



## SYSTEM OUTLINE

WITH THE IGNITION SW TURNED ON, THE CURRENT FLOWS THROUGH **GAUGE** FUSE TO **TERMINAL 5** OF THE CRUISE CONTROL INDICATOR LIGHT. THE CURRENT THROUGH **ECU-IG** FUSE FLOWS TO **TERMINAL 14** OF THE CRUISE CONTROL ECU.

WHEN THE IGNITION SW IS ON AND THE CRUISE CONTROL MAIN SW IS TURNED ON, A SIGNAL IS INPUT FROM **TERMINAL 15** OF THE CRUISE CONTROL MAIN SW TO **TERMINAL 4** OF THE CRUISE CONTROL ECU. AS A RESULT, THE CRUISE CONTROL ECU FUNCTIONS AND THE CURRENT TO **TERMINAL 14** OF THE CRUISE CONTROL ECU FLOWS TO **TERMINAL 13** OF THE CRUISE CONTROL ECU → **GROUND**, AND THE CRUISE CONTROL SYSTEM IS IN A CONDITION READY FOR OPERATION.

AT THE SAME TIME, THE CURRENT FROM THE **GAUGE** FUSE FLOWS TO **TERMINAL 5** OF THE CRUISE CONTROL INDICATOR LIGHT → **TERMINAL 9** → **TERMINAL 5** OF THE CRUISE CONTROL ECU → **TERMINAL 13** → **GROUND**, CAUSING THE CRUISE CONTROL INDICATOR LIGHT TO LIGHT UP TO INDICATE THAT THE CRUISE CONTROL IS READY FOR OPERATION.

### 1. SET OPERATION

WHEN THE CRUISE CONTROL MAIN SW IS TURNED ON AND THE SET SW IS PUSHED WITH THE VEHICLE SPEED WITHIN THE SET LIMIT (APPROX. 36 KM/H, 22 MPH TO 200 KM/H, 124 MPH), A SIGNAL IS INPUT TO **TERMINAL 18** OF THE CRUISE CONTROL ECU AND THE VEHICLE SPEED AT THE TIME THE SET SW IS RELEASED IS MEMORIZED IN THE ECU AS THE SET SPEED.

### 2. SET SPEED CONTROL

DURING CRUISE CONTROL DRIVING, THE CRUISE CONTROL ECU COMPARES THE SET SPEED MEMORIZED IN THE CRUISE CONTROL ECU WITH THE ACTUAL VEHICLE SPEED INPUT INTO **TERMINAL 20** OF THE CRUISE CONTROL ECU FROM THE COMBINATION METER, AND CONTROLS THE CRUISE CONTROL ACTUATOR TO MAINTAIN THE SET SPEED.

WHEN THE ACTUAL SPEED IS LOWER THAN THE SET SPEED, THE ECU CAUSES THE CURRENT TO THE CRUISE CONTROL ACTUATOR TO FLOW FROM **TERMINAL 12** OF THE CRUISE CONTROL ECU → **TERMINAL 6** OF THE CRUISE CONTROL ACTUATOR → **TERMINAL 7** → **TERMINAL 11** OF THE CRUISE CONTROL ECU. AS A RESULT, THE MOTOR IN THE CRUISE CONTROL ACTUATOR IS ROTATED TO OPEN THE THROTTLE VALVE, AND THE THROTTLE CABLE IS PULLED TO INCREASE THE VEHICLE SPEED. WHEN THE ACTUAL DRIVING SPEED IS HIGHER THAN THE SET SPEED, THE CURRENT TO CRUISE CONTROL ACTUATOR FLOWS FROM **TERMINAL 11** OF THE CRUISE CONTROL ECU → **TERMINAL 7** OF THE CRUISE CONTROL ACTUATOR → **TERMINAL 6** → **TERMINAL 12** OF THE CRUISE CONTROL ECU.

