

Photo #33

Side view of the throttle stop bent and ready to be welded in place.



Photo #34

Clamp the throttle stop and weld it in place after the joint under it has been final welded.

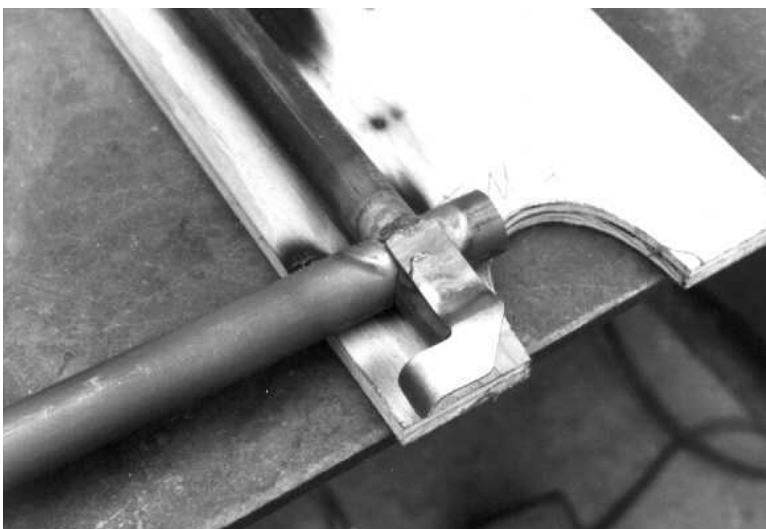


Photo #35

Another view of the throttle stop welded in place.



Photo #36

Another view of the throttle stop showing bends.

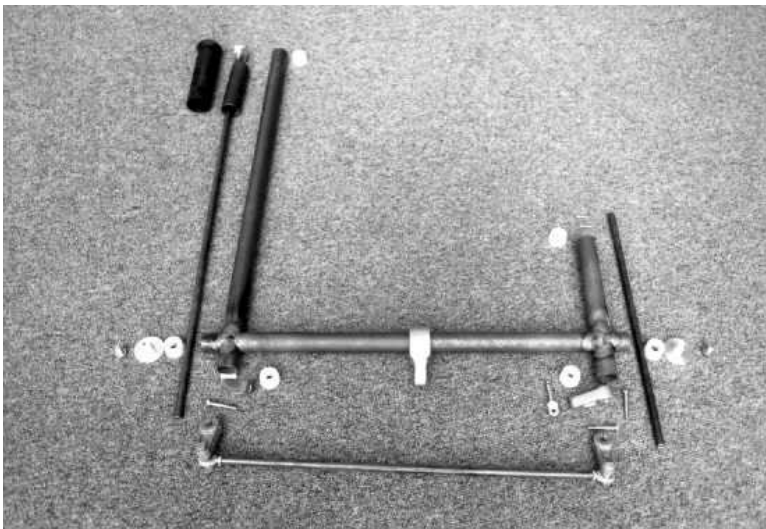


Photo #37

Exploded view of the throttle and collective control. Cut or grind overall length of the collective cross tube to fit between the mounting brackets on the airframe. Both ends of the cross tube must be equal lengths from the pilot collective stick and the control stick stub to keep the control centered. Deburr all tube ends and install the nylon bushings. NOTE: The nylon and aluminum bushings may need to be shortened slightly to clear the pilot collective stick and the control stick stub.



Photo #38

Throttle handle, end plug, and throttle shaft drilled for roll pin.



Photo #39

The sub assembly in previous photo shown assembled.



Photo #40

Do not cut off the excess rubber from the grip. This helps put some friction in the system so that the pilot may at times remove his hand from the collective without the throttle rolling off.

Note: An easy way to install or remove the rubber grip is to use an air nozzle to blow air into the small hole in the end of the grip.



Photo #41

Install the throttle shaft into the control stick and locate and drill the 3/16" hole to attach the "B" control arm. Install the 3/16" bolt so that the head of the bolt is toward the throttle stop.



Photo #42

Place both "B" control arms on the transfer shaft at the angles and positions called for on print E15-2000. Drill the 3/16" and 1/4" holes and install the bolts.



Photo #43

Install the assembly shown in the previous photo into the control stick stub, and locate and drill the 1/8" holes for the split pins.

