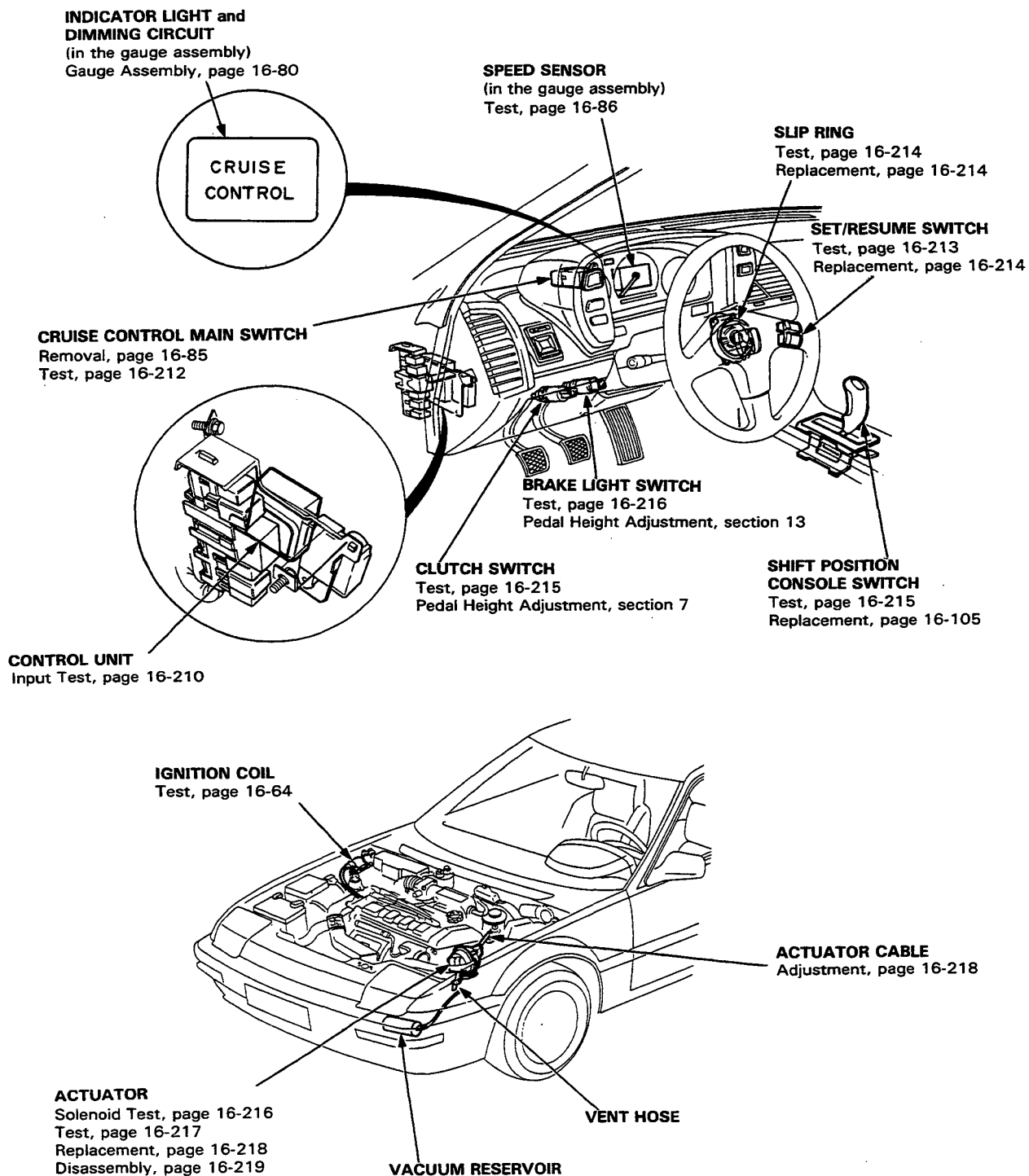


Cruise Control

Component Location Index





Description

The cruise control system uses mechanical, electrical and vacuum operated devices to maintain vehicle speed at a setting selected by the driver.

System Description:

The cruise control unit receives command signals from the cruise control main switch and the cruise control SET/RESUME switch. It receives information about operating conditions from the brake switch, the ignition coil, the speed sensor, the clutch switch (with manual transmission), or the shift position switch (with automatic transmission). The cruise control unit sends operational signals to the devices that regulate the throttle position. The throttle position maintains the selected vehicle speed. Essentially, the control unit compares the actual speed of the vehicle to the selected speed.

Then, the control unit uses the result of that comparison to open or close the throttle.

The brake switch releases the system's control of the throttle at the instant the driver depresses the brake pedal. The switch sends an electronic signal to the control unit when the brake pedal is depressed; the control unit responds by allowing the throttle to close. The clutch switch (manual transmission) or the shift position switch (automatic transmission), sends a disengage signal input to the control unit that also allows the throttle to close.

