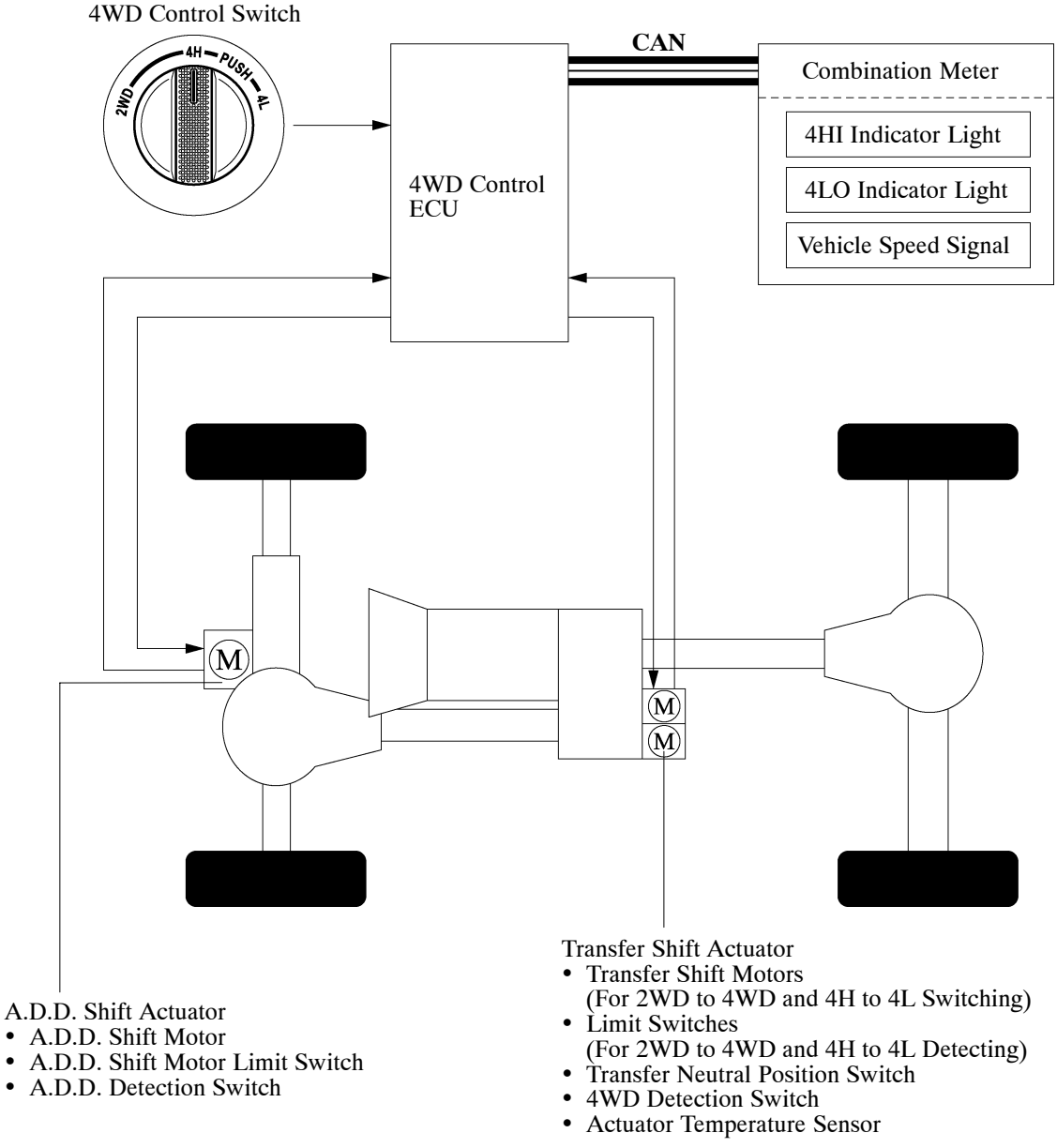
■4WD SYSTEM

1. General

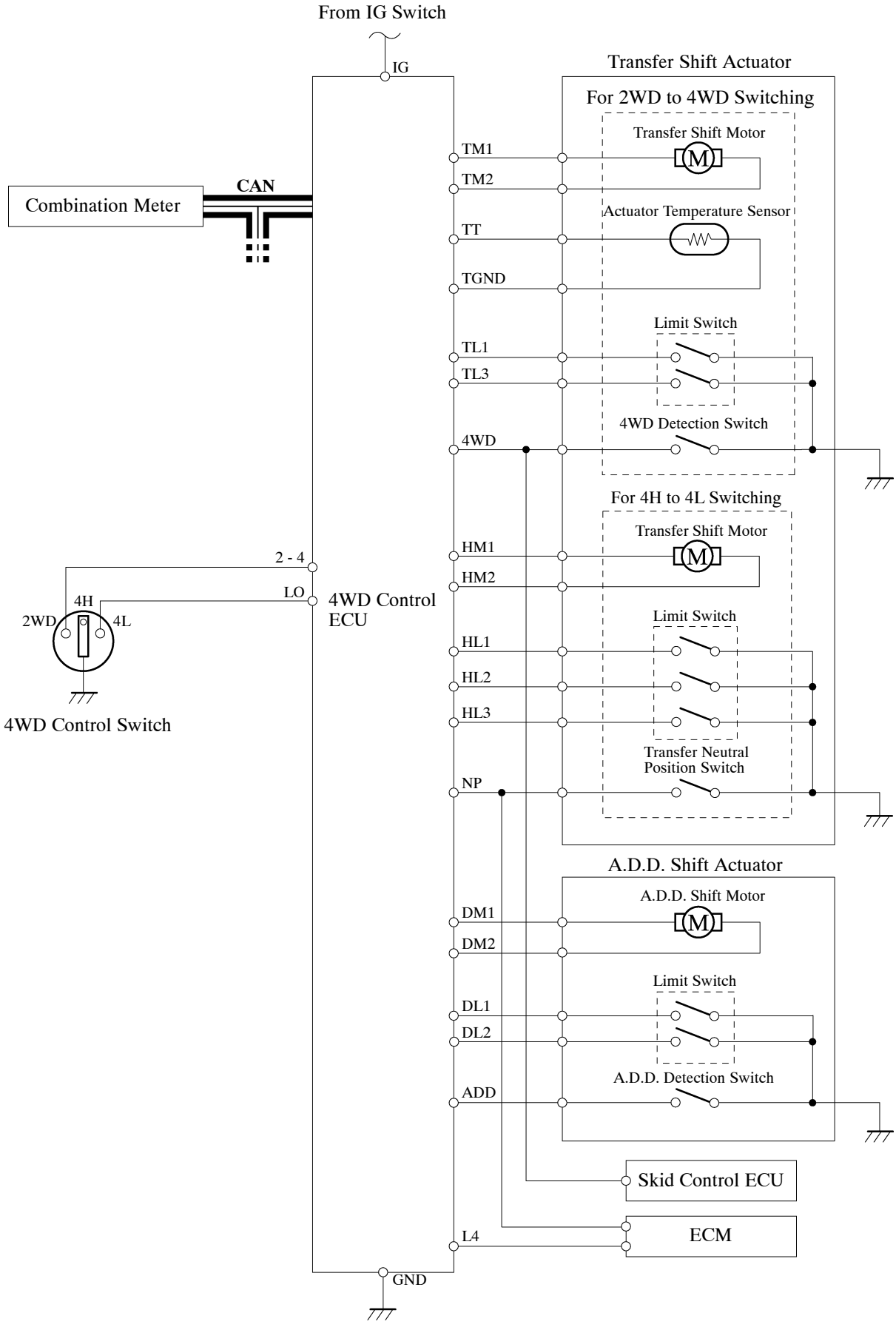
- The JF1A transfer allows the vehicle to switch among 3 driving modes (in the 2WD, 4H and 4L ranges), via the 4WD control switch. In addition, the A.D.D. (Automatic Disconnecting Differential) operates after the 4WD detection switch in the transfer shift actuator turns ON.
