GENERAL MOTORS CRUISE MASTER

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 transducer. Speedometer cable from transmission drives transducer and a cable from transducer drives instrument panel speedometer. Engagement of transducer is controlled by engagement switch located at end of turn signal lever or on instrument panel. Two brake release switches are provided. An electric switch disengages transducer 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 partially 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 fully depress and slowly release switch button. System will re-engage at higher speed when button is released slowly. 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. Accelerator pedal may be depressed at any time to override cruise system. Release of accelerator returns speed to previous level.

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 transducer and measure resistance of brown/white striped wire. Resistance should be 38-42 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 transducer assembly. Check White wire of main harness from engagement switch to transducer 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 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 6" radius. Check for binding throttle linkage.

INOPERATIVE CRUISE CONTROL

NOTE — *Make all tests with transmission shift lever in "PARK" position and parking brake "ON" unless otherwise specified.*

Check all items indicated under *Erratic Cruise Performance*. Unplug terminal connector at transducer, then reconnect, placing White wire into hold terminal and leaving Brown/White wire disconnected. Proceed with testing as follows:

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

2) With vehicle in "PARK" position, start engine and depress engagement switch halfway. If engine speed does not increase, disconnect orifice tube hose at transducer and plug hose. If engine then accelerates, check voltage at Brown/White striped wire. If 12 volts are indicated, replace transducer if not done previously. If engine speed does not increase when hose is plugged, a vacuum leak or restriction is indicated. Disconnect large hose connected to transducer and check for vacuum at transducer fitting.

NOTE — *Engagement switch should remain depressed to halfway position.*

3) If no vacuum is found at transducer fitting, remove engine manifold vacuum supply hose at transducer and check at hose for vacuum. If vacuum is present at hose, replace transducer if not done previously. If vacuum is not present at hose, check vacuum supply hose and vacuum fitting at engine.

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

5) Replace all vacuum hoses and electrical wires to original locations upon completion of tests.

ADJUSTMENTS

BRAKE RELEASE SWITCHES

Electric – The brake or clutch switch plunger must clear pedal arm (switched open) when pedal is depressed .38-.64" measured at pedal.

Vacuum – The brake switch plunger must clear pedal arm when brake pedal is depressed 1.17"-1.36" (except Hydro-Boost). Hydro-Boost is 1.23"-1.49" and both adjustments are measured at the pedal.

SERVO UNIT

Make sure ignition is "OFF" and fast idle cam is off and that throttle is completely closed. With rod hooked through tab on servo unit, adjust length by turning link onto rod until there is a .02-.04" clearance between end of pin and end of slot in link. Install link retainer.

TRANSDUCER

1) Before adjusting transducer, be sure servo adjustment is correct. Check all hoses for proper routing and good condition. Ensure electric and vacuum release switches are properly adjusted.

2) To adjust transducer, note cruising speed. If it is lower than engagement speed, loosen orifice tube lock nut and turn tube outward. If cruising speed is high, turn tube inward. Each ¼ turn will change engagement speed by 1 MPH. Tighten lock nut and check operation.

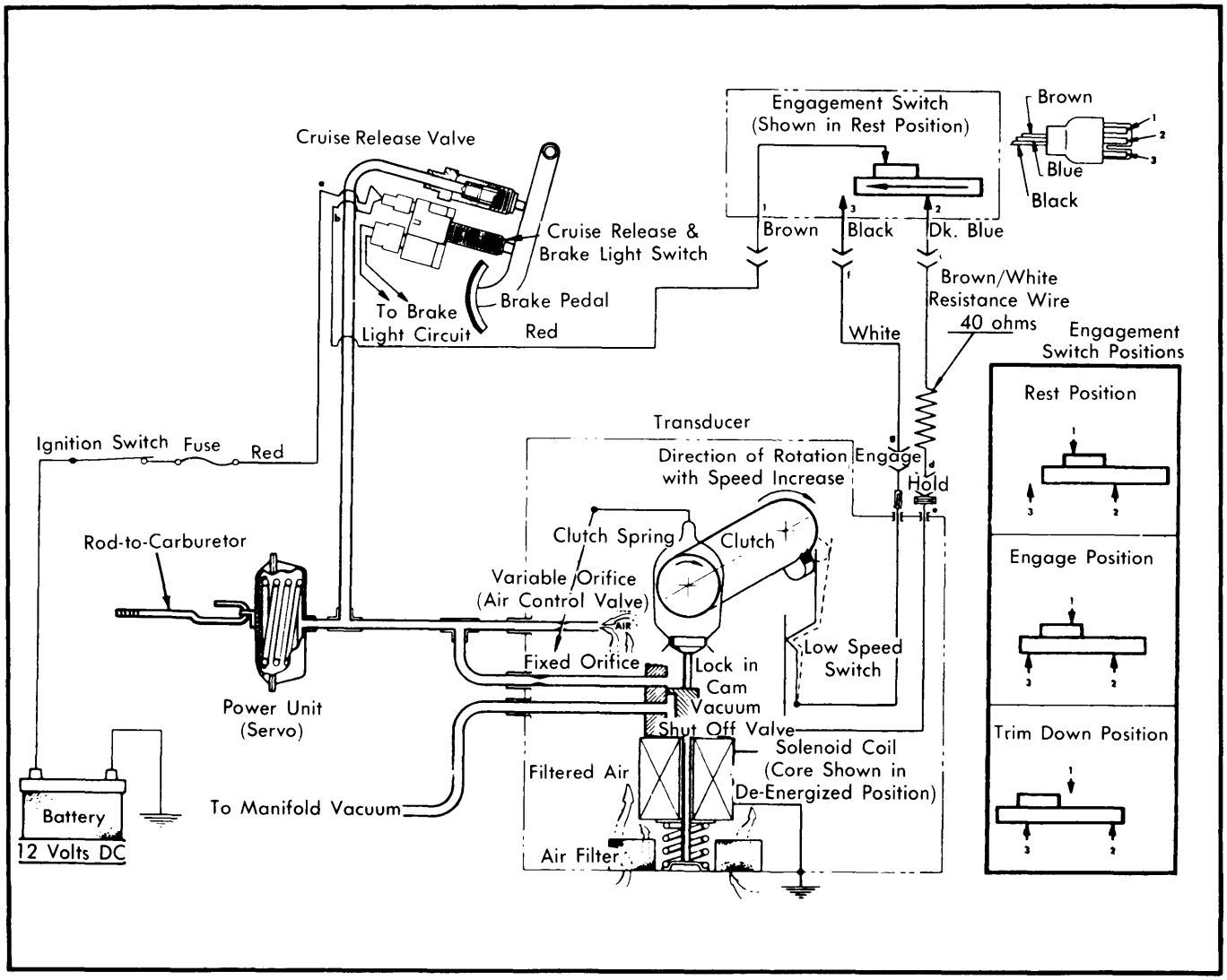

Fig. 1 General Motors Cruise Master Speed Control Wiring & Pneumatic Diagram