

## FORD MOTOR CO.

Ford Motor Co.

### TROUBLE SHOOTING

### DESCRIPTION

The speed control system consists of operator switches, an amplifier assembly, a servo assembly, vacuum dump valve, speed sensor, wiring harness and vacuum hoses. Models with electronic dashboard use a special connection to the speedometer in place of a speed sensor. Manual transmission vehicles also include a clutch switch.

Control switches are located in the steering wheel. The control amplifier is below the dashboard on the driver's side. The servo assembly is in the engine compartment, while the brake and clutch switches are located on the brake pedal support bracket below the dashboard.

### OPERATION

This system is operational at speeds above 30 MPH. When the "ON-OFF" switch is set to the "ON" position and the driver depresses and releases the "SET - ACC" button, the vehicle speed will be maintained until a new speed is set by the driver, the brake or clutch pedal is depressed, or until the system is turned off. On models equipped with the "RESUME" feature, when the system has been deactivated by depressing brake or clutch pedal, the driver can re-establish set speed by pressing and releasing the "RESUME" switch.

Check all electrical and vacuum connections. Press brake pedal to see if brake lights work. If not, repair brake light circuit. Check clutch switch on manual transmission vehicles. Check servo and throttle linkage for free operation. If components appear to be in good condition, proceed to the following tests.

### TESTING

#### CONTROL SWITCHES

Disconnect 6-way connector at amplifier assembly. Turn ignition "OFF". Connect ohmmeter between Lt. Blue-Black lead and ground. Make the following tests while rotating steering wheel:

- 1) Depress the "OFF" switch and check for reading from 0 to 1 ohm.
- 2) Depress "SET/ACCEL" and check for a reading from 646 to 714 ohms.
- 3) Depress "COAST" and check for a reading from 114 to 126 ohms.
- 4) Depress "RESUME" (if equipped) and check for a reading from 2090 to 2310 ohms.

