

ABS (ANTI-LOCK BRAKE SYSTEM)

A 4 (A) BLACK



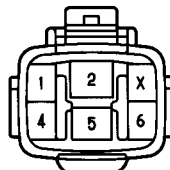
A 5 (B) GRAY



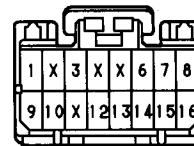
A 6 (A) GRAY



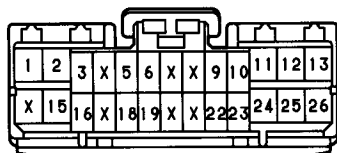
A 7 (B) GRAY



A12 (A) DARK GRAY



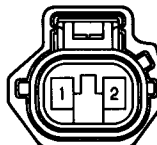
A13 (B) DARK GRAY



A22 GRAY



A23, A24



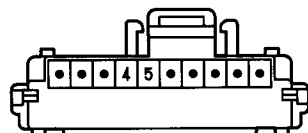
A25, A26



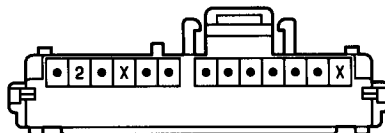
B 1 GRAY



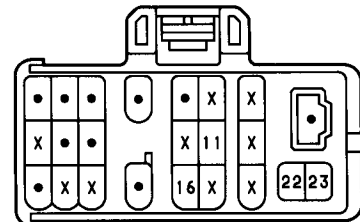
C10 (A) GRAY



C11 (B) BLUE



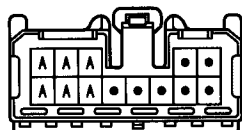
D 1 BLACK



F11

(SEE PAGE 20)

J 1 BLUE



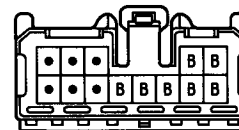
(HINT:SEE PAGE 7)

J 2 BLUE



(HINT:SEE PAGE 7)

J 6 BLUE

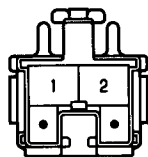


(HINT:SEE PAGE 7)