- Through the 4WD control switch signal, the 4WD Control ECU activates the shift motor in the transfer shift actuator and the shift motor in the A.D.D. shift actuator.

▶ System Diagram ◀



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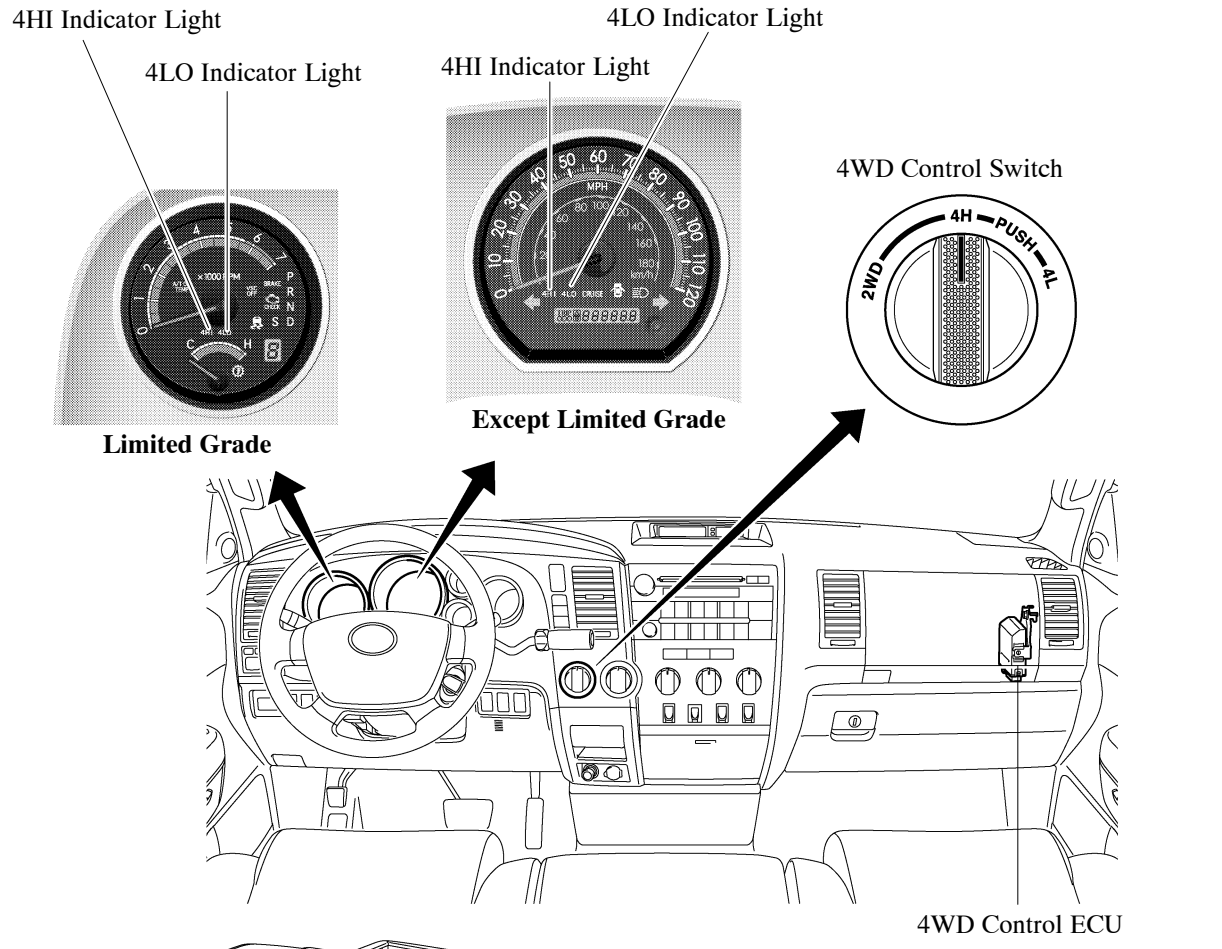
▶ Wiring Diagram ◀



