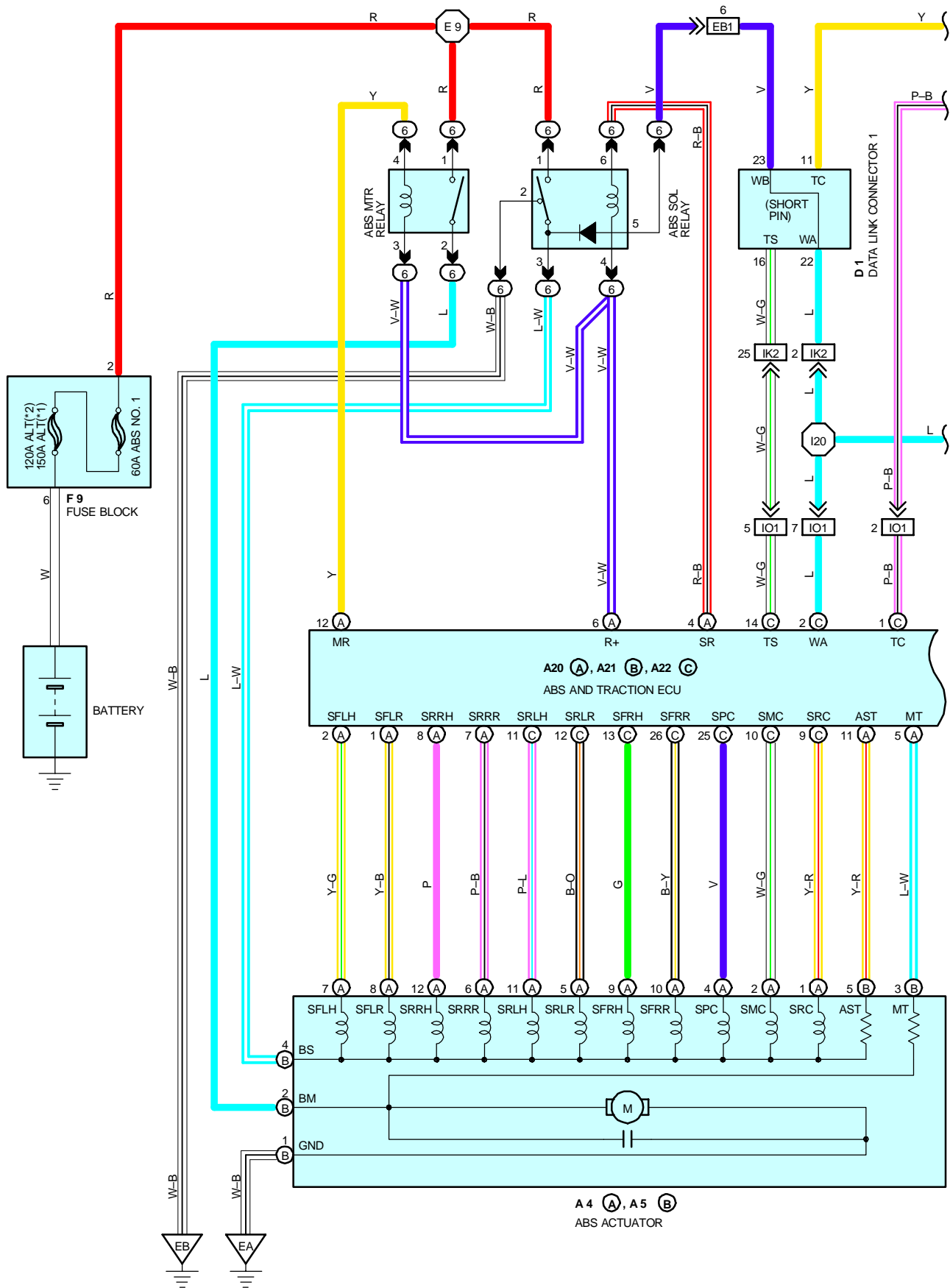




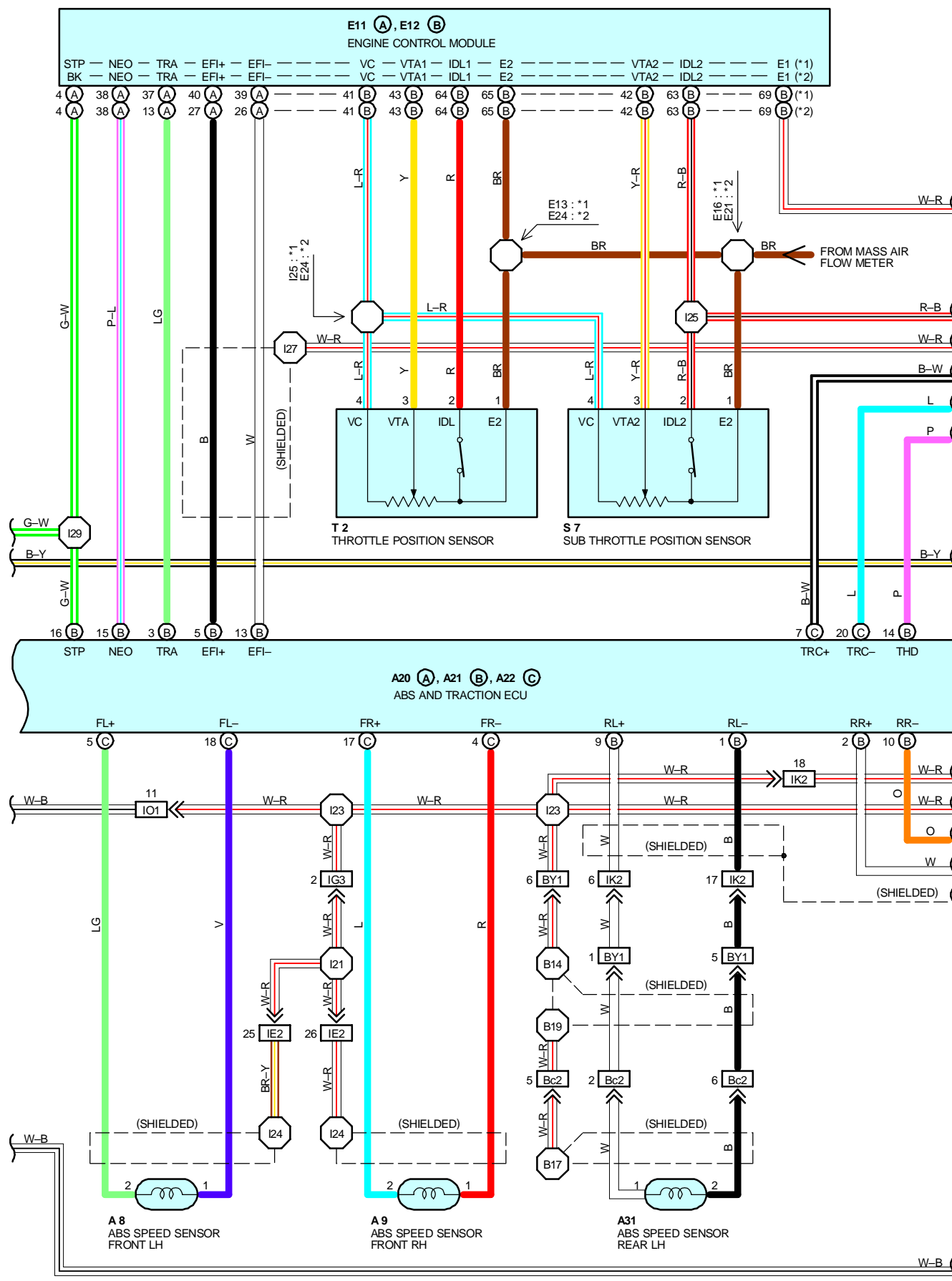
ABS AND TRACTION CONTROL







170







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 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 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 LBL+** 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 RESEVOIR. 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 ECU, 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" 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 THROTTLE DRIVER TO SUB THROTTLE ACTUATOR TO CLOSE THE SUB THROTTLE VALVE.

IN THIS CASE, SIGNALS ARE INPUT FROM **TERMINAL SRRH** AND **SRRR** OF THE ABS AND TRACTION ECU TO **TERMINAL (A) 12** AND **(A) 6** OF THE ABS ACTUATOR, AND FROM **TERMINAL SRLH** AND **SRLR** OF THE ABS AND TRACTION ECU TO **TERMINAL (A) 11** AND **(A) 5** OF THE 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 HYRAULIC 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 WHEEL CYLINDER CONSTANTLY.