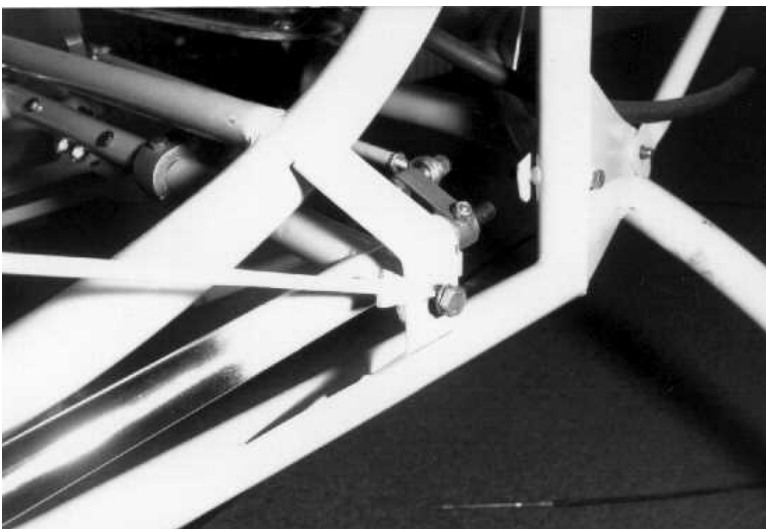


Photo #44

Install the collective assembly in the airframe. Apply grease between the nylon pivot bushings and the aluminum control bushings. On final assembly, apply Loctite to the threads of the bolts (shown by arrow) and tighten.



Photo #45

Safety wire the bolt to the airframe bracket. Install the throttle connector shaft with rod ends between control arms "B". Check full travel of the control for freedom of movement.

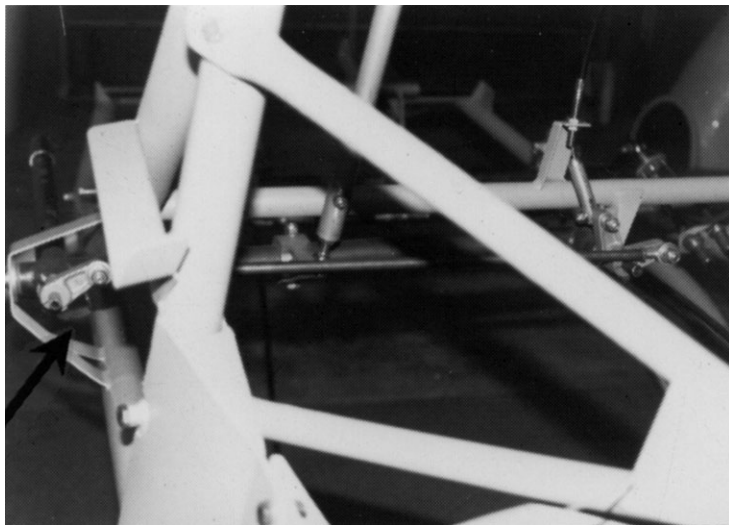


Photo #46

The fully closed throttle stop on the pilot collective stick is the bracket shown by the arrow. The right throttle stop is the contact point of the transfer rod. With the throttle fully open, the rods will be reversed. As in all manually controlled helicopters, power is added by rolling the throttle outward and closed by rolling the throttle inward. Be sure to achieve a minimum of 143 degrees throttle roll (at full down collective).



Photo #47

Bolt the seat into the airframe. Raise the collective until it contacts the seat.

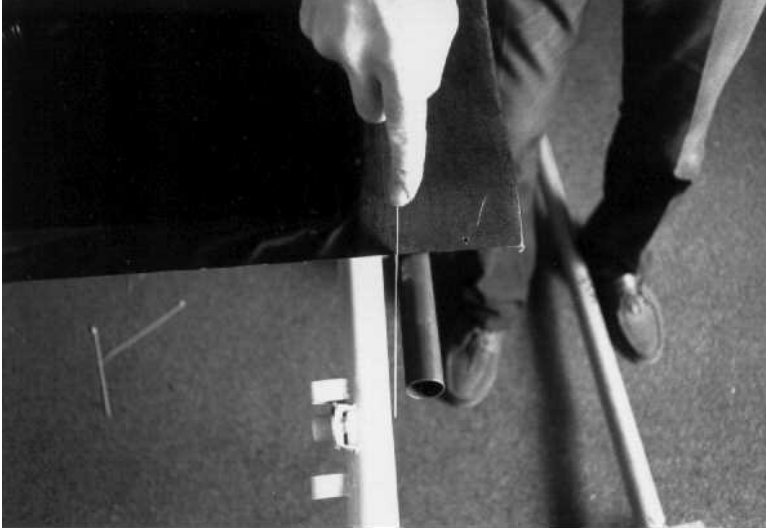


Photo #48

Use a hacksaw blade to cut a slot in the seat for the collective. Cut a few inches and file the slot so the collective tube can be used as a guide. The width and position of the slot may be tailored to your installation. The up and down stops on the collective stick are the extreme end positions of the slot.



