Mechanical Brake Light Switch

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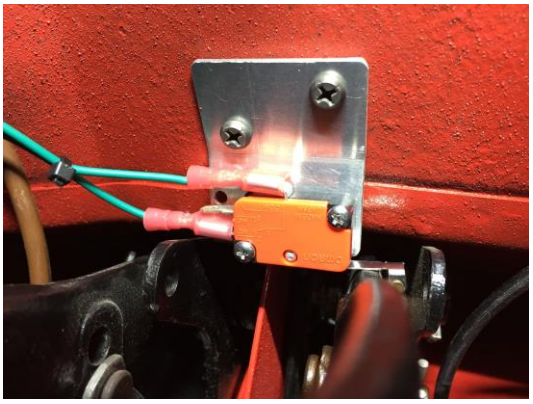
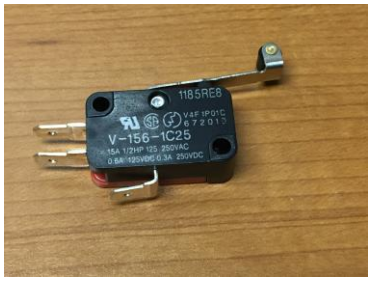


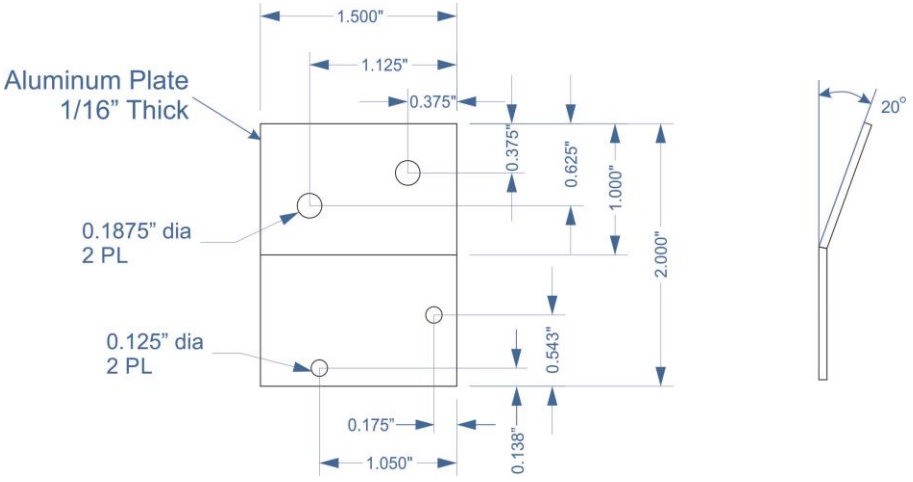
If you are an Alpine or Tiger owner you may have had to replace your hydraulic brake light switch. Shortly after I had my Tiger on the road my original switch failed. I called Rick at Sunbeam Specialties to order a new one and he was thoughtful enough to ask if I was running DOT 5 brake fluid, which I was. As it turns out, DOT 5 is not compatible with the brake switches used in our cars. I decided then that it was time to put in a mechanical switch actuated by the brake pedal. I built the first one for my car over 10 years and 26K miles ago using a plunger type switch and fabricated bracket. Over the last couple of weeks, I've been doing some work on Jim Lindner's beautiful Tiger and he asked if I could put in a mechanical switch. After looking around for a suitable plunger type switch I decided to take a different approach and use a micro-switch. The nice thing about these switches is that they are easily sourced, low cost, reliable and best of all can be configured for "normally closed" operation. This switch solution requires no cutting or splicing of wires and only 2 holes need to be drilled.

The required components



- Qty 1, Micro Switch – Omron or equivalent, PN V-156-1C25 (https://tinyurl.com/yaw8fkux)
- 18 gauge wire
- Qty 2, male bullet connectors
- Qty 2, female spade connectors
- Qty 2, male spade connectors
- Qty 1, single female bullet connector
- 2" x 1.5" x .062" Sheet aluminum
- Qty 2, 4-40 x 5/8" screws, lock washers and nuts
- Qty 2, #8 sheet metal screws

The first step is make the small bracket to hold the switch. Start with a 2" x 1.5" x .062" piece of aluminum and drill holes per this drawing. Put a 20-degree bend in the middle. Fasten the switch to the bracket with the 2, 4-40 screws, lock washers and nuts

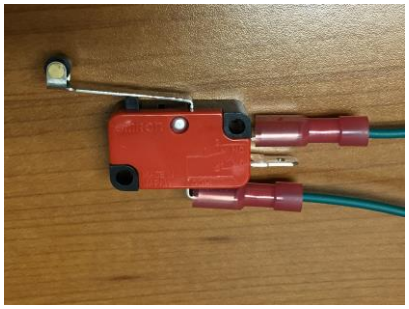


I have a scale drawing in pdf form that can be used as a template and found here along with photos and this article:
https://tinyurl.com/y7y4mgfz

Now let's install the bracket. Place the switch assembly in the location shown in the photo at the top of the article and mark where the holes need to be drilled. Make sure that the lever is depressed when the brake pedal is up before you mark the holes. If you need to slot the holes in the bracket to make this part easier, feel free. I found that I could hold things in place and mark the hole locations with no problem. Next drill holes for the sheetmetal screws or use self-tapping screws. Mount the bracket and make sure that when the pedal is depressed you hear an audible click. A voltmeter can also be used to verify operation of the switch.

Next make the 2 jumper wires for the switch. The Alpine and Tiger both have a wiring harness junction under the dash on the driver's side which makes this solution very simple. Cut 2 wires 10" long and place a female spade type terminal on one end and a male bullet connector on the other.

Next locate the junction for the wire feeding the rear brake lights. It will be green with a purple stripe and will have either a single or double female connector like this. Disconnect one side of the junction and plug one end of the newly made wire into the junction connector. The other wire, and new female bullet connector go on the other wire. None of this is critical, you are simply creating a loop through the new switch. Finally, plug the female spade lug ends into the micro-switch. One wire goes onto the lug labeled "COM" (common). Because the switch is actuated by the pedal releasing the lever, we need to connect the other wire to the "NC" (normally closed) terminal. Zip-tie everything nice and neat up under the dash and you can climb out of the car.



Since we are no longer using the original hydraulic brake light switch we need to make a jumper to bypass it. This is simply a 3"- 4" piece of 18-gauge wire with a male spade lug on each end. Remove the wires from the original switch, it will be on the right side of the engine compartment under the generator. Plug in the newly made jumper. I like to wrap some electrical tape around things to make sure that the jumper can't pull out or somehow make contact with a ground. Finally, zip-tie the jumpered cable to the brake line near the old switch to keep it stable.

That's it! Check to make sure that everything works as expected and you are ready to run knowing that you now have a more reliable brake light switch solution. If folks are interested in this solution but would rather not go to the trouble of making all of the parts, I am offering a kit with all needed components. I expect that the kit will take less than ½ hour to install.

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