GENERAL MOTORS CRUISE CONTROL

Chevrolet
GMC

DESCRIPTION

System uses manifold vacuum to power a throttle servo unit. When speed adjustment is necessary, servo moves the throttle by receiving a varying amount of controlled vacuum from regulator unit. Speedometer cable from transmission drives regulator and a cable from regulator drives instrument panel speedometer. Engagement of regulator unit is controlled by an engagement switch located at end of turn signal lever or on instrument panel. Two brake release switches are provided. An electric switch disengages regulator unit and a vacuum (switch) valve decreases vacuum in servo unit to quickly return throttle to idle position when brake pedal or clutch is depressed.

OPERATION

Driver accelerates to desired speed, then depresses and slowly releases speed control engagement switch button. System is designed to operate at speeds above 30 MPH. To change speed setting to higher speed, depress accelerator until desired speed is reached, then slowly depress and release switch button. System will re-engage at higher speed when button is slowly released. To change speed setting to lower speed, depress switch button fully and hold in this position until vehicle has decelerated to new desired speed, then release button slowly.

TESTING & TROUBLE SHOOTING

ELECTRICAL SYSTEM

1) Check fuse and connector. Unplug electric brake switch connector at switch and connect ohmmeter at two terminals on switch. Ohmmeter must indicate no continuity when pedal is depressed and continuity when pedal is released. Replace switch if necessary. Check clutch release brake switch in same manner.

2) Unplug engagement switch connector at electrical wiring harness connector. Connect ohmmeter between terminal No. 1 (brown wire) and terminal No. 2 (blue wire). Continuity should be maintained until switch is pressed all the way in. Connect ohmmeter between terminal No. 1 (brown wire) and terminal No. 3 (black wire). No continuity should be shown except when button is depressed halfway. Connect ohmmeter between terminal No. 2 (blue wire) and terminal No. 3 (black wire). With button released, no continuity should be shown. With button depressed partially and fully, continuity should be shown.

3) Disconnect engagement switch wire harness connector from main harness connector. Connect ohmmeter between brown-white striped wire in main wiring harness and ground. *NOTE — Ensure regulator is well grounded to chassis.* Ohmmeter should read 42-49 ohms. If resistance is not within specifications, disconnect the connector from regulator and measure resistance of brown-white striped wire. Resistance should be 40±2 ohms. If not within specifications, replace main wiring harness.

4) Measure solenoid coil circuit resistance between hold terminal and ground. Resistance should be 5-6 ohms. A reading of less than 4 ohms indicates shorting of coil circuit and a reading of more than 7 ohms indicates excessive coil circuit resistance. Either high or low condition indicates replacement of regulator assembly. Check white wire of main harness from engagement switch to regulator for continuity.

SERVO & VACUUM CHECK

To determine condition of diaphragm, remove hose from servo unit and apply 14" of vacuum to tube opening and hold in for one minute. Vacuum should not leak down more than 5" in one minute. If leakage is excessive, replace servo. To utilize engine as vacuum source, proceed as follows: Disconnect servo cable or bead chain and hose from servo unit, then connect engine vacuum directly to servo fitting. Note position of servo diaphragm and start engine. Diaphragm should pull in. Clamp off engine vacuum supply line and check unit for leakage.

ERRATIC CRUISE CONTROL PERFORMANCE

Check servo, brake release switch, and vacuum release switch adjustments. Check for operation of engagement switch. Check for pinched, kinked, plugged or damaged vacuum hoses. Check speedometer cable routing and ensure that the turning radius of cable is not less than a 6" radius.

INOPERATIVE CRUISE CONTROL

Check all items indicated under Erratic Cruise Control Performance. Unplug terminal connector at regulator, then reconnect so that white wire is plugged into hold terminal and brown-white wire is not connected to a terminal. Proceed with testing as follows:

1) Turn ignition switch to "ON" position, depress engage switch halfway and hold in that position. A "thunk" should be heard indicating the regulator is engaging. If no "thunk" is heard check fuse, and brake switch adjustment. Check that regulator circuit between hold terminal and ground reads 4-6 ohms. Check engagement switch. See *Electrical System*. Check white wire at regulator for battery voltage. If all conditions check good and no "thunk" is heard, regulator requires replacement.

2) With vehicle in "PARK" position, start engine and depress engage switch halfway. If engine accelerates, proceed to step **5)**. If engine speed does not increase, disconnect orifice tube hose at regulator and plug hose. If engine speed now increases proceed to step **5)**. If engine speed still does not increase, a vacuum leak or restriction is indicated. Disconnect large hose connected to regulator and check for vacuum at regulator fitting. *NOTE — Engage switch should still be depressed to halfway position.*

3) If no vacuum is found at regulator fitting, remove engine manifold vacuum supply hose at regulator and check at hose for vacuum. If vacuum is present at hose, regulator requires replacement. If vacuum is not present at hose, check the vacuum supply hose and vacuum fitting at engine.

GENERAL MOTORS CRUISE CONTROL (Cont.)

4) If vacuum is found at regulator fitting, reinstall large hose at regulator. Remove hose at servo unit and check hose for vacuum while engage switch is depressed halfway. If vacuum is present, servo unit requires replacement. If no vacuum is present, check hoses and fittings to regulator, then check brake release valve and hose.

