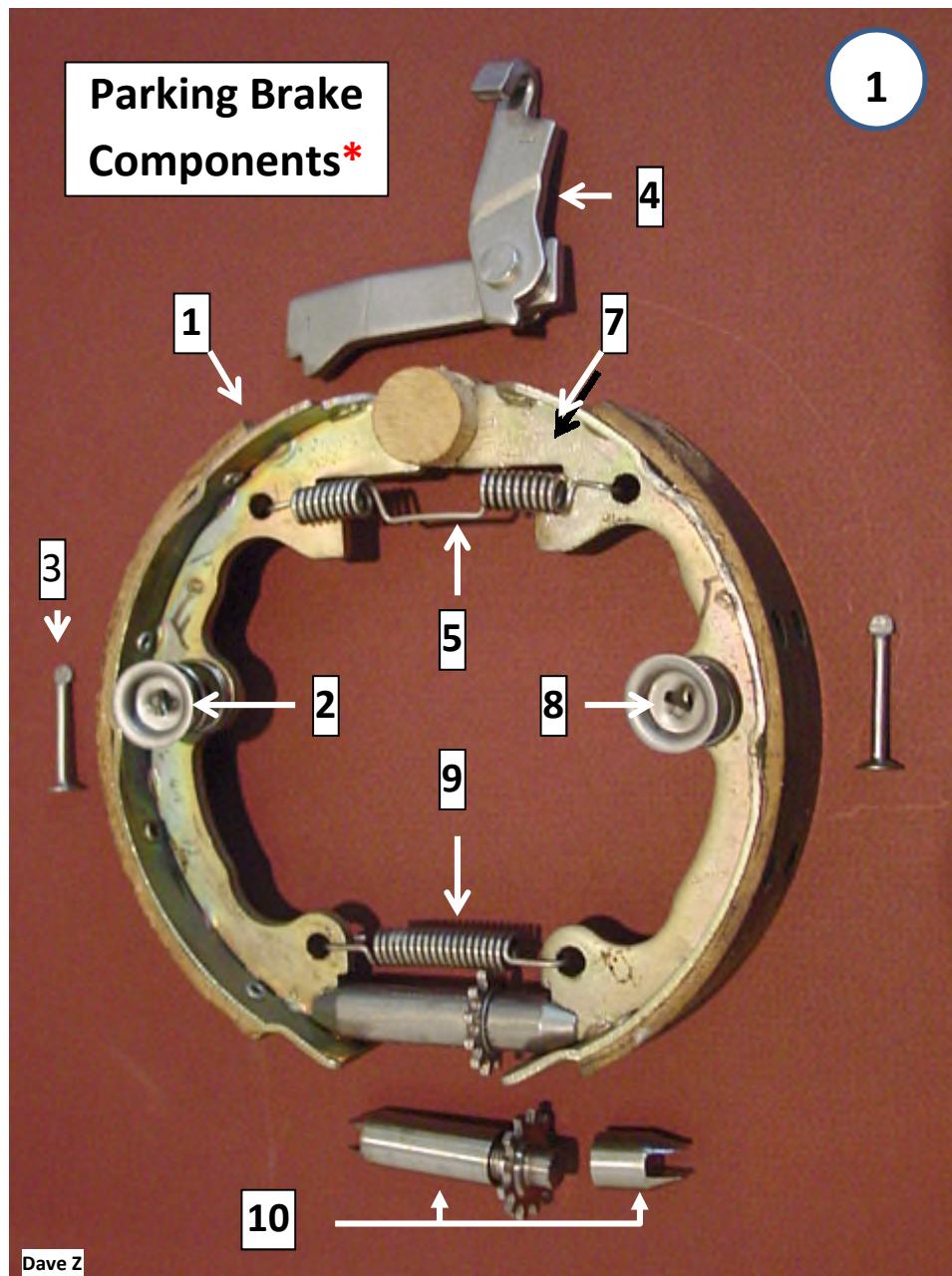


CORVETTE PARKING BRAKE REBUILD '65 TO '67 (AND BEYOND)

Tim Welsh and Dave Zuberer

The information here was compiled by Tim Welsh (Buns) and Dave Zuberer (DZVette) and is based on our experiences in changing out the parking brake shoes on disc-brake-equipped mid-year Corvettes.

The factory service manual states that you must remove the spindle to service the parking brake (see excerpt from service manual below and pg. 10), but that is not entirely accurate. It can be a daunting job but once you have done one side, the other will be easier. It is a **steep** learning curve but a “doable” job.



*Numbered as per the GM diagram

- | | |
|-----------------------------|---|
| 1. Parking Brake Shoe | 6. Backing Plate (not shown, see Fig. 12) |
| 2. Hold-down spring and cap | 7. Parking Plate |
| 3. Hold-down pin | 8. Hold-down spring and cap |
| 4. Actuating Lever | 9. Adjusting Screw Spring |
| 5. Retractor Spring | 10. Adjusting Screw Assembly |

Step-by-Step

Start by removing the wheel, rotor and caliper and backing off the parking brake cable. If the rotor is still riveted, you will have to drill the rivets to release the rotor. **Be sure to mark the position of the rotor on the hub.** You can put a circle around the stud and paint the tip of the stud as index marks for reassembly or put marks on the hub and rotor as in Fig. 6.

