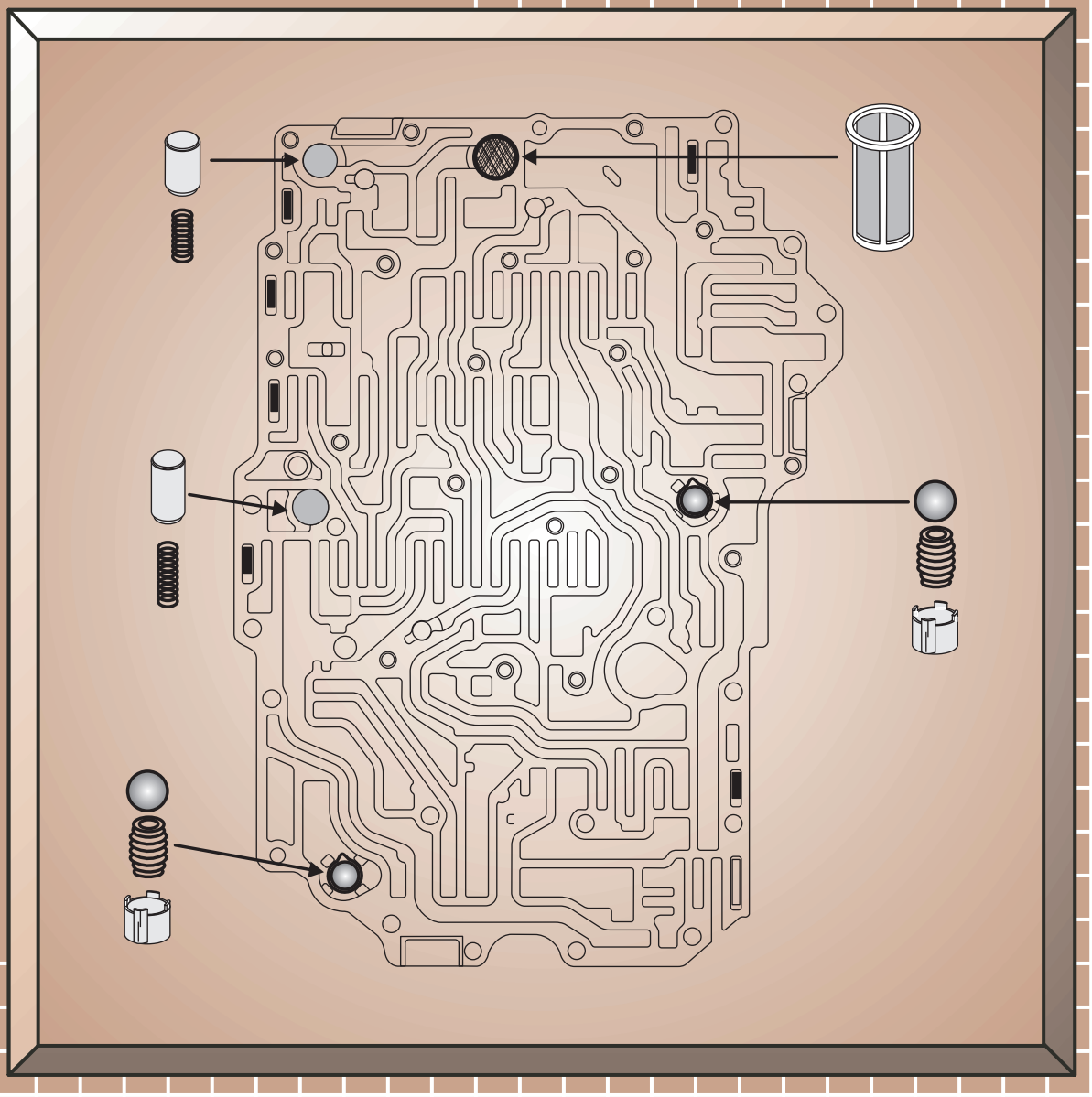
ATSG

CHECKBALL BOOK VOLUME II

DOMESTIC

VOLUME II



AUTOMATIC TRANSMISSION SERVICE GROUP

INTRODUCTION
DOMESTIC CHECKBALL BOOK VOLUME II

1st Printing
February, 2011

The second volume of the series of domestic checkball and small parts location manuals contain the most current valve body checkball and small parts locations for the most current domestically used transmissions on the road today.

All checkball locations are shown even when they are contained in a check valve located in one of the valve body bores. These check valve balls are often overlooked because they are not in plain sight.

This manual also contains information on what material the checkballs are constructed of as well as checkball and spring dimensions wherever possible.

A number of valve bodies contained in this manual may be considered as imports. Those that are used in domestically badged vehicles will be illustrated here with any differences that may have occurred. Therefore use these illustrations for the ***domestic*** vehicle they are found in, not the import vehicles.

However, there is one very important caution, and that is for the technician to exercise caution when disassembling these valve bodies contained in this manual because many of these valve bodies are used in transmissions that are utilized by multiple car manufacturers. As a result of this, checkball and small parts locations may be different than the valve body you are working with.

The technician should make notes as to any differences in checkball and small parts locations for future reference. We at ATSG would appreciate being notified of these differences in order to add this information when this manual goes to reprint.

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.

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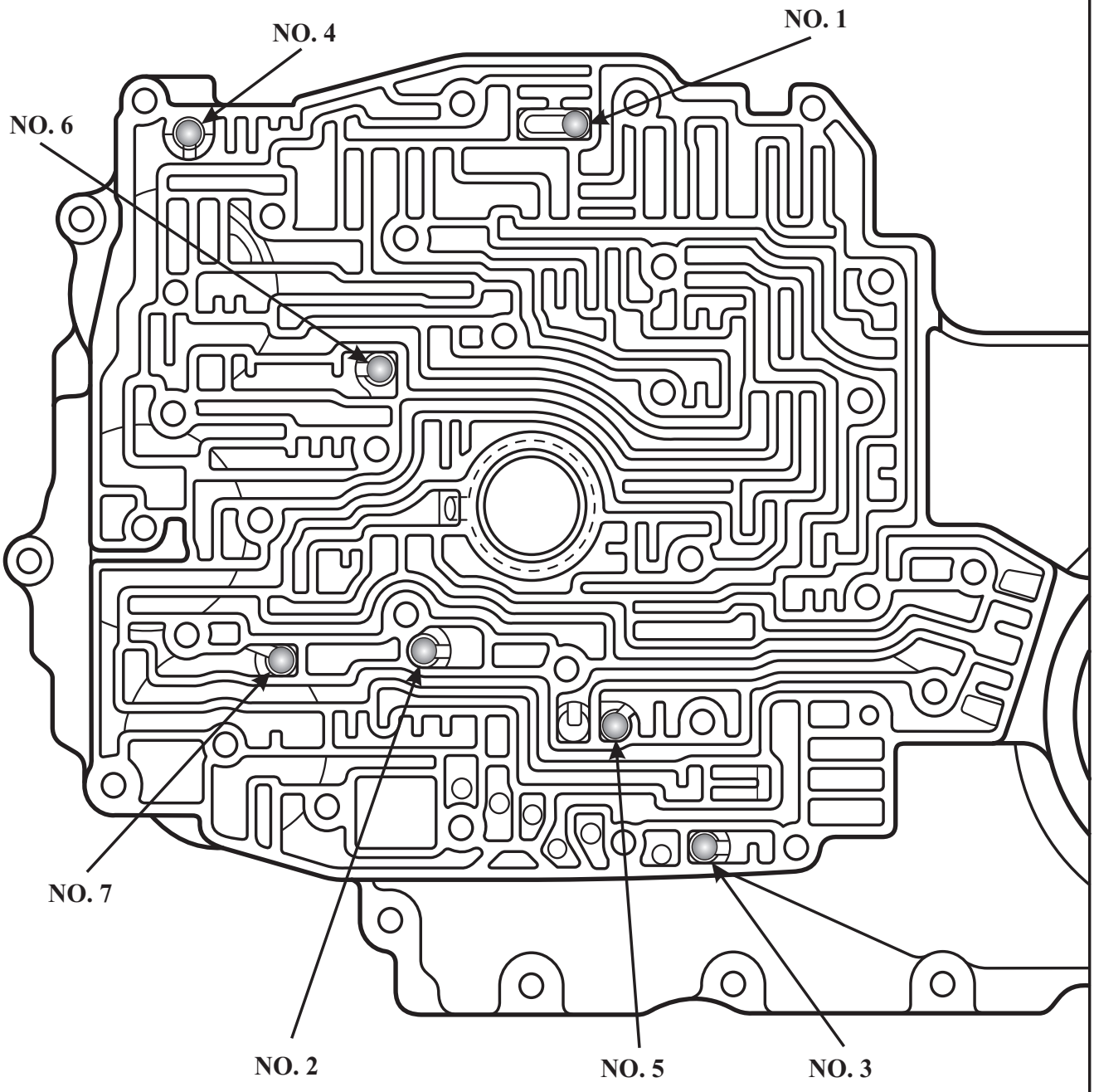
INDEX

GM 4T40/45E *(1997 & Later)*

CHANNEL PLATE

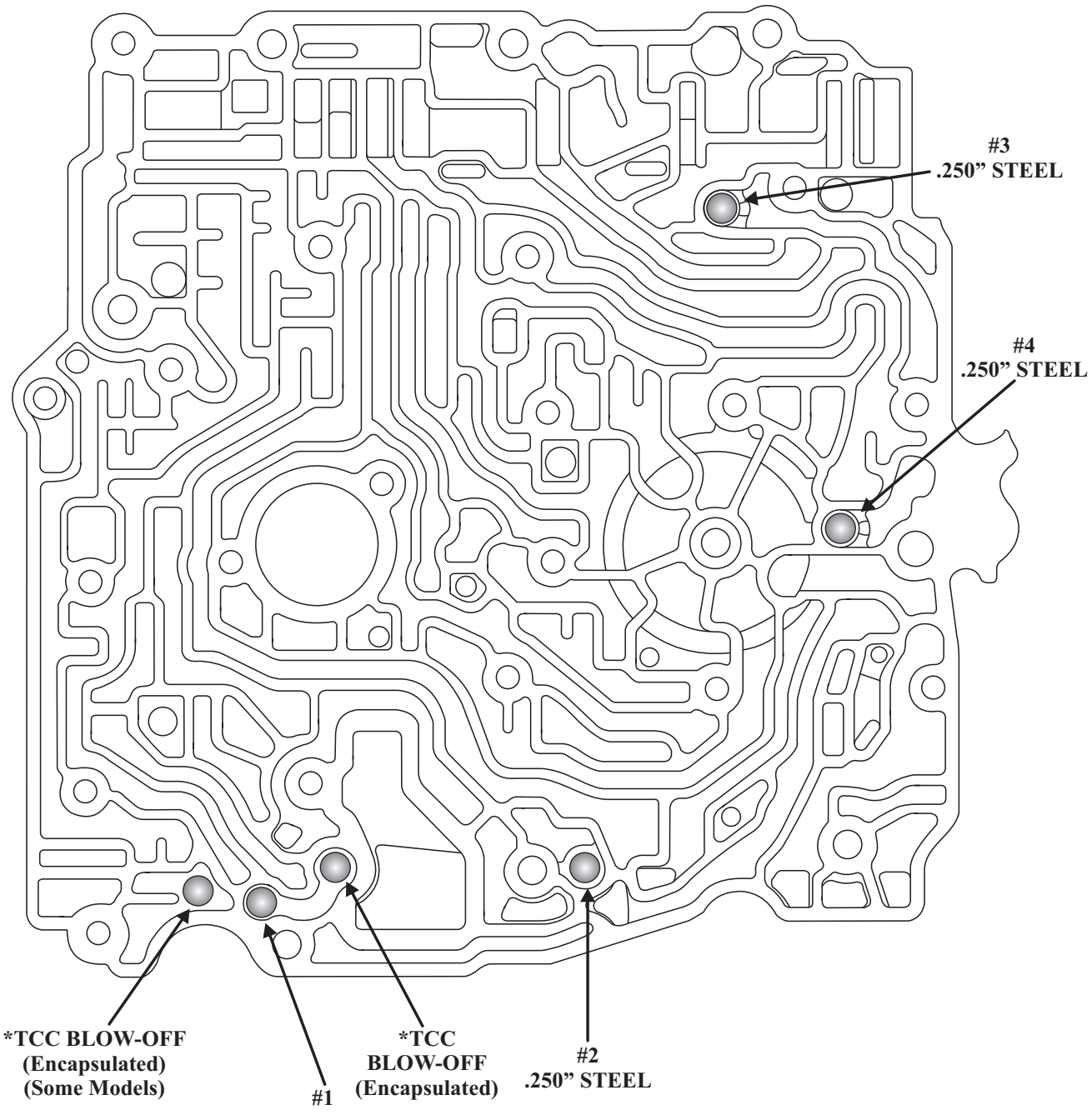


NO. 1 SEPERATES LO/PRN FLUID CIRCUITS.
NO. 2 FORCES 2-3 DRIVE FLUID THRU ORIFICE #3 TO CONTROL 1-2 SHIFT FEEL.
NO. 3 FORCES INTERMEDIATE/4TH BAND APPLY OIL THRU ORIFICE #8 FOR APPLY FEEL.
NO. 4 FORCES ACCUMULATOR OIL THRU ORIFICE #24 TO THE 1-2 ACCUMULATOR.
NO. 5 FORCES 3-4 DRIVE OIL THRU ORIFICE #26 TO CONTROL 2-3 SHIFT FEEL.
NO. 6 FORCES ACCUMULATOR OIL THRU ORIFICE #27 TO THE 2-3 ACCUMULATOR.
NO. 7 FORCES ACCUMULATOR OIL THRU ORIFICE #28 TO THE 3-4 ACCUMULATOR.

ALL CHECKBALLS ARE .250" DIAMETER - STEEL

GM
4T65E

CHANNEL PLATE Valve Body Side

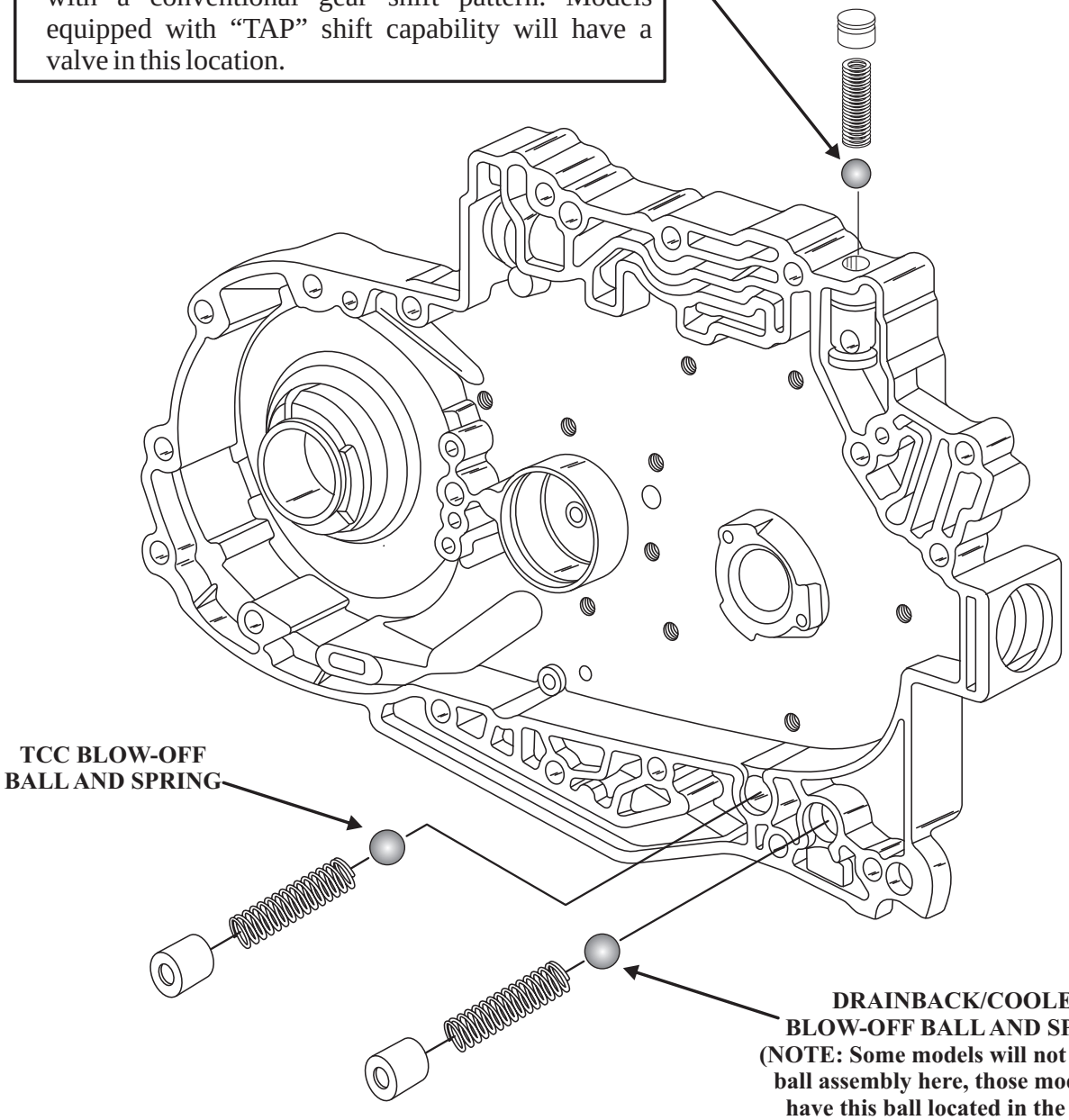


See Following Page For Explanation Of Checkballs Cooler Check Valve And TCC Blow-Off
Remaining checkball functions can be found on Page 7.

