TABLE OF CONTENTS

		PAGE
SECTION 1	INTRODUCTION	1-5
SECTION 2	FORWARD FUSELAGE	2-1
SECTION 3	EMPENNAGE	3-1
SECTION 4	ENGINE	4-1
SECTION 5	WINGS	5-1
SECTION 6	AILERONS/FLAPS	6-1
SECTION 7	FINAL ASSEMBLY	7-1

SECTION 1 INTRODUCTION

Welcome to the world of Eipper Ultralight Aircraft. We wish to thank you for choosing our Quicksilver GT, a product we feel represents the State of the Art in this field of aviation.

In constructing your GT, it is essential that you build it in strict accordance with this Assembly Manual. We have prepared it in step-by-step form to assist your building process. Please pay close attention to detail and the sequence of Assembly while allowing plenty of time to complete each segment.

CONSTRUCTION NOTES

This manual describes and illustrates the recommended sequence of assembly of the Quicksilver GT.

In each sequence we will show sub-assemblies first, usually in the order of construction. There is a reason for this. Each sub-assembly will incorporate more and more complex operations. In this way we hope to gradually introduce you to the Eipper way of building a finely balanced Ultralight.

Please read the whole manual through at least once, to familiarise yourself with our terminology, assembly drawings and detail breakdowns.

Whenever possible, the illustrations show the relative position of the part you are working on. In some instances, we will show a part the right way up, when its relative position is upside-down - in those cases we will say so on the illustration.

Pay particular attention to 'NOTES' and sections marked 'CAUTION' or 'IMPORTANT' or 'ESSENTIAL', as well as 'Oriented as shown'. Please follow these methods - you can be sure that we have very good reasons for assembling something that way.

We have Factory Assembled many major components, leaving you with relatively little drilling, riveting, filing and shaping to complete the assembly of this kit.

While it is possible to complete the kit in a relatively short period, accuracy and thoroughness are factors more important than time spent in building this aircraft. Care and patience will be rewarded by better control response, higher reliability and a better looking GT which will be a credit to both of us.

We sincerely hope you enjoy the experience.

CONSTRUCTION NOTES (CONT'D.)

HOT KNIFE

Use extreme care when using the Hot Knife to cut the Template holes in flying surface Covers. A good Hot Knife at the correct temperature will cut the material as easily as soft Butter. Mistakes cannot be rectified! Try cutting Template holes smaller than needed at first, then gradually enlarge to the correct size. In this way, you'll get neater as you gain experience.

CAUTION: Don't step on or brush against a Hot Knife when wearing sneakers - it can be very painful!!

CUSTOM PAINTING

If you wish to custom paint the Pilot Fairing, Seat-back and Wheel Pants, do it after they have been assembled in sequence; then disassemble, paint and reassemble according to the instructions.

LOCATING HOLES

When predrilled tubes have been inserted into Wing and Tail Covers, find the holes as instructed in each sequence. Final locate them with your fingers and push a stick-pin thru the fabric to mark their position.

NICO SLEEVE GAUGE PROCEDURE

ESSENTIAL PROCEDURE!

The Nico Sleeve Gauge (1) supplied with the kit, is used during initial Parts Inventory to verify the accuracy of the Wire Swages (2) on all flying and control Wires on the aircraft.

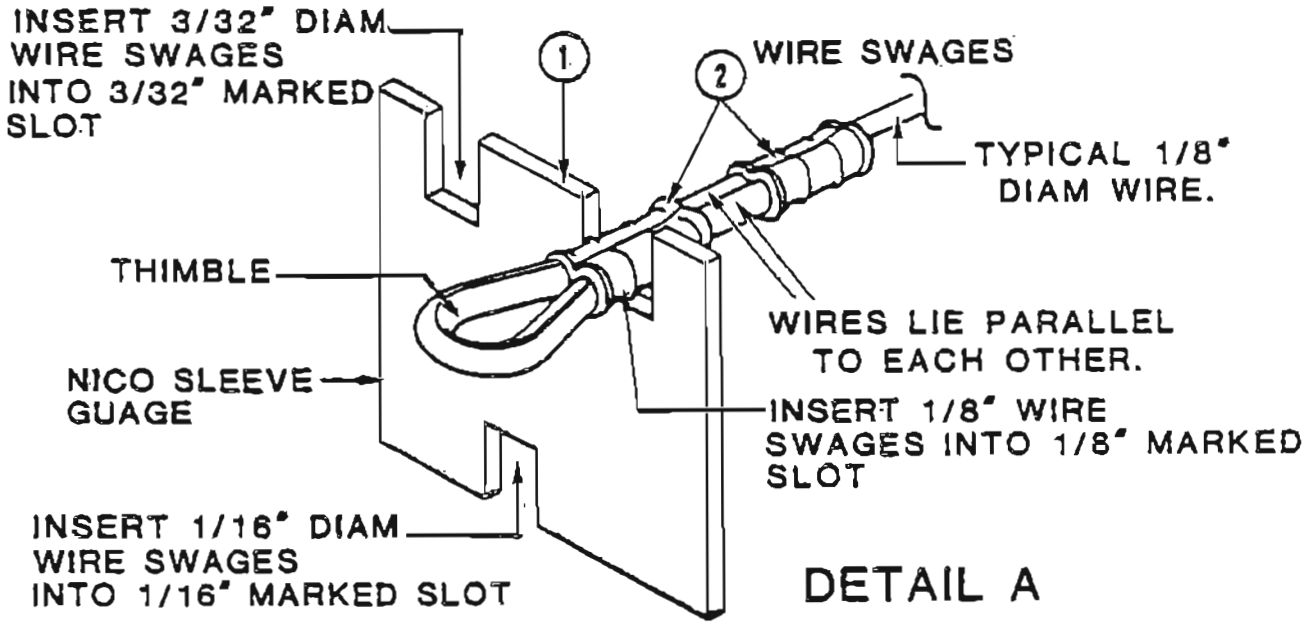
ALL Wire Swages (2) whether ending in Cable Bushings, Flat or angled Tangs or Thimbles MUST be checked with this Gauge.

You must ensure that where a wire passes around a Thimble (a typical example of which is shown below) its captured-end lies parallel to and side-by-side with the rest of the Wire and be untwisted within the Swages (2) and that the shape of each Swage (2) is symmetrical. Additionally you must check the whole length of the Wires for "nicks" or cuts in their jackets.

DO NOT USE Wires which show signs of transit damage, or that have broken or untwisted individual wires which make up a cable!

If you have questions about either this procedure or the results of your inspection - call your Zipper Dealer.

1. Refer to Detail 'A'. The Nico Sleeve Gauge (1) has three precision machined notches which accept 1/16", 3/32" and 1/8" wire swaging sizes. Insert each Nico Sleeve into its appropriate slot and check its accuracy. NOTE: The Thimble end shown is typical, but notice the orientation and the position where the check is made on the swaging. There should be NO side-to-side movement possible when correctly positioned. There should be NO NEED to force the sleeve into the Gauge.



WARNING! NEVER USE SUBSTITUTES.
FIT WIRES ONLY IN THEIR DESIGNATED POSITIONS!

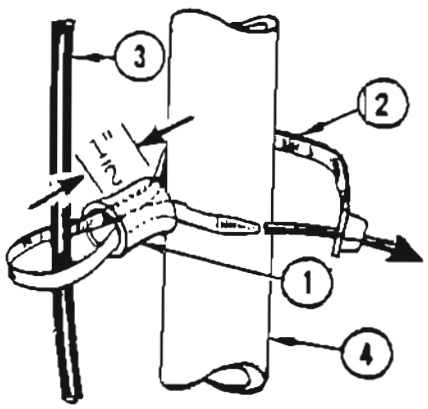
Zipper aircraft

STAND-OFF ASSEMBLY

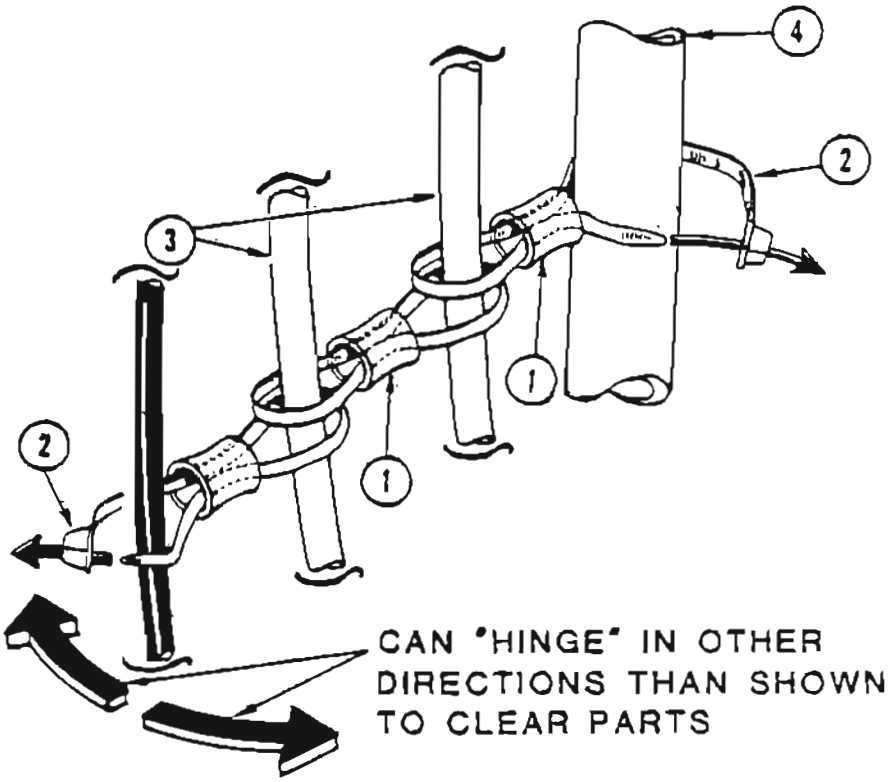
This is an anti-vibration fitting used to isolate Gas Lines, Throttle Cable, Teleflex Cable, Brake Cables and some Electrical Wires throughout the aircraft. The exact locations and numbers used are detailed in the relevant sequence.

1. Refer to Detail 'A', which shows a single Stand-off in a typical application. Cut a 1/2" (12.7mm) piece of "scrap" Fuel Line (1). Thread a 7" Nylon Tie-Wrap (2) around a typical part (3), thru the Fuel Line (1) and around the Airframe tube (4) as shown. Pull tight, cut off the excess and touch the cut end with the hot knife to remove sharp edges.

2. Refer to Detail 'B', which shows a typical double Stand-off. Fabricate in a similar manner to the above.



DETAIL 'A'



DETAIL 'B'

Pt.	P.N.	Description.
1		Fuel Line
2	30480	7" Nylon Tie-wrap.
3		Typical part.
4		Typical Airframe Tube.

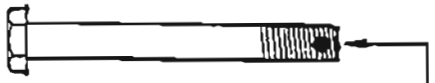
THE NUTS & BOLTS OF THE QUICKSILVER GT

All Bolts used in the airframe of this kit are Aircraft Quality and are either "Graded" to military specification, or they conform to the standards of the S.A.E. (Society of American Engineers).

The most commonly used bolts in this kit are fine-thread "AN" bolts. They are of exceptional quality, strength and durability.

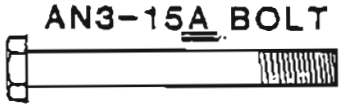
Within the "AN" classification, there are two types of Shank End (the threaded end of the Bolt). The suffix "a" in the specification number indicates that the Bolt Shank is NOT cross-drilled for a Safety Ring or Cotter Pin. See the following example:

AN3-15 BOLT



NO "a" = Cross drilled

AN3-15A BOLT



WITH "a" = NOT Drilled.

Coarse Thread Bolts in this kit are refered to as "Grade 5" Bolts and are used in specific locations throughout the aircraft, their positions will be shown in the text. IT IS DANGEROUS to substitute them for any other type of Bolt.

BOLT TIGHTENING

NEVER overtighten a Bolt. Tighten ONLY when and as instructed. Particular care is necessary when tightening bolts which pass through aluminum tubes with no solid internal support.

Be particularly careful when installing all Forkbolts or Eyebolts in the Wing, Aileron, Elevator, Stabilizer or Rudder tubes.

Before installing bolts, check that the grip-length is correct. When using Washers, ensure that at least One-and-one-half bolt threads extend out of the nut. Use Washers only where specified.

Bolts and Nuts should be clean and dry before installation. Threads should not be oiled. Bolts or Nuts with damaged threads and rough ends should NOT be used.

Wing Nuts should only be tightened by hand and must always be used with a Safety Ring!

Castle Nuts should only be tightened to the specified degree of tightness and must always be used with a Safety Ring or Cotter Pin where specified.

NOTE: When Castle Nuts are tightened, the Safety Ring or Cotter Pin Holes may not line up with the slots in the nuts when the Torque setting is reached. BACK OFF to the nearest slot. The Castle Nut must NEVER be overtightened to permit lining up the Safety Hole with the next tighter slot!

WARNING!

BOLTS WHICH ARE SUBJECT TO ROTATION IN FLIGHT WILL USE "CASTLE" NUTS. A CASTLE NUT RELIES ON A SAFETY RING OR COTTER PIN TO PREVENT IT BACKING OFF.
ALWAYS ENSURE CASTLE NUTS ARE SECURED WITH A SAFETY RING OR COTTER PIN!

Eipper aircraft

'AN' BOLT GAUGE

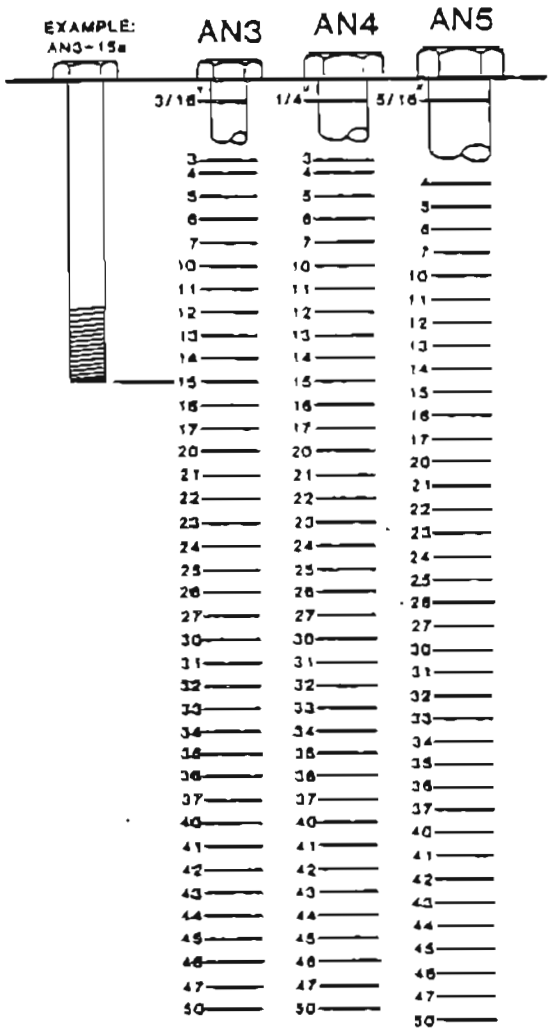
Use this Gauge to determine AN Bolt Sizes and Lengths.

DO NOT USE Substitutes!
Call your Eipper Dealer for replacements, whenever necessary.

AN3 = 3/16" diameter Shank.

AN4 = 1/4" diameter Shank.

AN5 = 5/16" diameter Shank.



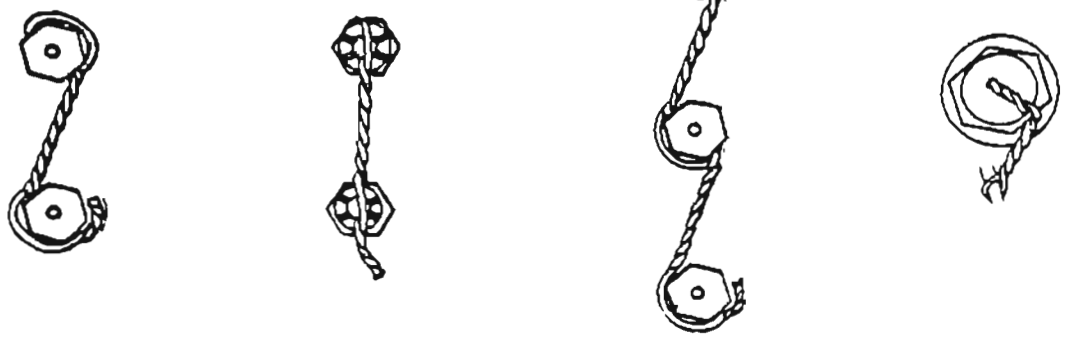
****
CAUTION: This Gauge is inappropriate for measuring Grade 5 Bolts.
****

SAFETY WIRING BOLTS

Certain Bolts on this aircraft must be Safety Wired. The wiring is arranged so that if a Nut or Bolt begins to loosen, the force applied to the wire is in the tightening direction.
CAUTION: Use only Aircraft-quality Safety Wire!

The following is the recommended method.
Tighten the Bolts to the Torque values specified in the relevant text. Ensure that the Safety Wire holes are aligned as shown. NEVER overtighten or loosen a torqued Bolt to align Safety Wire holes.
Careful study of the illustration shows that:

Example 1 shows Safety Wiring to Bolts wired in pairs - as on Engine Mountings.
Example 2 shows Wiring to certain Castle Nuts and studs - NOTE: There is no loop around the Nut.
Example 3 shows several Bolts wired together - as on the Propeller hub.
Example 4 shows a single threaded component wired to a housing or lug.



TORQUE VALUES

SPECIFIED TORQUE VALUES

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

RUN-ON TORQUE AND PROPER TORQUE

Run-on Torque is the amount of resistance encountered when you thread a nut onto a bolt until the bolt threads appear through the nut.

When you thread a new Nut 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 nut and bolt will not be correctly tightened!

Therefore, when reading any Torque Specification in this manual we will expect you to use Proper Torque.

FORMULA

PROPER TORQUE = RUN-ON TORQUE + TORQUE VALUE

EXAMPLE 1.

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, you will see that 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.

EXAMPLE 2.

If the Run-on torque read 16 in./lbs., the AN3 bolts' PROPER TORQUE would be correct when the Torque Wrench shows a reading of 36-41 in./lbs.

EXAMPLE 3.

A 3/16" Castle Nut will offer less resistance than a Locknut.(say, 5.0 in./lbs). In this case, the PROPER TORQUE will be 25-30 in./lbs.

TORQUE VALUES (CONT'D.)

And so on - check each Nut and Bolt individually, throughout the assembly sequence.

IMPORTANT: Nylock Nuts and Locknuts should never be used more than twice 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.

TORQUE SPECIFICATIONS: ROTAX 277 ENGINE

	in./lbs.	Newton Meters
Cylinder Head Nuts.....M8.....	210	24
Crankcase Screws.....M8.....	210	24
Magneto Housing Nut.....M18x1,5	700	80
Fan Nut.....M16x1.5	620	70
Crankcase Nuts (or screws) M10....	354	40
Exhaust Socket Screws.....M8.....	210	24

Formula

To convert in./lbs to ft./lbs: Divide x 12

PARTS LIST INTERPRETATION

In each sequence, when we call out an item in the text we will give it a number which is repeated on the illustration and keys with the Parts List.

Text Example: "Lay out the Left Wing Cover (1).."

If that item is NEW in the sequence it will have a Part Number in the List which matches the part to be used.

Parts List Example:

Pt.	P.N.	Description.
1.	45674	LEFT Wing Cover.

If the part has been

1. Previously Sub-assembled in an earlier sequence.
2. Factory Installed.
3. Called out for identity .
4. Is an integral piece of another item.

Then it will appear in the Parts List with a dotted line, indicating one of the above.

PARTS LIST INTERPRETATION (CONT'D.)

Example:

Pt.	P.N.	Description.	
1.....		LEFT Wing Cover.	(previously sub-assembled).
2.....		Nut Plate.	(factory installed).
3.....		Aileron T.E.	(identifies a part).
4.....		Knurled Nut.	(an integral part of the Ignition Switch).

Note also that while a Part may be identified (1) on the page which you are reading, it may be identified differently (16) three pages later, (5) ten pages later and so on - for the same Part .

Example: Page 4-3 and 4-4 identifies hardware (8,7,11).
Page 7-18 and 7-19 " " (7,8,9) - which is the same hardware.

REMINDER: Each page, in each sequence, is an independent unit.

PROPELLER

****
CAUTION: It is DANGEROUS to work on a Propeller with the High Tension Lead connected to the Spark Plug of the Engine!!
****

The Propeller supplied with this kit is a precision-made component incorporating the highest standards of manufacture. While it is extremely strong, reliable and well balanced as supplied, it is recommended that before mounting, it should be fine-balanced using Professional balancing techniques.
It must be emphasised that the mounting procedure must be followed closely and carefully.

The Propeller - Which way around?
When looked at end-on, you will see that the Propeller blades are airfoil-shaped - curved one side, flat the other. On this aircraft the FLAT SURFACE of the Propeller blade FACES AFT!!

Propeller Mounting Bolts
In the kit, there are six special Bolts for use ONLY on the Propeller. They are 1/4" x 20 COARSE Thread and the heads are cross-drilled. Open each Bolt in turn thru the holes in the Propeller Hub and then remove them again. They should be a tight fit. DO NOT use force.
IF the Bolts will not pass thru the holes in the Hub - perhaps due to high local humidity - the holes may be Reamed to 1/4", use EXTREME CAUTION.

GETTING READY

Once you have thoroughly read the instructions:

1. Inventory and inspect the component parts of the kit. leaving them in their clear-wrap packaging until ready for use.
2. Assemble the tools required and ensure that they are clean and sharp.(See "Tools Required" Page 1-16).
3. Clean your workspace so that it is as dust-free as possible.
4. Always use the specified components and Bolts. NEVER use substitutes. NEVER use non-Eipper Parts (See "AN Bolt Gauge", Page 1-10).
5. If yours is the wire-braced model. Check all swaged NICO's with the Nico Sleeve Gauge provided.(See "Nico Sleeve Gauge Procedure", Page 1-7).
6. Use extreme care when using the Hot Knife to cut the Template holes in flying surface Covers. A good Hot Knife at the correct temperature will cut the material as easily as soft Butter. Mistakes cannot be rectified!

SPACE REQUIREMENTS

*NOTE: Throughout this Assembly Manual we have presumed that your work area is about the size of the average Garage - 25'0" long x 15'0" wide x 8'0" high (7.6m x 4.5m x 2.4m).

With careful space management, you should easily be able to separately assemble the Fuselage, Tail Boom and one Wing at a time, then Final Assemble them outside.

If you have more space, it is possible to build both Wings simultaneously - just remember that the full Wing Span on the "Root Tube Jig" exceeds 30'0" (9.14m) and the overall length of the Quicksilver GT exceeds 15'0" (4.5m).

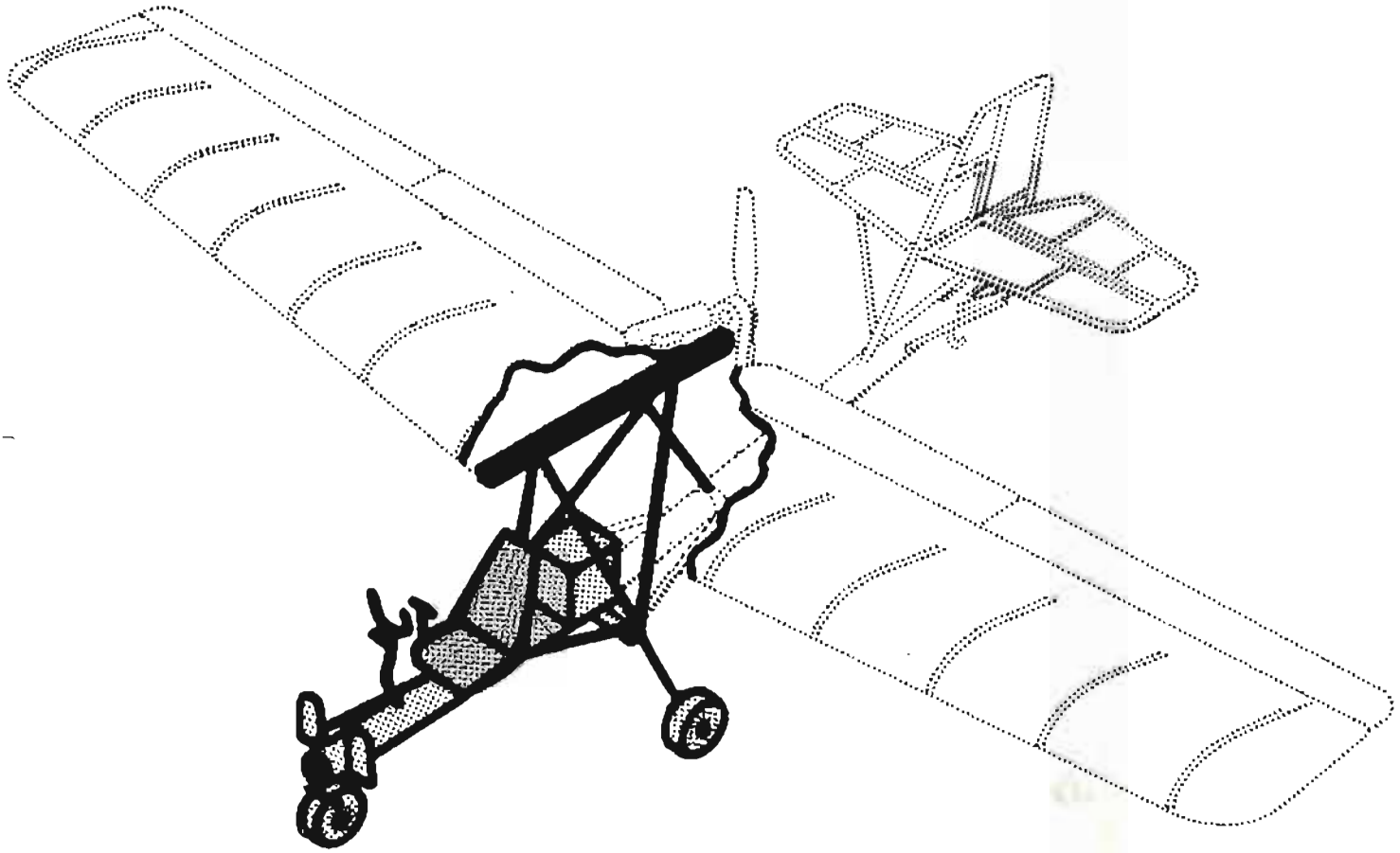
TOOLS NEEDED FOR ASSEMBLY

* Allen Hex Bits: 6mm - 1/4" - 1/8"- to fit Torque Wrench.
* Angle Finder (Universal Protractor).
* Artist Paint Brush & White Paint- small quantity -(to number"V"Belts).
* Awl.
* Bench Vice.
* Cleaning Brush, 1".
* Center Punch.
* Cleaning Fluid.
* Drill Motor or Hand Drill with 1/8"-3/16"-3/8"-5/8"-1/2" Bits.
* Files: Fine Flat,
  : 1/2 Round.
  : Rat Tail.
* Hacksaw with normal and Tube-cutting Blades.
* Hammers: Steel.
  : Leather.
* Hot Knife (or Soldering Iron with Blade Edge).
* Marking Pencil or Pen.
* Pliers: Regular.
  : Long Nose.
* Razor Knife.
* Riveting Tool for 1/8" and 3/16" Rivets.
* Rope, 1/4" Nylon.
* Sandpaper - Medium Grit.
* Scissors.
* Screwdrivers: set of Flat Blade.
  : " " Phillips.
* Sidecutters - one pair.
* Spark Plug Gapping Tool.
* Straight Edge. 6' feet long (2m.).
* Tape Measure - 10' feet (3m.).
* Tape: Electricians.
  : Masking.
* Torque Wrench that registers in./lbs.(or Newton Meters if you work in Metric).
* Torque Wrench that registers ft./lbs (or Newton Meters).
* Vice Grips.
* 3 Weighing Scales each having a capacity of 200lbs.(90 kg.).
* Wire Crimper.

Wrenches : Open End and Socket - 3/16"-1/4"-5/16"-3/8"-7/16"-1/2"
- 11/16" and 11/16" Crowsfoot Tool.
: Metric (for Engine) - 5mm.- 6mm.- 8mm. - 10mm - 11mm.- 13mm.- 16mm.- 17mm.
: Allen Wrench.....- 6mm. - 1/8" - 1/4".

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

SECTION 2 FWD. FUSELAGE



QUALITY ASSURANCE ACCEPTED

DATE 11-20-84 ECO# 752

Copyright © 1984, Eipper Aircraft

FUSELAGE SUB-ASSEMBLIES

Two Forward Side Struts.

NOTE: Parts (13) are the Rudder Cables which are passed thru the Cable Guides (6) and then left coiled for further work in a later sequence.

1. Add a Jam Nut (1) to an Eyebolt (2). Run the thread into a Strut Fitting (3). DO NOT Tighten.

2. Ream out the holes in the four Cable Guides (6) to 1/4" diam. Attach the Strut Fitting (3) to one end of a Forward Side Strut (4) using the hardware (5,6,13,7,8) shown. Ensure the Rudder Cable (13) has free movement and that the Cable Guide (6) is oriented as shown. Tighten to proper torque. That is now the forward end of the RIGHT Forward Side Strut. Mark it "F" with a soft pencil.

3. Attach a 1" Aluminium Fork (9) to the AFT end of the RIGHT Forward Side Strut (4) using the hardware (5,7,8) shown. Tighten to proper torque.

4. Repeat the above on the LEFT Forward Side Strut (4). ** EXCEPT FOR ** At the FORWARD end: substitute a Clamp (10) - oriented as shown - for the Washer (7). Tighten Locknut (8) until snug. Store both Struts (4) for further work in a later sequence.

Two Aft Side Struts.

5. Add a Jam Nut (1) to an Eyebolt (2). Run the thread into a Strut Fitting (3). DO NOT Tighten.

6. Attach the Fitting (3) to one end of an Aft Side Strut (11) using the hardware (14,12,7,6,8) shown. Ensure the Cable Guide (6) is oriented as shown. DO NOT Tighten. That is now the AFT end of the Aft Side Strut (11). Mark it "A" with a soft pencil.

7. Attach a 1" Aluminum Fork (9) to the FORWARD end of the Aft Side Strut (11) using hardware (5,7,8) shown. Tighten to proper torque.

8. Repeat STEPS 5,6,7 above on the other Aft Side Strut. Store them both for further work in a later sequence.

Pt.	P.N.	Description.
1.	10542	5/16" Jam Nut.
2.	10377	5/16" x 1-3/32 FT Eyebolt.
3.	45468	Tail Boom Strut Fitting.
4.	45442	Forward Side Strut.
5.	10120	AN4-15a Bolt.
6.	91118	Cable Guide.
7.	10560	1/4" Flat Washer.

Pt.	P.N.	Description.
8.	10510	1/4" Locknut.
9.	45470	1" Alum. Fork.
10.	20432	3/8" Cushioned Clamp.
11.	45443	Aft Side Strut.
12.	20240	Pulley Bushing.
13.	45067	Rudder Cable.
14.	10185	AN4-21a Bolt.

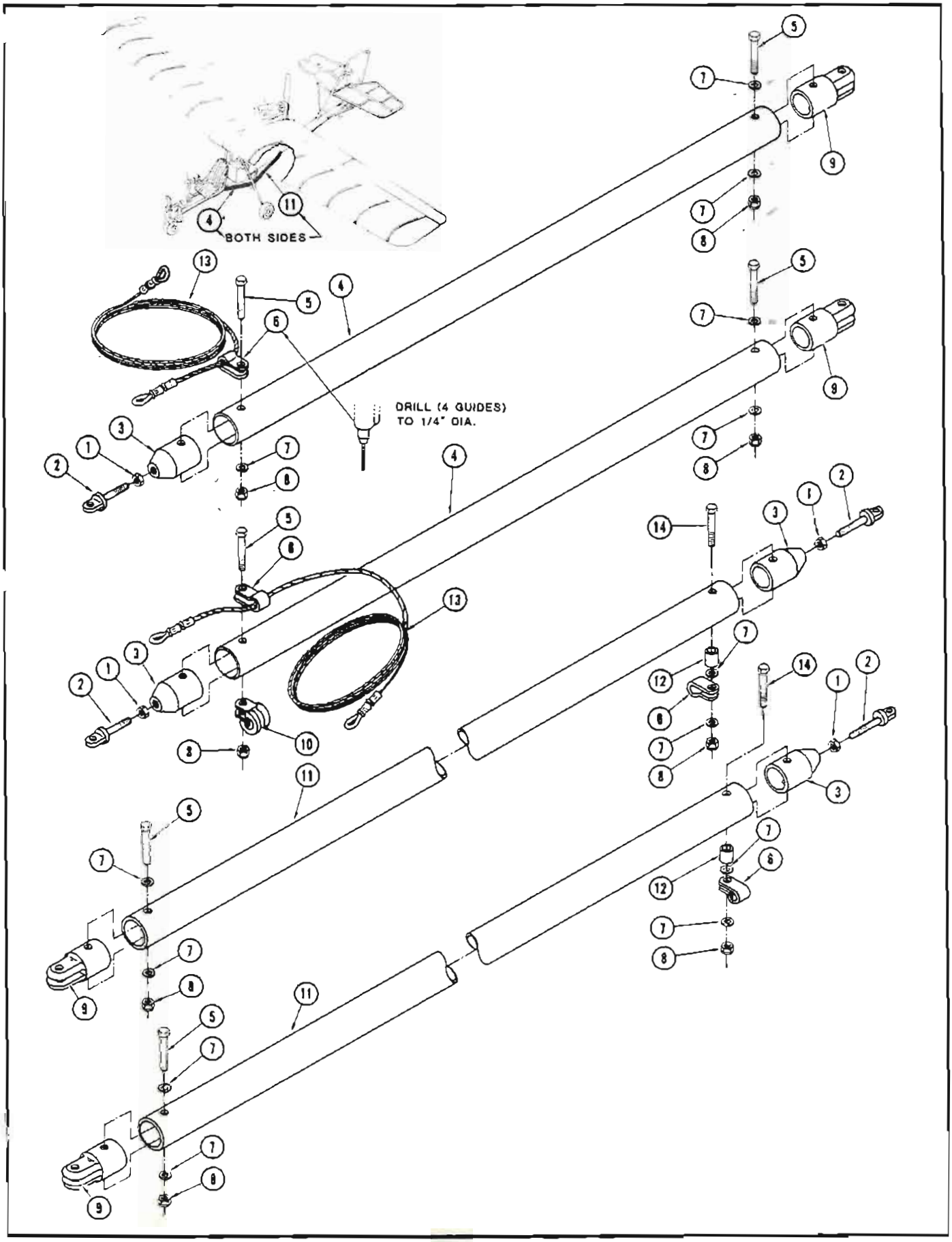


FIGURE 2-1

FUSELAGE SUB-ASSEMBLIES (CONT'D.)

Tail Boom Down Strut

1. Refer to Detail 'A'. Add a Jam Nut (1) to an Eyebolt (2). Run the thread into a Strut Fitting (3). DO NOT Tighten.

2. Attach a Fitting (3) to one end of the Tail Boom Down Strut (4) using the hardware (5,6,7) shown. Tighten to proper torque. That is now the LOWER end.

3. To the UPPER end of the Tail Boom Down Strut (4) attach a 1" Aluminum Fork (8) using the hardware (5,6,17,7) shown. Tighten until snug.

4. Lightly attach a Fender Washer (9) to an Eyebolt (10) using the hardware (11,12) shown. DO NOT Tighten.

5. Attach the Eyebolt (10) to the 1" Aluminum Fork (8) using the hardware (13,6,7) shown. Store the sub-assembly for further work in a later sequence.

Forward Fuselage Downtube Assembly

6. Refer to Detail 'B'. Add a Washer (11) to an Eyebolt (2). Insert the Eyebolt (2) - oriented as shown - into the Forward Down Strut Fitting (14) and attach using the hardware (11,12). Tighten to proper torque.

7. Attach the Fitting (14) to one end of the Forward Fuselage Downtube Assembly (16) using the hardware (15,11,12) shown. Tighten to proper torque. Store the sub-assembly for further work in a later sequence.

Pt.	P.N.	Description.
1.	10542	5/16" Jam Nut.
2.	10377	5/16" x 1-3/32" FT Eyebolt.
3.	45468	Strut Fitting.
4.	45520	Tail Boom Down Strut.
5.	10120	AN4-15a Bolt.
6.	10560	1/4" Flat Washer.
7.	10510	1/4" Locknut.
8.	45470	1" Alum. Fork.
9.	10600	5/16" Fender Washer.
10.	10381	AN44B-24a Eyebolt.
11.	10570	5/16" Washer.
12.	10540	5/16" Locknut.
13.	10064	AN4-11a Bolt.
14.	45466	Down Strut Fitting.
15.	10323	AN5-20a Bolt.
16.	45519	Fwd.Fuselage Downtube Assembly.
17.	20432	3/8" Cushioned Clamp.

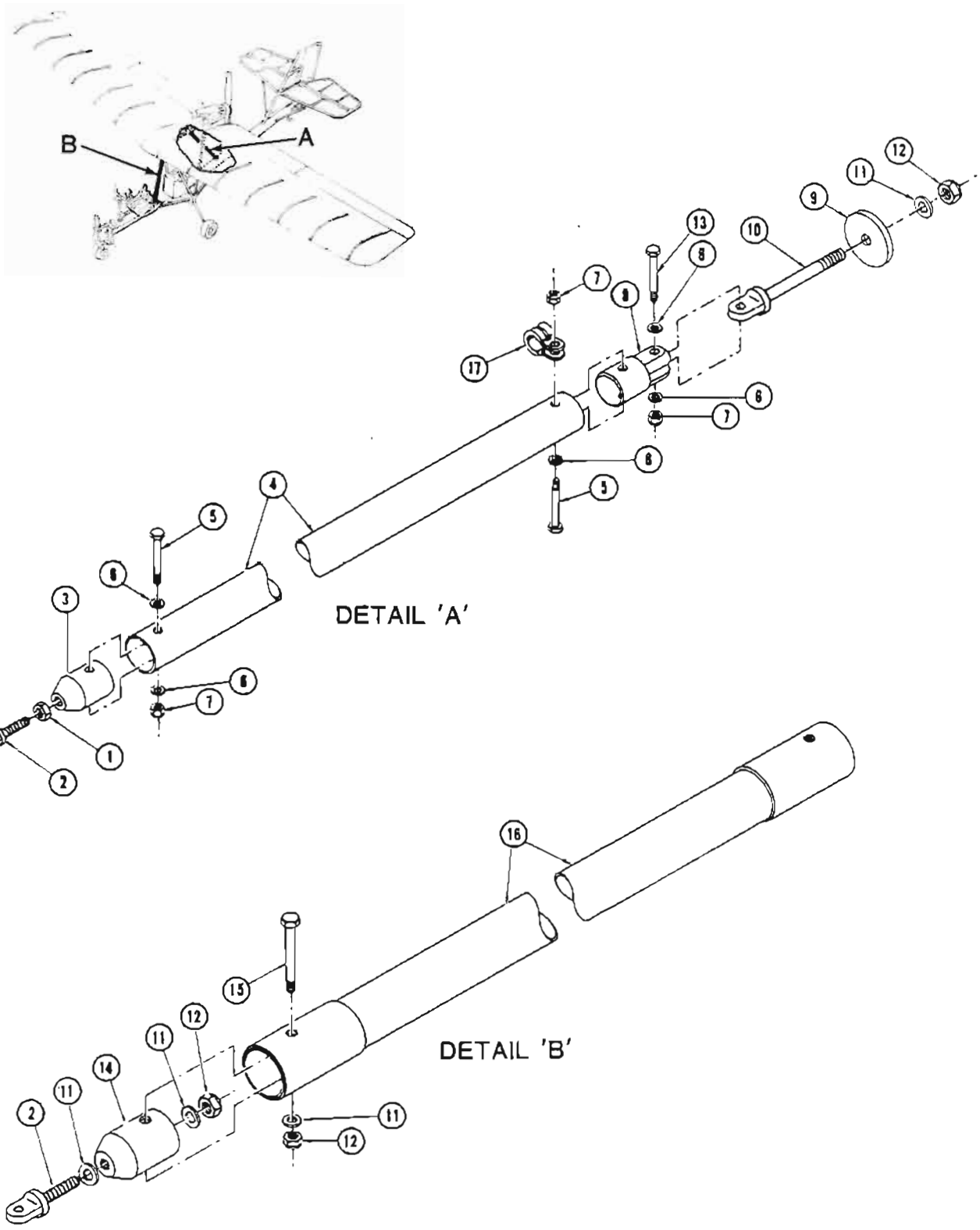


FIGURE 2-2

LANDING GEAR CARRY-THRU

1. Add two Bolts (1) to the 1-1/8" Double Channel (2), pass Bolts (1) through the LEFT Strut Attach Plate (3) - check orientation - and attach to Landing Gear Carry-thru (4) using hardware (5,6) shown. Tighten to proper torque. That is the Left upper surface of the Landing Gear Carry-thru (4). Repeat the above for the RIGHT Strut Attach Plate (7) and its Channel (2).

2. Add a Bolt (8) to the LEFT Rudder Pulley Bracket (9). Lightly attach the Pulley Wheel (10), Pulley Guard (11) and Clamp (12) using the hardware (5,6) shown. DO NOT Tighten.

3. Add two Bolts (13) to the Rudder Pulley Bracket (9), pass them through the Boom Attach Bracket (14) - oriented as shown - and the Landing Gear Carry-thru (4). Secure with hardware (5,6) shown. Tighten to proper torque.

4. Repeat STEPS 2 & 3 above for the RIGHT side as shown. *** EXCEPT FOR *** Delete Clamp (12) and Add Washer (5).

5. Attach the Landing Gear Drag Bracket (15) and the Fuel Tank Restraint Strap (16) - oriented as shown in Detail 'A' - to the underside of the Forward Fuselage Tube (17) using the hardware (18,19,20) shown, via the metal Grommet sewn into the Fuel Tank Restraint Strap (16). Ensure the Bracket (15) is correctly aligned. Tighten to proper torque. NOTE: Detail 'A' shows the correct orientation of Male (X) and Female (Y) Buckles and the integral Aft Restraint Webbing (Z) in (16).

6. Add two Bolts (23) to the Roller Mount Channel (21). Pass Bolts (23) through the Landing Gear Carry-thru (4) - oriented as shown - and attach to the Landing Gear Drag Bracket (15) using the hardware (5,6) shown. Install the Boom Attach Bracket (14) onto the Forward Fuselage Tube (17) using the hardware (22,5,6) shown. Tighten to proper torque.

Pt.	P.N.	Description.
1.	10060	AN4-6a Bolt.
2.	45500	1-1/8" Double Channel.
3.	45406	LEFT Strut Attach Plate.
4.	45463	Landing Gear Carry-thru.
5.	10560	1/4" Flat Washer.
6.	10510	1/4" Locknut.
7.	45405	RIGHT Strut Attach Plate.
8.	10064	AN4-11a Bolt.
9.	45412	Rudder Pulley Bracket.
10.	91108	Pulley Wheel.
11.	91110	Pulley Guard.
12.	20432	3/8" Cushioned Clamp.
13.	10291	AN4-35a Bolt.

Pt.	P.N.	Description.
14.	45416	Boom Attach Bracket.
15.	45413	Landing Gear Drag Bracket.
16.	45425	Fuel Tank Restraint Strap Assembly.
17.	45517	Fwd.Fuselage Tube.
18.	10305	AN5-10a Bolt.
19.	10570	5/16" Flat Washer.
20.	10540	5/16" Locknut.
21.	45499	Roller Mount Channel.
22.	10066	AN4-10a Bolt.
23.	10294	AN4-36a Bolt.

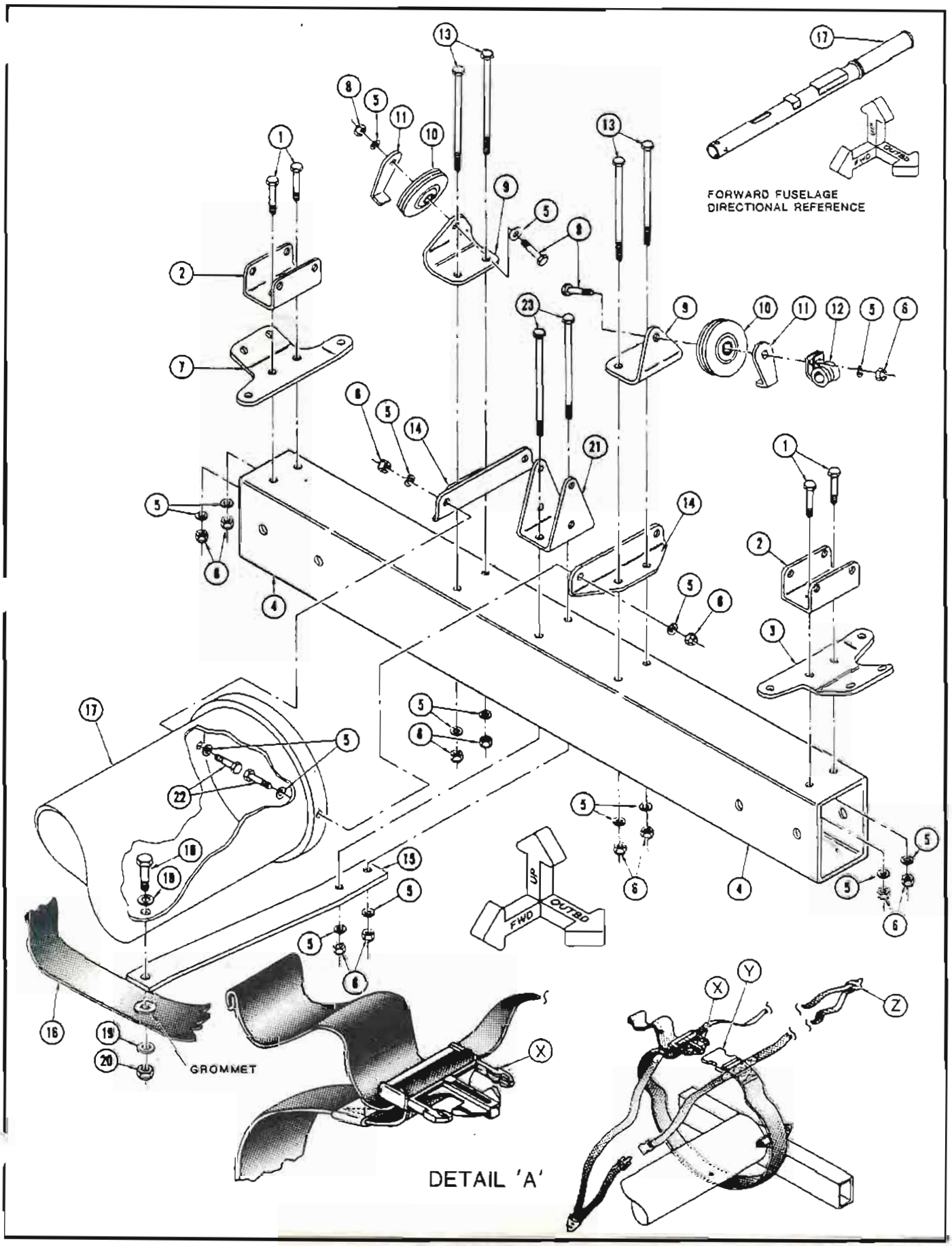

FORWARD FUSELAGE
DIRECTIONAL REFERENCE
UP
FWD
OUTBD
GROMMET
DETAIL 'A'

FIGURE 2-3

WHEEL AND TIRE ASSEMBLY

Wheels and Tires

NOTE: Inspect the Wheel Hubs (3) & (4) carefully before assemby. Ensure that no sharp edges or burrs are present. Remove if necessary any sharp edges that may come into contact with the Tube.

1. Assemble a (Wheel) Notched Hub (3) and an UN-Notched Hub (4) - oriented as shown - onto a Tire/Tube (5). DO NOT 'Pinch' Tube between Hubs. Attach using the Locknuts (1) and Bolts (2). Tighten until snug. DO NOT Overtighten! Repeat to assemble two more Wheels/Tires. Inflate the Tires to 30 lbs/in2 (2.1 kg/cm2).

Landing Gear Leg

2. Add a Main Wheel Axle Assembly (6) to a Wheel -oriented as shown - add a Collar (7). Attach using the hardware (8,13,9,10) shown. Tighten until snug. Bend the Cotter Pin (10) correctly.

3. Attach a Landing Gear Leg (11) to the Main Wheel Axle Assembly (6) -oriented as shown - using the hardware (12,13,14).

4. Repeat STEPS 2 & 3 for the other Main Wheel.

5. Insert a Landing Gear Leg Fitting (15) into the Landing Gear Carry-thru (16) - oriented as shown - and attach with the inboard Bolt (17). Insert the Landing Gear Leg (11) into the Landing Gear Leg Fitting (15). Align the holes in parts 11,15,16. Insert the outboard Bolt (17) and add the hardware (18,19) to both Bolts. Tighten Bolts (17) to proper torque.

6. Repeat STEP 5 - in mirror image - for the other Main Wheel.

Pt.	P.N.	Description.	Pt.	P.N.	Description.
1.	10396	Wheel Hardware Nut.	11.	45462	Landing Gear Leg.
2.	10395	Wheel Hardware Bolt.	12.	10027	AN3-12a Bolt.
3.	20460	NOTCHED Wheel Hub.	13.	10550	3/16" Washer.
4.	20461	UN-Notched Wheel Hub.	14.	10500	3/16" Locknut.
5.	20390	Tire/Tube.	15.	45455	Landing Gear Leg Fitting.
6.	45511	Main Wheel Axle Assy.	16.	.....	Landing Gear Carry-thru.
7.	20031	Axle Shaft Collar.	17.	10348	AN6-25a Bolt.
8.	10026	AN3-11 Bolt.	18.	10575	3/8" Flat Washer.
9.	10517	3/16" Castle Nut.	19.	10547	3/8" Locknut AN363-624.
10.	10635	Cotter Pin.			

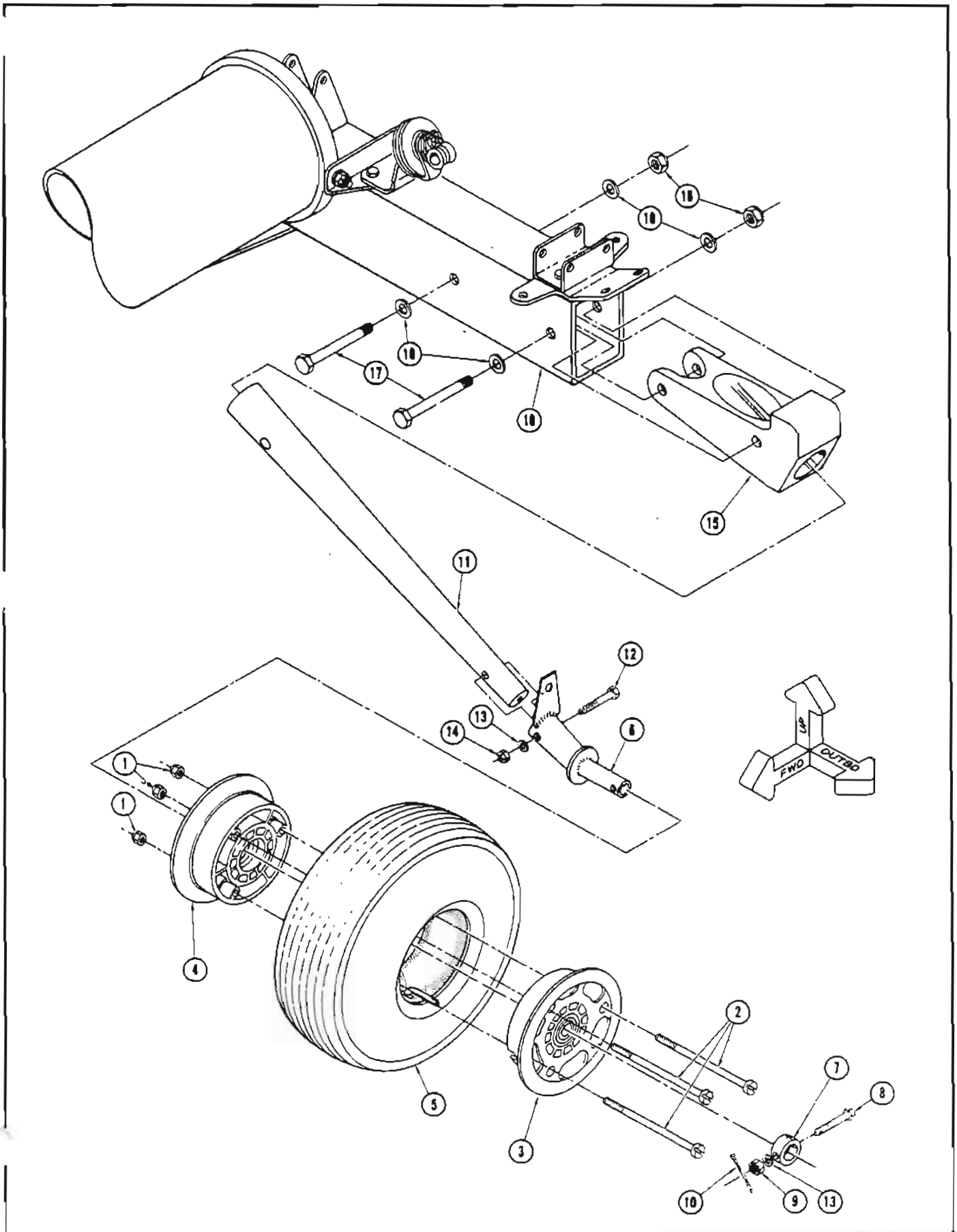


FIGURE 2-4

SIDE STRUT ATTACHMENT

1. Attach AFT end of the - previously assembled - LEFT Forward Side Strut (1) to the LEFT Strut Attach Plate (2) using the hardware (3,4,5) shown.

2. Lightly attach the FORWARD end of the LEFT Forward Side Strut (1) to the (Factory Installed) Tail Boom Flange (6) using the Bolt (7) ONLY - oriented as shown.

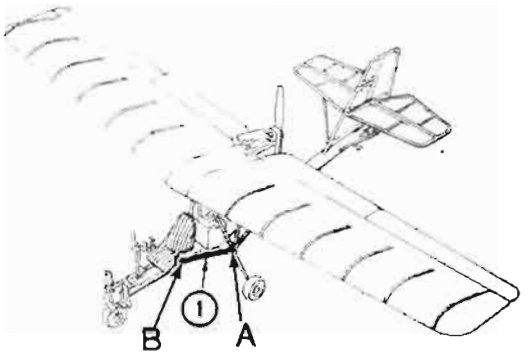
3. Attach the RIGHT Forward Side Strut in a similar manner - check orientation.

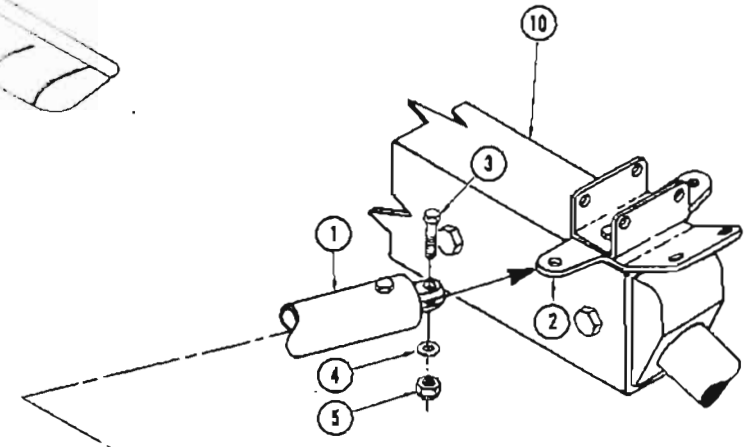
4. On BOTH Forward Side Struts (1), adjust the Eyebolts (9) carefully and alternately until the Landing Gear Carry-thru (10) forms a TRUE and ACCURATE 90 degrees with the Forward Fuselage Tube (11).

5. When adjusted properly, add the hardware (4,8,5) to the Bolt (7). Tighten to proper torque. Tighten the Jam Nut (12) back against the Strut Fitting.

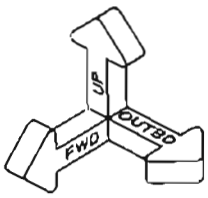
Pt.	P.N.	Description.
1		Forward Side Strut.
2		LEFT Strut Attach Plate.
3.	10066	AN4-10a Bolt.
4.	10560	1/4" Flat Washer.
5.	10510	1/4" Locknut.
6		Tail Boom Flange.

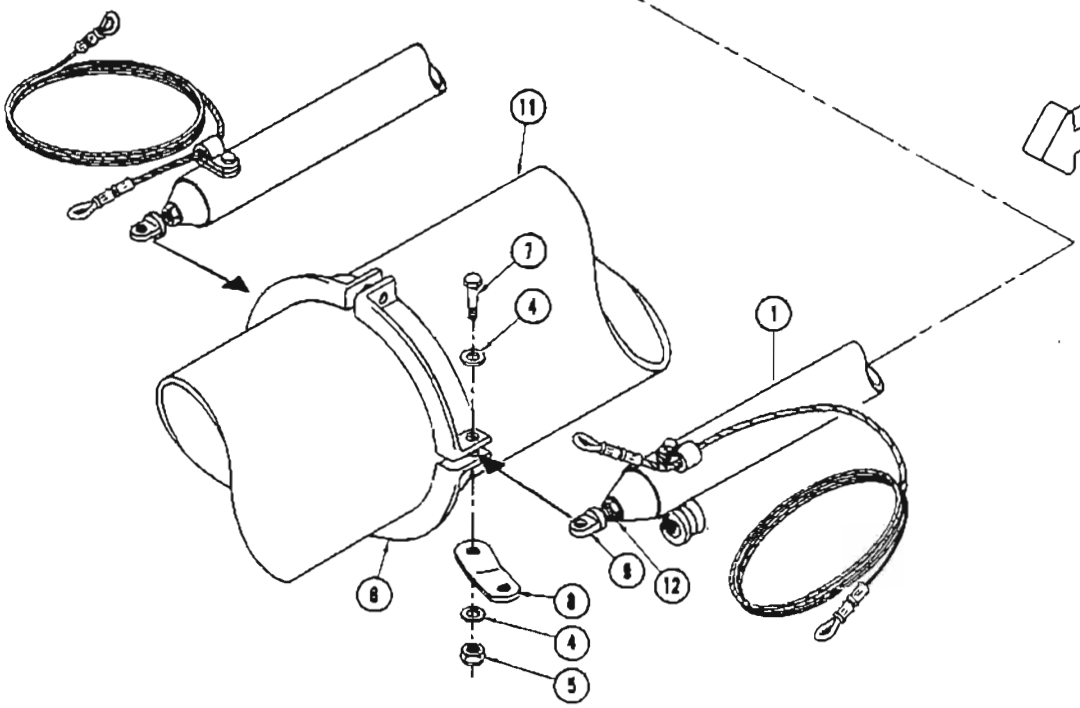
Pt.	P.N.	Description.
7.	10080	AN4-13a Bolt.
8.	20353	20 Degree Tang.
9		Eyebolts.
10		Landing Gear Carry-thru.
11		Forward Fuselage Tube.
12		Jam Nut.





DETAIL 'A'





DETAIL 'B'

FIGURE 2-5

FUEL TANK ASSEMBLY

NOTE: Rivets 3A, 3B, 3C and 3D are all the same size and differ only in their sequence of assembly.

1. From the AFT end of the Forward Fuselage Tube (1) measure 4-5/8" and 8-7/8" (11.7cm and 22.5cm)) along the upper surface. Find two 3/16" pre-drilled holes. Align those holes with the matching pre-drilled holes in the Fuel Tank Mount Plate (2) and attach using two Rivets (3A) shown.

2. Position a Tank Mount Support Plate (4) on each side of the Fuel Tank Mount Plate (2). Align the three pre-drilled holes in each and attach using Rivets (3B) - orientated as shown.

3. Refer to Detail 'A'. Using a Spirit Level tool, ensure that the Fuel Tank Mount Plate (2) is level on the Forward Fuselage Tube (1). Hold in position.

4. Refer to Detail 'B'. With the Mount Plate (2) level and the drill at 90 degrees to the Forward Fuselage Tube (1), backdrill the three lower holes in the Tank Mount Support Plate (4) thru into the Forward Fuselage Tube (1). Deburr. Attach using Rivets (3C). Repeat on the other Tank Mount Support Plate (4).

5. Refer to Detail 'C'. Mark the lateral and longitudinal centerlines of the Fuel Tank Mount Plate (2). Position the Fuel Tank Anti-Skid Tube (5) centered on the lateral line as shown. Backdrill two 3/16" diam. holes thru the Plate (2) and attach the Anti-Skid Tube (5) using two Rivets (3D).

Pt.	P.N.	Description.
1.	.....	Fwd. Fuselage Tube Assy.
2.	45422	Fuel Tank Mount Plate.
3.	20214	Rivet 3/16" Alum x 1/8" Grip -AAPQ-62.
4.	45424	Tank Mount Support Plate.
5.	45423	Fuel Tank Anti-Skid Tube.

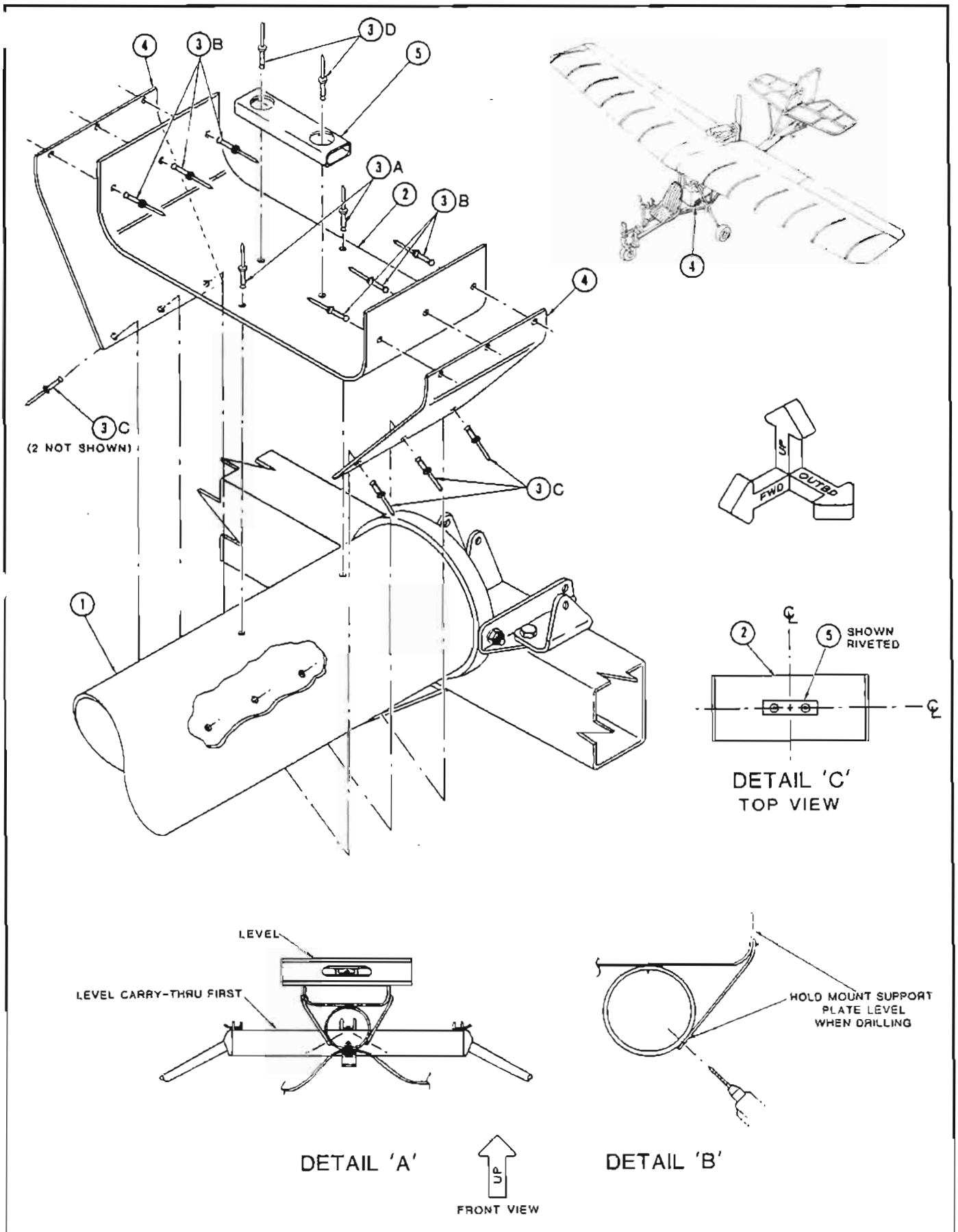

4
3B
3D
5
3A
2
3B
4
3C
(2 NOT SHOWN)
3C
1
UP
FWD
OUTBD
2
5
SHOWN RIVETED
DETAIL 'C'
TOP VIEW
LEVEL
LEVEL CARRY-THRU FIRST
HOLD MOUNT SUPPORT PLATE LEVEL WHEN DRILLING
DETAIL 'A'
DETAIL 'B'
UP
FRONT VIEW

FIGURE 2-6

FUEL TANK ASSEMBLY (CONT'D.)

Fuel Tank Sub-Assembly

1. Cut a 14" (35.6cm) length of Fuel Line (3A) and a 4" (10cm) length (3B). Mark and Tag the remaining Fuel Line (3) for use on "Stand-Offs".

2. Add a Rubber Grommet (2) to the 9/16" pre-drilled hole in the Fuel Tank Cap (1). Insert the 14" length of Fuel Line (3A). Push the Fuel Pick-up Tube (4) - check cross-drilled holes downwards! - 2-1/4" (5.71cm) into the Fuel Line (3A). Attach using a Hose Clamp (5) positioned as shown. Tighten until snug. Refer to Detail 'A'- which shows correct parts overlap in cross section.

3. Attach the Primer Bulb (6) to the other end of the Fuel Line (3A) using a Hose Clamp (5). Note the flow-arrow points away from the Fuel Tank (8).

4. Attach the 4" length of Fuel Line (3B) to the Primer Bulb (6) using a Hose Clamp (5).

5. Attach the Fuel Filter (7) - oriented as shown - (NOTE the flow-arrow points away from the Fuel Tank) to the other end of the Fuel Line (3B).

6. Open the Breather Cap (10). Drill a 1/16" diameter hole thru its center from the underside. Deburr. Close the Breather Cap (10).

7. Attach the Fuel Tank (8) to the mounting and secure with the Fuel Tank Restraint Strap (9).

Pt.	P.N.	Description.
1.	30252	Fuel Tank Cap w/hole.
2.	30290	Fuel Tank Rubber Seal.
3.	30223	Fuel Line 35".
4.	45824	Fuel Tank Pick-up Tube.
5.	30230	Fuel Line Clamp.
6.	30340	Primer Bulb.
7.	30210	Fuel Filter.
8.	30249	5 Gallon (18.92 litre) Fuel Tank Assembly.
9.		Fuel Tank Restraint Assy.
10.		Fuel Tank Breather Cap.

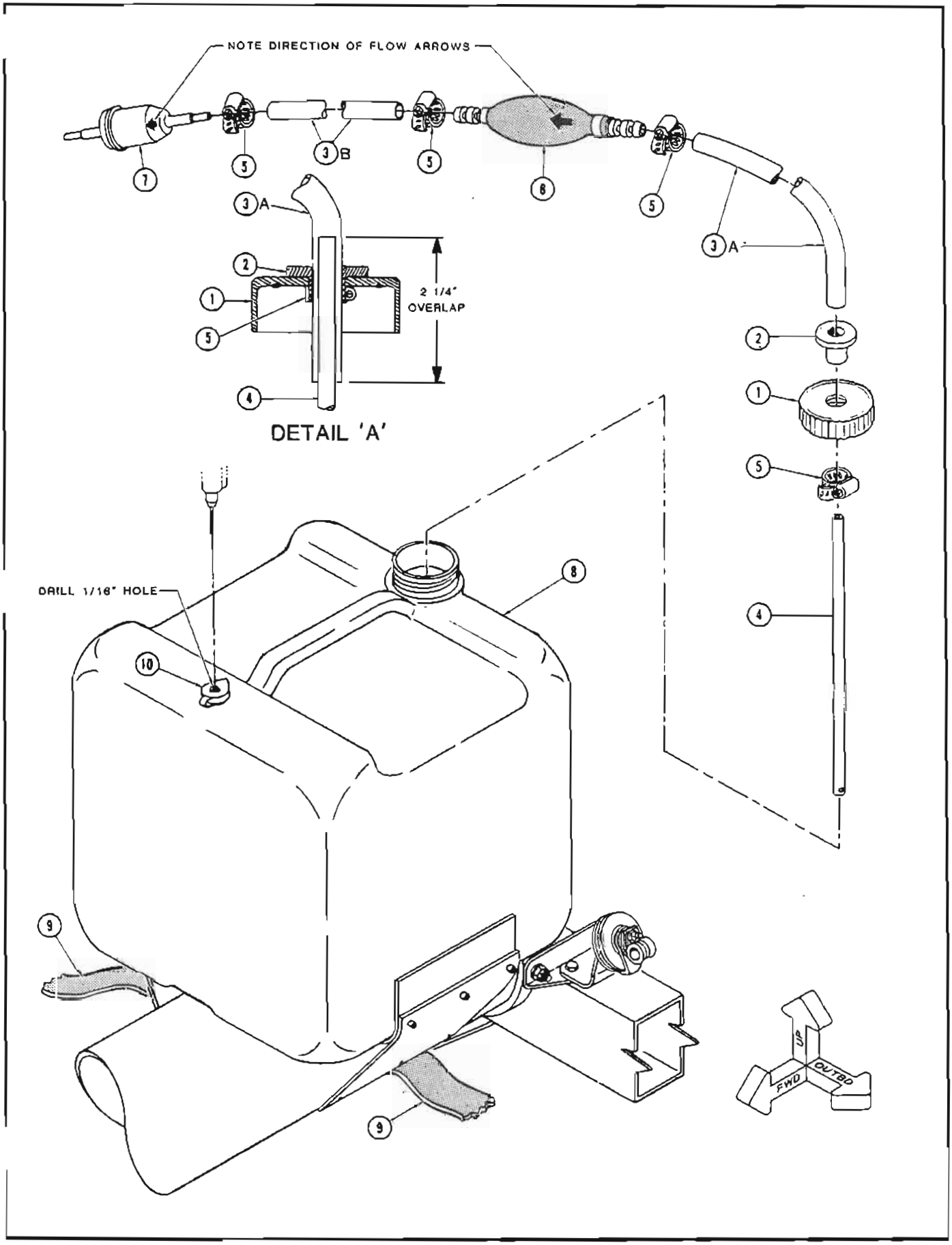

NOTE DIRECTION OF FLOW ARROWS
7
5
3B
5
6
5
3A
3A
2
1
5
4
2 1/4" OVERLAP
DETAIL 'A'
2
1
5
4
DRILL 1/16" HOLE
8
10
9
9
UP
FWD
OUTBD

FIGURE 2-7

RUDDER PEDAL ASSEMBLY

NOTE: Parts 8A and 8B as well as Parts 9A thru 9D are the same size and differ only in sequence of assembly.
IMPORTANT!: Double Check orientation before assembly as errors in the following sequence will be difficult to rectify!

1. Add a Jam Nut (1) to a Male Rod End Bearing (2). Run the thread into one end of a Rudder Pedal Pushrod (3). Repeat at its other end. DO NOT Tighten.

2. Repeat STEP 1 to produce a second Rudder Pedal Pushrod (3) sub-assembly.

3. Position and Clamp the Rudder Pedal Bellcrank Bearing (4) - oriented as shown - onto the Rudder Pedal Bellcrank (5). Drill four 1/8" holes in the Bearing flange and thru the Bellcrank (5) - as shown. Attach the Bearing (4) to the Bellcrank (5) using Rivets (6).

4. From the upper forward end of the Forward Fuselage Tube (7) measure 13-3/8" and 15-1/8"" (33.9cm and 38.4cm). Find two pre-drilled holes. Pass a Bolt (8A) thru a Washer (9A), the Forward Rudder Horn Brace (10), the Bellcrank Bearing (4), a Fender Washer (11) and Forward Fuselage Tube (7). Attach using hardware (11,9B,12) shown.

5. Pass Bolt (8B) thru a Washer (9C), the Forward Rudder Horn Brace (10), Bushing (20), Fender Washer (11) and Forward Fuselage Tube (7) and attach using hardware (11,9D,12) shown. Tighten Bolts (8A) and (8B) to proper torque.

6. Attach both Rudder Pedal Pushrod (3) sub-assemblies to the Rudder Pedal Bellcrank (5) using the hardware (13,14,15) as shown. DO NOT Tighten. Temporarily tape the Pushrods (3) to each other and the Forward Fuselage Tube (7).

7. Lightly attach the Shackles (16) to the Rudder Pedal Bellcrank (5) using the hardware (17,14,18,19). DO NOT Tighten. Bend the Cotter Pin (19) ONLY enough to stop it falling out. It will be tightened in a later sequence.

Pt.	P.N.	Description.
1.	10631	1/4" x 28 Non-Locking Nut.
2.	10700	1/4" Male Rod End Bearing.
3.	45448	Rudder Pedal Pushrod Assy.
4.	10702	Bellcrank Bearing.
5.	45476	Rudder Pedal Bellcrank.
6.	20201	Rivet,1/8" S.Steel x 1/4" Grip.
7.	.....	Forward Fuselage Tube.
8.	10080	AN4-13a Bolt.
9.	10560	1/4" Flat Washer.
10.	45444	Fwd.Rudder Horn Brace.
11.	45095	Contour Washer.
12.	10510	1/4" Locknut.
13.	10020	AN3-7a Bolt.
14.	10550	3/16" Flat Washer.
15.	10500	3/16" Locknut.
16.	20320	3/16" Shackle.
17.	10009	AN3-5 Bolt.
18.	10517	3/16" Castle Nut.
19.	10635	Cotter Pin.
20.	45572	Bushing - 1/2" O.D.x 1/4" I.D.x 5/8" long.

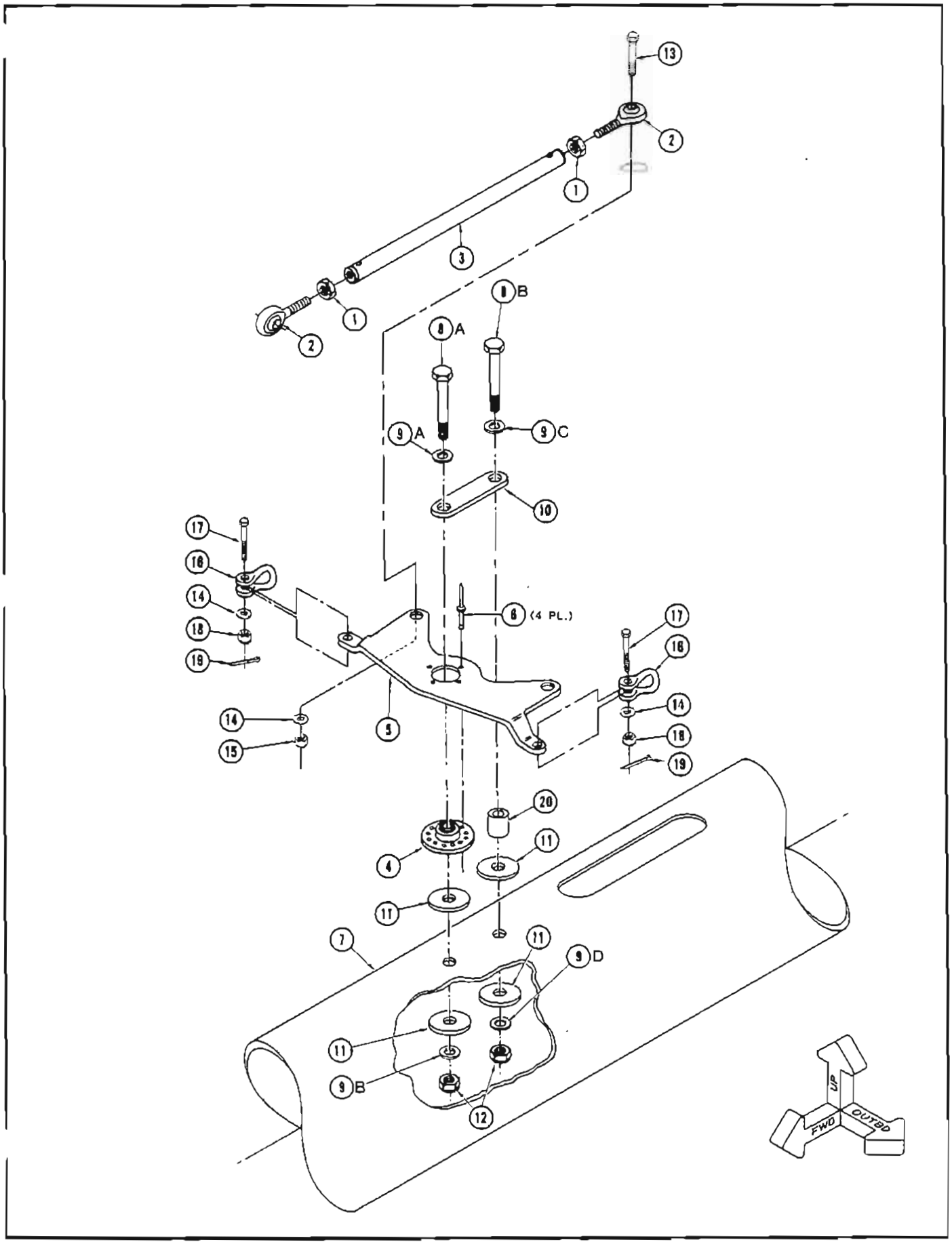

13
2
1
3
1
2
8 B
8 A
9 A
9 C
10
17
16
14
18
19
6 (4 PL.)
5
14
15
17
16
14
18
19
20
11
4
11
7
11
9 D
11
9 B
12
UP
FWD
OUTBD

FIGURE 2-8

RUDDER PEDAL ASSEMBLY (CONT'D.)

IMPORTANT: Careful attention to detail will give accurate Steering Geometry.

****
NOTE the final position of the Nose Wheel Control Arm (2) on each Rudder Pedal (1L),(1R) and the orientation of the three Rivets (3). ALSO NOTE that the forward surfaces of the Pedal (1L),(1R) and the Nose Wheel Control Arm (2) must form a straight line .
****
CAUTION: In order to accurately backdrill the three Rivet holes in the Rudder Pedals (1L),(1R), the Nose Wheel Control Arms (2) must be clamped in the WRONG position, drilled and then REPOSITIONED correctly before Riveting.
****

NOTE: Parts 1L and 1R have the same Part Number and differ only after the following sequence is complete.

1. With a soft Pencil, mark a Rudder Pedal (1L) "L" - for LEFT, the other Rudder Pedal (1R) "R" for RIGHT.

2. Refer to Detail 'A'. Measure 5-1/4" (13.3cm) up the inboard flange of Rudder Pedal (1R). Drill a 3/16" hole centered on the flange. Deburr the hole. Repeat on the inboard flange of Rudder Pedal (1L).

3. Refer to Detail 'B'. Temporarily position a Nylon Bushing (4) thru the Nose Wheel Control Arm (2) and then thru Rudder Pedal (1R). Ensure that their forward edges form a straight line. Clamp in position. Back-drill the Rudder Pedal (1R). Deburr the holes. Remove the Clamp and Nylon Bushing (4). Refer to Detail 'C'. REPOSITION the Nose Wheel Control Arm (2) as shown. Align and attach using Rivets (3).

4. Repeat STEP 3 - in MIRROR IMAGE - on the LEFT Rudder Pedal (1L).

5. Refer to Detail 'D'. Ensure the surface is grease-free. Carefully attach the - self-adhesive - Grip Tape (5) to the upper surface of both Rudder Pedals (1L),(1R) and carefully trim the top, bottom and around the holes.

Pt.	P.N.	Description.
1.	70231	Foot Pedal.
2.	45477	Nosewheel Control Arm.
3.	20193	Rivet, 3/16" Steel x 1/4" Grip (B5Pa-64).
4.	70250	7/8" Nylon Bushing.
5.	20190	2"x10" strip Non-skid Tape.

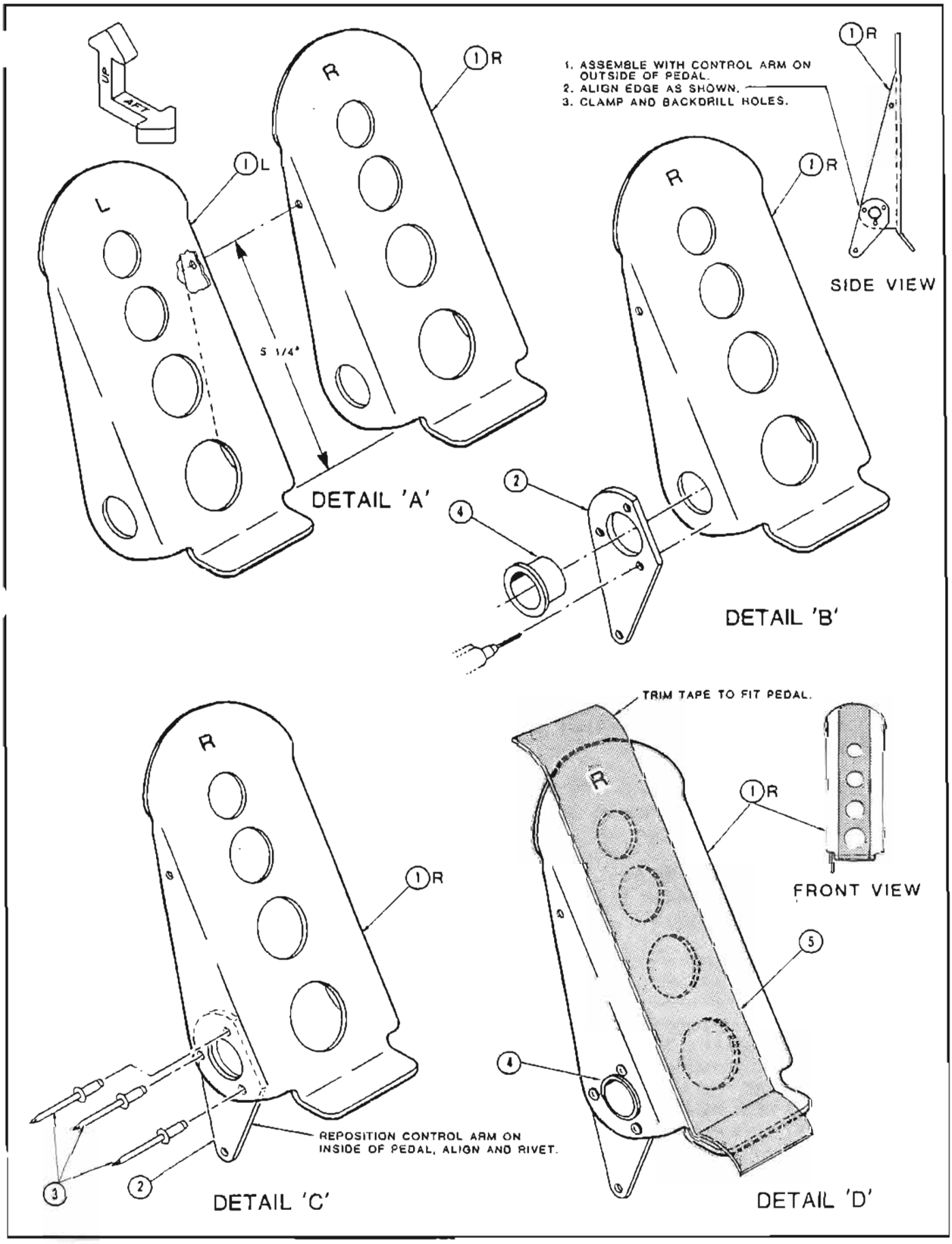


FIGURE 2-9

DOC # 842-2
Rev. A

RUDDER PEDAL ASSEMBLY (CONT'D.)

Rudder Pedal Mounting

NOTE: Nylon Bushings (1A) thru (1E) differ only in sequence of assembly.

1. Add a Nylon Bushing (1A) to each side of the top part of the Front Wheel Brake Assembly (2).

2. Along the forward underside of the Forward Fuselage Tube (3), measure 5-1/4" (13.3cm) and locate an approx 2"long x 1" wide (50mm x 25mm) slotted hole. Pass the top part of the Front Wheel Brake Assembly (2) thru the slotted hole. Turn it to the orientation shown and allow it to hang there temporarily.

3. Add a Nylon Bushing (1B) to the outside of the Forward Fuselage Tube (3). Pass the Pedal Mount Tube (4) thru the Nylon Bushing (1B).

4. On the inside of the Forward Fuselage Tube (3) add a Brake Pivot Spacer (5) to the Pedal Mount Tube (4). Add the Front Wheel Brake Assembly (2) - oriented as shown - and another Brake Pivot Spacer (5) to the Pedal Mount Tube (4).

5. Add Nylon Bushing (1C) to the outside of the Forward Fuselage Tube (3). Pass the Pedal Mount Tube (4) out thru and center it.

6. Add the Nylon Bushings (1D) and (1E) - oriented as shown - to the Rudder Pedals (6L) and (6R).

7. Add the Rudder Pedals (6L) and (6R) - oriented as shown - to the Pedal Mount Tube (4).

8. Add a Pedal Bar Sleeve (7) and a Forward Pilot Fairing Mount (8) to each end of the Pedal Mount Tube (4) and secure with the hardware (9,12,10) shown. Tighten until snug. Don't crush the tube.

9. Attach the Rudder Pedal Pushrods (13) to the Rudder Pedals (6L) and (6R) using the hardware (11,12,10) oriented as shown. DO NOT Tighten.

Pt.	P.N.	Description.
1.	70250	7/8" Nylon Bushing.
2.	45530	Nosewheel Brake Assy.
3.	.....	Fwd. Fuselage Tube.
4.	45434	Pedal Mount Tube.
5.	45481	Brake Pivot Spacer.
6.	.....	Foot Pedal.
7.	45435	Pedal Bar Sleeve.
8.	45450	Pilot Fairing Mount-Fwd.
9.	10035	AN3-14a Bolt.
10.	10500	3/16" Locknut.
11.	10024	AN3-10a Bolt.
12.	10550	3/16" Flat Washer.
13.	.....	Rudder Pedal Pushrod Assembly.

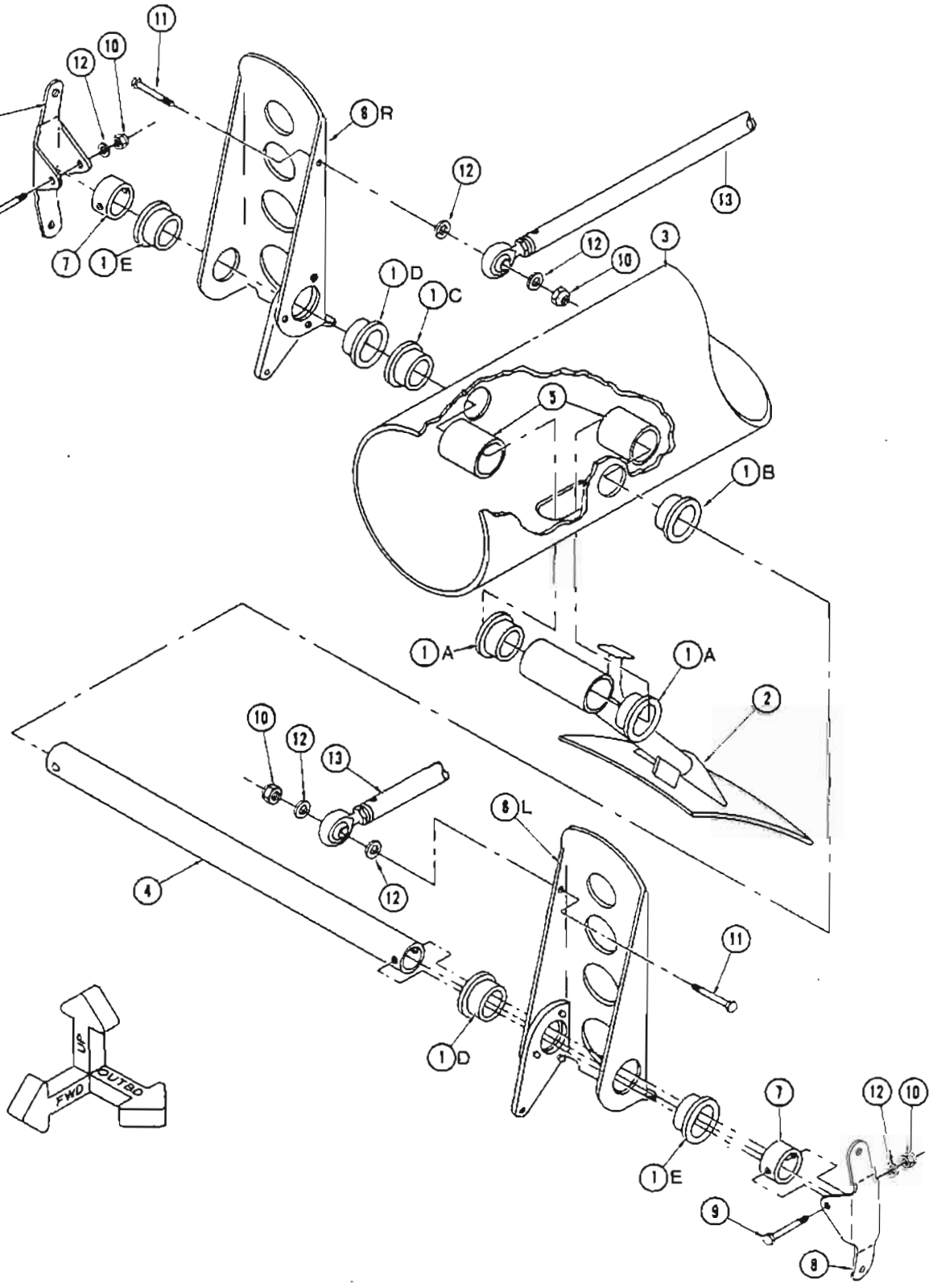

11
12
10
8
8R
12
13
9
7
1E
1D
1C
12
10
3
5
1B
1A
1A
2
10
12
13
8L
4
12
11
1D
UP
FWD
OUTBD
7
12
10
1E
9
8

FIGURE 2-10

NOSE WHEEL ASSEMBLY

REMINDER: Double Check orientation before assembly!

NOTE: Parts (1L) LEFT and (1R) RIGHT differ only in sequence of assembly.

1. Add the Nose Fork Struts (1L) and (1R) to the Nose Fork Assembly (2) - oriented as shown. Attach using hardware (3,4,5) shown. Tighten to proper torque.

2. Push the GT Nose Axle (6) thru Nose Fork Strut (1L). Add a GT Nose Axle Spacer (8) - oriented as shown - to the Axle (6).

3. Pass the Axle (6) thru the Wheel/Tire Assembly (9). Add another Spacer (8). Push the Axle (6) thru the Nose Fork Strut (1R).

4. Attach the GT Nose Axle (6) to the Nose Fork Struts (1L),(1R) using hardware (7,4,5) shown. Tighten to proper torque.

5. Add an Oilite Bearing (10) - oriented as shown - to the Nose Fork Assembly (2).

6. Insert the Nose Fork Spacer (11) into the Forward Fuselage Tube (12) in the position shown. Push the Nose Fork Assembly (2) up thru both the Tube (12) and the Spacer (11).

7. Add another Oilite Bearing (10) - oriented as shown - to the top of the Nose Fork Assembly (2). Add the Nose Fork Retaining Ring (13). Align the holes. Attach using the hardware (14,4,5) shown. Tighten to proper torque.

8. Attach both Pedal Hinge Springs (15) between the Nose Fork Assembly (2) and the Nose Wheel Control Arms (16). Ensure that they seat correctly.

Pt.	P.N.	Description.
1.	45460	Nose Fork Strut.
2.	45512	Nose Fork Assembly.
3.	10027	AN3-12a Bolt.
4.	10550	3/16" Flat Washer.
5.	10500	3/16" Locknut.
6.	45480	GT Nose Axle.
7.	10030	AN3-13a Bolt.
8.	45479	GT Nose Axle Spacer.
9.	.....	Wheel/Tire Assembly.
10.	30006	Oilite Bearing FF-1207-5.
11.	45505	Nose Fork Spacer.
12.	.....	Fwd. Fuselage Tube.
13.	45478	Nose Fork Retaining Ring.
14.	10035	AN3-14a Bolt.
15.	10802	Pedal Hinge Spring.
16.	.....	Nose Wheel Control Arm.

