GM 6T70/75

GENERATION II CHANGES

The 6T70/75 Transmission became a Generation 2 transmission with numerous changes. It received a electronic control systems update similar to the Generation 2 6T40 Series. Starting with 2013 production selectively and completed in the 2014 model year the "Clutch Pulse Learn" program was initiated.

This means that in the 2013 model year, a vehicle could be equipped with either a Generation 1 or 2 transmission and control system.

With Clutch Pulse Learn active the TCM calculated clutch fill time is based on the learned volume. Clutch Pulse Learn is performed during cruise conditions in third, fifth and sixth gears. Clutch Pulse Learn for the 4-5-6 clutch is performed in third gear. Clutch Pulse Learn for the 1-2-3-4 and 2-6 clutch is performed in fifth gear. Clutch Pulse Learn for the 3-5-Reverse clutch is performed in sixth gear. During the Clutch Pulse Learn a slight momentary bind up may be felt, this is normal operation which requires no repair. When the TCM senses a rough road condition, Clutch Pulse Learn will be aborted.

The following information are the changes that were made to the 6T70/75 transmission:

Figure 1 - The Generation 2 TECHM has no pressure switches. They have been eliminated.
Figure 2 - The metal bracket has a small cutout area to accommodate the new Pin Gasket.
Figure 3 - The new Pin Gasket is shown surrounding the TCM Heat Sink.
Figure 4 - This gasket will be found in aftermarket overhaul kits but is not serviced separately by General Motors.
Figure 5 - Generation 2 valve body assemblies can be identified by a "V" notch.
Figure 6 - The "V" notch is present on the upper and lower valve body spacer plates and the upper channel plate.
Figure 7 - The Generation 2 lower valve body spacer plate has slots added to the gasket. Orifice 10b has been relocated to accommodate the added #10 check ball.
Figure 8 - The Generation 2 upper valve body spacer plate has slots added to the gasket.
Figure 9 - Check ball locations are shown for the upper control valve body with the added #10 check ball.
Figure 10 - The accumulator locations are shown for the channel plate, three accumulators were added.
Figure 11 - Valve identification for the lower valve body is shown indicating with an asterisk which valves and springs have been redesigned.
Figure 12 - Valve identification for the upper valve body is shown indicating with an asterisk which valves and springs have been redesigned.
Figure 13 - The Low/Reverse steel & wave plates have "U" shaped notches instead of being straight cut.
NOTE: The Low/Reverse friction plates may have a wide black identification stripe on them 180° apart.
Figure 14 - The low one-way clutch retaining snap ring is now hooked on one end. The 1-2-3-4 steel & wave plates have "U" shaped notches.
Figure 15 - The 1-2-3-4 Clutch Apply Piston has taller fingers by .147 in.
Figure 16 - The 3-5-Reverse retaining snap ring tips are relieved.

Continued

GM 6T70/75

GENERATION II CHANGES

Figure 17 - The 3-5-Reverse friction plates now have notches.
NOTE: The 1-2-3-4 friction plates may have a wide white identification stripe on them 180° apart and the 3-5-Reverse wave plate may have a white strip on it 180° apart.

Figure 18 - The 4-5-6/3-5-Reverse Clutch Housing part number & matrix is now readable on the back of the clutch housing.

Figure 19 - Three added dam holes have been added inside & out of the 4-5-6 clutch housing.

Figure 20 - Four added dam holes have been added to the area shown of the 4-5-6 clutch housing.

Figure 21 - The 4-5-6 clutch apply piston now has 12 holes instead of four around the outside diameter.

Figure 22 - The 4-5-6 clutch piston return spring has been redesigned with stronger springs and has a scalloped cage.

Figure 23 - The turbine shaft has three added holes to improve compensator feed oil flow.

Figure 24 - The 2-6 clutch retaining snap ring now has a hooked end & the groove in the case has been deepened.

Figure 25 - The Compensator Feed Blow-Off Ball Spring has been made shorter with less tension and is red.

