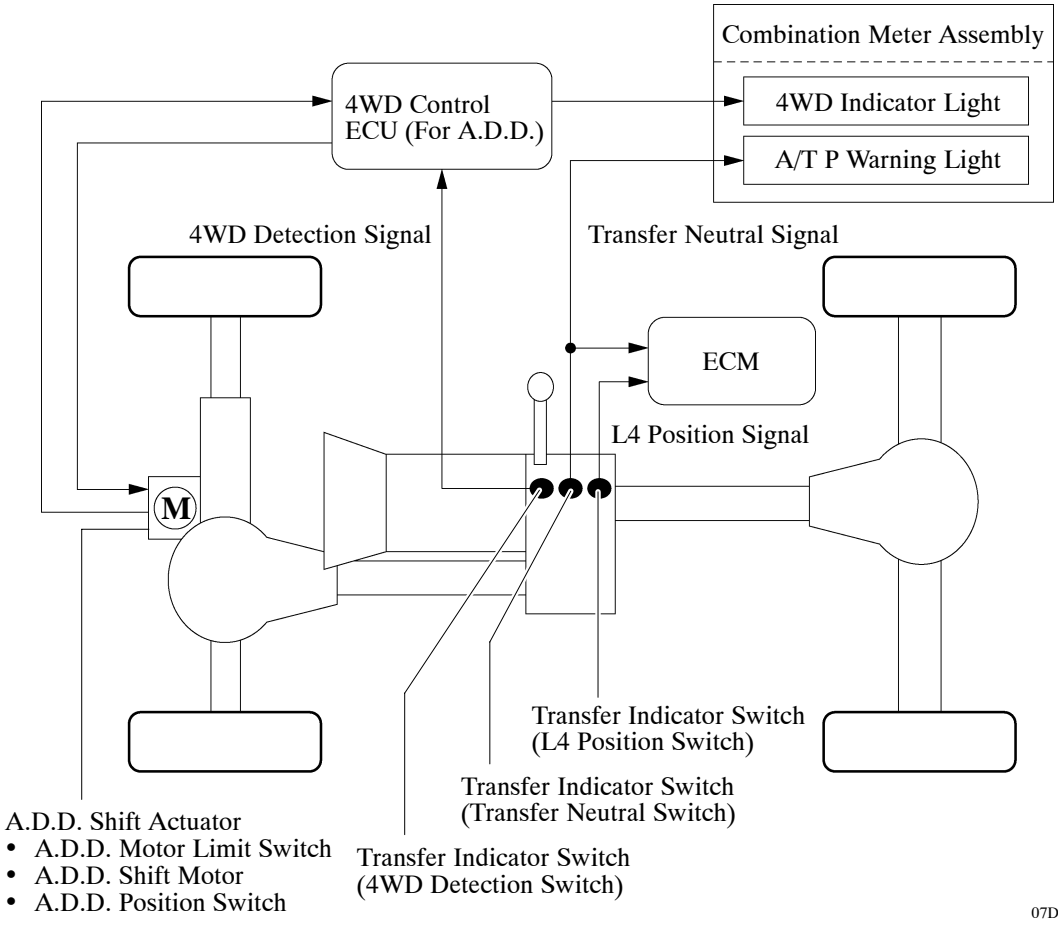
■A.D.D. (AUTOMATIC DISCONNECTING DIFFERENTIAL)

1. General

The A.D.D. automatically disconnects the front wheels from the drive train to conserve energy and reduce vibration and noise when 4WD is not being used.

