

ELECTRONIC AUTO- CRUISE

Owner's Manual

Keep in Glove Compartment for future reference

DESCRIPTION

The regulator is controlled by magnets and a sensing coil at the drive line of the vehicle. The engagement switch electrically controls the regulator which in turn controls the vacuum from the intake manifold to the servo which actuates the throttle. A combination mechanical release and electrical disengagement switch are provided to allow disengagement of electrical circuit and redundant vacuum release when brakes are applied. For your convenience and safety, the slide switch will disengage the entire system when pushed to the "off" position.



OPERATING INSTRUCTIONS

Caution: Do not engage on wet pavement. If neutral is accidentally selected when Auto-Cruise is operating, gently tap brake pedal or slide engagement switch to "OFF" position. This will prevent engine from over-revving.

To Activate AUTO-CRUISE — Slide switch from "Off" to "On" (switch located on auto-cruise engagement switch lever mounted to the steering column.)

To Engage AUTO-CRUISE — Maintain desired speed and depress "SET SPEED" button (located in the end of the engagement switch) then release button slowly. You may remove your foot from the accelerator pedal as speed will be automatically maintained.

Retard Speed — Hold "SET SPEED" button in. Speed will decrease. Release to set lower speed.

The slide operates in two ways:

1. **"ACCEL"** (increase speed) — Move slide to "RESUME" and **hold**. **Holding** causes speed increase. **Releasing** permits return to previous set speed.

NOTE: For higher set speed, depress "SET SPEED" button as slide is released.

2. **"RESUME" Speed** — After brake application with AUTO-CRUISE engaged, return to previous set speed by moving slide to "RESUME" and releasing.

NOTE: THE GREATER THE DIFFERENCE BETWEEN THE FORMER SET SPEED AND THE SPEED AT WHICH YOU ENGAGE "RESUME", THE FASTER YOUR VEHICLE WILL ACCELERATE. RAPID ACCELERATION CAN BE ELIMINATED BY MERELY ACCELERATING WITH GAS PEDAL TO WITHIN 10 M.P.H. OF THE FORMER SET SPEED AND THEN ENGAGE "RESUME".

Speed can be increased at any time with normal pressure on the accelerator pedal.

Your AUTO-CRUISE is disengaged by lightly depressing brake pedal, by sliding the switch to "OFF" position, or by holding the "SET SPEED" button down.

OPERATIONAL CHECK AND REGULATOR ADJUST PROCEDURE

Perform the following checks after Auto-Cruise instal-

lation is complete. If problems are experienced during operational check, refer to the Trouble Shooting Guide.

Ignition Switch Off

Under hood — manually operate vehicle throttle linkage through its full travel, allowing the Auto-Cruise linkage (bead chain, cover and cable) to go slack.

CAUTION:

Check very carefully that the Auto-Cruise linkage does not become entangled with adjacent parts and that there is no possibility of its holding the throttle open in this position. The linkage will be in the slack condition when the vehicle is being driven and the Auto-Cruise is not in use.

Turn Ignition Switch On and Start Engine

1. Set parking brake and put transmission in "park" position.
2. Move slide switch to "on" position.
3. Depress set speed button and hold for approximately two seconds. System should **not** engage. If system **does** engage (engine races), immediately turn off ignition switch and refer to Trouble Shooting Guide.
4. Disconnect vacuum tube at small connector on servo.

Engine vacuum must be present at the open end of this tube. Engine speed may increase slightly and idle somewhat roughly. By placing thumb over end of vacuum tube, verify that vacuum is present. Reconnect vacuum tube and check all connections for leakage.

5. Set adjustments (sensitivity-centering-low speed switch) using small screwdriver through access holes in regulator housing. Set adjustments as follows:

Set to:

- | | |
|--------------------------------|-----------------|
| a. Sensitivity (sens.) | fully clockwise |
| b. Low Speed Switch (LSS) | 12:00 position |
| c. Centering adjustment (Cen.) | 10:00 position |

Vehicle Road Check

(Should be made on open, uncongested highway)

This Auto-Cruise has a resume feature that allows the driver to re-engage the system at any speed above 30 MPH. It will then operate the throttle to return the vehicle to a previously selected speed. The resume feature is not functional if the Auto-Cruise system is disengaged by turning off the system using the on-off switch or ignition switch. It is important that the minimum speed at which the resume function is operable be between **27 MPH and 33 MPH**. To set this adjustment properly, follow these steps:

1. Move slide switch to "on" position.
2. Drive at 45 miles per hour. Depress the set speed button and release. System should engage and the set speed should be $45 \text{ MPH} \pm 2 \text{ MPH}$. Rotate centering adjust (c) on regulator slightly clockwise if speed decreases, and slightly counterclockwise if speed increases. This check should be made on a level road. Do not turn power switch off or push speed set button during the following tests. If at any point this does happen, return to Step 1.
3. Depress brake pedal. System will disengage.
4. Slow to 20 MPH. Move slide switch to "resume" position and hold. Increase speed slowly, noting the speed at which resume occurs. (This may be noted by the throttle pulling away from the foot). Resume should occur between 27 MPH and 33 MPH. If not within this range, apply brake and slow to 20 MPH. Turn LSS adjust clockwise to increase minimum resume speed, or counterclockwise to decrease. Again hold switch in resume position and accelerate slowly, checking the speed at which resume occurs. Repeat until the minimum resume speed is between 27 MPH and 33 MPH.
5. Move slide switch to "off" position. System will completely disengage.
6. Drive vehicle at 55 MPH. Turn power switch on, allowing two to three seconds before depressing

speed set button. Recheck centering at this speed and readjust if necessary.

7. Depress "speed set" button and hold. Vehicle speed will decrease while "speed set" is held down. Upon release, the system will re-engage and maintain the speed at the time of release.

Brake Release Check

1. Disconnect multiple connector from regulator (all other connections are made).

NOTE: Test #2 may be made with any appropriate continuity tester (battery and lamp, volt ohmmeter, etc).

2. Touch one test lead to Violet wire and other test lead to ground. Circuit should be closed (bulb lights). Depress brakes; vehicle brake lights should come on and circuit should be open (bulb does not light).

NOTE: Excessive brake pedal travel necessary to activate test light may result in vehicle braking before release of Auto-Cruise system. If this is objectionable, adjust Vacuum/Brake switch.

3. If above sequence fails, check for brake light switch adjustment or defective switch.

Vacuum Check

Make sure vacuum tubes are properly connected and carefully routed.

WARNING: If tube connected to servo is collapsed or kinked, servo may keep throttle open even though brake is applied.

NOTE:

Considering the fact that your AUTO-CRUISE is controlled by vacuum, there will be times when the unit may appear to malfunction.

This situation could occur when the vehicle is subjected to extremely heavy loads, severe upgrades or driving into an excessive headwind; any one of which would create a low vacuum situation, thus causing the vehicle to drop off in speed.

AUTO-CRUISE will maintain any preselected speed above 30 mph automatically within 2 mph depending on engine capability, vehicle load and road conditions, including grades and road surfaces.

**ELECTRICAL CHART A —
CONTINUITY MEASUREMENT**

Test Conditions

1. Depress connector locking lug through access hole in electronic regulator housing and remove connector from housing.

2. Remove fuse from power wire in Auto-Cruise wiring harness.
3. Vehicle ignition switch off.
4. Auto-Cruise power switch off.
5. These tests may be made with any appropriate continuity tester (battery and lamp, Volt Ohmmeter, etc.).
6. Minus (–) lead of volt tester to vehicle chassis ground and plus (+) lead to terminal number of electronic regulator wiring harness connector.

Terminal No.

1 — closed	9 — omit
2 — open	10 — open
3 — open	11 — open
4 — open	12 — open
5 — open	13 — closed — open when
6 — open	brake pedal
7 — open	is depressed
8 — omit	14 — open

**ELECTRICAL CHART B —
VOLTAGE MEASUREMENT**

Test Conditions

1. Depress connector locking lug through access hole in electronic regulator housing and remove connector from housing.
2. Be sure wiring harness fuse is installed and is correct size.

3. Vehicle ignition switch off.
4. These tests may be made with any appropriate voltage measuring device (12v test lamp, voltmeter, V.O.M., etc.).
5. Minus (-) lead of volt tester to vehicle chassis ground and plus (+) lead to terminal number of electronics regulator wiring harness connector.

	Pwr. Sw. On	Pwr. Sw. On Veh. Ign. Sw. On	Pwr. Sw. Off Veh. Ign. Sw. On
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	12v	0
6	0	0	0
7	0	12v	0
8	0	0	0
9	0	0	0
10	0	12v ²	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	12v ³	0

²12v when resume switch is operated.

