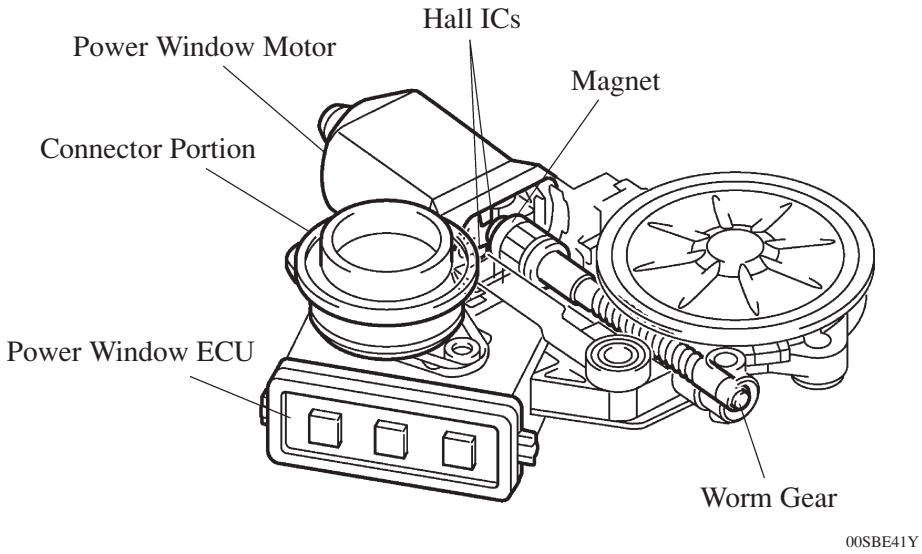
■JAM PROTECTION FUNCTION

1. General

- The jam protection function automatically stops the power window and moves it downward if foreign object gets jammed in the door window during one-touch auto-up operation or manual-up operation.
- The mechanism uses two Hall ICs to detect the door glass position and direction of movement.
- The power window ECU is built into the power window motor assembly.
- The reverse-direction conditions and amount of down movement after jam detection are as follows: The jam protection function operates and lowers the window approximately 50 mm (1.9 in.) or until 1 second has elapsed. After this, if the amount (space) that the door glass is open has not reached approximately 200 mm (7.87 in.), the jam protection function will continue to lower the window until the space is approximately 200 mm (7.87 in.) or 5 seconds have elapsed. If the door glass reaches the fully open position before the initial 50 mm (1.9 in.) lowering of the door glass is reached, the jam protection function will stop at that time.

2. Jammed Window Detection Mechanism

- The jammed window detection mechanism consists of a magnet that is provided on the worm gear of the power window motor assembly, the power window ECU and the two Hall ICs that are provided on the power window ECU.



Power Window Motor Assembly

- The Hall IC converts the changes in the magnetic flux that occur through the rotation of the worm gear into block wave signals and outputs them to the power window ECU.
- To control the jam protection function, the power window ECU determines the amount of movement and the jamming of the window glass from the pulse signals from the Hall IC 1, and the moving direction of the window glass from the phase difference between the pulses from the Hall IC 1 and Hall IC 2.

▶ Judgment of Amount of Movement and Jamming of Window Glass ◀



232BE34



232BE35

*: The diagrams above are for the driver seat on the LHD models.

Service Tip

If the power window motor assembly and power window regulator assembly are replaced, the window position information stored in the system will be lost, and the system must be initialized. After replacing the above parts, initialize the system by performing the steps described below.

1) Set the power source mode to IG-ON, and fully open the driver's window. Continue to hold down the switch for at least 1 second after the window has fully opened*.
2) Hold the AUTO switch in the auto up position. Continue to hold the AUTO switch in the auto up position for approximately 1 second after the window has fully closed. The system will memorize the window's fully closed position as the initial position.

For details, see the RAV4 Repair Manual (Pub. No. RM01N0E).

*: When the window reaches its fully open position, the indicator light will change from flashing to illumination, in order to indicate that the window is in the fully open position. However, this does not indicate that the initialization of the system has been completed.