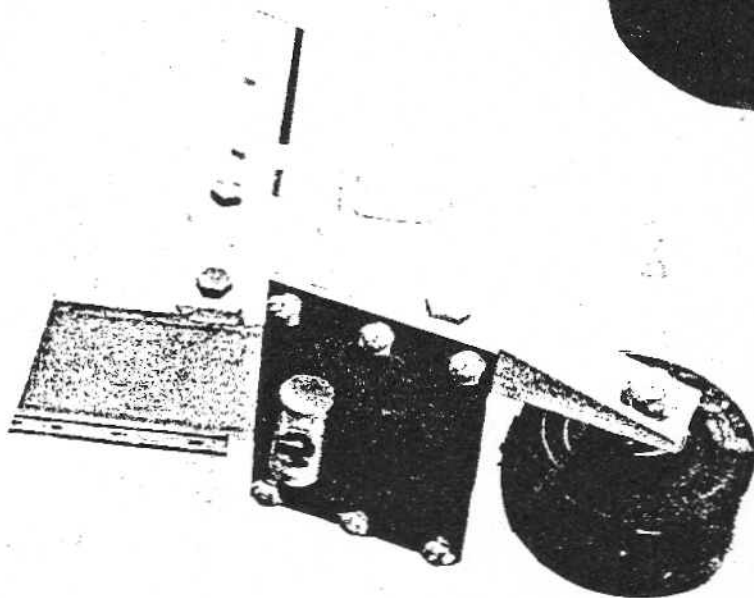
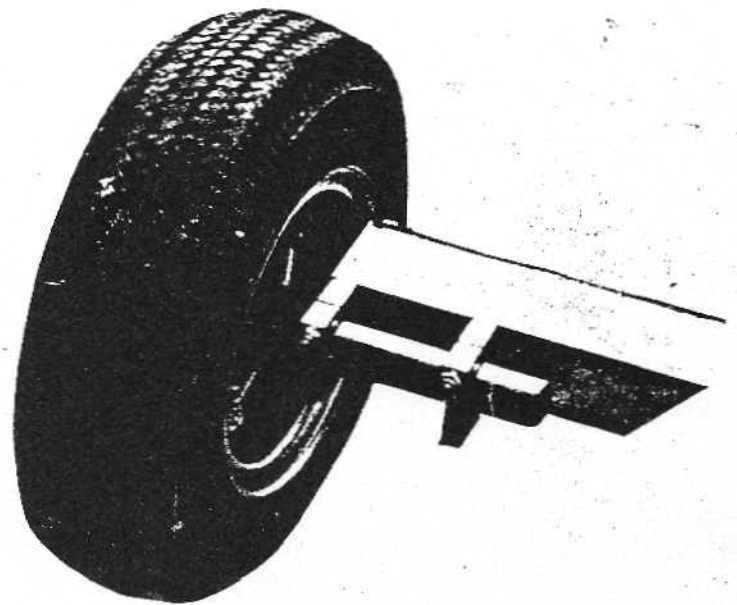
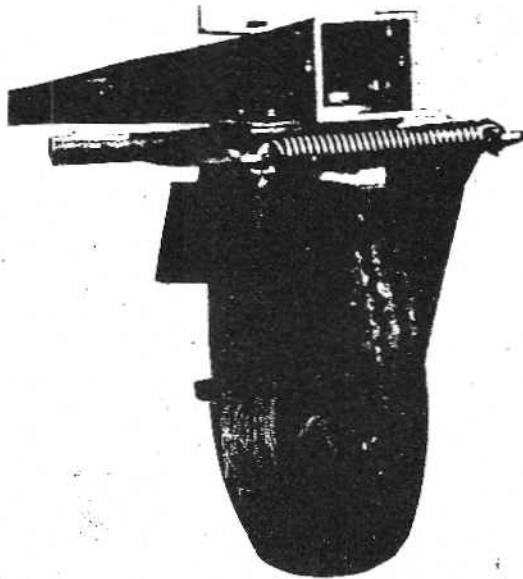




# 8-30 Landing Gear



- 8-30A WHEEL PACK
- 8-30B UNITIZED STEERING
- 8-30C SHOCK TAILWHEEL
- 8-30D WHEEL SPINDLE

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## TABLE OF CONTENTS

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### Page No.

1	Hardware Selection & Placement
1	Recommended Torque Values
2	Supplied Parts & Material
3	Supplied Parts & Material
4	Supplied Parts & Material

### CONSTRUCTION STEPS

5	Brake Assembly
6	Base Plate Assembly
7	Castor Fork Assembly
8	Castor Fork Assembly
9	-019 Nosewheel Installation
9	8-30C Assembly & Installation
10	Photograph: 8-30C & Fork Assembly
11	Main Wheel Spindle Assembly, 8-30D
12	Mounting Rudder Pedal and Nosewheel Brake Assembly
13	Drawing 30B-1 -- Installation at 6-1/4" Location
14	Rudder Pedal & Nosewheel Brake Mounting aft of 6-1/4"
15	-014, -015, -016 Position
16	Drawing 30B-2 -- aft of 6-1/4" Position & Placement
17	Installation & Adjustment, Rudder Pedal Linkage
18	Installation & Adjustment, Rudder Pedal Linkage
19	Drawing 30B-3 -- Pedal Travel/Rudder Deflection
20	Drawing 30B-4 -- Installation of Control Linkage

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# Construction and Assembly Manual

The 8-30 Landing Gear construction can be completed with common hand tools and a 1/4 Drill Motor. See the "B-80 Construction and Tooling Manual" for proper drilling procedure.

As written in the 8-41 Airframe Instruction Manual, for ease of assembly and accessibility, it is desirable to mount the entire 8-30 package on the Keel and Axle tube before the Airframe is assembled.

Nosewheel Brake Assembly nor Control Linkage can be finished or mounted until Gyro is completed and the "hang-test" performed. These tests will determine Rudder Pedal placement.

The Rudder Control Cables to the 8-61 Rudder must be installed and rigged correctly to the Rudder Pedals before the Nosewheel linkage is installed. (For rigging instructions, please note page number in index.)

The 8-30 Landing Gear Package consist of (4) separate assemblies. These are:

- 8-30A All Wheels and Spacers
- 8-30B Unitized Steering Assembly with Brake
- 8-30C Shock Mounted Tailwheel Assembly
- 8-30D Main Wheel Spindle Assembly

There is a separate Packing List for each of the above assemblies for part identification. All construction steps for each package will be so noted in the procedural steps as they are assembled to the frame.

Complete one step at a time. All required drawings or photographs will follow procedural step.

All hole sizes to be drilled are 3/16 and 1/4 inch diameter. All larger holes are factory-drilled for you. The holes to be drilled will be noted on drawings as "A"--1/4" diameter, and "B"--3/16" diameter.

## HARDWARE SELECTION AND PLACEMENT

All hardware is identified on the Packing List by a PART NUMBER, with sizes. All hardware placement is identified on the drawings by this PART NUMBER. A flat washer is installed under ALL attaching nuts, unless instructed otherwise in the steps. All Castellated Nuts are safetied with a Cotter Pin.

## RECOMMENDED TORQUE VALUES

	<u>BOLTS IN SHEAR</u>	<u>BOLTS IN TENSION</u>
3/16 Dia. Bolts -----	12-15 inch lbs.	25 inch lbs.
1/4 Dia. Bolts -----	30-40 inch lbs.	60 inch lbs.
5/16 Dia. Bolts -----	(1) bolt used--torque for free pivot	
3/8 Dia. Bolts -----	80-100 inch lbs.	

USE THESE VALUES CONSISTENTLY UNLESS INSTRUCTED OTHERWISE IN THE PROCEDURE!

# 8-30 LANDING GEAR

## SUPPLIED PARTS & MATERIAL LIST

Models B-80A & B-80

Drawings & Instructions Attached

The 8-30 Landing Gear package consist of four assemblies. They are: 8-30A -- Wheels and Spacers; 8-30B -- Unitized Steering Assembly; 8-30C -- Shock Mounted Tailwheel Assembly; and 8-30D -- Main Wheel Spindle Assembly.

A detailed Parts and Material List follows for each package. Construction and Installation of each assembly will be described in the Construction Manual at the most accessible point during assembly.

