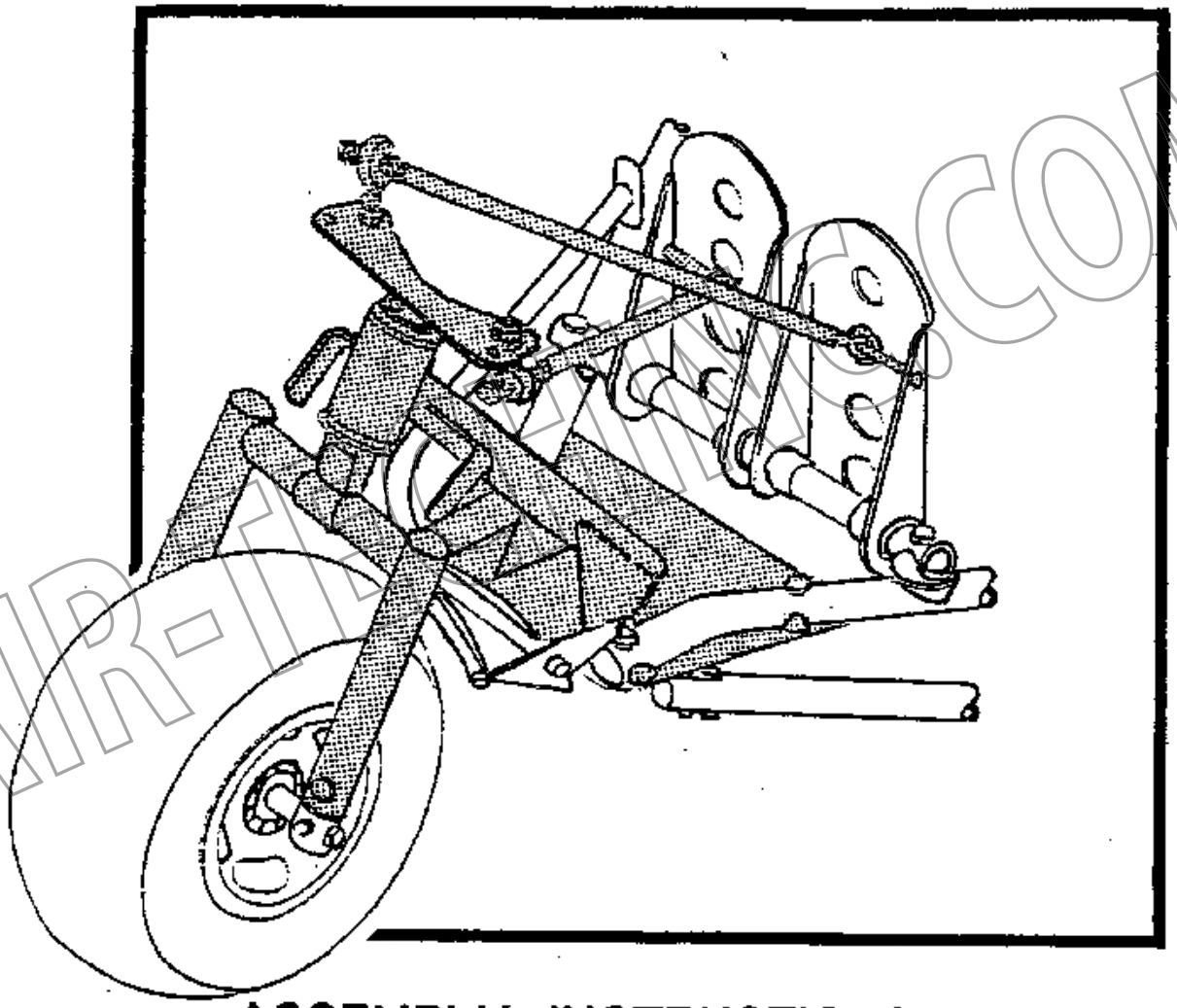
QUICKSILVER®
'THE ORIGINAL'

STEERABLE

NOSEWHEEL (SINGLE PLACE)



ASSEMBLY INSTRUCTIONS

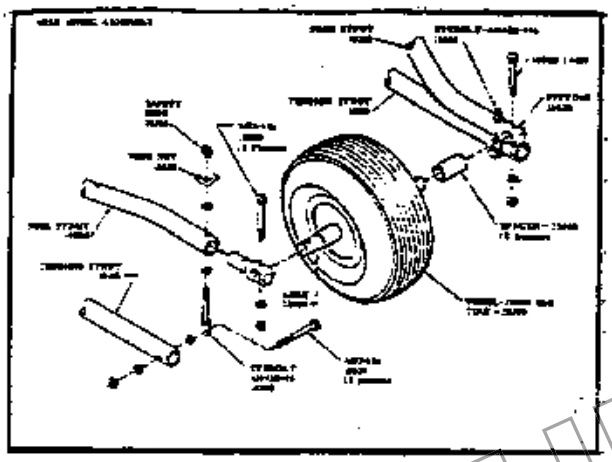
DOC# 872-02 A FOR KIT# 91219

World's Largest Manufacturer of Recreational Aircraft and Vehicles
P.O. Box 1572, Temecula, CA 92390 • (714) 676-6886, Telex: 499-0565, FAX: (714) 676-4883

IMPORTANT

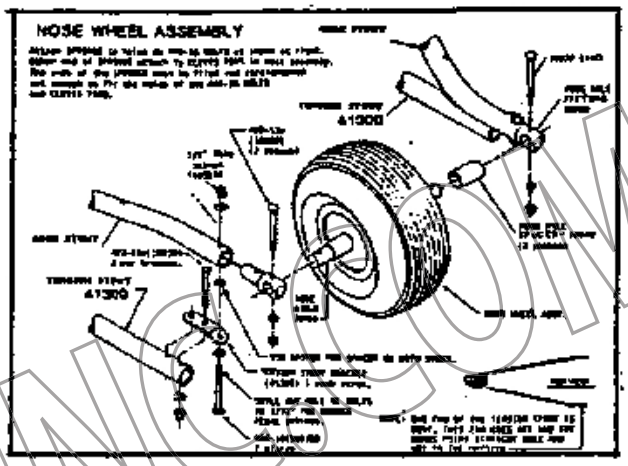
READ BEFORE CONTINUING

IF YOU HAVE THE EARLY VERSION NOSE STRUT TO TENSION STRUT ATTACHMENT FOUND ON THE QUICKSILVER MX MODEL AND OR CAST ALUMINUM FOOT PEDALS, IT WILL BE NECCESARY TO UPDATE YOUR TENSION STRUTS, FOOT PEDALS AND HARDWARE BEFORE CONTINUING ON WITH THESE INSTRUCTIONS. SEE DETAIL A', B', C', AND D' BELOW.



