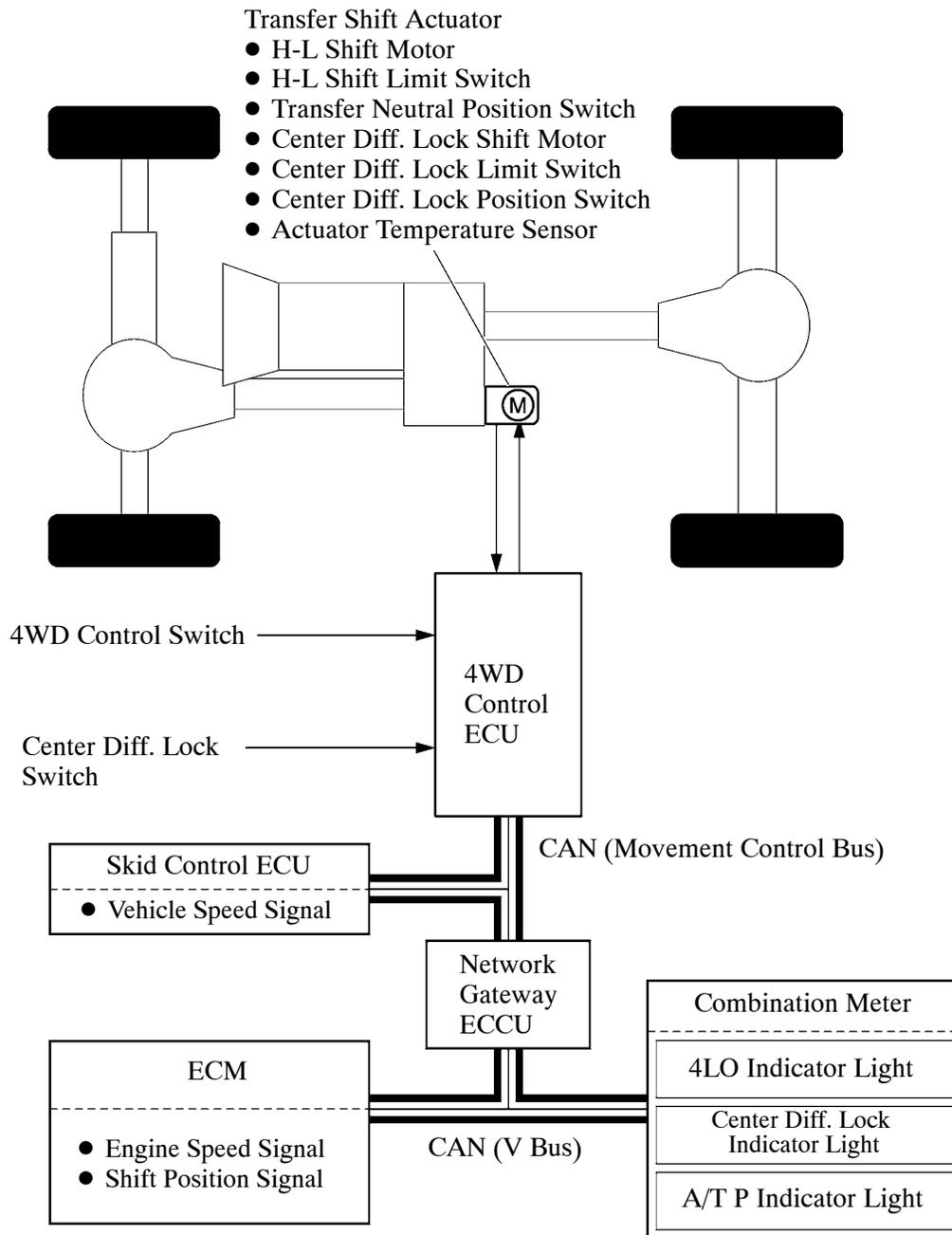


■ 4WD SYSTEM

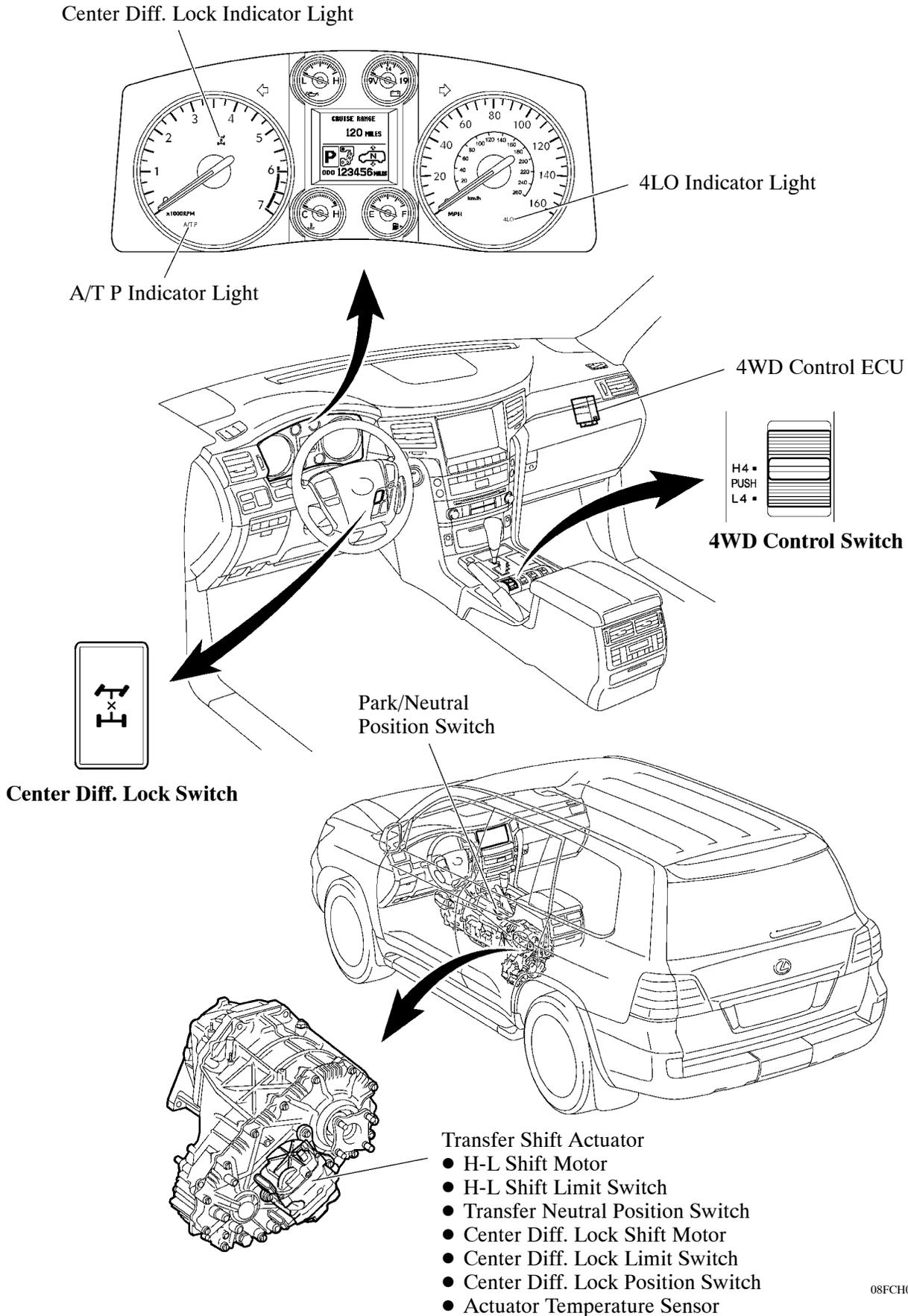
1. General

- The 4WD system used on the '08 LX 570 allows the driver to select the appropriate mode from among the four drive modes by utilizing the 4WD control switch and center differential lock switch.
- Through these switch signals, the 4WD control ECU actuates the 2 shift motors in the transfer shift actuator.