### 8-30A Wheel Pack

Part No.	Qty.	Description and Use
8-30A-018	2	12" Main Wheels with 1" bearings
-019	1	8" Nose Wheel with 3/4" bearings
-020	1	3" Tail Wheel Castor
-021	1	Nosewheel Spanner, 3/8 I.D. x 3-7/8 long.
-022	1	Tailwheel Spanner, 3/8 I.D. x 1-5/8 long
-023	2	Nosewheel Spacers, 3/4 I.D. x 5/8 long

### 8-30B Unitized Steering

8-30B-001	1	1/8 x 4 x 6-1/4 Alum. Plate, Drilled & Notched	Base Plate
-002	2	1/8 x 1 x 3-7/8 Alum. Angle, Notched	Base Plate Angle
-003	1	1/16 x 1-1/2 x 4-7/16 DU Brg. Strip, Drilled	Front Brg. Strip
-004	1	1/16 x 1 x 4-7/16 DU Brg. Strip, Drilled	Rear Brg. Strip
-005	1	3/16 x 4 Formed & Finished Alum.	Castor Fork
-006	2	1/8 x 1-1/2 x 3-7/16 Drilled Alum. Plate	Override Ears
-007	2	L & R 1/8 x 1 x 3-1/8 Notched Alum. Angle	-006 to -005
-009	1	.063 Formed Bracket	-010 to -011
-010	2	L & R 1/8 x 3/4 x 4-7/8 Sheared Angle	-011, -009 to -012
-011	1	.065 x 3/4 x 8 Alum. Tube	Brake-Heel Tube
-012	1	5/8 x 3-1/2 x 5-1/2 Wood Plate	Brake Plate
-013	1	1/2 x 1 x 2-3/4 Drilled Alum. Rect.	Pivot Block
-014	1	1/16 x 3/4 x 3/4 x 4 Alum. Angle	41-021B Support
-015	1	1/8 x 3 x 5 Alum. Plate	Pedal Mount
-016	1	1/8 x 3/4 x 3/4 x 2-3/4 Alum. Angle	-014 to Keel

8-30B-H1 Hardware Refer to Assembly Drawings & Instructions for placement

### Base Plate & Castor Fork

4-6A	2	1/4-28 x 5/16 Grip Bolt
509-10R-12	4	10-32 x 1/4 Flat Head Screw
4-31A	2	1/4-28 x 2-11/16 Grip Bolt
3-5A	4	10-32 x 1/4 Grip Bolt
23-10	2	10-32 x 5/16 Clevis Bolt
8-12	1	1/2-20 x 9/16 Grip Bolt
6-47	1	3/8-24 x 4-5/16 Grip Bolt
222-04	2	3/16 x 1/2 x 1-5/8 Flat Washer
30B-008	1	1/16 x 1-5/8 x 1-5/8 DU Brg. Washer
125-0750	1	1/8 x 3/4 Roll Pin

Part No.	Qty.	Description and Use
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### 8-30B-H1 Continued

960-416	4	1/4 x 1/2 Flat Washer
364-428	4	1/4-28 Lock Nut
960-10L	2	3/16 x 7/16 THIN Flat Washer
960-10	10	3/16 x 7/16 Flat Washer
310-3	2	10-32 Castellated Nut
380-2-2	2	1/16 x 1/2 Cotter Pin
960-616	2	3/8 x 5/8 Flat Washer
310-6	1	3/8-24 Castellated Nut
380-3-3	1	3/32 x 3/4 Cotter Pin
320-8	1	1/2-20 Castellated Nut
12-4S	1	3/4 x 4 Extension Spring
364-1032	8	10-32 Lock Nut

### Br Assembly

8-31		
520-10-16	4	10-32 x 1 Machine Screws
4-31A 4-34 A	1	1/4-28 x 2-11/16 Grip Bolt
3-11A	2	10-32 x 3/4 Grip Bolt
3-4A	4	10-32 x 1/8 Grip Bolt
960-10	10	3/16 x 7/16 Flat Washer
364-1032	10	10-32 Lock Nut
960-416	1	1/4 x 1/2 Flat Washer
364-428	1	1/4-28 Lock Nut

### Installation Hardware for other than full forward position of Rudder Pedals (8-30B-H2A)

3-5A	2	10-32 x 1/4 Grip Bolt
3-24A	2	10-32 x 2-1/8 Grip Bolt
960-10	4	3/16 x 7/16 Flat Washer
364-1032	4	10-32 Lock Nut

### In of Assemblies

### 8-30B-H3

4-31A	1	1/4-28 x 2-11/16 Grip Bolt
3-5A	2	10-32 x 1/4 Grip Bolt
23-10	2	10-32 x 5/16 Clevis Bolt
BA-35	20"	Master Chain
30B-017	2	.090 x 1/2 x 1-5/8 Steel Strip
E-24C	2	5/16 x 1-3/4 Extension Spring
E-39C	2	3/8 x 2-1/4 Extension Spring
30B-018	2	3/4 I.D. x 3-3/8 Flexon Grips
960-416	1	1/4 x 1/2 Flat Washers
364-428	1	1/4-28 Lock Nut
960-10	6	3/16 x 7/16 Flat Washer
364-1032	4	10-32 Lock Nut
310-3	2	10-32 Castellated Nut
960-10L	2	3/16 x 7/16 Flat Washer
380-2-2	2	1/16 x 1/2 Cotter Pin
520-10-8	2	10-32 x 1/2 Machine Screw



### 8-30C Shock Mounted Tailwheel Assembly

<u>Part No.</u>	<u>Qty.</u>	<u>Description and Use</u>	
8-30C-001	2	L & R 1/8 x 3/4 x 1-1/2 x 4-13/16 Alum. Angles	Fork Angles
-002	1	1/8 x 2-11/16 x 3-5/8 Alum. Plate	Fork Gusset
-003	1	5/8 dia. x 1-1/4 Alum. Rod	Pivot
-004	1	1 x 1 x 1-1/2 Neoprene Rubber Block, Drilled	Shock Pad
-005	1	3/16 x 1-1/2 x 1-5/8 Alum. Plate	Shock Pad Cover

#### 8-30C-HL Hardware Refer to Step 17 - 22 Drawing for Hardware Placement

3-4A	6	10-32 x 1/8 Grip Bolt
5-27	1	5/16-24 x 2-7/16 Grip Bolt
6-27	1	3/8-24 x 2-5/16 Grip Bolt
4-24A	1	1/4-28 x 2-1/16 Grip Bolt
W-18	2	5/16 x 1/2 Nylon (Black) Washer
210-6	1	3/8-24 Castellated Nut
-5	1	5/16-24 Castellated Nut
428	1	1/4-28 Lock Nut
-1032	6	10-32 Lock Nut
380-2-3	1	1/16 x 3/4 Cotter Pin
960-416	1	1/4 x 1/2 Flat Washer
950-516	1	5/16 x 9/16 Flat Washer
960-816L	2	1/2 x 7/8 THIN Flat Washer
960-10	6	3/16 x 7/16 Flat Washer
960-616	9	3/8 x 5/8 Flat Washer
380-3-3	1	3/32 x 3/4 Cotter Pin

### 8-30D Main Wheel Spindle Assembly

8-30D-018A	2	.065 x 1 x 9 Steel Tube	Spindle Tube
-018B	4	1/2 x 1-1/2 x 2 Drilled Alum. Blocks	Clamps
-018C	4	3/4 x 1-3/4 x 3/4 Phenolic Sleeves	Axle Collar

#### 8-30D-HL Hardware Refer to Step 23 - 28 Drawings for Hardware Placement

7A	8	1/4-28 x 3-7/16 Grip Bolt
21A	2	10-32 x 1-3/4 Grip Bolt
960-10	2	3/16 x 7/16 Flat Washer
364-1032	2	10-32 Lock Nut
960-416	8	1/4 x 1/2 Flat Washer
364-428	8	1/4-28 Lock Nut

## CONSTRUCTION STEPS

The following procedural steps have been developed for the easiest construction of the 8-30 Landing Gear. We suggest that you complete one step at a time, following the numerical sequence of steps. Be SURE TO READ this entire Manual before beginning your construction.

### BRAKE ASSEMBLY, 8-30B

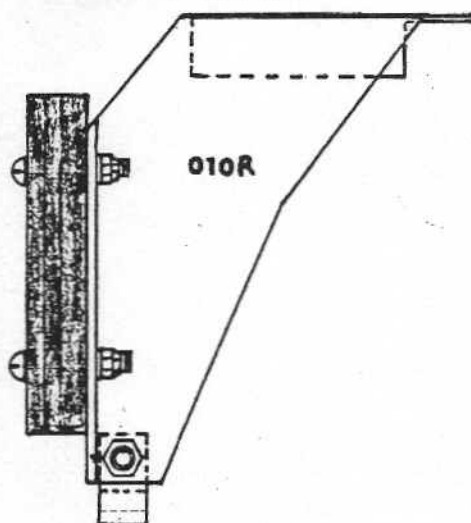
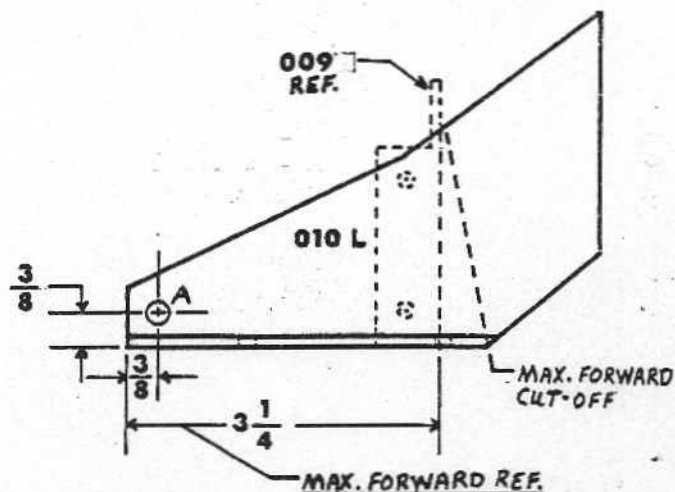
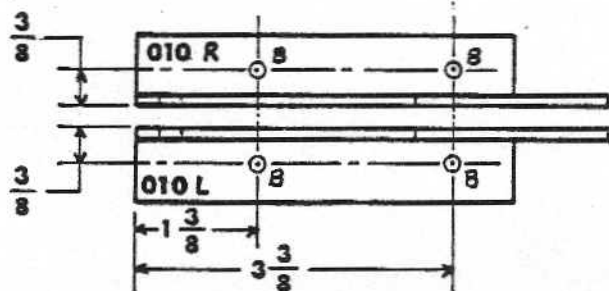
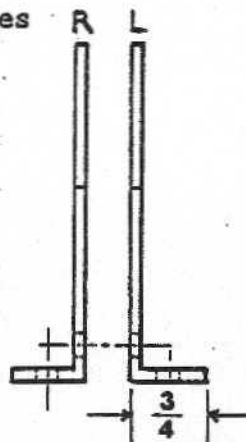
#### 1. -010 Left & Right Angles:

Lay out (1)  $1/4$ " hole and (2)  $3/16$ " holes in -010 Left angle. Lay out (2)  $3/16$ " holes on base of -010 Right Angle. Stack angles back-to-back and drill (1) "A" hole through both angles. Drill (4) "B" holes in  $3/4$  base web of each angle.

