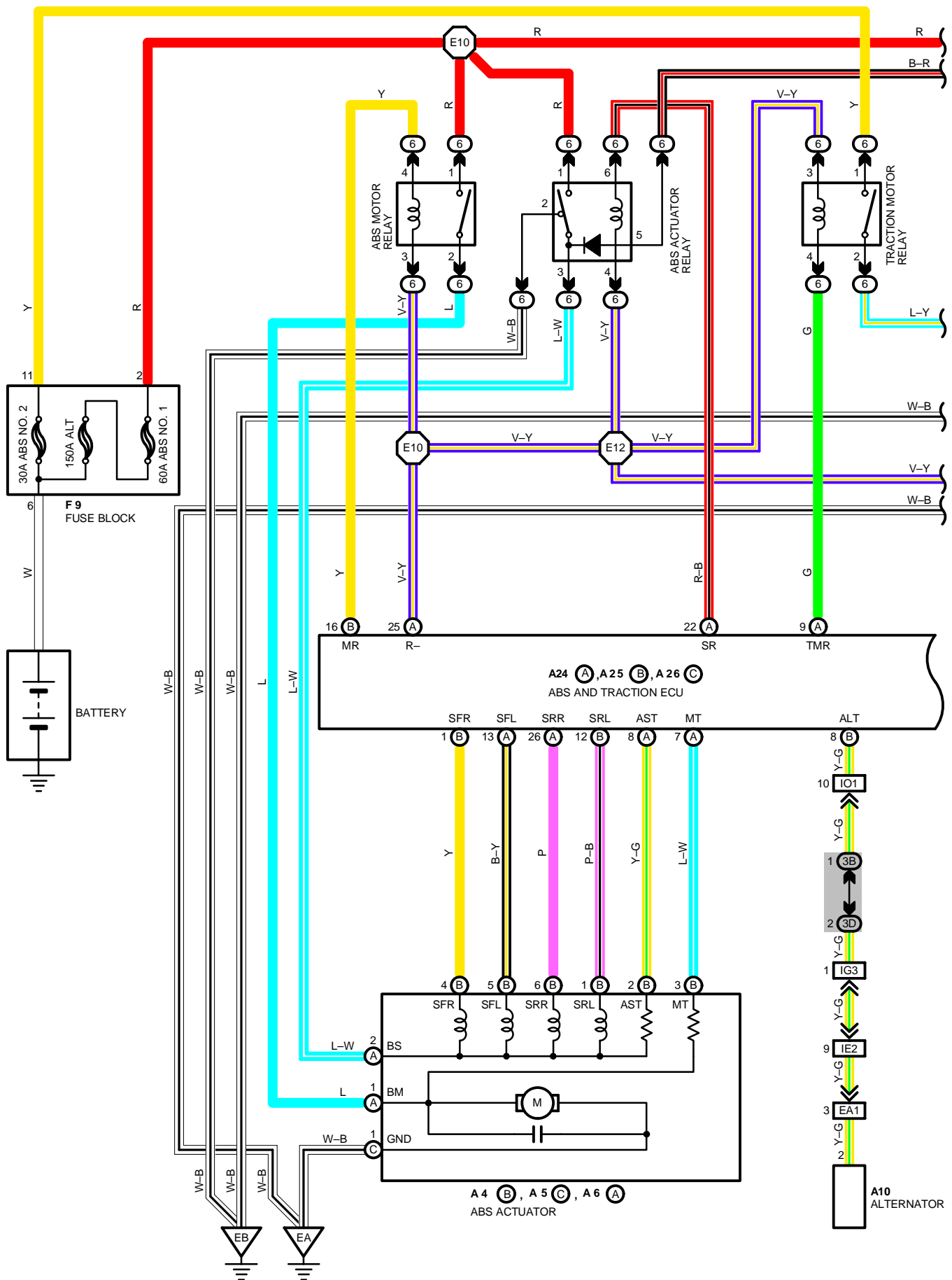
