



Technical Service Information

LEXUS A761E

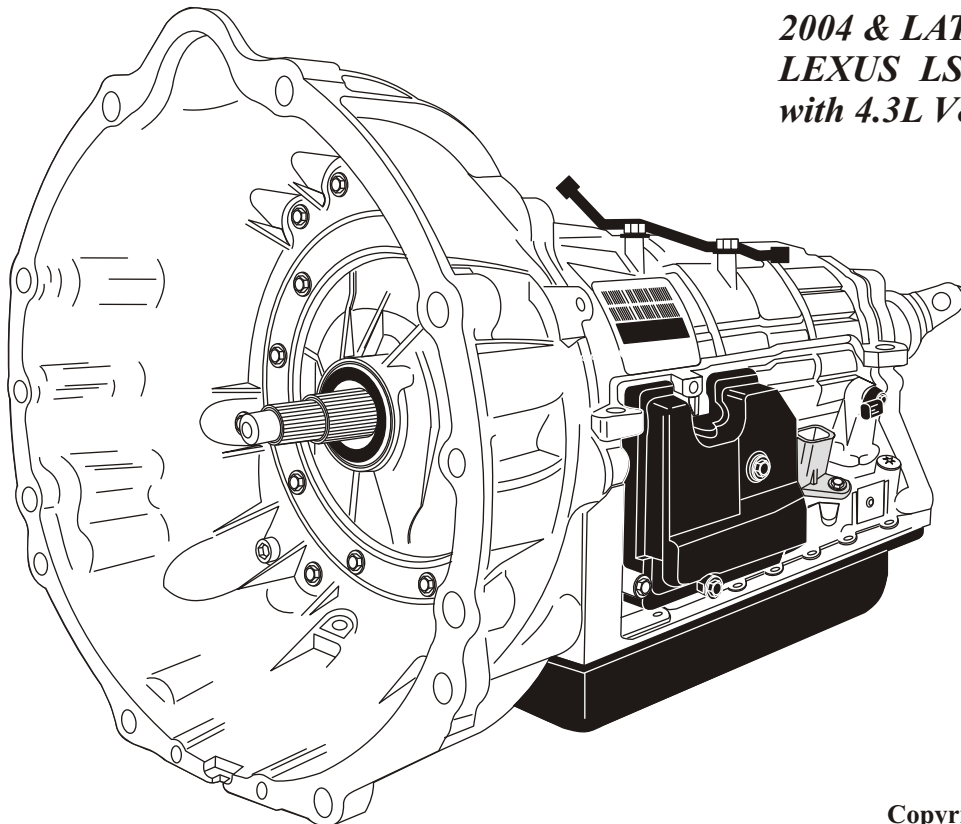
PRELIMINARY INFORMATION

The A761E transmission is Toyota's first automatic six speed transmission. It is said that it is the lightest six speed automatic transmission in the world weighing in at 187 pounds wet. This transmission is currently found in the 2004 and later Lexus LS430 behind its 4.3L, 32 valve V8 engine. It is an enhanced A750E used in the Land Cruiser. Many of the parts used in the A750E are the same in the A761E. The most significant deviation is with the addition of a C4 clutch and F4 sprag inside the C1 clutch drum assembly (See Figures 1 and 2). This addition combines clutch to clutch shifting without any sprag assist between 5th and 6th speeds only.

The computer strategy which operates the transmission is called the ECT-i: Electronically Controlled Transmission with intelligence. The ECT-i uses additional electronic controls to adjust hydraulic pressure gradually for even smoother shifts. The ECT-i computer also has a limited ability to adjust for wear in the transmission and even to learn and respond to a person's driving behavior (based on the resulting engine input conditions).

One strategy of the ECT-i is to partially disengage the C1 (Forward) Clutch during stops to increase fuel efficiency. Another strategy with which fuel efficiency is increased is that fuel cut is maintained during 6th-5th/5th-4th decelerations.

**2004 & LATER
LEXUS LS430
with 4.3L V8**



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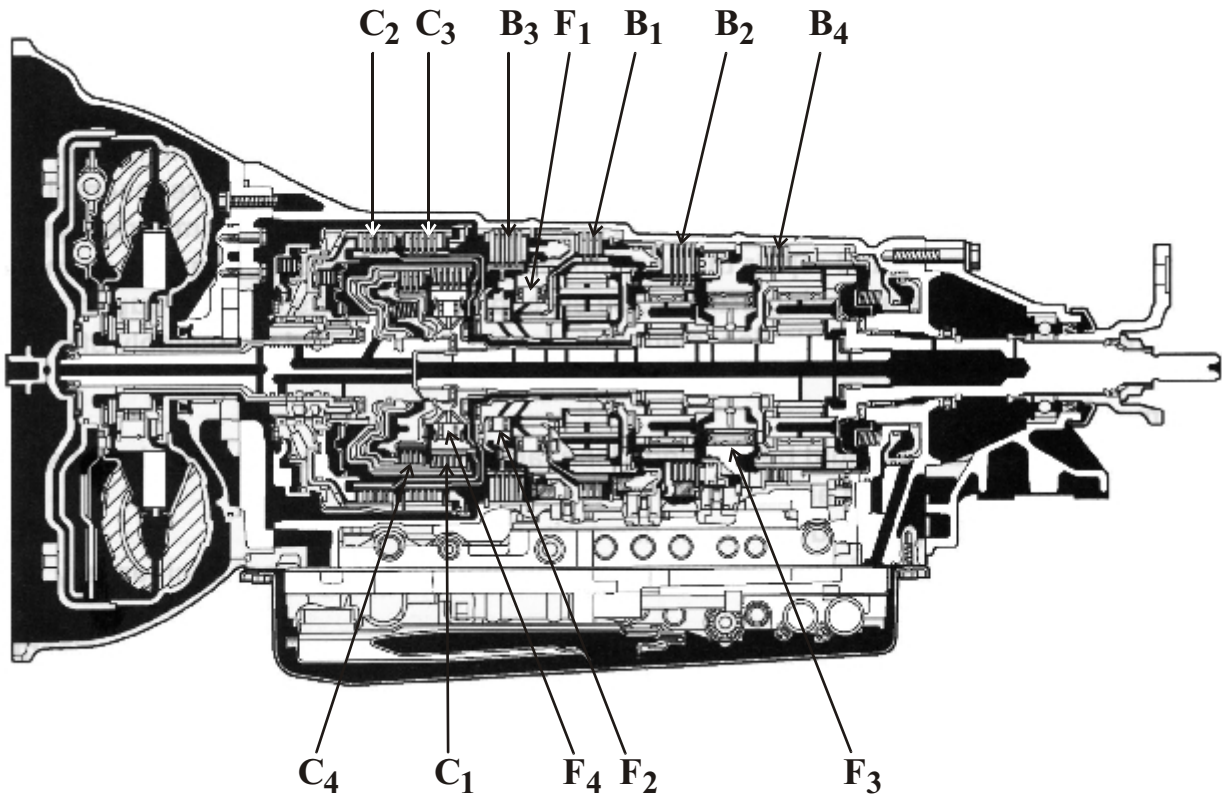
Refer to Figures 1 and 2 for Clutch location, clutch application and solenoid function.
Refer to Figures 3, 4, 5, and 6 for Shift position function.
Refer to Figures 7 and 8 for Mode Switch operation.
Refer to Figures 9 and 10 for solenoid failsafe operation.
Refer to Figure 11 for the basic ECM wiring diagram.
Refer to Figure 12 for internal component resistance values.
Refer to Figures 13, 14 and 15 for diagnostic trouble codes.
Refer to Figure 16 for transmission range sensor continuity checks.
Refer to Figures 17, 18, 19, 20 and 21 for transmission fluid fill procedures.
Refer to Figure 22 for line pressure service port location.
Refer to Figure 23 for valve body bolt locations.
Refer to Figures 24, 25, 26, 27 and 28 for solenoid ID, check ball location and valve identification.
Refer to Figure 29 for accumulator identification.

GEAR RATIOS

First.....	3.296
Second.....	1.959
Third.....	1.348
Fourth.....	1.000
Fifth.....	0.726
Sixth.....	0.582
Reverse.....	2.951

LEXUS A761E PRELIMINARY INFORMATION

LEXUS A761E APPLICATION CHART



Shift Lever Position	Solenoids								Driving Clutches				Brake Clutches				One-Way Clutches			
	S1	S2	S3	S4	SR	SL1	SL2	SLU	C1	C2	C3	C4	B1	B2	B3	B4	F1	F2	F3	F4
Park		ON	ON		ON		ON													
Reverse		ON	ON		ON		ON				○		○			○	○			
Neutral		ON	ON		ON		ON													
D S (6)	1st		ON	ON		ON		ON	○			○							○	○
	2nd	ON	ON	ON		ON		ON	ON	○		○			○		○	○		○
	3rd	ON		ON		ON		ON	ON	○		○	○		●		○			○
	4th	ON				ON		ON	ON	○	○	●	○		●					○
	5th	ON			ON		ON		ON	●	○	○		○	●					
	6th	ON	ON		ON		ON		ON	●	○			●	○	●				

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Figure 1



Technical Service Information

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LEXUS A761E APPLICATION CHART...continued

Shift Lever Position		Solenoids								Driving Clutches				Brake Clutches				One-Way Clutches			
		S1	S2	S3	S4	SR	SL1	SL2	SLU	C1	C2	C3	C4	B1	B2	B3	B4	F1	F2	F3	F4
S (5)	1st		ON	ON		ON		ON		○			○							○	○
	2nd	ON	ON	ON		ON		ON	ON	○			○			○		○	○		○
	3rd	ON		ON		ON		ON	ON	○		○	○			●		○			○
	4th	ON				ON		ON	ON	○	○	●	○			●					○
	5th	ON			ON		ON		ON	●	○	○		○		●					
S (4)	1st		ON	ON		ON		ON		○			○							○	○
	2nd	ON	ON	ON		ON		ON	ON	○			○			○		○	○		○
	3rd	ON		ON		ON		ON	ON	○		○	○			●		○			○
	4th*	ON				ON		ON	ON	○	○	●	○			●					○
S (3)	1st		ON	ON		ON		ON		○			○							○	○
	2nd	ON	ON	ON		ON		ON	ON	○			○			○		○	○		○
	3rd*	ON		ON		ON			ON	○		○	○	○		●					
S (2)	1st		ON	ON		ON		ON		○			○							○	○
	2nd*	ON	ON	ON	ON	ON			ON	○			○		○	○					
S (1)	1st*		ON	ON		ON				○			○				○				

○ : In operation

● : Applied but ineffective

* : with engine breaking

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Figure 2

LEXUS A761E PRELIMINARY INFORMATION

Driving Pattern Select Switch

The Driving Pattern Select Switch located in the center floor console consists of a Park, Reverse, Neutral, Drive and Select Mode Driving position (See Figure 3). A shift lock system is used to minimize the possibility of incorrect operation. This means that you can only shift out of Park when the brake pedal is depressed with the ignition switch in the ON position.

