FORD MOTOR CO. 5R55N

INDEX

AUTOMATIC TRANSMISSION SERVICE GROUP
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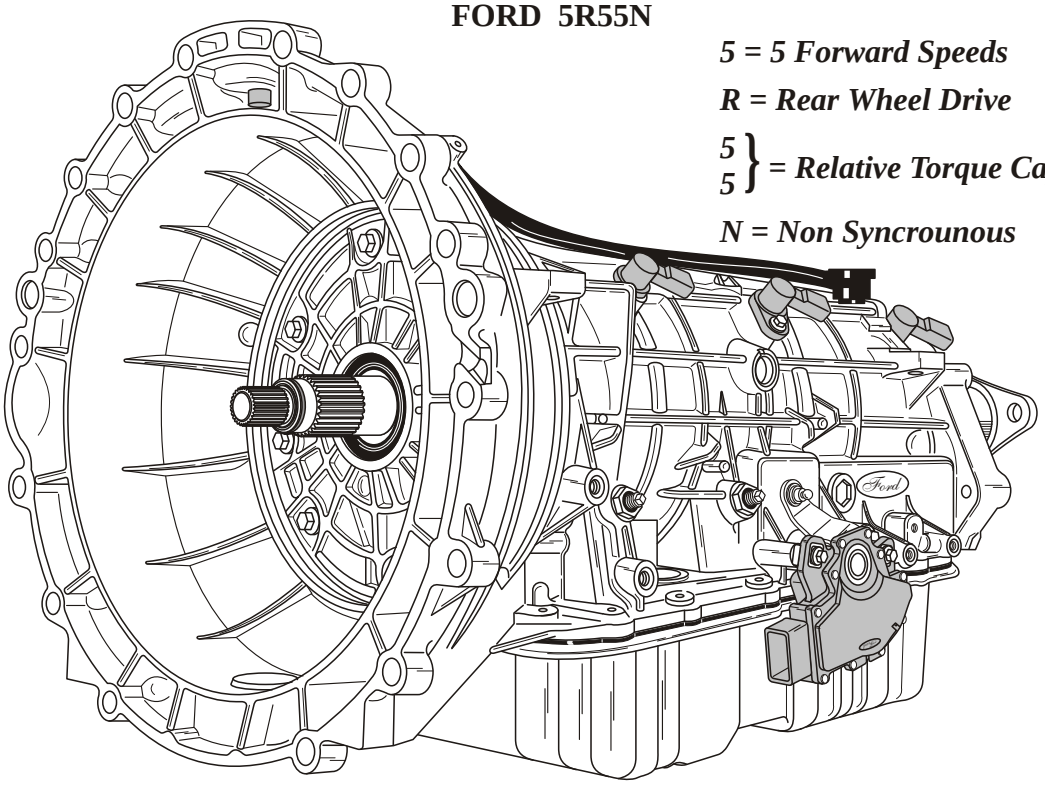
FORD 5R55N



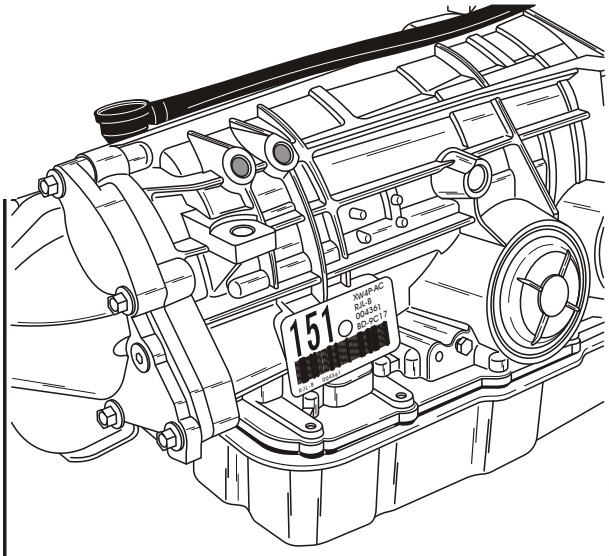
5 = 5 Forward Speeds

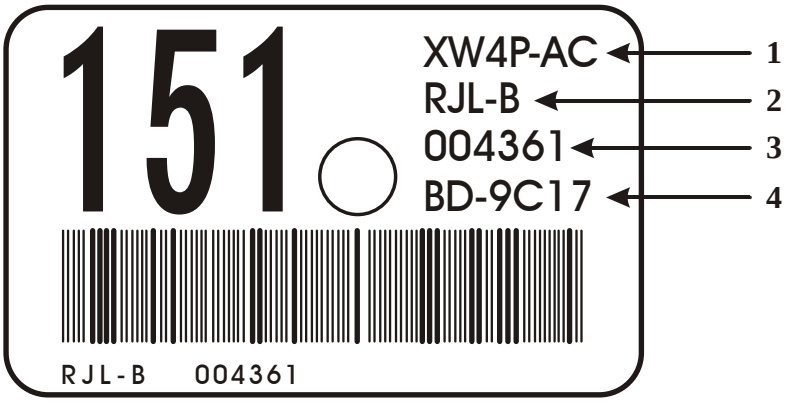
R = Rear Wheel Drive

5 / 5 = Relative Torque Capacity

N = Non Syncrounous

I.D. TAG INFORMATION FOUND ON RIGHT REAR SIDE OF TRANSMISSION





1. ***Part Number, Basic = 7000 (Example XW4P-7000-AC)***
2. ***Transmission Model Code***
3. ***Serial Number***
4. ***Build Date (YMDD)***

Part Number	*Model Code (ID Tag Color)*	*Vehicle Application*	*Engine*	*Axle Ratio*
XR8P-AC	**RJL-D (Apricot)**	**Jaguar X200**	**4.0L, V8**	**3.31**
XR8P-BC	**RJL-C (Lt. Green)**	**Jaguar X200**	**3.0L, V6**	**3.31**
XW4P-AC	**RJL-B (Yellow)**	**Lincoln "LS"**	**3.9L, V8**	**3.58**
XW4P-BC	**RJL-A (White)**	**Lincoln "LS"**	**3.0L, V6**	**3.58**

Figure 1

FORD 5R55N SOLENOID APPLY CHART

Range And Gear Commanded	Shift Sol. "A"	Shift Sol. "B"	Shift Sol. "C"	Shift Sol. "D"	Pres Cont Sol. "A"	Pres Cont Sol. "B"	Pres Cont Sol. "C"	TCC Solenoid
Park/Neutral	ON			ON	"L"	"C"	"L"	
Reverse	ON			ON	"L"	"H"	"H"	
D5 - 1st Gear	ON			ON	"C"	"L"	"L"	
D5 - 2nd Gear	ON		ON	ON	"L"	"C"	"L"	
D5 - 3rd Gear	ON	ON		ON	"C"	"L"	"L"	**
D5 - 4th Gear				ON	"C"	"L"	"H"	**
D5 - 5th Gear			ON	ON	"C"	"C"	"H"	**
D4 - 1st Gear	ON			ON	"C"	"L"	"L"	
D4 - 2nd Gear	ON		ON	ON	"L"	"C"	"L"	
D4 - 3rd Gear	ON	ON		ON	"C"	"L"	"L"	**
D4 - 4th Gear					"C"	"C"	"H"	**
"3" - 3rd Gear	ON	ON			"C"	"C"	"L"	
"2" - 2nd Gear (Hold)	ON		ON		"C"	"C"	"L"	
"1" - 1st Gear (Hold)	ON				"C"	"C"	"L"	

"L" = Low Line Pressure
"C" = Control Line Pressure
"H" = High Line Pressure
*** = TCC On is dependent on vehicle speed and throttle position*

CASE CONNECTOR PIN IDENTIFICATION AND RESISTANCE CHARTS

Solenoid Resistance Chart		
Component	Connector Terminals	Resistance In Ohms
Shift Solenoid "A"	3 And 16	16-45
Shift Solenoid "B"	3 And 15	16-45
Shift Solenoid "C"	3 And 6	16-45
Shift Solenoid "D"	3 And 5	16-45
Pressure Control Solenoid "A"	3 And 1	3.3-7.5
Pressure Control Solenoid "B"	3 And 4	3.3-7.5
Pressure Control Solenoid "C"	3 And 11	3.3-7.5
TCC Solenoid	3 And 14	9-16
Reverse Pressure Switch	12 And 13	Open/Closed
TOT Sensor	2 And 12	See Chart

TOT Sensor Resistance Chart
0°F-31°F = 284k - 100k Ohms
32°F-68°F = 100k - 37k Ohms
69°F-104°F = 37k - 16k Ohms
105°F-158°F = 16k - 5k Ohms
159°F-194°F = 5k - 2.7k Ohms
195°F-230°F = 2.7k - 1.5k Ohms
231°F-266°F = 1.5k - 0.8k Ohms
267°F-302°F = 0.8k - 0.54k Ohms

Refer To Figure 4 For Case Connector Pin Identification

Figure 3

ELECTRONIC COMPONENTS

MASS AIR FLOW (MAF) SENSOR

The Mass Air Flow (MAF) sensor, located in the air cleaner inlet tube, measures the amount of air flowing into the engine and sends this information (engine load) to the PCM. For transmission strategies the MAF is used to regulate electronic pressure control, shift timing and torque converter clutch scheduling.