**From the '65 Shop Manual
Supplement, ST 60 Sect. 5-5**

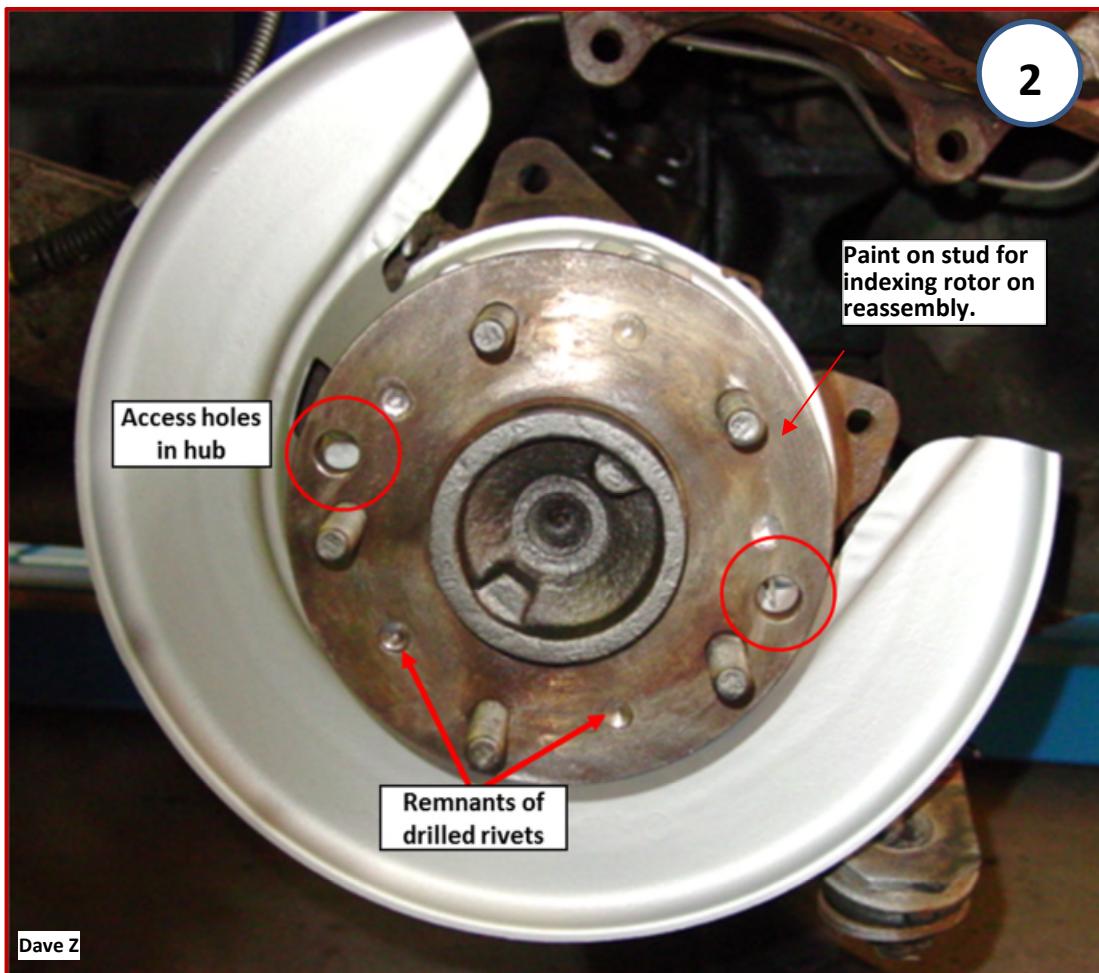
PARKING BRAKE SHOES (Fig. 8)

Removal

NOTE: It will be necessary to remove the disc assembly to change the shoes on the parking brake. This will necessitate the removal of the wheels, calipers and drive spindle, since the disc is riveted to the spindle. (Optional: knock off wheels – remove special adaptor.) Refer to Section 4 of this manual.

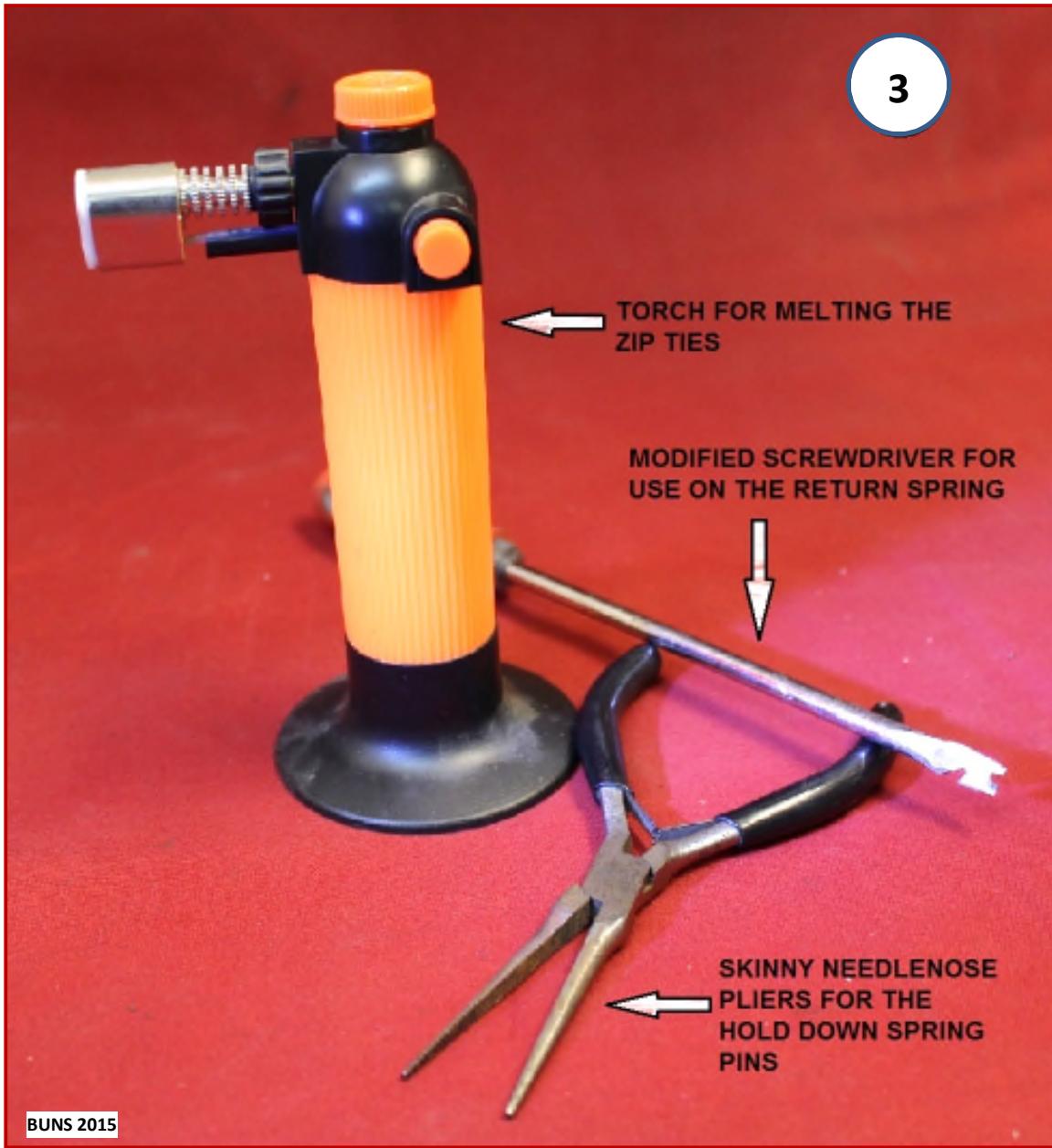
After removal of the disc, the shoes are removed in the following manner.

1. Remove retractor spring at the top of the shoes. Remove hold down springs on primary and secondary shoes.
2. The shoes can now be removed by pulling them away from the anchor pin.
3. Remove the adjusting screw spring and adjusting screw from the shoes.