GM 6T70/75

GENERATION II CHANGES

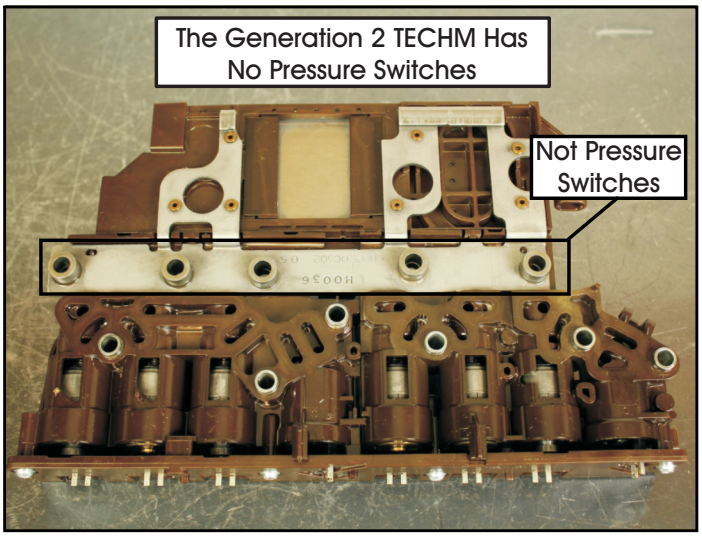


Figure 1

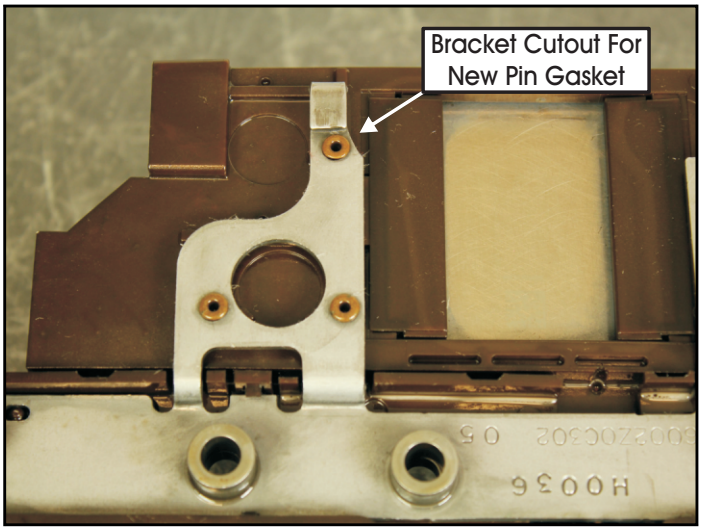
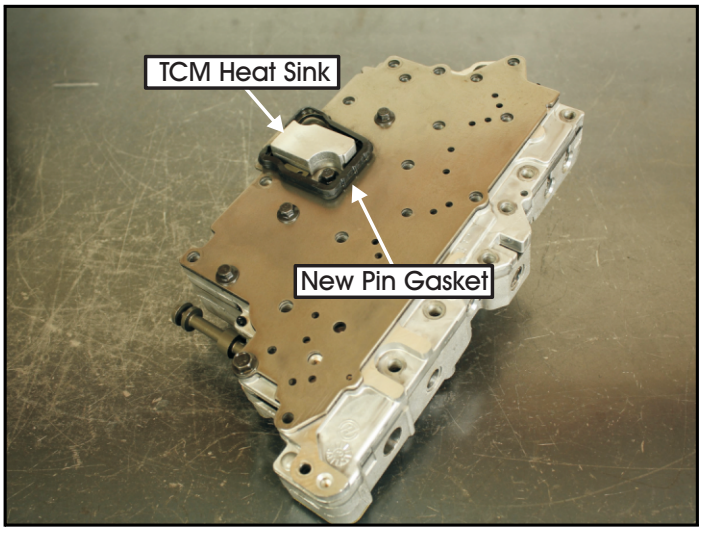


Figure 2



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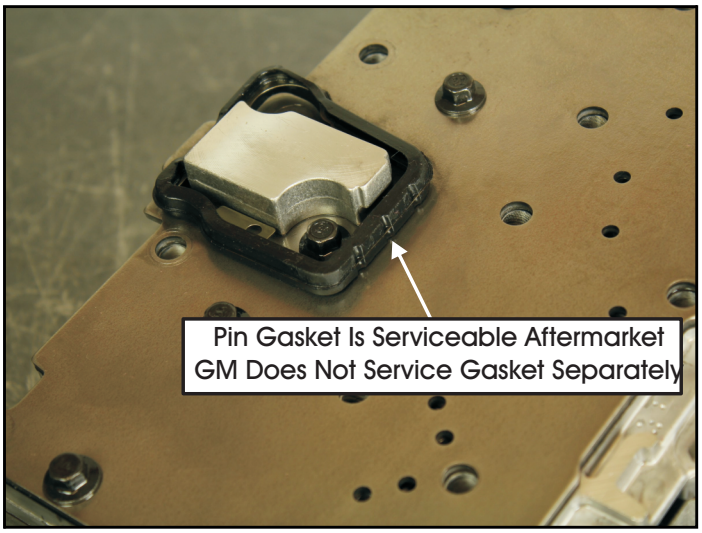

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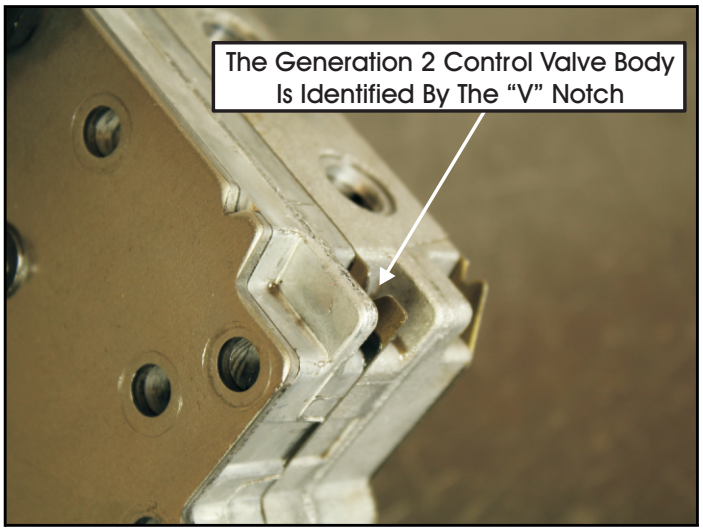