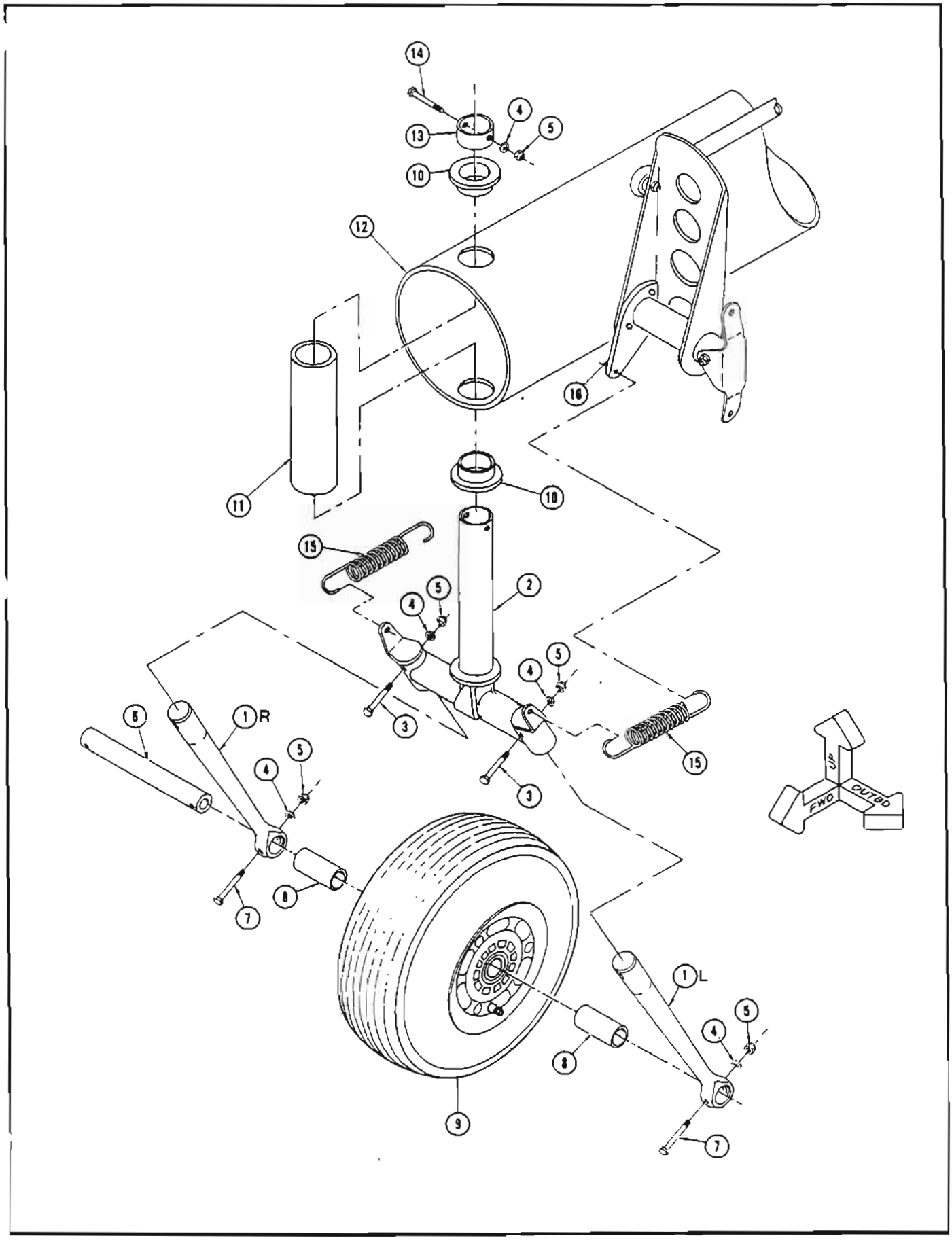

14
13
10
4
5
12
16
11
10
15
2
4
5
3
5
4
15
6
1R
5
4
3
UP
FWD
OUTBD
8
7
1L
5
4
8
9
7

FIGURE 2-11

SEAT ASSEMBLY

NOTE: Parts (1A) thru (1D) differ only in sequence of assembly.

IMPORTANT: Parts (2) and (3) appear the same. Note that part (2) has an extra 1/4" hole next to its aft slot.

1. Using PlioBond, glue a Nylon Washer (9) centered over each hole indicated on the RIGHT (2) and LEFT (3) Seat Tracks. Allow to dry.

2. Position the Oilite Bushings (1A) and (1B) in the slots on the inboard side of the RIGHT Seat Track (2) - oriented as shown. Add a Fender Washer (4) to two Bolts (5) and attach to the RIGHT side Nut Plates in the Aft (6) and Forward (7) Seat Track Channels. Tighten until snug.

3. Repeat the above on the LEFT Seat Track (3). Attach using hardware (1C,1D,4,5). Tighten until snug. Slide both Seat Tracks (2) and (3) fully forward .

4. Position the Pilot Seat (8) so that it is both centralized on, and has its forward lip 1/2" (12.7mm) aft of the Seat Tracks (2) and (3). Temporarily tape the Seat (8) to the Seat Tracks (2) and (3), but do not cover up the Seat bolt holes in the tracks. Visually check the Seat (8) position from both sides and forward. Adjust for position.

5. To mark the Seat bolt hole positions, put a drop of white paint on the thread end of a 1/4" Bolt and push it up through the Seat Bolt holes in the Seat Tracks (2) and (3). Remove the Pilot Seat (8) and drill four 1/4" diameter holes on those marks.

6. Attach the Pilot Seat (8) to the Seat Tracks (2) and (3) as follows: LEFT REAR, LEFT and RIGHT FRONT - with hardware (10,4,11,9,12,13) shown. TIGHTEN to proper torque.

7. Assemble RIGHT REAR with hardware (14,4,11,9,12,13) shown. DO NOT Tighten. NOTE: This bolt will be tightened in a later sequence.

Pt.	P.N.	Description.
1.	30005	Oilite Bearing FF-312.
2.	45418	RIGHT Seat Track.
3.	45419	LEFT Seat Track.
4.	10565	1/4" Fender Washer.
5.	10060	AN4-6a Bolt.
6.	.....	AFT Seat Track Channel.
7.	.....	FWD.Seat Track Channel.
8.	70366	Lightweight Seat.
9.	20345	1" x 1/8" Nylon Washer.
10.	10066	AN4-10a Bolt.
11.	45473	Seat Track Spacer Plate.
12.	10560	1/4" Flat Washer.
13.	10510	1/4" Locknut.
14.	10064	AN4-11a Bolt.

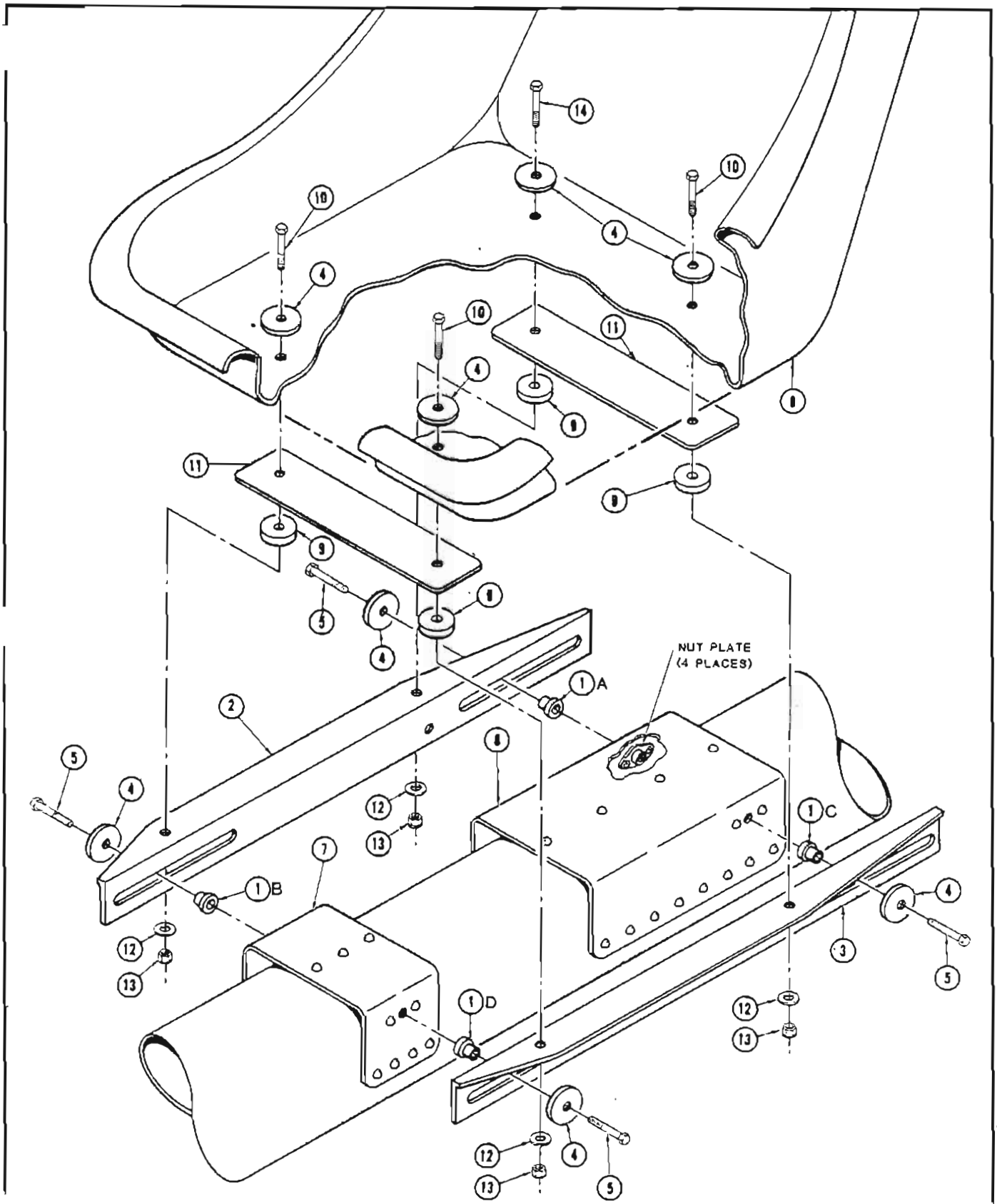


FIGURE 2-12

CONTROL YOKE ASSEMBLY

1. Refer to Detail 'A'. Run a Jam Nut (1) onto an Eyebolt (2). Thread the Eyebolt into a Push/Pull Fitting (3). Attach the Push/Pull Fitting (3) to one end of the Forward Push/Pull Tube (4) using the hardware (5,18,19) shown. Tighten until snug. Don't crush the tube.

2. Run the Jam Nut (1) all the way to the shoulder of the Eyebolt (2). Thread the Eyebolt (2) into the Fitting (3) - until the Jam Nut (1) contacts the Fitting (3). Back off the Eyebolt (2) ** three full turns **. Ensure that the eye of the Eyebolt (2) is oriented as shown. Tighten the Jam Nut (1) until snug.

3. Add a Forkbolt (8) to the Eyebolt (2). Attach using the hardware (9,10,11) shown. Tighten until snug, but not so tight as to restrict free movement. Bend the Cotter Pin (11) correctly. That is now the forward end of the Push/Pull Tube.

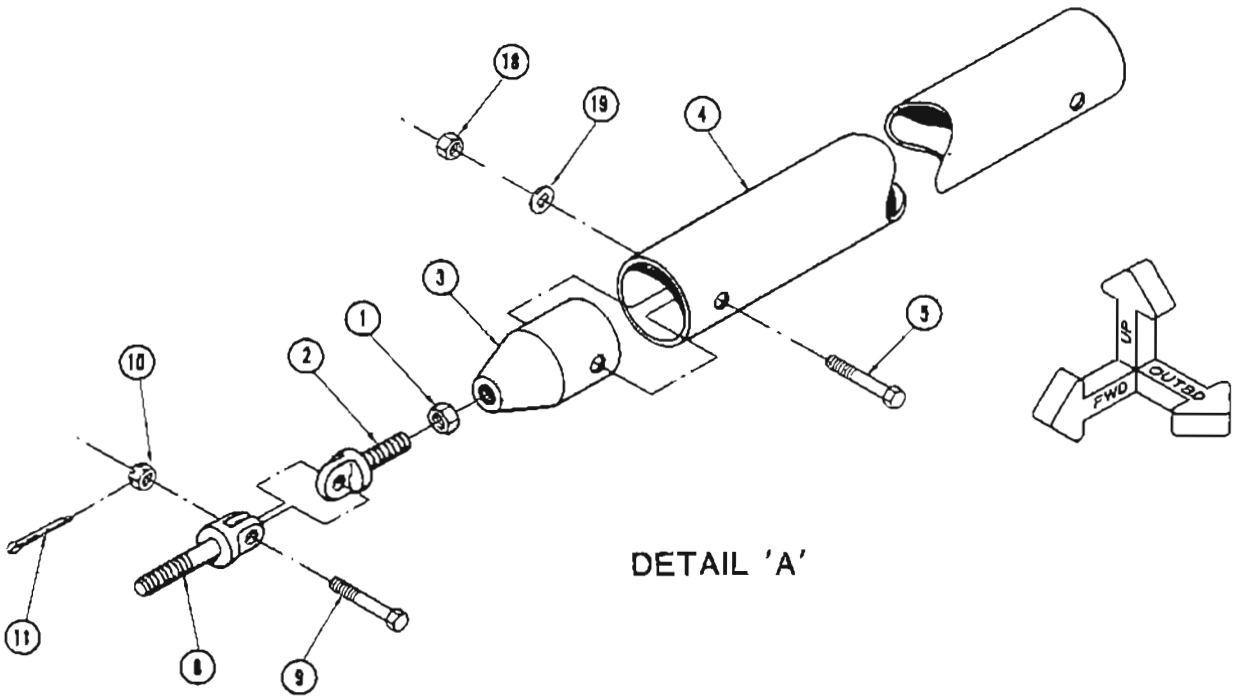
4. Refer to Detail 'B'. Move to the aft end of the Forward Fuselage Tube (12) to the - previously sub-assembled - Roller Mount Channel (14) in the center of the Landing Gear Carry-thru (13). Attach the lower Push/Pull Rollers (15) to the lower lateral holes in the Roller Mount Channel (14) using the hardware (16,6,17,11) oriented as shown. Tighten until snug, but not so tight as to restrict free Roller movement. Bend the Cotter Pin (11) correctly.

5. Push the forward end of the Push/Pull Tube (4) up the inside of the Forward Fuselage Tube (12). Allow its aft end to rest on the lower Rollers (15).

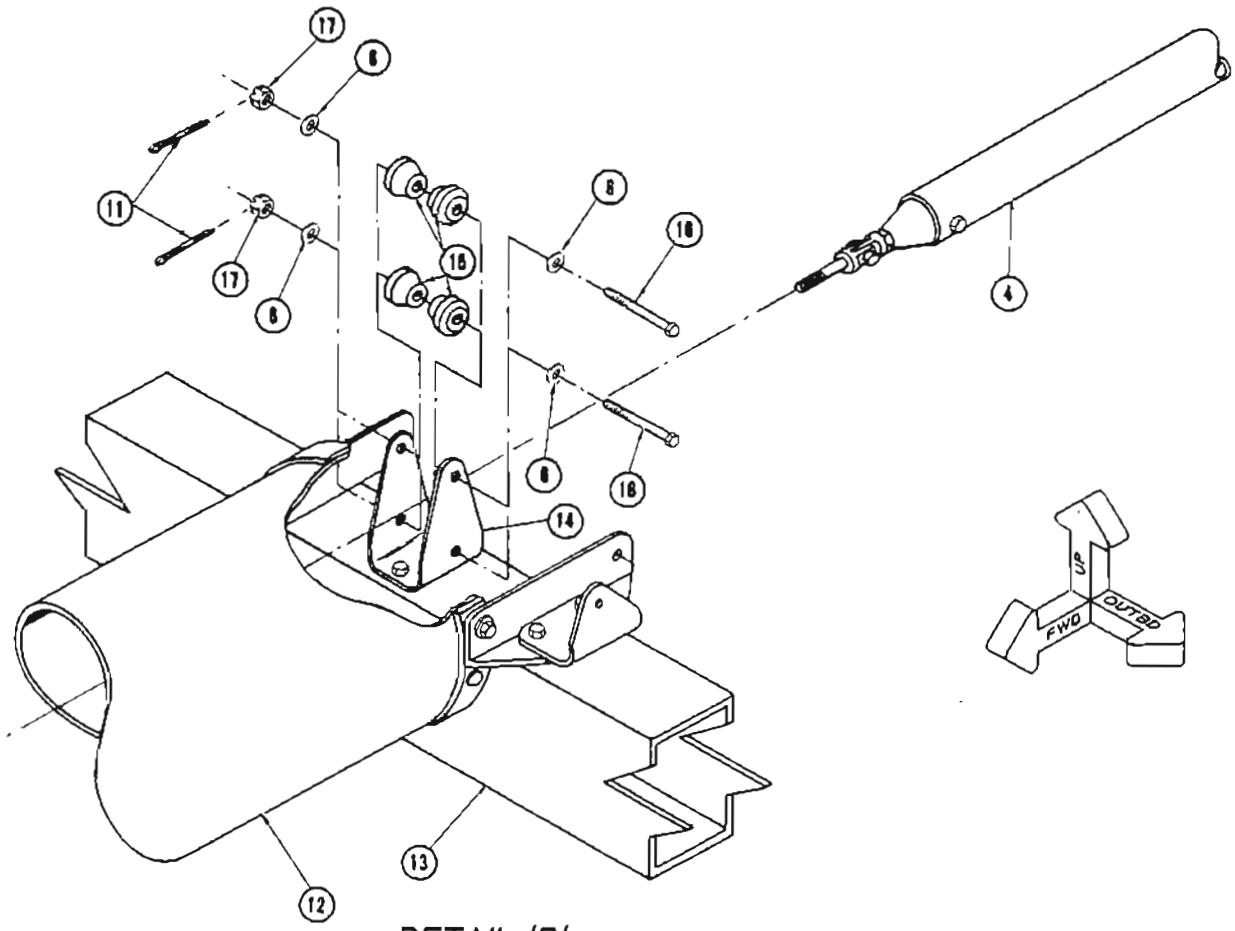
6. Attach the upper Push/Pull Rollers (15) to the upper holes in the Roller Mount Channel (14) using the hardware (16,6,17,11) oriented as shown. Tighten until snug, but not so tight as to restrict free Roller movement. Bend the Cotter Pin (11) correctly.

Ft.	P.N.	Description.
1.	10631	1/4"x 28 Jam Nut.
2.	10351	AN43B-10a Full-Thread Eyebolt.
3.	45464	Push/Pull Elevator Fitting.
4.	45437	Fwd.Elevator Push/Pull Tube.
5.	10080	AN3-13a Bolt.
6.	10560	1/4" Flat Washer.
7.	10510	1/4" Locknut.
8.	10390	Fork 1/4" x 1-1/2"
9.	10009	AN3-5 Bolt.

Pt.	P.N.	Description.
10.	10517	3/16" Castle Nut.
11.	10635	Cotter Pin.
12.	.....	Fwd.Fuselage Tube.
13.	.....	Landing Gear Carry-thru.
14.	.....	Roller Mount Channel.
15.	45551	Push/Pull Rollers.
16.	10160	AN4-17 Bolt.
17.	10521	1/4" Castle Nut.
18.	10500	3/16" Locknut.
19.	10550	3/16" Flat Washer.



DETAIL 'A'



DETAIL 'B'

FIGURE 2-13

CONTROL YOKE ASSEMBLY (CONT'D.)

1. Refer to Detail 'A'. Attach the Control Stick Base Mount (1) to the base of the Control Wheel Support Tube (2) using the hardware (3,4,5) shown. Tighten until Snug.

2. Pass the base of the Control Wheel Support Tube (2) thru the Yoke Control Guide Slot (6) in the upper surface of the Forward Fuselage Tube (7) - oriented as shown.

3. Make a hook in a piece of wire and use it to lift the Forkbolt (8) in the forward end of the Forward Push/Pull Tube. Insert the threaded end of the Forkbolt (8) thru hole 'X' in the Control Wheel Support Tube (2). Attach using the hardware (9,10) shown. Tighten until snug. Don't crush the tube.

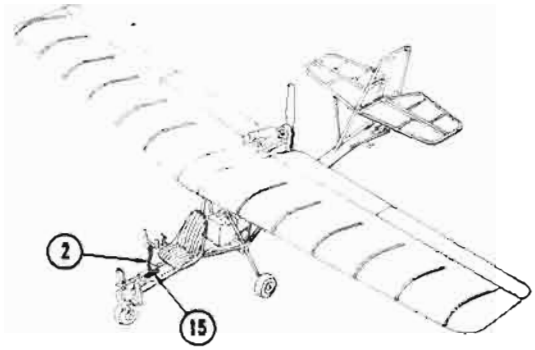
4. Align the Control Stick Base Mount (1) between the arms of the Control Stick Attach Bracket (11). Attach using the hardware (12,9,13,14) shown. Tighten until snug, but not so tight as to restrict free movement. Bend the Cotter Pin (14) correctly.

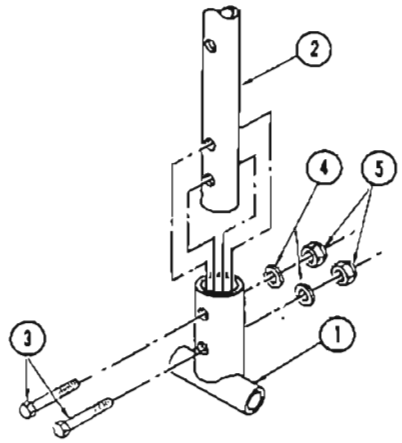
5. Notice that the Yoke Control Guide (15) has sixteen Drill-point dimples in its upper surface. Carefully Drill eight 1/8" holes at 90 degrees, in the positions shown in Detail 'B' before proceeding. NOTE: Use a piece of wood under the Guide to prevent it from breaking.

6. Slip the Yoke Control Guide (15) - oriented as shown - over the Control Wheel Support Tube (2) and position it over the Yoke Control Guide Slot (6).

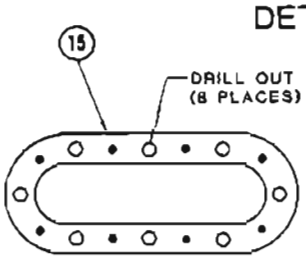
7. Refer to Detail 'C'. Sit in the Pilot Seat. Move the Control Wheel Support Tube (2) - the "stick" - forward and aft. Carefully position the Guide (15) until the dimension between it and the "stick" is even on both sides. Tape the Guide (15) to the Forward Fuselage Tube (7). Check "stick" movement again. When satisfied, Backdrill 1/8" diameter holes at 90 degrees into the Forward Fuselage Tube. Deburr. Attach using Rivets (16) in the sequence shown.

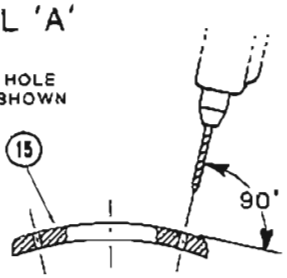
Pt.	P.N.	Description.
1.	45507	Control Stick Base Mount Assembly.
2.	45509	Control Wheel Support Tube.
3.	10035	AN3-14a Bolt.
4.	10550	3/16" Flat Washer.
5.	10500	3/16" Locknut.
6.		Yoke Control Guide Slot.
7.		Fwd.Fuselage Tube.
8.		1/4" x 1-1/2" Fork.
9.	10560	1/4" Flat Washer.
10.	10510	1/4" Locknut.
11.		Control Stick Attach Bracket.
12.	10260	AN4-27 Bolt.
13.	10521	1/4" Castle Nut.
14.	10635	Cotter Pin.
15.	45550	Yoke Control Guide.
16.	20200	Rivet, 1/8" Alum x 1/4" Grip (AAP-44).





DETAIL 'A'





END VIEW



DETAIL 'B'

DETAIL 'C'

FIGURE 2-14

CONTROL YOKE ASSEMBLY (CONT'D.)

1. Connect the Teleflex Attach Bracket (1) - oriented as shown - to the Control Wheel Support Tube (2) using the hardware (3,4,5) shown. Tighten until snug. Don't crush the tube.

2. Notice that the Teleflex Clamp has an upper (6A) and a lower (6B) part. Examine (6A), notice that it has a bar on its inner surface. That bar fits in a machined slot in the Teleflex Cable (7). Ensure that the bar is in the slot and attach the Teleflex Cable (7) via the Teleflex Clamp (6A) and (6B) to the Teleflex Bracket (1) using the hardware (8,4,5) shown. Tighten to proper torque.

3. Refer to Detail 'A'. Drill out the four indicated holes in the (Control Wheel) Bellcrank Bearing (11) to 3/16" diameter. Position and Clamp the Bearing (11) - oriented as shown - centered on the Control Wheel (12). Back-drill the Control Wheel (12) thru the four holes in the Bearing and attach the Bearing (11) using four Rivets (13).

4. Attach the Control Wheel (12) to the Control Wheel Support Tube (2) using the hardware (14,15,16,17,18) shown. Tighten until snug. Don't crush the tube.

5. Attach the Control Wheel Horn (19) to the Control Wheel (12) via the Control Wheel Stand-offs (20) using the hardware (21,17,18) shown. Tighten to proper torque.

6. Add a drop of Loctite to the bottom end of thread on the Teleflex Cable (7), turn the Stop Nut (25) back against the thread so that it bottoms-out. Tighten the Stop Nut (25) until snug. Clean the remaining thread of Loctite. Add a Jam Nut (9) to the Teleflex Cable (7). Thread the Teleflex Fork (10) onto the Teleflex Cable (7) fourteen full turns. Attach the Teleflex Fork (10) to the Control Wheel Horn (19) using the hardware (22,4,23,24) oriented as shown. Tighten until snug, but not so tight as to restrict free movement. Bend the Cotter Pin (24) correctly. Tighten the Jam Nut (9) towards the Teleflex Fork (10). Leave the Teleflex Cable (7) coiled.

Pt.	P.N.	Description.
1.	45415	Teleflex Attach Bracket.
2.	.....	Control Wheel Support Tube.
3.	10035	AN3-14a Bolt.
4.	10550	3/16" Flat Washer.
5.	10500	3/16" Locknut.
6A.	70510	Teleflex Clamp (upper).
6B.	"	" " (lower).
7.	70472	Teleflex Cable.
8.	10015	AN3-6a Bolt.
9.	10495	10-32 Jam Nut.
10.	70530	Teleflex Fork.
11.	10702	Bellcrank Bearing.
12.	45555	Control Wheel.
13.	20220	Rivet, 3/16" Steel x 3/8" Grip.
14.	10190	AN4-22a Bolt.
15.	10565	1/4" Fender Washer.
16.	20270	1" x 1/8" Saddle.
17.	10560	1/4" Flat Washer.
18.	10510	1/4" Locknut.
19.	45508	Control Wheel Horn.
20.	45556	Control Wheel Stand-offs.
21.	10294	AN4-36a Bolt.
22.	10018	AN3-7 Bolt.
23.	10517	3/16" Castle Nut.
24.	10635	Cotter Pin.
25.	.....	Stop Nut.

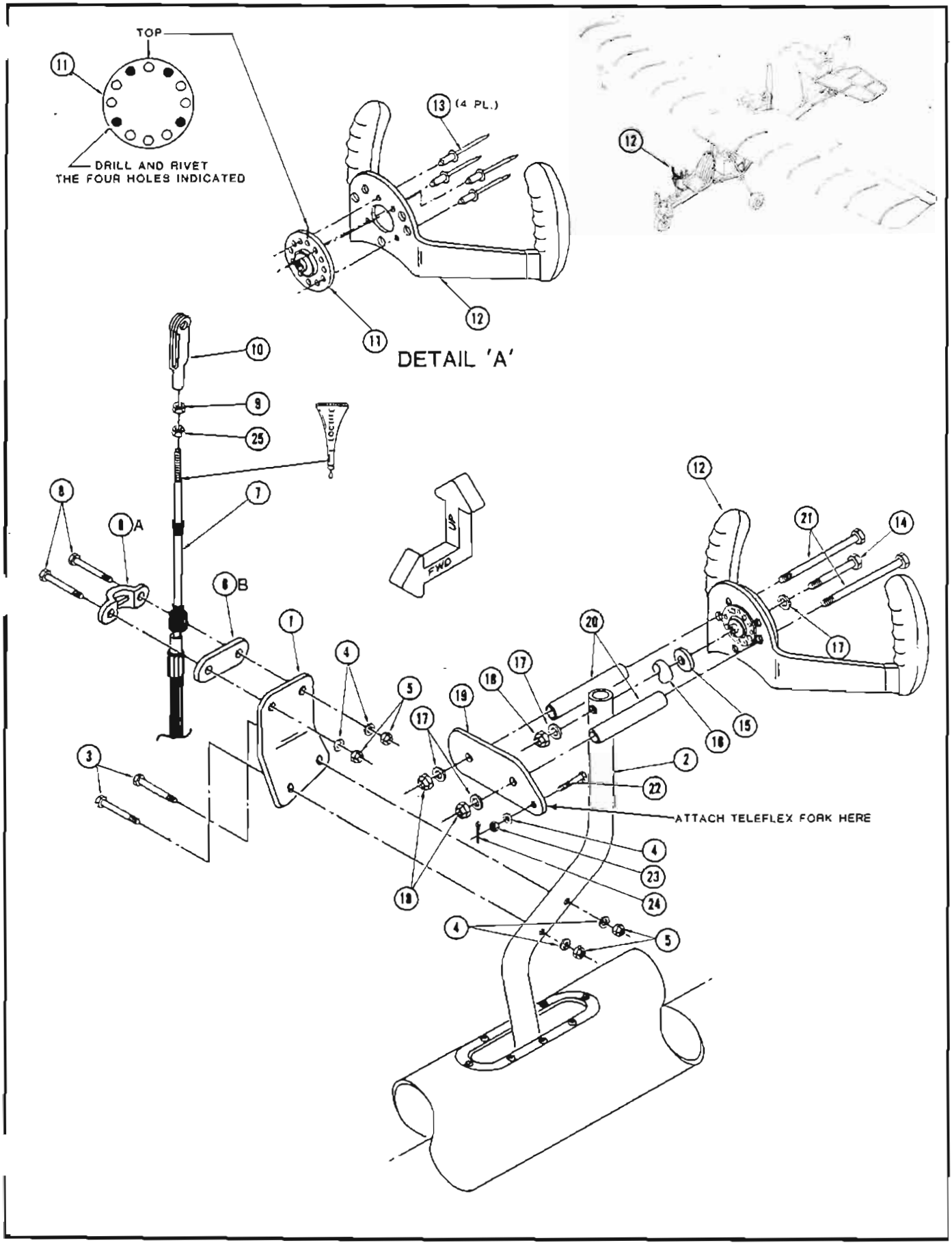

TOP
DRILL AND RIVET
THE FOUR HOLES INDICATED
(4 PL.)
DETAIL 'A'
FWD
LOCTITE
ATTACH TELEFLEX FORK HERE

FIGURE 2-15

ROOT TUBE SUB-ASSEMBLY

****
ESSENTIAL: Positive identification of Top, Bottom and Sides of the Root Tube (9) is necessary before proceeding! Refer to Detail 'A'. 1/2" (12.5mm) and 3-3/4" (9.5cm) from its AFT end there are two 5/16" diameter holes predrilled thru both its Sides.

Refer to Detail 'B'. Measure 32-1/4" (81.9cm) from the AFT end of the Root Tube (9) and find the TOP RIGHT predrilled 3/16" diameter hole. Measure 32-9/16" (82.7cm) from the AFT end of the Root Tube (9) and find the TOP LEFT 3/16" diameter hole. Position the Root Tube (9) as above and mark with soft pencil, Forward, Aft, Top and Sides.
****

1. Attach the Flap Handle Bracket (1) to the Flap Handle (2) using the Flap Handle Pin (3) with hardware (20,21) and (6,20,21) shown. Tighten to proper torque.
2. Add a Washer (4) and a Fender Washer (10) to the Bolt (17). Insert the Bolt (17) thru the Flap Handle (2) - oriented as shown. Add a Nylon Washer (7), the Flap Handle Stop Bracket (8) - oriented as shown - and two more Nylon Washers (7). Measure 6-1/16" (15.3cm) along the forward underside of the Root Tube (9) and find a 1/4" diameter hole. Insert the Bolt (17) into the hole - as shown.
3. Add a Fender Washer (10), a Washer (4), the Flap Spring (11) and the hardware (10,4,12,13) to the Bolt (17) as shown. DO NOT Tighten.
4. ** **STRUT BRACED GT ONLY:** OMIT Parts (15); (16,4,5). ADD a Washer (4) to the Bolt (14). Otherwise as Cable Version.
5. ** CABLE BRACED GT: Insert a Bolt (14) thru a hole in a King Post Channel Track (15) - oriented as shown. Push the Bolt (14) thru the next AFT hole in the Root Tube (9). Attach to Flap Handle STOP Bracket (8) using the hardware (4,5) shown. Tighten to proper torque. Attach the AFT end of the FORWARD King Post Channel (15) thru the Root Tube (9) using the hardware (16,4,5) shown. Tighten to proper torque.
6. Refer to Detail 'C'. Position the Flap 'L' Bracket (18) - oriented as shown - over the FORWARD hole in the Flap Handle Stop Bracket (8). Attach using a Rivet (22) - oriented as shown. Backdrill to 3/16" diam. thru the upper hole in the Flap 'L' Bracket (18) into the Root Tube (9) and attach using a Rivet (19).

Pt.	P.N.	Description.	Pt.	P.N.	Description.
1.	45263	Flap Handle Bracket.	13.	10635	Cotter Pin.
2.	45262	Flap Handle.	14.	10250	AN4-27a Bolt.
3.	45293	Flap Handle Pin.	15.	45681	King Post Channel Track.
4.	10560	1/4" Flat Washer.	16.	10220	AN4-24a Bolt.
5.	10510	1/4" Locknut.	17.	10297	AN4-37 Bolt.
6.	10010	AN3-5a Bolt.	18.	45264	Flap "L" Bracket.
7.	20344	2" x 1/8" Nylon Washer.	19.	20193	Rivet, 3/16" Steel x 1/4" Grip (BSPQ-64).
8.	45290	Flap Handle Stop Bracket.	20.	10550	3/16" Flat Washer.
9.	45667	Root Tube.	21.	10500	3/16" Locknut.
10.	10565	1/4" Fender Washer.	22.	20214	Rivet, 3/16" Alum. x 1/8" Grip (AAPQ-62).
11.	10800	Flap Spring.			
12.	10521	1/4" Castle Nut.			

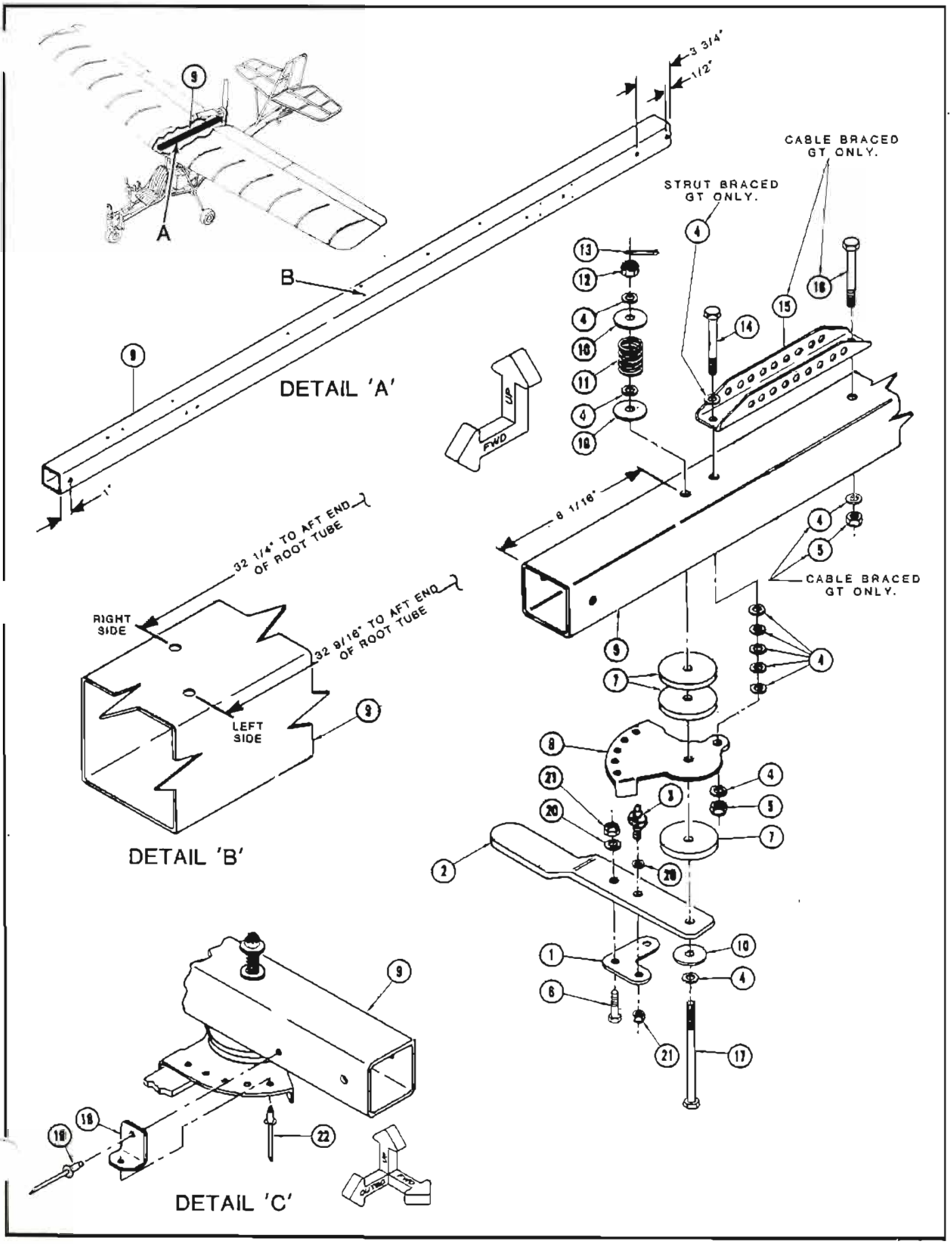


FIGURE 2-16

DOC # 842-2

Rev. A

ROOT TUBE SUB-ASSEMBLIES (CONT'D.)

NOTE: The Aft Downtubes (9) mount at an angle in the 1-1/8" Double Channels (10A) and (10B). If necessary, file the lowest tip in the end of the Tubes (9) just sufficient for clearance.

1. Refer to Detail 'A'. Using the hardware (1,2,3) shown, attach the Eyebolt (4) on the lower end of the - previously sub-assembled - Forward Fuselage Downtube (5) to the top fitting on the Tail Boom Flange (6). DO NOT Tighten.

2. Refer to Detail 'B'. Using the hardware (7,2,3) shown, attach a Forward Downtube (8) and a Aft Downtube (9) to the LEFT Double Channel (10A) - on the Landing Gear Carry-thru (11). DO NOT Tighten.

3. Refer to Detail 'C'. Repeat STEP 2 above on the RIGHT Double Channel (10B). DO NOT Tighten.

NOTE: This Page and the following Page should be Completed together.

Ft.	P.N.	Description.
1.	10070	AN4-12a Bolt.
2.	10560	1/4" Flat Washer.
3.	10510	1/4" Locknut.
4.		Eyebolt.
5.		Fwd.Fuselage Downtube.
6.		Tail Boom Flange.
7.	10120	AN4-15a Bolt.
8.	45440	Forward Downtube.
9.	45441	Aft Downtube.
10.		1-1/8" Double Channels.
11.		Landing Gear Carry-thru.

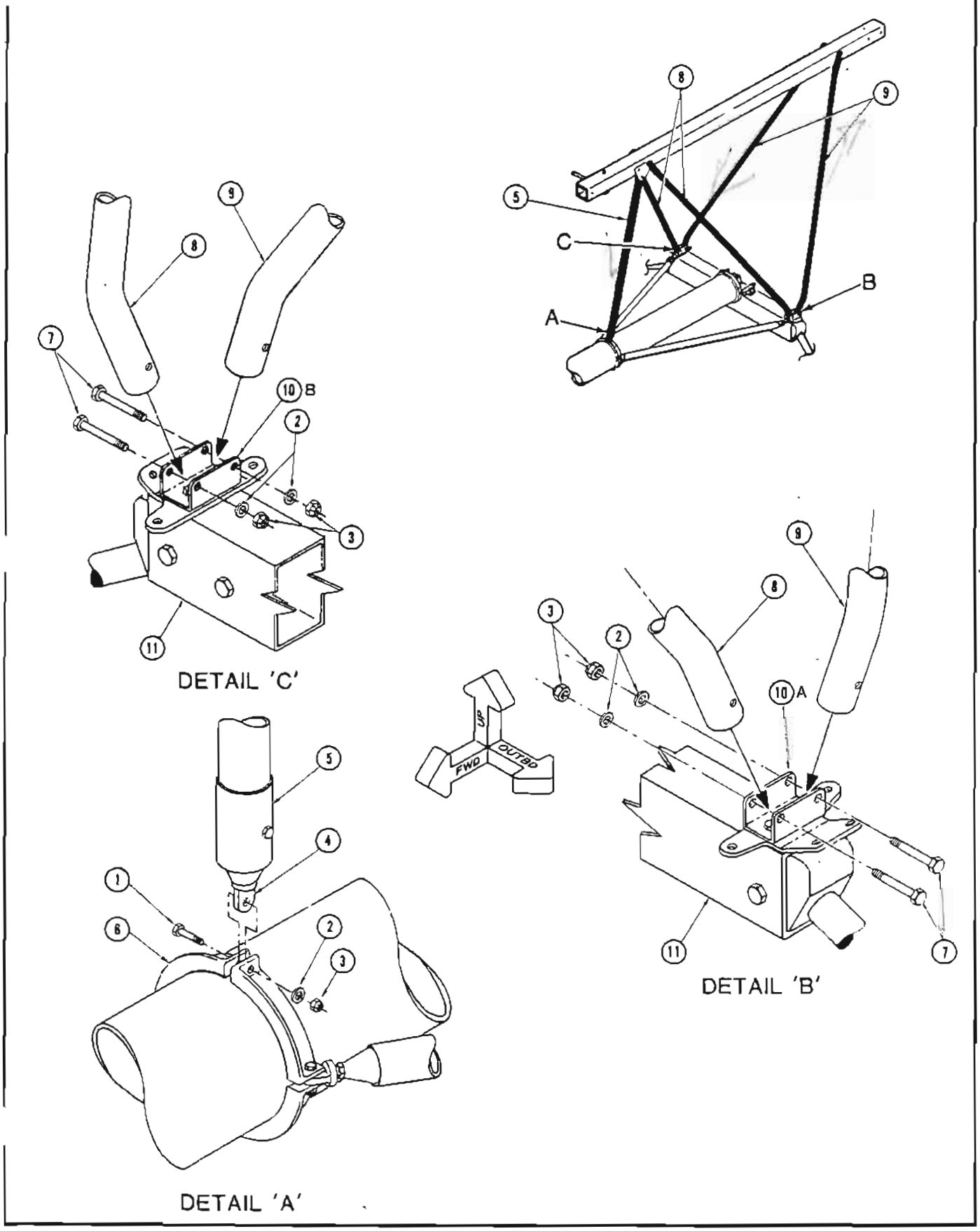

8
9
5
C
B
A
9
8
7
10 B
2
3
11
DETAIL 'C'
UP
FWD
OUTBD
9
8
3
2
10 A
11
7
DETAIL 'B'
5
4
1
6
2
3
DETAIL 'A'

FIGURE 2-17

ROOT TUBE SUB-ASSEMBLIES (CONT'D.)

IMPORTANT: Drill out four 1" x 1-1/8" Saddles (7) to 5/16" diameter.

1. Refer to Detail 'A'. Measure 13-3/8" (33.9cm) and 15-3/8" (39cm) along the forward sides of the Root Tube (1), find two predrilled 5/16" diameter holes. To the FORWARD hole, attach a Downtube Plate (2) - oriented as shown - to each side of the Root Tube (1) using the hardware (3,4,5) shown. DO NOT Tighten.

2. Raise the Root Tube (1) to position both Forward Downtubes (6) on each side of the AFT hole in the Downtube Plates (2). Attach to the Root Tube (1) using the hardware (12,7,4,5) shown. DO NOT Tighten.

3. Attach the upper end of the Forward Fuselage Downtube (9) to the lower hole in the Downtube Plates (2) using the hardware (3,4,10,5) shown. DO NOT Tighten.

4. Refer to Detail 'B'. Measure 10-1/2" (26.6cm) along the aft sides of the Root Tube (1) and find a predrilled 5/16" diameter hole. Attach the upper ends of the Aft Downtubes (8) to the Root Tube (1) using the hardware (11,7,4,5) shown.

5. Finally, tighten all the hardware until snug at the positions circled in the locator illustration. Don't crush the Tubes.

Pt.	P.N.	Description.
1.		Root Tube.
2.	45426	Downtube Plate.
3.	10325	AN5-26a Bolt.
4.	10570	5/16" Flat Washer.
5.	10540	5/16" Locknut.
6.		Forward Downtubes.
7.	20270	1" x 1-1/8" Saddle.
8.		Aft Downtubes.
9.		Fwd.Fuselage Downtube.
10.	20290	1-3/4" Saddle.
11.	10342	AN5-50a Bolt.
12.	10346	AN5-52a Bolt.

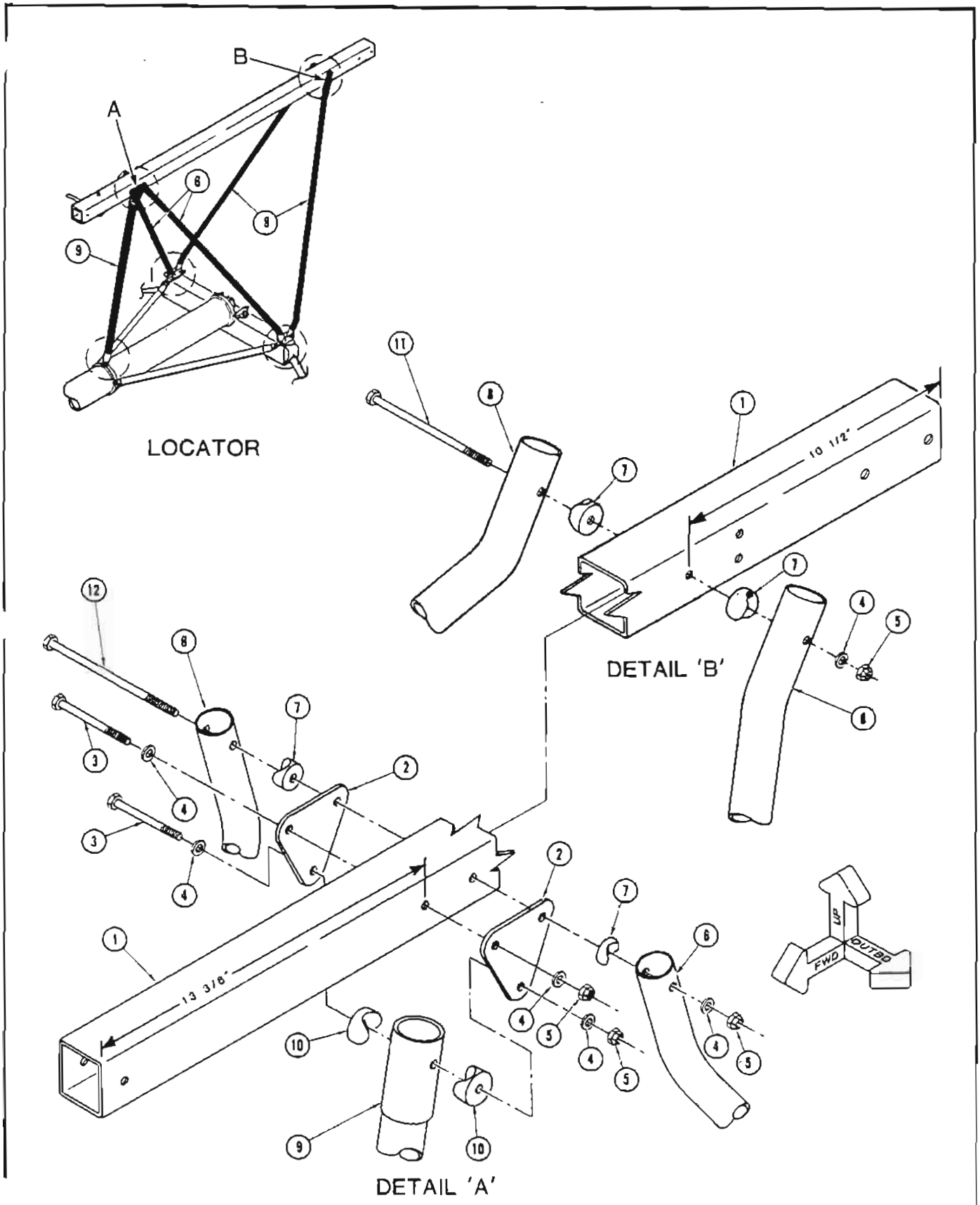


FIGURE 2-18

DOC # 842-2

Rev. A

ROOT TUBE SUB-ASSEMBLIES (CONT'D.)

1. Position and Clamp a Bellcrank Bearing (1) - oriented as shown - onto the underside of the Root Tube Bellcrank (2). Drill four 1/8" holes thru the Bearing flange and the Bellcrank - as shown. Attach the Bearing (1) to the Bellcrank (2) using Rivets (3) oriented as shown.

2. Push a Bolt (4) - oriented as shown - thru the Bearing (1). Add the hardware (5,6,7) shown. CAUTION: (6) and (7) are different thicknesses!

3. Measure 25-3/4" (65.4cm) along the forward upper surface of the Root Tube (8) and find a 1/4" hole. Insert the Bolt (4) and its hardware into the hole - as shown. Add the hardware (9,10) shown. Tighten to proper torque.

**** STRUT BRACED GT ONLY: OMIT Parts (11); (12,9,10). ADD another Washer (14) to the Eyebolt (16), above the Root Tube (8).**

---

4. Redrill the 1/4" hole in one end of the remaining King Post Channel Track (11) to 5/16" diameter. That is now the AFT end of the Aft King Post Channel Track (11). NOTE: This Channel (11) is made of Stainless Steel, it will need to be clamped securely in a Vise and drilled using a sharp drill bit.

5. Measure 25-1/8" (63.8cm) along the aft upper surface of the Root Tube (8) and find a predrilled 1/4" diameter hole. Attach the FORWARD end of the (Aft) King Post Channel Track (11) to the Root Tube (8) using the hardware (12,9,10) shown. DO NOT Tighten.

6. Locate the (previously sub-assembled) Tail Boom Down Strut (13). Remove the hardware (14,15) from the Eyebolt (16) on the upper end of the Tail Boom Down Strut (13). Insert the Eyebolt (16) with its Fender Washer (17) still in place up thru the Root Tube (8) - oriented as shown - and into the AFT hole in the King Post Channel Track (11). Re-attach the hardware (14,15). Tighten to proper torque.

7. Tighten the hardware (12,9,10) on the FORWARD end of the King Post Channel Track (11) to proper torque.

Pt.	P.N.	Description.
1.	10702	Bellcrank Bearing.
2.	42002	Root Tube Bellcrank.
3.	20201	Rivet, 1/8" S.Steel x 1/4" Grip.
4.	10290	AN4-34a Bolt.
5.	10565	1/4" Fender Washer.
6.	20345	1" x 1/8" Nylon Washer.
7.	20346	1" x 1/4" Nylon Washer.
8.		Root Tube.
9.	10560	1/4" Flat Washer.
10.	10510	1/4" Locknut.
11.	45681	King Post Channel Track.
12.	10220	AN4-24a Bolt.
13.		Tail Boom Down Strut.
14.		5/16" Flat Washer.
15.		5/16" Locknut.
16.		Eyebolt.
17.		5/16" Fender Washer.

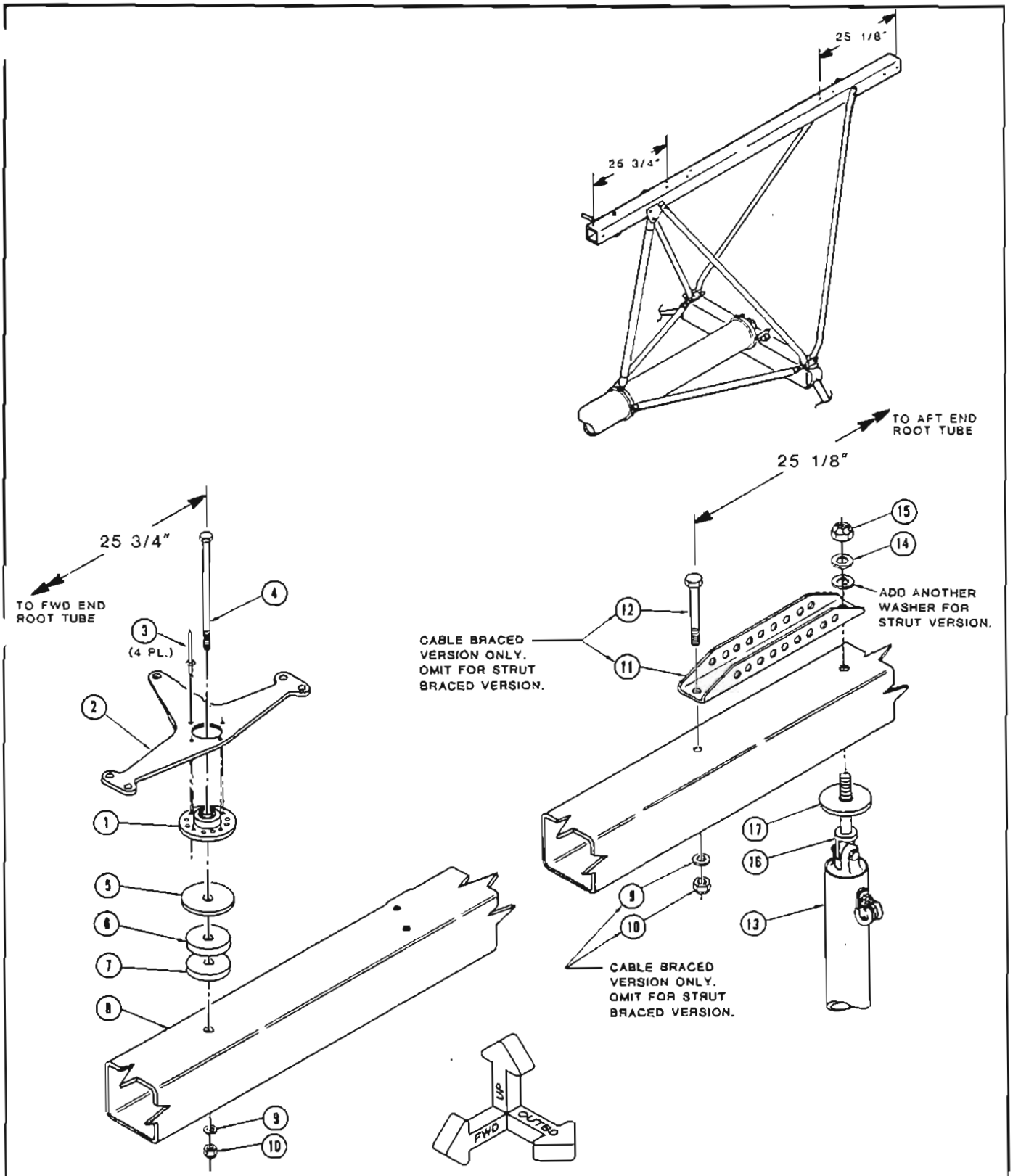

25 1/8"
25 3/4"
TO AFT END ROOT TUBE
25 1/8"
25 3/4"
TO FWD END ROOT TUBE
(4 PL.)
CABLE BRACED VERSION ONLY. OMIT FOR STRUT BRACED VERSION.
ADD ANOTHER WASHER FOR STRUT VERSION.
CABLE BRACED VERSION ONLY. OMIT FOR STRUT BRACED VERSION.
UP
FWD
OUTBD

FIGURE 2-19

ROOT TUBE SUB-ASSEMBLIES (CONT'D.)

TELEFLEX CABLE ATTACHMENT

1. Uncoil the Teleflex Cable (1) at the Control Wheel. Route it in a smooth, untwisted arc down between the Forward Fuselage Tube and the Right Rudder Cable and then under the Pilot Seat.

2. Refer to Detail 'A'. On the forward underside of the LEFT Forward Side Strut, loosen the Locknut (3) which holds the Cushioned Clamp (4). Remove the Clamp (4). Pass the Teleflex Cable (1) thru it. Replace the Clamp (4) and the Locknut (3). Tighten to proper torque.

3. Refer to Detail 'B'. Remove the hardware (2,3) from the LEFT Pulley Wheel (7). Remove the Clamp (4), pass the Teleflex Cable (1) thru it, replace the Clamp (4) and its hardware (2,3). DO NOT Tighten.

4. On the upper end of the Teleflex Cable (1), add a drop of Loctite to the thread, then turn the Stop Nut (8) back against the thread so that it bottoms-out. Tighten it. Clean the remaining thread of Loctite. Add a Jam Nut (9) and a Female Rod End Bearing (10) to the thread. DO NOT Tighten.

5. Notice that the Teleflex Clamp has an upper (11A) and a lower (11B) part. Examine (11A), notice that it has a bar on its inner surface. That bar fits in a machined slot in the Teleflex Cable (1). Ensure that the bar is in the slot and attach the Teleflex Cable (1) <u>via</u> the Teleflex Clamp (11A) and (11B) to the Root Tube (12) using the hardware (13,5,6) shown. Tighten to proper torque.

6. Add a "T" Bushing (15) - oriented and positioned as shown - to the Female Rod End Bearing (10). Lightly attach them to the <u>underside</u> of the Root Tube Bellcrank (14) using the hardware (16,5,6) shown. DO NOT Tighten.

Pt.	P.N.	Description.
1		Teleflex Cable.
2		1/4" Flat Washer.
3		1/4" Locknut.
4		Cushioned Clamp.
5.	10550	3/16" Flat Washer.
6.	10500	3/16" Locknut.
7		Pulley Wheel.
8		Stop Nut.
9.	10495	Jam Nut 10-32.
10.	10701	Female Rod End Bearing.
11A	70510	Teleflex Clamp (upper).
11B	"	" " (lower).
12		Root Tube.
13.	10055	AN3-24a Bolt.
14		Root Tube Bellcrank.
15.	20241	"T" Bushing.
16.	10024	AN3-10a Bolt.

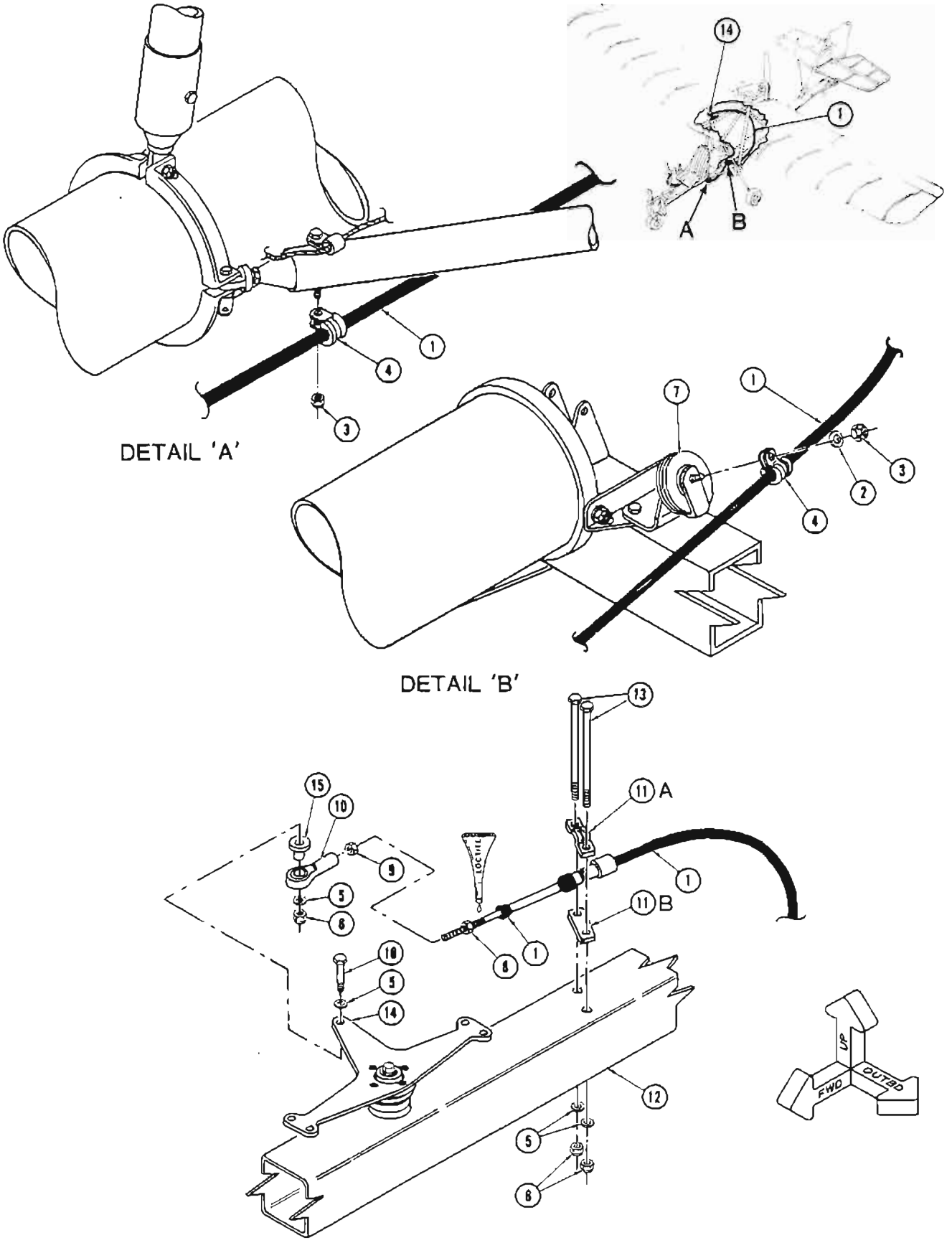


FIGURE 2-20

DOC # 842-2
Rev. A

ROOT TUBE SUB-ASSEMBLIES (CONT'D.)

TELEFLEX CABLE ADJUSTMENT

1. Refer to Detail 'A'. Position the Control Wheel (1) until it is 90 degrees to the Control Wheel Support Tube (2). Have a friend hold it firmly in that position. The Wheel (1) must not be allowed to move during the following sequence.

2. At the Root Tube Bellcrank (3) temporarily disconnect the hardware (4,5,6) and pull the Female Rod End Bearing (7) off the Bolt (8).

3. Thread the Female Rod End Bearing (7) all the way onto the Teleflex Cable (9) until it bottoms out.

4. Refer to Detail 'B'. Precisely align the Root Tube Bellcrank (3) with the Root Tube (10).

5. With the Bellcrank (3) prescisely aligned and the Control Wheel (1) at 90 degrees to the Control Wheel Support Tube (2), back off the Female Rod End Bearing (7)*** approx 3 to 4 full threads. It should now slip back onto the Bolt (8) with no resistance. Adjust by a full turn until it will slip on easily.

6. Replace the hardware (4,5,6). Tighten until snug. Turn the Jam Nut (11) back <u>against</u> the Female Rod End Bearing (7). Tighten until snug.

*** CAUTION: The Female Rod End Bearing <u>must</u> have <u>at least</u> ten full threads into the Teleflex Cable (9).

Pt.	P.N.	Description.
1		Control Wheel.
2		Control Wheel Support Tube.
3		Root Tube Bellcrank.
4		3/16" Locknut.
5		3/16" Flat Washer.
6		'T' Bushing.
7		Female Rod End Bearing.
8		AN3-10a Bolt.
9		Teleflex Cable.
10		Root Tube.
11		Jam Nut.

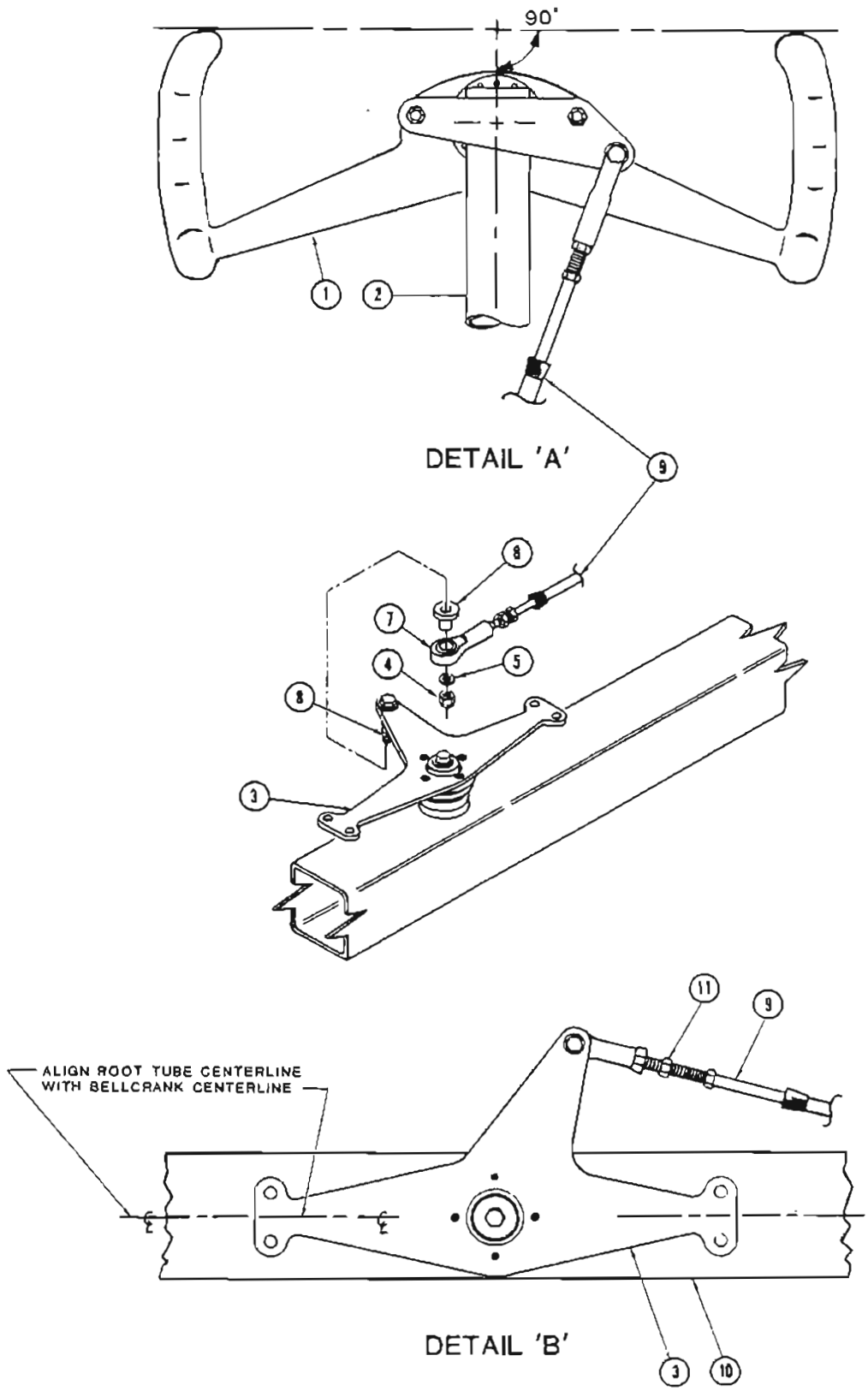

90°
1
2
9
DETAIL 'A'
8
7
4
5
8
3
11
9
ALIGN ROOT TUBE CENTERLINE
WITH BELLCRANK CENTERLINE
DETAIL 'B'
3
10

FIGURE 2-21

SEAT BELT/SEAT ADJUST

1. Refer to Detail 'A'. Attach the Seat Belt End Fittings (1A) and (1B) to the 20 Degree Tangs (2A) and (2B) using the hardware (3,15,16) shown. Tighten to proper torque.

2. Sit in the Pilot Seat. Position your feet on the Rudder Pedals. Grip the Control Wheel as for normal flight. Position the Seat until you are comfortable. Adjust and connect the Seat Belt.

3. Pull the Control Wheel to the full AFT position. Ensure that you can move the wheel full LEFT and full RIGHT in that seat position. Push the Control Wheel to the full FORWARD position. Recheck left and right control inputs. When satisfied, mark the seat position. Get out of the Seat.

4. On the RIGHT Seat Track (6), just FORWARD of the AFT mounting slot, there is a 1/4" diameter hole through which you can see the Aft Seat Track Channel. Recheck Seat position. Backdrill to 1/4" thru the hole. Deburr. That is your "Primary seat position". Alternate holes may be backdrilled and deburred via the Right Seat Track (6), fore and aft of that position, at least 1/2" apart.

5. Insert the Seat Lock Pin Assembly (8) thru a Washer (4) and the Seat Lock Spring (9) and into the Seat Lock Bracket (10) as shown. Attach using a Safety Ring (11).

6. Remove the Locknut (5) and Washer (4) from the Right Rear Pilot Seat Mounting Bolt (13). At the primary seat position, align the 1/4" holes thru the Seat Track (6) and insert the tip of the Seat Lock Pin Assembly (8). Attach the Seat Lock Bracket (10) to the Bolt (13) using the Washer (4) and the Locknut (5). Tighten until snug. Check the mechanism gives positive security. Adjust as necessary.

7. Refer to Detail 'B'. Trim to fit and insert the Root Tube Cap (14) into the forward end of the Root Tube (7). Drill a 1/8" hole thru the top and bottom surfaces of the Root Tube (7) and into the lip of the Root Tube Cap (14). Attach using two Rivets (12).

Pt.	P.N.	Description.
1.	70343	Lap Belt Set.
2.	.....	20 Degree Tang.
3.	10304	AN5-6a Bolt.
4.	10560	1/4" Flat Washer.
5.	.....	1/4" Locknut.
6.	.....	RIGHT Seat Track.
7.	.....	Root Tube.
8.	45544	Seat Lock Pin.
9.	10803	Seat Lock Spring.
10.	45428	Seat Lock Bracket.
11.	20309	Seat Lock Pull Ring.
12.	20200	Rivet, 1/8" Alum x 1/4" Grip (AAP-44).
13.	.....	AN4-11a Bolt.
14.	20245	Root Tube Cap.
15.	10570	5/16" Flat Washer.
16.	10540	5/16" Locknut.

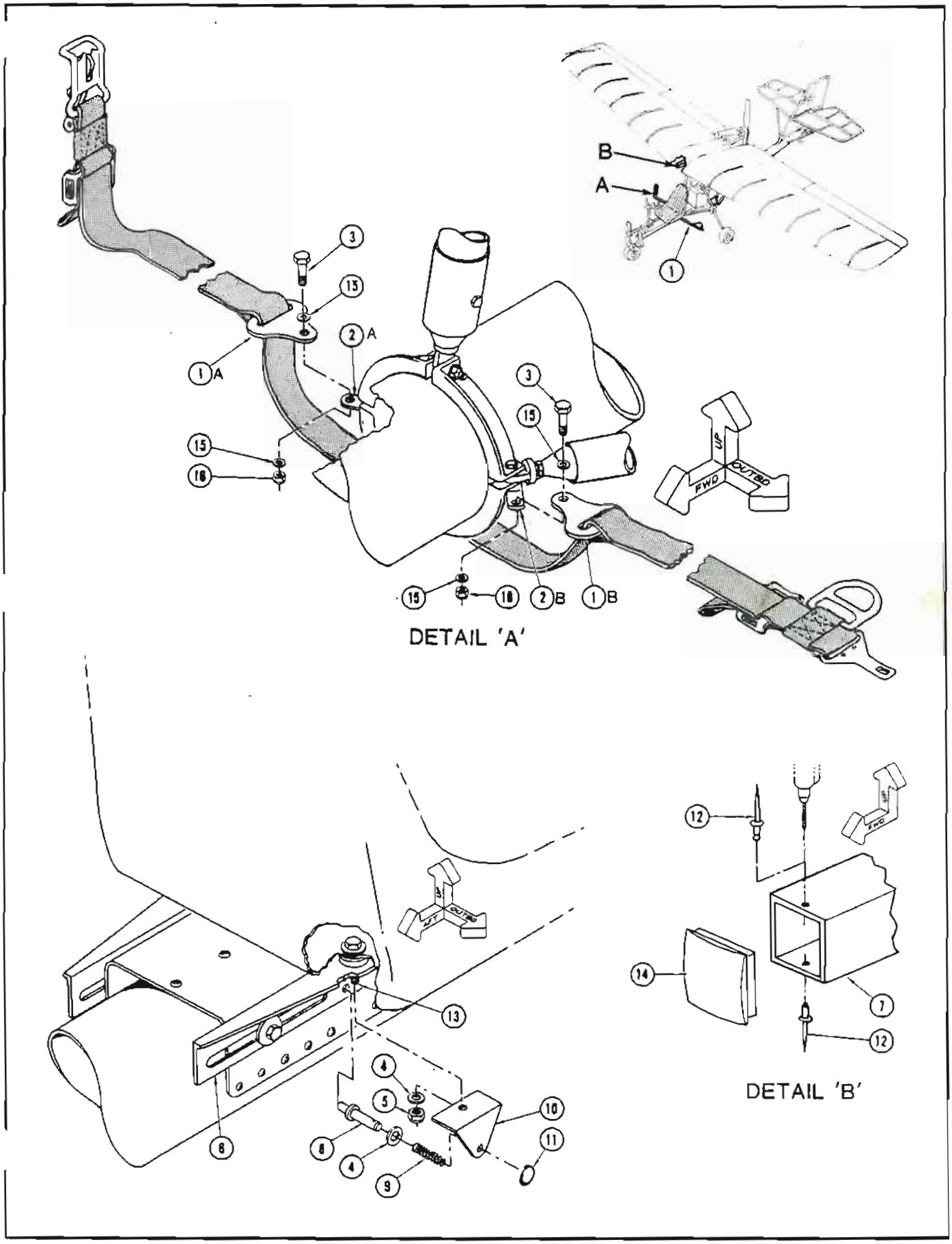

B
A
1
3
15
2A
1A
15
16
3
15
FWD
OUTBD
UP
15
16
2B
1B
DETAIL 'A'
13
6
4
5
8
4
9
10
11
12
14
7
12
DETAIL 'B'

FIGURE 2-22

THROTTLE MOUNT PLATE SUB-ASSEMBLY

NOTE: If necessary, lightly ream the hole in the Throttle Lever Assembly (5) to 3/16" diam. to allow the Cable Swivel (11) to rotate freely.

1. Pass a Bolt (2) thru the Throttle Mount Plate (3) in the position shown. Add a Nylon Washer (4), the Throttle Lever Assembly (5) - oriented as shown - and another Nylon Washer (4). Lightly attach using the hardware (1,6,7) shown. DO NOT Tighten.

2. Attach two 1/4" Shoulder Bolts (8) to the Throttle Mount Plate (3) using the hardware (9) shown. DO NOT Tighten. CAUTION: Parts (8,9) are coarse thread.

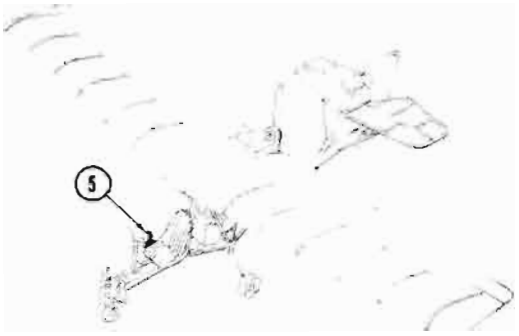
3. Add a 1/4" Nylon Washer (10) to the Cable Swivel (11). Attach the Cable Swivel (11) to the INBOARD side of the Throttle Lever (5) using the E-clip (12).

4. Lightly attach two Bolts (13,18) in the positions shown to the Throttle Mount Plate (3) with the hardware (14,15,16) shown. DO NOT Tighten.

Tach/Temp/Time Meter

5. Attach the Tach/Temp/Time Meter (17) to the Throttle Mount Plate (3) using the hardware (13,15,16) shown. Tighten to proper torque.

Pt.	P.N.	Description.
1.	10560	1/4" Flat Washer.
2.	10068	AN4-11 Bolt.
3.	45475	Throttle Mount Plate.
4.	20346	1" x 1/4" Nylon Washer.
5.	90202	Throttle Lever Assy.
6.	10521	1/4" Castle Nut.
7.	20310	Safety Ring.
8.	90300	Shoulder Bolt, 1/4" x 1/2"-3/16" NCSS.
9.	90310	3/16" Nylock Nut.
10.	20343	No.10 Nylon Washer.
11.	90250	Cable Swivel.
12.	90260	E-clip Retainer.
13.	10010	AN3-5a Bolt.
14.	10563	3/16" Fender Washer.
15.	10550	3/16" Flat Washer.
16.	10500	3/16" Locknut.
17.	90113	Eipper Tach/Temp/Time Meter (Super).
18.	10015	AN3-6a Bolt.



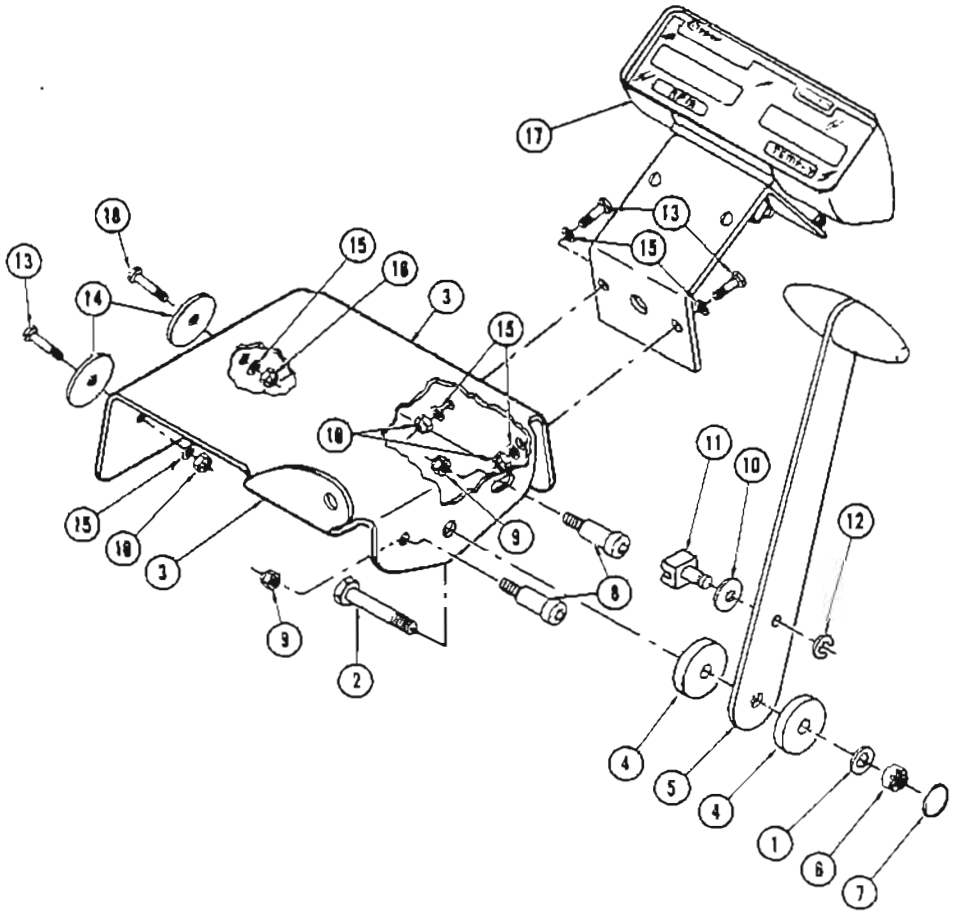


FIGURE 2-23

THROTTLE MOUNT PLATE SUB-ASSEMBLY (CONT'D.)

1. Refer to Detail 'A'. Apply the Throttle Mount Plate Label (9) onto the Throttle Mount Plate (3) as shown. Ensure the holes in the Label (9) are centered over the Choke and Ignition Switch holes.

IGNITION SWITCH

2. Remove the Key from the Ignition Switch (2). Remove the Knurled Nut (1) from the Ignition Switch (2). Attach the Ignition Switch (2) to the Throttle Mount Plate (3). Lightly re-attach the Knurled Nut (1). Tighten until snug. Reinsert the Key into the Ignition Switch.

CHOKE CABLE

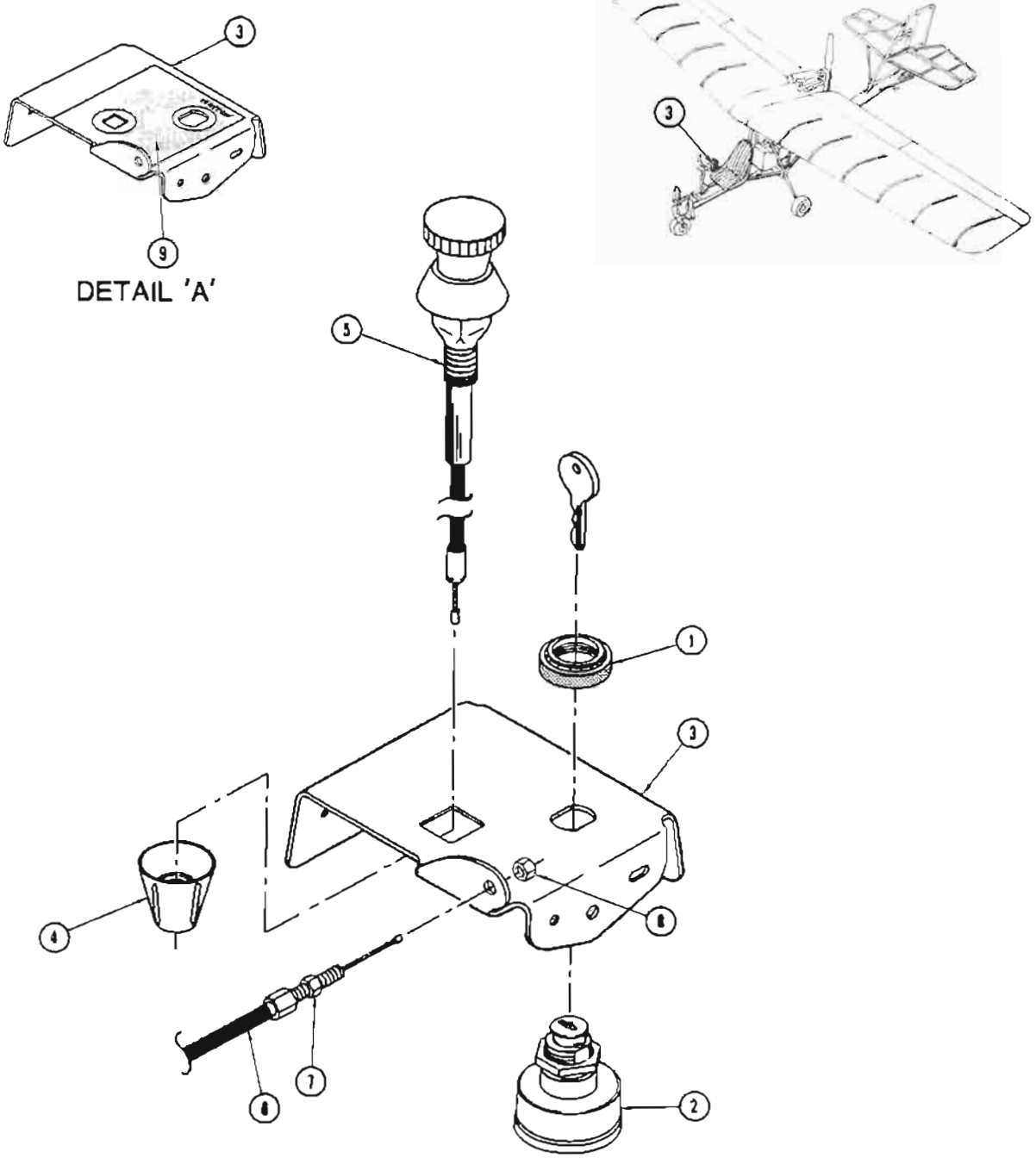
3. Uncoil the Choke Cable (5) and remove the Conical Nut (4). Insert the Choke Cable (5) into the Throttle Mount Plate (3). Re-attach the Conical Nut (4). CAUTION: Plastic Threads damage easily! DO NOT Cross-thread. DO NOT Overtighten. Re-coil the Choke Cable.

THROTTLE CABLE

4. Lightly attach the Throttle Cable (6) to the Throttle Mount Plate (3) using the Stop Nut (7) and Jam Nut (8) provided on the Cable. Finger Tighten only. Leave the Throttle Cable (6) coiled.

Carefully store the sub-assembly for further work in a later sequence.

Pt.	P.N.	Description.
1		Knurled Nut.
2.	30311	Ignition Switch w/Key.
3		Throttle Mount Plate.
4		Conical Nut.
5.	45814	Choke Cable Assembly.
6.	45810	Throttle Cable.
7		Stop Nut.
8		Jam Nut.
9.	846-22	Throttle Mount Plate Label.



PREVIOUSLY SUB-ASSEMBLED
PARTS NOT SHOWN FOR CLARITY

FIGURE 2-24

PILOT FAIRING ASSEMBLY

CAUTION: Except where noted, DO NOT remove the protective paper from the Windscreen (6) until after the sequence is complete. Ensure the Drill bit is sharp!

1. Refer to Detail 'A'. Find the centerline of the underside of the Pilot Fairing (1), mark it with a soft pencil. Measure 2-1/2" (6cm) from the AFT end. Mark and Drill a 1/4" diameter hole. Lightly attach the Aft Pilot Fairing Mount (2) - oriented as shown - using the hardware (3,4,5,12) shown. DO NOT Tighten.

2. Refer to Detail 'B'. Measure 1/2" (13mm) down and 1/2" (13mm) horizontally and mark points 'X' as shown, on both sides of the Pilot Fairing (1). Drill 3/16" diameter holes at points 'X'.

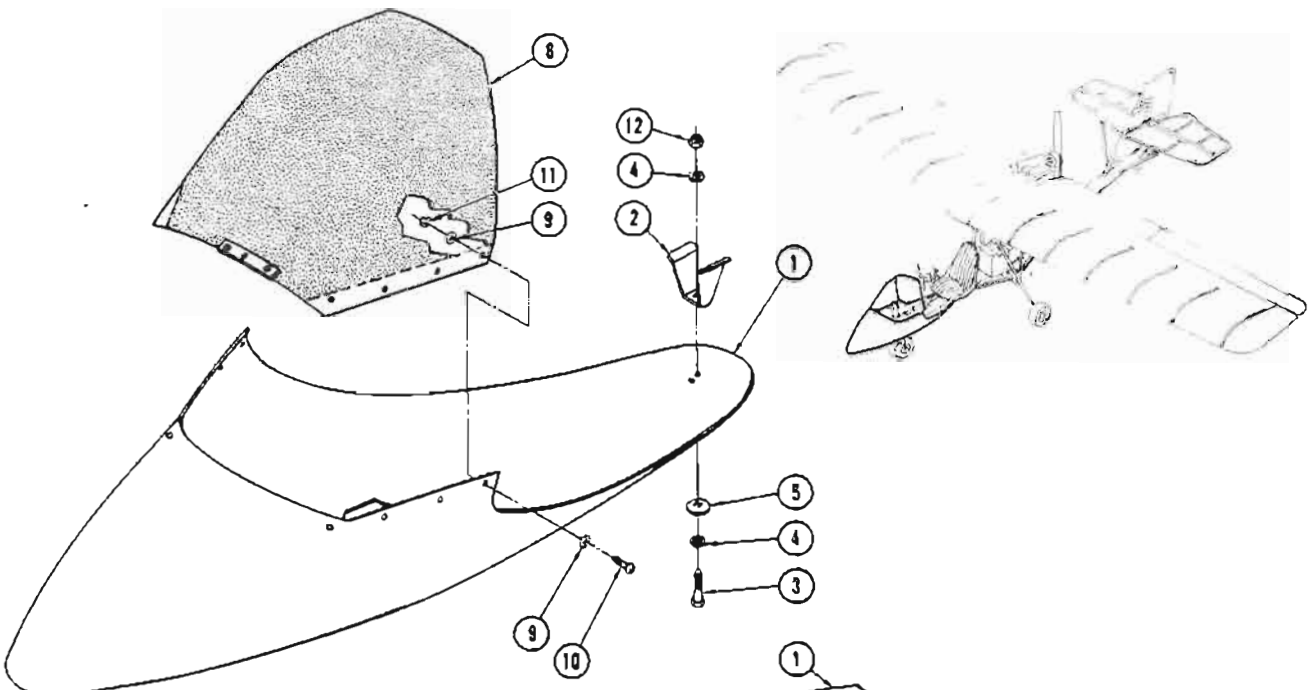
3. Refer to Detail 'C'. Remove a 3/4" strip of protective paper from both sides of the outer surface of the Windscreen (6) as shown. Measure, Mark and Drill 3/16" diameter holes at points 'Y'.

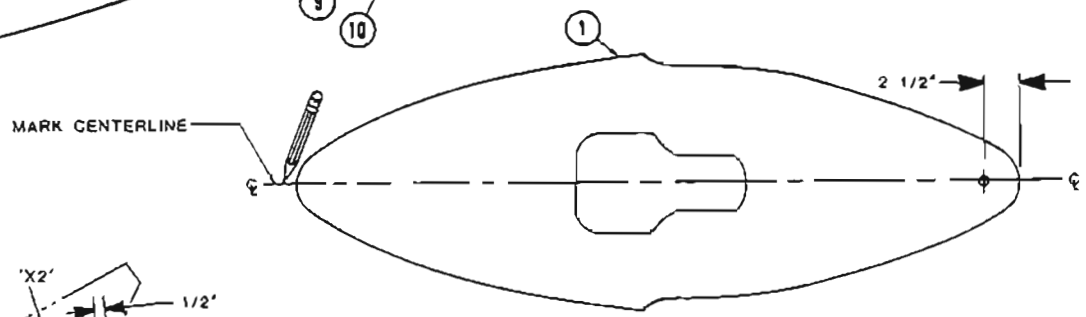
4. Refer to Detail 'D'. Find and mark the centerline of the Windscreen (6). Position the Airspeed Indicator Mounting Bracket (7) on the centerline and parallel with the bottom of the Windscreen (6). Remove the protective paper just sufficient to position the Bracket (7). Drill a 1/4" diameter hole on the centerline. Backdrill two 3/16" holes thru the Bracket (7) and attach using two Rivets (8) with two Washers (9).

5. Match holes 'X' on the Pilot Fairing (1) with holes 'Y' on the Windscreen (6). Lightly attach using the hardware (10,9,11) shown. DO NOT Tighten.

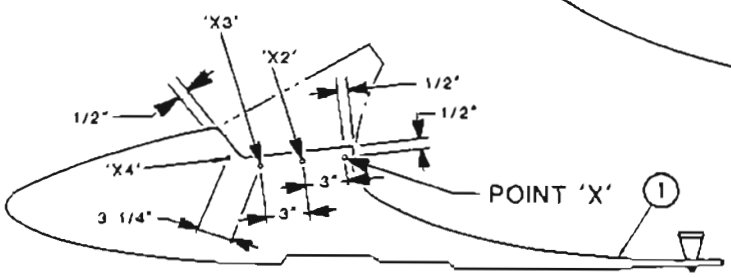
6. Have a friend push the Windscreen (6) upwards against the inside of the Pilot Fairing (1) - using a block of wood as a Drill backstop - at points 'X2','X3' and 'X4'. Carefully and alternately drill 3/16" diameter holes at those points thru the Fairing (1) and the Windscreen (6). Attach using the hardware (10,9,11) shown - 6 places. Tighten all hardware (10,9,11) carefully and alternately until snug.

Pt.	P.N.	Description.
1.	45449	Pilot Fairing.
2.	45454	Aft Fairing Mounting Bracket.
3.	10060	AN4-6a Bolt.
4.	10560	1/4" Flat Washer.
5.	10565	1/4" Fender Washer.
6.	45451	GT Windscreen.
7.	45452	Airspeed Indicator Mounting Bracket.
8.	20210	Rivet, 3/16" x 3/8" Grip.
9.	10550	3/16" Flat Washer.
10.	10478	1/2" Alum.Screw AN525D 10R8.
11.	10516	3/16" Thin Locknut.
12.	10510	1/4" Locknut.

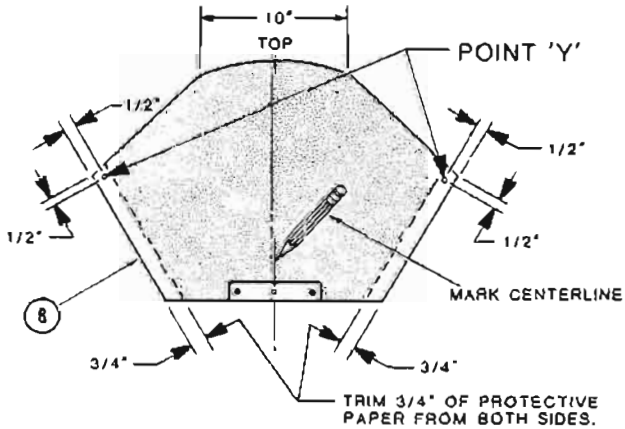




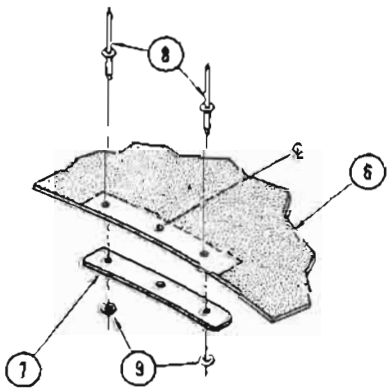
DETAIL 'A'
BOTTOM VIEW



DETAIL 'B'
SIDE VIEW



DETAIL 'C'



DETAIL 'D'

FIGURE 2-25

PILOT FAIRING ASSEMBLY (CONT'D.)

1. Refer to Detail 'A'. Find the vertical and horizontal centerline of the nose of the Pilot Fairing (4). Mark and Drill a 1/2" diameter hole.

2. Refer to Detail 'B'. Insert the Pitot Tube (1) into the Vinyl Tubing (2). Push (1) into (2) until they overlap by 3/4" (19mm). Using Pliobond, glue a Rubber Grommet (3) at the overlap. Allow to dry.

3. Add Pliobond to the outside surface of the shoulder of the Rubber Grommet (3). Push the Pitot Tube (1) thru the hole in the nose of the Pilot Fairing (4). Insert the Rubber Grommet (3) into the hole in the nose of the Pilot Fairing (4). Ensure that it seats fully. Ensure the Pitot Tube (1) goes straight out of the fairing. Allow the glue to dry.

4. Add a Washer (5) and a Fender Washer (6) to the threaded stud on the upper surface of the Airspeed Indicator (7). Attach the Airspeed Indicator (7) to the Airspeed Indicator Mounting Bracket (8) - on the forward end of the Windscreen - using the hardware (5,9) shown. Align the Airspeed Indicator (7). Tighten hardware (5,9) until snug.

5. Push the open end of the Vinyl Tube (2) onto the aluminum tube which exits the back of the Airspeed Indicator (7) so that they overlap by 3/4" (19mm).

