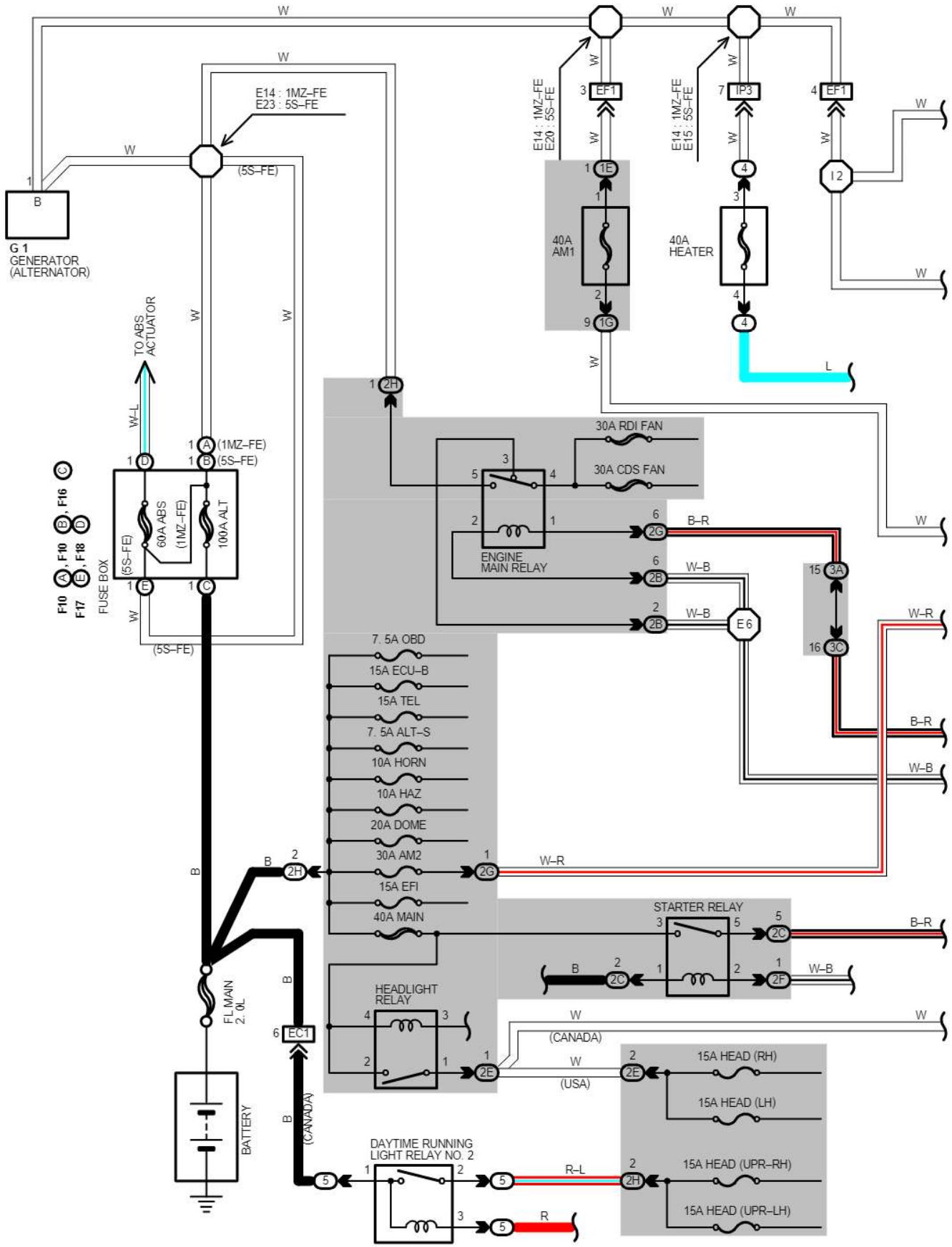
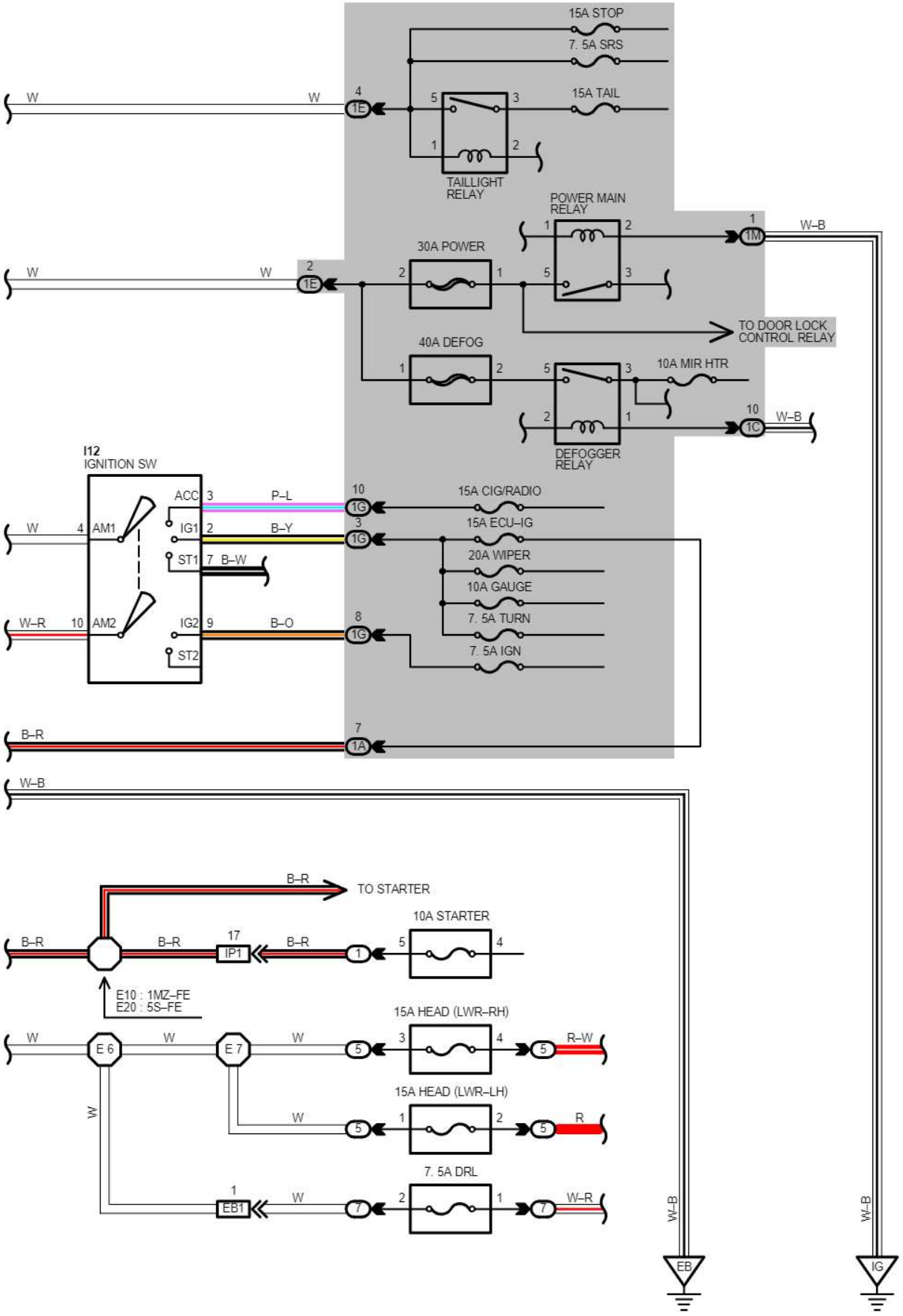
POWER SOURCE



cardiagn.com



cardiagn.com

POWER SOURCE

SERVICE HINTS

TAILLIGHT RELAY
5–3 : CLOSED WITH LIGHT CONTROL SW AT **TAIL** OR **HEAD** POSITION
CLOSED WITH ENGINE RUNNING AND PARKING BRAKE LEVER RELEASED (CANADA)

ENGINE MAIN RELAY
4–5 : CLOSED WITH IGNITION SW AT **ON** OR **ST** POSITION

HEADLIGHT RELAY
2–1 : CLOSED WITH LIGHT CONTROL SW AT **HEAD** POSITION OR DIMMER SW AT **FLASH** POSITION
CLOSED WITH ENGINE RUNNING AND PARKING BRAKE LEVER RELEASED (CANADA)

I12 IGNITION SW
4–3 : CLOSED WITH IGNITION KEY AT **ACC** OR **ON** POSITION
10–9, 4–2 : CLOSED WITH IGNITION KEY AT **ON** OR **ST** POSITION

: PARTS LOCATION

CODE		SEE PAGE	CODE		SEE PAGE	CODE	SEE PAGE
F10	A	28	F17	E	28 (1MZ–FE), 30 (5S–FE)	I 2	33
	B	30	F18	D	28 (1MZ–FE), 30 (5S–FE)		
F16	C	28 (1MZ–FE), 30 (5S–FE)	G 1		28 (1MZ–FE), 30 (5S–FE)		

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
1	25	R/B NO. 4 (LEFT KICK PANEL)
4	25	R/B NO. 4 (RIGHT KICK PANEL)
5	26	R/B NO. 5 (ENGINE COMPARTMENT LEFT)
7	27	R/B NO. 7 (NEAR THE BATTERY)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1C		
1E		
1G		
1M		
2B	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2C	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2E	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2F	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2G		
2H	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EB1	38 (1MZ–FE)	ENGINE ROOM MAIN WIRE AND RELAY WIRE
	40 (5S–FE)	
EC1	38 (1MZ–FE)	ENGINE WIRE AND ENGINE ROOM MAIN WIRE
	40 (5S–FE)	
EF1	38 (1MZ–FE)	ENGINE WIRE AND COWL WIRE
	40 (5S–FE)	
IP1	44	
IP3		

: GROUND POINTS

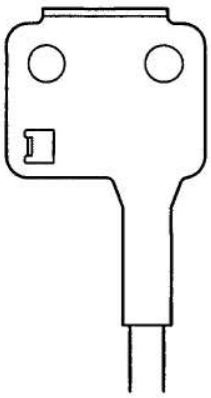
CODE	SEE PAGE	GROUND POINTS LOCATION
EB	38 (1MZ–FE)	FRONT LEFT FENDER
	40 (5S–FE)	
IG	42	INSTRUMENT PANEL BRACE LH

: SPLICE POINTS

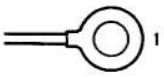
CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E 6	38 (1MZ–FE)	ENGINE ROOM MAIN WIRE	E14	38 (1MZ–FE)	ENGINE WIRE
	40 (5S–FE)		E15	40 (5S–FE)	
E 7	38 (1MZ–FE)		E20		
	40 (5S–FE)		E23		
E10	38 (1MZ–FE)	ENGINE WIRE	I 2	44	COWL WIRE

cardiagn.com

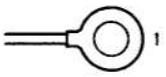
(1MZ-FE) F10 Ⓐ



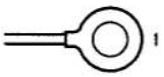
(5S-FE) F10 Ⓑ



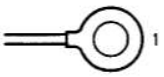
F16 Ⓒ



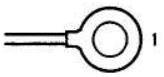
(5S-FE) F17 Ⓔ



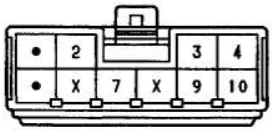
F18 Ⓓ



G 1

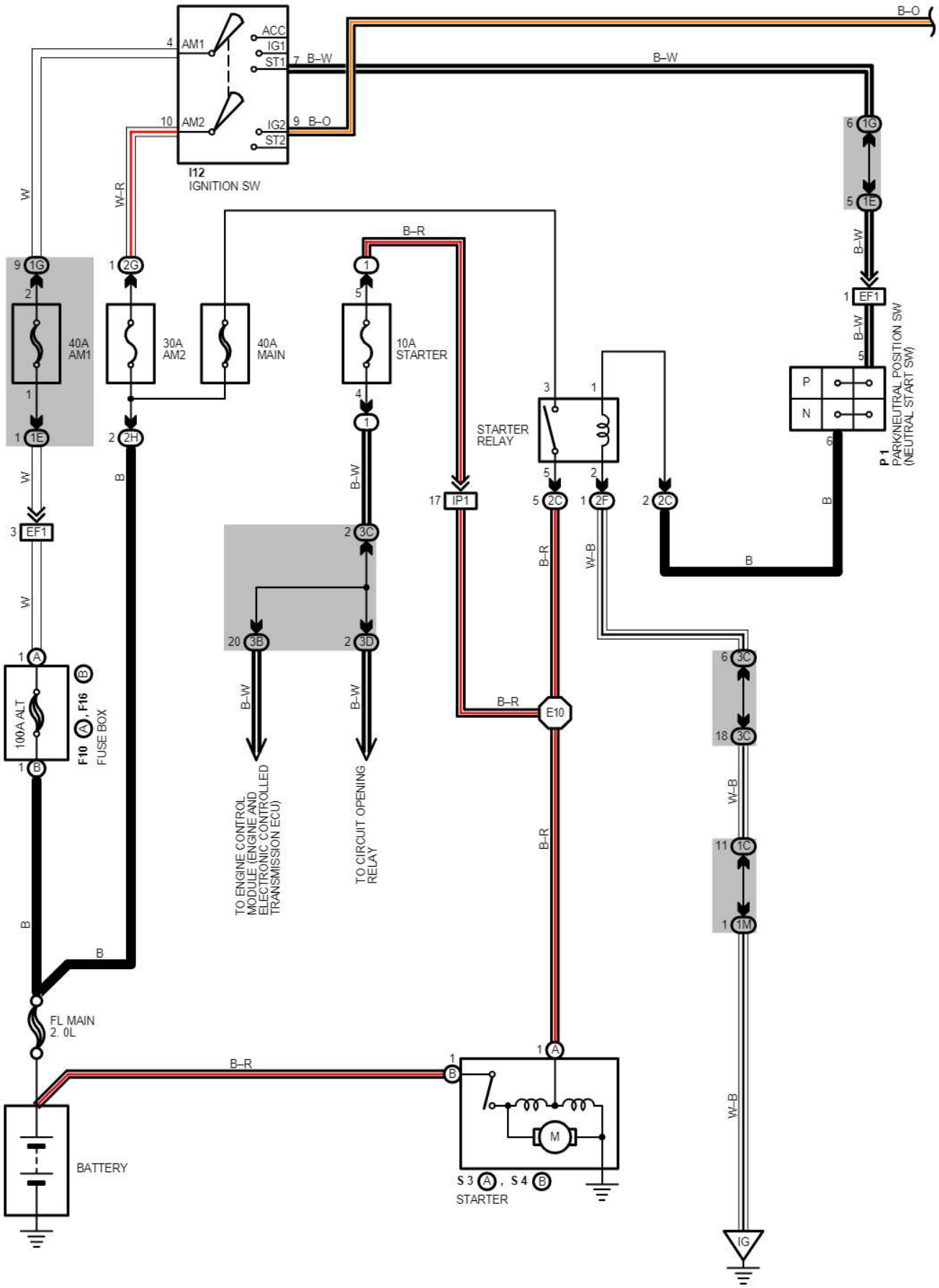


I12

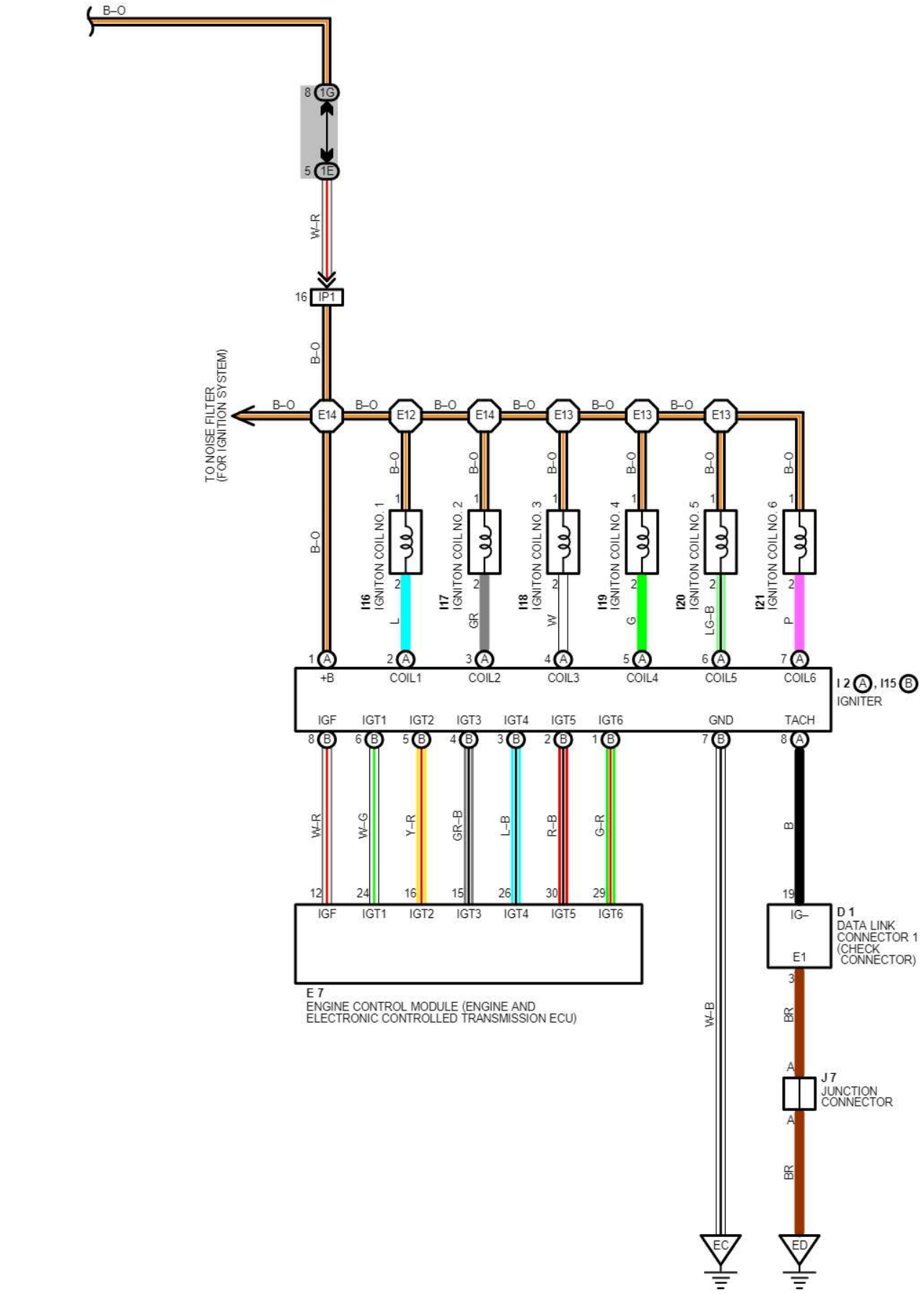


cardiagn.com

STARTING AND IGNITION (1MZ–FE)



cardiagn.com



cardiagn.com

STARTING AND IGNITION (1MZ–FE)

SERVICE HINTS

I12 IGNITION SW
4–7 : CLOSED WITH IGNITION SW AT **ST** POSITION
10–9 : CLOSED WITH IGNITION SW AT **ON** OR **ST** POSITION

STARTER RELAY
(6) 2– **(6)** 4 : CLOSED WITH CLUTCH START SW ON AND IGNITION SW AT **ST** POSITION (M/T)
CLOSED WITH IGNITION SW AT **ST** POSITION (A/T)

STARTER
POINTS CLOSED WITH CLUTCH START SW ON AND IGNITION SW AT **ST** POSITION

P 1 PARK/NEUTRAL POSITION SW (NEUTRAL START SW) (A/T)
2–3 : CLOSED WITH A/T SHIFT LEVER IN **P** OR **N** POSITION

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
D 1	28	I15 B	29	I21	29
E 7	32	I16	29	J 7	33
F10 A	28	I17	29	P 1	29
F16 B	28	I18	29	S 3 A	29
I 2 A	29	I19	29	S 4 B	29
I12	33	I20	29		

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
1	25	R/B NO. 1 (LEFT KICK PANEL)

: 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 (INSTRUMENT PANEL LEFT)
1E		
1G		
1M		
2C	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2H	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2F	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3C	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EF1	38 (1MZ–FE)	ENGINE WIRE AND COWL WIRE
	40 (5S–FE)	
IP1	44	

: GROUND POINTS

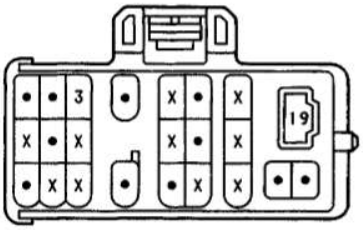
CODE	SEE PAGE	GROUND POINTS LOCATION
EC	38 (1MZ–FE)	INTAKE MANIFOLD RH
	40 (5S–FE)	
ED	38 (1MZ–FE)	INTAKE MANIFOLD LH
	40 (5S–FE)	
IG	42	INSTRUMENT PANEL BRACE LH

: SPLICE POINTS

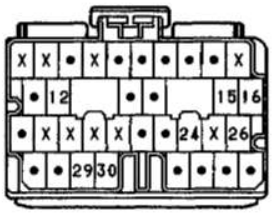
CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E10	38 (1MZ–FE)	ENGINE WIRE	E13	38 (1MZ–FE)	ENGINE WIRE
E12			E14		

cardiagn.com

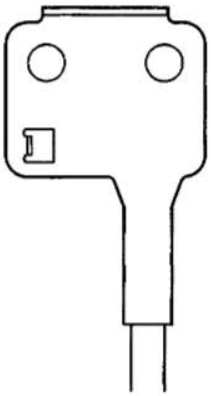
D 1 BLACK



E 7 DARK GRAY



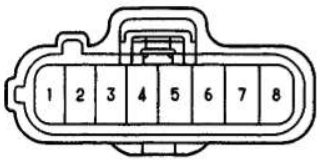
F10 (A)



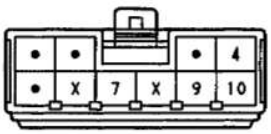
F16 (B)



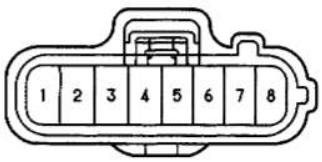
I 2 (A) DARK GRAY



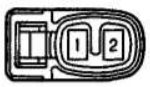
I12



I15 (B) BLACK



I16, I17, I18, I19, I20, I21 BLACK

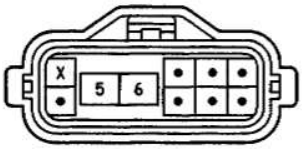


J 7 BLUE



(HINT:SEE PAGE 7)

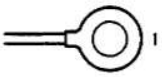
P 1 GRAY



S 3 (A) BLACK

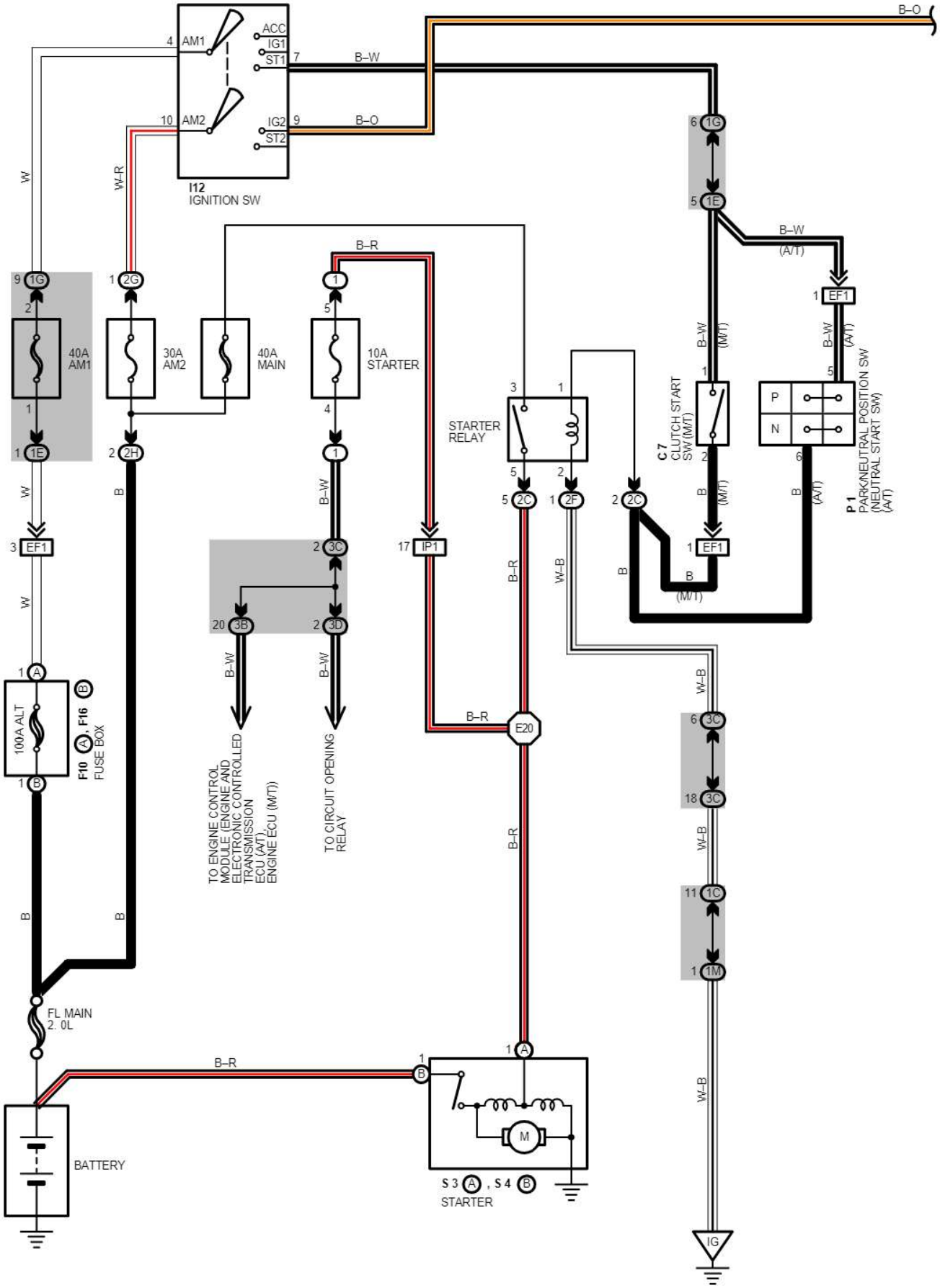


S 4 (B)



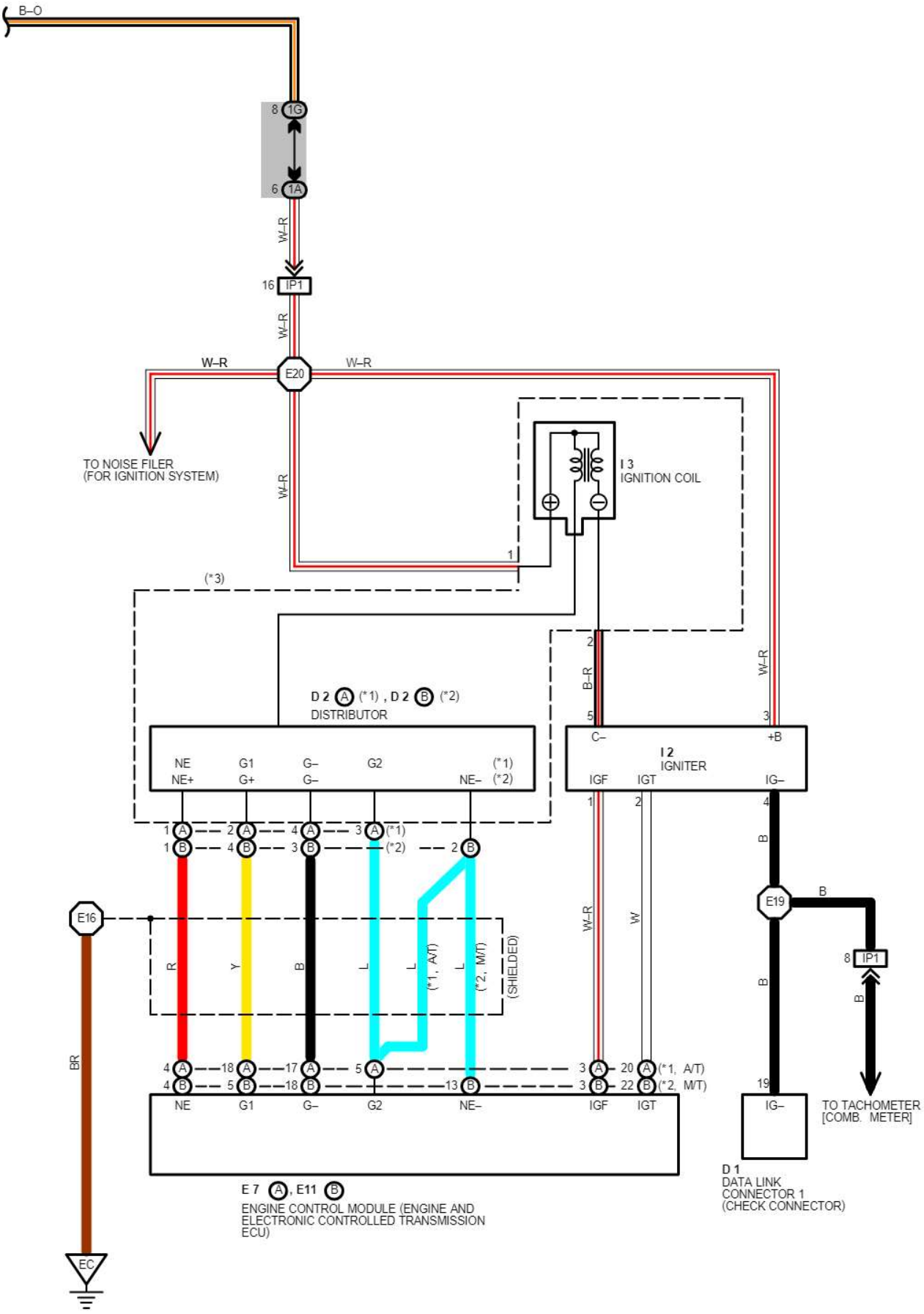
cardiagn.com

STARTING AND IGNITION (5S–FE)



cardiagn.com

*1 : CALIFORNIA
*2 : EX. CALIFORNIA
*3 : ONE BODY ASSEMBLY EX. CALIFORNIA



cardiagn.com

73

STARTING AND IGNITION (5S–FE)

SERVICE HINTS

I12 IGNITION SW
4–7 : CLOSED WITH IGNITION SW AT **ST** POSITION
10–9 : CLOSED WITH IGNITION SW AT **ON** OR **ST** POSITION

C 7 CLUTCH START SW (M/T)
1–2 : CLOSED WITH CLUTCH PEDAL FULLY DEPRESSED

STARTER RELAY
(6) 2– **(6)** 4 : CLOSED WITH CLUTCH START SW ON AND IGNITION SW AT **ST** POSITION (M/T)
CLOSED WITH IGNITION SW AT **ST** POSITION (A/T)

STARTER
POINTS CLOSED WITH CLUTCH START SW ON AND IGNITION SW AT **ST** POSITION

P 1 PARK/NEUTRAL POSITION SW (NEUTRAL START SW) (A/T)
2–3 : CLOSED WITH A/T SHIFT LEVER IN **P** OR **N** POSITION

: PARTS LOCATION

CODE		SEE PAGE	CODE		SEE PAGE	CODE		SEE PAGE
C 7		32	E11	B	32	I12		33
D 1		30	F10	A	30	P 1		31
D 2	A	30	F16	B	30	S 3	A	31
	B	30	I 2		31	S 4	B	31
E 7	A	32	I 3		31			

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
1	25	R/B NO. 1 (LEFT KICK PANEL)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1C		
1E		
1G		
1M		
2C	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2F	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2G		
2H	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3B	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		
3D		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EF1	38 (1MZ–FE)	ENGINE WIRE AND COWL WIRE
	40 (5S–FE)	
IP1	44	

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
EC	38 (1MZ–FE)	INTAKE MANIFOLD RH
	40 (5S–FE)	
IG	42	INSTRUMENT PANEL BRACE LH

: SPLICE POINTS

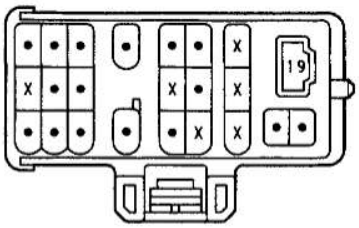
CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E16	40 (5S–FE)	ENGINE WIRE	E20	40 (5S–FE)	ENGINE WIRE
E19					

cardiagn.com

C 7



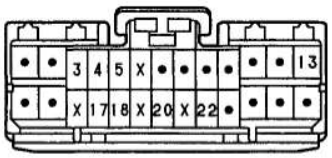
D 1 BLACK



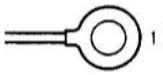
(CALIFORNIA) D 2 (A) BLACK
(EX. CALIFORNIA) D 2 (B) BLACK



E 7 (A), E11 (B) DARK GRAY



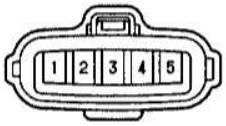
F10 (A)



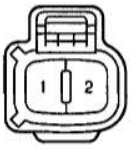
F16 (B)



I 2 BLACK



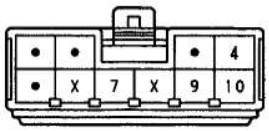
(CALIFORNIA) I 3 BLACK



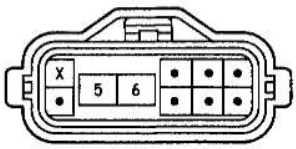
(EX. CALIFORNIA) I 3 BLACK



I12



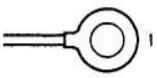
P 1 GRAY



S 3 (A) BLACK

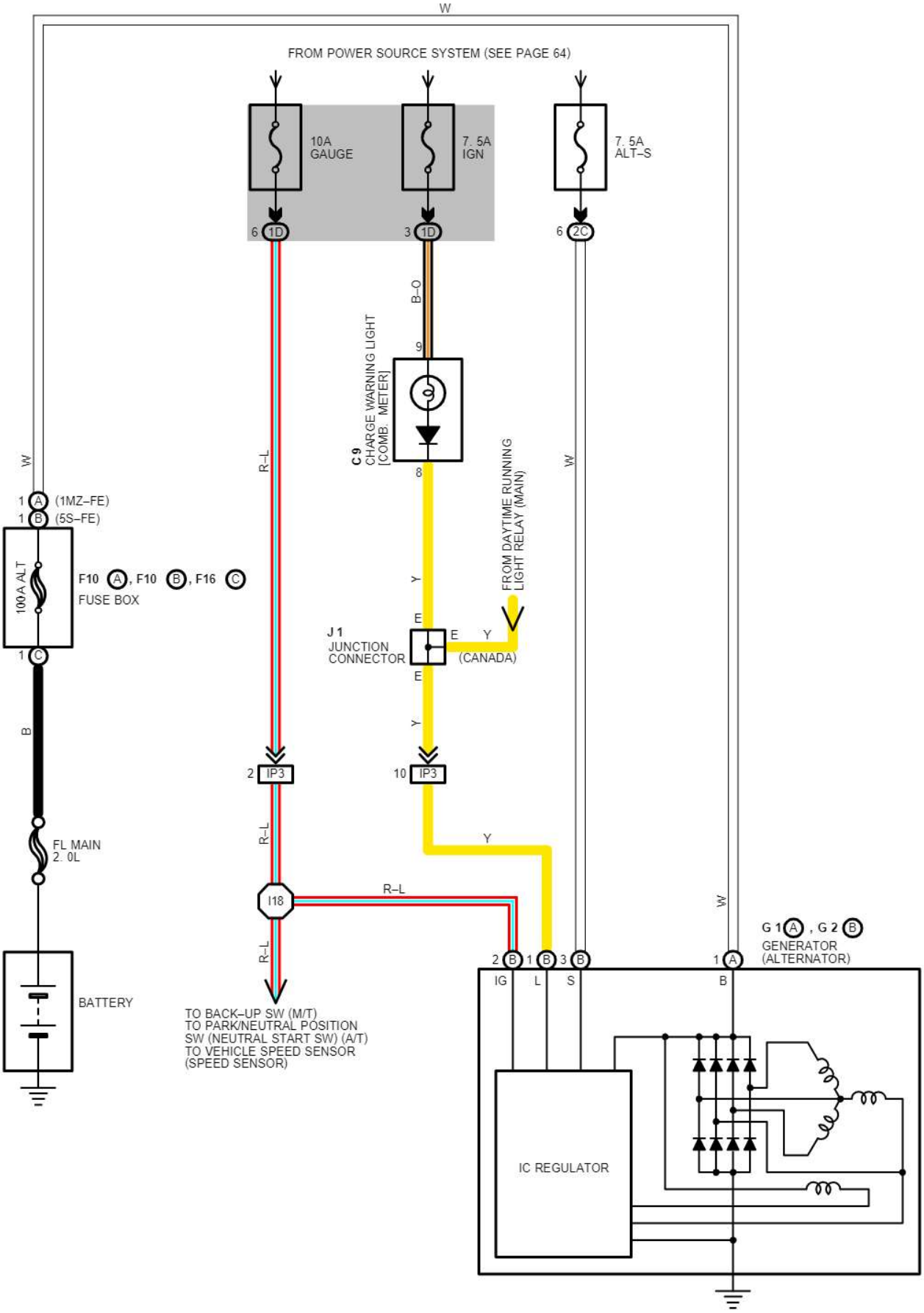


S 4 (B)



cardiagn.com

CHARGING



cardiagn.com

SERVICE HINTS

G 1(B) GENERATOR (ALTERNATOR)

(B) 3–GROUND : **13.9–15.1** VOLTS WITH ENGINE RUNNING AT **2000** RPM AND **25**°C (**77**°F)
13.5–14.3 VOLTS WITH ENGINE RUNNING AT **2000** RPM AND **115**°C (**239**°F)
(B) 1–GROUND : **0–4** VOLTS WITH IGNITION SW AT **ON** POSITION AND ENGINE NOT RUNNING

: PARTS LOCATION

CODE		SEE PAGE	CODE		SEE PAGE	CODE	SEE PAGE
C 9		32	F16	C	28 (1MZ–FE), 30 (5S–FE)	J 1	33
F10	A	28 (1MZ–FE), 30 (5S–FE)	G 1	A	28 (1MZ–FE), 30 (5S–FE)		
	B	28 (1MZ–FE), 30 (5S–FE)	G 2	B	28 (1MZ–FE), 30 (5S–FE)		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

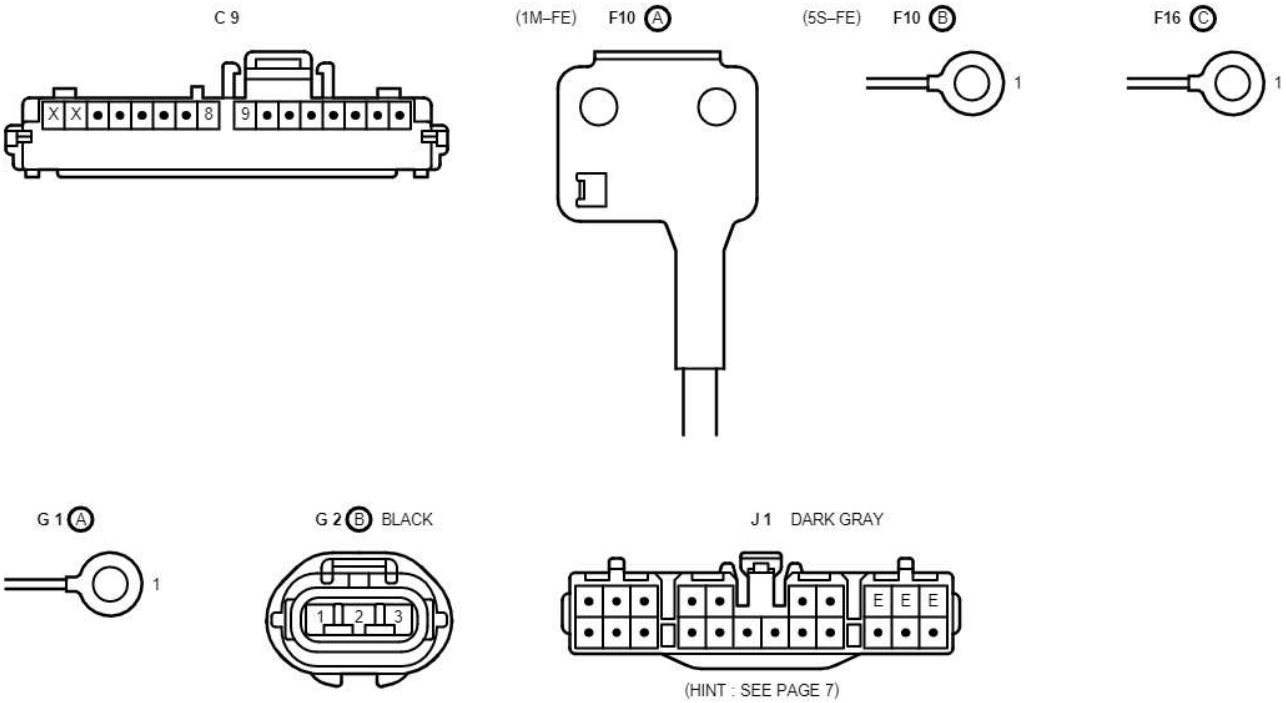
CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1D	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
2C	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IP3	44	ENGINE WIRE AND COWL WIRE

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I18	44	ENGINE WIRE			



cardiagn.com

ENGINE CONTROL (1MZ–FE)

SYSTEM OUTLINE

THIS SYSTEM UTILIZES AN ENGINE CONTROL MODULE (ENGINE AND ELECTRONIC CONTROLLED TRANSMISSION ECU) AND MAINTAINS OVERALL CONTROL OF THE ENGINE, TRANSMISSION AND SO ON. AN OUTLINE OF THE ENGINE CONTROL IS EXPLAINED HERE.

1. INPUT SIGNALS

(1) ENGINE COOLANT TEMP. (WATER TEMP.) SIGNAL CIRCUIT
THE ENGINE COOLANT TEMP. SENSOR (WATER TEMP. SENSOR) DETECTS THE ENGINE COOLANT TEMP. AND HAS A BUILT–IN THERMISTOR WITH A RESISTANCE WHICH VARIES ACCORDING TO THE WATER TEMP. IS INPUT INTO **TERMINAL THW** OF ENGINE CONTROL MODULE (ECU) AS A CONTROL SIGNAL.

(2) INTAKE AIR TEMP. SIGNAL CIRCUIT
THE INTAKE AIR TEMP. SENSOR IS INSTALLED IN THE MASS AIR FLOW (AIR FLOW METER) AND DETECTS THE INTAKE AIR TEMP., WHICH IS INPUT AS A CONTROL SIGNAL TO **TERMINAL THA** OF ENGINE CONTROL MODULE (ECU).

(3) OXYGEN SENSOR SIGNAL SYSTEM
THE OXYGEN DENSITY IN THE EXHAUST GASES IS DETECTED AND INPUT AS A CONTROL SIGNAL TO **TERMINAL OXL, OXR** AND **OXS** OF THE ENGINE CONTROL MODULE (ECU). TO MAINTAIN STABLE DETECTION PERFORMANCE BY THE OXYGEN SENSOR, A HEATER IS USED FOR WARMING THE SENSOR. THE HEATER IS ALSO CONTROLLED BY THE ENGINE CONTROL MODULE (ECU) **(HTL, HTR** AND **HTS**).

(4) RPM SIGNAL SYSTEM
CAMSHAFT POSITION AND CRANKSHAFT POSITION ARE DETECTED BY THE CAMSHAFT POSITION SENSOR AND CRANKSHAFT POSITION SENSOR. CRANKSHAFT POSITION IS INPUT AS A CONTROL SIGNAL TO **TERMINAL G22+** OF THE ENGINE CONTROL MODULE (ECU), AND ENGINE RPM IS INPUT TO **TERMINAL NE+**.

(5) THROTTLE SIGNAL CIRCUIT
THE THROTTLE POSITION SENSOR DETECTS THE THROTTLE VALVE OPENING ANGLE AS A CONTROL SIGNAL, WHICH IS INPUT INTO **TERMINAL VTA** OF THE ENGINE CONTROL MODULE (ECU). WHEN THE VALVE IS COMPLETELY CLOSED, THE CONTROL SIGNAL IS INPUT INTO **TERMINAL IDL**.

(6) VEHICLE SPEED SIGNAL SYSTEM
THE VEHICLE SPEED SENSOR (SPEED SENSOR), INSTALLED INSIDE THE COMBINATION METER, DETECTS THE VEHICLE SPEED AND INPUTS A CONTROL SIGNAL TO **TERMINAL SP1** OF THE ENGINE CONTROL MODULE (ECU).

(7) PARK/NEUTRAL POSITION SW (NEUTRAL START SW) SIGNAL SYSTEM
THE PARK/NEUTRAL POSITION SW (NEUTRAL START SW) DETECTS WHETHER THE SHIFT POSITION IS IN NEUTRAL OR PARKING OR NOT, AND INPUTS A CONTROL SIGNAL TO **TERMINAL NSW** OF THE ENGINE CONTROL MODULE (ECU).

(8) A/C SW SIGNAL SYSTEM
THE A/C AMPLIFIER INPUTS THE A/C OPERATIONS TO **TEMRINAL A/C** OF THE ENGINE CONTROL MODULE (ECU) AS A CONTROL SIGNAL.

(9) BATTERY SIGNAL CIRCUIT
VOLTAGE IS CONSTANTLY APPLIED TO **TERMINAL BATT** OF THE ENGINE CONTROL MODULE (ECU). WHEN THE IGNITION SW TURNED ON, VOLTAGE FOR ENGINE CONTROL MODULE (ECU) START–UP POWER SUPPLY IS APPLIED TO **TERMINALS +B** AND **+B1** OF ENGINE CONTROL MODULE (ECU) VIA EFI MAIN RELAY.

(10) INTAKE AIR VOLUME SIGNAL CIRCUIT
INTAKE AIR VOLUME IS DETECTED BY THE MASS AIR FLOW (AIR FLOW METER) AND THE SIGNAL IS INPUT TO **TERMINAL VG** OF THE ENGINE CONTROL MODULE (ECU). AS A CONTROL SIGNAL.

(11) STA SIGNAL CIRCUIT
TO CONFIRM WHETHER THE ENGINE IS CRANKING, THE VOLTAGE APPLIED TO THE STARTER MOTOR DURING CRANKING IS DETECTED AND THE SIGNAL IS INPUT INTO **TERMINAL STA** OF THE ENGINE CONTROL MODULE (ECU) AS A CONTROL SIGNAL.

(12) ENGINE KNOCK SIGNAL CIRCUIT
ENGINE KNOCKING IS DETECTED BY THE KNOCK SENSOR NO. 1 AND NO. 2 AND THE SIGNALS ARE INPUT INTO **TERMINALS KNKR** AND **KNKL** AS A CONTROL SIGNAL.

cardiagn.com

2. CONTROL SYSTEM

* SFI (SEQUENTIAL MULTIPORT FUEL INJECTION) (EFI (ELECTRONIC FUEL INJECTION) SYSTEM

  THE EFI SYSTEM MONITORS THE ENGINE CONDITION THROUGH THE SIGNALS INPUT FROM EACH SENSOR (INPUT SIGNALS FROM (1) TO (12) ETC.). THE BEST FUEL INJECTION VOLUME IS DECIDED BASED ON THIS DATA AND THE PROGRAM MEMORIZED BY THE ENGINE CONTROL MODULE (ECU), AND THE CONTROL SIGNAL IS OUTPUT TO **TERMINALS #10, #20, #30, #40, #50** AND **#60** OF THE ENGINE CONTROL MODULE (ECU) TO OPERATE THE INJECTOR (INJECT THE FUEL). THE EFI SYSTEM PRODUCES CONTROL OF FUEL INJECTION OPERATION BY THE ENGINE CONTROL MODULE (ECU) IN RESPONSE TO THE DRIVING CONDITIONS.

* ESA (ELECTRONIC SPARK ADVANCE) SYSTEM

  THE ESA SYSTEM MONITORS THE ENGINE CONDITION THROUGH THE SIGNALS INPUT TO THE ENGINE CONTROL MODULE (ECU) FROM EACH SENSOR (INPUT SIGNALS FROM (1), (3), (4) TO (12) ETC.). THE BEST IGNITION TIMING IS DECIDED ACCORDING TO THIS DATA AND THE MEMORIZED DATA IN THE ENGINE CONTROL MODULE (ECU) AND THE CONTROL SIGNAL IS OUTPUTS TO **TERMINALS IGT1, IGT2, IGT3, IGT4, IGT5** AND **IGT6**. THIS SIGNAL CONTROLS THE IGNITER TO PROVIDE THE BEST IGNITION TIMING FOR THE DRIVING CONDITIONS.

* HEATED OXYGEN SENSOR (OXYGEN SENSOR) HEATER CONTROL SYSTEM

  THE OXYGEN SENSOR HEATER CONTROL SYSTEM TURNS THE HEATER ON WHEN THE INTAKE AIR VOLUME IS LOW (TEMP. OF EXHAUST EMISSIONS IS LOW), AND WARMS UP THE OXYGEN SENSOR (NO. 1 AND NO. 2) TO IMPROVE DETECTION PERFORMANCE OF THE SENSOR.

  THE ENGINE CONTROL MODULE (ECU) EVALUATES THE SIGNALS FROM EACH SENSOR (INPUT SIGNALS FROM (1), (4), (9) TO (10) ETC.), AND OUTPUT CURRENT TO **TERMINALS HTL, HTR** AND **HTS** AND CONTROL THE HEATER.

* IAC (IDLE AIR CONTROL (ISC)) SYSTEM

  THE IAC (ISC) SYSTEM (ROTARY SOLENOID TYPE) INCREASES THE RPM AND PROVIDES IDLE STABILITY FOR FAST IDLE–UP WHEN THE ENGINE IS COLD, AND WHEN THE IDLE SPEED HAS DROPPED DUE TO ELECTRICAL LOAD AND SO ON, THE ENGINE CONTROL MODULE (ECU) EVALUATES THE SIGNALS FROM EACH SENSOR (INPUT SIGNALS FROM (1), (4), (5), (8), (9) ETC.), OUTPUTS CURRENT TO **TERMINALS RSO** AND **RSC** TO CONTROL IDLE AIR CONTROL VALVE.

* EGR CONTROL SYSTEM

  THE EGR CONTROL SYSTEM DETECTS THE SIGNAL FROM EACH SENSOR (INPUT SIGNALS FROM (1), (4), (9), (10), ETC)., AND OUTPUTS CURRENT TO **TERMINAL EGR** TO CONTROL THE EGR VALVE.

* ACIS (ACOUSTIC CONTROL INDUCTION SYSTEM)

  ACIS INCLUDES A VALVE IN THE BULKHEAD SEPARATING THE SURGE TANK INTO TWO PARTS. THIS VALVE IS OPENED AND CLOSED IN ACCORDANCE WITH THE DRIVING CONDITIONS TO CONTROL THE INTAKE MANIFOLD LENGTH IN TWO STAGES FOR INCREASED ENGINE OUTPUT IN ALL RANGES FROM LOW TO HIGH SPEEDS.

  THE ENGINE CONTROL MODULE (ECU) JUDGES THE ENGINE SPEED BY THE SIGNALS ((4), (5)) FROM EACH SENSOR AND OUTPUTS SIGNALS TO THE **TERMINAL ACIS** TO CONTROL THE VSV (FOR OPENING AND CLOSING THE INTAKE CONTROL VALVE)

3. DIAGNOSIS SYSTEM

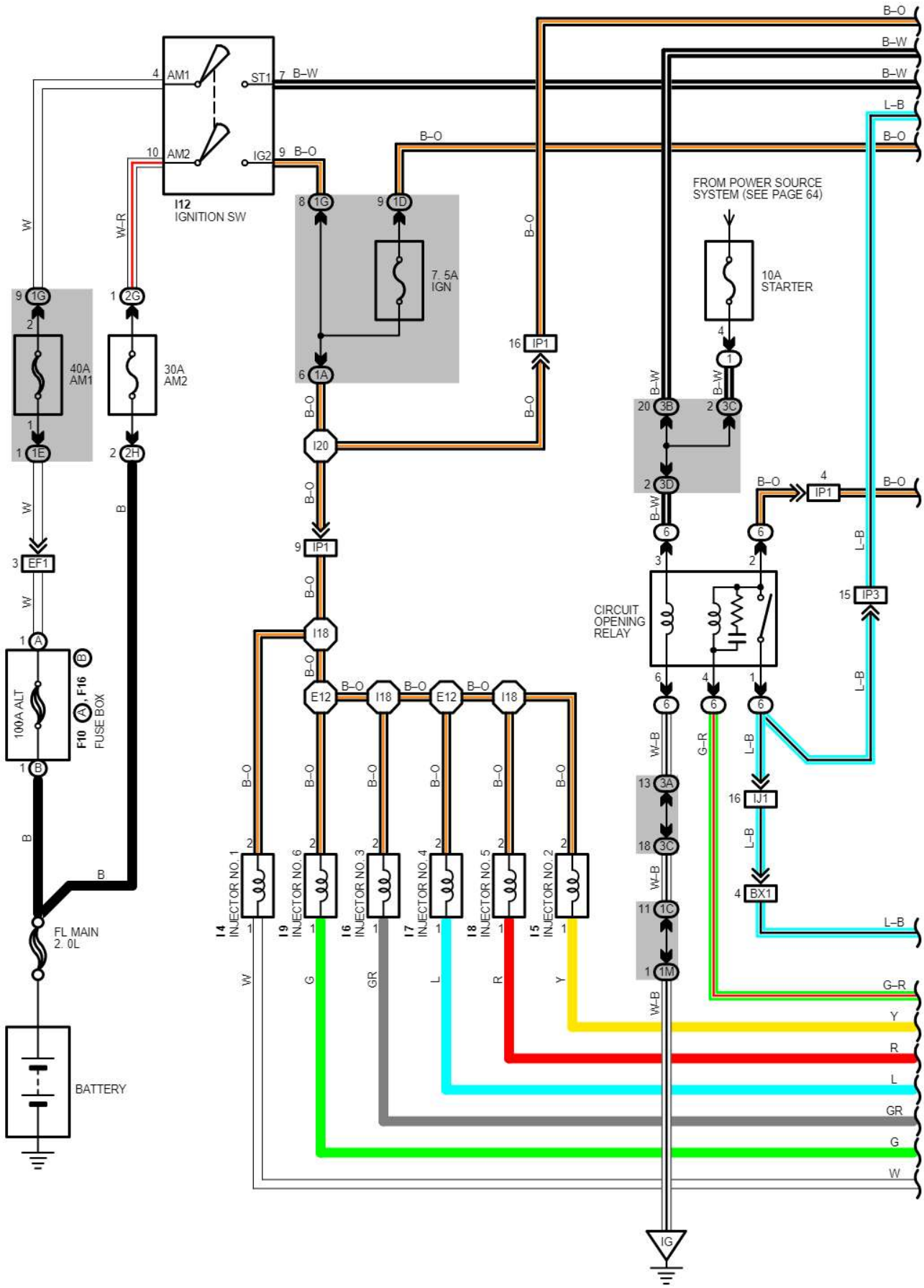
WITH THE DIAGNOSIS SYSTEM, WHEN THERE IS A MALFUNCTION IN THE ENGINE CONTROL MODULE (ECU) SIGNAL SYSTEM, THE MALFUNCTIONING SYSTEM IS RECORDED IN THE MEMORY.

4. FAIL–SAFE SYSTEM

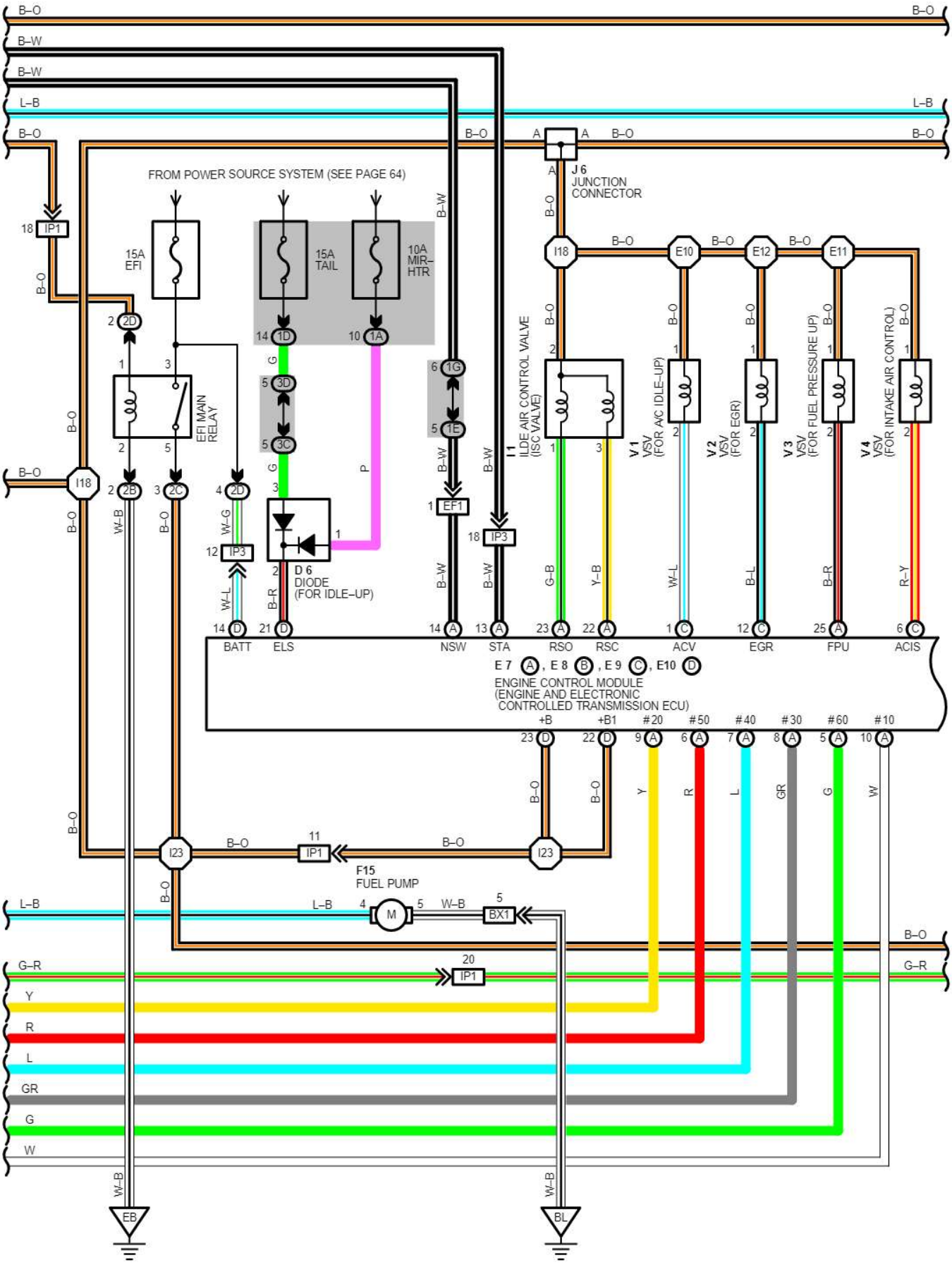
WHEN A MALFUNCTION HAS OCCURRED IN ANY SYSTEM, IF THERE IS A POSSIBILITY OF ENGINE TROUBLE BEING CAUSED BY CONTINUED CONTROL BASED ON THE SIGNALS FROM THAT SYSTEM, THE FAIL–SAFE SYSTEM EITHER CONTROLS THE SYSTEM BY USING DATA (STANDARD VALUES) RECORDED IN THE ENGINE CONTROL MODULE (ECU) MEMORY OR ELSE STOPS THE ENGINE.

cardiagn.com

ENGINE CONTROL (1MZ–FE)

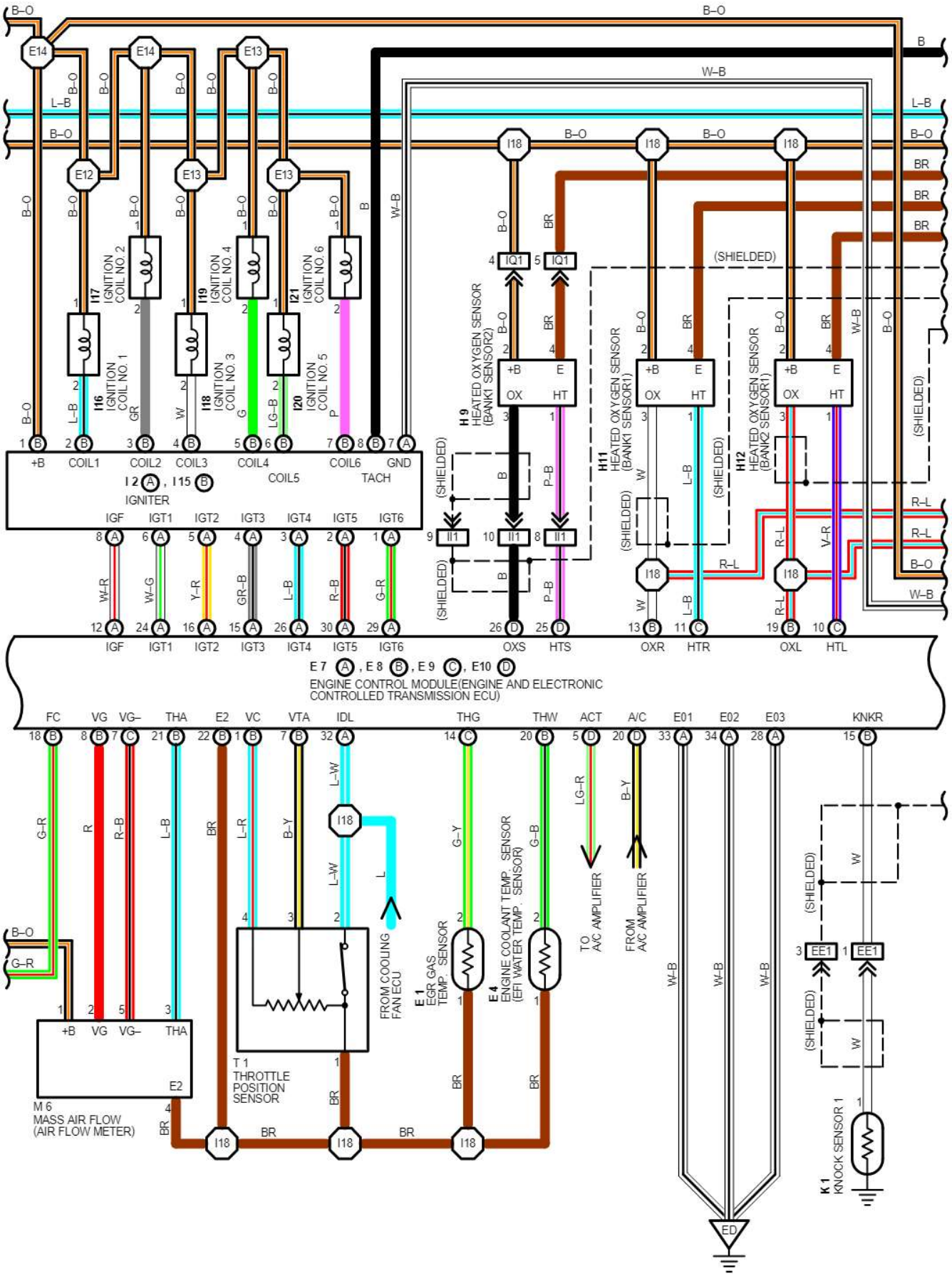


cardiagn.com

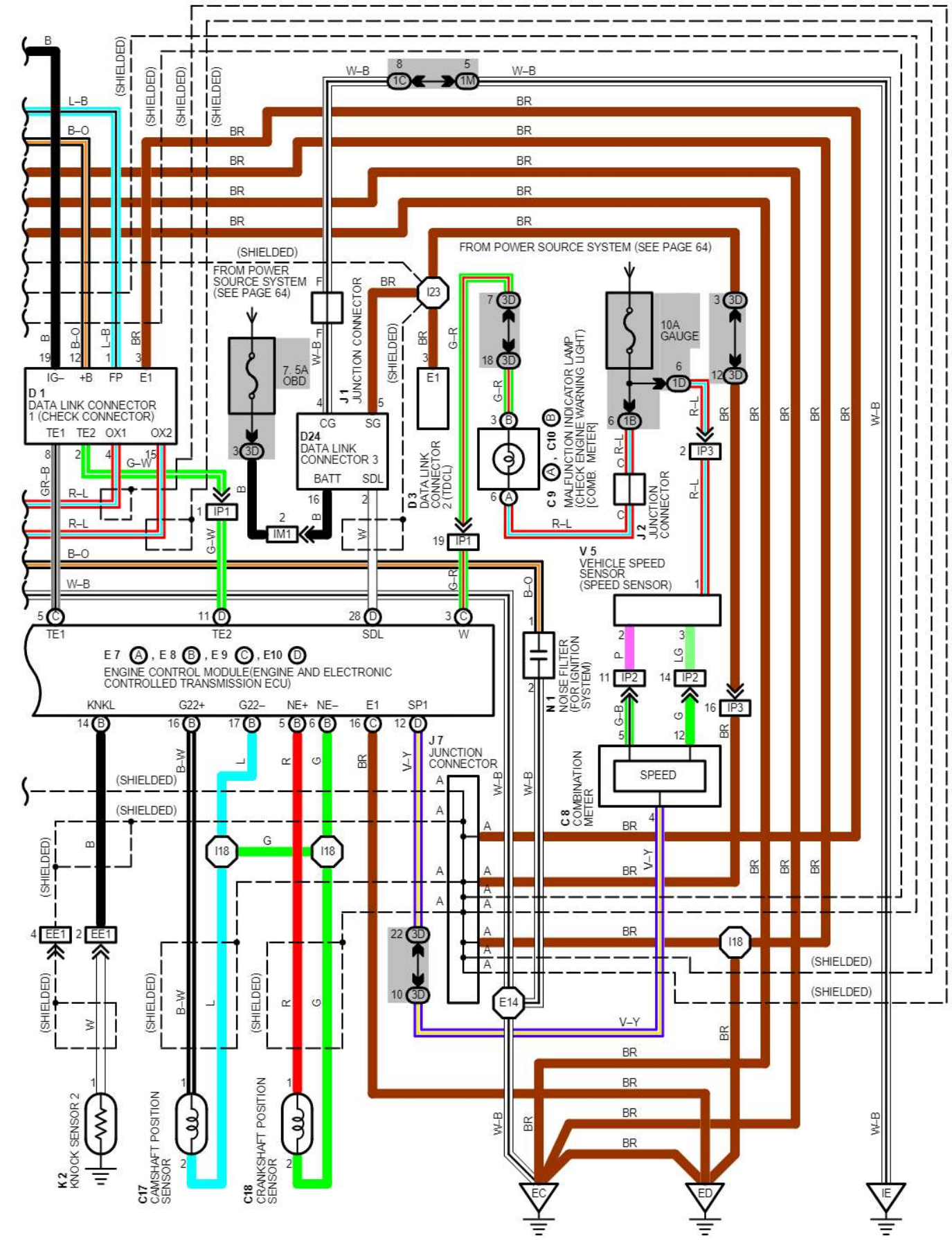


cardiagn.com

ENGINE CONTROL (1MZ–FE)



cardiagn.com



cardiagn.com

ENGINE CONTROL (1MZ–FE)

SERVICE HINTS

CIRCUIT OPENING RELAY

2–1 : CLOSED WITH STARTER RUNNING OR MEASURING PLATE (VOLUME AIR FLOW (AIR FLOW METER)) OPEN

EFI MAIN RELAY

2–4 : CLOSED WITH IGNITION SW AT **ON** OR **ST** POSITION

E 4 ENGINE COOLANT TEMP. SENSOR (EFI WATER TEMP. SENSOR)

1–2 : **10.0 – 20.0** KΩ (**–20**°C, **–4**°F)
: **4.0 – 7.0** KΩ (**0**°C, **32**°F)
: **2.0 – 3.0** KΩ (**20**°C, **68**°F)
: **0.9 – 1.3** KΩ (**40**°C, **104**°F)
: **0.4 – 0.7** KΩ (**60**°C, **140**°F)
: **0.2 – 0.4** KΩ (**80**°C, **176**°F)

E 7(A), E 8(B), E 9(C), E10(D) ENGINE CONTROL MODULE (ENGINE AND ELECTRONIC CONTROLLED TRANSMISSION ECU)

VOLTAGE AT ENGINE CONTROL MODULE (ECU) WIRING CONNECTOR

BATT – E1 : ALWAYS **9.0–14.0** VOLTS
+B – E1 : **9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
+B1 – E1 : **9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
IDL – E1 : **9.0–14.0** VOLTS (IGNITION SW ON AND THROTTLE VALVE FULLY OPEN)
0–3.0 VOLTS (IGNITION SW ON AND THROTTLE VALVE FULLY CLOSED)
VC – E1 : ALWAYS **4.5–5.5** VOLTS (IGNITION SW AT **ON** POSITION)
VTA – E1 : **0.3–0.8** VOLTS (IGNITION SW ON AND THROTTLE VALVE FULLY CLOSED)
3.2–4.9 VOLTS (IGNITION SW ON AND THROTTLE VALVE FULLY OPEN)
VG – E1 : **4.0–5.5** VOLTS (IGNITION SW AT **ON** POSITION)
THA – E1 : **0.5–3.4** VOLTS (IGNITION SW ON AND INTAKE AIR TEMP. **20**°C, **68**°F)
THW – E1 : **0.2–1.0** VOLTS (ENGINE IDLING AND COOLANT TEMP. **80**°C, **176**°F)
#10, #20, #30, #40, #50, #60 – E01 : **9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
PULSE GENERATION (ENGINE IDLING)
IGT1, IGT2, IGT3 IGT4, IGT5, IGT6 – E1 : PULSE GENERATION (ENGINE IDLING)
IGF – E1 : **4.5–5.5** VOLTS (IGNITION SW AT **ON** POSITION)
PULSE GENERATION (ENGINE IDLING)
G22+ – G– : PULSE GENERATION (ENGINE IDLING)
NE+ – G– : PULSE GENERATION (ENGINE IDLING)
RSC, RSO – E1 : PULSE GENERATION (ENGINE IDLING AND A/C OPERATION)
OXS, OXL, OXR – E1 : PULSE GENERATION (MAINTAIN ENGINE SPEED AT **2500** RPM FOR TWO MINUTES AFTER WARMING UP)
HTS, HTL, HTR – E01 : **9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
0–3.0 VOLTS (ENGINE IDLING)
KNKL, KNLR – E1 : PULSE GENERATION (ENGINE IDLING)
NSW – E1 : **9.0–14.0** VOLTS (IGNITION SW ON AND OTHER SHIFT POSITION IN **P** OR **N** POSITION)
BELOW **3.0** VOLTS (IGNITION SW ON AND SHIFT POSITION IN **P** OR **N** POSITION)
SP1 – E1 : PULSE GENERATION (IGNITION SW ON AND ROTATE DRIVING WHEEL SLOWLY)
TE1 – E1 : **9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
TE2 – E1 : **9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
W – E1 : BELOW **3.0** VOLTS (MULFUNCTION INDICATOR LAMP ON)
9.0–14.0 VOLTS (MULFUNCTION INDICATOR LAMP OFF AND ENGINE RUNNING)
A/C – E1 : BELOW **1.5** VOLTS (ENGINE IDLING AND A/C SW ON)
7.5–14.0 VOLTS (A/C SW OFF)
ACT – E1 : **9.0–14.0** VOLTS (ENGINE IDLING AND A/C SW ON)
BELOW **1.5** VOLTS (A/C SW OFF)
ACIS – E01 : **9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
STA – E1 : **6.0** VOLTS OR MORE (ENGINE CRANKING)

I 4, I 5, I 6, I 7, I 8, I 9 INJECTOR

1–2 : APPROX. **13.8** Ω

T 1 THROTTLE POSITION SENSOR

3–1 : **0.2–5.7** KΩ WITH CLEARANCE BETWEEN LEVER AND STOP SCREW **0** MM (**0** IN.)
2–1 : LESS THAN **2.3** KΩ WITH CLEARANCE BETWEEN LEVER AND STOP SCREW **0.5** MM (**0.020** IN.)
WITH CLEARANCE BETWEEN LEVER AND STOP SCREW **0.7** MM (**0.0276** IN.)
3–1 : **2.0–10.2** KΩ WITH THROTTLE VALVE FULLY OPEN

cardiagn.com

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 8	32	F16 B	28	I20	29
C 9 A	32	H 9 D	33	I21	29
C10 B	32	H11	28	J 1	33
C17	28	H12	28	J 2	33
C18	28	I 1	29	J 6	39
D 1	28	I 2 A	29	J 7	33
D 3	32	I 4	28	K 1	29
D 6	32	I 5	29	K 2	29
D24	32	I 6	29	M 6	29
E 1	28	I 7	29	N 1	29
E 4	28	I 8	29	T 1	29
E 7 A	32	I 9	29	V 1	29
E 8 B	32	F15 B	29	V 2	29
E 9 C	32	I16	29	V 3	29
E10 D	32	I17	29	V 4	29
F10 A	28	I18	29	V 5	29
F15	30	I19	29		

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
1	25	R/B NO. 1 (LEFT KICK PANEL)
6	26	R/B NO. 6 (BEHIND GLOVE BOX)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1B		
1C		
1D		
1E		
1G		
1M		
2B	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2C	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2D		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2H	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3B		
3C		
3D		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EE1	40 (1MZ–FE)	ENGINE WIRE AND SENSOR WIRE
EF1	38 (1MZ–FE)	ENGINE WIRE AND COWL WIRE
II1	42	COWL WIRE AND INSTRUMENT PANEL WIRE
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IM1	42	INSTRUMENT PANEL WIRE AND CONSOLE BOX WIRE
IP1	44	ENGINE WIRE AND COWL WIRE
IP2		
IP3		
IQ1	44	ENGINE WIRE AND INSTRUMENT PANEL WIRE
BX1	46 (S/D)	FUEL GAUGE WIRE AND FLOOR NO. 1 WIRE
	48 (C/P)	
	50 (W/G)	

cardiagn.com

ENGINE CONTROL (1MZ–FE)

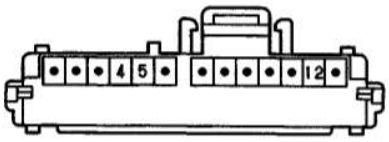
: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
EB	38 (1MZ–FE)	FRONT LEFT FENDER
EC	38 (1MZ–FE)	INTAKE MANIFOLD RH
ED	38 (1MZ–FE)	INTAKE MANIFOLD LH
IE	42	LEFT KICK PANEL
IG	42	INSTRUMENT PANEL BRACE LH
BL	46 (S/D)	UNDER THE LEFT QUARTER PILLAR
	48 (C/P)	
	50 (W/G)	

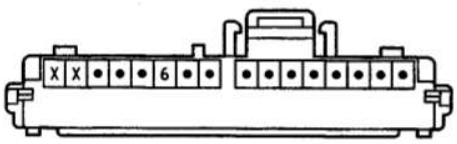
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E10	38 (1MZ–FE)	ENGINE WIRE	E14	38 (1MZ–FE)	ENGINE WIRE
E11			I18	44	
E12			I20	44	COWL WIRE
E13			I23		

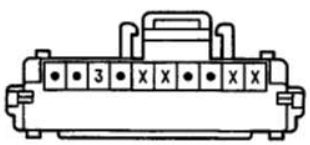
C 8 (A) BLUE



C 9 (B)



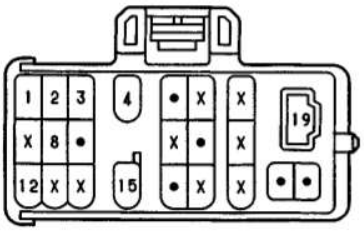
C10 (C) GRAY



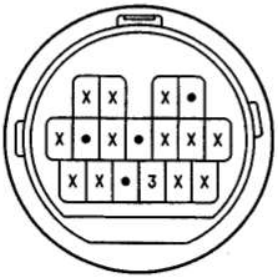
C17, C18 BLACK



D 1 BLACK



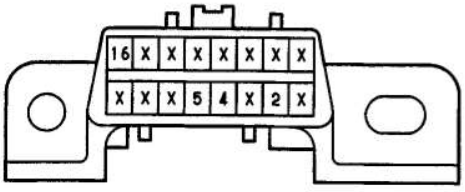
D 3 DARK GRAY



D 6 ORANGE



D24 BLACK



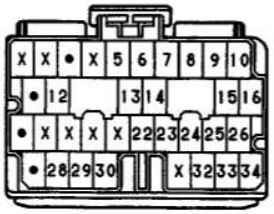
E 1 DARK GRAY



E 4 DARK GRAY

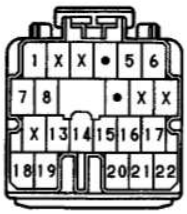


E 7 (A) DARK GRAY

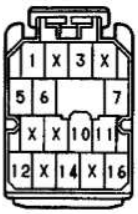


cardiagn.com

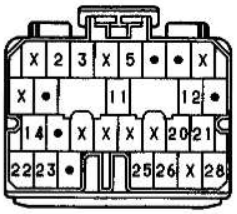
E 8 (B) DARK GRAY



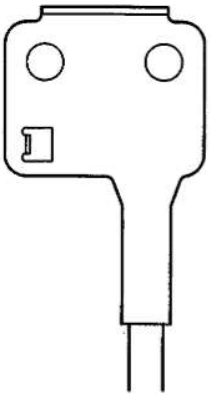
E 9 (C) DARK GRAY



E10 (D) DARK GRAY



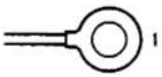
F10 (A)



F15 DARK GRAY



F16 (B)



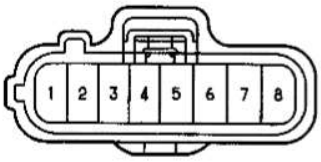
H 9, H11, H12



I 1 GRAY



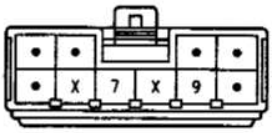
I 2 (A) BLACK



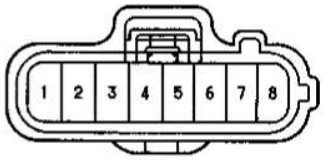
I 4, I 5, I 6, I 7, I 8, I 9 GRAY



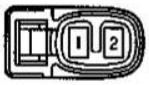
I12



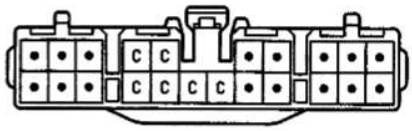
I15 (B) DARK GRAY



I16, I17, I18, I19, I20, I21 BLACK

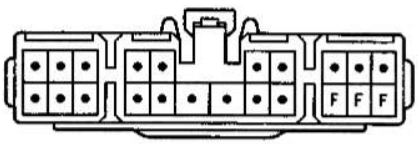


J 1 DARK GRAY



(HINT:SEE PAGE 7)

J 2



(HINT:SEE PAGE 7)

J 6



(HINT:SEE PAGE 7)

J 7 BLUE



(HINT:SEE PAGE 7)

K, 1 K, 2 DARK GRAY



M 6 BLACK



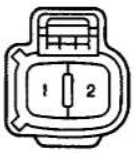
M 1 GRAY



T 1 BLACK



V 1 BLACK



V 2, V 4 BROWN



V 3 BLUE



V 5 GRAY



cardiagn.com

ENGINE CONTROL (5S–FE)

SYSTEM OUTLINE

THIS SYSTEM UTILIZES AN ENGINE CONTROL MODULE (ENGINE ECU (M/T), ENGINE AND ELECTRONIC CONTROLLED TRANSMISSION ECU (A/T)) AND MAINTAINS OVERALL CONTROL OF THE ENGINE, TRANSMISSION AND SO ON. AN OUTLINE OF THE ENGINE CONTROL IS EXPLAINED HERE.

