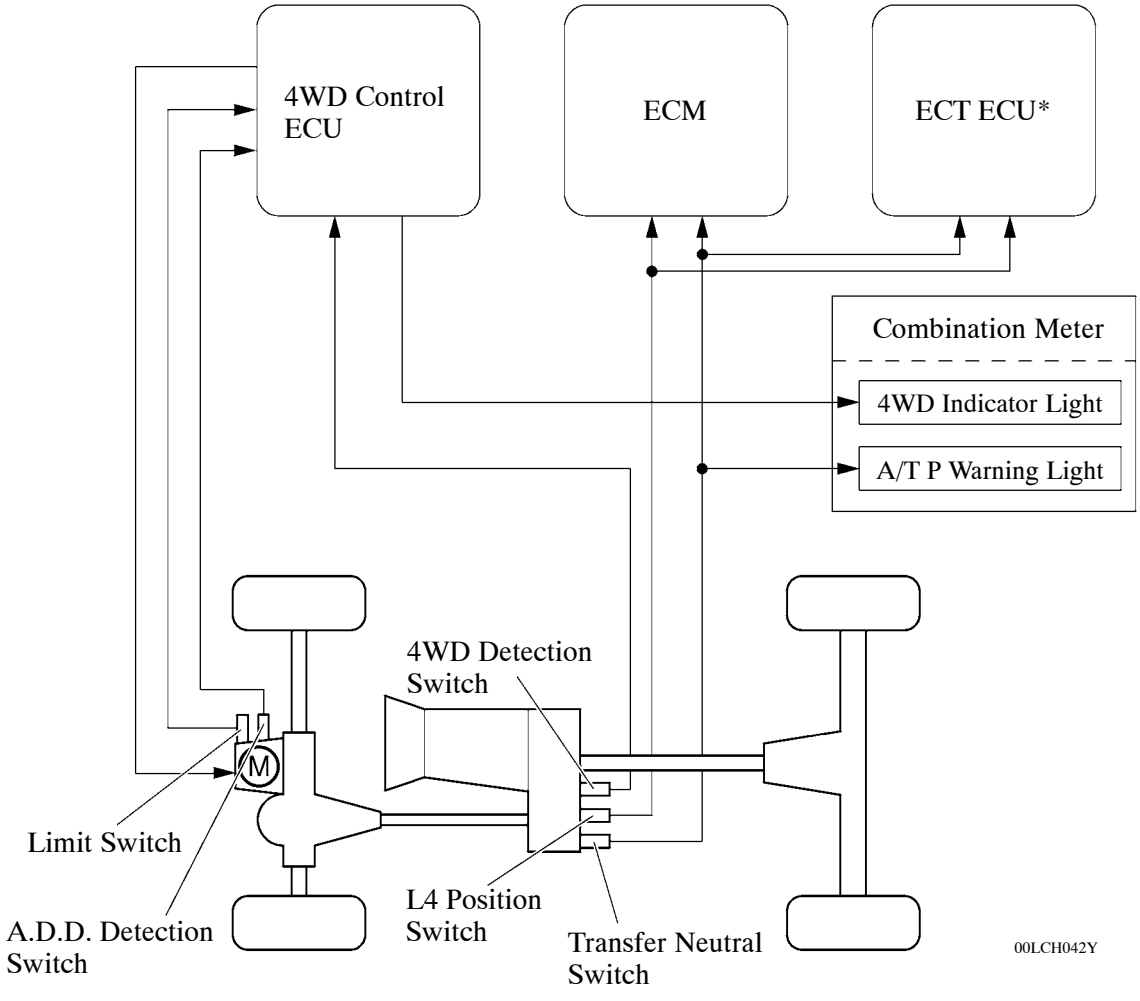
■4WD SYSTEM

1. General

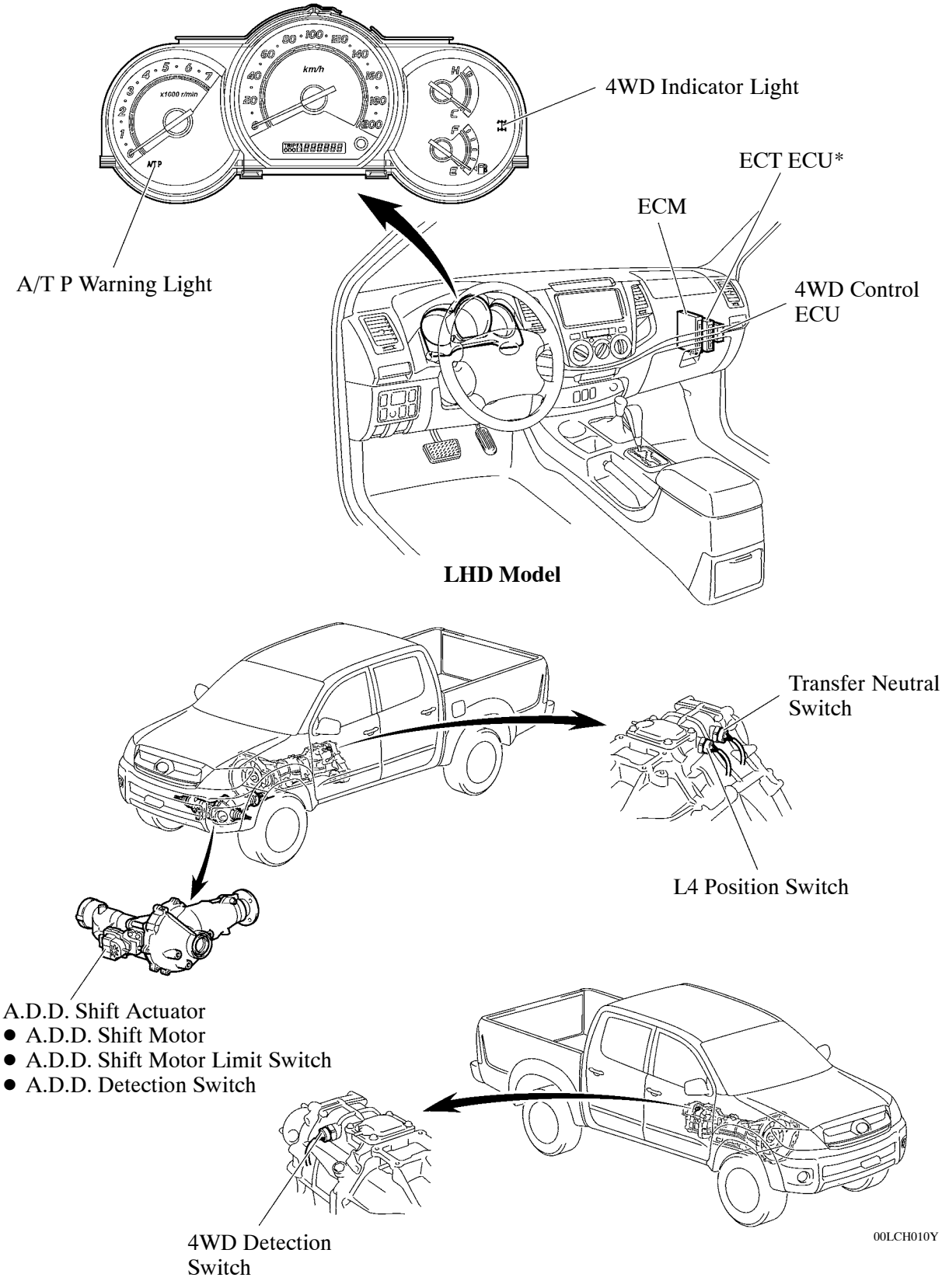
- In the 4WD system of the new Hilux, the VF2A transfer switches to H2, H4, or L4 when the driver manually operates the transfer shift lever.
- On a model equipped with a front differential with A.D.D. (Automatic Disconnecting Differential) shift actuator, when the driver operates the transfer shift lever to 4WD or 2WD, the 4WD control ECU operates the A.D.D. shift actuator in order to lock or free the engagement of the front drive shaft and the front differential.