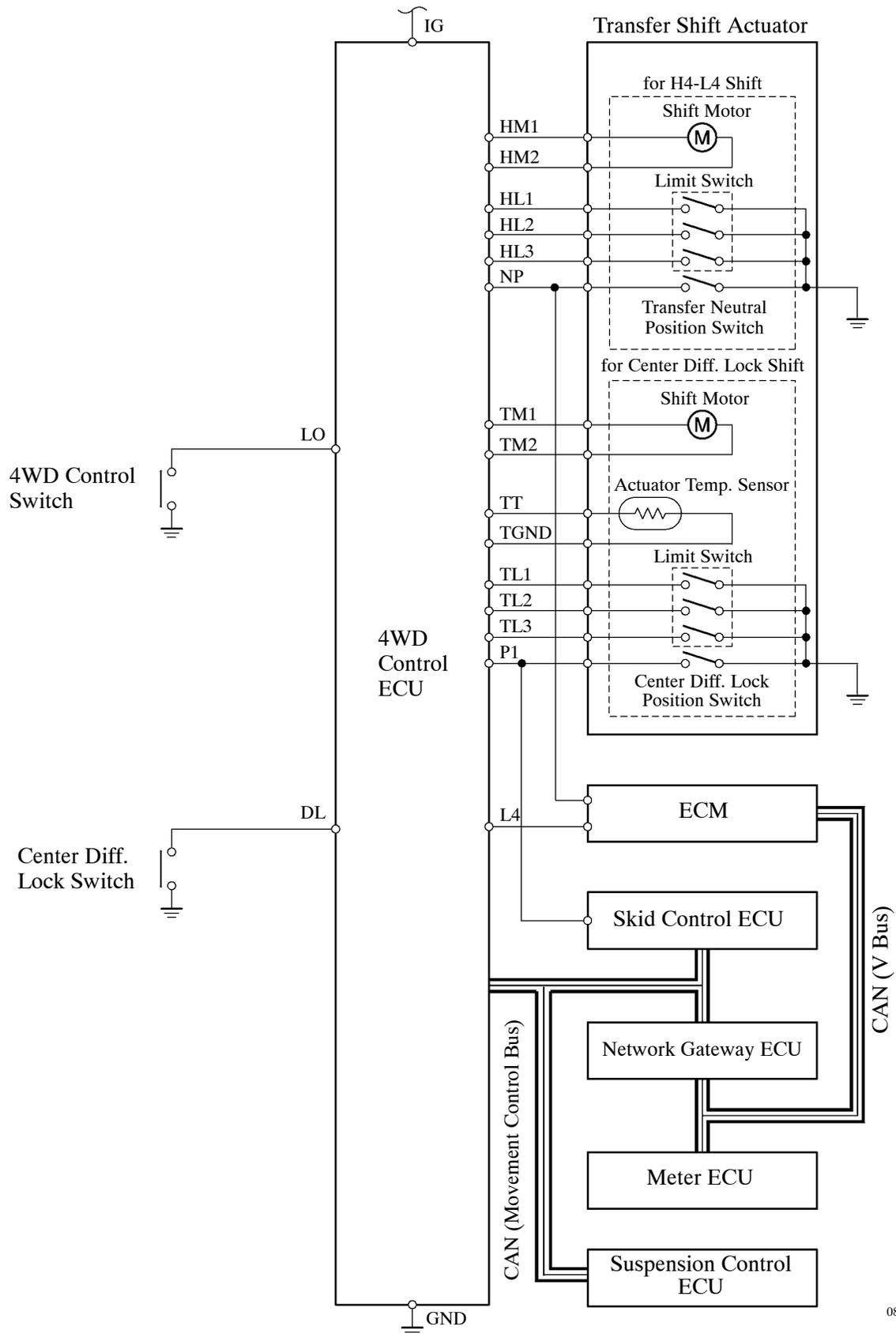
► System Diagram ◀



2. Layout of Main Components



3. Wiring Diagram

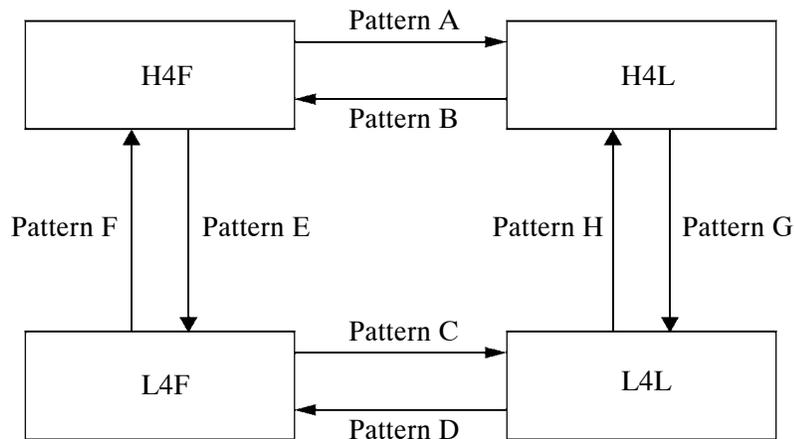


4. System Operation

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.
- When the vehicle speed is below approximately 100 km/h (62 mph), free-lock switching of the center differential lock (switching patterns A to D) is available while the vehicle is running.
- The H4-L4 switching of the transfer gear ratio (switching patterns E to H) is available only when the vehicle is stationary and the shift position is N.

► 4WD Mode Switching Pattern ◀



080CH35S

H4F: High Speed 4WD & Center Differential Free
 H4L: High Speed 4WD & Center Differential Lock
 L4F: Low Speed 4WD & Center Differential Free
 L4L: Low Speed 4WD & Center Differential Lock