Photo #49

The collective handle should make contact with the top of the slot in the seat at the same time that it contacts the airframe bracket. Make sure that the down position extends to the lowest point possible. The total collective stick travel should be approximately 48 degrees. The full down collective stick position should be 2 to 3 degrees negative. Do not cut the slot for the dual collective unless you are going to use it.

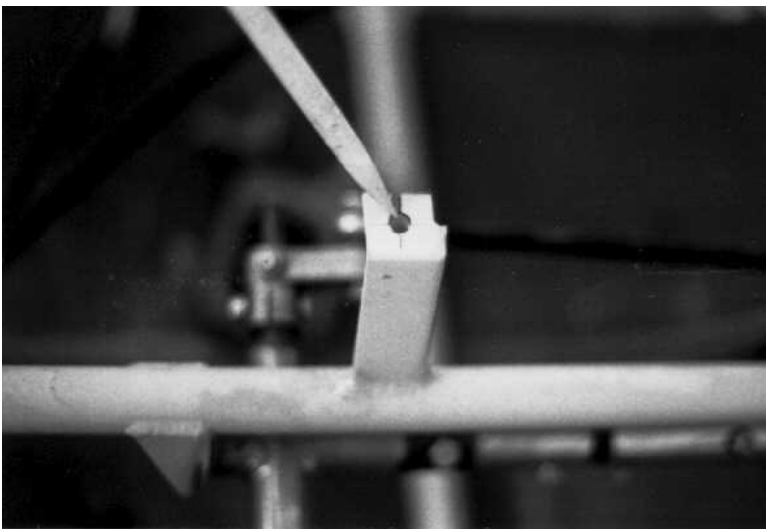


Photo #50

Locate the center of the throttle bracket and drill a 5/16 inch hole. Cut a slot wide enough to allow the throttle cable to pass through into the hole.



Photo #51

Install the throttle cable as shown. This is best left until the engine has been installed.



Photo #52

Throttle cable shown connected to the collective.

DIRECTIONAL CONTROL



Photo #53

Use print E16-2000 and template E16-1 and E16-2 when constructing this assembly. Parts shown as received from RotorWay International for the directional control. The pedal bars have a three position adjustment for pilot comfort. The rod end linkage should be such that when the pedals are in an even position, they will be tilted forward approximately 12 to 14 degrees.

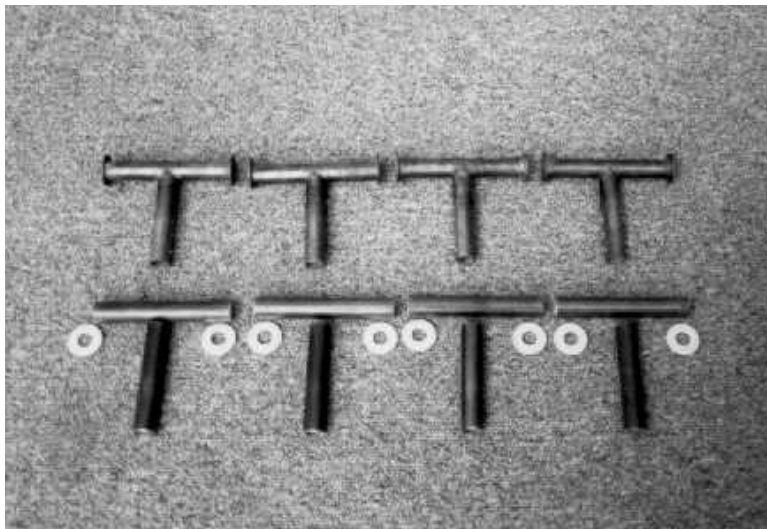


Photo #54

Cut the tubes to length. Grind a radius or fish-mouth in the ends of the tubes as needed. Weld the tubes together, then weld the large washers to the ends as shown.