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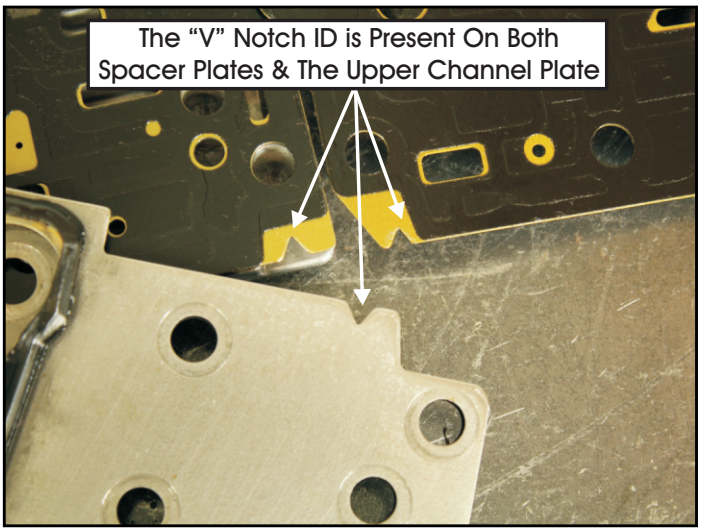
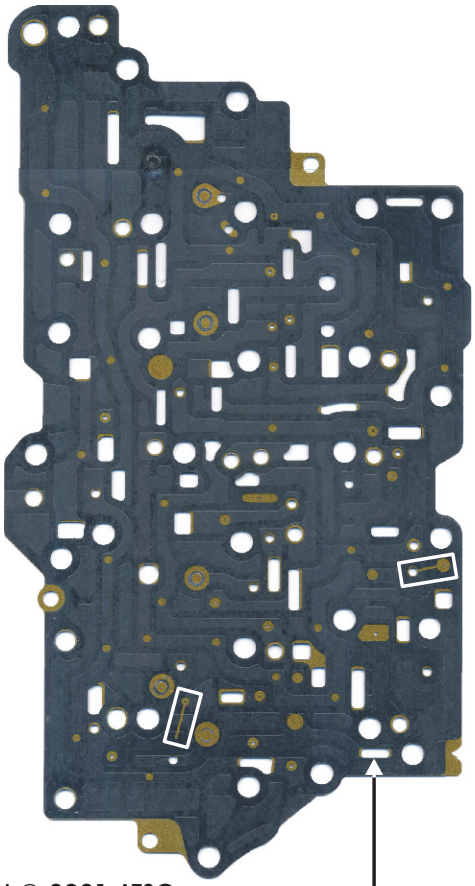


Figure 6

GM 6T70/75

GENERATION II CHANGES

LOWER VALVE BODY SPACER PLATE



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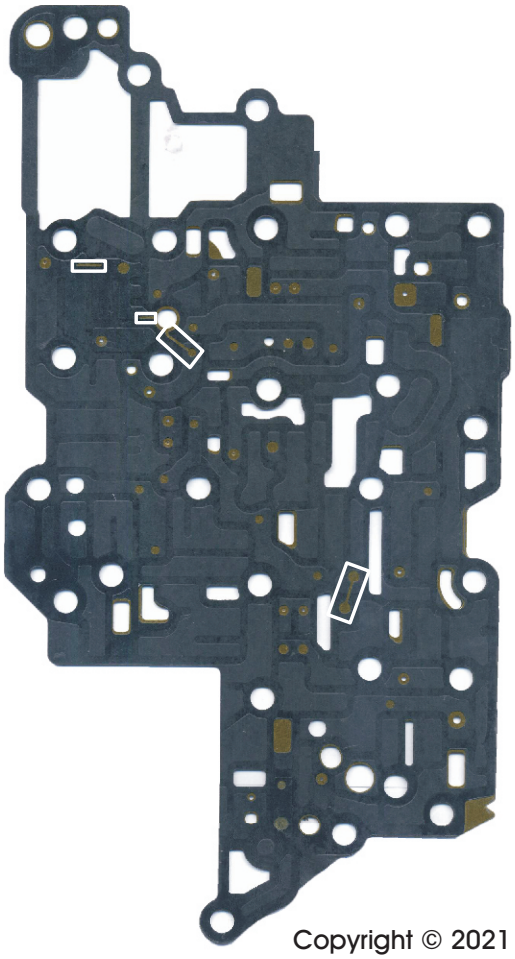
ORIFICE 10b RELOCATED
FOR ADDED #10 CHECK BALL