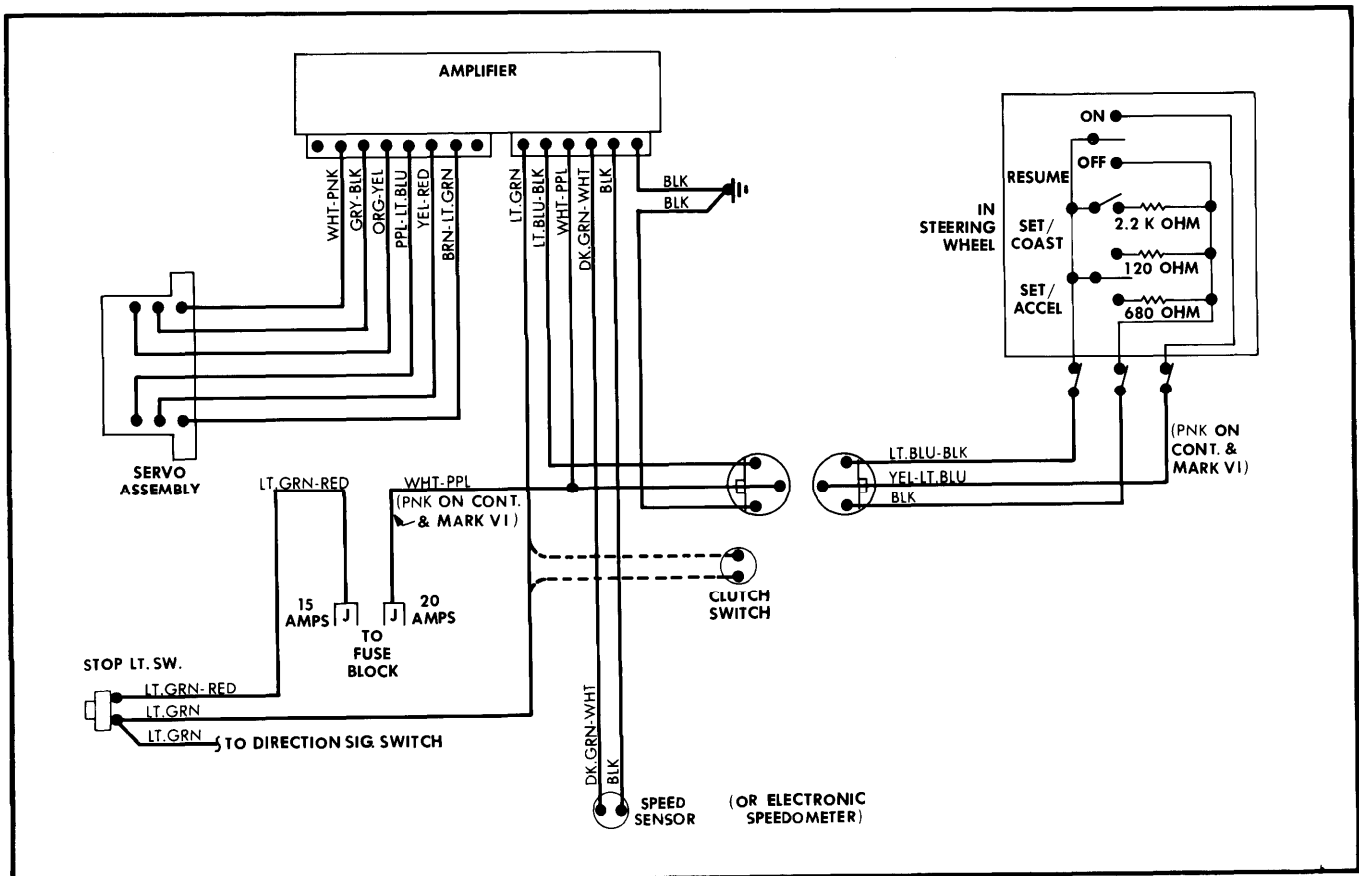


Fig. 1 Automatic Speed Control Wiring Diagram (With Resume)  
All Except Granada, Monarch & Versailles

# 5-60 Speed Control Systems — Automatic

## FORD MOTOR CO. (Cont.)

If resistance values are okay but meter needle fluctuates, remove steering wheel and clean contact surfaces of speed control ground brush and turn signal brush. If resistance readings are high, check switch assemblies and ground circuit in steering column.

### SPEED SENSOR (EXC. ELECTRONIC SPEEDOMETER)

Disconnect connector containing speed sensor wires from amplifier and connect an ohmmeter between wire connector terminals (green/white stripe and black) at speed sensor end. A reading of 30 to 100 ohms should be obtained. A reading of 0 ohms indicates a shorted coil, and a high reading indicates an open coil. If reading is between 30 and 100 ohms, and speedometer operates properly, sensor is good. Substitute a new sensor if necessary to check operation.

### SPEED SENSOR (ELECTRONIC SPEEDOMETER)

Models with electronic speedometer do not use a separate speed sensor, but are connected directly to the speedometer itself. To test, raise and support the rear of vehicle so wheels can turn. Connect an AC voltmeter to the Dark Green-White lead and ground at the amplifier. With speedometer indicating 30 mph, voltmeter should read approximately 6 volts.