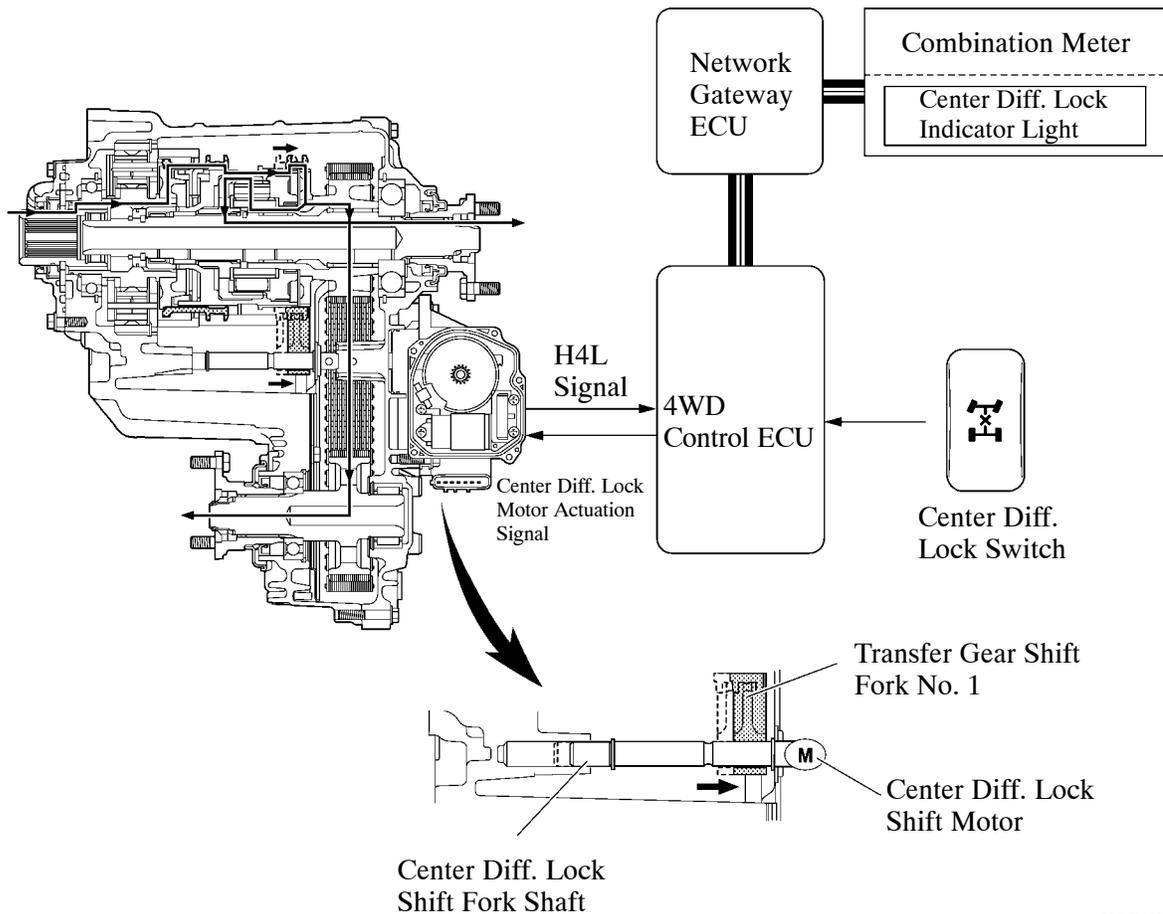
Service Tip

The neutral position is provided between H4 and L4. Switch to the neutral position or release the neutral position with the vehicle at standstill.

- The procedures to switch to the neutral position are as follows:
 - 1) Switch the transfer position to H4F.
 - 2) Move the shift lever to the P position.
 - 3) Depress the brake pedal three times, and then keep it depressed.
 - 4) Move the shift lever to the N position.
 - 5) Depress the brake pedal three times.
 - 6) Turn 4WD control switch from H4 to L4, then to H4.
 - 7) The 4LO indicator light blinks.
 - 8) Move the shift lever to the P position.
 - 9) The A/T P indicator light turns ON, and the neutral position is selected.
- The procedures to release the neutral position are as follows:
 - 1) Move the shift lever to the N position.
 - 2) Turn the 4WD control switch from H4 to L4, then to H4.
