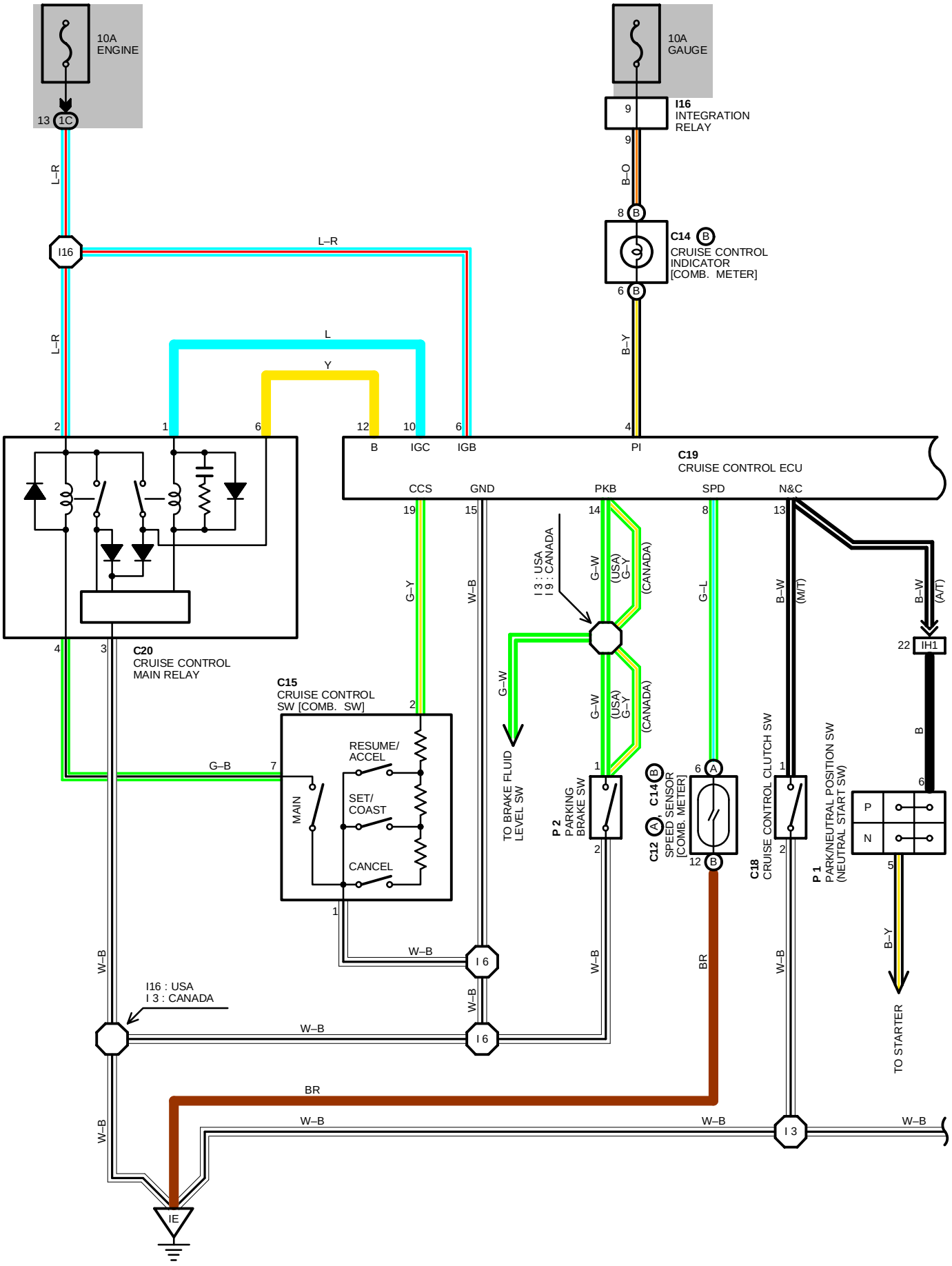
