



## DODGE 48RE TRANSMISSION THROTTLE VALVE ACTUATOR

**CHANGE:** Beginning at the start of production for the model year 2005, Dodge trucks equipped with the 5.9 diesel and 48RE transmission, were equipped with a Electronically controlled Transmission Throttle Valve Actuator (TTVA), See Figure 1. This Actuator has replaced the previous Throttle Valve Cable, which controls the Throttle Valve in the Valve Body.

**REASON:** For electronic control of the Throttle Valve in the valve body.

### PARTS AFFECTED:

- (1) TRANSMISSION THROTTLE VALVE ACTUATOR - The TTVA consists of an electronic DC motor, which has two potentiometers and a gear driven system that controls the Throttle Valve in the valve body, for shift timing, passing gear below 4th gear and pressure control. The position of the geartrain is monitored by the TTVA Position sensor which supplies an input to the Engine Control Module. The TTVA is controlled by the ECM thru the inputs of Accelerator Position Sensor 1 and 2. Refer to the chart in Figure 4 for a comparison chart of APP1 and APP2 to the voltages that control the TTVA and the TTVA position voltage feedback to the ECM. ***Note: If the TTVA is removed from the transmission, the ECM will have to relearn it's "0" position. The ignition will have to be turned on and the engine off for 30 seconds to accomplish "Auto Zero."*** With the addition of the TTVA a new wiring harness was introduced. Refer to Figure 3 for a partial wire schematic of the TTVA and its connectors. Refer to Figure 5 for a list of new Diagnostic Trouble Codes related to the TTVA. ***Note: Some of the DTC's listed can cause the voltage to the TTVA to be shut off by the ECM, this will in turn cause the motor position to be in high TV mode.***
- (2) TRANSMISSION CASE - The transmission case had two bosses added to it to mount the new TTVA, as shown in Figure 2.

### INTERCHANGEABILITY:

The previous design Transmission Case is not interchangeable with the new design TTVA because of the lack of bosses.

## TRANSMISSION THROTTLE VALVE ACTUATOR

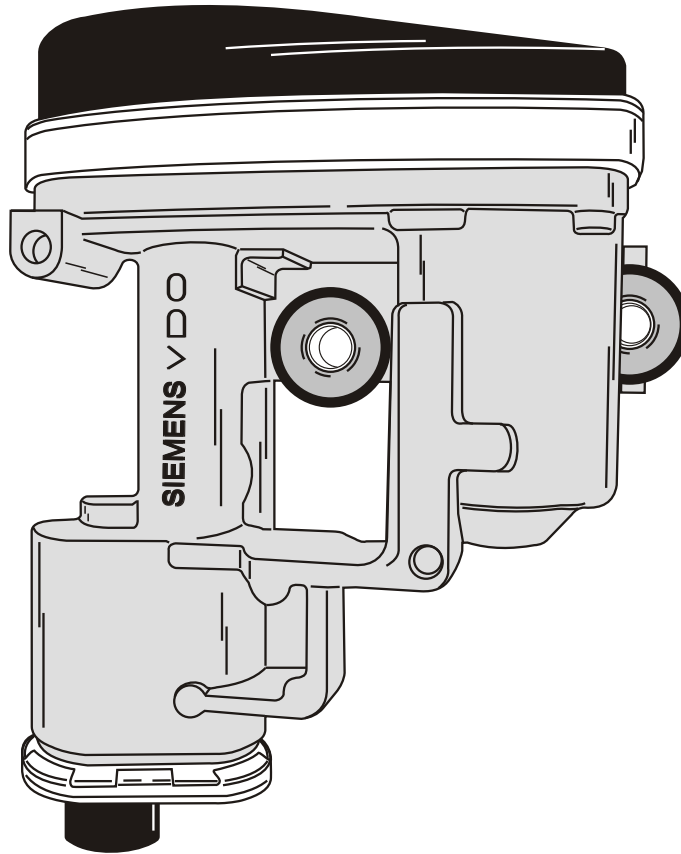
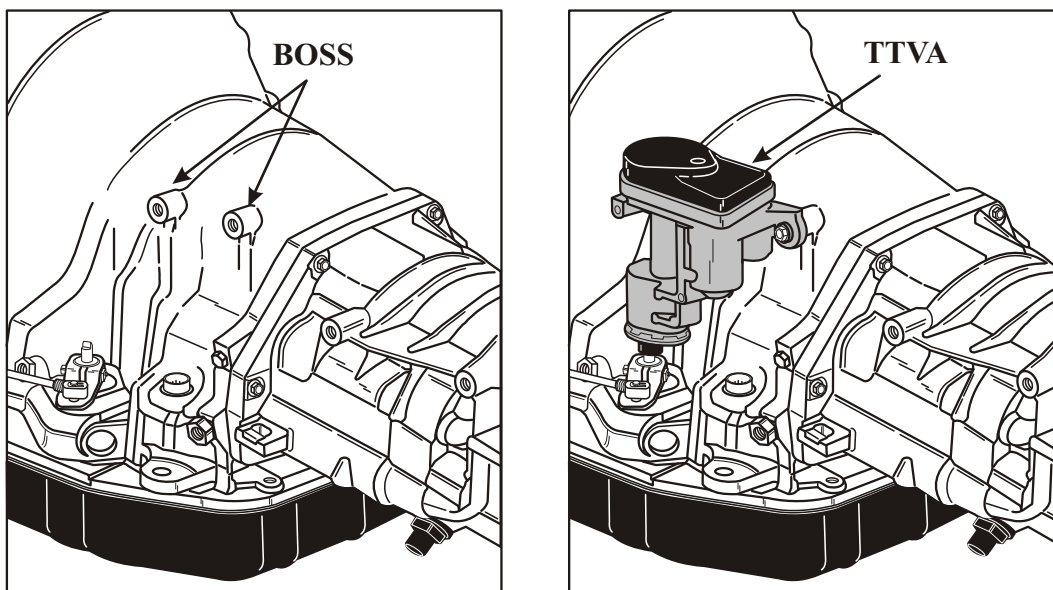