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2. Layout of Main Components

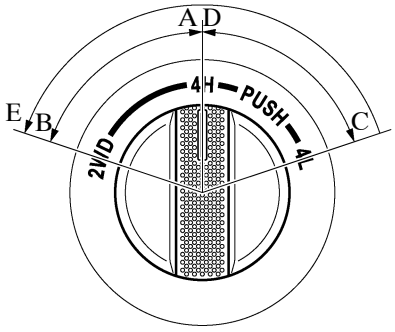


3. System Operation

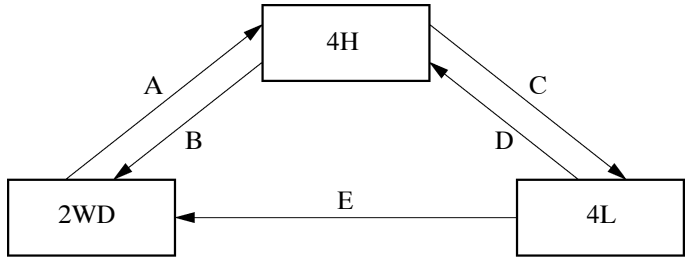
General

- The 4WD mode switching pattern of this system is as shown in the illustration below. The system operation of each switching pattern is explained from the next page.

▶ 4WD Mode Switching Pattern ◀



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- As shown in the table below, this system contains mode switching restriction for each mode switching.

Switching Pattern	Mode Switching	Outline of Mode Switching Restriction
A	2WD → 4H	• Shifting from 2WD (4H) to 4H (2WD) is only possible if vehicle speed is below 100 km/h (62 mph)*. If shifting from 2WD (4H) to 4H (2WD) is performed while driving at less than 100 km/h (62 mph) the shift operation will not be prohibited even if the vehicle speed rises above 100 km/h (62 mph). • When the 4WD Control ECU detects that the 4WD control switch is operated with a mode switching restriction condition satisfied, it prohibits shifting and informs the driver by flashing the 4HI indicator light and sounding the buzzer in the combination meter.
B	4H → 2WD	
C	4H → 4L	• 4H ↔ 4L and 4L → 2WD switching cannot be made unless the vehicle is stationary, the brake pedal is held down, and the automatic transmission shift lever position is neutral. • When the 4WD Control ECU detects that the 4WD control switch is operated with a mode switching restriction condition satisfied, it prohibits shifting and informs the driver by flashing the 4LO indicator light.
D	4L → 4H	
E	4L → 2WD	

*: In the case of switching from 2WD to 4H, when the air temperature is below -15°C (5°F), the mode can be switched with the vehicle speed at 70 km/h (43 mph) or less.