1. INPUT SIGNALS

(1) ENGINE COOLANT TEMP. (WATER TEMP.) SIGNAL SYSTEM

THE ENGINE COOLANT TEMP. SENSOR (EFI WATER TEMP. SENSOR) DETECTS THE ENGINE COOLANT TEMP. AND HAS A BUILT–IN THERMISTOR WITH A RESISTANCE WHICH VARIES ACCORDING TO THE ENGINE COOLANT TEMP. (WATER TEMP.) THUS THE ENGINE COOLANT TEMP. (WATER TEMP.) IS INPUT IN THE FORM OF A CONTROL SIGNAL TO **TERMINAL THW** OF THE ENGINE CONTROL MODULE (ECU).

(2) INTAKE AIR TEMP. SIGNAL SYSTEM

THE INTAKE AIR TEMP. SENSOR (IN–AIR TEMP. SENSOR) IS DETECTS THE INTAKE AIR TEMP., WHICH IS INPUT AS A CONTROL SIGNAL TO **TERMINAL THA** OF THE ENGINE CONTROL MODULE (ECU).

(3) OXYGEN SENSOR SIGNAL SYSTEM

THE OXYGEN DENSITY IN THE EXHAUST GASES IS DETECTED AND INPUT AS A CONTROL SIGNAL TO **TERMINAL OX1** AND **OX2** OF THE ENGINE CONTROL MODULE (ECU).

(4) RPM SIGNAL SYSTEM

CRANKSHAFT POSITION AND ENGINE RPM ARE DETECTED BY THE PICK–UP COIL INSTALLED INSIDE THE DISTRIBUTOR. CRANKSHAFT POSITION IS INPUT AS A CONTROL SIGNAL TO **TERMINALS G+** AND **G2** (CALIFORNIA), OF THE ENGINE CONTROL MODULE (ECU), AND RPM IS INPUT TO **TERMINAL NE+**.

(5) THROTTLE SIGNAL SYSTEM

THE THROTTLE POSITION SENSOR DETECTS THE THROTTLE VALVE OPENING ANGLE, WHICH IS INPUT AS A CONTROL SIGNAL TO **TERMINAL VTA** OF THE ENGINE CONTROL MODULE (ECU), OR WHEN THE VALVE IS FULLY CLOSED, TO **TERMINAL IDL**

(6) VEHICLE SPEED SIGNAL SYSTEM

THE VEHICLE SPEED SENSOR (SPEED SENSOR), INSTALLED INSIDE THE COMBINATION METER, DETECTS THE VEHICLE SPEED AND INPUTS A CONTROL SIGNAL TO **TERMINAL SPD** OF THE ENGINE CONTROL MODULE (ECU).

(7) PARK/NEUTRAL POSITION SW (NEUTRAL START SW) SIGNAL SYSTEM (A/T)

THE PARK/NEUTRAL POSITION SW (NEUTRAL START SW) DETECTS WHETHER THE SHIFT POSITION ARE IN NEUTRAL AND PARKING OR NOT, AND INPUTS A CONTROL SIGNAL TO **TERMINAL NSW** OF THE ENGINE CONTROL MODULE (ECU).

(8) A/C SW SIGNAL SYSTEM

THE A/C AMPLIFIER INPUTS THE A/C OPERATIONS TO **TARMINAL ACA** OF THE ENGINE CONTROL MODULE (ECU) AS A CONTROL SIGNAL.

(9) BATTERY SIGNAL CIRCUIT

VOLTAGE IS CONSTANTLY APPLIED TO **TERMINAL BATT** OF THE ENGINE CONTROL MODULE (ECU). WHEN THE IGNITION SW TURNED ON, THE VOLTAGE FOR ENGINE CONTROL MODULE (ECU) START–UP POWER SUPPLY IS APPLIED TO **TERMINALS +B** AND **+B1** OF ENGINE CONTROL MODULE (ECU) VIA EFI MAIN RELAY. THE CURRENT FLOWING THROUGH THE **IGN** FUSE FLOWS TO **TERMINAL IGSW** OF THE ENGINE CONTROL MODULE (ECU).

(10) INTAKE AIR VOLUME SIGNAL SYSTEM

INTAKE AIR VOLUME IS DETECTED BY THE MANIFOLD ABSOLUTE PRESSURE SENSOR (VACUUM SENSOR) (FOR MANIFOLD PRESSURE) AND IS INPUT AS A CONTROL SIGNAL TO **TERMINAL PIM** OF THE ENGINE CONTROL MODULE (ECU).

(11) STA SIGNAL CIRCUIT

TO CONFIRM WHETHER THE ENGINE IS CRANKING, THE VOLTAGE APPLIED TO THE STARTER MOTOR DURING CRANKING IS DETECTED AND THE SIGNAL IS INPUT INTO **TERMINAL STA** OF THE ENGINE CONTROL MODULE (ECU) AS A CONTROL SIGNAL.

(12) ENGINE KNOCK SIGNAL CIRCUIT

ENGINE KNOCKING IS DETECTED BY KNOCK SENSOR AND THE SIGNAL IS INPUT INTO **TERMINAL KNK** AS A CONTROL SIGNAL.

(13) ELECTRICAL LOAD SIGNAL SYSTEM

THE SIGNAL WHEN SYSTEMS SUCH AS THE REAR WINDOW DEFOGGER, HEADLIGHTS, ETC. WHICH CAUSE A HIGH ELECTRICAL BURDEN ARE ON IS INPUT TO **TERMINAL ELS** AS A CONTROL SIGNAL.

cardiagn.com

2. CONTROL SYSTEM

* MFI (MULTIPORT FUEL INJECTION (EFI)) SYSTEM

  THE MFI (EFI) SYSTEM MONITORS THE ENGINE CONDITION THROUGH THE SIGNALS INPUT FROM EACH SENSOR (INPUT SIGNALS FROM (1) TO (13) ETC.) TO THE ENGINE CONTROL MODULE (ECU). THE BEST FUEL INJECTION VOLUME IS DECIDED BASED ON THIS DATA AND THE PROGRAM MEMORIZED BY THE ENGINE CONTROL MODULE (ECU), AND THE CONTROL SIGNAL IS OUTPUT TO **TERMINALS #10, #20, #30** AND **#40** (CALIFORNIA), **TERMINALS #10** AND **#20** (EX. CALIFORNIA) OF THE ENGINE CONTROL MODULE (ECU) TO OPERATE THE INJECTOR. (INJECT THE FUEL). THE MFI (EFI) SYSTEM PRODUCES CONTROL OF FUEL INJECTION OPERATION BY THE ENGINE CONTROL MODULE (ECU) IN RESPONSE TO THE DRIVING CONDITIONS.

* ESA (ELECTRONIC SPARK ADVANCE) SYSTEM

  THE ESA SYSTEM MONITORS THE ENGINE CONDITION THROUGH THE SIGNALS INPUT TO THE ENGINE CONTROL MODULE (ECU) FROM EACH SENSOR (INPUT SIGNALS FROM (1), (2), (4) TO (12) ETC.) THE BEST IGNITION TIMING IS DETECTED ACCORDING TO THIS DATA AND THE MEMORIZED DATA IN THE ENGINE CONTROL MODULE (ECU) AND THE CONTROL SIGNAL IS OUTPUT TO **TERMINAL IGT**. THIS SIGNAL CONTROLS THE IGNITER TO PROVIDE THE BEST IGNITION TIMING FOR THE DRIVING CONDITIONS.

* IAC (IDLE AIR CONTROL (ISC)) SYSTEM

  THE IAC (ISC) SYSTEM (ROTARY SOLENOID TYPE) INCREASES THE RPM AND PROVIDES IDLING STABILITY FOR FAST IDLE–UP WHEN THE ENGINE IS COLD AND WHEN THE IDLE SPEED HAS DROPPED DUE TO ELECTRICAL LOAD, ETC. THE ENGINE CONTROL MODULE (ECU) EVALUATES THE SIGNALS FROM EACH SENSOR (INPUT SIGNALS (1), (4) TO (8), (13) ETC.), OUTPUTS CURRENT TO **TERMINALS ISCO** AND **ISCC**, AND CONTROLS THE IDLE AIR CONTROL VALVE (ISC VALVE).

* FUEL PUMP CONTROL SYSTEM

  THE ENGINE CONTROL MODULE (ECU) OPERATION OUTPUTS TO **TERMINAL FC** AND CONTROLS THE CIRCUIT OPENING RELAY AND THUS CONTROLS THE FUEL PUMP DRIVE SPEED IN RESPONSE TO CONDITIONS.

* A/C IDLE–UP SYSTEM

  IN ORDER TO PREVENT THE ENGINE IDLING SPEED FROM DROPPING WHEN THE A/C IS OPERATING, THE A/C IDLE–UP SYSTEM CONTROLS THE VSV (FOR A/C IDLE–UP) TO INCREASE THE ENGINE IDLING SPEED AND KEEP IT STABLE.

* EGR CONTROL SYSTEM

  THE EGR CUT CONTROL SYSTEM CONTROLS THE VSV (FOR EGR) BY EVALUATING THE SIGNALS FROM EACH SENSOR INPUT TO THE ENGINE CONTROL MODULE (ECU) (INPUT SIGNALS (1), (5), (6), (9) ETC.) AND BY SENDING OUTPUT TO **TERMINAL THG** OF THE ENGINE CONTROL MODULE (ECU).

* A/C CUT CONTROL SYSTEM

  WHEN THE VEHICLE SUDDENLY ACCELERATES FROM LOW ENGINE SPEED, THIS SYSTEM CUTS OFF AIR CONDITIONING OPERATION FOR A FIXED PERIOD OF TIME IN RESPONSE TO THE VEHICLE SPEED AND THROTTLE VALVE OPENING ANGLE IN ORDER TO MAINTAIN ACCELERATION PERFORMANCE.

  THE ENGINE CONTROL MODULE (ECU) RECEIVES INPUT SIGNALS ((5), (6) ETC.), AND OUTPUTS SIGNALS TO **TERMINAL ACT**.

3. DIAGNOSIS SYSTEM

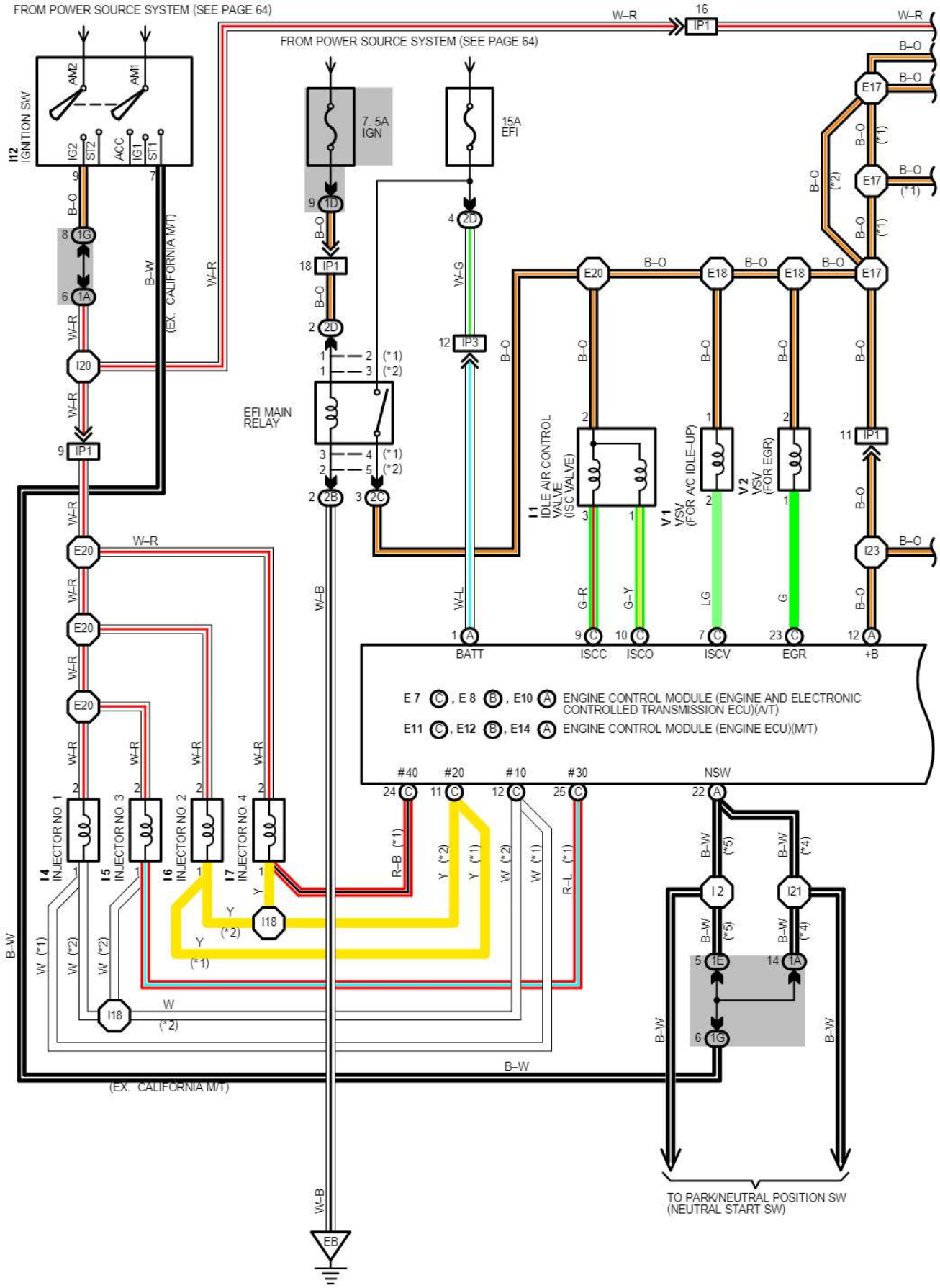
WITH THE DIAGNOSIS SYSTEM, WHEN THERE IS A MALFUNCTIONING IN THE ENGINE CONTROL MODULE (ECU) SIGNAL SYSTEM, THE MALFUNCTION SYSTEM IS RECORDED IN THE MEMORY. THE MALFUNCTIONING SYSTEM CAN THEN BE FOUND BY READING THE DISPLAY (CODE) OF THE MALFUNCTION INDICATOR LAMP (CHECK ENGINE WARNING LIGHT).

4. FAIL–SAFE SYSTEM

WHEN A MALFUNCTION OCCURS IN ANY SYSTEM, IF THERE IS A POSSIBILITY OF ENGINE TROUBLE BEING CAUSED BY CONTINUED CONTROL BASED ON THE SIGNALS FROM THAT SYSTEM, THE FAIL–SAFE SYSTEM EITHER CONTROLS THE SYSTEM BY USING DATA (STANDARD VALUES) RECORDED IN THE ENGINE CONTROL MODULE (ECU) MEMORY OR ELSE STOPS THE ENGINE.

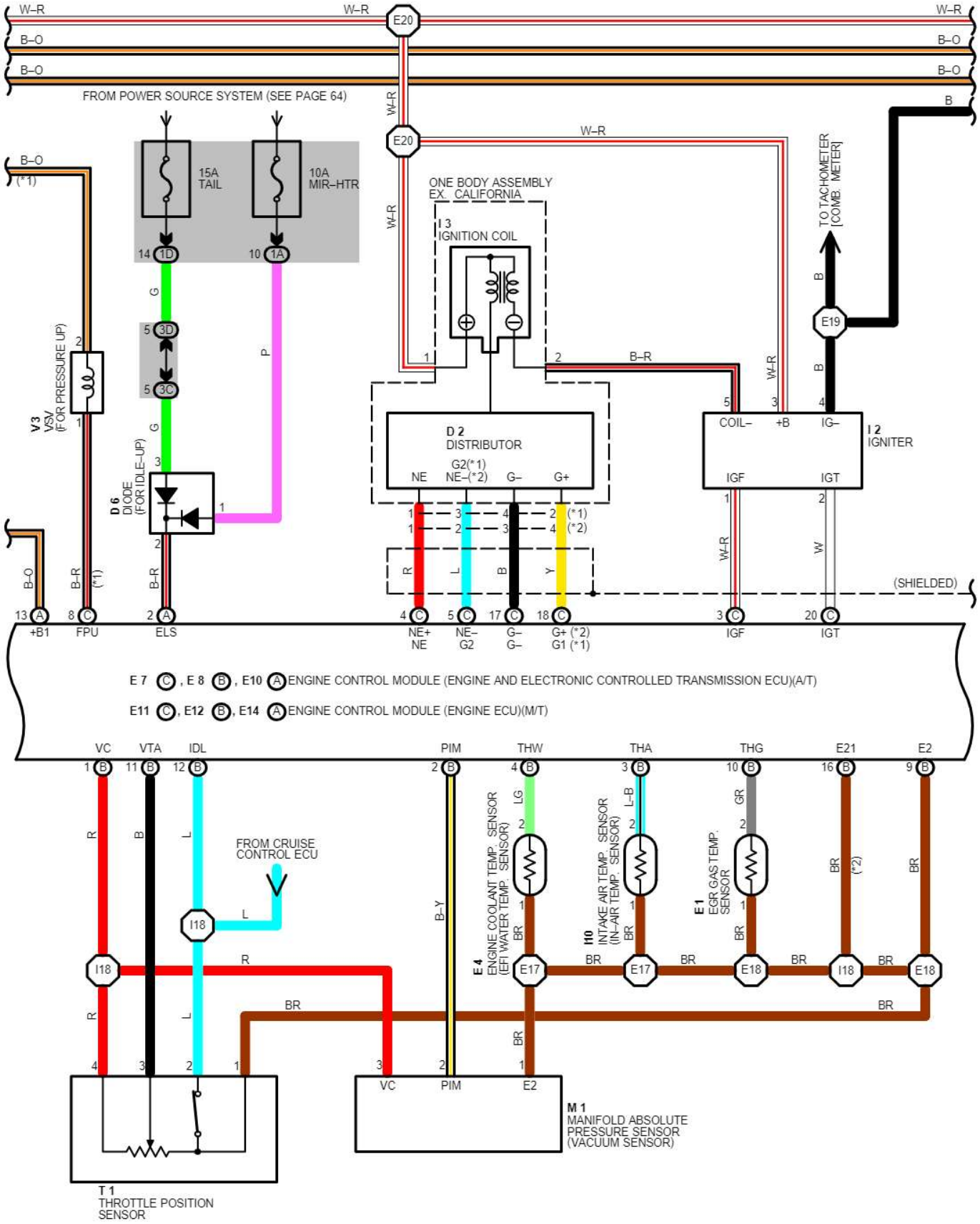
cardiagn.com

ENGINE CONTROL (5S–FE A/T AND CALIFORNIA M/T)



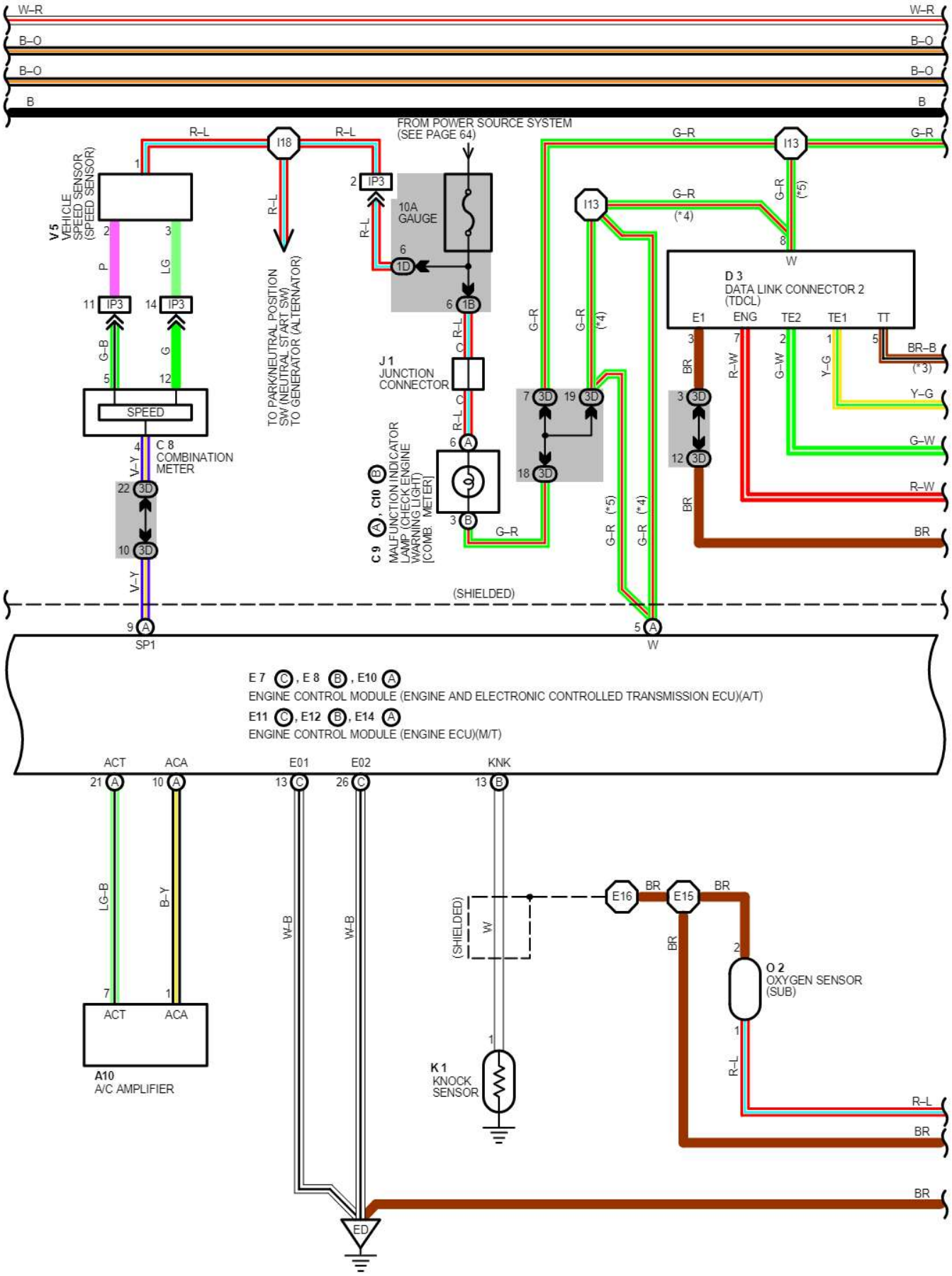
cardiagn.com

*1 : CALIFORNIA
*2 : EX. CALIFORNIA
*4 : FOR CANADA IN TMM MADE *5 : EX. *4



cardiagn.com

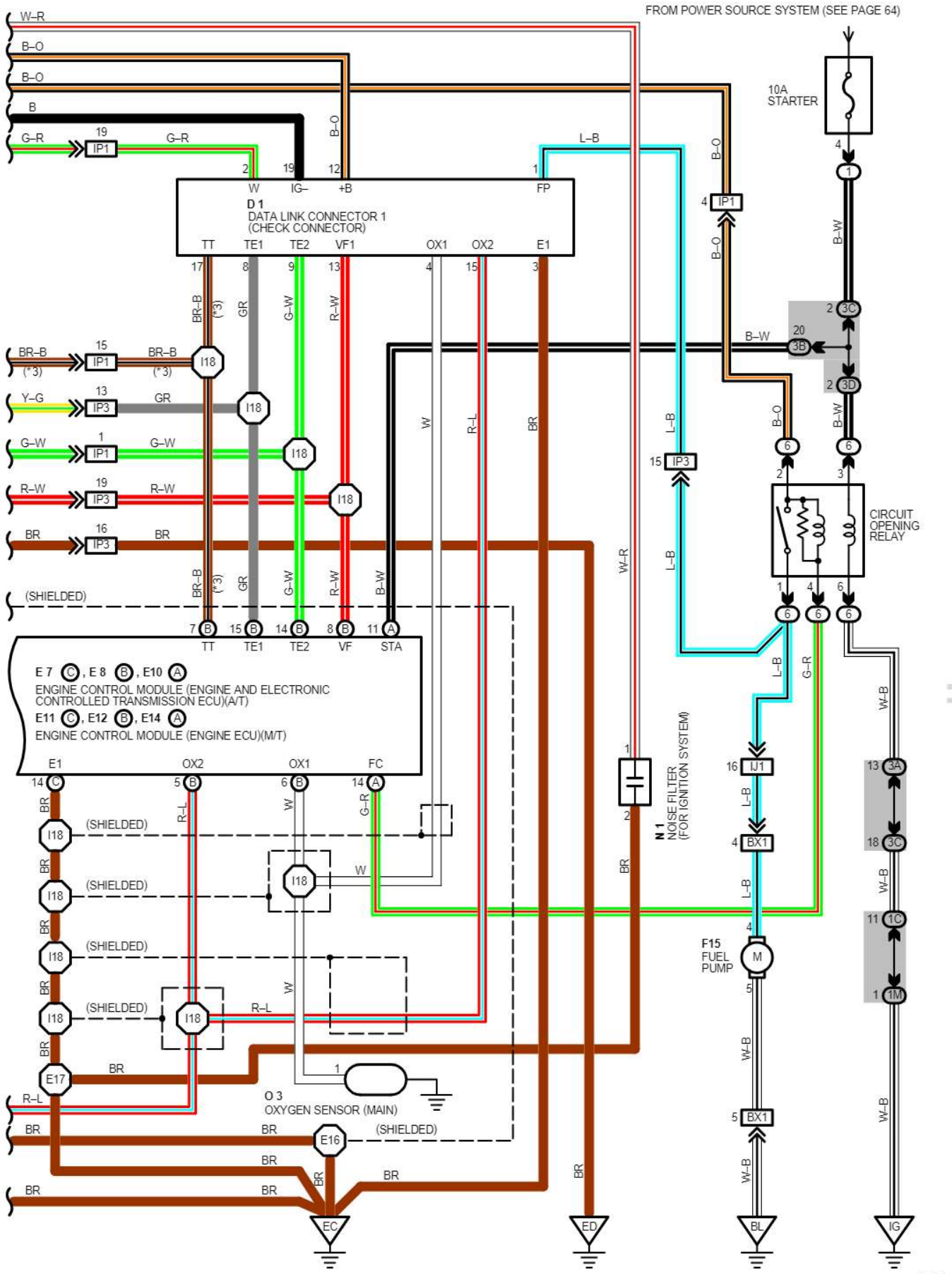
ENGINE CONTROL (5S–FE A/T AND CALIFORNIA M/T)



cardiagn.com

92

*1 : CALIFORNIA
*2 : EX. CALIFORNIA
*3 : EX. CALIFORNIA M/T
*4 : FOR CANADA IN TMM MADE *5 : EX. *4



93

cardiagn.com

ENGINE CONTROL (5S–FE A/T AND CALIFORNIA M/T)

SERVICE HINTS

E 7(C), E 8(B), E10(A) ENGINE CONTROL MODULE (ENGINE AND ELECTRONIC CONTROLLED TRANSMISSION ECU) (A/T)
E11(C), E12(B), E14(A) ENGINE CONTROL MODULE (ENGINE ECU) (M/T)

VOLTAGE AT ENGINE CONTROL MODULE (ECU) WIRING CONNECTOR

BATT – E1	:	ALWAYS **9.0–14.0** VOLTS
+B – E1	:	**9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
+B1 – E1	:	**9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
IDL – E2	:	**9.0–14.0** VOLTS (IGNITION SW ON AND THROTTLE VALVE OPEN)
VC – E2	:	**4.5– 5.5** VOLTS (IGNITION SW AT **ON** POSITION)
VTA – E2	:	**0.3– 0.8** VOLTS (IGNITION SW ON AND THROTTLE VALVE FULLY CLOSED)
	:	**3.2– 4.9** VOLTS (IGNITION SW ON AND THROTTLE VALVE OPEN)
PIM – E2	:	**3.3– 3.9** VOLTS (IGNITION SW AT **ON** POSITION)
#10, #20 – E01, E02	:	**9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION) (EX. CALIFORNIA)
#10, #20, #30, #40 – E01, E02	:	**9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION) (CALIFORNIA)
THA – E2	:	**0.5– 3.4** VOLTS (IGNITION SW ON AND INTAKE AIR TEMP. **20**°C, **68**°F)
THW – E2	:	**0.2– 1.0** VOLTS (IGNITION SW ON AND COOLANT TEMP. **80**°C, **176**°F)
STA – E1	:	**6.0–14.0** VOLTS (ENGINE CRANKING)
IGT – E1	:	PULSE GENERATION (ENGINE CRANKING OR IDLING)
W – E1	:	**9.0–14.0** VOLTS (NO TROUBLE AND ENGINE RUNNING)
ACT – E1	:	**9.0–14.0** VOLTS (IGNITION SW ON AND AIR CONDITIONING ON)
ACA – E1	:	**7.5–14.0** VOLTS (IGNITION SW ON AND AIR CONDITIONING ON)
TE1 – E1	:	**9.0–14.0** VOLTS (IGNITION SW ON)
NSW – E1	:	**0– 3.0** VOLTS (IGNITION SW ON AND PARK/NEUTRAL POSITION SW (NEUTRAL START SW) POSITION **P** OR **N** POSITION)
		9.0–14.0 VOLTS (IGNITION SW ON AND EX. PARK/NEUTRAL POSITION SW (NEUTRAL START SW) POSITION **P** OR **N** POSITION)

RESISTANCE AT ENGINE CONTROL MODULE (ECU) WIRING CONNECTORS

(DISCONNECT WIRING CONNECTOR)

IDL – E2	:	INFINITY (THROTTLE VALVE OPEN)
		2.3 KΩ OR LESS (THROTTLE VALVE FULLY CLOSED)
VTA – E2	:	**3.3 –10.0** KΩ (THROTTLE VALVE FULLY OPEN)
		0.2 – 0.8 KΩ (THROTTLE VALVE FULLY CLOSED)
VC – E2	:	**3.0 –7 0** KΩ
THA – E2	:	**2.0 –3.0** KΩ (INTAKE AIR TEMP. **20**°C, **68**°F)
THW – E2	:	**0.2 –0.4** KΩ (COOLANT TEMP. **80**°C, **176**°F)
G1, NE – G–	:	**0.17–0.21** KΩ
ISCC, ISCO– +B, +B1	:	**19.3–22.3** Ω

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A10	32	E11 A	32	J 1	33
C 8	32	E12 C	32	K 1	31
C 9 A	32	E14 B	32	M 1	31
C10 C	32	F15 A	34 (S/D), 35 (C/P), 36 (W/G)	N 1	31
D 1	30	I 1	31	O 2	31
D 2	30	I 2	31	O 3	31
D 3	32	I 3	31	T 1	31
D 6	32	I 4	31	V 1	31
E 1	30	I 5	31	V 2	31
E 4	30	I 6	31	V 3	31
E 7 C	32	I 7	31	V 5	31
E 8 B	32	I10	31		
E10 A	32	I12	33		

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
1	25	R/B NO. 1 (LEFT KICK PANEL)
6	26	R/B NO. 6 (BEHIND GLOVE BOX)

cardiagn.com

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1B		
1C		
1D		
1G		
1M		
2D	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3B		
3C		
3D		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IP1	44	ENGINE WIRE AND COWL WIRE
IP3		
BX1	46 (S/D)	FUEL GAUGE WIRE AND FLOOR NO. 1 WIRE
	48 (C/P)	
	50 (W/G)	

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
EB	40 (5S–FE)	FRONT LEFT FENDER
EC	40 (5S–FE)	INTAKE MANIFOLD RH
ED	40 (5S–FE)	INTAKE MANIFOLD LH
IG	42	INSTRUMENT PANEL BRACE LH
BL	46 (S/D)	UNDER THE LEFT QUARTER PILLAR
	48 (C/P)	
	50 (W/G)	

: SPLICE POINTS

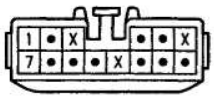
CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E15	40 (5S–FE)	ENGINE WIRE	I 2	44	COWL WIRE
E16			I13		
E17			I18	44	ENGINE WIRE
E18			I20	44	COWL WIRE
E19			I23		
E20					

cardiagn.com

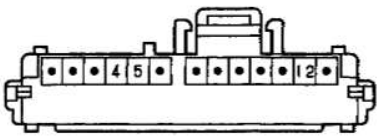
ENGINE CONTROL (5S–FE A/T AND CALIFORNIA M/T)

*1 : CALIFORNIA
2 : EX. CALIFORNIA

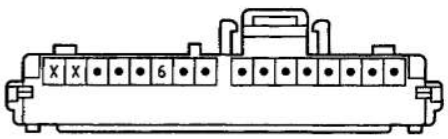
A10



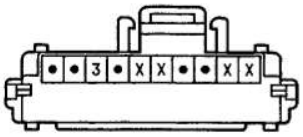
C 8 BLUE



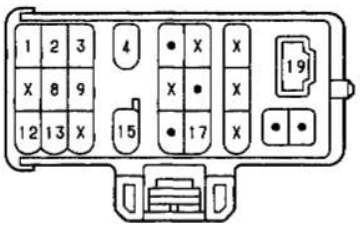
C 9 (A)



C10 (B) GRAY



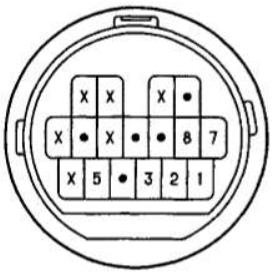
D 1 BLACK



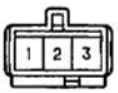
D 2 BLACK



D 3 DARK GRAY



D 6 ORANGE



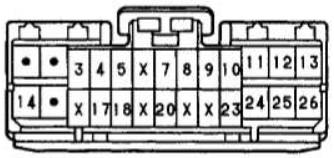
E 1 DARK GRAY



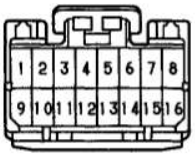
E 4 GREEN



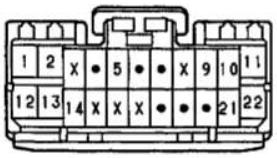
E 7, E11 (C) DARK GRAY



E 8, E12 (B) DARK GRAY



E10, E14 (A) DARK GRAY



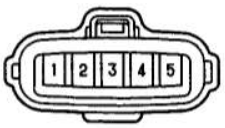
F15 DARK GRAY



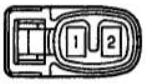
I 1 GRAY



I 2 BLACK



(*1) I 3 BLACK



(*2) I 3 BLACK



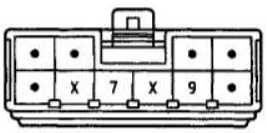
I 4, I 5, I 6, I 7 GRAY



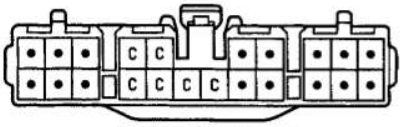
(*1) I10 GRAY
(*2) I10 BLACK



I12 BLACK



J 1 DARK GRAY



(HINT:SEE PAGE 7)

K 1 DARK GRAY



M 1 BLACK



N 1 GRAY



O 2 DARK GRAY



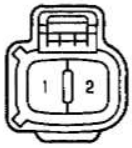
O 3 DARK GRAY



T 1 BLACK



V 1 BLACK



V 2 BLACK



(*1) V 3 BROWN



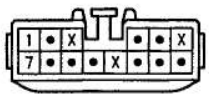
V 5 GRAY



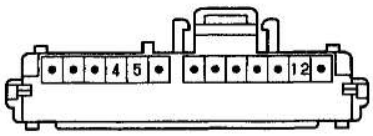
cardiagn.com

ENGINE CONTROL (5S–FE M/T EX. CALIFORNIA)

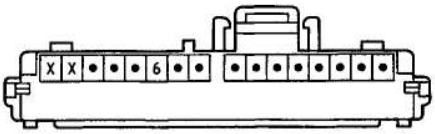
A10



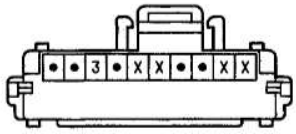
C 8 BLUE



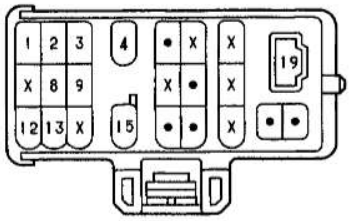
C 9 (A)



C10 (B) GRAY



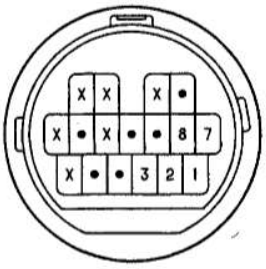
D 1 BLACK



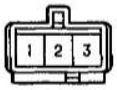
D 2 BLACK



D 3 DARK GRAY



D 6 ORANGE



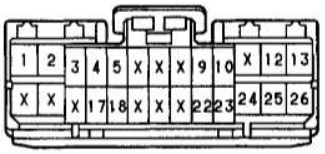
E 1 DARK GRAY



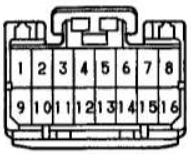
E 4 GREEN



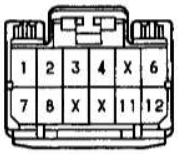
E11 (A) DARK GRAY



E12 (B) DARK GRAY



E14 (C) DARK GRAY



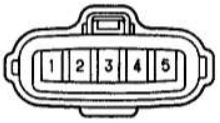
F15 GRAY



I 1 GRAY



I 2 BLACK



I 3 BLACK



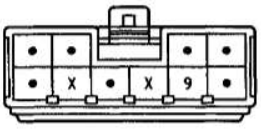
I 4, I 6, I 5, I 7 GRAY



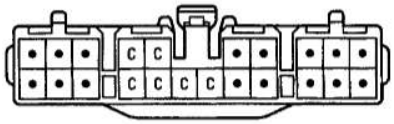
I10 BLACK



I12 BLACK



J 1 DARK GRAY



(HINT:SEE PAGE 7)

K 1 DARK GRAY



M 1 BLACK



N 1 GRAY



O 2 DARK GRAY



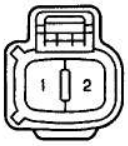
O 3 DARK GRAY



T 1 BLACK



V 1 BLACK



V 2 BLACK

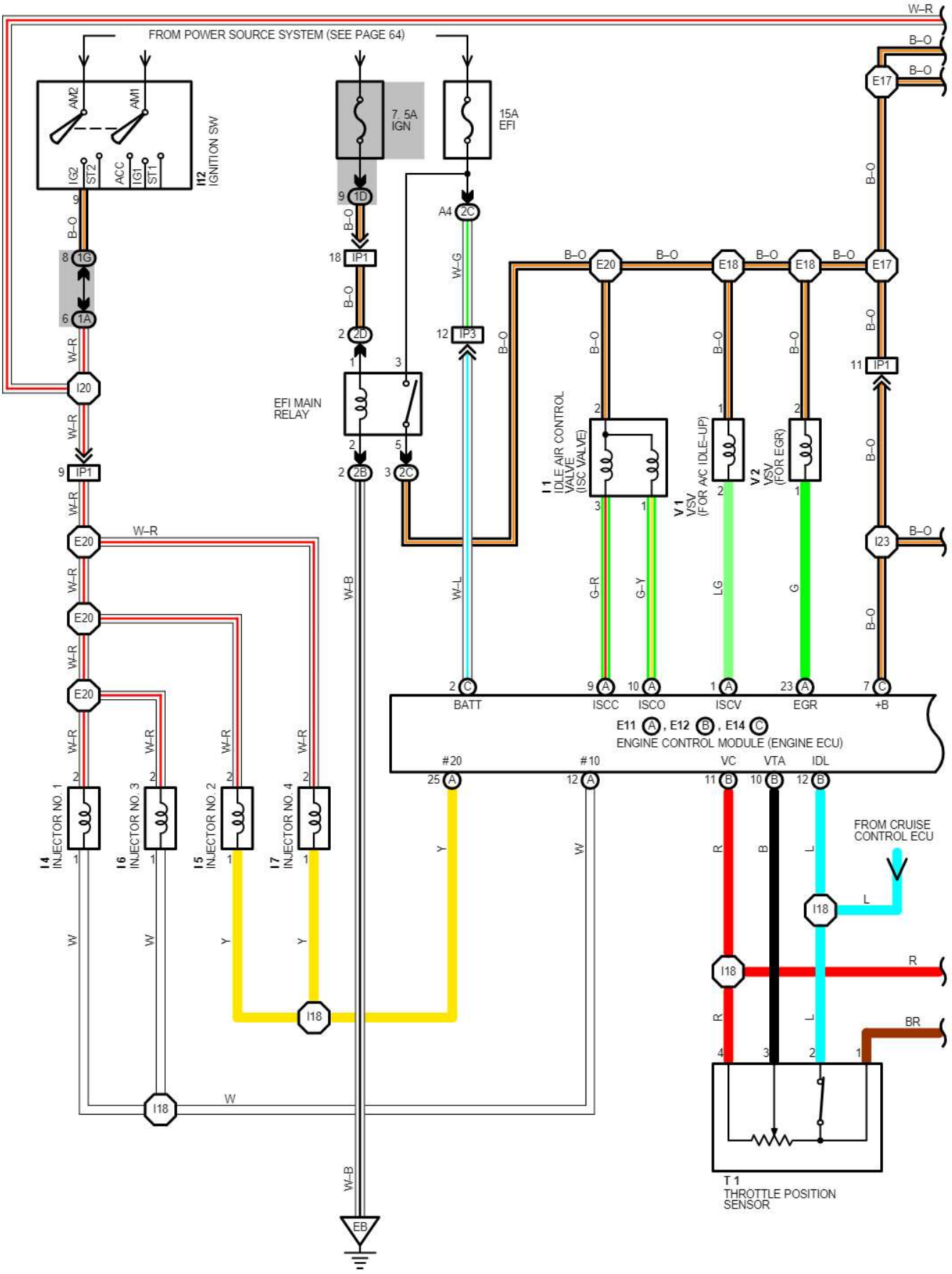


V 5 GRAY

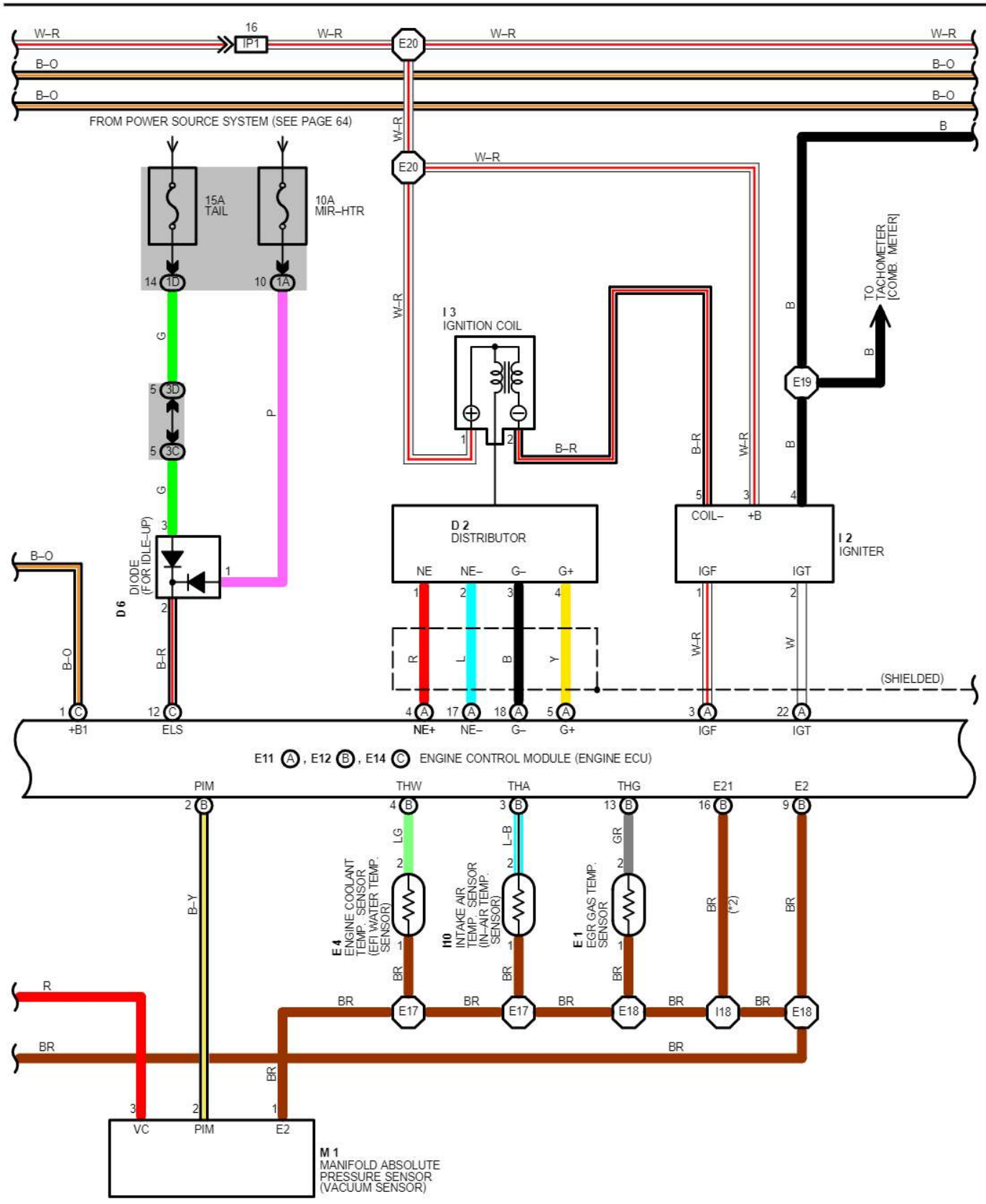


cardiagn.com

ENGINE CONTROL (5S–FE M/T EX. CALIFORNIA)

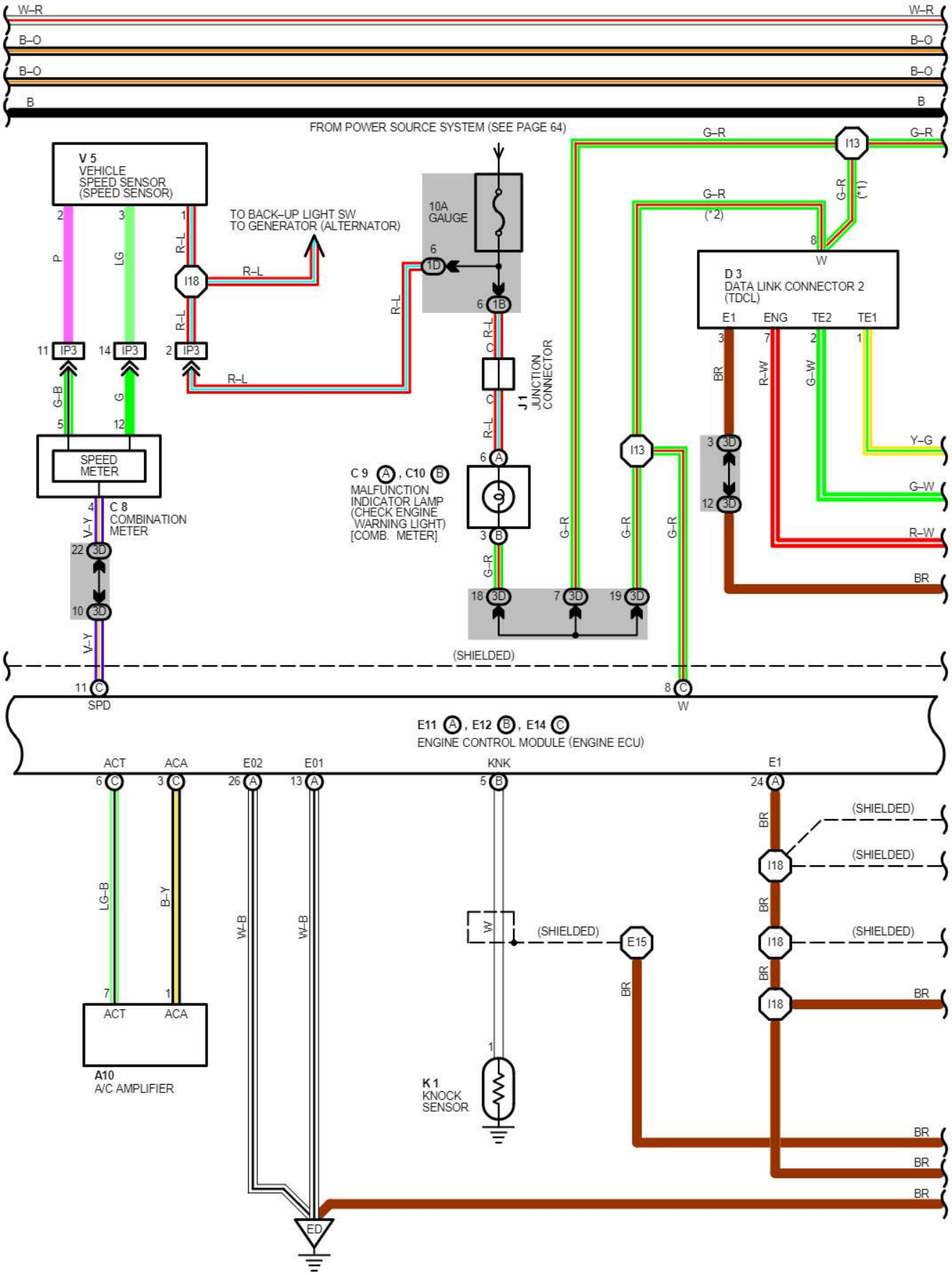


cardiagn.com



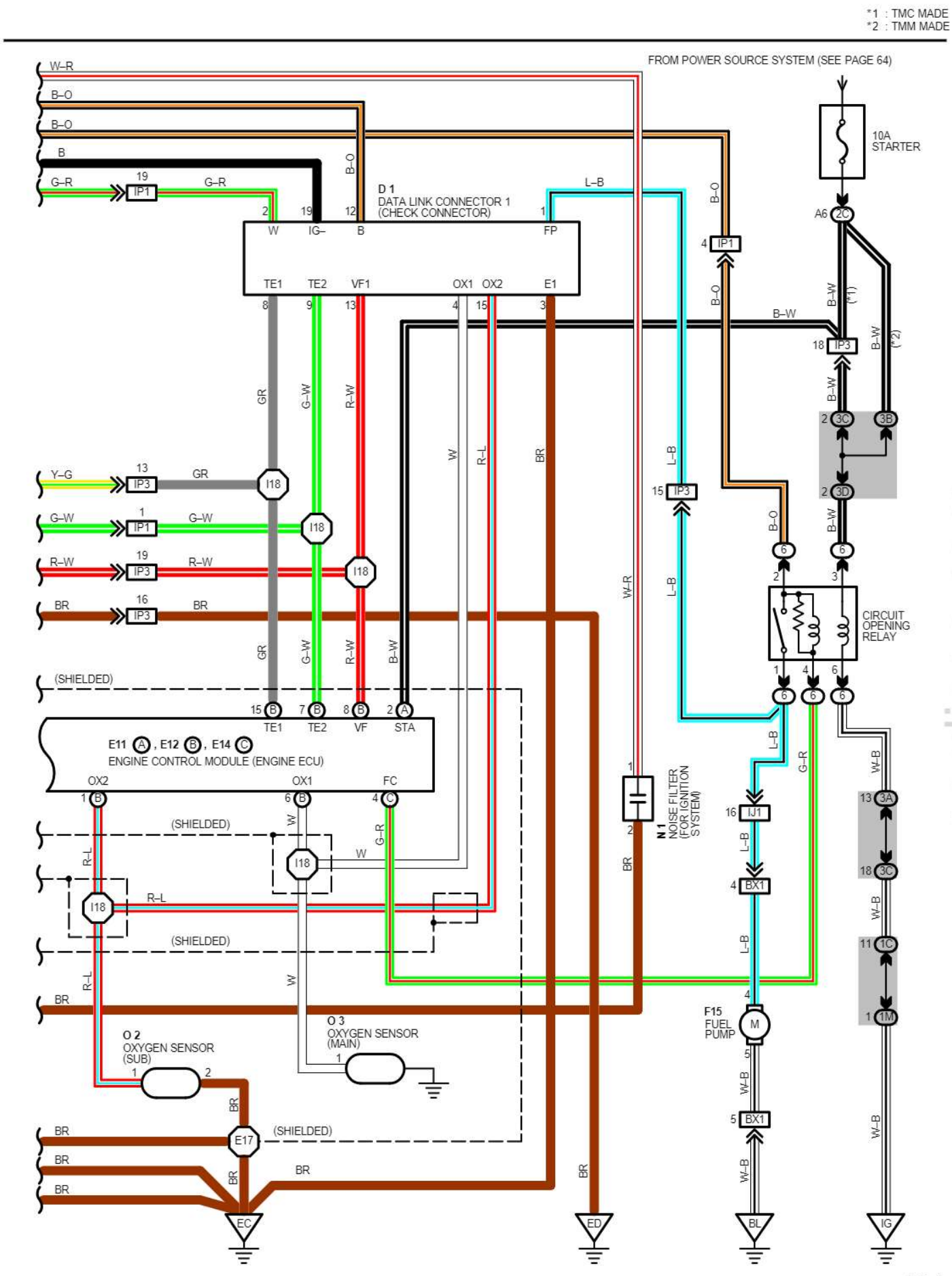
cardiagn.com

ENGINE CONTROL (5S–FE M/T EX. CALIFORNIA)



cardiagn.com

100


*1 : TMC MADE
*2 : TMM MADE
FROM POWER SOURCE SYSTEM (SEE PAGE 64)
10A STARTER
D 1 DATA LINK CONNECTOR 1 (CHECK CONNECTOR)
W IG– B FP
TE1 TE2 VF1 OX1 OX2 E1
CIRCUIT OPENING RELAY
N 1 NOISE FILTER (FOR IGNITION SYSTEM)
F15 FUEL PUMP
(SHIELDED)
E11 A , E12 B , E14 C ENGINE CONTROL MODULE (ENGINE ECU)
OX2 OX1 FC
TE1 TE2 VF STA
O 2 OXYGEN SENSOR (SUB)
O 3 OXYGEN SENSOR (MAIN)
EC
ED
BL
IG
cardiagn.com

ENGINE CONTROL (5S–FE M/T EX. CALIFORNIA)

SERVICE HINTS

E11(A), E12(B), E14(C) ENGINE CONTROL MODULE (ENGINE ECU)

VOLTAGE AT ENGINE CONTROL MODULE (ECU) WIRING CONNECTOR

BATT – E1	ALWAYS **9.0–14.0** VOLTS
+B – E1	**9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
+B1 – E1	**9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
IDL – E1	**9.0–14.0** VOLTS (IGNITION SW ON AND THROTTLE VALVE OPEN)
PIM – E2	**3.3– 3.9** VOLTS (IGNITION SW AT **ON** POSITION)
#10, #20 – E01, E02	**9.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
THA – E2	**0.5– 3.4** VOLTS (IGNITION SW ON AND INTAKE AIR TEMP. **20**°C, **68**°F)
THW – E2	**0.2– 1.0** VOLTS (IGNITION SW ON AND COOLANT TEMP. **80**°C, **176**°F)
STA – E1	**6.0–14.0** VOLTS (ENGINE CRANKING)
IGT – E1	**0.8–1.2** VOLTS (ENGINE CRANKING OR IDLING)
ISCC, ISCO– E1	**8.0–14.0** VOLTS (IGNITION SW AT **ON** POSITION)
W – E1	**9.0–14.0** VOLTS (IGNITION SW ON, NO TROUBLE AND ENGINE RUNNING)
ACT – E1	**9.0–14.0** VOLTS (IGNITION SW ON AND AIR CONDITIONING ON)
ACA – E1	**7.5–14.0** VOLTS (IGNITION SW ON AND AIR CONDITIONING ON)
TE1 – E1	**9.0–14.0** VOLTS (IGNITION SW ON)

RESISTANCE AT ENGINE CONTROL MODULE (ECU) WIRING CONNECTORS

(DISCONNECT WIRING CONNECTOR)

IDL – E1	INFINITY (THROTTLE VALVE OPEN) **0** Ω (THROTTLE VALVE FULLY CLOSED)
THA – E2	**2.0 –3.0** KΩ (INTAKE AIR TEMP. **20**°C, **68**°F)
THW – E2	**0.2 –0.4** KΩ (COOLANT TEMP. **80**°C, **176**°F)
G+ – G–	**0.17–0.21** KΩ
ISCC, ISCO– +B, +B1	**19.3–22.3** KΩ

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A10	32	E14 C	30	K 1	31
C 8	32	F15	34 (S/D), 35 (C/P), 36 (W/G)	M 1	31
C 9 A	32	I 1	31	N 1	31
C10 B	32	I 2	31	O 2	31
D 1	30	I 3	31	O 3	31
D 2	30	I 4	31	T 1	31
D 3	32	I 5	31	V 1	31
D 6	32	I 6	31	V 2	31
E 1	30	I 7	31	V 3	31
E 4	30	I10	31	V 5	31
E11 A	30	I12	33		
E12 B	30	J 1	33		

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
6	26	R/B NO. 6 (BEHIND GLOVE BOX)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1B		
1C		
1D		
1G		
1M		
2A	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2C	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		
3D		

cardiagn.com

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IP1	44	ENGINE WIRE AND COWL WIRE
IP3		
BX1	46 (S/D)	FUEL GAUGE WIRE AND FLOOR NO. 1 WIRE
	48 (C/P)	
	50 (W/G)	

: GROUND POINTS

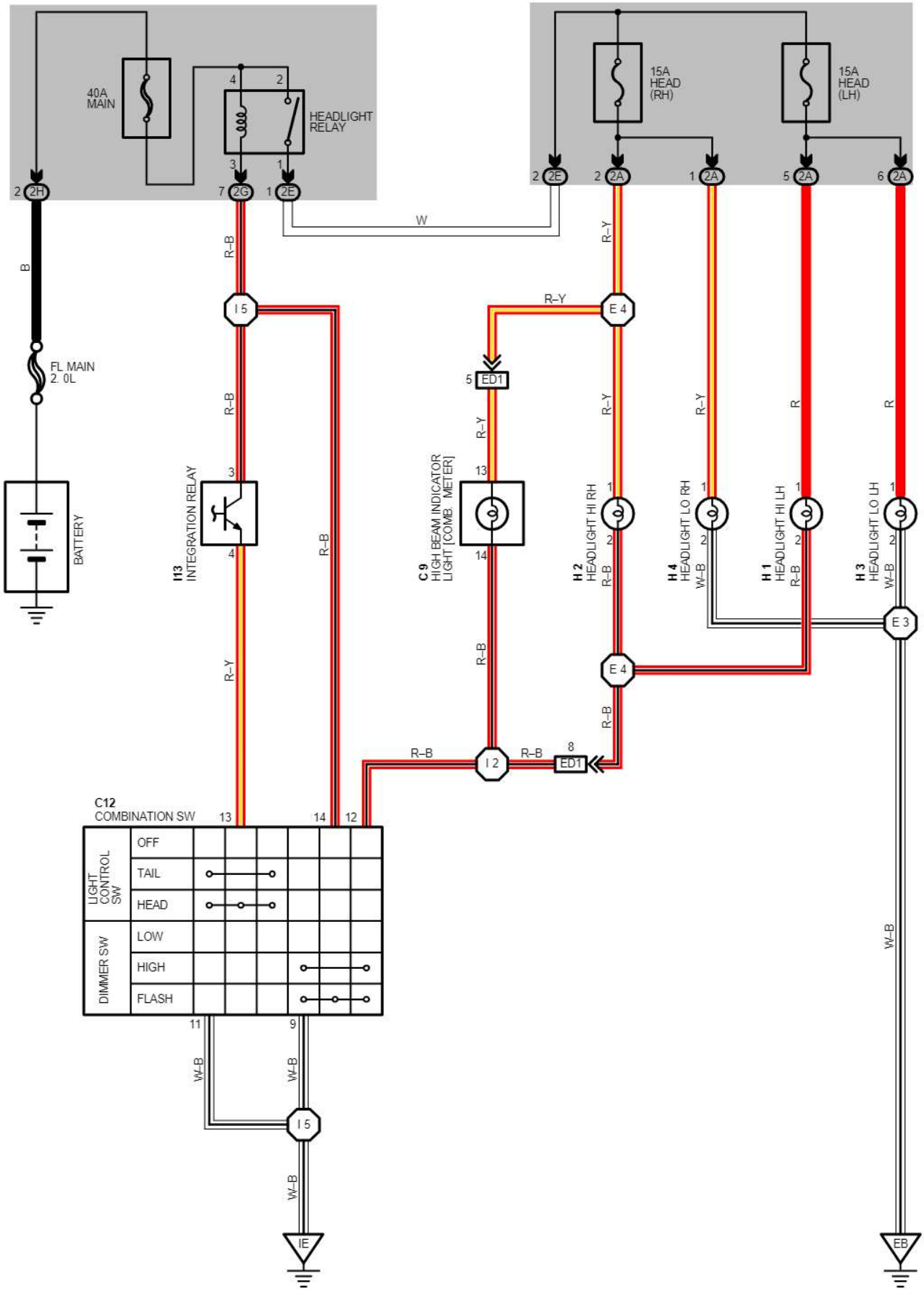
CODE	SEE PAGE	GROUND POINTS LOCATION
EB	40 (5S–FE)	FRONT LEFT FENDER
EC	40 (5S–FE)	INTAKE MANIFOLD RH
ED	40 (5S–FE)	INTAKE MANIFOLD LH
IG	42	INSTRUMENT PANEL BRACE LH
BL	46 (S/D)	UNDER THE LEFT QUARTER PILLAR
	48 (C/P)	
	50 (W/G)	

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E15	40 (5S–FE)	ENGINE WIRE	E20	40 (5S–FE)	ENGINE WIRE
E16			I13	44	COWL WIRE
E17			I18	44	ENGINE WIRE
E18			I20	44	COWL WIRE
E19			I23		

cardiagn.com

HEADLIGHT (FOR USA)



cardiagn.com

SERVICE HINTS

HEADLIGHT RELAY

2–1 : CLOSED WITH LIGHT CONTROL SW AT **HEAD** POSITION OR DIMMER SW AT **FLASH** POSITION

LIGHT AUTO TURN OFF OPERATION

PLEASE REFER TO THE LIGHT AUTO TURN OFF SYSTEM (SEE PAGE 102)

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 9	32	H 2	28 (1MZ–FE), 30 (5S–FE)	I13	33
C12	32	H 3	28 (1MZ–FE), 30 (5S–FE)		
H 1	28 (1MZ–FE), 30 (5S–FE)	H 4	28 (1MZ–FE), 30 (5S–FE)		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
2A	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2E		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2H	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
ED1	38 (1MZ–FE)	COWL WIRE AND ENGINE ROOM MAIN WIRE
	40 (5S–FE)	

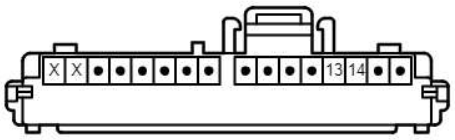
: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
EB	38 (1MZ–FE)	FRONT LEFT FENDER
	40 (5S–FE)	
IE	42	LEFT KICK PANEL

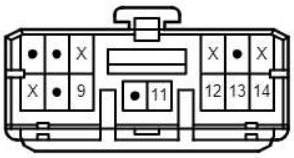
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E 3	38 (1MZ–FE)	ENGINE ROOM MAIN WIRE	E 4	40 (5S–FE)	ENGINE ROOM MAIN WIRE
	40 (5S–FE)		I 2	44	COWL WIRE
E 4	38 (1MZ–FE)		I 5		

C 9



C12 BLACK



H 1, H 2 BLACK



H 3, H 4 BROWN

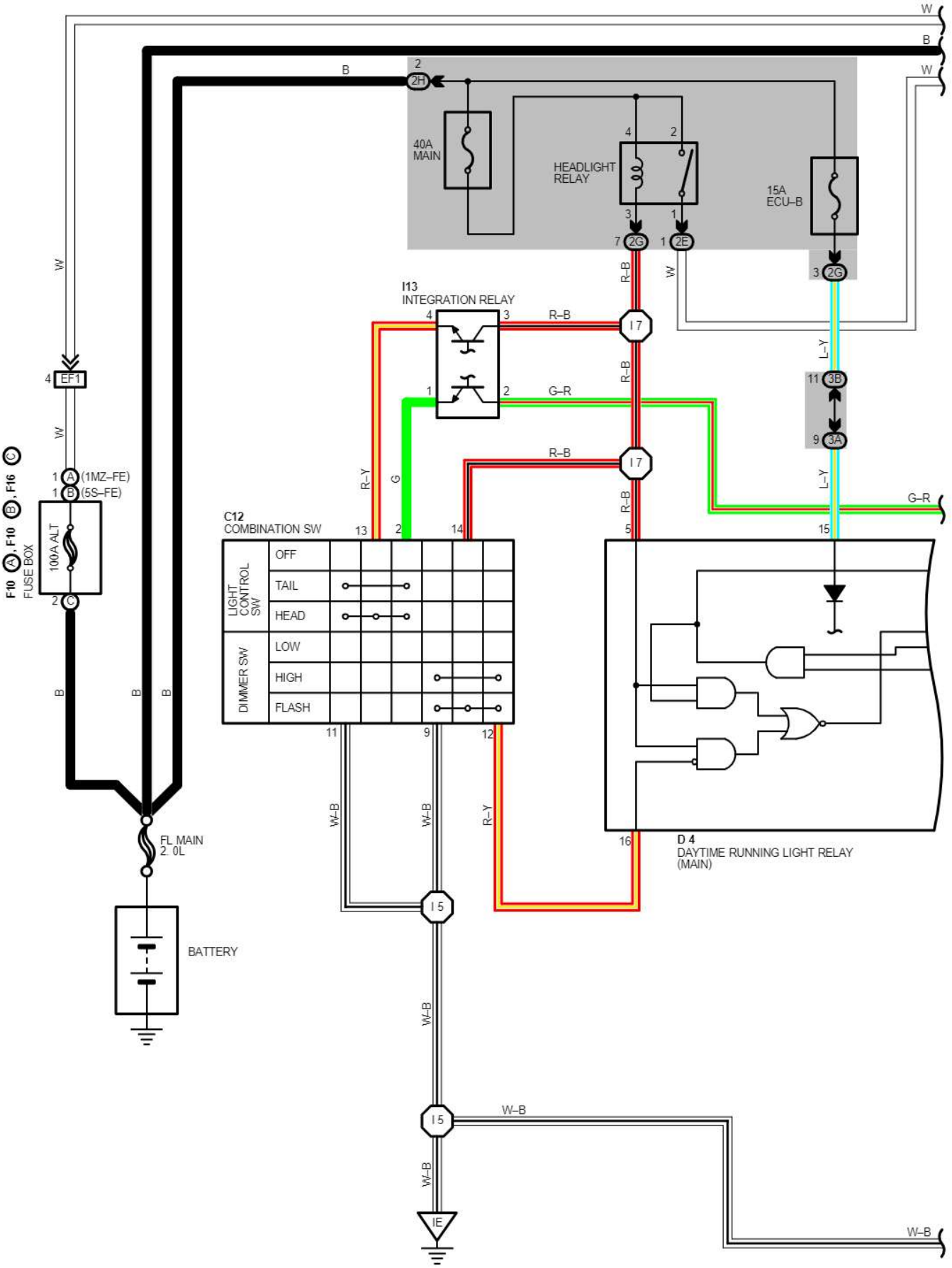


I13



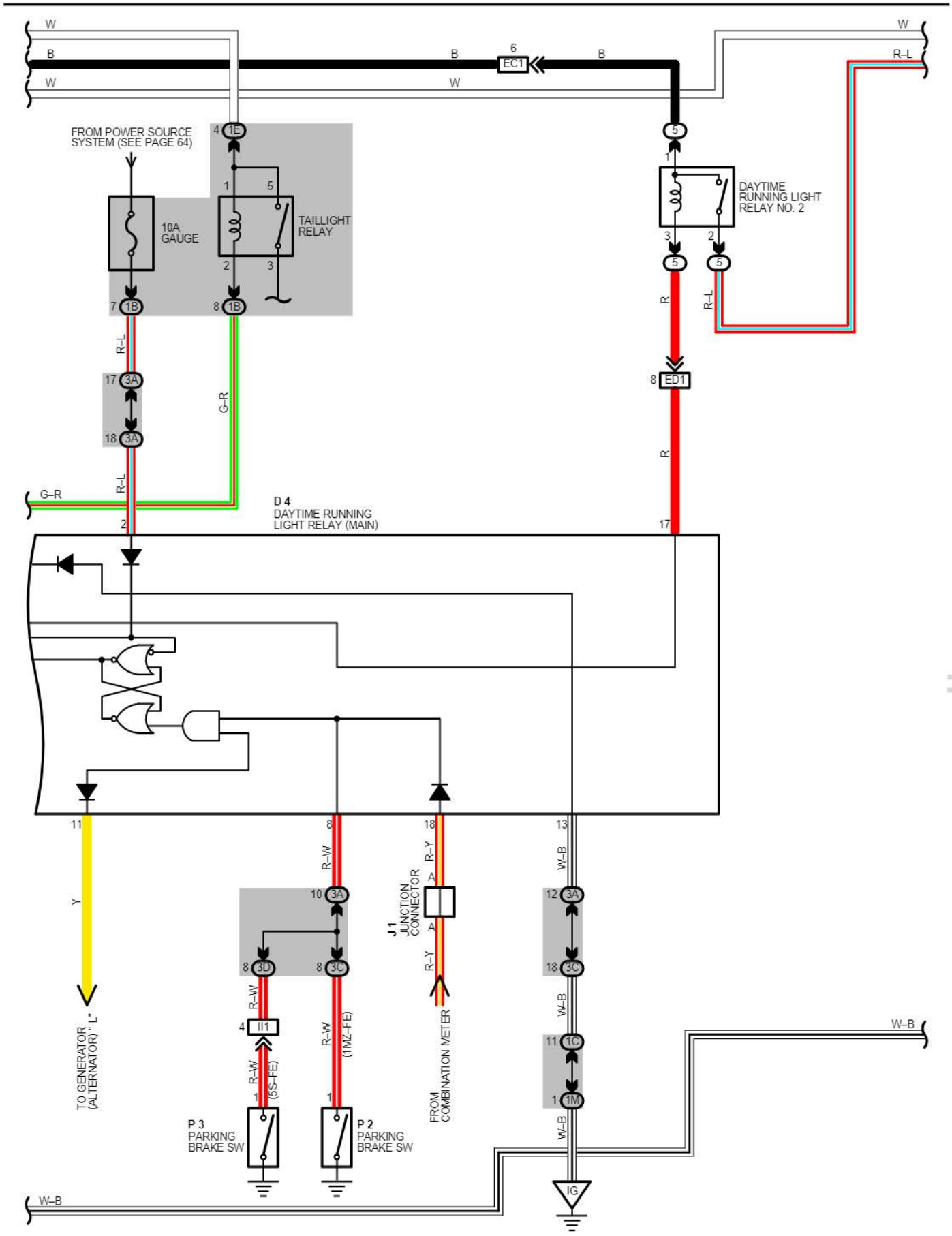
cardiagn.com

HEADLIGHT (FOR CANADA)



cardiagn.com

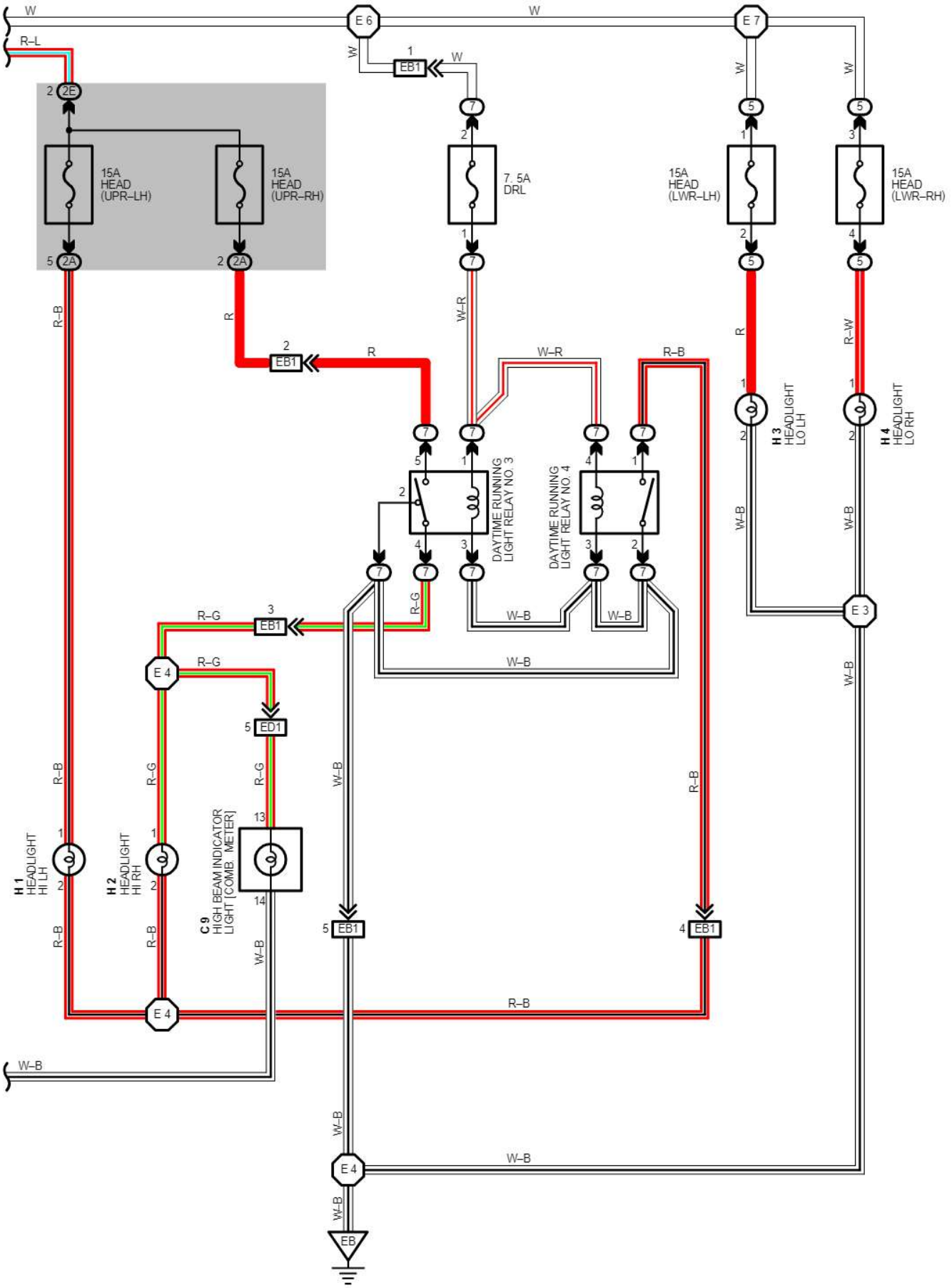
106



cardiagn.com

107

HEADLIGHT (FOR CANADA)



cardiagn.com

SYSTEM OUTLINE

CURRENT FROM THE BATTERY IS ALWAYS FLOWING FROM THE FL MAIN → HEADLIGHT RELAY (COIL SIDE) → **TERMINAL 5** OF THE DAYTIME RUNNING LIGHT RELAY (MAIN) AND **TERMINAL 14** OF THE DIMMER SW, HEADLIGHT RELAY (COIL SIDE) → **TERMINAL 3** OF THE INTEGRATION RELAY → **TERMINAL 4** → **TERMINAL 13** OF THE LIGHT CONTROL SW, FL MAIN → DAYTIME RUNNING LIGHT RELAY NO. 2 (COIL SIDE) → **TERMINAL 17** OF THE DAYTIME RUNNING LIGHT RELAY.

1. DAYTIME RUNNING LIGHT OPERATION

WHEN THE ENGINE IS STARTED, VOLTAGE GENERATED AT **TERMINAL L** OF THE GENERATOR (ALTERNATOR) IS APPLIED TO **TERMINAL 11** OF THE DAYTIME RUNNING LIGHT RELAY (MAIN).

IF THE PARKING BRAKE LEVER IS PULLED UP (PARKING BRAKE SW ON) AT THIS TIME, THE RELAY IS NOT ENERGIZED, SO THE DAYTIME RUNNING LIGHT SYSTEM DOES NOT OPERATE. IF THE PARKING BRAKE LEVER IS RELEASED (PARKING BRAKE LEVER SW OFF), THE SIGNAL IS INPUT TO **TERMINAL 8** OF THE RELAY. THIS ACTIVATES THE RELAY ALSO, CURRENT FROM FL MAIN FLOWES TO DAYTIME RUNNING LIGHT RELAY NO. 2 (POINT SIDE) → **HEAD (UPR–LH)** FUSE → **TERMINAL 1** OF THE HEAD LH–HI → **TERMINAL 2** → **TERMINAL 2** OF THE HEAD RH–HI → **TERMINAL 1** → **TERMINAL 4** OF THE DAYTIME RUNNING LIGHT RELAY NO. 3 → **TERMINAL 2** → TO **GROUND**, SO BOTH TAIL AND HEADLIGHT UP.

THIS IS HOW THE DAYTIME RUNNING LIGHT SYSTEM OPERATES. ONCE THE DAYTIME RUNNING LIGHT SYSTEM OPERATES AND HEAD HAVE LIGHT UP, HEAD REMAIN ON EVEN IF THE PARKING BRAKE LEVER IS PULLED UP (PARKING BRAKE SW ON).

EVEN IF THE ENGINE STALLS WITH THE IGNITION SW ON AND THERE IS NO VOLTAGE FROM **TERMINAL L** OF THE GENERATOR (ALTERNATOR), HEAD REMAIN ON. IF THE IGNITION SW IS THEN TURNED OFF, AND HEAD ARE TURNED OFF.

IF THE ENGINE IS STARTED WHILE THE PARKING BRAKE LEVER IS RELEASED (PARKING BRAKE SW OFF), THE DAYTIME RUNNING LIGHT SYSTEM OPERATES AND TAIL, HEADLIGHT UP AS THE ENGINE STARTS.

2. HEADLIGHT OPERATION

*(WHEN THE LIGHT CONTROL SW AT THE HEAD POSITION)

WHEN THE LIGHT CONTROL SW IS SET TO **HEAD** POSITION, THE CURRENT FLOWING TO THE HEADLIGHT RELAY (COIL SIDE) FLOWS TO **TERMINAL 3** OF THE INTEGRATION RELAY → **TERMINAL 4** → **TERMINAL 13** OF THE LIGHT CONTROL SW → **TERMINAL 11** → **GROUND**, TURNING THE HEADLIGHT RELAY ON.

THIS CAUSES THE CURRENT FLOWING TO THE HEADLIGHT RELAY (POINT SIDE) → **DRL** FUSE → DAYTIME RUNNING LIGHT RELAY NO. 3 (COIL SIDE) AND DAYTIME RUNNING LIGHT RELAY NO. 4 (COIL SIDE) → **GROUND**, TURNING THE DAYTIME RUNNING LIGHT RELAY NO. 3 AND NO. 4 ON. ALSO, CURRENT FROM THE HEADLIGHT RELAY (POINT SIDE) TO **HEAD (LWR)** FUSES → **TERMINAL 1** OF THE HEADLIGHTS (LO) → **TERMINAL 2** → **GROUND**, SO THE HEADLIGHTS (LO) LIGHT UP.

*(DIMMER SW AT FLASH POSITION)

WHEN THE DIMMER SW IS SET TO **FLASH** POSITION, CURRENT FLOWS FROM HEADLIGHT RELAY (COIL SIDE) → **TERMINAL 14** OF THE DIMMER SW → **TERMINAL 9** → **GROUND**, TURNING THE HEADLIGHT RELAY ON. AT THE SAME TIME, SIGNALS ARE OUTPUT FROM **TERMINAL 12** AND **TERMINAL 14** OF THE DIMMER SW TO **TERMINAL 16** AND **TERMINAL 5** OF THE DAYTIME RUNNING LIGHT RELAY (MAIN), ACTIVATING THE DAYTIME RUNNING LIGHT RELAY (MAIN) AND ALSO THE DAYTIME RUNNING LIGHT RELAY NO. 2. WHEN THE HEADLIGHT RELAY AND DAYTIME RUNNING LIGHT RELAY (MAIN) ARE ACTIVATED, THE HEADLIGHTS (LO AND HI) THEN LIGHT UP.