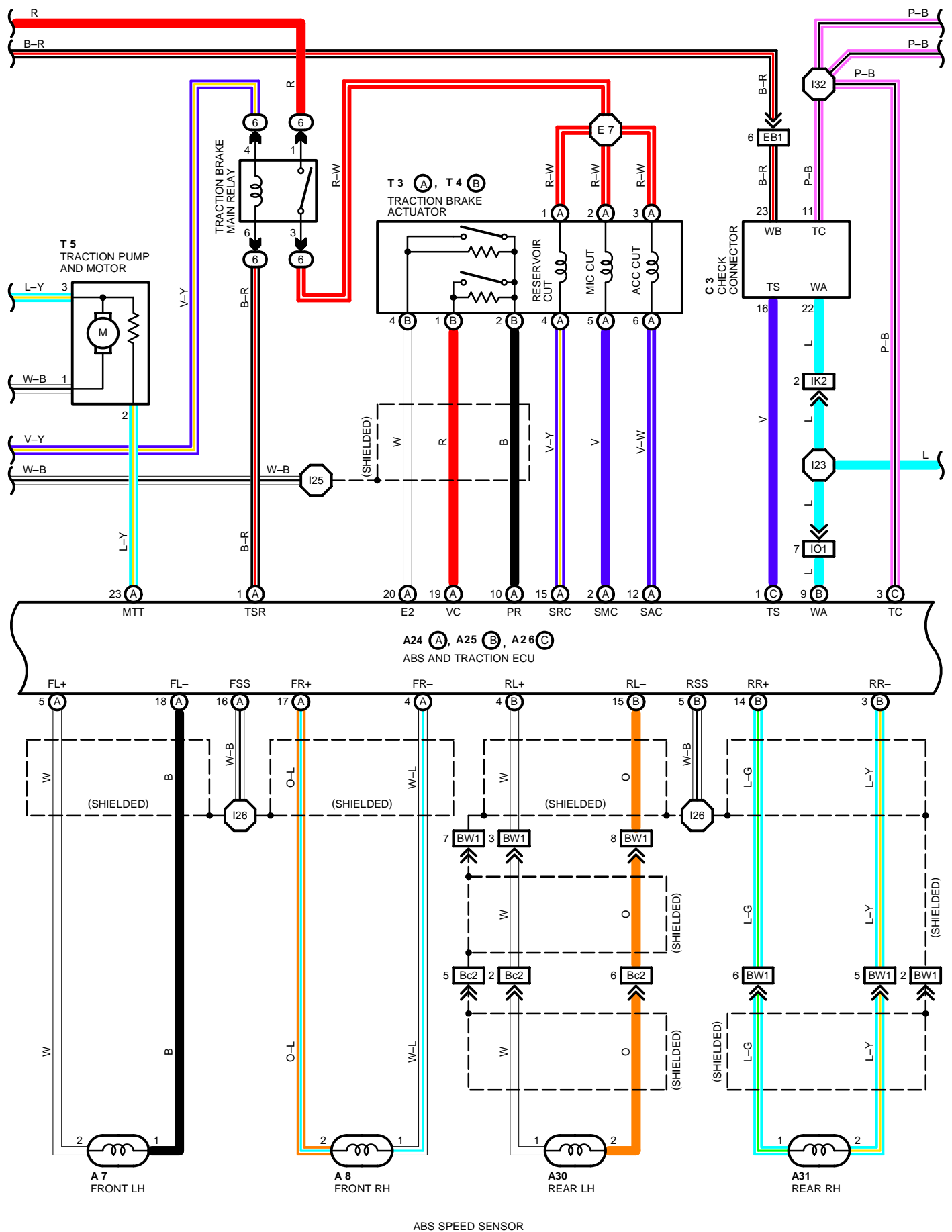
