

Rudder/Brake Pedals and Assemblies

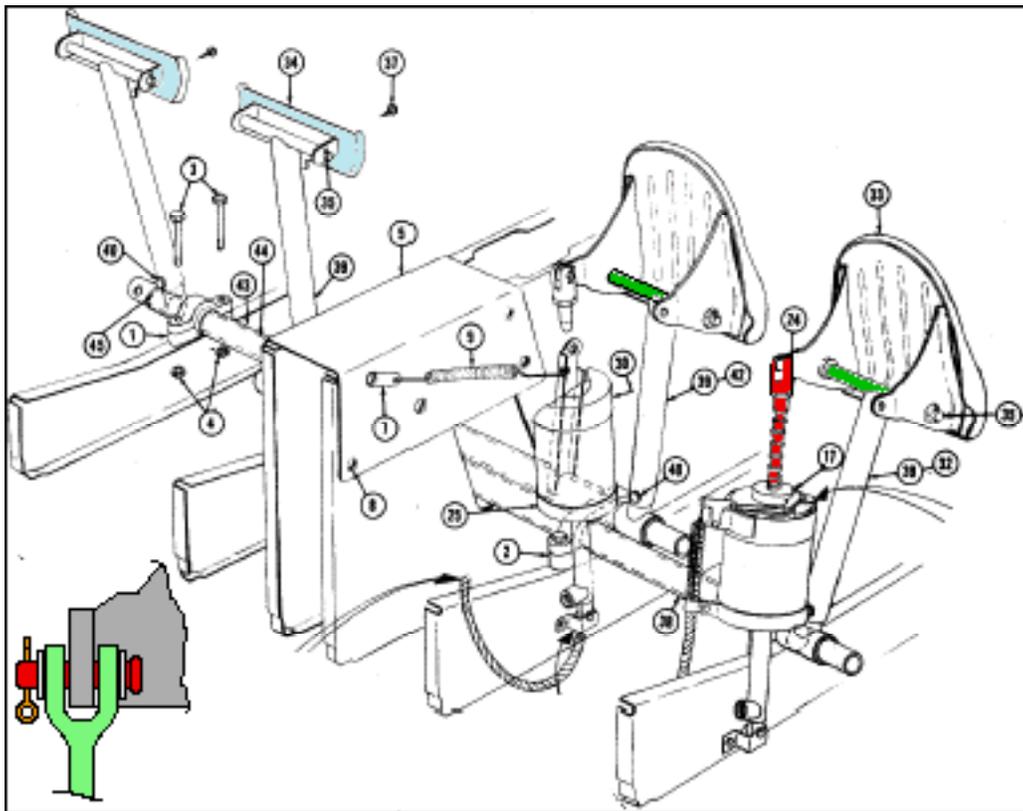
For the Cessna 120/140/140A Planes

There could be four or five? combinations, depending on what was ordered on the plane before it left the factory, what was added after, and what the available parts were when changes were made.

As the first figure shows, on the 120/140's, the pilot's rudder pedals and brake assemblies looked about like this. Either the cast type or the pressed sheet metal type could be installed.

On the copilot's side, one got "rudder bars", not rudder and brake pedals. Note that there was no way on the copilot's side to apply brakes.