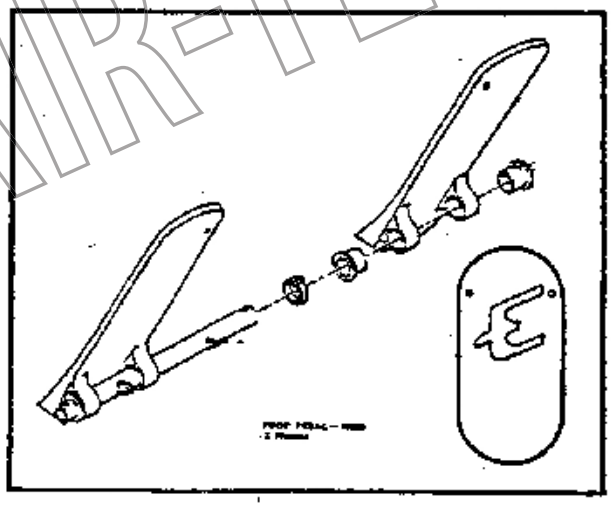
OLD VERSION

DETAIL A



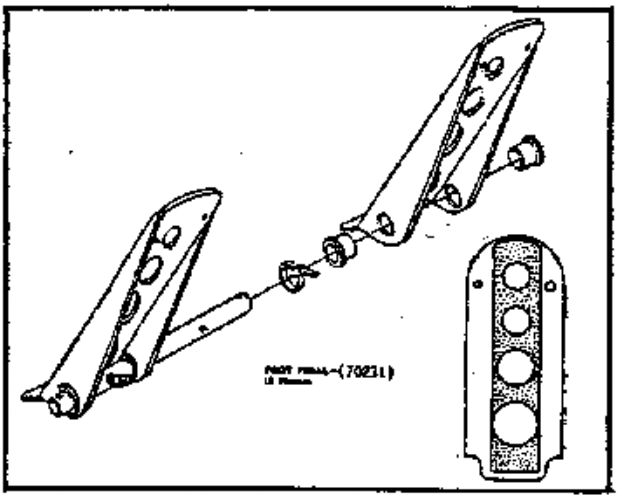
NEW VERSION

DETAIL B



OLD VERSION

DETAIL C



NEW VERSION

DETAIL D

FIGURE 1

IMPORTANT CONT.

This Kit does not contain a Nose Wheel Brake. The Steerable Nose Wheel Brake is offered as a seperate package if your aircraft does not have Main Wheel Brakes. At the time of shipment, every Aircraft Kit is supplied with one style of Braking System.

If for example: you own a single seat aircraft that was supplied with a Nose Wheel Brake and a Steerable Nose Wheel unit is attached at a later time, you will be required to purchase the Steerable Nose Wheel Brake Pedal Kit (P/N- 91227).

Under NO circumstances should any QUICKSILVER aircraft be flown without one style of Braking System.

TABLE OF CONTENTS

'AN' BOLT GAUGE

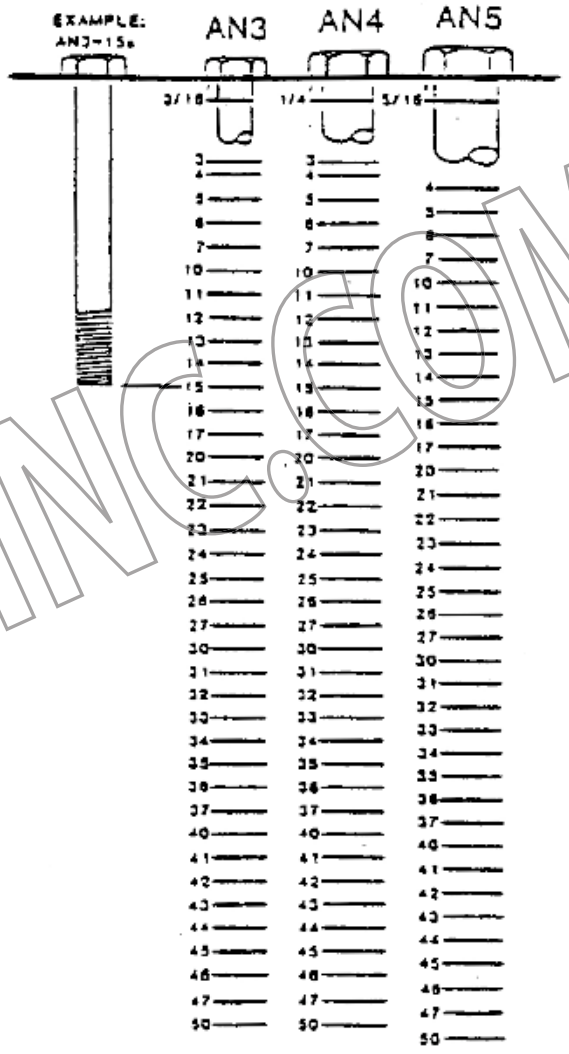
Use this Gauge to determine AN Bolt Sizes and Lengths.

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

AN3 = 3/16" diameter Shank.

AN4 = 1/4" diameter Shank.

AN5 = 5/16" diameter Shank.



PARTS LIST INTERPRETATION

In each sequence, when we call out an Item in the text we will give it an Item Number which is repeated on the Illustration and keys with the Parts List.

If the Item is a NEW Part contained in this Kit, it will have a Part Number and Quanity in the Parts List which matches the part to be used.

EXAMPLE:

Pt.	P.N.	Qty.	Description.
1.	60560	1	Steerable Nose Wheel Fork Support.

If the Item is an EXISTING Part of the Aircraft (or previously assembled), it will appear in the Parts List with a dotted line after the Item Number.

EXAMPLE:

Pt.	P.N.	Qty.	Description
1.....			.Nose Wheel Assy.

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

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
3/8".....(AN6).....	160-190	13.3-15.8	

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-or 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.

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.