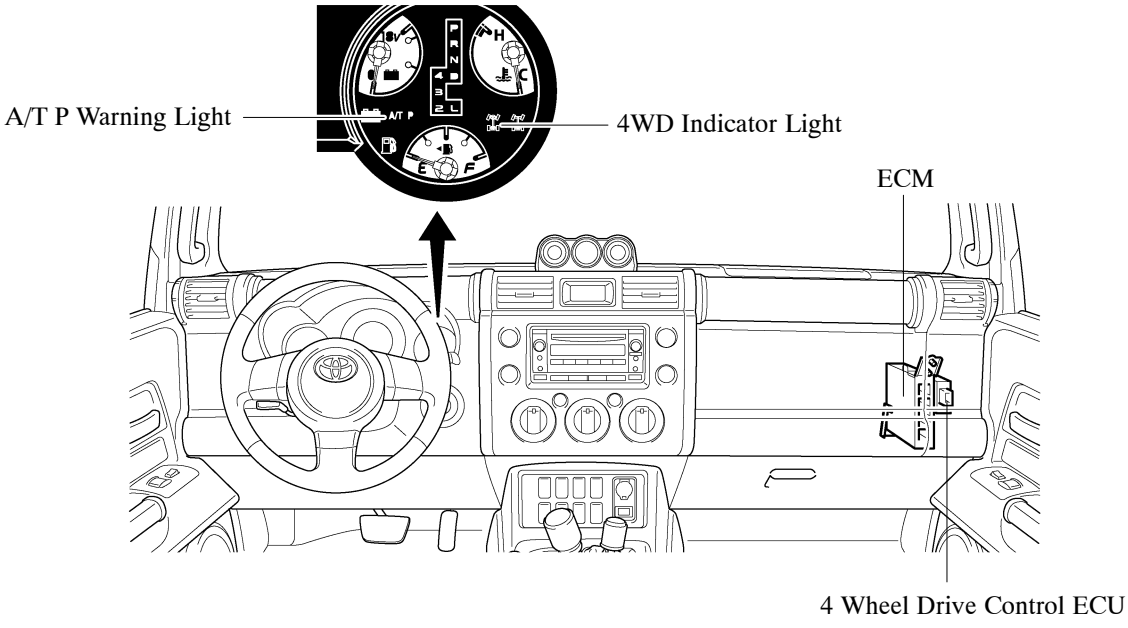
- When the transfer shift lever is shifted from H2 to H4 the front differential automatically connects the front drive shafts.
- When the transfer shift lever is shifted from H4 to H2, the front differential automatically disconnects the front drive shafts.
- The A.D.D. is controlled by the 4 Wheel Drive Control ECU (For A.D.D.).

▶ System Diagram ◀

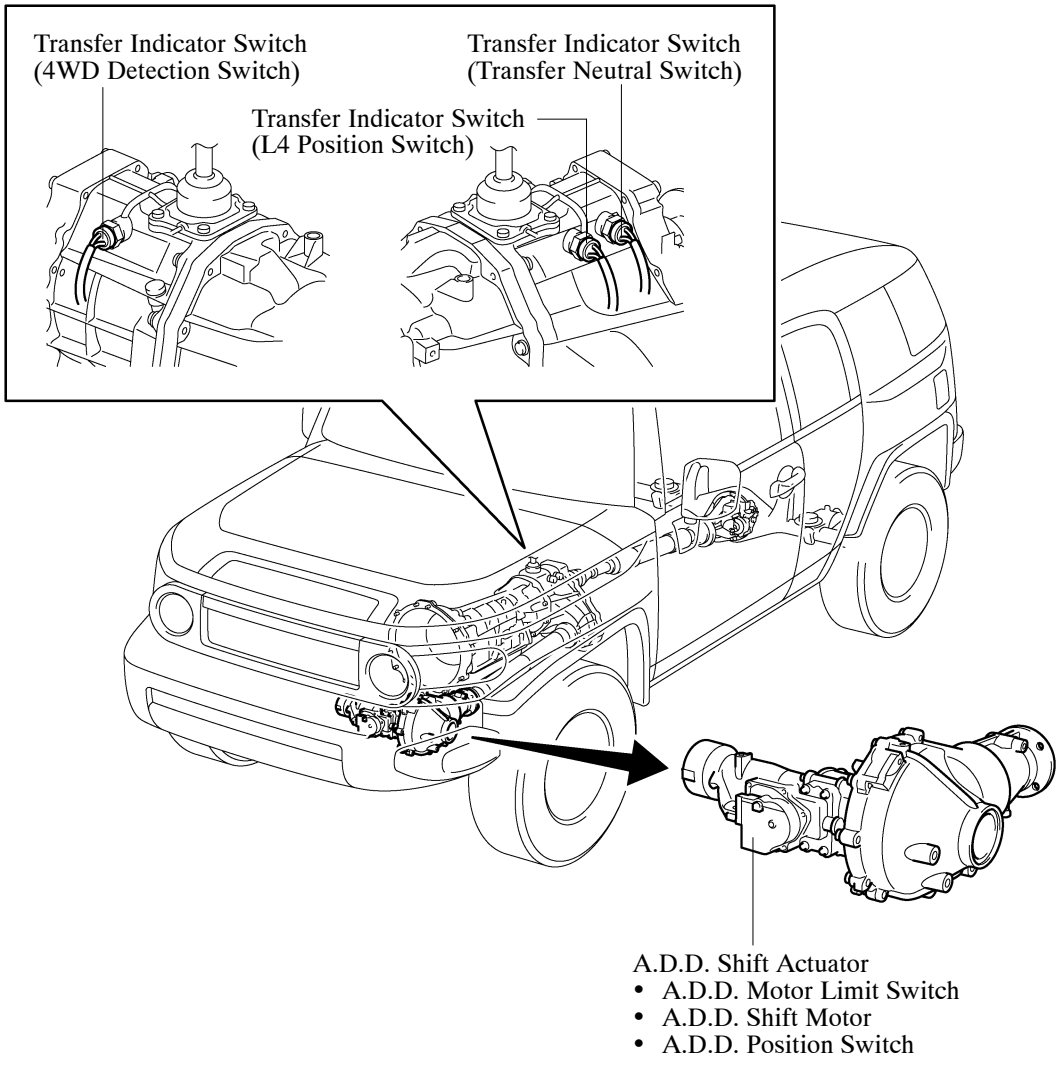


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2. Layout of Main Components