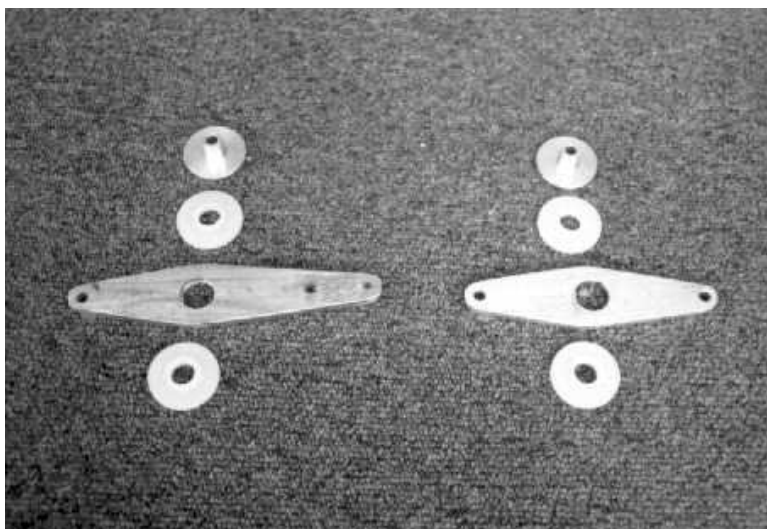


Photo #55

Place template E16-1 and E16-2 on the scissor beams. Cut and drill as outlined.

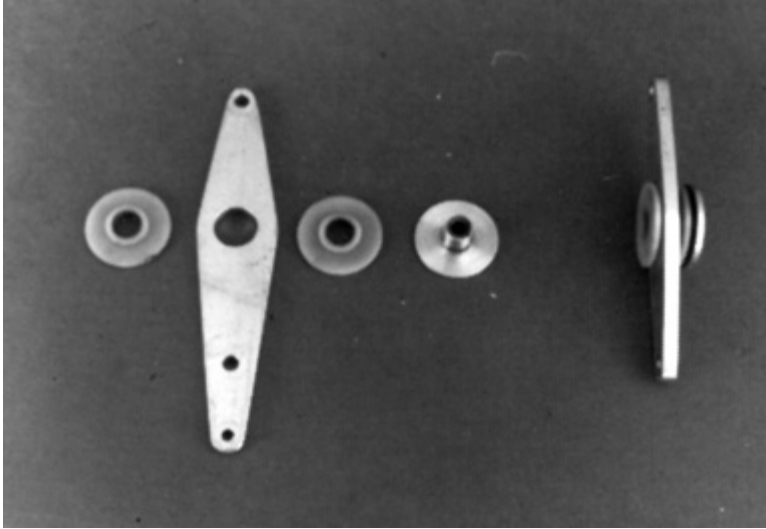


Photo #56

The two nylon scissor beam pivot bushings, the aluminum scissor beam pivot plug, and the scissor beams are shown here both exploded and assembled. The aluminum pivot plug must extend approximately .010" through both nylon pivot bushings so that the beam will pivot on the bushings and not on the bolt.

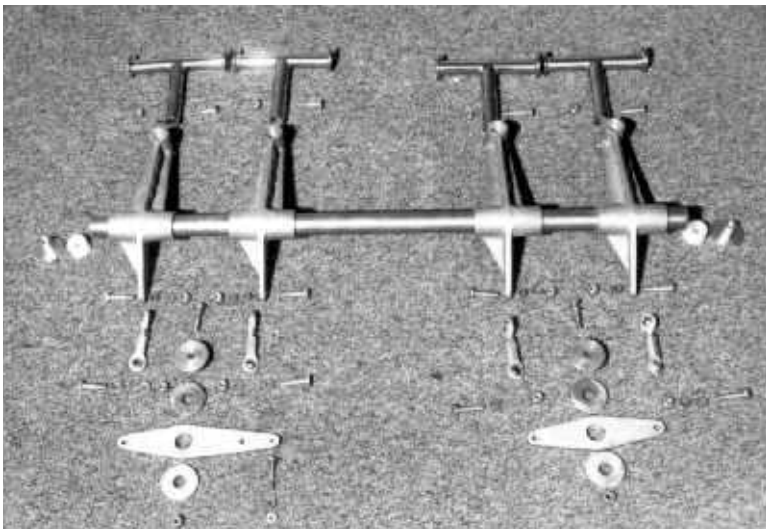


Photo #57

Exploded view of the assembly. The foot pedal castings must pivot freely on the cross shaft. If necessary, open the hole with file and sandpaper if you do not have a reamer.



Photo #58

Apply grease on all mating parts in this assembly.