TOOLS NEEDED FOR ASSEMBLY

* Center Punch
* Drill Motor or Hand Drill with 3/16" and 1/4" Drill Bits
* Deburring Tool
* Marking Pencil or Pen
* Torque Wrench that registers in./lbs. or Newton Meters.
* Vice Grips or Channel Locks
* Wrenches: Open End, Box, and Socket:
  3/8", 7/16", 1/2", 9/16"

PREPARATION FOR ASSEMBLY

1. Inventory and inspect the component parts of the kit (see Parts List on Page 20) leaving them in their clear wrapped packaging until ready for assembly.
2. Assemble the tools needed and ensure that they are clean and sharp.
3. Always use the specified components and hardware. NEVER use substitutes. (See 'AN' Bolt Gauge on Page 5).

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FORK SUPPORT ATTACHMENT

1. Refer to Detail 'A'. Remove the nose wheel assy. from the nose struts leaving the wheel, axle, spacers and nose strut fittings all bolted together for attachment in a future step. Note; If your plane is presently equiped with rudder cables, remove the 2 existing rudder cable springs as they are no longer required.

2. Refer to Detail 'B'. Attach the Steerable Nose Wheel Fork Support (1) upside down to the top of the Nose Struts and Tension Struts to the bottom of the Nose Struts, using existing disassembled hardware, through forward holes as shown. Note; Add washers as needed.

3. Align Forward and Inboard most holes at the aft end of Fork Support (1) on the center line of each Nose Strut. Clamp or hold firmly and drill a 1/4" hole completly through both tubes. Unbolt Fork Support (1) and deburr holes.

Pt.	P.N.	Qty.	Description
1.	60560	1	Steerable Nose Wheel Fork Support

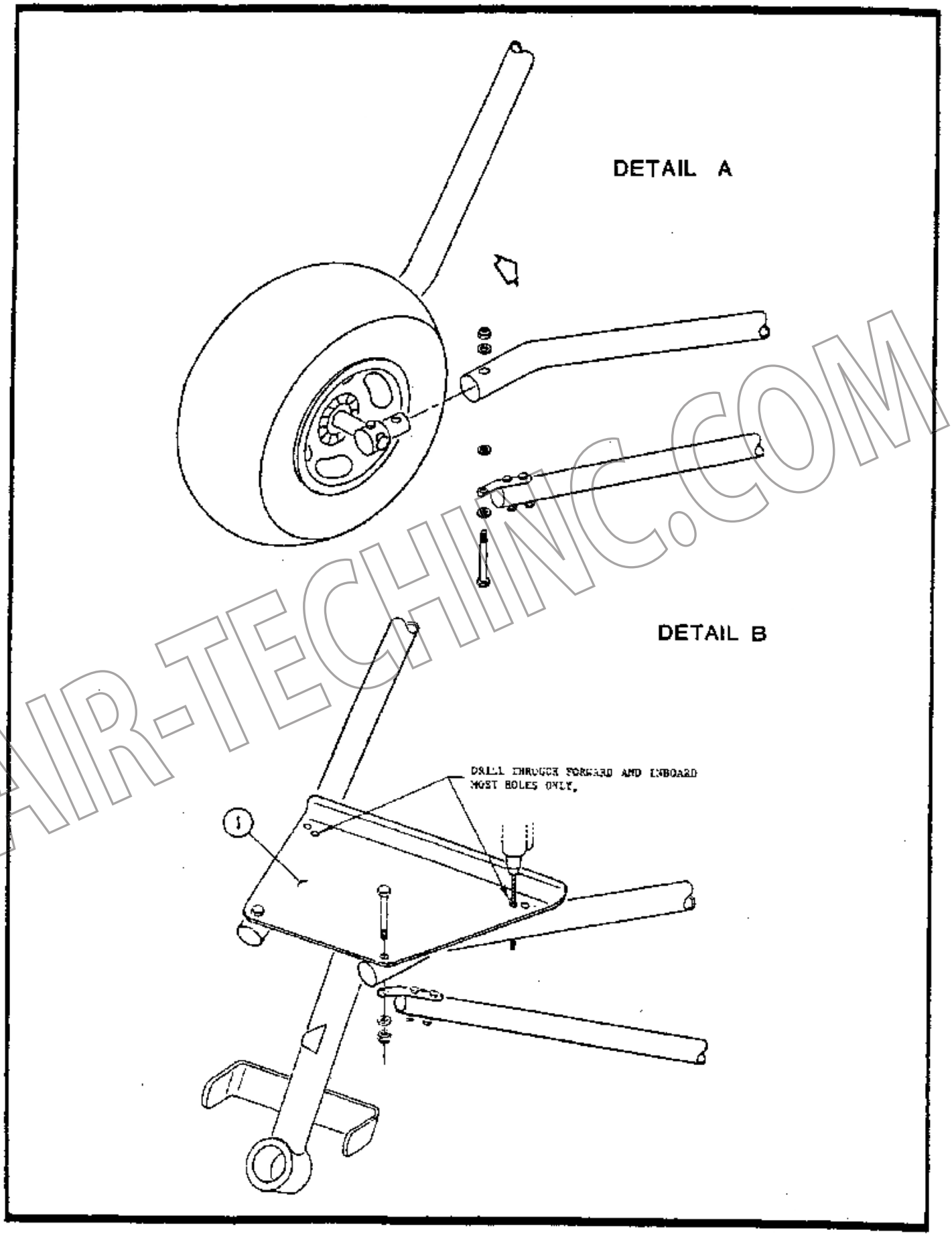


FIGURE 2

FORK SUPPORT ATTACHMENT (CONT'D.)

NOTE: If your kit includes the optional Steerable Nose Wheel Brake Pedal go directly to step #2 and begin assembly. If not, than complete step #1 and continue on to next page.

1. Refer to Detail 'A'. Attach Steerable Nose Wheel Fork Support (1) and Tension Struts to Nose Struts using hardware (2,3,4,5,10) shown. Tighten to proper torque.

2. Refer to Detail 'B'. Attach Steerable Nose Wheel Fork Support (1) and Tension Struts to Nose Struts using hardware (3,4,5,7,10,12,14) shown. Tighten to proper torque.

NOTE: Due to the warping of the sheet metal during welding, it may be necessary to slightly bend the tabs on the Brake Pedal in order to fit in between the Fork Bolts.