Dave Z

Next, remove the retractor spring (Part #5 in the GM Diagram - Figure # 12) shown in Figs. 1 and 12 using the modified screwdriver shown below (Fig. 3)



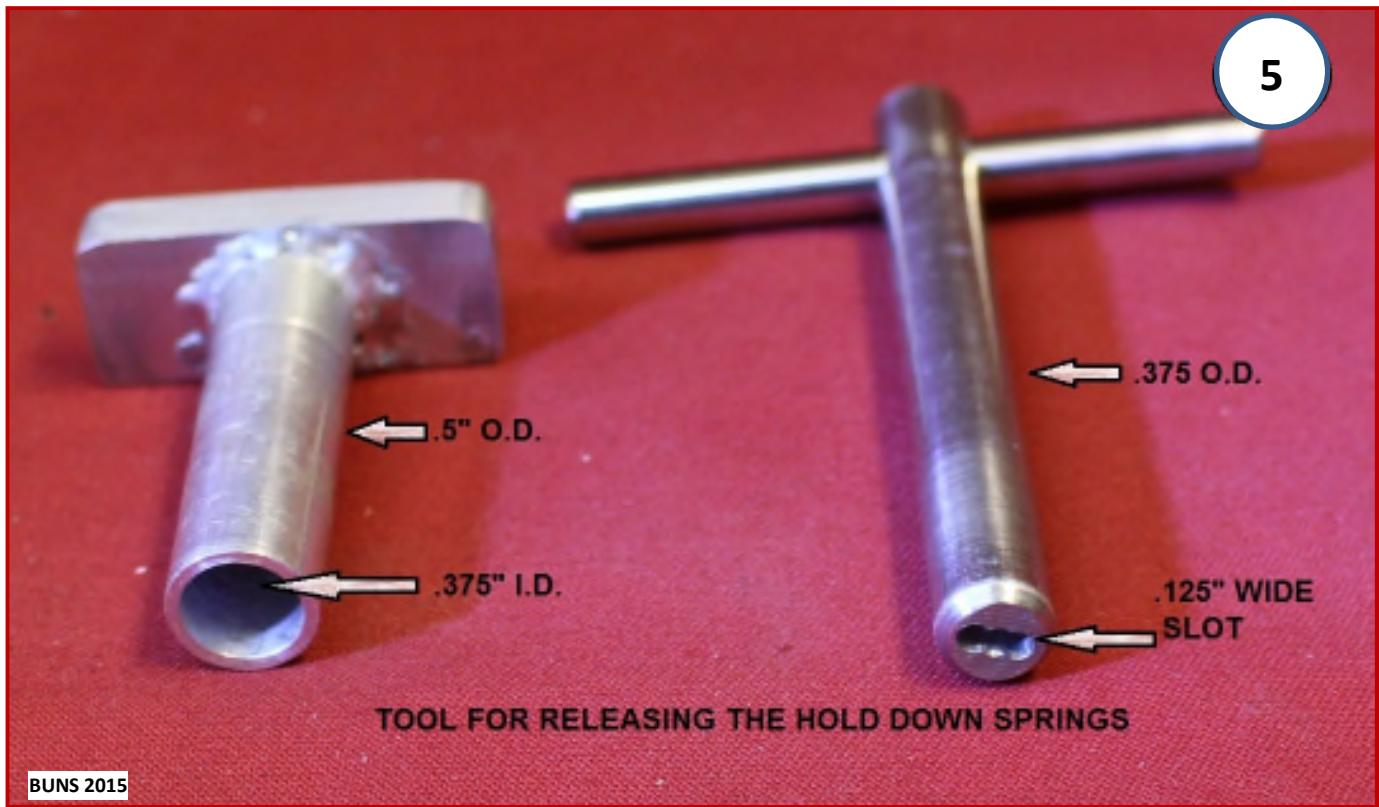
Next, you will need to remove the hold down springs (Part Numbers 2 and 8). You can do this by compressing the springs with whatever you have available, and using a pair of skinny needle nose pliers through the access hole to turn the pin (Part Number 3). I built a tool to make this easier, but I have the equipment to do this. Figures 4, 5, 6.