System Operation:

The cruise control system will set and automatically maintain any speed above 40—45 kph (25—28 mph). To set, make sure that the main switch is in the "On" position. After reaching the desired speed, press the SET switch. The cruise control unit will receive a set signal input and, in turn, will actuate the cruise control actuator.

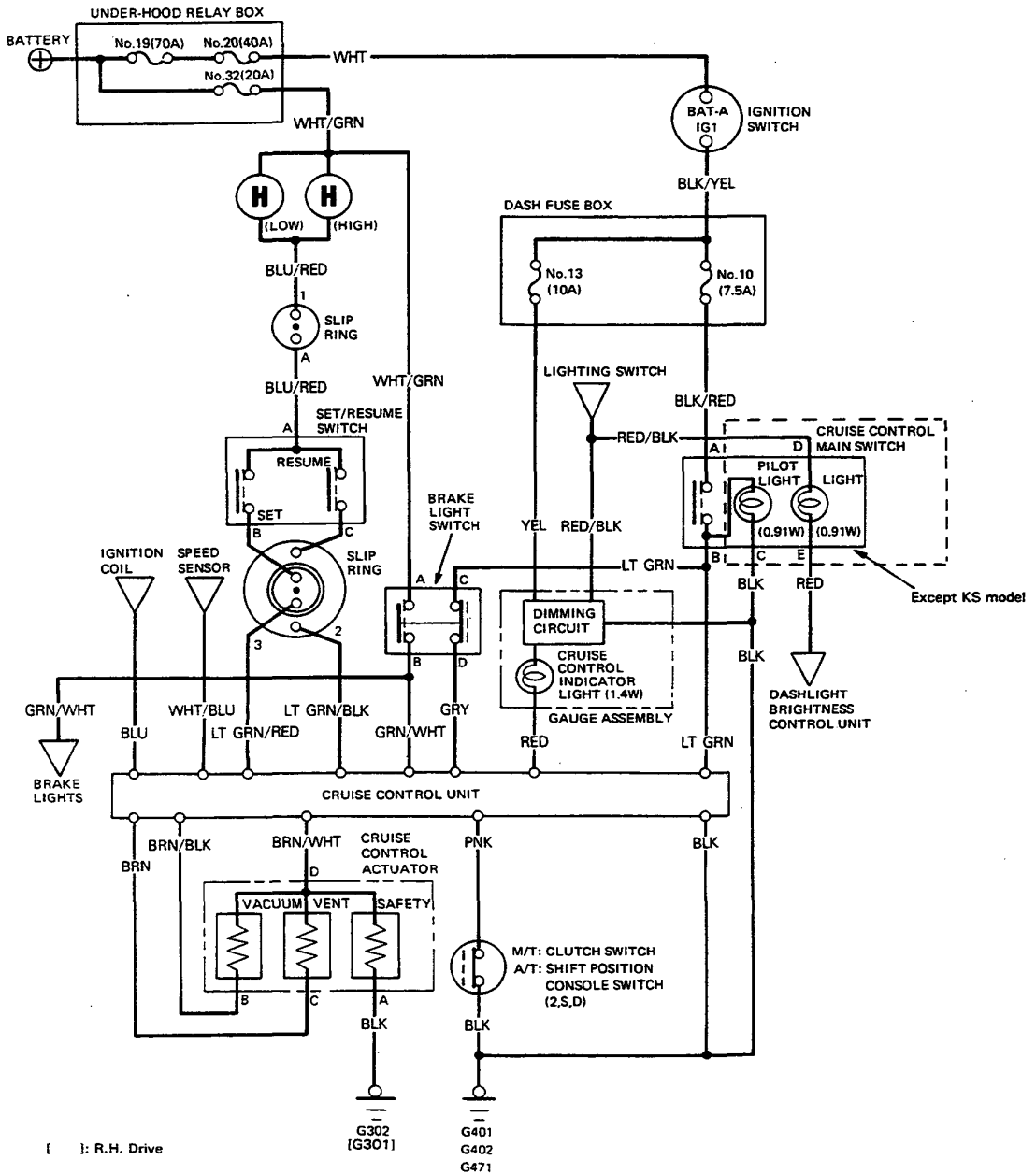
When the SET switch is depressed and the cruise control system is on, the "cruise control" indicator on the warning display will light up.

You can cancel the cruise control system by pushing the main switch to "Off". This removes power to the control unit and erases the set speed from memory. If the system is disengaged temporarily by the brake switch, clutch switch, or shift position switch, press the RESUME switch. With the RESUME switch depressed and the set memory retained, the vehicle automatically returns to the previous set speed.

For gradual acceleration without depressing the accelerator pedal, push the RESUME switch and hold it there until the desired speed is reached. This will send an acceleration signal input to the control unit. When the switch is released, the system will be reprogrammed for the new speed. For gradual deceleration without depressing the brake pedal, push the SET switch and hold it there until the desired speed is reached. This will send a deceleration signal input to the control unit causing the vehicle to coast until the desired speed is reached. When the desired speed is reached, release the SET switch. This will reprogram the system for the new speed.