TRANSMISSION CONTROL SWITCH (TCS)

The Transmission Control Switch (TCS), located within the manual range selector assembly (Base Shifter Only), and the PCM uses this signal to disable 5th gear operation and activates the coast clutch. At the same time the PCM changes the PRNDL indicator on the instrument panel to display "D4". When the driver moves the range selector back to the "D5" position, 5th gear operation is resumed, coast clutch is released and the instrument panel indicator will display "D5".

THROTTLE POSITION SENSOR (TPS)

The Throttle Position Sensor is a potentiometer located on the throttle body and is used to detect throttle plate position and send this information to the PCM. The PCM uses this information for shift scheduling, pressure control and TCC control.

DIGITAL TRANSMISSION RANGE (TR) SENSOR

The Digital Transmission Range (TR) sensor is located on the outside of the transmission at the manual shift lever. The digital TR sensor completes the start circuit in Park and Neutral, and the back-up lamp circuit in Reverse. The digital TR sensor also opens or closes a set of four switches that are monitered by the PCM to determine the position of the manual lever (P, R, N, D5, 3, 2, 1).

TURBINE SHAFT SPEED (TSS) SENSOR

The Turbine Shaft Speed (TSS) sensor is mounted externally on the transmission case, and triggered by the overdrive carrier. The PCM uses TSS to help determine appropriate operating pressures and TCC operation.

INTERMEDIATE SHAFT SPEED (ISS) SENSOR

The Intermediate Shaft Speed (ISS) sensor is mounted externally on the case, and triggered by the sun gear shell. The PCM uses ISS to aid in determining appropriate pressure requirements.

OUTPUT SHAFT SPEED (OSS) SENSOR

The Output Shaft Speed (OSS) sensor is mounted externally on the transmission case, and triggered by a speed rotor on the parking gear on the output shaft. The PCM uses OSS to determine appropriate shift speed scheduling, operating pressures and TCC operation.

PRESSURE CONTROL SOLENOIDS (PCA, PCB, PCC)

The Pressure Control solenoids PCA, PCB and PCC are located in the solenoid body assembly and are a variable-force style (VFS) solenoid. The VFS type solenoid is an electro-hydraulic actuator that combines a solenoid and a regulating valve. The PCM varies the current to all three pressure control solenoids.

The line pressure tap is used to verify output pressure from "PCA" or "PCB" by turning off either one, while verifying the output from the other solenoid. The second pressure tap is used to verify the output pressure from "PCC" solenoid.

SHIFT SOLENOIDS (SSA, SSB, SSC, SSD)

The four On-Off Shift Solenoids are three-way, normally open style solenoids, and also located in the solenoid body assembly. The four shift solenoids, (SSA, SSB, SSC, SSD), provide gear selection of 1st through 5th and reverse gears by directing control pressures to the appropriate element. Coast braking and manual gear selections are also controlled by the shift solenoids.

TORQUE CONVERTER CLUTCH (TCC) SOLENOID

The Torque Converter Clutch (TCC) solenoid is a pulse width modulating type of solenoid and is used to control the apply and release of the TCC. Like the others, it is located in the solenoid body assembly.

TRANSMISSION FLUID TEMPERATURE (TFT) SENSOR

The Transmission Fluid Temperature (TFT) sensor is a thermister type sensor that varies a reference signal to the PCM. The PCM uses this information to determine fluid temperature. The shift schedule is compensated when fluid is cold. The PCM also inhibits TCC operation, and compensates pressure control solenoids when fluid is cold. The PCM uses TFT signal to help determine shift scheduling, TCC operation and pressure control requirements.

DIGITAL TRANSMISSION RANGE (DTR) SENSOR DIAGNOSIS

SELECTOR POSITION	PID:TR	Snap-On Scanner Data PID:TR_D				Snap-On Scanner Data PID:TR_V
		TR4	TR3A	TR2	TR1	TR3A (175B pin 9 to sigrtn)
PARK	P/N	0	0	0	0	0.0 Volts
REVERSE	REV	1	1	0	0	1.3 to 1.8 Volts
NEUTRAL	NTRL	0	1	1	0	1.3 to 1.8 Volts
OVERDRIVE	OD*	1	1	1	1	1.3 to 1.8 Volts
MANUAL 2	MAN 2**	1	0	0	1	0.0 Volts
MANUAL 1	MAN 1	0	0	1	1	0.0 Volts

** Will read "Drive" if OD is canceled.*
*** MAN 2 = Drive for applications without OD cancel feature.*

1. *TR_V is the voltage at PCM connector 175B, pin 9 (TR3A Circuit) to Signal Return.*
2. *"In-Between" reading may be caused by shift cable or DTR sensor misalignment or a DTR circuit failure of TR1, TR2, TR3A, TR4.*
3. *TR_D: 1 = Open DTR Switch*
   0 = Closed DTR Switch
4. *Breakout Box readings are taken from PCM signal pins for TR1, TR2, TR3A, TR4 to Signal Return.*
   Voltages for TR1, TR2, TR4: 0 = 0.0 Volts (Shorted to Ground)
   1 = 9.0 to 14.0 Volts (Open Circuit)
   Voltages for TR3A: 0 = 0.0 Volts (Circuit Shorted to Ground)
   1 = 1.3 to 5.0 Volts (Open Circuit)
   1.8 to 5.0 Volts is an invalid reading and is usually an open in wires or bad resistor in DTR sensor.

