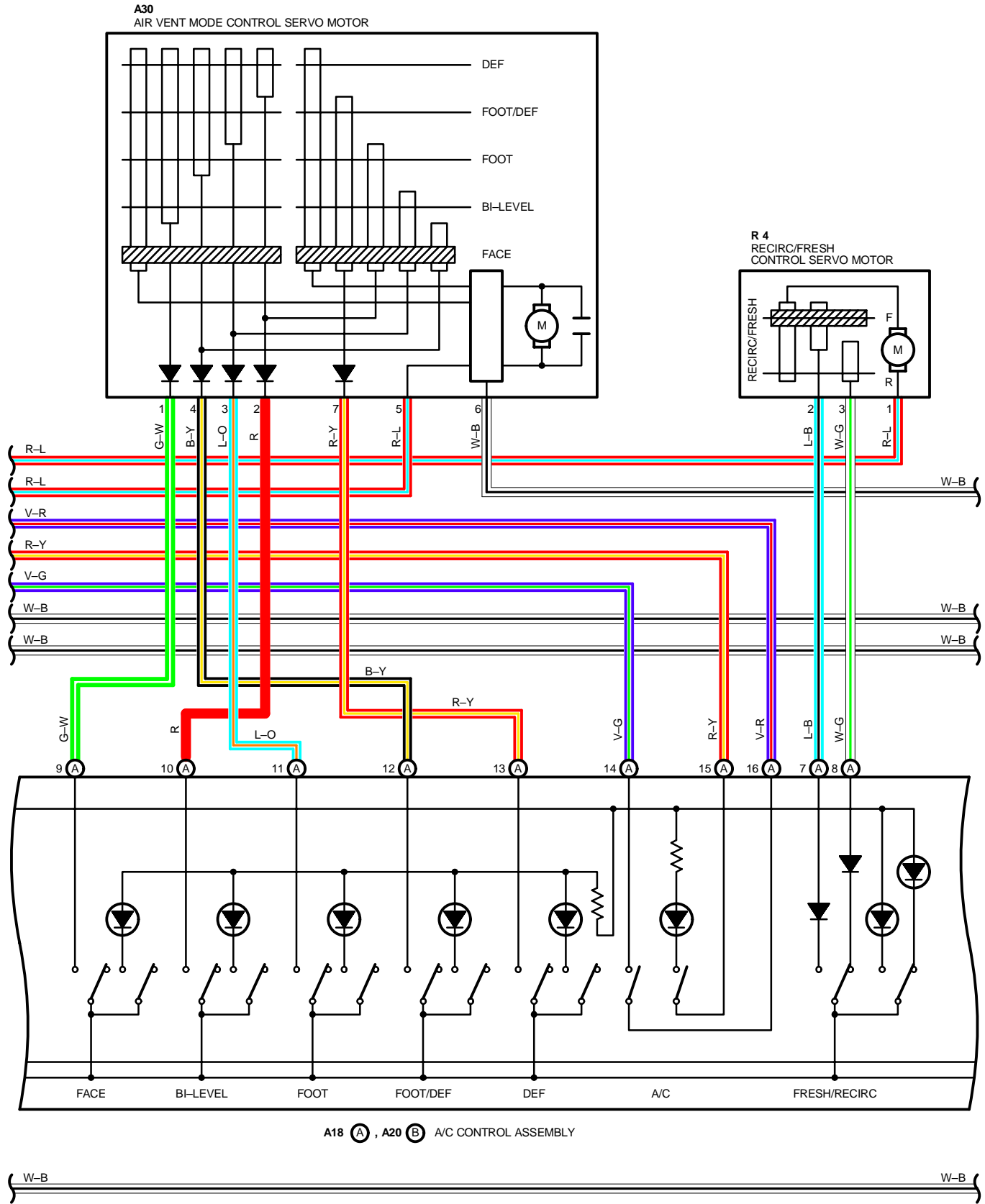






**RADIATOR FAN AND AIR CONDITIONER (MANUAL FAN AND AIR CONDITIONER, FOR DIAL TYPE OF BLOWER CONTROL SW)**





**SYSTEM OUTLINE**

**1. COOLING FAN OPERATION**

WHEN THE IGNITION SW IS TURNED ON, THE CURRENT FROM IGN FUSE FLOWS TO **TERMINAL 3** OF RADIATOR FAN RELAY NO. 1 → **TERMINAL 4** → **TERMINAL 3** OF THE A/C PRESSURE SW → **TERMINAL 2** → **TERMINAL 1** OF WATER TEMP. SW (FOR FANS CONTROL) → **TERMINAL 2** (5S-FE) → **GROUND**, FROM **TERMINAL 2** OF A/C FAN RELAY NO. 2 → **TERMINAL 4** → **TERMINAL 3** OF A/C PRESSURE SW → **TERMINAL 2** → **TERMINAL 1** OF WATER TEMP. SW (FOR FANS CONTROL) → **TERMINAL 2** (5S-FE) → **GROUND**, CAUSING RELAY NO. 1 AND RELAY NO. 2 OF EACH FAN TO TURN ON.

**\* OPERATION AT LOW SPEED**

WHEN THE A/C SW (A/C CONTROL ASSEMBLY) IS TURNED ON AND THE AIR CONDITIONER OPERATES, THE CURRENT FLOWS FROM GAUGE FUSE FLOWS TO **TERMINAL 2** OF A/C MAGNET CLUTCH RELAY → **TERMINAL 3** → **TERMINAL 8** OF A/C AMPLIFIER CAUSING A/C MAGNET CLUTCH RELAY TO TURN ON.

AT THAT TIME, THE CURRENT FROM GAUGE FUSE FLOWS TO **TERMINAL 4** OF A/C MAGNET CLUTCH RELAY → **TERMINAL 1** → **TERMINAL 4** OF A/C MAGNET CLUTCH → **GROUND**, AND FROM **TERMINAL 1** OF A/C MAGNET CLUTCH RELAY → **TERMINAL 2** OF A/C FAN RELAY NO. 3 → **TERMINAL 3** → **GROUND**.

