



## SYSTEM OUTLINE

CURRENT IS APPLIED AT ALL TIMES THROUGH THE **STOP** FUSE TO **TERMINAL 2** OF THE STOP LIGHT SW, AND ALSO THROUGH THE **ECU-B** FUSE TO **TERMINAL 15** OF THE CRUISE CONTROL ECU.

WITH THE IGNITION SW TURNED TO ON, CURRENT FLOWS THROUGH THE **GAUGE** FUSE TO **TERMINAL (B) 4** OF THE COMBINATION METER AND CURRENT THROUGH THE **ECU-IG** FUSE FLOWS TO **TERMINAL 14** OF THE CRUISE CONTROL ECU.

WHEN THE IGNITION SW ON AND THE CRUISE CONTROL MAIN SWITCH IS PUSHED ON, A SIGNAL IS INPUT FROM **TERMINAL 19** OF THE CRUISE CONTROL ECU TO **TERMINAL 5** OF THE CRUISE CONTROL SW. AS A RESULT, THE CRUISE CONTROL ECU FUNCTIONS AND CURRENT FLOWS TO **TERMINAL 14** OF THE CRUISE CONTROL ECU → **TERMINAL 13** → **GROUND**, AND THE CRUISE CONTROL SYSTEM IS IN A CONDITION READY FOR OPERATION.

AT THE SAME TIME, CURRENT THROUGH THE **GAUGE** FUSE FLOWS FROM **TERMINAL (B) 4** OF THE CRUISE CONTROL INDICATOR LIGHT TO **TERMINAL (C) 9** → **TERMINAL 7** OF THE CRUISE CONTROL ECU → **TERMINAL 13** → **GROUND**, CAUSING THE CRUISE CONTROL INDICATOR LIGHT TO LIGHT UP, INDICATING THAT THE CRUISE CONTROL IS READY FOR OPERATION.

### 1. SET OPERATION

WHEN THE CRUISE CONTROL MAIN SW IS PUSHED ON AND THE SET SW IS TURNED WITH THE VEHICLE SPEED WITHIN THE SET LIMIT (APPROX. **40 KM/H, 25 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 ECU COMPARES THE SET SPEED MEMORIZED IN THE ECU WITH THE ACTUAL VEHICLE SPEED INPUT TO **TERMINAL 20** OF THE CRUISE CONTROL ECU FROM THE VEHICLE SPEED SENSOR, AND CONTROLS THE CRUISE CONTROL ACTUATOR TO MAINTAIN THE SET SPEED.

WHEN THE ACTUAL SPEED IS LOWER THAN THE SET SPEED, THE ECU CAUSES CURRENT TO THE CRUISE CONTROL ACTUATOR TO FLOW FROM **TERMINAL 12** TO **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, CURRENT TO THE CRUISE CONTROL ACTUATOR FLOWS FROM **TERMINAL 11** OF THE ECU TO **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 TURNS OFF AND THE MOTOR ROTATES TO CLOSE THE THROTTLE VALVE AND THE CRUISE CONTROL IS RELEASED.

\* PLACING THE SHIFT LEVER EXCEPT "D" POSITION (PARK/NEUTRAL POSITION SW EXCEPT "D" POSITION). "SIGNAL IS NOT INPUT TO **TERMINAL 2** OF THE ECU" (A/T)

\* DEPRESSED THE CLUTCH PEDAL (CRUISE CONTROL CLUTCH SW OFF). "SIGNAL IS NOT INPUT TO **TERMINAL 2** OF THE ECU" (M/T)

\* DEPRESSED THE BRAKE PEDAL (STOP LIGHT SW ON). "SIGNAL IS INPUT TO **TERMINAL 16** OF THE ECU"

\* PUSHED THE CANCEL SWITCH (CANCEL SW ON). "SIGNAL IS INPUT TO **TERMINAL 18** OF THE ECU"

## 7. AUTO CANCEL FUNCTION

A) IF ANY OF THE FOLLOWING OPERATING CONDITIONS OCCURS DURING CRUISE CONTROL OPERATION, THE SET SPEED IS ERASED, CURRENT FLOWING TO THE MAGNETIC CLUTCH IS STOPPED AND THE CRUISE CONTROL IS RELEASED. (MAIN SW PUSH OUT OFF.) WHEN THIS OCCURS, THE IGNITION SW MUST BE TURNED OFF ONCE BEFORE THE MAIN SW WILL PUSH ON.

- \* WHEN CURRENT CONTINUES TO FLOW TO THE MOTOR INSIDE THE ACTUATOR IN THE THROTTLE VALVE "OPEN" DIRECTION.
- \* THE MOTOR DOES NOT OPERATE DESPITE THE MOTOR DRIVE SIGNAL BEING OUTPUT.

