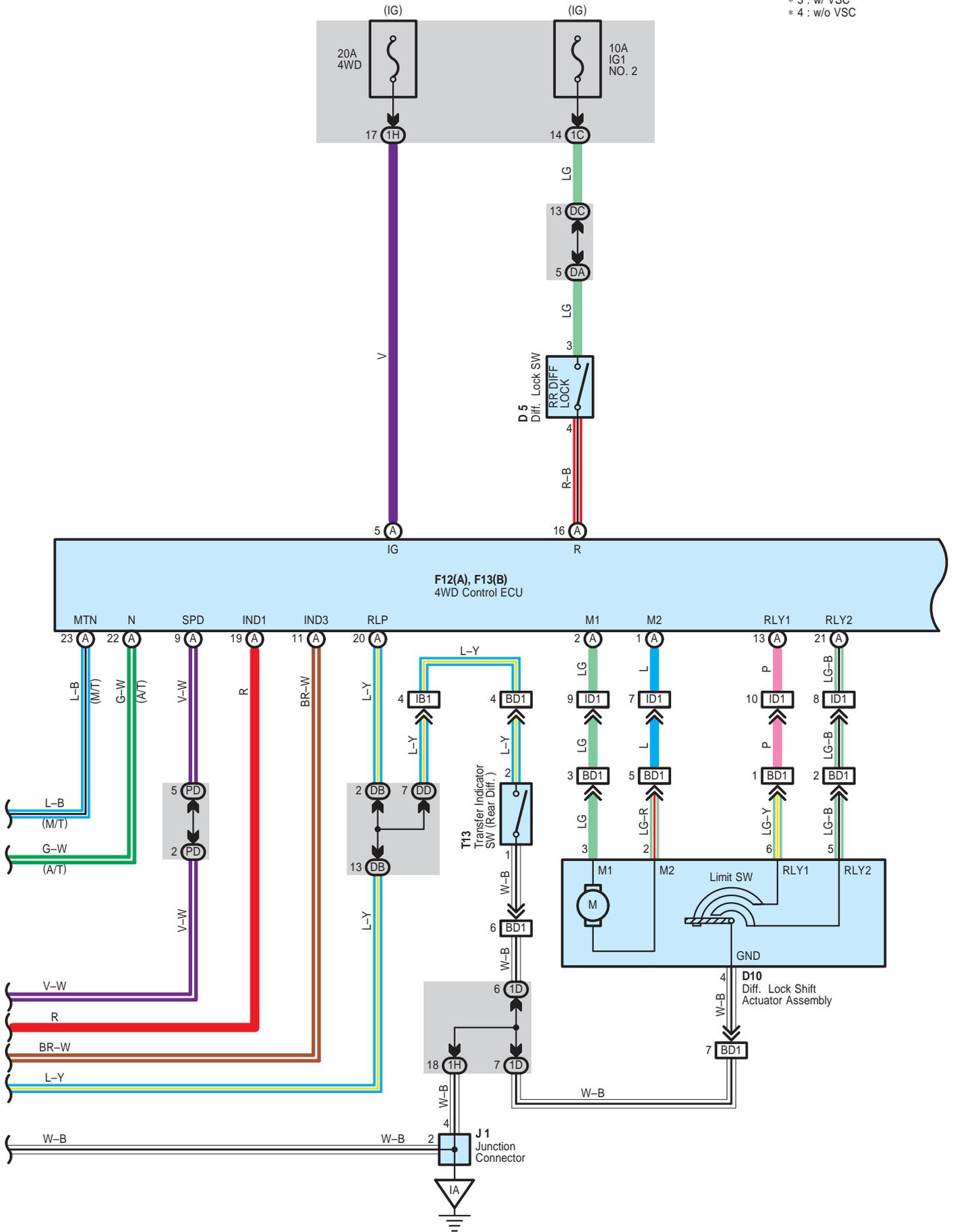


- * 1 : 1GR-FE A/T
- * 2 : 2TR-FE A/T
- * 3 : w/ VSC
- * 4 : w/o VSC



System Outline

Depending on the transfer shift actuator status and ADD actuator status, the 4WD control ECU drives the transfer shift actuator and ADD actuator to electrically change the gear position selected by the driver according to vehicle speed signal and neutral start switch signal.

1. Shift Select Control

Shifting from H2 into H4 position

When the 4WD control switch is turned from H2 into H4, this signal is input into 4WD control ECU (TERMINAL 2–4). Then, the 4WD control ECU moves the 2–4 select motor (TERMINAL 2, TERMINAL 1) in the transfer shift actuator assembly until the shift fork shaft shifts to the diff. free position, performing a shift into H4 position

Shifting from H4 into L4 position

When the 4WD control switch is turned from H4 into L4, this signal is input into 4WD control ECU (TERMINAL LO). Then, the 4WD control ECU drives the 2–4 select motor (TERMINAL 2, TERMINAL 1) in the transfer shift actuator assembly, shifting the shift fork shaft, performing a shift into L4 position.

Switching diff. lock ON when in L4 position.

When the diff. lock switch is turned ON with the 4WD control switch in L4 position, this signal is input into the 4WD control ECU (TERMINAL R). Then, the 4WD control ECU drives the diff. lock shift actuator (TERMINAL 2, TERMINAL 3) in the diff. lock shift actuator assembly until the shift fork shaft shifts to the diff. lock position, locking it in L4 position with the diff. lock.

