

Rebuilding the Overdrive Solenoid

The Overdrive Solenoid is one of the important ingredients in a full-functional Overdrive. It seldom fails, but when it does nothing works. The Solenoid is that round thing sticking out from the side of your Overdrive. Some are mounted on the driver's side and some on the passenger's side depending on your specific model. There are two wires attached. The terminals are usually marked No.4 and No.6.

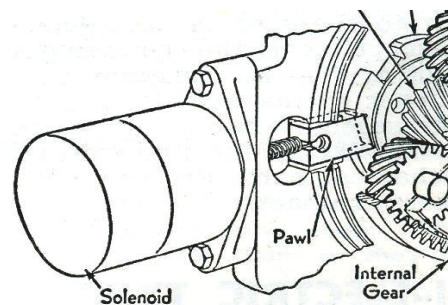


The Overdrive unit itself is bolted to the rear of your transmission and appears to be a part of the transmission itself. The Solenoid is a large electromagnetic unit with a long central plunger that activates the Overdrive by driving the plunger against a pawl inside the Overdrive. On the Kaiser Darrin there is not sufficient space for this unit to protrude if mounted in its normal fashion so it is mounted under the Overdrive unit and the plunger is attached to an enclosed lever arrangement that operates the Overdrive unit itself.

There were three type of Solenoids used on the Kaiser-Frazer cars. They all appear similar and all operate in the same manner although they are not totally interchangeable. Some of the mounting tabs and wiring terminal locations vary between the different types but they all perform the same function and are wired the same.

If you suspect your Solenoid is defective after performing the tests as outlined in your manual you can test it further in the following manner.

Testing your Solenoid - To perform a test on your Solenoid, it must be removed from the car. First, disconnect the wires and mark them with tape or a tag so you know which terminals they were attached to. Leave the two wire terminal screws out. Remove the two mounting screws that attach the Solenoid to the Overdrive unit. **Note: It will not pull straight out.** You will need to rotate the Solenoid clockwise about 1/3 rd turn. You can then pull the Solenoid out of the Overdrive unit. The end of the plunger has a round bulb that is ground flat on two sides. A common problem I find in many non-working Overdrives is the plunger was not engaged properly by the last person that installed it. If the plunger is not rotated and "seated" properly into the Overdrive pawl it will not function properly. If your Solenoid pulls out easily without requiring rotation, this may be one of your problems.



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Next lay the Solenoid on your work bench and attach the body of the Solenoid to a 6-volt positive ground (+) and the No. 4 terminal to the battery hot side (-). The Solenoid plunger should quickly snap outward firmly. Caution: Do not apply 12-volts or you may destroy the Solenoid. If the plunger does not snap out firmly, is slow to move, or doesn't move at all, disassembly will be required.

Remove the two nuts holding the cap on the Solenoid. Take care when removing the cap. Inside you will see two sets of contacts. The top set is used to momentarily ground out your ignition upon "kick-down." The bottom set provides a path for full 6-volt current to pull up the plunger (push it out). If either of these contacts are rusted and broken beyond repair you will need to send your unit out to a professional shop for replacement of the contacts. If the contacts are intact you should be able to salvage the unit. There is also a small insulated bumper on the tip of the top contact strip. It must be in place for proper operation. If it is missing you'll have a hard time locating a replacement and will probably have to send the unit out for professional repair.



If all appears okay so far, next remove the two nuts holding the top contact plate. Take care to retain all the parts, including the large spring, in the correct sequence for reassembly later. Remember, you have to put it back together. Remove the plunger. You may find that the plunger is stuck in the housing. Push it out by pressing the tip (bulb end) against a piece of wood. Now clean the unit and the plunger very good in some mineral spirits or other non-aggressive parts cleaner. If the plunger shows signs of rust, take some fine emery cloth and shine it. You can also use the emery cloth to clean the inside of the housing where the plunger fits. Just be careful not to be too aggressive. Test that the plunger will easily fit into the housing and move freely in and out. I take a small amount of pure silicone grease and lightly coat the plunger and the inside of the housing. Use a rag to remove any excess. The grease is not required and may even attract dirt quicker than just leaving it a bare, but it has worked well for me.

Next take a points file, or a small piece of very fine emery cloth, and gently clean the bottom set of contacts. (Caution: Do not use sandpaper) Be sure there is some tension on them. The emery cloth should drag. Also clean the set of contacts on the top plate. Then clean both sets with some contact cleaner.

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Reassemble the plunger in the housing, with the spring and other parts, and check that the contacts will be forced open (not touching each other) when the plunger is pushed down. If not, adjust the contacts.

Reassemble the unit, making sure the little tab on the large spring washer is engaged onto the side pawl. A little dab of silicone grease may also be applied there if desired. Install the nuts and lock washers and tightened firmly. Check that the top set of contacts are open (not touching each other). The spring should be holding the plunger at the top which will open the top set of contacts. Be sure the bottom set of contacts are made (touching together).

Now re-test the unit. Again lay the Solenoid on your work bench and attach the body of the Solenoid to a 6-volt positive ground (+) and the No. 4 terminal to the battery hot side (-). The Solenoid plunger should quickly snap outward firmly.

*As a finishing touch, clean the outside of the unit with laquer thinner and spray it with the color of your choice. Eastwood (800-345-1178) sells some gas tank paint (**10030Z**) that looks like the original zinc coating. Use new screws and washers for the wiring terminals and you have a "show" unit that works!*

- Kaiser Bill