WHEN THE AMOUNT OF SLIP HAS DECREASED, THE HYDRAULIC PRESSURE IN THE WHEEL CYLINDER DECREASES.

SERVICE HINTS

A20 (A), A21 (B), A22 (C) ABS AND TRACTION ECU

- (B) 3, (B) 9, (B) 10, (C) 24-GROUND: ALWAYS CONTINUITY
- (B) 6-GROUND: 10-14 VOLTS WITH TRACTION CUT SW RELEASED
- (B) 11-GROUND: 10-14 VOLTS WITH IGNITION SW AT **ON** POSITION
- (B) 16-GROUND: 10-14 VOLTS WITH STOP LIGHT SW ON
- (B) 4-GROUND: CONTINUITY VOLTS WITH PARKING BRAKE LEVER PULLED UP (PARKING BRAKE SW ON)

A4 (A), A5 (B) ABS ACTUATOR

- (A)1, (A) 2, (A)4, (A)5, (A)6, (A)7, (A)8, (A)9, (A)10, (A)11, (A)12-GROUND: APPROX. 1.2 Ω (IGNITION SW OFF)
- (B)1-GROUND: ALWAYS CONTINUITY
- (B)5-GROUND: 4-6 Ω (IGNITION SW OFF)

S13 STOP LIGHT SW

- 2-1: CLOSED WITH BRADE PEDAL DEPRESSED

A 8, A 9, A31, A32 ABS SPEED SENSOR FRONT LH, RH, REAR LH, RH

- 1-2: 0.9-1.3 K Ω (20°C, 68°F)

T12 (B), T13(A) THROTTLE DRIVER

- (A) 1-GROUND: ALWAYS 10-14 VOLTS
- (A) 11-GROUND: 10-14 VOLTS WITH IGNITION SW AT **ON** POSITION
- (A) 12-GROUND: ALWAYS BELOW 1 VOLT

P 4 PARKING BRAKE SW

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

S 6 SUB THROTTLE ACTUATOR

- 2-1, 2-3: APPROX. 1.1 Ω
- 5-4, 5-6: APPROX. 1.1 Ω



: PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A 4	A 26 (1UZ-FE), 28 (2JZ-GE)	B2	26 (1UZ-FE), 28 (2JZ-GE)	P 4	31
A 5	B 26 (1UZ-FE), 28 (2JZ-GE)	C12	A 30	S 6	27 (1UZ-FE), 29 (2JZ-GE)
A 8	26 (1UZ-FE), 28 (2JZ-GE)	C25	D 30	S 7	27 (1UZ-FE), 29 (2JZ-GE)
A 9	26 (1UZ-FE), 28 (2JZ-GE)	D1	26 (1UZ-FE), 28 (2JZ-GE)	S13	31
A20	A 30	D6	30	T 2	27 (1UZ-FE), 29 (2JZ-GE)
A21	B 30	E11	A 30	T11	31
A22	C 30	E12	B 30	T12	A 31
A31	32	F 9	26 (1UZ-FE), 28 (2JZ-GE)	T13	B 31
A32	32	J 1	31		



: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
2	19	R/B NO. 2 (ENGINE COMPARTMENT LEFT)
4	23	R/B NO. 4 (FRONT SIDE OF J/B NO. 1)
6	24	R/B NO. 6 (ENGINE COMPARTMENT LEFT)



ABS AND TRACTION CONTROL

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1E	20	INSTRUMENT PANEL WIRE AND J/B NO. 1 (LEFT KICK PANEL)
1I	20	COWL WIRE AND J/B NO. 1 (LEFT KICK PANEL)
1J		
3A	22	INSTRUMENT PANEL WIRE AND J/B NO. 3 (BEHIND THE INSTRUMENT PANEL CENTER)
3D		
3E		
3F		
3H		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

