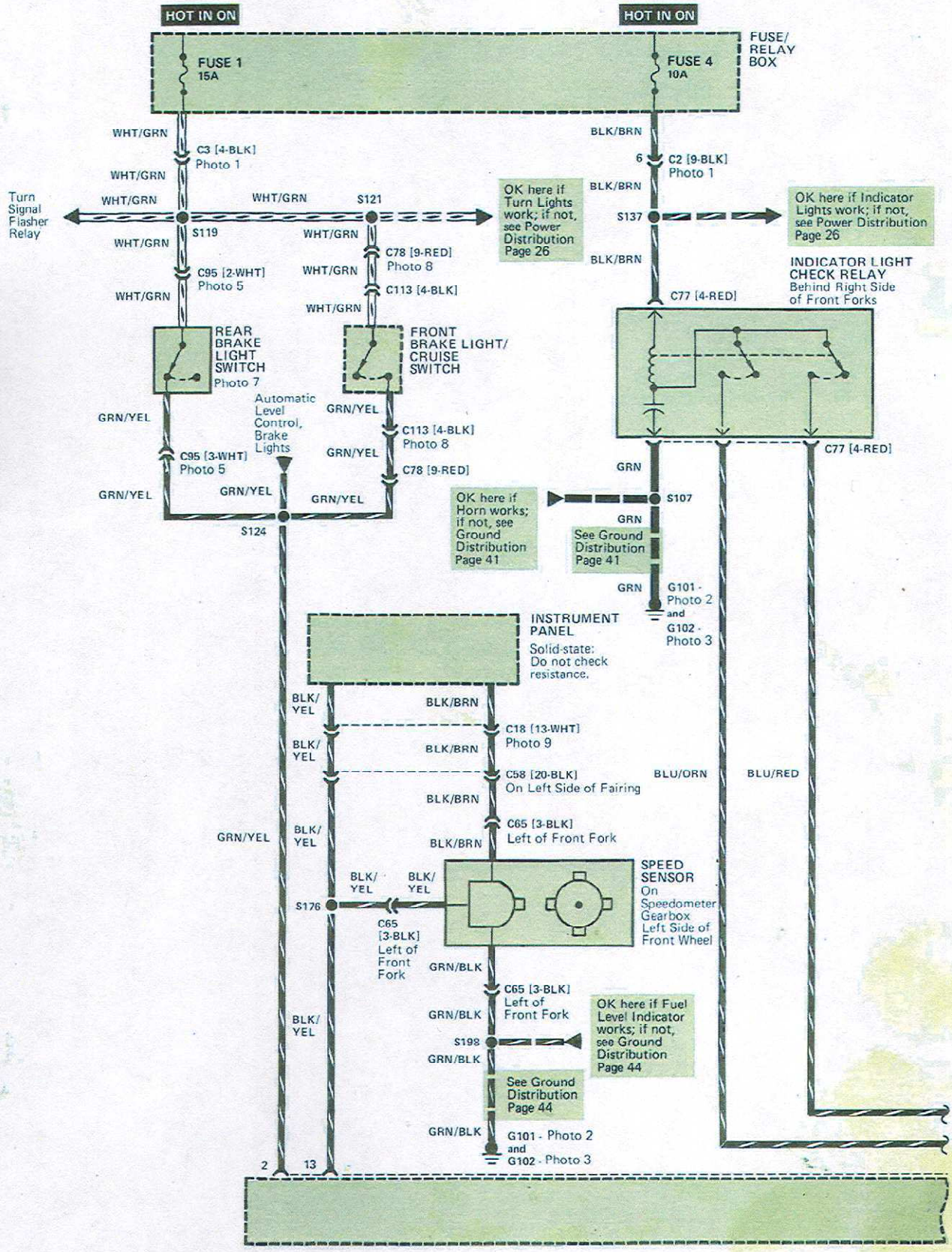
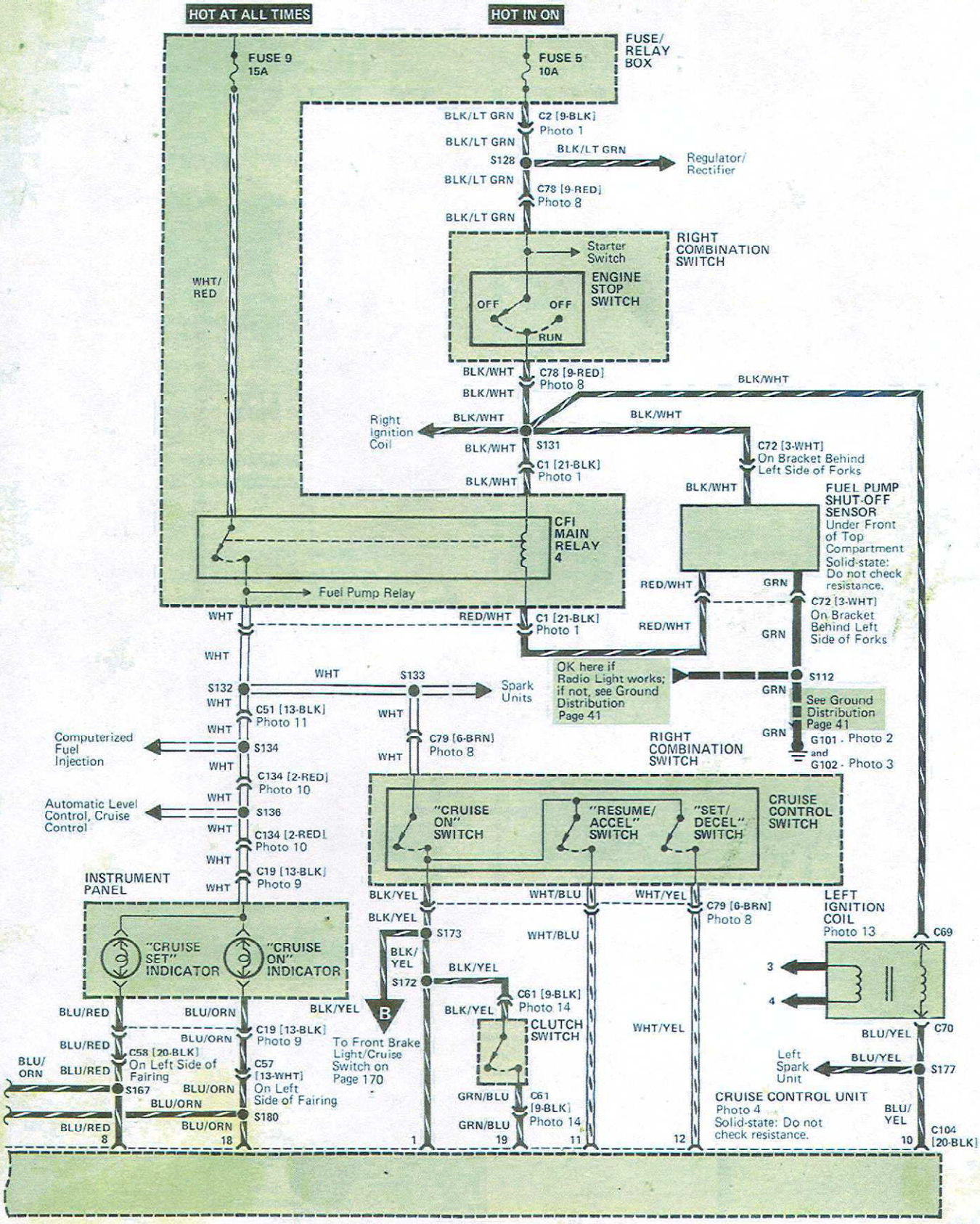