 - 3) The 4LO indicator light turns OFF.
 - 4) The transfer position is switched to H4F, and the neutral position is released.

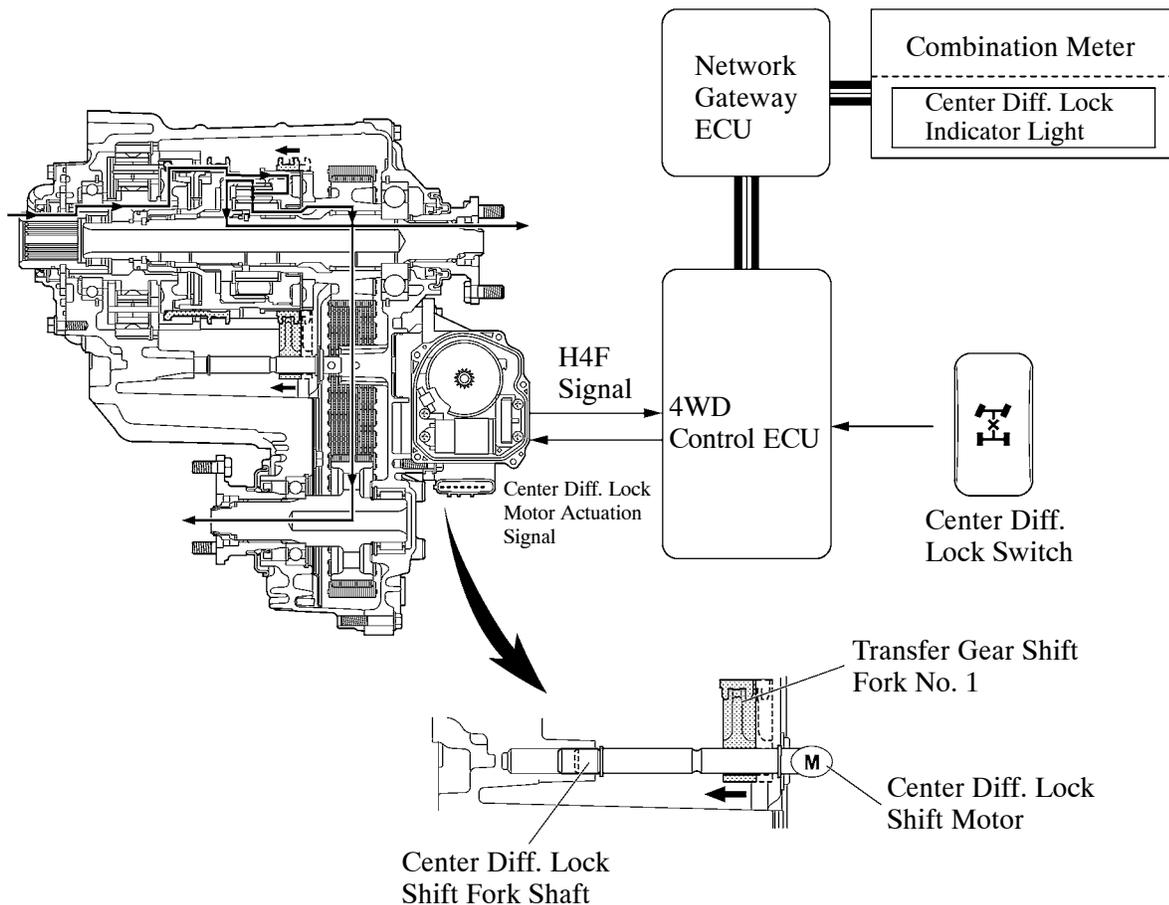
Switching Pattern A (H4F → H4L)

- In H4F mode, when the center differential lock switch is turned ON, the 4WD control ECU actuates the center differential lock shift motor to move the center differential lock shift fork shaft to the right. Simultaneously, the center differential lock shift fork shaft moves to the right together with the transfer gear shift fork No. 1. As a result, the center differential lock sleeve engages the differential case and the drive sprocket piece, and the mode changes to H4L.
- The 4WD control ECU detects the state of the center differential through the limit switch and center differential lock position switch. The 4WD control ECU causes the center differential lock indicator light to turn ON when the center differential is locked.