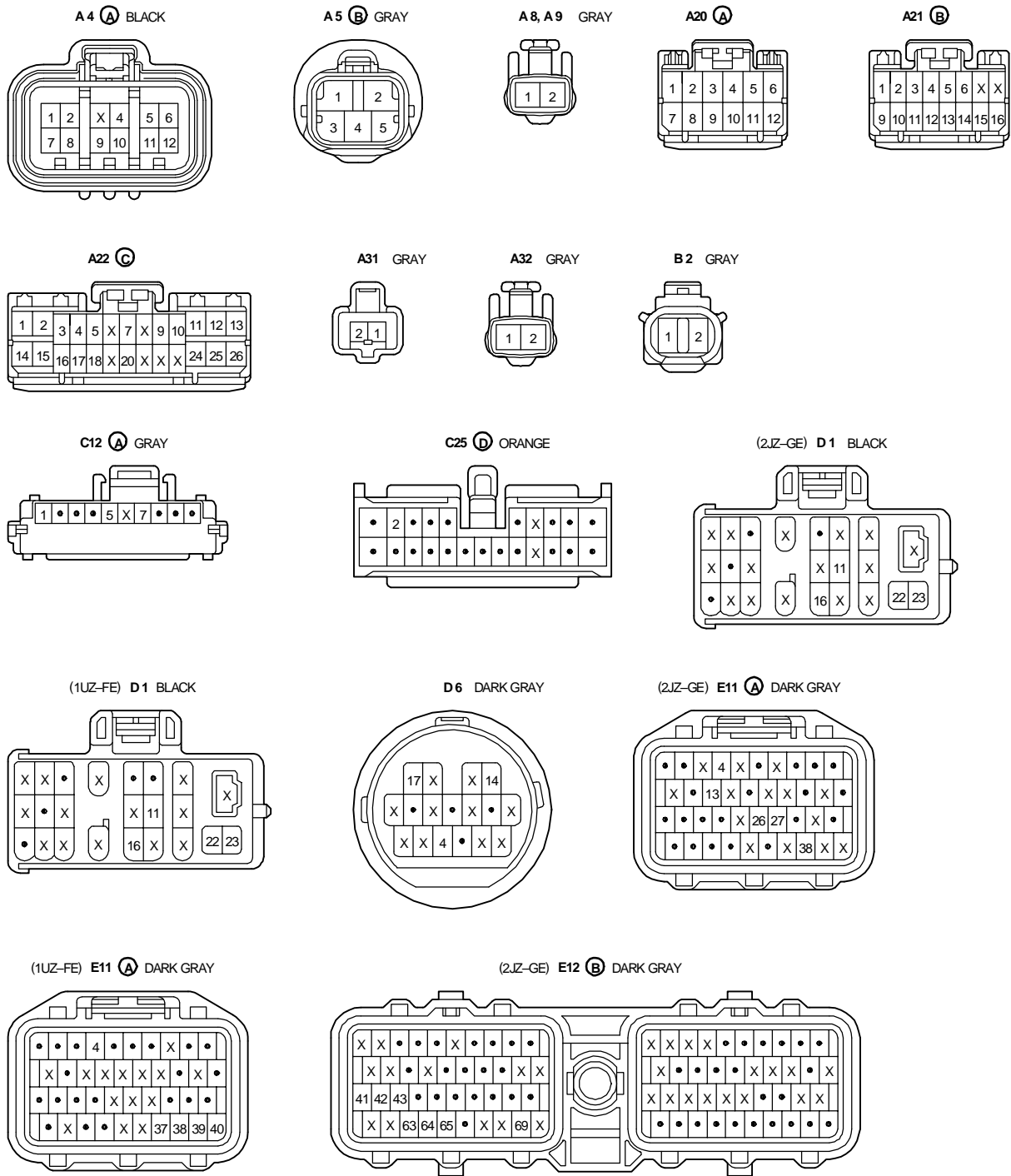
CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EB1	36 (1UZ-FE)	ENGINE WIRE AND ENGINE ROOM MAIN WIRE (FRONT SIDE OF R/B NO. 2)
	38 (2JZ-GE)	
IE2	40	ENGINE ROOM MAIN WIRE AND COWL WIRE (BEHIND GLOVE BOX)
IG1	40	INSTRUMENT PANEL WIRE AND COWL WIRE (R/B NO. 5)
IG3	40	INSTRUMENT PANEL WIRE AND COWL WIRE (RIGHT KICK PANEL)
IJ1	40	ENGINE WIRE AND COWL WIRE (RIGHT KICK PANEL)
IJ2		
IK1	40	ENGINE WIRE AND INSTRUMENT PANEL WIRE (RIGHT KICK PANEL)
IK2		
IO1	42	ENGINE ROOM MAIN WIRE AND INSTRUMENT PANEL WIRE (RIGHT KICK PANEL)
BY1	44	INSTRUMENT PANEL WIRE AND FLOOR NO. 3 WIRE (RIGHT KICK PANEL)
BC2	44	FLOOR NO. 3 WIRE AND FLOOR MAIN WIRE (UNDER THE LEFT SIDE OF REAR SEAT CUSHION)