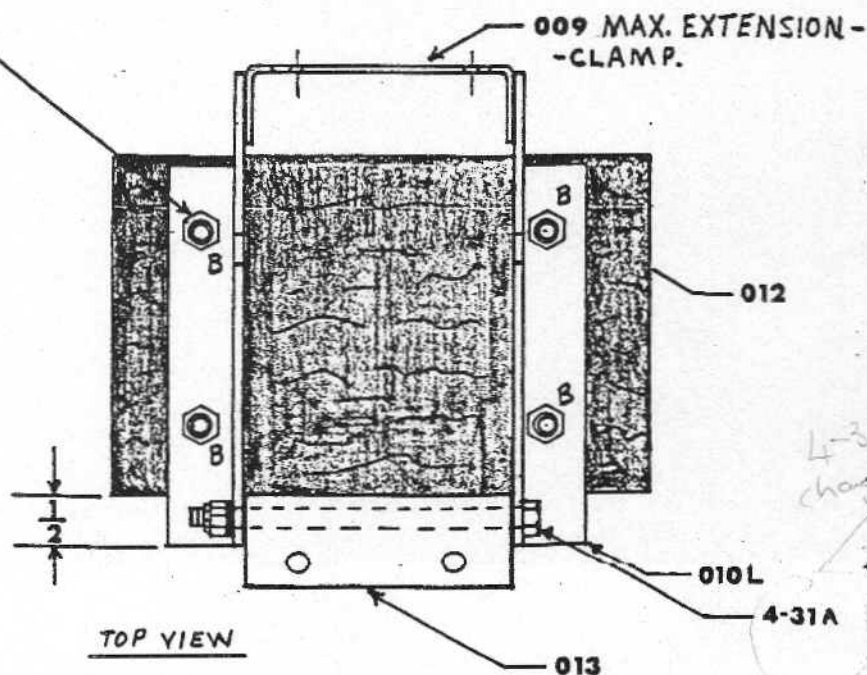
#### 2. Temporarily attach -010L and -010R angles to -013 Pivot Block with 4-31A bolt. Insert formed -009 Bracket between angles in the maximum extended location and clamp.

Locate assembly on -012 Brake Shoe,  $1/2$ " from Pivot end and centered on the  $5-1/2$ " dimension, and clamp in position.

Drill (4) "B" holes through Brake Shoe, and attach Shoe to angles with (4) 520-10-16 Machine Screws.



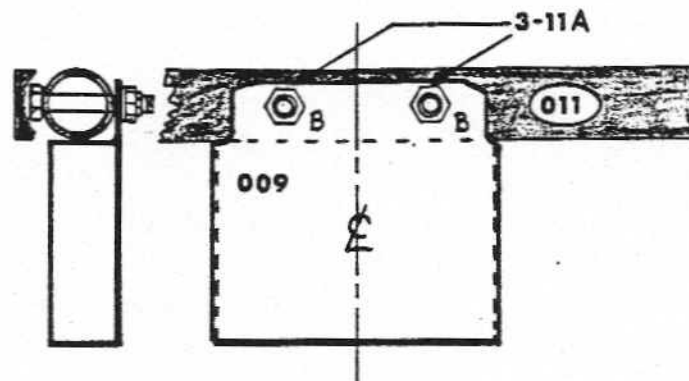
RIGHT SIDE VIEW



TOP VIEW

4-31A  
change Bolt

3. Center -011 Brake Pedal Tube on -009 Bracket. Through drill (2) "B" holes and attach with 3-11A bolts. Remove Brake Assembly from -013 Pivot. Assembly will be completed later in instructions.



#### BASE PLATE ASSEMBLY, 8-30B

4. Locate -001 Base Plate, with its countersunk holes away from Keel tube, by a  $1/2$ " bolt through the pre-drilled hole in Side 3 of Keel tube, located at the  $1-1/2$ " dimension. Center and parallel Plate with Keel and clamp. Transfer punch through (2)  $1/4$ " Keel holes to plate at the  $6-1/4$ " dimension. Remove and drill (2) "A" holes.

$1/2$ " LOCATING HOLE, KEEL  
BOTTOM -- SIDE 3

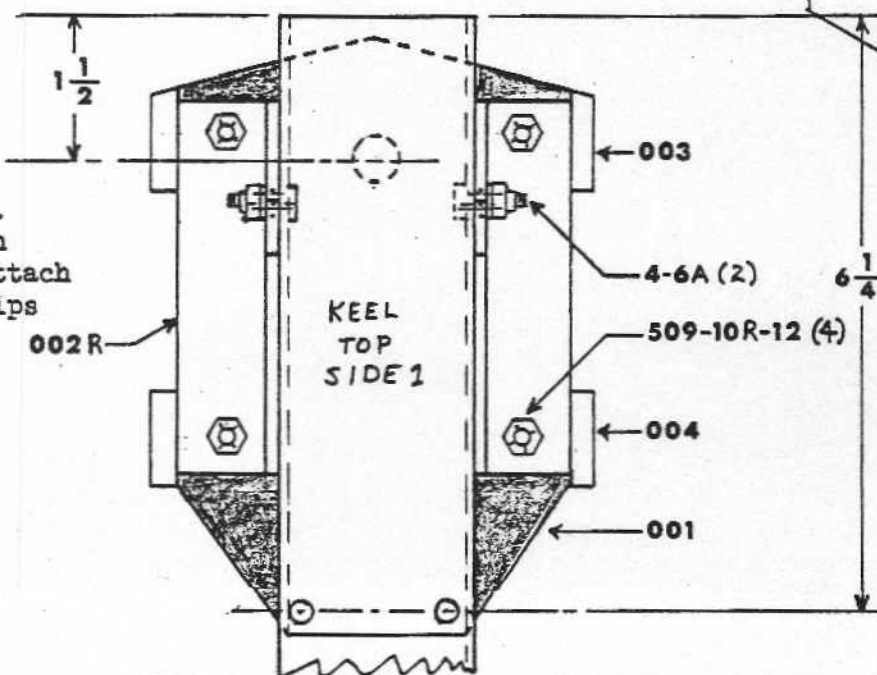
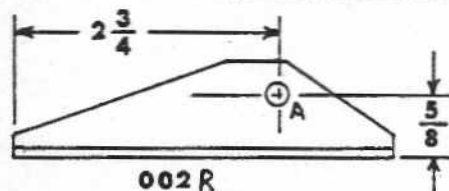
5. Attach -001 Base Plate and -013 Pivot Block to Keel tube with 4-31A bolts. Check to assure the  $1/2$ " bolt is centered.

TRANSFER  
TO KEEL

6. -002 Left & Right Angles  
Locate "A" hole on one angle. Stack angles back-to-back and through drill hole.

CENTER OVER  
-001 HOLES  
AND DRILL

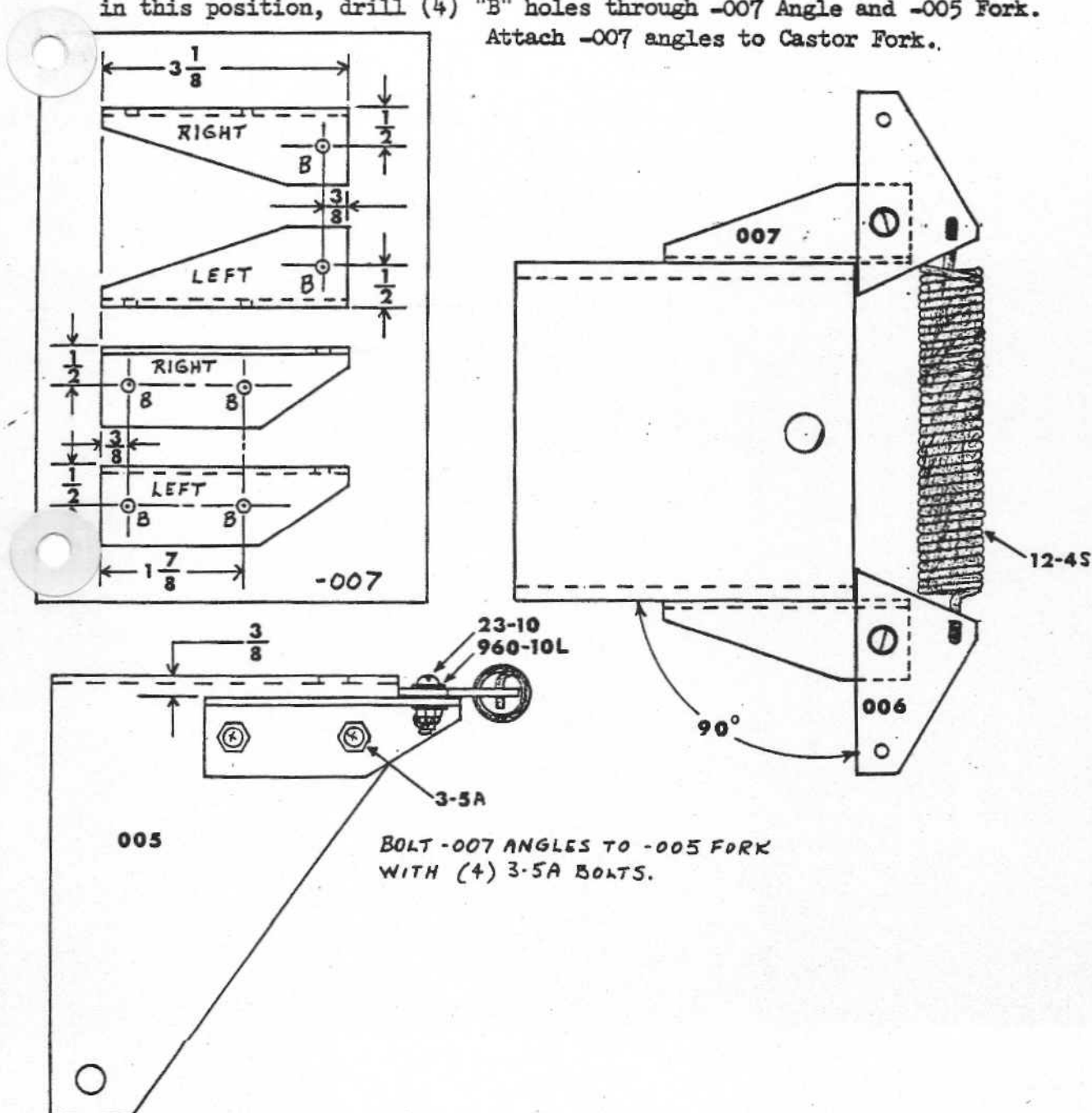
7. Locate -002 L & R angles on -001 Plate, centering the  $3/16$ " holes in Plate. Clamp angles to sides of Keel in this position. Drill (4) "B" attaching holes through angles from Plate, and (2)  $1/4$ " "A" holes in side of Keel. Attach angles to Keel with bolt heads inside Keel. Attach -003 and -004 Bearing Strips to bottom of Base Plate, with the black side out.