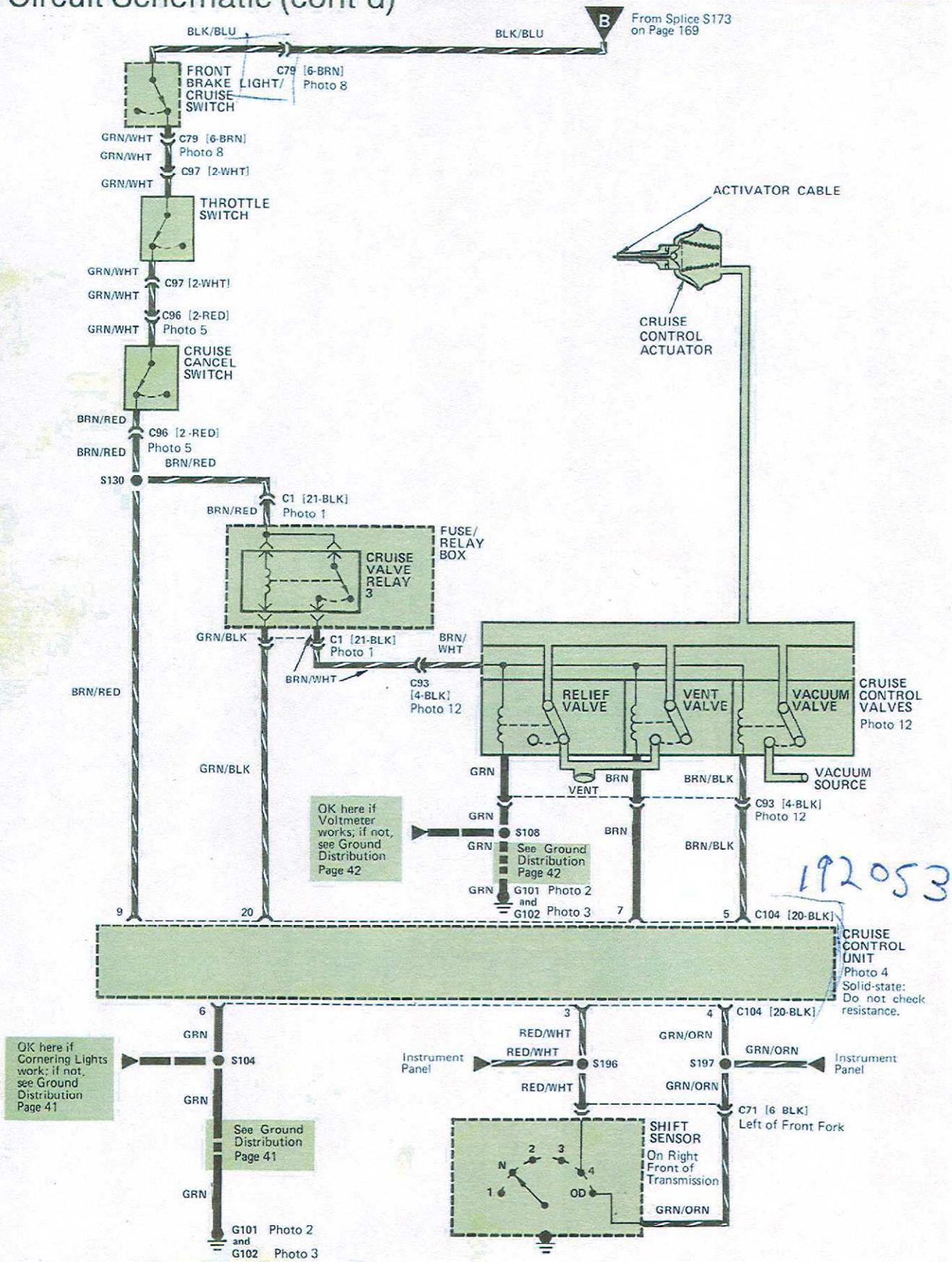
Cruise Control: Ltd
- Circuit Schematic