Figure 1

## TTVA CASE BOSSES

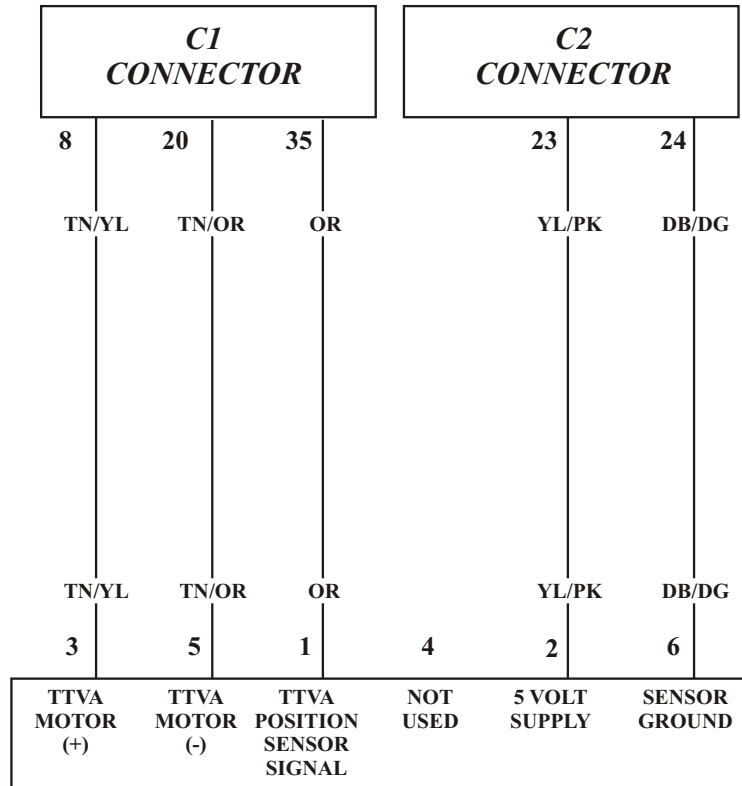


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Figure 2

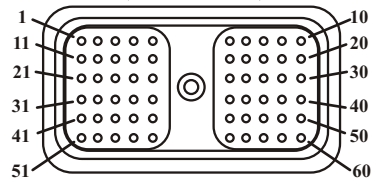
## TRANSMISSION THROTTLE VALVE ACTUATOR PARTIAL ELECTRICAL SCHEMATIC

**ENGINE CONTROL MODULE**  
(located on the front drivers side of engine)



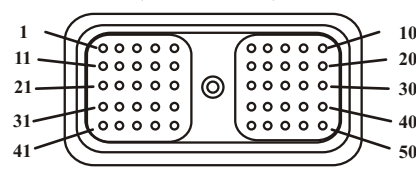
### TRANSMISSION THROTTLE VALVE ACTUATOR CONNECTOR

**ECM - C1  
CONNECTOR**  
(Wire side)



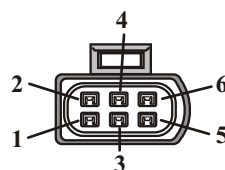
Note: numbers are marked on connector

**ECM - C2  
CONNECTOR**  
(Wire side)



Note: numbers are marked on connector

### TRANSMISSION THROTTLE VALVE ACTUATOR CONNECTOR (Face view)



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Figure 3

**VOLTAGE AND PERCENTAGE CHARTS**

<b>ACCELERATOR POSITION SENSOR</b>	<b>CLOSED THROTTLE</b>	<b>WIDE OPEN THROTTLE</b>
<i>ACCELERATOR POSITION SENSOR 1%</i>	<b>2</b>	<b>96</b>
<i>ACCELERATOR POSITION SENSOR 1 Voltage</i>	<b>.45 V</b>	<b>4.56V</b>
<i>ACCELERATOR POSITION SENSOR 2%</i>	<b>3</b>	<b>97</b>
<i>ACCELERATOR POSITION SENSOR 2 Voltage</i>	<b>.24V</b>	<b>2.29V</b>

<b>TTVA + MOTOR CONTROL PIN #8 AT ECM C1 CONNECTOR</b>	<b>CLOSED THROTTLE</b>	<b>WIDE OPEN THROTTLE</b>
<i>TTVA +</i>	<b>2.0V-2.5V</b>	<b>.70V-0V</b>

*Note: backprobe terminal #8 to a good ground*

<b>TTVA POSITION SENSOR SIGNAL PIN #35 AT ECM C1 CONNECTOR</b>	<b>CLOSED THROTTLE</b>	<b>WIDE OPEN THROTTLE</b>
<i>TTVA POSITION SENSOR SIGNAL</i>	<b>3.78V</b>	<b>.73V</b>

*Note: backprobe terminal #35 to a good ground*

*Note: TTVA motor control and TTVA position sensor voltages are subject to change. The ECM will re-calibrate it's current "0" position when the ignition is turned on and the engine is not running for 30 seconds.*



## **TTVA TROUBLE CODE DESCRIPTIONS**

**P1749 - TTVA Position Sensor Low (Electrical)**

**P1750 - TTVA Position Sensor High (Electrical)**

**P1751 - TTVA Position Minimum range Performance (Mechanical)**

**P1753 - TTVA Position Mechanical Performance (Mechanical)**

**P1754 - TTV Actuator Stuck (Electronic/Mechanical)**

**P1755 - TTVA Control Circuit (Electronic/Mechanical)**

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Figure 5