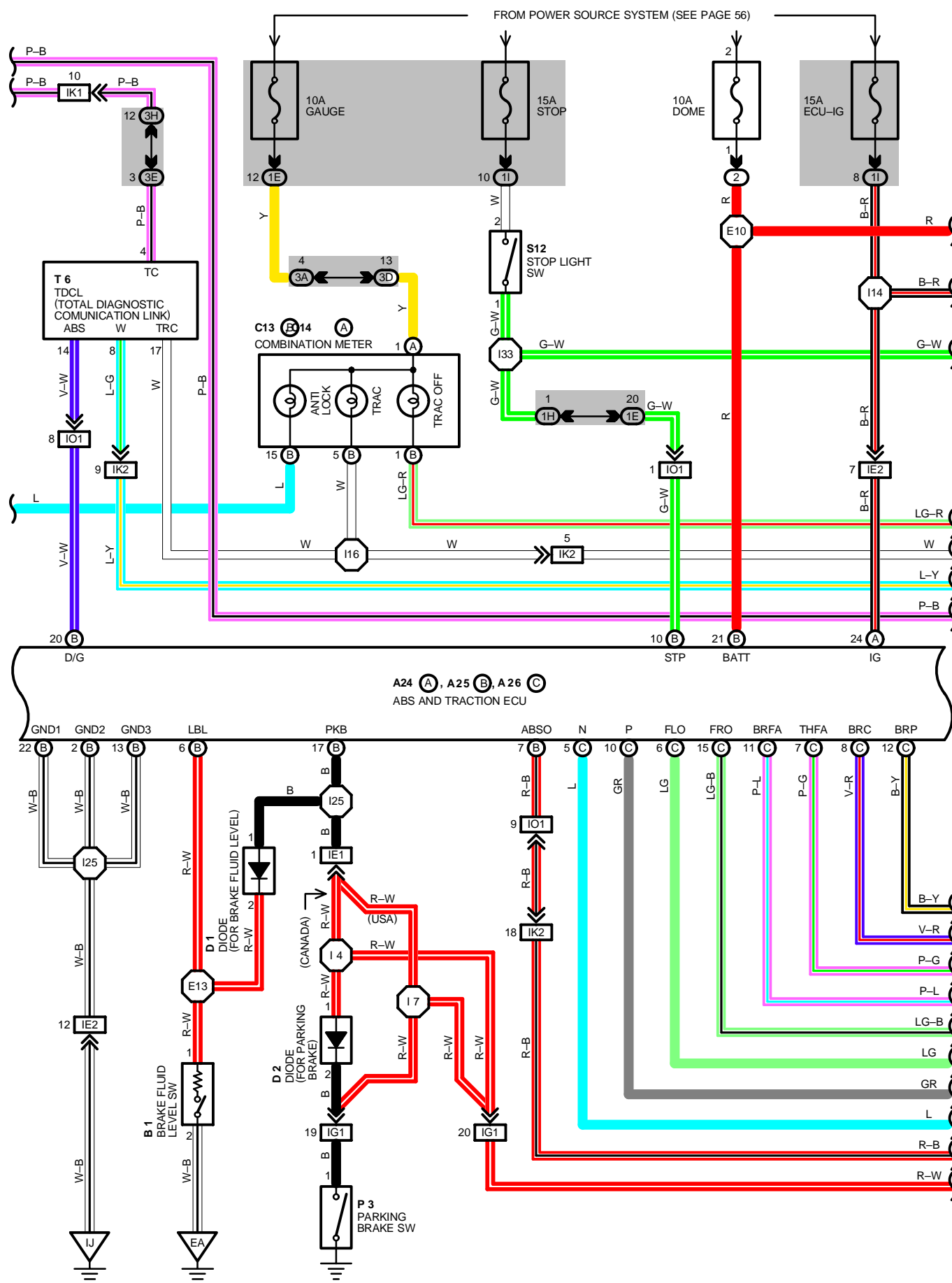