*(DIMMER SW AT HIGH POSITION)

WHEN THE LIGHT CONTROL SW IS SET TO **HEAD** POSITION, A SIGNAL IS OUTPUT FROM **TERMINAL 13** OF THE LIGHT CONTROL SW → **TERMINAL 4** OF THE INTEGRATION RELAY → **TERMINAL 3** → **TERMINAL 5** OF THE DAYTIME RUNNING LIGHT RELAY (MAIN). WHEN THE DIMMER SW IS SET TO **HIGH** POSITION, A SIGNAL IS OUTPUT FROM **TERMINAL 12** OF THE DIMMER SW TO **TERMINAL 16** OF THE DAYTIME RUNNING LIGHT RELAY (MAIN). THESE SIGNALS ACTIVATE DAYTIME RUNNING LIGHT RELAY NO. 2, SO CURRENT FLOWS FROM DAYTIME RUNNING LIGHT RELAY NO. 2 (POINT SIDE) → **HEAD (UPR–LH)** FUSE → **TERMINAL 1** OF THE HEADLIGHT LH–HI → **TERMINAL 2** → DAYTIME RUNNING LIGHT RELAY NO. 4 (POINT SIDE) → **GROUND**, AND CURRENT ALSO SIMUTANEOUSLY FLOWS FROM **HEAD (UPR–RH)** FUSE → DAYTIME RUNNING LIGHT RELAY NO. 3 (POINT SIDE) → **TERMINAL 1** OF THE HEADLIGHT RH–HI → **TERMINAL 2** → DAYTIME RUNNING LIGHT RELAY NO. 4 (POINT SIDE), CAUSING THE HEADLIGHTS (HI SIDE) TO LIGHT UP.

SERVICE HINTS

D 4 DAYTIME RUNNING LIGHT RELAY (MAIN)

2–GROUND : APPROX. **12** VOLTS WITH THE IGNITION SW AT **ON** POSITION
15–GROUND : ALWAYS APPROX. **12** VOLTS
8–GROUND : CONTINUITY WITH THE PARKING BRAKE LEVER PULLED UP (PARKING BRAKE SW ON)
13–GROUND : ALWAYS CONTINUITY

cardiagn.com

HEADLIGHT (FOR CANADA)

: PARTS LOCATION

CODE		SEE PAGE	CODE		SEE PAGE	CODE	SEE PAGE
C 9		32	F16	C	28 (1MZ–FE), 30 (5S–FE)	I13	33
C12		32	H 1		28 (1MZ–FE), 30 (5S–FE)	J 1	33
D 4		32	H 2		28 (1MZ–FE), 30 (5S–FE)	P 2	33
F10	A	28 (1MZ–FE), 30 (5S–FE)	H 3		28 (1MZ–FE), 30 (5S–FE)	P 3	33
	B	28 (1MZ–FE), 30 (5S–FE)	H 4		28 (1MZ–FE), 30 (5S–FE)		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1C		
1D		
1E		
1M		
2A	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2E		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2H	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3B		
3C		
3D		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EB1	38 (1MZ–FE)	ENGINE ROOM MAIN WIRE AND RELAY WIRE
	40 (5S–FE)	
EC1	38 (1MZ–FE)	ENGINE WIRE AND ENGINE ROOM MAIN WIRE
	40 (5S–FE)	
ED1	38 (1MZ–FE)	COWL WIRE AND ENGINE ROOM MAIN WIRE
	40 (5S–FE)	
EF1	38 (1MZ–FE)	ENGINE WIRE AND COWL WIRE
	40 (5S–FE)	
II1	42	COWL WIRE AND INSTRUMENT PANEL WIRE

: GROUND POINTS

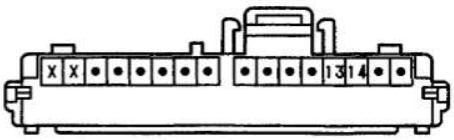
CODE	SEE PAGE	GROUND POINTS LOCATION
EB	38 (1MZ–FE)	FRONT LEFT FENDER
	40 (5S–FE)	
IE	42	LEFT KICK PANEL
IG	42	INSTRUMENT PANEL BRACE LH

: SPLICE POINTS

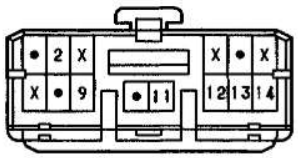
CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E 3	38 (1MZ–FE)	ENGINE ROOM MAIN WIRE	E 6	40 (5S–FE)	ENGINE ROOM MAIN WIRE
	40 (5S–FE)		E 7	38 (1MZ–FE)	
E 4	38 (1MZ–FE)			40 (5S–FE)	
	40 (5S–FE)		I 5	44	COWL WIRE
E 6	38 (1MZ–FE)		I 7		

cardiagn.com

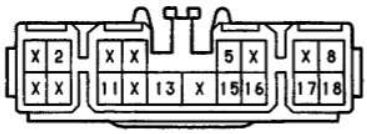
C 9



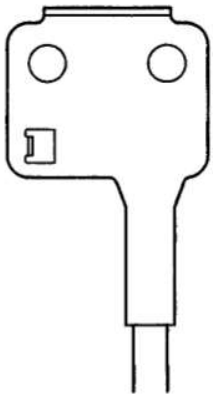
C12 BLACK



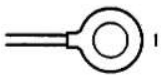
D 4 GRAY



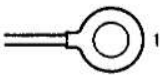
(1NZ-FE) F10 Ⓐ



(5S-FE) F10 Ⓑ



F16 Ⓒ



H 1, H 2 BLACK



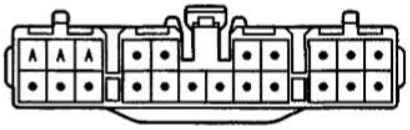
H 3, H 4 BROWN



I13



J 1 DARK GRAY



(HINT:SEE PAGE 7)

P 2



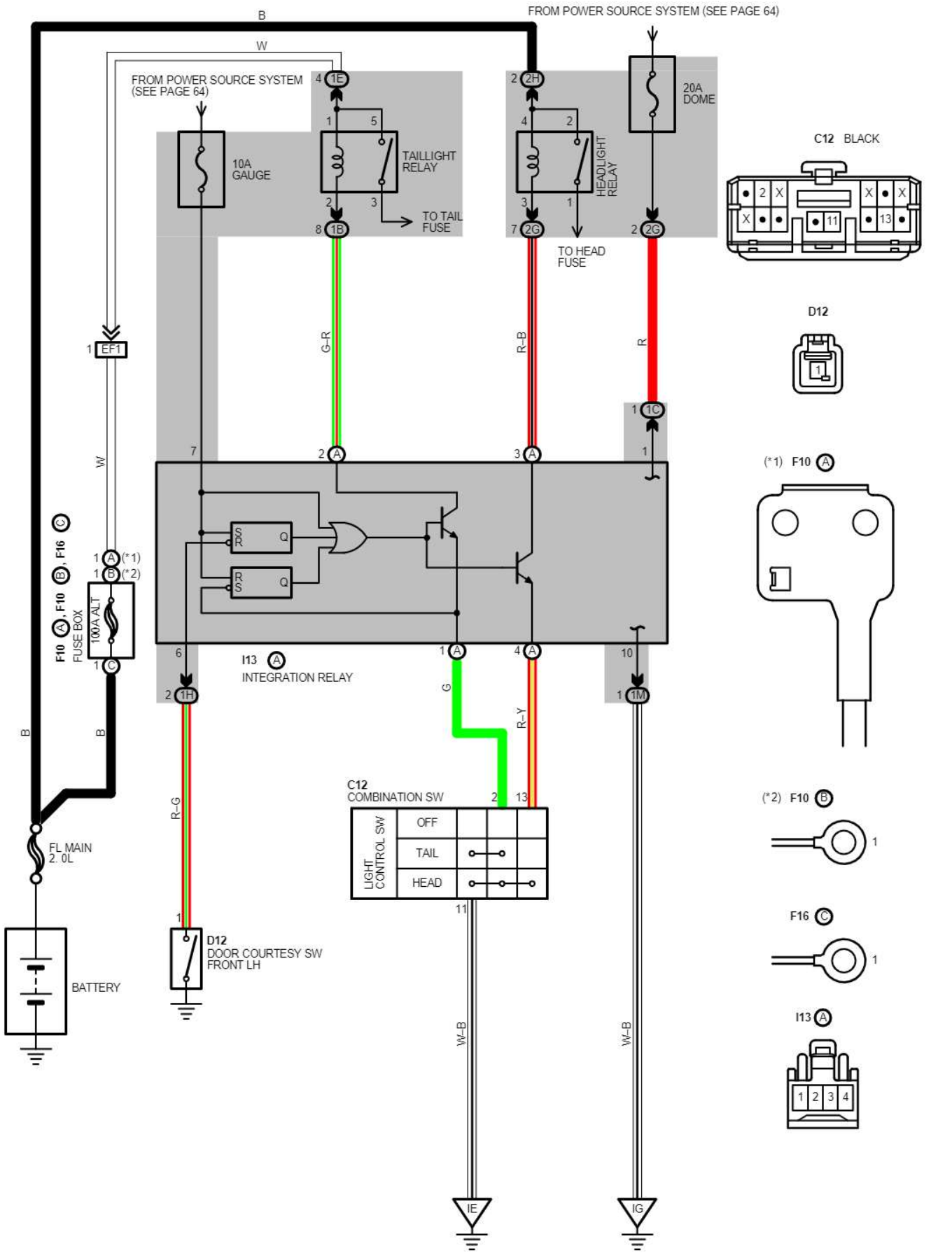
P 3



cardiagn.com

LIGHT AUTO TURN OFF

*1 : 1MZ–FE
*2 : 5S–FE



cardiagn.com

SYSTEM OUTLINE

WITH THE IGNITION SW TURNED ON, THE CURRENT FLOWS TO **TERMINAL 7** OF THE INTEGRATION RELAY THROUGH **GAUGE** FUSE.

VOLTAGE IS APPLIED AT ALL TIMES TO **TERMINAL (A) 2** OF THE INTEGRATION RELAY THROUGH THE TAILLIGHT RELAY (COIL SIDE), AND TO **TERMINAL (A) 3** THROUGH THE HEADLIGHT RELAY (COIL SIDE).

1. NORMAL LIGHTING OPERATION

(TURN TAILLIGHT ON)

WITH LIGHT CONTROL SW TURNED TO **TAILLIGHT** POSITION, A SIGNAL IS INPUT INTO **TERMINAL (A) 1** OF THE INTEGRATION RELAY. ACCORDING TO THIS SIGNAL, THE CURRENT FLOWING TO **TERMINAL (A) 2** OF THE RELAY FLOWS FROM **TERMINAL (A) 1** → **TERMINAL 2** OF THE LIGHT CONTROL SW → **TERMINAL 11** → TO **GROUND** AND TAILLIGHT RELAY CAUSES TAILLIGHT TO TURN ON.

(TURN HEADLIGHT ON)

WITH LIGHT CONTROL SW TURNED TO **HEADLIGHT** POSITION, A SIGNAL IS INPUT INTO **TERMINALS (A) 1** AND **(A) 4** OF THE INTEGRATION RELAY. ACCORDING TO THIS SIGNAL, THE CURRENT FLOWING TO **TERMINAL (A) 3** OF THE RELAY FLOWS TO **TERMINAL (A) 4** → **TERMINAL 13** OF THE LIGHT CONTROL SW → **TERMINAL 11** → TO **GROUND** IN THE HEADLIGHT CIRCUIT, AND CAUSES TAILLIGHT AND HEADLIGHT RELAY TO TURN THE LIGHT ON. THE TAILLIGHT CIRCUIT IS SAME AS ABOVE.

2. LIGHT AUTO TURN OFF OPERATION

WITH LIGHTS ON AND IGNITION SW TURNED OFF (INPUT SIGNAL GOES TO **TERMINAL 7** OF THE RELAY), WHEN DOOR ON DRIVER'S SIDE IS OPENED (INPUT SIGNAL GOES TO **TERMINAL 6** OF THE RELAY), THE RELAY OPERATES AND THE CURRENT IS CUT OFF WHICH FLOWS FROM **TERMINAL (A) 2** OF THE RELAY TO **TERMINAL (A) 1** IN TAILLIGHT CIRCUIT AND FROM **TERMINAL (A) 3** TO **TERMINAL (A) 4** IN HEADLIGHT CIRCUIT. AS A RESULT, ALL LIGHTS ARE TURNED OFF AUTOMATICALLY.

SERVICE HINTS

I13 INTEGRATION RELAY

7–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
1–GROUND : ALWAYS APPROX. **12** VOLTS
(A) 3–GROUND : APPROX. **12** VOLTS WITH LIGHT CONTROL SW AT **OFF** OR **TAIL** POSITION
(A) 2–GROUND : APPROX. **12** VOLTS WITH LIGHT CONTROL SW AT **OFF** POSITION
6–GROUND : CONTINUITY WITH FRONT LH DOOR OPEN
(A) 4–GROUND : CONTINUITY WITH LIGHT CONTROL SW AT **HEAD** POSITION
(A) 1–GROUND : CONTINUITY WITH LIGHT CONTROL SW AT **TAIL** OR **HEAD** POSITION
10–GROUND : ALWAYS CONTINUITY

: PARTS LOCATION

CODE	SEE PAGE	CODE		SEE PAGE	CODE		SEE PAGE
C12	32	**F10**	A	28 (1MZ–FE), 30 (5S–FE)	**F16**	C	28 (1MZ–FE), 30 (5S–FE)
D12	34 (S/D), 35 (C/P), 36 (W/G)		B	28 (1MZ–FE), 30 (5S–FE)	**I13**	A	33

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1C		
1E		
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2H	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

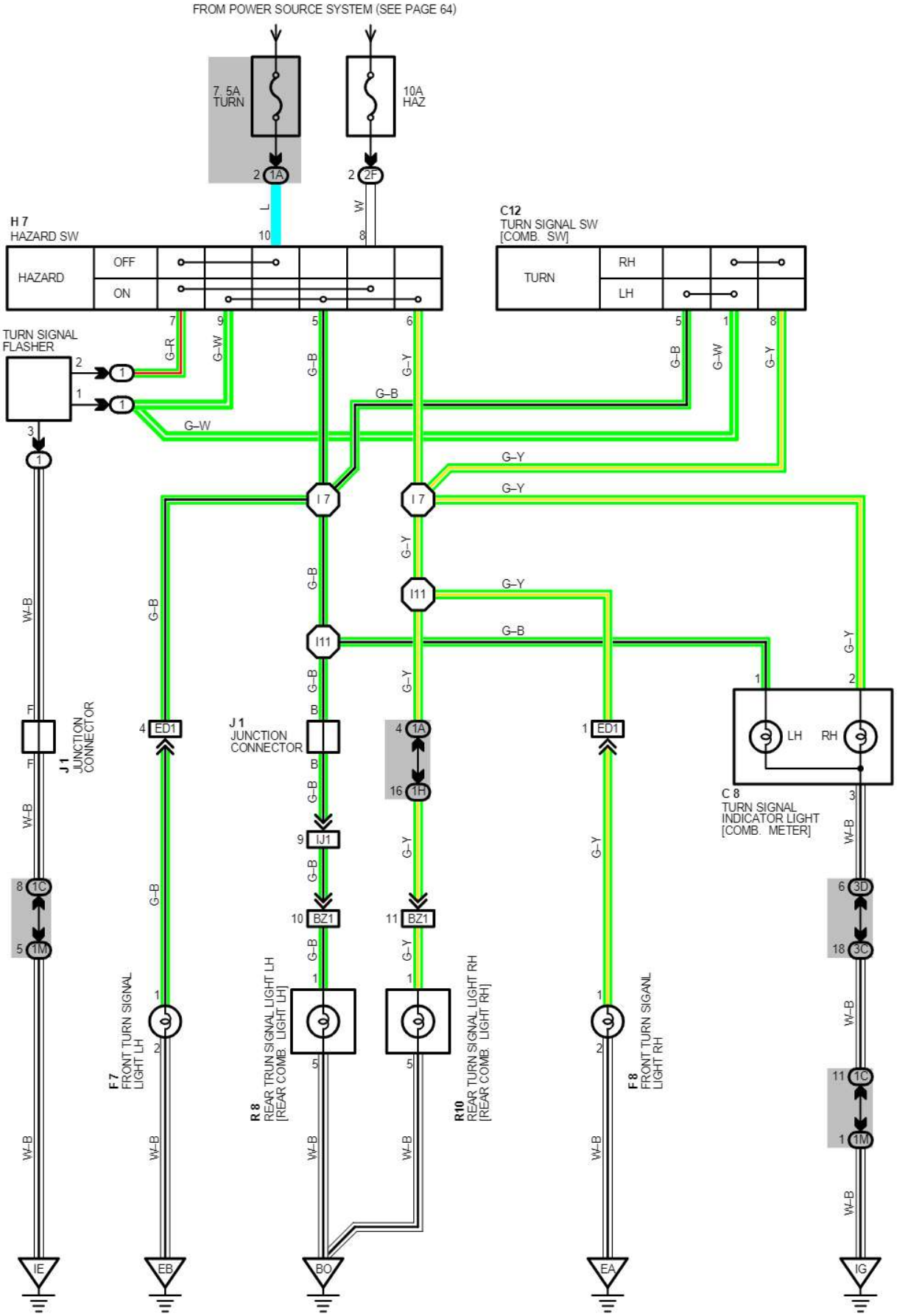
CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EF1	38 (1MZ–FE)	ENGINE WIRE AND COWL WIRE
	40 (5S–FE)	

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IE	42	LEFT KICK PANEL
IG	42	INSTRUMENT PANEL BRACE LH

cardiagn.com

TURN SIGNAL AND HAZARD WARNING LIGHT (S/D, C/P)



cardiagn.com

SERVICE HINTS

TURN SIGNAL FLASHER

(1) 2–GROUND : APPROX. **12** VOLTS WITH IGNITION SW ON OR HAZARD SW ON
(1) 1–GROUND : CHANGES FROM APPROX. **12** TO **0** VOLTS WITH IGNITION SW ON AND TURN SIGNAL SW LEFT OR RIGHT, OR HAZARD SW ON
(1) 3–GROUND: ALWAYS CONTINUITY

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 8	32	F 8	28 (1MZ–FE), 30 (5S–FE)	R 8	34 (S/D), 35 (C/P)
C12	32	H 7	33	R10	34 (S/D), 35 (C/P)
F 7	28 (1MZ–FE), 30 (5S–FE)	J 1	33		

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
1	25	R/B NO. 1 (LEFT KICK PANEL)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A 1C	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
2F	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3C 3D	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
ED1	38 (1MZ–FE) 40 (5S–FE)	COWL WIRE AND ENGINE ROOM MAIN WIRE
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
BZ1	46 (S/D) 48 (C/P)	LUGGAGE ROOM NO. 1 WIRE AND FLOOR NO. 1 WIRE

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
EA	38 (1MZ–FE) 40 (5S–FE)	FRONT RIGHT FENDER
EB	38 (1MZ–FE) 40 (5S–FE)	FRONT LEFT FENDER
IE	42	LEFT KICK PANEL
IG	42	INSTRUMENT PANEL BRACE LH
BO	46 (S/D) 48 (C/P)	LEFT QUARTER PILLAR

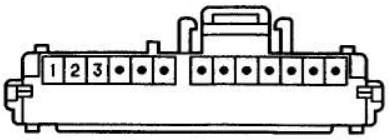
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 7	44	COWL WIRE	I11	44	COWL WIRE

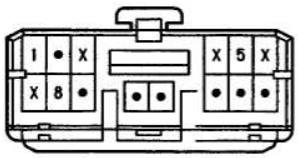
cardiagn.com

TURN SIGNAL AND HAZARD WARNING LIGHT (S/D, C/P)

C 8 BLUE



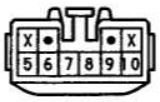
C12 BLACK



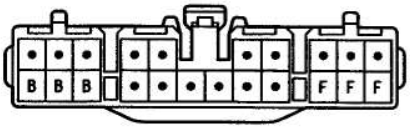
F 7, F 8 BLACK



H 7 BLACK

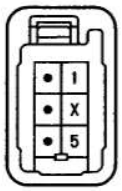


J 1 DARK GRAY



(HINT: SEE PAGE 7)

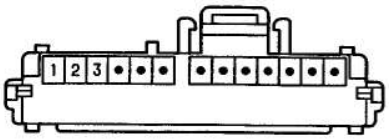
R 8, R10



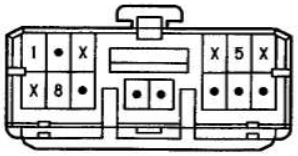
cardiagn.com

TURN SIGNAL AND HAZARD WARNING LIGHT (W/G)

C 8 BLUE



C12 BLACK



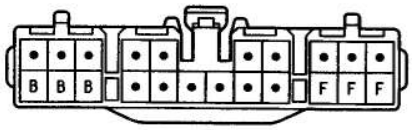
F 7, F 8 BLACK



H 7 BLACK

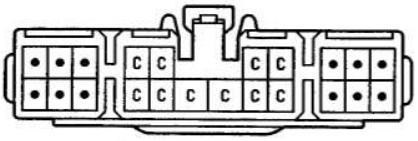


J 1 DARK GRAY



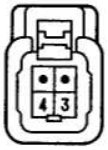
(HINT:SEE PAGE 7)

J 5

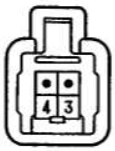


(HINT:SEE PAGE 7)

R 8

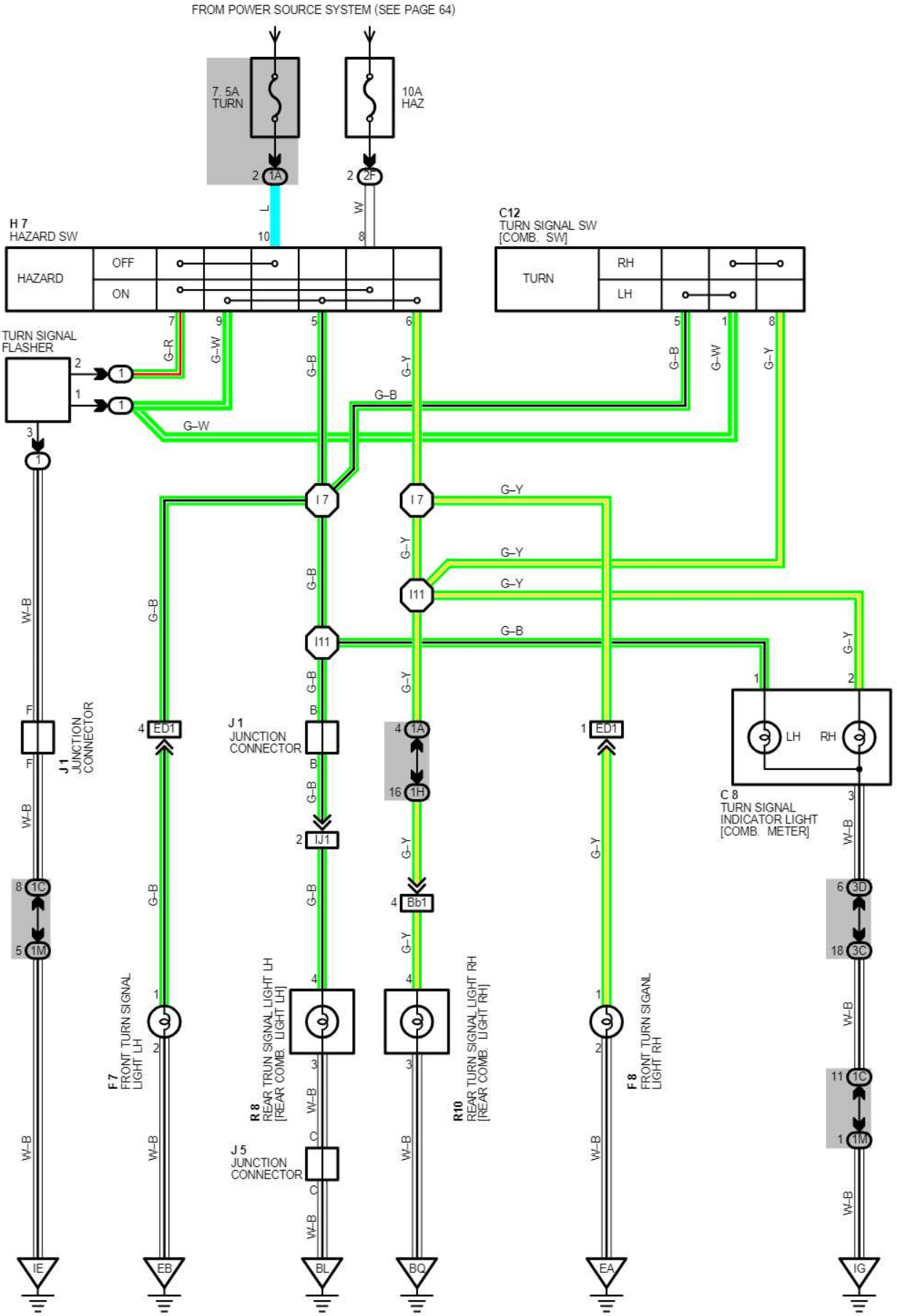


R10



cardiagn.com

TURN SIGNAL AND HAZARD WARNING LIGHT (W/G)



cardiagn.com

SERVICE HINTS

TURN SIGNAL FLASHER

(1) 2–GROUND : APPROX. **12** VOLTS WITH IGNITION SW ON OR HAZARD SW ON
(1) 1–GROUND : CHANGES FROM APPROX. **12** TO **0** VOLTS WITH IGNITION SW ON AND TURN SIGNAL SW LEFT OR RIGHT, OR HAZARD SW ON
(1) 3–GROUND: ALWAYS CONTINUITY

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 8	32	F 8	28 (1MZ–FE), 30 (5S–FE)	J 5	36
C12	32	H 7	33	R 8	36 (W/G)
F 7	28 (1MZ–FE), 30 (5S–FE)	J 1	33	R10	36 (W/G)

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
1	25	R/B NO. 1 (LEFT KICK PANEL)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1C		
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
2F	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3C	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3D		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
ED1	38 (1MZ–FE)	COWL WIRE AND ENGINE ROOM MAIN WIRE
	40 (5S–FE)	
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
Bb1	50 (W/G)	LUGGAGE ROOM NO. 1 WIRE AND FLOOR NO. 1 WIRE

: GROUND POINTS

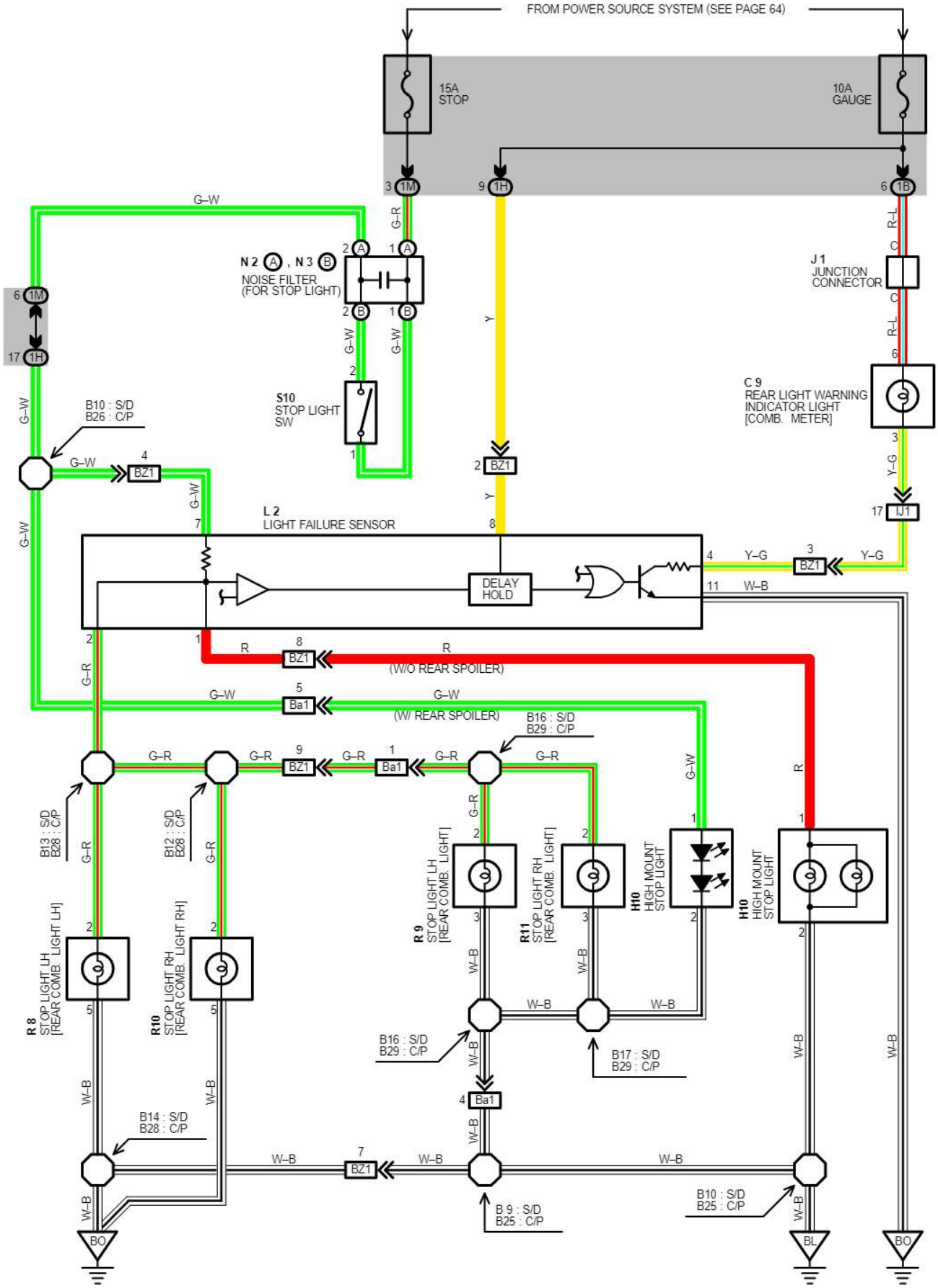
CODE	SEE PAGE	GROUND POINTS LOCATION
EA	38 (1MZ–FE)	FRONT RIGHT FENDER
	40 (5S–FE)	
EB	38 (1MZ–FE)	FRONT LEFT FENDER
	40 (5S–FE)	
IE	42	LEFT KICK PANEL
IG	42	INSTRUMENT PANEL BRACE LH
BL	46 (S/D)	UNDER THE LEFT QUARTER PILLAR
	48 (C/P)	
	50 (W/G)	
BQ	50 (W/G)	LOWER BACK PANEL CENTER

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 7	44	COWL WIRE	I11	44	COWL WIRE

cardiagn.com

STOP LIGHT (S/D, C/P)



cardiagn.com

120

SYSTEM OUTLINE

CURRENT IS APPLIED AT ALL TIMES THROUGH A **STOP** FUSE TO **TERMINAL 2** OF THE STOP LIGHT SW.

WHEN THE IGNITION SW IS TURNED ON, CURRENT FLOWS FROM THE **GAUGE** FUSE TO **TERMINAL 8** OF THE LIGHT FAILURE SENSOR, AND ALSO FLOWS THROUGH THE REAR LIGHT WARNING LIGHT TO **TERMINAL 4** OF THE LIGHT FAILURE SENSOR.

STOP LIGHT DISCONNECTION WARNING

WHEN THE IGNITION SW IS TURNED ON AND THE BRAKE PEDAL IS PRESSED (STOP LIGHT SW ON), IF THE STOP LIGHT CIRCUIT IS OPEN, THE CURRENT FLOWING FROM **TERMINALS 7** OF THE LIGHT FAILURE SENSOR TO **TERMINALS 1, 2** CHANGES, SO THE LIGHT FAILURE SENSOR DETECTS THE DISCONNECTION AND THE WARNING CIRCUIT OF THE LIGHT FAILURE SENSOR IS ACTIVATED.

AS A RESULT, THE CURRENT FLOWS FROM **TERMINAL 4** OF THE LIGHT FAILURE SENSOR → **TERMINAL 11** → **GROUND** AND TURNS THE REAR LIGHT WARNING LIGHT ON. BY PRESSING THE BRAKE PEDAL, THE CURRENT FLOWING TO **TERMINAL 8** OF THE LIGHT FAILURE SENSOR KEEPS THE WARNING CIRCUIT ON HOLD AND THE WARNING LIGHT ON UNTIL THE IGNITION SW IS TURNED OFF.

SERVICE HINTS

S10 STOP LIGHT SW
2–1 : CLOSED WITH BRAKE PEDAL DEPRESSED

L 2 LIGHT FAILURE SENSOR
1, 2, 7–GROUND : APPROX. **12** VOLTS WITH STOP LIGHT SW ON
4, 8–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
11–GROUND : ALWAYS CONTINUITY

○ : PARTS LOCATION

CODE	SEE PAGE	CODE		SEE PAGE	CODE	SEE PAGE
C 9	32	**N 2**	A	33	**R10**	34 (S/D), 35 (C/P)
H10	34 (S/D), 35 (C/P)	**N 3**	B	33	**R11**	34 (S/D), 35 (C/P)
J 1	33	**R 8**		34 (S/D), 35 (C/P)	**S10**	33
L 2	34 (S/D), 35 (C/P)	**R 9**		34 (S/D), 35 (C/P)		

⬭ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
BZ1	46 (S/D)	LUGGAGE ROOM NO. 1 WIRE AND FLOOR NO. 1 WIRE
	48 (C/P)	
Ba1	46 (S/D)	FLOOR NO. 1 WIRE AND LUGGAGE ROOM NO. 2 WIRE
	48 (C/P)	

▽ : GROUND POINTS

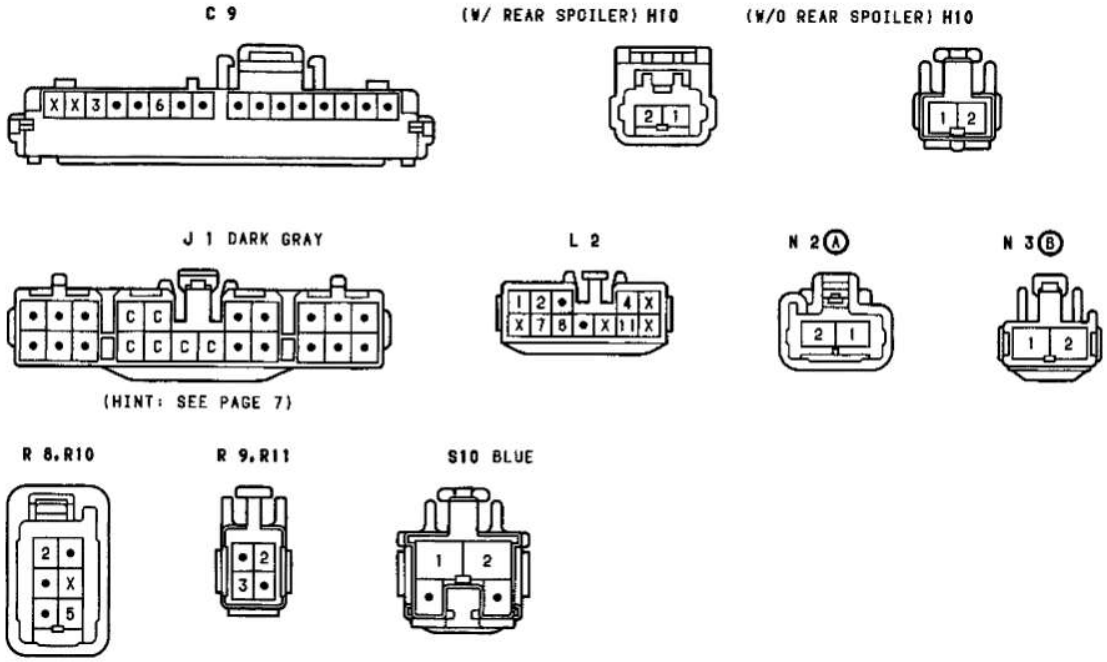
CODE	SEE PAGE	GROUND POINTS LOCATION
BL	46 (S/D)	UNDER THE LEFT QUARTER PILLAR
	48 (C/P)	
	50 (W/G)	
BQ	50 (W/G)	LOWER BACK PANEL CENTER

⬡ : SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
B 9	46 (S/D)	FLOOR NO. 1 WIRE	**B17**	46 (S/D)	LUGGAGE ROOM NO. 2 WIRE
B10			**B25**	48 (C/P)	FLOOR NO. 1 WIRE
B12	46 (S/D)	LUGGAGE ROOM NO. 1 WIRE	**B26**		
B13			**B28**	48 (C/P)	LUGGAGE ROOM NO. 1 WIRE
B14			**B29**	48 (C/P)	LUGGAGE ROOM NO. 2 WIRE
B16	46 (S/D)	LUGGAGE ROOM NO. 2 WIRE			

cardiagn.com

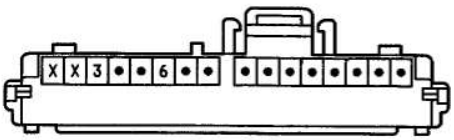
STOP LIGHT (S/D, C/P)



cardiagn.com

STOP LIGHT (W/G)

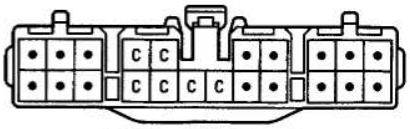
C 9



H10

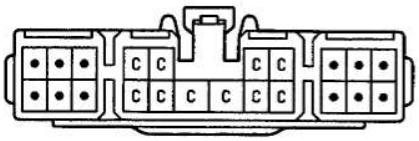


J 1 DARK GRAY



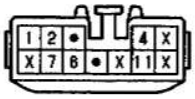
(HINT: SEE PAGE 7)

J 5



(HINT: SEE PAGE 7)

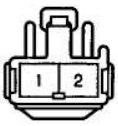
L 2



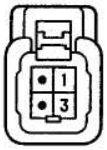
N 2 (A)



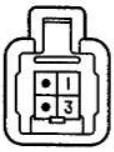
N 3 (B)



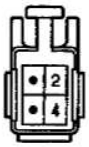
R 8



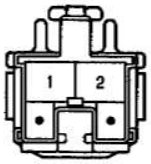
R10



R 9, R11

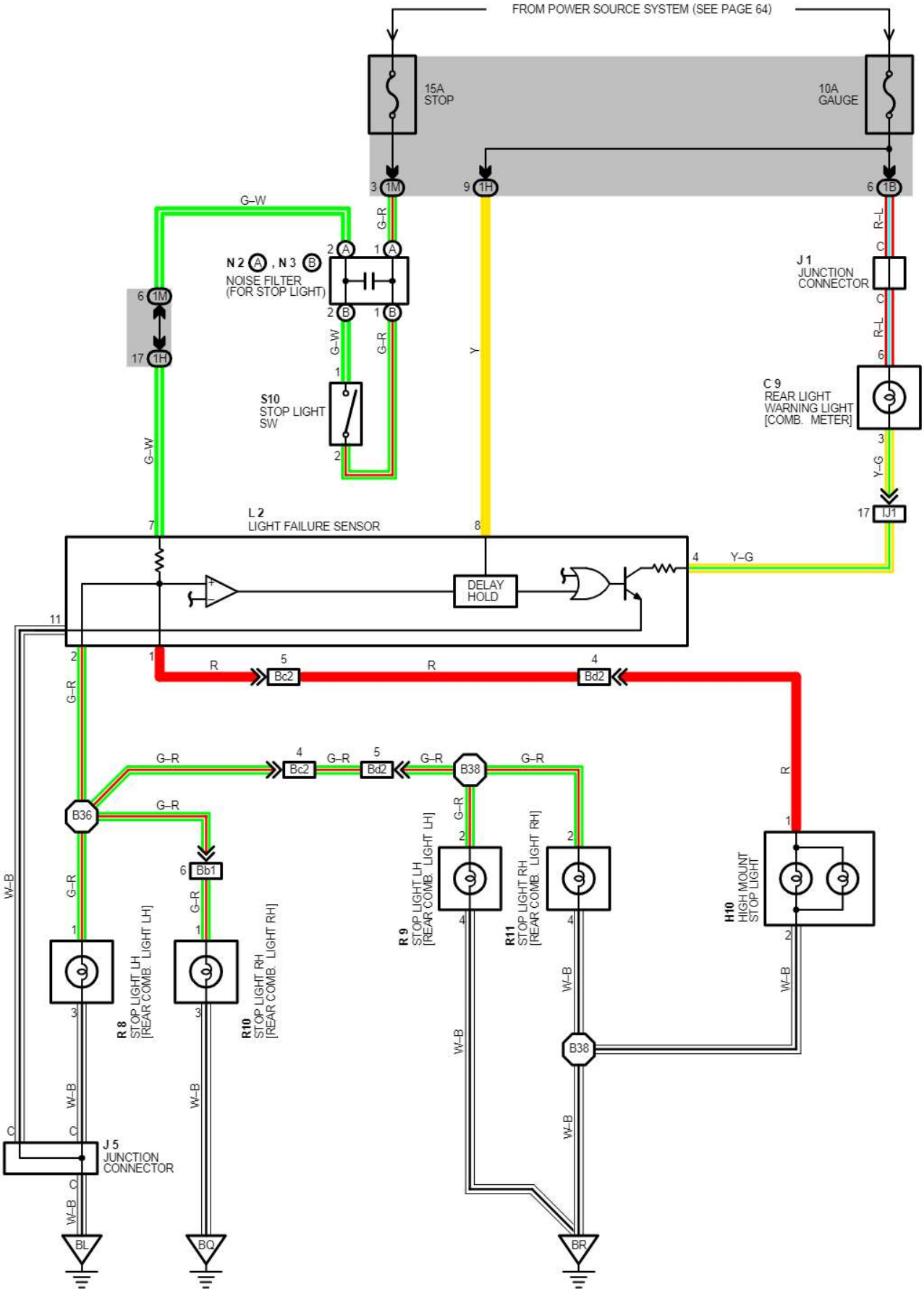


S10 BLUE



cardiagn.com

STOP LIGHT (W/G)



cardiagn.com

SYSTEM OUTLINE

CURRENT IS APPLIED AT ALL TIMES THROUGH A **STOP** FUSE TO **TERMINAL 2** OF THE STOP LIGHT SW.

WHEN THE IGNITION SW IS TURNED ON, CURRENT FLOWS FROM THE **GAUGE** FUSE TO **TERMINAL 8** OF THE LIGHT FAILURE SENSOR, AND ALSO FLOWS THROUGH THE REAR LIGHT WARNING LIGHT TO **TERMINAL 4** OF THE LIGHT FAILURE SENSOR.

STOP LIGHT DISCONNECTION WARNING

WHEN THE IGNITION SW IS TURNED ON AND THE BRAKE PEDAL IS PRESSED (STOP LIGHT SW ON), IF THE STOP LIGHT CIRCUIT IS OPEN, THE CURRENT FLOWING FROM **TERMINALS 7** OF THE LIGHT FAILURE SENSOR TO **TERMINALS 1, 2** CHANGES, SO THE LIGHT FAILURE SENSOR DETECTS THE DISCONNECTION AND THE WARNING CIRCUIT OF THE LIGHT FAILURE SENSOR IS ACTIVATED.

AS A RESULT, THE CURRENT FLOWS FROM **TERMINAL 4** OF THE LIGHT FAILURE SENSOR → **TERMINAL 11** → **GROUND** AND TURNS THE REAR LIGHT WARNING LIGHT ON. BY PRESSING THE BRAKE PEDAL, THE CURRENT FLOWING TO **TERMINAL 8** OF THE LIGHT FAILURE SENSOR KEEPS THE WARNING CIRCUIT ON HOLD AND THE WARNING LIGHT ON UNTIL THE IGNITION SW IS TURNED OFF.

SERVICE HINTS

S10 STOP LIGHT SW
2–1 : CLOSED WITH BRAKE PEDAL DEPRESSED

L 2 LIGHT FAILURE SENSOR
1, 2, 7–GROUND : APPROX. **12** VOLTS WITH STOP LIGHT SW ON
4, 8–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
11–GROUND : ALWAYS CONTINUITY

○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 9	32	**L 2**	36 (W/G)	**R 9**	36 (W/G)
H10	36 (W/G)	**N 2** A	33	**R10**	36 (W/G)
J 1	33	**N 3** B	33	**R11**	36 (W/G)
J 5	36 (W/G)	**R 8**	36 (W/G)	**S10**	33

⬭ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
Bb1	50 (W/G)	LUGGAGE ROOM NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bc2	50 (W/G)	BACK DOOR NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bd2	50 (W/G)	BACK DOOR NO. 1 WIRE AND BACK DOOR NO. 2 WIRE

▽ : GROUND POINTS

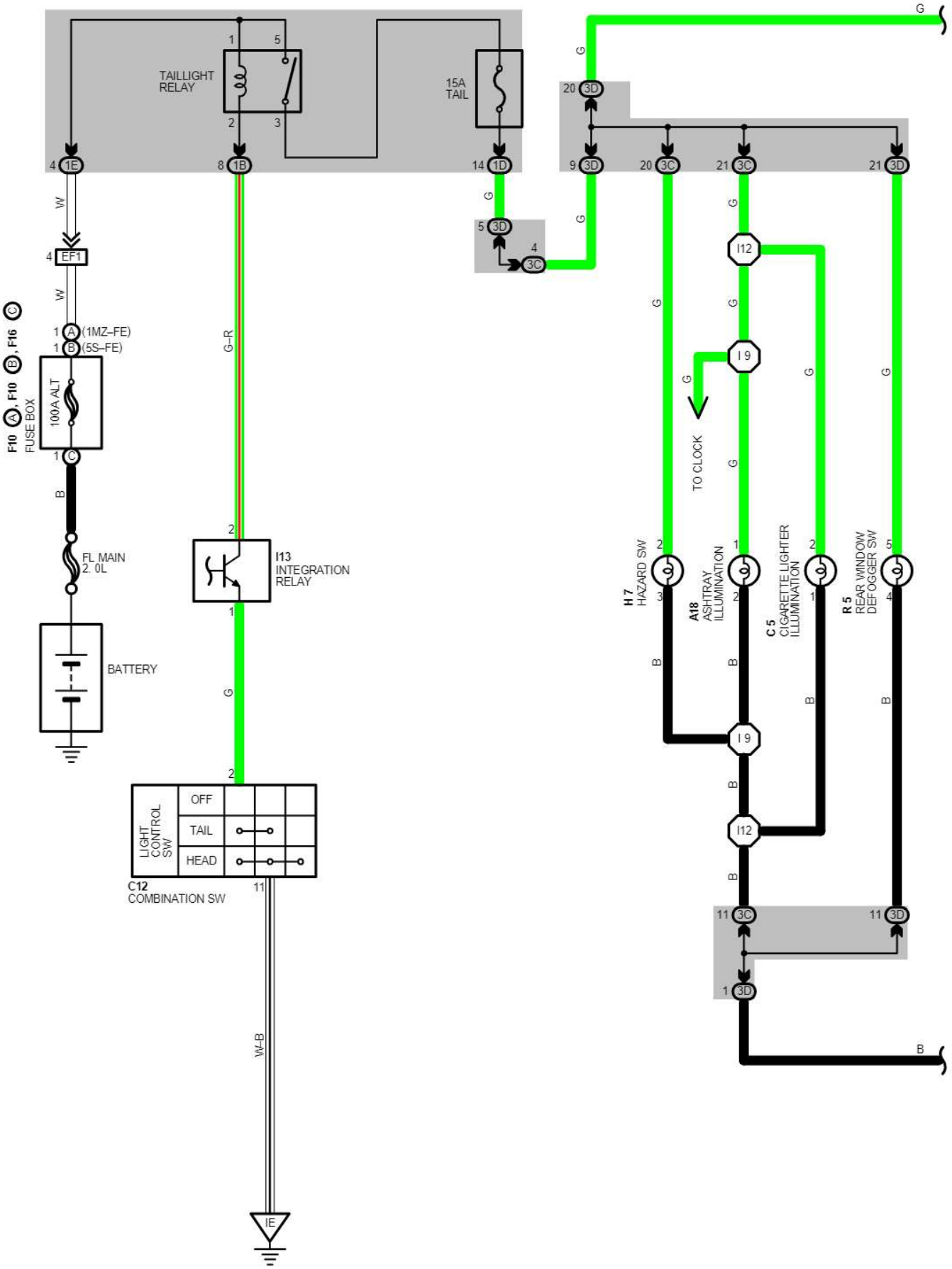
CODE	SEE PAGE	GROUND POINTS LOCATION
BL	46 (S/D)	UNDER THE LEFT QUARTER PILLAR
	48 (C/P)	
	50 (W/G)	
BQ	50 (W/G)	LOWER BACK PANEL CENTER
BR	50 (W/G)	BACK DOOR CENTER

⬡ : SPLICE POINTS

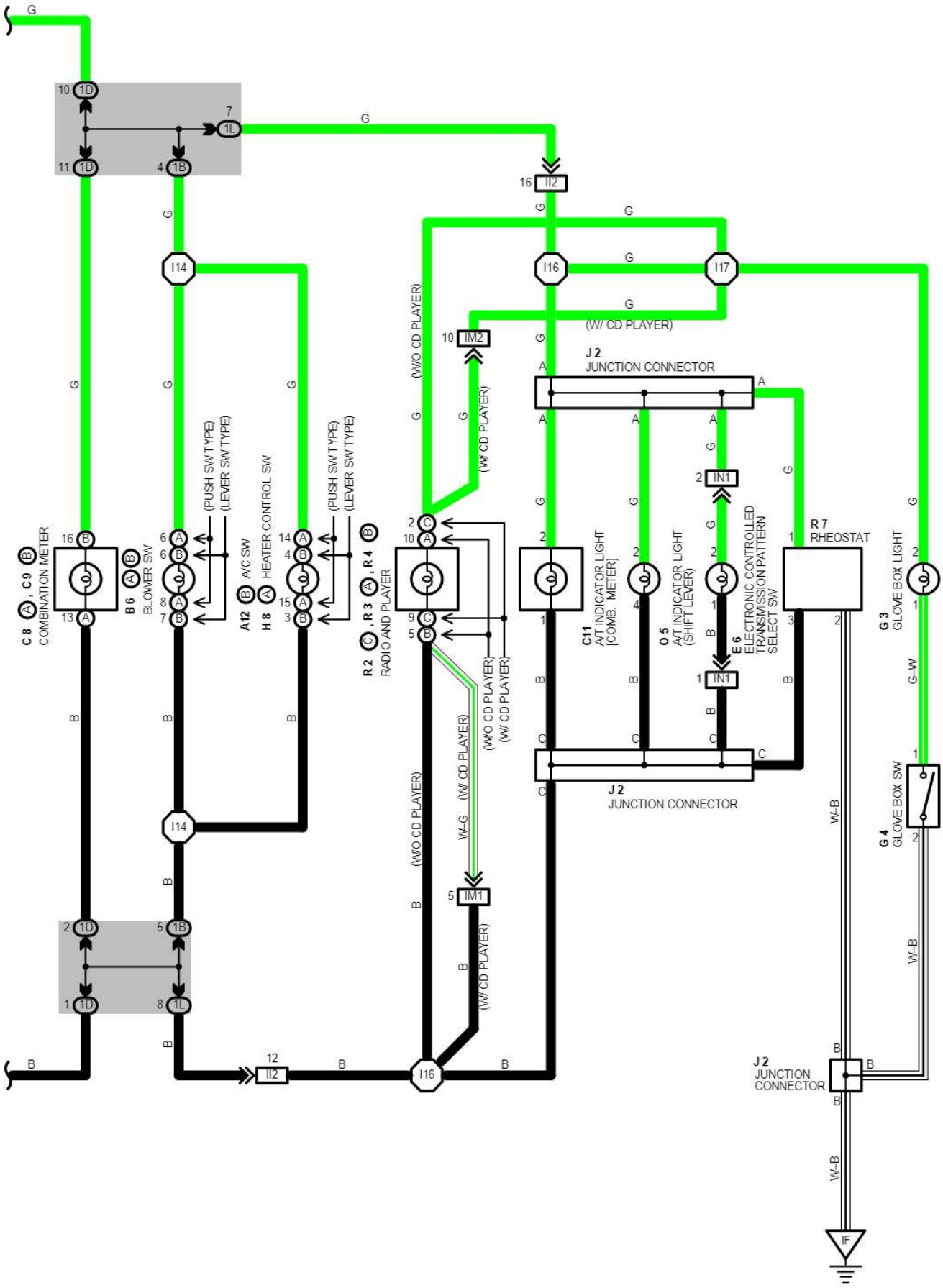
CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
B36	50 (W/G)	FLOOR NO. 1 WIRE	**B38**	50 (W/G)	BACK DOOR NO. 2 WIRE

cardiagn.com

ILLUMINATION



cardiagn.com


C8 , C9 COMBINATION METER
B6 BLOWER SW
A12 A/C SW
H8 HEATER CONTROL SW
(PUSH SW TYPE)
(LEVER SW TYPE)
R2 , R3 , R4 RADIO AND PLAYER
(W/O CD PLAYER)
(W/ CD PLAYER)
W-G
C11 A/T INDICATOR LIGHT (COMB. METER)
O5 A/T INDICATOR LIGHT (SHIFT LEVER)
E6 ELECTRONIC CONTROLLED TRANSMISSION PATTERN SELECT SW
R7 RHEOSTAT
G3 GLOVE BOX LIGHT
G4 GLOVE BOX SW
G-W
W-B
J2 JUNCTION CONNECTOR
IF
I14
I16
I17
I12
IM1
IM2
IN1
1D
1L
1B
cardiagn.com

ILLUMINATION

SERVICE HINTS

TAILLIGHT RELAY

5–3 : CLOSED WITH LIGHT CONTROL SW AT **TAIL** OR **HEAD** POSITION (WHEN LIGHT AUTO TURN OFF SYSTEM IS OFF)
CLOSED WITH ENGINE RUNNING AND PARKING BRAKE LEVER RELEASED (CANADA)

R 7 RHEOSTAT

3–2 : APPROX. **12** VOLTS WITH RHEOSTAT FULLY TURNED COUNTERCLOCKWISE AND **0** VOLTS WITH FULLY TURNED CLOCKWISE

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A12 B	32	E 6	32	J 2	33
A18	32	F10 A	28 (1MZ–FE), 30 (5S–FE)	O 5	33
B 6 A	32	F10 B	28 (1MZ–FE), 30 (5S–FE)	R 2 C	33
B 6 B	32	F16 C	28 (1MZ–FE), 30 (5S–FE)	R 3 A	33
C 5	32	G 3	33	R 4 B	33
C 8 A	32	G 4	33	R 5	33
C 9 B	32	H 7	33	R 7	33
C11	32	H 8 A	33		
C12	32	I13	33		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1D		
1E		
1L		
3C	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3D		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EF1	38 (1MZ–FE)	ENGINE WIRE AND COWL WIRE
	40 (5S–FE)	
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IM1	42	INSTRUMENT PANEL WIRE AND CONSOLE BOX WIRE
IM2		
IN1	42	INSTRUMENT PANEL WIRE AND SWITCH WIRE

: GROUND POINTS

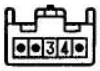
CODE	SEE PAGE	GROUND POINTS LOCATION
IE	42	LEFT KICK PANEL
IF		

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 9	44	COWL WIRE	I16	44	INSTRUMENT PANEL WIRE
I12			I17		
I14					

cardiagn.com

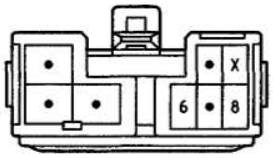
A12 (B) BLACK



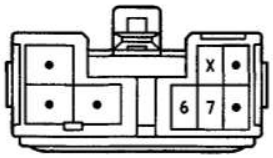
A18



(PUSH SW TYPE) B 6 (A) BLACK



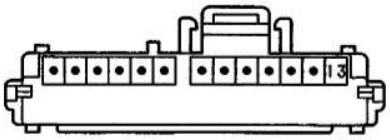
(LEVER SW TYPE) B 6 (B) BLACK



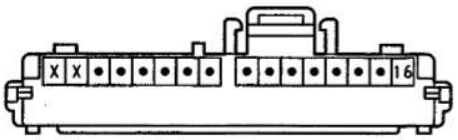
C 5 GRAY



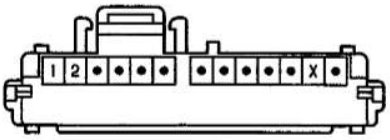
C 8 (A) BLUE



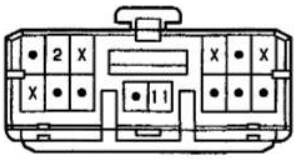
C 9 (B)



C11 BROWN



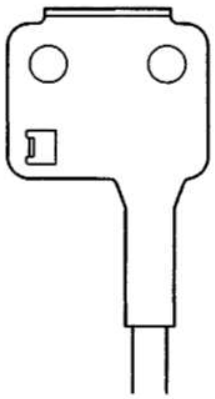
C12 BLACK



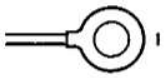
E 6 BLACK



(1MZ-FE) F10 (A)



(5S-FE) F10 (B)



F16 (C)



G 3 GRAY



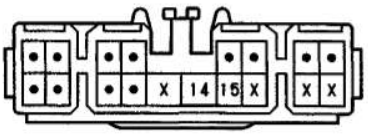
G 4 BLACK



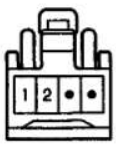
H 7 BLACK



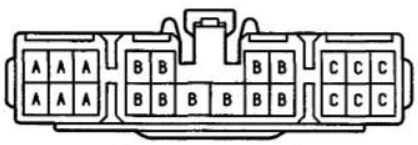
H 8 (A) BLACK



I13



J 2

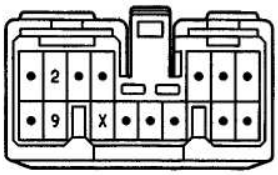


(HINT:SEE PAGE 7)

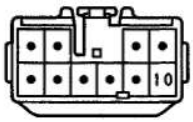
O 5 BLUE



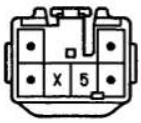
R 2 (C) BLUE



R 3 (A) BLUE



R 4 (B) BLUE



R 5 BLUE

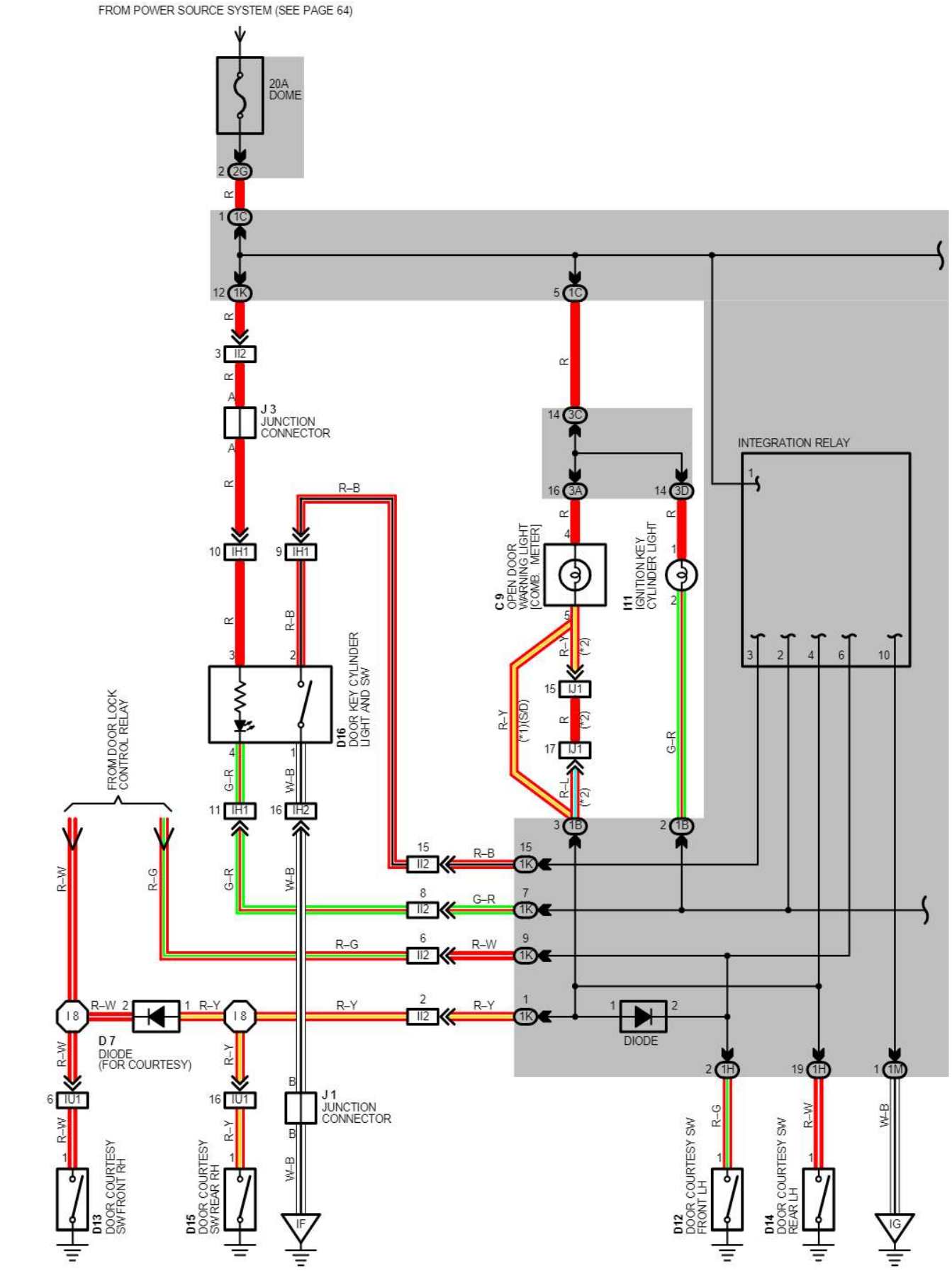


R 7



cardiagn.com

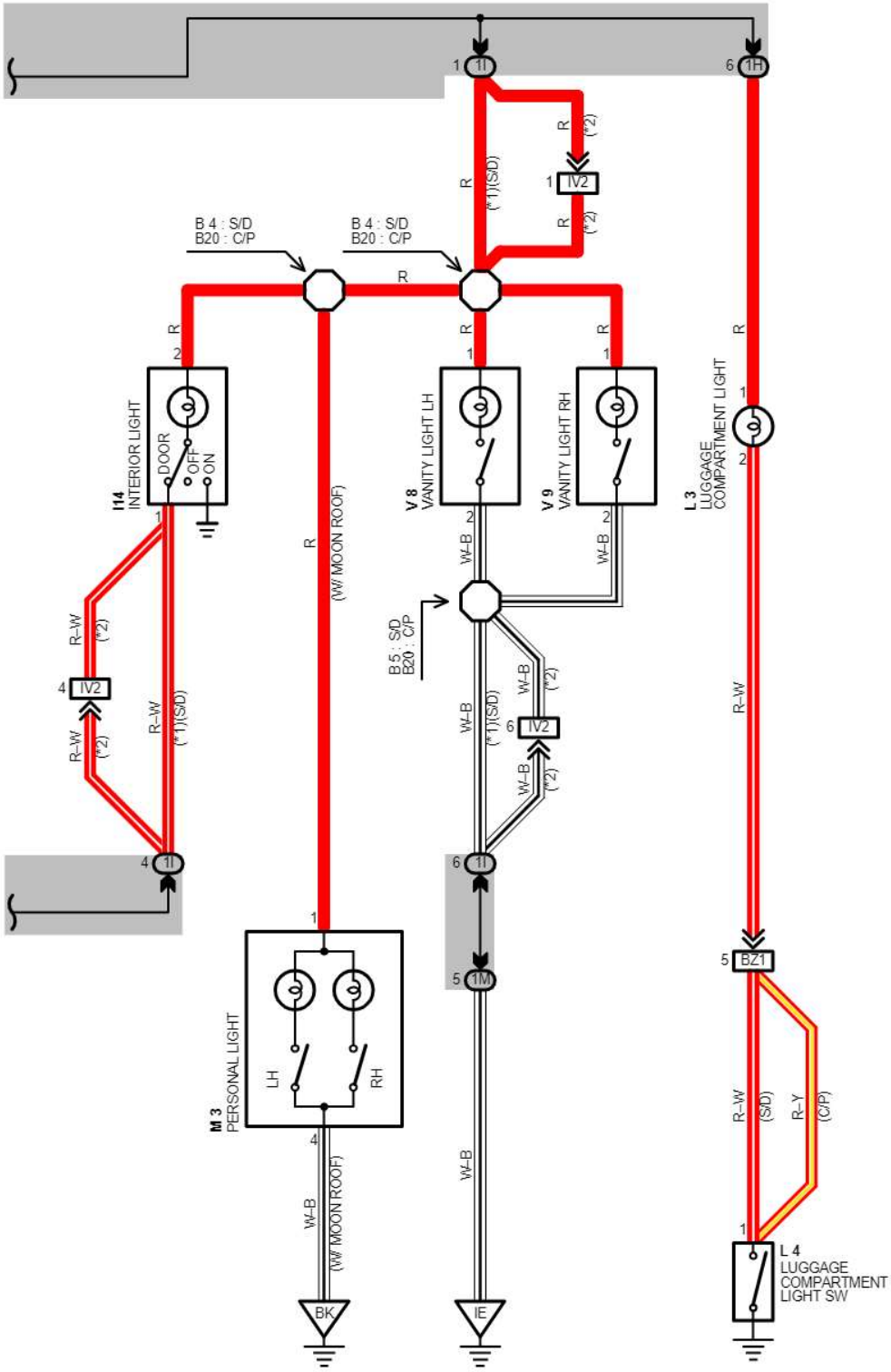
INTERIOR LIGHT (S/D, C/P w/ KEY ILLUMINATED ENTRY)



cardiagn.com

130

*1 : TMC MADE
*2 : TMM MADE



cardiagn.com

INTERIOR LIGHT (S/D, C/P w/ KEY ILLUMINATED ENTRY)

*1 : TMC MADE
*2 : TMM MADE

SERVICE HINTS

INTEGRATION RELAY
4–GROUND : APPROX. **12** VOLTS WITH DOOR CLOSED
0 VOLTS WITH EACH DOOR OPEN
D12, D13, D14, D15 DOOR COURTESY SW
1–GROUND : CLOSED WITH DOOR OPEN
L 4 LUGGAGE COMPARTMENT LIGHT SW
1–GROUND : CLOSED WITH LUGGAGE COMPARTMENT DOOR OPEN

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 9	32	D16	34 (S/D), 35 (C/P)	L 4	34 (S/D), 35 (C/P)
D 7	32	I11	33	M 3	34 (S/D), 35 (C/P)
D12	34 (S/D), 35 (C/P)	I14	34 (S/D), 35 (C/P)	V 8	34 (S/D), 35 (C/P)
D13	34 (S/D), 35 (C/P)	J 1	33	V 9	34 (S/D), 35 (C/P)
D14	34 (S/D), 35 (C/P)	J 3	33		
D15	34 (S/D), 35 (C/P)	L 3	34 (S/D), 35 (C/P)		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1C		
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1I	20 (*1)	ROOF WIRE AND J/B NO. 1 (INSTRUMENT PANEL) TMC MADE
	20 (*2)	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL) TMM MADE
1K	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		
3D		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IH1	42	FRONT DOOR LH WIRE AND INSTRUMENT PANEL WIRE
IH2		
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IU1	44	FLOOR NO. 2 WIRE AND INSTRUMENT PANEL WIRE
IV2	44	ROOF WIRE AND COWL WIRE MADE IN USA
BZ1	46 (S/D)	LUGGAGE ROOM NO. 1 WIRE AND FLOOR NO. 1 WIRE
	48 (C/P)	

: GROUND POINTS

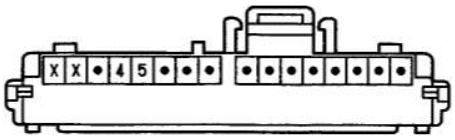
CODE	SEE PAGE	GROUND POINTS LOCATION
IF	42	LEFT KICK PANEL
IG	42	INSTRUMENT PANEL BRACE LH
BK	46 (S/D)	ROOF LEFT
	48 (C/P)	

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 8	44	INSTRUMENT PANEL WIRE	B 5	46 (S/D)	ROOF WIRE
B 4	46 (S/D)	ROOF WIRE	B20	48 (C/P)	

cardiagn.com

C 9



D 7 BLACK



D12, D13, D14, D15



D16 BLACK



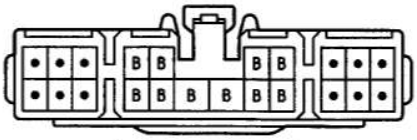
I11 BLUE



I14

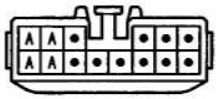


J 1



(HINT:SEE PAGE 7)

J 3



(HINT:SEE PAGE 7)

L 3



L 4 GRAY



M 3

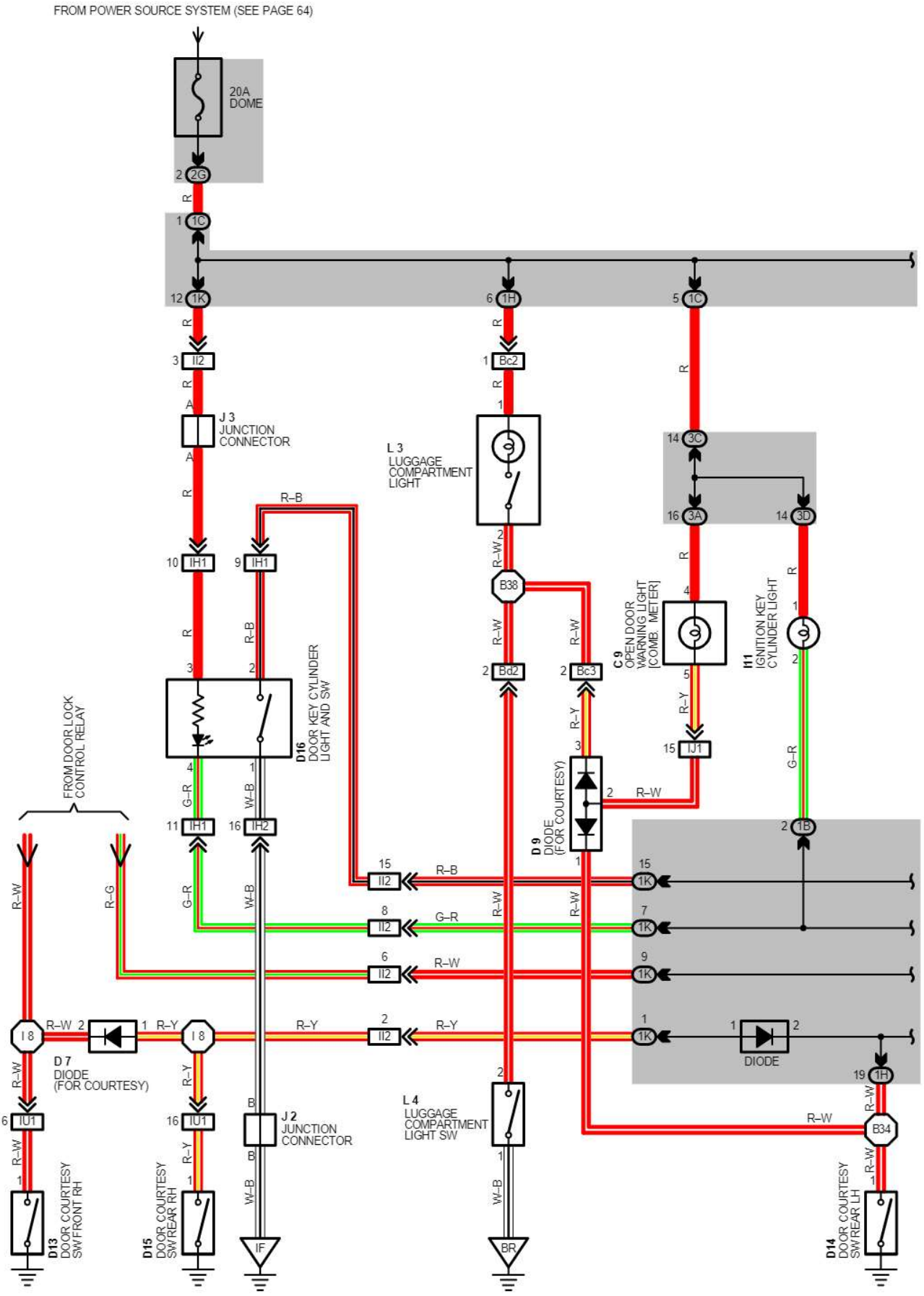


V 8, V 9



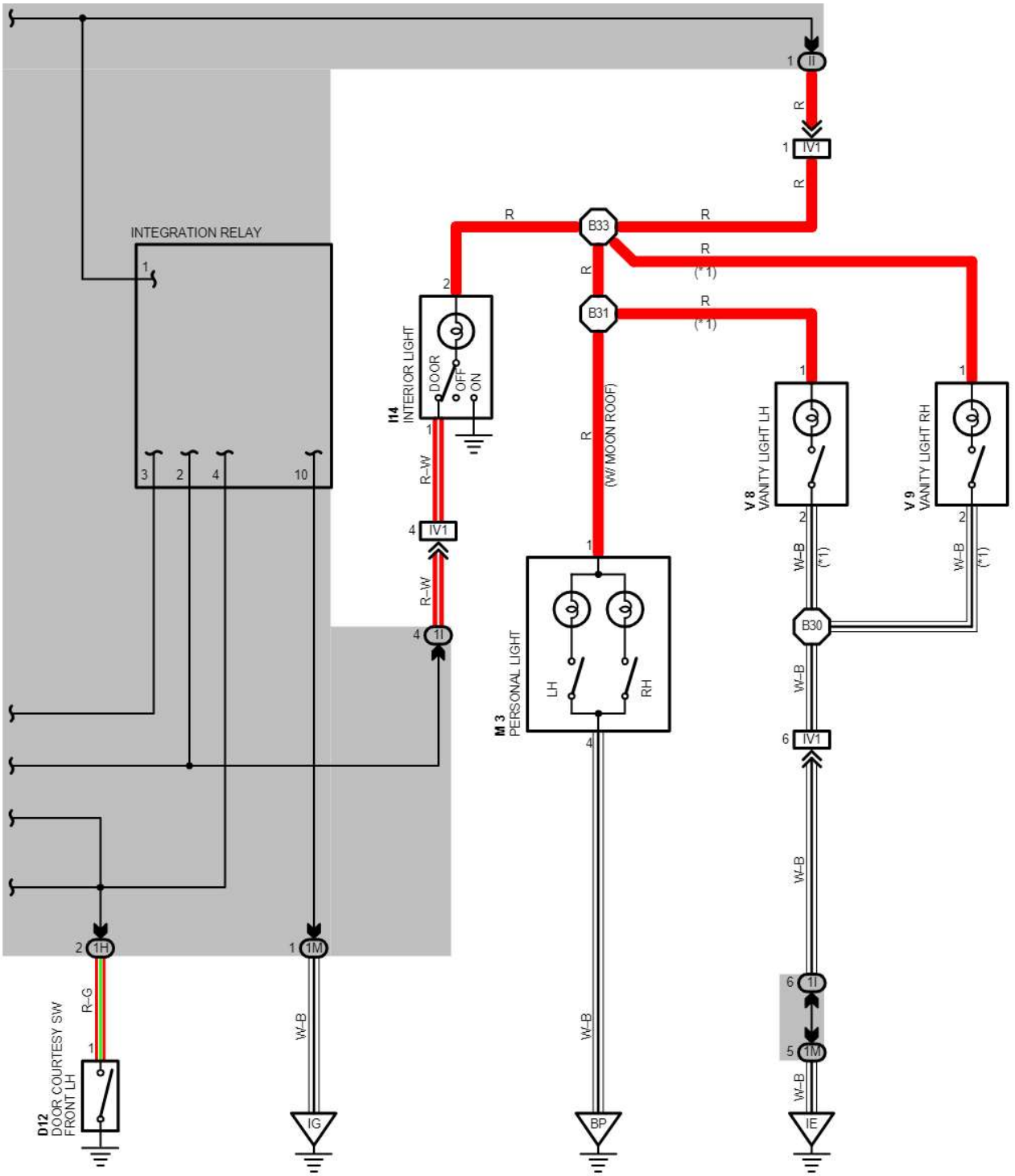
cardiagn.com

INTERIOR LIGHT (W/G w/ KEY ILLUMINATED ENTRY)



cardiagn.com

*1 : LE AND GL GRADE IN CANADA



cardiagn.com

INTERIOR LIGHT (W/G w/ KEY ILLUMINATED ENTRY)

SERVICE HINTS

INTEGRATION RELAY
4–GROUND : APPROX. **12** VOLTS WITH DOOR CLOSED
0 VOLTS WITH EACH DOOR OPEN

D12, D13, D14, D15 DOOR COURTESY SW
1–GROUND : CLOSED WITH DOOR OPEN

L 4 LUGGAGE COMPARTMENT LIGHT SW
2–1 : CLOSED WITH LUGGAGE COMPARTMENT DOOR OPEN

○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 9	32	D15	36 (W/G)	L 3	36 (W/G)
D 7	32	D16	36 (W/G)	L 4	36 (W/G)
D 9	36	I11	33	M 3	36 (W/G)
D12	36 (W/G)	I14	36 (W/G)	V 8	36 (W/G)
D13	36 (W/G)	J 2	33	V 9	36 (W/G)
D14	36 (W/G)	J 3	33		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1C		
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1I	20	ROOF WIRE AND J/B NO. 1 (INSTRUMENT PANEL) TMC MADE
	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL) TMM MADE
1K	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		
3D		

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IH1	42	FRONT DOOR LH WIRE AND INSTRUMENT PANEL WIRE
IH2		
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IT1	44	FRONT DOOR RH WIRE AND INSTRUMENT PANEL WIRE
IT2		
IU1	44	FLOOR NO. 2 WIRE AND INSTRUMENT PANEL WIRE
IV1	44	ROOF WIRE AND COWL WIRE
Bc2	50 (W/G)	BACK DOOR NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bc3		
Bd2	50 (W/G)	BACK DOOR NO. 1 WIRE AND BACK DOOR NO. 2 WIRE

▽ : GROUND POINTS

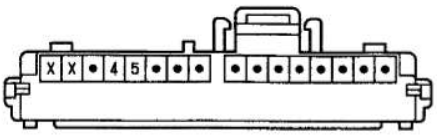
CODE	SEE PAGE	GROUND POINTS LOCATION
IE	42	LEFT KICK PANEL
IF		
IG	42	INSTRUMENT PANEL BRACE LH
BP	50 (W/G)	BACK PANEL CENTER
BR	50 (W/G)	BACK DOOR CENTER

⬡ : SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 8	44	INSTRUMENT PANEL WIRE	B33	50 (W/G)	ROOF WIRE
B30	50 (W/G)	ROOF WIRE	B39	50 (W/G)	ROOF WIRE NO. 1 WIRE
B31					

cardiagn.com

C 9



D 7 BLACK



D 9 BLACK



D12, D13, D14, D15



D16 BLACK



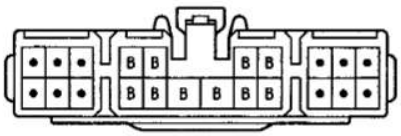
I11 BLUE



I14

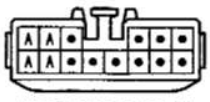


J 2



(HINT:SEE PAGE 7)

J 3

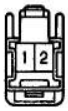


(HINT:SEE PAGE 7)

