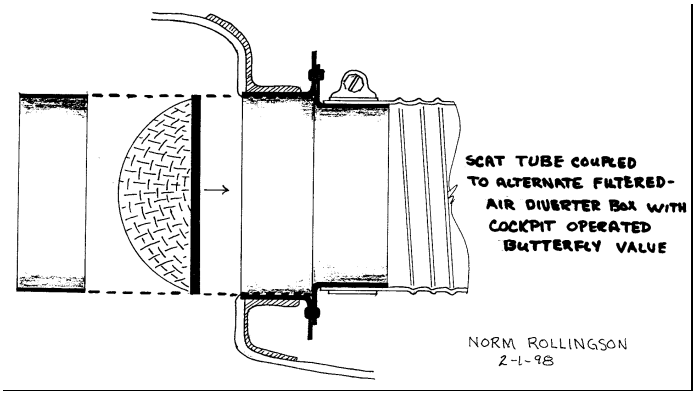


Attach the two aluminum flanges back to back with pop rivets and a little silicone seal. From a 3 inch diameter aluminum tube, cut a band 1 inch wide. Remove a section approximately 3/8 inch wide from the band. This will become our retainer ring. Insert screen into larger end until it seats up against lip formed by the smaller flange. Compress the retainer ring slightly and insert the ring against the screen. Spring tension of the ring will hold screen securely in place. To remove for cleaning, hook a wire into screen and pull out.

Is it usable for the 360 as well? Probably, but check the throat size of the injector body first. Not meant for carborated engines without alternate filtered air source.

Norm Rollingson
(608) 254-2987
Wisconsin Dells, Wisconsin

P.S.: Another yellow Lancair sees the light at the end of the runway. N111NR, a six year project, coming to an airport soon.

Happiness is a Tight Rudder

As has been seen in flying IV's, it is very important to have tight rudder control, primarily to offset engine torque (p factor) to maintain good directional control on takeoff and climbout, and to provide control during crosswind landings. The cable system, per factory design, requires close attention to keep a tight and sensitive touch, and I have noticed bunched up cables at the rudder control arm on several IVs. Some time ago Tom Allen of Manning, Oregon designed a bellcrank to operate the IV rudder with the cables from the rudder pedals as usual, back to the bellcrank approximately two feet forward from the sternpost, with two push-pull tubes going from the bellcrank back to the rudder control arm.

Not only does this system get rid of the ugly cables outside the fuselage, it makes for an extremely tight and sensitive control system.

Tom can provide plans to produce all the parts yourself. As I recall this was $350. Or if you don't have access to a machine shop, as was my situation, Tom will make everything for you for about $550. This was a no-brainer as far as I was concerned. The parts are all professional quality.

Since my rudder was already closed out, I had to perform key-hole surgery to put the new control arm mounting block behind the rudder spar several inches up from the old arm. I removed the old arm, which is part of the bottom hinge, and ground off the arm, polished the hinge block and replaced it with a new coat of chromate.

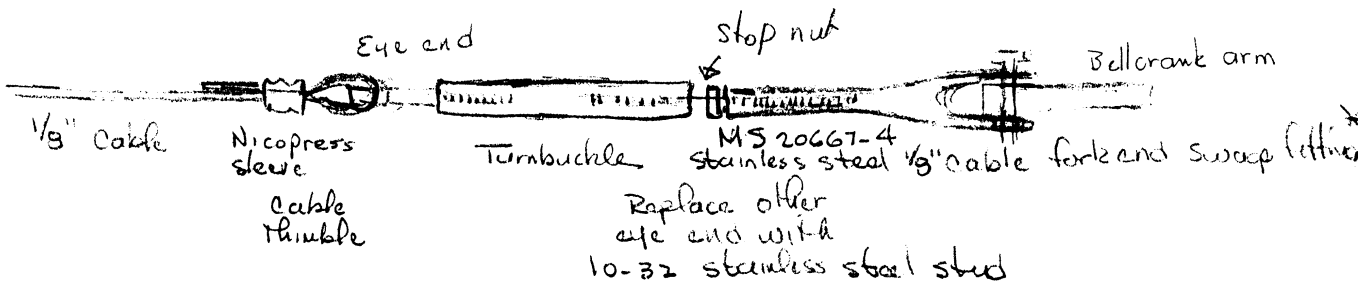
The bellcrank is installed just aft of the rear fuselage inspection access panel. This makes it logical, then, to place the turnbuckles next to the bellcrank where adjustments are more easily made.

