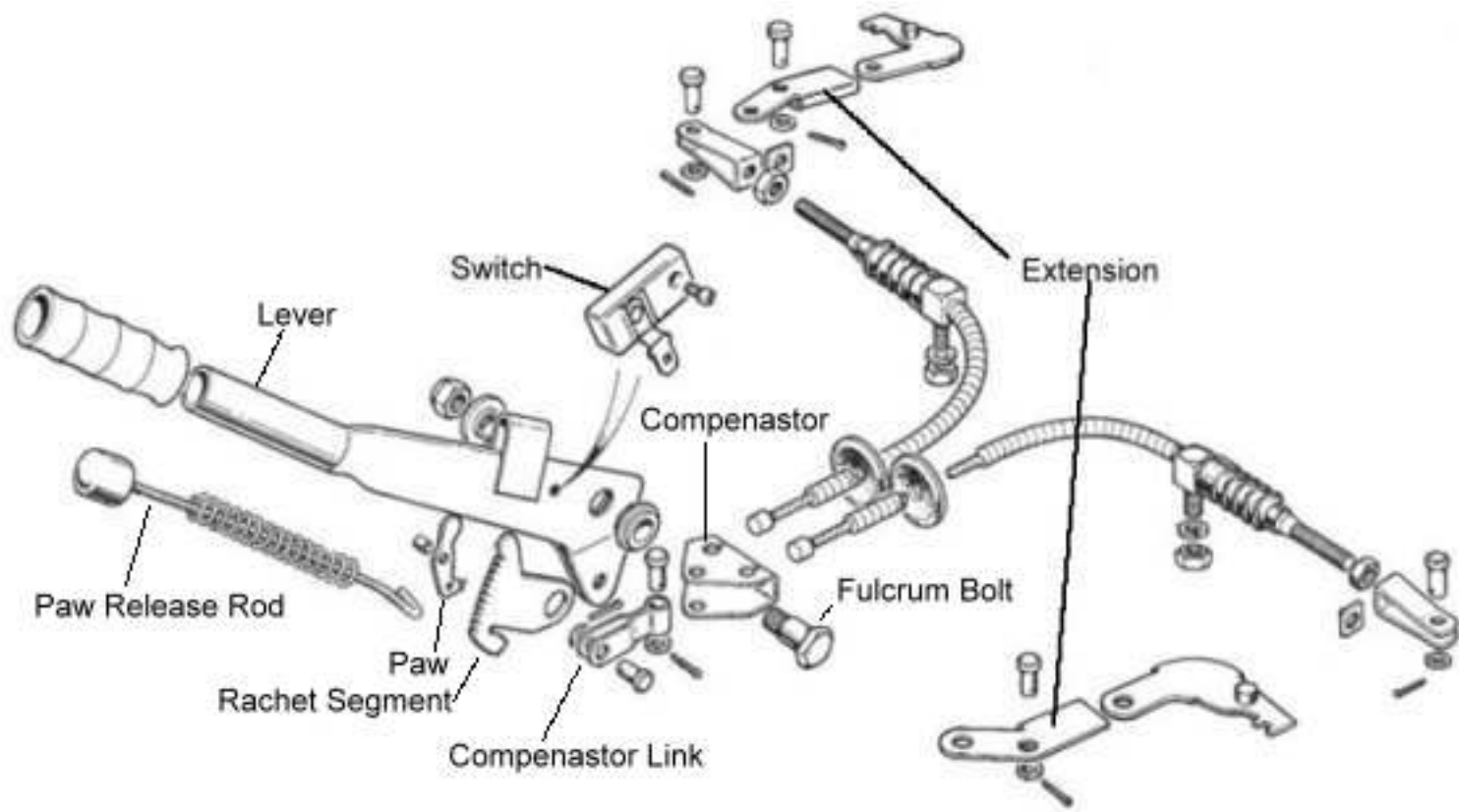




## TR250 & TR6 Brakes Overhauling Handbrake

These notes describe what I did on my car for my personal use and are provided here for entertainment; they are not meant to be instructions for others to do maintenance on their vehicles.

The following sketch taken from the TRF Blue TR6 catalog shows the the handbrake components.



Two changes were made at commission number CF50,000:

- A switch was added to the handbrake lever (handle) to turn on the brake warning lamp when the handbrake is engaged. This necessitated changes to the lever, ratchet segment and compensator link.
- An extension was added to the rear wheel cylinder lever.

The photo below show a close-up of a lever assembly from a '76 I junked years ago (top) and the lever assembly from the '70 I'm overhauling (bottom) The added switch is clearly visible on the upper lever. The TRF catalog notes that a different grip was specified for the '76 but apparently never used. The Moss catalog shows a grip with a nearly rectangular outer cross section that must be the later version. I've never seen a one of the rectangular grips on any TR6. I assume they used stock of the earlier part and had enough to last through the end of TR6 production.



The next photos shown the switch area in more detail. The screw that holds the switch to the handle has been removed and the switch has been turned over. The switch has a metal dimple that sticks down. The left photo shows the ratchet segment in the handbrake released position with a hole under where the the dimple on the switch rests so that no electrical connect is made. The right photo shows the ratchet segment in the handbrake operated position where the switch dimple will be grounded to the ratchet segment (the hole is visible below the handle). Note that a corner of the strap shield over the top of the ratchet segment had to be cut to make room for the switch. Also note that the ratchet segment had to be modified with the hole.