GM
4T65E

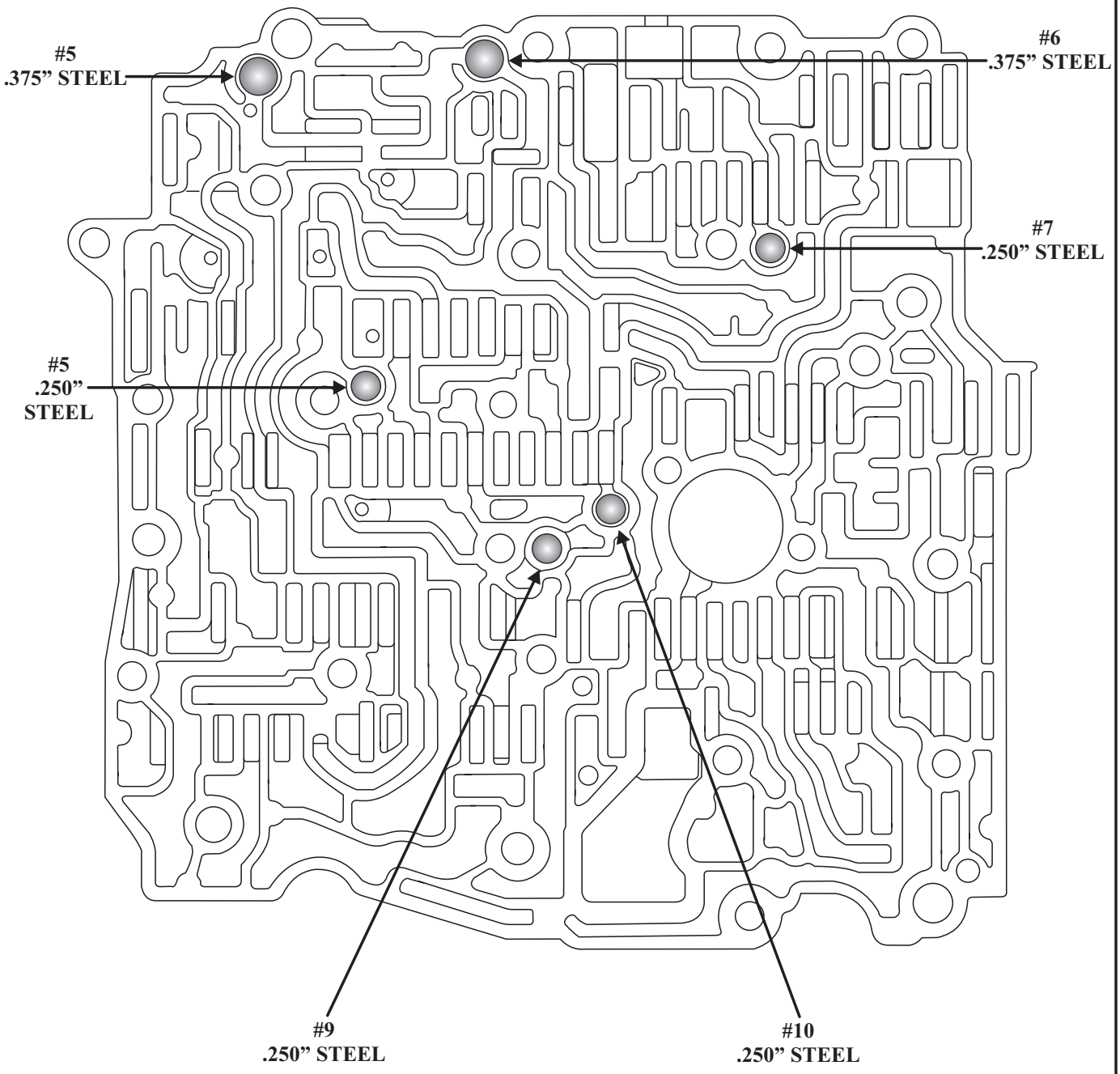
CHANNEL PLATE (Case Side)

Low Blow Off Ball Assembly
The low blow off valve located in the channel plate is a pressure relief valve that exhausts excess Lo-1st fluid pressures above (65 psi) in the 3rd clutch apply circuit.
NOTE: The low blow off ball is used only on models with a conventional gear shift pattern. Models equipped with "TAP" shift capability will have a valve in this location.



GM
4T65E

VALVE BODY



Checkball Functions Can Be Found On Page 7.

4T65E CHECKBALL FUNCTION & LOCATION

TCC Blow Off
Located in the case channel plate , this ball is held closed by spring force from the TCC blow off spring. If converter release or apply pressure exceeds 100 psi, the ball will unseat to release pressure.

Cooler Blow Off/Converter Drainback
Located in the channel plate, this ball is held closed by spring force from the cooler blow off spring. If converter release or apply pressure exceeds 100 psi, the ball will unseat to release pressure. In addition, when the engine is turned off spring force will seat the ball preventing torque converter drainback.

#1 TCC Apply/Release
Located in the channel plate, it directs either release or apply fluid pressures to the TCC Blow-Off ball valve which is also located in the channel plate.

#2 Second Clutch
Located in the channel plate, it directs 2nd (apply) fluid through orifice 25 on the spacer plate into the 2nd clutch passage. When the 2nd clutch releases, it seats in the case cover forcing 2nd clutch fluid through orifice 26 and into the 2nd fluid passage.

#3 Input Clutch/PRN
Located in the case cover, it blocks the PRN passage to direct input clutch fluid to the input clutch during the appropriate gear range. In Park, Reverse or Neutral gear ranges, PRN fluid unseats the ball check valve and also feeds the input clutch.

#4 Third Clutch/Low Reg
Located in the channel plate, during Overdrive Range Third Gear, it seats against the low reg passage allowing 3rd clutch fluid into the 3rd clutch/low reg passage to apply the 3rd clutch. During a 3-2 shift, it allows 3rd clutch/low reg fluid to exhaust into the 3rd clutch fluid passage. In Drive Range - Manual First, it seats against 3rd clutch fluid allowing low reg fluid to enter the 3rd clutch/low reg fluid passage to apply the 3rd clutch.

#5 Reverse/Reverse Servo Feed
Located in the valve body, it blocks the reverse servo feed passage forcing reverse fluid through an orifice before entering the reverse servo feed passage. When the manual valve is moved out of Reverse gear range, the ball check valve unseats allowing reverse servo fluid to exhaust through the reverse fluid passage.

#6 D4 /Servo Apply
Located in the valve body, it blocks the forward servo apply passage and forces D4 fluid pressure to the forward servo feed orifice on the spacer plate. When the manual valve is moved from Drive Range to Park or Neutral or Reverse, the ball check valve unseats to allow for a quick exhaust of the servo apply fluid and release of the forward band assembly.

#7 LO/LO-1st
Located in the valve body, it blocks the lo-1st passage when Drive Range Manual First gear is selected and sends Lo fluid pressure to the 1-2 shift valve where it passes through the valve and is forced through orifice 27 into the Lo-1st circuit.

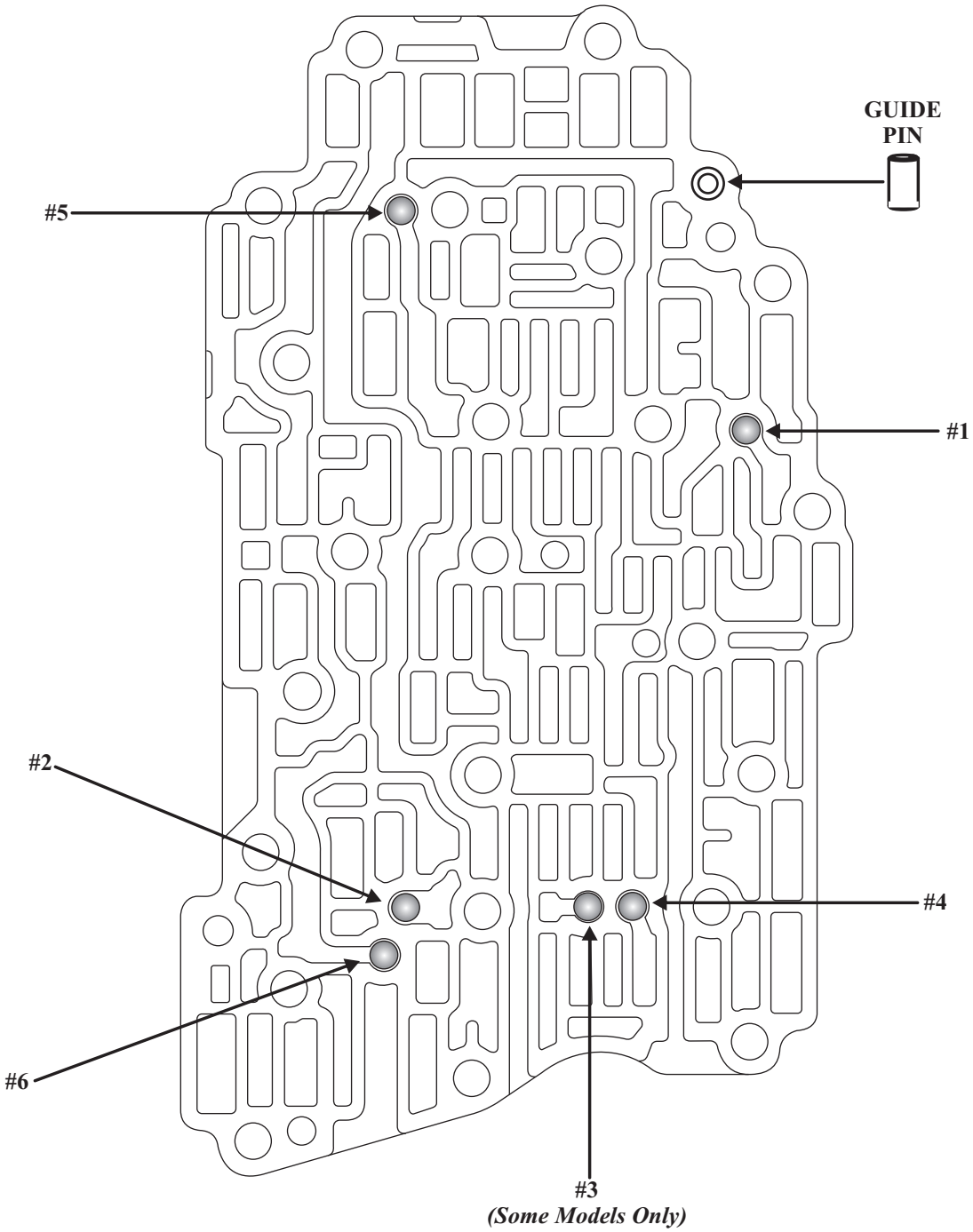
#8 D2 / Manual 2-1 Servo Feed
Located in the valve body, it is fed by D-2 fluid from the manual valve and seated against orificed manual 2-1 servo feed fluid at the spacer plate. D-2 fluid is then directed to the 3-2 Manual Downshift valve where it enters the 2-1 manual servo feed passage and is forced through orifice 13. When the 2-1 manual band servo releases the ball check valve unseats and fluid exhausts without going through orifice 13.

#9 Third / 3rd Clutch
Located in the valve body, it forces 3rd fluid through feed orifice 24 into the 3rd clutch passage during apply of the 3rd clutch. When the 3rd clutch releases, 3rd clutch fluid seats the ball check valve against the 3rd passage, forcing fluid through orifice 28 and into the 3rd fluid passage to the 2-3 shift valve where it exhausts.

#10 Line / 4th Clutch
Located in the valve body, it is seated against the 1st gear fluid passage during all forward ranges, except first, and directs line fluid through orifice 33. In drive range first gear or manual first low gear fluid pressure unseats the ball check valve and bypasses orifice 33 to send fluid to the input clutch apply passage.

GM 6T45

UPPER CONTROL VALVE BODY



● *ALL SIX CHECKBALLS ARE .250" DIAMETER - STEEL*

CHECKBALL FUNCTION

#1 Checkball - 4-5-6 Clutch/CSV2 Latch

The number one checkball is located in the control valve body. This "ball shuttle valve" is seated against the 4-5-6 clutch passage by PS4 fluid while the transmission is operating in Drive Range, 1st, 2nd and 3rd gears. With the ball in this position, PS4 fluid enters the CSV2 latch fluid circuit to hold the clutch select valve in the released position. When the transmission is operating in Drive Range, 4th, 5th or 6th gears, 4-5-6 clutch fluid pressure seats the ball against the PS4 fluid passage to allow 4-5-6 clutch fluid to enter the CSV2 latch fluid circuit to hold the clutch select valve in the released position.

#2 Checkball - 3-5-Reverse Clutch Feed/Drive 1-6

The number two checkball is located in the control valve body. This "ball shuttle valve" is seated against the drive 1-6 fluid passage by 3-5-Reverse clutch feed fluid while the transmission is operating in reverse. With the ball in this position, 3-5-Reverse clutch feed fluid enters the 3-5-Reverse/Drive 1-6 fluid circuit and is routed through the 3-5-Reverse clutch regulator valve in order to apply the 3-5-Reverse clutch. When the transmission is operating in Drive Range, 1st, 2nd, 3rd, 4th, 5th or 6th gears, the ball seats against the 3-5-Reverse clutch feed fluid passage to allow drive 1-6 fluid to enter the 3-5-Reverse clutch feed/drive 1-6 fluid circuit. 3-5-Reverse clutch feed/drive 1-6 fluid passes through the 3-5-Reverse clutch regulator valve and enters the PS2 fluid circuit. PS2 fluid is then routed to pressure switch 2 and opens the switch.

#3 Checkball - 3-5-Reverse Clutch Feed

The number three checkball is located in the control valve body. This "one way orifice control" ball is seated against the 3-5-Reverse clutch feed passage while the transmission is operating in reverse gear. With the ball in this position, 3-5-Reverse clutch feed fluid is directed through an orifice to the 3-5-Reverse clutch regulator valve.

Note: The #3 ball is only functional on models that have a 4th gear default capability, it is not used in 5th gear default models.

#4 Checkball - Compensator Feed/3-5-Rev Feed

The number four checkball is located in the control valve body. This "one way orifice control" ball is seated against the 3-5-Reverse clutch fluid passage by compensator feed fluid while the transmission is operating in all gears. With the ball in this position, compensator feed pressure passes through the 3-5-Reverse clutch regulator valve and fills the 3-5-Reverse clutch circuit.

#5 Checkball - R1/4-5-6 Clutch/Actuator Feed Limit

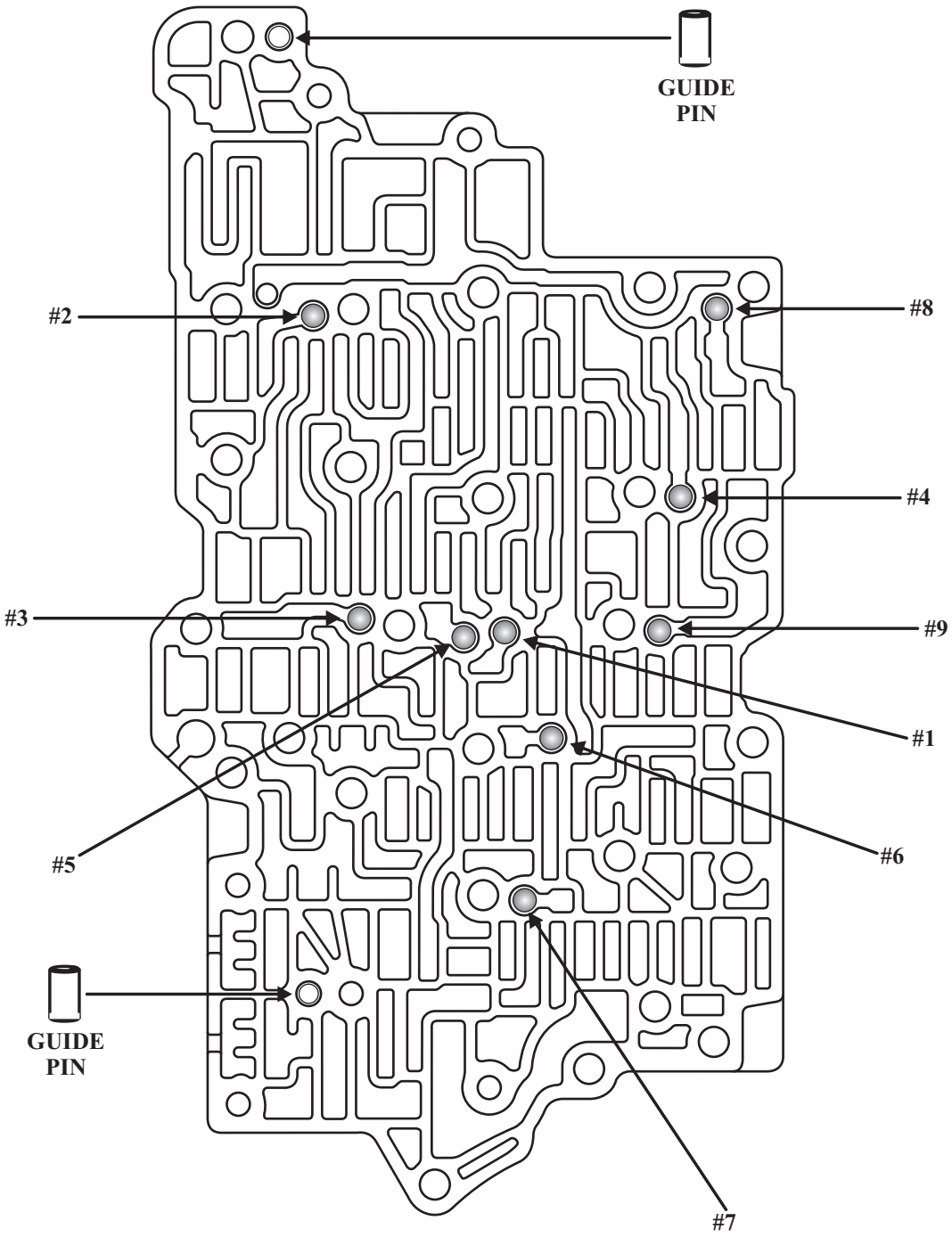
The number five checkball is located in the control valve body. This checkball functions as an accumulator, absorbing excess R1/4-5-6 clutch feed fluid pressure in order to help control clutch feel. When the low and reverse clutch is applied in Park, Reverse, Neutral and Drive Range/1st gear (Engine Braking), R1/4-5-6 clutch feed fluid unseats the ball allowing excess clutch apply fluid pressure to enter the actuator feed limit fluid circuit. In Drive Range/4th, 5th and 6th gears, this ball functions in the same way when the 4-5-6 clutch is applied.

#6 Checkball - 3-5-Reverse Clutch/AFL

The number six checkball is located in the control valve body. This ball functions as an accumulator, absorbing excess 3-5-Reverse clutch fluid pressure in order to help control clutch feel. When the 3-5-Reverse clutch is applied in Reverse, Drive Range/3rd and 5th gears, 3-5-Reverse clutch fluid unseats the ball allowing excess clutch apply fluid pressure to enter the Actuator Feed Limit fluid circuit.

