



# Technical Service Information

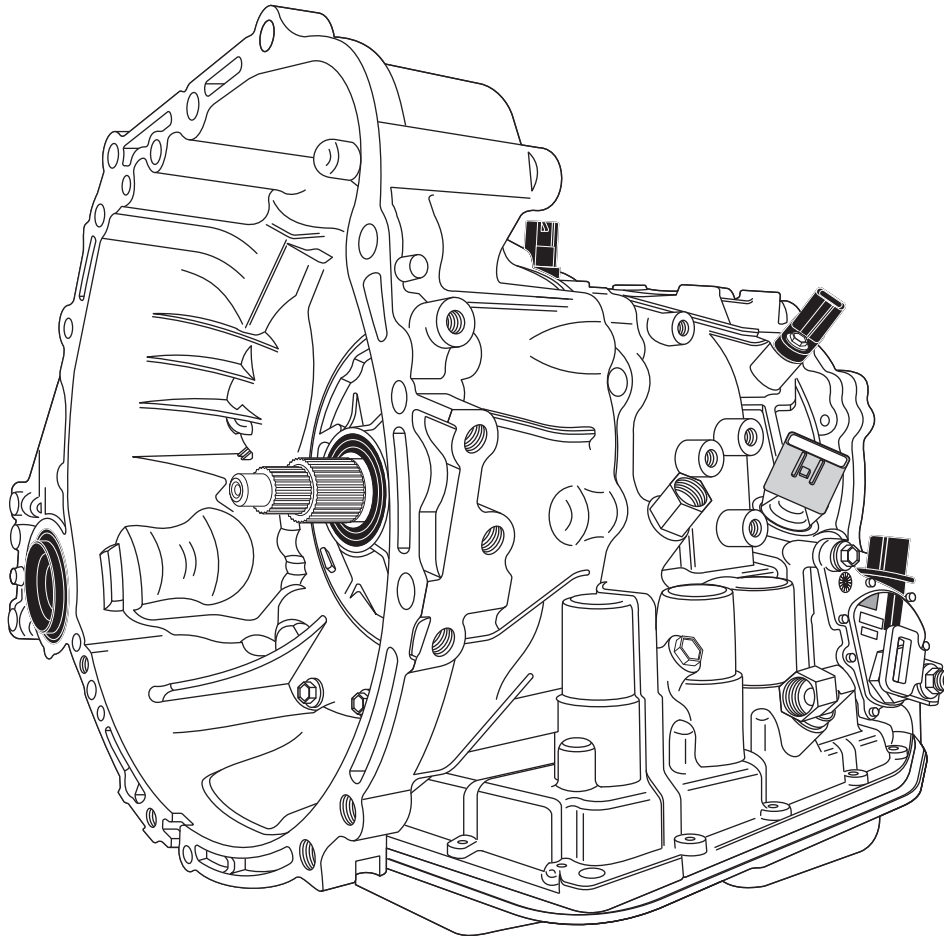
## TOYOTA/LEXUS U150/U250 PRELIMINARY INFORMATION

Starting at the beginning of production for the 2002 model year for Lexus and 2004 for Toyota, a spin-off of the U140/U240 Four speed transaxle, designated as the U150/U250 series was born. This transmission is classified as a 5 speed transmission, although it has 6 ratio's possible in the Drive position. The U150/250 is very similar to it's smaller brother, the U140, and actually uses some of the same parts.

This Transaxles shift points, and shift feel are electronically controlled by a Powertrain Control Module. This is accomplished by the PCM monitoring engine load and adjusting solenoid duty cycle to match pressure rise and shift feel. The PCM also monitors the turbine and output speed sensors to calculate gear ratio and the Transmission Range Sensor for gear selection.

This Technicians guide will provide theory of operation starting with a component application, continuing on thru solenoid function both mechanically and hydraulically. The manual will also provide passage identification in the Mapping section, along with full color hydraulic schematics for all ranges. Refer to the index of Figures listed on the following page for the component or information desired.