4



TOOL-HOLD DOWN SPRING

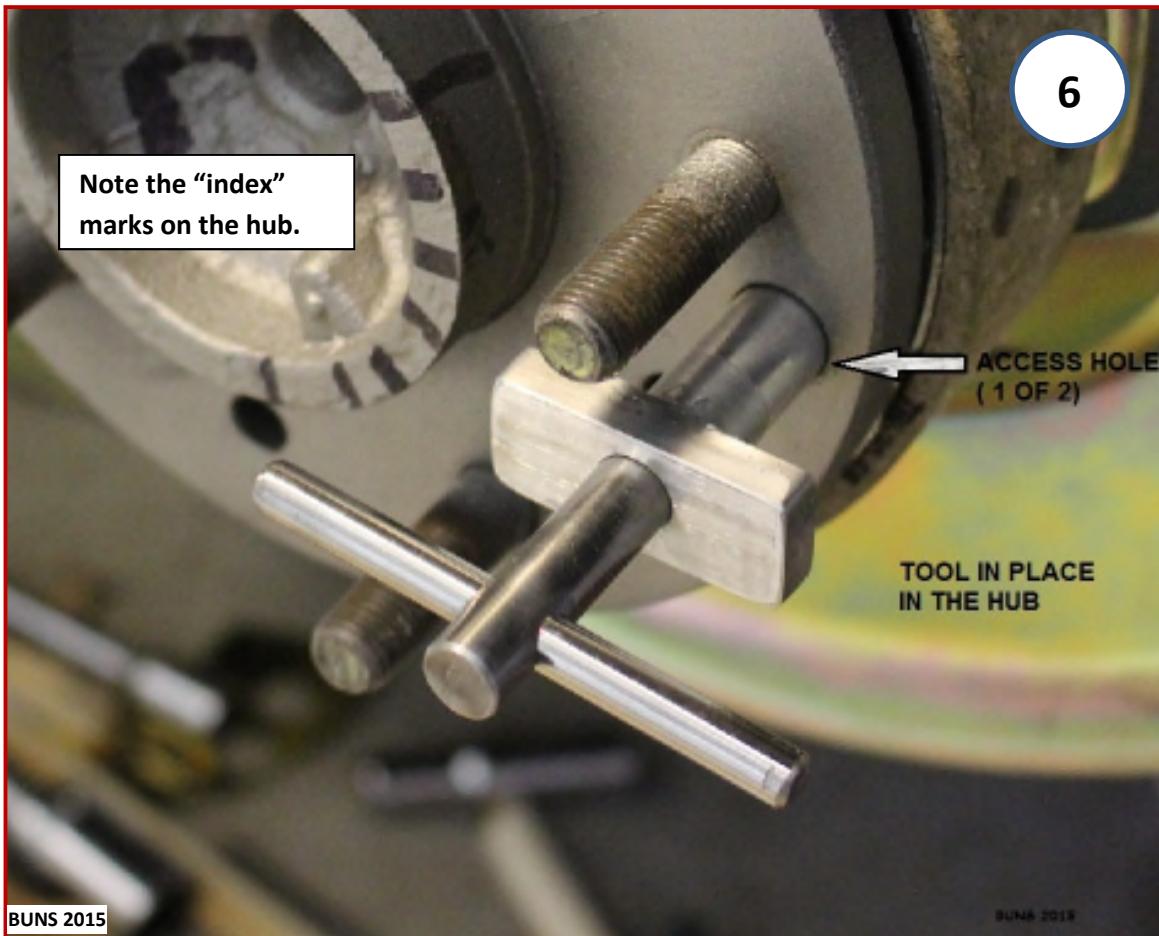
5



TOOL FOR RELEASING THE HOLD DOWN SPRINGS

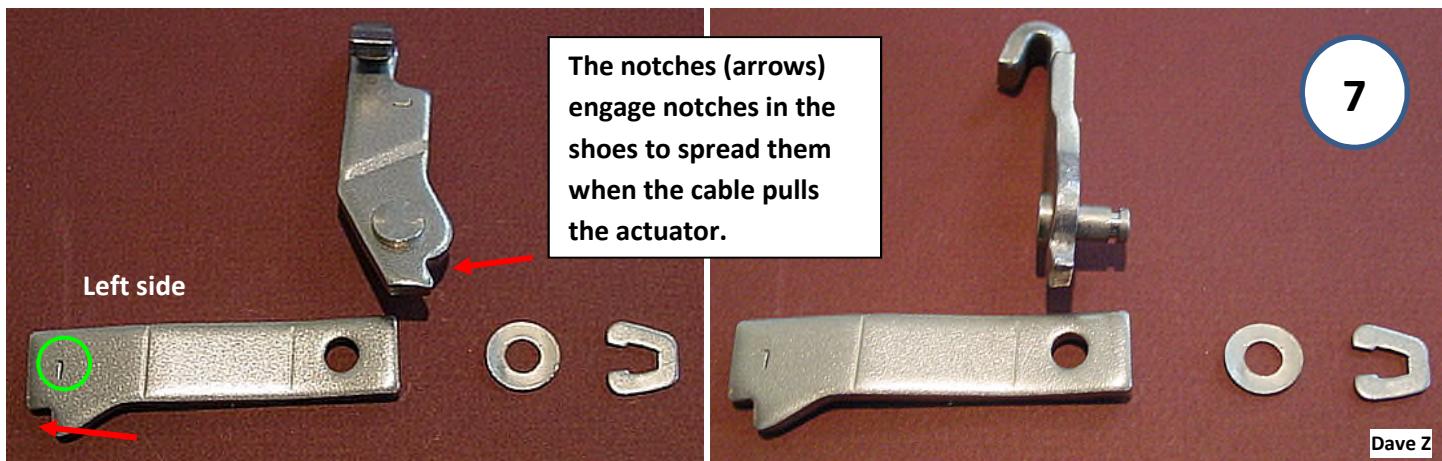
BUNS 2015

The tool is operated by pushing on the T-handle tube (A) to compress the hold-down spring while engaging the tip of the pin with the rod (B) to turn it to release the slotted cap from the pin. One might make a similar tool using brass tubing of appropriate size (hobby shops or big box stores) and a slotted piece of doweling to turn the pin.



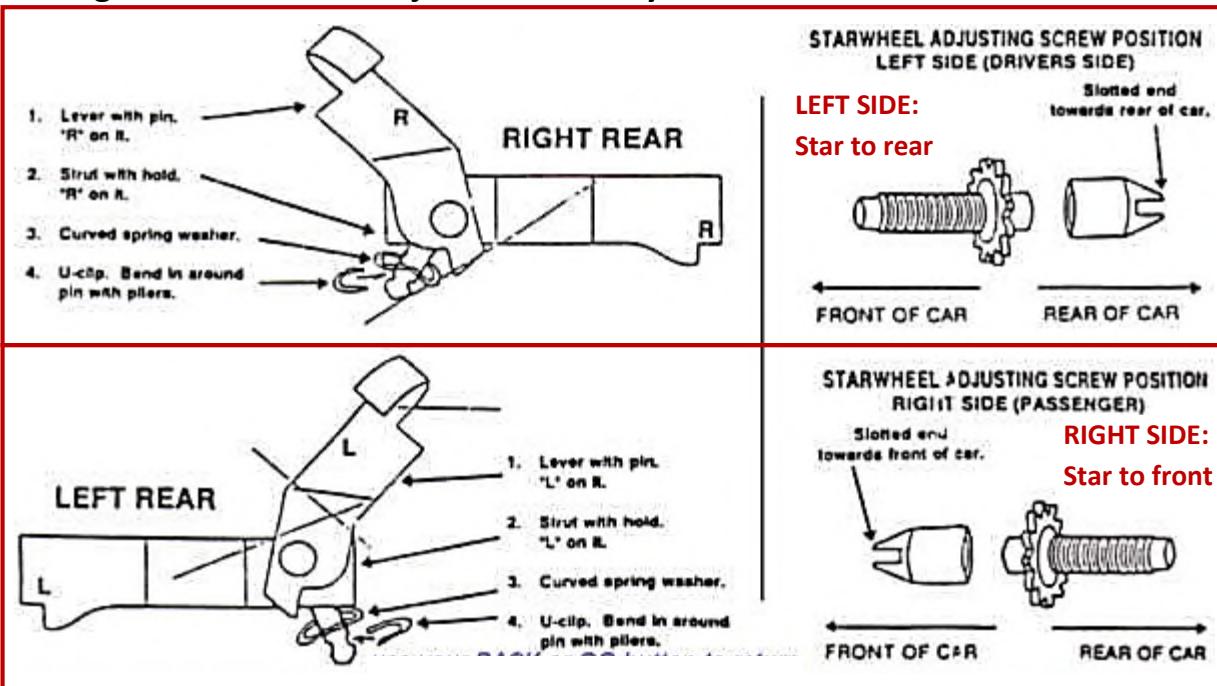
You can now remove the shoes by spreading them apart at the top and lowering them down. Remove the bottom spring and adjustor (Part Numbers **9** and **10**).

Now would be a good time to inspect the **actuating lever** (Part Number **4** and Fig. **7** below). Most rebuild kits come with new ones but they are a pain to replace. If you can get some lubrication on the pivot and it moves freely **you could** leave it but that is your call. If it is rusty you would be better off to replace it.



If you are replacing the actuator lever **BE SURE TO SQUEEZE THAT "C" CLIP FIRMLY** to engage the groove in the pivot pin. These parts are from a stainless steel replacement kit.

Be sure to align the star-wheel adjusters correctly for each side as shown here:

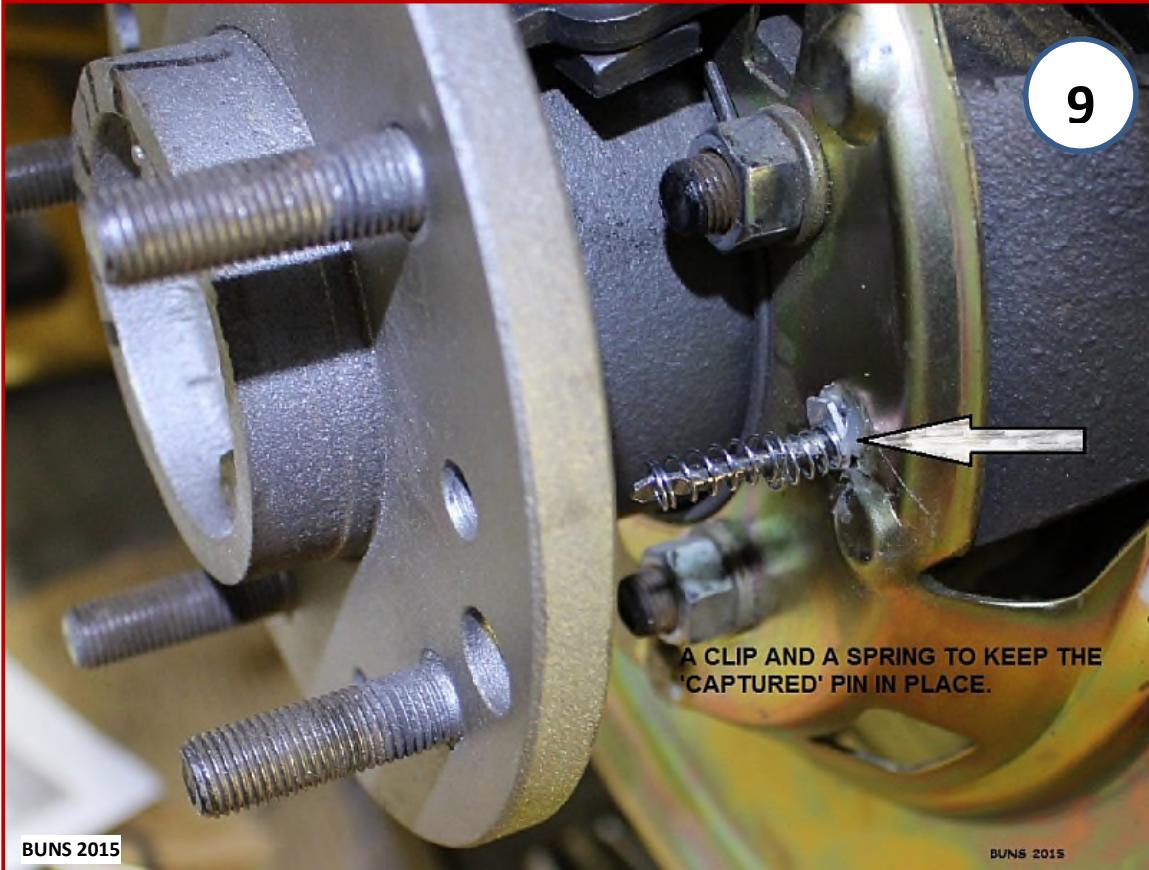


Source: <http://rowleycorvette.com/images/diagrm2.jpg>

Reassembly

Someone (see Rowley Corvette Tech paper) came up with the idea of using a dab of silicone on the base of the hold down pins to keep them in place (Fig. 8). This helps when installing the shoes over the pins, but the rear pin is captured by the caliper bracket so you can't stop it from moving back when installing the hold down spring and cap. I remedied this by installing a spring and a small clip to keep the pin in place. (Figure 9).

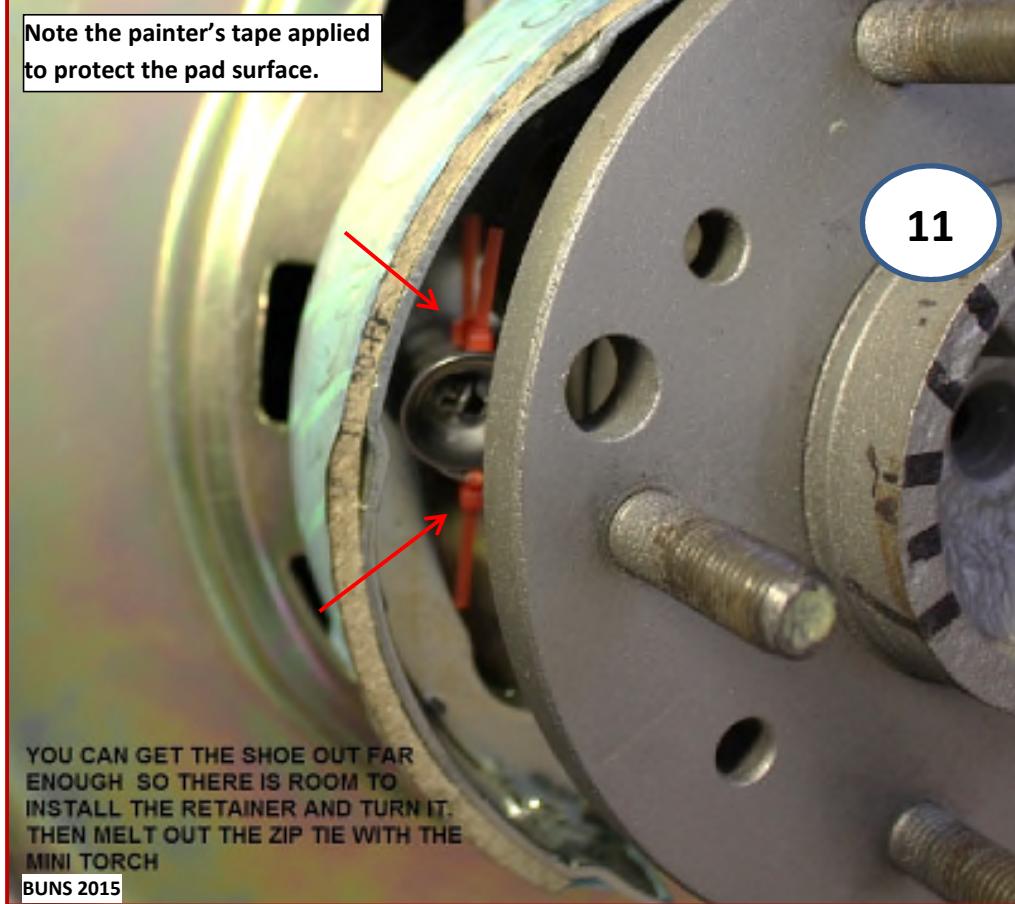




Put a light coat of lubricant on the raised pads on the backing plate and the inside of the adjustor screw assembly (#10). Attach the adjusting screw spring (#9) to the bottom hole in each shoe, and then insert the adjustor between the shoes. **IMPORTANT: On the driver's side brakes the star wheel goes next to the rear shoe. On the passenger side the star wheel goes next to the front shoe (see chart above).** Spread the shoes at the top and install them on the backing plate making sure the pins enter the holes in the shoes.

Now take some needle-nose vise grips and compress the hold down springs and secure them with the zip ties as shown in Figure 10. Pull one shoe out as far as you can. I used tape to hold them in place. Install the hold down spring and cap over the pin and turn it 90 degrees. Use the torch to melt the zip tie then remove the remnants with the needle nose pliers (Figure 11). Do the same to the other shoe. **Note: replacing these hold-down springs is probably the trickiest part of this job (as you can see in the Van Steel videos (see references))!**





Install the retractor spring (#5) to one shoe. Line up one of the access holes with the spring hole in the other shoe, then use the modified screwdriver to stretch the spring, **using another screwdriver through the access hole to push it into the spring hole in the shoe.** I ground a small amount off the end of the spring to make the spring insertion easier. **Make sure the notches in the actuating lever are properly positioned in the notches in the shoe** (see Fig. 7 above).