³No voltage when speed set is depressed.

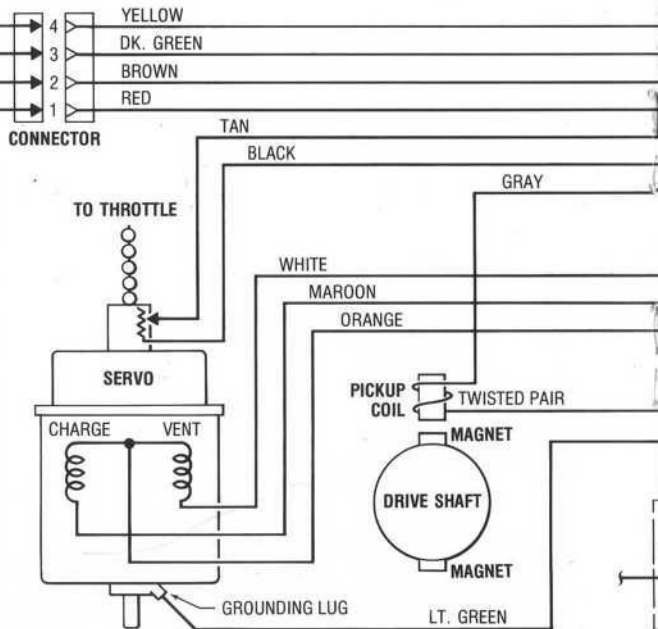
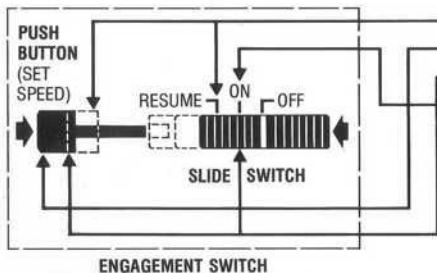
ELECTRICAL CHART C — RESISTANCE MEASUREMENT

Test Conditions

1. Depress connector locking lug through access hole in electronic regulator housing and remove connector from housing.
2. Remove fuse from power wire in Auto-Cruise wiring harness.
3. Vehicle ignition switch off.
4. Auto-Cruise power switch on or off.
5. These tests should be made with an ohmmeter having an accuracy of at least $\pm 2\%$.
6. Connect ohmmeter leads:

From	To	Resistance	Remarks
T2	T11	180 ohms to 600 ohms	Position feedback potentiometer in servo
T2	T3	41 ohms to 51 ohms	Speed pickup coil
T12	T4	38 ohms to 48 ohms	Charge valve coil
T12	T6	38 ohms to 48 ohms	Vent valve coil