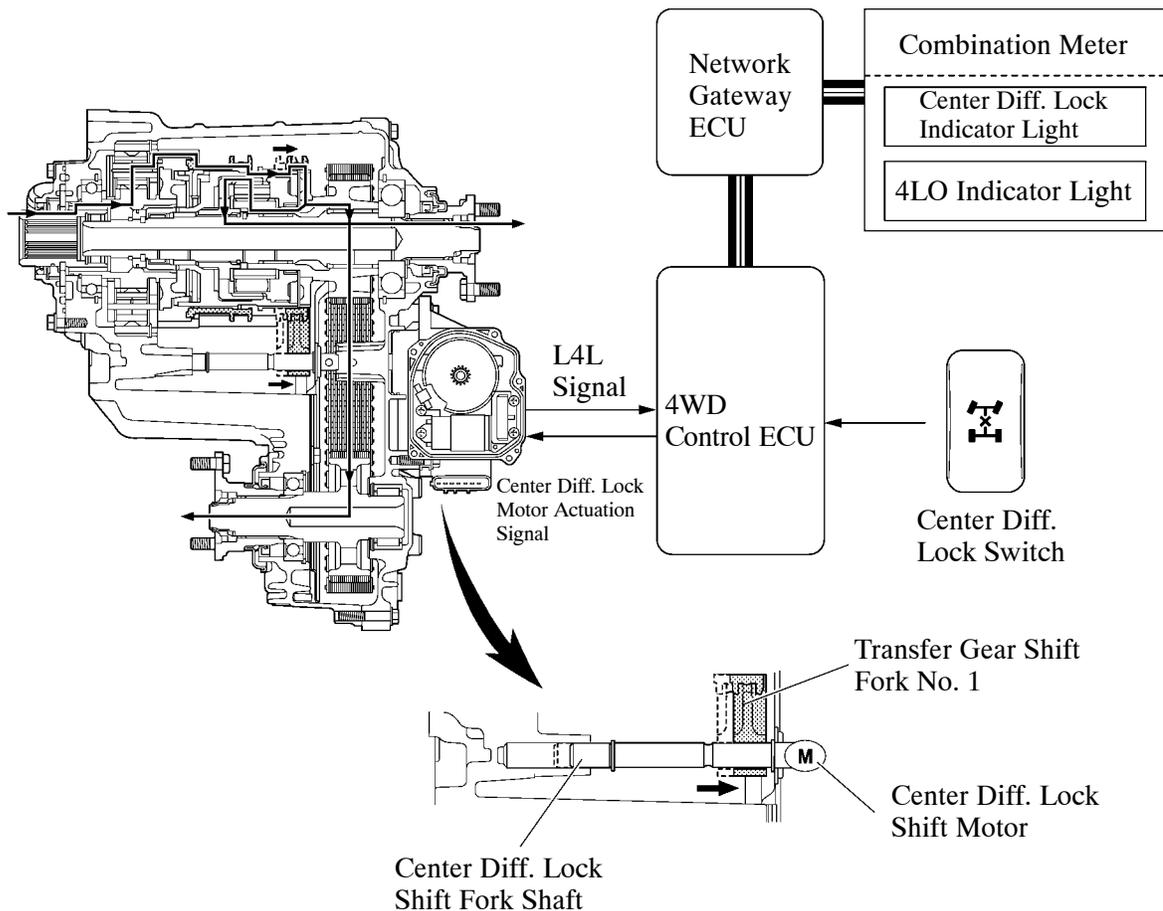
Switching Pattern B (H4L → H4F)

- In H4L mode, when the center differential lock switch is turned OFF, the 4WD control ECU actuates the center differential lock shift motor to move the center differential lock shift fork shaft to the left. Simultaneously, the center differential lock shift fork shaft moves to the left together with the transfer gear shift fork No. 1. As a result, the center differential lock sleeve disengages the differential case and the drive sprocket piece, and the mode changes to H4F.
- The 4WD control ECU detects the state of the center differential through the limit switch and center differential lock position switch. The 4WD control ECU causes the center differential lock indicator light to turn OFF when the center differential is unlocked.