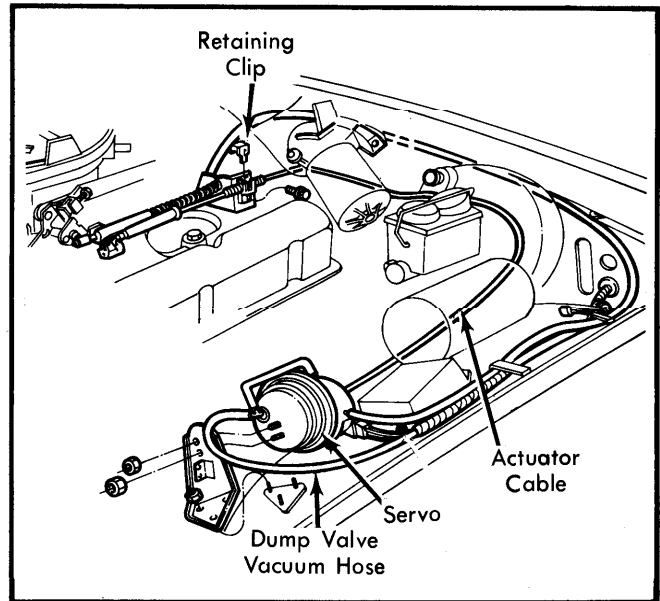


Fig. 2 Automatic Speed Control Components Typical Cable Installation

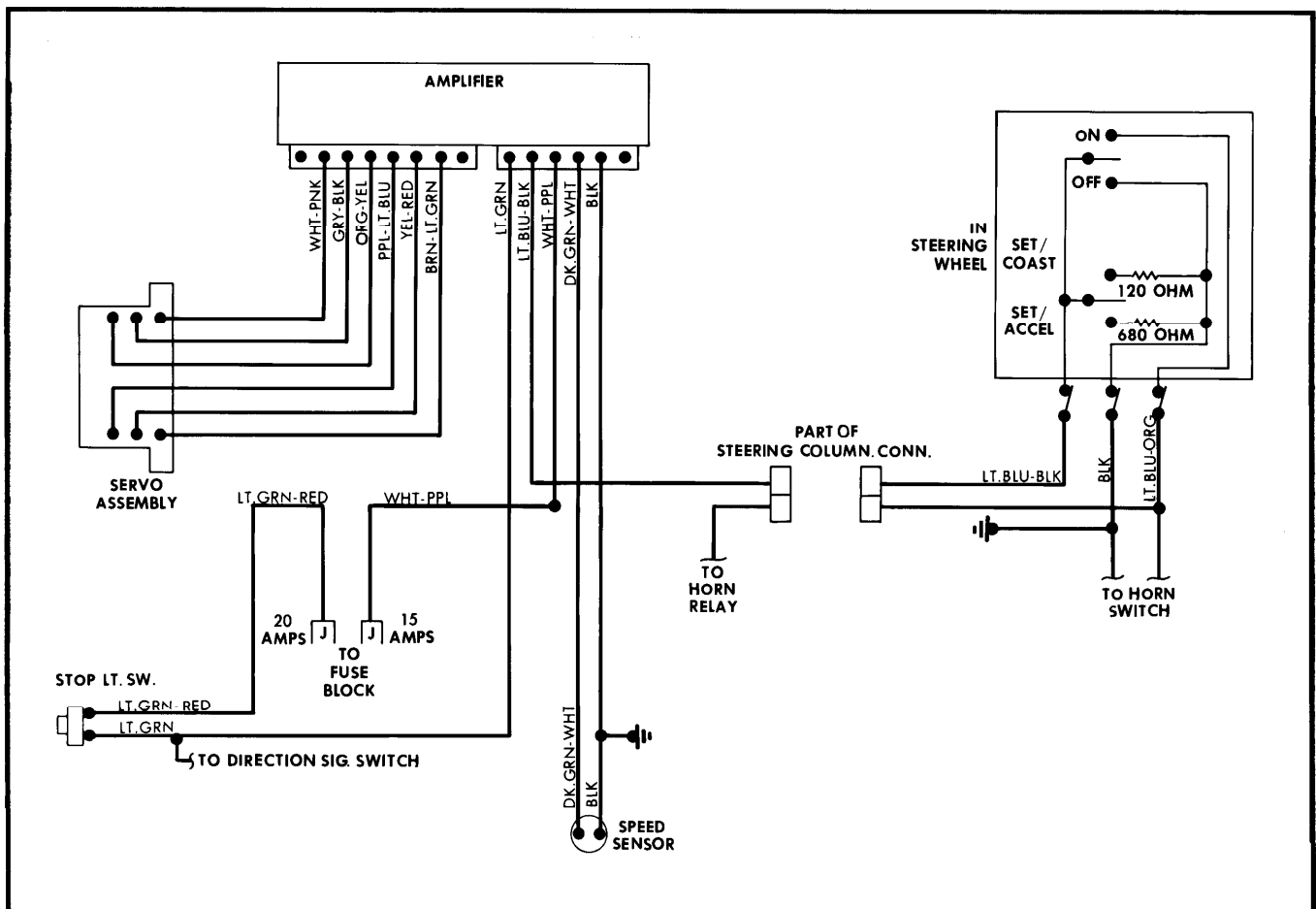


Fig. 3 Automatic Speed Control Wiring Diagram (Without Resume) Granada, Monarch, Versailles

## FORD MOTOR CO. (Cont.)

### SERVO ASSEMBLY

**CAUTION** — If Orange-Yellow lead is shorted to either White-Pink or Grey-Black leads it may be necessary to replace the amplifier.