Pt.	P.N.	Description.
1.	90108	Pitot Tube.
2.	39981	Vinyl Tubing.
3.	30290	Fuel Tank Rubber Seal.
4.	.....	Pilot Fairing.
5.	10560	1/4" Flat Washer.
6.	10565	1/4" Fender Washer.
7.	90114	GT Airspeed Indicator.
8.	.....	Airspeed Indicator Mounting Bracket.
9.	10629	1/4"x20 thin Nylock Nut.

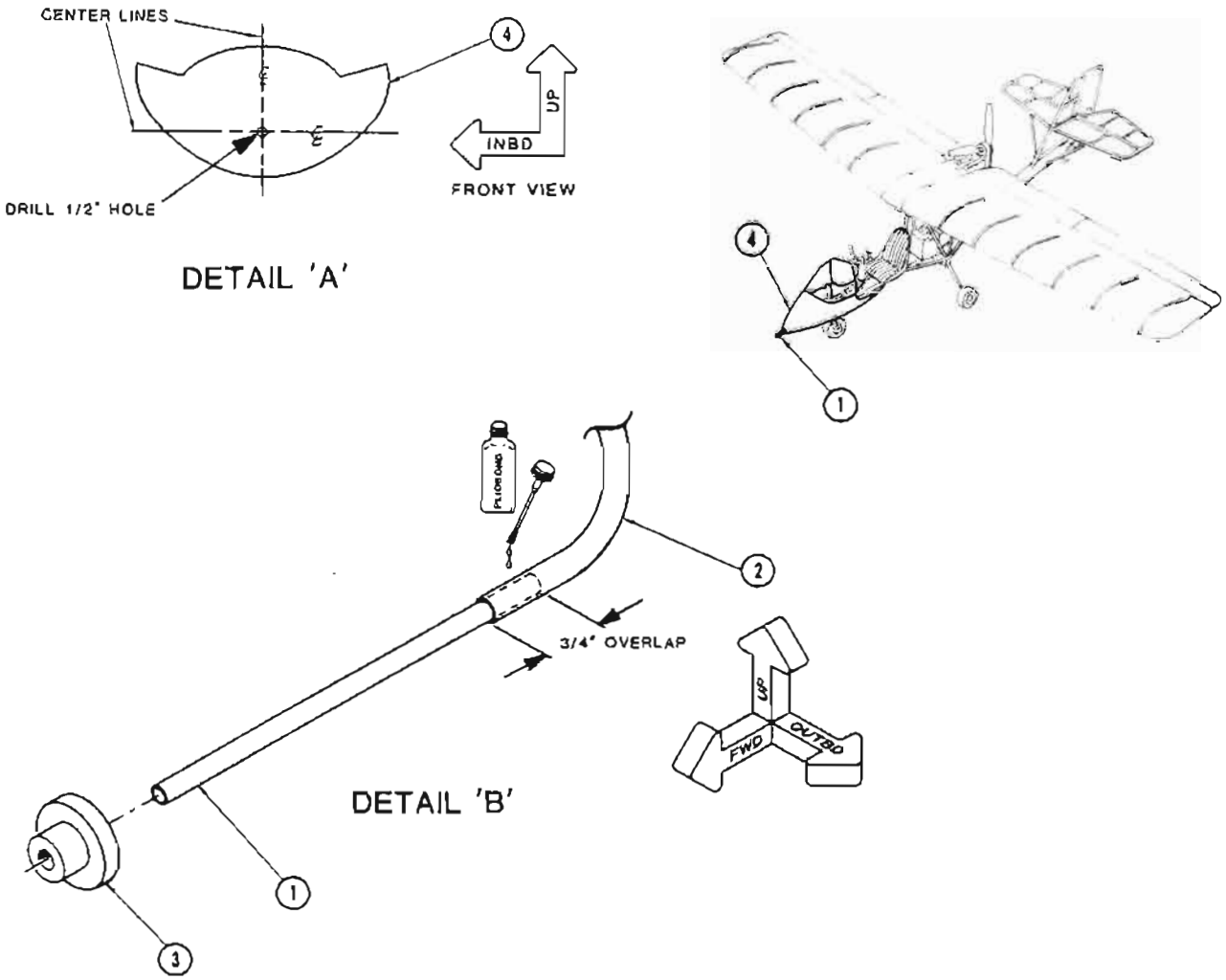


FIGURE 2-26

DOC # 842-2
Rev. A

PILOT FAIRING MOUNTING

The following sequence requires patience and the help of a friend.
1. Lift the Forward Fuselage Tube (1) up and slip bottom hole in the the Pilot Fairing (2) under the front Wheel and Brake sub-assembly. Push the Pilot Fairing (2) until its AFT end is roughly positioned just below the Forward Seat Mount.

2. Refer to Detail 'A'. Swivel the Forward Pilot Fairing Mounts (3) - about a 30 degree angle - until they contact the internal contours of the Pilot Fairing (2) evenly. Adjust as necessary.

3. Adjust the Fairing (2) until it is centralized on the Forward Fuselage Tube (1). Visually check it from both sides and forward. Carefully adjust for position. Use a support box and tape if necessary. NOTE: Ensure that the Fairing clears the Nose Wheel in every Steering position and that it does not interfere with the Brake.

4. When properly positioned, Mark the Fairing (2) thru the upper and lower holes in the Forward Pilot Fairing Mounts (3) with a soft pencil. Mark the underside of the Forward Fuselage Tube (1) thru the four holes in the Aft Pilot Fairing Mount (4). Remove the Pilot Fairing (2) from the Forward Fuselage Tube (1).

5. Refer to Detail 'B'. Remove the hardware (5,6,7,8) holding the Aft Pilot Fairing Mount (4) to the Fairing (2). Tag the hardware for later re-insertion in the same hole. Accurately center-punch the marks on the Forward Fuselage Tube (1). Drill to 3/16" diameter. Attach the Aft Pilot Fairing Mount (4) - oriented as shown - using Rivets (9).

6. Drill the holes for the Forward Pilot Fairing Mounts thru the Pilot Fairing (2) - in the marked positions - to 3/16" diameter.
NOTE: To avoid chipping the exterior, drill half-way thru the Pilot Fairing, until the tip of the drill bit <u>just</u> begins to break thru the other side. Then backdrill in the opposite direction.

7. Replace the Pilot Fairing (2) and attach using the hardware (5,6,7,8) and the hardware (10,11,12) shown. Tighten until snug.

8. Apply Flexible Edge Trim (13) all around the Windscreen (14) and Pilot Fairing (2). Save the remainder of Edge Trim (13) for use in a later sequence.

Pt.	P.N.	Description.
1		Fwd.Fuselage Tube.
2		Pilot Fairing.
3		Fwd.Pilot Fairing Mounts.
4		Aft " " " .
5		AN4-6a Bolt.
6		1/4" Flat Washer.
7		1/4" Fender Washer.
8		1/4" Locknut.
9.	20210	Rivet, Alum. 3/16" x 3/8" Grip (AAP-66).
10.	11075	Washer Head Screw AN525 - 10R10.
11.	10550	3/16" Flat Washer.
12.	10500	3/16" Locknut.
13.	90476	Flexible Edge Trim.
14		Windscreen.

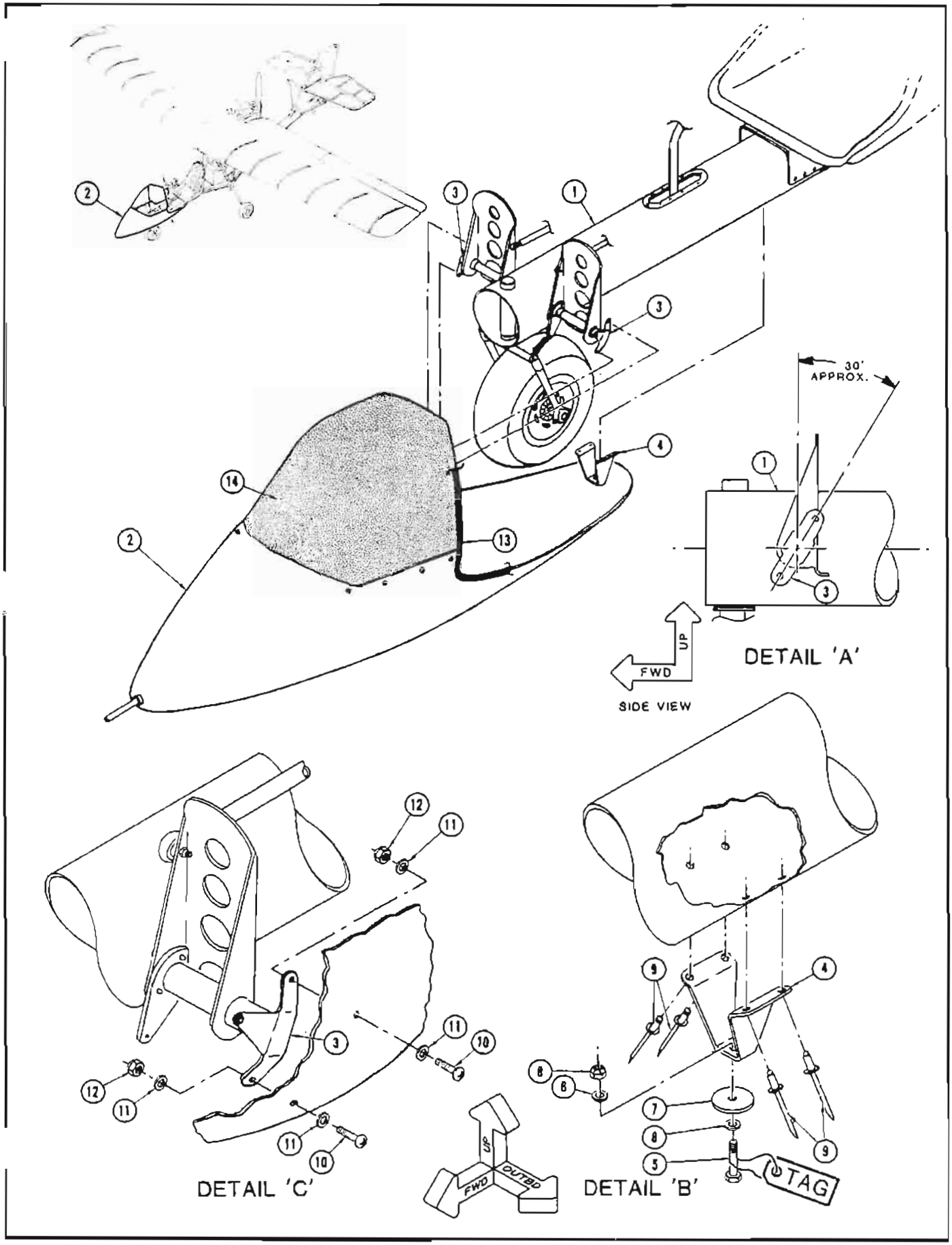
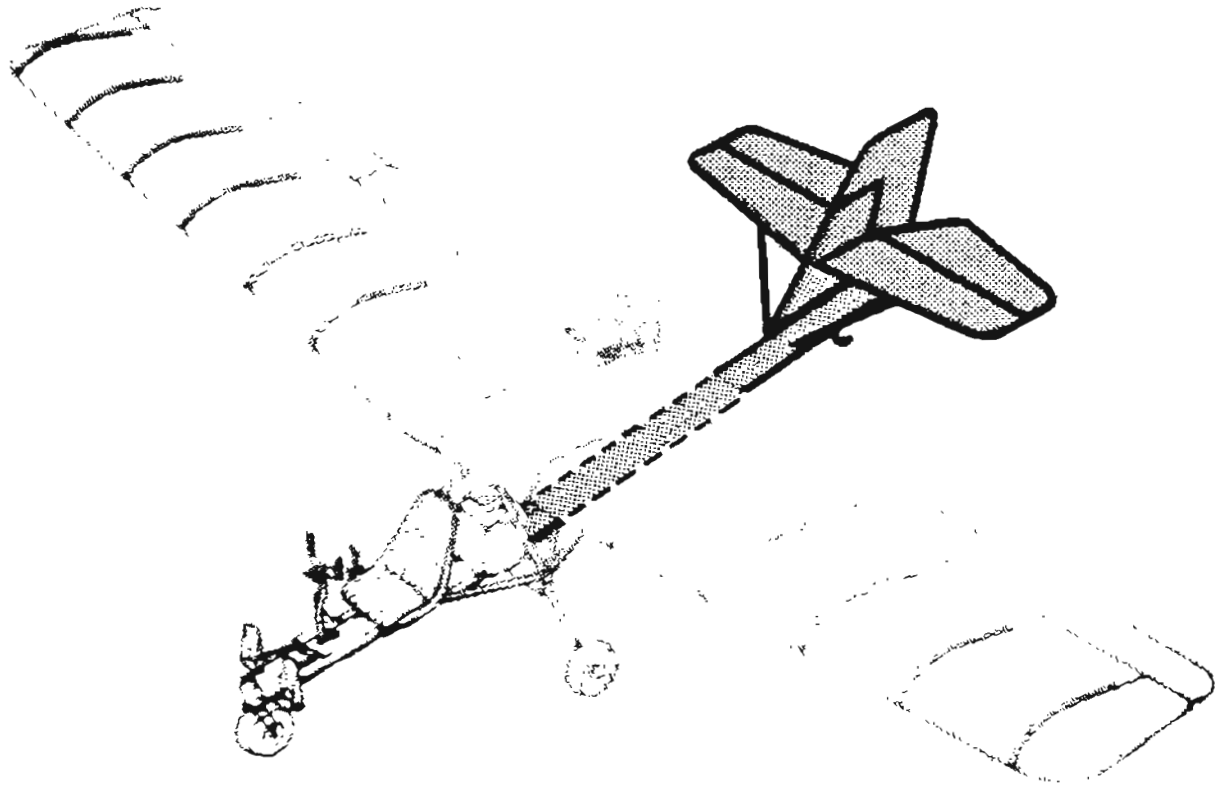

30° APPROX.
DETAIL 'A'
FWD
UP
SIDE VIEW
DETAIL 'C'
DETAIL 'B'
TAG
FWD
OUTBD
UP

FIGURE 2-27

SECTION 3 EMPENNAGE



QUALITY ASSURANCE ACCEPTED

DATE 5-16-84 ECO # 527

Copyright © 1984, Eipper Aircraft

TAIL BOOM ASSEMBLY

IMPORTANT: Refer to Detail 'A'. Fabricate the "Tail Boom Support Jig" before proceeding.
The following sequence is for the LEFT side - Right side is similar, but mirror image.

1. Position the Tail Boom Tube (1) so that the Vertical Stabilizer L.E. Channel (2) is UPWARDS.

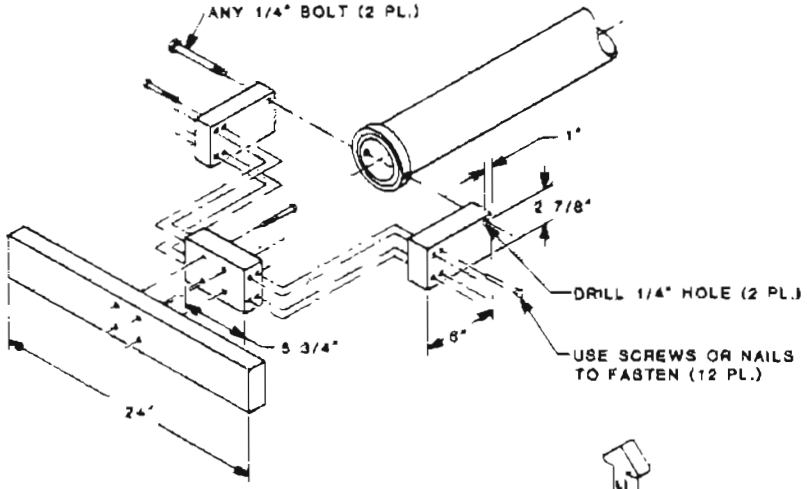
2. Measure approx. 1-1/2" (38mm) and 19-3/8" (49cm) along the Left side of the Tail Boom Tube (1) and find two holes.

3. To the Forward hole attach an Eyebolt (4) and the hardware (5,3,6,7) shown. Tighten the Castle Nut (6) until snug, ensure that the Eyebolt just turns. Bend the Cotter Pin (7) correctly.

4. To the Aft hole, attach another Eyebolt (4) using the hardware (5,3,6,7) shown. Ensure that the eye of the Eyebolt (4) is parallel with the Tail Boom Tube (1). Tighten to proper torque. Bend the Cotter Pin (7) correctly.

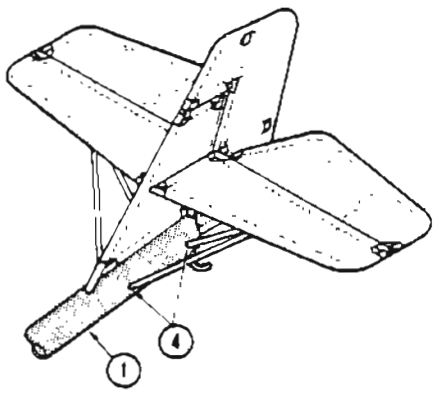
5. Repeat the above sequence on the RIGHT side of the Tail Boom Tube (1), in mirror image.

Pt.	P.N.	Description.
1.	45011	Tail Boom Tube Assy.
2.	.....	Vertical Stabilizer L.E. Channel. (Factory Assembled).
3.	45095	3/16" Fender Washer.
4.	11080	AN42B-4 Eyebolt.
5.	10550	3/16" Flat Washer.
6.	10517	3/16" Castle Nut.
7.	10635	AN380-2-2 Cotter Pin.



DETAIL 'A'





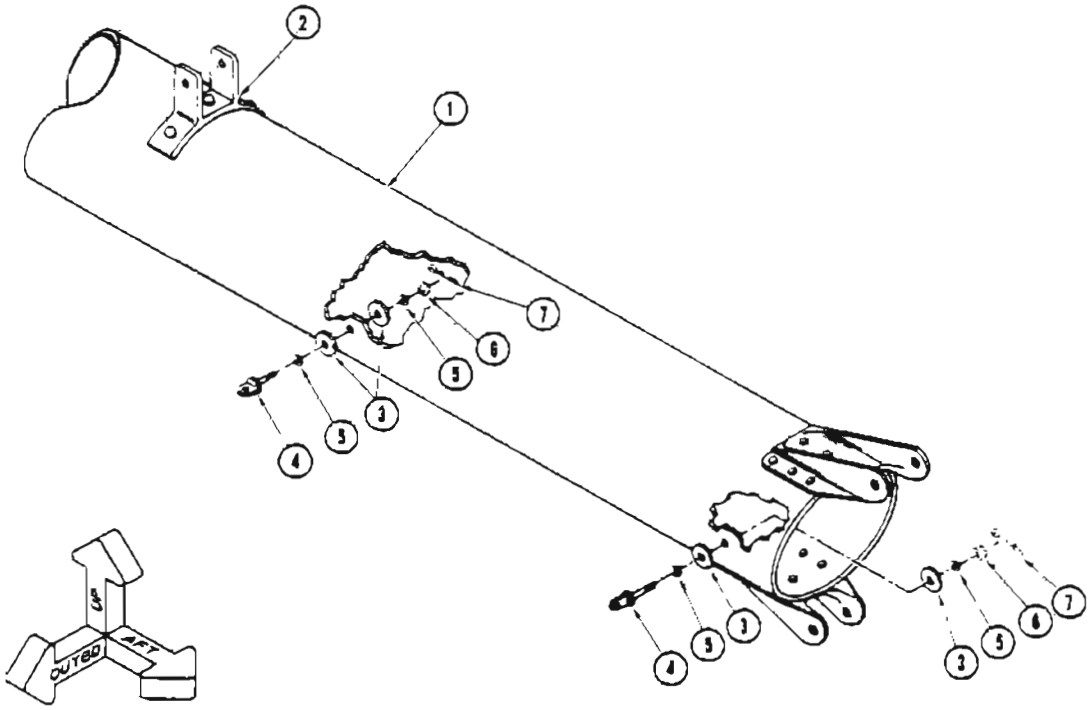


FIGURE 3-1

TAIL BOOM ASSEMBLY (CONT'D.)

1. The Aft Elevator Push/Pull Tube (1) has two holes in its forward end. Attach two Diagonal Attach Plates (2) to it using hardware (17,4,5) shown. Tighten to proper torque. Push the Aft Elevator Push/Pull Tube (1) thru the - internal - Bulkhead (6) of the Tail Boom Tube (7).

2. Attach Elevator Bellcrank (8) - oriented as shown - to the (Factory Assembled) Elevator Horn Bracket (9) and Bearings (10), using hardware (18,4,12,13) shown. Tighten until snug, but not so tight as to restrict free movement. Bend the Cotter Pins (13) correctly.

3. Insert the Elevator Push/Pull Fitting (14) into the Elevator Push/Pull Tube (1) and attach using the hardware (3,4,5) oriented as shown. Tighten until snug.

4. Thread a Jam Nut (15) onto a Forkbolt (16)*. Thread the Forkbolt (16) into the Elevator Push/Pull Fitting (14). DO NOT Tighten. Lightly attach the Forkbolt (16) to the lower arm of the Elevator Bellcrank (8) using hardware (11,12,13) shown. DO NOT Tighten. Position Cotter Pin (13) and bend only sufficient to stop it falling out.

NOTE: The hardware left loose will be tightened in a later sequence.

Pt.	P.N.	Description.
1.....		AFT Elevator Push/Pull Tube
2.	45692	Diagonal Attach Plates.
3.	10030	AN3-13a Bolt.
4.	10550	3/16" Flat Washer.
5.	10500	3/16" Locknut.
6.....		Bulkhead (Factory Installed).
7.	45010	Tail Boom Tube.
8.	45074	Elevator Bellcrank.
9.....		Bracket,Elevator Horn (Factory Installed).
10.....		Bearings (Factory Installed).
11.	10009	AN3-5 Bolt.
12.	10517	3/16" Castle Nut.
13.	10635	AN380-2-2 Cotter Pin.
14.	45464	Fitting Elevator Push/Pull.
15.	10631	1/4" Jam Nut.
16.	10388	1/4"x 1" Forkbolt.*
17.	10040	AN3-15a Bolt.
18.	10007	AN3-4 Bolt.

* Full thread.

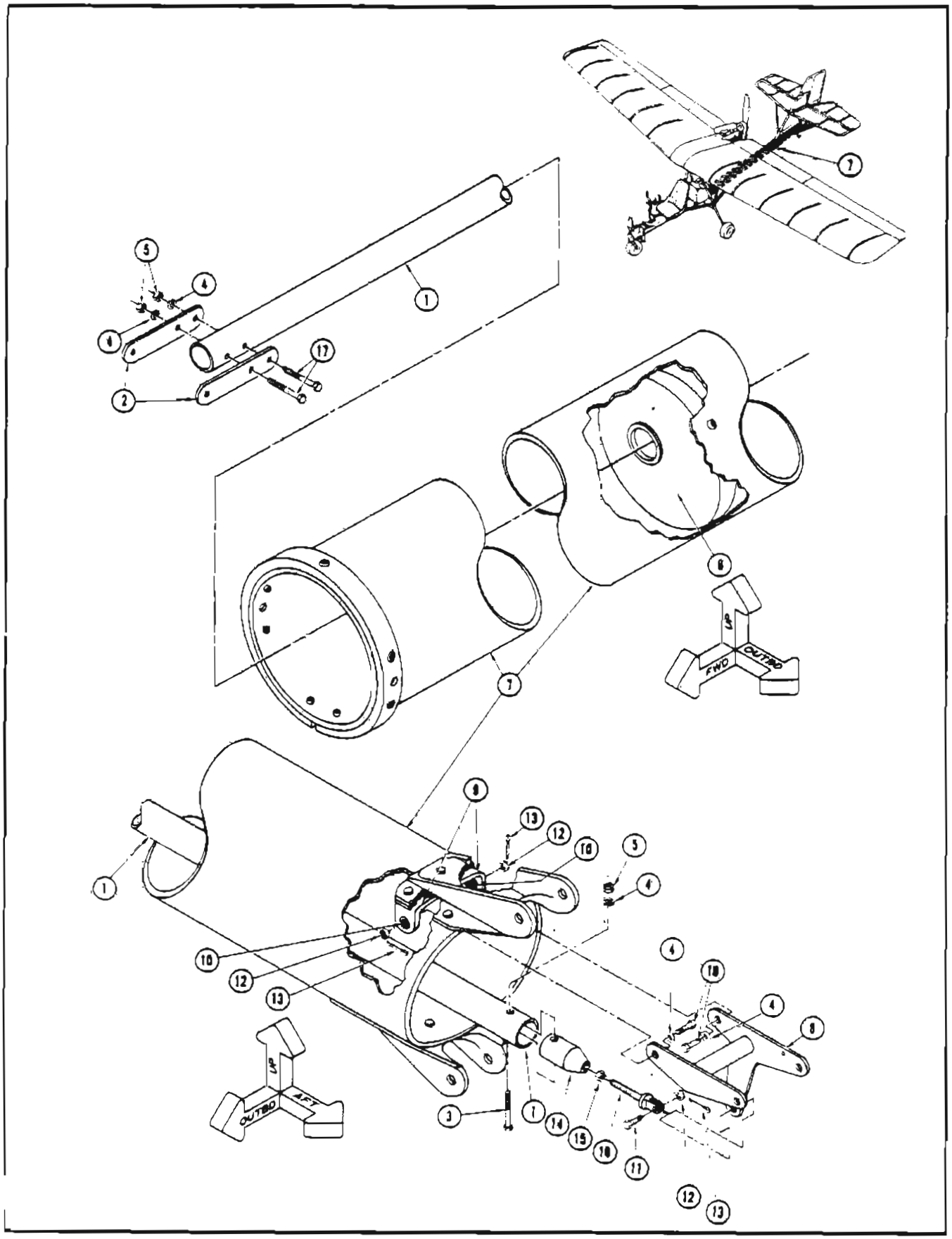


FIGURE 3-2

VERTICAL STABILIZER

NOTE: The tolerances on this component are necessarily tight so you need patience and the help of a friend. Use leverage carefully.

1. Measure 8-1/4" (21cm) up from base of Vertical Stabilizer Spar (1). Find the predrilled hole and attach the (Base Tube) Channel (2) using hardware (3,4,5) oriented as shown. Tighten until snug. Don't crush the tube.

2. Refer to Detail 'A'. Measure 2-1/2" (6.35cm) up the Spar (1). Find the pre-drilled hole. Push the Tail Skid (6) - oriented as shown - into the Spar (1) and attach using (lower Rudder Hinge) Eyebolt (7) and hardware (4,5) shown. Ensure that the eye of the Eyebolt (7) is parallel to the Spar. Tighten until snug. Don't crush the tube.

3. Push Vertical Stabilizer Spar (1) into its pocket in the Vertical Stabilizer Cover (8) so that the Channel (2) faces forward.

4. Note that the Base Tube (9) has a "Fish Mouth" cut in its upper forward end. Insert the Base Tube (9) aft end into its pocket and attach to the Channel (2) using hardware (3,4,5) shown. Tighten until snug. Don't crush the tube.

Pt.	P.N.	Description.
1.	45080	Vertical Stabilizer Spar.
2.	20080	1.75 Channel.
3.	10140	AN4-16a Bolt.
4.	10560	1/4" Flat Washer.
5.	10510	1/4" Locknut.
6.	45060	Tail Skid.
7.	10370	AN43B-15a Eyebolt.
8.	45046	Vertical Stabilizer Cover.
9.	45081	Vertical Stabilizer Base Tube.

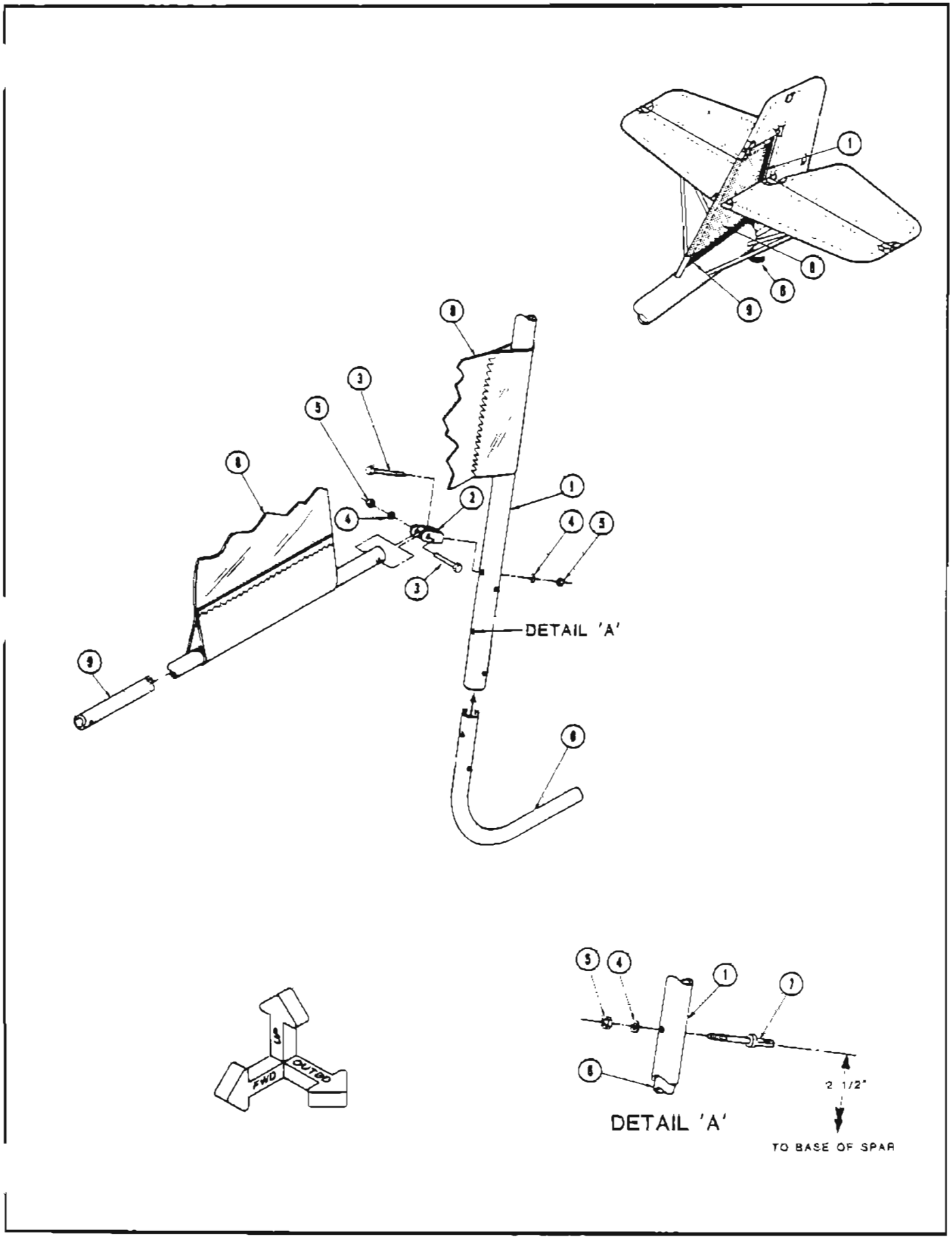


FIGURE 3-3

VERTICAL STABILIZER (CONT'D.)

1. Measure 2-1/2" (6.35cm) from the top of the Vertical Stabilizer Spar (1). Find, and using the Hot Knife, reveal the pre-drilled hole. Attach the (upper Rudder Hinge) Eyebolt (2) through the Spar using hardware (3,4) shown. Ensure that the eye of the Eyebolt is parallel to the Spar. Tighten until snug. Don't crush the tube.

2. Insert the Top Tube (5) "Fish Mouth" down and Aft into its pocket in the Vertical Stabilizer Cover (6). Attach two #1 Gusset Plates (7) to the aft end of the Top Tube (5) using the hardware (8,9,10) oriented as shown. DO NOT Tighten. Ensure the Washers (9) are correctly positioned. Attach both Gusset Plates (7) to the Vertical Stabilizer Spar (1) using hardware (8,9,10) shown. DO NOT Tighten.

3. Note that the Vertical Stabilizer L.E. Tube (11) has two holes in its upper end and two "Pop" rivets along its length. Insert it into its pocket in the Cover (6) so that the "Pop" rivets face aft. Attach two (long) #2 Gusset Plates (12) to the upper end of the L.E. Tube (11) using hardware (13,9,10) shown. DO NOT Tighten.

4. Get your friend to spread apart the tops of the Vertical Stabilizer L.E.(11) and Vertical Stabilizer Spar (1) tubes. Simultaneously, carefully Lever the Top Tube (5) until the two remaining holes in the #2 Gusset Plates (12) align with the holes in the Top Tube (5). Attach using hardware (13,9,10) shown. DO NOT Tighten.

5. At the base of the Vertical Stabilizer L.E.Tube (11) attach two #1 Gusset Plates (7) to the L.E. Tube (11) and the Base Tube (16) using the hardware (13,9,10) shown. Tighten until snug. Don't crush the tube.

6. Attach Tube Cap (14) to top of Vertical Stabilizer Spar (1) and Tube Cap (15) to the top of the Vertical Stabilizer L.E.Tube (11) using PliBond Glue.

Pt.	P.N.	Description
1.	45080	Vertical Stabilizer Spar.
2.	10370	AN4Ø3-15a Eyebolt.
3.	10560	1/4" Flat Washer.
4.	10510	1/4" Locknut.
5.	45086	Vertical Stabilizer Top Tube.
6.	45046	Vertical Stabilizer Cover.
7.	45083	#1 Gusset Plate
8.	10045	AN3-16a Bolt.
9.	10550	3/16" Flat Washer.
10.	10500	3/16" Locknut.
11.	45025	Vertical Stabilizer L.E. Tube.
12.	45084	#2 Gusset Plate.
13.	10035	AN3-14a Bolt.
14.	20400	7/8" Tube Cap.
15.	20415	1-1/4" Tube Cap.
16.	45081	Vertical Stabilizer Base Tube.

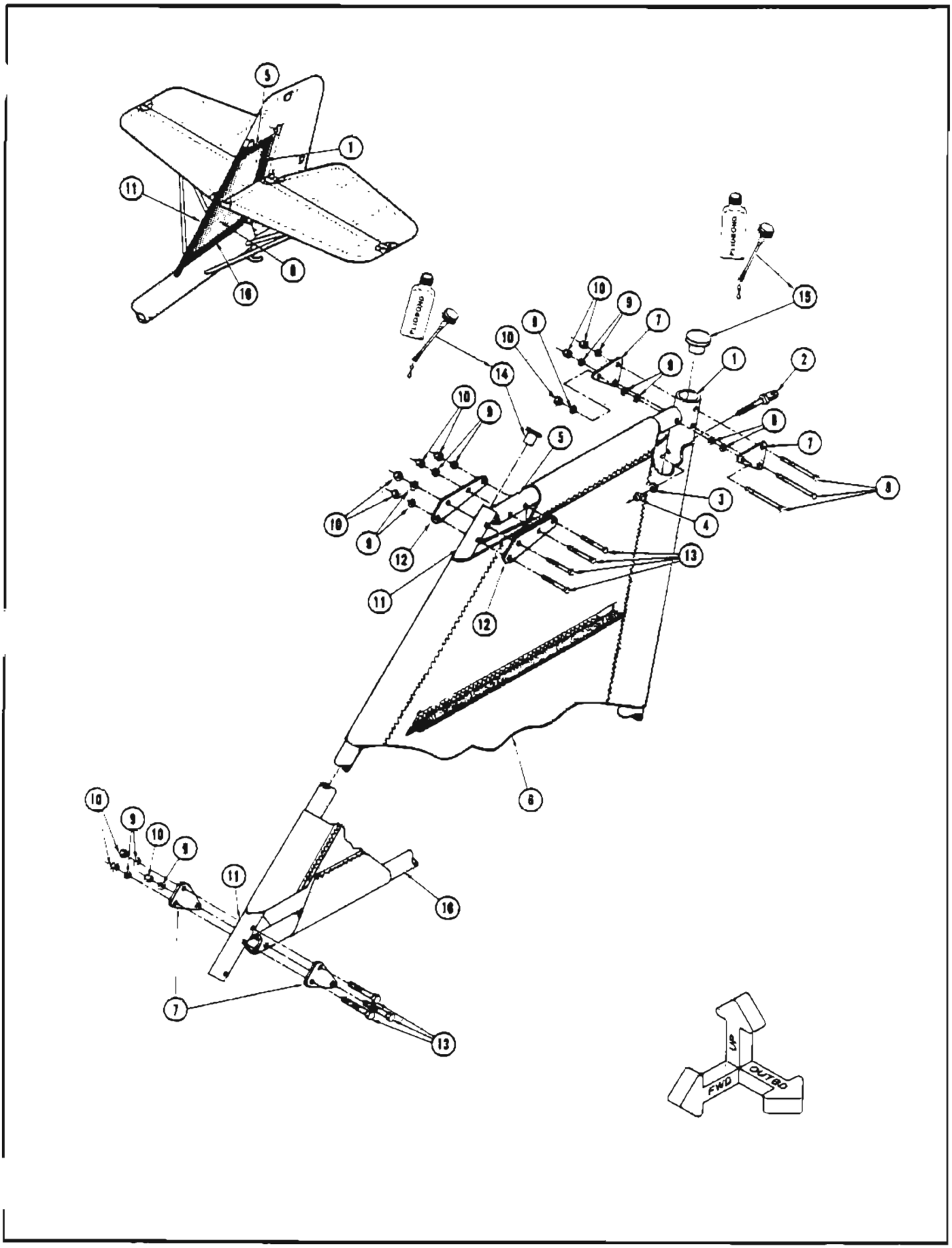


FIGURE 3-4

DOC # 842-3

VERTICAL STABILIZER (CONT'D.)

NOTE: Bolts 3A, 3B and 3C in this text are all the same size - differentiated for clarity of sequence.

1. Line up the 1/4" dia. hole in the Vertical Stabilizer Spar (1) with the two holes in the - factory installed - Lower Rudder Post Attachment Channel (2A). Attach using the hardware (3A,4,5) shown.

2. Attach the Vertical Stabilizer Assembly to the - factory installed - Vertical Stabilizer L.E. Channel (6) on the Tail Boom (7) using the hardware shown (3B,8,4,5).

3. Refer to Detail 'A'. Have your friend push Forward, and along the aircraft longitudinal centerline ,against the top of the Vertical Stabilizer Spar (1). Simultaneously, align the hole in the lower section of the Vertical Stabilizer Spar (1) with the two holes in the - factory installed - Upper Rudder Post Attachment Channel (2B). Attach using the hardware (3C,4,5) shown.

4. Tighten the hardware (3A,4,5) until snug. Tighten hardware (3B,8,4,5) until snug. Tighten the hardware (3C,4,5) until snug.

Pt.	P.N.	Description
1.	45080	Vertical Stabilizer Spar.
2A.....		Lower Rudder Post Attachment Channel (Factory Installed).
2B.....		Upper Rudder Post Attachment Channel (Factory Installed).
3.	10170	AN4-20A Bolt.
4.	10560	1/4" Flat Washer.
5.	10510	1/4" Locknut.

Pt.	P.N.	Description.
6.....		Vertical Stabilizer L.E. Channel (Factory Installed).
7.	45011	Tail Boom Assembly.
8.	20340	5/8" x 1/16" Nylon Washer.

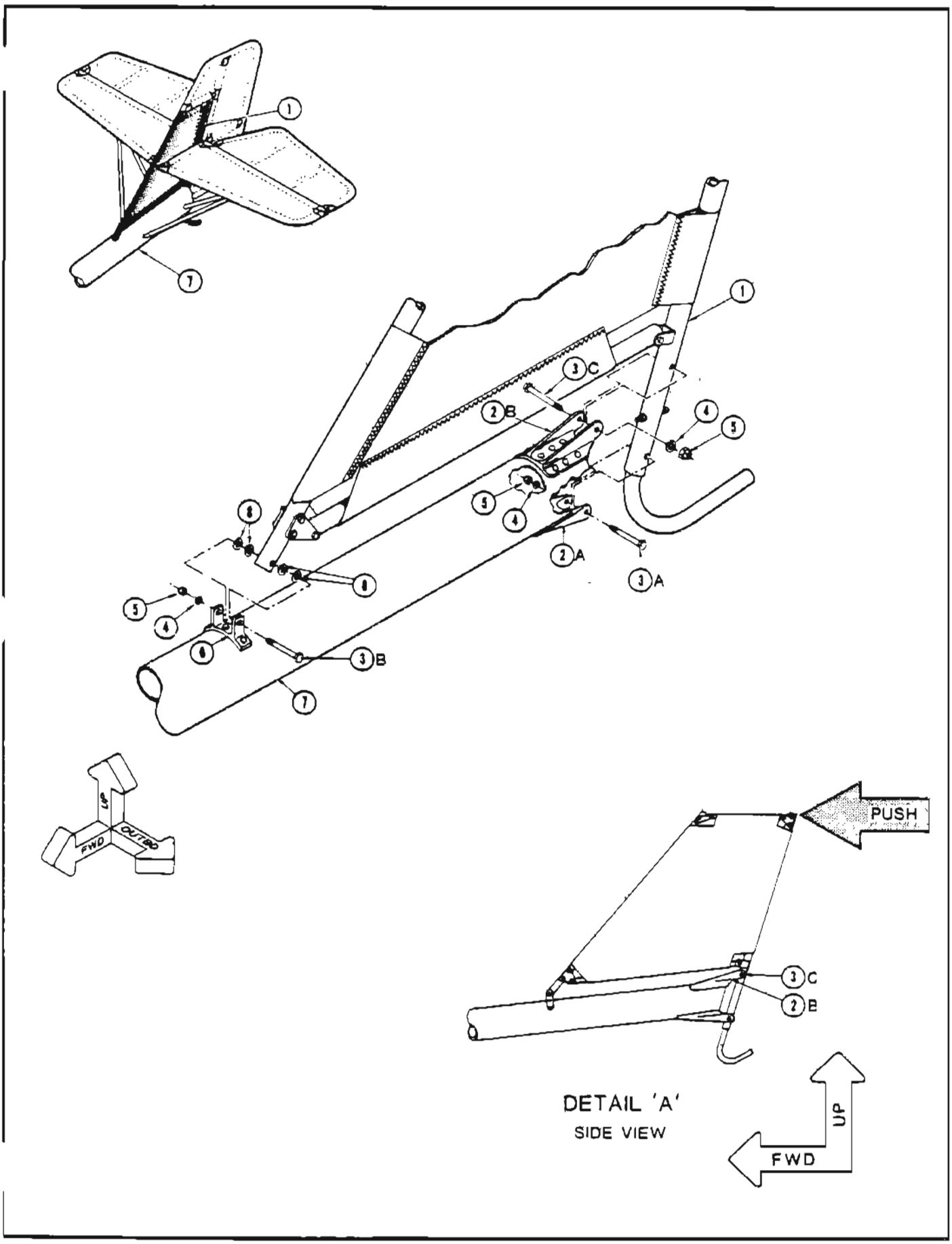


FIGURE 3-5

DOC # 842-3

VERTICAL STABILIZER (CONT'D.)

1. Measure 21-1/8" and 24" (53.6cm and 60.9cm) up the Vertical Stabilizer L.E. Tube (1) and feel with your fingers for the two lateral holes beneath the Vertical Stabilizer Cover (2). Reveal the holes with the Hot Knife.

2. Attach two Incidence Adjustment Plates (3) - oriented as shown - to the L.E. Tube (1) using hardware(4,5,6) shown. Tighten until snug. Don't crush the tube.

3. Check the drawing for orientation and add one (incidence) Channel (7) to a Bolt (8). Push the Bolt through the center hole in the Incidence Adjustment Plate (3). Add the Incidence Plate Spacer (9) between the Plates (3). Push the Bolt thru the center hole in the other Plate (3). Add the second (incidence) Channel (7) and attach using the hardware (10,11) shown. Tighten to proper torque.

4. Measure 12" (30.5cm) down from the top of the Vertical Stabilizer Spar (12) and feel with your fingers for the single lateral hole beneath the Cover (2). Reveal the holes with the Hot Knife.

5. Mount a Channel (7) onto a Bolt (14). Add a Saddle (13) onto the Bolt. Push the Bolt thru the hole in the Vertical Stabilizer Spar (12). Add a second Saddle (13), a Channel (7), and the hardware (10,11) shown. Tighten until snug. Don't crush the Tube.

6. Complete the Vertical Stabilizer Assembly by tightening all Bolts until snug. Don't crush the tubes.

Pt.	P.N.	Description.
1.	45025	Vertical Stabilizer L.E. Tube.
2.	45046	Vertical Stabilizer Cover.
3.	45082	Incidence Adjustment Plate.
4.	10035	AN3-14a Bolt.
5.	10550	3/16" Flat Washer.
6.	10500	3/16" Locknut.
7.	20060	S 1.125 Channel.
8.	10150	AN4-17a Bolt.
9.	45088	Incidence Plate Spacer
10.	10560	1/4" Flat Washer.
11.	10510	1/4" Locknut.
12.	45025	Vertical Stabilizer Spar.
13.	20270	1" x 1/8" Saddle.
14.	10190	AN4-22a Bolt.

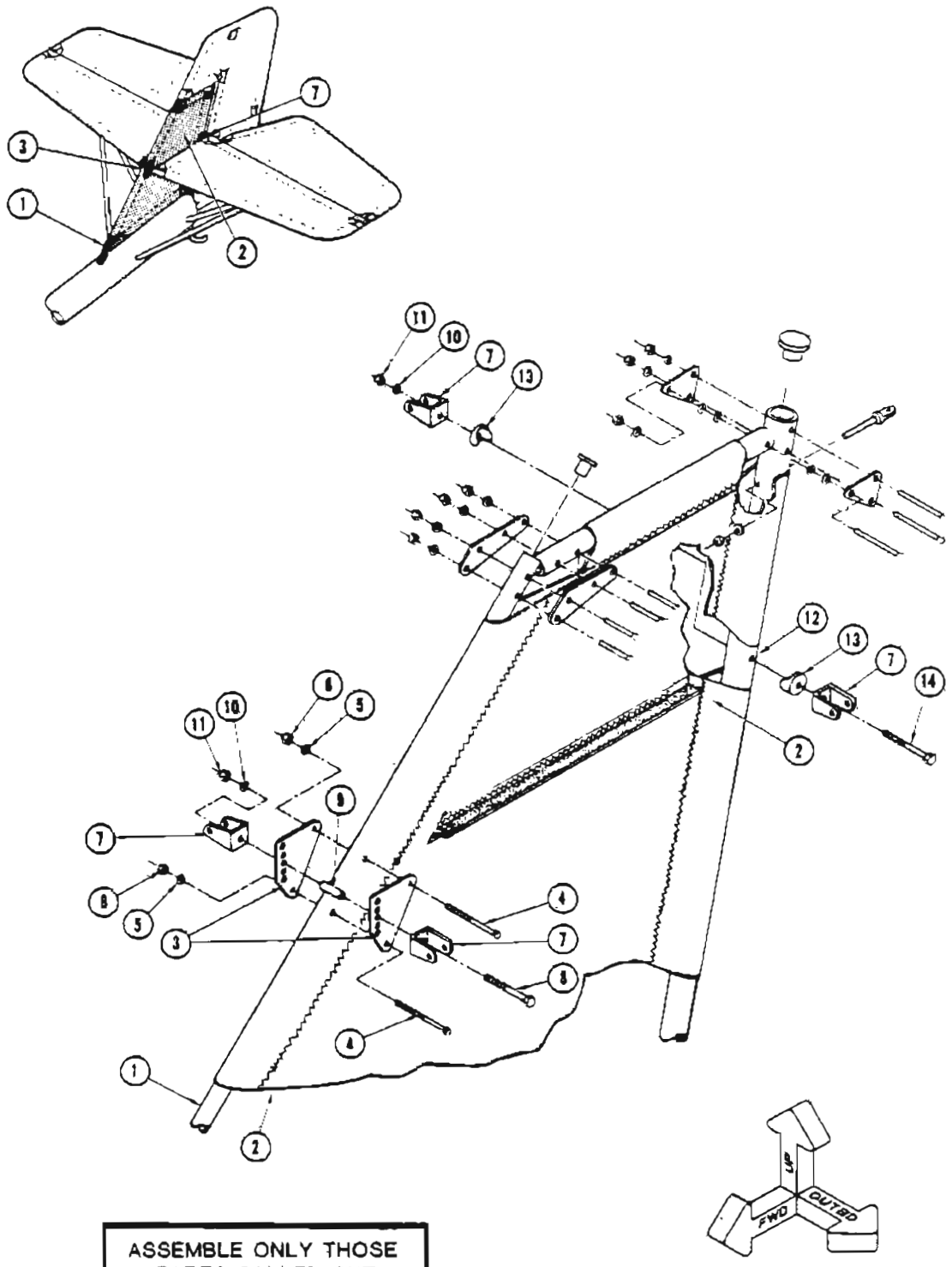


FIGURE 3-6

STABILIZER/ELEVATOR ASSEMBLY

NOTE: This sequence refers to the LEFT Stabilizer/Elevator assembly. The Right side is similar, but mirror image. Due to tight tolerances the sequence will need patience and the help of a friend.

1. Refer to Detail 'A'. The Elevator Hinge Fittings (1) have a shoulder with a central 3/16" hole and a cross-drilled 3/16" hole in the barrel. Attach (Elevator Hinge) Eyebolt (2) with a Washer (3) to the central holes. Ensure that the eye of the Eyebolt is parallel with the cross-drilled holes, secure using the hardware (3,4) inside the barrel. Tighten to proper Torque.

2. Insert an Elevator Hinge Fitting assembly into the outer end of the Elevator Frame (5) attach using hardware (6,3,4) shown. Tighten to proper torque. Insert a second Elevator Hinge Fitting assembly into the inboard end of the Elevator Frame (5). Add an Elevator Stop (7) - correctly oriented - and attach using hardware (8,3,4) shown. Tighten to proper torque.

3. Refer to Detail 'B'. Attach a 1" aluminum Tube Connector (9) to the outboard tip of the Stabilizer Leading Edge (10) using hardware (8,3,4) shown. Tighten to proper torque.

4. Refer to Detail 'C'. Attach a 7/8" aluminum Tube Connector (11) to each end of the Inboard Stabilizer Compression Strut (12) using the hardware (6,3,4) shown. Tighten to proper torque.

5. Refer to Detail 'D' and 'E'. File 1/8" (3.17mm) off one shoulder of the 7/8" aluminum Tube Connector (11) and insert it into the aft end of the Stabilizer Outboard Compression Strut (13) - oriented as shown - so that the filed shoulder is located on the upper side. Attach using the hardware (6,3,4) shown. Tighten to proper torque.

6. Insert another (unfiled) 7/8" aluminum Tube Connector (11) in the forward tip of the Outboard Strut (13) and attach in the same way. Check the orientation of the Eyebolt (14) that fits in the middle of the Outboard Strut (13) - (it must face inboard and the eye of the Eyebolt should be parallel with the Strut). Attach using the hardware (3,4) shown. Tighten until snug. Don't crush the tube.

Pt.	P.N.	Description.
1.	45075	Elevator Hinge Fitting.
2.	11080	AN42B-4 Eyebolt.
3.	10550	3/16" Flat Washer.
4.	10500	3/16" Locknut.
5.	45035	Elevator Frame.
6.	10070	AN3-12a Bolt.
7.	45069	Elevator Stop.
8.	10030	AN3-13a Bolt.
9.	20446	1" Tube Connector.
10.	45015	Stabilizer L.E.
11.	20445	7/8" Tube Connector.
12.	45023	Inboard Stabilizer Compression Strut.
13.	45022	Outboard Stabilizer Compression Strut.
14.	10352	AN42B-12a Eyebolt.

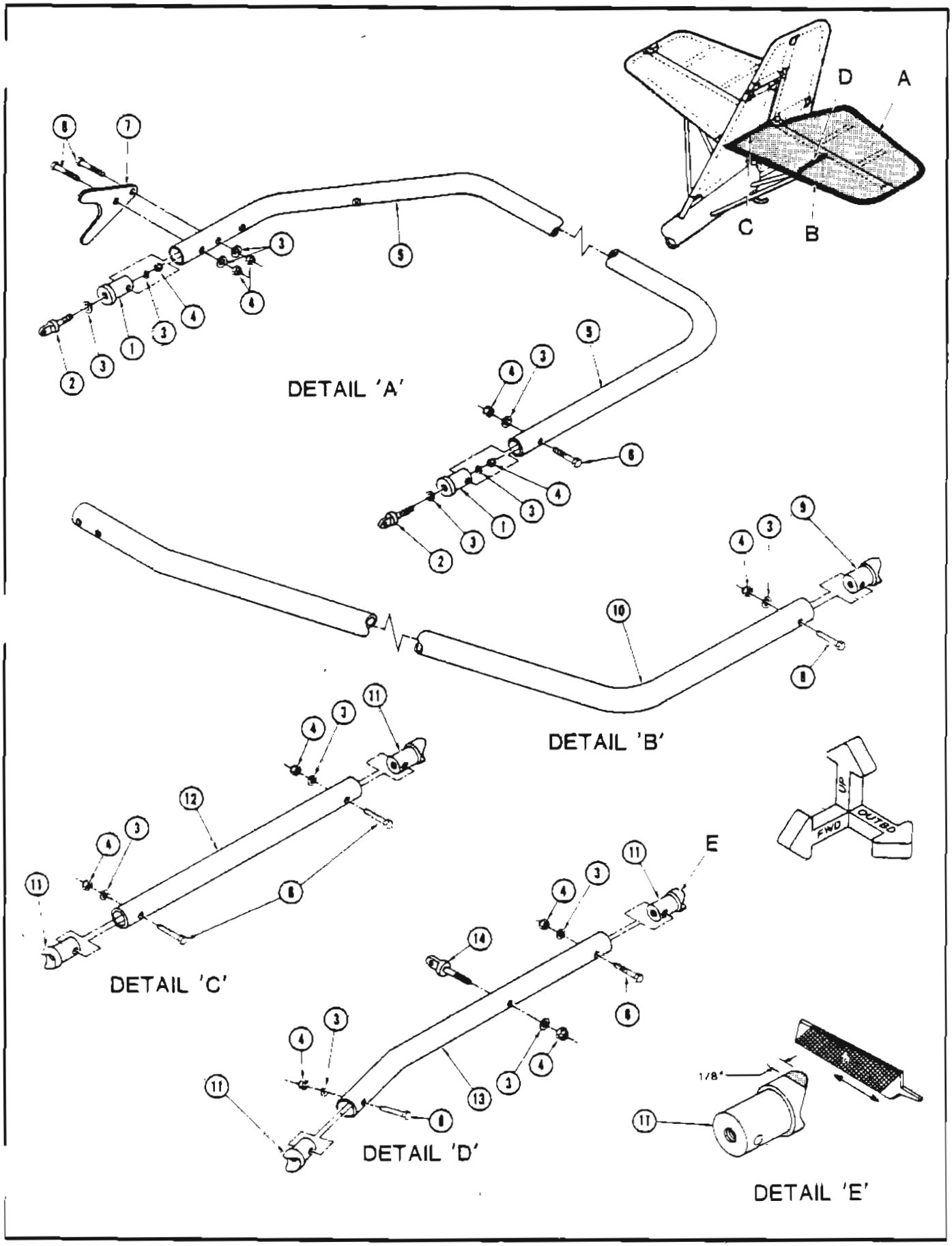

D
A
C
B
DETAIL 'A'
DETAIL 'B'
DETAIL 'C'
DETAIL 'D'
DETAIL 'E'
E
UP
FWD
OUTBD
1/8"

FIGURE 3-7

STABILIZER/ELEVATOR ASSEMBLY (CONT'D.)

1. Place the Stabilizer/Elevator Cover (1) BOTTOM SIDE UP on a clean, flat surface.

2. Refer to Detail 'A1'. Slide the outboard tip of the Elevator Frame (2) into the inboard end of the sleeve pocket of the Cover (1) - you'll have to 'bunch' the Cover - until the Elevator Hinge Fittings and Elevator Stop (previously assembled) show out of each end of the pocket.

3. Refer to Detail 'A2'. Insert the Stabilizer Leading Edge (3) thru the outboard end of the L.E. sleeve pocket of the Cover (1) until the inboard tip emerges from the pocket.

4. Refer to Detail 'A3'. Push the Stabilizer Spar (4) - oriented as shown - into its pocket in the Cover (1). Attach the (Inboard) Forkbolt (5) using hardware (6,13) shown. Tighten until snug. Don't crush the tube.

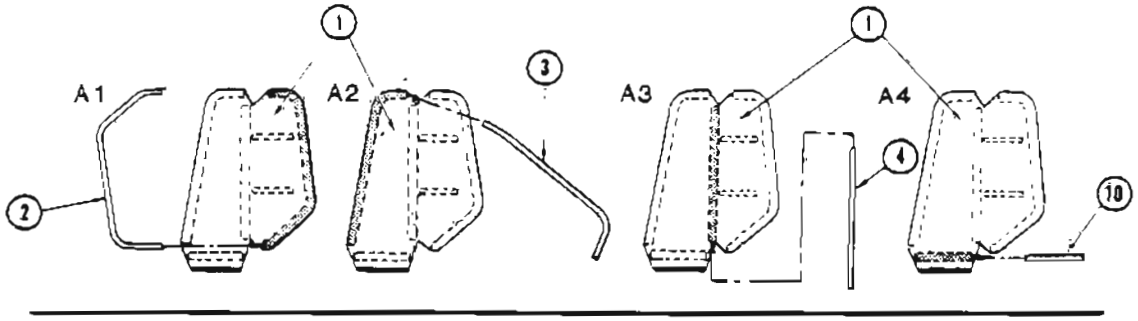
5. Refer to Detail 'A4'. Insert the Inboard Stabilizer Compression Strut (10) into its Cover (1) pocket. Lightly attach using the hardware (11,6) shown. DO NOT Tighten.

6. Add two Washers (6) and a drop of Loctite to the (Outboard) Forkbolt (5). Carefully insert the Forkbolt (5) thru the Stabilizer Spar (4) and into Stabilizer L.E. (3). Tighten until snug. Don't crush the tube. Align the Forkbolts (5) with the Eyebolts in the inboard and outboard tips of the Elevator Frame (2). Attach using hardware (7,8,9) shown. Tighten Castle Nuts (8) until snug, but not so tight as to restrict free movement. Bend the Cotter Pins (9) correctly.

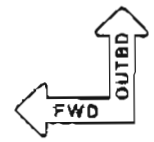
7. Remove the Bolts (11) from the Inboard Compression Strut (10), add a drop of Loctite and re-attach. Tighten until the Tube Connector is snug. Don't crush the tube.

8. Attach Tube Cap (12) to the outboard end of the Stabilizer Spar (4) using Pliobond Glue.

Pt.	P.N.	Description.
1.	45043	Stabilizer/Elevator Cover (LEFT).
2.	45035	Elevator Frame.
3.	45015	Stabilizer L.E.
4.	45064	Horizontal Stabilizer Spar.
5.	10386	1/4" x 1-1/2" Forkbolt.
6.	10560	1/4"" Flat Washer.
7.	10009	AN3-5 Bolt.
8.	10517	3/16" Castle Nut.
9.	10635	AN380-2-2 Cotter Pin.
10.	45023	Inboard Compression Strut.
11.	10400	1/4" x 1-3/4" Grade 5 Bolt.
12.	20400	7/8" Tube Cap.
13.	10511	1/4" x 20 Nylock Nut.



DETAIL 'A'



BOTTOM VIEW

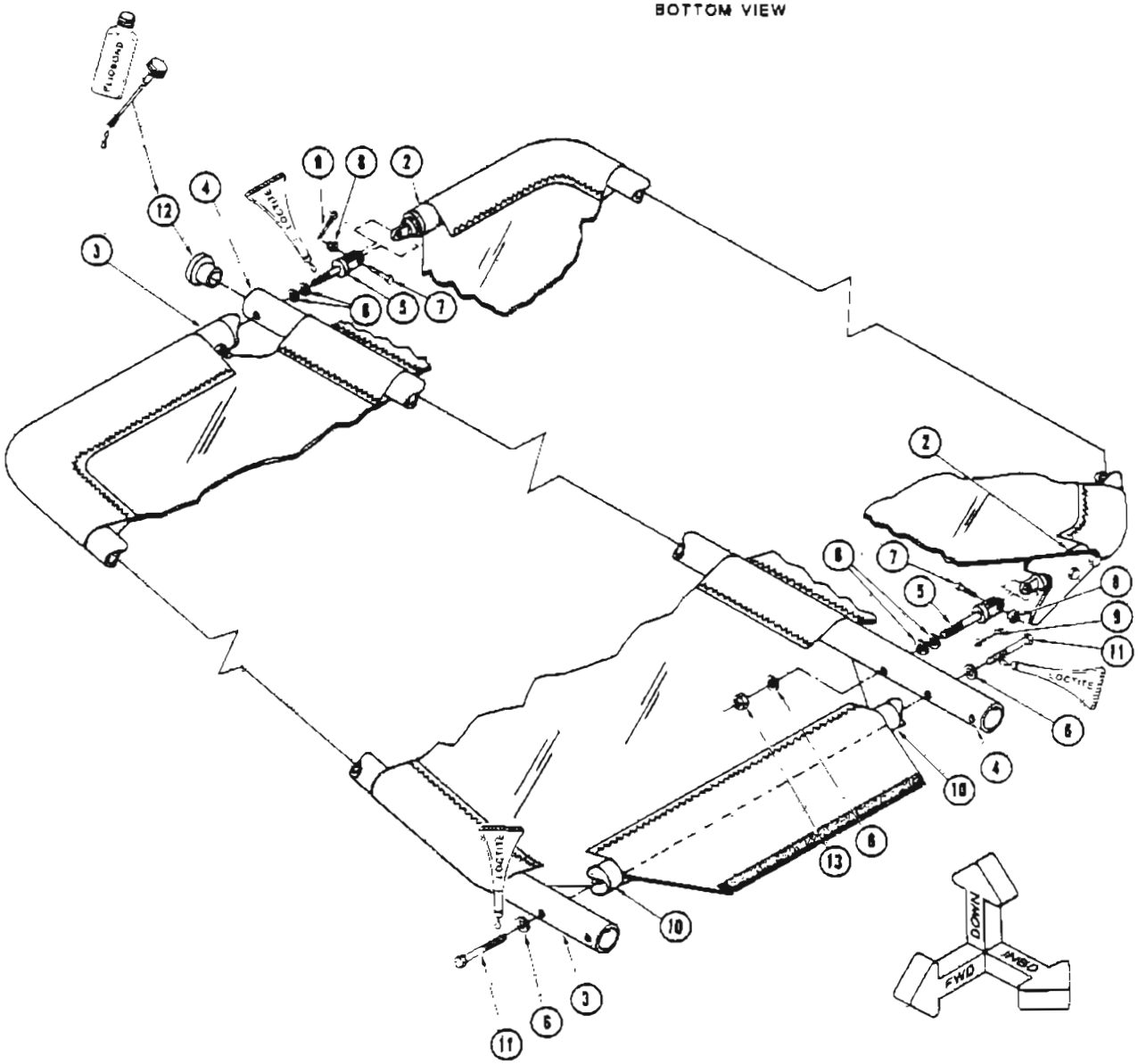


FIGURE 3-8 DOC # 842-3

STABILIZER/ELEVATOR ASSEMBLY (CONT'D.)

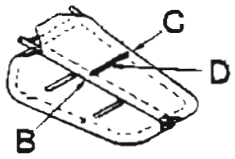
1. Refer to Detail 'A'. Lay the assembly bottom side up on the worktable, with the Elevator section hanging over the edge. Measure 24-1/2" (62.2cm) from the inboard end of the Stabilizer Spar (1). Find the bolt hole - hidden by the Cover (6) hinge - and make a tiny cut on the bolt hole - just to mark its position. Refer to Detail B. Position Template SE1 centered on the bolt hole. Mark, remove Template and cut shape with the Hot Knife.

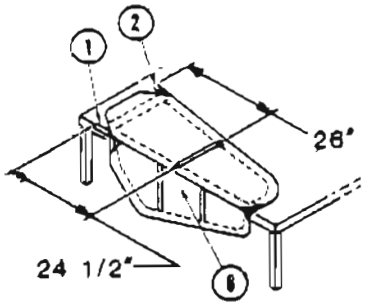
2. Refer to Detail 'A'. Measure 26" (66cm) from the inboard end of the Stabilizer L.E. (2). Locate the hole. Reveal with the Hot Knife. Refer to Detail 'C'. Flip over Template SE1, position, mark, remove and cut the shape in the pocket with the Hot Knife.

3. Refer to Detail 'D'. Position the forward end of the Outboard Compression Strut (3) in the forward Template hole. Lightly attach to the Stabilizer L.E. using the hardware (4,5) shown. Add a drop of Loctite to the Bolt (4) thread. DO NOT Tighten. Position the (filed) Tube Connector in the aft Template hole. Get your friend to spread apart the Stabilizer Spar (1) and the Stabilizer L.E. (2). Using a large Screwdriver, Lever the Strut (3) so that it locates in the Stabilizer Spar(1).

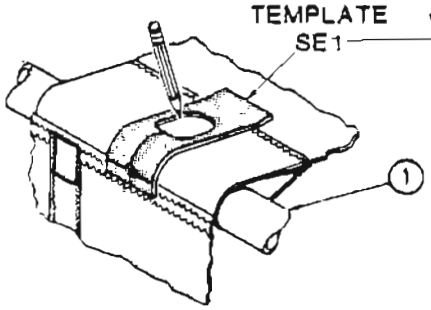
4. Enlarge the tiny cut you made in instruction One only sufficiently that the Bolt (4) - with a drop of Loctite - and Washer (5) can be inserted thru the Spar (1) and into the Tube Connector. Tighten until snug. Don't crush the tube. Now enlarge the hole at point 'X', just sufficient that the Bolt head will clear the Cover in any Elevator position. Now tighten the hardware (4,5) in the forward end of the Strut (3). Don't crush the tube.

Pt.	P.N.	Description.
1.	45064	Horizontal Stabilizer Spar.
2.	45015	Horizontal Stabilizer L.E.
3.	45022	Outboard Horizontal Stabilizer Compression Strut.
4.	10400	1/4" x 1-3/4" Grade 5 Bolt.
5.	10560	1/4" Flat Washer.
6.	45043	Stabilizer/Elevator Cover (LEFT).

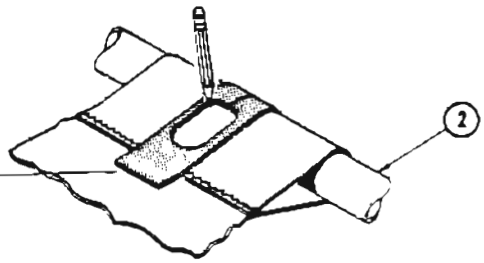




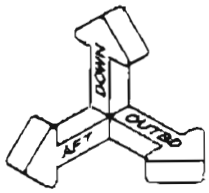
DETAIL 'A'

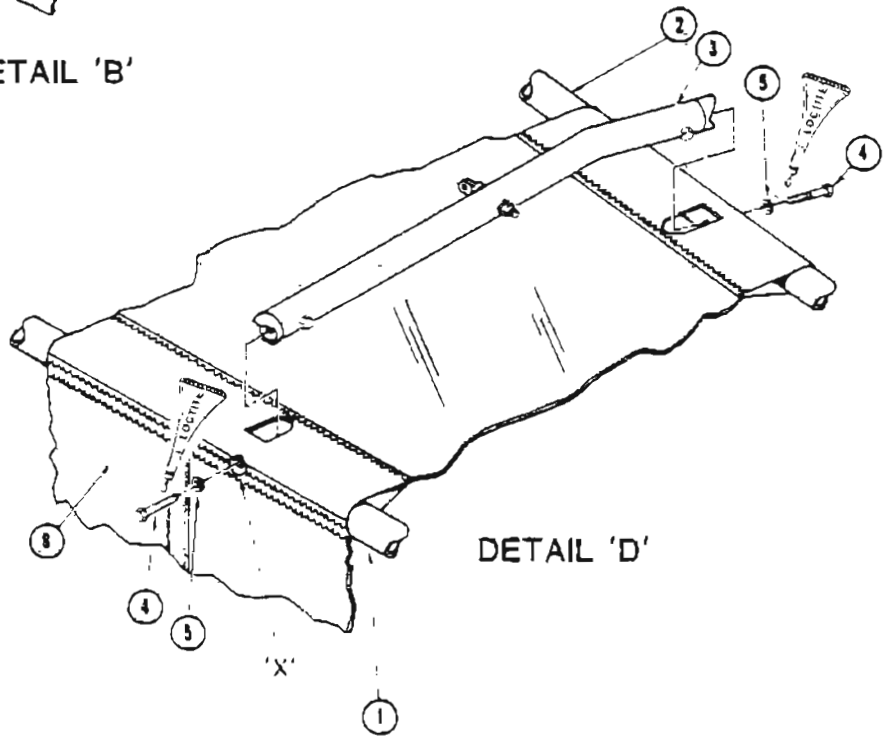


DETAIL 'B'



DETAIL 'C'





DETAIL 'D'

FIGURE 3-9

DOC # 842-3

STABILIZER/ELEVATOR ASSEMBLY (CONT'D.)

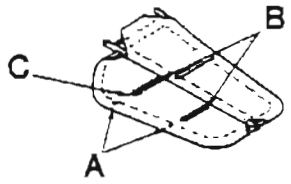
1. Refer to Detail 'A'. Check orientation. Align the foward end of Template SE2 with the Rib pockets in the Elevator section of the Cover (1). Align the aft end of Template SE2 with the centerline of the Elevator Frame (4) as shown. Mark the inboard and outboard pocket in the positions shown with a pencil. Remove the Template. Cut the pocket with the Hot Knife.

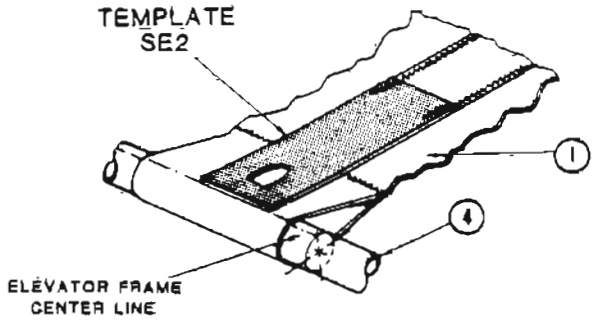
2. Refer to Detail 'B'and'C'. Note where to insert the Elevator Ribs (2). File 1/4" off two Rib Tips (3) as shown. Add a Rib Tip (3) - oriented as shown - to an Elevator Rib (2). Insert the Rib (2) into the inboard pocket. Carefully lever the Tip (3) until it locates on the Elevator Frame (4).

3. Measure, Mark and cut 1-3/4" (4.45cm) off the other Elevator Rib (2), deburr. Add a (filed) Rib Tip (3) to the Rib (2). Insert into the outboard Rib pocket, lever into position as before.

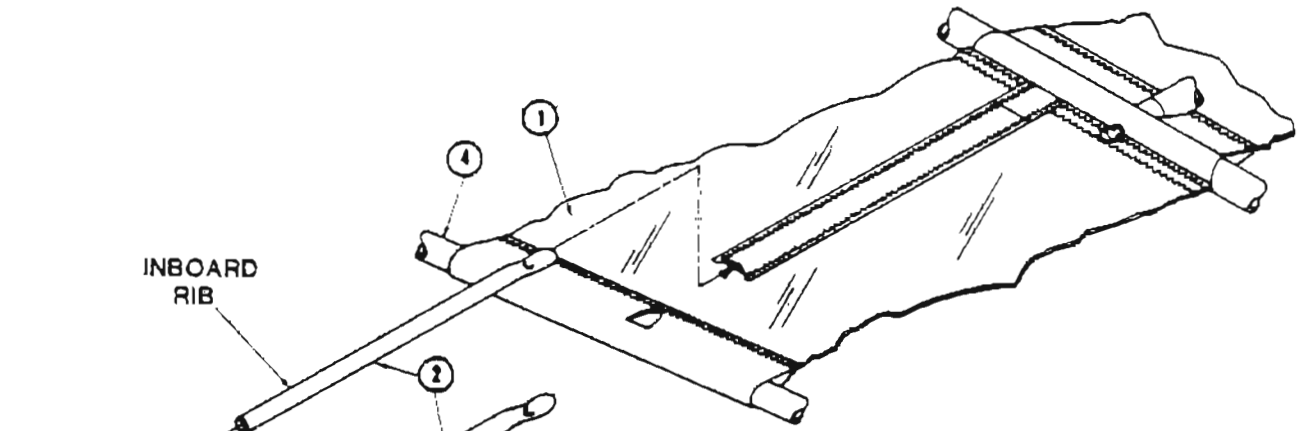
4. Repeat the sequence, in mirror image, for the RIGHT side Stabilizer/Elevator Assembly. Use Template SE2 downside up.

Pt.	P.N.	Description.
1.	45043	Stabilizer/Elevator Cover (LEFT).
2.	45030	Elevator Rib.
3.	45160	Elevator Rib Tip.
4.	.....	Elevator Frame.

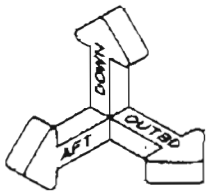


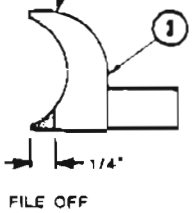


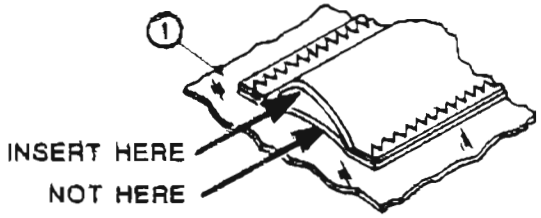
DETAIL 'A'



DETAIL 'B'







DETAIL 'C'

FIGURE 3-10

SUPPORT STRUT SUB-ASSEMBLY

NOTE: Vertical Stabilizer NOT SHOWN for clarity.

This procedure is for the LEFT side sub-assembly

1. Run a Jam Nut (1) onto the thread of a Forkbolt (2). Thread the Forkbolt (2) eighteen full threads into the (Factory fitted) insert in the forward end of the Stabilizer Drag Strut (3) DO NOT TIGHTEN. Attach the Forkbolt (2) to the - previously assembled - forward Eyebolt (4) in the Tail Boom Tube (5) using hardware (6,7,8,9) shown. DO NOT TIGHTEN.

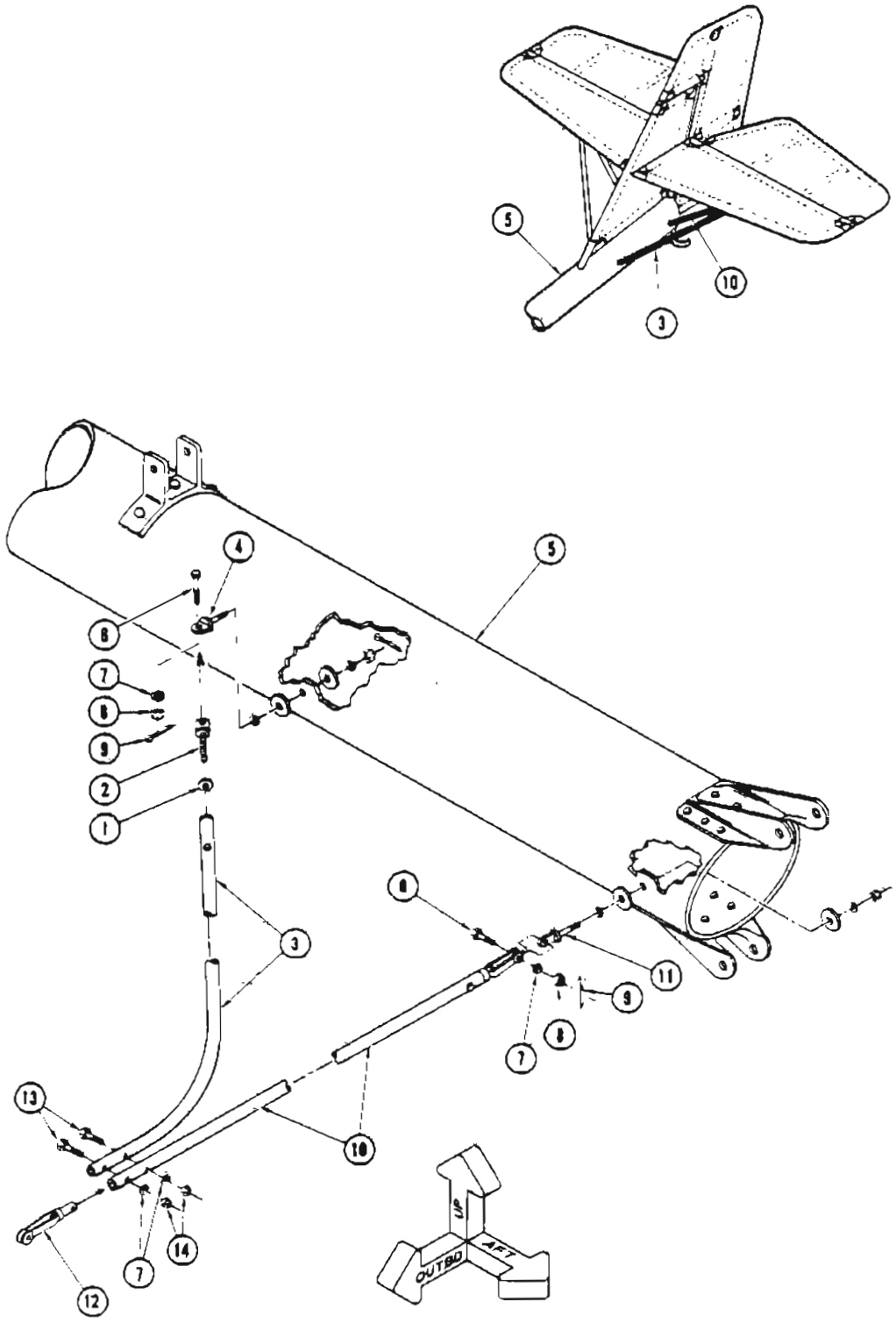
2. The Tail Support Strut (10) has a (Factory Assembled) Forkbolt (11) on its inboard end. Attach it to the - previously assembled - aft Eyebolt (12) in the Tail Boom Tube (5) using hardware (6,7,8,9) shown. DO NOT TIGHTEN.

3. Align the factory-drilled holes in the Stabilizer Drag Strut (3) with the matching holes in the Tail Support Strut (10). Insert a Fork End (13) into the Tail Support Strut (10) as shown and attach using hardware (14,7,15) shown. Tighten until snug. Don't crush the tubes!

4. Repeat the procedure, in mirror image, on the RIGHT side of the Tail Boom Tube (5).

Pt.	P.N.	Description.
1.	10631	1/4" Jam Nut.
2.	10388	1/4"x 1" Forkbolt.*
3.	45018	Stabilizer Drag Strut Assy.
4.	.....	Eyebolt (Previously assembled).
5.	45011	Tail Boom Tube.
6.	10009	AN3-5 Bolt
7.	10550	3/16" Flat Washer.
8.	10517	3/16" Castle Nut.
9.	10635	AN380-2-2 Cotter Pin.
10.	45020	Tail Support Strut Assy.
11.	.....	Eyebolt. (Previously Assembled).
12.	42006	Pushrod End Fork with 3/16" hole.
13.	10030	AN3-13a Bolt.
14.	10500	3/16" Locknut.

* Full-thread.



ASSEMBLE ONLY THOSE PARTS CALLED OUT

FIGURE 3-11

HORIZONTAL/VERTICAL STABILIZER ATTACHMENT

This procedure is for the LEFT side.

1. Using Pliobond, glue Nylon Washers (1) on the inside surfaces of both - previously assembled - Channels (2) in line with the holes indicated.

2. Insert Horizontal Stabilizer Spar (3) into the aft Channel (2) in the Vertical Stabilizer (4). Align holes and attach Spar (3) to Channel (2) using the hardware (5,6,7,8) shown. Tighten Castle Nut (7) until snug. Don't crush the tubes! Secure with Cotter Pin (8).

3. Spread Horizontal Stabilizer Spar (3) and Horizontal Stabilizer L.E. (9) sufficient to allow the L.E. (9) into the forward Channel (2) in the Vertical Stabilizer (4). Attach using hardware (5,6,7,8) shown. Tighten Castle Nut (7) until snug. Secure with Cotter Pin (8).

4. Attach - previously assembled - Stabilizer Drag Strut Sub-assembly (10) to the Eyebolt (11) in the Outboard Stabilizer Compression Strut (12) using a Clevis Pin (13) and Safety Ring (14). Fasten Velcro (15) on Horizontal Stabilizer (16) to Velcro on Vertical Stabilizer (4).

5. Repeat the above procedure, in mirror image, on the RIGHT side.

****
*** EXCEPT FOR ***
****

Omit Washer (6) on Bolt (5) on the AFT Channel. In its place, install a - oriented as shown - Flat Tang (17). Tighten Castle Nut (7) until snug. Secure with Cotter Pin (8). Hook the Elevator Balance Spring (18) to the Flat Tang (17).

Pt.	P.N.	Description.
1.	20340	5/8"x1/16" Nylon Washer.
2.		Fwd & Aft Channels.
3.		Horizontal Stabilizer Spar.
4.		Vertical Stabilizer.
5.	10160	AN4-17 Bolt.
6.	10560	1/4" Flat Washer.
7.	10521	1/4" Castle Nut.
8.	10635	AN380-2-2 Cotter Pin.
9.		Horizontal Stabilizer L.E.
10.		Stabilizer Drag Strut.

Pt.	P.N.	Description.
11.		Eyebolt.
12.		Outboard Stabilizer Compression Strut.
13.	10440	3/16"x13/32" Clevis Pin.
14.	20310	Safety Ring.
15.		Velcro Strips.
16.		Horizontal Stabilizer Assembly.
17.	20361	L.W Flat Tang.
18.	10801	Elevator Balance Spring.

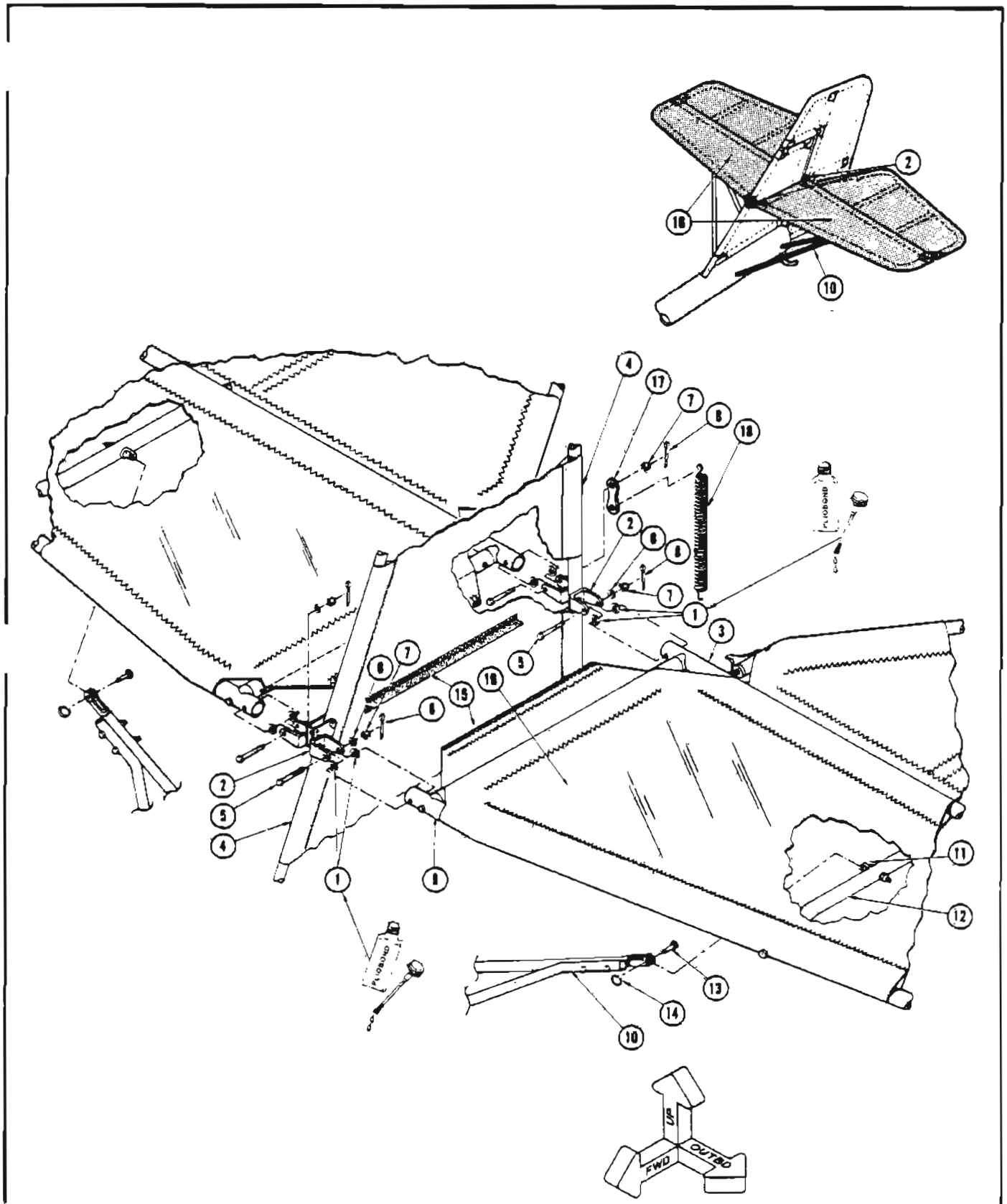


FIGURE 3-12

ELEVATOR PUSHROD ATTACHMENT

1. Run a Jam Nut (1) onto a Male Rod End Bearing (2). Thread the Bearing (2) into an Elevator Pushrod (3). DO NOT TIGHTEN. Repeat the procedure with the second Elevator Pushrod (3).

2. Measure 3-3/4" (9.52cm) aft from the Elevator Stop (4) along the Elevator Frame (5). Feel with your fingers and find the cross-drilled hole. Reveal and enlarge the hole in the fabric to 3/8" diameter with the Hot Knife. With a pencil, mark the holes' centerline on the underside of the Elevator Cover Pocket (6). Cut a 1" circle in the pocket with the Hot Knife to reveal the inside hole in the Elevator Frame (5).

3. Install a Plastic Flange Bearing (7) into each side of the Elevator Frame (5). Add an Eyebolt (8) - oriented as shown - a Washer (19) and Castle Nut (9). DO NOT Tighten.

4. Check orientation and attach - Male Rod End Bearing (2) end - of Elevator Pushrod (3) to the arm of the Elevator Bellcrank (10) using hardware (11,12,13) shown. Tighten to proper torque.

5. Attach the (Factory installed) Fork End in the upper end of the Elevator Pushrod (3) to the Eyebolt (8) using hardware (14,12,15,16) shown. Tighten Castle Nut (15) until snug. DO NOT Overtighten! Secure with a Safety Ring (16).

6. Holding the Elevator Pushrod (3) and Eyebolt (8) assembly, tighten Castle Nut (9) until snug. Don't crush the tube. Bend the Cotter Pin (17) correctly.

7. Repeat the above sequence on the LEFT side.

8. Extend the Elevator Balance Spring (18) and hook it into the hole indicated in the Elevator Bellcrank (10). DO NOT attempt further adjustments at this time.

Pt.	P.N.	Description.
1.	10631	1/4" Jam Nut.
2.	10700	1/4" Male Rod End Bearing.
3.	45037	Elevator Pushrod.
4.....		Elevator Stop (Previously assembled).
5.....		Elevator Frame.
6.....		Elevator Cover Pocket.
7.	70245	Plastic Flange Bearing.
8.	10359	AN43B-13 Eyebolt.

Pt.	P.N.	Description.
9.	10521	1/4" Castle Nut.
10.....		Elevator Bellcrank. (Previously assemoled)
11.	10020	AN3-7a Bolt.
12.	10550	3/16" Flat Washer.
13.	10500	3/16" Locknut.
14.	10009	AN3-5 Bolt.
15.	10517	3/16" Castle Nut.
16.	20310	Safety Ring.
17.	10635	AN380-2-2 Cotter Pin.
18.	10801	Elevator Balance Spring.
19.	10560	1/4" Flat Washer.

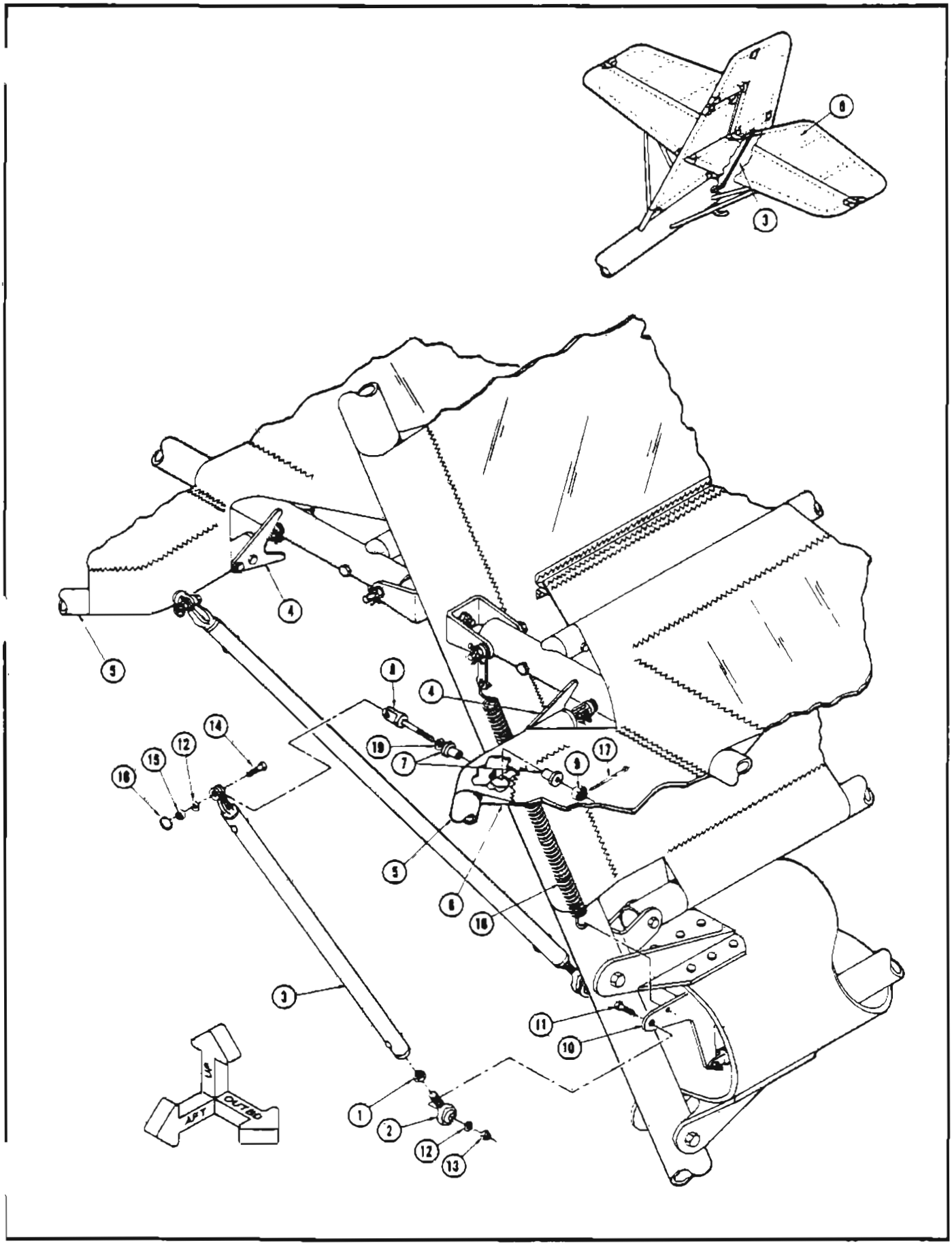


FIGURE 3-13

RUDDER ASSEMBLY

NOTE: The tolerances on this component are necessarily tight so you need patience and the help of a friend. Use leverage carefully. Do not force bolts onto threads. DO NOT FINAL TIGHTEN bolts until instructed.

1. On a flat,clean surface, turn the Rudder Cover (1) so that the pockets face up. That is the LEFT side of the Cover.

2. Refer to Detail 'A1'. Push the L.E. tip of the Rudder Frame (2) into the bottom pocket opening in the sail. "Bunch" the Cover (1) progressively onto the Frame. Stretch the Cover (1) until only the tips of the Rudder Frame (2) protrude out of both ends of the pocket.

3. Refer to detail 'A2'. Slide the Rudder Vertical Spar (3) up through both vertical pockets. Feel for the Nut Plate on the Spar (3) just inside the upper end of the lower pocket- and ensure that it faces Aft .

4. Check orientation of the Left Rudder Horn (4) and Right Rudder Horn (5) to the base of the Rudder Frame (2). Attach Horns (4)&(5) to Rudder Frame (2) using two Bolts (6), six Washers (7) and two Locknuts (8).

5. Using a large Screwdriver to carefully lever between the Rudder Frame (2) and the Rudder Vertical Spar (3), align the two remaining holes in the Rudder Horns (4) & (5) with the two holes in the base of the Rudder Vertical Spar (3). Attach using hardware (6,7,8) shown.

Pt.	P.N.	Description.	Pt.	P.N.	Description.
1.	45048	Rudder Cover.	5.	45078	RIGHT Rudder Horn.
2.	45006	Rudder Frame.	6.	10040	AN3-15a Bolt.
3.	45005	Rudder Vertical Spar.	7.	10550	3/16" Flat Washer.
			8.	10500	3/16" Locknut.
4.	45077	LEFT Rudder Horn.			