Once the selector lever is placed into the Drive position (Figure 4), the Engine Control Module provides an Artificial Intelligence (AI) shift control strategy.

AI shifting control selects the most suitable shift range automatically according to the driver's operation and driving condition. It judges whether the road is downslope or up-slope by detecting the throttle opening degree or the vehicle speed. It can also detect turns by monitoring wheel speed and will prevent unnecessary upshifting and down shifting. AI can also read the driver's intention by monitoring acceleration and tailor shift time and feel ideal for each driver. AI shift control operates automatically with the selector lever in the "D" position. When it is moved to the "S" position, this function will be canceled (Figure 5).

If the selector lever is placed into the "S" range from the "D" range on the fly (while driving in the AI shift control strategy), the AI strategy will select the proper shift range based upon the driving condition at the time the selector lever was moved. AI will select either the 5th, 4th or 3rd range. Once selected, AI strategy will be canceled.

Once in the "S" position, an upper range can be selected by pushing the shifter forward. Likewise, a lower range can be selected by pulling the shifter down. Once a range is selected and the shifter remains untouched in the "S" position, the transmission will shift between the lowest to the highest range selected (See Figure 6). The ranges are as follows:

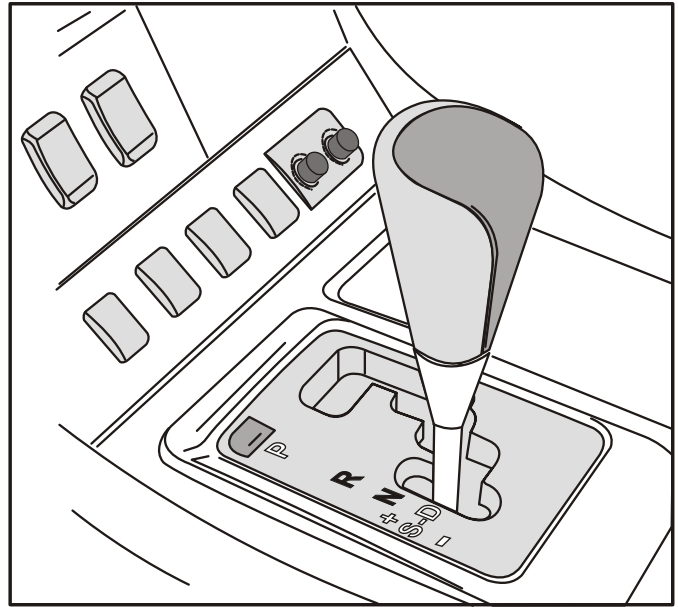


Figure 3

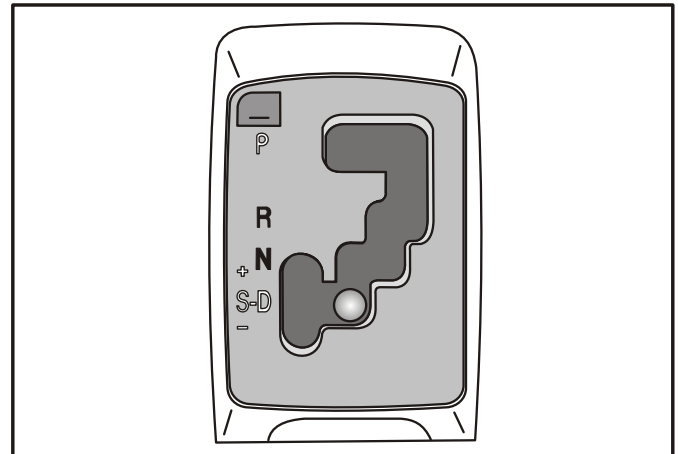


Figure 4

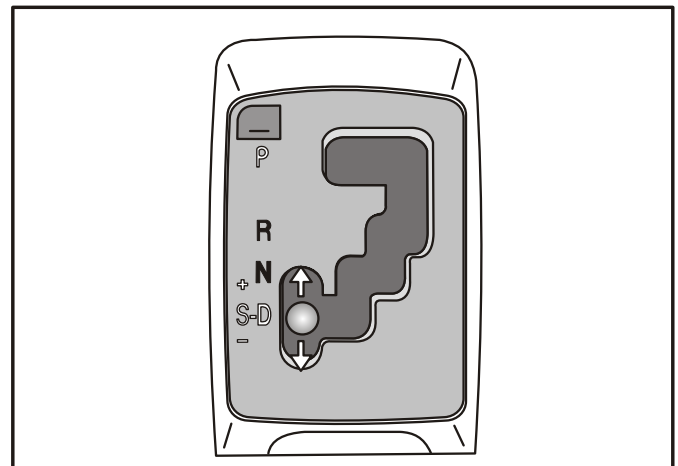


Figure 5

LEXUS A761E PRELIMINARY INFORMATION

“6” (sixth range): The most suitable gear is automatically selected between first and overdrive (sixth) gears according to vehicle speed and driving conditions. This range provides the best in fuel economy and quiet driving.

“5” (fifth range): The most suitable gear is automatically selected between first and fifth gears according to vehicle speed and driving conditions. This range works well for passing a vehicle during high speed driving.

“4” (fourth range): The most suitable gear is automatically selected between first and fourth gears according to vehicle speed and driving conditions. In this range, the system will select the suitable gear during hilly driving or towing conditions.

“3” (third range): The most suitable gear is automatically selected between first and third gears according to vehicle speed and driving conditions. This selection is used if stronger engine braking is needed.

“2” (second range): The most suitable gear is automatically selected between first and second gears according to vehicle speed and driving conditions. This selection is used if stronger engine braking than that of third is needed.

“1” (first range): This gear is fixed regardless of vehicle speed or driving conditions. This range is to be used when maximum engine braking is necessary.

The Do's and Don'ts in the "S" Mode

If you attempt to downshift the transmission when it is not possible to downshift due to high vehicle speed, a warning tone sounds twice.

The maximum speed the vehicle can be held in the first range before manually up-shifting into the second range is 36 mph (59 km/h). The maximum speed second range can be held is 62 mph (100 km/h). The maximum speed third range can be held is 90 mph (146 km/h).

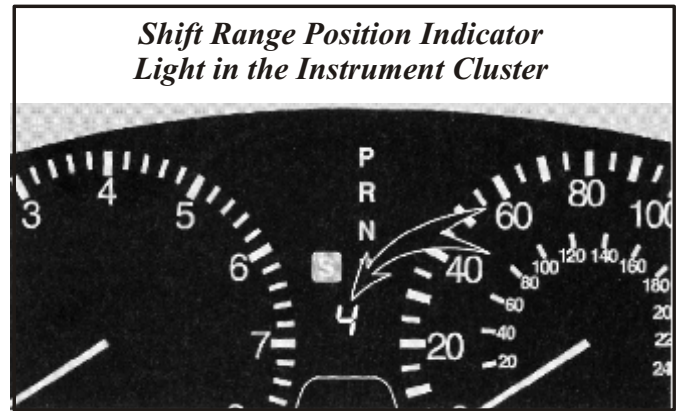


Figure 6

Up-shifts into 5th and 6th gears are prohibited if engine coolant temperature is 131° F (55° C) or less.

Up-shifts into 4th gear is prohibited if the engine coolant temperature is 117° F (47° C) or less.

Lock-Up and Flexible Lock-Up Control

The Engine Control Module controls TCC operation through the high side of the SLU solenoid according to shift position, vehicle speed, throttle opening degree and running conditions. The ECM also steadily keeps applying the lock-up clutch to a delicate slippage to improve the transmission efficiency of the torque converter for increased fuel economy.

Lock-Up Control is prohibited if:

1. The brake pedal is depressed
2. The accelerator pedal is released
3. Engine coolant temperature is 140° F (60° C) or less.

There is no full lock-up function in 1st, 2nd and 3rd gears. This is normal operation.

The Electronic Throttle Control System

The electronic throttle control system always maintains appropriate engine output in relation to the accelerator openings in all driving conditions.

The electronic throttle control system has 3 modes: Normal, Power and Snow modes (See Figure 7).

LEXUS A761E PRELIMINARY INFORMATION

Normal mode: For ordinary driving, this selection provides improved fuel economy.

Power mode: In the Power Mode, the “ECT PWR” light in the instrument cluster is illuminated (Figure 8) and the transmission is shifted at a higher vehicle speed and downshifts more responsively than in the normal mode. This provides for a more powerful acceleration and sporty driving strategy.

Snow mode: For slippery road surfaces such as in snow, the spinning of the rear wheels is controlled appropriately. When selected, the “ECT SNOW” light in the instrument cluster is illuminated.

FAIL-SAFE STRATEGIES

This function minimizes the loss of Electronic Transmission Control (ETC) functions should any malfunction occur with a sensor or solenoid.

DTC or Malfunctioned Part

DTC P0717 Input Speed Sensor (NT)

Fail-Safe Strategy

During an input speed sensor malfunction, shift control occurs through the output speed sensor signal (SP2).

During this malfunction, up-shifts to 5th and 6th, AI Shift Control and Flex Lock-up control are prohibited.

DTC or Malfunctioned Part

DTC P0500 Output Speed Sensor (SP2)

Fail-Safe Strategy

During an output speed sensor malfunction, shift control occurs through the input speed sensor signal (NT) and up-shifts to 5th and 6th, the AI Shift Control and Flex Lock-up control are prohibited.