## TOYOTA/LEXUS U150/U250 TRANSAXLE





# Technical Service Information

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*Refer to Figures 25 and 26 for the SL2 Solenoid hydraulic function.*  
*Refer to Figures 27 - 29 for the SL3 Solenoid hydraulic function.*  
*Refer to Figures 30 - 33 for the SR and S4 Solenoid hydraulic function.*  
*Refer to Figures 34 - 37 for the SR and DSL Solenoid hydraulic function.*  
*Refer to Figure 38 for the Lube Cancel Circuits for C2, C0 and C1 Clutch.*  
*Refer to Figures 39-49 for the complete Valve Body assembly exploded views and valve descriptions.*  
*Refer to Figure 50 for case passage and air check locations.*  
*Refer to Figure 51 for case accumulator I.D.*

## **VALVE BODY MAPPING**

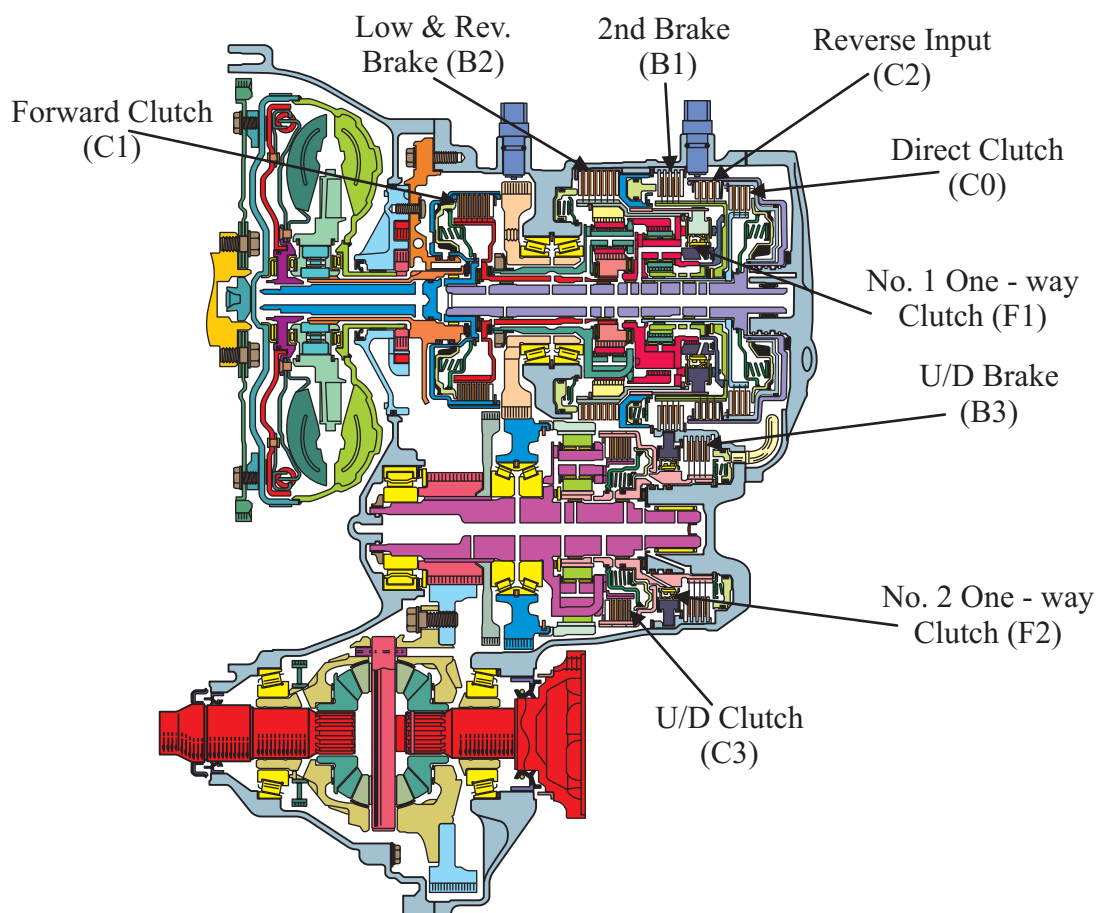
*Valve Body Mapping text (Passage I.D.)*

*Valve Body Mapping Oil Circuit Diagram*

## **OIL CIRCUIT DIAGRAMS**

<i>Park/Neutral</i>	<i>Drive 3rd Gear (Reduction)</i>
<i>Reverse</i>	<i>Drive 4th Gear</i>
<i>Drive 1st Gear</i>	<i>Drive 5th Gear</i>
<i>Drive 2nd Gear</i>	<i>Drive 5th Gear TCC On</i>
<i>Drive 3rd Gear (Transition)</i>	<i>Drive Manual Low 1st Gear</i>
<i>Drive 3rd Gear</i>	