GM 6T75

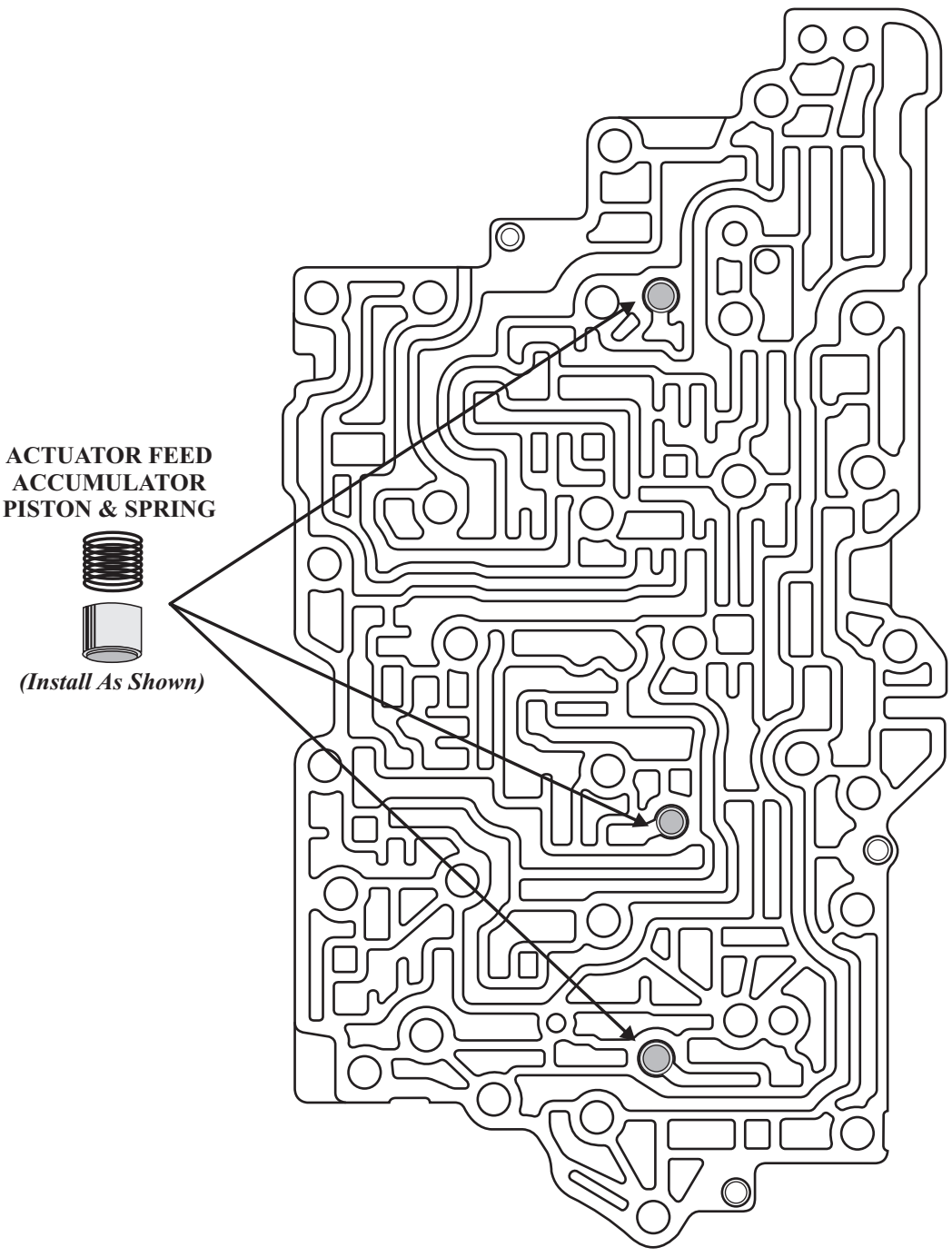
UPPER CONTROL VALVE BODY



● *ALL NINE CHECKBALLS ARE .250" DIAMETER - STEEL*

GM 6T75

CONTROL VALVE CHANNEL PLATE



CHECKBALL FUNCTION

#1 Checkball - Drive 1-6/Drive Braking

The number one checkball is located in the upper valve body. When the transmission is operating in Drive 1st, 2nd, 3rd, 4th, 5th or 6th gear, drive 1-6 fluid seats the checkball against the drive braking passage and enters the 2-6 clutch/1-2-3-4 clutch feed circuit to apply the 1-2-3-4 clutch.

#2 Checkball - Solenoid 1/Reverse

The number two checkball is located in the upper valve body. This shuttle type checkball is seated against the reverse passage while the transmission is operating in Park, Neutral and Drive 1st. With the checkball in this position, shift solenoid 1 fluid enters the CSV2 enable circuit to the "clutch select valve 2". When the transmission is operating in Reverse, the checkball seats against shift solenoid 1 passage to allow reverse fluid to enter the CSV2 enable circuit and hold the "clutch select valve 2" in the applied position.

#3 Checkball - Solenoid 2/4-5-6 Clutch

The number three checkball is located in the upper valve body. This shuttle type checkball is seated against the 4-5-6 clutch passage while the transmission is operating in Park, Reverse, Neutral, Drive 1st, 2nd and 3rd gear. With the checkball in this position, shift solenoid 2 fluid enters the CSV3 enable circuit to apply the "clutch select valve 3". When the transmission is operating in Drive 4th, 5th or 6th gear, the checkball seats against the shift solenoid 2 passage to allow 4-5-6 clutch fluid to enter the CSV3 enable circuit and hold the "clutch select valve 3" in the applied position.

#4 Checkball - PS4/4-5-6 Clutch

The number four checkball is located in the upper valve body. This shuttle type checkball is seated against the 4-5-6 clutch passage by Pressure Solenoid 4 fluid, while the transmission is operating in Park, Reverse, Neutral, Drive 1st, 2nd and 3rd gear. With the checkball in this position, PS 4 fluid enters the CSV2 latch circuit to hold the "clutch select valve 2" in the released position. When the transmission is operating in Drive 4th, 5th or 6th gear, 4-5-6 clutch fluid seats the checkball against the PS 4 passage to allow 4-5-6 clutch fluid to enter the CSV2 latch circuit to hold the "clutch select valve 2" in released the position.

#5 Checkball - Drive 1-6/3-5-Reverse Clutch Feed

The number five checkball is located in the upper valve body. This shuttle type checkball is seated against the Drive 1-6 passage by 3-5/Reverse Feed fluid while the transmission is operating in Reverse. With the checkball in this position, 3-5/Reverse Feed fluid enters the 3-5/Reverse Supply circuit and is routed to the number 7 checkball. When the transmission is operating in Drive 1st, 2nd, 3rd, 4th, 5th or 6th gear, Drive 1-6 fluid seats the ball against the 3-5/Reverse Feed passage to allow Drive 1-6 fluid to enter the 3-5/Reverse Supply circuit.

#6 Checkball - 2-6 Clutch/1-2-3-4 Clutch Feed

The number six checkball is located in the upper valve body. This "one way orifice control" type checkball is used to differentiate the flow rate of fluid between applying and releasing the 1-2-3-4 clutch. 2-6 clutch/1-2-3-4 clutch feed fluid opens the checkball, while the transmission is operating in Drive 1st, 2nd, 3rd, 4th, 5th or 6th gear. With the ball in this position, 2-6 clutch/1-2-3-4 clutch feed fluid flows freely into the 1-2-3-4 clutch feed passage. When Park, Reverse or Neutral is selected after the transmission was operating in Drive, exhausting 1-2-3-4 clutch feed fluid seats the checkball, and forces exhausting fluid through orifice number 32, which allows for a controlled exhaust of the 1-2-3-4 clutch.

#7 Checkball - 3-5-Reverse Supply & Feed

The number seven checkball is located in the upper valve body. This "one way orifice control" type checkball is used to differentiate the flow rate of fluid between applying and releasing the 3-5/Reverse clutch. 3-5/Reverse Supply fluid pressure seats the checkball against the 3-5/Reverse Feed passage, while the transmission is operating in Reverse, Drive 1st, 2nd, 3rd, 4th, 5th or 6th gear. With the checkball in this position, 3-5/Reverse Supply fluid is forced through orifice number 25 before entering the 3-5/Reverse Feed passage. The orifice helps control the apply rate of the 3-5/Reverse clutch when the transmission shifts into Reverse, 3rd or 5th gear. When Park or Neutral is selected after the transmission was operating in Drive, or Reverse, exhausting 3-5/Reverse Feed fluid unseats the checkball. This allows for a faster exhaust of 3-5/Reverse Feed fluid and a quick release of the 3-5/Reverse clutch.

#8 Checkball - R1 (Low/Reverse)

The number eight checkball is located in the upper valve body. This "one way orifice control" type checkball is used to differentiate the flow rate of fluid between applying and releasing the Low/Reverse clutch. When the transmission is operating in Park, Reverse, Neutral and Drive Range 1st gear-Engine Braking, the number eight checkball which allows for a quick apply of the Low/Reverse clutch. When the transmission is operating in Drive Range First Gear, R1 fluid exhausts, seating the ball forcing R1 fluid past orifice #18. The orifice helps control the release of the Low/Reverse clutch.

#9 Checkball - 4-5-6 Clutch

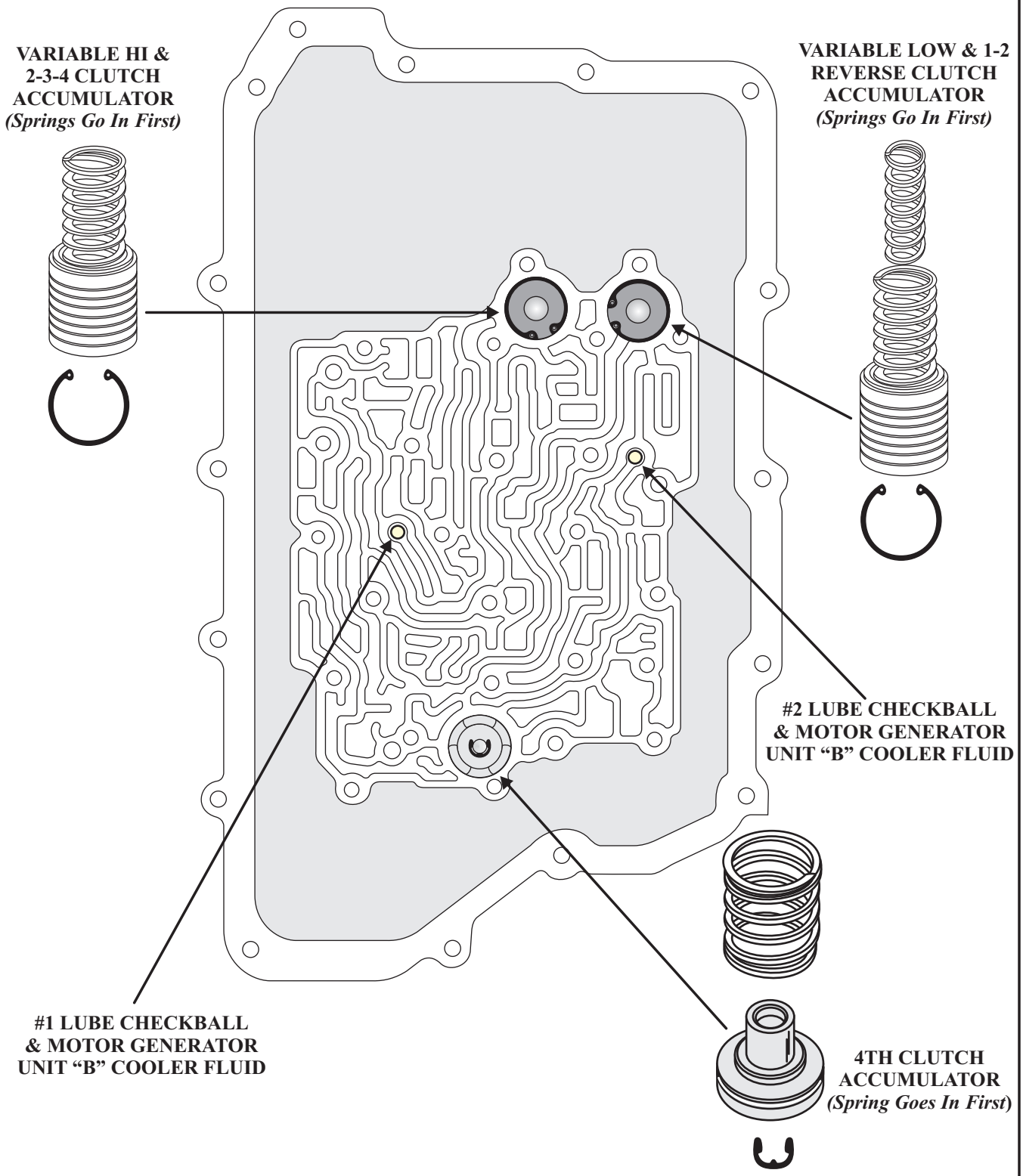
The number nine checkball is located in the upper valve body. This "one way orifice control" type checkball is used to control the flow rate of fluid when applying and releasing the 4-5-6 clutch. When the transmission is operating in Drive Range Fourth ,Fifth and Sixth gears, this clutch pressure seats the ball. At this time 4-5-6 fluid is forced through orifice #39 before going to the 4-5-6 clutch. The orifice helps control the rate of apply and release of the 4-5-6 clutch.

Actuator Feed Accumulator Piston

The Actuator Feed Accumulator Piston is located in the control valve channel plate. Three actuator feed accumulators are used to dampen any pressure irregularities occurring the in actuator feed limit fluid circuit.