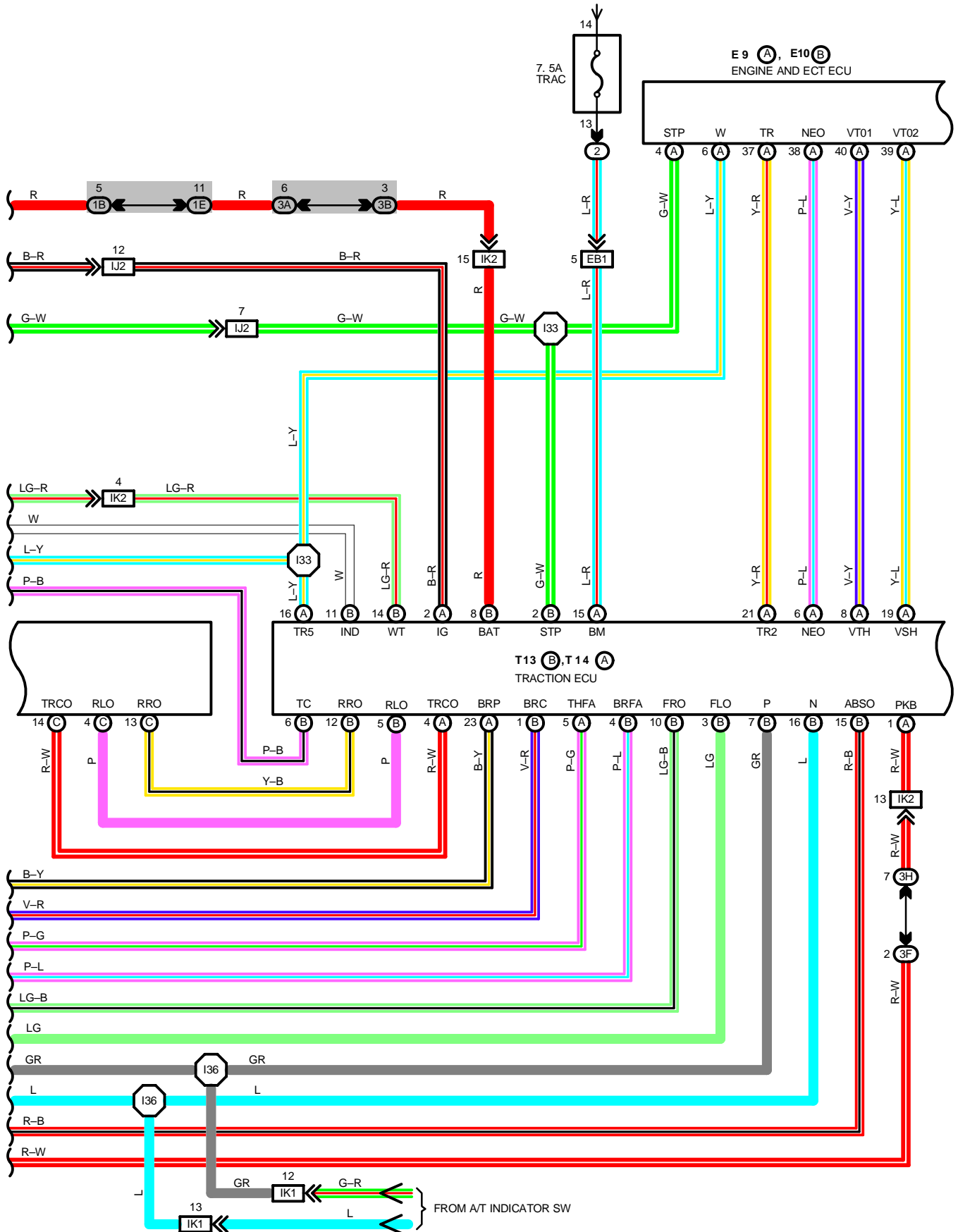
ABS AND TRACTION CONTROL



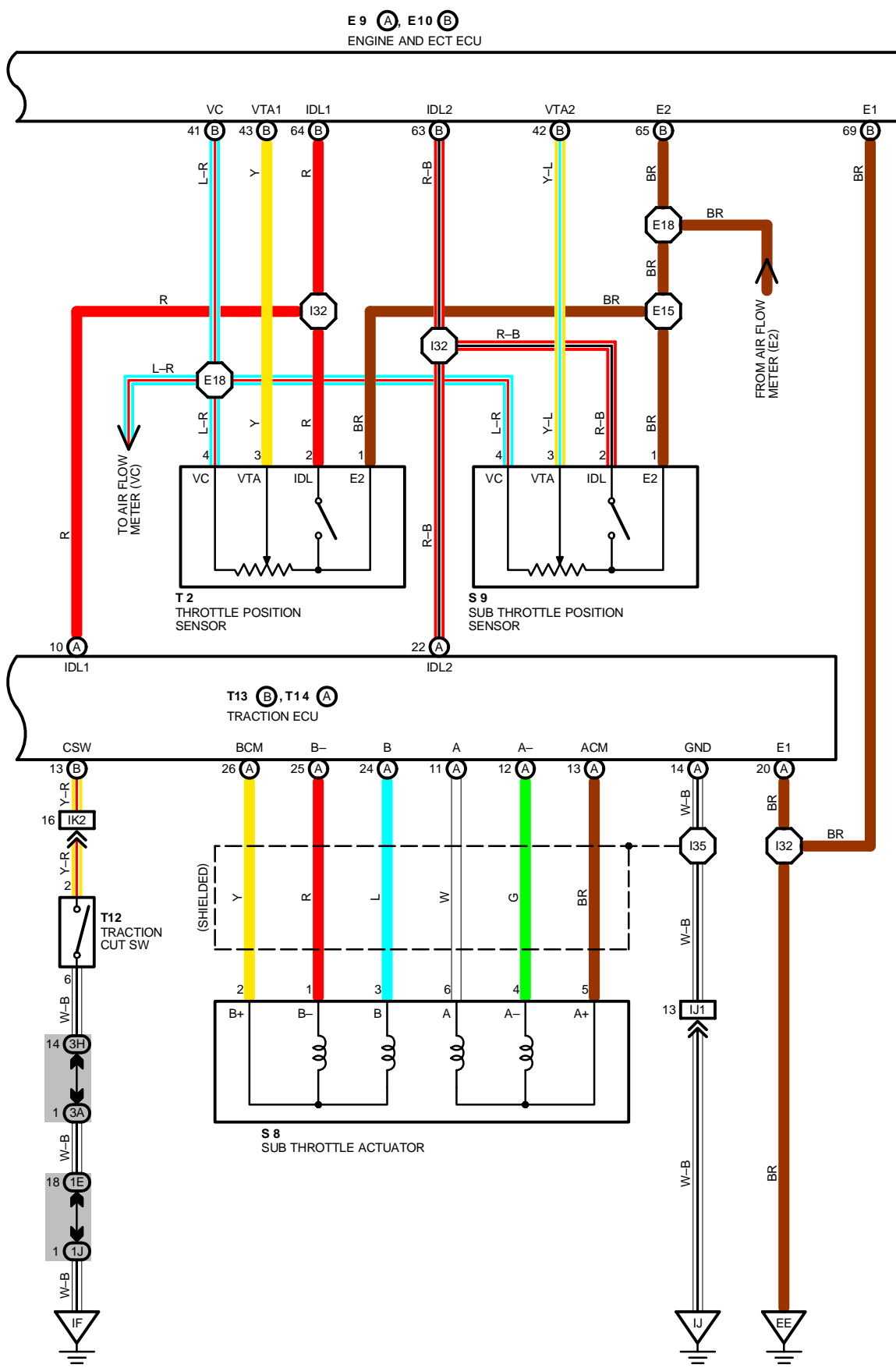


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SYSTEM OUTLINE

(FOR ABS)

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 DIRECTIONALLY STABILITY AND STEERABILITY DURING PANIC BRAKING.