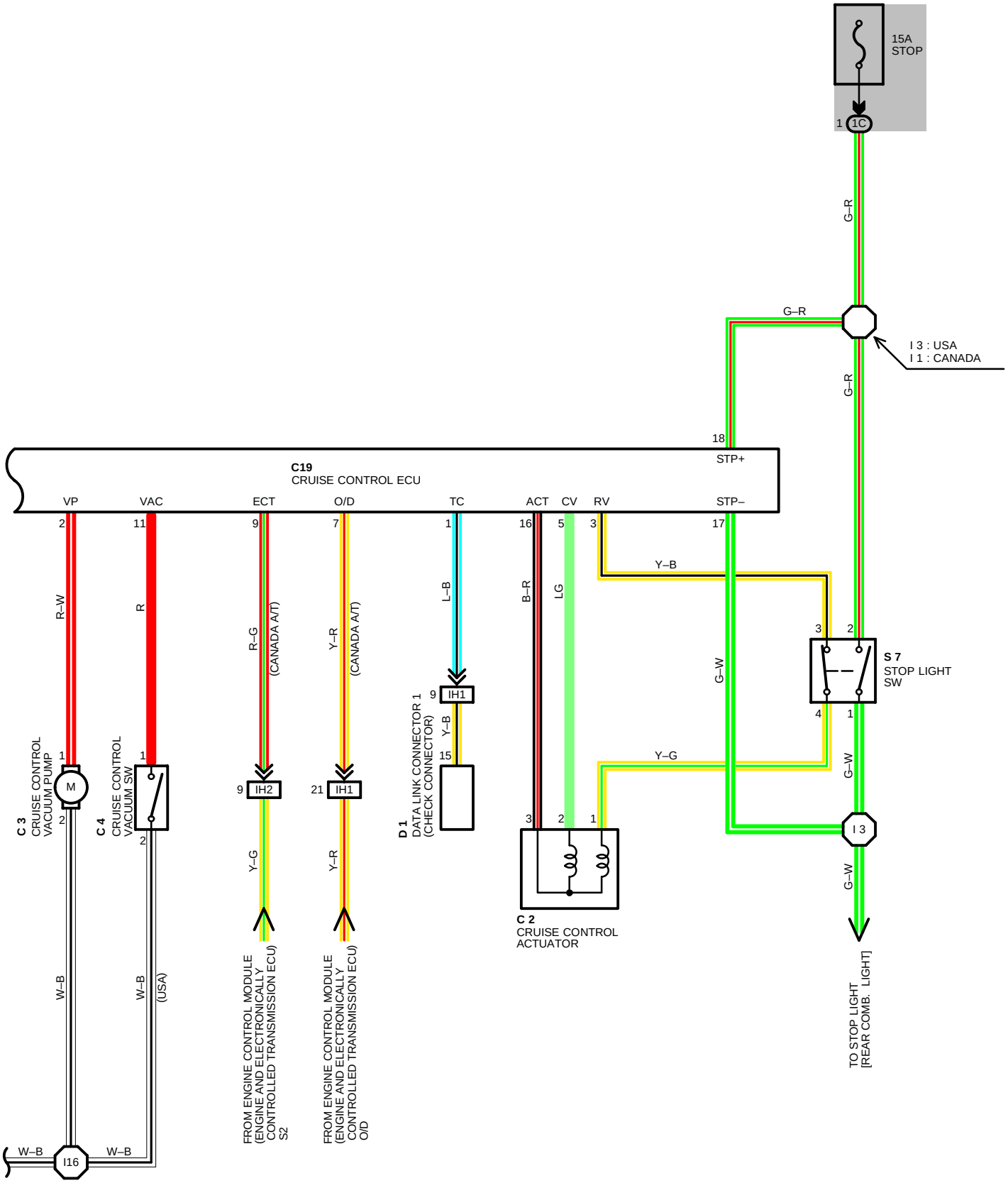
CRUISE CONTROL (VACUUM TYPE)