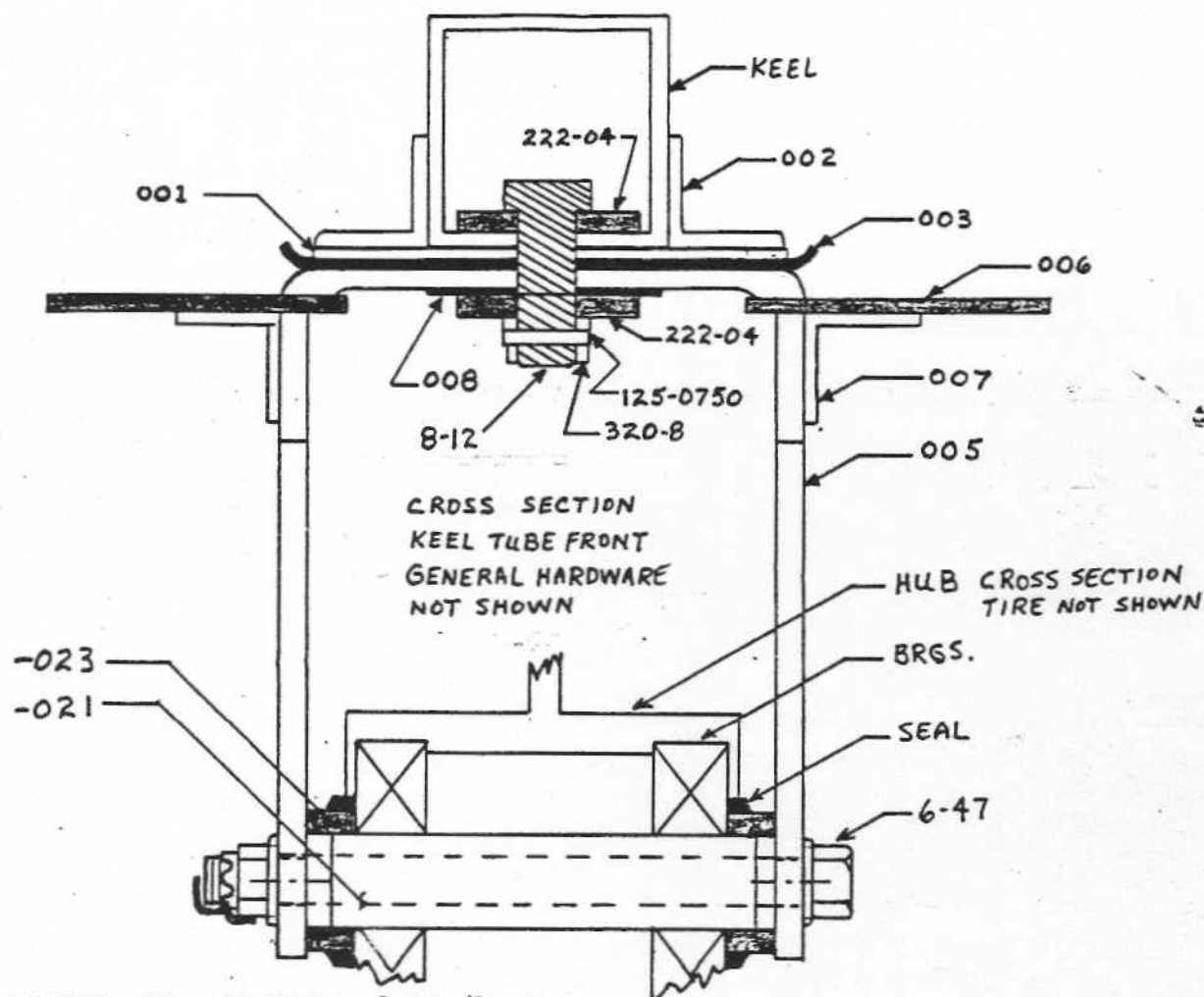
Attach -002 Base Angles to Plate with 509-10R-12 Flat Head Screws. Screw head should be below flush with black-bottom surface of -003 and -004 Bearing Strips.

8. Roll ends of -003 and -004 Strips up, with a block and hammer as shown in Main Assembly Drawing. This allows a "ramp" approach for the Castor Fork.
9. Locate and drill (3) "B" holes in each -007 L & R Override Angles.
10. Attach -006 Override Ears to -007 angles.
11. Locate -007 angles on -005 Castor Fork. (NOTE:  $\frac{3}{8}$ " dimension from top face of fork and parallel location of -006 Override Ears.) Clamp angles in this position, drill (4) "B" holes through -007 Angle and -005 Fork. Attach -007 angles to Castor Fork.



12. Attach Fork Assembly to Base Plate and Keel. Make sure BLACK side of -008 Bearing Washer is against Fork. Tighten nut to allow a free pivot, and align slot in nut with Key hole in bolt. (222-04 Thick Washers MUST be under bolt head and 320-8 Nut.)  
Drill through nut slot and key hole with a 1/8" drill. Install the 125-0750 Roll Pin to assure a positive nut lock.
13. Remove one Override Ear from -007 angle. Install 12-4-8 Spring on Override ears. Re-attach ear to angle. Re-adjust both castellated nuts on pivot bolts for a free pivot motion. Install a cotter pin in both bolts. (Ear is removed to aid in attaching the tight spring.)

NOTE: The "black" coated side of the -003 and -004 Bearing Strips, and the -008 Bearing Washer have a low friction material containing a Homogeneous mixture of teflon and bronze. They do not require lubrication.



#### INSTALLING THE -019 NOSEWHEEL, 8-30A/8-30B

14. Inflate nosewheel to 7 psi. Tighten hub and rim bolts.
15. Lubricate bearings with a good grade of wheel bearing grease.

16. Insert -021 Spanner through bearing of Nosewheel. Slip on -023 Spacers, working them under lip of seal. Attach Wheel to Form assembly with 6-47 bolt. Tighten nut to seat tapered cone bearings. Back-off nut to allow FREE turning of wheel. (Note: Seal drag will be quite heavy until seated in by use. COTTER PIN THE NUT. (See Step 13 Assembly Drawing)