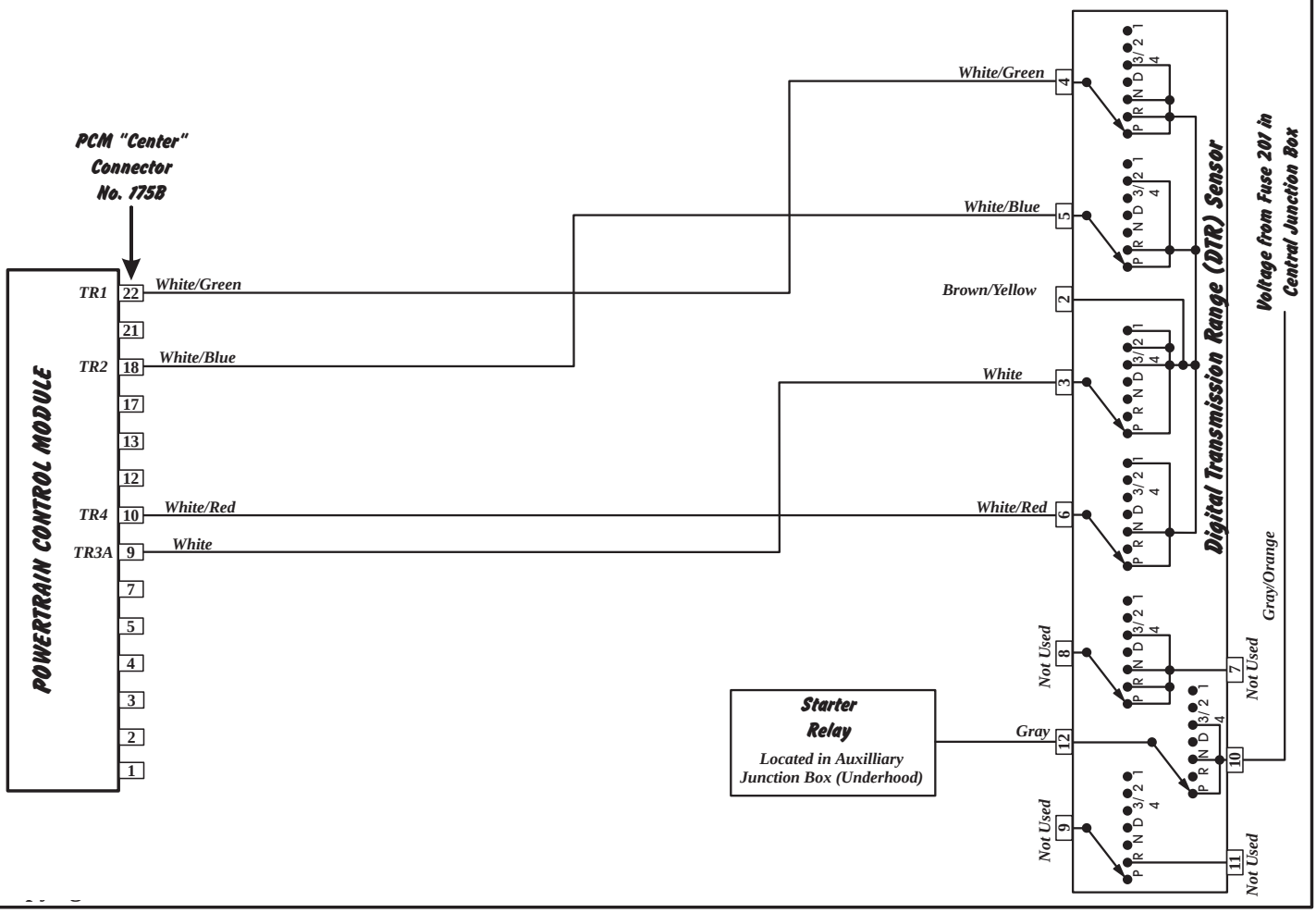


Figure 13

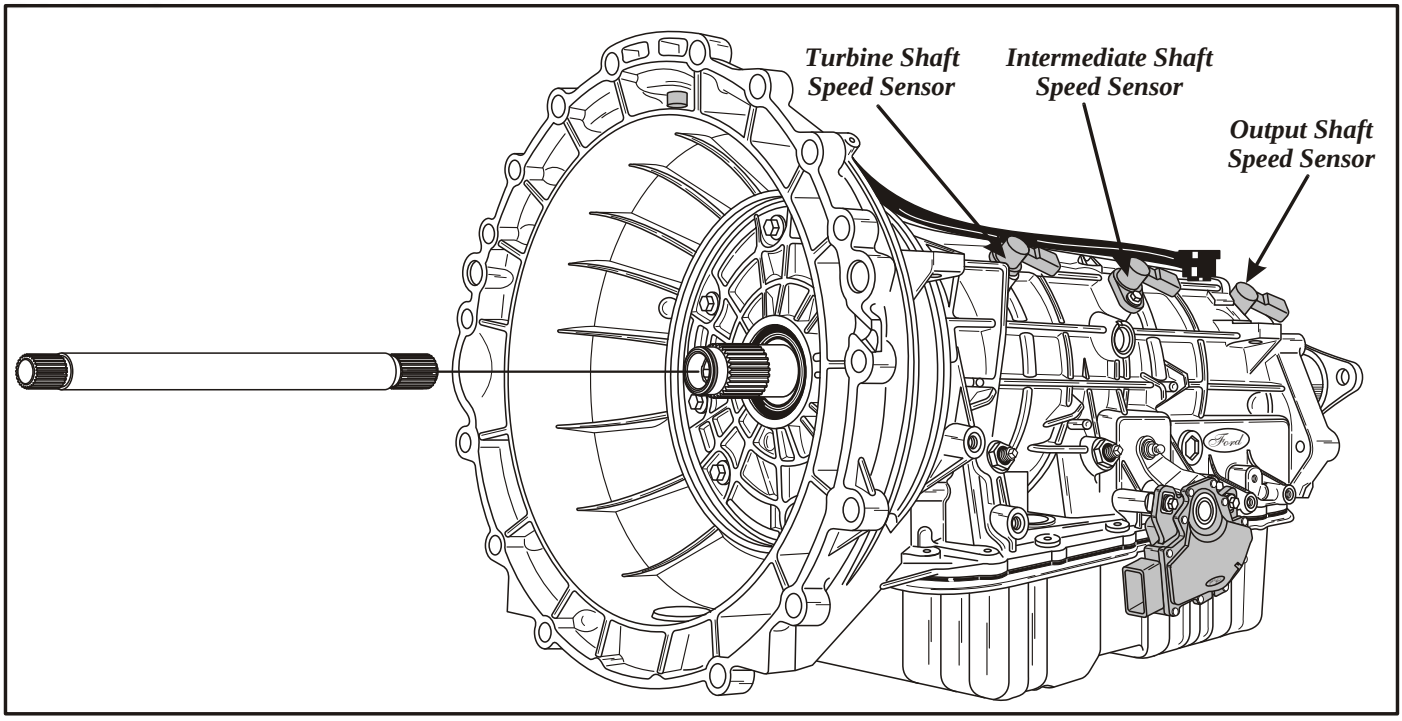


Figure 20

TRANSMISSION DISASSEMBLY

EXTERNAL COMPONENTS

1. Remove the turbine shaft from the transmission as shown in Figure 20. Inspect the spline area on both ends and set aside for final assembly.
2. Remove the Turbine Shaft Sensor (TSS), the Intermediate Shaft Sensor (ISS) and the Output Shaft Sensor (OSS) from the transmission case, using a 30 Torx bit for the retaining bolts. (See Figure 20).
3. The Turbine and Output sensors are exactly the same part number. Refer to Figure 21 for the differences between them, and the Intermediate shaft speed sensor.
4. Remove and discard the "O" ring seals from all three speed sensors, and use the chart found in Figure 12 to ohms check the sensors for proper resistance readings.

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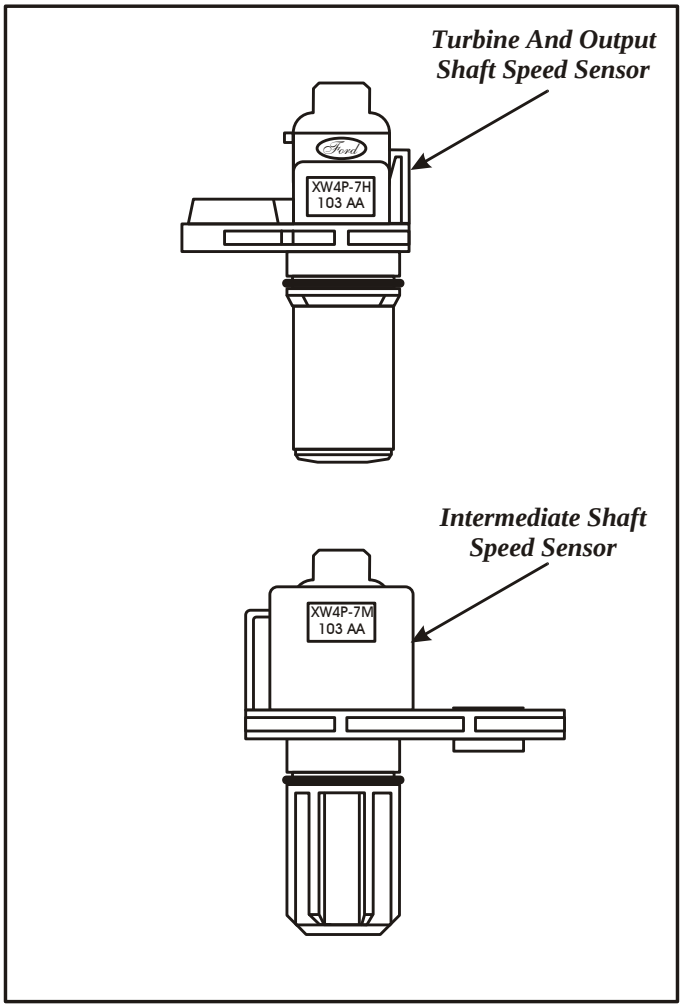

Figure 21

EXTERNAL COMPONENTS (Cont'd)

24. Remove the retaining bolt for the detent spring and remove detent spring (See Figure 33). ***Note the length of this bolt.***
25. Remove the valve body retaining bolt directly in front of the detent spring (See Figure 33). ***Note the length of this bolt.***
26. Remove the remaining 7 valve body retaining bolts, as shown in Figure 33.
27. Remove the complete valve body and spacer plate assembly and set aside for the component rebuild section (See Figure 33).
28. Remove the intermediate clutch seal retaining spring, remove and discard the intermediate clutch seal, as shown in Figure 34.
29. ***Caution: "Do Not" yet remove the center support bolt, as nut may fall into unit.***