GM 2MT70 HYBRID

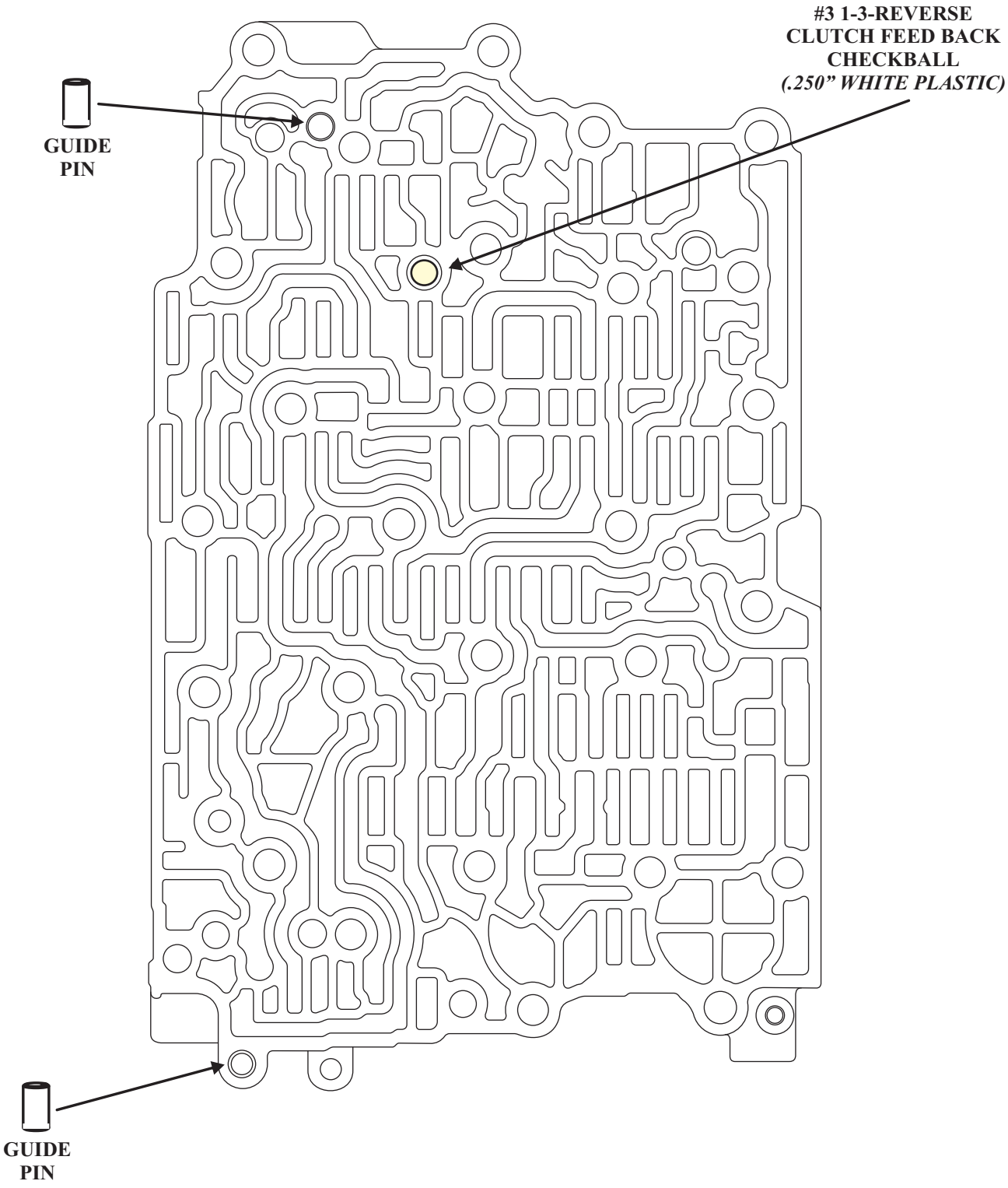
CASE



○ All Checkballs Are .250" Diameter - White Plastic

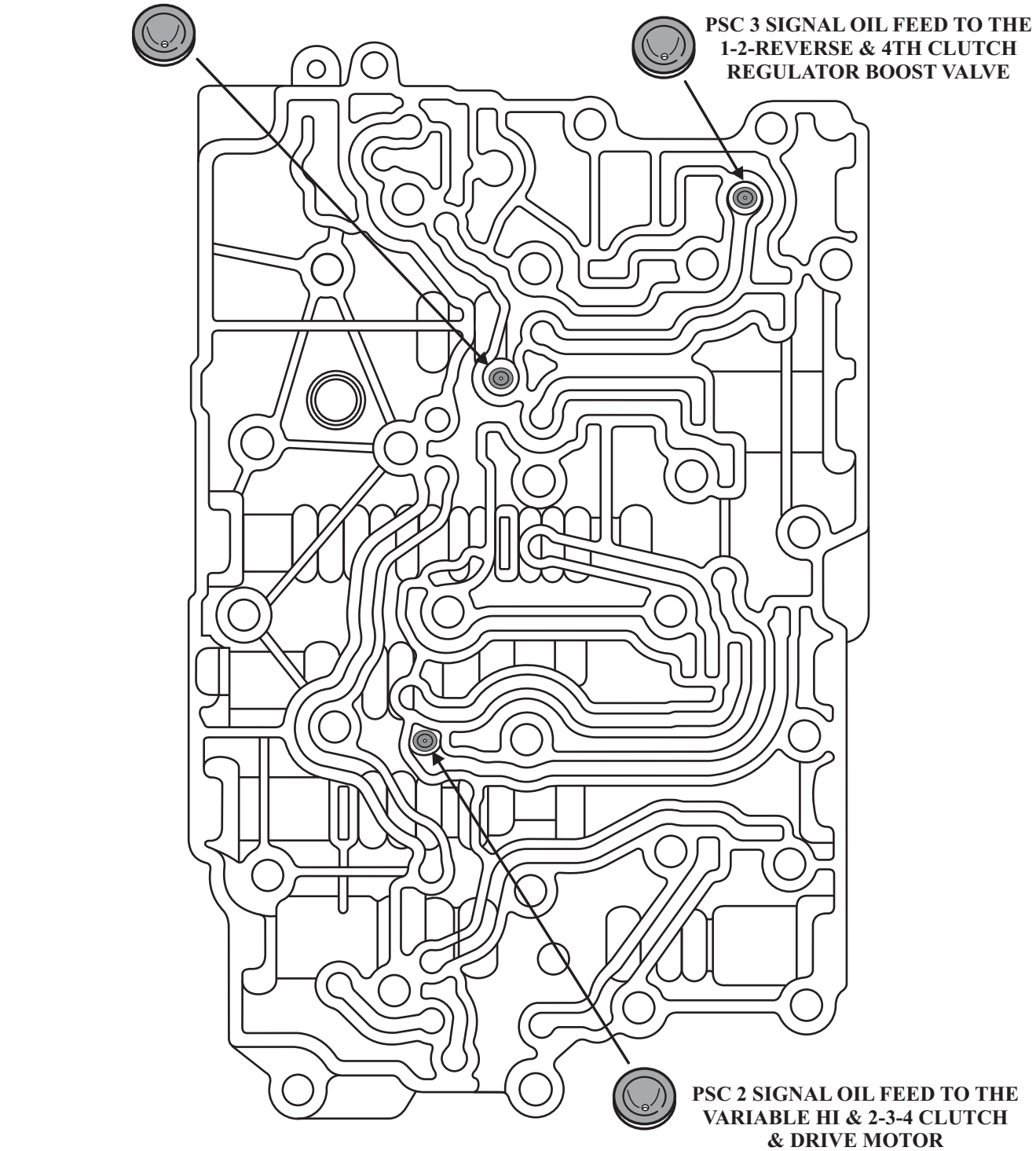
GM 2MT70 HYBRID

MAIN VALVE BODY (INSIDE)



GM 2MT70 HYBRID

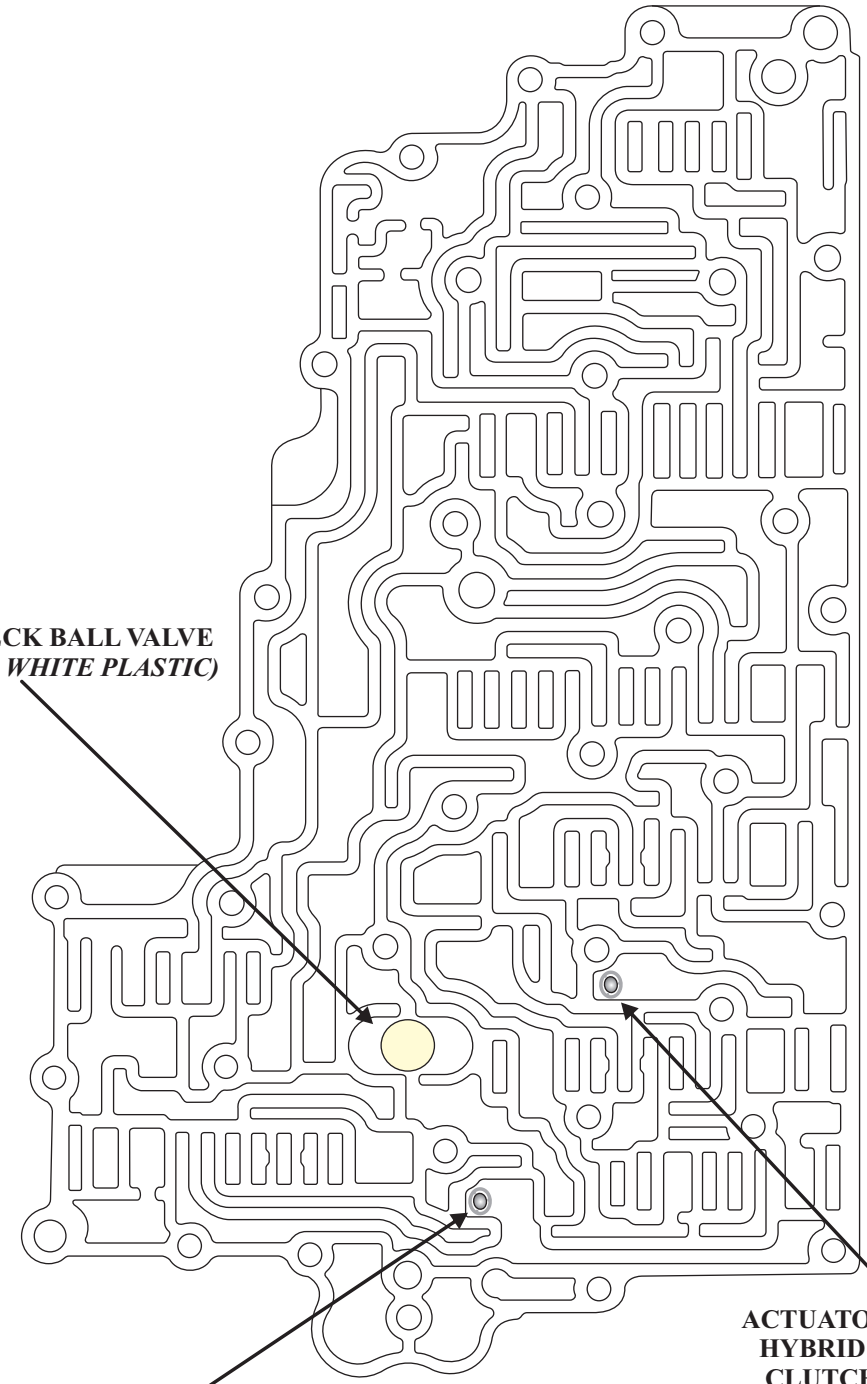
MAIN VALVE BODY (OUTSIDE)



NOTE: These Orifice Cup (Down) Plugs Are Not Removable

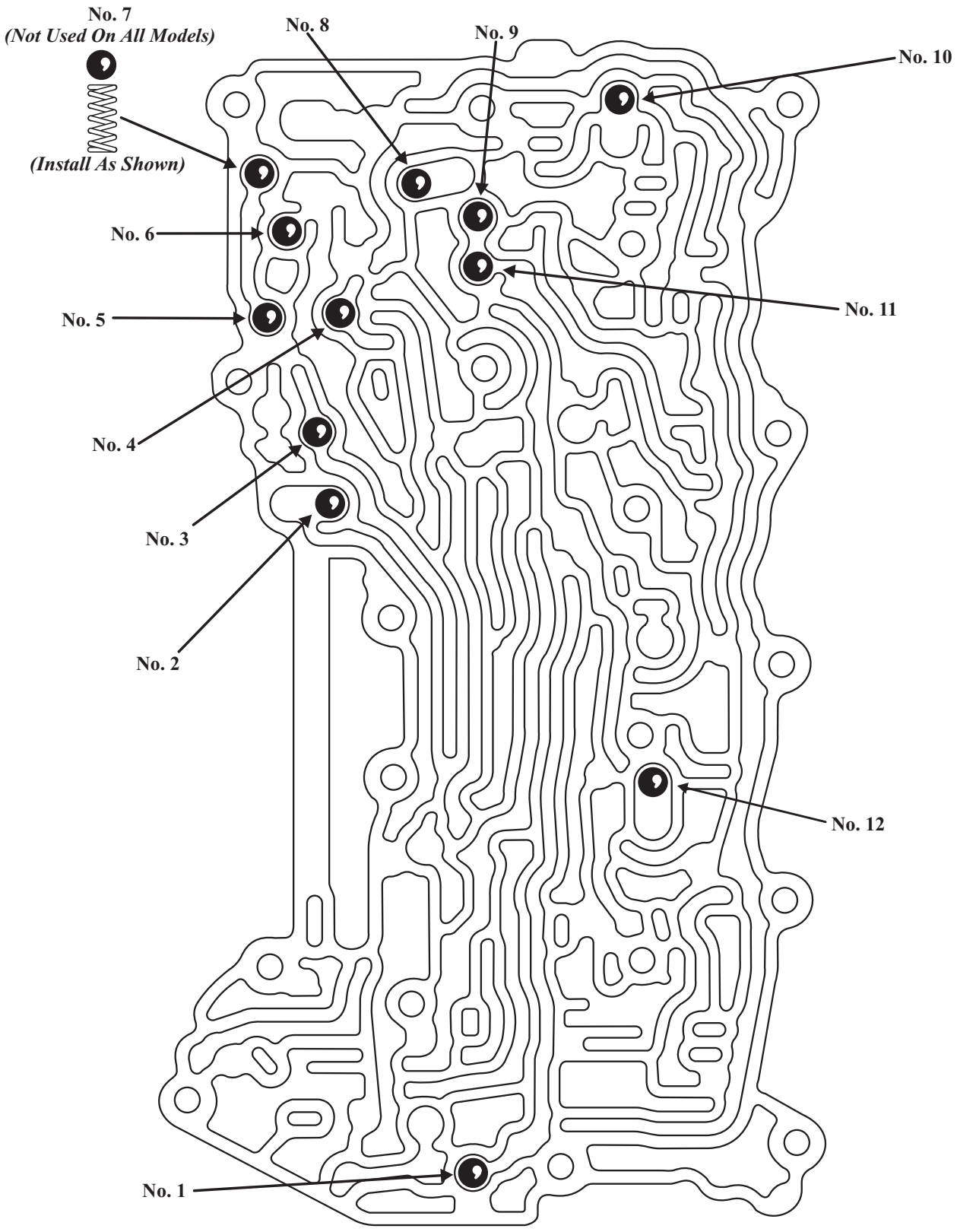
GM 2ML70 HYBRID

MAIN CONTROL VALVE BODY



GM 5L40E

BOTTOM CHANNEL PLATE



ALL CHECKBALLS ARE .255" (6.5MM) DIAMETER - PLASTIC

GM 5L40E

CHECKBALL FUNCTION

Check Ball No. 1: Seats to force reverse lockout fluid through orifice 13 in the spacer plate, and into the reverse clutch circuit to help control the apply rate of the reverse clutch.

Check Ball No. 2: Seats to allow either reverse fluid (In Reverse) or 2345 fluid (In 2nd, 3rd, 4th, and 5th) to enter the reverse or 2345 circuit, while blocking the other fluid circuit.

Check Ball No. 3: Seats to force four five fluid through orifice 27 in the spacer plate and into the overdrive clutch feed circuit to help control the apply rate of the overdrive clutch.

Check Ball No. 4: Seats to force 123 fluid through orifice 16 in the spacer plate and into the coast clutch feed circuit to help control the apply rate of the coast clutch.

Check Ball No. 5: Seats to force forward clutch fluid through orifice 17 in the spacer plate to help control the apply rate of the coast clutch.

Check Ball No. 6: Seats to force forward clutch fluid through orifice 15 in the spacer plate and into the forward clutch circuit to help control the apply rate of the forward clutch.

Check Ball No. 7: Seated by a calibrated spring that goes in channel plate before the check ball and provides extra D432 fluid in the forward and coast clutch circuits to reduce garage shift response time.
NOTE: Not used in all models.

Check Ball No. 8: Seats to allow either low/reverse clutch fluid (In 1st gear coast condition) or reverse lockout (RLO) fluid (In Reverse) to enter the low/reverse clutch or reverse lockout circuit, while blocking the other fluid circuit.

Check Ball No. 9: Seats to force two-three regulated fluid through orifice 22 in the spacer plate and into the overdrive clutch feed 1 circuit to help control the apply rate of the overdrive clutch when in a 3rd gear coast condition.

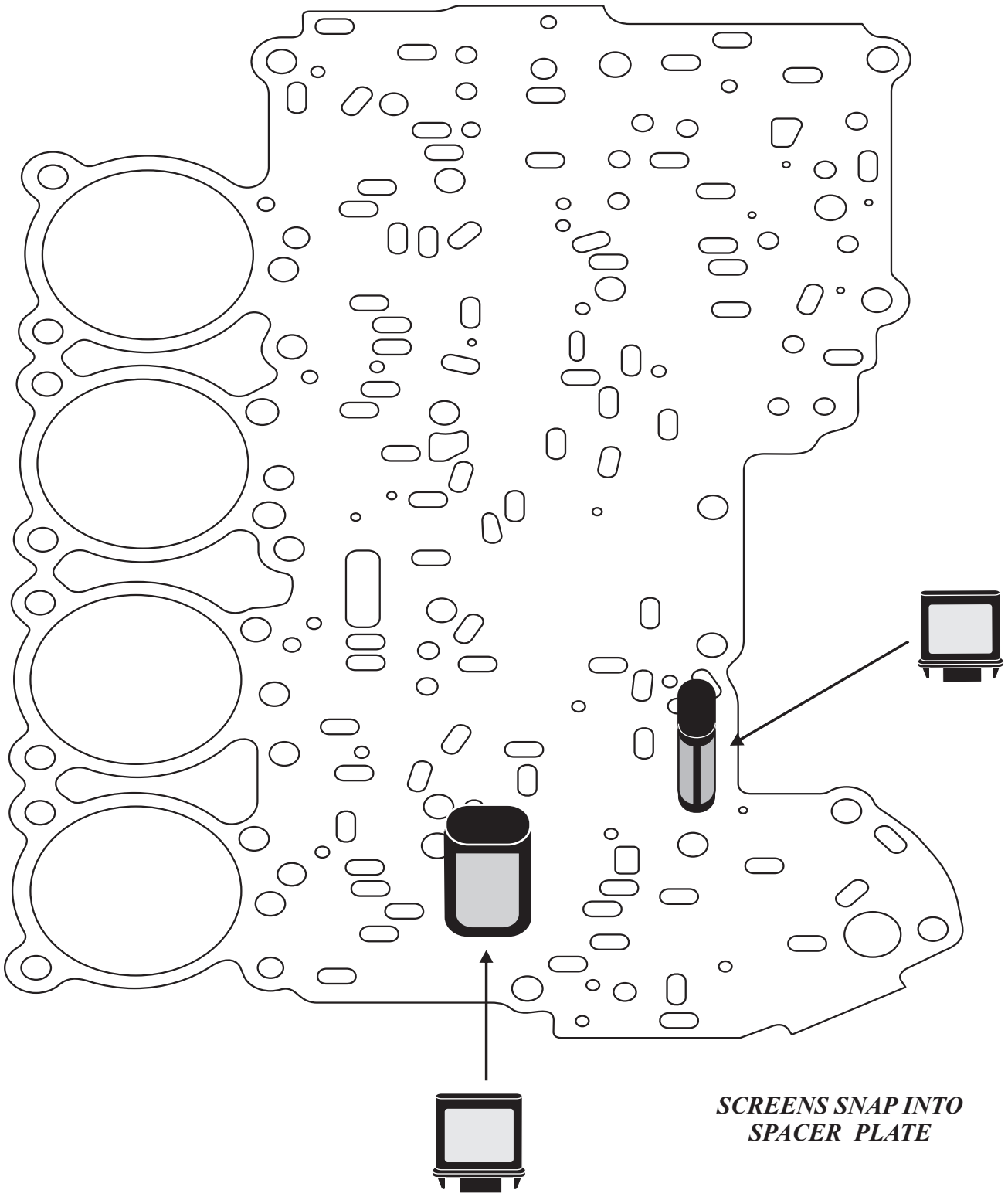
Check Ball No. 10: Seats to allow either three-two safety mode fluid (Safety Mode Operation Only) or FDL fluid (In 1st Gear) to enter the 3-2 safety mode or FDL fluid circuit while blocking the other.

Check Ball No. 11: Seats to force two-three regulated fluid through orifice 23 in the spacer plate and into the second coast clutch circuit to help control the apply rate of the 2nd coast clutch when in a 2nd gear coast condition.

Check Ball No. 12: Seats to allow either overdrive clutch feed 1 fluid (In a 3rd Gear Coast condition) or overdrive clutch feed 2 fluid (In 5th Gear) to enter the overdrive clutch circuit while blocking the other fluid circuit.