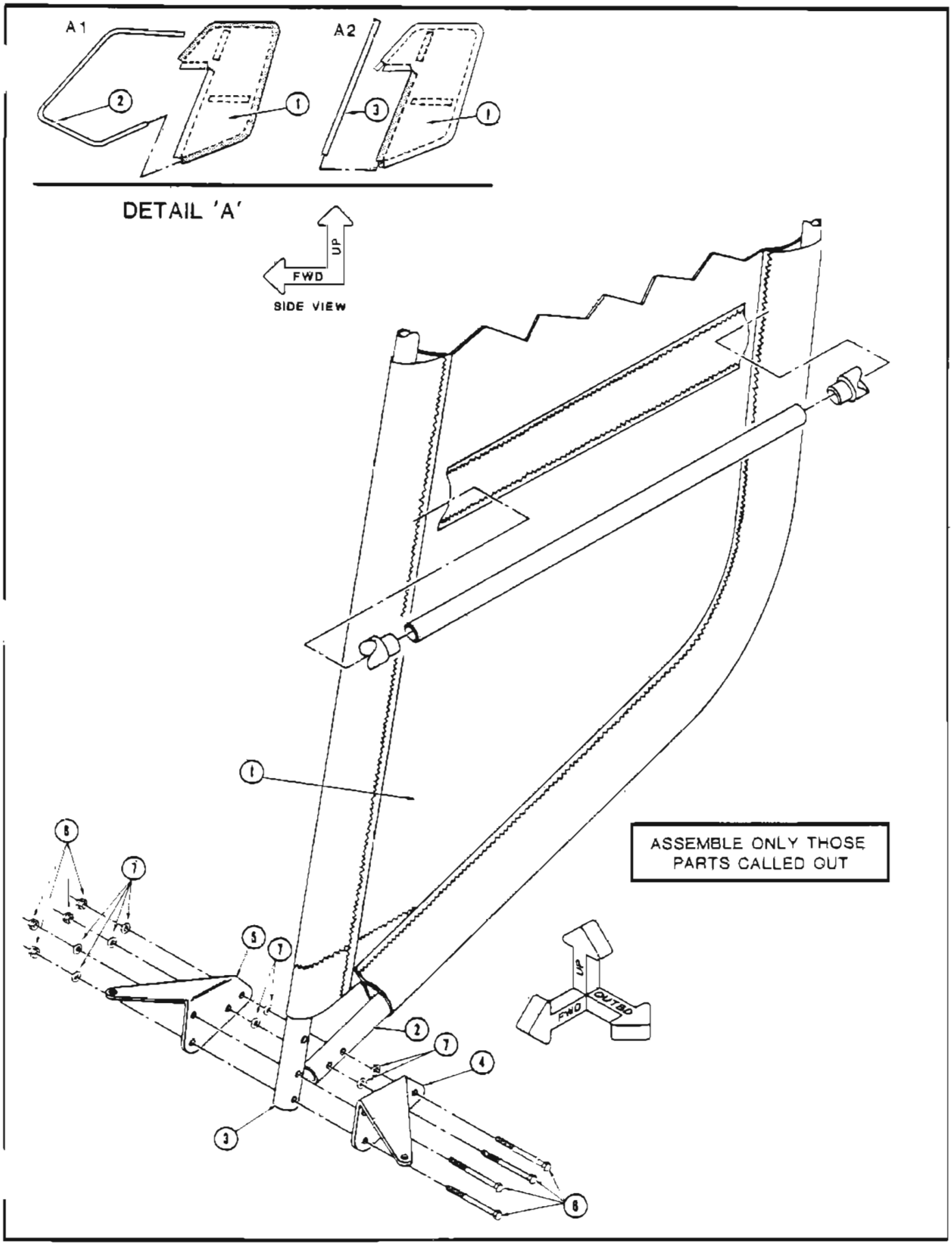


FIGURE 3-14

DOC # 842-3

RUDDER ASSEMBLY (CONT'D.)

NOTE: This sequence is easier if you assemble ONLY those parts indicated.

1. Get your friend to hold the forward part of the Rudder Frame (2) in one hand and, with the other, pull and stretch the Rudder Cover forwards so that it is tight in the upper section of the Frame (2). Simultaneously, feel with your fingers for the two lateral holes in the upper Rudder Frame (2) - directly above the Spar (1). Hold the tension, Reveal the holes with the Hot Knife.

2. To those holes, add two Bolts (3) and a #1 Gusset Plate (4) on the RIGHT side of the Rudder Frame (2). Mark the position of the lower bolt hole in the Plate (4), reveal with the Hot Knife.

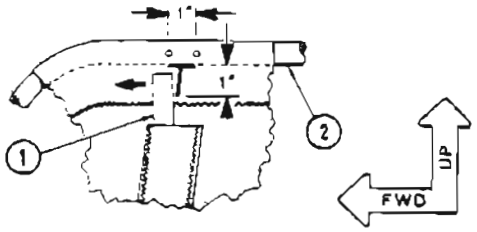
3. Mark the position of the Rudder Vertical Spar (1) on the pocket fabric, and move the Spar (1) aside. Refer to Detail 'A'. Using the Hot Knife, carefully cut the 1" x 1" (2.54 x 2.54cm) 'T' in the LEFT side pocket fabric - the top of the 'T' matching the position of the top of the Spar (1) - then allow the Rudder Vertical Spar (1) to re-align with the Rudder Frame (2).

4. Push the Bolts (3) thru the #1 Gusset Plate (4), add two Washers (5) - oriented as shown - to the Bolts (3) and push them thru the Rudder Frame (2).

5. Add another two Washers (5) and #1 Gusset Plate (4) to the other side of the Rudder Frame (2) and attach using hardware (5,6) shown.

6. Measure approx 32" (81cm) up the Rudder Vertical Spar (1). Feel with your fingers for the Forkbolt hole, Burn the fabric only sufficient to reveal the hole. Insert the (upper Rudder Hinge) Forkbolt (7) through the tube and into the (Factory installed) Nut Plate. Tighten until snug. Don't crush the tube.

Pt.	P.N.	Description.
1.	45005	Rudder Vertical Spar.
2.	45006	Rudder Frame.
3.	10035	AN3-14a Bolt.
4.	45083	#1 Gusset Plate.
5.	10550	3/16" Flat Washer.
6.	10500	3/16" Locknut.
7.	10390	1/4" x 1-1/2" Forkbolt.



DETAIL 'A'

ASSEMBLE ONLY THOSE PARTS CALLED OUT

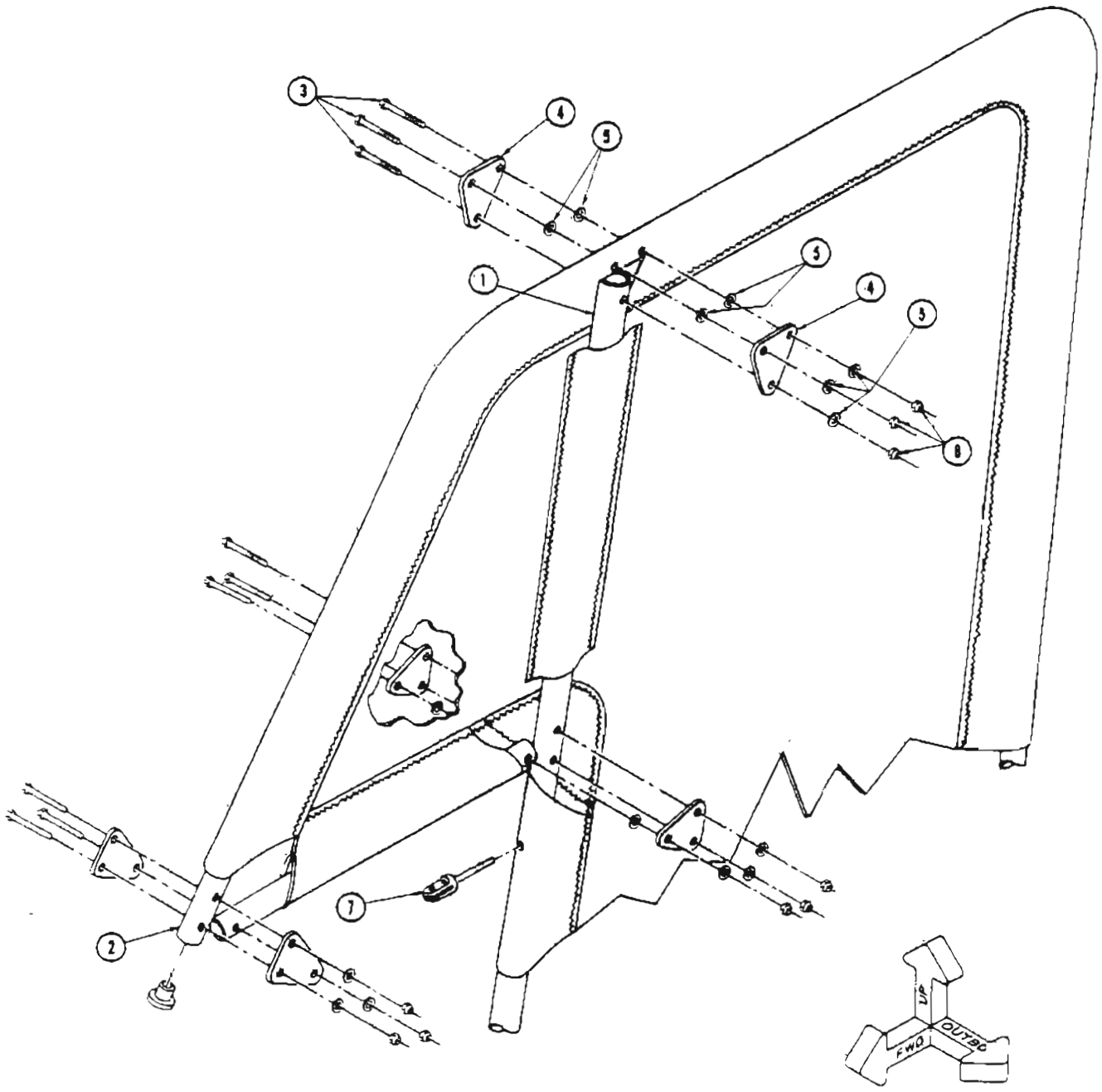


FIGURE 3-15

DOC # 842-3

RUDDER ASSEMBLY (CONT'D.)

1. Slide the Rudder Balance Strut (1) into its pocket in the Rudder Cover (2).

2. Measure 36" up the Rudder Vertical Spar (3). Find the two holes in the Spar (3). Reveal the holes on the Right side of the Rudder Cover(2) using the Hot Knife.

3. Attach the Rudder Balance Strut (1) to the Rudder Vertical Spar (3) with two #1 Gusset Plates (4) and the hardware (10,6,7) shown. Push the Awl tool through the hole in the inboard end of the Rudder Balance Strut (1) until it pushes on the Cover (2) on the Right side. touch it with the Hot knife to reveal the hole, enlarge it just sufficient to insert the third Bolt (10) and the hardware (6,7) shown. DO NOT Tighten.

4. Attach two #1 Gusset Plates (4) to the forward end of the Rudder Balance Strut (1) using the hardware (5,6,7) shown. DO NOT Tighten.

5. Push the L.E. of the Rudder Frame (8) against the workbench, simultaneously using a large screwdriver, carefully lever the Rudder Balance Strut (1) until the two remaining holes in the #1 Gusset Plates (4) line up with the holes in the Rudder Frame (8). Attach using the hardware (5,6,7) shown. DO NOT Tighten.

6. Attach a 7/8" Tube Cap (9) into the lower end of the Rudder Frame (8) using PlioBond Glue.

Pt.	P.N.	Description.
1.	45007	Rudder Balance Strut.
2.	45005	Rudder Vertical Spar.
3.	45048	Rudder Cover.
4.	45083	#1 Gusset Plate.
5.	10030	AN3-13a Bolt.
6.	10550	3/16" Flat Washer.
7.	10500	3/16" Locknut.
8.	45006	Rudder Frame.
9.	20400	7/8" Tube Cap.
10.	10035	AN3-14a Bolt.

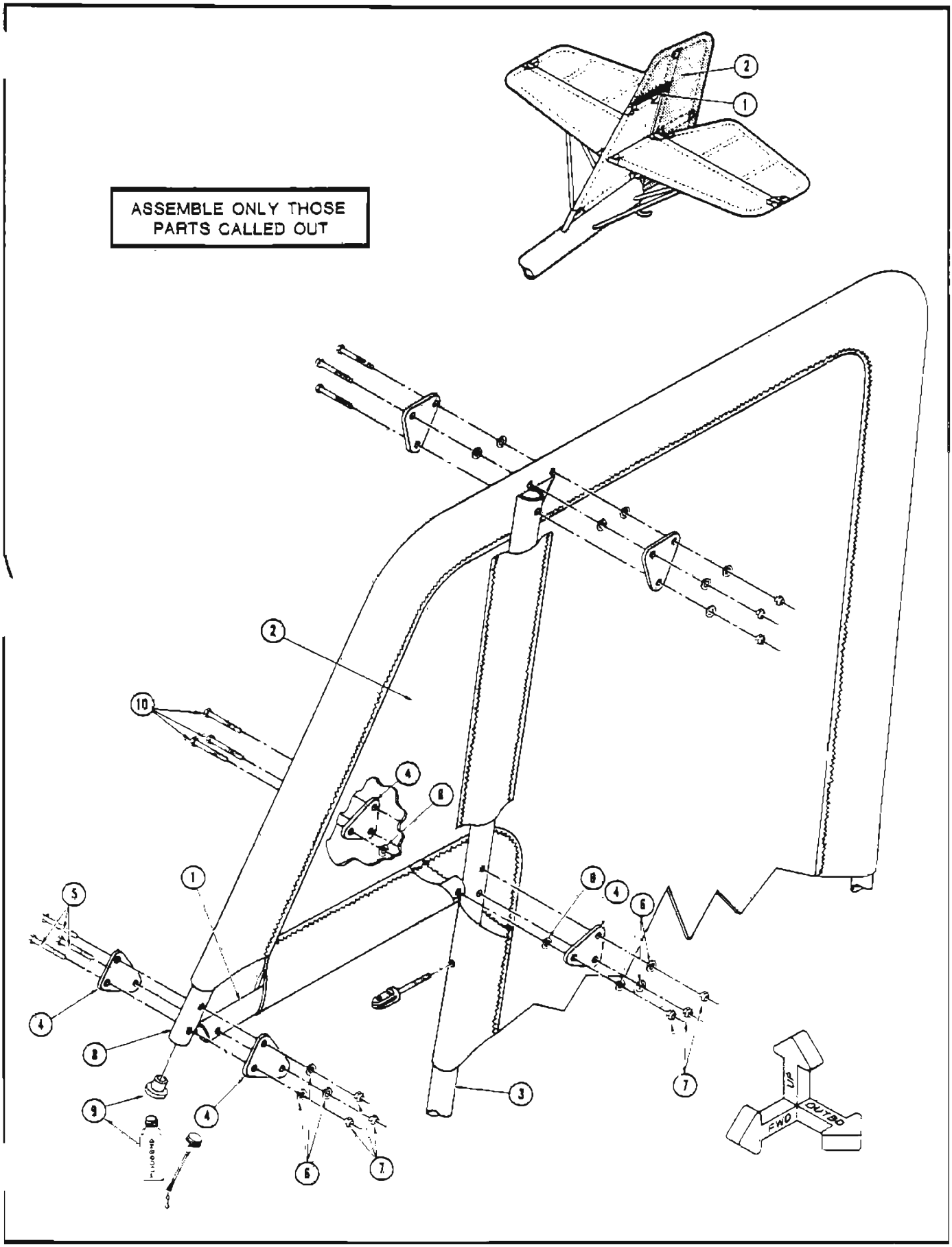

ASSEMBLE ONLY THOSE PARTS CALLED OUT
2
1
2
10
4
8
1
5
8
4
6
4
8
9
4
6
7
3
7
UP
FWD
OUTBD

FIGURE 3-16

RUDDER ASSEMBLY (CONT'D.)

1. Refer to Detail 'A'. Grind approx 1/8" (3.17mm) off one side of the tip of a 7/8" Nylon Tube Connector (3) and insert it into the aft end of the Rudder Compression Strut (1). Insert another (unfiled) Connector (3) into the forward end. Insert the Rudder Compression Strut (1) through its pocket in the Rudder Cover (2).

2. Refer to Detail 'B'. Position the Rudder Compression Strut (1) off center as shown. Mark the forward and aft positions on the respective pockets in the Cover (2). Using the Hot Knife, carefully cut a 1" x 1" (2.54 x 2.54cm) 'T' in the pocket fabric. Position the forward (unfiled) Connector (3) in the forward "T" slot.

3. Get your friend to spread apart the Rudder Vertical Spar (4) and the Rudder Frame (5). Simultaneously, you should lever the aft end of the Rudder Compression Strut (1) and its Tube Connector (3) - Ground tip down for ease of entry - until it snaps in place onto the Rudder Frame (5).

5. Measure 3" (7.62cm) up the Rudder Vertical Spar (3). Feel with your fingers for the (lower Rudder Hinge) Forkbolt hole. Reveal the hole with the Hot Knife. Insert the Forkbolt (6) and attach using hardware (7,8) shown. Tighten until snug. Don't crush the tube.

6. Complete the Rudder Assembly by checking Bolt orientation and Washer positioning. Ensure that the Cover (2) is tight all over. If necessary, relieve wrinkles by carefully removing fabric around the bolt holes with the Hot Knife. Finally, tighten all hardware until snug, Don't crush the tubes.

Pt.	P.N.	Description.
1.	45021	Rudder Compression Strut.
2.	45048	Rudder Cover.
3.	20440	7/8" Tube Connector.
4.	45005	Rudder Vertical Spar.
5.	45006	Rudder Frame.
6.	10390	1/4"x 1-1/2" Forkbolt.
7.	10560	1/4" Flat Washer.
8.	10510	1/4" Locknut.

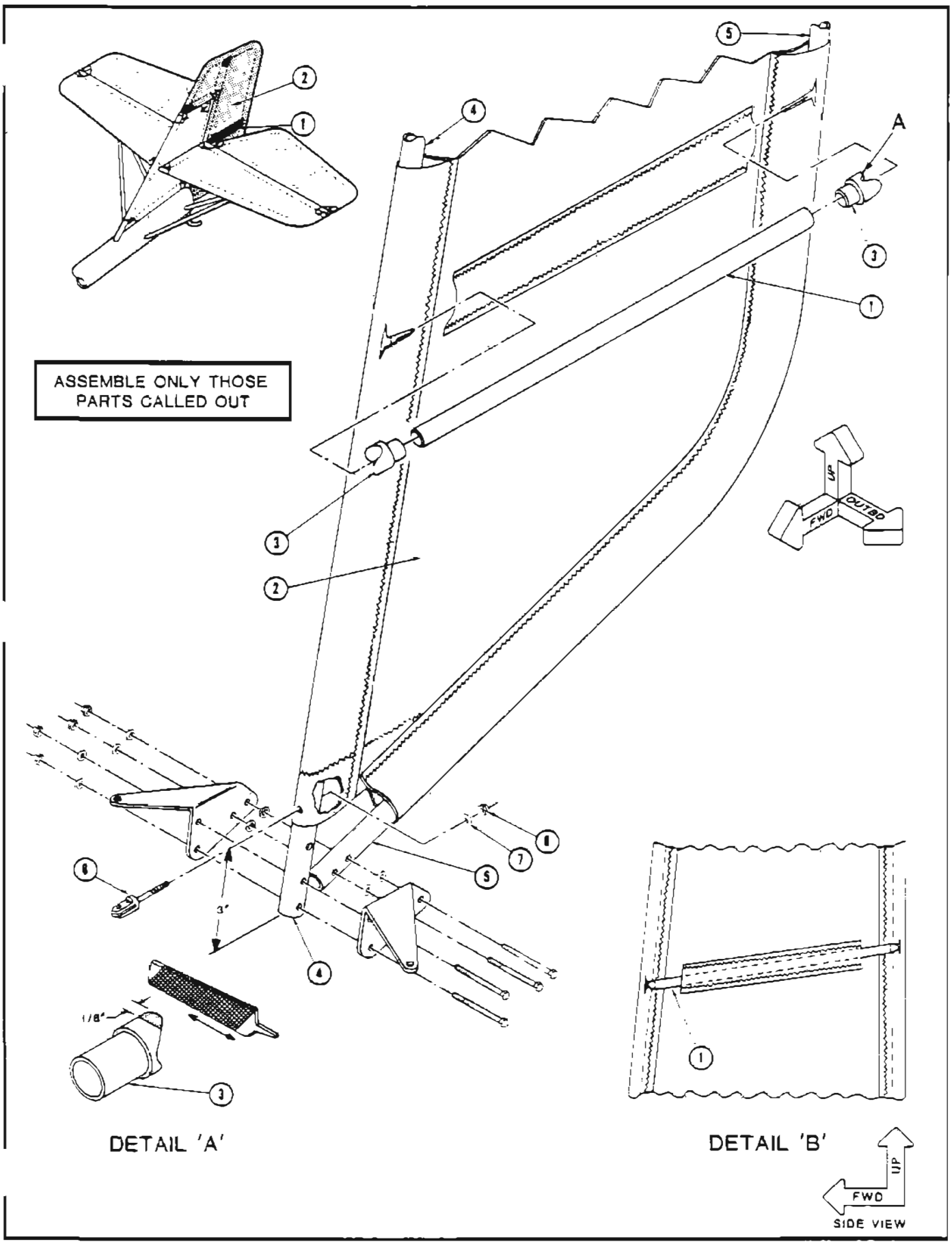


FIGURE 3-17

DOC # 842-3

RUDDER ATTACHMENT

1. Align and attach the upper and lower Rudder Forkbolts (1) into their Rudder Eyebolts (2) using the hardware (3,4,5) shown. Tighten the Castle Nut (4) until snug. DON'T overtighten. Secure with Cotter Pins (5).

Ft.	P.N.	Description.
1.	.....	Rudder Forkbolts.
2.	.....	Rudder Eyebolts.
3.	10009	AN3-5 Bolt.
4.	10517	3/16" Castle Nut.
5.	10615	AN380-2-2 Cotter Pin.

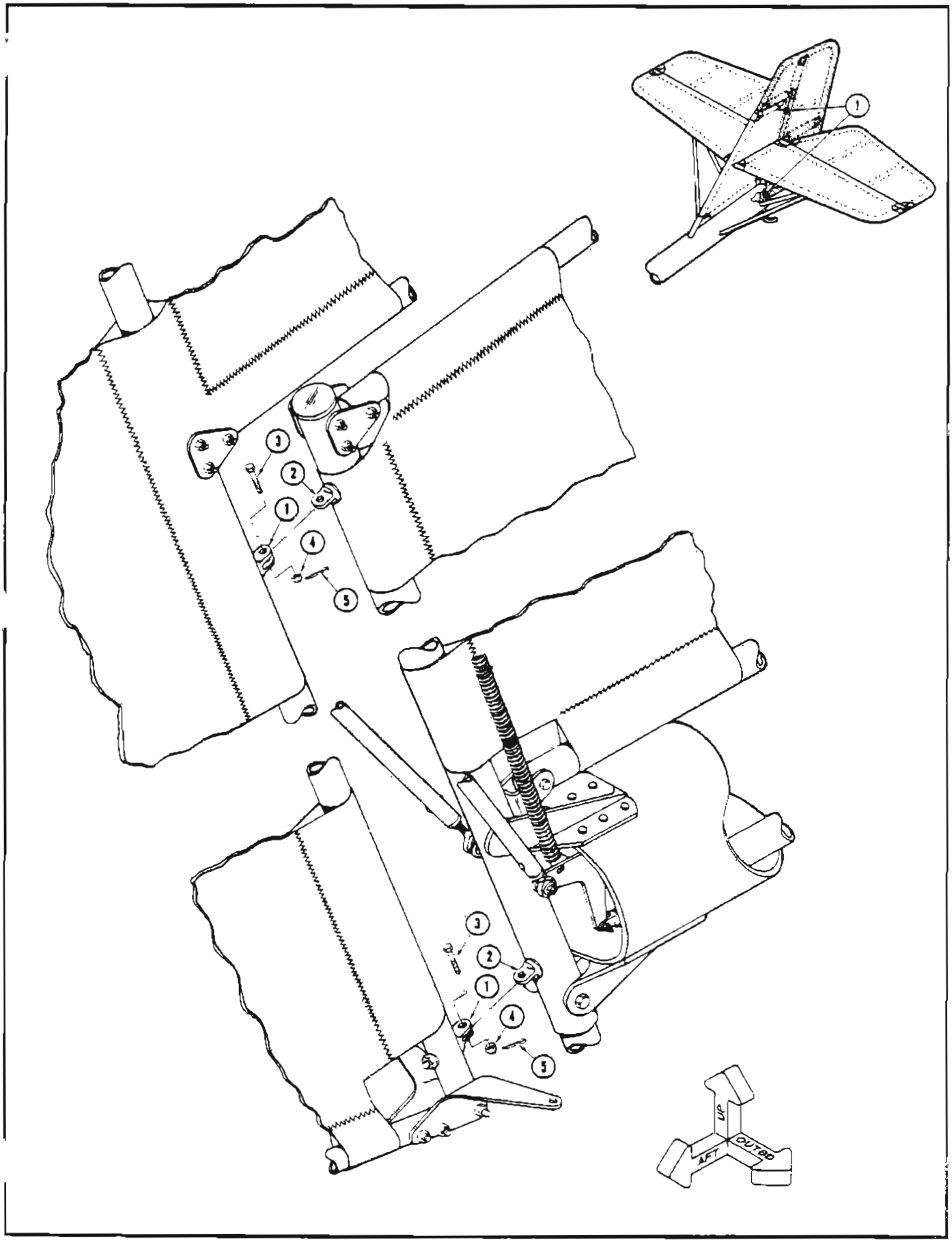
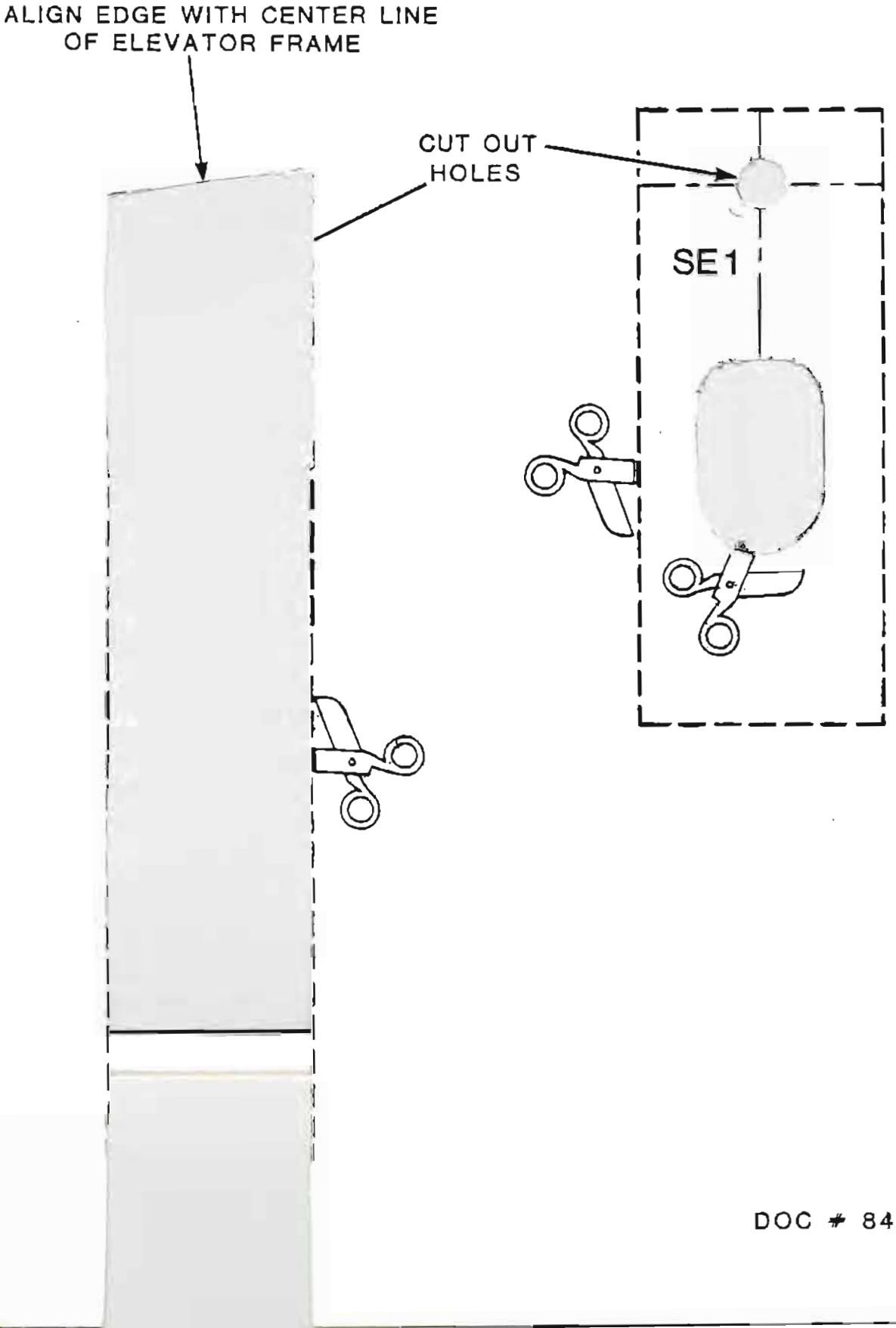
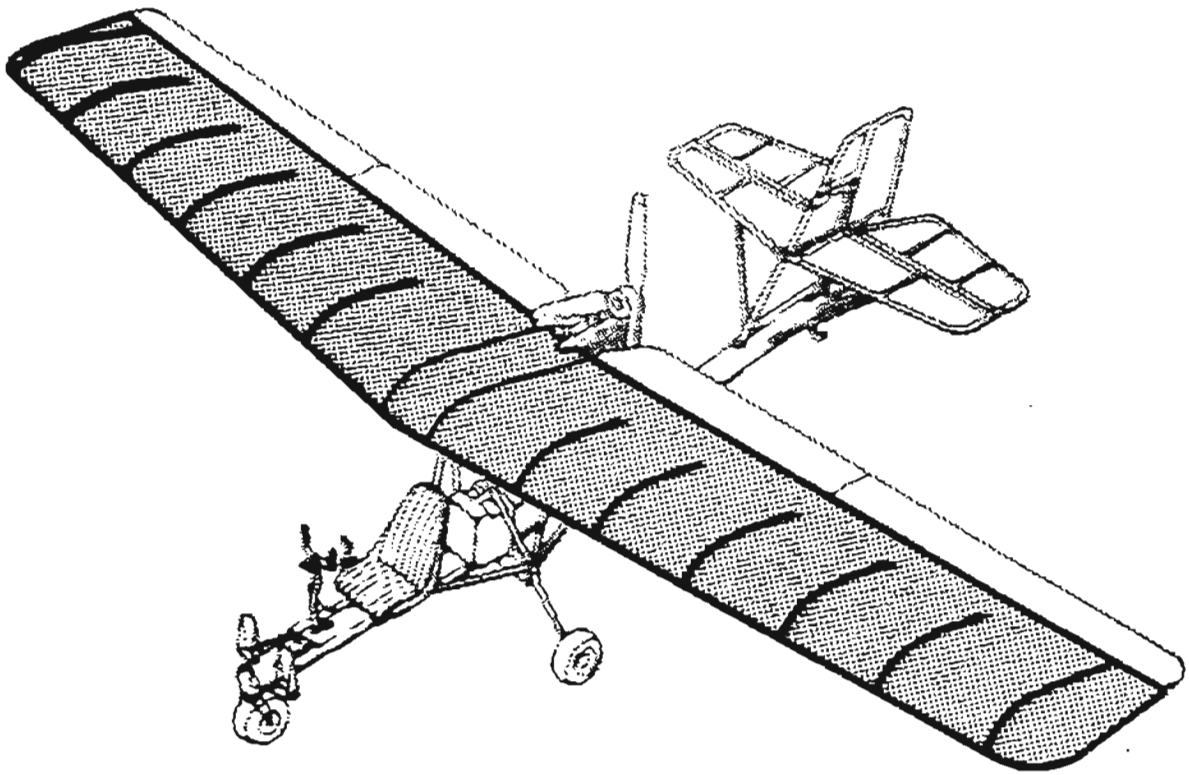


FIGURE 3-18

TEMPLATES-STABILIZER/ELEVATOR



SECTION 5 WINGS



QUALITY ASSURANCE ACCEPTED!
DATE 5-16-84 ECO # 527

Copyright © 1984, Eipper Aircraft

WING JIG

NOTE: This Jig is designed to ease Wing Fabrication. Its principle is that the Channels (1) should be 4' 1-5/16" (125.25cm) apart center to center and approx 3'0" (91.44cm) off the floor. If you have a Carpenters' sawhorse, attach the Crossbeam - which simulates a Root Tube - to it. The Jig then becomes unnecessary. Perhaps your workbench is about the right height and width. In that case, just attach the Channels (1) to it, so long as you are still able to adequately tighten the Wing Covers, it should work.

Otherwise, make the Jig as shown.

We have given American sizes for the lumber required with direct centimeter equivalents. We realize that locally available materials will vary in size from country to country. Adapt our sizes to suit.

In the following sequence we have presumed that your work area is about the size of an average Garage - 25'0" x 15'0" x 8'0" (7.62m x 4.57m x 2.43m) - in which you can build one wing at a time. If you have the space, it is possible to build both wings simultaneously. The full wing span on the jig exceeds 30'0" (9.14m). Detail 'C' shows the Crossbeam set up for the latter procedure.

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

Formula : To convert inches (") to centimeters (cm): Multiply x 2.54 - there are 12" inches in one foot (1'0").

---

1. Refer to Detail 'A'. Fabricate the "Wing Jig" from the following materials.

   Lumber (Crossbeam):
   EX - 2" x 4" x 4'6" (5.08cm x 10.16cm x 137.16cm).
   Plywood or Particle Board: (Cut as Detail 'B')
   EX - 3/4" x 4'0" x 6'0" (1.9cm x 121.9cm x 182.8cm).
   Plus Wood Glue and about 20 Woodscrews.

2. Cut the slot in the Jig to accept the dimensions of the Crossbeam - it should be a tight fit.

3. Drill two lateral 1/4" diameter holes in the Crossbeam - to mount the Channels (1) 4' 1-5/16" (125.25cm) apart, center to center.

4. Refer to Detail 'C'. Attach Channels (1) to the holes in the Crossbeam using the hardware (3,4) shown Add Washers (2) as necessary. Finger Tighten only. Add a Bolt (5) to forward Channel (1) and Bolt (6) to the aft Channel (1) as shown. Tightening is unnecessary.

Pt.	P.N.	Description.	Pt.	P.N.	Description.
1.	20050	S 1.75 Channel (Leading Edge).	4.	10521	1/4" Castle Nut.
2.	10560	1/4" Flat Washer.	5.	10260	AN4-27 Bolt (Leading Edge).
3.	10240	AN4-26a Bolt.	6.	10205	AN4-23 Bolt (Trailing Edge).

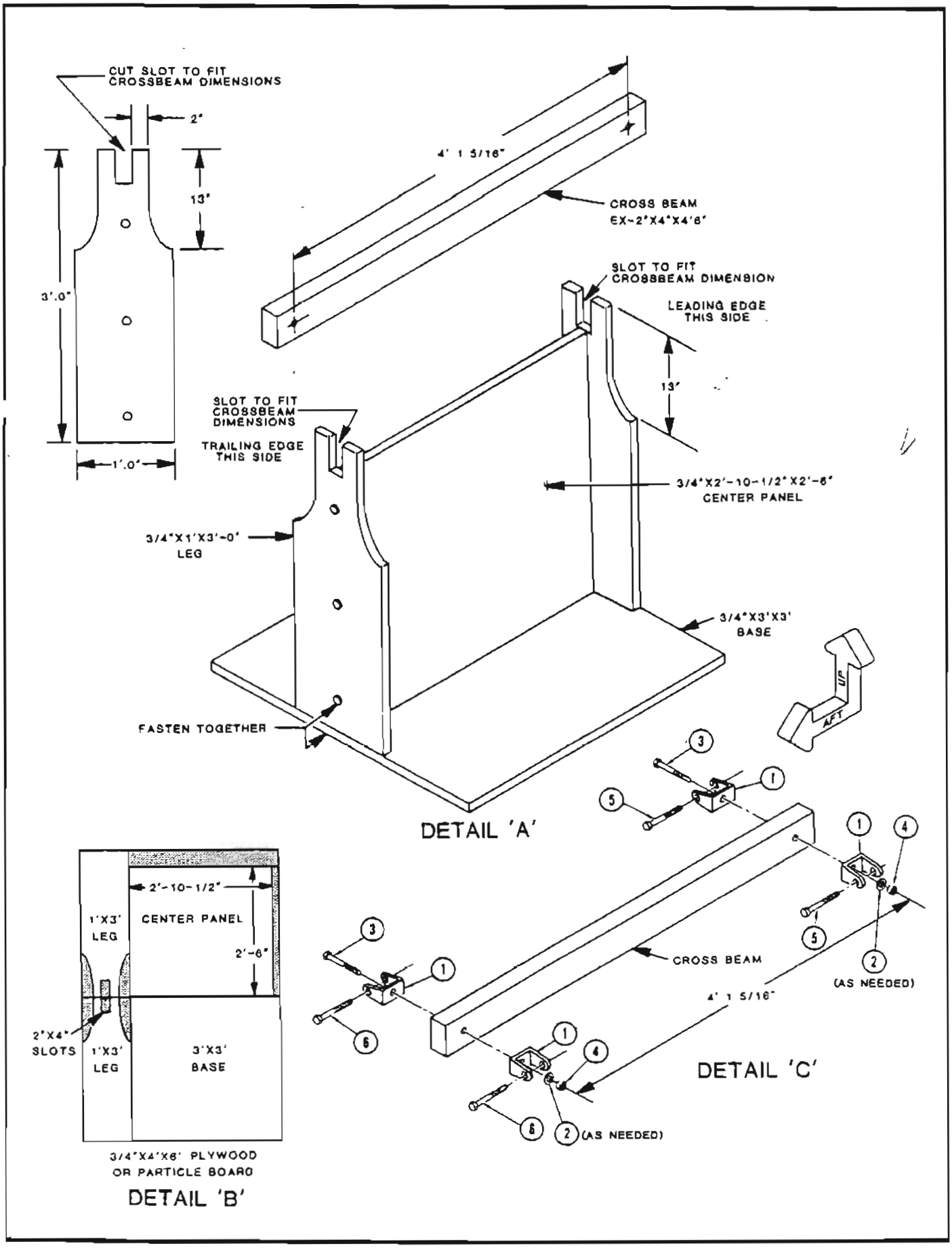


FIGURE 5-1

DOC # 842-5

WING SPAR ASSEMBLY

NOTE: Tolerances are necessarily tight so you need patience and the help of a friend. DO NOT FINAL TIGHTEN bolts until instructed.
The following instruction is for the LEFT Wing. The Right wing is similar, but Mirror Image.

1. The L.E. Spar (1) is 14' (4.26m) long, 2" (5.08cm) diameter, has two holes, 2" (5.08cm) and 5" (12.7cm) from the Wing Tip end. Lay it out Wing Tip end to your Right.

2. The T.E. Spar (2) is 14'8" (4.47m) long, 1-3/4" (4.4cm) diameter, has three factory-installed Nut Plates along its length and one hole at the Wing Tip end. Lay it out Wing Tip end to your Right, Nut Plates facing forward.

3. Place the curved end of the Wing Tip Tube (3) onto the forward inner face of the L.E. Spar (1). Attach using the hardware (4,5) shown.

4. Attach a (silver-colored) Tube Connector (6) to the aft end of the Wing Tip Tube (3) using the hardware (7,8,9) oriented as shown. Tighten to Proper Torque.

5. Line up the Tube Connector (6) in the aft end of the Wing Tip Tube (3) with the single hole in the T.E. Spar (2). Lightly attach using the hardware (10,5) oriented as shown. DO NOT Tighten.

6. Attach a Tube Cap (11) into the Wing Tip end of the T.E.Spar (2) using PlioBond Glue (12).

NOTE: The L.E.Bracket (Forward) (13) and the L.E.Bracket (Aft) (14) are bent to slightly different angles - Ensure they are correctly oriented.

7. Note the positioning of the four Nylon Washers (15). Attach Bracket (13) to the Forward inboard , and Bracket (14) to the Aft inboard tip of the L.E.Spar (1) using the hardware (16,15,5,9) oriented as shown. Tighten until snug. Don't crush the tube.

Pt.	P.N.	Description.
1.	45655	L.E.Spar Assy.
2.	45660	T.E.Spar Assy.
3.	45666	Wing Tip Tube.
4.	10140	AN4-16a Bolt.
5.	10560	1/4" Flat Washer.
6.	45751	Tube Connector.
7.	10040	AN3-15a Bolt.
8.	10550	3/16" Flat Washer.
9.	10500	3/16" Locknut
10.	10420	1/4"x2-1/4"Grade 5 Bolt.
11.	20422	1-3/4" Tube Cap.
12.	60593	PlioBond Glue.
13.	45690	Fwd L.E.Spar Root Bracket.
14.	45691	Aft L.E.Spar Root Bracket.
15.	20340	1/4" Nylon Washer.
16.	10250	AN4-27a Bolt.
17.	10510	1/4" Locknut.

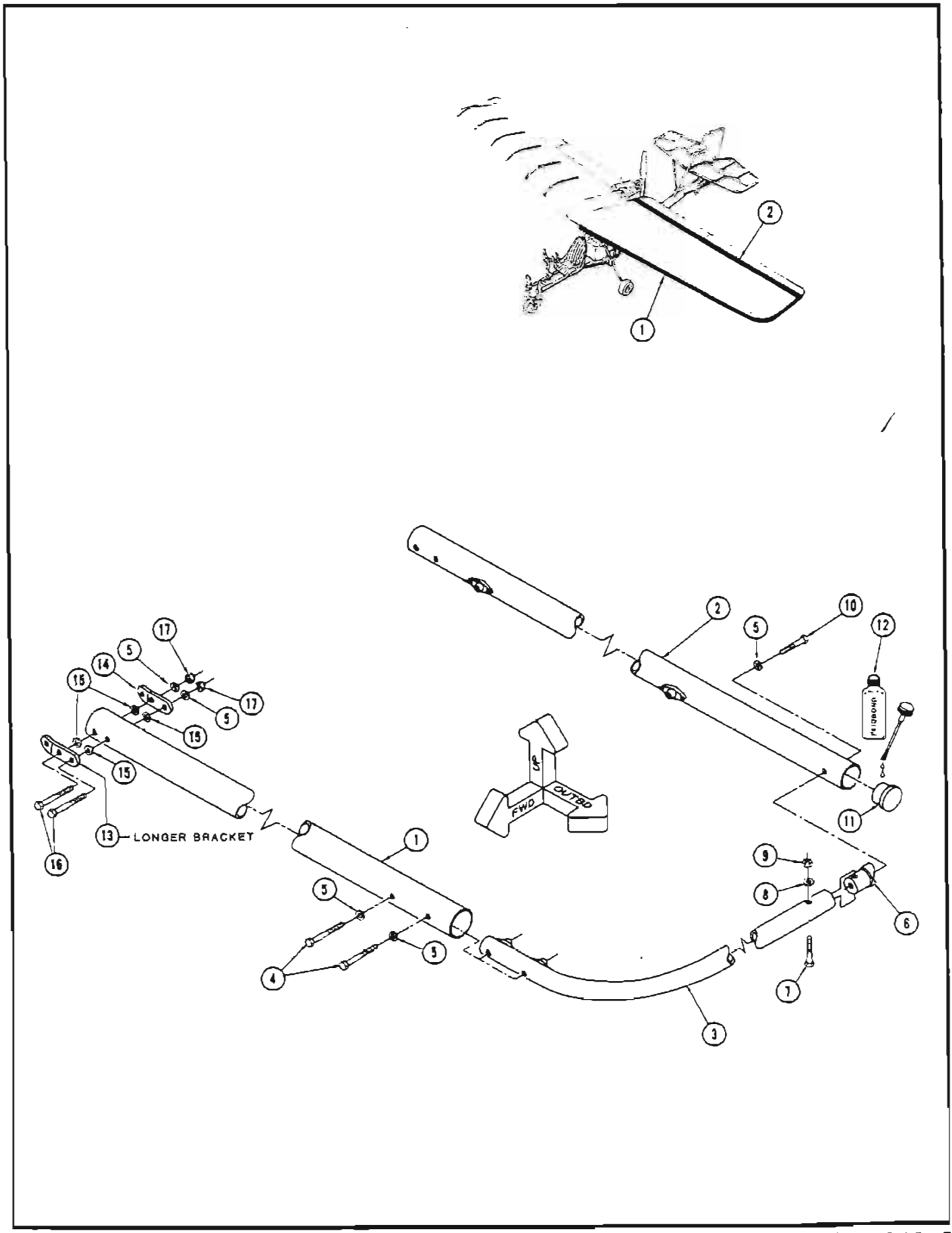


FIGURE 5-2

STRUT ASSEMBLY

****
** ESSENTIAL!! **
****

Positive Identification of Leading Edge Tube Connectors (2) must be established before proceeding!
There are two to each wing. They have Right & Left Orientation
They are Black Anodized .
The Trailing Edge Connectors are plain Aluminum.
IT IS DANGEROUS to fit them the wrong way around!

NOTE: The Outboard Compression Strut (1) has a sleeve with two holes at its forward end.

1. Refer to Detail 'A'. Insert a (Black) L.E. Tube Connector (2) in the Forward end of the Outboard Compression Strut (1). Add a Diagonal Attach Plate (3) to a Bolt (4) - Check orientation - Lightly attach (Black) Tube Connector (2) to Strut (1) with the Bolt (4). Add a second Diagonal Attach Plate (3), - Check orientation - and the hardware (5,6) shown. DO NOT Tighten.

2. Attach a (plain aluminum) T.E.Tube Connector (7) to the Aft end of the Outboard Compression Strut (1). Attach using the hardware (13,5,6) oriented as shown. Tighten to proper torque.

3. Measure 66" (1.68m) from the outboard end of the T.E.Spar (8). Lightly attach the aft end of the Outboard Compression Strut (1) to the T.E. Spar (8) using a Forkbolt (9). DO NOT Tighten.

4. Measure 55-3/4" (1.46m) from the outboard end of the L.E. Spar (10) and locate a hole. Position the forward end of the Outboard Compression Strut (1) in line with the hole. Push the L.E. Spar (10) up against the Strut (1). If the (Black) Tube Connector (2) is positioned in accordance with Detail 'A' it should be a perfect snug fit. Lightly attach using the hardware (11,12) oriented as shown. DO NOT Tighten

Pt.	P.N.	Description.
1.	45679	Outboard Compression Strut.
2.	45750	Tube Connector L.E. (Black).
3.	45692	Diagonal Attach Plate.
4.	10050	AN3-17a Bolt.
5.	10550	3/16" Flat Washer.
6.	10500	3/16" Locknut.
7.	45751	Tube Connector T.E. (Aluminium)
8.	.....	T.E. Spar Assy.
9.	10387	1/4"x2-1/4" Forkbolt.
10.	.....	L.E. Spar.
11.	10428	1/4"x2-1/2" Grade 5 Bolt.
12.	10560	1/4" Flat Washer.
13.	10040	AN3-15a Bolt.

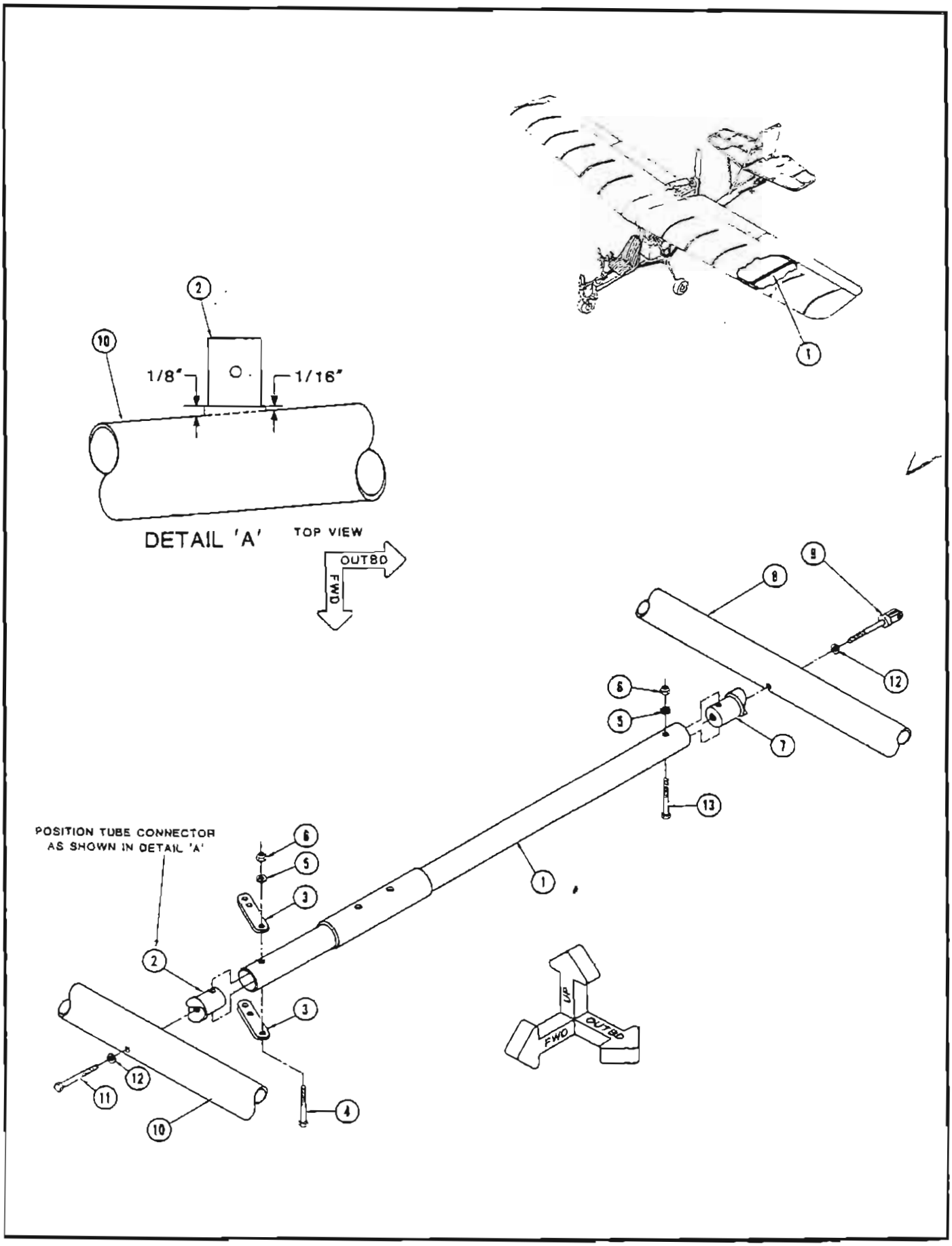

1/8"
1/16"
DETAIL 'A'
TOP VIEW
OUTBD
FWD
POSITION TUBE CONNECTOR AS SHOWN IN DETAIL 'A'
UP
FWD
OUTBD

FIGURE 5-3

STRUT ASSEMBLY (CONT'D.)

1. Refer to Detail 'A'. Position the Bellcrank Bearing (1) oriented as shown, into the (Left) Aileron Bellcrank (2). Center-punch four holes at 90 degrees. Drill 1/8" holes in the Bellcrank (2). Attach Bellcrank Bearing (3) using four Rivets (3).

2. Refer to Detail 'B'. For the (Right) Aileron Bellcrank (2), orient the Bearing (1), the "arm" of the Bellcrank (2) and Rivets (3) as shown. Tag and store the (Right) Aileron Bellcrank for later assembly.

3. Return to the Left sub-assembly. Push a Bolt (4) upwards thru the aft hole in the sleeve on the Outboard Compression Strut (5). Add a Saddle (6) and a Fender Washer (7). Check orientation and add the (Left) Aileron Bellcrank (2), and the hardware (8,9) shown. DO NOT tighten.

4. Push another Bolt (4) upwards thru the forward hole in the Outboard Compression Strut (5). Add a Bellcrank Bushing (10) to the Bolt (4) and locate them in the slot of the Aileron Bellcrank (2). Attach using the hardware (8,9) shown. Final Tighten both Locknuts (9) to proper torque.

5. Attach an Aileron Cable (12) to each end of the Aileron Bellcrank (2) using the hardware (11,13) oriented as shown. Secure each with a Safety Ring (14). Leave the Aileron Cables (12) coiled.

Pt.	P.N.	Description.
1.	10702	Bellcrank Bearing.
2.	42009	Aileron Bellcrank.
3.	20201	1/8" x 1/4" grip "Pop" Rivet.
4.	10235	AN4-25a Bolt.
5.	45679	Outboard Compression Strut.
6.	20289	1-1/2" Saddle.
7.	10565	1/4" Fender Washer.
8.	10560	1/4" Flat Washer.
9.	10510	1/4" Locknut.
10.	71003	Bellcrank Bushing.
11.	20320	3/16" Shackle.
12.	45713	Aileron Cable
13.	10440	3/16" Clevis Pin.
14.	20310	Safety Ring.

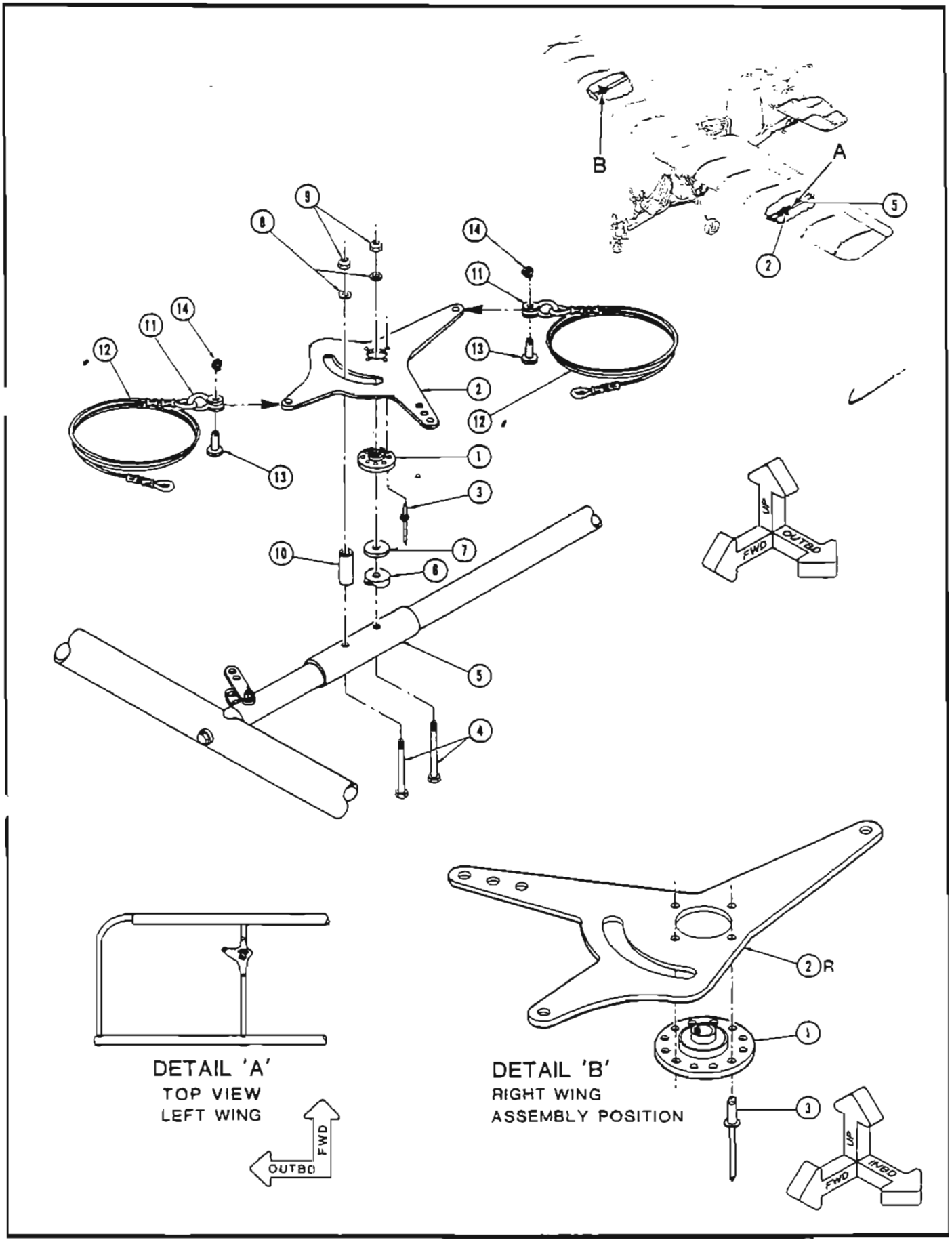


FIGURE 5-4

DOC # 842-5

STRUT ASSEMBLY (CONT'D.)

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

2. Add a Diagonal Attach Plate (3) to a Bolt (4) - check orientation - Push the Bolt (4) through both the Strut (1) and the (Black) L.E. Tube Connector (2). Add another Diagonal Attach Plate (3) - check orientation - plus a Washer (5) and a Locknut (6). This is now the forward end. DO NOT Tighten.

3. Attach a (plain aluminum) Tube Connector (7) and two more Diagonal Attach Plates (3) - Check orientation - to the aft end of the Strut (1) in a similar manner, using the same hardware. Check Bolt orientation.

4. Measure 49" (124.4cm) from the inboard end of the T.E. Spar (8) and find the hole. Lightly attach the (plain aluminum) Tube Connector (7) to the T.E. Spar (8) using a Forkbolt (9) and a Washer (10). DO NOT Tighten.

5. Measure 47-1/2" (120.6cm) from the inboard end of the L.E. Spar (11) and find the hole. Push the forward end of the Inboard Compression Strut (1) up against the L.E. Spar (11), in line with the hole. It should be a perfect snug fit - If the (Black) Tube Connector (2) is positioned according to Detail 'A'. Lightly attach the (Black) Tube Connector to the L.E. Spar using a Bolt (12) and a Washer (5). DO NOT Tighten.

Pt.	P.N.	Description.
1.	45676	Inboard Compression Strut.
2.	45750	Tube Connector L.E. (Black).
3.	45692	Diagonal Attach Plate.
4.	10050	AN3-17a Bolt.

Pt.	P.N.	Description.
5.	10550	3/16" Flat Washer
6.	10500	3/16" Locknut.
7.	45751	Tube Connector T.E. (Aluminum)
8.	.....	T.E. Spar Assy.
9.	10387	1/4"x 2-1/4" Forkbolt.
10.	10560	1/4" Washer.
11.	.....	L.E. Spar Assy.
12.	10428	1/4"x 2-1/2"Grade 5 Bolt.

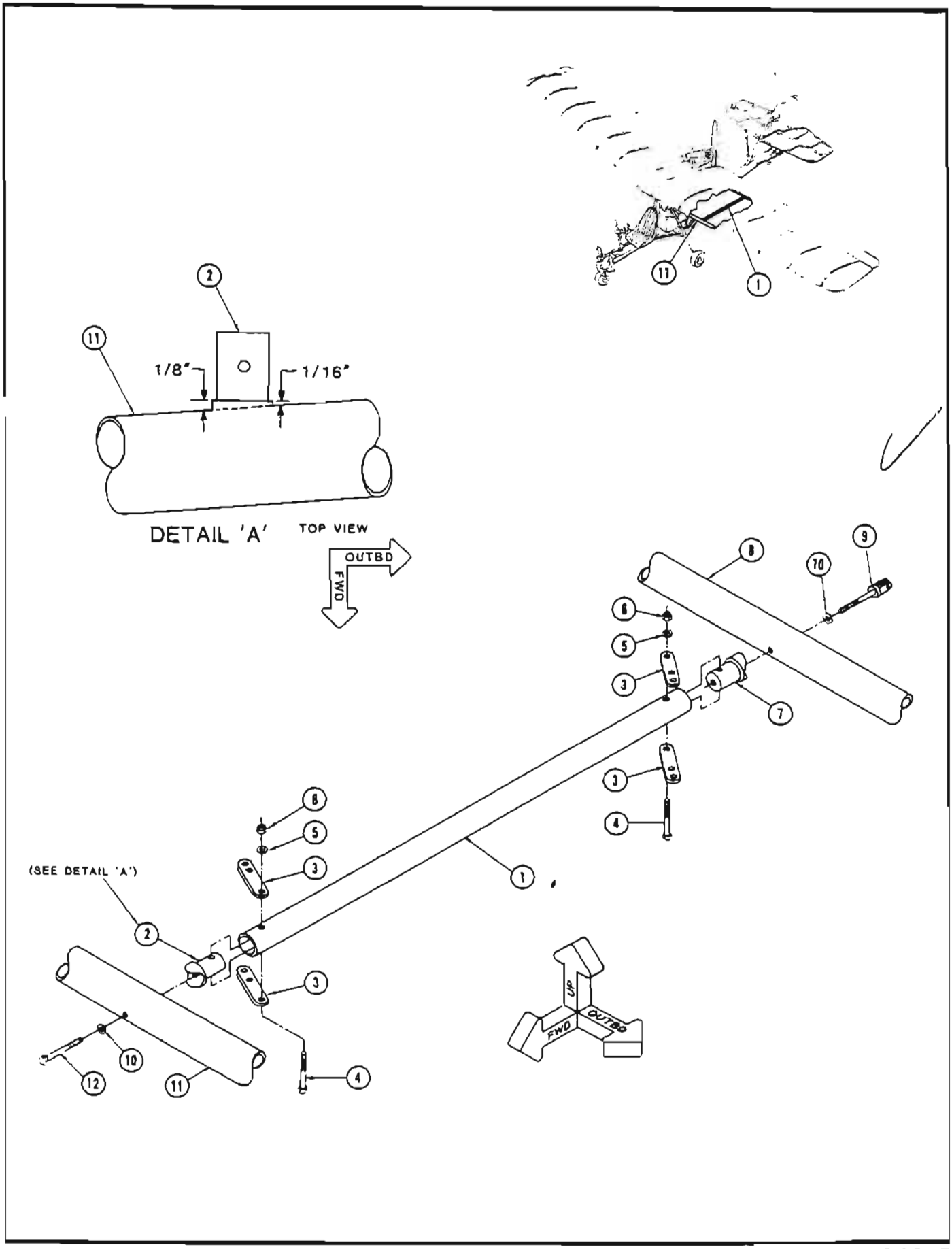

11
1
2
11
1/8"
1/16"
DETAIL 'A'
TOP VIEW
OUTBD
FWD
8
9
10
6
5
3
7
3
4
6
5
3
(SEE DETAIL 'A')
1
2
3
4
10
12
11
UP
FWD
OUTBD

FIGURE 5-5

DIAGONAL STRUT ATTACH.

1. Locate the Outboard Diagonal Strut (1) and connect to the Diagonal Attach Plates (2) on the forward end of the Outboard Compression Strut (3) using two Bolts (4) - Check orientation - and the hardware (5,6) shown. DO NOT Tighten.

2. Connect the other end of the Outboard Diagonal Strut (1) to the Diagonal Attach Plates (2) on the aft end of the Inboard Compression Strut (7) using hardware (4,5,6) oriented as shown. DO NOT Tighten.

3. Connect the forward end (two holes) of the Inboard Diagonal Strut (8) to the Diagonal Attach Plates (2) on the forward end of the Inboard Compression Strut (7). Attach using hardware (4,5,6) oriented as shown. DO NOT Tighten.

4. Refer to Detail 'A'. Attach an Eyebolt (10) - oriented as shown - to the Inboard Diagonal Strut Fitting (9) using the hardware (5,6) shown. Tighten to proper torque ensuring that the eye of the Eyebolt (10) is parallel with the cross-drilled hole in the barrel of the Fitting (9).

5. Insert the Inboard Diagonal Strut Fitting assembly (9) into the aft end (one hole) of the Inboard Diagonal Strut (8) and attach using the hardware (16,5,6) oriented as shown. Tighten to proper torque.

6. Measure 1-1/2"(38mm) from the inboard end of the T.E. Spar (13) and find a predrilled hole. Attach a Forkbolt (14) with the hardware (11,12) shown. Tighten until snug. Don't crush the tube. Lightly attach the Eyebolt in the Inboard Diagonal Strut Fitting (9) to the Forkbolt (14) using the hardware (15,6) shown. DO NOT Tighten.

7. Tighten hardware (4,5,6) until snug. Don't crush the Tubes.

Pt.	P.N.	Description.
1.	45670	Outboard Diagonal Strut.
2.	.....	Diagonal Attach Plate.
3.	.....	Outboard Compression Strut.
4.	10050	AN3-17a Bolt.
5.	10550	3/16" Flat Washer.
6.	10500	3/16" Locknut.
7.	.....	Inboard Compression Strut.
8.	45670	Inboard Diagonal Strut.
9.	45720	Inboard Diagonal Strut Fitting.
10.	11080	AN42B-4 Eyebolt.
11.	10560	1/4" Flat Washer.
12.	10511	1/4" x 20 Nylock Nut.
13.	.....	T.E. Spar Assy.
14.	10387	1/4"x 2-1/4" Forkbolt.
15.	10010	AN3-5a Bolt.
16.	10040	AN3-15a Bolt.

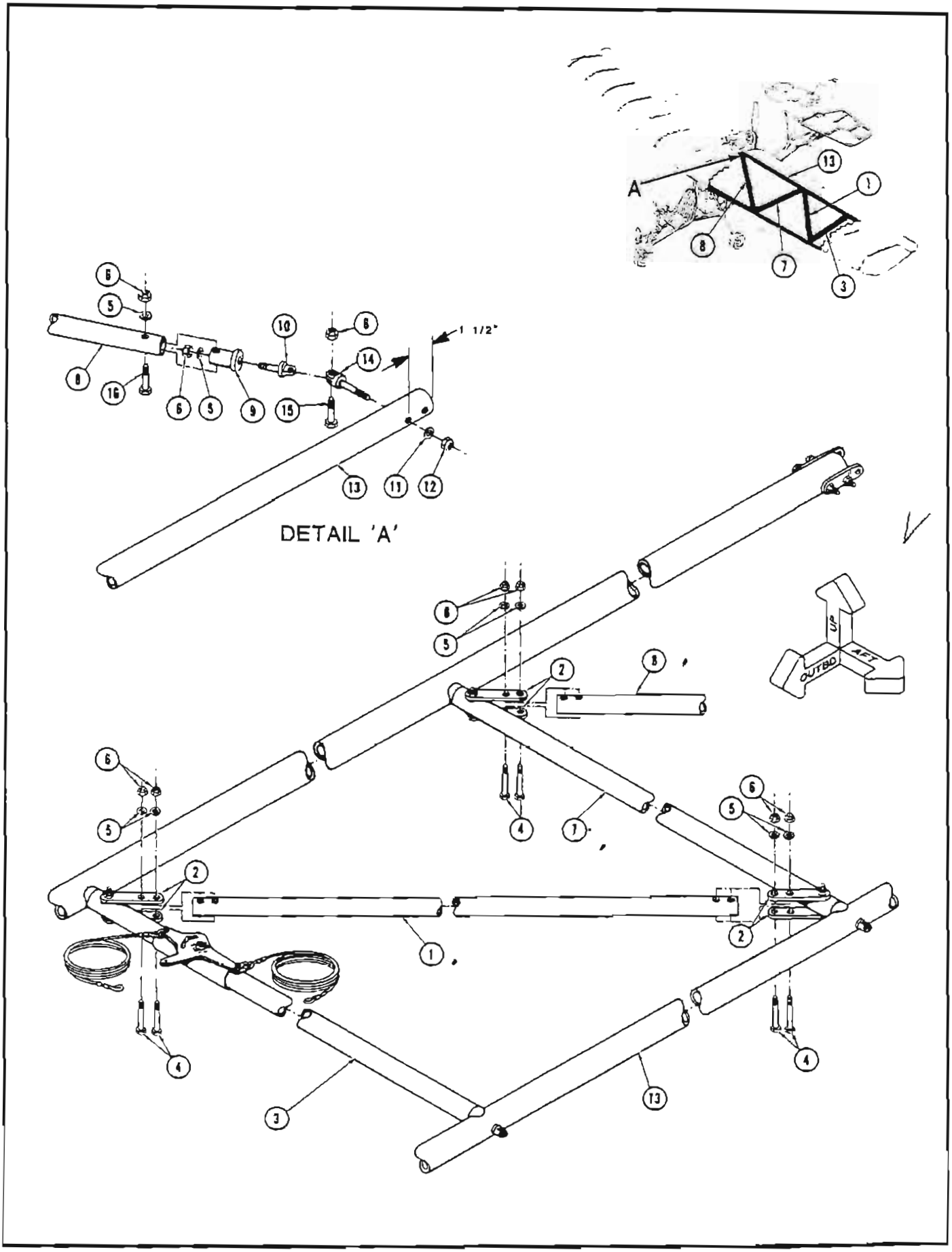


FIGURE 5-6

DOC # 842-5

RIGHT WING ORIENTATION

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

Now complete the Sub-assembly of the RIGHT Wing in the same manner, yet Mirror image. In the illustration, notice especially the "handing" left-to-right of the L.E. (1) and T.E. (2) Spars, the L.E. Brackets Forward (3) & Aft (4), the (Black) Leading Edge Tube Connectors (5), the (previously sub-assembled) Bellcrank (6) on the Outboard Compression Strut (7), the Diagonal Struts (8) & (9) and the orientation of all Bolts and Nuts.

When you've completed the RIGHT Wing Sub-assembly, Tag and store for further work later in the sequence.

Pt.	P.N.	Description.
1.	45655	L.E. Spar Assy.
2.	45660	T.E. Spar Assy.
3.	45690	Fwd L.E. Bracket.
4.	45691	Aft L.E. Bracket.

Pt.	P.N.	Description.
5.	45750	(Black) L.E. Tube Connector.
6.	42009	Aileron Bellcrank.
7.	45679	Outboard Compression Strut.
8.	45673	Outboard Diagonal Strut.
9.	45670	Inboard Diagonal Strut.

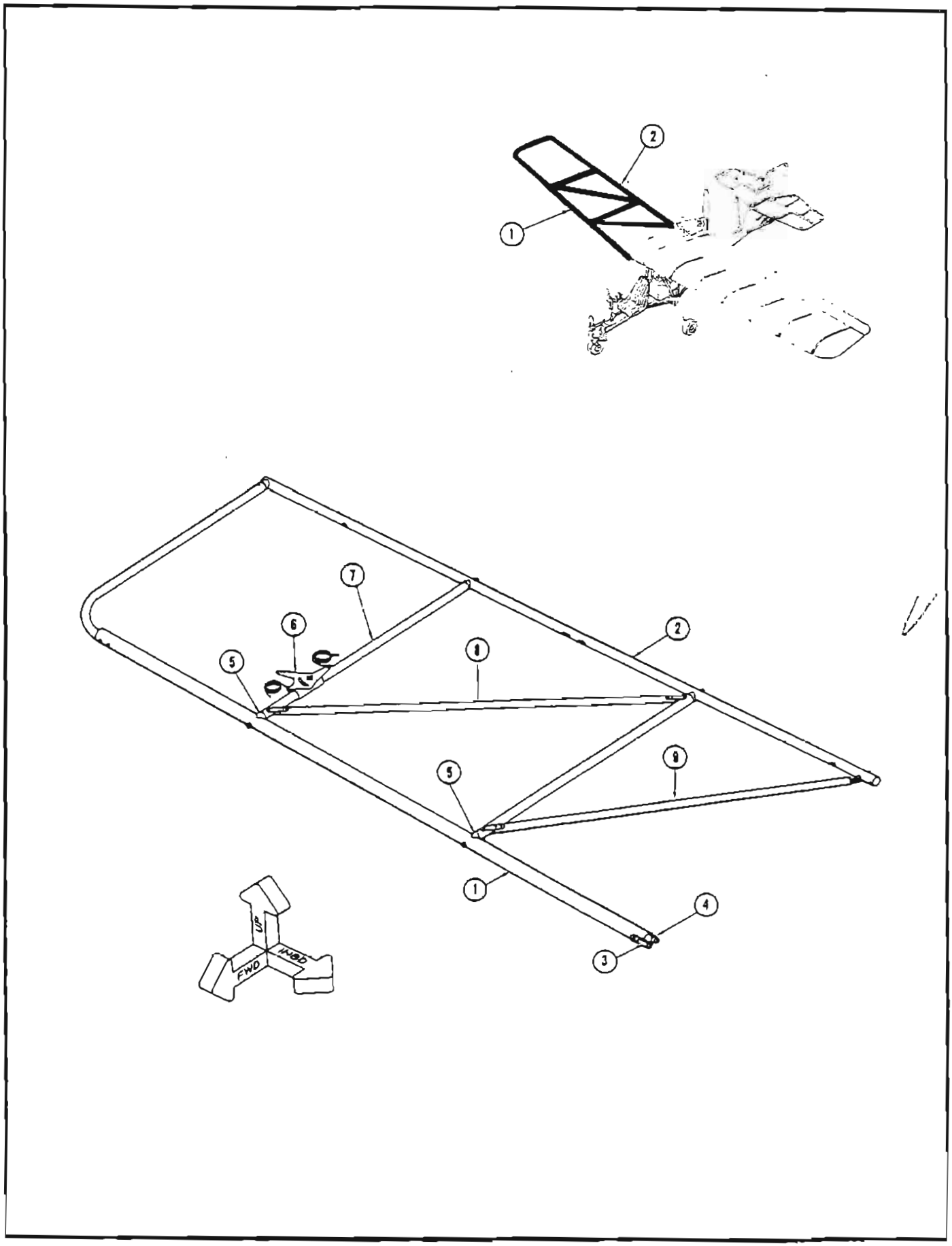


FIGURE 5-7

WING COVER ASSEMBLY

Now return to the LEFT Wing Sub-assembly.

1. Lay out the LEFT Wing Cover (1) bottom side up on a suitably clean, flat surface. Open all Zippers.

2. Turn the LEFT Wing Sub-assembly bottom side up over the LEFT Wing Cover (1).

3. Disconnect both Compression Struts (2) & (3) from the T.E.Spar (4) by removing the Forkbolts (5) and Washers (6). Tag them for later insertion back in the same holes.

4. Disconnect the Bolt (7) and its Hardware from the Forkbolt/Eyebolt sub -assembly (8) at the inboard end of the Inboard Diagonal Strut (9). Lightly reattach the Bolt and its Hardware to the Eyebolt, for later use.

5. Disconnect the two Bolts (10) holding the Compression Struts (2) & (3) to the L.E. Spar (11). Tag them for reinsertion in the same holes later in the sequence.

6. Lift out the Compression Strut/Diagonal Strut Sub-assemoly and store for further work later in the sequence.

7. Disconnect the Bolt (12) and its Washer (13) connecting the Wing Tip Tube (14) to the T.E.Spar (4). Lightly run the Bolt and Washer back into the Tube Connector in the end of the Wing Tip Tube (14).

Pt.	P.N.	Description.
1.	45674	LEFT Wing Cover.
2.		Inboard Compression Strut.
3.		Outboard Compression Strut.
4.		T.E.Spar Assy.
5.		Forkbolts.
6.		Washers.
7.		AN Bolt & Hardware.
8.		Fork/Eyebolt Sub-assy.
9.		Inboard Diagonal Strut.
10.		Grade 5 Bolts.
11.		L.E.Spar Assy.
12.	10420	1/4"x 2-1/4" Grade 5 Bolt.
13.	10560	1/4" Flat Washer.
14.		Wing Tip Tube Assy.

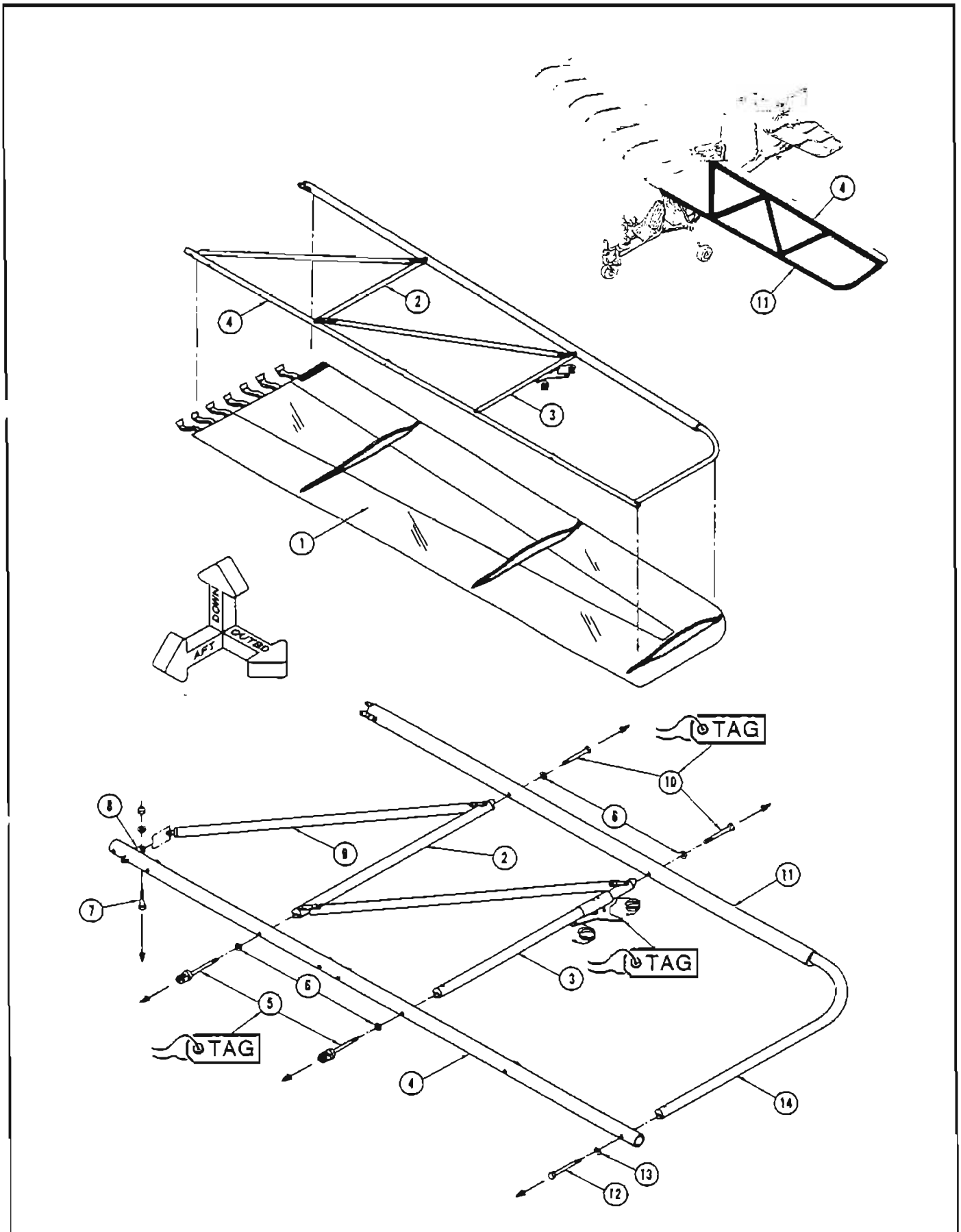


FIGURE 5-8

DOC # 842-5

WING COVER ASSEMBLY (CONT'D.)

SPAR INSERTION

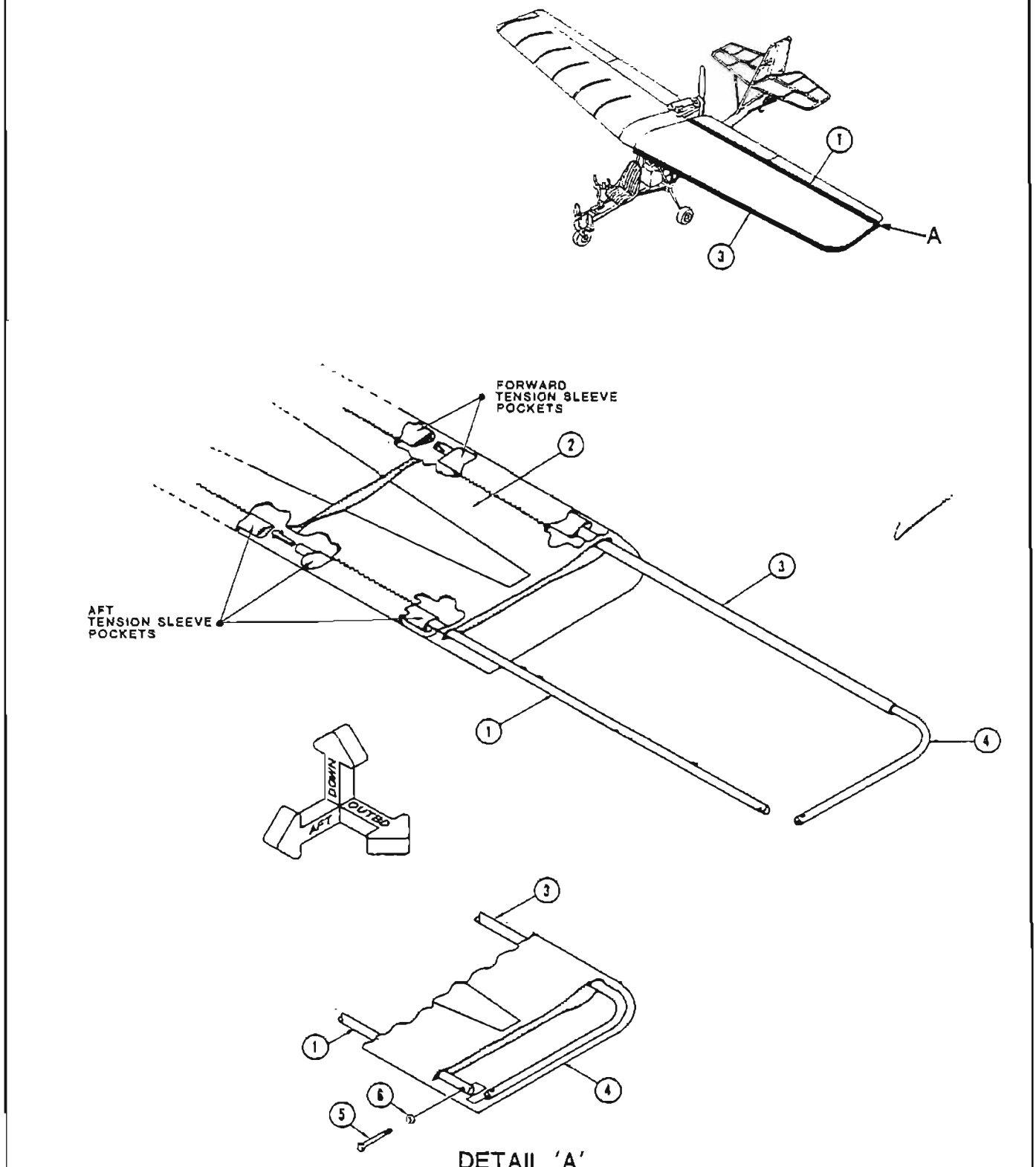
1. Refer to Detail 'A'. Slide the T.E.Spar (1) - Nut Plates facing inwards - into the outboard Zipper of the LEFT Wing Cover (2) and through all aft Tension Sleeve Pockets (sewn into the inside of the Wing Cover), until only the outer 6" (15.2cm) of the T.E.Spar (1) shows out of the Zipper.

2. Slide the L.E.Spar (3) into the outboard Zipper of the LEFT Wing Cover (2) and through all forward Tension Sleeve Pockets as Detail 'A', - being careful not to snag the L.E. Brackets on the end of the L.E.Spar (3), in the pockets - until only the Wing Tip Tube (4) - attached to the L.E. Spar (3) - shows out of the Zipper.

3. Refer to Detail 'A'. Maneuver the L.E.Spar (3) and the T.E.Spar (1) until the Tube Connector in the aft end of the Wing Tip Tube (4), lines up with its hole in the T.E.Spar (1). Add a drop of Loctite and reinsert the Bolt (5) and Washer (6). Be careful not to cross-thread the Bolt. Tighten until snug. Don't crush the tube.

4. Slide the L.E.Spar/T.E.Spar/Wing Tip sub-assembly into the Zipper and pull it back until it is fully housed in position inside the LEFT Wing Cover (2).

Pt.	P.N.	Description.
1		T.E.Spar Assy
2		LEFT Wing Cover.
3		L.E.Spar Assy.
4		Wing Tip Tube Assy.
5		1/4"x 2-1/4" Grade 5 Bolt.
6		1/4" Flat Washer.



DETAIL 'A'

FIGURE 5-9

WING COVER ASSEMBLY (CONT'D.)

HEAT CUTTING

1. With the Wing Cover (1) containing the L.E.Spar/T.E.Spar/Wing Tip sub-assembly still in the "bottom side UP" position, and the Zipoers still open, place the 'Wing Jig' (2) at the inboard end of the Left Wing - or between both Wings if you have the work space.

2. With the help of a friend, position the L.E.Spar (3), and the T.E.Spar (4) each into a Channel (5) on the 'Wing Jig' (2). Slip a Bolts (6) and (7) through their respective Channels and Spars to hold their positions. Weigh-down the 'Wing Jig' to prevent it from moving.

3. Place a piece of the Engine packing styrofoam under the Wing Tip to prevent damage to the Wing Cover (1).

. Refer to Detail 'A'. Pass a length of Nylon Rope thru the round, brass Grommets sewn into the inboard ends of the of the Wing Cover (1). Pull the Wing Cover towards the Channels (5) until <u>snug.</u> Hold the tension. Tie off the L.E.rope to the Jig. Tighten the T.E. nylon rope until snug. DO NOT Overtighten.

NOTE: Due to manufacturing tolerances, some Wing Covers may require <u>slight</u> Hot Knife trimming on the inboard end of the L.E.Spar, while others will not. REMEMBER: This is a <u>tapered</u> wing - DO NOT Overtighten! DO NOT leave slack!

---

5. Refer to Detail 'B'. With the Hot Knife, cut very carefully around the diameter of the outboard end of the T.E.Spar (4) - don't burn the Tube Cap (8) - so that the T.E.Tube Cap (8) shows thru. The tension will begin to pull the Cover over the Tube Cap.

6. Refer to Detail 'C'. Carefully trim around the Nut & Bolt which attaches the Tube Connector to the Wing Tip Tube - now hidden by the upper surface of the Wing Cover (1). Refer to Detail 'D'. Neatly trim the Cover (1) around the T.E.Spar (4). Re-tension the Cover (1) at the .E. and T.E. end of the 'Wing Jig' until snug. DO NOT Overtighten.

Pt. P.N. Description.

1.....LEFT Wing Cover.
2.....'Wing Jig'.
3.....L.E.Spar Assy.
4.....T.E.Spar Assy.
5.....1.75 Channel.
6.....AN4-27 Bolt
(Leading Edge).
7.....AN4-23 Bolt
(Trailing Edge).
8.....T.E.Tube Cap.

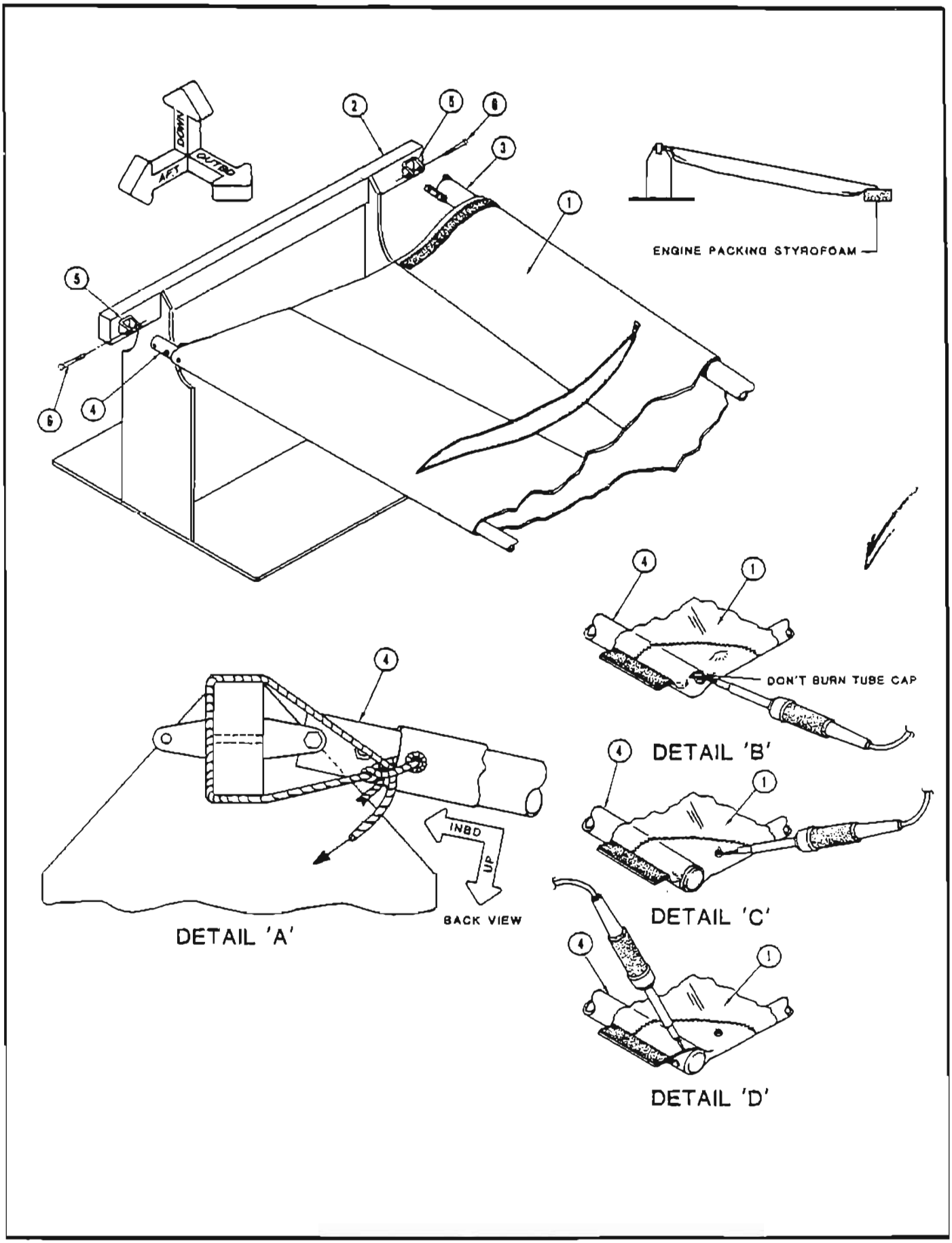

DOWN
AFT
OUTBD
ENGINE PACKING STYROFOAM
DON'T BURN TUBE CAP
DETAIL 'B'
INBD
UP
BACK VIEW
DETAIL 'A'
DETAIL 'C'
DETAIL 'D'

FIGURE 5-10

STRUT INSERTION/RIB POCKETS

IMPORTANT: Due to manufacturing tolerances, slight variations of Rib Pocket positions will occur. Use the measurements shown as a guide to find the Rib Pockets in your Wing Covers, then position Template MW2 on your Rib Pocket centerlines . Note that there only two Rib pockets on the lower wing surface.

1. Position the - previously assembled - Compression Strut/Diagonal Strut Sub-assembly (1) down-side UP and insert it - correctly oriented - inside the Wing Cover (2).

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

3. Position the Inboard Compression Strut (8) in the same way. DO NOT Attach!

4. Lightly re-attach the Inboard Diagonal Strut (3) to the Forkbolt/Evebolt sub-assembly (4) at the inboard end of the T.E.Spar (5). DO NOT Tighten!

5. Refer to Detail 'A'. Measure as shown from the outboard tip of the T.E.Spar (5) Tube Cap. Draw a pencil line on the Wing Cover (2) at each point, 90 degrees to the T.E.Spar (5).

6. Position Template MW2 on the pencil lines and Mark for seven Rib Pocket holes, as shown. (REMINDER: Slight position adjustments to align with internal Rib Pockets may be necessary due to Wing Cover manufacturing tolerances). Neatly cut with the Hot Knife. Use the same sequence, in mirror image, for the RIGHT Wing.

Formula : Multiply inches x 25.4 to give equivalent millimeters.

Pt. P.N.	Description.	Pt. P.N.	Description.
1.....	Comp/Diag Strut Sub-assembly.	5.....	T.E.Spar.
2.....	Wing Cover.	6.....	Outboard Compression Strut.
3.....	Inboard Diagonal Strut.	7.....	L.E.Spar Assy.
4.....	Fork/Evebolt Sub-assembly.	8.....	Inboard Compression Strut.