Photo #59

Install the stop bolts as shown on the bracket.



Photo #60

Scissor beam shown mounted with the rod ends installed. This view is taken from below looking up.

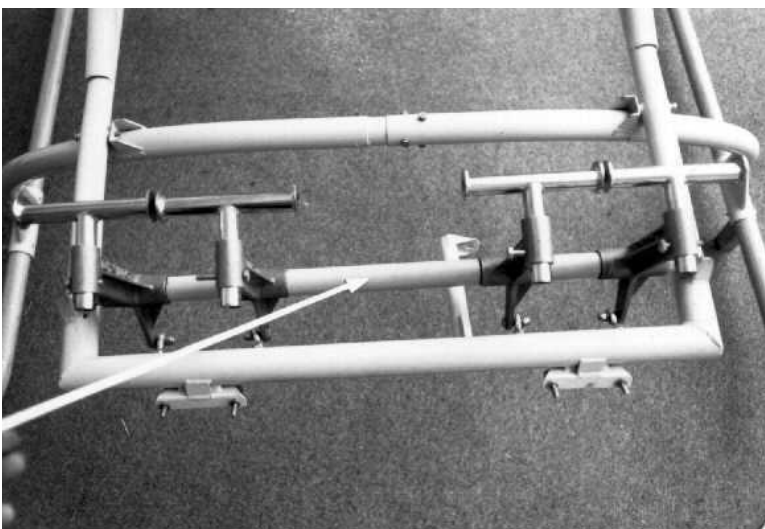


Photo #61

Fit the pedal shaft into the airframe brackets. Use the same method to determine the length as used in the cyclic control assembly E14-2000. Fit the pedal castings to the pedal shaft and install the shaft into the airframe.

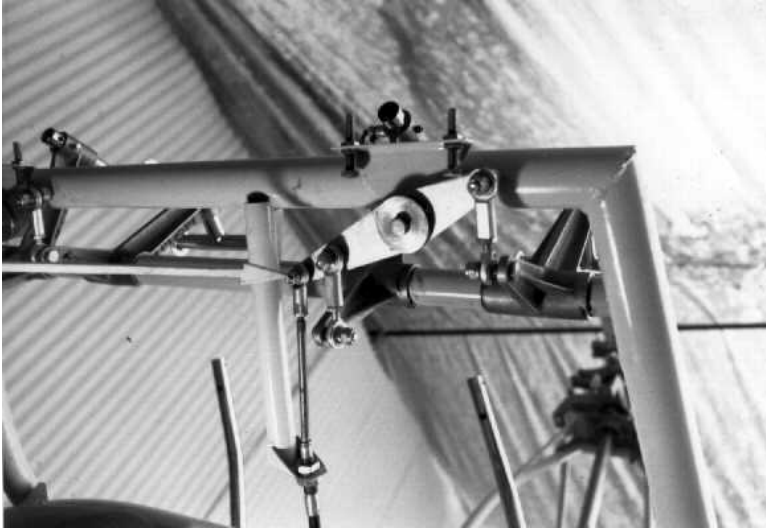


Photo #62

Install the directional control cable in the bracket and attach the rod end to the scissor beam. Move the scissor beam to the end of travel in the cable. Set the stop bolt so it makes contact with the scissor beam.



Photo #63

Move the scissor beam to the other end of travel and set the other stop bolt. Check the following:
When the scissor beam travels from stop to stop, the rod end on the directional cable must move a total of 2-7/8".
When the scissor beam is at the mid-point of travel, it should be parallel with the front cross tube of the airframe.