AS A RESULT, A/C MAGNET CLUTCH AND A/C FAN RELAY NO. 3 TURNS ON AND THE CURRENT FLOWS FROM FL CDS FAN → **TERMINAL 2** OF A/C CONDENSOR FAN MOTOR → **TERMINAL 1** → **TERMINAL 4** OF A/C FAN RELAY NO. 3 → **TERMINAL 1** → **TERMINAL 1** OF A/C FAN RELAY NO. 2 → **TERMINAL 5** → **TERMINAL 2** OF A/C CONDENSOR FAN MOTOR → **TERMINAL 1** → **GROUND**, FLOWING TO EACH FAN MOTOR IN SERIES, CAUSING THE COOLING FAN TO ROTATE AT LOW SPEED.

**\* OPERATION AT HIGH SPEED**

DURING A/C OPERATION, WHEN THE PRESSURE OF A/C COMPRESSOR BECOMES HIGHER THAN NORMAL PRESSURE (MORE THAN 14.3 KG/CM<sup>2</sup> 1401 KPA, 203 PSI), THE A/C PRESSURE SW TURNS OFF.

AS A RESULT, FAN RELAY NO. 1 AND NO. 2 TURNS OFF AND THE CURRENT FLOWS FROM FL RDI FAN → **TERMINAL 1** OF RADIATOR FAN RELAY NO. 1 → **TERMINAL 2** → **TERMINAL 2** OF RADIATOR FAN MOTOR → **TERMINAL 1** → **GROUND**, AND FROM FL CDS FAN → **TERMINAL 2** OF A/C CONDENSOR FAN MOTOR → **TERMINAL 1** → **TERMINAL 4** OF A/C FAN RELAY NO. 3 → **TERMINAL 1** → **TERMINAL 1** OF A/C FAN RELAY NO. 2 → **TERMINAL 3** → **GROUND**, FLOWING TO EACH FAN MOTOR IN PARALLEL CAUSING THE COOLING FAN TO ROTATE AT HIGH SPEED. WHEN THE ENGINE COOLANT TEMPERATURE BECOMES MORE THAN ABOUT 90°C (194°F), THE WATER TEMP. SW TURNS OFF AND THE SAME OPERATION AS ABOVE IS PERFORMED.