HOT AT ALL TIMES
HOT IN ON
FUSE/ RELAY BOX
FUSE 9 15A
FUSE 5 10A
BLK/LT GRN
C2 [9-BLK] Photo 1
S128
Regulator/ Rectifier
C78 [9-RED] Photo 8
RIGHT COMBINATION SWITCH
Starter Switch
ENGINE STOP SWITCH
OFF
RUN
WHT/ RED
BLK/WHT
Right Ignition Coil
S131
C1 [21-BLK] Photo 1
C72 [3-WHT] On Bracket Behind Left Side of Forks
FUEL PUMP SHUT-OFF SENSOR Under Front of Top Compartment Solid-state: Do not check resistance.
CFI MAIN RELAY 4
Fuel Pump Relay
RED/WHT
GRN
WHT
S132
S133
Spark Units
OK here if Radio Light works; if not, see Ground Distribution Page 41
S112
See Ground Distribution Page 41
G101 - Photo 2 and G102 - Photo 3
C51 [13-BLK] Photo 11
Computerized Fuel Injection
S134
C134 [2-RED] Photo 10
Automatic Level Control, Cruise Control
S136
C19 [13-BLK] Photo 9
C79 [6-BRN] Photo 8
INSTRUMENT PANEL
"CRUISE SET" INDICATOR
"CRUISE ON" INDICATOR
"CRUISE ON" SWITCH
"RESUME/ ACCEL" SWITCH
"SET/ DECEL" SWITCH
CRUISE CONTROL SWITCH
BLK/YEL
WHT/BLU
WHT/YEL
S173
S172
B
To Front Brake Light/Cruise Switch on Page 170
C61 [9-BLK] Photo 14
CLUTCH SWITCH
GRN/BLU
LEFT IGNITION COIL Photo 13
C69
C70
BLU/YEL
Left Spark Unit
S177
BLU/RED
BLU/ORN
C58 [20-BLK] On Left Side of Fairing
C57 [13-WHT] On Left Side of Fairing
S167
S180
CRUISE CONTROL UNIT Photo 4 Solid-state: Do not check resistance.
BLU/ YEL
C104 [20-BLK]