15A
STOP
1C
G–R
I 3 : USA
I 1 : CANADA
C19
CRUISE CONTROL ECU
STP+
VP
VAC
ECT
O/D
TC
ACT
CV
RV
STP–
R–W
R
R–G
(CANADA A/T)
Y–R
(CANADA A/T)
L–B
B–R
LG
Y–B
G–W
S 7
STOP LIGHT
SW
C 3
CRUISE CONTROL
VACUUM PUMP
C 4
CRUISE CONTROL
VACUUM SW
IH1
IH2
Y–B
Y–G
D 1
DATA LINK CONNECTOR 1
(CHECK CONNECTOR)
C 2
CRUISE CONTROL
ACTUATOR
I 3
W–B
(USA)
I16
FROM ENGINE CONTROL MODULE
(ENGINE AND ELECTRONICALLY
CONTROLLED TRANSMISSION ECU)
S2
FROM ENGINE CONTROL MODULE
(ENGINE AND ELECTRONICALLY
CONTROLLED TRANSMISSION ECU)
O/D
TO STOP LIGHT
[REAR COMB. LIGHT]

CRUISE CONTROL (VACUUM TYPE)

SYSTEM OUTLINE

WHEN THE IGNITION SW IS TURNED TO ON, THE CURRENT FLOWING THROUGH THE **ENGINE** FUSE FLOWS SIMULTANEOUSLY TO **TERMINAL 6** OF THE ECU AND TO **TERMINAL 2** OF THE CRUISE CONTROL MAIN RELAY. IF AT THIS TIME THE MAIN SW IS TURNED TO ON, THE CURRENT APPLIED TO **TERMINAL 2** FLOWS FROM **TERMINAL 6** OF THE MAIN RELAY → **TERMINAL 12** OF THE ECU, MAINTAINING THE CRUISE CONTROL SYSTEM IN CONSTANT READINESS FOR OPERATION.

SIMULTANEOUSLY, THE CURRENT FLOWING THROUGH THE **GAUGE** FUSE FLOWS TO **TERMINAL (B) 8** OF THE INDICATOR LIGHT (COMB. METER) → **TERMINAL (B) 6** → **TERMINAL 4** OF THE ECU → **TERMINAL 15** → **GROUND**, CAUSING THE INDICATOR LIGHT TO LIGHT UP.

1. CRUISE CONTROL DRIVING

WHEN THE MAIN SW IS TURNED ON AND THE SET SW IS PUSHED IN WITH THE VEHICLE SPEED WITHIN THE SET LIMIT (APPROX. **40**KM/H, **25**RPM TO **200**KM/H, **124**MPH) A SIGNAL IS INPUT TO **TERMINAL 19** OF THE ECU AND THE VEHICLE SPEED AT THAT TIME IS RECORDED IN THE ECU MEMORY AS THE SET SPEED. THE ECU COMPARES THE RECORDED SET SPEED WITH THE ACTUAL VEHICLE SPEED INPUT INTO **TERMINAL 8** FROM THE VEHICLE SPEED SENSOR (SPEED SENSOR) [COMB. METER], AND CONTROLS THE CRUISE CONTROL ACTUATOR IN ORDER TO MAINTAIN THE SET VEHICLE SPEED.

WHEN THE ACTUAL VEHICLE SPEED IS LOWER THAN THE SET SPEED, ECU OPERATION LENGTHENS THE PERIOD OF CURRENT FLOW FROM **TERMINAL 5** OF THE ECU → **TERMINAL 2** OF THE ACTUATOR → THE CONTROL VALVE → **TERMINAL 3** → **TERMINAL 16** OF THE ECU, THE CABLE IS PULLED IN THE DIRECTION FOR OPENING THROUGH VALVE AND THE VEHICLE SPEED INCREASES.

WHEN THE ACTUAL VEHICLE SPEED IS HIGHER THAN THE SET SPEED, A SHORTER PERIOD OF CURRENT FLOW TO THE CONTROL VALVE RETURNS THE CABLE IN THE DIRECTION FOR CLOSING THE THROTTLE VALVE AND THE VEHICLE SPEED DECREASES.