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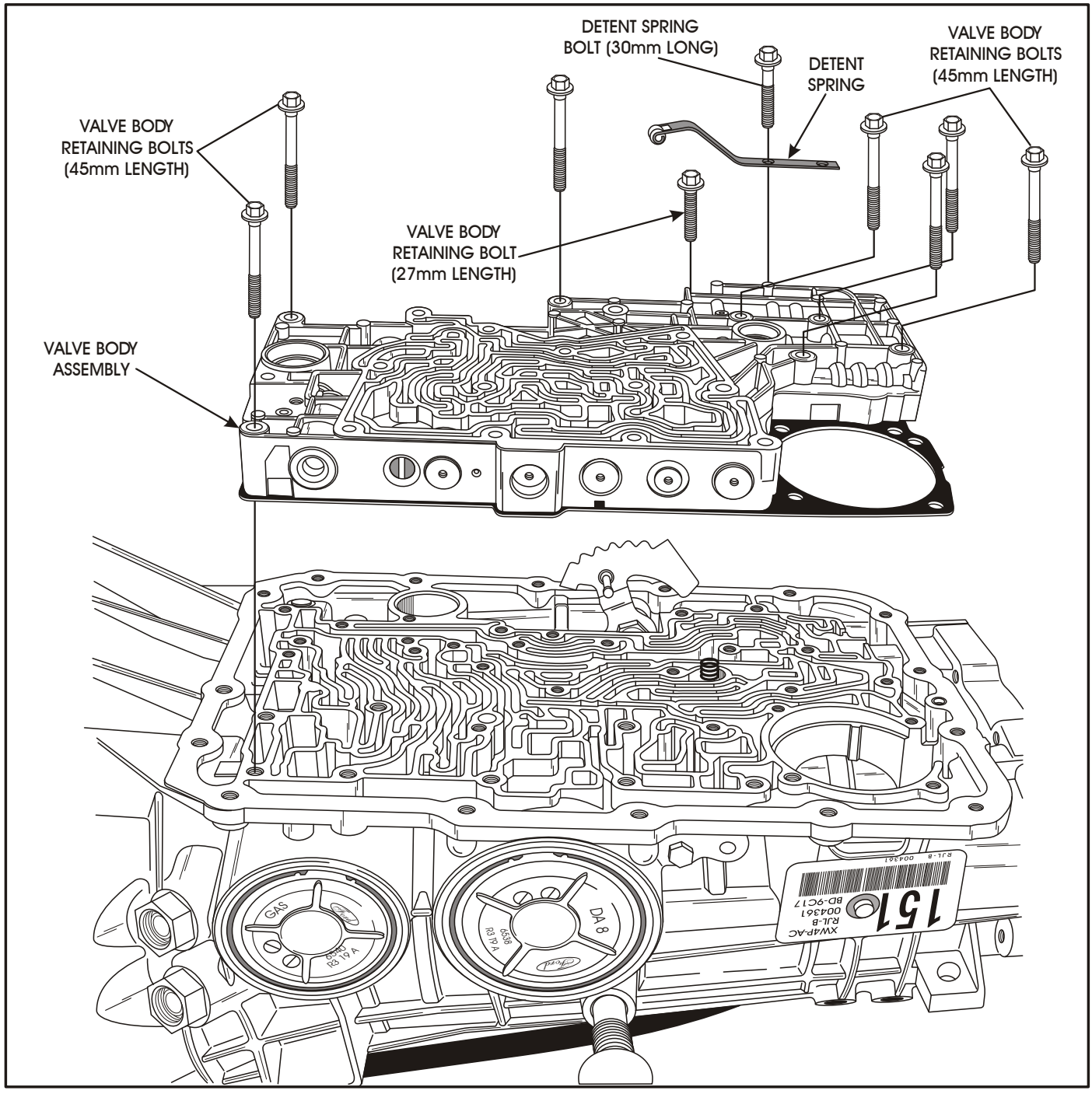


Figure 33

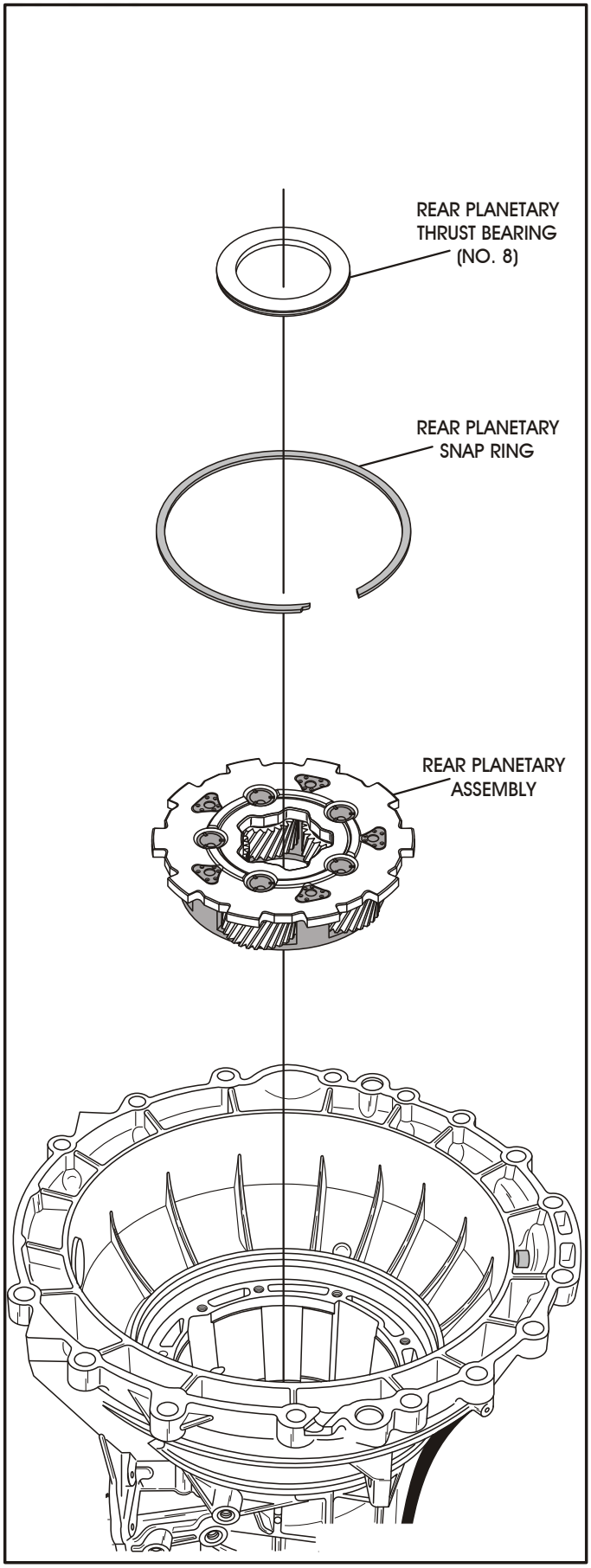


Figure 51

INTERNAL COMPONENTS (Cont'd)

62. Remove and tag for I.D. the rear planetary thrust bearing (No. 8), as shown in Figure 51.
63. Remove the rear planetary retaining snap ring from reverse drum, as shown in Figure 51.
64. Remove the rear planetary carrier from the reverse drum, as shown in Figure 51.
65. Remove the plastic lube dam from the rear planetary ring gear, as shown in Figure 52.
66. Remove the output shaft retaining snap ring from the output shaft, as shown in Figure 52. ***Caution: Hold the output shaft while you are removing the snap ring so it does not fall out. Ford Motor Co. also recommends replacing the output shaft snap ring.***
67. Remove the output shaft from transmission, from the rear side, so that it does not fall out and cause injury.
68. Remove and tag the rear ring gear, number 9, thrust bearing for I.D. (See Figure 52).
69. Remove the rear planetary ring gear from the transmission, as shown in Figure 52.
70. Remove reverse drum and low sprag assembly by rotating and lifting drum out, as shown in Figure 53.
71. Remove and tag the number 10 thrust bearing for I.D. as shown in Figure 53.
72. Remove the low/reverse band assembly from the case, as shown in Figure 53.