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 AND TRACTION ECU.

(2) STOP LIGHT SW SIGNAL

A SIGNAL IS INPUT TO **TERMINAL STP** OF THE ABS AND TRACTION ECU WHEN THE BRAKE PEDAL IS OPERATED.

(3) PARKING BRAKE SW SIGNAL

A SIGNAL IS INPUT TO **TERMINAL PKB** OF THE ABS AND TRACTION ECU WHEN THE PARKING BRAKE IS OPERATED.

2. SYSTEM OPERATION

DURING SUDDEN BRAKING, THE ABS AND TRACTION 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 SOLENOID IS CONTROLLED AND THE HYDRAULIC PRESSURE IS INCREASED, HOLDING OF THE HYDRAULIC PRESSURE IS ALSO CONTROLLED BY THE COMPUTER, BY THE SAME METHOD AS ABOVE. BY REPEATED PRESSURE REDUCTION, HOLDING AND INCREASE ARE REPEATED TO MAINTAIN VEHICLE STABILITY AND TO IMPROVE STEERABILITY DURING SUDDEN BRAKING.

(FOR TRACTION CONTROL)

THE TRACTION CONTROL SYSTEM IS A SYSTEM WHEREBY THE "ABS AND TRACTION ECU" AND "TRACTION ECU" CONTROLS THE ENGINE TORQUE AND THE HYDRAULIC PRESSURE OF THE WHEEL CYLINDER OF THE DRIVING WHEELS IN ORDER TO CONTROL SPINNING OF THE DRIVING WHEELS WHEN STARTING OFF AND ACCELERATING, AND PROVIDE THE MOST APPROPRIATE DRIVING FORCE IN RESPONSE TO THE ROAD CONDITIONS FOR VEHICLE STABILITY.

TRACTION CONTROL OPERATION

VEHICLE SPEED SIGNALS FROM THE SPEED SENSOR INSTALLED ON EACH WHEEL ARE INPUT TO THE ABS AND TRACTION ECU.

WHEN THE ACCELERATOR PEDAL IS DEPRESSED WHILE DRIVING ON A SLIPPERY ROAD AND THE DRIVING WHEEL (REAR WHEEL) SLIPS, IF THE ROTATION OF THE REAR WHEEL EXCEEDS THE ROTATION OF THE FRONT WHEELS FOR A SPECIFIED PERIOD, THE ECU JUDGES THAT THE REAR WHEEL IS SLIPPING.

WHEN THIS OCCURS, CURRENT FLOWS FROM TRACTION ECU TO SUB THROTTLE ACTUATOR TO CLOSE THE SUB THROTTLE VALVE. THE THROTTLE VALVE OPENING ANGLE SIGNAL IS OUTPUT FROM **TERMINAL VTA** OF SUB THROTTLE POSITION SENSOR TO **TERMINAL VTA2** OF ENGINE AND ECT ECU TO KEEP THE ENGINE RPM AT THE MOST SUITABLE LEVEL FOR THE DRIVING CONDITIONS AND REDUCE SLIP OF THE DRIVING WHEEL. AT THE SAME TIME, OPERATION OF THE ABS AND TRACTION ECU CAUSE THE TRACTION BRAKE ACTUATORS (ACC CUT, M/C CUT, RESERVOIR CUT SOLENOID) TO TURN ON TO SWITCH THE HYDRAULIC CIRCUIT TO "TRACTION" MODE.