: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
EA	36 (1UZ-FE)	FRONT SIDE OF RIGHT FENDER
	38 (2JZ-GE)	
EB	36 (1UZ-FE)	FRONT SIDE OF LEFT FENDER
	38 (2JZ-GE)	
EC	38 (2JZ-GE)	FRONT SIDE OF INTAKE MANIFOLD
ED	36 (1UZ-FE)	REAR SIDE OF CYLINDER HEAD RH
IF	40	LEFT KICK PANEL
IJ	40	RIGHT KICK PANEL

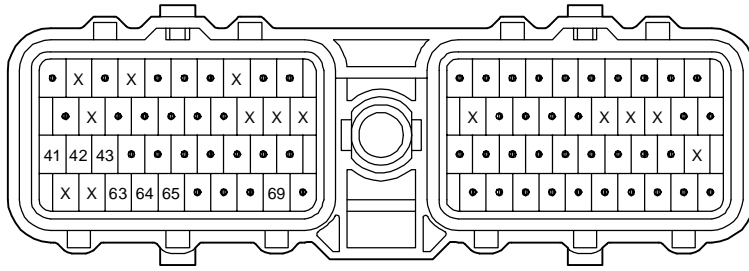
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E 9	36 (1UZ-FE)	ENGINE ROOM MAIN WIRE	I23	42	INSTRUMENT PANEL WIRE
	38 (2JZ-GE)		I24	42	ENGINE ROOM MAIN WIRE
E13	36 (1UZ-FE)	ENGINE WIRE	I25	42	ENGINE WIRE
E16			I27		
E21	38 (2JZ-GE)		I29		
E24			I30		
I17	42	INSTRUMENT PANEL WIRE	B14	44	FLOOR NO. 3 WIRE
I20			B17	44	FLOOR MAIN WIRE
I21	42	COWL WIRE	B19	44	FLOOR NO. 3 WIRE

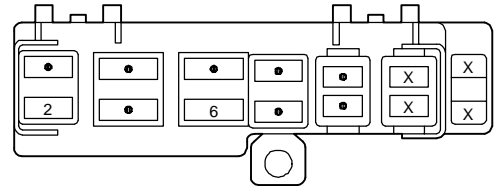


**TRAC**

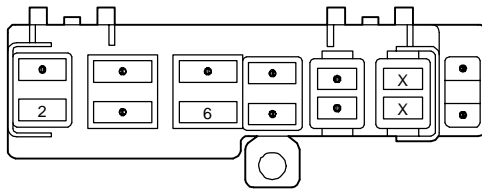
ABS AND TRACTION CONTROL

(1UZ-FE) E12 **(B)** DARK GRAY

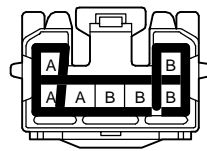
(1UZ-FE) F 9



(2JZ-GE) F 9



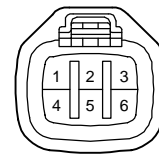
J 1



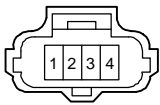
P 4



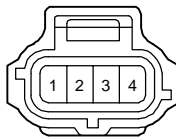
S 6 GRAY



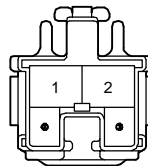
(2JZ-GE) S 7 BLACK



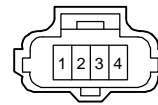
(1UZ-FE) S 7 GRAY



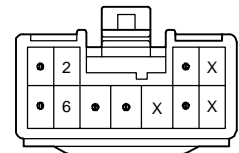
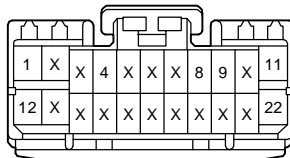
S13



T 2 BLACK



T11

T12 **(A)** DARK GRAYT13 **(B)** DARK GRAY