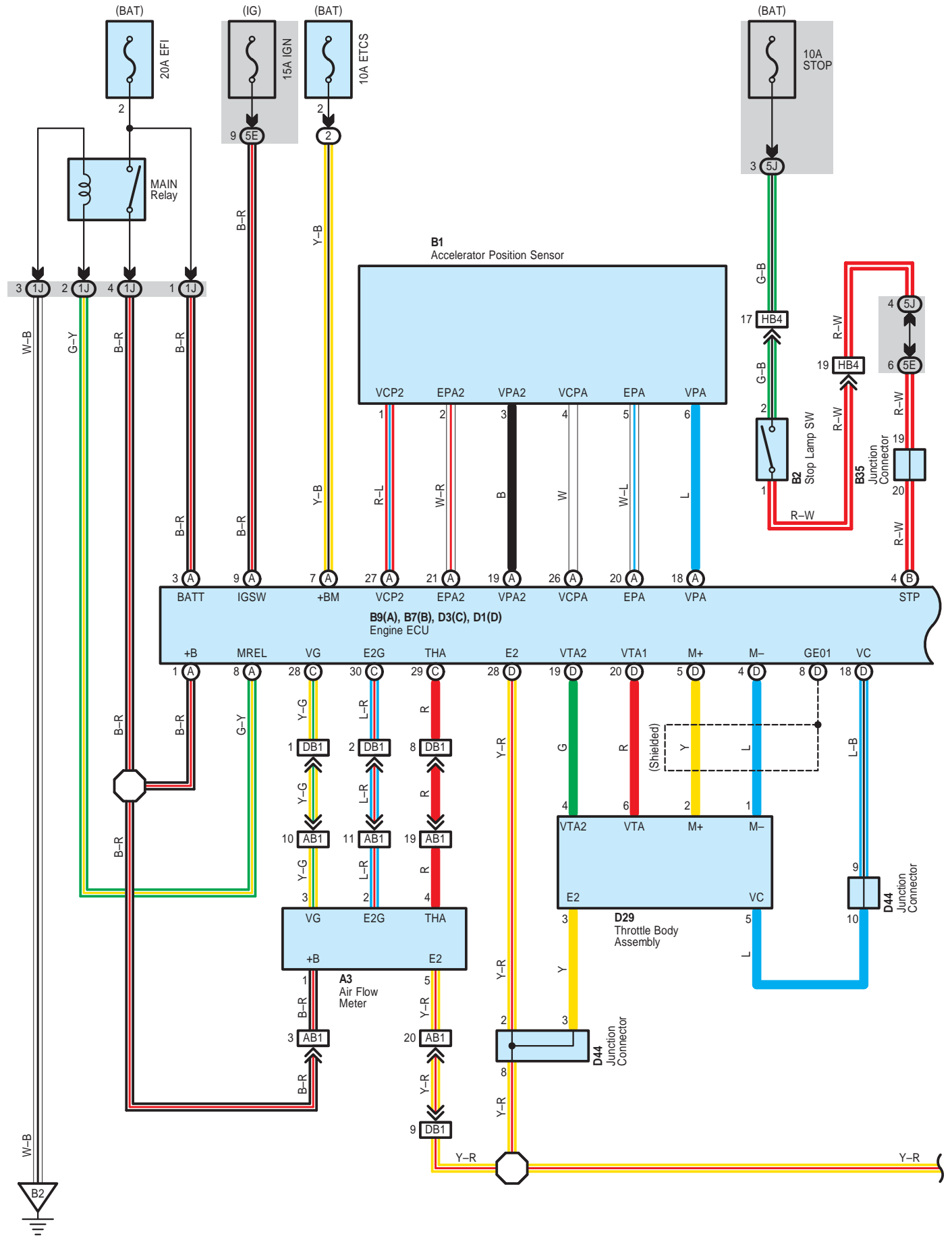