DTC or Malfunctioned Part

DTC P0710, P0712, P0713 ATF Temp. Sensor

Fail-Safe Strategy

During this malfunction, up-shifts to 5th and 6th and Flex Lock-up control are prohibited.

The Electronic Throttle Control Power - Normal - Snow Modes

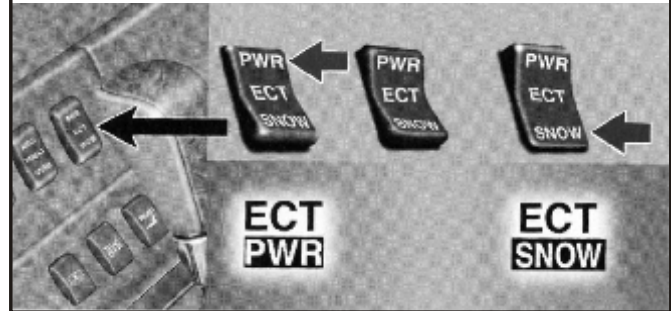


Figure 7

Power and Snow Mode Indicator Lights and MIL Light

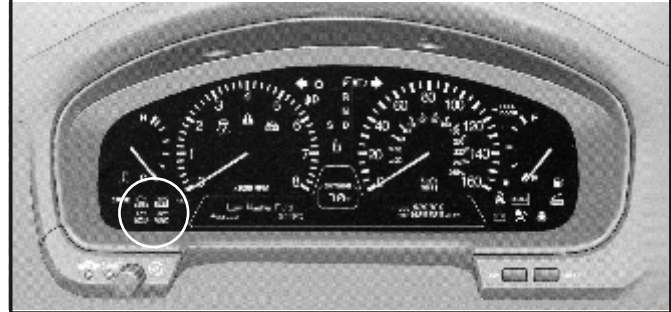


Figure 8

DTC or Malfunctioned Part

Shift Solenoids S1, S2, S3, S4 and SR

Fail-Safe Strategy - Solenoid Circuit Failure

The current to the failed solenoid is cut off and control is affected by operating other solenoids. Shift control is affected depending on which solenoids have failed. Various shift patterns related to failed solenoids are presented in a chart as seen in Figures 9 and 10

Fail-Safe Strategy - Solenoid Mechanical Failure

Certain mechanical/performance codes will fail-safe the vehicle to 3rd gear regardless of shift lever position in range 3 or higher. They are:

- P0729 - Gear 6 Incorrect Ratio Reverse Sequence
- P0751 - S1 Performance Failure
- P0761 - S3 Performance Failure
- P0766 - S4 Performance Failure
- P0781 - 1-2 Shift Valve



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Diagnostic Trouble Code	Actual Gear Shift Command					
	1st	2nd	3rd	4th	5th	6th
P0751	1st*	1st*	3rd	3rd	3rd	3rd
P0761	1st	2nd	3rd	3rd	3rd	3rd
P0766	1st	2nd	3rd	3rd	3rd	3rd
P0781	1st*	1st*	3rd	3rd	3rd	3rd
P0729	1st	2nd	3rd	3rd	3rd	3rd
*Under certain driving conditions						

DTC or Malfunctioned Part

DTC P2757, 2759 Solenoid SLU

Fail-Safe Strategy

During a solenoid SLU malfunction, the current to the solenoid is stopped. This stops all lock-up and flex lock-up control and fuel economy decreases.

DTC or Malfunctioned Part

DTC P0748, P0778 Solenoid SL1 and SL2

DTC or Malfunctioned Part

DTC P2714, P2716 Solenoid SLT

Fail-Safe Strategy

During a solenoid SL1 or SL2 malfunction, up-shifts to 5th and 6th gears and Flex Lock-up control are prohibited.

Fail-Safe Strategy

During a solenoid SLT malfunction, the current to the solenoid is stopped. This stops line pressure optimal control and firmer shifts are expected.

Fail-Safe Chart For Electrical Solenoid Malfunction																
Shift Lever Position	Normal								Shift Solenoid S1 Electrical Malfunction Code P0973, P0974							
	Gear	Shift Solenoid (ECM output)							Gear ^{*2}	Shift Solenoid (ECM output)						
		S1	S2	S3	S4	SR	SL1	SL2		S1	S2	S3	S4	SR	SL1	SL2
D, S6	1st	OFF	ON	ON	OFF	ON	OFF	ON	1st	X	ON	ON	OFF	ON	OFF	ON
	2nd	ON	ON	ON	OFF	ON	OFF	ON	1st→4th	X	ON→OFF	ON→OFF	OFF	ON	OFF	ON
	3rd	ON	OFF	ON	OFF	ON	OFF	ON	3rd→4th	X	OFF	ON→OFF	OFF	ON	OFF	ON
	4th	ON	OFF	OFF	OFF	ON	OFF	ON	4th	X	OFF	OFF	OFF	ON	OFF	ON
	5th	ON	OFF	OFF	ON	OFF	ON	OFF	5th	X	OFF	OFF	ON	OFF	ON	OFF
	6th	ON	ON	OFF	ON	OFF	ON	OFF	N→5th	X	ON→OFF	OFF	ON	OFF	ON	OFF
S5	1st	OFF	ON	ON	OFF	ON	OFF	ON	1st	X	ON	ON	OFF	ON	OFF	ON
	2nd	ON	ON	ON	OFF	ON	OFF	ON	1st→4th	X	ON→OFF	ON→OFF	OFF	ON	OFF	ON
	3rd	ON	OFF	ON	OFF	ON	OFF	ON	3rd→4th	X	OFF	ON→OFF	OFF	ON	OFF	ON
	4th	ON	OFF	OFF	OFF	ON	OFF	ON	4th	X	OFF	OFF	OFF	ON	OFF	ON
	5th	ON	OFF	OFF	ON	OFF	ON	OFF	5th	X	OFF	OFF	ON	OFF	ON	OFF
S4	1st	OFF	ON	ON	OFF	ON	OFF	ON	1st	X	ON	ON	OFF	ON	OFF	ON
	2nd	ON	ON	ON	OFF	ON	OFF	ON	1st→4th	X	ON→OFF	ON→OFF	OFF	ON	OFF	ON
	3rd	ON	OFF	ON	OFF	ON	OFF	ON	3rd→4th	X	OFF	ON→OFF	OFF	ON	OFF	ON
	4th	ON	OFF	OFF	OFF	ON	OFF	ON	4th	X	OFF	OFF	OFF	ON	OFF	ON
S3	1st	OFF	ON	ON	OFF	ON	OFF	ON	1st	X	ON	ON	OFF	ON	OFF	ON
	2nd	ON	ON	ON	OFF	ON	OFF	ON	1st→4th	X	ON→OFF	ON→OFF	OFF	ON	OFF	ON
	3rd (E/B)	ON	OFF	ON	OFF	ON	OFF	OFF	3rd (E/B)→4th	X	OFF	ON→OFF	OFF	ON	OFF	ON→OFF
S2	1st	OFF	ON	ON	OFF	ON	OFF	ON	1st	X	ON	ON	OFF	ON	OFF	ON
	2nd (E/B)	ON	ON	ON	ON	OFF	OFF	OFF	1st (E/B)→4th	X	ON→OFF	ON→OFF	OFF	ON	OFF	ON→OFF
S1	1st (E/B)	OFF	ON	ON	OFF	ON	OFF	OFF	1st (E/B)	X	ON	ON	OFF	ON	OFF	OFF
<p>2* : Actual gear shift (gear position) under fail-safe operation</p> <p>X : OFF (the ECM stops sending current to a malfunctioning solenoid)</p> <p>→ : Condition in the electrical malfunction is shown on the left of the arrow Condition in the fail-safe mode is shown on the right side of the arrow</p> <p>(E/B) : Engine Braking</p>																

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Figure 9



Technical Service Information

LEXUS A761E PRELIMINARY INFORMATION

Shift Lever Position	Shift Solenoid S2 Electrical Malfunction Code P0976, P0977								Shift Solenoid S3 Electrical Malfunction Code P0979, P0980							
	Gear ^{*2}	Shift Solenoid (ECM output)							Gear ^{*2}	Shift Solenoid (ECM output)						
		S1	S2	S3	S4	SR	SL1	SL2		S1	S2	S3	S4	SR	SL1	SL2
D, S6	3rd	OFF→ ON	X	ON	OFF	ON	OFF	ON	3rd→4th	OFF→ ON	ON→ OFF	X	OFF	ON	OFF	ON
	3rd	ON	X	ON	OFF	ON	OFF	ON	4th	ON	ON→ OFF	X	OFF	ON	OFF	ON
	3rd	ON	X	ON	OFF	ON	OFF	ON	4th	ON	OFF	X	OFF	ON	OFF	ON
	4th	ON	X	OFF	OFF	ON	OFF	ON	4th	ON	OFF	X	OFF	ON	OFF	ON
	5th	ON	X	OFF	ON	OFF	ON	OFF	5th	ON	OFF	X	ON	OFF	ON	OFF
	6th	ON	X	OFF	ON	OFF	ON	OFF	6th	ON	ON	X	ON	OFF	ON	OFF
S5	3rd	OFF→ ON	X	ON	OFF	ON	OFF	ON	3rd→4th	OFF→ ON	ON→ OFF	X	OFF	ON	OFF	ON
	3rd	ON	X	ON	OFF	ON	OFF	ON	4th	ON	ON→ OFF	X	OFF	ON	OFF	ON
	3rd	ON	X	ON	OFF	ON	OFF	ON	4th	ON	OFF	X	OFF	ON	OFF	ON
	4th	ON	X	OFF	OFF	ON	OFF	ON	4th	ON	OFF	X	OFF	ON	OFF	ON
	5th	ON	X	OFF	ON	OFF	ON	OFF	5th	ON	OFF	X	ON	OFF	ON	OFF
S4	3rd	OFF→ ON	X	ON	OFF	ON	OFF	ON	3rd→4th	OFF→ ON	ON→ OFF	X	OFF	ON	OFF	ON
	3rd	ON	X	ON	OFF	ON	OFF	ON	4th	ON	ON→ OFF	X	OFF	ON	OFF	ON
	3rd	ON	X	ON	OFF	ON	OFF	ON	4th	ON	OFF	X	OFF	ON	OFF	ON
	4th	ON	X	OFF	OFF	ON	OFF	ON	4th	ON	OFF	X	OFF	ON	OFF	ON
S3	3rd→ 3rd (E/B)	OFF→ ON	X	ON	OFF	ON	ON→ OFF	OFF	3rd→4th	OFF→ ON	ON→ OFF	X	OFF	ON	OFF	ON
	3rd→ 3rd (E/B)	ON	X	ON	OFF	ON	ON→ OFF	OFF	4th	ON	ON→ OFF	X	OFF	ON	OFF	ON
	3rd (E/B)	ON	X	ON	OFF	ON	OFF	OFF	4th	ON	OFF	X	OFF	ON	OFF	OFF→ ON
S2	3rd→ 3rd (E/B)	OFF→ ON	X	ON	OFF	ON	ON→ OFF	OFF	3rd→4th	OFF→ ON	ON→ OFF	X	OFF	ON	OFF	ON
	3rd (E/B)	ON	X	ON	OFF	ON	OFF	OFF	6th→4th	ON	ON→ OFF	X	OFF	ON	OFF	OFF→ ON
S1	3rd (E/B)	OFF→ ON	X	ON	OFF	ON	OFF	OFF	1st (E/B) → 4th	OFF→ ON	ON→ OFF	X	OFF	ON	OFF	OFF→ ON

