

APPENDIX F

SHIFT SOLENOID INDICATOR LIGHTS

The Bendix Fingertip Gear Shift System installed on Cords in 1936 and 1937 for control of the remote gear box has a well deserved reputation for fickle operation. The multiplicity of contacts in this system leads to a high probability of failure or erratic operation. Age has not improved the system performance.

I have found it helpful to install on my cars a set of indicator lights that signal when the solenoid valves are energized. This consists of a small box, four pilot lights mounted in the cover of the box and a five conductor cable running from the box to the solenoid valve assembly on the transmission. The electrical leads terminate in alligator clips and the box is attached to the radio case with double-faced sponge tape so no permanent damage is done by this installation.

The indicator lamps can be any six volt lamp that has low current draw so it will not take power away from the solenoid coil. I have used both incandescent bulbs and light emitting diodes successfully.

This system has also served as an emergency "Manual" shift on occasion. When an intermittent contact somewhere has prevented shifting into reverse in a filling station parking lot where the car is pulled up against a concrete bumper, I have opened the box, attached the alligator clip of a test lead to the ammeter and then energized the solenoid coil for reverse through the indicator lamp lead.

The solenoids draw 2½ amps each.

WEAK POINTS TO WATCH IN TRANSMISSION WIRING:

1. Add 3 jumpers inside of solenoid box cover to front **3 pairs** of wire terminals. Make from #14 solid copper house wire about 5/8" long. (Reading from front) Gang 1&2, 3&4, 5&6. This eliminates high resistance between terminals and brass plate connections under them due to nearly 50 years of age.
2. Inspect shift rotor keyway on column shift switch, if there is difficulty in getting 4th gear, may be cracked out, while switch is out of arm, look and see if wire spacer disc (fiber) is installed on 10 wire loom to prevent shift pencil from eating wires in low-reverse position. I've seen too many cars without this part installed. (Not listed in parts list). Look at pencil contacts on switch to see if they are worn out - I've seen holes worn through the phosphor bronze fingers - How many thousands of shifts does that take? Likewise look at rotary contacts for wear. Slightly bend fingers for good contact with pencil - careful! Do not put pressure on bakelite! You should have a couple of special tools to get switch out and in - that dratted snap ring! I made a special remover tool and fish hook for getting the ring out and a 3-finger tube for putting the ring back in place.
3. Interlock Switch — look for loose caps on spring loaded terminals inside switch. I clean and solder all caps on carefully! or you will seize spring loaded button inside. A delicate job.
4. Watch for good contacts on Neutral Switch. Current is taken thru spring loaded hinge pins for this double contact switch. Also 3 wire harness must be very carefully soldered to the 3 terminals to prevent shorting - they really designed themselves into a corner on this one - there just "ain't" enough room!
5. The infamous 10 pin connector plug - best to fake this one with an empty housing.
6. Clutch Switch — look for swelled up fiber board "pusher". Must not be over .985" wide or will stick in case. Also look for wear and loose rivets on terminals.
7. Ignition Switch (original type) almost always needs rebuilding, contact overheating burns its way into the phenolic disc. After making new parts I solder rivets to terminals.