WHITE BOXES INDICATE ADDED SLOTS IN GASKET

Figure 7

UPPER VALVE BODY SPACER PLATE



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WHITE BOXES INDICATE ADDED SLOTS IN GASKET

Figure 8

GM 6T70/75

GENERATION II CHANGES

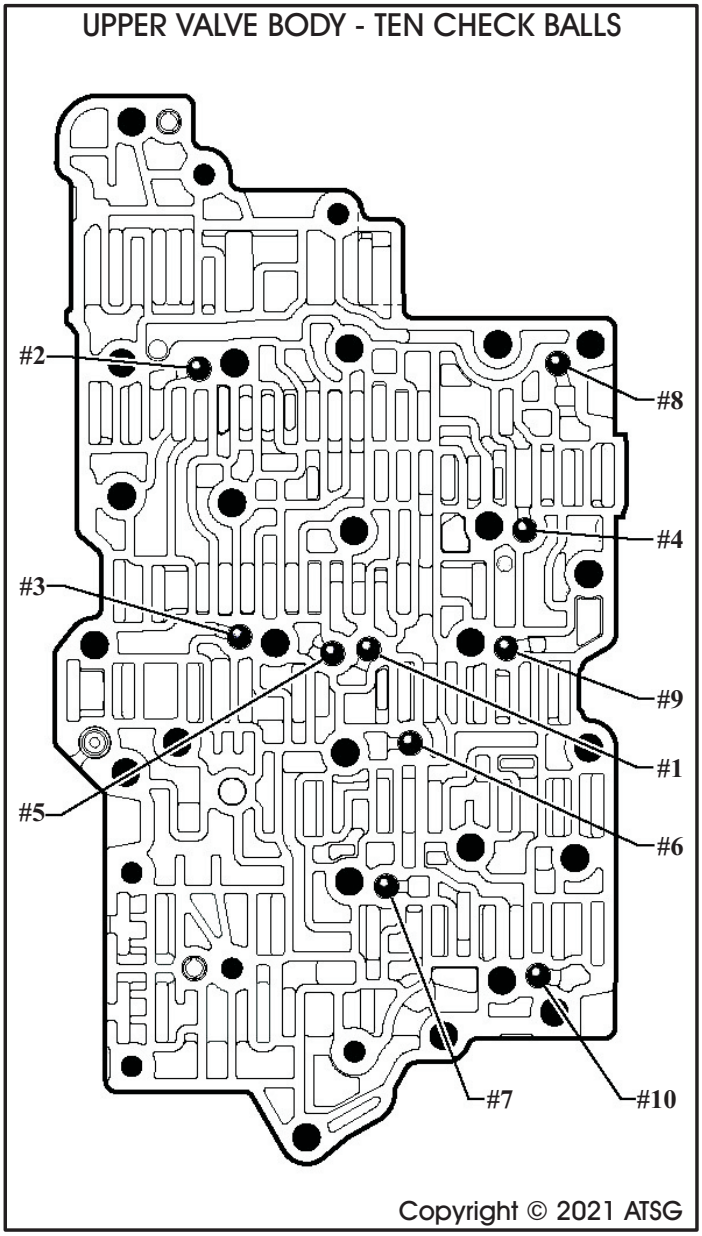

Figure 9

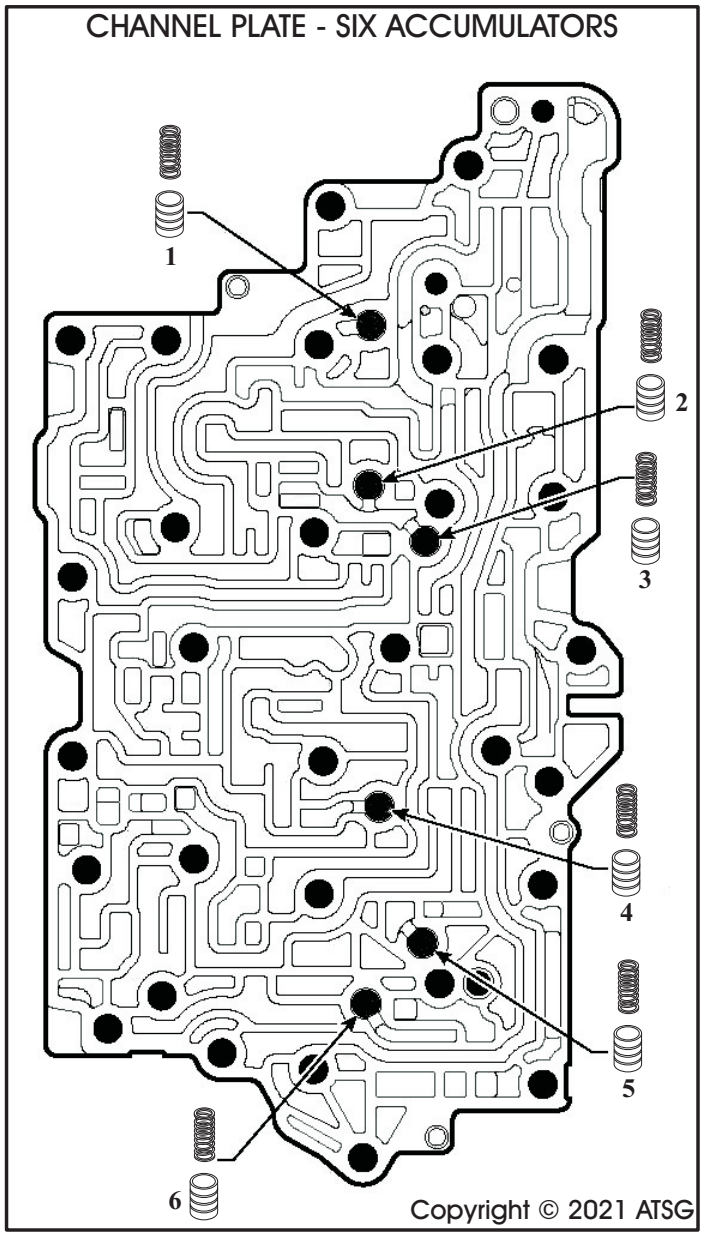

Figure 10

The added number 10 check ball is used to regulate exhaust backfill pressure. The ball remains seated until exhaust backfill fluid pressure exceeds compensator feed fluid pressure. When exhaust backfill fluid pressure exceeds compensator feed fluid pressure, the ball unseats, allowing excess pressure to enter the compensator feed circuit.

There are now 6 Actuator Feed Accumulators in the channel plate:

1 - PCS R1/4-5-6 Clutch
2 - PCS 1-2-3-4 Clutch
3 - PCS 3-5-Reverse Clutch
4 - PCS 2-6 Clutch
5 - PCS Line Pressure
6 - PCS TCC

