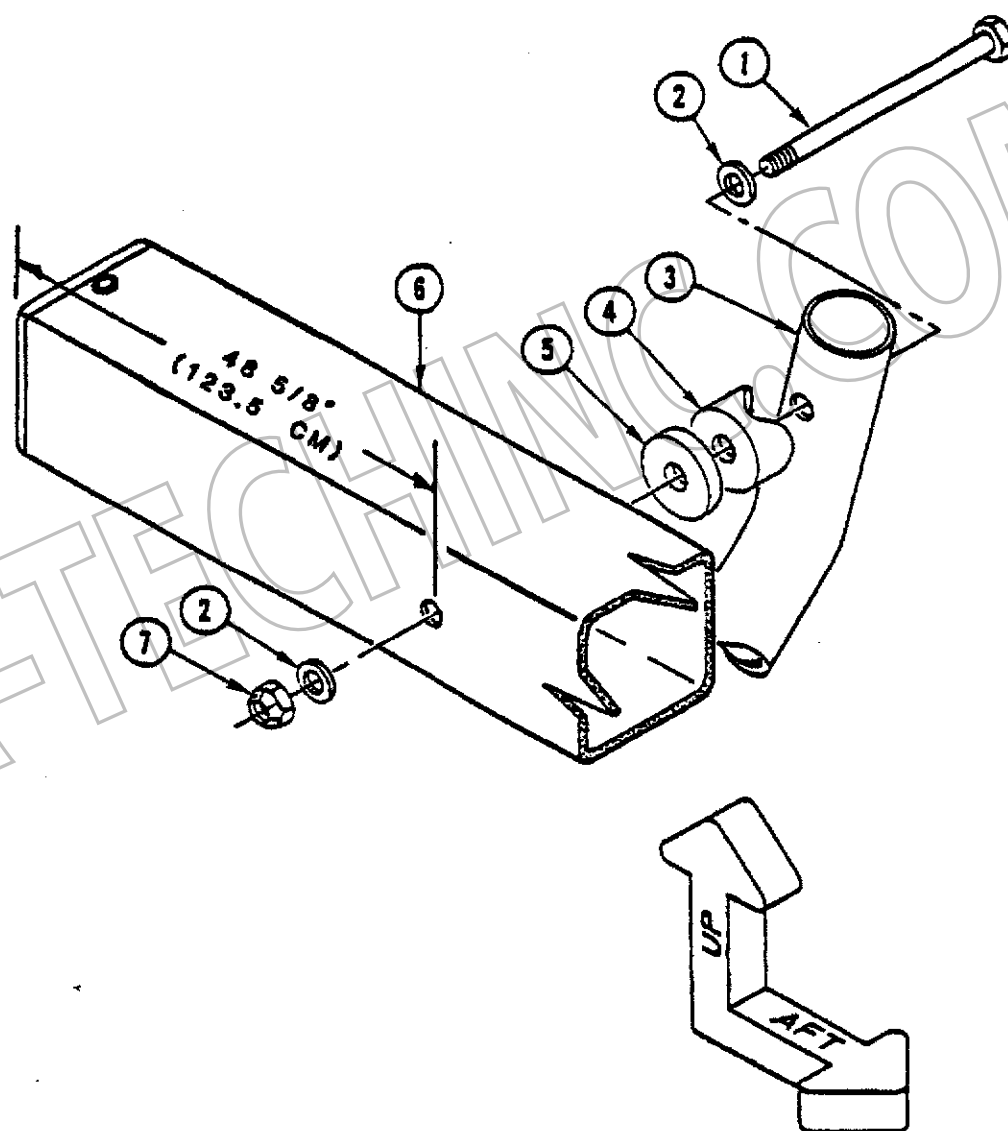
1. Before continuing with the following assembly, enlarge the 1/4" (6.4 mm) holes in the Saddle (4), Nylon Washer (5) and the TOP hole ONLY (near the bend) in the Seat Support Downtube (3) to 5/16" (7.9 mm).

2. Insert the Bolt (1) as illustrated through the Washer (2). Continue through the Seat Support Downtube (3), the Saddle (4) and the Nylon Washer (5). Measure 48 5/8" (123.5 cm) AFT of the Root Tube Assembly (6) FORWARD Edge and locate the 5/16" (7.9 mm) hole location. [Refer to the Root Tube Assembly-General Arrangement, Pages 6-4 and 6-5 if necessary]. Continue the Bolt (1) through the Root Tube Assembly (6), Washer (2) and secure with a Locknut (7). Tighten to proper torque.

Item P/N Description

- 1...10314..AN3-37A Bolt
- 2...10370..5/16" Washer
- 3...70350..Seat Support Downtube
- 4...20270..1" x 1/8" Saddle
- 5...20346..1" x 1/4" Nylon Washer
- 6...40145..Root Tube Assembly
- 7...10540..5/16" Locknut

SEAT SUPPORT DOWNTUBE ATTACHMENT TO ROOT TUBE



SEAT MOUNT ASSEMBLY ATTACHMENT

Before beginning the following sequence keep in mind the FIRST 'Test Flight' will be performed by ONE person. You may wish to adjust the Seat Mount Assembly accordingly. Refer to Page 8-30. The Seats will be attached in the FORWARD position.

1. Insert the Bolt (1) as illustrated through the CENTER Seat Adjustment hole in the Tabs located at the AFT end of the Seat Mount Assembly (2). 'Sandwich' the Seat Support Downtube (3) between the Seat Mount Assembly (2) Tabs, add a Washer (4), Castle Nut (5) and a Cotter Pin (6). DO NOT BEND the Cotter Pin at this time. You may wish to re-adjust the Seat angle during Final Assembly, Section 11.

NOTE: The Seat Angle may be adjusted by relocating the Bolt (1) in the appropriate hole during Final Assembly if desired.

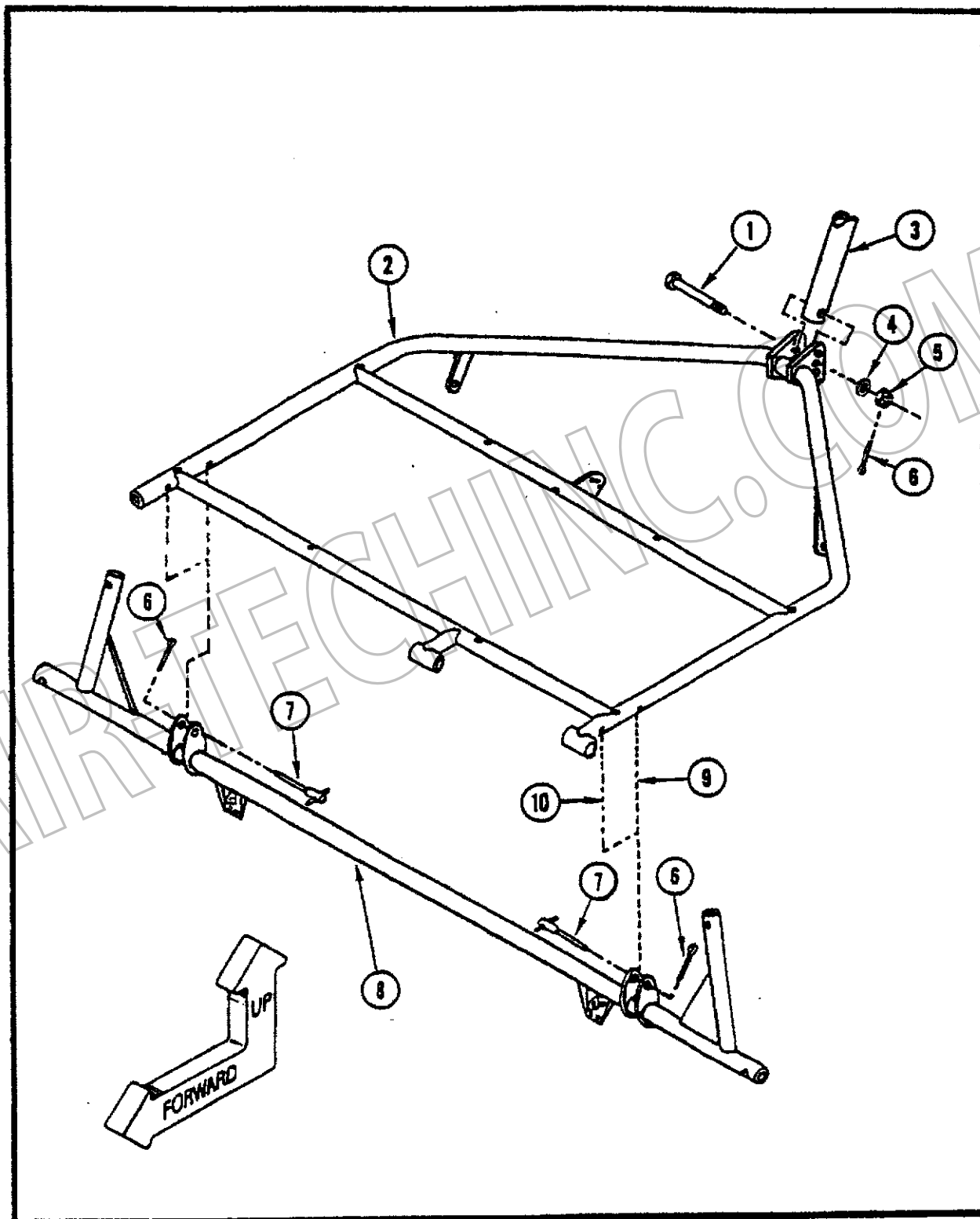
2. Attach the FORWARD end of the Seat Mount Assembly (2) by inserting the T-Handle Pins (7) as illustrated. Add the Cotter Pins (6) and bend correctly.

IMPORTANT: When flying SOLO, the Seat Mount Assembly (2) MUST be attached in the FORWARD position (mounted at the AFT hole location). When flying with a PASSENGER, the Seat Mount Assembly (2) MUST be attached in the AFT position (mounted at the FORWARD hole location).

CAUTION: Seat position is determined by Pilot or Pilot and Passenger weight. Consult your Owners Manual for Weight and Balance information.

Item	P/N	Description
1...	10121..	AN4-15 Bolt
2...	80011..	Seat Mount Assembly
3...	70350..	Seat Support Downtube
4...	10560..	1/4" Washer
5...	10521..	1/4" Castle Nut
6...	10635..	Cotter Pin
7...	10472..	T-Handle Pin
8...	70555..	Tri-Bar Crosstube Assembly
9.....		FORWARD Position
10.....		AFT Position

SEAT MOUNT ASSEMBLY ATTACHMENT



MAIN WHEEL ASSEMBLY

Before beginning the following assembly sequence, thread SIX Locknuts (10) ON and OFF a Bolt (4) SEVERAL times (as required) to ease friction during the following assembly. This is an EXCEPTION to the 're-use of Locknuts' (Refer to Page 1-8 if necessary).

1. Insert an Inner Tube into each of the Tires and inflate only SLIGHTLY, as this will help in the following sequence.

2. REMOVE the sharp INSIDE edges (11) of the Hubs (2) and (3) with a File. This will make it less likely to pinch the Inner Tube with the Hubs.

3. Refer to Figure 1. Insert the Notched Wheel Hub (2) and the Unnotched Wheel Hub (3) into the Tire and Tube Assembly (1) as illustrated.

Silicone Sealant may also be added to the INSIDE Edge of the Wheel Hubs (2) and (3) where they make contact. [We have heard this retards ozone damage to the Tubes].

NOTE: The Wheel Hubs WILL NOT 'click' together as in Step 5, Page 6-30 if Silicone sealant is used.

3. Ensure that the Wheel Hubs 'click' together INSIDE or that the Inner Tube is not pinched.

4. Insert all THREE Bolts (4) as illustrated through the Hub Assemblies (2) and (3). Add THREE Spacers (6), a Tri-Drum Spacer (7), a Brake Drum (8) and a Washer (9) for each Bolt (4).

CAUTION: ALL Bolt (4) Heads should be seated properly in the Wheel Hub (2) BEFORE tightening and securing the Locknuts (10) in THREE places.

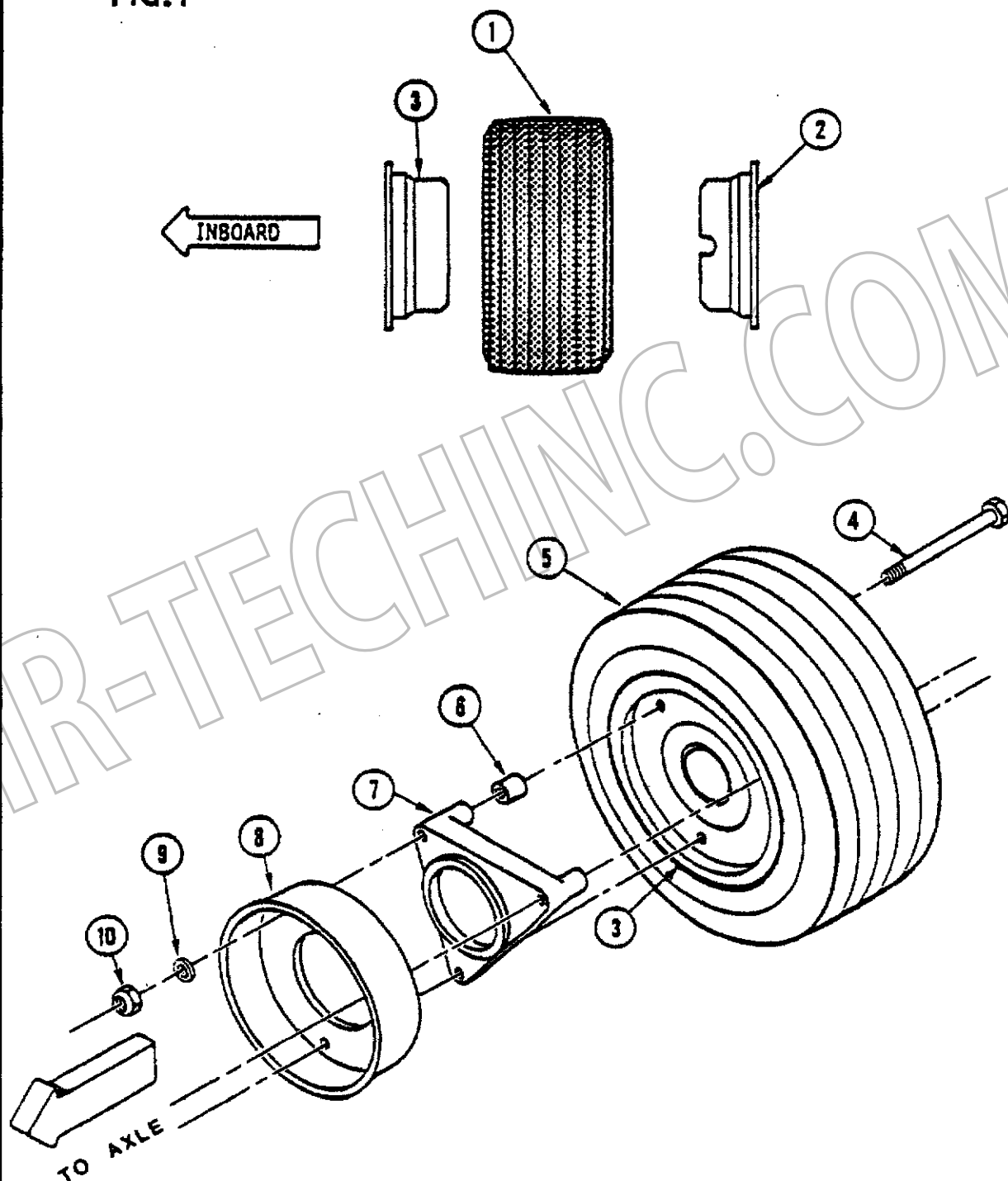
5. Repeat Steps 2 and 3 on ONE more Tire and Tube Assembly (1).

6. Inflate each Inner Tube to a MAXIMUM of 30 psi (pounds per square inch) of air pressure.

Item	P/N	Description	Item	P/N	Description
1...	20390..	Tire and Tube	6...	91209..	7/16" x 1/2" Spacer
2...	20460..	Wheel Hub Notched	7...	91204..	Tri-Drum Spacer
3...	20461..	Wheel Hub Unnotched	8...	91202..	Brake Drum
4...	10341..	AN5-41A Bolt	9...	10570..	5/16" Washer
5.....		Wheel/Tire Assy.	10...	10540..	5/16" Locknut
			11.....		Sharp Edge

MAIN WHEEL ASSEMBLY

FIG. 1

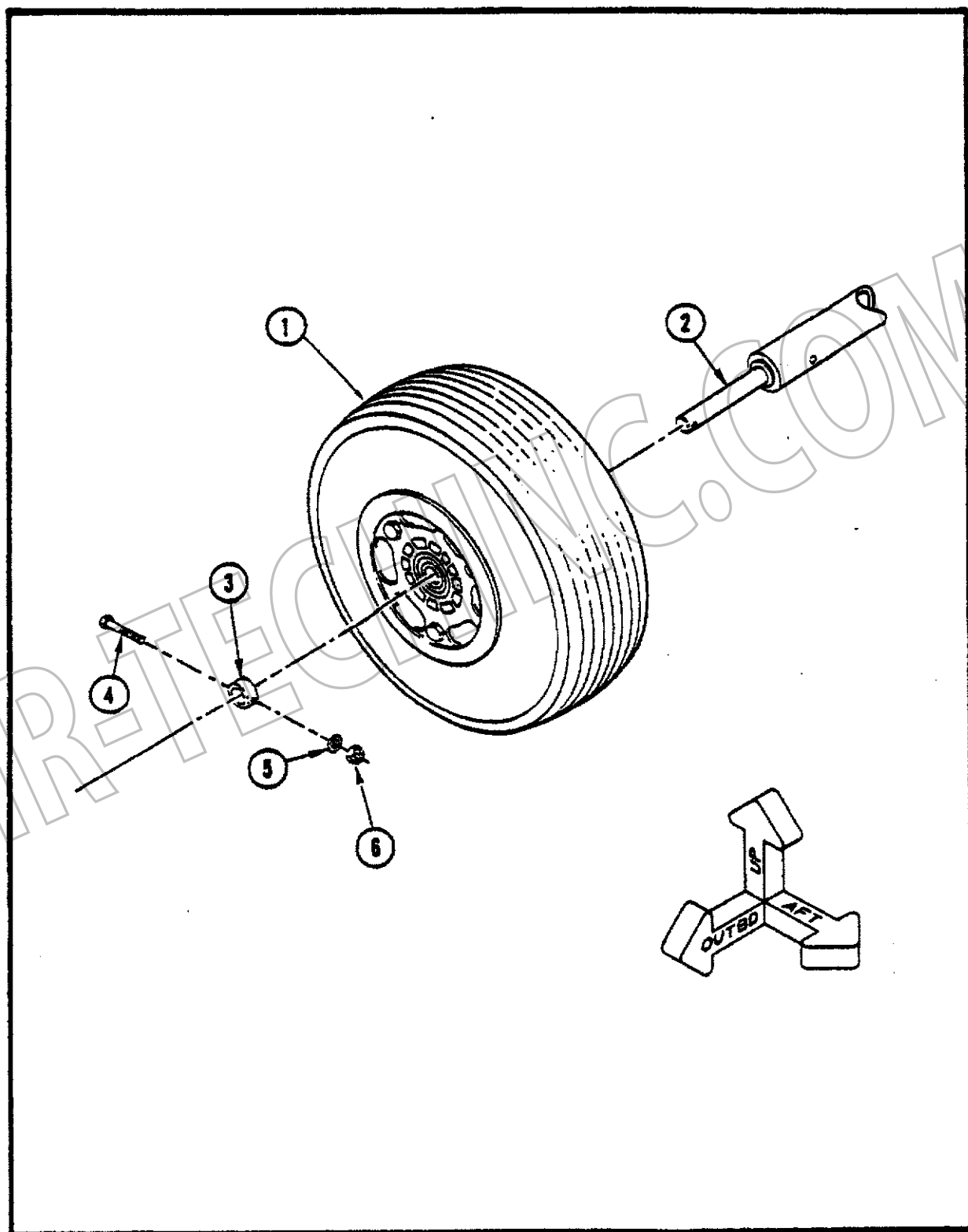


MAIN WHEEL ATTACHMENT TO AXLE

1. Slide the Wheel/Tire Assembly (1) over the Axle Shaft (2).
2. Position the Axle Collar (3) over the Axle Shaft (2).
3. Insert a Bolt (4), as illustrated through the Axle Collar (3), the Axle Shaft (2), the Washer (5), and the Locknut (6). Tighten to proper torque.
4. Repeat for the opposite side, mirror image.

Item	P/N	Description
1.....		Wheel/Tire Assembly
2...	20030..	Axle Shaft
3...	20031..	Axle Collar
4...	10025..	AN3-11A Bolt
5...	10550..	3/16" Washer
6...	10500..	3/16" Locknut

MAIN WHEEL ATTACHMENT TO AXLE



NOSE WHEEL ASSEMBLY

1. SLIGHTLY and CAREFULLY file or grind the corners of ALL the Wheel Hub Assemblies, Notched (2) and Unnotched (3) to break the sharp edges (6). This will help keep the Hubs (2) and (3) from pinching the Inner Tube and causing a slow leak.

2. Insert an Inner Tube into the Tire (1). Inflate the Tube SLIGHTLY. This may help to keep the Inner Tube from being pinched between the Wheel Hubs (2) and (3).

OPTIONAL: At this time, you may wish to lay a bead of silicone where the Wheel Hubs (2) and (3) make contact to further protect the Inner Tube against ozone damage. NOTE: By laying a bead of silicone you will be UNABLE to hear the TWO Hubs (2) and (3) 'click' together as described in Step 4. The 'click' assures the Inner Tube has not been pinched by the Wheel Hubs.

3. Insert the Notched Hub (2) over the Valve Stem (not illustrated).

4. CAREFULLY insert the Unnotched Hub (3) as you DO NOT want to pinch the Inner Tube. When the Bolt holes are aligned and you hear the Hubs 'click' together insert the Nut (5) as illustrated and assure that it is 'seated' properly. NOTE: The Hubs (2) and (3) will not 'click' together if the edges are lined with silicone as in Step 3.

5. Insert the Bolt (4) as illustrated, through the aligned Wheel Hub holes. At this time, check again to assure that BOTH Wheel Hubs (2) and (3) are not pinching the Tube and tighten until the Hubs make contact. DO NOT OVERTIGHTEN as the Nut (5) will turn and strip out the 'seat' of the Wheel Hub (3).

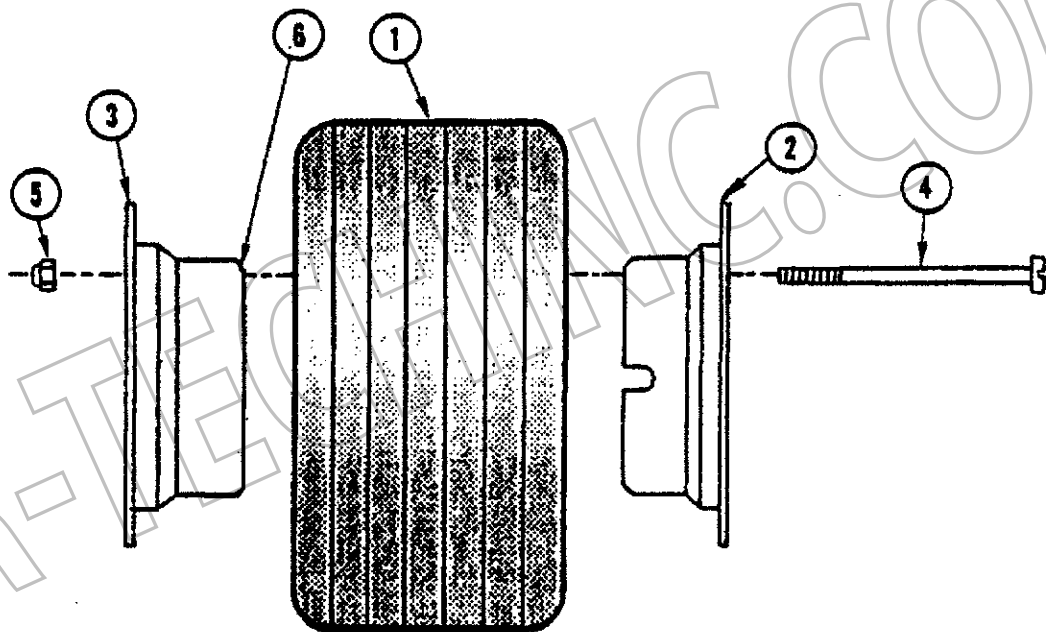
6. Repeat Step 6 at the TWO remaining hole locations.

7. Inflate the Inner Tube to a MAXIMUM of 30 psi (pounds per square inch) of air pressure.

Item P/N Description

- 1...20390..Tire and Tube
- 2...20460..Notched Wheel Hub
- 3...20461..Unnotched Wheel Hub
- 4...10395..5/16" - 18 x 1 1/2 " Bolt
- 5...10396..5/16" - 18 Nut
- 6.....Sharp Edges

NOSE WHEEL ASSEMBLY



NOSE GEAR ASSEMBLY

1. Refer to Figures 1 and 2. Position the Tension Struts (6) as illustrated. Attach a Tension Strut Bracket (5) to the FORWARD end of each Tension Strut with hardware (4, 7 and 8) TWO places, as illustrated. Tighten to correct torque. DO NOT DISTORT THE TUBE.

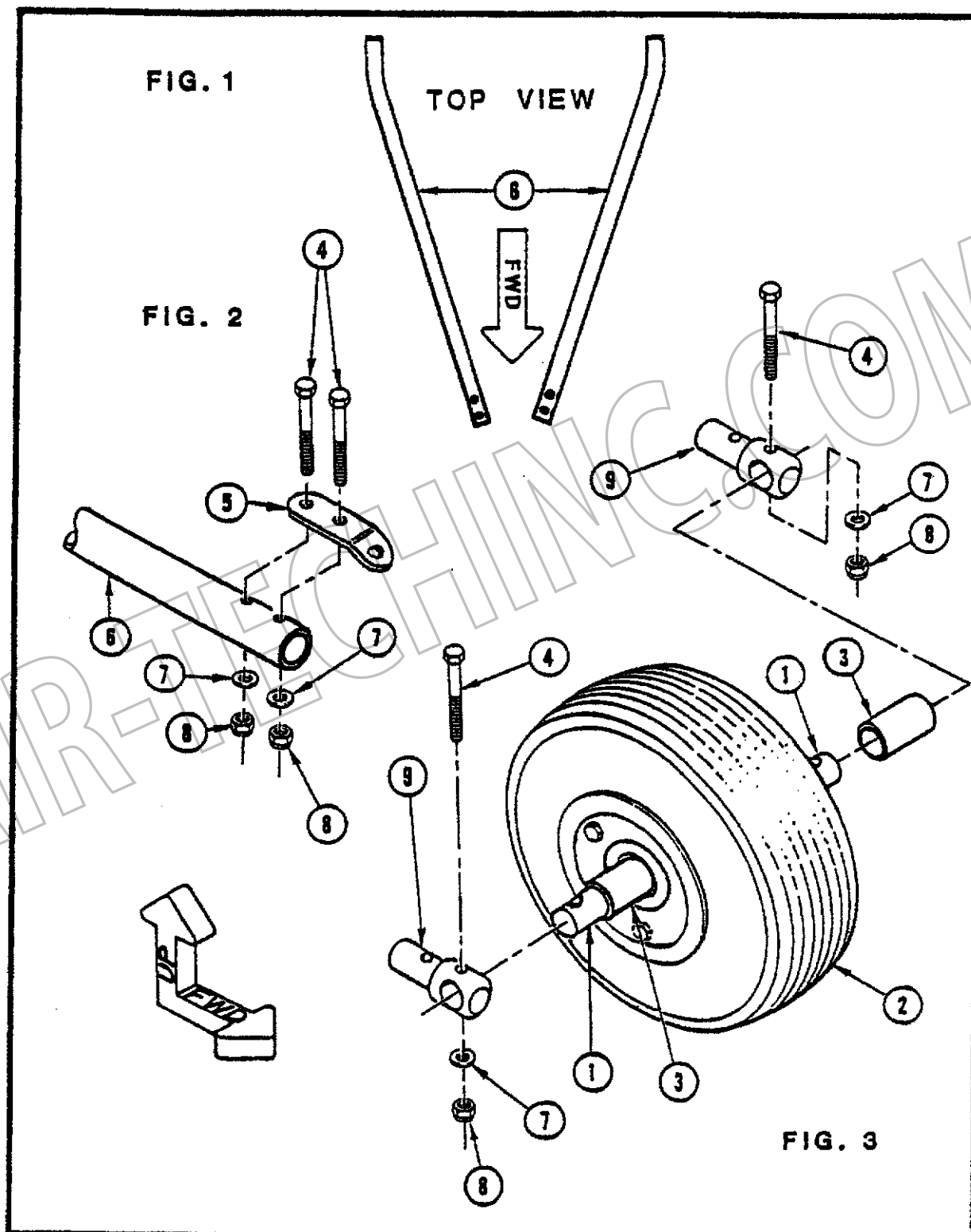
2. Refer to Figure 3. Insert the Nose Axle (1) through the Wheel/Tire Assembly (2). Add a Spacer (3) OVER each end of the Axle.

3. Add a Nose Axle Fitting (9) to each end of the Axle (1). Attach with hardware (4, 7 and 8) as illustrated. Tighten to proper torque.

Item P/N Description

1...20010..Nose Axle
2.....Wheel/Tire Assembly
3...20040..Nose Axle Spacer
4...10030..AN3-13A Bolt
5...41301..Tension Strut Bracket
6...41300..Tension Strut
7...10550..3/16" Washer
8...10500..3/16" Locknut
9...20020..Nose Axle Fitting

NOSE GEAR ASSEMBLY



AXLE STRUT AND NOSE GEAR ATTACHMENT

Before proceeding with the following assembly sequence refer to Detail 'D'. Grind or file off 1/8" (3.2 mm) and deburr the LOWER AFT CORNER ONLY of BOTH Nose Struts (9) as illustrated.

NOTE: This assembly is to be followed for Brake installation for the LEFT seat 'Pilot in Command'. If the Brakes are to be installed for the 'Pilot in Command' flying from the RIGHT seat, assemble the Tri-Bar Brace Wire (6), on the RIGHT side of the Axle (10) mirror image.

1. Refer to Fig. 1 and Detail 'A'. Attach the Axle Strut (4) and the Tension Strut (5) to the Axle (10) as illustrated using Hardware (1,2 and 7). Add a Washer (2) BETWEEN the Channel (3) and the Tension Strut (5). Continue through the Tang of the Tri-Bar Brace Wire (6) [previously installed on the Tri-Bar Crosstube (8)]. Refer to Page 6-3 if necessary.

NOTE: The Tri-Bar Brace Wire length may need to be 'fine tuned' to remove any excess slack BEFORE final tightening. To adjust the cable length, twist the cable in the direction necessary to shorten or lengthen it as required.

Add another Washer (2). Tighten to correct torque. DO NOT DEFORM the Channel (3) or the Tubes (4) and (5).

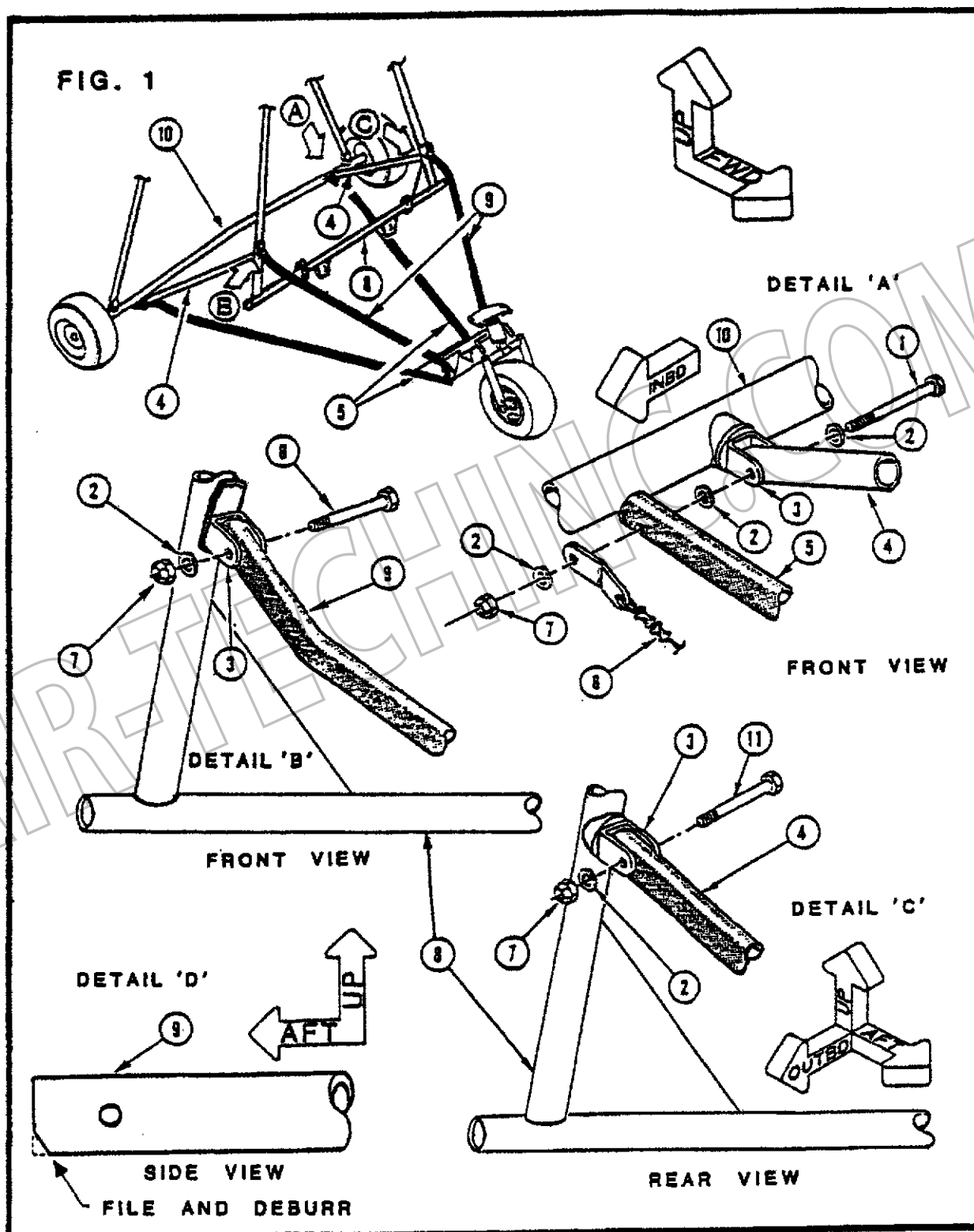
2. Repeat for the opposite side, mirror image EXCEPT substitute a Washer (2) for the Tri-Bar Brace Wire (6).

3. Refer to Detail 'B'. Attach the Nose Strut (9) to the FORWARD Channel (3) with hardware (6,2 and 7) as illustrated. NOTE: The filed edge should be DOWN and AFT. Tighten to correct torque. DO NOT DEFORM the Channel (3). Repeat for the opposite side, mirror image.

4. Refer to Detail 'C'. Attach the Axle Strut (4) to the Channel (3) [located on the AFT side of the Tri-Bar Crosstube (8)] using Hardware (11,2 and 7) as illustrated. Tighten to correct torque. DO NOT DEFORM the Channel or the Tube. Repeat for the opposite side, mirror image.

Item	P/N	Description	Item	P/N	Description
1...	10240..	AN4-26A Bolt	7...	10510..	1/4" Locknut
2...	10560..	1/4" Washer	8...	70555..	Tri-Bar Crosstube
3...	20080..	I-75 Channel	9...	40360..	Nose Strut
4...	80090..	Axle Strut	10...	40312..	Axle
5...	41300..	Tension Strut	11...	10140..	AN4-16A Bolt
6...	20603..	Tri-Bar Brace Wire			

AXLE STRUT AND NOSE GEAR ATTACHMENT



STEERABLE NOSE WHEEL FORK SUPPORT ATTACHMENT

1. Refer to Figure 1. Temporarily position the Steerable Nose Wheel Fork Support (1) UPSIDE DOWN against the TOP of the Nose Struts (2) as illustrated. Align the TWO FORWARD MOST attachment holes in the Support Fork with the EXISTING holes in the Nose Struts. Insert a Bolt (2) in each hole to temporarily hold the Fork Support (1) into place.

2. Wrap a small piece of masking tape around the Nose Struts (5) at the location where BOTH AFT OUTBOARD holes in the Fork Support align over the Nose Struts. Make a pencil mark at each OUTBOARD HOLE LOCATION ONLY. Verify the pencil marks fall on the TOP CENTERLINE of the Nose Struts. Temporarily remove the Fork Support (1) and verify the correct location.

NOTE: If the pencil marks DO NOT fall EXACTLY over the CENTER-LINE you may disconnect the Nose Struts From the Tri-Bar Cross-tube Channels then reposition the Nose Struts so that they are aligned correctly. Mark the correct Nose Strut drill location. Reattach the Nose Struts with NEW Locknuts (4) AFTER the Fork has been attached. Refer to page 6-38.

3. Temporarily attach the Steerable Nose Wheel Fork Support (1) to the TOP of the Nose Struts (5) with hardware (2,3 and 4) as illustrated. NOTE: You DO NOT have to attach the Tension Struts (6) at this time.

4. Clamp or hold the each Nose Strut firmly in position. Use a 1/4" (6.4 mm) Drill Bit, CAREFULLY backdrill ONE hole through ONE of the EXISING AFT OUTBOARD holes in the Fork Support (1) and continue through BOTH walls of the Nose Fork (1). IMPORTANT: KEEP THE DRILL BIT STRAIGHT.

5. TEMPORARILY insert a Bolt (2). Add hardware (3 and 4). FINGER TIGHT ONLY. Repeat Step 4 for the remaing hole.

6. Unbolt the Fork Support from the Nose Struts and deburr ALL holes.

Item P/N Description

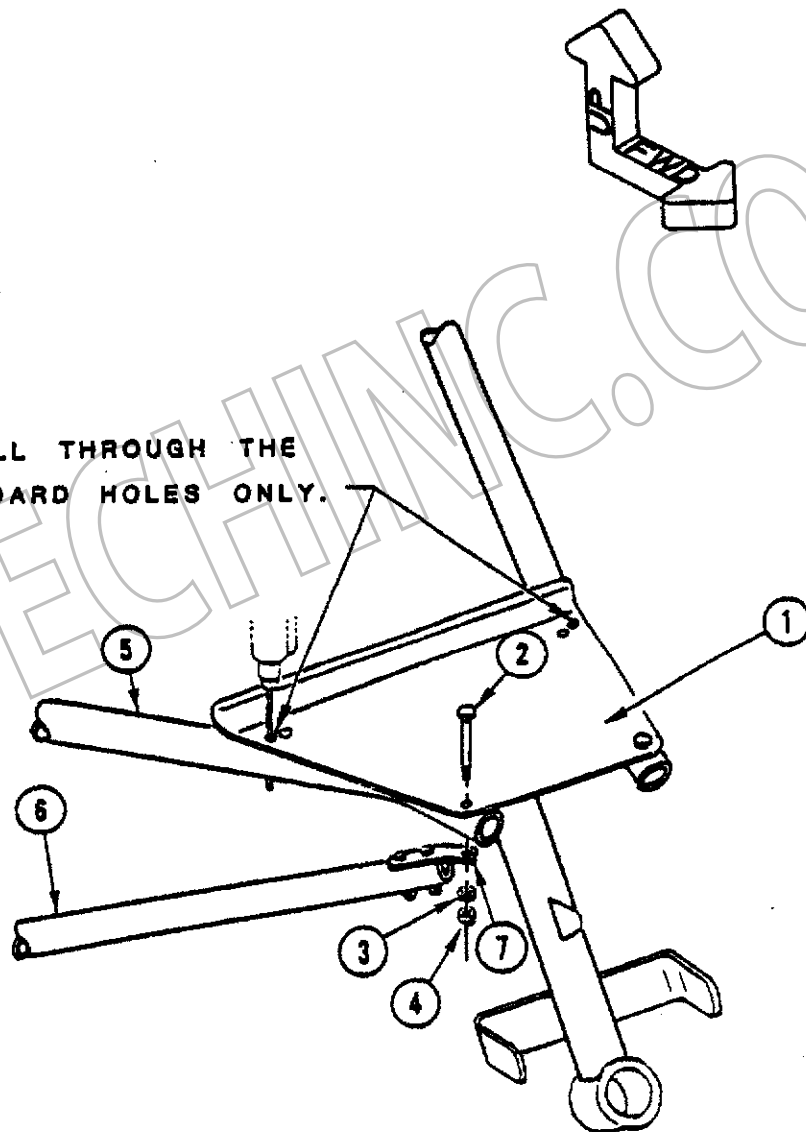
- 1...60560..Steerable Nose Wheel Support Fork Assembly
- 2...10140..AN4-16A Bolt
- 3...10560..1/4" Washer
- 4...10510..1/4" Locknut
- 5...40360..Nose Strut
- 6...41300..Tension Strut
- 7...41301..Tension Strut Bracket

STEERABLE NOSE WHEEL FORK SUPPORT ATTACHMENT

6-37

FIG. 1

BACKDRILL THROUGH THE
AFT/OUTBOARD HOLES ONLY.

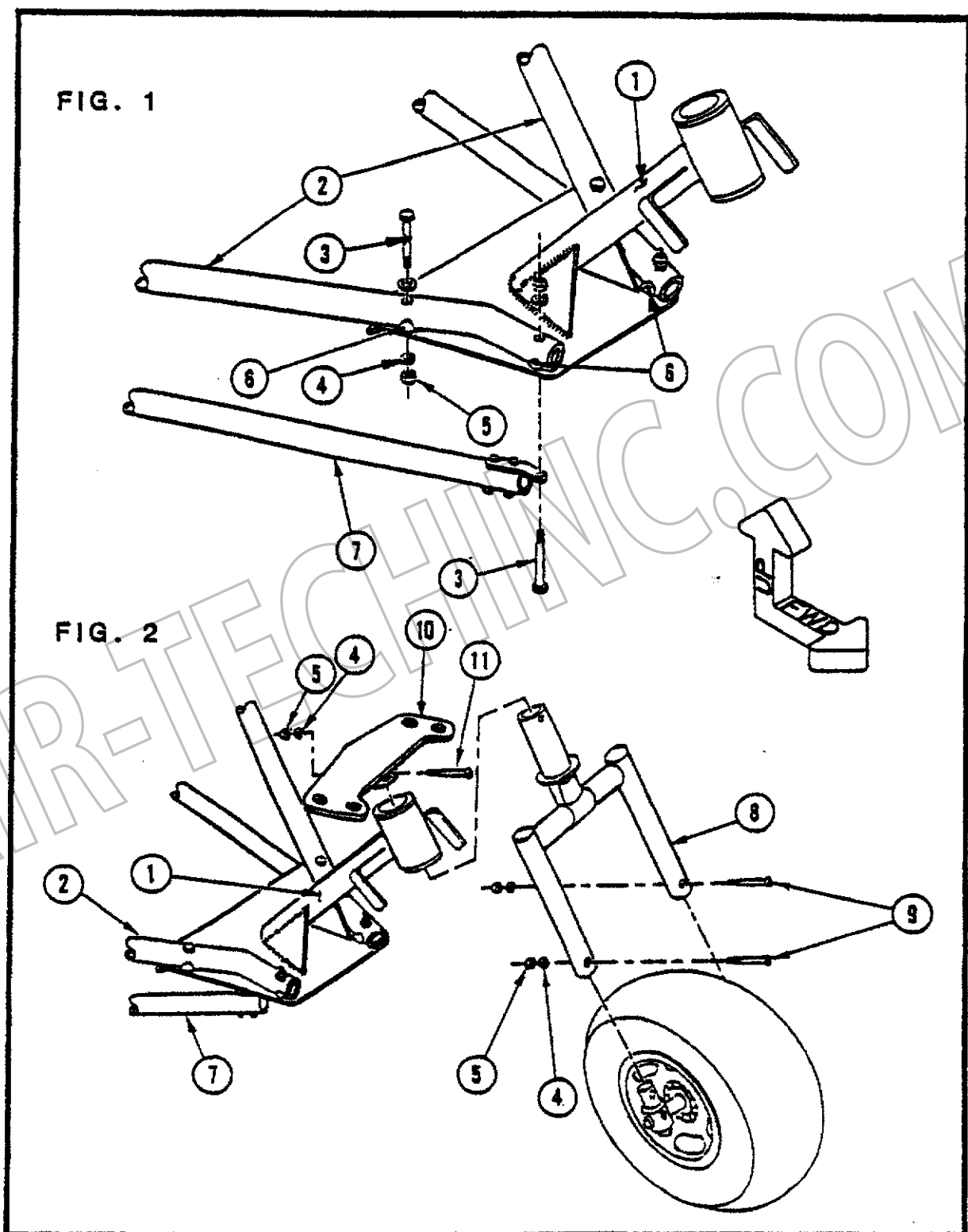


STEERABLE NOSE WHEEL FORK SUPPORT ATTACHMENT (CONT'D.)

1. Refer to Figure 1. Attach the TOP of the Steerable Nose Wheel Fork Support Tube (1) to the BOTTOM of the Nose Struts (2) at the AFT location as illustrated with hardware (3,4,5 and 6) as illustrated. Tighten to correct torque. DO NOT DISTORT THE TUBE.
2. Attach the Tension Struts (7) to the FORWARD attachment holes in the Fork Support (1) with hardware (2,3 and 4) as illustrated. Tighten to correct torque. DO NOT DISTORT THE TUBE. Repeat for the remaining Tension Strut.
3. Refer to Figure 2. Attach the Nose Wheel Assembly (7) to the Steerable Nose Wheel Fork (8) using hardware (9,4 and 5) as illustrated, TWO places. Tighten to PROPER torque.
4. Slide the Steerable Nose Wheel Fork (8) UP and INTO the Bearings (12) located INSIDE the Support Tube (1). Secure it into place by using the Steerable Nose Wheel Control Arm Assembly (10) EXACTLY as illustrated and with hardware (11,4 and 5) as illustrated. Tighten to PROPER torque.

Item	P/N	Description
1...	60560..	Steerable Nose Wheel Support Fork Assembly
2...	40360..	Nose Strut
3...	10140..	AN4-16A Bolt
4...	10560..	1/4" Washer
5...	10510..	1/4" Locknut
6...	20270..	1/8"x 1" Saddle
7...	41300..	Tension Strut
8...	60561..	Steerable Nose Wheel Fork
9...	10080..	AN4-13A Bolt
10...	91012..	Steerable Nose Wheel Control Arm
11...	10100..	AN4-14A Bolt
12...	30006..	Oillite Bearing

FORK SUPPORT ATTACHMENT (CONT'D.)

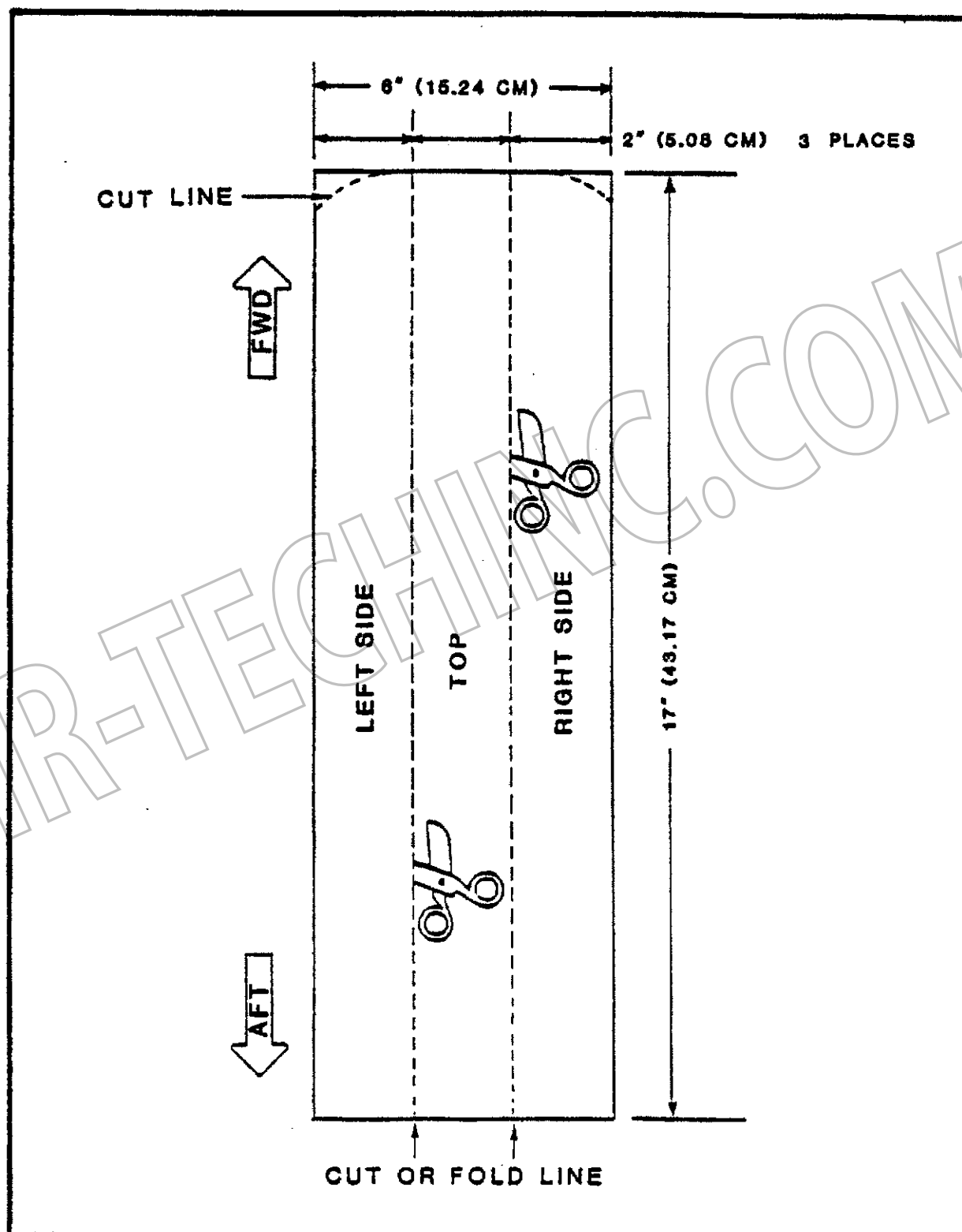


FUEL TANK FOAM ATTACHMENT

1. Temporarily position the Fuel Tank (4) over its mounting hole onto the Root Tube Assembly (2). The Hole is located 13 3/8" (33.97 cm) AFT of the FORWARD end of the Root Tube Assembly. Make a pencil mark on the sides and top of the Root Tube Assembly (2) at the FORWARD and AFT location of the Fuel Tank (4). Remove the Tank.
2. Cut the Foam (1) 17" (43.18 cm) long. Fold or cut [optional] THREE 2" (5.08 cm) wide pieces as illustrated.
3. Use Contact Cement (3) [not illustrated] and glue the Foam to the Root Tube Assembly (2) where the Fuel Tank (4) will make contact.
4. Allow Foam Pieces (1) to dry completely before installing the Fuel Tank (4).

Item	P/N	Description
1...	30205..	Foam
2...	40145..	Root Tube Assembly
3...	60592..	Contact Cement
4...	30241..	Fuel Tank Assembly w/ Cap (6 Gallon)

FUEL TANK FOAM ATTACHMENT



FUEL TANK ASSEMBLY AND ATTACHMENT

BEFORE proceeding with the following sequence, use an air hose (if available) and blow out any foreign objects or particles in the Fuel Tank which may 'block' the Fuel Filter or restrict fuel flow later. Ensure the INSIDE of the Fuel Tank is clean and free of any contamination.

IMPORTANT: Locate the 1/16" (1.6 mm) Vent Hole (1) near the TOP of the Fuel Cap (12) and in the Silicone Rubber Gasket [not illustrated]. Ensure the Vent hole in each is unobstructed.

1. Refer to Figure 1. Wrap a small amount of Teflon Tape [not illustrated] around the threads of BOTH Elbows (3) and the threads of the Cut-Off Valve (4). Refer to Figure 2. Install and TEMPORARILY position the Elbows as illustrated. Install and secure the Valve (4) as illustrated. Valve Stem faces AFT. DO NOT OVER TORQUE.

2. Refer to Figure 2. Attach the Fuel Tank (2) onto the Root Tube (7) OVER the previously installed Foam Strips. Align Fuel Tank (2) OVER the hole at 13 1/2" (34.29 cm) as measured AFT. Attach the Fuel Tank (2) with Hardware (5, 6, 8 and 9) as illustrated. Secure but DO NOT OVER TORQUE.

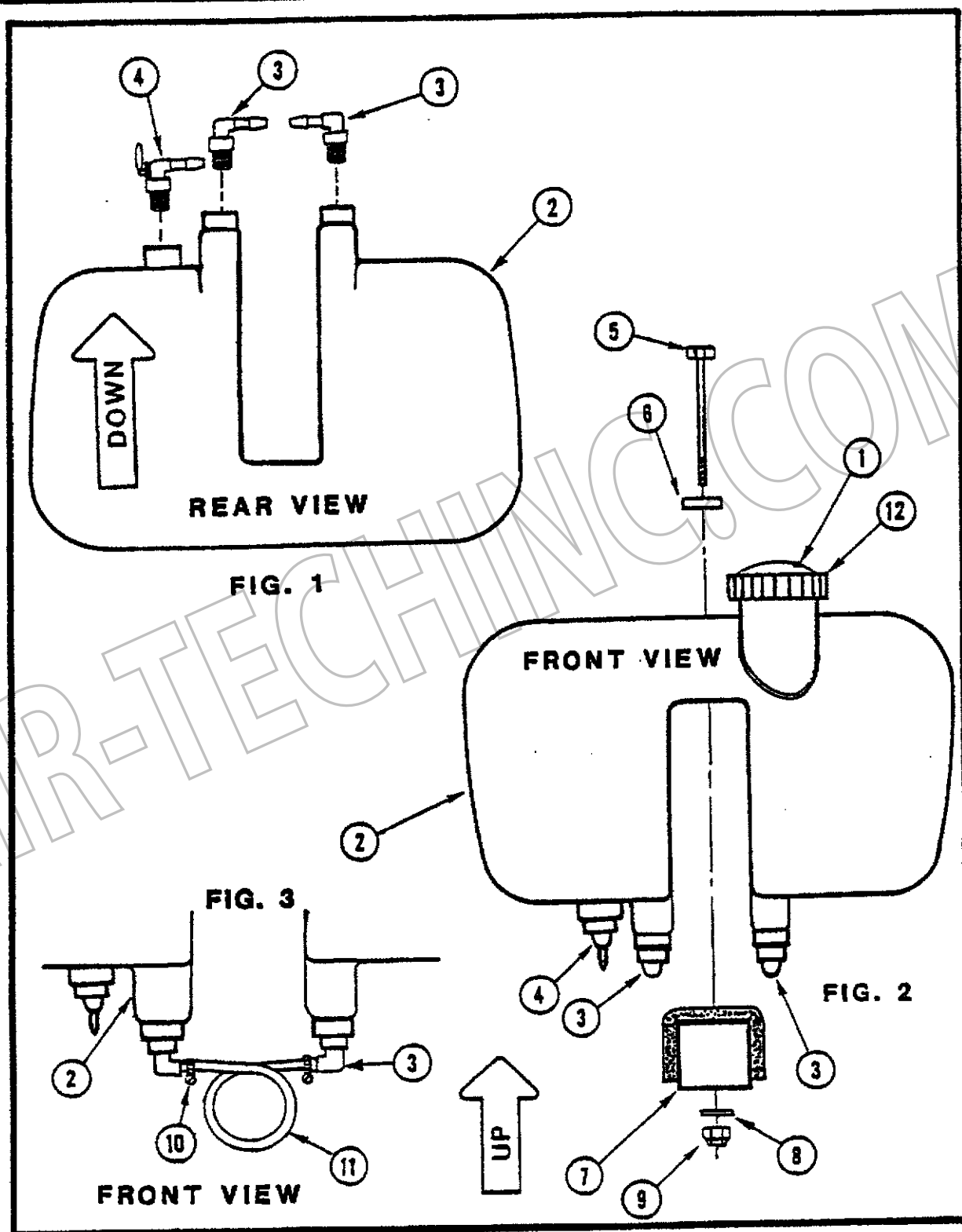
3. Refer to Figure 3. Cut a 10" (25.4 cm) piece of Fuel Line (11). Secure and position BOTH Elbows as illustrated. DO NOT OVER TORQUE. Attach ONE end of the Fuel Line to an Elbow (3) and add a Hose Clamp (10). Secure the Clamp. DO NOT OVER TORQUE.

4. Loop the Fuel Line as illustrated. This may trap and/or display any foreign objects and substances present in the Fuel system. And another Hose Clamp and secure the remaining end of the Fuel Line. DO NOT OVER TORQUE.

IMPORTANT: Always inspect the loop during Pre-Flight Inspection. Remove ALL visible foreign objects or substances trapped in the Loop IMMEDIATELY by removing ONE end of the Loop and draining the contents. Secure the Fuel Line and Hose Clamp.

Item	P/N	Description	Item	P/N	Description
1.....	1/16"	Vent Hole	6...	20345..	1/8" x 1" Nylon Washer
2...	30241..	Fuel Tank with Cap	7...	40145..	Root Tube Assy.
3...	30275..	Threaded Fuel Tank Elbow	8...	10560..	1/4" Washer
4...	30282..	Threaded Fuel Cut-Off Valve	9...	10510..	1/4" Locknut
5...	10301..	AN4-46A Bolt	10...	30230..	Hose Clamp
			11...	30220..	Fuel Line

FUEL TANK ASSEMBLY AND ATTACHMENT



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SECTION 7

POWERPLANT, DRIVESHAFT AND REDUCTION SYSTEM

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World's Largest Manufacturer of Recreational Aircraft and Vehicles

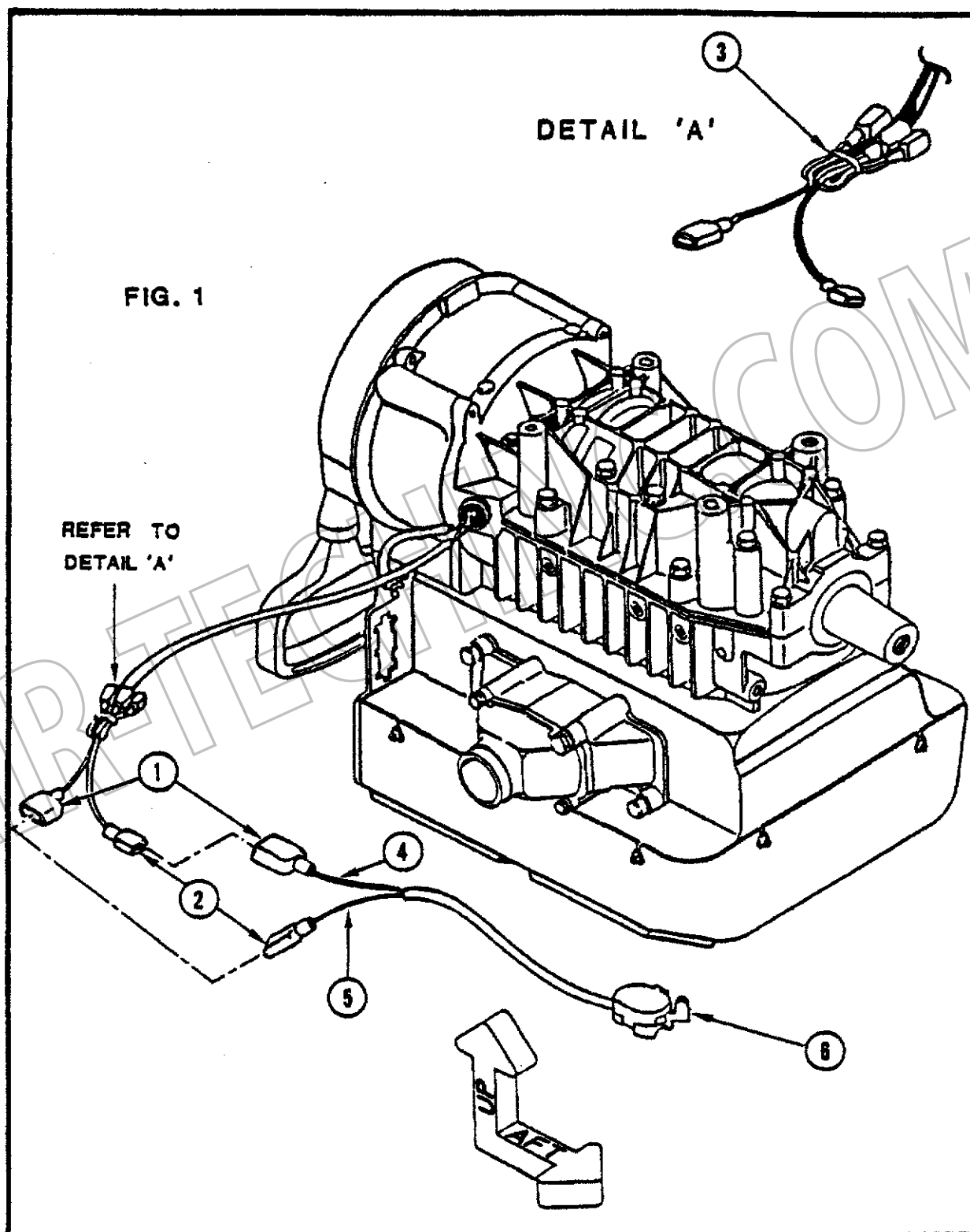
POWERPLANT WIRING HARNESS ASSEMBLY

1. Refer to Figure 1. Locate the Wiring Harness on the Intake Side of the Powerplant.
2. Separate the TWO Black Wires. Use an electrical crimping tool and attach a Female Snap Connector (1) to ONE Wire and a Male Snap Connector (2) to the remaining Wire.
3. Refer to Detail 'A'. Bend the remaining Wires in the Wiring Harness back and secure them with a Tie Wrap (3) as illustrated if a Tachometer is not going to be attached upon completion of the aircraft. If a Tachometer is to be attached, DO NOT tie back the Wires.
4. For future reference, the Ignition Switch should already be attached to the Upper Tri-Bar Assembly (not pictured).
5. After the Powerplant has been attached to the 'Trike', connect the Red (4) and White (5) Ignition Switch Assembly (6) Wires to the corresponding Snap Connectors on the Powerplant Wiring Harness.

NOTE: The Ignition Switch DOES NOT turn your Powerplant 'ON'. It allows you to turn the Powerplant 'OFF' by grounding it in TWO of the THREE positions on the Ignition Switch.

Item	P/N	Description
1...	30070..	Female Snap Connector
2...	30080..	Male Snap Connector
3...	30480..	7" Tie Wrap
4.....		Ignition Switch Wire (Red)
5.....		Ignition Switch Wire (White)
6...	30310..	Ignition Switch Assembly

POWERPLANT WIRING HARNESS ASSEMBLY



EXHAUST MANIFOLD (HEADER) ATTACHMENT

1. Use an 8 mm Allen or Hex Head Wrench and attach the Exhaust Manifold (Header) (3) as illustrated using a Bolt (1), a Washer (2) [UPWARD side of Split Ring Washer goes UNDER the head of the Bolt (1)], and a Gasket (4).