Shift Lever Position	Shift Solenoid S4 Electrical Malfunction Code P0982, P0983								Shift Solenoid SR Electrical Malfunction Code P0985, P0986							
	Gear	Shift Solenoid (ECM output)							Gear ^{*2}	Shift Solenoid (ECM output)						
		S1	S2	S3	S4	SR	SL1	SL2		S1	S2	S3	S4	SR	SL1	SL2
D, S6	1st	OFF	ON	ON	X	ON	OFF	ON	1st	OFF	ON	ON	OFF	X	OFF	ON
	2nd	ON	ON	ON	X	ON	OFF	ON	2nd	ON	ON	ON	OFF	X	OFF	ON
	3rd	ON	OFF	ON	X	ON	OFF	ON	3rd	ON	OFF	ON	OFF	X	OFF	ON
	4th	ON	OFF	OFF	X	ON	OFF	ON	4th	ON	OFF	OFF	OFF	X	OFF	ON
	4th	ON	OFF	OFF	X	OFF→ ON	ON→ OFF	OFF→ ON	5th	ON	OFF	OFF	ON	X	ON	OFF
	4th	ON	ON→ OFF	OFF	X	OFF→ ON	ON→ OFF	OFF→ ON	6th	ON	ON	OFF	ON	X	ON	OFF
S5	1st	OFF	ON	ON	X	ON	OFF	ON	1st	OFF	ON	ON	OFF	X	OFF	ON
	2nd	ON	ON	ON	X	ON	OFF	ON	2nd	ON	ON	ON	OFF	X	OFF	ON
	3rd	ON	OFF	ON	X	ON	OFF	ON	3rd	ON	OFF	ON	OFF	X	OFF	ON
	4th	ON	OFF	OFF	X	ON	OFF	ON	4th	ON	OFF	OFF	OFF	X	OFF	ON
	4th	ON	OFF	OFF	X	OFF→ ON	ON→ OFF	OFF→ ON	5th	ON	OFF	OFF	ON	X	ON	OFF
S4	1st	OFF	ON	ON	X	ON	OFF	ON	1st	OFF	ON	ON	OFF	X	OFF	ON
	2nd	ON	ON	ON	X	ON	OFF	ON	2nd	ON	ON	ON	OFF	X	OFF	ON
	3rd	ON	OFF	ON	X	ON	OFF	ON	3rd	ON	OFF	ON	OFF	X	OFF	ON
	4th	ON	OFF	OFF	X	ON	OFF	ON	4th	ON	OFF	OFF	OFF	X	OFF	ON
S3	1st	OFF	ON	ON	X	ON	OFF	ON	1st	OFF	ON	ON	OFF	X	OFF	ON
	2nd	ON	ON	ON	X	ON	OFF	ON	2nd	ON	ON	ON	OFF	X	OFF	ON
	3rd (E/B)	ON	OFF	ON	X	ON	OFF	OFF	3rd	ON	OFF	ON	OFF	X	OFF	OFF
S2	1st	OFF	ON	ON	X	ON	OFF	ON	1st	OFF	ON	ON	OFF	X	OFF	ON
	2nd (E/B)	ON	ON	ON	X	ON	OFF	OFF	2nd	ON	ON	ON	OFF	X	OFF	OFF
S1	1st (E/B)	OFF	ON	ON	X	ON	OFF	OFF	1st	OFF	ON	ON	OFF	X	OFF	OFF

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Figure 10

LEXUS A761E PRELIMINARY INFORMATION

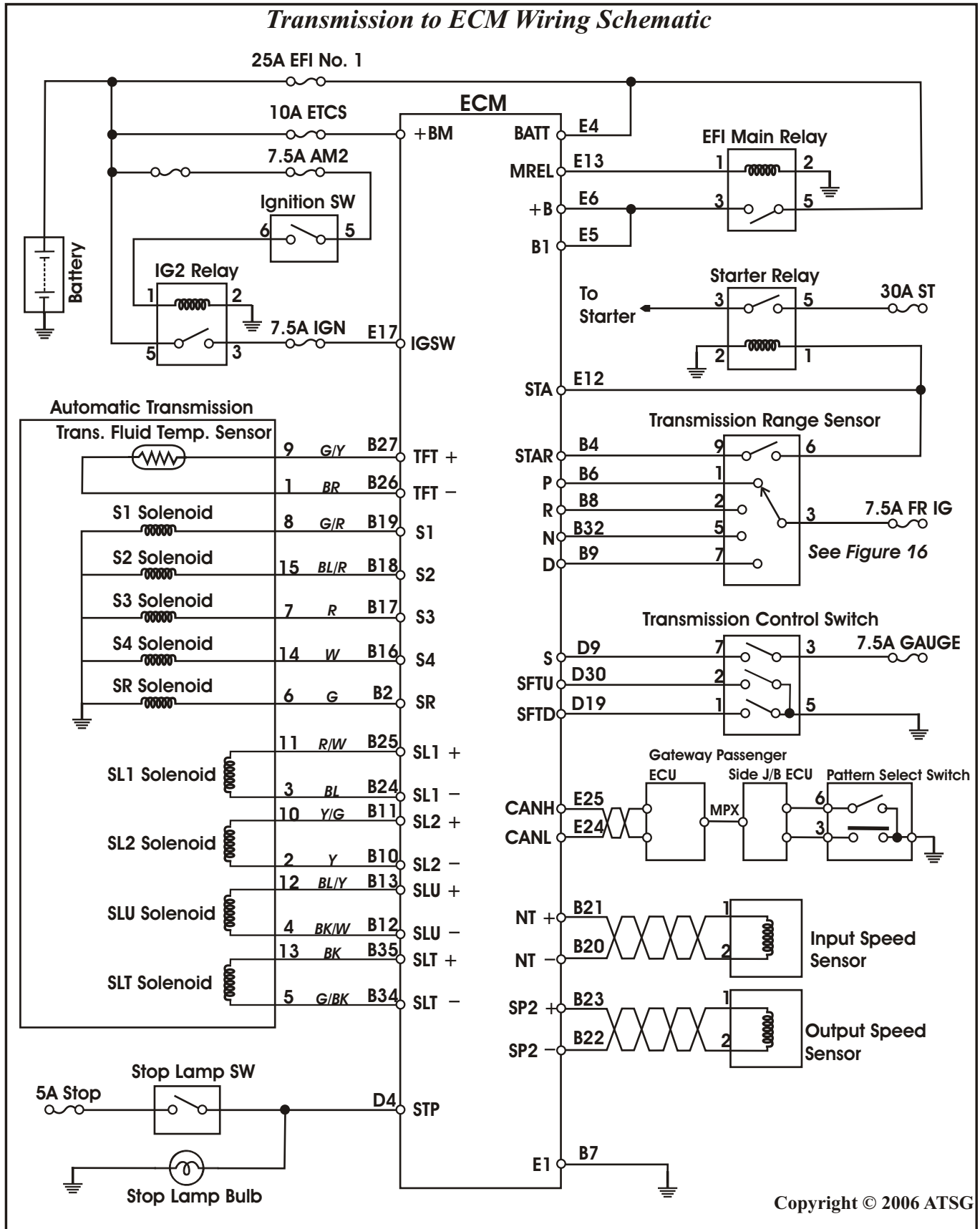
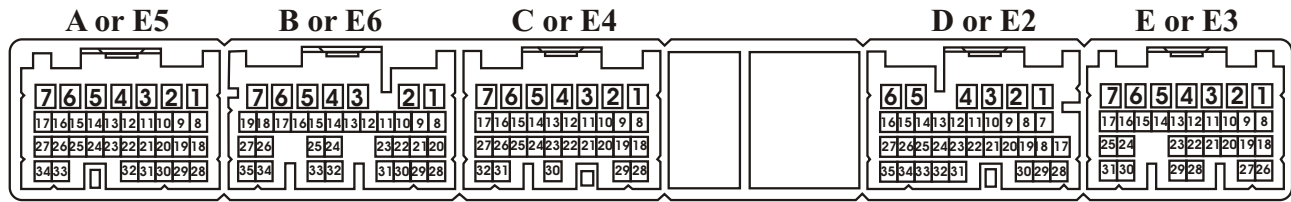


Figure 11

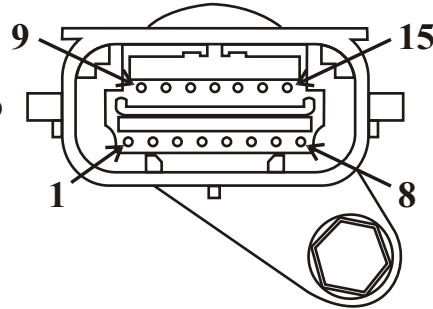
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Solenoid Resistance Check Chart at the Trans or ECM