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GENERATION II CHANGES

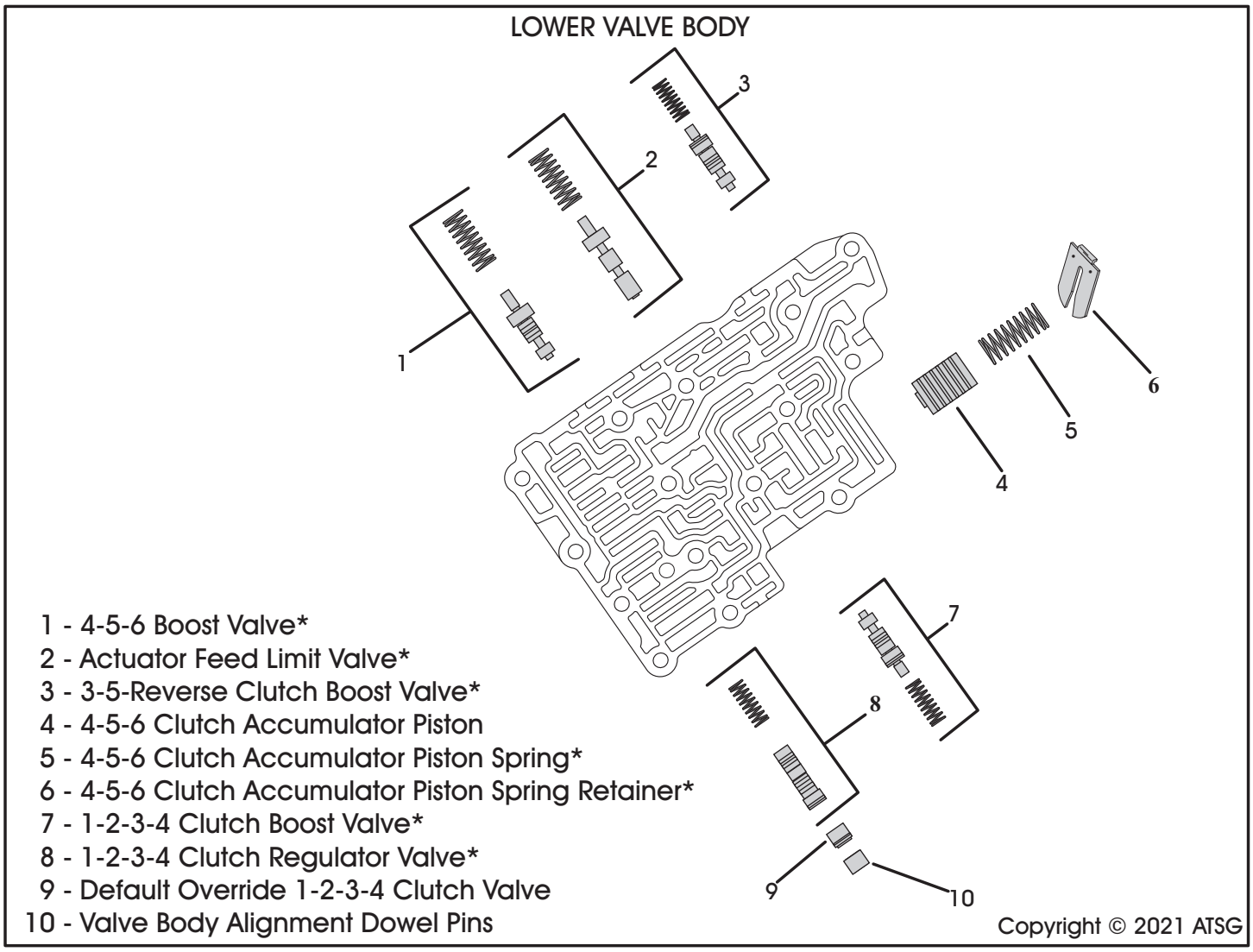


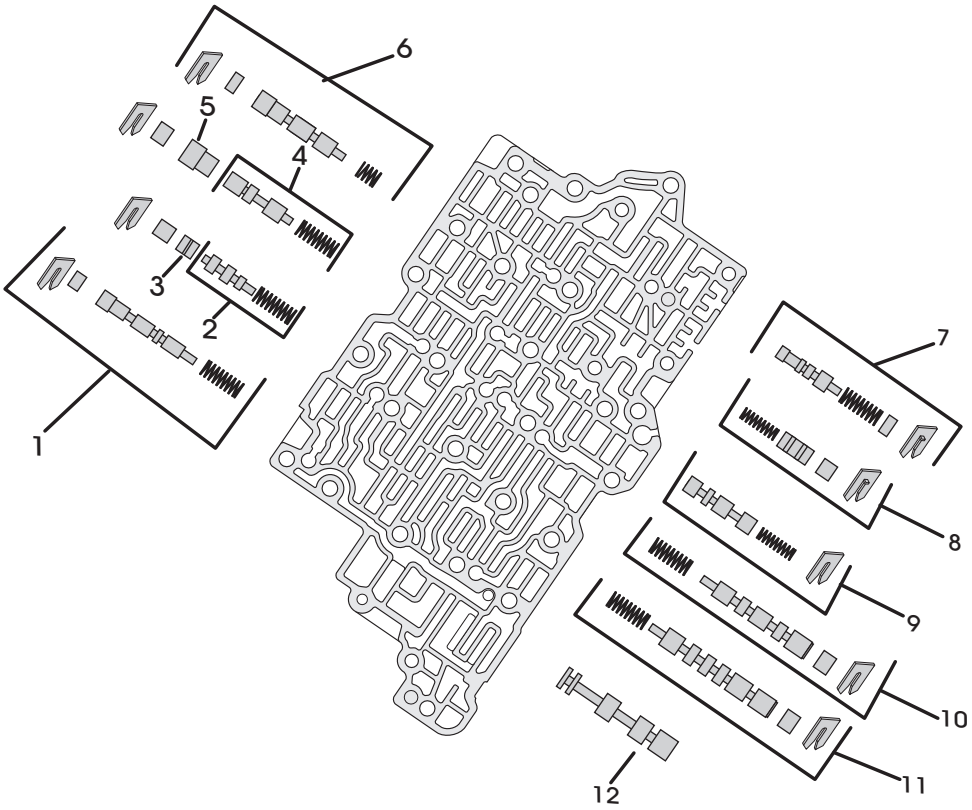
Figure 11

*The following valves and springs in the lower valve body have been redesigned for Generation 2:
1 - 4-5-6 Boost Valve
2 - Actuator Feed Limit Valve
3 - 3-5-Reverse Clutch Boost Valve
4 - 4-5-6 Clutch Accumulator Piston Spring went from nine coils to five coils and has a thicker coil diameter.
5 - 4-5-6 Clutch Accumulator Piston Spring Retainer
6 - 1-2-3-4 Clutch Boost Valve
7 - 1-2-3-4 Clutch Regulator Valve

GM 6T70/75

GENERATION II CHANGES

UPPER VALVE BODY



1 - Low/Reverse & 4-5-6 Clutch Regulator Valve*
2 - Torque Converter Clutch Regulator Apply Valve
3 - Torque Converter Clutch Regulator Apply Shuttle Valve
4 - 2-6-Clutch Regulator Valve*
5 - 2-6- Clutch Regulator Gain Valve
6 - 3-5-Reverse Clutch Regulator Valve*
7 - Pressure Regulator Valve*
8 - Isolator Valve & Spring*
9 - Torque Converter Clutch Control Valve
10 - Clutch Select Solenoid Valve #3
11 - Clutch Select Solenoid Valve #2*
12 - Manual Valve