## TOYOTA/LEXUS U150/U250 COMPONENT APPLICATION CHART



Gear Range	Fwd Clutch C1	Rev Input Clutch C2	Dir Clutch C0	U/D Clutch C3	2nd Brake B1	L/R Brake B2	U/D Brake B3	No. 1 One Way Clutch F1	No. 2 One Way Clutch F2
Park							ON		
Reverse		ON				ON	ON		
Neutral							ON		
D-1st. Gear	ON						ON	ON	ON
D-2nd. Gear	ON				ON		ON		ON
D-3rd. Gear Version 1	ON		ON	ON					
D-3rd. Gear Version 2	ON		ON				ON		ON
D-4th. Gear			ON		ON		ON		ON
D-5th. Gear			ON	ON	ON				

3rd Gear Version 1 is a higher ratio, as the Transfer assembly is turning 1:1

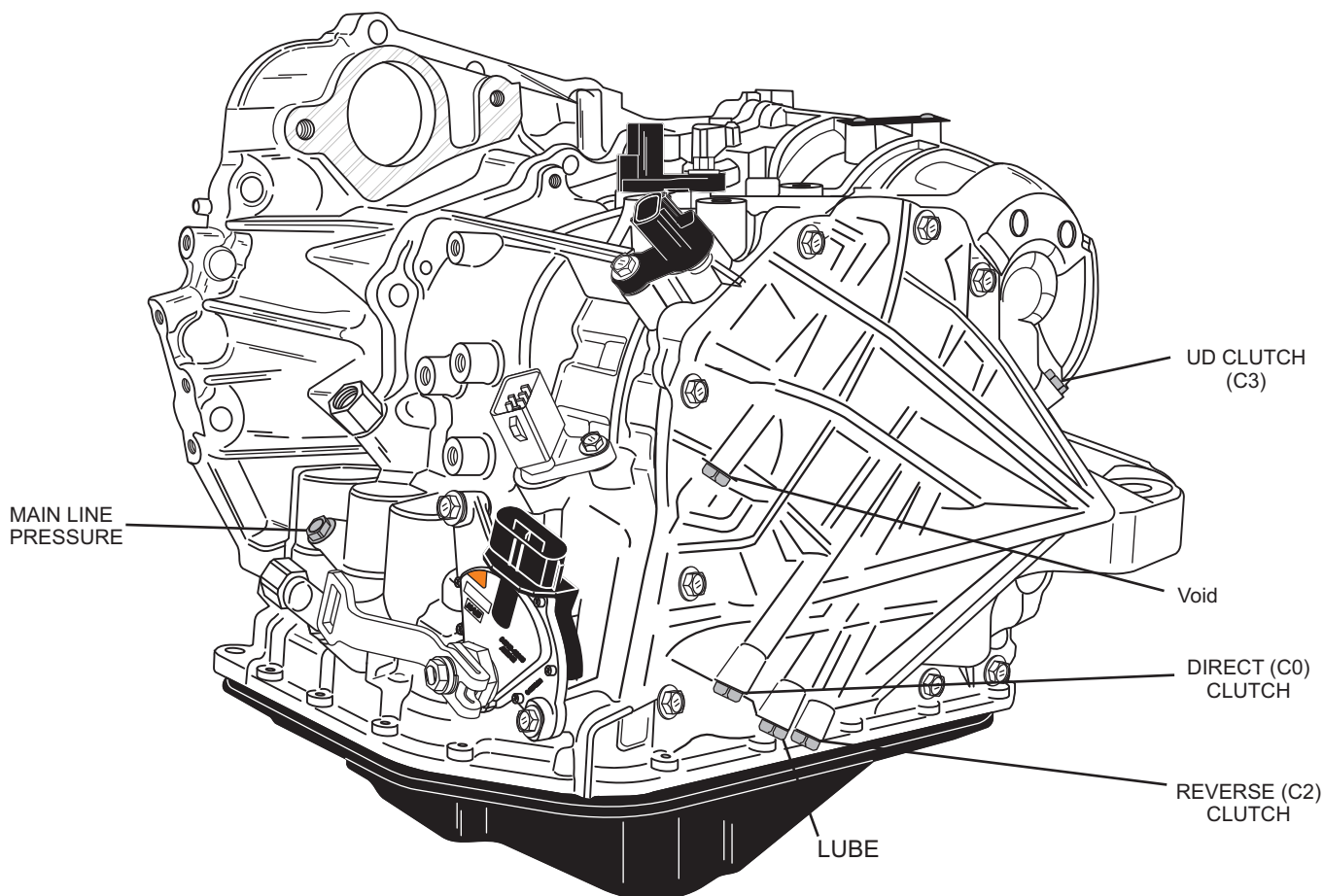
3rd Gear Version 2 is a lower ratio, as the Transfer assembly is in reduction

Note: These two versions are controlled by PCM scheduling and Line pressure. Version 2 is used at higher throttle/pressure.

