INTRODUCTION

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FORD/LINCOLN/MERCURY
6R60/6R75/6R80

Beginning at the start of production for the model year 2005 for the Navigator, 2006 for Explorer and Mountaineer (4.6L V-8), 2007 for Expedition, 2008 for F150, and 2010 for Mustang, Ford/Lincoln/Mercury introduced a new 6 speed Rear Wheel Drive transmission designated 6R60.

This automatic transmission comprises of: six forward speeds, a four element torque converter containing a multi-disc lock up clutch, three driving clutches; clutch A, B and E, two brake clutches; clutch C and D, a Lepelletier planetary gear train and a valve body assembly fitted with a Mechatronic Control Module which controls all hydraulic functions via the electronic solenoids in order to perform the tasks of engagement control, shift timing and shift feel. The Mechatronic module also contains and utilizes an output shaft speed OSS sensor, a turbine shaft speed TSS sensor, a transmission fluid temperature TFT sensor, as well as an internal gear shift position sensor.

In 2010, with the introduction of the 6R80 model transmission, changes were made and a low one-way clutch OWC was added and fitted to the transmission to be used in manual first gear, as well as the drive first gear range. It should also be noted that some 6R80 models such as the 6.2 ltr. F150 and all models 2012 and later will not be fitted with a Mechatronic Control Module as part of the valve body assembly, instead in those vehicles, transmission control is performed by the vehicle Powertrain Control Module PCM.

The information and part numbers contained in this booklet have been carefully compiled from industry sources known for their reliability, but ATSG does not guarantee its accuracy.

AUTOMATIC TRANSMISSION SERVICE GROUP
18635 SW107th AVENUE
CUTLER BAY, FLORIDA 33157
(305) 670-4161
www.atsg.com

FORD/LINCOLN/MERCURY 6R60/6R75/6R80

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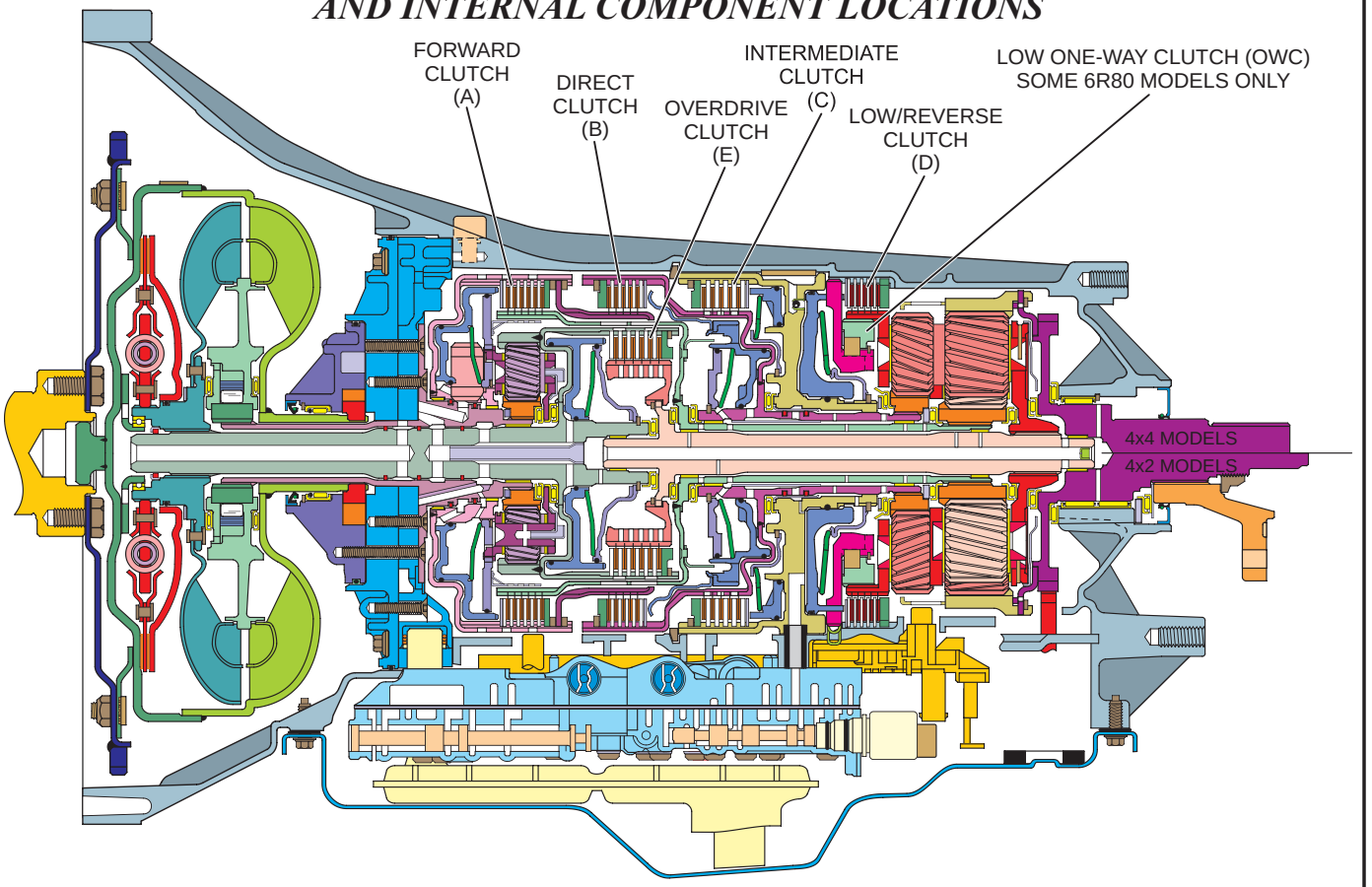
18635 SW 107th AVENUE
CUTLER BAY, FLORIDA 33157
(305) 670-4161

6R60/6R75/6R80 CUT AWAY VIEW AND INTERNAL COMPONENT LOCATIONS



6R60/6R75/6R80 CLUTCH APPLICATION CHART

CLUTCH / RANGE	FORWARD CLUTCH (A)	DIRECT CLUTCH (B)	INTERMEDIATE CLUTCH (C)	LOW/REV CLUTCH (D)	OVERDRIVE CLUTCH (E)	**LOW OWC	TCC CLUTCH	GEAR RATIO
P				Applied				
R		Applied		Applied				3.40
N				Applied				
D-1st.	Applied			^Applied		Hold	Applied*	4.17
D-2nd.	Applied		Applied				Applied*	2.34
D-3rd.	Applied	Applied					Applied*	1.52
D-4th.	Applied				Applied		Applied*	1.14
D-5th.		Applied			Applied		Applied*	0.87
D-6th.			Applied		Applied		Applied*	0.69
M-1st.	Applied			Applied		Hold	Applied*	4.17
M-2nd.	Applied		Applied				Applied*	2.34
M-3rd.	Applied	Applied					Applied*	1.52

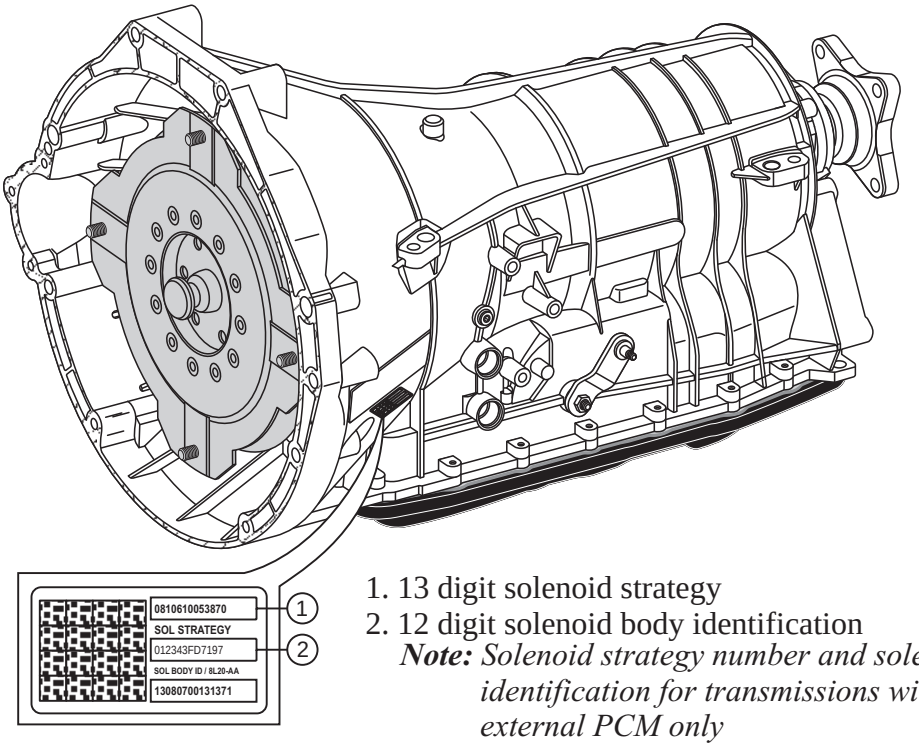
** TCC operation available in gears 1 through 6, dependant upon throttle position, transmission fluid temp and vehicle speed.*

*** Some 6R80 models 2010 - later are equipped with a low one-way clutch (OWC).*

^ Models equipped with low one-way clutch (OWC), low reverse clutch applied only until vehicle speed reaches approx. 5 mph.

Figure 1

6R60/6R75/6R80
TRANSMISSION TAG INFORMATION
AND SOLENOID STRATEGY IDENTIFICATION



1. 13 digit solenoid strategy
2. 12 digit solenoid body identification

Note: *Solenoid strategy number and solenoid body identification for transmissions with external PCM only*

Numbers are also located on the valve body casting.

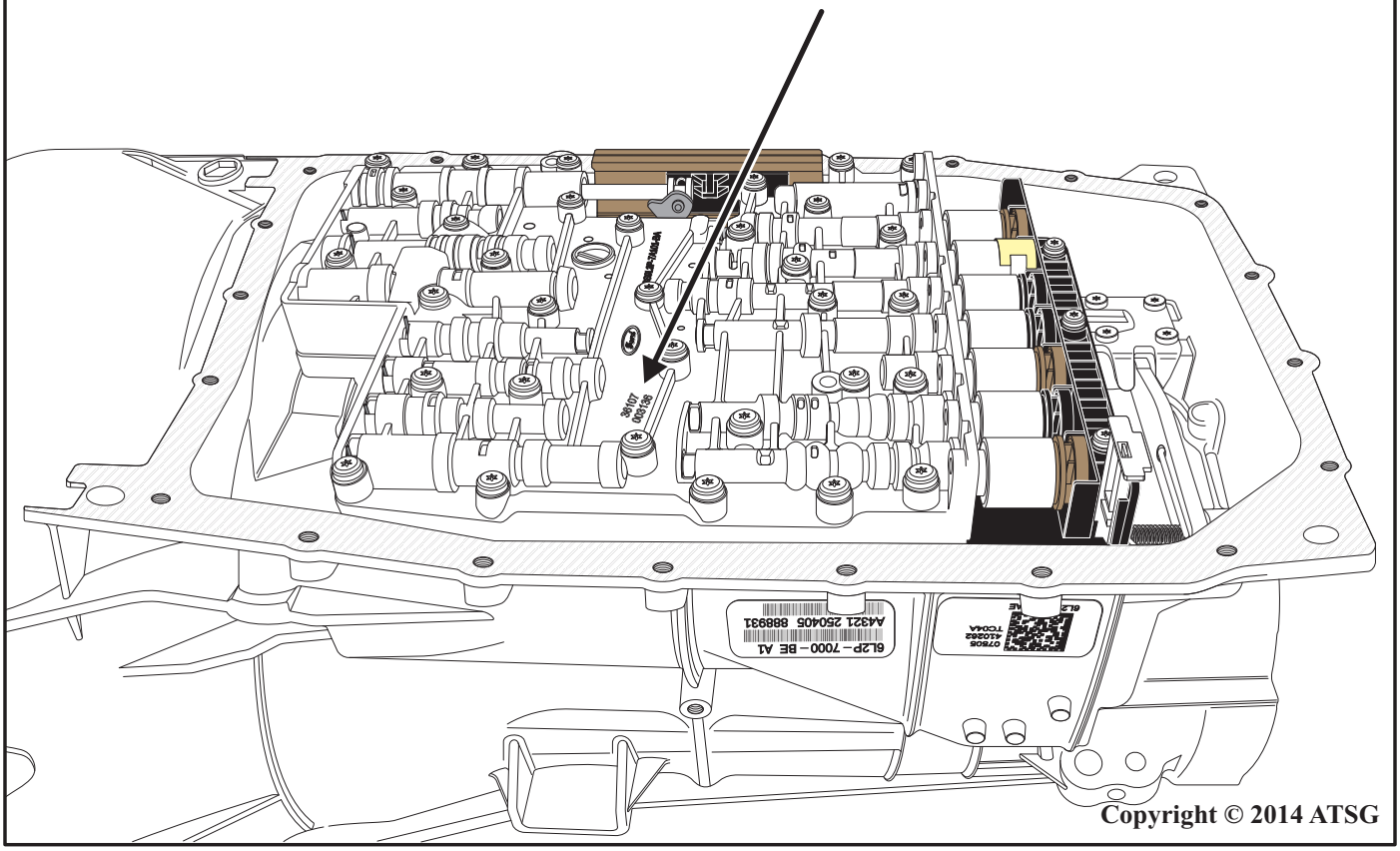


Figure 2

The 6R60/6R75/6R80 is a fully-automatic electronically controlled rear-wheel drive transmission, with six forward speeds and one reverse speed. This automatic transmission comprises of: a hydraulic fluid pump, a four element torque converter containing a multi-disc lock up clutch, three driving clutches; Fwd. clutch A, Dir. clutch B and OD clutch E, two brake clutches; Int. clutch C and L/R clutch D, (Refer to Figure 1) a Lepelletier planetary gear train and a valve body assembly fitted with a Mechatronic Control Module which controls all hydraulic functions via the electronic solenoids in order to perform the tasks of engagement control, shift timing and shift feel. The Mechatronic module also contains and utilizes an output shaft speed (OSS) sensor, a turbine shaft speed (TSS) sensor, a transmission fluid temperature (TFT) sensor, as well as an internal gear shift position sensor.

The Lepelletier planetary gear train uses a single planetary gear set in the front which drives a double planetary Ravigneaux type gear set in the rear. The three driving clutches; Fwd clutch A, Dir. B, OD C, each utilize a balance piston in the make up of the clutch drum assembly. These balance pistons are supplied transmission fluid through use of an orifice in the lubrication supply. As such, this allows oil to be directed to both sides of the apply piston. This dynamic pressure equalization provides advanced control of both clutch apply and release, as well as improvement in shifting characteristics.

Some vehicles which are equipped with the 6R80 automatic transmission include the usage of a one-way clutch (OWC) device that is used only in the first gear range, both in automatic and manual mode. Further, some 6R80 models (and all 2012 - later models) eliminated the internal Mechatronic Control Module therefore, transmission control is provided externally via the vehicle Powertrain Control Module (PCM). On vehicles that utilize the PCM for transmission control there is a tag affixed to the driver side of the transmission that contains a 13 digit solenoid strategy number (numbers only, no letters) and a 12 digit solenoid body identification number as shown in Figure 2.

NOTE: There are different solenoid calibrations for these transmissions. Changing solenoid calibration by replacing a solenoid may cause damage to the transmission or driveability concerns.

In the event a valve body change becomes necessary or is believed to already have been performed, it will be necessary to determine if the valve body assembly is the correct one for the vehicle. In order to do so, it will be necessary to obtain the 13 digit solenoid strategy number through use of the Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with the appropriate hardware or other equivalent scan tool device.

Using the scan tool, select the powertrain, transmission and transmission toolbox icon and follow the displayed instructions. The scan tool screen should display solenoid body identification as follows: Solenoid body strategy 13 digit number and also the solenoid body identification 12 digit number. The following screen will display the current solenoid body identification and strategy data file stored in the PCM. If the solenoid body identification and strategy indicated on the scan tool match the identification tag or replacement tag on the transmission, then the solenoid body ID and strategy for this transmission are correct. If the solenoid body identification tag is missing or tag has been removed or damaged rendering it unreadable, then it will be necessary to remove the transmission oil pan and filter to locate the 13 digit strategy number which is etched into the bottom of the main control valve body assembly casting as shown in Figure 2. Should the solenoid body strategy field scan tool be empty, the module only contains partial transmission solenoid body strategy. This could be due to missing or corrupt files stored when the programmable parameters were last completed. Compare the solenoid body identification and solenoid strategy numbers on the scan tool to the solenoid body identification and solenoid strategy numbers located on the identification tag. If the numbers match, the solenoid body and strategy are correct for this transmission and no solenoid strategy data download is necessary. If the identification tag is missing or unreadable, compare the solenoid strategy identification number etched into the main control valve body.

NOTE: the solenoid strategy number etched on the main control valve body MUST match the identification tag, if readable, as well as the number viewed on the scan tool. If the numbers do not match, driveability concerns or damage to the transmission may result.

If the solenoid strategy numbers on the identification tag, etched on the main valve body assembly and on the scanner all match, no solenoid strategy data download is necessary.

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If the solenoid strategy numbers on the identification tag match what is viewed on the scan tool, but do not match the numbers etched on the main control valve body, a solenoid strategy data download may be necessary. If the solenoid strategy numbers etched on the main control valve body match what is viewed on the scanner but do not match the identification tag, a solenoid strategy data download is necessary. Refer to Figure 2 for transmission tag identification as well as solenoid strategy number on the main control valve body assembly.

Solenoid Body Strategy Data Download:

Using an appropriate scan tool, select Module Programming and Programmable Parameters under the toolbox icon and select transmission. Follow the instructions as viewed and displayed on the scanner. Enter the solenoid body identification and strategy numbers in the fields shown on the scanner. The scan tool will verify the numbers entered are valid and will display a warning message if the information is not valid. The scan tool will check and determine if the file is present on the scan tool. If the file is present, proceed with downloading the file to the PCM. If the file is not present, the scanner will need to connect to the Professional Technician Society (PTS) server in order to download the file onto the scan tool. If no file is loaded on the scanner, connect the scan tool to the PTS server and follow the instructions provided by the network to download the strategy file onto the scan tool. In the event the scan tool is unable to connect to the PTS server it will be necessary to download the file from the Ford website www.motorcraft.com. If the scan tool is unable to download a strategy from the web site, a partial strategy will automatically be downloaded. Next, reconnect the scan tool to the vehicle and follow the instructions displayed on the scanner. If a new valve body assembly is installed, compare the solenoid identification and solenoid strategy numbers from the original valve body to the replacement valve body tag that is provided with the replacement valve body service kit and place the tag over the existing tag. The scan tool will automatically download the strategy file or partial file to the PCM and will display a message when it has finished downloading that the download has completed successfully.

NOTE: Erratic shifts or driveability concerns may be present if the adaptive drive cycle has not been performed.

Adaptive Drive Cycle:

Connect an appropriate scan tool to the Data Link Connector (DLC). Use the scan tool to clear the adaptive table before conducting an adaptive drive cycle test. ***(Do NOT clear the PCM KAM (Keep Alive Memory)***

Using the scanner, verify transmission fluid temperature. Fluid temperature must be between 91° - 102°C (195° - 215°F) before drive cycle is to be performed. If transmission fluid temperature is not within these specifications, drive the vehicle until proper transmission temperature is achieved.

NOTE: When driving, obey all traffic laws and drive in a safe and careful manner for the current driving conditions.

Drive vehicle on a level road surface when performing the adaptive drive cycle.

1. Accelerate from a stop with light throttle to 24km/h (15 mph) then release the accelerator pedal.

2. Brake gently and safely bring the vehicle to a stop and hold the brake pedal for 6 seconds.

3. Repeat steps 1, 2 a minimum of 5 additional times.

4. Accelerate from a stop with light throttle so the 1-2, 2-3 and 3-4 up shifts occur with engine rpm between 1,700 - 2,000 rpm.

5. Continue accelerating and increasing speed until vehicle speed reaches 80 km/h (50 mph) or until the 5-6 up shift has occurred.

6. Brake gently and safely and bring the vehicle to a stop and hold the brake pedal for 10 seconds.

7. Repeat steps 4, 5, 6 a minimum of 3 additional times.

Adaptive drive cycle completion.

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A/T Range Selection:
The 6R60/75/80 transmission A/T Range Selector is comprised of seven selector positions, except for Mustang models with "Select Shift" as shown in Figure 3. Vehicles may be equipped with either a column shifter, or a console shifter. Models that have the "Select Shift" feature utilize an up shift and down shift button that allows driver requested shifting capability in addition to the automatic shift features described below.

The P position provides engine starting capability, ignition key removal, no power flow through the transmission, output shaft locked by way of the parking pawl.

The R position provides vehicle operation in a backward direction at a reduced gear ratio, backup lamps are illuminated for safety.

The N position provides engine starting capability, no power flow through the transmission, output shaft is free to turn and not held.

The D position provides forward driving motion with automatic shifts in gears 1 through 6 and 6 through 1, apply and release of the torque converter clutch which provides maximum fuel economy during normal operation and also provides for engine braking in all gears.

The 3 position provides forward driving motion in 3rd gear hold, downshift to 3rd gear when 3 position is selected above a calibrated speed and engine braking in 3rd gear.

The M or S position allows the driver to control the shifting of the transmission by using the up/down shift button provided in the shifter.

The 2 position provides forward driving motion 2nd gear hold, downshift to 2nd gear when 2 position is selected above a calibrated speed and engine braking in 2nd gear.

The 1 position provides forward driving motion in manual first gear hold with maximum engine braking capability for descending steep grades, downshift to 1st gear when 1 position is selected above a calibrated speed under minimum to moderate accelerator pedal position.

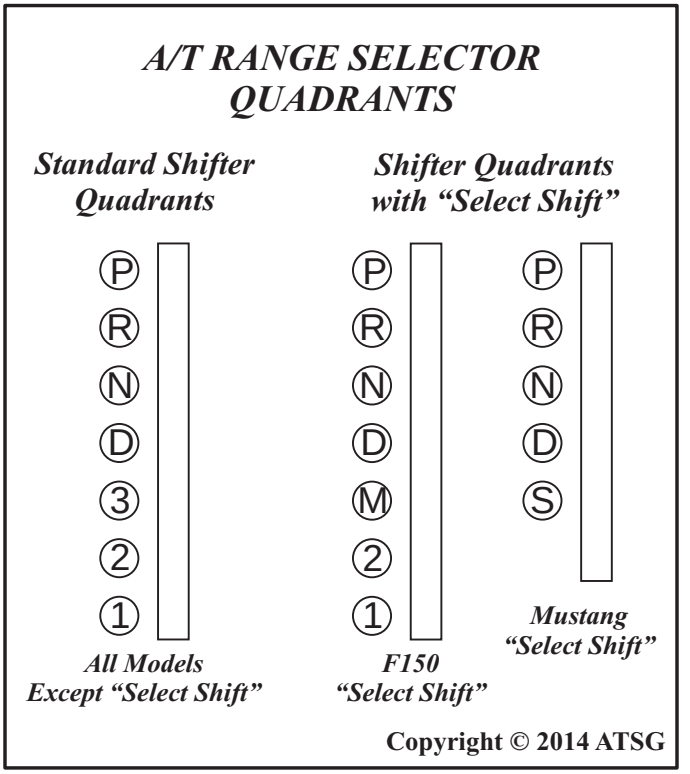

Figure 3

A/T Fluid Check and Fluid Specification:
The transmission is equipped with a fluid level indicator which is located on the front right/passenger side of the transmission case. The fluid level indicator is held in place by the external fluid fill plug. Once the fluid fill plug is removed by unscrewing the plug from the transmission, the fluid level indicator may be removed by pulling it out of the fill plug to check transmission fluid level. Transmission fluid level should be checked when the transmission is at normal operating temperature, 80° - 85°C (175° - 185°F), selector lever in P position and vehicle on a level surface. Refer to illustrations in Figure 4.

Note: Mercon LV is the recommended fluid type for use in this transmission. Using fluids other than the recommended type may result in damage to the transmission.

Continued on page 8

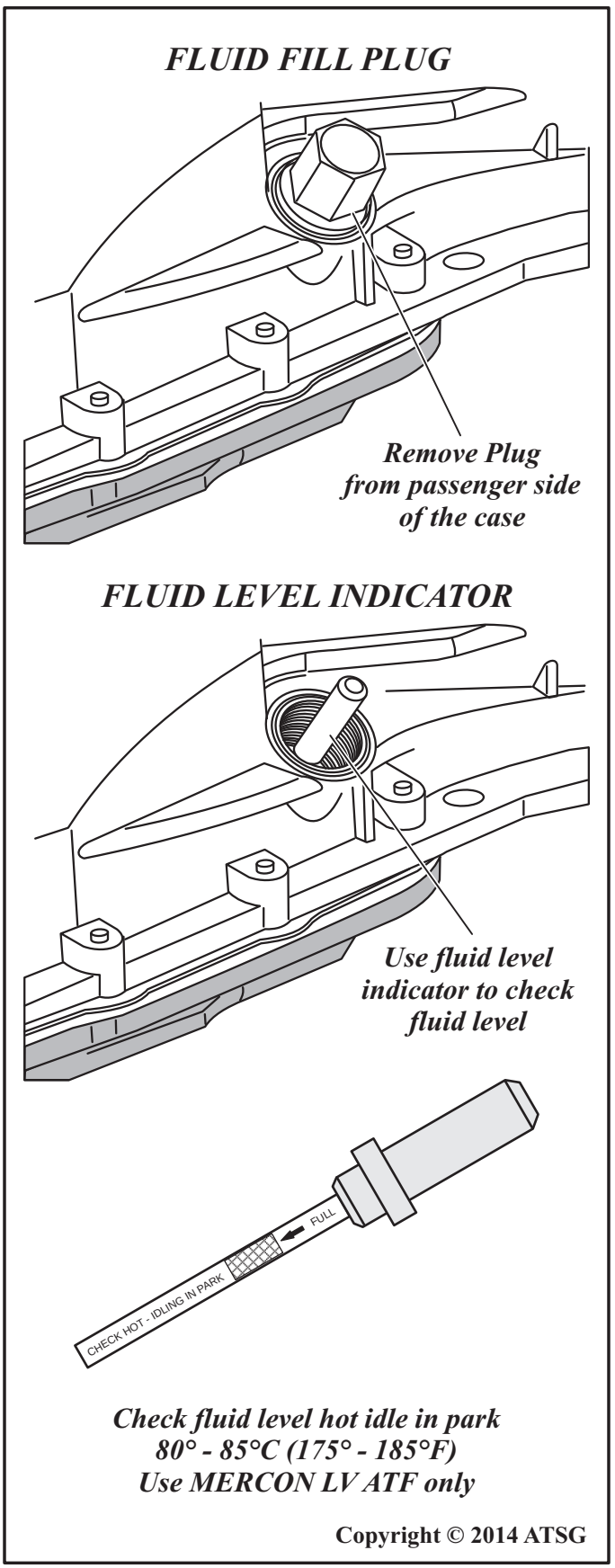

Figure 4

Mechatronic Module Controlled Vehicles:

The Transmission Control Module (TCM) controls all functions of the automatic transmission. The TCM is fully integrated onto a molded plastic lead frame module which is bolted onto the main control valve body assembly. This Mechatronic Control Module utilizes a Turbine Shaft Speed (TSS) sensor, Output Shaft Speed (OSS) sensor Transmission Range (TR) sensor and a Transmission Fluid Temperature (TFT) sensor that are integrated onto and part of the lead frame assembly.

The TCM also receives input signals from various sensors on the vehicle such as; Engine Speed, Engine Torque, Engine Coolant Temperature (ECT), Engine Oil Temperature (EOT), Throttle Position (TP), Accelerator Pedal Position (APP), Brake Pedal Position (BPP), ABS Wheel Speed, Automatic Traction Control (ATC) status, and Four Wheel Drive (4WD) status. These inputs to the TCM are communicated by the Controller Area Network (CAN) communication system. The TCM uses these various inputs to help determine control of line pressure, shift timing, shift feel, and torque converter clutch (TCC) operation. The TCM provides power and ground circuits for the reverse lamp relay coil as well as a P/N starting enable signal for the PCM. The TCM also monitors inputs and outputs and detects any faults and will store a Diagnostic Trouble Code (DTC) related to any detected fault. The TCM supplies output signal through the vehicle CAN for TR sensor position, OSS, TSS, TFT, current commanded gear and A/C inhibit. The TCM provides On-Board Diagnostic (OBD) information via CAN communication to illuminate the Malfunction Indicator Light (MIL) or Transmission Control Indicator Lamp (TCIL) and will also display this diagnostic information on a scan tool when connected to the vehicle Data Link Connector (DLC).

PCM Controlled Vehicles:

In 2010, Ford eliminated the Mechatronic Module for F150 vehicles with the 6.2 engine. in 2011, more models were produced using only a PCM and in 2012, all models had the Mechatronic Module eliminated. Therefore, models without Mechtronic modules are controlled solely by the Powertrain Control Module. A molded plastic lead frame, similar to the Mechatronic Control Module is bolted to the main control valve body assembly.

The lead frame contains a Turbine Shaft Speed (TSS) sensor, Output Shaft Speed (OSS) sensor, Transmission Fluid Temperature (TFT) sensor and a Transmission Range (TR) sensor, but does not contain an integrated Transmission Control Module. The PCM receives input signals from various engine and transmission sensors and utilizes the input signals to help determine control of line pressure, shift time, shift feel, and torque converter clutch (TCC) operation. The PCM receives input from the various sensors for information related to; Engine Speed, Engine Torque, Engine Coolant Temperature (ECT), Engine Oil Temperature (EOT), Throttle Position (TP), Accelerator Pedal Position (APP), Brake Pedal Position (BPP), ABS Wheel Speed, Automatic Traction Control (ATC) status, and Four Wheel Drive (4WD) status. The PCM monitors inputs and outputs and detects any faults and will store a Diagnostic Trouble Code (DTC) related to any detected fault. The PCM supplies output signal through the vehicle CAN for TR sensor position, OSS, TSS, TFT, current commanded gear and A/C inhibit. The PCM provides On-Board Diagnostic (OBD) information via CAN communication to illuminate the Malfunction Indicator Light (MIL) or Transmission Control Indicator Lamp (TCIL) and will also display this diagnostic information on a scan tool when connected to the vehicle Data Link Connector (DLC).

If the PCM detects a system or component fault, it substitutes a default value or signal using Failure Mode and Effect Management (FMEM) strategies. The PCM also uses FMEM strategies to compensate for electrical or mechanical shift solenoid and apply component faults that result in alternate shift patterns. If the transmission loses complete electronic control, it operates in a fail-safe mode with: Maximum line pressure in all transmission ranges, drive functional ability in park, reverse and neutral positions. Drive operation in 3rd or 5th gear (depending on the failure conditions) when the selector lever is in the D, 3, 2 or 1 position and torque converter clutch (TCC) is released in all transmission ranges.

Brake Shift Interlock Actuator (BSIA):

The brake shift interlock actuator is used as a safety device which requires the brake pedal to be depressed before the shifter can be moved from the park position. A 12 volt signal is sent from the fuse panel to the shifter assembly when the brake pedal is depressed which then releases the locking mechanism in the shifter and allows the shifter to be moved to the reverse, neutral, or drive positions.

Output Shaft Speed Sensor (OSS):

The Output Shaft Speed Sensor (OSS) is a Hall-effect type sensor that provides output shaft speed input to the PCM via a digital signal from the sensor that changes in frequency depending upon the rotational speed of the output shaft. The PCM uses OSS sensor signal information as an input to assist with determining shift strategy and torque converter clutch operation. The PCM compares output shaft speed with turbine shaft speed to determine gear ratio in the transmission and is also used for fault detection and diagnostic purposes. The OSS receives supply voltage ***(PCM models only)*** on the TR/TSS/OSS terminal at the transmission harness connector terminal 12 with the OSS signal at terminal 15. Refer to Figure 7 for transmission connector view. The OSS is best checked using a capable scan tool. The OSS sensor is located and made onto the molded plastic lead frame. Should OSS sensor replacement be necessary, the lead frame will need to be replaced. Mechatronic modules may require reprogramming. Refer to Figure 8 for OSS sensor location on the lead frame.

Turbine Shaft Speed Sensor (TSS):

The Turbine Shaft Speed Sensor (TSS) is a Hall-effect type sensor that provides turbine shaft speed input to the PCM via a digital signal from the sensor that changes in frequency depending upon the rotational speed of the turbine shaft. The PCM uses TSS sensor signal information as an input to assist with determining shift strategy and torque converter clutch operation. The PCM compares turbine shaft speed with engine rpm to determine the amount of slip in the torque converter and is also used for fault detection and diagnostic purposes. The TSS receives supply voltage ***(PCM models only)*** on the TR/TSS/OSS terminal at the transmission harness connector terminal 12 with the TSS signal at terminal 1. Refer to Figure 7 for transmission connector view. The TSS is best checked using a capable scan tool. The TSS sensor is located and made onto the molded

Continued on page 10

plastic lead frame. Should TSS sensor replacement be necessary, the lead frame will need to be replaced. Mechatronic modules may require reprogramming. Refer to Figure 8 for TSS sensor location on the lead frame.

Transmission Fluid Temperature Sensor (TFT):

The Transmission Fluid Temperature Sensor (TFT) is a thermistor that changes resistance value based upon temperature. The sensor has a negative-temperature coefficient which means when temperature is low, there is high resistance and when temperature is high, there is low resistance. The PCM uses TFT sensor input to assist with determining shift strategy and torque converter clutch operation, and is also used for fault detection and diagnostics. The TFT sensor receives supply voltage ***(PCM models only)*** on the TFT sensor signal terminal at the transmission harness connector terminal 6 and grounds through the signal return wire at terminal 5. Refer to Figure 7 for transmission connector view. The TFT sensor signal is best checked using a capable scan tool. Refer to Figure 5 for TFT sensor resistance chart. The TFT sensor is located and made onto the molded plastic lead frame. Should TFT replacement be necessary, the lead frame will need to be replaced. Mechatronic modules may require reprogramming. Refer to Figure 8 for TFT sensor location on the lead frame.

Transmission Range Sensor (TR):

The Transmission Range Sensor (TR) contains Hall-effect sensors that provide the PCM with a fixed frequency of between 100 - 150 hz and a varying duty cycle depending upon what position the manual shift selector is in. Refer to Figure 6 for Transmission Range Sensor (TR) duty cycle chart. The PCM uses TR sensor signal information as an input to assist with determining shift strategy and torque converter clutch operation and is also used for fault detection and diagnostics. The TR sensor receives sensor supply voltage ***(PCM models only)*** on the TR/TSS/OSS terminal at the transmission harness connector terminal 12 with the TR sensor signal to PCM at terminal 1 and sensor ground at terminal 11. Refer to Figure 7 for transmission connector view. The TR sensor is located and made onto the molded plastic lead frame. Should TR sensor replacement be necessary, the lead frame will need to be replaced. Mechatronic modules may require reprogramming. Refer to Figure 8 for TR sensor location on the lead frame.

SelectShift Automatic ® Transmission (SST):

2011 and later F150 models, and 2013 and later Mustang models may be equipped with the "SelectShift" Automatic ® Transmission (SST). This feature provides the ability of the driver to control gear changes up/down as desired. The SST feature has two modes: Progressive Range Selection (PRS) mode and Manual (M) Mode.

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TFT RESISTANCE CHART

TEMPERATURE		RESISTANCE
°C	°F	OHMS
-40 to -20	-40 to -4	967K - 284K
-19 to -1	-3 to 31	284 - 100K
0 to 20	32 to 68	100K - 37K
21 to 40	69 to 104	37K - 16K
41 to 70	105 to 158	16K - 5K
71 to 90	159 to 194	5K - 2.7K
91 to 110	195 to 230	2.7K - 1.5K
111 to 130	231 to 266	1.5K - 0.8K
131 to 150	267 to 302	0.8K - 0.54K

Figure 5

TR DUTY CYCLE CHART

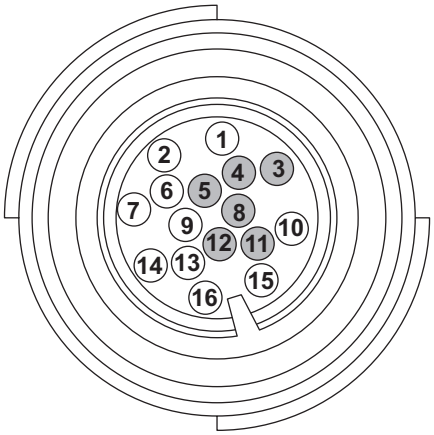
TR SELECTOR RANGE POSITION	TR % DUTY CYCLE
Park	18.1 - 25.8
Reverse	30.50 - 39.31
Neutral	40.54 - 52.49
Drive	54.35 - 68.15
M/3	65.75 - 80.00
2	70.55 - 85.61
1	75.25 - 88.91

Figure 6

6R60/6R75/6R80 HARNESS CONNECTOR VIEWS

MECHATRONIC CONTROLLED MODELS CONNECTOR

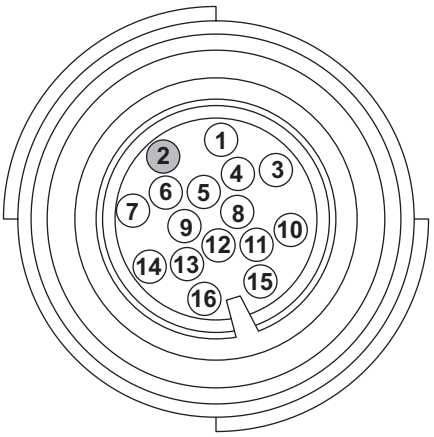
View looking into
Transmission connector



1.	Tow/Haul Switch Signal
2.	Controller Area Network (CAN) Low
3.	NOT USED
4.	NOT USED
5.	NOT USED
6.	Controller Area Network (CAN) High
7.	Backup Lamp Relay Power
8.	NOT USED
9.	Ignition Voltage
10.	Park/Neutral Signal
11.	NOT USED
12.	NOT USED
13.	Ground
14.	Battery Voltage Keep Alive Memory (KAM)
15.	Backup Lamp Relay Control
16.	Ground

PCM CONTROLLED MODELS CONNECTOR

View looking into
Transmission connector



1.	Turbine Shaft Speed (TSS) Sensor Signal
2.	NOT USED
3.	Torque Converter Clutch (TCC) Solenoid Control
4.	Transmission Range (TR) Sensor Signal
5.	Signal Return OSS/TSS/TFT (ground)
6.	Transmission Fluid Temperature (TFT) Sensor Signal
7.	Solenoid Supply Voltage
8.	Shift Solenoid E (SSE) Control
9.	Shift Solenoid A (SSA) Control
10.	Shift Solenoid D (SSD) Control
11.	Transmission Range (TR) Sensor Ground
12.	TR/TSS/OSS Sensor Supply Voltage
13.	Shift Solenoid C (SSC) Control
14.	Shift Solenoid B (SSB) Control
15.	Output Shaft Speed (OSS) Sensor Signal
16.	Pressure Control Solenoid A (PCA) Control

Figure 7

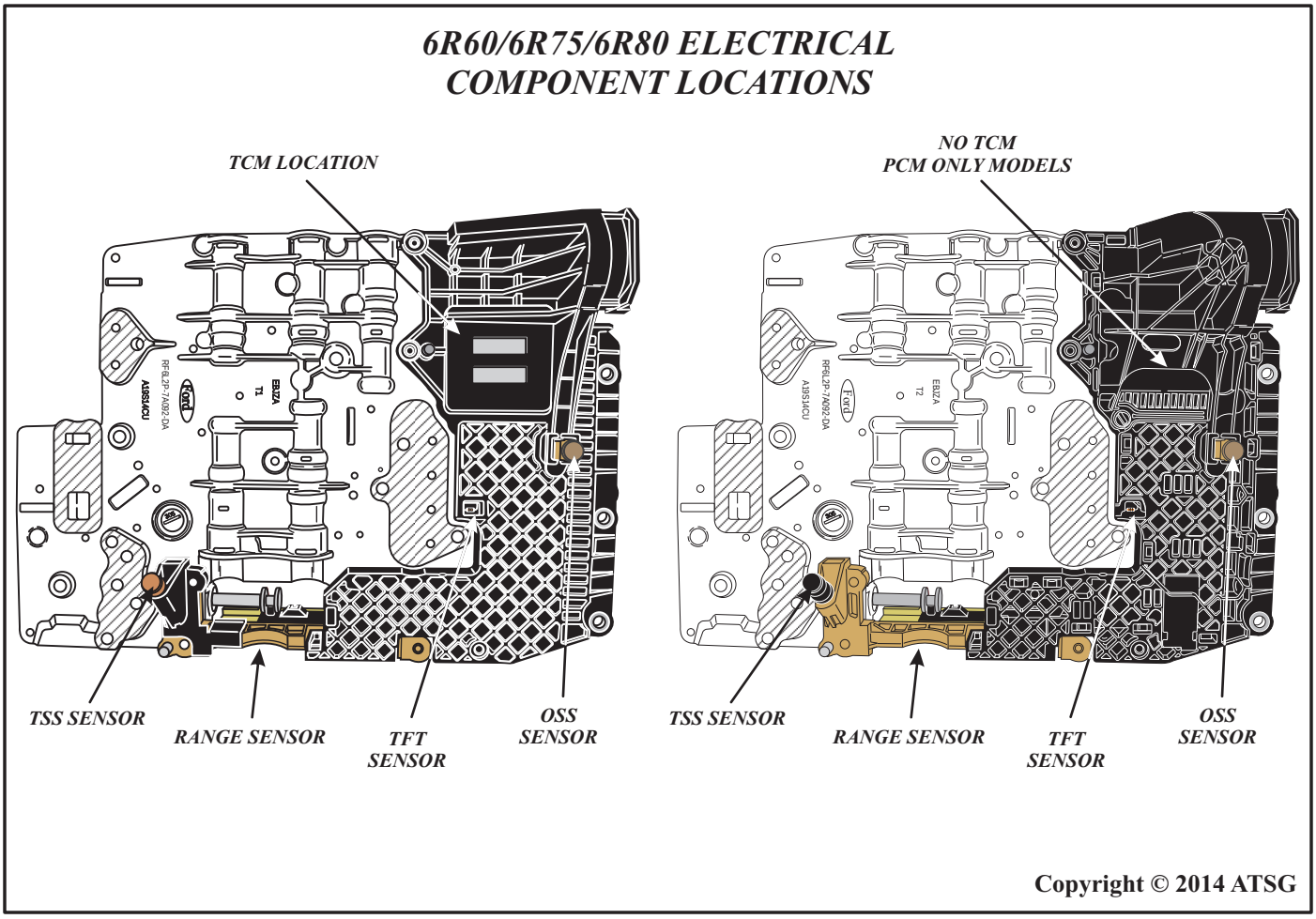


Figure 8

Progressive Range Selection (PRS) mode:

Progressive Range Selection (PRS) mode is currently available in F150 models. With the gear select lever in the D position, depress the (-) button in the shifter handle to activate PRS mode. Refer to Figure 10 for button location in both column shift and floor shift models. After PRS mode has been activated, all available gears will be displayed with the current gear illuminated and displayed in the instrument cluster. Depress the (-) button again and the PCM will lock out gears beginning with the highest gear (6th) gear, ie. press the (-) button twice and 6th gear and 5th gear will be locked out. Now only the available gears will be displayed and the transmission will automatically shift between the available gears that are not locked out. Depressing the (+) button will unlock gears thereby allowing the transmission to shift up into higher gears that had been previously locked out. Again, the transmission will be automatically shifted within the gear range that has not been locked out.

Manual (M) Range:

The Manual (M) Range is currently available in the F150 (both column and floor shift models) and the Mustang. When the gear select lever has been placed into the M position (F150 models) or the S position (Mustang) models (refer to Figure 3) the driver will now have the capability of controlling the shift timing of the transmission by depressing the (+) button for shifting up or the (-) button for shifting down. Refer to Figure 10 for a diagram and description of the column and floor shifters. Only the current gear will be illuminated in the instrument cluster. While driving in the M mode, if the (-) button is depressed at such a speed that would cause too much overspeed, the requested gear will flash then disappear and the transmission will remain in the current gear. In order to prevent engine stall from running at too low an RPM, the PCM SST mode will automatically perform downshifts if it is determined a downshift request has not been performed in time.

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In the event the PCM may automatically perform a downshift in SST mode, manual downshifts by depressing the (-) button will still be allowed, providing engine over-rev will not occur.

NOTE: The PCM in SST mode will not perform an upshift automatically even if engine speed approaches the RPM limit. Care must be taken in order to prevent engine damage resulting from an over-revving condition. In SST mode, all upshifts must be performed using the (+) button on the shifter.

In order to prevent an engine over-revving occurrence, use the recommended upshift speeds when accelerating as shown in the chart in Figure 9. In order to return vehicle shifting to automatic mode, move the selector lever back to the D position.

MANUAL SHIFT SPEED CHART

SHIFT	MPH (KM/H)
1-2 Shift	15 mph (24 km/h)
2-3 Shift	25 mph (40 km/h)
3-4 Shift	40 mph (64 km/h)
4-5 Shift	45 mph (72 km/h)
5-6 Shift	50 mph (80 km/h)

Figure 9

Transmission Control Switch:

The Transmission Control Switch (TCS) is a momentary contact switch located on the manual selector lever. Pushing the TCS will disengage or engage overdrive function (6th gear) of the transmission as well as provide Grade Assist on Mustang models.

Tow/Haul Switch:

The Tow/Haul Switch is a momentary contact switch that is located either in the end of the shifter handle for column shifter models or on the selector lever for console shifter models as shown in Figure 10. Tow/Haul (OFF)feature is the normal driving position for maximum fuel economy. Tow/Haul (ON) feature improves transmission shifting operation when towing a trailer, or carrying heavy loads. In order to activate the Tow/Haul feature, depress the button of the Tow/Haul switch. With this feature enabled the Tow/Haul icon in the instrument panel will be illuminated and upshifts will be delayed, meaning

Continued on page 14

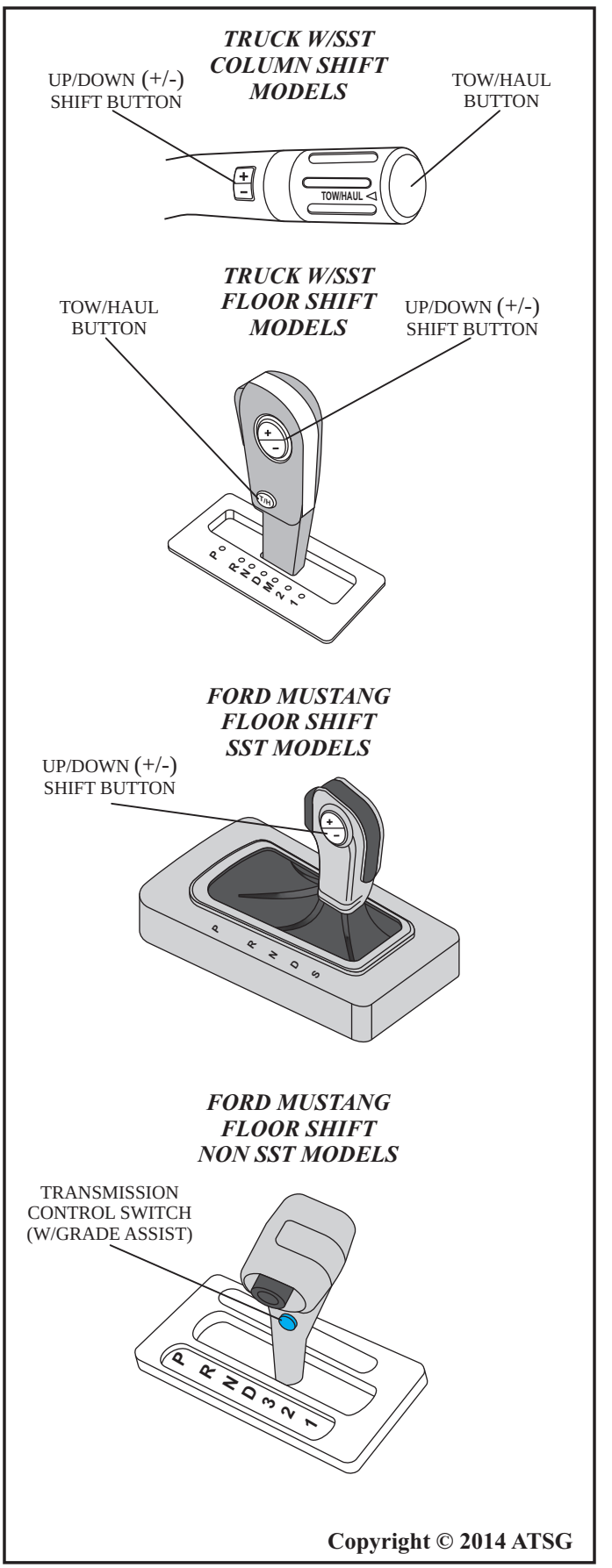


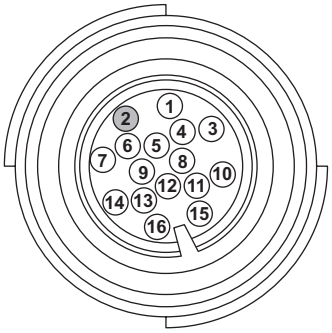
Figure 10

shift times will be higher in order to reduce shift frequency. Tow/Haul mode also provides engine braking in all forward gears when the selector lever is in the D position. Engine braking will assist the driver in controlling the vehicle when descending a grade. To deactivate Tow/Haul mode, depress the button on the shifter. The Tow/Haul light will no longer be illuminated. Tow/Haul mode will also deactivate when the ignition is cycled.

NOTE: Do not use the Tow/Haul feature when driving on icy roads or under slippery road conditions. The increase in engine braking under these conditions can cause the rear wheels to skid allowing the possibility of loss over control of the vehicle.

Molded Lead Frame Assembly and Solenoids:
Beginning at the start of production for the 2010 model year on Ford trucks with the 6.2L engine, the Transmission Control Module/Mechatronic unit was removed from the top of the valve body and combined with the Engine Control Module in the newly revised Powertrain Control Module. This change then carried on to 2011 model cars and trucks equipped with 3.5 Turbo, 3.7, 5.0 and 6.2 L engines. ***Note: 4.6 and 5.4L vehicles in 2010 - 2011 still have an internal TCM, however in 2012, all models now use PCM control only. See Figure 7 for terminal identification and Figure 8 location.*** The reason for this change is for better control of vehicles that have the "Select Shift" feature which allows for driver control of shifting through use of the "M" position of the shift selector and the up/down button located on the shifter handle. This improved system is located in the Powertrain Control Module. A Molded Lead Frame now replaces the previous design TCM/Mechatronic control module. This allows for individual connections from pins at the case connector to the terminals connected to the solenoids, transmission range sensor, turbine and output sensors and transmission fluid temp sensor, to accommodate the new PCM circuitry. See Figure 7 for terminal identification of the case connector, Figure 8 for the location of parts on the molded lead frame. Refer to Figure 11 for a component resistance test chart and Figure 12 for terminal location from the case connector to the lower side of the molded lead frame.

CASE CONNECTOR RESISTANCE CHART



PINS	COMPONENT	RESISTANCE
3&7	TCC (VFS 6)	5.5 Ohms
5&6	TFT SENSOR	See Chart Figure 5
8&7	SSE (SS 1)	10.5 Ohms
9&7	SSA (VFS 1)	5.5 Ohms
10&7	SSD (VFS 4)	5.5 Ohms
13&7	SSC (VFS 3)	5.5 Ohms
14&7	SSB (VFS 2)	5.5 Ohms
16&7	PC A (VFS 5)	5.5 Ohms

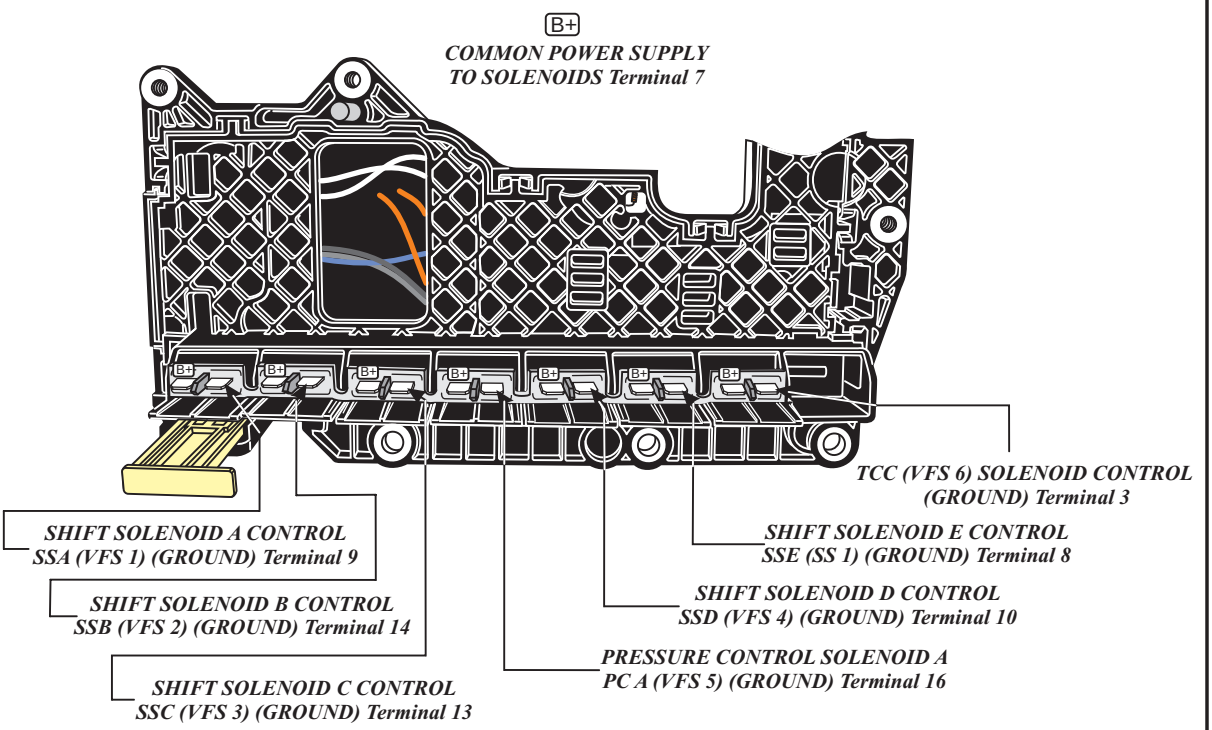
Figure 11

Solenoid Description and Function:

The 6R60/75/80 transmission uses a total of seven solenoids to control all the shifting functions. There are six Variable Force Solenoids; SSA (VFS 1), SSB (VFS 2), SSC (VFS 3), SSD (VFS 4), PC A (VFS 5) and TCC (VFS 6) and one On/Off solenoid SSE (SS 1). SSA, SSC, and TCC, are all Normally Low or Proportional Control solenoids. This means with low current to the solenoid, output pressure will be low. Solenoids SSB, SSD and PC A are Inversely Proportional Control solenoids, therefore, with low current to the solenoid, output pressure will be high. SSE is the lone On/Off controlled solenoid. Refer to Figure 12 for solenoid on/off apply chart. If you reference Figures 13 - 18, you will notice that the plastic bodies of the solenoids vary in color between Brown (NL) solenoid and Black (NH) solenoid, the o-ring colors are different also, and also the plastic bodies are different diameters to help avoid installing wrong solenoid type NL/NH into wrong solenoid bore.

Continued on page 16

6R60/6R75/6R80 SOLENOID TERMINAL ID SOLENOID APPLICATION CHART



Terminals listed are referring to the terminals in the case connector found in Figure 7

6R60/6R75/6R80 SOLENOID APPLICATION CHART

GEAR	SSA NL (VFS 1)	SSB NH (VFS 2)	SSC NL (VFS 3)	SSD NH (VFS 4)	SSE ON/OFF (SS 1)	PC A NH (VFS 5)	TCC NL (VFS 6)
PARK	Off (50 mA)	Off (850 mA)	Off (50 mA)	***	Off	***	Off (50 mA)
REVERSE	Off (50 mA)	On (50 mA)	Off (50 mA)	On (50 mA)	Off	***	Off (50 mA)
NEUTRAL	Off (50 mA)	Off (850 mA)	Off (50 mA)	*A	Off	***	Off (50 mA)
DRIVE 1ST.	On (850 mA)	Off (850 mA)	Off (50 mA)	On (50 mA)*B	Off	***	***
DRIVE 2ND.	On (850 mA)	Off (850 mA)	On (850 mA)	Off (850 mA)	Off	***	***
DRIVE 3RD.	On (850 mA)	On (50 mA)	Off (50 mA)	Off (850 mA)	Off	***	***
DRIVE 4TH.	On (850 mA)	Off (850 mA)	Off (50 mA)	On (50 mA)	On	***	***
DRIVE 5TH.	Off (50 mA)	On (50 mA)	Off (50 mA)	On (50 mA)	On	***	***
DRIVE 6TH.	Off (50 mA)	Off (850 mA)	On (850 mA)	On (50 mA)	On	***	***

NH: Normally High, solenoid is inversely proportionate in operation.
NL: Normally Low, solenoid is proportionate in operation.
**A: 6R80 with one-way clutch, solenoid will change state with forward movement detected and selector in neutral position.*
**B: 6R80 with one-way clutch, solenoid will be on with vehicle speed over 3 mph.*
****: TCM/PCM control condition dependent.*

Figure 12

Shift Solenoid A (VFS 1):
Shift Solenoid A, or Variable Force Solenoid 1 is a Normally Low (NL) or normally vented solenoid and uses proportional control. The Mechatronic Control Unit, or PCM will vary the control amperage through the solenoid circuit in order to control the output pressure through the solenoid. Refer to the solenoid apply chart in Figure 12. The chart shows SSA applied amperage of 50 mA when the solenoid is OFF and applied amperage of 850 mA when the solenoid is ON. Refer to the diagram in Figure 13. Hydraulic solenoid control pressure is supplied by the solenoid regulator valve in the main control assembly and is directed to the solenoid in the passage between the two o-rings. With control amperage of 50 mA, the control valve in the solenoid is open and pressure is exhausted through the back of the solenoid. With control amperage of 850 mA, the control valve in the solenoid is closed and pressure is not exhausted, instead control pressure is directed through the front of the solenoid and is used to control the apply and release of the forward (A) clutch through the forward (A) clutch regulator valve and forward (A) clutch latch valve.

Shift Solenoid B (VFS 2):
Shift Solenoid B, or Variable Force Solenoid 2 is a Normally High (NH) or normally applied solenoid and uses inversely proportional control. The Mechatronic Control Unit, or PCM will vary the control amperage through the solenoid circuit in order to control the output pressure through the solenoid. Refer to the solenoid apply chart in Figure 12. The chart shows SSB applied amperage of 850 mA when the solenoid is OFF and applied amperage of 50 mA when the solenoid is ON. Refer to the diagram in Figure 14. Hydraulic solenoid control pressure is supplied by the solenoid regulator valve in the main control assembly and is directed to the solenoid in the passage between the two o-rings. With control amperage of 50 mA, the control valve in the solenoid is closed and pressure not exhausted, instead control pressure is directed through the front of the solenoid and is used to control the apply and release of the direct (B) clutch through the direct (B) clutch regulator valve and direct (B) clutch latch valve. With control amperage of 850 mA, the control valve in the solenoid is open and pressure is exhausted through the back of the solenoid.

Continued on page 17

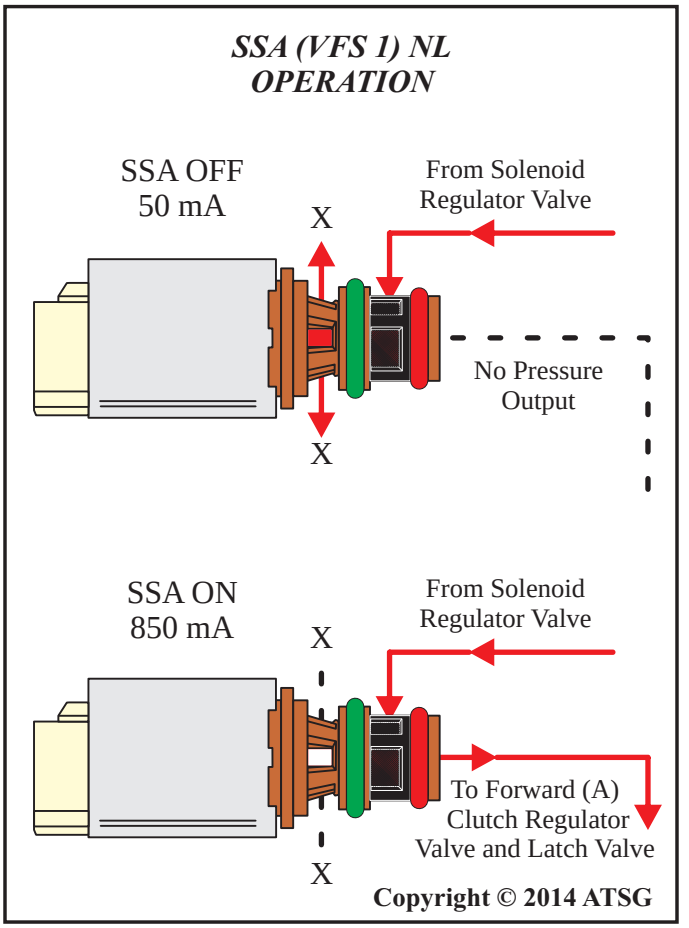


Figure 13

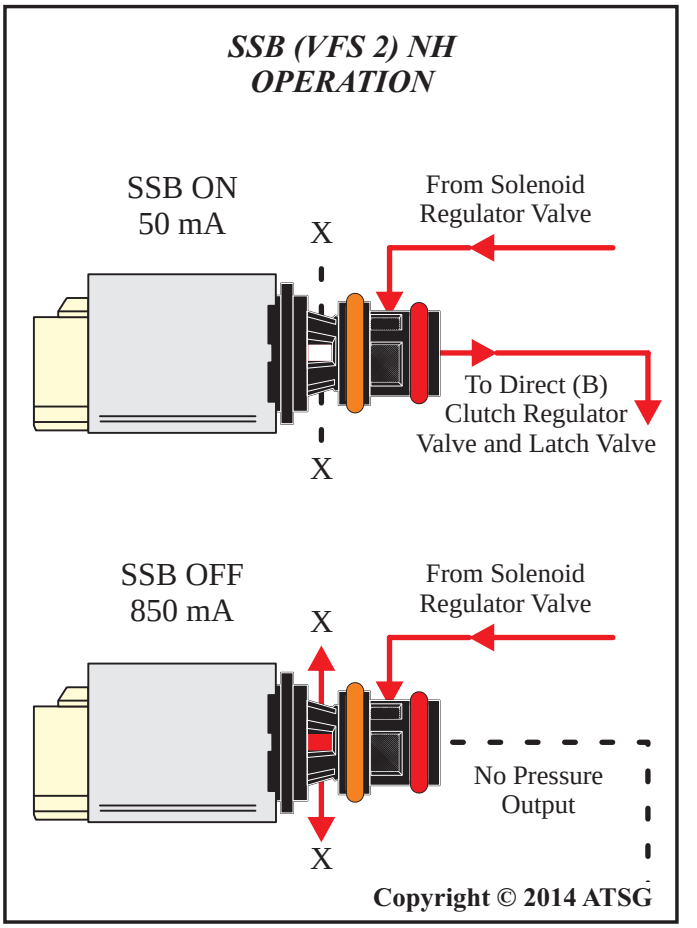


Figure 14

Shift Solenoid C (VFS 3):
Shift Solenoid C, or Variable Force Solenoid 3 is a Normally Low (NL) or normally vented solenoid and uses proportional control. The Mechatronic Control Unit, or PCM will vary the control amperage through the solenoid circuit in order to control the output pressure through the solenoid. Refer to the solenoid apply chart in Figure 12. The chart shows SSC applied amperage of 50 mA when the solenoid is OFF and applied amperage of 850 mA when the solenoid is ON. Refer to the diagram in Figure 15. Hydraulic solenoid control pressure is supplied by the solenoid regulator valve in the main control assembly and is directed to the solenoid in the passage between the two o-rings. With control amperage of 50 mA, the control valve in the solenoid is open and pressure is exhausted through the back of the solenoid. With control amperage of 850 mA, the control valve in the solenoid is closed and pressure is not exhausted, instead control pressure is directed through the front of the solenoid and is used to control the apply and release of the intermediate (C) clutch through the intermediate (C) clutch regulator valve and intermediate (C) clutch latch valve.

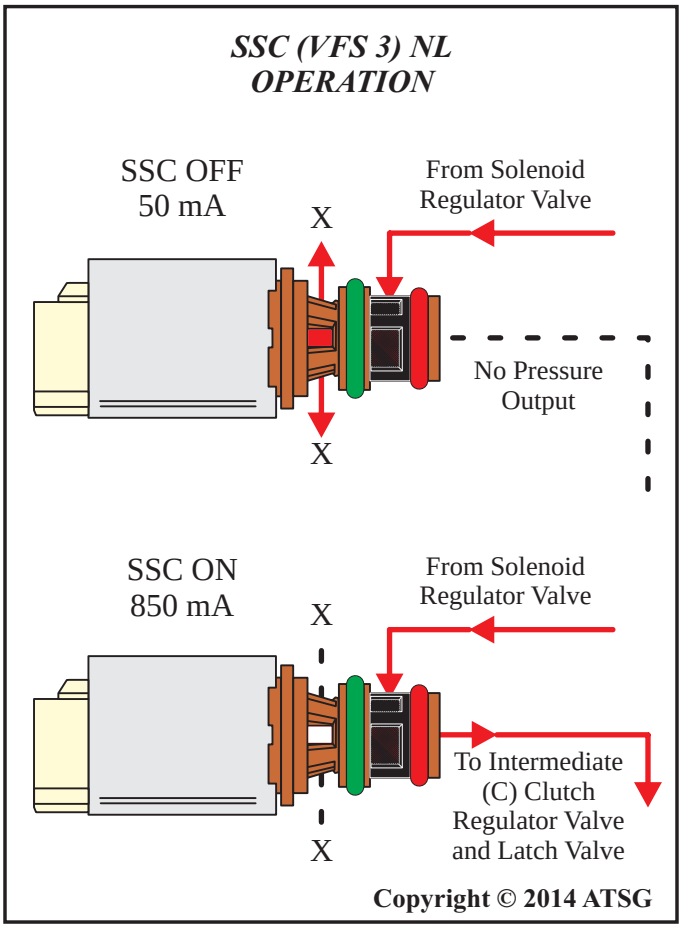


Figure 15

Shift Solenoid D (VFS 4):
Shift Solenoid D, or Variable Force Solenoid 4 is a Normally High (NH) or normally applied solenoid and uses inversely proportional control. The Mechatronic Control Unit, or PCM will vary the control amperage through the solenoid circuit in order to control the output pressure through the solenoid. Refer to the solenoid apply chart in Figure 12. The chart shows SSD applied amperage of 850 mA when the solenoid is OFF and applied amperage of 50 mA when the solenoid is ON. SSD is a dual purpose solenoid. The ON/OFF chart in Figure 12 shows SSD ON in Reverse, Drive (1st/low) and Drive 4th, 5th, and 6th. This means SSD is used to control both the low/reverse (D) clutch and the overdrive (E) Clutch. The diagram in Figure 16 shows SSD function for the low/reverse (D) clutch. Hydraulic solenoid control pressure is supplied by the solenoid regulator valve in the main control assembly and is directed to the solenoid in the passage between the two o-rings. With control amperage of 50 mA, the control valve in the solenoid is closed and pressure not exhausted, instead control pressure is directed through the front of the solenoid and is used to control the apply and release of the low/reverse (D) clutch through the low/reverse (D) clutch regulator valve and low/reverse (D) clutch latch valve. With control amperage of 850 mA, the control valve in the solenoid is open and pressure is exhausted through the back of the solenoid. The diagram in Figure 17 shows SSD function for the overdrive (E) clutch. Hydraulic solenoid control pressure is supplied by the solenoid regulator valve in the main control assembly and is directed to the solenoid in the passage between the two o-rings. With control amperage of 50 mA, the control valve in the solenoid is closed and pressure not exhausted, instead control pressure is directed through the front of the solenoid and is used to control the apply and release of the overdrive (E) clutch through the overdrive (E) clutch regulator valve and overdrive (E) clutch latch valve. With control amperage of 850 mA, the control valve in the solenoid is open and pressure is exhausted through the back of the solenoid.

Shift Solenoid E (SS 1):
Shift Solenoid E or SS 1 is a Normally Closed (NC) ON/OFF solenoid and does not operate with variable current as the other solenoids do.