NOTE: The Header should be APPROXIMATELY 'LEVEL' when it is positioned correctly.

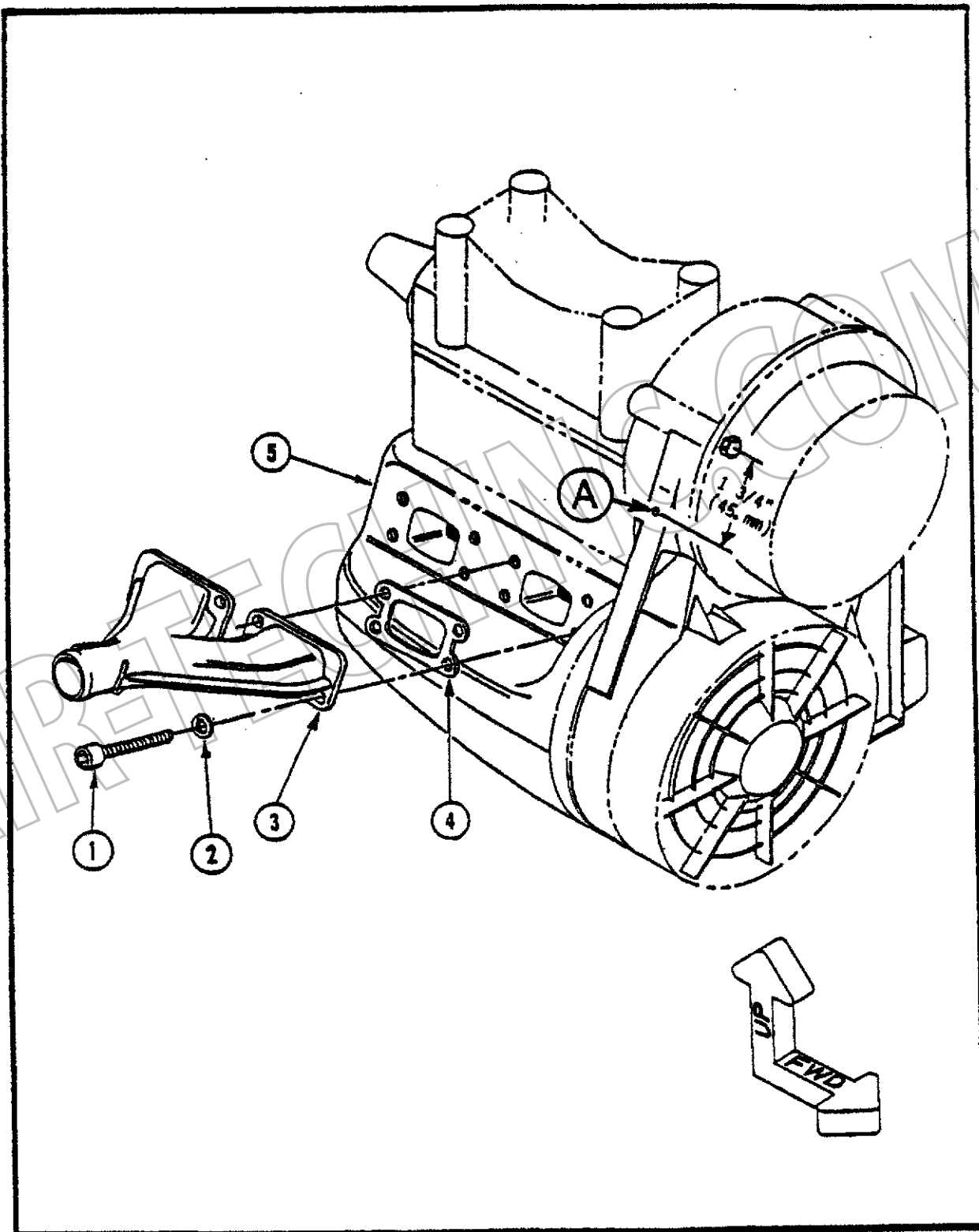
ALTERNATELY torque the FOUR required Bolts (1) to 210 in/lbs (24 Nm).

2. OPTIONAL: Refer to Detail 'A'. Measure, mark, drill and deburr a 3/16" (4.7 mm) diameter hole in the Fan Housing at the location illustrated. This will be used as a Fuel Line Tie Wrap/Stand-Off location in a later step.

NOTE: The following Items (1, 2 and 4) are located in the Carburetor Box supplied with your Powerplant and DO NOT have part number identification labels.

Item	P/N	Description
1...	00840991...	8 mm x 30 mm Bolt
2...	00945752...	8 mm Lock Washer
3.....	61045...	Exhaust Manifold (Header)
4...	00831841...	Exhaust Manifold Gasket
5.....	61001...	Powerplant, Rotax 503 (as received)

EXHAUST MANIFOLD (HEADER) ATTACHMENT



CARBURETOR ATTACHMENT TO POWERPLANT

NOTE: This sequence may be done AFTER the Powerplant has been attached to the Trike Assembly if you prefer. However, it is easier to drill the Tie-Wrap/Stand-Off Attachment Hole in the Starter Housing (1) when the Powerplant is not attached to the Aircraft.

1. Refer to Figure 1. Drill and deburr a 3/16" (4.7 mm) diameter hole in the Starter Housing (1) and Fan Housing (7) as illustrated. This will be used for securing the Electrical Harness with a Tie Wrap in a later step.

2. Slide the Carburetor Mount Block [Rubber Boot] (2) onto the Intake Manifold (3). Note direction of arrow on Boot (2). Arrow points INBOARD toward the Powerplant and IN THE DIRECTION OF AIR FLOW.

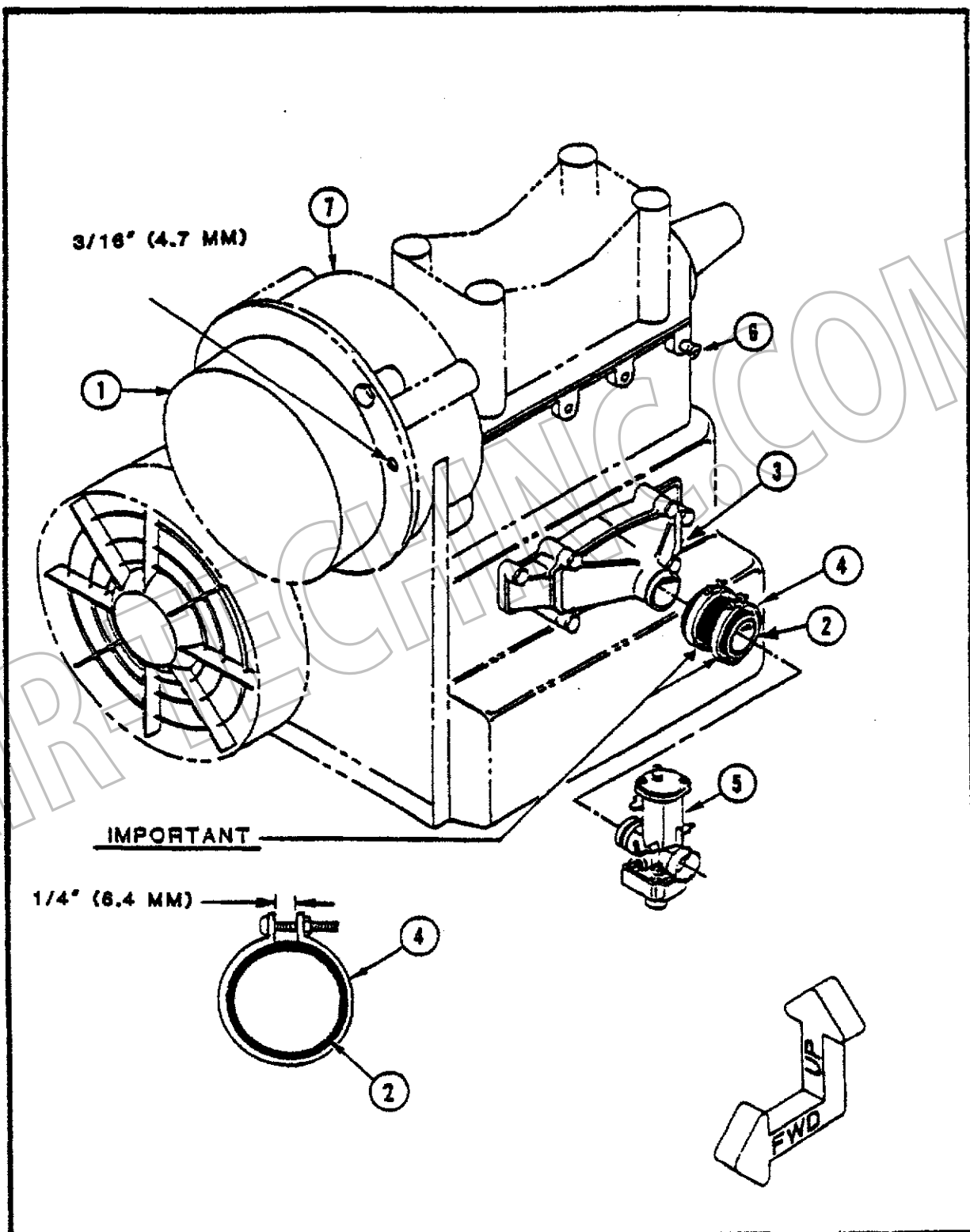
3. Slide TWO Hose Clamps (4) over the Boot (2) and insert the Carburetor (5) into the Boot (2). Ensure the Carburetor is LEVEL with the Engine, then tighten both Clamps (4) so that there is, at most, a 1/4" (6.4 mm) gap in the Clamp (4) as illustrated in Detail 'A'.

IMPORTANT: Failure to tighten the Clamps (4) properly may result in extra air being sucked into the Engine, causing the Engine to run LEAN (a higher than 15 to 1 air/fuel mixture ratio). This will result in a HIGHER Engine temperature, which may cause Engine seizure and damage.

NOTE: The Pulse Fitting (6) is shown for reference only.

Item	P/N	Description
1....	00910108..	Starter Housing
2....	00867484..	Carburetor Mount Block (Rubber Boot)
3....	00867465..	Intake Manifold
4....	00951400..	Hose Clamps
5....	00995512..	Carburetor
6.....		Pulse Fitting
7....	00912816..	Fan Housing

CARBURETOR ATTACHMENT TO POWERPLANT



POWERPLANT TO ROOT TUBE ATTACHMENT

NOTE: The following assembly may be more easily performed with an extra person to help lift the Powerplant into position and by tilting the 'Trike' Assembly back and resting the Propeller Shaft on a block of wood.

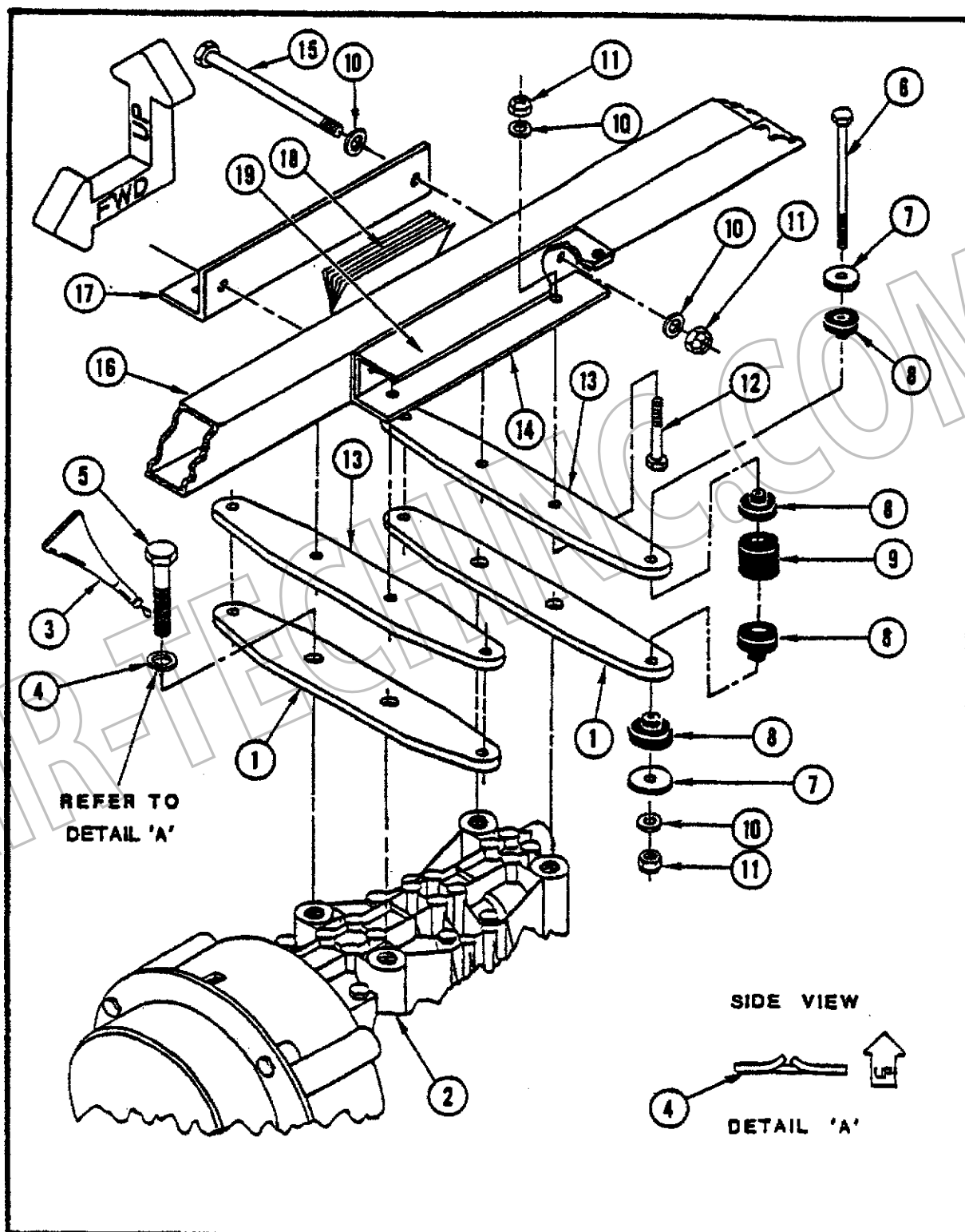
Bolts (5) and Washers (4) are located in the Powerplant Carburetor Box.

You will need a 17 mm Socket to complete the following assembly sequence.

1. Attach the Lower Powerplant Mounts (1) to the Powerplant (2) by adding Thread Adhesive (3) to the Hardware (4) and (5). Torque the Bolts (5) to 18-23 ft/lbs (24.3-32.0 Nm).
2. Insert a Bolt (12) through the Upper Powerplant Mounts (13) and the Powerplant Mounts (14) or (17) as illustrated with the Hardware (10) and (11) FOUR places. Tighten to proper torque.
3. Install the Hardware (6, 7, 8, 13, 9, 3, 10 and 11) as illustrated FOUR places. Torque enough that a MINIMUM of THREE Threads protrude past the Locknut (11).
4. Attach the Powerplant (2) and mount Assembly to the Root Tube Assembly (16) with the Bolt (15) through Items (10, 17, 16, 14 and 19) as illustrated. Shim Item (17) with SIX pieces of Ordinary Paper (18) before tightening to ease in Powerplant installation and/or remove later if necessary.

Item	P/N	Description	Item	P/N	Description
1.....	60082..	Lvr Powerplant Mnt	12...	10305..	ANS-10A Bolt
2.....	61001..	Powerplant, Rotax 503 (as received)	13...	60071..	Upr P/Pint Mnt
3.....	60591..	Thread Adhesive	14...	60091..	Powerplant Mnt Angle (LEFT)
4...	00945753..	Lock Washer	15...	10328..	ANS-30A Bolt
5.....	10492..	10 x 30 mm Bolt	16...	40145..	Root Tube Assy
6.....	10330..	ANS-32A Bolt	17...	60092..	Powerplant Mnt Angle (RIGHT)
7.....	10600..	5/16" Fndr Washer	18.....		Ordinary Paper
8.....	30380..	Rubber Grommet	19...	42029..	Bellcrank Mnt
9.....	40423..	3/4" Alum. Spacer			
10.....	10570..	5/16" Washer			
11.....	10540..	5/16" Locknut			

POWERPLANT TO ROOT TUBE ATTACHMENT



SPARK PLUG GAP AND INSTALLATION

1. Refer to Figure 1. The recommended Spark Plug for the Rotax 503 Powerplant is the NGK B8ES. Remove the protective coverings. Set BOTH Spark Plug Gaps to .013" - .020" (.4 mm - .5 mm).
2. If a Cylinder Head Temperature (CHT) Gauge is to be installed, remove the Seating Washer (1) from ONE Plug (2) only and tag it 'FORWARD'.
3. Make sure the area UNDERNEATH the Powerplant is clear. Pull the Starter Rope ONCE, HARD. This will explode the Cork Seals out of the Spark Plug (2) holes.
4. Some Spark Plugs (2) have integral Conical Seats (8) which cannot be removed. Others have removable Conical Seats (8). If the Conical Seats (8) are of the removable type, unscrew them. Add a drop of Loctite and re-torque them.
5. Insert the AFT Spark Plug and torque to 18-20 ft/lbs (24-27 Nm).
6. If using a CHT Gauge thread the Sensor wire through the cooling vanes of the FORWARD cylinder head before you crimp the Snap Connectors on.
7. Refer to Figure 2. If a single Temperature Gauge or Sensor is to be used, place the FORWARD Spark Plug (thread end) through the ring in the (CHT) [Thermo-Couple] Sensor. Insert the Plug (2) and screw it in FINGER TIGHT ONLY ensuring the CHT Sensor wire is NOT twisted. Torque the Plug (2) to 18-20 ft/lbs (24-27 Nm).
8. At the FRONT of the Powerplant note the TWO Coils next to the Cooling Fan. The Coils have Spark Plug Wires and Caps attached to them. Connect the Cap from the UPPER Coil (4) to the #1 Cylinder (FORWARD Plug). Connect the LOWER Coil (3) to the #2 Cylinder (AFT Plug).

Item	P/N	Description	Item	P/N	Description
1.....		Seating Washer	5.....		LOWER Coil
2.....		Spark Plug	6.....		UPPER Coil Wire Cap
3.....		CHT Sensor Wire	7.....		LOWER Coil Wire Cap
4.....		UPPER Coil	8.....		Conical Seat Nut

SPARK PLUG GAP AND INSTALLATION

FIG. 1

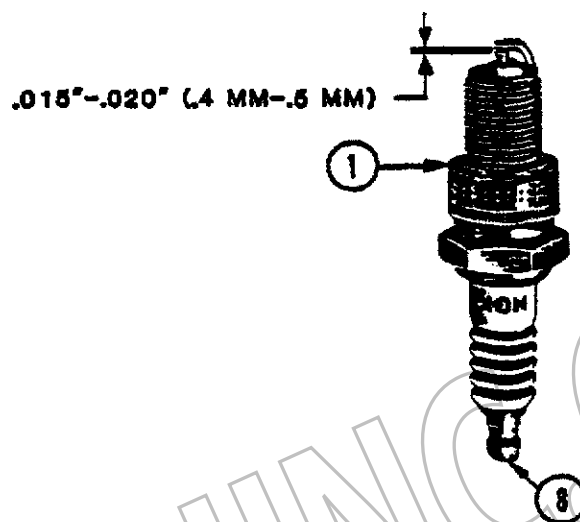
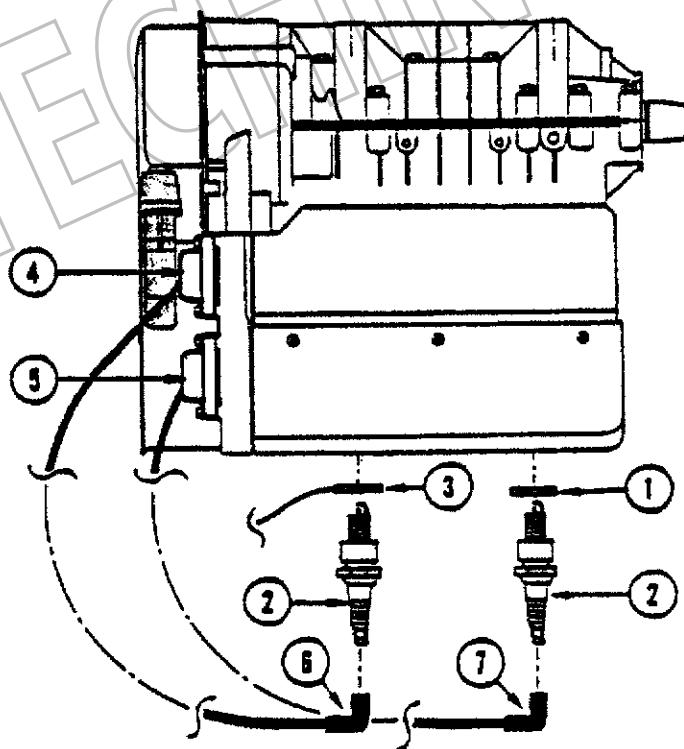


FIG. 2

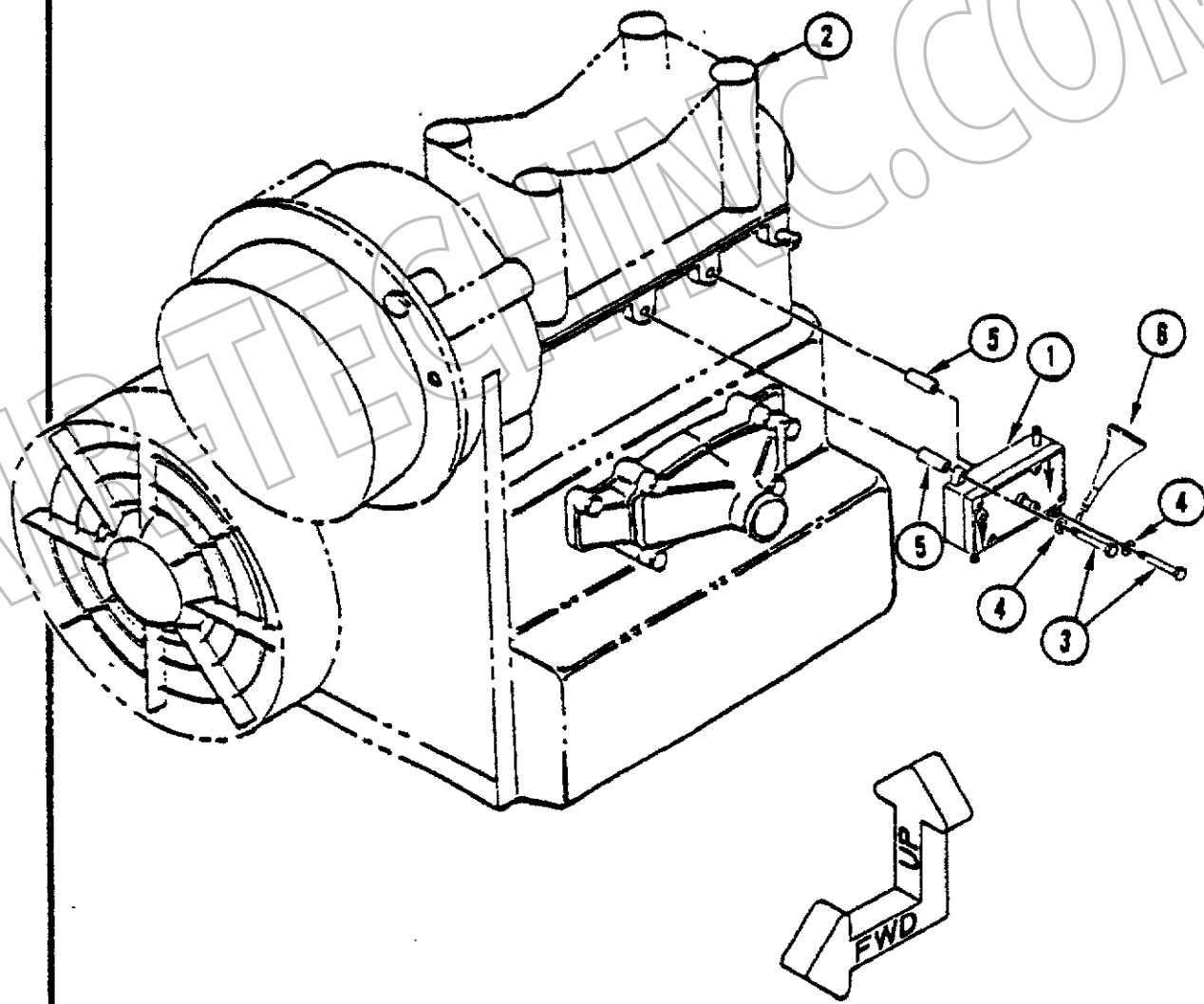


FUEL PUMP MOUNTING

1. Before mounting the Fuel Pump (1), look at the face of the Fuel Pump and assure the arrows are pointing DOWNWARD IN THE DIRECTION OF FUEL FLOW as illustrated.
2. Attach the Fuel Pump (1) to the Carburetor side of the Powerplant TWO places as illustrated, using Hardware (3, 4 and 5). Assure the Split in the Washer (4) is pointing TOWARD the Bolt (3) Head. Add Thread Adhesive (6) to both Bolts (3) and tighten to proper torque.

Item	P/N	Description
1...	00994482..	Fuel Pump
2.....	61001..	Rotax 503 Powerplant (as received)
3...00240631..	6 mm x 40 mm	Hex Head Bolt
4...00945751..	6 mm	Split Wave Lockwasher
5.....	71003..	Bushing
6.....	60591..	Thread Adhesive

FUEL PUMP MOUNTING

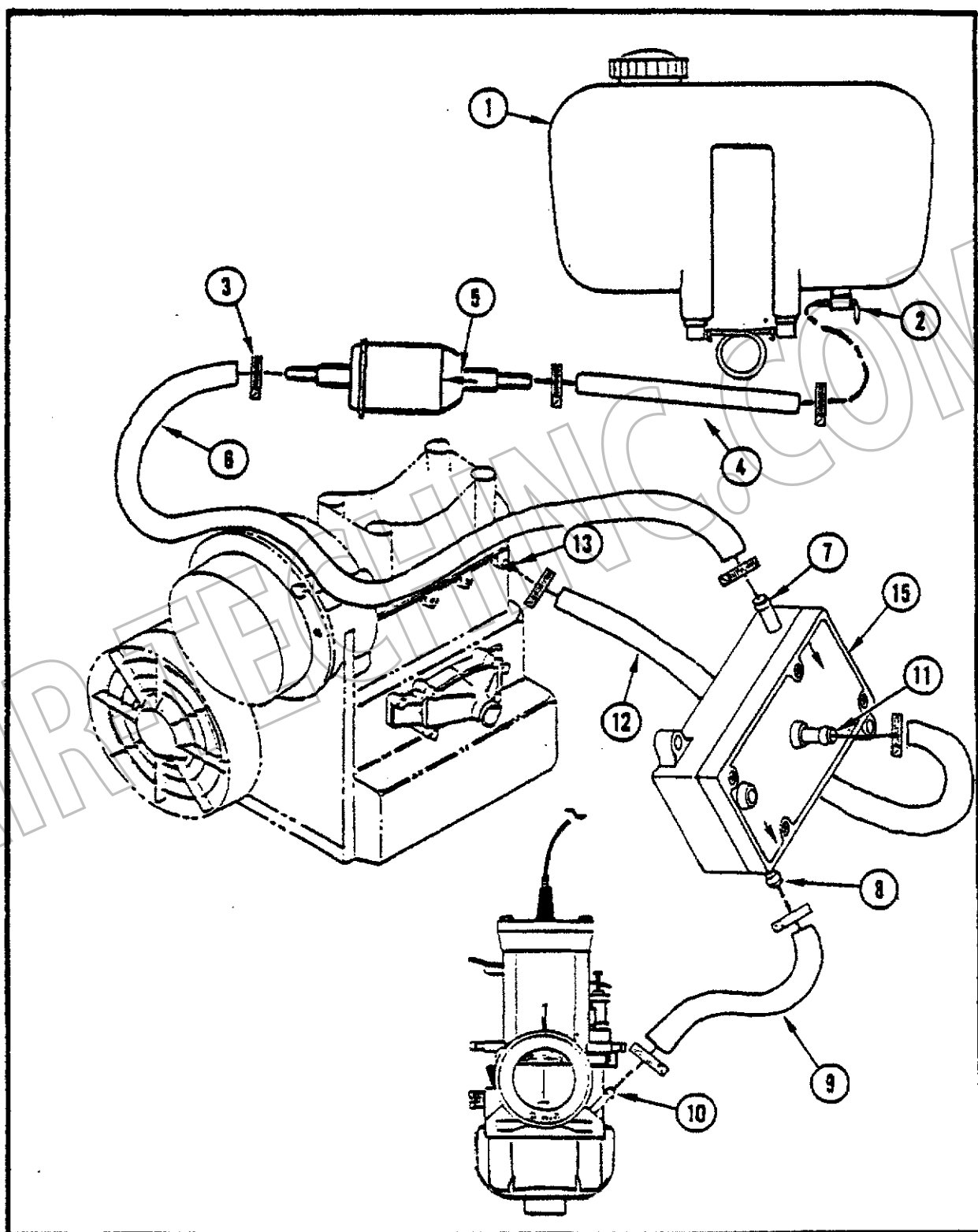


FUEL LINE ATTACHMENT

1. Note the direction of fuel flow [Inlet Arrow] on the Fuel Filter (5).
2. Note the direction of the fuel flow 'Arrows' near the Fuel Pump Fittings (7) and (8) on the Fuel Pump (15).
3. Install the Fuel Line Clamp (3) onto the Carburetor Inlet Fitting (10) BEFORE installing the Fuel Line (9).
4. Cut the Fuel Line (14) to the lengths indicated by Items (4, 6, 9 and 12).
5. Assemble as illustrated. Secure ALL Clamps EXCEPT for the Clamp at the Pulse Fitting (13) location, to be secured in a later Step. See Page 7-18.

Item	P/N	Description
1.....	30251..	6 Gallon Fuel Tank with Cap (AFT view)
2.....	30280..	Fuel Tank On-Off Valve
3.....	30230..	Fuel Line Clamps
4.....		Fuel Tank On-Off Valve to Fuel Filter Fuel Line 4 1/2" (11.43 cm)
5.....	30210..	Fuel Filter (Note direction of the Inlet Arrow)
6.....		Fuel Line (Filter to Pump) 12" (30.48 cm)
7.....		Fuel Pump Inlet Fitting
8.....		Fuel Pump Outlet Fitting
9.....		Fuel Line (Fuel Pump to Carburetor) 9 1/2" (24.13 cm)
10.....		Carburetor Inlet Fitting
11.....		Fuel Pump Pulse Fitting
12.....		Powerplant to Pump Pulse Line 7 1/2" (19.05 cm)
13.....		Powerplant Pulse Fitting
14.....	30220..	Fuel Line
15...	00994482..	Fuel Pump Assembly

FUEL LINE ATTACHMENT



DRIVE SHAFT ADAPTOR ATTACHMENT TO POWERPLANT

NOTE: The Flex Drive with Adapter Assembly is packaged as Part Number 60182. The Assembly consists of the following parts:
Items...1,2,3,4 and

60177...Flex Coupling and Drive Shaft Assembly

1. Attach the Drive Shaft Adaptor (4) to the Powerplant (5) with the Hardware (1,2 and 3). You will need a 3/4" Socket for the Bolt (1). Torque the Bolt (1) to 50 ft/lbs (67.85 Nm).

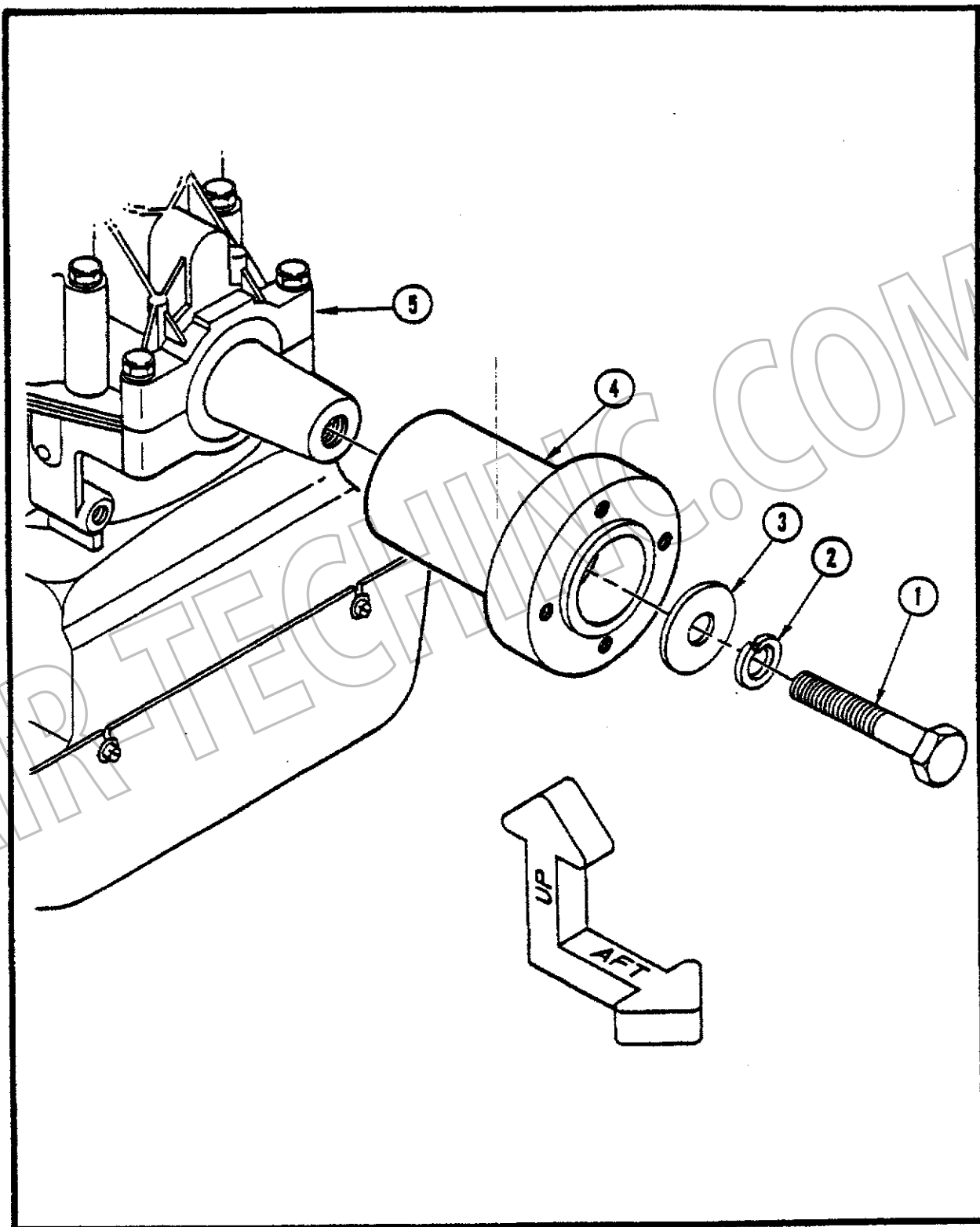
Item P/N Description

- 1...10625...1/2"-20 x 2" Bolt
- 2...10438...1/2" Lock Washer
- 3...60187...Drive Shaft Adaptor Washer
- 4...60188...Drive Shaft Adaptor
- 5...61001...Powerplant, Rotax 503 (as received)

DRIVE SHAFT ADAPTOR

7-17

ATTACHMENT TO POWERPLANT



3" PULLEY AND DRIVE SHAFT ATTACHMENT

NOTE: The Powerplant Crankshaft must be locked into position BEFORE proceeding, by inserting the Fixation Pin (located in your Powerplant Tool Kit) into the Pulse Fitting on the Intake side of the Powerplant. Refer to Pages 7-6 and 7-7, Item 6 for location.

1. Slide the Locking Collar (1) and the Pillow Block Bearing (2) onto the Drive Shaft and Flex Coupler Assembly (3). Add Thread Adhesive to the Screws (12) and attach the Drive Shaft (3) to the Drive Shaft Adapter (11) using a 1/4" (6.4 mm) Allen or Hex head wrench with the Hardware (12) and (13). Tighten ALTERNATELY and EVENLY to 150 in/lbs (6.5 Nm). Repeat at the remaining THREE locations.

2. Add a Washer (7) to each Bolt (6). Install BOTH Bolts (6) through the Root Tube Bracket. Add the 'H' Truss (14) and secure with the Hardware (7,8 and 9) in the proper sequence as illustrated. Continue through the Bearing (2), Washers (7) and (8) and Nuts (9). DO NOT FINAL TIGHTEN AT THIS TIME. Repeat for the opposite side.

3. Apply Thread Adhesive (15) to the end of the Drive Shaft (3). Install the Pulley (4) onto the Drive Shaft Assembly. Add the Washer (10) and secure the Locknut (5) using a 1 1/16" (27 mm) Socket. Tighten the Locknut to 125 ft/lbs (171.9 Nm). Temporarily remove the Screws in the Locking Collar (1) with a 1/8" (3.2 mm) Allen or Hex wrench. Add a drop of Thread Adhesive (15) and re-install the Screw into the Locking Collar (1). Torque to 70 in/lbs (8.0 Nm). Remove the Fixation Pin and re-attach the Fuel Line and Clamp at the Pulse Fitting.

IMPORTANT: After the Powerplant Break-in Procedure, re-torque the Locknut (5).

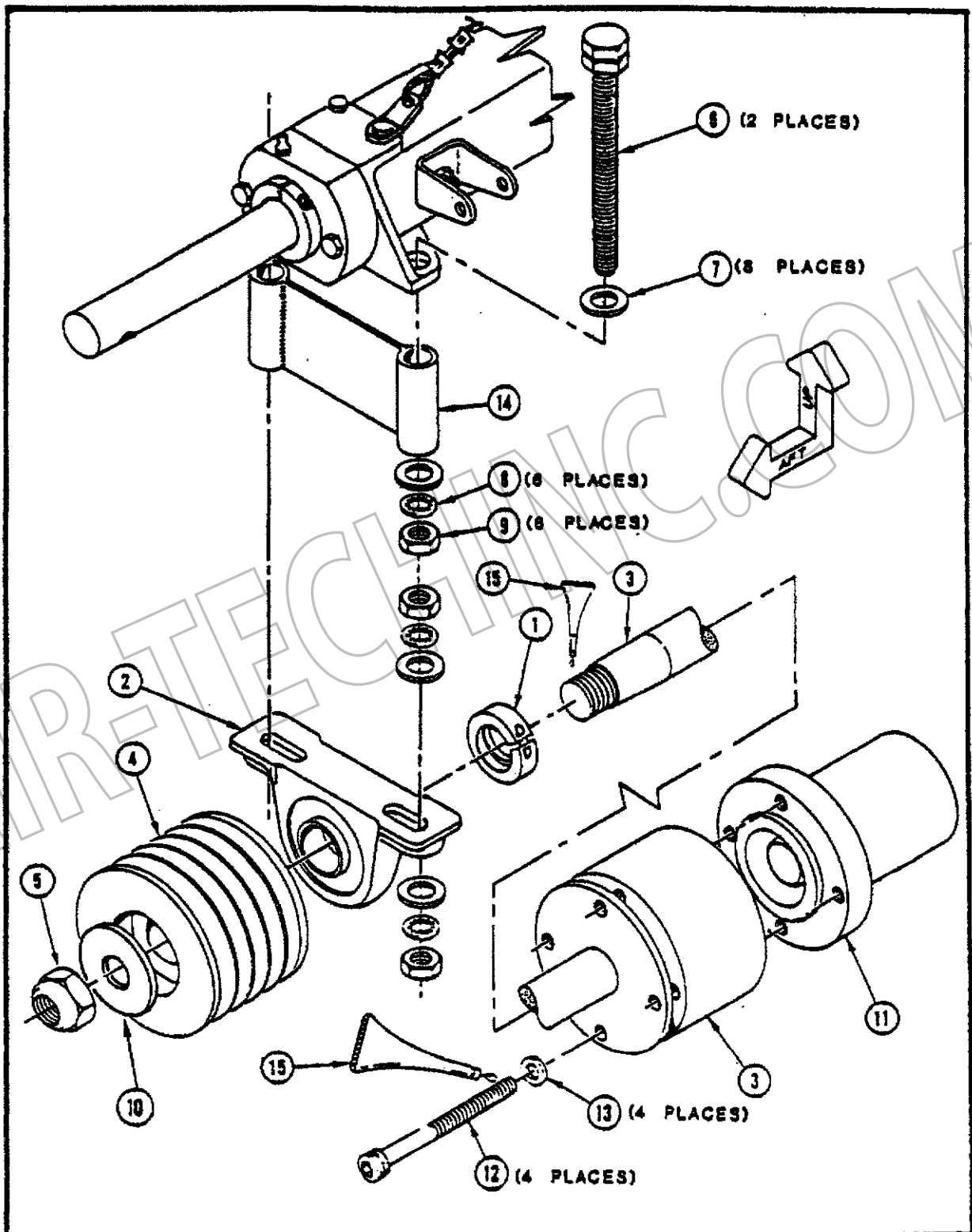
Item	P/N	Description	Item	P/N	Description
1.....		Locking Collar	9..	10503..	7/16" Jam Nut
2..	60016..	Pillow Blk Bearing	10..	60175..	1 7/8" O.D. Washer
3..	60177..	Drive Shift/Flex Assy.	11..	60188..	Drive Shaft Adptr.
4..	20233..	3" Pulley	12..	10393..	5/16"-18 x 2 1/2"
5..	10529..	3/4"-6 Thin Locknut			Sckt. Hd Cap Screw
6..	10494..	7/16"-20 x 5" Bolt	13..	10570..	5/16" Washer
7..	10439..	7/16" Washer	14..	60064..	'H' Truss
8..	10437..	7/16" Star Washer	15..	60591..	Thread Adhesive

* Part of P/N 60016 - Pillow Block Bearing.

3" PULLEY AND

7-19

DRIVE SHAFT ATTACHMENT



8" PULLEY ATTACHMENT

NOTE: The 8" Pulley with Taper Loc and Bolts is packaged as Part Number 60184. The Assembly consists of the following parts:

Items...1, 2 and P/N 10394...1/4-20 x 1" Socket Head Screw

For the following assembly sequence you will need a 3/16" (4.7 mm) Hex Head or Allen Head wrench to install the Screws (5).

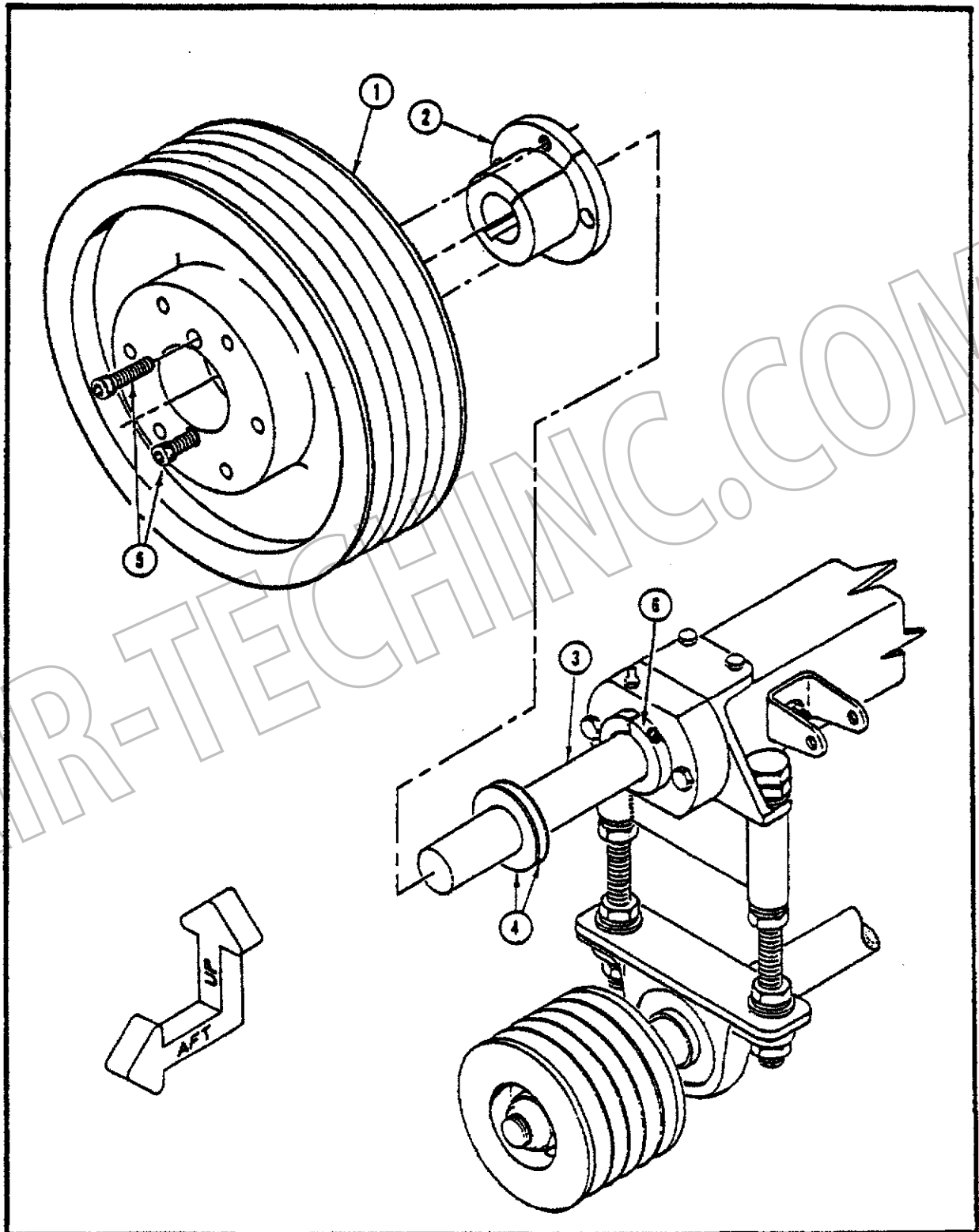
During installation of the 8", Five Groove V-Belt Pulley (1), it is possible that the Cap Screws (5) that pull the Taper Loc (2) in place may be too long and make contact against the Locking Collar (6) on the Root Tube Aft Bearing. This could pull the Propeller Shaft (3) AFT and partially out of the Thrust Bearing or Thrust Bearing Carrier within the Root Tube Assembly. DURING ASSEMBLY, MAKE CERTAIN THAT THE CAP SCREWS (5) DO NOT COME INTO CONTACT WITH THE LOCKING COLLAR (6) on the Root Tube Assembly Aft Bearing. If the Cap Screws (5) need to be shortened, remove and install Non-Locking Nuts on the Cap Screws (5) BEFORE grinding. The Nuts will clean the Threads when removed. Grind only enough so there is adequate clearance between the Cap Screws (5) and the Locking Collar (6). THE CAP SCREWS (5) MUST PROTRUDE THROUGH THE TAPER LOC FLANGE (2). Refer to the following Page (7-23) Fig. 1. for additional information. See "Clearance".

1. Slide ALL the Shim Washers (4) and the 8" Pulley Assembly (1, 2 and 5) onto the Propeller Shaft (3) as far as they will go.

Item	P/N	Description
------	-----	-------------

1...	20234..	8" Pulley
2...	60171..	Taper Loc Bushing
3.....		Propeller Shaft
4...	45828..	1" ID. Shim Washer
5...	10394..	1/4"-20 x 1" Socket Head Cap Screw
6.....		Locking Collar

8" PULLEY ATTACHMENT



8" PULLEY ATTACHMENT (CONT'D.)

1. Refer to Figure 1. Note the critical 'clearance' area between the Cap Screw (5) and the Locking Collar (6) discussed earlier.

NOTE: Only half of the Pulley (1) is shown for clarity.

2. Refer to Figure 2. Using a Straight Edge (9) on the AFT face of the 8" Pulley (1) and 3" Pulley (8), generalize the location, then visually align the grooves in the Pulleys (1) and (8). Remove the Shim Washers (4) as required until alignment is attained, then add TWO Shim Washers (4).

3. Refer to Figure 1. When the TWO Cap Screws (5) are tightened alternately a little at a time to 12 ft/lbs (16.5 Nm), the 8" Pulley (1) should once again align with the 3" Pulley (8). If not, remove the 8" Pulley (1) by removing the TWO Cap Screws (5) and installing TWO Cap Screws (7), not illustrated, with a 1/4" (6.4 mm) Hex Head or Allen Head wrench into the TWO additional threaded holes in the 8" Pulley (1).

4. Tighten the Screws (7) [not illustrated] ALTERNATELY until the 8" Pulley Assembly (1, 2 and 7) will slide off the Propeller Shaft (3).

5. ADD or REMOVE the Shim Washers (4) as required for proper alignment and reinstallation.

NOTE: Some of the Drive System parts in your Kit are packaged as part of the assemblies that are grouped under a single Part Number. The 8" 'Pulley Assembly' is comprised of Items 1, 2 and 5 and is packaged as Part Number 60184.

Item	P/N	Description
1...	20234..	8" Pulley
2...	60171..	Taper Loc Bushing
3.....		Propeller Shaft
4...	45828..	1" I.D. Shim Washer
5...	10394..	1/4"-20 x 1" Socket Head Cap Screw
6.....		Locking Collar
7...	10393..	3/16" Socket Head Cap Screw
8...	20233..	3" Pulley
9.....		Straight Edge

8" PULLEY ATTACHMENT (CONT'D.)

FIG. 1

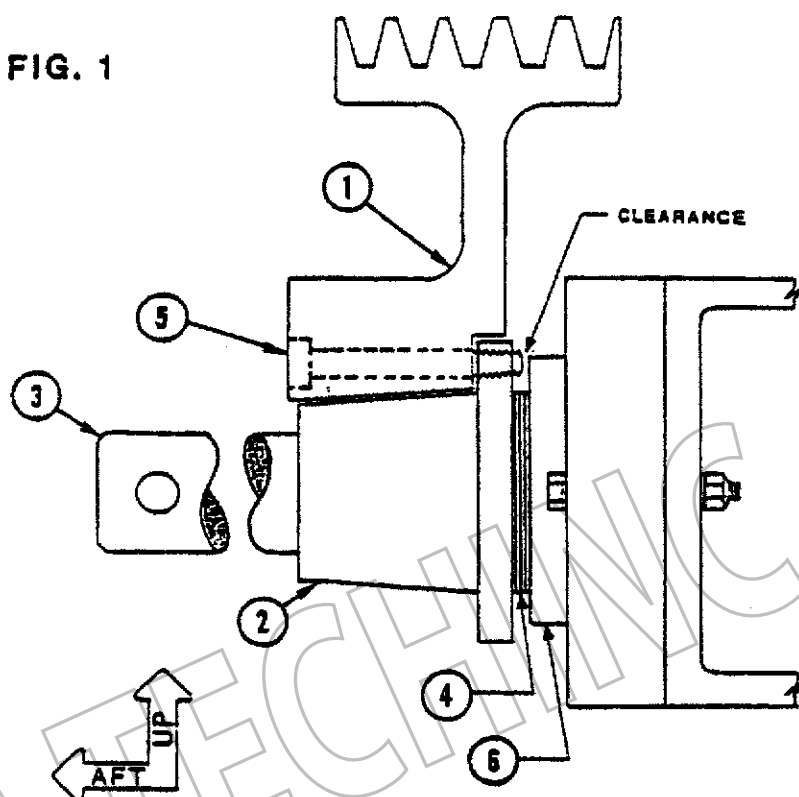
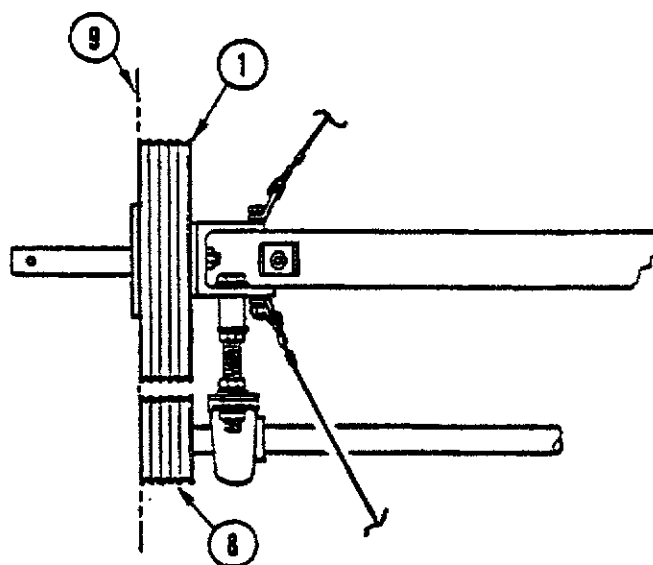


FIG. 2



DRIVE BELT ATTACHMENT AND ADJUSTMENT

1. Refer to Figure 1. Drive Belt (2) installation, removal, and or tensioning is accomplished by adjusting the FOUR (LOWER) Non-Locking (Jam) Nuts (1) UP or DOWN as required.

2. Refer to Figure 2. While adjusting the Belt Tension, be sure to keep the Drive Shaft (3) directly aligned with the Prop Shaft (4) and PARALLEL (See Figure 4) to the Root Tube Assembly (5). Dimensions "x" should be equal to (plus or minus) 3/32" (2.4 mm).

3. Refer to Figure 2 and 4. Adjustment is accomplished by Locknuts (6). TIGHTEN to RAISE the FORWARD end of the Drive Shaft (3) and LOOSEN to LOWER.

NOTE: THREE threads must protrude through the Locknuts (6) when finished. Contact your QUICKSILVER Dealer if further adjustment is required.

4. Refer to Figure 3. for proper use of the Belt Tension Tester (7). Position the Large "O" Ring (8) 1/8" (3.2 mm) from the pointed end and the Small "O" Ring (9) on the "O" mark on the SMALL shaft. Place the pointed end at the center of the Belt Span Length (10) on ONE Belt and push on the the opposite end of the Tester until the Belt deflects 1/8" (3.2 mm) as illustrated. Now release the pressure and note where the Small "O" Ring (9) is positioned. The Small "O" Ring (9) indicates Belt Tension. The correct Belt Tension is 6-7 ft/lbs (2.7-3.15 kg).

5. Refer to Figure 1. The proper torque for the 7/16" Jam Nut (1) is 30-35 ft/lbs (40.7-47.4 Nm).

Item	P/N	Description
1...	10503..	7/16" Non-Locking (Jam) Nut
2...	30035..	Drive Belt 3V x 300
3...	60177..	Drive Shaft
4.....		Propeller Shaft
5...	40145..	Root Tube Assembly
6...	10540..	5/16" Locknut
7...	60033..	Belt Tension Tester
8.....		Large "O" Ring
9.....		Small "O" Ring
10.....		Belt Span Length

* Located in the Fabric Tester Kit P/N 60100.

DRIVE BELT

7-25

ATTACHMENT AND ADJUSTMENT

FIG. 1

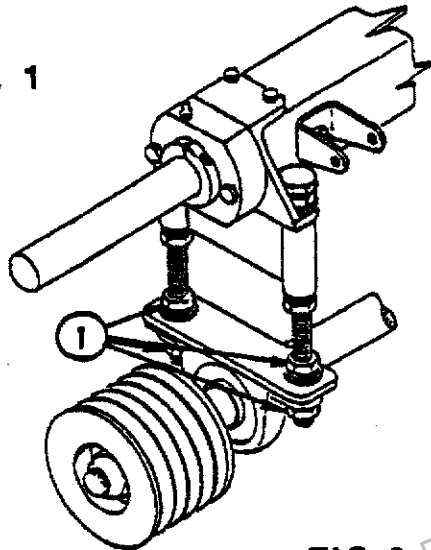


FIG. 2

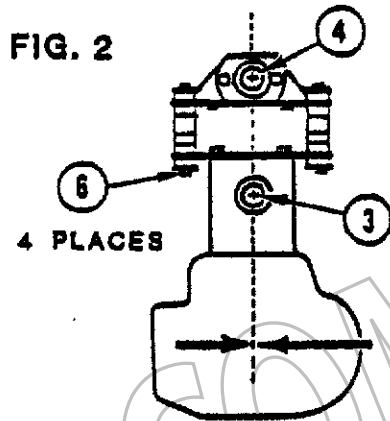


FIG. 3

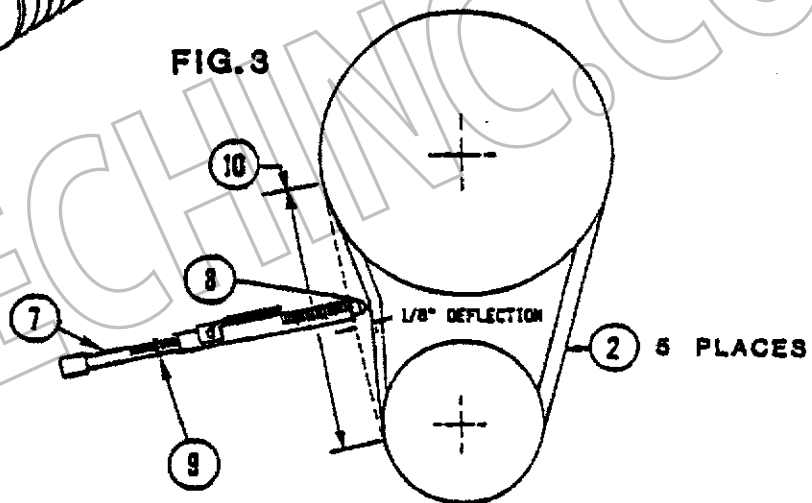
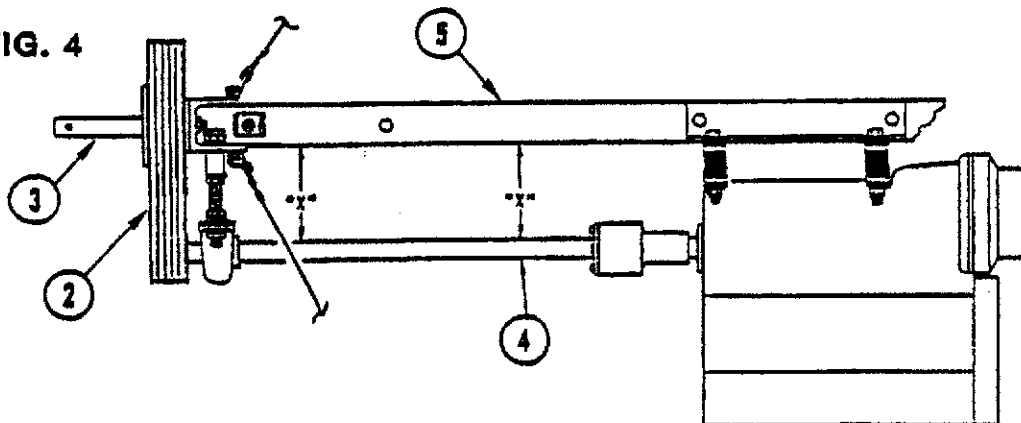


FIG. 4

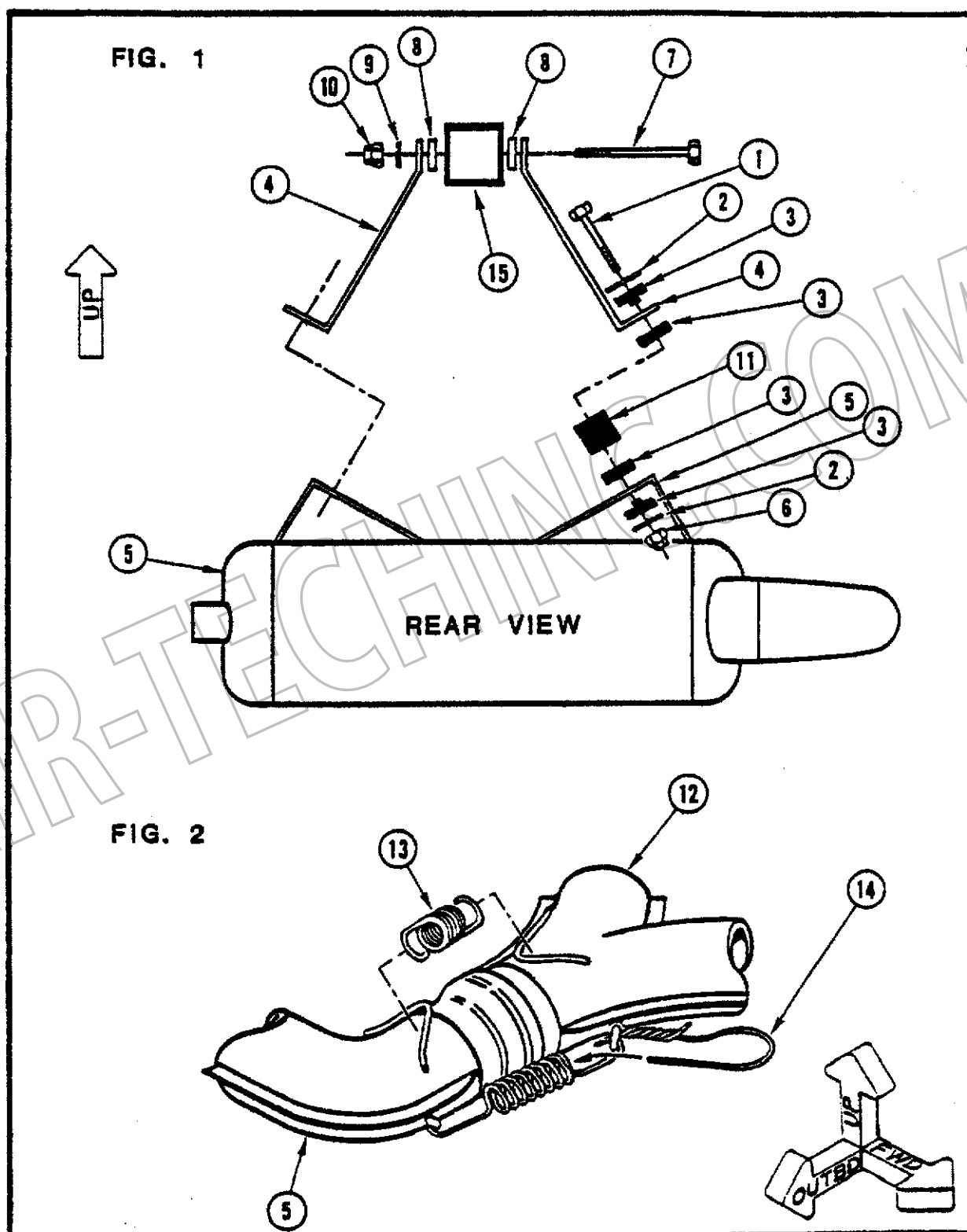


MUFFLER ATTACHMENT

1. Before beginning, trim the 'Nipples' off FOUR Grommets (3).
2. Refer to Figure 1. Locate the Muffler Attach Strap (4) and the corresponding Attachment hole located at 50 1/8" (127.31 cm) AFT as measured AFT from the FORWARD end of the Root Tube Assembly (15). Refer to Page 3-2 if necessary.
3. Attach the Muffler (5) to the Muffler Attach Strap (4) with Hardware (1,2,3,11 and 6) as illustrated. Tighten to proper torque. Repeat for the opposite side.
4. Attach the Muffler Attach Straps (4) with the Muffler (5) and previously installed Hardware to the Root Tube Assembly (15) with Hardware (7,8,9, and 10). Tighten to proper torque.
5. Refer to Figure 2. OPTIONAL: Before attaching the Muffler (5) to the Exhaust Manifold (Header) (12), you may wish to coat the contacting surfaces with LOCTITE ANTI-SEIZE to keep the Ball Joint lubricated and corrosion-free.
6. Attach THREE Muffler Springs (13) to the Attach Tabs, however, DO NOT use pliers to grip the Springs (13) as they will score and structurally weaken the Springs. Hook the end of the Springs with the extra Starter Rope from the Powerplant Tool Kit. Pull and hook the Springs onto the Tabs. Secure the Springs with Safety Wire (14). Route the Safety Wire INSIDE each Spring, then back again toward the starting point on the OUTSIDE of the Spring. Secure Safety Wire (14) as required.