(cont'd)

Cruise Control: Ltd
- Circuit Schematic (cont'd)



How The Circuit Works

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

System Description

The cruise control unit receives command signals from the cruise control switch. It receives information about operating conditions from the brake switch, speed sensor, clutch switch, rear brake light switch, front brake light/ cruise switch, shift sensor, throttle switch, and ignition coil. The cruise control unit sends operational signals to the devices that regulate the throttle position. The throttle position maintains the selected speed. Essentially, the control unit compares the actual speed of the motorcycle to the selected speed, then opens or closes the throttle as necessary to match the selected speed.

The brake switches release the system's control of the throttle at the instant the rider applies the brakes. The switch sends an electronic signal to the control unit when the brakes are applied. The control unit responds by allowing the throttle to close. The clutch and the throttle switches also can send a disengage signal input to the control unit that allows the throttle to close.

System Operation

The cruise control system will set and automatically maintain any speed between 30 mph (45 kph) and 80 mph (130 kph). To set a speed, turn the cruise control switch to the ON position (the "cruise on" indicator will go on). After reaching the speed you want, press the SET switch. The cruise control unit will receive a "set" signal input (the "cruise set" indicator will go on), and will actuate the cruise control motor.

You can cancel the cruise control system by turning off the cruise control switch, ignition switch, or engine stop switch. This removes power to the control unit and erases the set speed from memory. The system is cancelled temporarily by disengaging the clutch, applying the front or rear brake, or closing the throttle. If you want to engage the cruise control again and your speed is still above 30 mph, press the resume switch. With the resume switch depressed and the set memory retained, the motorcycle will automatically return to the previous set speed.

To accelerate gradually without moving the throttle grip, push the resume switch and hold it there until you reach the speed you want. This will send an acceleration signal to the control unit. When you release the switch, the system will be reprogrammed for the new speed. To slow down, depress the set switch. This will send a deceleration signal to the control unit causing the motorcycle to coast. When you reach the speed you want, release the set switch. This will reprogram the system for the new speed.

System Check (Road Test)

1. Turn the ignition switch to ON. The "cruise set" and "cruise on" indicator lights should go on for about 5 seconds and then go out.
2. Turn the cruise on switch to ON. The "cruise on" indicator light should go on and stay on.
3. Start the motorcycle and accelerate to a speed above 30 mph. With the transmission in fourth gear or overdrive, press the set/decel switch and release the throttle grip. With the set/decel switch depressed, the motorcycle should maintain the set speed.
4. Tap the set/decel switch once. The motorcycle speed should decrease by one mph.
5. Tap the resume/accel switch once. The motorcycle speed should increase by one mph.
6. Press and momentarily hold the set/decel switch, then release it. The speed should decrease as long as you hold the switch; releasing the switch should set and maintain the speed at which you release it.
7. Press and momentarily hold the resume/accel switch, then release it. The speed should increase as long as you hold the switch; releasing the switch should set and maintain the speed at which you release it.
8. The cruise control should cancel whenever you close the throttle or use the clutch, front brake, or rear brake. With the speed set, check each cancel switch (close the throttle, disengage the clutch, apply the front brake, apply the rear brake) and after each check, press the resume/accel switch. The cruise control should cancel with each check and the speed should resume when you press the resume/accel switch.
9. Rotate the throttle grip to increase your speed, then release it. The motorcycle should slow down and resume the set speed.

System Diagnosis

1. Make sure the battery is fully charged and its terminals and cables are clean and tight.
2. When the cruise control switch is on, the ignition switch is in ON and all switches are at rest, the LED's on the cruise control unit should not light up. If they do, replace the control unit.
3. Turn the ignition switch off and disconnect C104 from the cruise control unit.
4. Turn the ignition switch to ON and the cruise control switch to ON.
5. Check for voltage at the following wires in C104.