The other change made at CF50,000 was the addition of the extension to the lever in the rear brakes. A very rusty extension on a right side brake is shown on the right. I've found no explanation as to why the extension was added. It will obviously allow a greater force to be exerted by the handbrake. The rear wheel cylinder was changed from 0.70 inches to 0.75 inches for the '76 model year which is about the same time. The larger hydraulic cylinder increased the rear brake force relative to the front brake force.



**Overhauling the lever Assembly:** The next photo shows the disassembled '70 lever assembly.



Some of these parts are obviously in worse shape than those of the '76 handle. For example, the '70 paw release knob has a hole as shown on the right. Won't speculate as to why handbrake was applied with such urgency to make the hole. I decided to use any part from the later lever assembly that was the same as for the early lever assembly and in better shape. (I also have a '76 so wanted to keep the unique '76 parts.)



When I tried to remove the Paw release rod from the '76 lever assembly I found it wouldn't come out. It comes right out of the early levers, which is the main reason that I always found it difficult to reinstall the lever. The paw would slide around and let the paw release rod fly out of the handle just when I had it about positioned. The late lever has dimples on each side of the lever to keep the paw from rotating far enough for the paw release rod to escape. The photo on the right shows the dimple in the red circle. The paw release rod from the other lever is setting on top this lever to illustrate the rough position of the rod inside the lever. I decided to modify my early rod so the paw release rod would be retained. Rather than dimples I drilled the lever in the same spot as the dimples on the later lever and threaded one side for an 8-32 stainless steel machine screw to restrict the paw motion. The dimples were drilled out of the later lever so I could get the paw release rod out and move it to the early lever.



The lever was blasted and powder coated gloss black. The compensator link and associated pin per blasted and powder coated aluminum. The rest of the parts were cleaned up and the lever reassembled. The ratchet segment was lightly lubricated with lithium grease. During reassembly I discovered that the added screw also keeps the the ratchet segment from coming out of the lever, another plus for the modification. The assembled lever is show below. The lever was set aside while I worked on the cables



**The Cables:** I had secured new cables for this project. When I went to find the fork-ends that go between the cable and the rear wheel cylinder lever I found a pretty decent set of cables with the nuts securing the fork-ends rusted solid to the cable. I could have merely sawed off the end of the cable to free the fork end but then I'd have ruined a good set of original cables that I can probably sell on ebay for twice the cost of new cables (they are original). I ended up grinding & filing one side of the jamb nut and then using a sharp chisel to split the nut open. I could then screw the nut all the way on the cable, slide the forked end all the way on the cable and do the same grinding-filing-chiseling to loosen the square adjustment nut. The photos below show the sequence.



I've always had trouble with these nuts rusting. The use of the square nut has been a puzzle. If it was bigger, it could be screwed in or out by rotating the fork-end. My guess is that the square nut was used as a safety measure -- the fork end was kept to keep it from rotating and working off. Unfortunately, no one verified the the inside of the fork end was small enough to keep it from rotating. This was probably not a serious problem since most probably rusted solid before reaching the dealers lot. I decided to do a little redesign here. I replaced the jamb nut with a stainless steel nut. I made my own square nuts from 1/4" X

1/2" stainless steel key stock (McMaster-Carr). The nuts are actually rectangular, 1/2" by 5/8". The stainless steel parts should reduce the corrosion problem and the larger nut enables it to be adjusted by rotating the fork-end. The fork-end and clevis pin were powder coated in aluminum. The pin was secured with stainless steel cotter pin as shown in the next photo.



I also used stainless steel nuts and lock washers to fasten the cable to the trailing arms. I'll add a photo of the trailing arm here, once I get it finished.

Trailing Arm Photo

**Installing the Lever Assembly:** I've always found installing the lever a big pain, mostly because the parts flew part about when I had it positioned to slip in the fulcrum bolt. The addition of the little screw mentioned earlier made things a lot easier this time. Another difficulty is dealing with the lack of slack in the cables. If this is a complete overhaul or new cables are being installed, I'd defer attaching the cables to the rear cylinder lever until after the lever assembly has been installed.

The body is at least a year away from being ready for the handbrake lever. I installed it on the carcass of a '69 I have in a storage shed and took the photos below to show the process

The first step is to hook the ends of the inner cables into the compensator. The outer cables are not hooked over rear of the handbrake bracket yet.



The ratchet segment is then hooked over the front tab of the handbrake bracket



The two nylon bushings are then inserted into the handle and the handle pushed into position between the sides of the bracket.



The ratchet segment is then aligned so that the shoulder on the fulcrum bolt will slide through the bracket, the nylon

bushes and the ratchet segment. Probably the best tool to use is a tapered drift (punch). I forgot to take a punch to the shed for this photo shoot so the screwdriver was used and turned out to be a poor substitute.



The fulcrum bolt finally slid into place.



The outer cables were then slid over the notches in the bracket. If there is insufficient cable slack, the pins attaching the fork end to the rear wheel cylinder lever can be removed and then reinstalled after the outer cable has been positioned.



Finished. The nut on the fulcrum bolt wasn't tightened since the lever was later removed and taken back home.



The adjustment of the handbrake cables is described in the "Bleeding & Adjustment" note.

ks to other notes on [Brake Theory & Overview](#)  
TR250 & TR6 Brakes: [Overhauling Brake Master Cylinder & PDWA](#)  
[Overhauling Brake Servo](#)  
[Overhauling Pedal Assembly](#)

[Overhauling Front Brakes](#)  
[Overhauling Rear Brakes](#)  
[Overhauling Brake Pipes](#)  
[Selecting Brake Fluid](#)  
[Bleeding & Adjusting Brakes](#)  
[Troubleshooting Brakes](#)