Item	P/N	Description
1.....	10324..	AN5-27A Bolt
2.....	10600..	5/16" Fender Washer
3.....	30380..	Rubber Grommet (Soft)
4.....	61042..	Muffler Attach Strap
5.....	61041..	Muffler
6.....	10540..	5/16" Locknut

MUFFLER ATTACHMENT



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SECTION 8

8-1

SEAT AND CONTROL SYSTEM ATTACHMENT

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World's Largest Manufacturer of Recreational Aircraft and Vehicles

DOC# 852-02 REV. A DATE 01/22/90

RUDDER CABLE PULLEY ATTACHMENT

NOTE: You may find it easier to complete the following assembly sequence if the 'Trike' is tilted back on the Prop Shaft resting on a block of wood (as not to damage the Prop Shaft). However, tilting is not necessary.

1. Refer to Figure 1. Locate the Rudder Pulley Attach Tabs (1) on the BOTTOM side of the Seat Mount Assembly (2). Each Tab (1) is located approximately 12 1/8" (30.8 cm) OUTBOARD from the Seat Support Down Tube Attach Tabs (3) located at the AFT end of the Seat Mount Assembly (2).

2. Assemble as illustrated with Hardware (4,6,5,8,9,11 and 13). DO NOT TIGHTEN to final torque until the Rudder Cable (7) is properly located in the groove of the Pulley (5). When positioned properly, tighten to proper torque.

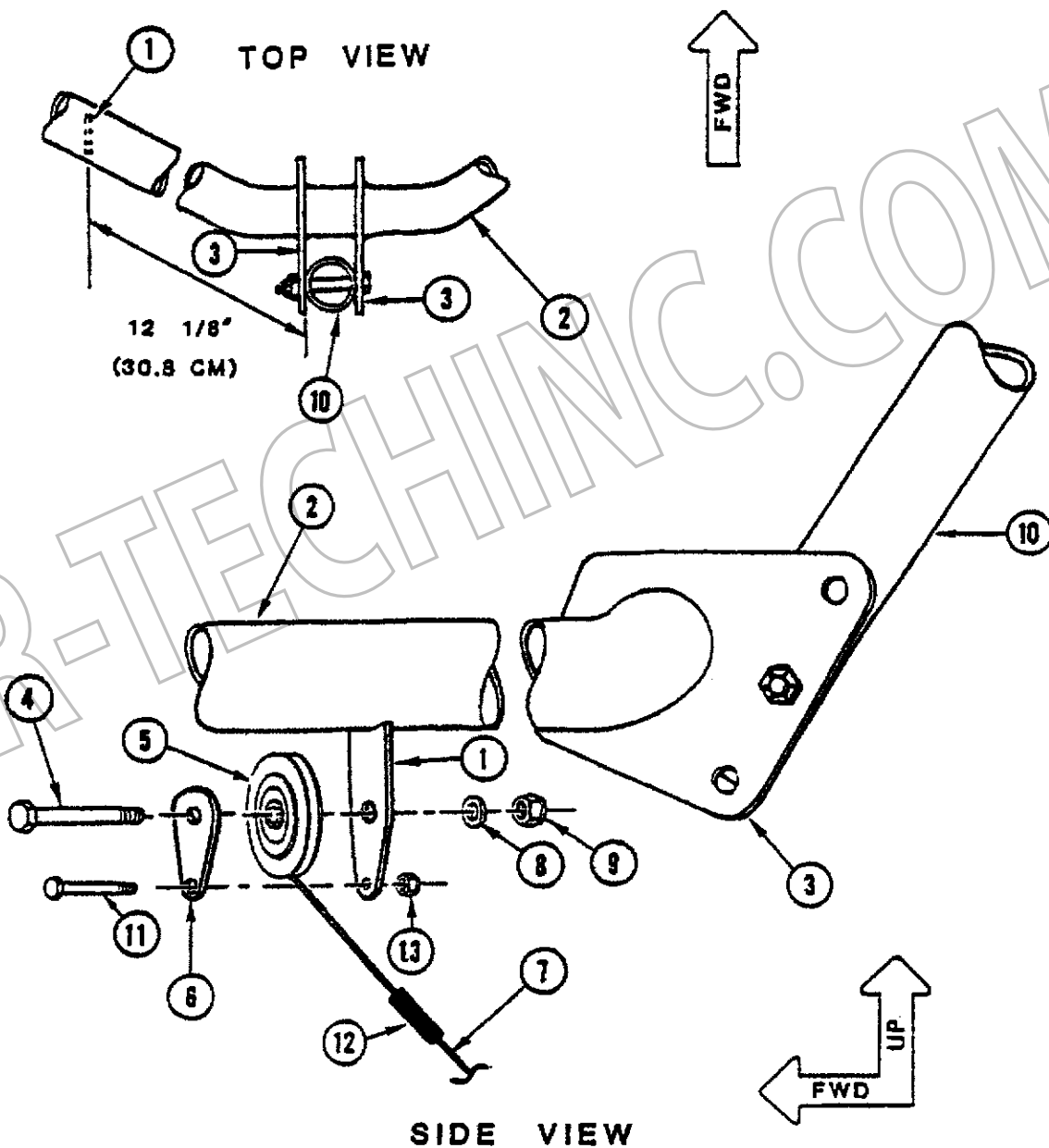
3. Repeat for the opposite side, mirror image, using the RIGHT Rudder Cable (14), not illustrated.

4. Remove the Part Number Tags (12) from BOTH LEFT and RIGHT Rudder Cables as they may bind or 'bunch up' in the Rudder Cable Pulleys (5).

Item	P/N	Description
1.....		Rudder Cable Pulley Attach Tab
2...	80011..	Seat Mount Assembly
3.....		Seat Support Downtube Attach Tab
4...	10066..	AN4-10A Bolt
5...	91108..	1 3/4" Pulley
6...	80019..	Tear Drop Tab
7...	91123..	Rudder Cable (Left)
8...	10560..	1/4" Washer
9...	10510..	1/4" Locknut
10...	70350..	Seat Support Downtube
11...	10024..	AN3-10A Bolt
12.....		Part Number Tag
13...	10500..	3/16" Locknut
14...	91122..	Rudder Cable (Right)

RUDDER CABLE PULLEY ATTACHMENT

FIG. 1



12 1/8"
(30.8 CM)

FWD

SIDE VIEW

FWD

UP.

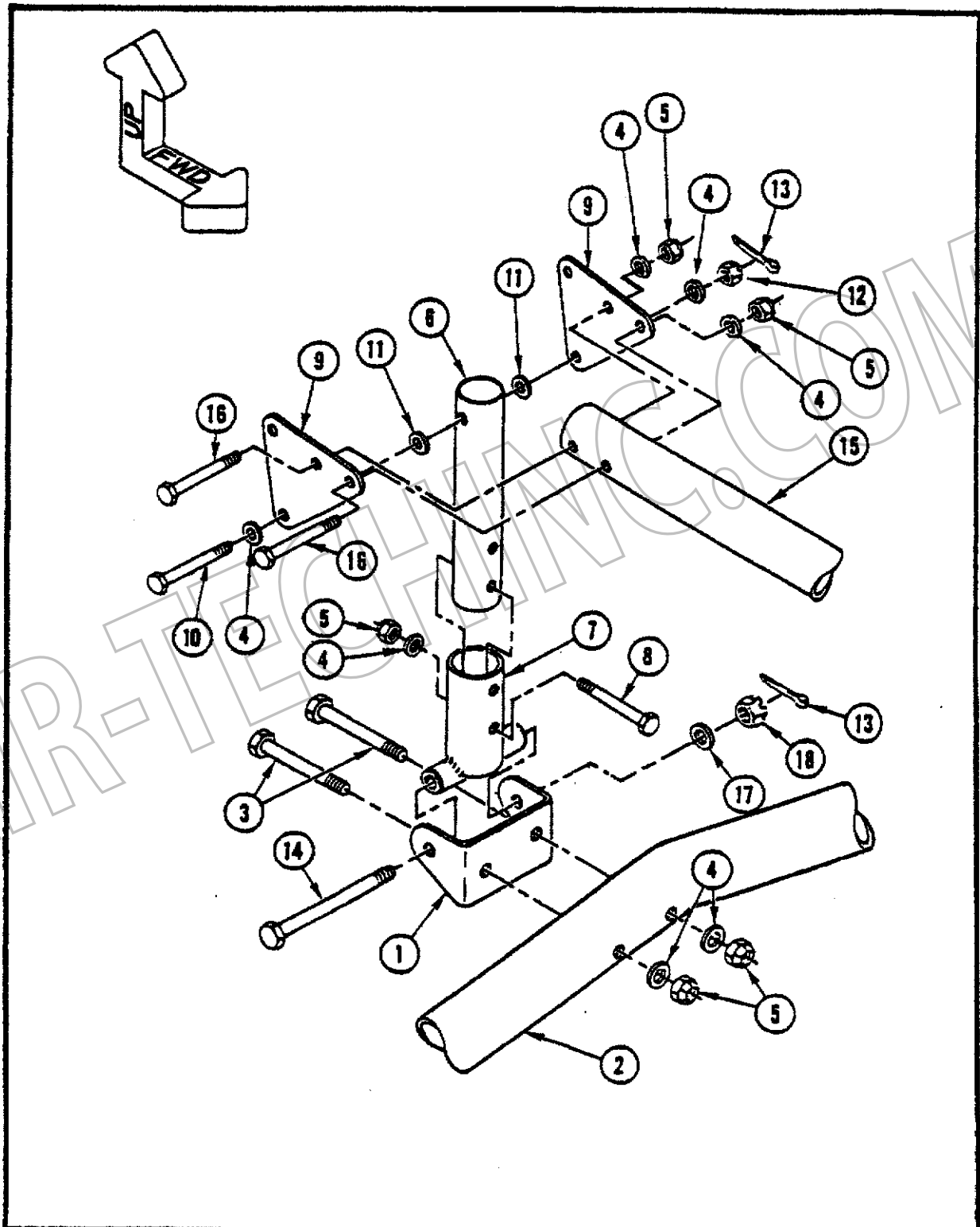
(LEFT SIDE SHOWN)

IDLER TUBE ASSEMBLY ATTACHMENT

1. Attach the Idler Pivot Channel (1) to the Axle (2) with the Hardware (3,4 and 5) as illustrated. Tighten to correct torque.
2. Insert the Idler Tube (6) into the Base Mount Assembly (7) and attach, using the Hardware (8,4 and 5) in the LOWER hole only. Tighten to correct torque. Add the TWO Push/Pull Cable Attach Brackets (9) to the Idler Tube (6) using the Hardware (10,4,11,4 and 12) as illustrated. Secure the Castle Nut (12) with the Cotter Pin (13) and bend correctly.
3. Attach the Base Mount Assembly (7) to the Idler Pivot Channel (1) with the Hardware (14,18,19 and 13) as illustrated. Bend the Cotter Pin (13) correctly.
4. Connect the Forward Elevator Push/Pull Tube (15) to the Push/Pull Cable Attach Brackets (9) using the Hardware (16,4 and 5). Tighten to correct torque TWO places.

Item	P/N	Description
1...	40174..	Idler Pivot Channel
2...	40312..	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..	Push/Pull Cable Attach Bracket
10...	10044..	AN3-16 Bolt
11...	20343..	(#10) Nylon Washer
12...	10517..	3/16" Castle Nut
13...	10635..	Cotter Pin
14...	10260..	AN4-27 Bolt
15...	40177..	Forward Elevator Push/Pull Tube
16...	10045..	AN3-16A Bolt
17...	10560..	1/4" Washer
18...	10521..	1/4" Castle Nut

IDLER TUBE ASSEMBLY ATTACHMENT



STICK ATTACH TUBE ATTACHMENT

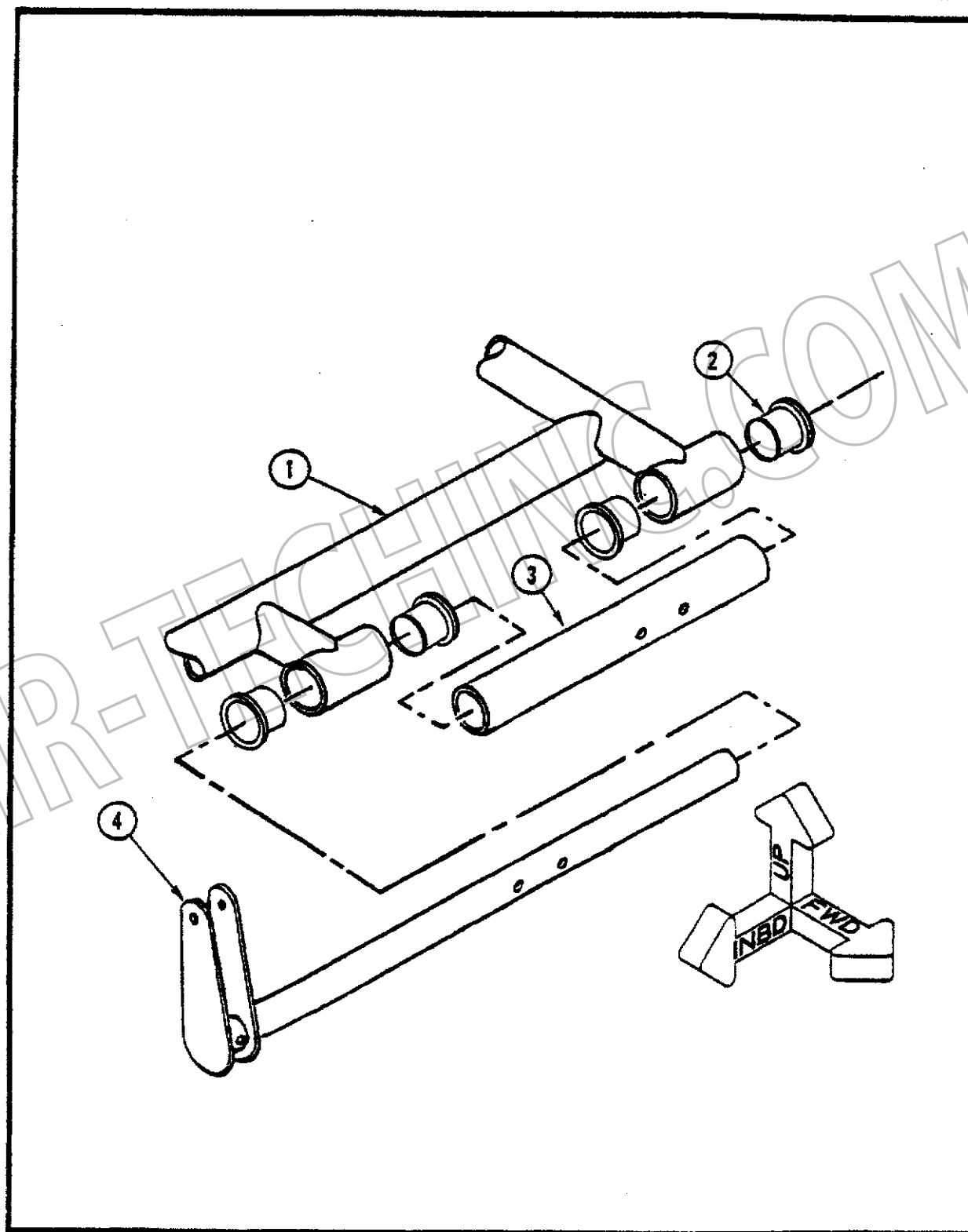
Before beginning the following assembly sequence insert the Stick Attach Tube (4) through a Nylon Bushing (2). Hold the Bushing with one hand while rotating the Tube with the other. If there is excessive friction you may wish to ream the INSIDE of ALL FOUR Bushings as necessary to remove any and all friction from the system.

If you need to fabricate a reaming tool you may use a 3/8" (9.5 mm) steel or aluminum tube or rod approximately 4"-6" (10.16-15.24 cm) long. Cut a 1" (25.4 mm) slit with a hacksaw at ONE end only. Insert a 1" (25.4 mm) piece of emery cloth and wrap it in the direction the drill will be turning.

1. Slide the Nylon Bushings (2) into the Seat Mount Assembly (1), FOUR places.
2. Position the Stick Attach Tube Spacer (3) with the TWO holes to the LEFT (as viewed from the REAR).
3. Slide the Stick Attach Tube (4) into place as illustrated and align the Bolt holes.

Item	P/N	Description
1...	80011..	Seat Mount Assembly
2...	70250..	7/8" Nylon Bushing
3...	80130..	Stick Attach Spacer
4...	80021..	Stick Attach Tube

STICK ATTACH TUBE ATTACHMENT

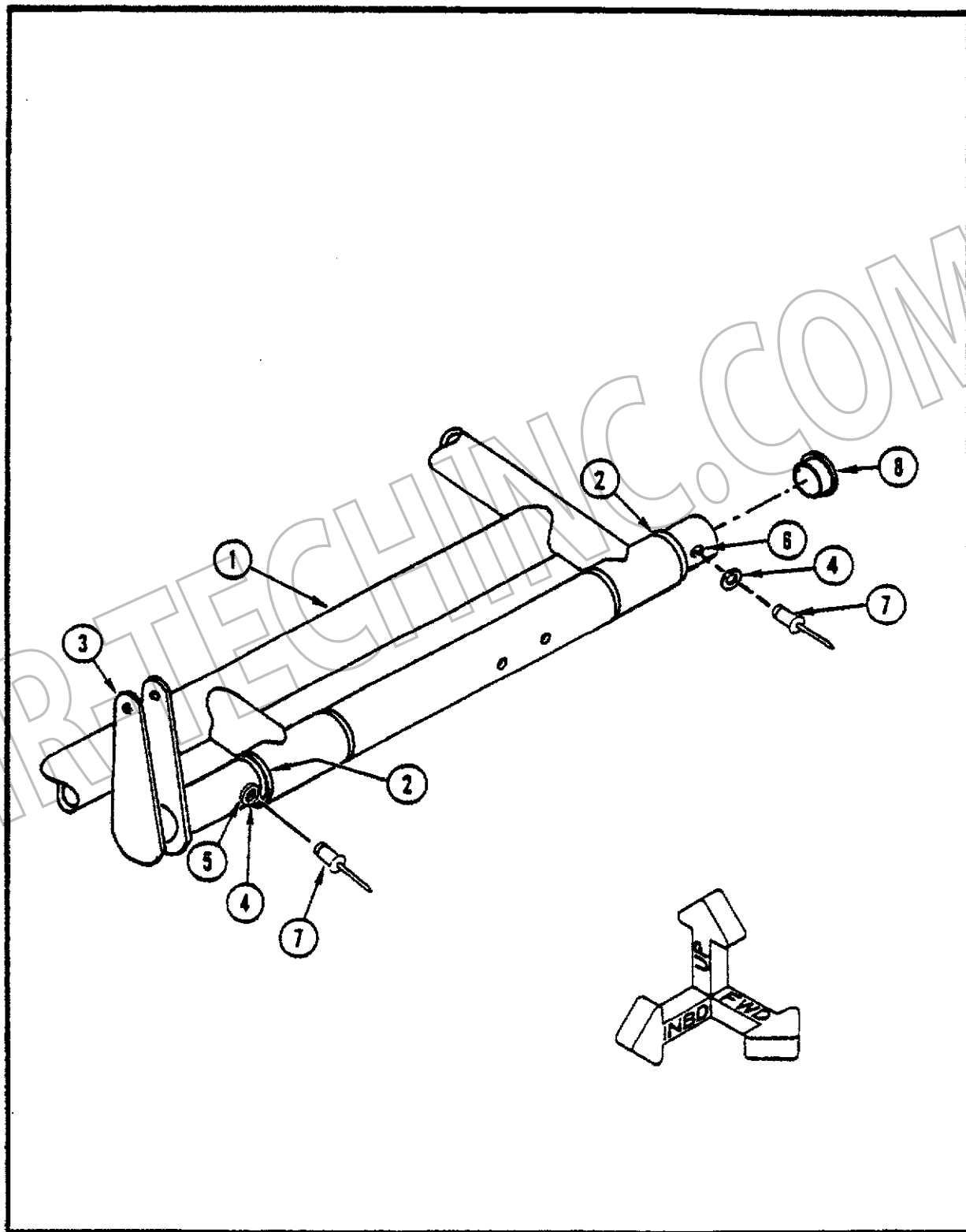


STICK ATTACH TUBE ATTACHMENT (CONT'D.)

1. Place a Washer (4) on the Stick Attach Tube (3), as illustrated, 'butted up to' or against the previously installed Bushings (2) at locations (5) and (6) as illustrated.
2. Mark, center-punch, and deburr the locations. Drill through ONE side of the Tube ONLY, a 3/16" (4.7 mm) diameter hole at each of these locations.
3. Position a Washer (4) over the hole. Insert a Rivet (7) and secure at each location.
4. Install the Tube Cap (8) as illustrated with Contact Cement (9).

Item	P/N	Description
1...	80011..	Seat Mount Assembly
2...	70250..	7/8" Nylon Bushing
3...	80021..	Stick Attach Tube
4...	10530..	3/16" Washer
5.....		Location for Drilling 3/16" (4.7 mm) Hole
6.....		Location for Drilling 3/16" (4.7 mm) Hole
7...	20210..	3/16" Aluminum Rivet
8...	20400..	7/8" Tube Cap
9...	60592..	Contact Cement

STICK ATTACH TUBE ATTACHMENT (CONT'D.)



CONTROL STICK GRIP ATTACHMENT TO CONTROL STICK

1. This Aircraft incorporates a longer Control Stick (1) and TWO Control Stick Grips (2), as the majority of this type Aircraft are used for flight instruction. This will enable both the instructor and the student pilot to comfortably grip the the Control Stick during flight instruction.

2. Lightly cover the UPPER SURFACE ONLY of the Control Stick (1) and the INSIDES of the Control Stick Grips (2) with liquid soap to ease installation. Slip both Control Stick Grips (2) over the TOP of the Control Stick (1) until BOTH Grips are located properly as illustrated.

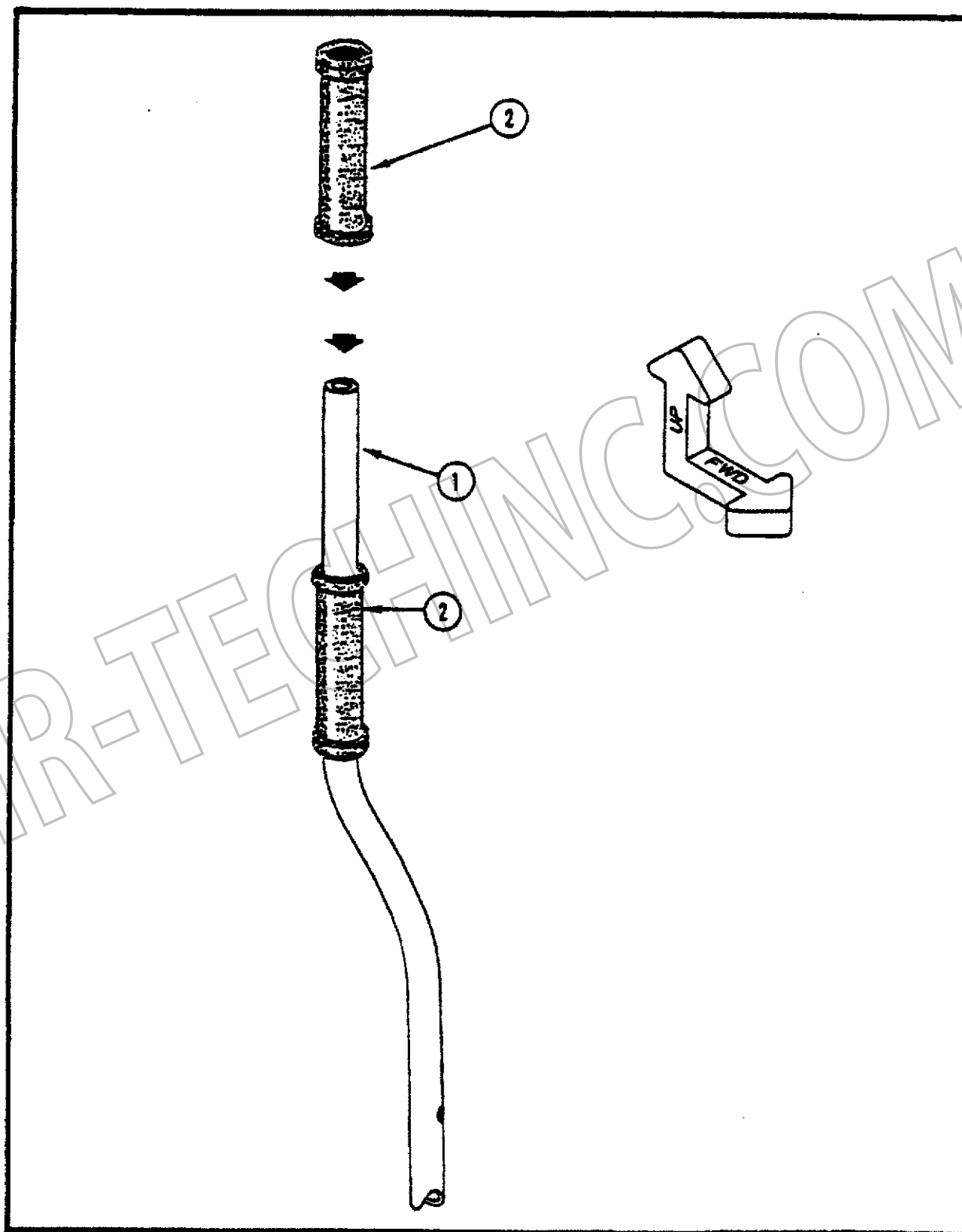
 Item P/N Description

- 1...40439..Control Stick
- 2...70580..Control Stick Grip

CONTROL STICK GRIP

8-11

ATTACHMENT TO CONTROL STICK



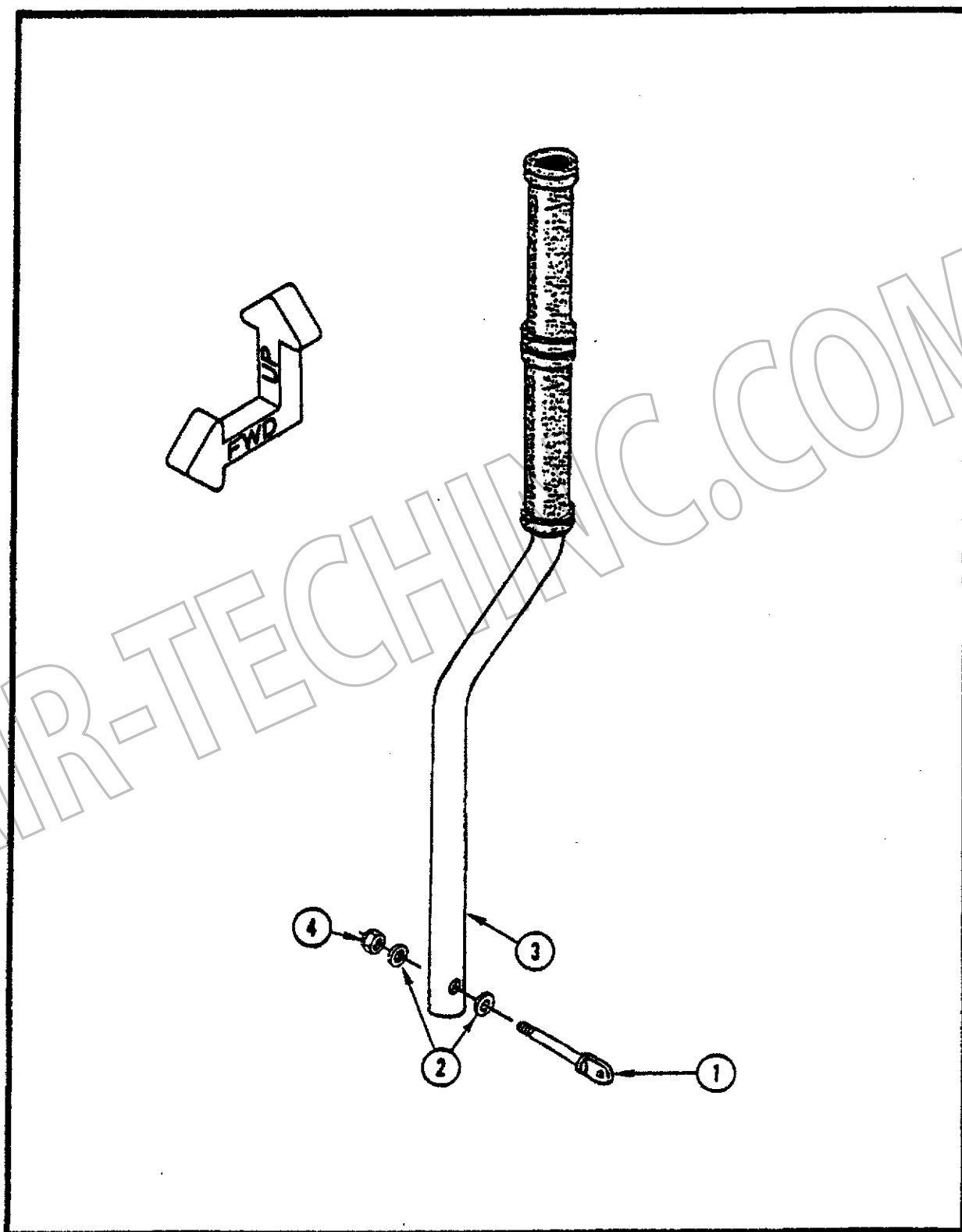
CONTROL STICK EYEBOLT ATTACHMENT

1. Assemble per illustration with the Hardware (1,2 and 4) using ONE Washer UNDER the Head of the Eyebolt (1). Tighten to correct torque. Do not distort the Tube.

Item P/N Description

- 1...10350..AN438-14A Bolt
- 2...10560..1/4" Washer
- 3...40439..Control Stick
- 4...10510..1/4" Locknut

CONTROL STICK EYEBOLT ATTACHMENT



AILERON PUSH/PULL CONTROL CABLE ATTACHMENT TO CONTROL STICK

1. Remove the existing Jam Nut on the end of the Push/Pull Control Cable (1) and discard it.
2. Thread a Jam Nut (9) all the way onto the threads until it 'bottoms out'.
3. Add another Jam Nut (9) and thread it onto the end of the Push/Pull Cable about half-way.
4. Thread a Push/Pull Control Cable Fork (3) onto the Push/Pull Cable a minimum of TEN threads (turns).

NOTE: Discard the Clevis Pin and Cotter Pin packaged with the Fork.

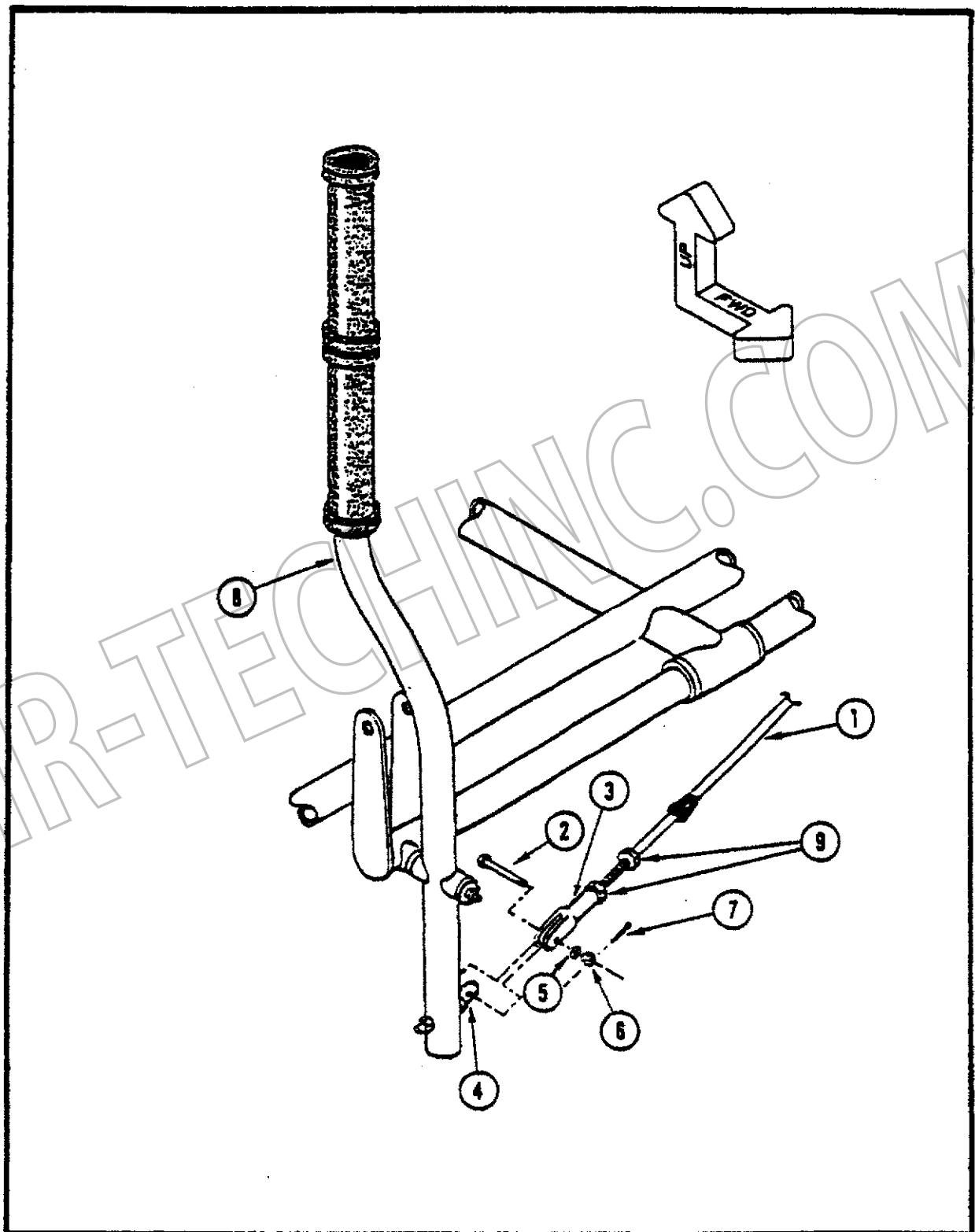
Temporarily attach the Fork (3) to the Eyebolt (4) previously installed with the Hardware (2, 5, 6 and 7) as illustrated. DO NOT BEND THE COTTER PIN YET. To be adjusted and secured in a later step.

Item	P/N	Description
1...	70472..	Push/Pull Control Cable (12 ft)
2...	10018..	AN3-7 Bolt
3...	70530..	Push/Pull Control Cable Fork
4...	10350..	AN43B-14A Eyebolt
5...	10550..	3/16" Washer
6...	10517..	3/16" Castle Nut
7...	10635..	Cotter Pin
8...	40439..	Control Stick
9...	10495..	10-32 (Jam) Nut

AILERON PUSH/PULL CONTROL

8-15

CABLE ATTACHMENT TO CONTROL STICK



PUSH/PULL CONTROL CABLE GUARD ATTACHMENT

1. Refer to Figure 1. Drill the Saddles (22) and (23) to 5/16" (7.9 mm). Use vise grips or pliers TIGHTLY as the drill bit will want to 'grab' the Saddles and may damage them. Deburr the Saddles.

NOTE: The bar on the Clamp (12) fits into the machined slot in the Push/Pull Control Cable (30).

Position the Control Cable Bracket (10) with the THREE holes to your LEFT.

DO NOT OVER TIGHTEN the Castle Nut (26) as it may cause excess friction in the movement of the Control Stick (24).

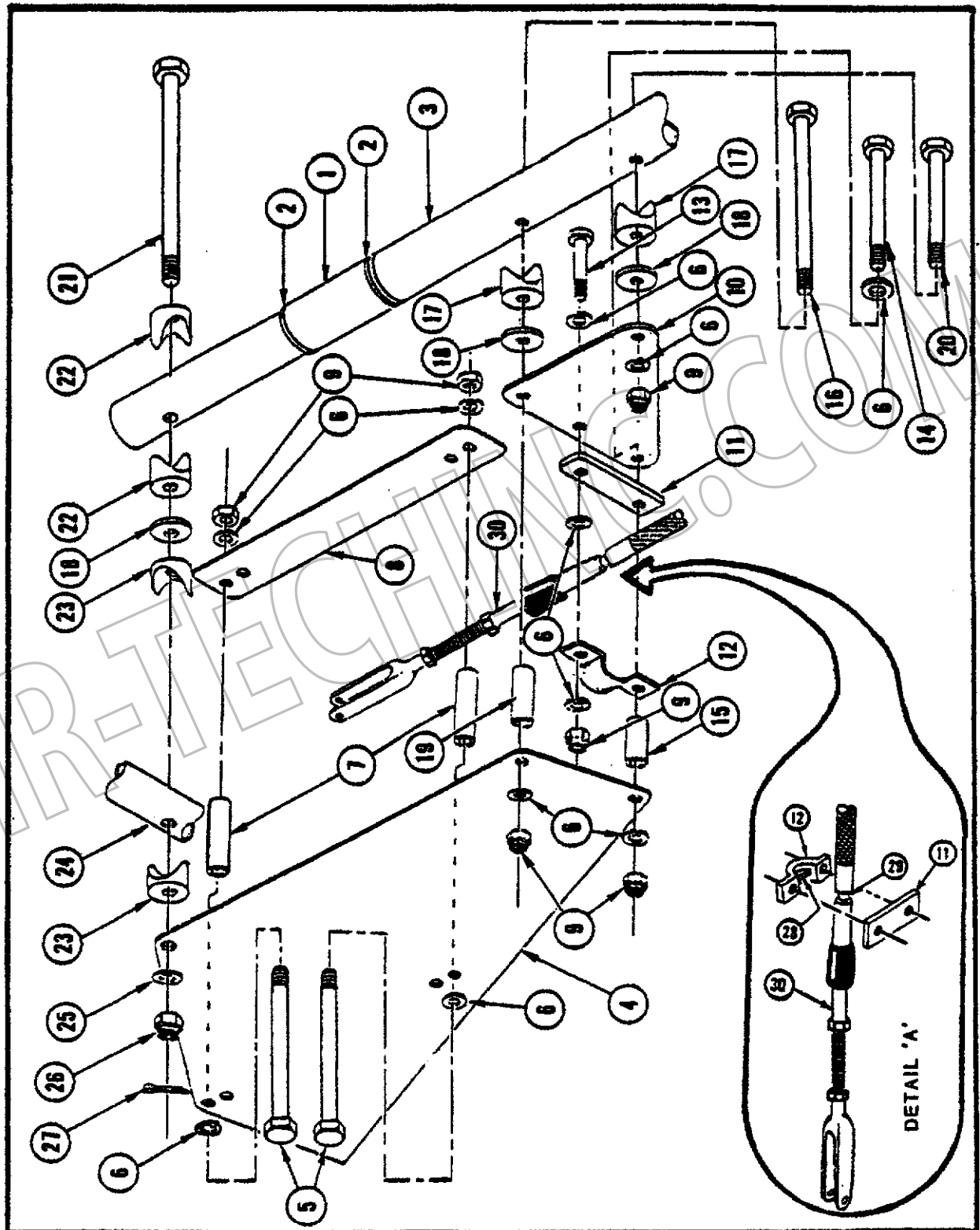
2. Refer to Figure 1 and Detail 'A'. Assemble as illustrated. Tighten ALL Locknuts to correct or proper torque as required. DO NOT DISTORT THE TUBE.

Item	P/N	Description	Item	P/N	Description
1...	80011..	Seat Mount Assembly	16...	10056..	AN3-27A Bolt
2...	70250..	7/8" Nylon Bushing	17...	20280..	1"x 1/4" Saddle
3...	80130..	Stick Attach Spacer	18...	20345..	1"x 1/8" Ny Wshr
4...	70407..	Control Cable Guard	19...	40344..	7/8"x 1" Spacer
5...	10053..	AN3-20A Bolt	20...	10050..	AN3-17A Bolt
6...	10550..	3/16" Washer	21...	10332..	AN5-30 Bolt
7...	40345..	7/8"x 1 1/2" Spacer	22...	20265..	7/8" Saddle
8...	40342..	Cntrl Cbl Grd Plt	23...	20270..	1"x 1/8" Saddle
9...	10500..	3/16" Locknut	24...	40439..	Control Stick
10...	70600..	Cntrl Cbl Atch Brckt	25...	10570..	5/16" Washer
11...	70512..	Cntrl/Cbl Clamp Shim	26...	10522..	5/16" Cstl Nut
12...	70511..	Control/Cable Clamp	27...	10635..	Cotter Pin
13...	10015..	AN3-6A Bolt	28.....		Bar
14...	10040..	AN3-15A Bolt	29.....		Slot
15...	40343..	3/8"x 1" Spacer	30...	70472..	Cntrl Cbl (12 ft)

PUSH/PULL CONTROL

8-17

CABLE GUARD ATTACHMENT



ELEVATOR ADJUST TUBE ATTACHMENT

1. Insert the Elevator Adjust Tube (1) into the Forward Elevator Push/Pull Tube (2).
2. Insert the Bolt (3) through the FORWARD hole in the Elevator Push/Pull Tube (2), the FORWARD-MOST hole in the Elevator Adjust Tube (1), Washer (4), Tang (located on the Bungee Cord of the Trim Tab Assembly), and Castle Nut (5). Insert the Cotter Pin (6). Do not bend the Cotter Pin until final adjustment in the Final Assembly Section.
3. Attach the Elevator Adjust Tube (1) as illustrated. Insert a Washer (8) between the Elevator Adjust Tube (1) and the Stick Attach Tube (7) Attachment Tabs TWO places.
4. Bend the Cotter Pin correctly.

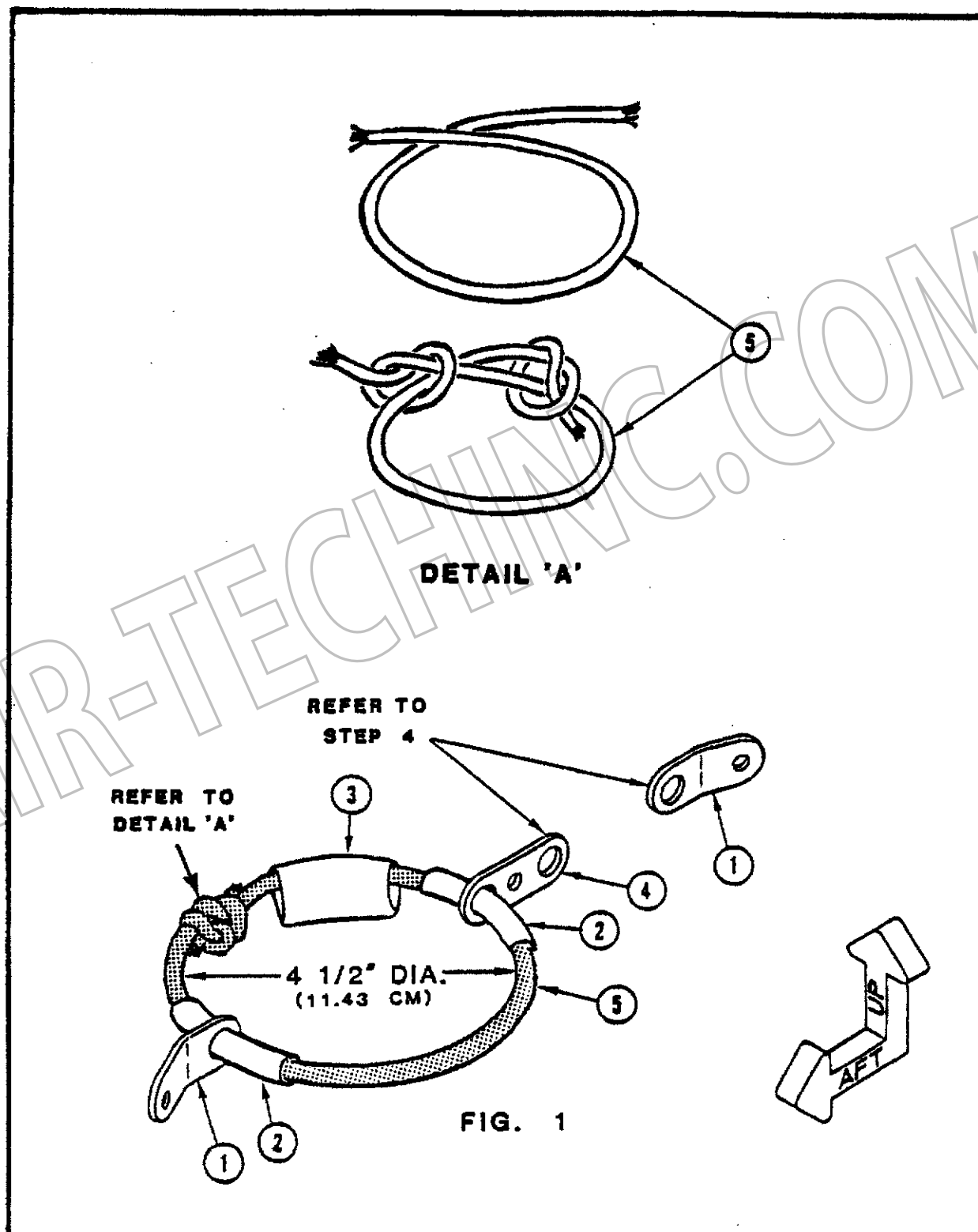
Item	P/N	Description
1...	80025..	Elevator Adjust Tube
2...	40177..	Forward Elevator Push/Pull Tube
3...	10121..	AN4-15 Bolt
4...	10560..	1/4" Washer
5...	10521..	1/4" Castle Nut
6...	10635..	Cotter Pin
7...	80021..	Stick Attach Tube
8...	20340..	1/4" Nylon Washer

ELEVATOR TRIM ASSEMBLY

1. Cut THREE 20" (50.8 cm) long pieces of 1/4" (6.4 mm) Shock Cord (5) and heat-seal the ends. Cut THREE 3" pieces of 3/4" (19.1 mm) Shrink Tubing (3). Cut SIX 2" (5.08 cm) pieces of 3/8" (9.5 mm) Shrink Tubing (2).
2. Refer to Figure 1. Install ONE 20 degree Tang (1), TWO pieces of 3/8" Shrink Tubing (2), ONE piece of 3/4" Shrink Tubing (3) and a 3 Hole Flat Tang (4), as illustrated, onto ONE piece of 1/4" (6.4 mm) Shock Cord (5).
3. Refer to Detail 'A' and tie a Grapevine Knot to form a 4 1/2" (11.43 cm) INSIDE DIAMETER circle as illustrated.
4. Repeat Step 2 for the SECOND 20 degree Tang (1) EXCEPT assemble the TWO Shock Cords (not illustrated) (5) through the Tangs (1) and (4).

Item	P/N	Description
1...	20369..	20 degree Tang w/ 1/2" hole
2...	20103..	Shrink Tubing, 3/8"
3...	20104..	Shrink Tubing, 3/4"
4...	20370..	3 Hole Flat Tang
5...	70436..	1/4" Shock Cord (Bungee)

ELEVATOR TRIM ASSEMBLY



ELEVATOR TRIM ASSEMBLY AND ATTACHMENT

1. Attach the Ball Grip (19) to the Elevator Trim Lever (2) with the Button Head Cap Screw (18). Use a 7/32" (5.5 mm) Allen or Hex Head Wrench. Tighten to proper torque.

2. Attach the Hardware (1,3 and 4) to the Elevator Trim Tab Lever (2) as illustrated. Tighten to proper torque.

3. Cut a 5/8" (15.9 mm) piece of Fuel Line (16). Assemble the Items (10,9,8,6,2,16,5,7,11 and 17) as illustrated. NOTE: Item (9) is located on the AFT Crosstube of the Seat Mount Assembly (Refer to P/N 80011). Locate the Pin (1) in the CENTER hole of the Bracket (8). Tighten until snug. Bend the Cotter Pin (17) correctly.

4. Assemble the Items (12,13,9,8,13 and 14) as illustrated. Tighten to proper torque.

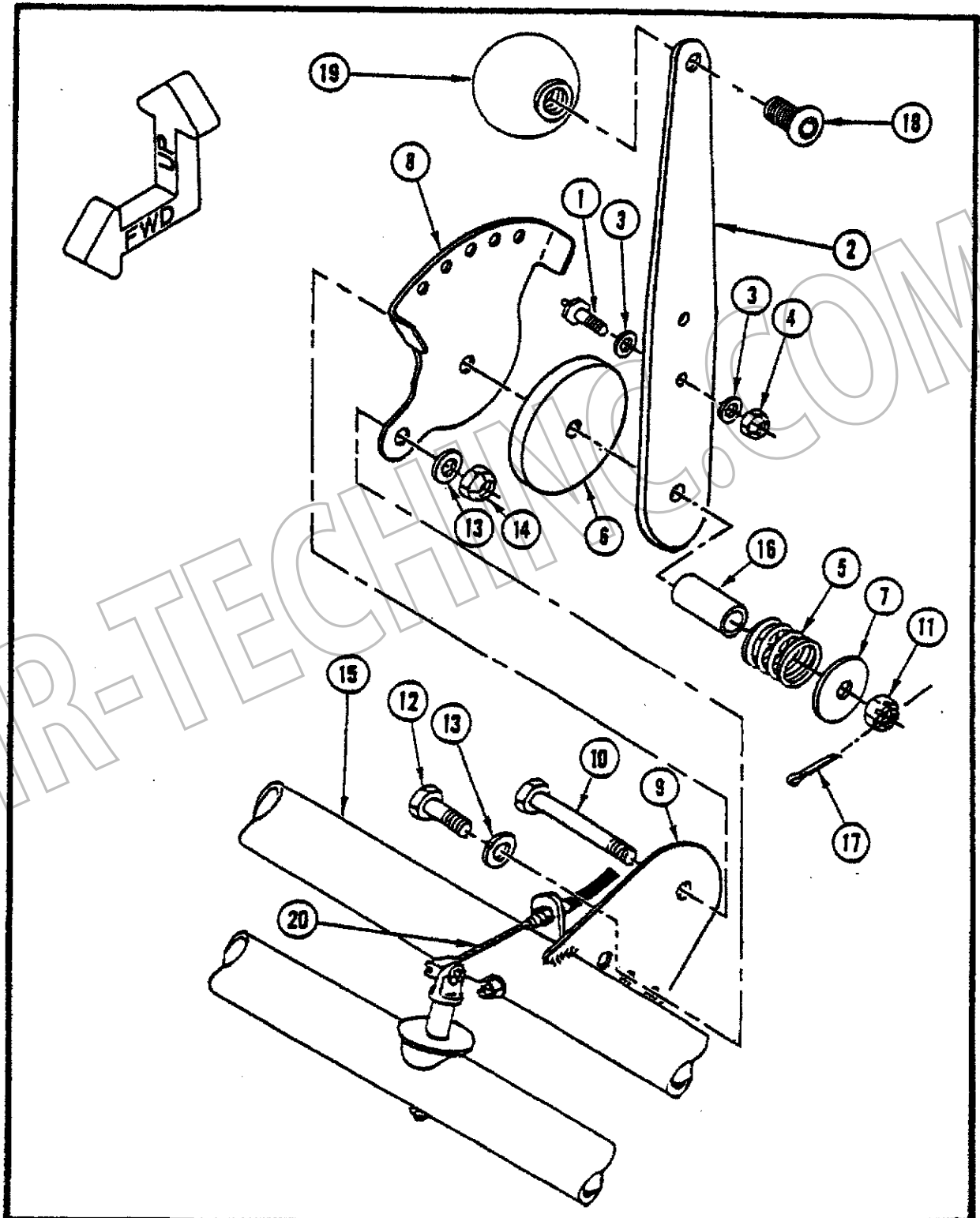
NOTE: The Throttle Cable (20) is shown for reference only. It is to be attached in a later step.

Item	P/N	Description
1...	45293..	Handle Pin
2...	30404..	Trim Tab Lever
3...	10550..	3/16" Washer
4...	10500..	3/16" Locknut
5...	10800..	Spring
6...	20344..	2" x 1/8" Nylon Washer
7...	10565..	1/4" Fender Washer
8...	45290..	Handle (Stop) Bracket
9.....		Elevator Trim Handle Attach Tab (refer P/N 80011)
10...	10110..	AN4-14 Bolt
11...	10521..	1/4" Castle Nut
12...	10060..	AN4-6A Bolt
13...	10560..	1/4" Washer
14...	10510..	1/4" Locknut
15.....		AFT Seat Mount Crosstube (refer to P/N 80011)
16...	30220..	Fuel Line
17...	10635..	Cotter Pin
18...	10391..	Button Head Cap Screw
19...	90499..	Lever Ball Grip
20...	90280..	Throttle Cable

ELEVATOR TRIM

8-23

ASSEMBLY AND ATTACHMENT



ELEVATOR TRIM ASSEMBLY ATTACHMENT

1. Refer to Figure 1. Attach the completed Bungee/Tang Assembly (1) to the Forward Elevator Push/Pull Tube (2) at each end with the Hardware (6,4,5 and 8) as illustrated. (Note: The dual Bungees are located on the FORWARD end.) Tighten the Castle Nut (5) at each end tight enough to keep the Tang from swiveling. Bend the Cotter Pin correctly.

IMPORTANT: If the Seat Mount Assembly is MOVED into the FORWARD position on the Tri-Bar Crosstube, the TRIM SYSTEM will have to be REPOSITIONED. In the FORWARD position attach the AFT Bungee Tang to the hole indicated. The FORWARD Bungee Tang is always attached to the MOST FORWARD adjustment hole in the Elevator Adjust Tube (3).

2. Use a heat gun carefully to Shrink the Tubing (14) over the knots. Position the knots half-way between the Tangs (16) and (17). Slide the TWO pieces of Shrink Tubing (13) into the Tangs (16) and (17) as illustrated. Use a heat gun to shrink the tubing at these locations. Repeat this procedure on all the Bungees. Attach the 3 Hole Tang (17) to the Elevator Trim Handle (11) with Hardware (9,10,12 and 7) as illustrated. Tighten to proper torque.

3. Refer to Figure 2. Attach a Tie Wrap (18) to the FORWARD end of the Forward Elevator Push/Pull Tube ONLY, as illustrated, just AFT of the Bolt head to further secure the Tang (16) from swiveling. Trim the excess with a hot knife.

IMPORTANT: Check to ensure proper operation of the Control Stick in every position. If the Seats come into contact with the Trim System or the Control System, it will be necessary to re-drill and re-locate the Seats to avoid any interference.

Item	P/N	Description	Item	P/N	Description
1.....		Bungee/Tang Assy.	10...	20241..	'T' Bushing
2...	40177..	Forward Elevator Push/Pull Tube	11...	50404..	Elev. Trim Handle
3...	80023..	Elev. Adjust Tube	12...	10550..	3/16" Washer
4...	10560..	1/4" Washer	13...	70436..	1/4" Shock Cord
5...	10521..	1/4" Castle Nut	14...	20104..	3/4" Shrink Tubing
6...	10121..	AN4-15 Bolt	15...	20103..	3/8" Shrink Tubing
7...	10500..	3/16" Locknut	16...	20369..	20 degree Tang
8...	10635..	Cotter Pin	17...	20370..	3 Hole Flat Tang
9...	10020..	AN3-7A Bolt	18...	30480..	7" Tie Wrap

ELEVATOR TRIM ASSEMBLY ATTACHMENT

FIG. 1

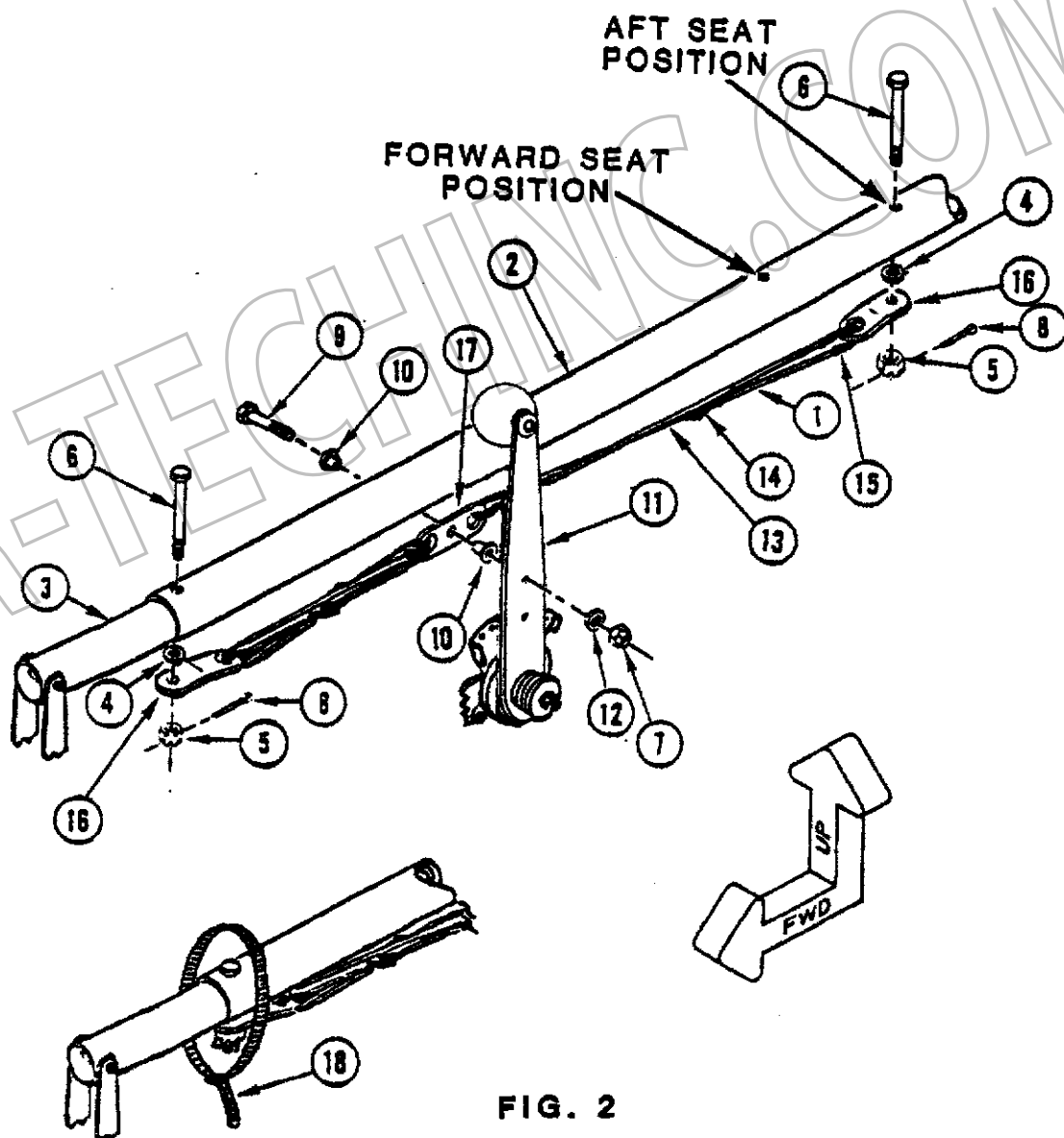


FIG. 2

THROTTLE TORQUE TUBE ASSEMBLY AND THROTTLE STOP ASSEMBLY

1. Refer to Figure 1 for a General Arrangement of the Throttle Torque Tube Assembly. This is a FRONT view looking AFT.
2. Measure and locate the 1/4" (6.4 mm) hole at the EXACT CENTER of the Torque Tube Spacer (2) and the Throttle Torque Tube (1). This hole should be the one located to the LEFT.
3. Slide the Torque Tube Spacer (2) over the Throttle Torque Tube (1) until the CENTER holes align.
4. Refer to Detail 'A'. Pass the Eyebolt (3) through the Spacer (4), Fender Washer (5) and Saddle (6). Continue to pass the Eyebolt (3) through the CENTER hole in both Tubes (1) and (2). Add a Washer (7) and secure with a Locknut (8). Position the Eyebolt (3) correctly. Tighten to correct torque. Do not distort the Tubes.
5. Insert the Throttle Swivel (9) as illustrated through a Nylon Washer (10) and continue through the 3/16" (4.7 mm) hole in the Eyebolt (3). Check that the Swivel (9) rotates freely. If not, ream the hole to 3/16" (4.7 mm). Add the Washer (11) and secure with the E-Clip (12).
6. To construct the Throttle Travel Stop Assembly, pass the Bolt (13) through the short end of the 75 degree Tang (14), then through the hole located 2" (5.08 cm) to the RIGHT of the CENTER hole as looking AFT. Add a Flat Tang (15) and secure with a Locknut (8). Tighten to correct torque. DO NOT DISTORT THE TUBES.

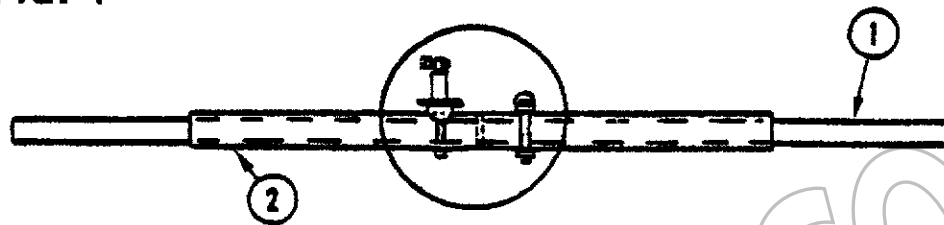
Item	P/N	Description	Item	P/N	Description
1...	91003..	Throttle Torque Tube	8...	10510..	1/4" Locknut
2...	91004..	Torque Tube Spacer	9...	90250..	Cable Swivel
3...	10375..	AN43B-21A Eyebolt	10...	20343..	Nylon Washer
4...	71003..	Aileron Bushing	11...	10550..	3/16" Washer
5...	10565..	1/4" Fender Washer	12...	90260..	E-Clip
6...	20270..	1" x 1/8" Saddle	13...	10100..	AN4-14A Bolt
7...	10560..	1/4" Washer	14...	20355..	75 Deg. Tang
			15...	20360..	Flat Tang

THROTTLE TORQUE TUBE ASSEMBLY AND THROTTLE STOP ASSEMBLY

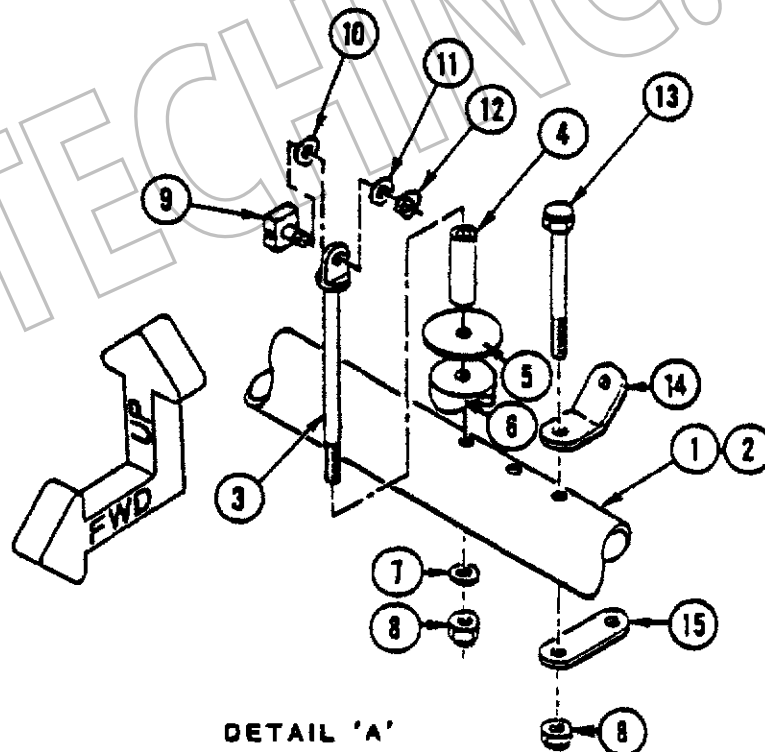
8-27

FIG. 1

REFER TO
DETAIL 'A'



FRONT VIEW



DETAIL 'A'

THROTTLE TORQUE TUBE ASSEMBLY

Some friction in the Torque Tube Assembly is desired, however, excess friction should be avoided. Read Steps 1 and 2 as they may not be required before proceeding to Step 3.