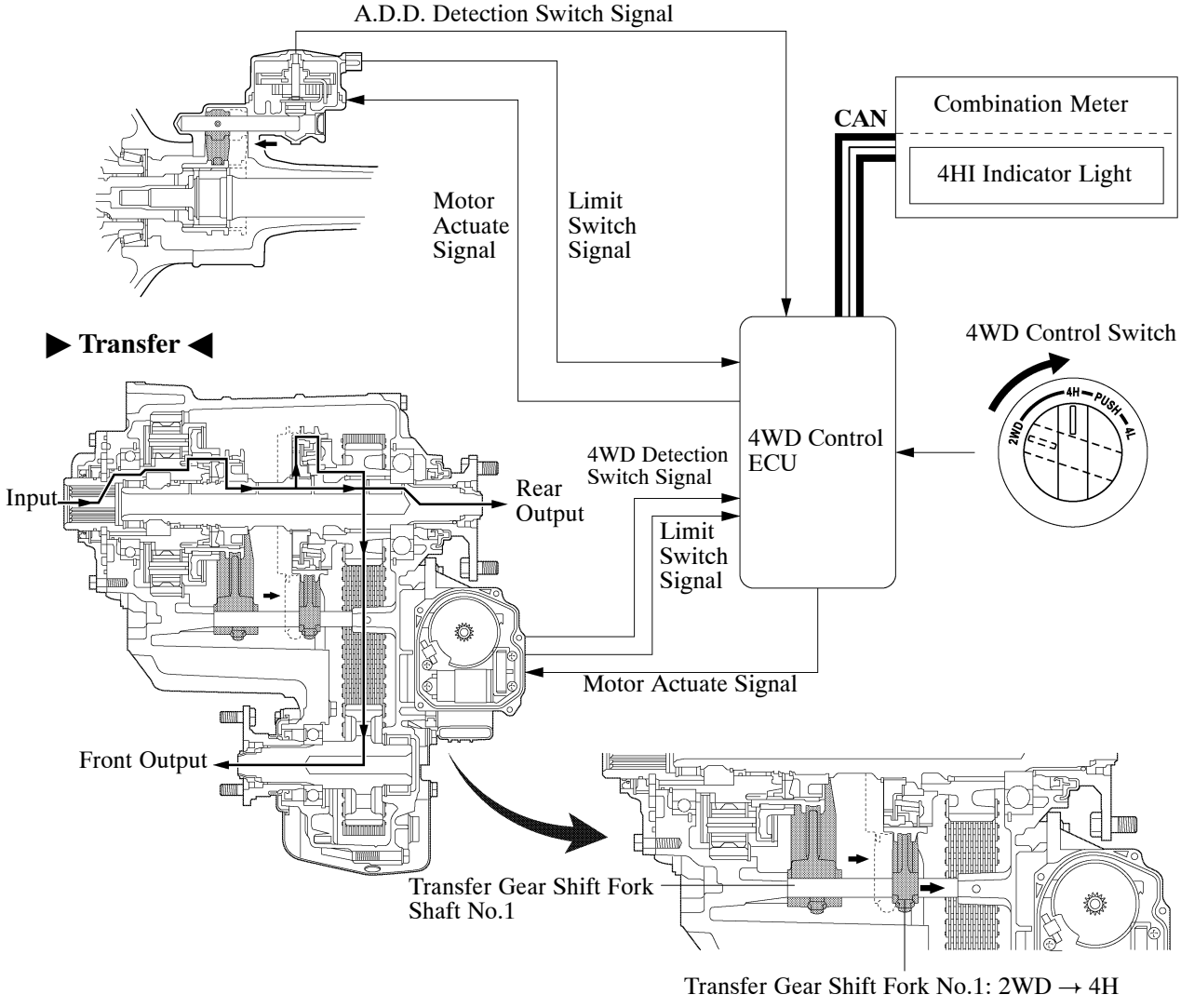
CH

Switching Pattern: A (2WD → 4H)

When the 4WD control switch is turned from the 2WD position to 4H, this signal is input into the 4WD Control ECU, and the 4WD Control ECU activates the transfer and A.D.D. shift motors.

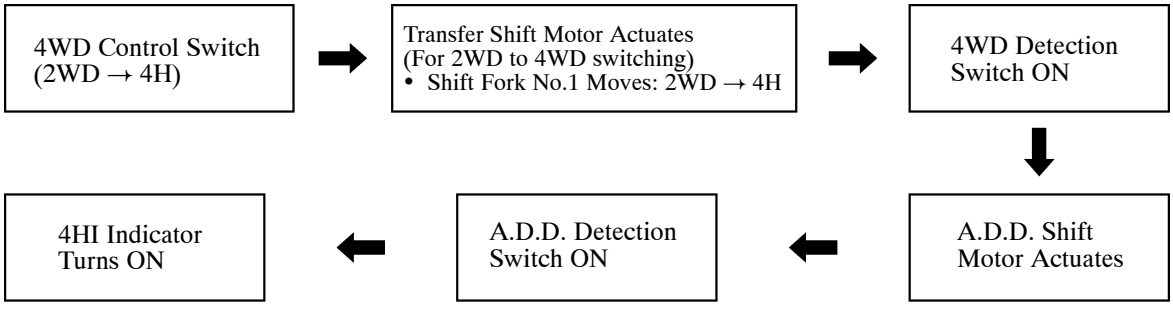
- The transfer shift motor (for 2WD to 4WD switching) moves the transfer gear shift fork shaft No.1 to the right. At this time, the transfer shift fork shaft No.1 moves to the right together with the transfer gear shift fork No.1.
- Next, the A.D.D. shift actuator operates to effect the 4H mode.
- The 4HI Indicator light turns on after switching from 2WD to 4H mode has been completed.