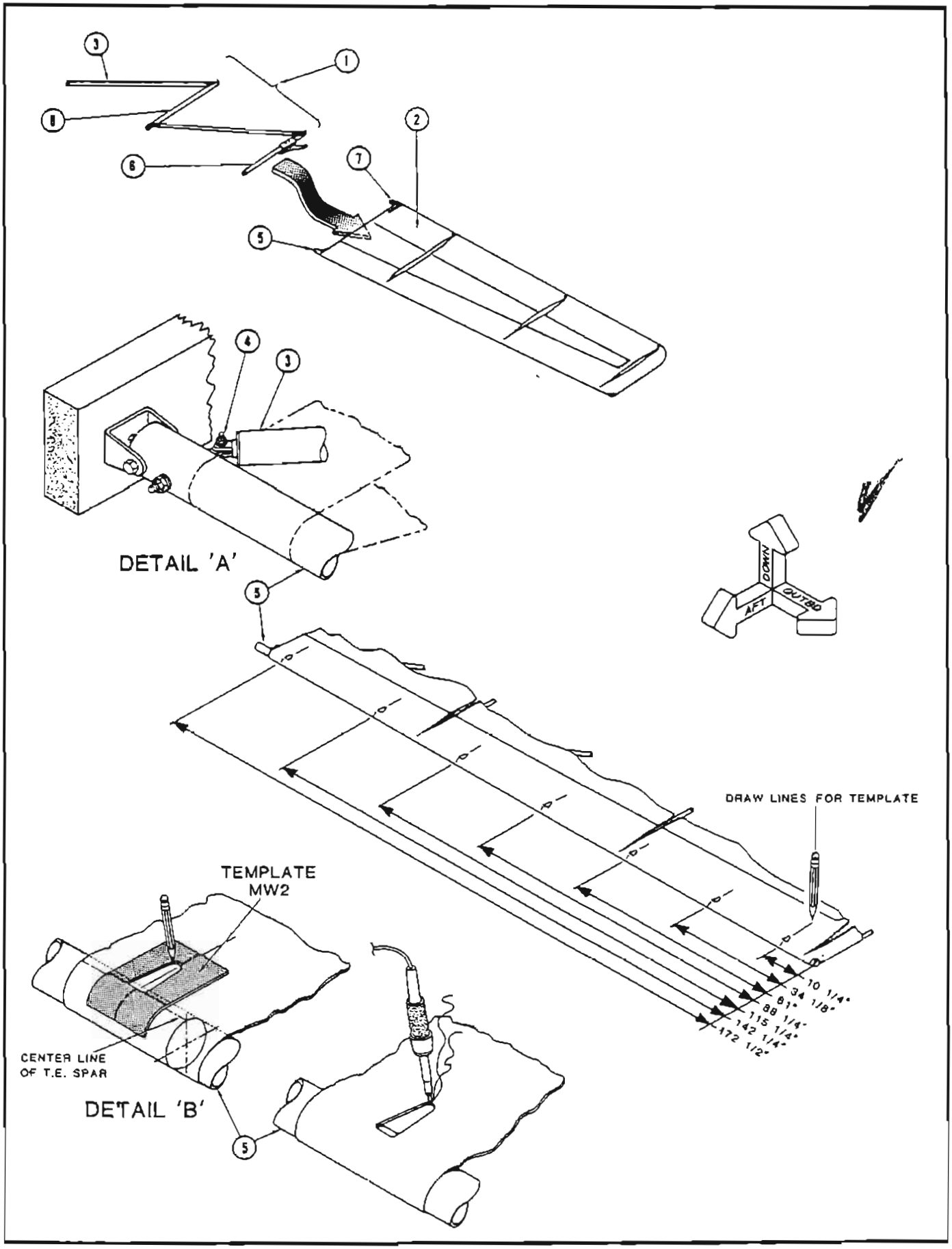


FIGURE 5-11

DOC # 842-5

RIB INSERTION

IMPORTANT: Two OUTBOARD Upper Wing Ribs (1) are packaged separately in the kit. These are reinforced for use ONLY in the OUTBOARD upper position near the Wing Tips (one to each wing). They are slightly heavier than the other Ribs (2).

CAUTION: Use of excessive force can damage the forward Rib Tips.

---

1. Refer to Detail 'A'. For each wing, carefully cut the lengths shown from - one OUTBOARD Upper Wing Rib (1) and five of the Upper Wing Ribs (2) - (they're curved) and one of the Lower Wing Ribs (3) - (they're straight). That Rib (3) is used in the Lower Outboard position. Tag each Rib for each position. Ensure all cuts are accurate and deburred. Attach Rib Tips (4) as shown.

NOTE: Different orientation of the Rib Tips (4) in the upper and lower Ribs. The Pockets tend to stick together, so work the Rib gently back and forth in the pocket until it slides in easily.

---

2. Refer to Detail 'B1'. Push the Outboard upper Rib (1) into the Outboard upper Rib Pocket. Push it until it locates on the L.E.Spar (5).

3. Refer to Detail 'B2' and 'B3'. Using a long Screwdriver, carefully Lever the 'heel' of the Rib Tip until it locates on the T.E.Spar (6).

4. Insert the lower Outboard Rib (3) into the lower Outboard Rib Pocket in a similar manner. Lever into location on the T.E.Spar (6) so that it locates outboard of and snug against, the upper Rib Tip. Close the Wing Tip Zipper.

5. Insert the next inboard upper (2) and lower (3) Ribs in a similar manner.

6. In a similar manner, insert the other five upper (2) Ribs.

7. Refer to Detail 'C'. Ensure that the Velcro Strip aligns down the aft side of the T.E.Spar (6) from Wing Tip to Wing Root as shown.

Pt.	P.N.	Description.
1.	45703	OUTBOARD Upper Surface Rib Assembly.
2.	45702	Upper Surface Rib Assembly.
3.	45706	Lower Surface Rib Assembly.
4.	20262	Rib Tip.
5.	.....	L.E.Spar Assy.
6.	.....	T.E.Spar Assy.

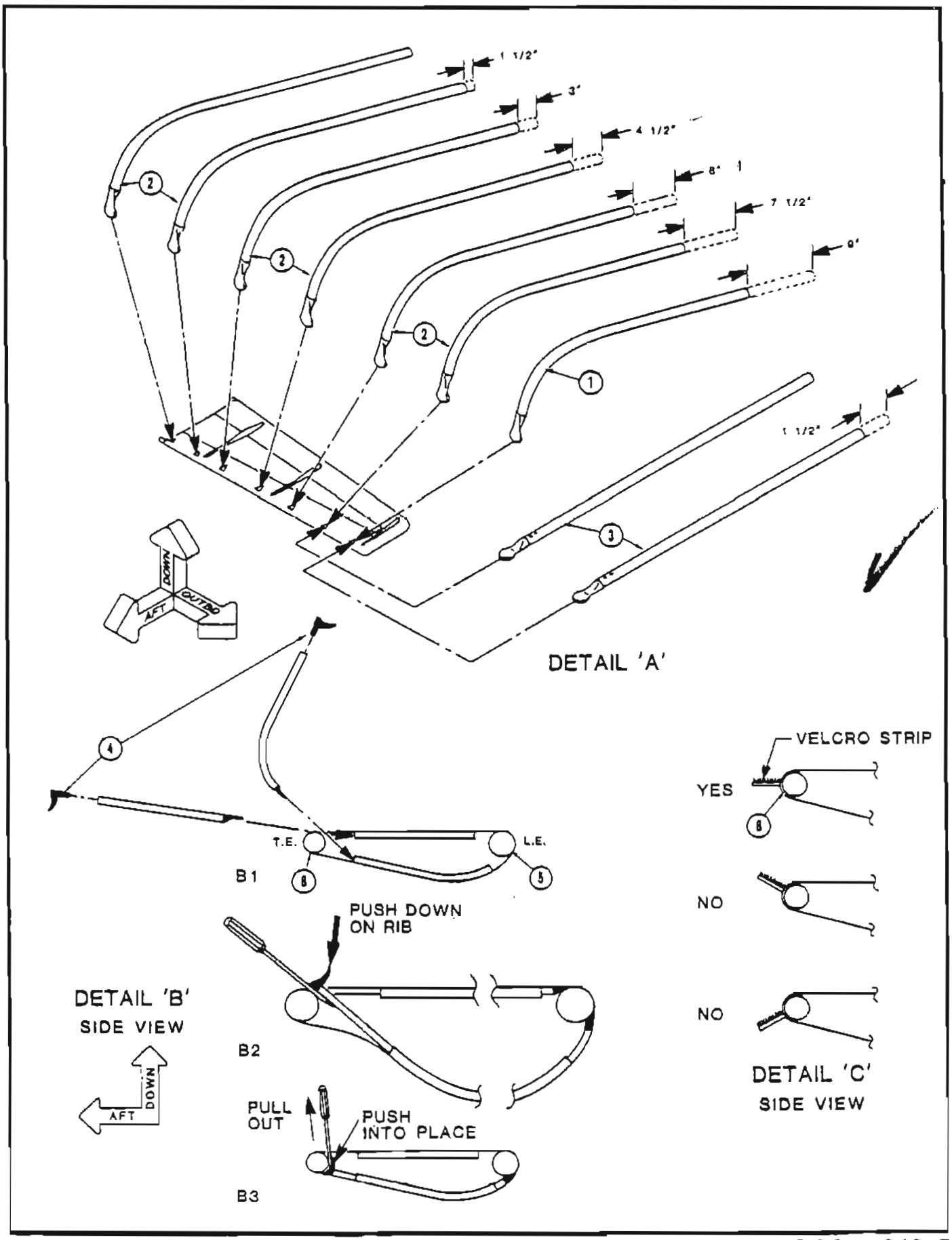

1 1/2"
3"
4 1/2"
6"
7 1/2"
9"
1 1/2"
2
1
3
DOWN
AFT
OUTBD
DETAIL 'A'
4
T.E.
L.E.
B1
6
5
PUSH DOWN
ON RIB
B2
PULL
OUT
PUSH
INTO PLACE
B3
DETAIL 'B'
SIDE VIEW
DOWN
AFT
VELCRO STRIP
YES
NO
NO
DETAIL 'C'
SIDE VIEW

FIGURE 5-12

FORKBOLT ASSEMBLY

CAUTION: In this sequence, when we say "enlarge the hole" we mean in the cloth . DO NOT enlarge the predrilled hole in the T.E.Spar!!

---

1. Refer to Detail 'A', which shows the location of predrilled holes in the aft surface of the Trailing Edge Spar (1) - use measurements as a guide, then find the holes with your fingers. Measurements are taken from the inboard end of the Spar (1). NOTE: All holes in this section are hidden by the Wing cover and Velcro. DO NOT cut any other holes at this time!

2. Refer to Detail 'B' which shows how to cut the Hinge Gaps.

3. Measure 4-1/2" (11.43cm). Find, cut and enlarge the hole and Hinge Gap. Insert a (inboard Flap Hinge) Forkbolt (2) with a Washer (3) into the hole. Add another Washer (3) and a Nylock Nut (4) to the inside surface of the T.E. Spar (1). Tighten until snug. Don't crush the tube.

4. Measure 79" (2m). Find, cut and enlarge the hole as before, cut the Hinge Gap. Insert the (outboard Flap Hinge) Forkbolt (2) and Washer (3) thru the Spar (1) and into the Nut Plate (5) on the inner surface. Tighten until snug. Don't crush the tube.

5. Measure 83" (2.10m). Repeat the above procedure for the (inboard Aileron Hinge) Forkbolt (2).

6. Measure 148" (3.75m). Repeat the above procedure for the (outboard Aileron Hinge) Forkbolt (2).

7. Measure 49" (1.24m). Repeat the above procedure *** EXCEPT *** DO NOT insert the (mid-Flap Hinge/Inboard Compression Strut) Forkbolt.

8. Measure 112" (2.84m) Repeat the above procedure *** EXCEPT *** DO NOT insert the (mid-Aileron Hinge/Outboard Compression Strut) Forkbolt.

9. Refer to Detail 'C'. Move to the Wing L.E. Find the two Bolt heads which join the Wing Tip Tube to the L.E. Spar. Reveal them with the Hot Knife. Using Template MW1, mark and enlarge the holes.

10. Repeat the procedure, in mirror image, on the Right Wing.

Pt.	P.N.	Description.
1		T.E. Spar Assy.
2.	10387	1/4" x 2-1/4" Forkbolt.
3.	10560	1/4" Flat Washer.
4.	10511	1/4" Nylock Nut.
5		Nut Plate (Factory Installed).

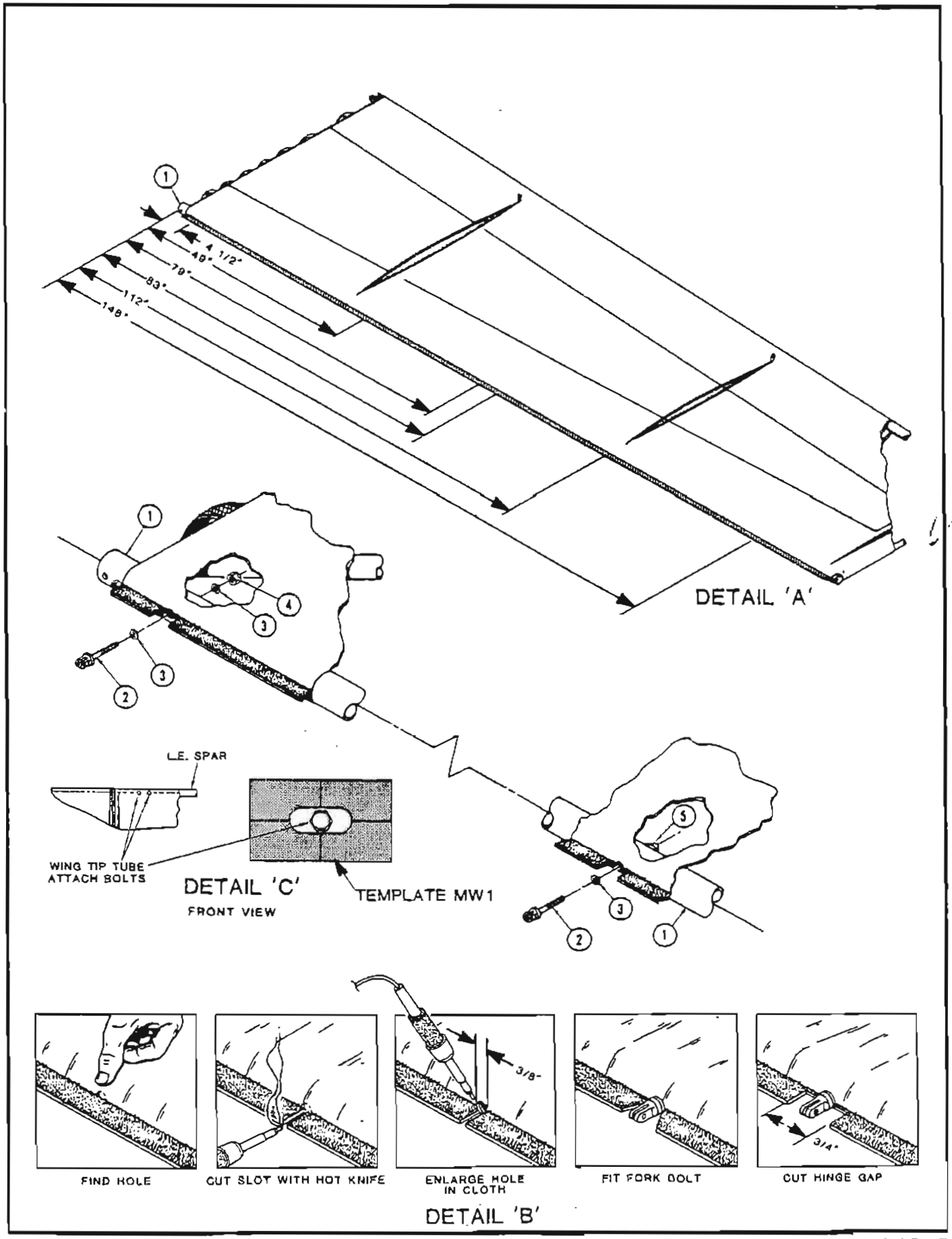

1
4 1/2"
48"
79"
83"
112"
148"
DETAIL 'A'
1
4
3
3
2
L.E. SPAR
WING TIP TUBE ATTACH BOLTS
DETAIL 'C'
FRONT VIEW
TEMPLATE MW1
5
3
2
1
3/8"
3/4"
FIND HOLE
CUT SLOT WITH HOT KNIFE
ENLARGE HOLE IN CLOTH
FIT FORK BOLT
CUT HINGE GAP
DETAIL 'B'

FIGURE 5-13

FORKBOLT ASSEMBLY (CONT'D.)

NOTE: The Washers (1), Bolts (2) and Forkbolts (3) referenced in this section should be the same ones you used in the Compression Strut/Diagonal Strut sub-assembly and Tagged for use here.

REMINDER: In this sequence, when we say "enlarge the hole" we mean in the cloth . DO NOT enlarge the hole in the Spar!!.

---

1. Move to the Wing Leading Edge. Refer to Detail 'A'. Measure 47-7/8" (1.216m) from the inboard end of the L.E.Spar (4). Find the hole on the L.E. centerline. Reveal the hole with the Hot Knife. Position Template MW1. Mark and enlarge the hole as shown.

2. Refer to Detail 'B'. Using the Awl tool, align the threaded Tube Connector (5) in the Inboard Compression Strut (6) with the hole in the L.E.Spar (4). Add a Washer (1) and a drop of Loctite to the Bolt (2). Lightly attach. DO NOT Tighten.

3. Measure 111" (2.81m). Find the (Outboard Compression Strut) hole. Mark, cut and enlarge the hole using Template MW1 as above. Refer to Detail 'C'. Using the Awl tool, align the Outboard Compression Strut (7) with the hole. Add a Washer (1) and Bolt (2) with Loctite. DO NOT Tighten.

4. Return to the Trailing Edge. Align the Outboard Compression Strut (7) with its hole and Hinge Gap in the T.E.Spar (8). Attach using a Washer (1) and a Forkbolt (3) with Loctite. DO NOT Tighten.

5. Refer to Detail 'B'. Align the Inboard Compression Strut (6) with its hole and Hinge Gap in the T.E.Spar. Attach using a Washer (1) and a Forkbolt (3) with Loctite. DO NOT Tighten.

6. With the help of a friend, carefully and alternately tighten each Bolt (2) and Forkbolt (3) in Compression Strut (6) and then repeat the rocedure on Compression Strut (7). Tighten until snug. Don't crush the tubes.

7. Refer to Detail 'D'. Tighten to proper torque, the 3/16" Nut and Bolt (9) in the Forkbolt/Eyebolt sub-assembly which connects the Inboard Diagonal Strut to the T.E.Spar.

Pt.	P.N.	Description.
1	.....	1/4" Flat Washer.
2	.....	1/4" x 2-1/2" Grade 5 Bolt.
3	.....	1/4" x 2-1/4" Forkbolt.
4	.....	L.E.Spar Assy.
5	.....	Tube Connector.
6	.....	Inboard Compression Strut.
7	.....	Outboard Compression Strut.
8	.....	T.E.Spar.
9	.....	3/16" Nut & Bolt (Previously Assembled).

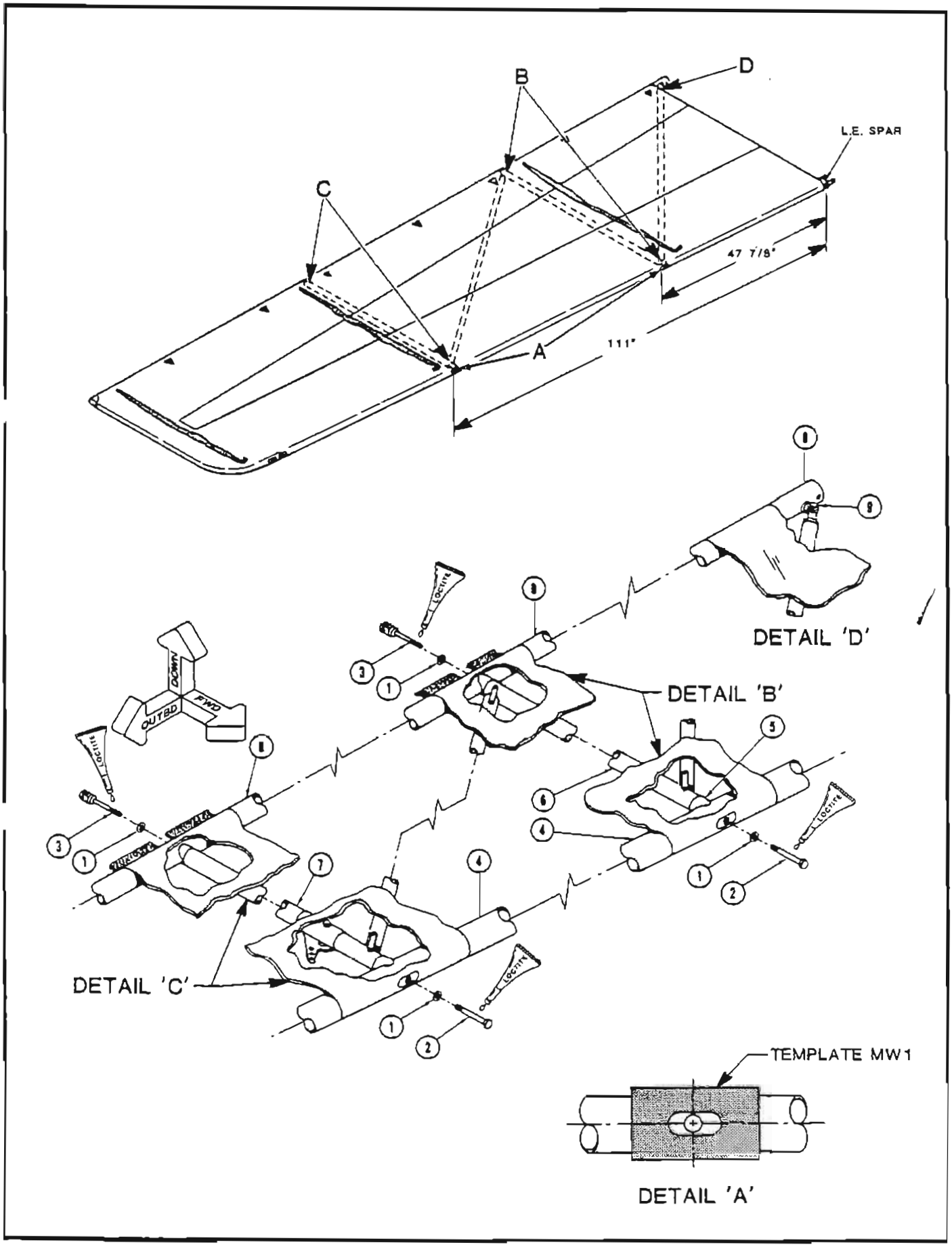

B
D
L.E. SPAR
C
47 7/8"
A
111"
DETAIL 'D'
DETAIL 'B'
DETAIL 'C'
TEMPLATE MW1
DETAIL 'A'

FIGURE 5-14

AILERON PUSHROD/WING WIRE TEMPLATES

NOTE: In this section we will Hot Knife the holes in the LEFT Wing Cover for the Aileron Pushrod and the Upper and Lower Wing Wires and then fit the Wires. In instructions 5,7 and 8, mark the Template outlines, then remove them before heat cutting. Careful attention to detail will be rewarded by a more efficient and better looking wing.

1. Along the underside of the T.E.Spar (1), measure 49-7/8" (1.26m) from the inboard end. Find a hole and reveal the hole with the Hot Knife. Find and reveal the same hole on the upper surface of the T.E.Spar (1).

2. Measure 112-7/8" (2.86m) - from the inboard end - along the underside of the T.E.Spar (1). Find and reveal the hole. Find and reveal the same hole on the upper surface of the T.E.Spar (1).

3. Along the underside ONLY of the L.E.Spar (2), measure 48-7/8" (1.24m) - from the inboard end - Find and reveal the hole. DO NOT cut the upper surface!

4. Along the underside ONLY of the L.E.Spar (2), measure 112" (2.84m) - from the inboard end - Find and reveal the hole. DO NOT cut the upper Wing surface!

5. Refer to Detail 'A'. Measure, mark and position Template MW3 as shown.

CAUTION! Note the different dimension for MW3 on the RIGHT Wing.

---

6. Lift the 'Cross-Beam' section of the 'Wing Jig' out of the Jig and turn the whole Wing UPSIDE-UP. Relocate the 'Cross-Beam' in the Jig.

7. Refer to Detail 'B'. Accurately position Template MW4. Mark and carefully heat cut the top of the Wing Cover for the Upper L.E. Inboard Wire as shown.

8. Refer to Detail 'C'. Accurately position Template MW5. Mark and carefully heat cut the top of the Wing Cover for the Upper L.E. Outboard Wire as shown.

9. Repeat the above in mirror image on the RIGHT Wing. NOTE: To use Templates MW3, MW4 and MW5 on the RIGHT Wing, simply flip them over and reuse them. REMEMBER! - different dimension on MW3!

Pt. P.N. Description.

1.....T.E.Spar.
2.....L.E.Spar.

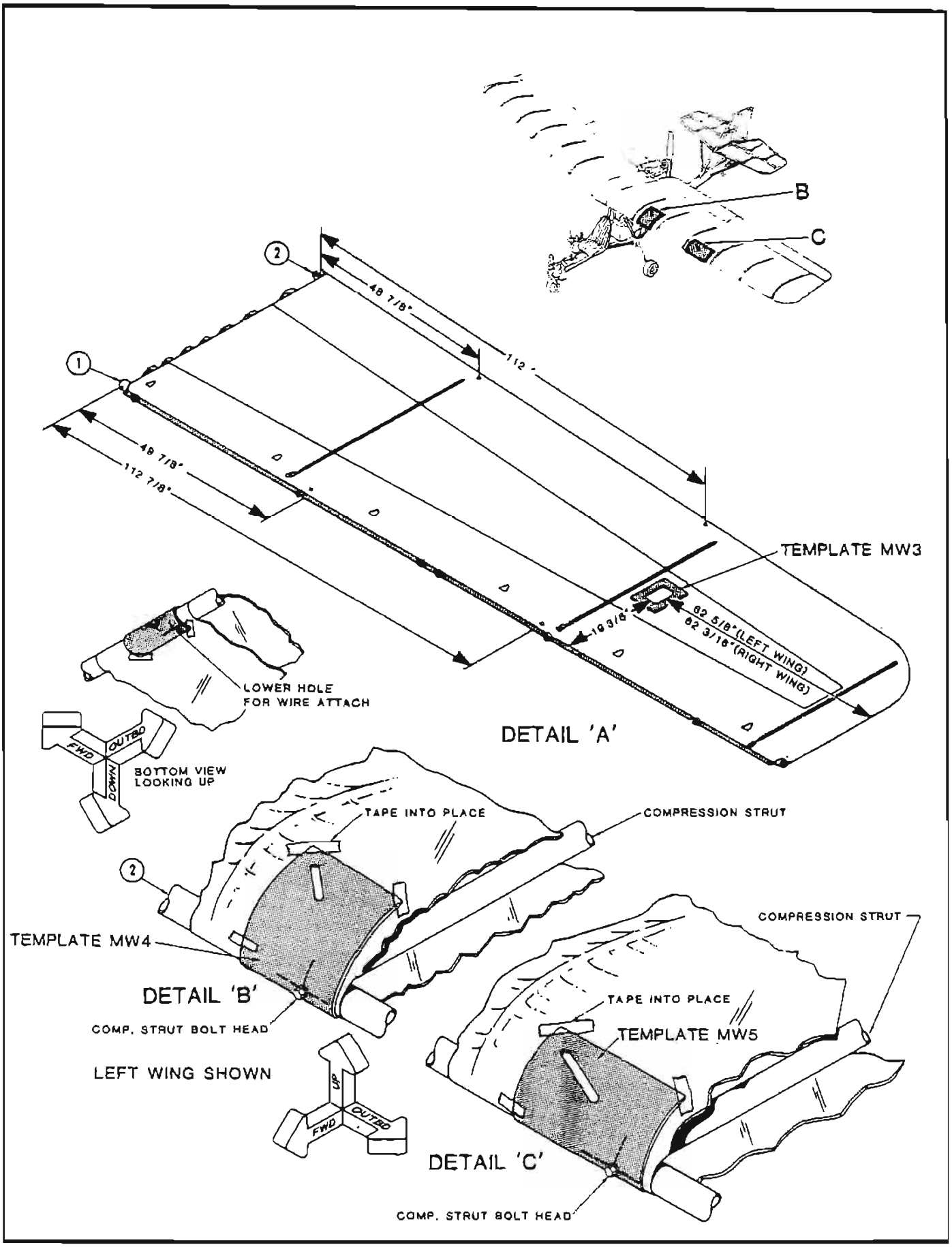


FIGURE 5-15

DOC # 842-5

WING WIRE ATTACH.

IMPORTANT: Read "Nico Sleeve Gauge Procedure" in Section 1.

NOTE: Before proceeding it is necessary to POSITIVELY IDENTIFY the correct Wires used in the Text. Refer to Detail 'A' and the Part Numbers below. Notice that Lower Wires 2L thru 4L and 2R thru 4R have the same Part Numbers - and differ only in position.

LEFT Wing Wires.			RIGHT Wing Wires.		
Pt.	P.N.	Description.	Pt.	P.N.	Description.
1L	45731	Upper LEFT Wing Wire Assy.	1R.	45732	Upper RIGHT Wing Wire Assy.
2L	45737	Wire, Lower T.E. Inboard .	2R	45737	Wire, Lower T.E. Inboard .
3L	45738	Wire. Lower T.E. Outboard .	3R	45738	Wire. Lower T.E. Outboard .
4L	45735	Wire. Lower L.E. Inboard .	4R	45735	Wire. Lower L.E. Inboard .
5L	45736	Wire. Lower L.E. Outboard .	5R	45736	Wire. Lower L.E. Outboard .

1. Check for correct orientation of Wires. Lay out the LEFT Upper Wing Wires (1L) - oriented as shown - on top of the Wing.

2. Pass the L.E.Outboard Wire (1L) thru the outboard (Template-cut) slot in the Wing L.E. Pass the L.E.Inboard Wire (1L) through the inboard slot.

3. Attach the L.E. Inboard (1L) and Lower L.E.Inboard Wire (4L) to the L.E.Spar (10) using the hardware (6,7,8) shown. Attach the L.E.Outboard Wire (1L) and Wire (5L) in a similar manner. Tighten until snug. Don t crush the tube.

4. Attach the Upper T.E.Inboard Wire (1L) and Lower T.E.Inboard Wire (2L) to the T.E.Spar (11) using the hardware (9,7,8) shown. Attach the T.E.Outboard Wire (1L) and Wire (3L) in a similar manner. Tighten until snug. Don t crush the tube.

5. Leave all Lower Wires coiled. Close all the Ziopers and carefully store the LEFT Wing for later assembly.

Repeat the above procedures, in mirror image, for the RIGHT Wing.

Pt.	P.N.	Description.	Pt.	P.N.	Description.
6.	10240	AN4-26a Bolt.	9.	10220	AN4-24a Bolt.
7.	10560	1/4" Flat Washer.	10.	.....	L.E.Spar Assy.
8.	10510	1/4" Locknut.	11.	.....	T.E.Spar Assy.

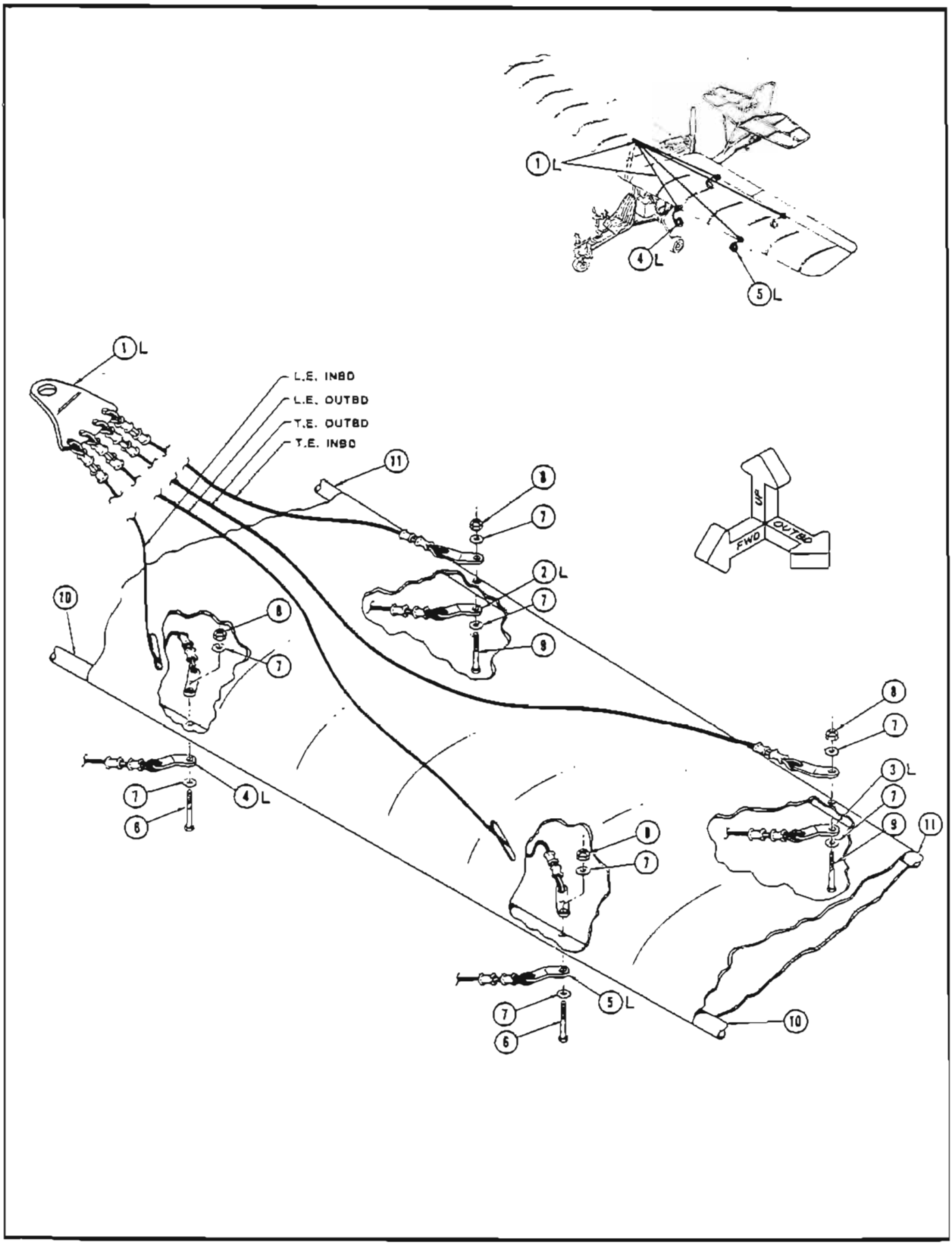
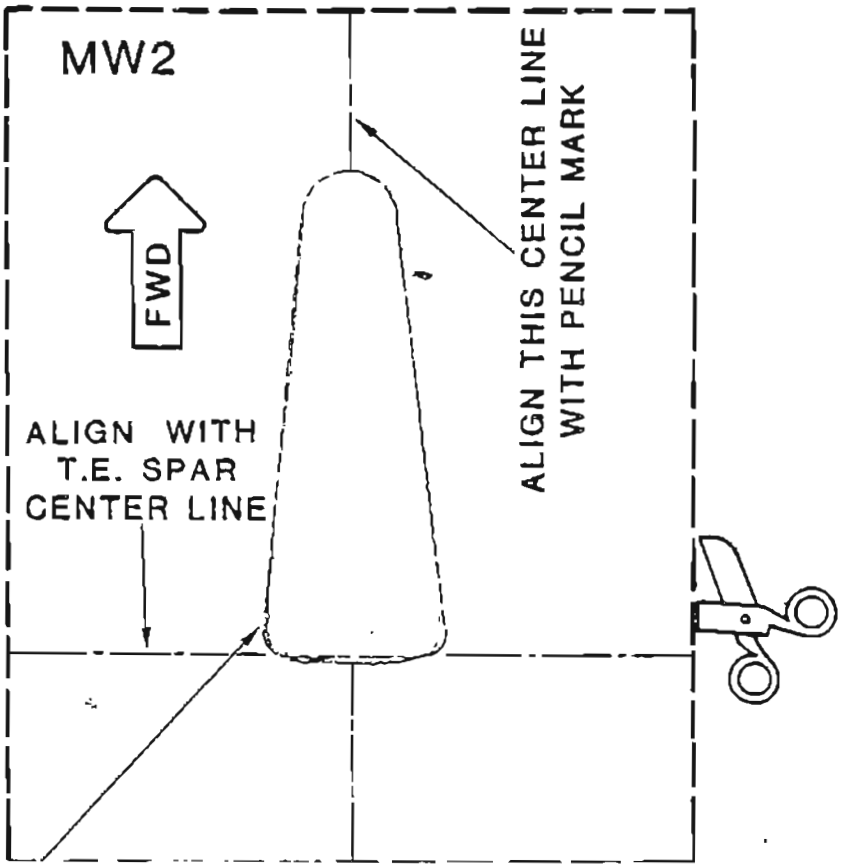
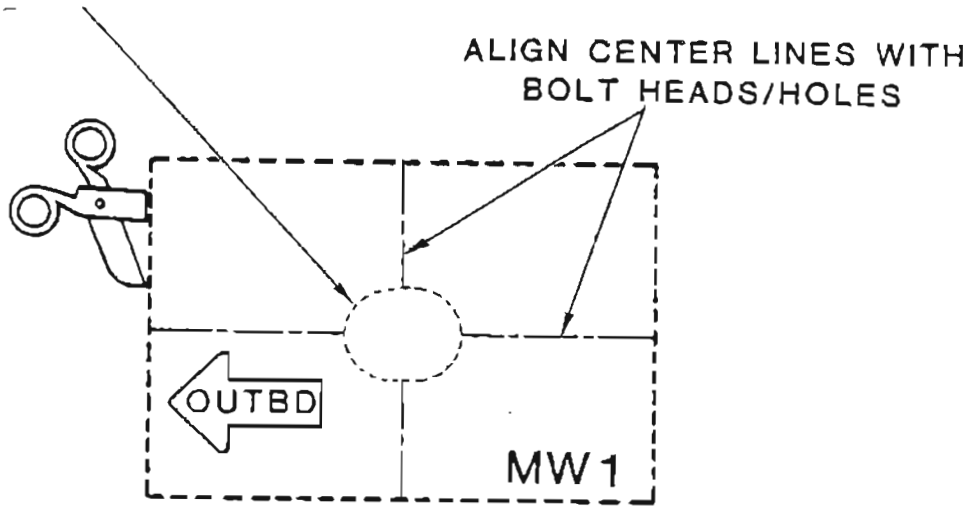

1 L
4 L
5 L
1 L
L.E. INBD
L.E. OUTBD
T.E. OUTBD
T.E. INBD
11
8
7
2 L
7
9
10
8
7
UP
FWD
OUTBD
8
7
3 L
7
9
11
4 L
7
6
8
7
5 L
7
6
10

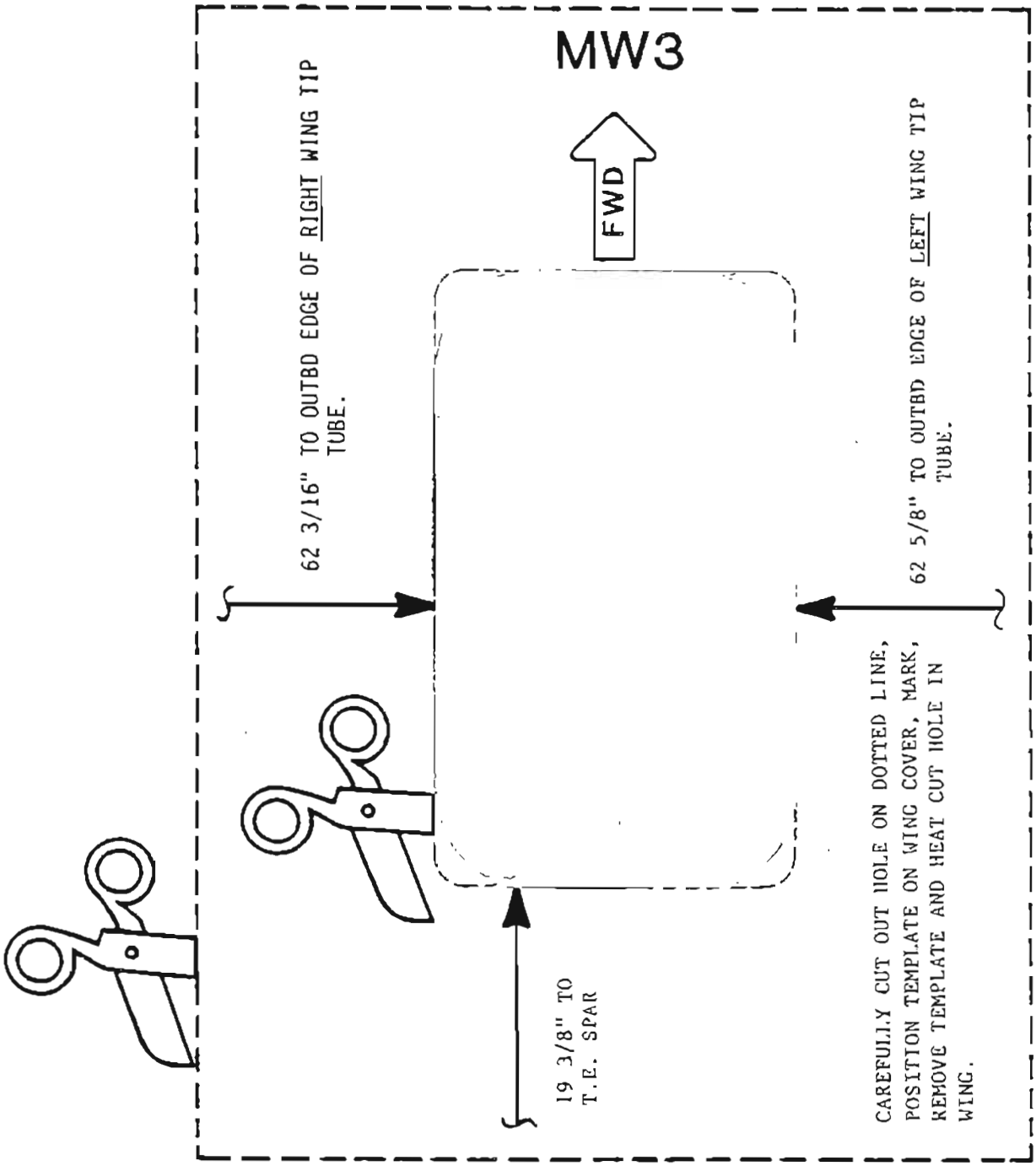
FIGURE 5-16

TEMPLATES-MAIN WING

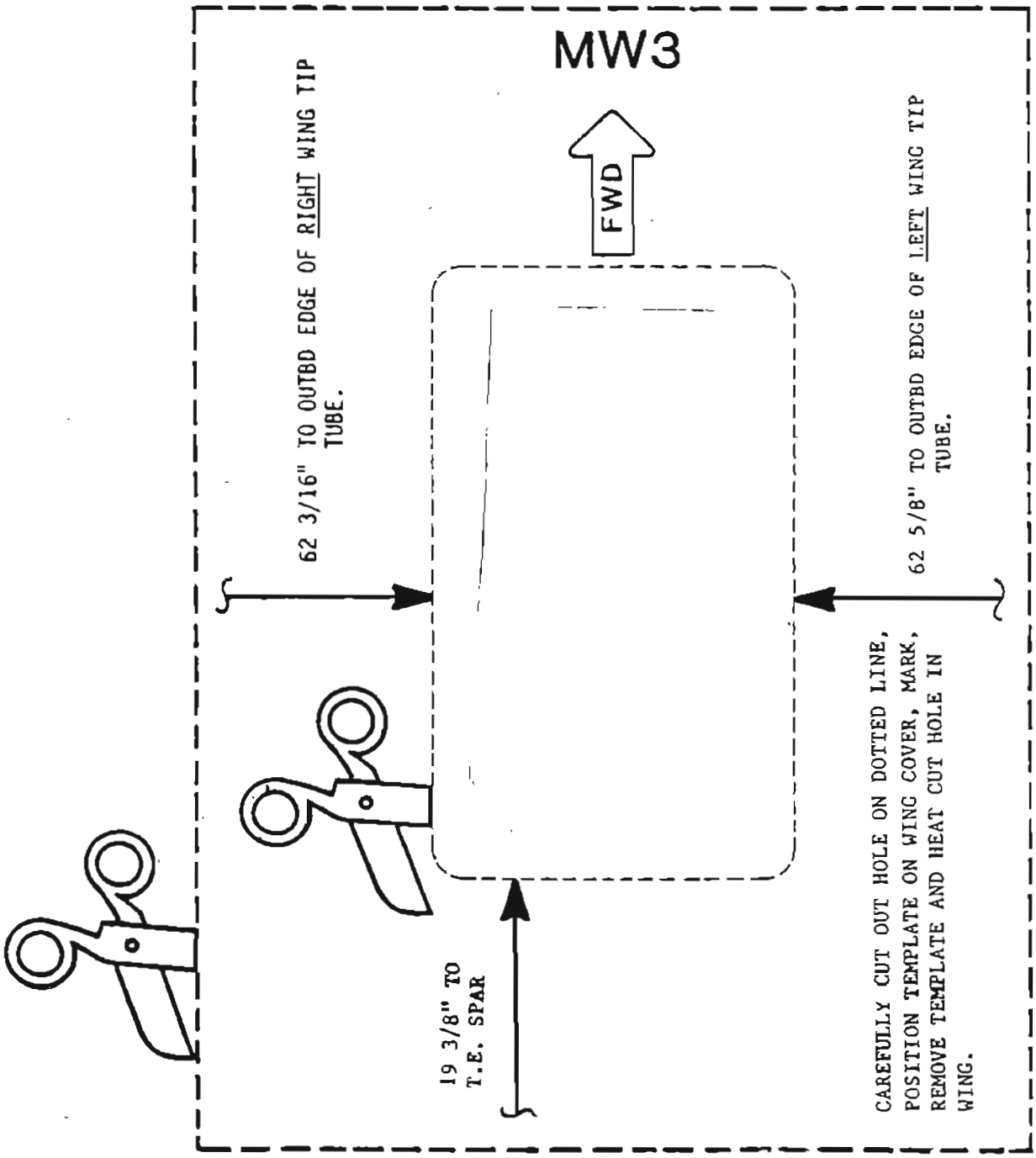


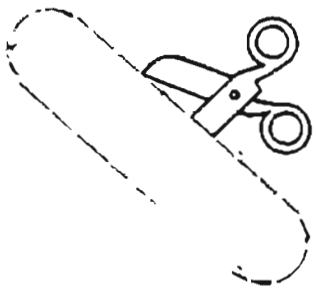


TEMPLATES-MAIN WING (CONT'D.)



TEMPLATES- MAIN WING (CON'D.)





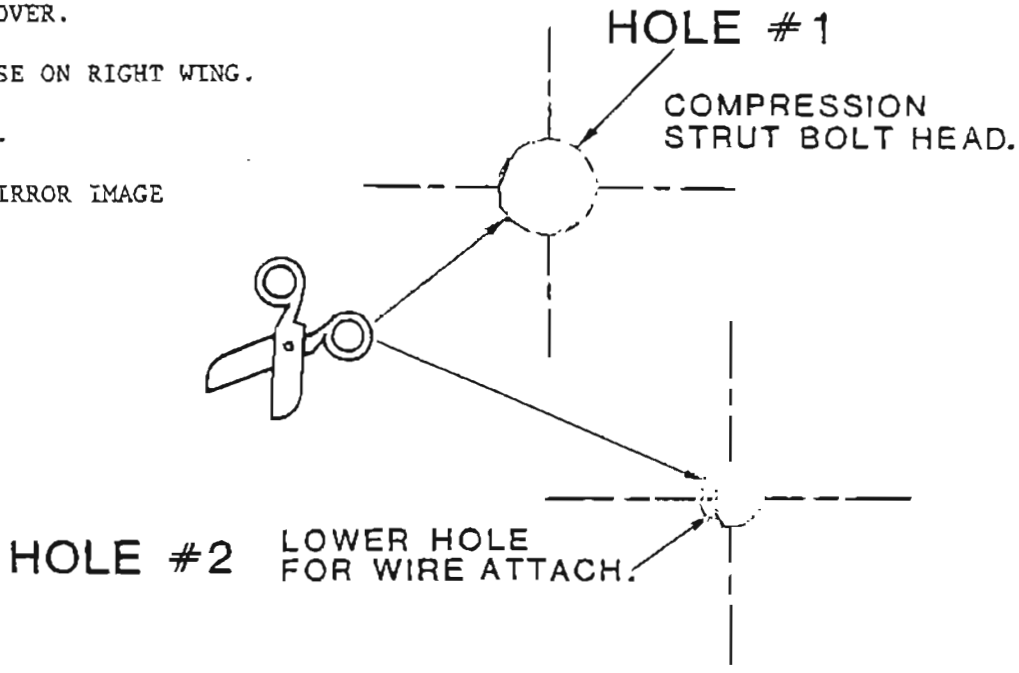
MW4

L.E. INBD UPPER WIRE TEMPLATE

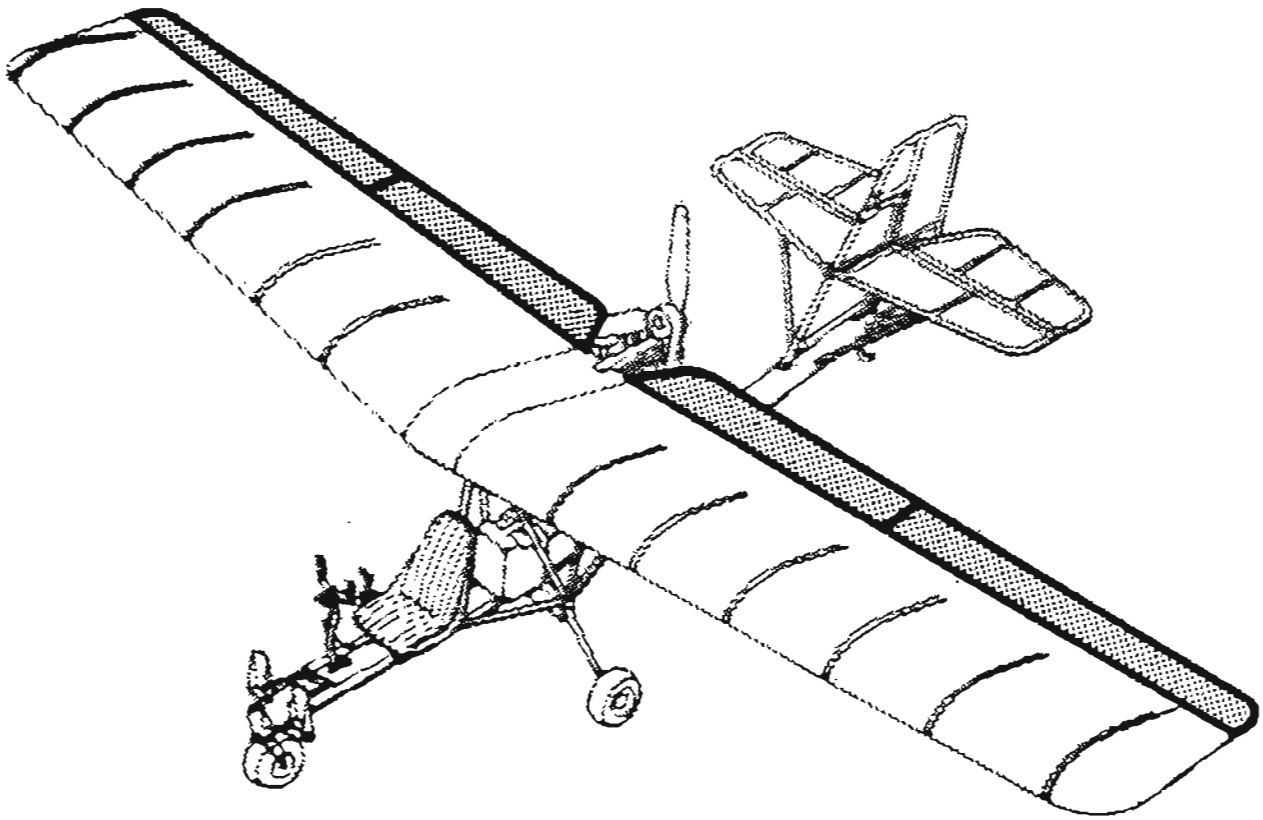


1. REMOVE TEMPLATE PAGE FROM MANUAL.
2. CAREFULLY CUT OUT SLOT AND HOLES ON DOTTED LINES.
3. ALIGN HOLE #1 ONTO THE COMPRESSION STRUT BOLT HEAD.
4. ALIGN CENTERLINES OF HOLE #2 WITH THE HEAT CUT HOLE ON BOTTOM OF L.E. SPAR.
5. TAPE TEMPLATE INTO PLACE.
6. MARK SLOT ONTO WING COVER.
7. REMOVE TEMPLATE FOR USE ON RIGHT WING.
8. HEAT CUT SLOT IN WING.

REPEAT PROCEDURE IN MIRROR IMAGE FOR RIGHT WING.



SECTION 6 AILERONS/FLAPS



QUALITY ASSURANCE ACCEPTED

DATE 5-16-84 ECO # 527

Copyright © 1984, Eipper Aircraft

AILERON ASSEMBLY

This sequence shows the LEFT Aileron assembly, the Right Aileron is built the same way, but mirror image.

1. Locate the Aileron Leading Edge (1) in the kit. It has nine 1/2" holes and three (Factory Installed) Nut Plates on its aft side. On its forward side, there are three 1/4" holes - one is 1-3/4" from the inboard end - and nine 1/8" holes. Lay it on your worksurface so that the inboard end is to your Right.

2. Lay out the Aileron Compression Struts (2), longest to your Right, shortest to your Left. Number them with a soft pencil.

3. Refer to Detail 'A'. Insert the Forward Compression Strut Tips (3) as shown, into the Compression Struts (2) centerpunch lightly in place.

4. Insert the Aft Compression Strut Tips (4) into the Compression Struts (2) and centerpunch lightly in place.

5. Insert the Compression Struts (2) into the Aileron L.E. (1). Attach each with a 'Pop' Rivet (5). Align all Struts (2) at 90 degrees to the L.E. (1).

6. Add a Forward Compression Strut Tip (3) to the Aileron Tip Tube (6) and assemble into the Aileron L.E. (1). Align it with the Compression Struts (2). Slide the Aileron Trailing Edge (7) into the Aileron Tip Tube (6).

7. Working from outboard to inboard, align and insert each Compression Strut (2) into the Aileron Trailing Edge. It may be necessary to temporarily hold them in place with Masking Tape. When all are aligned. 'Pop' Rivet the Aileron Tip Tube (6) to the Aileron L.E. (1).

8. Refer to Detail 'B'. Insert the Aileron Sub-assembly into the LEFT Aileron Cover (8), remove the Masking Tape as you progress. Complete as shown. Ensure the Velcro is correctly positioned. Close the Zipper.

9. Repeat the above procedure, in mirror image, for the Right Aileron.

10. Store the Ailerons for further work later in the sequence.

Pt.	P.N.	Description.
1.	45205	Aileron L.E.Assy.
2. thru 4.	45210-45217	Aileron Compression Struts.
3.	71001	Forward Compression Strut Tips.
4.	71002	Aft Compression Strut Tips.
5.	20225	3/16"alum x 1/2"grip. 'Pop' Rivet.
6.	45220	Aileron Tip Tube.
7.	45206	Aileron T.E.Assy.
8.	45222	LEFT Aileron Cover.

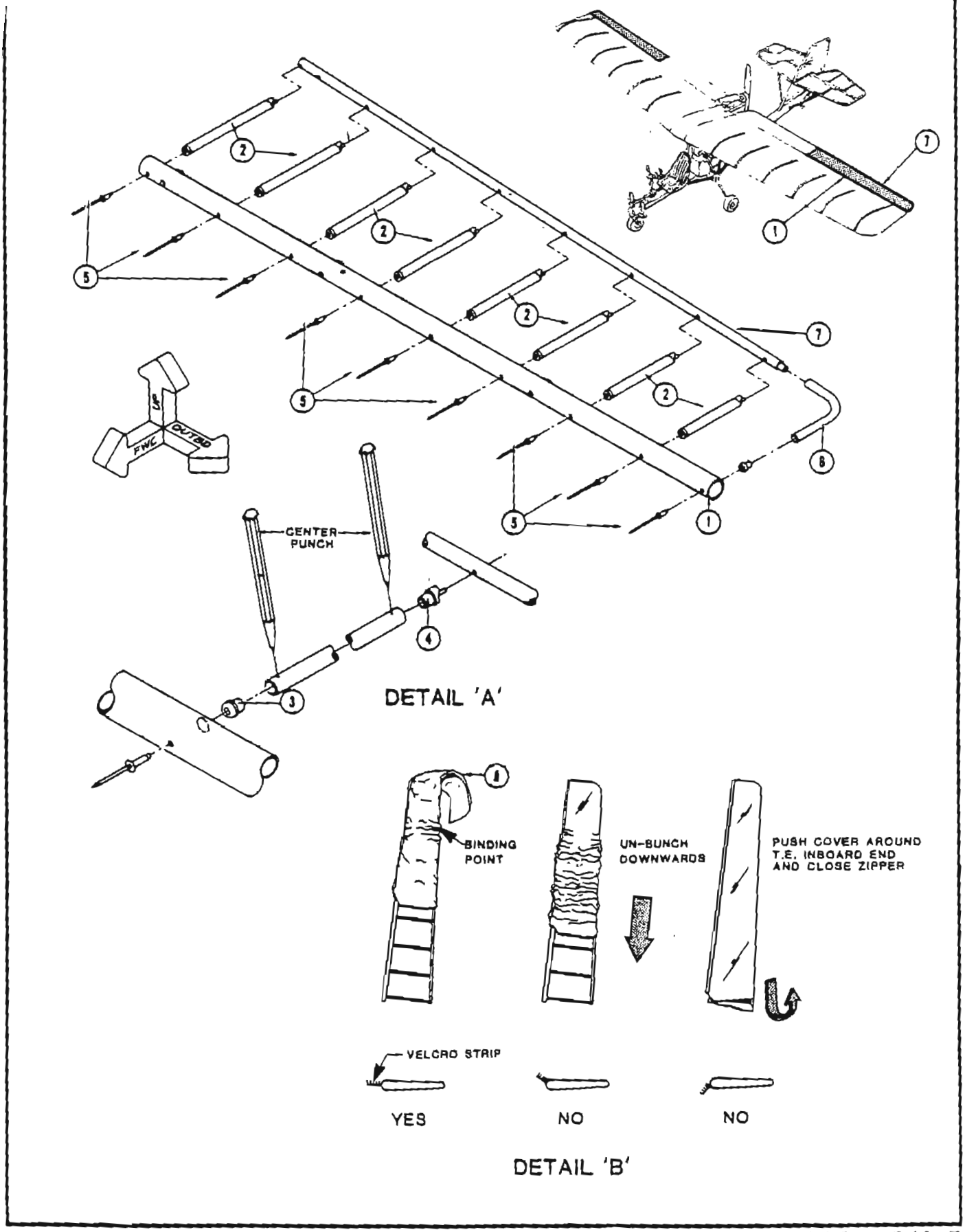

2
2
2
2
5
5
7
1
1
7
8
3
OUTBD
FWD
CENTER PUNCH
4
3
DETAIL 'A'
6
BINDING POINT
UN-BUNCH DOWNWARDS
PUSH COVER AROUND T.E. INBOARD END AND CLOSE ZIPPER
VELCRO STRIP
YES
NO
NO
DETAIL 'B'

FIGURE 6-1

FLAP ASSEMBLY

This sequence shows the LEFT Flap assembly, the Right Flap is built the same way, but mirror image.

1. Locate the Flap Leading Edge (1) in the kit. It has three (Factory Installed) Nut Plates and seven 1/2" holes on its aft side and three 1/4" holes and six 1/8" holes on its forward side. It also has two 3/16" cross-drilled holes at its inboard end. Lay it on your worksurface so that the inboard end is to your LEFT.

2. Lay out the Flap Compression Struts (2), longest to your Left, shortest to your Right. Number them with a soft pencil.

3. Refer to Detail 'A'. Insert the Forward Compression Strut Tips (3) as shown, into the Compression Struts (2) and centerpunch lightly in place.

4. Insert the Aft Compression Strut Tips (4) into the Compression Struts (2) and centerpunch lightly in place.

5. Insert the Compression Struts (2) into the Flap L.E. (1). Attach each with a 'Pop' Rivet (5). Align all Struts (2) at 90 degrees to the L.E. (1).

6. Add a Forward Compression Strut Tip (3) to the Flap Tip Tube (6) and assemble into Flap L.E. (1). Align it with the Compression Struts (2). Slide the Flap T.E. (7) into the Flap Tip Tube (6).

7. Working from inboard to outboard, align and insert each Compression Strut (2) into the Flap Trailing Edge. It may be necessary to temporarily hold them in place with Masking Tape.

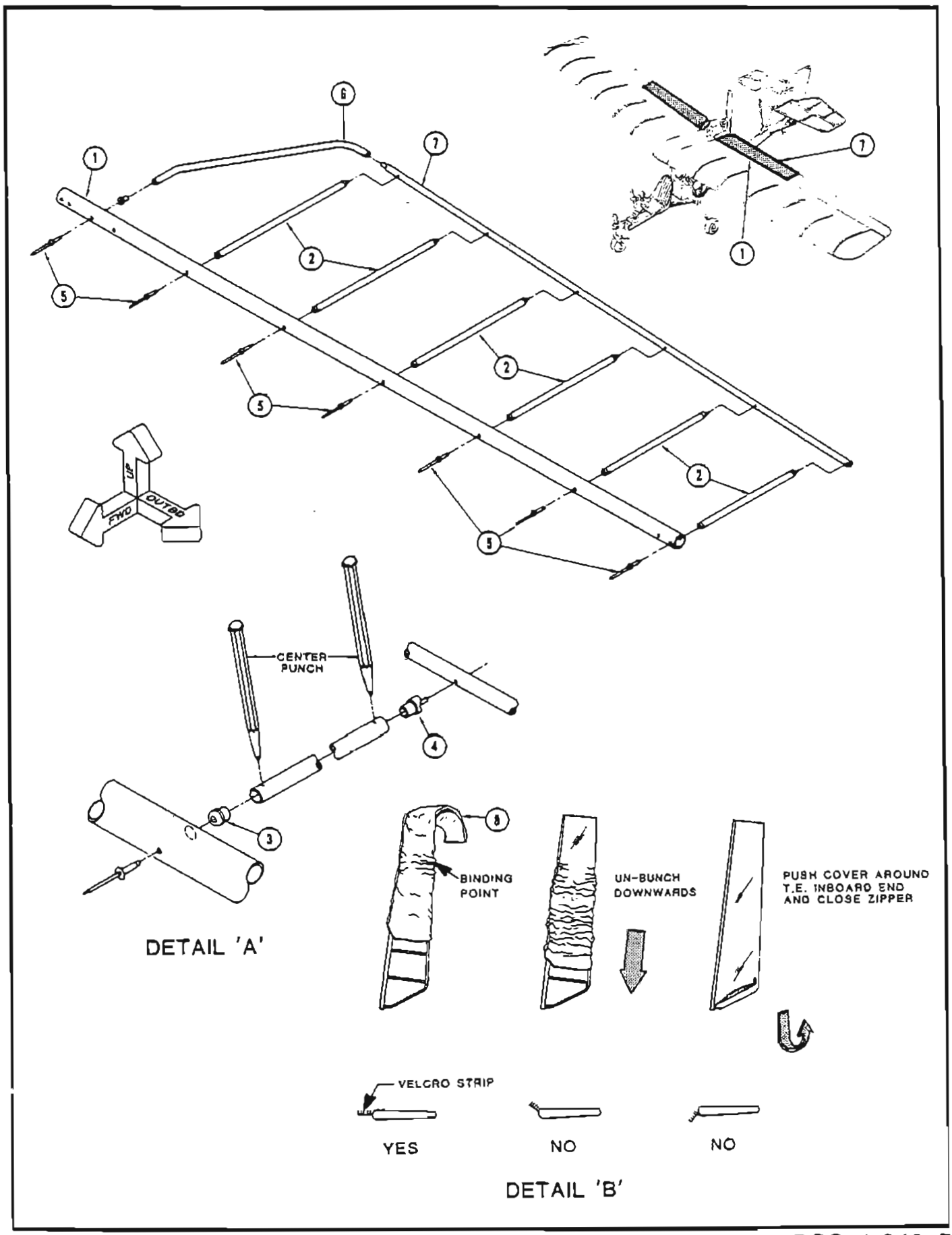
8. Insert the Flap Sub-assembly into the LEFT Flap Cover (8), and fit it in a similar manner to the Aileron Cover. Remove the Masking Tape as you progress. Ensure the Velcro is correctly positioned. Close the Zipper.

9. Repeat the above procedure, in mirror image, for the Right Flap.

10. Store the Flaps for further work after the Ailerons are completed.

Ft.	P.N.	Description.
1.	45231	Flap L.E.Assy.
2.	45236-	Flap
thru	45241	Compression Struts.
3.	71001	Forward Compression Strut Tips.
4.	71002	Aft Compression Strut Tips.

Ft.	P.N.	Description.
5.	20225	3/16 alum x 1.2" grip 'Poo' Rivet.
6.	45234	Flap Tip Tube.
7.	45232	Flap T.E.Assy.
8.	45246	LEFT Flap Cover.



DETAIL 'A'

DETAIL 'B'

FIGURE 6-2

DOC # 842-7

AILERON / FLAP DETAILS

1. Refer to Detail 'A'. From the inboard end and forward side of the Aileron L.E. (1), measure 1-3/4", 30-1/2" and 66-3/4". Find three holes. Reveal the holes with the Hot Knife. Cut Hinge Gaps in the Velcro as detailed in the "Wing Assembly" section.

2. Insert a Washer (2) and an Eyebolt (3) into each hole, through the Aileron L.E. (1) and into their Nut Plates. Tighten until snug. Don't crush the tube.

3. From the inboard end and upper side of the Aileron L.E. (1), measure 33-1/4". Find and reveal the hole with the Hot Knife. Reveal the same hole on the underside of the Aileron L.E.

4. To the underside of the Aileron, lightly attach the forward end of the Aileron Horn (4) using the hardware (5,6,7) shown. Tighten until snug. Don't crush the tube.

5. Set the Aileron Horn (4) at 90 degrees to the Aileron L.E. Find and reveal the hole in the Aileron T.E. (8) with the Hot Knife on upper and lower surfaces. Back Drill the aft end of the Aileron Horn (4) through the hole in the Aileron T.E. (8) Attach using hardware (9,6,7). Tighten until snug. Don't crush the tube. Repeat the above procedure for the Right Aileron.

Flap Assembly Cont'd.

6. Refer to Detail 'B'. From the inboard end and forward side of the Flap L.E. (10), measure 3-1/2", 47-3/4" and 78". Find three holes. Reveal the holes with the Hot Knife. Cut Hinge Gaps in the Velcro as detailed in "Wing Assembly".

7. Insert a Washer (2) and an Eyebolt (3) into each hole, through the Flap L.E. (10) and into their Nut Plates. Tighten until snug. Don t crush the tube. Attach the Flap Horn (11) - oriented as shown - to the inboard end of the Flap L.E. (1) using the hardware (12,6,7) shown.

8. Using Pliobond, Glue the Tube Caps (13) to Ailerons and Flaps in positions shown.

9. Repeat the above procedure for the Right Flap.

Pt.	P.N.	Description.
1	.....	Aileron L.E.
2.	10560	1/4" Flat Washer.
3.	10372	AN43B-20a Eyebolt.
4.	71018	Aileron Horn.
5.	10050	AN3-17a Bolt.
6.	10550	3/16" Flat Washer.
7.	10500	3/16" Locknut.
8	.....	Aileron T.E.
9.	10024	AN3-10a Bolt.
10	.....	Flap L.E.
11.	45260	Flap Horn.
12.	10053	AN3-20a Bolt.
13.	20418	1-1/2" Tube Cap.

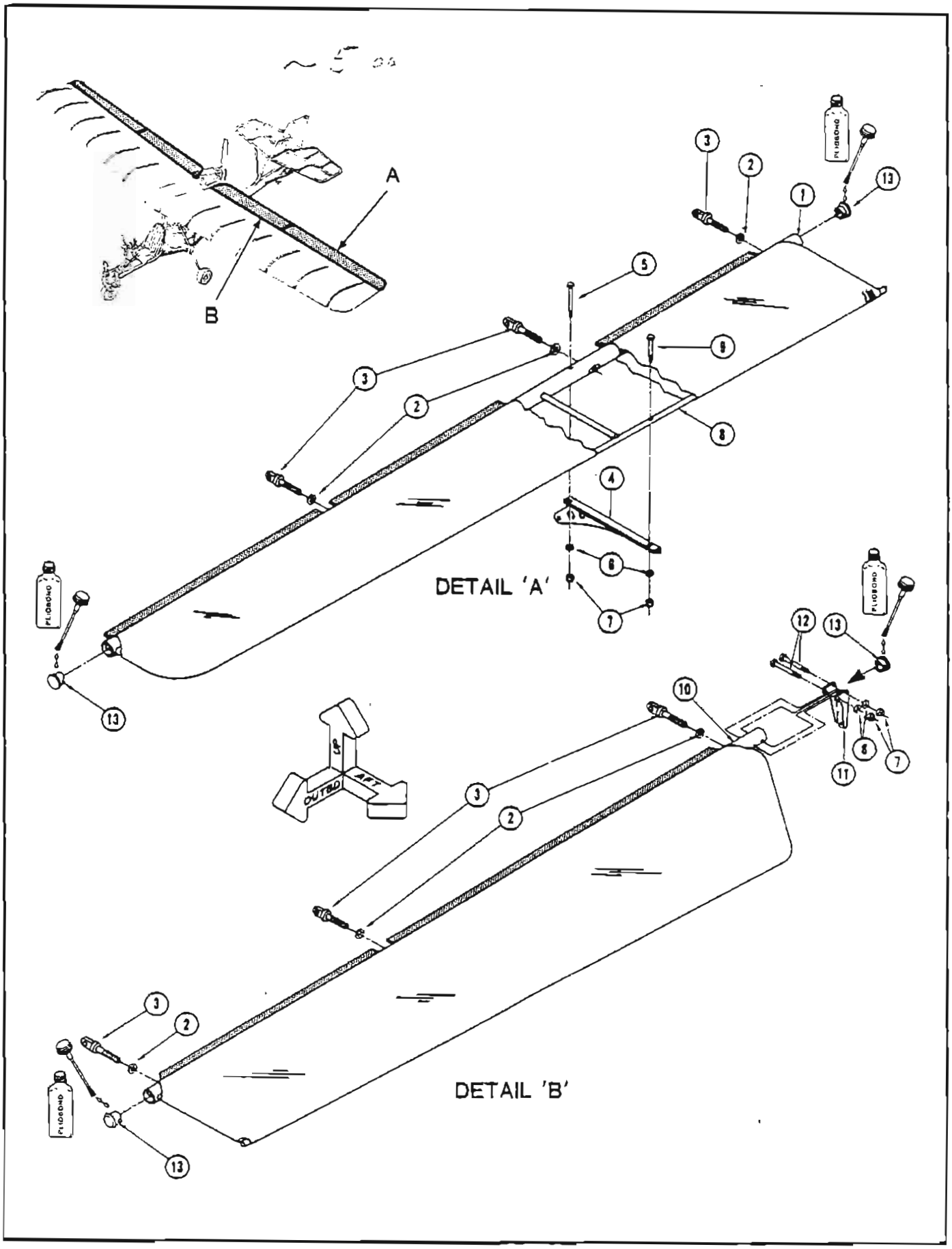


FIGURE 6-3

FLAP TENSION ROD SUB-ASSEMBLY
AILERON PUSHROD SUB-ASSEMBLY

1. Run a Jam Nut (1) onto a Male Rod End Bearing (2). Repeat two more times.

2. Thread a Male Rod End Bearing (2) into each end of the Right Flap Tension Rod (3). DO NOT Tighten.

3. Thread a Male Rod End Bearing (2) into the aft end of the Left Flap Tension Rod (4). DO NOT Tighten.

4. Refer to Detail 'A'. Connect two #1 Rudder Gusset Plates (5) - oriented as shown - to the Right Flap Tension Rod (3) using the hardware (6,7,8) oriented as shown. Tighten until snug. Don't crush the tubes.

5. Connect the Left Flap Tension Rod (4) to the #1 Rudder Gusset Plates (5) using the hardware (6,7,8) oriented as shown. Tighten until snug, but not so tight as to restrict free movement.

6. Store the Sub-assembly for further work later in the sequence.

Aileron Pushrod Sub-assembly.

7. Run a Jam Nut (1) onto a Male Rod End Bearing (2). Thread the Male Rod End Bearing (2) into the Aileron Pushrod (9). DO NOT Tighten.

8. Repeat instruction seven to Sub-assemble another Aileron Pushrod (9).

9. Store both Sub-assemblies for further work later in the sequence.

Pt.	P.N.	Description.
1.	10631	1/4"Jam Nut.
2.	10700	1/4" Male Rod End Bearing.
3.	45243	RIGHT Flap Tension Rod.
4.	45244	LEFT Flap Tension Rod.
5.	45083	#1 Rudder Gusset Plate.
6.	10025	AN3-11a Bolt.
7.	10550	3/16" Flat Washer.
8.	10500	3/16" Locknut.
9.	45697	Aileron Pushrod Assembly.

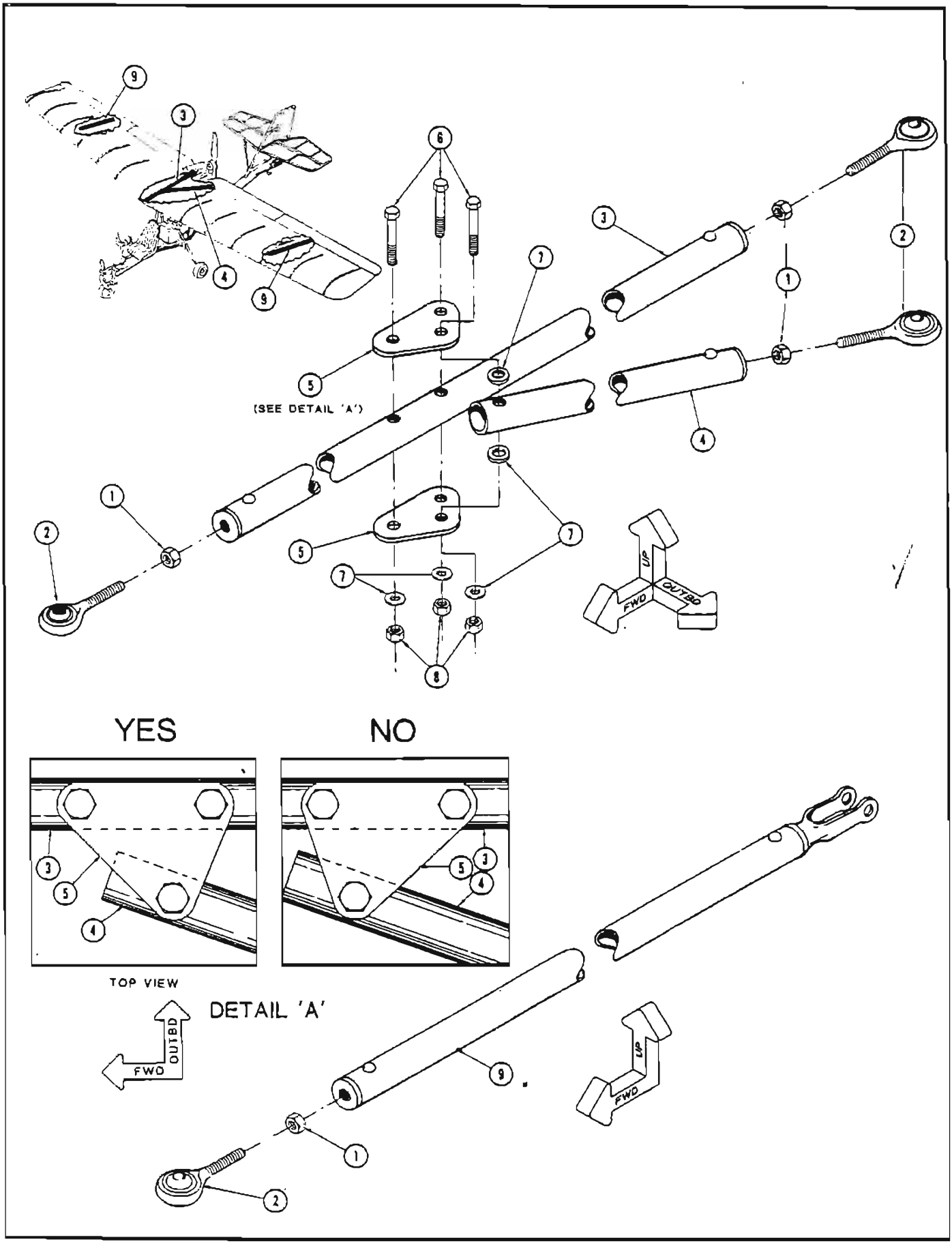
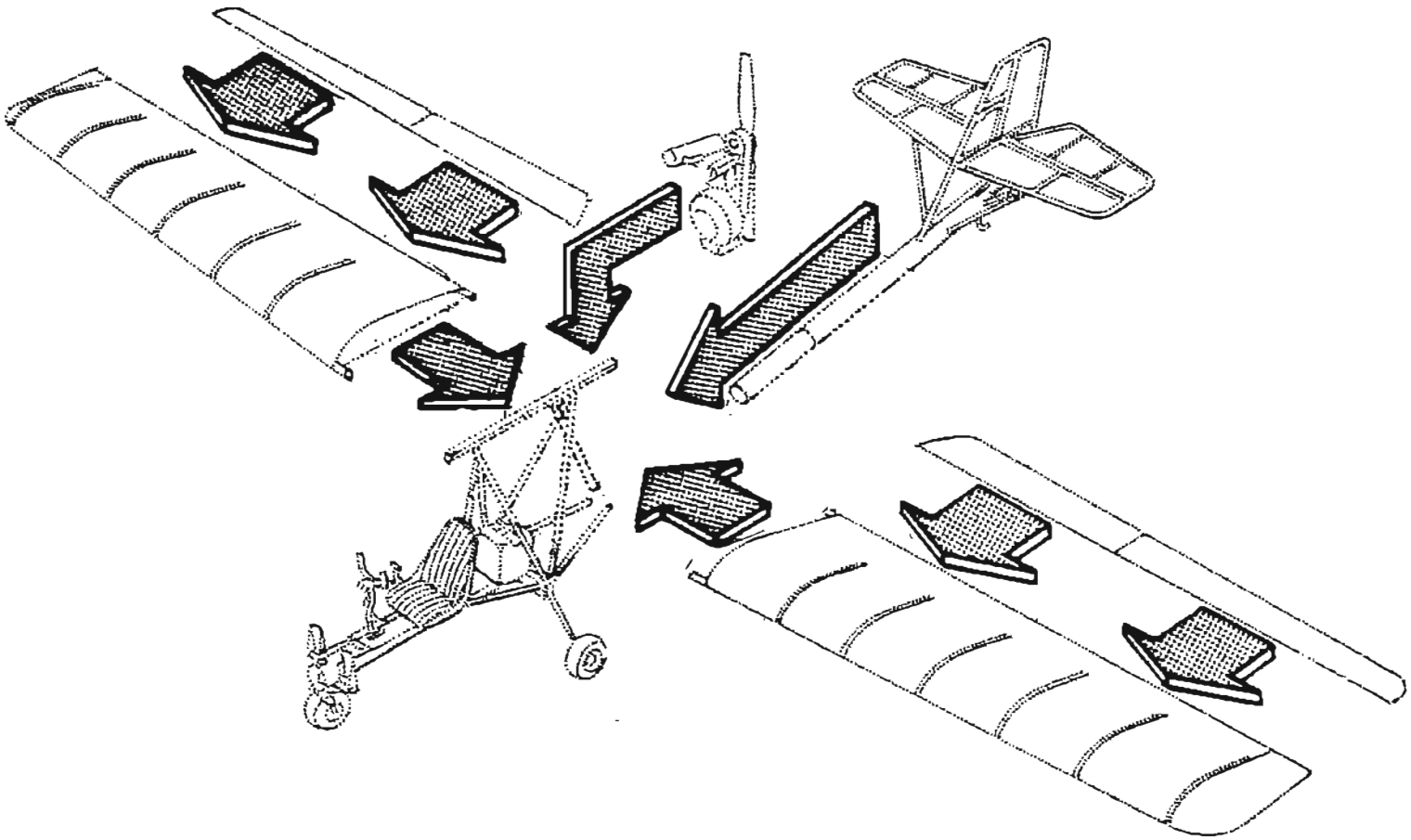


FIGURE 6-4

DOC # 842-7

SECTION 7 FINAL ASSY.



QUALITY ASSURANCE ACCEPTED

DATE 5-16-84 ECO # 527

Copyright © 1984, Elpper Aircraft

FINAL ASSEMBLY NOTES

This section should be read in conjunction with your Eipper Quicksilver GT "Owners Manual".

The dimensions of the assembled Aircraft are:

Width:..... 30'0" ft. (91.44m.).
Length:..... 22'0" ft. (67.05m.).
Height:..... 8'0" ft. (24.38m.).

CAUTION:.....DO NOT attempt to fit the Engine
to the Forward Fuselage
before the Tail Boom is attached!

After the Engine is attached:

DO NOT Start it without the Propeller.
DO NOT Start it inside a building.
DO NOT Fit an unbalanced Propeller!

TAIL BOOM TO FORWARD FUSELAGE

The Tail Boom Assembly (1) should be raised and supported 13-1/2" (34.29cm) above floor level at the forward end and 23-1/4" (59.05cm) at the aft end. On the Forward Fuselage (2), a weight of 35 lbs. (77kg) should be carefully placed on the Pilot Seat.

IMPORTANT: Ensure that the Aft Restraint Webbing (3) - an integral part of the Fuel Tank Restraint Assembly - is draped over the Landing Gear Carry-thru (4) - it will be attached below the Tail Boom Tube (1) in a later sequence.

---

1. Move the Tail Boom Assembly (1) into close proximity and in-line with the Forward Fuselage Tube Assembly (2).

2. Refer to Detail 'A'. Remove the hardware (5,13,14) shown and Tag it for re-insertion in the same position in a later sequence. Disconnect the Aft Elevator Push/Pull Tube sub-assembly (8) and push it forward about 2" (50mm.) so that the Diagonal Attach Plates (9) protrude from the forward end of the Tail Boom Tube (1).

** ESSENTIAL ** Ensure that the Bolt (17) and its hardware remain facing upwards .

---

3. Attach the Aft Elevator Push/Pull Tube (8) to the Forward Elevator Push/Pull Tube (10) using the hardware (6,12,13,14) shown. Tighten until snug but not so tight as to restrict free movement. DO NOT Overtighten the Castle Nut (13). Bend the Cotter Pin (14) correctly.

4. Align the holes in the Tail Boom Tube (1) with those in the Boom Attach Brackets (15). Lightly attach using the hardware (7,16,11) shown. DO NOT Tighten.

NOTE: It is advisable to complete this sequence together with the one on the following page.

Pt.	P.N.	Description.
1		Tail Boom Assembly.
2		Fwd.Fuselage Tube Assy.
3		Fuel Tank Restraint Assembly.
4		Landing Gear Carry-thru.
5		AN3-5 Bolt.
6.	10042	AN3-15 Bolt.
7.	10066	AN4-10a Bolt.
8		AFT Elevator Push/Pull Assembly.
9		Diagonal Attach Plates.
10		FWD.Elevator Push/Pull Assembly.
11.	10510	1/4" Locknut.
12.	10550	3/16" Washer.
13.	10517	3/16" Castle Nut.
14.	10635	Cotter Pin AN380-2-1.
15		Boom Attach Brackets.
16.	10560	1/4" Flat Washer.
17		AN3-13a Bolt.

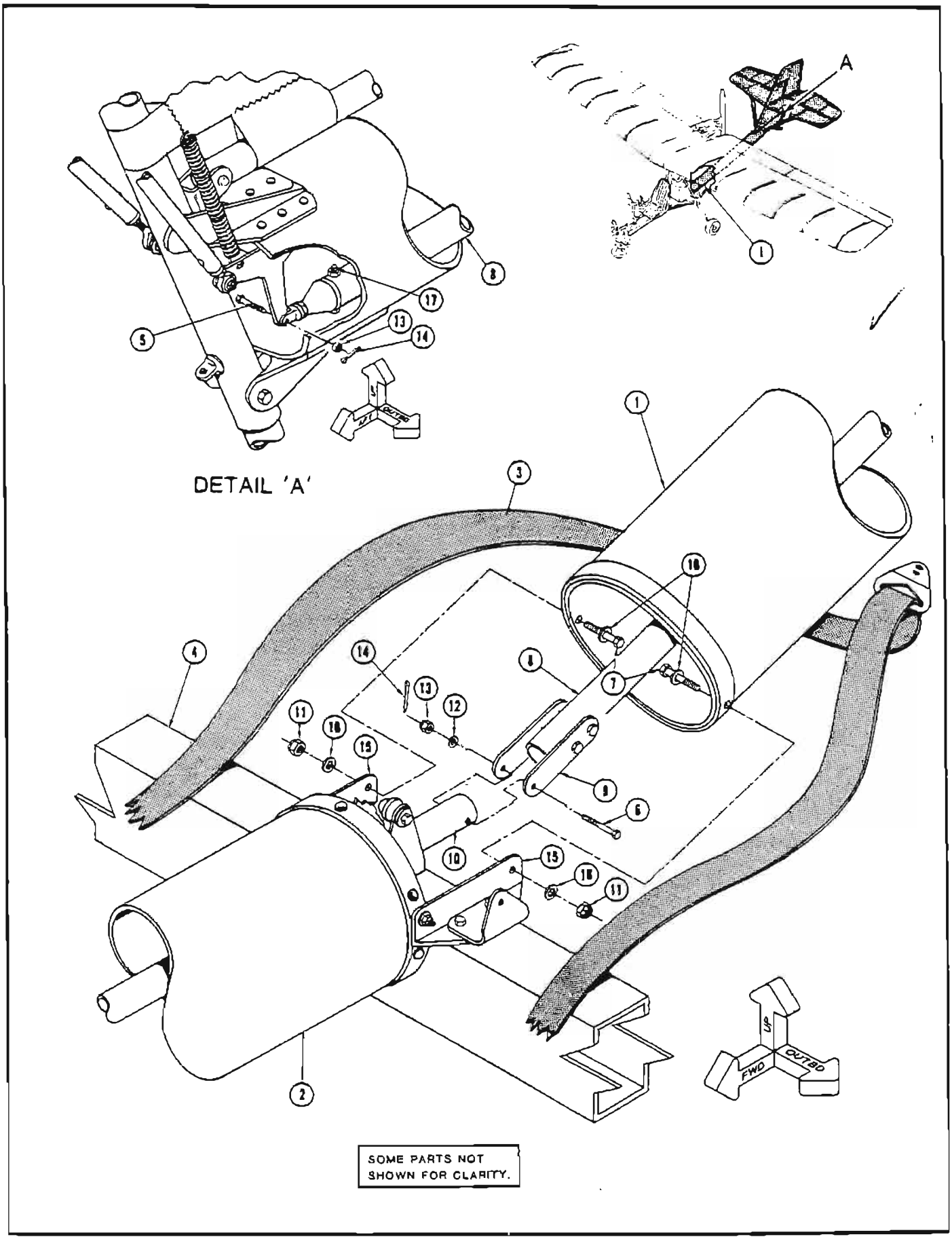

A
1
8
17
13
14
5
OUTBD
DETAIL 'A'
1
3
4
16
14
13
12
8
7
11
18
15
9
6
10
15
16
11
2
UP
FWD
OUTBD
SOME PARTS NOT SHOWN FOR CLARITY.

FIGURE 7-1

TAIL BOOM TO FORWARD FUSELAGE (CONT'D.)

1. At the lower end of the Tail Boom Down Strut (1), run the Eyebolt (2) all the way into the Fitting (3) - align the eye of the Eyebolt (2) with the bolt holes in the Tail Boom Flange (4). Attach the Tail Boom Down Strut (1) to the Tail Boom Flange (4) using the hardware (5,6,7) shown. Tighten to proper torque. Tighten the Jam Nut (8) back against the Fitting (3).

2. Attach the forward ends of the Aft Side Struts (9) to the Strut Attach Plates (10) using the hardware (11,6,7) shown. DO NOT Tighten.

3. Lightly attach the aft ends of the Aft Side Struts (9) to the Tail Boom Flange (4) using the Bolt (5) shown. DO NOT add the hardware (6,7) yet.

4. Adjust the Eyebolts (2) in the aft end of the Aft Side Struts (9) until the Tail Boom sub-assembly forms a TRUE and ACCURATE 90 degrees with the Landing Gear Carry-thru (12).

5. When satisfied, add the hardware (6,7) to the Bolt (5) and Tighten to proper torque.

6. Tighten the Jam Nuts (8) back onto the Strut Fittings (3) in the aft end of the Aft Side Struts (9). Tighten the hardware (11,6,7) - in the forward end - to proper torque.

7. Tighten the - previously sub-assembled - hardware at point 'X' - to proper torque.

Pt.	P.N.	Description.	Pt.	P.N.	Description.
1.		Tail Boom Down Strut.	7.	10510	1/4" Locknut.
2.		Eyebolt.	8.		Jam Nut.
3.		Tail Boom Strut Fitting	9.		Aft Side Strut.
4.		Tail Boom Flange.	10.		Strut Attach Plate.
5.	10070	AN4-12a Bolt.	11.	10065	AN4-10a Bolt.
6.	10560	1/4" Flat Washer.	12.		Landing Gear Carry-thru.

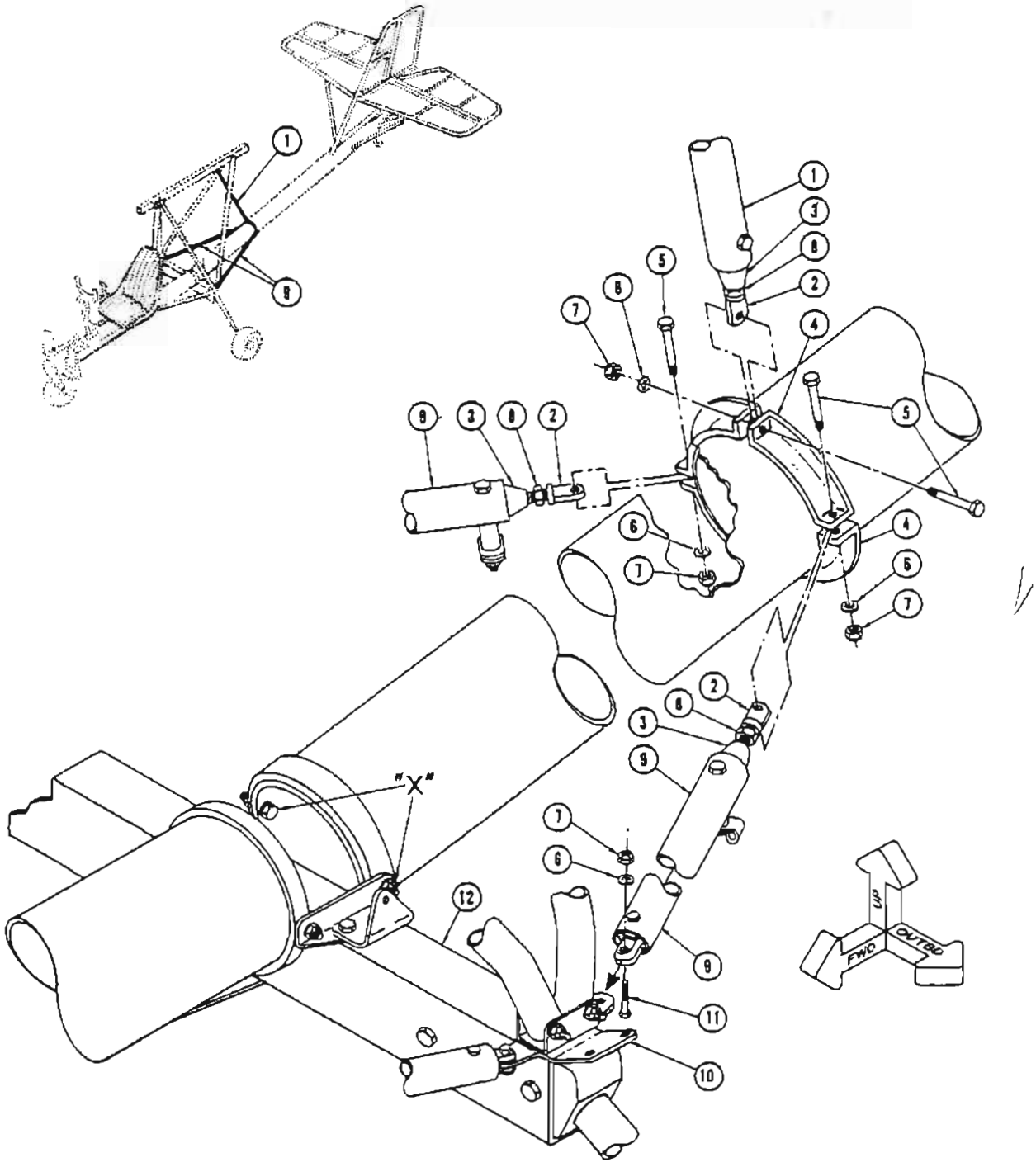


FIGURE 7-2

FUEL TANK RESTRAINT STRAP

1. Secure the Fuel Tank (1) in place with the main Fuel Tank Restraint Straps (2). Pull on the Aft Tang (3) until the Aft Restraint Webbing forms an - untwisted - straight line and positions on the underside of the Tail Boom Tube (4).

2. Hold the tension. Backdrill to 3/16" thru the aft hole in the Tang (3) and the Tail Boom Tube (4). Deburr. Attach using a Rivet (5). Backdrill and Rivet the forward hole in the same way.

3. Refer to Detail 'A'. Route the forward straps of the Fuel Tank Restraint Assembly (2) as shown. Position the forward Fuel Tank Restraint Tang (6) 1" to 2" (25mm to 50mm) aft of the Tail Boom Flange (7) on the underside of the Forward Fuselage Tube (8). Attach in a similar manner to instruction two above.

4. Adjust the tension via the 1" Plastic Buckle (9).

5. Leave the Tail Boom supported and the weights in the Pilot Seat.

Pt.	P.N.	Description.
1		Fuel Tank Assembly.
2		Fuel Tank Restraint Assembly.
3		AFT Fuel Tank Restraint Tang.
4		Tail Boom Assembly.
5.	20193	Rivet, Steel 3/16" x 1/4" Grip BSPQ-64.
6		FORWARD Fuel Tank Restraint Tang.
7		Tail Boom Flange.
8		Forward Fuselage Tube.
9		1" Plastic Buckle.