Continued on page 18

The primary function of SSE is to control valves in the main control valve body assembly in order for SSD to perform its dual purpose function. Refer to Figure 12 it will be noticed that SSE operates or is ON only in Drive 4, 5, 6 ranges. The solenoid remains OFF in all other ranges. Refer to Figure 18. Hydraulic solenoid control pressure is supplied by the solenoid regulator valve in the main control assembly and is directed to the opening in the front of the solenoid. When SSE is OFF solenoid control pressure cannot pass through the solenoid and the passage in the solenoid between the o-rings is open to an exhaust and exhausts pressure from the Drive Enable Valve and Solenoid Multiplex Valve Circuit. This allows SSD to control apply and release of the low/reverse (D) Clutch. When SSE is ON solenoid control pressure passes through the solenoid and pressurizes the Drive Enable Valve and Solenoid Multiplex Valve Circuit. This allows SSD to control the apply and release of the overdrive (E) Clutch.

Continued on page 19

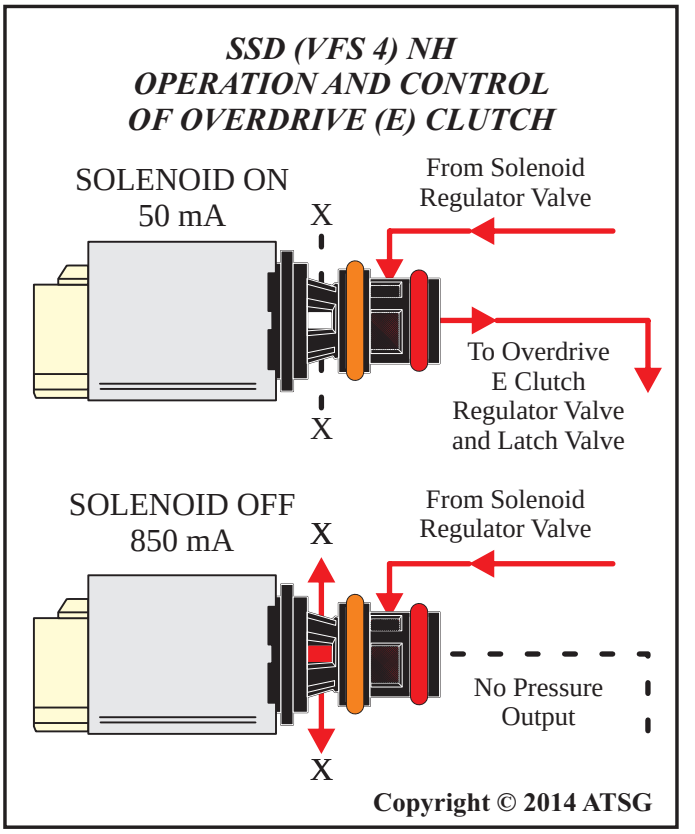


Figure 17

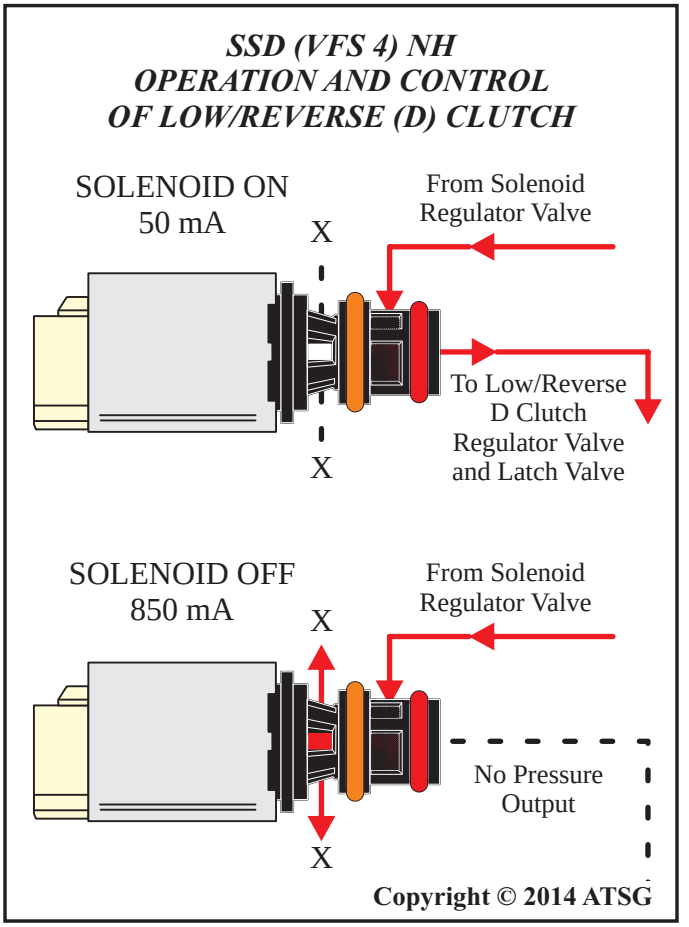


Figure 16

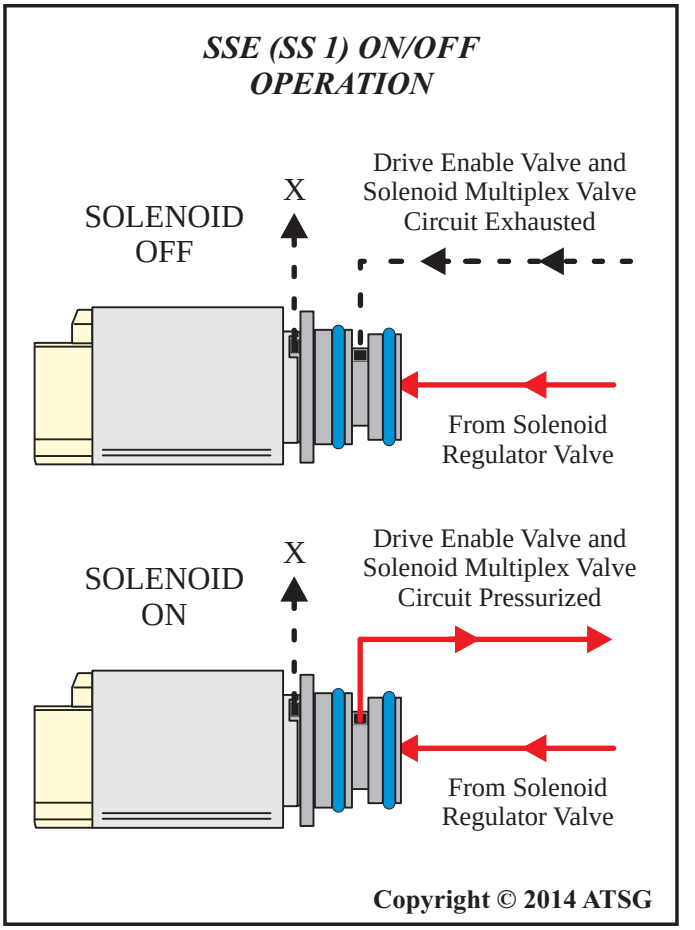


Figure 18

Pressure Control Solenoid A, (VFS 5):
Pressure Control Solenoid A, or Variable Force Solenoid 5 is a Normally High (NH) or normally applied solenoid and uses inversely proportional control. The Mechatronic Control Unit, or PCM will vary the current through the solenoid circuit in order to control the output pressure through the solenoid. Looking at Figure 12 it can be seen that PC A is operated in every range and is TCM/PCM control condition dependent, meaning that current will be increased or decreased depending upon different engine controls and conditions. Refer to the diagram in Figure 19. The diagram illustrates that with minimum current applied to PC A, line pressure will be high, conversely with maximum current applied to PC A, line pressure will be low.

Torque Converter Clutch Solenoid (VFS 6):
The Torque Converter Clutch Solenoid, or Variable Force Solenoid 6 is a Normally Low (NL) or normally vented solenoid and uses proportional control. The Mechatronic Control Unit, or PCM will vary the control amperage through the solenoid circuit in order to control the output pressure through the solenoid. Refer to the solenoid apply chart in Figure 12. The TCC Solenoid is OFF in P, R, and N, and can be ON in all forward ranges providing TCC apply capability in all gears depending upon conditions and controls through the TCM/PCM. Refer to Figure 20. This diagram illustrates that with minimum current to the TCC solenoid, the Torque Converter Clutch is not applied and also with maximum current to the TCC solenoid, the Torque Converter Clutch is fully applied.

Continued on page 20

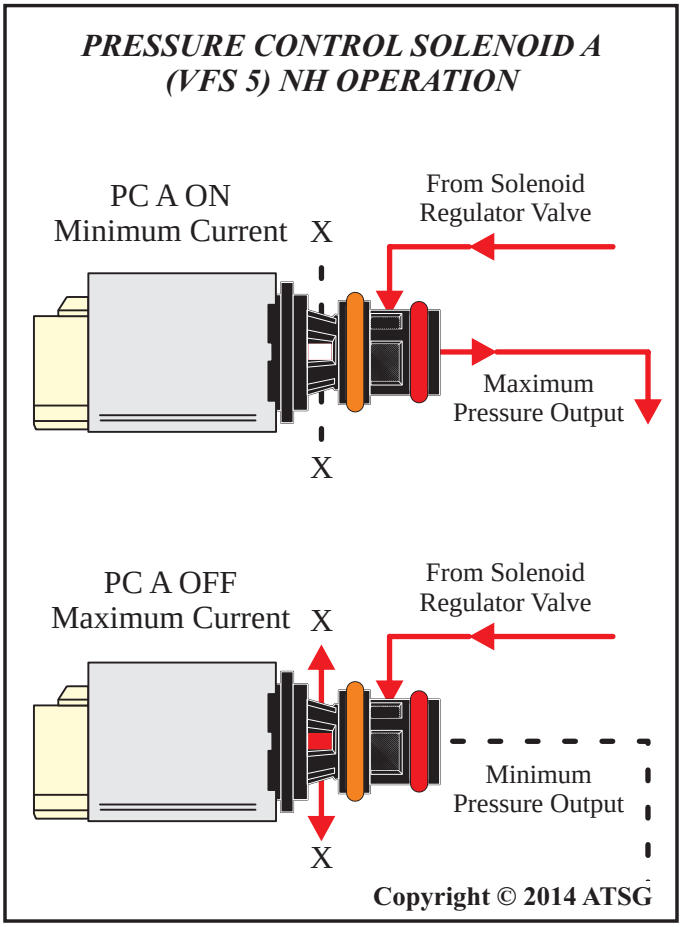


Figure 19

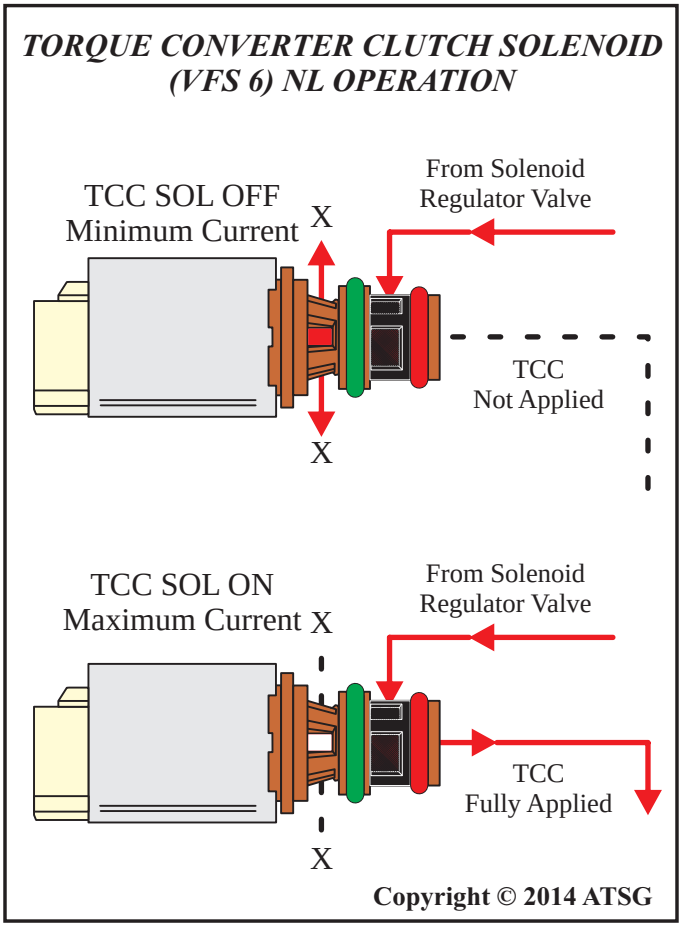
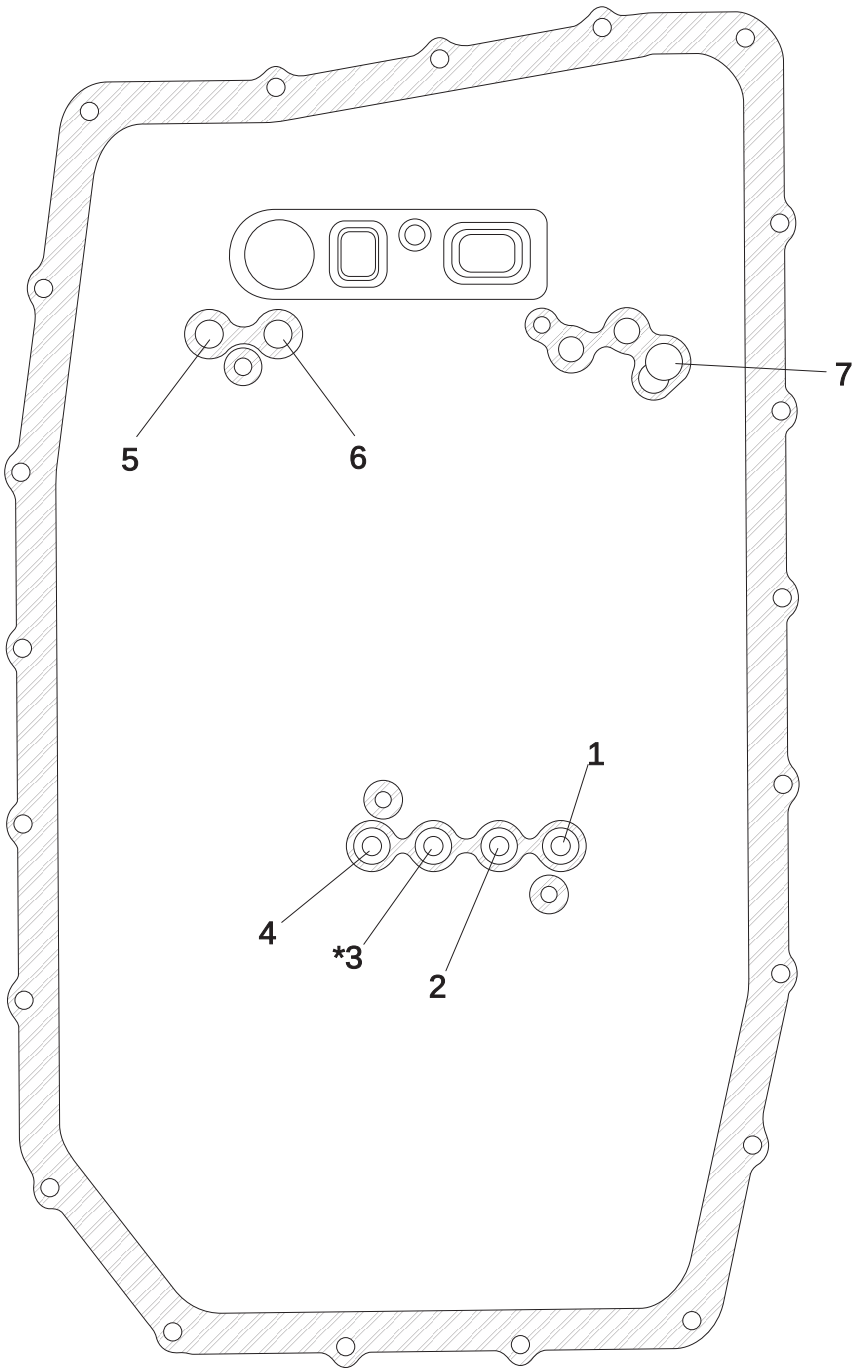


Figure 20

6R60/6R75/6R80 CASE AIR CHECK PASSAGES



1. INTERMEDIATE (C) CLUTCH PORT
2. LOW/REVERSE (D1) CLUTCH PORT
*3. LOW/REVERSE (D2) CLUTCH PORT
4. DIRECT (B) CLUTCH PORT
5. FORWARD (A) CLUTCH PORT
6. OVERDRIVE (E) CLUTCH PORT
7. COOLER BYPASS VALVE

* NOTE: 6R80 MODELS WITH
ONE WAY CLUTCH (OWC)
(D2) PASSAGE HAS BEEN ELIMINATED

Figure 21

TCM MODELS TYPICAL WIRING DIAGRAM

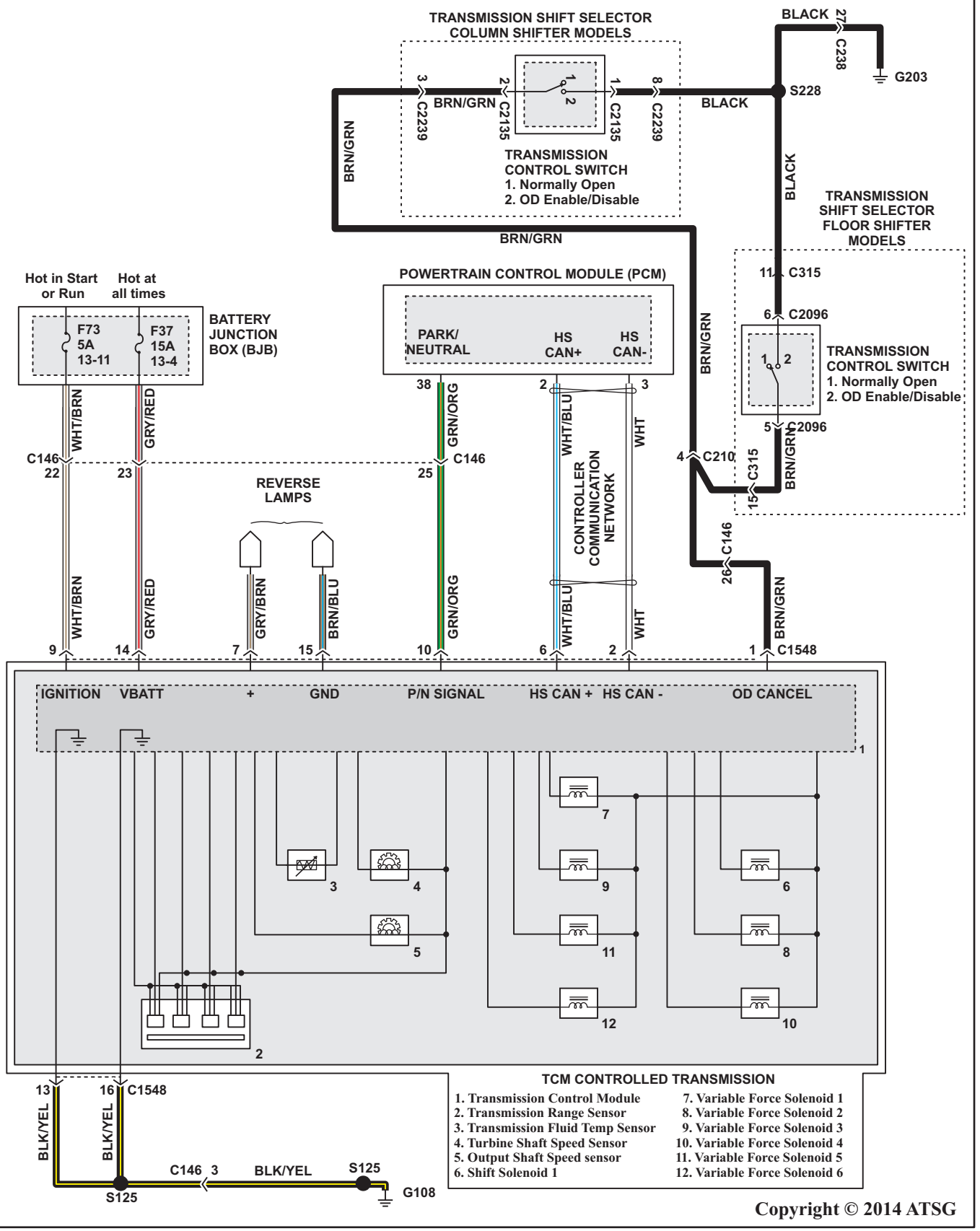


Figure 22

5.4L TRUCK MODELS WITH PCM

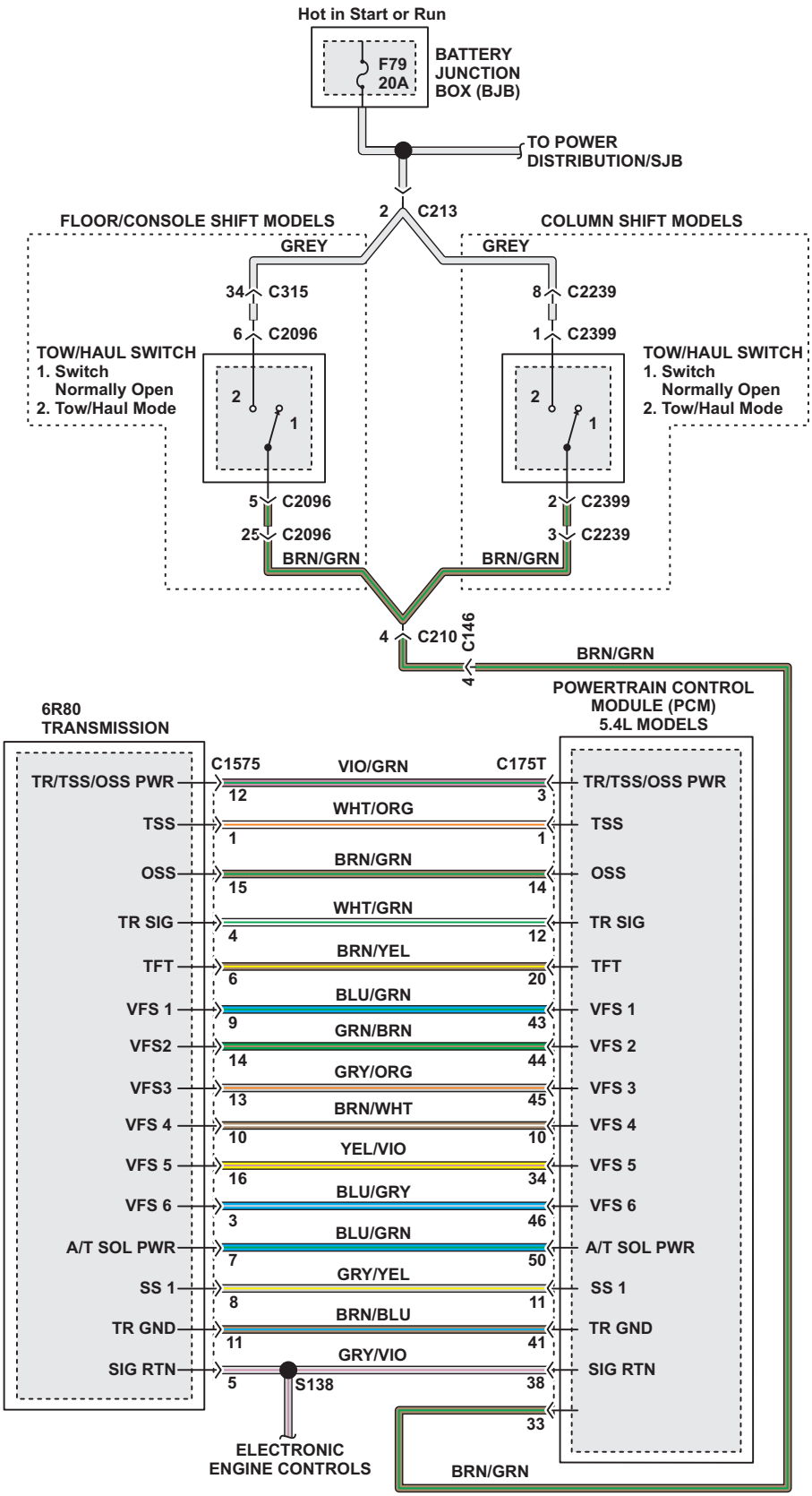


Figure 23

3.5L TURBO/3.7L/5.0L/6.2L TRUCK MODELS WITH PCM

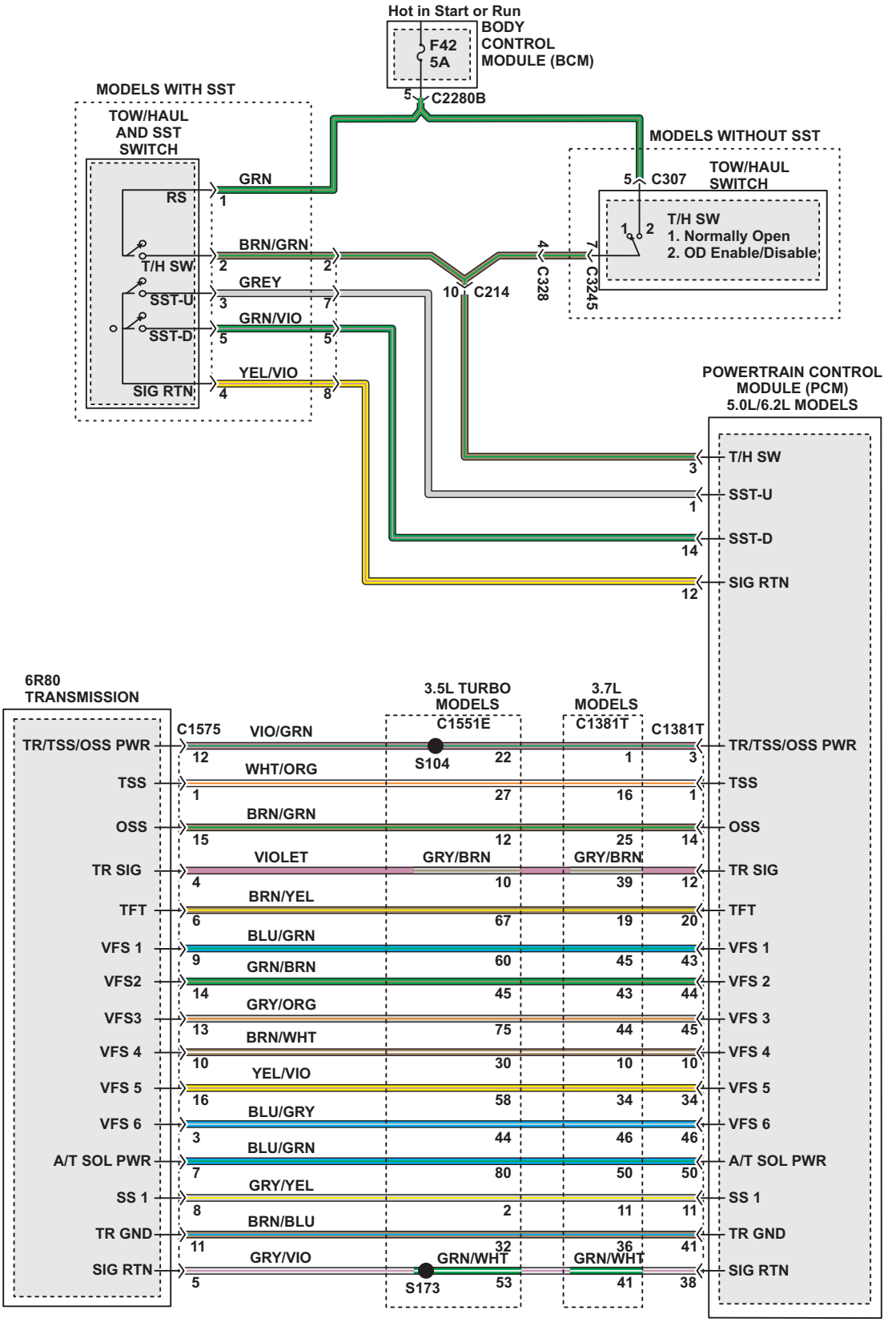


Figure 24

MUSTANG MODELS WITH PCM

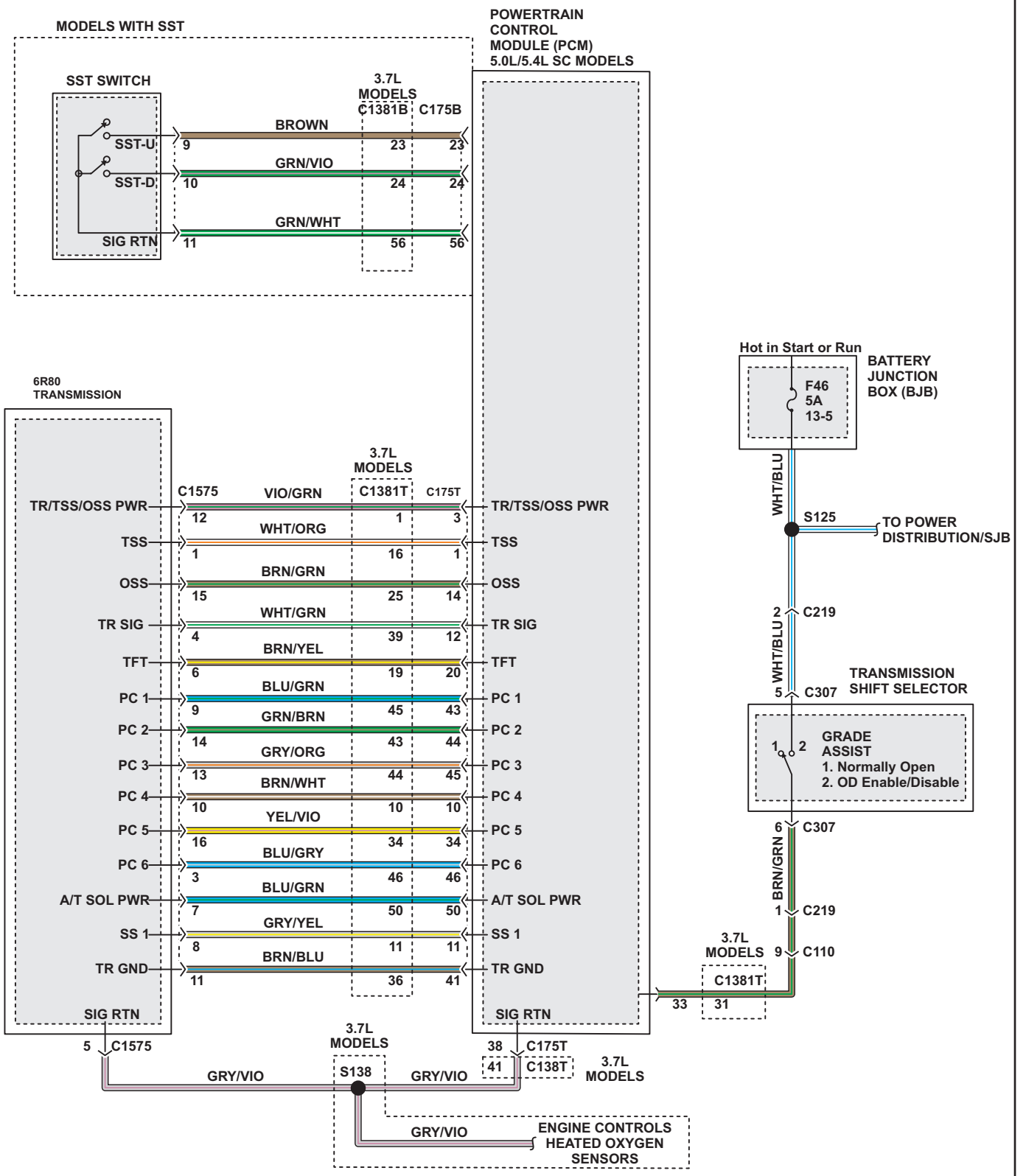


Figure 25

6R60/6R75/6R80 TCM MODELS CODE CHART

PXXXX CODES	*Description*	*Condition*
P062F	TCM EEPROM Error	Internal TCM error with EEPROM
P0218	Transmission Fluid Temperature "Over Temp"	Excessive ATF temperature threshold detected
P0219	CAN Engine Speed Signal too high	PCM has detected engine speed too high through CAN
P0562	System Voltage Low	TCM has detected voltage below minimum threshold
P0563	System Voltage High	TCM has detected voltage above maximum threshold
P0603	PCM EEPROM error	TCM has detected internal keep alive memory (KAM) issue
P0605	TCM ROM Corruption	TCM has detected internal software ROM failure
P0613	TCM Processor Fault	TCM has detected internal software fault
P0634	TCM Internal Module Temperature	TCM has detected internal module temperature too high
P0641	TCM Sensor Voltage Failure	TCM sensor reference voltage failure, voltage too high/low
P0657	Actuator Supply Voltage Circuit A Open	Power supply to actuators open circuit detected
P0658	Actuator Supply Voltage Circuit A Low	Power supply to actuators short circuit detected
P0659	Actuator Supply Voltage Circuit A High	Power supply to actuators short to power detected
P0667	TCM Internal Temperature Sensor Range Fault	TCM internal temperature sensor
P0701	Transmission Control System Range Operation	TCM has detected an operational strategy fault
P0705	Transmission Range Sensor Circuit Error	TCM has detected a TR sensor signal out of range
P0711	Transmission Fluid Temperature (TFT) Sensor	TCM has detected no change in TFT during operation
P0712	Transmission Fluid Temperature (TFT) Sensor	TCM has detected TFT circuit short to ground
P0713	Transmission Fluid Temperature (TFT) Sensor	TCM has detected TFT circuit short to power
P0714	Transmission Fluid Temperature (TFT) Sensor	TCM has detected TFT circuit intermittent fault
P0715	Turbine Shaft Speed (TSS) Sensor	TCM has detected TSS sensor error
P0716	Turbine Shaft Speed (TSS) Sensor	TCM has detected insufficient TSS input
P0717	Turbine Shaft Speed (TSS) Sensor	No TSS signal detected
P0720	Output Shaft Speed (OSS) Sensor	TCM has detected OSS short to power
P0721	Output Shaft Speed (OSS) Sensor	TCM has detected loss or noisy OSS signal during operation
P0722	Output Shaft Speed (OSS) Sensor	No OSS signal detected
P0723	Output Shaft Speed (OSS) Sensor	No OSS signal detected intermittent
P0729	Transmission Gear Ratio Error	Ratio error detected in 6th gear
P0731	Transmission Gear Ratio Error	Ratio error detected in 1st gear
P0732	Transmission Gear Ratio Error	Ratio error detected in 2nd gear
P0733	Transmission Gear Ratio Error	Ratio error detected in 3rd gear
P0734	Transmission Gear Ratio Error	Ratio error detected in 4th gear
P0735	Transmission Gear Ratio Error	Ratio error detected in 5th gear
P0736	Transmission Gear Ratio Error	Ratio error detected in reverse gear
P0781	1-2 or 2-1 Shift Error	Incorrect ratio calculated during either the 1-2 or 2-1 shift
P0782	2-3 or 3-2 Shift Error	Incorrect ratio calculated during either the 2-3 or 3-2 shift
P0783	3-4 or 4-3 Shift Error	Incorrect ratio calculated during either the 3-4 or 4-3 shift
P0784	4-5 or 5-4 Shift Error	Incorrect ratio calculated during either the 4-5 or 5-4 shift
P0829	5-6 or 6-5 Shift Error	Incorrect ratio calculated during either the 5-6 or 6-5 shift
P0960	PC A Circuit Failure or Open Circuit	PC A Solenoid (VFS-5) circuit failed during operation
P0962	PC A Solenoid Signal or Shorted to Ground	PC A Solenoid (VFS-5) improper current or short circuit
P0963	PC A Solenoid Signal or Shorted to Power	PC A Solenoid (VFS-5) improper current or open circuit
P0972	Shift Solenoid A Circuit Failure	SS A (VFS-1) circuit failure
P0973	Shift Solenoid A Circuit Shorted	SS A (VFS-1) circuit shorted to ground
P0974	Shift Solenoid A Circuit Open	SS A (VFS-1) circuit shorted to power
P0975	Shift Solenoid B Circuit Failure	SS B (VFS-2) circuit failure
P0976	Shift Solenoid B Circuit Shorted	SS B (VFS-2) circuit shorted to ground
P0977	Shift Solenoid B Circuit Open	SS B (VFS-2) circuit shorted to power
P0978	Shift Solenoid C Circuit Failure	SS C (VFS-3) circuit failure
P0979	Shift Solenoid C Circuit Shorted	SS C (VFS-3) circuit shorted to ground
P0980	Shift Solenoid C Circuit Open	SS C (VFS-3) circuit shorted to power
P0981	Shift Solenoid D Circuit Failure	SS D (VFS-4) circuit failure
P0982	Shift Solenoid D Circuit Shorted	SS D (VFS-4) circuit shorted to ground
P0983	Shift Solenoid D Circuit Open	SS D (VFS-4) circuit shorted to power

Figure 26

6R60/6R75/6R80 TCM MODELS CODE CHART (CONT'D)		
PXXXX CODES	***Description***	***Condition***
P0770	Shift Solenoid SS E Circuit Failure	SS E (SS 1) circuit failure
P0985	Shift Solenoid SS E Circuit Shorted	SS E (SS 1) circuit shorted to ground
P0986	Shift Solenoid SS E Circuit Open	SS E (SS 1) circuit shorted to power
P1707	Park/Neutral (P/N) Switch Circuit Failure	Park/Neutral (P/N) Switch circuit failure high, or failure low
P1719	PCM Engine Torque Signal Inaccurate	TCM received inaccurate engine torque signal via CAN
P1910	Reverse Lamp Circuit	Reverse solenoid circuit failure
P1911	Reverse Lamp Circuit	Reverse solenoid circuit shorted to ground
P1912	Reverse Lamp Circuit	Reverse solenoid circuit shorted to power
P0740	TCC Solenoid Circuit	TCC solenoid (VFS-6) circuit failure
P2763	TCC Solenoid Circuit	TCC solenoid (VFS-6) circuit high, shorted to power
P2764	TCC Solenoid Circuit	TCC solenoid (VFS-6) circuit low, shorted to ground
P0741	TCC Solenoid Circuit/Performance Stuck Off	TCC failed to apply after 3 consecutive commands from PCM
UXXXX CODES	***Description***	***Condition***
U0073	Controller Area Network (CAN)	CAN communication bus off, short circuit CAN high to CAN low
U0100	TCM Communication Link Error	CAN link error detected by PCM between TCM and PCM
U0121	TCM Communication Link Error	PCM/TCM have detected an error in the CAN wheel RPM information from the ABS system.
U0155	TCM Communication Link Error	CAN link error detected by TCM and instrument panel controller (IPC)

Figure 27

6R60/6R75/6R80 PCM MODELS CODE CHART		
PXXXX CODES	***Description***	***Condition***
P0707	TR Sensor A Circuit Low	PCM has detected TR sensor A signal duty cycle out of range.
P0708	TR Sensor A Circuit High	PCM has detected TR sensor A signal duty cycle out of range.
P0709	TR Sensor A Circuit Intermittent	PCM has detected TR sensor A signal duty cycle invalid.
P0710	TFT Sensor A Circuit	PCM has detected excessive voltage drop across TFT sensor.
P0711	TFT Sensor A Circuit Range/Performance	PCM has detected TFT sensor no state change during driving. Sensor stuck below 21°C (70°F) or above 107°C (225°F). or that temperature did not change by more than 8°F during a drive cycle.
P0712	TFT Sensor A Circuit Low	PCM has detected TFT sensor temperature greater than 170°C (340°F) for at least 2.5 seconds (grounded circuit).
P0713	TFT Sensor A Circuit High	PCM has detected temperature less than -45°C (-50°F) for at least 2.5 seconds (open circuit).

Figure 28

6R60/6R75/6R80 PCM MODELS CODE CHART (CONT'D)

PXXXX CODES	*Description*	*Condition*
P0715	Turbine Shaft Sensor (TSS) A Circuit	PCM indicates no input from the TSS sensor when output shaft sensor (OSS) indicates rpm greater than 0.
P0717	Turbine Shaft Sensor (TSS) A Circuit No Signal	PCM has detected TSS sensor no signal during operation.
P0718	Turbine Shaft Sensor (TSS) A Circuit Intermittent	PCM has detected TSS sensor signal intermittent (noise) during operation.
P0720	Output Shaft Sensor (OSS) Circuit	PCM indicates no input from the OSS when turbine shaft sensor (TSS) indicates rpm greater than 0.
P0721	Output Shaft Sensor (OSS) Circuit Intermittent	PCM has detected and unrealistic rpm change in the OSS sensor signal.
P0722	Output Shaft Sensor (OSS) Circuit No Signal	PCM indicates no input from the OSS when turbine shaft sensor (TSS) indicates rpm greater than 0.
P0729	Transmission Gear Ratio Error	Ratio error detected in 6th gear.
P0731	Transmission Gear Ratio Error	Ratio error detected in 1st gear.
P0732	Transmission Gear Ratio Error	Ratio error detected in 2nd gear.
P0733	Transmission Gear Ratio Error	Ratio error detected in 3rd gear.
P0734	Transmission Gear Ratio Error	Ratio error detected in 4th gear.
P0735	Transmission Gear Ratio Error	Ratio error detected in 5th gear.
P0740	TCC Solenoid Circuit	TCC solenoid (VFS-6) circuit failure.
P0741	TCC Solenoid Circuit/Performance Stuck Off	TCC failed to apply after 3 consecutive commands from PCM.
P0742	TCC Solenoid Circuit Stuck On	PCM detected the TCC solenoid is shorted to ground.
P0743	TCC Solenoid Circuit Open or Short to Ground	PCM detected the TCC solenoid circuit open, or shorted to ground intermittent.
P0744	TCC Solenoid Circuit Short to Power	PCM detected the TCC solenoid circuit shorted to power.
P0748	PC A Electrical Fault	PCM sets this DTC as a companion DTC with one or more specific DTC's.
P0750	SS A Circuit Electrical	PCM detected SS A circuit failed open, or shorted to power.
P0751	SS A Performance Stuck Off	PCM commanded SS A on but detected a ratio error. Forward clutch A failed or stuck off.
P0752	SS A Performance Stuck On	PCM commanded SS A off but detected a ratio error. Forward clutch A failed or stuck on.
P0753	SS A Circuit Electrical	PCM sets this DTC as a companion DTC with one or more specific DTC's.
P0754	SS A Circuit Electrical Intermittent	PCM sets this DTC when an intermittent (open, short to power or short to ground) occurs 3 times for less than 5 seconds for each occurrence.
P0755	SS B Circuit Electrical	PCM detected that SS B circuit failed open or short to power.
P0756	SS B Performance Stuck Off	PCM commanded SS B on but detected a ratio error. Direct clutch B failed or stuck off.

Figure 29

6R60/6R75/6R80 PCM MODELS CODE CHART (CONT'D)		
PXXXX CODES	***Description***	***Condition***
P0757	SS B Performance Stuck On	PCM commanded SS B off but detected a ratio error. Direct clutch B failed or stuck on.
P0758	SS B Circuit Electrical	PCM sets this DTC as a companion DTC with one or more specific DTC's.
P0759	SS B Circuit Electrical Intermittent	PCM sets this DTC when an intermittent (open, short to power or short to ground) occurs 3 times for less than 5 seconds for each occurrence.
P0760	SS C Circuit Electrical	PCM detected SS C circuit has failed open or short to power.
P0761	SS C Performance Stuck Off	PCM commanded SS C on but detected a ratio error. Intermediate clutch C failed or stuck off.
P0762	SS C Performance Stuck On	PCM commanded SS C off but detected a ratio error. Intermediate clutch C failed or stuck on.
P0763	SS C Circuit Electrical	PCM sets this DTC as a companion DTC with one or more specific DTC's.
P0764	SS C Circuit Electrical Intermittent	PCM sets this DTC when an intermittent (open, short to power or short to ground) occurs 3 times for less than 5 seconds for each occurrence.
P0765	SS D Circuit Electrical	PCM detected SS D circuit has failed open or short to power.
P0766	SS D Performance Stuck Off	PCM commanded SS D on but detected a ratio error. The low/reverse clutch D, and overdrive clutch E have failed or are stuck off.
P0767	SS D Performance Stuck On	PCM commanded SS D off but detected a ratio error. The low/reverse clutch D, and overdrive clutch E have failed or are stuck on.
P0768	SS D Circuit Electrical	PCM sets this DTC as a companion DTC with one or more specific DTC's.
P0769	SS D Circuit Electrical	PCM sets this DTC when an intermittent (open, short to power or short to ground) occurs 3 times for less than 5 seconds for each occurrence.
P0770	SS E Circuit Electrical	PCM detected SS E circuit failed open or short to power.
P0771	SS E Performance Stuck Off	PCM commanded SS E on but detected a ratio error (mechanical failure detected).
P0772	SS E Performance Stuck On	PCM commanded SS E off but detected a ratio error (mechanical failure detected).
P0773	SS E Circuit Electrical	The PCM sets this DTC with one other specific DTC. SS E circuit may be open or short to power.

Figure 30

6R60/6R75/6R80 PCM MODELS CODE CHART (CONT'D)

PXXXX CODES	*Description*	*Condition*
P0774	SS E Circuit Electrical Intermittent	The PCM sets this DTC when an intermittent condition (open, short to power or short to ground) occurs but doesn't set DTC P0770.
P07A8	Transmission Friction Element D Performance Stuck Off	The low/reverse clutch D has failed off.
P07A9	Transmission Friction Element D Performance Stuck On	The low/reverse one-way clutch (OWC) is failed on.
P07AA	Transmission Friction Element E Performance Stuck Off	The PCM detected a ratio error. Overdrive clutch E failed off.
P0815	SelectShift™ Upshift Switch Circuit	The upshift and downshift switches are open in Park, Reverse and Neutral. The PCM sets the DTC when it detects an upshift switch is closed (short to ground).
P0816	SelectShift™ Downshift Switch Circuit	The upshift and downshift switches are open in Park, Reverse and Neutral. The PCM sets the DTC when it detects a downshift switch is closed (short to ground).
P0826	SelectShift™ Up and Down Switch Circuit	The upshift and downshift switches are open in Park, Reverse and Neutral. The PCM sets the DTC when it detects the select switch inputs do not match the selector lever position.
P0882 P0883	PCM Power Input Signal Low PCM Power Input Signal High	Battery voltage out of range low. Battery voltage out of range high over 21 volts.
P0960	PC A Control Circuit Open	PCM has detected 0 volts on the PC A circuit.
P0961	PC A Control Circuit Range/Performance	PCM has detected the PC A control circuit is shorted to ground, but condition is not sufficient to set DTC P0962.
P0962	PC A Control Circuit Low	PCM has detected PC A control circuit voltage at 0 volts. Short to ground detected.
P0963	PC A Control Circuit High	PCM has detected voltage on the PC A control circuit. Short to power detected.
P0973	SS A Control Circuit Low	PCM has detected SS A control circuit voltage at 0 volts. Short to ground detected.
P0974	SS A Control Circuit High	PCM has detected voltage on the SS A control circuit. Short to power or open circuit detected.
P0976	SS B Control Circuit Low	PCM has detected SS B control circuit voltage at 0 volts. Short to ground detected.
P0977	SS B Control Circuit High	PCM detected voltage on the SS B control circuit. Short to power or open circuit detected.
P0979	SS C Control Circuit Low	PCM has detected SS C control circuit voltage at 0 volts. Short to ground detected.

Figure 31

6R60/6R75/6R80 PCM MODELS CODE CHART (CONT'D)

PXXXX CODES	*Description*	*Condition*
P0980	SS C Control Circuit High	PCM has detected voltage on the SS C control circuit. Short to power or open circuit detected.
P0982	SS D Control Circuit Low	PCM has detected SS D control circuit voltage at 0 volts. Short to ground detected.
P0983	SS D Control Circuit High	PCM has detected voltage on the SS D control circuit. Short to power or open circuit detected.
P0984	SS E Control Circuit Range/Performance	PCM commanded SS E on or off, but detected a gear ratio error. Mechanical failure detected.
P1001	Key On Engine Running (KEOR) Test not Complete, Test Aborted	KOER self-test was unable to complete and was aborted.
P1397	System Voltage Out of Self-Test Range	PCM has detected system voltage is out of self-test range of 11 - 18 volts during key on engine off KOEO or KOER.
P1501	Vehicle Speed Sensor (VSS) out of self-test range	PCM has detected a VSS signal during the self-test.
P1502	Vehicle Speed Sensor (VSS) signal intermittent	Intermittent VSS fault continues to disable engine monitors.
P1635	Tire/Axle out of Acceptable Range	Tire, axle or combination of tire and axle are out of the certified range. Calibration was not updated.
P1636	Inductive Signature Chip Communication Error	PCM has lost communication with an internal chip that controls the solenoid states and fault status reporting.
P163E	PCM Programming Error	PCM has detected an invalid checksum.
P163F	Transmission ID block Corrupted, not Programmed	PCM has detected an invalid transmission identification.
P1700	Transmission Intermittent Failure (Failed to Neutral)	Main control body issue where the multiplex valve reverse pressure bleeds off too slow and causes the multiplex valve to get stuck in an incorrect position.
P1702	Transmission Range (TR) Sensor Circuit Intermittent	PCM has detected that the TR sensor signal duty cycle is not out of range, but returns an invalid signal.
P1705	TR Sensor did not indicate PARK/NEUTRAL during the self-test	TR sensor circuit did not indicate PARK/NEUTRAL during KOEO or KOER self-test.
P1711	Transmission Fluid Temp (TFT) Sensor out of self-test range.	PCM did not receive a TFT sensor input during the KOEO or KOER self-test that was within -1.11°C to 104°C (30°F to 220°F) during the self-test.
P1744	TCC Solenoid Circuit Range/Performance	PCM has detected that the TCC solenoid is either stuck on or stuck off.
P1780	Transmission Control Switch (TCS) Tow-Haul Switch Circuit out of Self-Test Range.	PCM did not receive a TCS input during the KOER self-test.

Figure 32

6R60/6R75/6R80 PCM MODELS CODE CHART (CONT'D)		
PXXXX CODES	***Description***	***Condition***
P1783	Transmission Over-Temp Condition	PCM has detected transmission temperature greater than 135°C (275°F) for a time greater than 5 seconds.
P1921	Transmission Range (TR) Sensor Signal	PCM has detected a TR sensor signal duty cycle out of range.
P2700	Transmission Friction Element A Apply Time Range/Performance	PCM has commanded SS A on or off but detected a gear ratio error (mechanical failure detected). May set DTC P0751 or P0752 as well.
P2701	Transmission Friction Element B Apply Time Range/Performance	PCM has commanded SS B on or off but detected a gear ratio error (mechanical failure detected). May set DTC P0756 or P0757 as well.
P2702	Transmission Friction Element C Apply Time Range/Performance	PCM has commanded SS C on or off but detected a gear ratio error (mechanical failure detected). May set DTC P0761 or P0762 as well.
P2703	Transmission Friction Element D Apply Time Range/Performance	PCM has commanded SS D on or off but detected a gear ratio error (mechanical failure detected). May set DTC P0766 or P2704 as well.
P2704	Transmission Friction Element E Apply Time Range/Performance	PCM has commanded SS E on or off but detected a gear ratio error (mechanical failure detected). May set DTC P0766 or P0767 as well.
P2705	Transmission Friction Element F Apply Time Range/Performance	The one-way clutch (OWC) failed off (OWC failure).
P2758	TCC Pressure Control Solenoid Stuck On	PCM has commanded TCC solenoid off but the TCC did not release (mechanical failure detected).
P2760	TCC Pressure Control Solenoid Circuit Intermittent	TCC solenoid control circuit shorted to ground 3 times without setting DTC P0742.

Figure 33

NOTE: If the TCM detects a fault, it uses Failure Management and Effects Mode strategies to substitute a value or signal.

The TCM also uses Failure Management and Effects Mode strategies to compensate for detected solenoid or apply component faults that result in alternate shift patterns.

If the transmission loses complete electronic control, it will operate in a failsafe mode with:

Maximum line pressure in all transmission ranges

Functional PARK, REVERSE and NEUTRAL positions

Operation in 3rd or 5th gear (depending upon the failure conditions) when the selector lever is in the DRIVE, 3, 2, or 1 position

TCC will stay released in all transmission ranges and gears

SAFETY PRECAUTIONS

Service information provided in this manual by ATSG is intended for use by professionally qualified technicians. Attempting repairs or service without the appropriate training, tools and equipment could cause injury to you or to others.

The service procedures we recommend and describe in this manual are effective methods of performing service and repair on this transmission. Some of the procedures require the use of special tools that are designed for specific purposes.

This manual contains CAUTIONS that you must observe carefully in order to reduce the risk of injury to yourself or to others. This manual also contains NOTES that must be carefully followed in order to avoid improper service that may damage the vehicle, tools and/or equipment.

TRANSMISSION DISASSEMBLY

1. The transmission should be steam cleaned on the outside, to remove any dirt and/or grease, before disassembly begins.
2. This transmission can be disassembled very easily on a work bench without the benefit of a holding fixture for rotation, or if desired attach ST 307-003 to the converter housing and install the transmission onto a suitable work bench.
3. Using ST 307-091 or similar tool, thread the tools onto the torque converter studs and carefully remove the torque converter from transmission as shown in Figure 34 and set aside to drain.
   Caution: Use care when removing the torque converter, to avoid personal injury and/or damage to converter, as it is heavy.

Continued on page 34

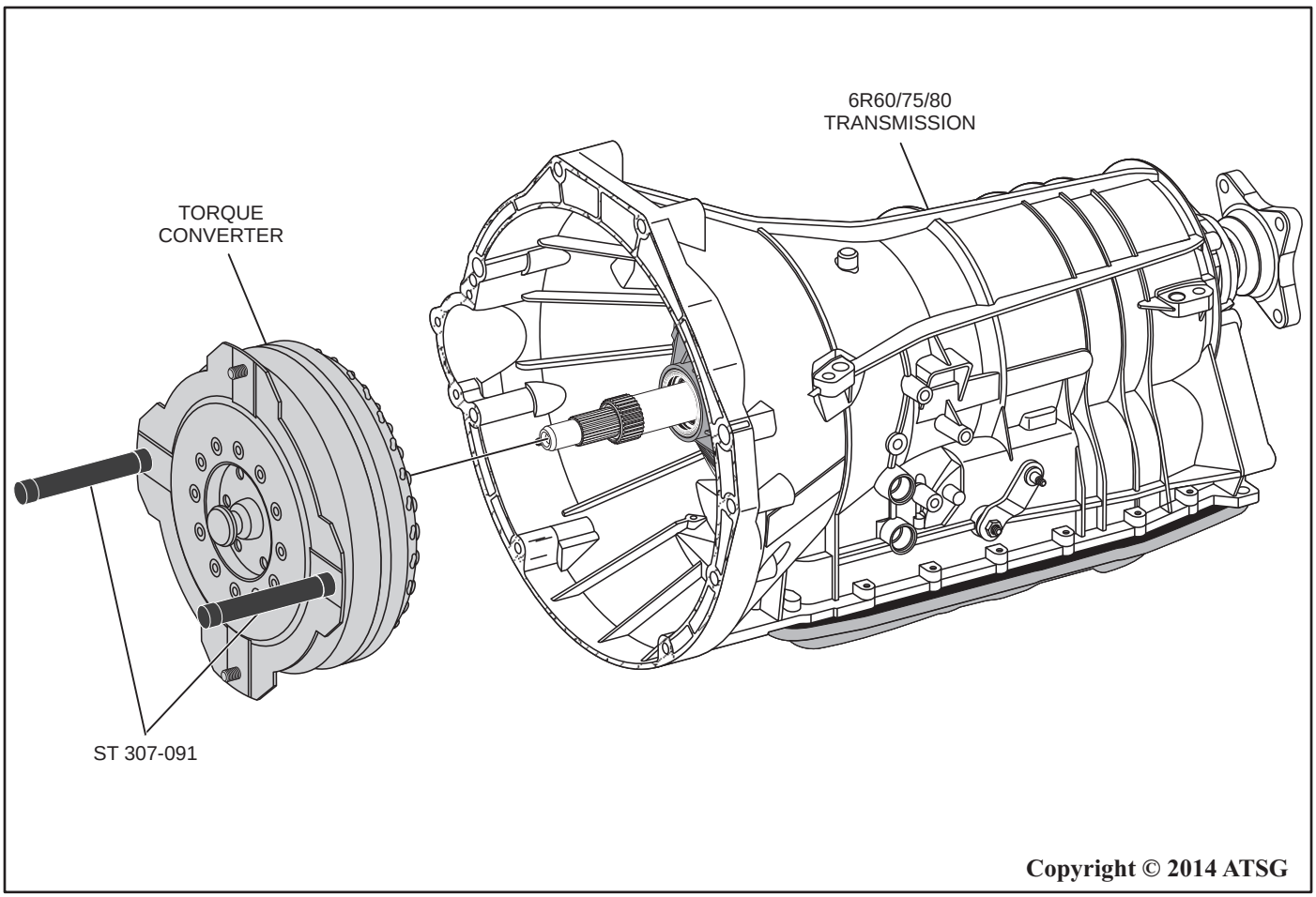


Figure 34

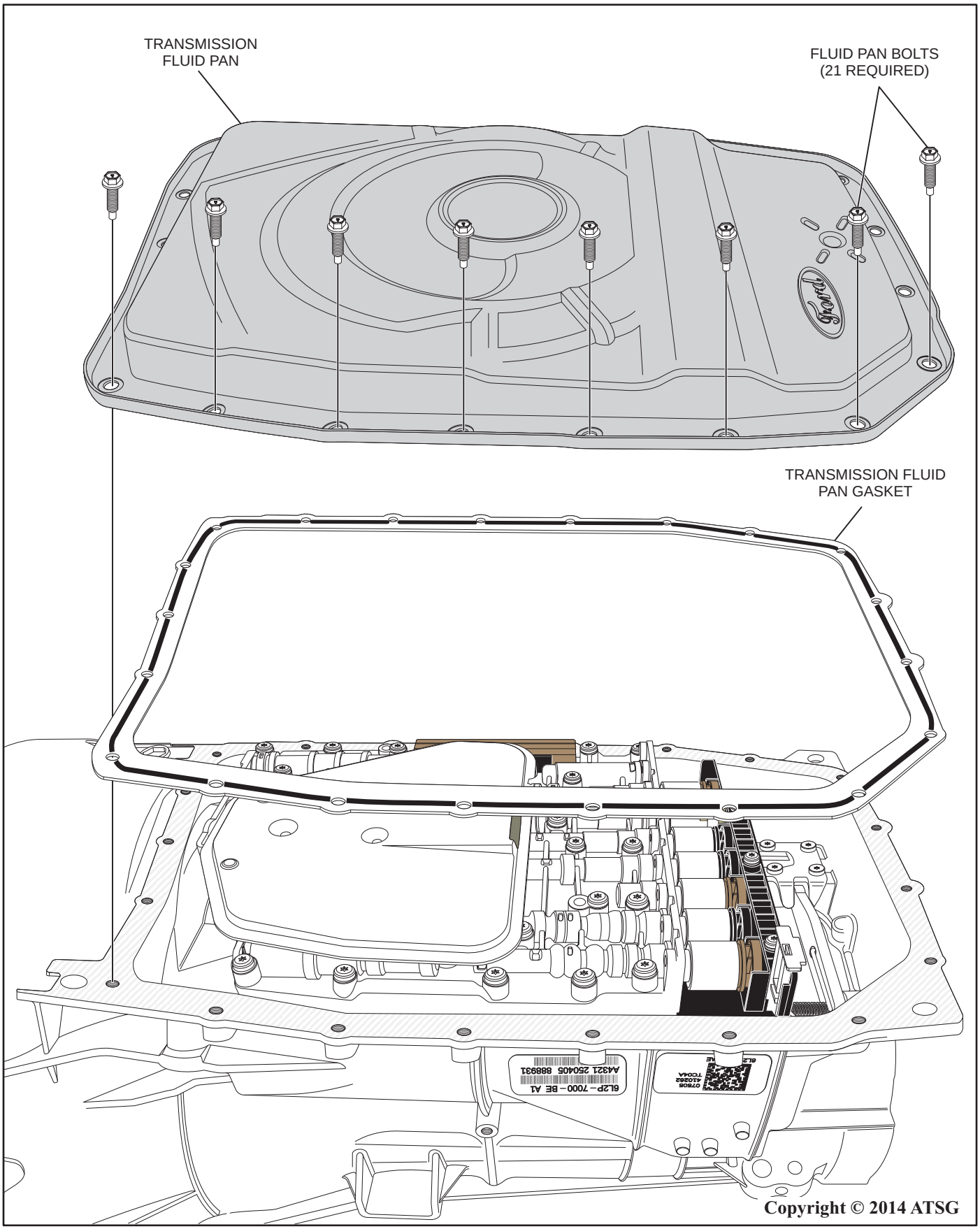

TRANSMISSION
FLUID PAN
FLUID PAN BOLTS
(21 REQUIRED)
TRANSMISSION FLUID
PAN GASKET
Copyright © 2014 ATSG

Figure 35

TRANSMISSION DISASSEMBLY (CONT'D)

4. Remove the 21 fluid pan bolts as shown in Figure 35.
5. Remove the transmission fluid pan and the transmission fluid pan gasket as shown in Figure 35.
   *Note: **The transmission fluid pan gasket is reusable, examine for any damage and discard if any damage is found.***
6. Using a twisting motion, lift upward to remove and discard the transmission fluid filter as shown in Figure 36. ***(Make sure filter seal does not remain in the pump, if it does, carefully remove it with a hooked scribe).***
7. Press in on the release tab and lift up on the bulkhead electrical connector retainer to release the bulkhead electrical connector sleeve as shown in Figure 37.
8. Grab the bulkhead electrical connector sleeve and using a twisting motion, carefully remove the sleeve from the transmission case as shown in Figure 38.
9. Remove the 11 mechatronic/main control valve body assembly attaching bolts from the valve body as shown in Figure 39.
   Note: The numerical sequence shown is illustrated for tightening the valve body assembly attaching bolts during reassembly. It is not necessary to remove the bolts in the sequence indicated.
10. Carefully lift and remove the control valve body assembly from the transmission case as shown in Figure 40. Set the control valve body assembly aside for disassembly and cleaning.

Continued on page 35

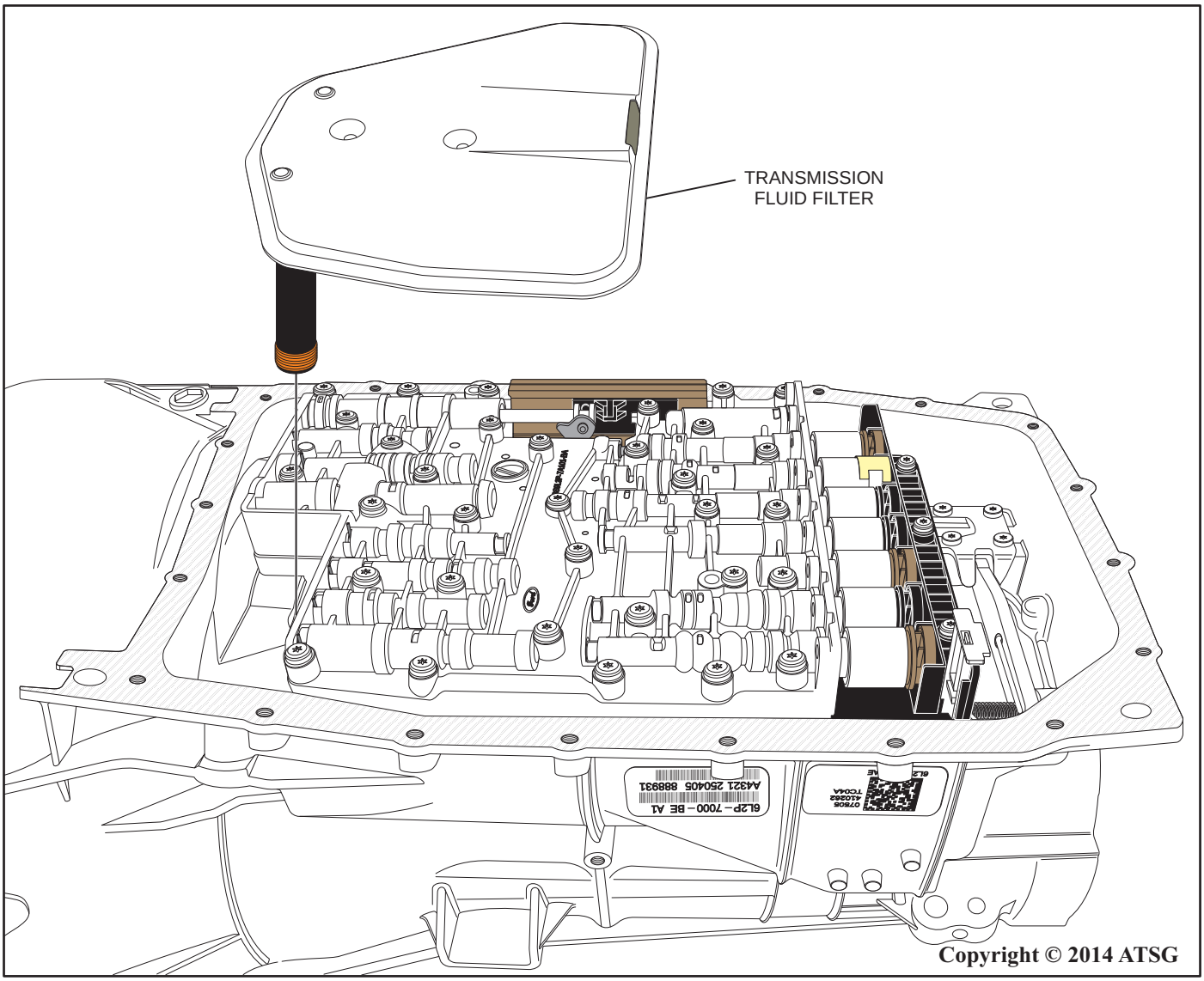


Figure 36

TRANSMISSION DISASSEMBLY (CONT'D)

11. Remove the transmission pump bridge seal, inspect for any damage and discard if any damage is evident as shown in Figure 40.
12. Remove the thermal cooler bypass valve from the transmission case as shown in Figure 40.
13. Remove the feed tubes from the transmission case as shown in Figure 40.

Note: The feed tubes are color coded and have different lengths. Observe the lengths and colors as shown in Figure 40.
Intermediate clutch (C) feed tube (BLUE).
Low/reverse clutch (D1) feed tube (GREEN).
Low/reverse clutch (*D2) feed tube (BLACK).
Direct clutch (B) feed tube (BLACK).

