PARTS • ACCESSORIES • PRODUCT

SERVICE Counselor

PACKARD DIVISION
OF
STUDEBAKER-PACKARD CORPORATION

APPROVED Packard SERVICE

VOL. 29, NO. 11 NOVEMBER, 1955

Ultramatic Transmission

Push Button Type Control

56th Series

The new electric push button type control selects the driving range in the Ultramatic Transmission by merely pushing a button on the control panel. The control panel is mounted on the steering column, conveniently located for the driver.

There are six positions indicated on the panel. When a button is pushed down, an electric motor positions the manual valve in the transmission to the position selected.

The operation of the transmission with push button control is the same as with the manual selector lever, except that the ignition key must be turned on before the buttons will actuate the selector.

It also embodies a safety feature that after the car is stopped and the "P" (Park) button is pushed and the ignition switch turned off, the car will remain in "Park" regardless of what other buttons are pushed until the ignition switch is again turned on. However, the engine can not be started until either the "P" or "N" buttons are pushed.

Another safety feature, is the pressure switch (operated by governor pressure) that cuts off the circuit to "N," "P" and "R" buttons above 8 M.P.H. This prevents coasting in "Neutral," excessive wear on the parking pawl and damage to the reverse band if the "N," "P" or "R" button were accidently pushed while the car is in motion.

The car can be "rocked" to free it from sand, mud, snow or ice by alternately pushing the "L" and "R" buttons while applying a light pressure on the accelerator pedal.

PRELIMINARY SERVICE INSTRUCTIONS

If the push button control does not function properly, the three most likely causes are:

Faulty pressure switch.

Poor contact at the wiring harness connector at fire wall.

Shorted or pinched wires in the push button control housing on the steering column.

PRESSURE SWITCH: The pressure switch is located at the governor pressure test outlet directly back of the transmission breather. The circuit through the switch is broken at 10 lbs. governor pressure or at approximately 5 to 8 M.P.H. It can be checked with a test light with the car running on jacks.

WIRING HARNESS CONNECTOR: Disconnect the connector at the rear side of the fire wall and check the terminals between the two connectors for good contact.

PUSH BUTTON CONTROL HOUSING: Remove the four bolts that clamp the two halves of the switch housing to the steering column and remove the two housings.

Examine the wires for bare spots, or pinched wires that may cause a short and check the soldered connections at the ends of the wires.

REMOVING AND REPLACING BUTTON CONTROL AND WIRING HARNESS: Disconnect the connector at rear side of fire wall.

Remove the wires and terminals from the connector by pressing in on the lip of the terminal "A" Fig. 1, with a small thin screw driver and then pulling the wire and terminal through the connector. Remove all of the wires and terminals from the connector.

Disconnect the dark green wire, red wire and black wire (at steering column) from their individual bullet type connectors.

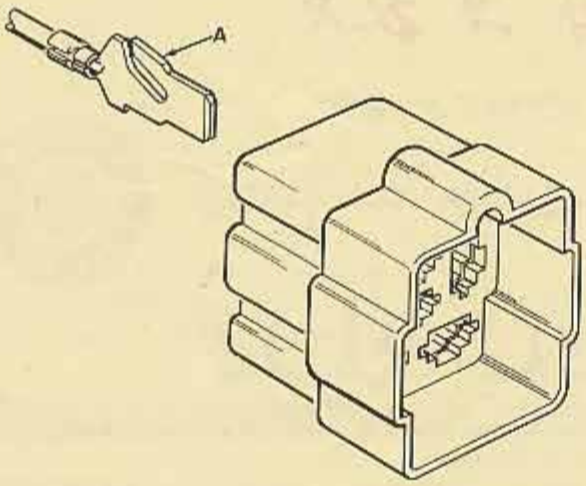

Fig. 1

Remove the four bolts that clamp the two halves of the push button switch housing to the steering column and remove the two housings.

While guiding the wires into the lower opening in the steering column, carefully pull the wires *one at a time* up through the steering column.

PUSH BUTTON SWITCHES AND WIRING TEST

The current is supplied to the "P, N, R" switches through the orange wire.

Connect the orange wire to a 12 volt battery, using a 12 volt test light, test switches and wiring as follows:

Push "P" button, test yellow wire.

Push "N" button, test gray wire.

Push "R" button, test brown wire.

The current is supplied to the other switches through the red and white tracer wire. Connect this wire to a 12 volt battery and test switches and wiring as follows:

Push "H" button, test white wire.