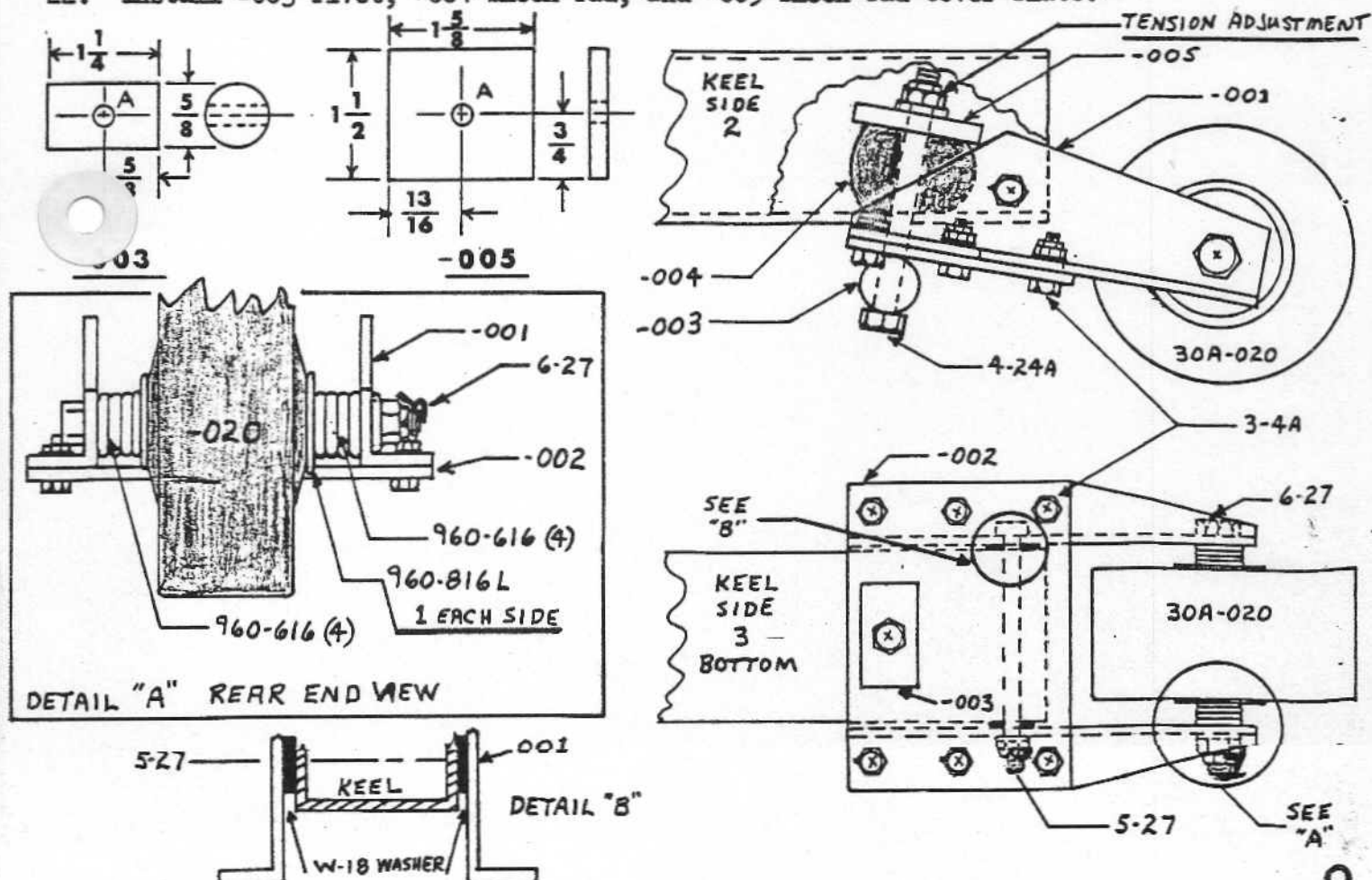
Installation and rigging of the nosewheel linkage to rudder assembly cannot be completed until the Gyro is completed and "hang-test" performed. These instructions can be found in the back of this Manual.

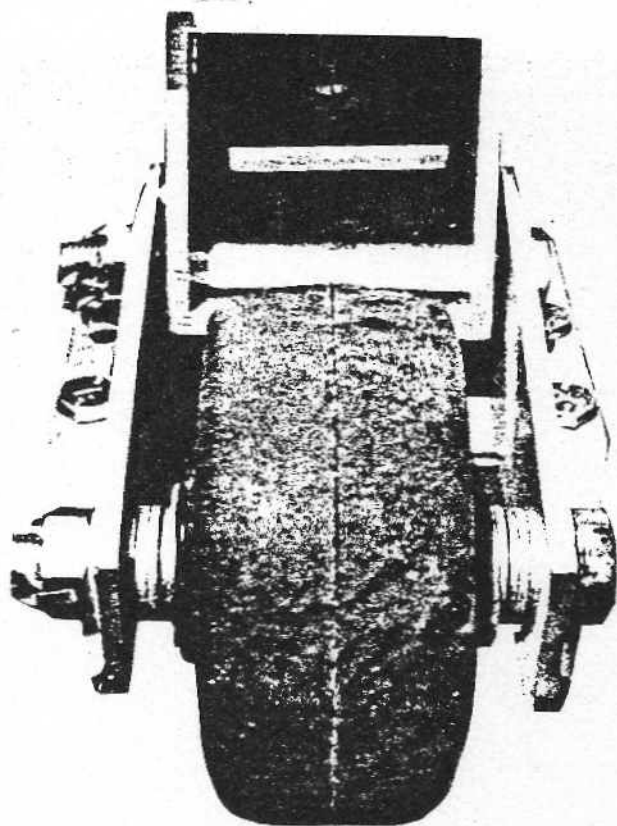
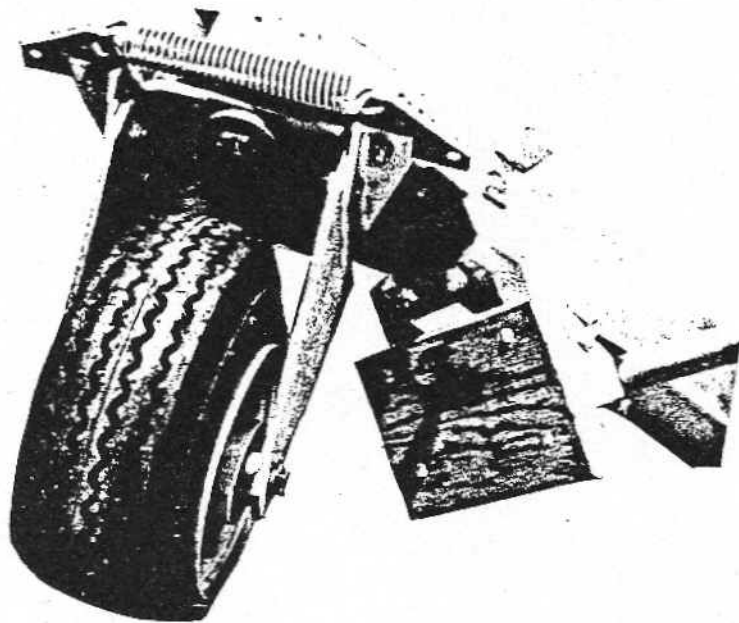
#### INSTALLING THE SHOCK TAILWHEEL ASSEMBLY, 8-30C

17. Locate and drill (1) "A" hole in the -003 Pivot.
18. Locate and drill (1) "A" hole in the -005 Shock Pad Cover.

Attach -020 Tailwheel to -001 Fork Angles. (Note: See drawing for proper use of spacer washers. Lubricate bearing with a good grade of wheel bearing grease prior to assembly.

20. Attach Fork Angles to Keel, Use W-18 Nylon Washer Spacers between angles and Keel tube. Adjust 310-5 Castellated nut for FREE PIVOT and install Cotter Pin.
21. Align -002 Fork Gusset with front and side edges of -001 Fork Angles. Clamp in this position, drill (6) "B" holes through Fork Angles and attach with 3-4A bolts.
22. Install -003 Pivot, -004 Shock Pad, and -005 Shock Pad Cover Plate.



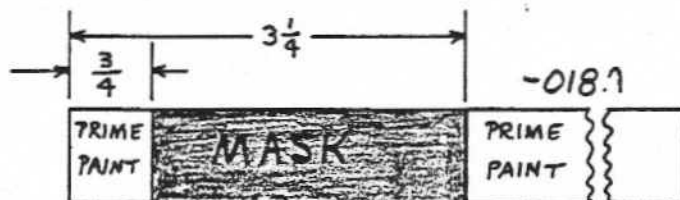


To adjust pre-tension load on Shock Pad, loosen or tighten the drawing noted pre-tension adjustment nut. Proper adjustment should meet the following condition.

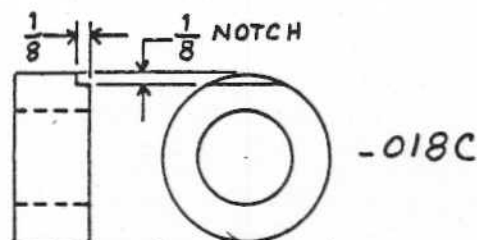
- a. Approximately a 30 lb. load applied to Keel tube directly over Tail Wheel should unseat the Fork assembly from Keel.
- b. Approximately a 100 lb. load applied to Keel tube directly over Tail Wheel should separate the front of Fork assembly from Keel tube  $1/8"$ .
- c. Re-adjustment of the pre-tension load may be required with use.

#### MAIN WHEEL SPINDLE ASSEMBLY, 8-30D

Mask off bearing-running section of -018A Spindle Tube. Prime and paint both the inside and outside of tube.

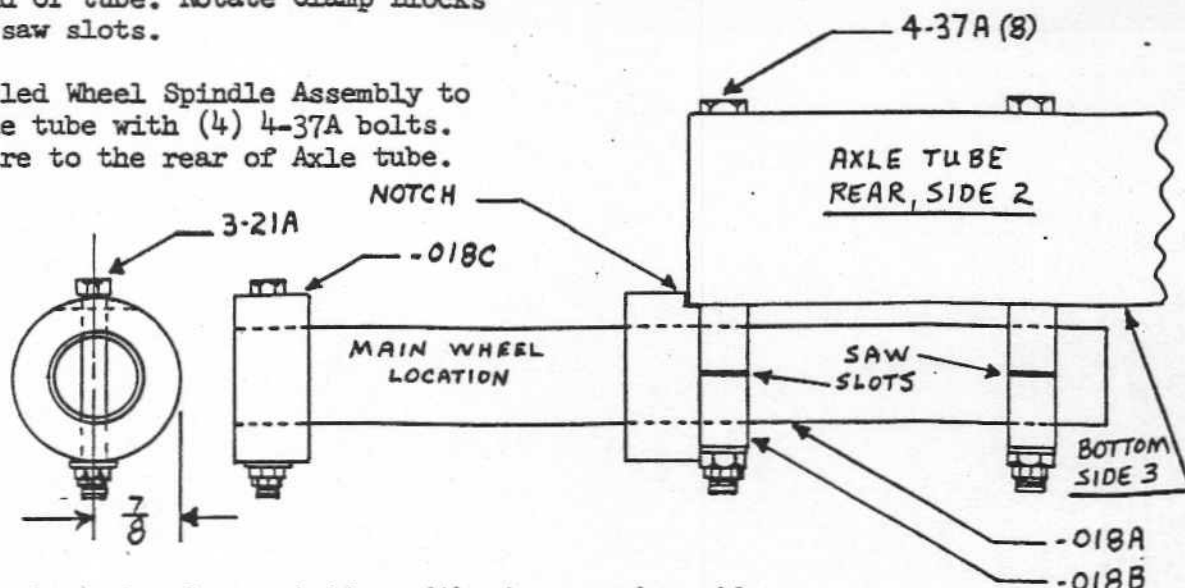


24. Notch (2) -018C Phenolic Sleeves to clear end of Axle tube.
25. Press (1) un-notched -018C Sleeve on the  $3/4$  painted end of each -018A tube, flush with end. Drill a "B" centered hole through the assembly and secure with 3-21A bolt.