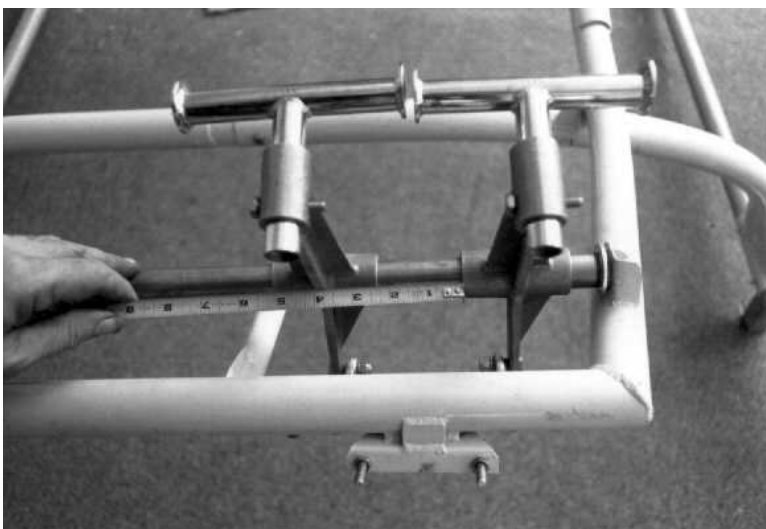


Photo #64

Position the pedal castings on the shaft (see print E16-2000) for best alignment of the rod ends between the castings and the scissor beams. The distance between the pedal castings should be about 2-3/8". There must be a minimum of 1/4" clearance between the washers on the pedals. Fit the floor pan around the pedal castings for proper positioning. Repeat this step for the other set of pedals.

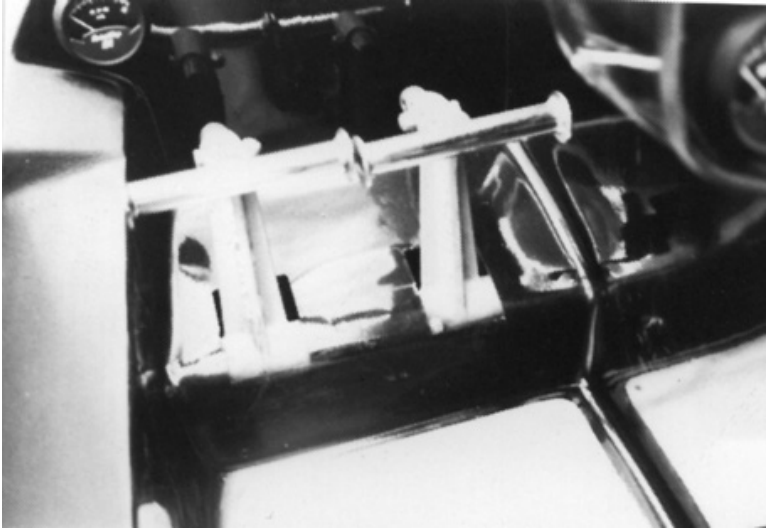


Photo #65

The right pedal is the one that is bolted to the shaft. Do not drill this hole or place the spacer between the two pedal castings until after the holes in the floor pan are cut out as shown in the photo. When the floor pan is in place over the pedals, they may need to be slid from side to side for better positioning.



Photo #66

Once the proper position has been found, drill a 3/16" hole through the pedal and shaft according to the dimensions shown on the print. Install the bolt. It should just be visible through the hole cut in the floor pan for the pedal. The spacer can then be cut to length and fitted on the pedal shaft.

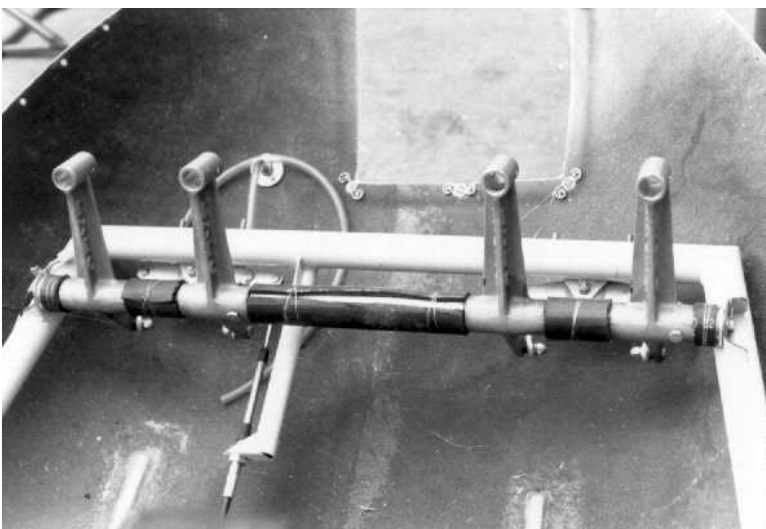


Photo #67

Cut the rubber tube the same length as the spacer tubes and safety wire the rubber tube to the spacer tubes.



Photo #68

On final assembly, apply Loctite to the threads of the end bolts and tighten them. Safety wire all six pivot bushing plugs (two in the directional control, two in the cyclic control, and two in the collective control) to the airframe brackets.

Note: It may be necessary to trim or grind off part of the aluminum plug to fit the main pedal shaft into position.