▶ Front Differential ◀



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▶ Operation Flow ◀



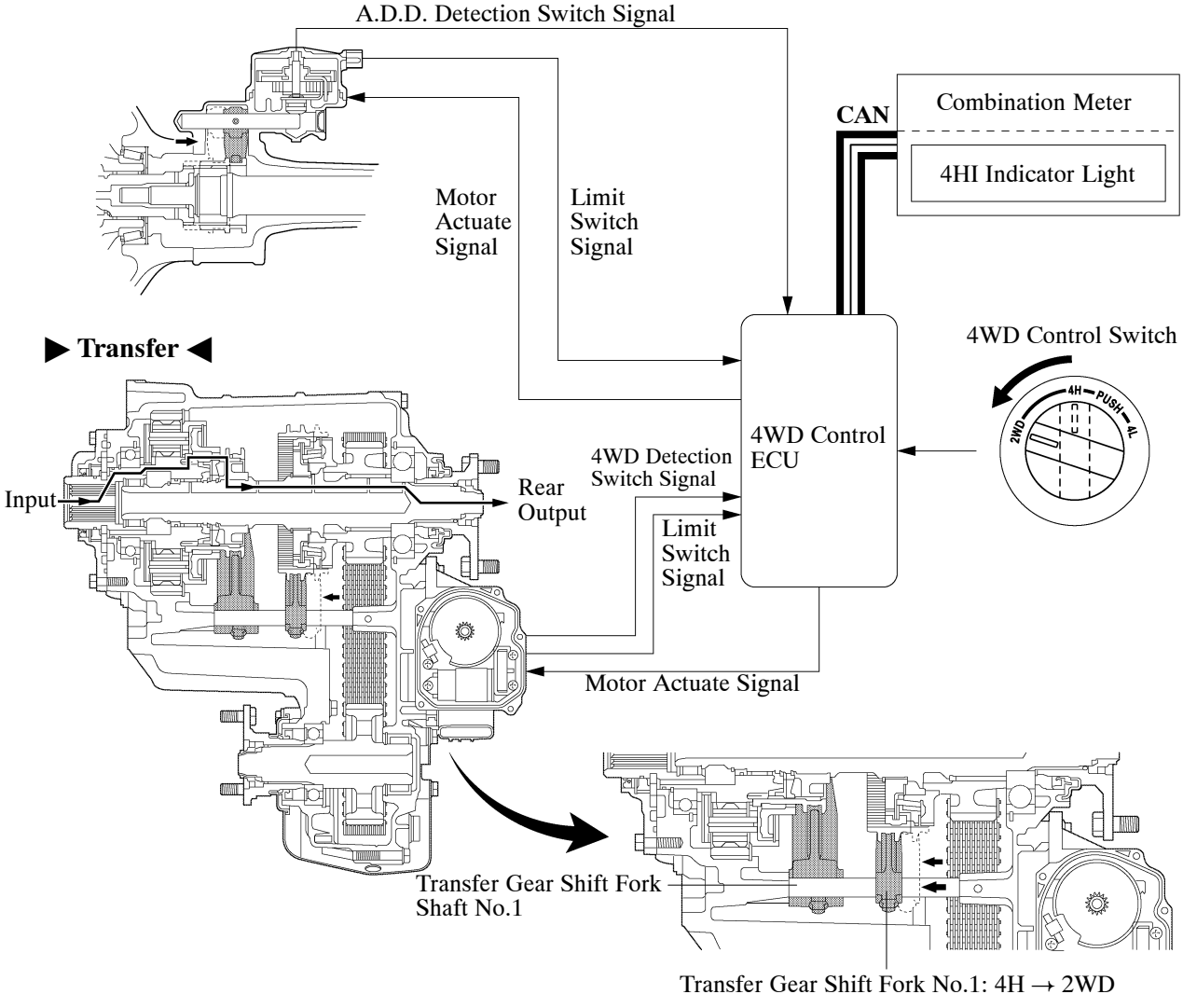
04E0CH91C

Switching Pattern: B (4H → 2WD)

When the 4WD control switch is turned from the 4H position to 2WD, this signal is input into the 4WD Control ECU, and the 4WD Control ECU actuates the transfer and A.D.D. shift motors.

- The transfer shift motor (for 2WD to 4WD switching) moves the transfer gear shift fork shaft No.1 to the left. At this time, the transfer gear shift fork shaft No.1 moves to the left together with the transfer gear shift fork No.1.
- Next, the A.D.D. shift actuator operates to effect the 2WD mode.
- The 4HI Indicator light turns off after switching from 4H to 2WD mode has been completed.

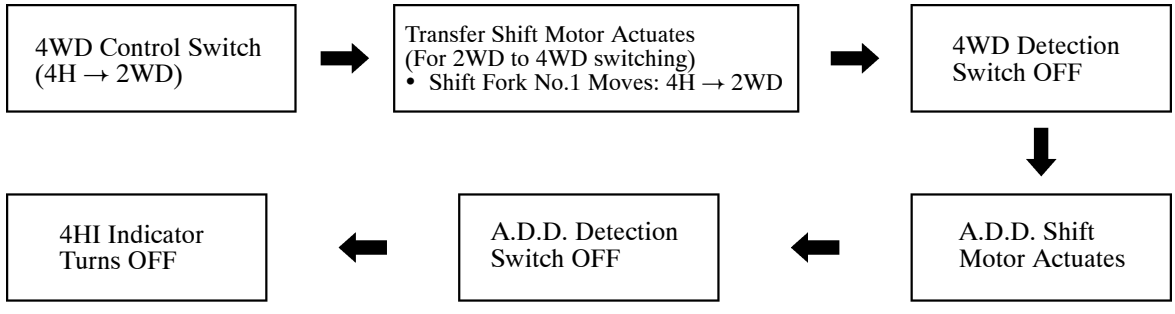
▶ Front Differential ◀



▶ Transfer ◀

04E0CH92C

▶ Operation Flow ◀



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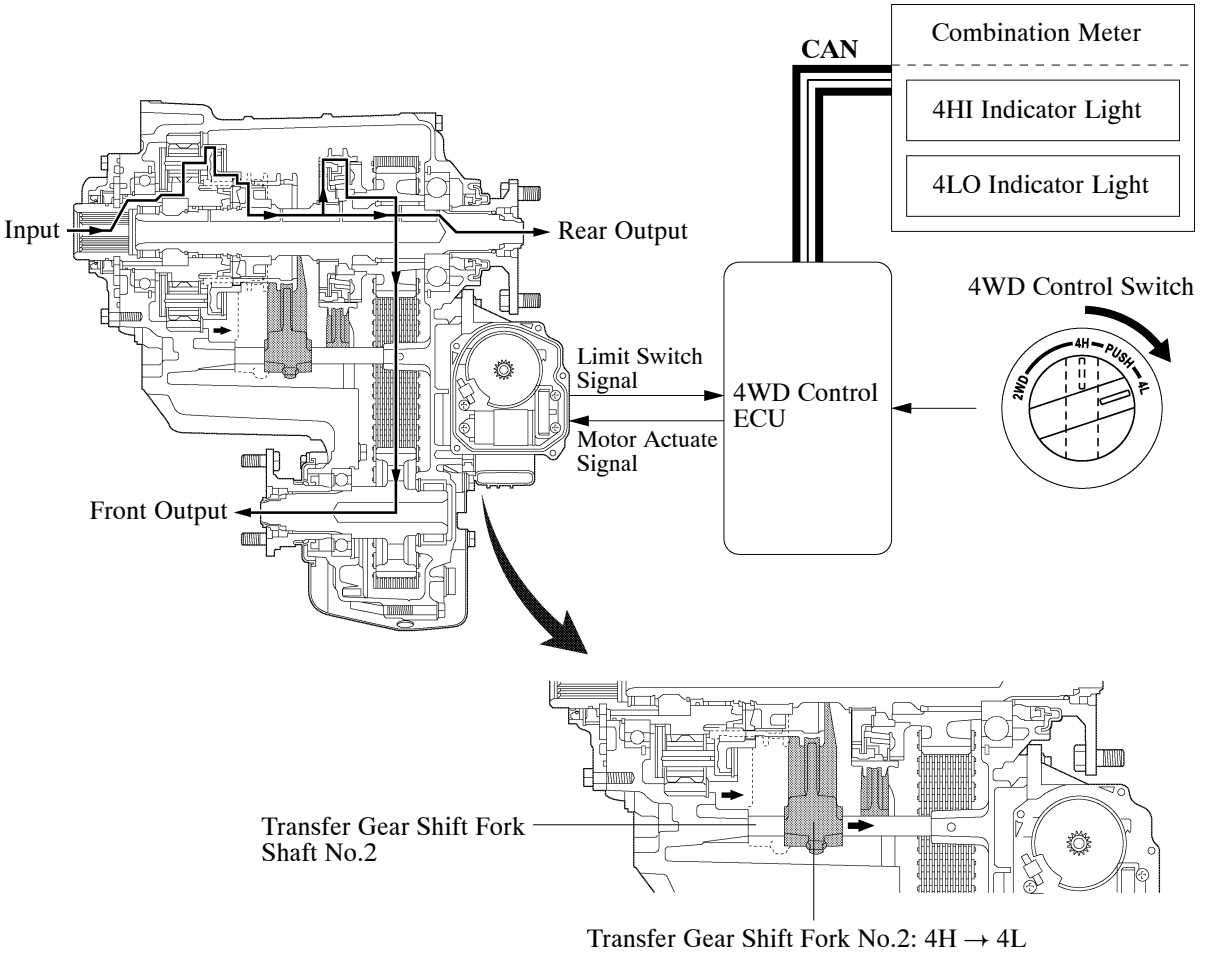
CH