P 4

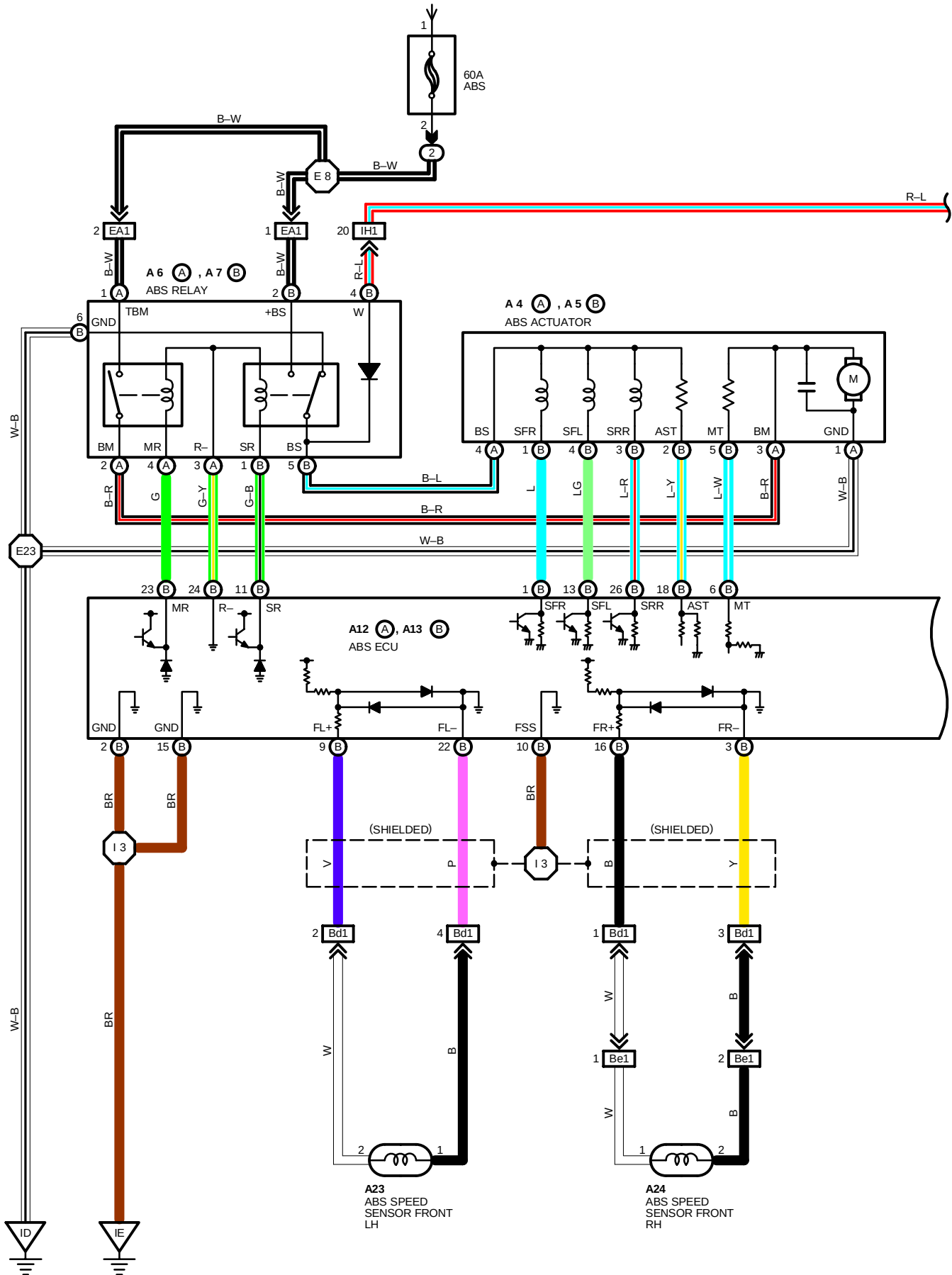


S13 BLACK

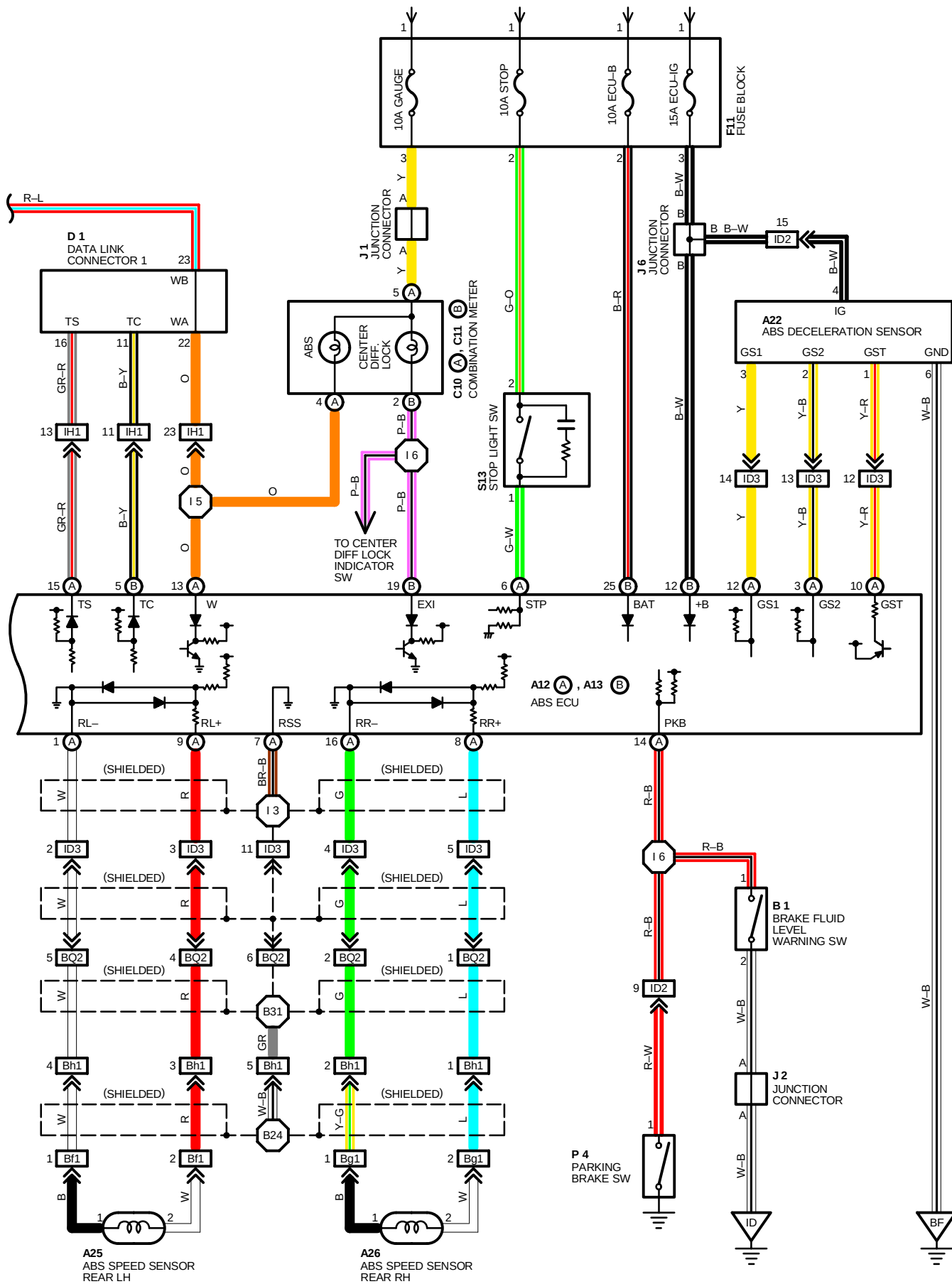


ABS (ANTI-LOCK BRAKE SYSTEM)

FROM POWER SOURCE SYSTEM (SEE PAGE 52)



FROM POWER SOURCE SYSTEM (SEE PAGE 52)



ABS (ANTI-LOCK BRAKE SYSTEM)

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 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 ECU.
- (2) STOP LIGHT SW SIGNAL
A SIGNAL IS INPUT TO **TERMINAL STP** OF THE ABS ECU WHEN THE BRAKE PEDAL IS DEPRESSED.
- (3) PARKING BRAKE SW SIGNAL
A SIGNAL IS INPUT TO **TERMINAL PKB** OF THE ABS ECU WHEN THE PARKING BRAKE SW IS ON.
- (4) DECELERATION SENSOR SIGNAL
THE DEGREE OF VEHICLE DECELERATION IS DETECTED AND INPUT TO THE ABS ECU.
- (5) TRANSFER CONTROL SIGNAL
WHILE THE TRANSFER SHIFT LEVER IS IN **L4** POSITION, THE CENTER DIFF. LOCK INDICATOR SW DETECTS A SIGNAL OF CENTER DIFF. LOCK AND THE SIGNAL IS INPUT TO **TERMINAL EXI** OF THE ABS ECU

2. SYSTEM OPERATION

(TRANSFER L4 POSITION)

WHEN THE TRANSFER SHIFT LEVER IS MOVED TO **L4** POSITION, THE CENTER DIFF. IS LOCKED, THEN THE ABS IS NOT IN OPERATION AND THE ABS WARNING LIGHT IS LIGHTED UP.

(TRANSFER EXCEPT L4 POSITION)

DURING SUDDEN BRAKING, THE ABS ECU WHICH HAS SIGNALS INPUT FROM EACH SENSOR, CONTROLS THE CURRENT TO THE SOLENOID INSIDE THE ACTUATOR, AND CAUSES 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, 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 INCREASED ARE REPEATED TO MAINTAIN VEHICLE STABILITY AND IMPROVE STEERABILITY DURING SUDDEN BRAKING.