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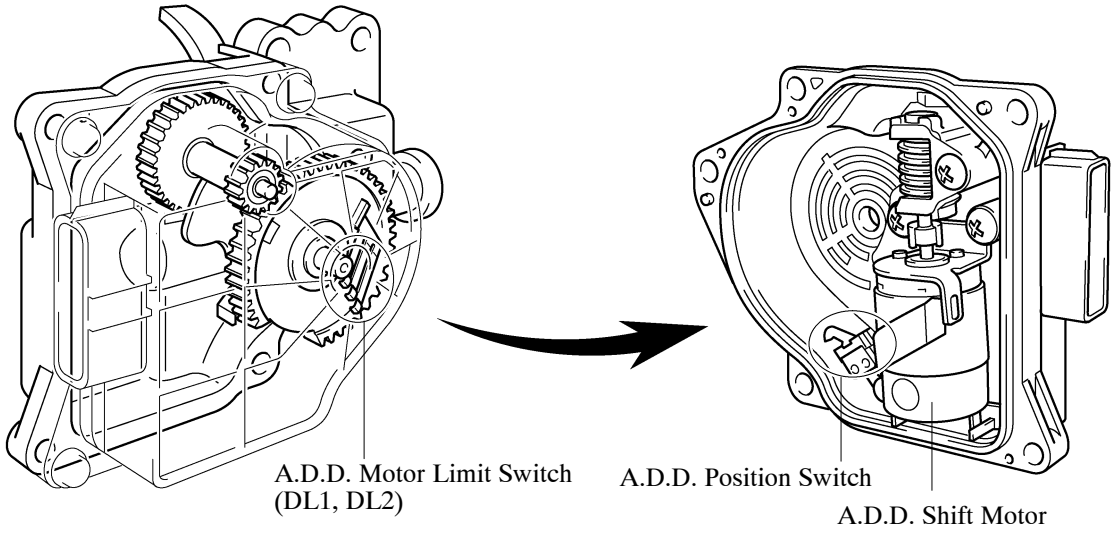


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3. A.D.D. Shift Actuator

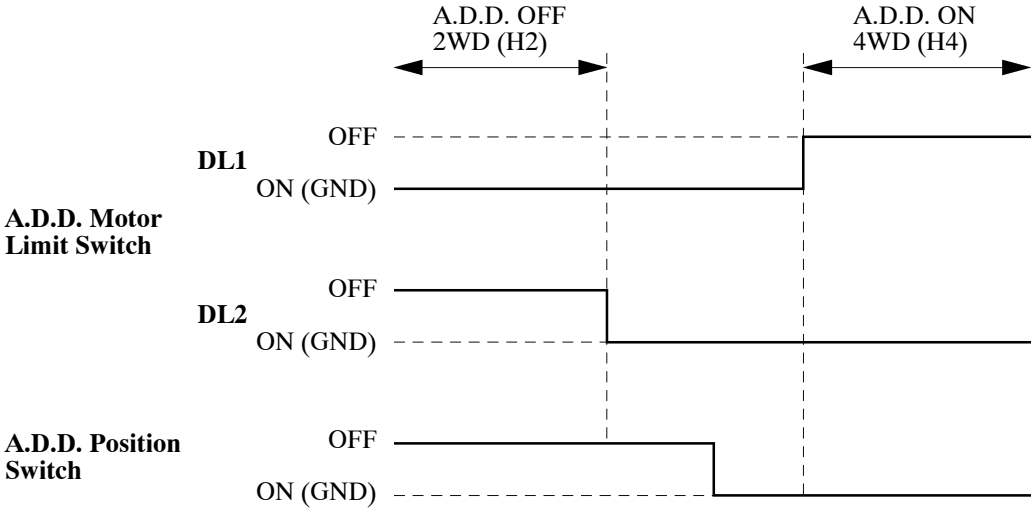
The A.D.D. shift actuator contains the A.D.D. shift motor, A.D.D. motor limit switch and A.D.D. position switch. It should not be disassembled.

- The A.D.D. motor 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).