3. Attach the Steerable Nose Wheel Brake Pedal (6) to Forkbolts (7) using hardware (8,9,13) shown. Tighten locknuts until snug.

*Optional - Steerable Nose Wheel Brake Pedal

Pt.	P.N.	Qty.	Description
1			Steerable Nose Wheel Fork Support
2.	10130	2	AN4-16 Bolt
3.	10140	2	AN4-16A Bolt
4.	10560	6	1/4" Flat Washer
5.	10510	2	1/4" Locknut
*6.	60559	1	Steerable Nose Wheel Brake Pedal
*7.	10389	2	1/4" x 20 x 2" Forkbolt
*8.	10010	2	AN3-5A Bolt
*9.	10516	2	3/16" Thin Locknut
10.	20270	4	1 x 1/8" Saddle
*12.	10511	2	1/4" x 20 Nyloc
*13.	10550	2	3/16" Flat Washer
14.	10515	2	1/4" Thin Locknut

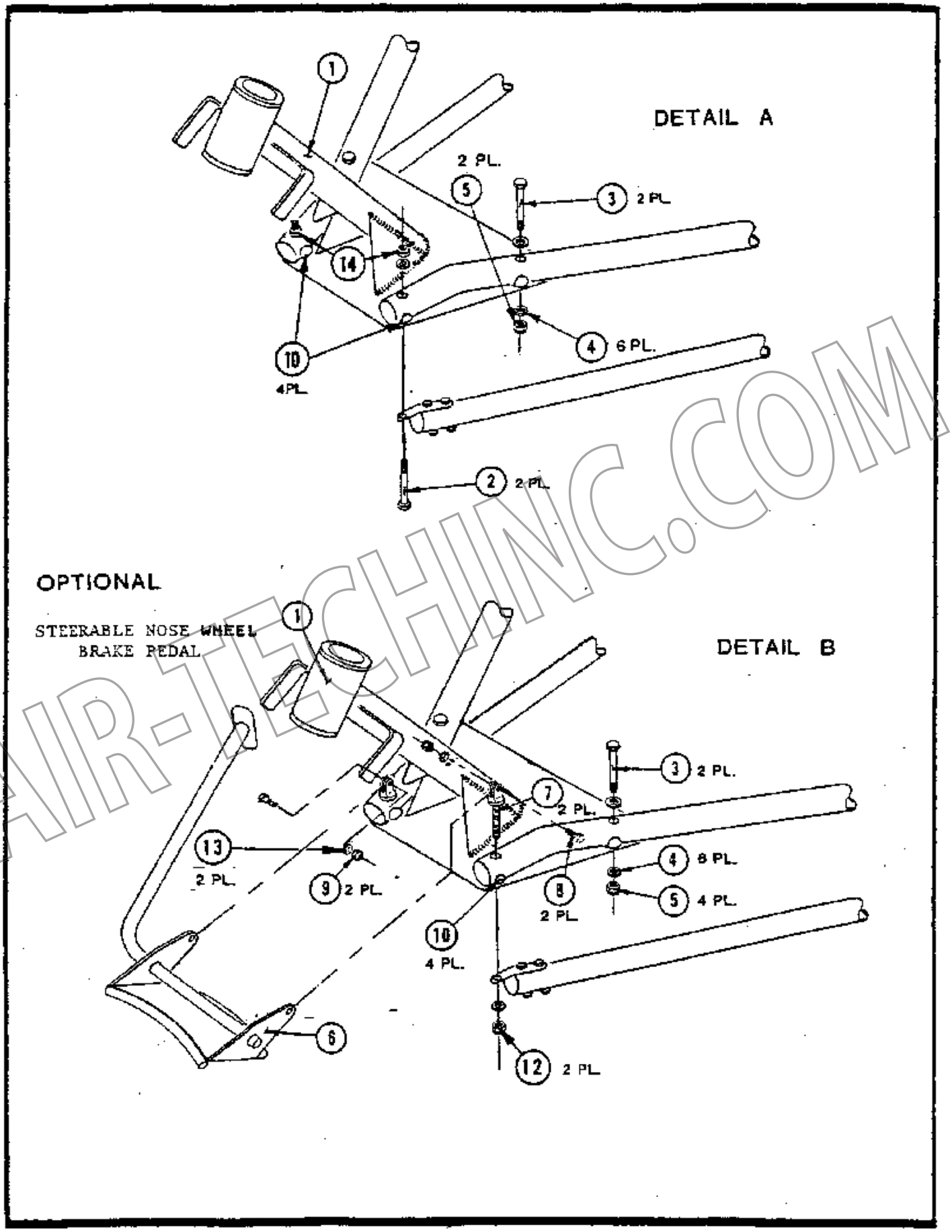


FIGURE 3 DOC# 872-02 A

FORK & HARDWARE ATTACHMENT

1. Refer to Detail 'A'. Attach Nose Wheel Assy. (1) to Steerable Nose Wheel Fork (2) using hardware (5, 6, 7) shown. Tighten to proper torque.

2. Slide Steerable Nose Wheel Fork (2) up into Steerable Nose Wheel Fork Support (3) and secure in place using Steerable Nose Wheel Control Arm (8) and hardware (9, 6 , 7) shown. Tighten to propper torque. Note: Control Arm (8) orentation.

