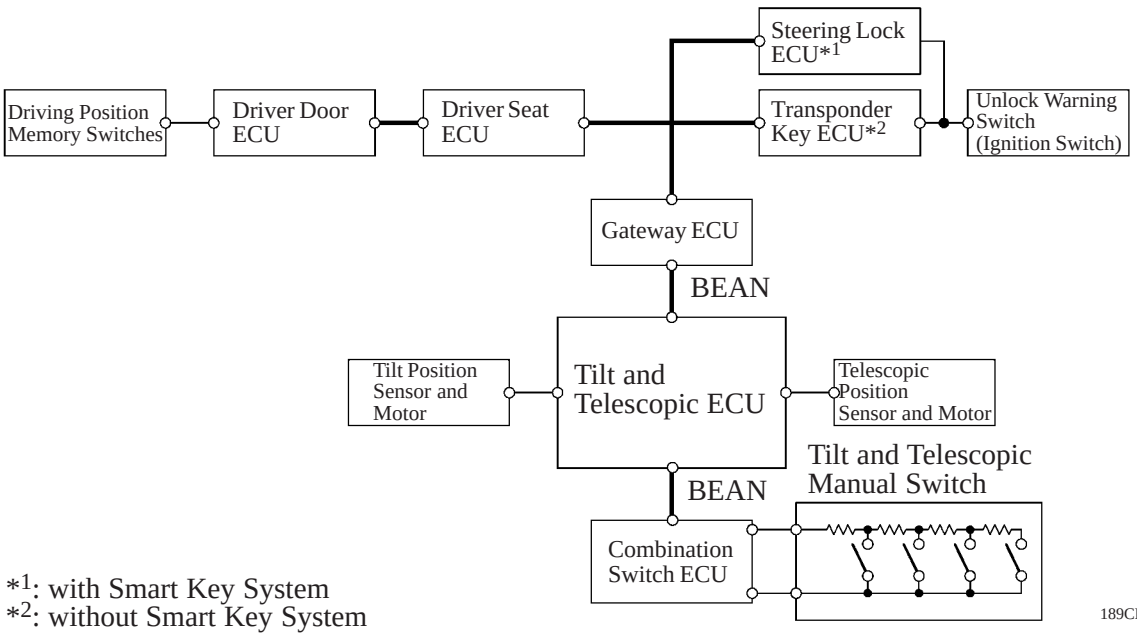
■POWER TILT AND POWER TELESCOPIC STEERING COLUMN

1. General

- A compact and lightweight power tilt and telescopic steering column that uses ultrasonic motors is available.
- The auto set function has been adopted as on the previous LS400.
- This system is controlled by the tilt and telescopic ECU and the tilt and telescopic ECU maintains communication through the multiplex communication system.
- The driving position memory function for the steering column has been changed from 2-position to 3-position.

2. System Diagram



*1: with Smart Key System
*2: without Smart Key System

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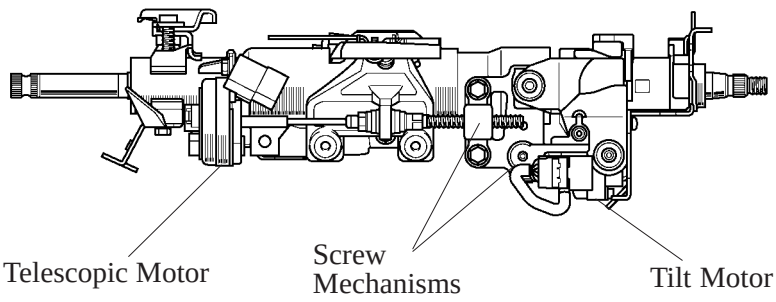
3. Construction

Using ultrasonic motors that feature low-speed and high-torque characteristics, the power tilt and power telescopic steering column has adopted a compact and lightweight tilt and telescopic mechanism that does not require a reduction mechanism.
Each of the ultrasonic motors contains a position sensor that uses a Hall IC and a magnet to detect the tilt position or the telescopic position.
The tilt and telescopic mechanism uses a screw mechanism to convert the motor's rotational movement to a linear movement.



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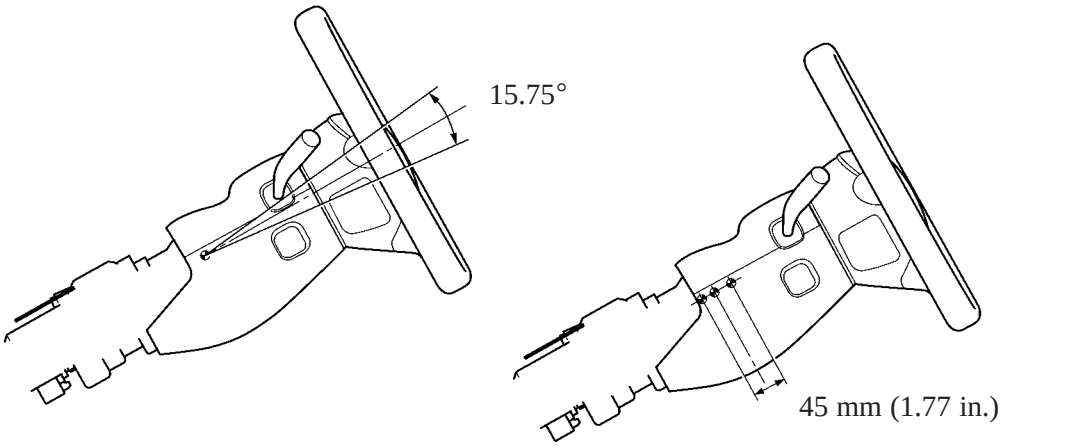
4. Operation

Manual Operation

The tilt position and the telescopic position can be adjusted as desired by operating the tilt and telescopic switch.
A stepless adjustment enables the tilt mechanism to be tilted 15.75° vertically, and the telescopic mechanism to be moved 45 mm (1.77 in.) longitudinally.



Auto Set Function

When the ignition key is removed or the starter switch knob is released at “LOCK” position, the steering column moves forward away from the driver and also tilts up for easy exit and entry.
When the ignition key is inserted in the ignition switch or the starter switch knob is pushed at “LOCK” position, the steering column returns to the previously set position.
The auto set function can be prohibited by using a hand-held tester.

Position Detection

The rotation of the motor is sensed and the tilt and telescopic positions are detected by the position sensor in the motor, which uses a Hall IC and a magnet.

5. Self-Diagnosis Function

If the tilt and telescopic ECU detects a malfunction in the power tilt and power telescopic system, the ECU stores the malfunction data in memory. Then, by connecting a hand-held tester to the DLC3 terminal, the DTCs (diagnostic trouble codes) can be accessed and an active test can be performed. For details, see the LEXUS LS430 Repair Manual (Pub. No. RM792E).