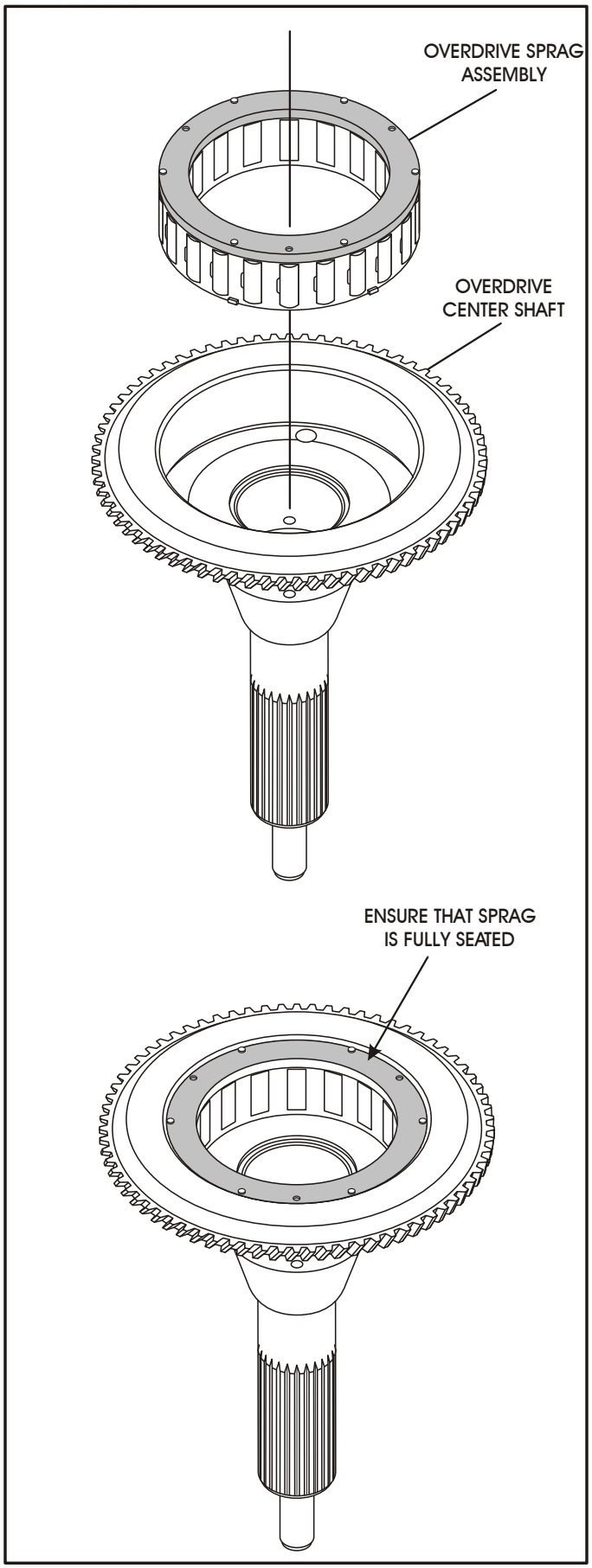
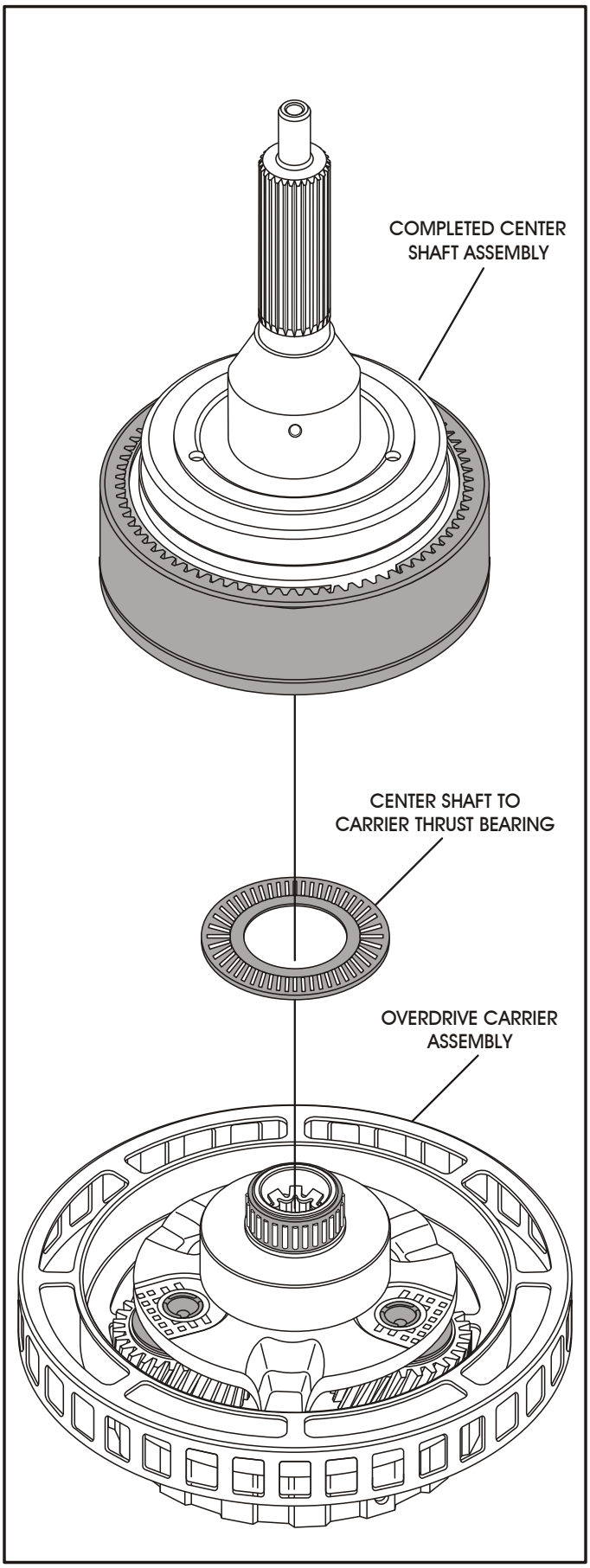


Figure 71



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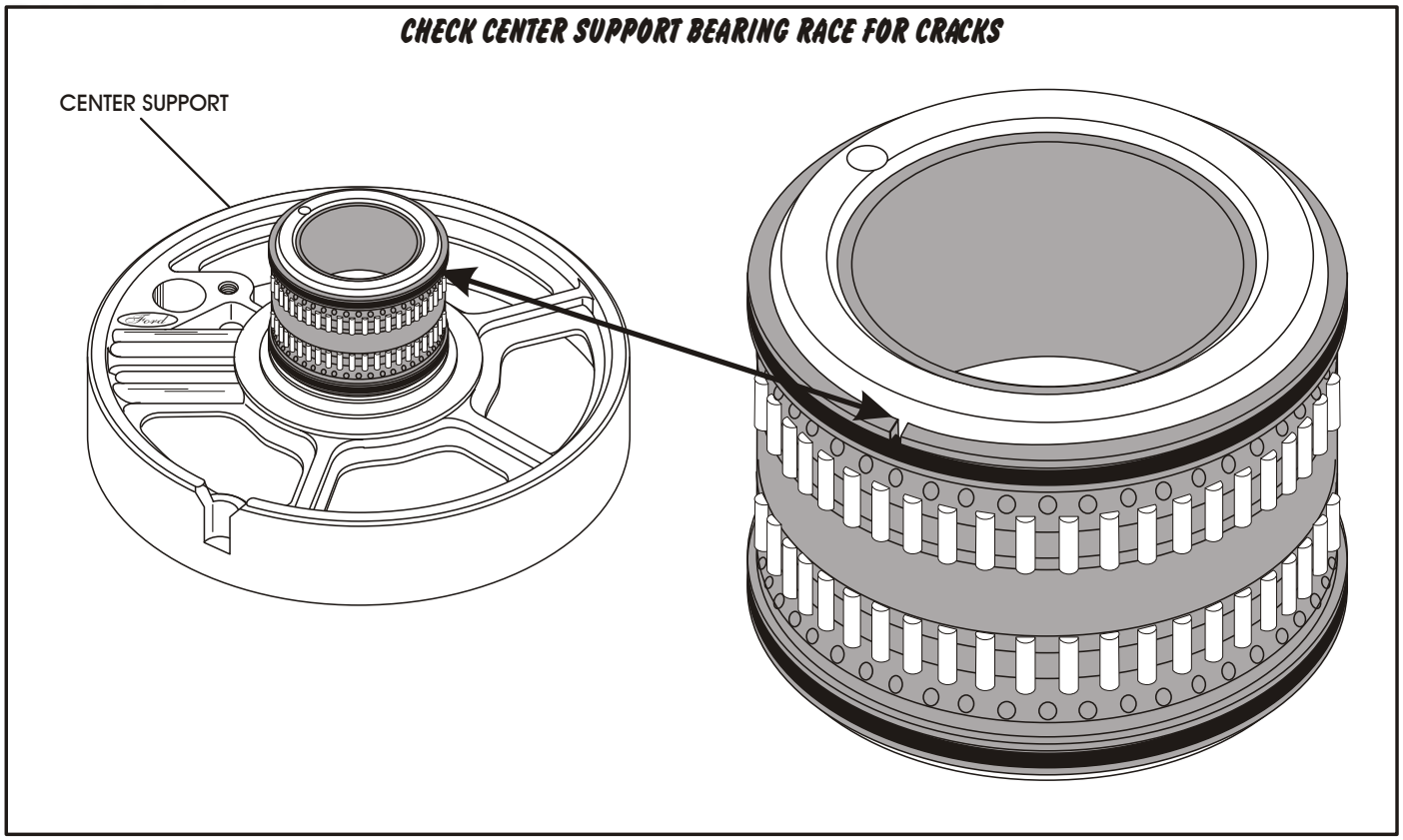

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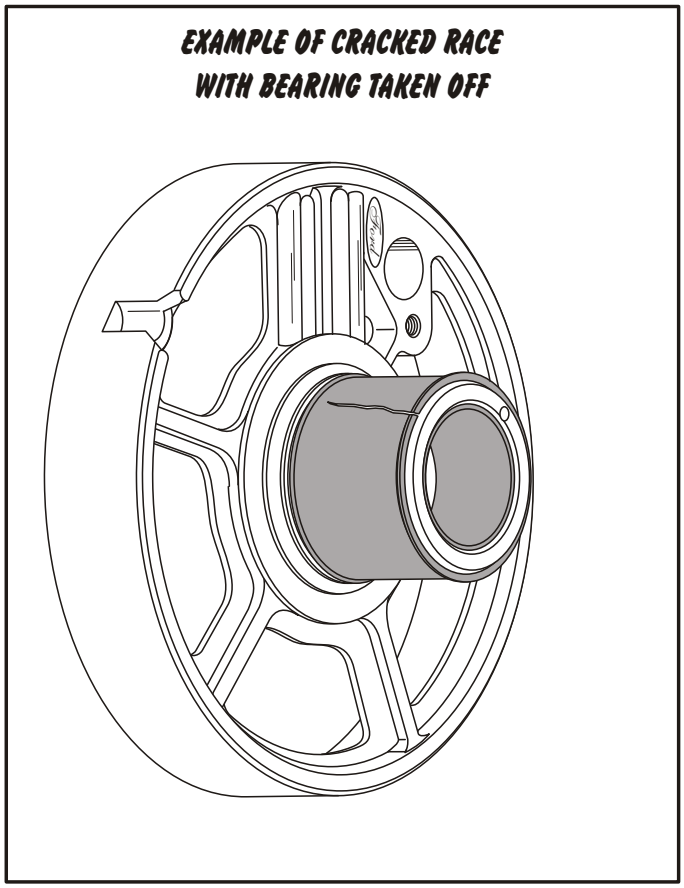