SERVICE HINTS

A12(A), A13(B) ABS ECU

(CONNECT THE ECU CONNECTOR)

(A)15-GROUND : APPROX. **12** VOLTS WITH THE IGNITION SW AT **ON** POSITION AND DATA LINK CONNECTOR 1 **TS-E1** NOT CONNECTED

(B) 5-GROUND : APPROX. **12** VOLTS WITH THE IGNITION SW AT **ON** POSITION AND DATA LINK CONNECTOR 1 **TC-E1** NOT CONNECTED

(B) 1-GROUND : APPROX. **12** VOLTS WITH THE IGNITION SW AT **ON** POSITION AND THE ABS WARNING LIGHT GOES OFF

(B) 6-GROUND : APPROX. **12** VOLTS WITH THE IGNITION SW AT **ON** POSITION AND THE ABS WARNING LIGHT GOES OFF

(B)18-GROUND : APPROX. **12** VOLTS WITH THE IGNITION SW AT **ON** POSITION AND THE ABS WARNING LIGHT GOES OFF

(B)26-GROUND : APPROX. **12** VOLTS WITH THE IGNITION SW AT **ON** POSITION AND THE ABS WARNING LIGHT GOES OFF

(B)13-GROUND : APPROX. **12** VOLTS WITH THE IGNITION SW AT **ON** POSITION AND THE ABS WARNING LIGHT GOES OFF

(B) 2-GROUND : ALWAYS CONTINUITY

(B)15-GROUND : ALWAYS CONTINUITY

(B)12-GROUND : APPROX. **12** VOLTS WITH THE IGNITION SW AT **ON** POSITION

(A) 6-GROUND : APPROX. **12** VOLTS WITH BRAKE PEDAL DEPRESSED

(B)25-GROUND : ALWAYS APPROX. **12** VOLTS

(A)14-GROUND : APPROX. **12** VOLTS WITH ENGINE RUNNING AND PARKING BRAKE LEVEL RELEASED

(DISCONNECT THE ECU CONNECTOR)

(B) 1 – (B)18 : APPROX. **6** Ω

(B)13 – (B) 18 : APPROX. **6** Ω

(B)26– (B) 18 : APPROX. **6** Ω

(B) 9 – (B) 22 : **0.9–1.8** K Ω

(B)16 – (B) 3 : **0.9–1.8** K Ω

(B)11 – (B) 24 : **60–100** Ω

(B)23 – (B) 24 : **50–80** Ω

(A) 1 – (A) 9 : **0.5–1.6** K Ω

(A)16 – (A) 8 : **0.5–1.6** K Ω

○ : PARTS LOCATION

CODE			SEE PAGE			CODE			SEE PAGE			CODE			SEE PAGE		
A 4	A	22				A23		26				D 1		22			
A 5	B	22				A24		26				F11		25			
A 6	A	22				A25		26				J 1		25			
A 7	B	22				A26		26				J 2		25			
A12	A	24				B 1		22				J 6		25			
A13	B	24				C10	A	24				P 4		27			
A22		26				C11	B	24				S13		25			

○ : RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
2	18	R/B NO. 2 (FRONT SIDE OF LEFT FENDER)

□ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EA1	30	COWL WIRE AND ENGINE ROOM MAIN WIRE (LEFT FENDER)
ID2	32	COWL WIRE AND FLOOR NO. 1 WIRE (LEFT KICK PANEL)
ID3		
IH1	32	ENGINE WIRE AND COWL WIRE (BEHIND GLOVE BOX)
BQ2	34	FLOOR NO. 3 WIRE AND FLOOR NO. 1 WIRE (LEFT QUARTER PANEL INNER)
Bd1	36	COWL WIRE AND SPEED SENSOR NO. 1 WIRE (LEFT KICK PANEL)
Be1	36	SPEED SENSOR NO. 2 WIRE AND SPEED SENSOR NO. 1 WIRE (FRONT AXLE HOUSING LH)
Bf1	36	FRAME NO. 2 WIRE AND SPEED SENSOR NO. 3 WIRE (REAR AXLE HOUSING LH)
Bg1	36	FRAME NO. 2 WIRE AND SPEED SENSOR NO. 4 WIRE (REAR AXLE HOUSING RH)
Bh1	36	FLOOR NO. 3 WIRE AND FRAME NO. 2 WIRE (LEFT QUARTER PANEL INNER)

▽ : GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
ID	32	LEFT KICK PANEL
IE	32	RIGHT KICK PANEL
BF	34	UNDER THE CENTER CONSOLE BOX

○ : SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E 8	30	ENGINE ROOM MAIN WIRE	I 6	32	COWL WIRE
E23	30	COWL WIRE	B24	36	FLAME NO. 2 WIRE
I 3	32		B31	36	FLOOR NO. 3 WIRE
I 5					