(ACTUATOR OPERATION)

WHEN THE CRUISE CONTROL SYSTEM OPERATES (THE SET SIGNAL IS INPUT), CURRENT FLOWS FROM THE ECU TO THE RELEASE VALVE, CLOSING THE ATMOSPHERIC INTAKE PORT.

WHEN THERE IS CONTINUITY TO THE CONTROL VALVE, VACUUM IS INTRODUCED INSIDE THE ACTUATOR, AND WHEN THERE IS NO CONTINUITY, VACUUM INTAKE STOPS AND ATMOSPHERE IS INTRODUCED. IN OTHER WORDS, THE ACTUATOR (THROTTLE VALVE) IS CONTROLLED BY CHANGING THE RATIO OF CONTINUITY AND NON–CONTINUITY TO THE CONTROL VALVE WITHIN A SPECIFIED PERIOD OF TIME.

(ROLE OF THE VACUUM SW AND VACUUM PUMP.)

WHEN THE VACUUM SW TURNS ON DURING CRUISE CONTROL OPERATION, ITS SIGNAL IS INPUT TO **TERMINAL 11** OF THE ECU SO THAT THE ECU APPLIES CURRENT TO OPERATE THE VACUUM PUMP (**TERMINAL 2** OF THE ECU → **TERMINAL 1** OF THE PUMP → **TERMINAL 2** → **GROUND**) AND SUPPLEMENT THE ENGINE VACUUM WHICH BY ITSELF IS INADEQUATE FOR CONTROL.

2. CANCEL MECHANISM

IF ANY OF THE FOLLOWING OPERATIONS IS PERFORMED DURING CRUISE CONTROL, THEN CONTINUITY TO THE CONTROL VALVE AND THE RELEASE VALVE IS CUT OFF AND CRUISE CONTROL IS RELEASED.

* DEPRESSING THE CLUTCH PEDAL (CLUTCH SW ON), SIGNAL INPUT TO **TERMINAL 13** OF THE ECU.
* PLACING THE PARK/NEUTRAL POSITION SW (NEUTRAL START SW) IN "**N**" POSITION (PARK/NEUTRAL POSITION SW (NEUTRAL START SW) ON), SIGNAL INPUT TO **TERMINAL 13** OF THE ECU.
* DEPRESSING THE BRAKES PEDAL (STOP LIGHT SW ON) SIGNAL INPUT TO **TERMINAL 17** OF THE ECU.
* PULLING THE PARKING BRAKE LEVER (PARKING BRAKE SW ON), SIGNAL INPUT TO **TERMINAL 14** OF THE ECU.
* PUSHING THE CRUISE CONTROL CANCEL SW, SIGNAL INPUT TO **TERMINAL 19** OF THE ECU.

3. COAST CONTROL

WHILE THE COAST SW IS ON DURING CRUISE CONTROL, CURRENT FLOWS TO THE CONTROL VALVE AND RELEASE VALVE IS STOPPED AND THE VEHICLE DECELERATES UNTIL THE SW IS RELEASED. THE VEHICLE SPEED WHEN THE SW IS RELEASED IS THEN RECORDED IN MEMORY.

4. RESUME CONTROL

BY TURNING THE RESUME SW TO ON AFTER CANCELLATION OF THE CRUISE CONTROL SYSTEMS, THE VEHICLE SPEED WILL RETURN TO THE SPEED SET BEFOR CANCELLATION. PROVIDED THAT THE VEHICLE SPEED IS WITHIN THE SET LIMITS.

5. ACCEL CONTROL

WHEN THE ACCEL SW IS TURNED TO ON DURING CRUISE CONTROL DRIVING, CURRENT CONTINUED TO FLOW TO THE CONTROL VALVE AND THE VEHICLE ACCELERATES. THE VEHICLE SPEED WHEN THE SW IS TURNED OFF IS RECORED IN MEMORY.