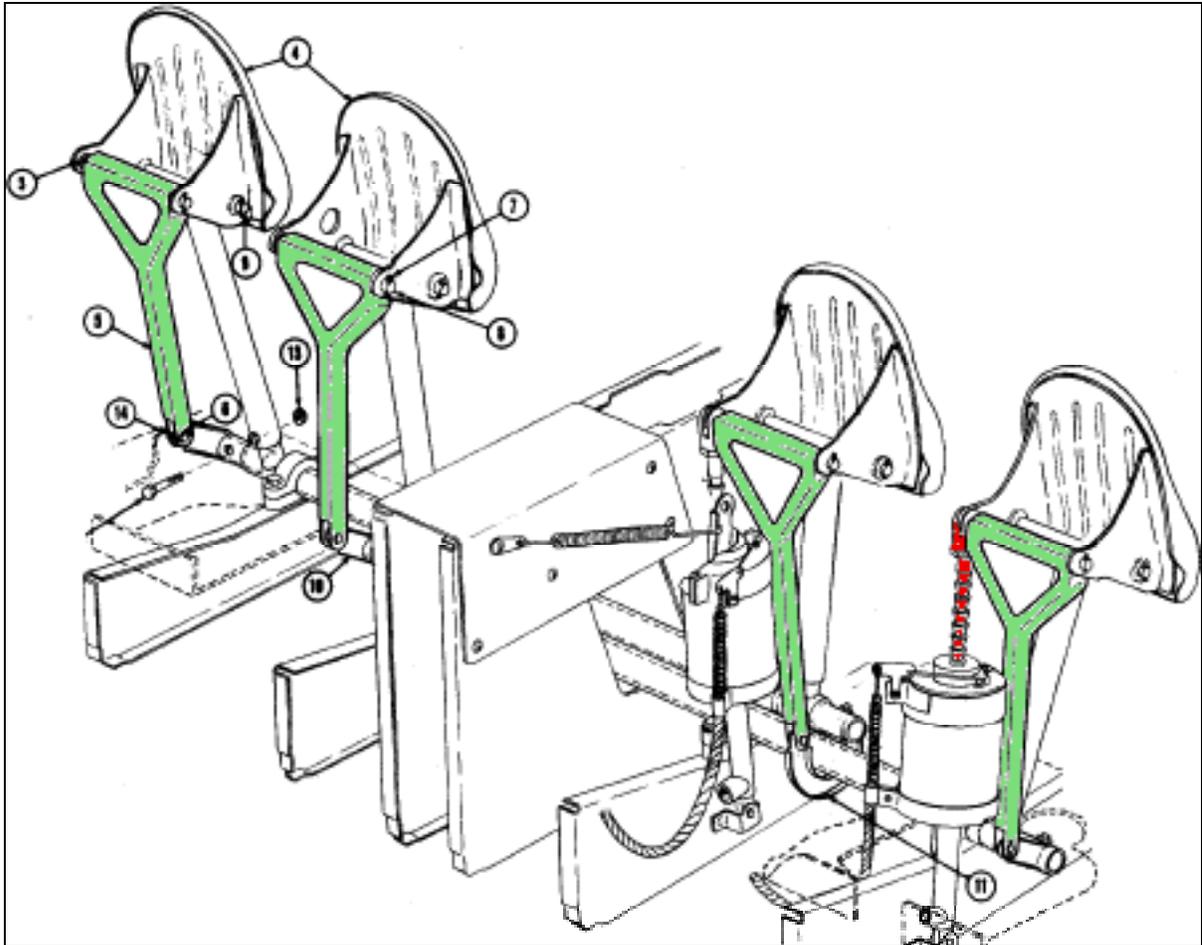
The cast rudder/brake pedals are much more robust than the stamped sheet metal version on all later planes. I have never seen a cast pedal worn through from shoe friction, but many of the sheet metal pedals have holes worn through them from wiggling shoes. The cast aluminum pedals were thicker than the stamped sheet metal units.



Note the master cylinder plunger attachment to the pedal in the left lower corner? See how simple the assembly of it to the rudder pedal is when the features necessary for the right side brakes are not installed? One of the master cylinder plungers is highlighted in red. In the next figure, copied from the Optional Parts section, you can see how the complexity of assembly increases when the combination right side brake and rudder kit is added.

In the Optional section of your 120/140 parts manual, you will find that one of the most desirable options was the “rudder and brake pedal” assembly shown here. Compare the method of attaching the master cylinder plunger to the pedals...you have to thread the shaft through six? things when reaching forward as far as you can and in the blind. Tricky. The light green stamped parts are the details which transfer the brake action from the copilot’s side to the pilot’s side. They attach at their bottoms to special bellcranks.

In a later figure, from the 140A manual, the bellcranks are highlighted.