It is necessary to lower the cable routing a couple inches off of FS 172 and run them level back to the bell crank. This, in fact, takes the upward curve out of the cable that is built-in according to the manual.

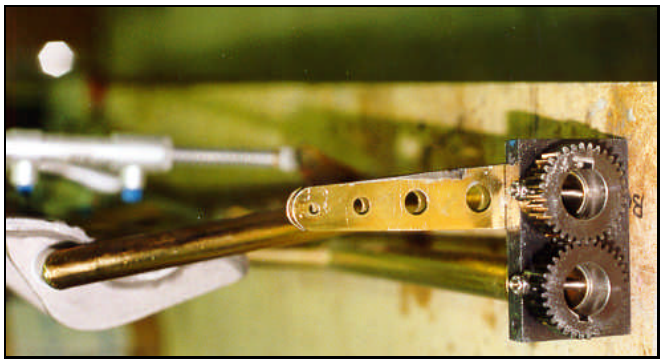
The rudder cable is reversed with the swage fittings forward, connected to the arms on the rudder pedal tubes. The aft end is connected as shown in this sketch.

Drill and tap for 10-32 stud. Tap out 1" deep to provide for additional adjustment. 10-32 stud should be made 2 inches long to provide sufficient threads to screw the appropriate number of threads into turnbuckle. Of course, make aft end if the turnbuckle the right hand thread end.

For the cables to be made tight, without putting springs between the firewall and the pedals, it is necessary to gang the pedal tubes with spur gears mounted on the outboard ends of the tubes as pictured here.



One set of gears will work, but I put a set on both sides. Get Martin catalog No. TS 2032 spur gears bored to 7/8". (For Martin sources I suggest you phone their Denver, Colorado sales office - one of about 20 around the country -



Spurgears ganging rudder pedal tubes (both ends)

at (303) 371-8466 or see a gear distributor in your area.) You only have 1/2" of tube protruding outside the mounting blocks, and the 1/2" shoulder of these gears fit perfectly with no backlash, making for a very tight system. It is necessary to dress down the end of the tubes several thousandths so the gears slide on and off without binding. The pedal angles and gear alignment is done on the work bench. Once alignment is done, pin with 8-32 stainless steel bolts with nylon nuts. It is necessary to drill through the gear shoulders and pedal tubes for pin holes. This is best done with your drill press.

The gears clear the fuselage sides by about 1/4 inch. A small amount of grease on the gears makes for very smooth operation. The gussets above the gears provide good protection from anything getting into the gears, but I plan to cover my gears with a removable box from below. I understand that the blue plastic electrical boxes work, and I will try this.

Tom Allen can be reached at (503) 324-3720 or at TAllen9262@AOL.com.

Bob Young
(610) 274-8583
RyoungØ3A@AOL.COM
Laundenberg, Pennsylvania

LIV Elevator Center Counterweight Arm Alert

The arm Lancair provides as an option does not match up to the mounting holes in my apparently older style elevator horn weldment. Somewhere along the way, the horn was beefed up with additional weldments at the hinge area.

If you decide to go with the optional center counter weight arm, make certain you do not have the older style horn.

As a counter measure, I will attempt to use the tungsten powder/epoxy mix to weigh and balance the elevators using only the elevator counter weight arms themselves, ala Fred Moreno.

Bob Young
(610) 274-8583
RyoungØ3A@AOL.COM
Laundenberg, Pennsylvania

VEP Pressure Switch Conversion

Here's some information if you want to convert your VEP pressure switches to be externally adjustable.

- VEP will charge $90 per pair to inspect them before conversion.
- Design of pressure switches was changed approximately four years ago. Older ones can't be converted.
- You still pay the $90 inspection/test fee unless you buy new ones from VEP.
- Shelf Life of Pressure switches is 5-7 years. Even older unused ones may be unusable.
- New pressure switches are $112.30 each plus shipping ($10 to Oregon), payment in advance, no credit cards.
- Lancair will sell you new style, different brand switches at $71 each plus two "T" fittings plus freight. Estimated cost $162; (automotive type switches; unconfirmed)
- Manufacturing time on VEP switches is 4-6 weeks.
- You will have to call them; they won't call you. (I called them approximately 10 times over two months.)
- VEP (805) 499-1959

Gary Edwards
(541) 773-5851 evenings
Medford, Oregon