1. Before beginning the following assembly sequence insert the Nylon Bushings (3) into the Torque Tube Mounts (5) and verify that the Bushings rotate freely. If not, ream and remove the excess material from INSIDE the Torque Tube Mount (5) as necessary for the Bushings to rotate freely at ALL FOUR locations.

2. Slide the Bushings (3) over the Throttle Torque Tube (1) and verify they rotate freely. If not, ream the INSIDE of the Bushings as necessary to remove excess friction from the system.

NOTE: Friction will be introduced into the system by tightening the Clamp (4) after the assembly is completed.

3. Cut a 45 degree angle slot in ONE Bushing (3) ONLY. Insert the Bushing into the slotted end of the Torque Tube Mount (5).

4. Assemble the Throttle Torque Tube Assembly as illustrated. Assure that each INBOARD Nylon Bushing (3) 'butts up against' or is in contact with the Torque Tube Spacer (2).

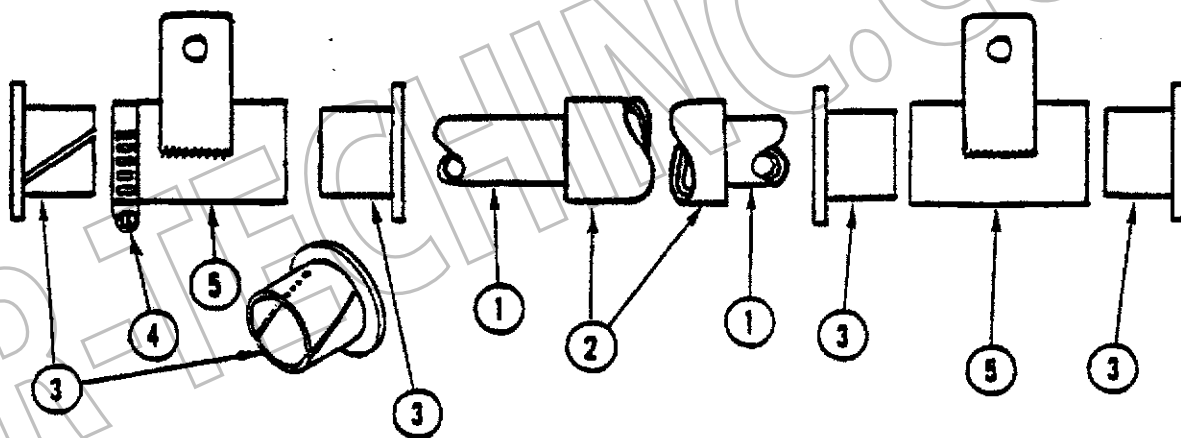
5. Add and tighten the Clamps (4) as necessary to create friction but allowing the Tube (1) to rotate freely.

Item	P/N	Description

1...	91003..	Throttle Torque Tube
2...	91004..	Torque Tube Spacer
3...	70250..	7/8" Nylon Bushing
4...	30470..	1 1/8" Hose Clamp
5...	91002..	Torque Tube Mount

THROTTLE TORQUE TUBE ASSEMBLY

TOP VIEW



SEAT ATTACHMENT

1. **IMPORTANT:** Refer to Page 6-24. Place the Seat Mount Assembly (2) in the FORWARD position on the Tri-Bar Crosstube Assembly.
2. Refer to Fig. 1 before beginning the following assembly Trim off the FORWARD OUTBOARD corner ONLY, as illustrated, of each Seat with a hacksaw. File any sharp edges.
3. Locate the EXACT CENTER of the Seat Mount Assembly (2). For reference, the LOWER INBOARD edge of the Seats should be located approximately 2" (5.08 cm) to each side of CENTER. You may wish to mark this location on the Seat Mount Assembly (2) with masking tape, to be removed after the Seats (1) are attached.
4. Refer to Fig. 2. Slide the LEFT Seat FORWARD on the Seat Mount Assembly until the FORWARD OUTBOARD corner is approximately 1/8" (3.2 mm) from the Nose Strut (3).
5. Refer to Fig. 3. Align the FORWARD lip of the Seat BOTTOM with the FORWARD-MOST part of the Seat Mount Assembly (2) and hold the Seat in this position while you back-drill FOUR 1/4" (6.4 mm) holes in the Seat using the Seat Mount Assembly (2) pre-drilled holes as guides.
6. Temporarily install at least TWO Bolts (not illustrated) to hold the LEFT Seat in position. Refer to pages 8-32 and 8-33 for the correct Bolts used at each location.
7. Position the RIGHT Seat using the LEFT Seat as a guide and back-drill.
8. Remove the temporarily installed Bolts from the LEFT Seat.

Item	P/N	Description
1...	70363..	Seat
2...	80011..	Seat Mount Assembly
3...	40360..	Nose Strut

SEAT ATTACHMENT

FIG. 1

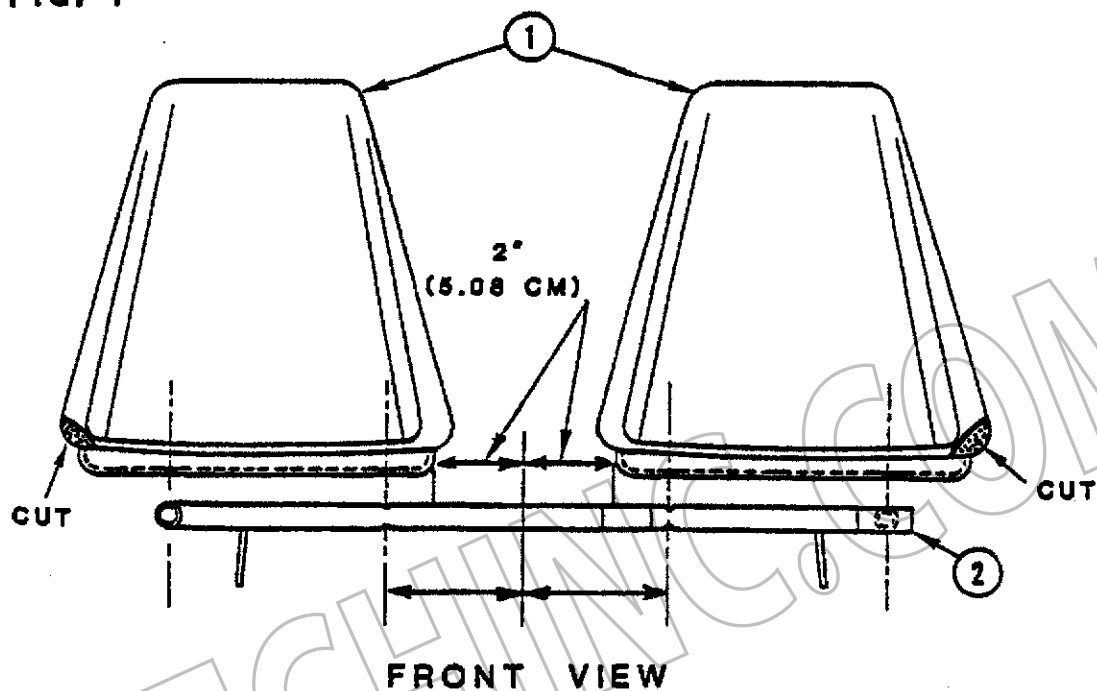


FIG. 2

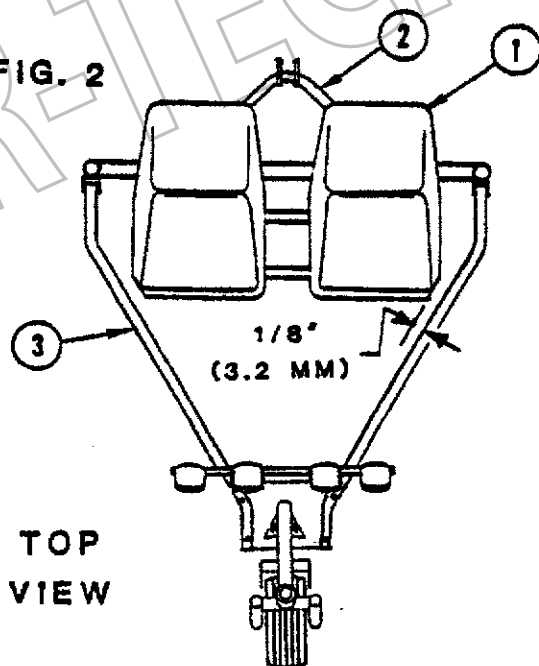
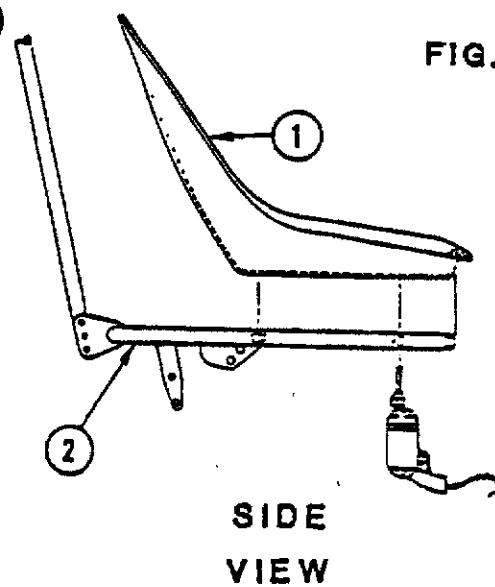


FIG. 3



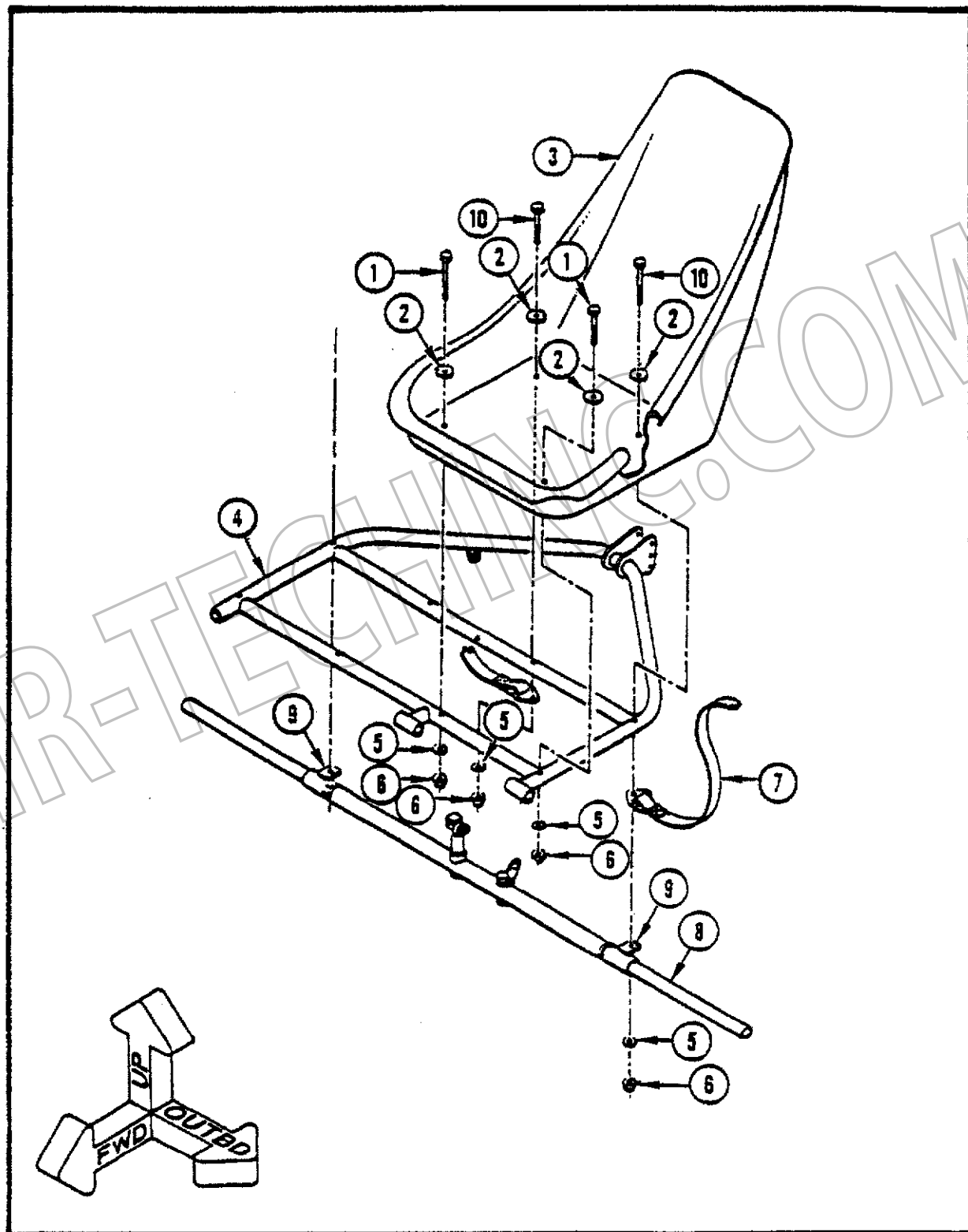
**SEAT ATTACHMENT (CONT'D.) AND
THROTTLE TORQUE TUBE ATTACHMENT**

1. Install the LEFT Seat (3) (only ONE Seat shown for clarity) as illustrated. Secure all the Locknuts (6) and tighten to proper torque. DO NOT CRACK THE SEAT.
 2. Repeat for the RIGHT Seat, mirror image.
-
-

Item	P/N	Description
1...	10140..	AN4-16A Bolt
2...	10565..	1/4" Fender Washer
3...	70365..	Seat
4...	80011..	Seat Mount Assembly
5...	10560..	1/4" Washer
6...	10510..	1/4" Locknut
7...	70330..	Seat Belt Set
8...	91004..	Torque Tube Spacer
9...	91003..	Throttle Torque Tube
10...	10150..	AN4-17A Bolt

SEAT ATTACHMENT (CONT'D.) AND THROTTLE TORQUE TUBE ATTACHMENT

8-33





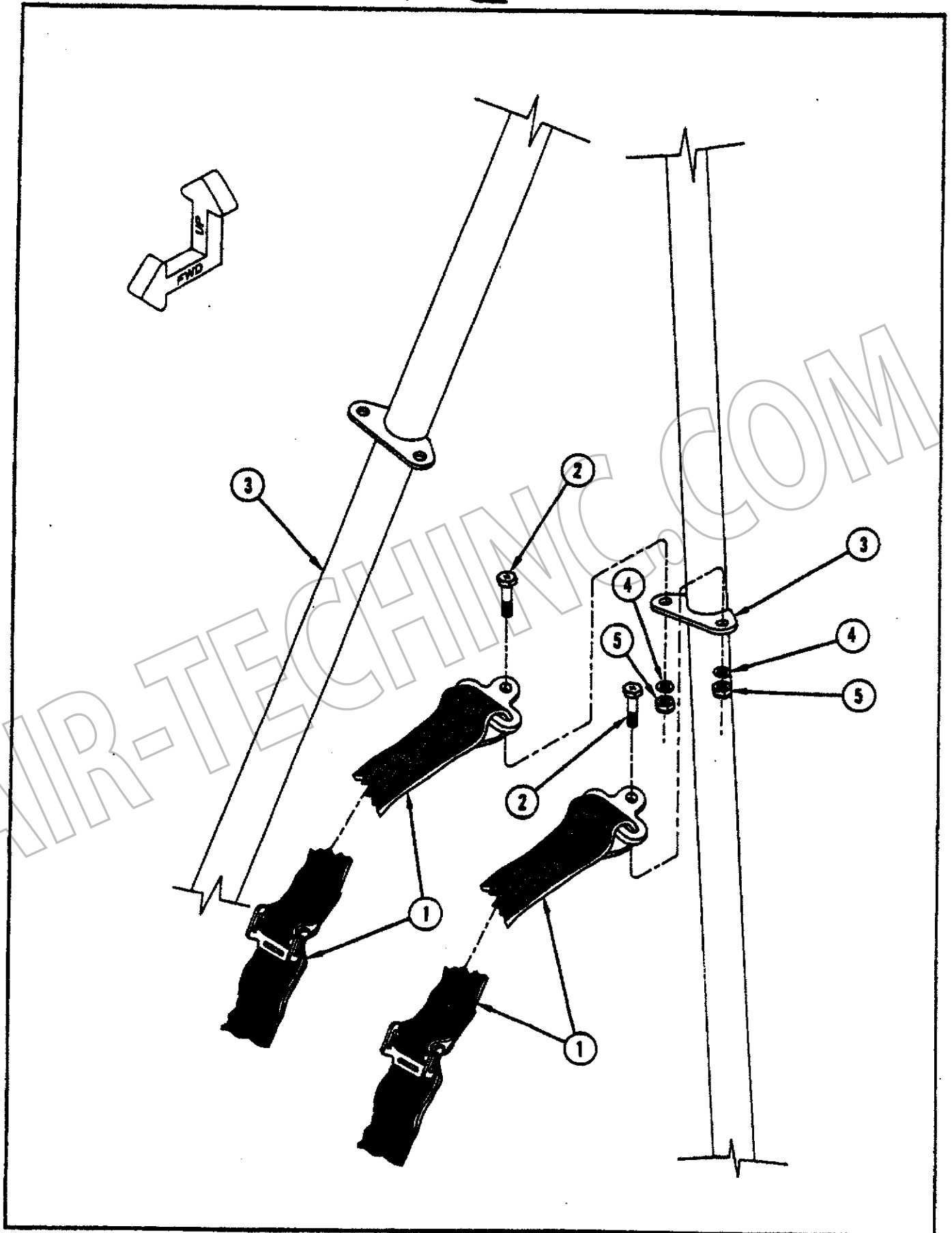
8-32A

SHOULDER HARNESS ATTACHMENT (Optional)

1. Install the Shoulder Harness (1) to the Shoulder Harness Tube Assembly (3) as illustrated. Tighten ALL Locknuts (5) to correct torque. DO NOT DISTORT THE TUBE.

2. Repeat for the RIGHT seat location.

Item	P/N	Qty	Description
1...	70344...	2...	Seat Belt and Shoulder Harness Set
2...	10060...	4...	AN4-6A Bolt
3...	70349...		Shoulder Harness Tube Assembly
4...	10560...	4...	1/4" Washer
5...	10510...	4...	1/4" Locknut



SEAT COVER ATTACHMENT AND SEAT FOAM ATTACHMENT

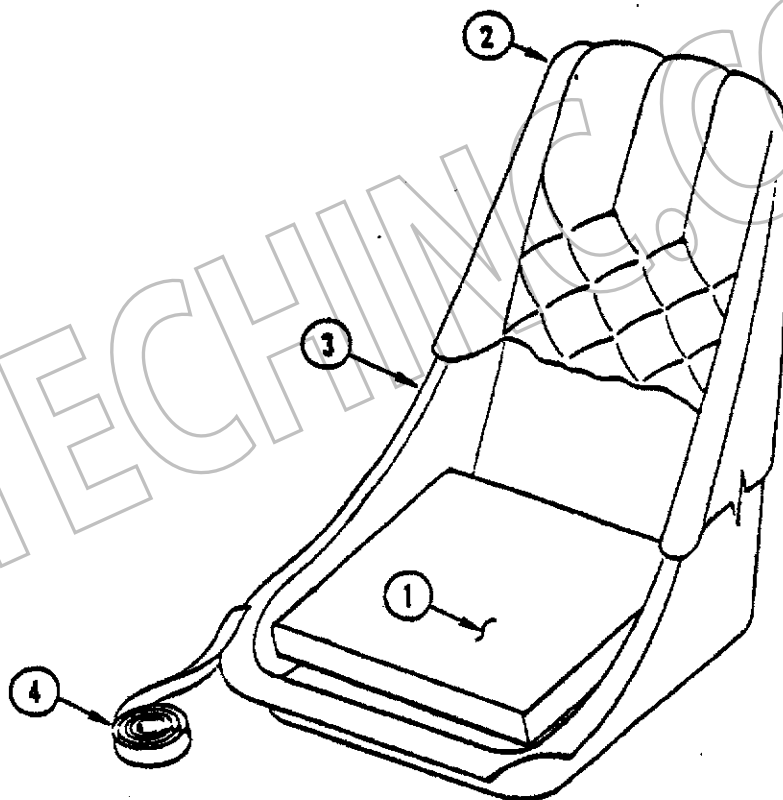
IMPORTANT: Before starting the following sequence, pull back (FULL 'UP' position) on the Control Stick (not illustrated) and note where the Push/Pull Control Cable Bracket (not illustrated) comes into contact with the BOTTOM of the LEFT Seat. If this interferes with the Control Stick in the back (FULL 'UP') position, cut out and file the Seat as required to establish a clearance.

1. Wrap the perimeter of the Seat (3) with Duct Tape (4) to keep the sharp lip of the Seat (3) from cutting through the Seat Cover (2).
2. Install a Foam Pad (1) onto the Seat (3) as illustrated.
3. Pull the Seat Cover (2) DOWN and OVER the top of the Seat (3).
4. Pull the Drawstring Ends (not illustrated) together in the Seat Cover (2) now located at the FORWARD lip of the Seat Pan. Secure the Drawstring.
5. Tuck the Drawstring UP and UNDER the Seat Cover (2) out of sight.
6. Repeat Steps 1 through 5 for the remaining Seat (3).

Item P/N Description

1...70372..Foam Pad
2...70370..Seat Cover
3...70363..Fiberglass Seat
4.....Duct Tape

SEAT COVER AND SEAT FOAM ATTACHMENT



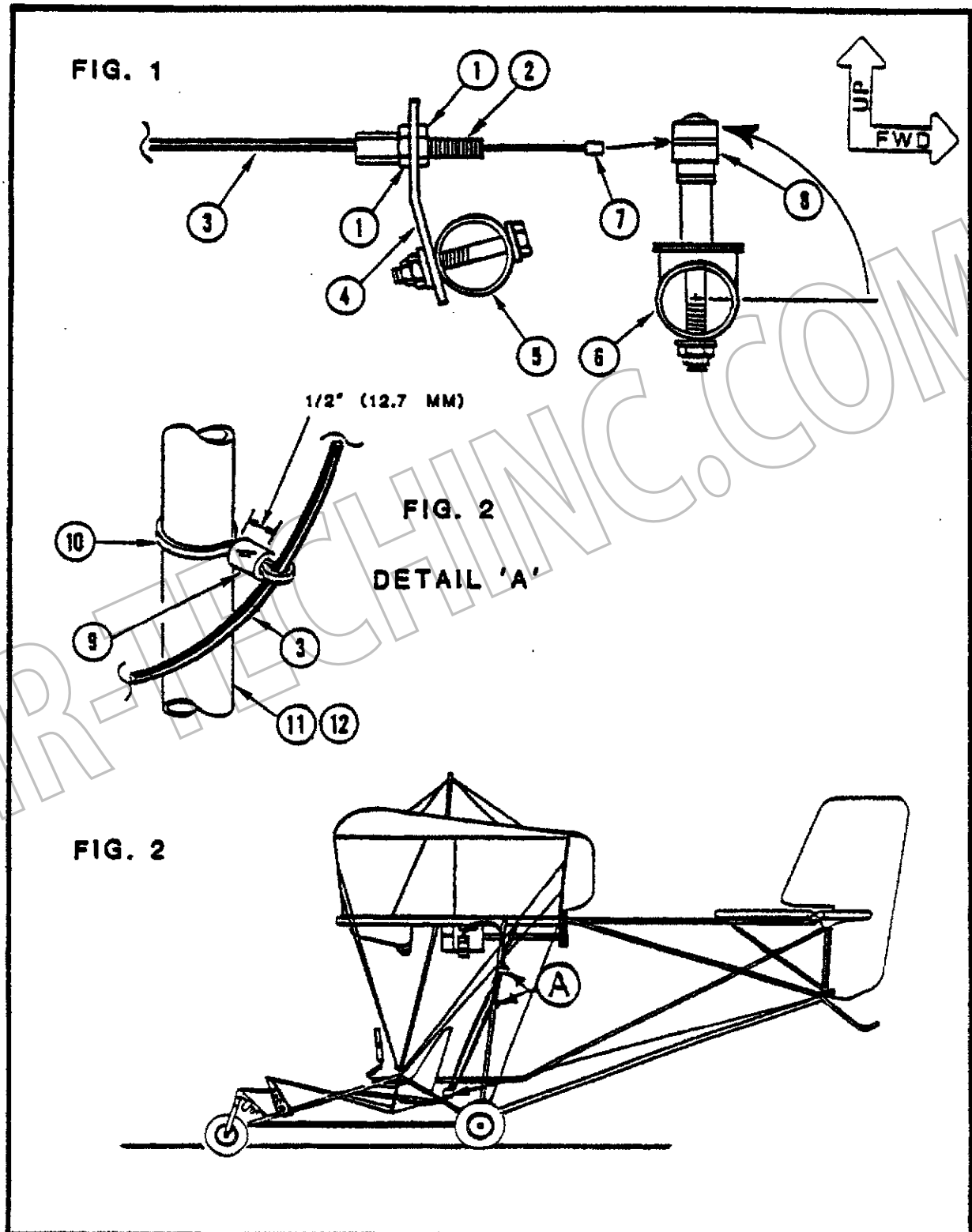
THROTTLE CABLE ATTACHMENT TO THROTTLE TORQUE TUBE

1. Refer to Figure 1. Thread a Jam Nut (1) all the way onto the Conduit Thread Adjuster (2), attached to the end of the Throttle Cable (3), until the Jam Nut (1) 'bottoms out'.
2. Insert the Conduit Thread Adjuster (2) and Jam Nut (1) through the Tang (4) previously attached to the Seat Mount Assembly (5).
3. Add another Jam Nut (1) to the Conduit Thread Adjuster (2) and thread the Jam Nut (1) all the way onto the Tang (4), FINGER TIGHT ONLY at this time.
4. Rotate the Throttle Torque Tube Assembly (6) ALL the way AFT and insert the Throttle Cable Barrel (7) into the Throttle Cable Svivel (8).
5. Refer to Figure 2 and Figure 2, Detail 'A'. Cut THREE pieces of Fuel Line (9) 1/2" (12.7 mm) in length, each to be used for Stand-Offs.
6. Secure the Throttle Cable (3) with a 7" Nylon Tie Wrap (10) and Stand-Offs (9) to the Seat Support Downtube (11) and LEFT Landing Gear Downtube (12) as illustrated.

Item	P/N	Description
1...	10631..	1/4" Non-Locking (Jam) Nut
2...	90270..	Conduit Thread Adjuster
3...	90280..	Throttle Cable
4...	20350..	20 Degree Tang
5...	80011..	Seat Mount Assembly
6...	91003..	Throttle Torque Tube
7.....		Throttle Cable Barrel
8...	90250..	Throttle Cable Svivel
9...	30220..	Fuel Line (Stand-Offs)
10...	30480..	7" Nylon Tie Wrap
11...	70350..	Seat Support Downtube
12...	40291..	Landing Gear Downtube

THROTTLE CABLE ATTACHMENT TO THROTTLE TORQUE TUBE

8-37

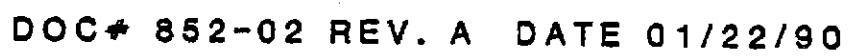


THROTTLE CABLE ASSEMBLY TO CARBURETOR ATTACHMENT

1. Refer to Figure 1. Carefully remove the Cover Plate (1) as the Spring (2) will want to 'pop out'. Remove the Spring (2), the Slide (3) and the Jet Needle (4). Position the Jet Needle Clip (5) in the CENTER Slot [Position #2] of the Needle (4) if necessary. [For a LEANER Carburetor setting, place the Clip (5) in the UPPER Jet Needle (4) Slot, Position 1. For a RICHER Carburetor setting, place the Clip (5) in the LOWER Jet Needle Slot, Position 3]. Insert the Jet Needle DOWN through the CENTER Hole of the Slide (3). [Rotax recommends Position 1 for this engine].
2. Insert the Throttle Cable (6) through the Rubber Cap (7), Cover Plate (1), Spring (2), Plastic Spring Cup (8), and Slide (3). Secure the Cable Barrel (9) as illustrated in Detail 'A'.
3. Insert the Slide (3) with the previous Assembly into the Carburetor Housing (10). Re-attach the Cover Plate (1) to the Carburetor Housing (10).
4. Refer to Detail 'C'. Adjust the 'slop' out of the Throttle Cable (6) with the Adjustment Screw (12) on TOP of the Cover Plate (1) so the Slide (3) will rest on the Idle Adjustment Screw (12). Use your thumb to pull UP on the Slide. Let it snap down to the closed position. You should hear a 'click' to assure the Piston is 'bottoming out'. When you hear the 'click', secure the Adjustment Nut (11).
5. Slip the Rubber Cap (7) over the Adjustment Screw (12) and the Adjustment Nut (11).
6. Refer to Figure 1. Adjust the 'slop' out of the Throttle Cable (6) with the Throttle Cable Adjustment Nut (11) on TOP of the Cover Plate (1) so that the Slide (3) will rest on the Idle Screw (12).

Item	P/N	Description	Item	P/N	Description
1..	00963720..	Cover Plate	7..	00260370..	Rubber Cap
2..	00938653..	Spring	8..	00827343..	Plastic Sprng Cap
3..	00963679..	Carburetor Slide	9.....		Cable Barrel
4..	00963714..	Jet Needle 8L2	10..	00261793..	Carb. Housing
5..	00963500..	Jet Needle Clip	11..	00942541..	Adjustment Nut
6.....	90280..	Throttle Cable	12..	00963160..	Idle Adjust Screw
			13.....		Needle comes through here

8-39



ROOT TUBE BELLCRANK ASSEMBLY AND ATTACHMENT

1. Refer to Detail 'A'. Clamp the Bellcrank Bearing (1) to the BOTTOM side of the Root Tube Bellcrank (2). Use the existing perimeter holes in the Bellcrank Bearing (1) as guides and back-drill FOUR 1/8" (3.2 mm) diameter holes at 90 degrees to each other through the Root Tube Bellcrank (2).

2. Attach the Bellcrank Bearing (1) to the Root Tube Bellcrank (2) with Rivets (3) at FOUR places.

IMPORTANT: Note the direction of Rivet (3) installation in relation to the Root Tube Bellcrank (2).

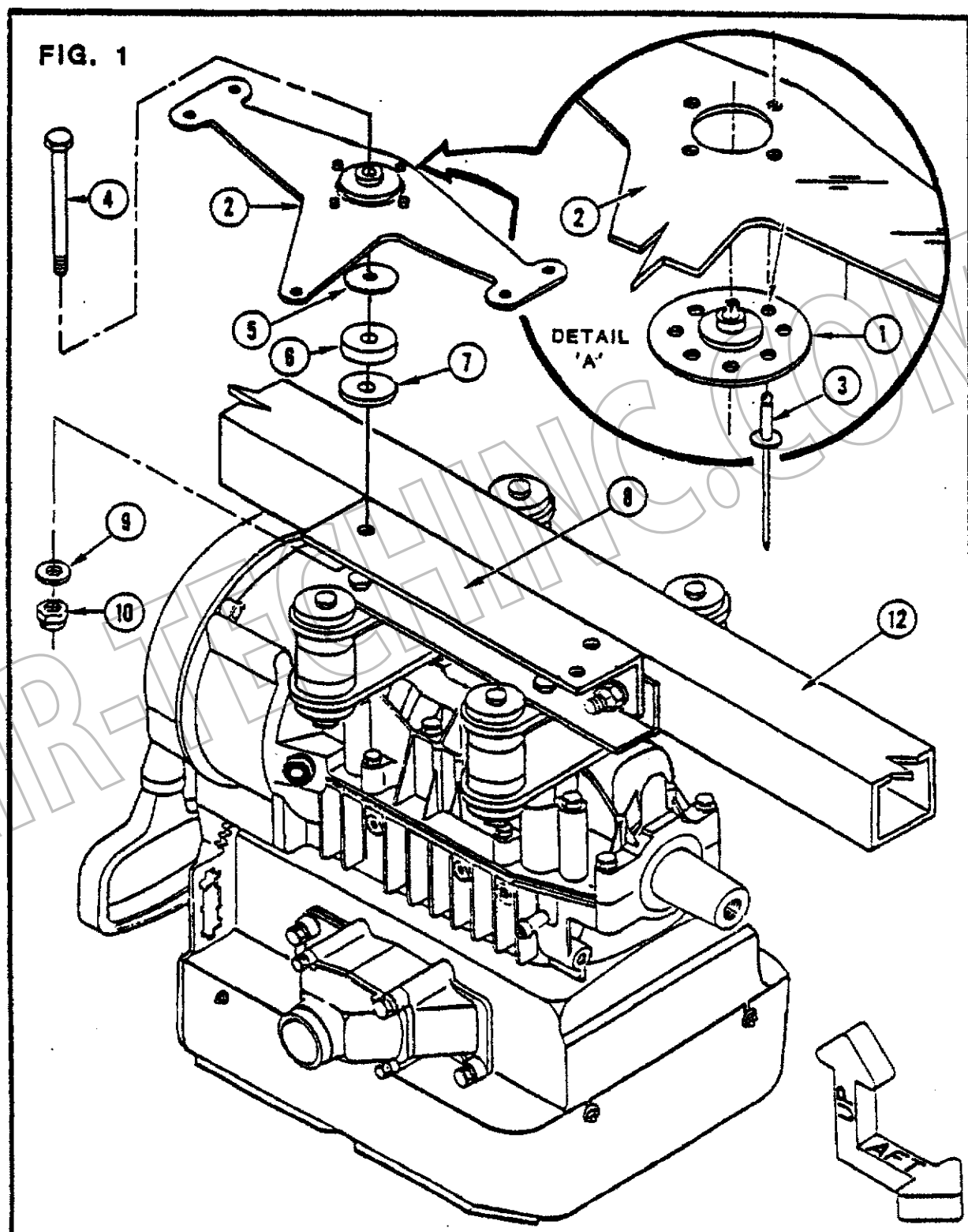
3. Refer to Figure 1. Attach the Root Tube Bellcrank Assembly (2) as illustrated [Bellcrank Bearing is on BOTTOM side of the Root Tube Bellcrank (2)] to the Aileron Bellcrank Mount (8) with Hardware (4,5,6,7,9 and 10). Tighten to proper torque.

4. Attach the Aileron Bellcrank Mount (8) to the Root Tube Assembly (12) with Hardware (11,13 and 14) TWO places. Tighten to proper torque.

Item	P/N	Description
1...	10702..	Bellcrank Bearing
2...	42002..	Root Tube Bellcrank
3...	20201..	1/8" Steel Rivet
4...	10120..	AN4-15A Bolt
5...	10565..	1/4" Fender Washer
6...	20346..	1/4" Nylon Washer
7...	20345..	1/8" Nylon Washer
8...	42029..	Aileron Bellcrank Mount
9...	10560..	1/4" Washer
10...	10510..	1/4" Locknut
11...	10325..	AN5-26A Bolt
12...	40145..	Root Tube Assembly
13...	10570..	5/16" Washer
14...	10540..	5/16" Locknut

ROOT TUBE BELLCRANK ASSEMBLY AND ATTACHMENT

8-41



AILERON PUSH/PULL CONTROL CABLE ATTACHMENT TO ROOT TUBE BELLCRANK

1. Refer to Detail 'A'. Assemble as illustrated. FINGER TIGHT ONLY. DO NOT tighten to proper torque at this time.
2. Refer to Detail 'B'. Assemble the Hardware (10, 6 and 7) TWO places.
3. DO NOT pinch the Push/Pull Control Cable (14) between Push/Pull Control Cable Clamp (11) and Shim (12). Make sure the protrusions on the Clamp (11) contact the Cable (14) at the Cable indentation. Tighten the Clamp to fit snugly with NO movement, but DO NOT OVERTIGHTEN as the Cable will be pinched or crushed.
4. Refer to Figure 1. Secure the Push/Pull Control Cable (14) at the locations illustrated with Stand-offs and Tie-wraps (15). Refer to Page 1-13 for the Tie-Wrap/Stand-off illustration.

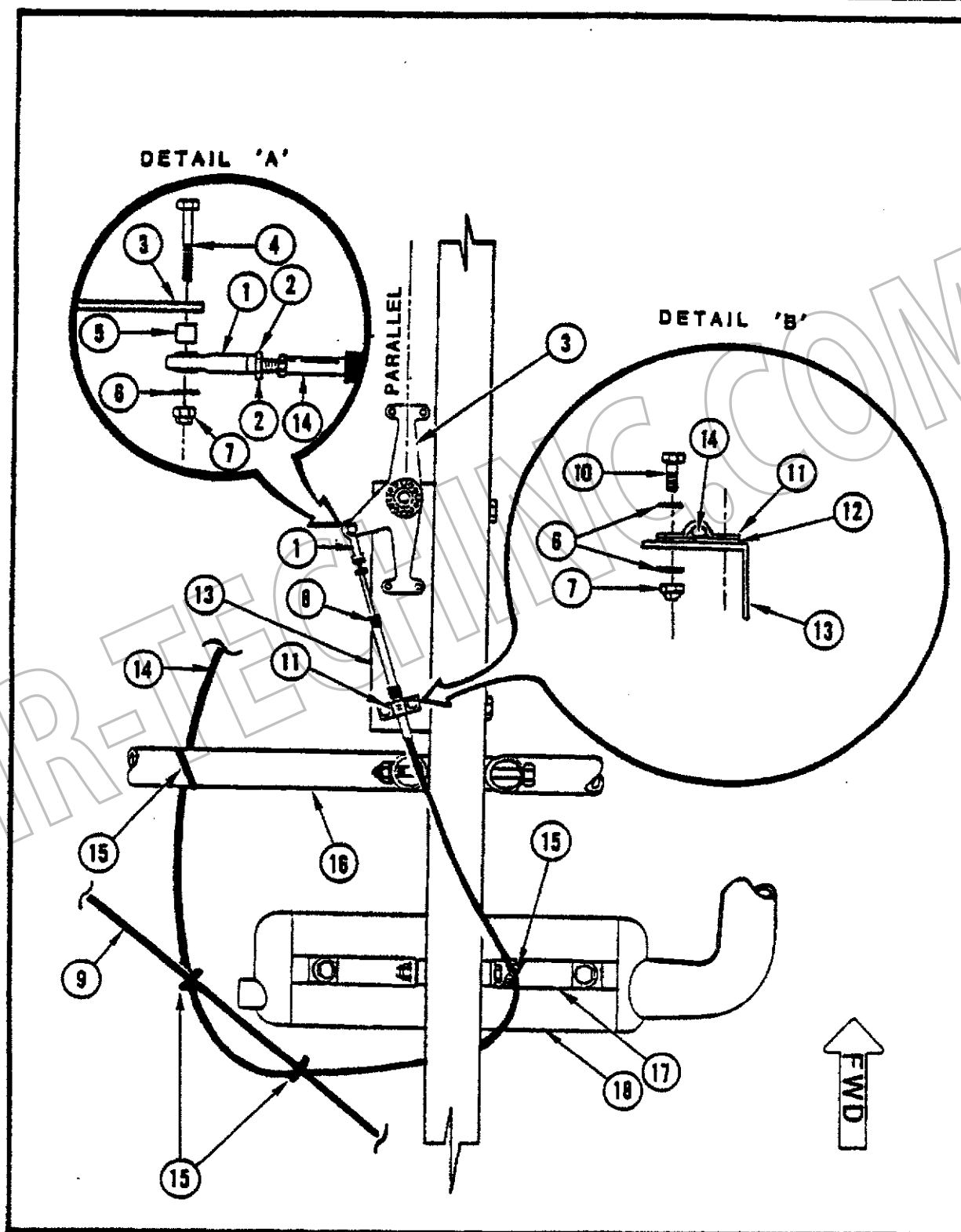
IMPORTANT: Ensure that the Push/Pull Control Cable (14) is secure and is NOT extending into the Propeller Arc area and that the Cable (14) can NOT come into contact with the Muffler (18).

Item	P/N	Description
1...	10701..	Female Rod End Bearing
2...	10495..	3/16" (#10) Non-Locking (Jam) Nut
3...	42002..	Root Tube Bellcrank
4...	10025..	AN3-11A Bolt
5...	20240..	Pulley Bushing
6...	10550..	3/16" Washer
7...	10500..	3/16" Locknut
8.....		Rubber Boot
9...	21562..	Lower Root Tube Wire (Left)
10...	10015..	AN3-6A Bolt
11...	70511..	Push/Pull Control Cable Clamp
12...	70512..	Push/Pull Control Cable Clamp Shim
13...	42029..	Bellcrank Angle Mount
14...	70472..	Push/Pull Control Cable (12 ft.)
15...	30480..	Tie-wrap/Stand-off
16...	40291..	Landing Gear Down Tube
17...	61042..	Muffler Attach Strap
18...	61041..	Muffler

AILERON PUSH/PULL CONTROL CABLE

8-43

ATTACHMENT TO ROOT TUBE BELLCRANK



ROOT TUBE BELLCRANK AND PUSH/PULL CABLE ADJUSTMENT

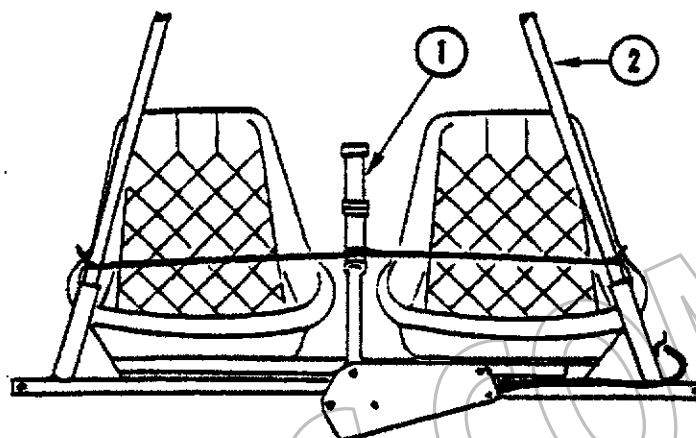
1. Refer to Figure 1. Tie the Control Stick (1) to BOTH Tri-Bar Downtubes (2) in a vertical or 'neutral' position with nylon rope as illustrated.
2. Refer to Figure 2. Adjust the amount of Push/Pull Cable (3) length (thread travel) into the Female Rod End Bearing (4) until the Root Tube Bellcrank is EXACTLY PARALLEL to the Root Tube Assembly (6).
3. Refer to Detail 'A'. Add Thread Adhesive (8) and adjust the Jam Nut (7) to lock the Push/Pull Control Cable (3) after the correct length is established.
4. Tighten the Locknut (9) to proper torque.
5. You may wish to leave the Control Stick tied as you will need it tied again in a later step when adjusting the Ailerons in a later Step on Page 10-10.

Item	P/N	Description
1...	40439..	Control Stick
2...	41230..	Tri-Bar Downtube
3...	70472..	Push/Pull Control Cable
4...	10701..	Female Rod End Bearing
5...	42002..	Root Tube Bellcrank
6...	40145..	Root Tube Assembly
7...	10495..	Non-Locking (Jam) Nut
8...	60591..	Thread Adhesive
9...	10500..	3/16" Locknut

ROOT TUBE BELLCRANK AND PUSH / PULL CABLE ADJUSTMENT

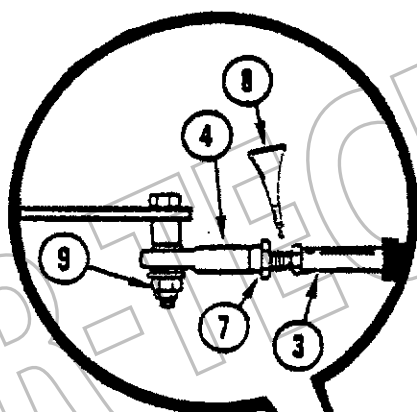
8-45

FIG. 1



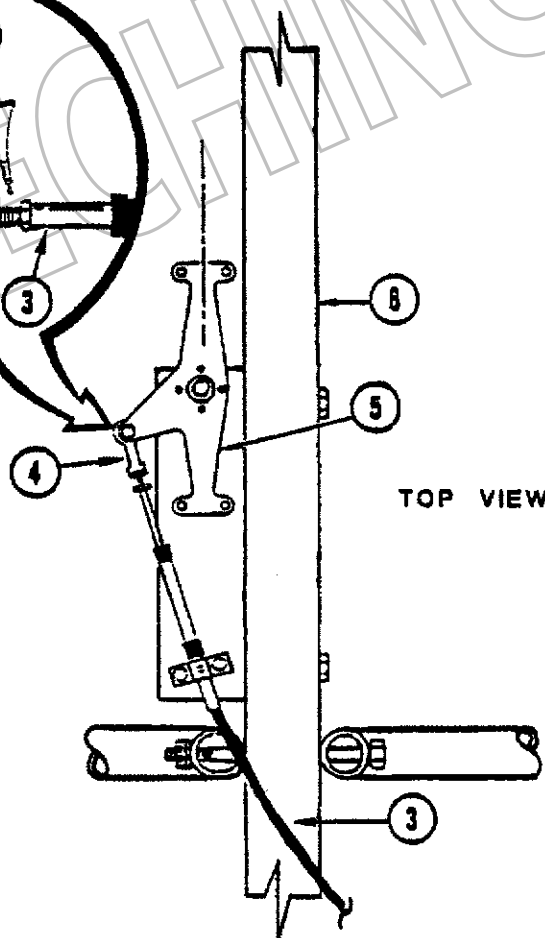
SIDE VIEW

FRONT VIEW



DETAIL 'A'

FIG. 2



TOP VIEW

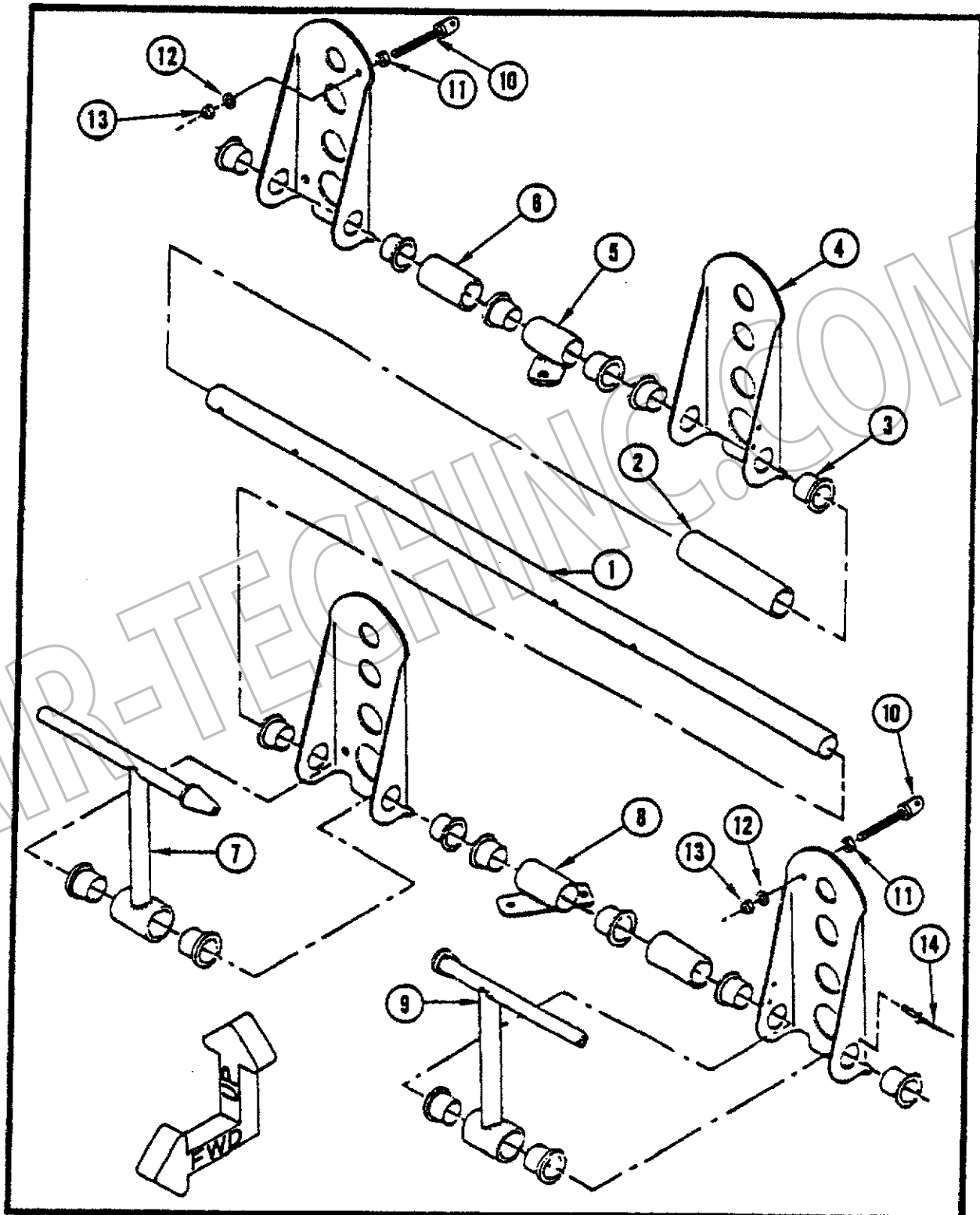
PEDAL MOUNT ASSEMBLY

NOTE: Before proceeding refer to Pages 12-11, 12-13 and 12-15. Remove the Templates (#10, #11 and #12) and follow the Instructions on them for drilling the Rudder (Foot) Pedals.

1. Ideally there should be little or NO friction in the Pedal Mount Assembly. To verify, temporarily slide the Bushings (3) **INSIDE** the Pedal Mounts (6) and (8). You may have to trim the length of **ONE** Bushing to allow **BOTH** to fit properly. Insert the Pedal Mount Tube. If there is excessive friction ream the **INSIDE** of the Pedal Mounts (6) and (8).
2. If there is still excessive friction in the system it will be necessary to ream the **INSIDE** of the Bushings. Secure the Bushings with Contact Cement (not illustrated) **INSIDE** the Pedal Mounts and allow to dry overnight. You may also wish to do the Brake Pedals (7) and (9) as well.
3. Assemble the Pedal Mount Assembly as illustrated.
4. For Brakes on the **RIGHT**, reposition the Brake Pedals (7) and (9) **ONLY**. Everything else stays **EXACTLY** the same.
5. Secure the Bushing (3) on the **LEFT** Pedal of the **LEFT** Seat by drilling a $1/8"$ (3.2 mm) diameter hole in the Pedal next to the Bushing. Allow the head of the Rivet (14) to protrude **OVER** the flange of the Bushing to keep the Bushing from working its way out of the Pedal.
6. Insert an Eyebolt (10) with Jam Nut (11) through the **RIGHT** Pedal of the **RIGHT** Seat and the **LEFT** Pedal of the **LEFT** Seat approximately halfway **ONLY** at this time. They will be used to adjust the Rudder Pedal angle on Page 11-18 later.

Item	P/N	Description	Item	P/N	Description
1...	40438..	Pedal Mount Tube	9...	40419..	Brake Pdl (LFT)
2...	40429..	Spacer, 1" x 4 11/16"	10...	10371..	AN43B-15A Full Thread Eyebolt
3...	70250..	7/8" Bushing	11...	10631..	1/4" - 28 Non-Lock (Jam) Nut
4...	70231..	Foot Pedal	12...	10560..	1/4" Washer
5...	40434..	Pedal Tube Mnt (RIGHT)	13...	10510..	1/4" Locknut
6...	40426..	Spacer, 1" x 2 1/4"	14...	20201..	1/8" S.S. Rivet
7...	40418..	Brake Pedal (RIGHT)			
8...	40433..	Pedal Tube Mnt (LEFT)			

PEDAL MOUNT ASSEMBLY



RUDDER PEDAL ASSEMBLY TO NOSE STRUT ATTACHMENT

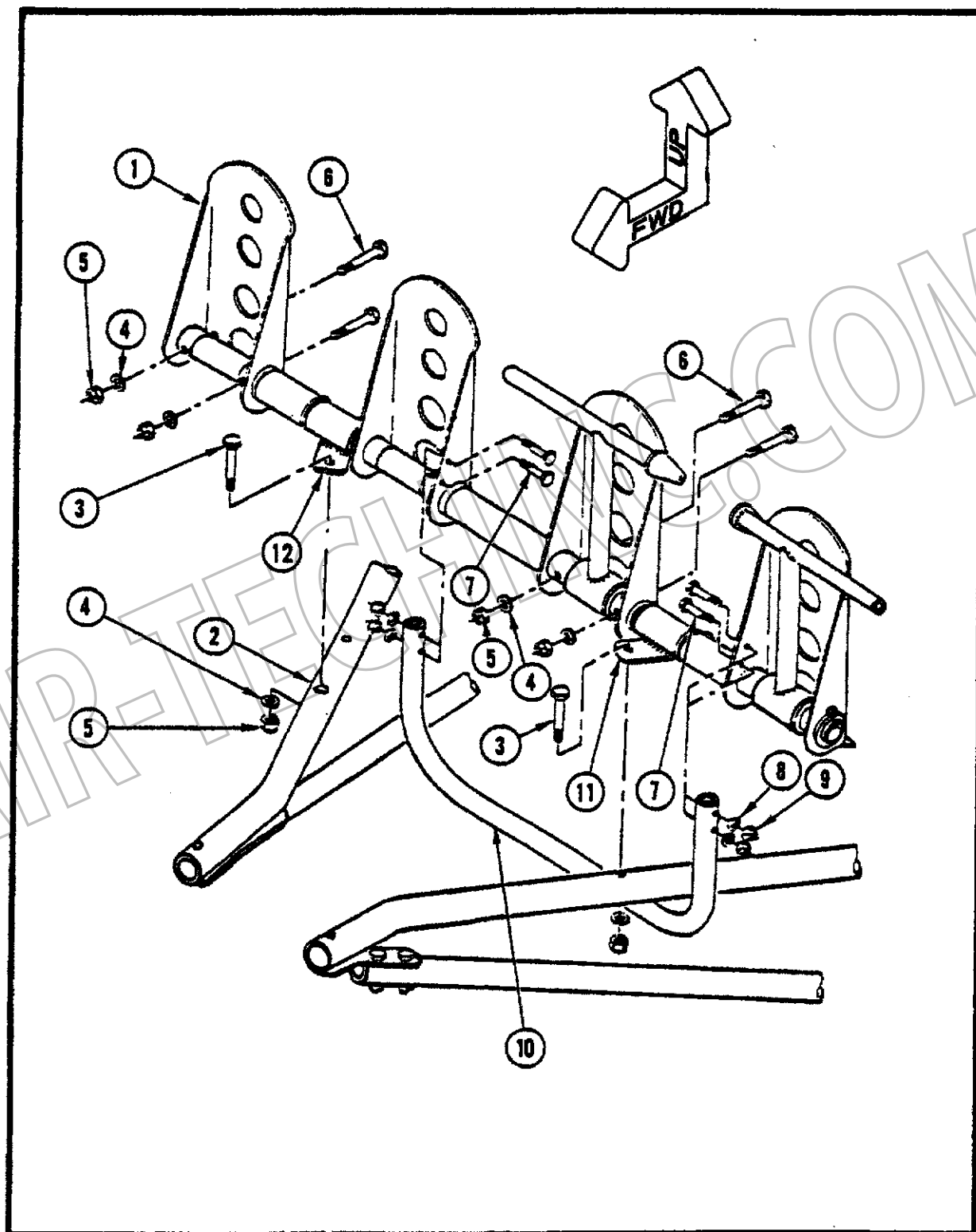
1. Align the FORWARD holes in the Pedal Mounts (11) and (12) with the FORWARD holes in the Nose Struts (2).
2. Attach the complete Pedal Mount Tube Assembly (1) (with the Foot Pedals) to the Nose Struts (2) with the Hardware (3,4 and 5) as illustrated TWO places. Tighten to correct torque. DO NOT DISTORT THE TUBE.
3. Attach BOTH RIGHT hand Pedals to the Pedal Mount Tube as illustrated with the Hardware (6,4 and 5) FOUR places. Tighten to correct torque. DO NOT DISTORT THE TUBE.
4. Attach the Dual Rudder Torque Tube (10) with the Hardware (7,8 and 9) as illustrated FOUR places. Tighten to proper torque. DO NOT DISTORT THE TUBE.

Item	P/N	Description
1.....		Pedal Mount Assembly
2...	40360..	Nose Struts
3...	10100..	AN4-14A Bolt
4...	10560..	1/4" Washer
5...	10510..	1/4" Locknut
6...	10170..	AN4-20A Bolt
7...	10025..	AN3-11A Bolt
8...	10550..	3/16" Washer
9...	10500..	3/16" Locknut
10...	40437..	Dual Rudder Torque Tube
11...	40433..	Pedal Tube Mount Assembly (LEFT)
12...	40434..	Pedal Tube Mount Assembly (RIGHT)

RUDDER PEDAL ASSEMBLY

8-49

TO NOSE STRUT ATTACHMENT



RUDDER PEDAL PUSHROD ATTACHMENT

1. Refer to Figure 1. Assemble the hardware (1, 2, 3 and 4) as illustrated. Add a drop of Thread Adhesive (5) to the threads of Bolt (1) and thread the Bolt into either end of the Rudder Pedal Pushrod (6) until it BOTTOMS OUT.

2. Run a Jam Nut (7) onto the Rod End Bearing (8) HALF WAY ONLY. Thread the Bearing (8) into the opposite end of the Pushrod (6). DO NOT TIGHTEN. Adjustment to be made in a later step.

3. Insert Bolt (9) through Washer (2). Continue through the previously drilled hole in the INBOARD side of the RIGHT Seat, LEFT Rudder Pedal (10) as illustrated. Add a Foot Pedal Spacer (11) and continue through the previously installed Bearing (8) attached to the AFT end of the Pushrod (6). Add another Spacer (11), Washer (2) and Locknut (12). Tighten to proper torque.

4. Thread a Jam Nut (13) onto the end of the Rod End Bearing (4). Insert the Rod End Bearing into the OUTBOARD MOST hole in the Steerable Nose Wheel Control Arm Assembly (17). Attach with hardware (14 and 15). Tighten to proper torque.

5. Align ALL of the Rudder (Foot) Pedals with each other. Align them visually or tape a STRAIGHT piece of wood or a tube across all of the Pedals. Sighting over the top of the Steerable Nose Wheel Fork verify the Crosstube of the Fork (17) is PARALLEL with a Rudder Pedals.

6. To adjust the Parallelism between the Nose Fork Crosstube and the Rudder Pedals thread the Pushrod (6) IN or OUT as required until adjustment is achieved. NOTE: The Rudder Cable [not illustrated] tension is now adjusted and maintained by the Rudder (Foot) Pedal Pushrod Assembly for future reference. Verify the Nose Wheel steers STRAIGHT with 'NEUTRAL' Rudder.