Terminal (Wire Color)	Voltage	Condition(s)
19 (BLK/YEL)	Battery	At all times
11 (WHT/BLU)	Battery	Resume/accel switch depressed
12 (WHT/YEL)	Battery	Set/decel switch depressed
10 (BLU/YEL)	Battery	Engine stop switch in "Run"
1 (GRN/BLU)	Battery	Clutch disengaged
18 (BLU/ORN)	Battery	At all times
8 (BLU/RED)	Battery	At all times
2 (GRN/YEL)	Battery	Front brake on Rear brake on
13 (BLK/YEL)	0-10 volts Pulse	Front wheel rotated slowly
9 (BRN/RED)	Battery	Both brakes off and throttle open
20 (GRN/BLK)	Battery	
5 (BRN/BLK)	0 volts	At all times
7 (BRN)	0 volts	At all times

6. Turn the ignition switch OFF.

7. With a self-powered test light, check for continuity in the following wires of cruise control unit C104. Make the measurements between each wire and ground.

Terminal (Wire Color)	Test Light	Condition(s)
6 (GRN)	on	At all times
3 (RED/WHT)	on	Transmission in fourth
4 (GRN/ORN)	on	Transmission in overdrive

- If any test result is no good, look for a problem in that wire or component.
- If all the test results are OK, check the cruise control unit.

Cruise Control Valve Check

1. Turn the ignition switch to ON and press the cruise control switch to ON. Make sure the front and rear brakes are not applied, then open the throttle.

2. Disconnect the two vacuum lines from the cruise control valve. Connect a hand vacuum pump to the control valve intake fitting (the one pointing to the left side) and apply vacuum. The system should not hold vacuum.

Problem: System holds vacuum During test

Relay

3. Disconnect C104 from the cruise control unit and ground terminal 20 (GRN/BLK wire) with a fused jumper. Apply vacuum. The system should hold vacuum.

4. With the fused jumper still connected between terminal 20 and ground, connect another fused jumper between terminal 7 (BRN wire) and ground. The system should vent vacuum.

5. Remove the jumper from terminal 7 and again apply vacuum. Then attach the jumper to terminal 5 (BRN/BLK wire). The system should vent vacuum.

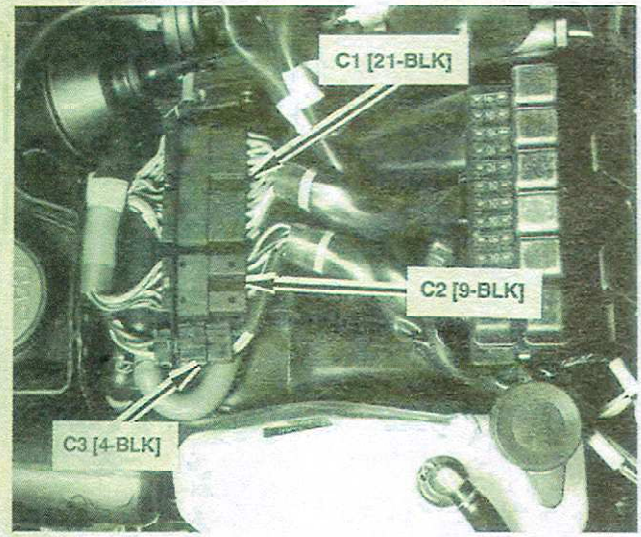
6. If any test result is no good, look for a problem in that wire or component.

7. If all test results are OK, disconnect the vacuum hose from the actuator and connect a hand vacuum pump in its place. Apply vacuum.

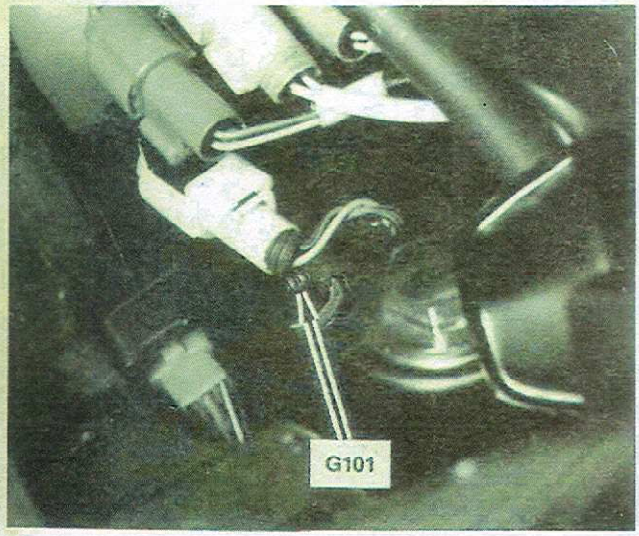
- If the actuator won't hold vacuum, replace it.
- If the actuator holds vacuum, replace the cruise control unit.