**2. HEATER BLOWER MOTOR OPERATION (DIAL TYPE BLOWER (W/O AUTO A/C))**

CURRENT IS APPLIED AT ALL TIMES THROUGH THE HEATER FUSE TO **TERMINAL 5** OF HEATER RELAY. WHEN THE IGNITION SW IS TURNED ON, CURRENT FLOWS THROUGH GAUGE FUSE TO **TERMINAL 3** OF HEATER RELAY → **TERMINAL 1** → **TERMINAL B2** AND **TERMINAL B7** OF A/C CONTROL ASSEMBLY.

**\* LOW SPEED OPERATION**

WHEN THE BLOWER SW (A/C CONTROL ASSEMBLY) IS MOVED TO **LOW** POSITION. THE CURRENT FLOWING TO **TERMINAL B7** OF THE A/C CONTROL ASSEMBLY FLOWS TO **TERMINAL B3** OF A/C CONTROL ASSEMBLY → **GROUND** AND TURNS THE HEATER RELAY ON.

AS A RESULT, THE CURRENT TO **TERMINAL 5** OF THE HEATER RELAY FLOWS TO **TERMINAL 4** OF HEATER RELAY → **TERMINAL 2** (5S-FE), **TERMINAL 1** (4A-FE) OF BLOWER MOTOR → MOTOR → **TERMINAL 1** (5S-FE), **TERMINAL 2** (4A-FE) → **TERMINAL 1** OF BLOWER RESISTOR → **TERMINAL 4** → **GROUND**, CAUSING THE BLOWER MOTOR TO ROTATE AT LOW SPEED.

**\* HIGH SPEED OPERATION**

WHEN THE BLOWER SW (A/C CONTROL ASSEMBLY) IS MOVED TO **HI** POSITION, THE CURRENT TO **TERMINAL B2** OF A/C CONTROL ASSEMBLY FLOWS TO **TERMINAL B3** OF A/C CONTROL ASSEMBLY → **GROUND** AND TURNS THE HEATER RELAY ON.

AS A RESULT, THE CURRENT TO **TERMINAL B5** OF BLOWER MOTOR → **TERMINAL 1** → **TERMINAL 2** (5S-FE) OR **TERMINAL 1** (4A-FE) OF BLOWER MOTOR → **TERMINAL 1** (5S-FE) OR **TERMINAL 2** (4A-FE) → **TERMINAL B5** OF A/C CONTROL ASSEMBLY → **TERMINAL B3** → **GROUND**, AND CAUSES THE BLOWER MOTOR TO ROTATE AT HIGH SPEED.

**\* MEDIUM SPEED OPERATION (OPERATION AT MANUAL M1, M2)**

WHEN THE BLOWER SW (A/C CONTROL ASSEMBLY) IS MOVED TO **M1** POSITION, THE CURRENT FLOWING TO **TERMINAL 3** OF HEATER RELAY FLOWS TO **TERMINAL 1** OF RELAY → **TERMINAL B2** OF A/C CONTROL ASSEMBLY → **TERMINAL B3** → **GROUND** AND TURNS THE HEATER RELAY ON.

AS A RESULT, CURRENT FROM THE HEATER FUSE TO **TERMINAL 5** OF HEATER RELAY FLOWS TO **TERMINAL 4** OF HEATER RELAY → **TERMINAL 2** (5S-FE) OR **TERMINAL 1** (4A-FE) OF BLOWER MOTOR → **TERMINAL 1** → **TERMINAL 1** (5S-FE) OR **TERMINAL 2** (4A-FE) → **TERMINAL 1** OF BLOWER RESISTOR → **TERMINAL 2** → **TERMINAL B6** OF A/C CONTROL ASSEMBLY → **TERMINAL B3** → **GROUND**, CAUSING THE BLOWER MOTOR TO ROTATE AT MEDIUM LOW SPEED.