Push "D" button, test blue wire.

Push "L" button, test purple wire.

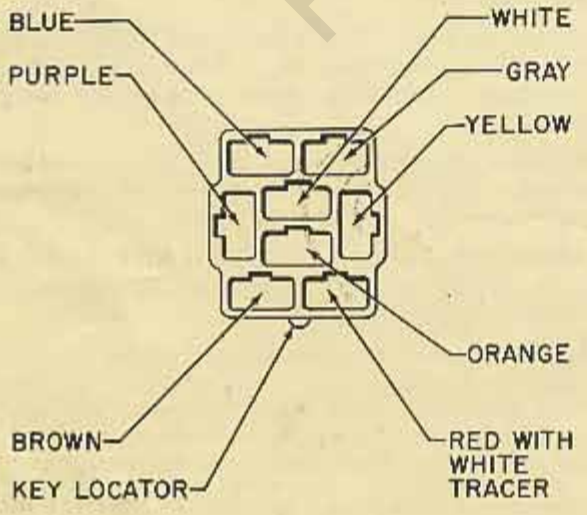

Fig. 2

When installing the wires through the opening in the steering column, lubricate the wires with lubriplate and pull them through *one at a time* with a piece of stove pipe wire.

Be extremely careful when installing the two halves of the switch housing on the steering column so as not to pinch the wires in the housing when the four bolts are tightened.

Install the switch wires in the connector at the locations shown in Fig. 2, *Note the key locator on the connector.* The terminals must be installed in the connector with the open side of the crimp on the terminal next to the wide flat in the connector, Fig. 3. (The crimp section of the terminal is the part that crimps

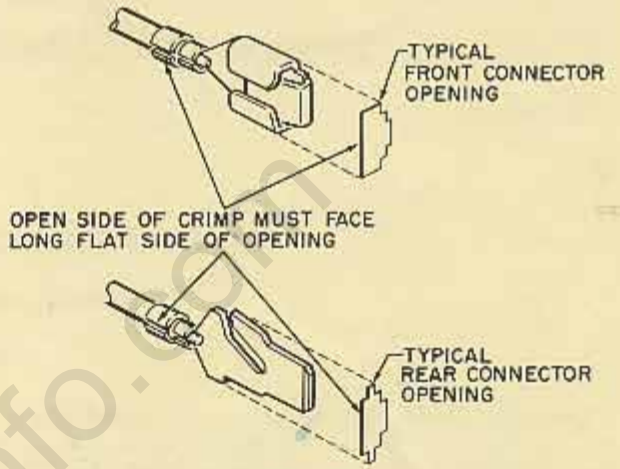

Fig. 3

over the insulated part of the wire.)

Push the connector on the fire wall connector.

Connect the dark green wire, red wire and black wire (at steering column) to their individual bullet type connectors.

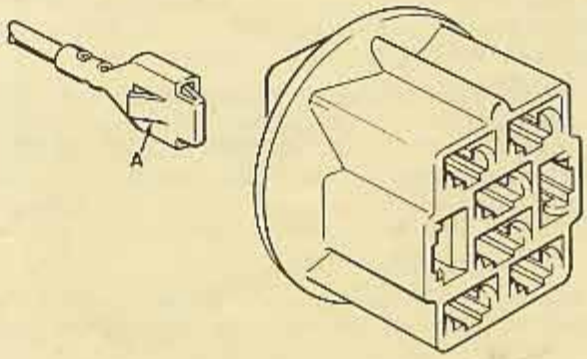

Fig. 4

To remove the wires from the front half of the fire wall connector, release the terminal lock "A" Fig. 4, by inserting a small thin bladed screw driver into the connector and press down on the lock while pulling on the wire.

When installing the wires and terminals in the front connector, refer to Fig. 2, and note the key locator so that the wires can be installed in their proper location. Be sure that the crimp on the terminal is next to the wide flat in the connector. See Fig. 3.

TRANSMISSION SHIFT CONTROL MOTOR

The shift control and motor assembly is mounted on the left side of the transmission with the outer end of the manual valve lever shaft secured in the sector gear with a tapered set screw and lock nut. The gear housing and motor is attached to the transmission with one stud and nut. Fig. 5, shows the sector gear "A," worm gear "B," worm gear brake "C" and brake tension spring "D."

The shift control and motor assembly can be removed from the transmission as follows:

Push the reverse button to position the sector gear so that the set screw "G" is pointing downward as shown in Fig. 5.