7. Tighten the Jam Nut (7). Repeat this sequence for the LEFT Seat, Right Pedal Pushrod attachment. Refer to Figure 2.

Item	P/N	Description	Item	P/N	Description
1...	10296..	AN4-40A Bolt	10...	70231..	Rudder Pedal
2...	10560..	1/4" Washer	11...	40422..	1/8" Spacer
3...	10806..	1 5/64" x .39 Spring	12...	10510..	1/4" Locknut
4...	10689..	CM 6 Rod End Brng Assy.	13...	13132..	3/8" Jam Nut
5...	60591..	Thread Adhesive	14...	10575..	3/8" Washer
6...	40349..	Rudder Pdl Pushrod Assy.	15...	10547..	3/8" Locknut
7...	10631..	Non-Locking Jam Nut	16...	60561..	Nose Fork
8...	10680..	CM 4 Rod End Bearing	17...	91012..	Control Arm
9...	10070..	AN4-12A Bolt			

RUDDER PEDAL PUSHROD ATTACHMENT

FIG. 1

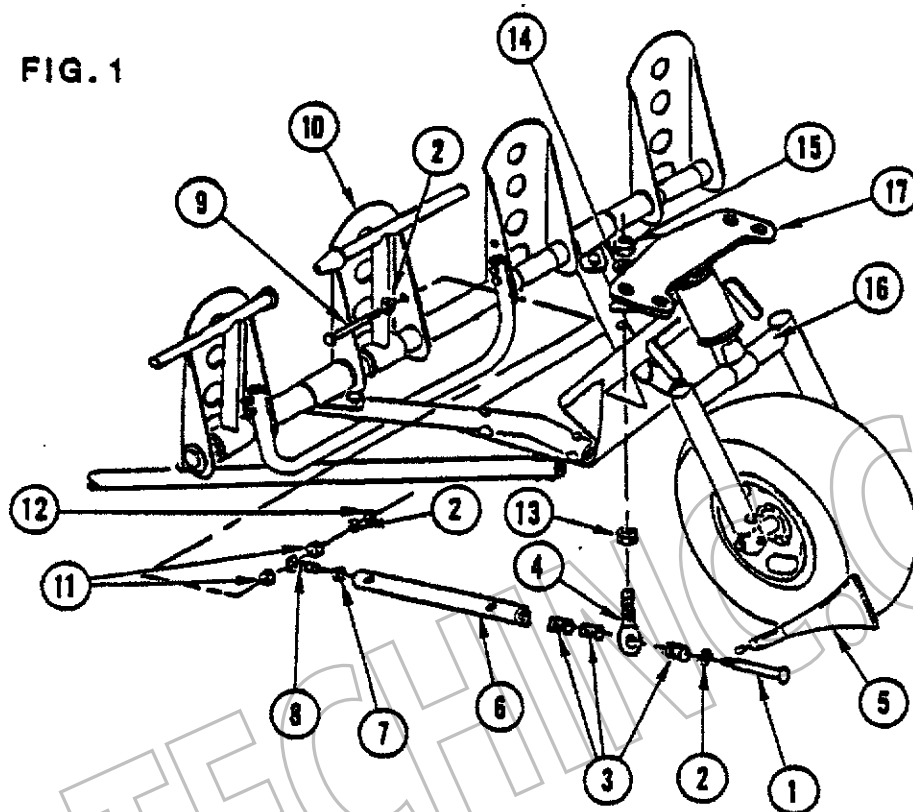
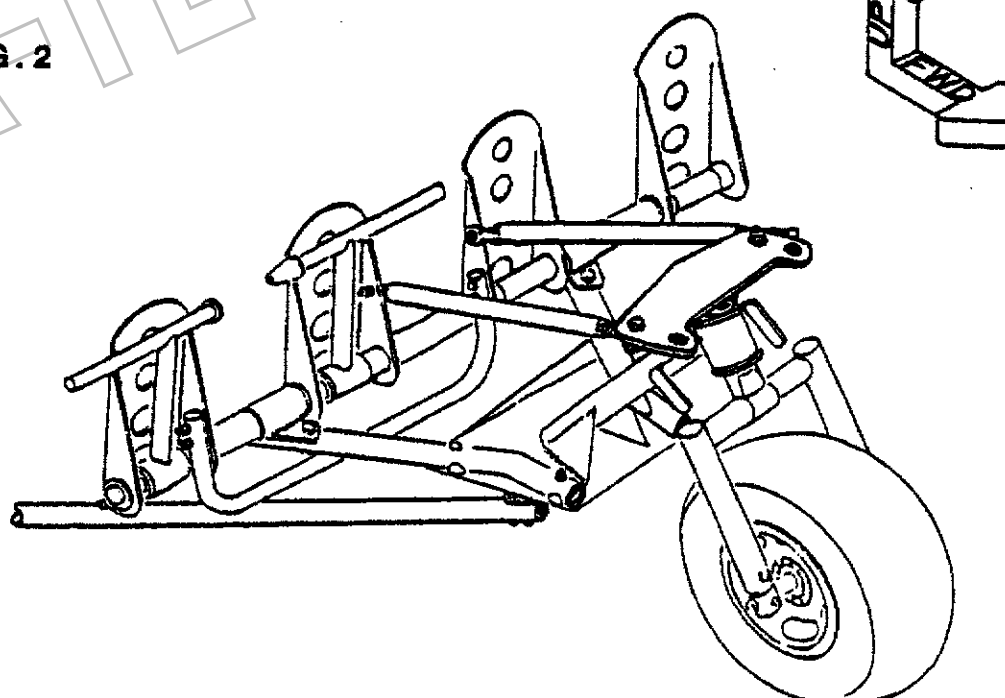


FIG. 2



RUDDER PEDAL STOP ATTACHMENT

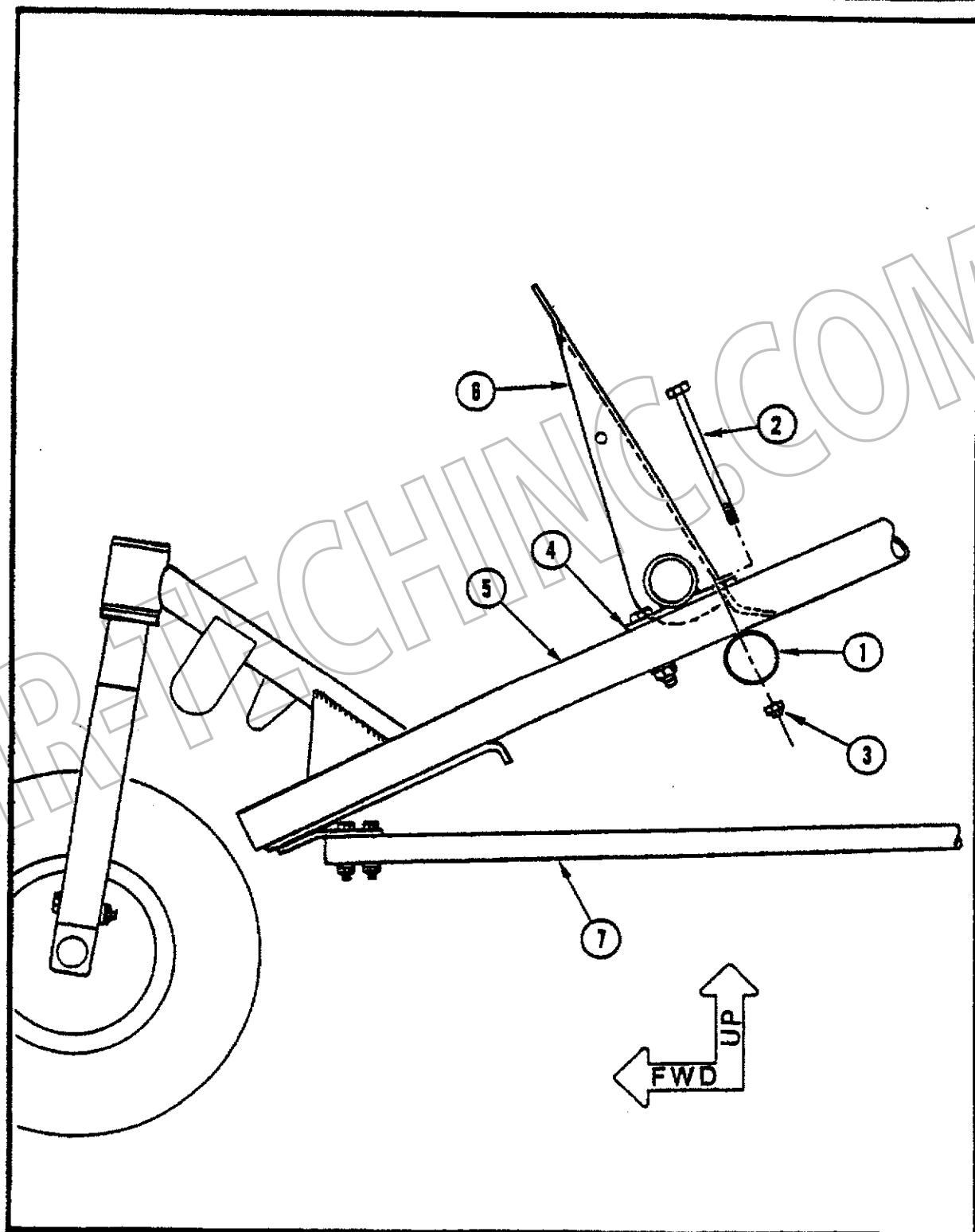
1. Attach the Forward Rudder Pedal Stop Tube (1) to the BOTTOM Side of the Nose Struts (5) through the AFT holes in the Pedal Mount Tube Assembly (4), with a Bolt (2). Secure with a Locknut (3). Tighten to proper torque. DO NOT CRUSH THE TUBE.

2. Repeat for the opposite side.

Item P/N Description

- 1...40442..Forward Rudder Pedal Stop Tube
- 2...10054..AN3-22A Bolt
- 3...10500..3/16" Locknut
- 4...40433..Pedal Mount Tube Assembly (LEFT)
- 5...40360..Nose Strut
- 6...70231..Rudder (Foot) Pedal
- 7...41300..Tension Strut

RUDDER PEDAL STOP ATTACHMENT



BRAKE CABLE ASSEMBLY

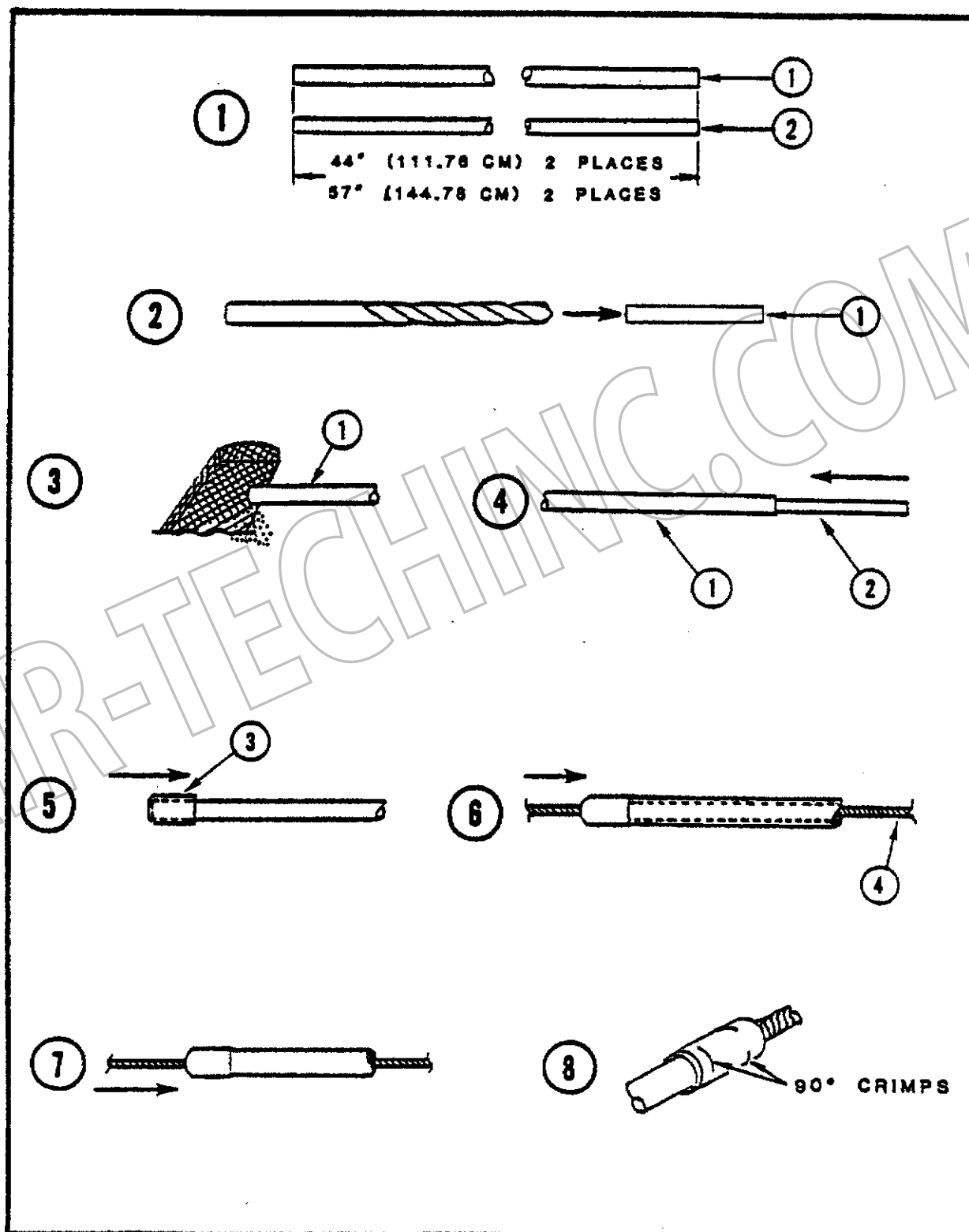
1. Refer to Figure 1. Using a pair of side cutters cut ONE Cable Housing (1) to 44" (111.76 cm) and another length to 57" (144.78 cm).
2. Using a razor blade cut ONE Cable Housing Liner (2) to 44" (111.76 cm) and another length to 57" (144.78 cm).
3. Refer to Figure 2. Deburr the ends of each Cable Housing (1) and Cable Housing Liner (2) with a file or oversized drill-bit.
4. Refer to Figure 3. Slide the 44" Cable Housing Liner (2) into the 44" Cable Housing (1).
5. Slide the 57" Cable Housing Liner (2) into the 57" Cable Housing (1).

NOTE: IF the Cable Housing appears to be too tight and will not allow the Liner to be inserted easily, UNTWIST the Cable Housing slightly to allow insertion of the Liner.

6. Refer to Figure 4. Slide the Cable End Cap (3) over each end of BOTH Cable Housings (1) and Liners (2). Assure that the End Cap (3) is inserted as far as it will go or 'flush' with the Cable Housing (1) at the end.
7. Refer to Figure 5. Crimp the End Cap (3) in TWO places near its end CAREFULLY with a crimper or side cutters as illustrated. NOTE: Make the crimps 90 DEGREES to each other.
8. Repeat the crimping process on each end of BOTH Cable Housings (1).

Item	P/N	Description
1...	91214..	Cable Housing
2...	91215..	Cable Housing Liner
3...	91217..	Cable Housing End Cap

BRAKE CABLE ASSEMBLY



BRAKE CABLE ATTACHMENT (FORWARD)

NOTE: The following assembly sequence is illustrated for the Brakes to be operated by the 'Pilot in Command' flying from the LEFT Seat. If the Brakes are to be installed on the RIGHT side, attach the Conduit Thread Adjusters (4) through the Tri-Bar Crosstube (3) Tab UNDER the RIGHT seat.

Before beginning the following sequence note that the SHORTER Brake Cable Housing Assembly (5) should be routed to the OUTBOARD Brake Pedal and the LONGER Cable should be routed to the INBOARD Brake Pedal.

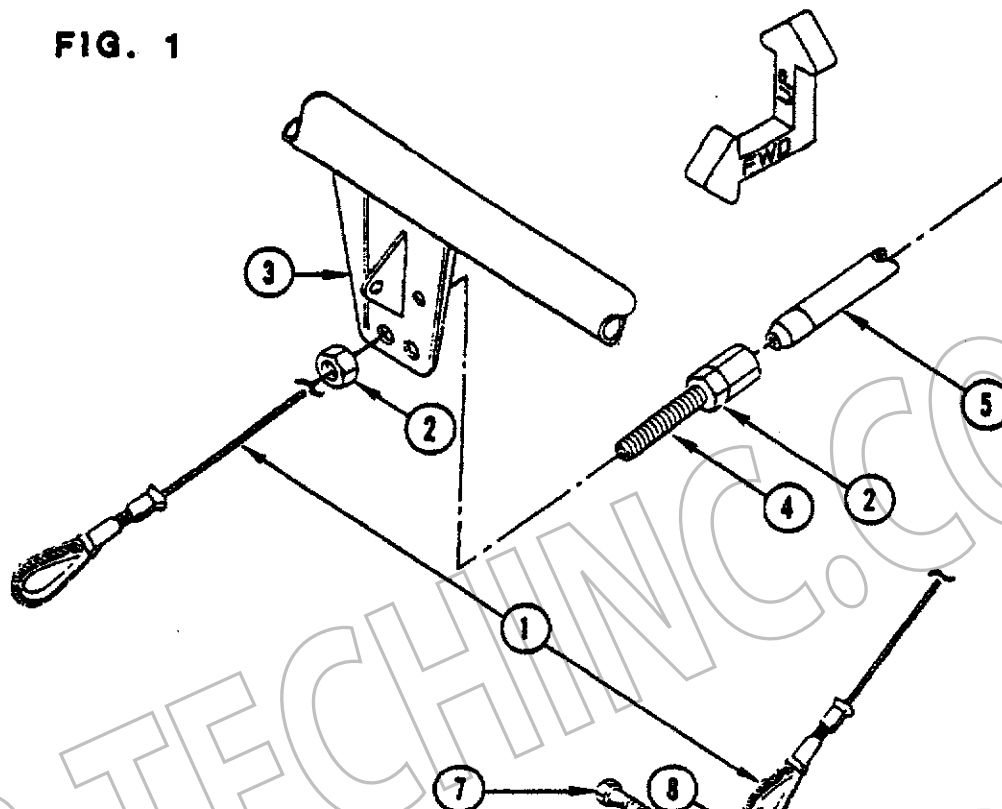
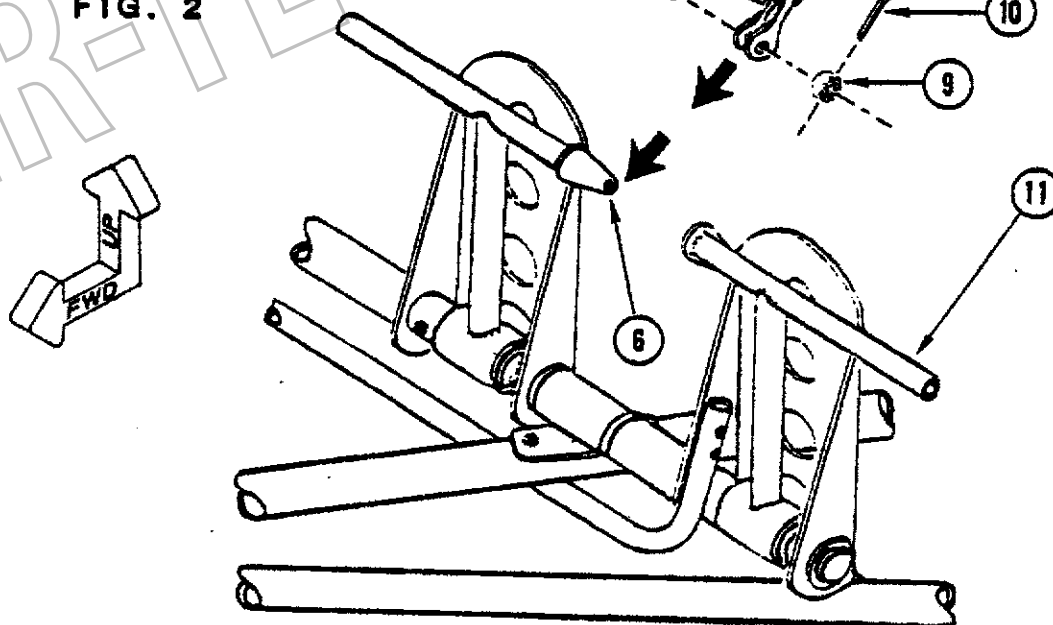
1. Enlarge and deburr BOTH of the existing 3/16" (4.7 mm) diameter holes at the BOTTOM of the LEFT Tri-Bar Crosstube (3) Tab to 1/4" (6.4 mm).

2. Refer to Figure 1. Insert the RIGHT Brake Cable Blank (1) through the Jam Nut (2) [part of the Conduit Thread Adjuster Assembly (4)] as illustrated. Continue through the LOWER RIGHT hole in the LEFT Tab on the Tri-Bar Crosstube Assembly (3). 'Bottom out' BOTH Jam Nuts (2). FINGER TIGHT ONLY. To be adjusted in a later step.

3. Attach the RIGHT Brake Cable (1) to the Tab on the RIGHT Brake Pedal Assembly (6) [EXACTLY as illustrated with the Cotter Pin away from the Pedals] with a Shackle (8) and the Hardware (7, 9 and 10). Bend Cotter Pin (10) correctly.

4. Repeat the Brake Cable attachment for the opposite (LEFT) Brake Pedal Assembly (11).

Item	P/N	Description
1...	91213..	Brake Cable (Blank)
2...	10631..	1/4" Non-Locking (Jam) Nut
3...	70555..	Tri-Bar Crosstube
4...	90270..	Conduit Thread Adjuster Assembly
5.....		Brake Cable Housing Assembly
6...	40418..	Brake Pedal Assembly (RIGHT)
7...	10009..	AN3-5 Bolt
8...	20320..	3/16" Shackle
9...	10517..	3/16"...Castle Nut
10...	10635..	Cotter Pin
11...	40419..	Brake Pedal Assembly (LEFT)

BRAKE CABLE ATTACHMENT (FORWARD)**FIG. 1****FIG. 2**

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SECTION 9

WING AND TAIL ATTACHMENT

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WING SUPPORTS (OPTIONAL).....	9-4
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World's Largest Manufacturer of Recreational Aircraft and Vehicles

UPPER WING CABLE ATTACHMENT TO KINGPOST

1. Attach the Kingpost Nose Cable (2) to the Tang (4) with Hardware (1,3 and 5) as illustrated. NOTE: The Washer (3) is located INSIDE the Fork of the Kingpost Nose Cable (2). Tighten to proper torque.

2. Attach the Upper Aft Root Tube Cable (7) to the Kingpost Assembly (20) and Nose Cable Tang (4) with Hardware (6,8 and 9) as illustrated. Tighten to proper torque.

3. Refer to Detail 'A'. Bend the Tang (4) slightly FORWARD so that the Bolt (1) head DOES NOT come into contact with the Kingpost Assembly (20) and score the Kingpost during adjustment. Re-check again later when the Wings are attached and FULLY supported by the Kingpost.

4. Attach the Wing Cables (12,13,14 and 15) EXACTLY as illustrated to the Shackles (11). Attach with Hardware (10,8,16 and 17). Bend Cotter Pin (17) correctly.

5. DO NOT install the Kingpost Assembly (20) into the Kingpost Channel (19) at this time. You may wish to place the T-Handle Pin (18) through the Channel (19) and Cotter Pin (17) into the T-Handle Pin TEMPORARILY.

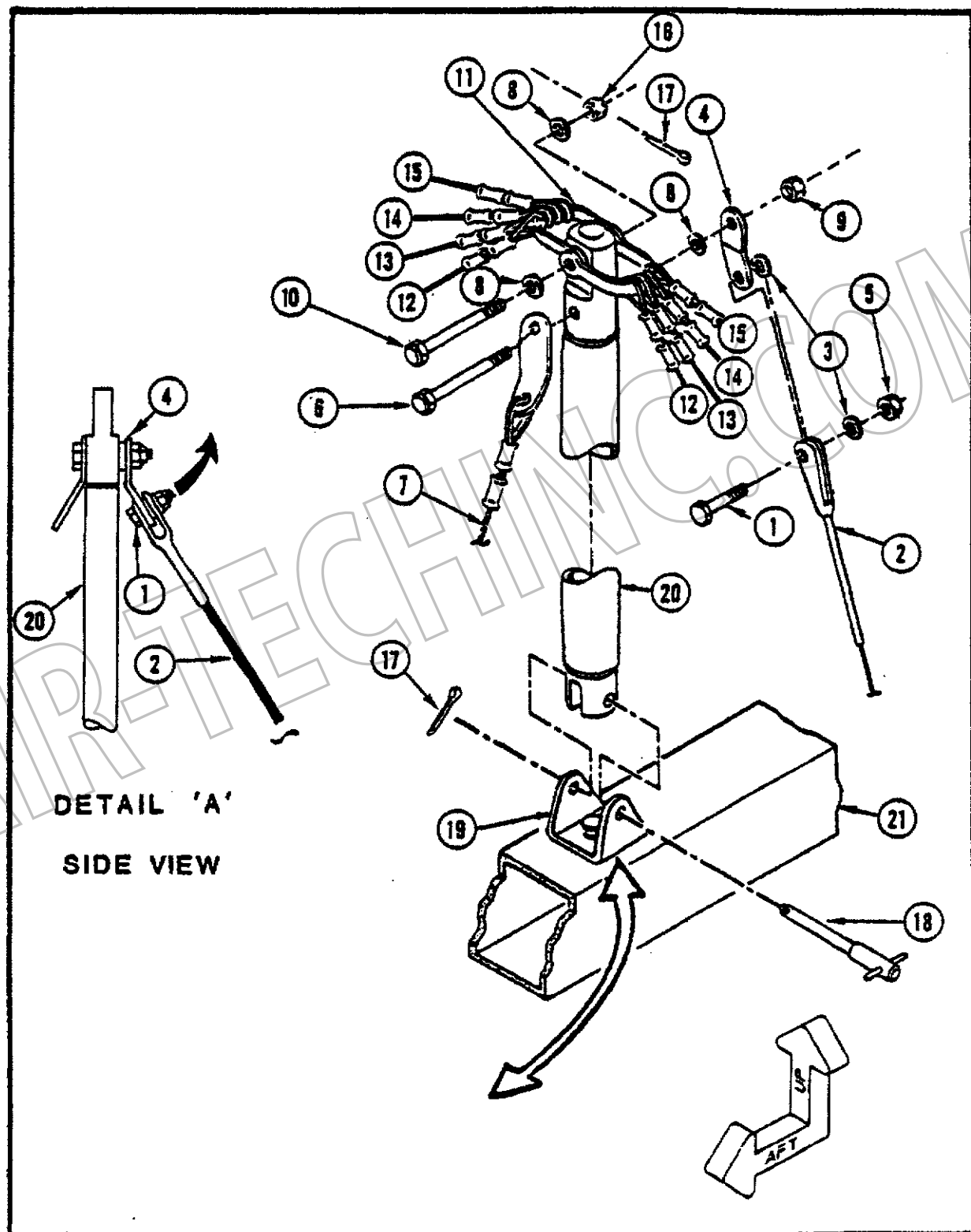
6. Set the Kingpost Assembly in ONE of the Seats TEMPORARILY.

Item	P/N	Description	Item	P/N	Description
1...	10015..	AN3-6A Bolt	12...	21556..	T.E. Inbd. Cable
2...	20595..	Kingpost Nose Cable	13...	21557..	T.E. Outbd. Cable
3...	10550..	3/16" Washer	14...	21553..	L.E. Outbd. Cable
4...	20350..	20 Degree Tang	15...	21554..	L.E. Inbd. Cable
5...	10500..	3/16" Locknut	16...	10521..	1/4" Castle Nut
6...	10120..	AN4-15A Bolt	17...	10635..	Cotter Pin
7...	21561..	Upper Aft Root Tube Cable	18...	10472..	T-Handle Pin
8...	10560..	1/4" Washer	19...	20070..	Kingpost Channel
9...	10510..	1/4" Locknut	20...	40214..	Kingpost Assy.
10...	10160..	AN4-17 Bolt	21...	40145..	Root Tube Assy.
11...	20330..	1/4" x 1" Shackle			

UPPER WING CABLE

9-3

ATTACHMENT TO KINGPOST



WING SUPPORTS (OPTIONAL)

There are several methods of positioning the Wings so the Kingpost can be attached. The following are examples.

1. The EASIEST method is with the help of TWO friends, one under each Bellcrank Compression Strut. Raise the Wings high enough to install the Kingpost into the Kingpost Channel and secure it with a T-Handle pin.

However, sometimes the EASIEST method is not always available or possible. The following are TWO examples of the 'one man setup'. The first of the following examples is usually the way we do it at 'the factory'.

Since the Ailerons, Propeller and Tail Section have not been attached as yet, tilt the 'Trike Assembly' back CAREFULLY and rest the Propeller Shaft on a block of wood to keep it from being damaged.

2. Attach each Wing, then swing BOTH Wings BACK and UP, resting the Wing Tips on the cardboard boxes that come with your kit. When BOTH Wing Tips are supported, you should be able to attach the Kingpost into the Kingpost Channel yourself and secure it with the T-Handle Pin. Remove the boxes and return the Trike Assembly to the fully upright position.

The following Method is the most time-consuming and the only one illustrated, but will 'come in handy' sooner or later.

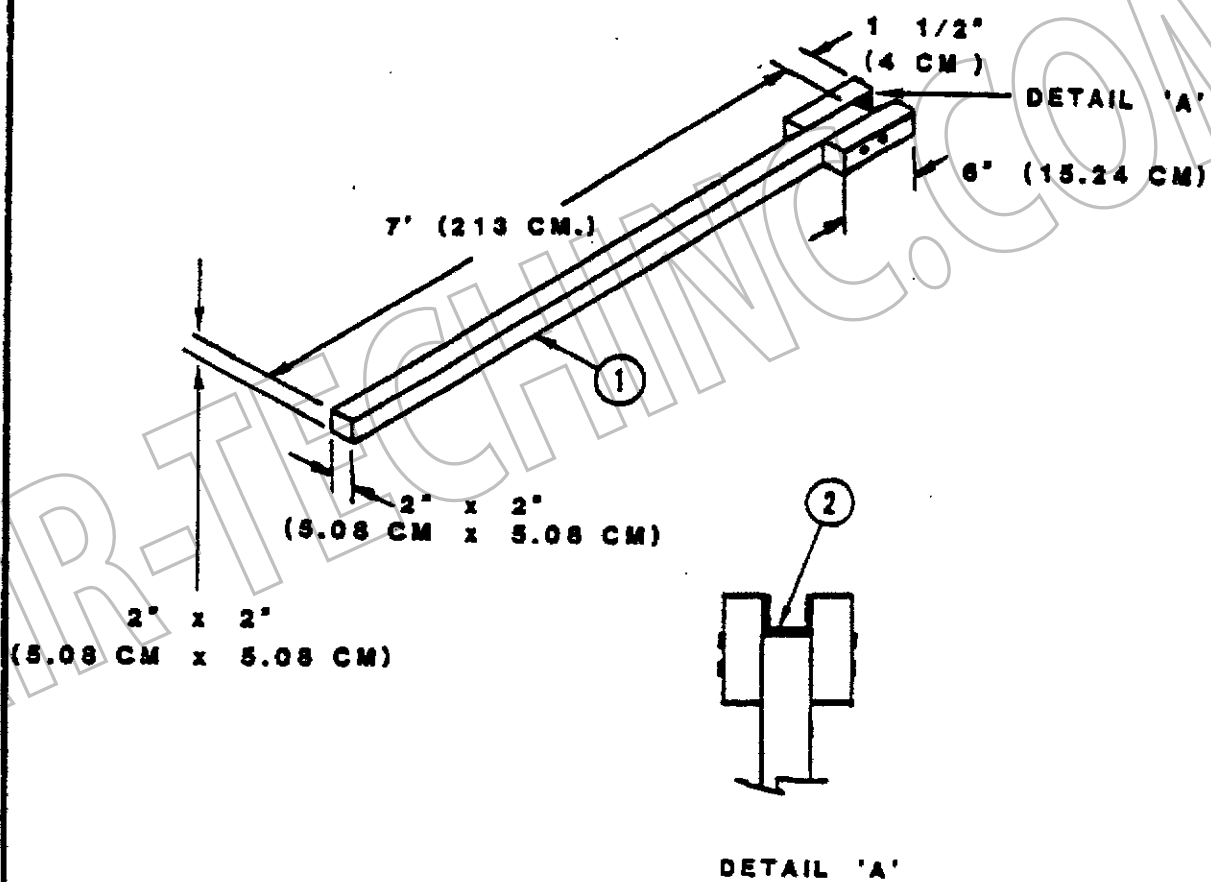
3. Refer to Figure 1 and Detail 'A'. Construct TWO wooden Wing Supports (only one illustrated). Cut the Wood (1) to the dimensions shown. Attach some Rubber (old inner tube or similar material) with Contact Cement (3) (not illustrated) in the notched area of the Wing Supports. This will protect the Bellcrank/Compression Struts at the 'point of contact' and help in keeping the Struts from sliding while attached.

Item	P/N	Description
------	-----	-------------

- | | | |
|--------|---|---------------------------------|
| 1..... | Wood, 2" x 2" x 8' | (5.08 cm x 5.08 cm x 243.84 cm) |
| 2..... | Rubber (inner tube or similar material) | |
| 3... | 60592..Contact Cement | (not illustrated) |

WING SUPPORTS (OPTIONAL)

FIG. 1



WING SUPPORTS [OPTIONAL] (CONT'D.)

NOTE: If you are going to attach the Wings to the Trike OUTSIDE, it is recommended it be done on a CALM day.

1. Refer to Figure 1. Position the Trike Tail to the wind. Attach a Leading Edge Wing Spar to the Root Tube Assembly (3) with the Hardware (4, 6 and 8) as illustrated. Bend the Cotter Pin (8) correctly.

2. Attach the Trailing Edge Wing Spar to the Root Tube Assembly (3) with the Hardware (7, 5, 6 and 8) as illustrated. Bend the Cotter Pin (8) correctly. Repeat Steps 1. and 2. for the opposite side.

3. Refer to Figure 2. Support the Wing Tips off the ground on the cardboard boxes in your Kit or lay the Wing Tips on the empty airframe boards, sheets, carpet, etc. to protect them.

4. Refer to Figure 3. Raise BOTH Wings and engage the 'notch' of the Wing Supports (1) onto the AFT ONE-THIRD of the THIRD OUTBOARD Compression Strut.

5. Raise the Kingpost Assembly and set it into the Kingpost Channel (not illustrated) [Refer to page 9-3] on the Root Tube. Install a T-Handle Pin. Check the UPPER Wire orientation to ensure there are no twisted Wires. Install a Cotter Pin and bend correctly.

CAUTION: When the Wing Supports are removed in the next step, the Wings and Kingpost may tend to tilt to either side. This must be avoided as it may structurally damage the Kingpost Channel.

6. Remove the Wing Supports (1).

Item	P/N	Description
1.....		Wing Supports
2.....		Box
3...	40145..	Root Tube Assembly
4...	10205..	AN4-23 Bolt
5...	10560..	1/4" Washer
6...	10521..	1/4" Castle Nut
7...	10160..	AN4-17 Bolt
8...	10635..	Cotter Pin

WING SUPPORTS (OPTIONAL) (CONT'D.)

FIG. 1

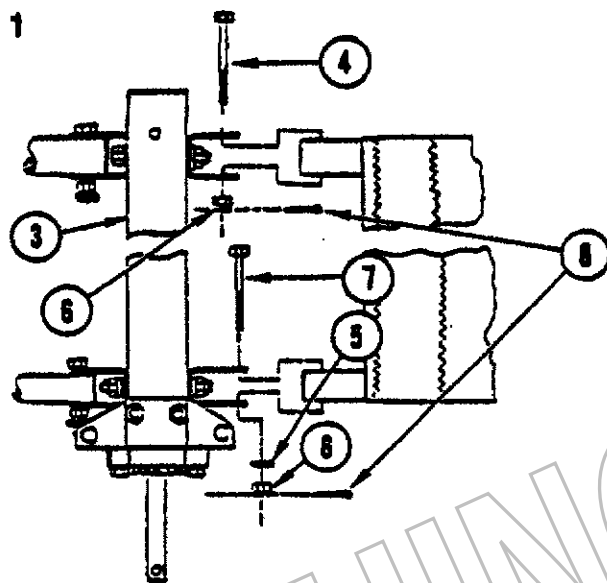
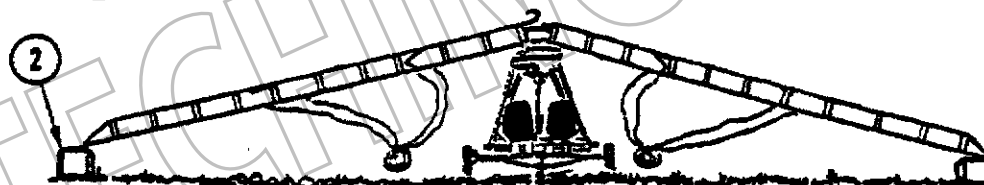
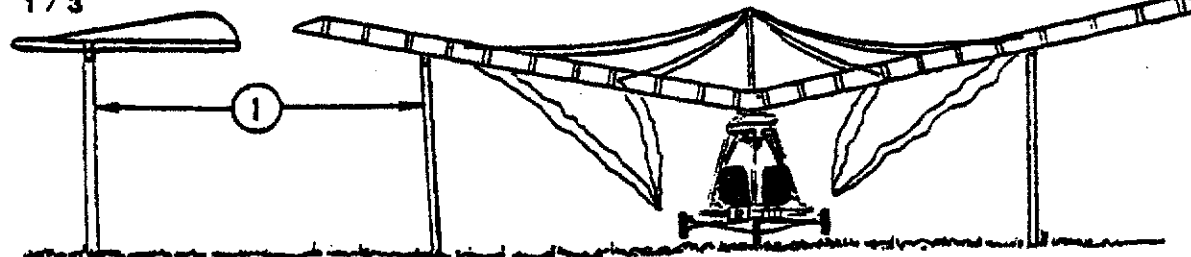


FIG. 2



FRONT VIEW


1/3

SIDE VIEW

FRONT VIEW

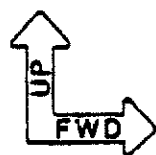


FIG. 3

LOWER WING CABLE ATTACHMENT TO TRI-BAR ASSEMBLY

NOTE: Before beginning the following assembly, thread the Fittings located at both ends of the Kingpost Assembly (not illustrated) ALL THE WAY into the Kingpost.

1. Attach the Cables (4,5,6 and 7) to the Shackle (3) EXACTLY as illustrated. Attach the Shackle (3) with Cables (4,5,6 and 7) to the Tri-Bar Crosstube (8) with Hardware (1,2,9 and 10) as illustrated.

2. Repeat on the opposite side, mirror image.

3. DO NOT BEND THE COTTER PIN (10) as you may wish to TEMPORARILY detach the Lower Wing Cables in the following assembly on Page 9-10.

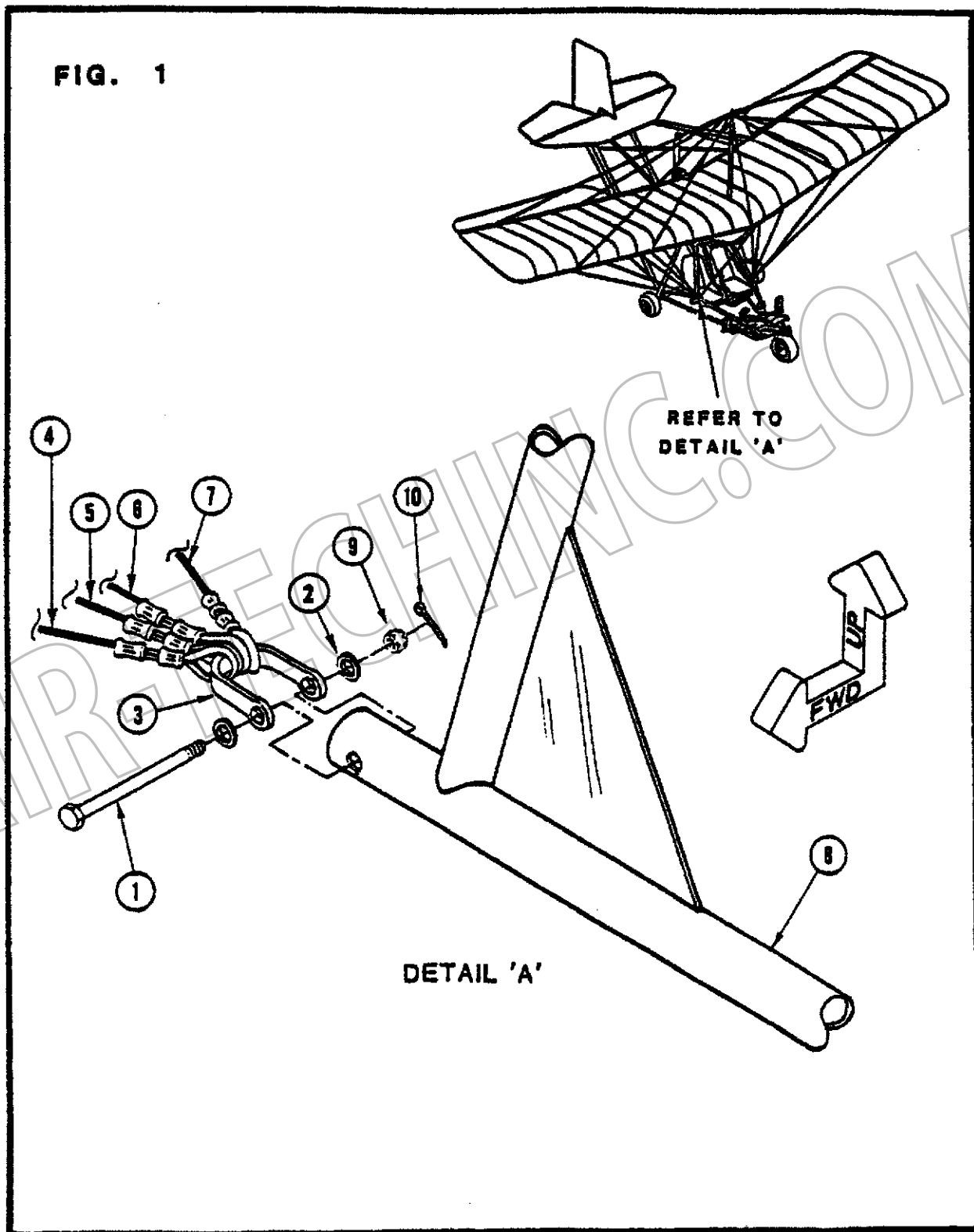
Item	P/N	Description
1...	10160..	AN4-17 Bolt
2...	10560..	1/4" Washer
3...	20331..	1/4" Shackle with Special Spread
4...	21550..	Lower Leading Edge Inboard Cable
5...	21551..	Lower Leading Edge Outboard Cable
6...	21553..	Lower Trailing Edge Outboard Cable
7...	21552..	Lower Trailing Edge Inboard Cable
8...	70555..	Tri-Bar Crosstube Assembly
9...	10521..	1/4" Castle Nut
10...	10635..	Cotter Pin

LOWER WING CABLE

9-9

ATTACHMENT TO TRI-BAR ASSEMBLY

FIG. 1



KINGPOST AND FUEL TANK GAP COVER CUT-OUT

NOTE: The following procedure can be done more easily with the 'Trike Assembly' tilted back on the Propeller Shaft. However, Wing supports can be used. In any case, the Upper Wing Wires MUST BE TIGHT.

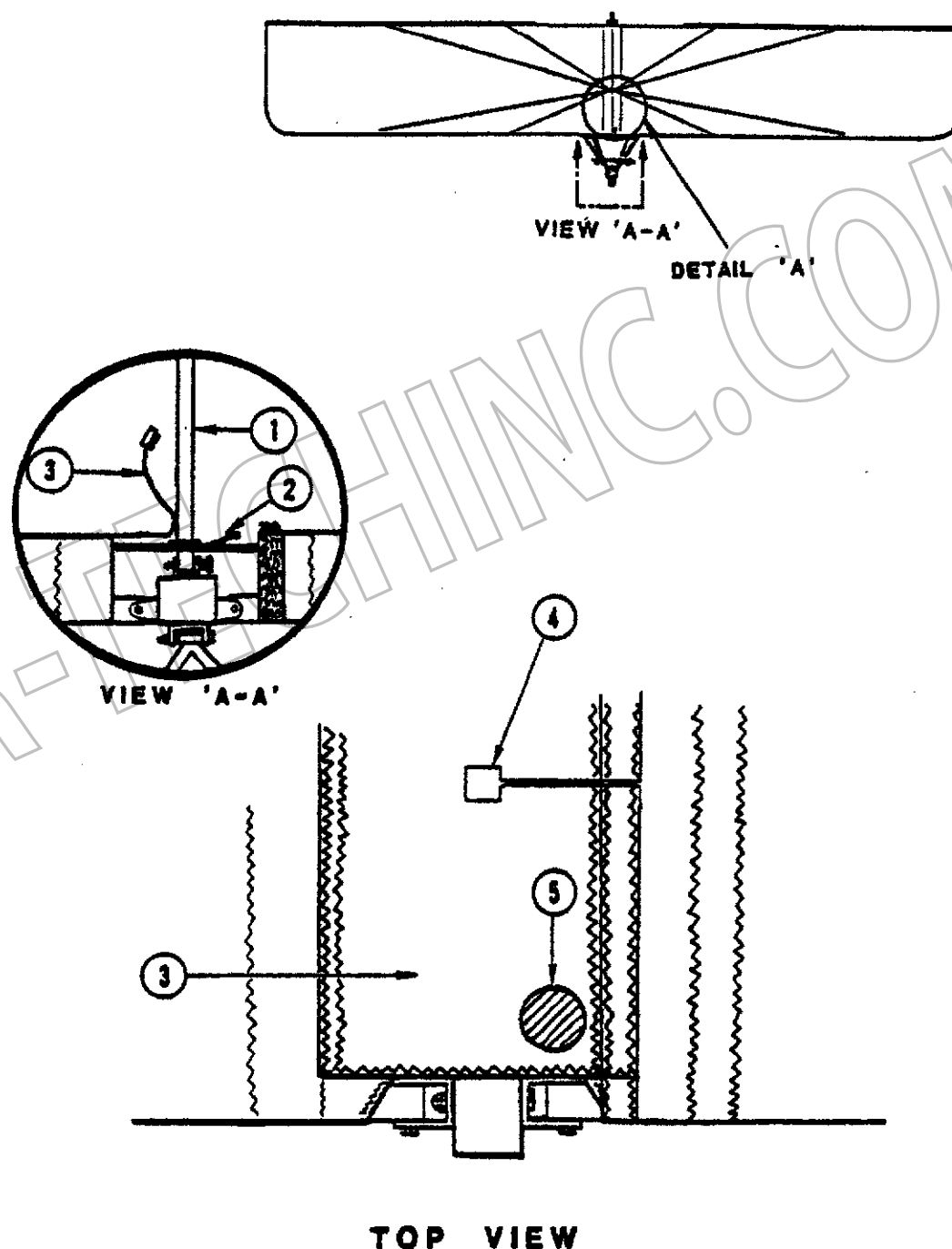
1. Refer to Figure 1, View 'A-A'. Pull on the Nylon Webbing (2) to ensure the Wing Cover is taut.
2. Pull the Gap Cover over to and around the Kingpost Assembly (1).
3. Attach the Velcro edge and FRONT of the Gap Cover to the LEFT Wing Cover.
4. Heat-cut the Fuel Tank Cap Access Hole (5) as required. BE CAREFUL. DO NOT DAMAGE the Threads on the Fuel Tank: You may wish to remove the Fuel Tank Cap to use it as a Template and 'trace' around it with a pencil at the proper location for an APPROXIMATE size or you may wish to heat cut the Fuel Tank Cap Access Hole slightly larger.

NOTE: The Fuel Tank is not illustrated for clarity.

Item	P/N	Description
1...	40214..	Kingpost Assembly
2.....		Nylon Webbing
3.....		Gap Cover
4.....		Kingpost Cut-out Hole
5.....		Fuel Tank Cap Access Hole

FUEL TANK GAP COVER CUT-OUT

FIG. 1



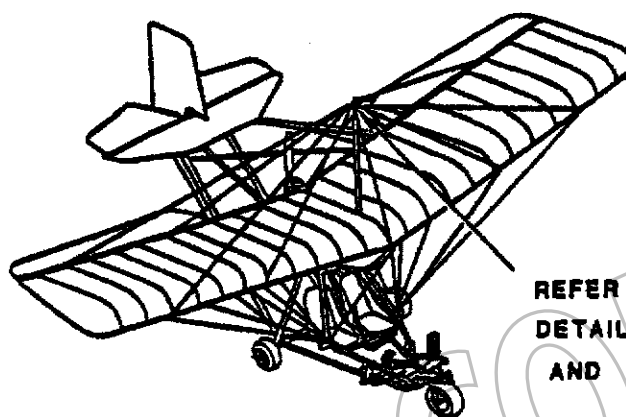
KINGPOST NOSE CABLE TANG ALIGNMENT

1. Unscrew [lengthen] the Kingpost Assembly (2), making the Wing Cables tight.
2. Refer to Figure 1. Locate the Tang (1) attached to the UPPER FORWARD side of the Kingpost Assembly (2).
3. Refer to Detail 'A'. Check the angle of the Tang (1) to ensure it is aligned with the Kingpost Nose Cable (3). If the Tang (1) is NOT in alignment, push back on the Tang (1) if necessary to align (straighten) the Tang as illustrated.
4. Refer to Detail 'B'. DO NOT allow the Bolt head (4) to make contact with the Kingpost Assembly (2) as the Bolt will score the Kingpost whenever it is adjusted.

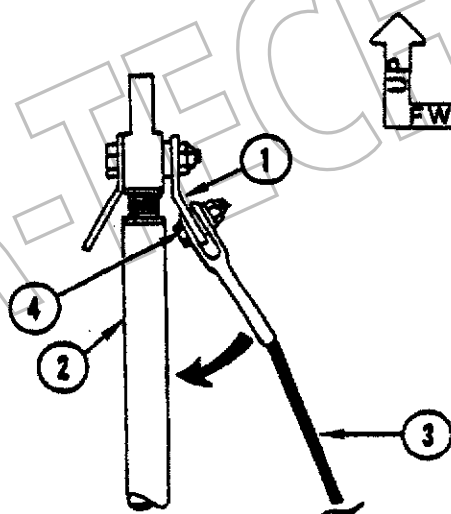
Item	P/N	Description
1...	20350..	20 degree Tang
2...	40214..	Kingpost Assembly
3...	20595..	Kingpost Nose Cable
4...	10015..	AN3-6A Bolt

KINGPOST NOSE CABLE TANG ALIGNMENT

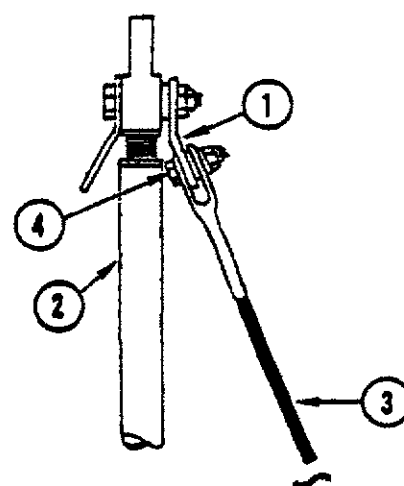
FIG. 1



REFER TO
DETAIL 'A'
AND 'B'



DETAIL 'A'



DETAIL 'B'

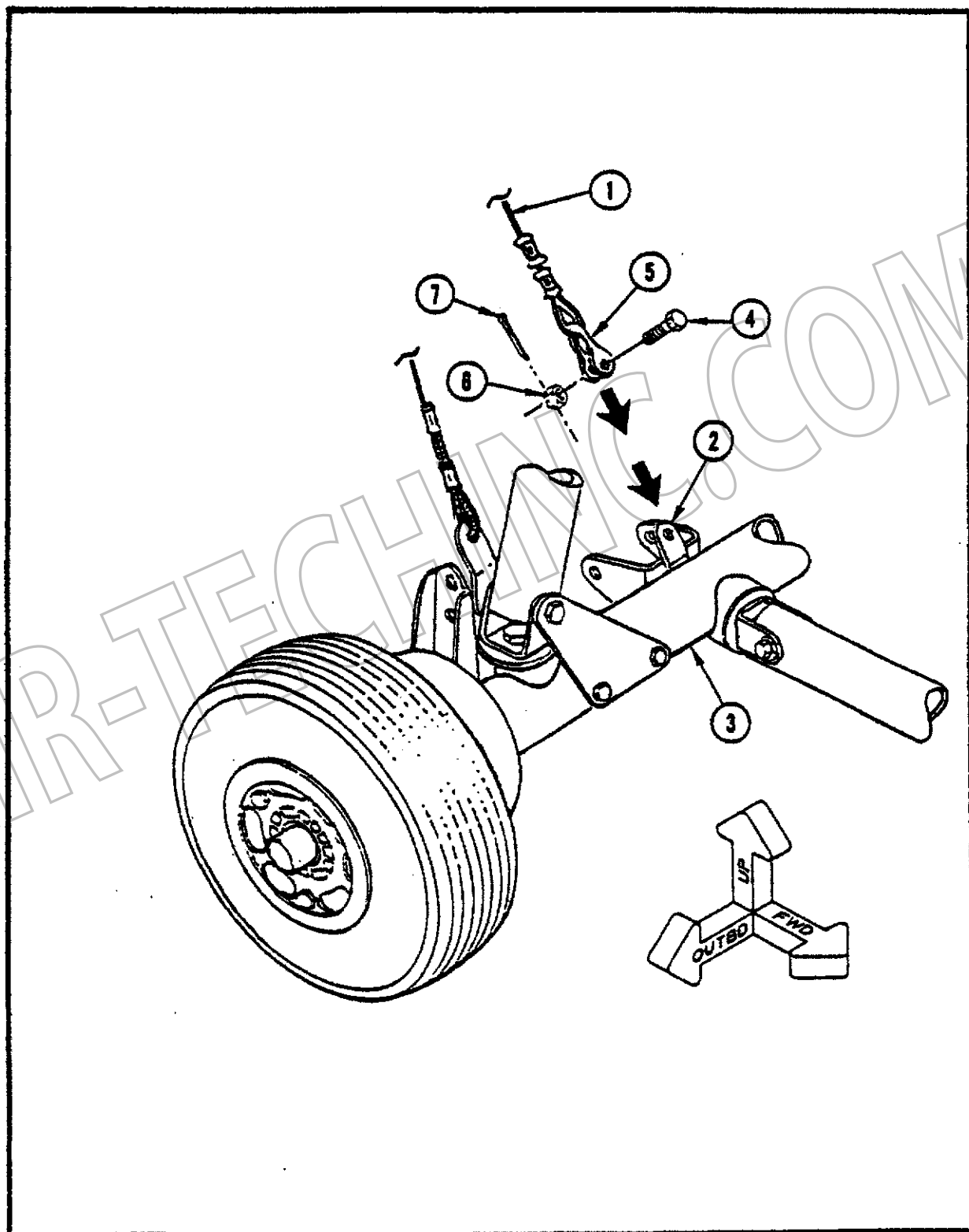
LANDING GEAR SIDE CABLE ATTACHMENT

1. Attach the Landing Gear Side Cable (1) [previously attached to the RIGHT INBOARD Trailing Edge of the Wing] to the 20 Degree Tang (2) previously installed on the Axle (3). Assemble with Hardware (4,5,6 and 7). Bend the Cotter Pin (7) correctly.

2. Repeat on the opposite (LEFT) side.

Item	P/N	Description
1...	21558..	Landing Gear Side Cable
2...	20350..	20 Degree Tang
3...	40312..	Axle
4...	10009..	AN3-5 Bolt
5...	20320..	3/16" Shackle
6...	10517..	3/16" Castle Nut
7...	10635..	Cotter Pin

LANDING GEAR SIDE CABLE ATTACHMENT



TAIL GROUP ATTACHMENT TO AXLE AND WINGS

NOTE: Installation of the Wings to the Trike is necessary BEFORE proceeding to the following assembly sequence.

IMPORTANT: Secure the Nose Wheel to the ground using a weight or a tie down BEFORE proceeding as the 'Trike' will want to 'tip' backwards.

1. Refer to Figure 1. Move the completed Tail Assembly into position behind the Trike and Wings and insert the Lower Tail Boom Assembly (1) into its corresponding Channel (2) on the Axle (8). Secure with hardware (3,4,5 and 7) as shown. Bend Cotter Pin (7) correctly.
2. Repeat on opposite side, mirror image.
3. Refer to Figure 2. With the help of a friend, raise the Tail high enough to allow the Upper Tail Boom Assembly (6) to be easily positioned into its respective Channel (2) on the Trailing Edge Spar (9). Secure with hardware (3,4,5 and 7) as shown. Bend Cotter Pin (7) correctly.
4. Repeat on opposite side, mirror image.

Item	P/N	Description
1...	40421..	Lower Tail Boom Assembly
2...	20090..	1 1/4" Channel
3...	10180..	AN4-20 Bolt
4...	10560..	1/4" Washer
5...	10521..	1/4" Castle Nut
6...	40179..	Upper Tail Boom Assembly
7...	10635..	Cotter Pin
8...	40312..	Axle
9...	80220..	Trailing Edge Spar

TAIL GROUP

9-17

ATTACHMENT TO AXLE AND WINGS

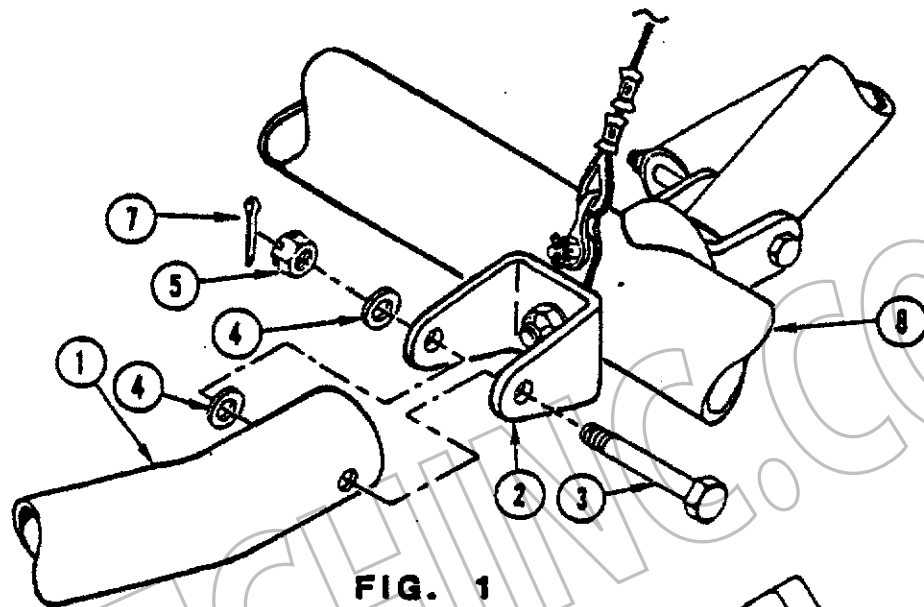


FIG. 1

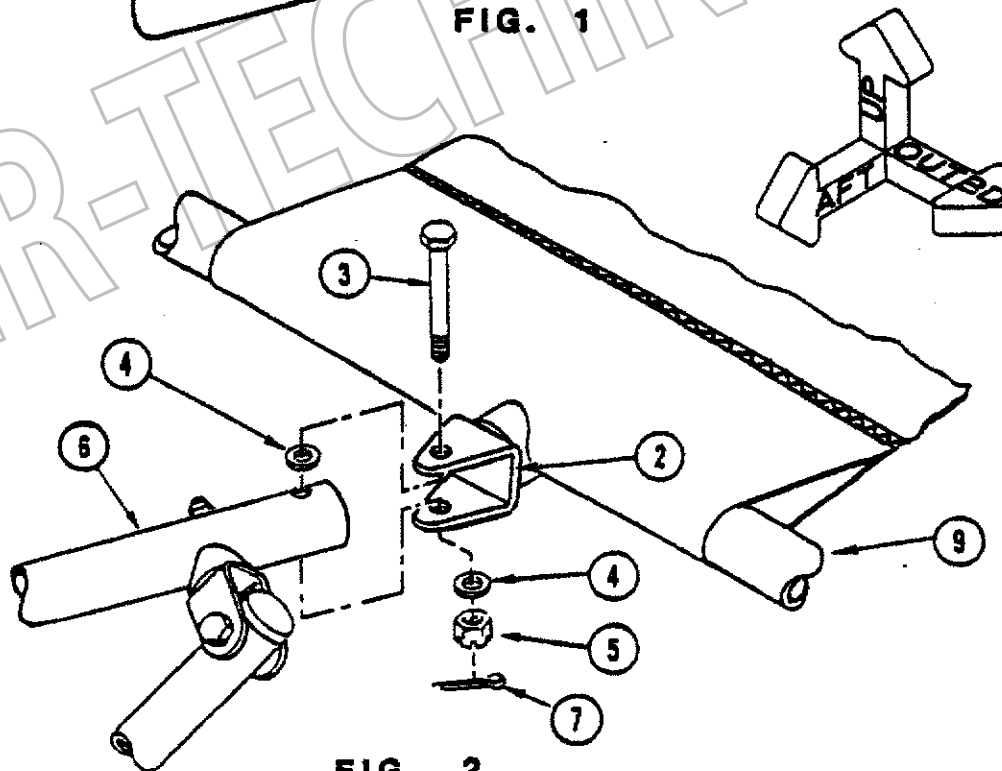


FIG. 2

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SECTION 10

CONTROL SURFACE ATTACHMENT AND ADJUSTMENT

AILERON ATTACHMENT.....	10-2
AILERON CABLE ATTACHMENT.....	10-4
AILERON PUSHROD TEMPLATE CUT-OUT PLACEMENT.....	10-6
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AILERON PUSHROD ATTACHMENT (AFT).....	10-10
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ELEVATOR PUSH/PULL TUBE (AFT) ATTACHMENT TO ELEVATOR.....	10-18
AFT ELEVATOR PUSH/PULL TUBE (FORWARD) ATTACHMENT.....	10-20
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RUDDER TO TAIL SKID ATTACHMENT.....	10-24
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AILERON ATTACHMENT

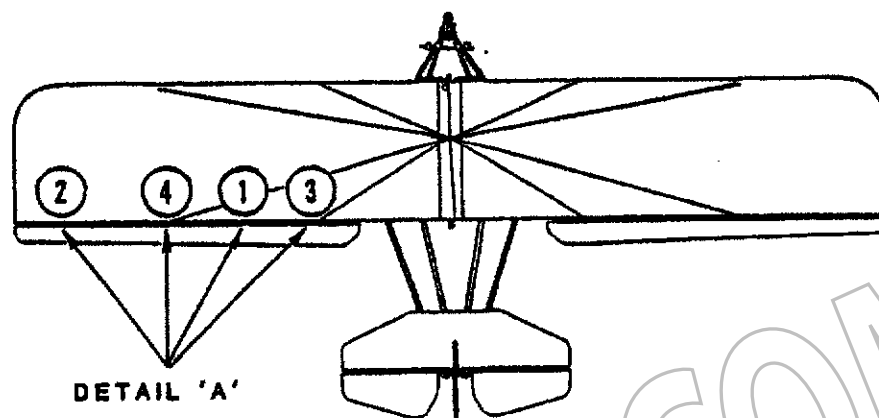
Before beginning the following sequence, apply a lubricant such as WD-40 or a Lithium grease and coat the contacting OUTSIDE surfaces of the Eyebolts (7) and the INSIDE surfaces of the Forkbolts (8).

1. Refer to Figure 1. Attach the Aileron Assembly (5) to the Wing Assembly (6) in the sequence (1 thru 4) as illustrated. If for any reason, the Hinge Points DO NOT align EXACTLY, DO NOT bend the Eyebolt (7) to compensate. Insert the Aileron Assembly (5) vertically instead of horizontally. This will ease installation.
2. Refer to Detail 'A'. Position the Eyebolts (7) on the Leading Edge of the Aileron Assembly (5) into the Forkbolts (8) in the Trailing Edge of the Wing Assembly (6).
3. Attach the Aileron Assembly (5) to the Wing Assembly (6) with Hardware (9, 10 and 11). The Castle Nut (10) should face INBOARD. Bend the Cotter Pin (11) correctly.
4. Repeat attachment at the remaining THREE Hinge Points on the Wing and FOUR Hinge Points on the Opposite Wing.

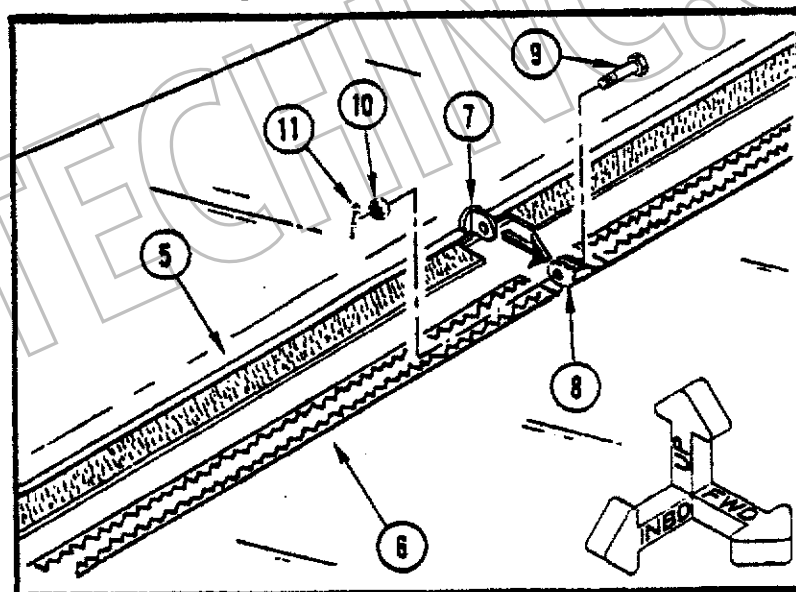
Item	P/N	Description
1.....		1st Hinge Attach Point
2.....		2nd Hinge Attach Point
3.....		3rd Hinge Attach Point
4.....		4th Hinge Attach Point
5.....		Leading Edge of Aileron Assembly
6.....		Trailing Edge of Wing Assembly
7...	10350..	AN43B-14A Eyebolt
8...	10387..	1/4" x 2 1/4" Forkbolt
9...	10009..	AN3-5 Bolt
10...	10517..	3/16" Castle Nut
11...	10635..	Cotter Pin

AILERON ATTACHMENT

FIG. 1



LEFT AILERON SHOWN



AILERON CABLE ATTACHMENT

1. Refer to Figure 1. Uncoil the Aileron Cables (2) hanging from the RIGHT wing Bellcrank (7). Route them OVER the Compression Strut (3), the Diagonal Strut (4) and the Anti-Drag Cable (5), to the Root Tube Bellcrank (6). Check that the Cables (1) and (2) are NOT twisted and DO NOT criss-cross.