2. Function of Limit Switch

Rear diff. lock limit switch (TERMINAL 5 and TERMINAL 6 of diff. lock shift actuator assembly)

The rear diff. lock limit switch in the diff. lock shift actuator assembly feeds back the current rear diff. lock status (Free or lock) information, which is based on the ON/OFF combination of the two switches, to the 4WD control ECU.

4WD limit switch (TERMINAL 3, TERMINAL 5 and TERMINAL 6 of transfer shift actuator assembly)

The 4WD limit switch in the transfer shift actuator assembly feeds back the current shift position status (H2 or H4) and diff. lock or diff. free status information, which is based on the ON/OFF combination of the three switches, to the 4WD control ECU.

ADD limit switch (TERMINAL 6 and TERMINAL 5 of ADD actuator assembly)

The ADD limit switch in the ADD actuator assembly feeds back the current front diff. lock or free status information, which is based on the ON/OFF combination of the two switches, to the 4WD control ECU.

3. Shift Limit Control

The 4WD control ECU interrupts the shift select control and give the driver a warning by means of buzzer (Integrated into the ECU) sound and blinking indicator light on the combination meter when the following shift change conditions exist.

The warning, however, can be canceled — when the 4WD control switch is canceled and the switch position is returned to where it was before the warning occurred.

- * Shift change from H2 into H4 with vehicle traveling at a speed reaching or exceeding 100 km/h (Buzzer sound and blinking 4WD indicator lights)
- * Shift change from H4 into L4 with vehicle traveling at a speed reaching or exceeding 5 km/h but within the A/T shift position N range (Buzzer sound and blinking 4LO indicator light) (A/T)
- * Shift change from H4 into L4 with vehicle traveling at a speed reaching or exceeding 3 km/h but within the clutch start SW on position (Buzzer sound and blinking 4LO indicator light) (M/T)

4. ADD Actuator Control (1GR–FE)

When switching between H2 (2WD) and H4 (4WD), the 4WD control ECU controls the way power is supplied to the ADD motor in the ADD actuator assembly, as shown below, to run the ADD motor in normal or reverse direction, thereby changing the status of the front diff. from free to lock, or vice versa.

For locking front diff.	TERMINAL DM1 +B
	TERMINAL DM2 GROUND
For unlocking front diff.	TERMINAL DM1 GROUND
	TERMINAL DM2 +B

Multi Mode 4WD and Rear Differential Lock

○ : Parts Location

Code		See Page	Code	See Page	Code	See Page
A3		40 (1GR-FE)	F15	44	T2	41 (1GR-FE)
		42 (2TR-FE)	J1	45		43 (2TR-FE)
C9	A	44	J5	45	T3	41 (1GR-FE)
C10	B	44	J13	45		43 (2TR-FE)
D5		44	J14	45	T4	41 (1GR-FE)
D6		44	P1	41 (1GR-FE)		43 (2TR-FE)
D10		46 (*1)		S1	A	T13
		48 (*2)	41 (1GR-FE)			
		49 (*3)	43 (2TR-FE)		49 (*3)	
F12	A	44	B	41 (1GR-FE)	V1	41 (1GR-FE)
F13	B	44		43 (2TR-FE)		43 (2TR-FE)

○ : Relay Blocks

Code	See Page	Relay Blocks (Relay Block Location)
2	24	Engine Room R/B (Engine Compartment Left)

○ : Junction Block and Wire Harness Connector

Code	See Page	Junction Block and Wire Harness (Connector Location)
1C	28	Engine Room Main Wire and Driver Side J/B (Lower Finish Panel)
1D	28	Frame Wire and Driver Side J/B (Lower Finish Panel)
1H	29	Instrument Panel Wire and Driver Side J/B (Lower Finish Panel)
1J		
1K		
2A	24	Engine Room J/B (Engine Compartment Left)
DA	34	Instrument Panel Wire and Instrument Panel J/B No.1 (Left Kick Panel)
DB		
DC	34	Engine Room Main Wire and Instrument Panel J/B No.1 (Left Kick Panel)
DD		
PA	36	Engine Wire and Instrument Panel J/B No.2 (Right Side of Glove Box)
PB		
PD	36	Instrument Panel Wire and Instrument Panel J/B No.2 (Right Side of Glove Box)
PF		

□ : Connector Joining Wire Harness and Wire Harness

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EC1	52 (1GR-FE)	Engine Wire and Differential Wire (Near the Front Differential)
	53 (2TR-FE)	
IA1	54	Instrument Panel Wire and Engine Room Main Wire (Left Kick Panel)
IB1	54	Frame Wire and Engine Room Main Wire (Left Kick Panel)
ID1	54	Frame Wire and Instrument Panel Wire (Left Kick Panel)
IH1	55	Engine Wire and Instrument Panel Wire (Right Side of Glove Box)
IJ1	55	Instrument Panel Wire and Instrument Panel Wire (Right Kick Panel)
BD1	56 (*1)	Frame Wire and Differential Wire (Near the Rear Differential)
	57 (*2)	
	58 (*3)	

* 1 : Double Cab * 2 : Access Cab * 3 : Regular Cab * 4 : Separate Seat * 5 : Bench Seat



: Ground Points

Code	See Page	Ground Points Location
EE	52 (1GR-FE)	Rear Side of Right Bank Cylinder Block
EH	53 (2TR-FE)	Rear Side of Cylinder Block
IA	54	Left Kick Panel
IC	54	Instrument Panel Brace RH
IE	54	Right Kick Panel