Figure 92

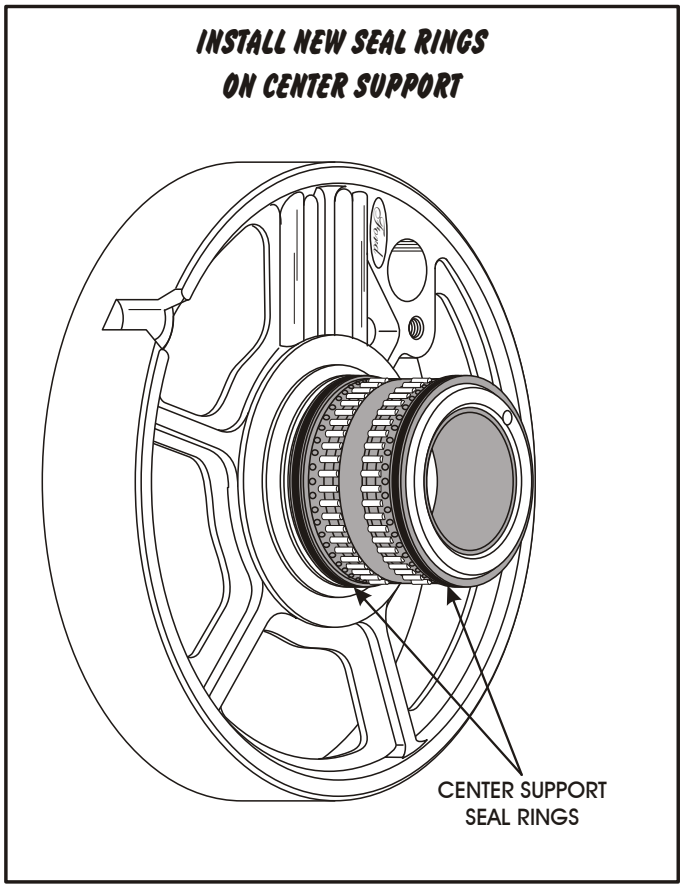

Figure 93

INTERMEDIATE SPRAG ASSEMBLY

4. Place the sprag outer race on a flat work bench with the ***lube holes facing up***, as illustrated in Figure 104.
   CAUTION: The sprag outer race must be placed in this position during assembly as outside splines are cut off-set and will not assemble into the intermediate clutch plates even though the outer race freewheels in the proper direction (See Figure 104).
5. Install one snap ring into the bottom groove in the sprag outer race, as shown in Figure 104.
6. Install one sprag end bearing on top of the previously installed snap ring, with grooved side facing up, as shown in Figure 105.
7. Install the intermediate sprag cage and element assembly into the outer race, with "Windows" ***facing to the left,*** as shown in Figure 106.
   CAUTION: The "Windows" must face in the direction shown in Figure 106, for sprag rotation to be correct.
8. Install the second end bearing on top of the sprag cage with the smooth side facing up, as shown in Figure 107.
9. Install the second snap ring into the groove in the outer race, as shown in Figure 108.
10. The completed intermediate sprag assembly should look like the illustration shown in Figure 109.

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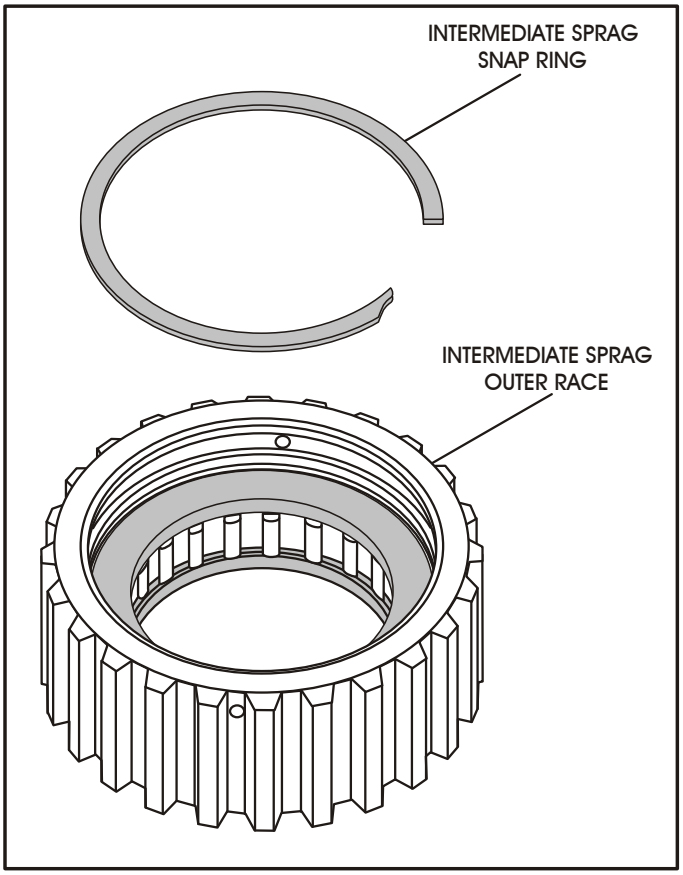