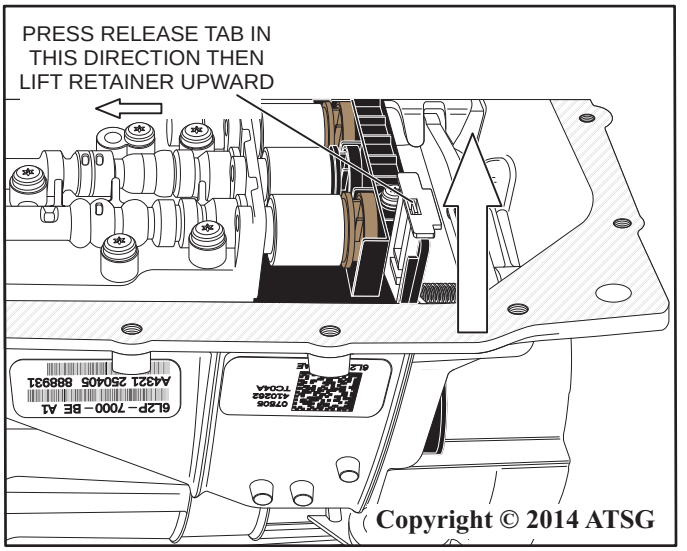


Figure 37

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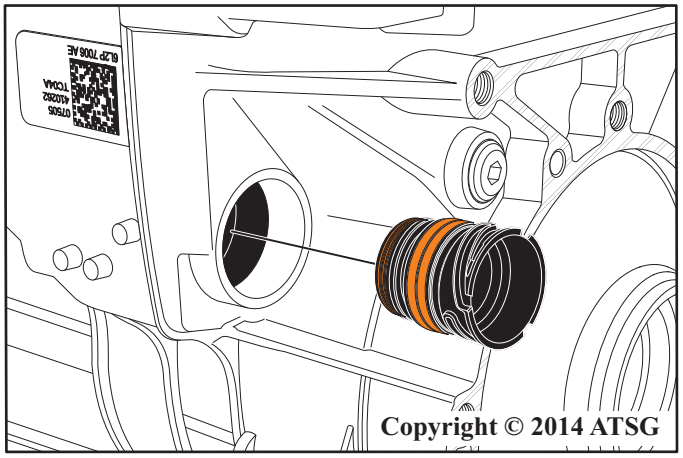

Figure 38

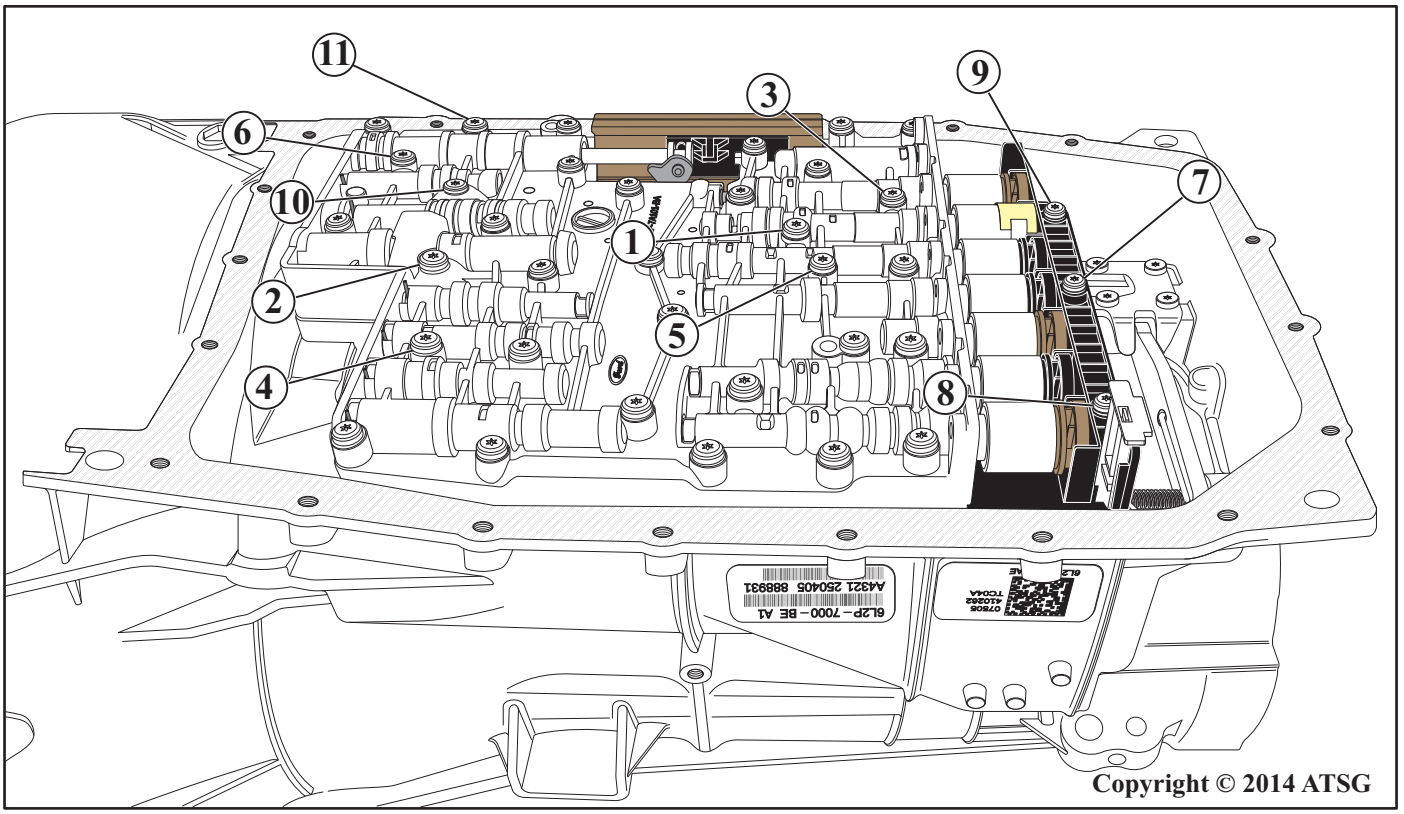

Figure 39

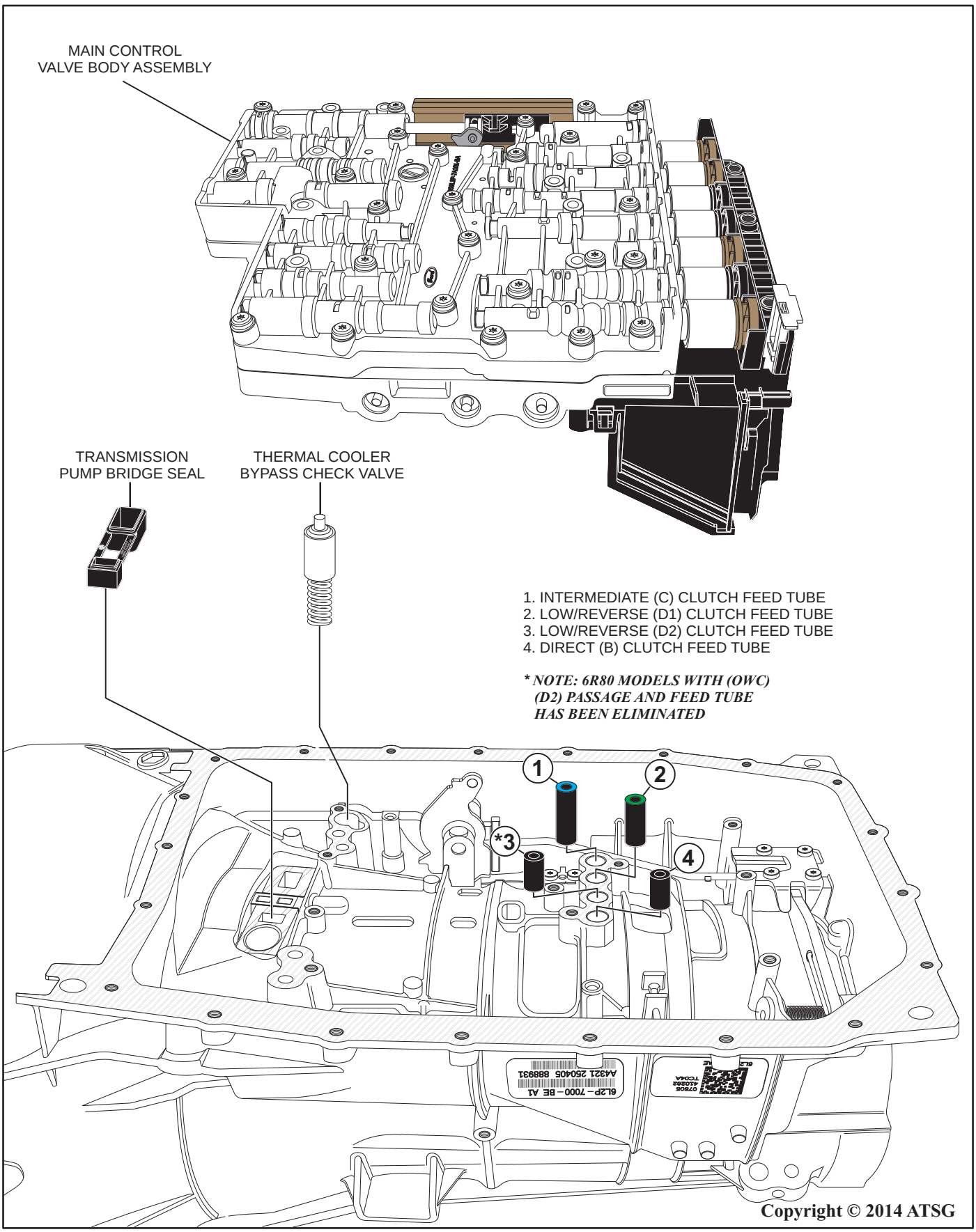
MAIN CONTROL
VALVE BODY ASSEMBLY
TRANSMISSION
PUMP BRIDGE SEAL
THERMAL COOLER
BYPASS CHECK VALVE
1. INTERMEDIATE (C) CLUTCH FEED TUBE
2. LOW/REVERSE (D1) CLUTCH FEED TUBE
3. LOW/REVERSE (D2) CLUTCH FEED TUBE
4. DIRECT (B) CLUTCH FEED TUBE
* NOTE: 6R80 MODELS WITH (OWC)
(D2) PASSAGE AND FEED TUBE
HAS BEEN ELIMINATED
1
2
*3
4
Copyright © 2014 ATSG

Figure 40

TRANSMISSION DISASSEMBLY (CONT'D)

14. Remove the park pawl retaining pin bolt from the rear of the case as shown in Figure 41.
15. Remove the four park rod actuating plate retaining bolts and the park rod actuating plate as shown in Figure 42.
16. Remove the park pawl pin, the park pawl spring and the park pawl as shown in Figure 42.

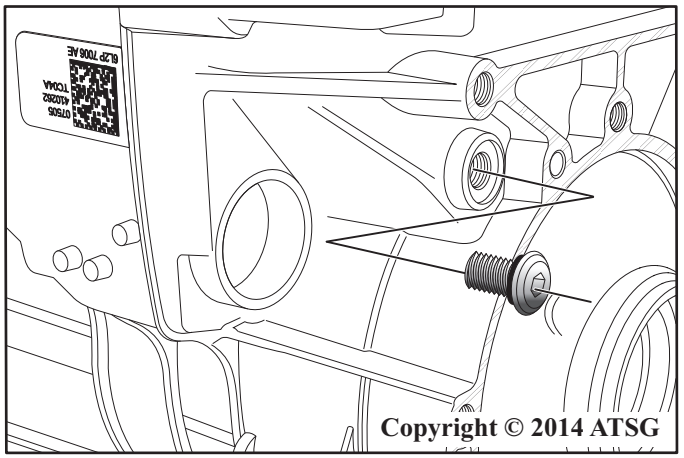

Figure 41

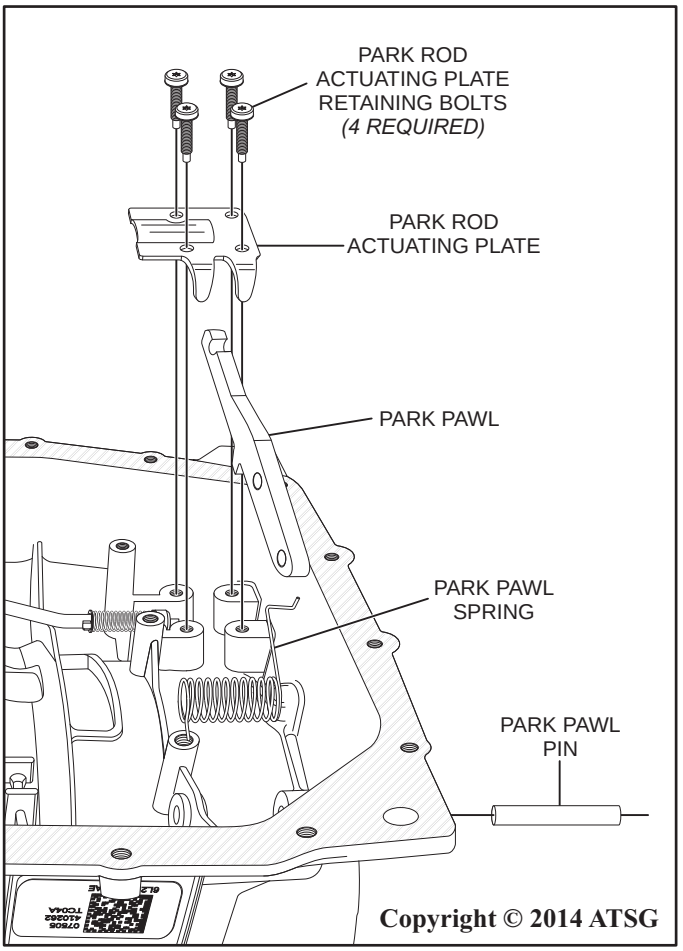

Figure 42

17. Using a drift pin punch and small hammer, carefully remove the manual control lever shaft retaining pin then remove the manual control lever shaft and the manual control lever spacer as shown in Figure 43.
18. Remove the manual control lever detent plate "rooster comb" and the park pawl actuator rod as an assembly as shown in Figure 43.
19. Remove the manual control lever detent spring retaining bolts and the manual control lever detent spring as shown in Figure 43.

Continued on page 38

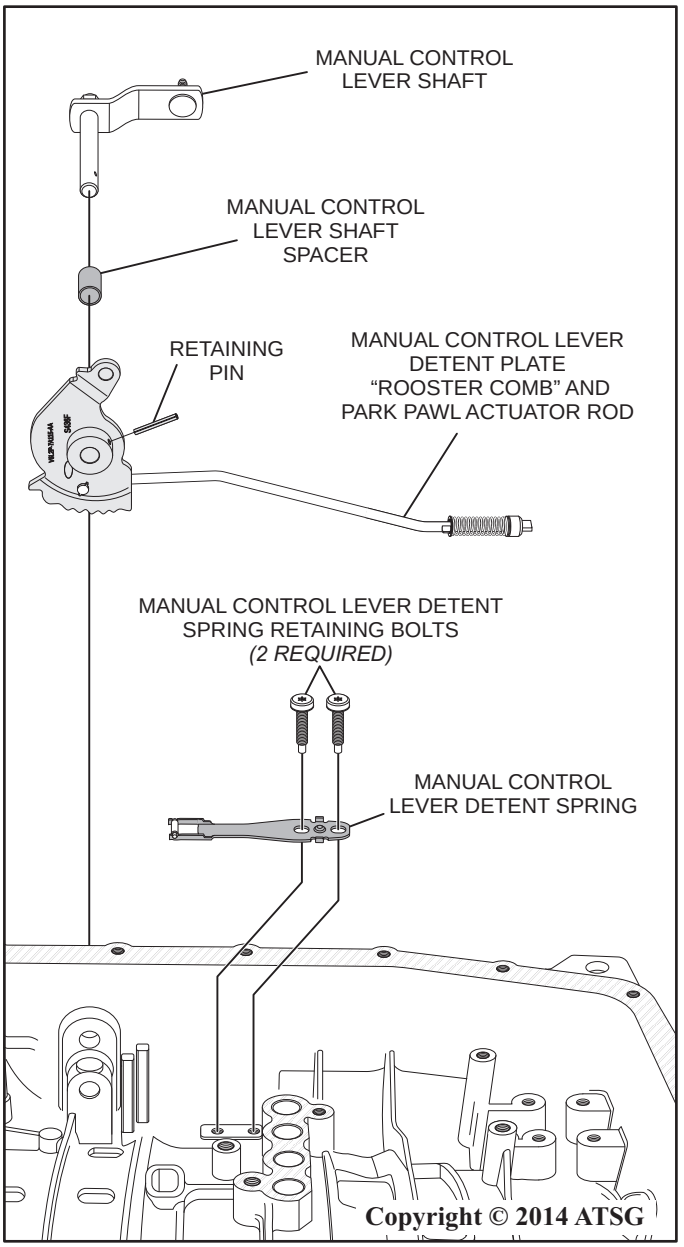

Figure 43

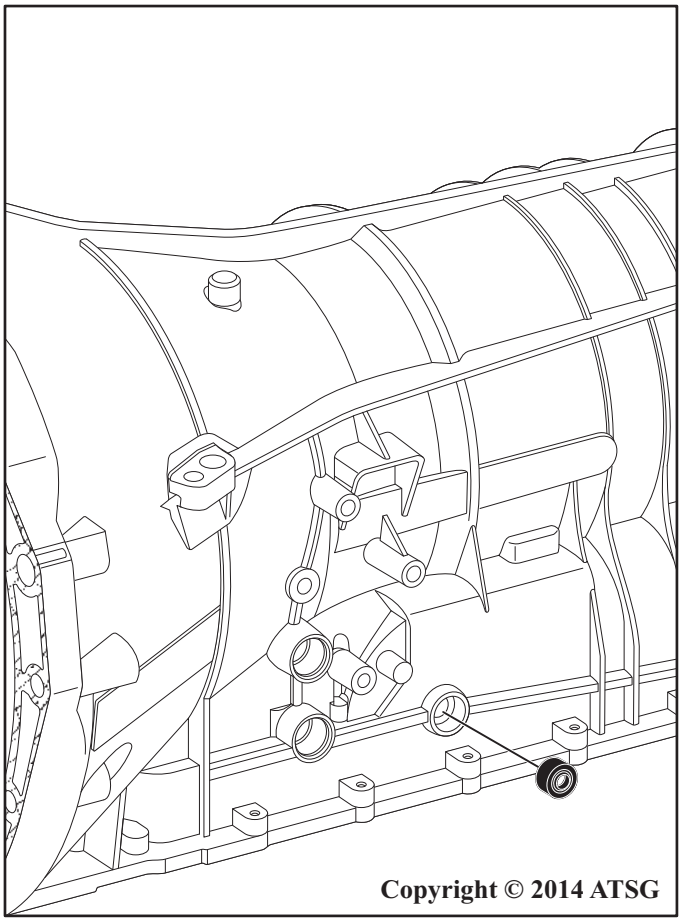

Figure 44

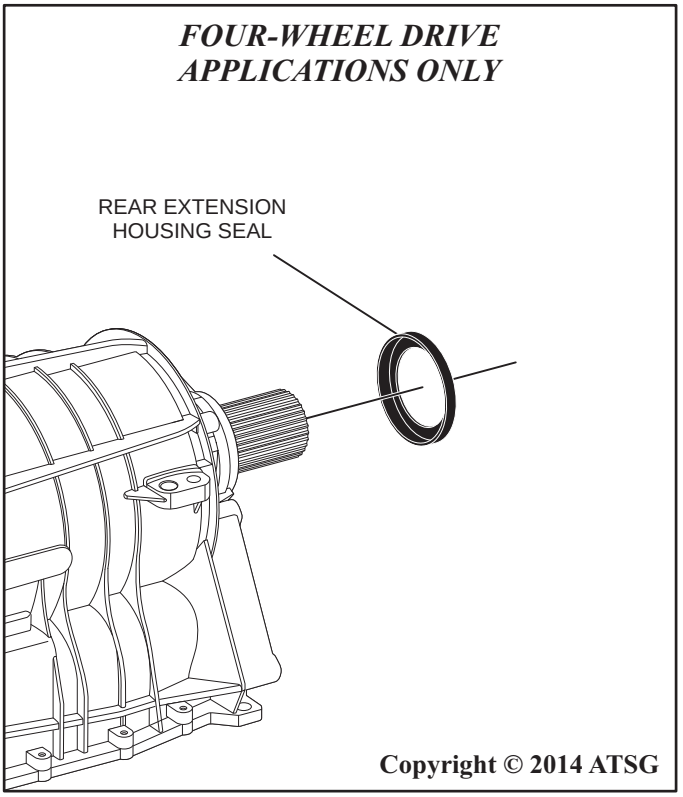

Figure 46

TRANSMISSION DISASSEMBLY (CONT'D)

20. Using a small screwdriver, remove the manual control lever shaft seal as shown in Figure 44.
21. ***FOUR-WHEEL DRIVE APPLICATIONS:*** Remove the rear extension housing seal as shown in Figure 46.
22. ***TWO-WHEEL DRIVE APPLICATIONS:*** Remove the output shaft flange retaining nut and remove the output shaft flange as shown in Figure 45.
23. Remove the rear extension housing seal, the anti-click washer and the T12 caged roller bearing as shown in Figure 45.

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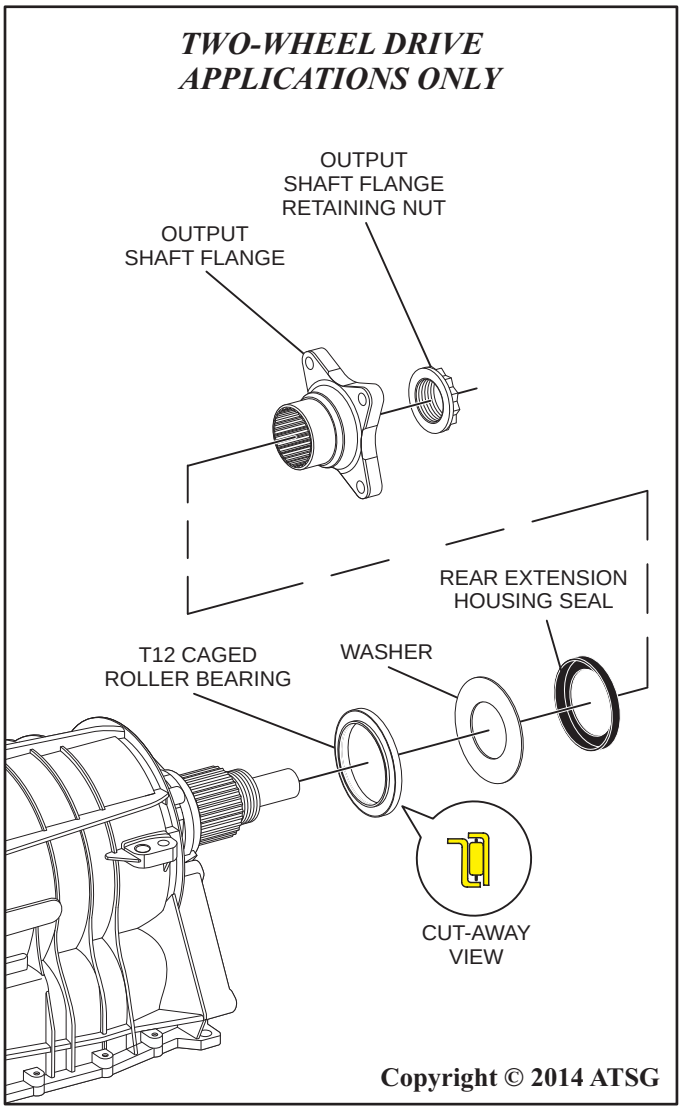

Figure 45

TRANSMISSION DISASSEMBLY (CONT'D)

24. Remove the 13 front pump assembly retaining bolts as shown in Figure 47.
25. Using ST 307-553 or similar pump removal tool and a slide hammer, carefully remove the front pump assembly from the transmission as shown in Figure 48.
26. Remove the o-ring from the front pump assembly as shown in Figure 48, then discard the o-ring and set the pump aside for disassembly and cleaning.
27. Remove the selective washer from the transmission as shown in Figure 48.

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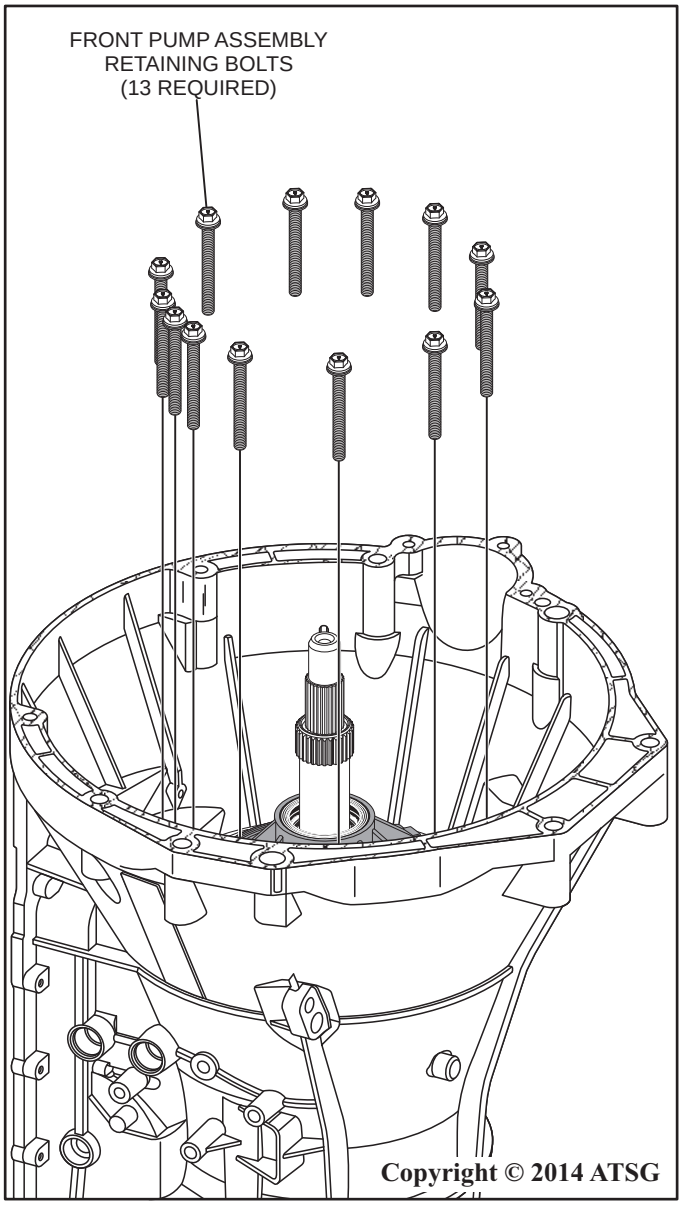

Figure 47

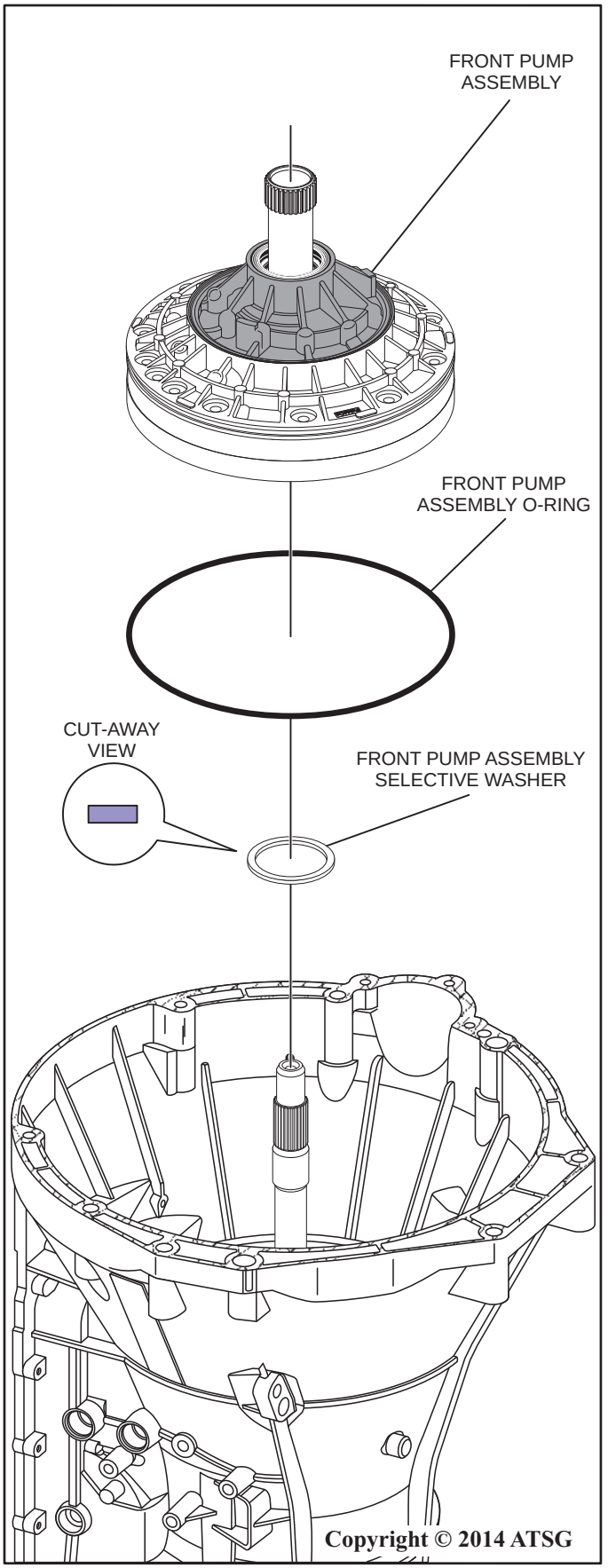

Figure 48

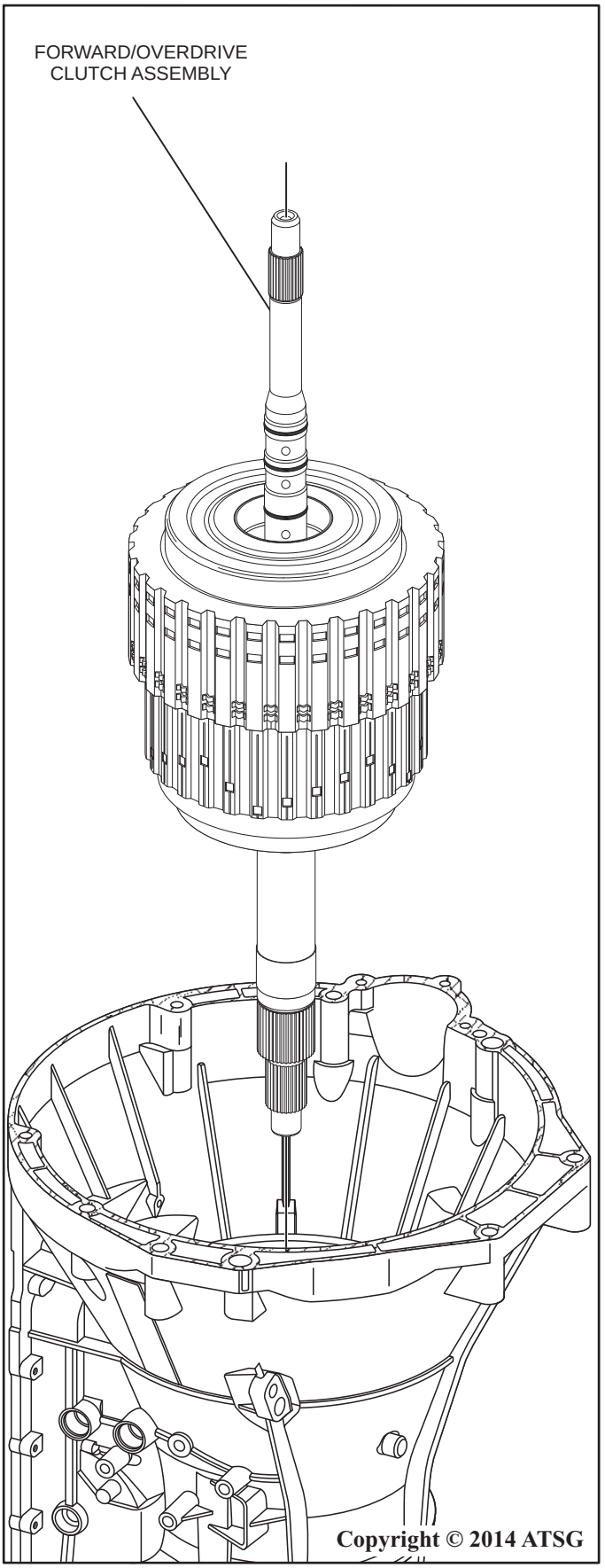

Figure 49

TRANSMISSION DISASSEMBLY (CONT'D)

28. Remove the forward/overdrive clutch assembly as shown in Figure 49 and set aside for disassembly and cleaning.
29. Lift and remove the T5 caged roller bearing from the transmission as shown in Figure 50. ***Note: the T5 caged roller bearing may come out with the forward/overdrive clutch assembly. Use care not to lose the bearing if it does.***
30. Remove the direct clutch assembly as shown in Figure 50 and set aside for disassembly and cleaning.

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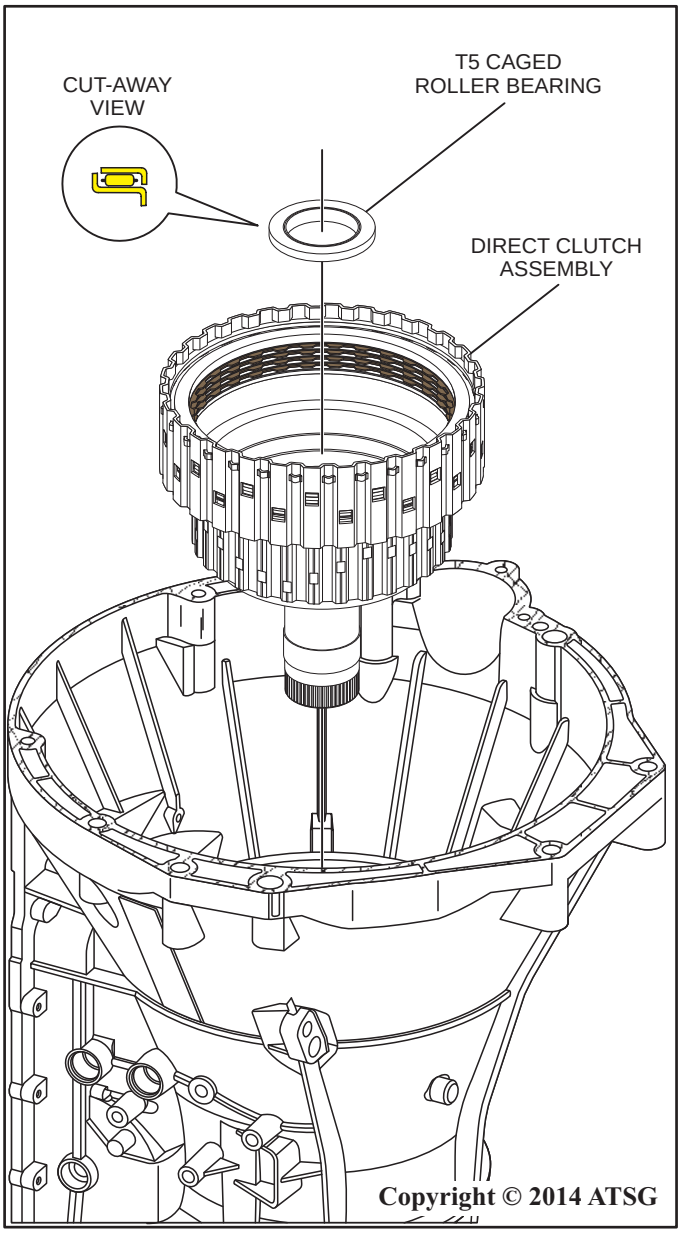

Figure 50

TRANSMISSION DISASSEMBLY (CONT'D)

NOTE: Step 31 and 34 for 2011 - later 6R80 vehicles with low one-way clutch (OWC).

31. Using a small screwdriver, carefully remove the bias spring from the case as shown in Figure 51.
32. Using ST 307-343 or other suitable heavy duty snap ring pliers, remove the intermediate and low/reverse support housing snap ring from the case as shown in Figure 52.
    Note: the snap ring eyelets should be located at either the 3 o'clock or 9 o'clock position in the case.
33. Remove the T6 caged roller bearing together with the intermediate and low/reverse support housing from the case as shown in Figure 52 and set aside for disassembly and cleaning.
34. Remove the low one-way clutch (OWC) as shown in Figure 53 and set aside for disassembly and cleaning.

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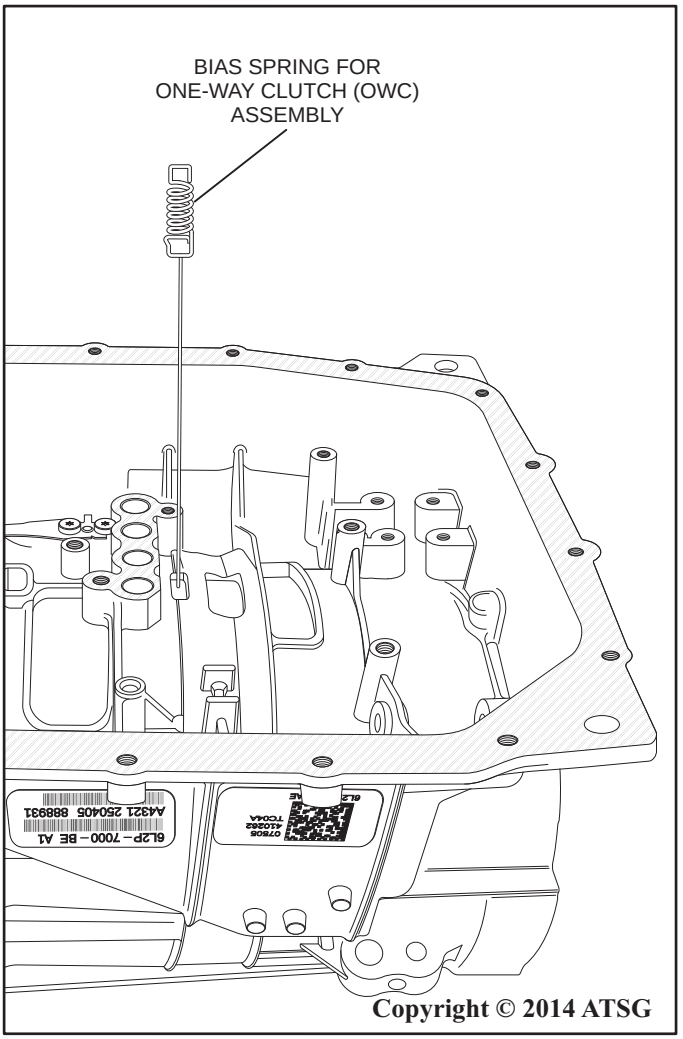

Figure 51

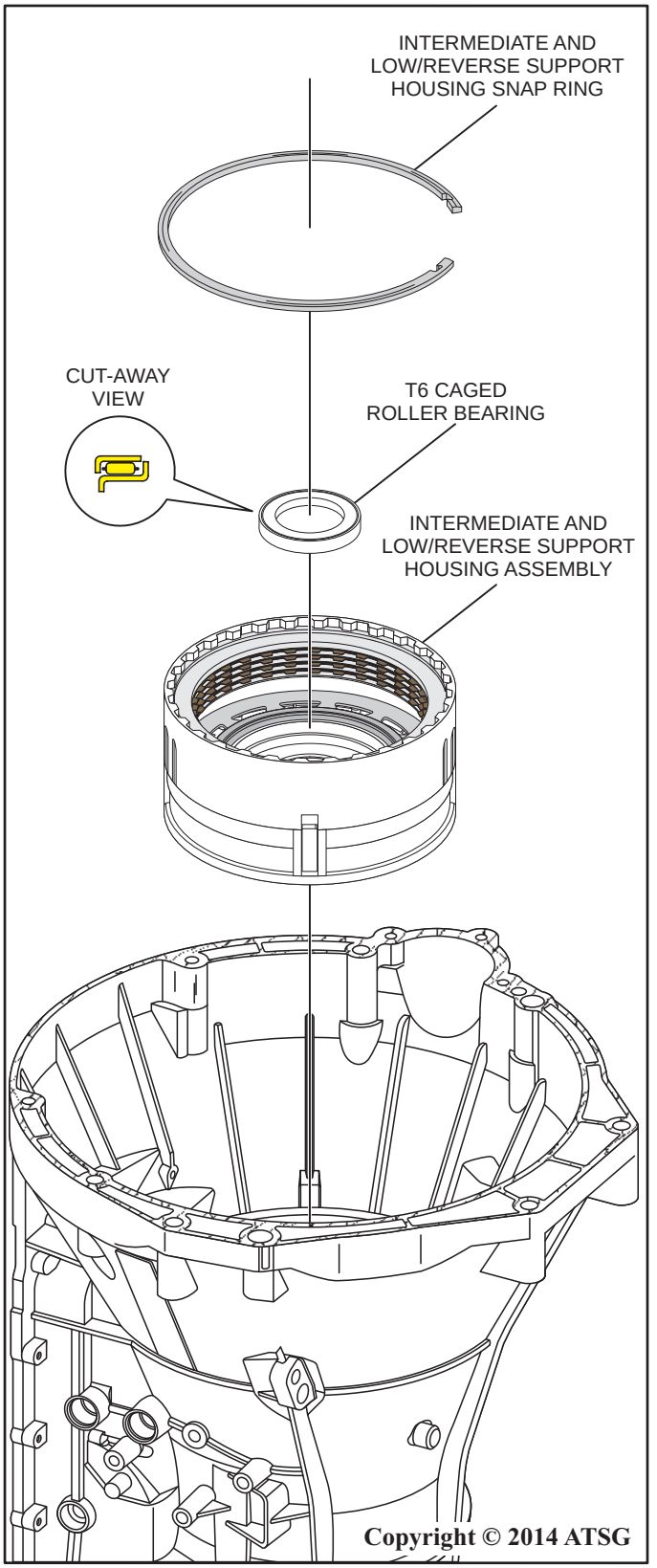

Figure 52

TRANSMISSION DISASSEMBLY (CONT'D)

35. Remove the selective washer and the T7 caged roller bearing as shown in Figure 53.
36. Remove the rear planetary assembly and the low/reverse clutch together as shown in Figure 54 then set aside for disassembly and cleaning. There may be remaining frictions and steels in the case. If so, remove them as well at this time.

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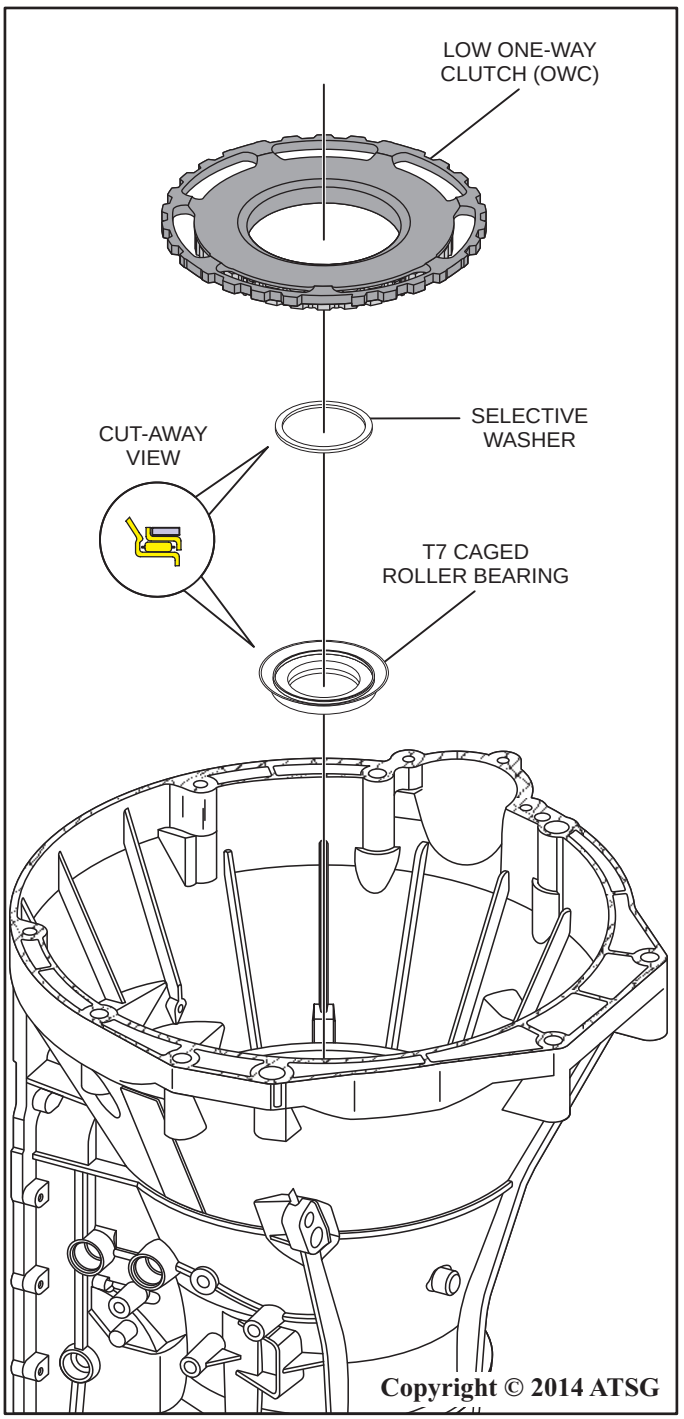


Figure 53

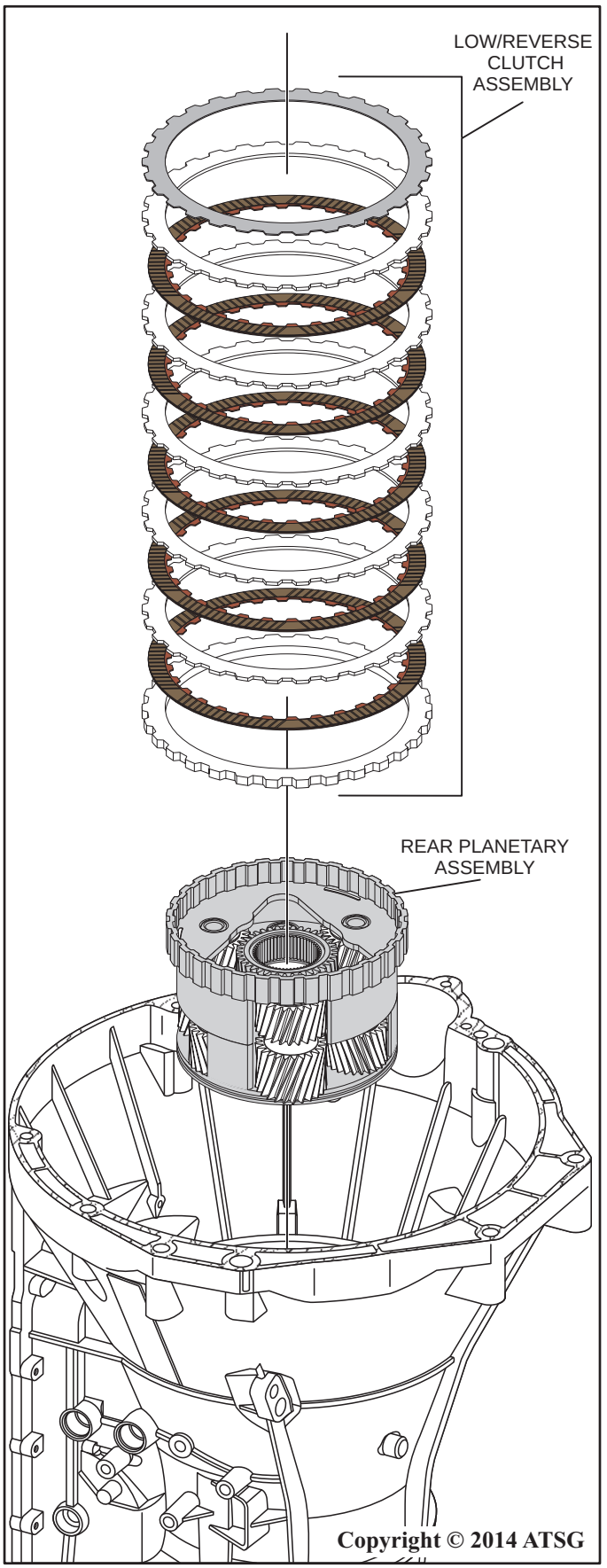


Figure 54

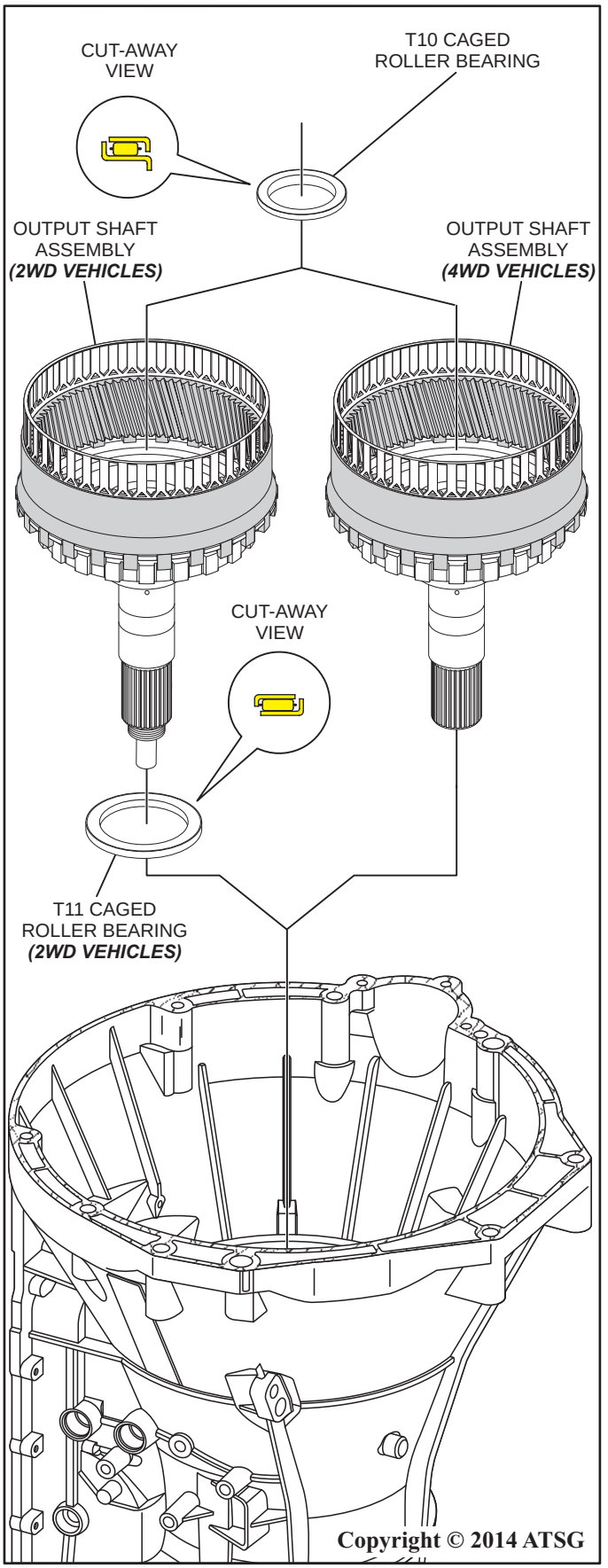


Figure 55

37. Remove the T10 caged roller bearing, the output shaft assembly and the T11 caged roller bearing ***(2WD vehicles only)*** as shown in Figure 55 and set aside for disassembly and cleaning.
38. ***FOUR-WHEEL DRIVE APPLICATIONS:*** Using a pair of snap ring pliers, carefully remove the bearing retainer retaining snap ring from the case as shown in Figure 56.
Note: the snap ring eyelets are fragile and can easily snap and break if care is not taken.

Continued on page 44

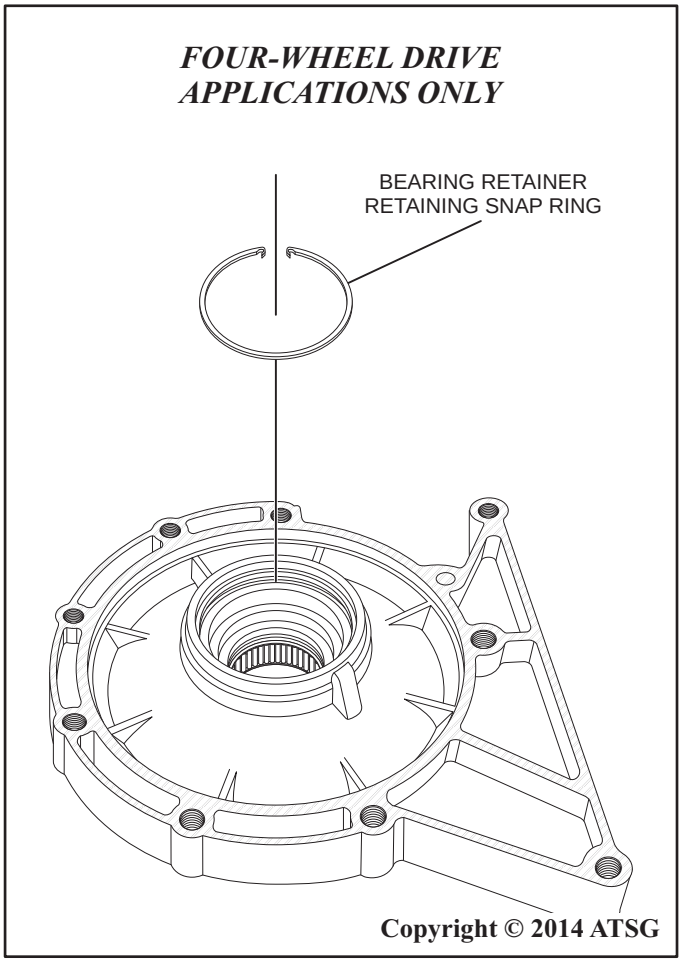


Figure 56

TRANSMISSION DISASSEMBLY (CONT'D)

39. Using ST 307-562 needle bearing remover and ST 205-256 front wheel hub oil seal installer or other suitable bearing removal tool, remove the needle bearing retainer, the caged roller bearing and the needle bearing as shown in Figure 57.
40. ***TWO-WHEEL DRIVE APPLICATIONS*** Using ST 308-001 pilot bearing remover or similar pilot bearing removal tool, remove the bearing spacer from the transmission as shown in Figure 58.
41. Using ST 307-562 needle bearing remover and ST 205-256 front wheel hub oil seal installer or other suitable bearing removal tool, remove the needle bearing from the transmission as shown in Figure 58.

COMPONENT REBUILD SECTION
BEGINS ON PAGE 45

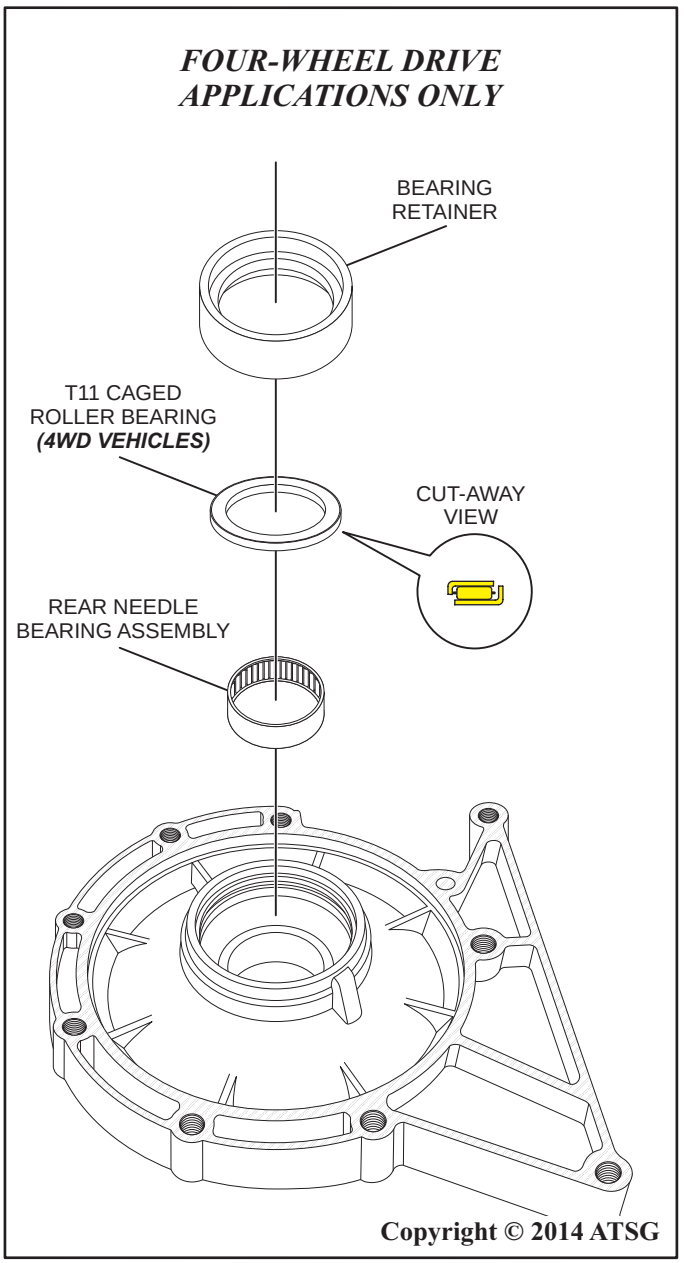


Figure 57

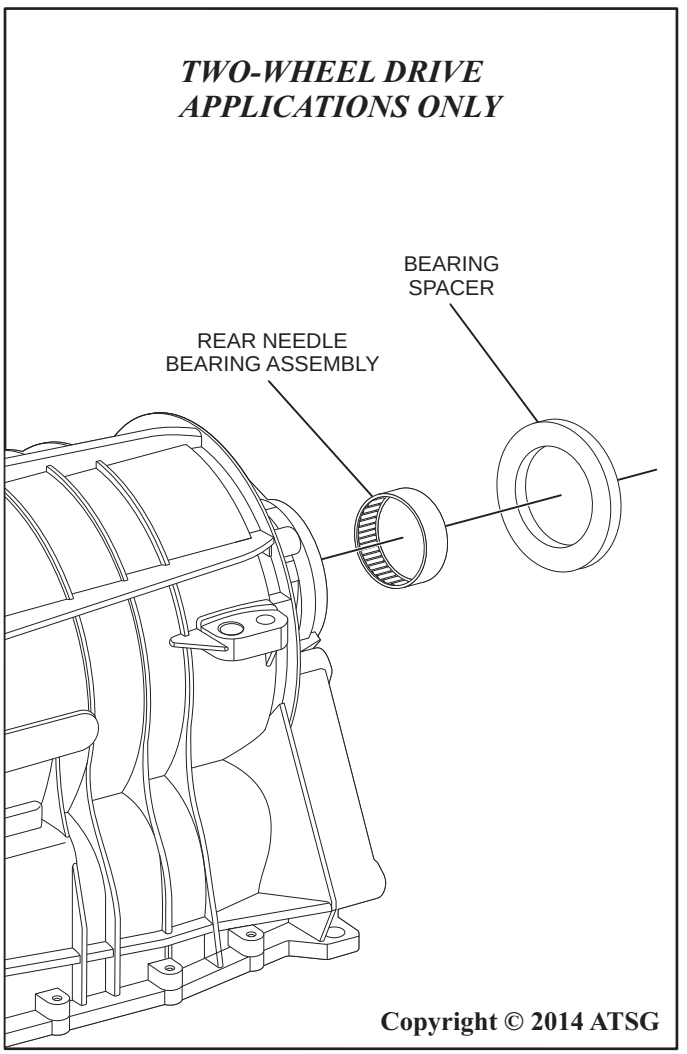
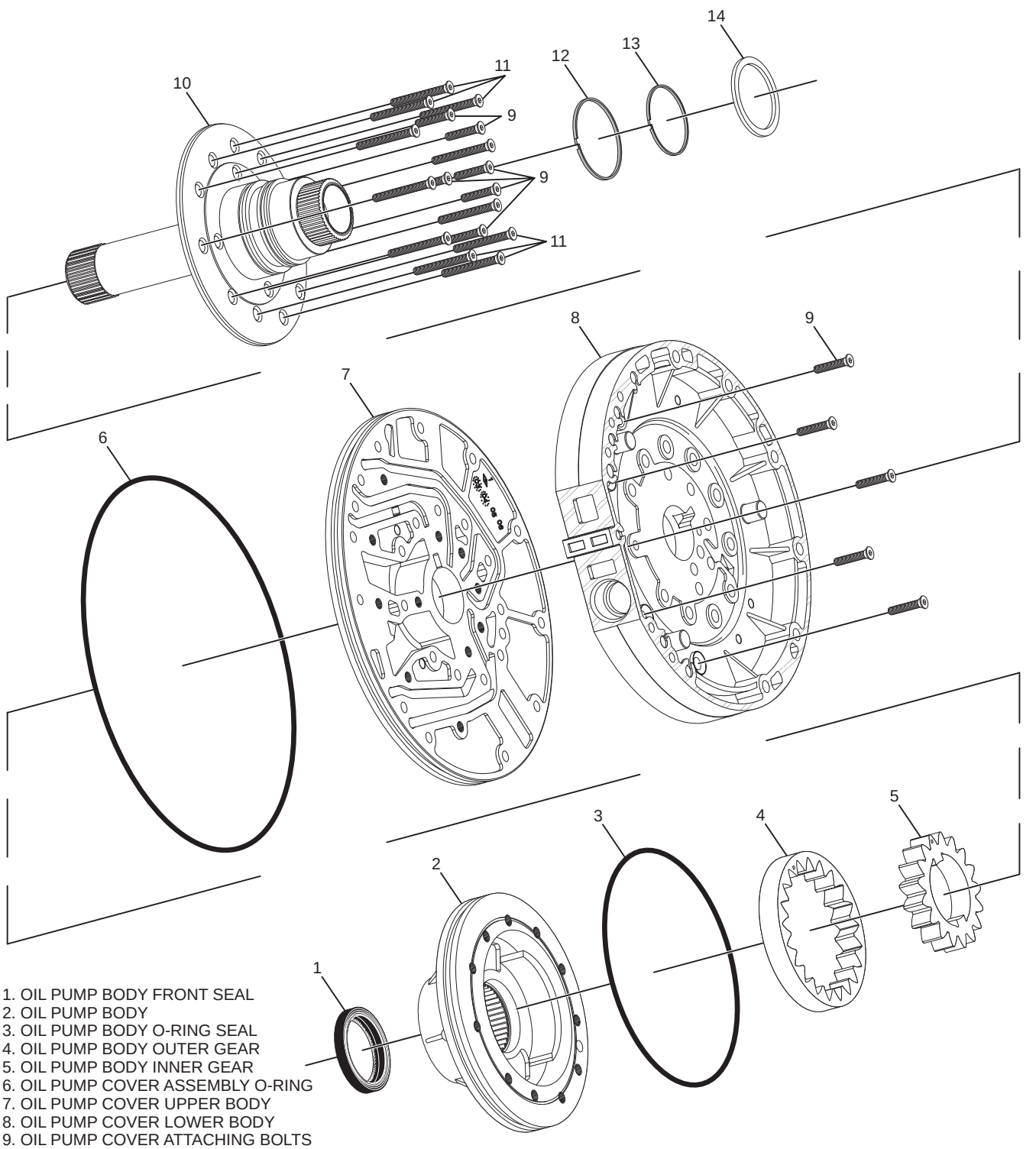


Figure 58

OIL PUMP ASSEMBLY EXPLODED VIEW



1. OIL PUMP BODY FRONT SEAL
2. OIL PUMP BODY
3. OIL PUMP BODY O-RING SEAL
4. OIL PUMP BODY OUTER GEAR
5. OIL PUMP BODY INNER GEAR
6. OIL PUMP COVER ASSEMBLY O-RING
7. OIL PUMP COVER UPPER BODY
8. OIL PUMP COVER LOWER BODY
9. OIL PUMP COVER ATTACHING BOLTS *(11 REQUIRED)*
10. OIL PUMP COVER STATOR
11. OIL PUMP BODY ATTACHING BOLTS *(11 REQUIRED)*
12. FRONT PUMP LOWER SEALING RING
13. FRONT PUMP UPPER SEALING RING
14. OIL PUMP COVER SELECTIVE WASHER

Figure 59

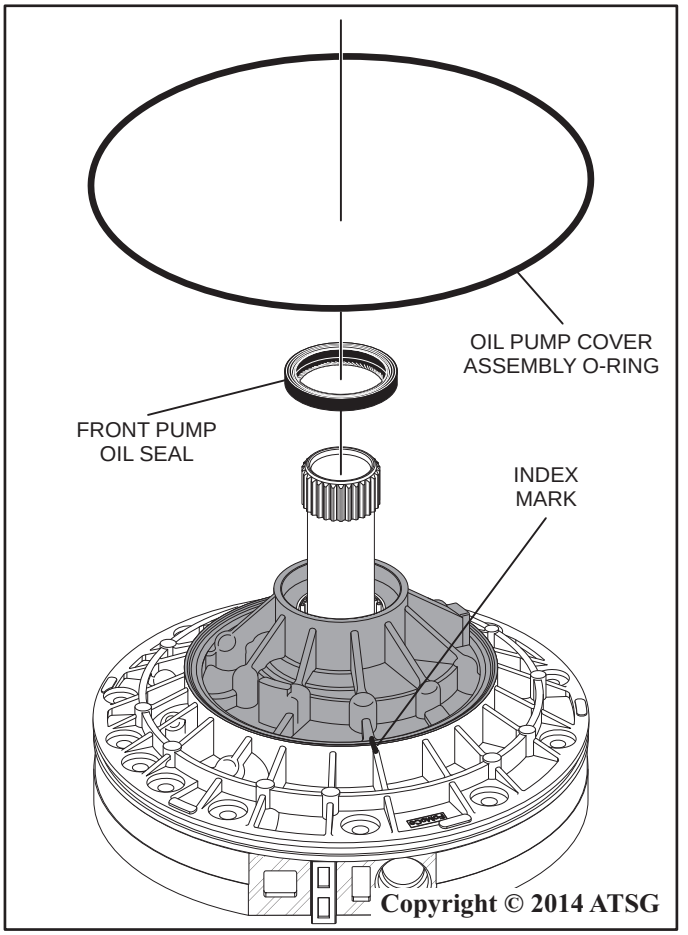


Figure 60

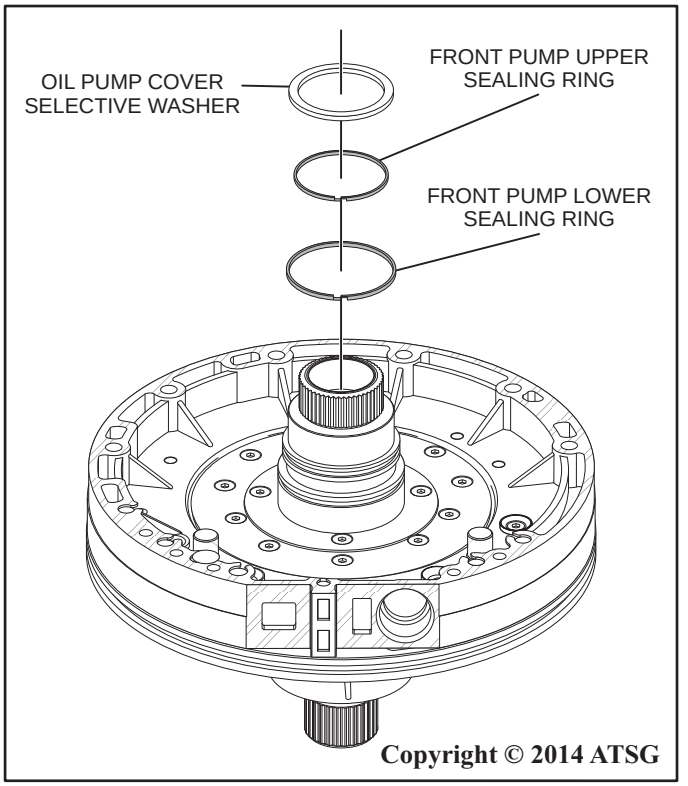


Figure 61

COMPONENT REBUILD

Oil Pump Assembly

1. Remove the oil pump cover assembly o-ring as shown in Figure 60 and discard the o-ring.
2. Remove the front pump oil seal as shown in Figure 60 and discard the seal.
3. Using a permanent type marker, make an index mark across the pump body and the pump cover as shown in Figure 60. This index mark will assist during reassembly.
4. Remove the oil pump cover selective washer as shown in Figure 61 and set aside.
5. Remove the front pump upper and lower sealing rings as shown in Figure 61 and discard the sealing rings.
6. Remove the 11 oil pump cover attaching bolts as shown in Figure 62. Leave two of the bolts threaded into the pump approximately half way, this will help with removing the pump body from the pump cover.