Cruise Control: Ltd

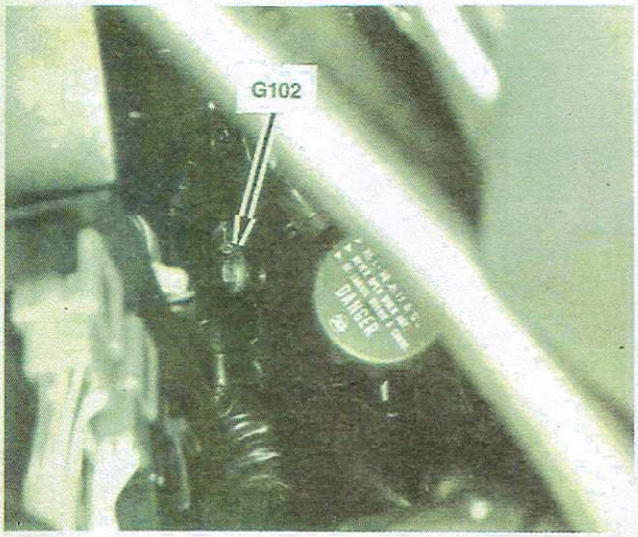
1. Under Top Compartment



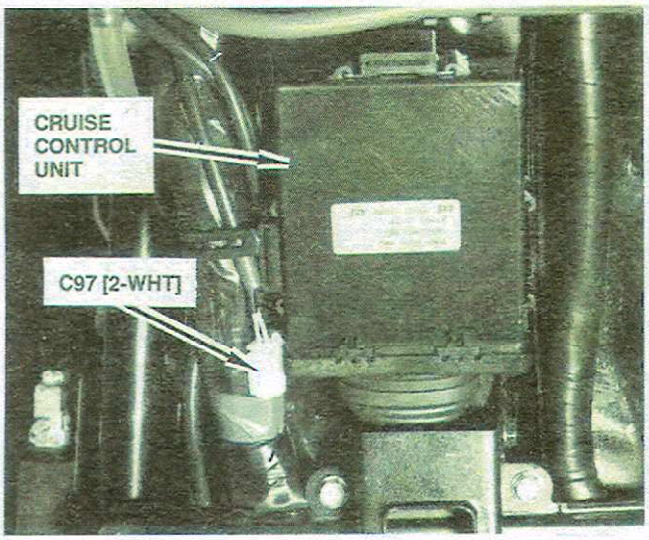
2. On Frame, Behind Right Front Fork



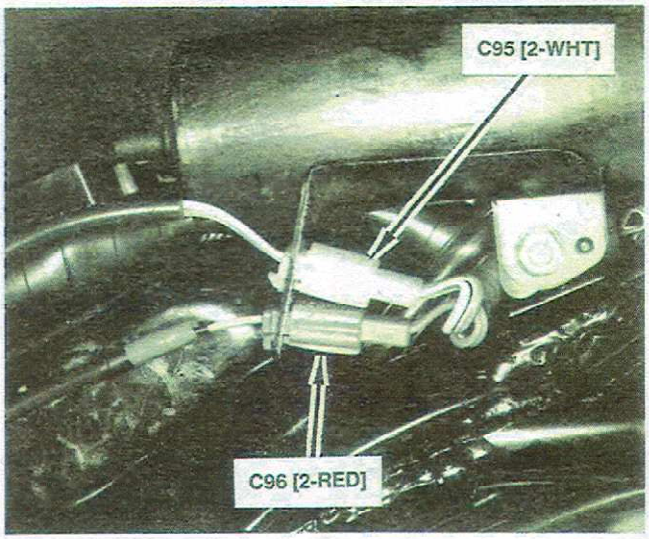
3. On Frame, Near Right Side of Fairing



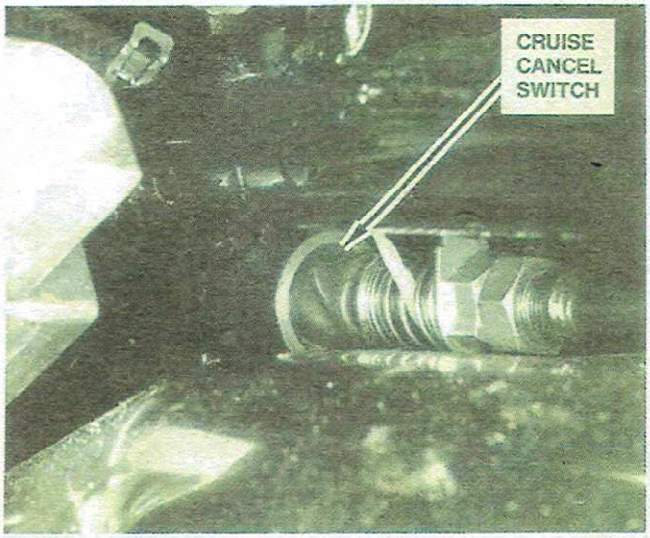
4. Under Front of Seat