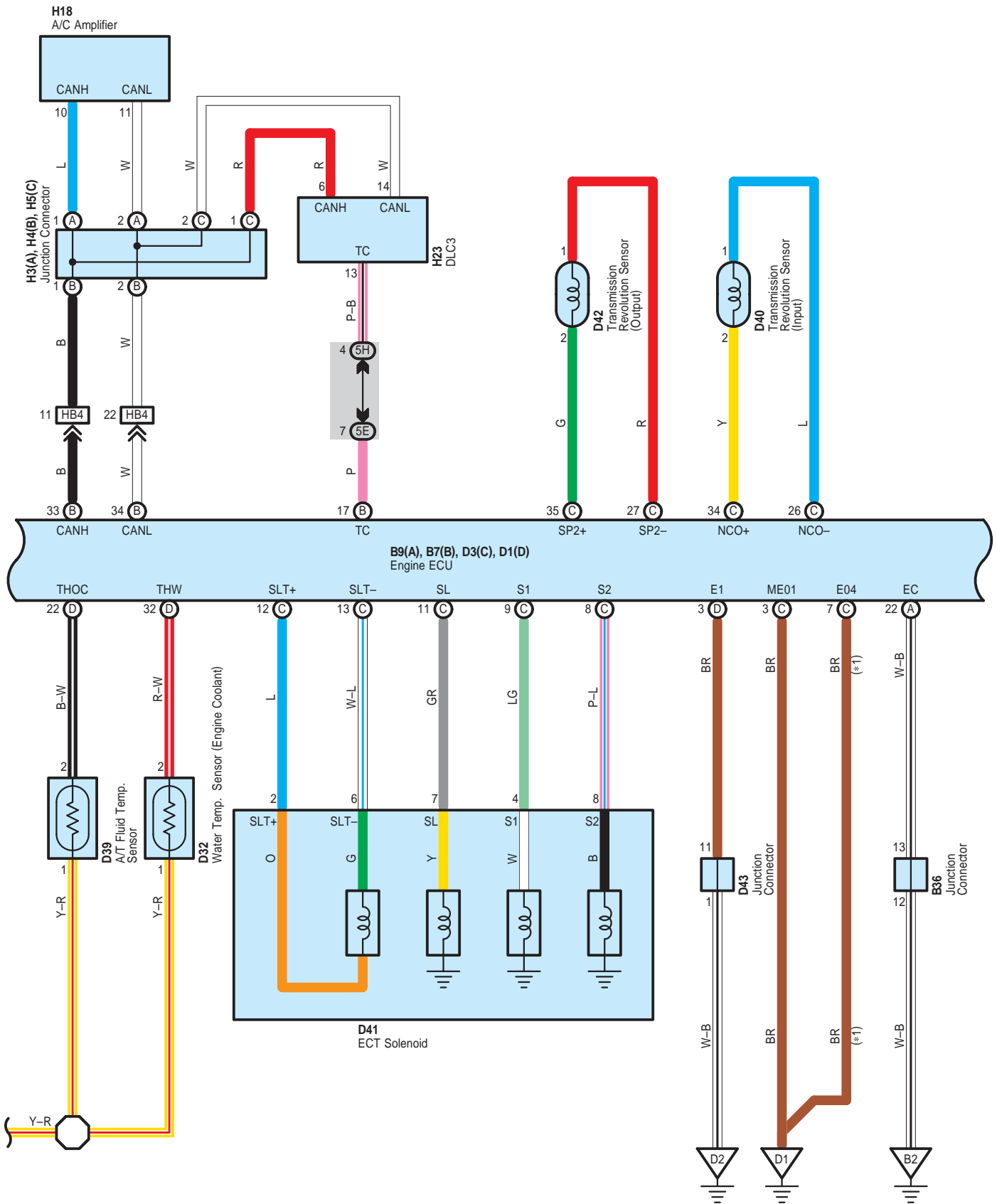