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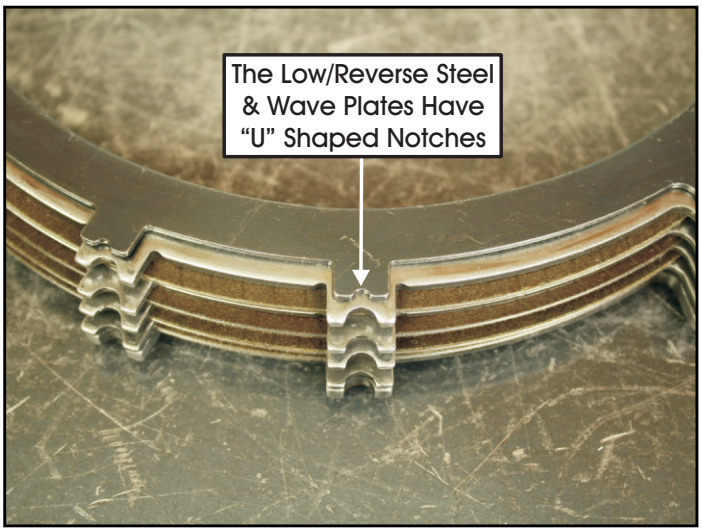
Figure 12

*The following valves and springs in the upper valve body have been redesigned for Generation 2:
The Isolator Valve Spring is now 1.349 (34.26mm) in length.
The Pressure Regulator Valve.
The 2-6 Clutch Regulator Valve.
The Low/Reverse/4-5-6 Clutch Regulator Valve.
The Clutch Select Solenoid Valve #2.
The 3-5-Reverse Clutch Regulator Valve.

GM 6T70/75

GENERATION II CHANGES



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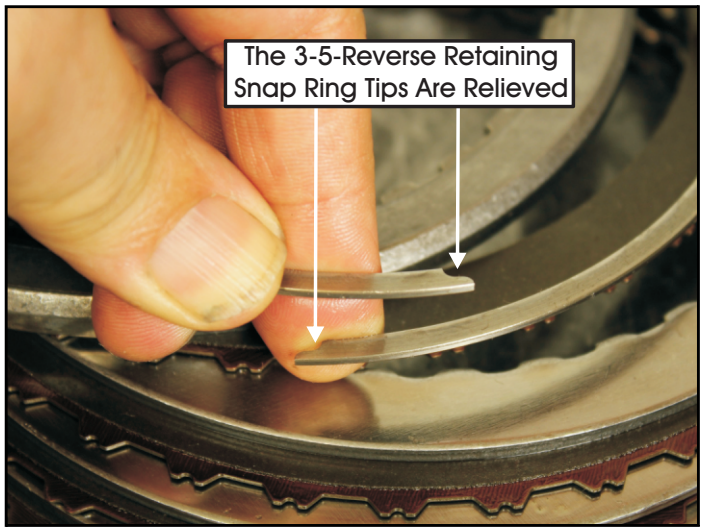

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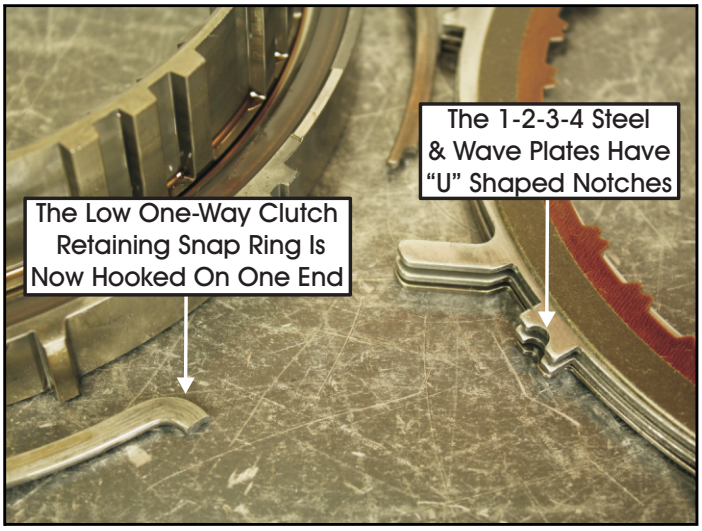

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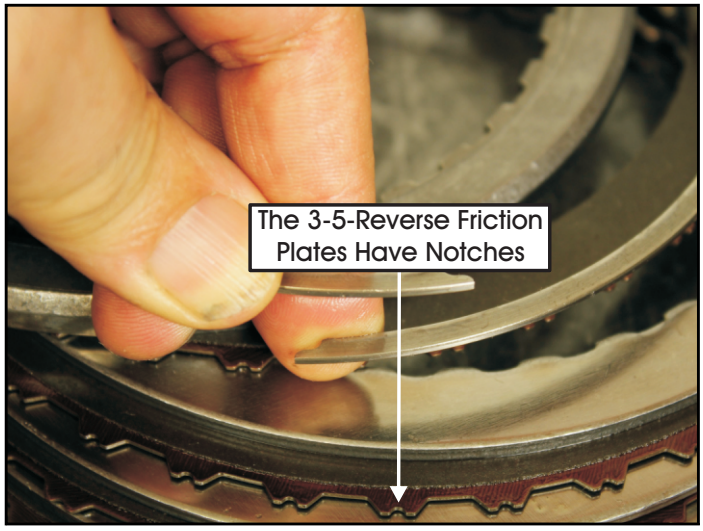

