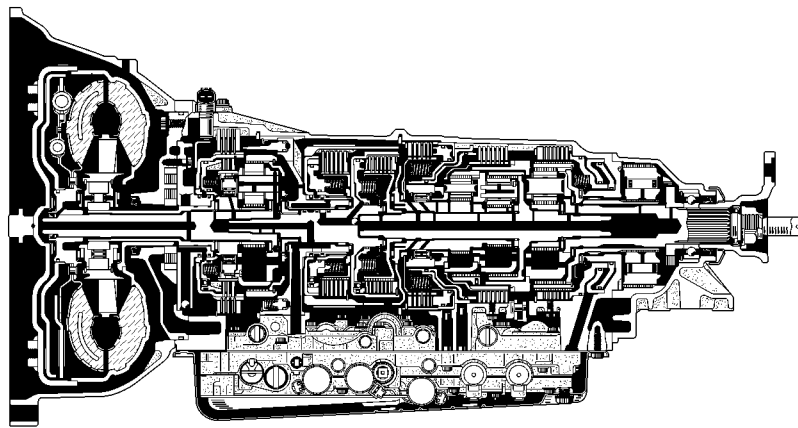


■ A650E AUTOMATIC TRANSMISSION

1. General

- The same A650E 5-speed automatic transmission [5 Super ECT (Electronically Controlled Transmission)] used on the previous model continues to be used on the GS300, and has been newly adopted on the new GS430. The internal construction of this transmission differs slightly between the GS430 and GS300 applications in accordance with the output characteristics of the respective engines.
- The E-shift is used on the GS300. The E-shift system, which has transmission shift switches located on the steering wheel, enables the driver to manually shift the ranges without having to release the hands off the steering wheel, provided that the floor shift lever is engaged in the M position.



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► Specifications ◀

Model		'01 GS430	'01 GS300	'00 GS400	'00 GS300
Gear Ratio	1st	3.357	←	←	←
	2nd	2.180	←	←	←
	3rd	1.424	←	←	←
	4th	1.000	←	←	←
	5th	0.753	←	←	←
	Reverse	3.431	←	←	←
Fluid Capacity	Liters (US qts, Imp.qts)	8.9 (9.4, 7.8)	8.2 (8.7, 7.2)	8.9 (9.4, 7.8)	8.0 (8.5, 7.0)
Fluid Type		ATF Type T-IV or Equivalent	←	←	←

2. Planetary Gear Unit

General

1

The planetary gear unit of the A650E automatic transmission that has been adopted on the '01 GS430 is based on the A650E on the '00 GS400. The gears have been strengthened, the clutch and brake discs have been optimized, and the construction of the solenoid valve has been optimized in accordance with the output characteristics of the new engine. On the '01 GS300, the specs of the previous model continue to be applied.

► Specifications ◀

Model			'01 GS430	'01 GS300	'00 GS400	'00 GS300
C ₀	OD Direct Clutch	The No. of Discs	2	←	←	←
C ₁	Forward Clutch		6	5	6	5
C ₂	Direct Clutch		5	4	5	4
B ₀	OD Brake		4	3	4	3
B ₁	3rd Coast Brake	Band Width mm (in.)	40 (1.57)	←	←	←
B ₂	3rd Brake	The No. of Discs	5	4	5	4
B ₃	2nd Brake		6	5	←	←
B ₄	1st & Reverse Brake		6	5	6	5
F ₀	OD One-Way Clutch	The No. of Sprags	24	20	24	20
F ₁	No. 1 One-Way Clutch		20	16	20	16
F ₂	No. 2 One-Way Clutch		24	←	←	←
OD Planetary Gear		The No. of Sun Gear Teeth	31	←	←	←
		The No. of Pinion Gear Teeth	32	←	←	←
		The No. of Ring Gear Teeth	95	←	←	←
Front Planetary Gear		The No. of Sun Gear Teeth	41	←	←	←
		The No. of Pinion Gear Teeth	16	←	←	←
		The No. of Ring Gear Teeth	73	←	←	←
Center Planetary Gear		The No. of Sun Gear Teeth	31	←	←	←
		The No. of Pinion Gear Teeth	21	←	←	←
		The No. of Ring Gear Teeth	73	←	←	←
Rear Planetary Gear		The No. of Sun Gear Teeth	28	←	←	←
		The No. of Pinion Gear Teeth	19	←	←	←
		The No. of Ring Gear Teeth	66	←	←	←

3. Electronic Control System (For GS430)

General

The A650E automatic transmission adopted in the '01 GS430 has been matched to the output characteristics of the new engine. In order to further improve the shift feel, driveability, and fuel economy, the following changes have been made:

- (1) Improved shift feel
- (2) Improved driveability
- (3) Improved fuel economy

System	Function	(1)	(2)	(3)
Flex Lock-up Clutch Control	The operating range of the flex lock-up clutch has been expanded from the previous 5th and 4th gears to the 5th, 4th, and 3rd gears to improve fuel economy.			○
AI (Artificial Intelligence) -SHIFT	On the '00 model, the upshift prohibition region while driving uphill was applied only to the 5th gear. On the '01 model, this has been expanded to the 4th and 5th gears. On the '00 model, the automatic downshift during downhill driving was applied only to the 4th gear. On the '01 model, this has been expanded to the 3rd and 4th gears to improve driveability.		○	
Shift Timing Control	<ul style="list-style-type: none"> The vehicle speed at which downshifting into 1st gear during engine braking occurs has been increased to improve driveability. The hydraulic pressure passages, and solenoid valve construction have been optimized to achieve smooth shifting during the warm-up process following a cold startoff. 		○	
Garage Shift Control	To restrain the vertical movement of the vehicle when the shift lever is moved from the D position to N, the clutch release speed has been optimized.	○		
Shift Down Control	In order to ensure a smooth shift feel during downshifting to accelerate the vehicle, the hydraulic passages and control have been optimized.	○		

4. E-Shift (For GS300)

General

1

The GS300 has adopted the E-Shift system, which enables the driver to shift the ranges by operating the transmission shift switches that are located on the steering wheel.

Provided that the shift lever is engaged in the M position, the driver can shift the ranges by operating the transmission shift switches that are located on the steering wheel.

The maximum gear speed is limited in each of the ranges, permitting the gears to up-shift and down-shift automatically within the respective allowable range.

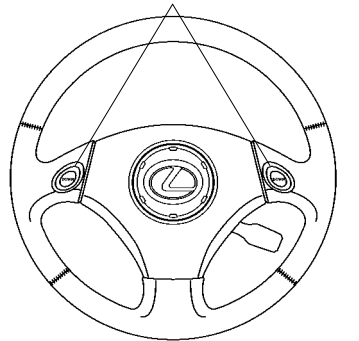
Accordingly, the driver can shift the ranges without releasing the hands off the steering wheel, thus reducing the time involved in shifting.

This feature, combined with the high-response shift control, further reduces the shifting time.

Construction

The transmission shift switches for down-shift are located on the top side of the steering wheel and the transmission shift switches for up-shift are located on the back side of the steering wheel.

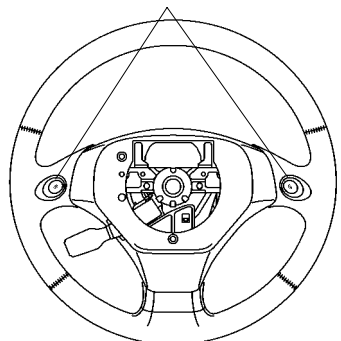
Transmission Shift Switches (Down)



188CH02

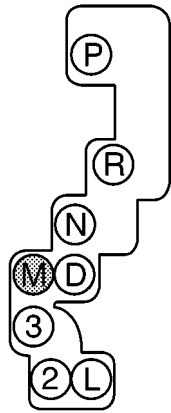
Top Side

Transmission Shift Switches (Up)



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Back Side



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Shift Pattern

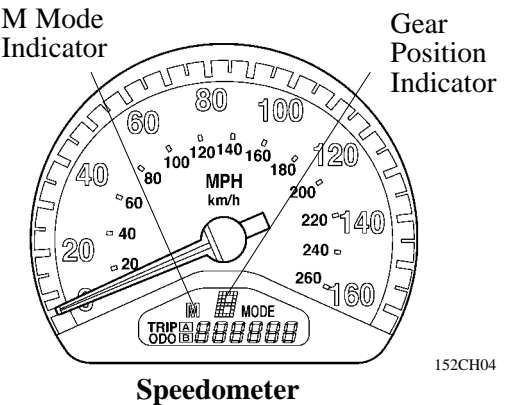
Shift Program

The driver selects the M position by engaging the shift lever. At that time, the M mode indicator and gear position indicator illuminates in the combination meter.

When abnormality has occurred in this system and if you shift lever to M position, M mode indicator flashes and informs the driver. However, usual driving is possible with other shift positions.

The usable gears are shown in the chart below.

Gear Position Indicator	Usable Gear
5	5th ⇔ 4th ⇔ 3rd ⇔ 2nd ⇔ 1st
4	4th ⇔ 3rd ⇔ 2nd ⇔ 1st
3	3rd ⇔ 2nd ⇔ 1st
2	2nd ⇔ 1st



152CH04

Speedometer