GM 5L40E

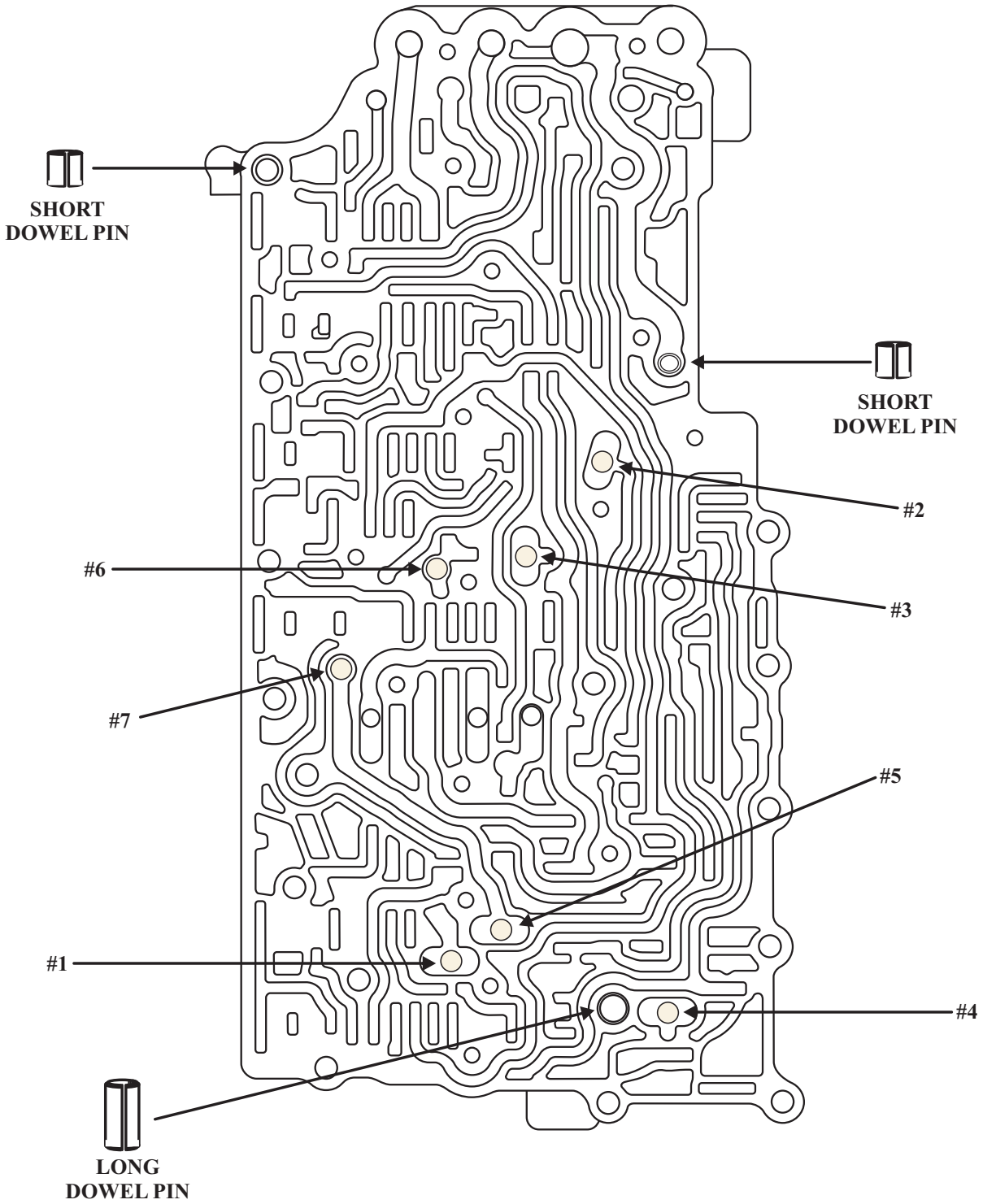
SPACER PLATE FILTERS



SCREENS SNAP INTO SPACER PLATE

GM 6L80

UPPER CONTROL VALVE BODY



○ *ALL CHECKBALLS ARE .250" DIAMETER - WHITE PLASTIC*

GM 6L80

CHECKBALL FUNCTION

#1 Checkball - Drive 1-6/Drive Braking

The number one checkball is located in the upper control valve body When the transmission is operating in Drive 1st, 2nd, 3rd, 4th, 5th or 6th gear, drive 1-6 fluid seats the checkball against the drive braking passage and enters the 2-6 clutch/1-2-3-4 clutch feed circuit to apply the 1-2-3-4 clutch.

#2 Checkball - Solenoid 1/Reverse

The number two checkball is located in the upper control valve body. This shuttle type checkball is seated against the reverse passage while the transmission is operating in Park, Neutral and Drive 1st. With the checkball in this position, shift solenoid 1 fluid enters the CSV2 enable circuit to the "clutch select valve 2". When the transmission is operating in Reverse, the checkball seats against shift solenoid 1 passage to allow reverse fluid to enter the CSV2 enable circuit and hold the "clutch select valve 2" in the applied position.

#3 Checkball - Solenoid 2/4-5-6 Clutch

The number three checkball is located in the upper control valve body. This shuttle type checkball is seated against the 4-5-6 clutch passage while the transmission is operating in Park, Reverse, Neutral, Drive 1st, 2nd and 3rd gear. With the checkball in this position, shift solenoid 2 fluid enters the CSV3 enable circuit to apply the "clutch select valve 3". When the transmission is operating in Drive 4th, 5th or 6th gear, the checkball seats against the shift solenoid 2 passage to allow 4-5-6 clutch fluid to enter the CSV3 enable circuit and hold the "clutch select valve 3" in the applied position.

#4 Checkball - PS5/4-5-6 Clutch

The number four checkball is located in the upper control valve body. This shuttle type checkball is seated against the 4-5-6 clutch passage by Pressure Solenoid 5 fluid, while the transmission is operating in Park, Reverse, Neutral, Drive 1st, 2nd and 3rd gear. With the checkball in this position, PS 5 fluid enters the CSV2 latch circuit to hold the "clutch select valve 2" in the released position. When the transmission is operating in Drive 4th, 5th or 6th gear, 4-5-6 clutch fluid seats the checkball against the PS 5 passage to allow 4-5-6 clutch fluid to enter the CSV2 latch circuit to hold the "clutch select valve 2" in released the position.

#5 Checkball - Drive 1-6/3-5 Reverse Supply

The number five checkball is located in the upper Control valve body. This shuttle type checkball is seated against the Drive 1-6 passage by 3-5/Reverse Feed fluid while the transmission is operating in Reverse. With the checkball in this position, 3-5/Reverse Feed fluid enters the 3-5/Reverse Supply circuit and is routed to the number 7 checkball. When the transmission is operating in Drive 1st, 2nd, 3rd, 4th, 5th or 6th gear, Drive 1-6 fluid seats the ball against the 3-5/Reverse Feed passage to allow Drive 1-6 fluid to enter the 3-5/Reverse Supply circuit.

#6 Checkball - 2-6 Clutch/1-2-3-4 Clutch Feed

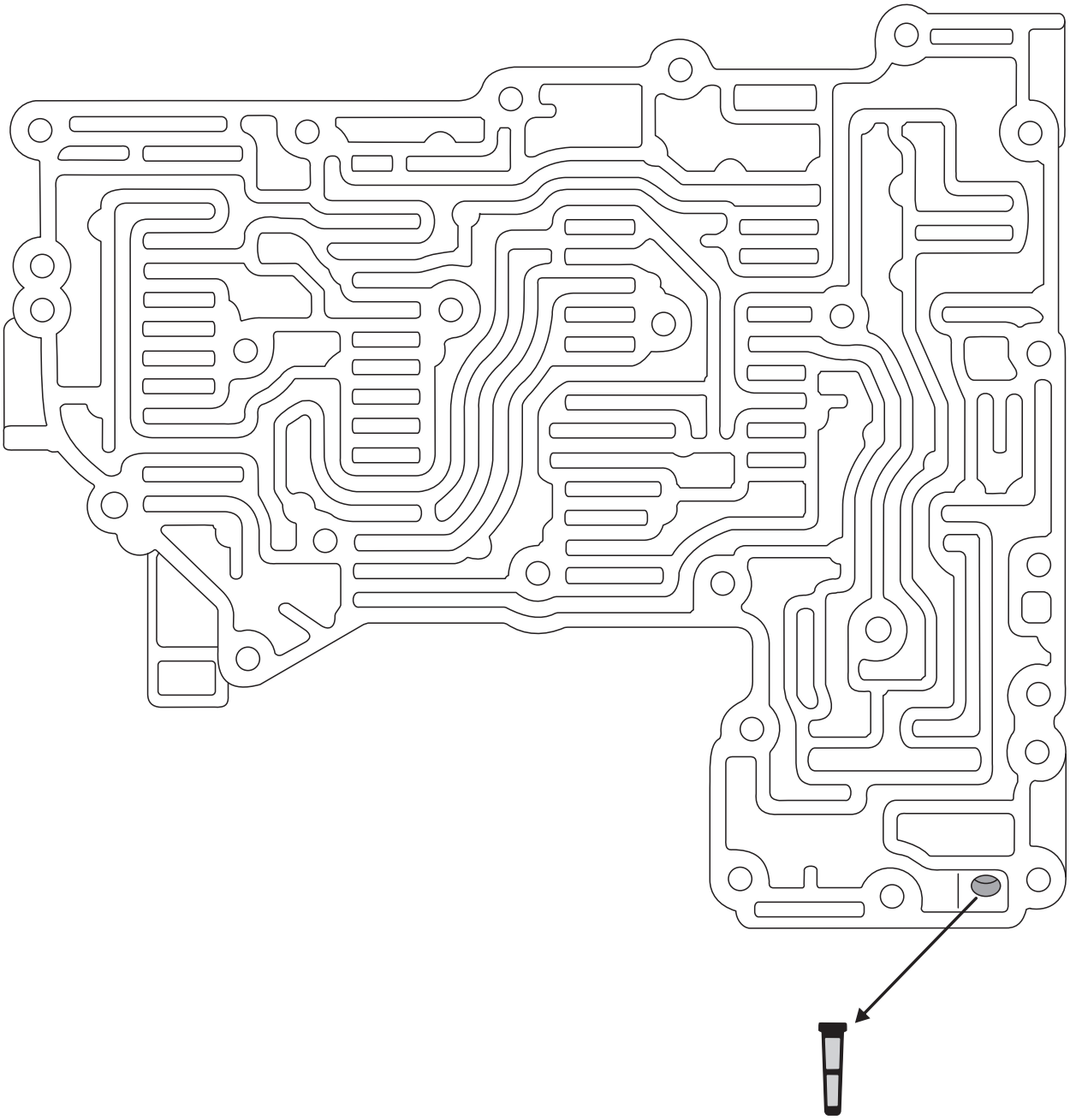
The number six checkball is located in the upper control valve body. This "one way orifice control" type checkball is used to differentiate the flow rate of fluid between applying and releasing the 1-2-3-4 clutch. 2-6 clutch/1-2-3-4 clutch feed fluid opens the checkball, while the transmission is operating in Drive 1st, 2nd, 3rd, 4th, 5th or 6th gear. With the ball in this position, 2-6 clutch/1-2-3-4 clutch feed fluid flows freely into the 1-2-3-4 clutch feed passage. When Park, Reverse or Neutral is selected after the transmission was operating in Drive, exhausting 1-2-3-4 clutch feed fluid seats the checkball, and forces exhausting fluid through orifice number 32, which allows for a controlled exhaust of the 1-2-3-4 clutch.

#7 Checkball - 3-5 Reverse Supply/3-5 Rev Feed

The number seven checkball is located in the upper control valve body. This "one way orifice control" type checkball is used to differentiate the flow rate of fluid between applying and releasing the 3-5/Reverse clutch. 3-5/Reverse Supply fluid pressure seats the checkball against the 3-5/Reverse Feed passage, while the transmission is operating in Reverse, Drive 1st, 2nd, 3rd, 4th, 5th or 6th gear. With the checkball in this position, 3-5/Reverse Supply fluid is forced through orifice number 25 before entering the 3-5/Reverse Feed passage. The orifice helps control the apply rate of the 3-5/Reverse clutch when the transmission shifts into Reverse, 3rd or 5th gear. When Park or Neutral is selected after the transmission was operating in Drive, or Reverse, exhausting 3-5/Reverse Feed fluid unseats the checkball. This allows for a faster exhaust of 3-5/Reverse Feed fluid and a quick release of the 3-5/Reverse clutch.