L 3



L 4 GRAY



M 3



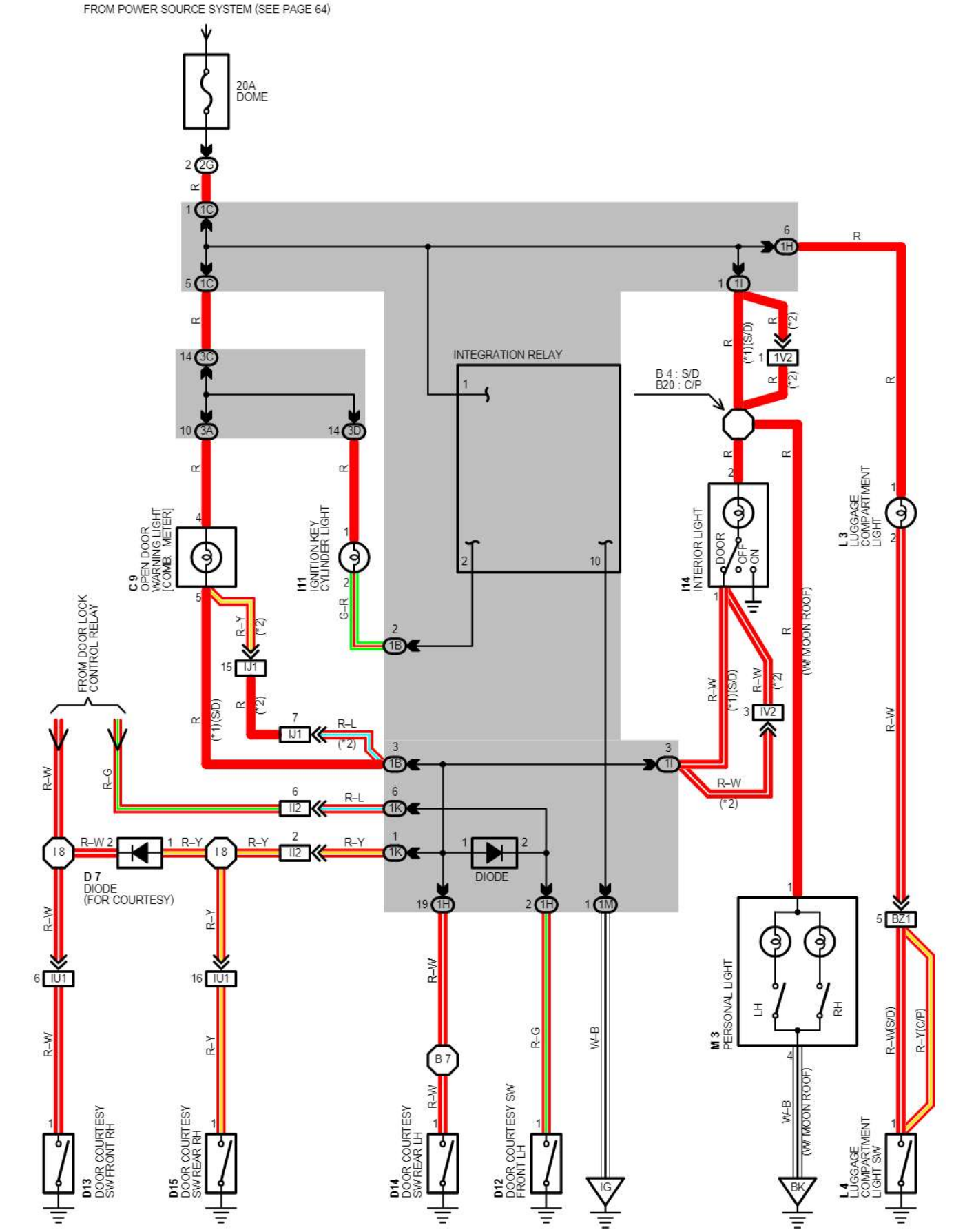
V 8, V 9



cardiagn.com

INTERIOR LIGHT (S/D, C/P w/o KEY ILLUMINATED ENTRY)

*1 : TMC MADE
*2 : TMM MADE



cardiagn.com

*1 : TMC MADE
*2 : TMM MADE

SERVICE HINTS

INTEGRATION RELAY
6–GROUND : APPROX. **12** VOLTS WITH DOOR CLOSED
0 VOLTS WITH EACH DOOR OPEN

D12, D13, D14, D15 DOOR COURTESY SW
1–GROUND : CLOSED WITH DOOR OPEN

L 4 LUGGAGE COMPARTMENT LIGHT SW
1–GROUND : CLOSED WITH LUGGAGE COMPARTMENT DOOR OPEN

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 9	32	D14	34 (S/D), 35 (C/P)	J 3	33
D 7	32	D15	34 (S/D), 35 (C/P)	L 3	34 (S/D), 35 (C/P)
D12	34 (S/D), 35 (C/P)	I11	33	L 4	34 (S/D), 35 (C/P)
D13	34 (S/D), 35 (C/P)	I14	34 (S/D), 35 (C/P)	M 3	34 (S/D), 35 (C/P)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1C		
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1I	20 (*1)	ROOF WIRE AND J/B NO. 1 (INSTRUMENT PANEL) TMC MADE
	20 (*2)	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL) TMM MADE
1K	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		
3D		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IU1	44	FLOOR NO. 2 WIRE AND INSTRUMENT PANEL WIRE
IV2	44	ROOF WIRE AND COWL WIRE MADE IN USA
BZ1	46 (S/D)	LUGGAGE ROOM NO. 1 WIRE AND FLOOR NO. 1 WIRE
	48 (C/P)	

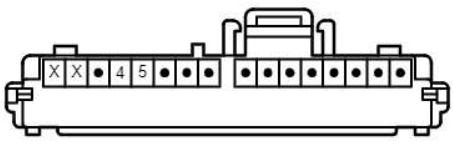
: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IG	42	INSTRUMENT PANEL BRACE LH
BK	46 (S/D)	ROOF LEFT
	48 (C/P)	

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 8	44	INSTRUMENT PANEL WIRE	B 6	46 (S/D)	FLOOR NO. 1 WIRE
			B 7		
B 4	46 (S/D)	ROOF WIRE	B20	48 (C/P)	ROOF WIRE

C 9



D 7 BLACK



D12, D13, D14, D15



I11 BLUE



I14



L 3



L 4 GRAY

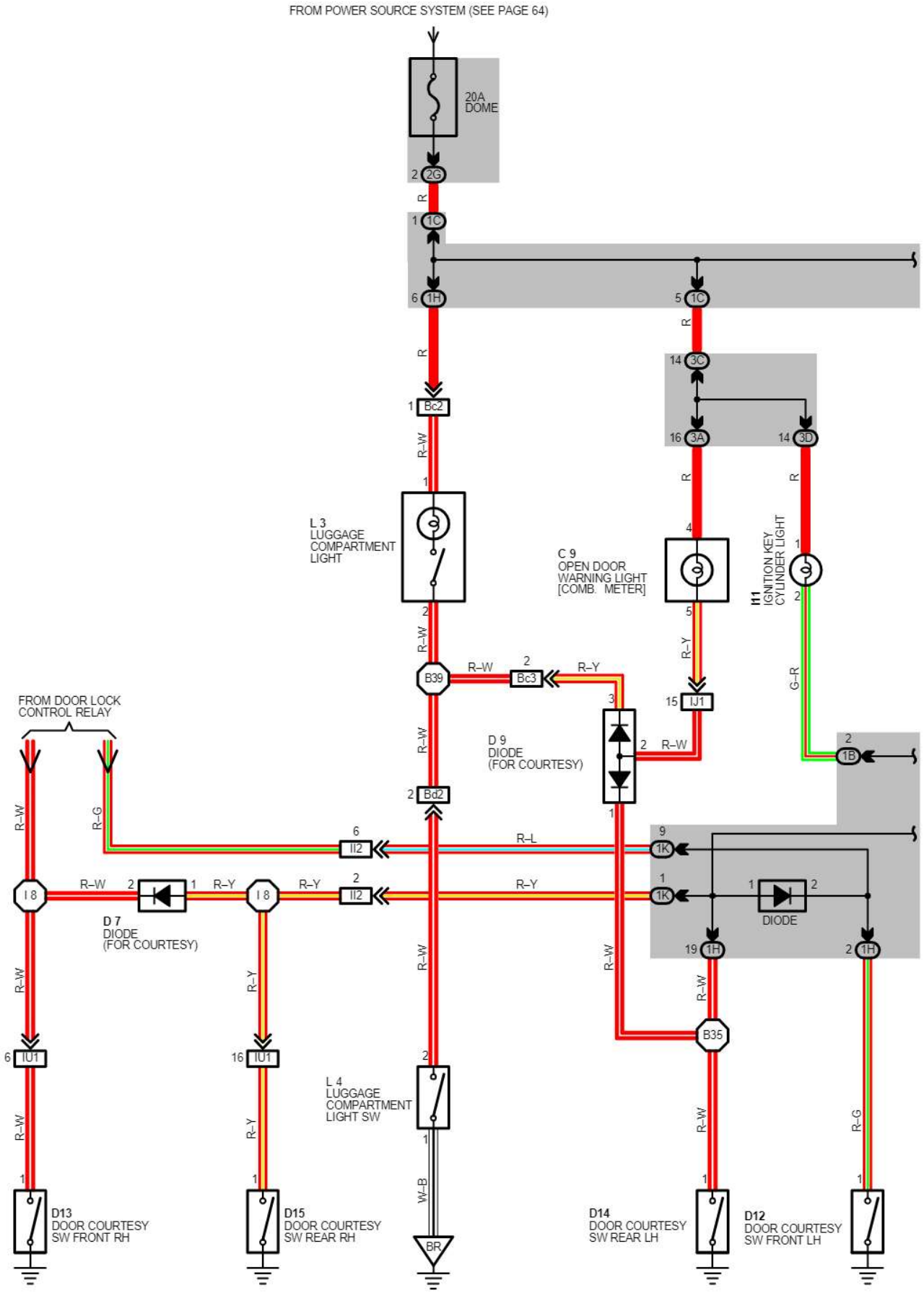


M 3

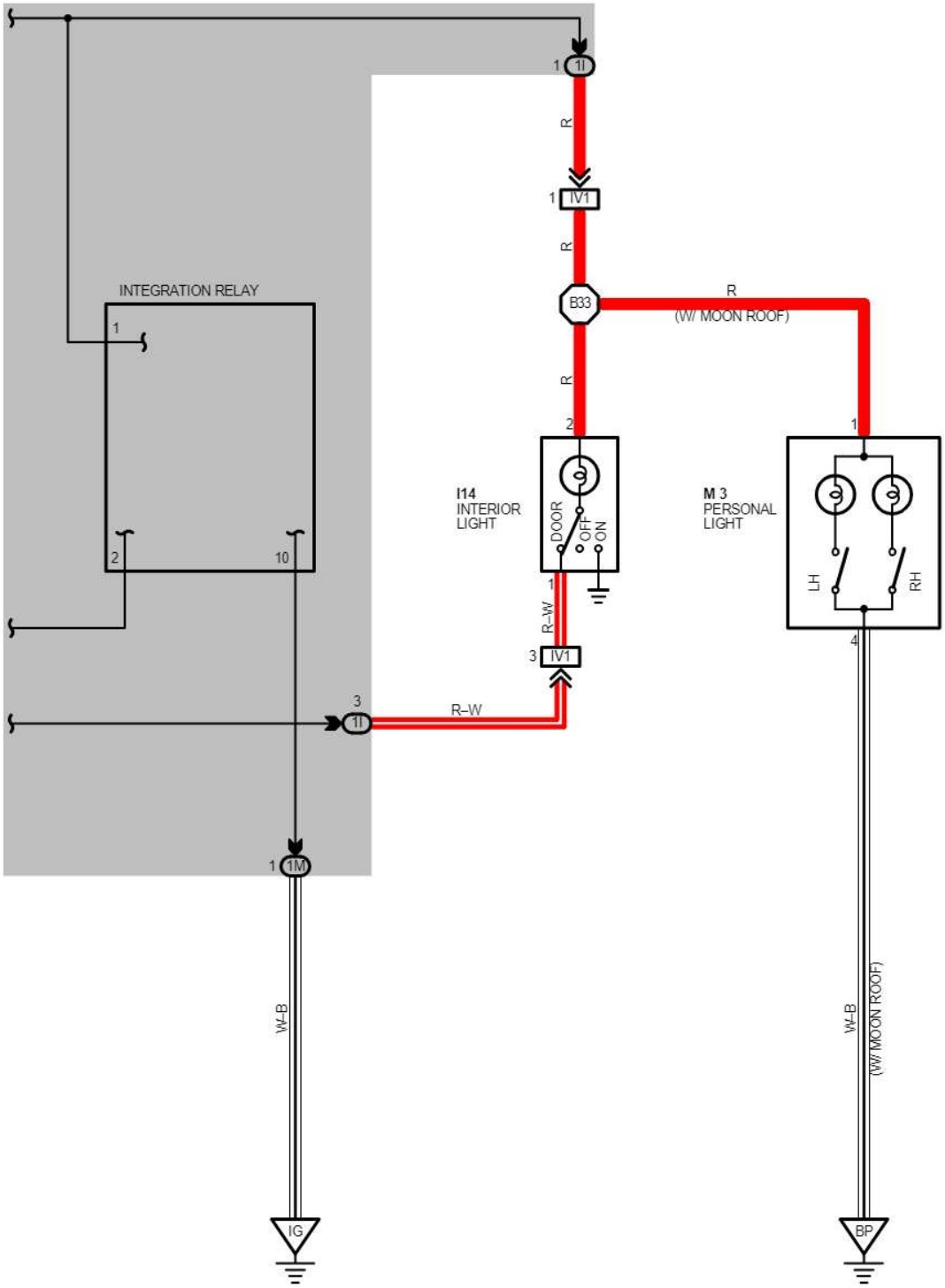


cardiagn.com

INTERIOR LIGHT (W/G w/o KEY ILLUMINATED ENTRY)



cardiagn.com



cardiagn.com

141

INTERIOR LIGHT (W/G w/o KEY ILLUMINATED ENTRY)

SERVICE HINTS

INTEGRATION RELAY
6–GROUND : APPROX. **12** VOLTS WITH DOOR CLOSED
0 VOLTS WITH EACH DOOR OPEN

D12, D13, D14, D15 DOOR COURTESY SW
1–GROUND : CLOSED WITH DOOR OPEN

L 4 LUGGAGE COMPARTMENT LIGHT SW
2–1 : CLOSED WITH LUGGAGE COMPARTMENT DOOR OPEN

○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 9	32	D14	36 (W/G)	L 3	36 (W/G)
D 7	32	D15	36 (W/G)	L 4	36 (W/G)
D 9	36 (W/G)	I11	33	M 3	36 (W/G)
D12	36 (W/G)	I14	36 (W/G)		
D13	36 (W/G)	J 3	33		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1C		
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1I	20	ROOF WIRE AND J/B NO. 1 (INSTRUMENT PANEL) TMC MADE
	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL) TMM MADE
1K	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M		
2E	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		
3D		

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IH1	42	FRONT DOOR LH WIRE AND INSTRUMENT PANEL WIRE
IH2		
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IT1	44	FRONT DOOR RH WIRE AND INSTRUMENT PANEL WIRE
IT2		
IU1	44	FLOOR NO. 2 WIRE AND INSTRUMENT PANEL WIRE
IV1	44	ROOF WIRE AND COWL WIRE
Bc2	50 (W/G)	BACK DOOR NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bc3		
Bd2	50 (W/G)	BACK DOOR NO. 1 WIRE AND BACK DOOR NO. 2 WIRE

▽ : GROUND POINTS

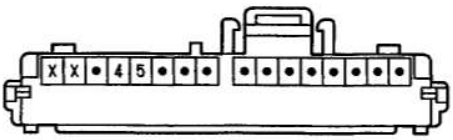
CODE	SEE PAGE	GROUND POINTS LOCATION
IG	42	INSTRUMENT PANEL BRACE LH
BP	50 (W/G)	BACK PANEL CENTER
BR	50 (W/G)	BACK DOOR CENTER

⬡ : SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 8	44	INSTRUMENT PANEL WIRE	B35	50 (W/G)	FLOOR NO. 1 WIRE
B33	50 (W/G)	ROOF WIRE	B39	50 (W/G)	BACK DOOR NO. 1 WIRE

cardiagn.com

C 9



D 7 BLACK



D 9 BLACK



D12, D13, D14, D15



I11 BLUE



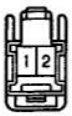
I14



L 3



L 4 GRAY

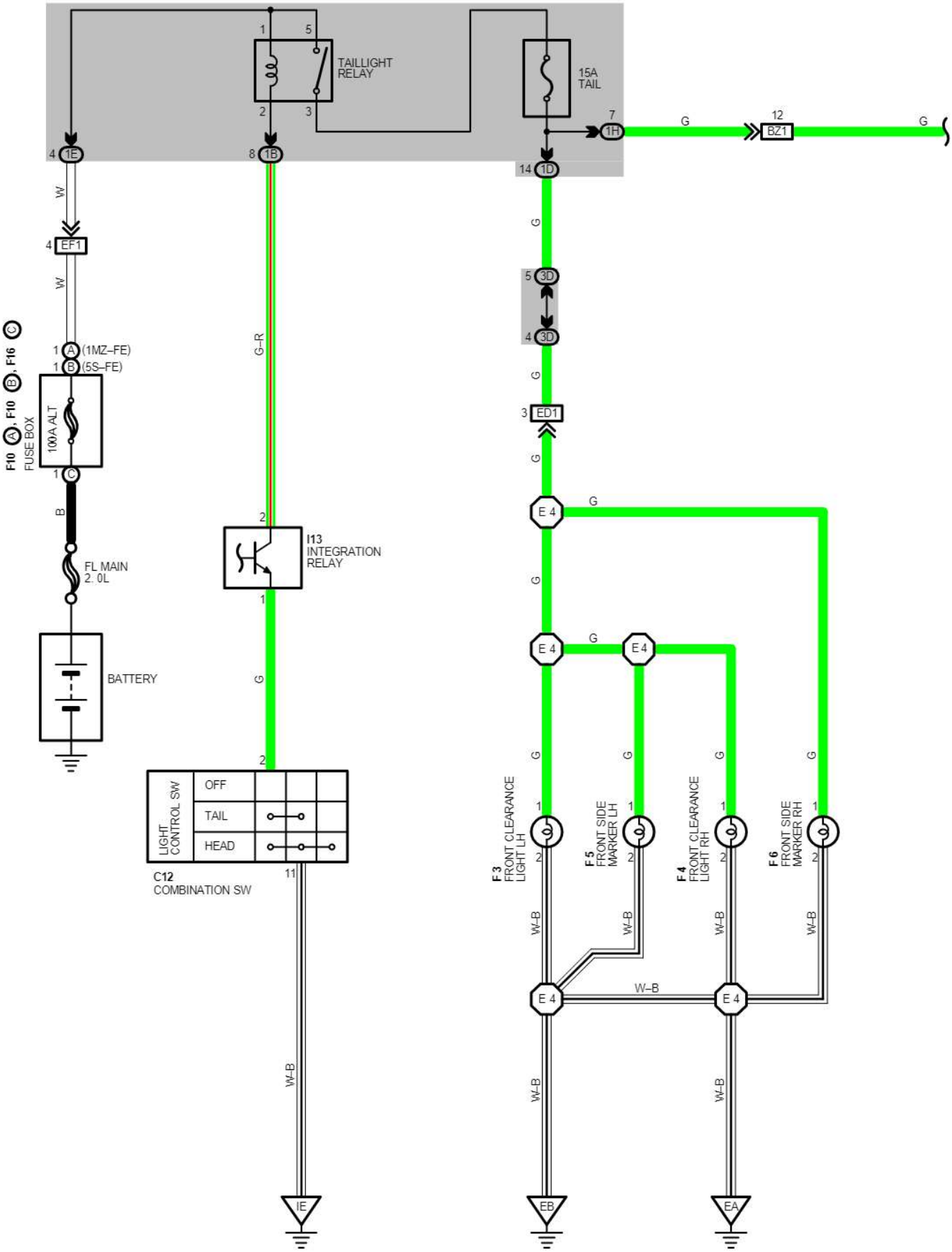


M 3

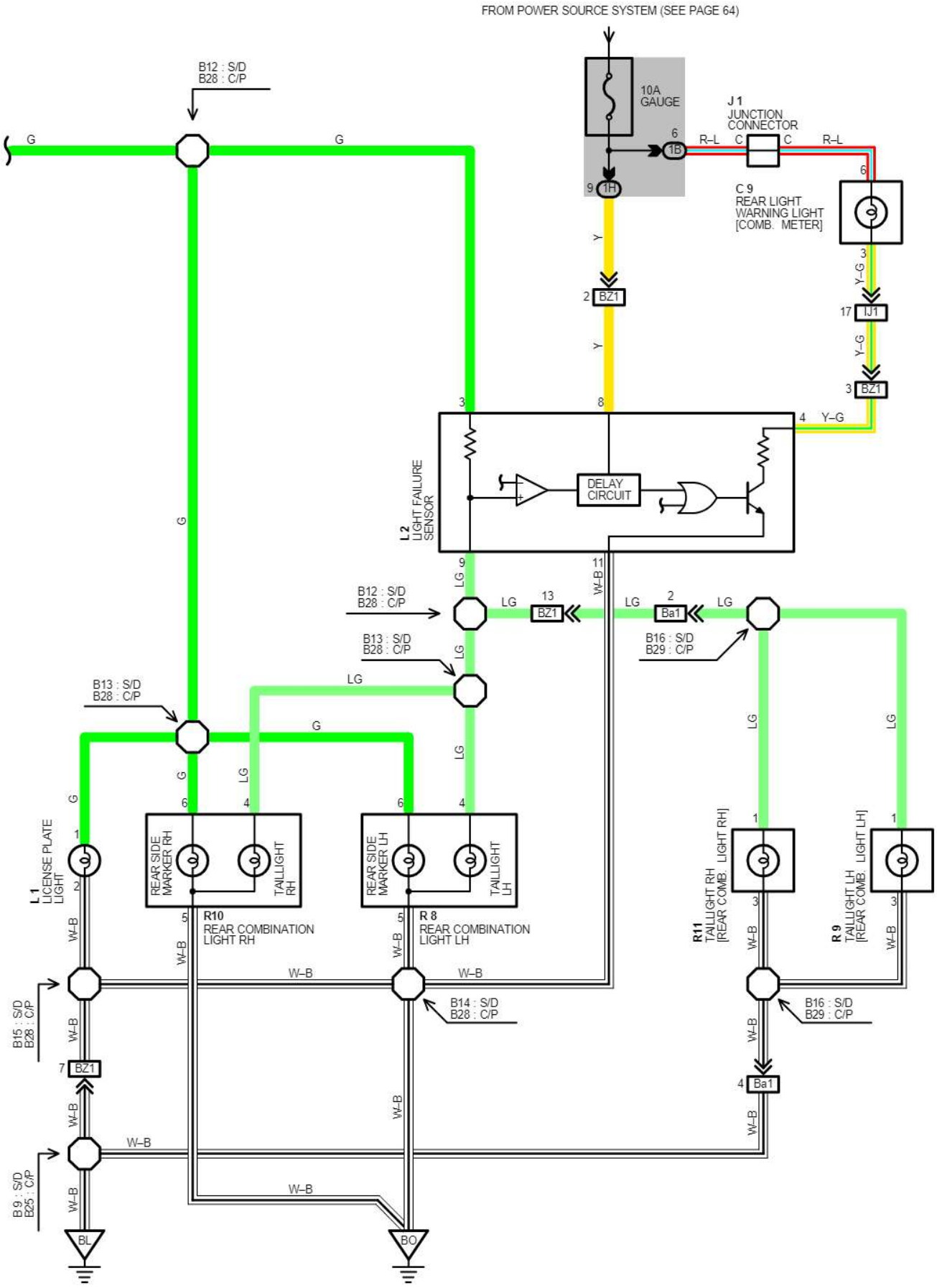


cardiagn.com

TAILLIGHT (S/D, C/P)



cardiagn.com



cardiagn.com

TAILLIGHT (S/D, C/P)

SYSTEM OUTLINE

WHEN THE LIGHT CONTROL SW IS TURNED TO **TAIL** OR **HEAD** POSITION, THE CURRENT FLOWS TO **TERMINAL 3** OF THE LIGHT FAILURE SENSOR THROUGH THE **TAIL** FUSE.

WHEN THE IGNITION SW IS TURNED ON, THE CURRENT FLOWS FROM THE **GAUGE** FUSE TO **TERMINAL 8** OF THE LIGHT FAILURE SENSOR, AND ALSO FLOWS THROUGH THE REAR LIGHTS WARNING LIGHT TO **TERMINAL 4** OF THE LIGHT FAILURE SENSOR.

TAILLIGHT DISCONNECTION WARNING

WHEN THE IGNITION SW ON AND THE LIGHT CONTROL SW TURNED TO **TAIL** OR **HEAD** POSITION, IF THE TAILLIGHT CIRCUIT IS OPEN, THE LIGHT FAILURE SENSOR DETECTS THE FAILURE BY THE CHANGE IN CURRENT FLOWING FROM **TERMINAL 3** OF THE LIGHT FAILURE SENSOR TO **TERMINAL 9** AND THE WARNING CIRCUIT OF THE LIGHT FAILURE SENSOR IS ACTIVATED.

AS A RESULT, THE CURRENT FLOWS FLOM **TERMINAL 4** OF THE LIGHT FAILURE SENSOR → **TERMINAL 11** → **GROUND** AND TURNS THE REAR LIGHT WARNING LIGHT ON, WHICH REMAINS ON UNTIL THE LIGHT CONTROL SW IS TURNED OFF.

SERVICE HINTS

TAILLIGHT RELAY

1–4 : CLOSED WITH LIGHT CONTROL SW AT **TAIL** OR **HEAD** POSITION

L 2 LIGHT FAILURE SENSOR

4, 8–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION

3–GROUND : APPROX **12** VOLTS WITH LIGHT CONTROL SW AT **TAIL** OR **HEAD** POSITION

11–GROUND : ALWAYS CONTINUITY

○ : PARTS LOCATION

CODE	SEE PAGE	CODE		SEE PAGE	CODE	SEE PAGE
C 9	32	F 6		28 (1MZ–FE), 30 (5S–FE)	L 1	34 (S/D), 35 (C/P)
C12	32	F10	A	28 (1MZ–FE), 30 (5S–FE)	L 2	34 (S/D), 35 (C/P)
D 4	32		B	28 (1MZ–FE), 30 (5S–FE)	R 8	34 (S/D), 35 (C/P)
F 3	28 (1MZ–FE), 30 (5S–FE)	F16	C	28 (1MZ–FE), 30 (5S–FE)	R 9	34 (S/D), 35 (C/P)
F 4	28 (1MZ–FE), 30 (5S–FE)	I13		33	R10	34 (S/D), 35 (C/P)
F 5	28 (1MZ–FE), 30 (5S–FE)	J 1		33	R11	34 (S/D), 35 (C/P)

⬭ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1D		
1E		
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
3D	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
ED1	38 (1MZ–FE)	COWL WIRE AND ENGINE ROOM MAIN WIRE
	40 (5S–FE)	
EF1	38 (1MZ–FE)	ENGINE WIRE AND COWL WIRE
	40 (5S–FE)	
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
BZ1	46 (S/D)	LUGGAGE ROOM NO. 1 WIRE AND FLOOR NO. 1 WIRE
	48 (C/P)	
Ba1	46 (S/D)	FLOOR NO. 1 WIRE AND LUGGAGE ROOM NO. 2 WIRE
	46 (S/D)	

▽ : GROUND POINTS

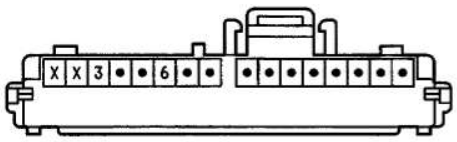
CODE	SEE PAGE	GROUND POINTS LOCATION
EA	38 (1MZ–FE)	FRONT RIGHT FENDER
	40 (5S–FE)	
EB	38 (1MZ–FE)	FRONT LEFT FENDER
	40 (5S–FE)	
IE	42	LEFT KICK PANEL
BL	46 (S/D)	UNDER THE LEFT QUARTER PILLAR
	48 (C/P)	
	50 (W/G)	
BQ	50 (W/G)	LOWER BACK PANEL CENTER

cardiagn.com

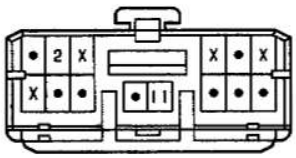
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E 4	38 (1MZ–FE)	ENGINE ROOM MAIN WIRE	B15	46 (S/D)	LUGGAGE ROOM NO. 1 WIRE
	40 (5S–FE)		B16	46 (S/D)	LUGGAGE ROOM NO. 2 WIRE
B 9	46 (S/D)	FLOOR NO. 1 WIRE	B25	48 (C/P)	FLOOR NO. 1 WIRE
B12	46 (S/D)	LUGGAGE ROOM NO. 1 WIRE	B28	48 (C/P)	LUGGAGE ROOM NO. 1 WIRE
B13			B29	48 (C/P)	LUGGAGE ROOM NO. 2 WIRE
B14					

C 9



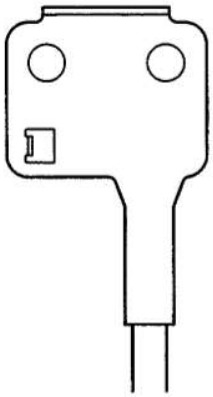
C12 BLACK



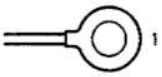
F 3, F 4, F 5, F 6 GRAY



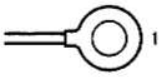
(1MZ-FE) F10 (A)



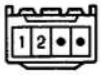
(5S-FE) F10 (B)



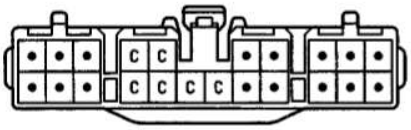
F16 (C)



I13



J 1 DARK GRAY

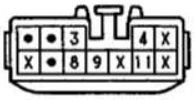


(HINT:SEE PAGE 7)

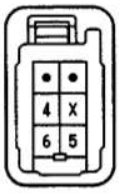
L 1



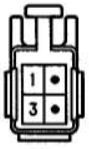
L 2



R 8, R10

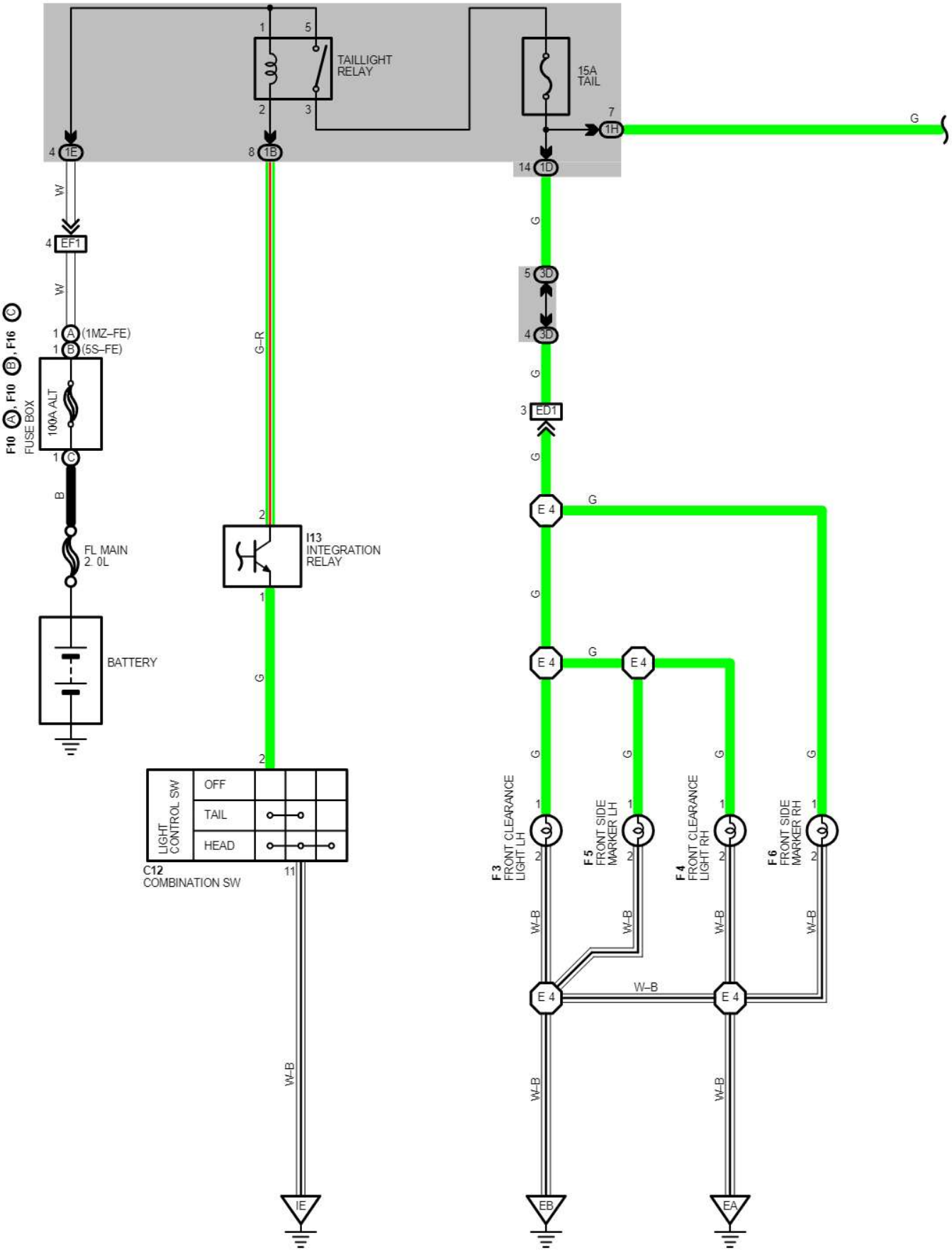


R 9, R11

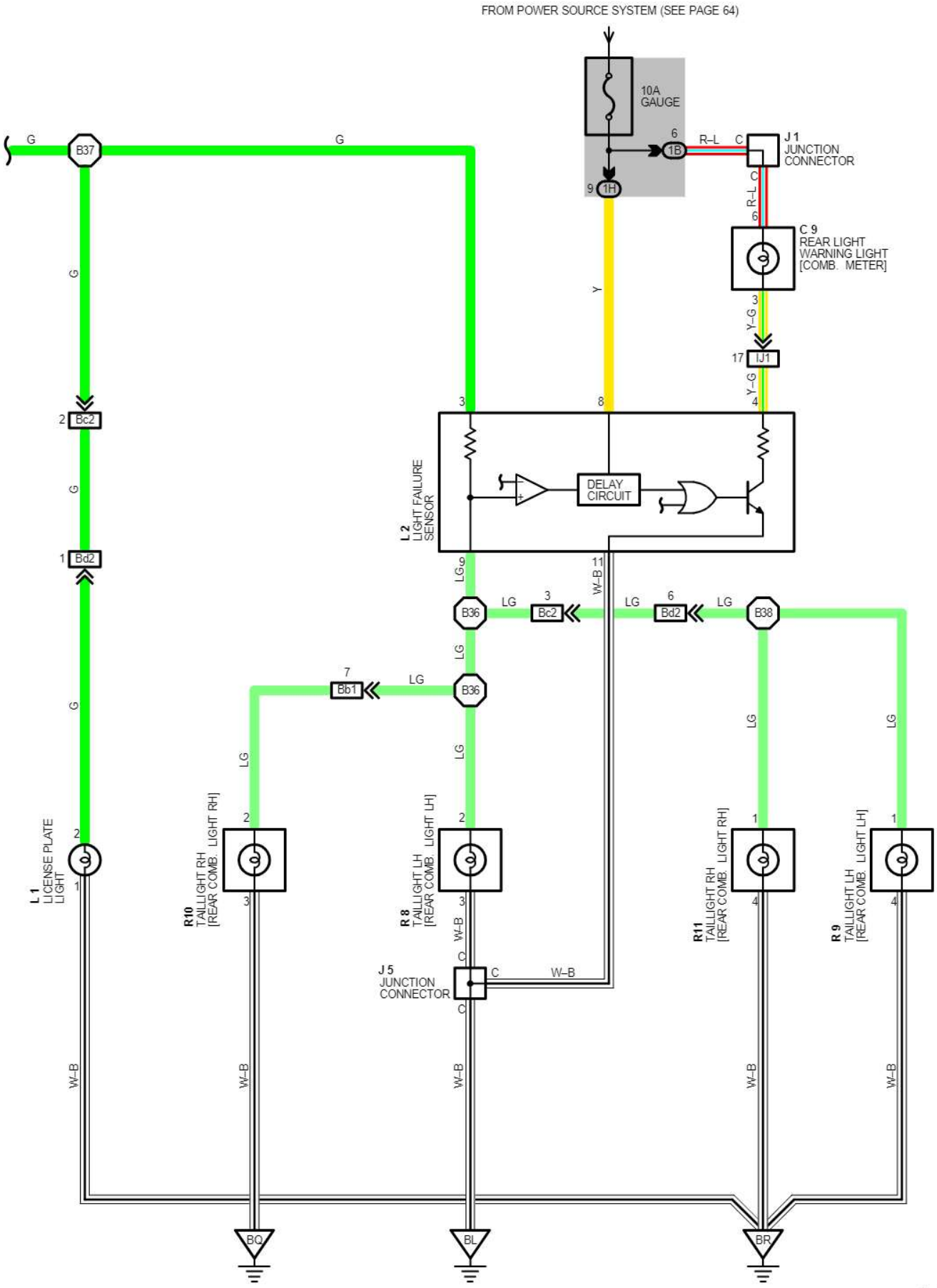


cardiagn.com

TAILLIGHT (W/G)



cardiagn.com



cardiagn.com

149

TAILLIGHT (W/G)

SYSTEM OUTLINE

WHEN THE LIGHT CONTROL SW IS TURNED TO **TAIL** OR **HEAD** POSITION, THE CURRENT FLOWS TO **TERMINAL 3** OF THE LIGHT FAILURE SENSOR THROUGH THE **TAIL** FUSE.

WHEN THE IGNITION SW IS TURNED ON, THE CURRENT FLOWS FROM THE **GAUGE** FUSE TO **TERMINAL 8** OF THE LIGHT FAILURE SENSOR, AND ALSO FLOWS THROUGH THE REAR LIGHTS WARNING LIGHT TO **TERMINAL 4** OF THE LIGHT FAILURE SENSOR.

TAILLIGHT DISCONNECTION WARNING

WITH THE IGNITION SW ON AND THE LIGHT CONTROL SW TURNED TO **TAIL** OR **HEAD** POSITION, IF THE TAILLIGHT CIRCUIT IS OPEN, THE LIGHT FAILURE SENSOR DETECTS THE FAILURE BY THE CHANGE IN CURRENT FLOWING FROM **TERMINAL 3** OF THE LIGHT FAILURE SENSOR TO **TERMINAL 9** AND THE WARNING CIRCUIT OF THE LIGHT FAILURE SENSOR IS ACTIVATED.

AS A RESULT, THE CURRENT FLOWS FROM **TERMINAL 4** OF THE LIGHT FAILURE SENSOR → **TERMINAL 11** → **GROUND** AND TURNS THE REAR LIGHT WARNING LIGHT ON, WHICH REMAINS ON UNTIL THE LIGHT CONTROL SW IS TURNED OFF.

SERVICE HINTS

TAILLIGHT RELAY

3–5 : CLOSED WITH LIGHT CONTROL SW AT **TAIL** OR **HEAD** POSITION

L 2 LIGHT FAILURE SENSOR

4, 8–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION

3–GROUND : APPROX **12** VOLTS WITH LIGHT CONTROL SW AT **TAIL** OR **HEAD** POSITION

11–GROUND : ALWAYS CONTINUITY

○ : PARTS LOCATION

CODE	SEE PAGE	CODE		SEE PAGE	CODE	SEE PAGE
C 9	32	**F10**	A	28 (1MZ–FE), 30 (5S–FE)	**L 1**	36 (W/G)
C12	32		B	28 (1MZ–FE), 30 (5S–FE)	**L 2**	36 (W/G)
F 3	28 (1MZ–FE), 30 (5S–FE)	**F16**	C	28 (1MZ–FE), 30 (5S–FE)	**R 8**	36 (W/G)
F 4	28 (1MZ–FE), 30 (5S–FE)	**I13**		33	**R 9**	36 (W/G)
F 5	28 (1MZ–FE), 30 (5S–FE)	**J 1**		33	**R10**	36 (W/G)
F 6	28 (1MZ–FE), 30 (5S–FE)	**J 5**		36 (W/G)	**R11**	36 (W/G)

⬭ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1D		
1E		
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
3D	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
ED1	38 (1MZ–FE)	COWL WIRE AND ENGINE ROOM MAIN WIRE
	40 (5S–FE)	
EF1	38 (1MZ–FE)	ENGINE WIRE AND COWL WIRE
	40 (5S–FE)	
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
Bb1	50 (W/G)	LUGGAGE ROOM NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bc2	50 (W/G)	BACK DOOR NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bd2	50 (W/G)	BACK DOOR NO. 1 WIRE AND BACK DOOR NO. 2 WIRE

▽ : GROUND POINTS

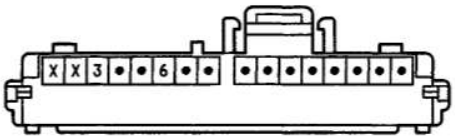
CODE	SEE PAGE	GROUND POINTS LOCATION
EA	38 (1MZ–FE)	FRONT RIGHT FENDER
	40 (5S–FE)	
EB	38 (1MZ–FE)	FRONT LEFT FENDER
	40 (5S–FE)	
IE	42	LEFT KICK PANEL
BL	46 (S/D)	UNDER THE LEFT QUARTER PILLAR
	48 (C/P)	
	50 (W/G)	
BQ	50 (W/G)	LOWER BACK PANEL CENTER
BR	50 (W/G)	BACK DOOR CENTER

cardiagn.com

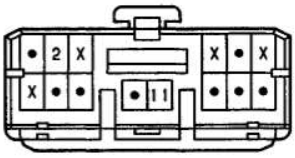
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E4	38 (1MZ–FE)	ENGINE ROOM MAIN WIRE	B37	50 (W/G)	FLOOR NO. 1 WIRE
	40 (5S–FE)		B38	50 (W/G)	BACK DOOR NO. 2 WIRE
B36	50 (W/G)	FLOOR NO. 1 WIRE			

C 9



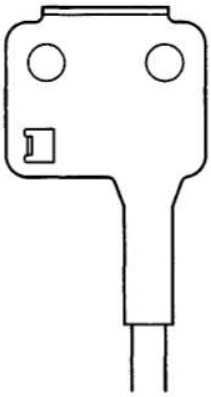
C12 BLACK



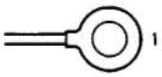
F 3, F 4, F 5, F 6 GRAY



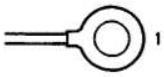
(1MZ-FE) F10 (A)



(5S-FE) F10 (B)



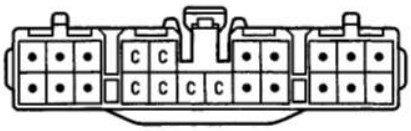
F16 (C)



I13

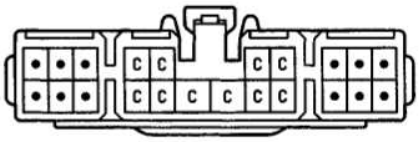


J 1 DARK GRAY



(HINT:SEE PAGE 7)

J 5

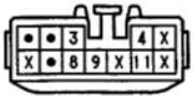


(HINT:SEE PAGE 7)

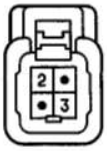
L 1



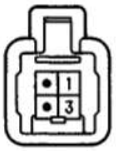
L 2



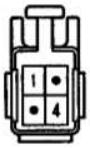
R 8



R10

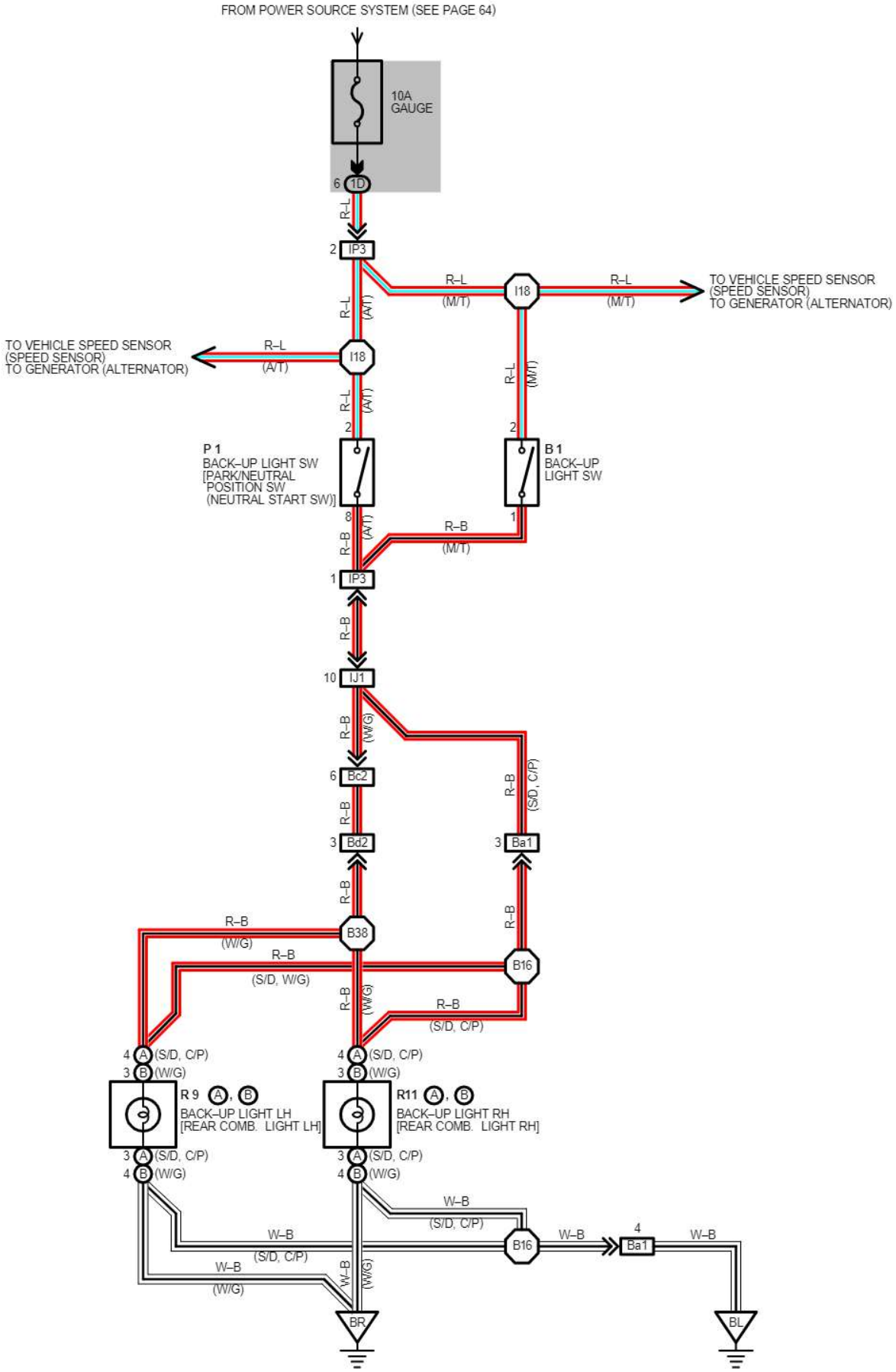


R 9, R11



cardiagn.com

BACK–UP LIGHT



cardiagn.com

SERVICE HINTS

B 1 BACK–UP LIGHT SW
2–1 : CLOSED WITH SHIFT LEVER IN **R** POSITION

P 1 BACK–UP LIGHT SW [PARK/NEUTRAL POSITION SW (NEUTRAL START SW)]
6–5 : CLOSED WITH SHIFT LEVER IN **R** POSITION

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
B 1	30	**R 9**	34 (S/D), 35 (C/P), 36 (W/G)		
P 1	29 (1MZ–FE), 31 (5S–FE)	**R11**	34 (S/D), 35 (C/P), 36 (W/G)		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

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

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IP3	44	ENGINE WIRE AND COWL WIRE
Ba1	46 (S/D) 48 (C/P)	FLOOR NO. 1 WIRE AND LUGGAGE ROOM NO. 2 WIRE
Bc2	50 (W/G)	BACK DOOR NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bd2	50 (W/G)	BACK DOOR NO. 1 WIRE AND BACK DOOR NO. 2 WIRE

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
BL	46 (S/D) 48 (C/P) 50 (W/G)	UNDER THE LEFT QUARTER PILLAR
BR	50 (W/G)	BACK DOOR CENTER

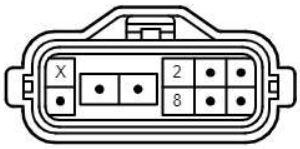
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I18	44	ENGINE WIRE	**B38**	50 (W/G)	BACK DOOR NO. 2 WIRE
B16	46 (S/D)	LUGGAGE ROOM NO. 2 WIRE			

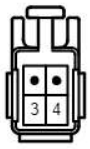
B 1 GRAY



P 1 GRAY



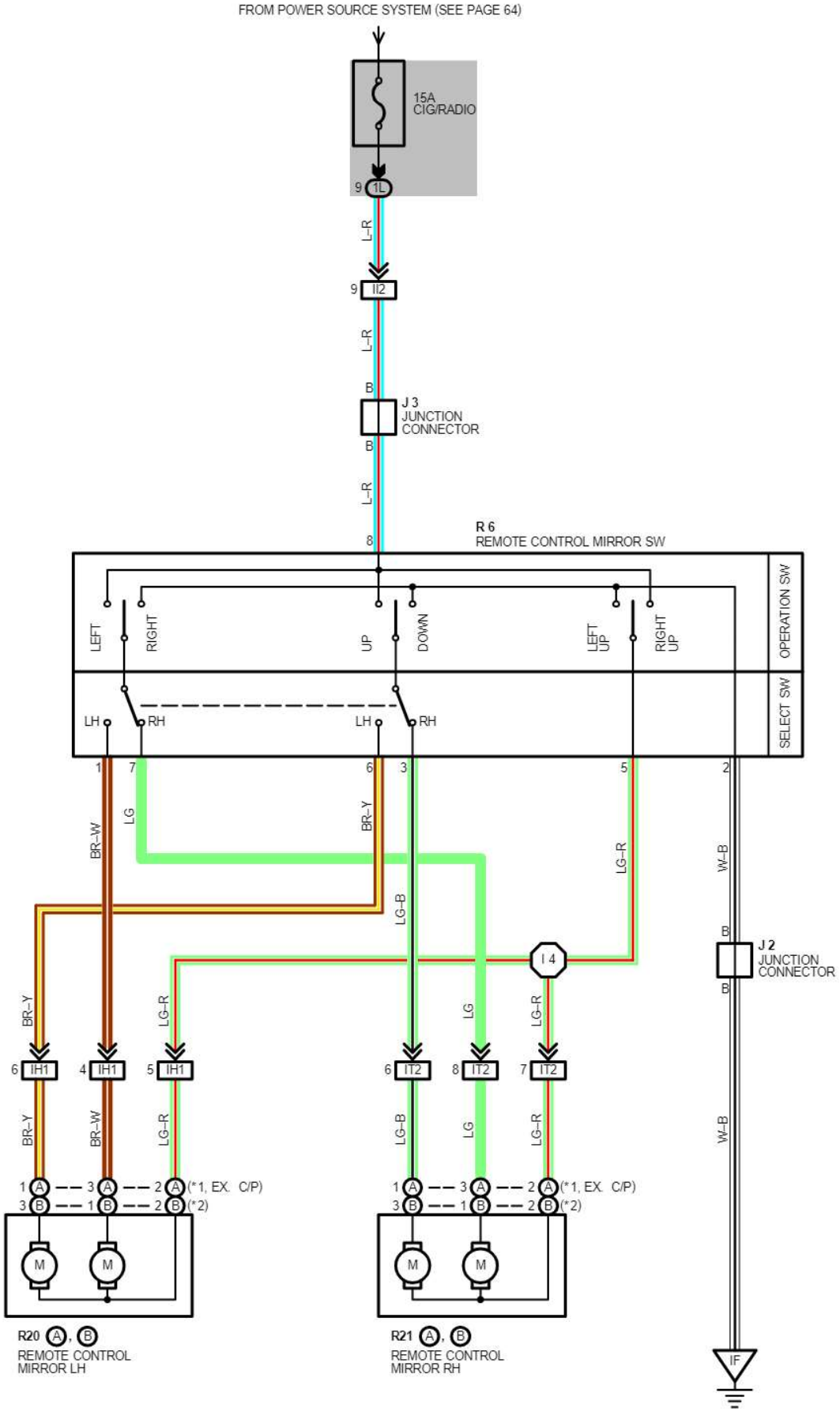
R 9 Ⓐ, Ⓑ , R11 Ⓐ, Ⓑ



cardiagn.com

REMOTE CONTROL MIRROR

*1 : TMC MADE
*2 : TMM MADE



cardiagn.com

SERVICE HINTS

R 6 REMOTE CONTROL MIRROR SW

8–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ACC** OR **ON** POSITION
5–2 : CONTINUITY WITH OPERATION SW AT **UP** OR **LEFT** POSITION
5–8 : CONTINUITY WITH OPERATION SW AT **DOWN** OR **RIGHT** POSITION

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
J 2	33	**R 6**	33	**R21**	34 (S/D), 35 (C/P), 36 (W/G)
J 3	33	**R20**	34 (S/D), 35 (C/P), 36 (W/G)		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

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

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IH1	42	FRONT DOOR LH WIRE AND INSTRUMENT PANEL WIRE
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IT2	44	FRONT DOOR RH WIRE AND INSTRUMENT PANEL WIRE

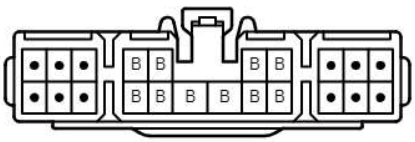
: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IF	42	LEFT KICK PANEL

: SPLICE POINTS

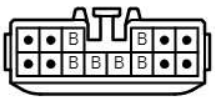
CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 4	44	INSTRUMENT PANEL WIRE			

J 2



(HINT : SEE PAGE 7)

J 3



(HINT : SEE PAGE 7)

R 6



(*1, EX. C/P) R20 (A), R21 (A)

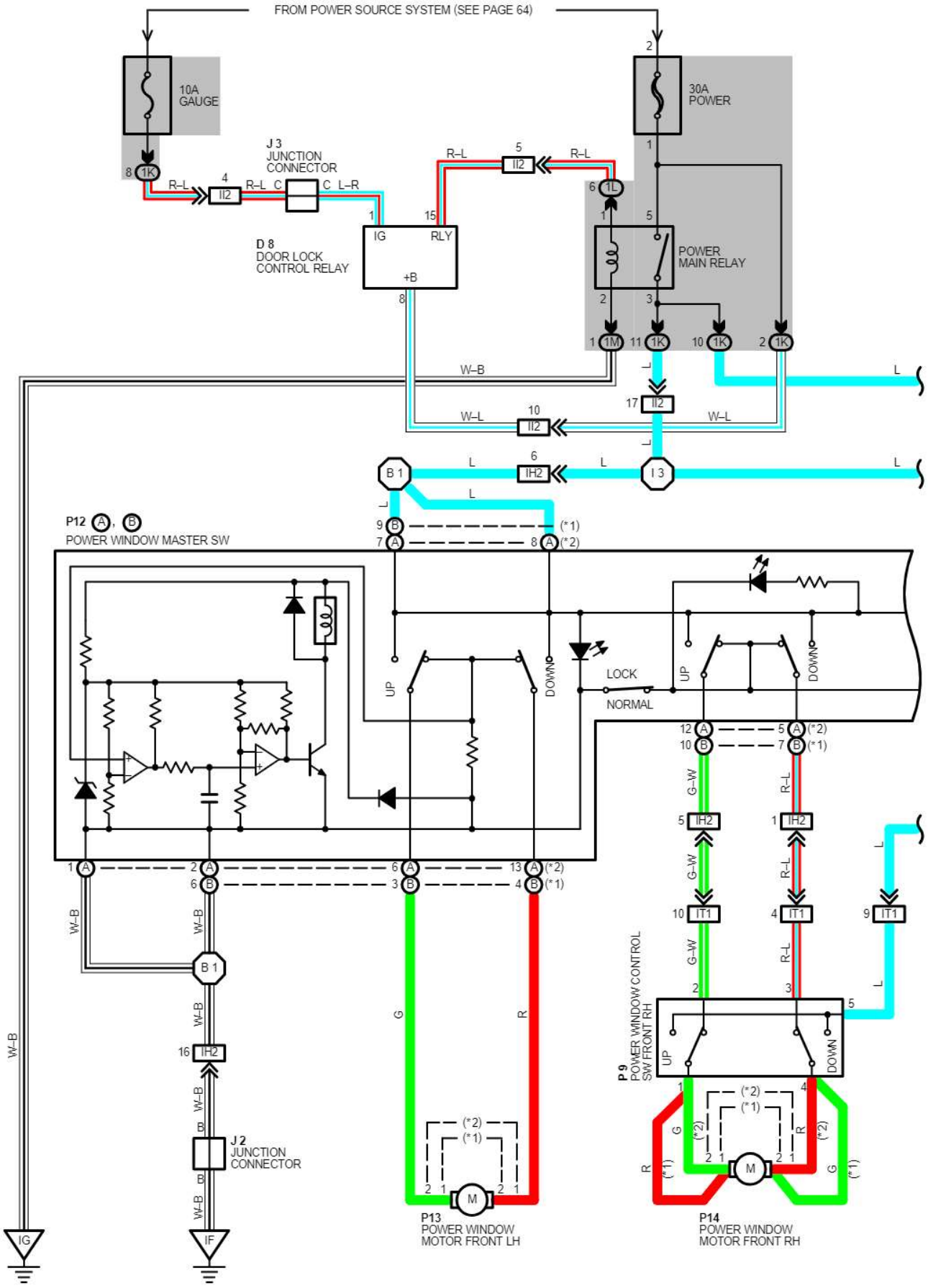


(*2) R20 (B), R21 (B)



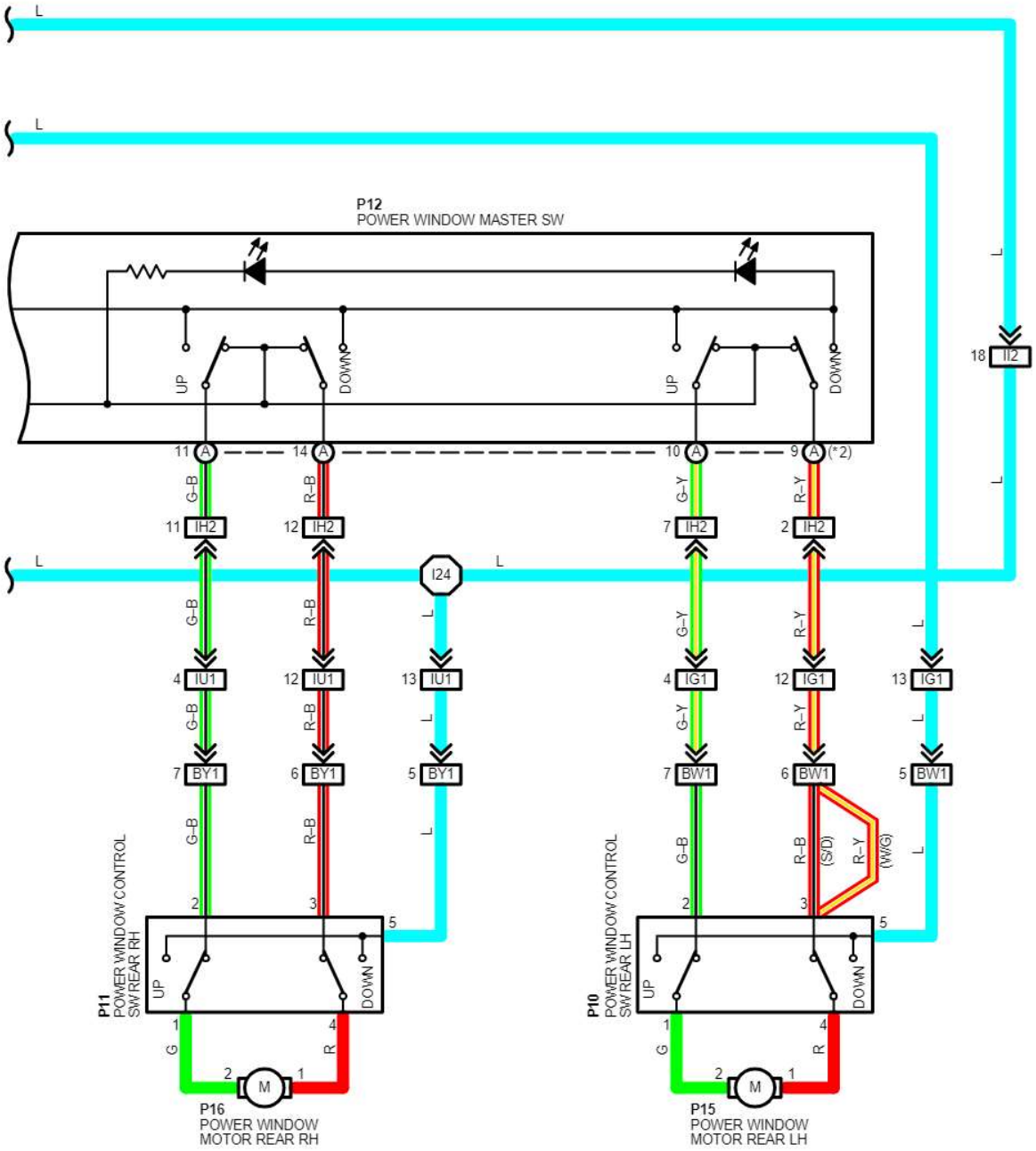
cardiagn.com

POWER WINDOW



cardiagn.com

*1 : C/P
*2 : S/D, W/G



cardiagn.com

POWER WINDOW

SYSTEM OUTLINE

WHEN THE IGNITION SW IS TURNED ON, CURRENT FLOWS THROUGH THE **GAUGE** FUSE TO **TERMINAL 1** OF THE POWER MAIN RELAY → **TERMINAL 2** → TO **GROUND**. THIS ACTIVATES THE RELAY AND THE CURRENT FLOWING TO **TERMINAL 5** OF THE RELAY FROM **POWER** FUSE FLOWS TO **TERMINAL 3** OF THE RELAY → **TERMINAL 7** OR **8** (EX. C/P), **9** (C/P) OF THE POWER WINDOW MASTER SW → TO **TERMINAL 5** OF THE POWER WINDOW SW.

1. MANUAL OPERATION (DRIVER'S WINDOW)

WITH THE IGNITION SW TURNED ON AND WITH THE POWER WINDOW MASTER SW (MANUAL SW) IN **UP** POSITION. THE CURRENT FLOWING TO **TERMINAL 7** OR **8** (EX. C/P), **9** (C/P) OF THE POWER WINDOW MASTER SW FLOWS TO **TERMINAL 6** (EX. C/P), **3** (C/P) OF THE MASTER SW → **TEMINAL 2** OF THE POWER WINDOW MOTOR → **TERMINAL 1** → **TERMINAL 13** (EX. C/P), **4** (C/P) OF THE MASTER SW → **TERMINAL 2** OR **1** (EX. C/P), **6** (C/P) → TO **GROUND** AND CAUSES THE POWER WINDOW MOTOR TO ROTATE IN THE UP DIRECTION. THE WINDOW ASCENDS ONLY WHILE THE SW IS BEING PUSHED. IN DOWN OPERATION, THE FLOW OF CURRENT FROM **TERMINAL 7** OR **8** (EX. C/P), **9** (C/P) OF THE POWER WINDOW MASTER SW TO **TERMINAL 13** (EX. C/P), **4** (C/P) OF THE MASTER SW CAUSES THE FLOW OF CURRENT FROM **TERMINAL 1** OF THE MOTOR → **TERMINAL 2** → **TERMINAL 6** (EX. C/P), **3** (C/P) OF THE MASTER SW → **TERMINAL 2** OR **1** (EX. C/P), **3** (C/P) → TO **GROUND**, FLOWING IN THE OPPOSITE DIRECTION TO MANUAL UP OPERATION AND CAUSING THE MOTOR TO ROTATE IN REVERSE LOWERING THE WINDOW.

2. AUTO DOWN OPERATION

WITH THE IGNITION SW ON AND WITH THE AUTO SW OF THE POWER WINDOW MASTER SW IN **DOWN** POSITION, CURRENT FLOWING TO **TERMINAL 7** OR **8** OF THE MASTER SW FLOWS TO **TERMINAL 13** (EX, C/P), **4** (C/P) OF THE MASTER SW → **TERMINAL 1** OF THE POWER WINDOW MOTOR → **TERMINAL 2** → **TERMINAL 6** (EX. C/P), **3** (C/P) OF THE MASTER SW → **TERMINAL 2** (EX. C/P), **6** (C/P) → TO **GROUND**, CAUSING THE MOTOR TO ROTATE TOWARDS THE DOWN SIDE THEN THE SOLENOID IN THE MASTER SW IS ACTIVATED AND IT LOCKS THE AUTO SW BEING PUSHED, CAUSING THE MOTOR TO CONTINUE TO ROTATE IN AUTO DOWN OPERATION. WHEN THE WINDOW HAS COMPLETELY DESENDED, THE CURRENT FLOW BETWEEN **TERMINAL 6** (EX. C/P), **3** (C/P) OF THE MASTER SW AND **TERMINAL 2** (EX. C/P), **6** (C/P) INCREASES. AS A RESULT, THE SOLENOID STOPS OPERATING, THE AUTO SW TURNS OFF AND FLOW FROM **TERMINAL 7** (EX. C/P), **9** (C/P) OF THE MASTER SW TO **TERMINAL 13** (EX. C/P), **4** (C/P) IS CUT OFF, STOPPING THE MOTOR SO THAT AUTO STOP OCCURS.

3. STOPPING OF AUTO DOWN AT DRIVER'S WINDOW

HEN THE MANUAL SW (DRIVER'S) IS PUSHED TO THE UP SIDE DURING AUTO DOWN OPERATION, A GROUND CIRCUIT OPENS IN THE MASTER SW AND CURRENT DOES NOT FLOW FROM **TERMINAL 6** (EX. C/P), **3** (C/P) OF THE MASTER SW → TO **GROUND**, SO THE MOTOR STOPS, CAUSING AUTO DOWN OPERATION TO STOP. IF THE MASTER SW IS PUSHED CONTINUOUSLY, THE MOTOR ROTATES IN THE UP DIRECTION IN MANUAL UP OPERATION.

4. MANUAL OPERATION BY POWER WINDOW SW (PASSENGER'S WINDOW)

WITH POWER WINDOW SW (PASSENGER'S) PULLED TO THE UP SIDE, CURRENT FLOWING FROM **TERMINAL 5** OF THE POWER WINDOW SW FLOWS TO **TERMINAL 1** OF THE POWER WINDOW SW → **TERMINAL 2** OF THE POWER WINDOW MOTOR → **TERMINAL 1** → **TERMINAL 4** OF THE POWER WINDOW SW → **TERMINAL 3** → **TERMINAL 5** (EX. C/P), **7** (C/P) OF THE MASTER SW → **TERMINAL 1** OR **2** (EX. C/P), 6 (C/P) → TO **GROUND** AND CAUSES THE POWER WINDOW MOTOR (PASSENGER'S) TO ROTATE IN THE UP DIRECTION. UP OPERATION CONTINUES ONLY WHILE THE POWER WINDOW SW IS PULLED TO THE UP SIDE. WHEN THE WINDOW DECENDS, THE CURRENT FLOWING TO THE MOTOR FLOWS IN THE OPPOSITE DIRECTION, FROM **TERMINAL 1** TO **TERMINAL 2**, AND THE MOTOR ROTATES IN REVERSE. WHEN THE WINDOW LOCK SW IS PUSHED TO THE LOCK SIDE, THE GROUND CIRCUIT TO THE PASSENGER'S WINDOW BECOMES OPEN. AS A RESULT, EVEN IF OPEN/CLOSE OPERATION OF THE PASSENGER'S WINDOW IS TRIED, THE CURRENT FROM **TERMINAL 1** OR **2** (EX. C/P), **6** (C/P) OF THE POWER WINDOW MASTER SW IS NOT GROUNDED AND THE MOTOR DOES NOT ROTATE, SO THE PASSENGER'S WINDOW CAN NOT BE OPERATED AND WINDOW LOCK OCCURS. FURTHERMORE REAR LH RH WINDOW OPERATE THE SAME AS THE ABOVE CIRCUIT.

5. KEY OFF POWER WINDOW OPERATION

WITH IGNITION SW TURNED FROM ON TO OFF DOOR LOCK CONTROL RELAY OPERATES AND CURRENT FLOWS FROM **POWER** FUSE TO **TERMINAL 8** OF THE RELAY → **TERMINAL 15** → **TERMINAL 1** OF POWER MAIN RELAY → **TERMINAL 2** → TO **GROUND** FOR ABOUT **60** SECOND. THE SAME AS NORMAL OPERATION, THE CURRENT FLOWS FROM **POWER** FUSE → **TERMINAL 5** OF THE POWER MAIN RELAY → **TERMINAL 3** → **TERMINAL 7** OR **8** (EX. C/P), **TERMINAL 9** (C/P) OF THE POWER WINDOW MASTER SW AND **TERMINAL 3** OF THE POWER MAIN RELAY → TO **TERMINAL 5** OF THE POWER WINDOW SW. AS A RESULT, FOR ABOUT **60** SECOND AFTER THE IGNITION SW IS TURNED OFF, THE FUNCTIONING OF THIS RELAY MAKES IT POSSIBLE TO RAISE AND LOWER THE POWER WINDOW. ALSO, BY OPENING THE FRONT DOOR (DOOR OPEN DETECTION SW ON) WITHIN ABOUT **60** SECOND AFTER TURNING THE IGNITION SW TO OFF, A SIGNAL IS INPUT TO DOOR LOCK CONTROL RELAY. AS A RESULT, THE RELAY TURNS OFF AND UP AND DOWN MOVEMENT OF THE POWER WINDOW STOPS.

cardiagn.com

*1 : C/P
*2 : S/D, W/G

SERVICE HINTS

P12 POWER WINDOW MASTER SW (C/P)

9–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
6–GROUND : ALWAYS CONTINUITY
3–GROUND : APPROX. **12** VOLTS WITH IGNITION SW ON AND MASTER SW (DRIVER'S WINDOW) UP
4–GROUND : APPROX. **12** VOLTS WITH IGNITION SW ON AND MASTER SW (DRIVER'S WINDOW) AT **DOWN** OR **AUTO DOWN** POSITION

P12 POWER WINDOW MASTER SW (EX. C/P)

7, 8–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
1, 2–GROUND : ALWAYS CONTINUITY
6–GROUND : APPROX. **12** VOLTS WITH IGNITION SW ON AND MASTER SW (DRIVER'S WINDOW) UP
13–GROUND : APPROX. **12** VOLTS WITH IGNITION SW ON AND MASTER SW (DRIVER'S WINDOW) AT **DOWN** OR **AUTO DOWN** POSITION

: PARTS LOCATION

CODE	SEE PAGE	CODE		SEE PAGE	CODE	SEE PAGE
D 8	32	P10		34 (S/D), 35 (C/P), 36 (W/G)	P13	34 (S/D), 35 (C/P), 36 (W/G)
J 2	33	P11		34 (S/D), 35 (C/P), 36 (W/G)	P14	34 (S/D), 35 (C/P), 36 (W/G)
J 3	33	P12	A	34 (S/D), 36 (W/G)	P15	34 (S/D), 35 (C/P), 36 (W/G)
P 9	34 (S/D), 35 (C/P), 36 (W/G)		B	35 (C/P)	P16	34 (S/D), 35 (C/P), 36 (W/G)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1K	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1L		
1M		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IG1	42	FLOOR NO. 1 WIRE AND INSTRUMENT PANEL WIRE
IH1	42	FRONT DOOR LH WIRE AND INSTRUMENT PANEL WIRE
IH2		
IT1	44	FRONT DOOR RH WIRE AND INSTRUMENT PANEL WIRE
IU1	44	FLOOR NO. 2 WIRE AND INSTRUMENT PANEL WIRE
BW1	46 (S/D)	REAR DOOR LH WIRE AND FLOOR NO. 1 WIRE
	50 (W/G)	
BY1	46 (S/D)	REAR DOOR RH WIRE AND FLOOR NO. 2 WIRE
	50 (W/G)	

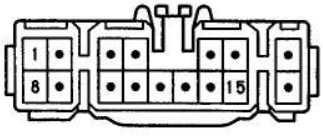
: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IF	42	LEFT KICK PANEL
IG	42	INSTRUMENT PANEL BRACE LH

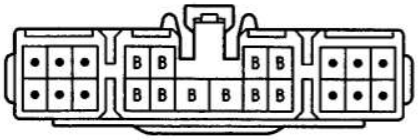
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 3	44	INSTRUMENT PANEL WIRE	B1	46 (S/D)	FRONT DOOR LH WIRE
I24				50 (W/G)	

D 8 ORANGE

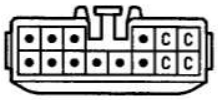


J 2



(HINT:SEE PAGE 7)

J 3

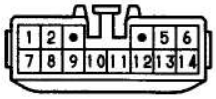


(HINT:SEE PAGE 7)

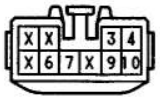
P 9, P10, P11



(*1) P12 (A)



(*2) P12 (B)



P13, P14 GRAY

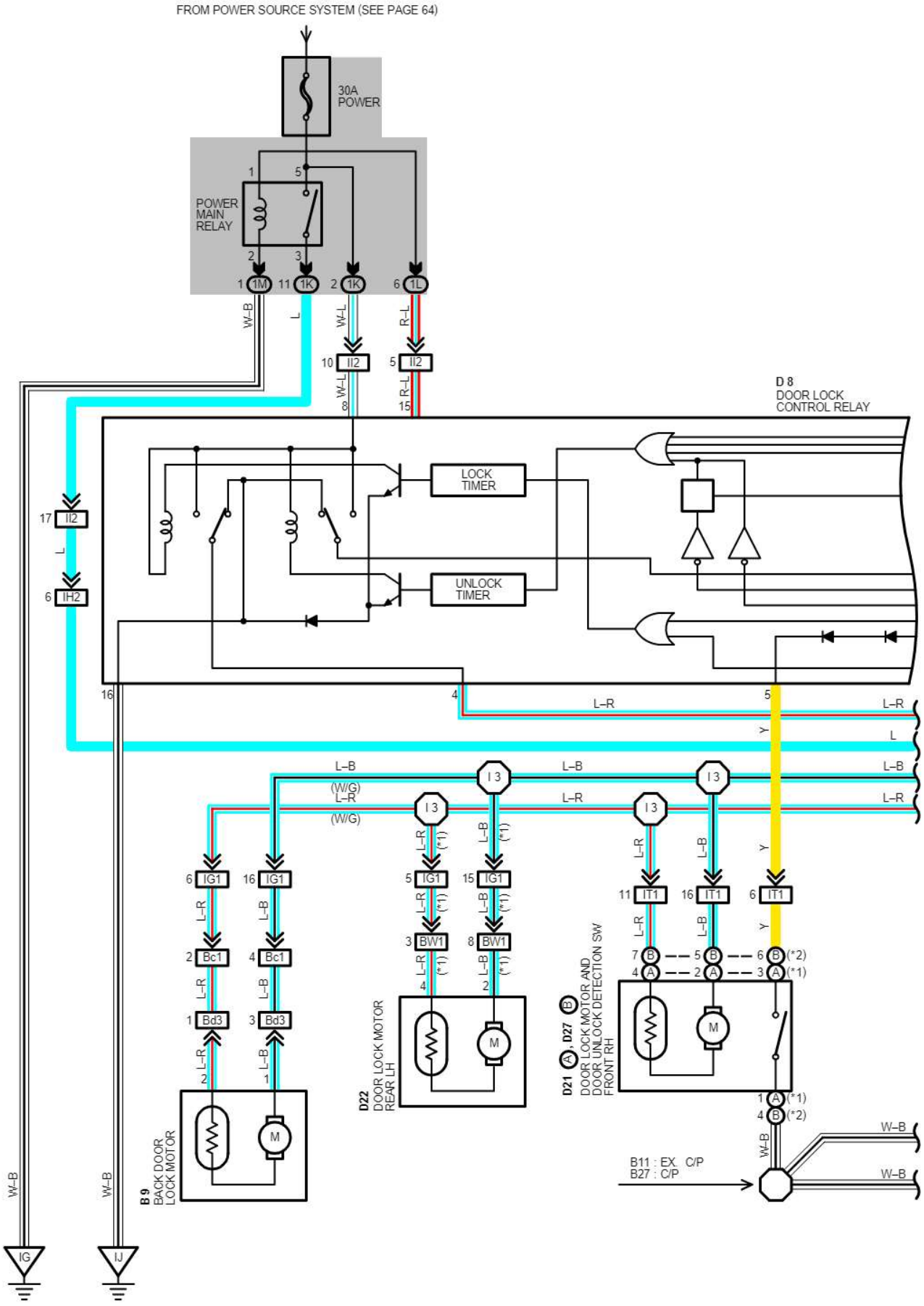


(S/D, W/G) P13, P14, P15, P16



cardiagn.com

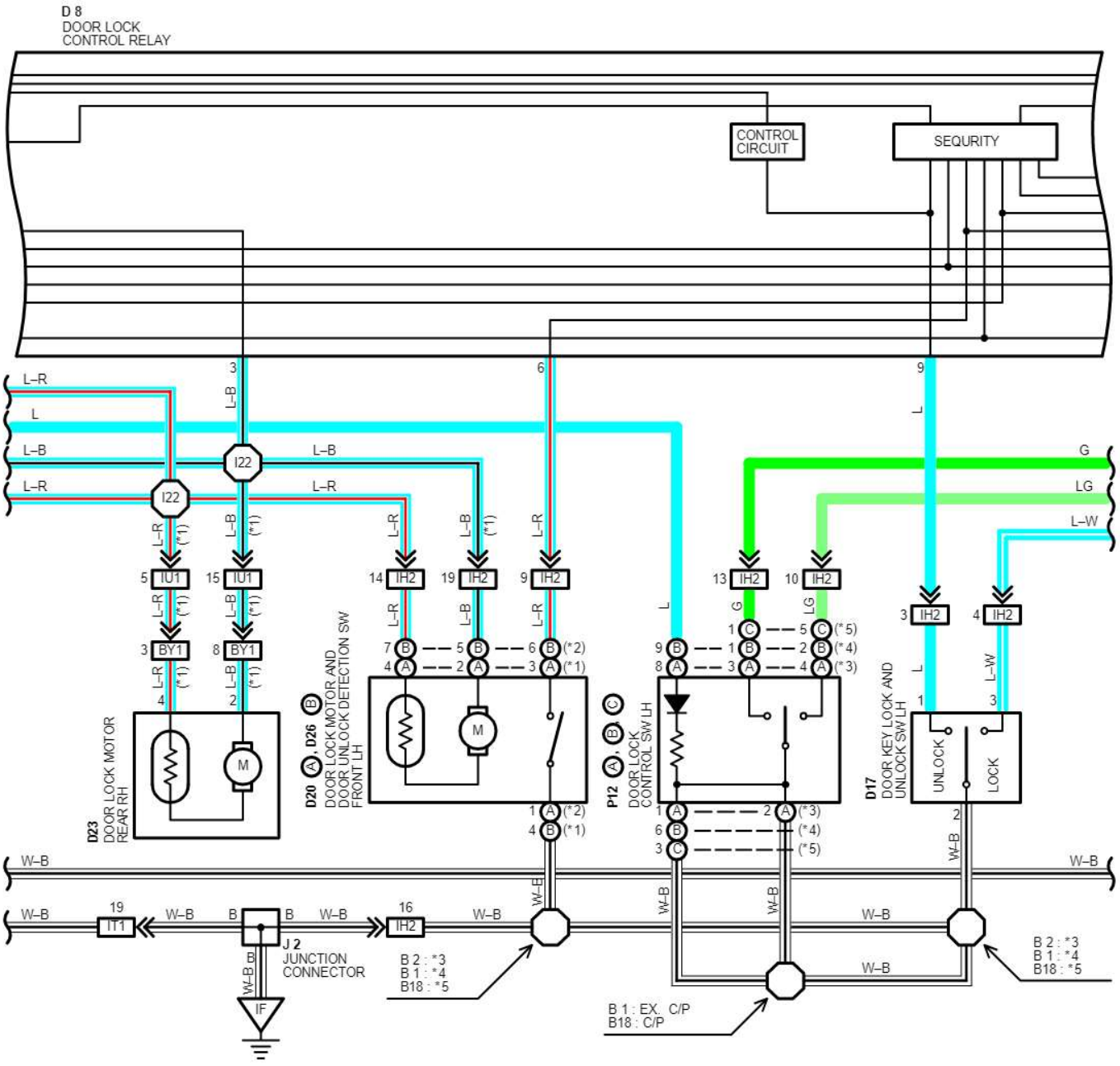
DOOR LOCK



160

cardiagn.com

*1 : S/D, W/G
*2 : C/P
*3 : W/ POWER WINDOW
*4 : W/ POWER WINDOW, C/P
*5 : W/O POWER WINDOW

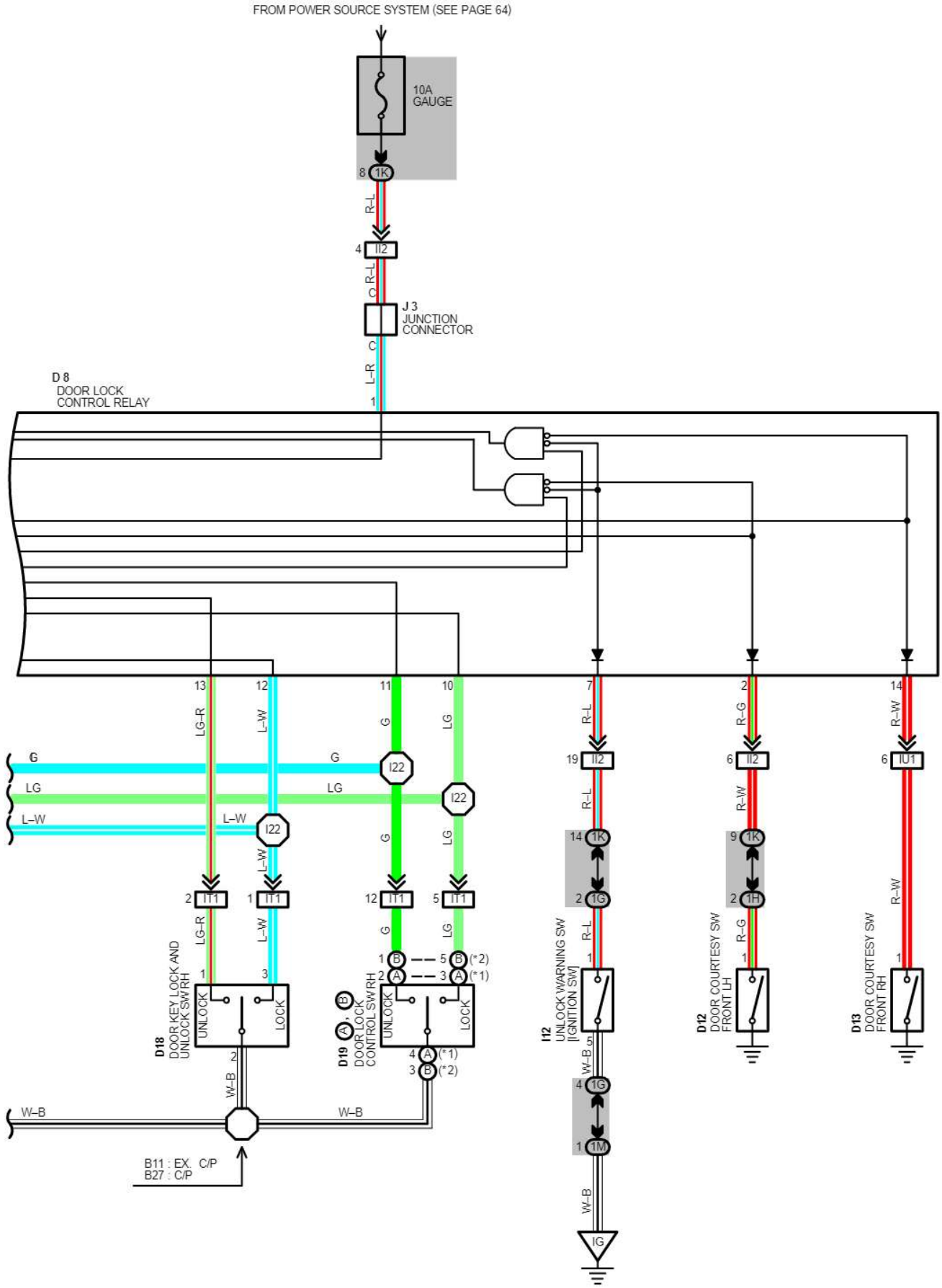


161

cardiagn.com

DOOR LOCK

*1 : W/ POWER WINDOW EX. C/P
*2 : W/O POWER WINDOW EX. C/P



cardiagn.com

SYSTEM OUTLINE

CURRENT ALWAYS FLOWS TO **TERMINAL 8** OF THE DOOR LOCK CONTROL RELAY THROUGH THE **POWER** FUSE.