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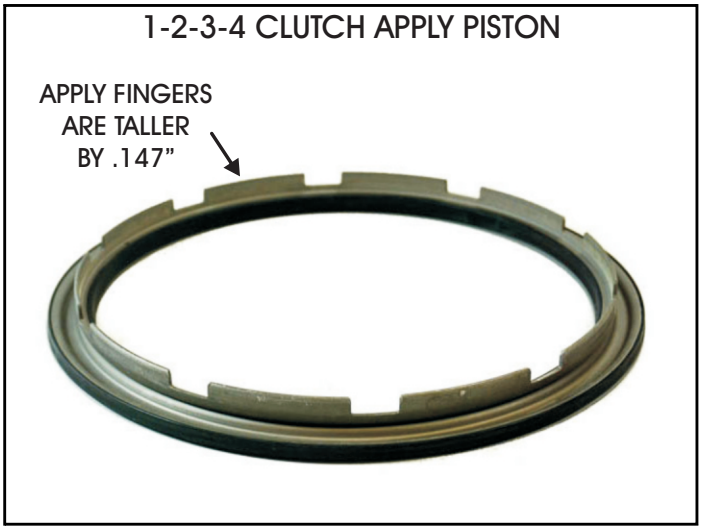

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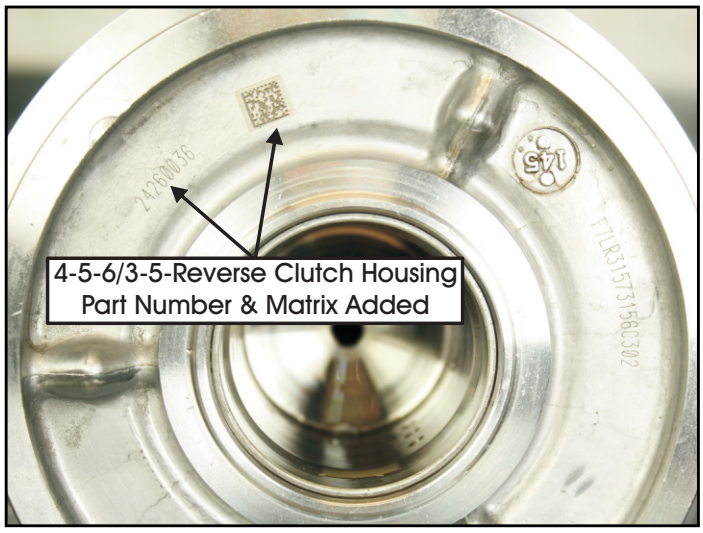


Figure 18

GM 6T70/75

GENERATION II CHANGES

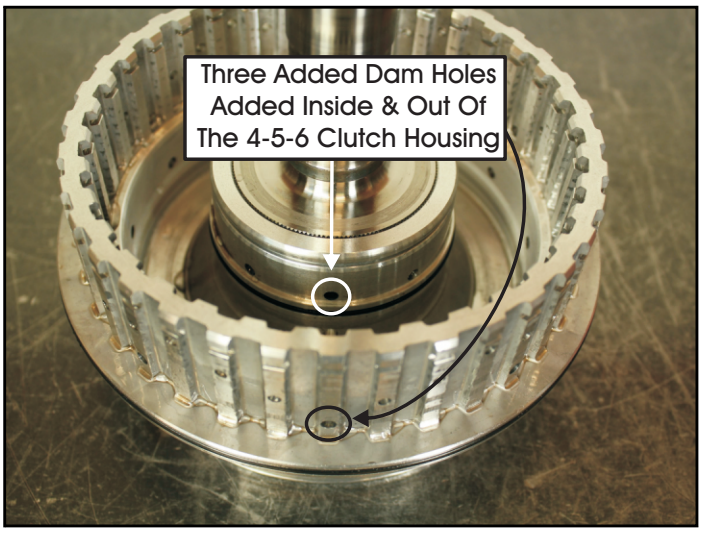
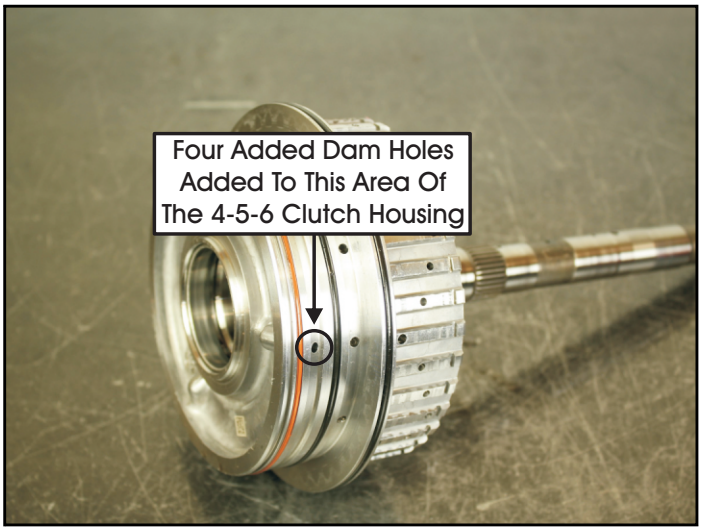


Figure 19

Figure 22



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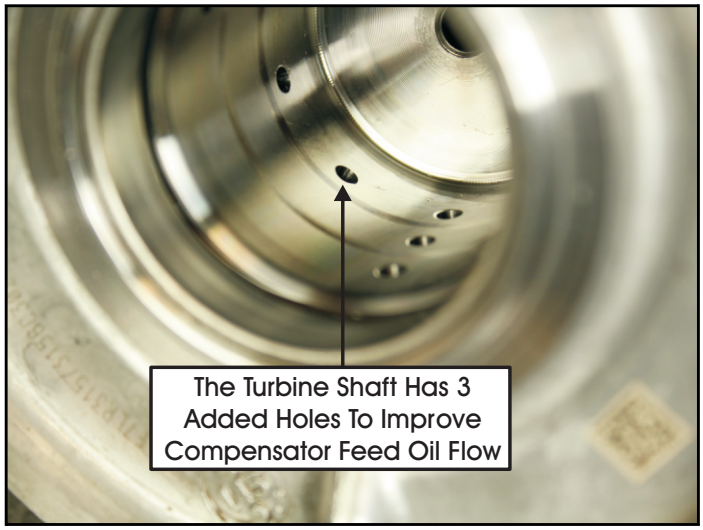