Switching Pattern: C (4H → 4L)

When the 4WD control switch is turned from the 4H position to 4L, this signal is input into the 4WD Control ECU, and the 4WD Control ECU actuates the transfer shift motor.

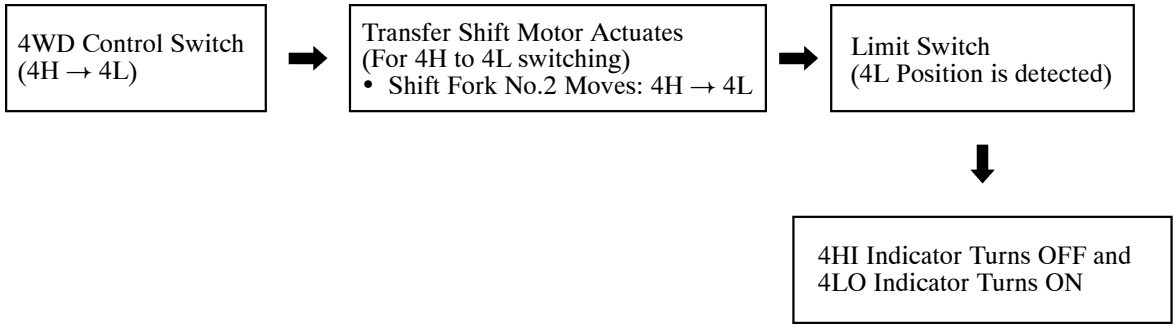
- The transfer shift motor (for 4H to 4L switching) moves the transfer gear shift fork shaft No.2 to the right. The transfer gear shift fork shaft No.2 moves to the right together with the transfer gear shift fork No.2.
- The 4HI Indicator light turns off and the 4LO Indicator light turns on after switching from 4H to 4L mode has been completed.

▶ Transfer ◀



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▶ Operation Flow ◀



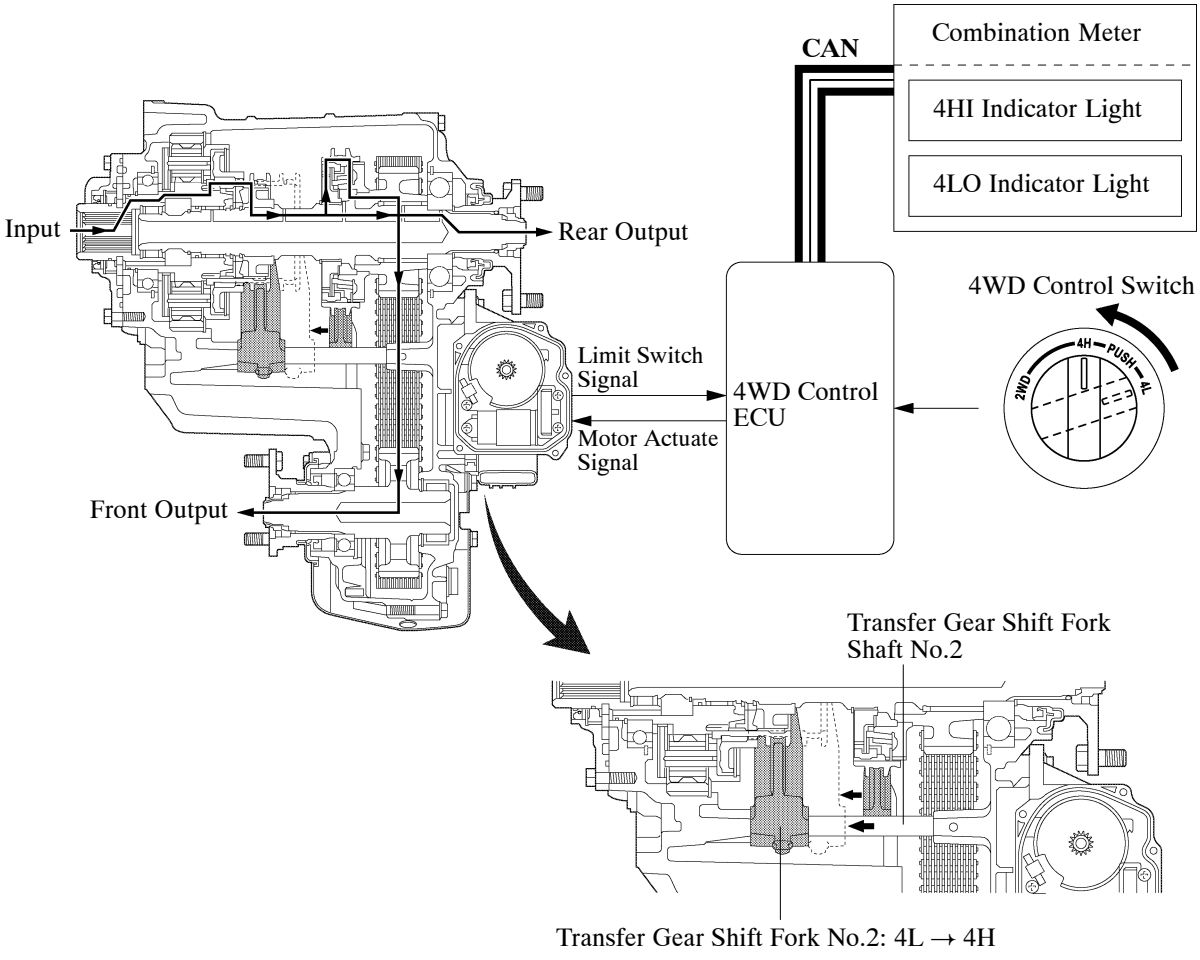
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Switching Pattern: D (4L → 4H)