Cruise Control

Circuit Diagram





Troubleshooting

NOTE: The numbers in the table show the troubleshooting sequence.

Symptom	Item to be inspected													
	Blown No. 10 (7.5 A) fuse (in the dash fuse box)	Main switch	Indicator light and its dimming circuit (in the gauge assembly)	SET/RESUME switch	Actuator cable free play	Actuator	Disconnected, clogged or restricted vacuum lines/stuck check valve/ leaky vacuum reservoir	Clutch switch and mounting (M/T)	Shift position console switch (A/T)	Blown No. 32 (20 A) fuse (in the under-hood relay box)	Brake light switch	Control unit input	Poor ground	Open circuit in wires or loose or disconnected terminals
Cruise control can't be set.	1	2										3	G302,[301] 401, 402 471	LT GRN or BLK/RED
Cruise control can be set, but indicator light does not go on.			1											RED or YEL
Cruise speed noticeably higher or lower than what was set.												1		
Excessive overshooting and/or undershooting when trying to set speed.					1	2						3		
Steady speed not held even on a flat road with cruise control set.					1	3	2					4		
Car does not decelerate or ac- celerate accordingly when SET or RESUME button is pushed.				1								2		
Set speed not cancelled when clutch pedal is pushed. (M/T)								1				2		
Set speed not cancelled when shift lever is moved to N. (A/T)									1			2		
Set speed not cancelled when brake pedal is pushed.										1	2	3		
Set speed not cancelled when CANCEL button is pushed.				1								2		
Set speed not resumed when RESUME button is pushed (with main switch on, but set speed temporarily cancelled).				1								2		

[]: R.H.Drive

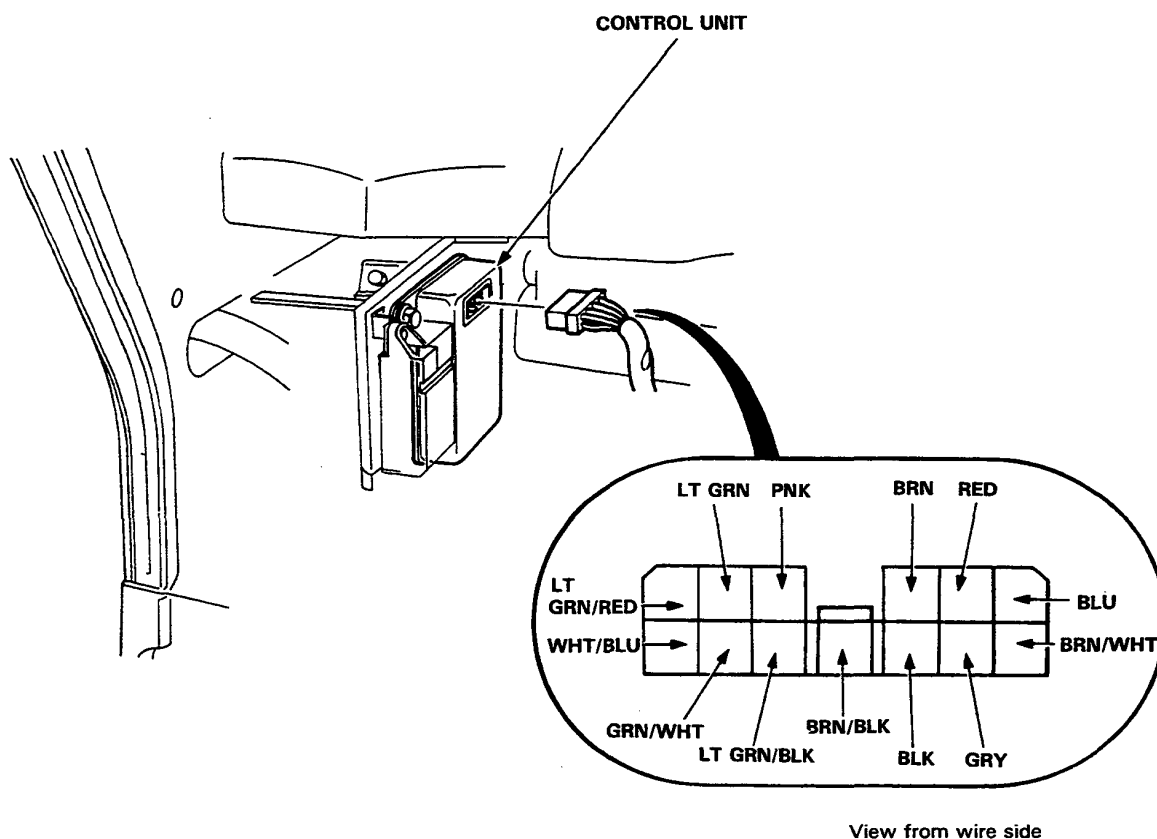
Cruise Control

Control Unit Input Test

Remove the dashboard lower panel to disconnect the 13-P connector from the control unit.