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Figure 1

## LINE PRESSURE TAP LOCATIONS AND SPECIFICATIONS



## LINE PRESSURE SPECIFICATIONS

RANGE	IDLE	STALL
D	54-60psi.	135-150psi.
R	97-108psi.	256-285psi.

## FLUID LEVEL CHECKING AND ATF CAPACITY/REQUIREMENT

Check fluid with temperature between 50 - 80 °C (122 - 176 °F) and AC off. Selector lever in park position with parking brake set. Stall testing should not exceed 10 seconds.

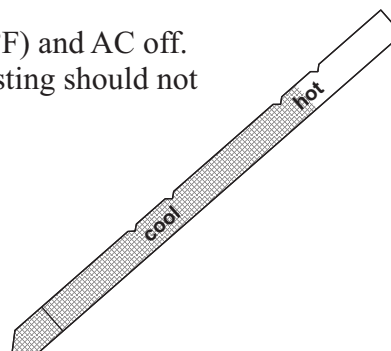
Fluid level should be between the hot marks on the stick.

Dry Fill.....8.8 liters

Drain and Re-fill.....3.5 liters

Fluid requirement: Toyota Genuine ATF WS"

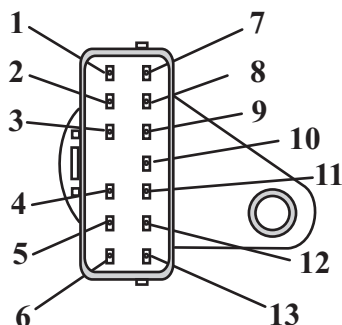
Part Number JWS3324 or NWS9638



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## SOLENOID INTERNAL HARNESS AND CONNECTOR I.D.

**13 PIN  
CONNECTOR**



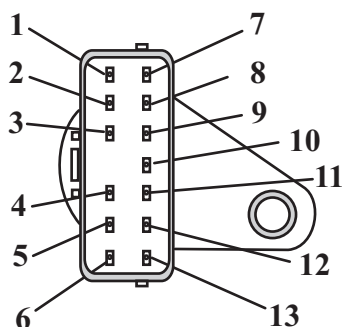
<i>Terminal</i>	<i>Function</i>	<i>Internal wire Color</i>
<b>1</b>	<b>THO (temp +)</b>	<b>Orange</b>
<b>2</b>	<b>SLT +</b>	<b>Green</b>
<b>3</b>	<b>S4 +</b>	<b>Yellow</b>
<b>4</b>	<b>SL3+</b>	<b>Red</b>
<b>5</b>	<b>SL2+</b>	<b>Green</b>
<b>6</b>	<b>SL1+</b>	<b>White</b>
<b>7</b>	<b>E2 (temp -)</b>	<b>Orange</b>
<b>8</b>	<b>SLT -</b>	<b>Grey</b>
<b>9</b>	<b>SR+</b>	<b>Purple</b>
<b>10</b>	<b>DSL+</b>	<b>Light Blue</b>
<b>11</b>	<b>SL3-</b>	<b>Blue</b>
<b>12</b>	<b>SL2-</b>	<b>Brown</b>
<b>13</b>	<b>SL1-</b>	<b>Black</b>

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Figure 3

## SOLENOID OHM VALUES

**13 PIN  
CONNECTOR**



<i>Test</i>	<i>Connect to terminals</i>	<i>Ohm Value</i>
<b>Temp Sensor</b>	<b>1 and 7</b>	<b>3.8k ohms @ 70°F</b>
<b>SLT</b>	<b>2 and 8</b>	<b>4.5 to 6.0</b>
<b>S4</b>	<b>3 and Gnd to the case</b>	<b>11 to 15</b>
<b>SL3</b>	<b>4 and 11</b>	<b>4.5 to 6.0</b>
<b>SL2</b>	<b>5 and 12</b>	<b>4.5 to 6.0</b>
<b>SL1</b>	<b>6 and 13</b>	<b>4.5 to 6.0</b>
<b>SR</b>	<b>9 and Gnd to the case</b>	<b>11 to 15</b>
<b>DSL</b>	<b>10 and Gnd to the case</b>	<b>11 to 15</b>

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Figure 4