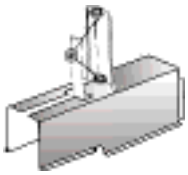
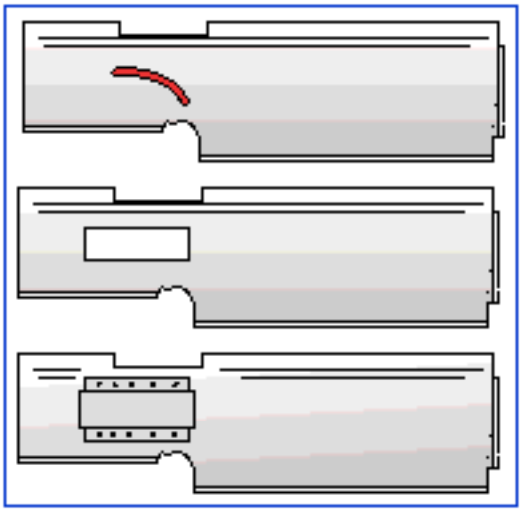
CESSNA 120/140 CONTROL TUNNEL MODIFICATION

THE ONE WHICH CESSNA NEVER TOLD ANYONE ABOUT



In the beginning, as the old stories start, Cessna assumed there was clearance between the rudder bellcrank bolt and the centerline control tunnel, but the users soon proved there was an interference. The bellcrank bolt would rub on the inside of the tunnel sides, eventually forcing first a gouge and then an arc-shaped hole as indicated in the first figure. Apparently, the interference never caused an accident because there were no Service Letters issued nor was there an Airworthiness Directive to modify the tunnel to clear the interference, but Cessna did make a "kludgey" modification which was phased in on the production line. Since there was no formal release about the change, we have no idea the serial number at which Cessna introduced the change, so you need to take a look at your tunnel to determine if it has the problem or the cure. Many cover their tunnel with rugs, and are unaware of the damage that has been done to the tunnel by the rubbing interference.

The modification consisted of two steps: A) a hole was punched in the tunnel on both sides so as to ensure clearance of the bolt, and B) they added a hat section over the hole. The upper figure shows the ugly tear, the center shows the design modification clearance hole (on yours, be guided by the size of the tear or the dents in your tunnel..and there may not be any), and the lower figure illustrates the repair after the hat section is installed. The hat section stands off from the sides of the tunnel about a quarter of an inch and is attached by spot welds.

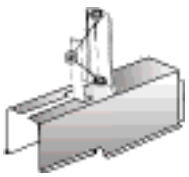


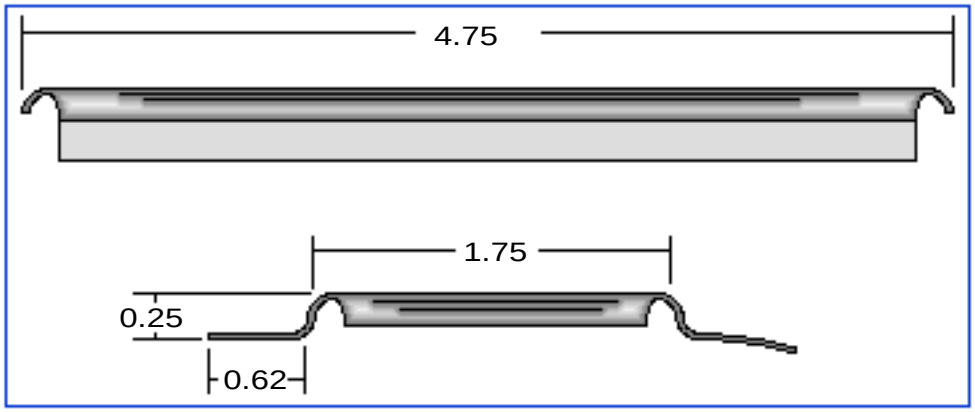
Since Cessna never let anyone know about the change, there are some planes out there which have the arc-shaped dents or the arc-shaped holes in the tunnels. Most owners, if they realized there was a factory fix, would prefer to alter the tunnel about as Cessna did to increase the clearance between the tunnel and the rudder control mechanisms. Making the change would also prevent damage to the rug which covers so many tunnels these days, and provide the same assurance that the rudder mechanism will never catch on anything while maneuvering or taxiing.

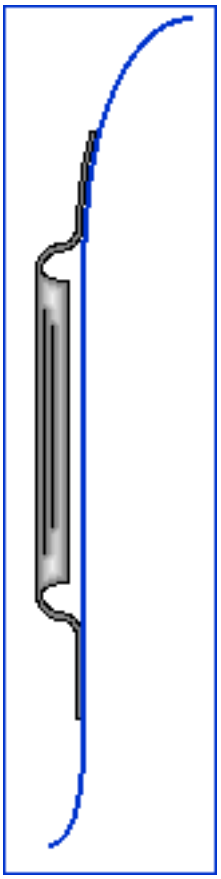
The dimensions of the hat section for each side of the tunnel are suggested by the accompanying sketches. Note that the dimensions are from measurements from a factory-changed tunnel, so may not be exactly what the prints would show. The Cessna-installed correction hat sections were attached by spot welding, a method not available to us, so we suggest that rivets be used, but, whatever is used, make sure their length inside the tunnel is minimized so as to avoid causing a secondary snagging problem on the inside.

As always for a modification, have it inspected and signed off by an A & I and an entry made in the log book; assist the A & I when he uses a mirror to view the new clearances with the tunnel installed and take a look yourself and be sure to make many full rudder movements before the plane ever moves off the blocks.

The hat section is about as shown. The two "wings" which get spot welded or otherwise attached are 5/8ths of an inch long, formed as shown so as to be the same shape/curvature as the tunnel.




4.75
1.75
0.25
0.62



The actual tunnel I used to create these figures showed signs of an interference even with the hat section in place. I have painted the surrounding area of the inside of the tunnel so as to give the picture some contrast so that you can see the damage done.

A picture of the outside, showing the right hand hat section, is below. The mottled effect of the surface is the dried contact cement.

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