Make the following input tests at the harness pins.

NOTE: Recheck the connections between the 13-P connector and the control unit, then replace the control unit if all input tests prove OK.





No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK	Under all conditions.	Check for continuity to ground: should be continuity.	<ul style="list-style-type: none"> • Poor ground (G401, 402, 471) • An open in the wire.
2	LT GRN	Ignition switch ON and main switch ON.	Check for voltage to ground: should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 10 (7.5 A) fuse. • Faulty main switch. • An open in the LT GRN or BLK/RED wire.
3	LT GRN/BLK	RESUME button pushed.	Ground each terminal: Horns should sound as the switch is pushed.	<ul style="list-style-type: none"> • Blown No. 32 (20 A) fuse. • Faulty SET/RESUME switch. • Faulty slip ring. • Faulty lighting switch. • An open in the WHT/GRN, BLU/RED, LT GRN/BLK or LT GRN/RED wire.
4	LT GRN/RED	SET button pushed.		
5	PNK	M/T: Clutch pedal pushed. A/T: Shift lever in 2, S or D	Check for continuity to ground: should be continuity.	<ul style="list-style-type: none"> • Faulty or misadjusted clutch switch (M/T). • Faulty shift position console switch (A/T). • Poor ground (G401, 402, 471) • An open in the wire.
6	BLU	Start the engine.	Check for voltage to ground: should be battery voltage.	<ul style="list-style-type: none"> • Faulty ignition system. • An open in the wire.
7	WHT/BLU	Ignition switch ON and main switch ON. Raise the front of the car and rotate one wheel slowly.	Check for voltage between the LT GRN \oplus and WHT/BLU \ominus terminals: should be 0—12—0—12 V repeatedly.	<ul style="list-style-type: none"> • Faulty speed sensor. • An open in the wire.
8	GRY	Ignition switch ON, main switch ON and brake pedal pushed, then released.	Check for voltage to ground: should be 0 V with the pedal pushed and battery voltage with the pedal released.	<ul style="list-style-type: none"> • Faulty brake light switch. • An open in the GRY or LT GRN wire.
9	GRN/WHT	Brake pedal pushed, then released.	Check for voltage to ground: should be battery voltage with the pedal pushed, and 0 V with the pedal released.	<ul style="list-style-type: none"> • Faulty brake light switch. • An open in the wire.
10	RED	Ignition switch ON.	Attach to ground: Indicator light in the gauge assembly comes on.	<ul style="list-style-type: none"> • Blown bulb. • Blown No. 13 (10 A) fuse. • Faulty dimming circuit in the gauge assembly. • An open in the wire.
11	BRN	Under all conditions.	Check for resistance to ground: should be 80—120 Ω .	<ul style="list-style-type: none"> • Faulty actuator solenoid. • Open or short in the wire.
12	BRN/BLK	Under all conditions.	Check for resistance to ground: should be 70—110 Ω .	
13	BRN/WHT	Under all conditions.	Check for resistance to ground: should be 40—60 Ω .	

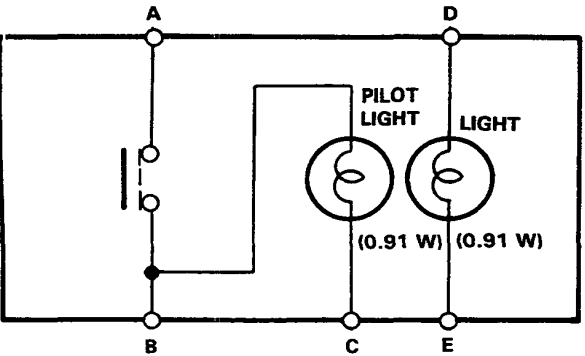
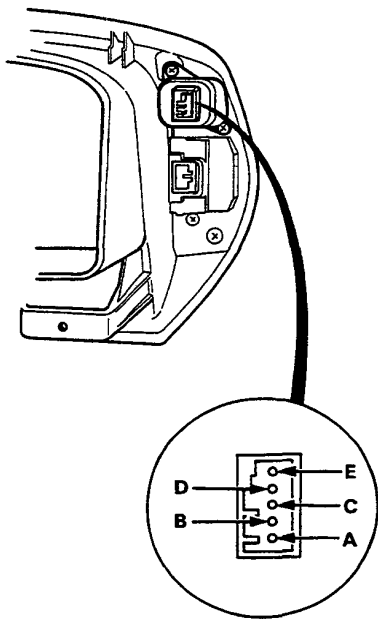
Cruise Control

Cruise Control Main Switch Test

KQ, KY model:

- 1. Remove the instrument panel from the meter visor.
- 2. Check for continuity between the terminals in each switch position according to the table.