26. Insert a -018A tube assembly through each 12" Main Wheel with the installed Phenolic Sleeve on the lubrication fitting side of wheel. Slide or press the notched Sleeve on tube until it seats on wheel hub with a running clearance. Slip on (2) -018B Clamp Blocks. One, flush against -018C notched Sleeve and the other near end of tube. Rotate Clamp Blocks to align the saw slots.

Attach assembled Wheel Spindle Assembly to side 3 of Axle tube with (4) 4-37A bolts. Sawed slots are to the rear of Axle tube.



28. Grease wheel, check for free rotation without excessive side clearance, and torque 4-37A bolts.

If you have not assembled your airframe as instructed with the 8-41 package, please do so now.



ESTABLISHING POSITION OF, AND MOUNTING RUDDER PEDAL AND NOSEWHEEL BRAKE ASSEMBLY.

In order to complete the following steps, your B-80A Glider-Trainer or B-80 Gyrocopter must have the 8-20A Control Head, 8-52-J2 Control System, 8-53 Control Linkage, and 8-61 Rudder System installed

COMPLETE the "MANDATORY HANG-TEST" and "MANDATORY NOSEWHEEL CONTACT LOADING", as described in the "B-80 Construction and Tooling Manual". These tests will DETERMINE THE RUDDER PEDAL ASSEMBLY LOCATION on the Keel tube for you.

IF THE "DETERMINED-BY-TEST" RUDDER PEDAL LOCATION IS THE MAXIMUM FORWARD POSITION OF 6-1/4" FROM THE FRONT END OF KEEL TUBE, THE -021A ANGLE, MOUNTED ON THE -021B RUDDER PEDAL TUBE ASSEMBLY IS ATTACHED TO THE KEEL AS FOLLOWS:

Drawing No. 30B-1

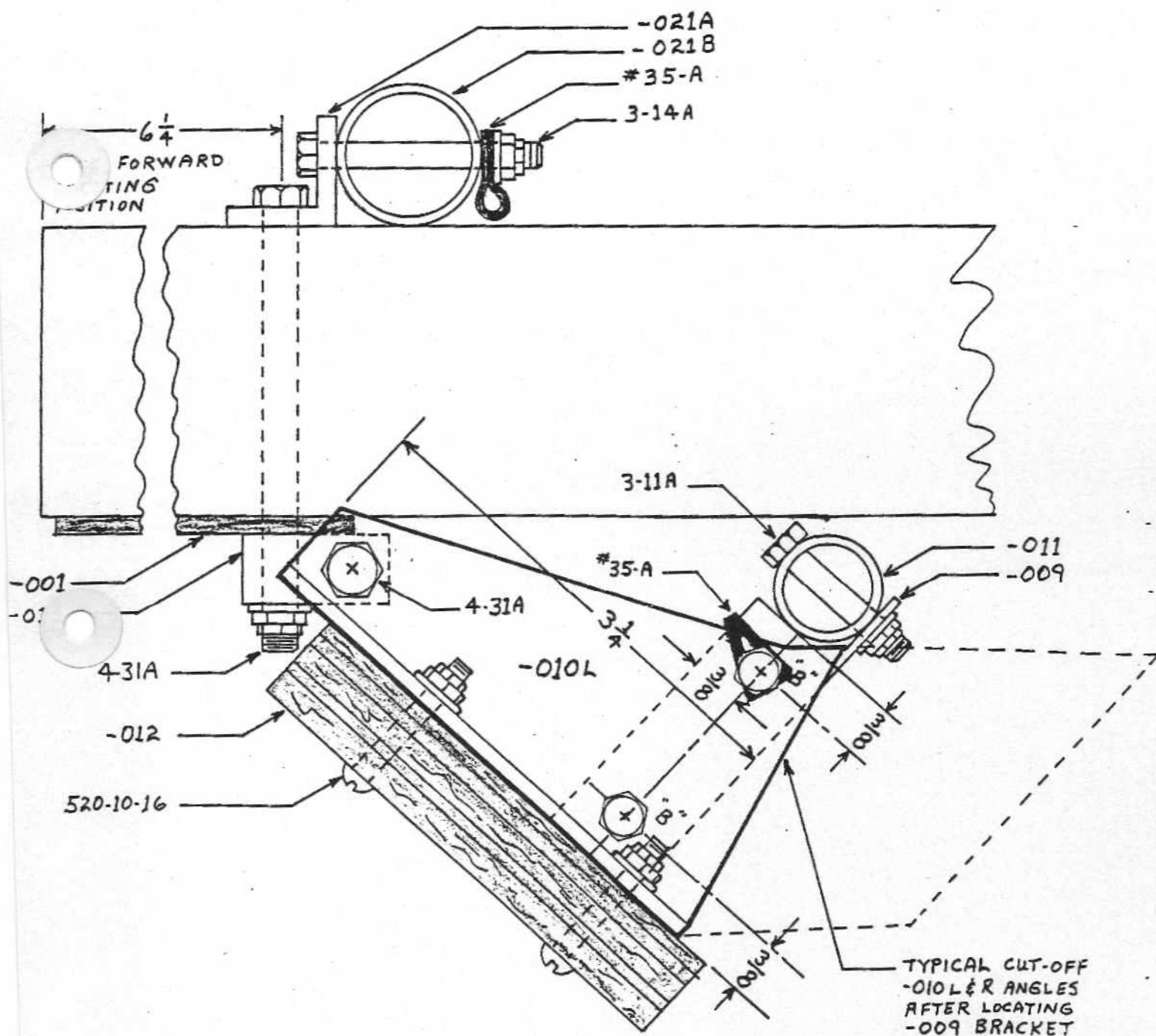
- Step 1 --- If the "determined-by-test" Rudder Pedal location is the MAXIMUM forward position of 6-1/4" from the front end of Keel tube, the -021A angle, mounted on the -021B Rudder Pedal tube assembly is attached to the Keel as follows:
- Remove the (2) 4-31A bolts retaining -001 Base Plate to Keel tube at the 6-1/4" location. With -021A angle mounted on Rudder Pedal assembly, install on top of Keel with (1) 4-31A bolt. Square the Pedal assembly with Keel, clamp and transfer punch through Keel the remaining "A" hole location to -021A angle. Remove, drill the "A" hole and permanently install on Keel with 4-31A bolt.
  - Remove (2) #35-A chain links from master chain. Install link under nut of each 3-14A bolt retaining -021B to -021A as shown. (Note: Link may require opening with a drift pin to slip over bolt threads.)
  - Locate the 30B-009 Bracket and -011 Brake Pedal tube assembly on the -010 Left and Right Brake Shoe assembly angles at the 3-1/4" position. Locate (4) "B" attaching holes and drill.
  - Cut-off excess of -010 L & R angles. Mount -010 angles to -009 Bracket with (4) 3-4A bolts. Mount a #35-A chain link on the top (2) bolts under bolt head as shown in 30B-1 drawing. Lubricate ends and hole of -013 Pivot block. Mount completed Brake Assembly on -013 Pivot with 4-31A bolt. Torque Nut for a FREE PIVOT movement.

CONTINUE NOW WITH "INSTALLATION AND ADJUSTMENT OF CONTROL LINKAGE. Step 2, a. through i, and drawing 30B-2 are not used if Step 1 location of Pedal Assembly is required for you.

RUDDER PEDAL AND NOSEWHEEL BRAKE ASSEMBLY POSITION  
WHEN USING THE MAXIMUM FORWARD POSITION OF 6-1/4",  
from front of Keel tube.

30B-1

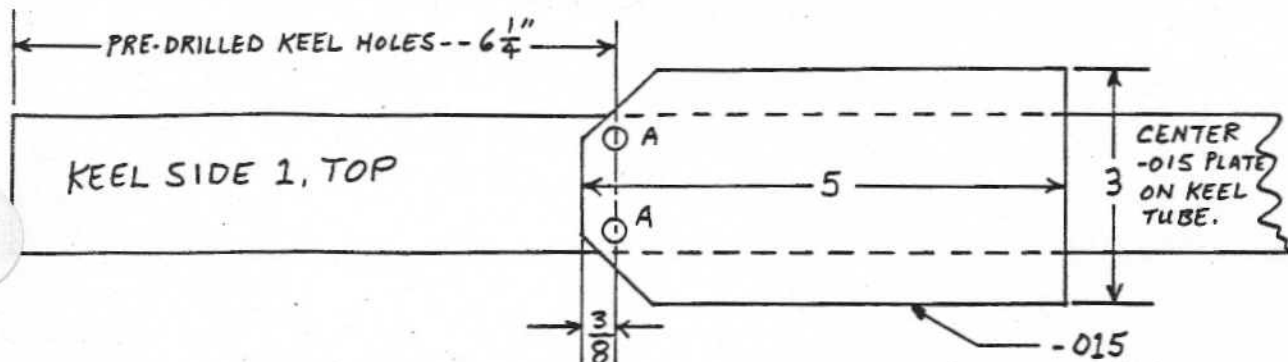
The -014, and -016 angles, nor the -015 Plate are  
used with the maximum forward position.