ECT and A/T Indicator (2TR-FE)

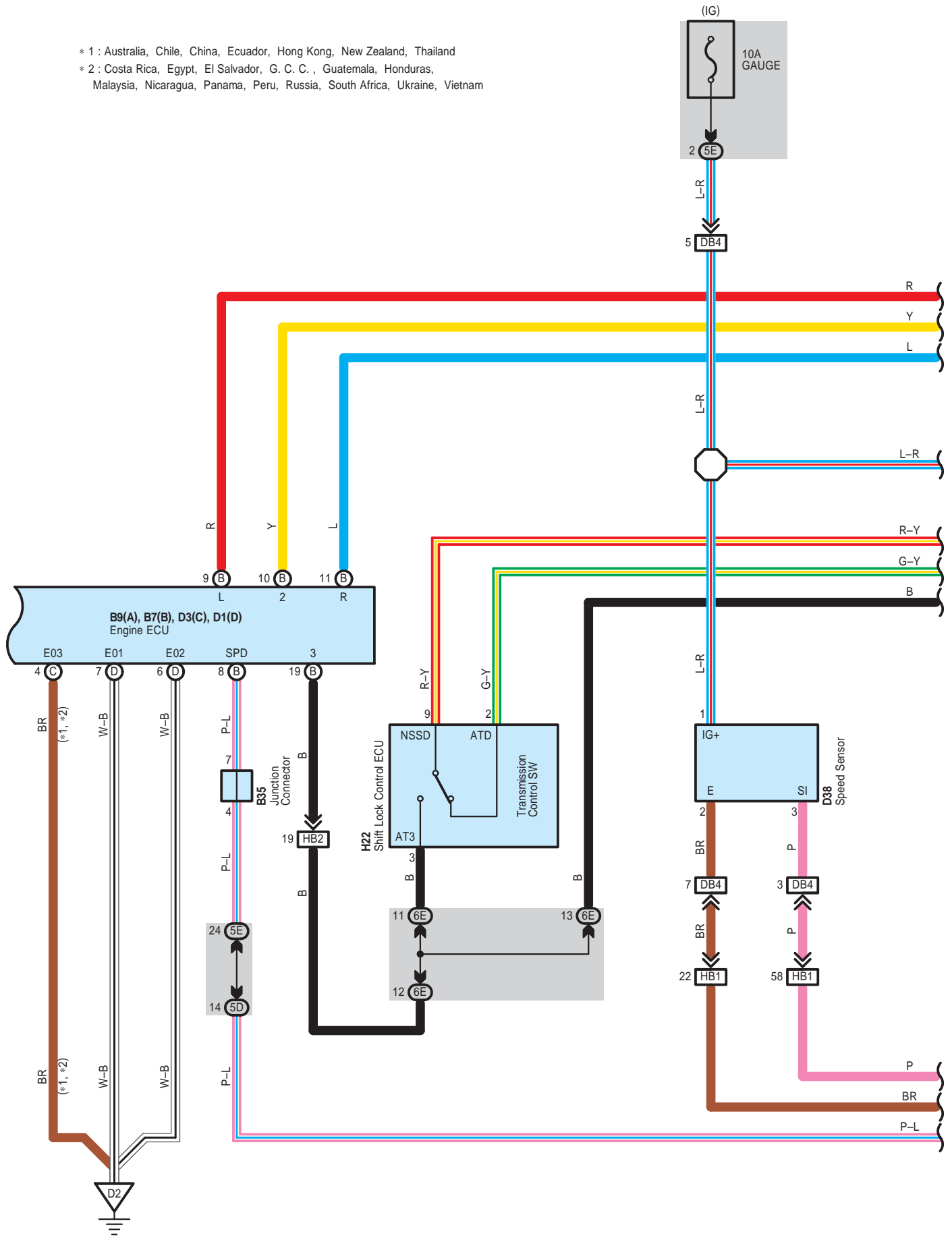


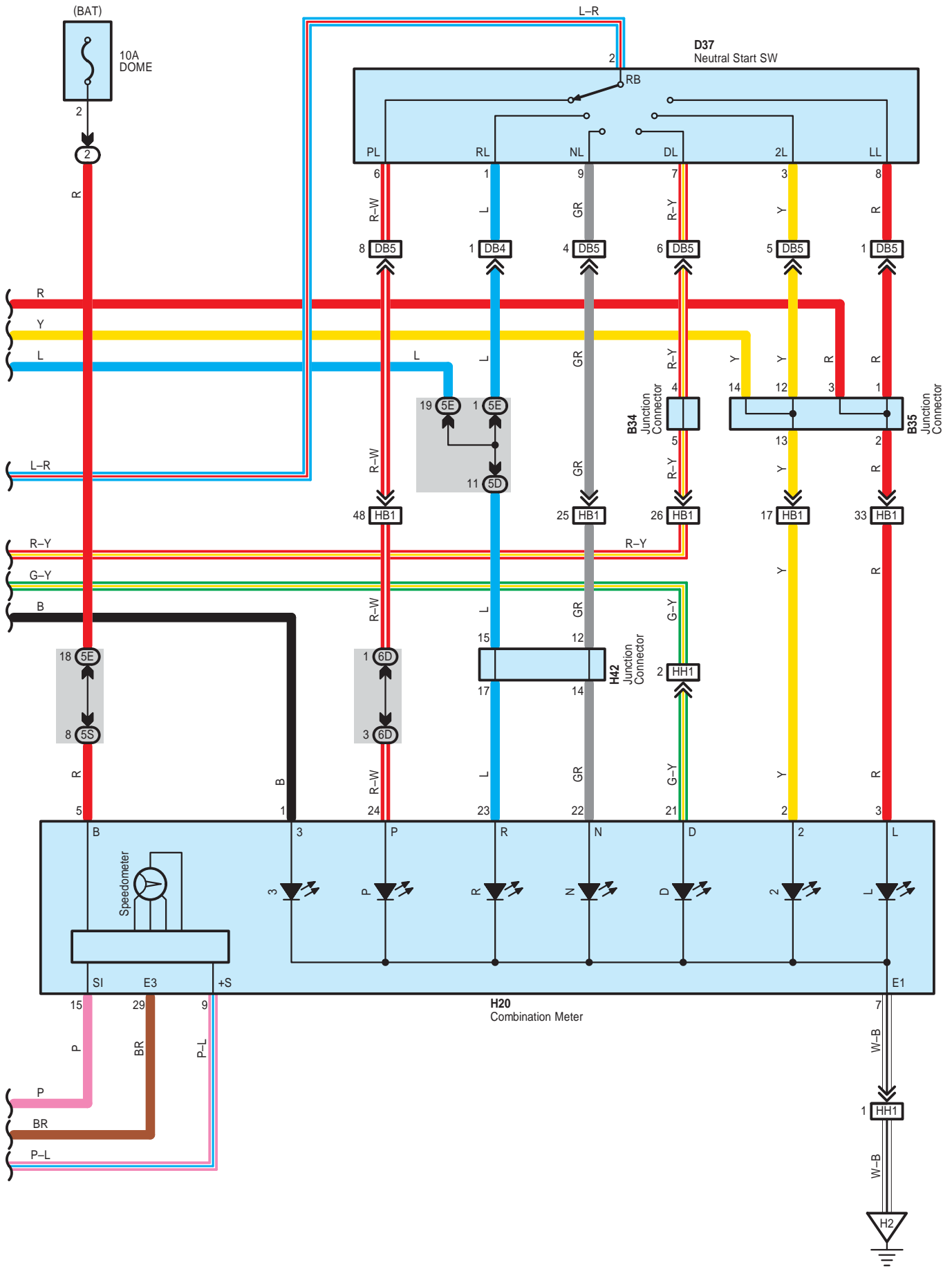
* 1 : Australia, Chile, China, Ecuador, Hong Kong, New Zealand, Thailand



ECT and A/T Indicator (2TR-FE)

- * 1 : Australia, Chile, China, Ecuador, Hong Kong, New Zealand, Thailand
- * 2 : Costa Rica, Egypt, El Salvador, G. C. C. , Guatemala, Honduras, Malaysia, Nicaragua, Panama, Peru, Russia, South Africa, Ukraine, Vietnam





HIACE (EWD622E)

ECT and A/T Indicator (2TR-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 electronically controlled transmission, however, electrically controls the line pressure, throttle pressure, lock-up pressure and accumulator pressure etc. through the solenoid valve. The electronically controlled transmission is a system which precisely controls gear shift timing and lock-up timing in response to the vehicle's driving conditions and the engine condition detected by various sensors. It makes smooth driving possible by shift selection for each gear which is the most appropriate to the driving conditions at that time, and by preventing downing, squat and gear shift shock when starting off.

1. Gear Shift Operation

When driving, the engine warm up condition is input as a signal to TERMINAL THW of the engine ECU from the water temp. sensor (Engine coolant) and the vehicle speed signal from speed sensor is input to TERMINAL SPD of the engine ECU via combination meter. At the same time, the throttle valve opening signal from the throttle body assembly is input to TERMINALS VTA1 and VTA2 of the engine ECU as throttle angle signal.

Based on these signals, the engine ECU selects the best shift position for the driving conditions and sends current to the ECT solenoid.

2. Lock-Up Operation

When the engine ECU decides based on each signal that the lock-up condition has been met, the current flows through TERMINAL SL of the engine ECU to TERMINAL 7 of the ECT solenoid to GROUND, causing lock-up operation.