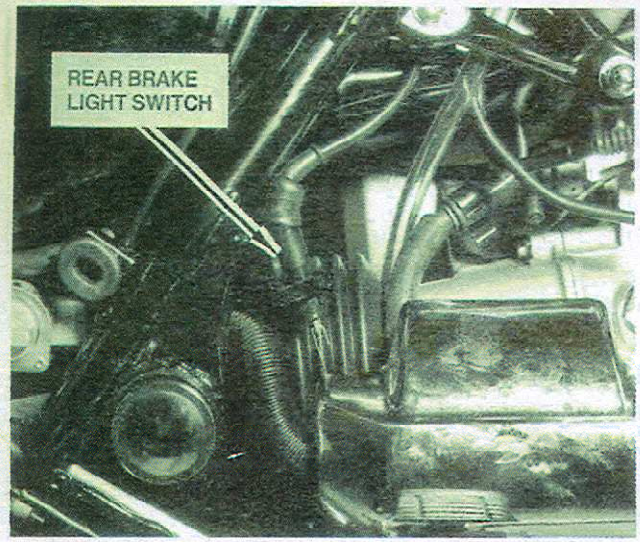
5. Right Side, Below Accumulator



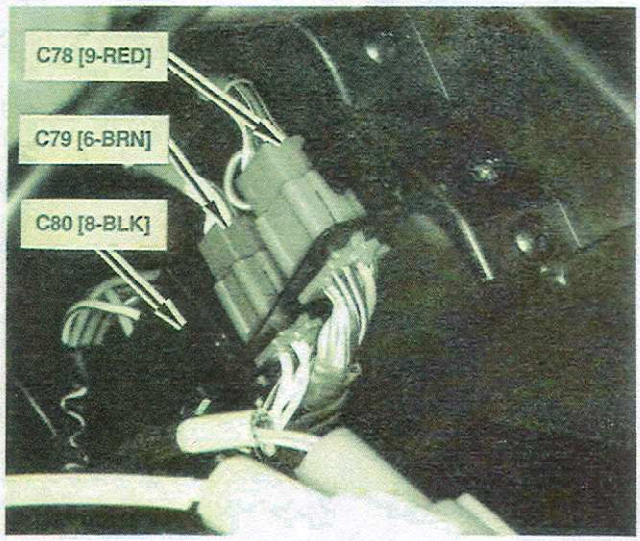
6. Below Front of Right Side Cover



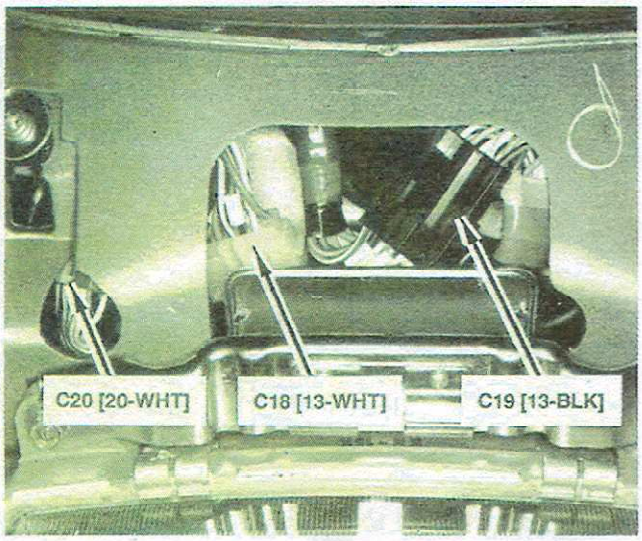
7. On Frame, Near Output Shaft



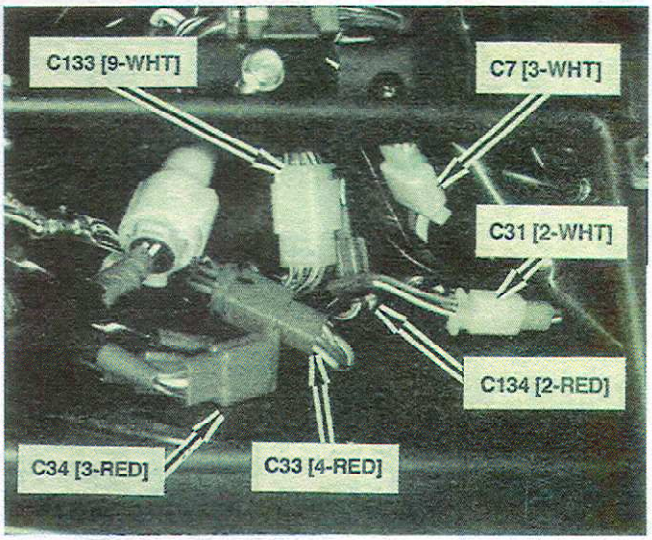
8. On Fairing Right Side