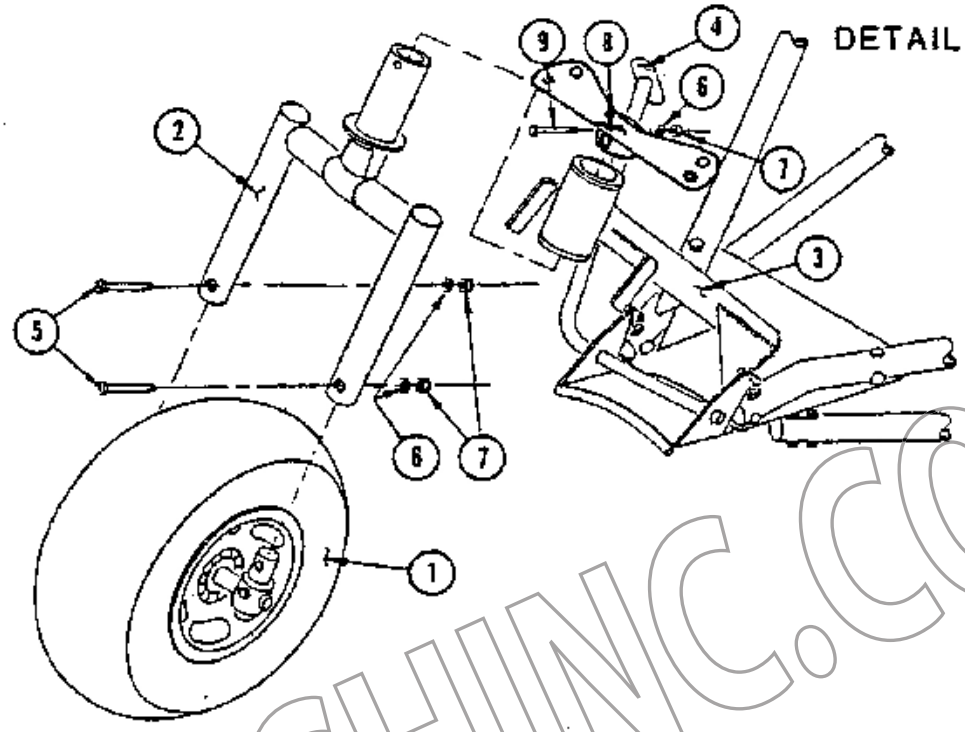
3. Remove both Foot Pedals from Pedal Mount Tube. Remove the Tie Wrap from the Pedal Mount Tube and discard as it will be replaced with a Spacer later. Remove Template from Page 21 and center on side of Foot Pedals using the large hole as a guide. Mark upper hole for Left Pedal and lower hole for Right Pedal. Repeat for other side of Pedals and drill to 1/4" diameter.

4. Run Jam Nut (16) onto the threads of Rod End Bearing (15) then attach Bearing (15) and Spacers (14) to the inside of Foot Pedals using hardware (6, 7, 13) shown. Tighten to proper torque. NOTE; IMPORTANT- Bevelled edges of Specers (14) are to face Bearing (15).

5. Reattach Foot Pedals to Pedal Mount Tube with Spacer (PN 40424) located between the Pedals.

Pt.	P.N.	Qty.	Description
1.			Nose Wheel Assy.
2.	60561	1	Steerable Nose Wheel Fork
3.			Steerable Nose Wheel Fork Support
4.			Steerable Nose Wheel Brake Pedal
5.	10080	2	AN4-13a Bolt
6.	10560	5	1/4" Flat Washer
7.	10210	5	1/4" Locknut
8.	91012	1	Steerable Nose Wheel Control Arm Assy.
9.	10100	1	AN4-14a Bolt
12.			Foot Pedal (Right side)
13.	10298	2	AN4-41a Bolt
14.	40341	4	Spacer, 3/8" x .058 x 1.55 Long
15.	10680	2	CM-4 Rod End Bearing
16.	10631	2	1/4" Non Locking Nut
17.	Not shown	1	40424, 1" x .049 x 1/4" Spacer

NOTE: ILLUSTRATION SHOWN WITH
OPTIONAL NOSE WHEEL BRAKE PEDAL.



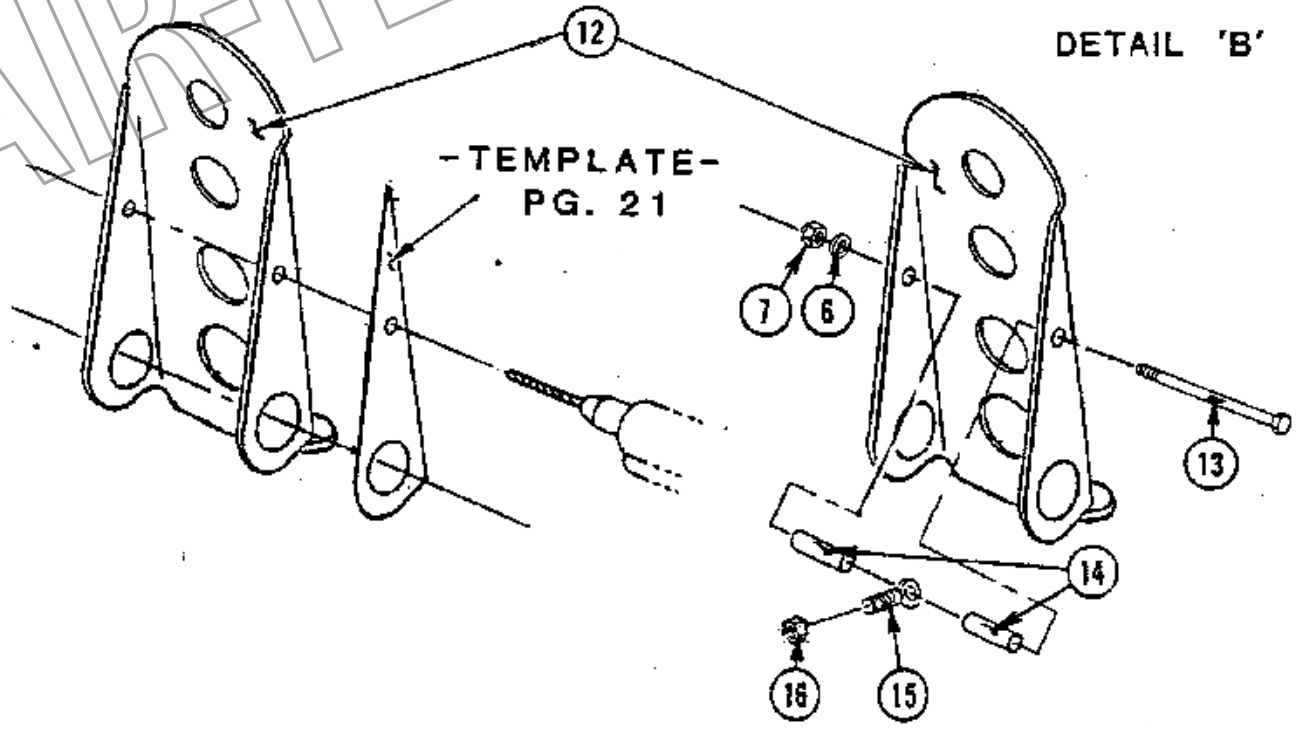


FIGURE 4 DOC# 872-02 A

PUSHROD ATTACHMENT, RIGHT SIDE

1. Refer to Detail 'A'. Pass Bolt (2) through Washer (9), Springs (3), Rod end Bearing Assy. (4).

2. Run Bolt (2) threads into one end of Steerable Nose Wheel Pushrod (1). Do not tighten. Adjustment to be done at a later step.