2. Refer to Detail 'A'. Add Shackles (8) to BOTH of the Aileron Cables (2).

3. Connect the AFT RIGHT Cable (2) to the Root Tube Bellcrank (6) with the Hardware (9, 10, and 11) EXACTLY AS ILLUSTRATED. FINGER TIGHT ONLY.

IMPORTANT: The Bolt (9) must be inserted from the BOTTOM. Repeat for the RIGHT FORWARD Aileron Cable (2).

4. Add Shackles (8) to BOTH of the LEFT Aileron Cables (1).

5. Attach the LEFT AFT Aileron Cable (1), then the LEFT FORWARD Aileron Cable (1) IN THAT SEQUENCE, with Hardware (9, 10 and 11). FINGER TIGHT ONLY.

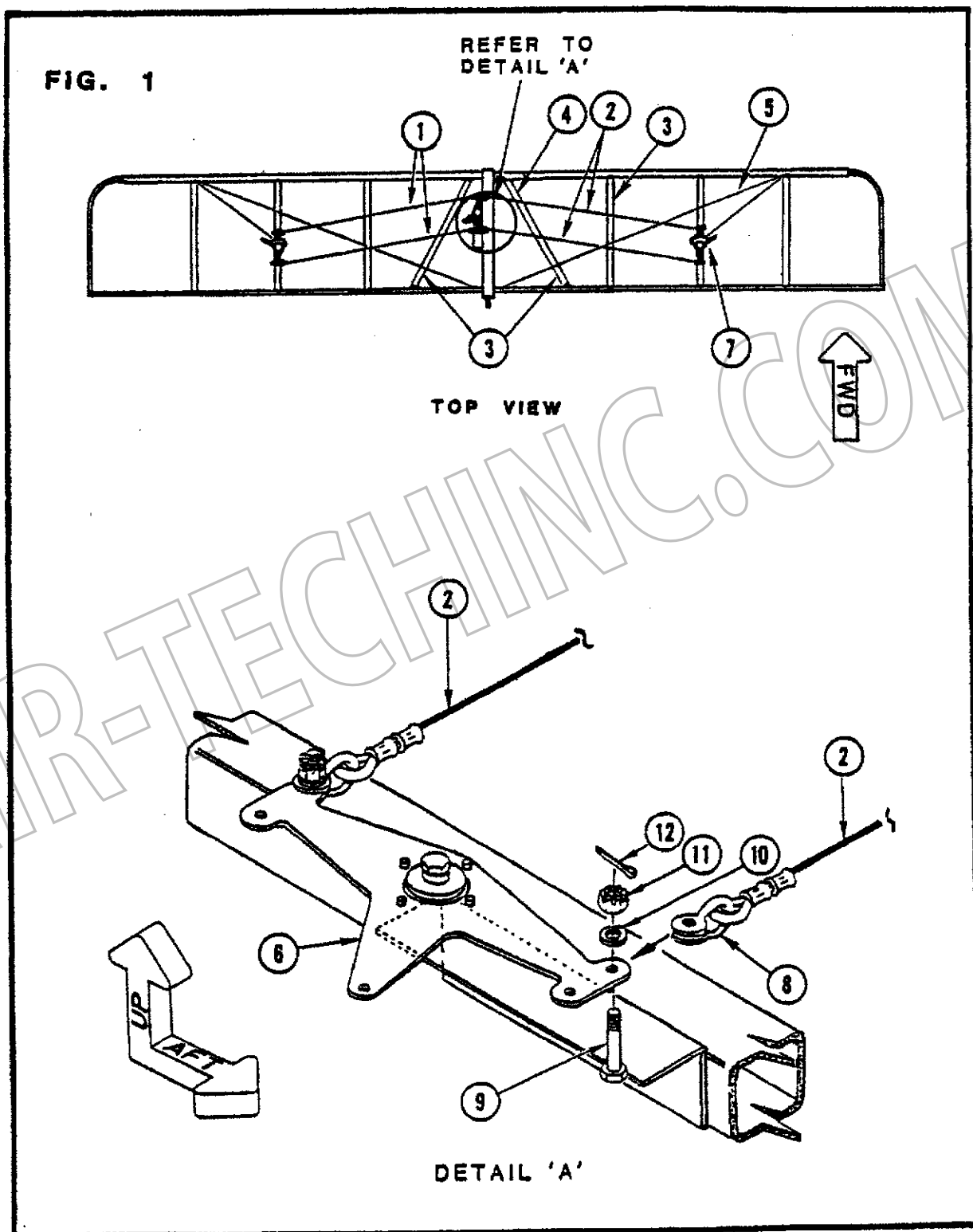
6. At this time it is permissible to twist any Cables which may be slightly long. Remove any Cables with excess slack and twist them in the appropriate direction to remove the slack and re-attach.

7. Attach ALL FOUR Cotter Pins (12) as illustrated and bend correctly.

8. If for any reason the Aileron Cables (1) or (2) will not reach the Root Tube Bellcrank and appear too short, TEMPORARILY loosen and remove the Bolt attaching the Root Tube Bellcrank (6) and allow the Bellcrank to 'float' while you attach the Cables (1) and (2). Re-attach the Bellcrank using a NEW Locknut and tighten to proper torque.

Item	P/N	Description	Item	P/N	Description
1...	91129..	Ail. Ctrl Cbl (LEFT)	7...	42009..	Ail. Bellcrank
2...	91130..	Ail. Ctrl Cbl (RIGHT)	8...	20320..	3/16" Shackle
3...	40283..	Compression Strut	9...	10009..	AN3-S Bolt
4...	40420..	Diagonal Strut	10...	10550..	3/16" Washer
5...	20618..	Anti-Drag Cable	11...	10517..	3/16" Castle Nut
6...	42002..	Aileron R. T. Bellcrnk	12...	10635..	Cotter Pin

AILERON CABLE ATTACHMENT



AILERON PUSHROD TEMPLATE CUT-OUT PLACEMENT

IMPORTANT: The following sequence on this page illustrates the **UNDERSIDE** or **BOTTOM** side of the **LEFT** Wing.

NOTE: Ensure **ALL** Zippers are **FULLY** closed and the Wing Cover is pulled **TIGHT BEFORE** marking any locations.

1. Refer to Figure 1. Measure **INBOARD** **95 1/2"** (242.57 cm) from the **OUTBOARD** edge of the Wing Tip. Mark this location on the **BOTTOM** surface of the Wing with a pencil.

2. Measure **FORWARD** **17 3/4"** (45.08 cm) from the **AFT** edge of the **Trailing Edge Wing Spar** and mark this location on the **BOTTOM** surface of the Wing with a pencil.

3. **CLEARLY** mark the intersection of these **TWO** lines.

NOTE: There should be a reinforcement patch sewn onto the **BOTTOM** surface of the Wing Cover at this location.

4. Refer to Page 12-9. Locate Template #8 and remove it from the Assembly Instructions.

5. Refer to Figure 2. Position the Template 'window' **CENTERED** **OVER** the 'marked' intersection in Step 3. Trace around the Template and pencil its outline onto the **BOTTOM** surface of the Wing Cover. Remove the Template.

6. Refer to Figures 3 and 4. Use an Exacto Knife or Hot Knife to cut-out and heat seal the Pushrod Assembly Insert Slot as illustrated.

7. Erase any remaining pencil marks if desired.

8. Repeat the sequence for the opposite Wing mirror image.

Item	P/N	Description
1...	50041..	Wing Cover (Left)
2.....		Template #8
3...	40145..	Root Tube Assembly

AILERON PUSHROD

10-7

TEMPLATE CUT-OUT PLACEMENT

FIG. 1

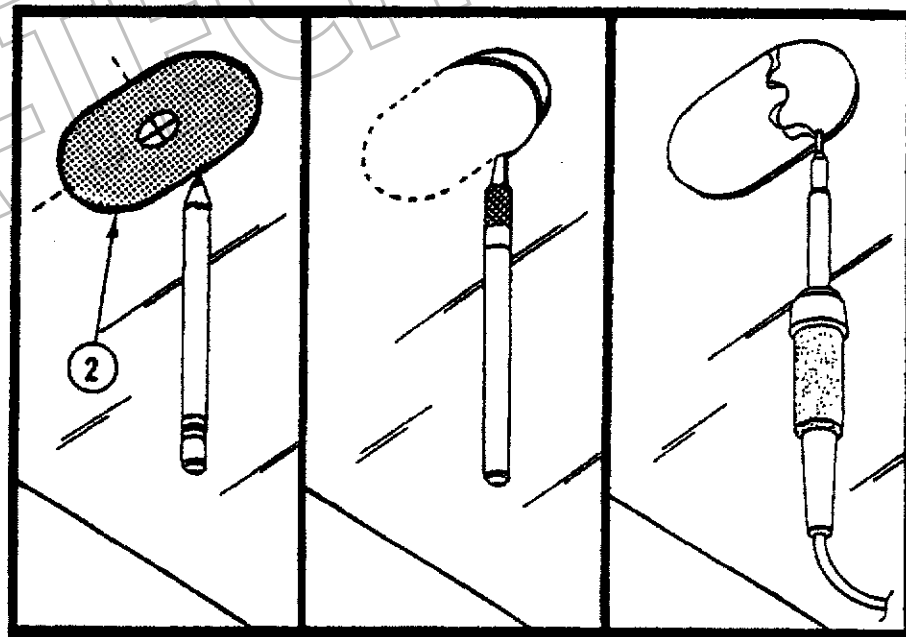
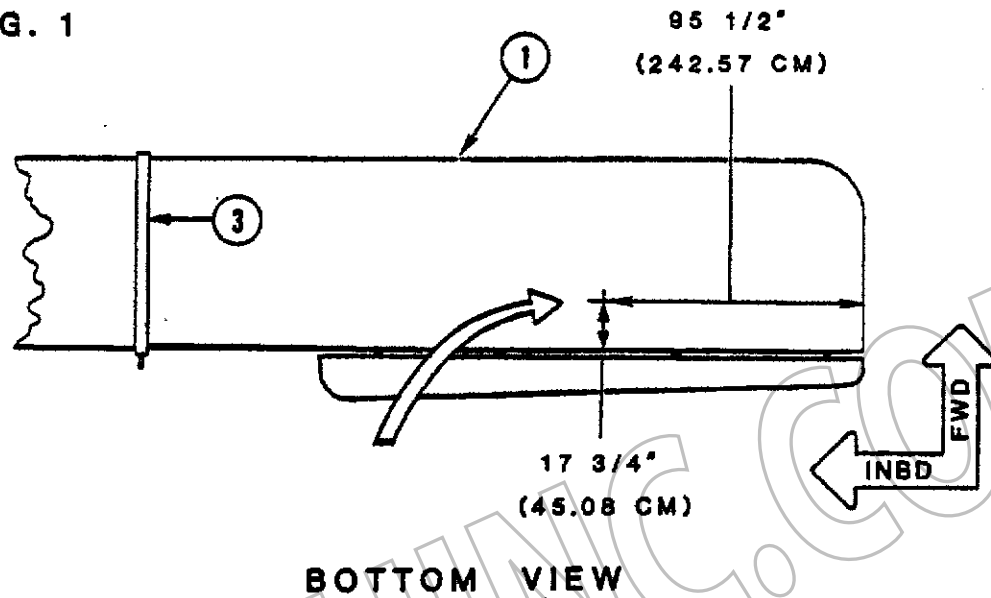


FIG. 2

FIG. 3

FIG. 4

AILERON PUSHROD ASSEMBLY ATTACHMENT (FORWARD)

1. Thread a Non-Locking (Jam) Nut (2) onto the end of a Male Rod End Bearing (3) a MINIMUM of TEN turns. Thread the Male Rod End Bearing (3) into the Threaded Insert of the Aileron Push Rod Assembly (4) only up to the Jam Nut (2).

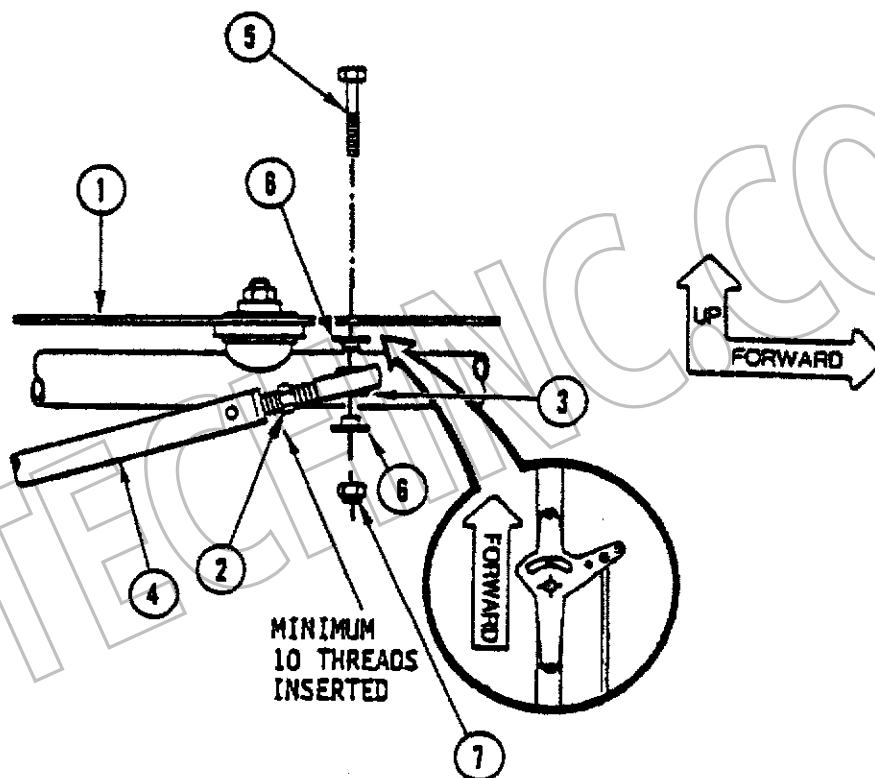
2. Attach the Male Rod End Bearing (3) at the FORWARD end of the Aileron Pushrod Assembly (4) to the CENTER hole in the arm of the Bellcrank Assembly (1) with Hardware (5, 6 and 7). Notice correct orientation of the 'T'-Bushings (6). If Washers (8) [not illustrated] are required, add them as necessary to secure the Locknut (7) properly. Tighten to proper torque.

3. Repeat for the opposite (LEFT) Wing, mirror image.

NOTE: Attaching the Aileron Push Rod Assembly (4) to the OUTBOARD hole in the Aileron Bellcrank Arm (Horn) produces MORE Aileron deflection and MORE Aileron control pressure. Attaching the Aileron Pushrod Assembly (4) to the Aileron Bellcrank INBOARD hole produces LESS Aileron deflection and LESS Aileron control pressure. You may wish to experiment with this AFTER you are familiar with the flight characteristics of your Aircraft.

| Item | P/N | Description | |-------------|-----|----------------------------| | 1..... | | Aileron Bellcrank Assembly | | 2...10631.. | | 1/4" Non-Locking (Jam) Nut | | 3...10700.. | | Male Rod End Bearing | | 4...40347.. | | Aileron Pushrod Assembly | | 5...10025.. | | AN3-11A Bolt | | 6...20241.. | | 'T' Bushing | | 7...10500.. | | 3/16" Locknut | | 8...10550.. | | 3/16" Washer |

AILERON PUSHROD ATTACHMENT (FORWARD)



SIDE VIEW

RIGHT SIDE SHOWN

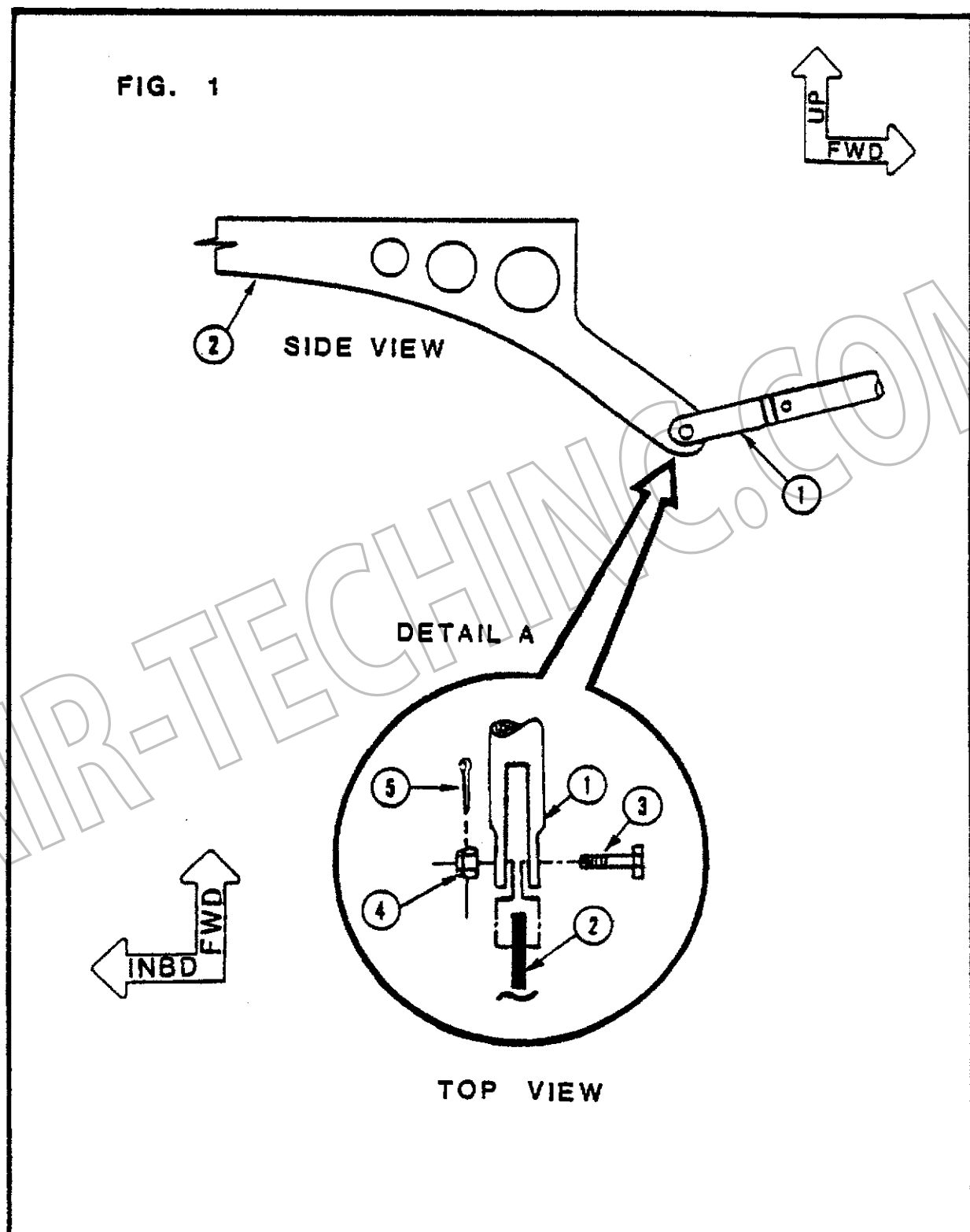
AILERON PUSHROD ATTACHMENT (AFT)

1. Refer to Figure 1 and Detail 'A'. Attach the Aileron Pushrod Assembly (1) to the Aileron Control Arm [Horn] (2) with Hardware (3, 4 and 5). Bend Cotter Pin (4) correctly after correct Aileron deflection has been achieved (from the previous page).

Item P/N Description

- 1...40347..Aileron Pushrod Assembly
- 2...71018..Aileron Control Arm (Horn)
- 3...10009..AN3-5 Bolt
- 4...10517..3/16" Castle Nut
- 5...10635..Cotter Pin

AILERON PUSHROD ATTACHMENT (AFT)



AILERON ADJUSTMENT

Before beginning the following sequence, tie the Control Stick into the Vertical or 'Neutral' position. Ensure the Root Tube Bellcrank (not illustrated) is EXACTLY parallel to the Root Tube Assembly. Refer to Page 8-44.

1. Refer to Figure 1. Position a straight edge (wood, tube, or sight down a string) against the BOTTOM surface of either Wing coming into contact with the Leading Edge Spar (1), Trailing Edge Spar (2), and BOTTOM surface of the Aileron (3). Place an angle indicator on the LOWER surface of the Aileron, this will establish ZERO DEGREES of Aileron Deflection.

2. Refer to Figure 2, Detail 'A'. Thread a Non-Locking (Jam) Nut onto the Male Rod End Bearing a MINIMUM of TEN threads.

NOTE: Before beginning the next sequence, after each attempt at adjusting the Ailerons, ensure the Root Tube Bellcrank (not illustrated) is aligned EXACTLY parallel to the Root Tube Assembly. Refer to Page 8-44.

3. Refer to Figure 2. Adjust the Aileron Deflection by twisting the Aileron Push Rod Assembly (4) onto the Male Rod End Bearing (5). Align the holes in the Fork on the AFT end of the Push Rod Assembly (4) with the hole in the Aileron Control Arm (Horn) (6). Continue to adjust the Aileron Pushrod Assembly (4) until ZERO DEGREES of deflection is achieved and the Male Rod End Bearing (5) is threaded a minimum of TEN full turns inside the Aileron Push Rod Assembly (4). When the adjustment is complete, 'lock' the Aileron Pushrod Assembly (4) by tightening the Jam Nut (8).

4. Insert a Bolt (9) through the hole in the Aileron Pushrod Assembly (4) Fork and the Aileron Control Arm (6). Add a Castle Nut (10) and Cotter Pin (11). Bend the Cotter Pin correctly.

5. Repeat Steps 1 through 4 on the opposite Wing.

Item	P/N	Description	Item	P/N	Description
1.	80230.	Leading Edge Spar	6.	71018.	Aileron Arm (Horn)
2.	80220.	Trailing Edge Spar	7.	42009.	Aileron Bellcrank
3.	Aileron Assembly	8.	10631.	1/4" Jam Nut
4.	40347.	Aileron Pushrod Assy.	9.	10009.	AN3-5 Bolt
5.	10700.	Male Rod End Bearing	10.	10517.	3/16" Castle Nut
			11.	10635.	Cotter Pin

AILERON ADJUSTMENT

FIG. 1

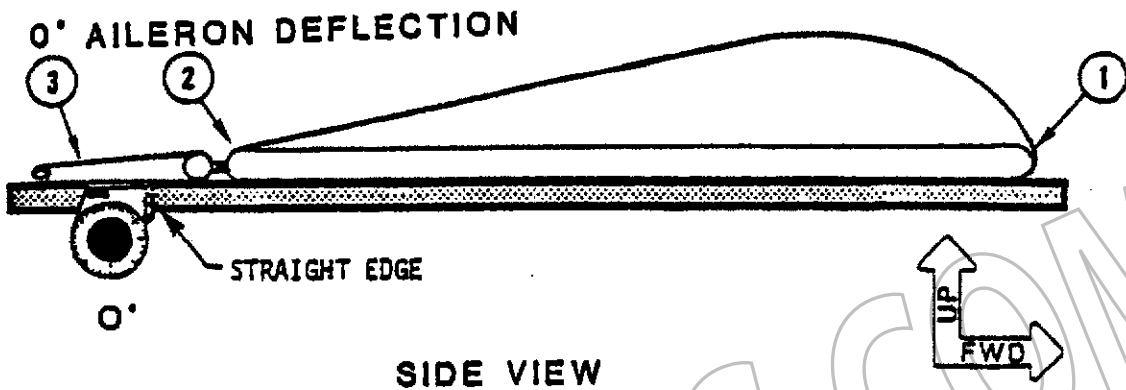
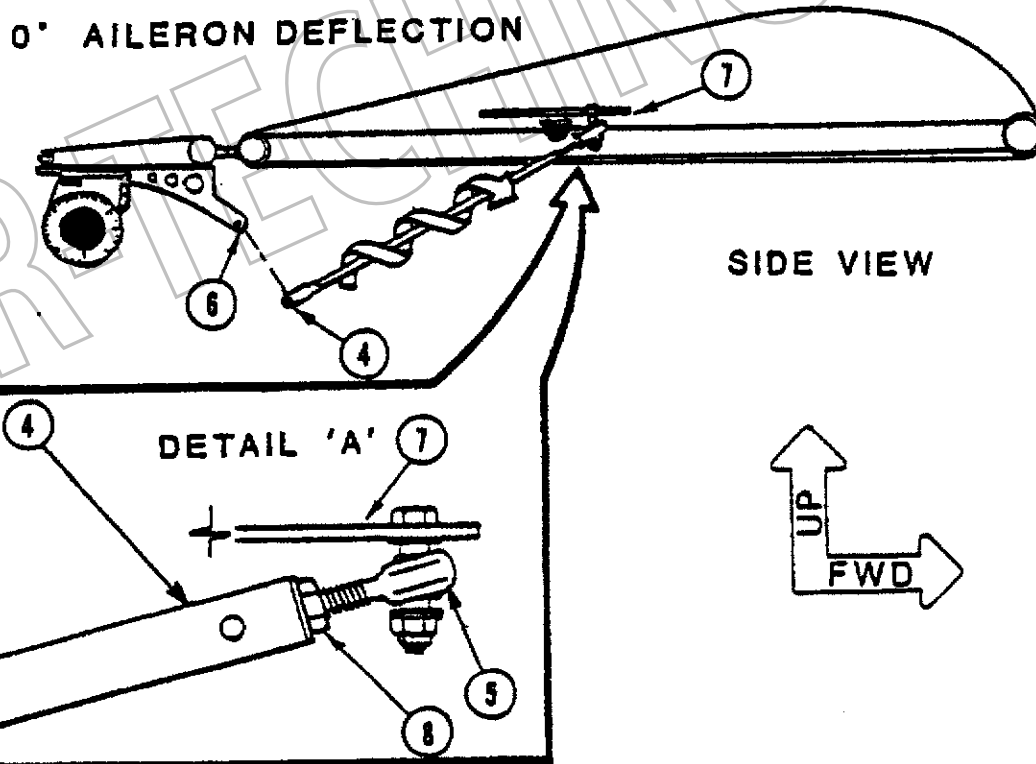


FIG. 2

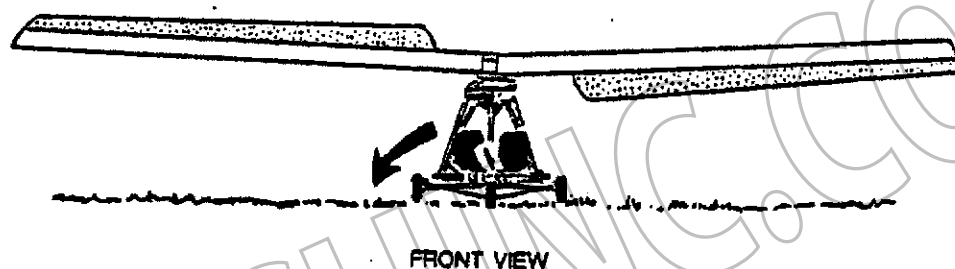
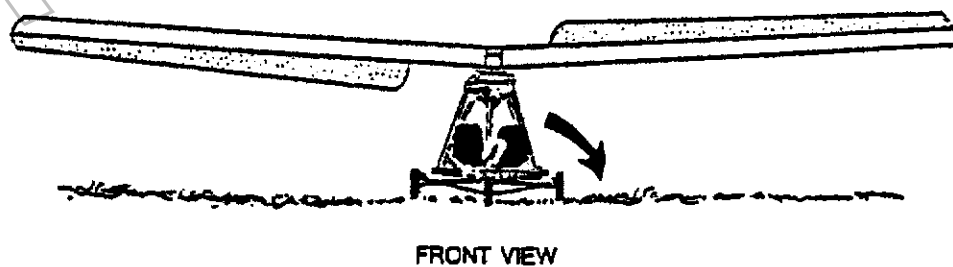


AILERON CONTROL SYSTEM CHECK

1. Verify that the Aileron Control System has been properly assembled.
2. Refer to Figure 1. Move the Control Stick to the RIGHT, the RIGHT Aileron should be UP. At the same time the LEFT Aileron should be DOWN.
3. Refer to Figure 2. Move the Control Stick to the LEFT, the LEFT Aileron should be UP. At the same time the RIGHT Aileron should be DOWN.
4. If this is not the case, STOP! You must correct the linkage problem BEFORE going on to the next Step.
5. If the Control Linkage feels STIFF:
 - A. Check for correct routing. Verify the Aileron Cable is not rubbing on a Compression Strut or the Anti-Drag Wire.
 - B. Verify that the Aileron Eyebolt and Forkbolt Hinge points are vertically aligned.
 - C. Verify that the Push/Pull Control Cable is not pinched at either end in the Attachment Clamps.
 - D. You may wish to lubricate the Push/Pull Cable internally with a lubricant spray such as WD-40.
 - E. Check the Control Stick Attach Pivot Bolt to verify that it has NOT been OVERTORQUED.
 - F. Verify that BOTH Aileron Pushrod Assemblies are not rubbing against the sides of the Aileron Pushrod Insert Slots and causing unnecessary friction in the system. Apply FULL LEFT and FULL RIGHT Ailerons. Modify the Aileron Pushrod Insert Slots by additional Heat-cutting if necessary.

IMPORTANT: When you are satisfied with the Aileron control system use an Angle Finder and the Bellcrank Strut for reference. Measure the MAXIMUM UPWARD and MAXIMUM DOWNWARD Aileron travel (deflection) of each Aileron. A MINIMUM of 25 Degrees UPWARD Aileron and a MINIMUM of 15 DEGREES of DOWNWARD Aileron should be obtained. If these MINIMUMS can not be obtained contact your QUICKSILVER Dealer.

AILERON CONTROL SYSTEM CHECK

FIG. 1**FIG. 2**

ELEVATOR TO STABILIZER ATTACHMENT

NOTE: Before beginning the following sequence you may wish to lubricate the contacting surfaces of the Eyebolts (4) and Forkbolts (3) with WD-40 Lubricant Spray or Lithium Grease.

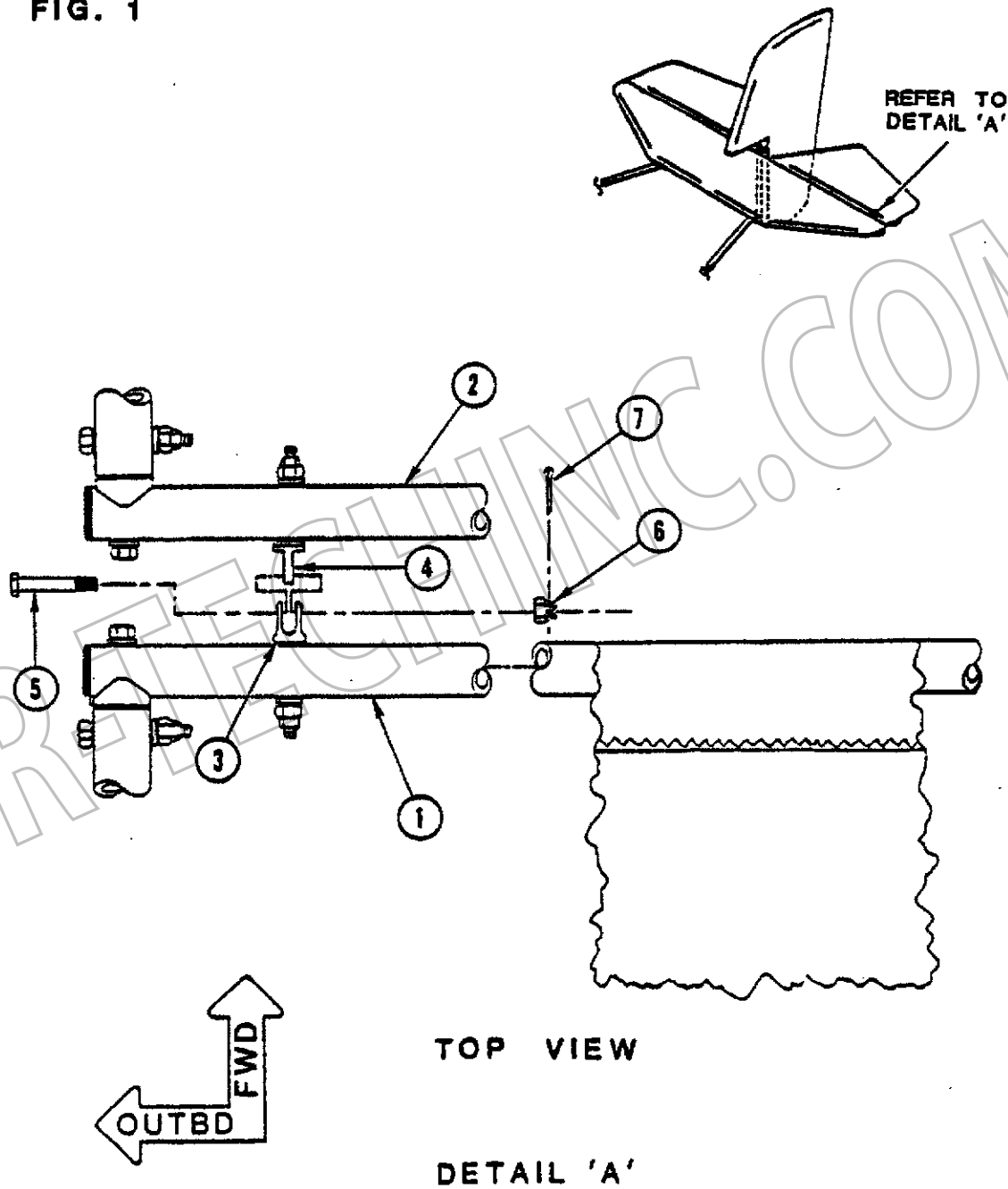
1. Refer to Figure 1 and Detail 'A'. Align the Forkbolt (3) in the Elevator Leading Edge Assembly (1) with the Eyebolt (4) in the Stabilizer Trailing Edge (2).
2. Insert a Bolt (5) with a Castle Nut (6). Secure with a Cotter Pin (7). Bend the Cotter Pin correctly.
3. Repeat for the TWO remaining Elevator Hinge Points.

Item P/N Description

- | | | |
|------|---------|-----------------------------------|
| 1... | 70130.. | Elevator Leading Edge Assembly |
| 2... | 40275.. | Stabilizer Trailing Edge Assembly |
| 3... | 10390.. | 1/4" x 1 1/2" Forkbolt |
| 4... | 10350.. | AN43B-14A Eyebolt |
| 5... | 10009.. | AN3-5 Bolt |
| 6... | 10517.. | 3/16" Castle Nut |
| 7... | 10635.. | Cotter Pin |

ELEVATOR TO STABILIZER ATTACHMENT

FIG. 1



ELEVATOR PUSH/PULL TUBE (AFT) ATTACHMENT TO ELEVATOR

1. Refer to Figure 1. Note the correct orientation of the Aft Elevator Push/Pull Tube (1) [The bend is located near the FORWARD end of the Tube].
2. Refer to Detail 'A'. Insert the Elevator Tube Clevis (2) into the AFT end of the Aft Elevator Push/Pull Tube (1). Attach with hardware (3, 4 and 5) as illustrated. Tighten to proper torque.
3. Guide the AFT end of the Elevator Push/Pull Tube Assembly between the Rudder Brace Tube and the Tail Brace Tube (not illustrated) on the RIGHT side of aircraft as looking FORWARD.
4. Refer to pages 10-18 and 10-19 and TEMPORARILY attach (FINGER TIGHT ONLY) the FORWARD end of the Aft Elevator Push/Pull Tube Assembly (1) to the Attach Brackets (2) with hardware (3, 4 and 5) as illustrated.
5. Refer to page 10-17. Position the Aft Elevator Push/Pull Tube accordingly for attachment to the Elevator Control Arm (Horn). TEMPORARILY insert the Bolt (6) through the Elevator Tube Clevis (2), Elevator Control Arm [Horn] (7), and Washer (8). Add a Castle Nut (9) FINGER TIGHT ONLY.
6. Refer back to pages 2-14 and 2-15. Complete Step 4. as illustrated.
7. Refer to page 10-17. Tighten the Castle Nut (9). Add the Cotter Pin (10). Bend the Cotter Pin Correctly.
8. Proceed to page 10-18 and complete the Assembly.

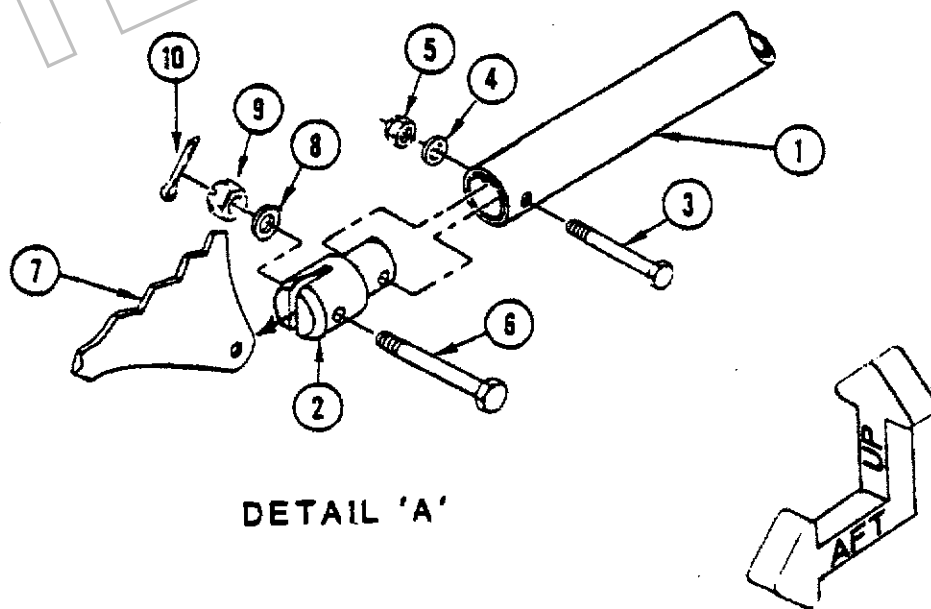
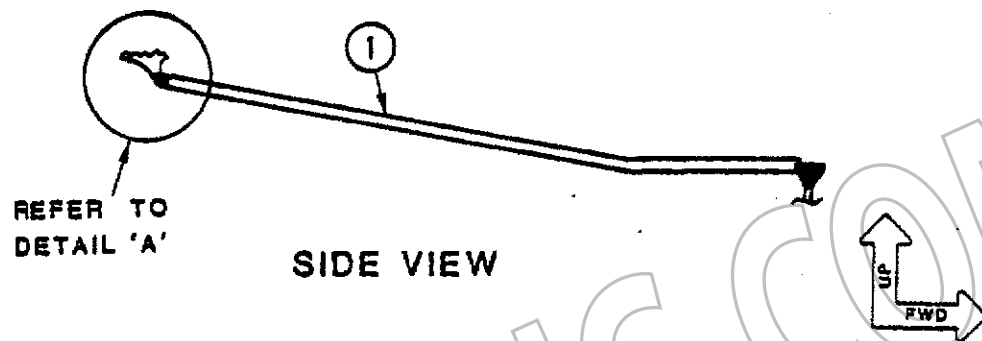
Item	P/N	Description
1...	40178...	Aft Elevator Push/Pull Tube
2...	70190...	Elevator Tube Clevis
3...	10035...	AN3-14A Bolt
4...	10550...	3/16" Washer
5...	10500...	3/16" Locknut
6...	10110...	AN4-14 Bolt
7...	70070...	Elevator Control Arm (Horn)
8...	10560...	1/4" Washer
9...	10521...	1/4" Castle Nut
10...	10635...	Cotter Pin

ELEVATOR PUSH/PULL TUBE

10-19

(AFT) ATTACHMENT TO ELEVATOR

FIG. 1



AFT ELEVATOR PUSH/PULL TUBE (FORWARD) ATTACHMENT

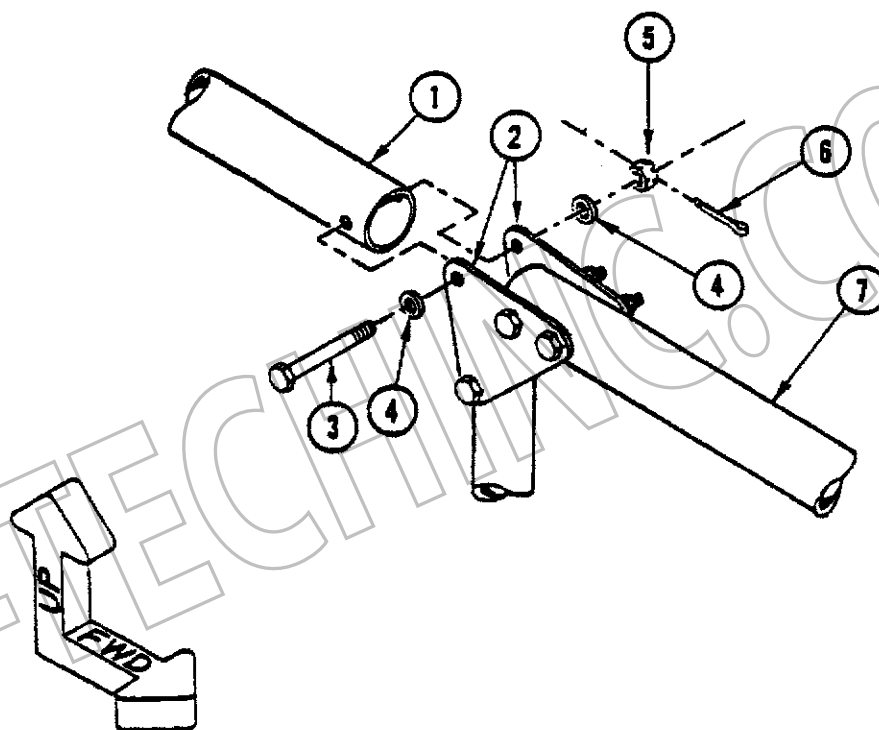
1. Insert the Aft Elevator Push/Pull Tube (1) between the Brackets (2).
2. Insert a Bolt (3) with Hardware (4 and 5). Secure with a Cotter Pin (6). Bend the Cotter Pin correctly.

Item	P/N	Description
1...	40178..	Aft Elevator Push/Pull Tube
2...	70600..	Attach Bracket
3...	10044..	AN3-16 Bolt
4...	10550..	3/16" Washer
5...	10517..	3/16" Castle Nut
6...	10635..	Cotter Pin
7...	40177..	Forward Elevator Push/Pull Tube
8...	40176..	Idler Tube

AFT ELEVATOR PUSH/PULL

10-21

TUBE (FORWARD) ATTACHMENT



ELEVATOR STOP CABLE ATTACHMENT

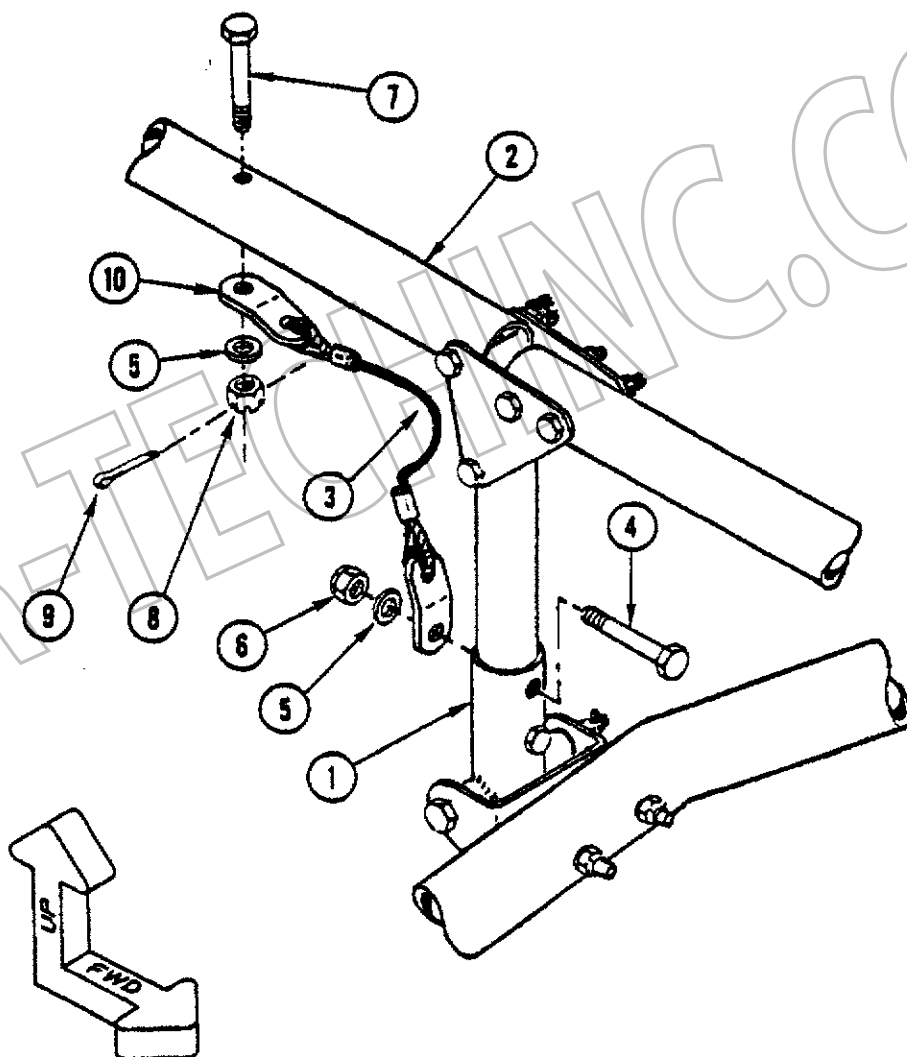
1. Enlarge and deburr the existing UPPER 3/16" (4.7 mm) diameter hole in the Base Mount Assembly (1) to 1/4" (6.4 mm).
2. Attach either end of the Elevator Stop Cable (3) to the Base Mount Assembly (1) with Hardware (4, 5 and 6) as illustrated. Tighten to proper torque.
3. Locate the 1/4" (6.4 mm) diameter hole 6" (15.24 cm) AFT from the FORWARD end of the Aft Elevator Push/Pull Tube (2). Attach the opposite end of the Elevator Stop Cable (3) with the Hardware (7, 8 and 9). Tighten but DO NOT CRUSH THE TUBE.

NOTE: The Castle Nut (8) must be tightened securely to prevent the Tang (10) from rotating and possibly becoming locked into position.

IMPORTANT: The Elevator Adjust Tube has only TWO holes for adjustment. The most FORWARD hole is for the Seat in the AFT position. The SECOND hole is for the Seat in the FORWARD position. Check to ensure that the Elevator travels a MINIMUM of 25 degrees UP and 15 degrees DOWN (with respect to the Horizontal Stabilizer at ZERO degrees incidence) in either the FORWARD or the AFT Seat position. Contact your QUICKSILVER Dealer if these angles are not obtained.

Item	P/N	Description
1...	45507..	Base Mount Assembly
2...	40178..	Aft Elevator Push/Pull Tube
3...	21564..	Elevator Stop Cable
4...	10120..	AN4-15A Bolt
5...	10560..	1/4" Washer
6...	10510..	1/4" Locknut
7...	10121..	AN4-15 Bolt
8...	10521..	1/4" Castle Nut
9...	10635..	Cotter Pin
10...	20350..	20 Degree Tang (part of P/N 21564)

ELEVATOR STOP CABLE ATTACHMENT



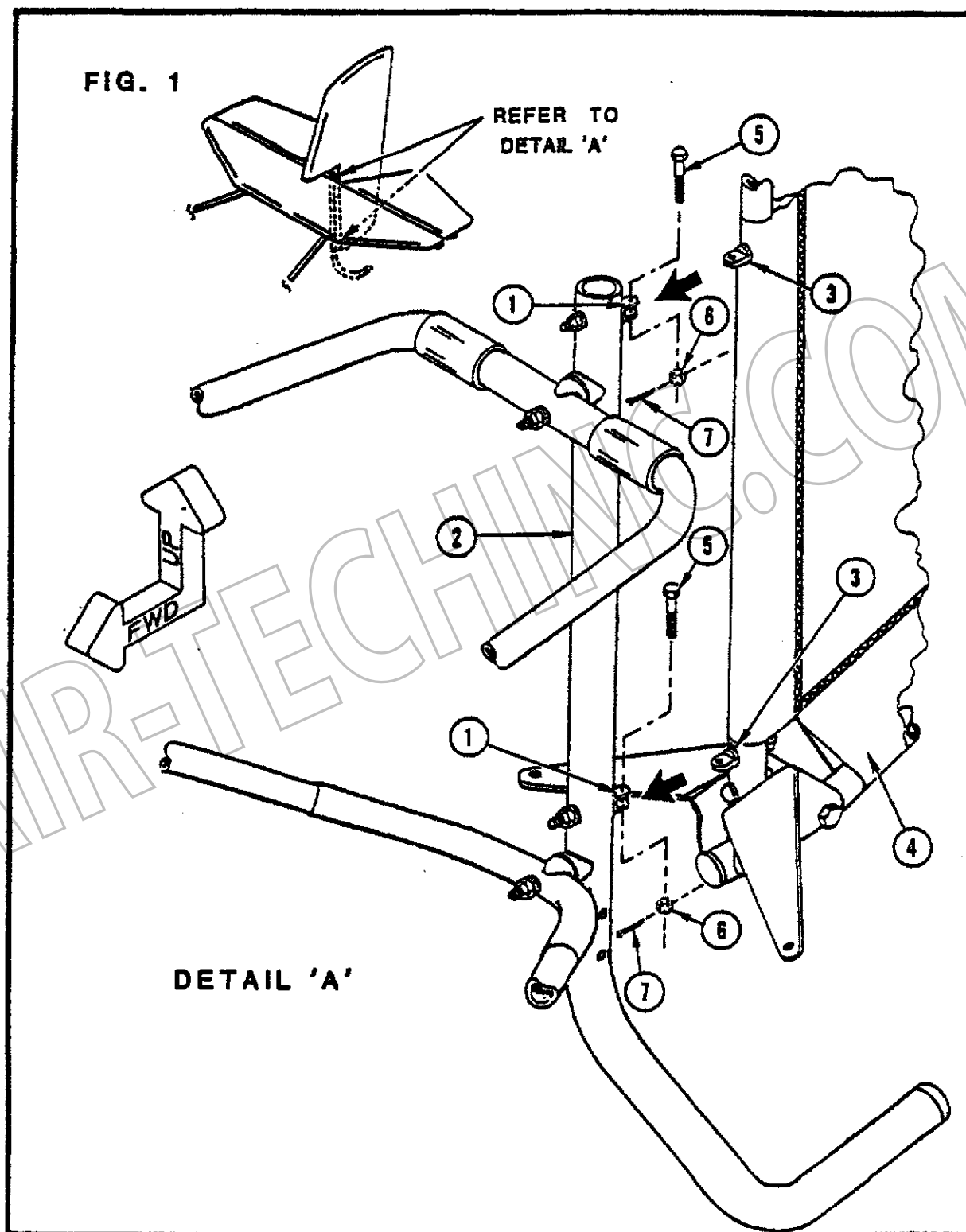
RUDDER TO TAIL SKID ATTACHMENT

Before beginning the following sequence, you may wish to lubricate the Eyebolt (3) and Forkbolt (1) contacting surfaces with 'WD-40' or Lithium Grease.

1. Refer to Figure 1. Locate the TWO Eyebolts (3) attached to the Rudder Assembly (4) and the TWO Forkbolts (1) attached to the Tail Skid (2).
2. Refer to Detail 'A'. Align the UPPER Eyebolt (3) with the UPPER Forkbolt (1). Attach the Rudder (4) to the Tail Skid (2) with the Hardware (5, 6 and 7). Bend the Cotter Pin correctly.
3. Repeat Step 2 for the LOWER Forkbolt (1) and Eyebolt (3). Bend the Cotter Pin (7) correctly.

Item	P/N	Description
1...	10390..	1/4" x 1 1/2" Forkbolt
2...	41150..	Tail Skid
3...	10350..	AN43B-14A Eyebolt
4.....		Rudder Assembly
5...	10009..	AN3-5 Bolt
6...	10517..	3/16" Castle Nut
7...	10635..	Cotter Pin

RUDDER TO TAIL SKID ATTACHMENT



RUDDER CABLE ATTACHMENT (FORWARD AND AFT)

1. Refer to Figure 1. Attach the Right Rudder Cable (9) to the Eyebolt (12) attached to the RIGHT Pedal of the RIGHT Seat. Connect the Left Rudder Cable (1) to the Eyebolt (12) attached to the LEFT Pedal of the LEFT Seat. Use the Hardware (2, 6 and 7). NOTE: The Bolt (2) should be inserted so that the Cotter Pin (7) faces INBOARD or away from the pilot's and passenger's feet.

2. Refer to Figure 2. Attach the LEFT Rudder Cable (1) to the LEFT Rudder Horn (4) with the Hardware (2, 3, 6 and 7) as illustrated. Bend the Cotter Pin (7) correctly.

3. Attach the RIGHT Rudder Cable Extension (8) to the RIGHT Rudder Horn (11) with the Hardware (3, 5, 6 and 7). Bend the Cotter Pin (7) correctly.

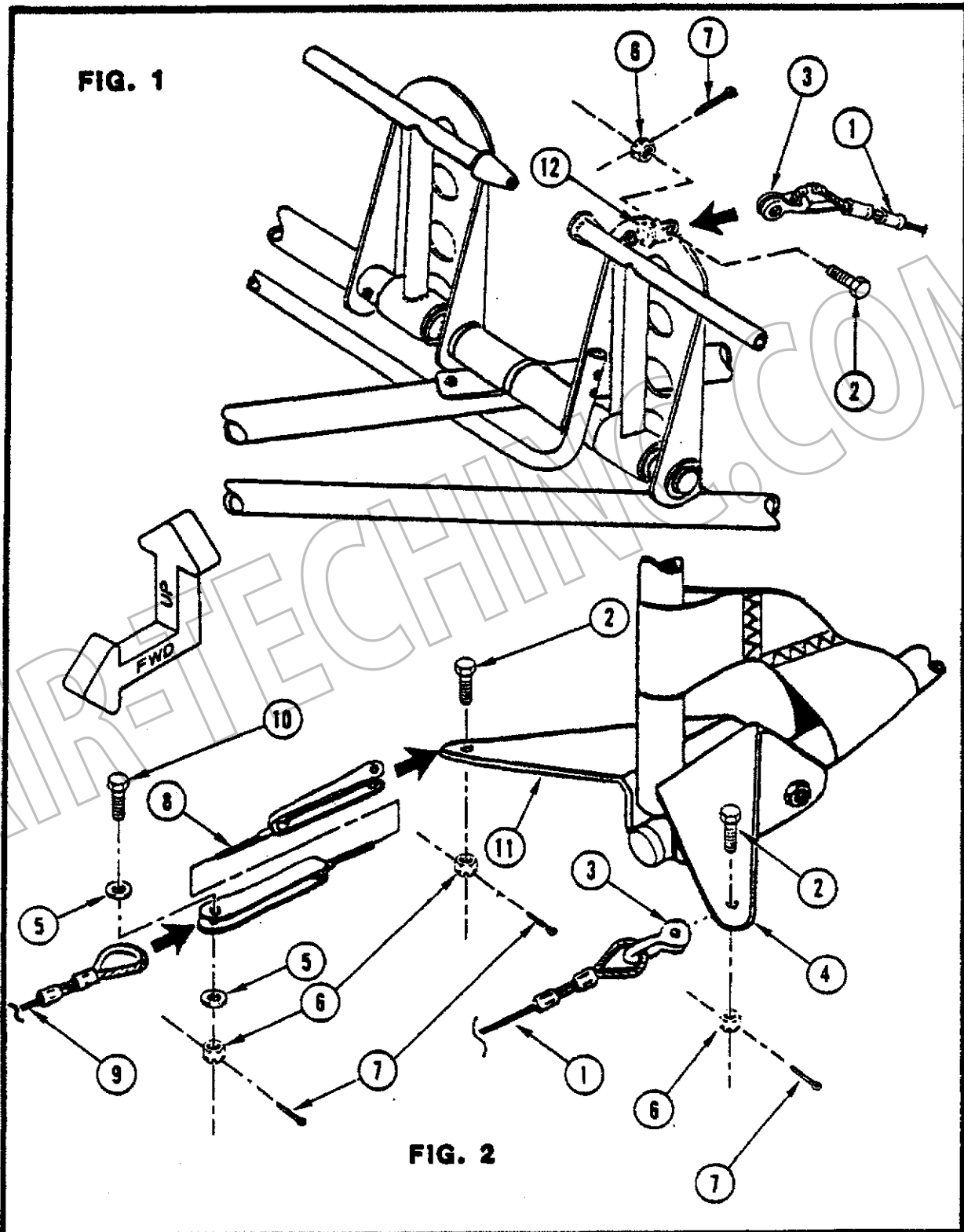
4. Attach the RIGHT Rudder Cable (9) to the RIGHT Rudder Cable Extension (8) with Hardware (3, 6 and 7). Bend the Cotter Pin correctly.

Item	P/N	Description
1...	91123..	Left Rudder Cable
2...	10009..	AN3-5 Bolt
3...	20320..	3/16" Shackle
4...	70291..	Left Rudder Horn
5...	10550..	3/16" Washer
6...	10517..	3/16" Castle Nut
7...	10635..	Cotter Pin
8...	91112..	Right Rudder Cable Extension
9...	91122..	Right Rudder Cable
10...	10018..	AN3-7 Bolt
11...	70292..	Right Rudder Horn
12...	10371..	AN43B-15A Full Thread Eyebolt

RUDDER CABLE

10-27

ATTACHMENT (FORWARD AND AFT)



RUDDER PEDAL STOP (FORWARD) ADJUSTMENT

1. Depress the LEFT Foot Pedal and apply FULL LEFT Rudder. Notice where the Foot Pedal Heels (2) of BOTH OPPOSITE (RIGHT) Rudder Foot Pedals make contact with the Rudder Pedal Stop Tube (3) at the SAME time the Rudder contacts the Elevator at the Tail of the Aircraft.

2. Bend the Heels (2) of BOTH RIGHT Foot Pedals, if necessary, as to contact the Pedal Stop Tube (3) BEFORE the Rudder contacts the Elevator, however still allowing FULL Rudder deflection.

3. When BOTH RIGHT Pedals have been adjusted repeat the procedure for BOTH the opposite (LEFT) Foot Pedals.

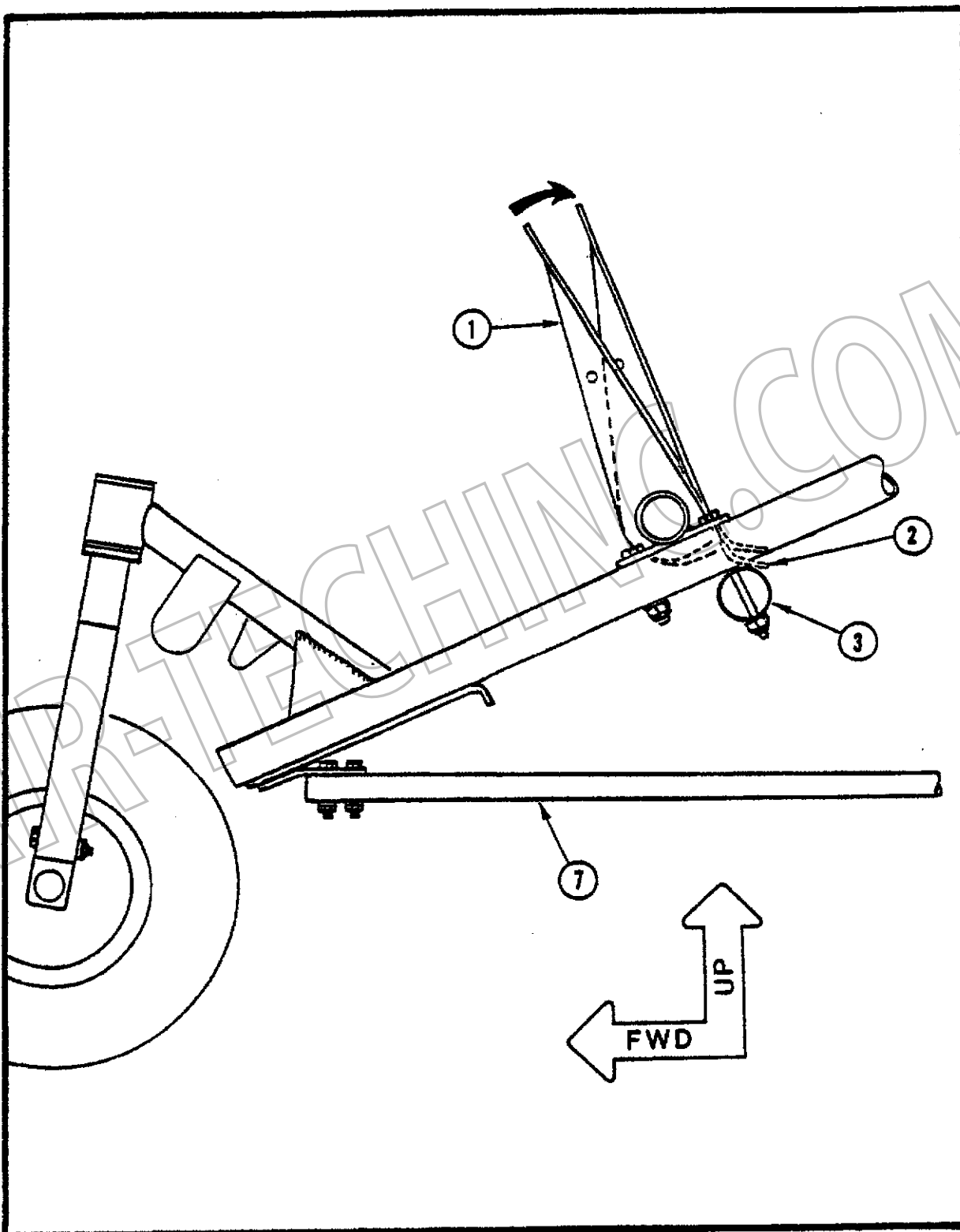
4. Re-check for FULL Rudder deflection on ALL FOUR Foot Pedals.