Continued on page 47

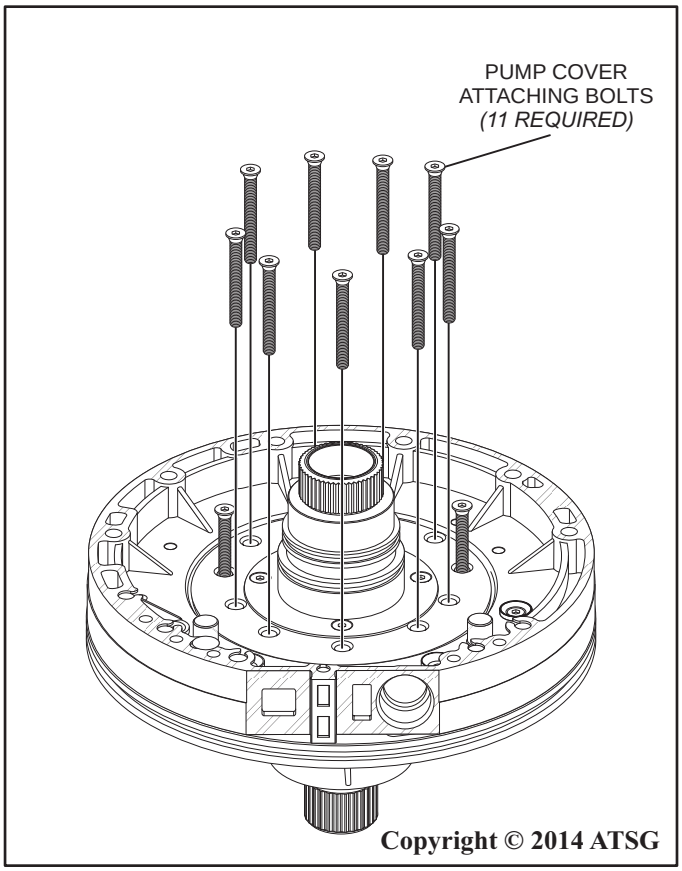


Figure 62

COMPONENT REBUILD

Oil Pump Assembly (Cont'd)

7. Press downward on the bolts remaining in the pump cover in order to push the pump body out of the pump cover as shown in Figure 63.
8. Once the pump body is removed from the pump cover, remove the two pump cover attaching bolts from the cover and set together with the other nine removed bolts.
9. Remove the oil pump body o-ring seal from the pump body as shown in Figure 64 and discard the o-ring.
10. Remove the oil pump body inner and outer gear from the pump body as shown in Figure 64. ***Note: the locations of the pump gear id marks (they face upward) for proper orientation during reassembly.***
11. Wash all oil pump assembly parts with clean solvent and dry thoroughly with compressed air. ***Note: it is not necessary to separate the pump cover halves and the stator support during overhaul.***

Continued on page 48

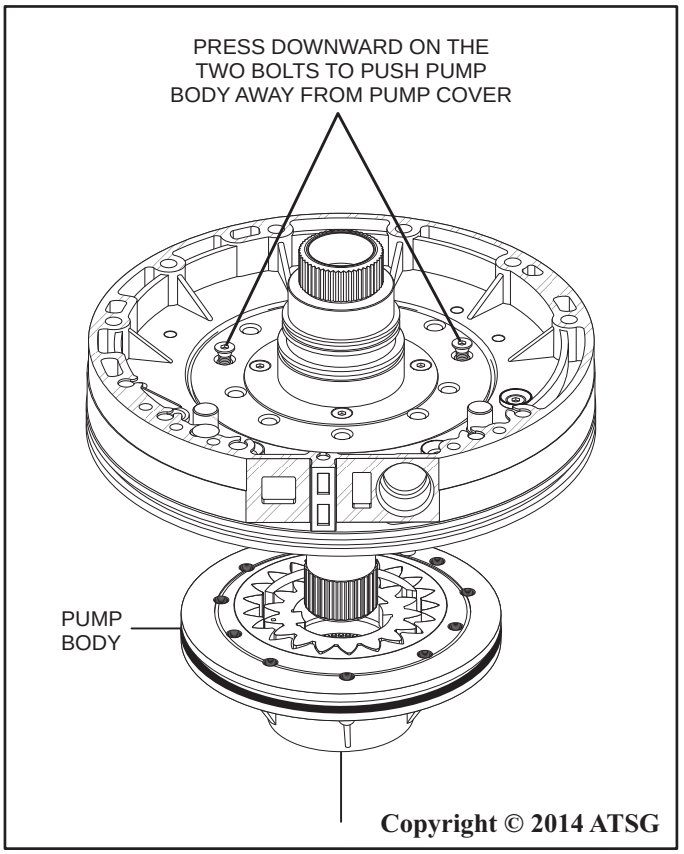


Figure 63

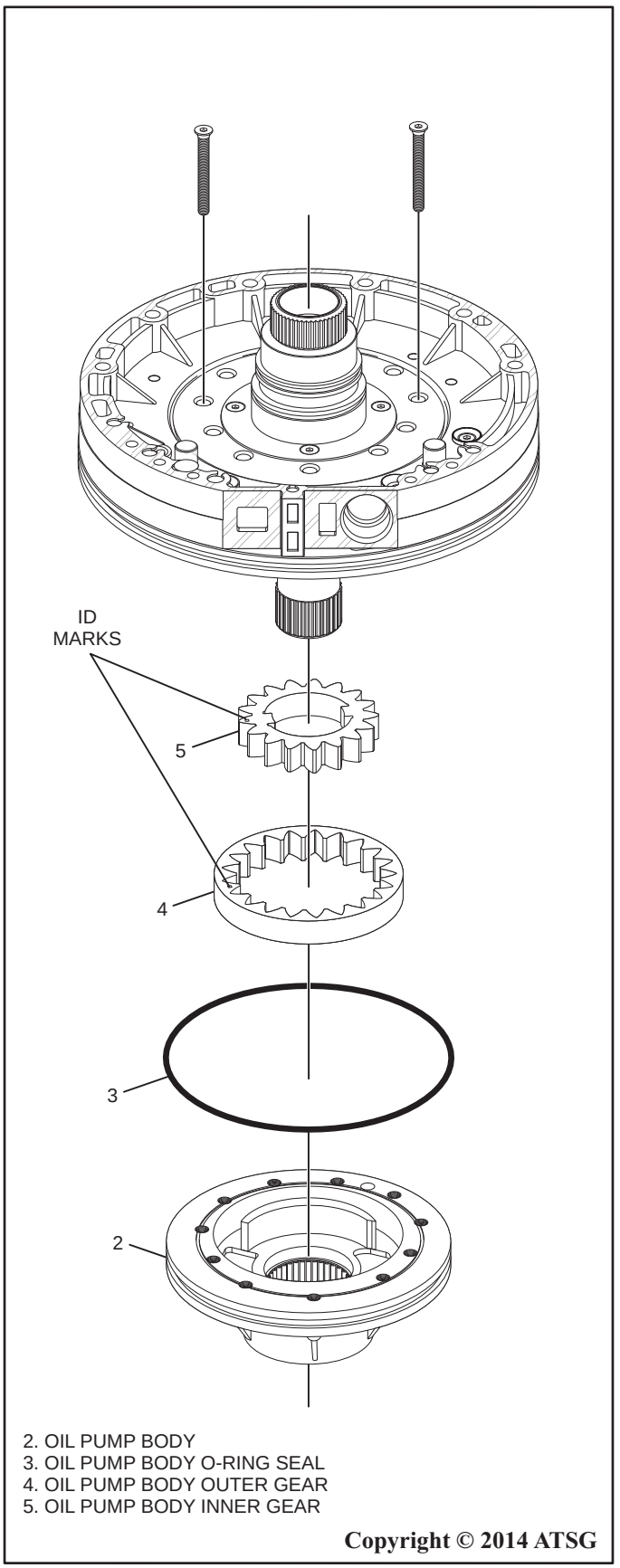


Figure 64

COMPONENT REBUILD

Oil Pump Assembly (Cont'd)

12. Inspect the inner and outer pump body gears, the pump body and the pump cover for wear or scratches and replace as necessary. Inspect the converter hub bearing for wear or pitting and replace as necessary.
13. Coat the pump body inner and out gears with a small amount of ATF and install the gears into the pump body with the ID marks facing upward as shown in Figure 65.
14. Install a new pump body o-ring as shown in Figure 65, coat the o-ring with a small amount of ATF or Trans-Jel®.
15. Line up the ID marks on the pump body and pump cover assembly as shown in Figure 60, then press the pump body into the pump cover as shown in Figure 66.
16. Make certain all bolt holes are aligned in the pump cover and pump body then install and hand-tighten the 11 pump cover attaching bolts as shown in Figure 66.

Continued on page 49

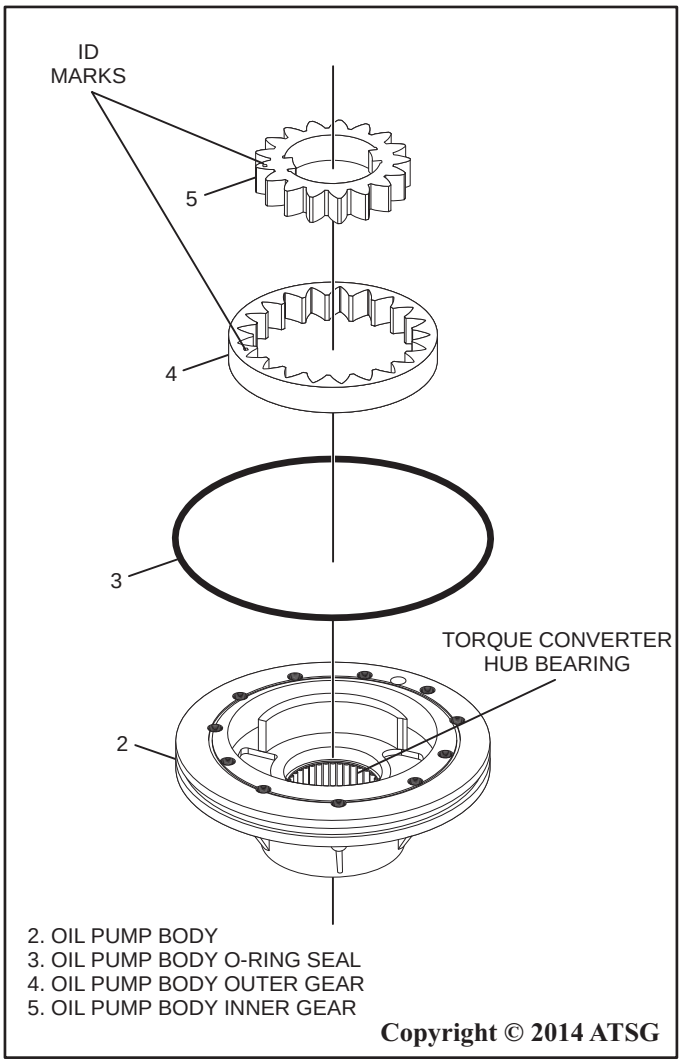


Figure 65

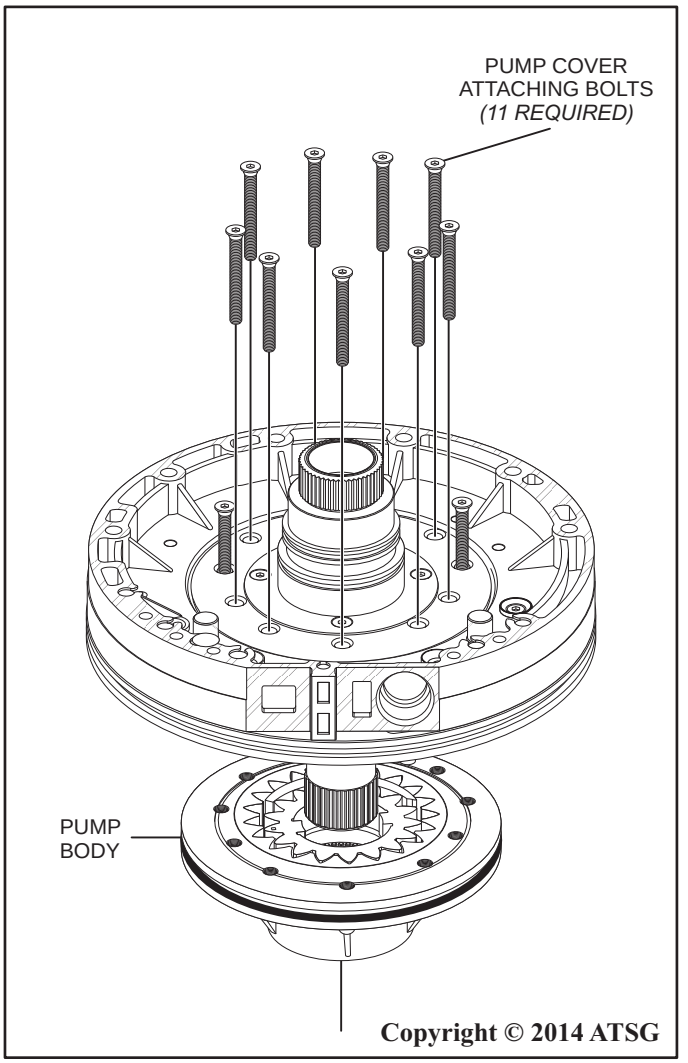


Figure 66

COMPONENT REBUILD

Oil Pump Assembly (Cont'd)

17. Tighten the pump cover attaching bolts in a cross-wise pattern and finish by tightening each bolt to a torque of 15 Nm *(133 in. lb.)* as shown in Figure 67.
18. Using ST 307-556 fluid pump seal installer or similar pump seal installation tool, install a new pump seal into the pump as shown in Figure 68.
19. Coat the inside of the seal with a small amount of ATF or Trans-Jel®.
20. Install a new oil pump cover assembly o-ring as shown in Figure 68. Coat the o-ring with a small amount of ATF or Trans-Jel®.
21. Install a new lower and upper front pump sealing ring as shown in Figure 69. Coat the sealing rings lightly with a small amount of Trans-Jel®.
22. Install the oil pump selective washer as shown in Figure 69, and retain the washer with a small amount of Trans-Jel®.
23. Set the completed pump assembly aside for final assembly.

Continued on page 50

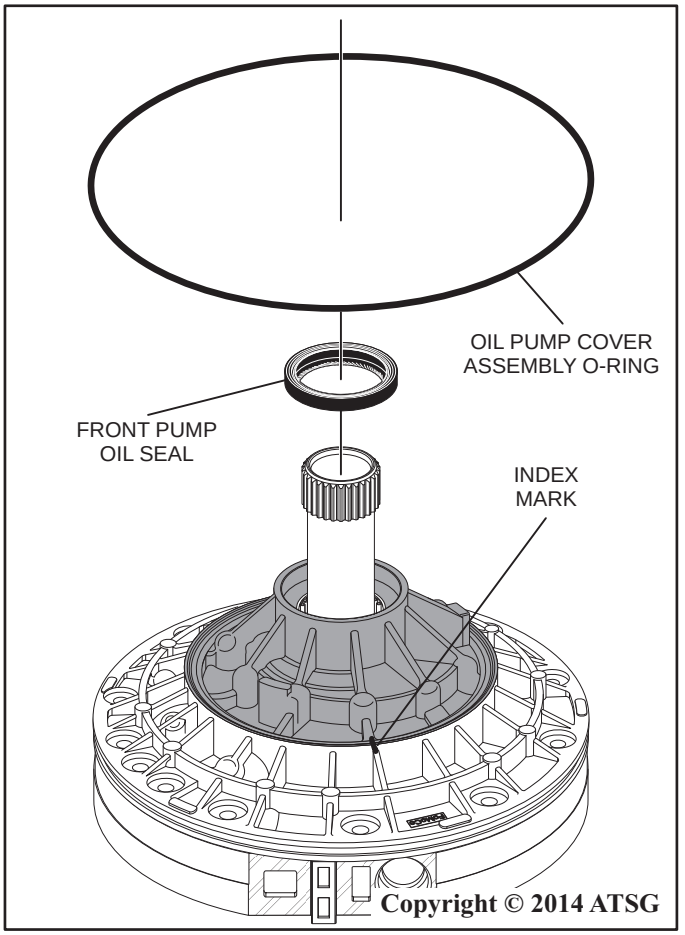


Figure 68

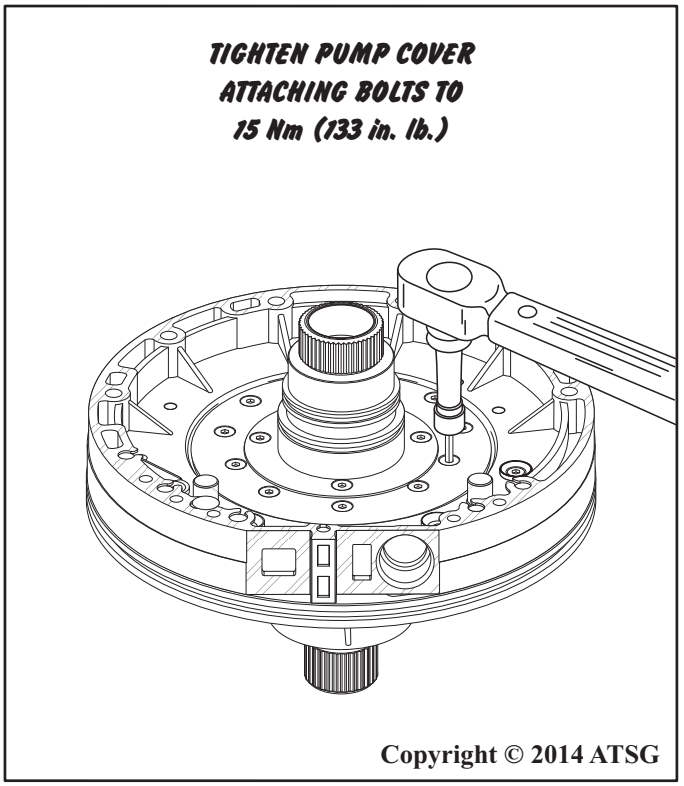


Figure 67

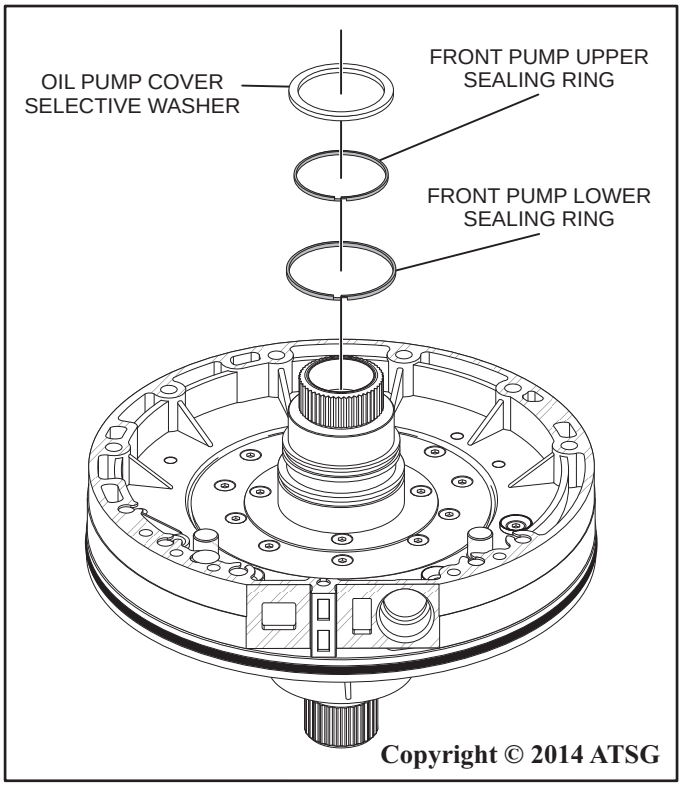


Figure 69

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly

1. Make a painted index mark on the forward clutch housing where the snap ring gap is located as shown in Figure 70.
2. Using a small screwdriver, carefully remove and discard the direct clutch hub retaining snap ring as shown in Figure 71.
   Note: Only pry to remove the snap ring out of the snap ring groove 180° from where the index mark was made. Failure to do so may damage the forward clutch housing.
3. Remove the direct clutch hub from the forward clutch housing as shown in Figure 71 and discard it.

Continued on page 51

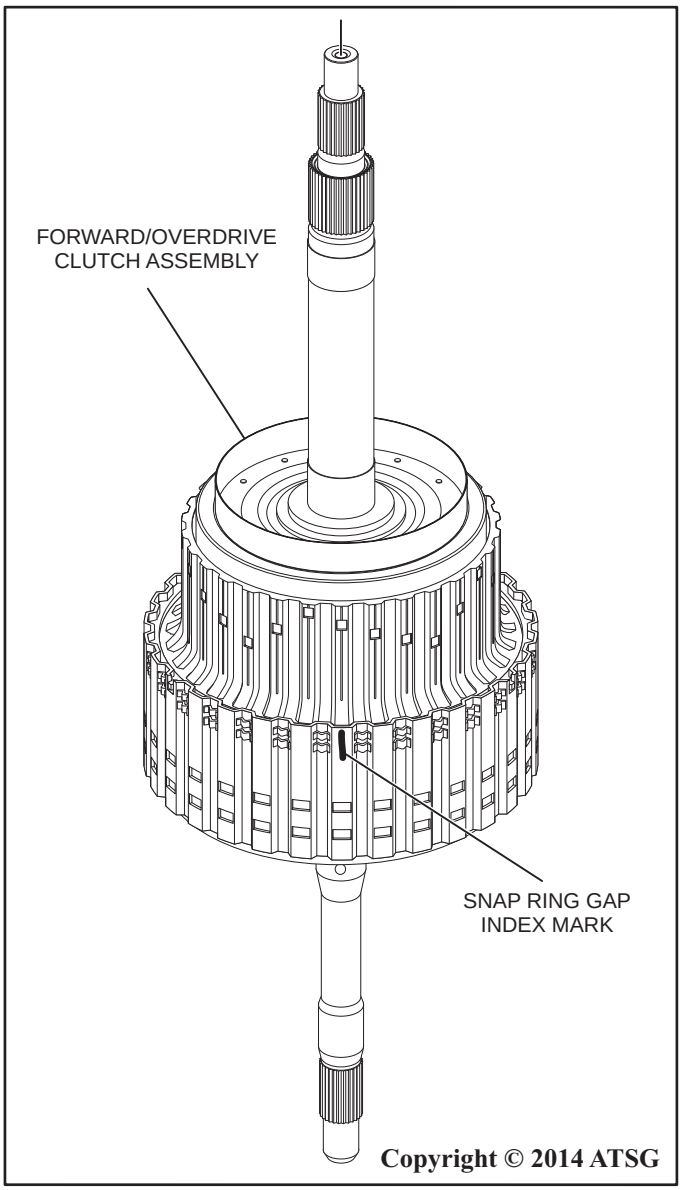


Figure 70

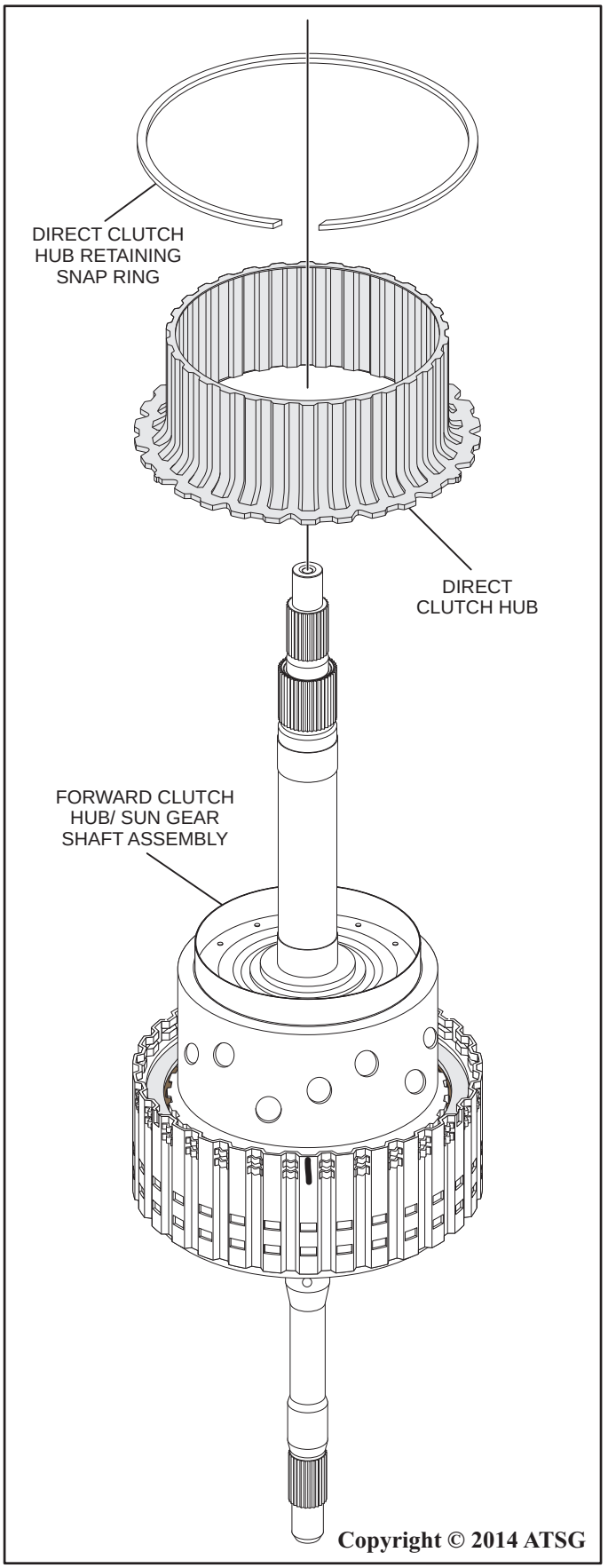


Figure 71

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

4. Remove the forward clutch hub/sun gear shaft assembly as shown in Figure 72.
5. Remove the intermediate shaft/overdrive clutch hub as shown in Figure 73.
6. Remove the T4 caged roller bearing from the intermediate shaft/overdrive clutch hub as shown in Figure 73.

Continued on page 52

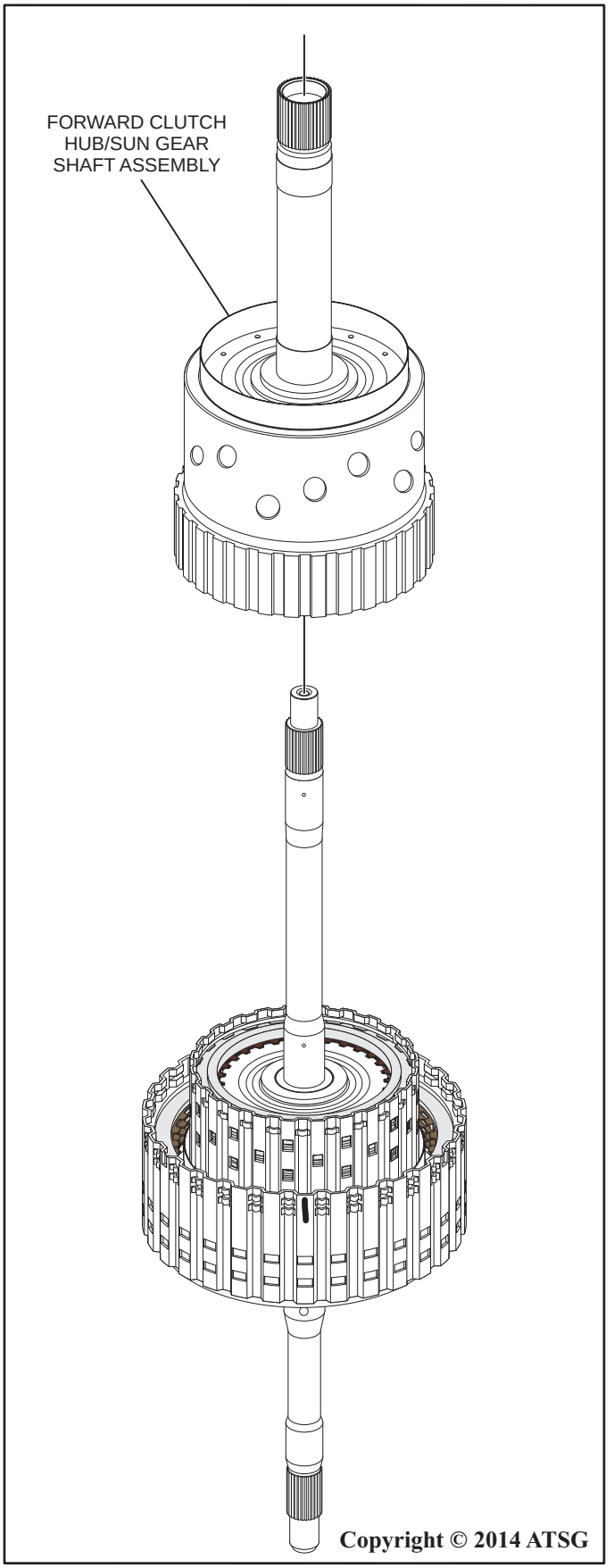


Figure 72

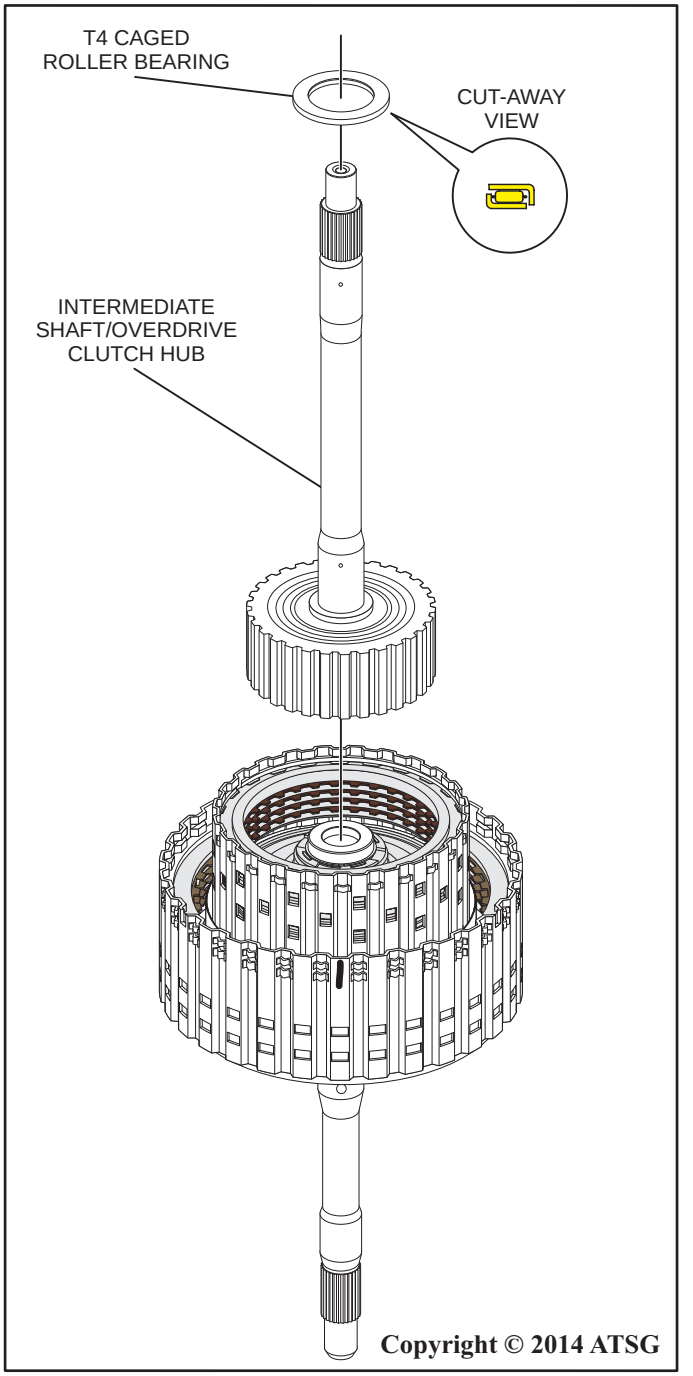


Figure 73

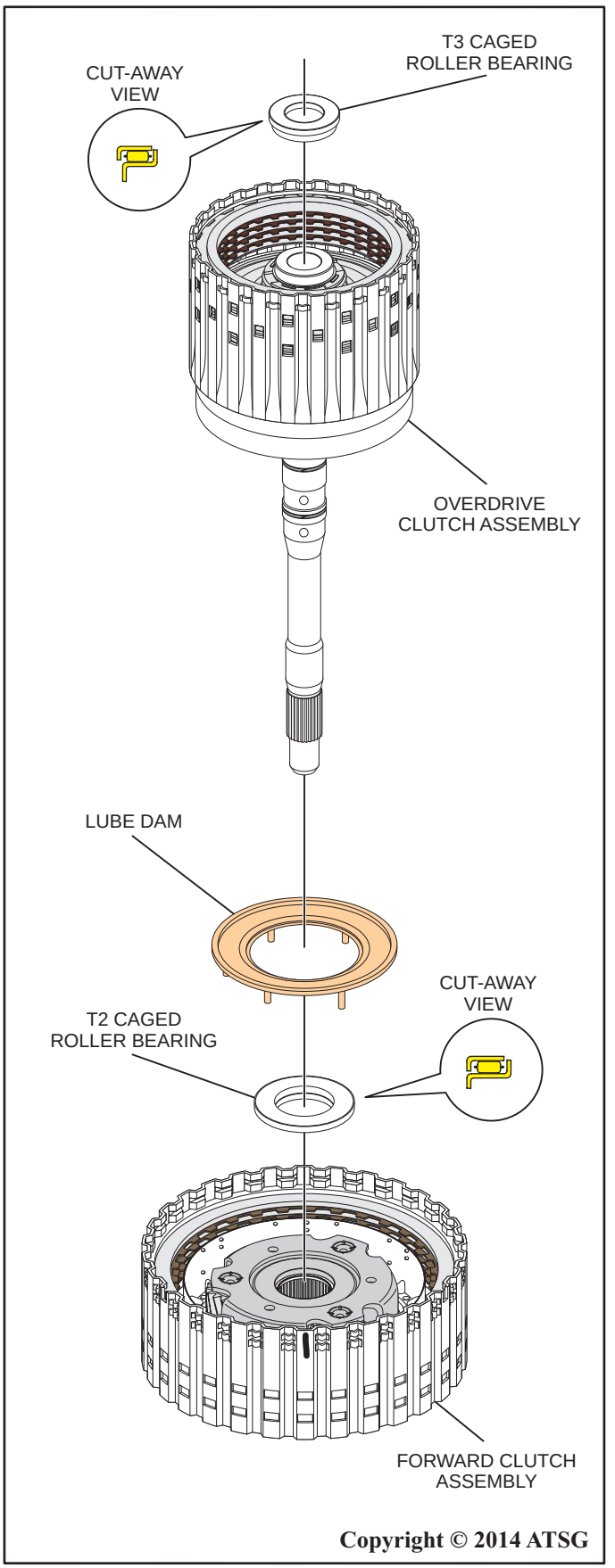


Figure 74

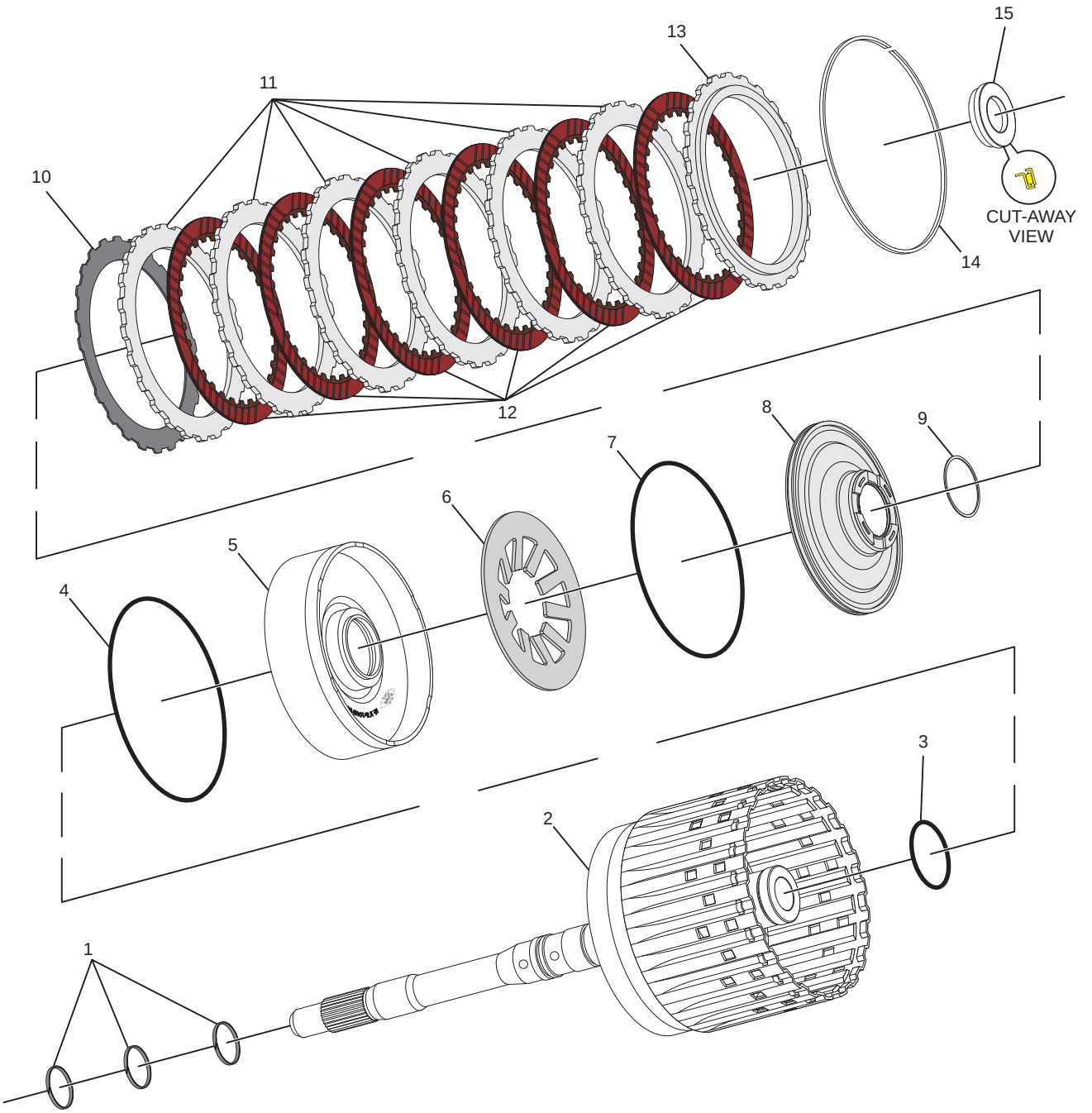
COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

7. Remove the T3 caged roller bearing from the top of the overdrive clutch assembly as shown in Figure 74.
8. Remove the overdrive clutch assembly from the forward clutch assembly and set the drum aside for further disassembly and cleaning as shown in Figure 74.
9. Remove the lube dam from the forward clutch planetary as shown in Figure 74.
10. Remove the T2 caged roller bearing from the forward clutch planetary as shown in Figure 74.
11. Set the forward clutch drum aside for further disassembly and cleaning.

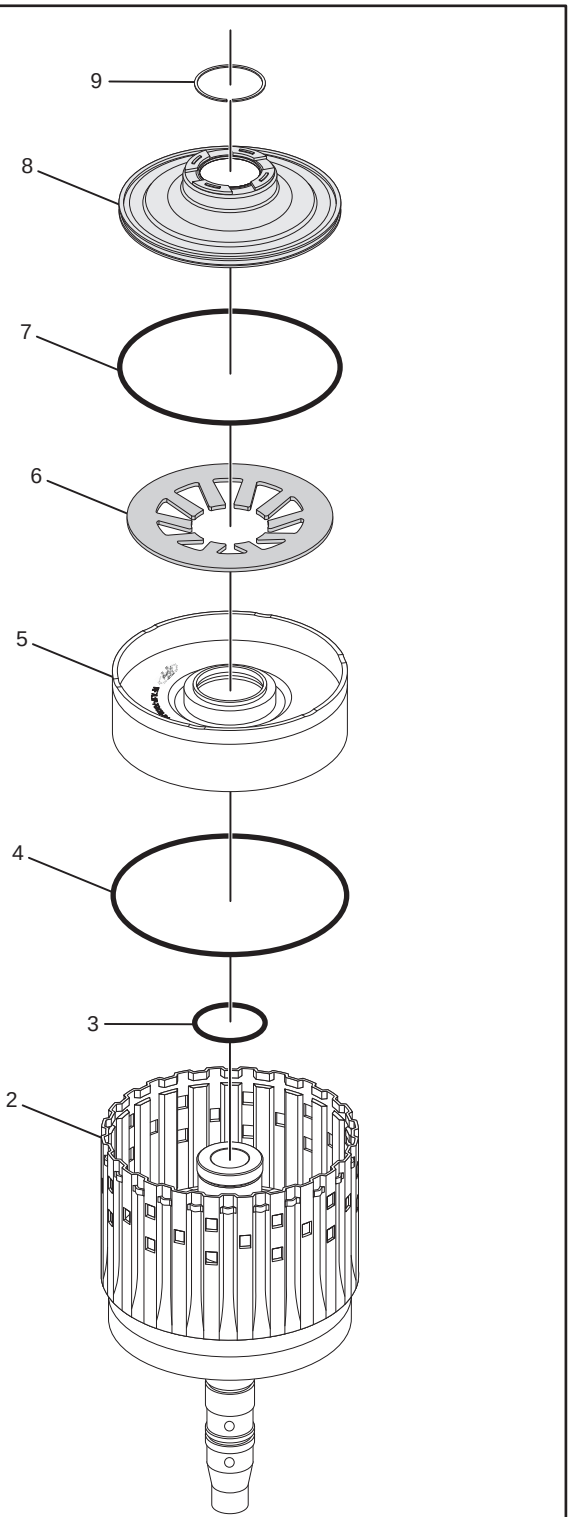
Continued on page 53

OVERDRIVE CLUTCH ASSEMBLY EXPLODED VIEW



1. OVERDRIVE CLUTCH SEALING RINGS *(2 OR 3 REQUIRED MODEL DEPENDENT)*
2. OVERDRIVE CLUTCH DRUM HOUSING
3. OVERDRIVE CLUTCH PISTON INNER O-RING
4. OVERDRIVE CLUTCH PISTON OUTER O-RING
5. OVERDRIVE CLUTCH PISTON
6. OVERDRIVE CLUTCH PISTON RETURN SPRING
7. OVERDRIVE CLUTCH BALANCE PISTON O-RING
8. OVERDRIVE CLUTCH BALANCE PISTON
9. OVERDRIVE CLUTCH BALANCE PISTON RETAINING SNAP RING
10. OVERDRIVE CLUTCH CUSHION PLATE
11. OVERDRIVE CLUTCH STEEL PLATE
12. OVERDRIVE CLUTCH FRICTION PLATE
13. OVERDRIVE CLUTCH PRESSURE PLATE
14. OVERDRIVE CLUTCH RETAINING SNAP RING
15. T3 CAGED ROLLER BEARING

Figure 75



2. OVERDRIVE CLUTCH DRUM HOUSING
3. OVERDRIVE CLUTCH PISTON INNER O-RING
4. OVERDRIVE CLUTCH PISTON OUTER O-RING
5. OVERDRIVE CLUTCH PISTON
6. OVERDRIVE CLUTCH PISTON RETURN SPRING
7. OVERDRIVE CLUTCH BALANCE PISTON O-RING
8. OVERDRIVE CLUTCH BALANCE PISTON
9. OVERDRIVE CLUTCH BALANCE PISTON RETAINING SNAP RING

Figure 76

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

12. Disassemble the overdrive clutch housing using Figure 75 as a guide.
13. Clean all overdrive clutch parts thoroughly and dry with compressed air.
14. Inspect all overdrive clutch parts thoroughly for any wear and/or damage and replace as necessary.
15. Install a new inner and outer o-ring into the overdrive clutch piston and lightly coat them with a small amount of ATF or Trans-Jel® then install the piston into the overdrive clutch housing as shown in Figure 76.
16. Install the overdrive clutch piston return spring into the piston as shown in Figure 76.
17. Install a new o-ring into the overdrive clutch balance piston and lightly coat the o-ring with a small amount of ATF or Trans-Jel® and carefully install the balance piston into the overdrive housing as shown in Figure 76.
18. Using the ST Spring Washer Compressor 307-209 or similar compressing tool and a press, compress the balance piston and install the overdrive clutch balance piston retaining snap ring as shown in Figure 76.
19. Make certain snap ring is fully seated as shown in Figure 77.

Continued on page 55

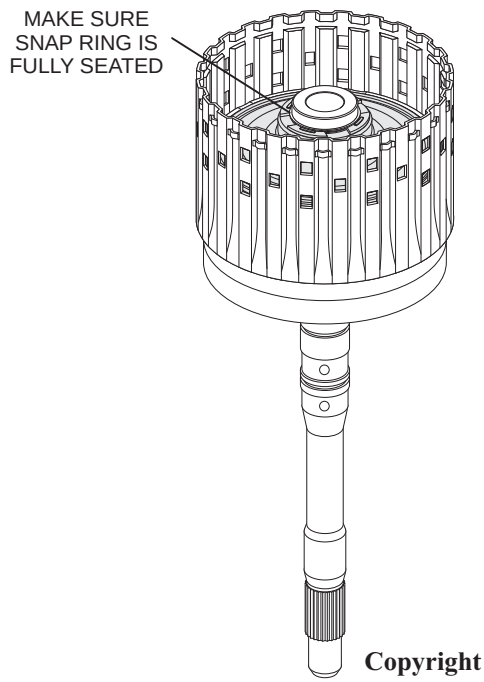
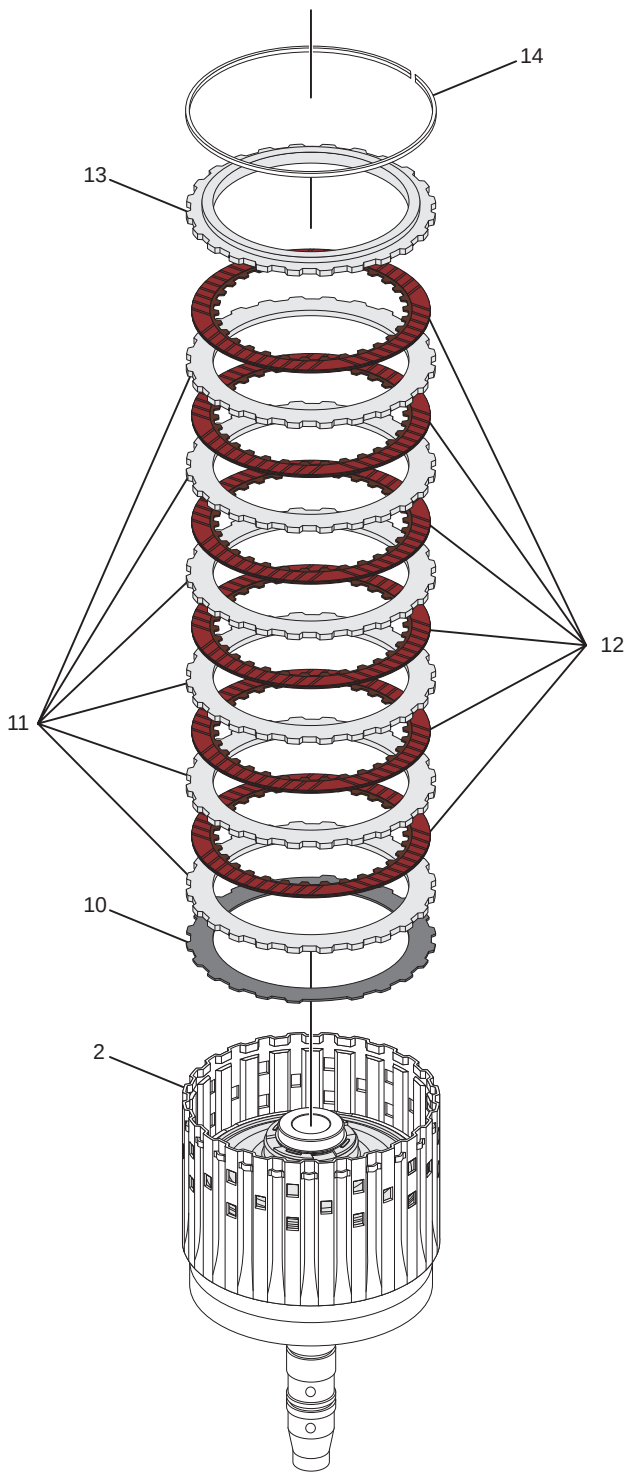


Figure 77



2. OVERDRIVE CLUTCH DRUM HOUSING
10. OVERDRIVE CLUTCH CUSHION PLATE
11. OVERDRIVE CLUTCH STEEL PLATE
(NUMBER REQUIRED DEPENDENT UPON ENGINE SIZE)
12. OVERDRIVE CLUTCH FRICTION PLATE
(NUMBER REQUIRED DEPENDENT UPON ENGINE SIZE)
13. OVERDRIVE CLUTCH PRESSURE PLATE
14. OVERDRIVE CLUTCH RETAINING SNAP RING

Figure 78

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

20. Assemble the overdrive clutch drum by installing the cushion plate, a steel plate, a friction plate, then alternate steel and friction plates as shown in Figure 78.
Note: Quantity of steel plates and friction plates will vary based upon engine size. All friction plates must be soaked in the proper ATF for at least 1 hour before assembly.
21. Install the overdrive clutch pressure plate and retaining snap ring as shown in Figure 78 making sure the snap ring is properly seated in the snap ring groove.
Note: All overdrive frictions and steels are a wave-type design.
22. Using ST Clutch End Play Gauge 307-555 and Holding Fixture 100-002 or similar holding fixture and adapter, set the overdrive drum into the fixture and install the dial indicator positioning the plunger so it fits into the opening of the snap ring as shown in Figure 79.
23. Set the dial indicator to 0 and then lift upward on the pressure plate and record the measurement as measurement A. Next, turn the drum 180° from the opening of the snap ring and perform the same procedure, set the dial indicator to 0 then lift upward on the pressure plate and record the measurement as measurement B.
24. Add measurements A and B together and divide the sum by 2 to give an average clearance reading. Clearance should be between *0.5-0.9 mm (0.019-0.035 in)* as shown in Figure 79.

Continued on page 56

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

25. Install new overdrive clutch seal rings into the grooves in the turbine shaft and coat the rings with a small amount of Trans-Jel® as shown in Figure 80.
Note: 6R60/75 model turbine shaft will only have two sealing ring grooves. Later model turbine shafts will have three sealing ring grooves. Those models with only two sealing ring grooves in the turbine shaft will have a finished surface on the shaft where it rides in a bushing located in the pump stator. 6R80 models with three sealing ring grooves do not have the bushing in the stator.

26. Install the T3 caged roller bearing onto the overdrive clutch housing as shown in Figure 80 and secure with a small amount of Trans-Jel® and set drum aside for final assembly.

Continued on page 58

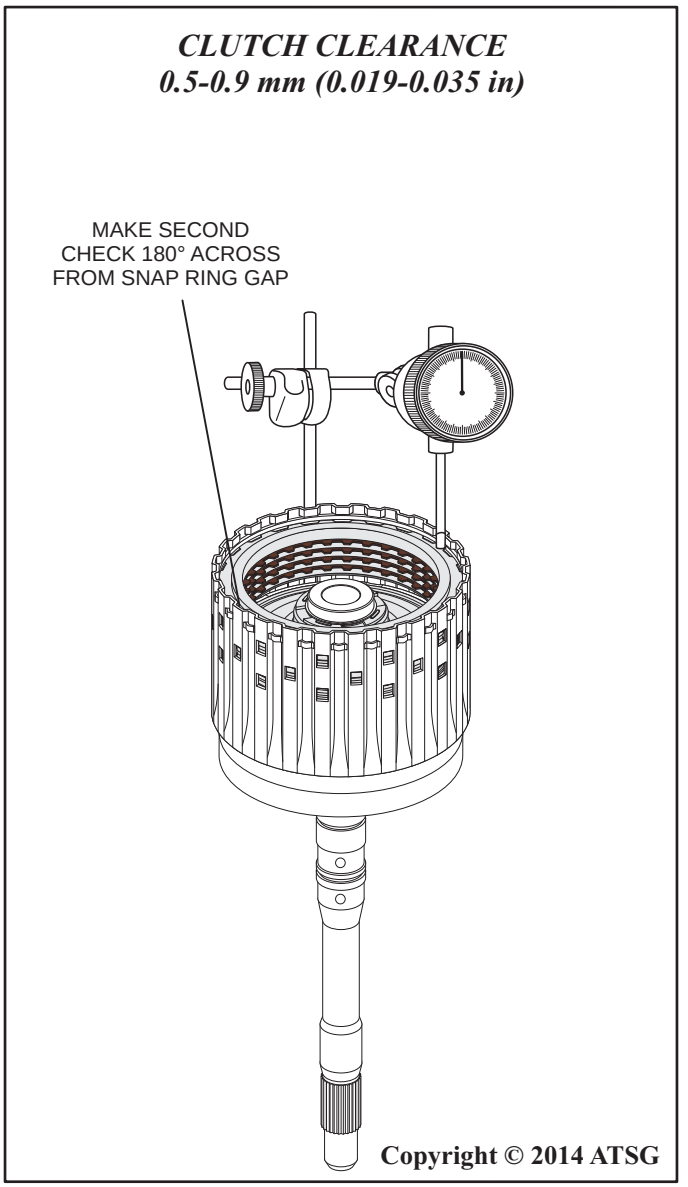


Figure 79

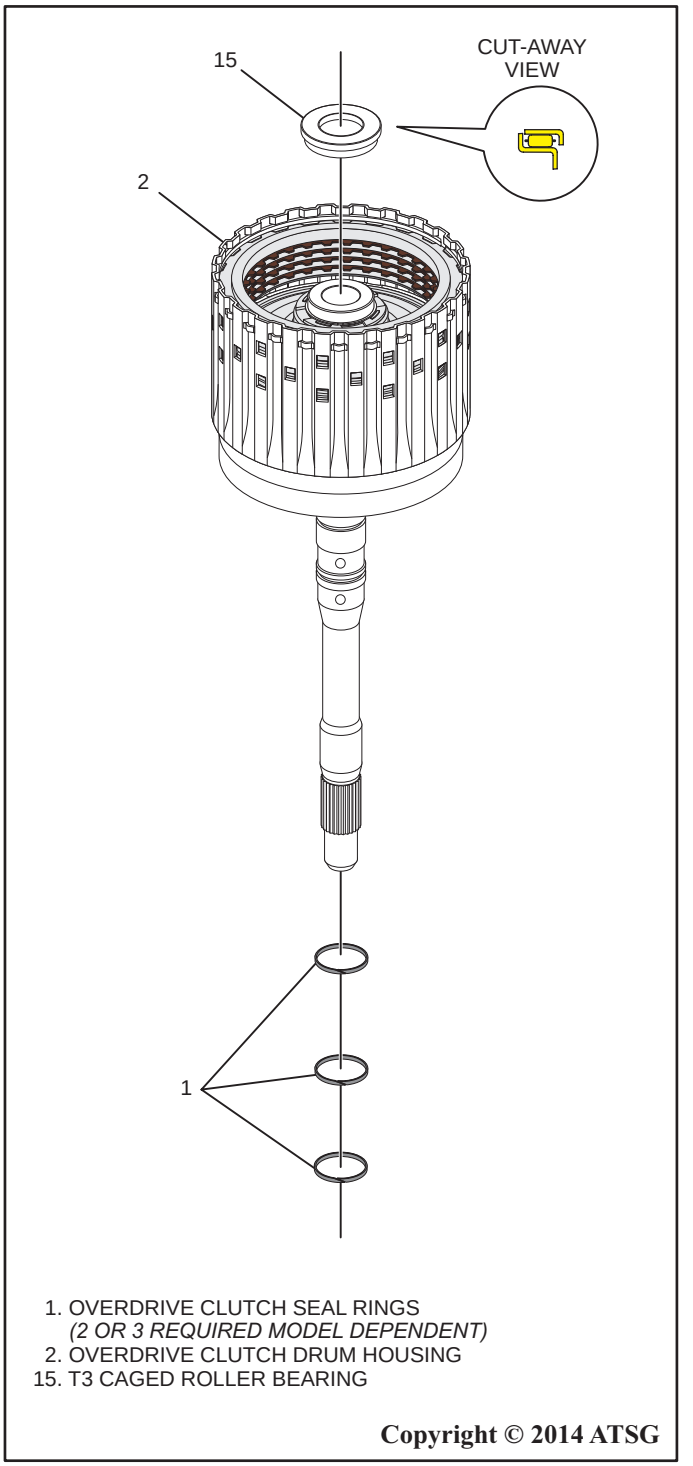
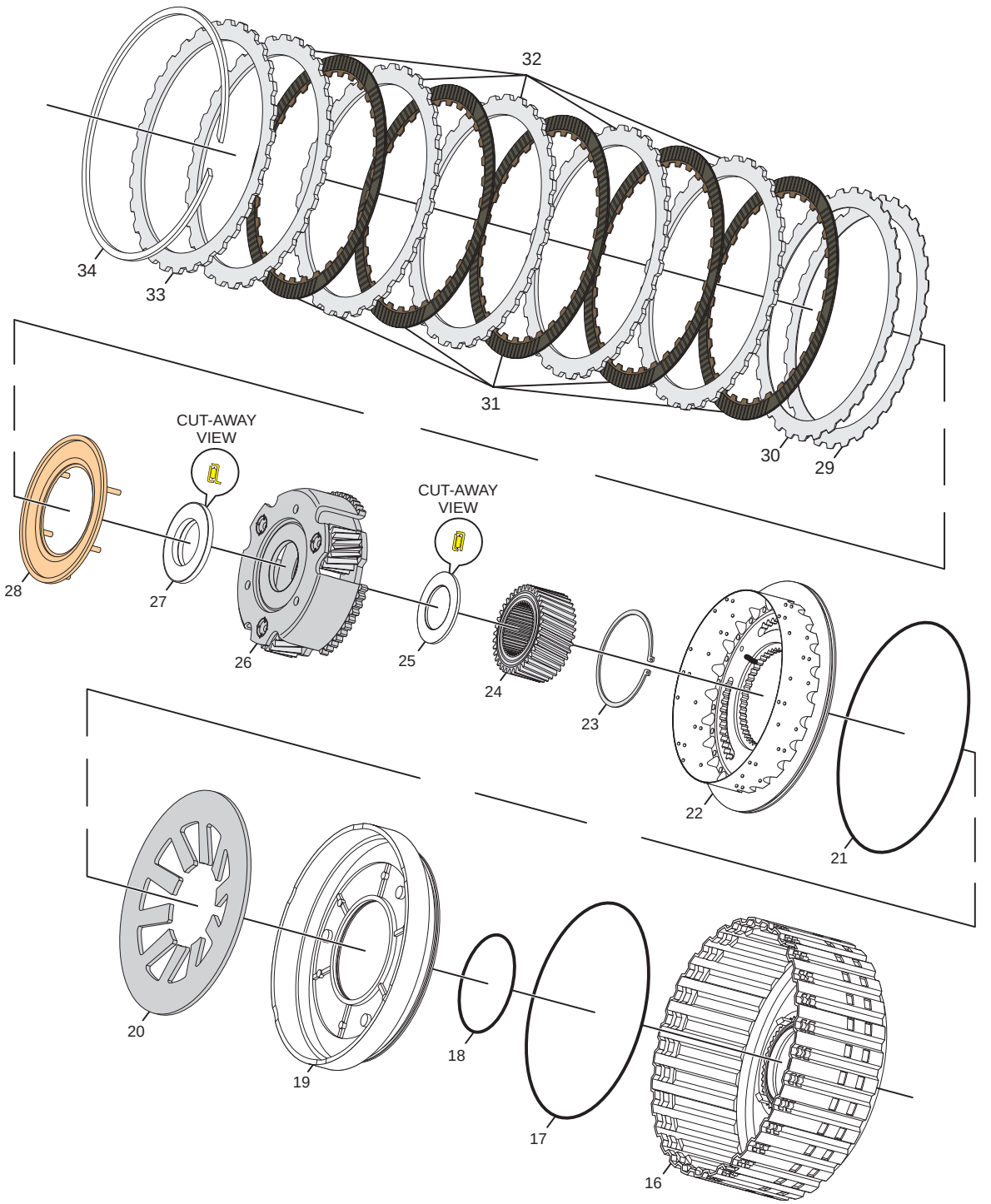


Figure 80

FORWARD CLUTCH ASSEMBLY EXPLODED VIEW



16. FORWARD CLUTCH HOUSING ASSEMBLY
17. FORWARD CLUTCH PISTON OUTER O-RING
18. FORWARD CLUTCH PISTON INNER O-RING
19. FORWARD CLUTCH PISTON
20. FORWARD CLUTCH PISTON RETURN SPRING
21. FORWARD CLUTCH BALANCE PISTON O-RING
22. FORWARD CLUTCH BALANCE PISTON
23. FORWARD CLUTCH BALANCE PISTON RETAINING SNAP RING
24. FRONT PLANETARY SUN GEAR
25. T1 CAGED ROLLER BEARING
26. FRONT PLANETARY CARRIER
27. T2 CAGED ROLLER BEARING
28. LUBE DAM
29. FORWARD CLUTCH CUSHION PLATE
30. FORWARD CLUTCH CUSHION PLATE *(MODEL DEPENDENT)*
31. FORWARD CLUTCH FRICTION PLATE
32. FORWARD CLUTCH STEEL PLATE
33. FORWARD CLUTCH PRESSURE PLATE
34. FORWARD CLUTCH RETAINING SNAP RING

Figure 81

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

27. Remove the front planetary carrier, the T1 caged roller bearing and the front planetary sun gear as shown in Figure 82.
Note: the front planetary carrier uses a retaining ring to hold the planetary carrier into the forward clutch drum, it will be necessary to compress the retaining ring in order to release the planetary carrier from the retaining tabs in the forward drum so that the planetary may be removed.
28. Using a hooked scribe or a small screwdriver manipulate the scribe or screwdriver into the slots at the bottom of the planetary carrier as shown in Figure 83.
29. Push inward on the retaining ring in the areas shown on the planetary carrier while simultaneously lifting upward on the carrier in order to remove the carrier from the forward clutch drum.

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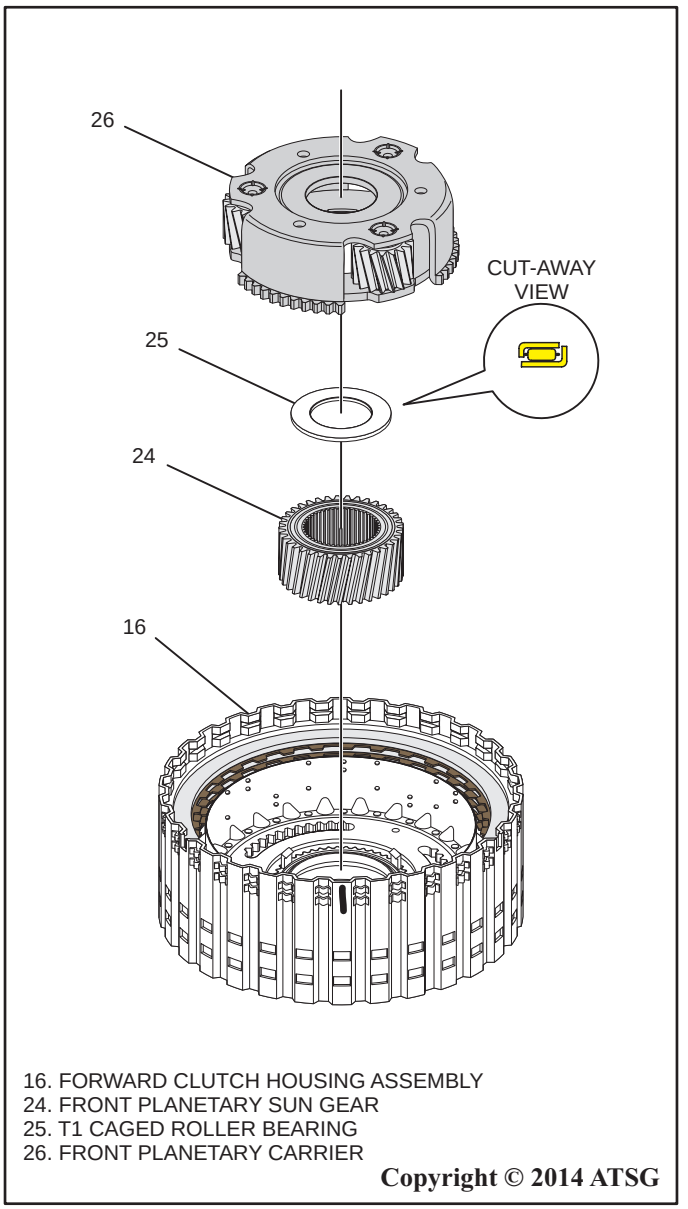


16. FORWARD CLUTCH HOUSING ASSEMBLY
24. FRONT PLANETARY SUN GEAR
25. T1 CAGED ROLLER BEARING
26. FRONT PLANETARY CARRIER

Figure 82

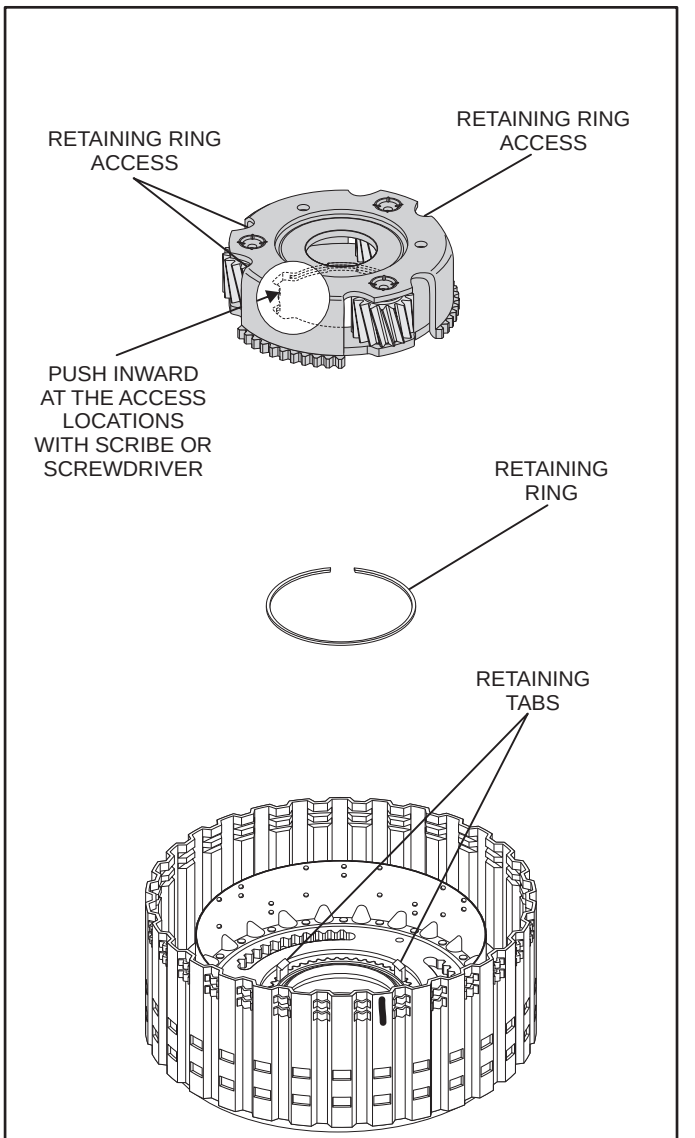


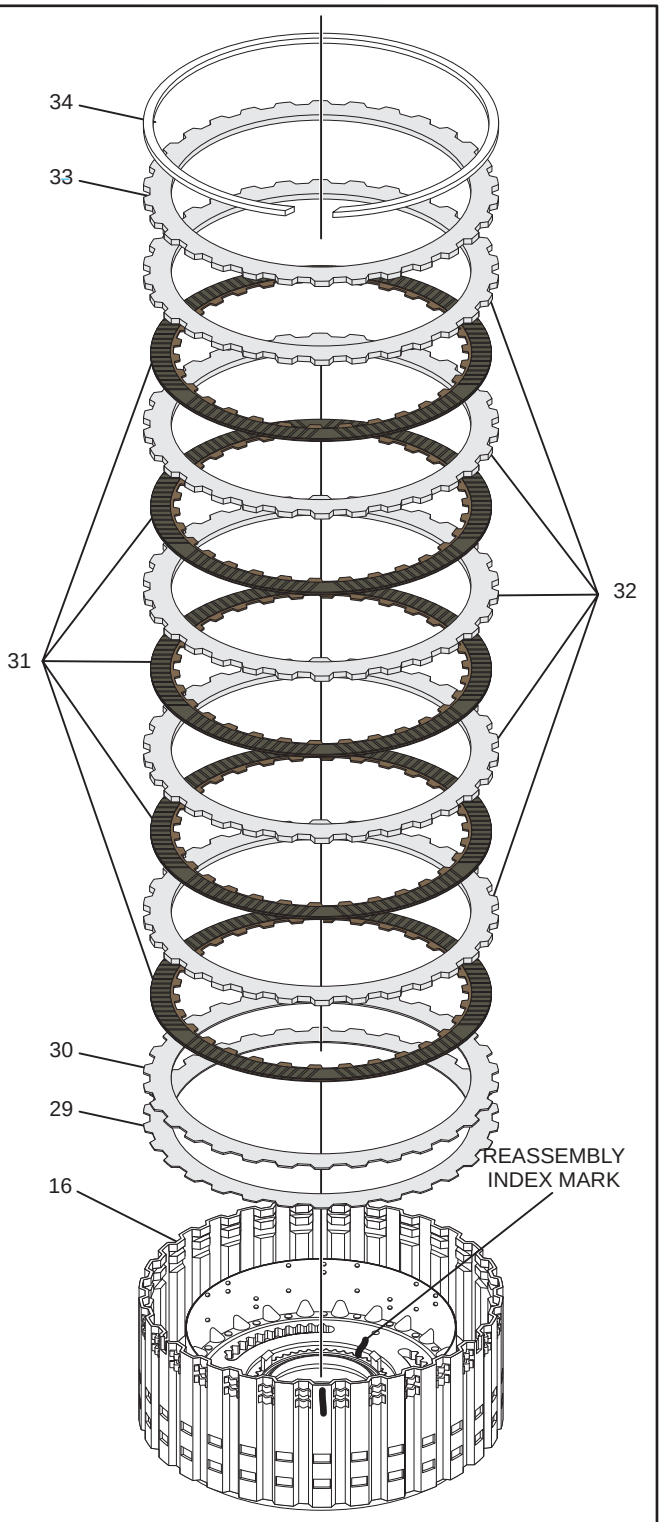
Figure 83

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

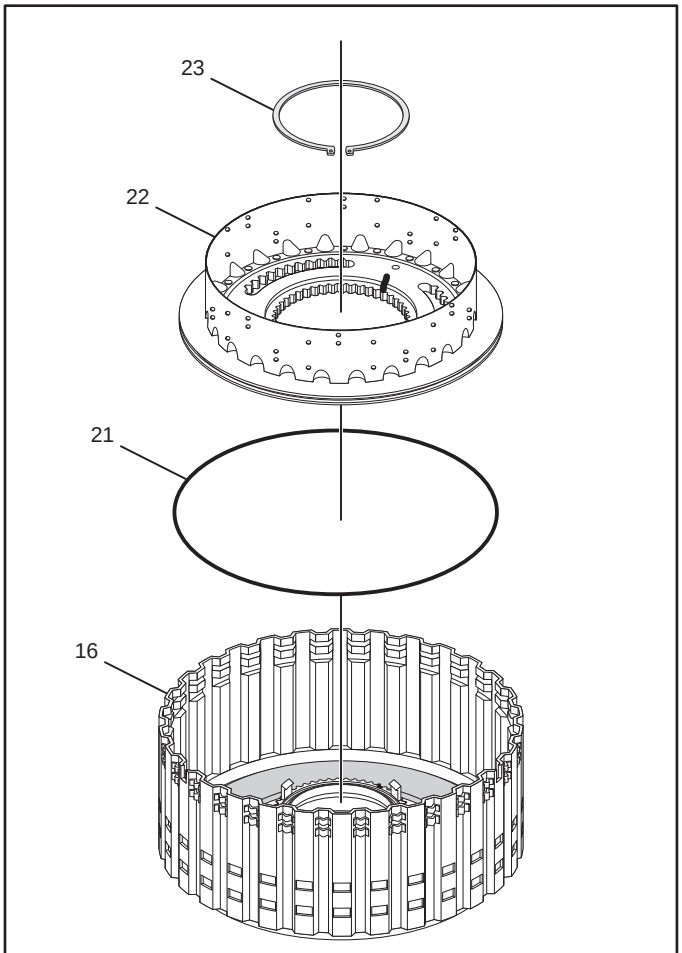
30. Remove the forward clutch retaining snap ring, the friction plates, the steel plates and the cushion plates as shown in Figure 84.
31. Make a painted index mark across the forward clutch drum and the forward clutch balance piston as shown in Figure 84. This index mark will be used for correct reassembly.
32. Using ST 307-525 Clutch Spring Compressor or similar tool, carefully compress the forward clutch balance piston and remove the retaining snap ring using a suitable pair of snap ring pliers. Then remove and discard the o-ring seal as shown in Figure 85.