3. Stop Lamp SW Circuit

If the brake pedal is depressed (Stop lamp SW on) when driving in lock-up condition, a signal is input to TERMINAL STP of the engine ECU. The engine ECU operates and cuts the current to the solenoid to release lock-up.

○ : Parts Location

Code		See Page	Code		See Page	Code		See Page
A3		48 (LHD)	D3	C	52 (*4)	D44		44 (*1)
		56 (RHD)						
B1		48 (LHD)	D29		52 (*4)	H3	A	42, 49 (LHD)
		56 (RHD)						
B2		48 (LHD)	D32		52 (*4)	H4	B	42, 49 (LHD)
		56 (RHD)						
B7	B	44 (*1)	D37		52 (*4)	H5	C	42, 49 (LHD)
		52 (*4)						
B9	A	44 (*1)	D38		52 (*4)	H18		49 (LHD)
		52 (*4)						
B34		48 (LHD)	D39		52 (*4)	H20		49 (LHD)
		56 (RHD)						
B35		44 (*1)	D40		52 (*4)	H22		49 (LHD)
		52 (*4)						
B36		44 (*1)	D41		52 (*4)	H23		49 (LHD)
		52 (*4)						
D1	D	44 (*1)	D42		52 (*4)	H42		49 (LHD)
		52 (*4)						
D3	C	44 (*1)	D43		44 (*1)			
					52 (*4)			

○ : Relay Blocks

Code	See Page	Relay Blocks (Relay Block Location)
2	28	Engine Room R/B No.2 (Inside of Battery Room)

* 1 : LHD 2TR-FE * 2 : LHD 2KD-FTV * 3 : LHD 5L-E * 4 : RHD 2TR-FE * 5 : RHD 2KD-FTV * 6 : RHD 5L-E * 7 : 2TR-FE
* 8 : 2KD-FTV, 5L-E

 : Junction Block and Wire Harness Connector

Code	See Page	Junction Block and Wire Harness (Connector Location)
1J	25	Engine Room Main Wire and Engine Room J/B No.1 (Engine Compartment Front)
5D	30	Instrument Panel Wire and Instrument Panel J/B (Left Side of Instrument Panel)
5E	30	Engine Room Main Wire and Instrument Panel J/B (Left Side of Instrument Panel)
5H	30	Instrument Panel Wire and Instrument Panel J/B (Left Side of Instrument Panel)
5J		
5S		
6D	38 (LHD)	Instrument Panel Wire and Center J/B (Instrument Panel Reinforcement LH)
	38 (RHD)	Instrument Panel Wire and Center J/B (Instrument Panel Reinforcement RH)
6E	38 (LHD)	Instrument Panel Wire and Center J/B (Instrument Panel Reinforcement LH)
	38 (RHD)	Instrument Panel Wire and Center J/B (Instrument Panel Reinforcement RH)

 : Connector Joining Wire Harness and Wire Harness

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
AB1	64 (LHD)	Cowl to Head Lamp Wire and Engine Room Main Wire (Left Side of the Instrument Panel J/B)
	72 (RHD)	
DB1	60 (*1)	Engine Wire and Engine Room Main Wire (Front Side of Engine Room R/B No.1)
	68 (*4)	
DB4	60 (*1)	
	68 (*4)	
DB5	60 (*1)	
	68 (*4)	
HB1	64 (LHD)	Instrument Panel Wire and Engine Room Main Wire (Under the Instrument Panel J/B)
	72 (RHD)	
HB2	64 (LHD)	
	72 (RHD)	
HB4	64 (LHD)	
	72 (RHD)	
HH1	64 (LHD)	Instrument Panel Wire and Instrument Panel Wire (Near the Steering Column)
	72 (RHD)	Instrument Panel Wire and Instrument Panel Wire (Instrument Panel Reinforcement RH)

 : Ground Points

Code	See Page	Ground Points Location
B2	60 (*1)	Front Floor Panel Right
	68 (*4)	
D1	60 (*1)	Engine Block
	68 (*4)	
D2	60 (*1)	
	68 (*4)	
H2	64 (LHD)	Instrument Panel Reinforcement
	72 (RHD)	

* 1 : LHD 2TR-FE * 2 : LHD 2KD-FTV * 3 : LHD 5L-E * 4 : RHD 2TR-FE * 5 : RHD 2KD-FTV * 6 : RHD 5L-E * 7 : 2TR-FE
* 8 : 2KD-FTV, 5L-E