THIS CAUSES THE MOTOR IN THE CRUISE CONTROL ACTUATOR TO ROTATE TO CLOSE THE THROTTLE VALVE AND RETURN THE THROTTLE CABLE TO DECREASE THE VEHICLE SPEED.

### 3. COAST CONTROL

DURING CRUISE CONTROL DRIVING, WHILE THE COAST SW IS ON, THE CRUISE CONTROL ACTUATOR RETURNS THE THROTTLE CABLE TO CLOSE THE THROTTLE VALVE AND DECREASE THE DRIVING SPEED. THE VEHICLE SPEED WHEN THE COAST SWITCH IS TURNED OFF IS MEMORIZED, AND THE VEHICLE CONTINUES AT THE NEW SET SPEED.

### 4. ACCEL CONTROL

DURING CRUISE CONTROL DRIVING, WHILE THE ACCEL SW IS TURNED ON, THE CRUISE CONTROL ACTUATOR PULLS THE THROTTLE CABLE TO OPEN THE THROTTLE VALVE AND INCREASE THE DRIVING SPEED. THE VEHICLE SPEED WHEN THE ACCEL SW IS TURNED OFF IS MEMORIZED, AND THE VEHICLE CONTINUES AT THE NEW SET SPEED.

### 5. RESUME CONTROL

UNLESS THE VEHICLE SPEED FALLS BELOW THE MINIMUM SPEED LIMIT (APPROX. 40 KM/H, 25 MPH) AFTER CANCELING THE SET SPEED BY THE CANCEL SW, PUSHING THE RESUME SW WILL CAUSE THE VEHICLE TO RESUME THE SPEED SET BEFORE CANCELLATION.

### 6. MANUAL CANCEL MECHANISM

IF ANY OF THE FOLLOWING OPERATIONS OCCURS DURING CRUISE CONTROL OPERATION, THE MAGNETIC CLUTCH OF THE ACTUATOR MOTOR TURNS OFF, THE MOTOR ROTATES TO CLOSE THE THROTTLE VALVE, AND THE CRUISE CONTROL IS RELEASED.

- \* PLACING THE IGNITION SW AT **ST** POSITION. "SIGNAL INPUT TO **TERMINAL 2** OF THE CRUISE CONTROL ECU"
- \* DEPRESSING BRAKE PEDAL (STOP LIGHT SW ON). "SIGNAL INPUT TO **TERMINAL 16** OF THE CRUISE CONTROL ECU"
- \* PUSH THE CANCEL SW (CANCEL SW ON). "SIGNAL INPUT TO **TERMINAL 18** OF THE CRUISE CONTROL ECU"
- \* PUSH THE MAIN SWITCH (MAIN SW OFF) "SIGNAL INPUT TO **TERMINAL 4** OF THE CRUISE CONTROL ECU"

## 7. AUTO CANCEL FUNCTION

A) IF ANY OF THE FOLLOWING OPERATING CONDITIONS OCCURS DURING CRUISE CONTROL OPERATION, THE SET SPEED IS ERASED, THE CURRENT FLOW TO MAGNETIC CLUTCH IS STOPPED, AND THE CRUISE CONTROL IS RELEASED. (MAIN SW TURNS OFF).

WHEN THIS OCCURS, THE IGNITION SW MUST BE TURNED OFF ONCE BEFORE THE MAIN SWITCH WILL TURN ON.

- \* OVER CURRENT TO TRANSISTER DRIVING MOTOR AND/OR MAGNETIC CLUTCH.
- \* WHEN CURRENT CONTINUED TO FLOW TO THE MOTOR INSIDE THE ACTUATOR IN THE THROTTLE VALVE "OPEN" DIRECTION.
- \* OPEN CIRCUIT IN MAGNETIC CLUTCH.
- \* MOMENTARY INTERRUPTION OF VEHICLE SPEED SIGNAL.
- \* SHORT CIRCUIT IN CRUISE CONTROL SW.
- \* MOTOR DOES NOT OPERATE DESPITE THE MOTOR DRIVE SIGNAL BEING OUTPUT.