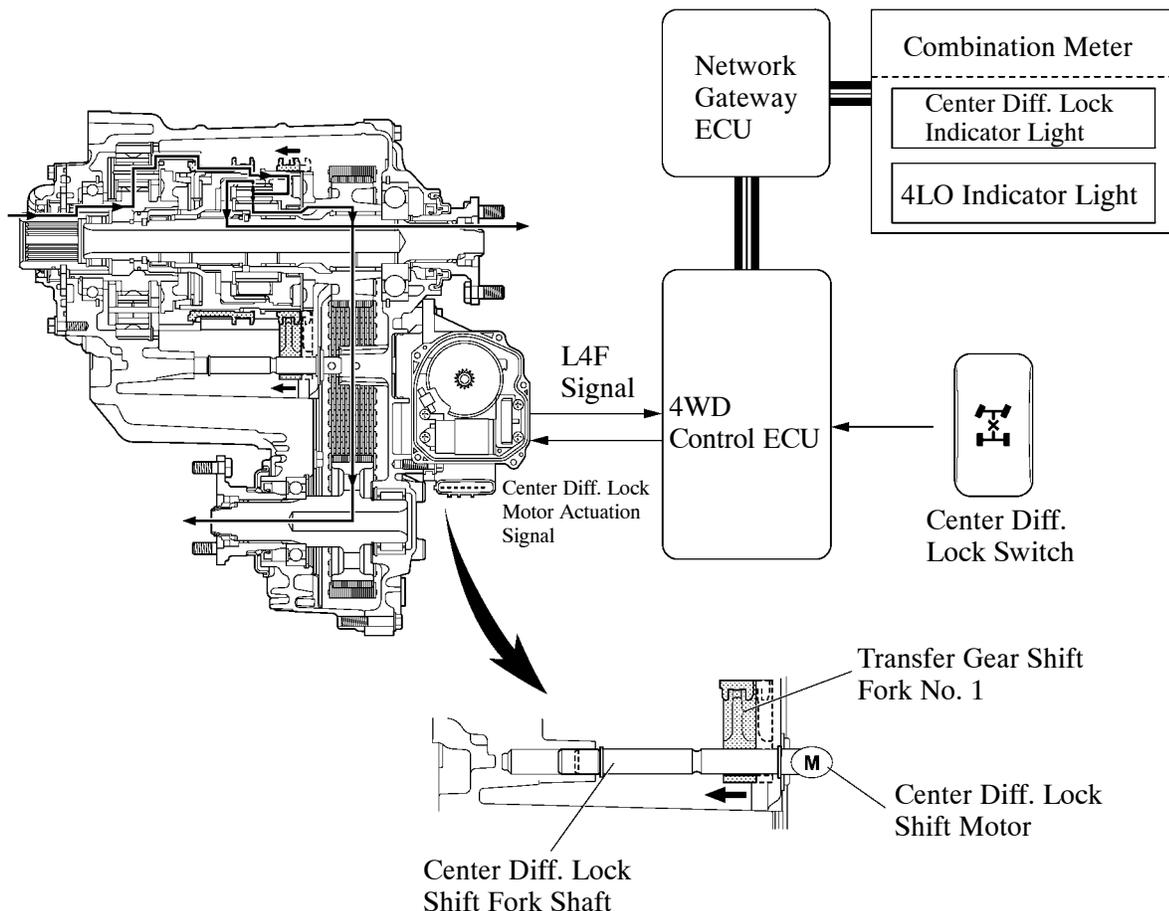
Switching Pattern C (L4F → L4L)

- In L4F mode, when the center differential lock switch is turned ON, the 4WD control ECU actuates the center differential lock shift motor to move the center differential lock shift fork shaft to the right. Simultaneously, the center differential lock shift fork shaft moves to the right together with the transfer gear shift fork No. 1. As a result, the center differential lock sleeve engages the differential case and the drive sprocket piece, and the mode changes to L4L.
- The 4WD control ECU detects the state of the center differential through the limit switch and center differential lock position switch. The 4WD control ECU causes the center differential lock indicator light to turn ON when the center differential is locked.



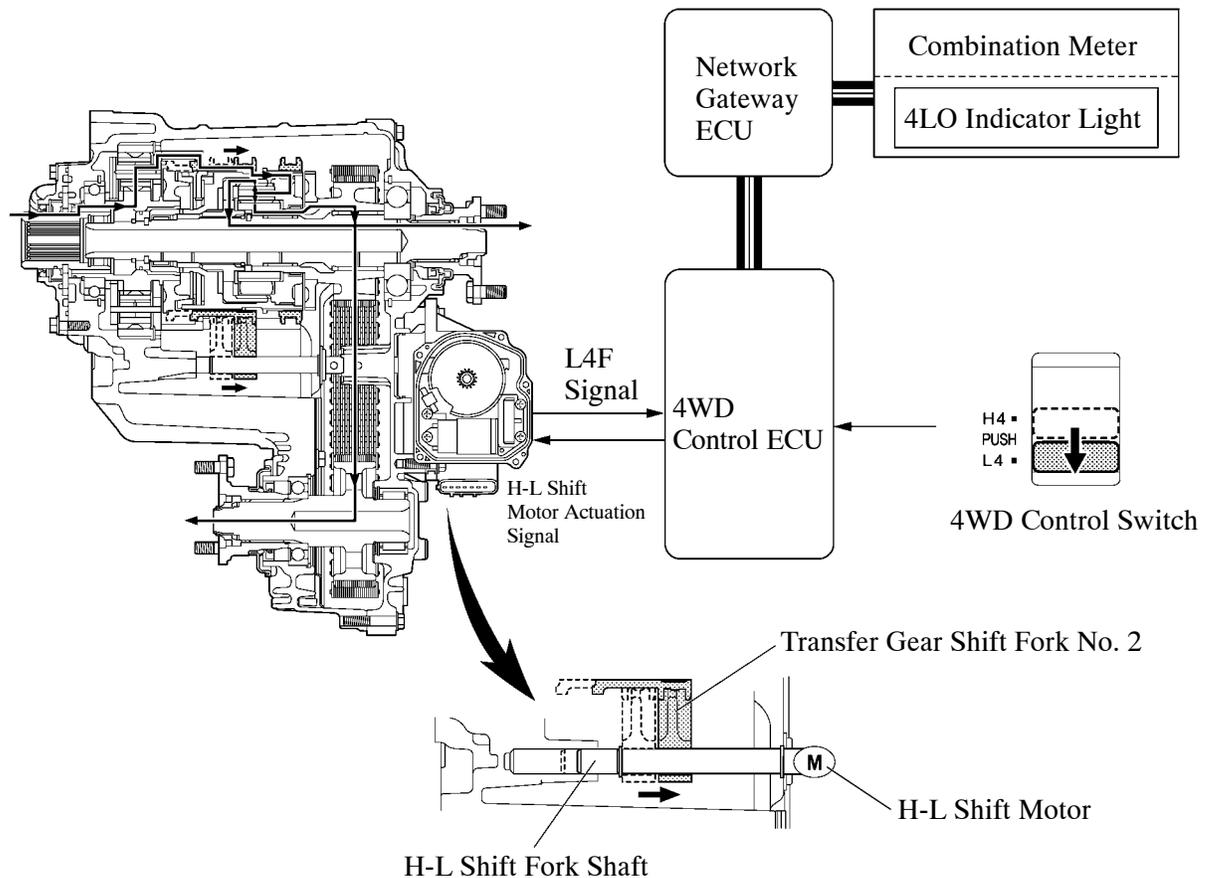
Switching Pattern D (L4L → L4F)