NOTE: If the sector gear set screw can not be positioned downward because of faulty wiring, motor failure, etc.; it will be necessary to remove the shift control motor and turn the worm gear shaft with a suitable tool.

WARNING: When removing the motor, be careful and not allow the worm shaft to come out with the motor as the brake plates and the thrust ball bearing will fall out of place. See Fig. 5.

Disconnect the front universal joint.

Jack up the rear of the engine and remove the transmission tail shaft and housing.

Using a pry bar or jack move the rear of the engine to the right as far as possible.

Remove the screws and plate "E" Fig. 5, from the lower side of the shift control gear housing.

Loosen the set screw lock nut "F" and remove the set screw "G."

Remove the nut that holds the unit to the transmission and slide the assembly outward off the manual valve lever shaft.

Remove the wiring harness connector from the forward side of the fire wall.

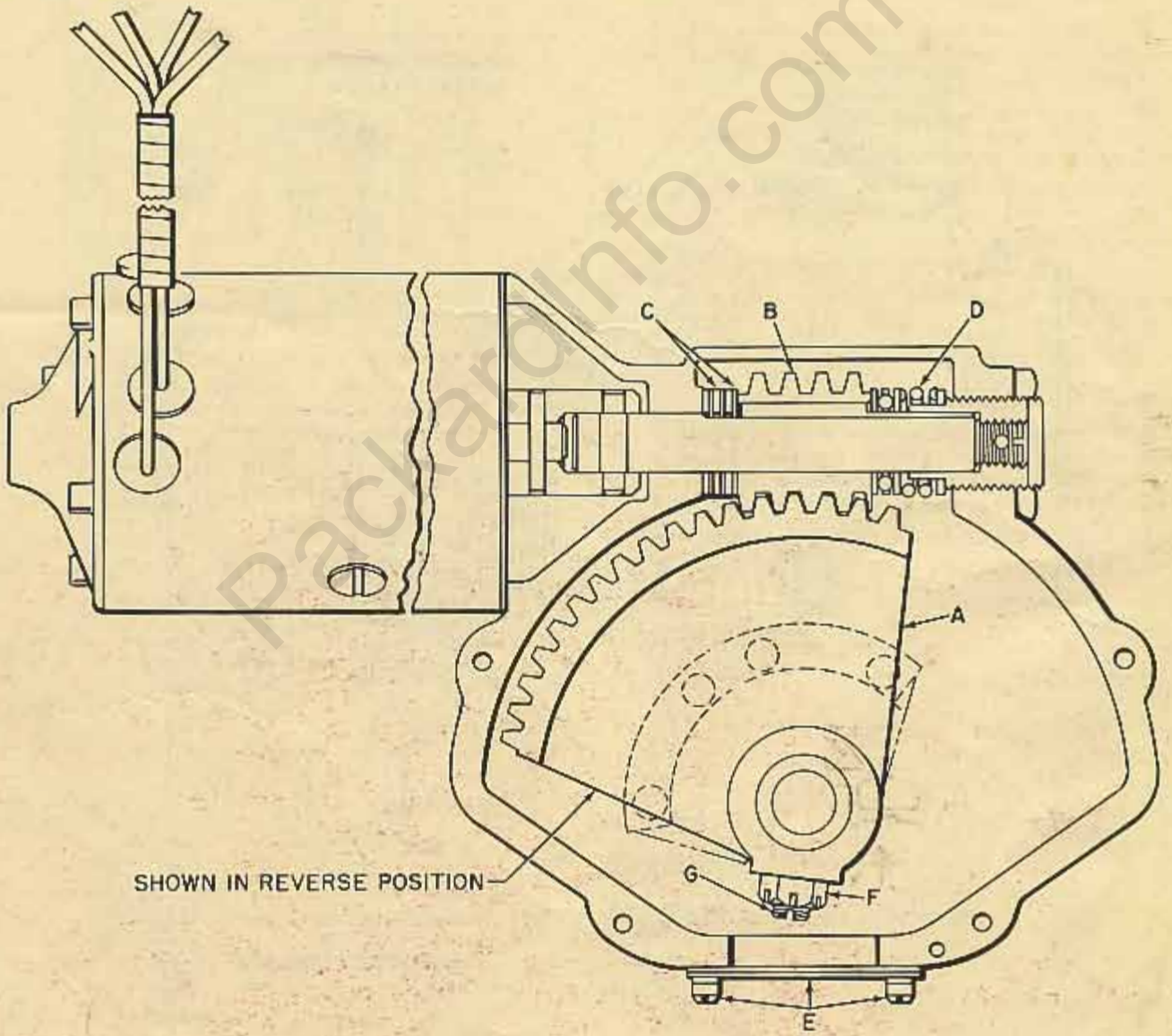

Fig. 5

Disconnect the "heavy gauge" motor wiring (green-brown-red-gray) from the relays on the left front fender splasher. Disconnect the "light gauge" motor wiring (pink-orange-red with white tracer-orange with black tracer) from the relays. The wiring hook-up is illustrated in the insert in Fig. 7.