Install the rotor on the hub making sure the access holes in the rotor line up with the holes in the hub, or you won't be able to adjust the shoes. This should not be a problem if you realign the index marks you made before removing the rotor. Install 3 or 4 wheel nuts on the studs (**bevel out**), and turn the rotor until you can see the star wheel through the access hole. Insert an adjusting tool or screwdriver through the hole and **push down on the adjustor star wheel (i.e., rotate the teeth toward the floor) to expand it.** Do this until the rotor will not move, then back it off until you feel a slight drag. Tighten the cable at the equalizer making sure the rotor still moves. Replace the caliper and wheel. The new shoes will need to be burnished in to the rotor, so you will need to re-adjust the shoes after doing this.

The reason for burnishing in the new shoes is quite simple. You need the new shoes to have as much contact area with the hat ("drum") on the rotor as possible. On a car with drum brakes this is accomplished every time you step on the brake pedal while moving. If you apply the parking brake with the car not moving, you have accomplished nothing. The chances of new shoes having the same arc as the hat are slim to none.

Now get the car back on the ground and go for a drive. Get it up to about 30 MPH and pull on the parking brake lever. Do this several times, but let them cool off before doing it again.

Some good info here: [Brake Pad Bedding Explained \(Corvette Central\)](#)

After the burnishing the new shoes, you should remove the wheels and adjust the parking brake according to the factory manual.

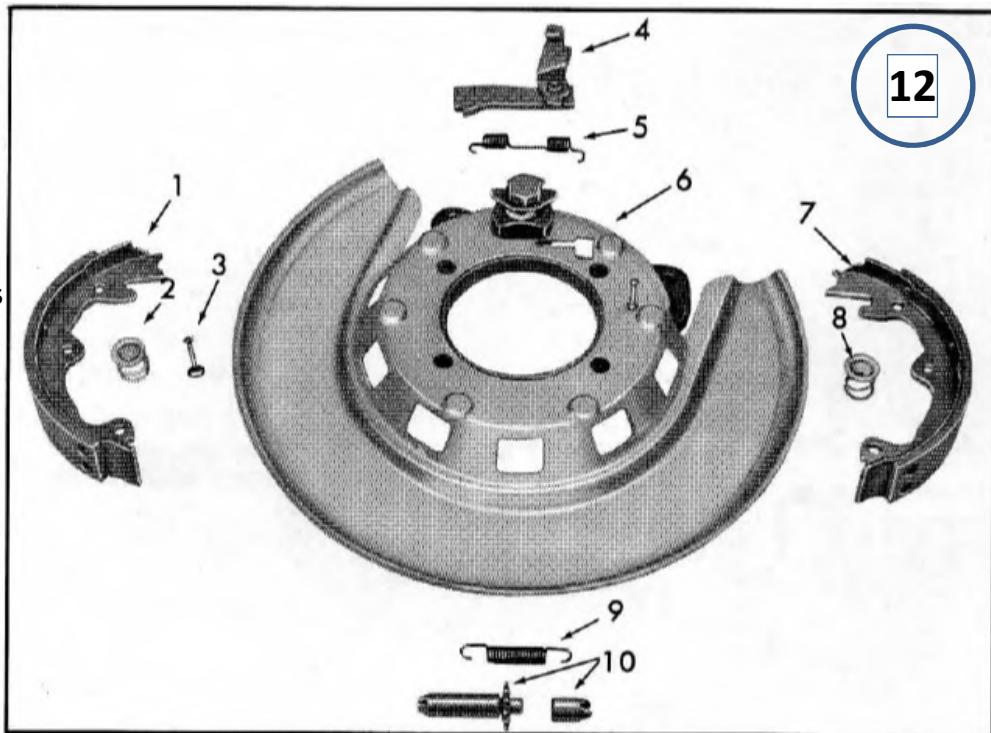


Fig. 8 - Exploded View of Parking Brake Shoes

- 1. Parking Brake Shoe
- 2. Hold Down Spring and Cap
- 3. Hold Down Pin
- 4. Actuating Lever
- 5. Retractor Spring

- 6. Backing Plate
- 7. Parking Plate
- 8. Hold Down Spring and Cap
- 9. Adjusting Screw Spring
- 10. Adjusting Screw Assembly

PARKING BRAKE SHOES (Fig. 8)

Removal

NOTE: It will be necessary to remove the disc assembly to change the shoes on the parking brake. This will necessitate the removal of the wheels, calipers and drive spindle, since the disc is riveted to the spindle. (Optional: knock off wheels – remove special adaptor.) Refer to Section 4 of this manual.

After removal of the disc, the shoes are removed in the following manner.

1. Remove retractor spring at the top of the shoes. Remove hold down springs on primary and secondary shoes.
2. The shoes can now be removed by pulling them away from the anchor pin.
3. Remove the adjusting screw spring and adjusting screw from the shoes.

1. Put light coat of lubriplate on pads on backing plate and on the threads of the adjusting screw.
2. Attach adjusting screw spring to the bottom hole in each shoe.
3. Insert the star wheel between the shoes. (On left hand brakes, the star wheel goes next to the rear shoe; on right hand brakes, the star wheel goes next to the forward shoe).
4. Install the shoes on the backing plate by spreading them and placing them around the anchor pin.
5. Install the hold down springs on the hold down nails.
6. Install retractor spring on one shoe and stretch to other shoe.

CAUTION: Make sure that the lever assembly which spreads the shoes is located so that the notches on the lever fit against the shoes.

7. The disc is now replaced as outlined in section 4 of this manual.
8. Install the caliper and bleed brakes as necessary.
9. Adjust the parking brake as previously outlined in this section.
10. Install wheels and lower vehicle.

**From the '65 Shop Manual
Supplement, ST 60 Sect. 5-5**

General Motors Corp., 1964

References:

- **1965 CORVETTE SHOP, MANUAL SUPPLEMENT**, Section 5: Brakes, General Motors Corp., 1964
- **'65-'82 CORVETTE PARKING BRAKE HARDWARE & SHOE INSTALLATION**. Rowley Corvette Supply Inc.
http://rowleycorvette.com/corvette_repair.html
- **1967-1982 Corvette Parking Brake Rebuild**
<http://www.corvettemagazine.com/tech...brake-rebuild/>
- **C2 Corvette Restoration – The Ultimate Brake Guide, Chevy DIY Website**
<http://www.chevydiy.com/c2-corvette-restoration-ultimate-brake-guide/>
- **YouTube videos by Van Steel Corvette:**
63-82 Corvette Parking Brake How to - Part 1: [Link to Part 1](#)
63-82 Corvette Parking Brake How to - Part 2: [Link to Part 2](#)
- **1967 Corvette Parking Brake Rebuild.** Steve Gansky. Delaware Valley NCRS Chapter Newsletter. Feb. 2013. Pgs. 7-10.
http://www.delvalncrs.org/files/Del_Val_NCRS_Newsletter_Feb_2013.pdf
- **Disc Brake Parking Brake Springs: the easy.** Robert Pelland, The Corvette Restorer, Vol. 28, No. 3, Winter 2002. (He has some tips on how to install the Retractor Spring using a zip tie to drag the spring across to the second mounting hole in the other shoe.)

