When the wiper switch is placed in the INT mode, the motor's oscillating park switch contacts are at ground (assuming wipers started in park position), and the governor relay is energized. Initially, current flows from the ignition switch (circuit 65—green) through the energized contacts in the governor to the wiper motor's low speed brush (circuit 61—yellow). The motor rotates 1/10th of a cycle. The wiper motor's oscillating park switch contacts then change from park (ground) to run (battery voltage) and momentarily, after the change in switch contact position, the relay in the governor de-energizes. A second path to the wiper motor is completed by way of circuit 65 (green), the wiper motors oscillating park switch, circuit 63 (red), the normally closed contacts of the governor, and circuit 61 (yellow). The motor rotates through the remaining 9/10th of one revolution. When the oscillating park switch contacts again touch ground (park), the motor parks. The interval windshield wiper governor's electronic circuit delays energizing of the relay until the circuit times out, then the relay energizes and the low speed interval cycle is repeated. The discharge rate of a capacitor to ground through the wiper switch variable resistor controls the time delay of the system.

PARK OPERATION TEST

With the wiper switch in the OFF position, the wipers will complete one cycle through the wiper motor's park switch. Current flows from the ignition switch across the circuit breaker in the fuse panel to the wiper motor's oscillating park switch (run). From the park switch through the normally closed governor relay contacts (de-energized) to the motor's common brush, across the motor armature and out the low-speed brush to ground for 9/10th of one cycle. At the last 1/10th of the cycle, the oscillating park switch moves from the run position to ground (park), stopping the motor in the park position.

To check out park operation, place the ignition switch in the ON position and move the wiper switch from an operating mode to the OFF position. Check for presence of voltage at circuit 61 (yellow) pin. If voltage is present and the motor does not park, ground circuit 56 (blue). If the motor parks, repair ground circuit or replace wiper switch. If motor does not run, replace motor. If voltage is present at circuits 65 (green) and 63 (red) pins but not at circuit 61 pin, replace the governor. If voltage is present on circuit 65 pin, but not on circuit 63 pin, repair the motor park switch. If no voltage is present on circuit 65 pin, trace circuit back to source to determine problem.

WIPER MOTOR CURRENT DRAW

See Figs. 5 through 9.

NOTE: Electric wiper motors contain permanent magnets made of ceramic. This is a hard glass-like material that can shatter or crack if the motor receives a severe physical shock.

Do not handle any windshield wiper motor abusively when diagnosing wiper operations, because it will damage the magnets and make the motor inoperative. Rough handling of new replacement motors may also damage the magnets.

BRONCO AND F-100—F-350

Disconnect the linkage from the motor and disconnect the electrical plug to test the motor on the vehicle. Connect the green lead from the test equipment to the battery positive (plus) post (Fig. 5). Connect the positive (red) lead from the tester first to the low speed connection and then to the high speed connections at the connector plug as shown. In either case, the current draw should not exceed three amperes.

E-100—E-350

The windshield Wiper Motor Tests can be performed with the wiper motor installed in the vehicle with linkage disconnected or on the bench.

The motor terminals are too small to make the necessary test connections without using connector sleeves and wires between the motor terminals and the test equipment as shown in Figs. 6 and 7. The connector sleeves (available in Kit No. C4AZ-14294-B or equivalent) should be crimped onto both ends of the wires.

Connect the positive (red) lead from the test equipment to the center terminal on the motor end plate, and connect the green lead from the tester to the battery positive post, (Fig. 6). Connect a jumper wire from the battery negative post to the low speed terminal on the motor end plate and read the current draw. Move the jumper wire from the low speed terminal to the high speed terminal, and read the high speed current draw. In either case the current draw should not exceed 3.5 amperes. If the current draw does exceed 3.5 amperes, check the output arm for binding or damage before replacing the motor.

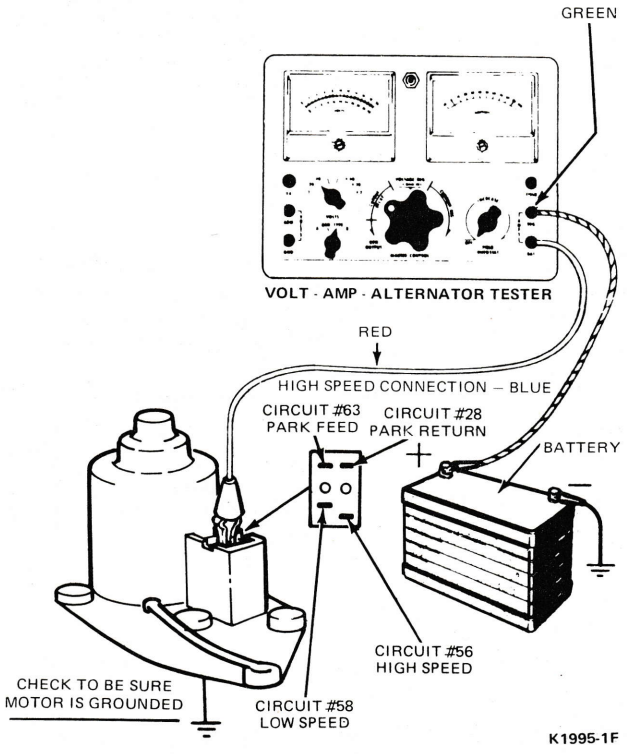

FIG. 5 Wiper Motor Current Draw Test