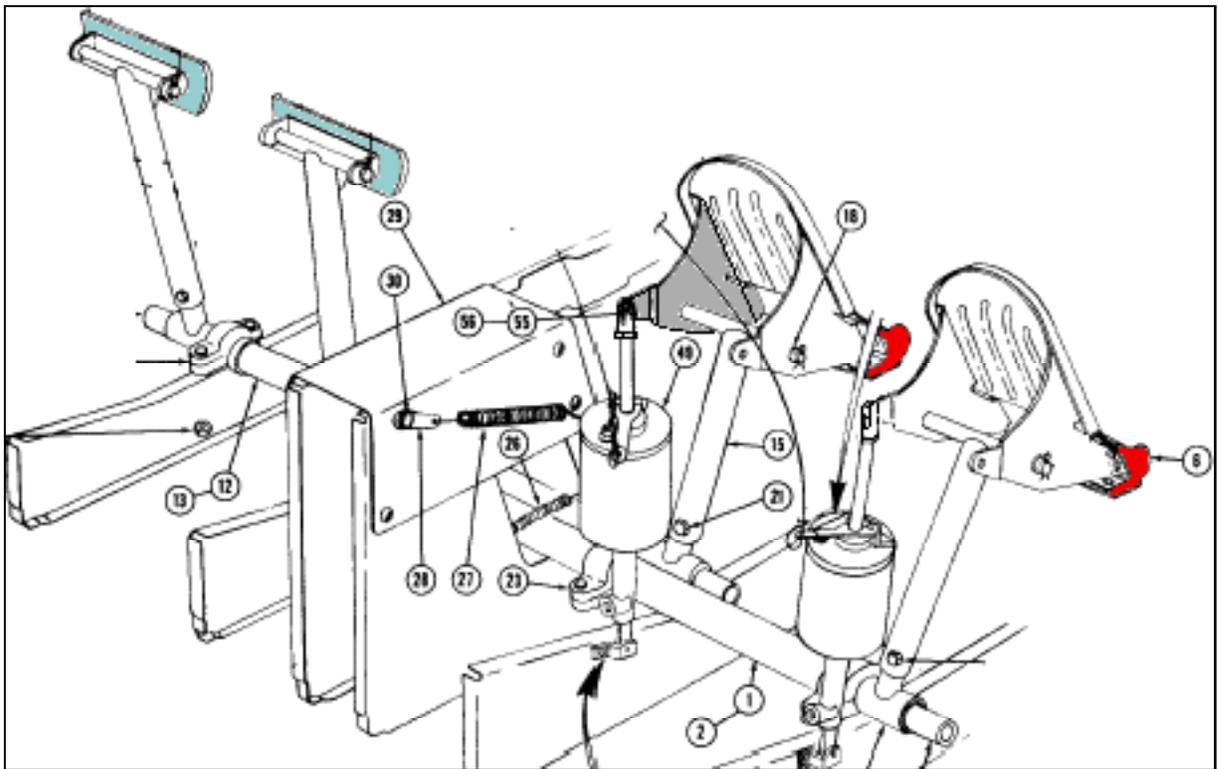
The brake action by the copilot is felt by the pilot since the pedals on both sides of the cockpit move in concert because of these new parts.

You can bet that the instructors sometimes wished for over-the-shoe leather straps to allow them to pull back on the rudders or the brakes!

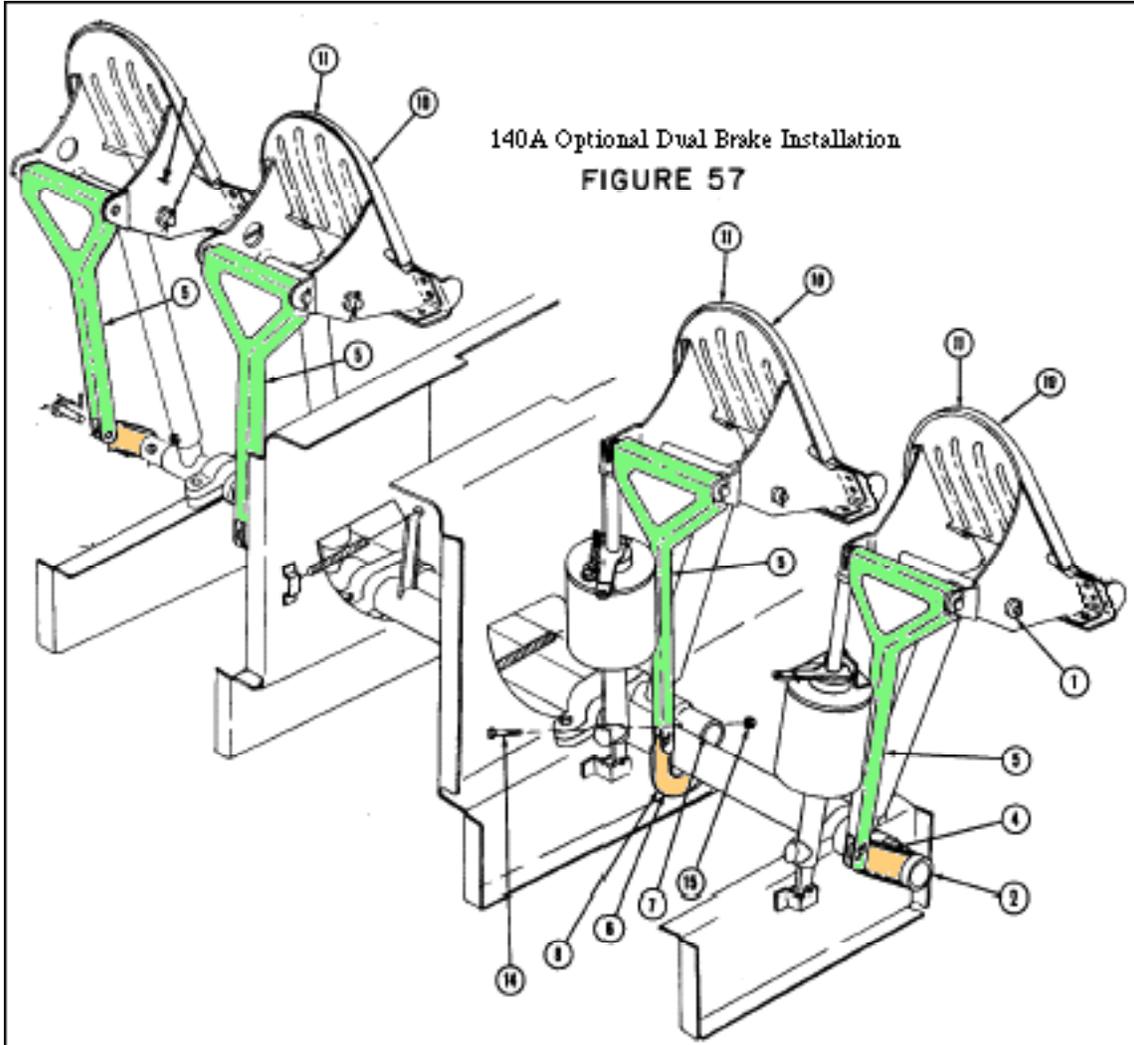
From the 140A, two or three more versions are possible if these were retrofitted to earlier planes, with the pilot's side rudder and brake pedal being changed during production of the A's but with no definitive picture as to what the differences were.