B) IF ANY OF THE FOLLOWING CONDITIONS OCCURS DURING CRUISE CONTROL OPERATION, THE SET SPEED IS ERASED, AND THE CRUISE CONTROL IS RELEASED. (THE POWER OF MAGNETIC CLUTCH IS CUT OFF UNTIL THE SET SW IS "ON" AGAIN.)

- \* WHEN THE VEHICLE SPEED FALLS BELOW THE MINIMUM SPEED LIMIT, APPROX. **40 KM/H (25 MPH)**
- \* WHEN THE VEHICLE SPEED FALLS MORE THAN **16 KM/H (10 MPH)** BELOW THE SET SPEED, E.G. ON AN UPWARD SLOPE.
- \* WHEN POWER TO THE CRUISE CONTROL SYSTEM IS MOMENTARILY CUT OFF.

## 8. AUTOMATIC TRANSMISSION CONTROL FUNCTION

\* IN OVERDRIVE, IF THE VEHICLE SPEED BECOMES LOWER THAN THE OVERDRIVE CUT SPEED (SET SPEED MINUS APPROX. **4 KM/H, 2.5 MPH**) DURING CRUISE CONTROL OPERATION, SUCH AS DRIVING UP A HILL, THE OVERDRIVE IS RELEASED AND THE POWER INCREASED TO PREVENT A REDUCTION IN VEHICLE SPEED.

\* AFTER RELEASING THE OVERDRIVE, VEHICLE SPEED BECOMES HIGHER THAN THE OVERDRIVE RETURN SPEED (SET SPEED MINUS APPROX. **2 KM/H, 1.2 MPH**), THE ECU JUDGES BY THE SIGNALS FROM POTENTIONMETER OF THE ACTUATOR THAT THE UPWARD SLOPE HAS FINISHED, AND OVERDRIVE IS RESUMED AFTER APPROXIMATELY **6 SECONDS**.

\* DURING CRUISE CONTROL DRIVING, THE CRUISE CONTROL OPERATION SIGNAL IS OUTPUT FROM THE CRUISE CONTROL ECU TO THE ENGINE CONTROL MODULE ECU UPON RECEIVING THIS SIGNAL, SO THE ENGINE CONTROL MODULE ECU CHANGES THE SHIFT PATTERN TO NORMAL.

TO MAINTAIN SMOOTH CRUISE CONTROL OPERATION (ON A DOWNWARD SLOPE, ETC.), LOCK-UP RELEASE OF THE TRANSMISSION WHEN THE IDLING POINT OF THE THROTTLE POSITION IS "ON" IS FORBIDDEN.

## SERVICE HINTS

### C4 CRUISE CONTROL ACTUATOR

1-3 : APPROX. **2 K $\Omega$**

5-4 : APPROX. **38.5  $\Omega$**

### C17 CRUISE CONTROL ECU

14-GROUND : APPROX. **12 VOLTS** WITH THE IGNITION SW AT **ON** POSITION

15-GROUND : ALWAYS APPROX. **12 VOLTS**

20-GROUND : **4 PULSE** WITH **1 ROTATION** OF ROTOR SHAFT

18-GROUND : APPROX. **418  $\Omega$**  WITH THE CANCEL SW ON IN THE CONTROL SW

APPROX. **68  $\Omega$**  WITH THE RES/ACC SW ON IN THE CONTROL SW

APPROX. **198  $\Omega$**  WITH THE SET/COAST SW ON IN THE CONTROL SW

4-GROUND : CONTINUITY WITH THE MAIN SW ON IN THE CONTROL SW

13-GROUND : ALWAYS CONTINUITY



## ○ : PARTS LOCATION

| CODE | SEE PAGE | CODE | SEE PAGE | CODE | SEE PAGE |
|------|----------|------|----------|------|----------|
| C 4  | 22       | D 1  | 22       | I12  | 25       |
| C10  | 24       | E 4  | A        | J 1  | 25       |
| C13  | 24       | E 5  | C        | J 2  | 25       |
| C15  | 24       | E 7  | D        | J 6  | 25       |
| C17  | 24       | F11  | 25       | S13  | 25       |