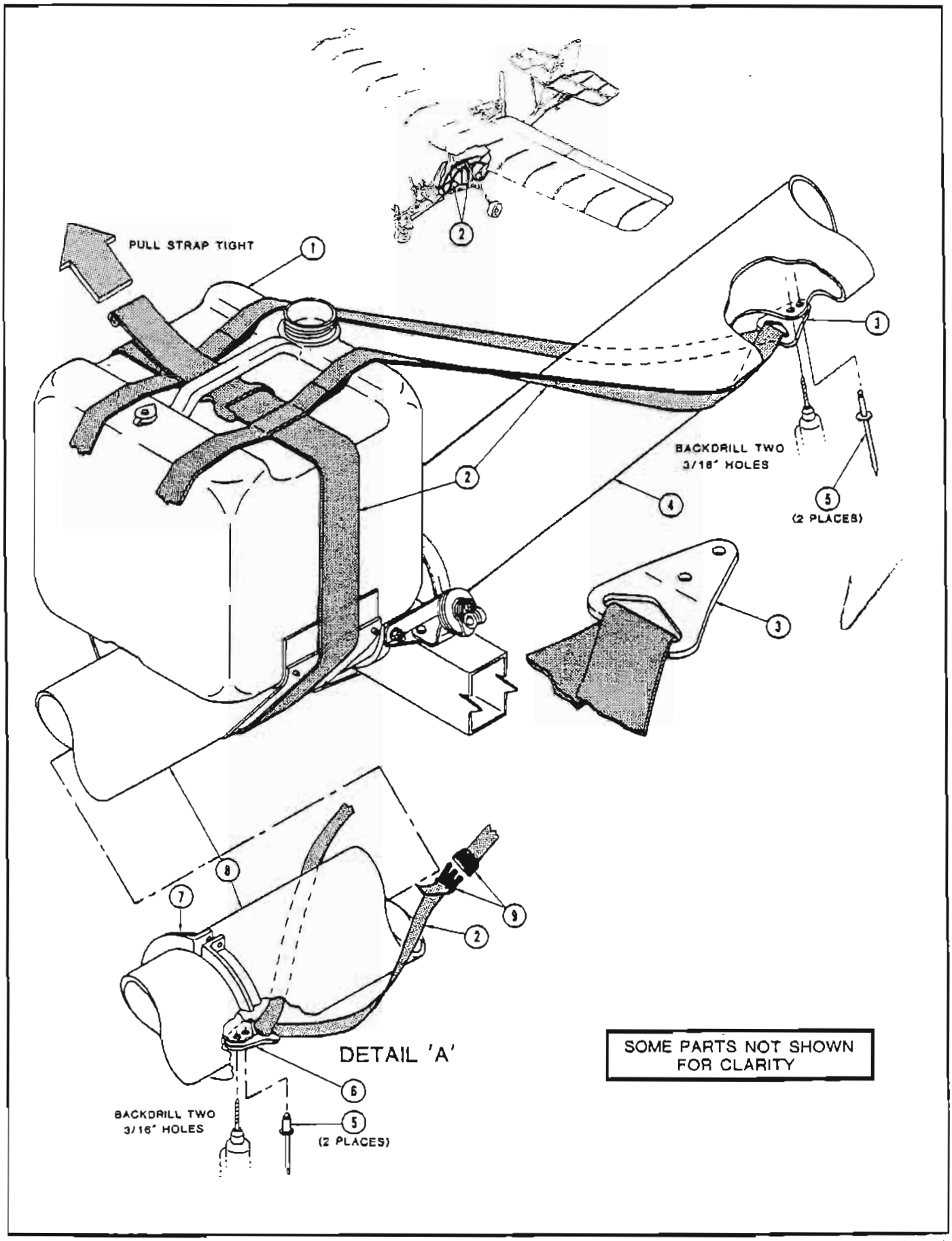

PULL STRAP TIGHT
1
2
3
BACKDRILL TWO
3/16" HOLES
4
5
(2 PLACES)
3
2
8
7
9
2
DETAIL 'A'
6
BACKDRILL TWO
3/16" HOLES
5
(2 PLACES)
SOME PARTS NOT SHOWN
FOR CLARITY

FIGURE 7-3

ELEVATOR ADJUSTMENT

1. Disconnect the hardware (1,2,3) shown and Tag them for reinsertion in the same holes in a later sequence.

2. Pull the Control Wheel fully AFT and secure it in that position.

3. At the aft end of the Tail Boom, reach inside to the aft end of the Elevator Push/Pull Tube (4). Loosen the Jam nut (5) all the way to the shoulder of the Forkbolt (6). Run the threads of the Forkbolt (6) into the Fitting (7) - until the Jam Nut (5) contacts the Fitting (7). DO NOT Tighten.

4. Loosen the Forkbolt (6) back out of the Fitting (7) three-and-a-half full turns **. Ensure the jaws of the Forkbolt (6) are vertical - which may require up to half a turn further. ** ESSENTIAL ** Ensure that the Bolt (12) and its hardware remain facing upwards .

5. Attach the Forkbolt (6) to the Elevator Bellcrank (8) using the - previously used and tagged - Bolt (9). DO NOT add the hardware (10.11) yet.

6. Refer to Detail 'A'. The top surface of the Elevator Bellcrank must now be level with the top inside surface of the Tail Boom Tube - with approximately 1/4" (6mm) separating them. Adjust the Forkbolt (6) as necessary.

**CAUTION: A minimum of ten full threads must still be inside the Fitting (7).

Pt.	P.N.	Description.	Pt.	P.N.	Description.
1		AN3-7a Bolt.	7		Fitting - Aft Elevator Push/Pull Tube.
2		3/16" Flat Washer.	8		Elevator Bellcrank.
3		3/16" Locknut.	9		AN3-5 Bolt.
4		AFT Elevator Push/Pull Tube.	10		3/16" Castle Nut.
5		Jam Nut.	11		Cotter Pin.
6		Forkbolt.	12		AN3-13a Bolt.

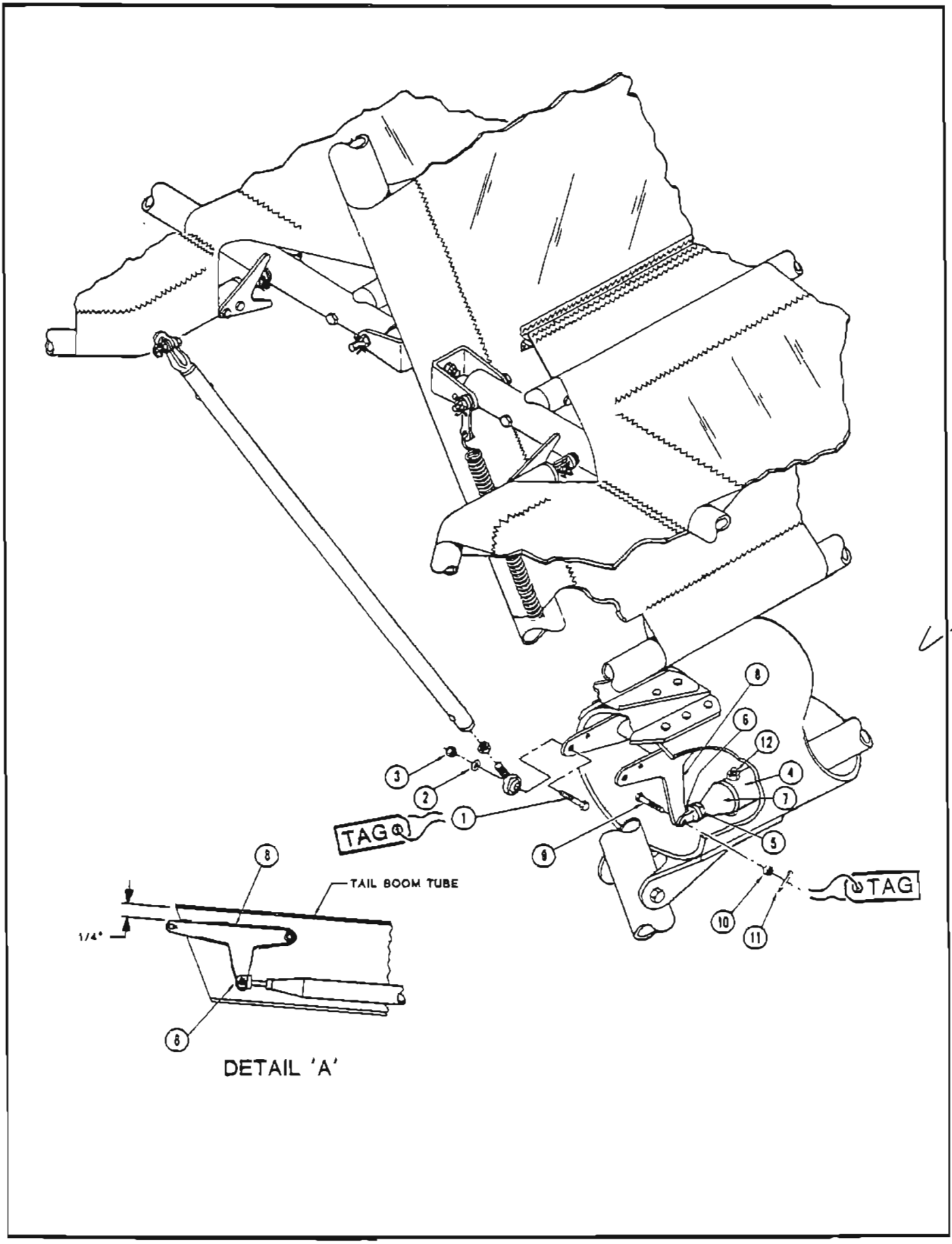


FIGURE 7-4

ELEVATOR ADJUSTMENT (CONT'D.)

NOTE: The Elevator Stop Pads (1) are 3/4" (19mm) long pieces cut from the remainder of the Flexible Edge Trim used on the Pilot Fairing.

With the Control Wheel still secure in the fully AFT position.

1. Push an Elevator Stop Pad (1) - oriented as shown - onto the upper arm of the Left Elevator Stop (2). Refer to Detail 'A'. Push the Left Elevator (3) upwards until the Elevator Stop Pad (1) contacts the Horizontal Stabilizer Spar (4). Hold that position.

2. At the base of the (Left) Elevator Pushrod (5) adjust the Male Rod End Bearing (6)** until its hole prescisely aligns - without force - with the corresponding hole in the (left) aft arm of the Elevator Bellcrank (7) - with the Elevator (3) still in the fully up position.

** CAUTION!: A minimum of ten full threads of (6) must remain inside (5).

3. Attach the (Left) Elevator Pushrod (5) to the (Left) arm of the Elevator Bellcrank (7) using the - previously removed and tagged - hardware (8,9,10) shown. Tighten to proper torque.

4. Tighten the Jam Nut (11) back against the Elevator Pushrod (5).

5. Repeat the above procedure - in mirror image - on the Right Elevator.

6. Add the - previously sub-assembled and tagged - hardware (12,15) shown. Tighten until snug but not so tight as to restrict free movement. Bend the Cotter Pin (15) correctly.

7. Tighten the Jam Nut (11) in the Aft Elevator Push/Pull Tube (13) back against the Fitting (14).

8. Untie the Control Wheel. While you observe the Elevator controls and hardware just completed, have your friend slowly move the Control Wheel fully forward and fully aft several times. Check for smoothness of movement. That there are no parts fouling others and that all hardware and Jam Nuts are tight and Cotter Pins are correctly bent. Check that the full aft Elevator position at the Control Wheel enables both Elevator Stop Pads to contact the Horizontal Stabilizer Spars. Readjust as necessary.

Pt.	P.N.	Description.
1		Edge Trim.
2		Elevator Stop.
3		Elevator Frame.
4		Horizontal Stab.Spar.
5		Elevator Pushrod.
6		Male Rod End Bearing.
7		Elevator Bellcrank.
8		AN3-7a Bolt.
9		3/16" Flat Washer.
10		3/16" Locknut.
11		Jam Nut.
12		3/16" Castle Nut.
13		Aft Elev.Push/Pull Tube.
14		Fitting.Aft Elev.Push/Pu
15		Cotter Pin.

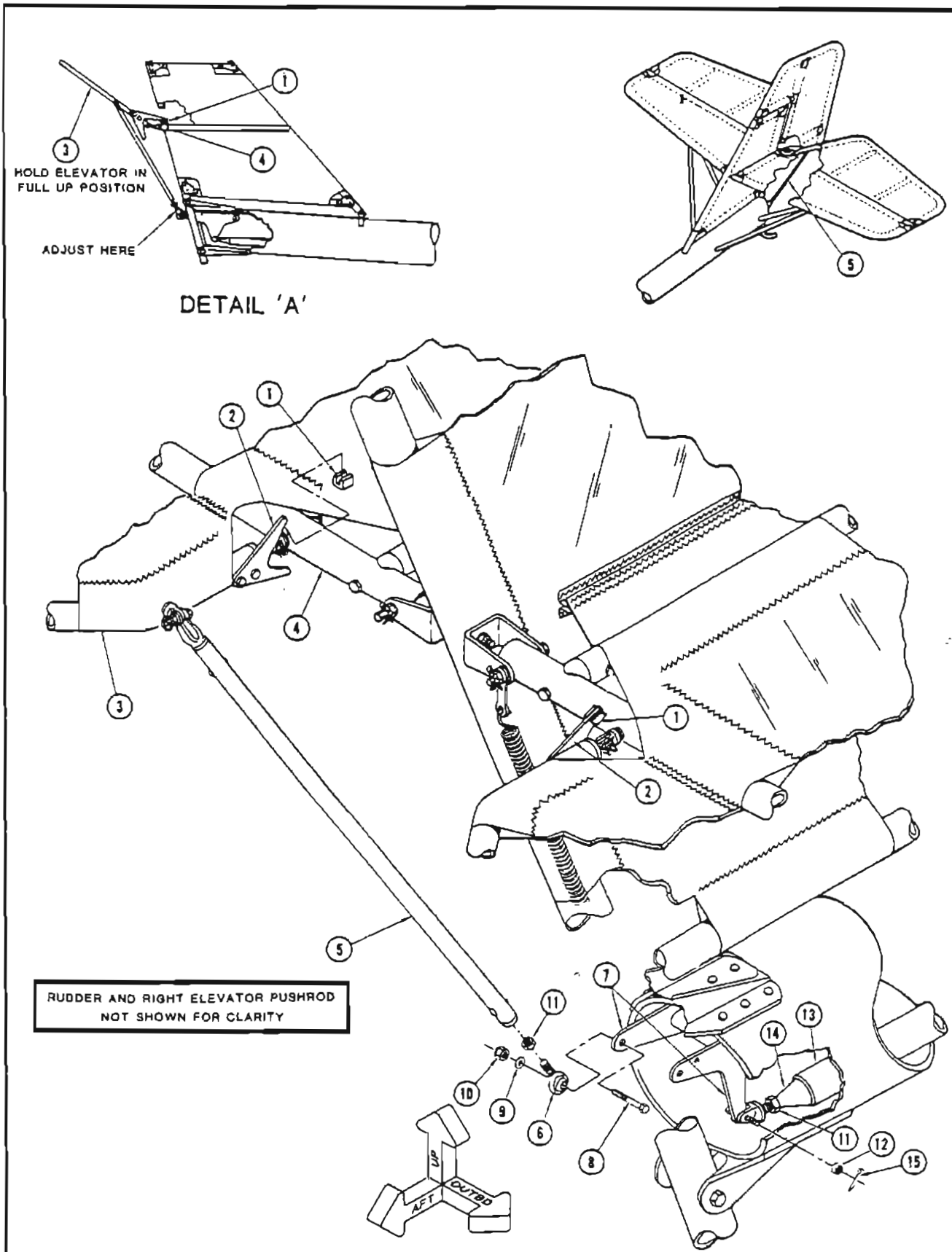


FIGURE 7-5

DOC # 842-8

RUDDER CABLE CONNECTION

Left Rudder Cable.

1. Refer to Detail 'A'. Uncoil the Rudder Cable (1) from its position on the Forward Side Strut (2). Run it forward to the Rudder Pedal Bellcrank (3).

2. Refer to Detail 'B'. Disconnect the - previously sub-assembled - Shackle (4). Hook the Shackle (4) thru the end of the Rudder Cable (1) and re-attach the Shackle (4) to the Rudder Pedal Bellcrank (3). Tighten the hardware (5,6,16,7) until snug, but not so tight as to restrict a free swivelling movement between the Shackle (4) and the Bellcrank (3). Bend the Cotter Pin (7) correctly.

3. Refer to Detail 'C'. The hardware holding the Pulley Wheel (8) to the Rudder Pulley Bracket (9) should still be loose. Position the Rudder Cable (1) on the underside of the Pulley Wheel (8) and between the Wheel (8) and the Pulley Guard (10). DO NOT Tighten the hardware.

4. Refer to Detail 'D'. On the underside of the aft end of the Aft Side Strut (12) remove the hardware (13,14). Remove the Cable Guide (11). Pass the Rudder Cable (1) thru it. Ensure the hardware (13,15) is correctly located. Reconnect the Cable Guide (11) and the hardware (13,14). DO NOT Tighten.

5. Refer to Detail 'E'. Route the Rudder Cable (1) to the (Left) Rudder Horn (17). Add a Shackle (4) to the end of the Rudder Cable (1) and attach to the Rudder Horn (17) using the hardware (5,6,7) shown. Tighten until snug but not so tight as to restrict free swivelling movement between the Shackle (4) and the Rudder Horn (17). Bend the Cotter Pin (7) correctly.

6. Repeat the above procedure for the RIGHT Rudder Cable.

7. Have your friend move the Rudder Pedals slowly while you check that the Rudder Cables (1) run smoothly through their Guides (11) and correctly locate within the 'V' of the underside of the Pulley Wheels (8). Tighten the hardware (13,14) - on both sides - until snug. On the RIGHT side ONLY Tighten the Pulley Wheel hardware to proper torque. DO NOT Tighten the Pulley Wheel hardware on the LEFT side at this time.

Pt.	P.N.	Description.
1		Rudder Cable.
2		Fwd. Side Strut.
3		Rudder Pedal Bellcrank.
4.	20320	1/4" Shackle.
5.	10009	AN3-5 Bolt.
6.	10517	3/16" Castle Nut.
7.	10635	Cotter Pin AN 380-2-2.
8		Pulley Wheel.
9		Ruader Pulley Bracket.
10		Pulley Guard.
11		Cable Guide.
12		Aft Side Strut.
13		1/4" Flat Washer.
14		1/4" Locknut.
15		Pulley Busning.
16.	10550	3/16" Flat Wasner.
17		Rudder Horn.

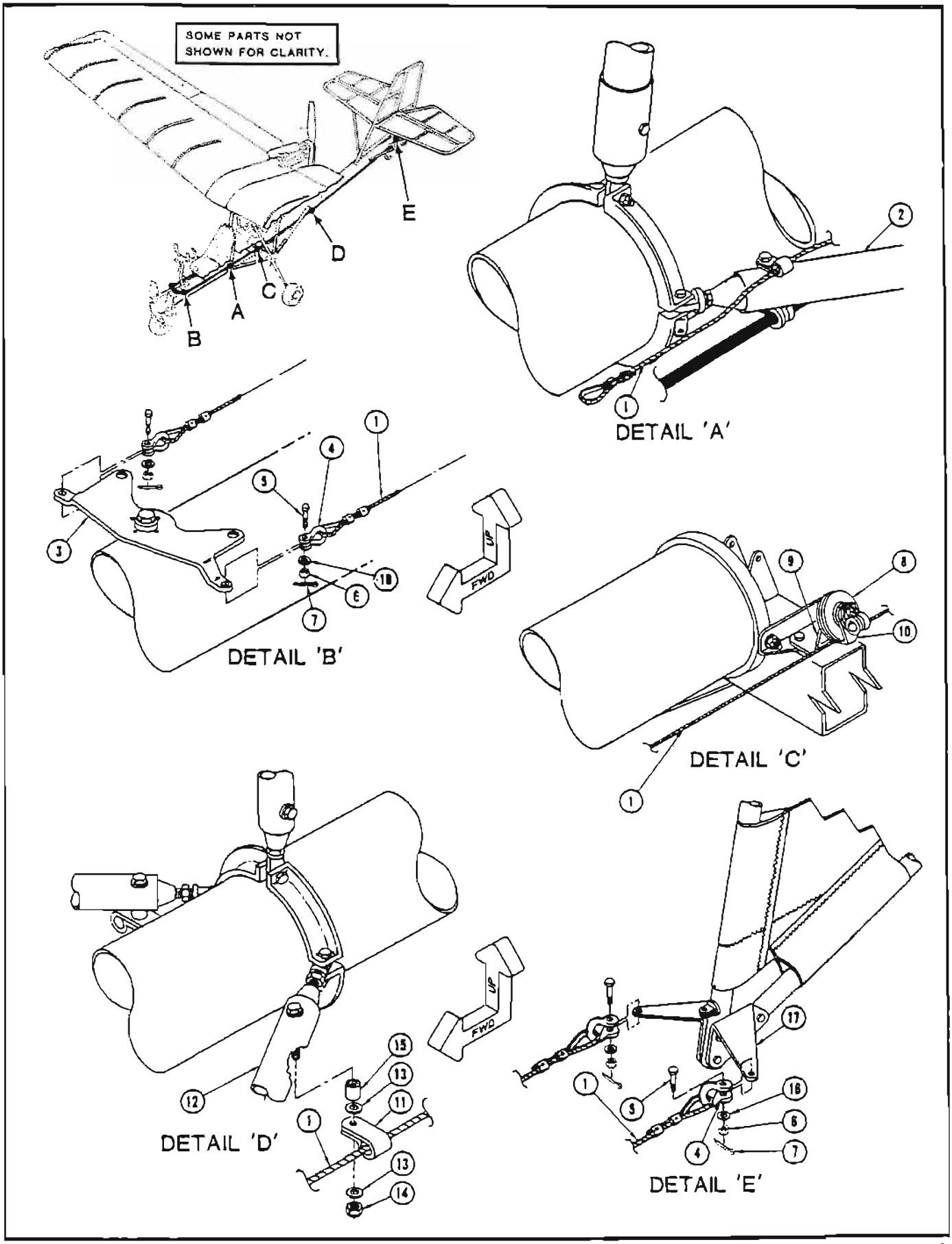


FIGURE 7-6

DOC # 842-8

RUDDER PEDAL/RUDDER CABLE/RUDDER ADJUST

1. The Rudder Pedals may be changed to a comfortable angle by adjusting the Male Rod End Bearings (1) in the Rudder Pedal Pushrods (2).

2. Refer to Detail 'A'. Ensure that the Pedals are adjusted evenly with the Rudder Pedal Bellcrank (3) at 90 degrees to the Forward Fuselage Tube (4), that at least ten threads of the Bearings (1) are still inside the Pushrods (2) and that the Jam Nuts (5) are properly retightened.

3. When satisfied, Check that the Rudder (6) is in the exact "Neutral" position and that the Bellcrank (3) is still 90 degrees to the Fuselage (4). Check along both Rudder Cables (7) for any slackness along their length.

4. If there is slack, disconnect that Rudder Cable (7) at the Bellcrank (3) and carefully twist the Cable (7) as shown. Very little, if any, twisting should be necessary - maybe a half-turn to four full turns at the most.

5. Reconnect the Cable (7) to the Bellcrank (3). Check for slack. Ensure there are no kinks in the Cable (7). Check Rudder position. Check Bellcrank position. Readjust as necessary. Retighten all hardware.

Pt. P.N.	Description.
1	Male Rod End Bearing.
2	Rudder Pedal Pushrod.
3	Rudder Pedal Bellcrank.
4	Forward Fuselage Tube.
5	Jam Nut.
6	Rudder.
7	Rudder Cable.

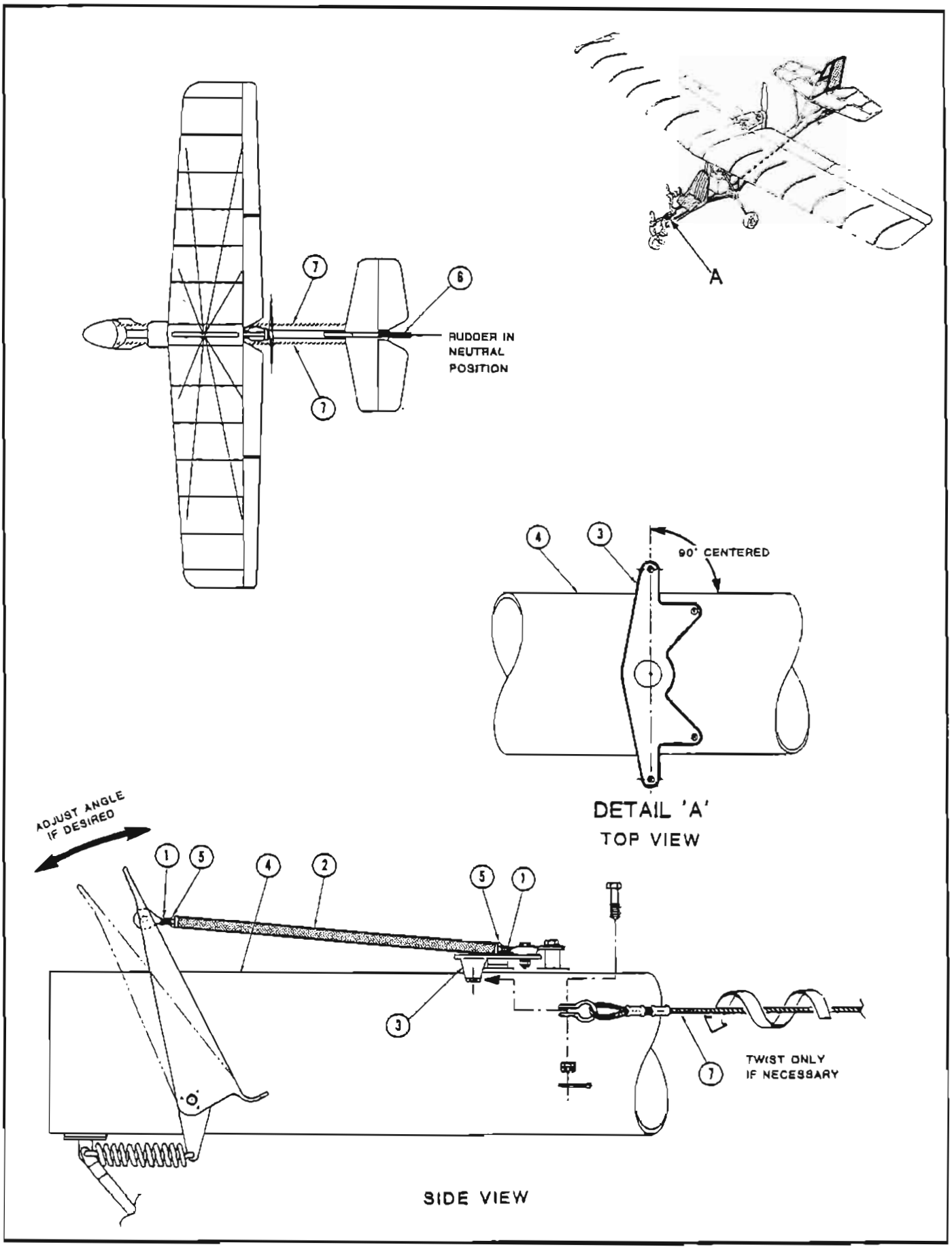

A
7
6
RUDDER IN NEUTRAL POSITION
7
4
3
90° CENTERED
DETAIL 'A'
TOP VIEW
ADJUST ANGLE IF DESIRED
1
5
4
2
5
1
3
7
TWIST ONLY IF NECESSARY
SIDE VIEW

FIGURE 7-7

ENGINE MOUNTING AND HOOKUP

NOTE: The Tail Boom should still be supported and the weight should still be in the Pilot Seat.

1. With the help of a friend, raise the Engine (1) - oriented as shown - up to the aft end of the Root Tube (2). Position an Engine Mount Angle (3) on each side of the Root Tube (2). Align the holes and attach using the hardware (4,5,6) oriented as shown. Carefully and alternately tighten the - previously sub-assembled - hardware (4,5,6) sufficient to take up the Run-On Torque. DO NOT Final Tighten!!

2. Carefully and alternately tighten the - previously sub-assembled - hardware (7,8,9) to take up the Run-On Torque. DO NOT Final Tighten!!

3. Carefully and alternately tighten the - previously sub-assembled - hardware (10,11,12) to take up the Run-On Torque. DO NOT Final Tighten!!

4. Tighten the hardware (4,5,6) to....100 - 140 in./lbs. (11.0 - 15.4 Nm.).

5. Tighten the hardware (7,8,9) to.....50 - 70 in./lbs. (5.5 - 7.7 Nm.).

6. Tighten the hardware (10,11,12) to.....180 in./lbs. (19.8 Nm.).

7. Refer to 'Construction Notes' for information on how to correctly Safety Wire (13) the Bolts together.

8. Safety Wire (13) Bolts (4) to each other in pairs.

9. " " " " (7) " " " " " .

10. " " " " (10)" " " " " .

Pt.	P.N.	Description.	Pt.	P.N.	Description.
1.		Engine Assembly.	8.		1/4" Flat Washer.
2.		Root Tube.	9.		1/4" Locknut.
3.		Engine Mount Angle.	10.		AN3-25 Bolt.
4.	10334	AN5-26 Bolt.	11.		5/16" Fender Washer.
5.	10570	5/16" Flat Washer.	12.		5/16" Locknut.
6.	10540	5/16" Locknut.	13.	70468	Safety Wire.
7.		AN4-10 Bolt.			

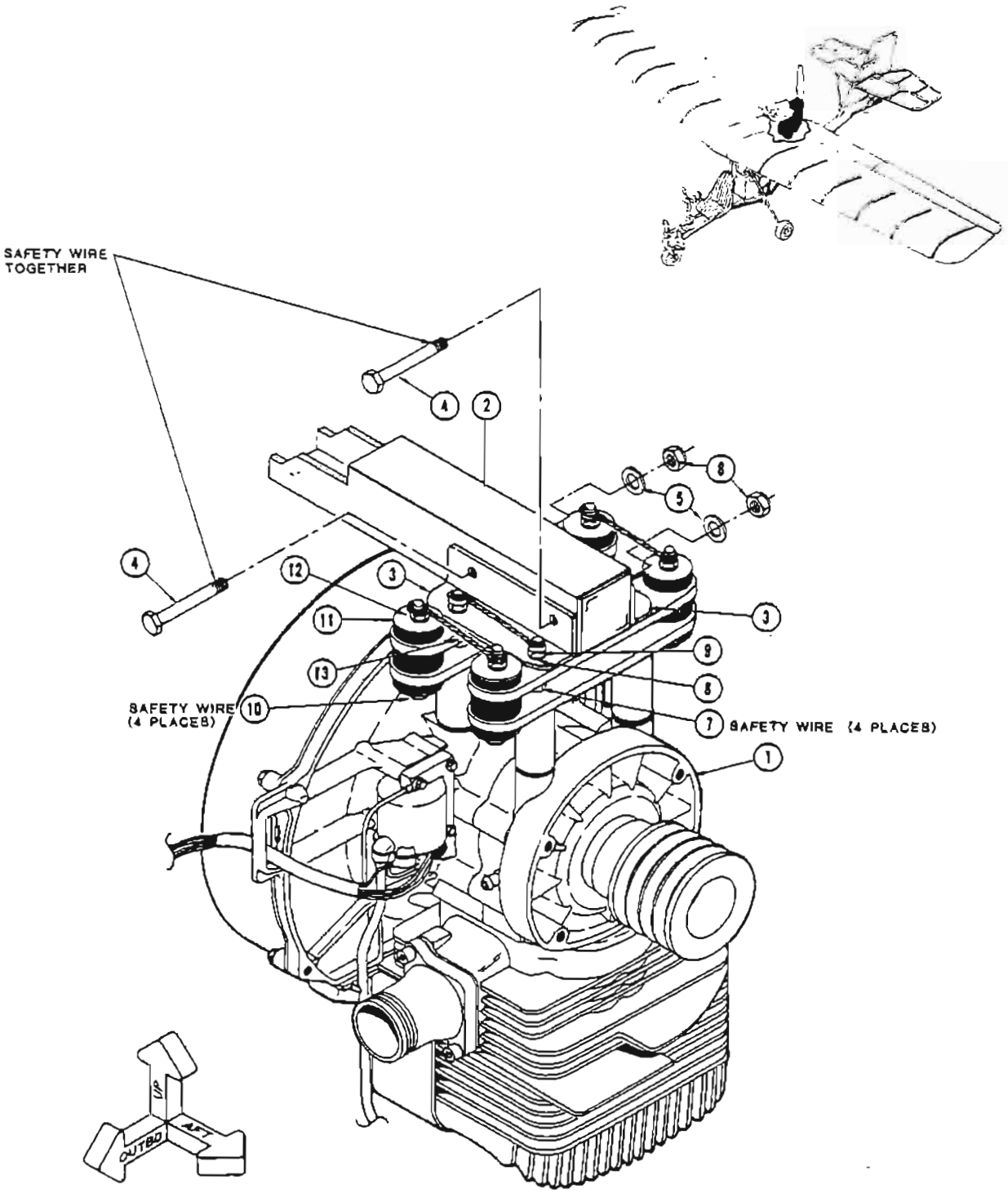

SAFETY WIRE TOGETHER
4
2
8
5
4
12
3
11
3
9
13
8
SAFETY WIRE (4 PLACES)
10
7
SAFETY WIRE (4 PLACES)
1
UP
OUTBD
AFT

FIGURE 7-8

MUFFLER AND MOUNTS

1. There are four predrilled 3/16" holes thru the sides of the Root Tube (1), two just aft of where the Aft Down Tubes (2) are attached and two more just forward of them. Attach two Muffler Mounts (3) - oriented as shown - using the hardware (4,5,6) oriented as shown. Tighten to proper torque.

2. Trim the nipples off two of the three Rubber Grommets (9).

3. Add a Washer (7), a Fender Washer (8) and a - trimmed - Rubber Grommet (9) to a Bolt (10). Push the Bolt (10) up thru the forward Muffler Mount (3). Add an - untrimmed - Rubber Grommet (9) - oriented as shown. Push the Bolt (10) thru the forward bracket welded to the underside of the Muffler (11) - add another - trimmed - Rubber Grommet (9), and the hardware (8,7,12) shown. Lightly Tighten. DO NOT Final Tighten!!

4. Attach the Intermediate Pipe (13) - oriented as shown - to the Exhaust Manifold (14) using three Muffler Springs (15) between the welded "loops".

5. Attach the Intermediate Pipe (13) to the Muffler (11) down-pipe using two Muffler Springs (15) between the welded loops.

6. Repeat instructions two and three above, on the aft Muffler Mount (3).

7. Carefully and alternately tighten the hardware (10,12) while checking the relative fitting points between the Intermediate Pipe (13), the Muffler (11) and the Manifold (14). Check that all Muffler Springs (15) are secure in the 'V' of the welded loops. Tighten the hardware (10,12) until 1-1/2 to 3 threads show thru the Locknut (12).

8. Refer to Detail 'A'. At each Muffler Spring (15) add Safety Wire to a lower welded Loop. Twist the wire correctly and pass it thru the center of the Muffler Spring (15). Tie off the Safety Wire to the upper welded Loop. Trim as necessary. Fold sharp ends inwards.

Pt.	P.N.	Description.
1.		Root Tube.
2.		Aft Down Tubes.
3.	45820	Muffler Mount.
4.	10055	AN3-24a Bolt.
5.	10550	3/16" Flat Washer.
6.	10500	3/16" Locknut.
7.	10570	5/16" Flat Washer.
8.	10600	5/16" Fender Washer.
9.	30380	Rubber Shock Grommet.
10.	10321	AN5-17a Bolt.
11.	61131	Muffler.
12.	10540	5/16" Locknut.
13.	61133	Intermediate Pipe.
14.		Exhaust Manifold.
15.	00938790	Muffler Spring.

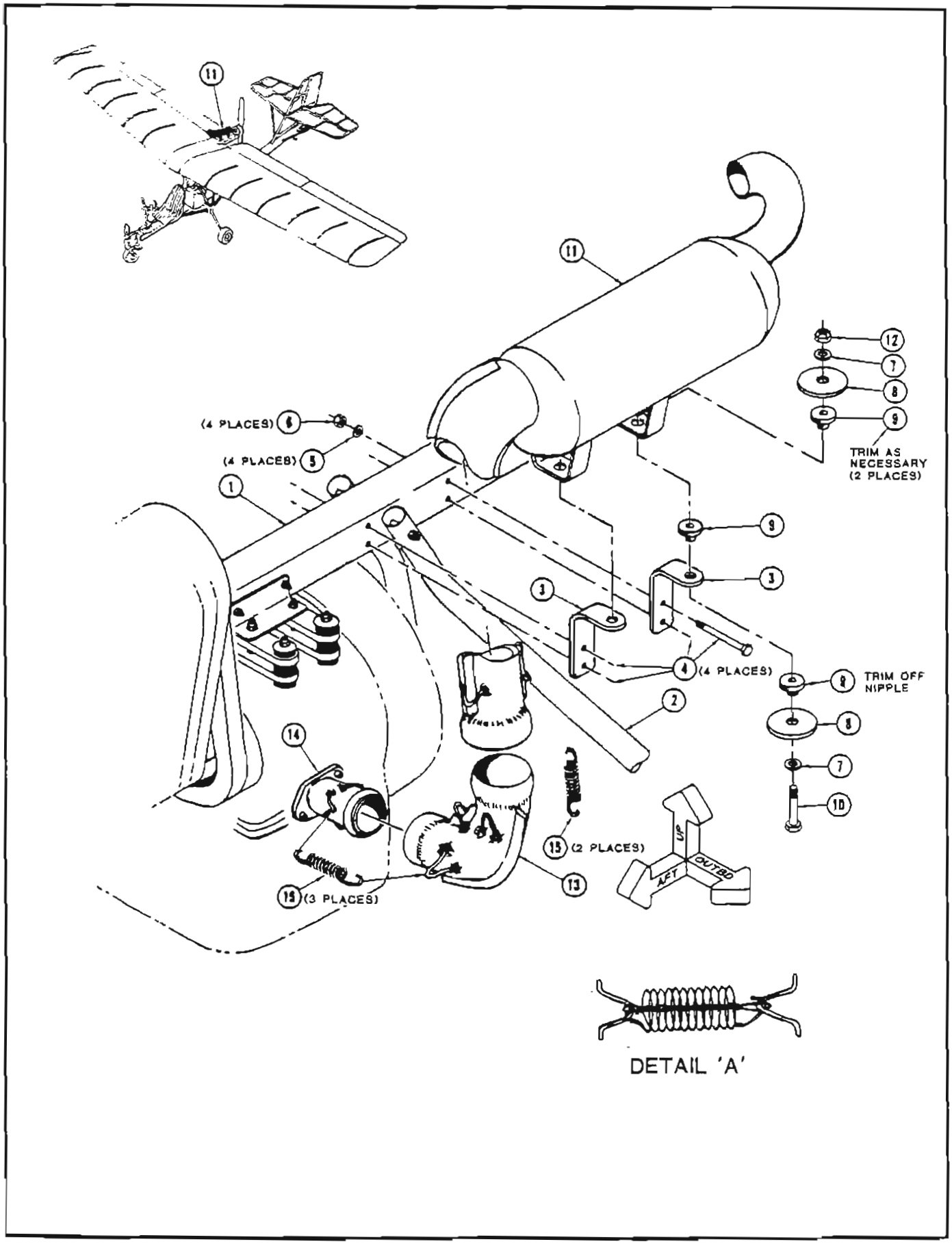

11
11
12
7
8
9
TRIM AS NECESSARY (2 PLACES)
(4 PLACES) 6
(4 PLACES) 5
1
9
3
3
4 (4 PLACES)
9 TRIM OFF NIPPLE
8
7
10
2
14
15 (2 PLACES)
13
16 (3 PLACES)
UP
AFT
OUTBD
DETAIL 'A'

FIGURE 7-9

THROTTLE/CHOKE/WIRING ATTACHMENT

IMPORTANT: The Wiring Harness (1) is extra long to fit the optional Enclosed Pilot Fairing. With the standard Fairing, the extra length of wire should be looped up and down the aft side of the Forward Down Tube (2) and secured to it using Tie Wraps (3).

1. Uncoil the Wiring Harness (1). Plug the - white plastic - block (1A) into the bottom of the Tach/Time/Temp Meter (4) on the forward end of the - previously sub-assembled - Throttle Mount Plate (5). Attach the Black Wire and the Blue wire to the connectors on the underside of the Ignition Switch (6). Tighten until snug.

2. Refer to Detail 'A' and 'B'. Move the Pilot Seat (7) into the fully forward position. Measure, mark and drill two 3/16" diameter holes in the RIGHT side of the Pilot Seat (7) to match the mounting holes in the Throttle Mount Plate (5) as shown. Attach the Throttle Mount Plate (5) to the Seat (1) using the - previously sub-assembled - hardware (8,13,9,10,11) shown. Tighten until snug.

3. On the back of the Seat (7), measure, mark and drill a 3/16" diameter hole approx 3" up from the bottom and 1" from the right rear corner as shown. Attach the Wiring Harness (1) using a Clamp (12) and the hardware (8,10,11) shown. Tighten until snug.

4. Uncoil the Throttle Cable (14). Uncoil the Choke Cable (15) and neatly bundle them together with the Harness (1) using Tie-wraps (16) at approximately 8" (20cm) intervals.

5. Refer to Detail 'C'. Route (1,14,15) evenly and smoothly to the engine area as shown. Attach using Stand-offs (see Section 1) at the locations indicated.

6. Refer to Detail 'D'. The Wiring Harness (1) also routes thru the - previously sub-assembled - Clamp (12) and the hardware (17,18) shown. Retighten until snug.

7. Secure all three Cables (1,14,15) to the Root Tube at the location shown using a large Tie Wrap (19).

Pt.	P.N.	Description.	Pt.	P.N.	Description.
1.	45630	Wiring Harness.	10.	10500	3/16" Locknut.
2.		Forward Down Tube.	11.	10550	3/16" Flat Washer.
3.	30480	7" Tie Wraps.	12.	20432	3/8" Cushioned Clamp.
4.		Zipper Tach/Temp/Time Meter (Super).	13.		AN3-6a Bolt.
			14.		Throttle Cable Assembly.
5.		Throttle Mount Plate.	15.		Choke Cable Assembly.
6.		Ignition Switch.	16.	30485	4" Tie Wraps.
7.		Lightweight Pilot Seat.	17.		1/4" Flat Washer.
8.	10010	AN3-5a Bolt.	18.		1/4" Locknut.
9.		3/16" Fender Washer.	19.	30490	15" Tie Wrap.

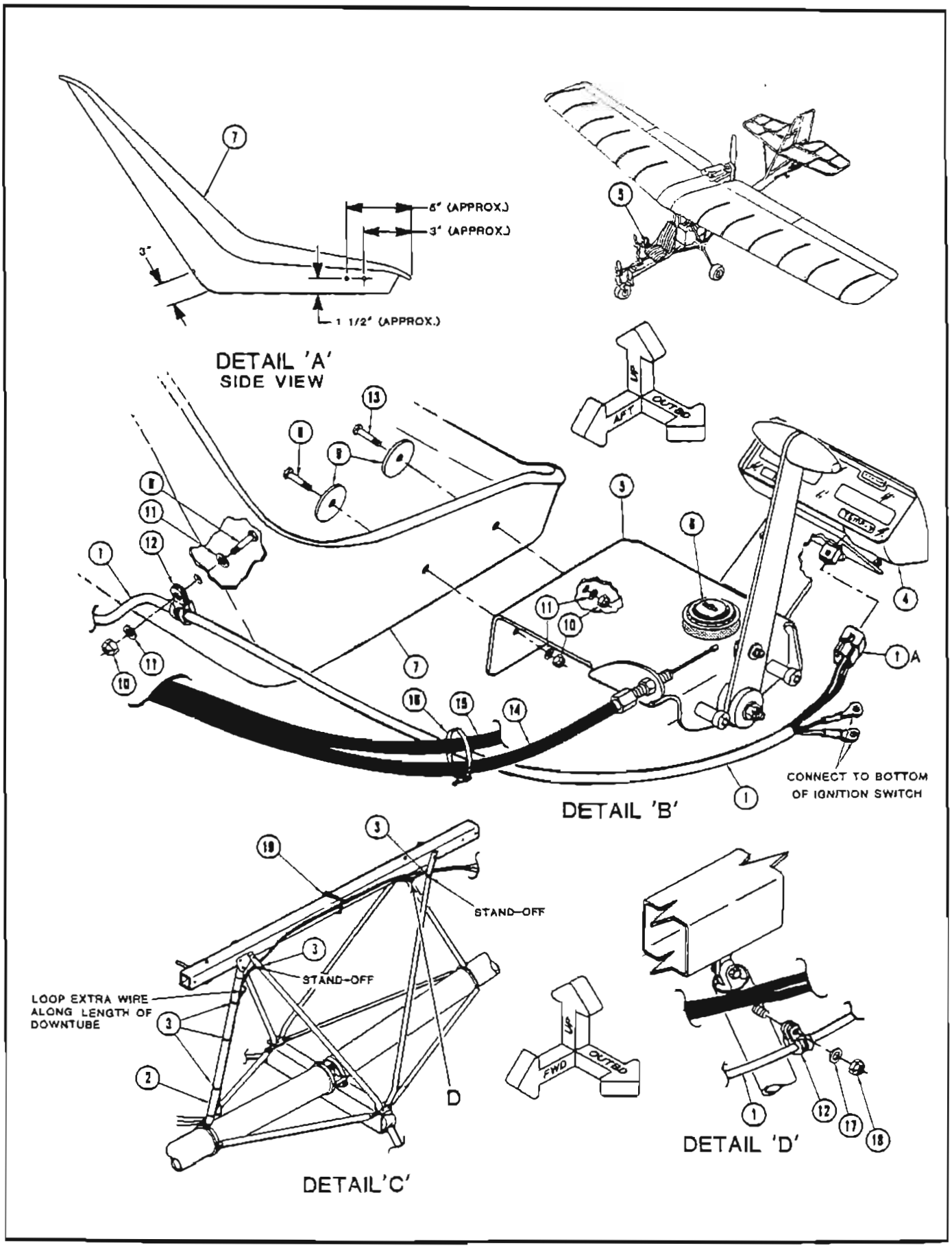

7
5" (APPROX.)
3" (APPROX.)
3"
1 1/2" (APPROX.)
DETAIL 'A'
SIDE VIEW
9
UP
AFT
OUTBD
13
8
9
11
12
1
11
10
7
16
15
14
3
8
4
11
10
1A
1
CONNECT TO BOTTOM
OF IGNITION SWITCH
DETAIL 'B'
3
19
STAND-OFF
3
STAND-OFF
LOOP EXTRA WIRE
ALONG LENGTH OF
DOWNTUBE
3
2
D
DETAIL'C'
UP
FWD
OUTBD
1
12
17
18
DETAIL 'D'

FIGURE 7-10

WIRING CONNECTIONS

1. On the Engine (1), just behind the Coil (2) you will see a group of wires emanating from the Engine Block (3). The wires are different colors and end in connectors. Connect the wires from the Wiring Harness (4) to the wires emanating from the Engine Block (3) as follows:

	Wiring Harness	to	Engine Block
Connect	Black		Black
"	Blue		Brown
"	Orange		Yellow and Green
"	Green		Yellow with Black stripe Green " " "

2. Check that you have made good connections.

Pt. P.N.	Description.
1	Engine Assembly.
2	Coil.
3	Engine Block.
4. 45630	Wiring Harness.

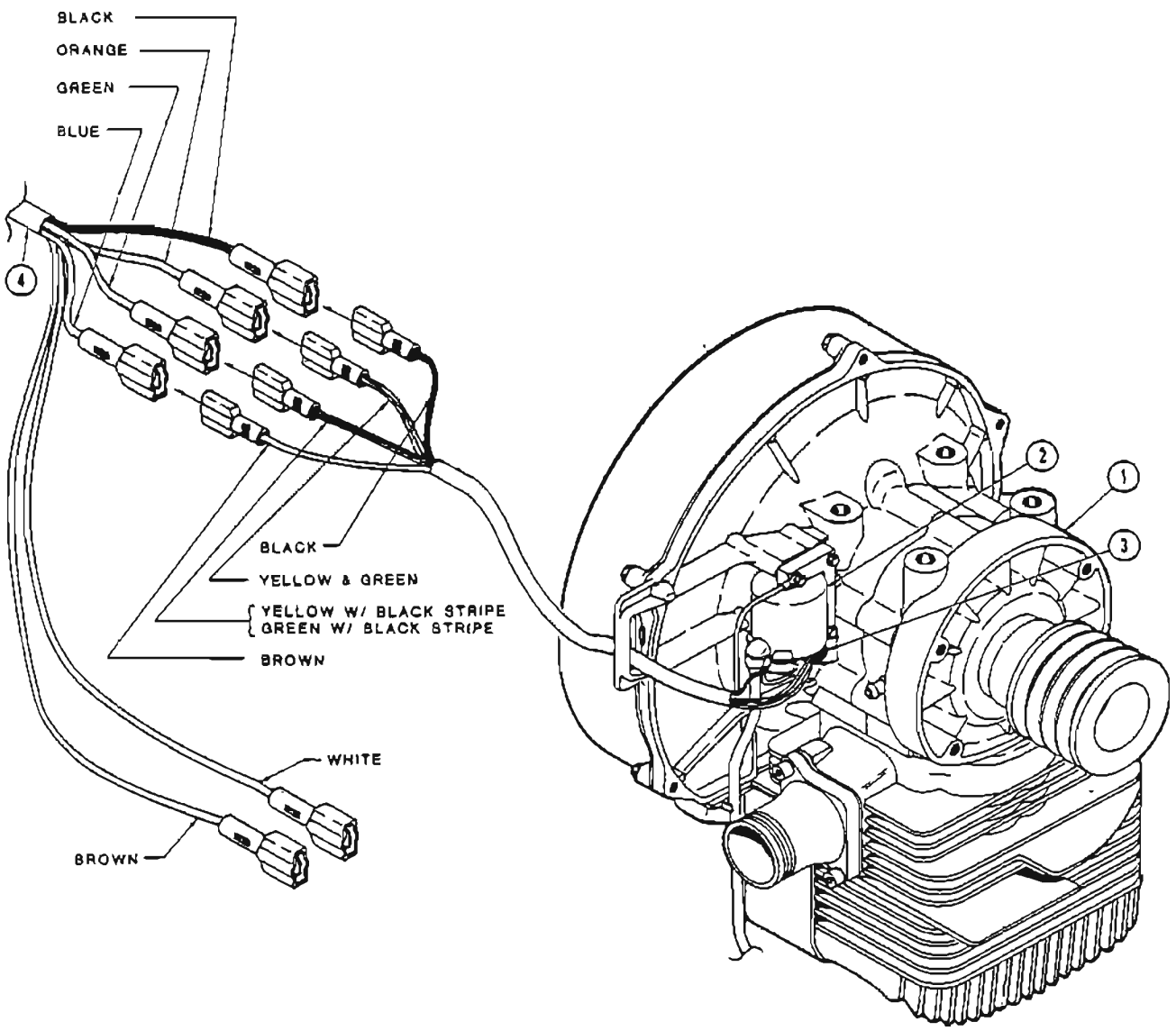

BLACK
ORANGE
GREEN
BLUE
4
BLACK
YELLOW & GREEN
YELLOW W/ BLACK STRIPE
GREEN W/ BLACK STRIPE
BROWN
WHITE
BROWN
2
1
3

FIGURE 7-11

THROTTLE CABLE TO CARBURETOR

ESSENTIAL: Ensure your hands are clean and your work area is free from grit and dust before proceeding.
CAUTION: Some parts in this sequence are extremely delicate - DO NOT use Force!

1. IMPORTANT! Before proceeding, Refer to Detail 'A'. Using a marker Pen, draw a line crossing the outboard side of the Cover Plate (1) of the Carburetor (2) and the top of the Housing (3). These marks will be re-aligned on re-assembly.

2. Remove the Rubber Boot (4) and slip it onto the Throttle Cable (5) - oriented as shown. While holding down the Cover Plate (1) of the Carburetor (2), loosen the two hexagonal screws (6). Remove the Cover Plate (1) and the internal Piston Spring (7). Pass the Throttle Cable (5) thru the Cover Plate (1) and the Piston Spring (7) in the same orientation. Compress the spring with your thumb.

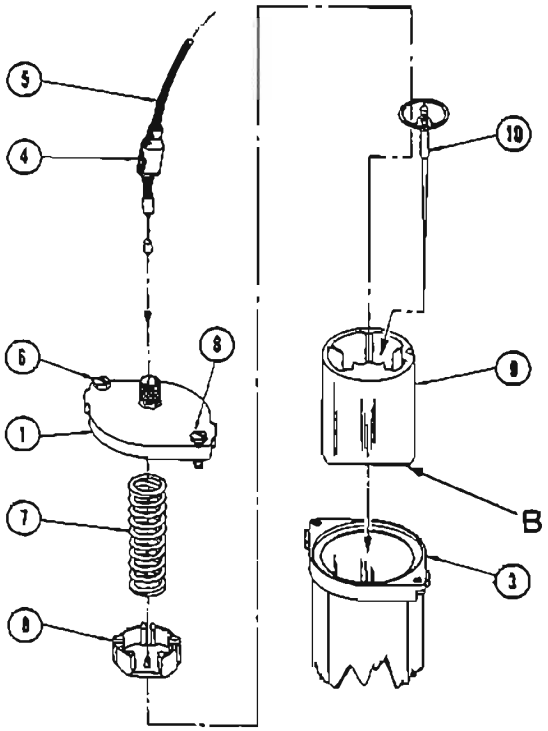
3. Look inside the Carburetor (2). Identify the Plastic Spring Cup (8). Remove it and slip it onto the Throttle Cable (5) in the same orientation. Hold it there. Identify the Carburetor Piston (9) and the Jet Needle (10). Note the seating position of the Jet Needle (10). Pass the end of the Throttle Cable (5) thru the "keyhole" slot in the base of the Piston (9).

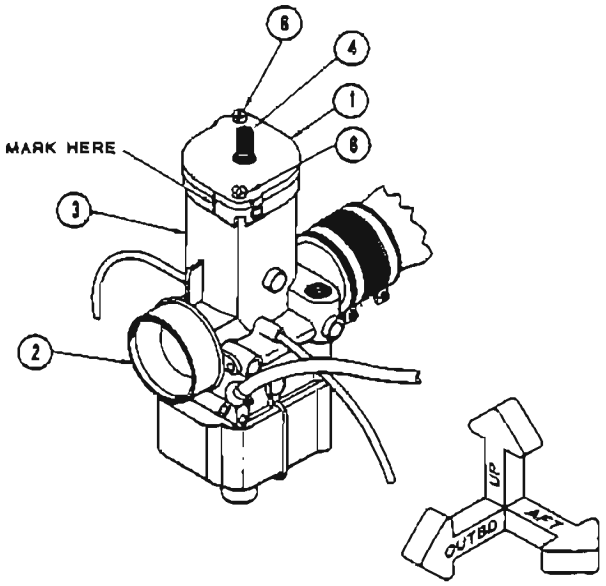
4. Detail 'B' shows the underside of the Piston (9), the "keyhole" slot and the way the Throttle Cable (5) 'barrel' seats into it. Seat the Cable (5) as shown. CAUTION: Don't bend the Jet Needle (10)!!

5. Release the Spring (7) and allow the Spring Cup (8) to re-seat on the top of the Jet Needle (10). Ensure the Needle (10) is correctly re-seated. Allow the Piston (9) to locate back into the Carburetor body (3). Ensure the Jet Needle (10) locates correctly - DO NOT use Force!!

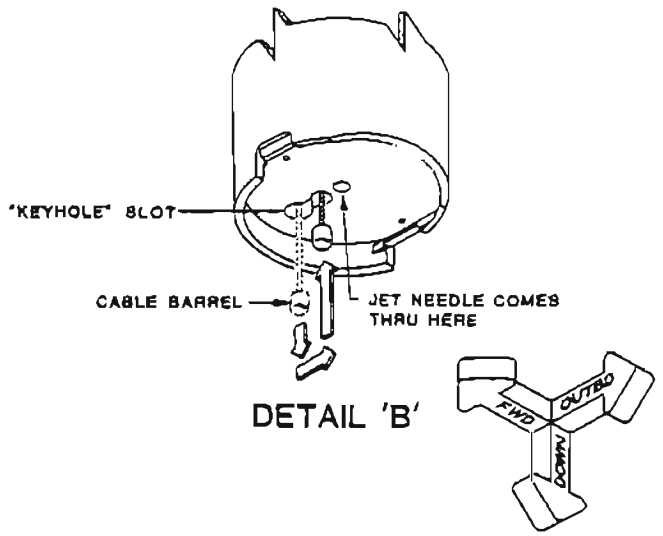
6. Ensure that the marker-pen lines re-align. Re-attach the Cover Plate (1). Retighten the Screws (6) until snug.

Pt.	P.N.	Description.
1.	963721	Cover Plate.
2.	.....	Carburetor for GT280.
3.	.....	Carburetor Housing.
4.	260370	Rubber Boot.
5.	.....	Throttle Cable GT280.
6.	241430	M5x12 Hex Screw.
7.	938655	Piston Spring.
8.	827345	Plastic Spring Cup.
9.	963679	Carburetor Piston.
10.	963714	Jet Needle (8L2).





DETAIL 'A'



DETAIL 'B'

FIGURE 7-12

DOC # 842-8

CHOKE CABLE CONNECTION

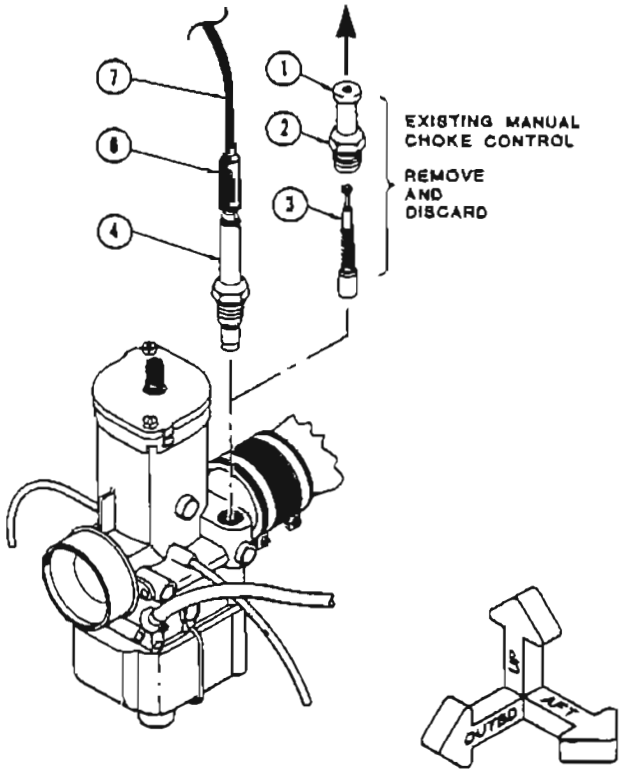
1. Refer to Detail 'A'. Remove the existing Rubber Cap (1), Manual Closure Screw (2), Manual Starting Piston and Spring Assembly (3) and discard them.

2. Find the new Choke Plunger Kit (12). Push the new Rubber Boot (6) onto the Choke Cable (7). Pass the Cable (7) thru parts (9,8,4,10,5).

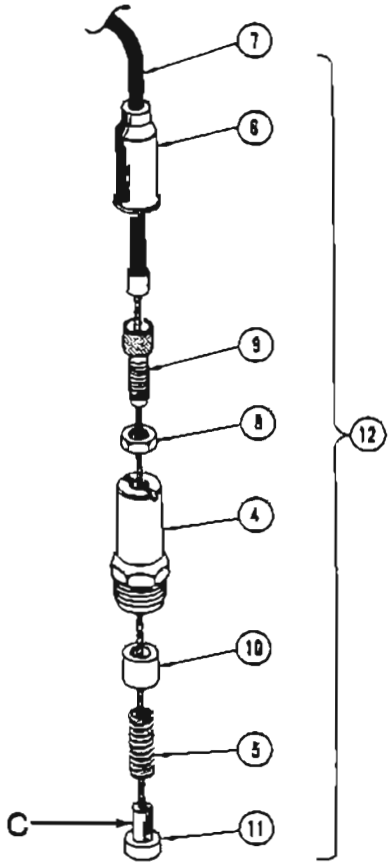
3. Thread the Jam Nut (8) approximately half way onto the Cable Adjuster (9). Thread the Cable Adjuster (9) into the Remote Closure Screw (10) up to the Jam Nut (8). DO NOT Tighten. Pass the Cable (7) thru the Spring (5). Attach the Cable (7) end to the Piston (11) as Detail 'C'.

4. Screw the new assembly into the same threads from which the old Choke Plunger Assembly was removed. Tighten until snug. Push the Rubber Boot (6) over the Cable Adjuster (9).

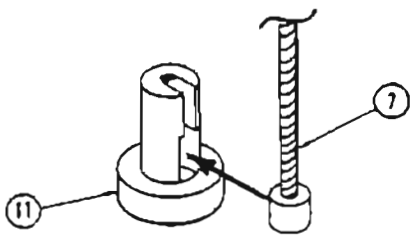
Pt.	P.N.	Description.
1.		Rubber Cap (Manual).
2.		Closure Screw (").
3.		Piston/Spring (").
4.	963750	Closure Screw.
5.		Starting Piston Spring.
6.	260370	Rubber Boot.
7.		Choke Cable Assembly.
8.	942541	M6x.75 Hex Nut.
9.	241440	M6 Cable Adjustment Screw.
10.	268450	Brass Sleeve.
11.	963740	Starting Piston (Remote).
12.	60216	Remote Plunger Kit.



DETAIL 'A'



DETAIL 'B'



DETAIL 'C'

FIGURE 7-13

STARTER HANDLE AND ROPE

1. Refer to Detail 'A'. Measure 5-1/2" (14cm.) from the top of the LEFT Forward Down Tube (1). Centerpunch and drill a 3/16" hole thru the Tube (1). Lightly attach the Fairlead (2) thru its upper hole, using the hardware (3,5) shown. Align the Fairlead (2) with the vertical centerline of the Tube (1). Backdrill thru its lower hole. Attach and tighten hardware (3,5) to proper torque.

CAUTION: When pulling on the Rope (6) in the following sequence, it is unnecessary to use excessive force. In pulling the rope so that it passes thru the Fairlead (2) the Engine may crank two or three times, this may cause the Cork Seal to pop out of the Spark Plug hole - temporarily replace it after this sequence is complete.

2. Refer to Detail 'B'. Remove the Starter Handle (7) and the Starter Handle Cover (4) from the Starter Rope (6). Thread the end of the Rope (6) thru the Pulley Wheel (8) and the Fairlead (2). Pull the Rope (6) just beyond the Fairlead (2). Now pull until a harder resistance is felt, but not so hard as to further crank the Engine. (The point of optimum resistance may be between 6" and 18" - 15 and 45cm.- past the Fairlead (2)). Mark that point with a felt-tip pen.

3. Add the Starter Handle Cover (4) and the Starter Handle (7) to the Rope (6). Push the Cover (4) up to the Fairlead (2). Again pull on the Rope (6) and recheck the resistance point. Adjust the mark as necessary.

4. Refer to Detail 'C'. Tie a Knot in the rope as shown and adjust it to the mark made in instruction three above. LIGHTLY tighten the knot on that mark. Push the knot into the Handle (7). Allow the Handle (7) to recoil. The Handle (7) should fit comfortably in the Fairlead (2). Adjust the Knot position as necessary.

5. When satisfied, final tighten the knot and carefully trim away excess Rope (6). Using the Hot Knife, burn away any fraved ends of the rope.

6. Push the knot until it locates within the Starter Handle (7). Re-locate the Starter Handle Cover (4). Allow the Handle (7) to recoil to its normal position at the Fairlead (2).

Ft.	P.N.	Description.
1		Forward Down Tube.
2.	20239	Fairlead - 1/2" I.D.
3.	10392	2" 10-32 Socket Head Cap Screw.
4		Starter Handle Cover.
5.	10516	3/16" THIN Locknut.
6		Starter Rope.
7		Starter Handle.
8		Pulley Wheel.

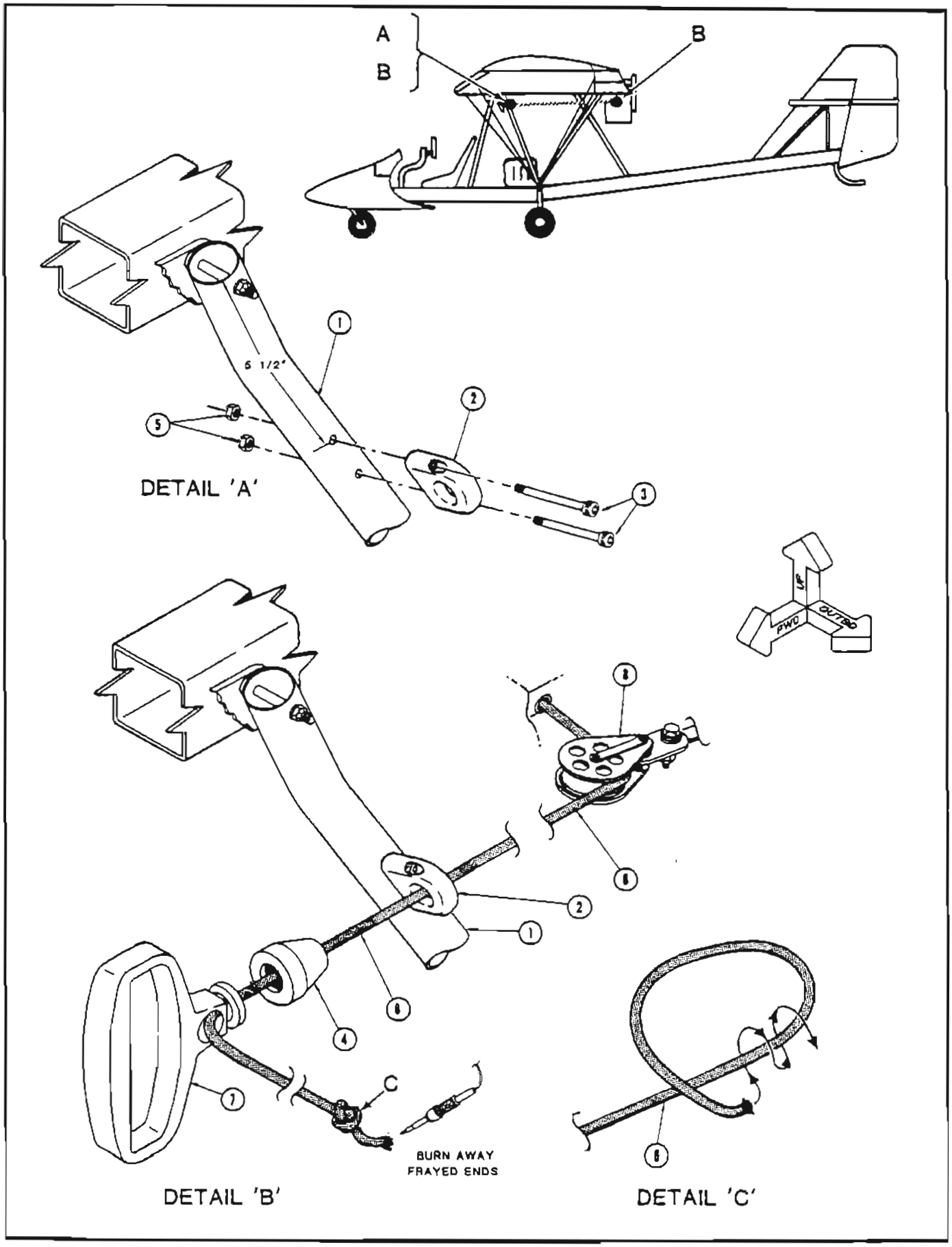

A
B
B
6 1/2"
DETAIL 'A'
UP
FWD
OUTBD
C
BURN AWAY
FRAYED ENDS
DETAIL 'B'
DETAIL 'C'

FIGURE 7-14

PROPELLER MOUNTING

ESSENTIAL: Read "The Propeller" in 'Construction Notes' before proceeding.

---

1. Add a Washer (1) each to six - special - Bolts (2). Pass the Bolts (2) thru the Shim Washer (3), the Propeller (4) and into the Hub Adaptor Plate (5). Run the Bolts (2) into the Adaptor (5) until the Propeller fits snug.

2. Refer to Detail 'A'. Tighten Bolts (2) carefully and alternately a little at a time .* Don't crush the wood! DO NOT Final Tighten!

---

*IMPORTANT: In instruction 3 below:
If the last measurement is FORWARD of the first measurement, slightly TIGHTEN the Bolts (2) nearest the opposite blade according to Detail 'A'- the Bolt Tightening Sequence.
If the last measurement is AFT of the first measurement, slightly LOOSEN the Bolts (2) nearest the opposite blade.
The MAXIMUM torque should not exceed 10 ft./lbs. (13.5 Nm.).
Adjust the Bolts until both Leading Edge tip measurements are plus-or-minus 1/8" (32mm).

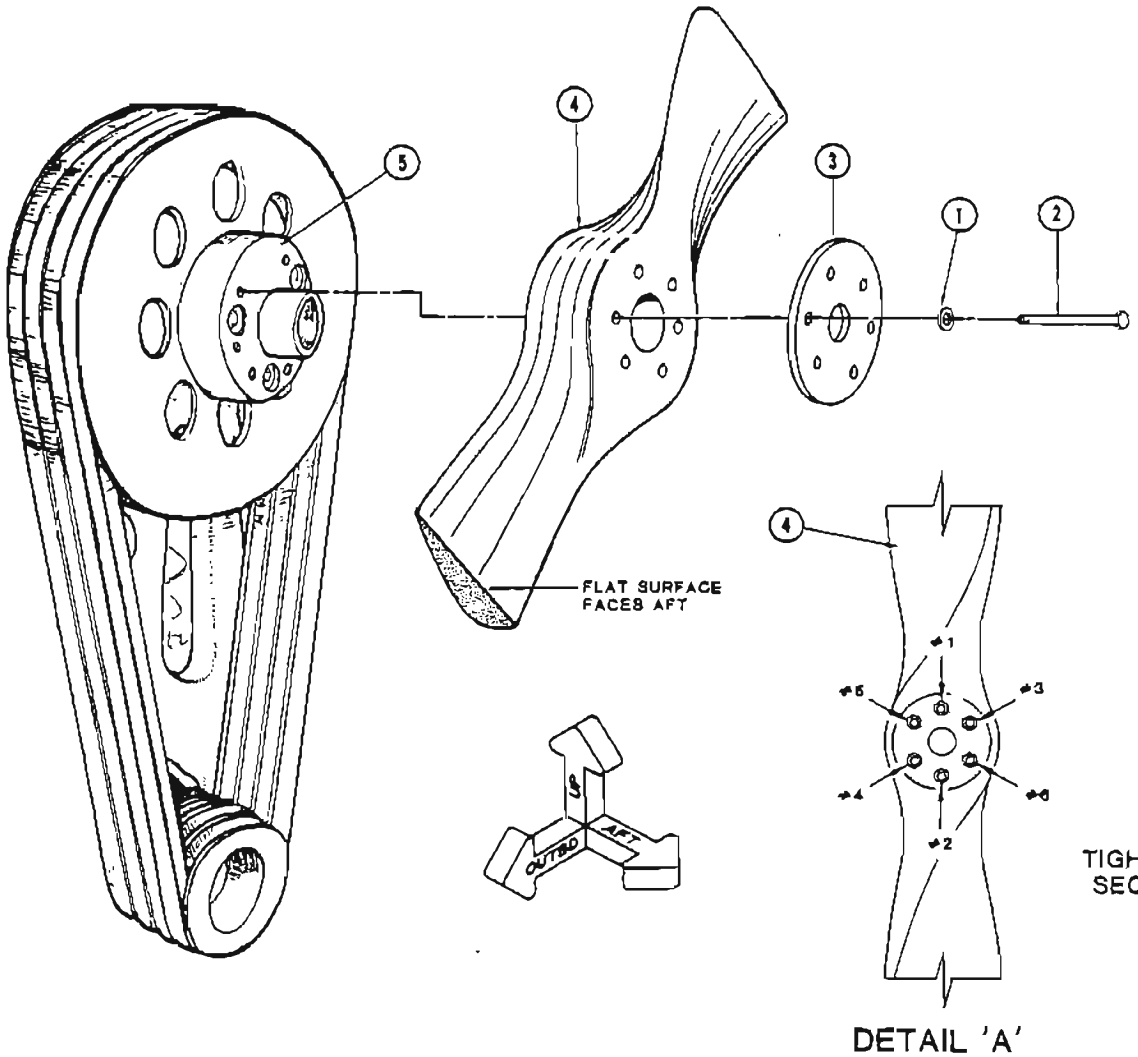
---

3. Refer to Detail 'B'. Set the Propeller (4) so that it is vertical. Measure from the Aft Down Tube mounting (6) at the Tail Boom (7) to the Leading Edge tip of the (lower) Propeller (4) blade. Note that first measurement. Turn the Propeller (4) half a turn and measure the same distance. Note the last measurement*. If the two measurements are plus-or-minus 1/8" (32mm) of each other, then the Propeller (4) is correctly tracked. Go to instruction 5 below.

4. Remeasure the original blade. Adjust as above. If you reach the Maximum Torque and have not reached the correct tracking, back off the Bolts (2) and start again.

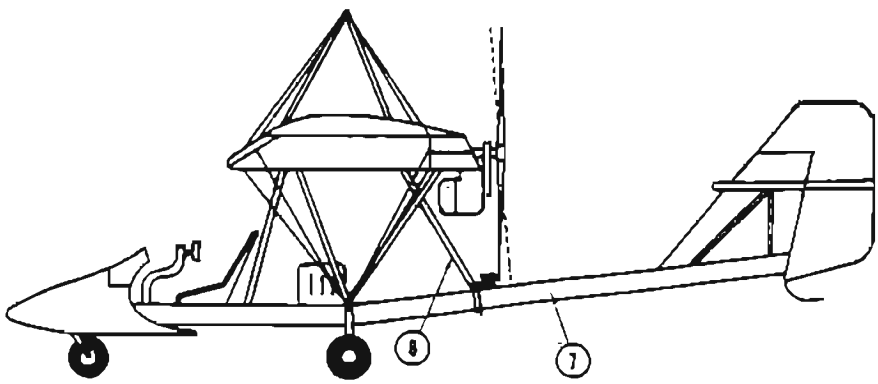
5. Lock the Bolts together in groups of three using Safety Wire via the Bolt (2) heads - see the section on 'Safety Wiring' in 'Construction Notes'.

Pt.	P.N.	Description.
1.	10560	1/4" Flat Washer.
2.	10624	1/4 - 20 x 2-5/8" Propeller Bolts.
3.	45852	277 Propeller Hub Face Plate.
4.	30346	Propeller 60 x 29.
5.....		Propeller Adapter Hub GT280.



TIGHTENING SEQUENCE

DETAIL 'A'



DETAIL 'B'

FIGURE 7-15

THROTTLE CABLE ADJUST/AIR FILTER/FUEL PUMP TO FILTER

1. Tighten until snug, the aft (Throttle Stop) Shoulder Bolt on the Throttle Mount Plate (6). Pull the Throttle Lever (1) back against it. Attach the Cable Barrel in the end of the Throttle Cable (2) to the Cable Swivel (3) on the Throttle Lever (1).

2. Temporarily position the Stop Nut (4) approx half-way along the thread of the Conduit Thread Adjuster (10A) and finger-tighten the Jam Nut (5) against the ear of the Throttle Mount Plate (6).

3. At the Carburetor, Lift the Piston (7) and release it. Check that it seats correctly on top of the inner part of the Idle Screw. Lift the Rubber Boot (8) and adjust the Conduit Thread Adjuster (10B) on the top of the Carburetor until the Throttle Cable (2) has no slack and the Piston (7) does not move. Replace the Rubber Boot (8).

4. Have your friend move the Throttle Lever (1) to the 'Fully open' position. At the Carburetor, check that when the Piston (7) opens, its lower edge is level with the top of the inside of the Carburetor throat. Adjust as necessary.

5. Adjust the Conduit Thread Adjuster (10A) at the Throttle Lever (1) as necessary to give a fully open and fully closed Piston (7) at the Carburetor. Then check that Throttle Lever (1) movement gives instantaneous movement of the Piston (7). Tighten the Stop Nut (4) and the Jam Nut (5).

6. Move the Throttle Lever (1) into the fully open position. Adjust the forward (Throttle Stop) Shoulder Bolt on the Throttle Mount Plate (6) back against the Lever (1). IMPORTANT: Ensure that the Shoulder Bolt is 90 degrees to the Plate (6). Tighten carefully until snug.

7. Install the Carburetor Air Filter (14) using the Clamp (15) supplied. Connect the Fuel Line (11) from the Fuel Pump (9) to the Fuel Filter (13) using the Hose Clamp (12) shown. Tighten until snug. Attach the Fuel Line (11) to the left Aft Downtube using a 'Stand-off'.

Pt.	P.N.	Description.
1		Throttle Lever.
2		Throttle Cable.
3		Cable Swivel.
4		Stop Nut.
5		Jam Nut.
6		Throttle Mount Plate.
7		Carburetor Piston.
8		Rubber Boot.
9		Fuel Pump.
10A		Conduit Thread Adjuster At Throttle Lever.
10B		Conduit Thread Adjuster on top of Carburetor.
11		Fuel Line.
12	30230	Fuel Line Clamp.
13		Fuel Filter.
14	60000	Air Filter.
15		Air Filter Clamp (Part of P.N.60000).

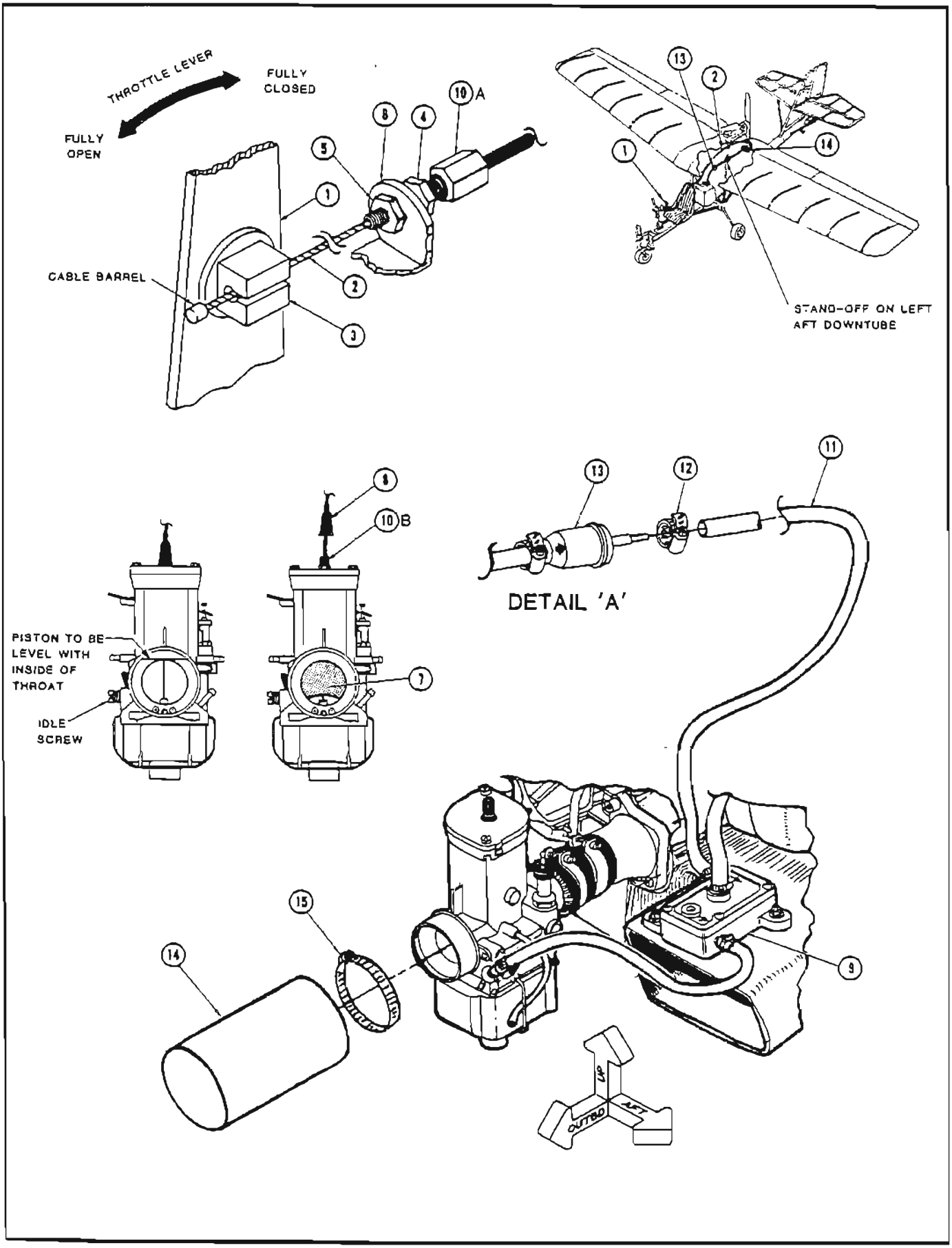

THROTTLE LEVER
FULLY CLOSED
FULLY OPEN
10A
8
4
5
1
2
3
CABLE BARREL
13
2
14
1
STAND-OFF ON LEFT AFT DOWNTUBE
11
13
12
DETAIL 'A'
8
10B
7
PISTON TO BE LEVEL WITH INSIDE OF THROAT
IDLE SCREW
15
14
9
UP
OUTBD
AFT

FIGURE 7-16

WING ATTACHMENT

NOTE: To complete the following sequences you will need the help of two friends and an area at least 34' (10.4m) wide.

1. Remove the Channels (1A) and (1B) from the Wing Jig.

2. Measure 15-3/4" along the aft sides and 1-1/8" along the forward sides of the Root Tube (2) and find two factory-drilled 1/4" diameter holes. Attach the Channels (1A) and (1B) - oriented as shown - via those holes using the hardware (3,4,5) shown. Tighten to proper torque.

3. With the help of a friend, raise the Left Wing and align the holes in the inboard ends of the L.E.Spar Root Brackets (6) with those in the Forward Channel (1A). Attach using the hardware (8,9) oriented as shown.

4. Align the T.E.Spar (7) with the holes in the Aft Channel (1B). Attach using the hardware (11,9). Tighten the hardware (8,9) and (11,9) until snug. DO NOT Overtighten! Secure with Safety Rings (10). Repeat the procedure on the Right Wing.

5. Position some protective material on the ground and rest the Wing tips on it.

Pt.	P.N.	Description.
1.		L.E.& T.E.Spar Channels.
2.		Root Tube.
3.	10240	AN4-26a Bolt.
4.	10560	1/4" Flat Washer.
5.	10510	1/4" Locknut.
6.		L.E.Spar.
7.		T.E.Spar.
8.	10260	AN4-27 Bolt.
9.	10521	1/4" Castle Nut.
10.	20310	Safety Ring.
11.	10205	AN4-23 Bolt.

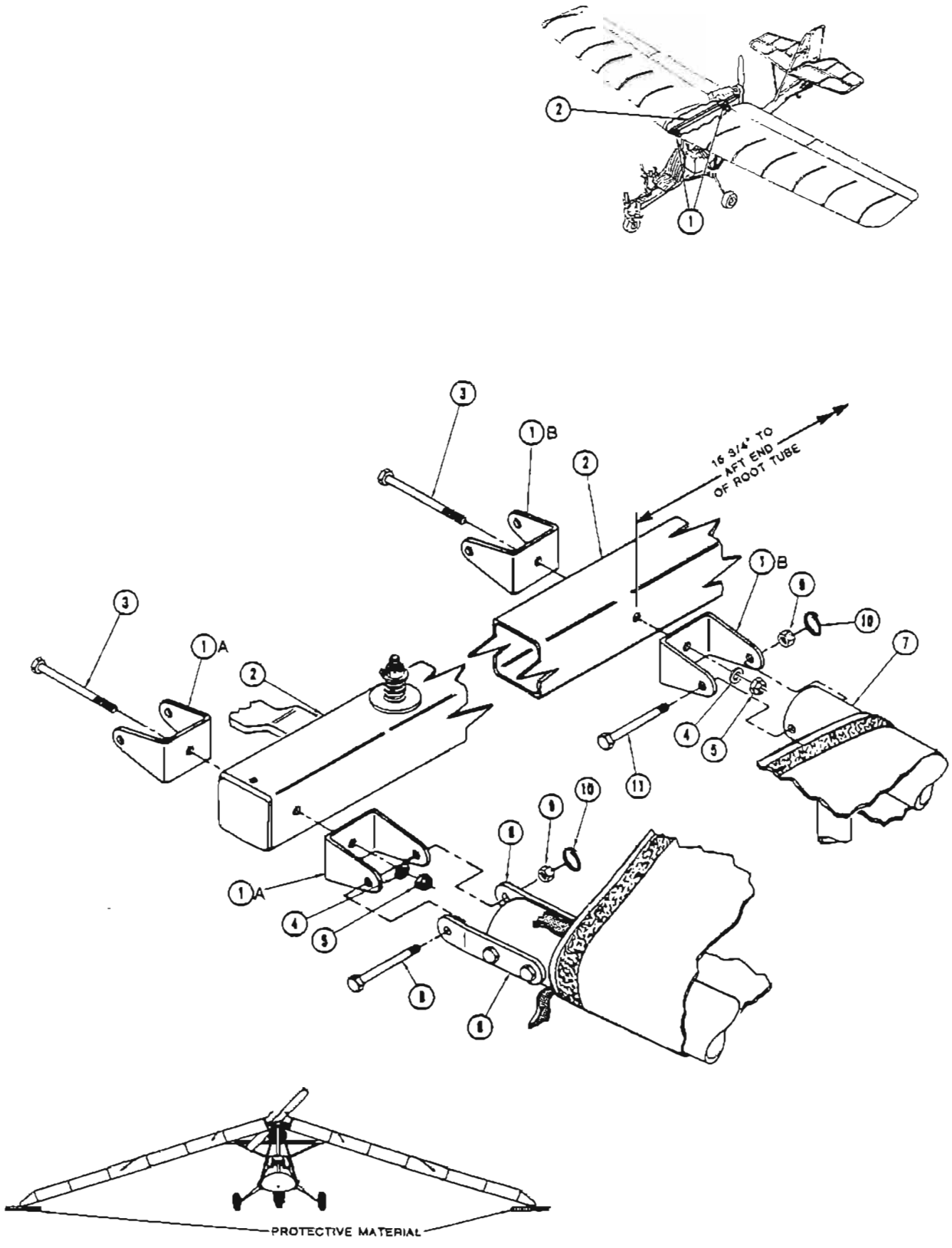

2
1
3
1B
2
16 3/4" TO AFT END OF ROOT TUBE
1B
8
10
7
3
1A
2
4
5
11
10
9
8
1A
4
5
11
8
PROTECTIVE MATERIAL

FIGURE 7-17

KING POST/WINGS/WIRE ATTACH

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

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

3. Have your two friends each raise a Wing via the Aileron Bellcrank Compression Struts.

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

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

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

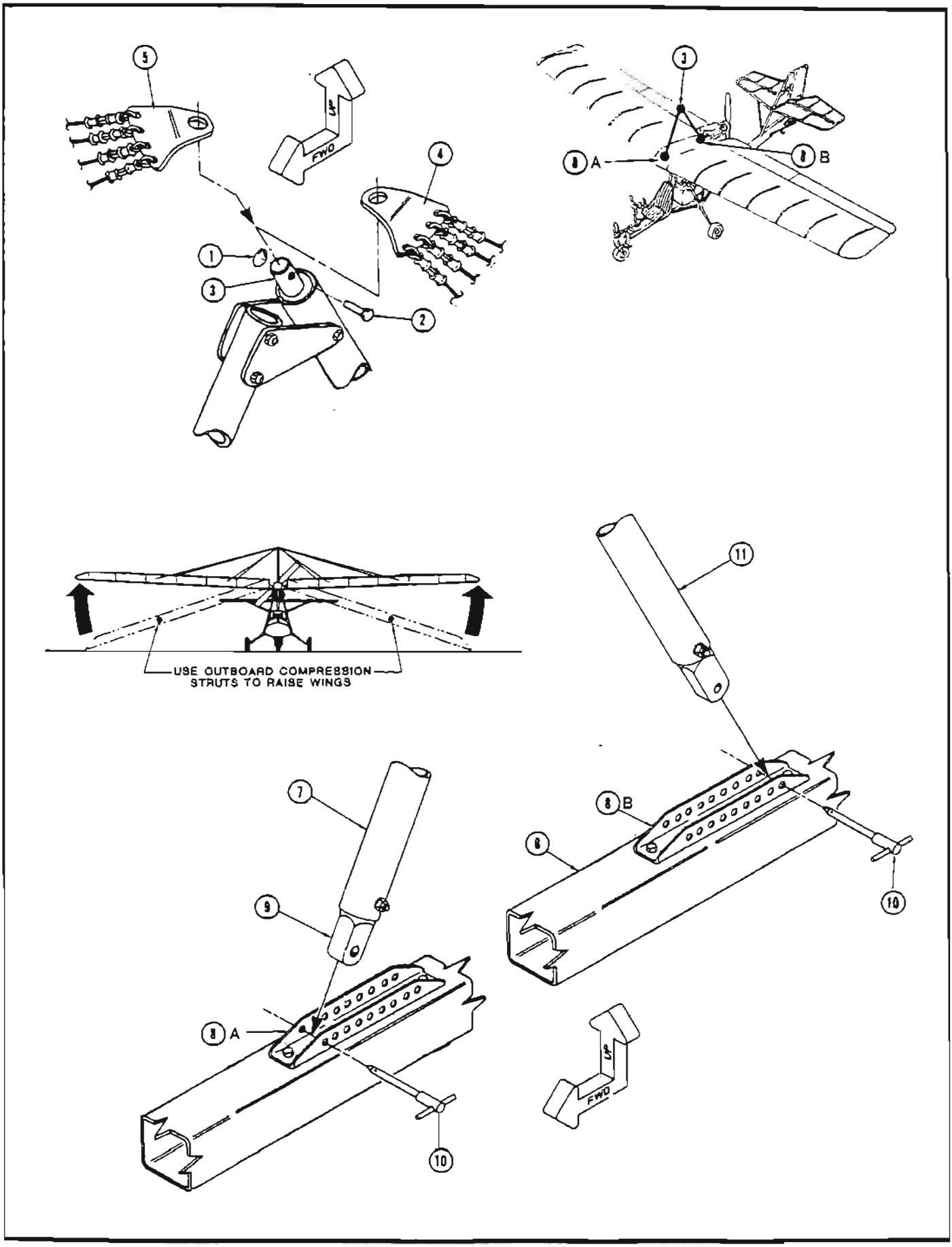


FIGURE 7-18

DOC # 842-8

KING POST ADJUSTMENT

1. Attach a Shackle Adapter (1) to the Left Strut Attach Plate (2) using the hardware (3,4,5) oriented as shown. Tighten to proper torque. Repeat the procedure on the Right Strut Attach Plate.

2. Uncoil the Left Lower Wing Wires (6,7,8,9). Ensure that they are untwisted. Hook the Shackle (10) thru each thimble in each wire in the sequence shown . Attach the Shackle (10) to the Shackle Adapter (1) using the hardware (11,12,13) shown. Repeat the procedure - in mirror image - on the Right Lower Wing Wires. See Note 1* below.

NOTE 1*: In order to easily hook up the RIGHT Shackle (10), have one friend lift the Left Wing GENTLY and your other friend to GENTLY pull down on the Right Wing just sufficient to allow the Right Lower Wire set to slacken enough to insert the Bolt (11) thru the Shackle Adapter (1).

---

3. Remove the 'T' Handle Pin (14) from the Forward King Post (15). Realign the Forward King Post (15) with the next aft hole in the King Post Channel Track (16A). Re-insert the 'T' Handle Pin (14).

4. Remove the 'T' Handle Pin (14) from the AFT King Post (17). Realign the Aft King Post (17) with the next forward hole in the King Post Channel Track (16B). Re-insert the 'T' Handle Pin (14). Check the tension on the Upper and Lower Wing Wires. See NOTE 2** below.

NOTE 2**: The Wire sets should be tight, but not as tight as a Guitar string. Depending upon the manufacturing tolerances of new Upper and Lower Wing Wire sets, the normal final position of the FORWARD King Post (15) is in the second Aft hole in the Forward King Post Channel Track (16A). The normal final position of the AFT King Post (17) is in the third forward hole in the Aft King Post Channel Track (16B). Your Zipper Dealer will adjust this detail in his Final Inspection.

---

5. When the wires are correctly tensioned, secure the 'T' Handle Pins (14) with Safety Rings (13).

Pt.	P.N.	Description.
1.	45723	Shackle Adaptor Fitting Machined.
2.	.....	Left Strut Attach Plate.
3.	10064	AN4-11a Bolt.
4.	10560	1/4" Flat Washer.
5.	10510	1/4" Locknut.
6.	.....	T.E.Inboard Lower Wire.
7.	.....	T.E.Outboard Lower Wire.
8.	.....	L.E.Outboard Lower Wire.
9.	.....	L.E.Inboard Lower Wire.
10.	20330	1/4" Shackle.
11.	10205	AN4-23 Bolt.
12.	10520	1/4" Wing Nut.
13.	20310	Safety Ring.
14.	.....	'T' Handle Pin.
15.	.....	FORWARD King Post.
16.	.....	King Post Channel Track.
17.	.....	AFT King Post.