Note the red "tabs"? I have never noticed those on any of our miniclub planes but they look like anti-slip-off spurs which were incorporated in the last version of the pedals. The 150 pedals have these, too.

Note that, for the copilot side, you could have either the rudder bars or opt for the addition of the rudder and brake assemblies on that side as well. You can guess which version the instructors wanted.



This figure is probably the best of the lot because the draftsmen on the 140A did a better job. I have highlighted, in green and gold (the bellcranks), the parts necessary to transfer the brake action from the copilot's side to the pilot's side.

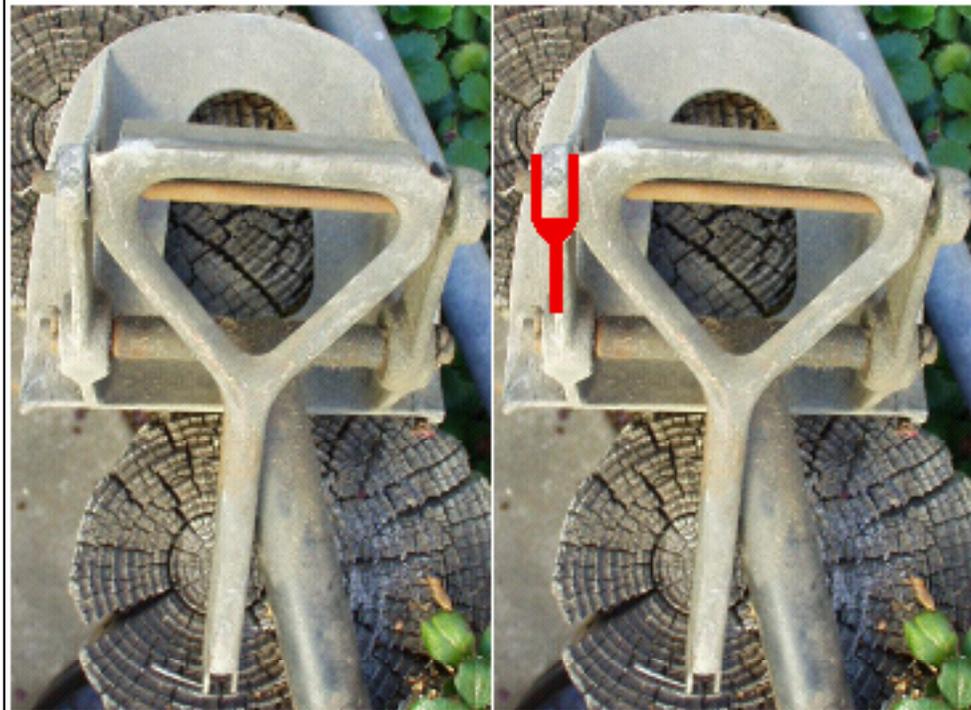




The pilot's side of the cast rudder pedal from a '46. This is an original, with no paint. Note the lack of any wear...this from the right side.

Actual right side cast brake/rudder pedals on the right and actual left side cast on the left. The wear pattern (of the paint) indicates where the stress falls.





This is the front of the cast brake/rudder pedal from a '46 model.

The red simulates the attachment of the master cylinder to the brake assembly. The horizontal rod, secured on each end with a cotter key over a flat washer, has to be threaded through six "flanges". When I first tried it, I took the cotter key out of the inboard end, on the left here because you are looking back from the firewall. That was a mistake. Take out the outboard cotter key and remove the rod from the inboard end.

This image from Canada, showing the back side of the sheet metal pedals, both types, those on the left from an A or a 150 and those on the right from intermediate 120/140's.



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