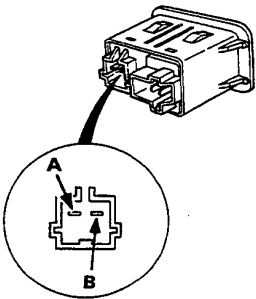
Terminal	A	B		C	D		E
Position							
OFF		○	○	○	○	○	○
ON	○	○	○	○	○	○	○



KX, KS model:

- 1. Remove the cruise control main switch from the instrument panel.
- 2. Check for continuity between the terminals in each switch position according to the table.

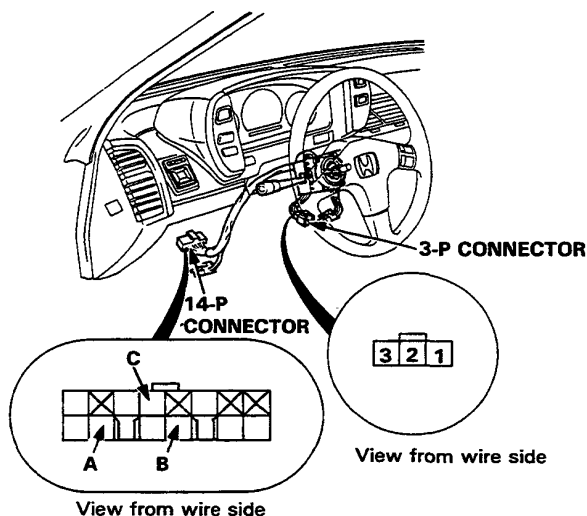
Terminal	A	B
Position		
OFF		
ON	○	○





SET/RESUME Switch Test

1. Remove the dashboard lower panel and disconnect the 14-P connector from the main wire harness.

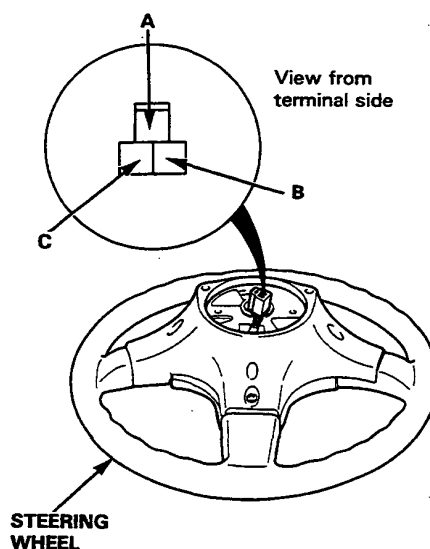


2. Check for continuity between the terminals in each switch position according to the table.

Terminal Position	A		B	C
OFF				
SET (ON)	○		○	
RESUME (ON)	○			○

- If all of the continuity check is OK, the SET/RESUME switch is OK.
- If there is no continuity in one or some switch positions, go to step 3.

3. Remove the steering wheel and repeat step 2, but this time test at the 3-P connector of the steering wheel.

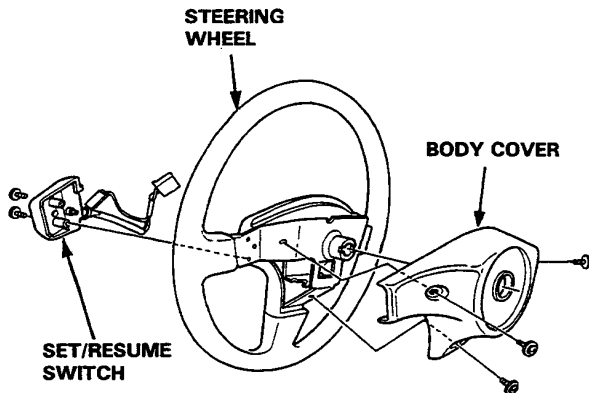


- If there is no continuity in one or some switch positions, repair the SET/RESUME switch.
 - If all of the continuity check is OK, go to step 4.
4. Remove the steering column lower cover and disconnect the 3-P connector from the slip ring, then check for continuity between the No. 1 and A terminals, the No. 2 and C terminals, and the No. 3 and B terminals.
- If there is no continuity in one or some switch positions, replace the lighting switch.
 - If all of the continuity check is OK, check the slip ring (page 16-124).

Cruise Control

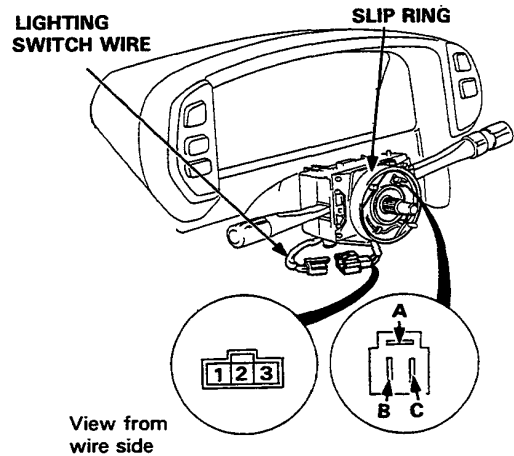
SET/RESUME Switch Replacement

1. Remove the steering wheel.
2. Remove the body cover.
3. Remove the 2 screws and the SET/RESUME switch from the steering wheel.