▶ System Diagram ◀



*: Models with diesel engine and automatic transmission

2. Layout of Main Components



*: Models with diesel engine and automatic transmission

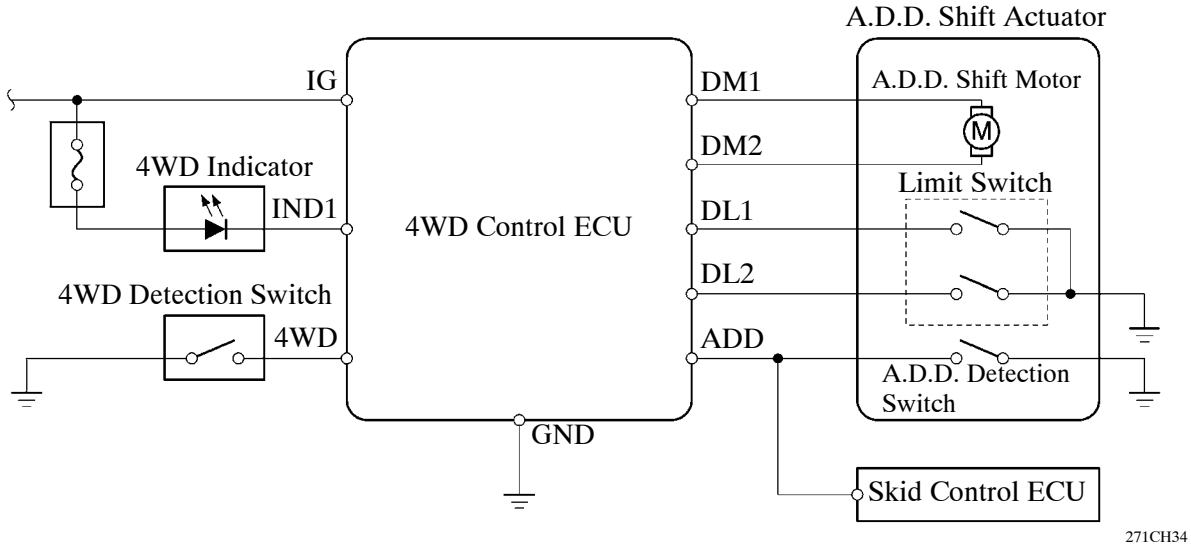
CH

3. A.D.D. Shift Actuator Operation

General

On a model equipped with a front differential with A.D.D. shift actuator, the 4WD detection switch provided in the transfer detects that the driver has operated the transfer shift lever to the 4WD (H2 → H4) or 2WD (H4 → H2) position. Then, the 4WD control ECU operates the A.D.D. shift actuator in order to lock or free the engagement of the front drive shaft and the front differential.