ECM Connector and Pin ID

Transmission Case Connector Pin ID



Solenoid Resistance Check at the Transmission Case Connector OR from the ECM Connector "B" (E-6)

<i>Description</i>	<i>Transmission Case Connector</i>		<i>ECM "B"- "E6" Connector</i>		<i>Value in Ohms</i>
Solenoid	Positive	Negative	Positive	Negative	Resistance
S1	8	Case Ground	19	7	11 - 15
S2	15	Case Ground	18	7	11 - 15
S3	7	Case Ground	17	7	11 - 15
S4	14	Case Ground	16	7	11 - 15
SR	6	Case Ground	2	7	11 - 15
SL1	11	3	25	24	5.0 - 5.6
SL2	10	2	11	10	5.0 - 5.6
SLU	12	4	13	12	5.0 - 5.6
SLT	13	5	35	34	5.0 - 5.6
TFT	9	1	27	26	79k - 156k

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Figure 12



Technical Service Information

LEXUS A761E PRELIMINARY INFORMATION

Diagnostic Trouble Code Chart

*1 ● Malfunction Indicator Light Illuminated

*2 ○ Diagnostic Code stored in memory when the ECM detects the condition that caused the code to set

DTC No.	Detection Item	Trouble Area	MIL *1	Memory *2
P0500	Vehicle Speed Sensor "A"	• Open or short in speed sensor (SP2) circuit • Speed sensor (SP2) • ECM	●	○
P0705	Transmission Range Sensor Circuit Malfunction (PRNDL Input)	• Open or short in park/neutral position switch circuit • Park/neutral position switch • ECM	●	○
P0710	Transmission Fluid Temperature Sensor "A" Circuit	• Open or short in ATF temperature sensor circuit • Transmission wire (ATF temperature sensor) • ECM	●	○
P0711	Transmission Fluid Temperature Sensor "A" Performance	• Open or short in ATF temperature sensor circuit • Transmission wire (ATF temperature sensor) • ECM	●	○
P0712	Transmission Fluid Temperature Sensor "A" Circuit Low Input	• Short in ATF temperature sensor circuit • Transmission wire (ATF temperature sensor) • ECM	●	○
P0713	Transmission Fluid Temperature Sensor "A" Circuit High Input	• Open in ATF temperature sensor circuit • Transmission wire (ATF temperature sensor) • ECM	●	○
P0717	Turbine Speed Sensor Circuit No Signal	• Open or short in speed sensor (NT) circuit • Speed sensor (NT) • ECM • Automatic transmission (clutch, brake or gear, etc.)	●	○
P0724	Brake Switch "B" Circuit High	• Short in stop light switch signal circuit • Stop light switch • ECM	●	○
P0729	Gear 6 Incorrect Ratio	• Valve body is blocked up or stuck (reverse sequence valve) • Automatic transmission (clutch, brake or gear, etc.) • ECM	●	○
P0748	Pressure Control Solenoid "A" Electrical (Shift Solenoid Valve SL1)	• Open or short in shift solenoid valve SL1 circuit • Shift solenoid valve SL1 • ECM	●	○
P0751	Shift Solenoid "A" Performance (Shift Solenoid Valve S1)	• Shift solenoid valve S1 remains open or closed • Valve body is blocked • No.2 brake malfunction (Driving is difficult.) • Automatic transmission (clutch, brake or gear, etc.) • ECM	●	○
P0756	Shift Solenoid "B" Performance (Shift Solenoid Valve S2)	• Shift solenoid valve S2 remains open or closed • Valve body is blocked • Automatic transmission (clutch, brake or gear, etc.) • ECM	●	○

Figure 13



Technical Service Information

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Diagnostic Trouble Code Chart

P0761	Shift Solenoid "C" Performance (Shift Solenoid Valve S3)	<ul style="list-style-type: none">• Shift solenoid valve S3 remains open or closed• Valve body is blocked• Automatic transmission (clutch, brake or gear, etc.)• ECM	●	○
P0766	Shift Solenoid "D" Performance (Shift Solenoid Valve S4)	<ul style="list-style-type: none">• Shift solenoid valve S4 remains open or closed• Shift solenoid valve SL2 remains open or closed• Valve body is blocked (Brake control valve)• Automatic transmission (clutch, brake or gear, etc.)• ECM	●	○
P0776	Pressure Control Solenoid "B" Electrical (Shift Solenoid Valve SL2)	<ul style="list-style-type: none">• Open or short in shift solenoid valve SL2 circuit• Shift solenoid valve SL2• ECM	●	○
P0781	1-2 Shift (1-2 Shift Valve)	<ul style="list-style-type: none">• Valve body is blocked up or stuck (1-2 shift valve)• Automatic transmission (clutch, brake or gear, etc.)• ECM	●	○
P0850	Park/Neutral Switch Input Circuit	<ul style="list-style-type: none">• Short in park/neutral position switch circuit• Park/neutral position switch• ECM	●	○
P0973	Shift Solenoid "A" Control Circuit Low (Shift Solenoid Valve S1)	<ul style="list-style-type: none">• Short in shift solenoid valve S1 circuit• Shift solenoid valve S1• ECM	●	○
P0974	Shift Solenoid "A" Control Circuit High (Shift Solenoid Valve S1)	<ul style="list-style-type: none">• Open in shift solenoid valve S1 circuit• Shift solenoid valve S1• ECM	●	○
P0976	Shift Solenoid "B" Control Circuit Low (Shift Solenoid Valve S2)	<ul style="list-style-type: none">• Short in shift solenoid valve S2 circuit• Shift solenoid valve S2• ECM	●	○
P0977	Shift Solenoid "B" Control Circuit High (Shift Solenoid Valve S2)	<ul style="list-style-type: none">• Open in shift solenoid valve S2 circuit• Shift solenoid valve S2• ECM	●	○
P0979	Shift Solenoid "C" Control Circuit Low (Shift Solenoid Valve S3)	<ul style="list-style-type: none">• Short in shift solenoid valve S3 circuit• Shift solenoid valve S3• ECM	●	○
P0980	Shift Solenoid "C" Control Circuit High (Shift Solenoid Valve S3)	<ul style="list-style-type: none">• Open in shift solenoid valve S3 circuit• Shift solenoid valve S3• ECM	●	○
P0982	Shift Solenoid "D" Control Circuit Low (Shift Solenoid Valve S4)	<ul style="list-style-type: none">• Short in shift solenoid valve S4 circuit• Shift solenoid valve S4• ECM	●	○
P0983	Shift Solenoid "D" Control Circuit High (Shift Solenoid Valve S4)	<ul style="list-style-type: none">• Open in shift solenoid valve S4 circuit• Shift solenoid valve S4• ECM	●	○
P0985	Shift Solenoid "E" Control Circuit Low (Shift Solenoid Valve SR)	<ul style="list-style-type: none">• Short in shift solenoid valve SR circuit• Shift solenoid valve SR• ECM	●	○

Figure 14

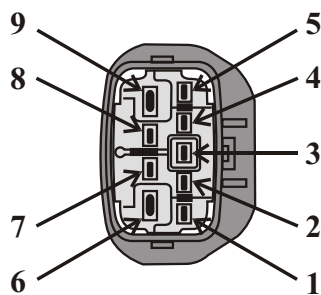
LEXUS A761E PRELIMINARY INFORMATION

Diagnostic Trouble Code Chart

P0986	Shift Solenoid "E" Control Circuit High (Shift Solenoid Valve SR)	<ul style="list-style-type: none"> • Open in shift solenoid valve SR circuit • Shift solenoid valve SR • ECM 	●	○
P2714	Pressure Control Solenoid "D" Performance (Shift Solenoid Valve SLT)	<ul style="list-style-type: none"> • Shift solenoid valve SLT remains open or closed • Valve body is blocked • Automatic transmission (clutch, brake or gear, etc.) • ECM 	●	○
P2716	Pressure Control Solenoid "D" Electrical (Shift Solenoid Valve SLT)	<ul style="list-style-type: none"> • Open or short in shift solenoid valve SLT circuit • Shift solenoid valve SLT • ECM 	●	○
P2757	Torque Converter Clutch Pressure Control Solenoid Performance (Shift Solenoid Valve SLU)	<ul style="list-style-type: none"> • Shift solenoid valve SLU remains open or closed • Valve body is blocked • Shift solenoid valve SLU • Torque converter clutch • Automatic transmission (clutch, brake or gear, etc.) • Line pressure is too low • ECM 	●	○
P2759	Torque Converter Clutch Pressure Control Solenoid Control Circuit Electrical (Shift Solenoid Valve SLU)	<ul style="list-style-type: none"> • Open or short in shift solenoid valve SLU circuit • Shift solenoid valve SLU • ECM 	●	○

Figure 15

Transmission Range Sensor Check Chart



PIN ID \ GEAR	1	2	3	4	5	6	7	8	9
P	●	—	●			●	—		●
R		●	●						
N	●	—	●			●	—		●
D, S			●	—			●		

● — ● Continuity (1 ohm or less)
 in the gear specified.
 10K ohms or greater
 other than gear specified

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Figure 16

LEXUS A761E PRELIMINARY INFORMATION

Transmission Fluid Check

The A761E transmission does not utilize a conventional filler tube and dip stick for checking the fluid level. Looking at the bottom of the pan you will find two plugs one of which is marked as "check" (See Figure 17). The other is a drain plug.

Looking inside the pan in Figure 18, you can see that on the other side of this check plug is a check pipe. Fluid is to be filled until the level is high enough to run over and out of the check pipe.

To fill the transmission, there are two options. The first option which the manufacturer suggests is to remove the case cover from the side of the transmission as seen in Figure 19.

When the cover is removed, a 24mm fill plug becomes accessible (Figure 20). But further back on the same side of the case is another location that can be used to fill the transmission without having to pull this case cover off (Figure 21). This 55 torx head bolt is just below the output shaft speed sensor so care must be taken to not damage the sensor when you access this location.

This transmission utilizes a "WS" designated fluid and on a dry fill it will require 11.5 quarts (10.9L). 3.2 quarts (3.0L) on a drain and refill.