Supplemental Information added Dec. 27, 2015

The information below regarding changes to the parking brake lever and mounting bracket for 1965-66 Corvettes was compiled thanks to a tip from Tim Welch regarding his coming across the Technical Service Bulletin (TSB#66-59, May 4, 1966) from Chevrolet, and information at Long Island Corvette's web site, about the changes to the lever and the modification of the lever pivot mounting bracket to accommodate the new ("second design") lever. The change was made in an attempt to alleviate complaints about the parking brake not holding. The second design lever increased the pulling force applied to the rear parking brake cable and hence the parking-brake shoes.

Parking brake lever modification – 1965-66 Corvettes

PDF compiled by Dave Zuberer

The materials below relate to the change in the parking brake lever and bracket for the 65-66 Corvettes. The information is derived from materials presented at the Long Island Corvette web site ([Link here](#)) and from Technical Service Bulletin TSB #66-59 issued by Chevrolet on May 4, 1966 (a facsimile of which is appended at the end of this document). Link to document at Corvette Action Center ([CAC Link Here](#))

FROM THE LIC WEB SITE:

Subject: Chevrolet Emergency Brake Service Bulletin

Background: Emergency brake is hard to operate and ineffective in stopping or holding car on a hill. Most '64-'66 Corvettes before 1 April '66 had parking brake lever PN: 3842938 as per assembly manual. This lever did not allow user to apply adequate force to the Emergency operating cable with a reasonable force on the Emergency Brake pull handle.

A **Technical Service Bulletin TSB #66-59, HIGH PARKING BRAKE APPLICATION EFFORT** - was issued on May 4, 1966 to instruct dealers to modify the emergency brake bracket and install a new lever.

The Emergency Brake is a pull handle under the dash, attached to the frame mounted lever via a cable, the cable, pulley and bracket are mounted to the outside of the fire wall and direct the cable downward to the lever arm and then to a pull rod with cable holder and two self-locking adjusting nuts. This pulls the emergency brake cable that attaches to both rear brake shoes. A large return spring is used to pull the lever to its retracted position. .

After 01 April 66 the lever used in production was changed and was assigned PN:3899399. This new design **changed the linkage ratio from 4.800 to 5.714**, increasing the force applied to the rear emergency brake cable. Assuming a 30 lb. pull on the brake handle the brake application force increased to 173 lb. from 144 lb. The levers are very similar, the long dimension is the same, the short dimension was reduced, the overall shape is the same, no PN was stamped on them, and **they can be identified only by the dimensions**. The major hole-to-hole dimension is 6.00" in all cases. The 1st design had a secondary hole center-to-center of 1.250". The second design had a secondary hole center-to-center of 1.020" (see LIC catalog illustrations below). The Service Bulletin shows the lever arm bracket modification that is necessary to clear the pull rod / lever connection with the new ratio (See Figure 3, pg. 3).

PN 3842938: (1st Design) ·

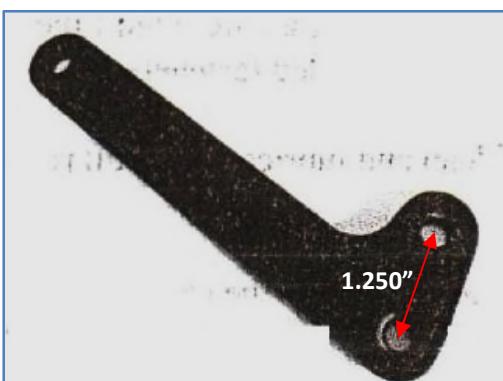


Fig.1: 64 to E66 Lever
PN:3842938

PN 3899399: (2nd Design)

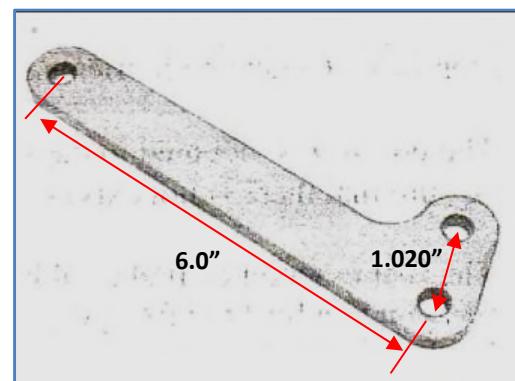
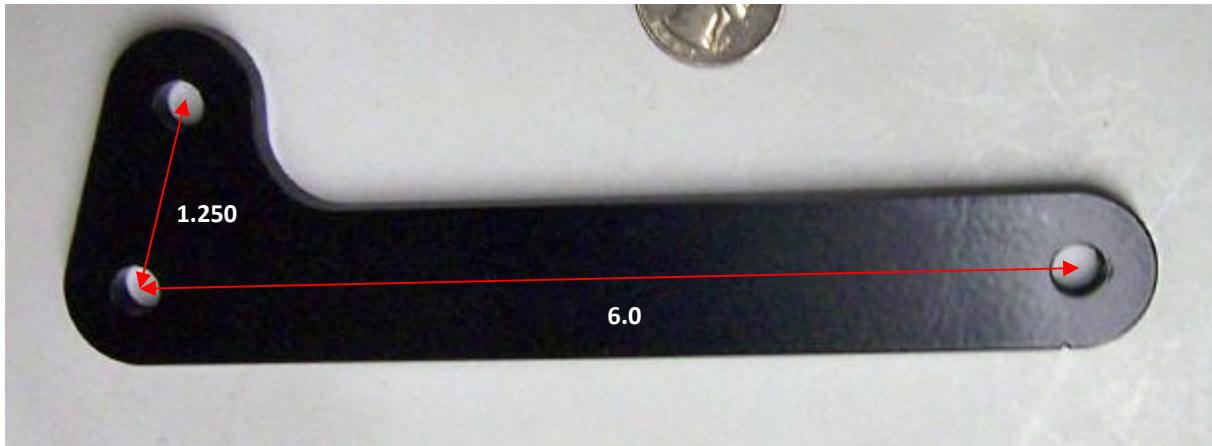


Fig.2: L66 Lever
PN:.3899399

First and second design parking brake levers as illustrated in the Long Island Corvette catalog:

64,65,66 Corvette Park Brake Lever

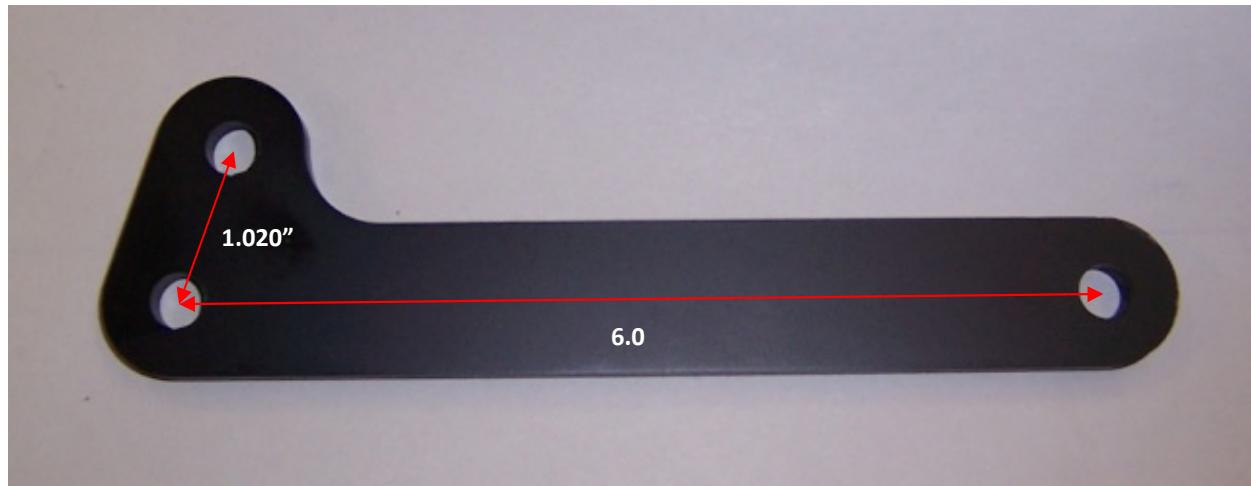
64,65,66 1st design = **47-18B** Park brake Lever



First Design (**PN:3842938**)
47-18B Parking Brake Lever

Chevy released Service Bulletin tsb #66-59 High Parking Brake Application Effort on May 4, 1966 to instruct dealers to modify the emergency brake bracket and install a new lever.

This is the 2nd design lever = #47-18BL-started appearing in production around April 66 on (they look very similar but there are differences in the dimensions of the part). You must modify the existing frame emergency brake bracket to install new lever.



Second Design (**PN:.3899399**)
47-18BL Park Brake Lever 66 Late (April 66>)

Factory frame mounting bracket modification occurred before the new lever arm was available for production. Several earlier '66 cars with lower SN (16,nnn) numbers were checked and they had the notch in the emergency brake bracket but had the 1st design lever.

The bracket notch is $3/8''$ X $5/8''$ with a $1/8$ in radius. See Fig 3:

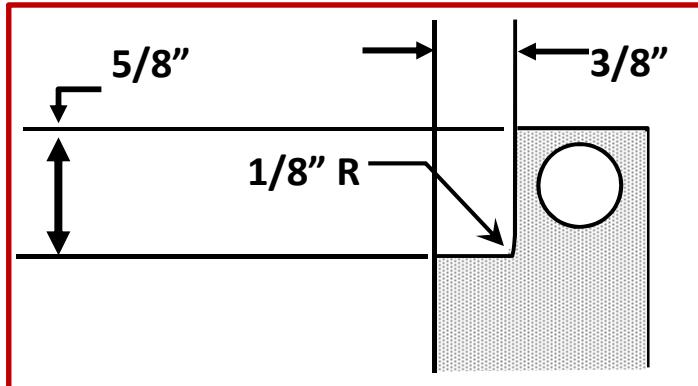


Fig3: Mounting Bracket Modification



**Technical Service Bulletin TSB #66-59
is appended at the end of the document.**

Why should you care:

- 1.0 From a practical point of view it - is nice to know that if needed, your emergency, brake will work.
- 2.0 If you are going for a PV (performance verification) then you do care because the 1st design lever will make it difficult for you to pass the Emergency Brake functionality test.

Common Problems:

1. There are other reasons the Emergency Brake effort is very high. If cars have been rebuilt the bolt mounting the pulley on the firewall **may not be a shoulder bolt** and the, bronze bushing may not be lubricated. Disassemble, clean and lubricate - replace bolt and pulley if necessary.
2. The cable is attached to the lever with a cable bracket I clevis pin I cotter key. Clean and make sure the clevis is free to move. Lubricate with a high-temperature grease.
3. The lever is mounted on the bottom of the frame bracket under the car **with the bolt facing downward**, shoulder spacer facing upward (through the frame bracket) and locking nut. **When cars are rebuilt the spacer is often lost.** Clean and lubricate the spacer I lever and if necessary replace corroded fasteners.
4. The pull rod is mounted to the lever with a washer I spring J clip. Clean and lubricate the pull rod and make sure that there is not excessive ware on the lever or pull rod.
5. The rear emergency brake cable is mounted with a U shaped U bracket that holds the cable captive and allows you to adjust the free play in the emergency brake system. Make sure that new nuts are used and the spring is present to control cable tension and release of the brake.

Replace Lever with 2nd Design:

Replacing the 1st design lever with the 2nd design requires that a clearance notch be cut into the frame mounting bracket. The service bulletin describes this modification. You can use a small hack saw, or die grinder with a burr to make the notch in the bracket. After you are satisfied that adequate clearance for the pull-rod end is available, mount the lever to the frame bracket. It is time to clean and paint the modified frame bracket. Assemble as in the service manual, and make final adjustments.

Adjustments:

1. Adjust the emergency brake shoes according to the Chevrolet Service Manual.
2. Adjust the cable / pull rod to allow some free travel and not be trying to apply the emergency brake.

Burnish new parking brake shoes:

Apply the emergency brake lightly and drive the car for a few hundred feet to make sure the new parking brake shoes are seated. This was done at the factory by pulling the car off the production line with the Emergency Brakes applied and driving to the parking/shipping lot. (Courtesy of Delco Products Brake Engineer Ret.)

Test:

Test the functionality of the emergency brake by setting the brake, putting the car in low gear and letting out the clutch. The engine should die before the car moves. In the case of a PowerGlide the emergency brake should hold the car in the **Drive** position without the service brake being applied.

Never test this on the open road by pulling the emergency brake at 50 mph. These are mechanical brakes and may cause the car to veer off course.

At this point if all is proper your emergency brake should operate properly.

END MATERIAL FROM LIC WEB SITE

Technical Service Bulletin #66-59

Subject: High Parking Brake Application Effort

Model and Year: 1965 - 1966 Corvette

Source: Chevrolet Technical Service Bulletin

Bulletin No: TSB #66-59

Section: V

Date: May 4, 1966

TO: ALL CHEVROLET DEALERS

High parking brake application effort may be experienced on 1965-66 Corvettes due to the low mechanical advantage obtained from the relay lever.

To reduce application effort, a revised parking brake relay lever, with a higher mechanical advantage, was effective in production 4-1-66, Corvette Serial No. 6S118091. This relays lever, Part No. 3899399, is also used for service on 1965 and early 1966 Corvettes.

When installing the revised lever on 1965 and early 1966 models, reworking of the frame attaching bracket is necessary to provide rod clearance when the brake is fully released. The attaching bracket rework is shown in the attached sketch.

ZCSR
MR. D. L. BURDETT
CHEVROLET MOTOR DIVISION
P. O. BOX 176
NORTH SALT LAKE, UTAH 84054

36-7

