02 CENTS WORTH

BY MIKE SELF

Col 76

WIPER WOES, part 1 Feb 2001

The windshield wipers are one of many small subsystems on a car—like the window cranks—that you hardly notice until you need 'em. Then you *really* notice if they're not working. With both wipers and window cranks, it's usually during a rainstorm (sunroof mechanisms qualify here too!)

Over the past 30 plus years of '02 ownership, my wiper problems always seemed to occur on trips and in the rain. Early in the 69's career, the wipers suddenly developed a reluctance to stop wiping, even with the switch turned off. In fact, they wouldn't stop at all unless I turned the ignition off. Switching the ignition back on again would sometimes cause them to start right up; other times they behaved themselves until the next rain and I had to use 'em again. I tracked that problem down to a fault in the self-parking (no relation) mechanism—that clever device that tells the wipers to stop neatly at the windshield's bottom edge rather than wherever they happened to be when you switched them off. One of the little contact arms had fallen off, so no longer sent the STOP NOW! signal to the motor. To my amazement, that contact plate was available as a spare part (this was 1970); ten minutes with a screwdriver and it was fixed. And I've never heard of that part failing since. Years later a resistor in the '73's wiper relay turned up its toes on the Pennsylvania Turnpike—in a rainstorm—requiring a four hundred mile drive with no wipers—in the rain. That's why I carry a spare wiper relay in the TRSK--my on-board Trip Reserve Spares Kit—another adapted Air Force idea.

The wiper systems on '02s look pretty much the same on the surface: motor mounted in the heater plenum chamber, straightforward linkage to the wiper arms, controlled by a dash or column switch, depending on the car's year. All have an accompanying windshield washer; the fortunate Europeans got optional washers and/or wipers on their headlights too.

It's the details that can trip you up, especially when you're trying to update, modify or just repair your car's mechanism with parts from other years. Another case of devil in the details.

A basic '02 wiper primer: two wiper assemblies—three if you count the 6v 1600s. Early cars have unshielded motors with three lead wires, a thermo-electric wash-wipe timer and no underdash relay. The change came with the *modell 71* intro, at VIN 2570001. At that point, the motors acquired a plastic weather shield, two extra lead wires, and an underdash relay that provides power to the motor and electronically controls the wash-wipe. In 1972, the wiper on-off function moved from the dash to the right side steering column stalk; the dash switch controlled the low-high speed function only. The '74-76 cars have all the wiper controls on the steering wheel stalk; the 75s and 76s also feature a fixed, five second delay added to the low and high speeds. This delay feature can be retrofitted to 72-74 '02s without too much difficulty.

Wiper motors seem to be pretty long-lived; they're easy to access—no underdash burrowing—but you pay the price with weather exposure. Early cars seemed to have more motor failures, and this might explain the addition of a plastic weather cover in mid-1971. A motor that keeps blowing fuses or won't work at all may be jammed by a rusted or frozen linkage. Unbolt the motor from its linkage and try the motor by itself. Then move the wiper linkage by hand. It should move very easily; if not, you may have to remove it from the car (not as hard as it looks, especially with the motor already out) and thoroughly lubricate all the moving parts. Then promise yourself that you'll faithfully do the lubrication thing at least annually: semiannually if you live in Florida or the Northwest.

Reluctant motors can be dismantled; a quick look will tell if the problem is fixable--a worn brush or broken wire. Any good electric motor shop can supply you with a brush that can be made to fit. If it's something fatal, like a burned up armature or a broken reduction gear, it's replacement motor time. You 6 volt 1600 owners, you're on your own. Six-volt parts were hard to find 20 years ago; call around some of the used parts sources in the *Roundel*; patience will eventually pay off. Or you can always convert your car to 12 volts!

The early, three wire wiper motor cars can easily be converted to use a later motor by making two modifications: drill three new mounting holes in the wiper mounting bracket (the triangular bolt pattern is inverted) or use the later bracket, and modify the wiring. Early wiper motors have three wires; later ones have five. Here's how to match the wiring:

new motor (5 wires)	car wiring (3 wires)
Black/yellow (low speed)	yellow
black/grey (high speed)	black
black (power)	green stripe
brown	ground to body
brown/red	clip off & insulate

If your wiper won't shut off when you turn the switch off, there are several possibilities but the most likely is a malfunctioning parking mechanism. Inside the wiper motor are two contact arms; one rides on a brass contact track (the track rotates with the wiper motor gearbox) that is a complete circle. The other arm rides in a concentric circular track with a section missing. One's a ground, the other's hot. When the second contact arm reaches the missing section in its track, current no longer flows and the wipers stop--conveniently in the parked position.

It's easy to check the parking mechanism. Remove the wiper motor and find the large (Coke can diameter) sheet steel plate with three screws around the perimeter and a single screw with lock nut in the center. This plate also has two wires leading out of it. On the inside end of these two wires are the two contact arms. Make sure (1) both wires are still soldered to their contacts (2) the contact arms inside are both intact and (3) they're making contact with their circular tracks (and the tracks aren't messed up). This is the problem I had with my 69. A new contact plate cured the problem. I was able to re-solder the broken contact arm on the old one and kept it for a spare. If you have to do the latter, solder carefully so as not to melt the plastic insulating ring that the wire passes through to reach the contact arm.

Next month we'll continue troubleshooting—looking at the three different wiper switches, wiring and the wash/wipe relay.

-30-

1078 words