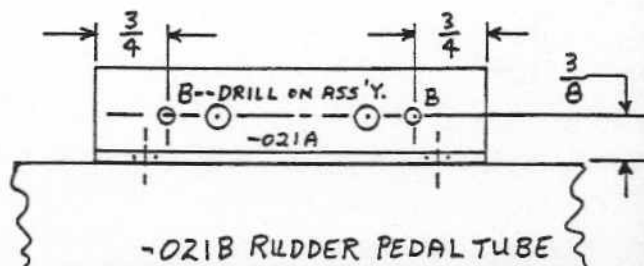
IF THE DETERMINED-BY-TEST RUDDER PEDAL OPTIONAL LOCATION IS AFT OF THE MAXIMUM FORWARD POSITION OF 6-1/4", PROCEED AS FOLLOWS:

Step 2 -- Refer to Main Assembly Drawing No. 30B-2 for total assembly.

- a. Remove the (2) 4-31A bolts retaining -001 Base Plate to Keel tube at the 6-1/4" location.
- b. Locate and center -015 Plate on Keel, with front of Plate overlapping center of Keel tube 6-1/4" holes by 3/8" as shown. Transfer punch through Keel tube holes, to -015 Plate, remove and drill. Re-install Plate on Keel with 4-31A bolts through -015 Plate, Keel, and -013 Pivot Block.



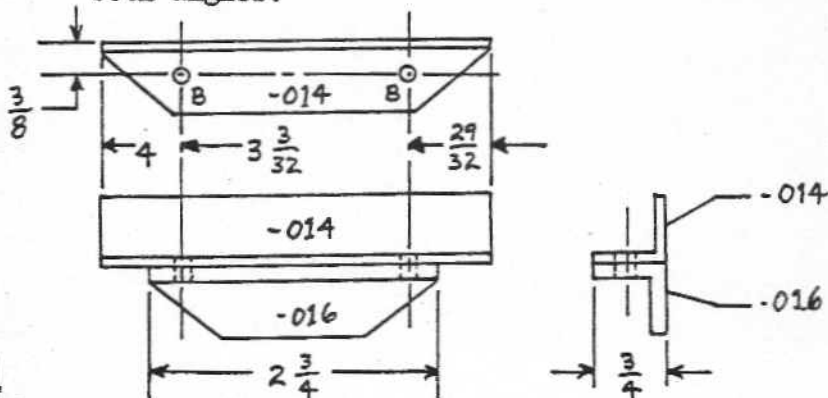
- c. Remove -021A angle from Rudder Pedal tube assembly. Locate (2) 3/16" "B" holes, 3/4" from each end of -021A angle, and center punch ONLY. Re-attach angle to -021B Pedal tube.



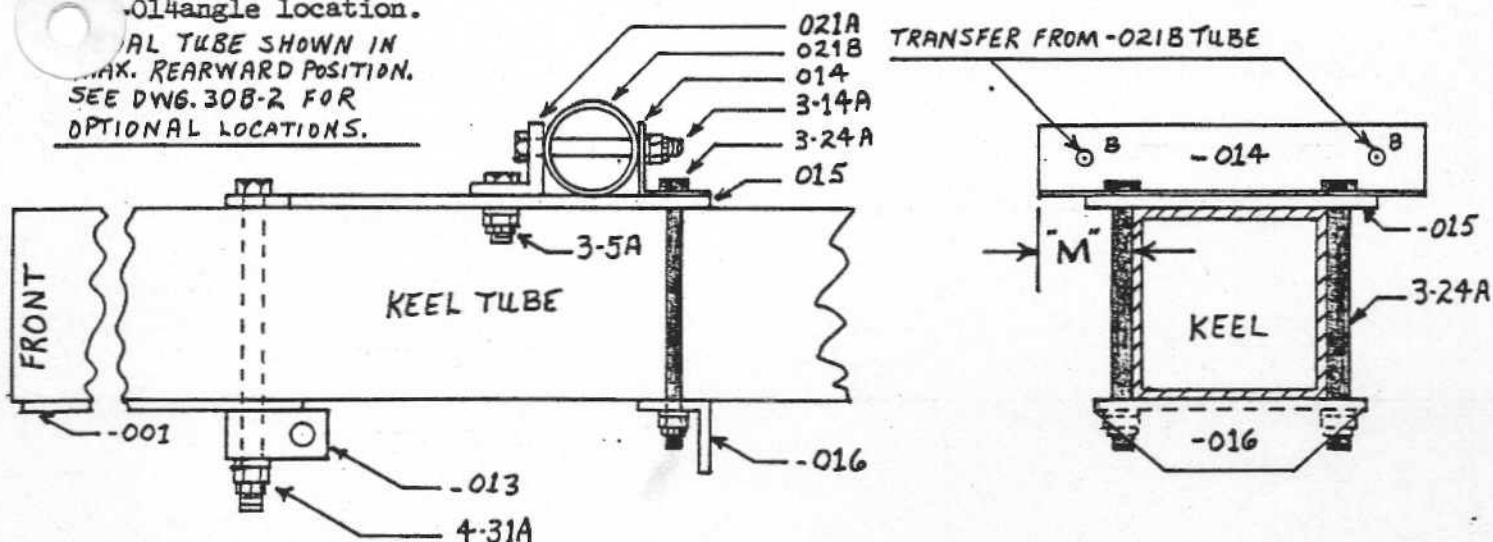
Locate Pedal assembly on -015 Plate at your desired location, (See Dwg. No. 30B-2) and center and square Pedal assembly with Keel tube on -015 Plate. Clamp in this position. Drill (2) "B" holes at the pre-punched location through -021A angle and -015 Plate. Attach entire assembly to -015 Plate with (2) 3-5A bolts.

(NOTE: The 1/4", -021A angle hole to Keel tube will not be used if your Rudder Pedal Assembly is located at a position other than at the 6-1/4" holes.)

- d. Locate (2) 3/16" holes in the "cut corner" web of -014 Rear Pedal Tube Mount angle at 29/32" and 3-3/32" dimension. Center the -016 Clamp Angle back-to-back on bottom of -014 with "cut corner" web out as shown. Drill (2) "B" holes through both angles.



- e. Temporarily locate -014 and -016 angles on Keel, rearward of -015 Plate, with (2) 3-24A bolts. (Bolts should straddle Keel tube.) CAREFULLY measure distance from left end of -014 angle to Keel -- (Drawing noted as "M" for reference. Remove bolts from -014 and -016 angles, and the 3-14A bolt retaining Pedal tube to -021A angle. Locate -014 angle against Pedal tube. CAREFULLY measure distance from left end of -014 angle to Keel tube -- to be the same as previously measured in the temporary installation. Clamp -014 angle in this position and transfer punch the (2) "B" hole locations from angle to -015 Plate. Transfer punch (2) "B" hole locations through Pedal tube and -021A angles to -014 angle.
- f. Remove angle and drill (2) "B" holes in -014 angle. Drill (2) "B" holes in -015 Plate. (CAUTION: Make sure "B" holes through -015 Plate do not score sides of Keel tube. Bolts will straddle Keel -- not go through it!)
- g. Now, the Pedal tube, -014 angle and -016 angle can be secured with (2) 3-14A, and (2) 3-24A bolts. Install #35-A chain link under nuts of 3-14A bolts at -014 angle location.