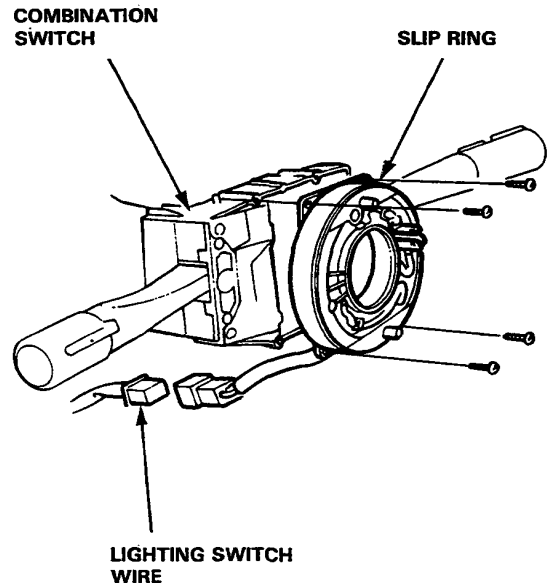


Slip Ring Test/Replacement

1. Remove the steering column lower cover, then disconnect the 3-P connector from the lighting switch wire.
2. There should be continuity between the No. 1 and A terminals, the No. 3 and B terminals, and the No. 2 and C terminals, as you turn the slip ring.



3. If necessary, remove the steering column upper cover and the 4 screws to replace the slip ring.

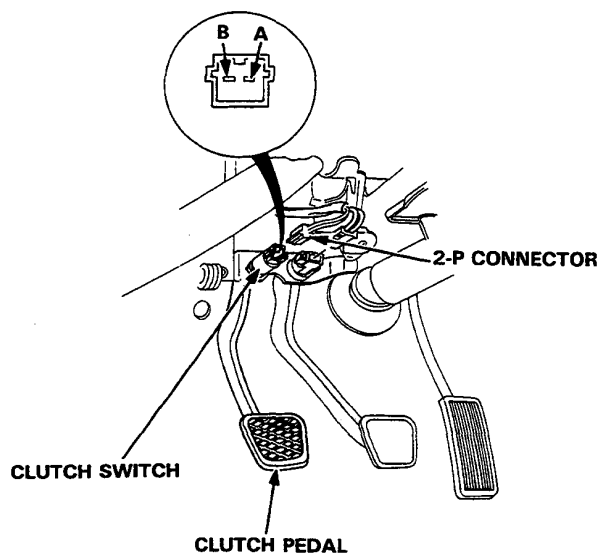




Clutch Switch Test

1. Disconnect the 2-P connector from the switch.
2. Check for continuity between the terminals according to the table.

Terminal	A	B
Clutch Pedal		
RELEASED		
PUSHED		

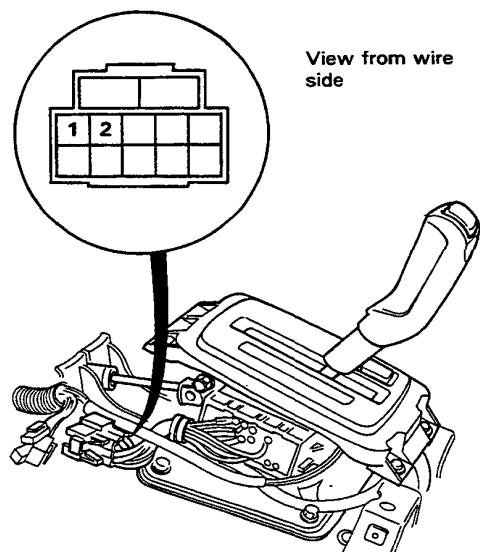


3. If necessary, replace the switch or adjust pedal height (see section 7).

Shift Position Console Switch Test

1. Remove the front console, then disconnect the 10-P connector from the console switch.
2. Check for continuity between the terminals in each switch position according to the table.

Terminal	1	2
Position		
2		
S (S3, S4)		
D		
N		
R		
P		



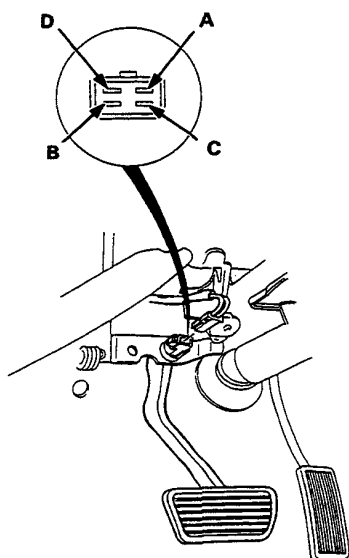
3. If necessary, replace the switch (see page 16-105).