3. Run Jam Nut (7) onto the end of Rod End Bearing Assy. (4) threads. Attach Bearing (4) to Steerable Nose Wheel Control Arm through the Inboard hole, left side, using hardware (5, 8) shown. Tighten to proper torque. Note; Bearing center should point towards Right Foot Pedal.

4. Align Pushrod (1) with Rod End Bearing on Right Pedal, then thread Pushrod (1) half way onto Bearing. Do not not tighten Jam Nut.

5. Run bolt (2) untill it bottoms out in pushrod (1) and then tighten.

6. Align Foot Pedals parallel with each other. Sighting over the top of the Steerable Nose Wheel Fork, the Cross Tube of the Fork should be parallel with the Foot Pedals.

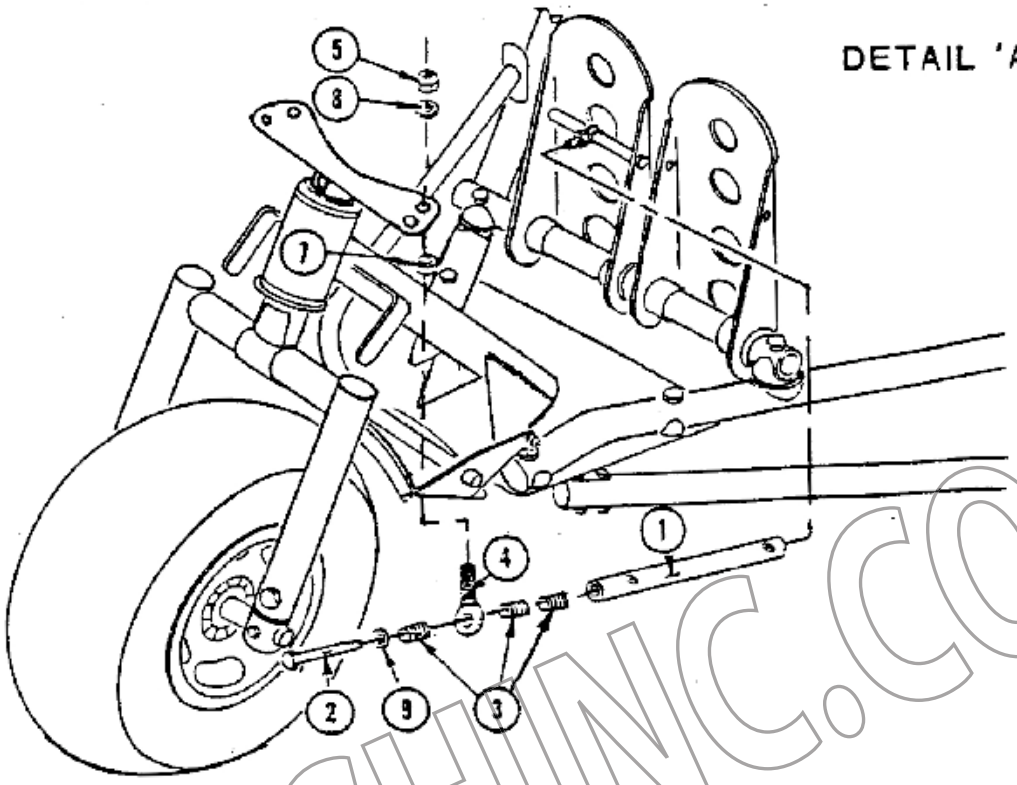
7. To adjust Parallelism between Fork and Pedals, thread Pushrod (1) in or out until satisfactory adjustment is achieved. Note; If your plane is equiped with Rudder Cables, the Cable tension is now adjusted and maintained by the Nose Wheel Pushrods.

8. Tighten Jam Nut on Rod End Bearing that is attached to the Foot Pedal. Detail 'B' - Illustration Right Foot Pedal.

Pt.	P.N.	Qty.	Description
1.	40351	2	Steerable Nose Wheel Pushrod Assy.
2.	10296	2	AN4-40a Bolt
3.	10806	6	Spring, 1-5/64" X .39
4.	10689	2	CM-6 Rod End Bearing Assy.
5.	10547	2	3/8" Locknut
6.	13132	2	3/8" Jam Nut
7.	10575	2	3/8" Flat Washer
8.	10560	2	1/4" Flat Washer

NOTE: ILLUSTRATIONS SHOWN WITH OPTIONAL NOSE WHEEL BRAKE PEDAL.

DETAIL 'A'



DETAIL 'B'

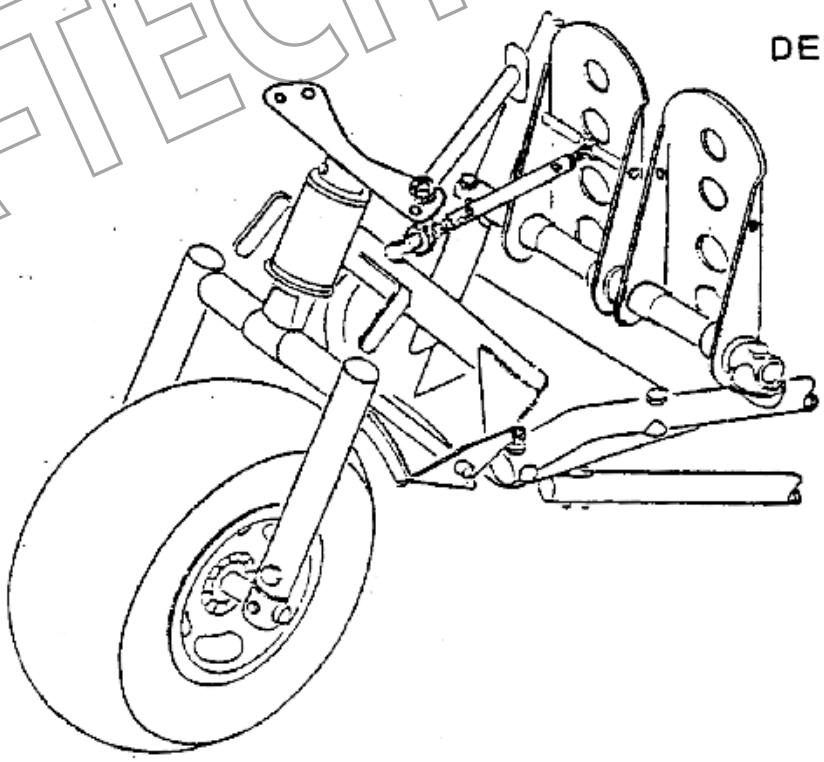


FIGURE 5 DOC# 872-02 A

PUSHROD ATTACHMENT, LEFT SIDE

1. Refer to Detail 'A'. Pass Bolt (2) through Washer (9), Springs (3), Rod End Bearing Assy. (4).

2. Run Bolt (2) threads into one end of Steerable Nose Wheel Pushrod (1), do not tighten. Adjustment to be done at a later step.