1) Disconnect ball chain from throttle linkage. Separate servo-to-amplifier connector. Connect an ohmmeter between Orange-Yellow and Grey-Black wires at servo connector. Resistance should be approximately 85 ohms.

2) Connect ohmmeter between Orange-Yellow and White-Pink wire leads. Resistance should be approximately 85 ohms. Reconnect ball chain.

3) Start engine. Jumper Orange-Yellow lead of servo connector to battery positive post and White-Pink lead of servo connector to ground. Momentarily touch Grey-Black lead of servo connector to ground. Servo throttle actuator should tighten bead chain to open throttle. Throttle should hold in that position, or slowly release chain tension. If White-Pink wire is removed from ground, servo should immediately release tension on chain.

### AMPLIFIER

**CAUTION** — DO NOT use a test light to perform amplifier tests because too much current draw will damage electronic components. Use only a voltmeter of 5000 ohm/volt rating or higher.

Make the following tests at the amplifier 6-way connector. Turn ignition "ON" and connect a voltmeter between the Lt. Blue-Black wire and ground.

1) Depress and hold "ON" switch. Voltmeter should read 12 volts. If not, check control switch or horn relay.

2) Release "ON" switch. Voltmeter should read approximately 7.8 volts. If not, check amplifier ground connection, fuse, or circuit breaker. Install a known good amplifier and recheck if necessary.

3) Depress "OFF" switch. Voltage should drop to zero. If not, check switch. Install a known good amplifier and recheck if necessary.

4) Depress and release "ON" button, then depress and hold "SET-ACCEL". Voltmeter should read 4.5 volts. Rotate steering wheel while watching voltmeter. If voltage varies more than 0.5 volts, check switch.

5) Depress and hold "COAST" button. Voltmeter should read 1.5 volts. If not, check switches.

6) Depress "RESUME" (if equipped). Voltmeter should read 6.5 volts. If not, check switch.

If all test readings are correct, perform Servo and Speed Sensor Tests before replacing amplifier assembly.

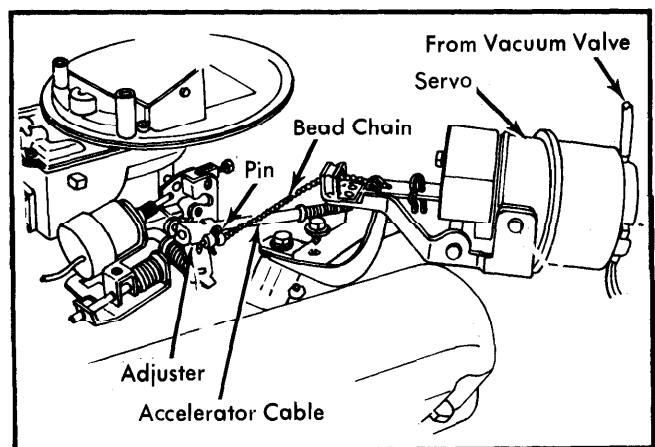
### VACUUM DUMP VALVE

Vacuum dump valve is a redundant safety feature which releases servo vacuum whenever brake pedal is depressed. To test, disconnect dump valve vacuum hose at servo, connect hand vacuum pump to hose and apply vacuum. If vacuum will not hold, hose or dump valve leaks and should be replaced or adjusted. Step on brake pedal. If vacuum is not released, adjust or replace dump valve.

## ADJUSTMENTS

### LINKAGE

**Bead Chain Type** — On Fairmont, Zephyr, Mustang and Capri, adjust bead chain so chain is tight when engine is at hot idle speed. On all other models, adjust chain to obtain  $\frac{1}{16}$ - $\frac{1}{4}$ " actuator arm free travel at hot idle speed. On vehicles with solenoid throttle positioner, turn ignition "ON" and open throttle slightly before performing adjustment.



**Fig. 4 Automatic Speed Control Typical Bead Chain Installation**

**Actuator Cable Type** — Disengage throttle positioner and set carburetor at hot idle speed. Remove cable retaining clip, pull on actuator cable to take up any slack and insert cable retaining clip.

### VACUUM DUMP VALVE

Adjust dump valve (located at brake pedal) by moving it in its mounting bracket so there is no vacuum leak when brake pedal is in non-depressed position and vacuum leak when pedal is depressed. Apply vacuum with hand vacuum pump.