WHEN THE IGNITION SW IS TURNED ON, THE CURRENT FLOWING THROUGH THE **GAUGE** FUSE FLOWS THROUGH THE COIL SIDE OF THE POWER MAIN RELAY TO **GROUND**, CAUSING THE RELAY TO OPERATE. THE CURRENT FLOWING THROUGH THE **POWER** FUSE FLOWS TO THE LH DOOR LOCK CONTROL SW, CAUSING THE INDICATOR LIGHT TO LIGHT UP.

1. MANUAL LOCK OPERATION

WHEN THE DOOR LOCK CONTROL SW AND KEY SW ARE PUSHED TO **LOCK** POSITION, A LOCK SIGNAL IS INPUT TO **TERMINAL 10**, **12** OF THE DOOR LOCK CONTROL RELAY AND CAUSES THE RELAY TO FUNCTION. CURRENT FLOWS FROM **TERMINAL 8** OF THE RELAY → **TERMINAL 4** → **TERMINAL 4** OF THE DOOR LOCK MOTORS, (EX. C/P FRONT DOOR) OR **TERMINAL 7** (C/P FRONT DOOR), OF THE DOOR LOCK MOTOR **TERMINAL 2** OF THE BACK DOOR LOCK MOTOR → **TERMINAL 2** OF THE DOOR LOCK MOTORS, (EX. C/P FRONT DOOR) OR **TERMINAL 5** (C/P FRONT DOOR) OF THE DOOR LOCK MOTOR **TERMINAL 1** OF THE BACK DOOR LOCK MOTOR → **TERMINAL 3** OF THE RELAY → **TERMINAL 16** → TO **GROUND** AND THE DOOR LOCK MOTOR CAUSES THE DOOR TO LOCK.

2. MANUAL UNLOCK OPERATION

WHEN THE DOOR LOCK CONTROL SW AND KEY SW RH TO **UNLOCK** POSITION, AN UNLOCK SIGNAL IS INPUT TO **TERMINAL 11, 13** OF THE DOOR LOCK RELAY AND CAUSES THE RELAY TO FUNCTION. CURRENT FLOWS FROM **TERMINAL 8** OF THE RELAY → **TERMINAL 3** → **TERMINAL 2** OF THE DOOR LOCK MOTORS, (EX. C/P FRONT DOOR) OR **TERMINAL 5** (C/P FRONT DOOR) OF THE DOOR LOCK MOTOR **TERMINAL 1** OF THE BACK DOOR LOCK MOTOR → **TERMINAL 4** OF THE DOOR LOCK MOTORS, (EX. C/P FRONT DOOR) OR **TERMINAL 7** (C/P FRONT DOOR), OF THE DOOR LOCK MOTOR **TERMINAL 2** OF THE BACK DOOR LOCK MOTOR → **TERMINAL 4** OF THE RELAY → **TERMINAL 16** → TO **GROUND** AND DOOR LOCK MOTORS CAUSES DOOR TO UNLOCK.

3. DOUBLE OPERATION UNLOCK OPERATION

WHEN THE DOOR LOCK KEY SW (DRIVER'S) IS TURNED TO THE UNLOCK SIDE, ONLY THE DRIVER'S DOOR IS MECHANICALLY UNLOCKED. TURNING THE DOOR LOCK KEY SW (DRIVER'S) TO THE UNLOCK SIDE CAUSES A SIGNAL TO BE INPUT TO **TERMINAL 9** OF THE RELAY, AND IF THE SIGNAL IS INPUT AGAIN WITHIN **3** SECONDS BY TURNING THE SW TO THE UNLOCK SIDE AGAIN, CURRENT FLOWS **TERMINAL 3** → **TERMINAL 2** OF DOOR LOCK MOTORS, (EX. C/P FRONT DOOR) OR **TERMINAL 5** (C/P FRONT DOOR) OF THE DOOR LOCK MOTOR **TERMINAL 1** OF THE BACK DOOR LOCK MOTOR → **TERMINAL 4** OF THE DOOR LOCK MOTORS, (EX. C/P FRONT DOOR) OR **TERMINAL 7** (C/P FRONT DOOR), OF THE DOOR LOCK MOTOR **TERMINAL 2** OF THE BACK DOOR LOCK MOTOR → **TERMINAL 4** OF THE RELAY → **TERMINAL 16** → **GROUND**, CAUSING THE DOOR LOCK MOTORS TO OPERATE AND UNLOCK THE DOORS.

4. IGNITION KEY REMINDER OPERATION

* OPERATING DOOR LOCK KNOB (OPERATION OF DOOR LOCK MOTORS)

WITH IGNITION KEY IN CYLINDER (UNLOCK WARNING SW ON), WHEN THE DOOR IS OPENED AND LOCKED USING DOOR LOCK KNOB (DOOR LOCK MOTOR), THE DOOR IS LOCKED ONCE BUT EACH DOOR IS UNLOCKED SOON BY THE FUNCTION OF RELAY. AS A RESULT, THE CURRENT FLOWS FROM **TERMINAL 8** OF THE RELAY → **TERMINAL 3** → **TERMINAL 2** OF THE DOOR LOCK MOTORS, (EX. C/P FRONT DOOR) OR **TERMINAL 5** (C/P FRONT DOOR) OF THE DOOR LOCK MOTOR **TERMINAL 2** OF THE BACK DOOR LOCK MOTOR → **TERMINAL 4** OF THE DOOR LOCK MOTORS, (EX. C/P FRONT DOOR) OR **TERMINAL 7** (C/P FRONT DOOR), OF THE DOOR LOCK MOTOR **TERMINAL 1** OF THE BACK DOOR LOCK MOTOR → **TERMINAL 4** OF THE RELAY → **TERMINAL 16** → TO **GROUND** AND CAUSES ALL THE DOORS TO UNLOCK.

* OPERATING DOOR LOCK CONTROL SW OR DOOR LOCK KEY SW

WITH IGNITION KEY IN CYLINDER (UNLOCK WARNING SW ON), WHEN THE DOOR IS OPENED AND LOCKED USING DOOR LOCK CONTROL SW OR KEY SW, THE DOOR IS LOCKED ONCE BUT EACH DOOR IS UNLOCK BY THE FUNCTION OF SW CONTAINED IN MOTORS, WHICH THE SIGNAL IS INPUT TO **TERMINAL 6** (DRIVER'S) OR **5** (PASSENGER'S) OF THE RELAY. ACCORDING TO THIS INPUT SIGNAL, THE CURRENT IN ECU FLOWS FROM **TERMINAL 8** OF THE RELAY → **TERMINAL 3** → **TERMINAL 2** OF THE DOOR LOCK MOTORS, (EX. C/P FRONT DOOR) OR **TERMINAL 5** (C/P FRONT DOOR) OF THE DOOR LOCK MOTOR **TERMINAL 2** OF THE BACK DOOR LOCK MOTOR → **TERMINAL 4** OF THE DOOR LOCK MOTORS, **TERMINAL 1** OF THE BACK DOOR LOCK MOTOR → **TERMINAL 4** OF THE RELAY → **TERMINAL 16** → TO **GROUND** AND CAUSES ALL THE DOOR TO UNLOCK.

* IN CASE OF KEY LESS LOCK

WITH IGNITION KEY IN CYLINDER (UNLOCK WARNING SW ON), WHEN THE UNLOCK FUNCTION IS DISTURBED MORE THAN **0.2** SECONDS, FOR EXAMPLE PUSHING THE DOOR LOCK KNOB ETC., THE DOOR HOLDS ON LOCK CONDITION. CLOSING THE DOOR AFTER, DOOR COURTESY SW INPUTS THE SIGNAL INTO **TERMINAL 2** OR **14** OF THE RELAY. BY THIS INPUT SIGNAL, THE ECU WORKS AND CURRENT FLOWS FROM **TERMINAL 8** OF THE RELAY → **TERMINAL 3** → **TERMINAL 2** OF THE DOOR LOCK MOTORS, (EX. C/P FRONT DOOR) OR **TERMINAL 5** (C/P FRONT DOOR) OF THE DOOR LOCK MOTOR **TERMINAL 1** OF THE BACK DOOR LOCK MOTOR → **TERMINAL 4** OF THE DOOR LOCK MOTORS, (EX. C/P FRONT DOOR) OR **TERMINAL 7** (C/P FRONT DOOR), OF THE DOOR LOCK MOTOR **TERMINAL 2** OF THE BACK DOOR LOCK MOTOR → **TERMINAL 4** OF THE RELAY → **TERMINAL 16** → TO **GROUND** AND CAUSES ALL THE DOORS TO UNLOCK.

cardiagn.com

DOOR LOCK

SERVICE HINTS

D8 DOOR LOCK CONTROL RELAY
16–GROUND : ALWAYS CONTINUITY
2–GROUND : CONTINUITY WITH DRIVER'S DOOR OPEN
8–GROUND : ALWAYS APPROX. **12** VOLTS
3–GROUND : APPROX. **12** VOLTS **0.2** SECONDS WITH FOLLOWING OPERATION
*DOOR LOCK CONTROL SW UNLOCKED
*DOOR LOCK CONTROL SW LOCKED WITH IGNITION KEY IN CYLINDER AND DRIVER'S DOOR OPEN (IGNITION KEY REMINDER FUNCTION)
*DOOR LOCK KNOB LOCKED WITH IGNITION KEY IN CYLINDER AND DRIVER'S DOOR OPEN (IGNITION KEY REMINDER FUNCTION)
*UNLOCKING THE DRIVER'S, PASSENGER'S DOOR CYLINDER WITH KEY
4–GROUND : APPROX. **12** VOLTS **0.2** SECONDS WITH FOLLOWING OPERATION
*DOOR LOCK CONTROL SW LOCKED
*LOCKING THE DRIVER'S, PASSENGER'S DOOR CYLINDER WITH KEY
10–GROUND : **0** VOLTS WITH DOOR LOCK CONTROL SW LOCKED
14–GROUND : CONTINUITY WITH PASSENGER'S DOOR OPEN
6–GROUND : CONTINUITY WITH DRIVER'S DOOR LOCK KNOB UNLOCKED
5–GROUND : CONTINUITY WITH PASSENGER'S DOOR LOCK KNOB UNLOCKED
11–GROUND : **0** VOLTS WITH DOOR LOCK CONTROL SW UNLOCKED, PASSENGER'S DOOR LOCK CYLINDER UNLOCKED WITH KEY
13–GROUND : **0** VOLTS WITH PASSENGER'S DOOR LOCK CYLINDER UNLOCKED WITH KEY
1–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ACC** POSITION
9–GROUND : **0** VOLTS WITH DRIVER'S DOOR LOCK CYLINDER UNLOCKED WITH KEY
12–GROUND : **0** VOLTS WITH DRIVER'S, PASSENGER'S DOOR LOCK CYLINDER LOCKED WITH KEY

D12, D13 DOOR COURTESY SW
1–GROUND : CLOSED WITH EACH DOOR OPEN

D17, D18 DOOR KEY LOCK AND UNLOCK SW
3–2 : CLOSED WITH DOOR LOCK CYLINDER LOCKED WITH KEY
1–2 : CLOSED WITH DOOR LOCK CYLINDER UNLOCKED WITH KEY

D20, D21 DOOR LOCK MOTOR AND DOOR UNLOCK DETECTION SW (C/P)
1–3 : CLOSED WITH **UNLOCK** POSITION

D20, D21 DOOR LOCK MOTOR AND DOOR UNLOCK DETECTION SW (EX. C/P)
6–4 : CLOSED WITH **UNLOCK** POSITION

I12 UNLOCK WARNING SW [IGNITION SW]
1–5 : CLOSED WITH IGNITION KEY IN CYLINDER

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
B 9	36	D19 B	34 (S/D), 36 (W/G)	J 2	33
D 8	32	D20 A	34 (S/D), 36 (W/G)	J 3	33
D12	34 (S/D), 35 (C/P), 36 (W/G)	D20 B	35 (C/P)	P12 A	34 (S/D), 36 (W/G)
D13	34 (S/D), 35 (C/P), 36 (W/G)	D21	34 (S/D), 35 (C/P), 36 (W/G)	P12 B	34 (S/D), 35 (C/P), 36 (W/G)
D17	34 (S/D), 35 (C/P), 36 (W/G)	D22	34 (S/D), 35 (C/P), 36 (W/G)	P12 C	35 (C/P)
D18	34 (S/D), 35 (C/P), 36 (W/G)	D23	34 (S/D), 35 (C/P), 36 (W/G)		
D19 A	34 (S/D), 36 (W/G)	I12	33		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1G	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1K	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1L		
1M		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IG1	42	FLOOR NO. 1 WIRE AND INSTRUMENT PANEL WIRE
IH2	42	FRONT DOOR LH WIRE AND INSTRUMENT PANEL WIRE
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IT1	44	FRONT DOOR RH WIRE AND INSTRUMENT PANEL WIRE
IU1	44	FLOOR NO. 2 WIRE AND INSTRUMENT PANEL WIRE
BW1	46 (S/D)	REAR DOOR LH WIRE AND FLOOR NO. 1 WIRE
	50 (W/G)	
BY1	46 (S/D)	REAR DOOR RH WIRE AND FLOOR NO. 2 WIRE
	50 (W/G)	
Bc1	50 (W/G)	BACK DOOR NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bd3	50 (W/G)	BACK DOOR NO. 1 WIRE AND BACK DOOR NO. 2 WIRE

cardiagn.com

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IF	42	LEFT KICK PANEL
IG	42	INSTRUMENT PANEL BRACE LH
IJ	42	RIGHT KICK PANEL

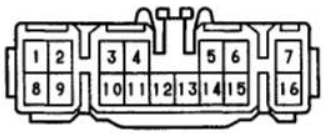
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 3	44	INSTRUMENT PANEL WIRE	B 2	50 (W/G)	FRONT DOOR LH WIRE
I22			B11	46 (S/D)	FRONT DOOR RH WIRE
B 1	46 (S/D)	FRONT DOOR LH WIRE		50 (W/G)	
	50 (W/G)		B18	48 (C/P)	FRONT DOOR LH WIRE
B 2	46 (S/D)		B27	48 (C/P)	FRONT DOOR RH WIRE

B 9 GRAY



D 8 ORANGE



D12, D13



D17, D18 GRAY



D19 (A)



D19 (B)



(S/D, W/G) D20 (A)



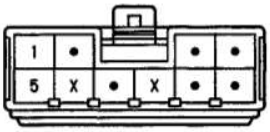
(C/P) D20 (B) GRAY



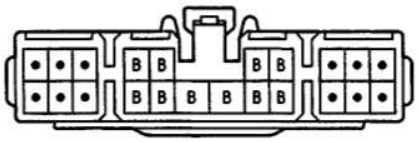
D21, D22, D23



I12

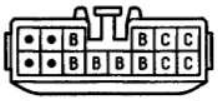


J 2



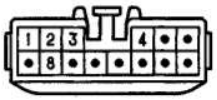
(HINT:SEE PAGE 7)

J 3



(HINT:SEE PAGE 7)

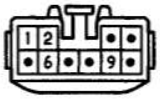
(S/D, W/G) P12 (A)



P12 (B)

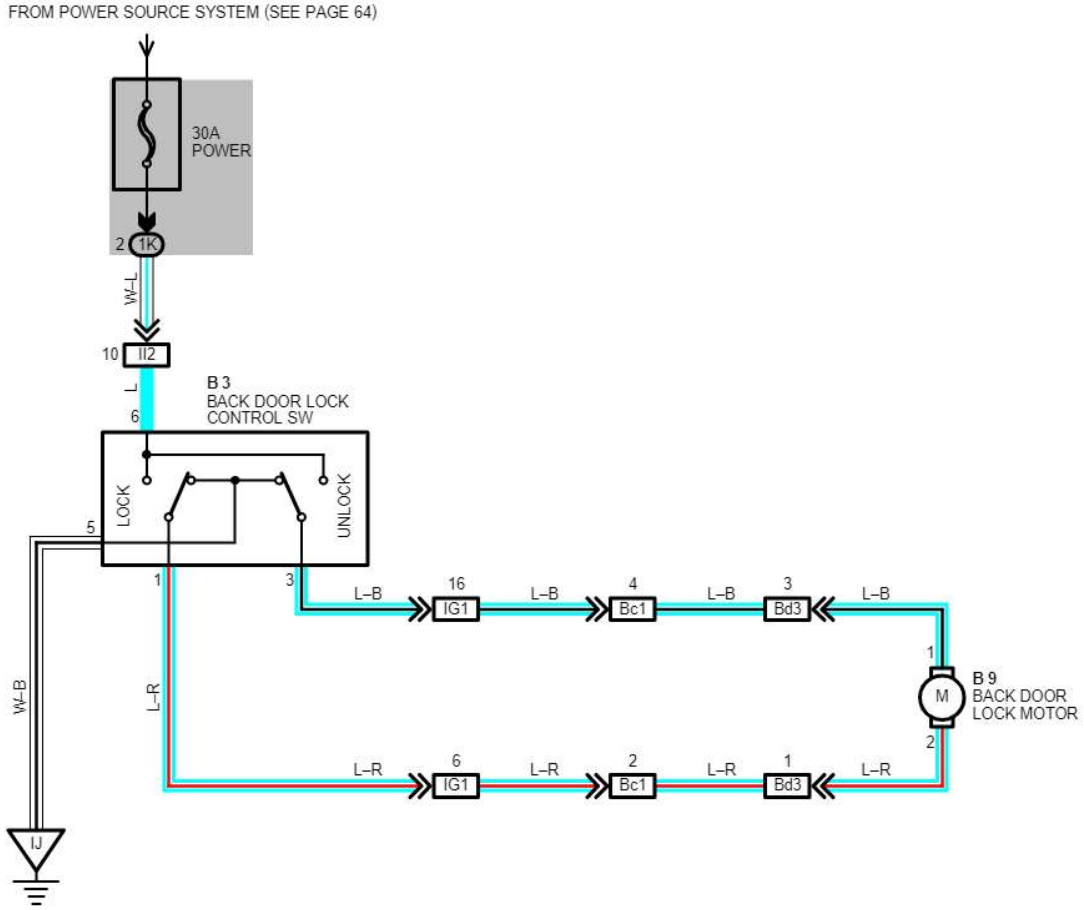


(C/P) P12 (C)



cardiagn.com

BACK DOOR LOCK (W/G w/o POWER WINDOW)



SERVICE HINTS

B 3 BACK DOOR LOCK CONTROL SW
6–GROUND : ALWAYS APPROX. **12** VOLTS
5–GROUND : ALWAYS CONTINUITY

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
B 3	32	**B 9**	36 (W/G)		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

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

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IG1	38	FLOOR NO. 1 WIRE AND INSTRUMENT PANEL WIRE (LEFT KICK PANEL)
IT2	40	FRONT DOOR RH WIRE AND INSTRUMENT PANEL WIRE (RIGHT KICK PANEL)
Bc1	44 (W/G)	BACK DOOR NO. 1 WIRE AND FLOOR NO. 1 WIRE (LEFT QUARTER TRIM INNER)
Bd3	44 (W/G)	BACK DOOR NO. 1 WIRE AND BACK DOOR NO. 2 WIRE (BACK DOOR LEFT)

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IJ	38	RIGHT KICK PANEL

B 3



B 9 GRAY



cardiagn.com

*1 : TMC MADE
*2 : TMM MADE

MOON ROOF

SERVICE HINTS

POWER MAIN RELAY
5–3 : CLOSED WITH IGNITION SW AT **ON** POSITION

M 2 MOON ROOF CONTROL RELAY
11–GROUND : ALWAYS CONTINUITY
6–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
4–GROUND : APPROX. **12** VOLTS WITH IGNITION SW ON, AND MOON ROOF CONTROL SW AT **CLOSE** OR **UP** POSITION (EXCEPT APPROX. **100** MM (**3.941** IN.) IN THE BEFORE **CLOSED** POSITION)
5–GROUND : APPROX. **12** VOLTS WITH IGNITION SW ON, AND MOON ROOF CONTROL SW AT **OPEN** OR **DOWN** POSITION
12–GROUND : ALWAYS APPROX. **12** VOLTS

M 3 MOON ROOF CONTROL SW
5–4 : CLOSED WITH MOON ROOF CONTROL SW AT **UP** POSITION
6–4 : CLOSED WITH MOON ROOF CONTROL SW AT **CLOSE** POSITION
2–4 : CLOSED WITH MOON ROOF CONTROL SW AT **DOWN** POSITION
3–4 : CLOSED WITH MOON ROOF CONTROL SW AT **OPEN** POSITION
4–GROUND : ALWAYS CONTINUITY

○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
D 8	32	M 2	34 (S/D), 35 (C/P), 36 (W/G)	M 4	34 (S/D), 35 (C/P), 36 (W/G)
J 3	33	M 3	34 (S/D), 35 (C/P), 36 (W/G)	M 5	34 (S/D), 35 (C/P), 36 (W/G)

⬭ : 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 (INSTRUMENT PANEL LEFT)
1I	20	ROOF WIRE AND J/B NO. 1 (INSTRUMENT PANEL) TMC MADE
	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL) TMM MADE
1K	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1L		
1M		
2E	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IV1	44	ROOF WIRE AND COWL WIRE

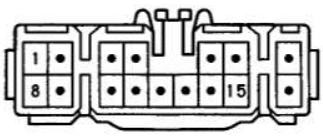
▽ : GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IG	42	INSTRUMENT PANEL BRACE LH
BK	46 (S/D)	ROOF LEFT
	48 (C/P)	
BP	50 (W/G)	BACK PANEL CENTER

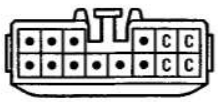
⬡ : SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
B 4	46 (S/D)	ROOF WIRE	B31	50 (W/G)	ROOF WIRE
B 5			B32		
B21	48 (C/P)				

D 8

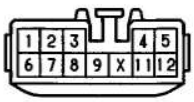


J 3



(HINT:SEE PAGE 7)

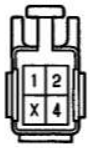
M 2



M 3



M 4



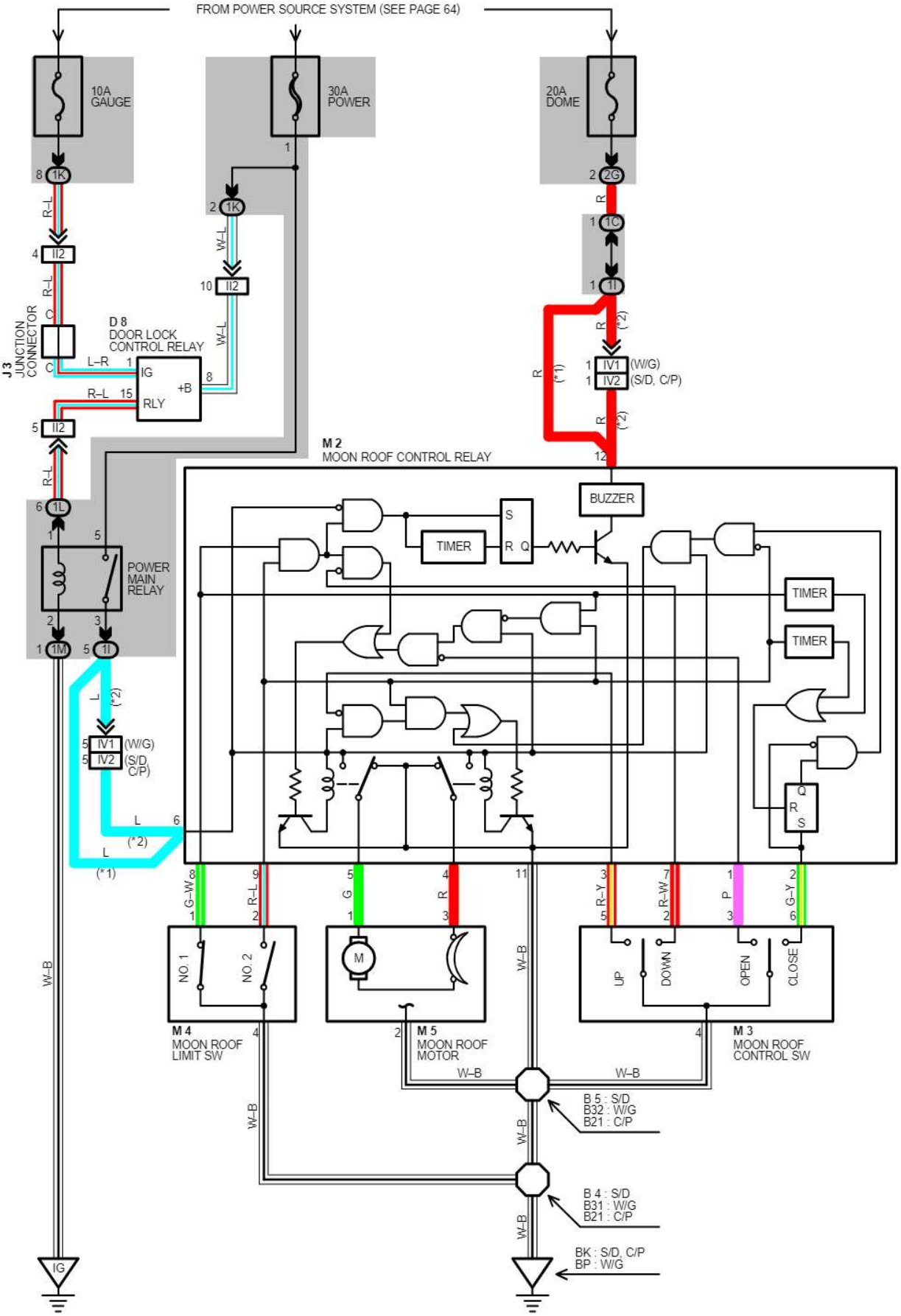
M 5



cardiagn.com

MOON ROOF

*1 : S/D TMC MADE
*2 : S/D TMM MADE, W/G



cardiagn.com

168

SYSTEM OUTLINE

CURRENT IS APPLIED AT ALL TIMES THROUGH **POWER** FUSE TO **TERMINAL 5** OF POWER MAIN RELAY AND ALSO THROUGH **DOME** FUSE TO **TERMINAL 12** OF MOON ROOF CONTROL RELAY.

WITH THE IGNITION SW TURNED ON, THE CURRENT FLOWS FROM **TERMINAL 1** OF POWER MAIN RELAY → **TERMINAL 2** → TO **GROUND** THROUGH **GAUGE** FUSE. AS A RESULT, POWER MAIN RELAY IS ACTIVATED AND THE CURRENT TO **TERMINAL 5** OF POWER MAIN RELAY FLOWS FROM **TERMINAL 3** OF RELAY TO **TERMINAL 6** OF MOON ROOF CONTROL RELAY.

1. SLIDE OPEN OPERATION

WHEN THE IGNITION SW IS TURNED ON AND THE MOON ROOF CONTROL SW IS PUSHED TO THE **OPEN** POSITION, A SIGNAL IS INPUT FROM **TERMINAL 3** OF MOON ROOF CONTROL SW TO **TERMINAL 1** OF MOON ROOF CONTROL RELAY. MOON ROOF LIMIT SW NO. 2 ON AT THIS TIME.

WHEN THIS OCCURS, THE RELAY IS ACTIVATED AND THE CURRENT TO **TERMINAL 6** OF MOON ROOF CONTROL RELAY FLOWS FROM **TERMINAL 5** → **TERMINAL 1** OF MOON ROOF MOTOR → **TERMINAL 3** → **TERMINAL 4** OF MOON ROOF CONTROL RELAY → **TERMINAL 11** → TO **GROUND** AND ROTATES THE MOTOR TO OPEN THE MOON ROOF WHILE THE SW IS BEING PUSHED TO **OPEN** POSITION.

2. SLIDE CLOSE OPERATION

WITH THE IGNITION SW TURNED ON, THE MOON ROOF COMPLETELY OPEN AND MOON ROOF LIMIT SW NO. 1 AND NO. 2 BOTH ON, WHEN THE MOON ROOF CONTROL SW IS PUSHED TO THE **CLOSE** POSITION A SIGNAL IS INPUT FROM **TERMINAL 6** OF MOON ROOF CONTROL SW TO **TERMINAL 2** OF MOON ROOF CONTROL RELAY.

WHEN THIS OCCURS, THE RELAY IS ACTIVATED AND THE CURRENT TO **TERMINAL 6** OF MOON ROOF CONTROL RELAY FLOWS FROM **TERMINAL 4** → **TERMINAL 3** OF MOON ROOF MOTOR → **TERMINAL 1** → **TERMINAL 5** OF MOON ROOF CONTROL RELAY → **TERMINAL 11** → TO **GROUND** AND ROTATES THE MOTOR TO CLOSE THE MOON ROOF WHILE THE SW IS BEING PUSHED TO **CLOSE** POSITION.

MOON ROOF LIMIT SW NO. 1 TURNS OFF (LIMIT SW NO. 2 IS ON) AND A **100** MM BEFORE FULLY **CLOSE** POSITION, SIGNAL IS INPUT FROM **TERMINAL 1** OF LIMIT SW NO. 1 TO **TERMINAL 8** OF MOON ROOF CONTROL RELAY. THIS SIGNAL ACTIVATES THE RELAY AND STOPS CONTINUITY FROM **TERMINAL 6** OF MOON ROOF CONTROL RELAY TO **TERMINAL 11**. AS A RESULT, THE MOON ROOF STOPS AT THIS POSITION.

TO CLOSE THE MOON ROOF COMPLETELY, PUSHING THE MOON ROOF CONTROL SW AGAIN TO THE CLOSE SIDE CAUSES A SIGNAL TO BE INPUT AGAIN TO **TERMINAL 2** OF MOON ROOF CONTROL RELAY. THIS ACTIVATES THE RELAY AND THE MOON ROOF WILL CLOSE AS LONG AS THE MOON ROOF CONTROL SW IS BEING PUSHED, ALLOWING THE MOON ROOF TO FULLY CLOSE.

3. TILT UP OPERATION

WHEN THE MOON ROOF CONTROL SW IS PUSHED TO **TILT UP** POSITION, WITH THE IGNITION SW TURNED ON AND THE MOON ROOF COMPLETELY CLOSED (MOON ROOF LIMIT SW NO. 2 IS OFF), A SIGNAL IS INPUT FROM **TERMINAL 5** OF MOON ROOF CONTROL SW TO **TERMINAL 3** OF MOON ROOF CONTROL RELAY. AS A RESULT, THE RELAY IS ACTIVATED AND THE CURRENT TO **TERMINAL 6** OF RELAY FLOWS FROM **TERMINAL 4** OF RELAY → **TERMINAL 3** OF MOON ROOF MOTOR → **TERMINAL 1** → **TERMINAL 5** OF RELAY → **TERMINAL 11** TO **GROUND** AND ROTATES THE MOTOR SO THAT TILT UP OPERATION OCCURS AS LONG AS THE MOON ROOF CONTROL SW IS PUSHED ON THE TILT UP SIDE.

4. TILT DOWN OPERATION

WHEN THE MOON ROOF CONTROL SW IS PUSHED TO **TILT DOWN** POSITION, WITH THE IGNITION SW TURNED ON AND THE MOON ROOF TILTED UP (NO. 1 AND NO. 2 MOON ROOF LIMIT SWITCHES ARE BOTH OFF), A SIGNAL IS INPUT FROM **TERMINAL 2** OF MOON ROOF CONTROL SW TO **TERMINAL 7** OF MOON ROOF CONTROL RELAY.

AS A RESULT, THE RELAY IS ACTIVATED AND THE CURRENT TO **TERMINAL 6** OF RELAY FLOWS FROM **TERMINAL 5** OF RELAY → **TERMINAL 1** OF MOON ROOF MOTOR → **TERMINAL 3** → **TERMINAL 4** OF RELAY → **TERMINAL 11** → TO **GROUND** AND ROTATES THE MOTOR SO THAT TILT DOWN OPERATION OCCURS AS LONG AS THE MOON ROOF CONTROL SW IS PUSHED ON THE TILT DOWN SIDE. (DURING TILT DOWN, LIMIT SW NO. 1 IS CHANGED OFF TO ON.)

5. TILT UP REMINDER SYSTEM

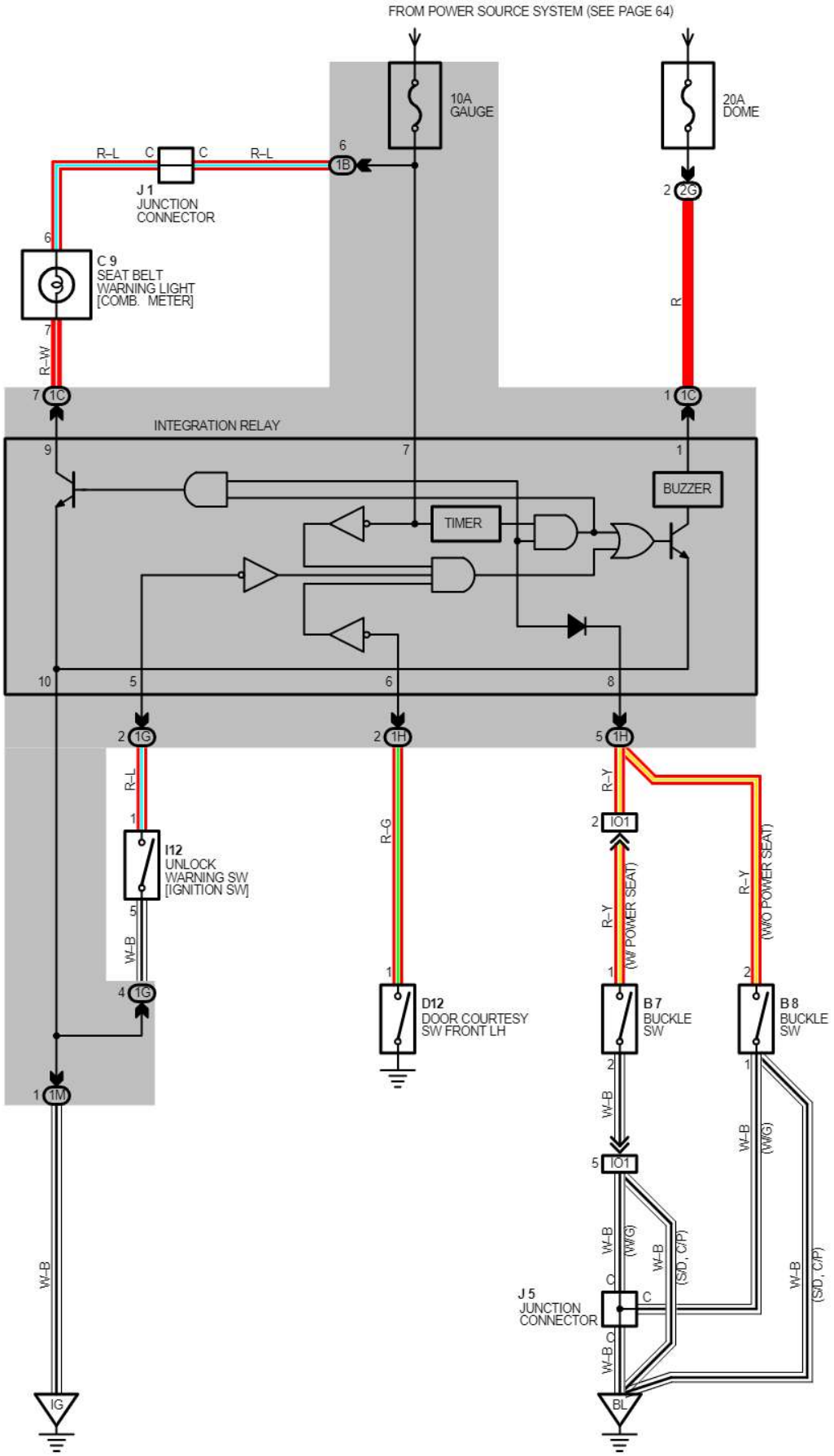
WHEN THE IGNITION SW IS TURNED FROM ON TO ACC OR OFF WITH THE MOON ROOF STILL TILTED UP THE CURRENT DOES NOT FLOW TO **TERMINAL 6** OF MOON ROOF CONTROL RELAY.

THIS IS RECEIVED BY THE RELAY AS A SIGNAL THAT THE IGNITION SW IS TURNED OFF. AT THIS TIME, MOON ROOF LIMIT SW NO.1 AND NO. 2 ARE OFF, SO SIGNALS ARE INPUT TO **TERMINALS 8** AND **9** OF MOON ROOF CONTROL RELAY THAT THE MOON ROOF IS IN THE TILT OPERATION POSITION. WHEN THESE SIGNALS ARE INPUT TO THE MOON ROOF CONTROL RELAY, THE TIMER BUILT INTO THE RELAY OPERATES.

THUS THE CURRENT TO **TERMINAL 12** OF MOON ROOF CONTROL RELAY FLOWS THROUGH BUZZER OF MOON ROOF CONTROL RELAY AND **TERMINAL 11** OF MOON ROOF CONTROL RELAY TO **GROUND** AND THE BUZZER SOUNDS ABOUT **8** TIMES TO NOTIFY THAT THE MOON ROOF IS STILL IN THE TILT UP CONDITION.

cardiagn.com

UNLOCK AND SEAT BELT WARNING



cardiagn.com

170

SYSTEM OUTLINE

CURRENT ALWAYS FLOWS TO **TERMINAL 1** OF THE INTEGRATION RELAY THROUGH THE **DOME** FUSE.

1. SEAT BELT WARNING SYSTEM

WHEN THE IGNITION SW IS TURNED ON, CURRENT FLOWS FROM THE **GAUGE** FUSE TO THE **TERMINAL 7** OF THE INTEGRATION RELAY AT THE SAME TIME, CURRENT FLOWS TO **TERMINAL 9** OF THE RELAY FROM THE **GAUGE** FUSE THROUGH THE SEAT BELT WARNING LIGHT. THIS CURRENT ACTIVATES THE SEAT BELT WARNING RELAY AND, CURRENT FLOWING THROUGH THE WARNING LIGHT FLOWS FROM **TERMINAL 9** OF THE RELAY→ **TERMINAL 10** → **GROUND**, CAUSING THE WARNING LIGHT TO LIGHT UP. AT THE SAME AS THE WARNING LIGHT LIGHTS UP. A BUCKLE SW OFF SIGNAL IS INPUT TO **TERMINAL 8** OF THE RELAY, THE CURRENT FLOWING TO **TERMINAL 1** OF THE RELAY FLOWS FROM **TERMINAL 10** → **GROUND** AND THE SEAT BELT WARNING BUZZER SOUNDS FOR APPROX. **4–8** SECONDS. HOWEVER, IF SEAT BELT IS PUT ON DURING THIS PERIOD (WHILE THE BUZZER IS SOUNDING), SIGNAL INPUT TO **TERMINAL 8** OF THE RELAY STOPS AND THE CURRENT FLOW FROM **TERMINAL 1** OF THE RELAY → **TERMINAL 10** → **GROUND** IS CUT, CAUSING THE BUZZER TO STOP.

2. UNLOCK WARNING SYSTEM

WITH THE IGNITION KEY INSERTED IN THE KEY CYLINDER (UNLOCK WARNING SW ON), THE IGNITION SW STILL OFF AND DOOR OPEN (DOOR COURTESY SW ON), WHEN A SIGNAL IS INPUT **TERMINAL 5** AND **6** OF THE RELAY, THE INTEGRATION RELAY OPERATES, CURRENT FLOWS FROM **TERMINAL 1** OF THE RELAY → **TERMINAL 10** → **GROUND** AND THE UNLOCK WARNING BUZZER SOUNDS.

SERVICE HINTS

B 7, B 8 BUCKLE SW
1–2 : CLOSED WITH DRIVR'S LAP BELT IN USE

D12 DOOR COURTESY SW FRONT LH
1–GROUND : CLOSED WITH FRONT LH DOOR OPEN

INTEGRATION RELAY
10–GROUND : ALWAYS CONTINUITY
6–GROUND : CONTINUITY WITH FRONT LH DOOR OPEN
5–GROUND : CONTINUITY WITH IGNITION KEY IN CYLINDER
8–GROUND : CONTINUITY UNLESS DRIVER'S LAP BELT IN USE
9–GROUND : **0** VOLTS WITH IGNITION SW ON AND BUCKLE SW OFF
1–GROUND : ALWAYS APPROX. **12** VOLTS
7–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION

I12 UNLOCK WARNING SW [IGNITION SW]
1–5 : CLOSED WITH IGNITION KEY IN CYLINDER

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
B 7	32	D12	34 (S/D), 35 (C/P), 36 (W/G)	J 5	36 (W/G)
B 8	32	I12	33		
C 9	32	J 1	33		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1C		
1G		
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
2E	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IO1	42	FLOOR NO. 1 WIRE AND SEAT WIRE

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IG	42	INSTRUMENT PANEL BRACE LH
BL	46 (S/D)	UNDER THE LEFT QUARTER PILLAR
	48 (C/P)	
	50 (W/G)	

cardiagn.com

UNLOCK AND SEAT BELT WARNING

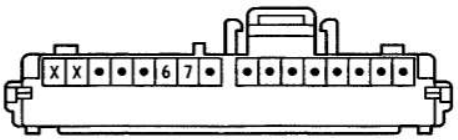
B 7



B 8



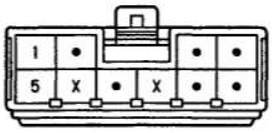
C 9



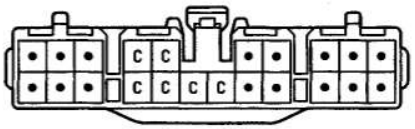
D12



I12

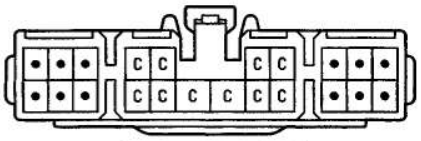


J 1 DARK GRAY



(HINT:SEE PAGE 7)

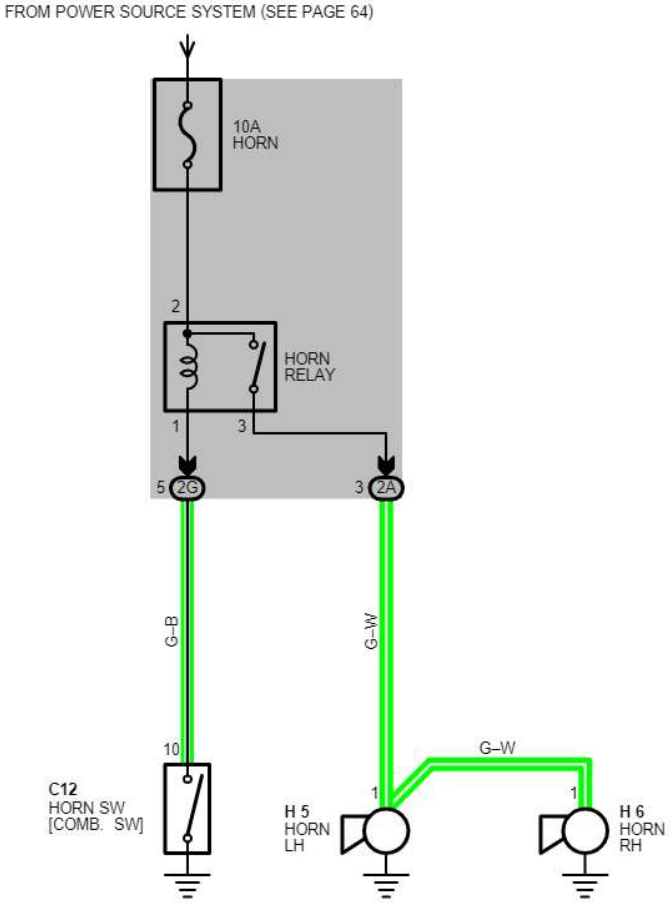
J 5



(HINT:SEE PAGE 7)

cardiagn.com

HORN



SERVICE HINTS

HORN RELAY
2–3 : CLOSED WITH HORN SW ON

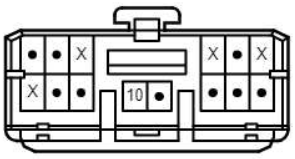
○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C12	32	**H 5**	28 (1MZ–FE), 30 (5S–FE)	**H 6**	28 (1MZ–FE), 30 (5S–FE)

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
2A	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2E		

C12 BLACK



H 5, H 6 BLACK



cardiagn.com

SRS (SUPPLEMENTAL RESTRAINT SYSTEM)

NOTICE: When inspecting or repairing the SRS (supplemental restraint system), perform the operation in accordance with the following precautionary instructions and the procedure and precautions in the Repair Manual for the applicable model year.

- Malfunction symptoms of the supplemental restraint system are difficult to confirm, so the diagnostic trouble codes become the most important source of information when troubleshooting.

  When troubleshooting the supplemental restraint system, always inspect the diagnostic trouble codes before disconnecting the battery.

- Work must be started after 90 seconds from the time the Ignition SW is set to the “LOCK” position and the negative (–) terminal cable is disconnected from the battery.

  (The supplemental restraint system is equipped with a back–up power source so that if work is started within 90 seconds of disconnecting the negative (–) terminal cable of the battery, the SRS may be activated.)

  When the negative (–) terminal cable is disconnected from the battery, memory of the clock and audio systems will be cancelled. So before starting work, make a record of the contents momorized by each memory system. When work is finished, reset the clock and audio system as before and adjust the clock. This vehicle has tilt and telescopic steering, power seat and outside rear view mirror and power shoulder belt anchorage, which are all equipped with memory function, it is not possible to make a record of the customer, and ask the customer to adjust the features and reset the memory.

  To avoid erasing the memory of each memory system, never use a back–up power supply from outside the vehicle.

- When removing the steering wheel pad or handling a new steering wheel pad, keep the pad upper surface facing upward. Also, lock the lock lever of the twin lock type connector at the rear of the pad and take care not to damage the connector.

  (Storing the pad with its metallic surface up may lead to a serious accident if the SRS inflates for some reason.)

- Store the steering wheel pad where the ambient temperature remains below 93˚C (200˚F), without high humidity and away from electrical noise.

- Never use SRS parts from another vehicle. When replacing SRS parts, replace them with new parts.

- Never disassemble and repair the steering wheel pad, center SRS sensor assembly or front airbag sensors.

- Before repairing the body, remove the airbag sensors if during repair shocks are likely to be applied to the sensors due to vibration of the body or direct tapping with tools or other parts.

- Do not reuse a steering wheel pad or front airbag sensors.

  After evaluating whether the center airbag sensor assembly is damaged or not, decide whether or not to reuse it. (See the Repair Manual for the method for evaluating the center airbag sensor assembly.)

- When troubleshooting the supplemental restraint system, use a high–impedance (Min. 10k /V) tester.

- The wire harness of the supplemental restraint system is integrated with the cowl wire harness assembly and engine wire harness assembly.

  The vehicle wiring harness exclusively for the airbag system is distinguished by corrugated yellow tubing, as are the connectors.

- Do not measure the resistance of the airbag squib.

  (It is possible this will deploy the airbag and is very dangerous.)

- If the wire harness used in the supplemental restraint system is damaged, replace the whole wire harness assembly.

  When the connector to the airbag front sensors can be repaired alone (when there is no damage to the wire harness), use the repair wire specially designed for the purpose.

  (Refer to the Repair Manual for the applicable Model year for details of the replacement method.)

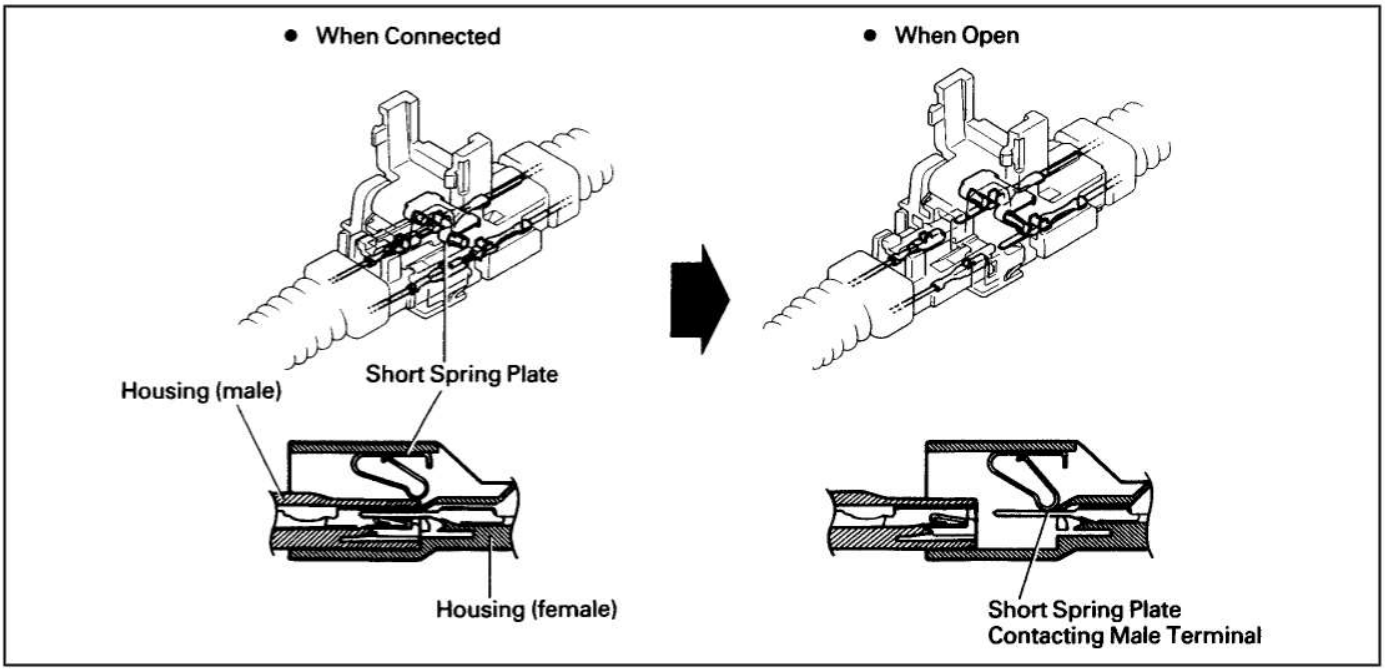
- INFORMATION LABELS (NOTICES) are attached to the periphery of the SRS components. Follow the instructions on the notices.

cardiagn.com

The supplemental restraint system has connectors which possess the functions described below:

1. SRS ACTIVATION PREVENTION MECHANISM

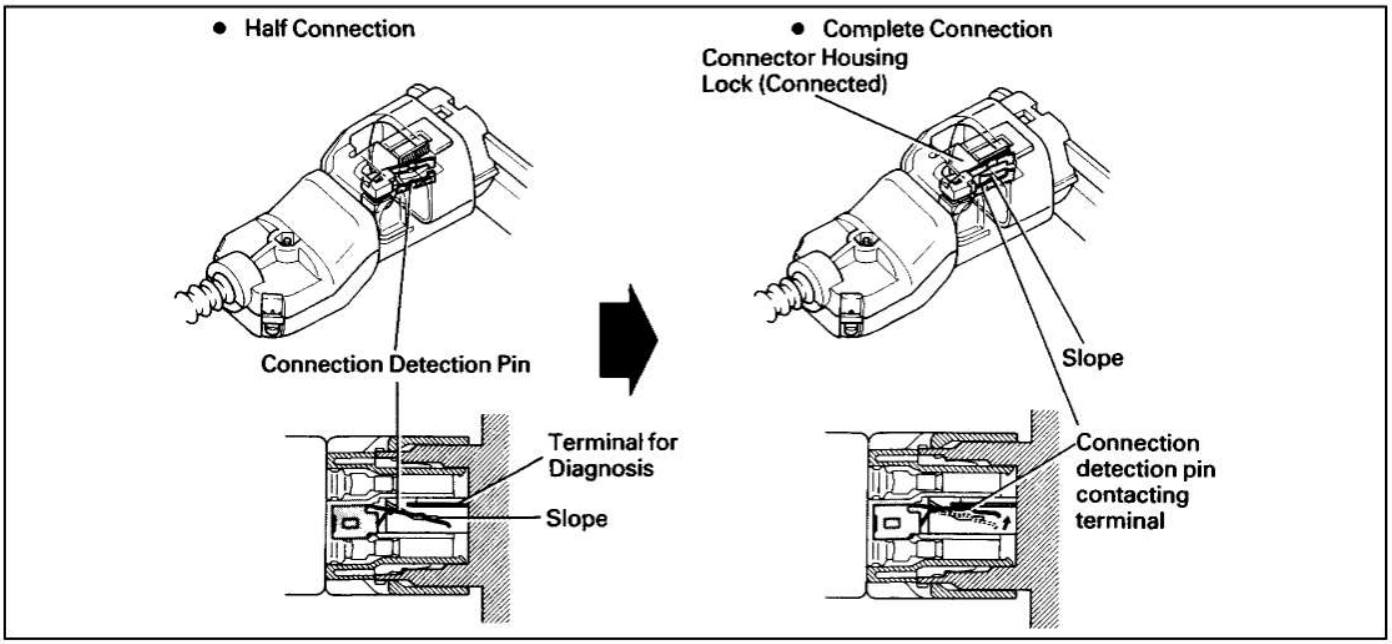
Each connector contains a short spring plate. When the connector is disconnected, the short spring plate automatically connects the power source and grounding terminals of the squib to preclude a potential difference between the terminals.



2. ELECTRICAL CONNECTION CHECK MECHANISM

This mechanism is designed to electrically check if connectors are connected correctly and completely.

The electrical connection check mechanism is designed so that the connection detection pin connects with the diagnosis terminals when the connector housing lock is in the locked condition.

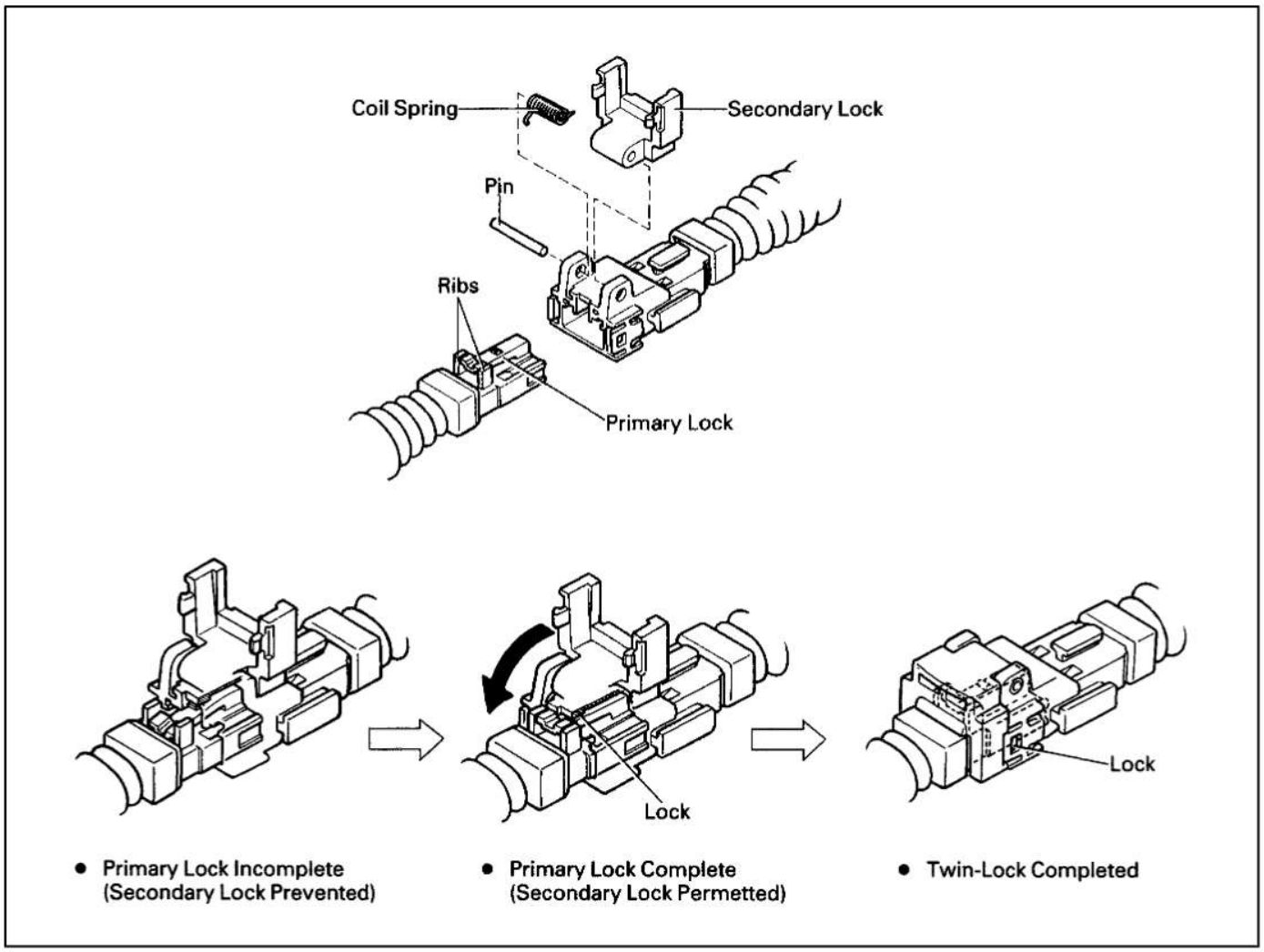


cardiagn.com

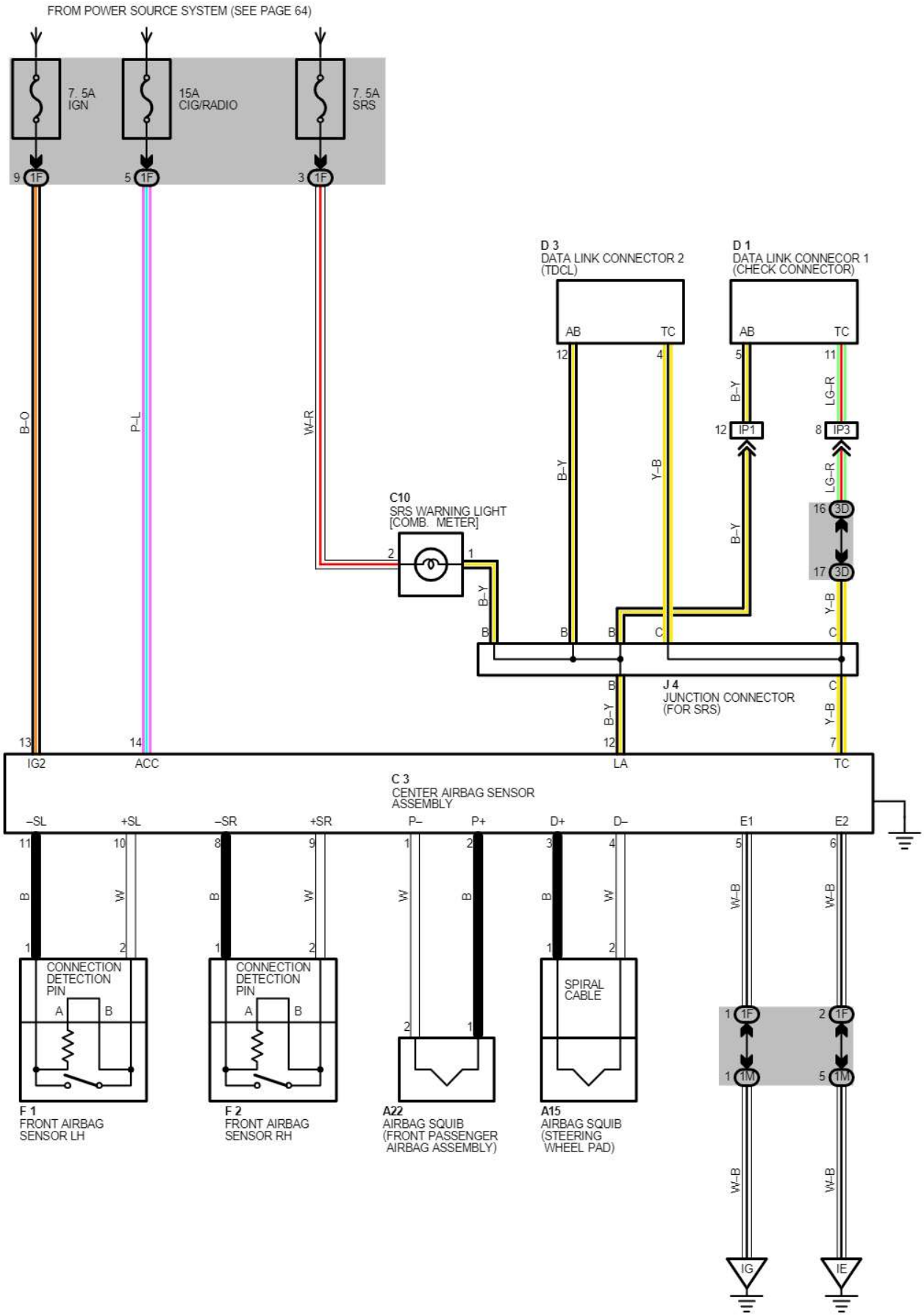
SRS (SUPPLEMENTAL RESTRAINT SYSTEM)

3. CONNECTOR TWIN–LOCK MECHANISM

With this mechanism connectors (male and female connectors) are locked by two locking devices to increase connection reliability. If the primary lock is incomplete, ribs interfere and prevent the secondary lock.



cardiagn.com



177

cardiagn.com

SRS (SUPPLEMENTAL RESTRAINT SYSTEM)

SYSTEM OUTLINE

THE SRS (SUPPLEMENTAL RESTRAINT SYSTEM) IS A DRIVER AND PASSENGER PROTECTION DEVICE WHICH HAS A SUPPLEMENTAL ROLE TO THE SEAT BELTS.

WHEN THE IGNITION SW IS TURNED TO ACC OR ON, CURRENT FROM THE **CIG/RADIO** FUSE FLOWS TO **TERMINAL 14** OF THE CENTER AIRBAG SENSOR ASSEMBLY. ONLY WHEN THE IGNITION SW IS ON DOES THE CURRENT FROM THE **IGN** FUSE FLOW TO **TERMINAL 13**.

IF AN ACCIDENT OCCURS WHILE DRIVING, DECELERATION CAUSED BY A FRONTAL IMPACT IS DETECTED BY EACH SENSOR AND SWITCH, AND WHEN THE FRONTAL IMPACT EXCEEDS A SET LEVEL (WHEN THE SAFING SENSOR BUILT INTO THE CENTER AIRBAG SENSOR ASSEMBLY IS ON AND THE CENTER AIRBAG SENSOR IS ON, FRONT AIRBAG SENSORS ARE OFF), CURRENT FROM THE **CIG/RADIO** OR **IGN** FUSE FLOWS TO **TERMINALS 2**, **3** OF THE CENTER AIRBAG SENSOR ASSEMBLY → **TERMINAL 1** OF THE AIRBAG SQUIB → SQUIB → **TERMINAL 2** → **TERMINALS 1**, **4** OF CENTER AIRBAG SENSOR ASSEMBLY → **TERMINAL 6**, **TERMINAL 5** OR **BODY GROUND** → **GROUND**.

WHEN THE SAFING SENSOR BUILT INTO THE CENTER AIRBAG SENSOR ASSEMBLY IS ON AND THE FRONT AIRBAG SENSOR LH OR RH IS ON, CENTER AIRBAG SENSOR IS OFF CURRENT FROM THE **CIG/RADIO** OR **IGN** FUSE FLOWS TO **TERMINALS 2, 3** OF THE CENTER AIRBAG SENSOR ASSEMBLY → **TERMINAL 1** OF THE AIRBAG SQUIB → SQUIB → **TERMINAL 2** → **TERMINALS 1**, **4** OF CENTER AIRBAG SENSOR ASSEMBLY → **TERMINAL 8** OR **11** → **TERMINAL 1** OF FRONT AIRBAG SENSOR → **TERMINAL 2** → **TERMINAL 9** OR **10** OF CENTER AIRBAG SENSOR ASSEMBLY → **TERMINAL 6**, **TERMINAL 5** OR **BODY GROUND** → **GROUND**.

WHEN THE SAFING SENSOR BUILT INTO THE CENTER AIRBAG SENSOR ASSEMBLY IS ON, AND THE FRONT AIRBAG SENSOR LH OR RH IS ON AND CENTER AIRBAG SENSOR IS ON ONE OF THE ABOVE–MENTIONED CIRCUITS IS ACTIVATED SO THAT CURRENT FLOWS TO THE AIRBAG SQUIB AND CAUSES IT TO OPERATE. THE BAG STORED INSIDE THE STEERING WHEEL PAD IS INSTANTANEOUSLY EXPANDED TO SOFTEN THE SHOCK TO THE DRIVER.

○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A15	32	**D 1**	28 (1MZ–FE), 30 (5S–FE)	**F 2**	28 (1MZ–FE), 30 (5S–FE)
C 3	32	**D 3**	32	**J 4**	33
C10	32	**F 1**	28 (1MZ–FE), 30 (5S–FE)		

⬭ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1F	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M		
3D	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

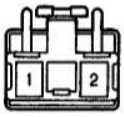
CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IP1	44	ENGINE WIRE AND COWL WIRE
IP3		

▽ : GROUND POINTS

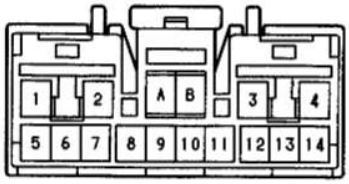
CODE	SEE PAGE	GROUND POINTS LOCATION
IE	42	LEFT KICK PANEL
IG	42	INSTRUMENT PANEL BRACE LH

cardiagn.com

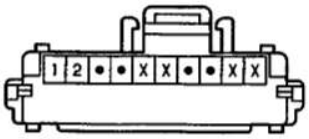
A15 YELLOW



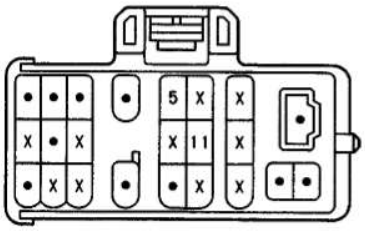
C 3 YELLOW



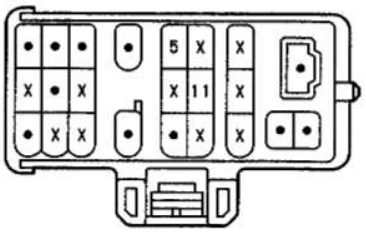
C10 GRAY



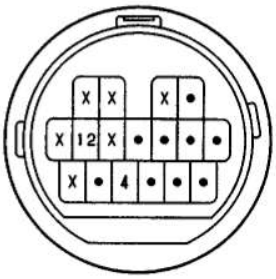
(1MZ-FE) D 1 BLACK



(5S-FE) D 1 BLACK



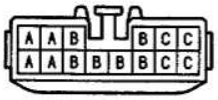
D 3 DARK GRAY



F 1, F 2 YELLOW



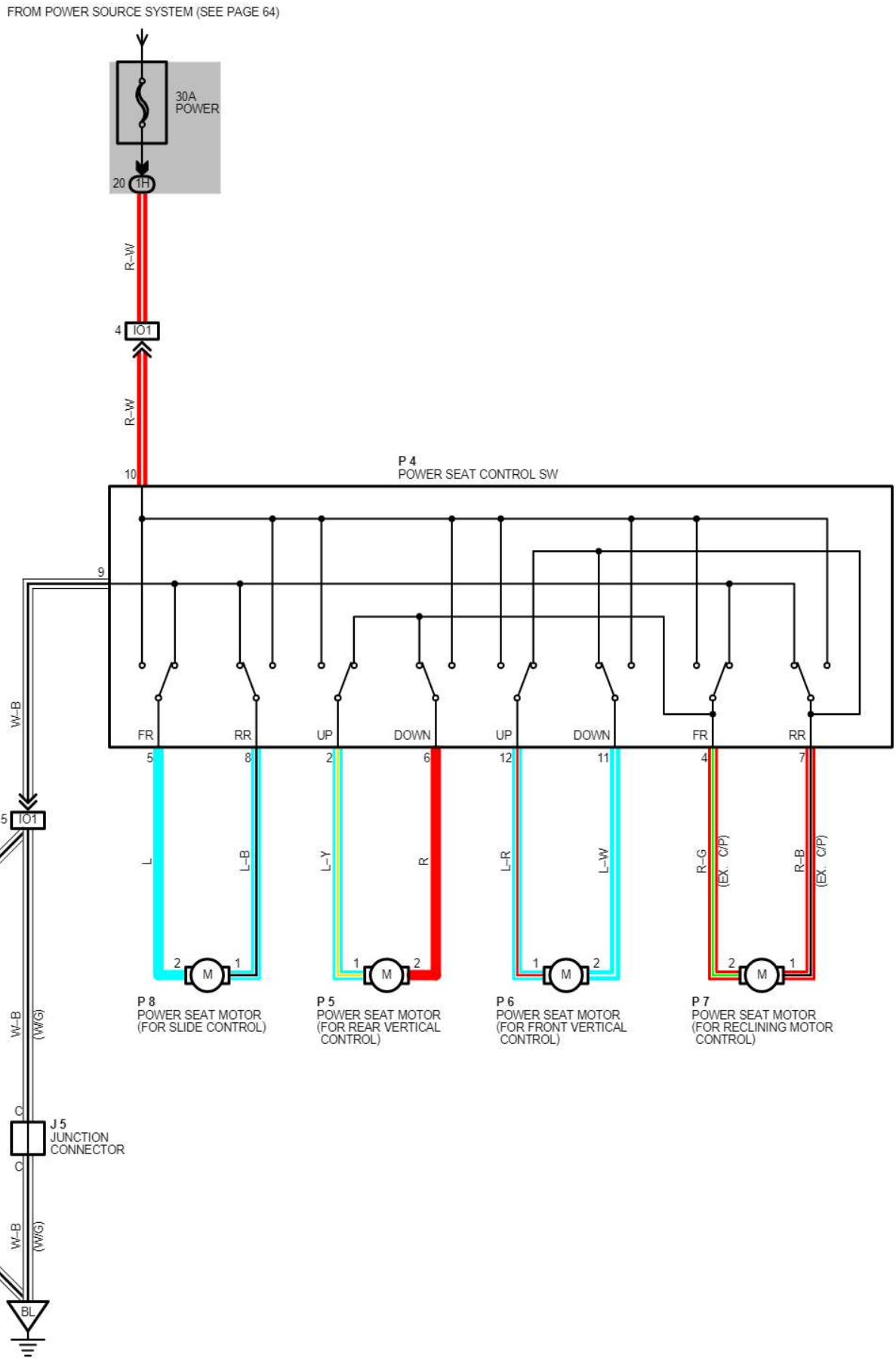
J 4



(HINT: SEE PAGE 7)

cardiagn.com

POWER SEAT



cardiagn.com

180

SERVICE HINTS

P 4 POWER SEAT CONTROL SW
10–GROUND : ALWAYS APPROX. **12** VOLTS
9–GROUND : ALWAYS CONTINUITY

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
J 5	36 (W/G)	**P 5**	33	**P 7**	33
P 4	33	**P 6**	33	**P 8**	33

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IO1	42	FLOOR NO. 1 WIRE AND SEAT WIRE

: GROUND POINTS

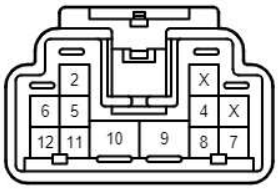
CODE	SEE PAGE	GROUND POINTS LOCATION
BL	46 (S/D) 48 (C/P) 50 (W/G)	UNDER THE LEFT QUARTER PILLAR

J 5

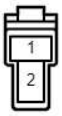


(HINT : SEE PAGE 7)

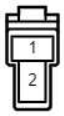
P 4 GRAY



P 5 ORANGE



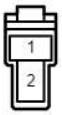
P 6 ORANGE



P 7 WHITE

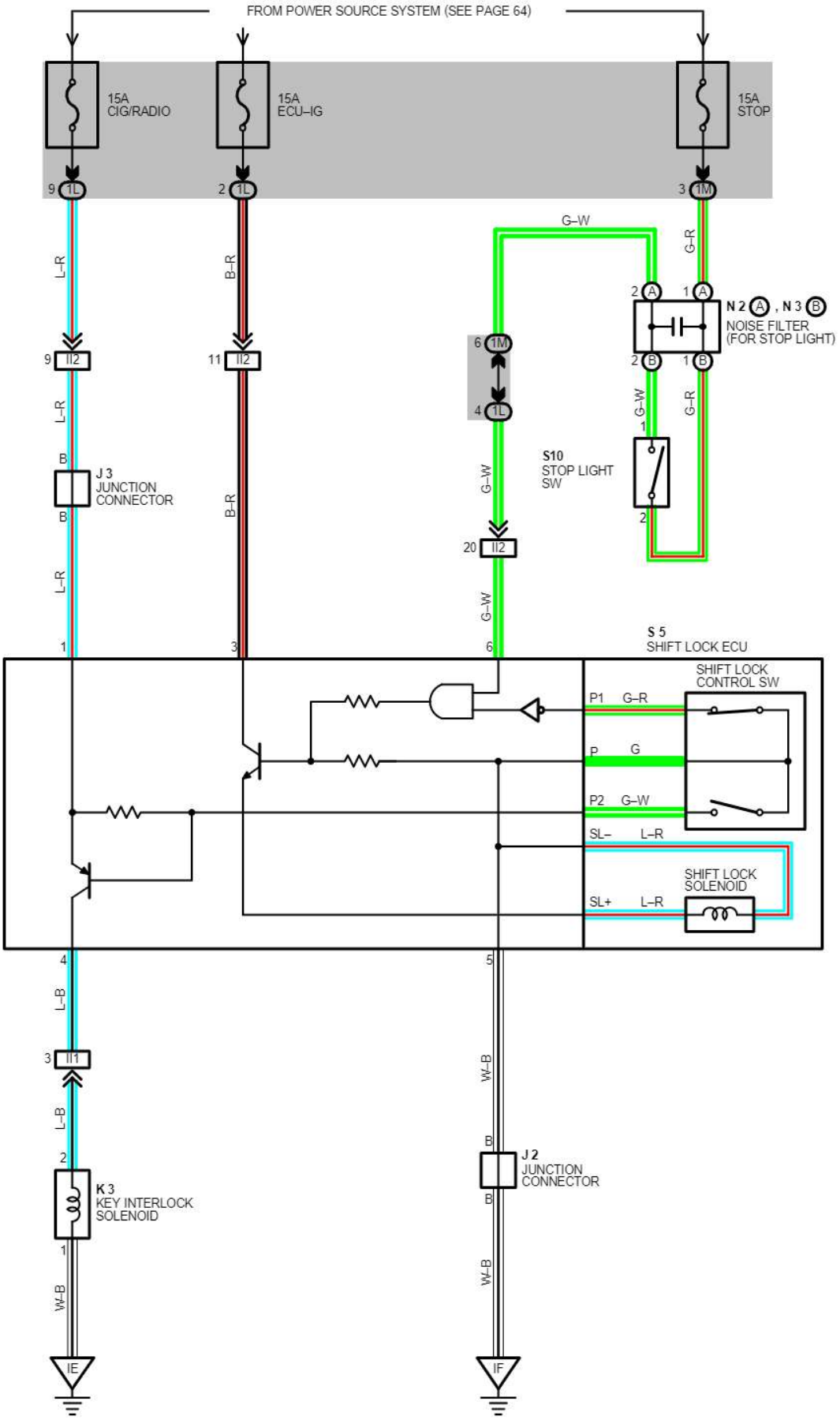


P 8 GREEN



cardiagn.com

SHIFT LOCK



cardiagn.com

182

SYSTEM OUTLINE

WHEN THE IGNITION SW IS TURNED TO **ACC** POSITION THE CURRENT FROM THE **CIG/RADIO** FUSE FLOWS TO **TERMINAL 1** OF THE SHIFT LOCK ECU. WHEN THE IGNITION SW IS TURNED TO **ON** POSITION THE CURRENT FROM THE **ECU–IG** FUSE FLOWS TO **TERMINAL 3** OF THE ECU.