- In L4L mode, when the center differential lock switch is turned OFF, the 4WD control ECU actuates the center differential lock shift motor to move the center differential lock shift fork shaft to the left. Simultaneously, the center differential lock shift fork shaft moves to the left together with the transfer gear shift fork No. 1. As a result, the center differential lock sleeve disengages the differential case and the drive sprocket piece, and the mode changes to L4F.
- The 4WD control ECU detects the state of the center differential through the limit switch and center differential lock position switch. The 4WD control ECU causes the center differential lock indicator light to turn OFF when the center differential is unlocked.



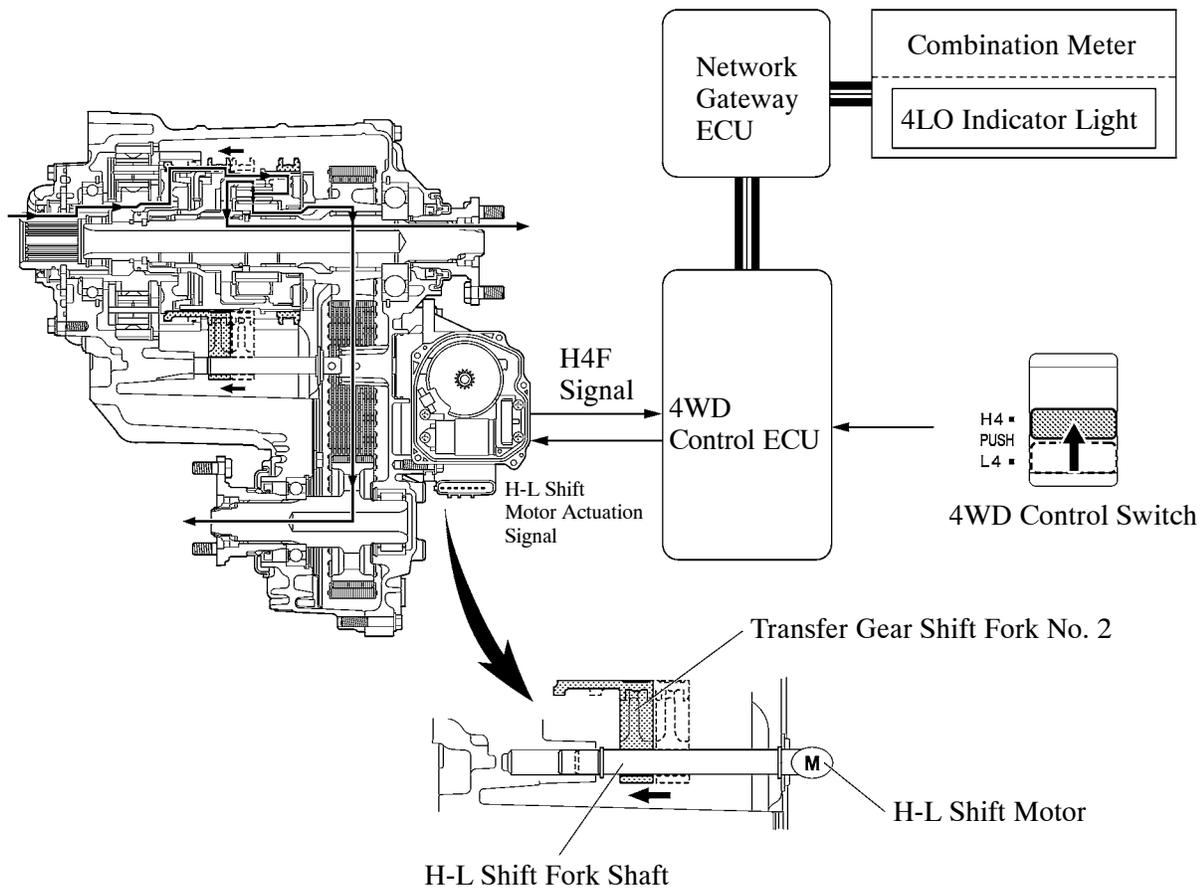
Switching Pattern E (H4F → L4F)

- In H4F mode, when the 4WD control switch is turned to the L4 position, the 4WD control ECU actuates the H-L shift motor to move the H-L shift fork shaft to the right. Simultaneously, the H-L shift fork shaft moves to the right together with the transfer gear shift fork No. 2. As a result, the high and low clutch sleeve of the planetary gear unit engages with the planetary carrier, and the mode changes to L4F.
- The 4WD control ECU detects the state of the H-L position through the limit switch and transfer neutral position switch. The 4WD control ECU causes the 4LO indicator light to turn ON when switching to the L4F mode has been completed.