Figure 108

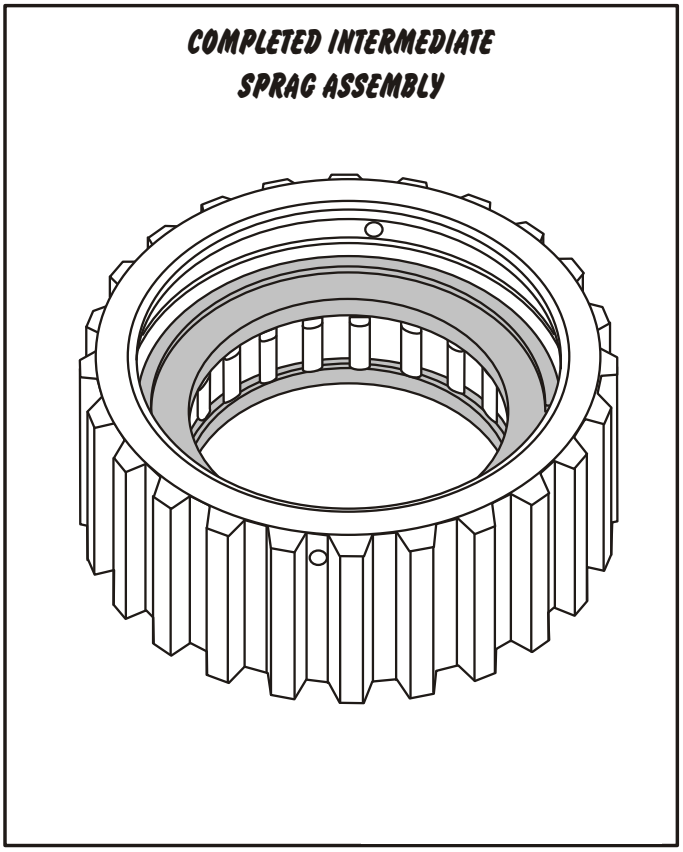

Figure 109

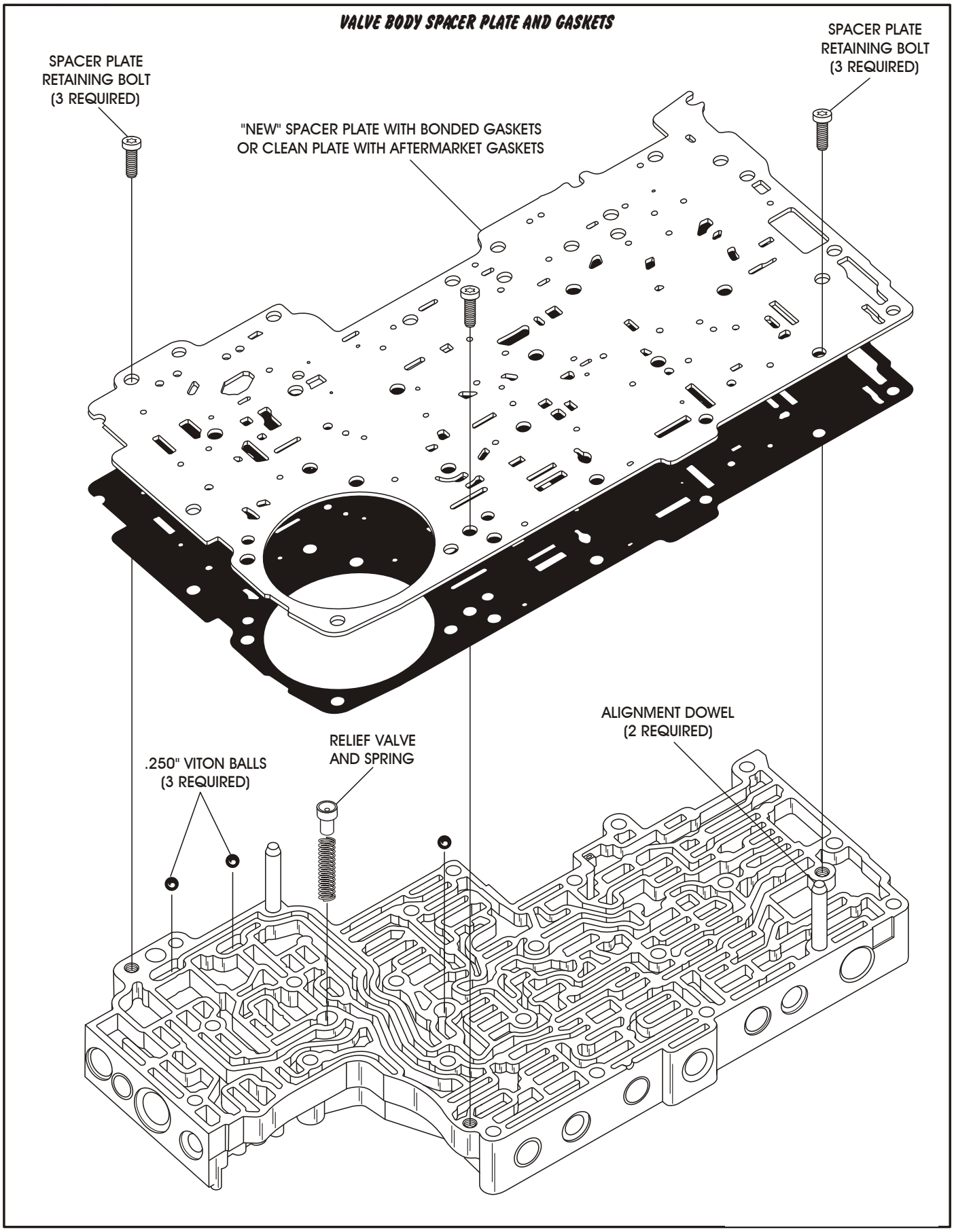
VALVE BODY SPACER PLATE AND GASKETS
SPACER PLATE RETAINING BOLT (3 REQUIRED)
SPACER PLATE RETAINING BOLT (3 REQUIRED)
"NEW" SPACER PLATE WITH BONDED GASKETS OR CLEAN PLATE WITH AFTERMARKET GASKETS
ALIGNMENT DOWEL (2 REQUIRED)
RELIEF VALVE AND SPRING
.250" VITON BALLS (3 REQUIRED)

Figure 119

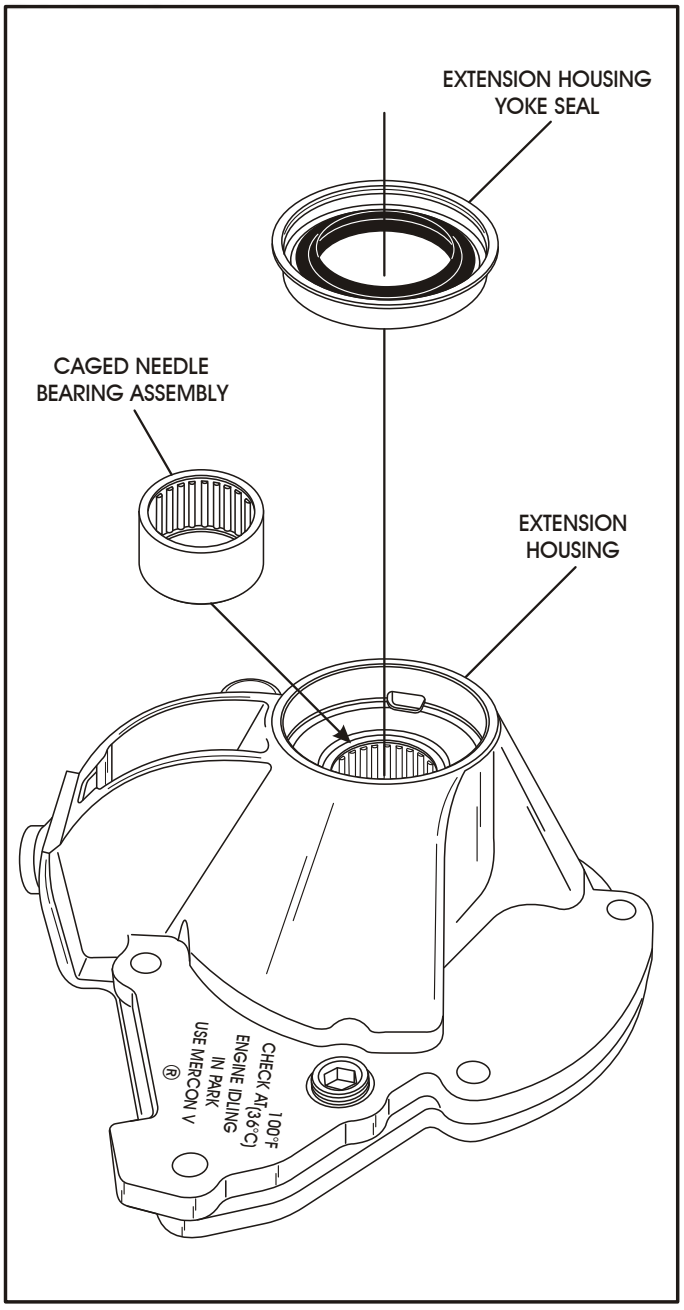

Figure 134

EXTENSION HOUSING AND PARKING PAWL

1. Inspect the extension housing caged needle bearing for any wear and/or damage.
2. Replace caged needle bearing as necessary, using the appropriate puller and installer. Refer to Figure 134 as a guide.
3. Install a new extension housing yoke seal, as shown in Figure 134, using the appropriate seal driver.
4. Turn the extension housing over to install the parking pawl components (See Figure 135).
5. Install the parking pawl return spring onto the extension housing, with the leg of the return spring in front of housing shoulder, as shown in Figure 136.
6. Install the parking pawl pivot pin through the center of return spring, as shown in Figure 137.
7. Install the parking pawl over the pivot pin and hook the return spring on the parking pawl, as shown in Figure 138.
8. Set the completed extension housing aside for the final assembly process.

INTERNAL COMPONENTS (Cont'd)

7. Rotate transmission so that the pan surface is facing up, as shown in Figure 143.
8. Ensure the number 11 thrust washer is still in place in rear of case, as shown in Figure 143.
9. Install the parking gear into transmission, as shown in Figure 143.
10. Install the output shaft into transmission in the direction shown in Figure 144, by rotating so that it engages in the parking gear splines and the rear planetary ring gear splines.

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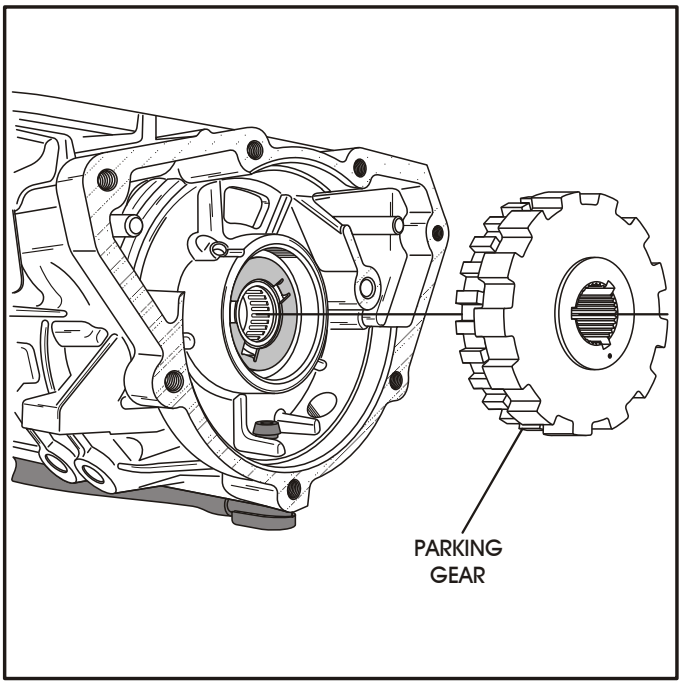