When the 4WD control switch is turned from the 4L position to 4H, this signal is input into the 4WD Control ECU, and the 4WD Control ECU actuates the transfer shift motor.

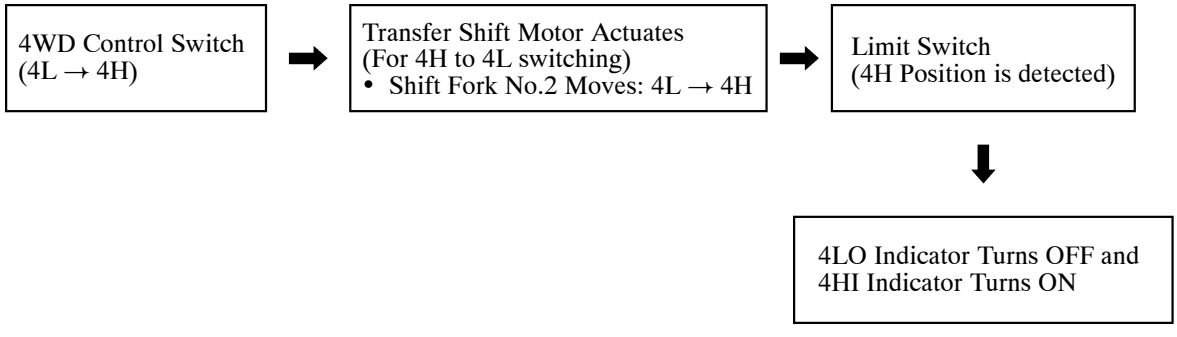
- The transfer shift motor (for 4H to 4L switching) moves the transfer gear shift fork shaft No.2 to the left. The transfer gear shift fork shaft No.2 moves to the left together with the transfer gear shift fork No.2.
- The 4LO Indicator light turns off and the 4HI Indicator light turns on after switching from 4L to 4H mode has been completed.