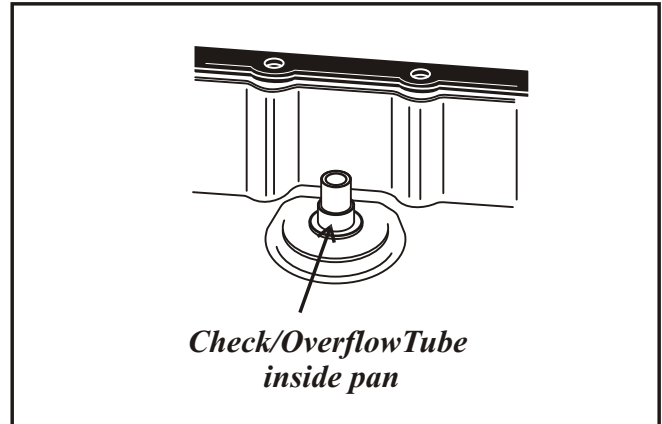


Figure 18

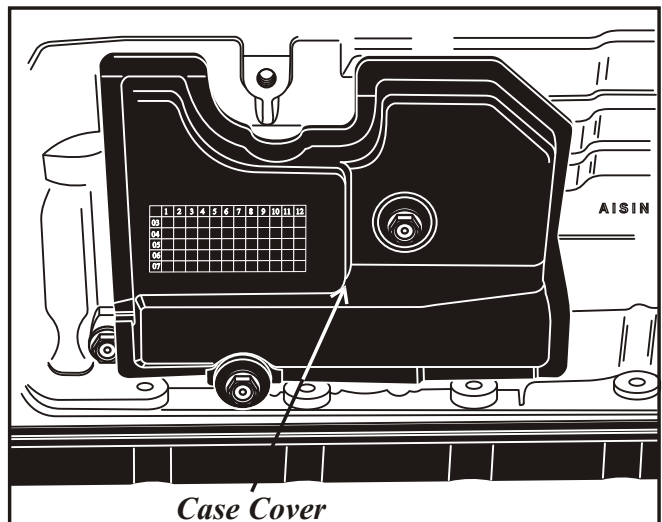


Figure 19

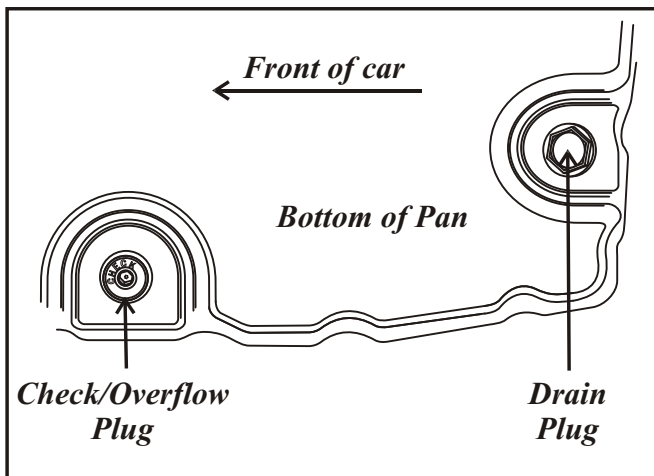


Figure 17

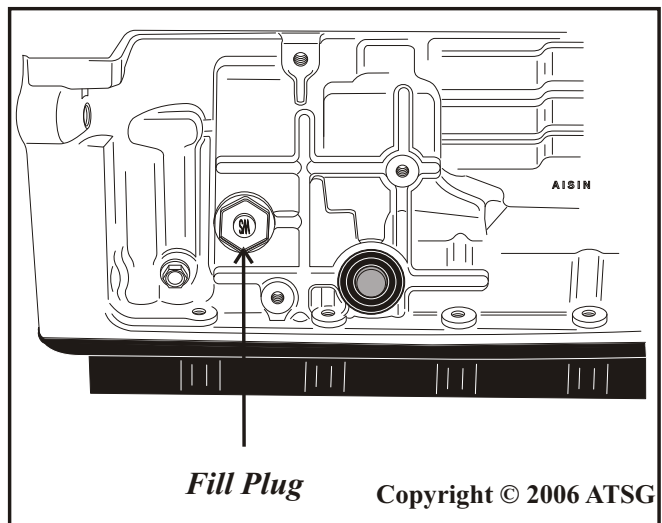


Figure 20

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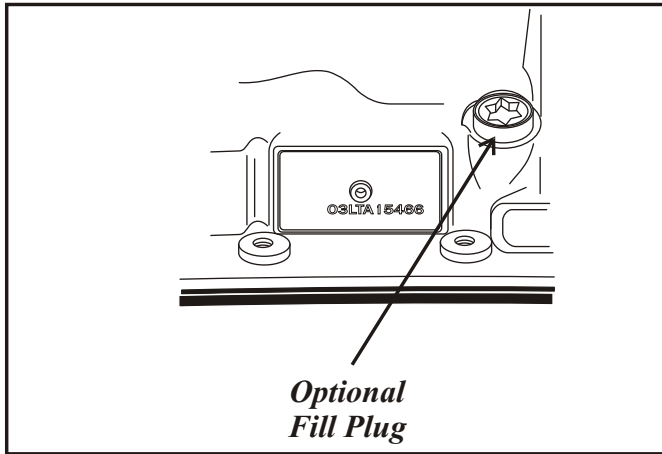


Figure 21

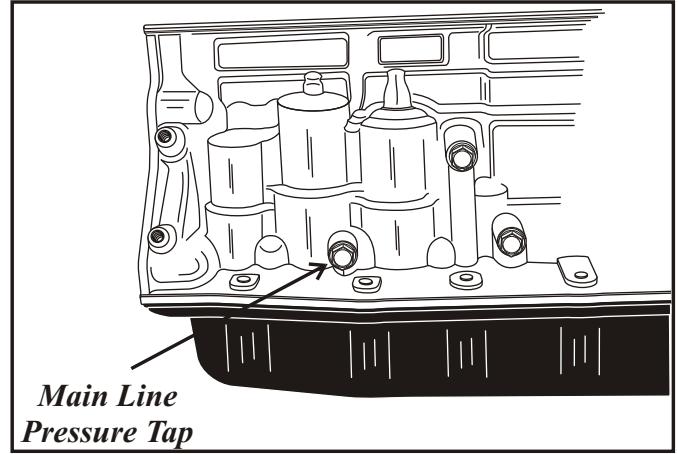


Figure 22

Main Line Pressure Tap

The main line pressure tap can be located on the side of the case as seen in Figure 22. Refer to the accompanying chart for pressure specifications.

Basic Pressure Diagnostics:

If pressure is high in all ranges and there are no DTC's, suspect a mechanical problem with the SLT solenoid or the pressure regulator valve.

If pressure is low in all ranges, suspect a mechanical problem with the SLT solenoid, the pressure regulator valve, the pump, or filter.

If pressure is low in the "D" position only, suspect a leak in the "D" hydraulic circuit or the C1 clutch.

If pressure is low in the "R" position only, suspect a leak in the "R" hydraulic circuit, the C3 or B4 clutch.

RPM	DRIVE	REVERSE
Idle	52-61 psi	70-82 psi
Stall	181-195 psi	213-234 psi

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Valve Body Removal

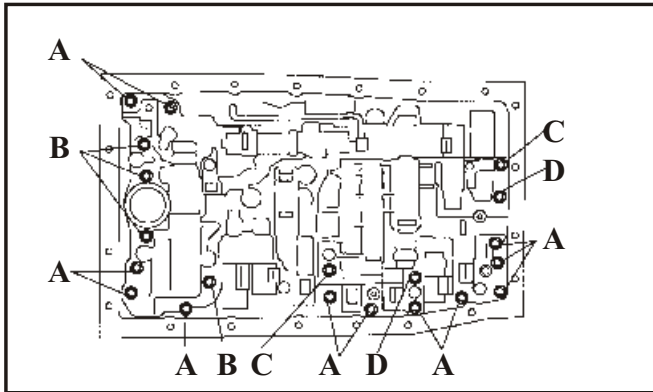


Figure 23

Valve Body Removal continued:

Remove the bolts indicated in figure 23 to remove the valve body. Each bolt is lettered for length identification and position when re-installing the valve body.

A: 0.98" (25 mm)
 B: 1.42" (36 mm)
 C: 1.77" (45 mm)
 D: 1.97" (50 mm)