B) IF ANY OF THE FOLLOWING OPERATING CONDITIONS OCCURS DURING CRUISE CONTROL OPERATION, THE SET SPEED IS ERASED, CURRENT FLOW TO THE MAGNETIC CLUTCH IS STOPPED AND THE CRUISE CONTROL IS RELEASED. (MAIN SW PUSH OUT OFF.) WHEN THIS OCCURS, THE CANCEL STATE IS CLEARED AS THE MAIN SW WILL PUSH ON AGAIN.

- \* OVER CURRENT TO TRANSISTOR DRIVING THE MOTOR AND/OR THE MAGNETIC CLUTCH.
- \* OPEN CIRCUIT IN THE MAGNETIC CLUTCH.
- \* MOMENTARY INTERRUPTION OF VEHICLE SPEED SIGNAL.
- \* SHORT CIRCUIT IN THE CRUISE CONTROL SW.
- \* WHEN THE VEHICLE SPEED FALLS MORE THAN **16 KM/H (10 MPH)** BELOW THE SET SPEED.

C) IF ANY OF THE FOLLOWING CONDITIONS OCCURS DURING CRUISE CONTROL OPERATION, THE SET SPEED IS ERASED AND THE CRUISE CONTROL IS RELEASED. (THE POWER TO THE 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 POWER TO THE CRUISE CONTROL SYSTEM IS MOMENTARILY CUT OFF.

D) IF ANY OF THE FOLLOWING CONDITIONS OCCURS DURING CRUISE CONTROL OPERATION, THE CRUISE CONTROL IS RELEASED.

- \* OPEN THE CIRCUIT FOR **TERMINAL 2** OF THE STOP LIGHT SW.

## 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 INCREASES 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**) AND THE ECU JUDGES BY THE SIGNALS FROM THE ACTUATOR'S POTENTIOMETER THAT THE UPWARD SLOPE HAS FINISHED, THE OVERDRIVE IS RESUMED AFTER APPROX. **2 SECONDS**.

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

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

## SERVICE HINTS

### C 1 CRUISE CONTROL ACTUATOR

- 1-3 : APPROX. **2  $\Omega$**
- 5-4 : APPROX. **38  $\Omega$**

### C12 CRUISE CONTROL SW [COMB. SW]

- 5-3 : CONTINUITY WITH THE MAIN SW ON
- 4-3 : APPROX. **418  $\Omega$**  WITH THE CANCEL SW ON  
APPROX. **198  $\Omega$**  WITH THE SET/COAST SW ON  
APPROX. **68  $\Omega$**  WITH THE RESUME/ACCEL SW ON

### C15 CRUISE CONTROL ECU

- 14-GROUND : APPROX. **12 VOLTS** WITH THE IGNITION SW AT **ON** POSITION
- 15-GROUND : ALWAYS APPROX. **12 VOLTS**
- 20-GROUND : **4 PULSES** WITH **1 ROTATION** OF THE ROTOR SHAFT
- 18-GROUND : APPROX. **418  $\Omega$**  WITH THE CANCEL SW ON IN THE CONTROL SW  
APPROX. **198  $\Omega$**  WITH THE SET/COAST SW ON IN THE CONTROL SW  
APPROX. **68  $\Omega$**  WITH THE RESUME/ACCEL SW ON IN THE CONTROL SW
- 13-GROUND : ALWAYS CONTINUITY



# CRUISE CONTROL

## ○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
<b>C 1</b>	28 (5S-FE), 30 (7A-FE)	<b>C15</b>	32	<b>J 7</b>	33
<b>C 9</b> B	32	<b>D 1</b>	28 (5S-FE), 30 (7A-FE)	<b>J 9</b>	33
<b>C10</b> C	32	<b>E 5</b> A	32	<b>P 1</b>	29 (5S-FE), 31 (7A-FE)
<b>C12</b>	32	<b>E 7</b> C	32	<b>S 7</b>	33
<b>C14</b>	32	<b>J 2</b>	33	<b>V 1</b>	29 (5S-FE), 31 (7A-FE)

## ○ : RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
<b>2</b>	26	ENGINE COMPARTMENT LEFT

## ○ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
<b>ID</b>		
<b>IE</b>	20	INSTRUMENT PANEL WIRE AND INPANE J/B (LEFT KICK PANEL)
<b>IF</b>		
<b>1A</b>	22	ENGINE ROOM MAIN WIRE AND J/B NO.1 (LEFT KICK PANEL)
<b>1C</b>	22	INSTRUMENT PANEL WIRE AND J/B NO.1 (LEFT KICK PANEL)
<b>1J</b>	22	
<b>1K</b>		COWL WIRE AND J/B NO.1 (LEFT KICK PANEL)
<b>3B</b>	24	
<b>3C</b>		INSTRUMENT PANEL WIRE AND J/B NO.3 (BEHIND THE INSTRUMENT PANEL CENTER)