ALLISON LCT 1000

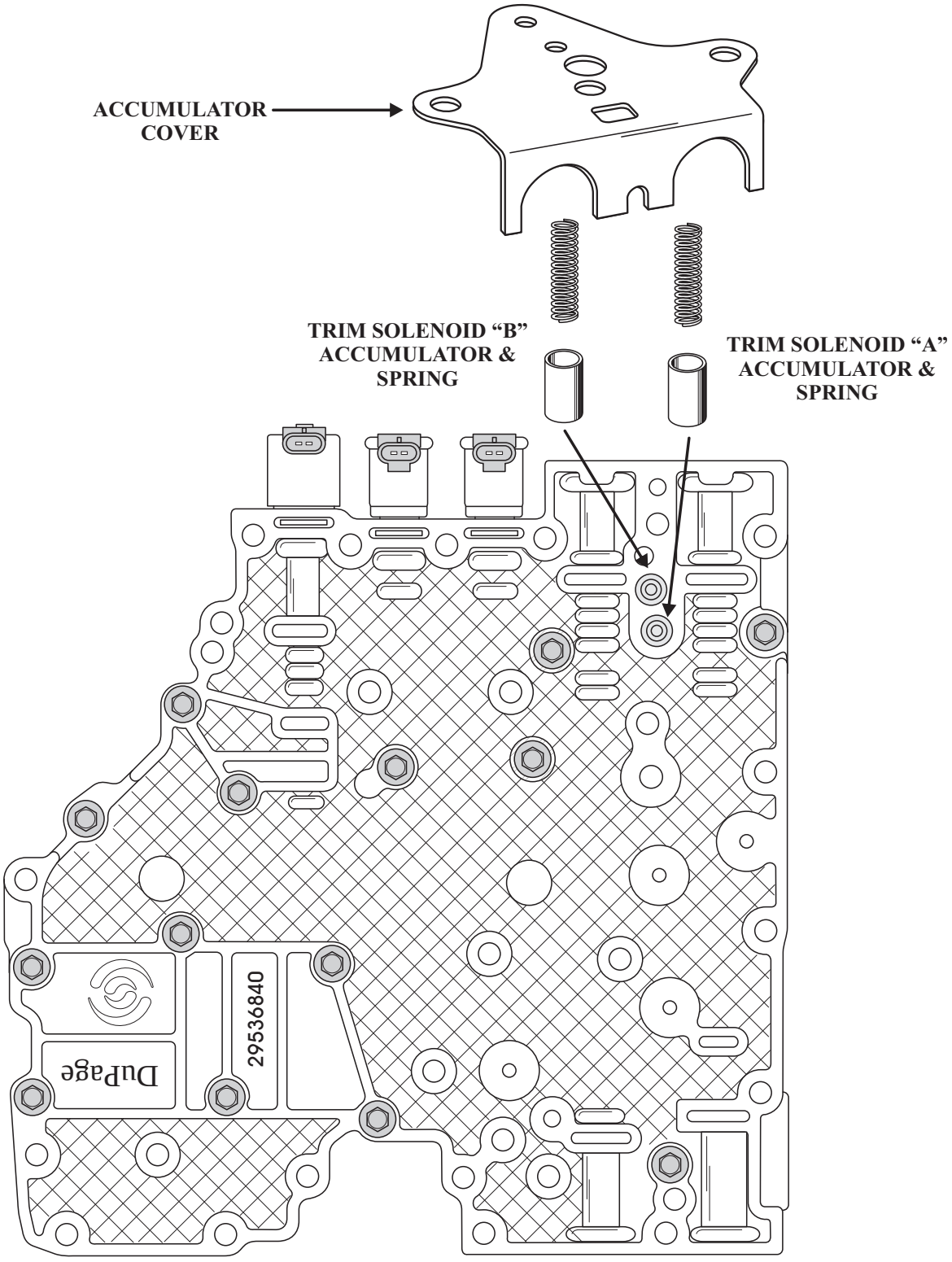
SHIFT VALVE BODY



**MAIN LINE
PRESSURE FILTER**

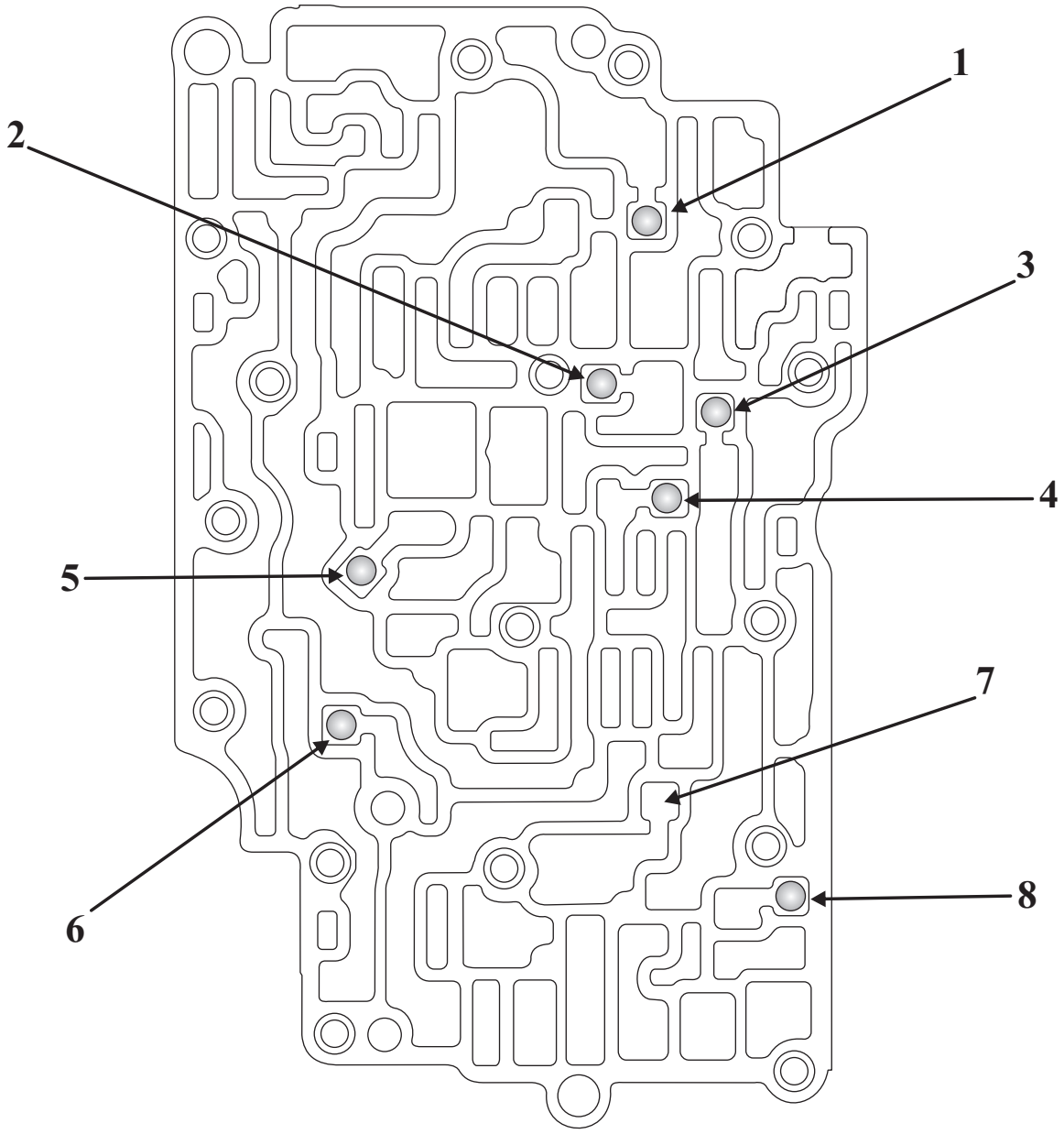
ALLISON LCT 1000

MAIN VALVE BODY



GM
AW81-80LE

VALVE BODY

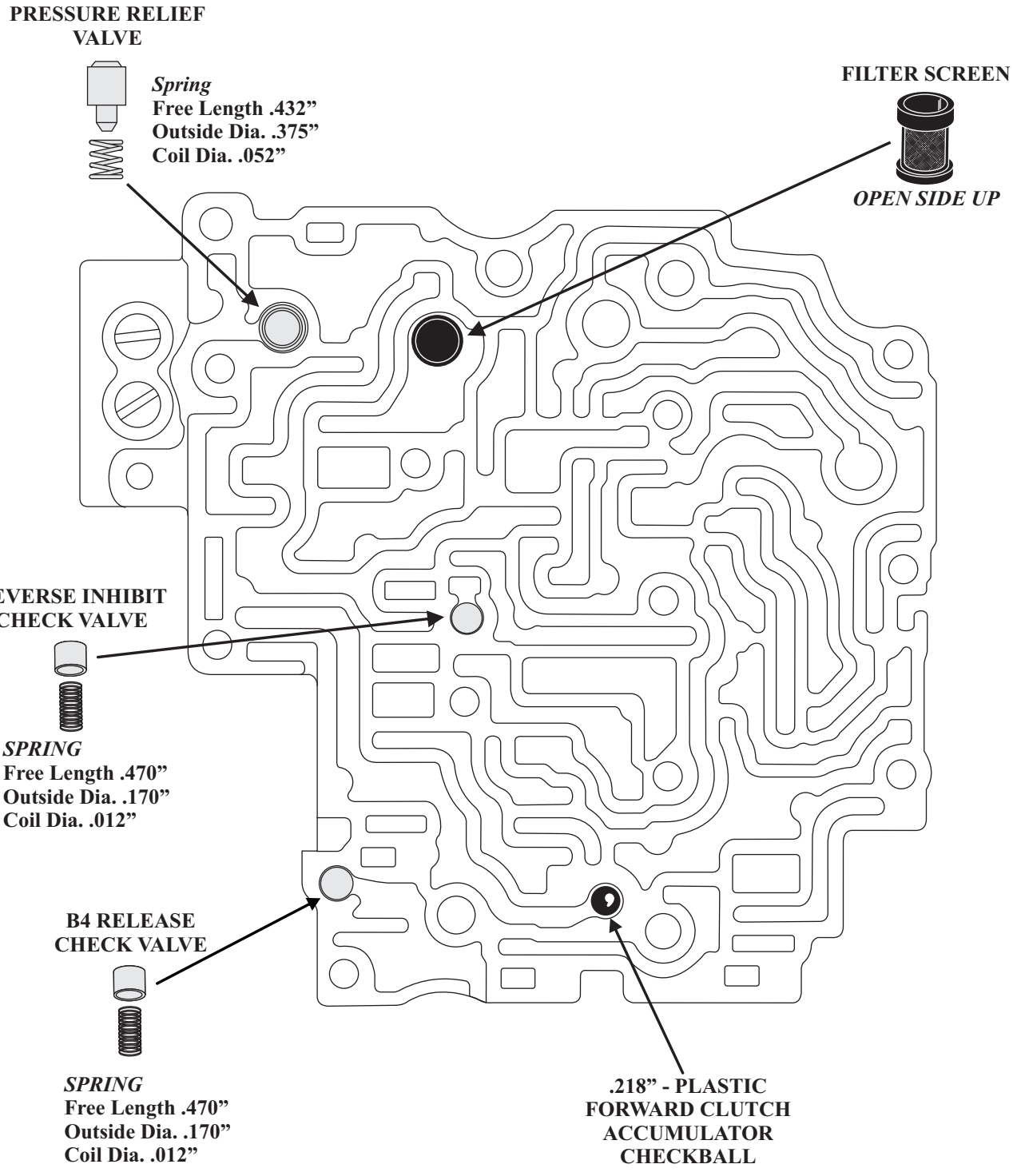


ALL CHECKBALLS ARE .250" DIAMETER - STEEL

1 - B1 Accumulator Orifice Control Ball
2 - Prevents Internal Transmission Lube while in Park
3 - B1 Clutch and Accumulator Orifice Control Ball
4 - B2 Clutch and Accumulator Orifice Control Ball
5 - B3 Clutch Orifice Control Ball
6 - C2 Clutch and Accumulator Orifice Control Ball
7 - Not used in all models (No hole in spacer plate if omitted)
8 - C3 Clutch and Accumulator Orifice Control Ball

SATURN
AF33-5

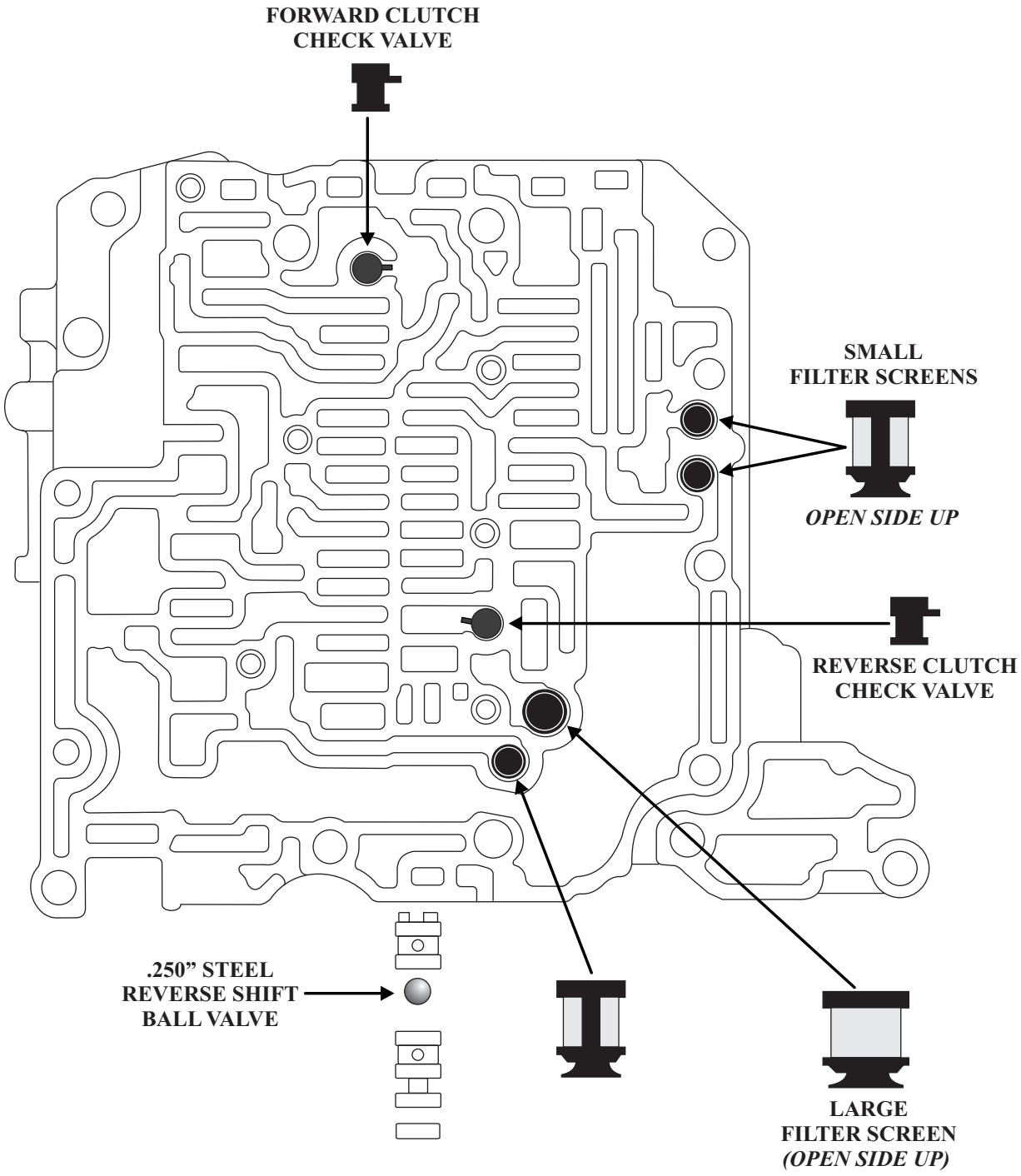
FRONT CONTROL VALVE BODY



Items With Springs Are Installed With The Spring In First

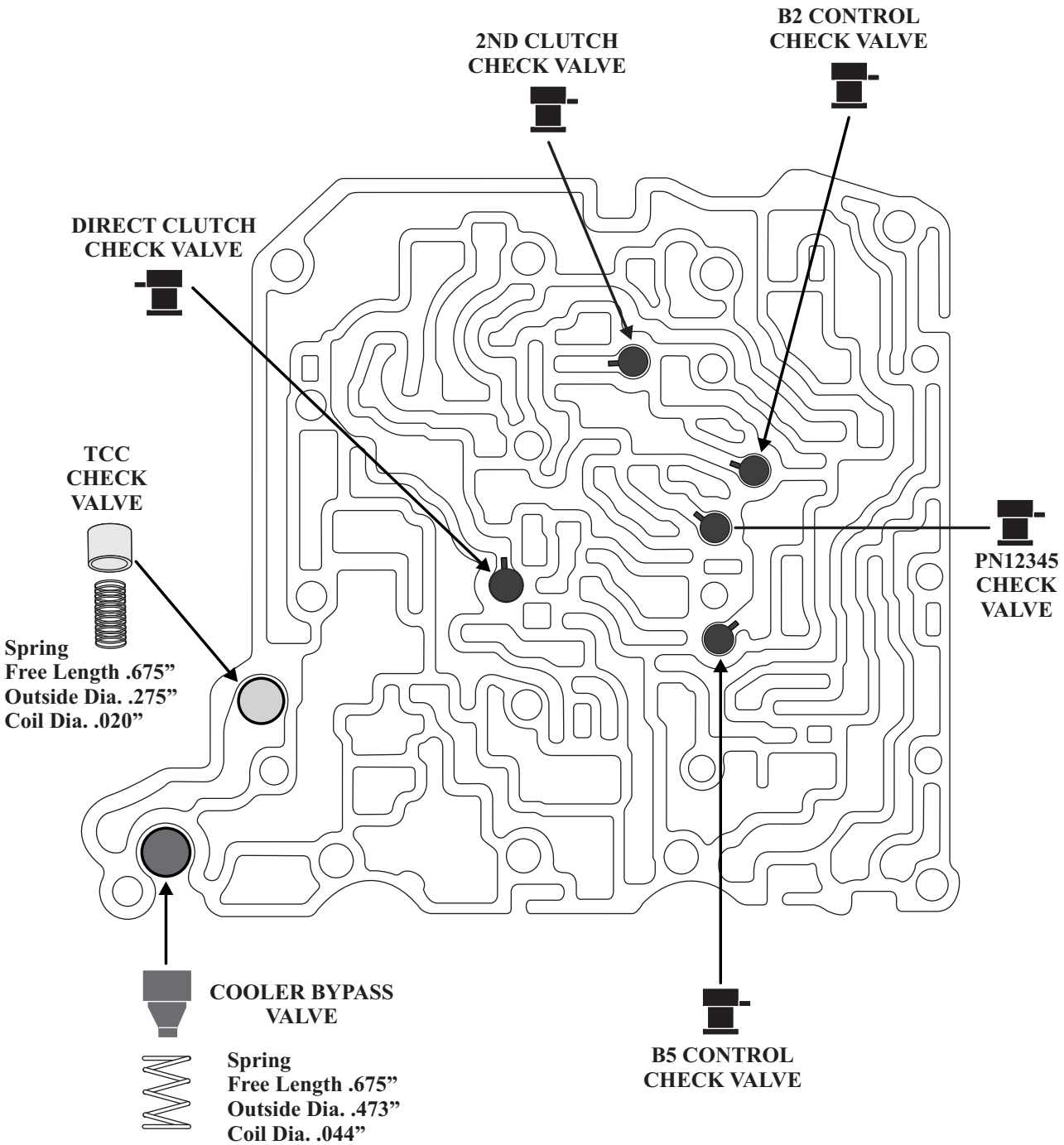
SATURN
AF33-5

MIDDLE VALVE BODY (FRONT SIDE)



SATURN
AF33-5

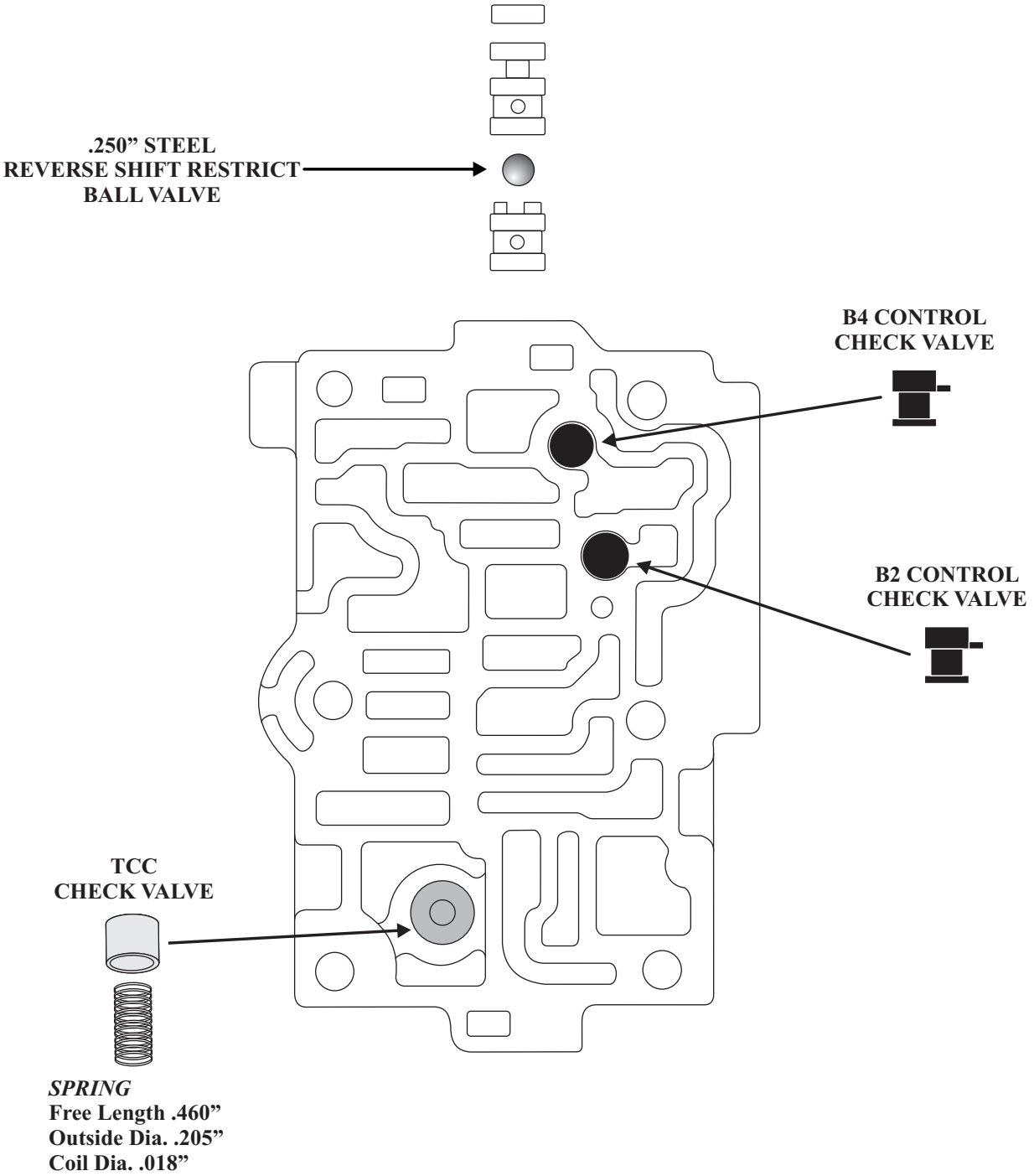
MIDDLE VALVE BODY (REAR SIDE)