5) If engine speed under step **2)** showed an increase, check brown-white stripe wire using one of the following methods: Use an ohmmeter to check wire using procedure previously described under Electrical System in this article. An alternate method is to connect a voltmeter to the disconnected brown-white stripe wire and check for battery voltage with the ignition switch in the "ON" position. If check shows wire to be good, regulator requires replacement.

ADJUSTMENTS

BRAKE RELEASE SWITCHES

Electric – The brake or clutch switch plunger must clear pedal arm when arm is moved .38-.64" when measured at the switch.

Vacuum – The brake switch plunger must clear pedal arm when arm is moved 5/16" when measured at the switch.

SERVO UNIT

Adjust bead chain or cable slack so it is as tight as possible without holding throttle open when carburetor is set at its lowest idle throttle position. When adjusting the chain or cable, with engine stopped, manually set fast idle cam at its lowest step and connect chain or adjust cable so idle screw is not held off the cam.

REGULATOR

NOTE – No adjustments should be made until following items have been checked: 1) Servo adjustment correct. 2) All hoses in good condition, properly attached, not leaking, pinched or kinked. 3) Electric and vacuum release switches properly adjusted.

If cruising speed is lower than engagement speed, loosen orifice tube lock nut and turn tube outward. If cruising speed is higher than engagement speed, turn orifice tube inward. Each 1/4 turn will alter engagement cruising speed difference by one MPH. Tighten lock nut after adjustment and check system operation at 60 MPH.

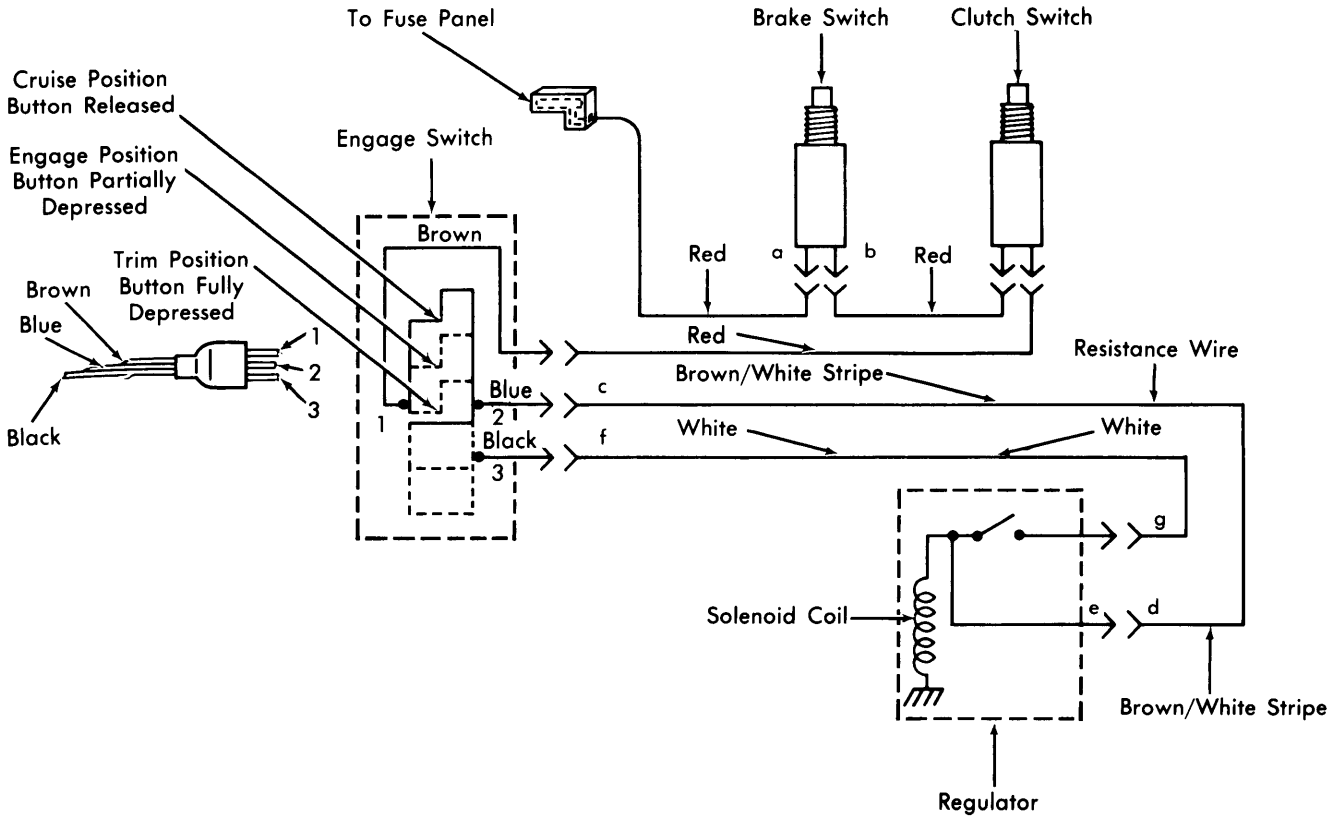

Fig 1 Cruise Control Wiring Diagram