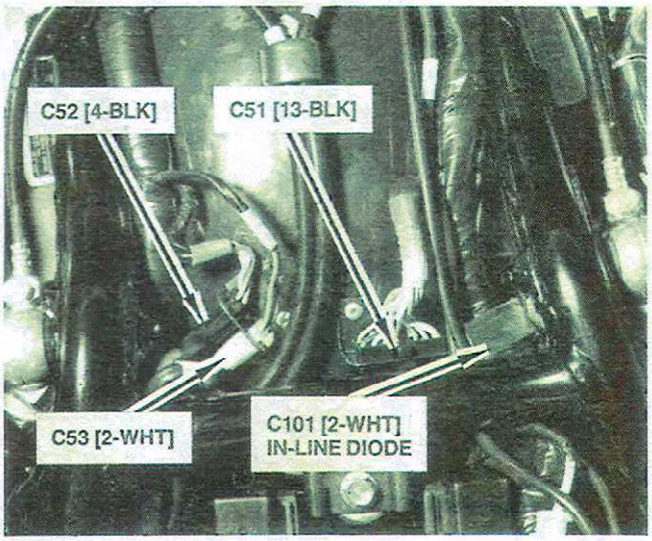
9. Above Headlight, Behind Windshield Retainer



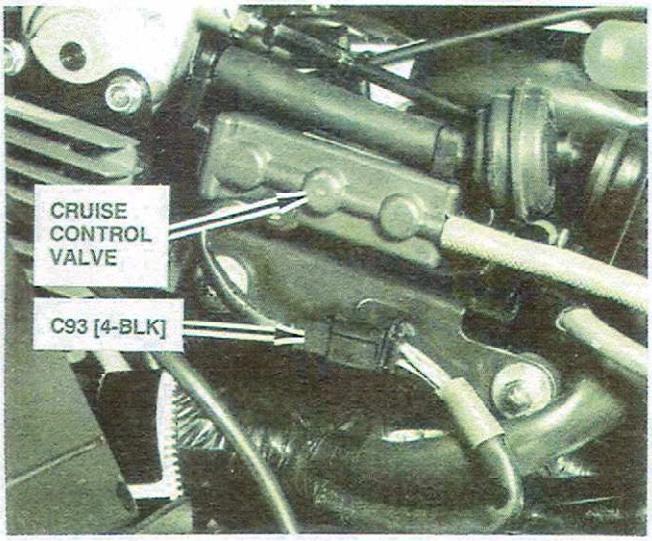
10. Under Fairing Right Pocket



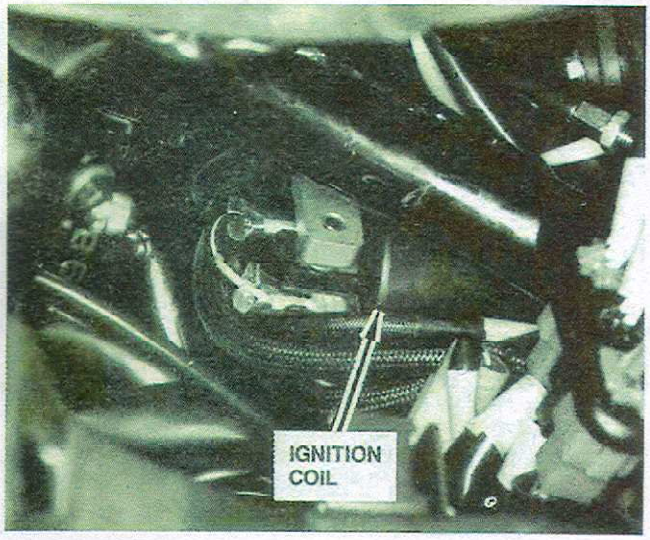
11. Under Center of Seat



12. Left Side, Under Top Compartment



13. Near Steering Head



14. On Left Side of Fairing