Make sure to note where the different colored wires are attached to the relays so that they may be re-attached correctly.

Disconnect the two wires from the pressure switch on side of transmission.

NOTE: Until notified, no attempt should be made to repair the shift control and motor assembly.

Briefly, the push buttons and shift control operates electrically as follows:

Note the two piece contact plate "A" in Fig. 6, that is attached and rotates with the sector gear. Also note the open space "B" between the two contact plates.

The sector gear and contact plate is shown in the reverse position as the open space is in line with the reverse wire and has broken the circuit.

For example, the "D" button will be pushed.

Current from the battery now flows through the wiring and "D" button switch to the contact plate on the gear, across the plate through the common-orange and black tracer wire and closes the transmission shift relay points, this completes the circuit through the motor and causes it to rotate in the direction that will position the manual valve to the "Drive" position.

When the open space in the contact plate aligns with the blue wire "D," the circuit is broken, shutting off the motor and the brake on the worm gear stops the motor instantly with the manual valve in the transmission in the "Drive" position.

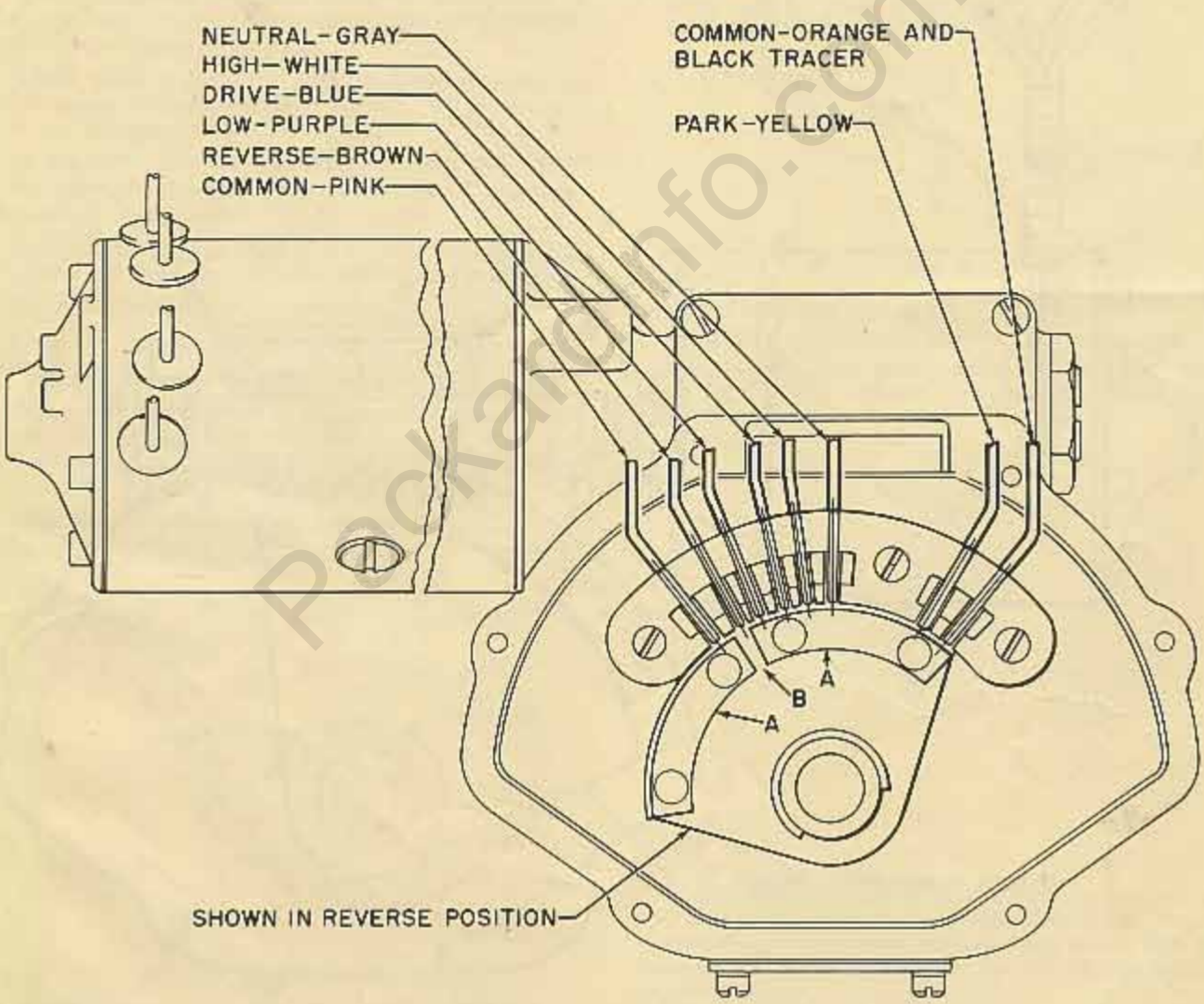

Fig. 6

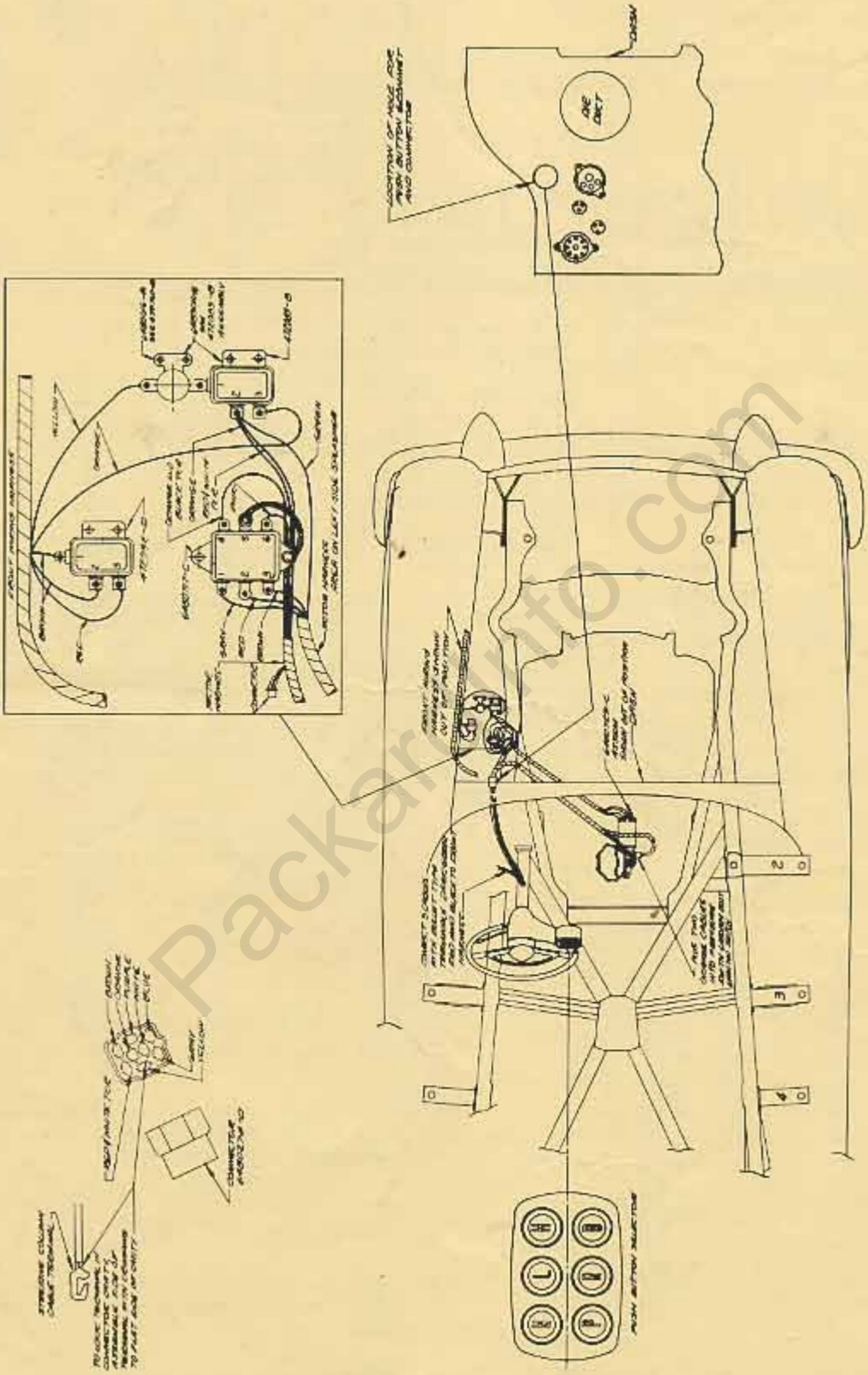

Fig. 7

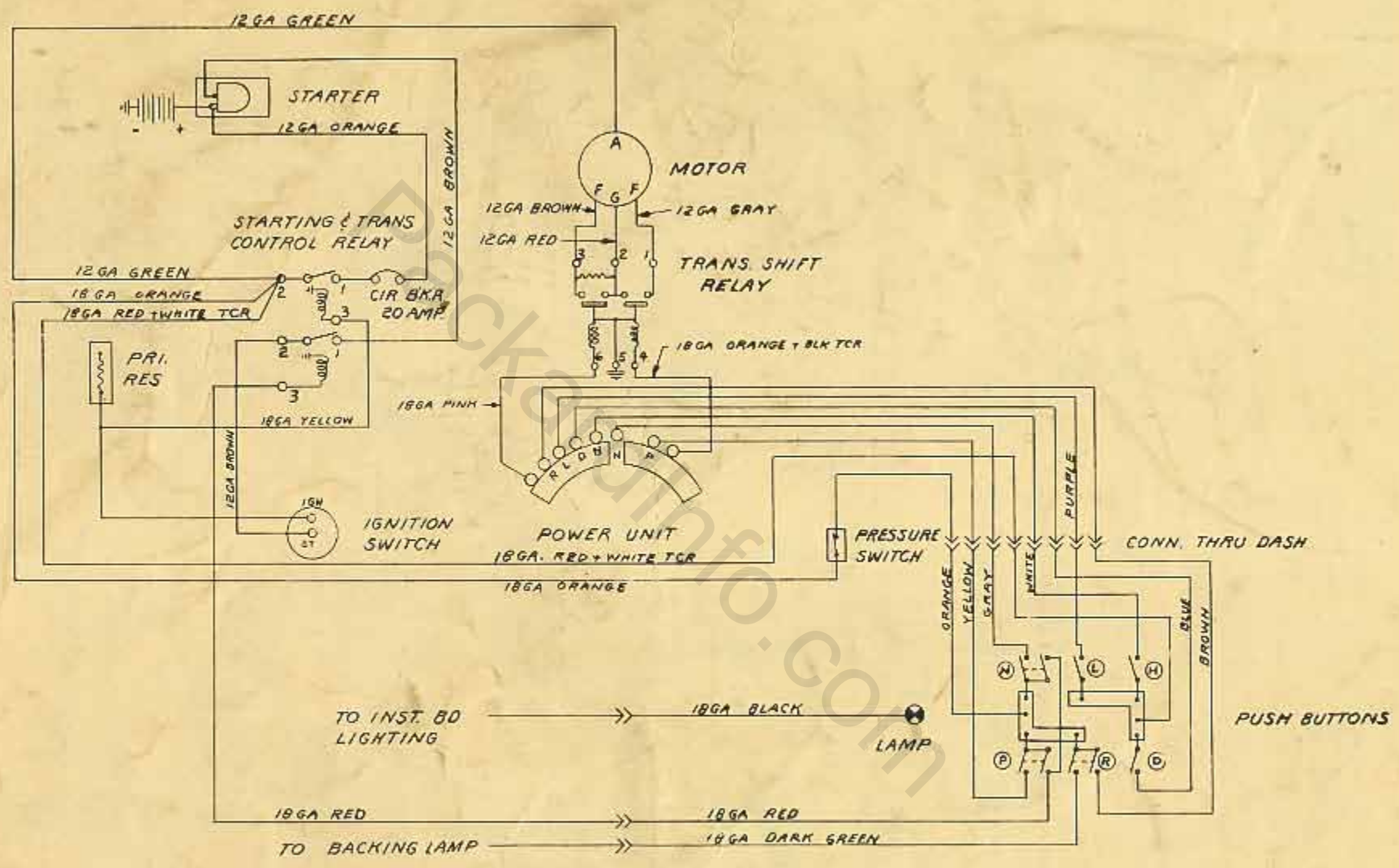

Fig. 8

PRINTED IN U.S.A.