3. Run Jam Nut (7) onto the end of Rod End Bearing Assy. (4) threads. Attach Bearing (4) to Steerable Nose Wheel Control Arm through the Inboard hole, Right side, using hardware (5, 8) shown. Tighten to proper torque. Note: Bearing center should point towards the Left Foot Pedal and the Rod End Bearing Assy. must be installed from the top, see Detail 'B'.

4. Align Pushrod (1) with Rod End Bearing on Left Foot Pedal, then thread Pushrod (1) half way onto Bearing. Do not tighten Jam Nut.

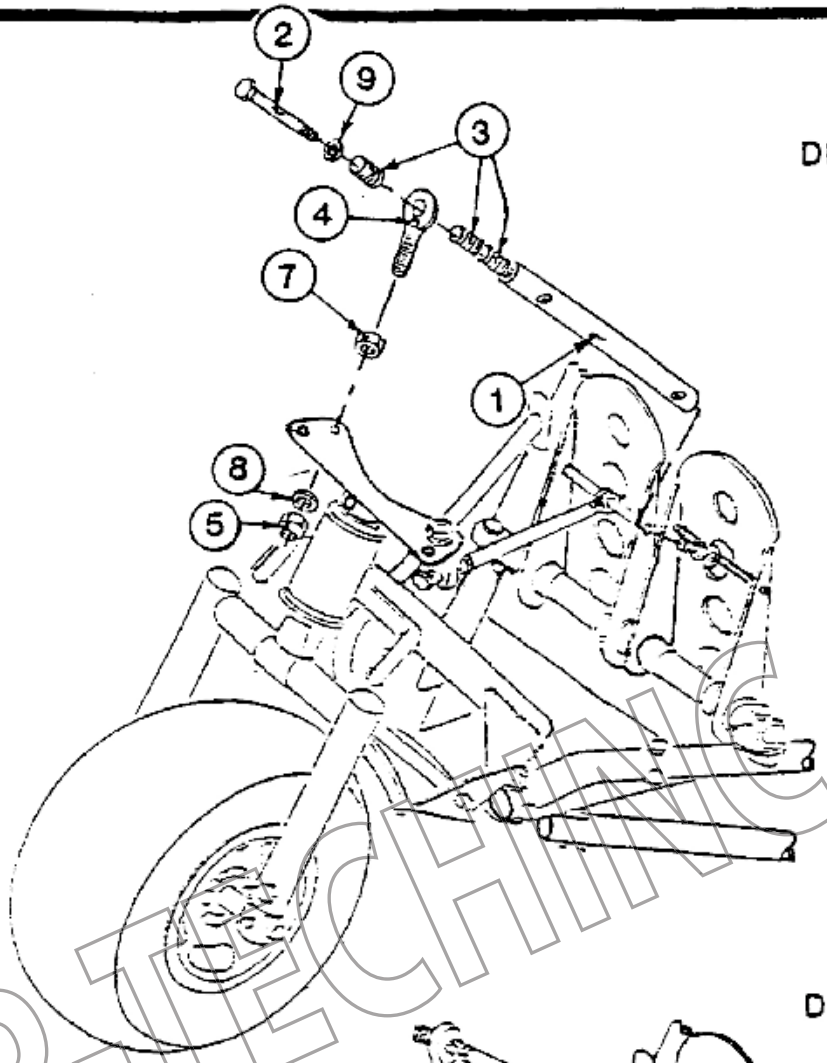
5. Run Bolt (2) until it bottoms out in Pushrod (1) and them tighten.

6. Align Foot Pedals parallel with each other. Sighting over the top of the Steerable Nose Wheel Fork, the Cross Tube of the Fork should be parallel with the Foot Pedals.

7. To adjust parallelism between Fork and Pedals, thread Pushrod (1) in or out until satisfactory adjustment is achieved. Note; If your plane is equiped with Rudder Cables, the Cable tension is now adjusted and maintained by the Steerable Nose Wheel Pushrods.

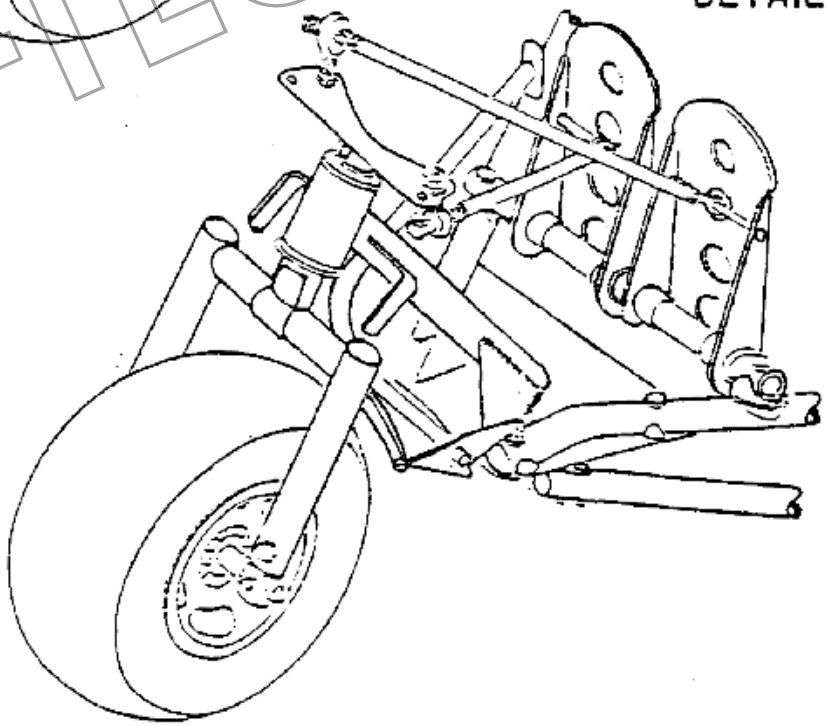
8. Tighten Jam Nut on Rod End Bearing that is attached to the Foot Pedal.