Items With Springs Are Installed With The Spring In First

SATURN
AF33-5

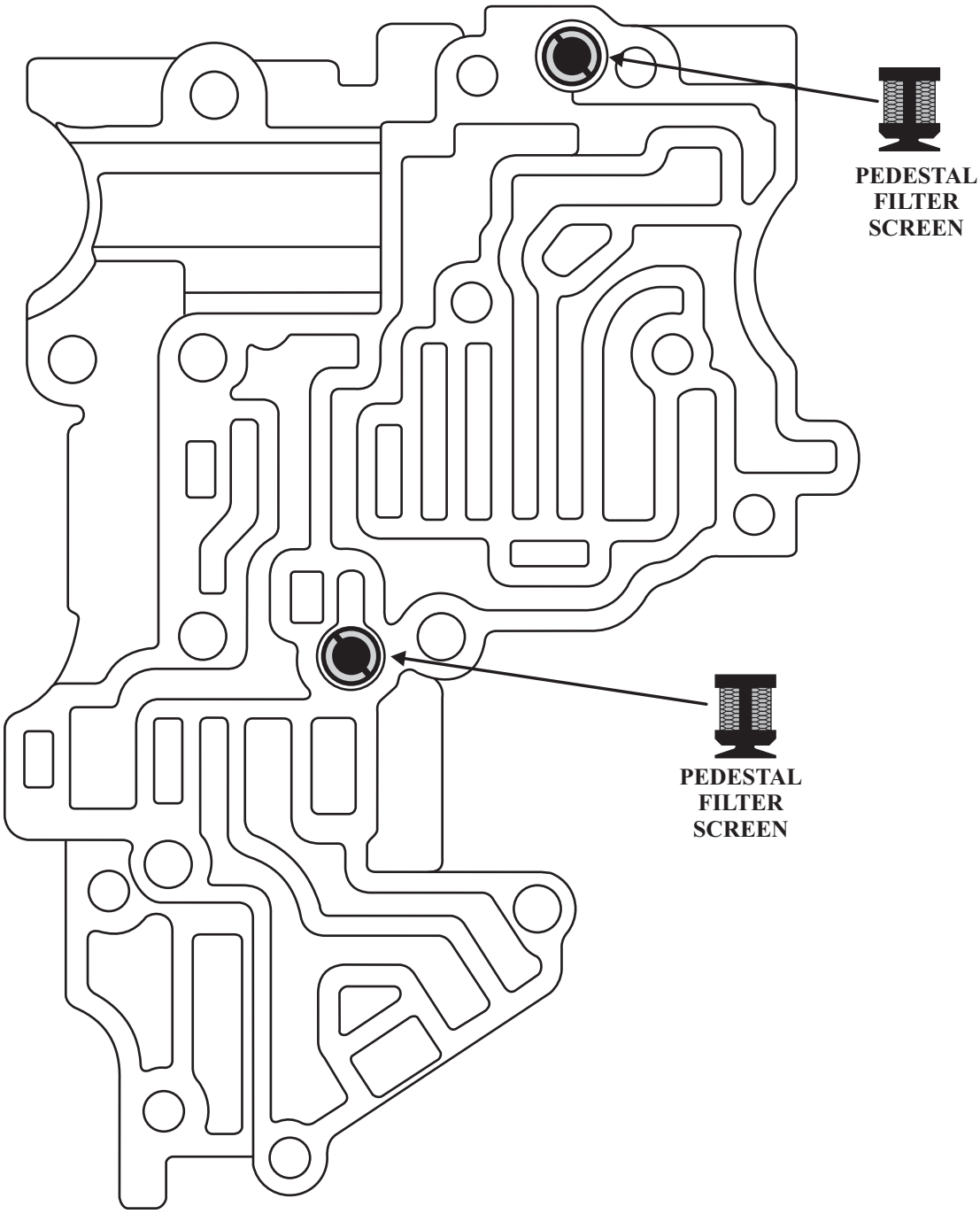
REAR VALVE BODY (REAR SIDE)



SPRING
Free Length .460"
Outside Dia. .205"
Coil Dia. .018"

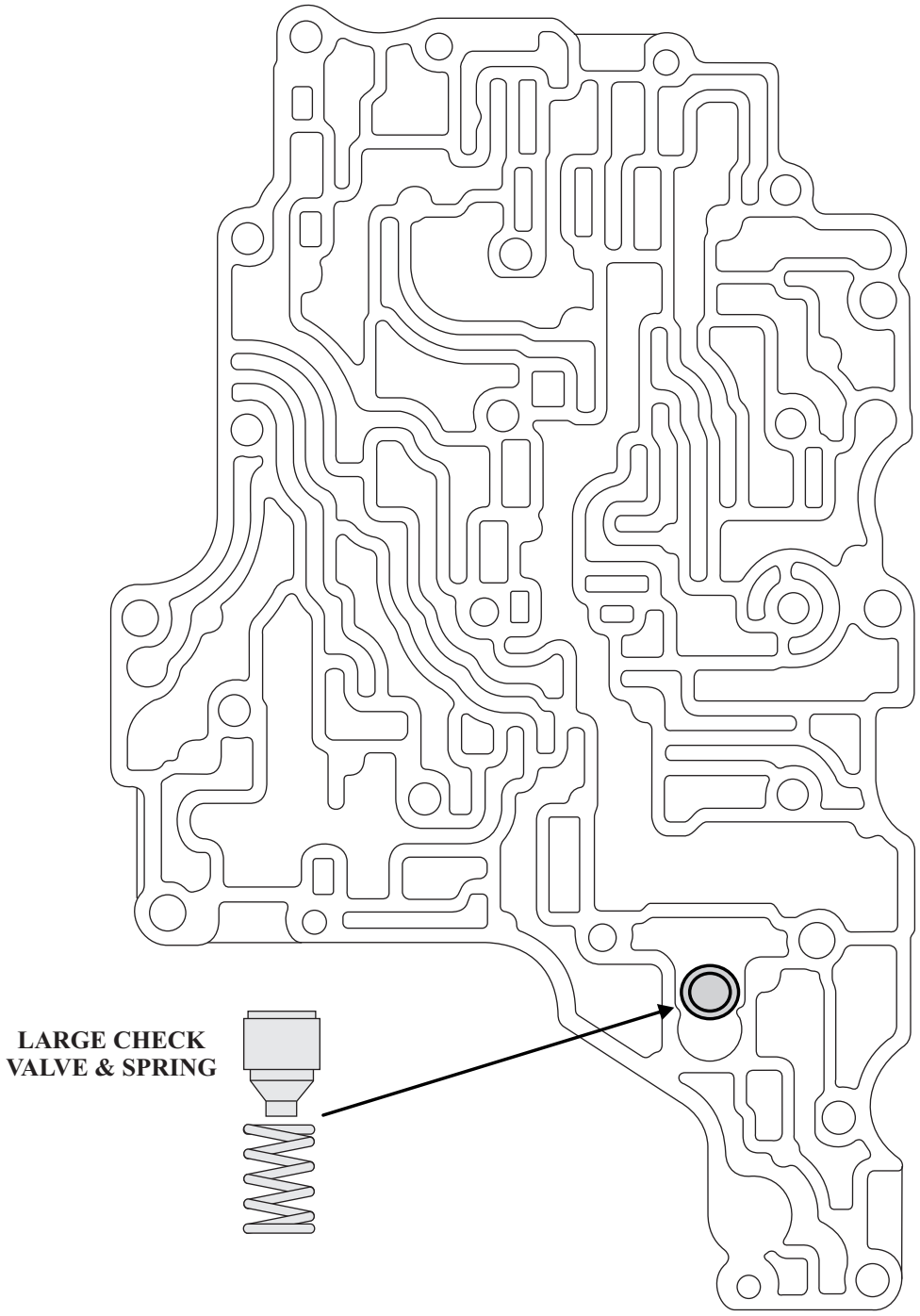
Items With Springs Are Installed With The Spring In First