Cruise Control

Brake Light Switch Test

1. Disconnect the 4-P connector from the switch.
2. Check for continuity between the terminals according to the table.

Terminal	A	B	C	D
Brake Pedal				
PUSHED	○	○		
RELEASED			○	○



3. If necessary, replace the switch or adjust pedal height (see section 13).

Actuator Solenoid Test

1. Disconnect the 4-P connector from the actuator.
2. Measure resistance between the terminals.

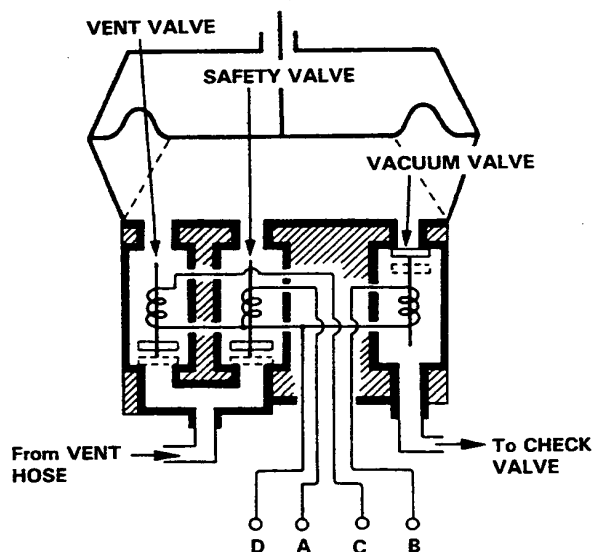
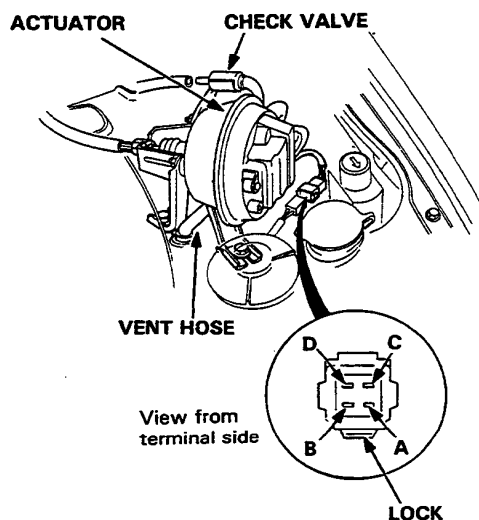
Resistance

VACUUM SOLENOID (between B and D):
30—50Ω

VENT SOLENOID (between C and D):
40—60Ω

SAFETY SOLENOID (between A and D):
40—60Ω

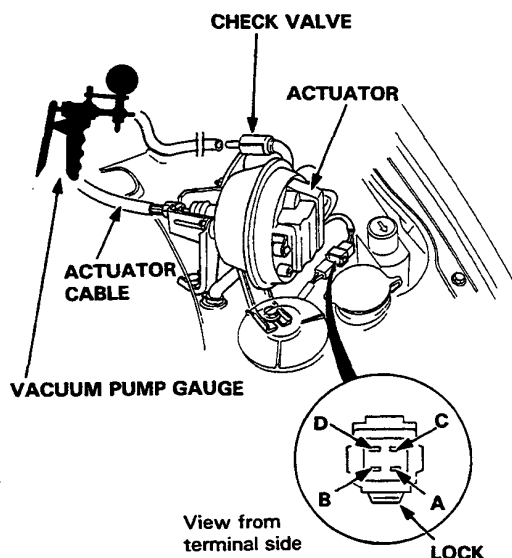
NOTE: Resistance will vary slightly with temperature; specified resistance is at 20°C (70°F).



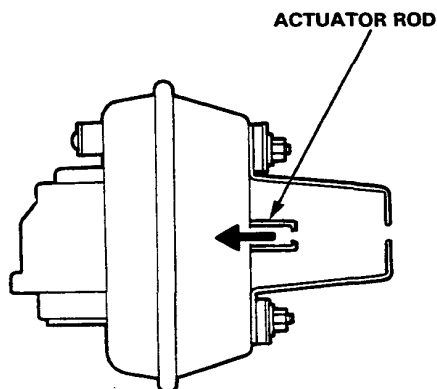


Actuator Test

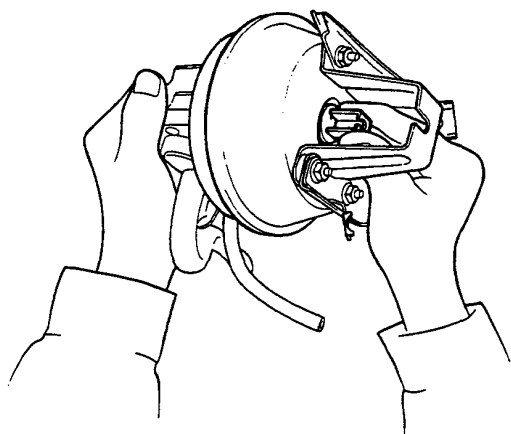
1. Disconnect the actuator cable from the actuator rod and the 4-P connector.
2. Connect battery positive to the D terminal and negative to the A, B and C terminals.
3. Connect a vacuum pump to the check valve. Then apply vacuum to the actuator.