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▶ Combinations of A.D.D. Motor Limit Switch and A.D.D. Position Switch ◀

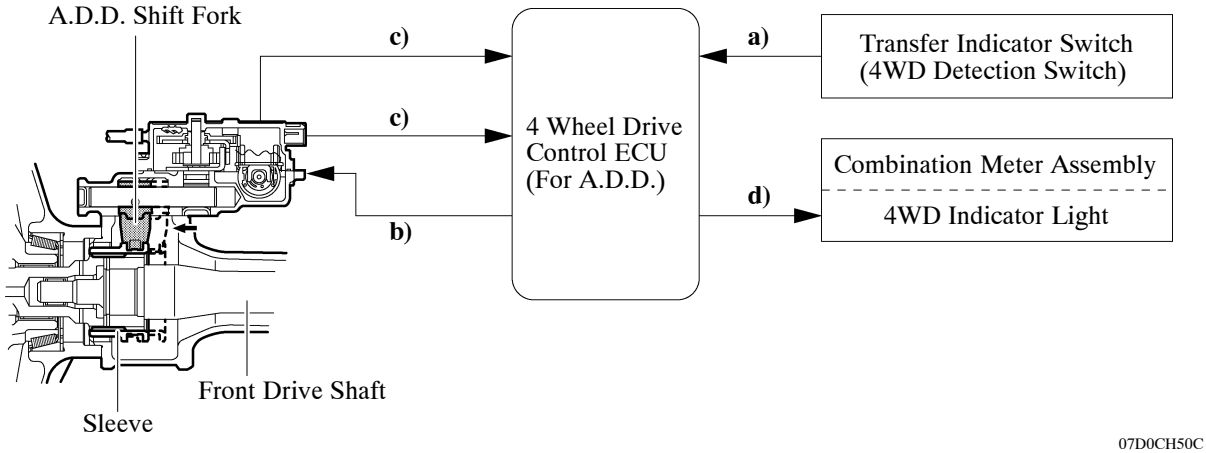


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4. System Operation

2WD (H2) → 4WD (H4)

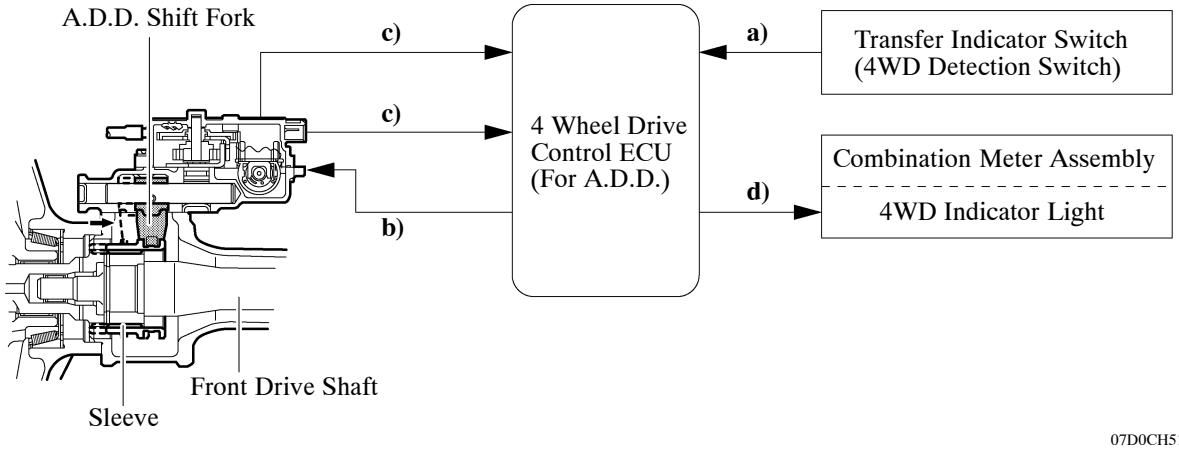
a) When the transfer shift lever is shifted from H2 to H4, the transfer indicator switch (4WD detection switch) ON signal is input into the 4 Wheel Drive Control ECU.
b) The 4 Wheel Drive Control ECU actuates the A.D.D. shift motor.
c) The operation of the A.D.D. shift motor causes the A.D.D. shift fork and sleeve to move toward the left side, thus connecting the front differential and front drive shafts. As result, the torque from the transfer is transmitted to the front wheels.
d) The 4 Wheel Drive Control ECU turns on the 4WD indicator light.



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4WD (H4) → 2WD (H2)

a) When the transfer shift lever is shifted from H4 to H2, the transfer indicator switch (4WD detection switch) OFF signal is input into the 4 Wheel Drive Control ECU.
b) The 4 Wheel Drive Control ECU actuates the A.D.D. shift motor.
c) The operation of the A.D.D. shift motor causes the A.D.D. shift fork and sleeve to move toward the right side, thus disconnecting the front differential and front drive shafts. As result, the torque from the transfer is not transmitted to the front wheels.
d) The 4 Wheel Drive Control ECU turns off the 4WD indicator light.



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