Item	P/N	Description
1...	70231..	Foot Pedal
2.....		Foot Pedal Heel
3...	40442..	Rudder Pedal Stop Tube

RUDDER PEDAL STOP

10-29

(FORWARD) ADJUSTMENT



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SECTION 11

FINAL ASSEMBLY

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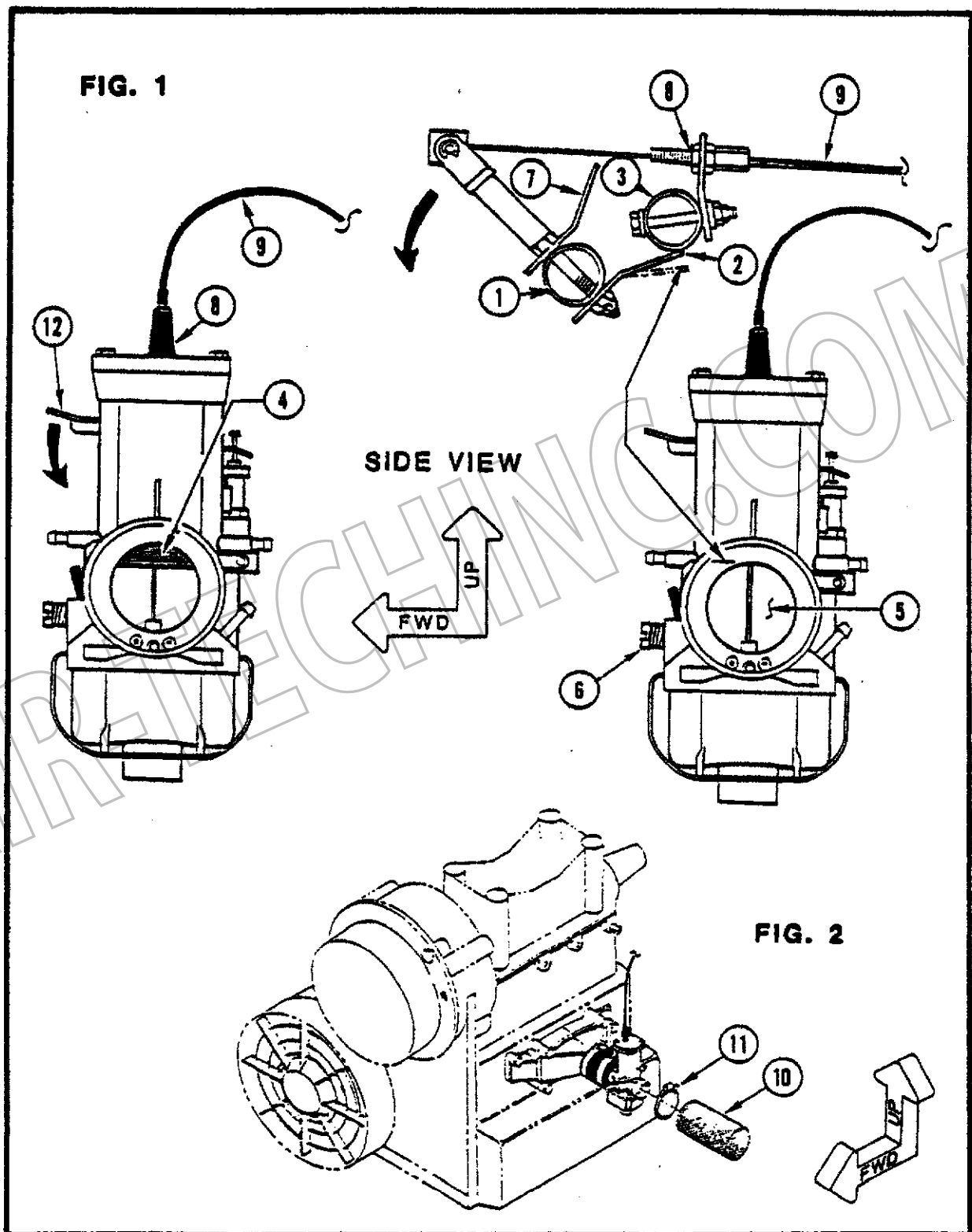
THROTTLE CABLE ADJUSTMENT AND AIR FILTER ATTACHMENT

1. Refer to Figure 1. Rotate the Throttle Torque Tube (1) FORWARD until the Full Throttle Stop (2) comes into contact with the Seat Mount Assembly Crosstube (3).
2. Bend the Full Throttle Stop to allow the Carburetor Slide (4) to clear the Throat (5) area if necessary. Locate and unscrew the Idle Stop Screw (6) [as required] so it will not prevent the Slide (4) from completely closing the Throat area.
3. Rotate the Throttle Torque Tube (1) back until the Idle Stop Tang (7) comes into contact with the Seat Mount Crosstube (3). Bend the Idle Stop Tang (7) so that a 'click' can be heard when the Slide (4) comes into contact with the BOTTOM of the Carburetor Throat (5).
4. Fine adjustments can be made for 'Full Open' and 'Closed' Throttle using the Conduit Thread Adjusters (8) at either end of the Throttle Cable (9). Turn the Idle Adjustment Screw (6) IN until the Slide (4) rises only slightly. Final Idle Adjustment will be made after the Engine has been started.
5. Pull the Air Filter Internal Spring (not illustrated) partially out from the Air Filter (10) and screw at least SIX FULL turns onto the Carburetor Inlet.
6. Slide the Air Filter [Sock] (10) UP and OVER the Spring and secure it into place with the Filter Clamp (11). Be sure this Clamp (11) is tight enough to prevent the Filter from vibrating off into the Propeller.

Item	P/N	Description	Item	P/N	Description
1...	91003.....	Thrtl Torque Tube	7...	20350..	Idle Stop Tang
2...	20360.....	Full Thrtl Stp Tng	8...	90270..	Conduit Thrd Adj
3...	80011.....	Seat Mnt Crosstube	9...	90280..	Throttle Cable
4...	00963679..	Carburetor Slide	10...	60000..	Air Filter
5.....		Carb. Throat Area	11.....		Air Filter Clamp
6...	00963160..	Idle Stop Screw	12.....		Manual Choke Lvr

THROTTLE CABLE ADJUSTMENT AND AIR FILTER ATTACHMENT

11-3



THROTTLE LEVER ATTACHMENT

1. Refer to Figure 1. Rotate the Throttle Torque Tube (5) FORWARD into the 'FULLY OPEN' position so that the LOWER Throttle Stop Tang (6) makes contact with the Seat Mount Assembly (7).

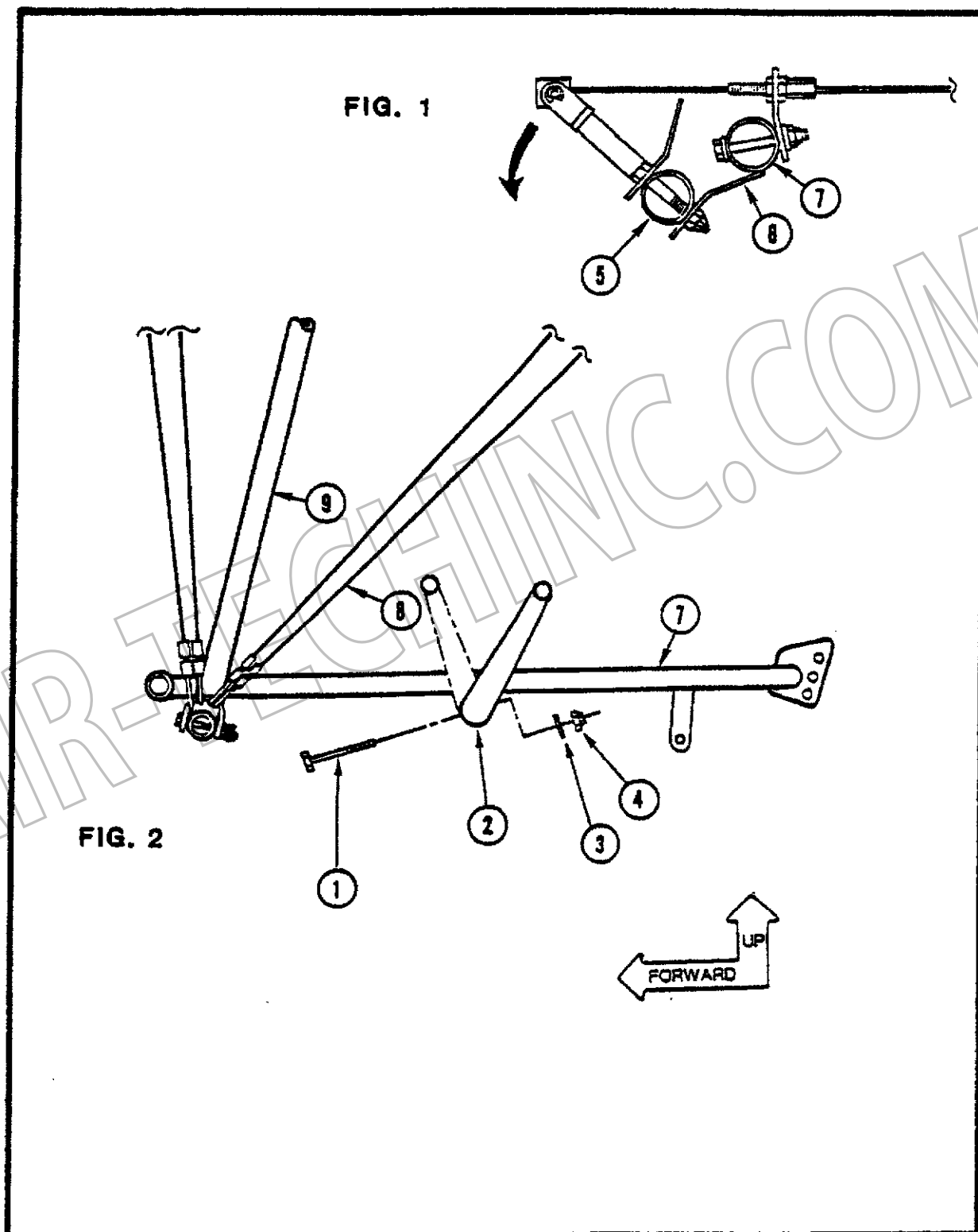
2. Refer to Figure 2. Install a Throttle Lever Assembly (2) onto the LEFT side of the Throttle Torque Tube (5) and sit in the LEFT seat. Adjust the lever so that your hand comfortably clears the Lower Wing Cables (8) at 'FULL' throttle as shown. (Approximately 2" (5.08 cm) clearance).

3. With the Lever (2) in this position, back-drill through BOTH EXISTING holes in the Throttle Lever Assembly (2) a 3/16" (4.7 mm) hole through BOTH walls of the Torque Tube (5). Attach the Throttle Lever Assembly (2) with Hardware (1, 3 and 4). Tighten to correct torque but DO NOT DISTORT THE TUBE.

4. Repeat the assembly sequence for the RIGHT side, mirror image.

Item	P/N	Description
1...	10030..	AN3-13A Bolt
2...	91001..	Throttle Lever Assembly
3...	10550..	3/16" Washer
4...	10500..	3/16" Locknut
5...	91003..	Throttle Torque Tube
6...	20360..	Tang, Lower (Full Throttle) Stop
7...	80011..	Seat Mount Assembly
8.....		Lower Wing Cables
9...	41230..	Tri-Bar Downtube

THROTTLE LEVER ATTACHMENT



BRAKE CABLE ADJUSTMENT

NOTE: During the following assembly sequence you will need an 1/8" (3.2 mm) Allen or Hex Wrench.

1. Refer to Figure 1. Adjust the Eyebolt/Conduit Thread Adjuster (1) angle so that the Brake Cable (2) leads to the Set Collar (3) in a STRAIGHT LINE as illustrated.

2. Adjust the Conduit Thread Adjuster (1) [on the Eyebolt (4)] all the way IN.

3. Refer to Figures 2 and 3. Cut TWO 2" (5.08 cm) pieces of Copper Cable Sleeve Blanks (5) use a FINE tooth coping saw or a hacksaw. Deburr the ends of the Blanks with an OVERSIZE drill bit (BY HAND ONLY).

4. Refer to Figure 4. Slide the Cable Sleeve (5) OVER the end of the Brake Cable (2).

5. Cut the Spring (6) in half. Slide the Spring OVER the end of the Brake Cable (2). Slide the Cable Sleeve (5) and Brake Cable INTO the Brake Band Collar (3). Leave an EQUAL amount of Cable Sleeve sticking out on each side of the Collar (3).

6. Set the Brake Band at the Collar so that it is 3/8" (9.5 mm) AWAY from the Brake Drum. Have a helper insert a 3/8" (9.5 mm) Shim (7) between the Brake Drum and Brake Band. Hold the distance while you pull the Brake Cable taut, making sure the Conduit Thread Adjuster is tightened all the way in.

7. Refer to Figure 5. Tighten the Set Screw in the Collar sufficiently to cause the Cable Sleeve (5) to 'collapse', thus binding it to the Cable. Tighten until the Cable Sleeve is bent as illustrated. Cut the Cable end a 1/2" (12.7 mm) from the END of the Sleeve. Remove the Shim (7).

8. By the adjusting the Conduit Thread Adjusters at BOTH ends of the Brake Cable you may 'fine tune' the Brake Adjustment. IMPORTANT: ENSURE THAT WHEN DEPRESSING THE RUDDER PEDALS, FULL RUDDER DEFLECTION CAN BE OBTAINED IN BOTH DIRECTIONS.

9. Repeat Steps 1-8 for the opposite Brake Cable.

Item	P/N	Description	Item	P/N	Description
1...	90270..	Conduit Thread Adj.	5...	91216-01..	Cable Sleeve
2...	91213..	Brake Cable (Blank)	6...	91211.....	Brk Comp Spring
3...	91203..	Brake Band Set Cllr	7.....	3/8" Shim	
4...	10383..	AN44B-11A Eyebolt	8...	91202.....	Brake Drum

BRAKE CABLE ADJUSTMENT

FIG. 1

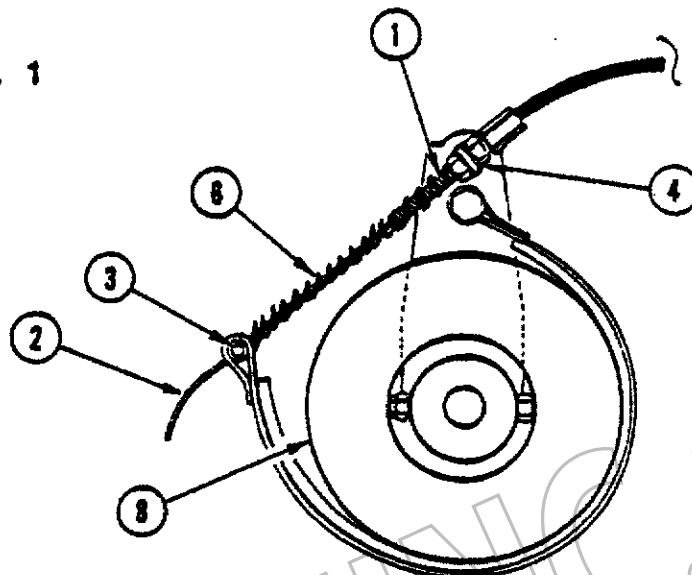


FIG. 2

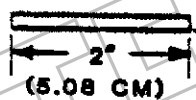


FIG. 3



FIG. 4

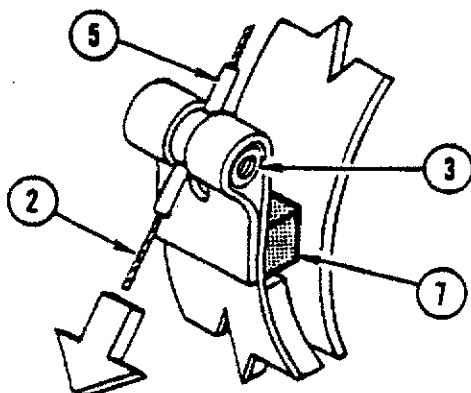
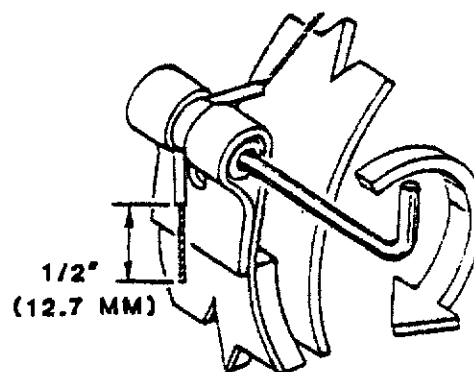


FIG. 5



PROPELLER ATTACHMENT

CAUTION: To insert the Propeller Mounting Bolts, you will **FIRST** need to rotate the Propeller and Pulley to access each Bolt hole. **ALWAYS DISCONNECT THE SPARK PLUG WIRES** if there is any sign of fuel in the system before rotating the Propeller.

NOTE: Before proceeding, position the Propeller (3) onto the Propeller Shaft (4). Add the Propeller Face Plate (5). Temporarily position a Bolt (1) through the Propeller Face Plate (5) and Propeller (3). Add the remaining **FIVE** Bolts (1) to the corresponding holes. If any of the remaining Bolts (1) do not align, remove them and back-drill through the Propeller Face Plate (5) into the Propeller (3) if necessary to align the holes.

'Pinning' the Crankshaft through the Fuel Pump Pulse Fitting (on the Carburetor Intake side of the Powerplant Block) may aid in installation or removal of the Propeller. You will have to remove the Clamp and Fuel Line and insert the Fixation Pin located in the Powerplant Tool Kit. If necessary refer to Page 7-6.

1. Refer to Figure 1. Slide the Propeller (3) onto the Propeller Shaft (4) and align the holes in the Propeller (3) with the Pulley (2). Install **SIX** Propeller Bolts (1), one at a time, through the Pulley (2) and Propeller (3) as illustrated. Add the Propeller Face Plate (5) and Hardware (6) and (7) to each Bolt. At this time, check to see if additional Washers (6) may be required. As Propeller thickness may vary, it may be necessary to add or subtract Washers (6). **DO NOT FINAL-TORQUE YET.**

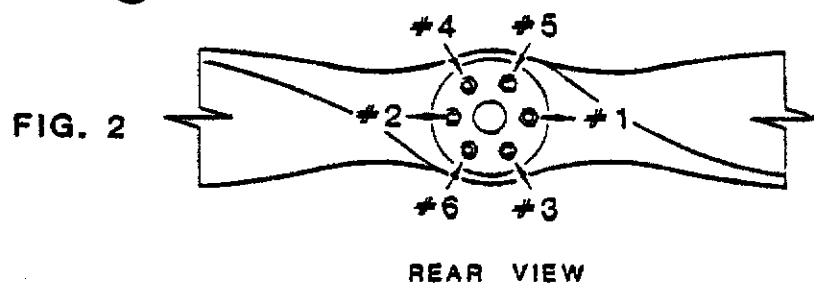
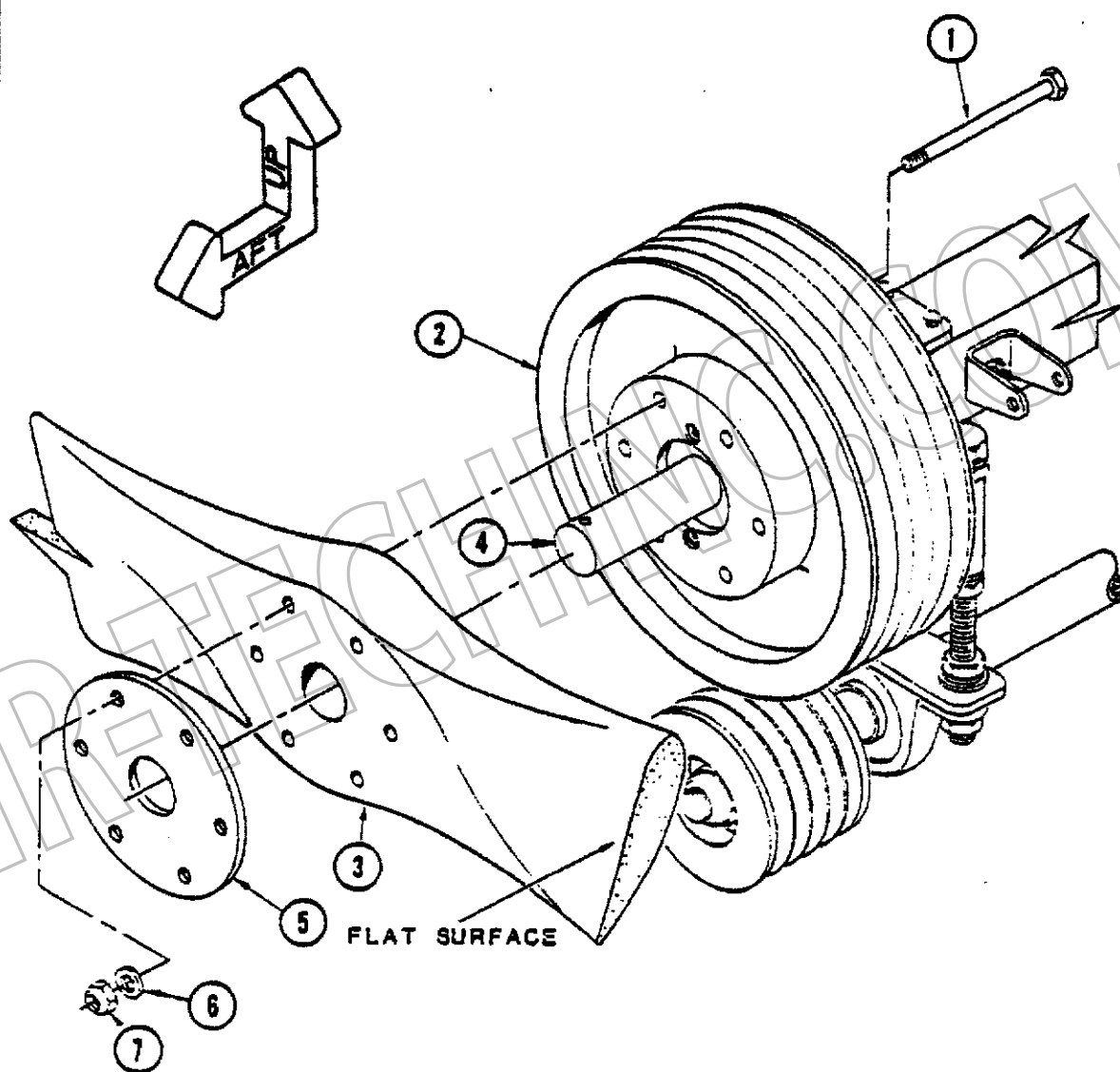
2. Refer to Figure 2. Lightly snug the Bolts (1) the first time around in the sequence illustrated. Use the **EXACT** sequence several times until **ALL** the Bolts are evenly torqued for final tightening.

CAUTION: DO NOT OVER-TORQUE.

Item	P/N	Description	Item	P/N	Description
1...	10287..	AN4-44A Bolt	5...	45852..	Propeller Face Plate
2...	60184..	8" Pulley Assembly	6...	10560..	1/4" Washer
3...	30347..	Propeller 66 x 40	7...	10510..	1/4" Locknut
4.....		Propeller Shaft			

PROPELLER ATTACHMENT

FIG. 1



CHECKING AND ADJUSTING PROPELLER 'RUN-OUT'

Before starting the following sequence, remember ALWAYS consider the Powerplant and Propeller as 'HOT' or 'ON'. NEVER ROTATE A PROPELLER WITHOUT DISCONNECTING BOTH SPARK PLUG WIRES.

1. Rotate the Propeller into the LEVEL position.
2. Measure the distance from either tip of the Propeller (1) to a fixed point such as the edge of the Trailing Edge Spar Assembly (2).
3. Rotate the Propeller 180 degrees and measure the distance from the OPPOSITE tip of the Propeller to the SAME point on the Trailing Edge Spar measured in Step 2.
4. The MAXIMUM allowable difference in Propeller Tracking or 'Run-out' is 1/8" (3.2 mm).
5. To adjust the Propeller 'Run-out' tighten the Locknuts (3) a little at a time on the side that is FURTHEST from the Spar (2) ONLY. NEVER OVER-TORQUE. If there is a possibility of over-torquing you may under-torque the Locknuts (3) on the OPPOSITE side slightly.

EXAMPLE: To position the RIGHT half of the Propeller CLOSER to the Spar, TIGHTEN the Locknuts (1, 3, and 5) slightly. At the same time you may need to LOOSEN (only slightly) the Locknuts (2, 4 and 6).

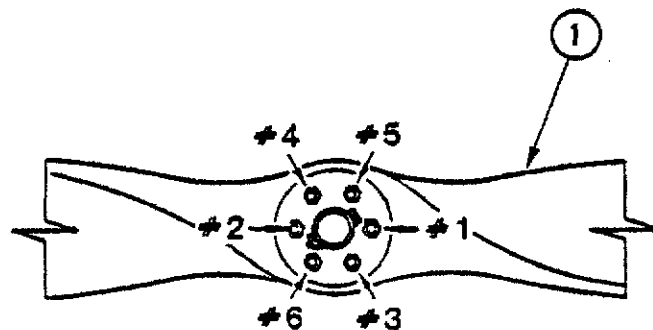
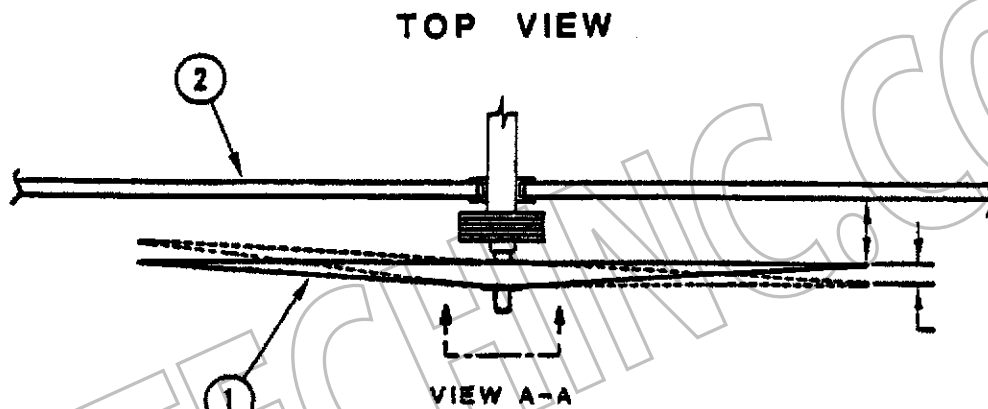
CAUTION: DO NOT OVER-TORQUE.

Item	P/N	Description
1...	30347..	Propeller 66 x 40
2...	80201..	Trailing Edge Spar Assembly
3...	10560..	1/4" Locknut

ADJUSTING PROPELLER 'RUN OUT'

FIG. 1

WING COVER NOT SHOWN FOR CLARITY



PROPELLER SHAFT SPACER ATTACHMENT

1. Refer to Figure 1. Measure the distance between the AFT SIDE of the Propeller Face Plate (2) and the CENTER of the existing 5/16" (7.9 mm) hole in the Propeller Shaft (1) as illustrated.
2. Measure and mark the SAME distance on the Propeller Shaft Spacer (3).
3. Drill a 1/8" (3.2 mm) diameter hole at the same location through ONE SIDE ONLY of the Propeller Shaft Spacer (3).
4. Slide the Propeller Shaft Spacer (3) onto the Propeller Shaft (1). Align the 1/8" (3.2 mm) hole over the 5/16" (7.9 mm) hole in the Propeller Shaft (1). Ensure that the Propeller Shaft Spacer (3) remains in contact with the Propeller Face Plate (2) while drilling out the 1/8" (3.2 mm) hole to 5/16" (7.9 mm) diameter. Backdrill through the opposite side of the Propeller Shaft Spacer (3) using the Propeller Shaft Hole as a guide.
5. Remove the Propeller Shaft Spacer (3) and Deburr the holes. Apply a small bead of Silicone around the Propeller Shaft (1) next to the Propeller Face Plate (2). Slide the Propeller Shaft Spacer (3) onto the Propeller Shaft (1) and attach with the Hardware (4, 5 and 6). Tighten to proper torque.
6. OPTIONAL: Trim and deburr the AFT end of the Propeller Shaft Spacer (3) as necessary to match the Propeller Shaft (1).

Item P/N Description

- 1...61056..Propeller Shaft (part of P/N 40145)
- 2...45852..Propeller Face Plate
- 3...45855..Propeller Shaft Spacer
- 4...10318..ANS-14A Bolt
- 5...10570..5/16" Washer
- 6...10540..5/16" Locknut
- 7...30347..Propeller 66 x 40

PROPELLER SHAFT SPACER ATTACHMENT

FIG. 1

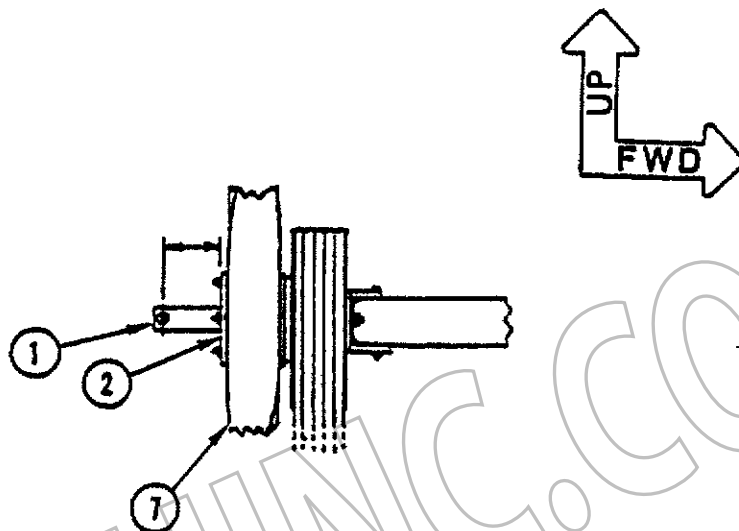
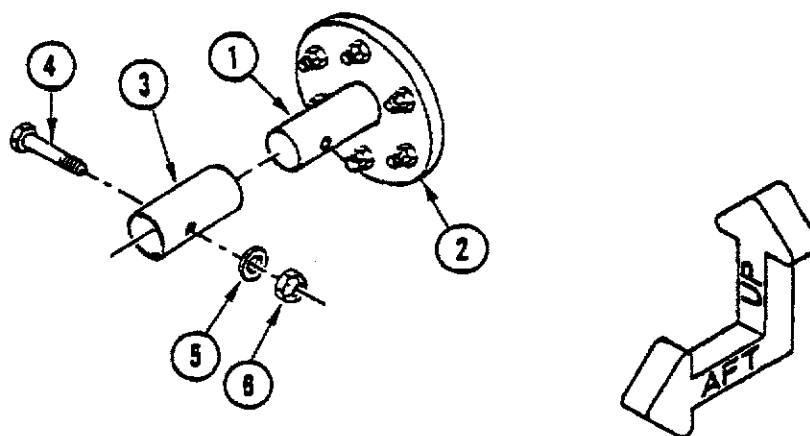


FIG. 2



CHECKING WING WASHOUT

NOTE: During the following sequence the aircraft may either rest on the Tail Skid or ALL THREE Wheels may contact the ground by adding extra weight in the Seat or by supporting the Tail Skid.

1. Refer to Figure 1. Ensure that the Kingpost Assembly (4) is FULLY EXTENDED and that ALL the Wing Wires are taut.

2. Place an Angle Finder (1) on the Root Tube (2) and note the reading.

3. Refer to Figures 2 and 3. Place the Angle Finder (1) on the BOTTOM of the Wing Tip Tube (3) and note the reading. The Wing Tip reading should be APPROXIMATELY 3 1/2 degrees LESS than that of the Root Tube Assembly (2) in Step 2.

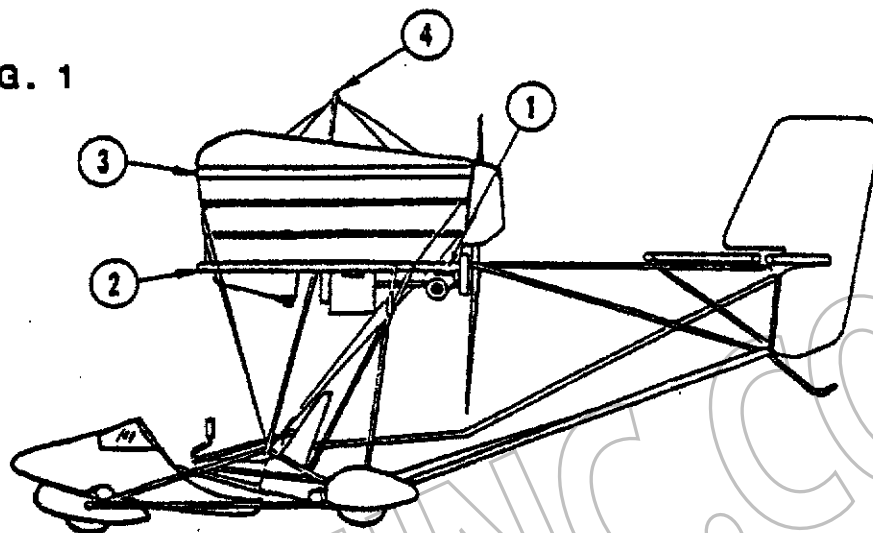
IMPORTANT: BOTH WINGS MUST HAVE THE SAME AMOUNT OF WASHOUT.

NOTE: If you have any questions concerning your Aircraft's Wing Washout, contact your QUICKSILVER Dealer BEFORE the Aircraft is flown.

Item	P/N	Description
1.....		Angle Finder
2...40145..		Root Tube Assembly
3...80207..		Wing Tip Tube
4...40214..		Kingpost Assembly

CHECKING WING WASHOUT

FIG. 1



TYPICAL AIRCRAFT

FIG. 2

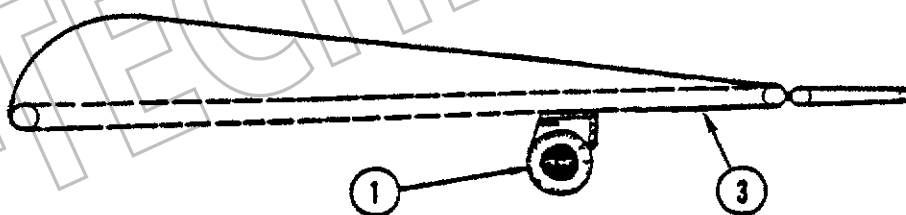
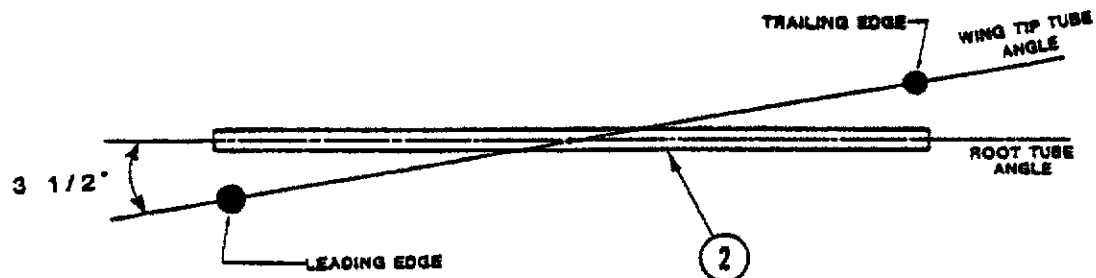


FIG. 3



CHECKING STABILIZER INCIDENCE

IMPORTANT: This is an ESSENTIAL procedure having a marked effect on the flight characteristics. Flight testing will determine whether or not the following procedure is necessary. Flight at NORMAL cruise speed with hands off the Control Stick will demonstrate whether the Aircraft favors a 'pitch up' or 'pitch down' attitude. If so, you will have to shim the Stabilizer accordingly.

Refer to Page 2-20 for the following sequence.

1. Position the Angle Finder (1) on the Root Tube Assembly and note the reading.
2. Position the Angle Finder on a Straight Edge (2) as illustrated [ACROSS the Stabilizer Leading Edge (3) and Trailing Edge (4)]. The Angle Finder should indicate ZERO Degrees with respect to the Root Tube.
3. To adjust the Stabilizer Incidence ADD or REMOVE the Nylon Washers (6) as necessary to RAISE or LOWER the Stabilizer Leading Edge ONLY.

CAUTION: NEVER REMOVE the Nylon Washers from the Stabilizer Trailing Edge as this will limit your Elevator's 'DOWN' Authority.

After the FIRST flight if the Aircraft appears to fly 'Nose Heavy' or pitch DOWNWARD trim the Stabilizer Incidence by REMOVING the Nylon Washers (6) ONE at a time from the of the Stabilizer Leading Edge (FRONT) ONLY.

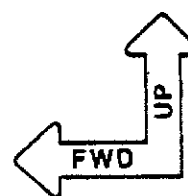
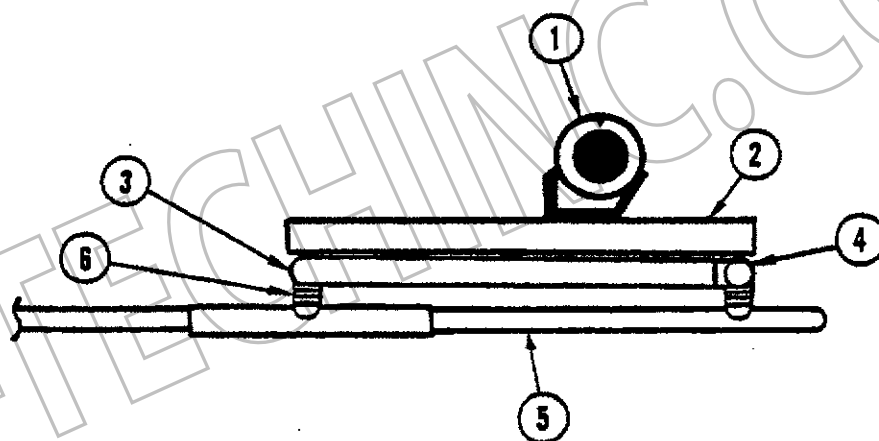
If the Aircraft appears to fly 'Tail Heavy' trim the Stabilizer Incidence by ADDING the Washers (6) ONE at a time as required to the of the Stabilizer Leading Edge (FRONT) ONLY.

See your QUICKSILVER Dealer for replacement Bolts and Nylon Washers if necessary.

Item P/N Description

- 1.....Angle Finder
- 2.....Straight Edge
- 3...40265..Stabilizer Leading Edge
- 4...40275..Stabilizer Trailing Edge
- 5...40172..Tail Mount Assembly
- 6...20346..1/4" Thk. x 1" O.D. Nylon Washer

CHECKING STABILIZER INCIDENCE



SEAT ADJUSTMENT

1. Refer to Page 6-24. To change the angle or 'tilt' of the Seats, change the Seat Support Downtube Attachment location at the TWO AFT Tabs in the Seat Mount Assembly (2) as required for personal preference. Tighten the Castle Nut (5) and secure with a Cotter Pin (6). Bend the Cotter Pin correctly.

ELEVATOR TRIM ADJUSTMENT

1. Refer to Page 8-22. Position the Elevator Trim Handle (2) so that the Pin (1) is located in the CENTER Hole in the Bracket (8). BEFORE tightening the Locknuts (14) and the Castle Nut (11).

2. Rotate the complete assembly until the Elevator is aligned with the Stabilizer.

3. Tighten the Locknuts (14) to proper torque.

4. Tighten the Castle Nut (11) as required. Secure with the Cotter Pin (17) and bend the Cotter Pin correctly.

5. 'Cycle' the Trim System several times to ensure there is no interference between the Trim System and the Throttle System.

RUDDER (FOOT) PEDAL ADJUSTMENT

1. Refer to Pages 8-46 and 8-47. To adjust the angle of the Rudder (Foot) Pedals for personal comfort. Adjust the length of the Eyebolt (10) in the RIGHT Pedal of the RIGHT Seat and the LEFT Pedal of the LEFT Seat as required.

IMPORTANT: NEVER Adjust the Rudder (Foot) Pedals so that the Pilot in Command cannot completely depress the Pedal to produce FULL Rudder deflection. Depress each Rudder Pedal and VISUALLY check to see that the Pilot is achieving FULL Rudder deflection in BOTH directions.

2. Tighten the Jam Nut (11) (UNDER the head of the Eyebolt (10)) and the Locknut (13) on the OPPOSITE end of BOTH Pedals to proper torque.

CAUTION: There must be a MINIMUM of at least THREE threads of the Eyebolt (10) protruding past the Locknut (13) AFTER any adjustment has been made.

TUBE CAP ATTACHMENT

1. Verify that ALL the Tube Caps have been installed at the following locations. It is recommended that those caps with a loose fit be 'pop' riveted in place using 1/8" Aluminum Rivets (P/N 20200). The following Tubes receive Caps:

7/8" Tube Caps (P/N 20400)

(one in each end of)

1. Tail Brace Tubes
2. Rudder Brace Tube
3. Stabilizer Trailing Edge
4. Elevator Leading Edge
5. Rudder Frame
6. Throttle Torque Tube

1" Tube Caps (P/N 20410)

(only instance)

1. Bottom of Tail Skid

POST-TAXI PROCEDURE

Ensure that the Aircraft rolls straight with neutral controls and the Brakes 'OFF' and that there is no tendency for the Brakes to 'pull' RIGHT or LEFT. Re-adjust as necessary.

POST-FLIGHT PROCEDURE

INCIDENCE ADJUST

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 Aircraft favors a pitch UP or a pitch DOWN attitude. If so, SHIM THE STABILIZER accordingly. To correct for UPWARD pitch, ADD Nylon Washers UNDER the Leading Edge of the Stabilizer as required. To correct for DOWNWARD pitch, REMOVE Washers from UNDER the Leading Edge Stabilizer as required.

IMPORTANT: NEVER REMOVE THE NYLON (SHIM) WASHERS FROM THE TRAILING EDGE OF THE STABILIZER, AS THIS WILL LIMIT THE ELEVATOR'S 'DOWN AUTHORITY'.

WING CABLE NOTE:

It is not unusual for the Wing Cables to become slack after the first few flights. This is due to the Tangs and Thimbles 'settling' as they find their final position. After a few flights, this will no longer occur.

AIRSPEED ATTACHMENT

1. Follow the directions that are supplied with the Airspeed Indicator [with Bracket (P/N 90431)] and attach it to the Tri-Bar Downtube on the 'Pilot in Command' side of the Aircraft. Choose a location in which ALL Numbers can easily be read by the Pilot.
2. Be sure that the Inlet of the Airspeed Indicator is pointing FORWARD and PARALLEL to the ground when all THREE Wheels are in contact.
3. ALWAYS keep the Airspeed clean and dry as to ensure that the reading will be as accurate as possible. Use the cover supplied to protect the Indicator when it is not in use.

BEARING LUBRICATION

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

NOTE: TOO MUCH LUBRICATION (GREASE) IS AS BAD AS NOT ENOUGH.

Both the Drive Shaft and the Propeller Shaft Bearing MUST BE PERIODICALLY RE-LUBRICATED to assure long life. The Bearings should be lubricated EVERY 50 HOURS of operation or EVERY 30 HOURS if operated in extreme dirt/dust environment.

USE A SPECIFIED LUBRICANT ONLY:

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

REMOVE THE PROPELLER and USE EXTREME CAUTION as the Bearings ideally should be lubricated while in operation. Run the Powerplant at idle and DO NOT OVERSPEED.

Inject the specified lubricant into the Bearings SLOWLY until a SLIGHT 'bead' of lubricant forms around the seal.

MISCELLANEOUS LUBRICATION

Lubricate ALL Control Hinge Points where 'AN' Bolts are used with Lithium Grease or WD-40 (or equivalent) every 25 hours.

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POWERPLANT BREAK-IN PROCEDURE

NOTE: WE RECOMMEND A TACHOMETER (RPM) AND TEMPERATURE SENSING GAUGE BE ATTACHED TO THE POWERPLANT DURING THE BREAK-IN PROCEDURE. You may order one from your QUICKSILVER DEALER.

The Powerplant Break-in procedure takes APPROXIMATELY ONE HOUR and SEVENTEEN MINUTES which MUST BE DONE WITHOUT INTERRUPTION. THE BREAK-IN PROCEDURE MUST BE DONE WITH THE POWERPLANT ON THE AIRCRAFT AND LOADED WITH THE PROPELLER.

Refer to the graph for Break-in time and R.P.M. correlation.

IMPORTANT: USE A BIA TCW RATED OIL WITH THE FUEL ONLY!

The FUEL to OIL mixture ratio should be 50 to 1.

(U.S.): 5 U.S. gallons of fuel to 12.8 oz. of oil.

(METRIC): 20 liters of fuel to 370 ml. of oil.

CAUTION: During the Break-in period when the Powerplant heats up, it will want to accelerate from about 5,000 R.P.M. to 6,000 R.P.M. The Powerplant will be running DANGEROUSLY LEAN and may overheat and seize. The throttle must be reduced back to 5,000 R.P.M. every time the Powerplant wants to speed up.

IMPORTANT: After the Break-in procedure and the Powerplant cools:

1. Re-Torque the Exhaust Manifold (Header) Bolts to 210 in/lbs (24 Nm).
2. Pin the Crankshaft at the Pulse Fitting and re-torque the 3/4" Locknut, securing the 3" Pulley to 125 ft/lbs (171.9 Nm). Refer to Page 7-18.
3. Re-Tension the Drive Belts on the Reduction System to 6-7 ft/lbs (2.7-3.15 kg.).
4. Re-Torque and re-track the Propeller.
5. Adjust the Idle (large screw) on the Carburetor for Idle Speed (Approximately 1800 R.P.M.).
6. Adjust the Air Screw (small screw) on the Carburetor for a smooth idle.
7. After the Powerplant has been 'NORMALIZED' (heated and cooled) THREE TIMES, re-torque the Cylinder Head Nuts to 220 in/lbs (24.5 Nm).

ENJOY FLYING YOUR NEW QUICKSILVER MXL II SPORT AIRCRAFT!

SECTION 12

TEMPLATES

RUDDER AND ELEVATOR TEMPLATES (#1 THRU #4).....	12-3
TRAILING EDGE RIB INSERTION CUT-OUT TEMPLATES (#5 AND #6).....	12-5
UPPER LEADING EDGE OUTBOARD WING CABLE TEMPLATE (#7).....	12-7
AILERON PUSH ROD ASSEMBLY INSERT SLOT TEMPLATE (#8).....	12-9
FOOT (RUDDER) PEDAL TEMPLATE (#10).....	12-11
FOOT (RUDDER) PEDAL TEMPLATE (#11).....	12-13
PEDAL TORQUE TUBE DRILL PATTERN (#12).....	12-15

NOTE: This Aircraft DOES NOT use a TEMPLATE #9 in its assembly.



World's Largest Manufacturer of Recreational Aircraft and Vehicles

12-2

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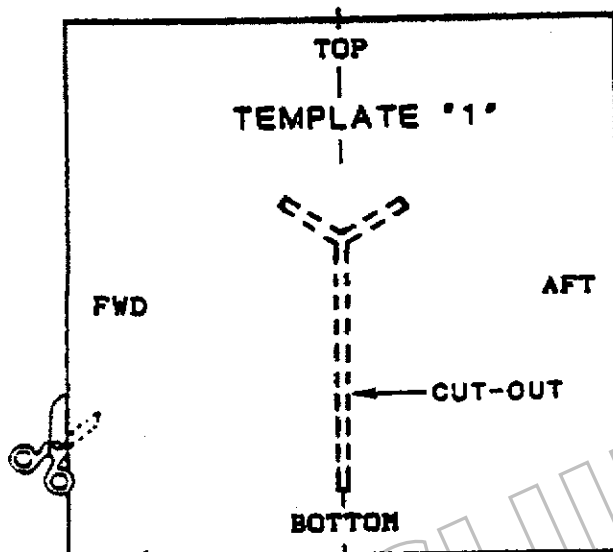
AIR-TECHINC.COM

DOC# 852-02 REV. A DATE 01/22/90

TEMPLATES #1 THRU #4

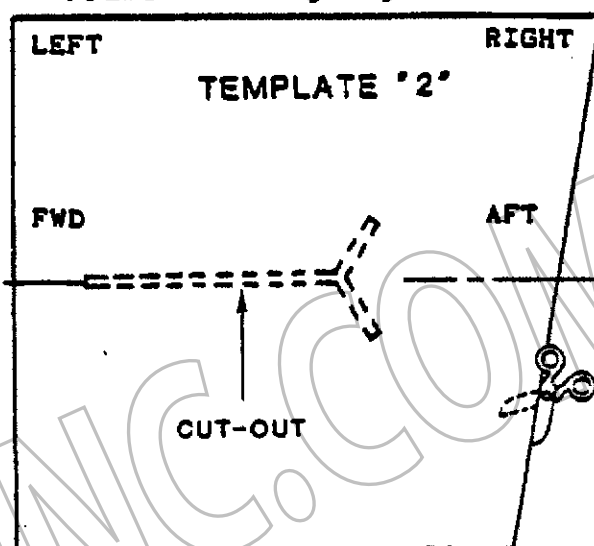
RUDDER TEMPLATES

Place TOP of Template 'in line' with TOP of the Rudder Frame.



Position 'in line' with the CENTERLINE of Rudder Leading Edge on the LEFT side ONLY.

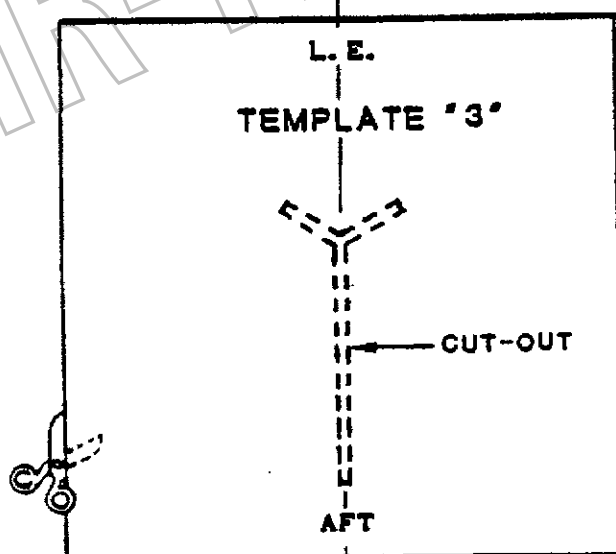
Place RIGHT side of Template 'in line' with the Rudder Frame Trailing Edge crease.



Position 'in line' with the Rudder Compression Strut CENTERLINE on LEFT side ONLY.

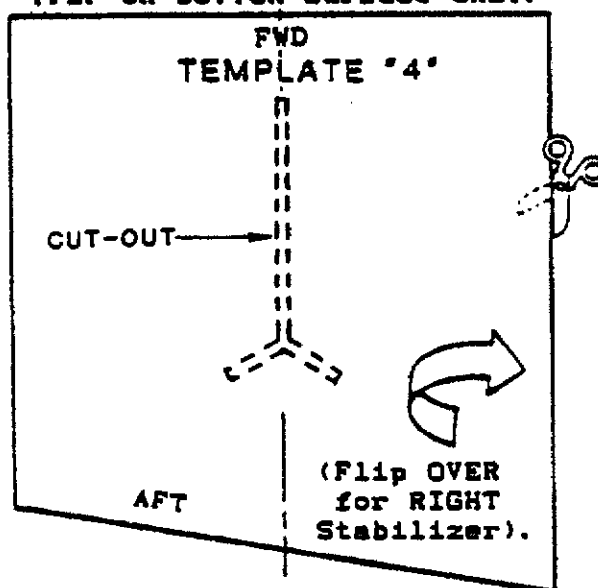
ELEVATOR TEMPLATES

Place the Template 'in line' with the Elevator Leading Edge.



Position 'in line' with the CENTERLINE of Elevator Comp. Strut. (TWO Places each side).

Place Template 'ANGLED' side in line with LEFT Elevator T.E. on BOTTOM surface ONLY.



Position 'in line' with the CENTERLINE of the Elevator Compression Strut (BOTH sides).

12-4

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TEMPLATES #5 AND #6

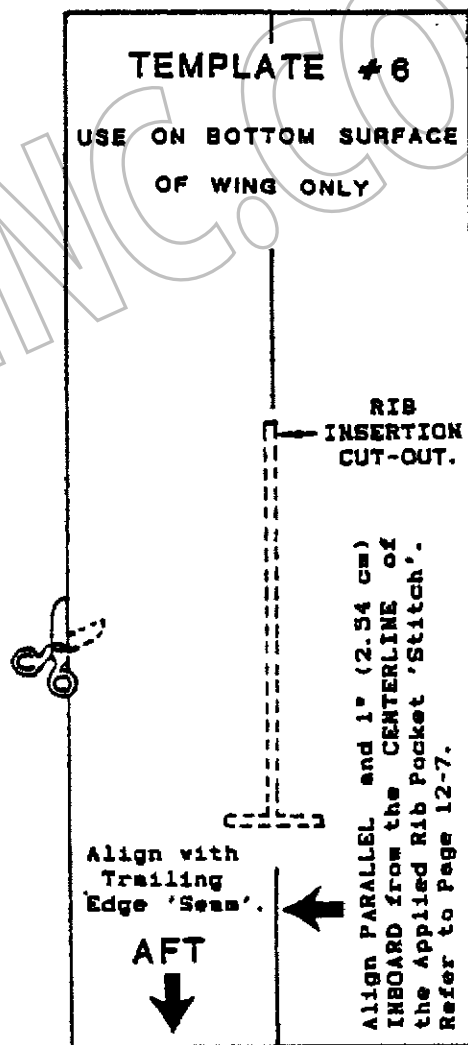
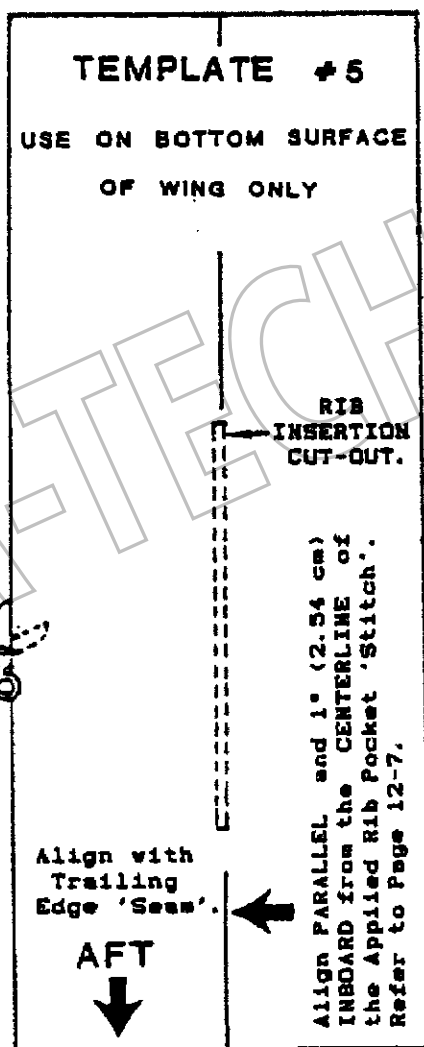
USE EITHER TEMPLATE BELOW.

TRAILING EDGE RIB
INSERTION CUT-OUT

TRAILING EDGE RIB
INSERTION CUT-OUT

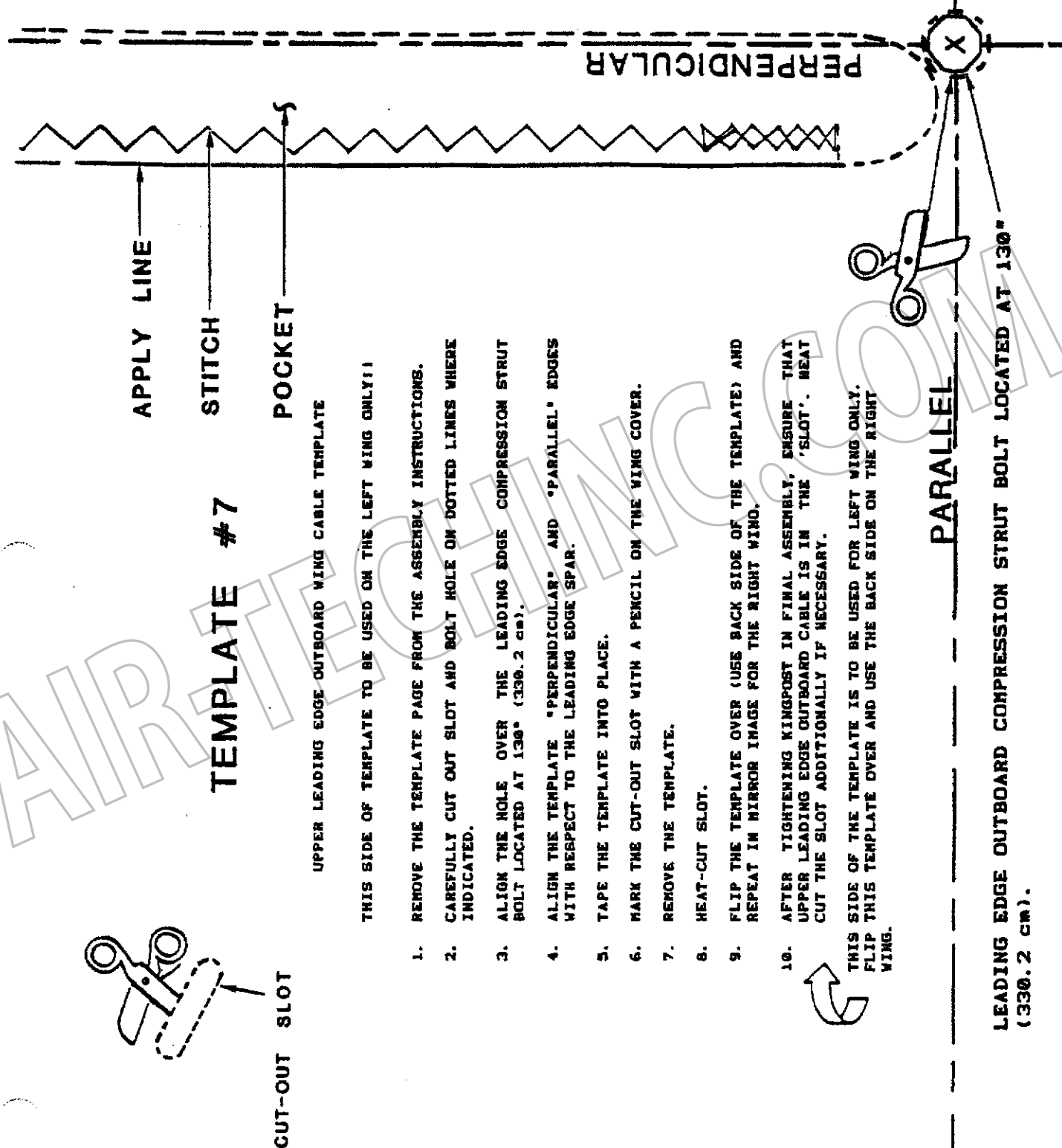
TEMPLATE #5

TEMPLATE #6



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12-8

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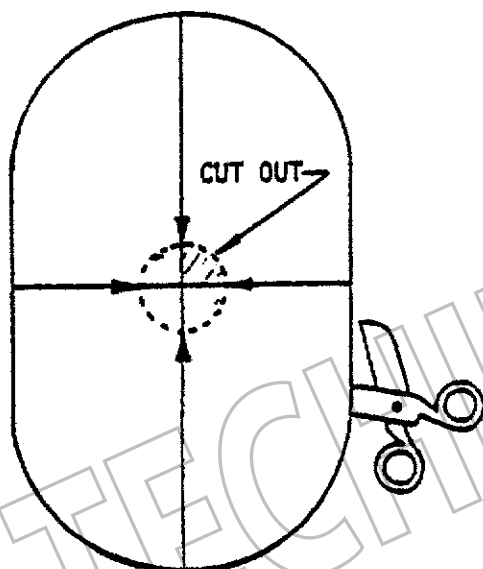
DOC# 852-02 REV. A DATE 01/22/90

AILERON PUSH ROD

12-9

ASSEMBLY INSERT SLOT TEMPLATE #8

TEMPLATE #8



PUSH ROD ASSEMBLY INSERT SLOT.

1. Cut out and remove Template #8 from the Assembly Instructions.
2. Cut out the CENTER 'window' of the Template.
3. Place the Template on the BOTTOM surface of the Wing ONLY. CENTER the Template at the location illustrated.
4. Outline the edge of the Template with a pencil on the BOTTOM surface of the Wing ONLY.
5. Remove Template and heat cut.
6. Repeat on the opposite Wing.

12-10

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12-11

TEMPLATE #10

DRILL ALL HOLES.
APPLY GRIP TAPE (20180)
TO THE FRONT OF THE
PEDALS AND TRIM WITH
HOT KNIFE OR RAZOR BLADE.

RUDDER (FOOT)
PEDALS



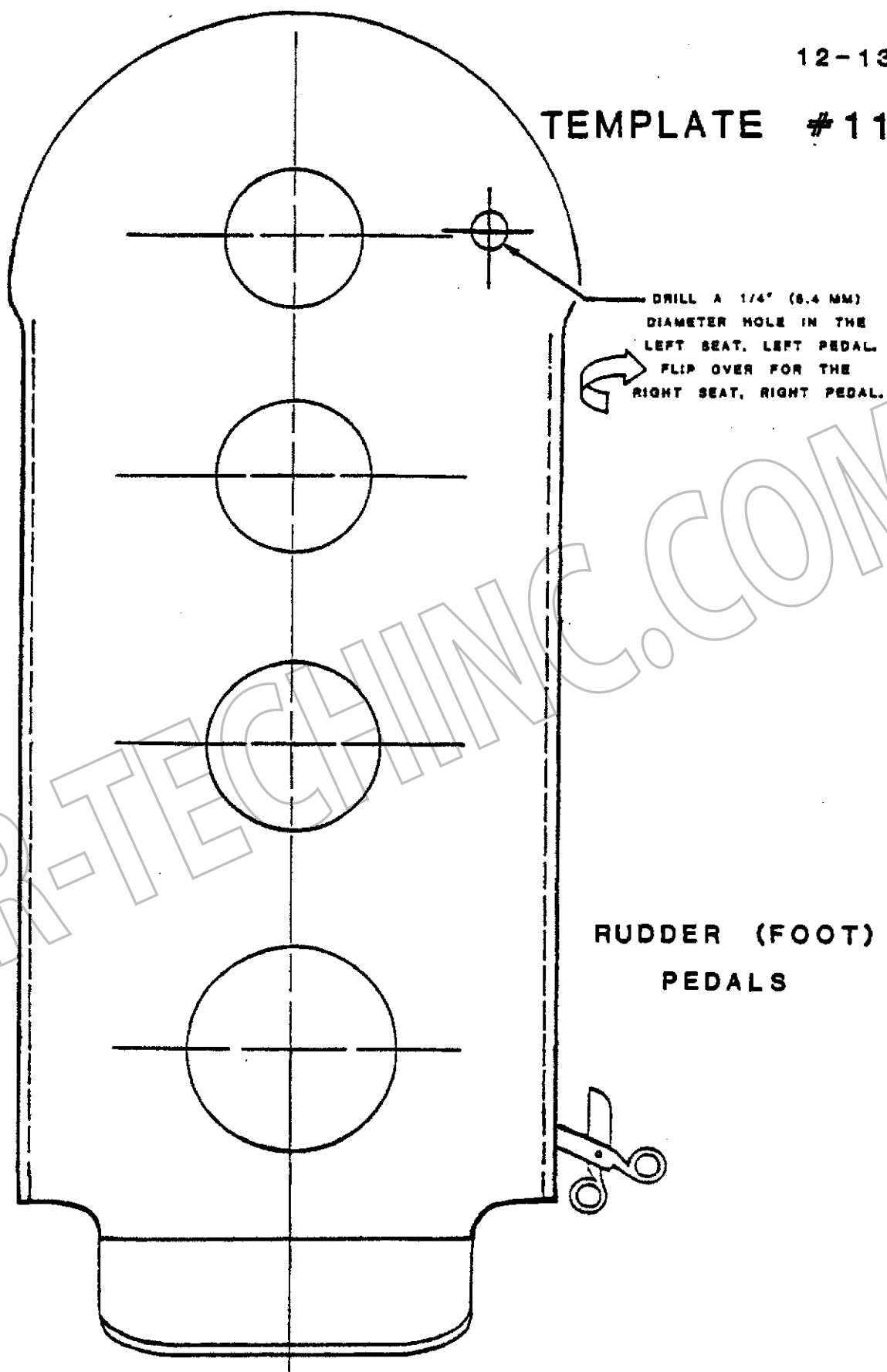
DRILL AND DEBURR
1/4" (6.4 MM) DIAMETER HOLES
IN THE RIGHT HAND PEDAL,
BOTH SEATS.