Figure 23

Figure 21

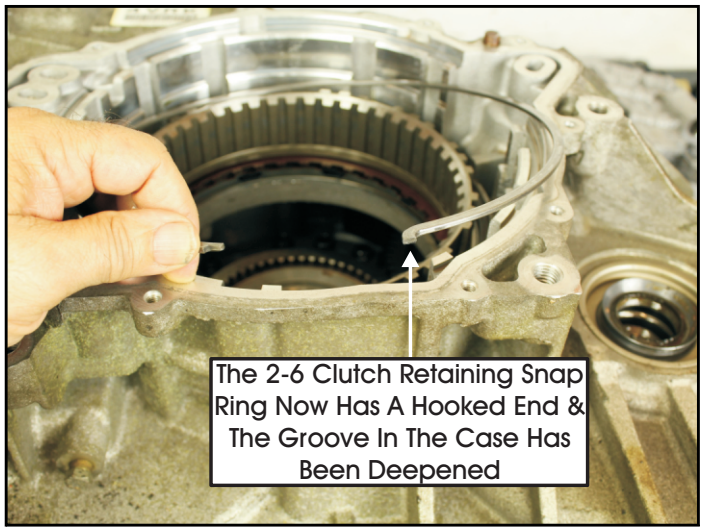
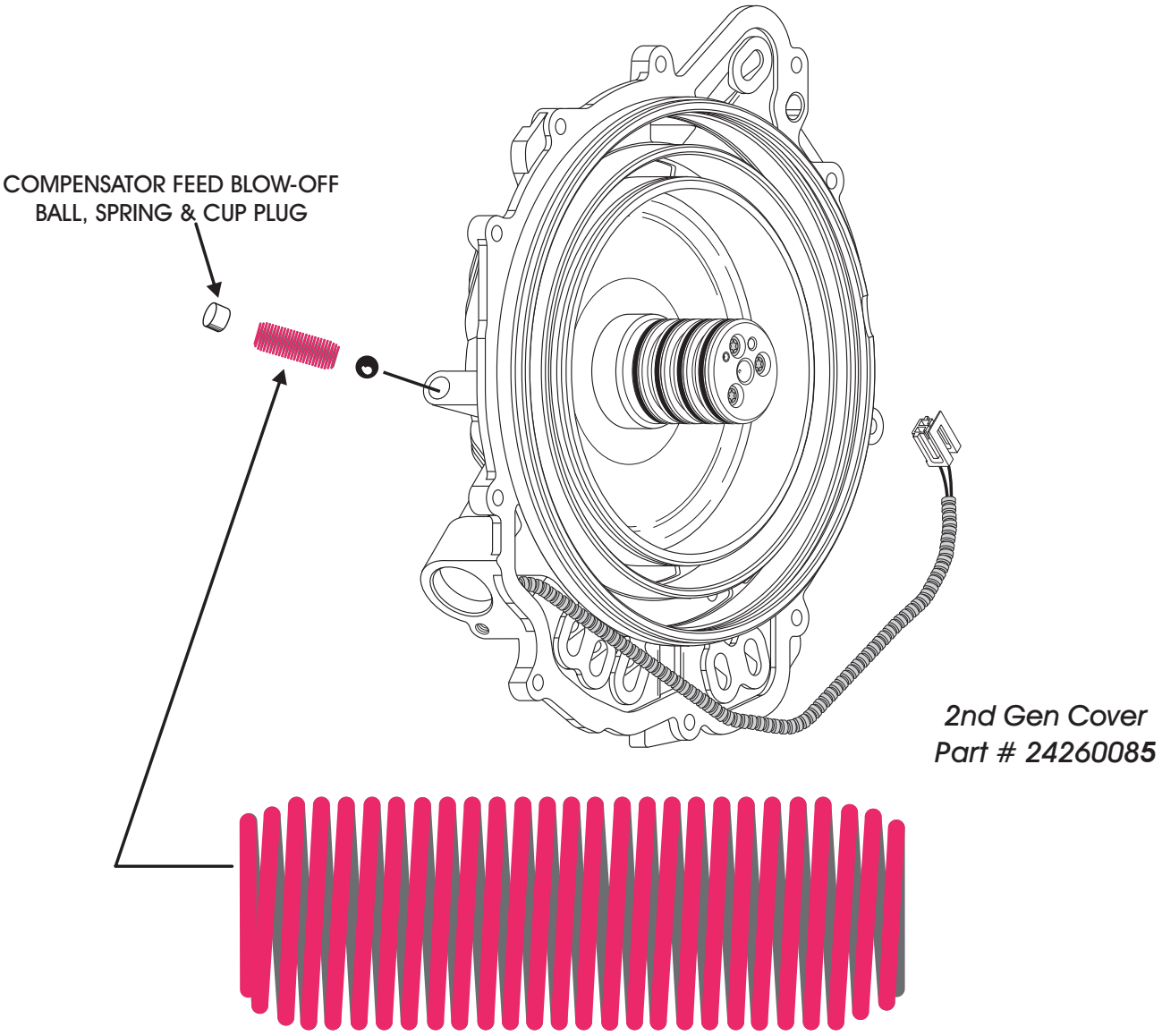


Figure 24

GM 6T70/75

GENERATION II CHANGES



THE COMPENSATOR FEED BLOW-OFF SPRING HAS BEEN SHORTENED & IS RED IN COLOR

Figure 25