1. SHIFT LOCK MECHANISM

WITH THE IGNITION SW ON, WHEN A SIGNAL THAT THE BRAKE PEDAL IS DEPRESSED (STOP LIGHT SW ON) AND A SIGNAL THAT THE SHIFT LEVER IS PUT IN **"P"** POSITION (CONTINUITY BETWEEN P1 AND P OF THE SHIFT LOCK CONTROL SW) IS INPUT TO THE ECU, THE ECU OPERATES AND CURRENT FLOWS FROM **TERMINAL 3** OF THE ECU → **TERMINAL SL+** OF THE SHIFT LOCK SOLENOID → SOLENOID → **TERMINAL SL–** → **TERMINAL 5** OF THE ECU → **GROUND**. THIS CAUSES THE SHIFT LOCK SOLENOID TO TURN ON (PLATE STOPPER DISENGAGES) AND THE SHIFT LEVER CAN SHIFT INTO OTHER POSITION THAN THE **"P"** POSITION.

2. KEY INTERLOCK MECHANISM

WITH THE IGNITION SW IN **ON** OR **ACC** POSITION, WHEN THE SHIFT LEVER IS PUT IN **"P"** POSITION (NO CONTINUITY BETWEEN P2 AND P OF SHIFT LOCK CONTROL SW), THE CURRENT FLOWING FROM **TERMINAL 4** OF THE ECU → KEYINTERLOCK SOLENOID IS CUT OFF. THIS CAUSES THE KEYINTERLOCK SOLENOID TO TURN OFF (LOCK LEVER DISENGAGES FROM **LOCK** POSITION) AND THE IGNITION KEY CAN BE TURNED FROM **ACC** TO **LOCK** POSITION.

SERVICE HINTS

S 5 SHIFT LOCK ECU

1–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ACC** OR **ON** POSITION
3–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
5–GROUND : ALWAYS CONTINUITY
6–GROUND : APPROX. **12** VOLTS WITH BRAKE PEDAL DEPRESSED
4–GROUND : **0** VOLTS WITH IGNITION SW AT **ACC** POSITION AND SHIFT LEVER POSITION IN **P** POSITION
6–12 VOLTS WITH SHIFT LEVER POSITION IN EXCEPT **P** POSITION

○ : PARTS LOCATION

CODE	SEE PAGE	CODE		SEE PAGE	CODE	SEE PAGE
J 2	33	**N 2**	A	33	**S10**	33
J 3	33	**N 3**	B	33		
K 3	33	**S 5**		33		

⬭ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

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

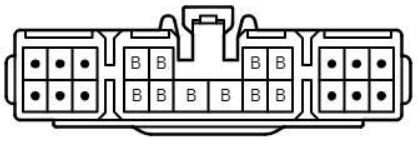
▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
II1	42	COWL WIRE AND INSTRUMENT PANEL WIRE
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE

▽ : GROUND POINTS

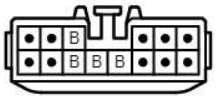
CODE	SEE PAGE	GROUND POINTS LOCATION
IE	42	LEFT KICK PANEL
IF		

J 2



(HINT : SEE PAGE 7)

J 3



(HINT : SEE PAGE 7)

K 3



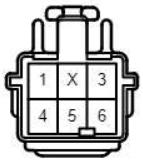
N 2 (A)



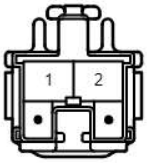
N 3 (B)



S 5

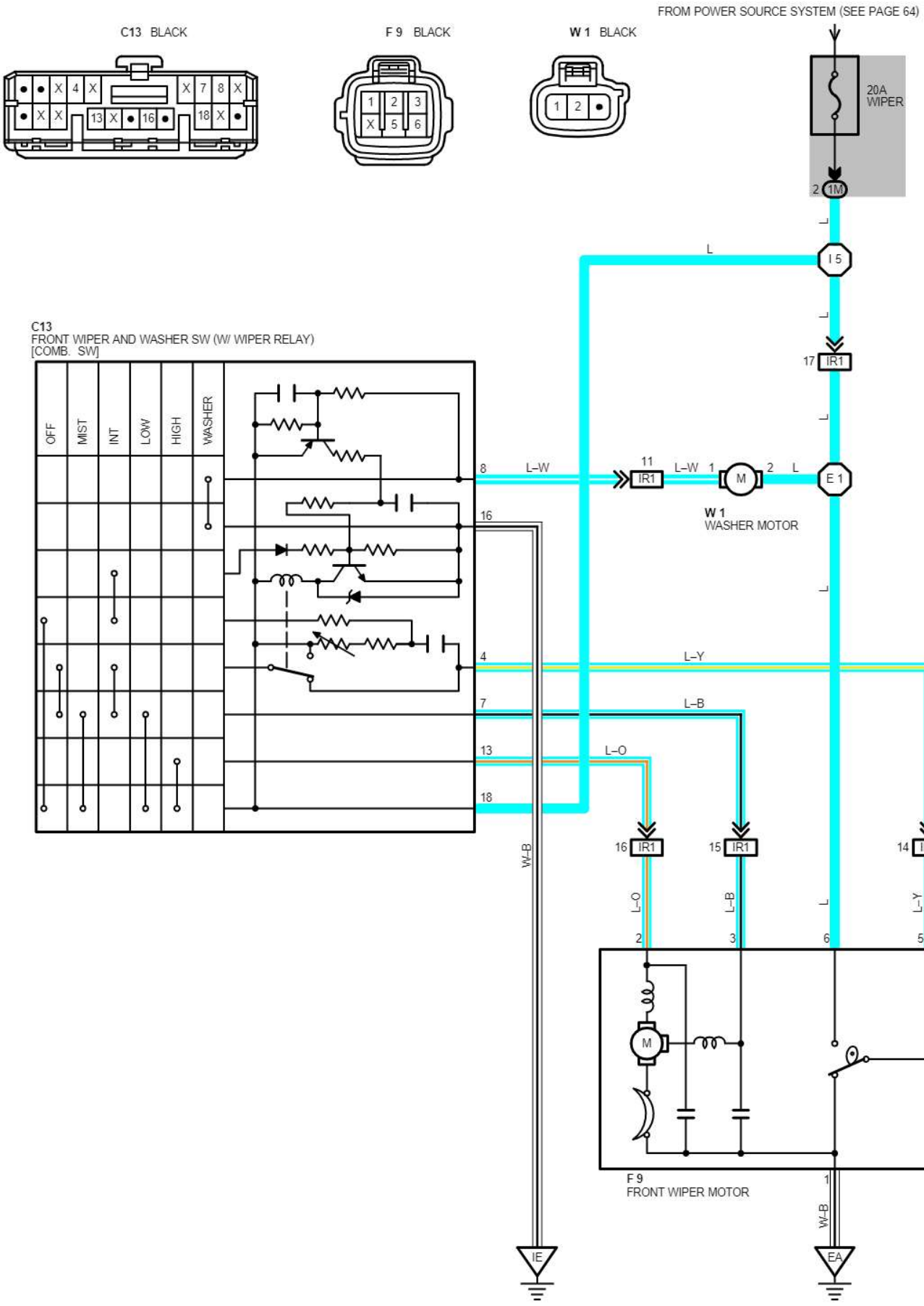


S10 BLUE



cardiagn.com

FRONT WIPER AND WASHER



cardiagn.com

SYSTEM OUTLINE

WITH THE IGNITION SW TURNED ON, THE CURRENT FLOWS TO **TERMINAL 18** OF THE WIPER AND WASHER SW, **TERMINAL 2** OF THE WASHER MOTOR AND **TERMINAL 4** OF THE WIPER MOTOR THROUGH THE **WIPER** FUSE.

1. LOW SPEED POSITION

WITH WIPER SW TURNED TO **LOW** POSITION, THE CURRENT FLOWS FROM **TERMINAL 18** OF THE WIPER AND WASHER SW → **TERMINAL 7** → **TERMINAL 3** OF THE WIPER MOTOR → WIPER MOTOR → **TERMINAL 1** → TO **GROUND** AND CAUSES TO THE WIPER MOTOR TO RUN AT LOW SPEED.

2. HIGH SPEED POSITION

WITH WIPER SW TURNED TO **HIGH** POSITION, THE CURRENT FLOWS FROM **TERMINAL 18** OF THE WIPER AND WASHER SW → **TERMINAL 13** → **TERMINAL 2** OF THE WIPER MOTOR → WIPER MOTOR → **TERMINAL 1** → TO **GROUND** AND CAUSES TO THE WIPER MOTOR TO RUN AT HIGH SPEED.

3. INT POSITION

WITH WIPER SW TURNED TO **INT** POSITION, THE RELAY OPERATES AND THE CURRENT WHICH IS CONNECTED BY RELAY FUNCTION FLOWS FROM **TERMINAL 18** OF THE WIPER AND WASHER SW → **TERMINAL 16** → TO **GROUND**. THIS FLOW OF CURRENT OPERATES THE INTERMITTENT CIRCUIT AND THE CURRENT FLOWS FROM **TERMINAL 18** OF THE WIPER AND WASHER SW → **TERMINAL 7** → **TERMINAL 3** OF THE WIPER MOTOR → **TERMINAL 1** → TO **GROUND** AND THE WIPER FUNCTIONS.

THE INTERMITTENT OPERATION IS CONTROLLED BY A CONDENSER'S CHARGED AND DISCHARGED FUNCTION INSTALLED IN RELAY AND THE INTERMITTENT TIME IS CONTROLLED BY A TIME CONTROL SW TO CHANGE THE CHARGING TIME OF THE CONDENSER.

4. WASHER CONTINUOUS OPERATION

WITH WASHER SW TURNED TO ON, THE CURRENT FLOWS FROM **TERMINAL 2** OF THE WASHER MOTOR → **TERMINAL 1** → **TERMINAL 8** OF THE WIPER AND WASHER SW → **TERMINAL 16** → TO **GROUND** AND CAUSES TO THE WASHER MOTOR TO RUN AND WINDOW WASHER TO JET. THIS CAUSES THE CURRENT TO FLOW TO WASHER CONTINUOUS OPERATION CIRCUIT IN **TERMINAL 18** OF THE WIPER AND WASHER SW → **TERMINAL 7** → **TERMINAL 3** OF THE WIPER MOTOR → **TERMINAL 1** → TO **GROUND** AND THE WIPER FUNCTION.

SERVICE HINTS

C13 FRONT WIPER AND WASHER SW (W/ WIPER RELAY) [COMB. SW]

16–GROUND : ALWAYS CONTINUITY
18–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
7–GROUND : APPROX. **12** VOLTS WITH WIPER AND WASHER SW AT **LOW** OR **MIST** POSITION
APPROX. **12** VOLTS **2** TO **12** SECONDS INTERMITTENTLY WITH WIPER SW AT **INT** POSITION
4–GROUND : APPROX. **12** VOLTS WITH IGNITION SW ON UNLESS WIPER MOTOR AT **STOP** POSITION
13–GROUND : APPROX. **12** VOLTS WITH WIPER AND WASHER SW AT **HIGH** POSITION

F 9 FRONT WIPER MOTOR

5–6 : CLOSED UNLESS WIPER MOTOR AT **STOP** POSITION

○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C13	32	**F 9**	28 (1MZ–FE), 30 (5S–FE)	**W 1**	28 (1MZ–FE), 30 (5S–FE)

⬭ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IR1	44	ENGINE ROOM MAIN WIRE AND COWL WIRE

▽ : GROUND POINTS

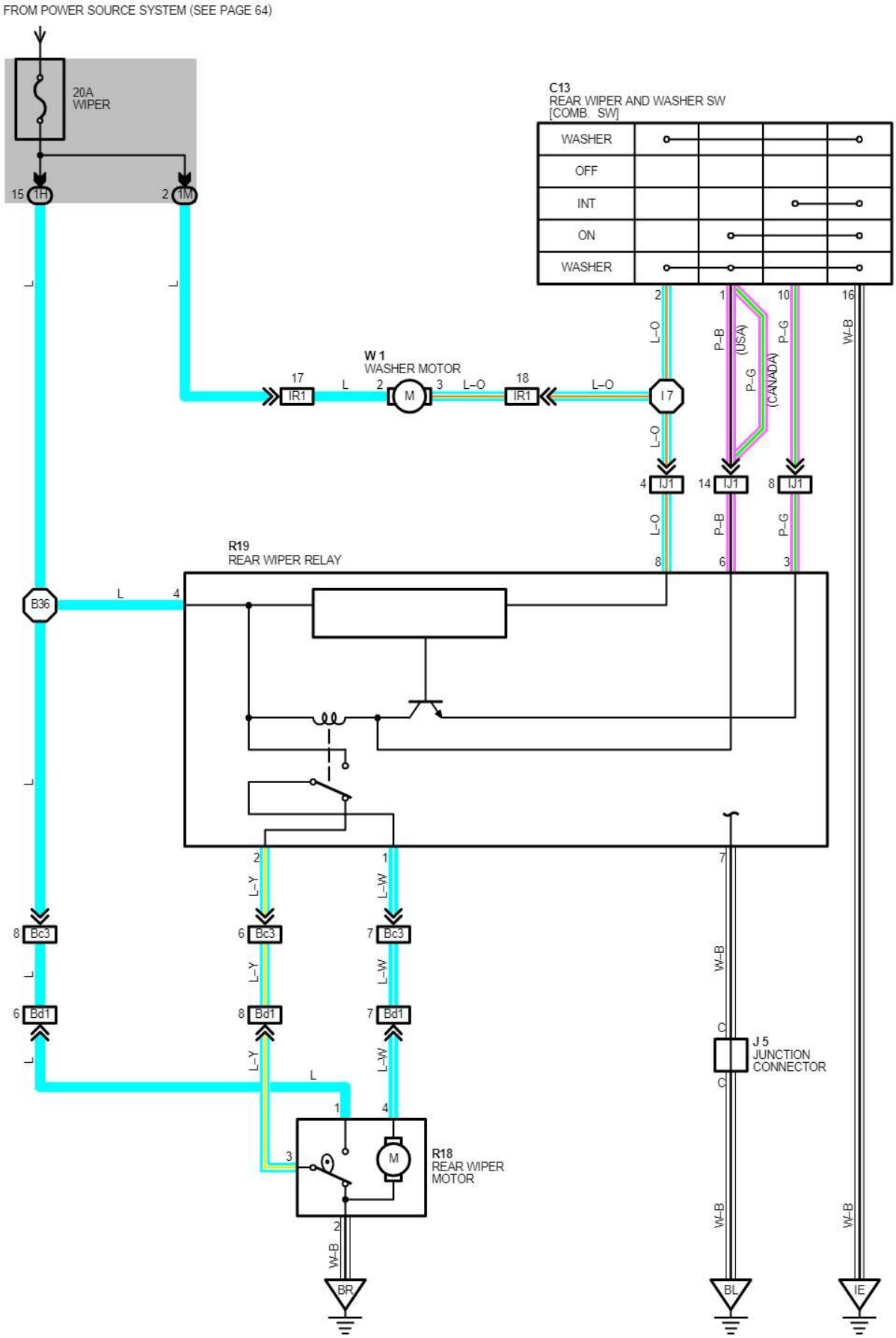
CODE	SEE PAGE	GROUND POINTS LOCATION
EA	38 (1MZ–FE)	FRONT RIGHT FENDER
	40 (5S–FE)	
IE	42	LEFT KICK PANEL

⬡ : SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E 1	38 (1MZ–FE)	ENGINE ROOM MAIN WIRE	**I 5**	44	COWL WIRE
	40 (5S–FE)				

cardiagn.com

REAR WIPER AND WASHER



cardiagn.com

SYSTEM OUTLINE

WHEN THE IGNITION SW IS TURNED ON, CURRENT FLOWS TO **TERMINAL 2** OF WASHER MOTOR, **TERMINAL 4** OF REAR WIPER RELAY AND **TERMINAL 1** OF REAR WIPER MOTOR THROUGH THE **WIPER** FUSE.

1. REAR WIPER NORMAL OPERATION

WITH THE IGNITION SW TURNED ON AND REAR WIPER AND WASHER SW TURNED ON, THE CURRENT FLOWING TO **TERMINAL 4** OF REAR WIPER RELAY FLOWS TO **TERMINAL 6** OF RELAY → **TERMINAL 1** OF REAR WIPER AND WASHER SW → **TERMINAL 16** → TO **GROUND**. THUS, THE RELAY COIL IS ACTIVATED AND THE CURRENT TO **TERMINAL 4** OF RELAY FLOWS TO **TERMINAL 1** → **TERMINAL 4** OF REAR WIPER MOTOR → MOTOR → **TERMINAL 2** → TO **GROUND** AND CAUSES THE MOTOR TO OPERATE THE WIPER.

2. REAR WIPER INTERMITTENT OPERATION

WITH THE IGNITION SW TURNED ON AND REAR WIPER AND WASHER SW TURNED TO **INT** POSITION, THE CURRENT FLOWING TO **TERMINAL 4** OF REAR WIPER RELAY FLOWS TO **TERMINAL 3** OF RELAY → **TERMINAL 10** OF WIPER SW → **TERMINAL 16** → TO **GROUND**. AS A RESULT, THE RELAY OPERATES AND CURRENT FLOWS FROM **TERMINAL 4** OF RELAY → **TERMINAL 1** → **TERMINAL 4** OF REAR WIPER MOTOR → MOTOR → **TERMINAL 2** → TO **GROUND**, CAUSING THE MOTOR TO ROTATE TO OPERATE THE WIPER. AT THIS TIME THE CONTACT IN THE WIPER MOTOR CLOSED AND THE CURRENT FLOWS FROM **TERMINAL 1** OF REAR WIPER MOTOR → **TERMINAL 3** → **TERMINAL 2** OF REAR WIPER RELAY → **TERMINAL 1** → **TERMINAL 4** OF REAR WIPER MOTOR → **TERMINAL 2** → TO **GROUND**.

THUS, THE INTERMITTENT–STOP CIRCUIT OPERATES, THE CONDENOR IN THE CIRCUIT CHARGES AND THE WIPER CONTINUES TO OPERATE UNTIL REACHING THE STOP POSITION. AFTER THE WIPER STOPS, CURRENT DOES NOT FLOW TO THE INTERMITTENT–STOP CIRCUIT FROM **TERMINAL 2** OF RELAY, BUT THE CONDENSER DISCHARGES CURRENT INTO THE INTERMITTENT CIRCUIT AND THE CIRCUIT OPERATES UNTIL THE CONDENSER DISCHARGE ENDS. AS A RESULT, THIS DISCHARGE INTERVAL BECOMES THE INTERMITTENT TIME.

WHEN THE CURRENT IS DISCHARGED COMPLETELY, THE CURRENT FLOWING TO **TERMINAL 4** OF RELAY FLOWS TO **TERMINAL 3** → **TERMINAL 10** OF REAR WIPER AND WASHER SW → **TERMINAL 16** → TO **GROUND**.

THEN, THE CURRENT IN **TERMINAL 4** OF RELAY FLOWS FROM **TERMINAL 1** → **TERMINAL 4** OF MOTOR → MOTOR → **TERMINAL 2** → TO **GROUND** AND ROTATES THE MOTOR. THROUGH REPEITION OF THIS PROCESS, INTERMITTENT OPERATION OF THE REAR WIPER OCCURS.

3. WASHER OPERATION

WITH THE IGNITION SW ON AND THE REAR WIPER AND WASHER SW IS TURNED STRONGLY (WASHER SW ON), CURRENT FLOWS FROM **TERMINAL 2** OF WASHER MOTOR → **TERMINAL 3** → **TERMINAL 2** OF REAR WIPER AND WASHER SW → **TERMINAL 16** → TO **GROUND** SO THAT THE WASHER MOTOR ROTATES AND WINDOW WASHER EJECTS THE SPRAY, ONLY THE WHILE THE REAR WASHER SW IS TURNED, WHEN THE REAR WIPER SW IS OFF, AND THE REAR WIPER AND WASHER SW IS THEN TURNED IN THE OFF DIRECTION, WASHER LIQUID WILL ALSO SPLAY.

SERVICE HINTS

R19 REAR WIPER RELAY

4–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
7–GROUND : ALWAYS CONTINUITY
1–4 : POINTS CHANGES EVERY APPROX. **9–15** SECONDS INTERMITTENTLY WITH IGNITION SW ON AND WIPER SW AT **INT** POSITION

W 1 WASHER MOTOR

2–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
3–GROUND : CONTINUITY WITH WASHER SW TURNED ON

cardiagn.com

REAR WIPER AND WASHER

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C13	32	R18	36 (W/G)	W1	29 (1MZ–FE), 30 (5S–FE)
J5	36 (W/G)	R19	36 (W/G)		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IR1	44	ENGINE ROOM MAIN WIRE AND COWL WIRE
Bc1	50 (W/G)	BACK DOOR NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bd1	50 (W/G)	BACK DOOR NO. 1 WIRE AND BACK DOOR NO. 2 WIRE

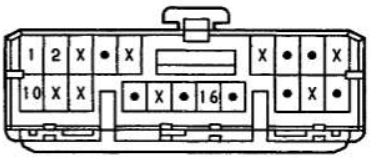
: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IE	42	LEFT KICK PANEL
BL	46 (S/D)	UNDER THE LEFT QUARTER PILLAR
	48 (C/P)	
	50 (W/G)	
BR	50 (W/G)	BACK DOOR CENTER

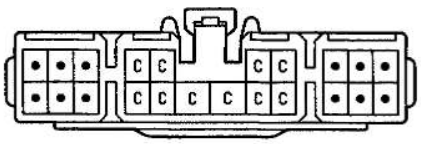
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I7	44	COWL WIRE	B36	50 (W/G)	FLOOR NO. 1 WIRE

C13 BLACK



J5



(HINT:SEE PAGE 7)

R18



R19

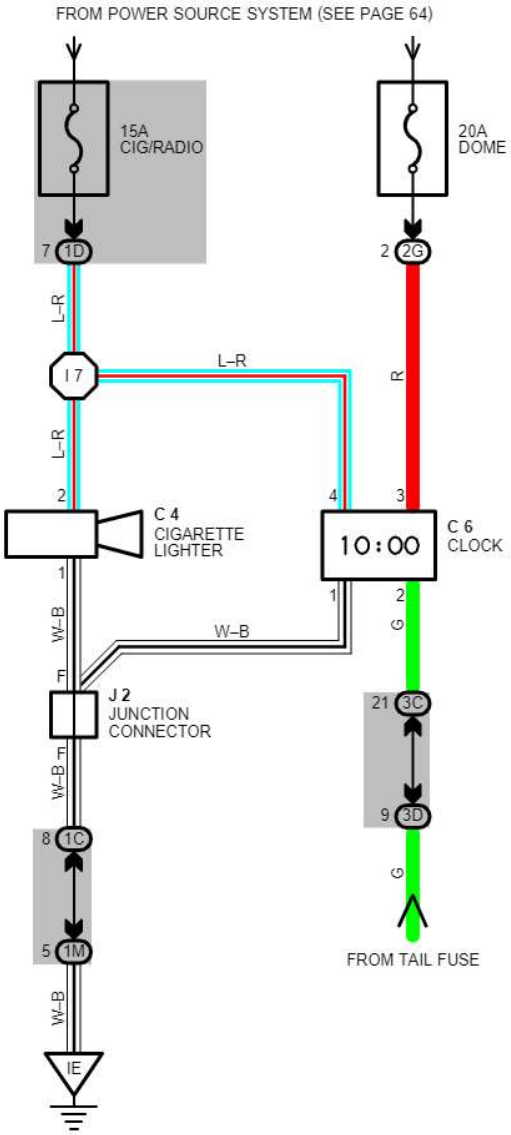


W1



cardiagn.com

CIGARETTE LIGHTER AND CLOCK



SERVICE HINTS

C 4 CIGARETTE LIGHTER

2–GROUND	:	APPROX. **12** VOLTS WITH IGNITION SW AT **ACC** OR **ON** POSITION
1–GROUND	:	ALWAYS CONTINUITY

C 6 CLOCK

3–GROUND	:	ALWAYS APPROX. **12** VOLTS (POWER FOR CLOCK)
4–GROUND	:	APPROX. **12** VOLTS WITH IGNITION SW AT **ACC** OR **ON** POSITION (POWER FOR INDICATION)
2–GROUND	:	APPROX. **12** VOLTS WITH LIGHT CONTROL SW AT **TAIL** OR **HEAD** POSITION APPROX. **12** VOLTS WITH ENGINE RUNNING AND PARKING BRAKE RELEASED (CANADA)
1–GROUND	:	ALWAYS CONTINUITY

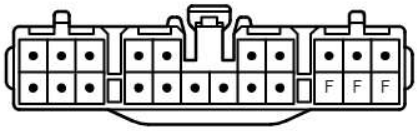
C 4



C 6 BLACK



J 2 DARK GRAY



(HINT : SEE PAGE 7)

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 4	32	**C 6**	32	**J 2**	33

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1C		
1D		
1M		
2E	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)

: GROUND POINTS

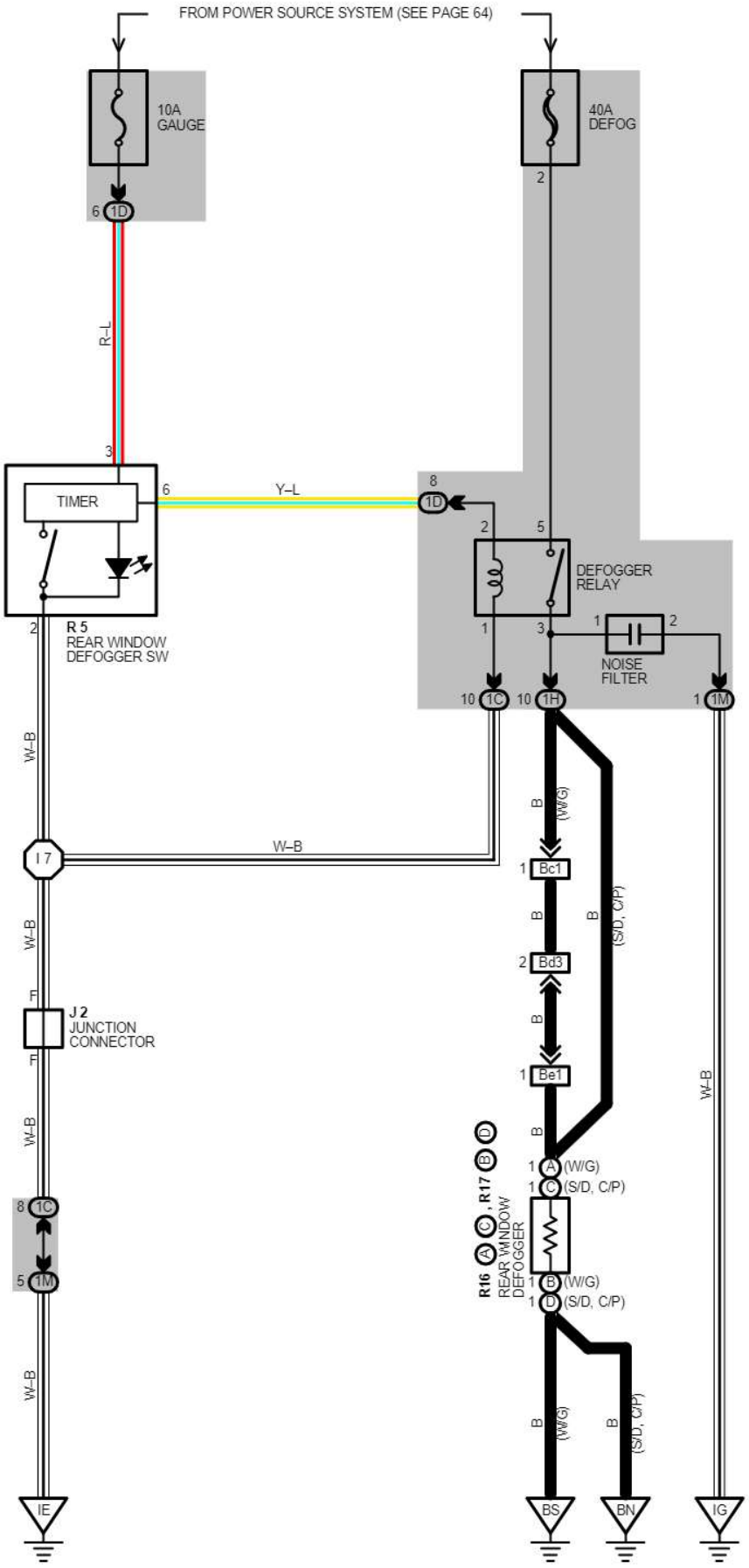
CODE	SEE PAGE	GROUND POINTS LOCATION
IE	42	LEFT KICK PANEL

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 7	44	COWL WIRE			

cardiagn.com

REAR WINDOW DEFOGGER



cardiagn.com

SERVICE HINTS

DEFOGGER RELAY
5–3 : CLOSED WITH IGNITION SW ON, DEFOGGER SW ON

R 5 **REAR WINDOW DEFOGGER SW**
3–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
2–GROUND : ALWAYS CONTINUITY
3–6 : CONTINUITY WITH DEFOGGER SW ON

: PARTS LOCATION

CODE	SEE PAGE	CODE		SEE PAGE	CODE		SEE PAGE
J 2	33	R16	A	34 (S/D), 35 (C/P), 36 (W/G)	R17	B	34 (S/D), 35 (C/P), 36 (W/G)
R 5	33		C	34 (S/D), 35 (C/P), 36 (W/G)		D	34 (S/D), 35 (C/P), 36 (W/G)

: 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 (INSTRUMENT PANEL LEFT)
1D		
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1M	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
Bc1	50 (W/G)	BACK DOOR NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bd3	50 (W/G)	BACK DOOR NO. 1 WIRE AND BACK DOOR NO. 2 WIRE
Be1	50 (W/G)	REAR WINDOW NO. 1 WIRE AND BACK DOOR NO. 2 WIRE

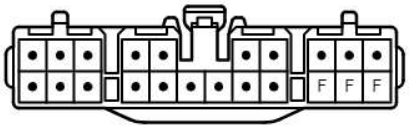
: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IE	42	LEFT KICK PANEL
IG	42	INSTRUMENT PANEL BRACE LH
BN	46 (S/D)	UNDER THE RIGHT QUARTER PILLAR
	48 (C/P)	
BS	50 (W/G)	BACK DOOR RIGHT

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 7	44	COWL WIRE			

J 2 DARK GRAY

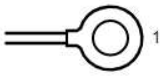


(HINT : SEE PAGE 7)

R 5 BLUE



R16 (A) , R17 (B)

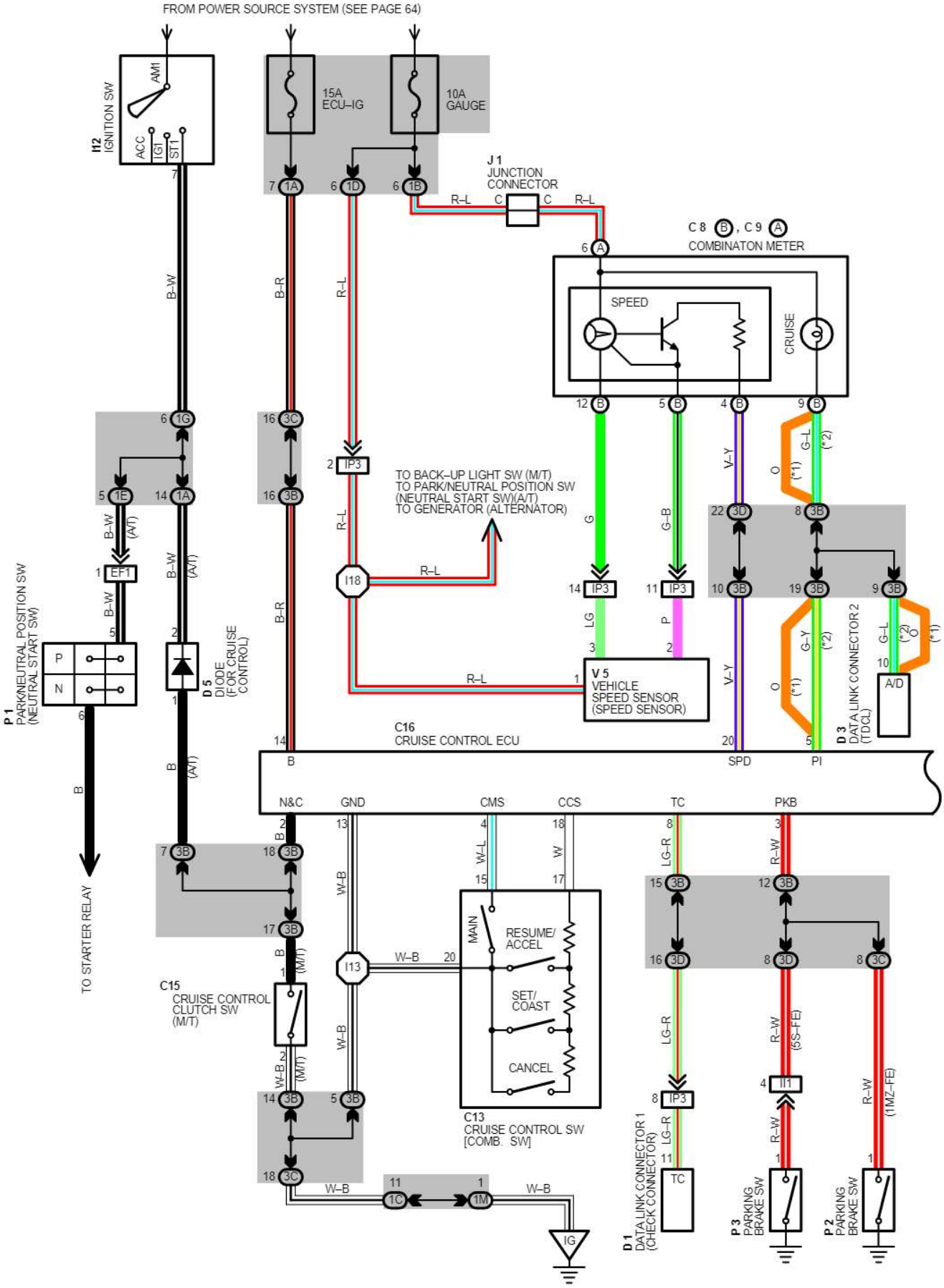


R16 (C) BLACK , R17 (D) BLACK



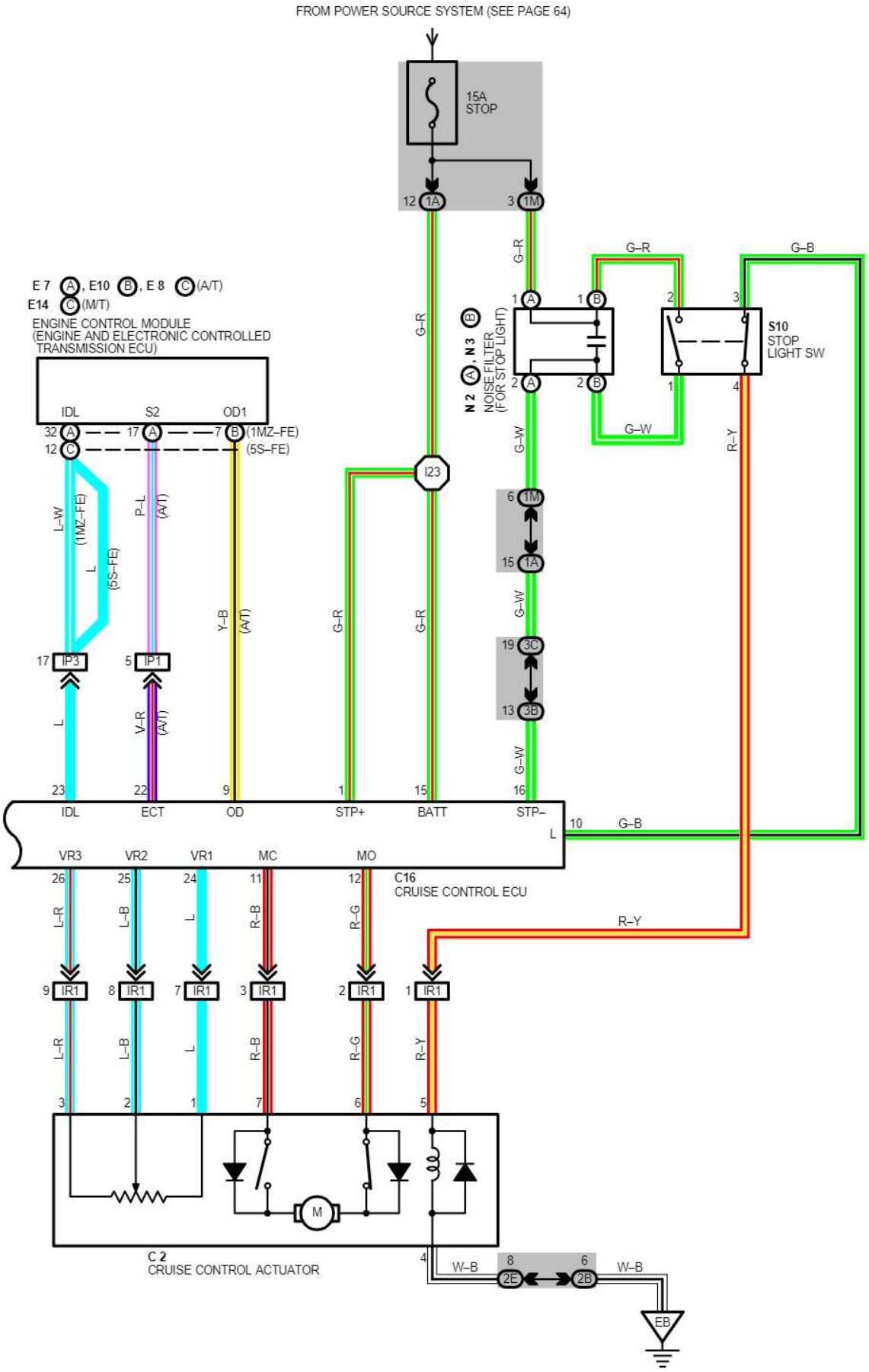
cardiagn.com

CRUISE CONTROL



cardiagn.com

*1 : TMC MADE
*2 : TMM MADE



193

cardiagn.com

CRUISE CONTROL

○ : PARTS LOCATION

CODE		SEE PAGE	CODE		SEE PAGE	CODE		SEE PAGE
C 2		28 (1MZ–FE), 30 (5S–FE)	D 5		32	N 3	B	33
C 8	B	32	E 7	A	32	P 1		29 (1MZ–FE), 31 (5S–FE)
C 9	A	32	E 8	C	32	P 2		33
C13		32	E10	B	32	P 3		33
C15		32	E14	C	32	S10		33
C16		32	I12		33	V 5		29 (1MZ–FE), 31 (5S–FE)
D 1		28 (1MZ–FE), 30 (5S–FE)	J 1		33			
D 3		32	N 2	A	33			

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1B		
1C		
1D		
1E		
1G		
1M		
2B	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2E		
3B	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		
3D		

□ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EF1	38 (1MZ–FE) 40 (5S–FE)	ENGINE WIRE AND COWL WIRE
II1	42	COWL WIRE AND INSTRUMENT PANEL WIRE
IP1 IP3	44	ENGINE WIRE AND COWL WIRE
IR1	44	ENGINE ROOM MAIN WIRE AND COWL WIRE

▽ : GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
EB	38 (1MZ–FE) 40 (5S–FE)	FRONT LEFT FENDER
IG	42	INSTRUMENT PANEL BRACE LH

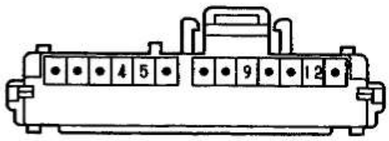
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I13	44	COWL WIRE	I23	44	COWL WIRE
I18	44	ENGINE WIRE			

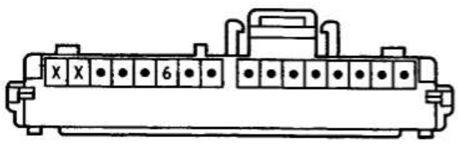
C 2 GRAY



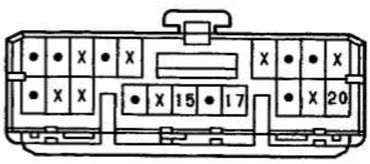
C 8 (B) BLUE



C 9 (A)



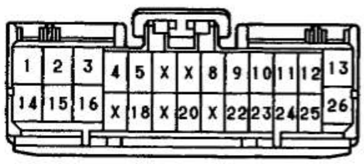
C13 BLACK



C15



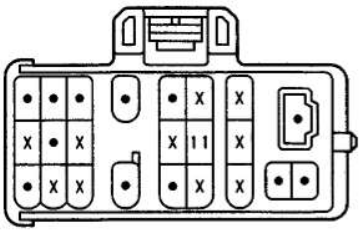
C16 GRAY



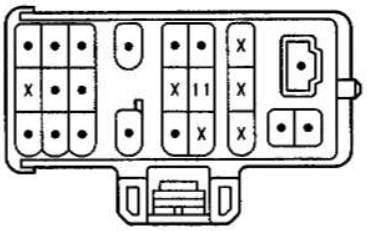
194

cardiagn.com

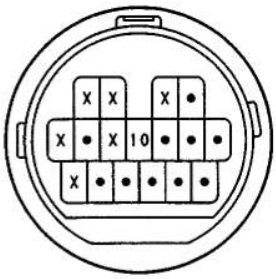
(1NZ-FE) D 1 BLACK



(5S-FE) D 1 BLACK



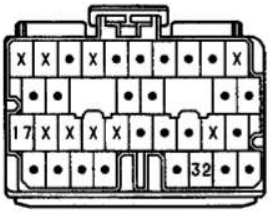
D 3 DARK GRAY



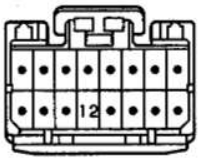
D 5 BLACK



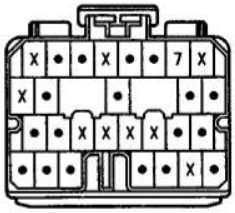
(1NZ-FE) E 7 (A) DARK GRAY



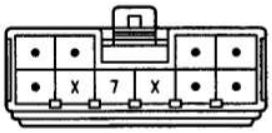
(5S-FE) E 8 (C) DARK GRAY



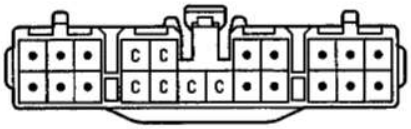
(1NZ-FE) E10 (B) DARK GRAY



I12



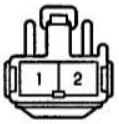
J 1 DARK GRAY



N 2 (A)

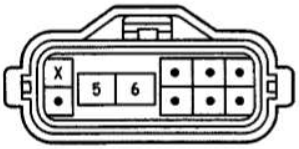


N 3 (B)



(HINT:SEE PAGE 7)

P 1 GRAY



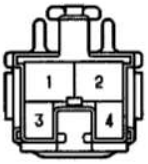
(1NZ-FE) P 2



(5S-FE) P 3



S10 BLUE



V 5 GRAY



cardiagn.com

CRUISE CONTROL

SYSTEM OUTLINE

CURRENT IS APPLIED AT ALL TIMES THROUGH **STOP** FUSE TO **TERMINAL 1** OF THE CRUISE CONTROL ECU AND **TERMINAL 2** OF STOP LIGHT SW, AND ALSO THROUGH THE **STOP** FUSE TO **TERMINAL 15** OF CRUISE CONTROL ECU.

WITH THE IGNITION SW TURNED TO ON, THE CURRENT FLOWS THROUGH **GAUGE** FUSE TO **TERMINAL (A) 6** OF COMBINATION METER AND THE CURRENT THROUGH **ECU–IG** FUSE FLOWS TO **TERMINAL 14** OF 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 CRUISE CONTROL MAIN SW TO **TERMINAL 4** OF CRUISE CONTROL ECU. AS A RESULT, THE CRUISE CONTROL ECU FUNCTIONS AND THE CURRENT TO **TERMINAL 14** OF CRUISE CONTROL ECU TO **TERMINAL 13** OF CRUISE CONTROL ECU → **GROUND**, AND THE CRUISE CONTROL SYSTEM IS IN A CONDITION READY FOR OPERATION.

AT THE SAME TIME, THE CURRENT THROUGH THE **GAUGE** FUSE FLOWS FROM **TERMINAL (A) 6** OF CRUISE CONTROL INDICATOR LIGHT → **TERMINAL (B) 9** → **TERMINAL 5** OF CRUISE CONTROL ECU → **TERMINAL 13** → TO **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 TURNED ON AND THE SET SW IS TURNED ON 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 INTO **TERMINAL 20** OF THE CRUISE CONTROL ECU FROM THE VEHICLE SPEED SENSOR (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 THE CURRENT TO THE CRUISE CONTROL ACTUATOR TO FLOW FROM **TERMINAL 12** → **TERMINAL 6** OF CRUISE CONTROL ACTUATOR → **TERMINAL 7** → **TERMINAL 11** OF 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 ECU → **TERMINAL 7** OF CRUISE CONTROL ACTUATOR → **TERMINAL 6** → **TERMINAL 12** OF 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 THE 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 SW 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, CURRENT FLOW TO MAGNETIC CLUTCH OF THE ACTUATOR IS CUT TURNS OFF AND THE MOTOR ROTATES TO CLOSE THE THROTTLE VALVE AND THE CRUISE CONTROL IS RELEASED.

* PLACING THE SHIFT LEVER IN "N" POSITION (PARK/NEUTRAL POSITION SW (NEUTRAL START SW ON). "SIGNAL INPUT TO **TERMINAL 2** OF ECU" (A/T)
* DEPRESSING THE CLUTCH PEDAL (CLUCH SW ON). "SIGNAL INPUT TO **TERMINAL 2** OF THE ECU" (M/T)
* DEPRESSING THE BRAKE PEDAL (STOP LIGHT SW ON). "SIGNAL INPUT TO **TERMINAL 16** OF ECU"
* PUSH THE CANCEL SW (CANCEL SW ON). "SIGNAL INPUT TO **TERMINAL 18** OF ECU"
* DEPRESSING THE PARKING BRAKE PEDAL (PARKING BRAKE SW ON). "SIGNAL INPUT TO **TERMINAL 3** OF ECU" (3VZ–FE)
* PULLING THE PARKING BRAKE LEVER (PARKING BRAKE SW ON). "SIGNAL INPUT TO **TERMINAL 3** OF THE ECU" (5S–FE)

cardiagn.com

7. AUTO CANCEL FUNCTION

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

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

* OVER CURRENT TO TRANSISTOR 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 MOTOR AND/OR 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. CURRENT FLOW TO MAGNETIC CLUTCH IS CUT OFF UNTIL THE SET SW IS "ON" AGAIN.)

* WHEN THE VEHICLE SPEED HAS FALLEN BELOW THE MINIMUM SPEED LIMIT, APPROX. **40** KM/H (**25** MPH)
* WHEN THE VEHICLE SPEED HAS FALLEN 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.

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

* OPEN CIRCUIT FOR **TERMINAL 1** OF CRUISE CONTROL ECU.

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, IF 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 POTENTIOMETER OF THE ACTUATOR THAT THE UPWARD SLOPE HAS FINISHED, OVERDRIVE IS RESUMED AFTER A WHILE.

SERVICE HINTS

C 2 CRUISE CONTROL ACTUATOR

1–3 : APPROX. **2** K
5–4 : APPROX. **38**

C13 CRUISE CNTROL SW MAIN [COMB. SW]

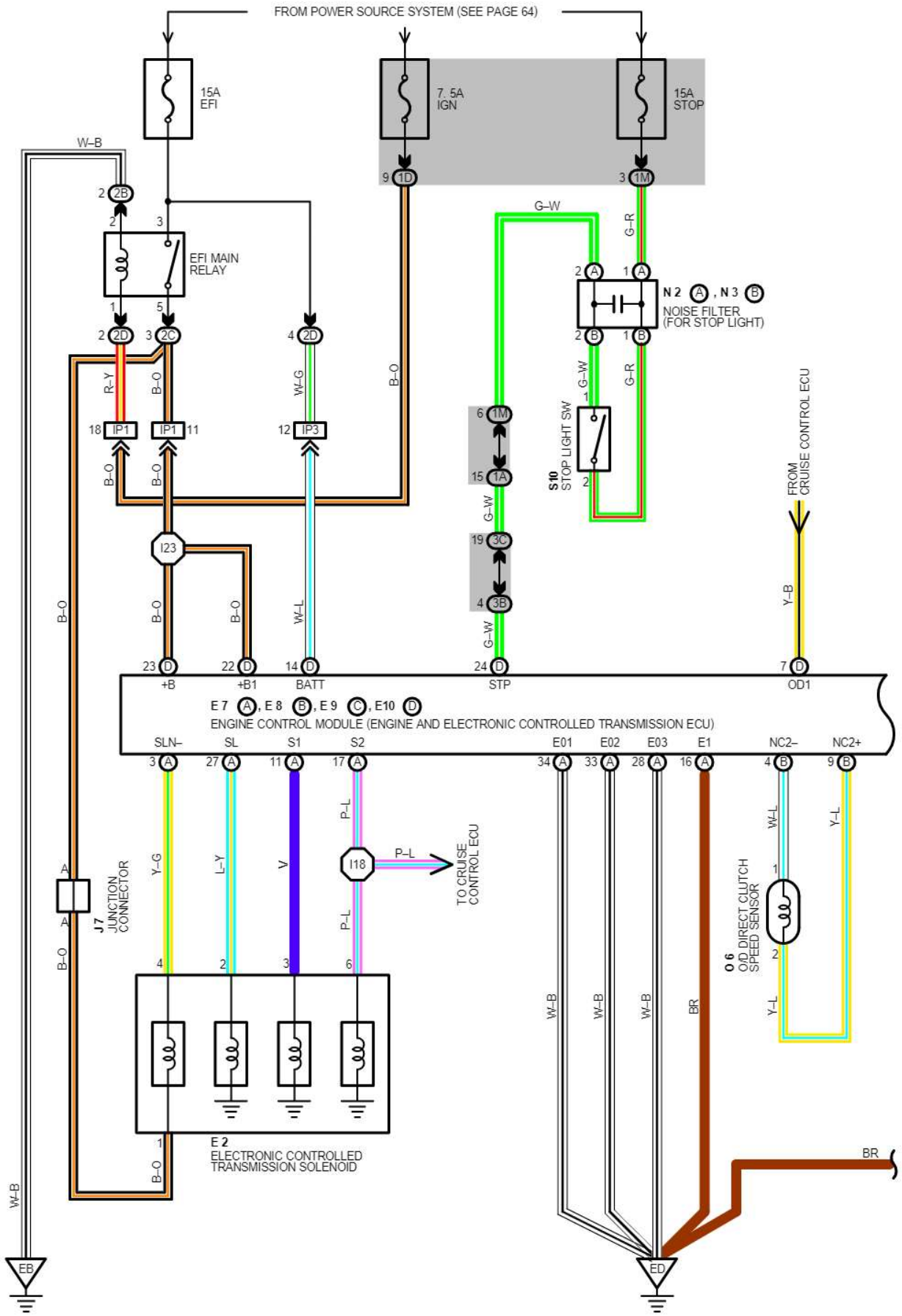
15–20 : CONTINUITY WITH MAIN SW ON
20–17 : APPROX. **418** WITH CANCEL SW ON
APPROX. **68** WITH RESUME/ACCEL SW ON
APPROX. **198** WITH SET/COAST SW ON

C16 CRUISE CONTROL ECU

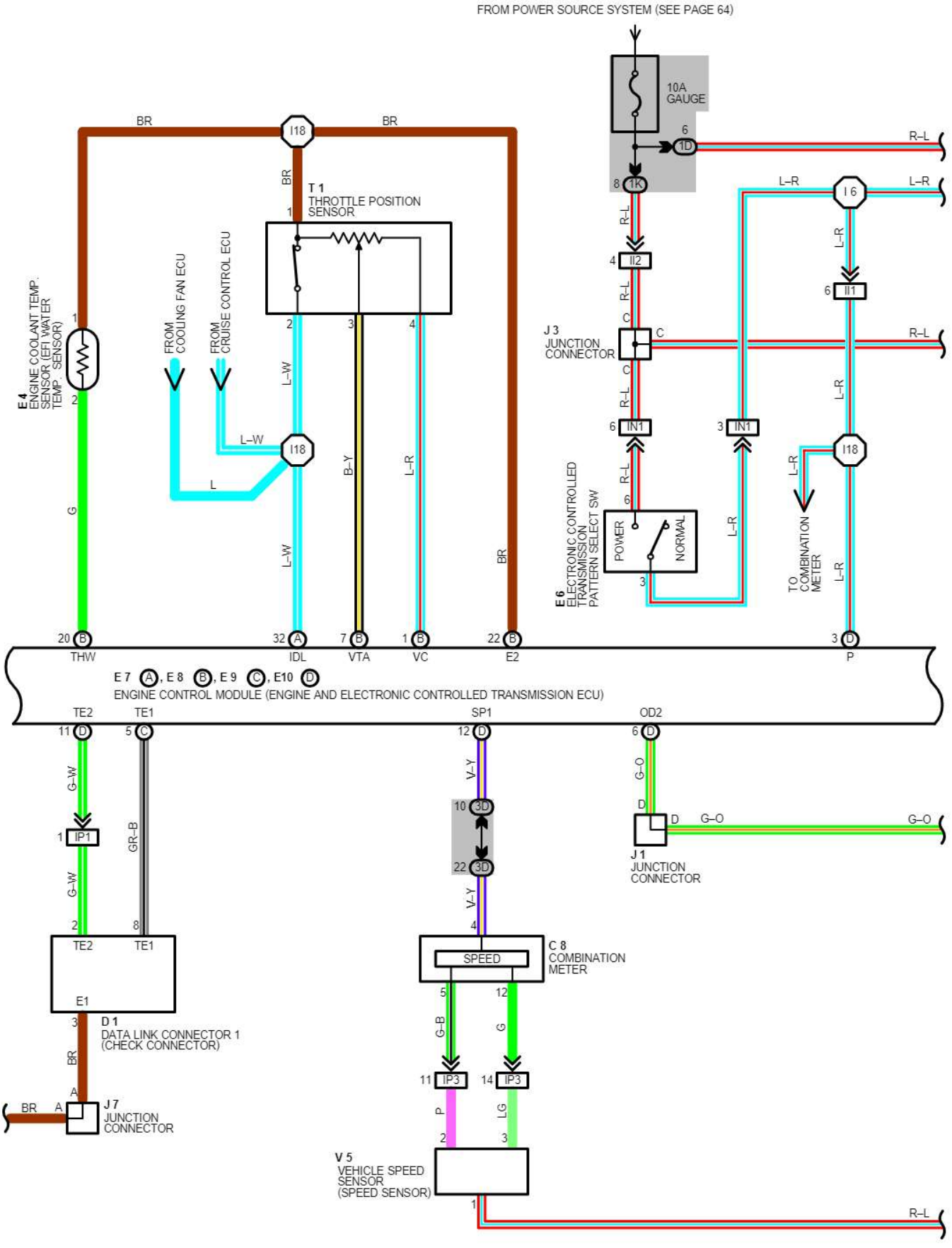
14–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
1,15–GROUND : ALWAYS APPROX. **12** VOLTS
3–GROUND : CONTINUITY WITH PARKING BRAKE SW ON (ONE OF THE CANCEL SW) OR BRAKE LEVEL WARNING SW ON
20–GROUND : **4** PULSE WITH **1** ROTATION OF ROTOR SHAFT
18–GROUND : APPROX. **418** WITH CANCEL SW ON IN CONTROL SW
APPROX. **68** WITH RES/ACC SW ON IN CONTROL SW
APPROX. **198** WITH SET/COAST SW ON IN CONTROL SW
13–GROUND : ALWAYS CONTINUITY
2–GROUND : CONTINUITY WITH SHIFT LEVER AT **N** POSITION (A/T) OR CLUTCH PEDAL DEPRESSED (M/T)

cardiagn.com

ELECTRONIC CONTROLLED TRANSMISSION AND A/T INDICATOR (1MZ–FE)



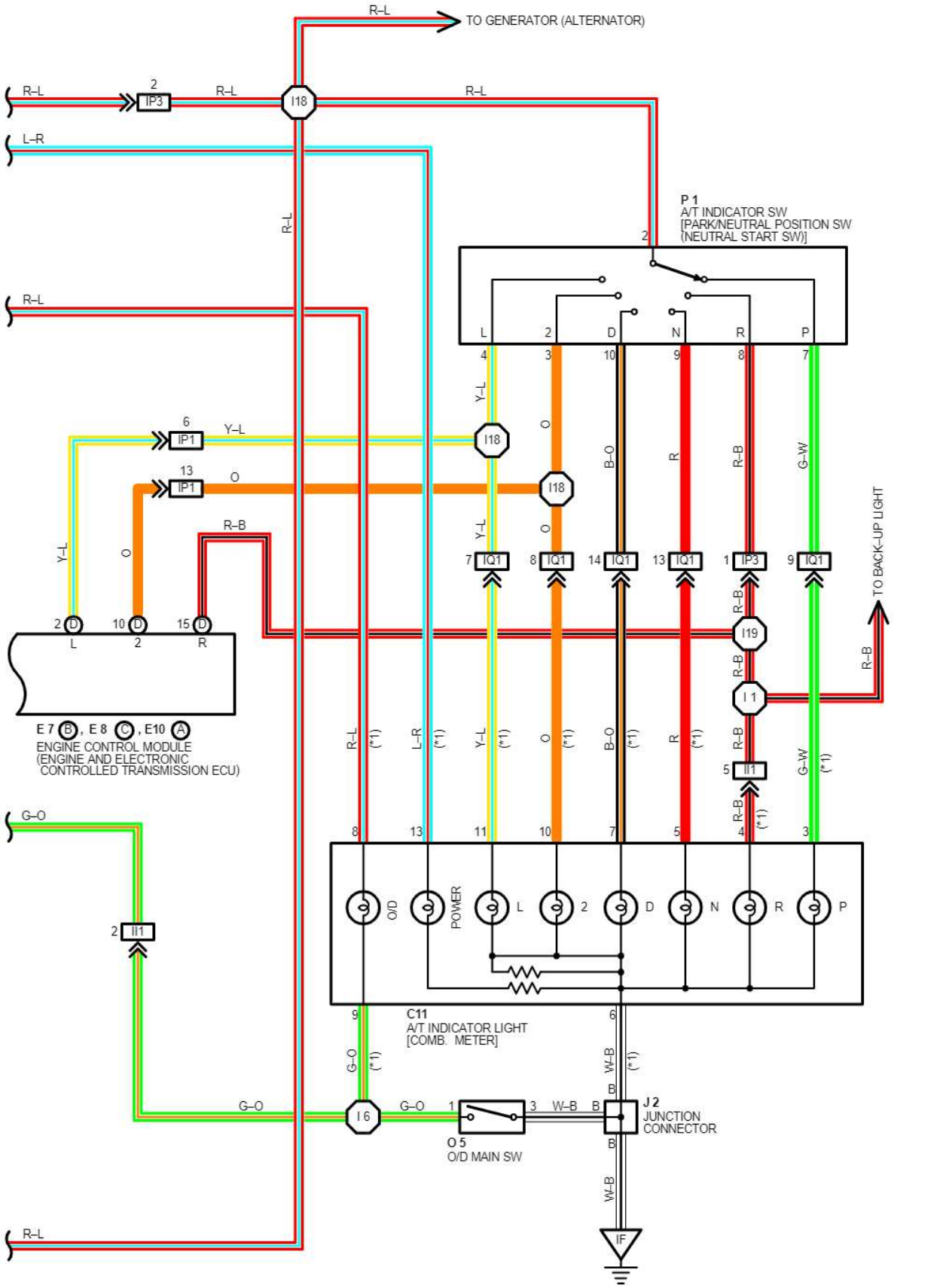
cardiagn.com



cardiagn.com

ELECTRONIC CONTROLLED TRANSMISSION AND A/T INDICATOR (1MZ–FE)

*1 : W/ A/T INDICATOR LIGHT



200

cardiagn.com

SYSTEM OUTLINE

PREVIOUS AUTOMATIC TRANSMISSIONS HAVE SELECTED EACH GEAR SHIFT USING MECHANICALLY CONTROLLED THROTTLE HYDRAULIC PRESSURE, GOVERNOR HYDRAULIC PRESSURE AND LOCK–UP HYDRAULIC PRESSURE. THE ELECTRONIC CONTROLLED TRANSMISSION, HOWEVER, ELECTRICALLY CONTROLS THE LINE PRESSURE AND LOCK–UP PRESSURE ETC., THROUGH THE SOLENOID VALVE. ENGINE CONTROL MODULE (ENGINE AND ELECTRONIC CONTROLLED TRANSMISSION ECU) CONTROL OF THE SOLENOID VALVE BASED ON THE INPUT SIGNALS FROM EACH SENSOR MAKES SMOOTH DRIVING POSSIBLE BY SHIFT SELECTION FOR EACH GEAR WHICH IS MOST APPROPRIATE TO THE DRIVING CONDITIONS AT THAT TIME.

1. GEAR SHIFT OPERATION

DURING DRIVING, THE ENGINE CONTROL MODULE (ECU) SELECTS THE SHIFT FOR EACH GEAR WHICH IS MOST APPROPRIATE TO THE DRIVING CONDITIONS, BASED ON INPUT SIGNALS FROM THE ENGINE COOLANT TEMP. SENSOR (EFI WATER TEMP. SENSOR) TO **TERMINAL THW** OF THE ENGINE CONTROL MODULE (ECU), AND ALSO THE INPUT SIGNALS TO **TERMINAL NC2+** OF THE ENGINE CONTROL MODULE (ECU) FROM THE VEHICLE SPEED SENSOR (SPEED SENSOR) DEVOTED TO THE ELECTRONIC CONTROLLED TRANSMISSION. CURRENT IS THEN OUTPUT TO THE ELECTRONIC CONTROLLED TRANSMISSION SOLENOIDS. WHEN SHIFTING TO 1ST SPEED, CURRENT FLOWS FROM **TERMINAL S1** OF THE ENGINE CONTROL MODULE (ECU) → **TERMINAL 3** OF THE ELECTRONIC CONTROLLED TRANSMISSION SOLENOIDS → **GROUND**, AND CONTINUITY TO THE NO. 1 SOLENOID CAUSES THE SHIFT.

FOR 2ND SPEED, CURRENT FLOWS FROM **TERMINAL S1** OF THE ENGINE CONTROL MODULE (ECU) → **TERMINAL 3** OF THE ELECTRONIC CONTROLLED TRANSMISSION SOLENOIDS → **GROUND**, AND FROM **TERMINAL S2** OF THE ENGINE CONTROL MODULE (ECU) → **TERMINAL 1** OF THE ELECTRONIC CONTROLLED TRANSMISSION SOLENOIDS → **GROUND**, AND CONTINUITY TO SOLENOIDS NO. 1 AND NO. 2 CAUSES THE SHIFT.

FOR 3RD SPEED, THERE IS NO CONTINUITY TO NO. 1 SOLENOID, ONLY TO NO. 2, CAUSING THE SHIFT.

SHIFTING INTO 4TH SPEED (OVERDRIVE) TAKES PLACE WHEN THERE IS NO CONTINUITY TO EITHER NO. 1 OR NO. 2 SOLENOID.

2. LOCK–UP OPERATION

WHEN THE ENGINE CONTROL MODULE (ECU) JUDGES FROM EACH SIGNAL THAT LOCK–UP OPERATION CONDITIONS HAVE BEEN MET, CURRENT FLOWS FROM **TERMINAL SL** OF THE ENGINE CONTROL MODULE (ECU) → **TERMINAL 2** OF THE ELECTRONIC CONTROLLED TRANSMISSION SOLENOID → **GROUND**, CAUSING CONTINUITY TO THE LOCK–UP SOLENOID AND CAUSING LOCK–UP OPERATION.

3. STOP LIGHT SW CIRCUIT

IF THE BRAKE PEDAL IS DEPRESSED (STOP LIGHT SW ON) WHEN DRIVING IN LOCK–UP CONDITION, A SIGNAL IS INPUT TO **TERMINAL STP** OF THE ENGINE CONTROL MODULE (ECU), THE ENGINE CONTROL MODULE (ECU) OPERATES AND CONTINUITY TO THE LOCK–UP SOLENOID IS CUT.

4. OVERDRIVE CIRCUIT

* O/D MAIN SW ON

  WHEN THE O/D MAIN SW IS TURNED ON (O/D OFF INDICATOR LIGHT TURNS OFF), A SIGNAL IS INPUT TO **TERMINAL OD2** OF THE ENGINE CONTROL MODULE (ECU) AND ENGINE CONTROL MODULE (ECU) OPERATION CAUSES GEAR SHIFT WHEN THE CONDITIONS FOR OVERDRIVE ARE MET.

* O/D MAIN SW OFF

  WHEN THE O/D MAIN SW IS TURNED TO OFF, THE CURRENT FLOWING THROUGH THE O/D OFF INDICATOR LIGHT FLOWS THROUGH THE O/D MAIN SW TO GROUND. CAUSING THE INDICATOR LIGHT TO LIGHT UP. AT THE SAME TIME, A SIGNAL IS INPUT TO **TERMINAL OD2** OF THE ENGINE CONTROL MODULE (ECU) AND ENGINE CONTROL MODULE (ECU) OPERATION PREVENTS SHIFT INTO OVERDIRVE.

5. ELECTRONIC CONTROLLED TRANSMISSION PATTERN SELECT SW CIRCUIT

IF THE ELECTRONIC CONTROLLED TRANSMISSION PATTERN SELECT SW IS CHANGED FROM NORMAL TO POWER, THE CURRENT FLOWING THROUGH THE POWER INDICATOR FLOWS TO **GROUND**, CURRENT FLOWS TO **TERMINAL P** OF THE ENGINE CONTROL MODULE (ECU), THE ENGINE CONTROL MODULE (ECU) OPERATES, AND SHIFT UP AND SHIFT DOWN OCCUR AT HIGHER VEHICLE SPEEDS THAN WHEN THE SW IS IN **NORMAL** POSITION.

cardiagn.com

ELECTRONIC CONTROLLED TRANSMISSION AND A/T INDICATOR (1MZ–FE)

SERVICE HINTS

E 7(B), E 8 (C), E10(A) ENGINE CONTROL MODULE (ENGINE AND ELECTRONIC CONTROLLED TRANSMISSION ECU) (TURN ON THE IGNTION SW)

S1, S2– E1 : **9.0–14.0** VOLTS WITH SOLENOID ON
0–1.5 VOLTS WITH SOLENOID OFF
P– E1 : **7.5–14.0** VOLTS WITH IGNITION SW ON AND PATTERN SELECT SW AT **POWER** POSITION
L– E1 : **7.5–14.0** VOLTS WITH SHIFT LEVER AT **L** POSITION
2– E1 : **7.5–14.0** VOLTS WITH SHIFT LEVER AT **2** POSITION
R– E1 : **7.5–14.0** VOLTS WITH SHIFT LEVER AT **R** POSITION
STP– E1 : **9.0–14.0** VOLTS WITH BRAKE PEDAL DEPRESSED
THW– E2 : **0.2–1.0** VOLTS WITH WITH ENGINE COOLANT TEMP. **60°C (140°F) –120°C (248°F)**
IDL– E2 : **0–1.5** VOLTS WITH THROTTLE VALVE FULLY CLOSED
9.0–14.0 VOLTS WITH THROTTLE VALVE FULLY OPENED
VTA–E2 : **0.3–0.8** VOLTS WITH THROTTLE VALVE FULLY CLOSED
3.2–4.9 VOLTS WITH THROTTLE VALVE FULLY OPENED
VC– E2 : **4.5–5.5** VOLTS WITH IGNITION SW AT **ON** POSITION
OD1– E1 : **4.5–5.5** VOLTS WITH IGNITION SW AT **ON** POSITION
OD2– E1 : **9.0–14.0** VOLTS WITH O/D MAIN SW TURNED OFF
0–3.0 VOLTS WITH O/D MAIN SW TURNED ON
IGSW– E1 : **9.0–14.0** VOLTS WITH IGNITION SW AT **ON** POSITION
+B– E1 : **9.0–14.0** VOLTS WITH IGNITION SW AT **ON** POSITION
+B1– E1 : **9.0–14.0** VOLTS WITH IGNITION SW AT **ON** POSITION

E 2 ELECTRONIC CONTROLLED TRANSMISSION SOLENOID
1, 2, 6–GROUND : EACH **11–15** Ω

O 5 O/D MAIN SW
1–3 : CLOSED WITH O/D MAIN SW OFF, OPEN WITH O/D MAIN SW ON

○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 8	32	E 9 C	32	O 5	33
C11	32	E10 D	32	O 6	29
D 1	28	J 1	33	P 1	29
E 2	28	J 2	33	S10	33
E 4	28	J 3	33	T 1	29
E 6	32	J 7	33	V 5	29
E 7 A	32	N 2 A	33		
E 8 B	32	N 3 B	33		

⬭ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1D		
1K		
1M		
2B	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2C	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2D		
3B	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		
3D		

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
II1	42	COWL WIRE AND INSTRUMENT PANEL WIRE
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IN1	42	INSTRUMENT PANEL WIRE AND SWITCH WIRE
IP1	44	ENGINE WIRE AND COWL WIRE
IP3		
IQ1	44	ENGINE WIRE AND INSTRUMENT PANEL WIRE

▽ : GROUND POINTS

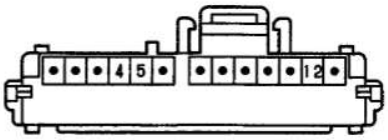
CODE	SEE PAGE	GROUND POINTS LOCATION
EB	38 (1MZ–FE)	FRONT LEFT FENDER
ED	38 (1MZ–FE)	INTAKE MANIFOLD LH
IF	42	LEFT KICK PANEL

cardiagn.com

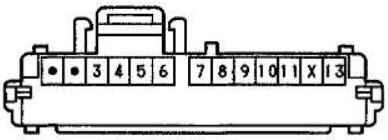
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 1	44	COWL WIRE	I19	44	COWL WIRE
I 6	44	INSTRUMENT PANEL WIRE	I23		
I18	44	ENGINE WIRE			

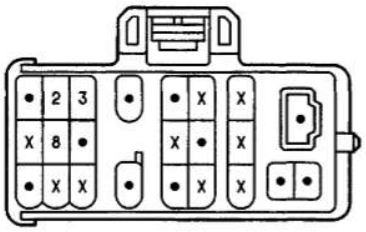
C 8 BLUE



C11 BROWN



D 1 BLACK



E 2 GRAY



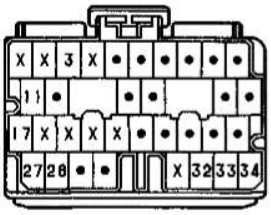
E 4 DARK GRAY



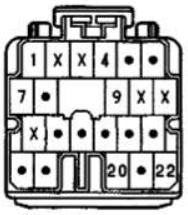
E 6 BLACK



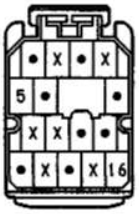
E 7 (A) DARK GRAY



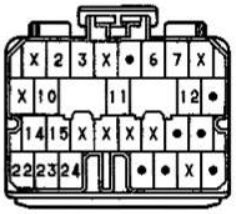
E 8 (B) DARK GRAY



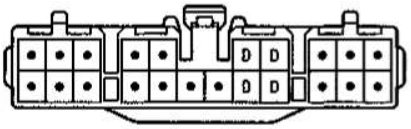
E 9 (C) DARK GRAY



E10 (D) DARK GRAY



J 1 DARK GRAY



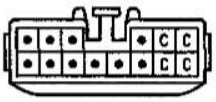
(HINT:SEE PAGE 7)

J 2



(HINT:SEE PAGE 7)

J 3



(HINT:SEE PAGE 7)

J 7 BLUE



(HINT:SEE PAGE 7)

N 2 (A)



N 3 (B)



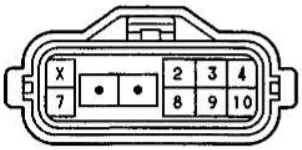
O 5 BLUE



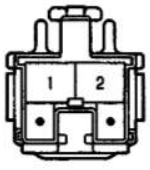
O 6 BLACK



P 1 GRAY



S10 BLUE



T 1 BLACK

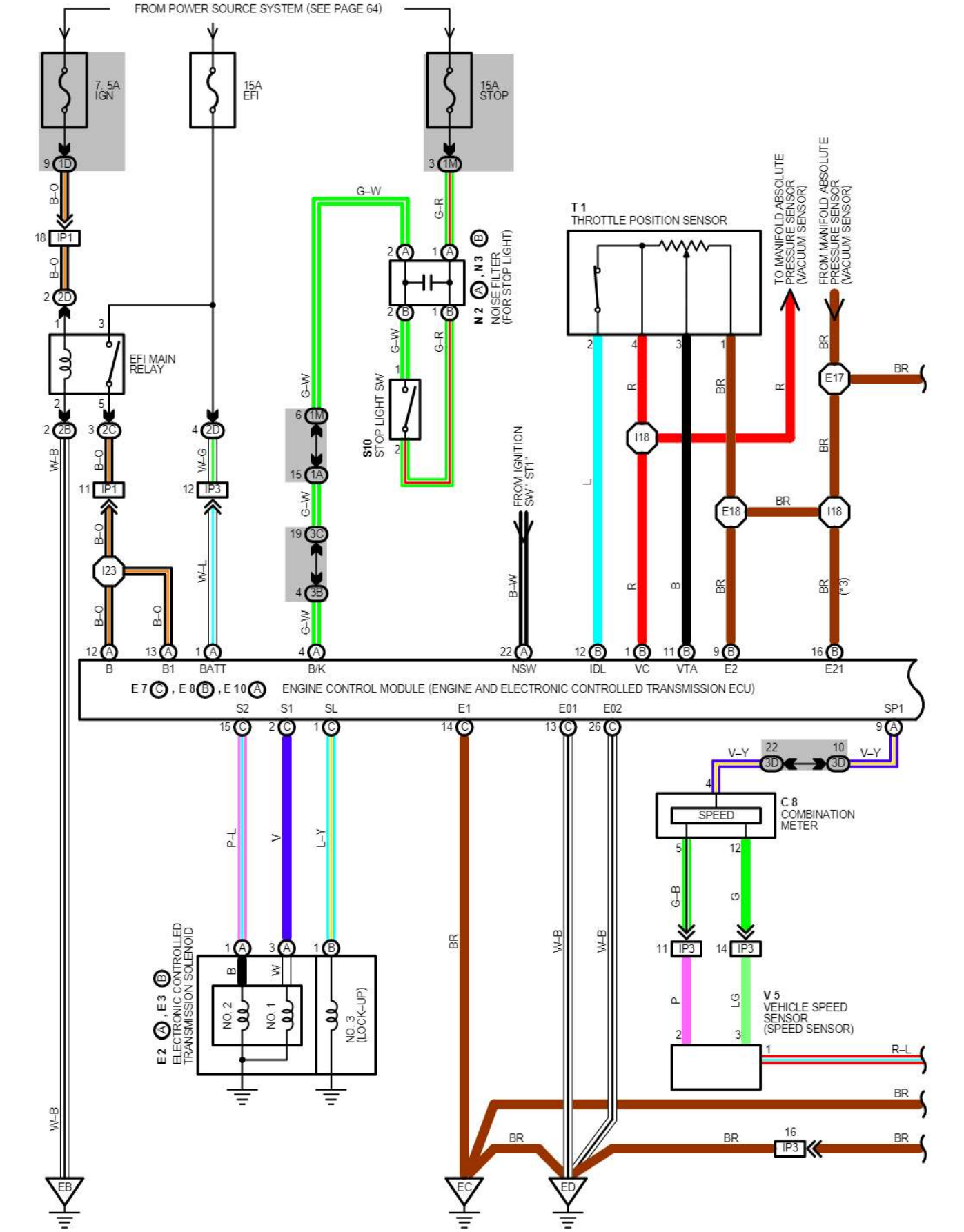


V 5 GRAY



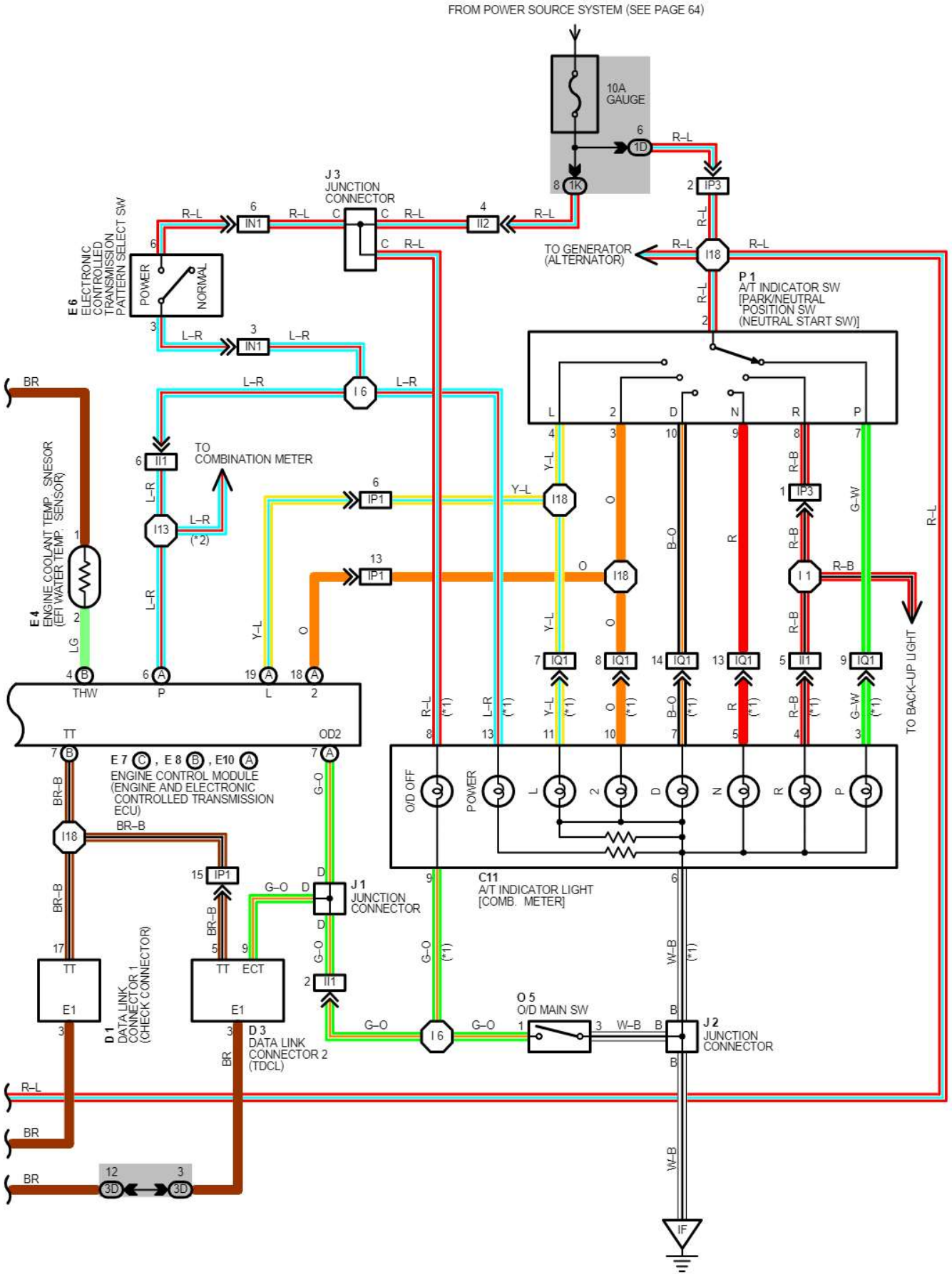
cardiagn.com

ELECTRONIC CONTROLLED TRANSMISSION AND A/T INDICATOR (5S–FE)



cardiagn.com

*1 : W/ A/T INDICATOR LIGHT
*2 : W/O A/T INDICATOR LIGHT
*3 : EX. CALIFORNIA



cardiagn.com

ELECTRONIC CONTROLLED TRANSMISSION AND A/T INDICATOR (5S–FE)

SYSTEM OUTLINE

PREVIOUS AUTOMATIC TRANSMISSIONS HAVE SELECTED EACH GEAR SHIFT USING MECHANICALLY CONTROLLED THROTTLE HYDRAULIC PRESSURE, GOVERNOR HYDRAULIC PRESSURE AND LOCK–UP HYDRAULIC PRESSURE. THE ELECTRONIC CONTROLLED TRANSMISSION, HOWEVER, ELECTRICALLY CONTROLS THE LINE PRESSURE AND LOCK–UP PRESSURE ETC., THROUGH THE SOLENOID VALVE. ENGINE CONTROL MODULE (ENGINE AND ELECTRONIC CONTROLLED TRANSMISSION ECU) CONTROL OF THE SOLENOID VALVE BASED ON THE INPUT SIGNALS FROM EACH SENSOR MAKES SMOOTH DRIVING POSSIBLE BY SHIFT SELECTION FOR EACH GEAR WHICH IS MOST APPROPRIATE TO THE DRIVING CONDITIONS AT THAT TIME.