IN THIS CASE, SIGNALS ARE INPUT FROM **TERMINAL SRR** OF ABS AND TRACTION ECU TO **TERMINAL (B)6** OF ABS ACTUATOR, AND FROM **TERMINAL SRL** OF ABS AND TRACTION ECU TO **TERMINAL (B)1** OF ABS ACTUATOR, CONTROLLING THE REAR WHEEL SOLENOID IN THE ABS ACTUATOR AND INCREASING THE HYDRAULIC PRESSURE OF THE WHEEL CYLINDER IN ORDER TO PREVENT SLIP.

TO MAINTAIN THE HYDRAULIC PRESSURE OF THE REAR WHEELS, THE REAR WHEEL SOLENOID INSIDE THE ABS ACTUATOR IS PUT IN "HOLD" MODE AND KEEPS THE HYDRAULIC PRESSURE TO THE BRAKE CYLINDER CONSTANT.

WHEN THE BRAKE CYLINDER HYDRAULIC PRESSURE IS REDUCED, THE PRESSURE REDUCTION MODE REDUCES AND CONTROLS THE HYDRAULIC PRESSURE.

ABS AND TRACTION CONTROL

SERVICE HINTS

A24(A), A25(B), A26(C) ABS AND TRACTION ECU

- (B)21-GROUND : ALWAYS APPROX. 12 VOLTS
- (B)11-GROUND : APPROX. 12 VOLTS WITH IGNITION SW AT ON POSITION
- (B)10-GROUND : CONTINUITY WITH STOP LIGHT SW ON
- (B)2, (B)13, (B)22-GROUND : ALWAYS CONTINUITY
- (B)17-GROUND : CONTINUITY WITH PARKING BRAKE LEVER PULLED UP (PARKING BRAKE SW ON)

A 4(B), A 5(C), A 6(A) ABS ACTUATOR

- (A)1, (A)2-GROUND : ALWAYS APPROX. 12 VOLTS
- (C)1-GROUND : ALWAYS CONTINUITY
- (B)1, (B)5, (B)4, (B)6-GROUND : APPROX. 1.15Ω (IGNITION SW OFF)
- (B)2-GROUND : APPROX. 5Ω (IGNITION SW OFF)

T 3(A), T 4(B) TRACTION BRAKE ACTUATOR

- (B)2- (B)4 : OPEN ABOVE APPROX. 134.5KG/CM² (13189KPA, 1910PSI)
CLOSED BELOW APPROX. 95KG/CM² (9316KPA, 1349PSI)
- (A)3- (A)6 : APPROX. 2Ω
- (A)2- (A)5 : APPROX. 2Ω
- (A)1- (A)4 : APPROX. 2Ω

S12 STOP LIGHT SW

- 2-1 : CLOSED WITH BRAKE PEDAL DEPRESSED

A 7, A 8, A30, A31 ABS SPEED SENSOR FRONT LH, RH, REAR LH, RH

- 1-2 : APPROX. 1.0Ω (20°C, 68°F)

T13(B), T14(A) TRACTION ECU

- (A) 2-GROUND : APPROX. 12 VOLTS WITH IGNITION SW AT ON POSITION
- (A)15-GROUND : ALWAYS APPROX. 12 VOLTS
- (A)20, (A)14-GROUND : ALWAYS CONTINUITY
- (A) 1-GROUND : CONTINUITY WITH PARKING BRAKE LEVER PULLED UP
- (B) 2-GROUND : APPROX. 12 VOLTS WITH STOP LIGHT SW ON
- (B)13-GROUND : CONTINUITY WITH TRACTION CUT SW PUSHED ON
- (B) 8-GROUND : ALWAYS APPROX. 12 VOLTS