Detail 'B' - Illustration of completed Left Foot Pedal Assy.



DETAIL 'A'

DETAIL 'B'



NOTE: ILLUSTRATIONS SHOWN WITH OPTIONAL NOSE WHEEL BRAKE PEDAL.

STEERABLE NOSEWHEEL PARTS LIST

(SINGLE PLACE)

REF. (DOC# 875-02 A)

TOP NUMBER :91219
DESCRIPTION : KIT, STEERABLE NW, 1 PL
QUANTITY : 1

P/N	QTY	DESCRIPTION
10080	2	AN4-13A
10100	1	AN4-14A
10130	2	AN4-16
10140	2	AN4-16A
10296	2	AN4-40A
10298	2	AN4-41A
10500	1	NUT, 10-32, NYLOCK
10510	7	NUT,1/4 LOCKNUT,(AN365-428N)
10515	2	NUT, 1X4 THIN, LOCK (AN364-428A)
10547	2	NUT, 3/8-24,LOCK,(AN363-624)
10550	1	WASHER, 3/16"
10560	13	WASHER, 1/4 (AN960-416)
10575	2	WASHER, 3/8" (AN960-616)
10671	2	NUT, 1/4" NONLOCKING
10680	2	BEARING, ROD END, CM-4
10689	2	BEARING, ROD END, CM6 ASSY
10806	6	SPRING, 1.078 x .390 DIA
13132	2	NUT, 3/8-24 JAM
20270	4	SADDLE, 1 x 1/8
40341	4	SPACER, 3/8 X .058 X 1.55 LG.
40351	2	PUSHROD, STEERABLE NW ASSY
40424	1	SPACER, 1" X .049 BLUE X 1/4 LON
60560	1	FORK SUPPORT, STEERING NW ASSY.
60561	1	FORK, NOSEWHEEL, STRBL, ASSY
872-02	1	INSTR, ASSY, STEERABLE NW, 1PL
91012	1	CONTROL ARM, STEERABLE NW ASSY

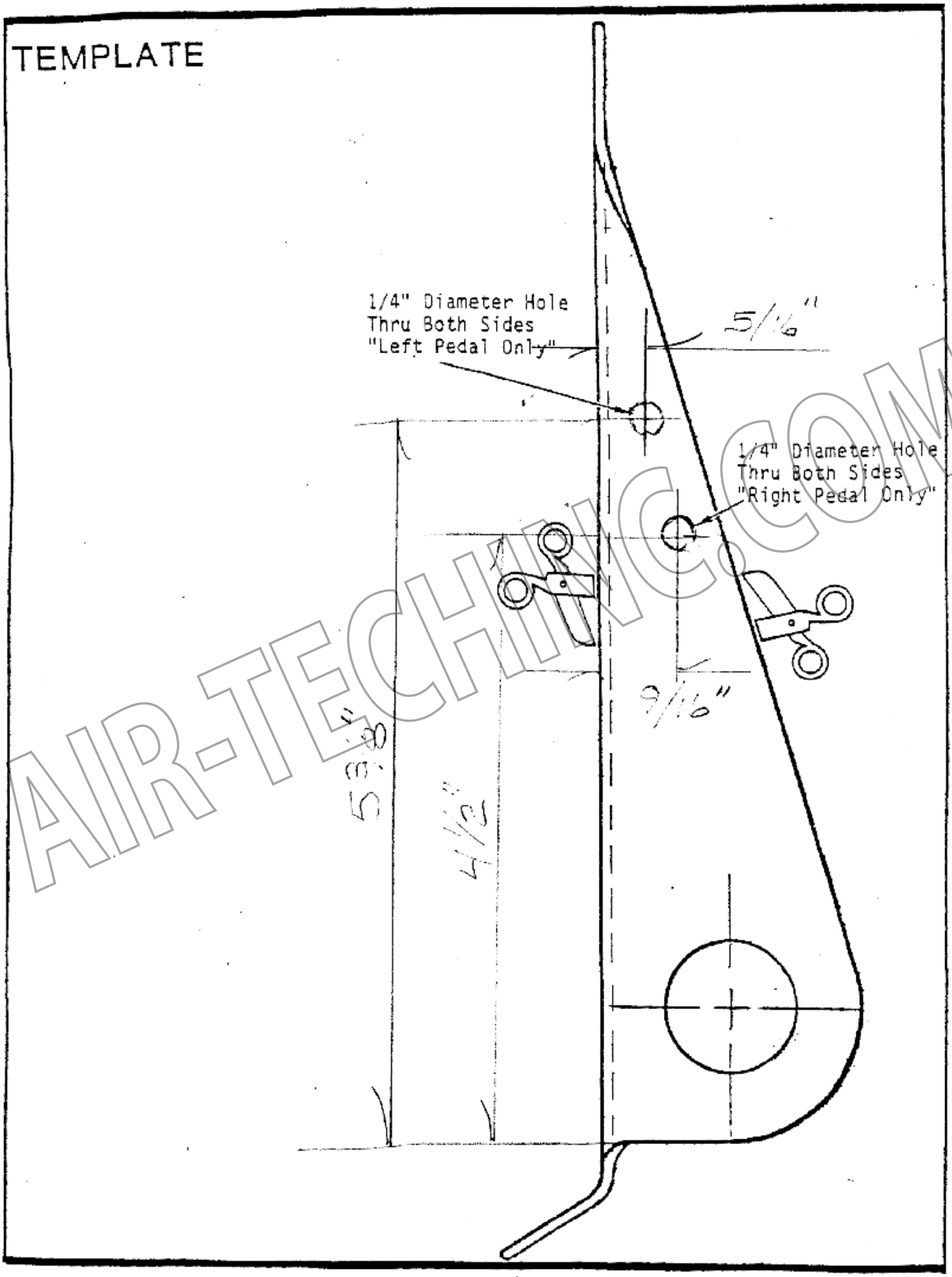


FIGURE 7 DOC# 872-02 A