1. GEAR SHIFT OPERATION

DURING DRIVING, THE ENGINE CONTROL MODULE (ECU) SELECTS THE SHIFT FOR EACH GEAR WHICH IS MOST APPROPRIATE TO THE DRIVING CONDITIONS, BASED ON INPUT SIGNALS FROM THE ENGINE COOLANT TEMP. SENSOR (EFI WATER TEMP. SENSOR) TO **TERMINAL THW** OF THE ENGINE CONTROL MODULE (ECU), AND ALSO THE INPUT SIGNALS TO **TERMINAL SP1** OF THE ENGINE CONTROL MODULE (ECU) FROM THE VEHICLE SPEED SENSOR (SPEED SENSOR) DEVOTED TO THE ELECTRONIC CONTROLLED TRANSMISSION. CURRENT IS THEN OUTPUT TO THE ELECTRONIC CONTROLLED TRANSMISSION SOLENOIDS. WHEN SHIFTING TO 1ST SPEED, CURRENT FLOWS FROM **TERMINAL S1** OF THE ENGINE CONTROL MODULE (ECU) → **TERMINAL (A)3** OF THE ELECTRONIC CONTROLLED TRANSMISSION SOLENOIDS → **GROUND**, AND CONTINUITY TO THE NO. 1 SOLENOID CAUSES THE SHIFT.

FOR 2ND SPEED, CURRENT FLOWS FROM **TERMINAL S1** OF THE ENGINE CONTROL MODULE (ECU) → **TERMINAL (A)3** OF THE ELECTRONIC CONTROLLED TRANSMISSION SOLENOIDS → **GROUND**, AND FROM **TERMINAL S2** OF THE ENGINE CONTROL MODULE (ECU) → **TERMINAL (A)1** OF THE ELECTRONIC CONTROL TRANSMISSION SOLENOIDS → **GROUND**, AND CONTINUITY TO SOLENOIDS NO. 1 AND NO. 2 CAUSES THE SHIFT.

FOR 3RD SPEED, THERE IS NO CONTINUITY TO NO. 1 SOLENOID, ONLY TO NO. 2, CAUSING THE SHIFT.

SHIFTING INTO 4TH SPEED (OVERDRIVE) TAKES PLACE WHEN THERE IS NO CONTINUITY TO EITHER NO. 1 OR NO. 2 SOLENOID.

2. LOCK–UP OPERATION

WHEN THE ENGINE CONTROL MODULE (ECU) JUDGES FROM EACH SIGNAL THAT LOCK–UP OPERATION CONDITIONS HAVE BEEN MET, CURRENT FLOWS FROM **TERMINAL SL** OF THE ENGINE CONTROL MODULE (ECU) → **TERMINAL (B)1** OF THE ELECTRONIC CONTROLLED TRANSMISSION SOLENOID → **GROUND**, CAUSING CONTINUITY TO THE LOCK–UP SOLENOID AND CAUSING LOCK–UP OPERATION.

3. STOP LIGHT SW CIRCUIT

IF THE BRAKE PEDAL IS DEPRESSED (STOP LIGHT SW ON) WHEN DRIVING IN LOCK–UP CONDITION, A SIGNAL IS INPUT TO **TERMINAL B/K** OF THE ENGINE CONTROL MODULE (ECU), THE ENGINE CONTROL MODULE (ECU) OPERATES AND CONTINUITY TO THE LOCK–UP SOLENOID IS CUT.

4. OVERDRIVE CIRCUIT

* O/D MAIN SW ON

WHEN THE O/D MAIN SW IS TURNED ON (O/D OFF INDICATOR LIGHT TURNS OFF), A SIGNAL IS INPUT TO **TERMINAL OD2** OF THE ENGINE CONTROL MODULE (ECU) AND ENGINE CONTROL MODULE (ECU) OPERATION CAUSES GEAR SHIFT WHEN THE CONDITIONS FOR OVERDRIVE ARE MET.

* O/D MAIN SW OFF

WHEN THE O/D MAIN SW IS TURNED TO OFF, THE CURRENT FLOWING THROUGH THE O/D OFF INDICATOR LIGHT FLOWS THROUGH THE O/D MAIN SW TO GROUND. CAUSING THE INDICATOR LIGHT TO LIGHT UP. AT THE SAME TIME, A SIGNAL IS INPUT TO **TERMINAL OD2** OF THE ENGINE CONTROL MODULE (ECU) AND ENGINE CONTROL MODULE (ECU) OPERATION PREVENTS SHIFT INTO OVERDRIVE.

5. ELECTRONIC CONTROLLED TRANSMISSION PATTERN SELECT SW CIRCUIT

IF THE ELECTRONIC CONTROLLED TRANSMISSION PATTERN SELECT SW IS CHANGED FROM NORMAL TO POWER, THE CURRENT FLOWING THROUGH THE POWER INDICATOR FLOWS TO **GROUND**, CURRENT FLOWS TO **TERMINAL P** OF THE ENGINE CONTROL MODULE (ECU), THE ENGINE CONTROL MODULE (ECU) OPERATES, AND SHIFT UP AND SHIFT DOWN OCCUR AT HIGHER VEHICLE SPEEDS THAN WHEN THE SW IS IN **NORMAL** POSITION.

SERVICE HINTS

E 7(C), E 8 (B), E10(A) ENGINE CONTROL MODULE (ENGINE AND ELECTRONIC CONTROLLED TRANSMISSION ECU) (TURN ON THE IGNTION SW)

S1, S2 –E1	:	**9.0–14.0** VOLTS WITH SOLENOID ON
		0–1.5 VOLTS WITH SOLENOID OFF
P –E1	:	**7.5–14.0** VOLTS WITH IGNITION SW ON AND PATTERN SELECT SW AT **POWER** POSITION
L– E1	:	**7.5–14.0** VOLTS WITH SHIFT LEVER AT **L** POSITION
2– E1	:	**7.5–14.0** VOLTS WITH SHIFT LEVER AT **2** POSITION
R– E1	:	**7.5–14.0** VOLTS WITH SHIFT LEVER AT **R** POSITION
B/K– E1	:	**9.0–14.0** VOLTS WITH BRAKE PEDAL DEPRESSED
THW– E2	:	**0.2–1.0** VOLTS WITH WITH ENGINE COOLANT TEMP. **60˚C (140˚F) –120˚C (248˚F)**
IDL– E2	:	**0–1.5** VOLTS WITH THROTTLE VALVE FULLY CLOSED
		9.0–14.0 VOLTS WITH THROTTLE VALVE FULLY OPENED

cardiagn.com

SERVICE HINTS

VTA–E2 : **0.3–0.8** VOLTS WITH THROTTLE VALVE FULLY CLOSED
3.2–4.9 VOLTS WITH THROTTLE VALVE FULLY OPENED
VC– E2 : **4.5–5.5** VOLTS WITH IGNITION SW AT **ON** POSITION
OD2– E1 : **9.0–14.0** VOLTS WITH O/D MAIN SW TURNED ON
0–3.0 VOLTS WITH O/D MAIN SW TURNED OFF
IGSW– E1 : **9.0–14.0** VOLTS WITH IGNITION SW AT **ON** POSITION
+B– E1 : **9.0–14.0** VOLTS WITH IGNITION SW AT **ON** POSITION
+B1– E1 : **9.0–14.0** VOLTS WITH IGNITION SW AT **ON** POSITION
M–REL– E1 : **9.0–14.0** VOLTS WITH IGNITION SW AT **ON** POSITION

E 2(A), E 3(B) ELECTRONIC CONTROLLED TRANSMISSION SOLENOID
(A)1, **(A)**3, **(B)**1–GROUND : EACH **11–15** Ω

O 5 O/D MAIN SW
1–3 : CLOSED WITH O/D MAIN SW OFF, OPEN WITH O/D MAIN SW ON

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
C 8	32	E 6	32	N 2 A	33
C11	32	E 7 C	32	N 3 B	33
D 1	30	E 8 B	32	O 5	33
D 3	32	E10 A	32	P 1	31
E 2 A	30	J 1	33	S10	33
E 3 B	30	J 2	33	T 1	31
E 4	30	J 3	33	V 5	31

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1D		
1K		
1M		
2B	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2C	22	ENGINE WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2D		
3B	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		
3D		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
II1	42	COWL WIRE AND INSTRUMENT PANEL WIRE
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IN1	42	INSTRUMENT PANEL WIRE AND SWITCH WIRE
IP1	44	ENGINE WIRE AND COWL WIRE
IP3		
IQ1	44	ENGINE WIRE AND INSTRUMENT PANEL WIRE

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
EB	40 (5S–FE)	FRONT LEFT FENDER
EC	40 (5S–FE)	INTAKE MANIFOLD RH
ED	40 (5S–FE)	INTAKE MANIFOLD LH
IF	42	LEFT KICK PANEL

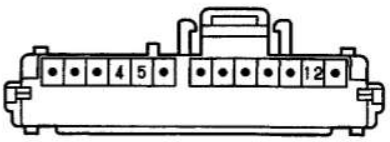
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E17	40 (5S–FE)	ENGINE WIRE	I13	44	COWL WIRE
E18			I18	44	ENGINE WIRE
I 1	44	COWL WIRE	I23	44	COWL WIRE
I 6	44	INSTRUMENT PANEL WIRE			

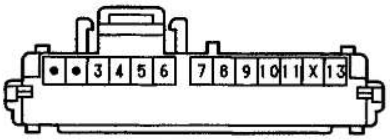
cardiagn.com

ELECTRONIC CONTROLLED TRANSMISSION AND A/T INDICATOR (5S–FE)

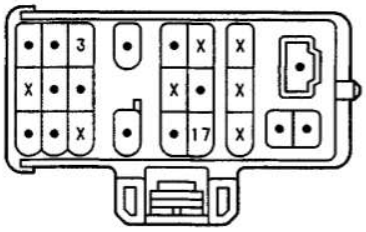
C 8 BLUE



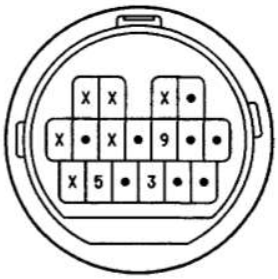
C11 BROWN



D 1 BLACK



D 3 DARK GRAY



E 2 (A) BLACK



E 3 (B) BLACK



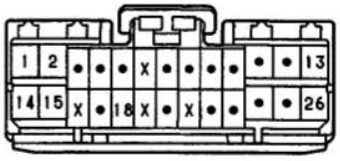
E 4 GREEN



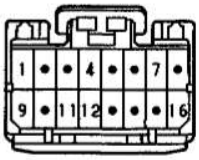
E 6 BLACK



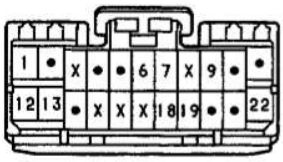
E 7 (C) DARK GRAY



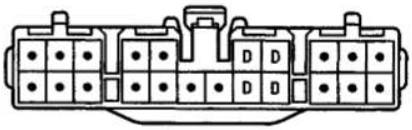
E 8 (B) DARK GRAY



E10 (A) DARK GRAY

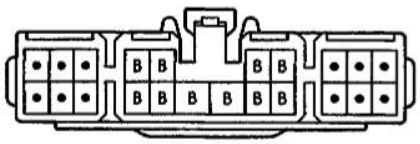


J 1 DARK GRAY



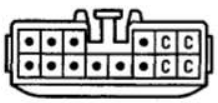
(HINT:SEE PAGE 7)

J 2



(HINT:SEE PAGE 7)

J 3



(HINT:SEE PAGE 7)

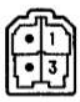
N 2 (A)



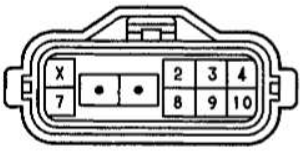
N 3 (B)



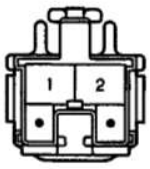
O 5 BLUE



P 1 GRAY



S10 BLUE



T 1 BLACK



V 5 GRAY



cardiagn.com

ABS (ANTI–LOCK BRAKE SYSTEM) (TMC MADE)

A 4 (A) GRAY



A 5 (B) BLACK



A 6 (B) GRAY



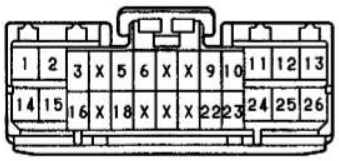
A 7 (A) GRAY



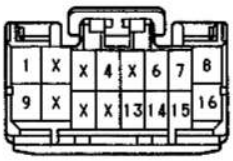
A 8, A 9 GRAY



A13 (A) DARK GRAY



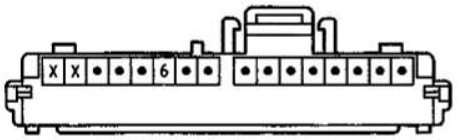
A14 (B) DARK GRAY



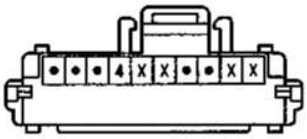
A19, A20 GRAY



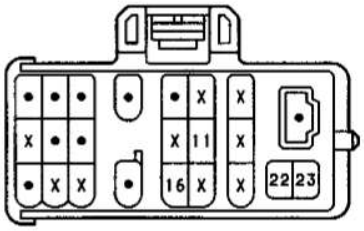
C 9 (A) BLUE



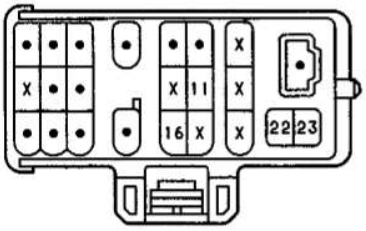
C10 (B) GRAY



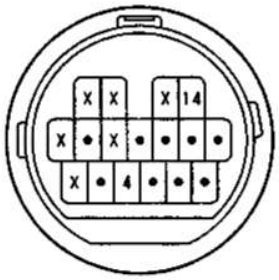
(1NZ-FE) D 1 BLACK



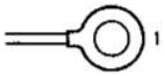
(5S-FE) D 1 BLACK



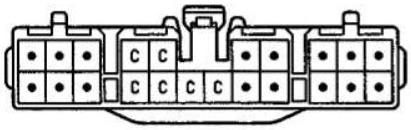
D 3 DARK GRAY



F18

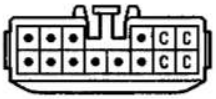


J 1 DARK GRAY



(HINT:SEE PAGE 7)

J 3

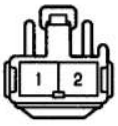


(HINT:SEE PAGE 7)

N 2 (A)



N 3 (B)



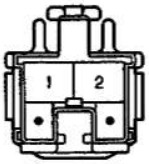
P 2



P 3

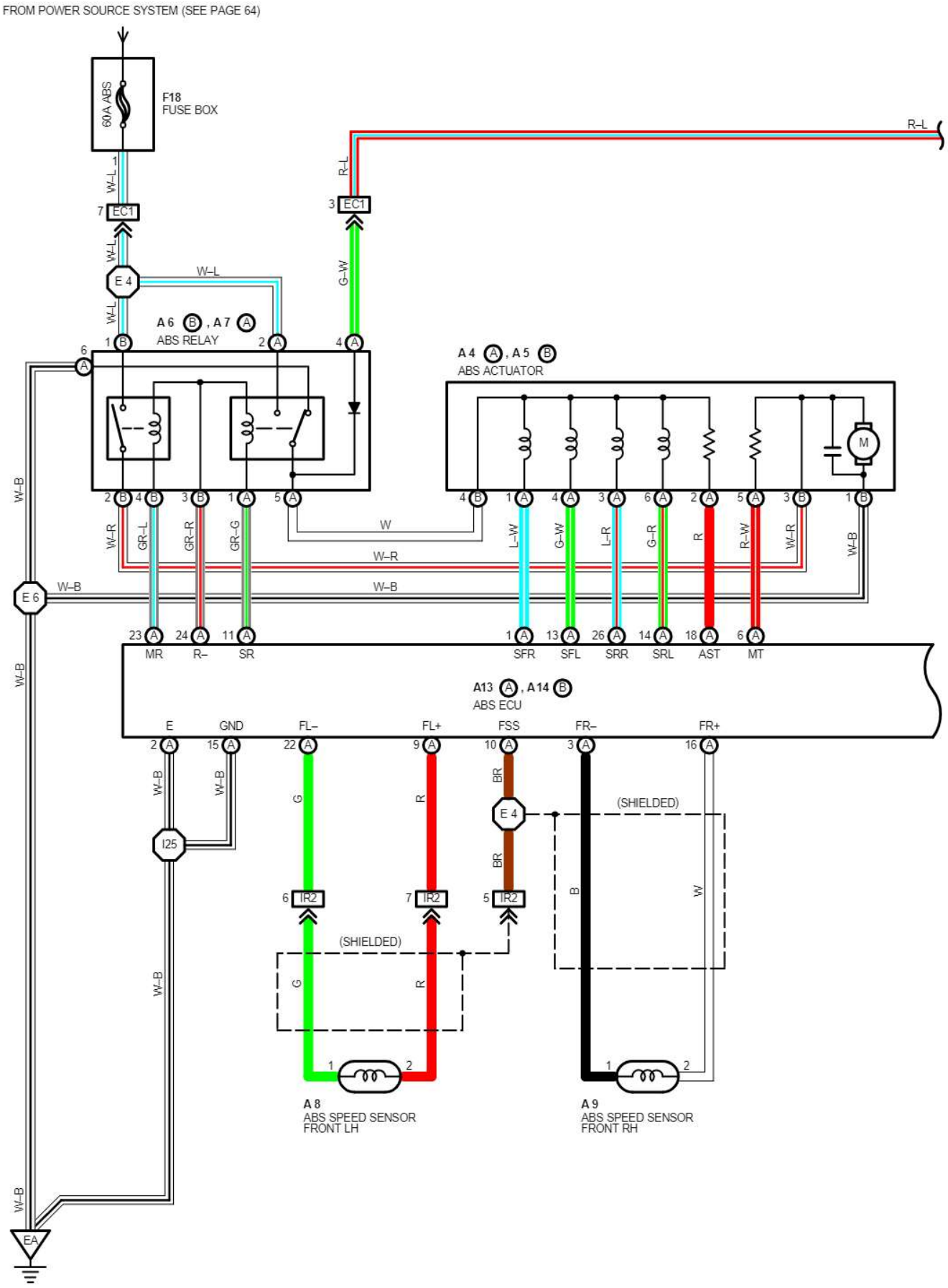


S10 BLUE



cardiagn.com

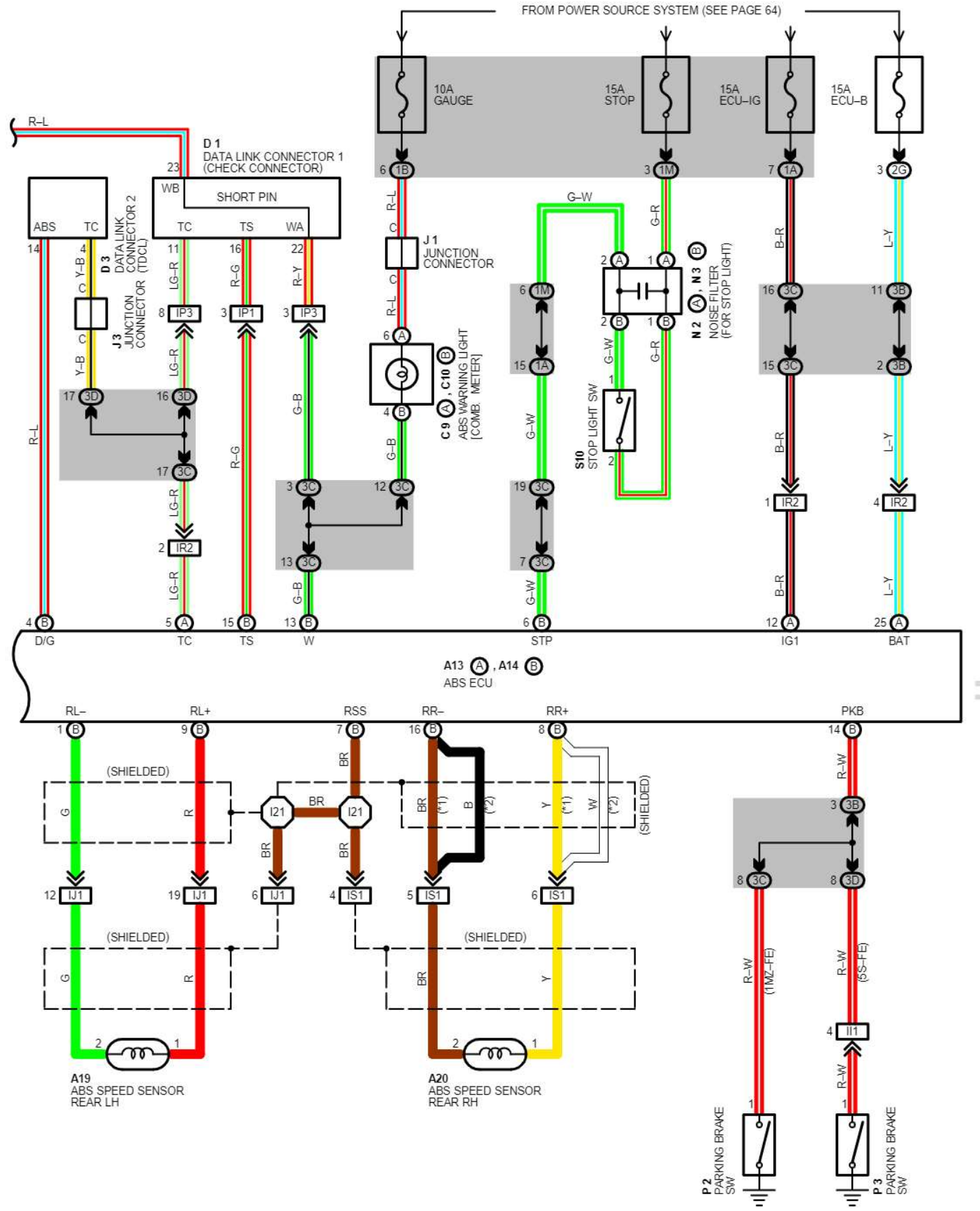
ABS (ANTI–LOCK BRAKE SYSTEM) (TMC MADE)



cardiagn.com

210

*1 : USA
*2 : CANADA



211

cardiagn.com

ABS (ANTI–LOCK BRAKE SYSTEM) (TMC MADE)

SYSTEM OUTLINE

THIS SYSTEM CONTROLS THE RESPECTIVE BRAKE FLUID PRESSURES ACTING ON THE DISC BRAKE CYLINDERS OF THE RIGHT FRONT WHEEL, LEFT FRONT WHEEL AND REAR WHEELS WHEN THE BRAKES ARE APPLIED IN A PANIC STOP SO THAT THE WHEELS DO NOT LOCK. THIS RESULTS IN IMPROVED DIRECTIONAL STABILITY AND STEERABILITY DURING PANIC BRAKEING.

1. INPUT SIGNALS

(1) SPEED SENSOR SIGNAL
THE SPEED OF THE WHEELS IS DETECTED AND INPUT TO **TERMINALS FL+, FR+, RL+** AND **RR+** OF THE ABS ECU.

(2) STOP LIGHT SW SIGNAL
A SIGNAL IS INPUT TO **TERMINAL STP** OF THE ABS ECU WHEN BRAKE PEDAL IS OPERATED.

(3) PARKING BRAKE SW SIGNAL
A SIGNAL IS INPUT TO **TERMINAL PKB** OF THE ABS ECU WHEN THE PARKING BRAKE IS OPERATED.

2. SYSTEM OPERATION

DURING SUDDEN BRAKEING THE ABS ECU, WHICH HAS SIGNALS INPUT FROM EACH SENSOR, CONTROLS THE CURRENT FLOWING TO THE SOLENOID INSIDE THE ACTUATOR AND LETS THE HYDRAULIC PRESSURE ACTING ON EACH WHEEL CYLINDER ESCAPE TO THE RESERVOIR. THE PUMP INSIDE THE ACTUATOR IS ALSO OPERATING AT THIS TIME AND IT RETURNS THE BRAKE FLUID FROM THE RESERVOIR TO THE MASTER CYLINDER, THUS PREVENTING LOCKING OF THE VEHICLE WHEELS.

IF THE ECU JUDGES THAT THE HYDRAULIC PRESSURE ACTING ON THE WHEEL CYLINDER IS INSUFFICIENT, THE CURRENT ACTING ON THE SOLENOID IS CONTROLLED AND THE HYDRAULIC PRESSURE IS INCREASED. HOLDING OF THE HYDRAULIC PRESSURE IS ALSO CONTROLLED BY THE ECU, BY THE SAME METHOD AS ABOVE. BY REPEATED PRESSURE REDUCTION, HOLDING AND INCREASE ARE REPLATED TO MAINTAIN VEHICLE STABILITY AND TO IMPROVE STEERBILITY DURING SUDDEN BRAKING.

SERVICE HINTS

A 4(A), A 5(B) ABS ACTUATOR
(A)1, **(A)**3, **(A)**4, **(A)**6 – **(A)**2 : APPROX. **6** Ω
(A)2–GROUND : APPROX. **5** Ω

A 6(B), A 7(A) ABS RELAY
(A)1–**(B)** 3 : **60** Ω–**100** Ω
(A)4–**(B)** 3 : **60** Ω–**100** Ω
(A)1, **(B)** 2–GROUND : APPROX. **12** VOLTS
(A)6–GROUND : APPROX. **12** VOLTS

A 8, A 9 ABS SPEED SENSOR FRONT LH, RH
1–2 : **0.8** K–**1.3** KΩ

A19, A20 ABS SPEED SENSOR REAR LH, RH
1–2 : **1.1** K–**1.5** KΩ

A13(A), A14(B) ABS ECU
(CONNECT THE ECU CONNECTORS)
(A) 5–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION AND DATA LINK CONNECTOR 1 (CHECK CONNECTOR) TS–EI NOT CONNECTED
(B)15–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION AND DATA LINK CONNECTOR 1 (CHECK CONNECTOR) TS–EI NOT CONNECTED
(A) 1–GROUND, **(A)** 13–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION AND ABS WARNING LIGHT GOES OFF
(A)14–GROUND, **(A)** 1–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION AND ABS WARNING LIGHT GOES OFF
(A)26–GROUND, **(A)** 18–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION AND ABS WARNING LIGHT GOES OFF
(A) 2–GROUND : ALWAYS CONTINUITY
(A)15–GROUND : ALWAYS CONTINUITY
(A)12–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
(B) 6–GROUND : APPROX. **12** VOLTS WITH BRAKE PEDAL DEPRESSED
(A)25–GROUND : ALWAYS APPROX. **12** VOLTS

cardiagn.com

: PARTS LOCATION

CODE		SEE PAGE	CODE		SEE PAGE	CODE		SEE PAGE
A 4	A	28 (1MZ–FE), 30 (5S–FE)	A19		34	J 3		33
A 5	B	28 (1MZ–FE), 30 (5S–FE)	A20		34	N 2	A	33
A 6	B	28 (1MZ–FE), 30 (5S–FE)	C 9	A	32	N 3	B	33
A 7	A	28 (1MZ–FE), 30 (5S–FE)	C10	B	32	P 2		33
A 8		28 (1MZ–FE), 30 (5S–FE)	D 1		28 (1MZ–FE), 30 (5S–FE)	P 3		33
A 9		28 (1MZ–FE), 30 (5S–FE)	D 3		32	S10		33
A13	A	32	F10		28 (1MZ–FE), 30 (5S–FE)			
A14	B	32	J 1		33			

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1B		
1M		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3B	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		
3D		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EC1	38 (1MZ–FE)	ENGINE WIRE AND ENGINE ROOM MAIN WIRE
	40 (5S–FE)	
II1	42	COWL WIRE AND INSTRUMENT PANEL WIRE
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IP3	44	ENGINE WIRE AND COWL WIRE
IR2	44	ENGINE ROOM MAIN WIRE AND COWL WIRE
IS1	44	FLOOR NO. 2 WIRE AND COWL WIRE

: GROUND POINTS

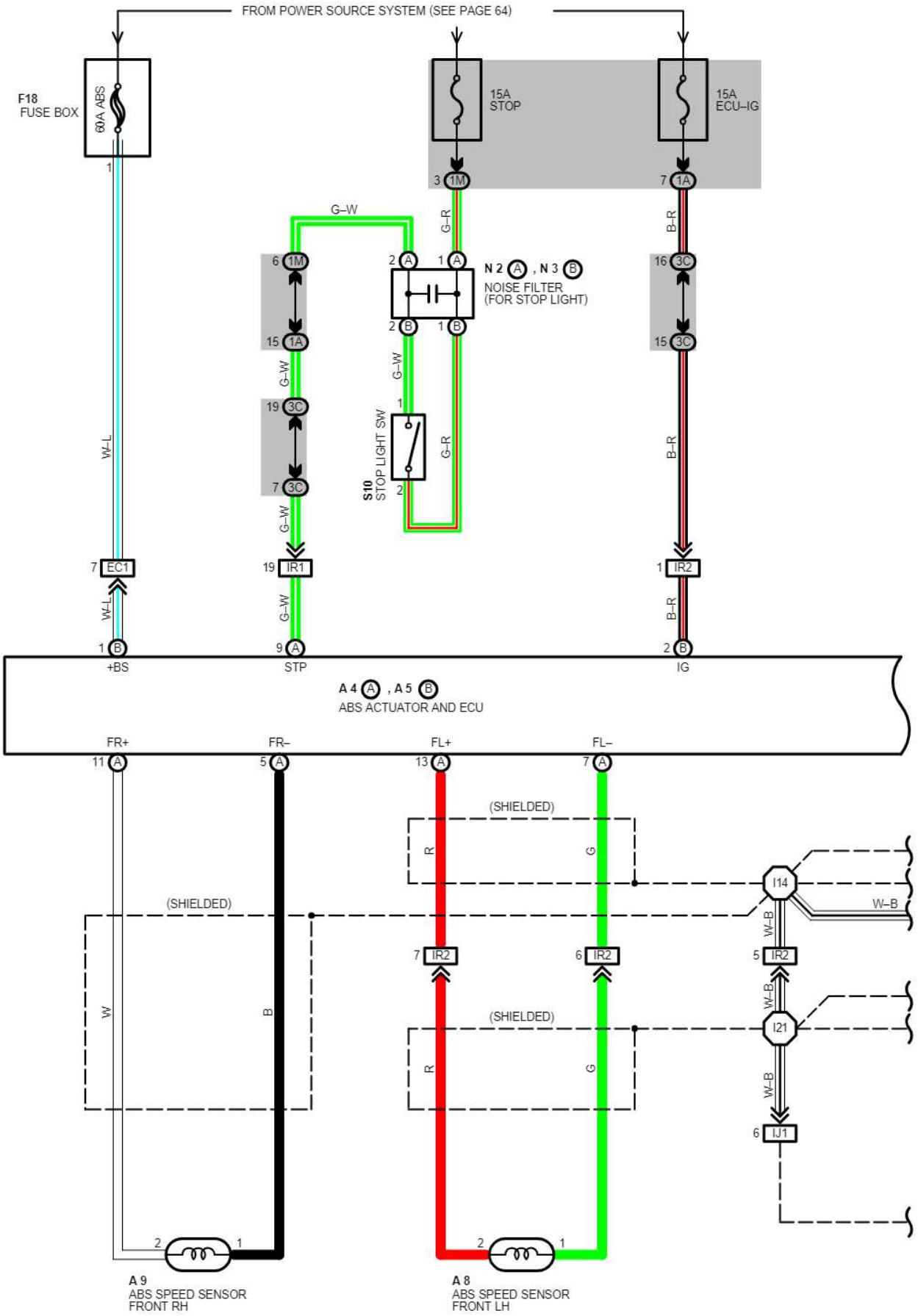
CODE	SEE PAGE	GROUND POINTS LOCATION
EA	38 (1MZ–FE)	FRONT RIGHT FENDER
	40 (5S–FE)	

: SPLICE POINTS

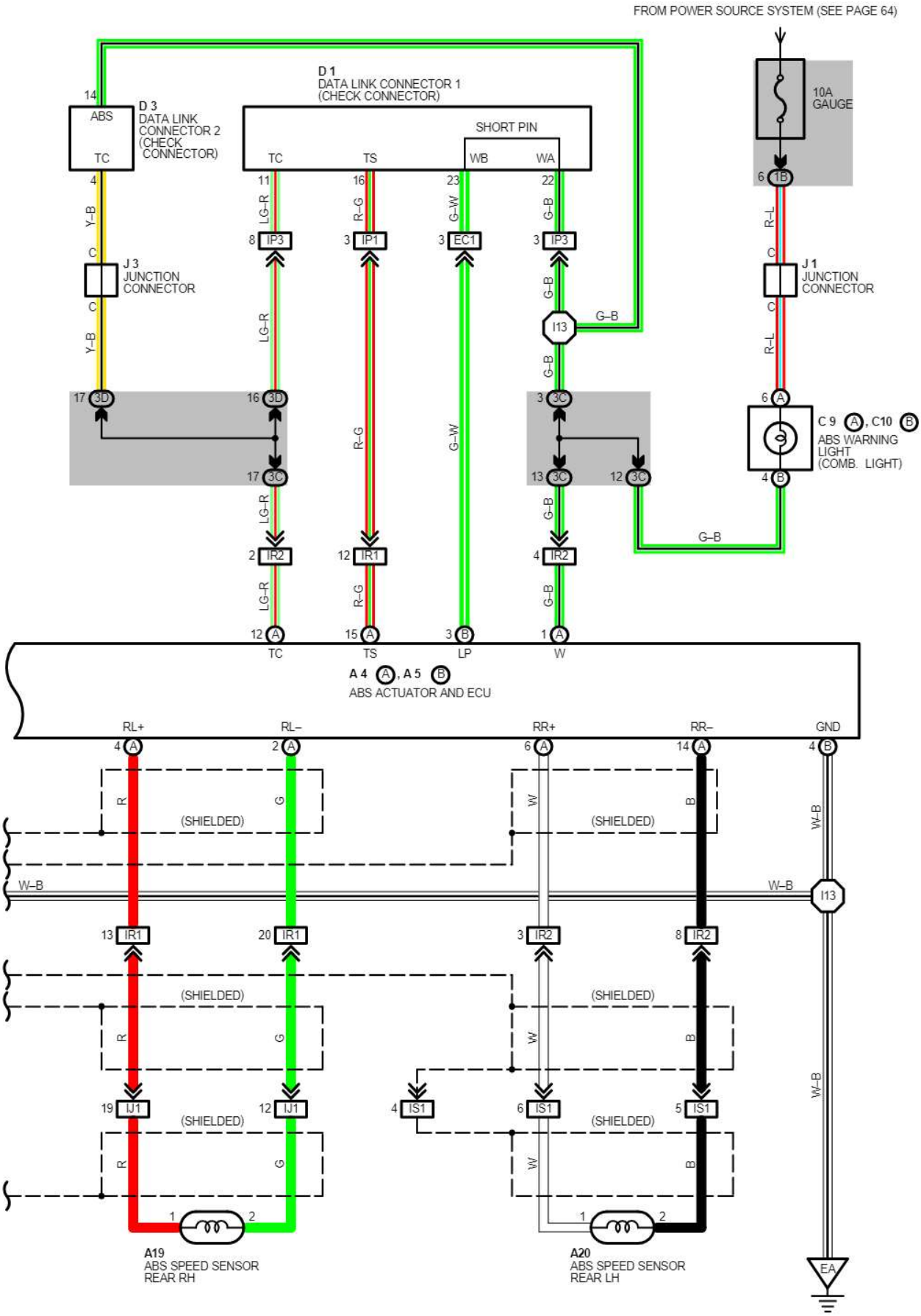
CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E 4	38 (1MZ–FE)	ENGINE ROOM MAIN WIRE	E 6	40 (5S–FE)	ENGINE ROOM MAIN WIRE
	40 (5S–FE)		I21	44	COWL WIRE
E 6	38 (1MZ–FE)		I25	44	ENGINE ROOM MAIN WIRE

cardiagn.com

ABS (ANTI–LOCK BRAKE SYSTEM) (TMM MADE)



cardiagn.com



cardiagn.com

ABS (ANTI–LOCK BRAKE SYSTEM) (TMM MADE)

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A 4 A	28 (1MZ–FE), 30 (5S–FE)	C 9 A	32	J 3	33
A 5 B	28 (1MZ–FE), 30 (5S–FE)	C10 B	32	N 2 A	33
A 8	28 (1MZ–FE), 30 (5S–FE)	D 1	28 (1MZ–FE), 30 (5S–FE)	N 3 B	33
A 9	28 (1MZ–FE), 30 (5S–FE)	D 3	32	S10	33
A19	34 (S/D), 35 (C/P), 36 (W/G)	F18	28 (1MZ–FE), 30 (5S–FE)		
A20	34 (S/D), 35 (C/P), 36 (W/G)	J 1	33		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1B		
1M		
3C	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3D		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EC1	38 (1MZ–FE) 40 (5S–FE)	ENGINE WIRE AND ENGINE ROOM MAIN WIRE
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IP1	44	ENGINE WIRE AND COWL WIRE
IP3		
IR1	44	ENGINE ROOM MAIN WIRE AND COWL WIRE
IR2		
IS1	44	FLOOR NO. 2 WIRE AND COWL WIRE

: GROUND POINTS

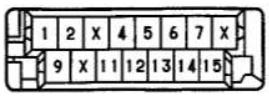
CODE	SEE PAGE	GROUND POINTS LOCATION
EA	38 (1MZ–FE) 40 (5S–FE)	FRONT RIGHT FENDER

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I13	44	COWL WIRE	I21	44	COWL WIRE
I14					

cardiagn.com

A 4 (A) BLACK



A 5 (B) BLACK



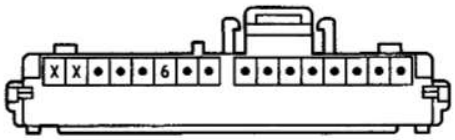
A 8, A 9 GRAY



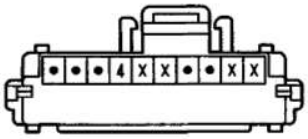
A19, A20 GRAY



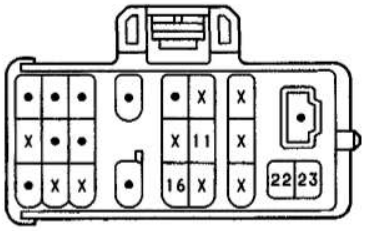
C 9 (A) BLUE



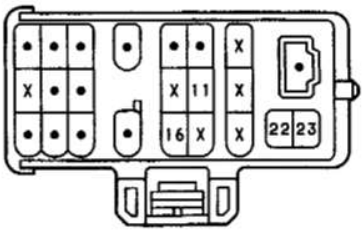
C10 (B) GRAY



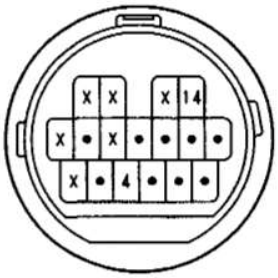
(1MZ-FE) D 1 BLACK



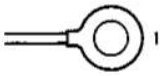
(5S-FE) D 1 BLACK



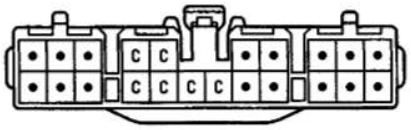
D 3 DARK GRAY



F18

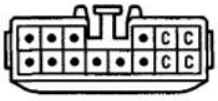


J 1 DARK GRAY



(HINT:SEE PAGE 7)

J 3



(HINT:SEE PAGE 7)

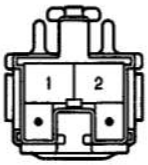
N 2 (A)



N 3 (B)



S10 BLUE



cardiagn.com

ABS (ANTI–LOCK BRAKE SYSTEM) (TMM MADE)

SYSTEM OUTLINE

THIS SYSTEM CONTROLS THE RESPECTIVE BRAKE FLUID PRESSURES ACTING ON THE DISC BRAKE CYLINDERS OF THE RIGHT FRONT WHEEL, LEFT FRONT WHEEL AND REAR WHEELS WHEN THE BRAKES ARE APPLIED IN A PANIC STOP SO THAT THE WHEELS DO NOT LOCK. THIS RESULTS IN IMPROVED DIRECTIONAL STABILITY AND STEERABILITY DURING PANIC BRAKEING.

1. INPUT SIGNALS

(1) SPEED SENSOR SIGNAL
THE SPEED OF THE WHEELS IS DETECTED AND INPUT TO **TERMINALS FL+, FR+, RL+** AND **RR+** OF THE ABS ECU.

(2) STOP LIGHT SW SIGNAL
A SIGNAL IS INPUT TO **TERMINAL STP** OF THE ABS ECU WHEN BRAKE PEDAL IS OPERATED.

2. SYSTEM OPERATION

DURING SUDDEN BRAKEING THE ABS ECU, WHICH HAS SIGNALS INPUT FROM EACH SENSOR, CONTROLS THE CURRENT FLOWING TO THE SOLENOID INSIDE THE ACTUATOR AND LETS THE HYDRAULIC PRESSURE ACTING ON EACH WHEEL CYLINDER ESCAPE TO THE RESERVOIR. THE PUMP INSIDE THE ACTUATOR IS ALSO OPERATING AT THIS TIME AND IT RETURNS THE BRAKE FLUID FROM THE RESERVOIR TO THE MASTER CYLINDER, THUS PREVENTING LOCKING OF THE VEHICLE WHEELS.

IF THE ECU JUDGES THAT THE HYDRAULIC PRESSURE ACTING ON THE WHEEL CYLINDER IS INSUFFICIENT, THE CURRENT ACTING ON THE SOLENOID IS CONTROLLED AND THE HYDRAULIC PRESSURE IS INCREASED. HOLDING OF THE HYDRAULIC PRESSURE IS ALSO CONTROLLED BY THE ECU, BY THE SAME METHOD AS ABOVE. BY REPEATED PRESSURE REDUCTION, HOLDING AND INCREASE ARE REPLATED TO MAINTAIN VEHICLE STABILITY AND TO IMPROVE STEERBILITY DURING SUDDEN BRAKING.

SERVICE HINTS

A 8, A 9 ABS SPEED SENSOR FRONT LH, RH
1–2 : **0.8** K–**1.3** KΩ

A19, A20 ABS SPEED SENSOR REAR LH, RH
1–2 : **1.1** K–**1.5** KΩ

A 4(A), A 5(B) ABS ECU
(CONNECT THE ECU CONNECTORS)

(A)12–GROUND	:	APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION AND DATA LINK CONNECTOR 1 (CHECK CONNECTOR) TS–EI NOT CONNECTED
(A)15–GROUND	:	APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION AND DATA LINK CONNECTOR 1 (CHECK CONNECTOR) TS–EI NOT CONNECTED
(B) 4–GROUND	:	ALWAYS CONTINUITY
(B) 2–GROUND	:	APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
(A) 9–GROUND	:	APPROX. **12** VOLTS WITH BRAKE PEDAL DEPRESSED
(B) 1–GROUND	:	ALWAYS APPROX. **12** VOLTS

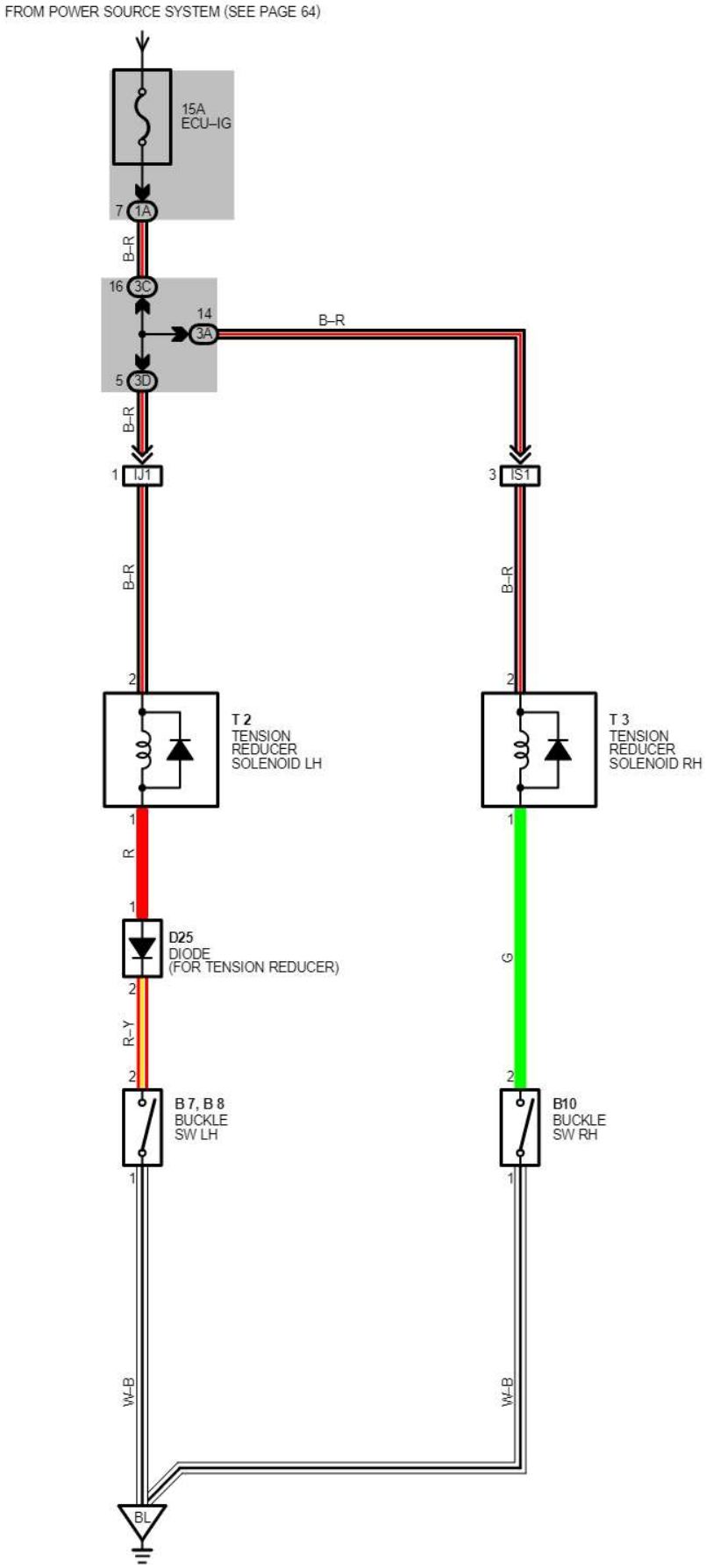
cardiagn.com

ABS (ANTI – LOCK BRAKE SYSTEM) (TMM MADE)

-Memo

cardiagn.com

ELECTRIC TENSION REDUCER



220

cardiagn.com

*1 W/ POWER SEAT
*2 W/O POWER SEAT

SERVICE HINTS

B 7, B 8 BUCKLE SW LH
1–2 : CLOSED WITH DRIVER'S LAP BELT IN USE

B10 BUCKLE SW RH
1–2 : CLOSED WITH PASSENGER'S LAP BELT IN USE

T 2, T 3 TENSION REDUCER SOLENOID LH, RH
2–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
B 7	32	**B10**	32	**T 2**	35
B 8	32	**D25**	32	**T 3**	35

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		

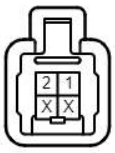
: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IS1	44	FLOOR NO. 2 WIRE AND COWL WIRE

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
BL	46 (S/D)	UNDER THE LEFT QUARTER PILLAR
	48 (C/P)	
	50 (W/G)	

(*1) B 7



(*2) B 8



B10



D25 BLACK



T 2



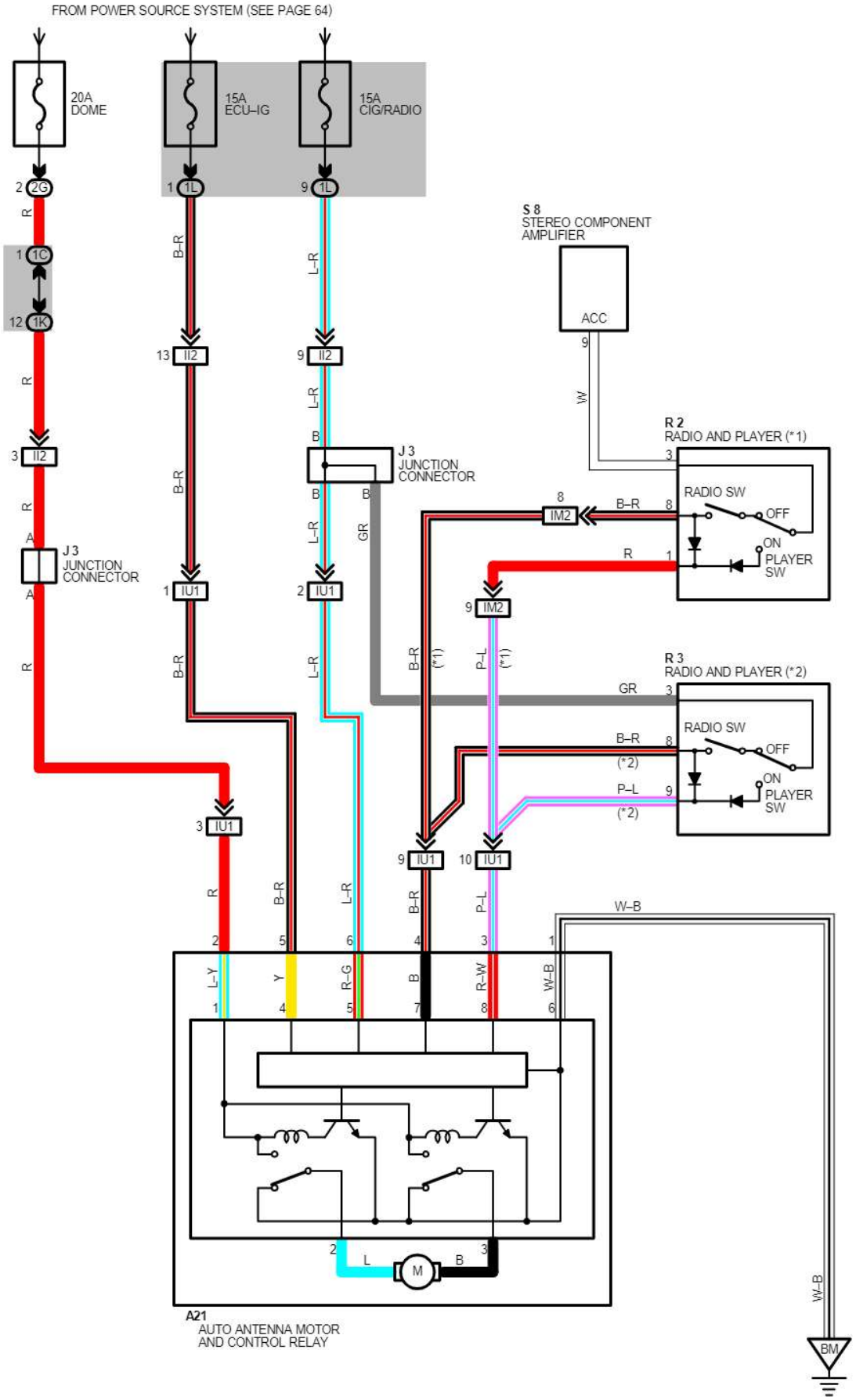
T 3



cardiagn.com

AUTO ANTENNA (S/D, C/P)

*1 : 6 SPEAKER
*2 : 4 SPEAKER



222

cardiagn.com

SERVICE HINTS

A21 AUTO ANTENNA MOTOR AND RELAY

9–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
5–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ACC** OR **ON** POSITION
7–GROUND : ALWAYS APPROX. **12** VOLTS
8–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ACC** OR **ON** POSITION AND RADIO SW ON
3–GROUND : CONTINUITY (UPPER LIMIT SW ON) UNLESS ANTENNA AT **UP** STOP
2–GROUND : CONTINUITY (DOWN LIMIT SW ON) UNLESS ANTENNA AT **DOWN** STOP
4–3 : CLOSED WITH IGNITION SW AT **ACC** OR **ON** POSITION AND RADIO SW ON AND PLAYER SW OFF UNTIL ANTENNA AT **UPPERMOST** POSITION
1–2 : CLOSED WITH IGNITION SW AT **ACC** OR **ON** POSITION AND RADIO SW OFF AND PLAYER SW OFF UNTIL ANTENNA AT **LOWERMOST** POSITION
1–2: CLOSED WITH IGNITION SW OFF UNTIL ANTENNA AT **LOWERMOST** POSITION

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A21	34 (S/D), 35 (C/P)	**R 2**	33	**S 8**	33
J 3	33	**R 3**	33		

: 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 (INSTRUMENT PANEL LEFT)
1K		
1L		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IM2	42	INSTRUMENT PANEL WIRE AND CONSOLE BOX WIRE
IU1	44	FLOOR NO. 2 WIRE AND INSTRUMENT PANEL WIRE

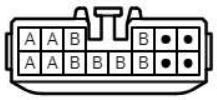
: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
BM	46 (S/D) 48 (C/P)	UNDER THE LEFT QUARTER PILLAR

A21

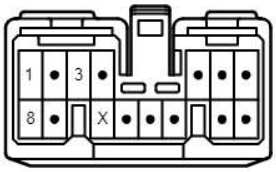


J 3

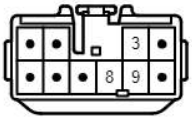


(HINT : SEE PAGE 7)

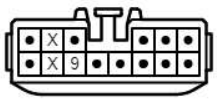
R 2



R 3 BLUE



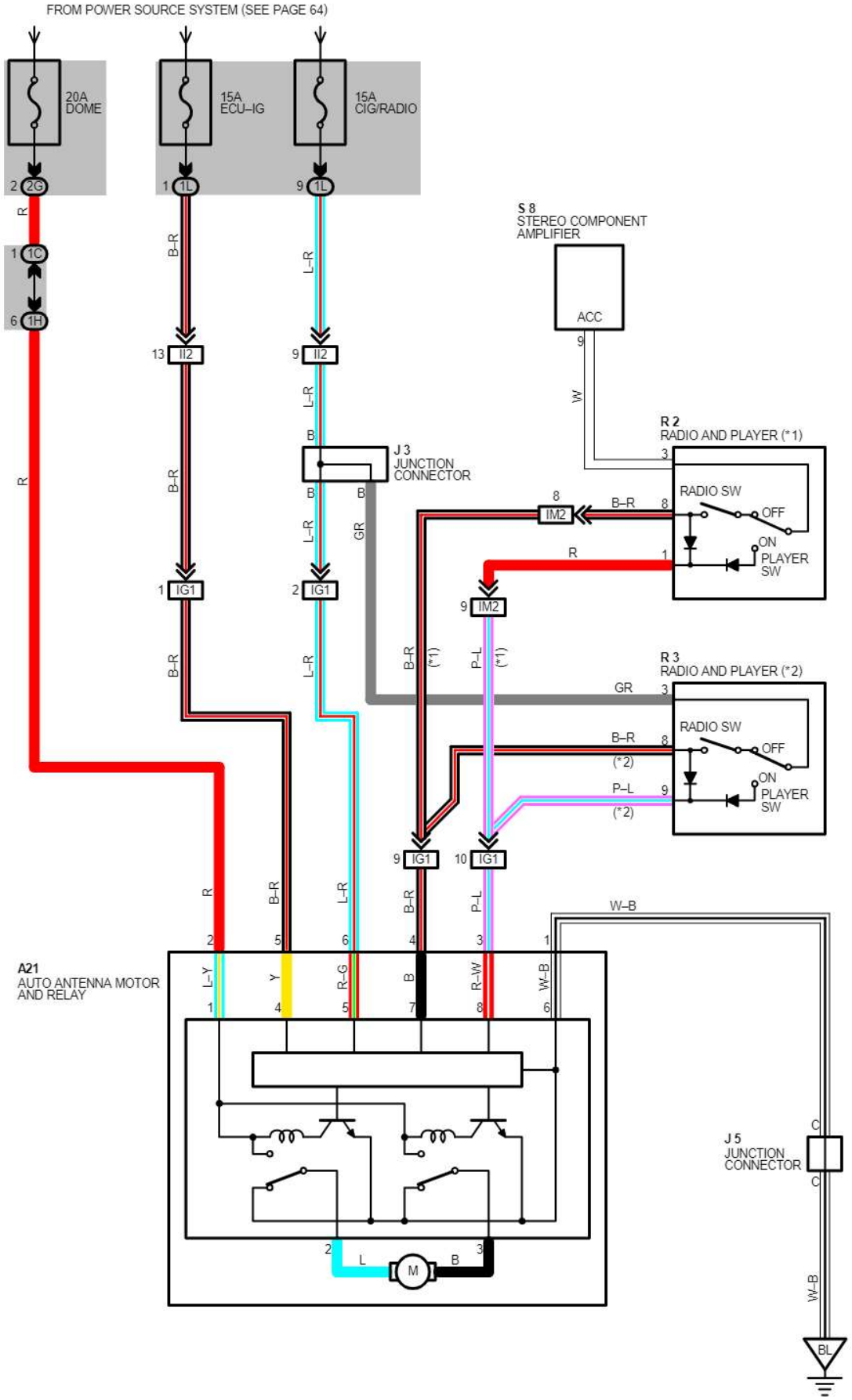
S 8



cardiagn.com

AUTO ANTENNA (W/G)

*1 : 8 SPEAKER
*2 : 6 SPEAKER



cardiagn.com

SERVICE HINTS

A21 AUTO ANTENNA MOTOR AND RELAY

9–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
5–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ACC** OR **ON** POSITION
7–GROUND : ALWAYS APPROX. **12** VOLTS
8–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ACC** OR **ON** POSITION AND RADIO SW ON
3–GROUND : CONTINUITY (UPPER LIMIT SW ON) UNLESS ANTENNA AT **UP** STOP
2–GROUND : CONTINUITY (DOWN LIMIT SW ON) UNLESS ANTENNA AT **DOWN** STOP
4–3 : CLOSED WITH IGNITION SW AT **ACC** OR **ON** POSITION AND RADIO SW ON AND PLAYER SW OFF UNTIL ANTENNA AT **UPPERMOST** POSITION
1–2 : CLOSED WITH IGNITION SW AT **ACC** OR **ON** POSITION AND RADIO SW OFF AND PLAYER SW OFF UNTIL ANTENNA AT **LOWERMOST** POSITION
1–2 : CLOSED WITH IGNITION SW OFF UNTIL ANTENNA AT **LOWERMOST** POSITION

○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A21	36 (W/G)	**J 5**	36 (W/G)	**R 3**	33
J 3	33	**R 2**	33	**S 8**	33

⬭ : 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 (INSTRUMENT PANEL LEFT)
1H	20	FLOOR NO. 1 WIRE J/B NO. 1 (INSTRUMENT PANEL LEFT)
1L	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IM2	42	INSTRUMENT PANEL WIRE AND CONSOLE BOX WIRE
IG1	42	FLOOR NO. 1 WIRE AND INSTRUMENT PANEL WIRE

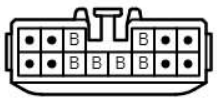
▽ : GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
BL	46 (S/D)	UNDER THE LEFT QUARTER PILLAR
	48 (C/P)	
	50 (W/G)	

A21

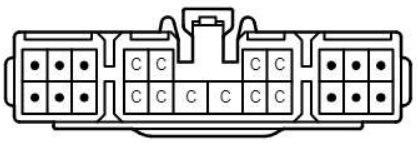


J 3



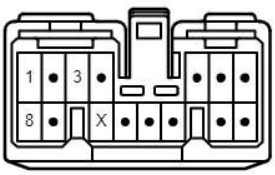
(HINT : SEE PAGE 7)

J 5

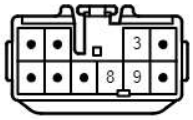


(HINT : SEE PAGE 7)

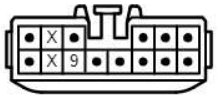
R 2



R 3 BLUE

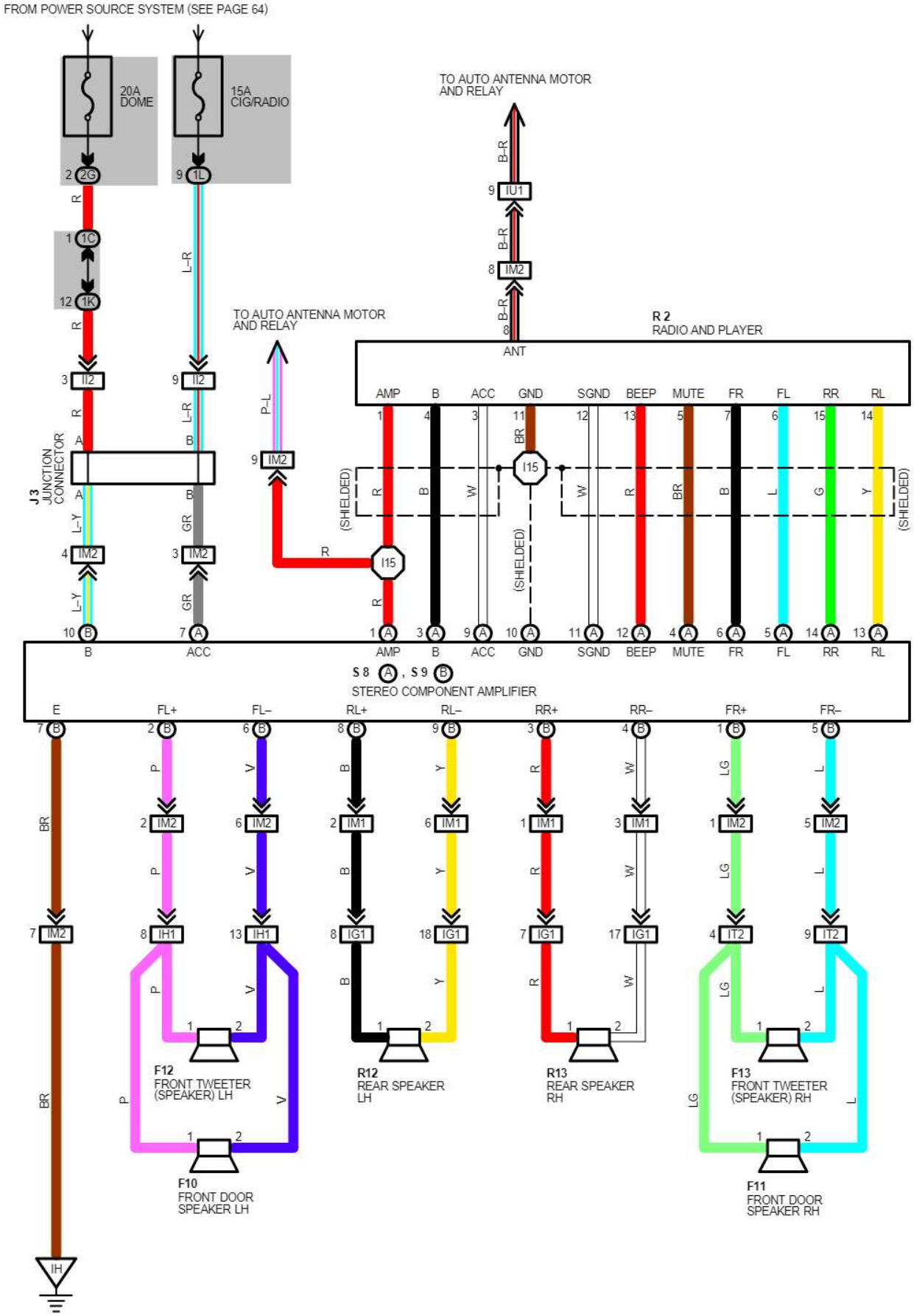


S 8



cardiagn.com

RADIO AND PLAYER (S/D, C/P 6 SPEAKER)



226

cardiagn.com

SERVICE HINTS

S 8(A), S 9(B) STEREO COMPONENT AMPLIFIER
(A) 7–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** OR **ACC** POSITION
(B) 7–GROUND : ALWAYS CONTINUITY
(B)10–GROUND : ALWAYS APPROX. **12** VOLTS

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE		SEE PAGE
F10	28 (1MZ–FE), 30 (5S–FE)	**J 3**	33	**S 8**	A	33
F11	34 (S/D), 35 (C/P)	**R 2**	33	**S 9**	B	33
F12	34 (S/D), 35 (C/P)	**R12**	34 (S/D), 35 (C/P)			
F13	34 (S/D), 35 (C/P)	**R13**	34 (S/D), 35 (C/P)			

: 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 (INSTRUMENT PANEL LEFT)
1K		
1L		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IG1	42	FLOOR NO. 1 WIRE AND INSTRUMENT PANEL WIRE
IH1	42	FRONT DOOR LH WIRE AND INSTRUMENT PANEL WIRE
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IM1	42	INSTRUMENT PANEL WIRE AND CONSOLE BOX WIRE
IM2		
IT2	44	FRONT DOOR RH WIRE AND INSTRUMENT PANEL WIRE
IU1	44	FLOOR NO. 2 WIRE AND INSTRUMENT PANEL WIRE

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IH	42	INSTRUMENT PANEL BRACE RH

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I15	44	CONSOLE BOX WIRE			

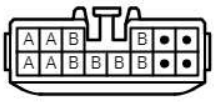
F10, F11 BLACK



F12, F13

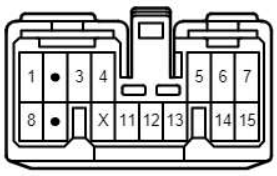


J 3



(HINT : SEE PAGE 7)

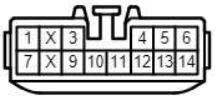
R 2 BLUE



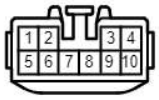
R12, R13



S 8 (A)

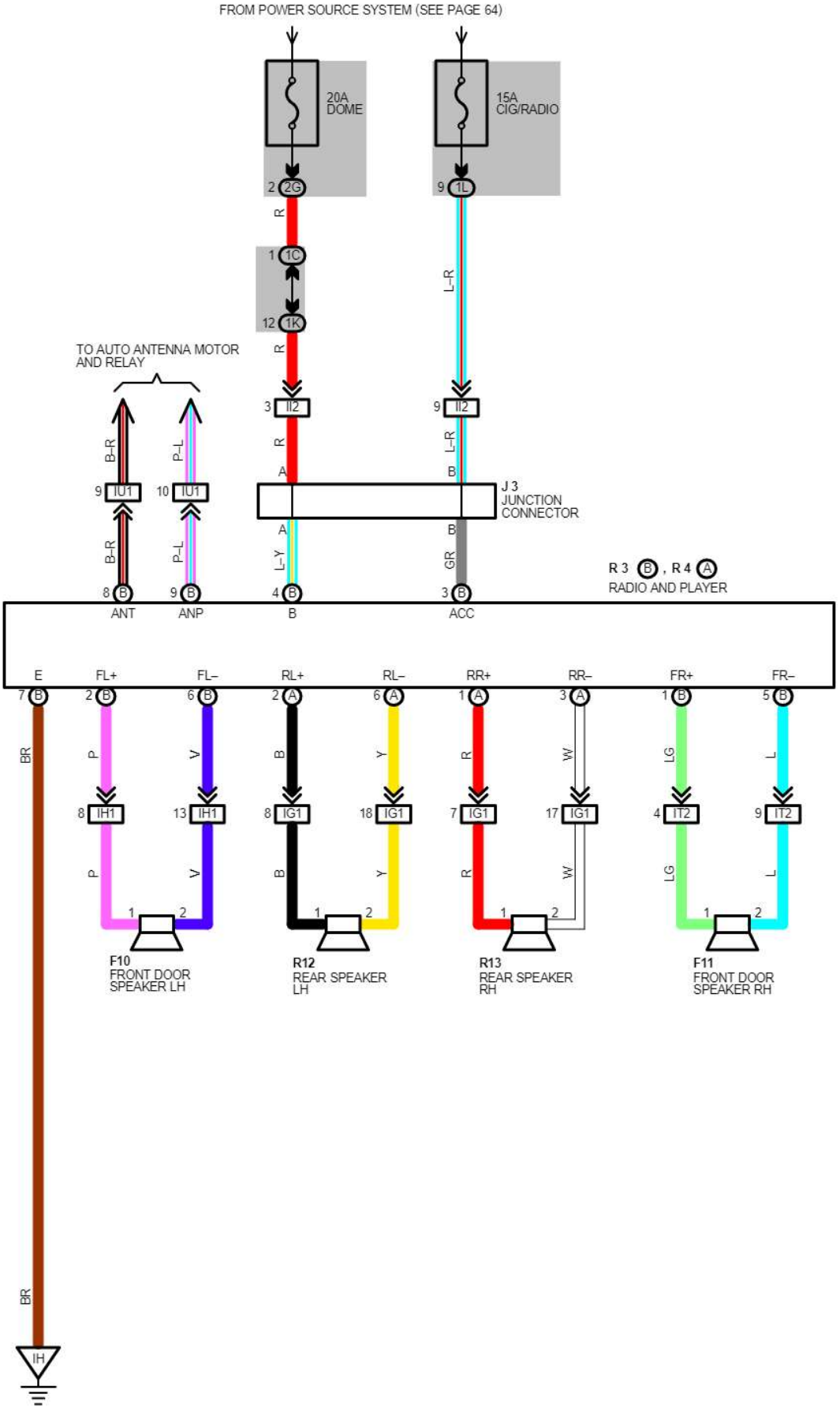


S 9 (B)



cardiagn.com

RADIO AND PLAYER (S/D, C/P 4 SPEAKER)



cardiagn.com

228

SERVICE HINTS

R 3(B) RADIO AND PLAYER

(B) 3–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** OR **ACC** POSITION
(B) 4–GROUND : ALWAYS APPROX. **12** VOLTS
(B) 7–GROUND : ALWAYS CONTINUITY

: PARTS LOCATION

CODE	SEE PAGE	CODE		SEE PAGE	CODE	SEE PAGE
F10	28 (1MZ–FE), 30 (5S–FE)	**R 3**	B	33	**R13**	34 (S/D), 35 (C/P)
F11	34 (S/D), 35 (C/P)	**R 4**	A	33		
J 3	33	**R12**		34 (S/D), 35 (C/P)		

: 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 (INSTRUMENT PANEL LEFT)
1K		
1L		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IG1	42	FLOOR NO. 1 WIRE AND INSTRUMENT PANEL WIRE
IH1	42	FRONT DOOR LH WIRE AND INSTRUMENT PANEL WIRE
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IT2	44	FRONT DOOR RH WIRE AND INSTRUMENT PANEL WIRE
IU1	44	FLOOR NO. 2 WIRE AND INSTRUMENT PANEL WIRE

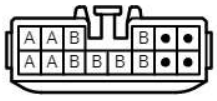
: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IH	42	INSTRUMENT PANEL BRACE RH

F10, F11 BLACK

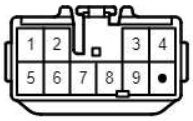


J 3



(HINT : SEE PAGE 7)

R 3 (B) BLUE



R 4 (A) BLUE

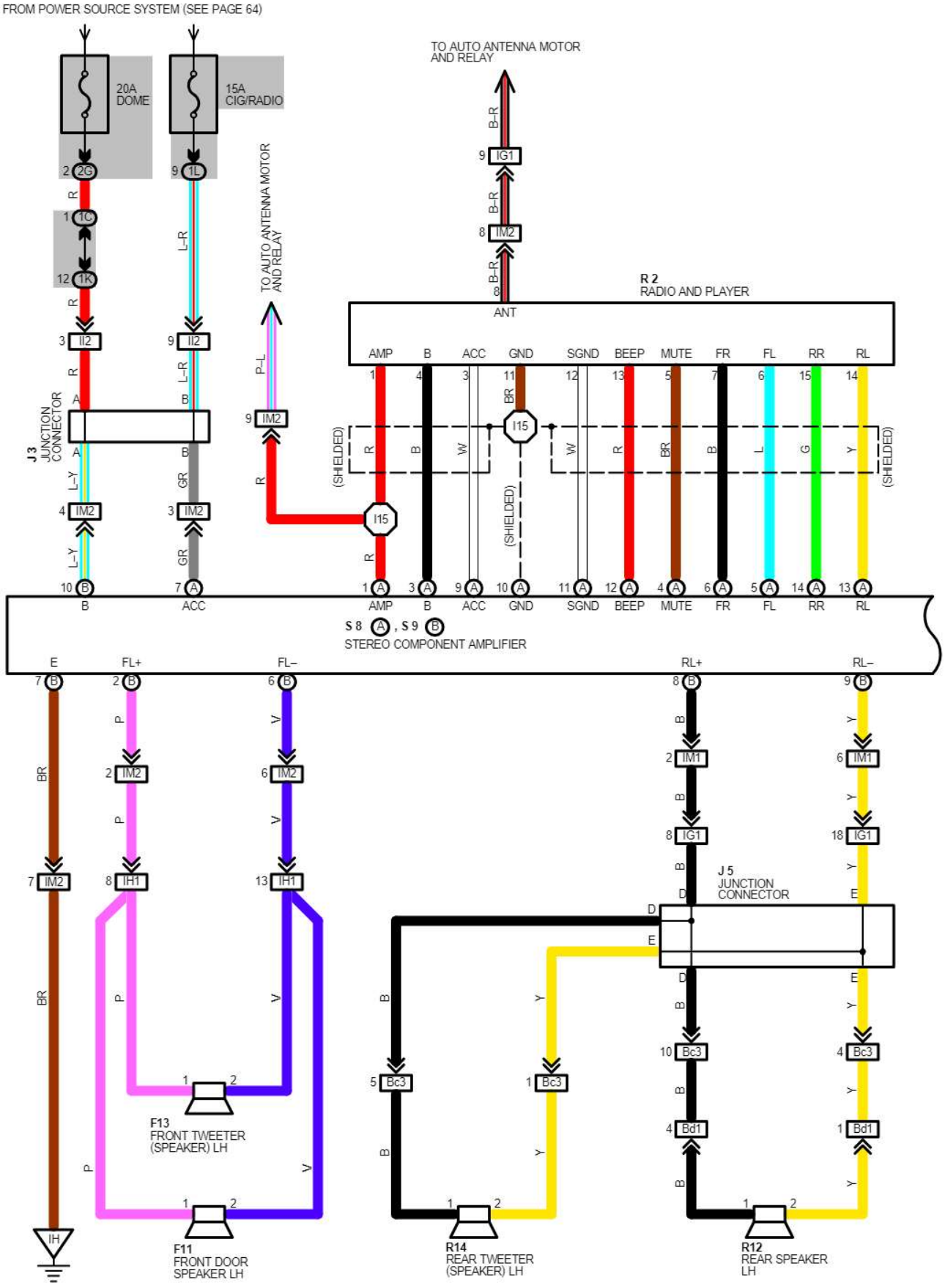


R12, R13



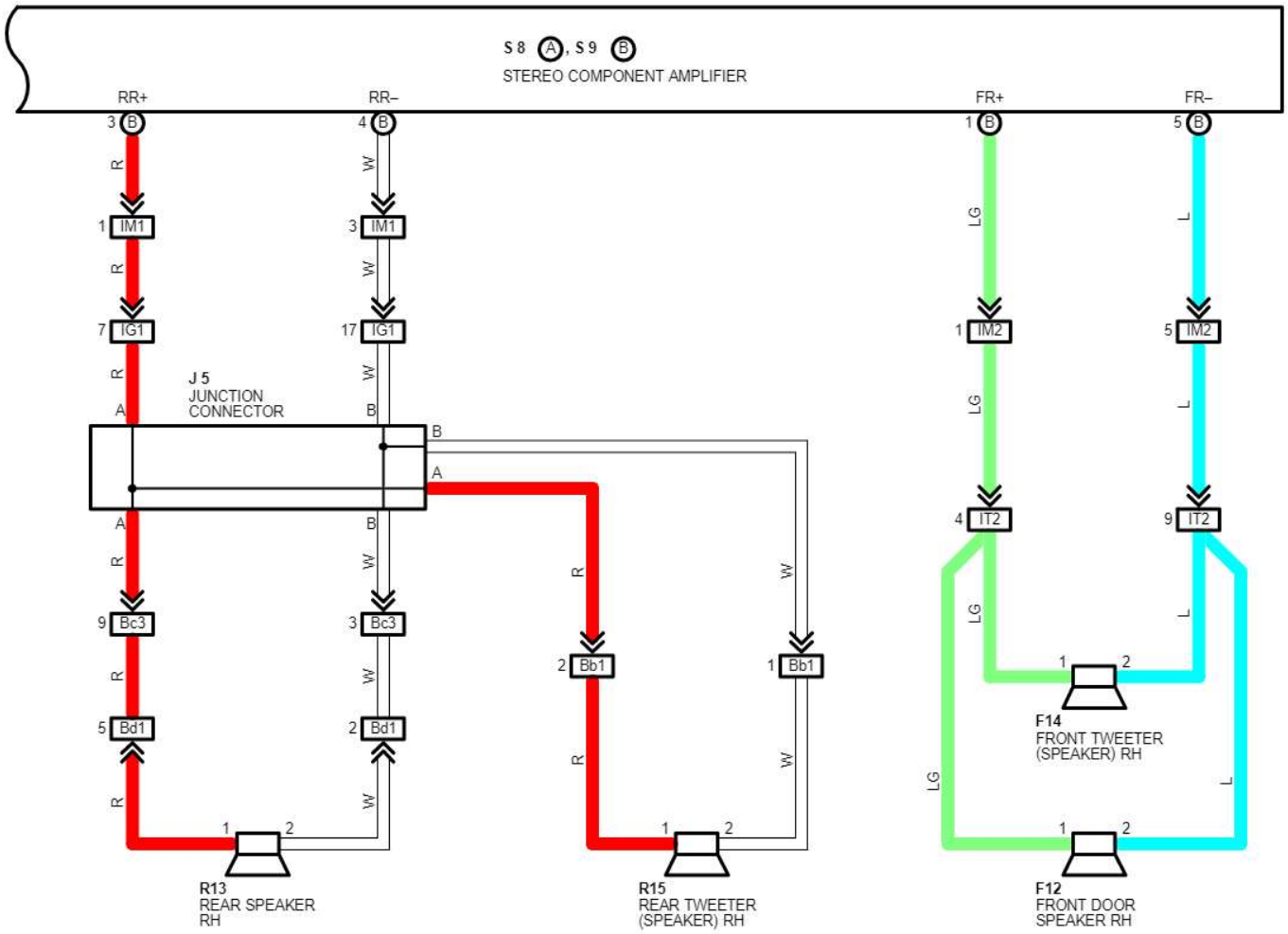
cardiagn.com

RADIO AND PLAYER (W/G 8 SPEAKER)



cardiagn.com

230



231

cardiagn.com

RADIO AND PLAYER (W/G 8 SPEAKER)

SERVICE HINTS

S 8(A), S 9(B) STEREO COMPONENT AMPLIFIER
(A) 7–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** OR **ACC** POSITION
(B) 7–GROUND : ALWAYS CONTINUITY
(B)10–GROUND : ALWAYS APPROX. **12** VOLTS