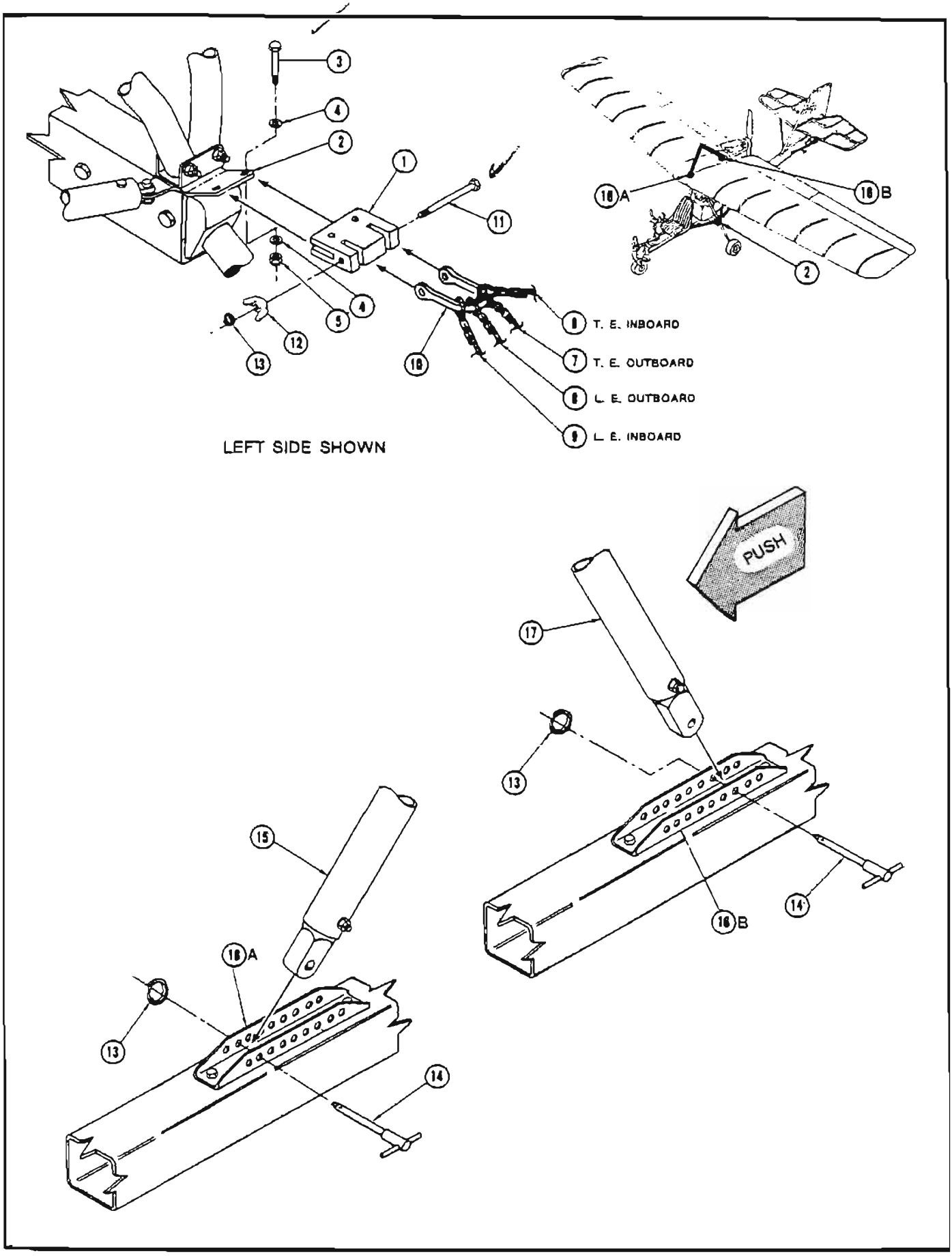


FIGURE 7-19

DOC # 842-8

AILERON AND FLAP ATTACHMENT

1. Attach the Left Aileron (1) to the Left Wing (2) using the hardware (3,4,5) oriented as shown. Bend the Cotter Pins (5) correctly.

2. Repeat the procedure - in mirror image - on the Right Wing.

3. Attach the Left Flap (6) to the Left Wing (2) using the hardware (3,4,5) oriented as shown. Bend the Cotter Pins (5) correctly.

4. Repeat the procedure - in mirror image - on the Right Flap.

Pt.	P.N.	Description.
1		Left Aileron Assembly.
2		Left Wing.
3.	10009	AN3-5 Bolt.
4.	10517	3/16" Castle Nut.
5.	10635	Cotter Pin.
6		Left Flap Assembly.

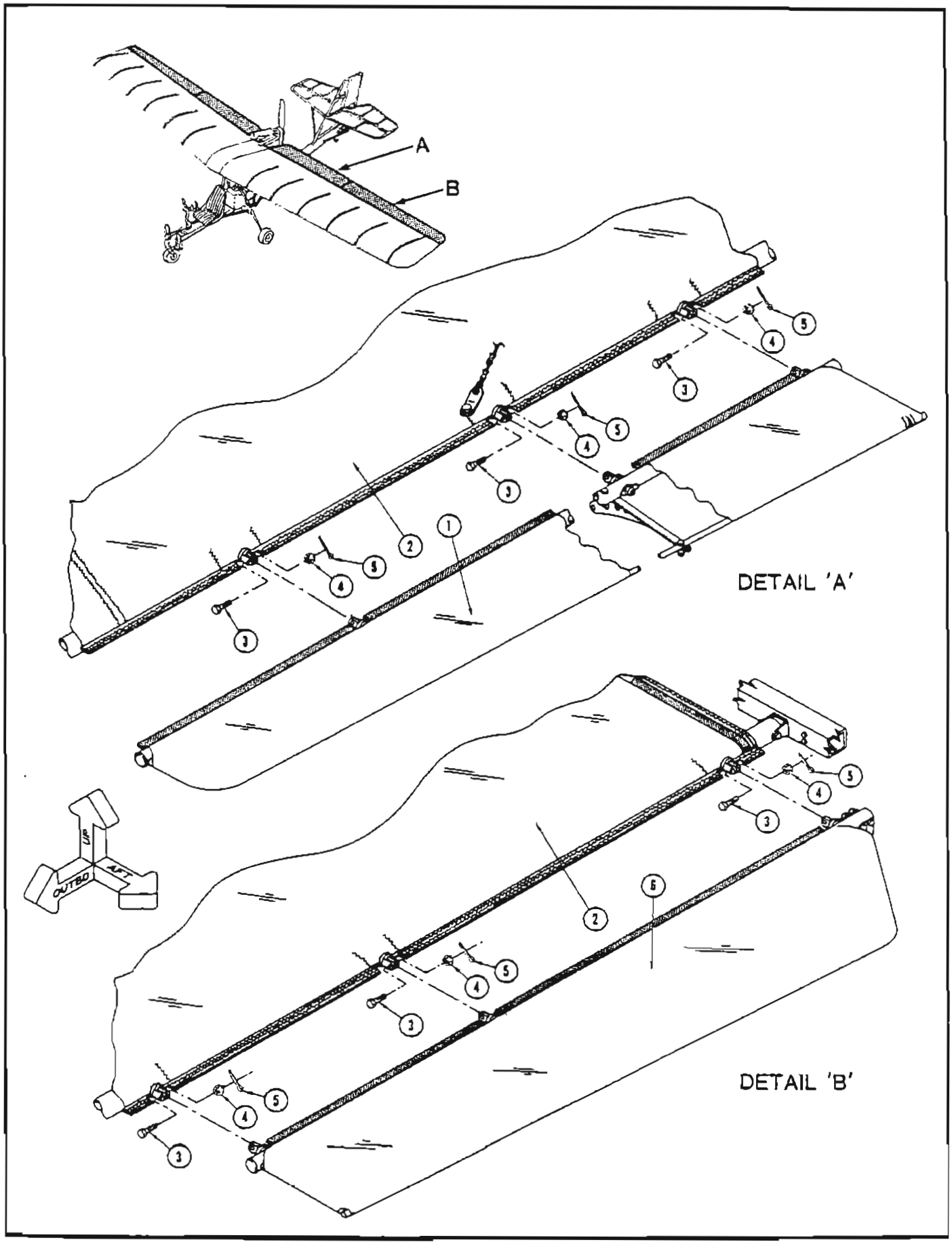


FIGURE 7-20

AILERON/FLAP PUSHROD ATTACHMENT

1. On the - previously sub-assembled Aileron Pushrod (1), thread the Jam Nut (2A) up to the shoulder of the Male Rod End Bearing (3A). Thread the Male Rod End Bearing (3A) all the way into the Pushrod (1) until it bottoms out. Back off the Male Rod End Bearing (3A) one full turn. DO NOT Tighten the Jam Nut (2A).

2. Insert the Aileron Pushrod (1) thru the previously-cut hole in the lower Left Wing Cover.

3. With the Left Aileron Bellcrank (4L) oriented as shown, Attach the Male Rod End Bearing (3A) oriented as shown, to the middle hole in the arm of the Left Aileron Bellcrank (4L) using the hardware (5,6,7,8) oriented as shown. Tighten to proper torque.

4. Attach the Fork End of the Aileron Pushrod (1) to the Aileron Horn (9) using the hardware (10,7,11,12) shown. DO NOT Tighten. DO NOT Add the Safety Ring (12) yet.

5. Repeat the procedure on the Right Wing.

Flap Tension Rod Attachment.

6. Thread the Jam Nuts (2B,2C,2D) up to the shoulders of all three Male Rod End Bearings (3B,3C,3D). Thread all three Male Rod End Bearings all the way into their Tension Rods (13,14) until they bottom out. Back off Male Rod End Bearing (3B) eight full turns*; (3C) nine full turns*; (3D) twelve full turns* - plus just enough more to orient them as shown. Hold those positions. Tighten the Jam Nut (2B) back against its Tension Rod (13) until snug. DO NOT Tighten the other two Jam Nuts (2C,2D).

7. Attach Male Rod End Bearing (3B) to the Flap Handle Bracket (15) using the hardware (16,7,8) oriented as shown. Tighten to proper torque.

8. Attach Male Rod End Bearing (3C) to the RIGHT Flap Horn (17R) and Male Rod End Bearing (3D) to the LEFT Flap Horn (17L) using the hardware (18,7,11,12) oriented as shown. DO NOT Tighten. DO NOT add the Safety Ring (12) yet.

*CAUTION: At least ten threads must remain inside the Rod.

Pt.	P.N.	Description.
1.	45697	Aileron Pushrod.
2.	.....	Jam Nut.
3.	.....	Male Rod End Bearing.
4.	.....	Aileron Bellcrank (L&R)
5.	10025	AN3-11a Bolt.
6.	20241	'T' Bushing.
7.	10550	3/16" Flat Washer.
8.	10500	3/16" Locknut.
9.	.....	Aileron Horn.
10.	10009	AN3-5 Bolt.
11.	10517	3/16" Castle Nut.
12.	20310	Safety Ring.
13.	.....	RIGHT Flap Tension Rod.
14.	.....	LEFT Flap Tension Rod.
15.	.....	Flap Handle Bracket.
16.	10020	AN3-7a Bolt.
17.	.....	Flap Horn (L&R).
18.	10028	AN3-10 Bolt.

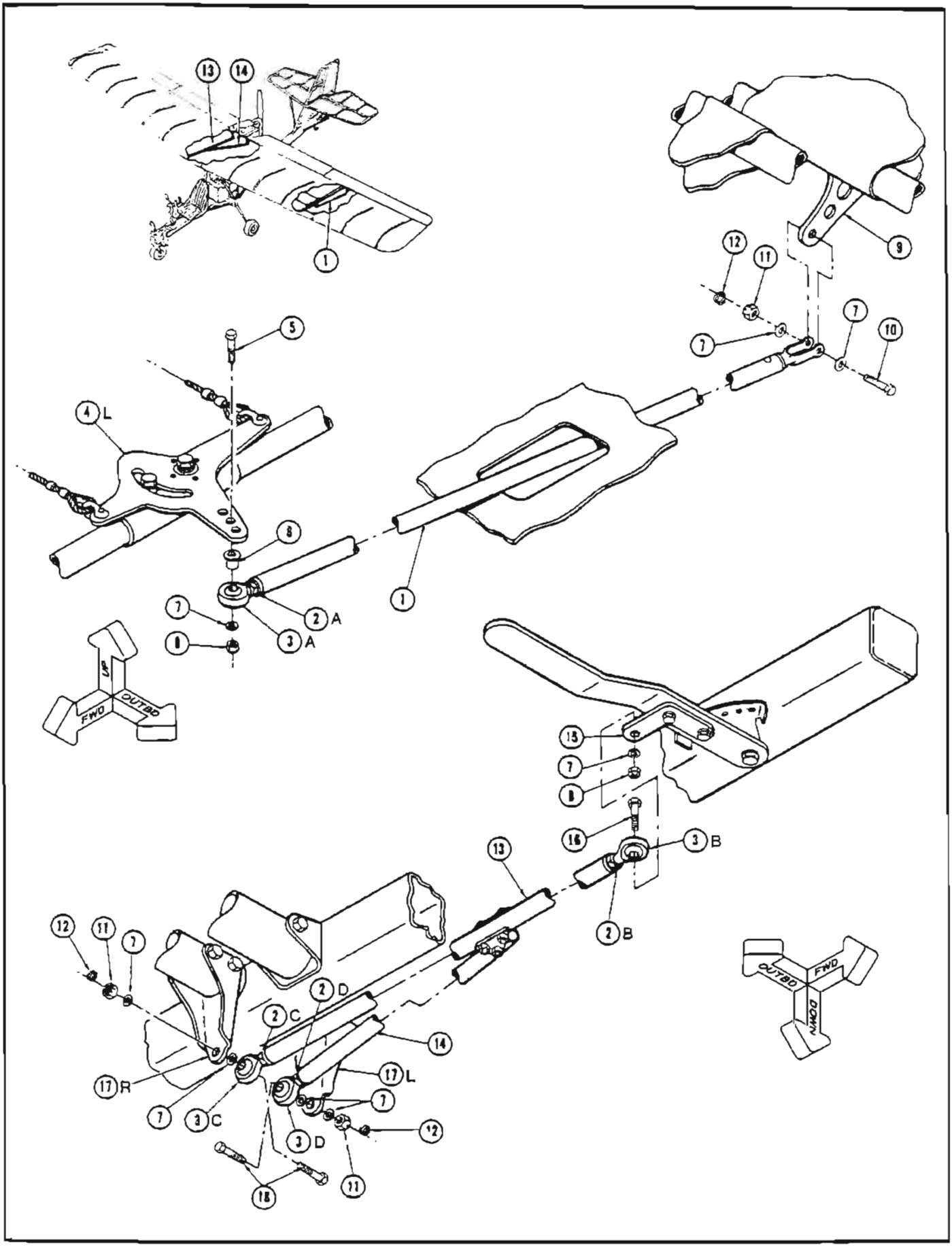

13
14
1
12
11
9
7
10
5
4 L
8
2 A
3 A
UP
FWD
OUTBD
15
16
3 B
2 B
2 D
2 C
17 R
17 L
3 C
3 D
18
OUTBD
FWD
DOWN

FIGURE 7-21

AILERON DEFLECTION ADJUSTMENT

1. Uncoil the Left Aileron Cables (1F) and (1A). Ensure that the Aileron Bellcrank (2) is oriented as shown and that the Cables (1) are untwisted and parallel to one another. Attach the Cables (1F) and (1A) to the Root Tube Bellcrank (3) using the hardware (4,10,11,5) oriented as shown. Repeat the procecure on the Right Aileron Cables.

2. Refer to Detail 'A'. Disconnect the Fork End of the Aileron Pushrod (6) at the Right Aileron Horn (7). Position a Straight Edge on the underside of the Wing and the Right Aileron as shown. Tie it in that position.

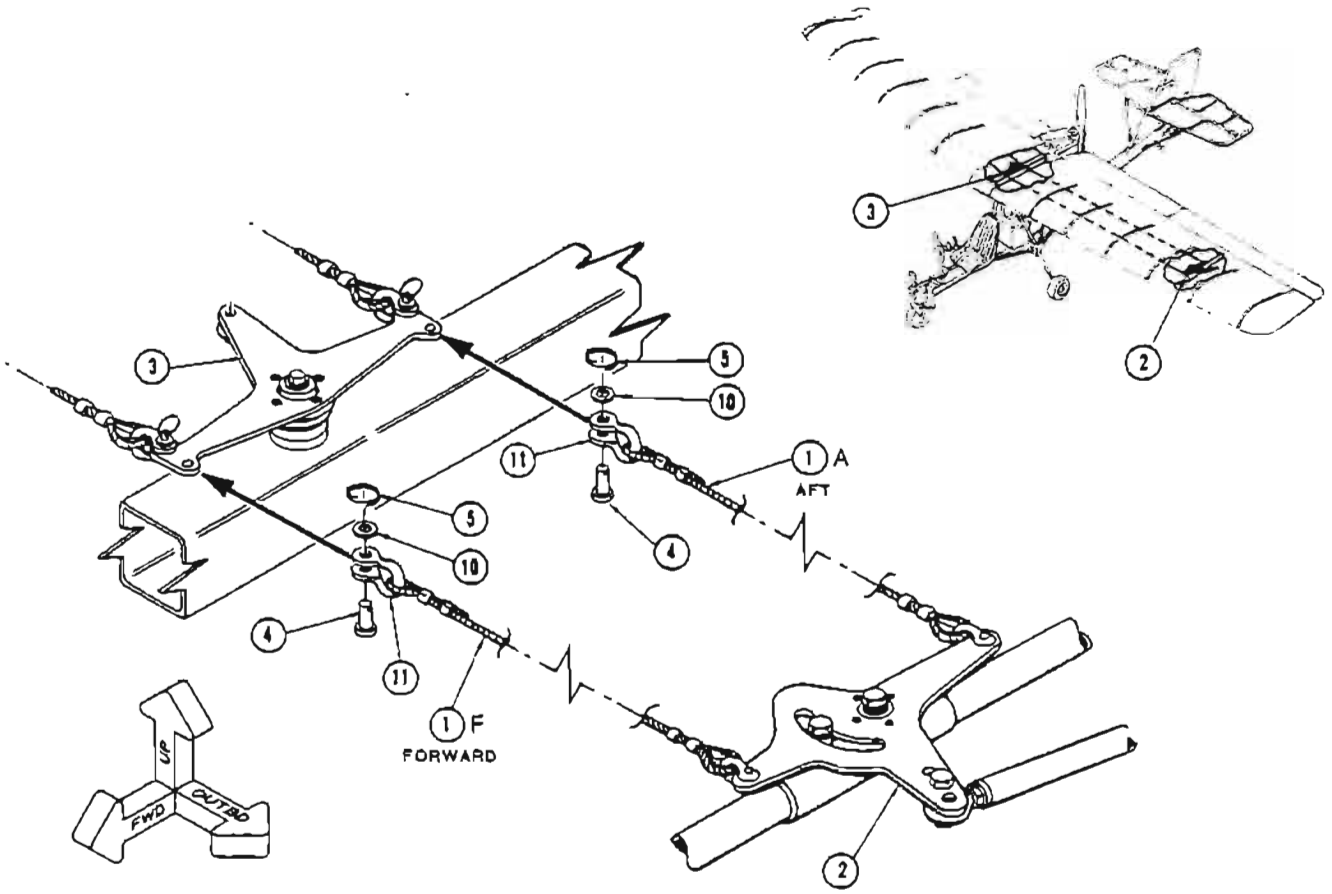
3. Have a friend sit in the Pilot Seat and hold the Control Wheel exactly in 'Neutral'.

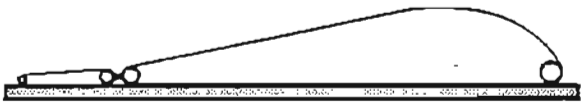
4. Refer to Detail 'B'. Thread the Jam Nut (8) up to the shoulder of the Male Rod End Bearing (9). Rotate the Pushrod (6) all the way onto the Bearing (9). Back off the Pushrod (6) until the holes in the Fork End prescisely align with the hole in the Aileron Horn (7). Reinsert the hardware - it should slip back in easily, without moving the Horn (7). Adjust as necessary. Retighten the hardware until snug. Secure with the Safety Ring (5).

5. Refer to Detail 'C'. Tighten the Jam Nut (8) back against the Pushrod (6).

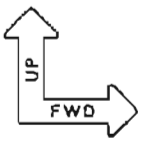
6. Repeat the procedure on the Left Aileron.

Pt.	P.N.	Description.
1.		Aileron Cable.
2.		Aileron Bellcrank.
3.		Root Tube Bellcrank.
4.	10440	Clevis Pin.
5.	20310	Safety Ring.
6.		Aileron Pushrod.
7.		Aileron Horn.
8.		Jam Nut.
9.		Male Rod End Bearing.
10.	10550	3/16" Flat Washer.
11.	20320	3/16" Shackle.

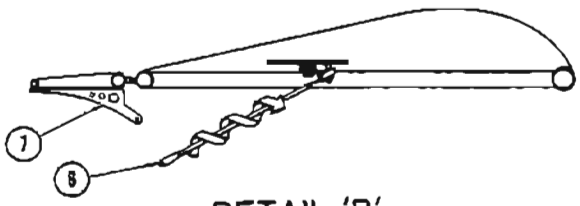




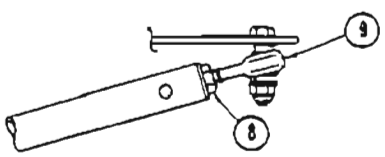
DETAIL 'A'



SIDE VIEW



DETAIL 'B'



DETAIL 'C'

FIGURE 7-22

FLAP ADJUSTMENT

Flap Handle Adjustment.

1. Refer to Detail 'A'. Adjust the Spring tension in the Flap Handle (2) via the Castle Nut (12) in the top of the Flap Assembly. The Flap Handle Pin (13) should clear each of the holes in the Flap Handle STOP Bracket (14) by 1/16" to 1/8" (1.58mm to 3.17mm) and give positive location within each of the holes. When the correct tension is reached, bend the Cotter Pin (15) correctly.

Flap Adjustment.

2. With the Left Aileron (1) still held in position by the Straight Edge, the Control Wheel still held in 'Neutral' and the Flap Handle (2) set in the fully retracted position. Remove the hardware (4,5) from the Bolt (3) which holds the Left Flap Horn (7) to the Left Flap Tension Rod (8).

3. Adjust the Male Rod End Bearing (9) in the Left Flap Tension Rod (8) until the Trailing Edge of the Left Flap (10) positions approximately 1/2" (12.7mm) below the Trailing Edge of the Left Aileron (1).

4. Replace the hardware (3,4,5). Tighten until snug and secure with the Safety Ring (6). Tighten the Jam Nut (11) back against the Left Flap Tension Rod (8).

5. Repeat the procedure on the Right Flap.

Pt.	P.N.	Description.
1		Left Aileron.
2		Flap Handle.
3		AN3-10 Bolt.
4		3/16" Flat Washer.
5		3/16" Castle Nut.
6		Safety Ring.
7		Flap Horn.
8		Left Flap Tension Rod.
9		Male Rod End Bearing.
10		Left Flap.
11		Jam Nut.
12		1/4" Castle Nut.
13		Flap Handle Pin.
14		Flap Handle STOP Bracket.
15		Cotter Pin.

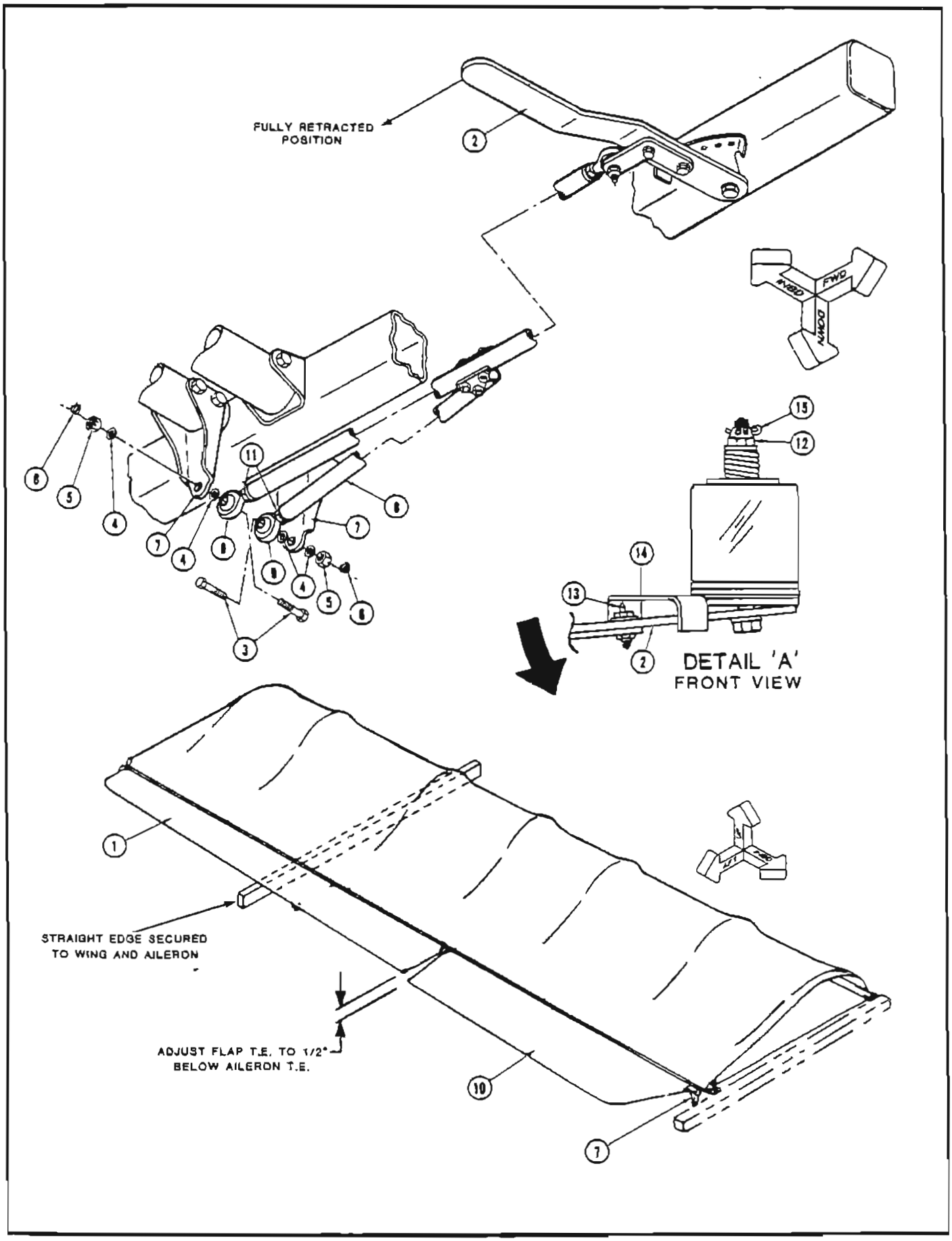


FIGURE 7-23

DOC # 842-8

WING BUCKLES/GAP SEAL FITTING

1. Refer to Detail 'A'. Attach the female Buckle halves in the Left Wing with the male Buckle halves in the Right Wing. Tighten them progressively to remove slackness and wrinkles in the upper and lower wing surfaces. Tie the loose ends in a half-hitch knot. Ensure the ends do not foul any part on the Root Tube.

2. Refer to Detail 'B'. Position and mark Template GS1 on the Forward Gap Seal (1) as shown. Using the Hot Knife, carefully and neatly cut the Flap Handle aperture. Mark and cut the Forward King Post slot in the aft end of the Forward Gap Seal (1). Mark and cut slots in the Aft Gap Seal (2) as shown.

3. Refer to Detail 'C'. Position the Aft Gap Seal (2) Velcro evenly on the Wing Velcro to form a smooth Gap Seal.

4. Refer to Detail 'D'. Position the Forward Gap Seal (1) around the Flap Handle and connect the Velcro on the underside of the Wings. Roll the Forward Gap Seal (1) up over the Leading Edges of the Wings and attach the Velcro to both Wings and the Aft Gap Seal (2).

Pt.	P.N.	Description.
1.	45677	Forward Gap Cover.
2.	43678	Aft Gap Cover.

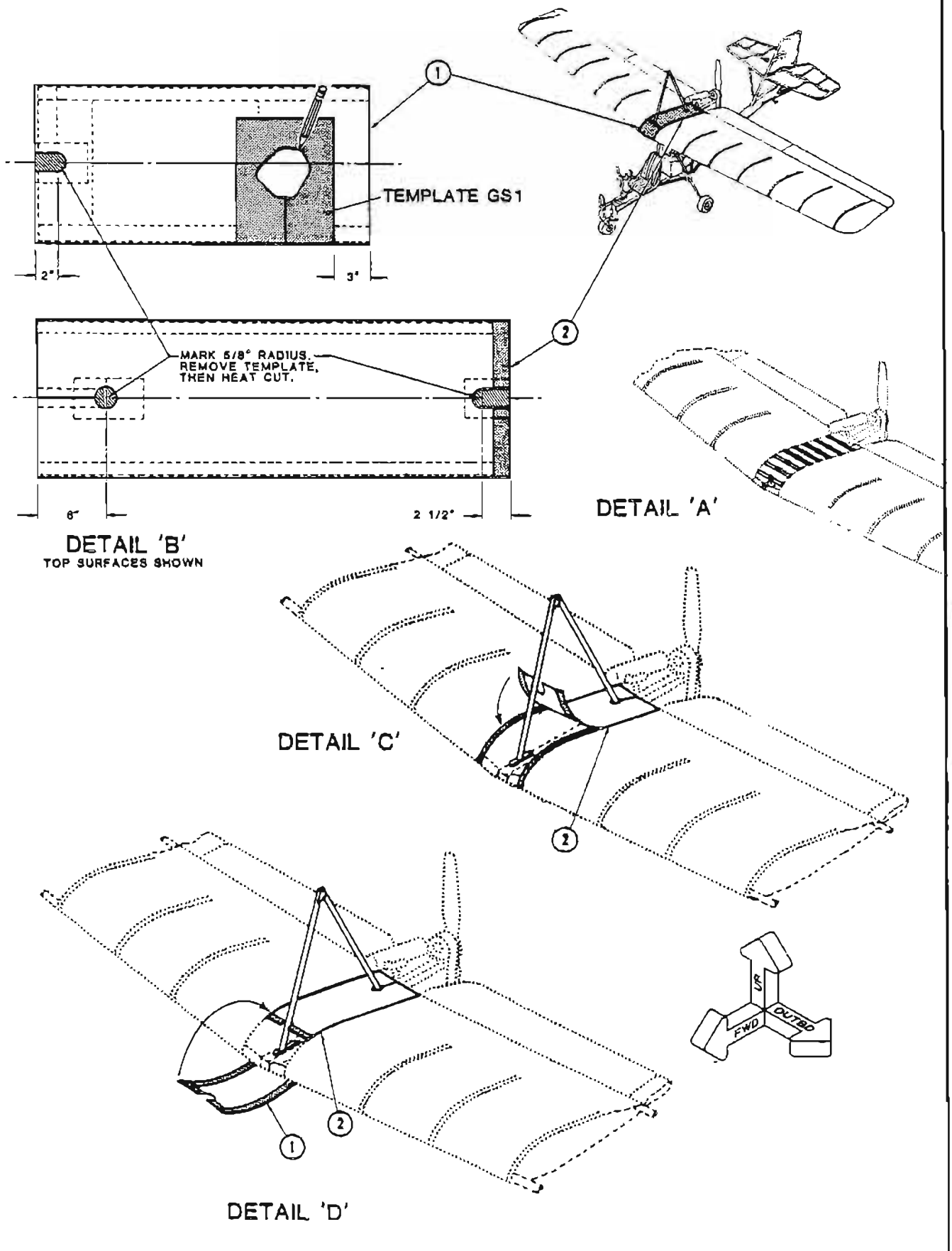

1
TEMPLATE GS1
2"
3"
2
MARK 5/8" RADIUS.
REMOVE TEMPLATE,
THEN HEAT CUT.
6"
2 1/2"
DETAIL 'B'
TOP SURFACES SHOWN
DETAIL 'A'
DETAIL 'C'
2
UP
FWD
OUTBD
2
1
DETAIL 'D'

FIGURE 7-24

WEIGHT & BALANCE

To achieve the balance your aircraft was designed to have, your Zipper Dealer will use the following procedure when you've completed the assembly of the kit. Thereafter, if you change the weight of an existing part or position any other weight on the aircraft (such as a Ballistic Recovery System) or the weight of the Pilot or his equipment (Winter/Summer Flight Gear) changes significantly, it is essential that the resulting change in the Center of Gravity (CG) is established within the design limits before the aircraft is flown.

The Formula

To determine the location of the CG for this aircraft :-

Total Moment of the Aircraft
---------- = Distance of the CG from the Datum.
Gross Weight of the Aircraft.

Note: The following calculations are in inches . The Formula to convert inches into centimetres is : Inches x 2.54

Weighing Points

Empty Weight.....Main Landing Gear and Tail Skid.

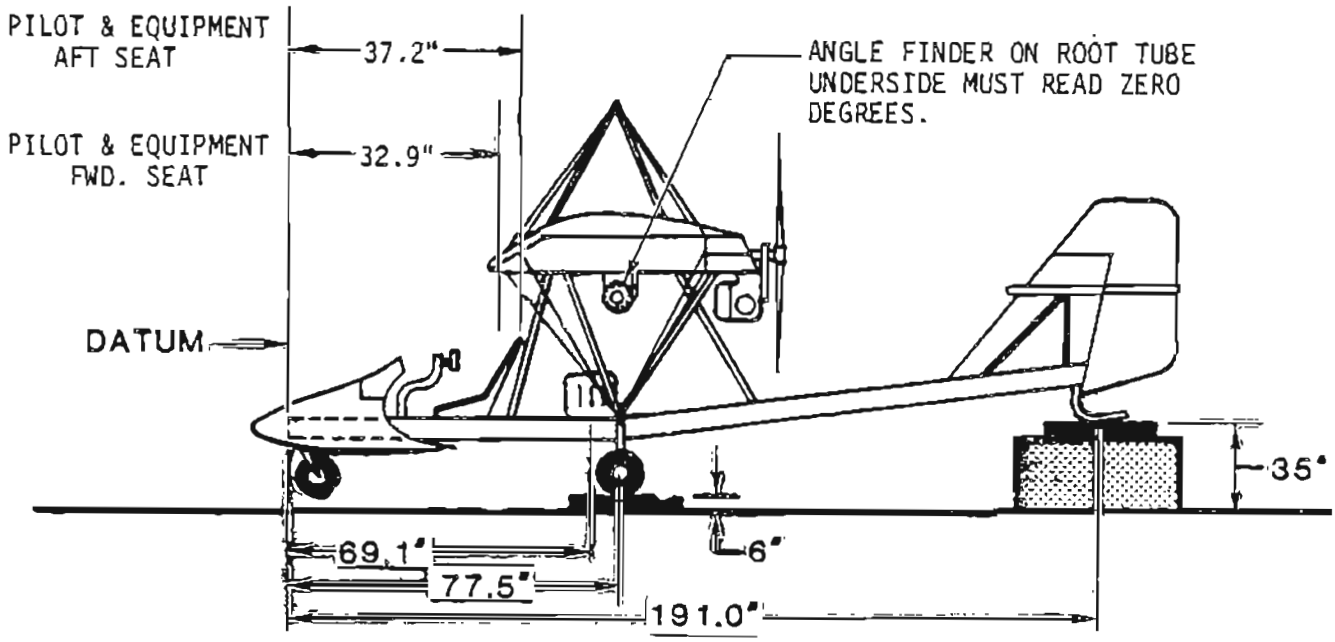
Procedure

1. The aircraft should be weighed inside a closed building to avoid errors caused by wind.
2. The floor must be level, or the scales must be securely wedged and accurately levelled.
3. The accuracy of the three Weighing Scales must be established.
4. First weigh the Pilot, including his complete flying equipment. helmet, parachute, etc. and any baggage which he will use in normal flight when strapped in his seat .(Such as Wrist-Altimeter). Record the weight for use in Chart 2..
5. Place two Scales so that their top surfaces are 6" (15.2cm) above ground level, in the Main Wheel position. Place the third Scale so that its top surface is 35" above floor level, in the Tail Skid position.
6. With the assistance of a friend, lift the aircraft so that its Main Wheels are centered on the Scales and the Tail Skid is centered on its Scale.
NOTE: If it is necessary to wedge the wheels to prevent the aircraft from rolling off the Scales, then those wedges must be weighed separately.
7. Refer to Detail 'A'. Using the Angle Finder Tool measure the angle of the Root Tube. It must read Zero degrees. If it doesn't, shim as necessary between the boxes and the Scales or between the floor and the Tail Skid scale, until it does.

8. Mark the lateral centerline of the Main Wheels on the floor.

WEIGHT & BALANCE (CONT'D.)

Detail 'A' shows aircraft on boxes, angle finder reads Zero. seat, tank, wheel etc Moment Arms accurately shown.



DETAIL 'A'

CHART 1

(Include all instruments & accessories;No Fuel;No Pilot or his equipment).

EMPTY WEIGHT CALCULATION.

Item	Net Weight	Moment Arm (Inches,Datum)	Moment (Inch/Lbs)
Left Wheel		77.5"	
Right Wheel		77.5"	
Tail Skid		191.0"	

TOTAL EMPTY WEIGHT:- _____

TOTAL MOMENT (EMPTY) _____

WEIGHT & BALANCE (CONT'D.)

Determination of Empty Weight CG Location

9. Measure the distance from the Datum (Front of the Forward Fuselage Tube) Aft to the middle of the lateral centerline of the Main Wheels (this establishes the Moment Arm) and should read 77.5". See CHART 1 above.
10. Record the individual weight on each wheel onto CHART 1 under 'Net Weight'. Add the weights to come to 'Total Empty Weight'.
11. Multiply the Net Weight of the Left Wheel by the Left Wheel Moment Arm. The result is the Left Wheel Moment in inch/lbs. Record it in the right-hand column.
12. Repeat (11) above for the Right Wheel and the Tail Skid.
13. Add the result of the above established Moments to give Total Moment (Empty).
14. Divide the Total Moment by the Total Empty Weight. The Result is the distance of the Empty Weight C.G. from the Datum.

Determination of Loaded Weight CG Location

NOTE: It is unnecessary to fill the Fuel Tank at this time. However, for this procedure, calculate a Full Fuel Tank at 30.5lbs - we've entered that weight in CHART 2.

CHART 2

LOADING CHART

Item	Weight	Moment Arm (Inches,Datum)	Moment (Inch/Lbs)
Aircraft Empty Weight			
Fuel Tank	30.5lbs	69.1"	
Pilot and Equipment		Fwd Seat 32.9" / Aft Seat 37.2"	
Other*			
TOTAL GROSS WEIGHT:- _____			TOTAL MOMENT (LOADED):- _____

* 'Other' means additional Fuel, Baggage or non-standard equipment such as Radio's etc. Their Moment Arms are measured from the Datum to their center of mass.

WEIGHT & BALANCE (CONT'D.)

15. Record the Total Empty Weight from CHART 1 onto CHART 2, under 'Aircraft Empty Weight'.
16. Add the weight of the Pilot and his equipment (recorded earlier). Note if Seat is in the Forward or Aft position.
17. Add any "Other"* normally carried weight and enter in CHART 2.
18. Add all weights to give 'Total Gross Weight'.
19. Refer to the result of the calculation in (14) above (i.e. the distance of the Empty Weight CG from the Datum). Record in CHART 2 under ' Moment Arm (Inches,Datum)' opposite 'Aircraft Empty Weight'.
20. Refer to Detail 'A'. Note that the Fuel Tank Moment Arm is 69.1". Note that the Seat Moment Arm is 32.9" in the Forward position: 37.2" in the Aft position.
21. If you have positioned the Seat in the Forward position, the Pilot and Equipment Moment Arm, is 32.9". In the Aft position it is 37.2".
22. Refer to (17) above, calculate the Moment Arm of "Other"* weight and record it on the Chart.
23. Multiply the Aircraft Empty Weight by its Moment Arm as (19) above. The Result is its Moment (Inch/lbs).
24. Multiply the Fuel Tank Weight x 69.1" for its Moment (Inch/Lbs).
25. Multiply the Weight of the Pilot and his Equipment x 32.9" if the Seat is in the Forward position (or 37.2" in Aft position) for his Moment (Inch/Lbs).
26. Multiply "Other"* weight by its Moment Arm for its Moment (Inch/Lbs).
27. Add the results of (23,24,25,&26) above for Total Moment(Loaded).
28. Divide the Total Moment (Loaded) by the Total Gross Weight. The result is the distance in Inches of the Gross Weight C.G. from the Datum.

LIMITS

DO NOT EXCEED THESE SPECIFICATIONS!

Wire-Braced Eipper Quicksilver GT 280C

	lbs.	kg.
Maximum Gross Weight	570	258,6
Maximum Forward CG	63.9" Aft of Datum	
Maximum Rearward CG	69.1" Aft of Datum	

Strut-Braced Eipper Quicksilver GT 280S

	lbs.	kg.
Maximum Gross Weight	570	258,6
Maximum Forward CG	63.9" Aft of Datum	
Maximum Rearward CG	69.1" Aft of Datum	

ESSENTIAL! IF YOUR MAXIMUMS ARE EXCEEDED
DO NOT ATTEMPT TO FLY YOUR AIRPLANE!
CONSULT YOUR EIPPER DEALER IMMEDIATELY.

SPARK PLUG INSTALLATION

1. Remove the Cork Seal from the Spark Plug hole and discard it.

2. The recommended Spark Plug is the NGK B8ES 14mm x 3/4". Set the Gap to .020" (.508mm).

3. Remove the protective covering from the Spark Plug (1).

4. Remove the Seating Washer (2) and discard it.

NOTE: Some NGK B8ES Spark Plugs supplied with the kit have integral Conical Seats which cannot be removed. Others have a removable Conical Seat (3).

5. If the Conical Seat (3) is of the removable type, unscrew it, add a drop of Loctite to the thread, Retighten it.

6. Find the CHT Thermo-couple (4) - its packed with the Instrument Package. Find the Female Snap Connectors (5) - they're in the general Kit. Using the Crimping tool, attach the Female Snap Connectors (5) to the Brown and White wires on the CHT Thermo-couple (4).

7. Push the CHT Thermo-couple (4) - oriented as shown - onto the threads of the Spark Plug (1). Thread the Plug (1) into the Cylinder Head. Ensure that the sensor wires are not twisted and exit the Plug port and Engine shroud at a convenient angle on the LEFT side of the Engine. Torque the Spark Plug (1) to 18 ft./lbs. (24.39 Nm.).

8. Connect the Brown and White wires from the CHT Thermo-Couple (4) - respectively to the Brown and White wires from the Wiring Harness (6).

Pt.	P.N.	Description.
1.	00897050	Spark Plug NGK B8ES.
2.	.....	Seating Washer.
3.	.....	Conical Seat.
4.	90116	CHT Thermo-Couple.
5.	30070	Female Snap Connector.
6.	.....	Wiring Harness.

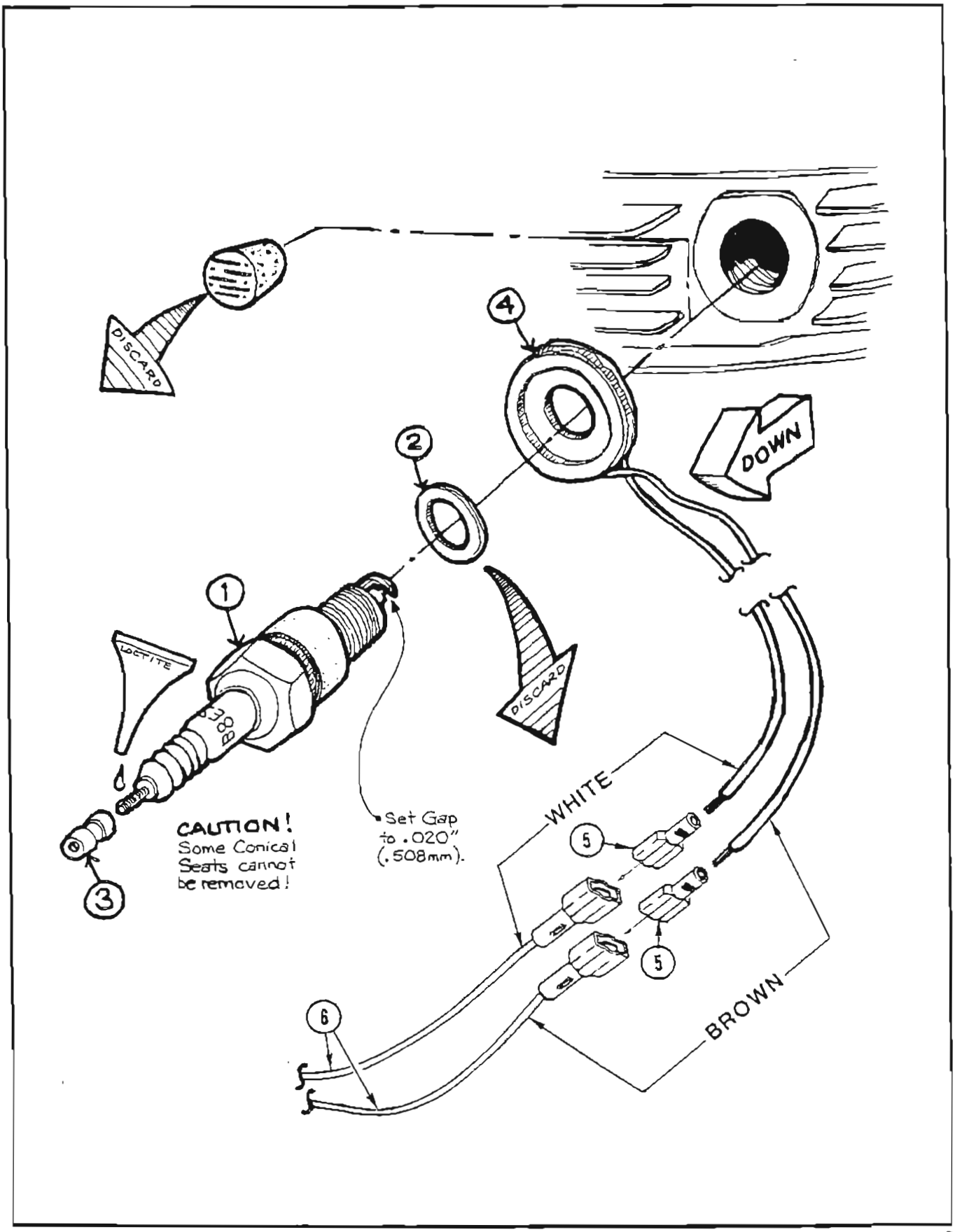

DISCARD
4
DOWN
2
1
LOCTITE
DISCARD
CAUTION!
Some Conical
Seats cannot
be removed!
3
Set Gap
to .020"
(.508mm).
WHITE
5
5
BROWN
6

FIGURE 7-25

ENGINE BREAK-IN

NOTES: The Break-in period is 77 minutes 15 seconds. Ear Protection is recommended. The Engine must be mounted in the aircraft. Operation of this procedure without the Propeller will cause SEVERE Engine damage.

This sequence must be read in conjunction with the 'Operators Manual for Rotax Engines, Type 277'.

Pre-Start Checks

Check all Fuel Lines for correct orientation, fitting and tightness.
Check all Fuel Lines clear Exhaust Pipes and Control Linkages.
Check that the Throttle Control gives full Throttle openings at the Carburetor.
Check all linkages are clear and free from binding.
Check Exhaust Springs are Safety Wired.
Check Wing surfaces for loose objects.
Check that there are no tools likely to jam parts or machinery.
Check that no Gravel, or litter will get sucked into the Propeller.
ENTER all Data in the Engine Log Book.

1. Refer to Detail 'A'. Pre-mix the Fuel and Oil to the recommended ratio and fill the Fuel Tank. Prime the Fuel System via the Primer Bulb.

2. Tie down the aircraft to a solid object via the Rudder Post using a minimum 1/4" (7mm) diameter nylon Rope.

3. Choke..."ON". Ignition..."ON". Throttle..."CLOSED".

4. SHOUT (Loudly)...."CLEAR PROP!!" Pull Recoil Start Handle Firmly. When the Engine Starts, allow it to run at a high idle for 15-20 seconds, then switch off the Choke.

5. Refer to Detail 'B'. Follow the Time Running/RPM schedule exactly. When the sequence is complete, re-adjust the carburetor to a smooth idle. Switch off the Engine. After the Engine cools, re-torque the Cylinder Head Bolts to 220 in./lbs. (24.5Nm.). Re-adjust the Reduction Drive Belts as detailed in 'Drive Belts' in Section 4 of this Manual.
Refer to Detail 'C'. Tighten the 1/4" x 28 x 2" Bolt (2) to 75-100 in./lbs. (8.25 - 11Nm) and secure using Safety Wire (3) around the Bolt (2), up and over the Engine Coupler (1), and thru the Bolt head. Tie off and trim as shown, bend sharp edges out of the way.

ESSENTIAL: DO NOT Allow Engine Cylinder Head Temperature (CHT) to reach 400 degrees or SEVERE Engine damage will result. If necessary, consult your Eipper Dealer.

ENGINE BREAK-IN (CONT'D)

****

FUEL MIXTURE RATIO

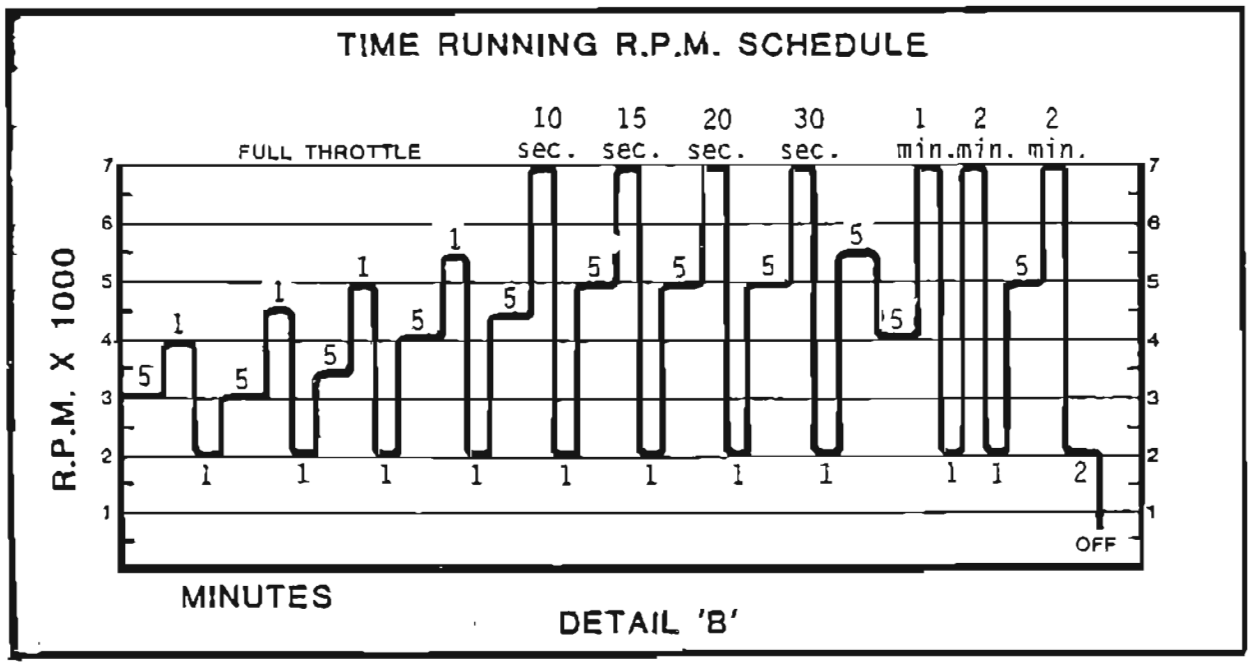
Fuel Mixture Ratio: 50 to 1.
(50 parts Gasoline - Minimum 87 Octane (83 MON or 90 RON)
to 1 part Eipper AV2 Oil.

AMERICAN: 5 U.S. Gallons Fuel to 12.8oz. Eipper AV2 Oil.
METRIC: 19 Litres Fuel to 384ml. Eipper AV2 Oil.

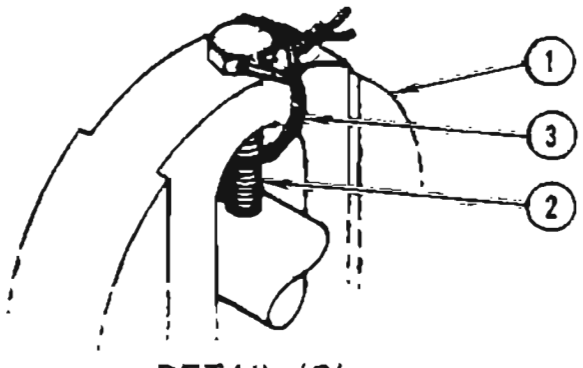
NOTE: Too much oil will cause Carbon deposits on the Spark Plug, Piston, Cylinder Ports, Muffler and Piston Rings. If too little Oil is used lubrication will be insufficient and Engine damage is more likely to occur.

DETAIL 'A'

****



DETAIL 'B'



DETAIL 'C'

PRE-FLIGHT CHECKLIST

ALL the hardware and corresponding attachments and safety devices MUST be thoroughly inspected during each Pre-Flight Inspection.

The attachment hardware must be removed from the aircraft and inspected as prescribed in the Maintenance Schedule.

Checking the 'integrity of a tube' means to inspect for bends, dents, scratches, cracks etc.

Checking the 'integrity of a wire' means to inspect for broken strands, kinks, abrasions, proper tension, Wire ends for secure Swages. twisted or jammed Thimbles, as well as Bolts and fasteners for security.

'Security' means that all attachment hardware such as Bolts, Nuts. Clevis Pins, Safety Rings and Wires and Cotter Pins etc, are all attached in a manner which will make it impossible for those attachments to come apart in Flight.

All Nuts attached to Bolts must have <u>at least</u> 1-1/2 Bolt Threads exposed thru the Nut.

All Locknuts must be replaced if loosened and retightened more than once, or if they can be installed or removed <u>below</u> required Torque Values.

WARNING!
The Wing Covering must be removed and a complete Wing inspection performed if any one of the following conditions exist.
1. A Hard Landing.
2. Ground Loop in which a Wing makes contact with the ground.
3. Any Flight or Ground operation in which a Wing, Strut or Cable receives a strong blow.
4. Any time it is suspected that the aircraft was over stressed in flight, on the ground or during storage or transportation.
5. At periodic intervals as prescribed in the Maintenance Schedule.

NOTE: Attachment hardware includes all fasteners such as Bolts, Nuts. Clevis Pins. Safety Rings etc.

( ) Check Ignition - OFF
( ) Inspect Pilot Seat and attachment hardware for integrity and security.
( ) Place Helmet Bag on Pilot Seat.
( ) Adjust Pilot Seat for position.
( ) Inspect Seat Tracks. Ensure Seat Track locking pin is locked.
( ) Check Seat Belts for security.
( ) Flap Selector - Full Down.
( ) Inspect Flap Selector assembly,forward section of Root Tube. Forward Down Tubes and Attachment hardware.
( ) Remove Root Gap Seal, inspect Spar Channels and attachment hardware.
( ) Inspect King Posts, King Post Tracks, and Locking Pins for security. Ensure King Posts are correctly tensioned.
( ) Inspect Control Wheel, Control Wheel Support Tube, Aileron Teleflex Cable and attachments.
( ) Check Control Wheel movement (forward, aft, right, left)

PRE-FLIGHT CHECKLIST (CONT'D.)

for free travel in all directions.
( ) Visually check that all Flight Control surfaces move in the correct corresponding directions.
( ) Inspect Elevator Push/Pull Tube and Pivot Bolts.
( ) Inspect Forward Fuselage Tube.
( ) Inspect Tail Boom.
( ) Inspect Rudder Pedals, Cables, Bellcrank and Pushrods, Brake Pedal and attachment hardware.
( ) Move Rudder Pedals and ensure that the Rudder moves in the corresponding direction.
( ) Inspect the Nose Gear assembly - Pitot Tube, Struts, Axle, Wheel, Tire, Steering Springs, Brake Plate and attachment hardware.
( ) Inspect Pitot Tube - ensure it is clear and correctly aligned.
( ) Run your hand along the right Leading Edge Spar checking for bends and kinks in the Spar.
( ) Inspect exterior Wing attachment points.
( ) Inspect Right Wing Tip. Sight down the Leading Edge Spar to insure it is straight.
( ) Move under the Right Wing. Unzip Wing inspection ports. At each port, thoroughly inspect the interior of the Wing.
( ) Inspect each Strut for security and integrity.
( ) Visually and physically inspect the junction of each Strut at the Leading and Trailing Edge Spar.
( ) Inspect the Aileron Bellcrank, Pushrods, Cables, Clevis Pins, Safety Rings and all related hardware.
( ) Close the Right Wing inspection ports and stow zipper handles.
( ) At the Right Wing root, Inspect the Wing Cover Tension Buckles. Ensure they are properly tensioned and locked.
( ) Inspect the Root Tube Bellcrank, Teleflex Cable integrity, Aileron Cables Clevis Pins, Safety Rings and all related hardware.
( ) Inspect center section of Root Tube.
( ) Inspect Right Main Landing Gear assembly, including Landing Gear Carry-thru, Lower Wing Wires. Wheel, Tire, and attachment hardware.
( ) Return to the Right Wing Tip and sight down the Trailing Edge to ensure that the Trailing Edge Spar is straight.
( ) Run your hand along the Right Trailing Edge Spar and check integrity.
( ) Inspect the exterior Wing attachment points and related hardware and Safety Rings.
( ) Inspect the Right Aileron. Hinges, Horn, Pushrod and related hardware for integrity.
( ) Inspect the Right Flap hinges, Tension Rods, and related hardware and Safety devices.
( ) Inspect Spar Channels for integrity.
( ) Inspect King Posts and attachment hardware.
( ) Inspect Aft Down Tubes for integrity.
( ) Inspect aft section of Root Tube.
( ) Replace the Gap Seal.
( ) Inspect the Engine, Mounts.

PRE-FLIGHT CHECKLIST (CONT'D.)

Reduction Drive Belts, Propeller, Exhaust System, Fuel Lines and connections, Electrical system, Throttle and Choke Cables, Starter Rope and Pulleys and all attachment hardware and Safety devices.

( ) Inspect the Tail Boom for integrity.

( ) Inspect the Horizontal Stabilizer, Angle of Incidence setting and attachment hardware.

( ) Inspect the forward portion of the Rudder and its hinges.

( ) Inspect the Right Horizontal Stabilizer, Support Struts and attachment hardware.

( ) Inspect the Elevator, Hinges, Stops, Balance Springs and attachment hardware.

( ) Inspect the Elevator Push/Pull Tube and attachment hardware inside the Tail Boom Tube.

( ) Inspect the Rudder, Cables, Horn, Hinges and attachment hardware.

( ) Inspect the Left side of the Aircraft using the same Checklist.

( ) Inspect the Fuel Tank, Restraint Strap Assembly, Filter, Primer Bulb and all Fuel Lines and related hardware.

( ) Check for correct Fuel quantity.

( ) Squeeze Primer Bulb and observe the Fuel flow.

( ) Inspect the center section of the Forward Fuselage Tube.

( ) Inspect the Elevator Push/Pull Tubes and roller guides.

( ) Inspect the Rudder Cable, Guides, Pulleys and attachment hardware.

( ) Inspect Root Tube, all down tubes, Struts, Flap Tension Rods and attachment hardware.

( ) Close the zippers on all Wing inspection ports.

INDEX

A

PAGE

Adjust, Aileron Pushrod.....7-46
" , " deflection...7-46
" , Carburetor.....7-34
" , Drive Belts.....4-6
" , Elevator.....7-10
" , Flap.....7-48
" , King Posts.....7-40
" , Pilot Fairing.....2-56
" , Propeller Tracking...7-32
" , Rudder & Cables.....7-16
" , Spark Plug Gap.....7-56
" , Stab'zer Incidence...3-24
" , Teleflex Cable.....2-42
" , Throttle Cable.....7-34
Aft Side Struts, attach.....7-6
" " " , assy.....2-2
Aileron attach.....7-42
" ,adjust.....7-46
" ,assembly.....6-2
" ,Bellcrank assy.....5-8
" ,Cable attach.....5-8
" ,Horn.....6-6
" ,Linkage attach.....7-44
" ,Pushrod adjust.....7-46
" , " attach.....6-8
" ,to Wing attach.....7-42
Airspeed Indicator, assy.....2-54
AN Bolt Gauge.....1-10
AN Bolts, notes on.....1-9
Angle Finder, Use of.....7-53
Anti-Vibration Stand-offs....1-8

B

Bellcrank, Aileron.....5-8
" , Bearing.....5-8
" , Root Tube assy....2-38
" , Rudder Pedal assy.
2-38;2-40,42
" , " " adjust 7-16
to Teleflex Cable.2-40
" , " " , center.2-43
Belts, "V" Drive.....4-7
Bolts, Grade,Coarse thread...1-9
" , Propeller.....1-14
Bolt Tightening.....1-9
" " Engine
-see Engine Manual
" " Prop Sequence.7-33
Boom, Tail.....3-2
Brake, Nose Wheel assy.....2-20
Buckles, Wing Cover adjust...7-50

C

Carburetor adjust.....7-34
" Air Filter.....7-34
" Assy.....4-10
" /Throttle Cable
attach.....7-26
Choke Control assy.....2-48
" " adjust.....7-28
" " attach.....7-28
CHT/Spark Plug attach.....7-56
Compression Strut Aileron....6-2
" " Flap.....6-4
" " Rudder.....3-34
" " Stabilizer.3-14
" " Wing..5-6: 5-10
Construction Notes.....1-5
Control Wheel assy.....2-30
Custom Painting.....1-6

D

Diagonal Struts.....5-12
Drag Strut, Stabilizer.....3-22
Drive Belts.....4-7

E

Elevator/Stabilizer assy..3-14,16
" , adjust.....7-10
" , Bellcrank.....3-4
" , Compression Strut..3-18
" , Pushrod Attach.....3-26
" , Push/Pull Tube,Aft.3-4
" , " " " ,Fwd.2-26
" , Ribs.....3-20
Empennage.....3-1 to 39
Engine Break-in.....7-58
" Coupler.....4-4
" Mount Procedure.....7-16
" Reduction Drive.....4-4
" sub-assemblies.....4-2
" Wiring to.....7-24
Exhaust Header assy.....7-20
" ,Muffler assy.....7-20
" ,Safety Wiring.....7-20

INDEX (CONT'D.)

F

PAGE

Fairing, Pilot,prep.....2-52,54
" ,to Fuselage assy.....2-56
Field Assembly
See Owners Manual.
Final Assembly.....7-1
Flap, adjust.....7-48
" , assy.....6-4
" , Handle assy.....2-32
" , to Wing attach.....7-42
Flap Tension Rod adjust.....7-48
Flap Tension Rod assy.....6-8
Fuel Mixture Ratio.....7-59
" ,System...2-6; 2-12; 2-14;
4-8; 7-4; 7-8; 7-34
Fuselage, Forward.....2-1

G

Gap, Hinge cutting.....5-26
Gap Seal Fitting.....7-50
Grade Bolts.....1-9

H

Horn, Aileron.....6-6
" , Rudder.....3-28
Hot Knife, use of.....1-6
" " , Hinge Gap cutting.5-26
Horizontal Stabilizer attach.3-24
" " Incidence..3-12

I

Introduction.....1-5
Ignition Switch attach.....2-48
Instrument attach.....2-48
" ,Wiring.....7-22,23

J

Jig, Tail Boom.....3-3
Jig, Wing.....1-14; 5-2

K

King Post.
2-32; 2-38; 2-50; 7-38; 7-40

L

PAGE

Landing Gear,Main
2-2; 2-6; 2-10; 2-8; 7-6
Locating Holes.....1-6
Lower Wing Wires, assy.....5-32
" " " , attach.....7-40
Lubrication
see Owners Manual.

M

Muffler,assy.....7-20

N

Nico Sleeve Gauge Procedure..1-7
Nose Wheel assy.....2-22
Nose Wheel Brake assy.....2-20
Nuts, Castle.....1-9,10
" , Lock.....1-12
" , Nylock.....1-12

O

Oil/Fuel Mixture Ratio.....7-59

P

Painting, Custom.....1-6,2-56
Pedal adjust.....7-16
" assy.....2-18,20
Pilot Seat adjust assy.....2-44
" " attach.....2-24
" Fairing.....2-52,54,56
Pilot Weight.....7-52
Pitot Tube attach.....2-54
Pre-Flight " 7-60
Pre-Start " 7-58
Propeller, Bolt Tightening...7-33
" , Mount Procedure...7-32
" , notes on.....1-14
" , Tracking.....7-32
Proper Torque defined.....1-11
Pulleys Propeller, adjust....4-5
" " attach....4-4
" , Starter.....4-2
Push/Pull,Elevator adjust....7-12
" / " , " assy.....3-4
" / " ,Rollers.....2-26
" / " ,Tube 2-6; 2-28;
3-4; 7-4; 7-10; 7-12

INDEX (CONT'D.)

P (CONT'D.)

PAGE

Pushrod, Aileron adjust.....7-46
" , " assy.....6-8
" , Elevator adjust.....7-10
" , " assy.....3-26

R

Ribs,Elevator.....3-20
,Wing.....5-24
Roller Mount Channels.....2-6
Root Tube assy.....2-32/42
" " Bellcrank adjust...2-42
" " " assy..2-38,40
" " Cap.....2-44
" " to Fuselage.....2-34
Rudder.....2-10; 3-28; 7-14; 7-16
" , Pedal Bellcrank assy.2-16
" , " Pushrods assy
2-16; 2-18; 2-20; 7-16
Run-on Torque defined.....1-11

S

Safety Rings.....1-9
" Wiring
1-11; 7-18; 7-20; 7-32
Seat Belts attach.....2-44
" ,Mount,Throttle.....7-22
" ,Pilot.....2-24; 2-44
Skid, Tail.....3-6
Spark Plug/CHT Sender.....7-56
Stabilizer Drag Strut assy...3-22
" /Elevator " ...3-14
" ,Horizontal "
3-14; 3-24
" ,Incidence.....3-12
" ,Vertical assy.....3-6
"Stand-Offs".....1-8
Starter Handle and Rope.....7-30
Stop; Elevator.....3-14
" , Pad attach.....7-12
Struts, Compression,Rudder...3-34
" , " ,Wing...5-6,10
" , Diagonal.....5-12
" , Drag.....3-22
" , Horiz'tal Stab'zer...3-14
" , " Support Strut.....3-22

T

PAGE

Tach/Temp/Time Meter assy
2-46; 7-22,24
Tail Boom assy.....3-2
" " to Fuselage.....7-4
" " " attach...7-6
" Skid.....3-6
Teleflex Cable.....2-30; 2-40
Tension Tester, use of.....4-6
Templates,GS1.....7-67
" ,MW1,MW2.....5-35
" ,MW3.....5-37
" ,MW4.....5-39
" ,MW5.....5-41
" ,SE1 & SE2.....3-39
Throttle Cable
2-46; 2-48; 7-22; 7-26
Tires.....2-8,22
Tools Required.....1-16
Torque,Run-on.....1-11
" Specification
Rotax 277.....1-12
" Values.....1-11
" Wrench, use of.....1-13
Trim, to Pilot Fairing.....2-36
Tube Caps
1-14; 2-44; 3-32; 5-4; 6-5

U,V,W,Y

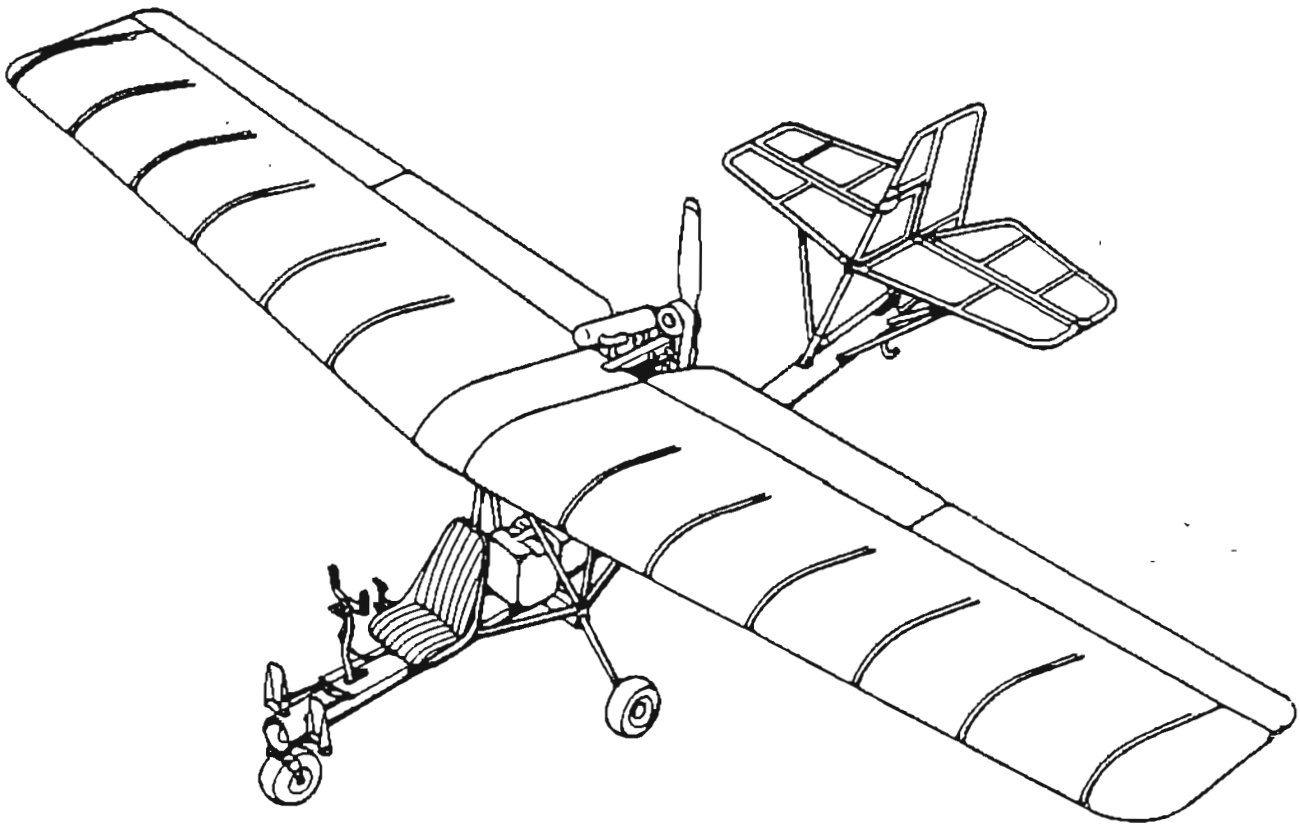
Universal Protractor, use of.7-52
Vertical Stabilizer attach.3-6,10
"V" Belts.....4-6
Velcro Gap Cutting - Wing....5-37
" " Seal to Wing Posts.7-50
" to Aileron.....6-3
" " Flaps.....6-4
Weight & Balance Procedure...7-52.
Wheel, Main assy.....2-8
" , Nose assy.....2-22
Windscreen assy.....2-51
Wing assy.....5-1
" ,attach.....7-36
" ,Compression Struts....5-6,10
" ,Cover.....5-16
" ,Jig.....5-2
" ,Ribs.....5-24
" ,Spar assy.....5-4
" ,Strut assy.....5-12
" ,Tip Tube assy.....5-4
Wing Wires.....7-38
Yoke Control Guide.....3-28

Eipper aircraft

QUICKSILVER GT

THE ORIGINAL

ASSEMBLY INSTRUCTIONS



QUALITY ASSURANCE ACCEPTED

DATE 5-16-84 ECO # 527

Copyright © 1984, Eipper Aircraft

DOC # 842-1

Eipper aircraft

QUICKSILVER® THE ORIGINAL GT

PILOT ENCLOSURE KIT

ASSEMBLY INSTRUCTIONS

DOC# 842-28

QUALITY ASSURANCE ACCEPTED

DATE 12-10-84 ECO# 760

Copyright © 1984, Eipper Aircraft

TOOLS & SUPPLIES REQURIED

Drill Motor
Drill Bits: 1/8", 3/16", 1/4", 9/16"
Pop Rivet Tool
Wrenches: 3/8", 7/8",
Hole Saw
Masking Tape
Pliobond
"Bondo" Type Filler
Sandpaper
Rat Tail File
Primer
Paint-Color optional
Sabre Saw - optional

For best results we recommend that the Pilot Enclosure be completely assembled and installed, then dis-assembled before painting.

Zipper aircraft

1. Lay out windshield on a flat clear area. Leave the protective paper coating on, find the vertical center line and mark with pencil.

2. Drill holes according to Fig. 1. Holes along the long edge are 1/8" dia., along the base 3/16" dia. All holes have an edge distance of 1/2" except the two corner holes which are centered on a 1" radius.

Pt.	P.N.	Description
1.	45577	Windshield, Pilot Enclosure

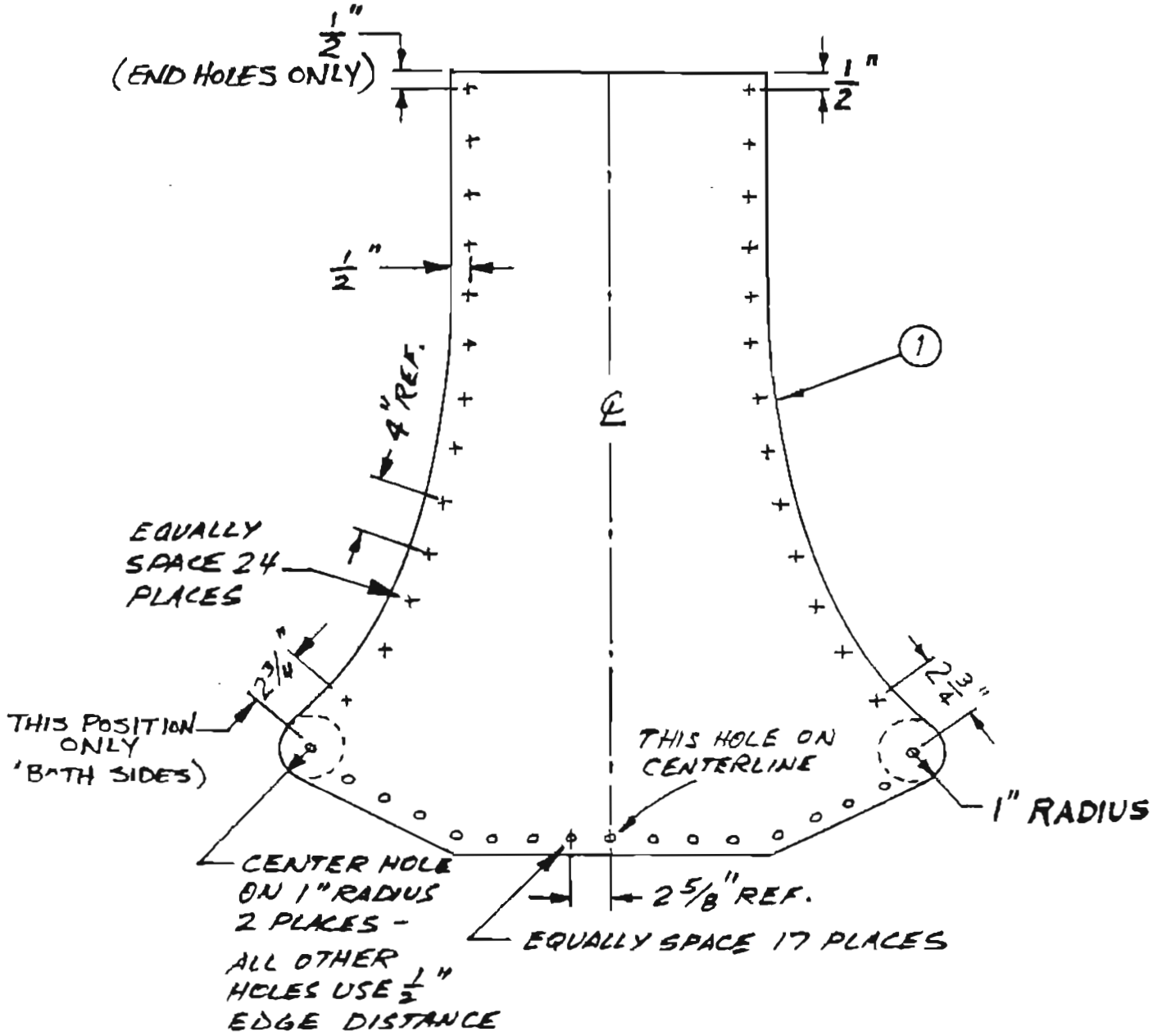

1/2" (END HOLES ONLY)
1/2"
1/2"
4" REF.
EQUALLY SPACE 24 PLACES
2 3/4"
2 3/4"
THIS POSITION ONLY (BOTH SIDES)
THIS HOLE ON CENTERLINE
1" RADIUS
CENTER HOLE ON 1" RADIUS 2 PLACES - ALL OTHER HOLES USE 1/2" EDGE DISTANCE
2 5/8" REF.
EQUALLY SPACE 17 PLACES
1
+ DRILL 1/8" DIA.
o DRILL 3/16" DIA.

FIGURE 1

Zipper aircraft

1. Insert Rib Tip (2) into most curved end of windshield rib (3). Flat side goes against windshield.

2. Drill 1/8" hole in Rib tip at location (4). Detail "A".

3. Align 1/8" hole in Rib Tip with first 1/8" hole in windshield. Detail "A".

4. Rivet Rib Tip in place using 1/8" rivet (4). Detail "B".

Pt.	P.N.	Description
1.	45577	Windshield, Pilot Enclosure
2.	20250	Rib Tip, Front
3.	45575	Windshield Rib
4.	20200	Rivet; Alum. 1/8" X 1/4" Grip (AAP-44)

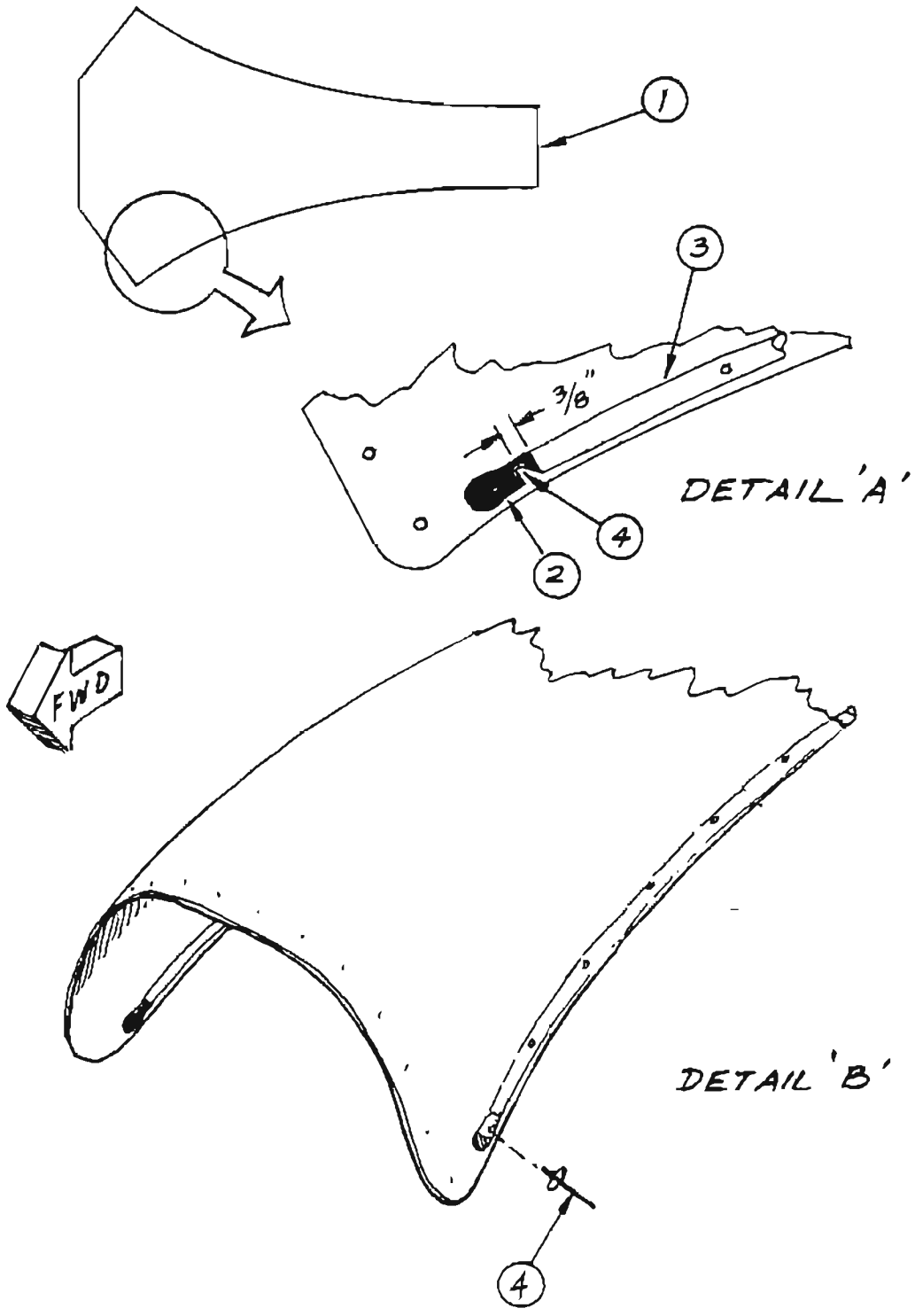


FIGURE 2

Zipper aircraft

1. Remove nose wheel fork assembly and correcting springs.

2. Mark the Forward Fuselage at the two positions shown in Detail A.

3. Refer to Detail B. Center Aft Fairing Mounting Brackets (1) and rivet (2) in place (four rivets each) DO NOT ATTACH HARDWARE AT THIS TIME.

4. Find the index "Dimples" (2 per side) in the lower forward section of pilot fairing and drill 3/16" dia.

5. Attach fairing using hardware shown in Detail C. Use a razor blade to cut nipples off of the 6 Rubber Grommets (3).

6. Swing Aft section of fairing up against the two Aft Fairing Mounting Brackets. (Detail B) mark fairing, drill 1/4" dia holes and attach as shown.

Pt.	P.N.	Description	Pt.	P.N.	Description
1.	45454	Aft Fairing Mounting Bracket	8.	10550	3.16" Flat Washer
			9.	10516	3/16" Thin Locknut
2.	20210	Rivet, Alum. 3/16" X 3/8" Grip (AAP-66)	10.	45450	Fwd Pilot Fairing Mount
3.	30380	Rubber Grommet	11.	10563	3/16" Fender Washer
4.	10565	1/4" Fender Washer	12.	10020	AN3-7a Bolt
5.	10066	AN4-10a Bolt	13.	10035	AN3-14a Bolt
6.	10510	1/4" Locknut	14.	45578	GT Pilot Enclosure
7.	10560	1/4" Flat Washer			

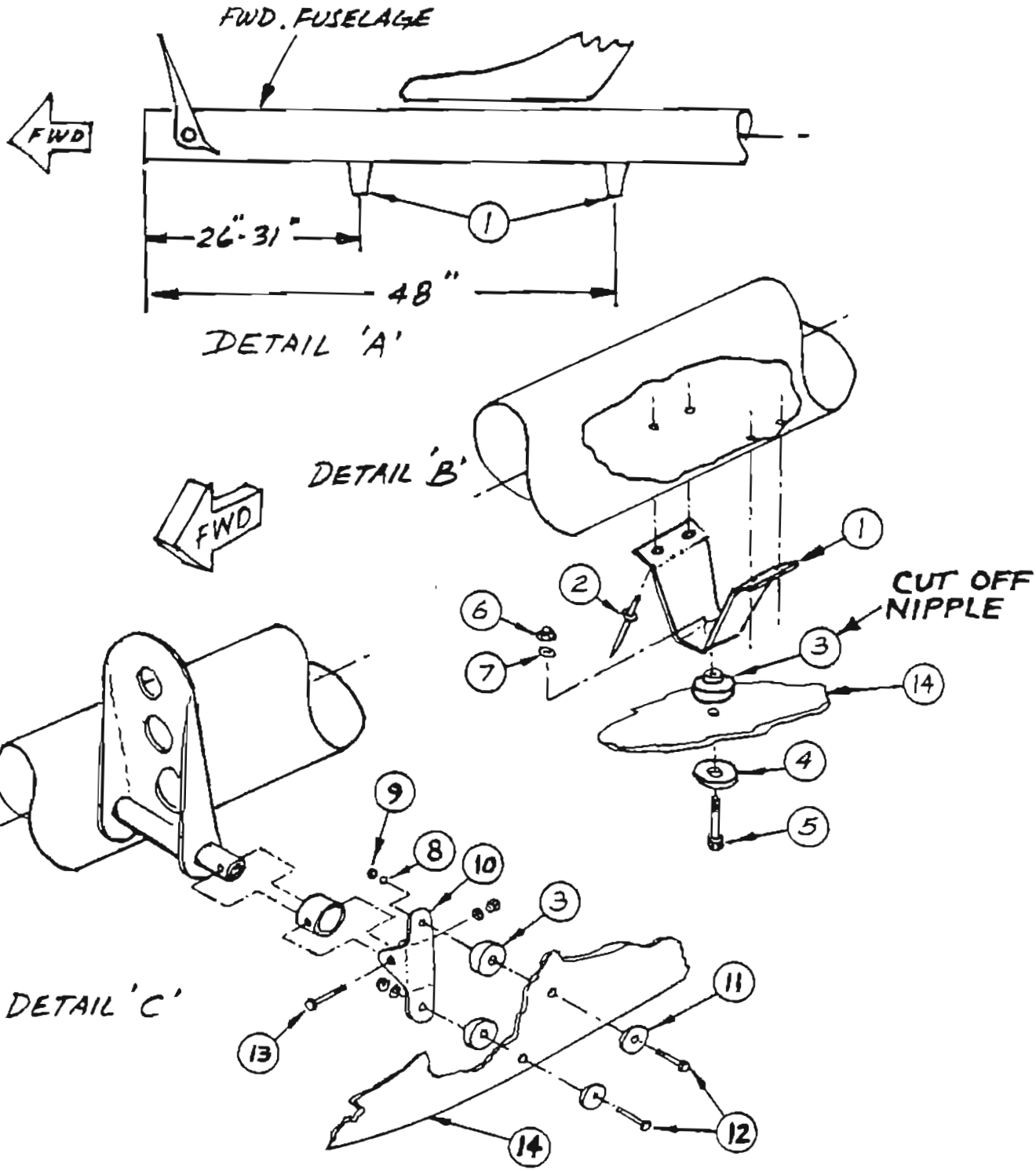


FIGURE 3 DOC# 842-28

Zipper aircraft

1. Use a hole saw to cut a hole in left side of dash to mount airspeed indicator.

2. Drill 9/16" dia. hole in nose of fairing.

3. Mount pitot assembly as shown <u>after</u> painting fairing.

Pt.	P.N.	Description
1.	30290	Fuel Tank Rubber Seal
2.	90108	Pitot Tube
3.	39981	Vinyl Tubing: 30" Long

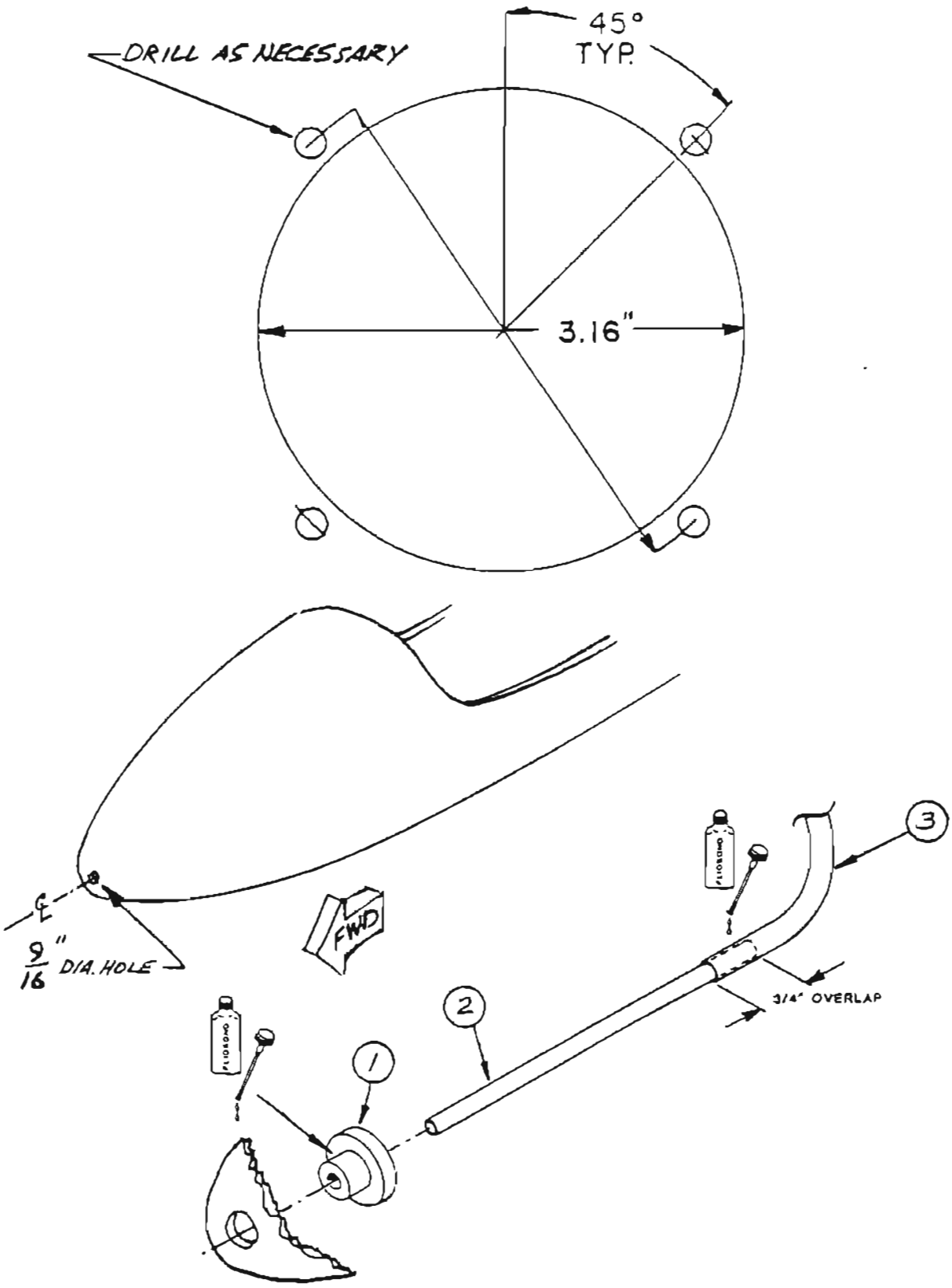


FIGURE 4

DOC# 842-28

Zipper aircraft

1. Find center windshield mount hole or "dimple" on fairing and drill 3/16" dia. (detail B).

2. Install flexible edge trim (2) around windshield edges (detail B).

3. Insert upper ends of windshield ribs through loops on Forward Gap Cover (5) (detail A).
   NOTE: If the Gap Cover on your Aircraft does not have the Loops pre-sewn onto it, refer to PAGE 15 for the Assembly Procedure.

4. Attach windshield to fairing at pre-drilled center hole using hardware shown in detail C.

5. Wrap windshield around sides of fairing, and tape in place.

6. Drill remaining 3/16" dia. Windshield mounting holes through fairing starting at center and alternating left to right.

7. Attach Windshield hardware shown in Detail "C".

8. Using windshield as a guide, drill remaining 1/8" holes in Windshield Ribs and rivet in place using 1/8" rivets (6).

9. Re-attach nose wheel fork assembly.

10. After painting apply flexible edge trim (2) under dash area and along edges of fairing.

Pt.	P.N.	Description
1.	10478	1/2" Alum. Screw AN525D 10R8.
2.	90477	Flexible Edge Trim: Lightweight.
3.	10550	3/16" Flat Washer.
4.	10516	3/16" Thin Locknut.
5.	45677	Forward Gap Cover.
6.	20200	Rivet, Alum. 1/8" X 1/4" Grip (AAP-44).

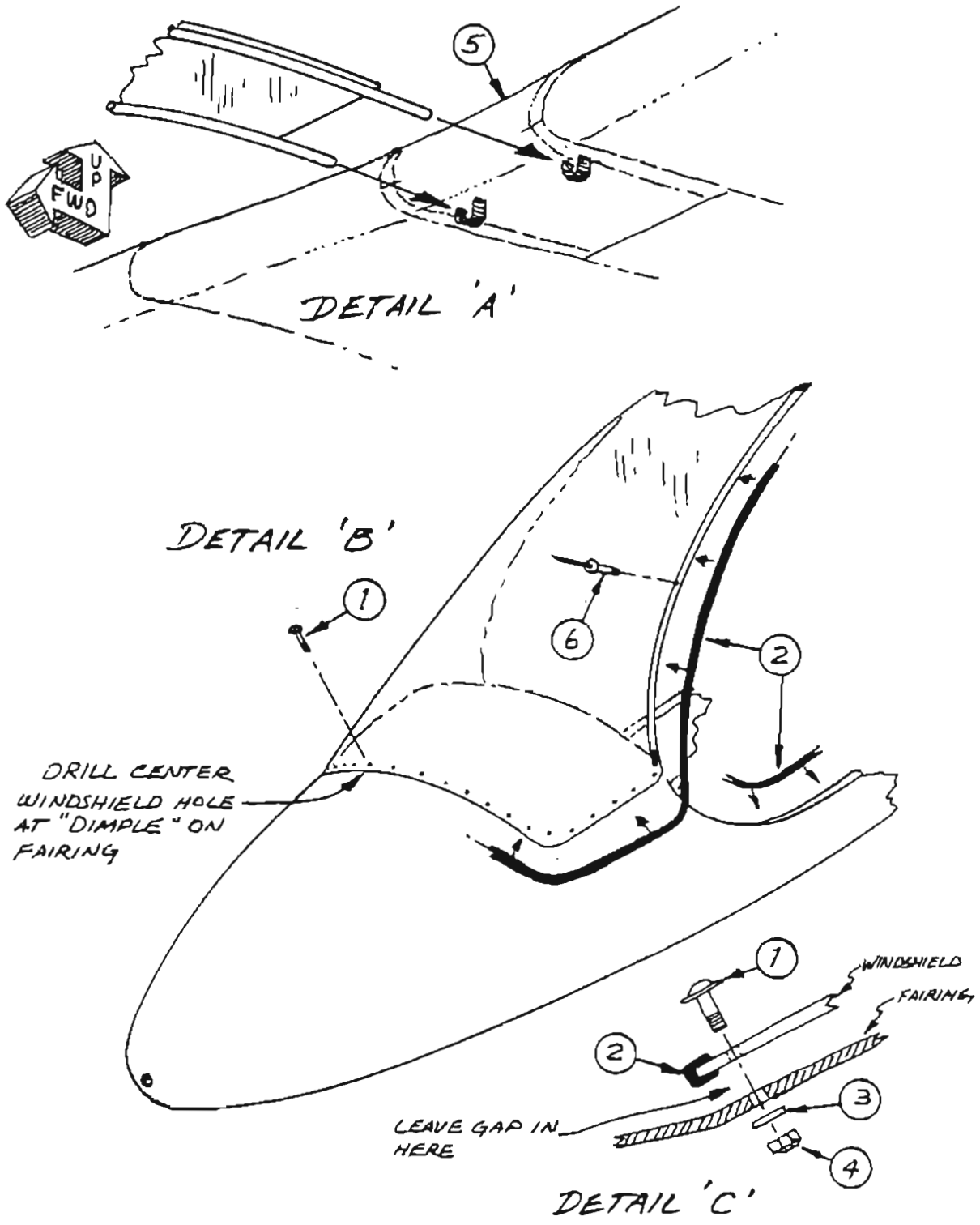


FIGURE 5 DOC# 842-28

NOTE: DO NOT complete STEP 1 if you plan to install the Rear Fairing Kit on your aircraft.