WHEN THE BLOWER SW (A/C CONTROL ASSEMBLY) IS MOVED TO **M2** POSITION. THE CURRENT TO **TERMINAL 5** OF HEATER RELAY FLOWS TO **TERMINAL 4** OF HEATER RELAY → **TERMINAL 2** (5S-FE) OR **TERMINAL 2** (4A-FE) OF BLOWER MOTOR → **TERMINAL 1** → **TERMINAL 1** (5S-FE) OR **TERMINAL 2** (4A-FE) → **TERMINAL 1** OF BLOWER RESISTOR → **TERMINAL 3** → **TERMINAL B4** OF A/C CONTROL ASSEMBLY → **TERMINAL 3** → **GROUND**.

AS THE CURRENT FLOW FROM BLOWER MOTOR TO GROUND IS GREATER THAN FOR M1. THE BLOWER MOTOR ROTATES AT HIGH SPEED.

### 3. OPERATION OF RECIRC/FRESH CONTROL SERVO MOTOR

(SWITCHING FROM FRESH TO RECIRC)

WITH IGNITION SW TURNED ON, THE CURRENT FLOWS FROM GAUGE FUSE TO **TERMINAL 1** OF RECIRC/FRESH CONTROL SERVO MOTOR. WHEN THE RECIRC/FRESH SW IS SWITCHED TO THE RECIRC SIDE, TO CURRENT FLOWS FROM **TERMINAL 1** OF RECIRC/FRESH CONTROL SERVO MOTOR → **TERMINAL 2** → **TERMINAL A7** OF RECIRC/FRESH CONTROL SERVO MOTOR → **TERMINAL A2** → **GROUND**, THE MOTOR ROTATES AND THE DAMPER MOVES TO THE RECIRC SIDE.

WHEN IT IS IN THE **RECIRC** POSITION, THE CURRENT IS CUT INSIDE THE SERVO MOTOR AND THE DAMPER STOPS AT THAT POSITION.

(SWITCHING FROM RECIRC TO FRESH)

WITH IGNITION SW ON, WHEN THE RECIRC/FRESH SW IS SWITCHED TO THE FRESH SIDE, THE CURRENT FLOWS FROM **TERMINAL 1** OF RECIRC/FRESH CONTROL SERVO MOTOR → **TERMINAL 3** → **TERMINAL A8** OF A/C CONTROL ASSEMBLY → **TERMINAL A2** → **GROUND**, THE MOTOR ROTATES AND THE DAMPER MOVES TO THE FRESH SIDE. WHEN IT IS IN THE **FRESH** POSITION, THE CURRENT IS CUT INSIDE THE SERVO MOTOR AND THE DAMPER STOPS AT THAT POSITION.

### 4. OPERATION OF AIR VENT MODE CONTROL SERVO MOTOR

WITH IGNITION SW TURNED ON, THE CURRENT FLOWS FROM GAUGE FUSE TO **TERMINAL 5** OF AIR VENT MODE CONTROL SERVO MOTOR → **TERMINAL 6** → **GROUND**, AND THE DAMPER MOVES TO THE POSITION OF THE MODE SELECTION SW OF THE CONTROL ASSEMBLY SWITCH IS ON.

WHEN THE MODE SELECTION SW OF A/C CONTROL ASSEMBLY IS MOVED TO **DEF** POSITION FROM THE DAMPER IN THE **FACE** POSITION, THE CURRENT FLOWS FROM **TERMINAL 7** OF AIR VENT MODE CONTROL SERVO MOTOR TO **TERMINAL A25** OF A/C CONTROL ASSEMBLY → **TERMINAL C10** → **GROUND**.

AS A RESULT, TO SERVO MOTOR OPERATES UNTIL THE DAMPER REACHES **DEF** POSITION.