## □ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

| CODE | SEE PAGE | JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION) |
|------|----------|------------------------------------------------------------|
| IH1  | 32       | ENGINE WIRE AND COWL WIRE (BEHIND GLOVE BOX)               |
| IH2  |          |                                                            |

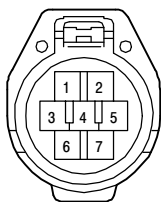
## ▽ : GROUND POINTS

| CODE | SEE PAGE | GROUND POINTS LOCATION |
|------|----------|------------------------|
| ID   | 32       | LEFT KICK PANEL        |
| IE   | 32       | RIGHT KICK PANEL       |

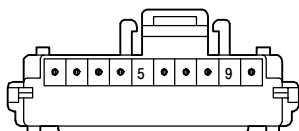
## ○ : SPLICE POINTS

| CODE | SEE PAGE | WIRE HARNESS WITH SPLICE POINTS | CODE | SEE PAGE | WIRE HARNESS WITH SPLICE POINTS |
|------|----------|---------------------------------|------|----------|---------------------------------|
| I1   | 32       | COWL WIRE                       | I12  | 32       | COWL WIRE                       |
| I5   |          |                                 |      |          |                                 |

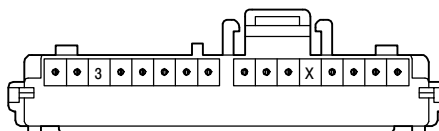
C 4 GRAY



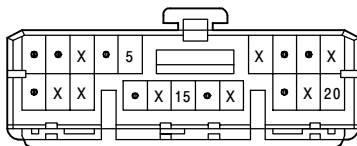
C10 GRAY



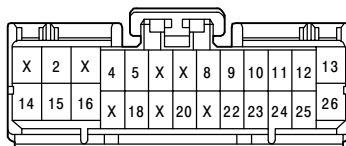
C13



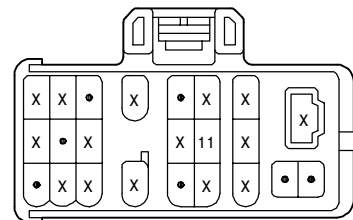
C15 BLACK



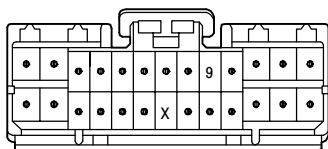
C17 GRAY



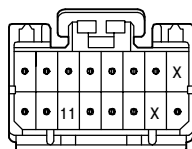
D 1 BLACK



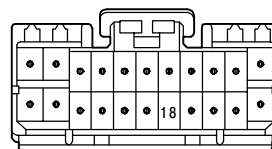
E 4 (A) DARK GRAY



E 5 (C) DARK GRAY



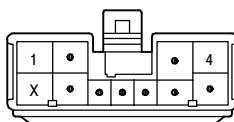
E 7 (D) DARK GRAY



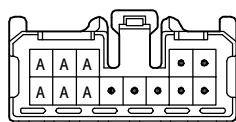
F11

(SEE PAGE 20)

I12 BLACK

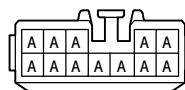


J 1



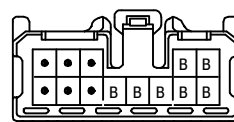
(HINT : SEE PAGE 7)

J 2 BLUE



(HINT : SEE PAGE 7)

J 6



(HINT : SEE PAGE 7)

S13 BLACK