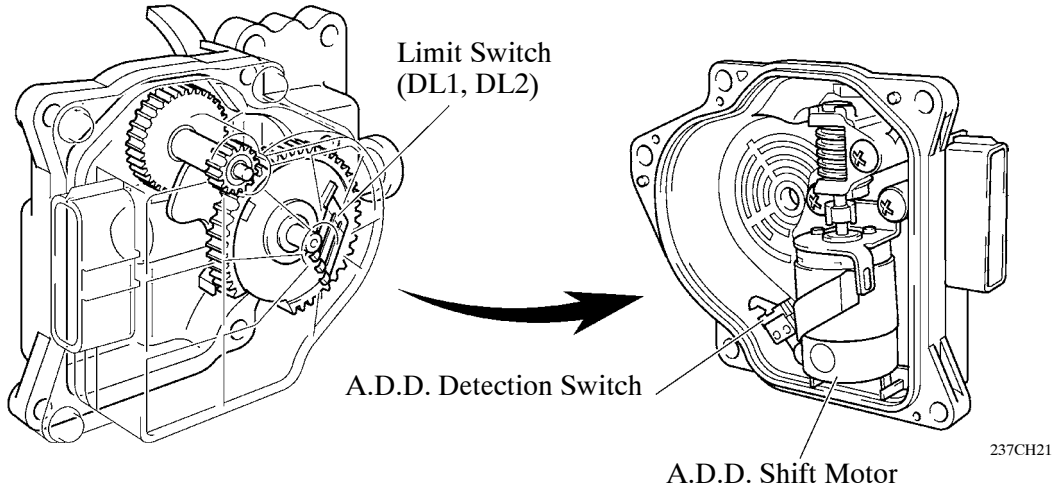
▶ Wiring Diagram ◀



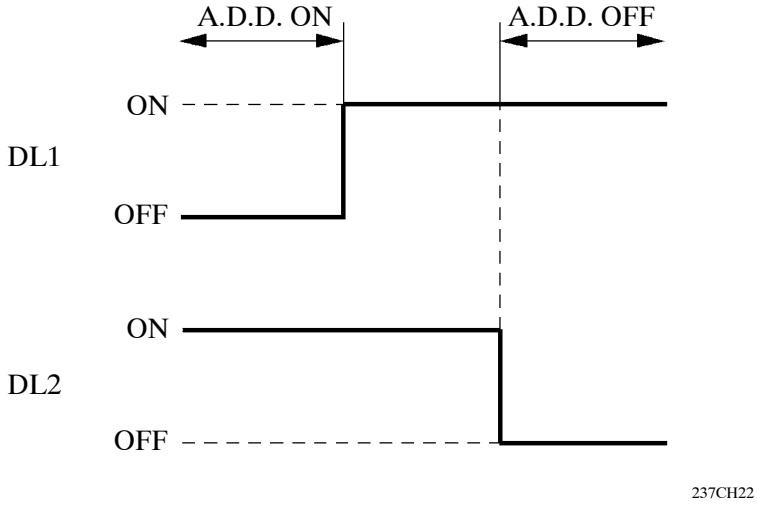
A.D.D. Shift Actuator

The A.D.D. shift actuator contains the A.D.D. shift motor, limit switch and A.D.D. detection switch. It should not be disassembled.

- The limit switch has two contact point switches (DL1, DL2). Different combinations of the two contact point switches allow detection of the A.D.D. state (ON or OFF).



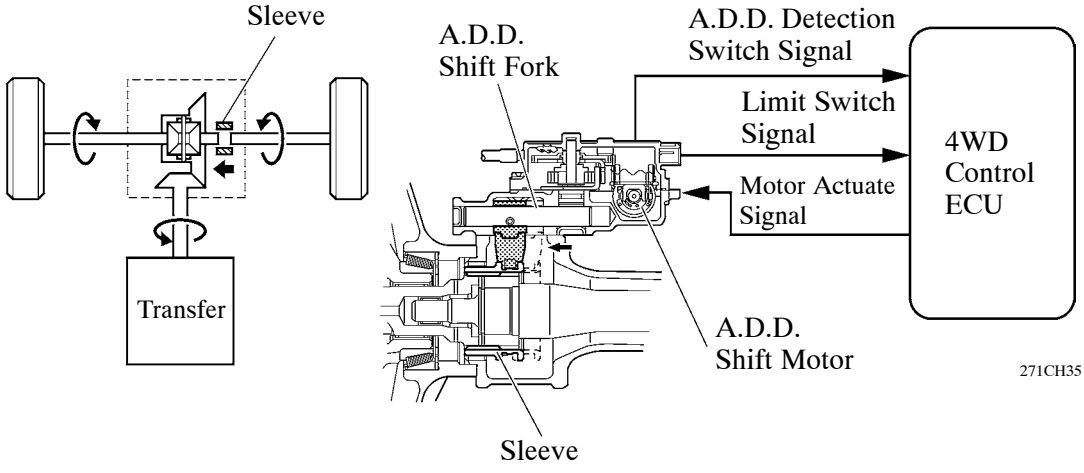
▶ Combinations of 2 Contact Point Switches ◀



CH

H2 → H4 (4WD)

- When the transfer shift lever turns to H4 position, a signal is input into the 4WD control ECU, and the 4WD control ECU actuates the A.D.D. shift motor.
- The operation of the A.D.D. shift motor causes the A.D.D. shift fork and sleeve to move towards the front differential, thus engaging the front drive shaft and the front differential. As a result, the drive force from the transfer is transmitted to the front wheels.



H4 → H2 (2WD)

- When the transfer shift lever turns to H2 position, a signal is input into the 4WD control ECU, and the 4WD control ECU actuates the A.D.D. shift motor.
- The operation of the A.D.D. shift motor causes the A.D.D. shift fork and sleeve to move towards the front wheels, thus freeing the engagement of the front drive shaft and the front differential. This prevents the front differential and the front propeller shaft from being rotated by the front wheels while the vehicle is being driven.