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE		SEE PAGE
F11	36 (W/G)	J 5	36	R15		36 (W/G)
F12	36 (W/G)	R 2	33	S 8	A	33
F13	36 (W/G)	R12	36 (W/G)	S 9	B	33
F14	36 (W/G)	R13	36 (W/G)			
J 3	33	R14	36 (W/G)			

: 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 (INSTRUMENT PANEL LEFT)
1K		
1L		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

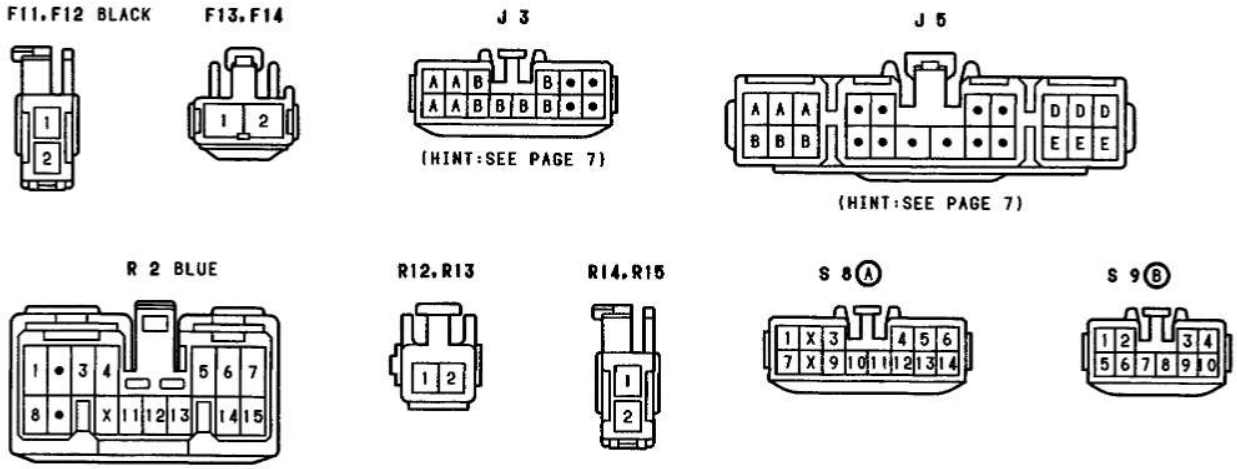
CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IG1	42	FLOOR NO. 1 WIRE AND INSTRUMENT PANEL WIRE
IH1	42	FRONT DOOR LH WIRE AND INSTRUMENT PANEL WIRE
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IM1	42	INSTRUMENT PANEL WIRE AND CONSOLE BOX WIRE
IM2		
IT2	44	FRONT DOOR RH WIRE AND INSTRUMENT PANEL WIRE
Bb1	50 (W/G)	LUGGAGE ROOM NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bc3	50 (W/G)	BACK DOOR NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bd1	50 (W/G)	BACK DOOR NO. 1 WIRE AND BACK DOOR NO. 2 WIRE

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IH	42	INSTRUMENT PANEL BRACE RH

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I15	44	CONSOLE BOX WIRE			



cardiagn.com

RADIO AND PLAYER (W/G 6 SPEAKER)

SERVICE HINTS

R 3(B) **RADIO AND PLAYER**
(B) 3–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** OR **ACC** POSITION
(B) 4–GROUND : ALWAYS APPROX. **12** VOLTS
(B) 7–GROUND : ALWAYS CONTINUITY

○ : PARTS LOCATION

CODE	SEE PAGE	CODE		SEE PAGE	CODE	SEE PAGE
F11	36 (W/G)	R 3	B	33	R14	36 (W/G)
F12	36 (W/G)	R 4	A	33	R15	36 (W/G)
J 3	33	R12		36 (W/G)		
J 5	36	R13		36 (W/G)		

⬭ : 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 (INSTRUMENT PANEL LEFT)
1K		
1L		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)

▭ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
IG1	42	FLOOR NO. 1 WIRE AND INSTRUMENT PANEL WIRE
IH1	42	FRONT DOOR LH WIRE AND INSTRUMENT PANEL WIRE
II2	42	INSTRUMENT PANEL WIRE AND COWL WIRE
IT2	44	FRONT DOOR RH WIRE AND INSTRUMENT PANEL WIRE
IU1	44	FLOOR NO. 2 WIRE AND INSTRUMENT PANEL WIRE
Bb1	50 (W/G)	LUGGAGE ROOM NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bc3	50 (W/G)	BACK DOOR NO. 1 WIRE AND FLOOR NO. 1 WIRE
Bd1	50 (W/G)	BACK DOOR NO. 1 WIRE AND BACK DOOR NO. 2 WIRE

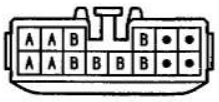
▽ : GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IH	42	INSTRUMENT PANEL BRACE RH

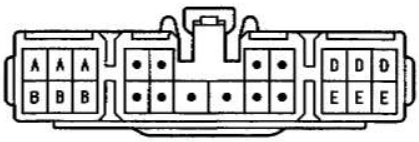
F11, F12 BLACK



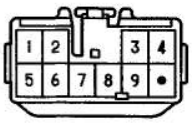
J 3



J 5



R 3 (B) BLUE



R 4 (A) BLUE



R12, R13

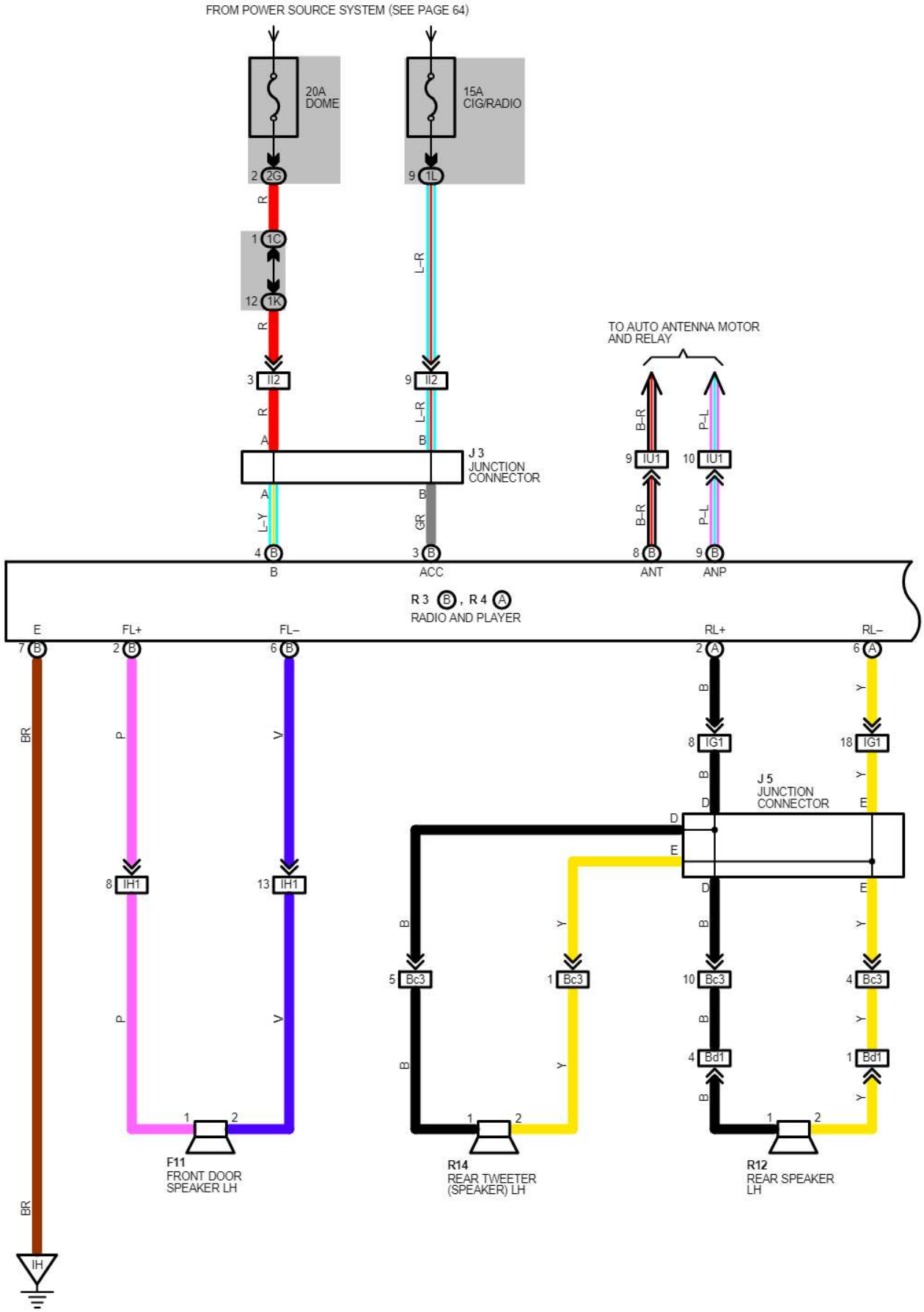


R14, R15



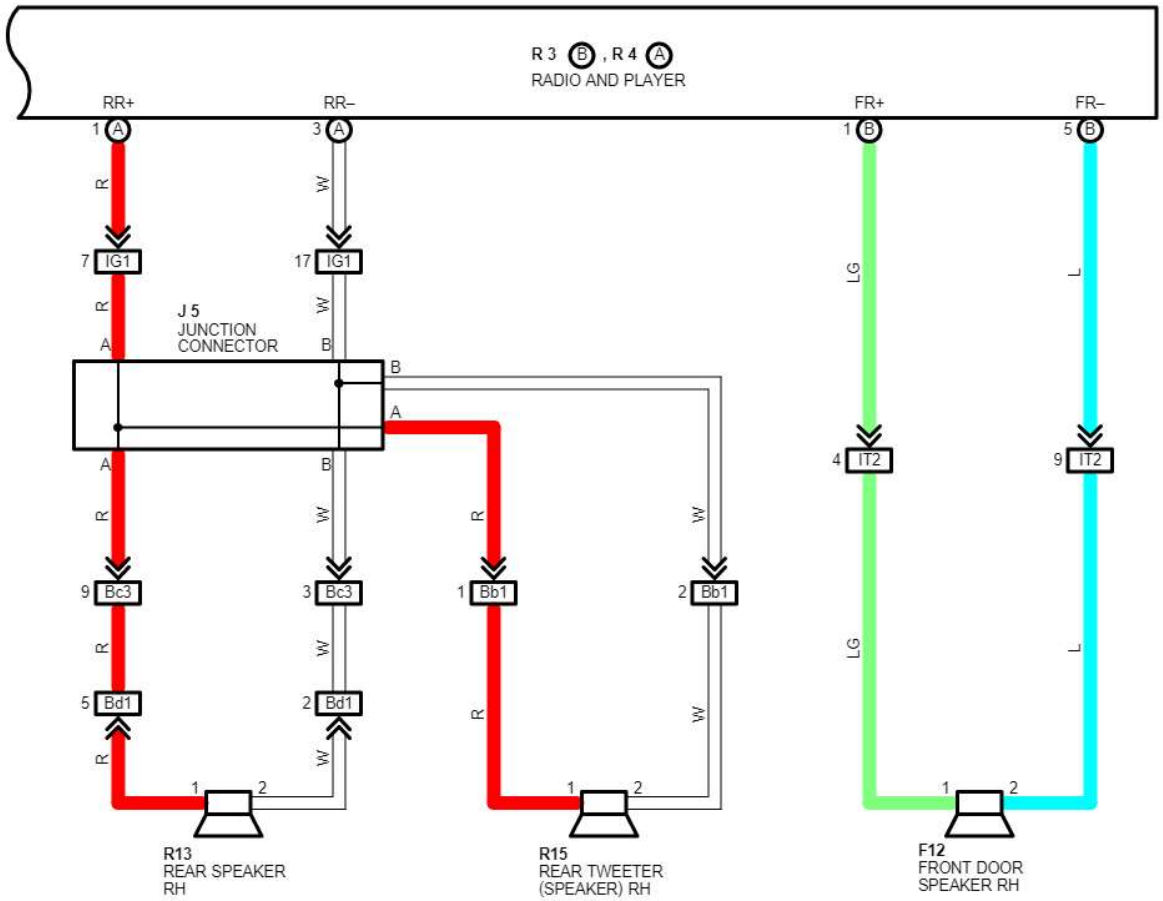
cardiagn.com

RADIO AND PLAYER (W/G 6 SPEAKER)



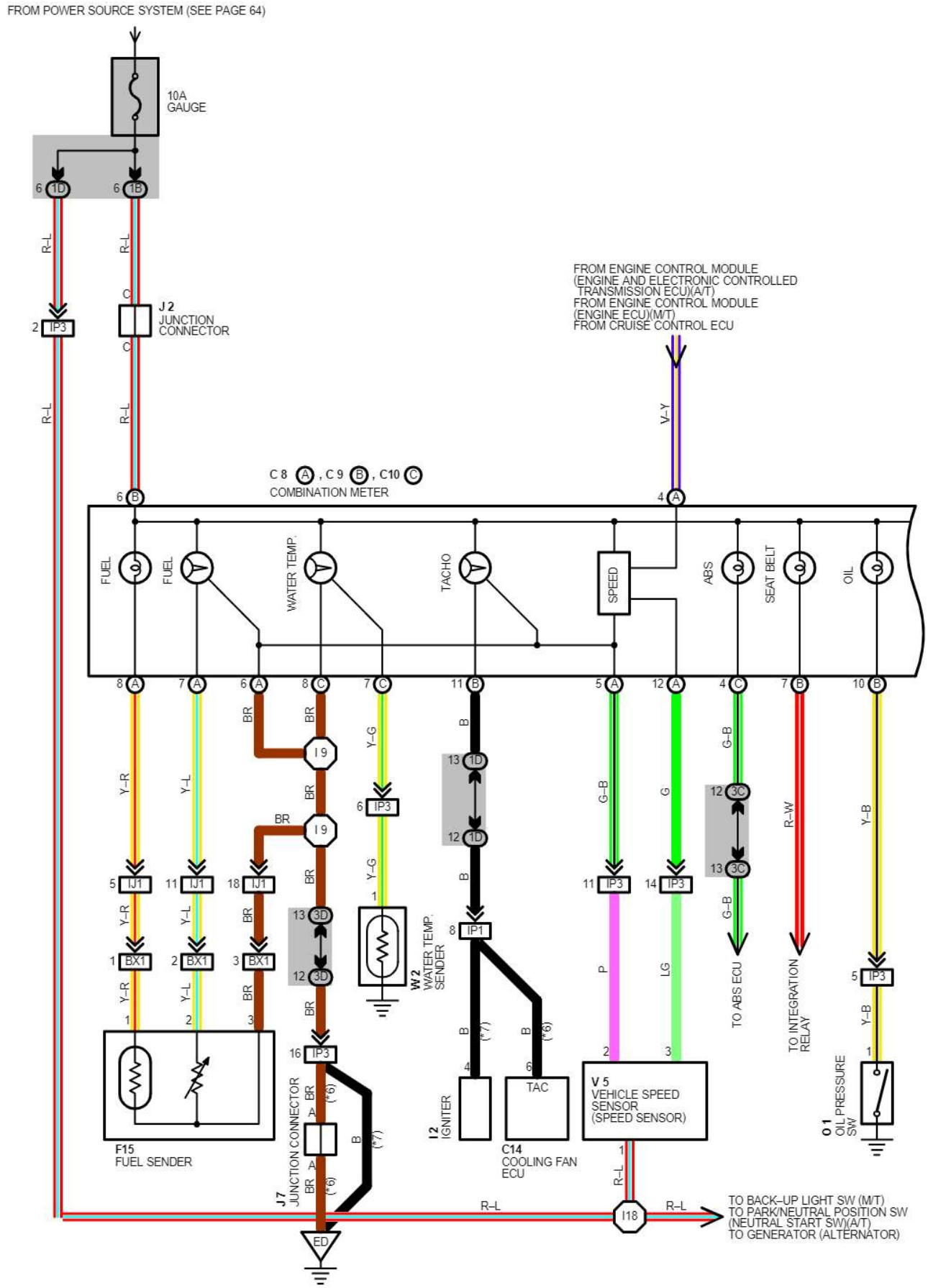
cardiagn.com

234



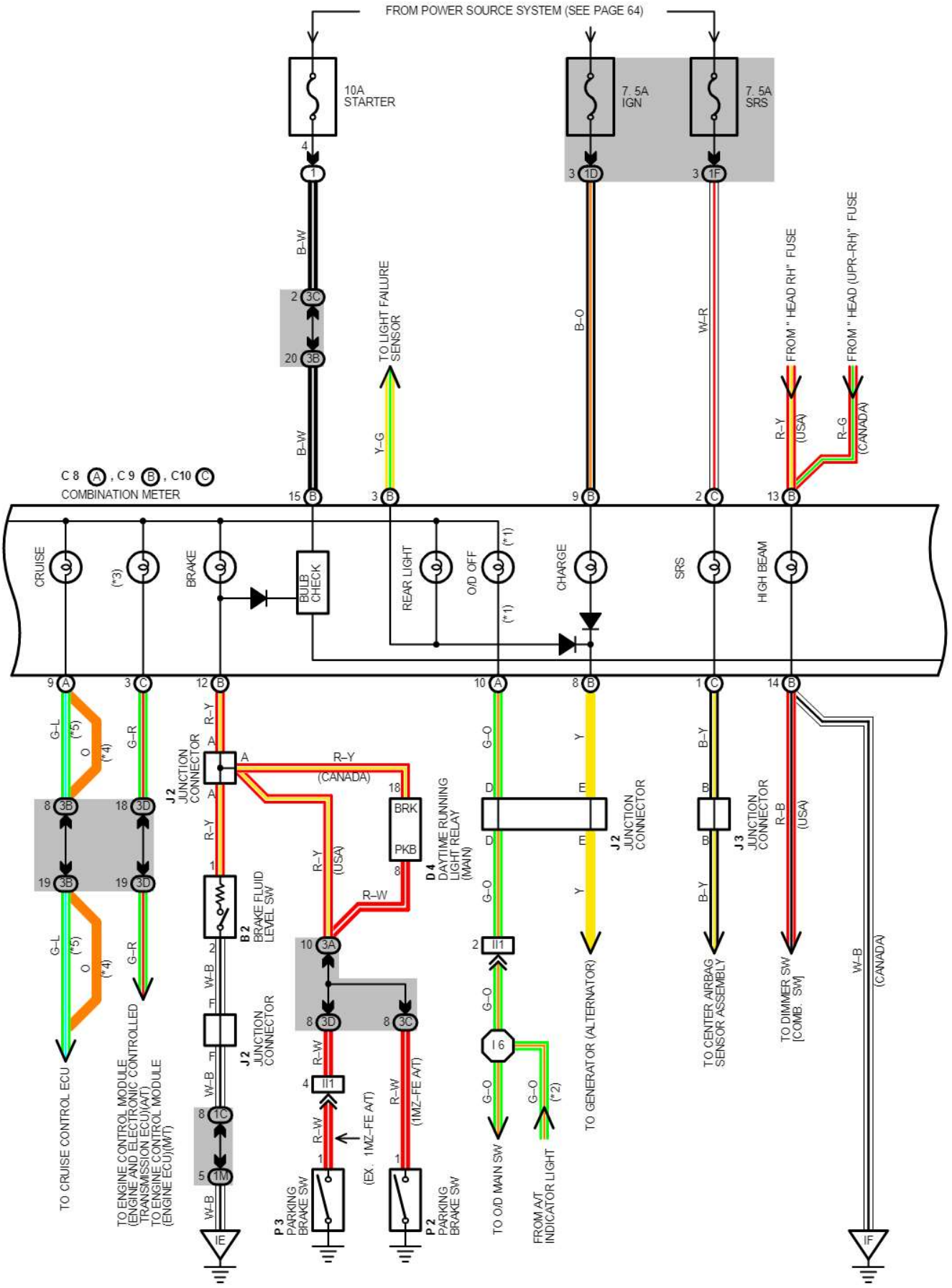
cardiagn.com

COMBINATION METER



cardiagn.com

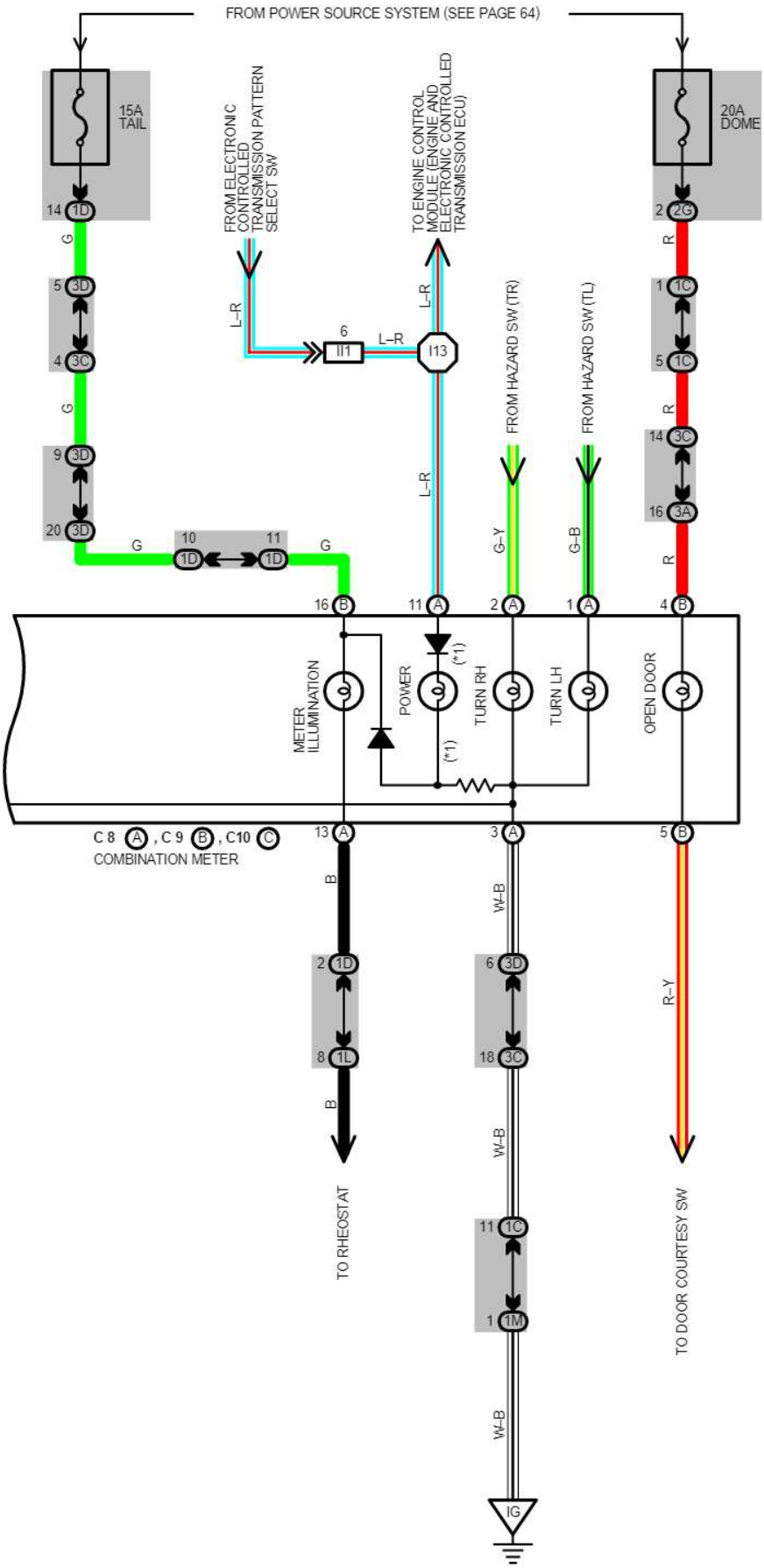
*1 : W/O A/T INDICATOR LIGHT
*2 : W/ A/T INDICATOR LIGHT
*3 : MALFUNCTION INDICATOR LAMP (CHECK ENGINE WARNING LIGHT)
*4 : TMC MADE
*5 : TMM MADE
*6 : 1MZ–FE
*7 : 5S–FE



cardiagn.com

COMBINATION METER

*1 : W/O A/T INDICATOR



cardiagn.com

SERVICE HINTS

B 2 BRAKE FLUID LEVEL SW
1–2 : CLOSED WITH FLOAT DOWN

C 8(A), C 9(B), C10(C) COMBINATION METER
(A)2, **(B)**6, **(B)**9–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
(A)3, **(B)**14, **(C)**8–GROUND : ALWAYS CONTINUITY

F15 FUEL SENDER
2–3 : APPROX. **3** WITH FUEL FULL
APPROX. **110.0** WITH FUEL EMPTY

O 1 OIL PRESSURE SW
1–GROUND : CLOSED WITH OIL PRESSURE BELOW **0.2** KG/CM^2 (**2.84** PSI, **19.61** KPA)

P 2 PARKING BRAKE SW (1MZ–FE A/T)
1–GROUND : CLOSED WITH PARKING BRAKE PEDAL DEPRESSED

P 3 PARKING BRAKE SW (EX. 1MZ–FE A/T)
1–GROUND : CLOSED WITH PARKING BRAKE LEVER PULLED UP

: PARTS LOCATION

CODE		SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
B 2		28 (1MZ–FE), 30 (5S–FE)	D 4	32	P 2	33
C 8	A	32	F15	34 (S/D), 35 (C/P), 36 (W/G)	P 3	33
C 9	B	32	I 2	28 (1MZ–FE), 30 (5S–FE)	V 5	28 (1MZ–FE), 30 (5S–FE)
C10	C	32	J 2	33	W 2	28 (1MZ–FE), 30 (5S–FE)
C14		32	O 1	28 (1MZ–FE), 30 (5S–FE)		

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
1	25	R/B NO. 1 (LEFT KICK PANEL)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
1C		
1D		
1F		
1L		
1M		
2G	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3B		
3C		
3D		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
II1	42	COWL WIRE AND INSTRUMENT PANEL WIRE
IJ1	42	FLOOR NO. 1 WIRE AND COWL WIRE
IP1	44	ENGINE WIRE AND COWL WIRE
IP3		
BX1	46 (S/D)	FUEL GAUGE WIRE AND FLOOR NO. 1 WIRE
	48 (C/P)	
	50 (W/G)	

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
ED	38 (1MZ–FE)	INTAKE MANIFOLD LH
	40 (5S–FE)	
IE	42	LEFT KICK PANEL
IF		
IG	42	INSTRUMENT PANEL BRACE LH

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I 6	44	INSTRUMENT PANEL WIRE	I13	44	COWL WIRE
I 9	44	COWL WIRE	I18	44	ENGINE WIRE

cardiagn.com

COMBINATION METER

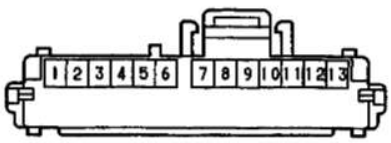
B 2 GRAY



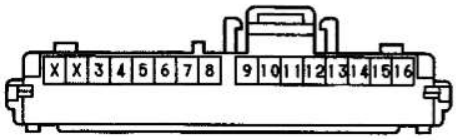
C 6 GRAY



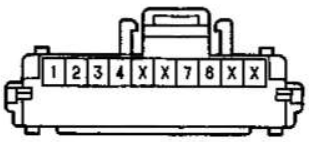
C 8 (A) BLUE



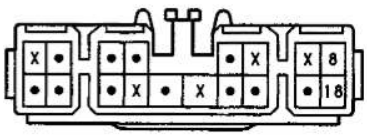
C 9 (B)



C10 (C) GRAY



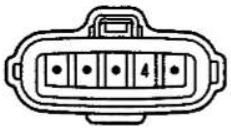
D 4 GRAY



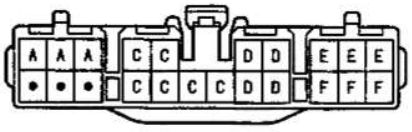
F15 DARK GRAY



I 2 BLACK

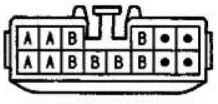


J 2 DARK GRAY



(HINT:SEE PAGE 7)

J 3



(HINT:SEE PAGE 7)

J 7 BLUE



(HINT:SEE PAGE 7)

O 1 BLACK



P 2



P 3



V 5 GRAY



W 2 GRAY



cardiagn.com

RADIATOR FAN AND CONDENSER FAN (5S–FE)

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A 1	30	E 5	30 (5S–FE)		
A 2	30 (5S–FE)	R 1	30 (5S–FE)		

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
5	26	R/B NO. 5 (ENGINE COMPARTMENT LEFT)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
2B	22	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
2E		
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EA1	40 (5S–FE)	ENGINE ROOM MAIN WIRE AND ENGINE ROOM NO. 3 WIRE

: GROUND POINTS

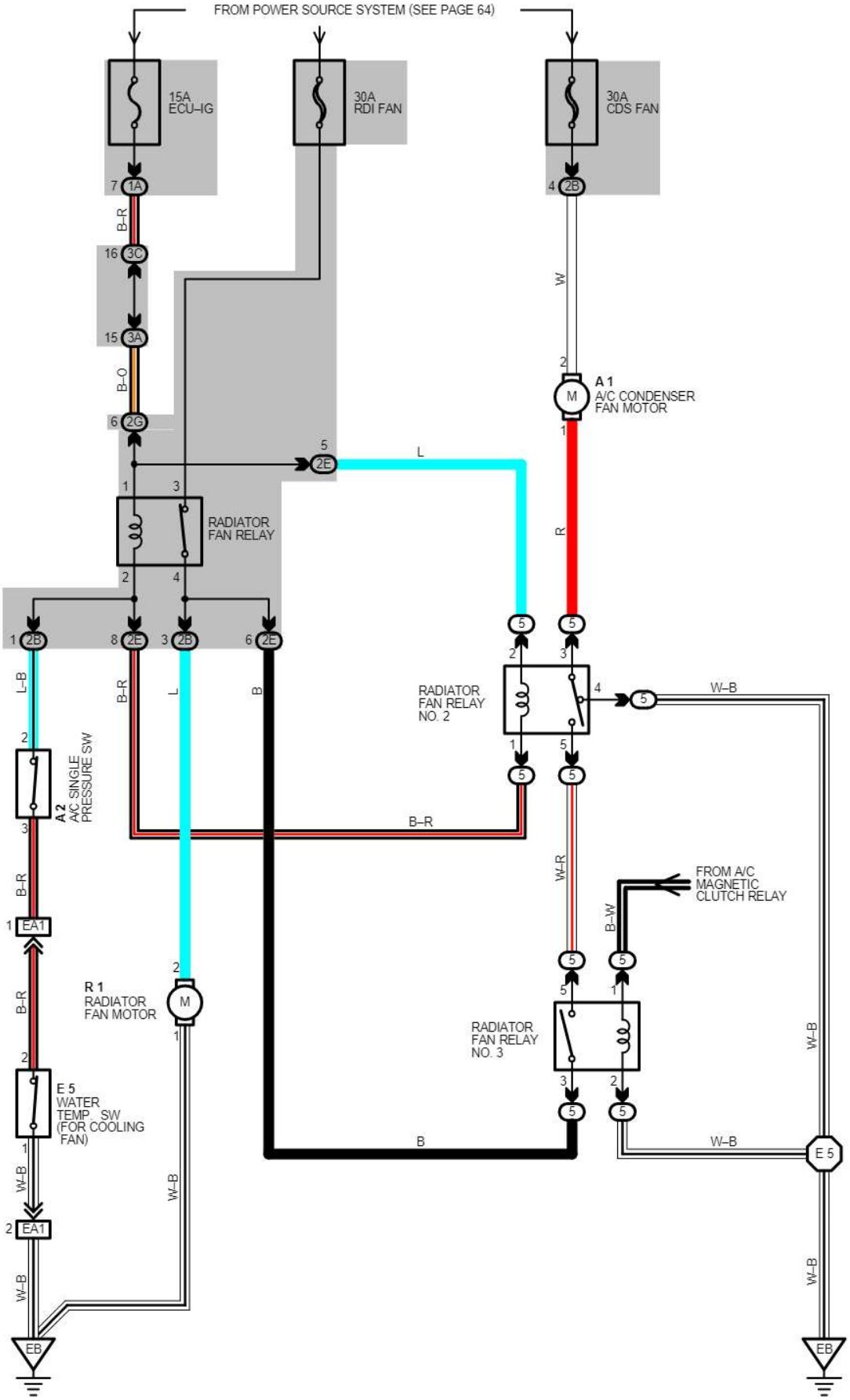
CODE	SEE PAGE	GROUND POINTS LOCATION
EB	40 (5S–FE)	FRONT LEFT FENDER

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E 5	40 (5S–FE)	ENGINE ROOM MAIN WIRE			

cardiagn.com

RADIATOR FAN AND CONDENSER FAN (5S–FE)



cardiagn.com

242

SYSTEM OUTLINE

FAN MOTOR OPERATION

WITH THE IGNITION SW IS TURNED ON, CURRENT FLOWS FROM **ECU–IG** FUSE TO RADIATOR FAN RELAY NO. 1 (COIL SIDE) AND RADIATOR FAN RELAY NO. 2 (COIL SIDE) → **TERMINAL 2** OF THE A/C SINGLE PRESSURE SW → **TERMINAL 3** → **TERMINAL 2** OF THE WATER TEMP. SW → **TERMINAL 1** → **GROUND**, AND RADIATOR FAN RELAY NO. 1 AND NO. 2 ARE TURNED ON.

* RADIATOR FAN MOTOR OPERATION

  WHEN THE IGNITION SW IS TURNED ON, RADIATOR FAN RELAY NO. 1 IS TURNED ON. IF AT THIS TIME THE ENGINE COOLANT TEMPERATURE IS APPROX. **90**°C (**194**°F) OR HIGHER, THE WATER TEMP. SW IS TURNED OFF, RADIATOR FAN RELAY NO. 1 IS TURNED OFF.

  AS A RESULT, CURRENT FROM THE **RDI FAN** FUSE TO RADIATOR FAN RELAY NO. 1 (POINT SIDE) → **TERMINAL 2** OF THE RADIATOR FAN MOTOR → **TERMINAL 1** → **GROUND**, THUS ACTIVATING THE ROTATION OF THE RADIATOR FAN MOTOR.

* LOW SPEED OPERATION

  WHEN THE IGNITION SW IS TURNED ON AND THE A/C ACTIVATED, RADIATOR FAN RELAY NO. 1 AND RADIATOR FAN RELAY NO. 2 ARE TURNED ON, CURRENT FLOWS FROM A/C MAGNETIC CLUTCH RELAY (POINT SIDE) TO RADIATOR FAN RELAY NO. 3 (COIL SIDE) → **GROUND**, AND RADIATOR FAN RELAY NO. 3 IS TURNED ON.

  AS A RESULT, CURRENT FLOWS FROM **CDS FAN** FUSE TO **TERMINAL 2** OF THE A/C CONDENSER FAN MOTOR → **TERMINAL 1** → RADIAOTR FAN RELAY NO. 2 (POINT SIDE) → RADIATOR FAN RELAY NO. 3 (POINT SIDE) → **TERMINAL 2** OF THE RADIATOR FAN MOTOR → **TERMINAL 1** → **GROUND**, FLOWING TO EACH FAN MOTOR IN SERIES, CAUSING THE FAN TO AT LOW SPEED.

* HIGH SPEED OPERATION OF THE FAN MOTOR DUARING A/C OPERATION

  WHEN THE A/C OPERATION, THE REFRIGERRANT PRESSURE BECOME HIGHER THAN OR DINARY LEVEL (APPROX. **15.58** KG/CM^2 (**221.2** PSI, **1527** KPA)) THE A/C SINGLE PRESSURE SW IS TURNED OFF. AS A RESULT, RADIATOR FAN RELAY NO. 1 AND RADIATOR FAN RELAY NO. 2 ARE TURNED OFF, AND CURRENT FLOWS FROM **RDI** FUSE TO RADIATOR FAN RELAY NO. 1 (POINT SIDE) → **TERMINAL 2** OF THE RADIATOR FAN MOTOR → **TERMINAL 1** → **GROUND,** AND CURRENT FLOWS FROM **CDS FAN** FUSE TO **TERMINAL 2** OF THE A/C CONDENSER FAN MOTOR → **TERMINAL 1** → RADIATOR FAN RELAY NO. 2 (POINT SIDE) → **GROUND**, AND TO EACH FAN MOTOR IN PARALLEL, THUS CAUSING THE FAN MOTORS OPERATE HIGH SPEED.

  NOTE THAT, BECAUSE THE CURRENT FLOWS IN THE SAME MENNER EVEN IF THE ENGINE COOLANT TEMPERATURE IS APPROX. **90**°C (**194**°F) OR HIGHER, THE FAN MOTOR OPERATE AT HIGH SPEED.

SERVICE HINTS

A 2 A/C SINGLE PRESSURE SW

2–3 : OPEN ABOVE APPROX. **15.58** KG/CM^2 (**221.2** PSI, **1527** KPA)
CLOSE BELOW APPROX. **15.56** KG/CM^2 (**178.4** PSI, **1231** KPA)

A 1 BLACK



A 2 BLACK



E 5

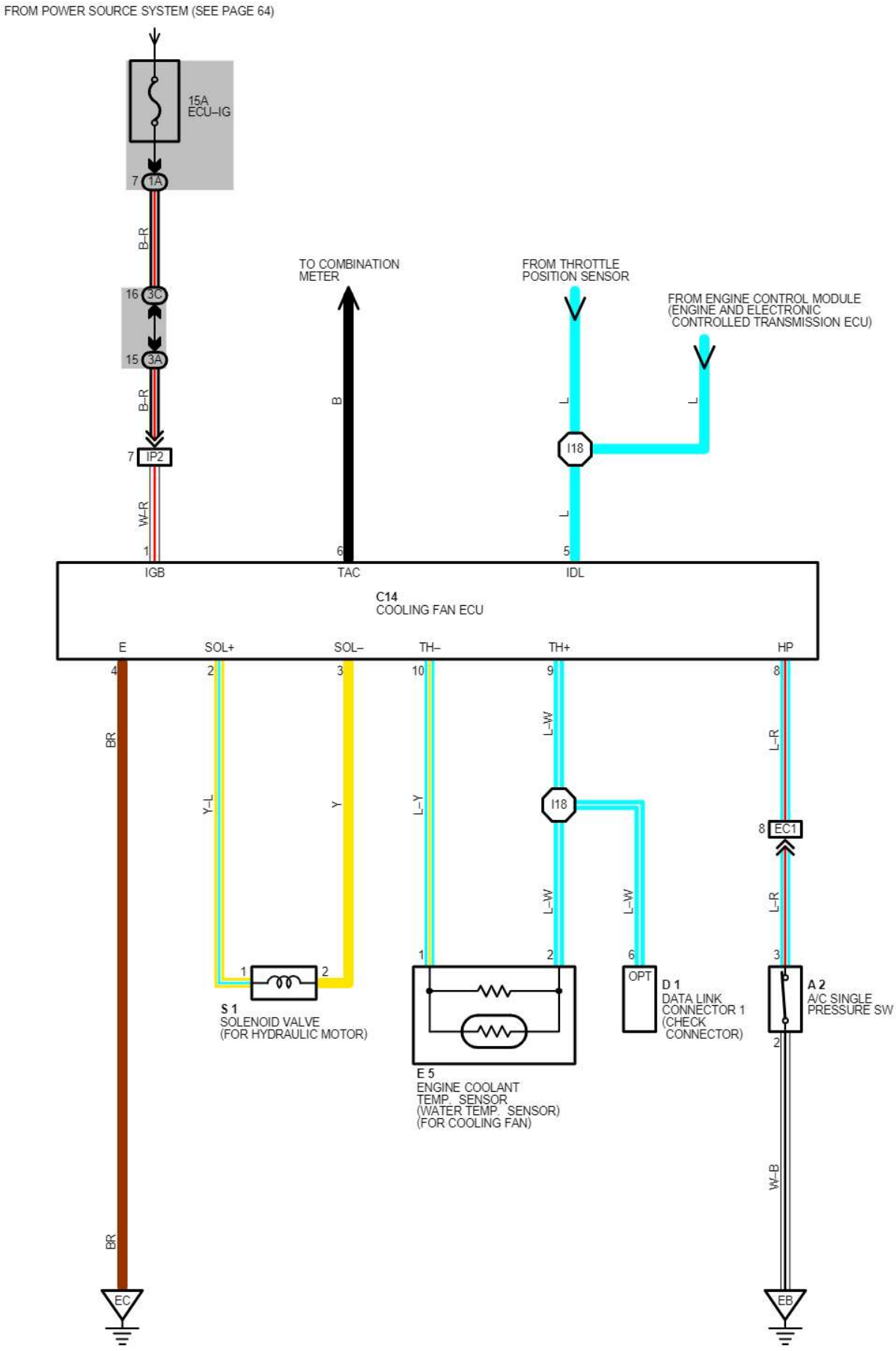


R 1 GRAY



cardiagn.com

ELECTRONICALLY CONTROLLED HYDRAULIC COOLING FAN (1MZ–FE)



244

cardiagn.com

SYSTEM OUTLINE

THE COOLING FAN ECU RECEIVES VARIOUS SIGNAL, I.E., THE ENGINE RPM SIGNAL FROM THE IGNITER, COOLANT TEMPERATURE SIGNAL FROM THE ENGINE COOLANT TEMP. SENSOR (WATER TEMP. SENSOR), A/C REFRIGERANT PRESSURE SIGNAL FROM A/C SINGLE PRESSURE SW.

THE COOLING FAN ECU JUDGES THE ENGINE BASED ON SIGNALS FROM ABOVE MENTION, DRIVES THE SOLENOID VALVE AND CONTROLS THE SPEED OF THE COOLING FAN STEPLESSLY

FAIL–SAFE FUNCTION

WHEN THE MALFANCTION IS DETECTED BY THE ENGINE COOLANT TEMP. SENSOR (WATER TEMP. SENSOR) OR SOLENOID VALVE, THE FAIL–SAFE FUNCTION OF THE COOLING FAN ECU JUDGES THE SITUATION TO ALLOWS THE COOLING SYSTEM TO CONTINUE OPERATION.

SERVICE HINTS

A 2 A/C SINGLE PRESSURE SW

2–3 : OPEN ABOVE APPROX. **15.58**KG/CM^2 (**221.2**PSI, **1527**KPA)
CLOSED BELOW APPROX. **12.56** KG/CM^2 (**178.4**PSI, **1231**KPA)

C14 COOLING FAN ECU

1–GROUND : APPROX. **12** VOLTS WITH THE IGNITION SW ON
9–10 : **2.5** VOLTS AT **20**°C (**68**°F) AND IGNITION SW ON
1.2 VOLTS AT **80**°C (**176**°F) AND IGNITION SW ON
8– 4 : **10–14** VOLTS AT A/C PRESSURE SW ON (OPEN)
0–3 VOLTS AT A/C PRESSURE SW OFF (CLOSE)
4–GROUND : ALWAYS CONTINUITY

E 5 ENGINE COOLANT TEMP. SENSOR (WATER TEMP. SENSOR) (FOR COOLING FAN)

1–2 : **1.5**K AT **80**°C (**176**°F)
0.7K AT **110**°C (**230**°F)

○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A 2	28	**D 1**	28	**S 1**	29
C14	32	**E 5**	30		

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (INSTRUMENT PANEL LEFT)
3A	24	COWL WIRE AND J/B NO. 3 (BEHIND COMBINATION METER)
3C		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EC1	38 (1MZ–FE)	ENGINE WIRE AND ENGINE ROOM MAIN WIRE
IP2	44	ENGINE WIRE AND COWL WIRE

▽ : GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
EB	38 (1MZ–FE)	FRONT LEFT FENDER
EC	38 (1MZ–FE)	INTAKE MANIFOLD RH

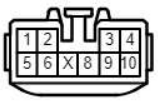
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
I18	44	ENGINE WIRE			

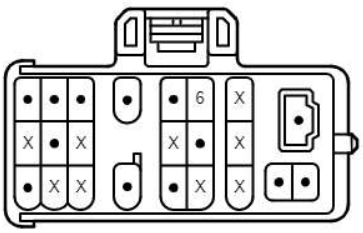
A 2 BLACK



C14 GRAY



D 1 BLACK



E 5 BROWN

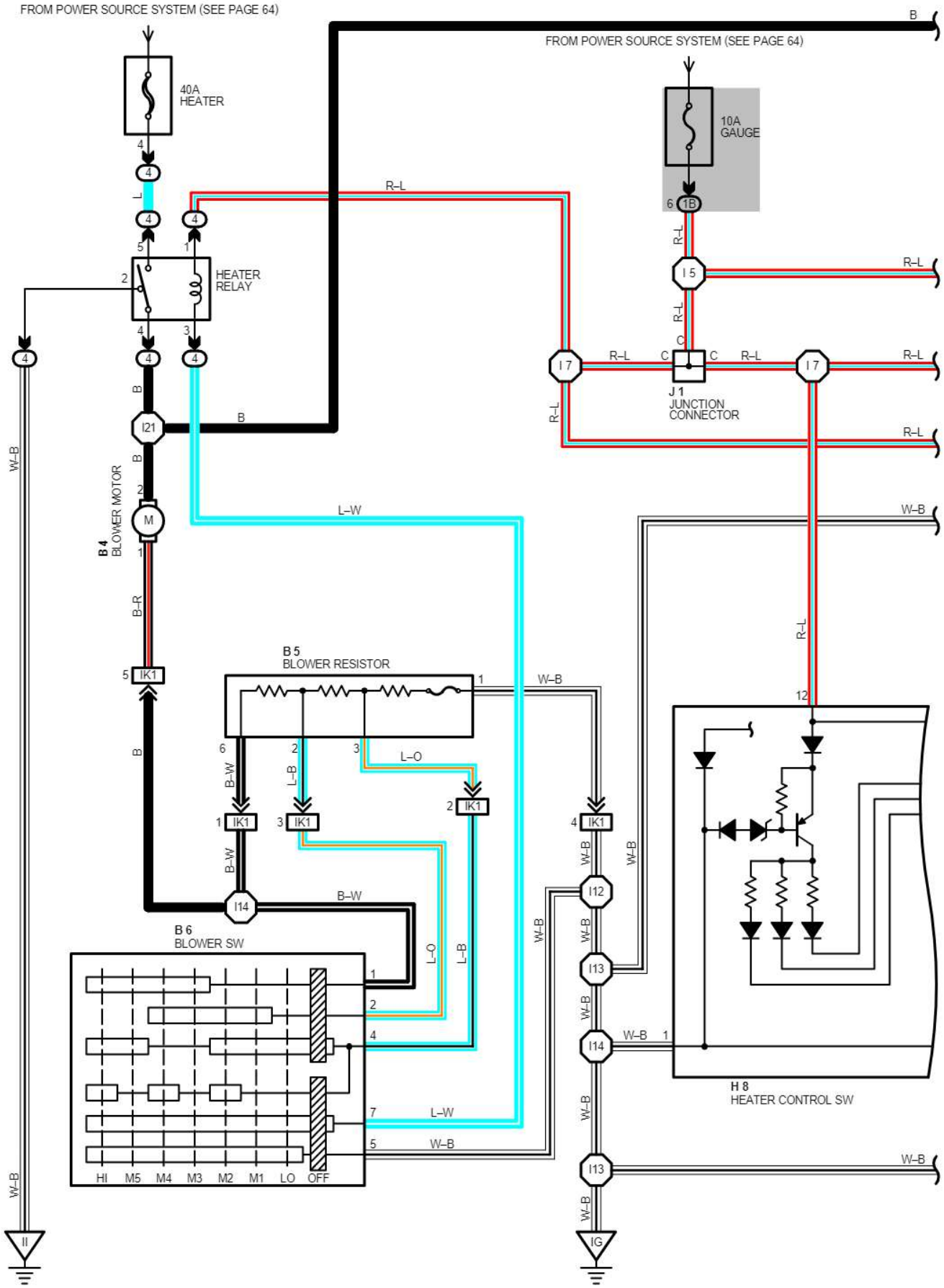


S 1

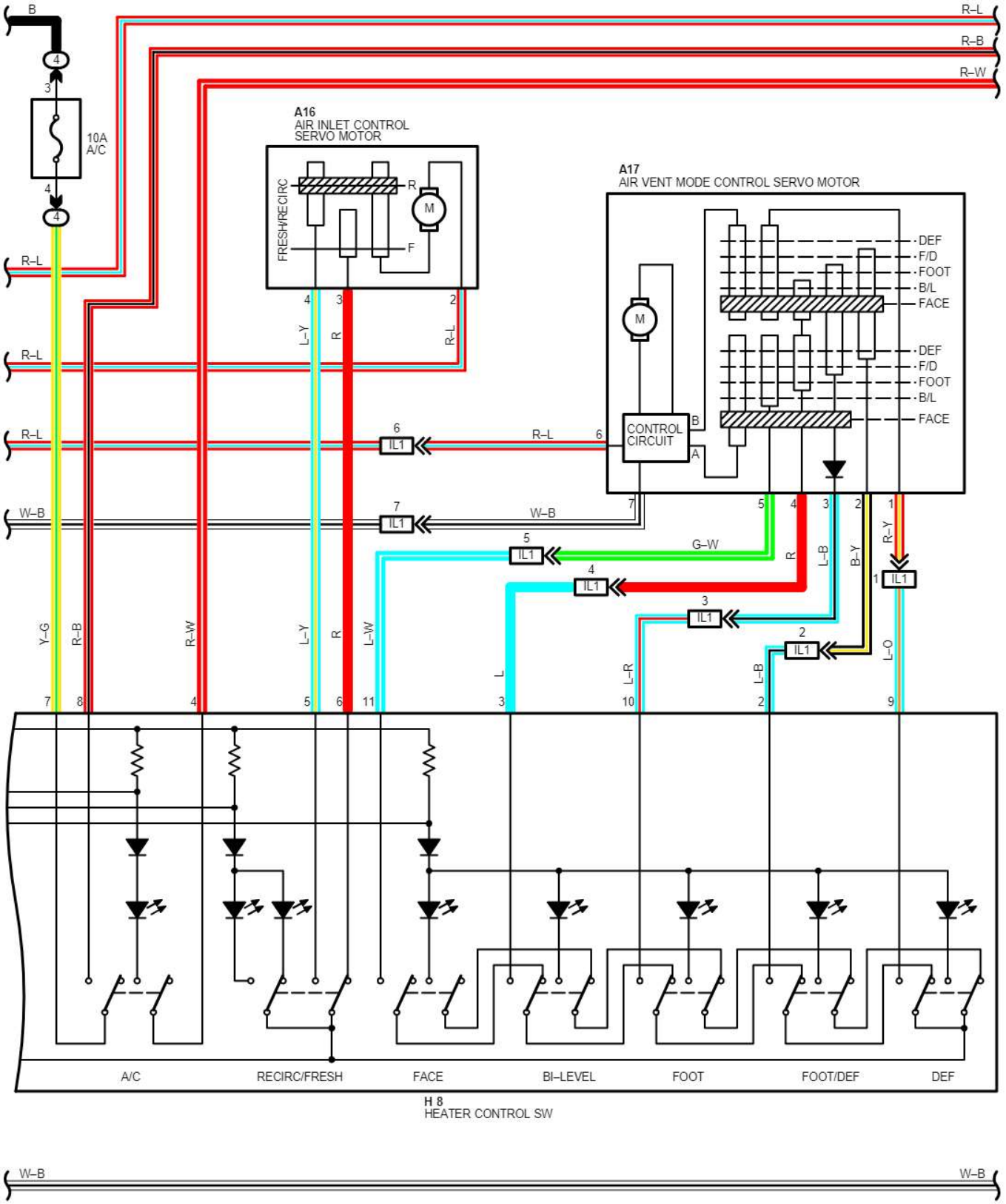


cardiagn.com

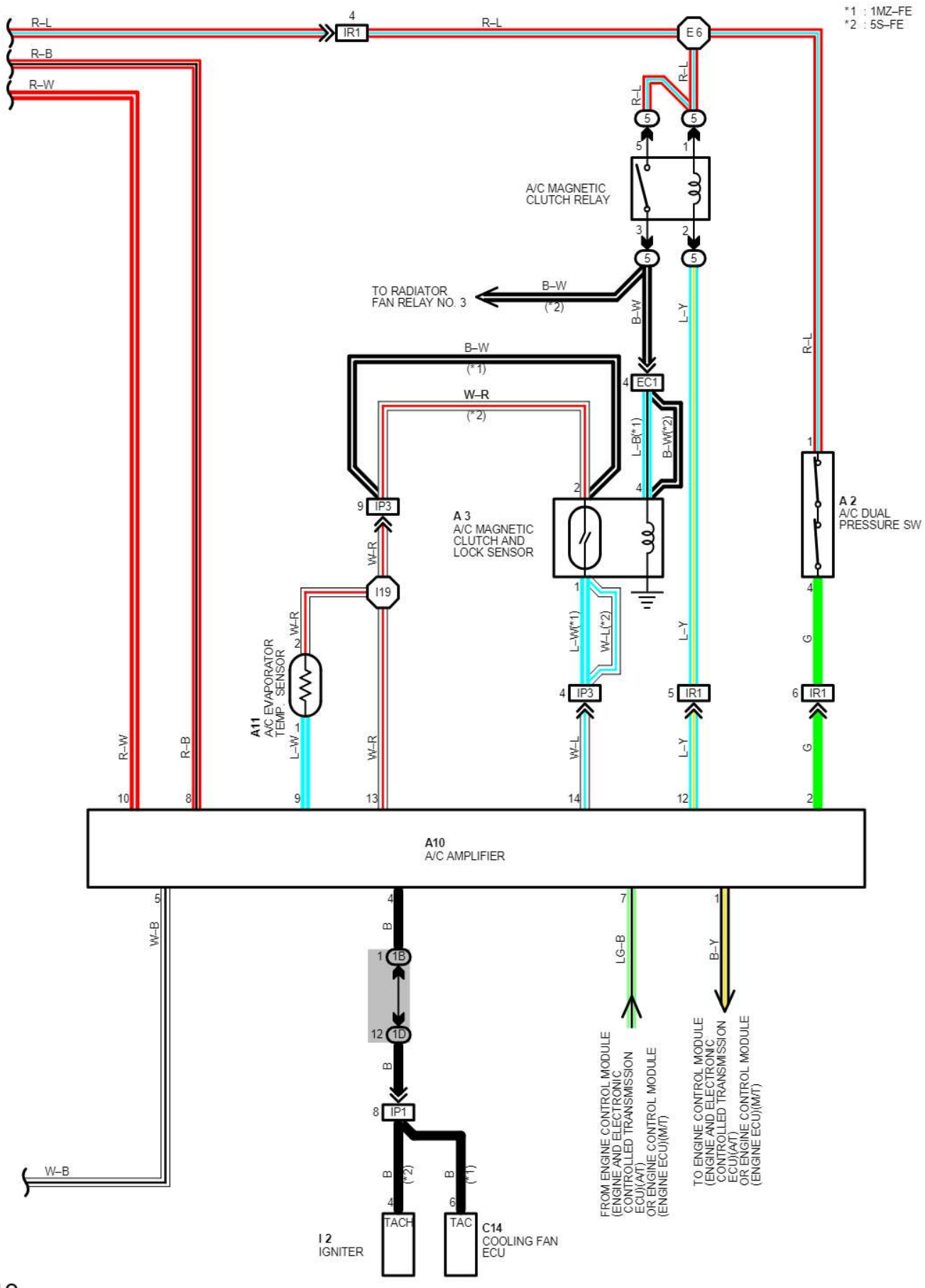
AIR CONDITIONING (PUSH CONTROL SW TYPE)



cardiagn.com


B
R–L
R–B
R–W
10A
A/C
A16
AIR INLET CONTROL
SERVO MOTOR
FRESH/RECIRC
R
F
M
A17
AIR VENT MODE CONTROL SERVO MOTOR
DEF
F/D
FOOT
B/L
FACE
CONTROL
CIRCUIT
IL1
W–B
G–W
L–Y
R
R–L
Y–G
R–B
R–W
L–W
L
L–R
L–B
B–Y
R–Y
L–O
A/C
RECIRC/FRESH
FACE
BI–LEVEL
FOOT
FOOT/DEF
DEF
H 8
HEATER CONTROL SW

AIR CONDITIONING (PUSH CONTROL SW TYPE)



cardiagn.com

248

SYSTEM OUTLINE

1. AIR INLET CONTROL SERVO MOTOR OPERATION (FOR PUSH SW TYPE)

(SWITCHING FROM FRESH TO RECIRC)

WITH THE IGNITION SW ON, CURRENT FROM THE **GAUGE** FUSE FLOWS TO **TERMINAL 1** OF THE SERVO MOTOR. WHEN THE RECIRC SW IS TURNED ON, THE CURRENT FLOWS FROM SERVO MOTOR → **TERMINAL 3** → **TERMINAL 5** OF THE HEATER CONTROL SW → **TERMINAL 1** → **GROUND**, THE MOTOR ROTATES AND THE DAMPER MOVES TO THE RECIRC SIDE. WHEN IT IS IN THE RECIRC POSITION, THE CIRCUIT IS CUT INSIDE THE SERVO MOTOR AND THE DAMPER STOPS IN THAT POSITION.

WHEN THE CIRCUIT FOR THE INDICATOR LIGHT, CURRENT FLOWS FROM THE **GAUGE** FUSE → **TERMINAL 12** OF THE HEATER CONTROL SW → INDICATOR LIGHT → **TERMINAL 1** → GROUND AND THE INDICATOR LIGHT CONTINUES TO LIGHT UP WHILE THE RECIRC SW IS ON.

(SWITCHING FROM RECIRC TO FRESH)

WHEN THE IGNITION IS ON AND THE FRESH SW IS TURNED ON, CURRENT FLOWS FROM **TERMINAL 2** OF THE SERVO MOTOR → **TERMINAL 6** OF THE HEATER CONTROL SW → **TERMINAL 1** → **GROUND**, THE MOTOR ROTATES AND THE DAMPER MOVES TO THE FRESH SIDE. WHEN THE DAMPER IS IN THE FRESH POSITION, THE CIRCUIT IS CUT INSIDE THE SERVO MOTOR AND THE DAMPER STOPS IN THAT POSITION.

2. OPERATION OF AIR VENT MODE CONTROL SERVO MOTOR

WHEN THE IGNITION SW ON, CURRENT FLOWS FROM THE **GAUGE** FUSE TO **TERMINAL 12** OF THE HEATER CONTROL SW, **TERMINAL 6** OF THE AIR VENT MODE CONTROL SERVO MOTOR.

WHEN THE DAMPER IS IN FACE POSITION AND THE BI–LEVEL OF THE HEATER CONTROL SW IS THEN TURNED ON, CURRENT FLOWS FROM **TERMINAL 3** OF THE HEATER CONTROL SW → **TERMINAL 4** OF THE AIR VENT MODE CONTROL SERVO MOTOR SO THAT A SINGAL THAT THE GROUND CIRCUIT IS ACTIVATED IS INPUT TO **TERMINAL "B"** OF THE CONTROL CIRCUIT INSIDE THE AIR VENT MODE CONTROL SERVO MOTOR.

SIMULTANEOUSLY, A SIGNAL THAT THE GROUND CIRCUIT IS NOT ACTIVATED IS INPUT TO **TERMINAL "A"** OF THE CONTROL CIRCUIT INSIDE THE SERVO MOTOR. THESE TWO SIGNALS ACTIVATE THE CONTROL CIRCUIT SO THAT CURRENT FROM THE **GAUGE** FUSE TO THE SERVO MOTOR, CAUSING THE SERVO MOTOR TO OPERATE AND THE DAMPER TO MOVE TO BI–LEVEL POSITION. WHEN THE DAMPER REACHES BI–LEVEL POSITION, A GROUND CUT SIGNAL IS INPUT TO **TERMINAL "B"** OF THE CONTROL CIRCUIT, THE CONTROL CIRCUIT OPERATES, THE SERVO MOTOR STOPS ROTATING AND THE DAMPER STOPS AT BI–LEVEL.

WHEN ANOTHER MODE POSITION IS SWITCHED TO, INPUT OF SIGNALS TO **TERMINAL "A"** AND **TERMINAL "B"** OF THE CONTROL CIRCUIT THAT GROUND IS MADE OR GROUND IS NOT MADE (AS EXPLAINED ABOVE) ACTIAVTES THE CONTROL CIRCUIT AND MOVES THE SERVO MOTOR TO THE DESIRED POSITION.

3. AIR CONDITIONING OPERATION

WHEN THE IGNITION SW ON, CURRENT FLOWS FROM **GAUGE** FUSE TO **TERMINAL 12** OF THE HEATER CONTROL SW, **TERMINAL 6** OF THE AIR VENT MODE CONTROL SERVO MOTOR.

WHEN THE BLOWER SW IS ON, CURRENT FLOWS FROM THE **GAUGE** FUSE → HEATER RELAY (COIL SIDE) → **TERMINAL 7** OF THE BLOWER SW → **TERMINAL 5** → **GROUND**, ACTIVATING THE HEATER RELAY. THIS CAUSES CURRENT TO FLOW FROM THE **HEATER** FUSE TO THE HEATER RELAY (POINT SIDE) → **A/C** FUSE → **TERMINAL 7** OF THE HEATER CONTROL SW (A/C SW). IF THE HEATER CONTROL (A/C SW) IS THEN TURNED ON AT THIS TIME, A SIGNAL IS INPUT TO THE A/C AMPLIFIRE. THIS ACTIVATES THE A/C AMPLIFIER AND A/C MAGNETIC CLUTCH RELAY SO THAT CURRENT FLOWS FROM THE **GAUGE** FUSE TO THE A/C MAGNETIC CLUTCH RELAY (POINT SIDE) → A/C MAGNETIC CLUTCH, CAUSING THE COMPRESSOR TO OPERATE. THE VSV (FOR A/C IDLE–UP) IS TURNED ON SIMULTANEOUSLY TO PREVENT A DECREASE IN ENGINE SPEED DUE TO A/C OPERATION.

SERVICE HINTS

HEATER RELAY
(4)5– **(4)**4 : CLOSED WITH THE IGNITION SW ON AND BLOWER SW ON

A/C MAGNETIC CLUTCH RELAY
(4)5– **(4)**3 : CLOSED WITH THE IGNITION SW ON AND BLOWER SW ON AND A/C SW ON

A 2 A/C DUAL PRESSURE SW
1–4 : OPEN WITH PRESSURE **2.1** KG/CM (**30** PSI, **206** KPA) OR ABOVE **27** KG/CM (**384** PSI, **2646** KPA)

B 5 BLOWER RESISTOR
6–2 : APPROX. **1.12** Ω
2–3 : APPROX. **0.5** Ω
3–1 : APPROX. **0.2** Ω

cardiagn.com

AIR CONDITIONING (PUSH CONTROL SW TYPE)

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A 2	28 (1MZ–FE), 30 (5S–FE)	A17	32	H 8	33
A 3	28 (1MZ–FE), 30 (5S–FE)	B 4	32	I 2	30 (5S–FE)
A10	32	B 5	32	J 1	33
A11	32	B 6	32		
A16	32	C14	32		

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
4	25	R/B NO. 4 (RIGHT KICK PANEL)
5	26	R/B NO. 5 (ENGINE COMPARTMENT LEFT)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

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

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EC1	38 (1MZ–FE)	ENGINE WIRE AND ENGINE ROOM MAIN WIRE
	40 (5S–FE)	
IK1	42	COWL WIRE AND A/C SUB WIRE
IL1	42	COWL WIRE AND SERVO MOTOR SUB WIRE
IP1	44	ENGINE WIRE AND COWL WIRE
IP3		
IR1	44	ENGINE ROOM MAIN WIRE AND COWL WIRE

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IG	42	INSTRUMENT PANEL BRACE LH
II	42	RIGHT KICK PANEL

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E 6	38 (1MZ–FE)	ENGINE ROOM MAIN WIRE	I12	44	COWL WIRE
	40 (5S–FE)		I13		
I 5	44	COWL WIRE	I14		
I 7			I19		

cardiagn.com

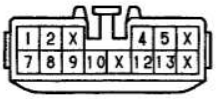
A 2 BLACK



A 3 GRAY



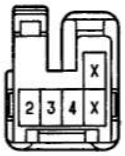
A10



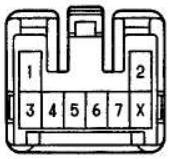
A11



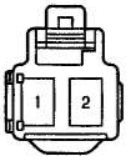
A16



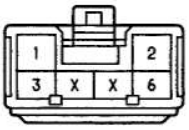
A17



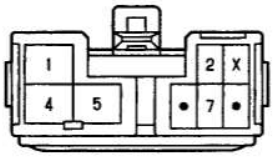
B 4



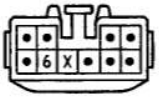
B 5



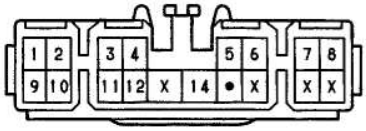
B 6 BLACK



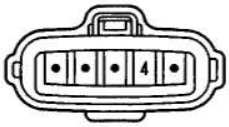
C14 GRAY



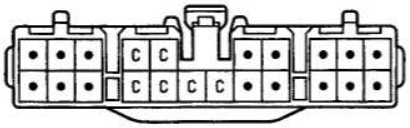
H 8 BLACK



I 2 BLACK



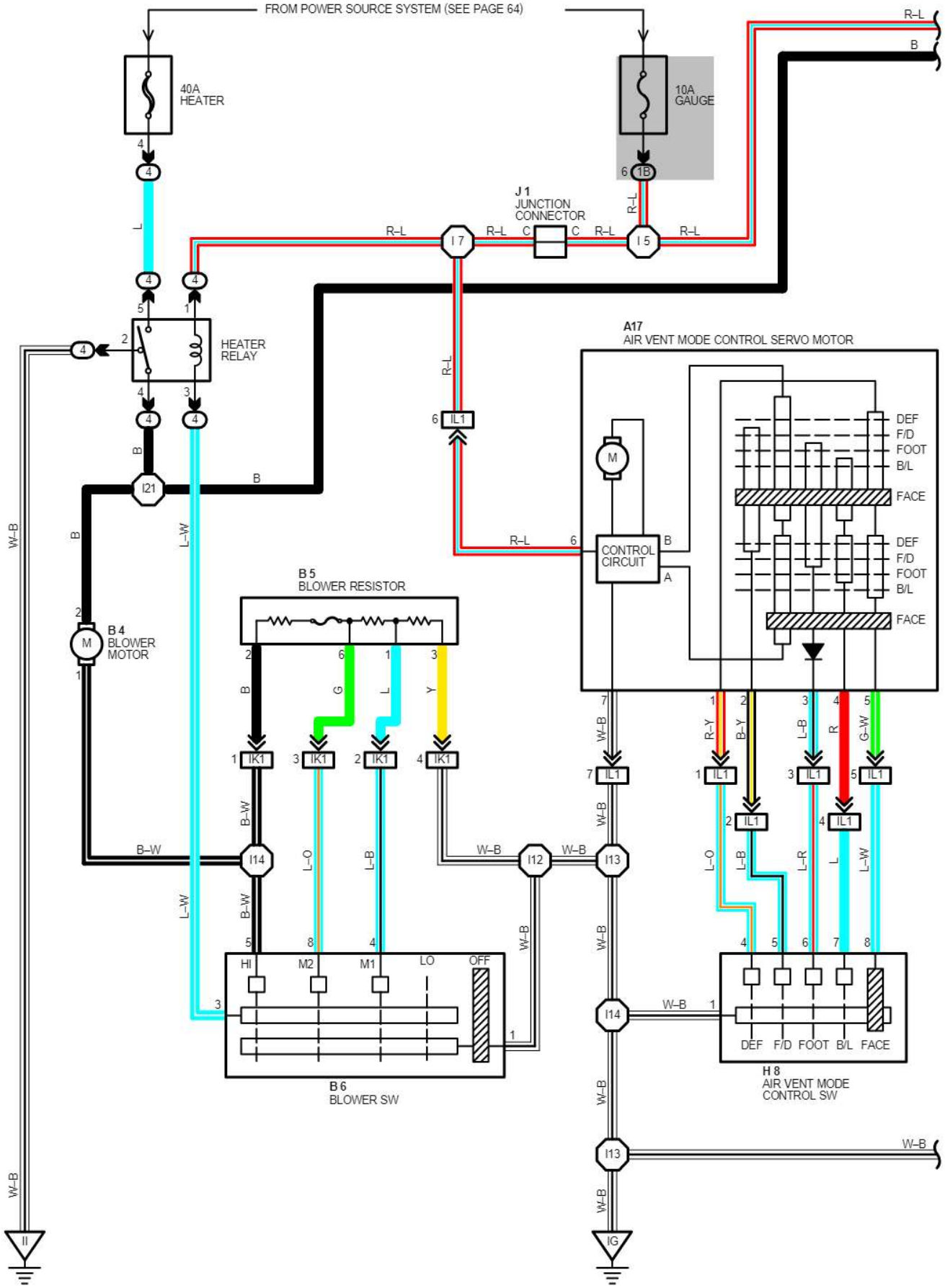
J 1 DARK GRAY



(HINT:SEE PAGE 7)

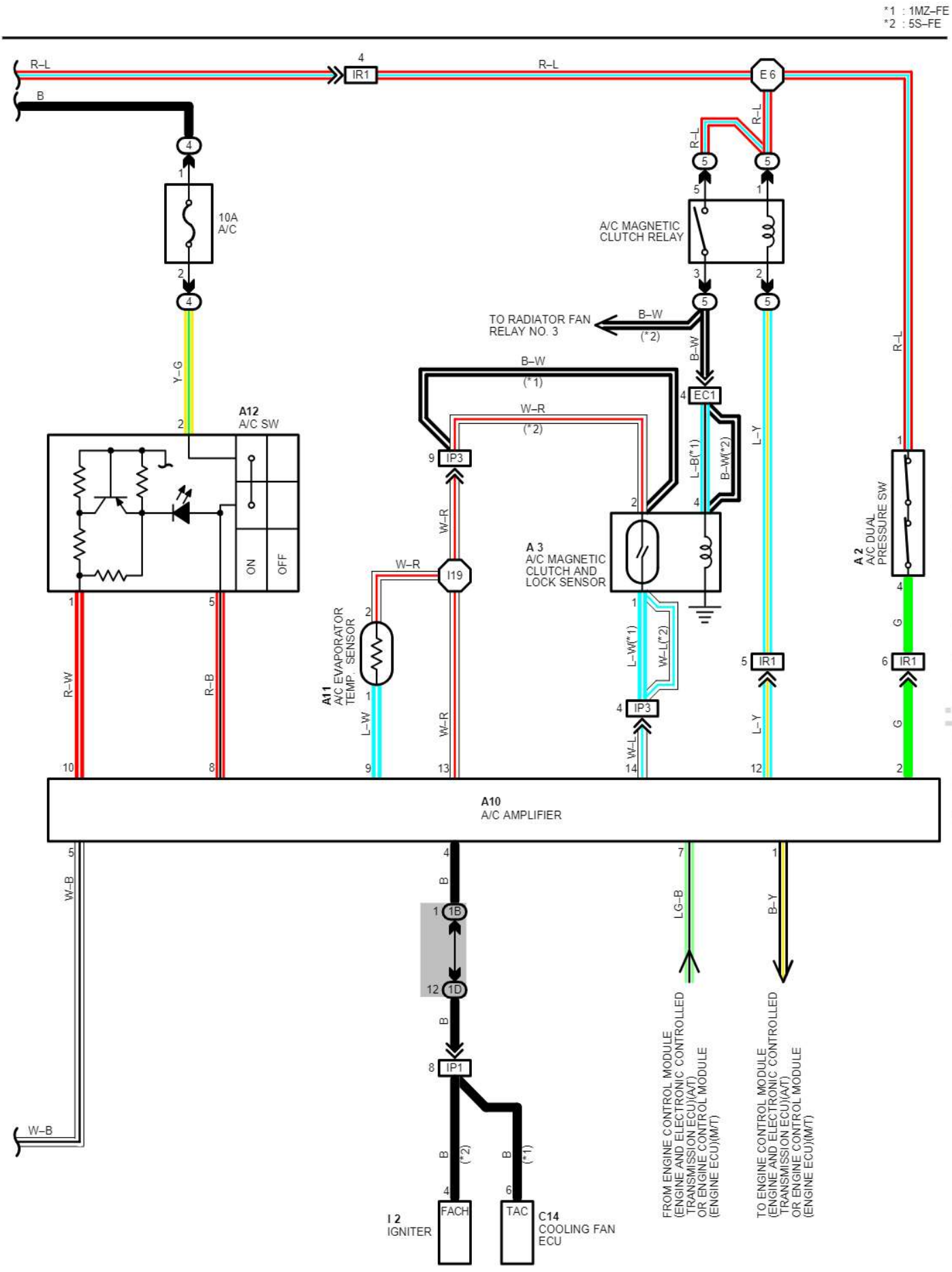
cardiagn.com

AIR CONDITIONING (LEVER CONTROL SW TYPE)



252

cardiagn.com



cardiagn.com

253

AIR CONDITIONING (LEVER CONTROL SW TYPE)

SYSTEM OUTLINE

CURRENT ALWAYS FLOWS FROM THE **HEATER** FUSE TO **TERMINAL 5** OF THE HEATER RELAY. WHEN THE IGNITION SW IS TURNED ON, CURRENT FLOWS FROM **GAUGE** FUSE TO **TERMINAL 2** OF THE AIR VENT MODE CONTROL SERVO MOTOR AND A/C MAGNETIC CLUTCH RELAY (COIL SIDE) → **TERMINAL 12** OF THE A/C AMPLIFIER, **TERMINAL 1** OF THE A/C DUAL PRESSURE SW → **TERMINAL 4** → **TERMINAL 2** OF THE A/C AMPLIFIER, HEATER RELAY (COIL SIDE) → **TERMINAL 3** OF THE BLOWER SW.

1. OPERATION OF AIR VENT MODE CONTROL SERVO MOTOR

WHEN THE DAMPER IS IN **FACE** POSITION AND THE BI–LEVEL OF THE AIR VENT MODE CONTROL SW IS THEN TURNED ON, CURRENT FLOWS FROM **TERMINAL 7** OF THE AIR VENT MODE CONTROL SW → **TERMINAL 5** OF THE AIR VENT MODE CONTROL SERVO MOTOR SO THAT A SIGNAL THAT THE GROUND CIRCUIT IS ACTIVATED IS INPUT TO **TERMINAL "B"** OF THE CONTROL CIRCUIT INSIDE THE AIR VENT MODE CONTROL SERVO MOTOR. SIMULTANEOUSLY, A SIGNAL THAT THE GROUND CIRCUIT IS NOT ACTIVATED IS INPUT TO **TERMINAL "A"** OF THE CONTROL CIRCUIT INSIDE THE SERVO MOTOR. THESE TWO SIGNALS ACTIVATE THE CONTROL CIRCUIT SO THAT CURRENT FROM THE **GAUGE** FUSE TO THE SERVO MOTOR, CAUSING THE SERVO MOTOR TO OPERATE AND THE DAMPER TO MOVE TO BI–LEVEL POSITION. WHEN THE DAMPER REACHES BI–LEVEL POSITION. A GROUND CUT SIGNAL IS INPUT TO **TERMINAL "B"** OF THE CONTROL CIRCUIT, THE CONTROL CIRCUIT OPERATES, THE SERVO MOTOR STOPS ROTATING AND THE DAMPER STOPS AT BI–LEVEL.

WHEN ANOTHER MODE POSITION IS SWITCHED TO, INPUT OF SIGNALS TO **TERMINAL "A"** AND **TERMINAL "B"** OF THE CONTROL CIRCUIT THAT GROUND IS NOT MADE (AS EXPLAINED ABOVE) ACTIVATES THE CONTROL CIRCUIT AND MOVES THE SERVO MOTOR TO THE DESIRED POSITION.

2. AIR CONDITIONING OPERATION

WHEN THE BLOWER SW IS ON, CURRENT FLOWS THE **GAUGE** FUSE → HEATER RELAY (COIL SIDE) → **TERMINAL 3** OF THE BLOWER SW → **TERMINAL 1** → **GROUND**, ACTIVATING THE HEATER RELAY. THIS CAUSES CURRENT TO FLOW FROM THE **HEATER** FUSE TO THE HEATER RELAY (POINT SIDE) → **A/C** FUSE → **TERMINAL 2** OF THE A/C SW. IF THE A/C SW IS THEN TURNED ON AT THIS TIME. A SIGNAL IS INPUT TO THE A/C AMPLIFIER. THIS ACTIVATES THE A/C AMPLIFER AND A/C MAGNETIC CLUTCH RELAY SO THAT CURRENT FLOWS FROM THE **GAUGE** FUSE TO THE A/C MAGNETIC CLUTCH RELAY (POINT SIDE) → A/C MAGNETIC CLUTCH. CAUSING THE COMPRESSOR TO OPERATE. THE VSV (FOR A/C IDLE–UP) IS TURNED ON SIMULTANEOUSLY TO PREVENT A DECREASE IN ENGINE SPEED DUE TO A/C OPERATION.

SERVICE HINTS

HEATER RELAY
(4)5– **(4)**4 : CLOSED WITH THE IGNITION SW ON AND BLOWER SW ON
A/C MAGNETIC CLUTCH RELAY
(5)5– **(5)**3 : CLOSED WITH THE IGNITION SW ON AND BLOWER SW ON AND A/C SW ON
A 2 A/C DUAL PRESSURE SW
1–4 : OPEN WITH PRESSURE **2.1** KG/CM (**30** PSI, **206** KPA) OR ABOVE **27** KG/CM (**384** PSI, **2646** KPA)
B 5 BLOWER RESISTOR
6–1 : APPROX. **3.17** Ω
6–3 : APPROX. **1.38** Ω
2–6 : APPROX. **0.38** Ω

: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A 2	28 (1MZ–FE), 30 (5S–FE)	**A17**	32	**H 8**	33
A 3	28 (1MZ–FE), 30 (5S–FE)	**B 4**	32	**I 2**	30 (5S–FE)
A10	32	**B 5**	32	**J 1**	33
A11	32	**B 6**	32		
A12	32	**C14**	32		

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
4	25	R/B NO. 4 (RIGHT KICK PANEL)
5	26	R/B NO. 5 (ENGINE COMPARTMENT LEFT)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

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

cardiagn.com

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EC1	38 (1MZ–FE) 40 (5S–FE)	ENGINE WIRE AND ENGINE ROOM MAIN WIRE
IK1	42	COWL WIRE AND A/C SUB WIRE
IL1	42	COWL WIRE AND SERVO MOTOR SUB WIRE
IP1 IP3	44	ENGINE WIRE AND COWL WIRE
IR1	44	ENGINE ROOM MAIN WIRE AND COWL WIRE

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
IG	42	INSTRUMENT PANEL BRACE LH
II	42	RIGHT KICK PANEL

: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E 6	38 (1MZ–FE) 40 (5S–FE)	ENGINE ROOM MAIN WIRE	I13 I14	44	COWL WIRE
I 5 I 7	44	COWL WIRE	I19		

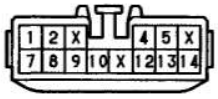
A 2 BLACK



A 3 GRAY



A10



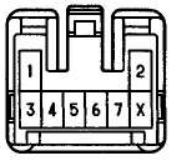
A11



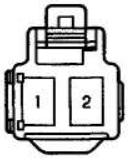
A12 BLACK



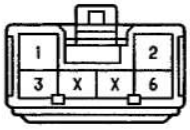
A17



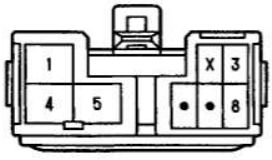
B 4



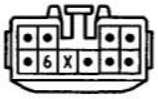
B 5



B 6 BLACK



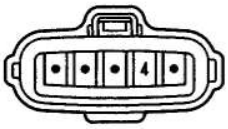
C 6 GRAY



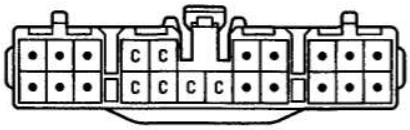
H 8



I 2 BLACK



J 1 DARK GRAY



(HINT:SEE PAGE 7)

cardiagn.com