

Lubricating Midyear Windshield Wiper Transmissions

by Joe Randolph

Contrary to what its name implies, a wiper transmission is not part of the wiper-motor assembly. The wiper transmission is the assembly that holds the shaft on which the wiper-arm rotates. The shaft inside the wiper transmission is supported at the top and bottom by two Oilite® bushings. Oilite® is a porous bronze material that is saturated with oil to form a self-lubricating bearing. GM used this material to build permanently lubricated wiper transmissions that have no provisions for adding lubricant. This design was used in C2 Corvettes and probably other generations as well.

The problem with permanently lubricated Oilite bushings is that they eventually dry out and start to squeak and bind. I experienced this many years ago in a 1961 Chevy that I owned and solved the problem with the procedure described here. As a preventative measure, I applied the same procedure to my 1967 Corvette wiper transmissions while preparing the car for the National Road Tour to Hampton, Virginia.

During the ten years I had owned my car, the windshield wipers had never been operated for more than a minute or so as part of Flight judging. I figured (correctly, as it turned out) that the wipers might have to operate for much longer periods on the road tour. In view of this, I decided some preventative maintenance might be appropriate. After all, those wipers transmissions had last been lubricated by GM 46 years before.

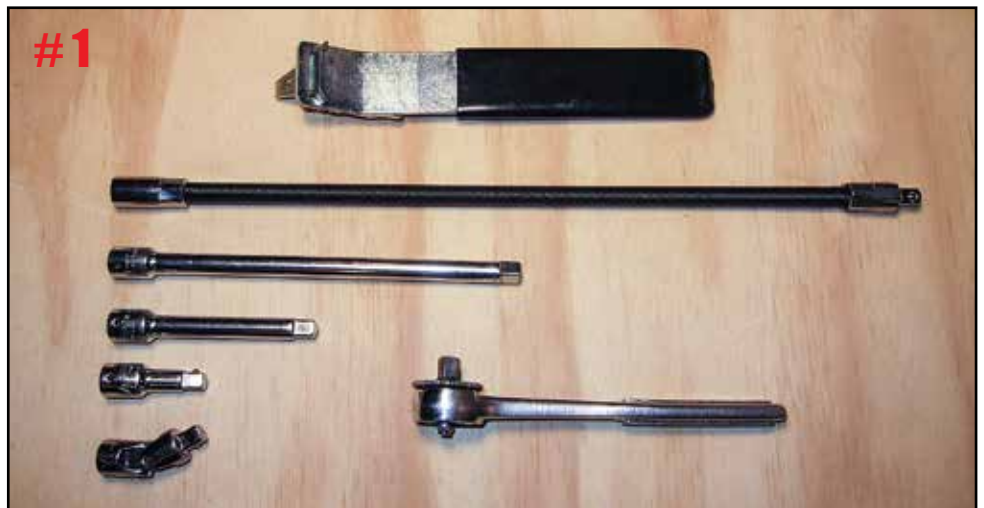
Photo 1 shows some tools that are helpful for removing and reinstalling the wiper transmissions. The tool at the top is an inexpensive wiper arm removal tool that allows release of the spring tension so the wiper arm can then be gently lifted off without damaging anything. It is far preferable to fumbling around with a screwdriver and yanking on the wiper arm. The remaining items are a collection of quarter-inch-drive extensions that help get at the transmission bolts under the dash on the driver's side. The long black extension at the top is a flexible shaft that is very helpful for reaching a bolt from an odd angle. The small universal joint at the bottom provides almost as much flexibility for dealing with odd angles.

The first step in removing the wiper transmissions is to remove the wiper arms from the transmission shafts. Once the arms are removed, everything else is done from under the dash. The passenger-side wiper transmission is easily accessed by removing the glove box, followed by the three easy-to-reach bolts that retain the transmission to the firewall.

Note that the relay rod connected to the transmission is permanently attached, so getting the transmission out of the car requires that this rod be disconnected from where it ties to the wiper motor. This is easily accomplished by removing a spring clip. Pay attention to which relay rod goes on the wiper motor first, so that you can reassemble things in the same order.

The driver-side wiper transmission is much harder to get to, but nothing needs to be removed to gain access except for the air-conditioning duct if the car is so equipped.

For working under the dash on the driver's side, I strongly recommend removing the seat, which can be done in just a few minutes by removing the four bolts that mount it to the floor. This allows you to lie comfortably on your back with your head facing up toward the underside of the dash. A pillow or a folded drop cloth placed over the brake and clutch pedals makes the working environment almost pleasant. If you don't remove the seat, you will end up contorting your back and neck into very uncomfortable positions and risking injury.



Even with this step taken, removing the driver-side wiper transmission is tedious. Be prepared with a collection

of socket extensions similar to what is shown in **Photo 1**. This is where it really helps to be comfortable so that you can be patient while removing the three bolts that retain the transmission in the firewall.

Once the wiper transmissions are removed from the car, the procedure for re-lubricating them involves drilling a small hole in the middle of the casting to gain access to the area between the two Oilite® bushings, adding some motor oil through this hole, and then sealing the hole.

Photo 2 shows the transmission supported in a drill press for boring the



hole. I chose to thread the hole with a 1/4-20 tap so that I could use a short 1/4-20 hex-head setscrew to plug the hole. The setscrew needs to be fairly short because it must only plug the hole in the casting without contacting the shaft inside. I intentionally used only the tapered portion of the tap so that the setscrew would have a slight interference fit in the soft casting material and I also put some sealant on the threads.

Photo 3 shows the parts involved. Note that simpler solutions could be

used, such as drilling a smaller hole and plugging it with a bit of JB Weld.

The hole provides access to the cavity containing the inside ends of the two bushings. I added some motor oil to the cavity and rotated the shaft in the bushings until some of the oil appeared at the outside end of each bushing as shown in **Photos 4 and 5**. Warming the casting with some light heat from a heat gun helped to accelerate this process. I then filled the cavity with oil and left the transmission sitting overnight to allow the oil to soak into the bushings.



Prior to closing the oil hole, it is important to drain any excess oil from the cavity. Otherwise, the excess oil will eventually work its way out of the lower end of the installed wiper transmission and drip on the floor inside the car. (Do not ask how I know this!)

Photo 6 shows the hole plugged with the setscrew and **Photo 7** shows the new plastic cover installed on the transmission. I found that a small amount of heat from a heat gun allowed the new cover to stretch over the wiper mount and snap back into shape under the shoulder. In my case the original plastic covers were damaged from people prying off the wiper arm without using the proper tool, so I simply cut off the originals and discarded them. If you want to remove original covers and reuse them, that is probably possible but it would be challenging.

In addition to the wiper transmission shafts needing lubrication, there are also ball-and-socket joints at the transmission ends of the relay rods and Oilite® bushings at the wiper motor ends of the relay rods. These should each receive a few drops of oil while you have the transmissions and relay rods out of the car.



When reinstalling the wiper transmissions in the cowl, a sealant must be applied to prevent water from leaking past the junction of the cowl and the wiper transmission. GM used liberal amounts of some sort of black sealant that has been reported to be a polyurethane compound. I used Loctite S30 polyurethane sealant made for roof flashing and found it satisfactory.

Joe Randolph
NCRS# 37610
jpr3@aol.com