SERVICE HINTS

C19 CRUISE CONTROL ECU

(DISCONNECT THE ECU CONNECTOR)

15–GROUND : ALWAYS CONTINUOUS
12–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AND MAIN SW ON
8–GROUND : **4** PULSE WITH **1** ROTATION OF ROTOR SHAFT
18–GROUND : ALWAYS APPROX. **12** VOLTS
17–GROUND : APPROX. **12** VOLTS WITH BRAKE PEDAL DEPRESSED (ONE OF THE CANCEL SW)
13–GROUND : CONTINUOUS WITH CLUTCH PEDAL DEPRESSED (M/T) OR SHIFT LEVER IN **N** OR **P** POSITION (A/T) (ONE OF THE CANCEL SW)
14–GROUND : CONTINUOUS WITH PARKING BRAKE LEVER PULL UP (ONE OF THE CANCEL SW) OR BRAKE LEVEL WARNING SW ON
5–16 : APPROX. **30** Ω (ACTUATOR CONTROL VALVE)
3–16 : APPROX. **68** Ω (ACTUATOR RELEASE VALVE)
19–GROUND : APPROX. **68** Ω WITH RESUME/ACCEL SW ON
APPROX. **198** Ω WITH SET/COAST SW ON
APPROX. **418** Ω WITH CANCEL SW ON

: PARTS LOCATION

CODE		SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 2		26 (22R–E)	**C15**	28	**I16**	28
C 3		26 (22R–E)	**C18**	28	**P 1**	27 (22R–E)
C 4		26 (22R–E)	**C19**	28	**P 2**	28
C12	A	28	**C20**	28	**S 7**	28
C14	B	28	**D 1**	26 (22R–E)		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1C	20	COWL WIRE AND J/B NO.1 (LEFT KICK PANEL)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IH1	34	ENGINE WIRE AND COWL WIRE (RIGHT KICK PANEL)
IH2		

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IE	34	LEFT KICK PANEL

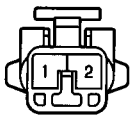
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 1	34	COWL WIRE	**I 9**	34	COWL WIRE
I 3			**I16**		
I 6					

CRUISE CONTROL (VACUUM TYPE)

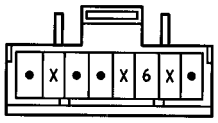
C 2 GRAY

C 3 GRAY

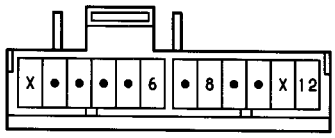


C 4 BLACK

C12 (A)



C14 (B)



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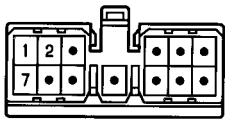

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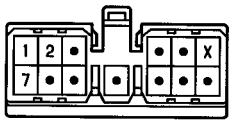
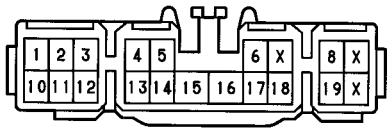
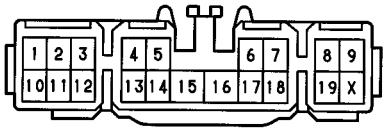


C18

(USA) C19 GRAY

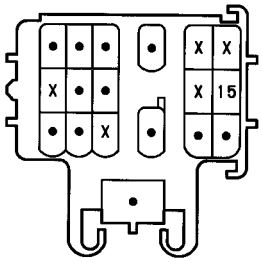


(CANADA) C19 GRAY

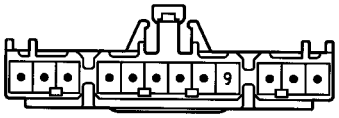


C20

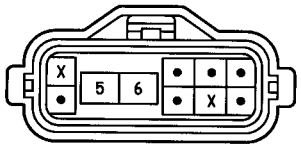
D 1 DARK GRAY



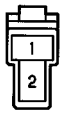
I16



P 1 GRAY



P 2



S 7