4. The actuator rod should pull in completely. If the rod pulls in only part-way or not at all, check for a leaking vacuum line or defective solenoid.



5. With voltage and vacuum still applied, try to pull the actuator rod out by hand. You should not be able to pull it. If you can, it is defective.

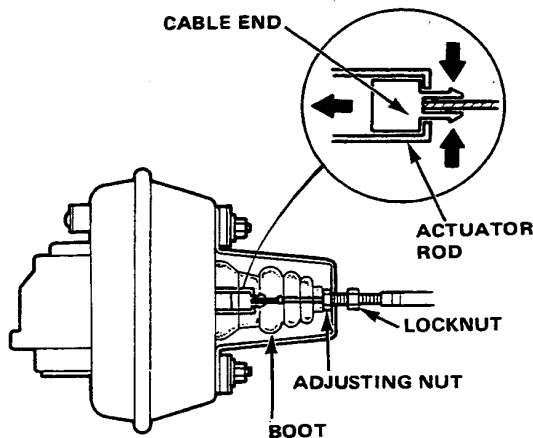


6. Disconnect battery negative from the C terminal. The actuator rod should return. If the actuator rod does not return, and the vent hose and filter are free, the solenoid valve assembly is defective.
7. Repeat steps 2-6, but this time disconnect battery negative from the A terminal. The actuator rod should return. If it does not return, and the vent hose and filter are free, the solenoid valve assembly is defective.
8. If the solenoid valve assembly is replaced, be sure to use new O-rings at each solenoid.

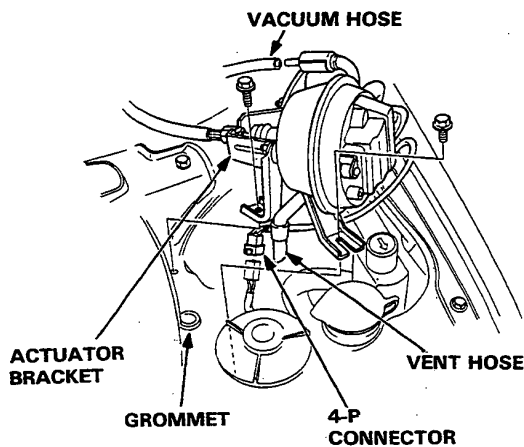
Cruise Control

Actuator/Cable Replacement

1. Pull back the boot and loosen the locknut, then disconnect the cable from the bracket.
2. Disconnect the cable end from the actuator rod.



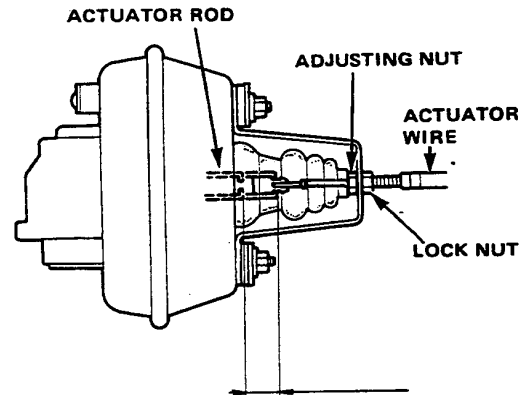
3. Disconnect the 4-P connector from the actuator.
4. Pull the vent hose from the grommet.
5. Disconnect the vacuum hose from the check valve.
6. Remove the 2 mount bolts and the actuator with the bracket and reservoir.



7. If necessary, disconnect the cable end from the linkage over the accelerator pedal, then turn the grommet 90° in the firewall and remove the cable.
8. Install in the reverse order of removal, and adjust free-play at actuator rod after connecting the cable (see next column).

Actuator Cable Adjustment

1. Check that the actuator cable operates smoothly with no binding or sticking.
2. Start the engine.
3. Measure the amount of movement of the actuator rod until the cable pulls on the accelerator lever (engine speed starts to increase). Free play should be 11 ± 1.5 mm (0.43 ± 0.06 in).



LOCKNUT FREE PLAY: 11 ± 1.5 mm (0.43 ± 0.06 in)

4. If free play is not within specs, loosen the locknut and turn the adjusting nut as required.

NOTE: If necessary, check the throttle cable free play (see section 6), then recheck the actuator rod free play.

5. Retighten the locknut and recheck the free play.



Actuator Disassembly