Continued on page 60



16. FORWARD CLUTCH HOUSING ASSEMBLY
29. FORWARD CLUTCH CUSHION PLATE
30. FORWARD CLUTCH CUSHION PLATE *(MODEL DEPENDENT)*
31. FORWARD CLUTCH FRICTION PLATE
32. FORWARD CLUTCH STEEL PLATE
33. FORWARD CLUTCH PRESSURE PLATE
34. FORWARD CLUTCH RETAINING SNAP RING

Figure 84



16. FORWARD CLUTCH HOUSING ASSEMBLY
21. FORWARD CLUTCH BALANCE PISTON O-RING
22. FORWARD CLUTCH BALANCE PISTON
23. FORWARD CLUTCH BALANCE PISTON RETAINING SNAP RING

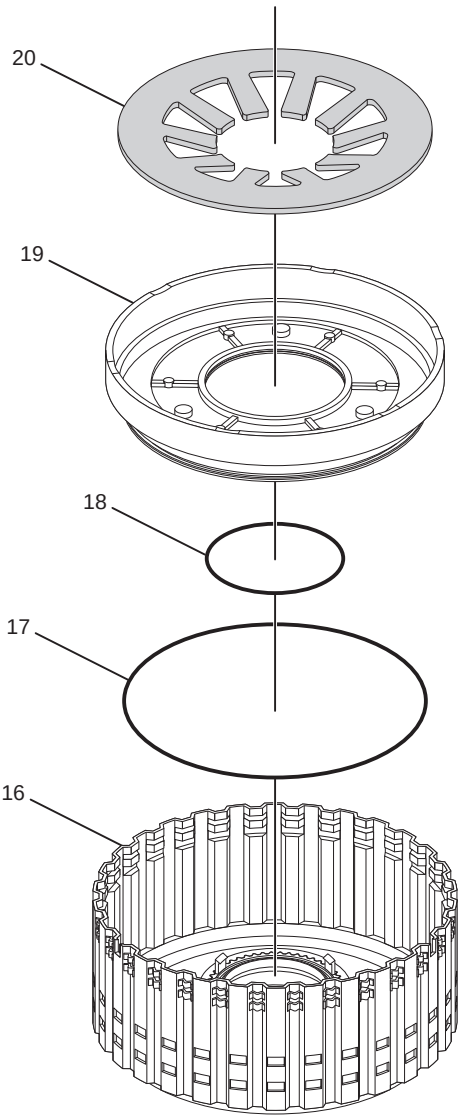
Figure 85

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

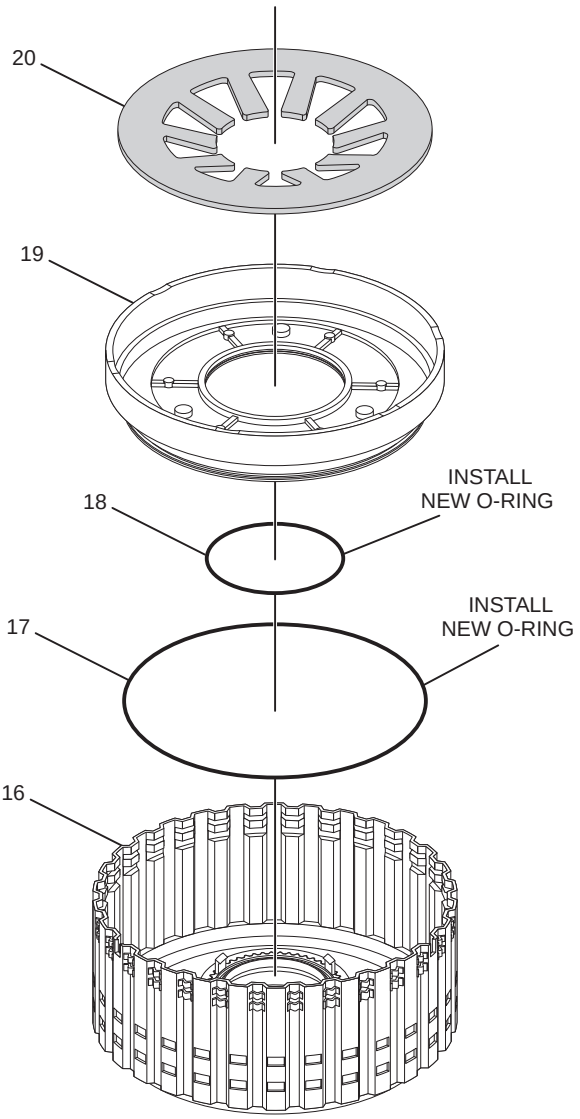
33. Remove the forward clutch piston return spring as shown in Figure 86.
34. Remove the forward clutch piston and discard the outer and inner o-ring seals as shown in Figure 86.
35. Clean all forward clutch parts thoroughly and dry with compressed air.
36. Inspect all forward clutch parts thoroughly for any wear and/or damage and replace as necessary.
37. Install a new inner o-ring and outer o-ring seal into the forward clutch piston then coat the seals with a small amount of ATF or Trans-Jel® as shown in Figure 87.
38. Install the forward clutch piston into the forward clutch housing as shown in Figure 87.
39. Install the forward clutch piston return spring into the forward clutch housing as shown in Figure 87.

Continued on page 61



16. FORWARD CLUTCH HOUSING ASSEMBLY
17. FORWARD CLUTCH PISTON OUTER O-RING
18. FORWARD CLUTCH PISTON INNER O-RING
19. FORWARD CLUTCH PISTON
20. FORWARD CLUTCH PISTON RETURN SPRING

Figure 86



16. FORWARD CLUTCH HOUSING ASSEMBLY
17. FORWARD CLUTCH PISTON OUTER O-RING
18. FORWARD CLUTCH PISTON INNER O-RING
19. FORWARD CLUTCH PISTON
20. FORWARD CLUTCH PISTON RETURN SPRING

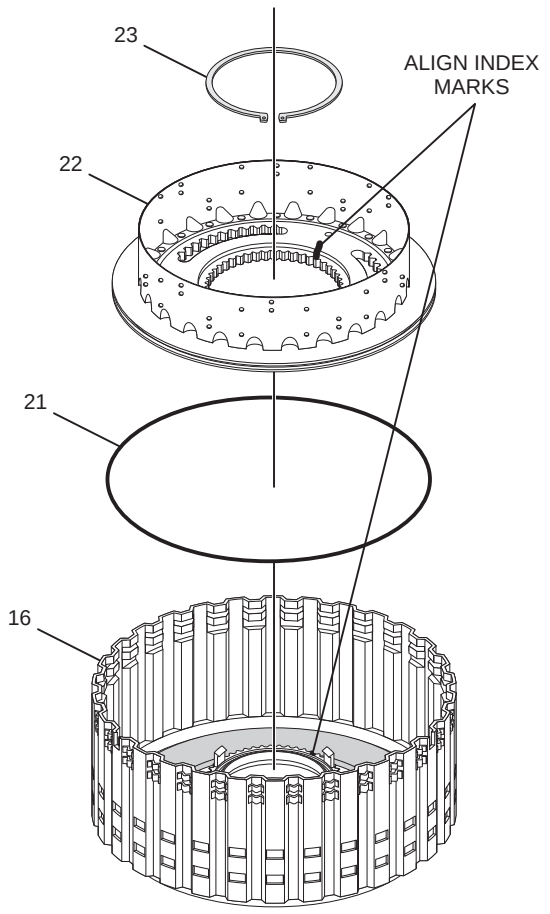
Figure 87

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

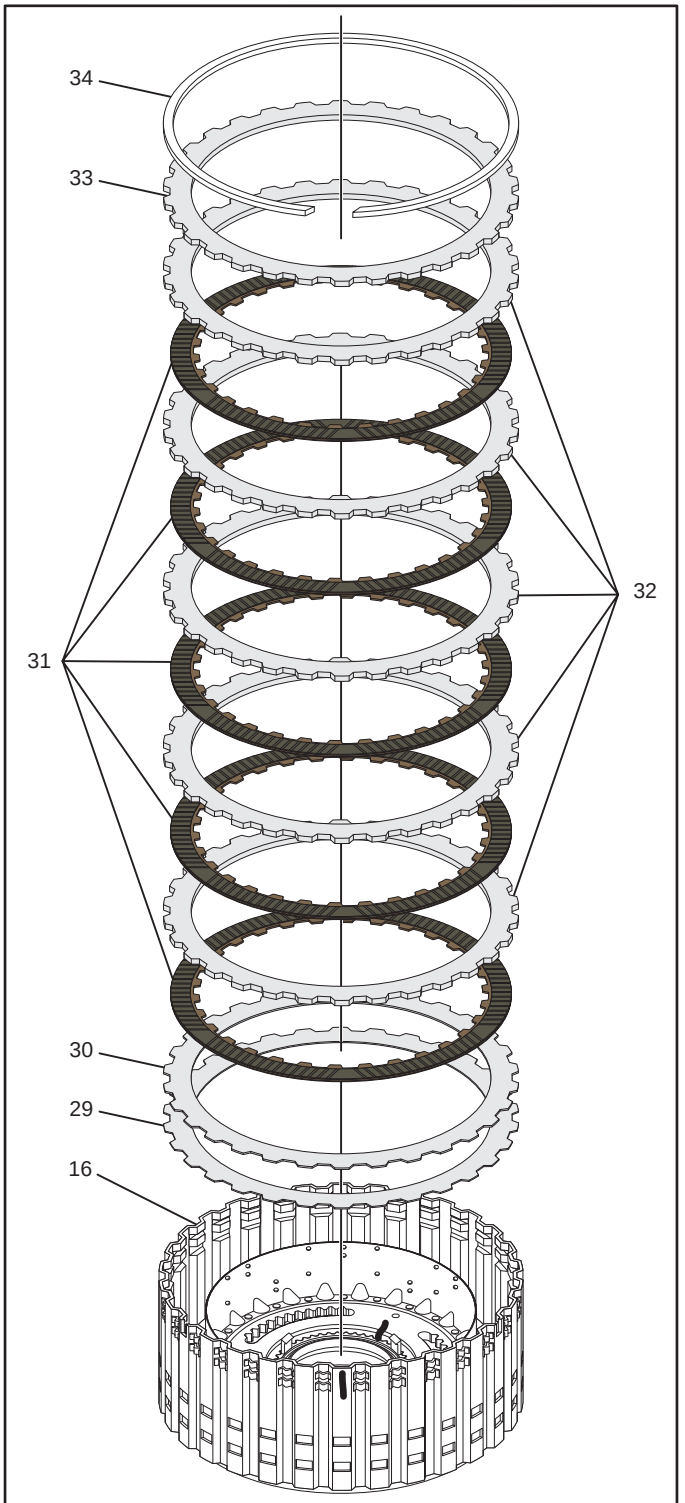
40. Install a new o-ring onto the forward clutch balance piston and coat the seal with a small amount of ATF or Trans-Jel® and install the balance piston into the forward clutch housing making certain to align the painted index marks as shown in Figure 88.
41. Using ST Clutch Spring Compressor 307-525 or similar tool, carefully compress the forward clutch balance piston and install the retaining snap ring as shown in Figure 88.
42. Make certain the snap ring is fully seated in the drum before removal of ST 307-525.
43. Install the forward clutch cushion plates as shown in Figure 89.

Continued on page 62



16. FORWARD CLUTCH HOUSING ASSEMBLY
21. FORWARD CLUTCH BALANCE PISTON O-RING
22. FORWARD CLUTCH BALANCE PISTON
23. FORWARD CLUTCH BALANCE PISTON RETAINING SNAP RING

Figure 88



16. FORWARD CLUTCH HOUSING ASSEMBLY
29. FORWARD CLUTCH CUSHION PLATE
30. FORWARD CLUTCH CUSHION PLATE *(MODEL DEPENDENT)*
31. FORWARD CLUTCH FRICTION PLATE
32. FORWARD CLUTCH STEEL PLATE
33. FORWARD CLUTCH PRESSURE PLATE
34. FORWARD CLUTCH RETAINING SNAP RING

Figure 89

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

44. Install a new forward clutch friction plate, then alternate between installing steel plates and friction plates as shown in figure 89.
Note: Quantity of steel plates and friction plates will vary based upon engine size. All friction plates must be soaked in the proper ATF for at least 1 hour before assembly.
45. After installing the last forward clutch steel plate, install the forward clutch pressure plate and retaining snap ring as shown in Figure 89.
Note: All forward frictions and steels are a wave-type design.
46. Using ST Clutch End Play Gauge 307-555 and Holding Fixture 100-002 or similar holding fixture and adapter, set the forward clutch assembly on the fixture and install the dial indicator positioning the plunger so it fits in the opening of the snap ring as shown in Figure 90.
47. Set the dial indicator to 0 and then lift upward on the pressure plate and record the measurement as measurement A. Next, turn the drum 180° from the opening of the snap ring and perform the same procedure, set the dial indicator to 0 then lift upward on the pressure plate and record the measurement as measurement B.
48. Add measurements A and B together and divide the sum by 2 to give an average clearance reading. Clearance should be between *0.71-1.10 mm (0.028-0.043 in)* as shown in Figure 90.
49. If the retaining snap ring was removed from the front planetary, install it at this time so the snap ring end gaps are located in the opening as shown in Figure 91.

Continued on page 63

CLUTCH CLEARANCE
0.71-1.10 mm (0.028-0.043 in)

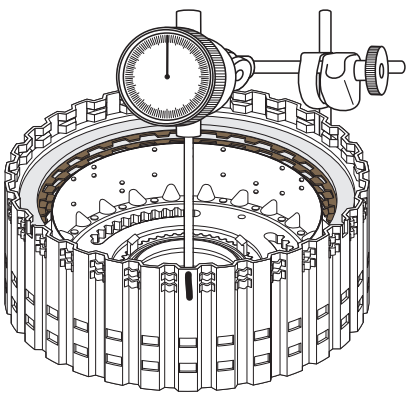


Figure 90

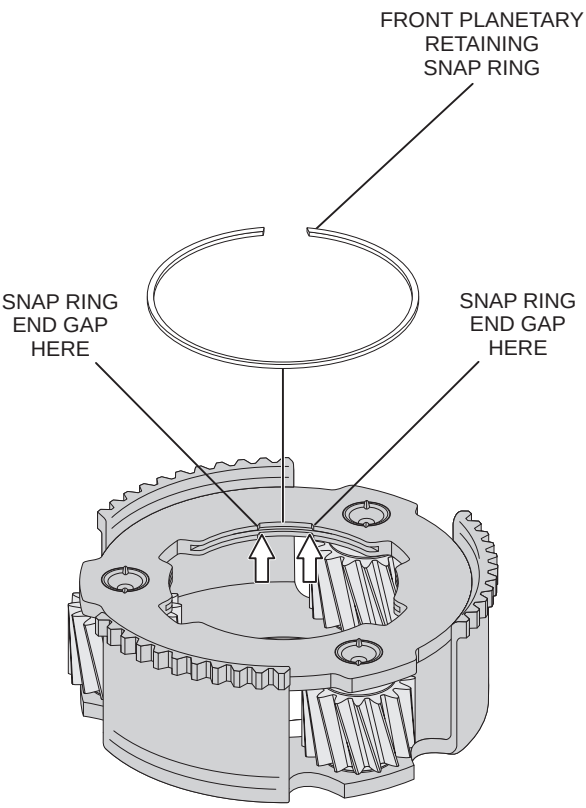


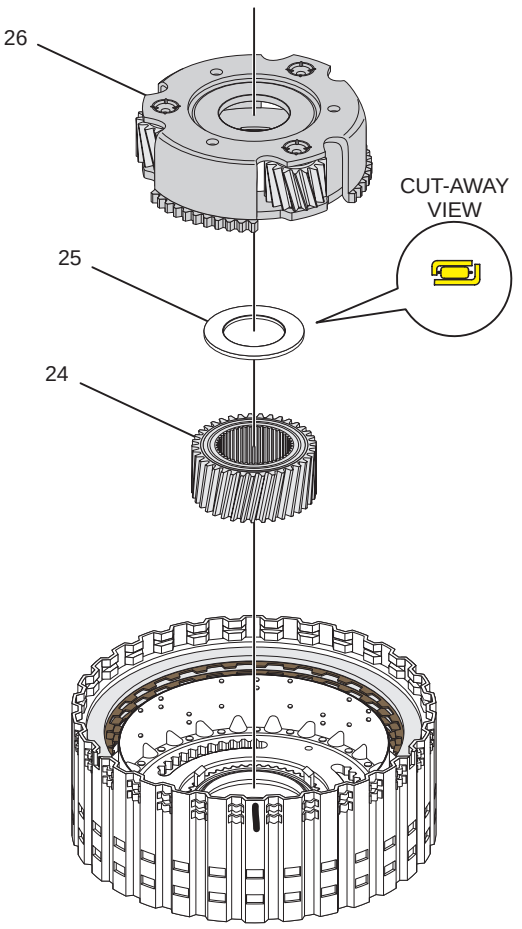
Figure 91

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

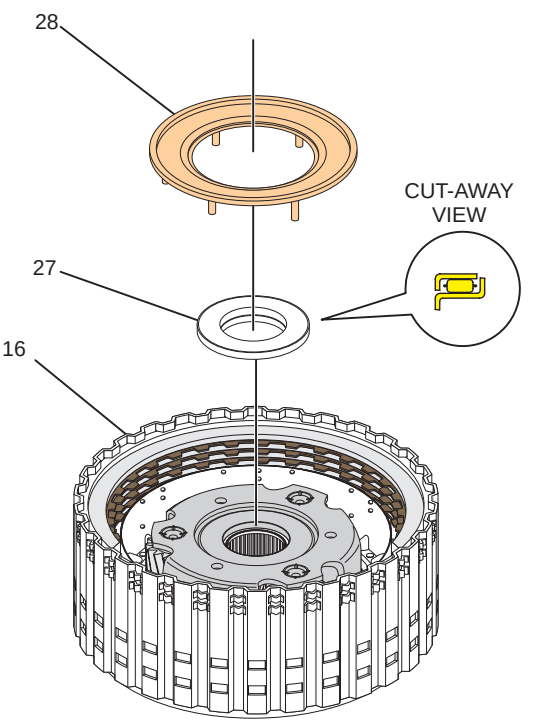
50. Install the T1 caged roller bearing onto the front planetary sun gear and hold the bearing in place with a small amount of Trans-Jel® as shown in Figure 92.
51. Install the front planetary sun gear into the planetary carrier as shown in Figure 92 with the flat side facing up into the planetary carrier. Install the planetary carrier assembly into the forward clutch housing, lining up the splines to fit into the drum as shown in Figure 92, making certain the planetary carrier snaps and locks into place.
52. Install the T2 caged roller bearing onto the top of the front planetary carrier and use a small amount of Trans-Jel® to hold the bearing in place as shown in Figure 93.
53. Install the lube dam onto the top of the front planetary carrier and use a small amount of Trans-Jel® to hold the lube dam in place as shown in Figure 93.

Continued on page 64



16. FORWARD CLUTCH HOUSING ASSEMBLY
24. FRONT PLANETARY SUN GEAR
25. T1 CAGED ROLLER BEARING
26. FRONT PLANETARY CARRIER

Figure 92



16. FORWARD CLUTCH HOUSING ASSEMBLY
27. T2 CAGED ROLLER BEARING
28. LUBE DAM

Figure 93

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

54. Install the overdrive clutch assembly into the forward clutch housing and planetary carrier as shown in Figure 94. Make sure the assembly is fully seated into the front planetary carrier.
55. Install the intermediate shaft/overdrive clutch hub into the overdrive clutch so that it is indexed into each clutch and fully seated in the overdrive drum as shown in Figure 95
56. Install the T4 caged roller bearing onto the intermediate shaft/overdrive clutch hub and secure with a small amount of Trans-Jel® as shown in Figure 95.

Continued on page 65

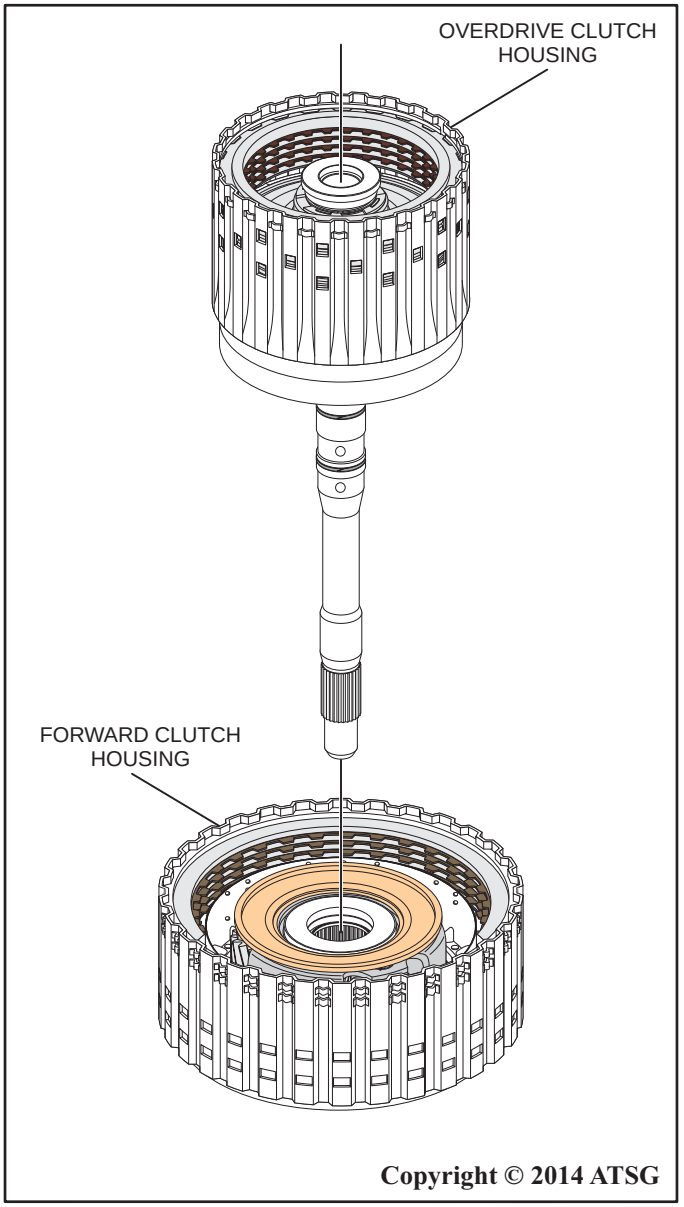


Figure 94

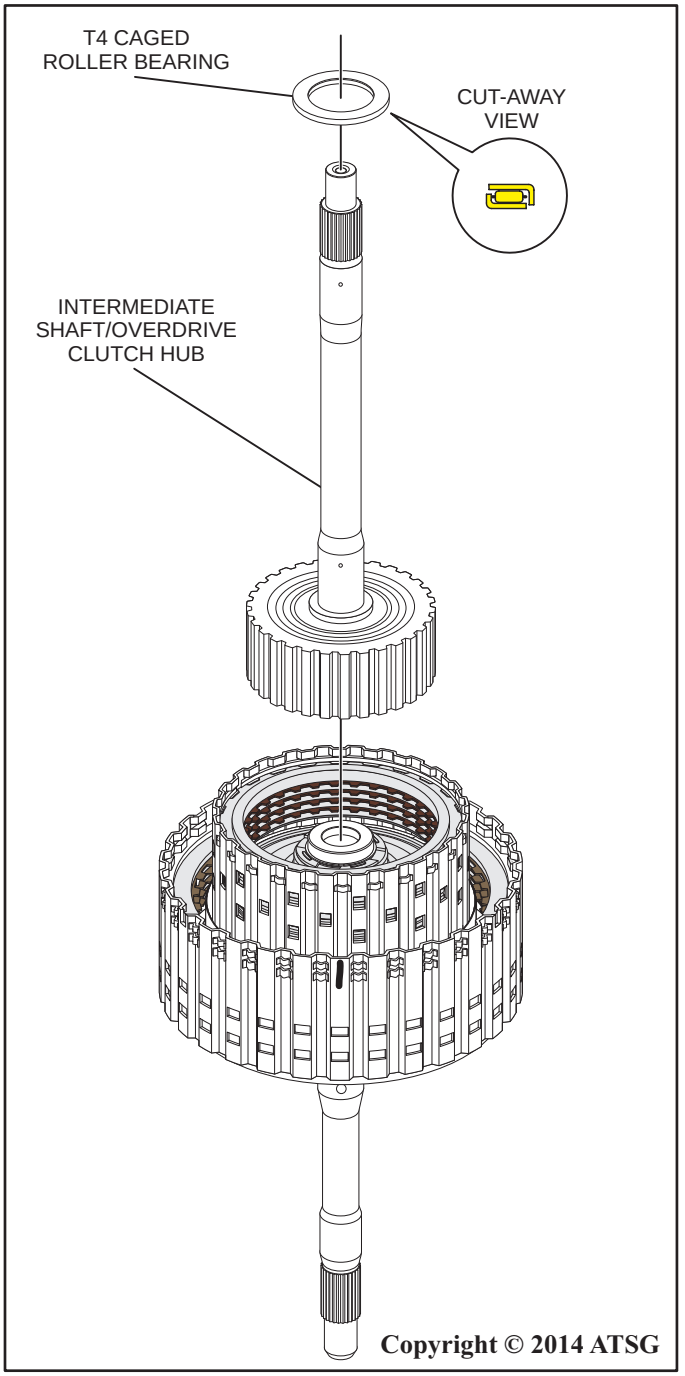


Figure 95

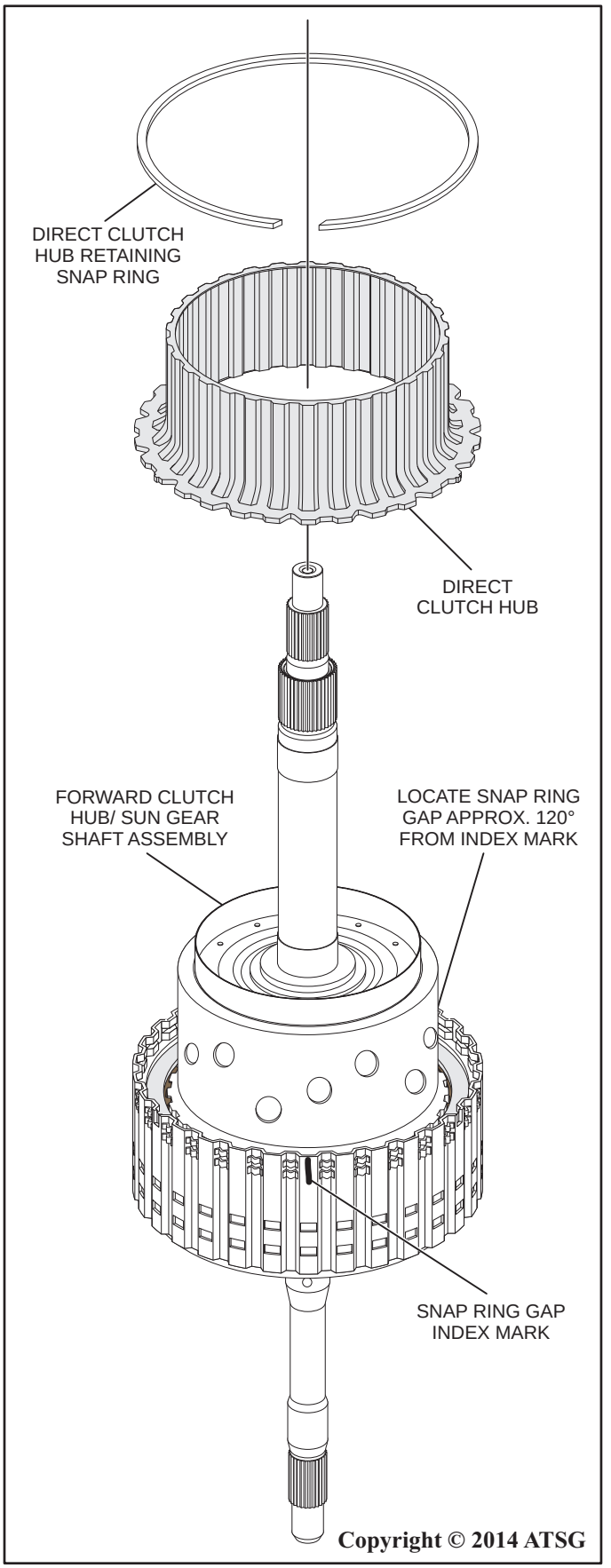


Figure 96

COMPONENT REBUILD

Forward/Overdrive Clutch Assembly (Cont'd)

57. Install the forward clutch hub/sun gear shaft assembly as shown in Figure 96, making sure hub is indexed fully into each clutch.
58. Install a new direct clutch hub into the forward clutch housing as shown in Figure 96.
59. Install a new direct clutch hub retaining snap ring approximately 120° from the index mark in the drum as shown in Figure 96.
    NOTE: Do not install the snap ring on the forward clutch hub with the snap ring gap in the same position as the original snap ring or damage to the transmission can occur.
60. Make certain the snap ring is fully seated in the drum and set forward/overdrive clutch assembly aside for final assembly as shown in Figure 97.

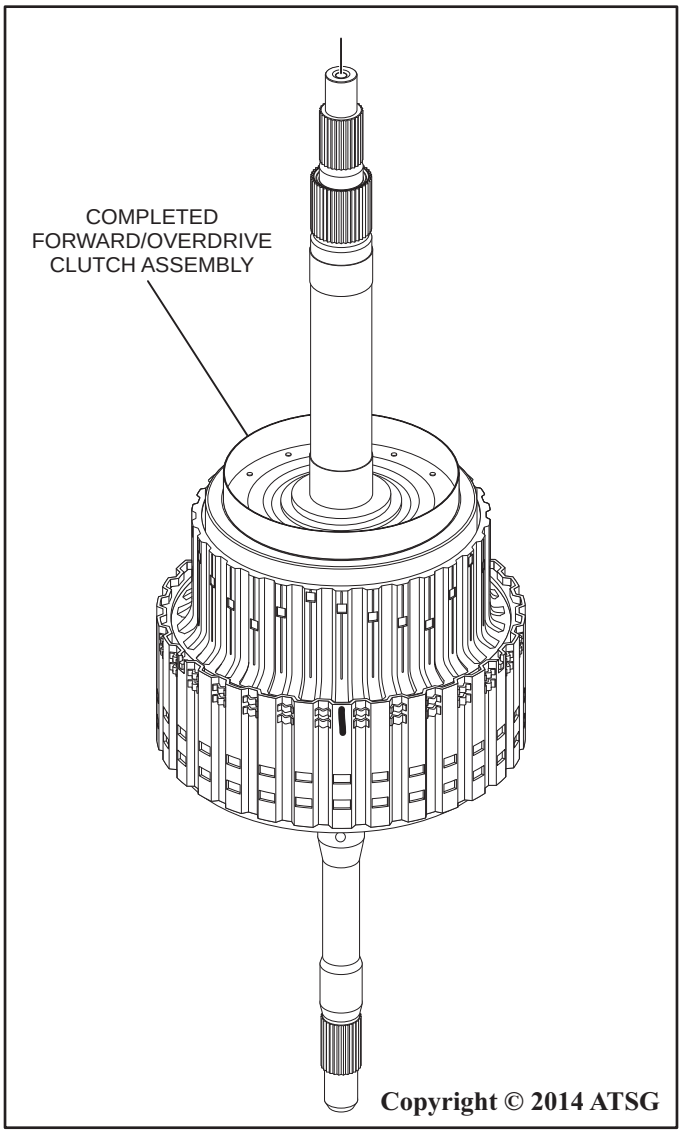
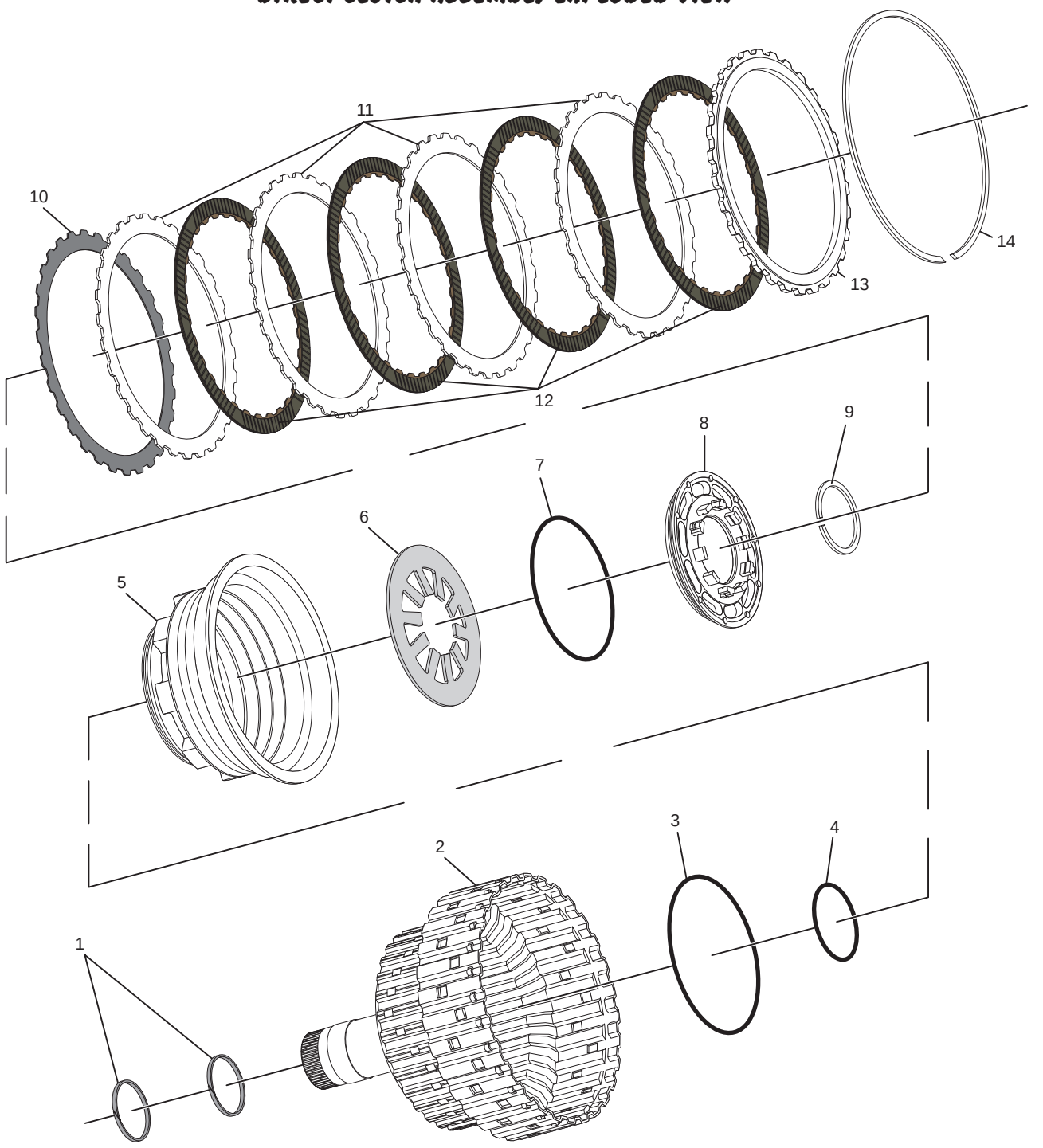


Figure 97

DIRECT CLUTCH ASSEMBLY EXPLODED VIEW



1. DIRECT CLUTCH SEAL RINGS *(2 REQUIRED)*
2. DIRECT CLUTCH DRUM HOUSING
3. DIRECT CLUTCH PISTON OUTER O-RING SEAL
4. DIRECT CLUTCH PISTON INNER O-RING SEAL
5. DIRECT CLUTCH PISTON
6. DIRECT CLUTCH PISTON RETURN SPRING
7. DIRECT CLUTCH BALANCE PISTON O-RING SEAL
8. DIRECT CLUTCH BALANCE PISTON
9. DIRECT CLUTCH BALANCE PISTON RETAINING SNAP RING
10. DIRECT CLUTCH CUSHION PLATE
11. DIRECT CLUTCH STEEL PLATE
12. DIRECT CLUTCH FRICTION PLATE
13. DIRECT CLUTCH PRESSURE PLATE
14. DIRECT CLUTCH RETAINING SNAP RING

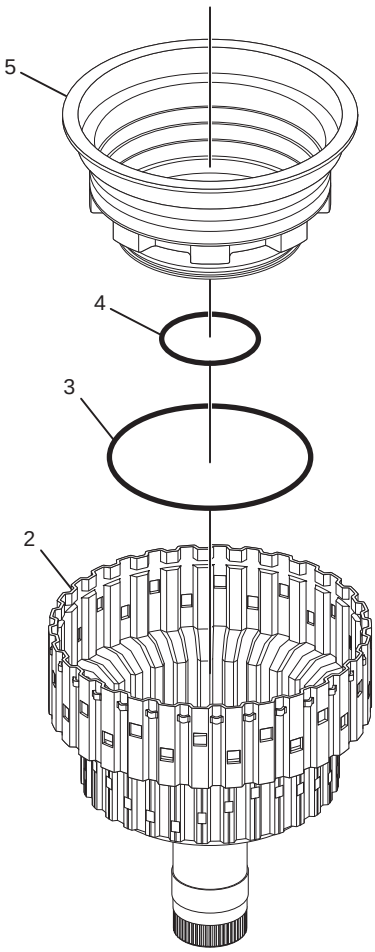
Figure 98

COMPONENT REBUILD

Direct Clutch Assembly (Cont'd)

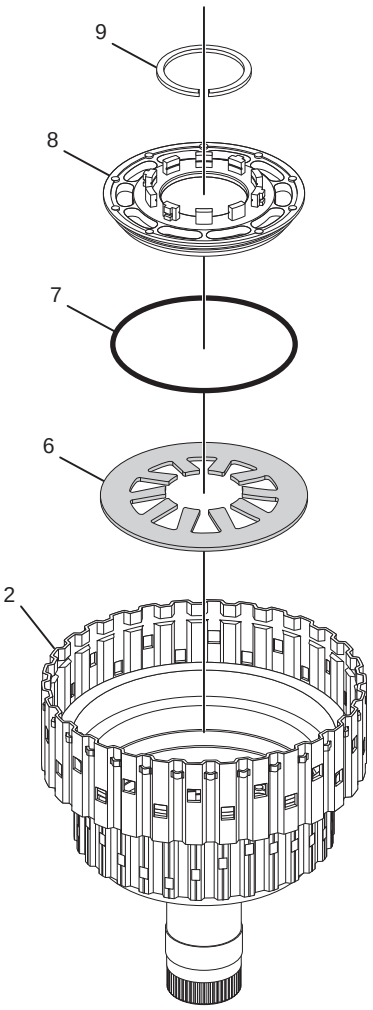
1. Disassemble the direct clutch drum housing using Figure 98 as a guide.
2. Clean all direct clutch parts thoroughly and dry with compressed air.
3. Inspect all direct clutch parts thoroughly for any wear and/or damage and replace as necessary.
4. Install a new inner and outer o-ring into the direct clutch piston and lightly coat them with ATF or Trans-Jel®. Then install the piston into the direct clutch housing as shown in Figure 99.
5. Install the direct clutch piston return spring as shown in Figure 100.
6. Install a new o-ring seal on the direct clutch balance piston and coat the seal with a small amount of ATF or Trans-Jel®.
7. Install the direct clutch balance piston into the direct drum housing as shown in Figure 100.
8. Using ST Clutch Spring Compressors 307-552 and 307-015, or similar clutch compressing tool and a press, compress the balance piston and install the direct clutch balance piston retaining snap ring as shown in Figure 100 making certain the snap ring is fully seated in the snap ring groove.

Continued on page 68



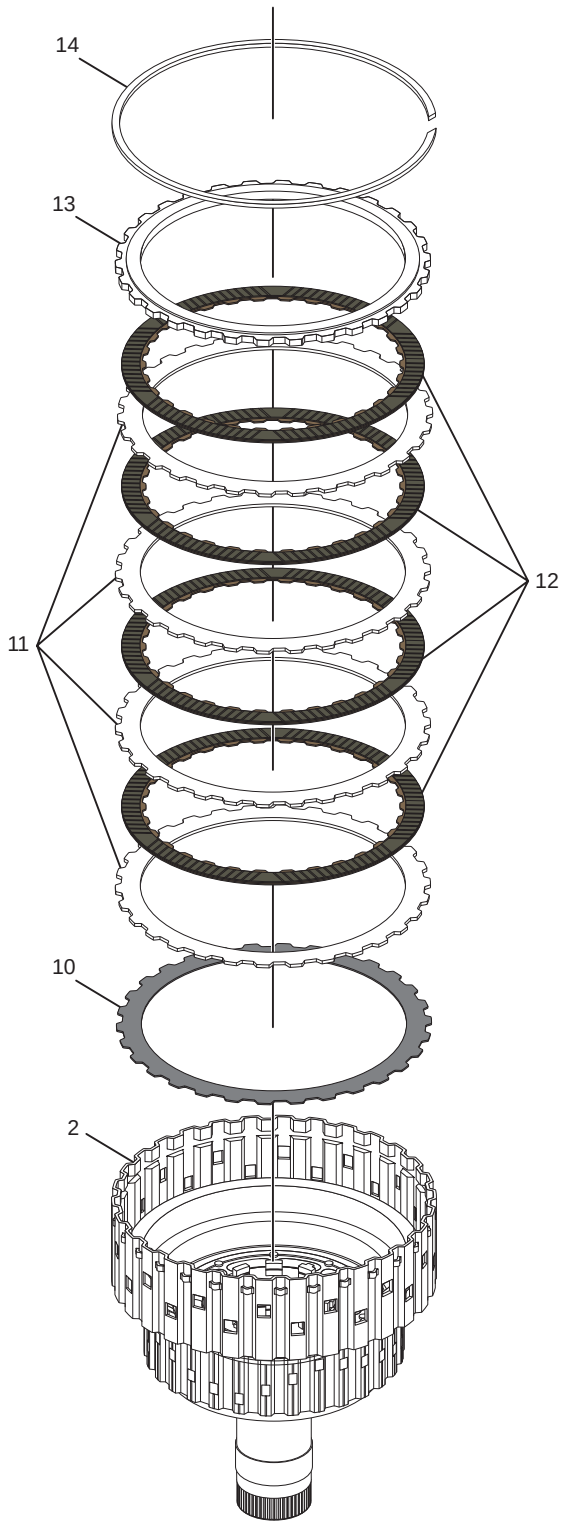
2. DIRECT CLUTCH DRUM HOUSING
3. DIRECT CLUTCH PISTON OUTER O-RING SEAL
4. DIRECT CLUTCH PISTON INNER O-RING SEAL
5. DIRECT CLUTCH PISTON

Figure 99



2. DIRECT CLUTCH DRUM HOUSING
6. DIRECT CLUTCH PISTON RETURN SPRING
7. DIRECT CLUTCH BALANCE PISTON O-RING SEAL
8. DIRECT CLUTCH BALANCE PISTON
9. DIRECT CLUTCH BALANCE PISTON RETAINING SNAP RING

Figure 100



2. DIRECT CLUTCH DRUM HOUSING
10. DIRECT CLUTCH CUSHION PLATE
11. DIRECT CLUTCH STEEL PLATE
12. DIRECT CLUTCH FRICTION PLATE
13. DIRECT CLUTCH PRESSURE PLATE
14. DIRECT CLUTCH RETAINING SNAP RING

Figure 101

COMPONENT REBUILD

Direct Clutch Assembly (Cont'd)

9. Install the direct clutch cushion plate as shown in Figure 101.
10. Install a direct clutch steel plate, then alternate installing friction plates and steel plates as shown in figure 101.
    Note: Quantity of steel plates and friction plates will vary based upon engine size. All friction plates must be soaked in the proper ATF for at least 1 hour before assembly.
11. Install the direct clutch pressure plate as shown in Figure 101.
12. Install the direct clutch retaining snap ring as shown in Figure 101.
    Note: All direct clutch frictions and steels are a wave-type design.
13. Using ST Clutch End Play Gauge 307-555 and Holding Fixture 100-002 or similar holding fixture and adapter, set the direct drum into the fixture and install the dial indicator positioning the plunger so it fits into the opening of the snap ring as shown in Figure 102.
14. Set the dial indicator to 0 and then lift upward on the pressure plate and record the measurement as measurement A. Next, turn the drum 180° from the opening of the snap ring and perform the same procedure, set the dial indicator to 0 then lift upward on the pressure plate and record the measurement as measurement B.
    Add measurements A and B together and divide the sum by 2 to give an average clearance reading. Clearance should be between *0.5-1.3 mm (0.019-0.051 in)* as shown in Figure 102.

Continued on page 69

COMPONENT REBUILD

Direct Clutch Assembly (Cont'd)

15. Install two new seal rings onto the direct clutch drum housing as shown in Figure 103. Coat the rings with a small amount of Trans-Jel® and set the drum aside for final assembly.

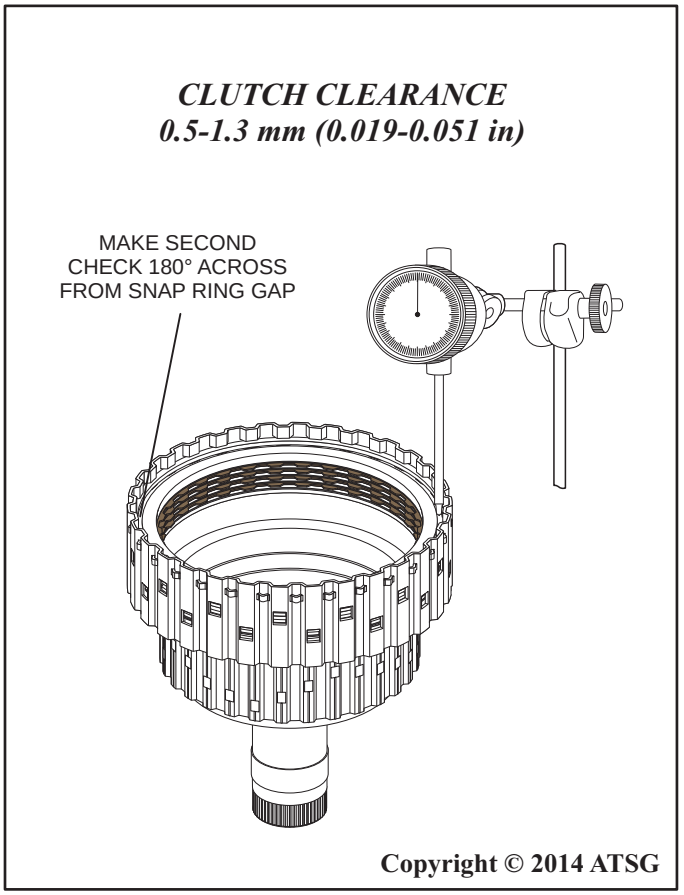


Figure 102

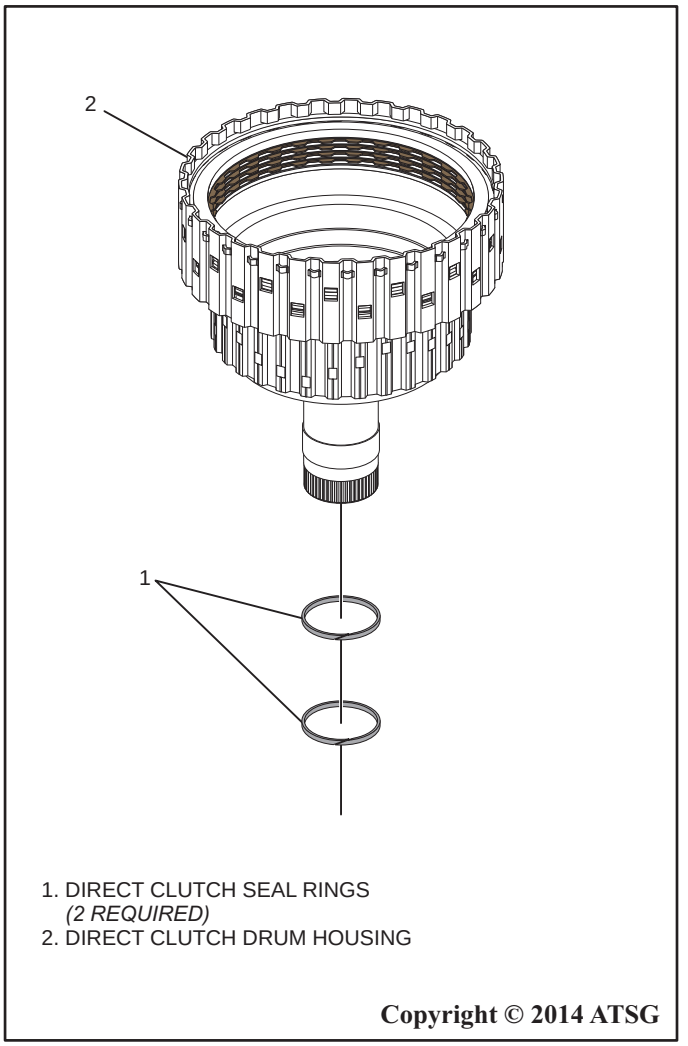
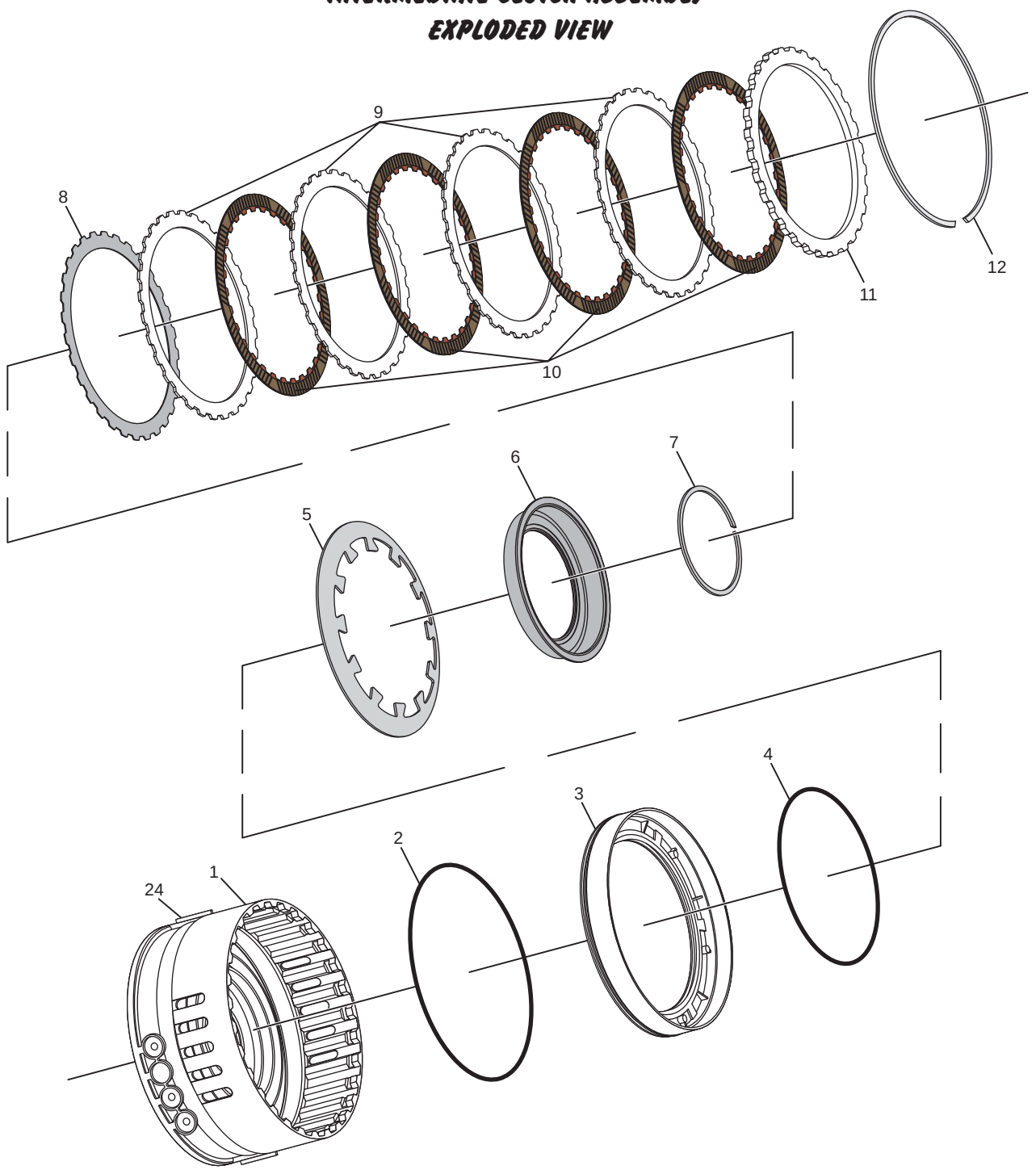


Figure 103

INTERMEDIATE CLUTCH ASSEMBLY
EXPLODED VIEW



1. INTERMEDIATE AND LOW/REVERSE SUPPORT HOUSING
2. INTERMEDIATE CLUTCH PISTON OUTER O-RING SEAL
3. INTERMEDIATE CLUTCH PISTON
4. INTERMEDIATE CLUTCH PISTON INNER O-RING SEAL
5. INTERMEDIATE CLUTCH PISTON RETURN SPRING
6. INTERMEDIATE CLUTCH PISTON RETURN SPRING RETAINING RING
7. INTERMEDIATE CLUTCH PISTON RETAINING SNAP RING
8. INTERMEDIATE CLUTCH CUSHION PLATE
9. INTERMEDIATE CLUTCH STEEL PLATE
10. INTERMEDIATE CLUTCH FRICTION PLATE
11. INTERMEDIATE CLUTCH PRESSURE PLATE
12. INTERMEDIATE CLUTCH RETAINING SNAP RING
24. LOCATING KEY *(2 REQUIRED) (DO NOT REMOVE)*

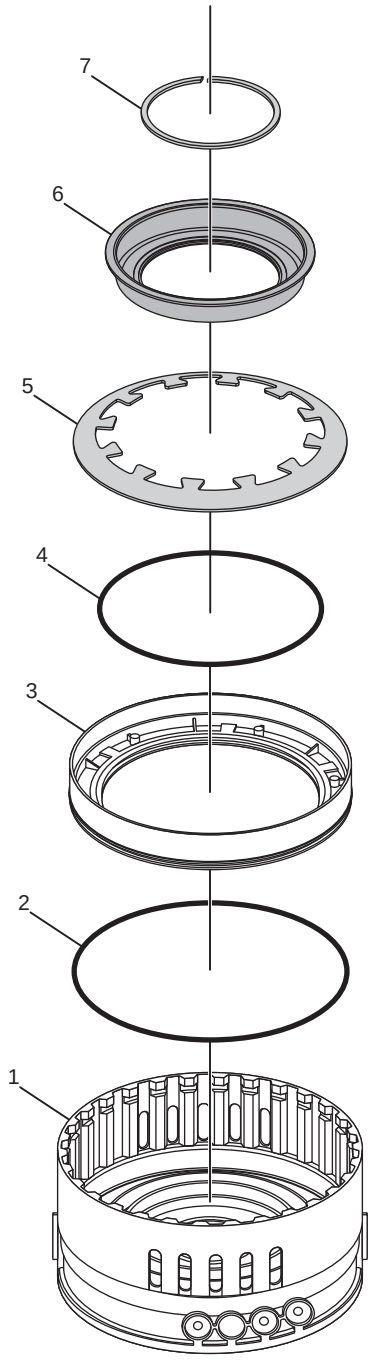
Figure 104

COMPONENT REBUILD

Intermediate Clutch Assembly

1. Disassemble the intermediate and low/reverse clutch support using Figure 104 as a guide.
2. Clean all intermediate clutch parts thoroughly and dry with compressed air.
3. Inspect all intermediate clutch parts thoroughly for any wear and/or damage and replace as necessary.
4. Install a new inner and outer o-ring into the intermediate clutch piston and lightly coat them with ATF or Trans-Jel®.
5. Install the intermediate clutch piston into the intermediate and low/reverse clutch support as shown in Figure 105.
6. Install the intermediate clutch piston return spring into the piston as shown in Figure 105.
7. Install the intermediate clutch piston return spring retaining ring as shown in Figure 105.
8. Using the ST Clutch Spring Compressor 307-525 or similar compressing tool and a press, install the intermediate clutch piston retaining snap ring as shown in Figure 105.
9. Make certain snap ring is fully seated as shown in Figure 106.

Continued on page 72



1. INTERMEDIATE AND LOW/REVERSE SUPPORT HOUSING
2. INTERMEDIATE CLUTCH PISTON OUTER O-RING SEAL
3. INTERMEDIATE CLUTCH PISTON
4. INTERMEDIATE CLUTCH PISTON INNER O-RING SEAL
5. INTERMEDIATE CLUTCH PISTON RETURN SPRING
6. INTERMEDIATE CLUTCH PISTON RETURN SPRING RETAINING RING
7. INTERMEDIATE CLUTCH PISTON RETAINING SNAP RING

Figure 105

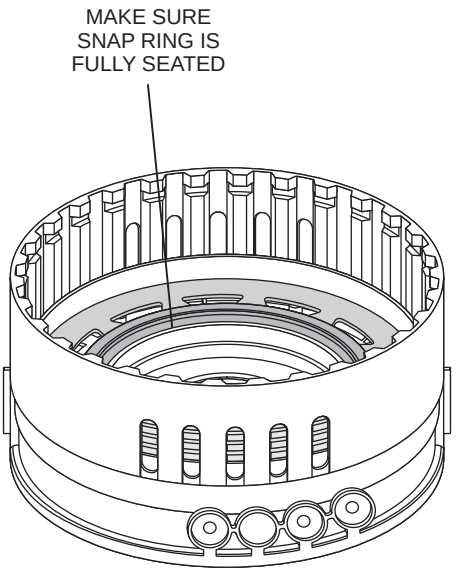


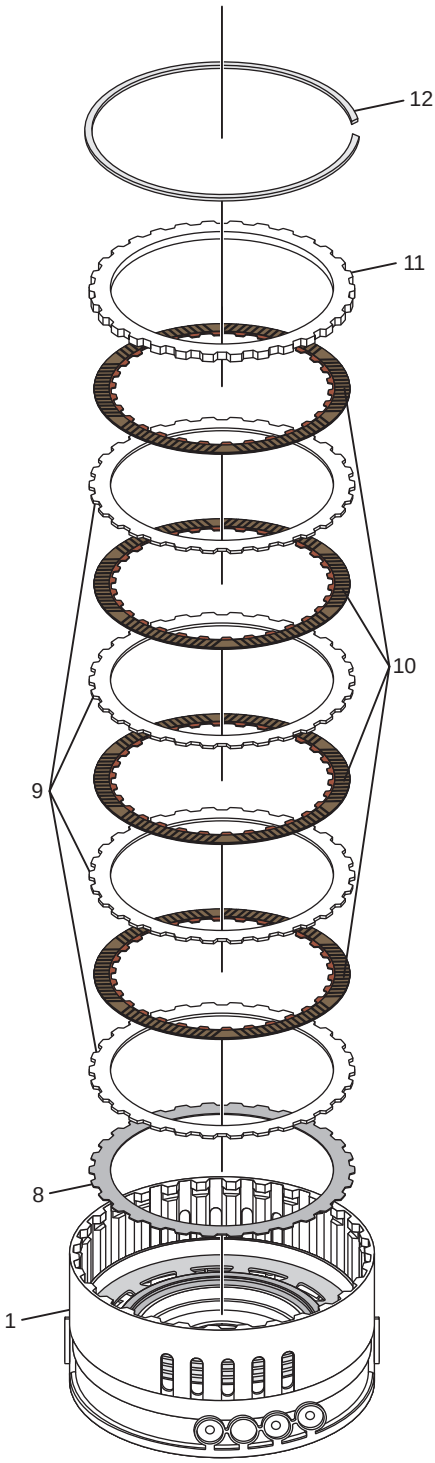
Figure 106

COMPONENT REBUILD

Intermediate Clutch Assembly (Cont'd)

10. Install the intermediate clutch cushion plate as shown in Figure 107.
11. Install an intermediate clutch steel plate, then alternate installing friction plates and steel plates as shown in figure 107.
    Note: Quantity of steel plates and friction plates will vary based upon engine size. All friction plates must be soaked in the proper ATF for at least 1 hour before assembly.
12. Install the intermediate clutch pressure plate as shown in Figure 107.
13. Install the intermediate clutch retaining snap ring as shown in Figure 107.
    Note: All intermediate clutch frictions and steels are a wave-type design.

Continued on page 73



1. INTERMEDIATE AND LOW/REVERSE SUPPORT HOUSING
8. INTERMEDIATE CLUTCH CUSHION PLATE
9. INTERMEDIATE CLUTCH STEEL PLATE
10. INTERMEDIATE CLUTCH FRICTION PLATE
11. INTERMEDIATE CLUTCH PRESSURE PLATE
12. INTERMEDIATE CLUTCH RETAINING SNAP RING

Figure 107

COMPONENT REBUILD

Intermediate Clutch Assembly (Cont'd)

14. Using ST Clutch End Play Gauge 307-555 and Holding Fixture 100-002 or similar holding fixture and adapter, set the intermediate and low/reverse support housing into the fixture and install the dial indicator positioning the plunger so it fits into the opening of the snap ring as shown in Figure 108.
15. Set the dial indicator to 0 and then lift upward on the pressure plate and record the measurement as measurement A. Next, turn the support 180° from the opening of the snap ring and perform the same procedure, set the dial indicator to 0 then lift upward on the pressure plate and record that measurement as measurement B.
16. Add measurements A and B together and divide the sum by 2 to give an average clearance reading. Clearance should be between *0.7-1.1 mm (0.027-0.043 in)* as shown in Figure 108.