Valve Body and Solenoids

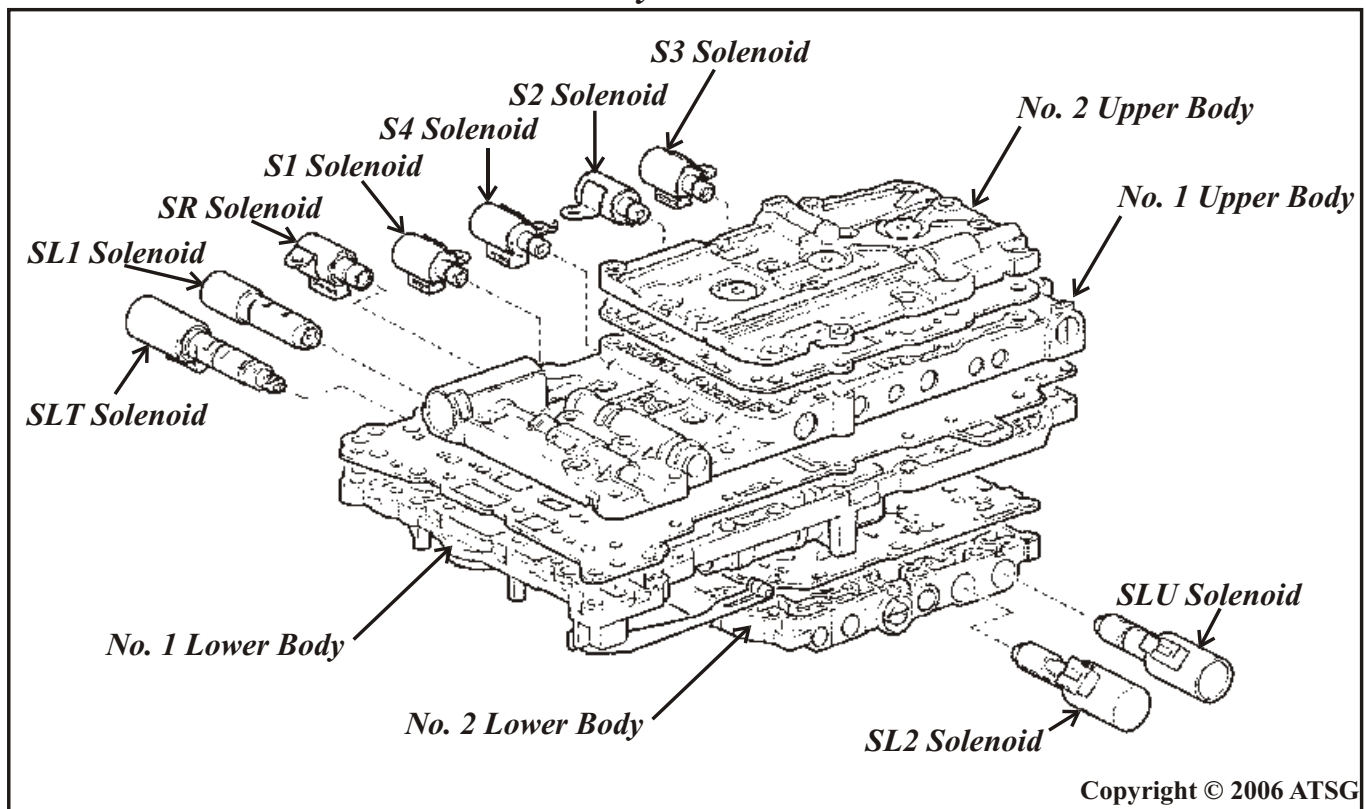


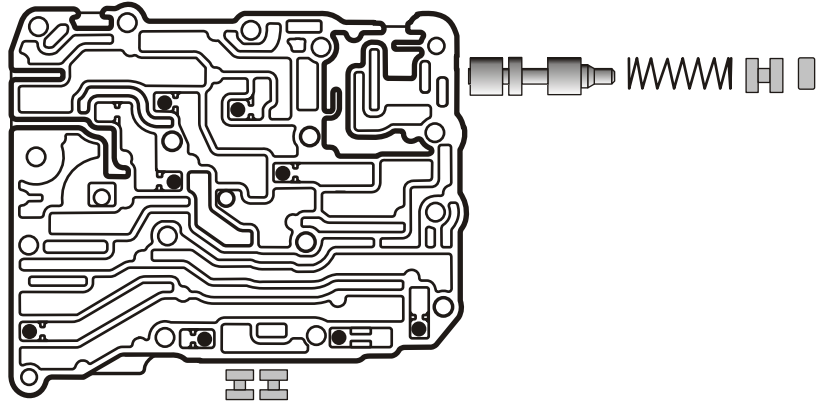
Figure 24

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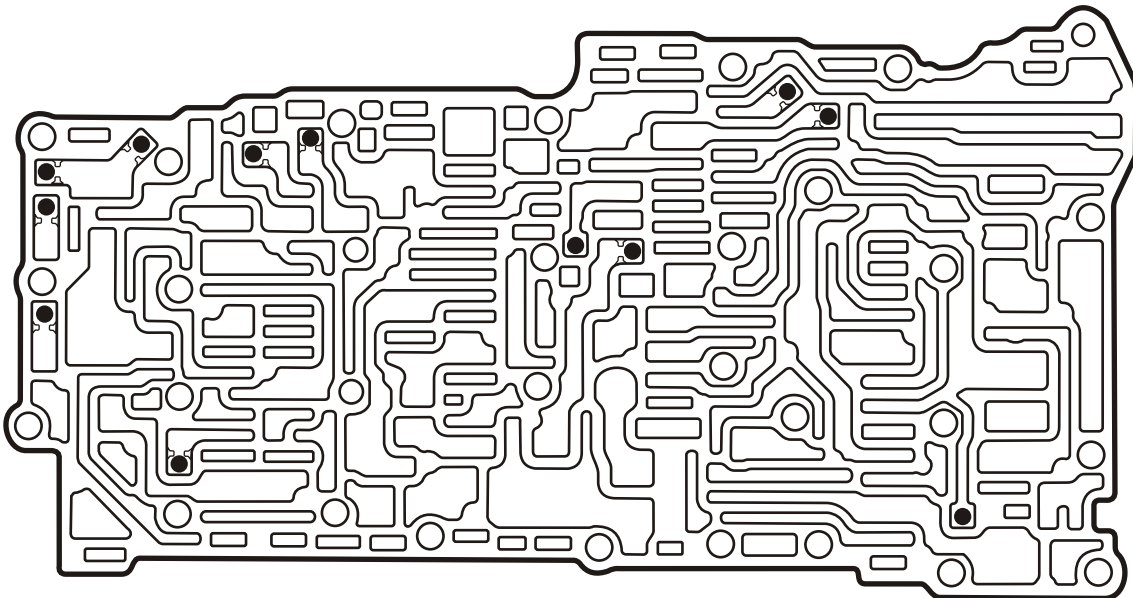
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Check Ball and Small Parts location