WHEN THIS OCCURS THE CURRENT TO THE A/C CONTROL ASSEMBLY IS SHUT OFF AND ROTATION OF THE MOTOR STOPS. SWITCHING TO OTHER MODES IS CONTROLLED BY THE SERVO MOTOR ACCORDING THE FLOWING CURRENT:

1. **FOOT/DEF** POSITION: THE CURRENT FLOWS FROM **TERMINAL 4** OF SERVO MOTOR TO **TERMINAL A11** OF A/C CONTROL ASSEMBLY.
2. **FOOT** POSITION: THE CURRENT FLOWS FROM **TERMINAL 3** OF SERVO MOTOR TO **TERMINAL A10** OF A/C CONTROL ASSEMBLY.
3. **BI-LEVEL** POSITION: THE CURRENT FLOWS FROM **TERMINAL 2** OF SERVO MOTOR TO **TERMINAL A9** OF A/C CONTROL ASSEMBLY.

### 5. AIR CONDITIONER OPERATION

THE A/C AMPLIFIER RECEIVES VARIOUS SIGNALS, THE ENGINE RPM SIGNAL FROM THE IGNITER, OUTLET TEMPERATURE SIGNAL FROM THE A/C THERMISTOR, COOLANT TEMPERATURE FROM THE WATER TEMP. SENSOR, AND THE LOCK SIGNAL FROM THE A/C COMPRESSOR, ETC.

WHEN THE ENGINE IS STARTED AND THE A/C SW (A/C CONTROL ASSEMBLY) IS TURNED ON, THE CURRENT FLOWS FROM A/C FUSE TO **TERMINAL 3** OF A/C AMPLIFIER.

AS A RESULT, THE CURRENT FLOWING FROM **TERMINAL 3** OF A/C MAGNET CLUTCH RELAY TO **TERMINAL 8** OF A/C AMPLIFIER FLOWS FROM **TERMINAL 15** OF A/C AMPLIFIER TO GROUND AND TURNS IN THE MAGNET CLUTCH RELAY.

BECAUSE THE MAGNET CLUTCH IS ON, THE A/C COMPRESSOR OPERATES, CAUSING THE CURRENT FLOWING FROM A/C IDLE-UP VSV TO **TERMINAL 6** OF A/C AMPLIFIER TO FROM TO **TERMINAL 15** OF A/C AMPLIFIER → **GROUND**, AND TURNS ON THE VSV TO AVOID LOWERING THE ENGINE RPM DURING AIR CONDITIONER OPERATION.

WHEN ANY OF THE FOLLOWING SIGNALS ARE INPUT TO THE A/C AMPLIFIER, THE AMPLIFIER OPERATES TO TURN OFF THE AIR CONDITIONER:

- \* ENGINE HIGH RPM SIGNAL
- \* COOLANT HIGH TEMP. SIGNAL IS HIGH
- \* A SIGNAL THAT THE TEMPERATURE AT THE AIR OUTLET IS LOW
- \* A SIGNAL THAT THERE IS A LARGE DIFFERENCE BETWEEN ENGINE RPM AND COMPRESSOR RPM
- \* A SIGNAL THAT THE REFRIGERANT PRESSURE IS ABNORMALLY HIGH OR LOW

**SERVICE HINTS**

**A 4 A/C MAGNET CLUTCH**

4-GROUND : APPROX. 3.7 Ω

**A 5 A/C PRESSURE SW**

3-2 : OPEN ABOVE APPROX. 13.5 KG/CM<sup>2</sup> (192 PSI, 1323 KPA)

CLOSED BELOW APPROX. 10 KG/CM<sup>2</sup> (142 PSI, 980 KPA)

1-4 : OPEN WITH PRESSURE LESS THAN 2.1 KG/CM<sup>2</sup> (30 PSI, 206 KPA) OR ABOVE 27 KG/CM<sup>2</sup> (384 PSI, 2648 KPA)