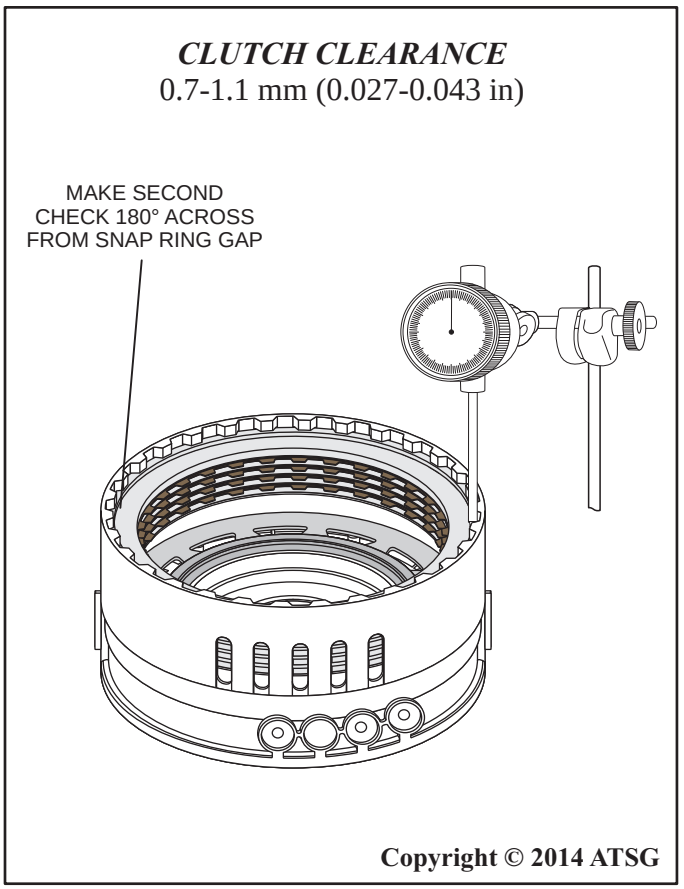
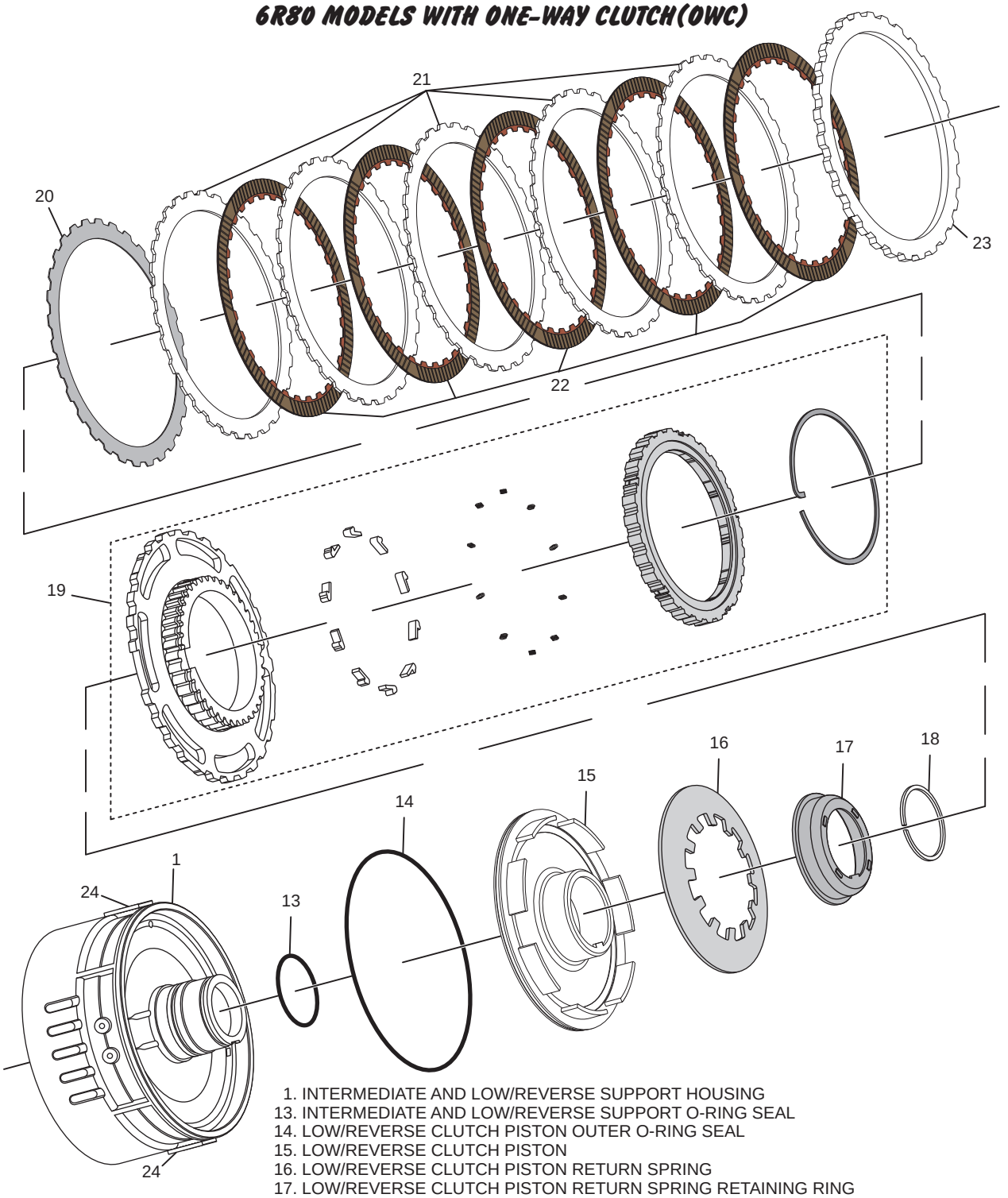


Figure 108

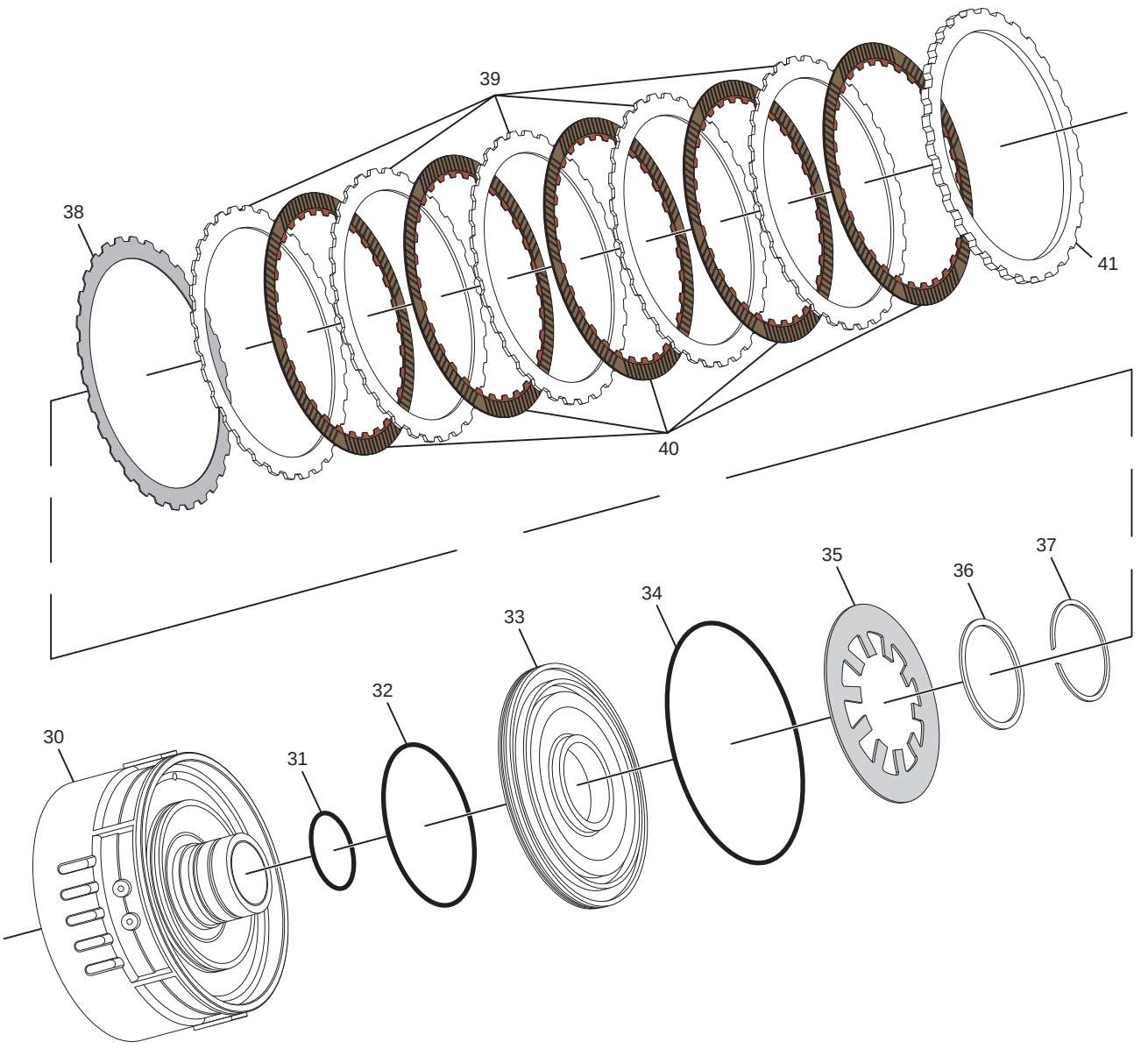
LOW/REVERSE CLUTCH ASSEMBLY EXPLODED VIEW
6R80 MODELS WITH ONE-WAY CLUTCH(OWC)



1. INTERMEDIATE AND LOW/REVERSE SUPPORT HOUSING
13. INTERMEDIATE AND LOW/REVERSE SUPPORT O-RING SEAL
14. LOW/REVERSE CLUTCH PISTON OUTER O-RING SEAL
15. LOW/REVERSE CLUTCH PISTON
16. LOW/REVERSE CLUTCH PISTON RETURN SPRING
17. LOW/REVERSE CLUTCH PISTON RETURN SPRING RETAINING RING
18. LOW/REVERSE CLUTCH PISTON RETAINING SNAP RING
19. LOW ONE-WAY CLUTCH (OWC)
20. LOW/REVERSE CUSHION PLATE
21. LOW/REVERSE STEEL PLATE
22. LOW REVERSE FRICTION PLATE
23. LOW/REVERSE PRESSURE PLATE
24. LOCATING KEY *(2 REQUIRED) (DO NOT REMOVE)*

Figure 109

LOW/REVERSE CLUTCH ASSEMBLY EXPLODED VIEW
6R60/75/80 MODELS WITHOUT ONE-WAY CLUTCH(OWC)



30. INTERMEDIATE AND LOW/REVERSE SUPPORT HOUSING
31. INTERMEDIATE AND LOW/REVERSE SUPPORT INNER O-RING SEAL
32. INTERMEDIATE AND LOW/REVERSE SUPPORT OUTER O-RING SEAL
33. LOW/REVERSE CLUTCH PISTON
34. LOW/REVERSE CLUTCH PISTON O-RING SEAL
35. LOW/REVERSE CLUTCH PISTON RETURN SPRING
36. LOW/REVERSE CLUTCH PISTON RETURN SPRING WASHER
37. LOW/REVERSE CLUTCH PISTON RETAINING SNAP RING
38. LOW/REVERSE CUSHION PLATE
39. LOW/REVERSE STEEL PLATE
40. LOW REVERSE FRICTION PLATE
41. LOW/REVERSE PRESSURE PLATE

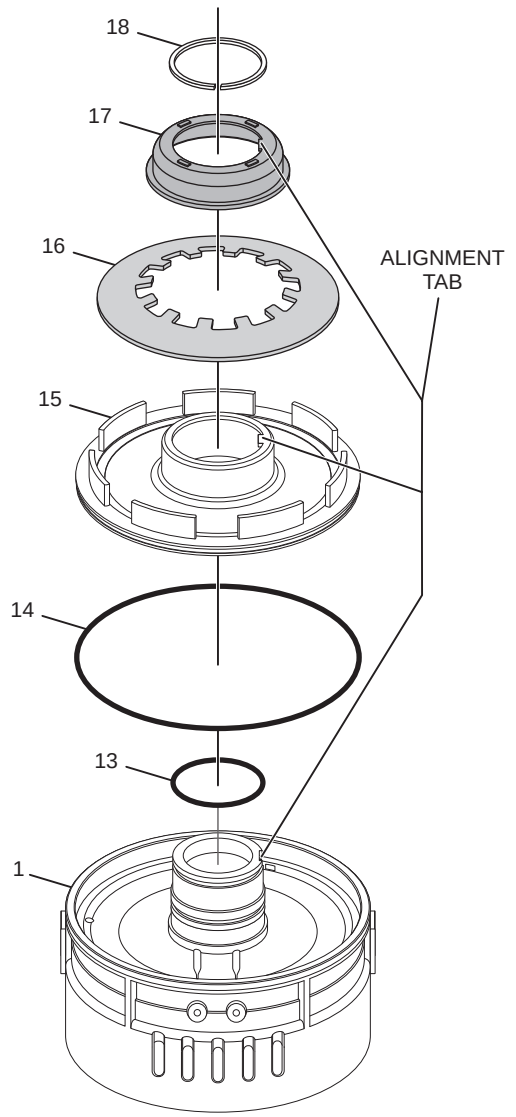
Figure 110

COMPONENT REBUILD

Low/Reverse Clutch Assembly (With OWC)

1. Disassemble the low/reverse side of the intermediate and low/reverse clutch support housing using Figure 109 as a guide.
2. Clean all low/reverse clutch parts thoroughly and dry with compressed air.
3. Inspect all low/reverse clutch parts thoroughly for any wear and/or damage and replace as necessary.
4. Install a new o-ring onto the intermediate and low/reverse support housing and coat the seal with a small amount of ATF or Trans-Jel® as shown in Figure 111.
5. Install a new o-ring onto the low/reverse clutch piston and coat the seal with a small amount of ATF or Trans-Jel® as shown in Figure 111.
6. Install the low/reverse piston into the intermediate and low/reverse support housing as shown in Figure 111.
7. Install the low/reverse piston return spring, and the piston return spring retaining ring as shown in Figure 111.
8. Using ST Clutch Spring Compressor 307-525 or other similar clutch spring compressing tool, compress the low/reverse clutch return spring and install the low/reverse piston retaining snap ring as shown in Figure 111.
9. Make sure the retaining snap ring is fully seated as shown in Figure 112. Then set the intermediate and low/reverse clutch support housing aside for final assembly.

Continued on page 77



1. INTERMEDIATE AND LOW/REVERSE SUPPORT HOUSING
13. INTERMEDIATE AND LOW/REVERSE SUPPORT O-RING SEAL
14. LOW/REVERSE CLUTCH PISTON OUTER O-RING SEAL
15. LOW/REVERSE CLUTCH PISTON
16. LOW/REVERSE CLUTCH PISTON RETURN SPRING
17. LOW/REVERSE CLUTCH PISTON RETURN SPRING RETAINING RING
18. LOW/REVERSE CLUTCH PISTON RETAINING SNAP RING

Figure 111

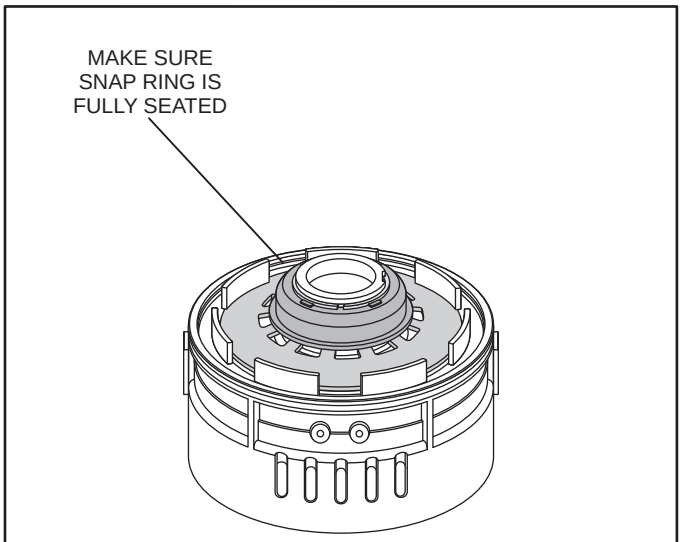


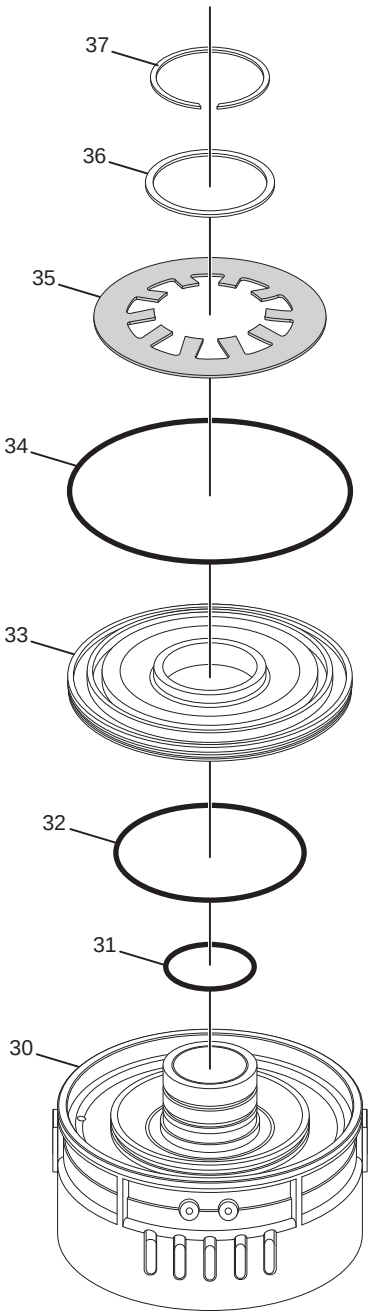
Figure 112

COMPONENT REBUILD

Low/Reverse Clutch Assembly (Without OWC)

1. Disassemble the low/reverse side of the intermediate and low/reverse clutch support housing using Figure 110 as a guide.
2. Clean all low/reverse clutch parts thoroughly and dry with compressed air.
3. Inspect all low/reverse clutch parts thoroughly for any wear and/or damage and replace as necessary.
4. Install two new o-rings onto the intermediate and low/reverse support housing and coat the seals with a small amount of ATF or Trans-Jel® as shown in Figure 113.
5. Install a new o-ring onto the low/reverse clutch piston and coat the seal with a small amount of ATF or Trans-Jel® as shown in Figure 113.
6. Install the low/reverse piston into the intermediate and low/reverse support housing as shown in Figure 113.
7. Install the low/reverse piston return spring, and the piston return spring washer as shown in Figure 113.
8. Using ST Clutch Spring Compressor 307-525 or other similar clutch spring compressing tool, compress the low/reverse clutch return spring and install the low/reverse piston retaining snap ring as shown in Figure 113.
9. Make sure the retaining snap ring is fully seated as shown in Figure 114. Then set the intermediate and low/reverse clutch support housing aside for final assembly.

Continued on page 78



30. INTERMEDIATE AND LOW/REVERSE SUPPORT HOUSING
31. INTERMEDIATE AND LOW/REVERSE SUPPORT INNER O-RING SEAL
32. INTERMEDIATE AND LOW/REVERSE SUPPORT OUTER O-RING SEAL
33. LOW/REVERSE CLUTCH PISTON
34. LOW/REVERSE CLUTCH PISTON O-RING SEAL
35. LOW/REVERSE CLUTCH PISTON RETURN SPRING
36. LOW/REVERSE CLUTCH PISTON RETURN SPRING WASHER
37. LOW/REVERSE CLUTCH PISTON RETAINING SNAP RING

Figure 113

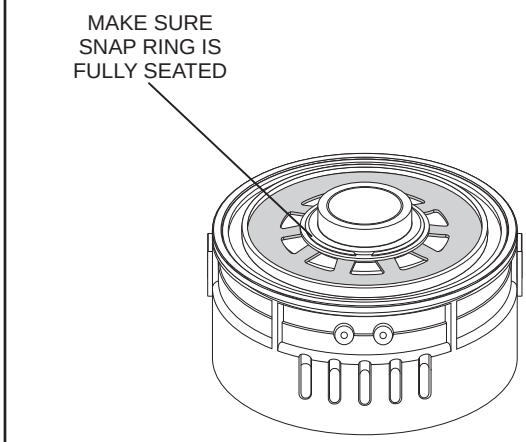


Figure 114

COMPONENT REBUILD

Intermediate and L/R Support Housing Differences

1. The diagrams in Figures 109 and 110 illustrate the assembly differences in the exploded views.
2. The diagrams below in Figures 115 and 116 illustrate the hydraulic differences.

NOTE: There is no inter-changeability between the support housing in units without one-way clutch (OWC) and the support housing with one-way clutch (OWC).

Continued on page 79

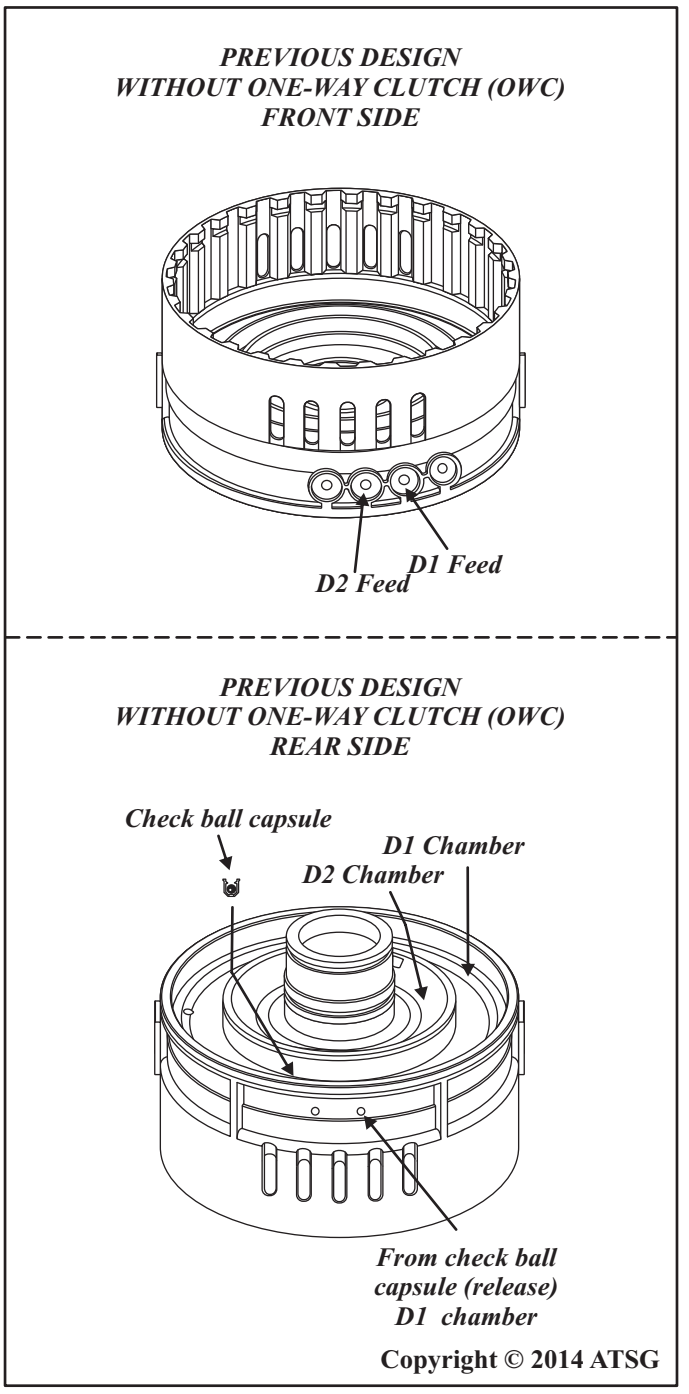


Figure 115

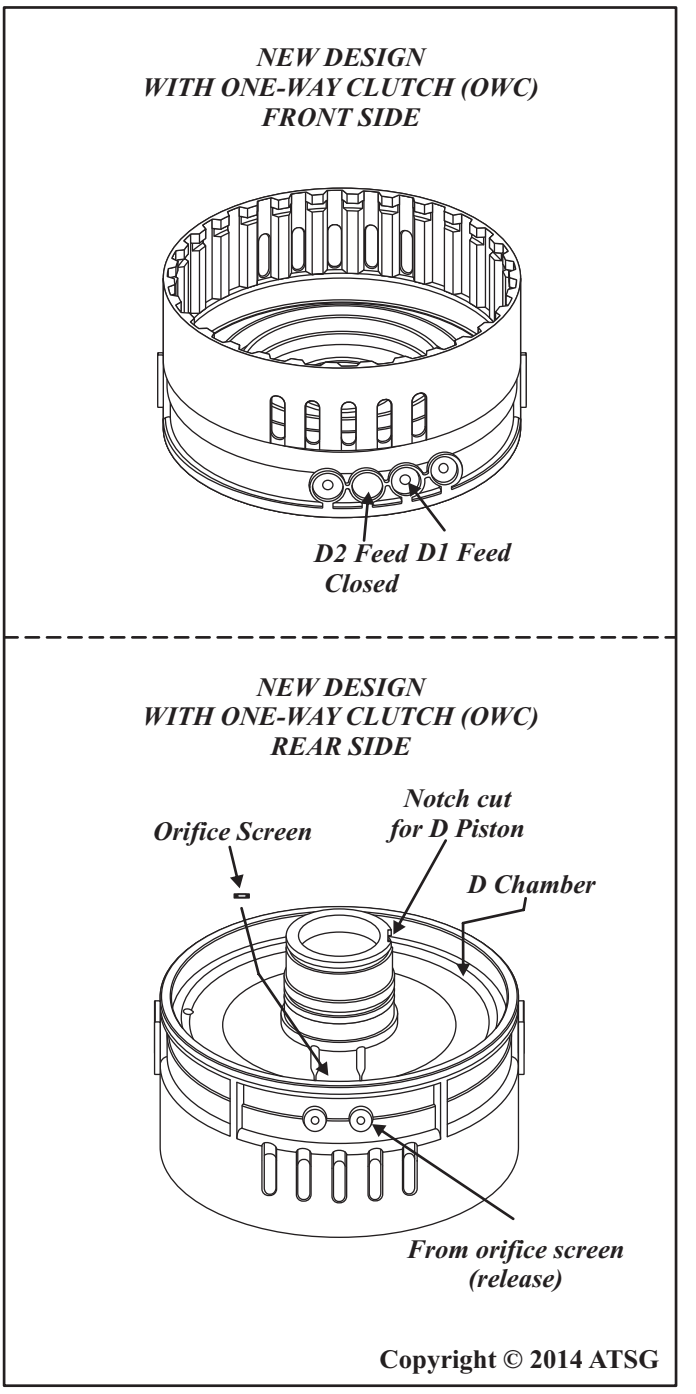


Figure 116

COMPONENT REBUILD

Rear Planetary Carrier Assembly

1.The diagrams in Figures 117 and 118 illustrate the differences between the previous design without one-way clutch (OWC) and the new design with one-way clutch (OWC).
NOTE: There is no inter-changeability between the rear planetary carrier assembly in units without one-way clutch (OWC) and with one-way clutch (OWC).

PREVIOUS DESIGN
REAR PLANETARY CARRIER ASSEMBLY
WITHOUT ONE-WAY CLUTCH (OWC)

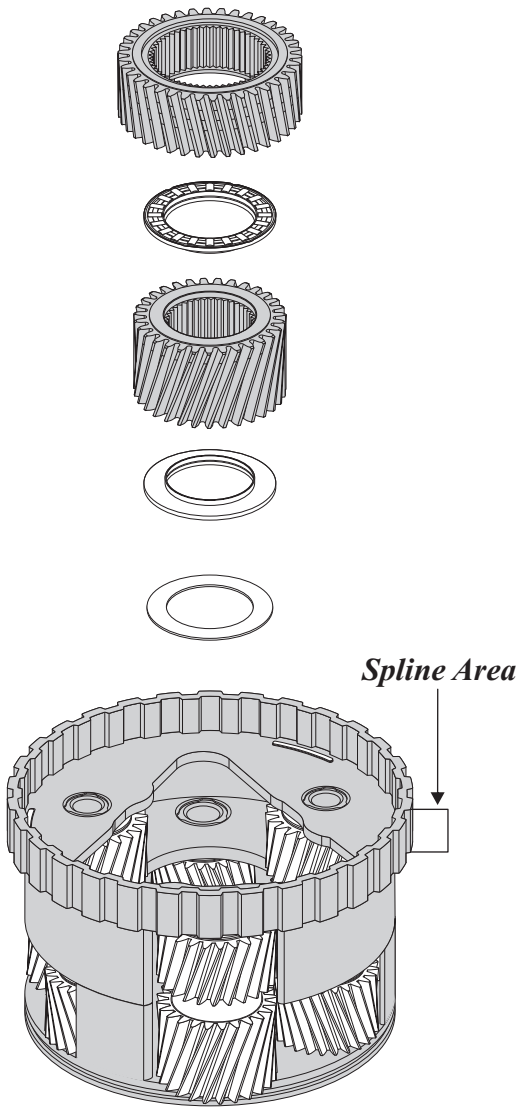


Figure 117

NEW DESIGN
REAR PLANETARY CARRIER ASSEMBLY
WITH ONE-WAY CLUTCH (OWC)

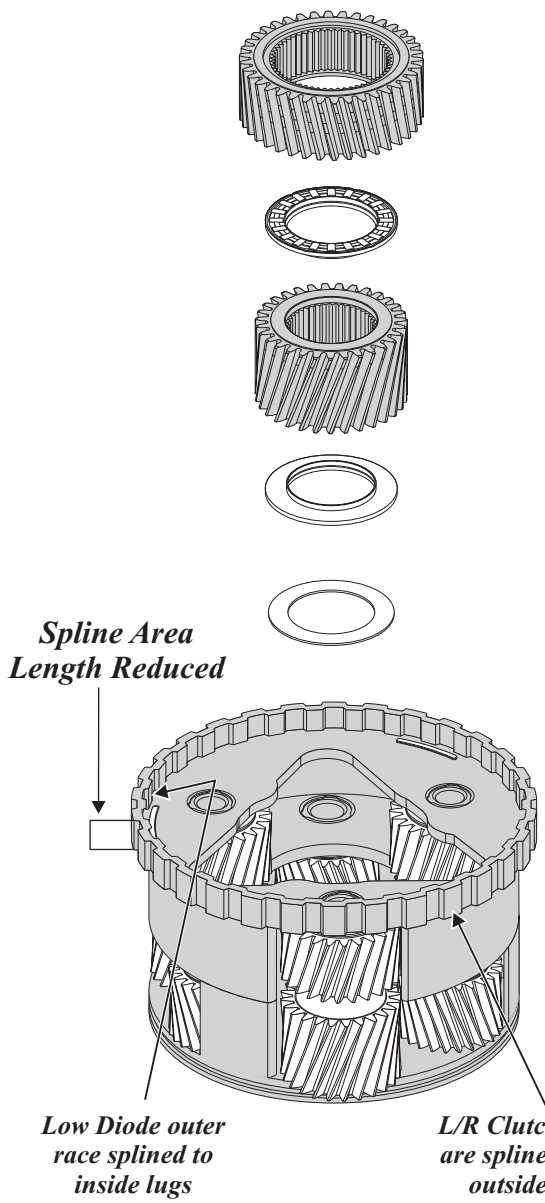
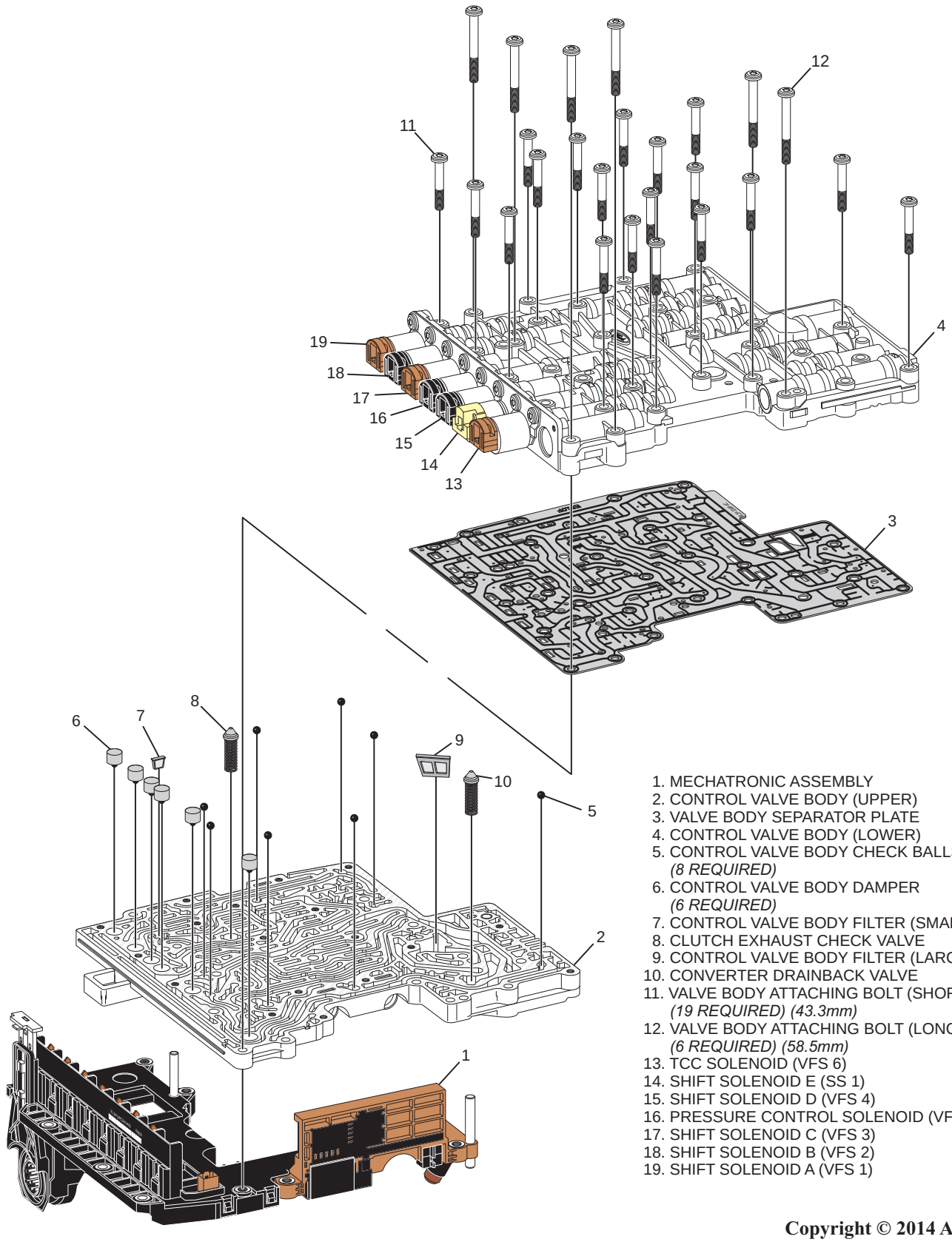


Figure 118

MECHATRONIC/CONTROL VALVE BODY ASSEMBLY
EXPLODED VIEW



1. MECHATRONIC ASSEMBLY
2. CONTROL VALVE BODY (UPPER)
3. VALVE BODY SEPARATOR PLATE
4. CONTROL VALVE BODY (LOWER)
5. CONTROL VALVE BODY CHECK BALLS *(8 REQUIRED)*
6. CONTROL VALVE BODY DAMPER *(6 REQUIRED)*
7. CONTROL VALVE BODY FILTER (SMALL)
8. CLUTCH EXHAUST CHECK VALVE
9. CONTROL VALVE BODY FILTER (LARGE)
10. CONVERTER DRAINBACK VALVE
11. VALVE BODY ATTACHING BOLT (SHORT) *(19 REQUIRED) (43.3mm)*
12. VALVE BODY ATTACHING BOLT (LONG) *(6 REQUIRED) (58.5mm)*
13. TCC SOLENOID (VFS 6)
14. SHIFT SOLENOID E (SS 1)
15. SHIFT SOLENOID D (VFS 4)
16. PRESSURE CONTROL SOLENOID (VFS 5)
17. SHIFT SOLENOID C (VFS 3)
18. SHIFT SOLENOID B (VFS 2)
19. SHIFT SOLENOID A (VFS 1)

Figure 119

COMPONENT REBUILD

Mechatronic/Main Control Valve Body Assembly

1. An exploded view of the mechatronic/main control valve body assembly has been provided in Figure 119.
2. Set the mechatronic/main control valve body assembly on a flat work surface as shown in Figure 120.
3. Remove the six long 58.5 mm bolts from the mechatronic/main control valve body assembly as shown in Figure 120.
4. Carefully separate and remove the mechatronic assembly from the control valve body as shown in Figure 120.

NOTE: Do not touch the electrical connector pins or the solenoid electrical connector tabs of the mechatronic assembly. Electrostatic discharge may occur and potentially cause damage to the mechatronic assembly. Does not apply to PCM controlled models.

5. Set the mechatronic assembly aside for reassembly.

Continued on page 82

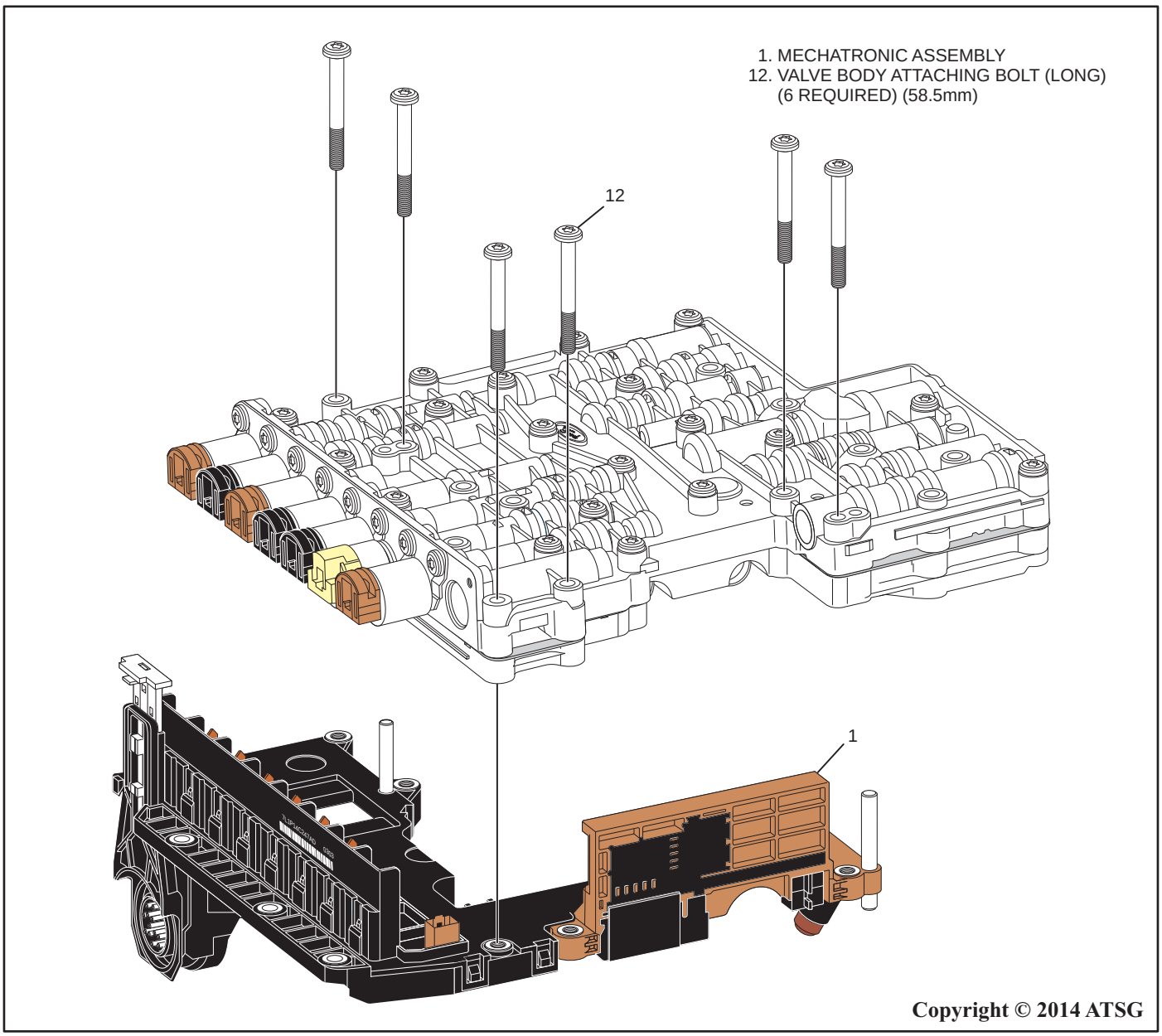


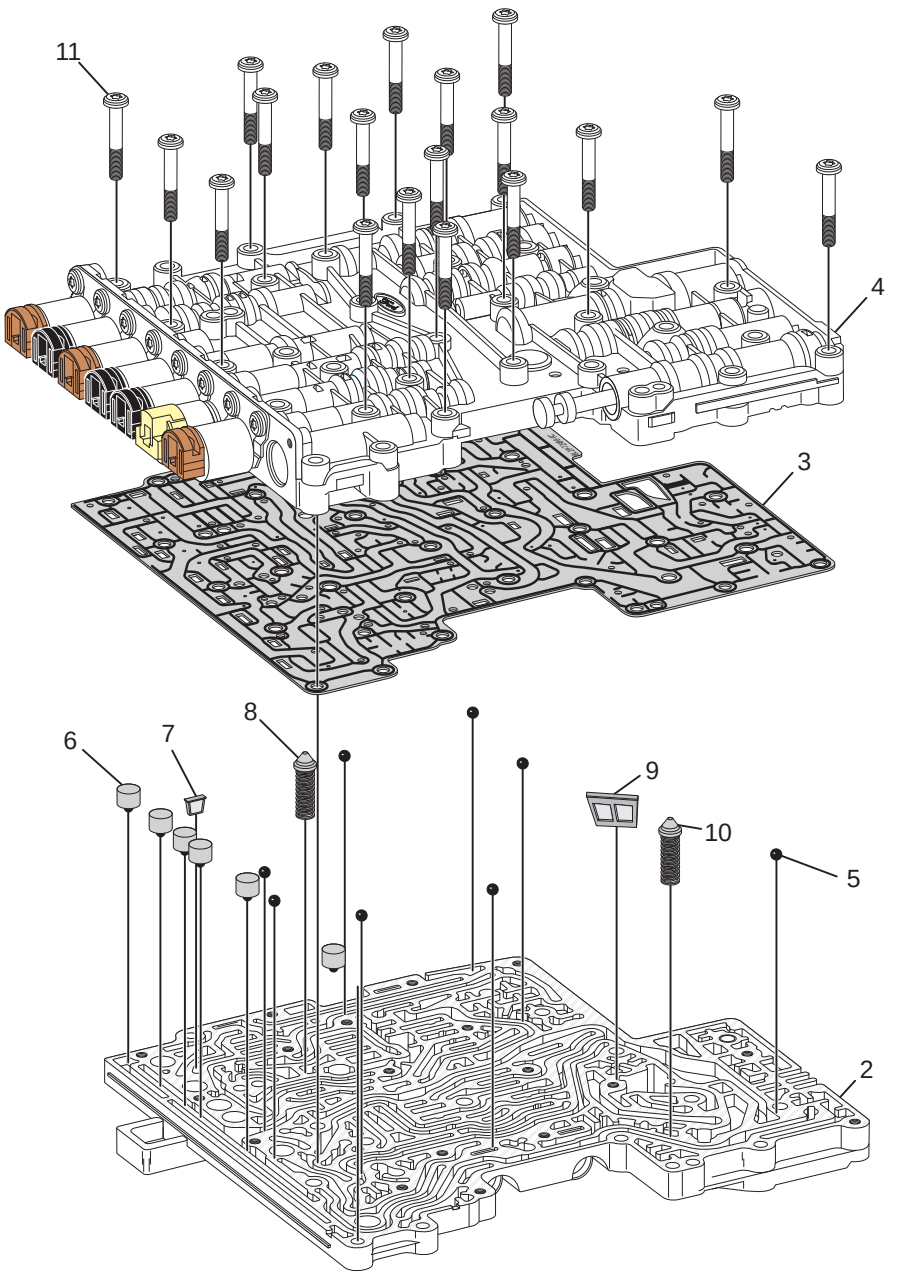
Figure 120

COMPONENT REBUILD

Mechatronic/Main Control Valve Body Assembly (Cont'd)

6. Remove the nineteen short 43.3mm valve body attaching bolts from the main control valve body as shown in Figure 121.
7. Separate and remove the lower control valve body from the upper control valve body as shown in Figure 121.
8. Remove and discard the valve body separator plate as shown in Figure 121.
9. Remove the eight control valve body check balls, the six control valve body dampers, the small filter, the large filter, the clutch control check valve, and the converter drainback valve as shown in Figure 121.
10. Set the small parts from the upper control body aside for cleaning and inspection.

Continued on page 83



2. CONTROL VALVE BODY (UPPER)
3. VALVE BODY SEPARATOR PLATE
4. CONTROL VALVE BODY (LOWER)
5. CONTROL VALVE BODY CHECK BALLS *(8 REQUIRED)*
6. CONTROL VALVE BODY DAMPER *(6 REQUIRED)*
7. CONTROL VALVE BODY FILTER (SMALL)
8. CLUTCH EXHAUST CHECK VALVE
9. CONTROL VALVE BODY FILTER (LARGE)
10. CONVERTER DRAINBACK VALVE
11. VALVE BODY ATTACHING BOLT (SHORT) *(19 REQUIRED) (43.3mm)*

Figure 121

COMPONENT REBUILD

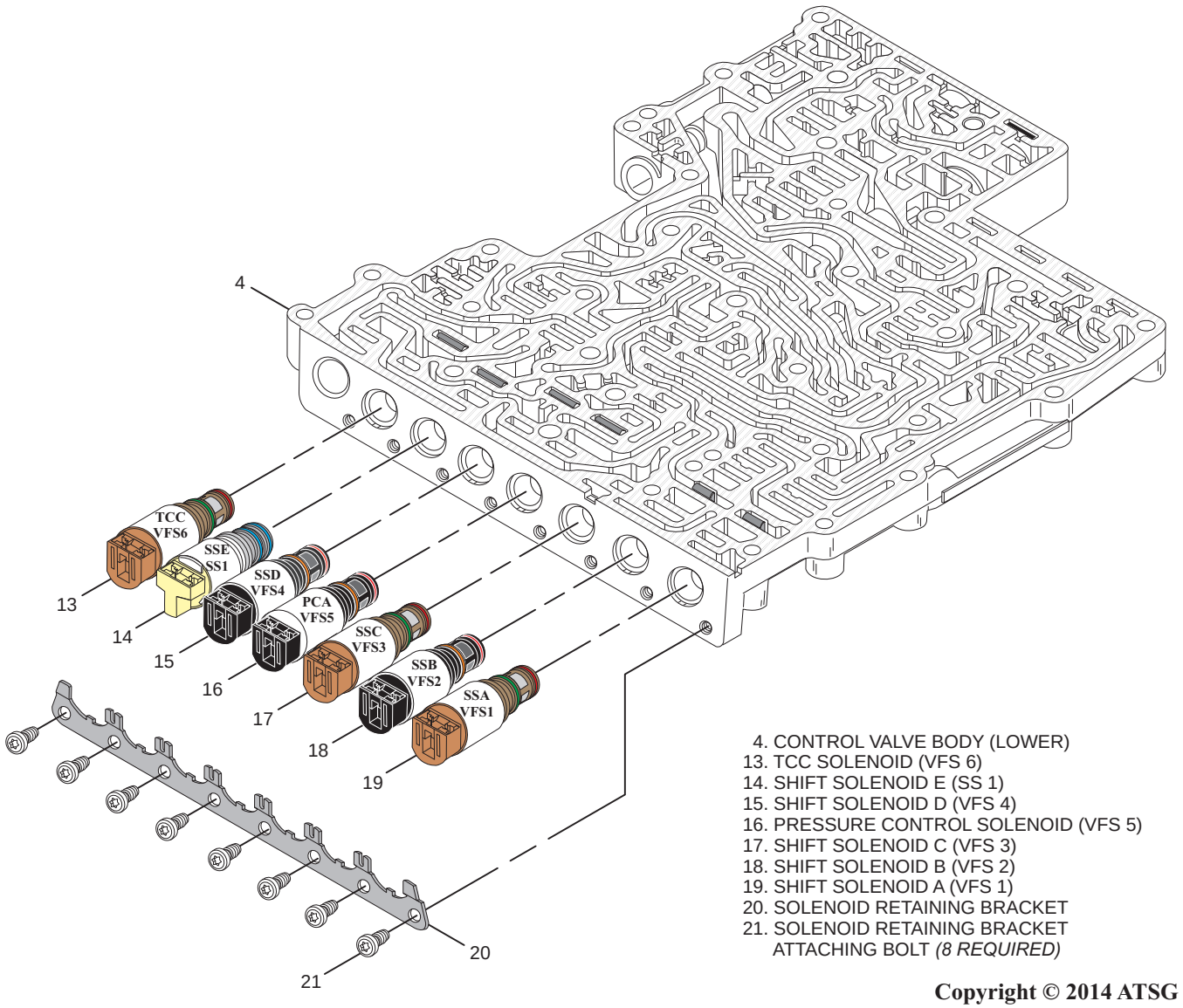
Mechatronic/Main Control Valve Body Assembly (Cont'd)

NOTE: Though some solenoids may look identical and fit into other bores, the solenoids are individual, have individual calibrations and should not be interchanged, otherwise driveability issues and/or transmission damage could result. Do not interchange the solenoids. Install each into its original bore during installation.

11. Use a marker and mark each solenoid and its location in the control valve body assembly before removal as shown in Figure 122.
12. Remove the eight solenoid retaining bracket attaching bolts as shown in Figure 122.
13. Remove the six pressure control solenoids and the one on/off solenoid from the main control valve body assembly as shown in Figure 122.

Continued on page 84

LOWER CONTROL VALVE BODY REAR SIDE



4. CONTROL VALVE BODY (LOWER)
13. TCC SOLENOID (VFS 6)
14. SHIFT SOLENOID E (SS 1)
15. SHIFT SOLENOID D (VFS 4)
16. PRESSURE CONTROL SOLENOID (VFS 5)
17. SHIFT SOLENOID C (VFS 3)
18. SHIFT SOLENOID B (VFS 2)
19. SHIFT SOLENOID A (VFS 1)
20. SOLENOID RETAINING BRACKET
21. SOLENOID RETAINING BRACKET ATTACHING BOLT *(8 REQUIRED)*

Figure 122

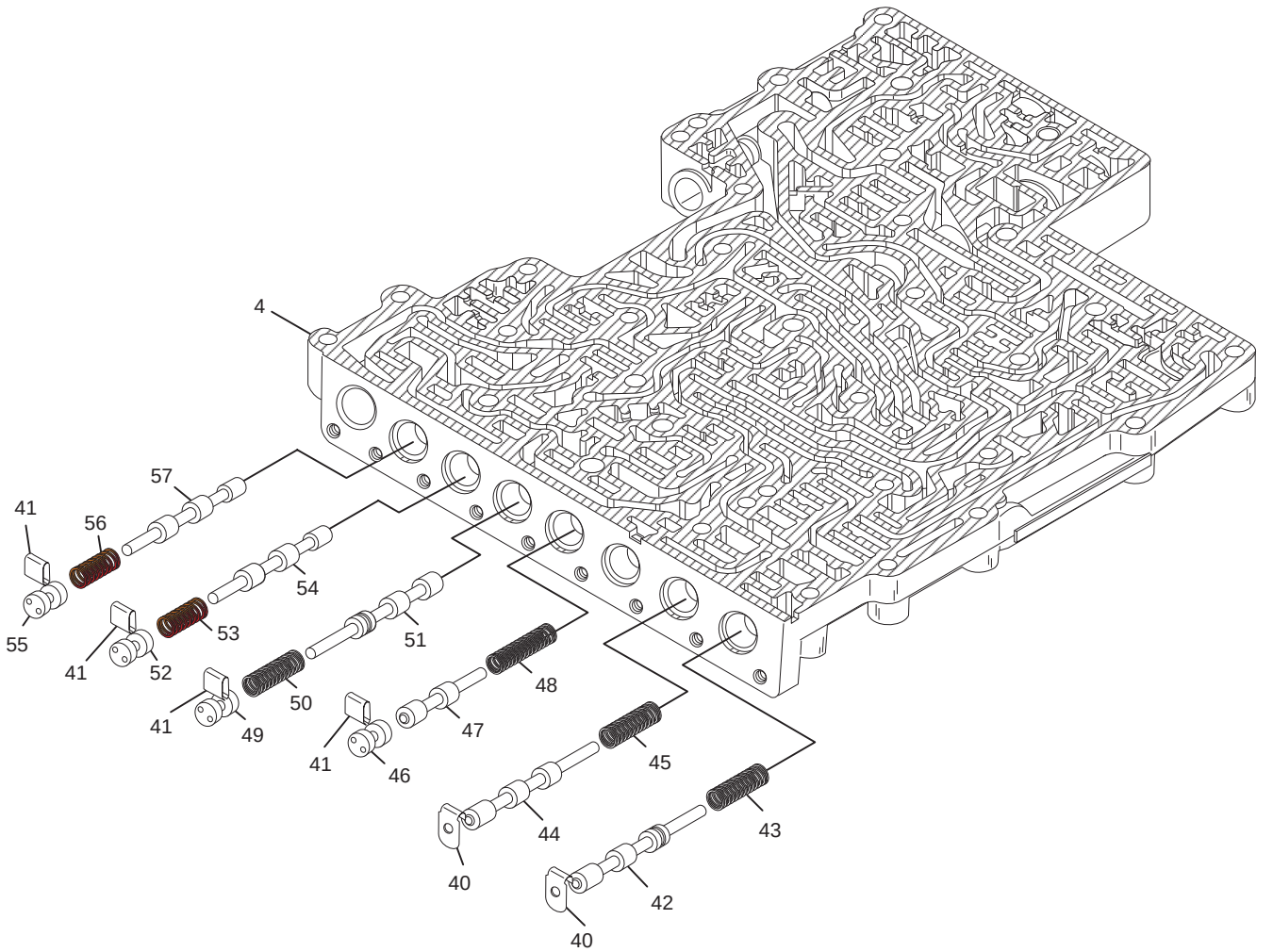
COMPONENT REBUILD

Mechatronic/Main Control Valve Body Assembly (Cont'd)

14. Disassemble the lower control valve body rear and front sides as shown in Figure 123 and Figure 124.
15. Carefully remove each retainer, bore plug, valve and spring and place them into appropriate trays, laying them out in the exact order in which they are removed, using Figure 123 and Figure 124 as a guide.
16. Clean all lower control valve body parts thoroughly and dry with compressed air.
17. Inspect all lower control valve body parts thoroughly for any wear and/or damage and replace as necessary.
18. Install each spring, valve, bore plug and retainer in the lower control valve body in the exact order as shown in Figure 123 and Figure 124.

Continued on page 85

LOWER CONTROL VALVE BODY REAR SIDE



4. CONTROL VALVE BODY (LOWER)
40. VALVE RETAINER (2 REQUIRED)
41. VALVE RETAINER (4 REQUIRED)
42. FORWARD CLUTCH LATCH VALVE
43. FORWARD CLUTCH LATCH VALVE SPRING
44. DIRECT CLUTCH LATCH VALVE
45. DIRECT CLUTCH LATCH VALVE SPRING
46. BORE PLUG
47. SOLENOID REGULATING VALVE
48. SOLENOID REGULATING VALVE SPRING
49. BORE PLUG
50. LOW/REVERSE BRAKE LATCH VALVE SPRING
51. LOW/REVERSE BRAKE LATCH VALVE
52. BORE PLUG
53. DRIVE ENABLE VALVE SPRING
54. DRIVE ENABLE VALVE
55. BORE PLUG
56. SOLENOID MULTIPLEX VALVE SPRING
57. SOLENOID MULTIPLEX VALVE

Figure 123

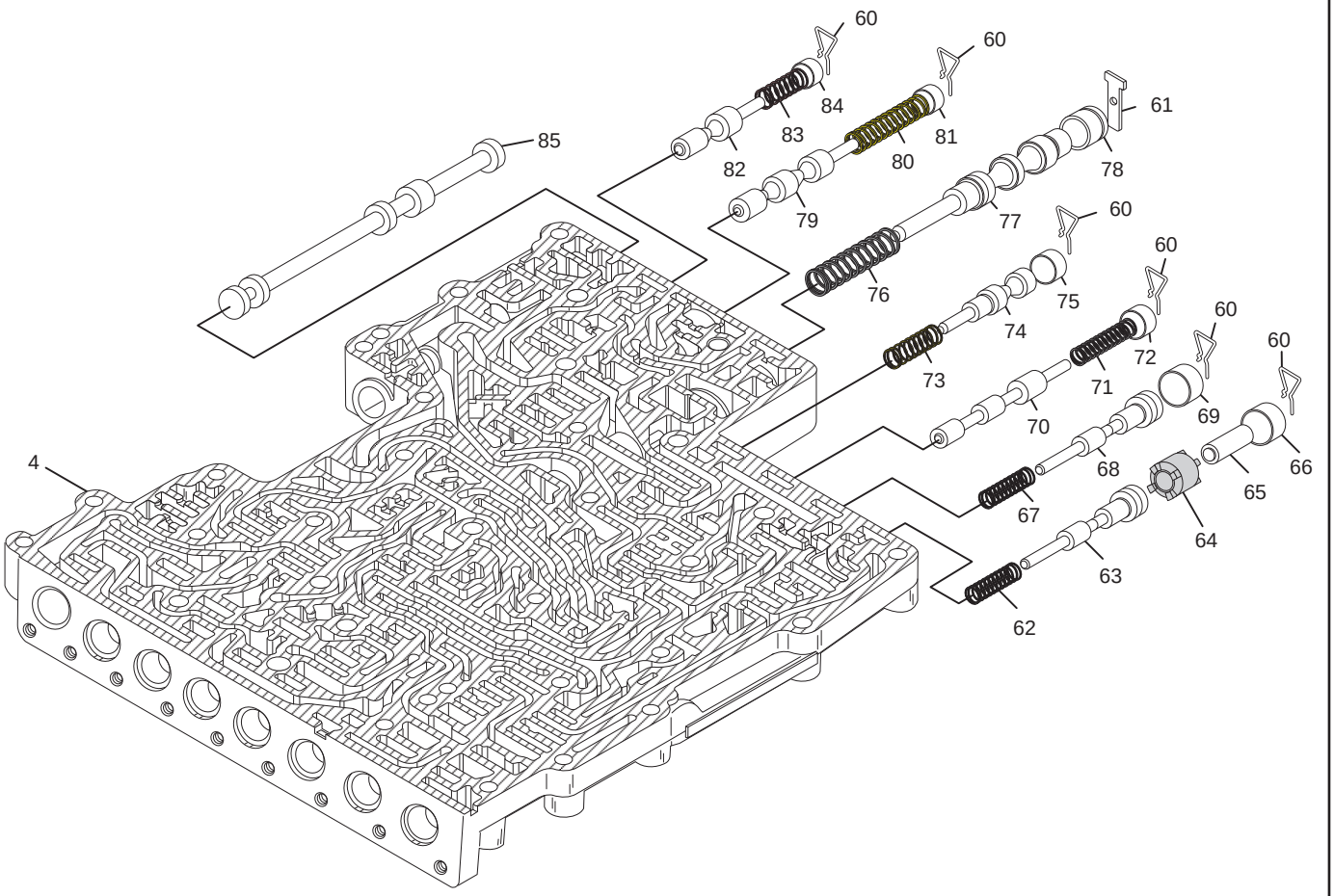
COMPONENT REBUILD

Mechatronic/Main Control Valve Body Assembly (Cont'd)

19. Lubricate each valve with a small amount of ATF as it is installed into the lower control valve body assembly.
20. Set the lower control valve body aside for reassembly.
21. Disassemble the upper control valve body as shown in Figure 125.
22. Carefully remove each retainer, bore plug, valve and spring and place them into appropriate trays, laying them out in the exact order in which they are removed, using Figure 125 as a guide.
23. Clean all upper control valve body parts thoroughly and dry with compressed air.

Continued on page 86

LOWER CONTROL VALVE BODY FRONT SIDE



4. CONTROL VALVE BODY (LOWER)
60. VALVE RETAINER (6 REQUIRED)
61. VALVE RETAINER (1 REQUIRED)
62. FORWARD CLUTCH REGULATING VALVE SPRING
63. FORWARD CLUTCH REGULATING VALVE
64. FORWARD CLUTCH REGULATING VALVE SLEEVE
65. BORE PLUG
66. BORE PLUG
67. OVERDRIVE CLUTCH REGULATING VALVE SPRING
68. OVERDRIVE CLUTCH REGULATING VALVE
69. BORE PLUG
70. OVERDRIVE CLUTCH LATCH VALVE
71. OVERDRIVE CLUTCH LATCH VALVE SPRING
72. BORE PLUG
73. BYPASS CLUTCH CONTROL REGULATOR VALVE SPRING
74. BYPASS CLUTCH CONTROL REGULATOR VALVE
75. BYPASS CLUTCH CONTROL REGULATOR VALVE BORE PLUG
76. MAIN PRESSURE REGULATOR VALVE SPRING
77. MAIN PRESSURE REGULATOR VALVE
78. MAIN PRESSURE REGULATOR VALVE SLEEVE
79. CONVERTER RELEASE REGULATING VALVE
80. CONVERTER RELEASE REGULATING VALVE SPRING
81. CONVERTER RELEASE REGULATING VALVE BORE PLUG
82. LUBRICATION CONTROL VALVE
83. LUBRICATION CONTROL VALVE SPRING
84. LUBRICATION CONTROL VALVE BORE PLUG
85. MANUAL VALVE

Figure 124

COMPONENT REBUILD

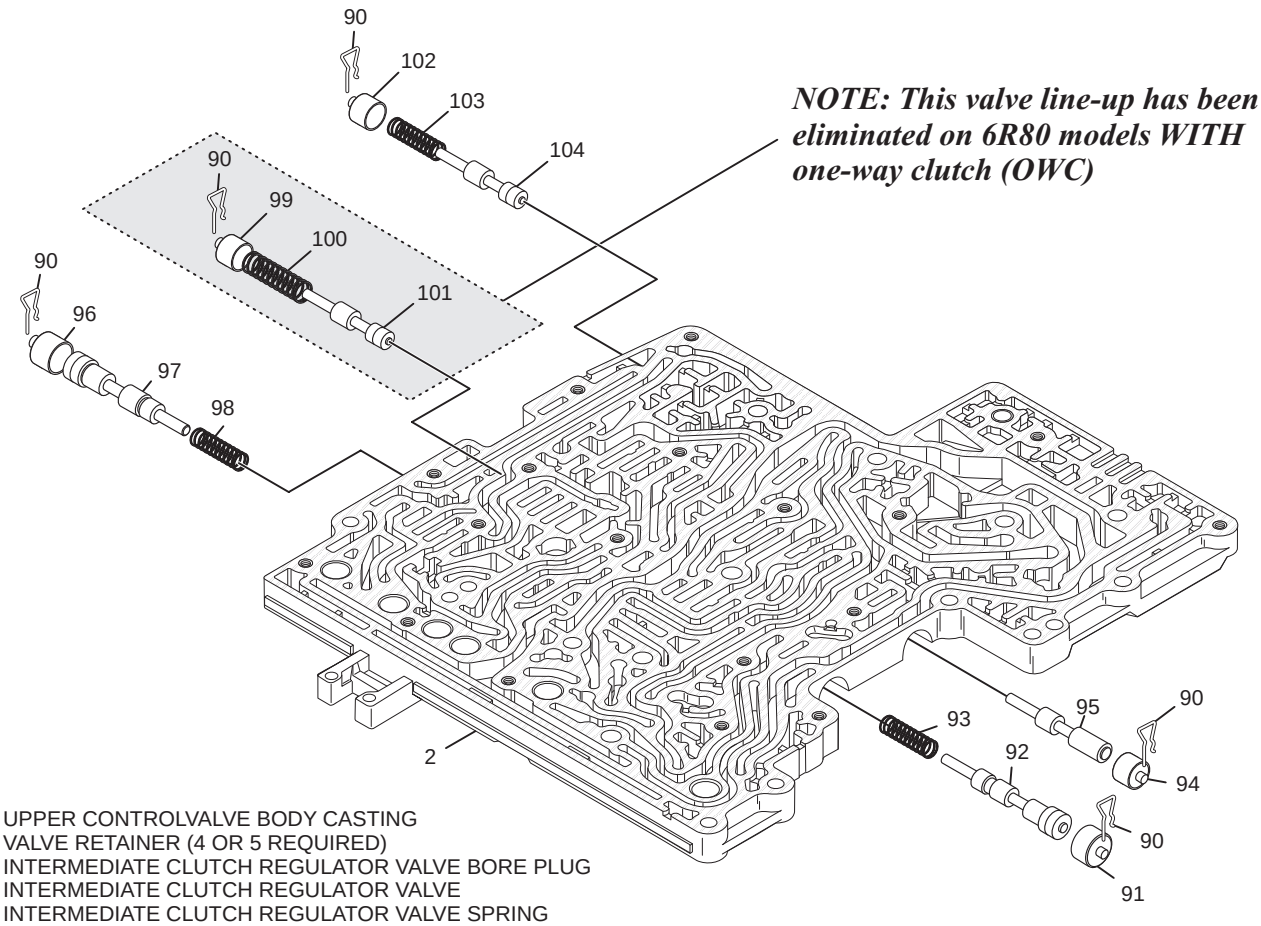
Mechatronic/Main Control Valve Body Assembly (Cont'd)

24. Inspect all upper control valve body parts thoroughly for any wear and/or damage and replace as necessary.
25. Install each spring, valve, bore plug and retainer in the lower control valve body in the exact order as shown in Figure 125.
26. Lubricate each valve with a small amount of ATF as it is installed into the upper control valve body assembly.

NOTE: 6R80 MODEL UNITS WITH ONE-WAY CLUTCH(OWC) have eliminated the low/reverse (D2) regulator valve line-up. The bore is left empty. See shaded area of diagram in Figure 125. The (D2) passage in the intermediate and low/reverse was eliminated, (reference diagram in Figure 116) therefore the (D2) regulator valve is unnecessary and was also eliminated.

Continued on page 88

UPPER CONTROL VALVE BODY



2. UPPER CONTROLVALVE BODY CASTING
90. VALVE RETAINER (4 OR 5 REQUIRED)
91. INTERMEDIATE CLUTCH REGULATOR VALVE BORE PLUG
92. INTERMEDIATE CLUTCH REGULATOR VALVE
93. INTERMEDIATE CLUTCH REGULATOR VALVE SPRING
94. LOW/REVERSE (D1) REGULATOR VALVE BORE PLUG
95. LOW/REVERSE (D1) REGULATOR VALVE
96. DIRECT CLUTCH REGULATOR VALVE BORE PLUG
97. DIRECT CLUTCH REGULATOR VALVE
98. DIRECT CLUTCH REGULATOR VALVE SPRING
99. LOW/REVERSE (D2) REGULATOR VALVE BORE PLUG
100. LOW/REVERSE (D2) REGULATOR VALVE SPRING
101. LOW/REVERSE (D2) REGULATOR VALVE
102. LOW/REVERSE (D2) LATCH VALVE BORE PLUG
103. LOW/REVERSE (D2) LATCH VALVE SPRING
104. LOW/REVERSE (D2) LATCH VALVE

Figure 125

COMPONENT REBUILD

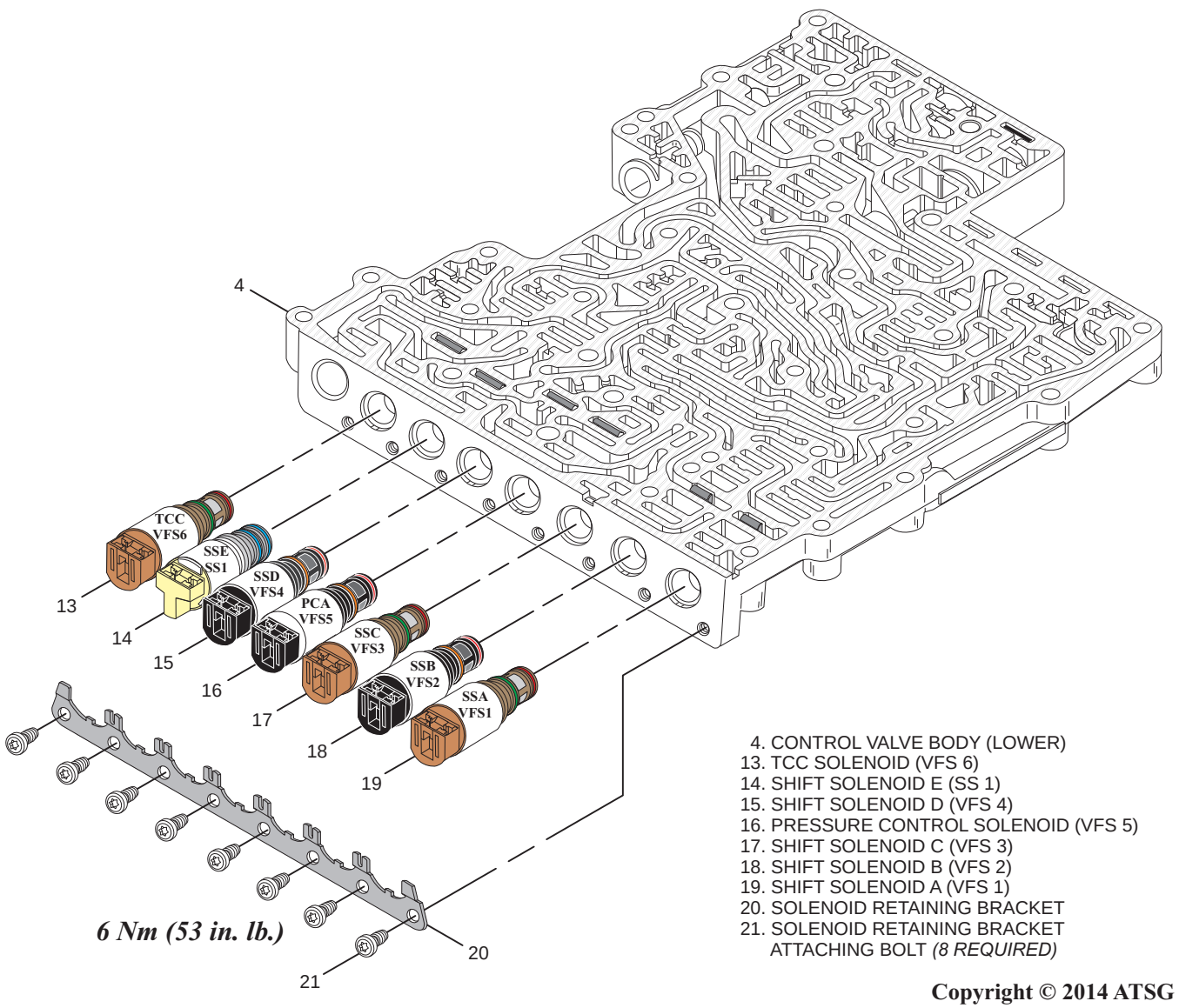
Mechatronic/Main Control Valve Body Assembly (Cont'd)

NOTE: Though some solenoids may look identical and fit into other bores, the solenoids are individual, have individual calibrations and should not be interchanged, otherwise driveability issues and/or transmission damage could result. Do not interchange the solenoids. Install each into its original bore during installation.

27. Install new o-rings on each solenoid and install the solenoids into the lower valve body as shown in Figure 126.
28. Install the solenoid retaining bracket as shown in Figure 126.
29. Install the eight solenoid retaining bracket attaching bolts as shown in Figure 126 and torque each bolt to ***6 Nm (53 in. lb.)***.