No. 2 Upper Valve Body Check Ball Locations



Check balls Measure: 0.215" in diameter



No. 1 Upper Valve Body Check Ball Locations

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Figure 25

LEXUS A761E PRELIMINARY INFORMATION

Check Ball and Small Parts location

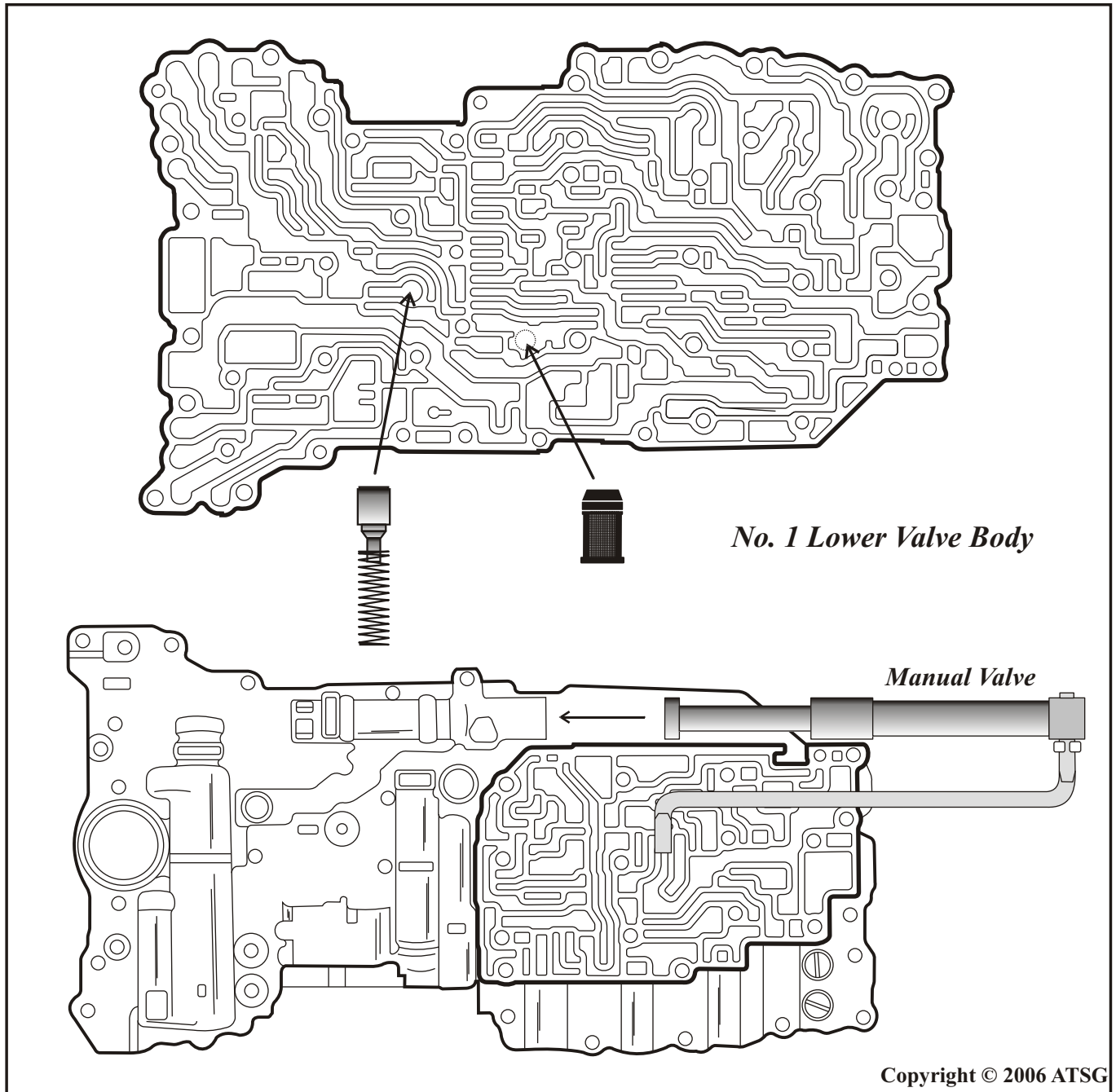


Figure 26

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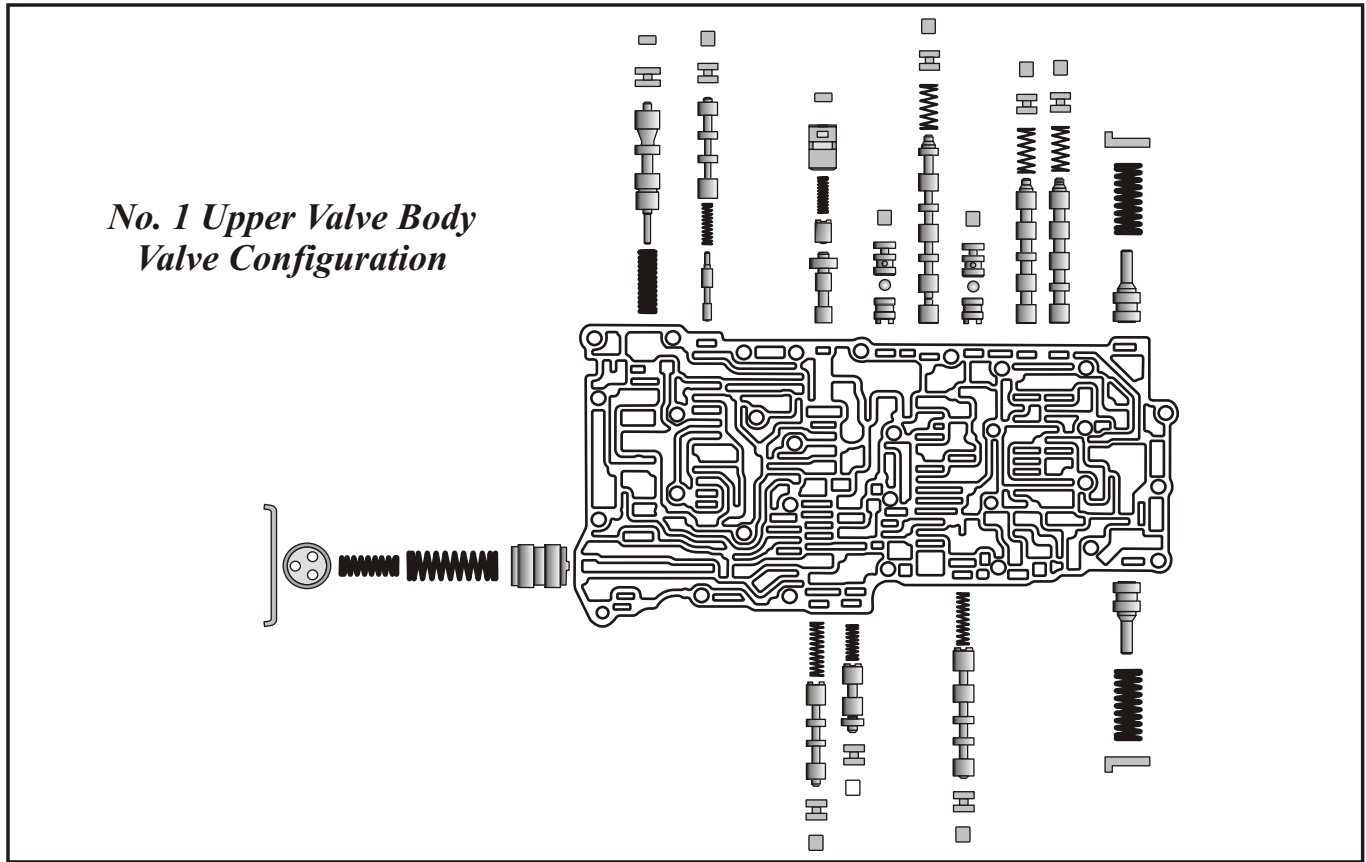


Figure 27

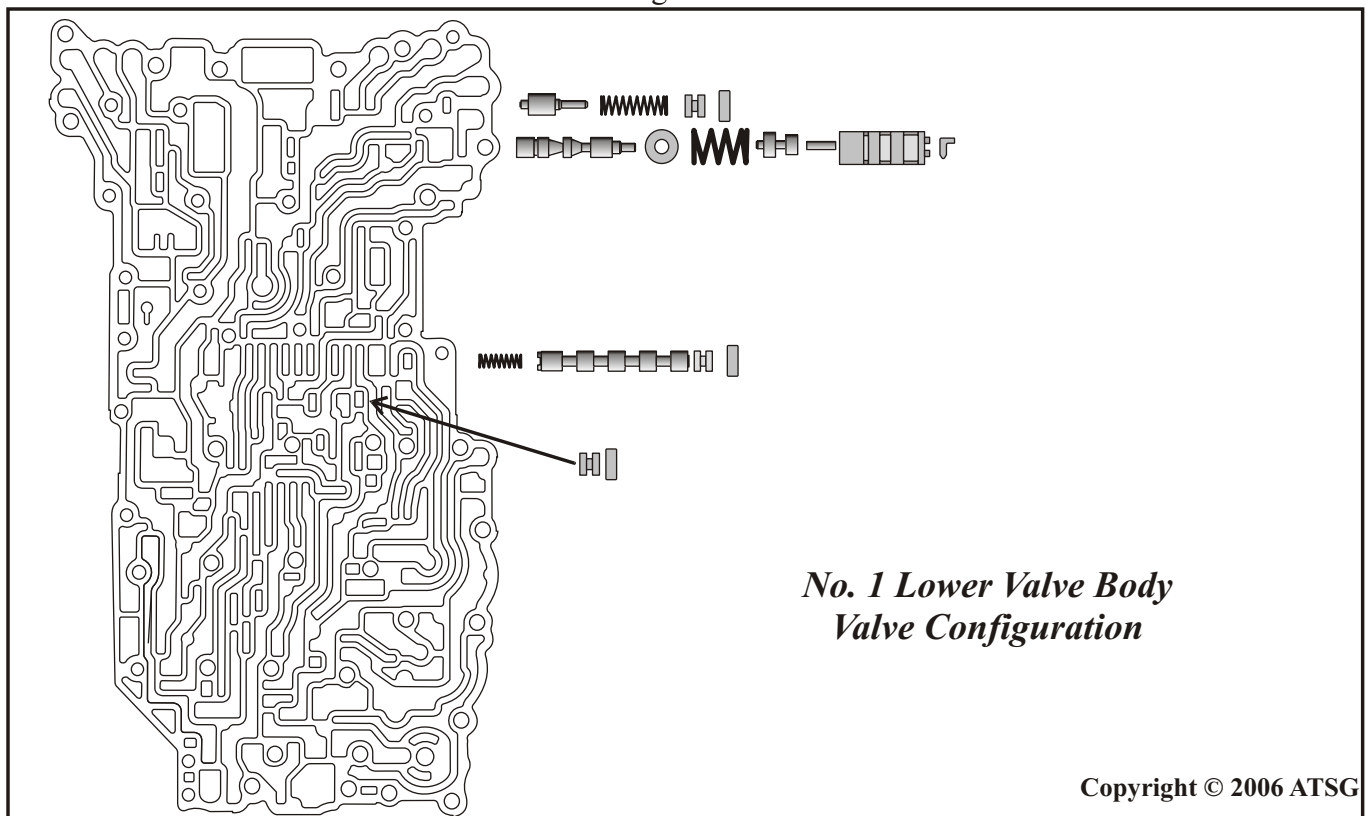


Figure 28

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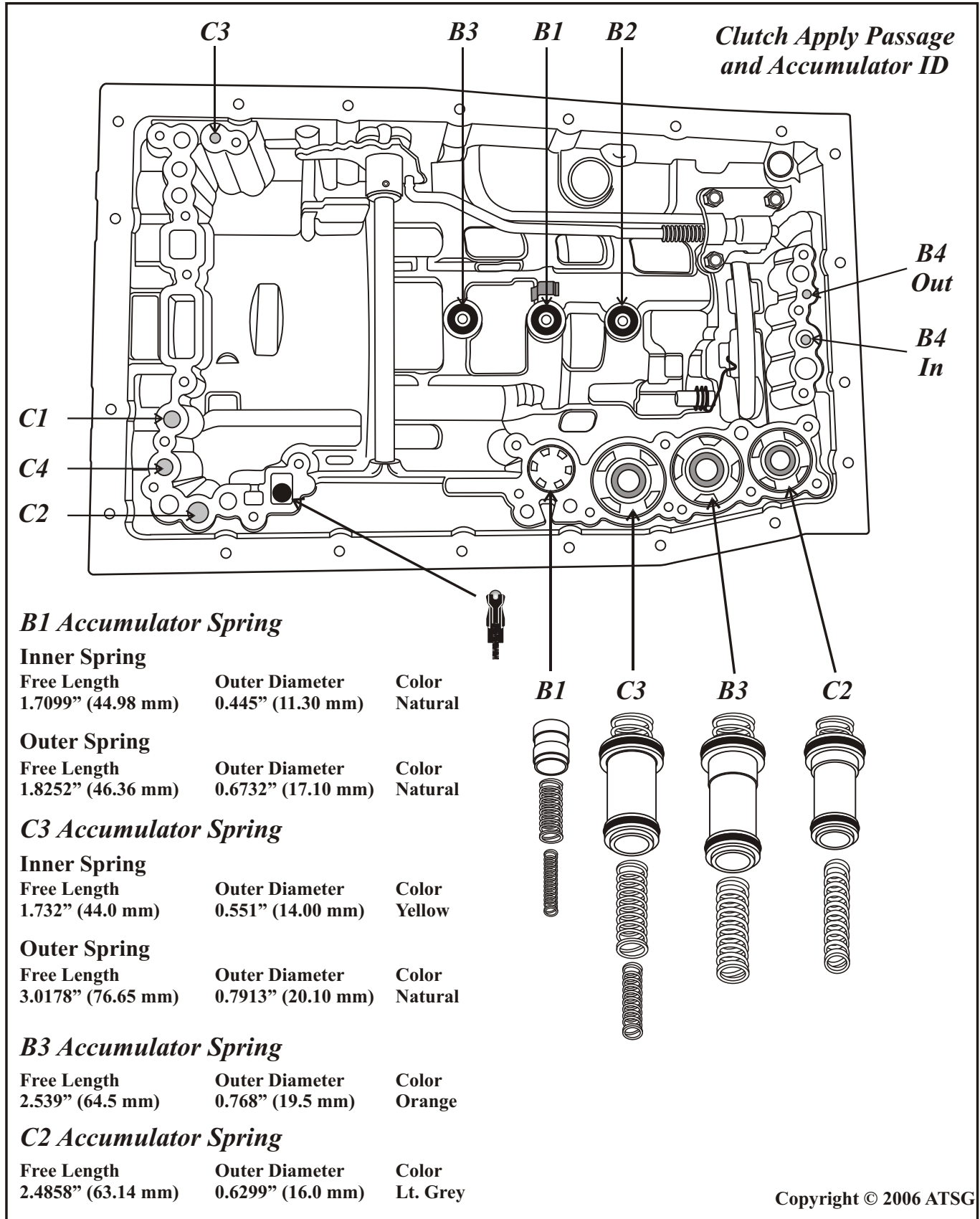


Figure 29