P 3 PARKING BRAKE SW

- 1-GROUND : CLOSED WITH PARKING BRAKE LEVER PULLED UP

S 8 SUB THROTTLE ACTUATOR

- 2-1, 2-3 : APPROX. 0.9Ω
- 5-4, 5-6 : APPROX. 0.9Ω

○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A 4	B 26	B 1	26	S 9	27
A 5	C 26	C 3	26	S12	29
A 6	A 26	C13	B 28	T 2	27
A 7	26	C14	A 28	T 3	A 27
A 8	26	D 1	28	T 4	B 27
A10	26	D 2	28	T 5	27
A24	A 28	E 9	A 28	T 6	29
A25	B 28	E10	B 28	T12	29
A26	C 28	F 9	26	T13	B 29
A30	30	P 3	29	T14	A 29
A31	30	S 8	27		

○ : RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
2	19	ENGINE COMPARTMENT LEFT
6	24	

**: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR**

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	20	ENGINE ROOM MAIN WIRE
1E	20	INSTRUMENT PANEL WIRE
1H		
1I	20	COWL WIRE
1J		
3A		
3B		
3D		
3E	23	INSTRUMENT PANEL WIRE
3F		
3H		

**: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS**

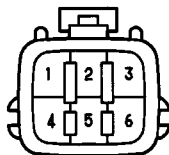
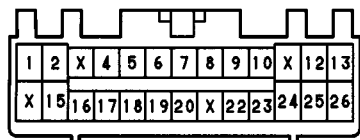
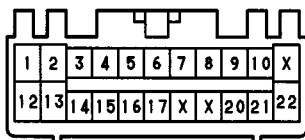
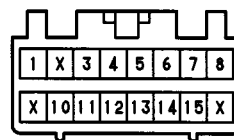
CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EA1	34	ENGINE ROOM NO.2 WIRE AND ENGINE ROOM MAIN WIRE (FRONT SIDE OF RIGHT FENDER APRON)
EB1	34	ENGINE WIRE AND ENGINE ROOM MAIN WIRE (FRONT SIDE OF R/B NO. 2)
IE1	36	ENGINE ROOM MAIN WIRE AND COWL WIRE (R/B NO. 4)
IE2	38	ENGINE ROOM MAIN WIRE AND COWL WIRE (BEHIND GLOVE BOX)
IG1	36	INSTRUMENT PANEL WIRE AND COWL WIRE (R/B NO. 5)
IG3	38	INSTRUMENT PANEL WIRE AND COWL WIRE (RIGHT KICK PANEL)
IJ1		
IJ2	36	ENGINE WIRE AND COWL WIRE (RIGHT KICK PANEL)
IK1		
IK2	36	ENGINE WIRE AND INSTRUMENT PANEL WIRE (RIGHT KICK PANEL)
IO1	38	ENGINE ROOM MAIN WIRE AND INSTRUMENT PANEL WIRE (RIGHT KICK PANEL)
BW1	40	ENGINE ROOM MAIN WIRE AND FLOOR NO. 3 WIRE (RIGHT KICK PANEL)
Bc2	40	FLOOR NO. 3 WIRE AND FLOOR WIRE (UNDER THE LEFT SIDE OF REAR SEAT CUSHION)

**: GROUND POINTS**

CODE	SEE PAGE	GROUND POINTS LOCATION
EA	34	FRONT SIDE OF RIGHT FENDER
EB	34	FRONT SIDE OF LEFT FENDER
EE	34	REAR SIDE OF CYLINDER HEAD LH
IF	36	LEFT KICK PANEL
IJ	36	RIGHT KICK PANEL

**: SPLICE POINTS**

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E 7			I16		
E10			I23	38	INSTRUMENT PANEL WIRE
E12	34	ENGINE ROOM MAIN WIRE	I25		
E13			I26	38	ENGINE ROOM MAIN WIRE
E15			I32		
E18	34	ENGINE WIRE	I33		
I 4			I35	38	ENGINE WIRE
I 7	38	COWL WIRE	I36		
I14					

A 4 (B) GRAY**A 5 (C) GRAY****A 6 (A) GRAY****A 7, A 8 GRAY****A10 BLACK****A24 (A)****A25 (B)****A26 (C)****A30, A31 GRAY**

ABS AND TRACTION CONTROL