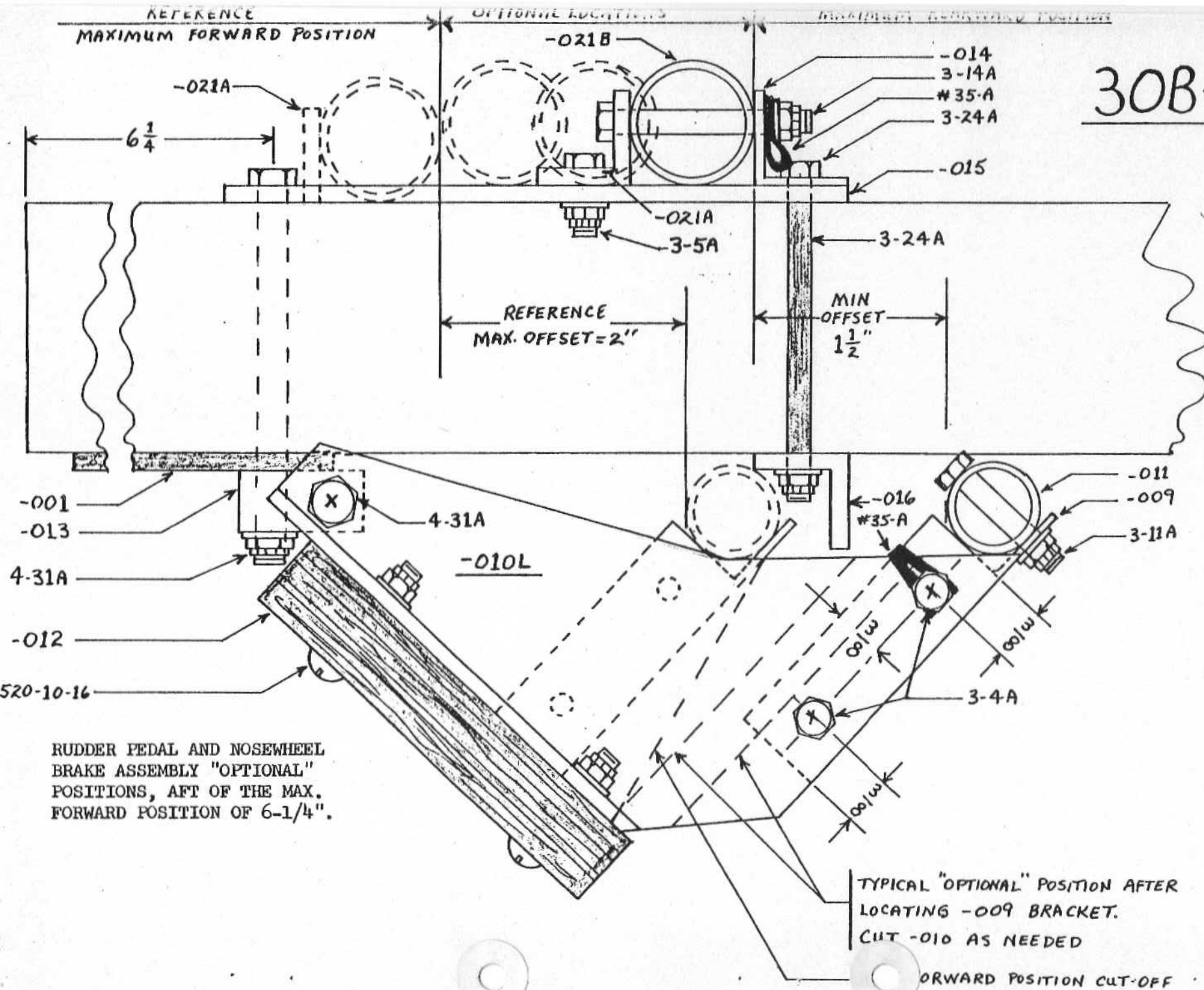


Temporarily install Brake Shoe assembly on -013 Pivot Block. See Dwg. 30B-2.

Locate position of -009 Bracket and -011 Tube assembly on -010 L & R angles, of Brake Shoe assembly using drawing reference dimension noted as "Optional Location". The horizontal separation of Rudder Pedal tube to Brake Pedal -011 tube to be -- drawing noted -- 1-1/2" to 2". Clamp in this position and locate (4) "B" holes through -009 and -010 L & R angles. Drill and attach with 3-4A bolts. Saw-off any excess of -010 angles if not in the maximum rearward position. Install #35-A chain link on top 3-4A bolt on each side of -010 angle as shown in 30B-2 Drawing.

- i. Grease ends and hole of -013 Pivot Block, and attach Brake assembly with a 4-31A bolt. Torque nut for a FREE PIVOT movement.

30B-2





## INSTALLATION AND ADJUSTMENT OF NOSEWHEEL TO RUDDER PEDAL LINKAGE

### Drawing No. 30B-4

Before completing this section, the Rigging Instructions for Rudder to Rudder Pedal Assembly must have been completed on your Gyro.

1. Cut Master Chain in half. Remove (2) #35-A chain links from each chain length.
2. Slip a #35-A link through the circular end of each master chain length. Spread open or drill through the rectangular end of link to fit a 3/16" bolt. Attach the chain by this link to the bottom of each Rudder Pedal angle with link and chain forward, and place another link facing rearward and secure to Pedal angle with a 3-5A bolt.

Attach a E-39C Spring to each Pedal angle rearward #35-A link, and to the #35-A link on Brake Pedal Assembly.

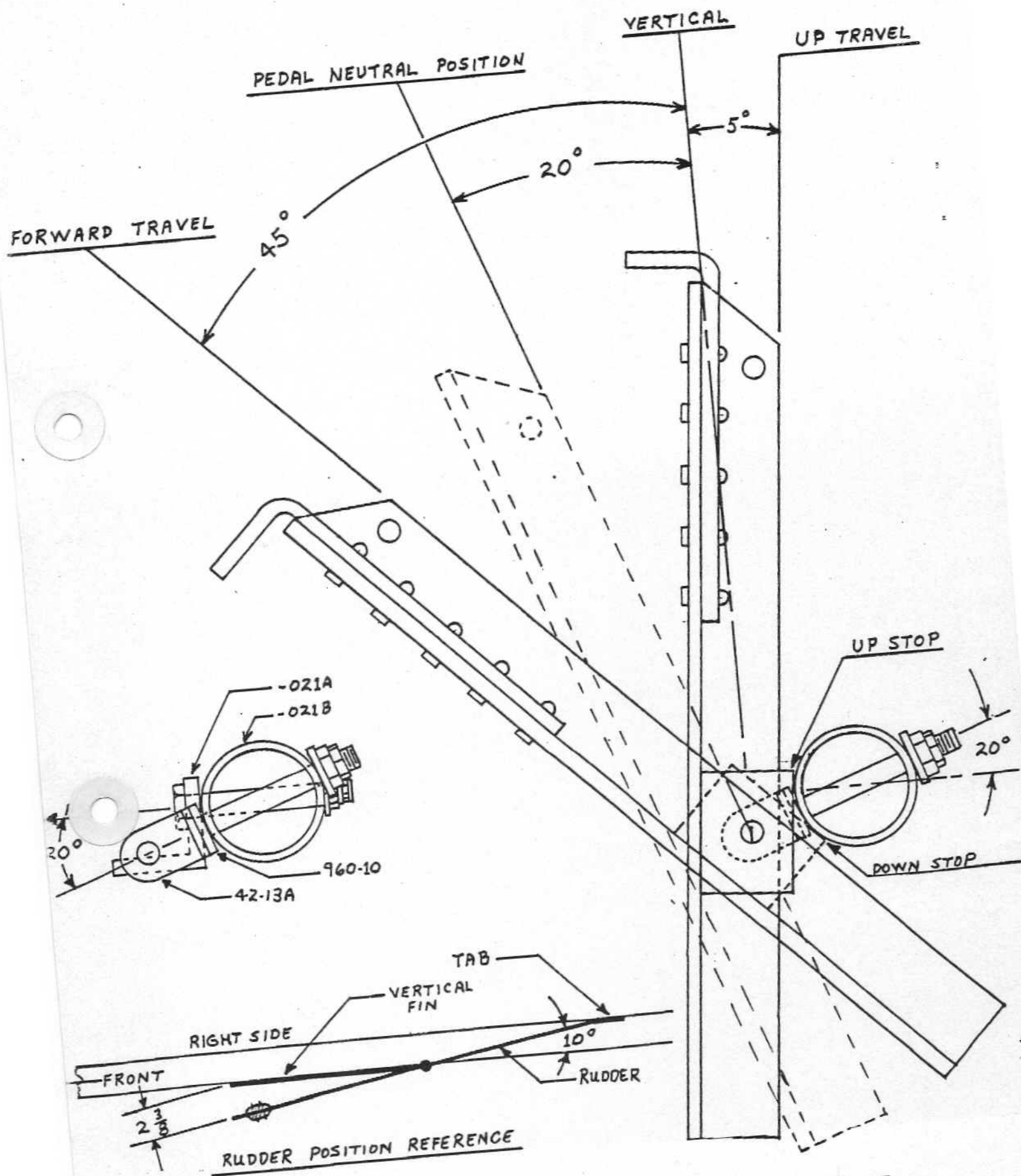
4. Attach a E-24C Spring to each #35-A link on rear of Rudder Pedal Tube and to the #35-A link on Brake Pedal Assembly.
5. Check Brake Pedal for free movement and spring return to the up position, contacting bottom of Keel tube. Check Rudder Pedals for free movement and spring centering of Pedals.
6. Clamp or tie Rudder Pedals in a neutral-even position with 5 to 10 pounds of forward loading. (Neutral position of 20 degrees forward as shown in Drawing No. 30B-3 is by a vertical reference line to Keel tube.)
7. Locate and drill (1) "B" hole in each -017 Chain Connecting Link.
8. Center the nosewheel and fork assembly with the centerline of Keel. Cut each length of chain going forward to just short of the -006 Override Ears on Fork assembly.

Spread open end chain link to fit a 3/16 screw, and attach to -017 links with a 520-10-8 Machine Screw. Clamp each -017 Link on centerline of the 3/16" hole in -006 Override Ear, with slack removed from chain. Drill a 3/16" hole in -017, through -006. Attach with a 23-10 Clevis Bolt, with a 960-10L Thin Washer under its head, and secure with washer and castellated nut. ADJUST to allow free pivot of link. Cotter Pin the Nut.

9. Release the Rudder Pedals and check for free movement of nosewheel, as the Rudder Pedals are moved. With Rudder Pedal at each end of travel, turn nosewheel and check pivot action of control arm --- -006 Override Ears and pre-load 12-4S Spring.
10. Double-check the linkage adjustment of the nosewheel by sitting in the seat with your feet positioned on the Rudder Pedals. The link chain should just be snug with slight foot pressure. They should not actuate or load the override spring, as this will cause the nosewheel to "hunt" making ground handling control very difficult. Re-adjust as necessary.

All nosewheel braking should be accomplished with the heel of your shoe, without having to remove your feet from the Rudder Pedal Tube. Depending on your foot size, a sleeve of wood, or rubber block, etc., may be added on each end of brake pedal tube for a more convenient transition of Rudder Pedal actuation and braking.

This completes your Rudder Steerable Fork Pack Installation. Spend considerable time on the ground taxiing at low speeds to get the feel of this type of nosewheel steering and use of the brake.



30B-3

INSTALLATION OF CONTROL LINKAGE

Airframe Brace Angles are not shown in this drawing for clarity of installation.