▶ Transfer ◀



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▶ Operation Flow ◀



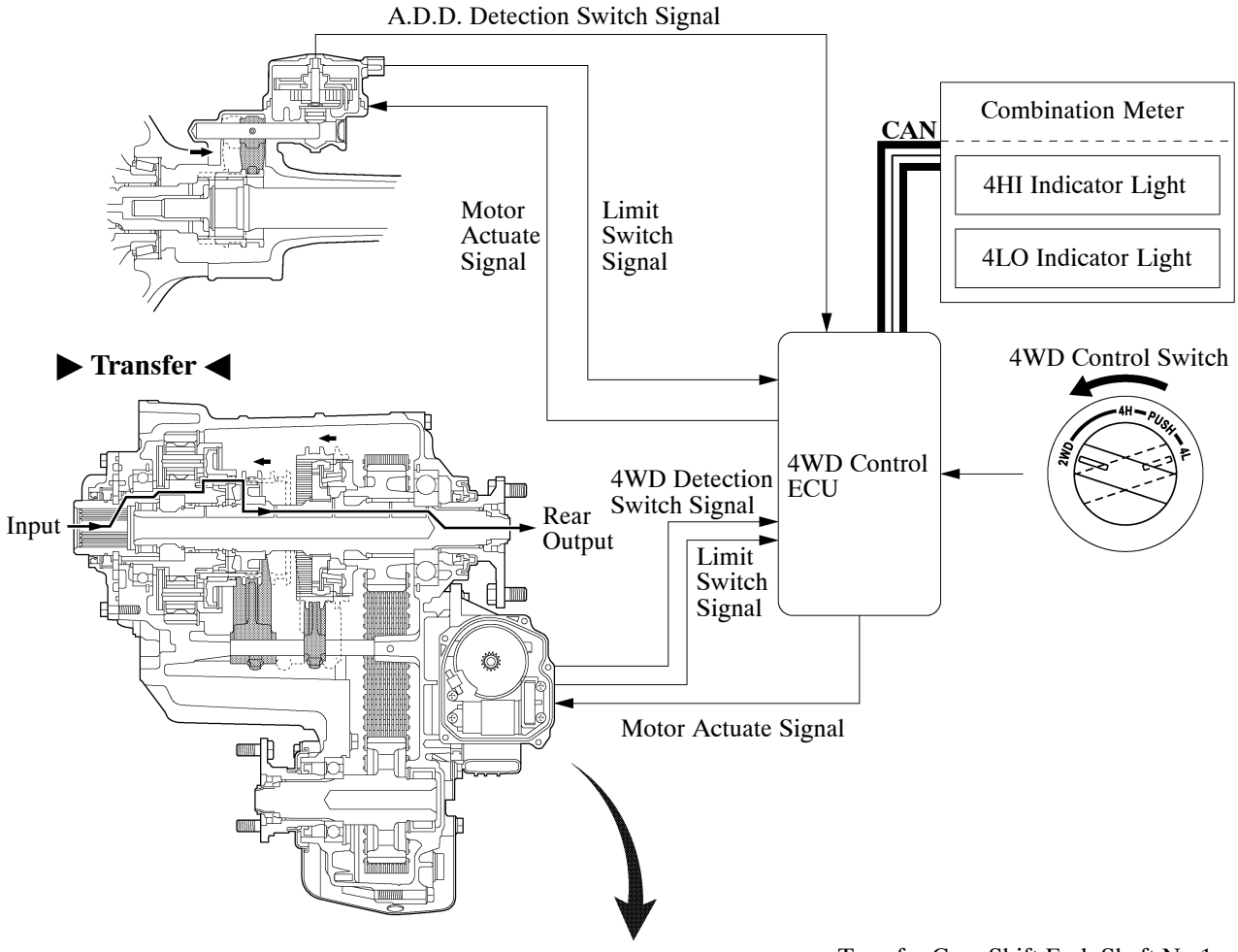
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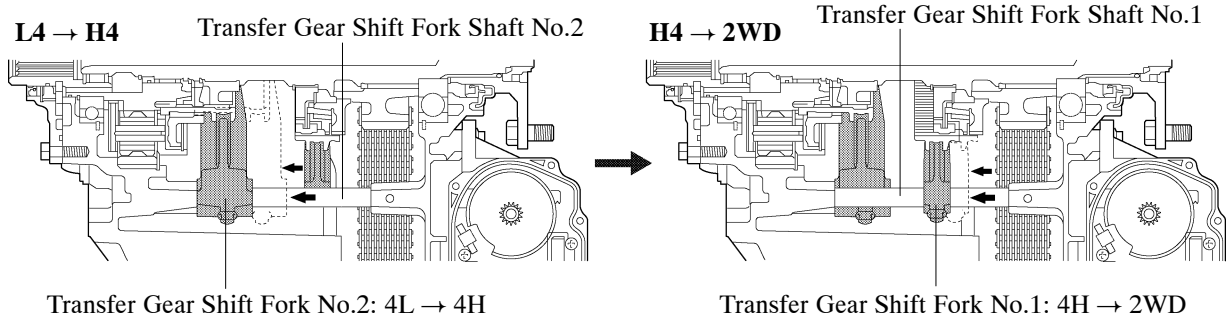
CH

Switching Pattern: E (4L → 2WD)

When the 4WD control switch is turned from the 4L position to 2WD, this signal is input into the 4WD Control ECU. Then, the 4WD Control ECU actuates the transfer and A.D.D. shift motors. The switching operation changes in the following sequence: 4L → 4H → 2WD (switching pattern D → B).

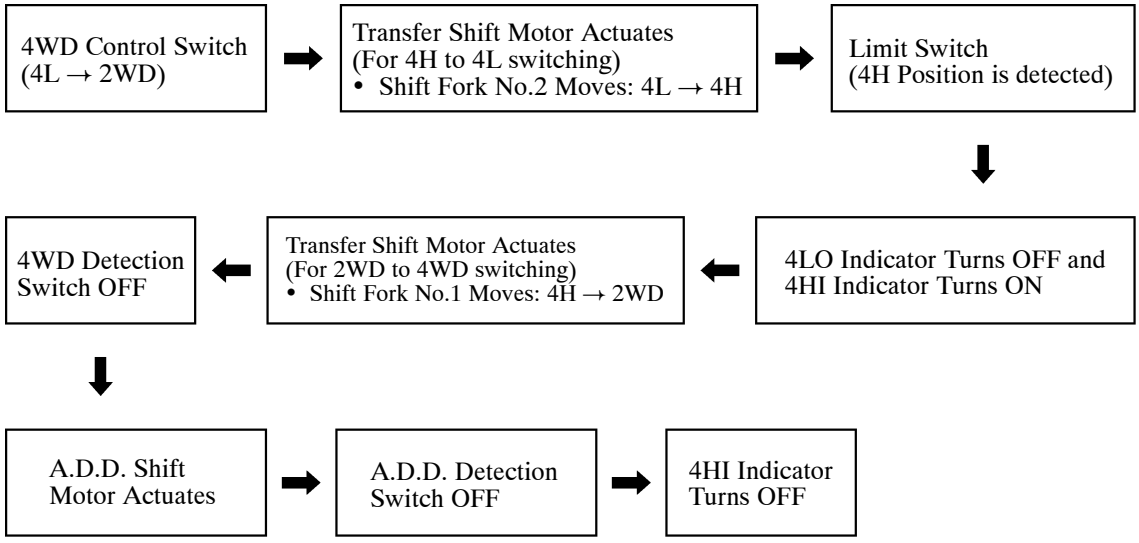
▶ Front Differential ◀





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▶ Operation Flow ◀



04E0CH97C