Continued on page 89

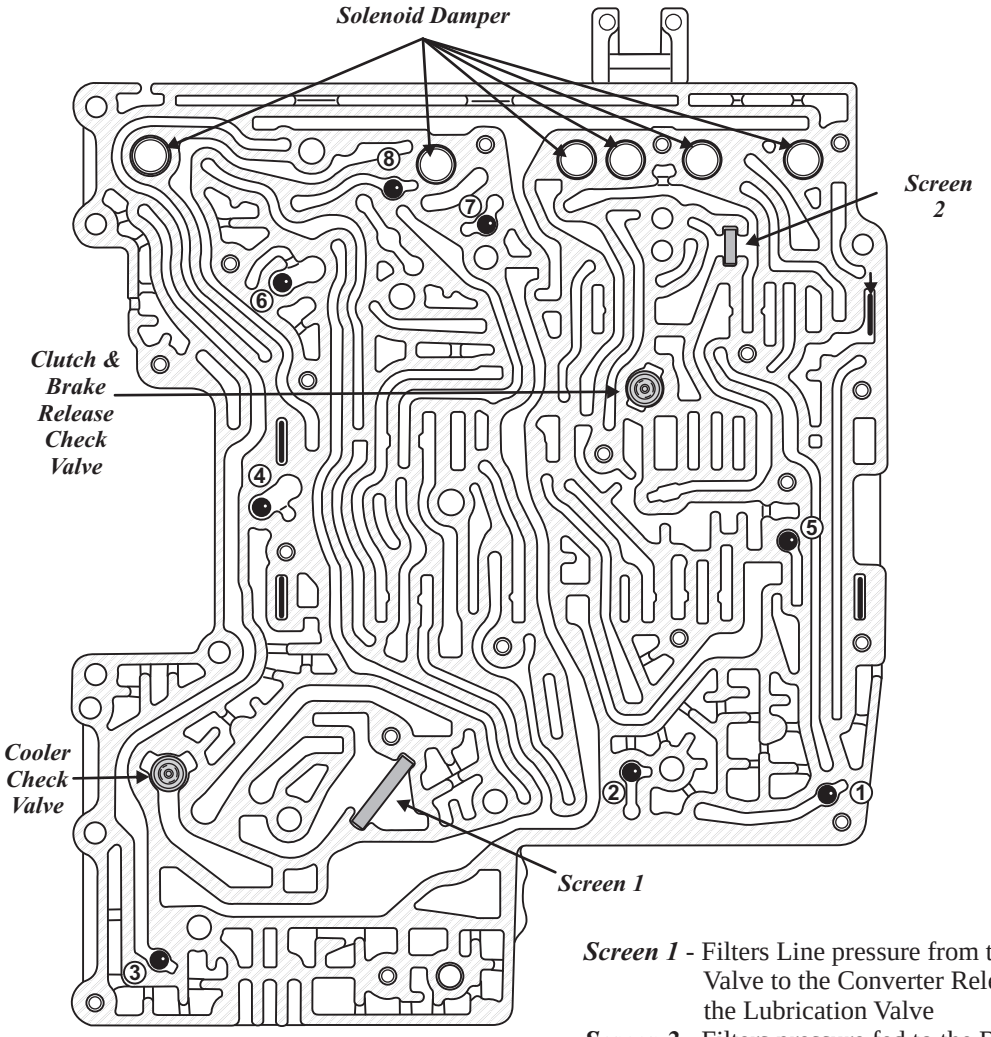
LOWER CONTROL VALVE BODY REAR SIDE



4. CONTROL VALVE BODY (LOWER)
13. TCC SOLENOID (VFS 6)
14. SHIFT SOLENOID E (SS 1)
15. SHIFT SOLENOID D (VFS 4)
16. PRESSURE CONTROL SOLENOID (VFS 5)
17. SHIFT SOLENOID C (VFS 3)
18. SHIFT SOLENOID B (VFS 2)
19. SHIFT SOLENOID A (VFS 1)
20. SOLENOID RETAINING BRACKET
21. SOLENOID RETAINING BRACKET ATTACHING BOLT *(8 REQUIRED)*

Figure 126

UPPER VALVE BODY SMALL PART LOCATIONS



Screen 1 - Filters Line pressure from the Pressure Regulator Valve to the Converter Release regulating Valve and the Lubrication Valve
Screen 2 - Filters pressure fed to the B Clutch
Cooler Check Valve- Drain back valve
Clutch Release Check Valve- Meters Clutch and Brake release

Check Ball ① In the "A" Forward Clutch Apply/Release Circuit
Check Ball ② In the "E" Overdrive Clutch Apply/Release Circuit
Check Ball ③ Orifice Ball Line from Manual Valve to B Direct (Reverse)
Check Ball ④ Forward-Reverse Shuttle Ball
Check Ball ⑤ Orifice Ball Line from Manual Valve to Clutch Valve A (Forward)
Check Ball ⑥ Shift solenoid E (SS1) Shuttle Ball
Check Ball ⑦ In the "B" Direct Clutch Apply/Release Circuit
Check Ball ⑧ In the "C" Intermediate Brake Apply/Release Circuit

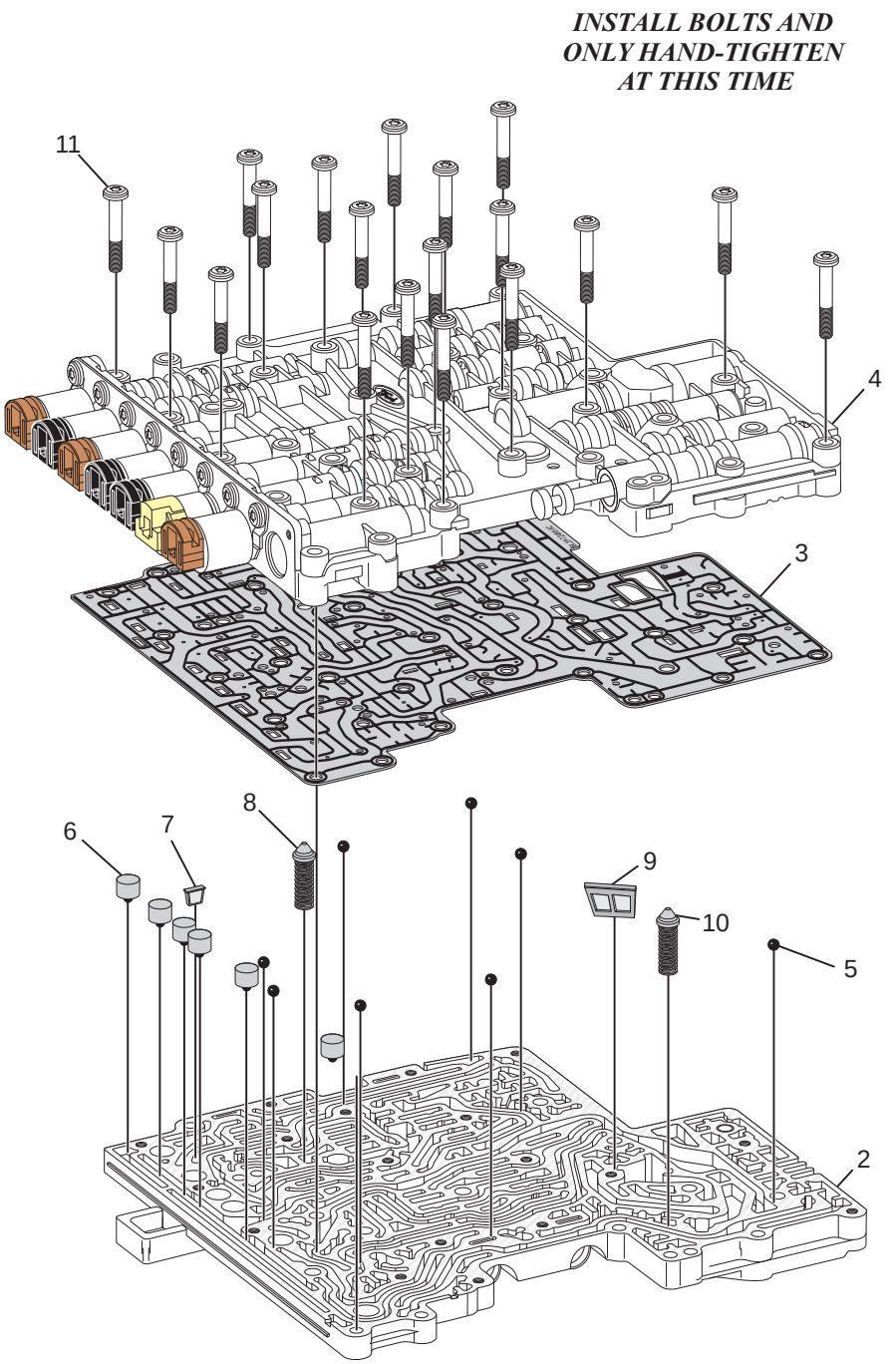
Figure 127

COMPONENT REBUILD

Mechatronic/Main Control Valve Body Assembly (Cont'd)

30. Install all of the small parts into the upper control valve body as shown in Figure 128. Use the diagram in Figure 127 for additional reference.
31. Install a new separator plate onto the upper control valve body as shown in Figure 128.
32. Place the lower control valve body onto the separator plate and install the nineteen short valve body attaching bolts ***(hand tighten only at this time)*** as shown in Figure 128.

Continued on page 90



2. CONTROL VALVE BODY (UPPER)
3. VALVE BODY SEPARATOR PLATE
4. CONTROL VALVE BODY (LOWER)
5. CONTROL VALVE BODY CHECK BALLS *(8 REQUIRED)*
6. CONTROL VALVE BODY DAMPER *(6 REQUIRED)*
7. CONTROL VALVE BODY FILTER (SMALL)
8. CLUTCH EXHAUST CHECK VALVE
9. CONTROL VALVE BODY FILTER (LARGE)
10. CONVERTER DRAINBACK VALVE
11. VALVE BODY ATTACHING BOLT (SHORT) *(19 REQUIRED) (43.3mm)*

Figure 128

COMPONENT REBUILD

Mechatronic/Main Control Valve Body Assembly

33. Install the mechatronic assembly onto the control valve body assembly using the locating dowels to align the mechatronic assembly correctly as shown in Figure 129.
34. Be certain to line up the manual valve into the range sensor as shown in Figure 129.
35. Install the six long valve body attaching bolts as shown in Figure 129 and hand tighten only.

NOTE: Do not touch the electrical connector pins or the solenoid electrical connector tabs of the mechatronic assembly. Electrostatic discharge may occur and potentially cause damage to the mechatronic assembly. Does not apply to PCM controlled models.

Continued on page 91

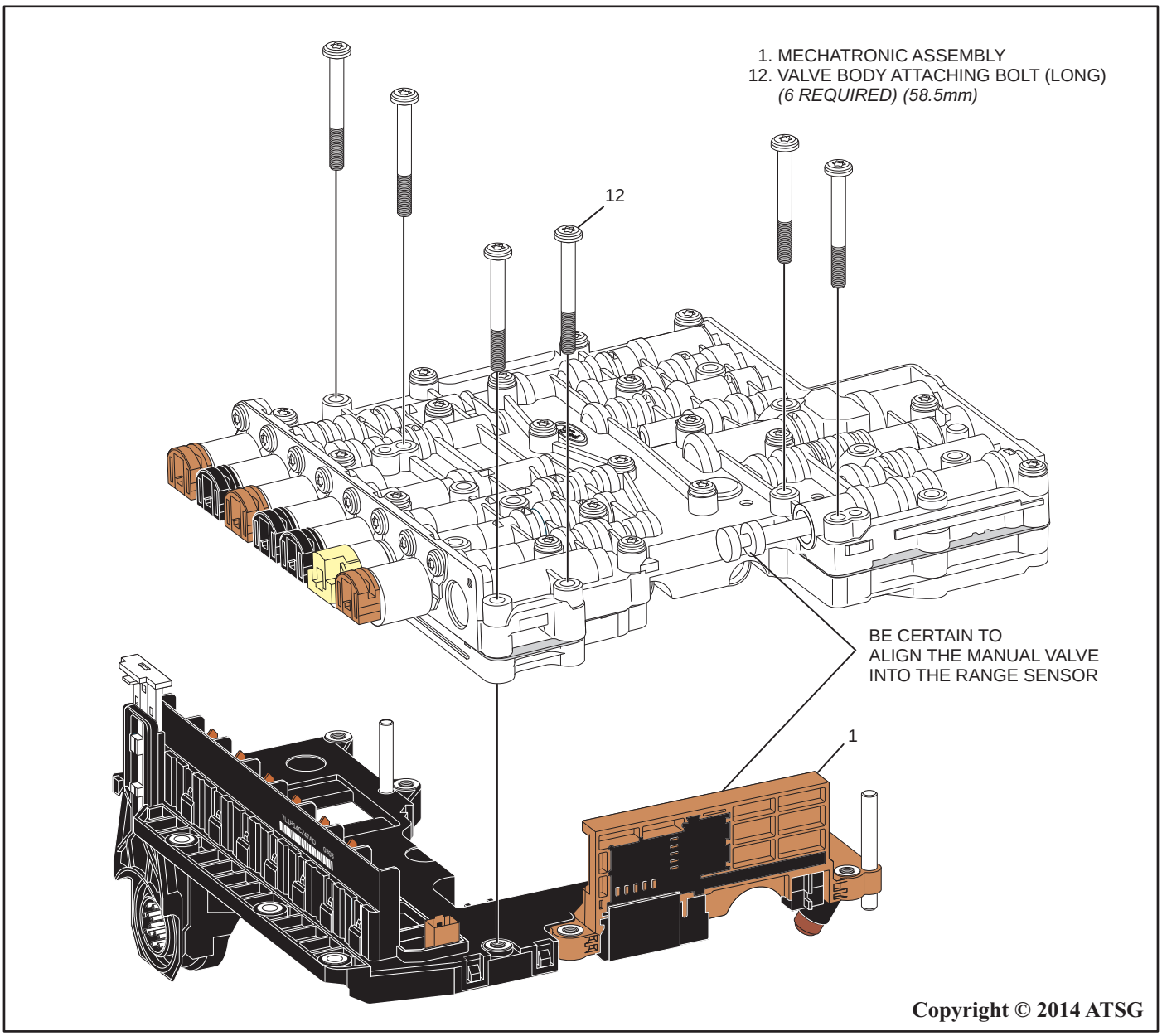


Figure 129

COMPONENT REBUILD

Mechatronic/Main Control Valve Body Assembly

36. Using an accurate torque wrench, tighten and torque each of the mechatronic/main control valve body assembly bolts using the sequence shown in Figure 130.
37. Tighten bolts 1 through 6 (the long bolts) in the tightening sequence to 7 Nm (62 in. lb.).
38. Tighten bolts 7 through 25 (the short bolts) in the tightening sequence to 6 Nm (53 in. lb.).
39. Set the mechatronic/main control valve body assembly aside for final assembly.

FINAL ASSEMBLY SECTION BEGINS ON PAGE 92

TIGHTEN BOLTS 1 THROUGH 6 (LONG BOLTS) IN THE TIGHTENING SEQUENCE TO 7 Nm (62 in. lb.)
TIGHTEN BOLTS 7 THROUGH 25 (SHORT BOLTS) IN THE TIGHTENING SEQUENCE TO 6 Nm (53 in. lb.)

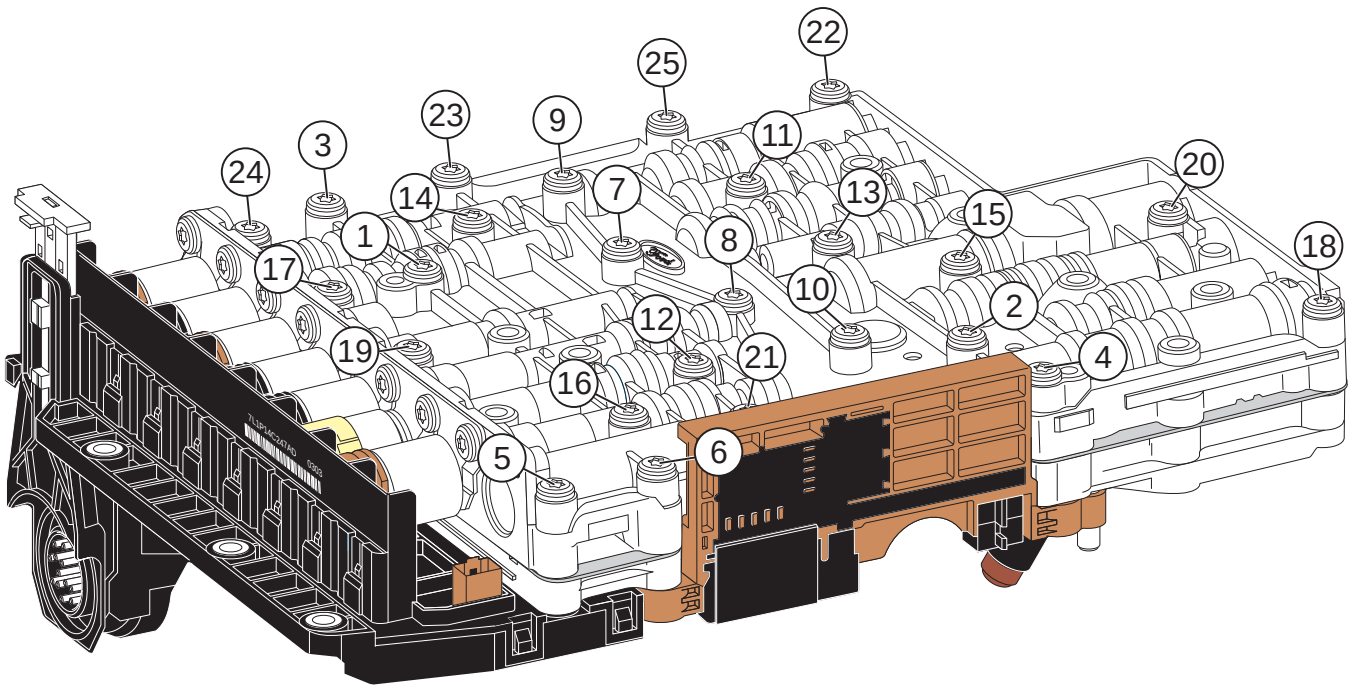


Figure 130

TRANSMISSION FINAL ASSEMBLY

1. ***TWO-WHEEL DRIVE APPLICATIONS***
   Using ST front wheel hub oil seal installer 205-276, ST rear bearing remover/installer 307-639 and ST drawbar 204-029, install a new rear needle bearing into the transmission case as shown in Figure 131.
2. Install the bearing spacer as shown below in Figure 131.
3. ***FOUR-WHEEL DRIVE APPLICATIONS***
   If removed, install a new needle bearing using ST needle bearing installer 307-647, ST drawbar 204-029 and ST front wheel hub seal installer 205-276 or similar bearing installation tool.
4. Install the bearing with the flat surface facing upward as shown in Figure 132.
5. Install the T11 caged roller bearing and the bearing retainer as shown in Figure 132.

Continued on page 93

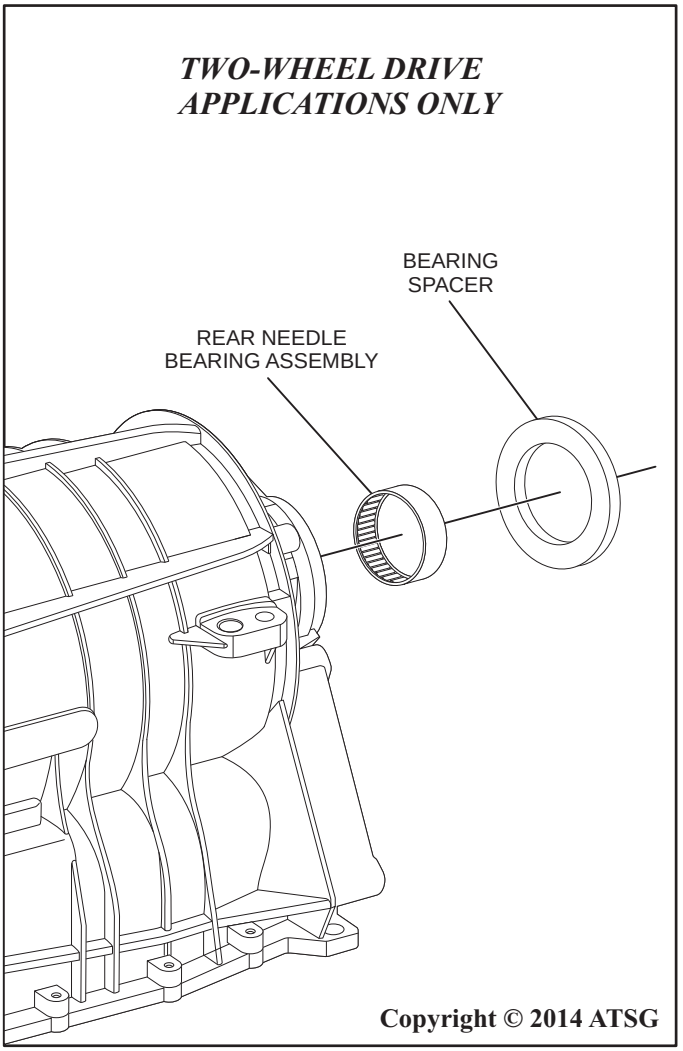


Figure 131

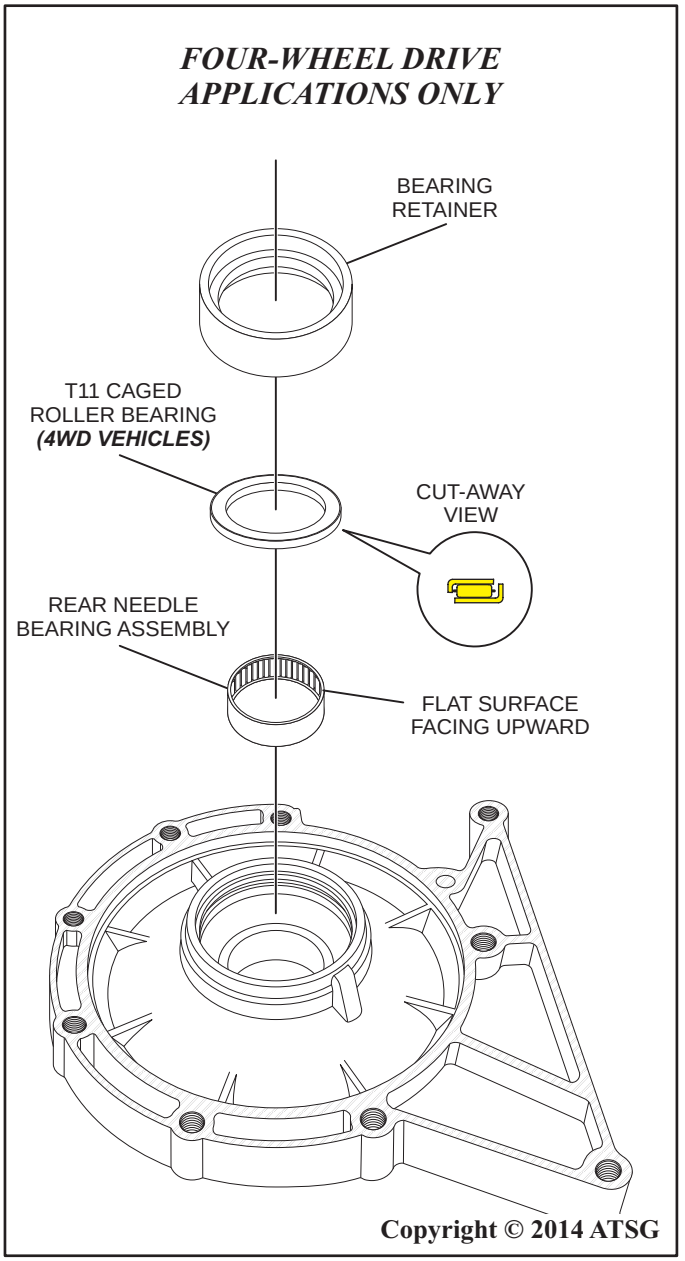


Figure 132

TRANSMISSION FINAL ASSEMBLY (CONT'D)

6. Using a pair of snap ring pliers, carefully install the bearing retainer retaining snap ring into the case as shown in Figure 133.
   Note: The snap ring eyelets are fragile and can easily snap and break if care is not taken.
7. Install the output shaft assembly as shown in Figure 134.
8. ***TWO-WHEEL DRIVE APPLICATIONS***
   Install the T11 caged roller bearing into the case as shown in Figure 134.
9. Install the T10 caged roller bearing into the output shaft assembly as shown in Figure 134.

Continued on page 94

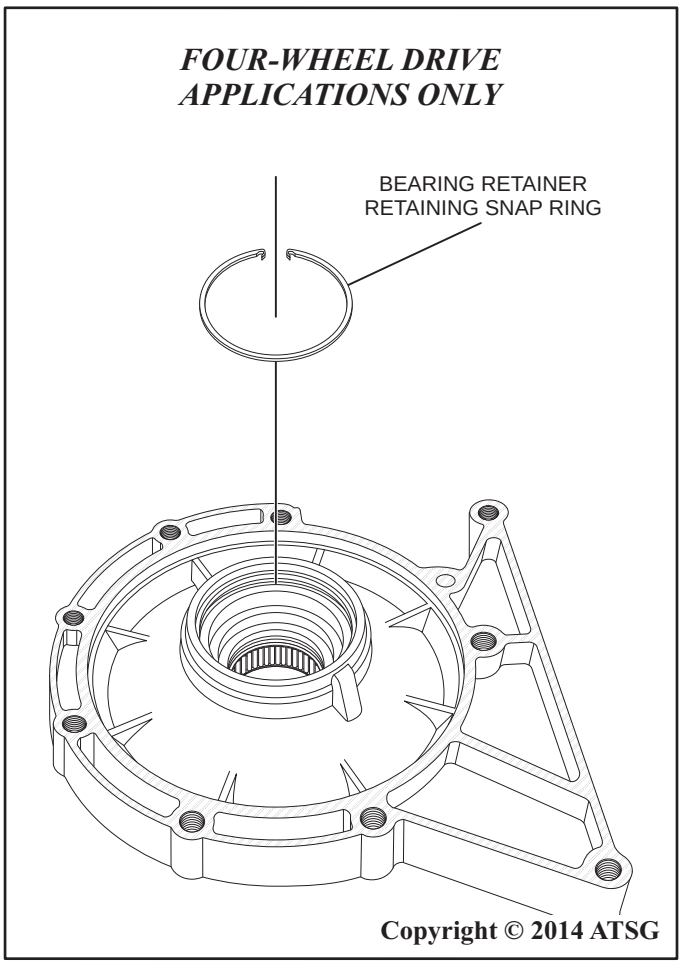


Figure 133

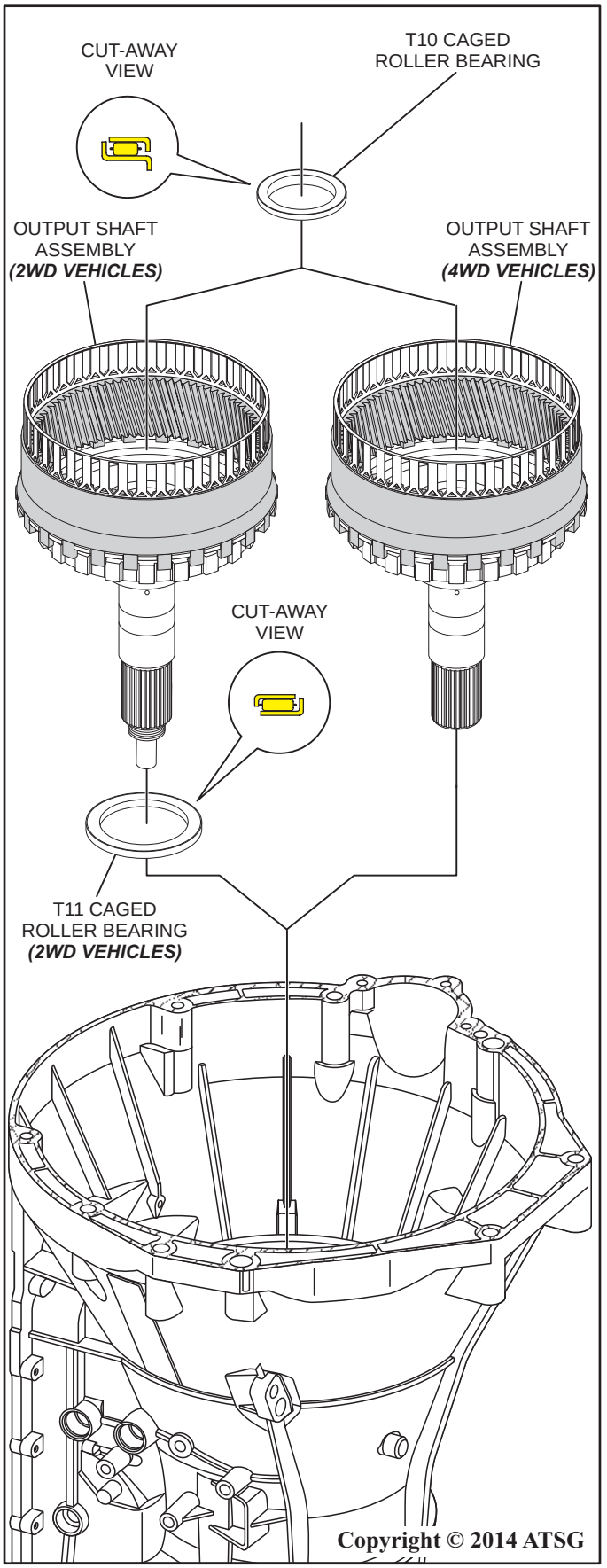


Figure 134

TRANSMISSION FINAL ASSEMBLY (CONT'D)

SETTING L/R CLUTCH CLEARANCE

10. To determine proper clutch clearance for the low/reverse clutch, it will be necessary to make a number of measurements, refer to Figure 135 for the items to be measured.
11. The first measurement will be to record the depth of the lugs in the case where the low/reverse clutches sit from the bottom of the case stop to the top of the lugs in the case where the intermediate and low/reverse support housing sits. This measurement is easiest to make by using ST D clutch measurement gage 307-554.
12. Set the gage in the case and then using ST depth micrometer 303-D075 or similar depth micrometer, measure and record the distance/depth of the case stop. Record this measurement as measurement "A".
13. Next it will be necessary to measure the overall height of the clutch stack. Using ST clutch end play gage 307-555, set the clutch stack with the wave spring down and the pressure plate on top, then using ST dial indicator gage 100-002, place the plunger onto the pressure plate and slide the clutch so the plunger of the dial indicator is touching the gage plate of the clutch end play gage 307-555. Zero out the dial indicator gage.
14. Next carefully lift the plunger enough to slide the clutch stack underneath the plunger so that a measurement can be taken. Record that measurement, then rotate the clutch stack 180° and take another reading from the opposite side of the clutch stack. Add both measurement readings together and divide the sum by 2. Record this number as measurement "B".
15. The next measurement that needs to be taken is the height of the low/reverse piston to the shoulder of the intermediate and low/reverse support housing. Using a depth micrometer, take a measurement on each side, then add the two measurements together and divide by two. Record this measurement as measurement "C".
16. Add measurements "B" and "C" together and subtract that measurement from measurement "A". This number is the clutch clearance. Clutch clearance should be 1.0 - 1.6 mm *(.039 - .062 in.)*.
17. If clutch clearance is not correct, select a different size pressure plate.

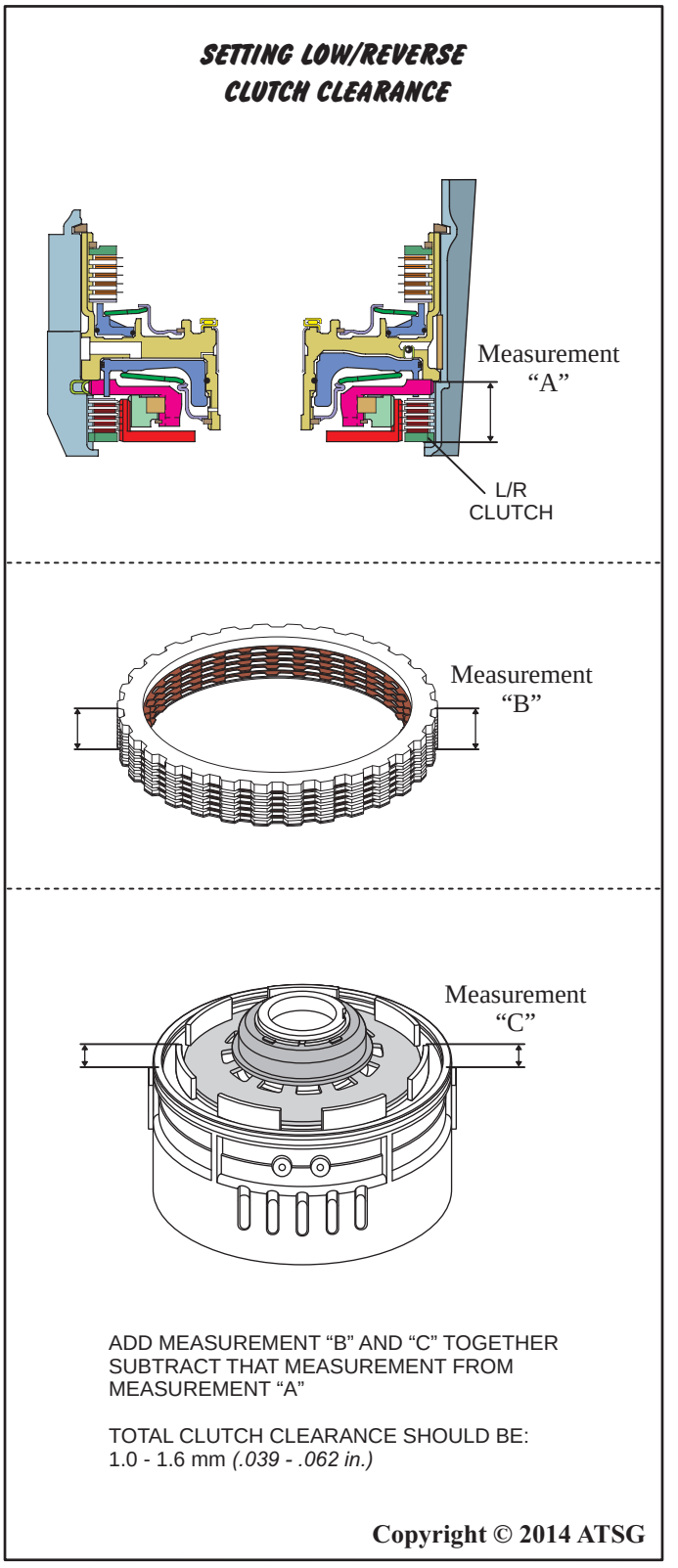


Figure 135

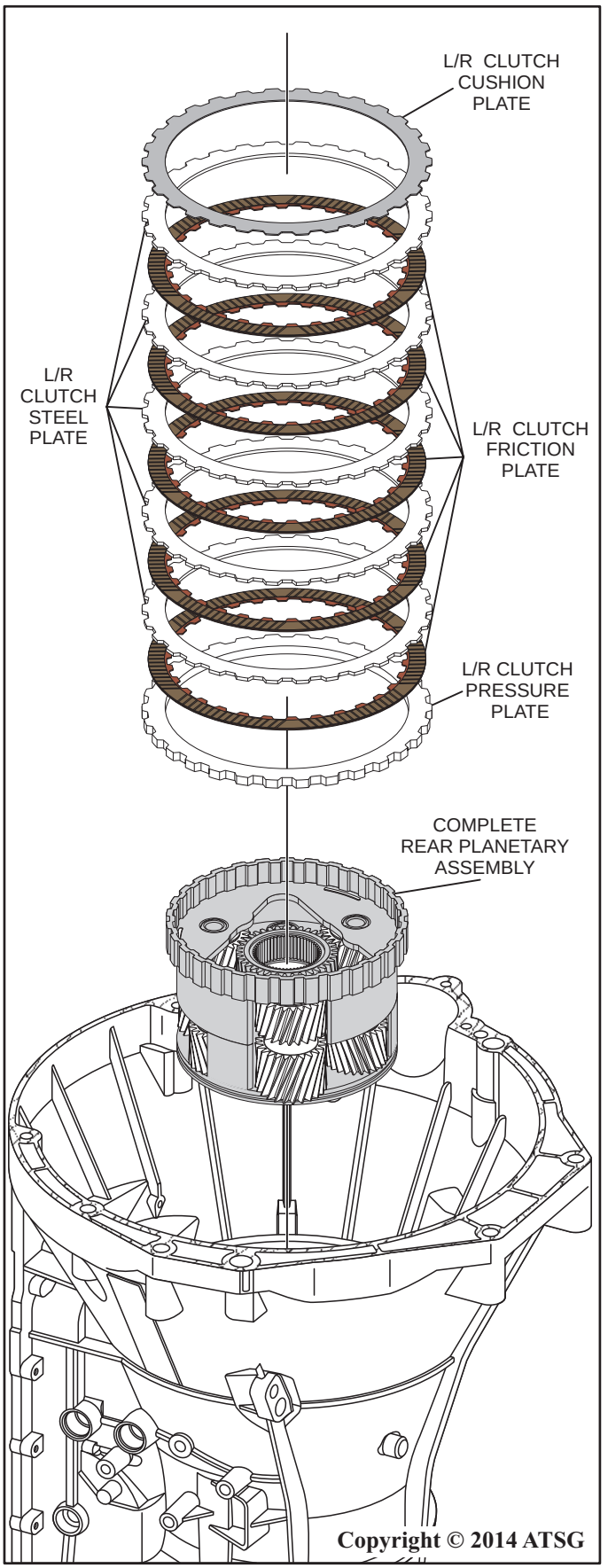


Figure 136

TRANSMISSION FINAL ASSEMBLY (CONT'D)

Note: All low/reverse clutch frictions and steels are a wave-type design. Quantity of steel plates and friction plates will vary based upon engine size. All friction plates must be soaked in the proper ATF for at least 1 hour before assembly.

18. With proper clutch clearance established, install the rear planetary carrier assembly into the transmission as shown in Figure 136.
19. Install the proper low/reverse clutch pressure plate, then alternate installing friction plates and steel plates, ending with the cushion plate as shown in figure 136.
20. ***NOTE: Step 20 and 21 for 2011 - later 6R80 vehicles with low one-way clutch (OWC).*** Install the low one-way clutch (OWC) into the transmission with notch opening to 6 o'clock as shown in Figure 137.

Continued on page 96

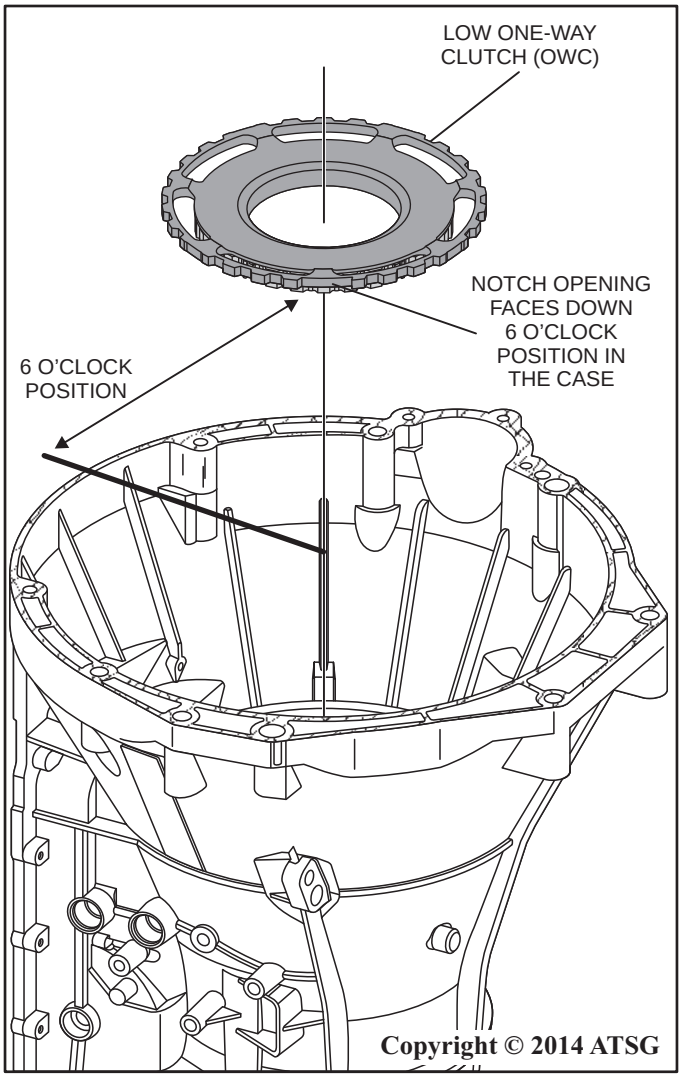


Figure 137

TRANSMISSION FINAL ASSEMBLY (CONT'D)

21. Install the bias spring into the case in the notch opening of the one-way clutch (OWC) as shown in Figure 138.
22. Install the selective washer and the T7 caged roller bearing onto the intermediate and low/reverse support housing and secure them in place with a small amount of Trans-Jel® as shown in Figure 139.
23. Install the intermediate and low/reverse support housing into the transmission with the locating keys at the 3 o'clock and 9 o'clock position as shown in Figure 139.

Continued on page 97

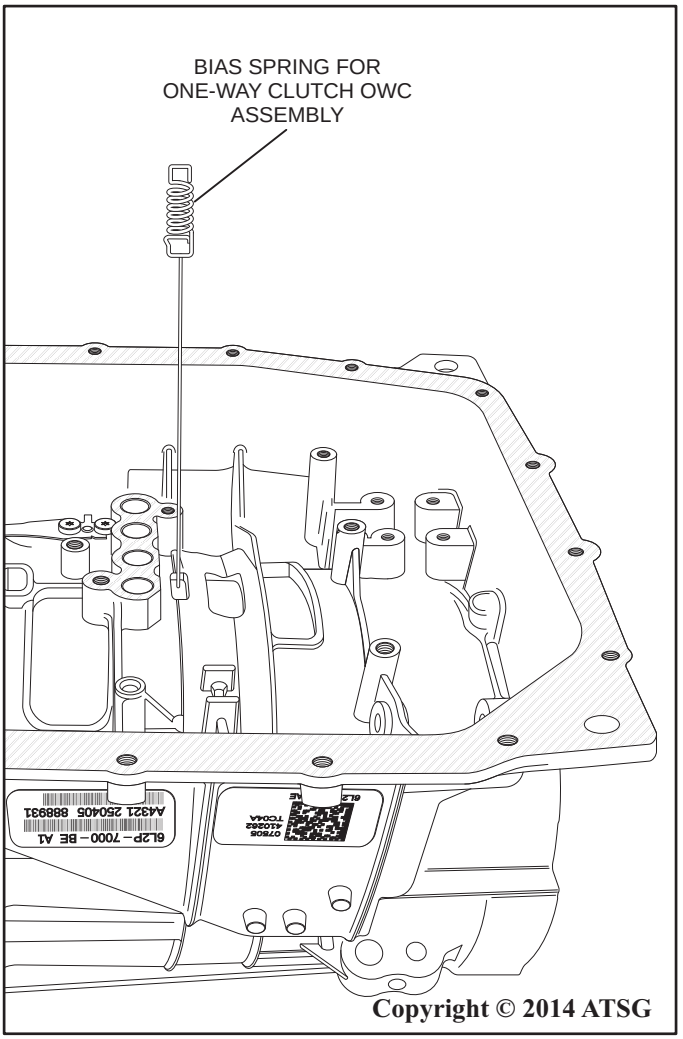


Figure 138

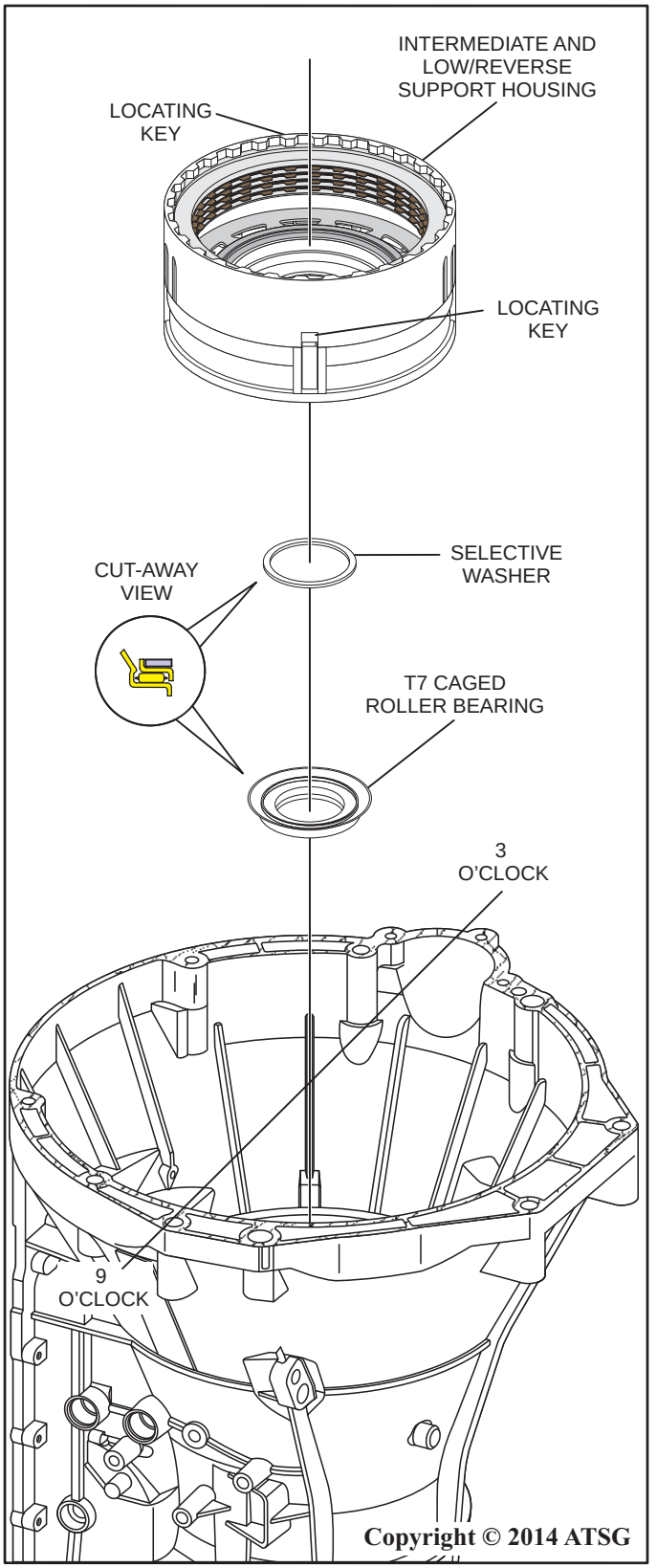


Figure 139

TRANSMISSION FINAL ASSEMBLY (CONT'D)

24. Install the T6 caged roller bearing into the transmission as shown in Figure 140.
25. Install the intermediate and low/reverse support housing snap ring as shown in Figure 140.
Note: the snap ring eyelets should be located at either the 3 o'clock or 9 o'clock position in the case.
26. Install the direct clutch assembly into the transmission as shown in Figure 141.
27. Install the T5 caged roller bearing as shown in Figure 141
28. Hold the roller bearing in place with a small amount of Trans-Jel®.

Continued on page 98

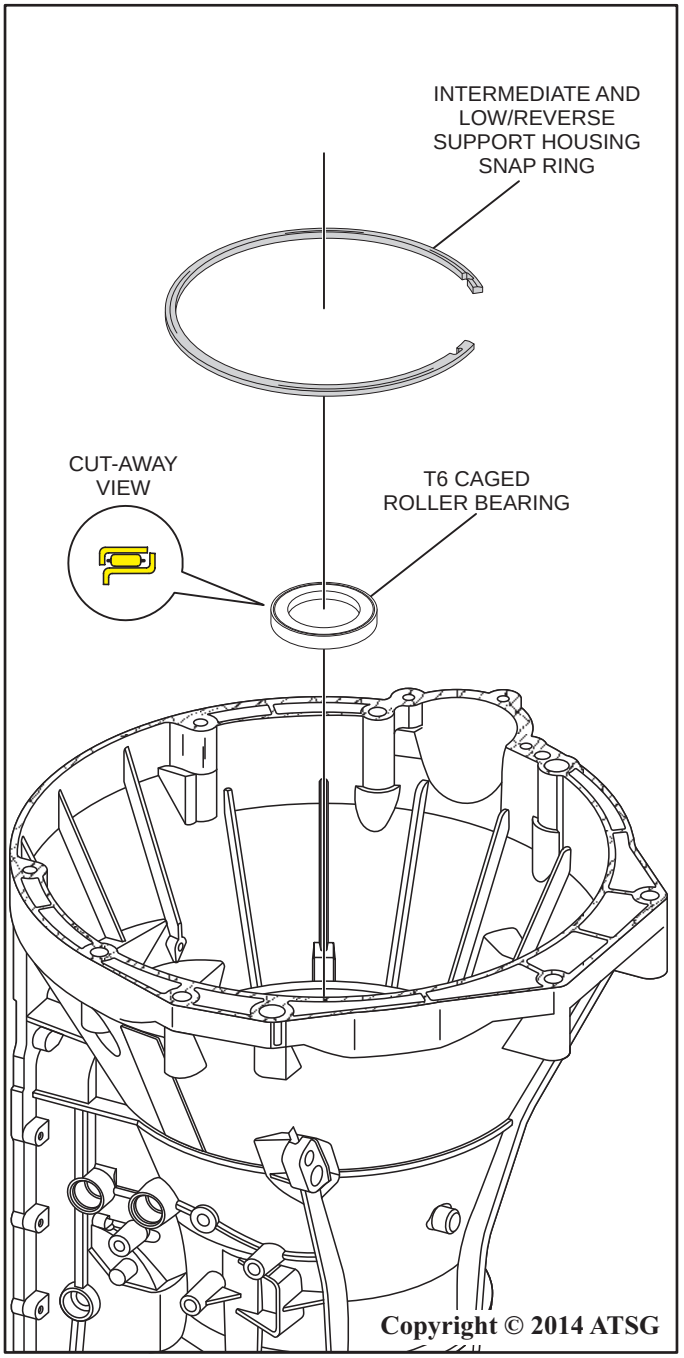


Figure 140

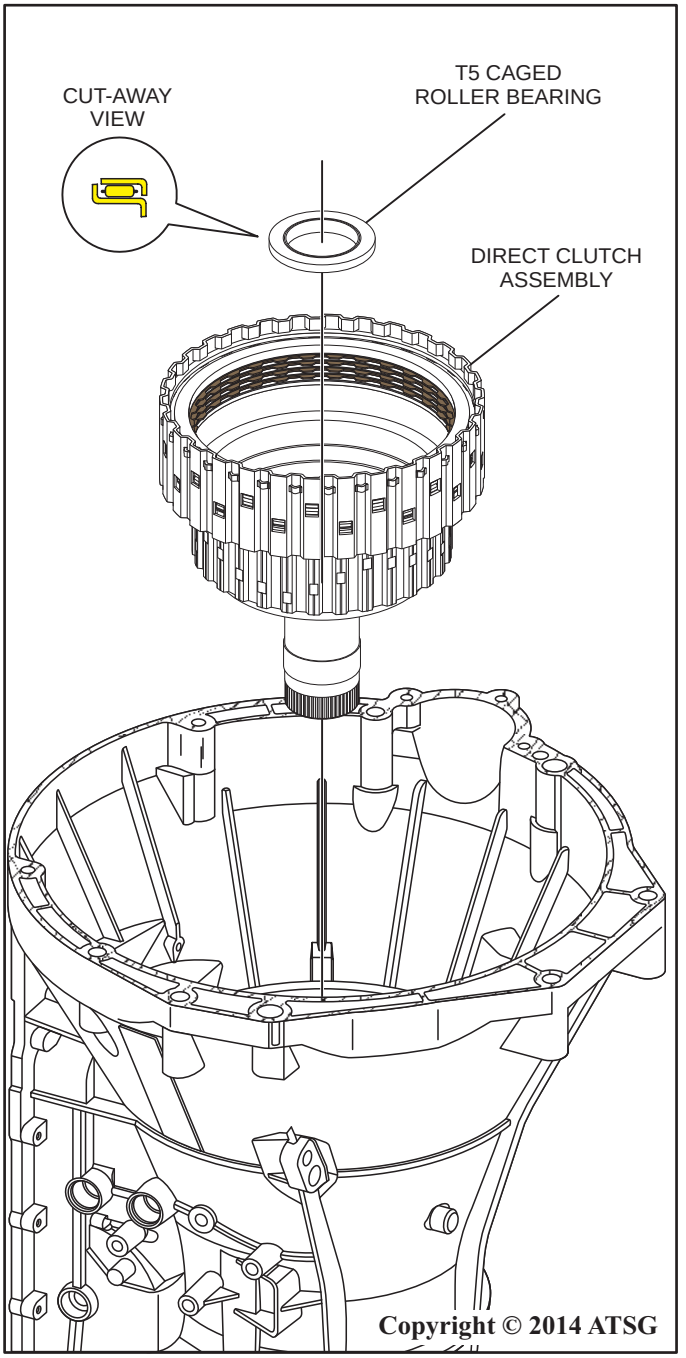


Figure 141

TRANSMISSION FINAL ASSEMBLY (CONT'D)

29. Install the forward/overdrive clutch assembly into the transmission as shown in Figure 142.
30. Install the front pump selective washer onto the pump assembly if it has not already been installed and hold the washer in place with a small amount of Trans-Jel®.
31. Install the front pump assembly into the transmission as shown in Figure 143.

Continued on page 99

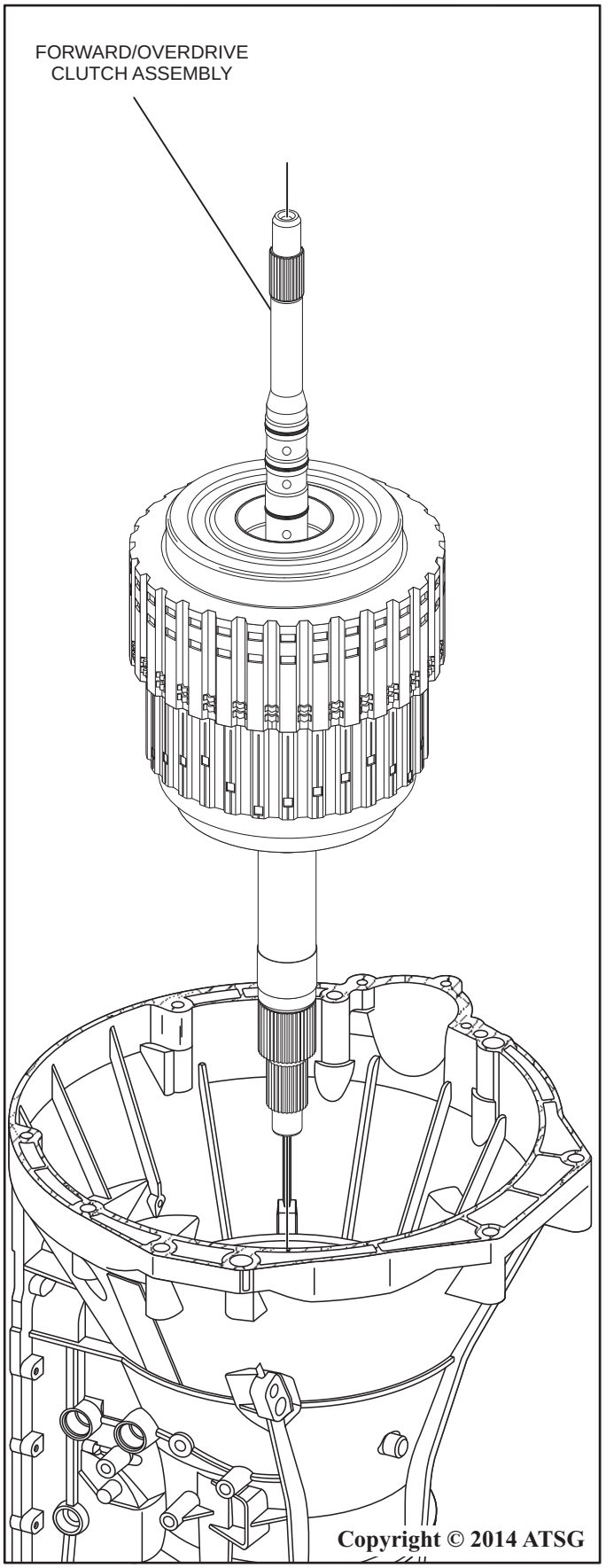


Figure 142

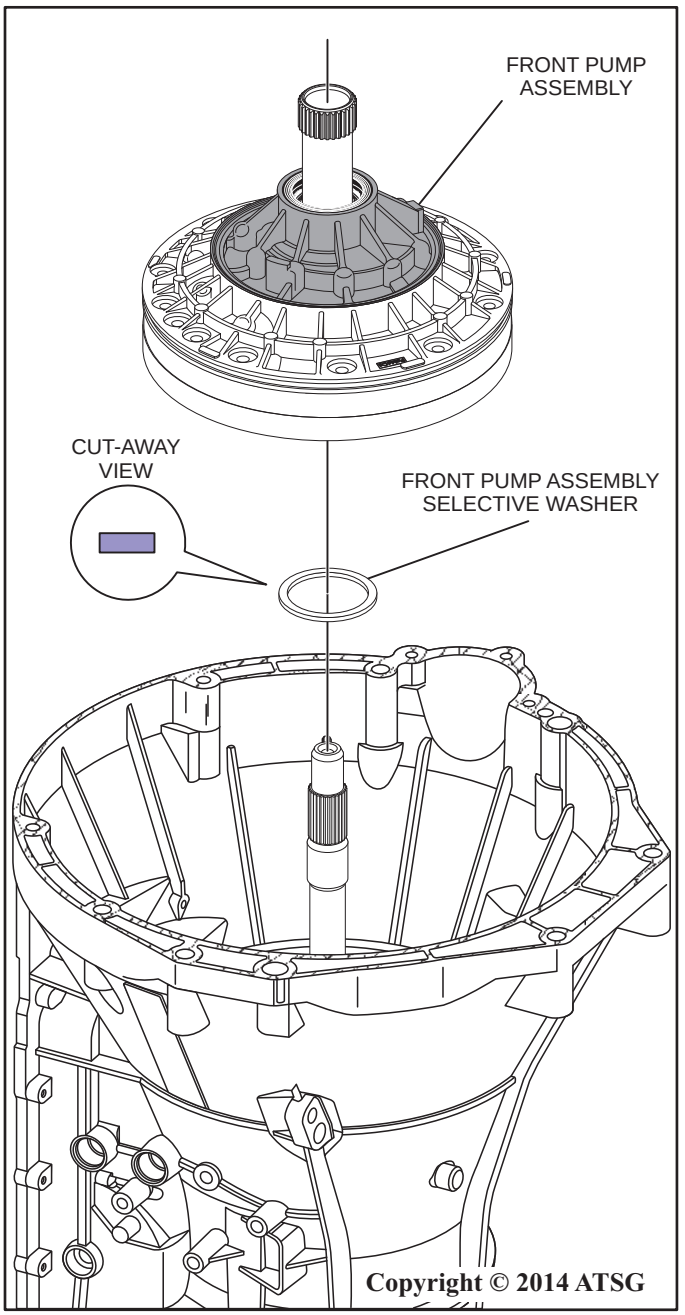


Figure 143

TRANSMISSION FINAL ASSEMBLY (CONT'D)

32. Install the thirteen front pump assembly retaining bolts and hand-tighten them as shown in Figure 144.
33. Using a torque wrench, torque the thirteen front pump assembly retaining bolts in a crisscross pattern to 10 Nm *(89 in. lb.)* as shown in Figure 145.
34. After the pump bolts are properly tightened, install a dial indicator onto the turbine shaft and check the front shaft end play as shown in Figure 145. Front shaft end play should be between 0.2-0.4 mm *(0.008-0.015 in)*.
35. If end play is not within specification, install a thicker or thinner selective washer on the pump assembly. Refer to Figure 143.

Continued on page 100

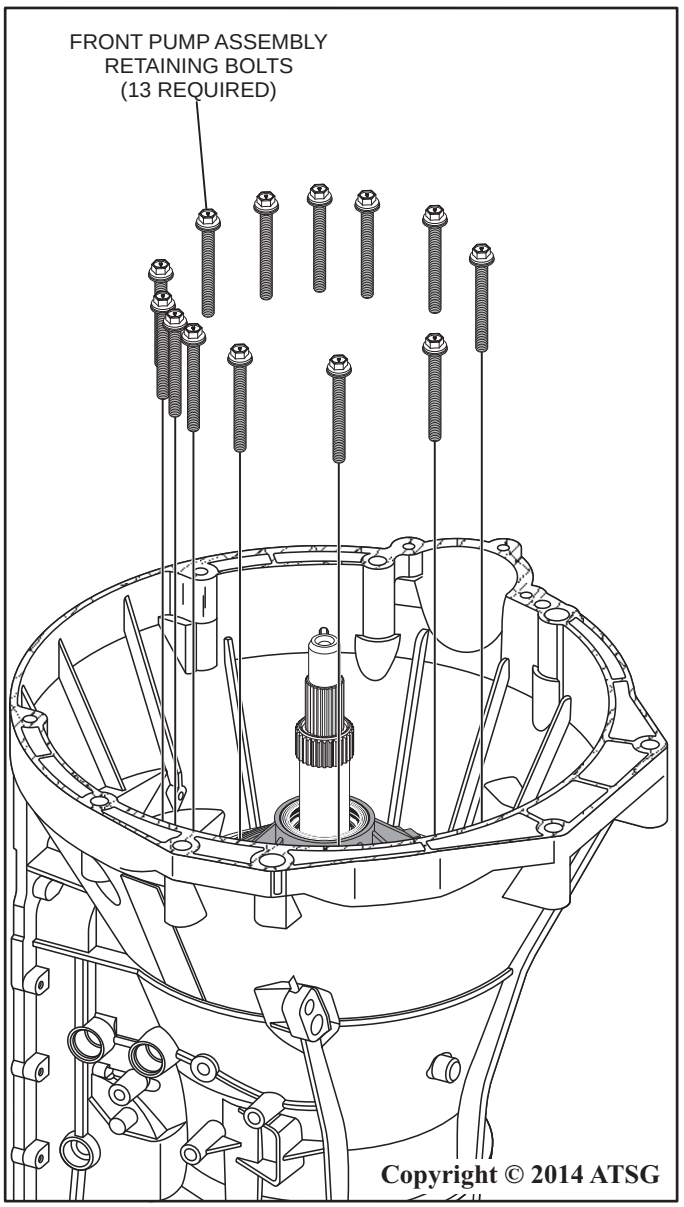


Figure 144

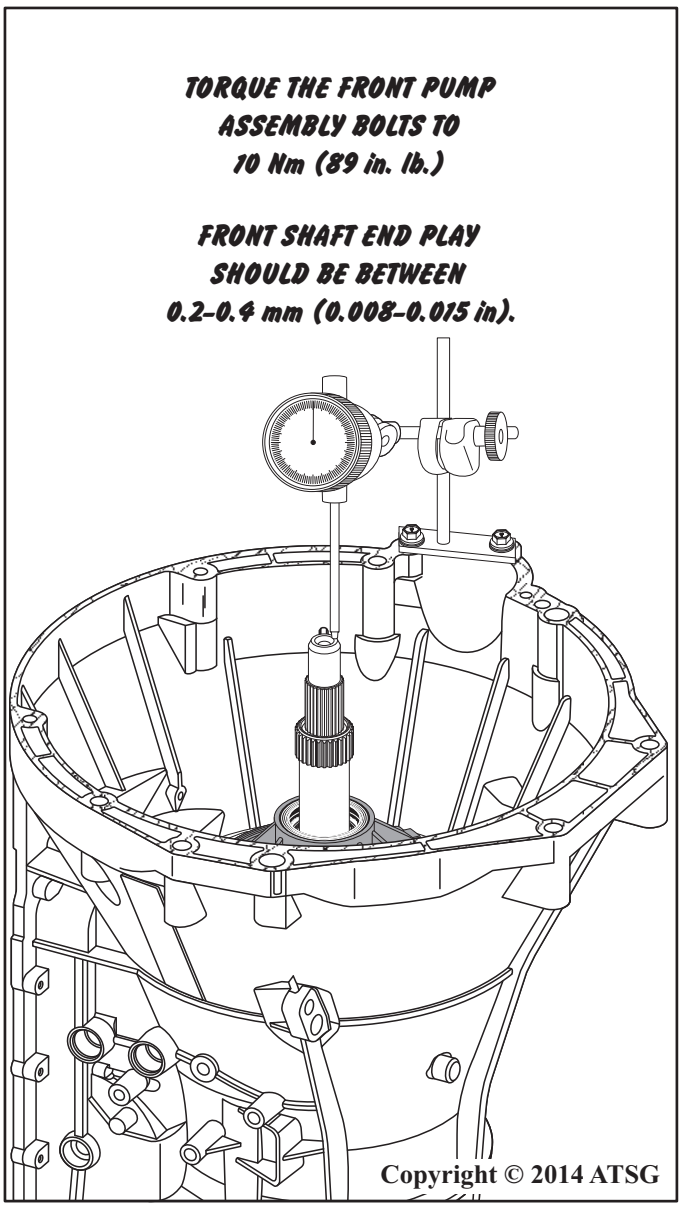


Figure 145

TRANSMISSION FINAL ASSEMBLY (CONT'D)

36. ***TWO-WHEEL DRIVE APPLICATIONS:*** Install the T12 caged roller bearing, the washer, and the a new rear extension housing seal as shown in Figure146.
37. Install the output shaft flange as shown in Figure 146 and loosely install the output shaft flange retaining nut.
38. Set a dial indicator onto the output shaft and check the end play as shown in Figure 147. Output shaft end play should be between 0.6-0.9 mm *(0.024-0.035 in).*
39. If output shaft end play is not within specification, install a thicker or thinner selective washer between the T7 caged roller bearing and the intermediate and low/reverse support housing. Refer to Figure 139.
40. When output shaft end play is within specification, install a new output shaft flange retaining nut and torque the flange retaining nut to 80 Nm *(59 ft. lb.)*
41. When the output shaft flange retaining nut properly tightened, stake the retaining nut into the slots in the output shaft to prevent retaining nut from coming loose.

Continued on page 101

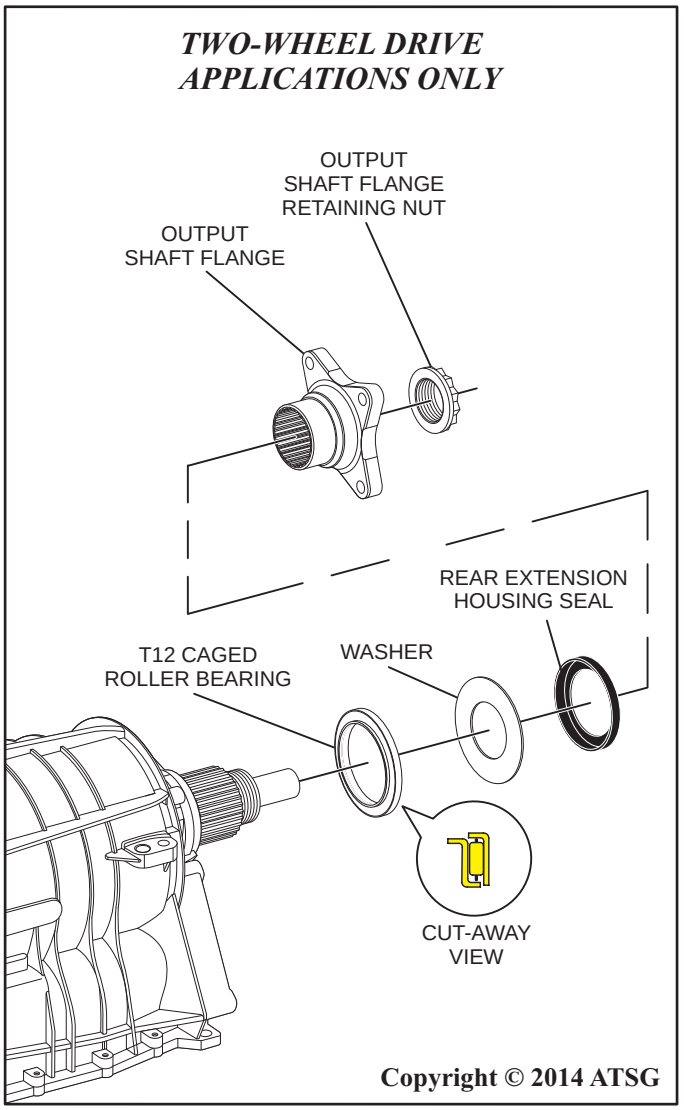


Figure 146

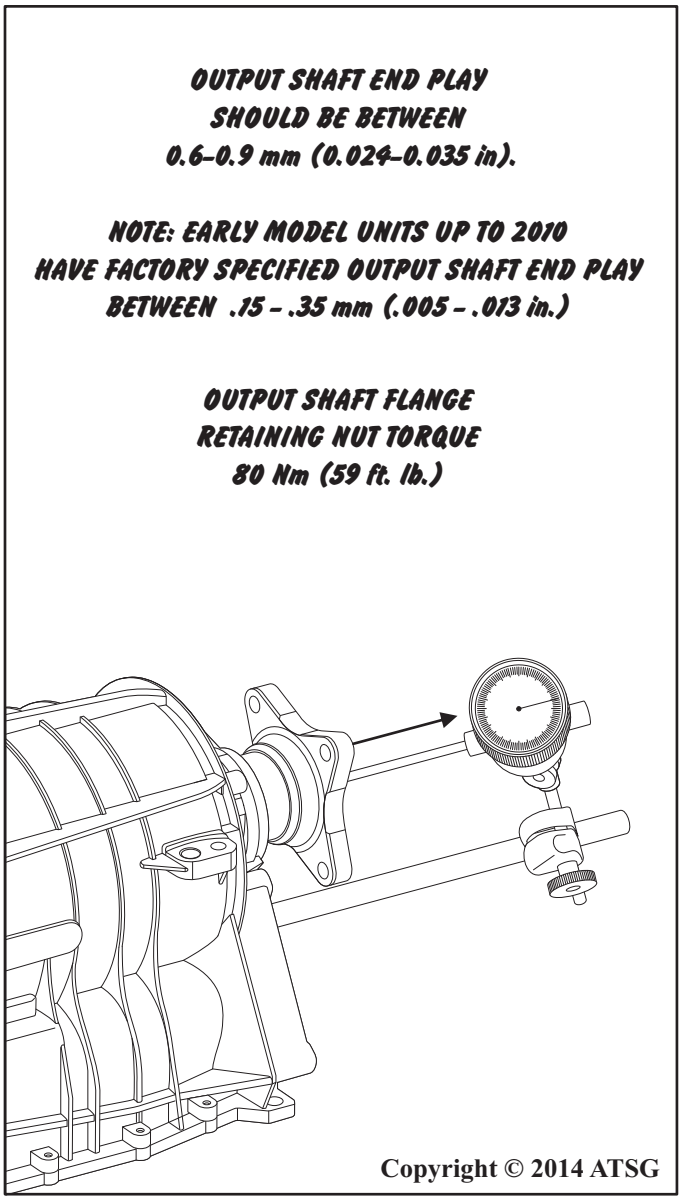


Figure 147

TRANSMISSION FINAL ASSEMBLY (CONT'D)

42. ***FOUR-WHEEL DRIVE APPLICATIONS:*** Install a new rear extension housing seal as shown in Figure 148.
43. Install a new manual control lever shaft seal as shown in Figure 149.
44. Coat the inside of the seal with a small amount of Trans-Jel®.