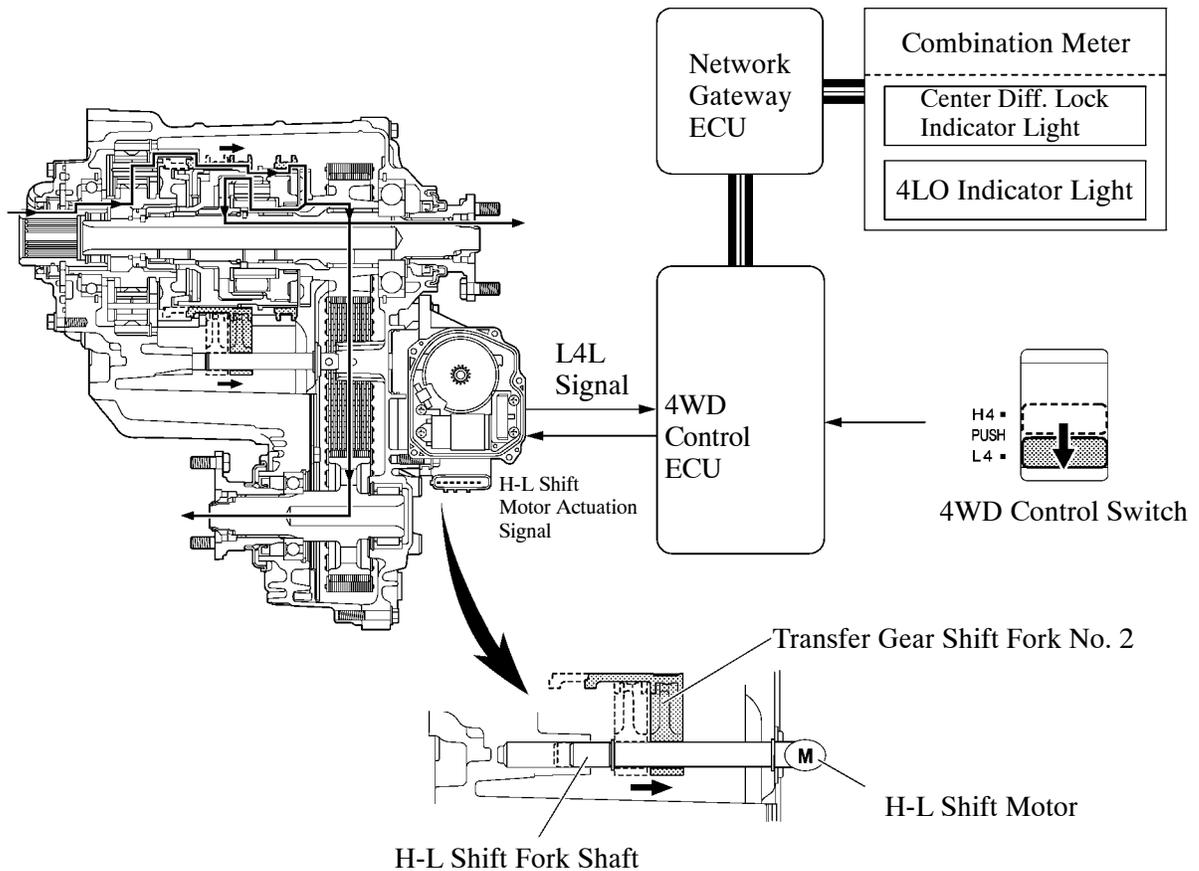
Switching Pattern F (L4F → H4F)

- In L4F mode, when the 4WD control switch is turned to the H4 position, the 4WD control ECU actuates the H-L shift motor to move the H-L shift fork shaft to the left. Simultaneously, the H-L shift fork shaft moves to the left together with the transfer gear shift fork No. 2. As a result, the high and low clutch sleeve of the planetary gear unit engages with the rear of the transfer input shaft, and the mode changes to H4F.
- The 4WD control ECU detects the state of the H-L position through the limit switch and transfer neutral position switch. The 4WD control ECU causes the 4LO indicator light to turn OFF when switching to the H4F mode has been completed.



Switching Pattern G (H4L → L4L)

- In H4L mode, when the 4WD control switch is turned to the L4 position, the 4WD control ECU actuates the H-L shift motor to move the H-L shift fork shaft to the right. Simultaneously, the H-L shift fork shaft moves to the right together with the transfer gear shift fork No. 2. As a result, the high and low clutch sleeve of the planetary gear unit engages with the planetary carrier, and the mode changes to L4L.
- The 4WD control ECU detects the state of the H-L position through the limit switch and transfer neutral position switch. The 4WD control ECU causes the 4LO indicator light to turn ON when switching to the L4L mode has been completed.



Switching Pattern H (L4L → H4L)

- In L4L mode, when the 4WD control switch is turned to the H4 position, the 4WD control ECU actuates the H-L shift motor to move the H-L shift fork shaft to the left. Simultaneously, the H-L shift fork shaft moves to the left together with the transfer gear shift fork No. 2. As a result, the high and low clutch sleeve of the planetary gear unit engages with the rear of transfer input shaft, and the mode changes to H4L.
- The 4WD control ECU detects the state of the H-L position through the limit switch and transfer neutral position switch. The 4WD control ECU causes the 4LO indicator light to turn OFF when switching to the H4L mode has been completed.