**A17 A/C AMPLIFIER**

8-15 : CONTINUITY WITH A/C SW (A/C CONTROL ASSEMBLY) ON AND IGNITION SW AT ON POSITION

14-15 : ALWAYS CONTINUITY

14-GROUND: ALWAYS CONTINUITY

15-GROUND: ALWAYS CONTINUITY

13-GROUND: APPROX. 12 VOLTS WITH IGNITION SW ON

**A26 A/C THERMISTOR**

1-2 : APPROX. 4852 Ω AT 0°C (32°F)

APPROX. 2341 Ω AT 15°C (39°F)

APPROX. 1500 Ω AT 25°C (77°F)

**B 6 BLOWER RESISTOR**

1-3 : APPROX. 0.48 Ω

3-2 : APPROX. 0.94 Ω

2-4 : APPROX. 0.91 Ω

**W 4 WATER TEMP. SW (FOR FANS CONTROL)**

1-2 : OPEN ABOVE APPROX. 90°C (194°F)

CLOSED BELOW APPROX. 83°C (181.4°F)

**○ : PARTS LOCATION**

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A 2	26 (5S-FE), 27 (4A-FE)	A20	B 28	E 5	B 29
A 3	26 (5S-FE), 27 (4A-FE)	A26	28	E 7	A 29
A 4	A 26 (5S-FE), 27 (4A-FE)	A30	28	J 4	29
	B 26 (5S-FE), 27 (4A-FE)	B 4	A 28	J 5	29
A 5	26 (5S-FE), 27 (4A-FE)		B 28	J 6	29
A 6	26 (5S-FE), 27 (4A-FE)	B 6	28	R 1	26 (5S-FE), 27 (4A-FE)
A17	28	C 2	A 26 (5S-FE), 27 (4A-FE)	R 4	29
A18	A 28	C 3	B 26 (5S-FE), 27 (4A-FE)	W 4	26 (5S-FE), 27 (4A-FE)

**○ : RELAY BLOCKS**

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
4	24	R/B NO. 4 (RIGHT KICK PANEL)
5	24	R/B NO. 5 (ENGINE COMPARTMENT FRONT RIGHT)

**○ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR**

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	18	COWL WIRE AND J/B NO. 1 (LEFT KICK PANEL)
1E		
1H	18	ENGINE ROOM MAIN WIRE AND J/B NO. 1 (LEFT KICK PANEL)
2A	20	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (NEAR THE BATTERY)
2C	20	ENGINE WIRE AND J/B NO. 2 (NEAR THE BATTERY)
2D	20	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (NEAR THE BATTERY)
2E		
3A	22	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)
EA1	32 (5S-FE)	COWL WIRE AND ENGINE ROOM MAIN WIRE (FRONT SIDE OF RIGHT FRONT FENDER)
	34 (4S-FE)	
EB2	32 (5S-FE)	ENGINE WIRE AND COWL WIRE (REAR SIDE OF RIGHT FRONT FENDER)
	34 (4S-FE)	
IG1	36	ENGINE WIRE AND COWL WIRE (UNDER THE ENGINE ECU)
IH1	36	ENGINE WIRE AND A/C NO. 1 WIRE (BEHIND THE GLOVE BOX)
IJ1	36	COWL WIRE AND A/C NO. 1 WIRE (BEHIND THE GLOVE BOX)
IQ4	36	COWL WIRE AND A/C NO. 2 WIRE (BESIDE HEATER UNIT)

 : GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
EA	32 (5S-FE)	FRONT RIGHT FENDER
	34 (4A-FE)	
EB	32 (5S-FE)	FRONT LEFT FENDER
	34 (4A-FE)	
ID	36	LEFT KICK PANEL
IG	36	R/B NO. 4 SET BOLT

 : SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	
E 2	32 (5S-FE)	ENGINE ROOM MAIN WIRE	E10	32 (5S-FE)	COWL WIRE	
	34 (4A-FE)			34 (4A-FE)		
E 3	32 (5S-FE)		12	36		
	34 (4A-FE)					13
E 4	32 (5S-FE)		17	36		
	34 (4A-FE)					18
E 7	32 (5S-FE)	112	36	A/C NO. 1 WIRE		
	34 (5S-FE)					