(MATCHES HOLES IN
PEDAL MOUNT TUBE
P/N 40438).

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TEMPLATE #11



RUDDER (FOOT)
PEDALS

12-14

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TEMPLATE #12**PEDAL TORQUE TUBE DRILL PATTERN**

USE THIS SIDE FOR THE
LEFT SEAT, LEFT PEDAL.
FLIP OVER AND USE THE
OPPOSITE SIDE FOR THE
RIGHT SEAT, LEFT PEDAL.
(MATCHES HOLES IN
DUAL RUDDER TORQUE
TUBE P/N 40437).

DRILL AND DEBURR

TWO 3/16" (4.7 MM) HOLES.

12-16

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DOC# 852-02 REV. A DATE 01/22/90

SECTION 13

DOCUMENT / LABEL PLACEMENT

'FLIGHT SPEEDS', 'TRIM' AND 'PASSENGER WARNING' LABEL PLACEMENT.....	13-2
'PROPELLER ARC' LABEL PLACEMENT.....	13-4
'WARNING' AND 'GAS/OIL MIXTURE' LABEL PLACEMENT.....	13-6
'EXPERIMENTAL' LABEL AND FAA NAMEPLATE PLACEMENT.....	13-8
MISCELLANEOUS LABEL PLACEMENT.....	13-10



World's Largest Manufacturer of Recreational Aircraft and Vehicles

'FLIGHT SPEEDS', 'TRIM' AND 'PASSENGER WARNING' LABEL PLACEMENT

1. Refer to Figure 1. Position the Flight Speeds Label (2) FACING the 'Pilot in Command' on the TOP side of the FORWARD Elevator Push/Pull Tube (1) as illustrated.

NOTE: The Label must be located so that it is CLEARLY VISIBLE and facing TOWARD the 'Pilot in Command' while operating the Control Stick during flight.

2. Move the Elevator Trim Handle (4) into the CENTER Position. Apply the Label (3) CENTERED and to the TOP of the Push/Pull Tube (1) directly to the side of the Elevator Trim Handle as illustrated. NOTE: 'Nose Down' faces FORWARD, 'Nose Up' faces AFT.

3. Refer to Figure 2. Place the Passenger Warning Label (3) on the Upper Tri-Bar Assembly (5), OVER the PASSENGER seat, facing FORWARD as illustrated.

Item	P/N	Description
1...	40177.....	Forward Elevator Push/Pull Tube
2...	846-32....	Flight Speeds Label (MXL II)
3...	50420-15..	Trim Tab Label
4...	50404.....	Elevator Trim Handle
5...	80170.....	Upper Tri-Bar Assembly
6...	50420-17..	Passenger Warning Label

PASSENGER WARNING LABEL PLACEMENT

FIG. 1

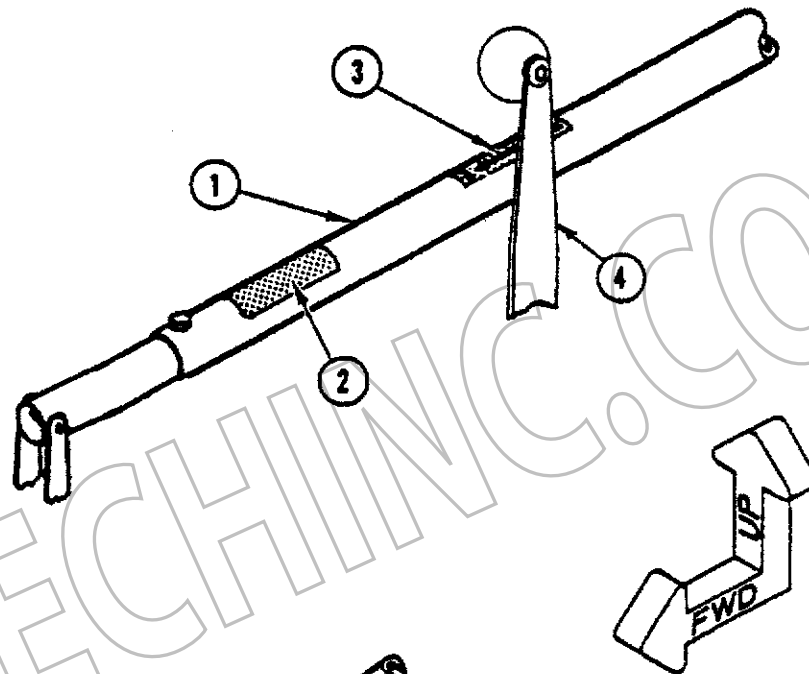
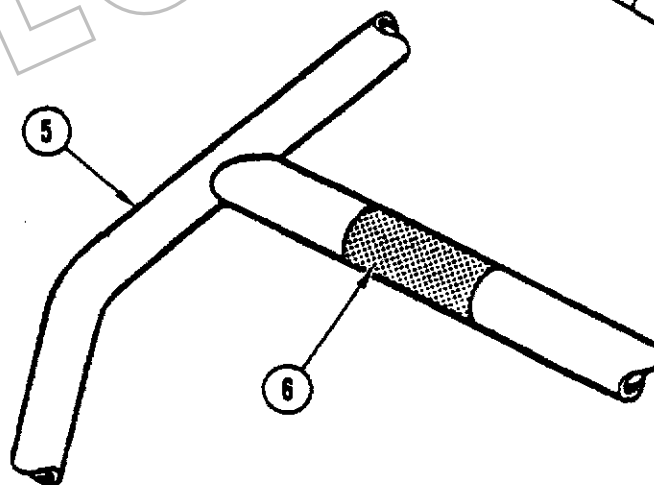


FIG. 2



'PROPELLER ARC' LABEL PLACEMENT

1. Refer to Figure 1. Position the Propeller Arc Label (1) on the OUTBOARD side of each Upper Tail Boom Assembly (2) as illustrated. The Label should be located IN LINE with the plane of the Propeller.

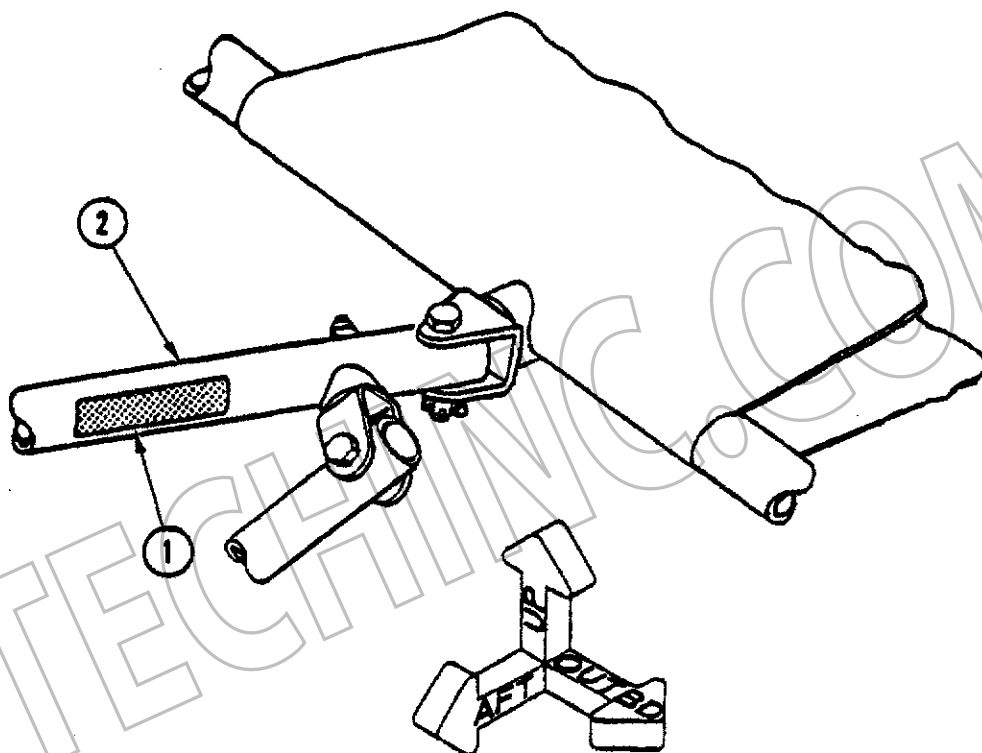
2. Repeat for the opposite side.

Item P/N Description

1...50420-5..Propeller Arc Label
2...40179....Upper Tail Boom Assembly

PROPELLER ARC

FIG. 1



'WARNING' AND 'GAS/OIL MIXTURE' LABEL PLACEMENT

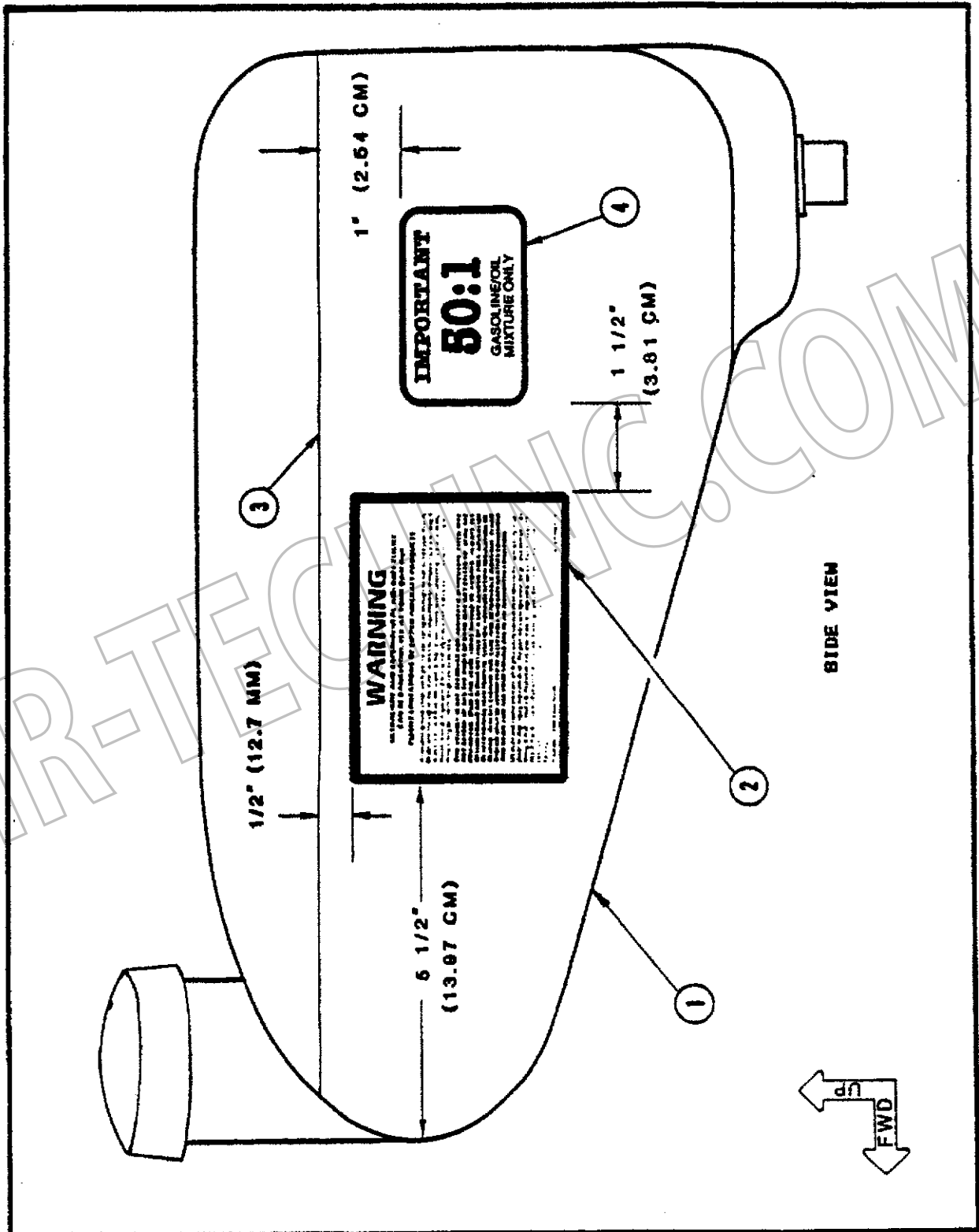
Before beginning the following sequence prepare the surface of the Fuel Tank (1) prior to Label Placement by removing any dirt, oil or foreign substance.

1. Attach the 'Warning' Label (2) to the side of the Fuel Tank (1) as illustrated.

2. Attach the Gas/Oil Mixture Label (4) to the side of the Fuel Tank as illustrated.

Item	P/N	Description
1...	30251....	6 gallon Fuel Tank w/ Cap
2...	846-18A..	Warning Label
3.....		Seam Line
4...	906-01...	50:1 Gas/Oil Mixture Label

'WARNING' LABEL PLACEMENT



'EXPERIMENTAL' LABEL AND FAA NAMEPLATE PLACEMENT

NOTE: The Experimental Label (1) and the FAA Nameplate (2) are supplied in your Aircraft Kit in the event you wish to qualify your Aircraft as 'Amateur Built'.

1. Refer to Figure 1. Attach the Experimental Label (1) as instructed in the 'EAA Custom-Built Sport Aircraft Handbook'. Refer to Page 1-2 for details.

2. Refer to Figure 2. Engrave, scribe or stamp the required information accordingly on the FAA Nameplate (2) BEFORE attachment to the Powerplant Cowling (3).

3. Enlarge the FOUR holes in the FAA Nameplate to 1/8" (3.2 mm). Position the FAA Nameplate (2) accordingly on the EXHAUST SIDE of the LOWER Powerplant Cowling (3). Mark, drill and deburr the SAME size holes in the Cowling for the FOUR Rivets (3). Attach the Nameplate with Rivets FOUR places.

Item	P/N	Description
1...	50420-16..	'Experimental' Label
2...	50420-18..	FAA Nameplate
3...	00912825..	Cylinder Cowl (Upper Half) [R 503]
4...	20205.....	1/8" x 1/8" grip L Flange Aluminum Rivet

'EXPERIMENTAL' LABEL AND FAA NAMEPLATE PLACEMENT

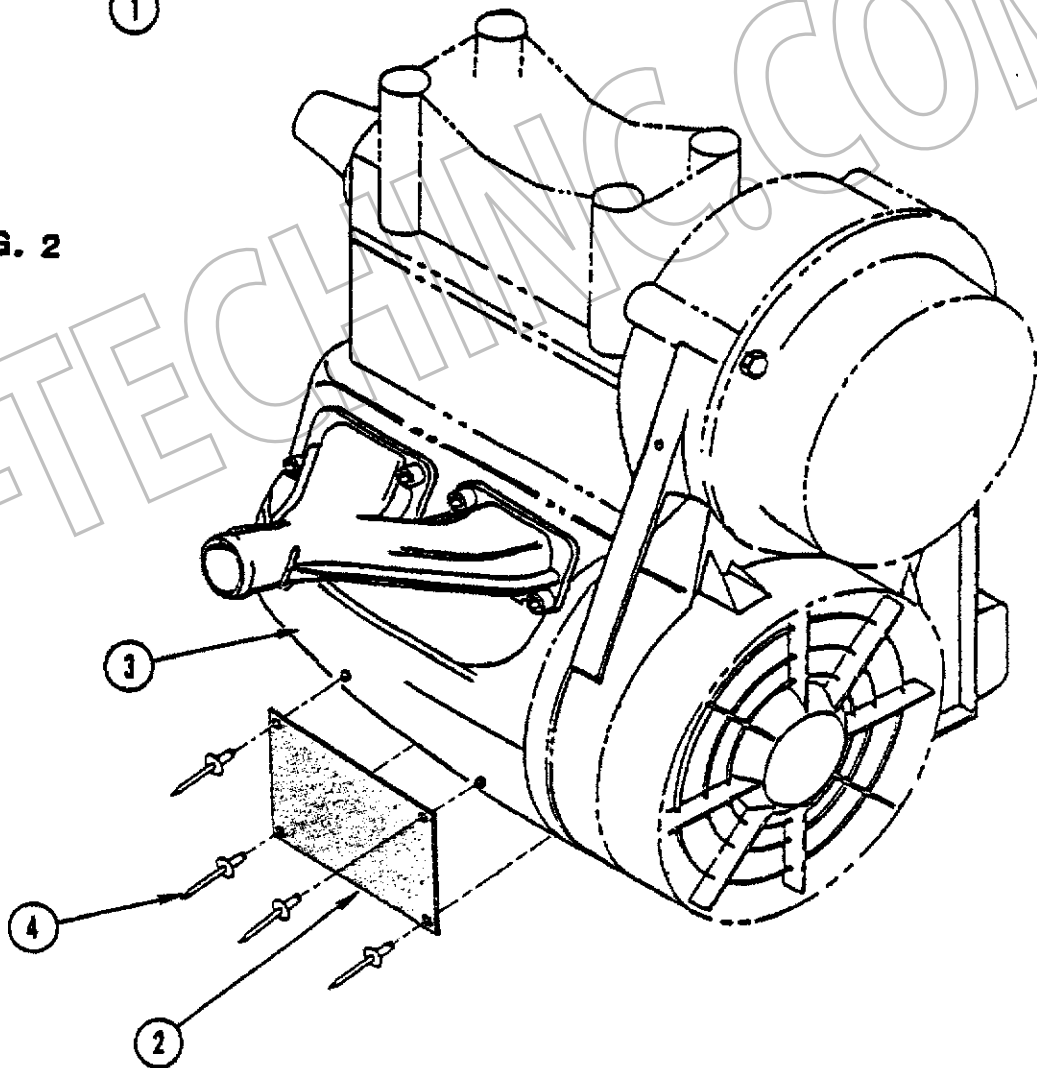
13-9

FIG. 1

EXPERIMENTAL

①

FIG. 2



MISCELLANEOUS LABEL PLACEMENT.

1. Your Aircraft Kit is supplied with various 'Warning' Labels. Attach the Labels (1,2,3 and 4) to the Upper Tri-Bar Assembly as required so that the Labels are either seen clearly upon entering the cockpit area or while seated in the cockpit during flight. Locate the Labels so that they are CLEARLY VISIBLE to the 'Pilot in Command' when appropriate.

Item P/N Description

1...846-01.. 'Preflight Check' Label
2...846-17.. 'Monitor Fuel Level' Label
3...846-18.. 'Flight Limits' Label
4...846-21.. 'Read Markings and Placards' Label

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AIRCRAFT HANDLING, SERVICE AND MAINTENANCE

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INTRODUCTION

The field assembly procedures outlined in this section are accompanied by photographs generally depicting the assembly sequence. When assembling (or disassembling) your aircraft, use the photos for reference only since detailed components and sequencing may vary. Follow the written description of the procedures as outlined. If you are unsure of any portion of the procedure, consult your Quicksilver Dealer or contact Quicksilver Enterprises.

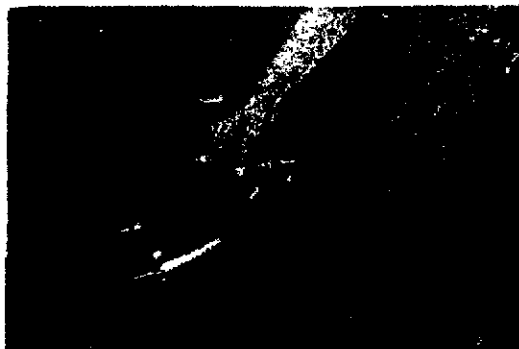
Additional details that will aid in the assembly procedures can be found in the aircraft's Assembly Instructions. Pay particular attention to such details as torque values to be used on attachment hardware. For example, over-torquing a nut could damage the nut, bolt, or structure that they are used on, thus causing that part of the structure to be unworthy.

It is also possible to cause damage to the aircraft by using improper or careless assembly/disassembly techniques. Even though the aircraft can be assembled/disassembled by one person, it is highly recommended that at least three people are used to mount, dismount, and handle the Wings. If a Wing is dropped, it is possible that structural damage could occur. In such a case, it is MANDATORY that a thorough Wing inspection be performed (refer to SECTION 4 Normal Procedures, Preflight Inspection).

NEVER attempt to assemble the aircraft in winds that exceed 15 MPH (13KNH). If it is necessary to disassemble the aircraft in high winds, always have at least two people available to handle each wing. It is recommended that assembly/disassembly be accomplished with the aircraft positioned with the tail directly into the wind. When handling a Wing, always have the wing tip or trailing edge positioned directly into the wind.

FIELD ASSEMBLY

Attach tail mount to tail skid using an AN4-26 bolt, two 1/8" saddles, two washers, a 1/4" wingnut and safety ring.



Attach rudder brace to tail skid using an AN4-26 bolt, two 1/8" saddles, two washers, a 1/4" wingnut and safety ring.



Attach two lower tail brace tubes to tail skid using an AN4-36a bolt, four 1/8" saddles, two washers and a 1/4" locknut. Tighten with two 7/16" wrenches.

NOTE: Use a new locknut.



FIELD ASSEMBLY

Attach two lower tail booms to tail skid using an AN4-40a bolt, four 1/8" saddles, two washers and a 1/4" locknut. Tighten with two 7/16" wrenches.

NOTE: Use a new locknut.

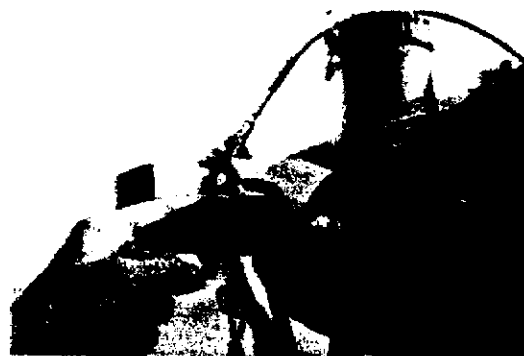


Remove left wing panel with aileron from trailer. To avoid damaging aileron push-rod assembly do not set wing on the ground.

Balance the spars on root tube spar channel bolts. Position two pads under the wing tip and lower to the ground.



Insert L.E. bolt AN4-23 through front half of channel and L.E. spar. Aligning the wing is easier if L.E. bolt is not secured until the T.E. is attached.



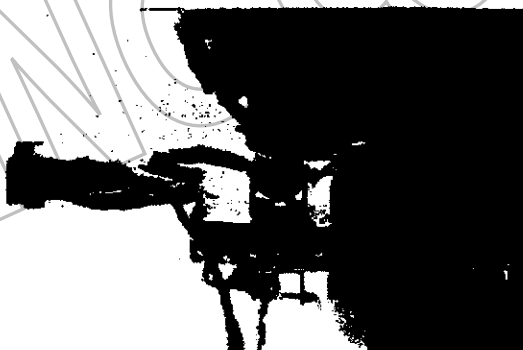
FIELD ASSEMBLY

Attach T.E. spar to channel using an AN4-17 bolt (inserted front to back), two washers and a 1/4" castle nut. Tighten with two 7/16" wrenches and secure with safety ring.



Insert L.E. bolt through back half of spar channel and add a 1/4" castle nut. Tighten and secure with safety ring.

Remove other wing half and repeat entire attachment sequence.



The two shackles with upper wing wires are stored for transport at the T.E. tail boom channels.

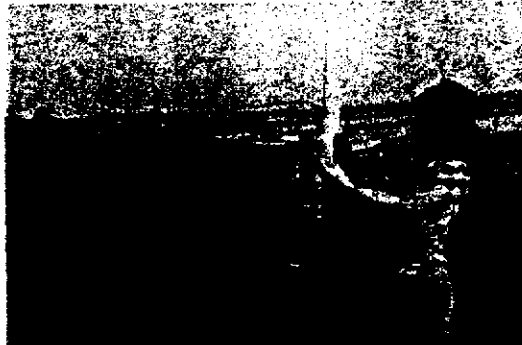
Disconnect both shackles, uncoil wires, and position them near opening between wings.

Lift top end of king post up between wing with king post nose wire facing forward. Attach both shackles to king post top fitting using an AN4-17 bolt, washer, 1/4" wingnut and safety ring.



FIELD ASSEMBLY

Uncoil two upper tail wires and place one on each side of the propeller.



Open the left outboard wing inspection zipper.

Raise the left wing and install wing support prop around aft one third of outboard compression strut. CAUTION: Never lift in the center of a compression strut. Raise both spars together to avoid twisting the wing. Positioning props too far forward on compression struts allows trike to tip over backwards!

Repeat for other side.

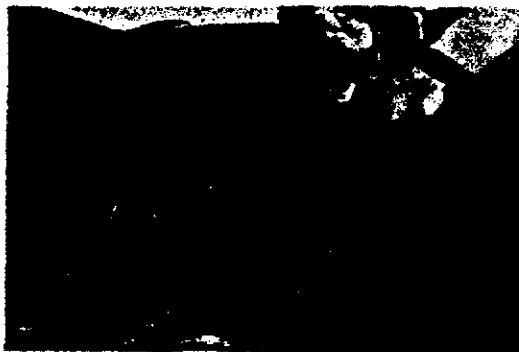


Make sure the trike won't roll and wing supports are stable before attaching king post. Raise the king post above the sail and slip the bottom end fitting through the hole in sail gap cover.



FIELD ASSEMBLY

Check that both king post and fittings are threaded all the way into king post tube and attach it to KP-73 king post channel using a T-handle pin and safety ring.



Check all wire ends for jammed or twisted thimbles and correct as necessary.

Uncoil both sets of lower wing wires and remove bolts from shackles.



Check again that all cables lead correctly from king post to wing wire junctions and remove both wing support props. NOTE: At this point wings are able to rock in the wind so proceed immediately to next step.

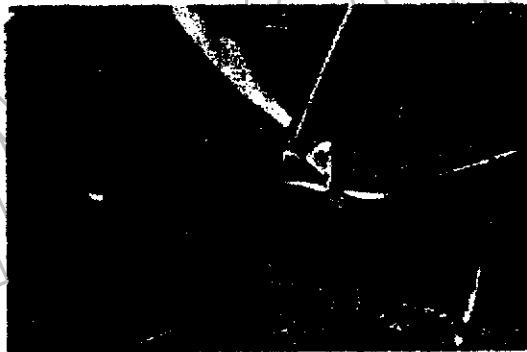


FIELD ASSEMBLY

Attach left lower wing wire shackle to left corner of tri-bar cross tube using an AN4-17 bolt, 1/4" washer, a 1/4" wingnut and safety ring.
Repeat for other side.

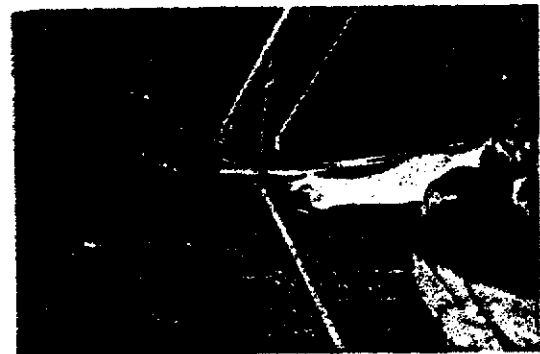


Uncoil both landing gear side wires. Attach left wire to its 20 deg. tang on main axle using a 3/16" shackle, clevis pin and safety ring.



Move the tail section into position behind the trike.

Attach the left lower tail boom tube to 1-75 channel on main axle using T-handle pin and safety ring.
Repeat for other side.



FIELD ASSEMBLY

Remove both T-handle pins from 1-75 channels on T.E. spars. Set both tail booms in position in their channels.

Attach left tail boom tube to channel using a T-handle pin and safety ring.

Repeat for other side.



Attach left upper tail wire to the 20 deg. tang on horizontal stabilizer T.E. spar using a 3/16" shackle, clevis pin and safety ring.

Repeat for other side.



Set elevator in position at horizontal stabilizer T.E. spar. Check that elevator horn is facing down and align the three sets of forkbolt and eyebolt hinges.



FIELD ASSEMBLY

Attach elevator to stabilizer using three clevis pins and three safety rings.



Set rudder leading edge in position at tail skid and align the two sets of forkbolt and eyebolt hinges.

Attach rudder to tail using two clevis pins and two safety rings.



Uncoil both rudder cables. Route cables from pulleys, above the main axle and above lower tail booms to the rudder horns.

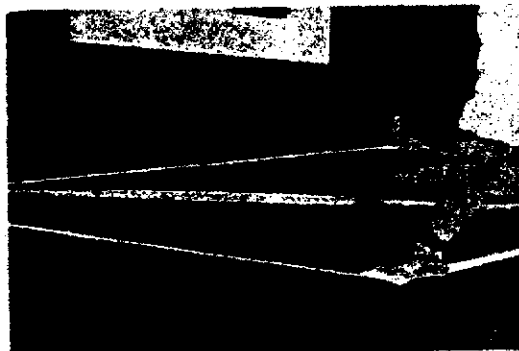
Attach shorter rudder cable to right rudder horn extension cable using a clevis pin and safety ring.

Attach longer rudder cable to left rudder horn using a clevis pin and safety ring.



FIELD ASSEMBLY

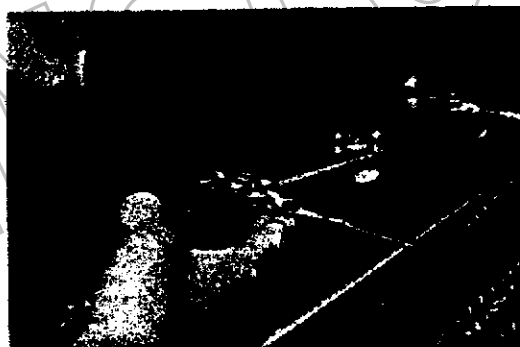
Uncoil both aileron cables. Insert cables through wing surface above the compression strut, diagonal strut and anti-drag wire to their root tube bellcrank attach points. Make sure cables do not crisscross.



Attach forward left cable and aft left cable to their respective root tube bellcrank attach points.

Use two 3/16" shackles with two clevis pins inserted from bottom. Add 3/16" washers by setting over pins onto shackles and secure with two safety rings (above bellcrank).

Repeat for right side cables.



Do a final pre-flight inspection on all components at root tube that will be hidden by the double surface wing.

Buckle top and bottom wing tensioning straps.

Pull all tensioning straps tight and tie-off loose ends.



FIELD ASSEMBLY

Pull Velcro door into position over the fuel tank spout (filler cap must be removed). Velcro door should be tight and lie flat. Secure Velcro from leading to trailing edge.



Route the elevator push/pull tube outboard of all frame members.

Attach elevator tube clevis to elevator control arm using an AN4-14 bolt, 1/4" wingnut and safety ring.



Install elevator push/pull tube over elevator adjust tube and choose a hole that will give proper stick position and elevator travel. Attach tube using an AN4-15 bolt, 1/4" wingnut and safety ring. NOTE: Proper stick position should allow full down elevator (elev. frames will hit tail mount tube) when the pilot is seated in flying position with stick held forward at full arm's extension.



SAFETY HINTS

INTRODUCTION

This section describes operating practices associated with safe and courteous flying. It must be remembered that the ultralight pilot is the pilot-in-command of an aircraft and is therefore solely responsible for the performance and outcome of each and every flight. This section is intended to aid the pilot in making some of the decisions required to ensure the successful performance and conclusion of an ultralight flight. This information, together with the other sections of this manual, must be used as basic flight operations procedures. To this, one must add: Authorized Quicksilver ground and flight training, experience, and good pilot judgement.

AIRWORTHINESS

NEVER fly your aircraft unless YOU and the AIRCRAFT are in an airworthy condition. Follow the maintenance schedule. The key to preventive maintenance is thorough preflight inspections performed prior to each flight according to the preflight checklist. Preflight inspections are as much a part of flying as takeoffs and landings. If you are the one who is going to do the flying, you are the one who must do the preflight. **NEVER** allow anyone to do the preflight for you.

Make sure you, the pilot-in-command, are also in an airworthy condition. Good health, adequate sleep, and an alert mind are essential to flight safety. **NEVER** attempt to fly if you have consumed alcohol or drugs of any kind within eight hours of the intended flight.

WINDS

Experience has shown that wind is one of the major factors involved in causing or contributing to accidents. There are three main considerations in determining wind safety values. The first is velocity, the second is gust differential, and the third is pilot experience and competency. The inexperienced ultralight pilot (less than 15 hours of "ultralight" flight time) should confine flying to winds of less than 8 MPH. This helps reduce the associated problems of crosswind takeoffs and landings, misjudging wind drift during turns, downwind stalls, wind gradients on approach, etc.

Gust differential is the wind speed difference between the lulls and the peak gusts. For example, assume that you are flying at an airspeed of 37 MPH (32 KNOTS) into a 15 MPH (13 KNOTS) wind. Suddenly the wind velocity reduces to 5 MPH (4 KNOTS). The immediate result will be a 10 (9 KNOTS) MPH reduction of airspeed. In other words, the airspeed will suddenly reduce from 37 MPH (32 KNOTS) to 27 MPH (23 KNOTS). If the stalling speed of the aircraft is 27 MPH (23 KNOTS) or higher, a stall will result. This creates obvious dangers when flying close to the ground and/or obstacles.

Vertical wind gusts from the side will cause the aircraft to bank away from the gust. The amount of bank displacement will be determined by the gust velocity. For these reasons, wind speed; wind direction; and gust differential must be checked for several minutes prior to flight.

Pilot experience and competency, along with aircraft capability, must be considered prior to attempting any flight. Experience and competence is gained through meaningful and carefully planned practice. Always practice in areas and conditions that allow for gross errors in judgement and emergency situations. Above all, NEVER attempt flight if the capability of either YOU or the AIRCRAFT is in question.

WIND ASSOCIATED TURBULENCE

Turbulence near the ground is usually associated with the flow of wind over trees, buildings, hills, and other obstructions. This localized turbulence becomes increasingly dangerous as the wind velocity exceeds 10 MPH(9 KNOTS). Just as the disturbance by obstructions of water in a moving stream can be seen, visualize wind flow over various obstructions in a similar manner and avoid flight in areas that appear to be hazardous. Stay upwind of wind blocking sources. If you must fly in the downwind area of an obstruction, pass as far downwind of the obstruction as possible. Rotors and turbulence can continue downwind for miles if the obstruction is large enough and the wind velocity is sufficiently high.

GROUND HANDLING

Taxiing in winds over 10 MPH(9 KNOTS) can present problems, particularly for lighter pilots. As wind speed increases, the aircraft must be taxied more directly into the wind. If you must turn crosswind in winds over 10 MPH(9 KNOTS), have a bystander hold down the upwind wing. NEVER place your feet on the ground while the aircraft is moving -for any reason.

Never leave the aircraft unattended if the wind is expected to exceed 6 or 7 MPH(5 OR 6 KNOTS). If the wind is expected to be between 8 and 15 MPH(7 AND 13 KNOTS), the nose should be pointed directly into the wind with the aircraft securely tied down. NEVER leave the aircraft set-up outdoors if the wind exceeds, or is expected to exceed 25 MPH(22 KNOTS).

CROSS-COUNTRY FLIGHT

Before attempting any cross-country flight, you must be completely familiar with FAR (Federal Aviation Regulation) Part 103 - Ultralight Vehicles, and FAR Part 91B - General Flight Rules. You should also have sectional charts covering the area of intended flight and familiarize yourself with the various symbols and other information on them. Copies of the FAR's and sectional charts are available at any airport facility that offers flight instruction.

If at all possible, it is advisable to take a private pilot ground school course. The course will aid you in understanding established methods and procedures in planning and executing a cross-country flight. Additionally, it will inform you of the many FAA flight services available to all pilots. These services include flight briefing information, such as airport weather and surface winds, in-flight weather and winds aloft, Notices to Airmen, etc. The first step in any cross-country flight is preflight planning. SECTION 5 of this manual will be particularly helpful. Plan a flight route that will allow for ample emergency landing sites. Avoid mountainous or remote areas that would be difficult to walk out of in the event of an unplanned landing. A good rule-of-thumb is: **NEVER** fly over anything you do not want to land on! If you must fly alone, carry plenty of drinking water and signalling devices such as a mirror, flashlight, flares, etc. It is also advisable to carry a spare spark plug(s), spark plug wrench and a small tool kit containing items used for assembly/disassembly of the aircraft. Ensure that all equipment is secured in a manner that will not endanger the aircraft, or persons or property on the ground. Before leaving on any cross-country flight, **ALWAYS** notify at least one person of your intended flight. Include such information as your intended route of flight, estimated time of departure, and estimated time of arrival.

EMERGENCY LANDINGS

During flight training the pilot should practice simulated emergency landings. The practice should be performed in a large, open, unobstructed area. The advisable procedure for practice is to reduce the power to idle to simulate an engine-out condition rather than actually turning the engine off. The pilot should strive to perfect his or her ability to safely and accurately land the aircraft from any point around a suitable landing site in an engine out condition. Emergency landings normally present little or no problem in an ultralight since they can be landed in a relatively small area. However, it is imperative that you remain within gliding distance of a suitable landing site at all times. This is particularly true while flying over tree covered terrain or other obstacle riddled areas. Land directly into the wind whenever possible. Learn to determine wind direction and velocity from the air by using your flight crab angle, blowing smoke, ripples on water, leaves on trees, etc. Select a landing site with the largest area, smoothest surface, and clearest approach path. Be extremely careful to recognize the existence of power lines, telephone wires, and other low visibility obstructions that might exist in and around a possible approach and landing area. Avoid such areas.

The best procedure to be followed for inflight emergencies is to prevent them before they happen. Preventive measures such as: preflight planning that allows for the prescribed 30 minute fuel reserve; checking for water in the fuel system and draining impurities as necessary; monitoring engine instruments in-flight for signs of overheating or over-revving; following the procedures as outlined in the aircraft's owners manual; and always fly in a manner that would commonly be considered as safe and sensible.

As far as the possibility of engine failure is concerned, always fly by these basic rules:

- (1) THE ENGINE CAN STOP RUNNING AT ANY TIME.
- (2) NEVER FLY OUTSIDE OF GLIDING DISTANCE OF A SAFE LANDING AREA.
- (3) NEVER FLY OVER ANYTHING YOU DO NOT WANT TO LAND ON.

AEROBATIC FLIGHT

Aerobatic flight is not recommended or approved in the GT. The FAA defines aerobatic flight as "intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration not necessary for normal flight." Do not exceed 60 degrees of bank angle or 30 degrees of pitch attitude. Additionally, spins are not recommended or approved in the GT. Avoid flight conditions or control inputs that may result in a spin or spin entry.

NIGHT FLYING

With proper aircraft lighting, you are allowed by law to operate an ultralight during the twilight periods as stated in FAR 103.11. It is illegal to fly an ultralight vehicle at night. Due to the nature of two-cycle engines, their reliability is not as great as the dual ignition, detuned, four stroke certificated aircraft engines used on modern light planes. A forced landing in darkness contains obvious dangers. It is also important to recognize that a pilot's depth perception and ability to recognize obstructions is reduced while flying during the twilight period and proper caution should be exercised.

SAFETY EQUIPMENT

For safety and comfort while flying, you should wear the following items: a lightweight helmet; ear plugs; eye protection in the form of a face shield, goggles, or glasses suitable for sport activities; footwear with low heels; and gloves. Consider the outside air temperature before each flight and dress accordingly. Remember, the temperature will usually decrease with an increase in altitude.

Another optional piece of safety equipment is an Aircraft Recovery System (parachute). Even if you and your aircraft perform properly, the possibility of a mishap, such as a mid-air collision, still exists. Be sure you receive proper instructions from your dealer on the following points: (1) When to deploy the parachute; (2) How to properly deploy the parachute; (3) How to ensure the parachute is secured properly to the aircraft and/or you; (4) How and when to have a professional rigger repack your parachute; (5) How to handle and store your parachute. If you are unsure of any of these points, contact your dealer or Quicksilver Enterprises, before flying.

If your parachute ever gets wet or damp, IT MUST BE REPACKED immediately or damage to the parachute pack contents may result. If you choose to wear a hand-deployed type parachute that is strapped to you, it is necessary to remove the parachute pack PRIOR to touchdown in an emergency ditching in deep water. In water, the weight of the parachute pack could be sufficient enough to prevent you from reaching the surface.

COURTESY

Common courtesy dictates that you fly well away from populated areas, and stay well clear of structures, vehicles, etc. People on the ground have a right to peace and quiet, and this should be respected by all pilots (see Noise Abatement, SECTION 4). Any violation of these guidelines can result in complaints to the FAA, which in time could bring about strict restraints on ultralight flying as well as legal action against the pilot. Parts of the FAR's listed below are an excellent example, as well as a legal guide, to safe and courteous flight:

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

(a) ANYWHERE. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

(b) Operations over congested areas. No person may operate an ultralight vehicle over any congested area of a city, town, or settlement, or over any open area assembly of persons.

(c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In that case, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

Safe, proper, and courteous flying habits will help to ensure the continued growth of ultralight flying and will add to your personal enjoyment of the sport. Strive to be the best pilot that you can be and enjoy the sky.

MAINTENANCE

INTRODUCTION

THIS SECTION is provided to assist the aircraft owner/operator in the application of a "preventive" maintenance program. Refer to Your Assembly, Maintenance and Service Manual for more detailed information. As with any aircraft, it is extremely important that periodic maintenance be performed at regular intervals as specified by the manufacturer. Such a program must be strictly adhered to.

The maintenance schedules provided for the powerplant and the airframe are based on normal field use of the aircraft in accordance with all sections of this manual. It might be necessary to perform maintenance on specific components prior to the suggested time in the appropriate schedule. The need for such maintenance can be identified by following the preflight checklist and procedures as outlined in SECTION 4.

POWERPLANT

INTRODUCTION

The powerplant requires a minimum of maintenance. Included are some helpful procedures for maintenance of the powerplant system. Your Quicksilver Dealer is available to assist you or answer questions regarding service of your aircraft. For additional powerplant maintenance information, refer to the Rotax Operator's Manual and the aircraft Assembly Instructions.

ENGINE

Be sure to read through the entire Rotax Operator's Manual, and appropriate sections of the Assembly Instructions and this manual prior to operating your engine. Refer to the above manuals for: Engine Specifications, Break-In Procedure, Mixing Fuel, Starting Procedures, Spark Plug Replacement, Trouble Shooting, and Service for All Engine Components.

Use your Dealer as a source of current maintenance information. Be aware of Service Bulletins regarding powerplant components.

CAUTION: DO NOT exceed a cylinder head temperature of 400 degrees F or the Maximum Recommended RPM.

The fuel mixture is 50 parts Gasoline to 1 part Oil. Use only BIA-TCW approved two-cycle oil and a good brand of regular or premium grade gasoline of at least 83 octane rating.

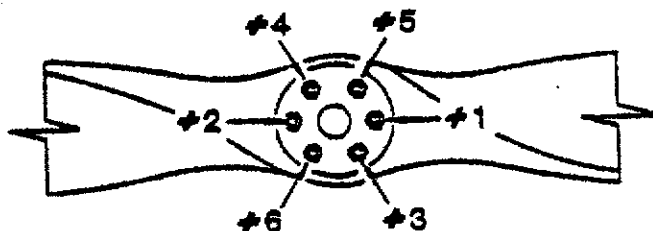
REDUCTION DRIVE SYSTEM

The MXL II SPORT engine is equipped with V-BELT DRIVE SYSTEM. During every preflight inspection, inspect the belts and pulleys for wear and correct tension.

PROPELLER

When installing the propeller on the Hub, tighten the bolts in the sequence shown in Figure 10-1. Lightly snug the bolts the first time around the sequence. Use the sequence a second time for final tightening. Ensure that you do not distort the wood when tightening. When inspecting the propeller, look for cracks and abrasions. All cuts must be removed by sanding or filing until smooth. The surface should be refinished and balanced. If you are not thoroughly familiar with the proper techniques of balancing a propeller, consult your Quicksilver Dealer.

Figure 10-1 : Propeller Bolt Tightening Sequence.



CARBURETOR CALIBRATIONS

Identify the carburetor type, mount type, main jet, needle jet, needle, throttle valve, pilot jet, and air screw. Obtain current information from your Dealer or Quicksilver Aircraft. The calibration may be periodically updated.

The air filter type furnished by Quicksilver must be used on the carburetor at all time, and kept clean and dry. Clean the filter by soaking in gasoline.

Carburetor jetting can be affected by changes in altitude, temperature, and humidity. The fuel mixture will richen in the following conditions: a gain of altitude, an increase in temperature, and high humidity. The fuel mixture will become leaner in the following conditions: a loss of altitude, a decrease in temperature, and low humidity.

Incorrect carburetor adjustment can cause engine failure and severe engine damage. DO NOT make any carburetor adjustments unless you are totally familiar with the correct procedure (see Rotax Operators Manual). Consult your Quicksilver Dealer for answers to any questions.

TRANSPORT/STORAGE

When you transport the aircraft, exercise care as not to damage vulnerable engine components. The propeller should be padded and the fuselage must be rigidly secured to the trailer platform to avoid stress from bouncing.

If the aircraft remains in storage for any length of time, run the engine periodically. A two-cycle engine must not be allowed to sit for months without use as damage can result, unless the interior of the engine is thoroughly coated with two-cycle oil.

ENGINE LOGBOOK

Always keep the engine's logbook entries up to date. As the suggested maintenance schedule is followed, fill in the Ultralight Aircraft & Engine Log to ensure that an organized maintenance performed on the powerplant components, is current and available.

MAINTENANCE

Review the Powerplant Maintenance Schedule, Figure 10-2, and become familiar with all other powerplant components. Pay particular attention to the type of maintenance prescribed and how long you may operate between service checks.

POWERPLANT MAINTENANCE SCHEDULE				RTAI				Engines									
Component	Hours	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
Engine Overhaul.....											3						
Engine Rubber Mountings.....					2				3				2				3
*Spark Plugs.....		3			3		3		3		3		3		3		3
Throttle Cable.....		1			2		1		2		1		2		1		3
Throttle Lever.....									2								2
Air Filter.....		1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	3
Fuel Filter.....			3			3			3			3			3		
Fuel Pump.....																	3
All Fuel Lines.....		2			2		2		2		2		2		2		
1 "V" Belts.....		1	2	1	2	1	1	1	3	1	1	1	2	1	1	1	3
1 Reduction Pulleys.....									2				3				3
* Searbox Oil.....					3				3				3				3
Muffler.....		2			2		2		3		2		1		2		3
Muffler Springs.....					3				3				3				3
All Engine Hardware.....		4			4		4		2		4		4		4		2
Propeller.....					2				2				2				2
*Carburetor.....		1			1				1		1		1		1		1

Figure 10-2 : Powerplant Maintenance Schedule.

Figure 10-2 : Powerplant Maintenance Schedule.

LEGEND

1. Oil, Lube, Clean or Service.
2. Remove, Inspect & Replace if necessary.
3. Replace or Overhaul.
4. Check Bolt or Nut Tension.
5. Replace all components every 800 hours of operation.

* Clean Spark Plugs every 10 hours.

AIRFRAME**INTRODUCTION**

The following suggested maintenance is provided to assist in maintaining the Quicksilver MXL II SPORT in an airworthy condition.

It is recommended that the aircraft be stored in a protected, dry enclosure when not in use.

If the aircraft is subjected to salt water, it must be rinsed with fresh water and dried as soon as possible. Your Quicksilver dealer is available to perform routine maintenance, replace parts, and provide advice on servicing Components

TUBING**Removal and Installation**

When removing tubing, DO NOT bend or force tubes. When installing tubes, DO NOT distort the tubes from their original shape.

Inspection

Inspect tubing for scratches, cracks, damage from abrasion, elongated holes, and distortion. Never attempt to repair damaged tubing. Always replace damaged tubing with a new Quicksilver factory part. Inspect tubing for corrosion in and out. If corrosion is present, replace with a new Quicksilver factory part.

BOLTS:**Installation & Removal:**

- 1) After proper tightening, all bolts must have at least 2 threads showing thru the nut.
- 2) All self-locking nuts must not be installed more than 2 times.
- 3) If grip length is too long, no more than 3 washers may be added.
- 4) A washer must always be installed under the nut.
- 5) Ensure not to over-torque bolts when installing.
- 6) Check Assembly Instructions for correct bolt tightening and placement.

When inspecting bolts, check bolts for worn threads, bad threads, bends, and corrosion.

WING COVERING

Removal and Installation

When removing or installing flight surface coverings, ensure that there are no sharp edges or burrs that might tear the sail. See the Assembly Instructions for complete details.

Inspection

Check for tears in the sail cloth, and for any loose or unravelled seams. Check all inspection port zippers to ensure that they function smoothly and close completely. Inspect the velcro strips on the inboard sections and trailing edge for wear or frayed edges.

The sail may be repaired with sewn-on patches. Tears of less than 1" (2.5cm) may be repaired with appropriate sail tape. Keep the sail clean of oil and dirt by washing the sail with a non-alkaline soap and water.

Keep the sail covered when not in use. Continued exposure to the sun dramatically shortens the serviceable life of the wing, tail and flight control surface covers. The sail must be puncture tested every 3 months with the Fabric Tension Tester included in the MXL II SPORT Kit. The coverings must be replaced if they fail the puncture test, or every 4 years, whichever comes first. (Refer to following pages for instructions on use of the Fabric Tension Tester.

FABRIC TESTER KIT #60100

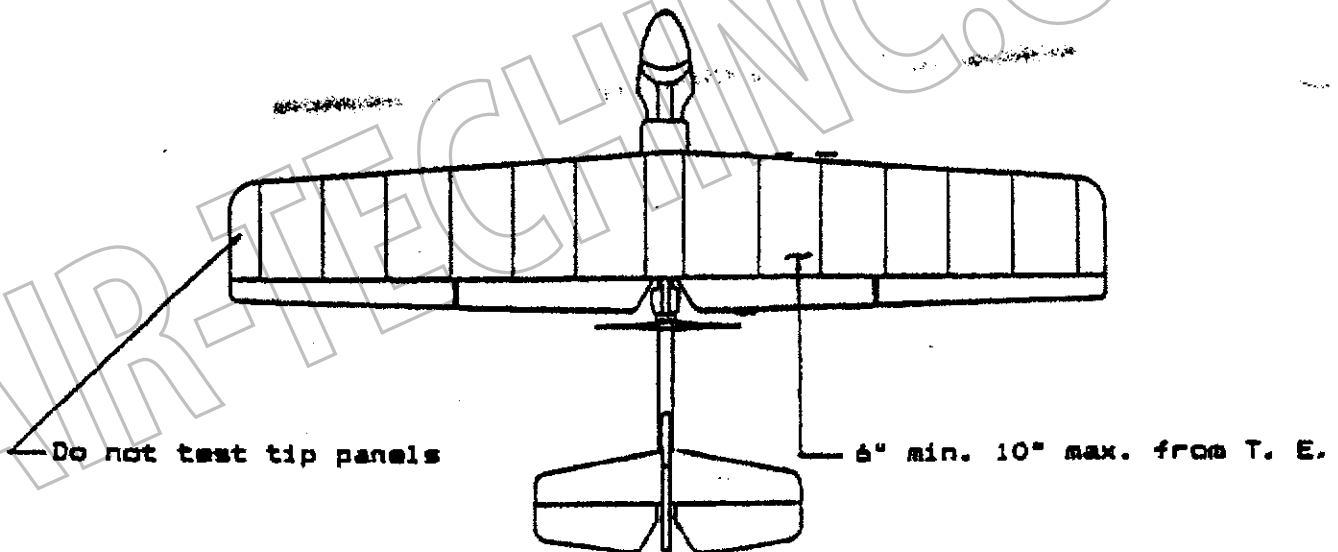
PURPOSE : To use an established standard as a minimum value for evaluation of dacron sailcloth.

TESTING INTERVAL : Every 2 months or if stored for an extended period before use of the aircraft.

TEST LOCATIONS : Any testing should be done in non-critical areas (i.e. away from leading edges, trailing edges, reinforcements and rib locations). Testing on the fourth or fifth wing panel (see illustration) from the root, or gap cover are suitable locations. Do not test the outboard tip panels on double surface wing covers. All testing must be conducted on the top surfaces only.

HOW TO USE THE TESTER : Affix the tester adaptor (1) to the tester (2) with a small amount of silicone. Notice that the small diameter shaft has graduations in lbs. and kgs. Determine the value required to test the particular aircraft or part of aircraft (see chart below). Set the small o-ring (4) over the determined value. The tester is now ready for use.

Position the adaptor end of the tester at the fabric and the large diameter shaft in the palm of your hand. In a continuous movement, at right angles to the fabric surface, Push with sufficient force to telescope the small shaft into the large shaft to the pre-determined value. If the adaptor does not punch thru the fabric at the pre-determined value the fabric has passed the test at that particular location. A punch thru indicates the fabric strength is not adequate for safe flight. It is recommended that the aircraft be grounded until a replacement cover is installed.



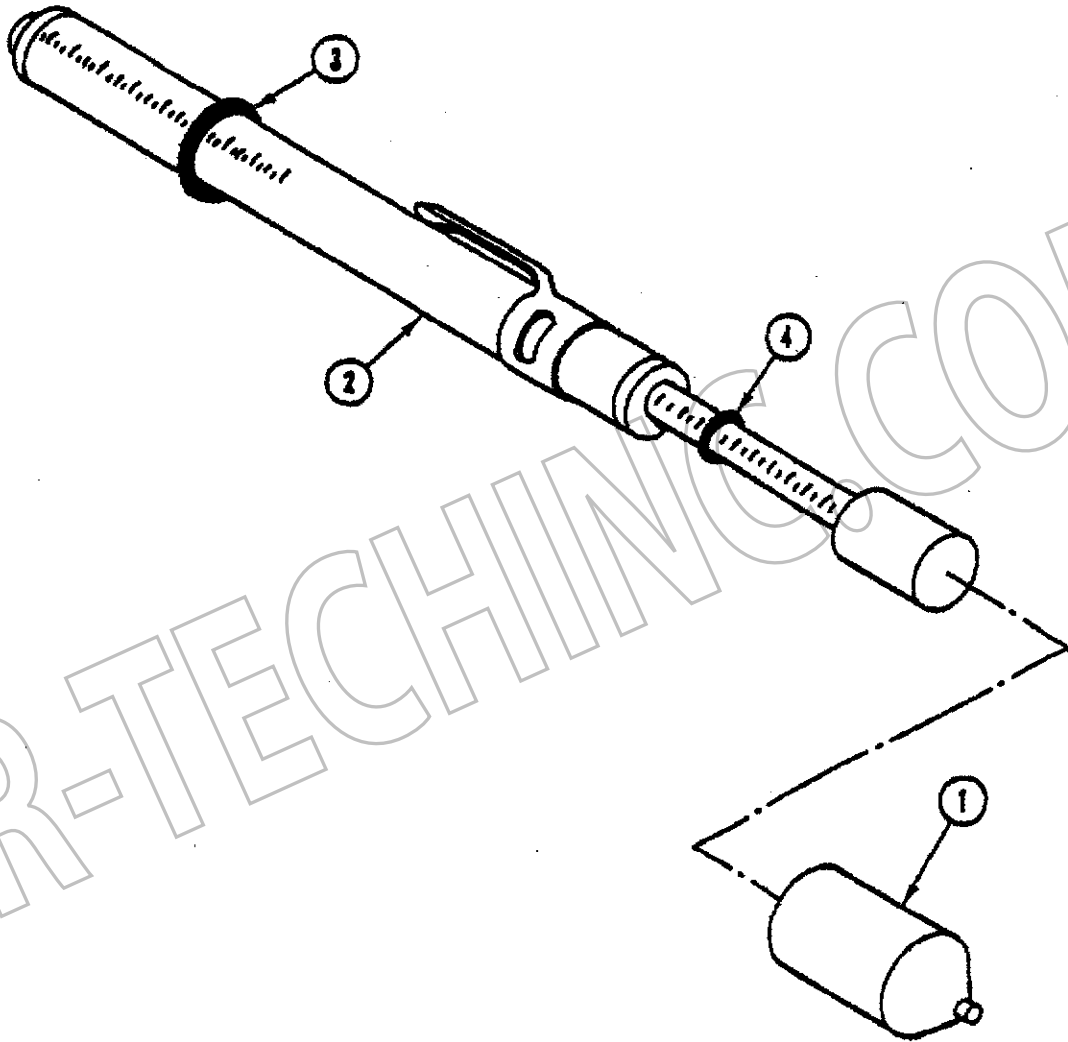
MINIMUM TEST VALUE STANDARDS *

Single Surface Wings: 12 lbs. or 5.4 kgs.

Single Surface Tail: 10 lbs. or 4.5 kgs.

Double surface Wings: 10 lbs. or 4.5 kgs.

* Values apply to Zipper Fabric Tester only



CABLES

Installation

When installing cables, insure that they are not twisted or kinked. Never install cables with the thimble "popped" out of place.

Inspection

Inspect cables for frays, nicks or cuts in the vinyl covering. If abrasions are found, remove the cover around the affected area, and inspect the cable for broken strands or kinked wires. Always replace a cable with a new Quicksilver factory part if damage is present. Check all thimbles for correct shape. If a thimble does not have a teardrop shape or is flattened, replace with a new Quicksilver factory part. Damage of this type could indicate that another part of the structure has been overloaded. A more thorough inspection should be performed.

HARDWARE

Plastic Hardware

Ensure that plastic saddles are seated correctly and inspect for cracks or wear.

Forced Channels

When installing a tube to a forced channel, ensure that a washer is placed between the nut and the channel. Never overtighten bolts, as that may cause the channel to distort. Never turn a channel while removing a tube from the channel. Inspect channels for cracks or distortion. NEVER reshape a bent or distorted channel. Always replace any damaged part with a new Quicksilver factory part.

Shackles

Ensure that shackles are retained by the correct bolt size. Never spread or bend a shackle. Inspect shackles for cracks, elongated holes, and stretching.

Other Hardware

Check all other hardware for normal wear or damage. After hard landings, the airframe must be inspected carefully. The wing pylon structure, and landing gear fittings and tubes must be inspected for damage and replaced if necessary. If the aircraft is ground looped (a wingtip contacts the ground), the wing covers must be removed and a thorough inspection of the total wing structure performed.

AIRFRAME LOGBOOK

Always keep the aircraft's logbook up to date by making current entries as the Airframe Maintenance Schedule is followed. The Ultralight Aircraft & Engine Log is designed to help organize proper servicing of the airframe while supplying written records of airworthiness.

MAINTENANCE

Review the Airframe Maintenance Schedule, Figure 10-3, and become familiar with all the airframe components. Pay particular attention to the type of airframe maintenance prescribed and when service must be performed.

AIRFRAME MAINTENANCE SCHEDULE

Quicksilver

Component	Hours	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
+ Root Tube.....	2																3
+ All Seams.....	2																2
Compression Struts.....	2																2
Diagonal Struts.....	2																2
0 King Post Tubes.....	2																3
0 King Post Fittings.....	1				1		1		1		1		1		1		3
Tail Bone.....	2																2
Aft Downtubes.....	2																3
Fwd Downtubes.....	2																3
Fwd Fuselage Down Strut.....	2																2
Tail Bone Down Strut.....	2																2
Rudder Frame.....	4								214				4				214
Elevator Frame.....	4								214				4				214
Tail Skid.....	2				2		2		2		2		2		2		2
Ribs.....	2				2		2		2		2		2		2		2
All Cables/Lift Struts.....	2								2				2				2
+ Wing & Tail Covers.....	2								2				2				2
+ All Landing Gear Parts.....	4				2		4		2		4		2		4		2
Elevator Push/Pull Tube.....	2				2		2		2		2		2		2		2
Control Yoke.....	184				214		184		214		184		214		184		214
Rudder Pedals.....	2								2				2				2
Side Struts.....	2								2				2				2
Strut Fittings.....	2								2				2				2
Televies Cable.....	1		1		1		2		1		1		1		2		1
All Control Cables.....	2								2				2				2
Wheel Bearings.....	1								2				1				2
All Forced Channels.....	2								2				2				2
All Other Bolts.....	4				4		4		2		4		4		4		2
Grade 5 Bolts.....	4				2		4		2		4		2		4		3
All Other Hardware.....	4				4		4		2		4		4		4		2
+ Wheel Parts.....	2								2				2				2
Seat.....																	2
All Wing Assemblies.....	1		2		1		2		1		2		1		2		1

Figure 18-3 : Airframe Maintenance Schedule.

LEGEND

1. Oil, Lube, Clean or Service.
2. Remove, Inspect & Replace if necessary.
3. Replace or Overhaul.
4. Check Bolt or Nut Tension.
5. Check Holes for Ovality - replace as necessary.
 - + Closely inspect after any hard landing.
 - * Check Fabric every 1000 hours of exposure to the Sun. (Approx. 85 days of 12 hour exposure each day). Replace the fabric every four years or in accordance with the procedures of the fabric test kit which ever comes first.
 - 0 Cable Braced MXL II SPORT Only.
6. Replace all components every 800 hours of operation.

AIRWORTHINESS LIMITATIONS

The following schedules are mandatory replacement time schedules and structural inspection intervals. They are identical to the schedules in Section 14 under maintenance. Refer to Section 2 thru 13 for related structural inspection procedures.

Due to Aircraft Structure Durability and Aircraft Structural Fatigue Life the Aircraft Maintenance Schedules in this manual must be adhered to.

Component	Hours	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
* Root Tube.....									2								3
* All Spars.....									2								2
Compression Struts.....									2								2
Diagonal Struts.....									2								2
* King Post Tubes.....									2								3
* King Post Fittings.....		1			1			1			1		1		1		3
Tail Boom.....									2								2
Aft Downtubes.....									2								5
Fwd Downtubes.....									2								5
Fwd Fuselage Down Strut.....									2								2
Tail Boom Down Strut.....									2								2
Rudder Frame.....				4					2k4				4				2k4
Elevator Frame.....				4					2k4				4				2k4
Tail Skid.....		2			2		2		2		2		2		2		2
Ribs.....		2			2		2		2		2		2		2		2
All Cables/Lift Struts.....					2				2				2				2
* Wing & Tail Covers.....									2								2
* All Landing Gear Parts.....		4			2		4		2		4		2		4		2
Elevator Push/Pull Tube.....		2			2		2		2		2		2		2		2
Control Yoke.....		1k4			2k4		1k4		2k4		1k4		2k4		1k4		2k4
Rudder Pedals.....									2								2
Side Struts.....					2				2				2				2
Strut Fittings.....									2								2
Teleflex Cable.....		1	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1
All Control Cables.....					2				2				2				2
Wheel Bearings.....					1				2				1				2
All Formed Channels.....					2				2				2				2
All Other Bolts.....		4			4		4		2		4		4		4		2
Grade 5 Bolts.....		4			2		4		2		4		2		4		3
All Other hardware.....		4			4		4		2		4		4		4		2
* Wheel Parts.....					2				2				2				2
Seat.....																	2
All Hinge Assemblies.....		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2

Figure 10-3 : Airframe Maintenance Schedule.

LEGEND

1. Oil, Lube, Clean or Service.
2. Remove, Inspect & Replace if necessary.
3. Replace or Overhaul.
4. Check Bolt or Nut Tension.
5. Check Holes for Ovality - replace as necessary.
 - * Closely inspect after any hard landing.
 - * Check Fabric every 1000 hours of exposure to the Sun. (Approx. 85 days of 12 hour exposure each day). Replace the fabric every four years or in accordance with the procedures of the fabric test kit which ever comes first.
6. Replace all components every 800 hours of operation.