Figure 143

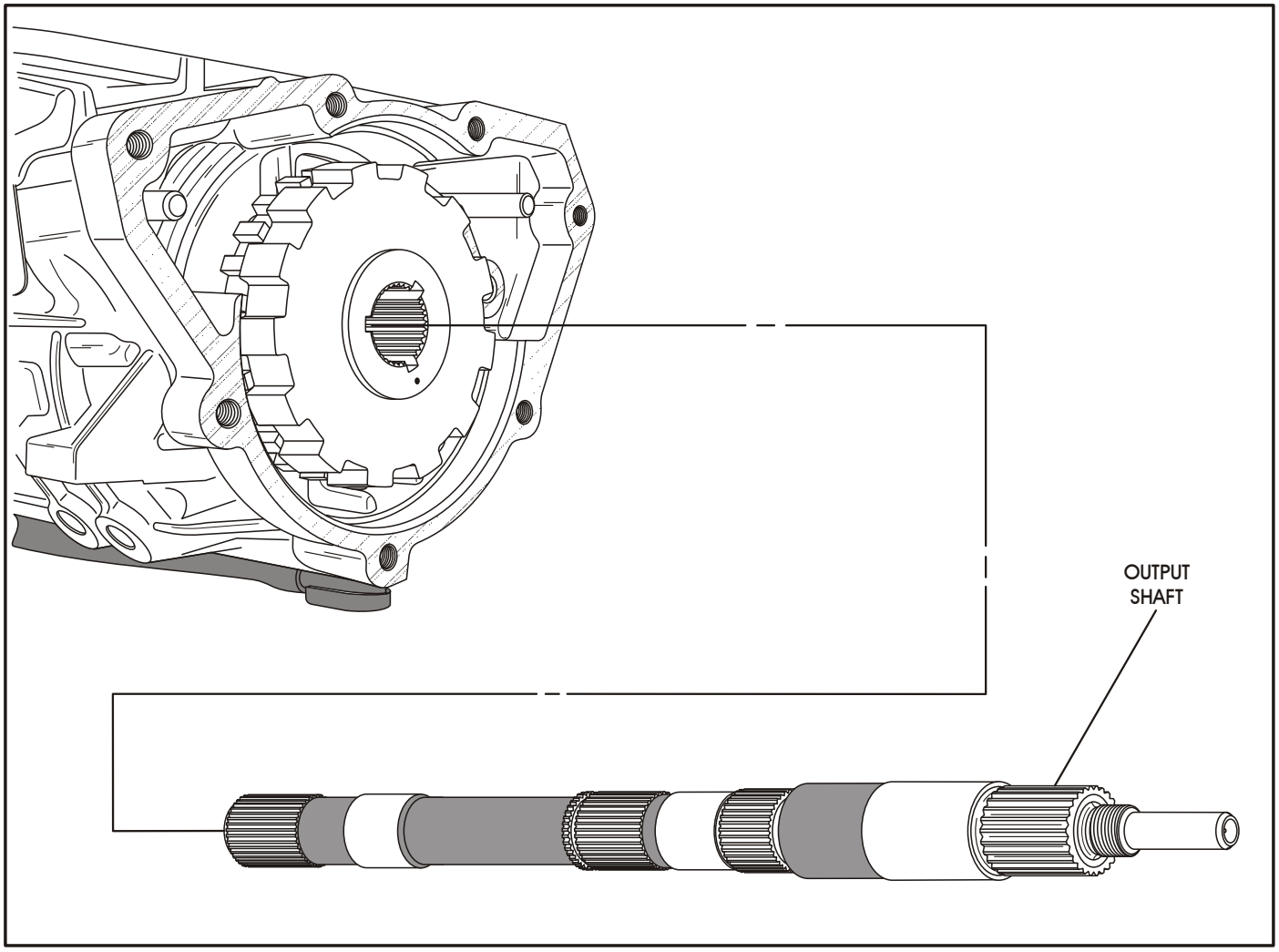

Figure 144

INTERNAL COMPONENTS (Cont'd)

35. After you have recorded the first measurment, install the pre-assembled direct clutch housing, as shown in Figure 153, by rotating back and forth until fully seated.
36. Install the number 4 thrust bearing in position on the direct clutch drum, in the direction that is shown in Figure 153.
37. Install the intermediate band into transmission and around the direct clutch housing, as shown in Figure 154.

INTERNAL COMPONENTS (Cont'd)

38. Install the intermediate band struts on each side of the band, ***exactly*** as shown in Figure 155.
    Caution: The anchor or adjustment side must have strut installed that is illustrated in Figure 155 and must be installed with the small notch facing the top of transmission.
    The apply or servo side must also be installed, as shown in Figure 155.
39. Install the center support assembly, ensuring that you align the hole for the center support with the proper passage (See Figure 156).
40. Loosely install the center support retaining bolt as shown in Figure 157.

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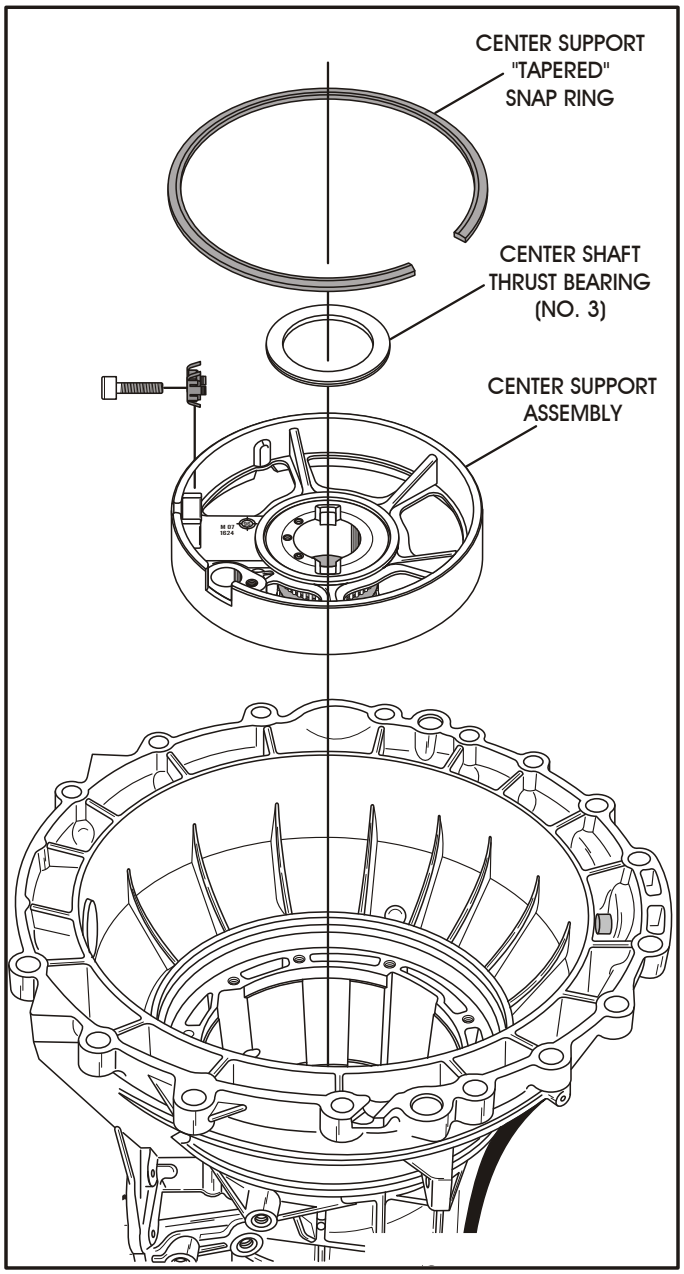

Figure 156

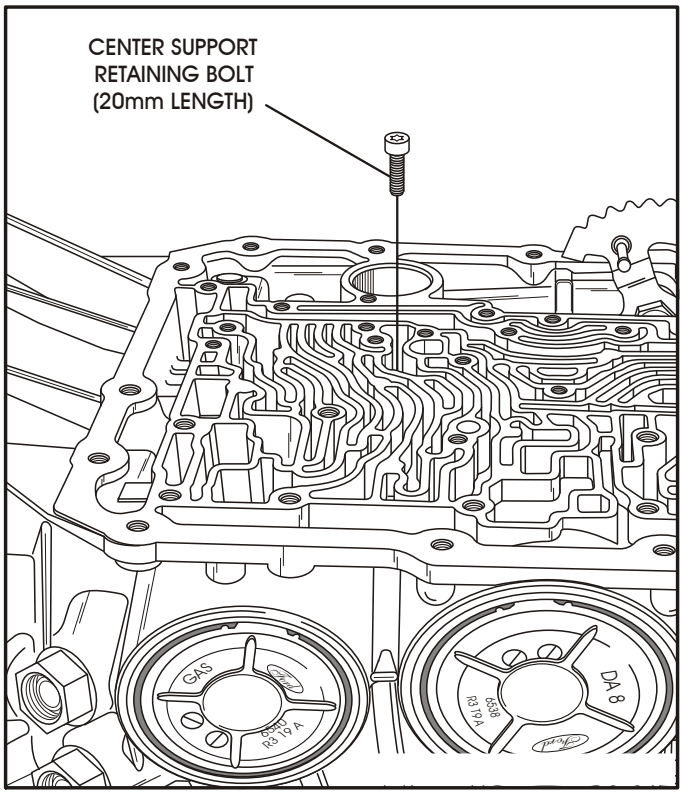

Figure 157