1. For weight, stiffness and aesthetic reasons you may wish to trim off the aft sections of the fairing similar to the sketch in detail A.

2. For increased head clearance and comfort you may want to further recline the seat by additional spacing under the two forward seat attach bolts as shown in detail B.

3. You may wish to paint dash area of fairing flat black to reduce glare.

IMPORTANT:

The Windshield Material is a very tough crack resistant material but without proper care, it can become scratched and distorted.

We recommend you use an approved Plastic Cleaner like 'Mirror Glaze' and follow the package instructions.

NEVER use abrasive cleaners. Always use a soft cloth for removing any spots or smudges.

Pt.	P.N.	Description
1.	10150	AN4-17a Bolt.
2.	20346	1" X 1/4" Nylon Washer.
3.	10510	1/4" Locknut.

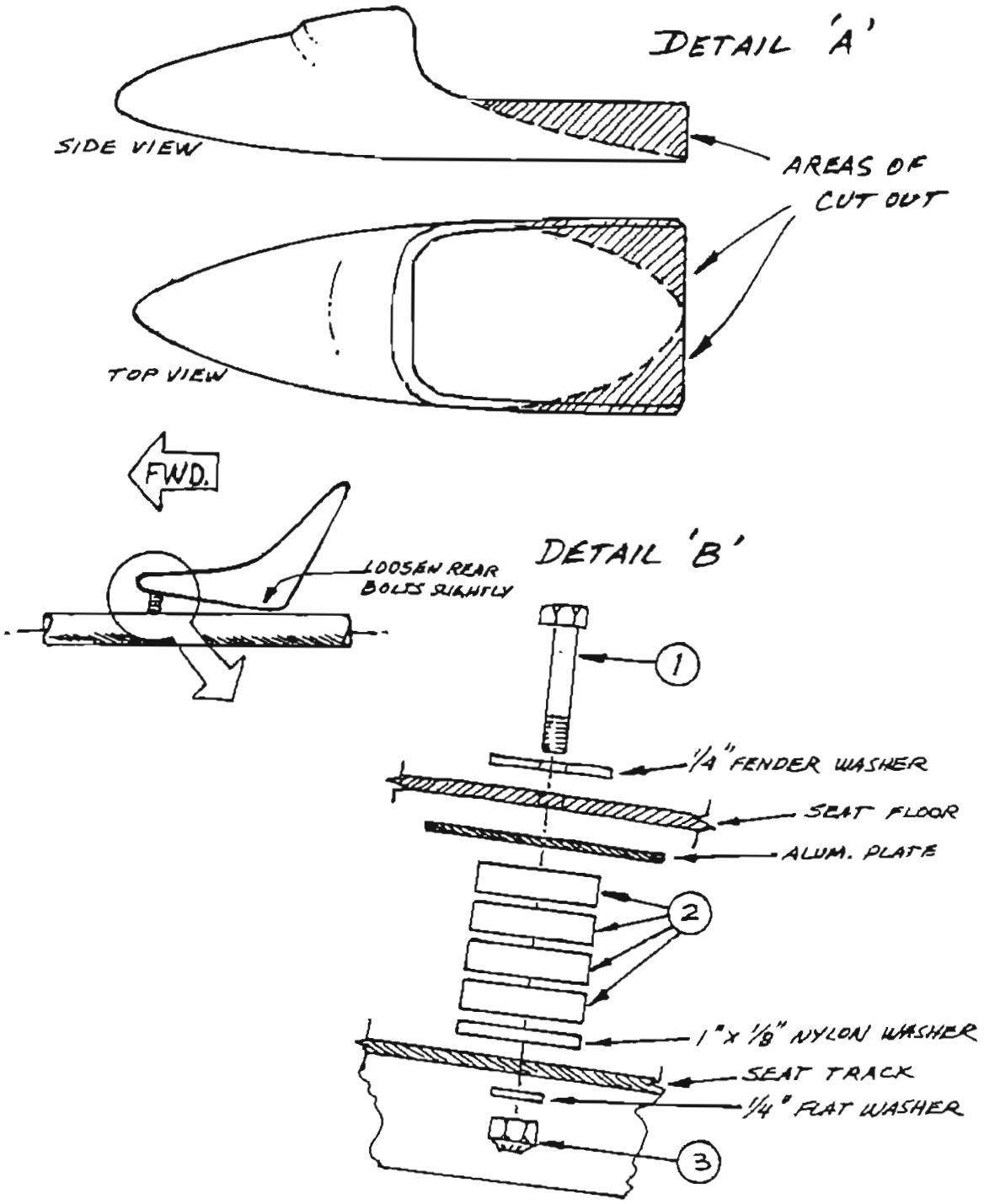
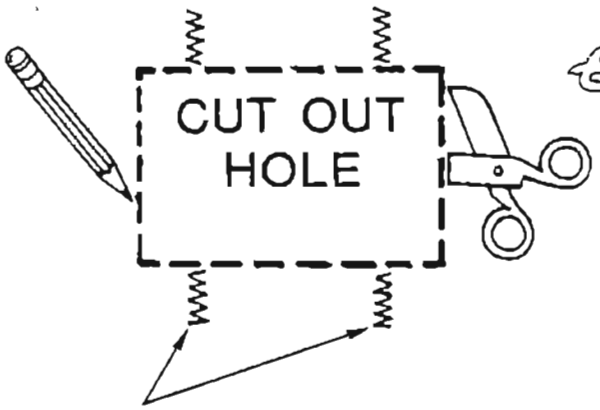

DETAIL 'A'
SIDE VIEW
AREAS OF CUT OUT
TOP VIEW
FWD.
LOOSEN REAR BOLTS SLIGHTLY
DETAIL 'B'
1
1/4" FENDER WASHER
SEAT FLOOR
ALUM. PLATE
2
1" x 1/8" NYLON WASHER
SEAT TRACK
1/4" FLAT WASHER
3

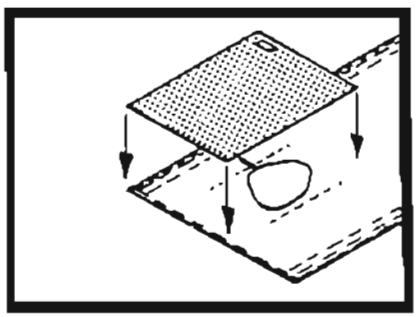
FIGURE 6



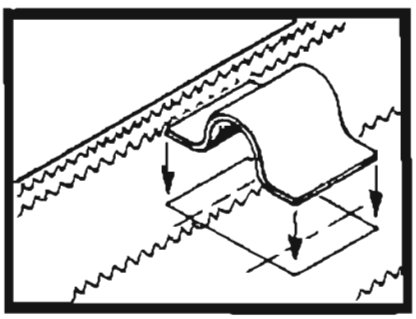
SEW LINES

GAP COVER TEMPLATE

NOTE:
Complete the following sequence ONLY if your Gap Cover does not have the factory-installed Loops.



1. Cut out template hole on dotted line.
2. Lay out Gap Cover - Velcro side down.
3. Position template on Forward end of Gap Cover (LH side first).
4. Align edges of template and Mark cut out onto Gap Cover.
5. Mark Sew Lines onto Gap Cover.
6. Flip template over and Repeat on RH side.



7. Locate the two pieces of Poly Web in the Kit (P/N 45769).
8. Position the Poly Web to fit inside the Marks made in STEP 4 (as shown at Left).
9. Attach the Poly Web to the Gap Cover by sewing along the Sew Lines.

NOTE: Use only Dacron Polyester Thread with a Zig-Zag or Straight Stitch. Make 3 passes on each Sew Line. Machine Sewing requires the use of an Industrial Sewing Machine.

ALIGN WITH EDGES
OF GAP COVER

QUICKSILVER® GT

THE ORIGINAL

REAR FAIRING KIT

ASSEMBLY INSTRUCTIONS

QUICKSILVER

ENTERPRISES, INC.

JÜRGEN SCHUBERT
Im Hindertal 5, T. 06085-2170
6331 Schöffengrund

World's Largest Manufacturer of
Recreational Aircraft and Vehicles
P.O. Box 1572, Temecula, CA 92390 U.S.A.
(714) 676-6886, Telex: 449-0565, FAX (714) 676-4883

QUICKSILVER® THE ORIGINAL GT

REAR FAIRING KIT

ASSEMBLY INSTRUCTIONS

KIT # 46200

QUALITY ASSURANCE ACCEPTED

DATE 8-23-85 ECO# 921

Copyright © 1985

DOC # 852-3
Rev. A

BULKHEAD ASSEMBLY

IMPORTANT: GT Pilot Enclosure Kit must be installed prior to installation of Bulkhead and Rear Fairing.

1. Refer to Detail 'A'. Use a soft lead pencil to mark the center line of the Bulkhead (1) on the FORWARD side (smooth surface).

2. Measure 5" from the TOP, along the center line, and position the Bulkhead Clamp (2) at that location - as shown in Detail 'B' Use the holes in the Clamp (2) to mark hole locations on the Bulkhead (1). Drill 3/16" holes thru Bulkhead (1).

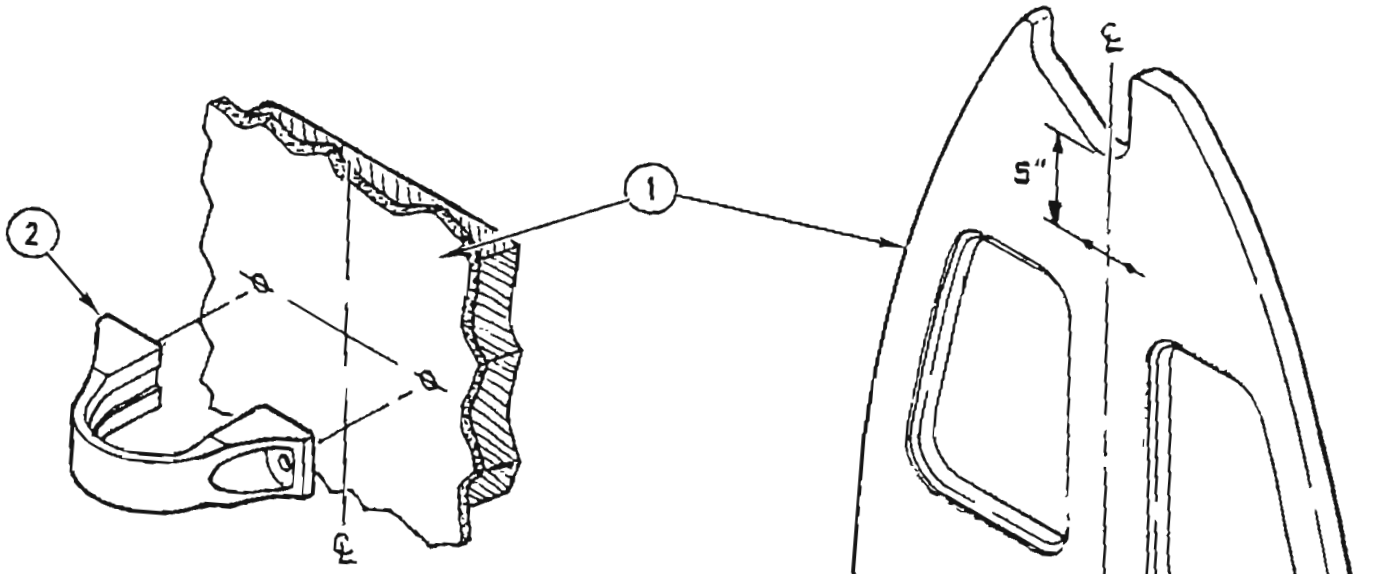
3. Measure 6" from the BOTTOM and repeat procedures in STEP 2.

NOTE: The Bulkhead (1) should be painted before installing the Windows (3). DO NOT remove protective paper from Windows (3) until you're ready to install them into Bulkhead.

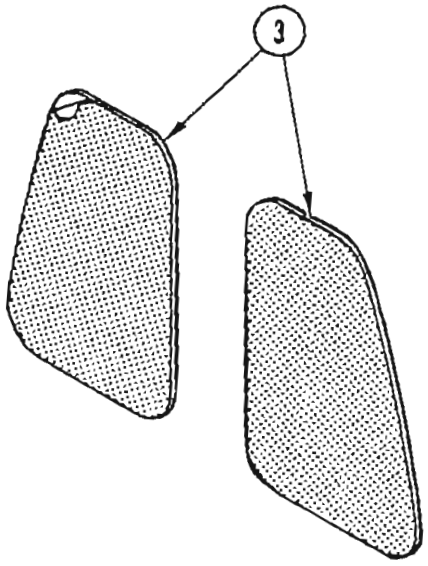
4. Refer to Detail 'C'. Use a soft lead pencil to outline the shape of each Window (size to fit onto step in Bulkhead Cut-out). Cut Window shape with large scissors or sheet metal shears. Use a coarse flat rasp file to final shape. Apply a 1/8" bead of adhesive caulk to the inside lip of the Bulkhead (1) and press Bulkhead Windows (3) into position.

IMPORTANT: The Window Cut-out may not be the same size for each side.

Pt.	P.N.	Description.
1.	45580	Bulkhead, Pilot Fairing.
2.	45053	Clamp, Bulkhead.
3.	45579	Window, Bulkhead.


1
2
℄
DETAIL 'B'

℄
5"
6"
℄
DETAIL 'A'


3
DETAIL 'C'

BULKHEAD INSTALLATION

NOTE: The Seat will have to be removed to complete the following sequence.

1. Position the Bulkhead (1) -TOP first- in front of FWD Down Strut (2) and gently spread the sides of the Pilot Fairing (3) allowing the Bulkhead to seat inside and on the bottom of the Fairing. Refer to Detail 'A'. Attach the Bulkhead (1) to the FWD Down Strut (2) using Clamps (4) and the hardware (5,6,7,8) as shown.

2. Square the Bulkhead (1) to the Longitudinal Axis of the aircraft.

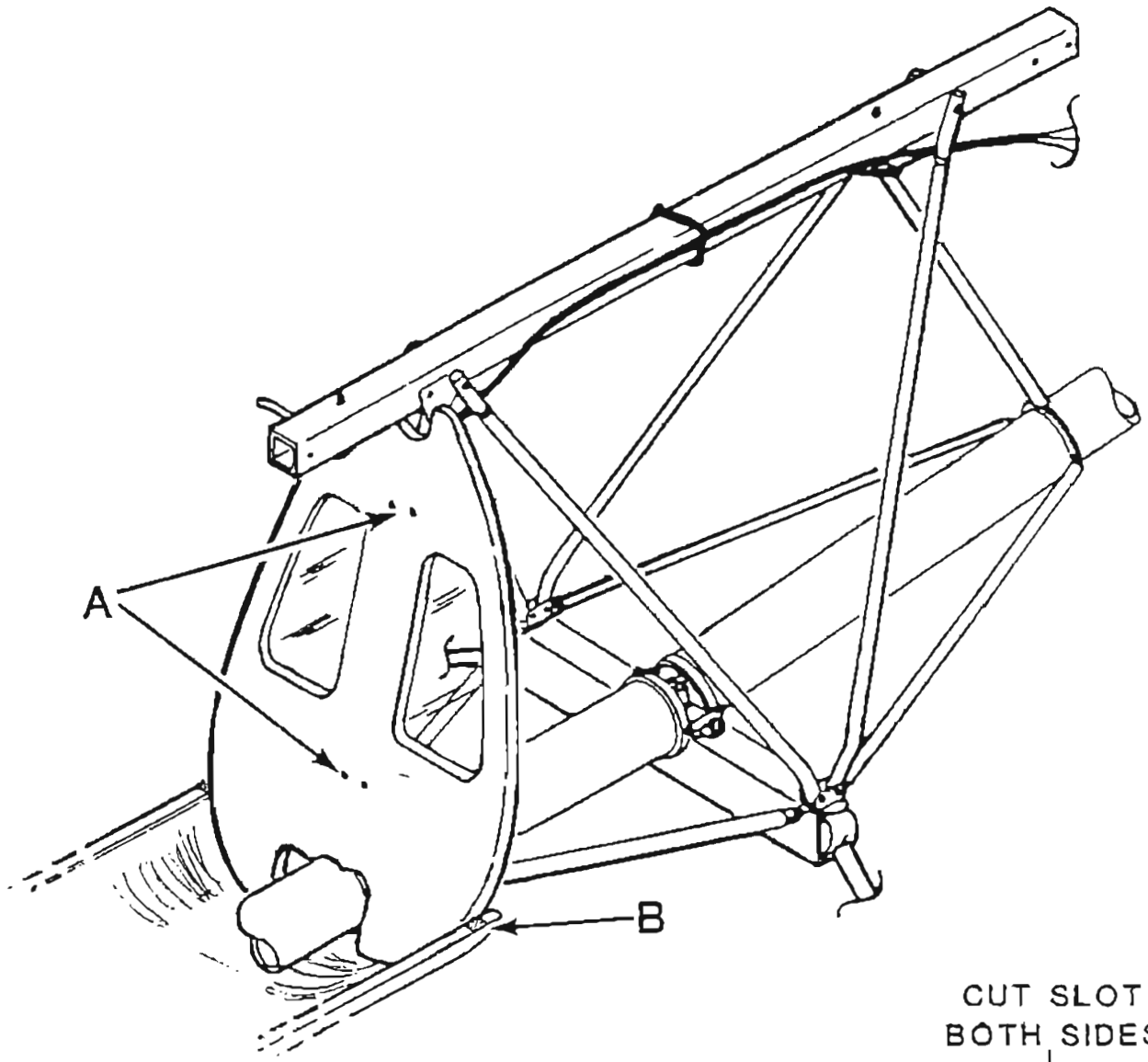
3. Mark both sides of the Pilot Fairing (3) where the Bulkhead (1) touches the INBOARD edge of the Fairing as shown.

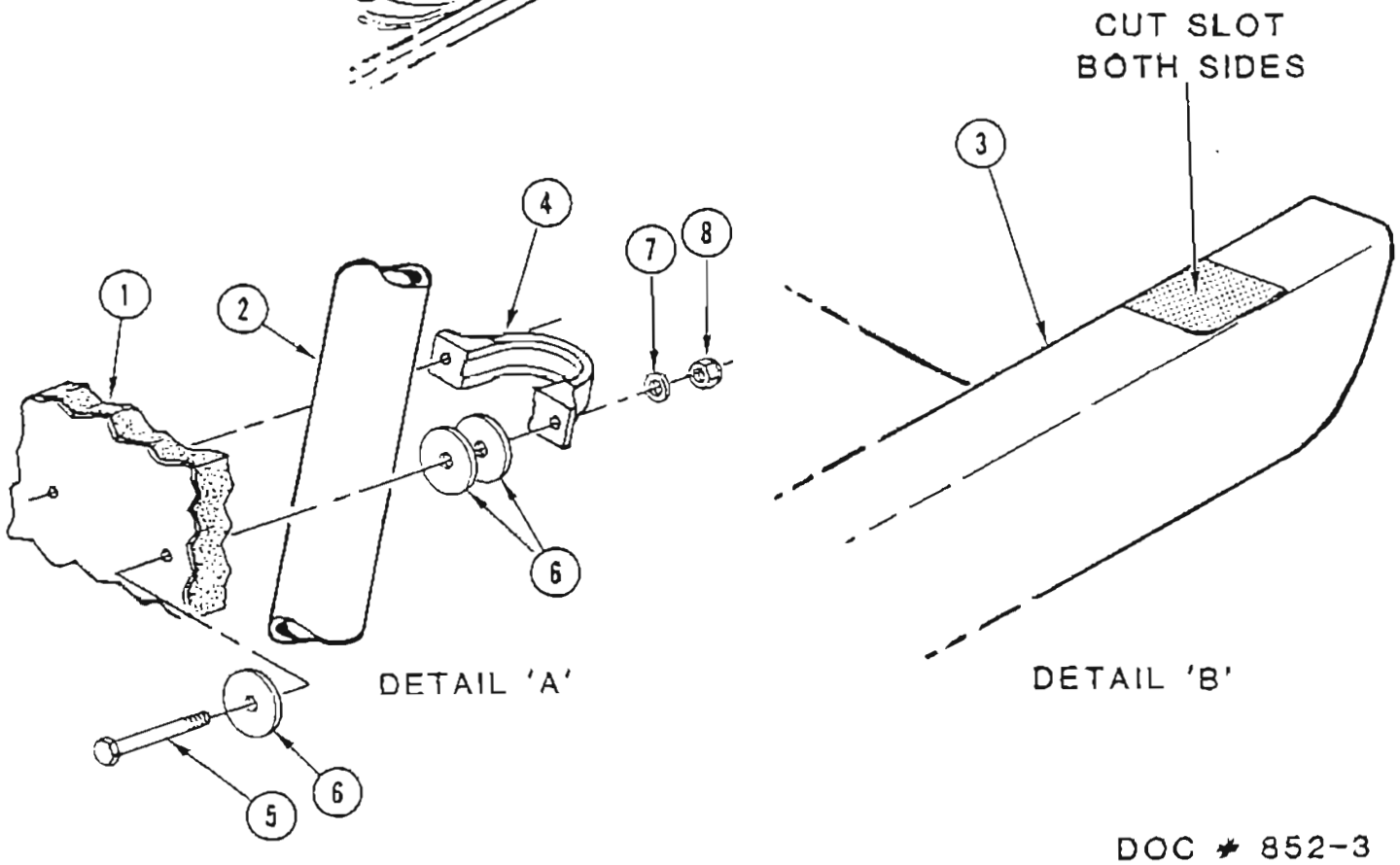
4. Refer to Detail 'B'. Remove the Bulkhead (1) from the aircraft. Use a hack saw to cut slot in Fairing at the marked position. Use a rasp to dress the cut-out.

5. Reinstall the Bulkhead and recheck the squareness to the Longitudinal Axis.

6. Reassemble the Seat.

Pt.	P.N.	Description.
1		Bulkhead, Pilot Fairing.
2		FWD Down Strut.
3		Pilot Fairing.
4		Clamp, Bulkhead.
5.	10053	AN3-20a Bolt.
6.	10563	3/16" Fender Washer.
7.	10550	3/16" Washer.
8.	10500	3/16" Locknut.


A
B


CUT SLOT
BOTH SIDES
1
2
3
4
5
6
7
8
DETAIL 'A'
DETAIL 'B'

PYLON FAIRING ATTACHMENT

1. Use a file to round any sharp corners or burrs on the two Reinforcement Strips (1). IMPORTANT: Sand and Paint BOTH Strips (1) before assembling into Pylon Fairing (2).

2. Refer to Detail 'A'. Carefully slide the Strips (1) into the pockets at the FORWARD end of the Pylon Fairing (2) until they bottom out.

3. Force the Strips to the most FORWARD corner of the pocket and reveal the holes in the Strips using a hot knife. NOTE: Push 3/16" Rivets (6) into the Strips to temporarily keep the fabric in position.

4. Remove the Pull Start Rope Fairlead from the LEFT FWD Downtube. On the GT400 remove the Half Clamps from the LEFT AFT Downtube.

5. Install the Pylon Fairing (2) around the pylon structure and loosley buckle the TOP Buckles (3).

6. Starting on the RIGHT side use 6" strips of duct tape to temporarily secure the Fairing (2) to the Bulkhead (4). The front of the Fairing should be dropped back from the front face of the Bulkhead by approximately 1/8".

7. Repeat STEP 6 for the LEFT side. NOTE: Adjustments to the LEFT and RIGHT sides may be necessary to center the AFT seam of the the Cover on the Tail Boom Down Strut (5).

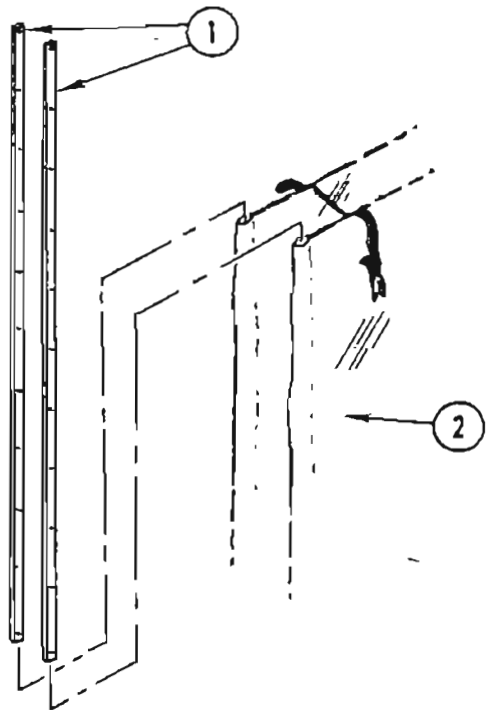
8. Connect Velcro and loosely buckle LOWER Buckles on bottom of Cover. NOTE: Tighten the two Buckles around the Tail Boom Tube to help in connecting the Velcro - loosen again when Velcro is connected.

9. Readjust the duct tape as necessary for snug fit. Repeat the Adjustment procedure as needed for proper alignment.

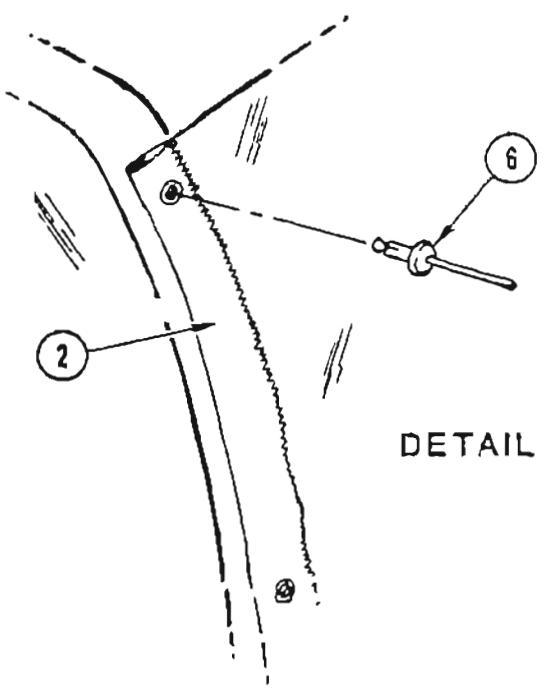
10. Refer to Detail 'B'. Use the 3/16" holes thru Cover (2) and Strips (1) to locate and drill 3/16" holes into the Bulkhead (4). NOTE: Start at the center of the Reinforcement Strip and work out to both ends. Drill one hole then install Rivet (6), drill next hole and install Rivet (6), etc. If desired, you can lightly tap each Rivet Mandrel until it is flush with the Rivet head.

11. Lightly snug the UPPER and LOWER Buckles to remove wrinkles.

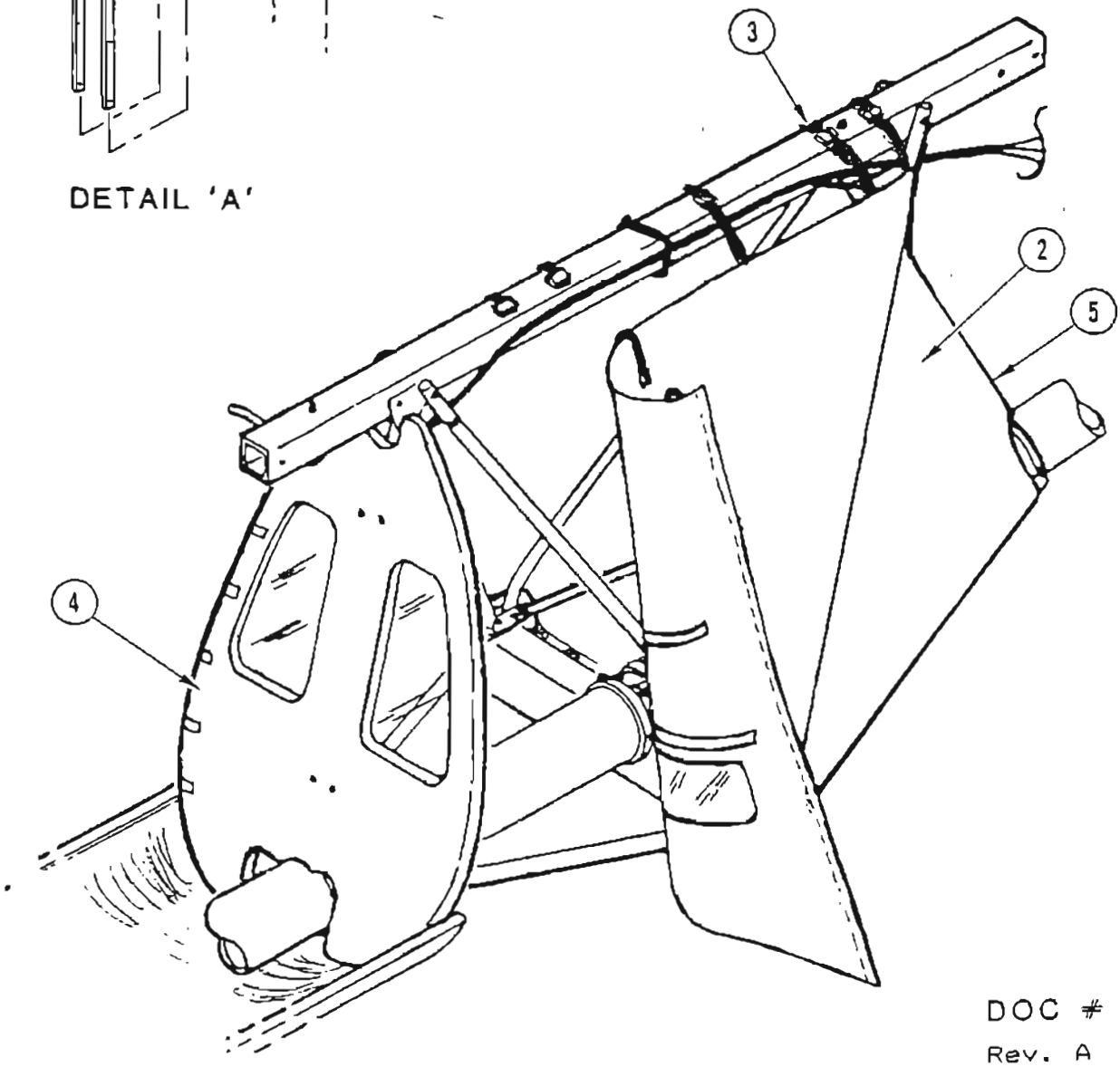
Pt. P.N.	Description.	Pt. P.N.	Description.
1. 45754	Reinforcement Strip.	4.....	Bulkhead, Pilot Fairing.
2. 45585	Pylon Fairing.	5.....	Tail Boom Down Strut.
3.....	Buckle.	6. 20208	Rivet, BAPT5-6-187.



DETAIL 'A'



DETAIL 'B'



STARTER ROPE / RIB INSTALLATION

1. Refer to Detail 'A'. On the AFT SIDE of the Bulkhead (1). locate the two UPPER half-round Stiffeners. Mark a point 4" from the centerline of the Bulkhead (1) and half-way between the Stiffeners on the AFT SIDE. Drill a 1/8" dia. hole at that Mark. On the FORWARD SIDE, use a Hole Saw to Drill a 1" dia Hole thru the Bulkhead (1) - (use 1/8" hole as guide). File Hole as needed to install Fairlead (2). File Backing Washer (3) to fit between Stiffeners. Insert Fairlead (2) and use existing holes to Drill 3/16" mounting holes in Bulkhead (1) and Backing Washer (3).

2. Refer to Detail 'B'. Attach Fairlead (2) to Bulkhead (1) with the Hardware (4,5,3,6) - 3 places. Tighten the Bolts (4) to proper torque. Disassemble Starter Handle and remove the exsisting Fairlead from the Starter Rope. (The GT400 will require the repositioning of the AFT Rope Pulley to ensure the Starter Rope follows a line (parallel to Root Tube) to the Bulkhead Fairlead. Heat Cutting the Pylon Fairing to clear the Half Clamps is also required. Ensure Starter Rope has clearance from all moving parts.) Insert Starter Rope thru Bulkhead Fairlead (2) and reassemble Starter Handle - refer to your Aircraft Assembly Instructions.

3. Locate the Rib Pockets (7) on the INSIDE of the Cover. Heat Cut 1" slot AFT of each Rib Pocket (7) located 1" FWD of the Seam on th Tail Boom Down Strut at the AFT end of the Cover - 4 places.

4. Refer to Detail 'C'. Install two Rear Rib Tips (8) into two Ribs (9) and secure into position by centerpunching the end of the Rib. Install the two Ribs (9) into the LOWER Rib Pockets (7).

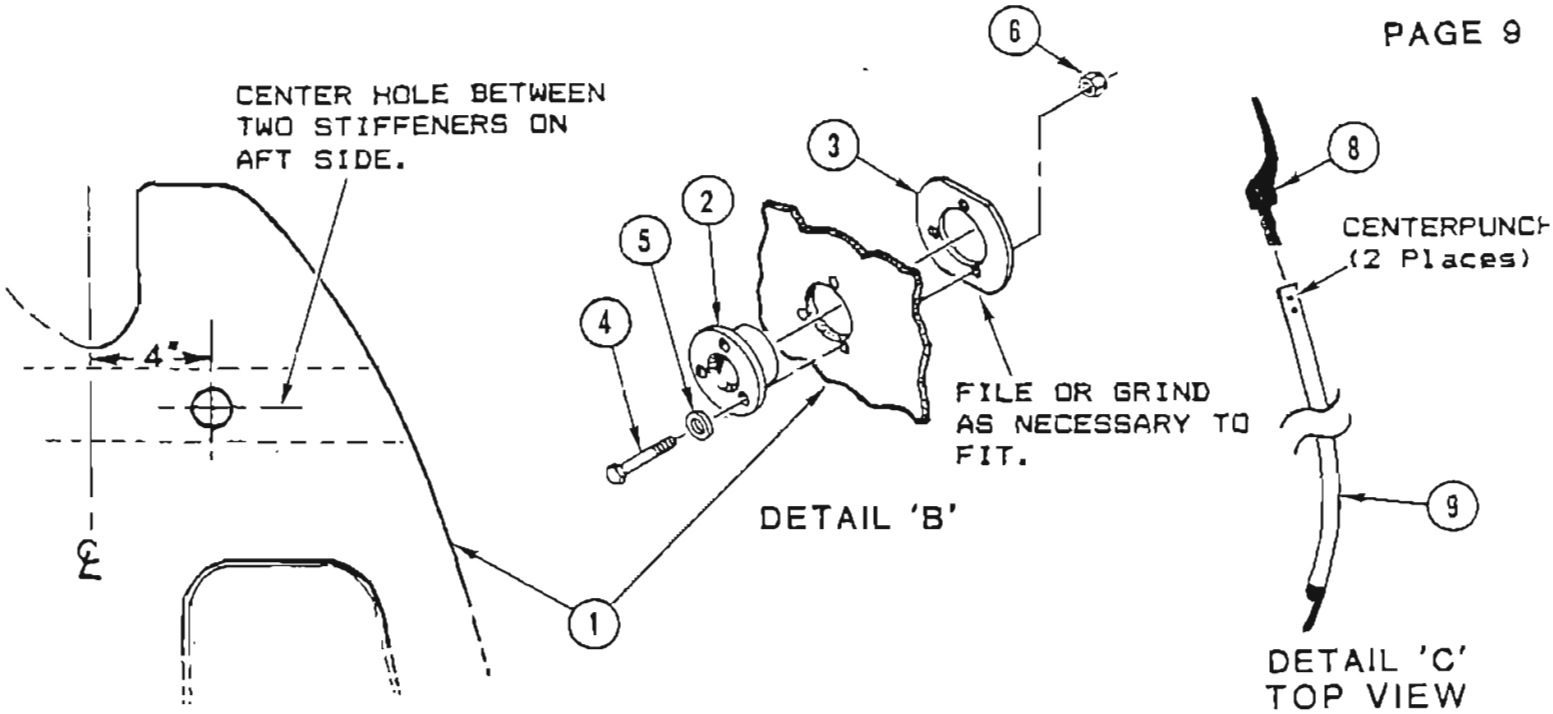
5. Trim 8-3/8" off the two remaining Ribs (9) and deburr. Install two Rear Rib Tips (8) and centerpunch Rib to secure Tip into position. Install the two shorter Ribs (9) into the UPPER Rib Pockets (7). NOTE: Ensure all FWD Rib Tips are positioned on the OUTBOARD edge of Bulkhead.

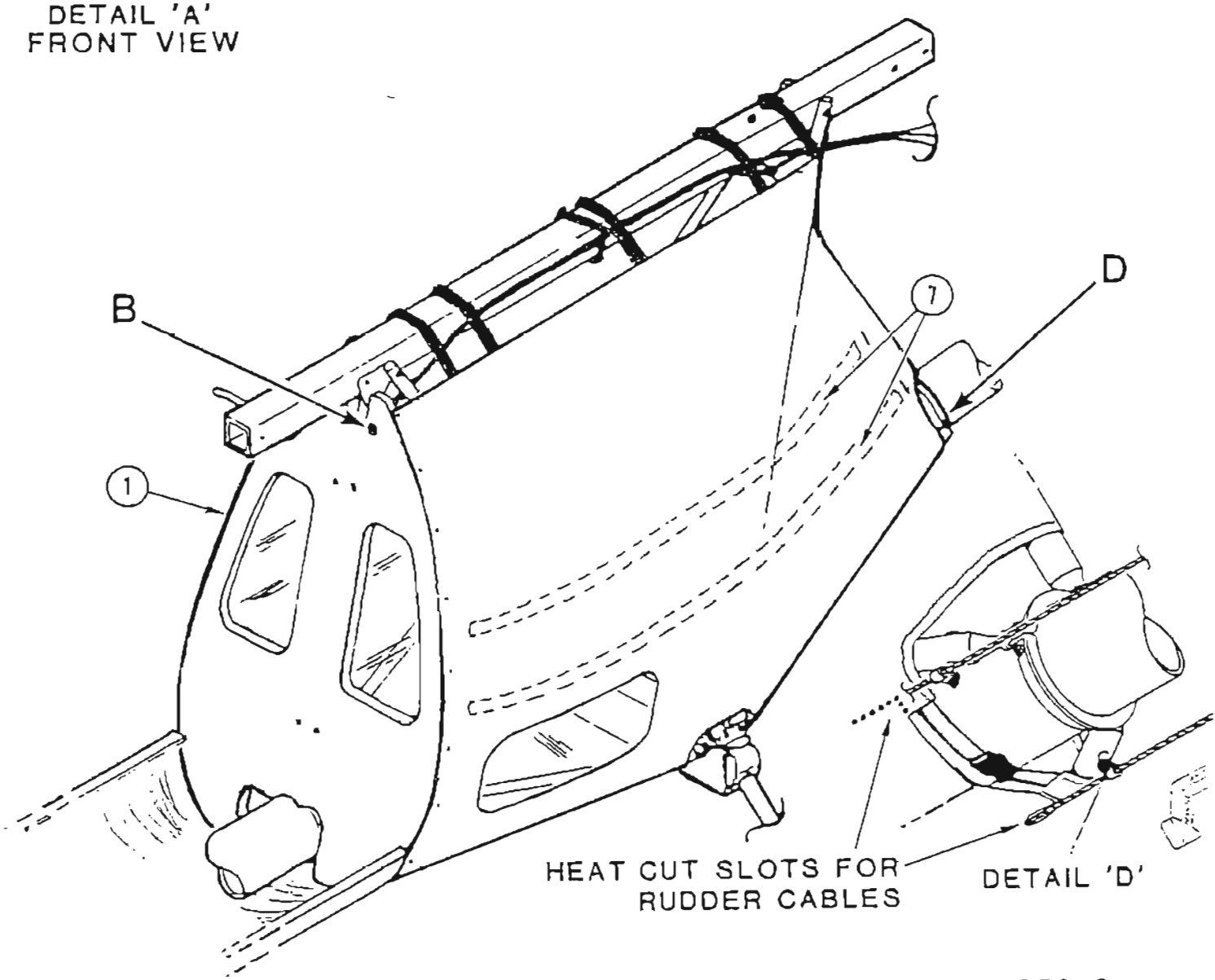
6. Drill a 3/16" hole in the AFT end of each Rear Rib Tip (8). Attach the UPPER Rib Tips (8) together using a Tie Wrap (10) to prevent the Ribs from backing out. Repeat on the LOWER Ribs.

7. Final tighten all Buckles. NOTE: If wrinkles develop in the LOWER FWD section of Cover, adjust tension between UPPER Buckles and those around the Landing Gear Carry-thru.

IMPORTANT: Refer to Detail 'D'. IT WILL BE NECESSARY TO HEAT CUT SLOTS IN THE AFT END OF THE COVER TO ALLOW CLEARANCE FOR THE RUDDER CABLES. ENSURE THE BUCKLE STRAP IS ROUTED OVER THE TOP OF BOTH CABLES.

Pt.	P.N.	Description.
1.	.....	Bulkhead, Pilot Fairing.
2.	20236	Fairlead, Alum.
3.	20235	Backing Washer.
4.	10015	AN3-6a Bolt.
5.	10550	3/16" Washer.
6.	10500	3/16" Locknut.
7.	.....	Rib Pocket.
8.	20260	Rear Rib Tip.
9.	45704	Rib, R. Fairing.
10.	30480	7" Tie Wrap.


CENTER HOLE BETWEEN
TWO STIFFENERS ON
AFT SIDE.
4"
℄
1
DETAIL 'A'
FRONT VIEW
6
3
2
5
4
FILE OR GRIND
AS NECESSARY TO
FIT.
DETAIL 'B'
8
CENTERPUNCH
(2 Places)
9
DETAIL 'C'
TOP VIEW


B
D
7
1
HEAT CUT SLOTS FOR
RUDDER CABLES
DETAIL 'D'

SUPPLEMENT

TO PARTS LIST AND ASSEMBLY INSTRUCTIONS

PARTS AND INSTRUCTIONS / MODEL # GT	DATE 7-12-85
EDA# 20-85, 21-85	DOC # 853-9

T.E. TUBE CAP CHANGE

ON PAGE 5-5 OF YOUR ASSEMBLY INSTRUCTIONS, P/N 20422 - 1 3/4" TUBE CAP HAS BEEN CHANGED TO A P/N 20420 - 1 5/8" TUBE CAP. THE ASSEMBLY PROCEDURE REMAINS THE SAME.

DELETIONS:

Qty.	P/N.	Description.
2	20422	1-3/4" Tube Cap.

ADDITIONS:

2	20420	1-5/8" Tube Cap.

SUPPLEMENT

TO PARTS LIST AND ASSEMBLY INSTRUCTIONS

PARTS AND INSTRUCTIONS / MODEL # MXLII & GT DATE 5/7/85

EDA# 16-85 & 17-85 | DOC # 853-5

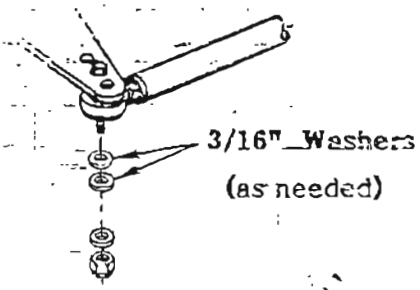
MALE ROD END BEARING ASSEMBLY

THE FOLLOWING PROCEDURES ARE TO BE USED WHEN ATTACHING MALE ROD END BEARINGS (P/N 10700) TO ALL CONTROL LINKAGES:

DETAIL 'A'

AILERON BELLCRANK (ALL MODELS)
FLAP TENSION ROD (GT ONLY)

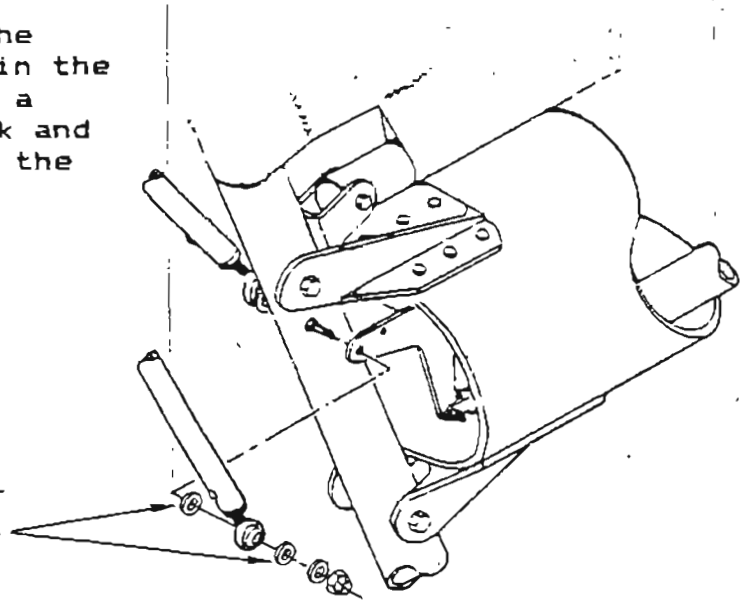
Attach the Male Rod End Bearing to the Control Linkage as instructed in the Assembly Manual - * EXCEPT * Add 3/16" Washers to the attaching Bolt - as shown (1 or 2 Washers as needed).



DETAIL 'B'

ELEVATOR PUSHROD (GT ONLY)

Attach the Elevator Pushrods to the Elevator Bellcrank as instructed in the Assembly Manual - * EXCEPT * Add a 3/16" Washer between the Bellcrank and the Rod End Bearing and one after the Rod End Bearing - as shown.



QUALITY ASSURANCE ACCEPTED

DATE 5-7-85 ECO# 867

Copyright ©1983, Elpper Aircraft

Eipper aircraft

PAC

SUPPLEMENT

TO PARTS LIST AND ASSEMBLY INSTRUCTIONS

PARTS AND INSTRUCTIONS / MODEL # GT DATE 4/2/85

EDA # 13-85 DOC # 853-4

GT SHOULDER BELT ASSEMBLY

YOUR KIT HAS BEEN SHIPPED WITH THE PARTS AND ASSEMBLY INSTRUCTIONS (PAGE 2 OF THIS SUPPLEMENT) REQUIRED TO ASSEMBLE SHOULDER BELTS ON THE GT.

REMOVE PAGE 2 AND INSERT IT BETWEEN PAGES 2-36 & 2-37 IN THE GT ASSEMBLY INSTRUCTIONS. ASSEMBLE YOUR GT AS SEQUENCED IN THE ASSEMBLY INSTRUCTIONS.

ADDITIONS:

P.N.	Qty.	Description.
10341	1	AN5-31a Bolt.
10600	2	5/16" Fender Washer.
70344	1	Shoulder Belt Set, GT.

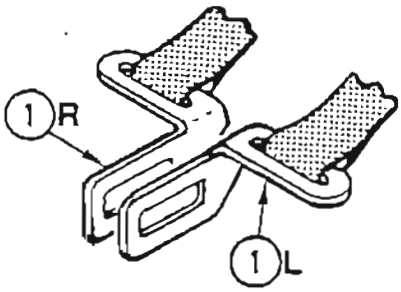
DELETIONS:

10325	1	AN5-26a Bolt.
10570	2	5/16" Washer.

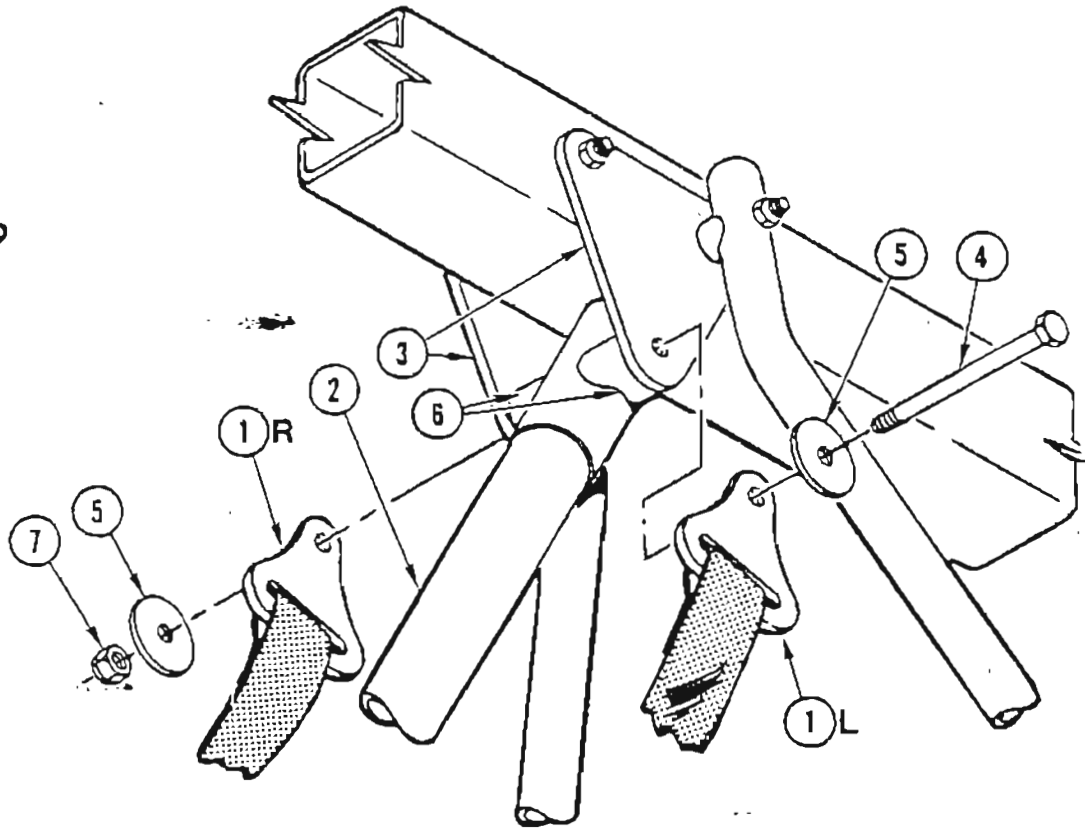
QUALITY ASSURANCE ACCEPTED

DATE 5-1-85 ECO# 839

Copyright © 1984, Eipper Aircraft



DETAIL 'A'



DETAIL 'B'

NOTE: THE FOLLOWING SEQUENCE OF ASSEMBLY REPLACES STEP 3 ON PAGE 2-36 OF THE GT ASSEMBLY INSTRUCTIONS.

1. Refer to Detail 'A'. The Shoulder Belts (1) have a LEFT and RIGHT orientation. Assemble (1L) & (1R) as shown.

2. Refer to Detail 'B'. Attach the Shoulder Belts (1L,1R) and the Forward Fuselage Downtube (2) to the Downtube Plates (3) using the Hardware (4,5,6,7) - as shown. DO NOT Tighten.

3. Complete STEPS 4,5 on Page 2-36.

Pt.	P.N.	Description.	Pt.	P.N.	Description.
1.	70344	Shoulder Belt Set, GT.	5.	10600	5/16" Fender Washer.
2.	45519	FWD Fuselage Downtube.	6.	20290	1 3/4" Saddle.
3.	45426	Downtube Plate.	7.	10540	5/16" Locknut.
4.	10341	AN5-31a Bolt.			

Tipper aircraft

SUPPLEMENT

TO PARTS LIST AND ASSEMBLY INSTRUCTIONS

PARTS AND INSTRUCTIONS / MODEL # ALL GT MODELS	DATE 5-12-85
EDA# 18-85	DOC # 853-6

EMPENNAGE RIGIDITY

To increase Empennage rigidity and eliminate rattling in the GT Airframe install washers and/or tighten fasteners at the locations indicated below.

1. At the junction of the Aft Side Struts and Tail Boom Flange insert washers as necessary to eliminate the gap between the Eyebolt and the slot in the Tail Boom Flange. Tighten connecting bolt to proper torque.

2. In some cases the Attachment Channels for the Vertical Stabilizer Spar May allow slight movement side to side of the Vertical Stabilizer Spar. Test for this movement by gently pushing down on the LEFT Stabilizer/ Elevator and at the same time look for a gap between the spar and the LEFT Vertical Ear of the LOWER Attachment Channel. You may also detect a clicking sound as you gently push down and then release the Stabilizer/Elevator. CAUTION: AT NO TIME SHOULD YOU DEFLECT THE STABILIZER/ELEVATOR MORE THAN 4 TO 5 INCHES.

NOTE: Steps 3 & 4 will eliminate the fold-up capability of the Stabilizer/Elevator.

3. At the junction of the Tail Boom Tube and both the Stabilizer Drag Strut and the Tail Support Strut the gap between the Eyebolt and Forkbolt/Fork Fitting shuld be filled by adding 3/16" washers as necessary. NOTE: Additional tightening of the Eyebolts (in the tail boom tube) is also helpful in inceasing empennage rigidity.

4. At the junction of the Stabilizer/Elevator Compression Strut and the Stabilizer Support Strut install a AN3-5A bolt in place of the Clevis pin and shim the difference in thickness of the 3/16" Eyebolt and the Fork fitting with 3/16" washers. Use 3/16" locknuts to secure the bolt.

5. At the Fork Fitting end of the Elevator Push Rod install 3/16" Washers as necessary to eliminate gap between fitting and Eyebolt.

6. At the aft end of the Aft Elevator Push/Pull tube install 3/16" washer to eliminate the thickness difference between the Elevator Bellcrank and the Fork Bolt. CAUTION: Do not overtighten this junction, lubricate regularly.

NOTE: AFTER ANY CONTROL SYSTEM ASSEMBLY/DISSASEMBLY, MAINTENENCE OR MODIFICATIONS ALWAYS CAREFULLY PRE-FLIGHT THOSE SYSTEMS WITH EXTRA CLOSE ATTENTION. IF ANY UNUSUAL OR DIFFERENT FEEL IS ENCOUNTERED CONSULT YOUR DEALER BEFOR FLIGHT IS ATTEMPTED!

Elpper industries

SUPPLEMENT

TO PARTS LIST AND ASSEMBLY INSTRUCTIONS

PARTS AND INSTRUCTIONS / MODEL # 99602 & 99603 DATE 10-21-85

EDA# 44-85

DOC # 853-18

INCIDENCE PLATE SPACER P/N CHANGE

P/N 45088 (INCIDENCE PLATE SPACER) HAS BEEN SUPERCEDED BY P/N 40344 (1/4" ID. 1" LONG SPACER). THE ASSEMBLY INSTRUCTIONS DO NOT REFLECT THIS CHANGE. SUBSTITUTE P/N 40344 FOR P/N 45088 ON PAGE 3-12 OF THE ASSEMBLY INSTRUCTIONS.

QUALITY ASSURANCE ACCEPTED

DATE 10-21-85 ECO# 954

Copyright © 1985, Elpper Industries

Eipper industries

SUPPLEMENT

TO PARTS LIST AND ASSEMBLY INSTRUCTIONS

PARTS AND INSTRUCTIONS / MODEL # GT DATE 2-3-86

EDA# 5-86 DOC # 863-1

TACH/TEMP/TIME METER P/N 90113

THE EIPPER TACH/TEMP/TIME METER (P/N 90113) IS NO LONGER SUPPLIED WITH YOUR KIT. DO NOT OPERATE THE ENGINE WITHOUT A TACHOMETER OR A CYLINDER HEAD TEMPERATURE GUAGE. SEVERE ENGINE DAMAGE MAY OCCUR.

IF THE AIRCRAFT IS TO BE OPERATED AS AN ULTRALIGHT UNDER FAR 103, YOU CAN ORDER P/N 90113 SEPARATELY.

IF IT IS OPERATED AS AMATUER BUILT EXPERIMENTAL, CHECK FAA REGULATONS FOR THE REQUIRED INSTRUMENTS.

QUALITY ASSURANCE ACCEPTED

DATE 2-4-86 ECO# 973

Copyright © 1986, Eipper Industries

SUPPLEMENT

TO PARTS LIST AND ASSEMBLY INSTRUCTIONS

PARTS AND INSTRUCTIONS / MODEL # GT DATE 8-14-85

EDA# 29-85 DOC # 853-3

GT FUEL TANK CAP ASSEMBLY

THE PROCEDURES OUTLINED ON PAGE 2 OF THIS SUPPLEMENT SUPERCEDE THOSE IN THE GT ASSEMBLY INSTRUCTIONS. ASSEMBLE THE FUEL TANK CAP USING THESE PROCEDURES.

ADDITIONS:

P.N.	Qty.	Description.
30253	1	Cap, Fuel Tank, W/ 7/16" Hole.
10503	1	Nut, 7/16" Check.
10531	1	Nut, Coupling.
10602	2	Fender Washer W/ 7/16" Hole.
45825	1	Tube, Fuel Pick-up.
60096	1	Adaptor, Hose to Universal.
60097	1	Sleeve, Coupling.

DELETIONS:

30252	1	Cap, Fuel Tank
45824	1	Tube, Fuel Pick-up.
30290	1	Seal, Rubber, Fuel Tank.

QUALITY ASSURANCE ACCEPTED

DATE 8-20-85 ECO# 915

Copyright © 1985, Elipper Industries

FUEL TANK CAP ASSEMBLY

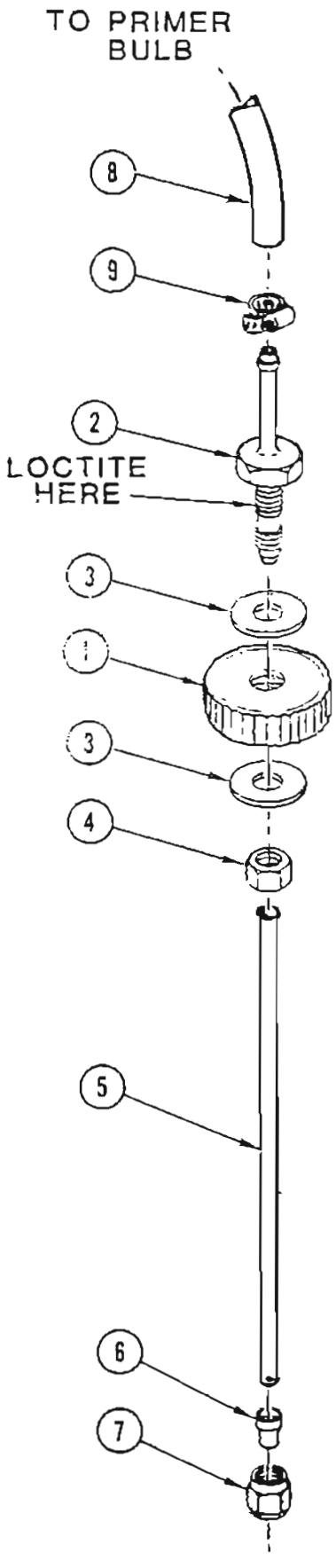
1. Locate the Fuel Tank Cap (1) with the predrilled hole in the Kit. Attach the Adaptor (2) to the Cap (1) using <u>two</u> Fender Washers (3) and the Nut (4) - as shown.

   NOTE: Apply a drop of Loctite 290 to the SECOND set of threads on the Adaptor (2). Finger Tighten the Nut (4) to snug the assembly together. Allow the Loctite to dry before continuing.

2. Attach the Fuel Pick-up Tube (5) to the Adaptor (2) using the Sleeve (6) and Nut (7) - as shown. Tighten the Coupling Nut (7) onto the Adaptor (2).

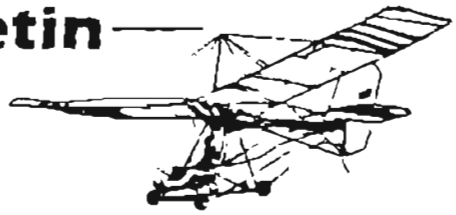
3. Attach the 14" piece of Fuel Line (8) to the Adaptor (2) using the Clamp (9). Tighten the Clamp until snug.

4. Insert the Fuel Tank Cap Assembly into the Fuel Tank and complete the assembly sequence as required in the Assembly Instructions.



Pt.	P.N.	Description.
1.	30253	Fuel Tank Cap W/ 7/16" Hole.
2.	60096	Adaptor, Hose to Universal.
3.	10602	Fender Washer W/ 7/16" Hole.
4.	10503	7/16" Check Nut.
5.	45825	Tube, Fuel Pick-up.
6.	60097	Sleeve, Coupling.
7.	10531	Nut, Coupling.
8.	30223	Fuel Line (14").
9.	30230	Fuel Line Clamp.

Service & Maintenance Bulletin



VOL. 4

Issue Date: 26 November 1984
DLR. Manual Sect. No.:
Total No. of Pages:

GT 280-8407

Description:

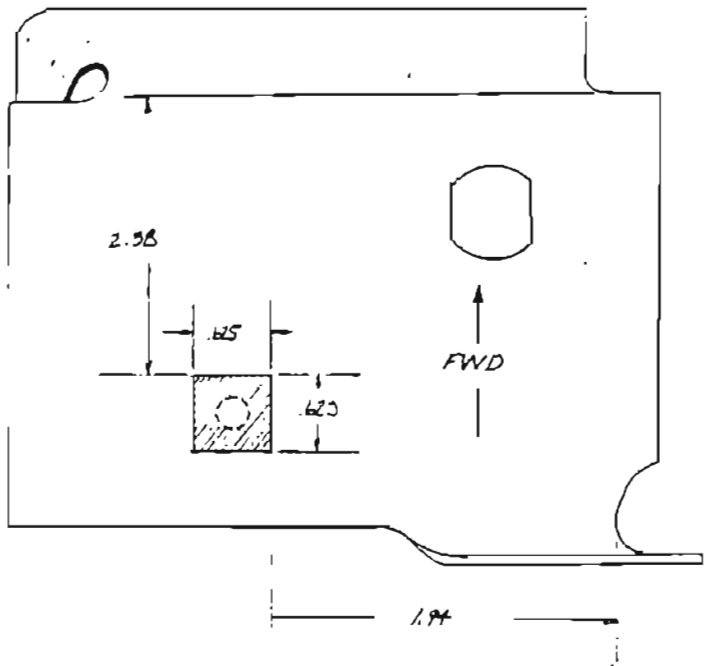
GT CHOKE CABLE

The Choke Cable, P/N 45813 that was sent out as original equipment is being replaced with a new Choke Cable, P/N 45814. The new cable is designed to operate with less friction and has a twist lock.

Before the new Choke Cable can be installed, the throttle mount plate, P/N 45475 will have to be modified as follows: After removing the original cable, remove material from the throttle mount as indicated by the shaded area in the picture below. Install new cable, routed as before and have a Nice Day.

REPLACEMENT PARTS

QTY.	P/N	DESCRIPTION
1	45814	Choke Cable
6	30485	4" Tie Wraps
2	30480	7" Tie Wraps
1	30490	15" Tie Wraps



NOTE:
REMOVE MATERIAL FROM SHADED AREA

FOR VIEW

Zipper aircraft inc.
26531 Ynez Road, Temecula, CA 92390, (714) 676-3228, Telex: 499-0

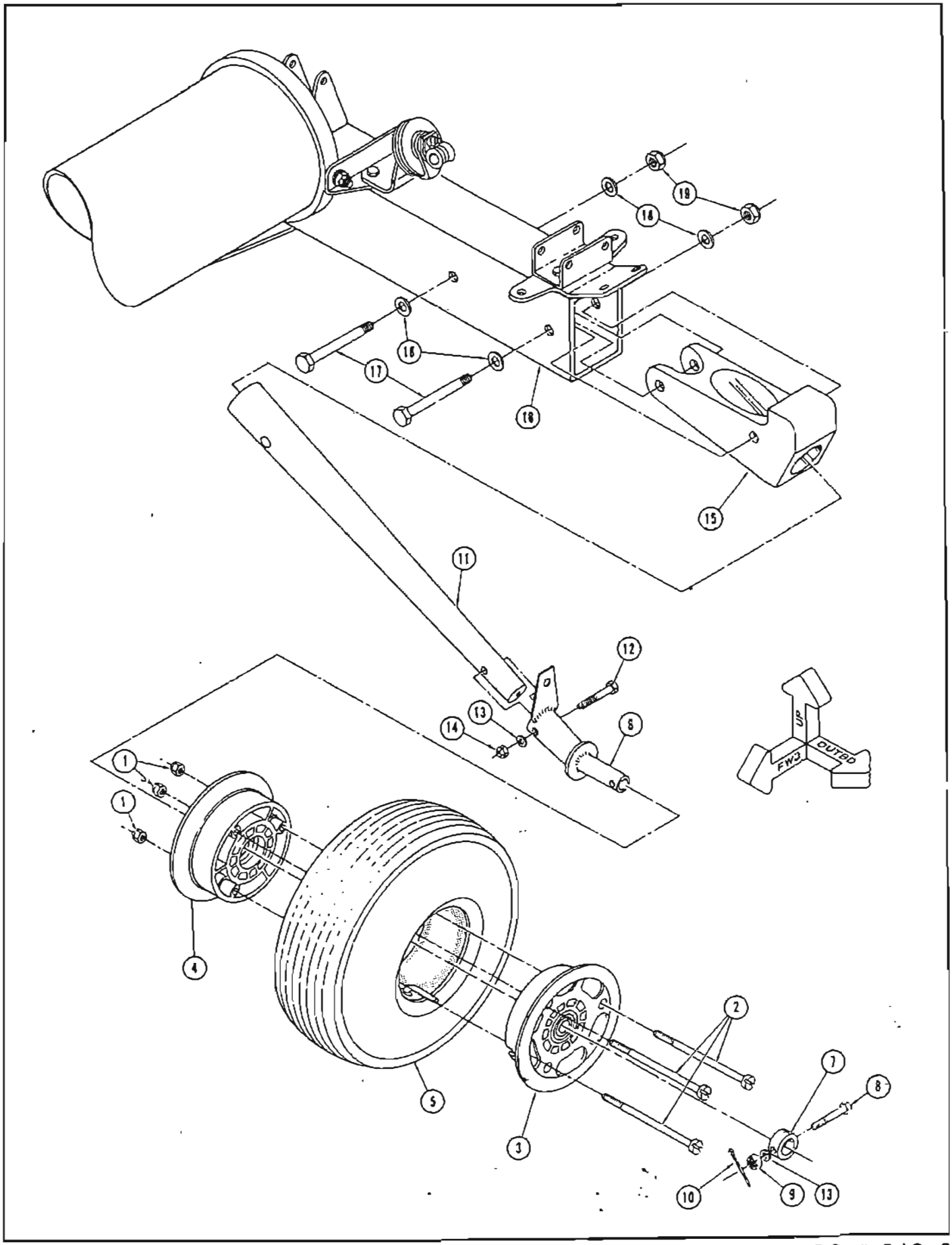
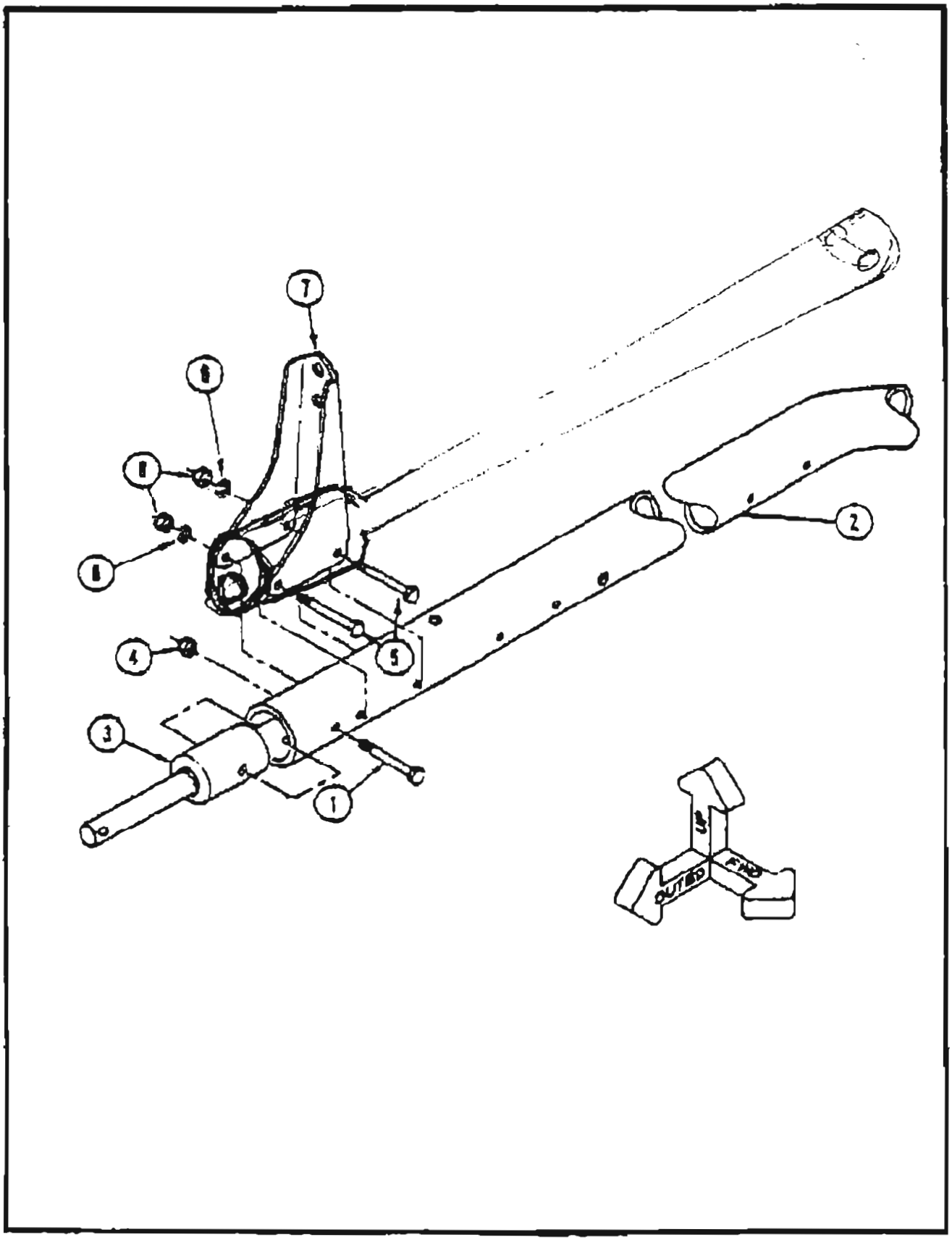


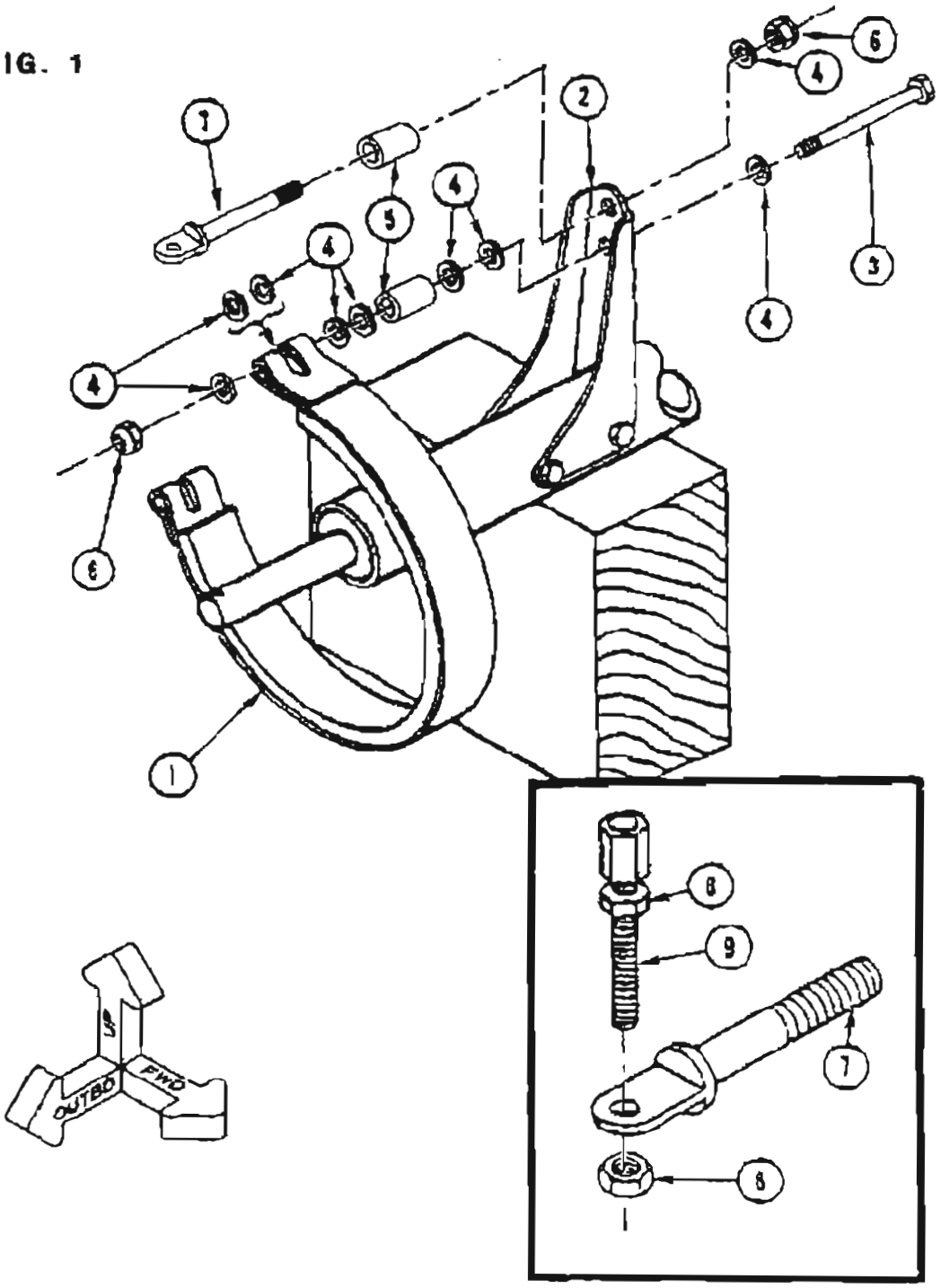
FIGURE 2-4

AXLE SHAFT AND AXLE BRAKE ARM TO AXLE ATTACHMENT

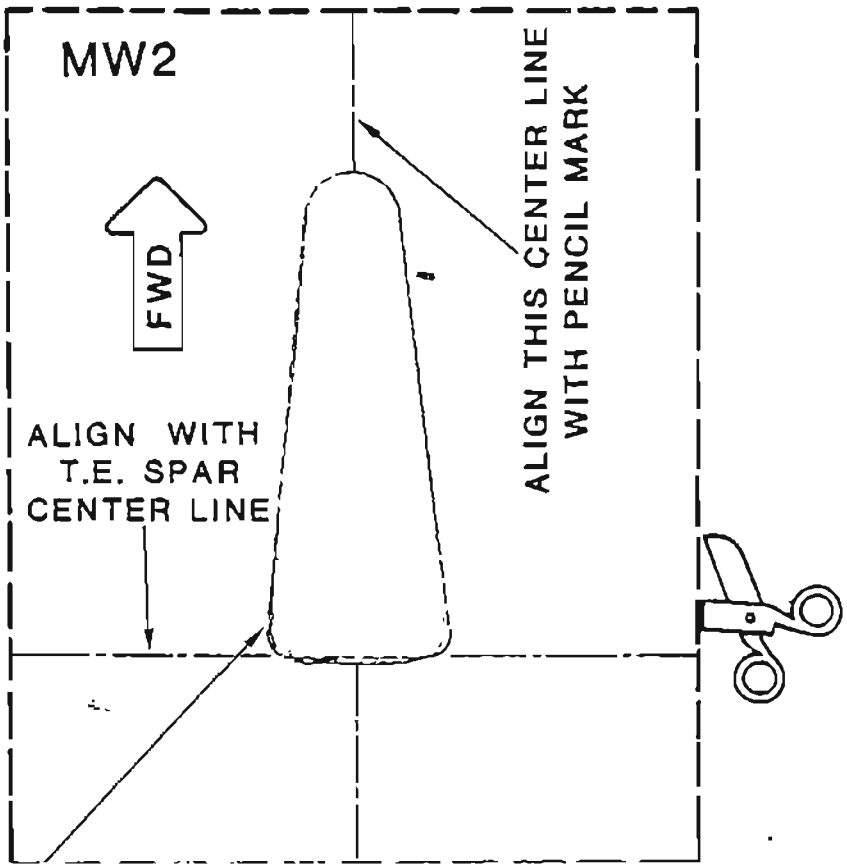


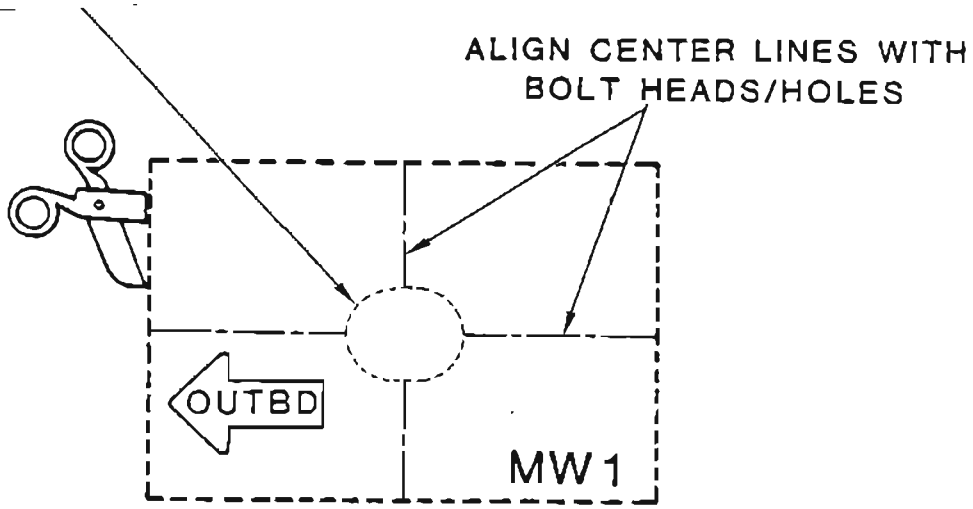
BRAKE BAND ATTACHMENT

FIG. 1

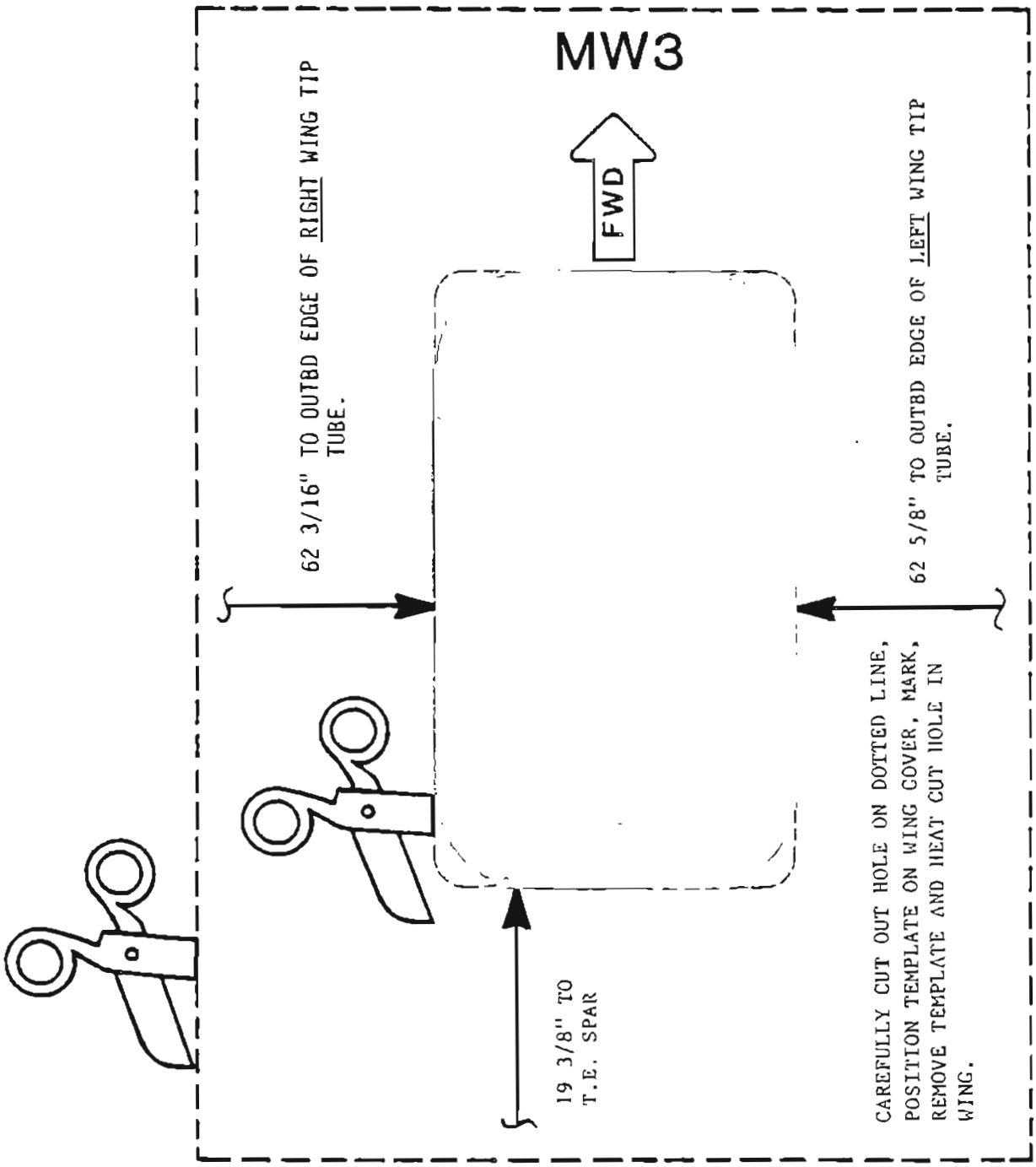


TEMPLATES–MAIN WING

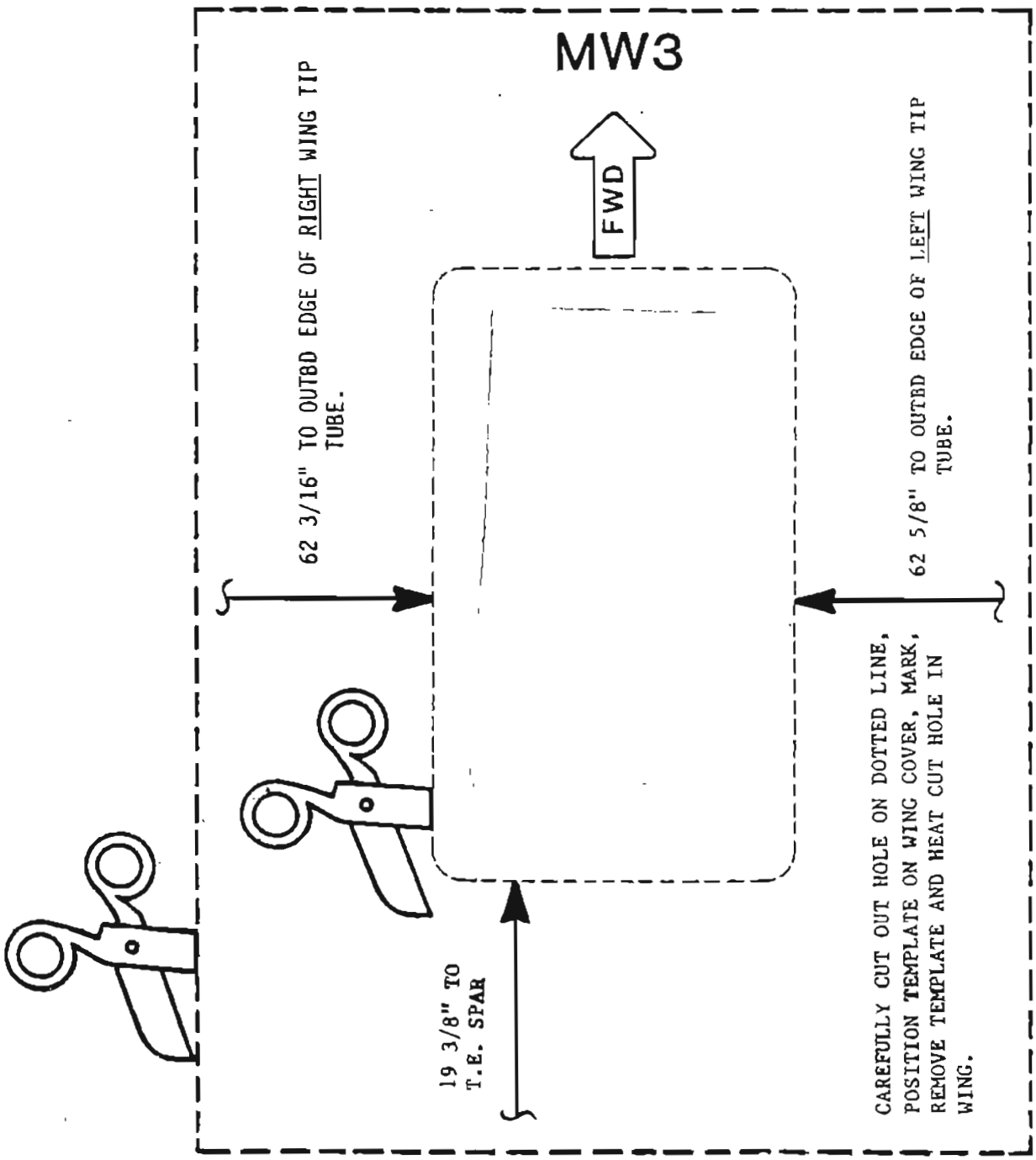


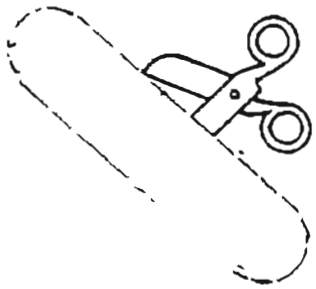


TEMPLATES-MAIN WING (CONT'D.)



TEMPLATES- MAIN WING (CON'D.)





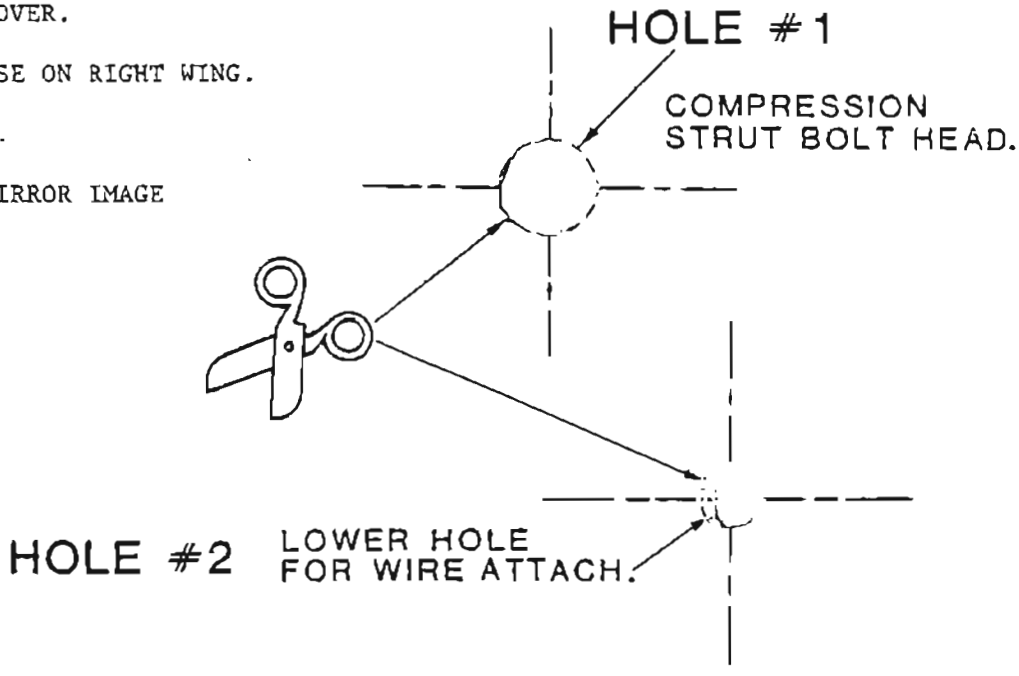
MW4

L.E. INBD UPPER WIRE TEMPLATE

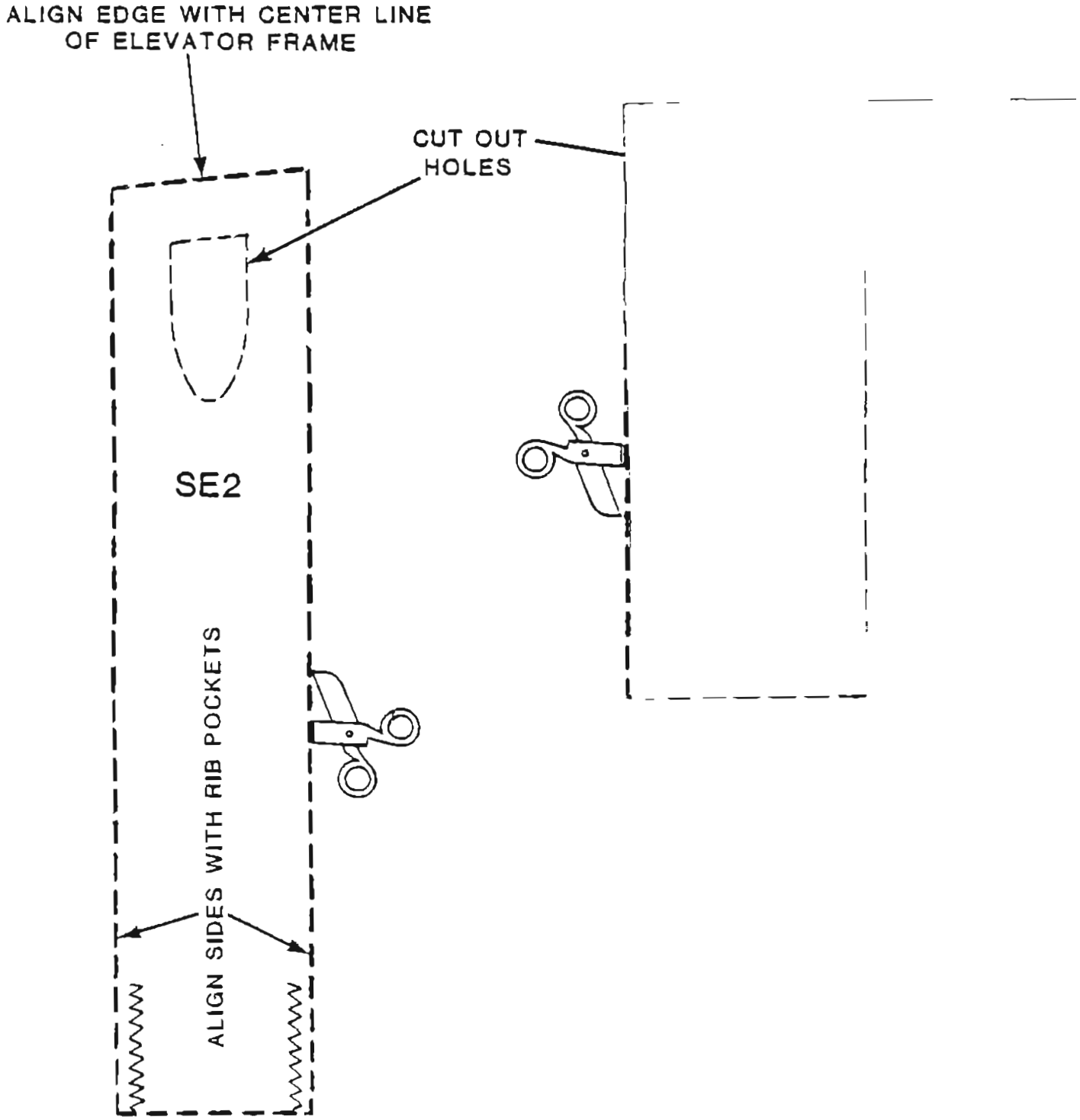


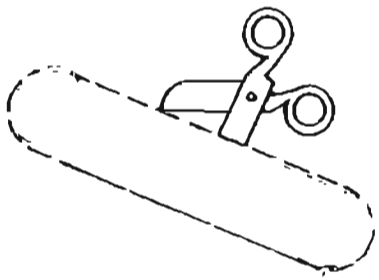
1. REMOVE TEMPLATE PAGE FROM MANUAL.
2. CAREFULLY CUT OUT SLOT AND HOLES ON DOTTED LINES.
3. ALIGN HOLE #1 ONTO THE COMPRESSION STRUT BOLT HEAD.
4. ALIGN CENTERLINES OF HOLE #2 WITH THE HEAT CUT HOLE ON BOTTOM OF L.E. SPAR.
5. TAPE TEMPLATE INTO PLACE.
6. MARK SLOT ONTO WING COVER.
7. REMOVE TEMPLATE FOR USE ON RIGHT WING.
8. HEAT CUT SLOT IN WING.

REPEAT PROCEDURE IN MIRROR IMAGE FOR RIGHT WING.



TEMPLATES-STABILIZER/ELEVATOR





MW5

L.E. OUTBD UPPER WIRE TEMPLATE

1. REMOVE TEMPLATE PAGE FROM MANUAL..
2. CAREFULLY CUT OUT SLOT AND HOLES ON DOTTED LINES.
3. ALIGN HOLE #1 ONTO THE COMPRESSION STRUT BOLT HEAD.
4. ALIGN CENTERLINES OF HOLE #2 WITH THE HEAT CUT HOLE ON BOTTOM OF L.E. SPAR.
5. TAPE TEMPLATE INTO PLACE.
6. MARK SLOT ONTO WING COVER.
7. REMOVE TEMPLATE FOR USE ON RIGHT WING.
8. HEAT CUT SLOT IN WING.

   REPEAT PROCEDURE IN MIRROR IMAGE FOR RIGHT WING.