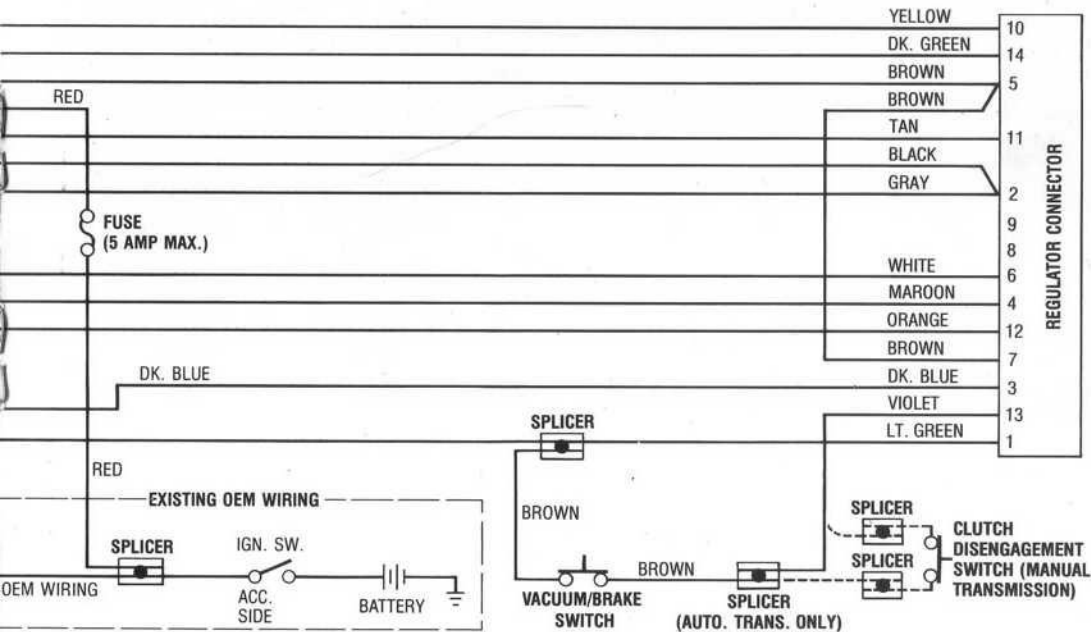
TROUBLE SHOOTING GUIDE



WIRING DIAGRAM — ELECTRONIC AUTO-CRUISE

SWITCH OPERATION DATA

CIRCUIT	SLIDE SWITCH			PUSH BUTTON DEPRESSED AND SLIDE SWITCH ON
	OFF	ON	RESUME	
RED/BROWN	OPEN	CLOSED	CLOSED	CLOSED
RED/GREEN	OPEN	CLOSED	CLOSED	OPEN
RED/YELLOW	OPEN	OPEN	CLOSED	CLOSED



TROUBLE SHOOTING GUIDE

CONDITION	POSSIBLE CAUSE	REMEDY
Blowing fuses	Short or ground in Auto-Cruise wiring circuit	Perform electrical checks — Replace with 1.5 amp fuse or 5 amp max.
Auto-Cruise does not engage	Auto-Cruise harness fuse burned out	Replace fuse (1.5 amp or 5 amp max.)
	No voltage on brown wire at regulator connector T5	Repair wiring harness or check for loose connections. Check clutch brake switch (optional) adjustment. See instructions for clutch brake switch.
	Ported vacuum, restricted vacuum, or no vacuum	Be sure vacuum connection is made to engine at a point that has continuous vacuum (below throttle plate)
	Vacuum leak	Repair leak
	Electrical	See Electrical Checks
	Faulty electrical or vacuum connections	Tighten connections
	Engagement switch inoperative	Replace engagement switch — See Electrical Checks — Chart B

TROUBLE SHOOTING GUIDE

CONDITION	POSSIBLE CAUSE	REMEDY
	Auto-Cruise harness wires reversed at brake switch Faulty regulator	Reverse Auto-Cruise harness wires. Perform tests as outlined in Electrical Chart B. Replace regulator
Loss of memory upon application of brake	Bad ground	Check Lt. Green wire at servo for ground
Auto-Cruise does not disengage when brake is applied	Improper disengagement switch adjustment	Adjust disengagement light switch
Re-engages when brake is released	Faulty engagement switch Faulty regulator	Replace engagement switch Replace regulator

TROUBLE SHOOTING GUIDE

CONDITION	POSSIBLE CAUSE	REMEDY
Carburetor does not return to normal idle	Improper Auto-Cruise servo linkage adjustment Improper accelerator linkage adjustment Weak or disconnected throttle return spring	Adjust Auto-Cruise servo linkage Adjust accelerator linkage Replace or connect spring
Pulsating accelerator pedal	Sensitivity too high	Rotate sensitivity adjustment counter-clockwise and reset centering.
Vehicle accelerates or decelerates more than 2 mph but less than 10 mph and then controls speed upon depressing and releasing of "set speed" button	Centering adjustment improperly set	Reset centering
Engine accelerates when started	Faulty servo No slack in bead chain Vacuum connections reversed on servo	Replace servo Recheck slack with throttle in hot idle position Check servo vacuum connections

TROUBLE SHOOTING GUIDE

CONDITION	POSSIBLE CAUSE	REMEDY
System disengages on level road without applying brake	Loose wiring connections Loose vacuum connection Servo linkage broken or throttle clamp slipped. Brake or clutch switch adjustment (optional).	Tighten connections Check vacuum connection Repair linkage or tighten clamps. See clutch switch mounting instructions.
Erratic operation of Auto-Cruise	Faulty servo or vacuum connection Faulty regulator Speed pickup gap too large One or both driveshaft magnets inverted Speed pickup wires reversed at harness connections	Replace servo or check vacuum connection Replace regulator Set to 1/2 to 1 1/4 inches Install both magnets with sheet metal surface to driveshaft Check color code for wires in installation instructions.
Vehicle will not maintain speed but continues to accelerate after depressing and releasing "set speed" button	Faulty regulator	Replace regulator

ELECTRONIC
AUTO-CRUISE
for
Porsche • Audi • Volkswagen

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