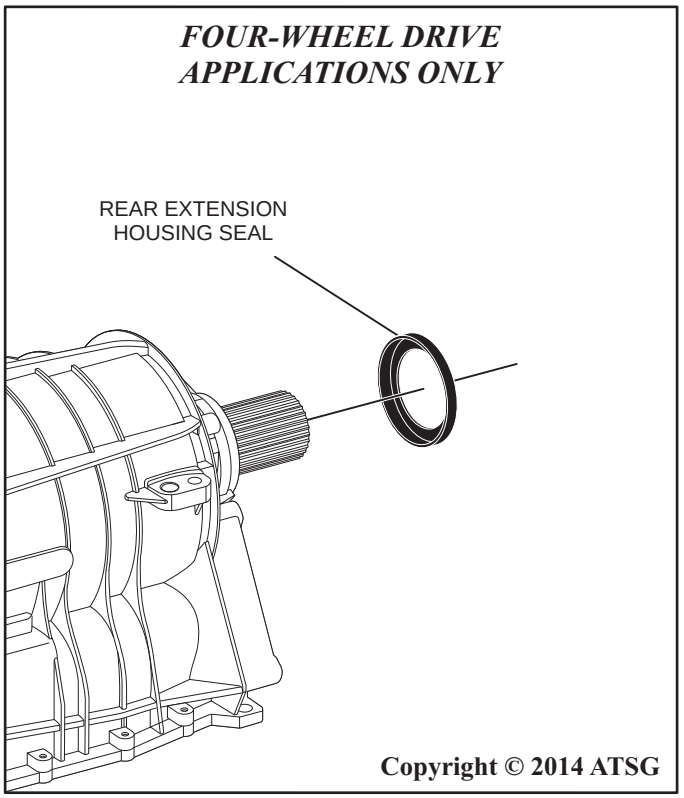


Figure 148

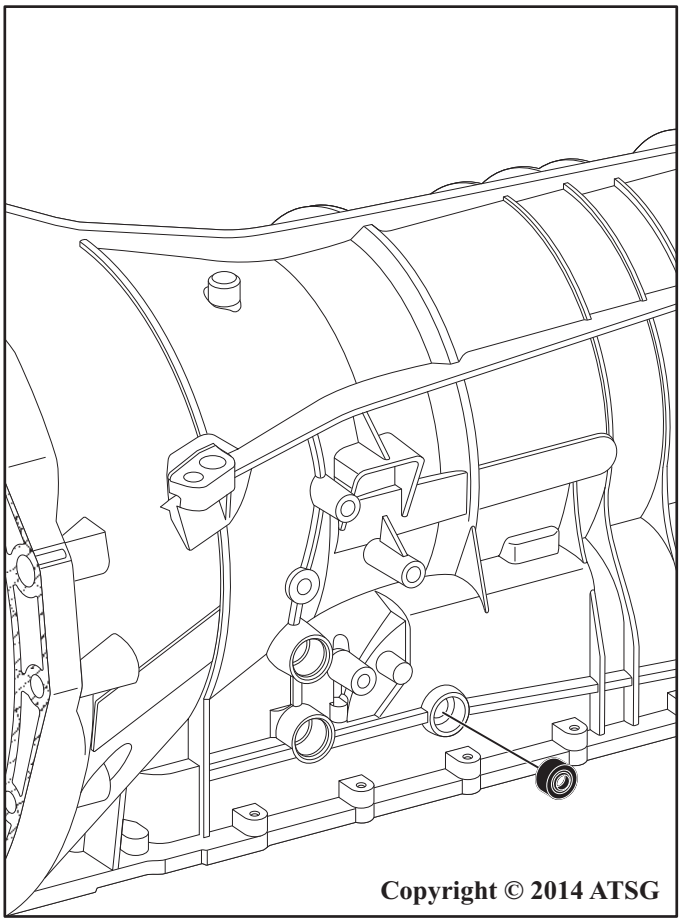


Figure 149

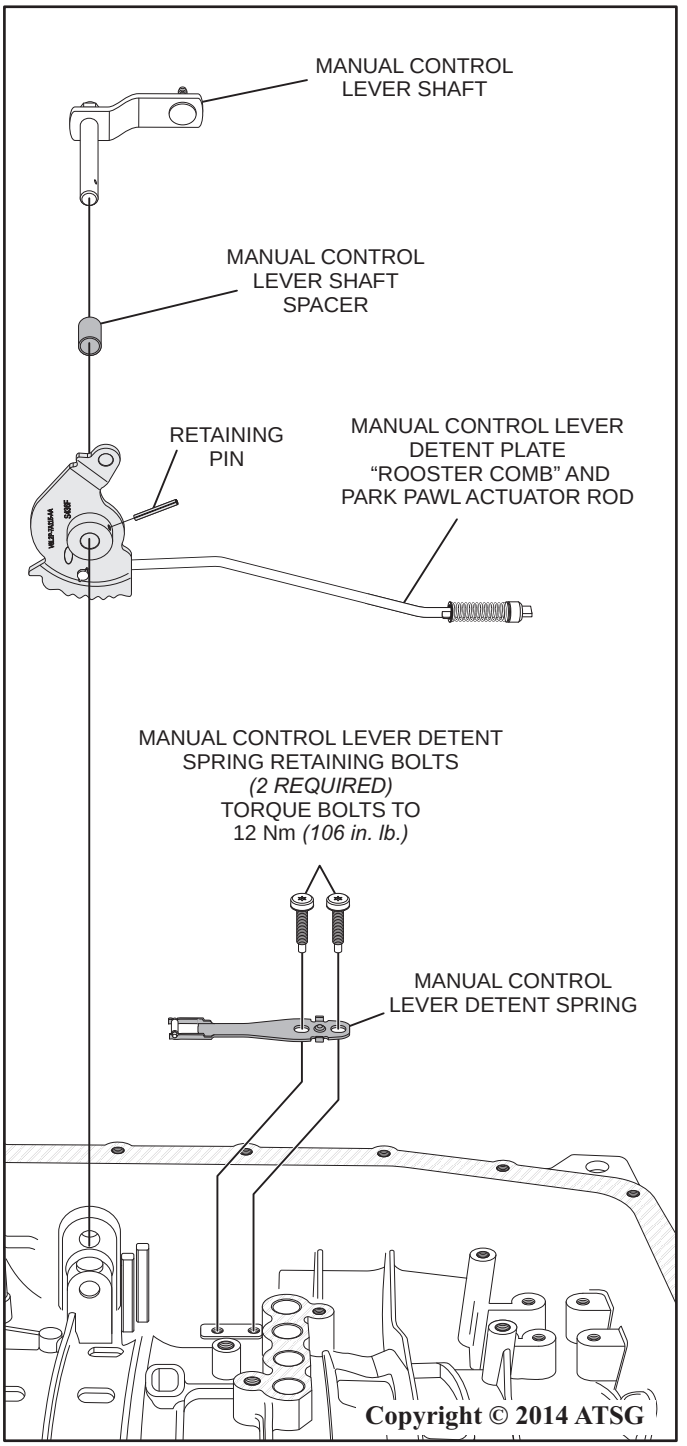


Figure 150

TRANSMISSION FINAL ASSEMBLY (CONT'D)

45. Install the manual control lever detent spring and the two retaining bolts and tighten the bolts to 12 Nm *(106 in. lb.)* as shown in Figure 150.
46. Install the manual control lever shaft into the case as shown in Figure 150.
47. Next install the manual control shaft spacer onto the shaft and through the manual control lever detent plate and park pawl actuator rod. Align the holes in the manual control lever shaft and the manual control lever detent plate and install a new retaining pin. Then seat the pin with a small hammer and drift punch as shown in Figure 150.

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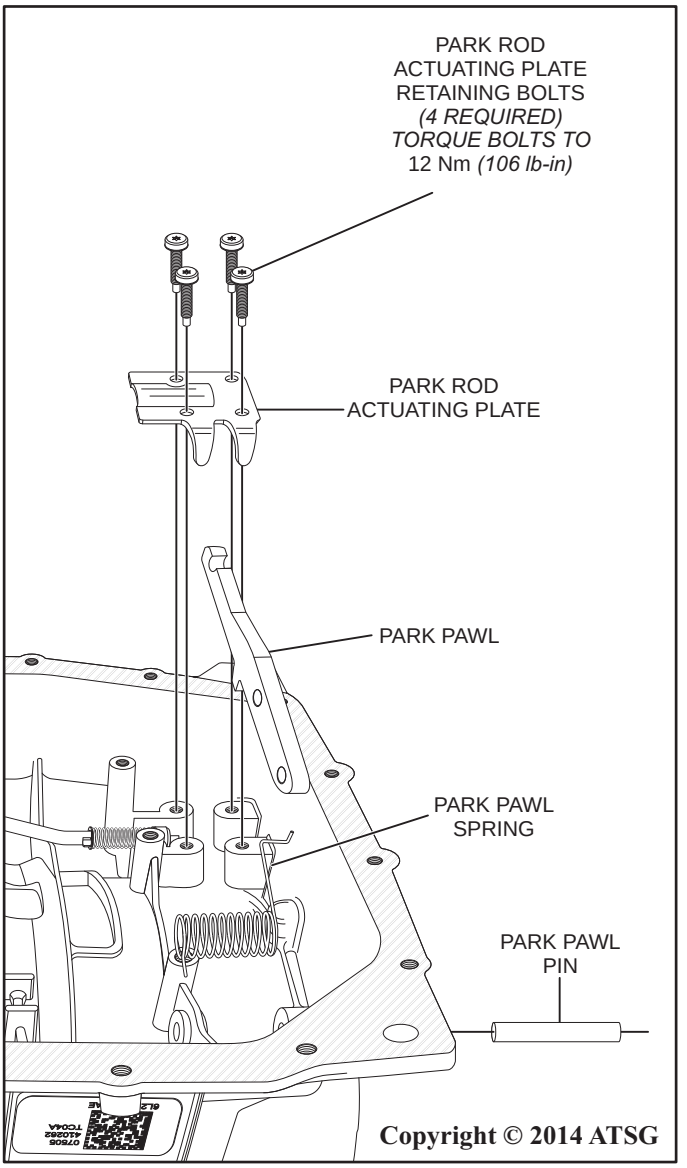

Figure 151

TRANSMISSION FINAL ASSEMBLY (CONT'D)

48. Install the park pawl pin into the rear of the case as shown in Figure 151.
49. Push the park pawl pin through the park pawl and then through the park pawl spring as shown in Figure 151.
50. Install the park rod actuating plate and install the four bolts as shown in Figure 151.
51. Torque the four park rod actuating plate retaining bolts to 12 Nm *(106 in. lb.)* as shown in Figure 151.
52. Install a new o-ring onto the park pawl pin bolt as shown in Figure 152.
53. Install the park pawl pin bolt into the case as shown in Figure 152.
54. Torque the bolt to 23 Nm *(17 ft. lb.)*.

Continued on page 104

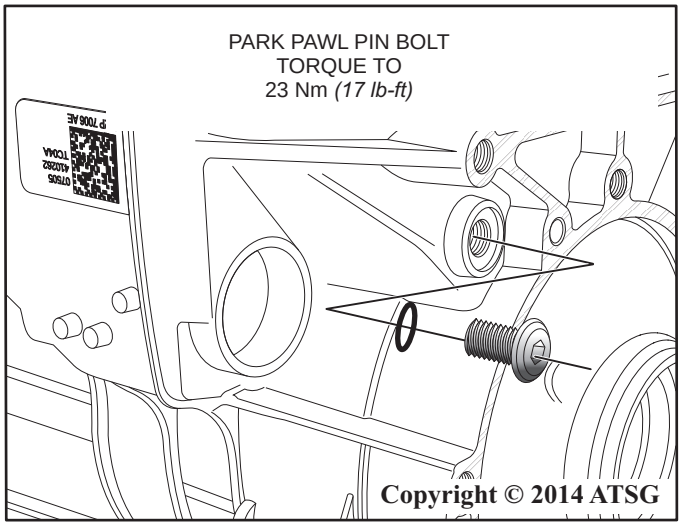

Figure 152

TRANSMISSION FINAL ASSEMBLY (CONT'D)

55. Install new clutch feed tubes into the case as shown in Figure 153.
56. Note the different tube lengths and they are color-coded. Make sure the tubes are installed exactly as shown.
57. The intermediate clutch feed tube is longest and should have a blue color code.
58. The low/reverse (D1) clutch feed tube is the second longest and should have a green color code.
59. The low/reverse (D2) is one of the two shortest and should have a black color code.
    NOTE: the low/reverse (D2) feed tube has been eliminated in 6R80 models with one-way clutch (OWC).
60. The direct clutch feed tube is also one of the two shortest and should have a black color code.
61. Install the thermal cooler bypass check valve into the case as shown in Figure 153.
62. Prime oil pump and install a new transmission pump bridge seal into the pump assembly as shown in Figure 153.

Continued on page 105

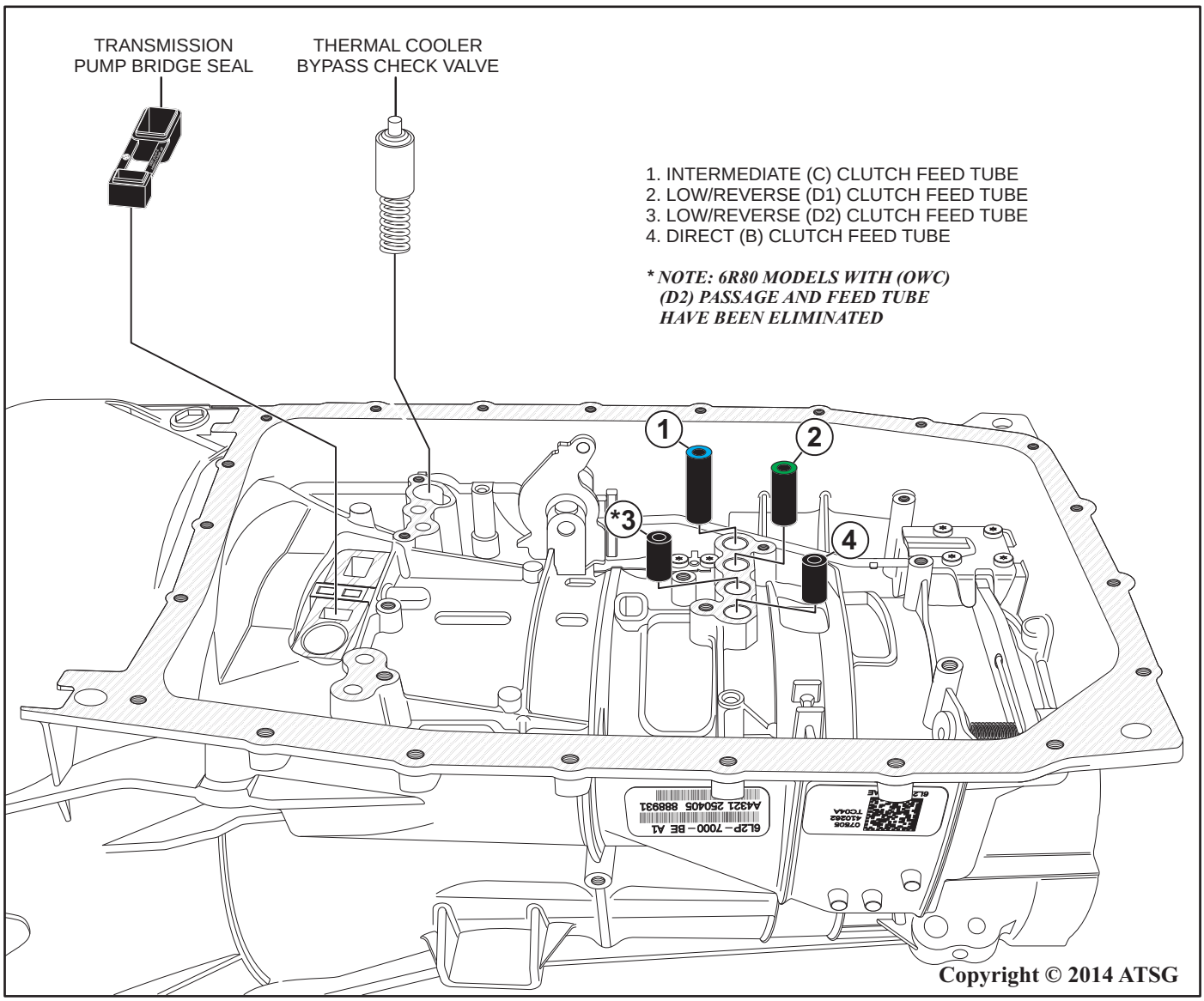

Figure 153

TRANSMISSION FINAL ASSEMBLY (CONT'D)

63. Install the mechatronic/main control valve body assembly onto the transmission as shown in Figure 154.
64. Make certain when installing the control valve body assembly that the manual valve is indexed into the manual control lever detent plate.
65. Install and loosely hand tighten the eleven mechatronic/main control valve body attaching bolts as shown in Figure 154.

NOTE: The mechatronic/main valve body assembly will be pushed up slightly by the rubber feed tubes in the case, this is normal, when the attaching bolts are tightened, the control assembly will be pulled tight.

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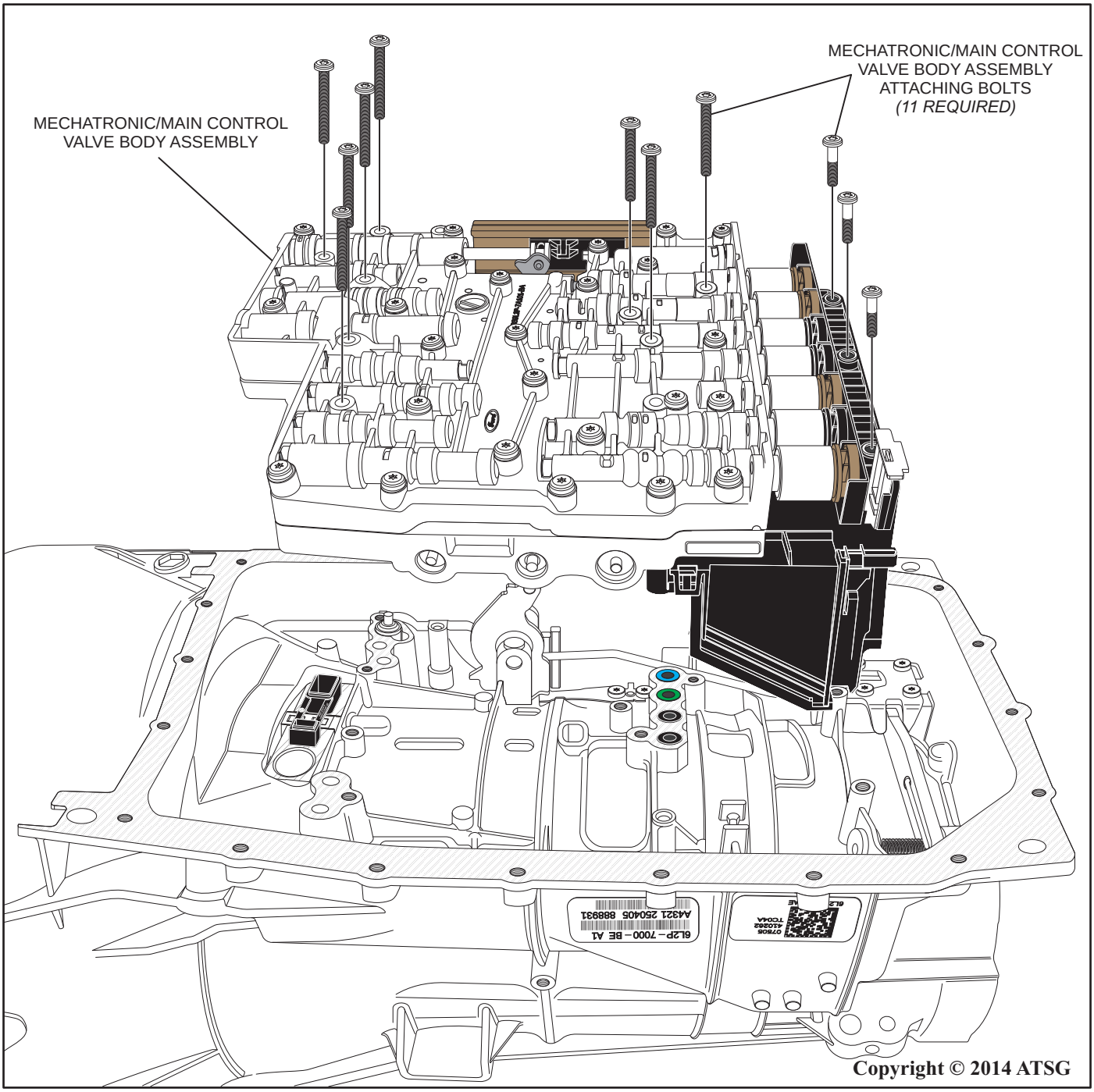

Figure 154

TRANSMISSION FINAL ASSEMBLY (CONT'D)

66. Tighten the eleven mechatronic/main control valve assembly attaching bolts in the sequence shown in Figure 155.
67. Torque all the bolts in the sequence shown to 8 Nm *(71 in. lb.)*.
68. Install new o-rings on the bulkhead electrical connector sleeve and coat the o-rings with a small amount of Trans-Jel®.
69. Install the bulkhead electrical connector sleeve into the transmission as shown in Figure 156.

Continued on page 107

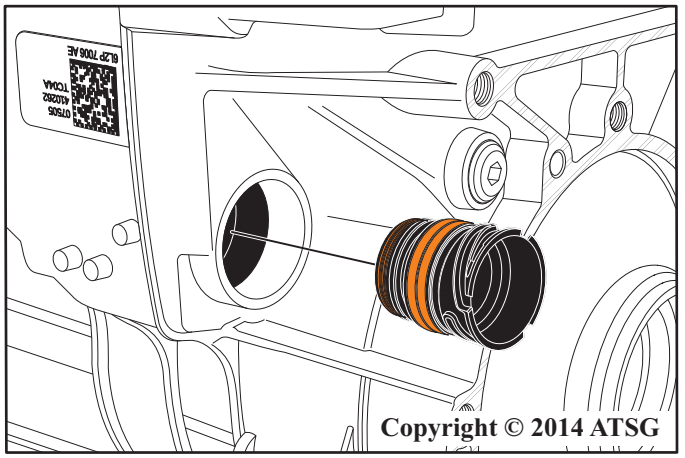

Figure 156

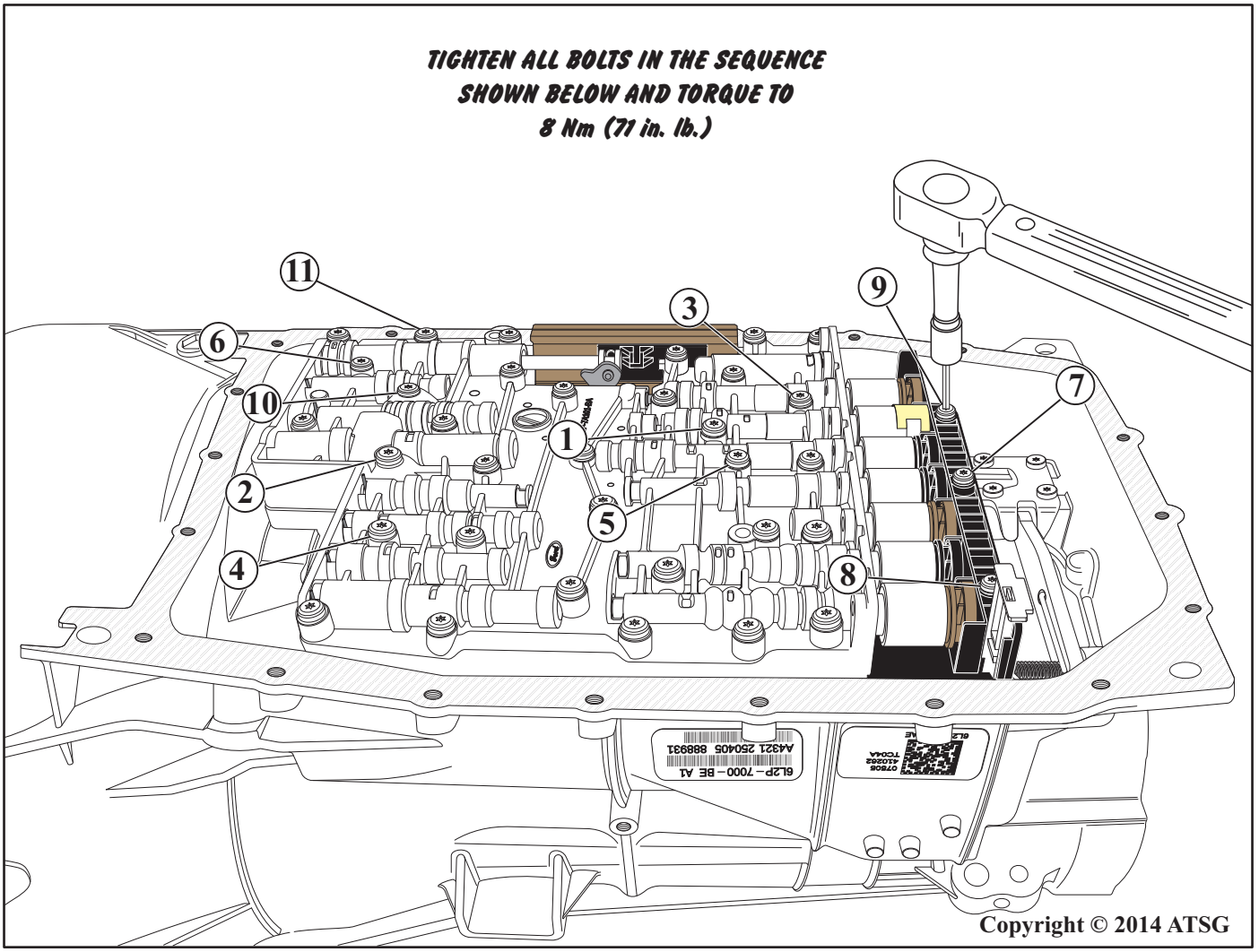

Figure 155

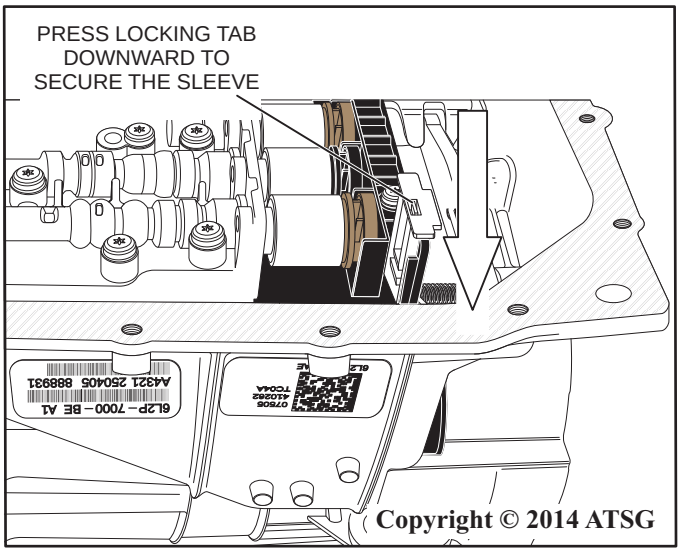

Figure 157

TRANSMISSION FINAL ASSEMBLY (CONT'D)

70. With the bulkhead electrical connector sleeve into the transmission press downward on the locking tab to secure the sleeve as shown in Figure 157. The locking tab will not press down if the sleeve is not correctly and fully installed.
71. Install a new filter into the transmission as shown in Figure 158.
72. Before installation, coat the filter neck seal with a small amount of Trans-Jel@ or ATF.

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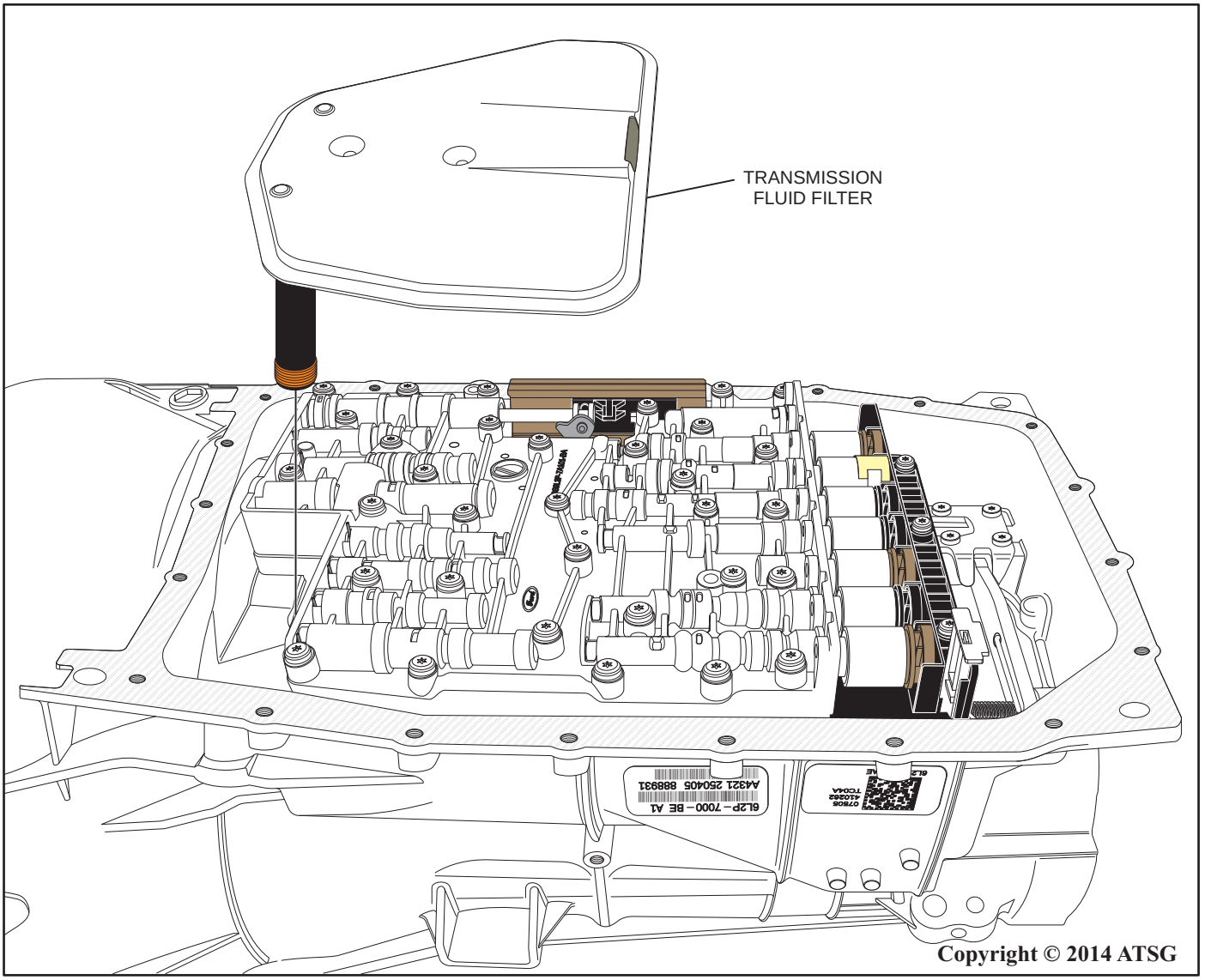


Figure 158

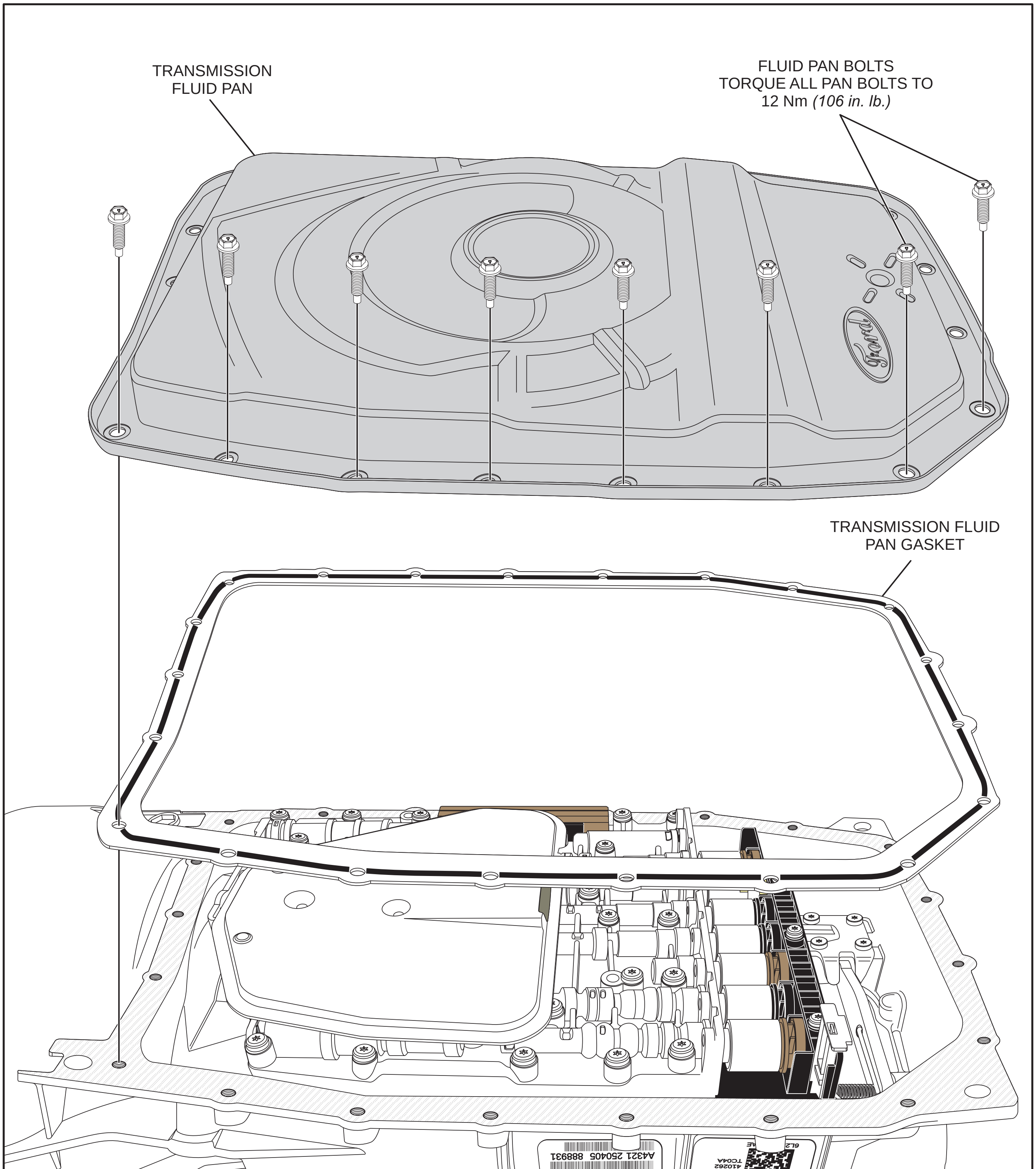


Figure 159

TRANSMISSION FINAL ASSEMBLY (CONT'D)

73. Install the oil pan gasket onto the transmission as shown in Figure 159.
74. Install the oil pan onto the transmission as shown in Figure 159.
75. Install the twenty one fluid pan bolts as shown in Figure 159.
76. Torque each pan bolt to 12 Nm *(106 in. lb.)*.
77. Prime the converter with the recommended ATF and coat the neck of the torque converter with a small amount of Trans-Jel®. Then using ST torque converter handles 307-091 or similar tool, thread the tools onto the torque converter studs and carefully install the torque converter into the transmission using a twisting forward motion.

TRANSMISSION FINAL ASSEMBLY COMPLETED

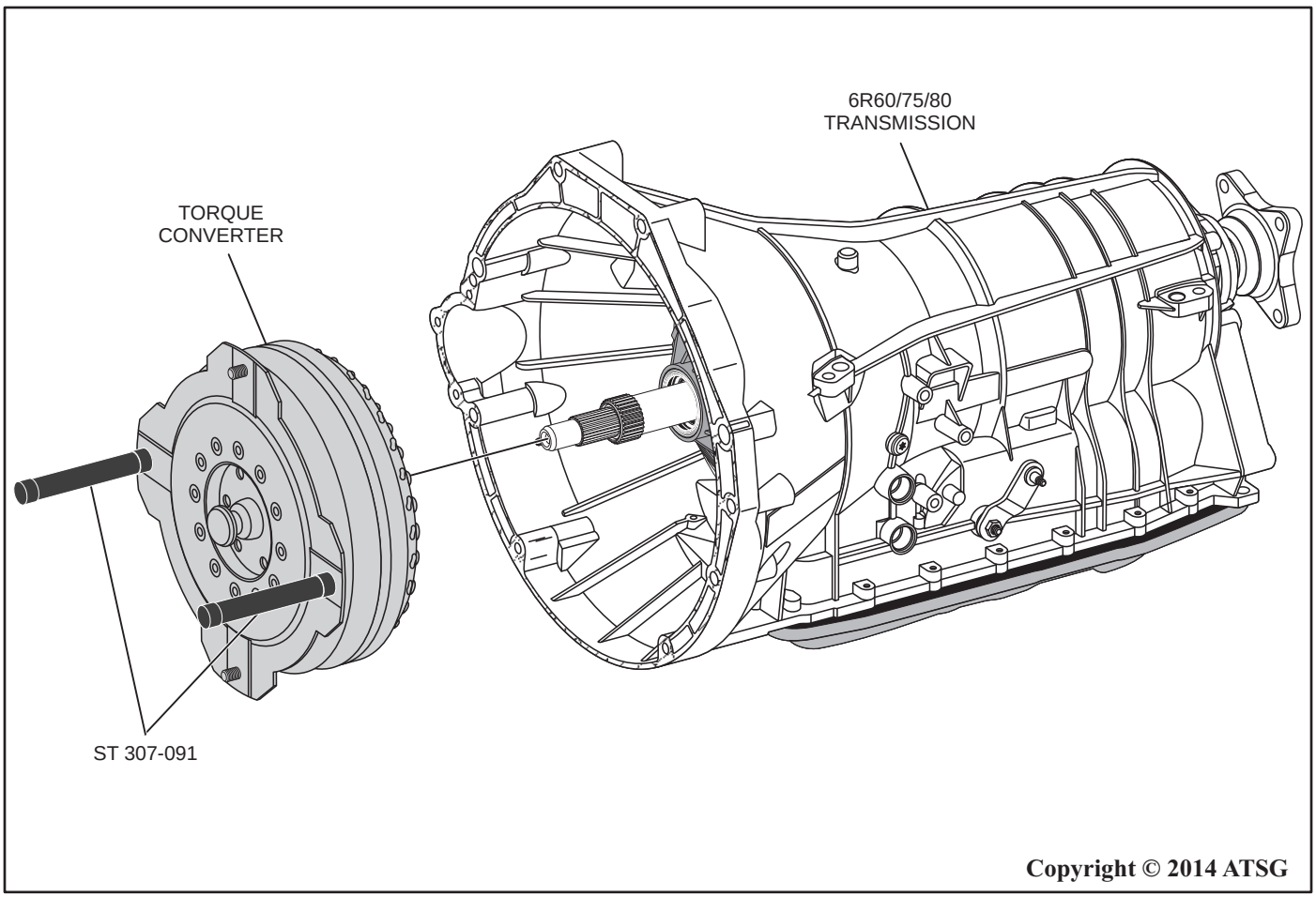


Figure 160

SPECIAL SERVICE TOOLS (ST)

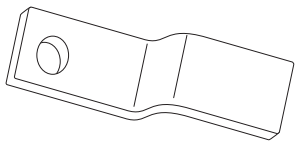
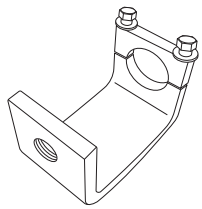
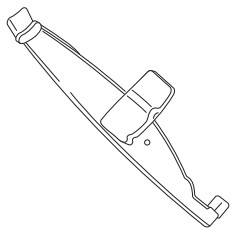
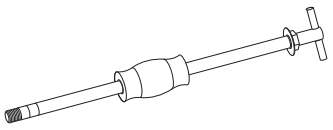
SERVICE TOOL ILLUSTRATION	*SERVICE TOOL/ PART NUMBER*	*SERVICE TOOL DESCRIPTION*
	307-346 (T97T-7T902-A)	Torque Converter Retainer
	307-091 (T81P-7902-C)	Torque Converter Handle
	307-553	Front Pump Remover
	308-375	Input Shaft Oil Seal Remover
	100-001 (T50T-001-A)	Slide Hammer

Figure 161

SPECIAL SERVICE TOOLS (ST)

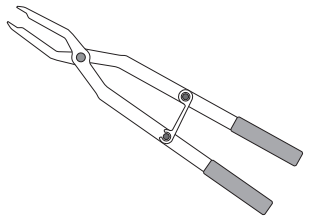
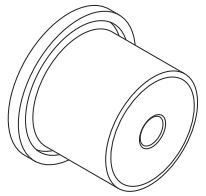
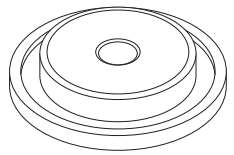
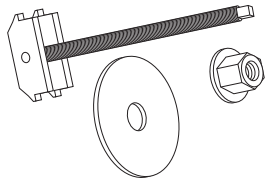
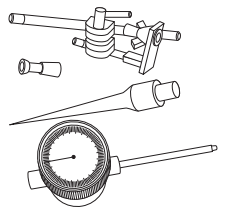
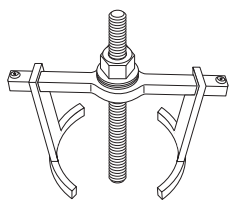
SERVICE TOOL ILLUSTRATION	*SERVICE TOOL/ PART NUMBER*	*SERVICE TOOL DESCRIPTION*
	307-343 (T95P-77001-AHR)	Retaining Ring Pliers
	307-639	Rear Bearing Installer/Remover
	205-276	Front Wheel Hub Oil Seal Installer
	307-562 includes 307-562/1 and 307-562/2)	Needle Bearing Remover
	100-002 (TOOL-4201-C)	Dial Indicator with Holding Fixture
	307-525	Piston Spring Compressor

Figure 162

SPECIAL SERVICE TOOLS (ST)

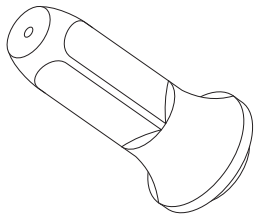
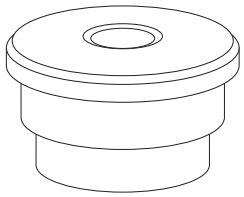
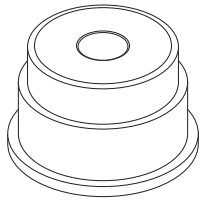
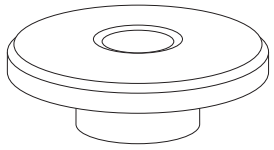
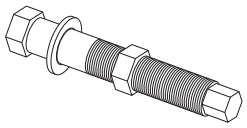
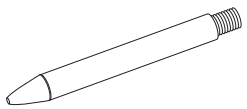
SERVICE TOOL ILLUSTRATION	*SERVICE TOOL/ PART NUMBER*	*SERVICE TOOL DESCRIPTION*
	307-556	Fluid Pump Seal Installer
	307-558	Needle Bearing Installer
	307-647	Output Shaft Bearing Installer
	307-557	Needle Bearing Installer
	204-029	Threaded Draw Bar
	307-334 (T95L-70010-C)	Valve Body Aligner

Figure 163

SPECIAL SERVICE TOOLS (ST)

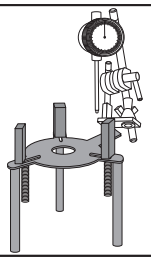
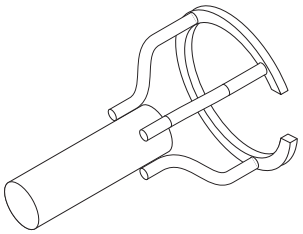
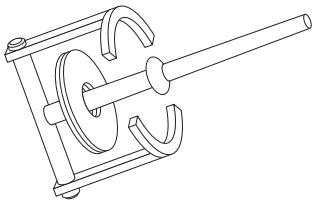
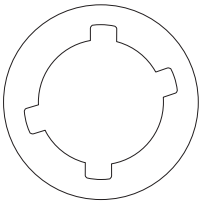
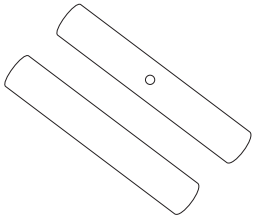
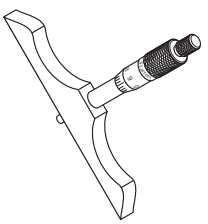
SERVICE TOOL ILLUSTRATION	*SERVICE TOOL/ PART NUMBER*	*SERVICE TOOL DESCRIPTION*
	307-555	Clutch Pack End Play Gage
	307-209	Spring Washer Compressor
	307-015 (T65L-77515-A)	Clutch Spring Compressor
	307-552	Direct Clutch Pack Service Fixture
	307-554	“D” Clutch Measurement Gage
	303-D075 (D92P-4201-A)	Depth Micrometer

Figure 164

SPECIAL SERVICE TOOLS (ST)

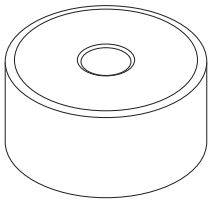
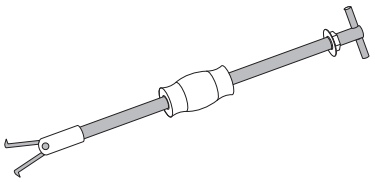
SERVICE TOOL ILLUSTRATION	SERVICE TOOL/ PART NUMBER	SERVICE TOOL DESCRIPTION
	205-256	Front Wheel Hub Oil Seal Installer
	308-001	Pilot Bearing Remover With Slide Hammer
	J 36850	Trans-Jel® Lubricant

Figure 165

TORQUE SPECIFICATIONS

Detent Spring Bolts	12 Nm (106 in. lb.)
Flexplate inspection cover bolts	35 Nm (26 ft. lb.)
Front Pump Body Bolts	15 Nm (133 in. lb.)
Front Pump to Case Bolts	10 Nm (89 in. lb.)
Manual Control Lever Nut	18 Nm (159 in. lb.)
Mechatronic Assembly (6 - Long Bolts)	7 Nm (62 in. lb.)
Mechatronic Assembly (19 - Short Bolts)	6 Nm (53 in. lb.)
Mechatronic Assembly to Transmission Case Bolts	8 Nm (71 in. lb.)
Output Shaft Flange Nut	80 Nm (59 ft. lb.)
Park Pawl Pin Bolt	23 Nm (17 ft. lb.)
Park Rod Actuating Plate Bolts	12 Nm (106 in. lb.)
Selector Lever Cable Bracket Bolts	48 Nm (35 ft. lb.)
Solenoid Bracket Bolts	6 Nm (53 in. lb.)
Torque Converter Nuts	40 Nm (30 ft. lb.)
Transmission Case Bolts	48 Nm (35 ft. lb.)
Transmission Fluid Cooler Tube Bracket Bolt	30 Nm (22 ft. lb.)
Transmission Fluid Cooler Tube Bracket Front Stud Bolt Nut	27 Nm (20 ft. lb.)
Transmission Fluid Fill Plug	35 Nm (26 ft. lb.)
Transmission Fluid Pan Bolts	12 Nm (106 in. lb.)

Figure 166

FORD 6R60/75/80
DELAY REVERSE AND OR 2-3 FLARE

COMPLAINT: Vehicles equipped with the 6R60/75/80 may exhibit a complaint of a delayed engagement into Reverse and or a flared shift into 3rd gear. This complaint is typically more consistent as fluid temperature is increased.

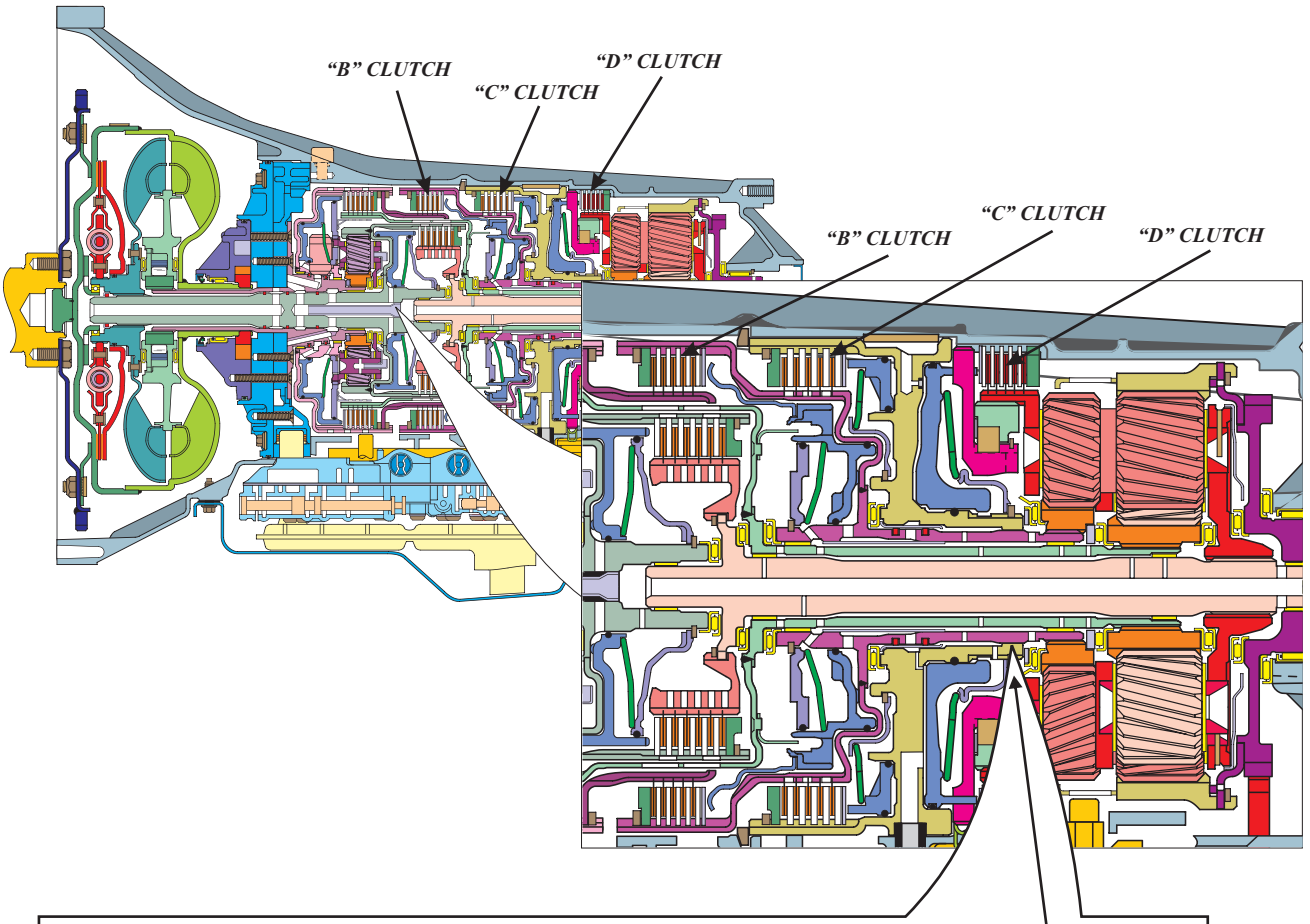
CAUSE: The cause may be that the B clutch housing is leaking in the sealing ring area as the C/D housing/support is worn where the B clutch shaft is supported. See Figure 1 for an application chart and note that the B clutch is used in Reverse, 3rd and 5th gear. This complaint also may vary as wear in this area will increase over time. Refer to Figure 167 for a component location of the B clutch housing and the C/D housing/support. Notice the raised area in the rear of the C/D housing/support. This is the area that acts as a bushing for the B clutch shaft/housing as it connects to the front sun gear in the rear planetary assembly.

CORRECTION: To correct this condition, replace the C/D housing/support. At the time of this printing there are no aftermarket machining processes to install a bushing into this area. Refer to Service information and note that there are numerous part numbers for this support, consult a Ford dealer with the VIN number to verify the correct part number for your application.

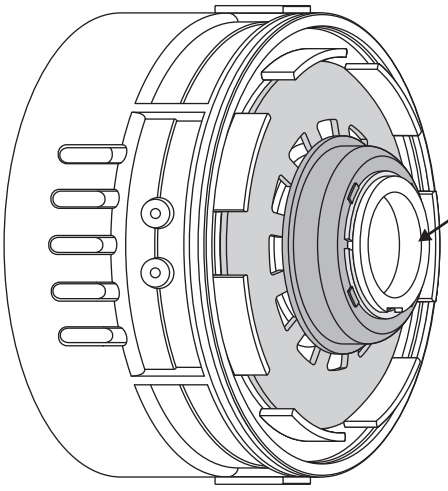
SERVICE INFORMATION:

C AND D SUPPORT (Ford Part Number).....6L2Z-7A130-A
C AND D SUPPORT (Ford Part Number).....8L2Z-7A130-A
C AND D SUPPORT (Ford Part Number).....9L3Z-7A130-B
C AND D SUPPORT (2011 up models Ford Part Number).....BL3Z-7A130-A
Note: Ford calls this part a bracket. Verify part number with VIN of vehicle.

C AND D CLUTCH HOUSING/SUPPORT CROSS-SECTION



C AND D CLUTCH HOUSING/SUPPORT



The raised area in rear of support acts as a bushing that supports the B Clutch shaft and housing as it is connected to the front sun gear in the rear planetary.

Figure 167

FORD 6R60/75
FLARED SHIFT INTO 4TH/5TH/6TH HOT

COMPLAINT: Some early model vehicles equipped with the 6R60/75 may exhibit a complaint of a flared shift into Fourth gear when hot, and or a slipping condition in Fourth, Fifth or Sixth gears. This complaint is typically more consistent as fluid temperature is increased. There may or not be trouble codes related to the complaint. Common DTC's include P0734 gear ratio error in Fourth , P0735 gear ratio error in Fifth, gear ratio error in Sixth P0729, and P0766 D Solenoid performance, and P07AA E Clutch stuck off.

CAUSE: The cause is commonly between two areas:

1. The E clutch drum may be cracked around the weld area in the rear of the drum causing a leak in the E Clutch causing the clutches to fail. See Figure 1 for a component application chart showing the elements applied in 4th-6th. The common Clutch is the E or Overdrive Clutch.
2. The rear stator bushing is worn, as shown in Figure 169. This bushing provides a sealing surface for the E Clutch apply circuit, as there is only one sealing ring in front of the feed hole. See Figure 168 for the sealing ring location on turbine shaft. Later model vehicles equipped with the 6R80 transmission have no bushing in the front of the stator and there are three sealing rings on the turbine shaft in order to seal the overdrive clutch. Refer to ***NOTE:*** on page 56, step 25.

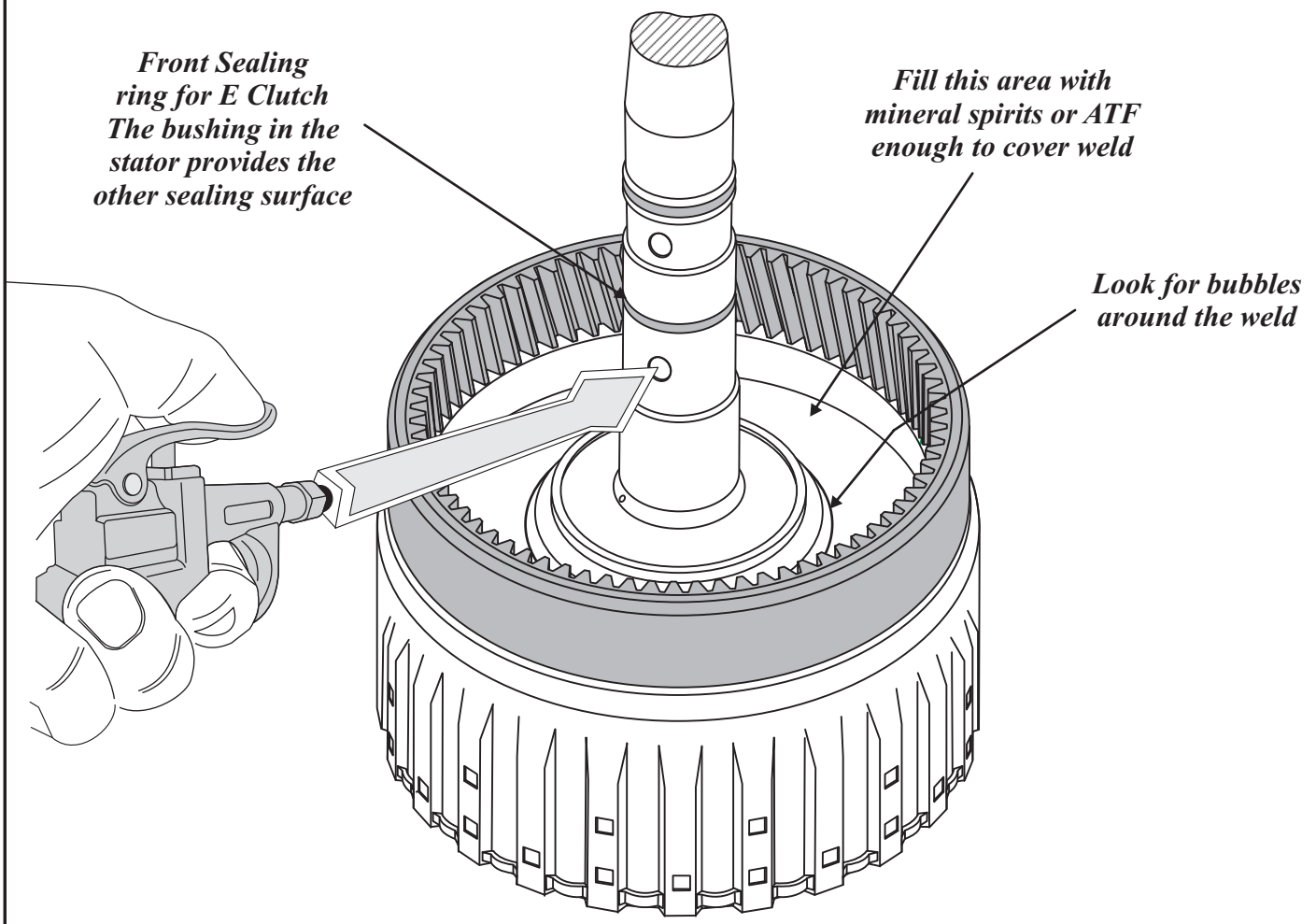
CORRECTION: To correct this problem:

1. Refer to Figure 168 and verify if the E Clutch drum is cracked by wet air testing. If the drum is cracked, refer to service information for part number identification for the model year you are working on.
2. If rear stator bushing is worn, as shown in Figure 169, it will need to be replaced. At the time of this printing, bushings are available from Eriksson Industries and Omega Machine and tool.

SERVICE INFORMATION:

E CLUTCH DRUM 05 MODEL Early (Ford Part Number).....5L7Z-7F207-A
E CLUTCH DRUM July 19/2005 6R60 AND 6R80 (Ford Part Number).....BL3Z-7F207-B
Note: There is also a 6L2Z-7F207-AA which was replaced with the BL3Z-7F207-B for the later application listed above.

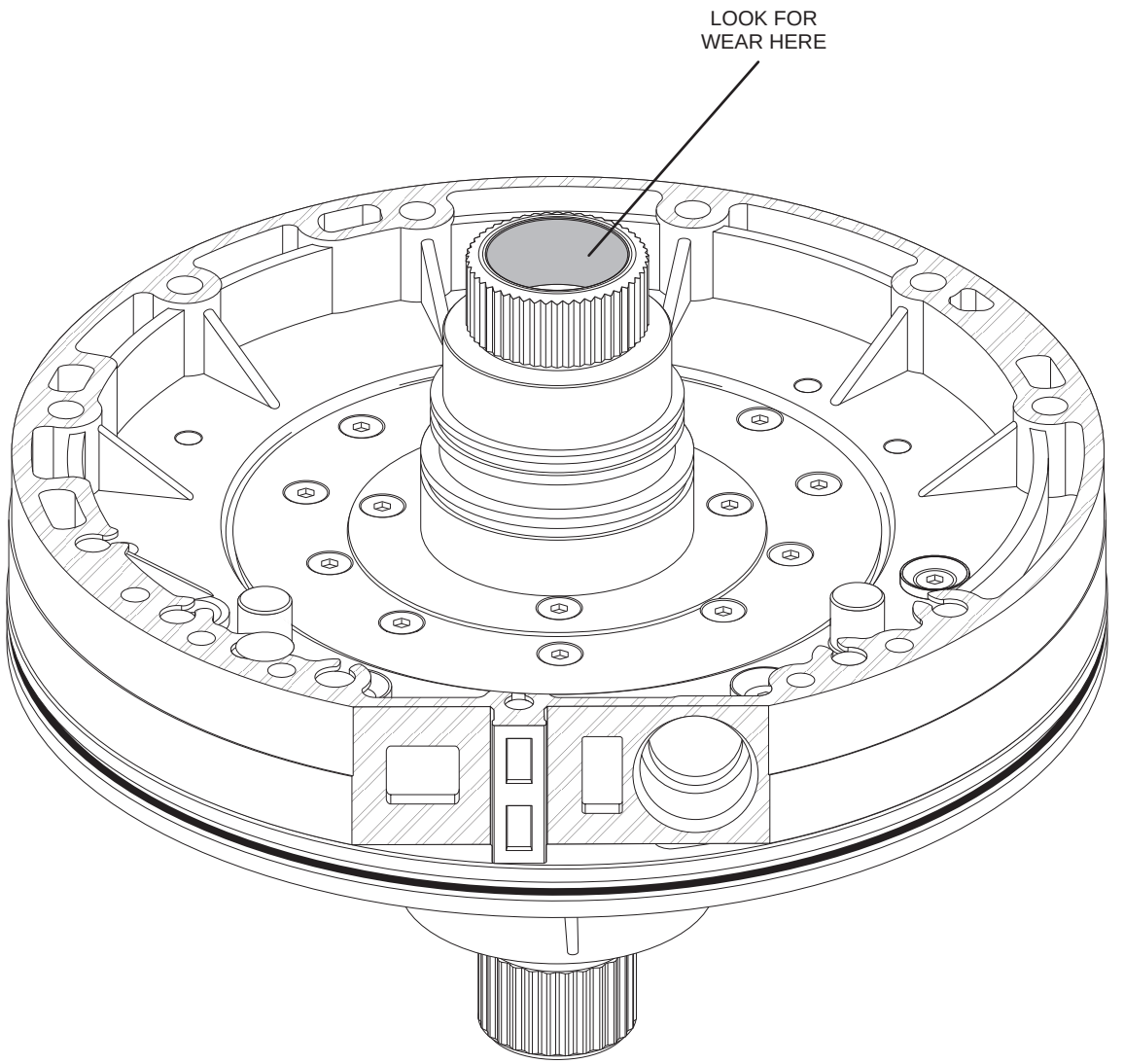
6R60/75 OVERDRIVE/E CLUTCH HOUSING WET AIR CHECK



Note: It will be necessary to fully assemble the E clutch piston, clutches and steels. After completed fill the back of the drum with mineral spirits or ATF and look for bubbles around the weld area as shown above

Figure 168

6R60/75 PUMP STATOR BUSHING LOCATION



Note: 6R60/75 MODELS Overdrive/E Clutch apply is dependant on the integrity of the bushing in the rear of the stator shaft as it does not utilize a rear turbine shaft sealing ring

Figure 169

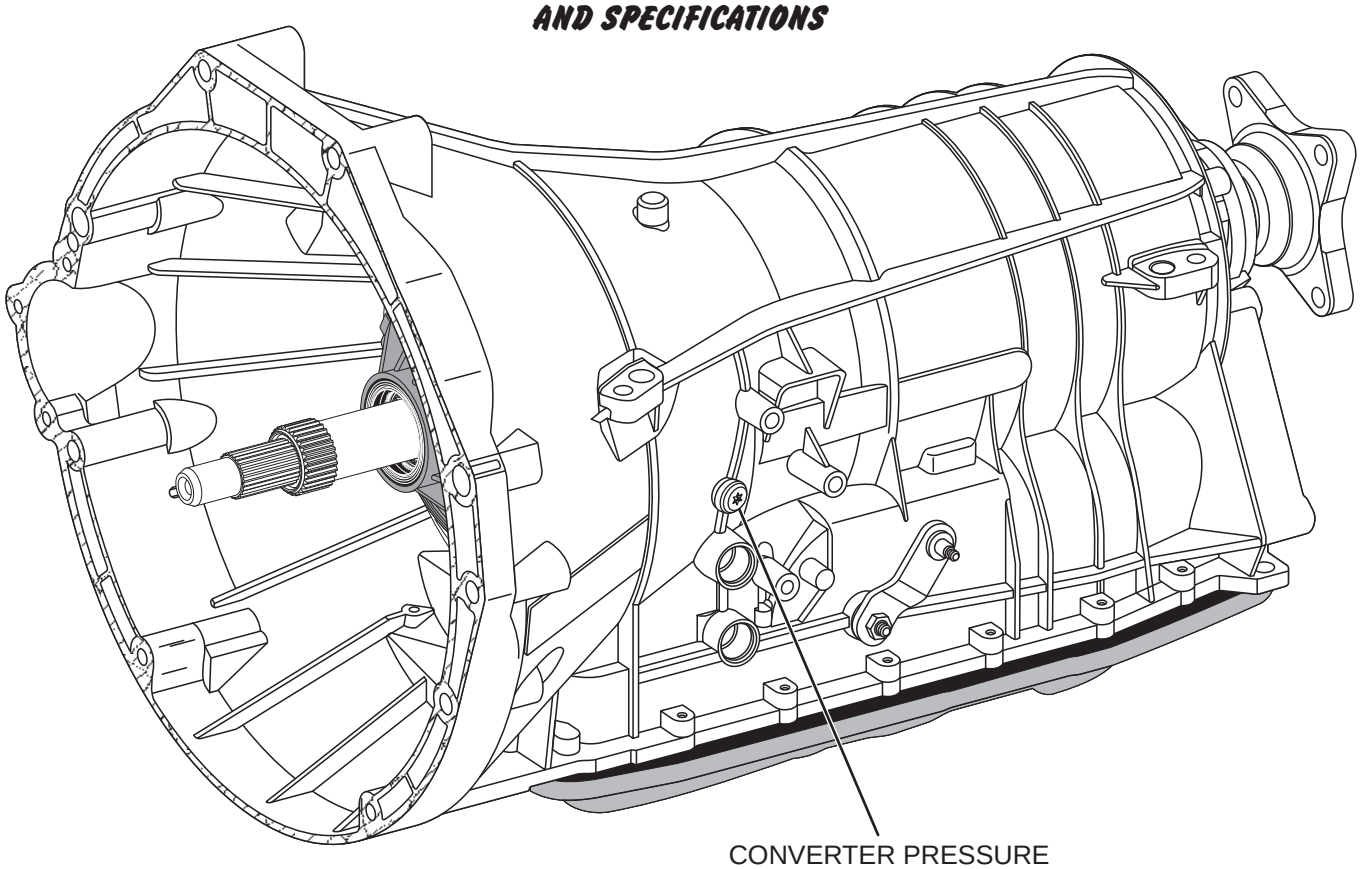
TRANSMISSION PRESSURE PORT LOCATION AND SPECIFICATIONS:

1. There is one pressure port located on this transmission as shown in Figure 170.

2. This pressure port is not for line pressure. The port is a converter off pressure tap. When the clutch is off approximately 70 psi will be observed. When the clutch is fully applied, 0 psi should be seen. Specifications from the factory have not been provided at the time of this printing. The pressures provided here are examples only and were taken from a factory re-manufactured transmission.

Special thanks to Donald Griffin of Griffin's Transmission Service in Raleigh, NC. For measuring and providing the pressure specs.

PRESSURE PORT LOCATION AND SPECIFICATIONS



Park:	85 PSI
Reverse:	85 PSI
Neutral:	85 PSI
Drive:	70 PSI
3 Position:	65 PSI
2 Position:	65 PSI
1 Position:	65 PSI

Note:
Pressures listed are observed at idle and are approximate.

Figure 170