## □ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
<b>IC1</b>	42	ENGINE ROOM MAIN WIRE AND COWL WIRE (LEFT KICK PANEL)
<b>ID1</b>	42	
<b>ID2</b>		INSTRUMENT PANEL WIRE AND COWL WIRE (LEFT KICK PANEL)
<b>II1</b>	44	
<b>II2</b>		ENGINE WIRE AND INSTRUMENT PANEL WIRE (NEAR THE ENGINE CONTROL MODULE)
<b>IJ1</b>	44	ENGINE WIRE AND COWL WIRE (INSTRUMENT PANEL CENTER)

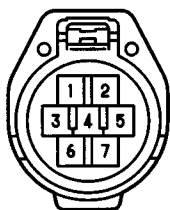
## ▽ : GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
<b>IE</b>	42	INSTRUMENT PANEL BRACE LH
<b>IF</b>	42	R/B NO.4 SET BOLT

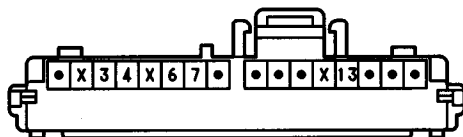
## ○ : SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
<b>I 8</b>	44	ENGINE WIRE	<b>I13</b>	44	ENGINE WIRE

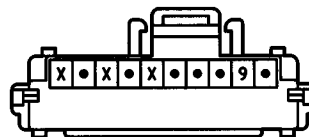
**C 1 GRAY**



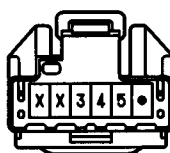
**C 9 ⑥**



**C10 ⑥ GRAY**



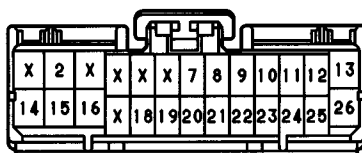
**C12 BLACK**



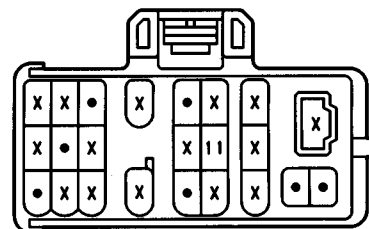
**C14 BLUE**



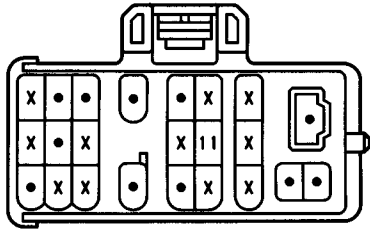
**C15 GREEN**



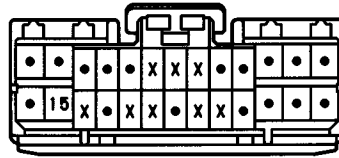
**(5S-FE) D 1 BLACK**



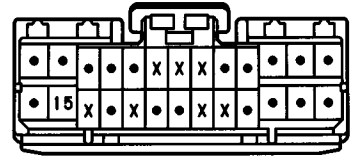
(7A-FE) D 1 BLACK



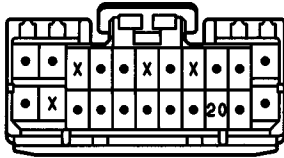
(5S-FE A/T) E 5 Ⓐ DARK GRAY



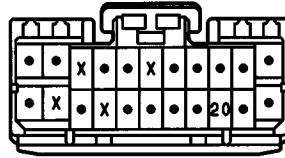
(7A-FE A/T) E 5 Ⓐ DARK GRAY



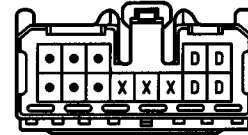
(5S-FE A/T) E 7 Ⓒ DARK GRAY



(7A-FE A/T) E 7 Ⓒ DARK GRAY

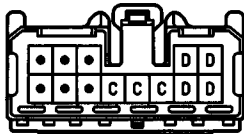


J 2



(HINT:SEE PAGE 7)

J 7



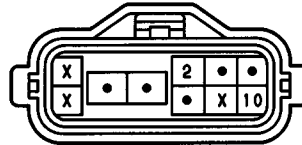
(HINT:SEE PAGE 7)

J 9

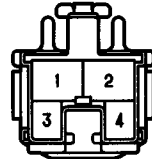


(HINT:SEE PAGE 7)

P 1 GRAY



8 7



V 1 BLACK