SATURN
AF17-4
FRONT VALVE BODY



SATURN
AF17-4

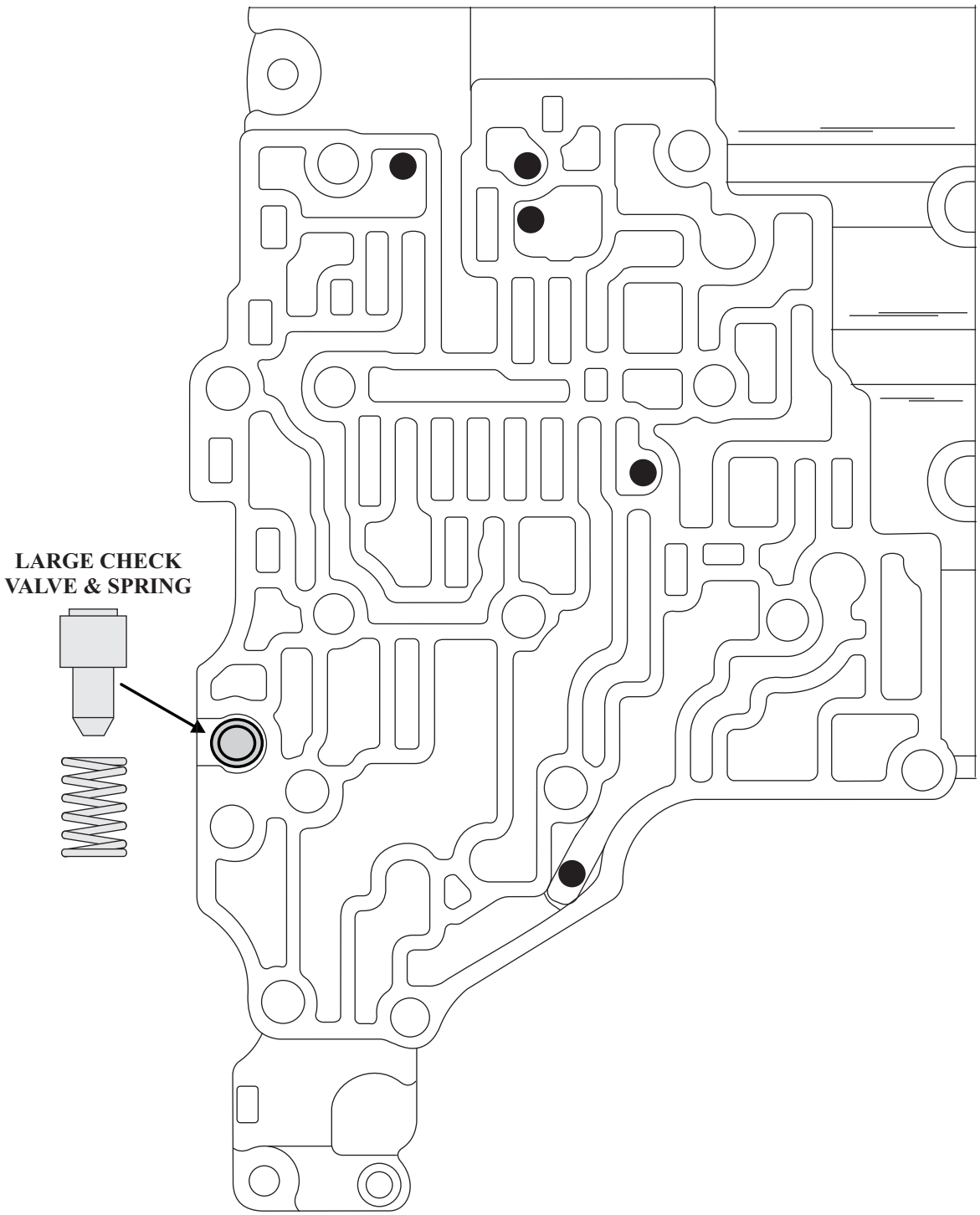
MIDDLE VALVE BODY - TOP SIDE



Items With Springs Are Installed With The Spring In First

SATURN
AF17-4

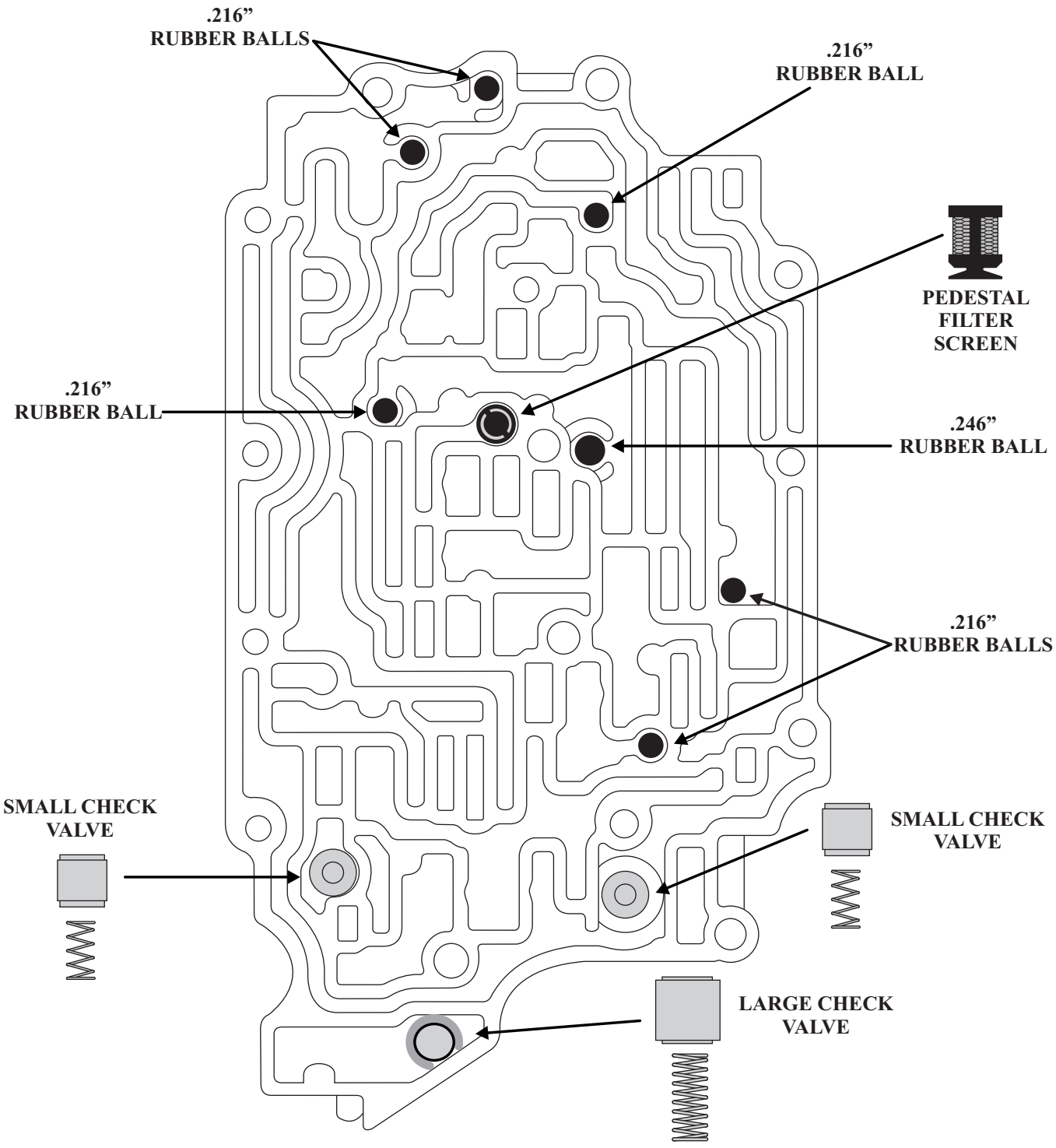
MIDDLE VALVE BODY - BOTTOM SIDE



ALL CHECKBALLS ARE .216" DIAMETER - RUBBER BALLS

Items With Springs Are Installed With The Spring In First

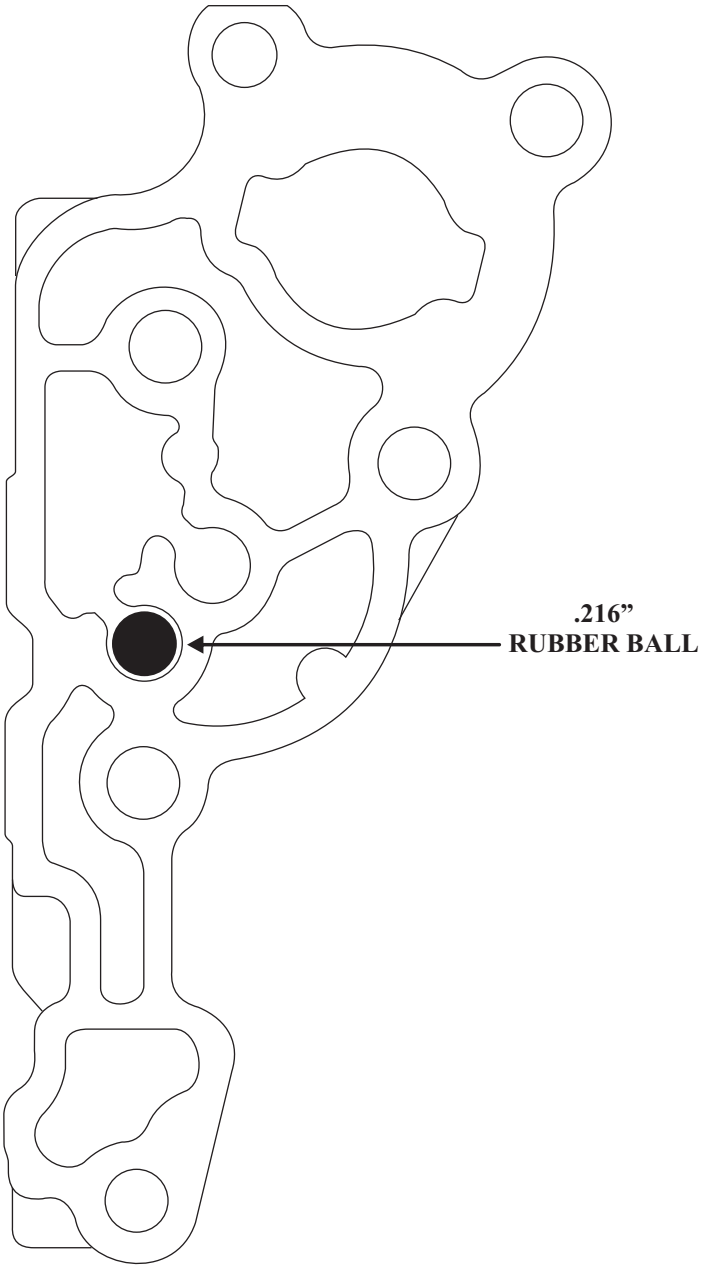
SATURN
AF17-4
REAR VALVE BODY



Items With Springs Are Installed With The Spring In First

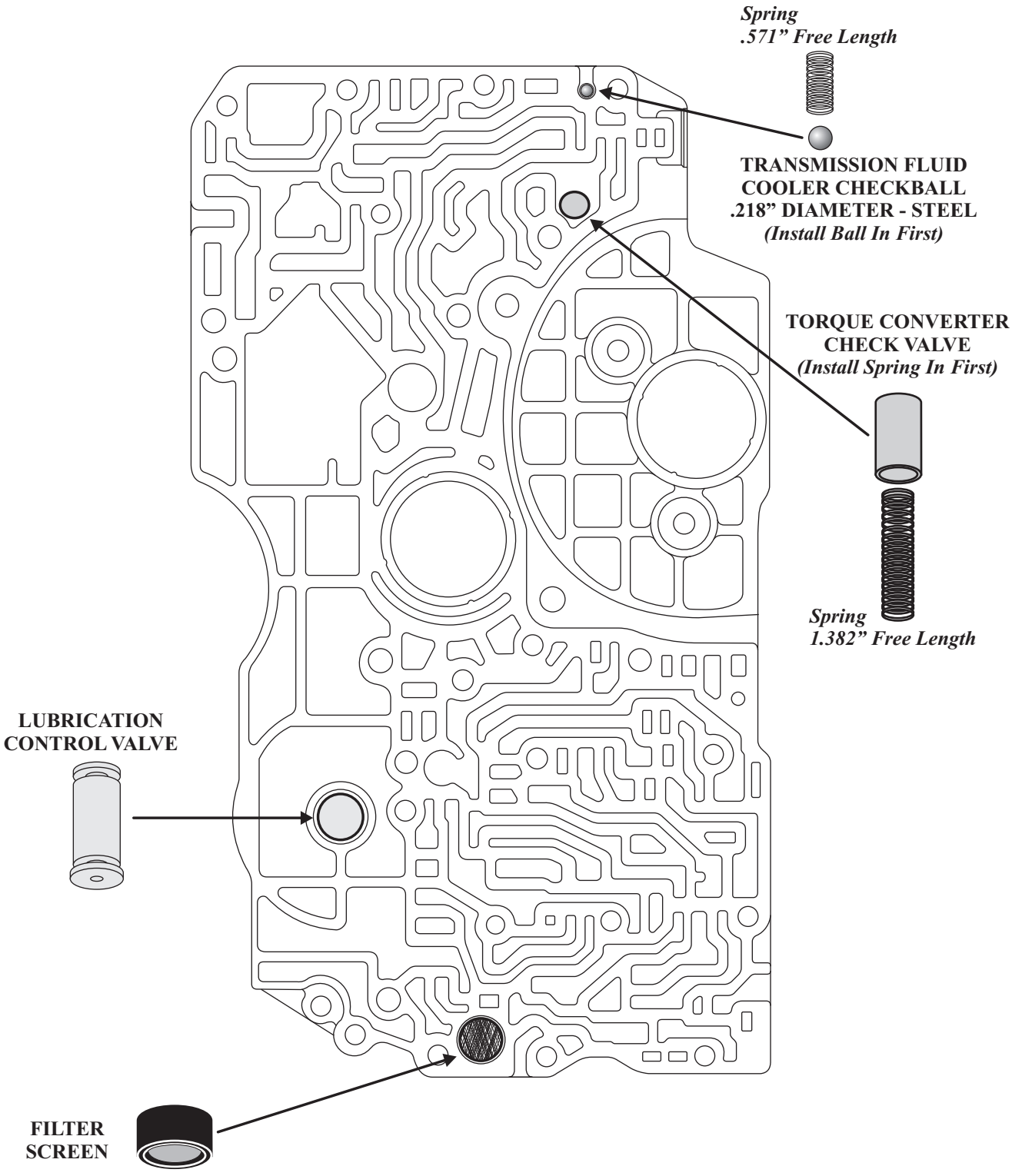
SATURN
AF17-4

REAR ACCUMULATOR COVER #1



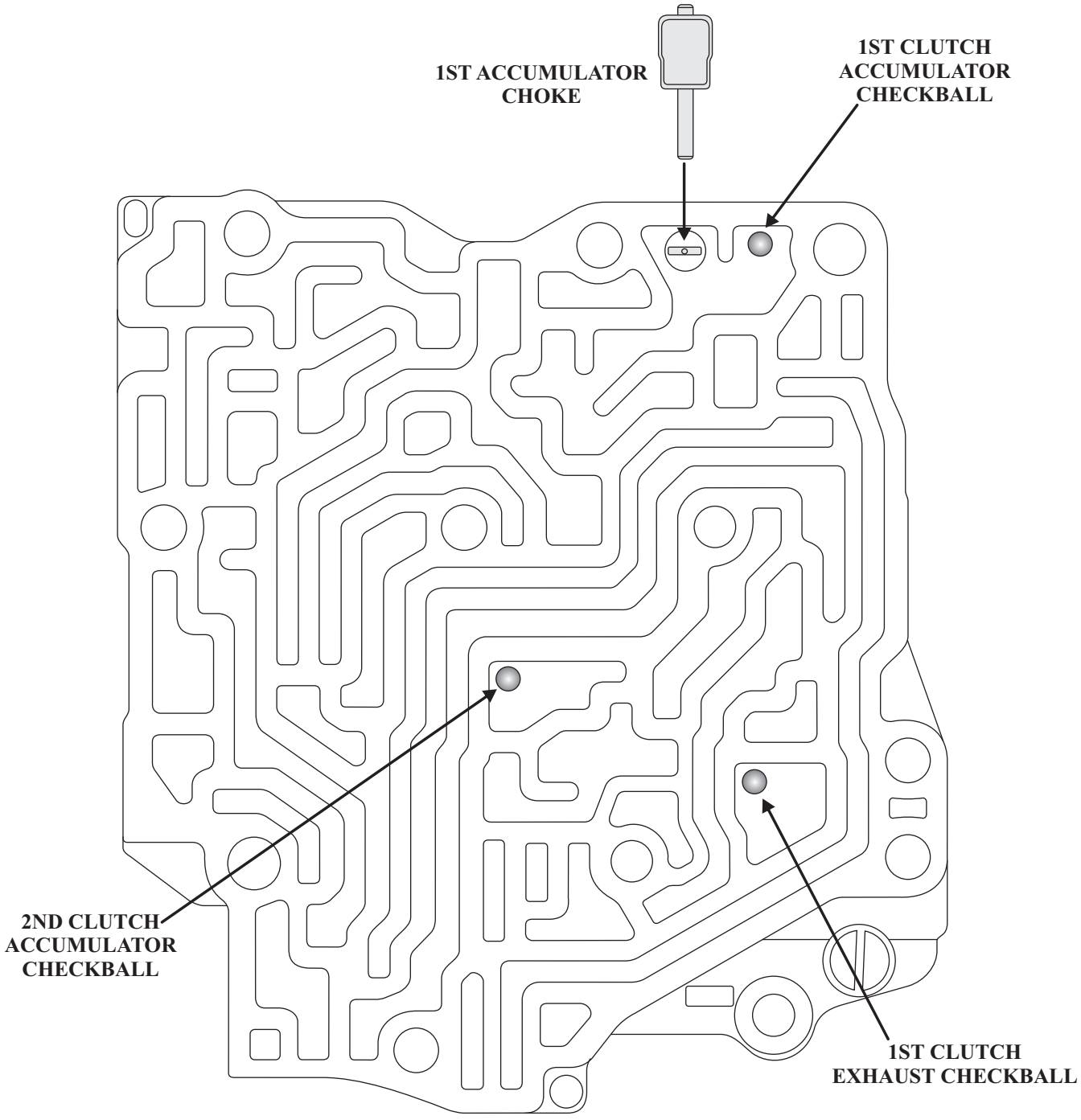
SATURN
MDRA/MDPA

MAIN VALVE BODY



SATURN
MDRA/MDPA

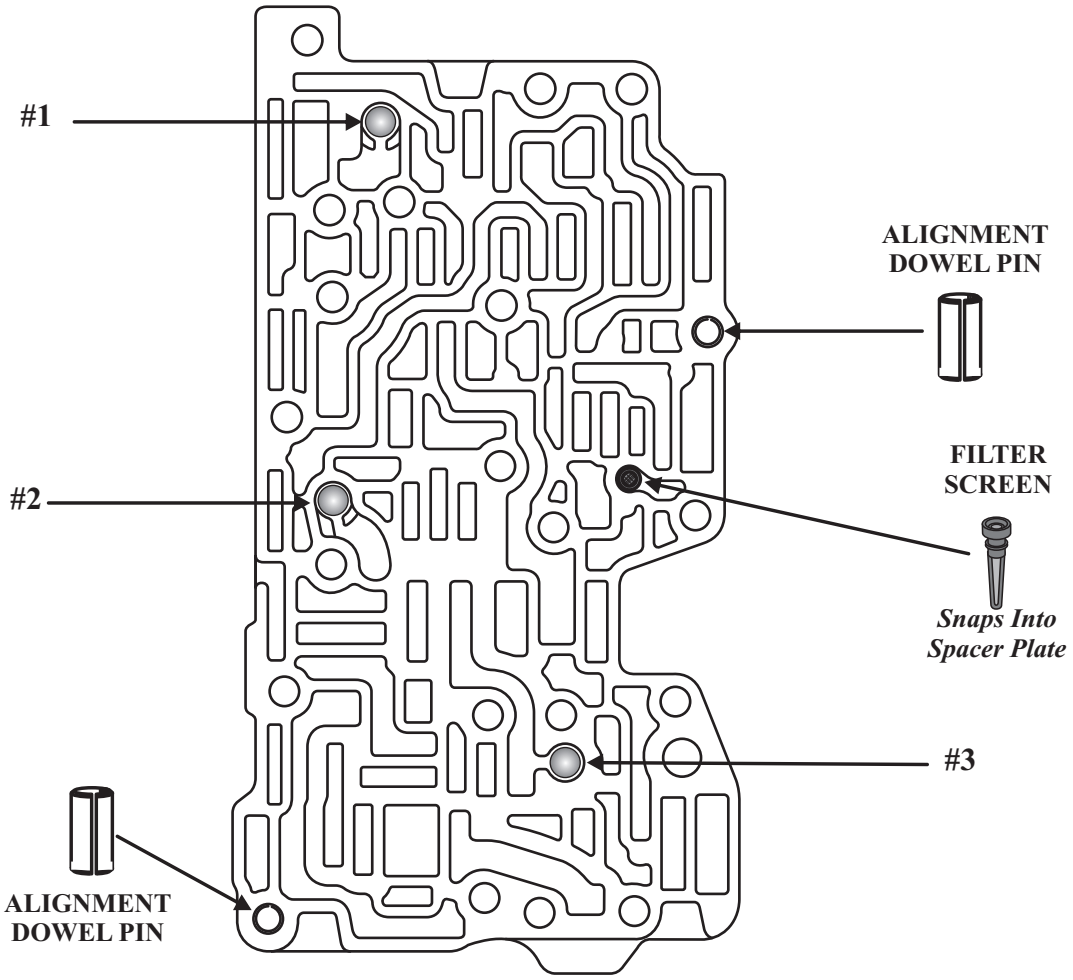
SECONDARY VALVE BODY



ALL CHECKBALLS ARE .218" DIAMETER - STEEL

SATURN
VT25E

VALVE BODY



● *ALL THREE CHECKBALLS ARE .250" DIAMETER - STEEL*

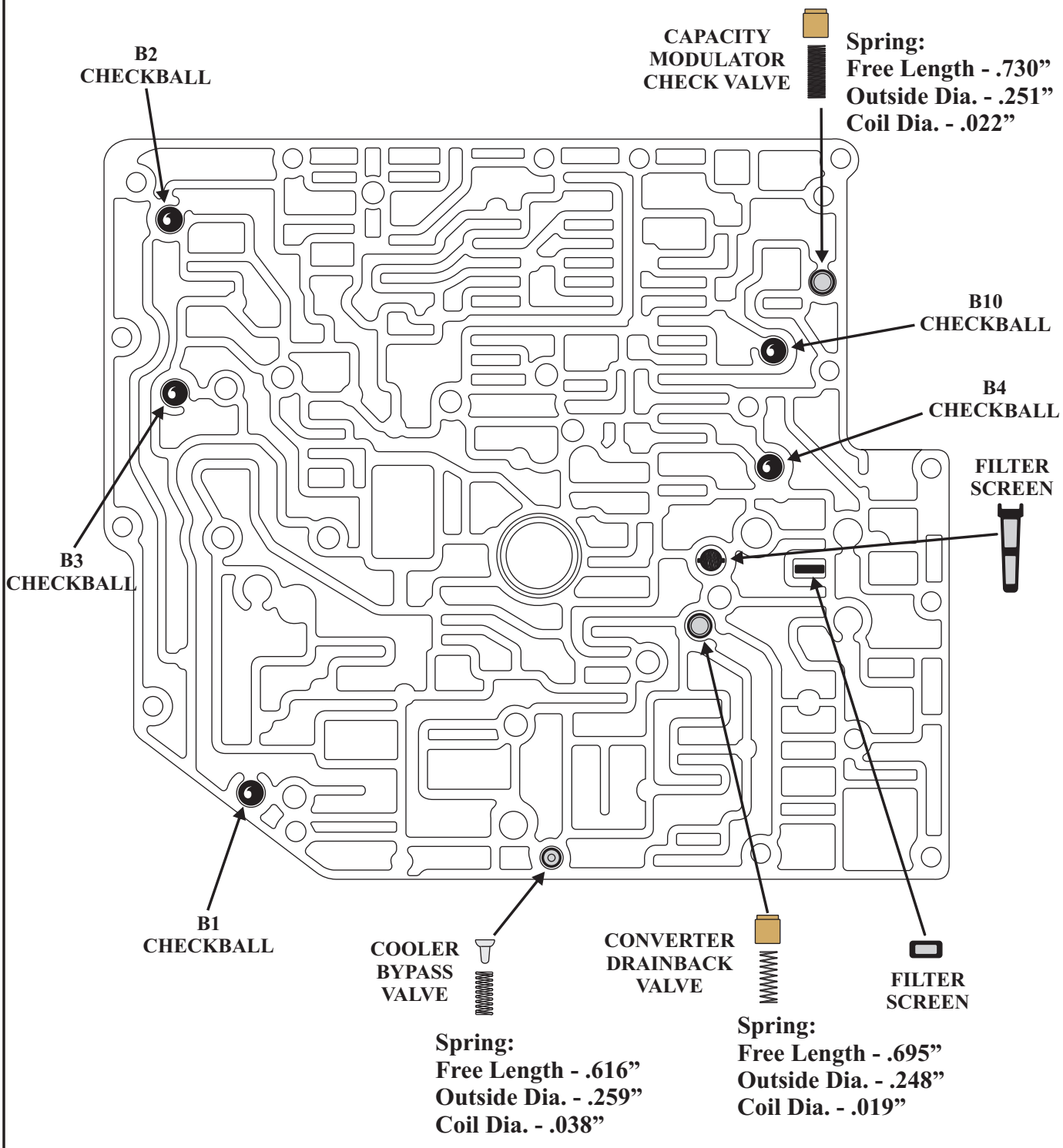
#1 Forward Clutch
This checkball seats to force exhausting drive fluid through orifice 8 on the spacer plate. This helps control the release rate of the forward clutch. When the forward clutch applies, reverse clutch fluid unseats, and flows past, the #1 checkball and into the forward clutch piston cavity. This allows for a quick apply of the forward clutch.

#2 Reverse Clutch
This checkball seats to force exhausting reverse clutch fluid through orifice 15 on the spacer plate. This helps control the release rate of the reverse clutch. When the reverse clutch applies, reverse clutch fluid unseats, and flows past, the #2 checkball and into the reverse clutch piston cavity. This allows for a quick apply of the reverse clutch.

#3 Primary Feed Limit
This checkball seats to force primary feed fluid through orifice 24 into the primary feed limit circuit in order to help control the apply rate of the variable drive pulley. When the variable drive pulley releases, exhausting primary feed limit fluid unseats, and flows past the #3 checkball. This allows for a faster exhaust of primary feed limit fluid and a quick release of the variable drive pulley assembly.

FORD
4F50N

MAIN VALVE BODY - 2000 - 2003

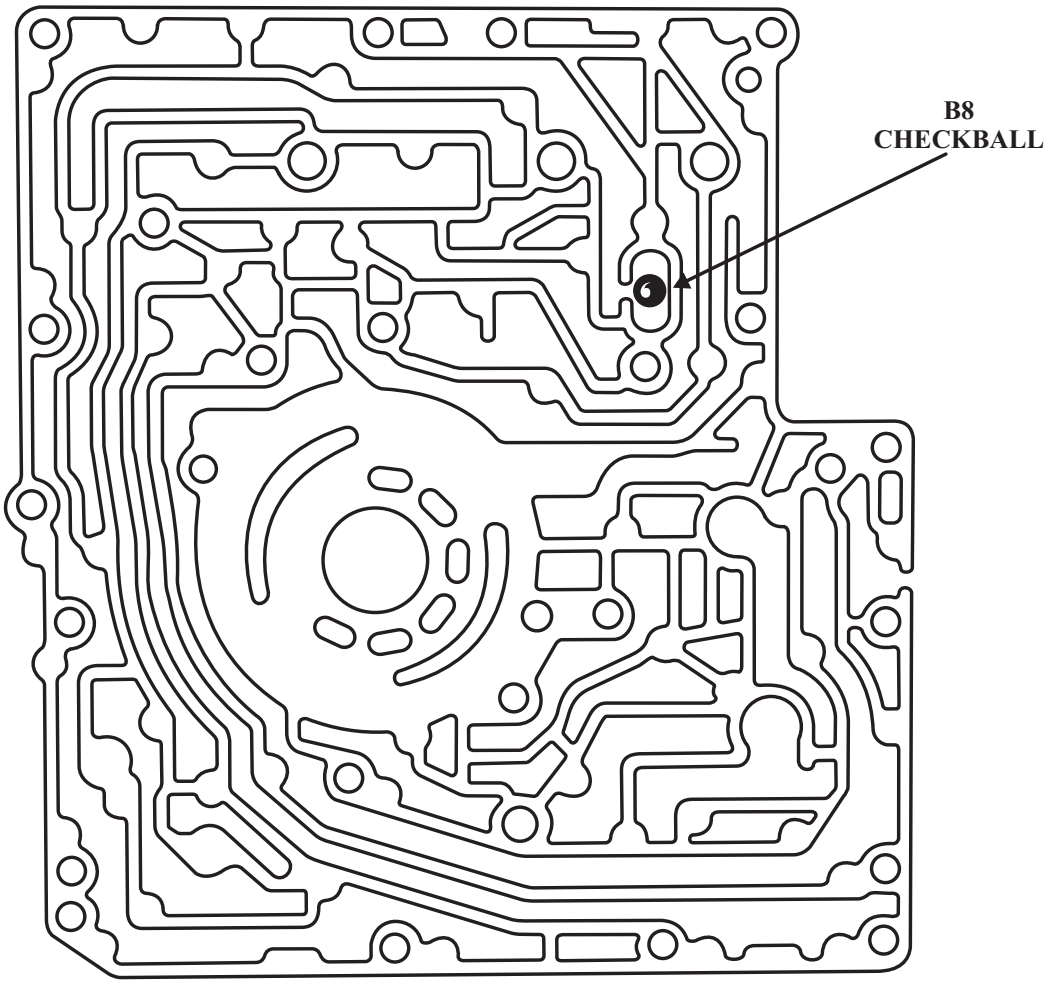


Items With Springs Are Installed With The Spring In First

6 *ALL FIVE CHECKBALLS ARE .312” DIAMETER - PLASTIC*

FORD
4F50N

PUMP BODY - 2000 - 2003



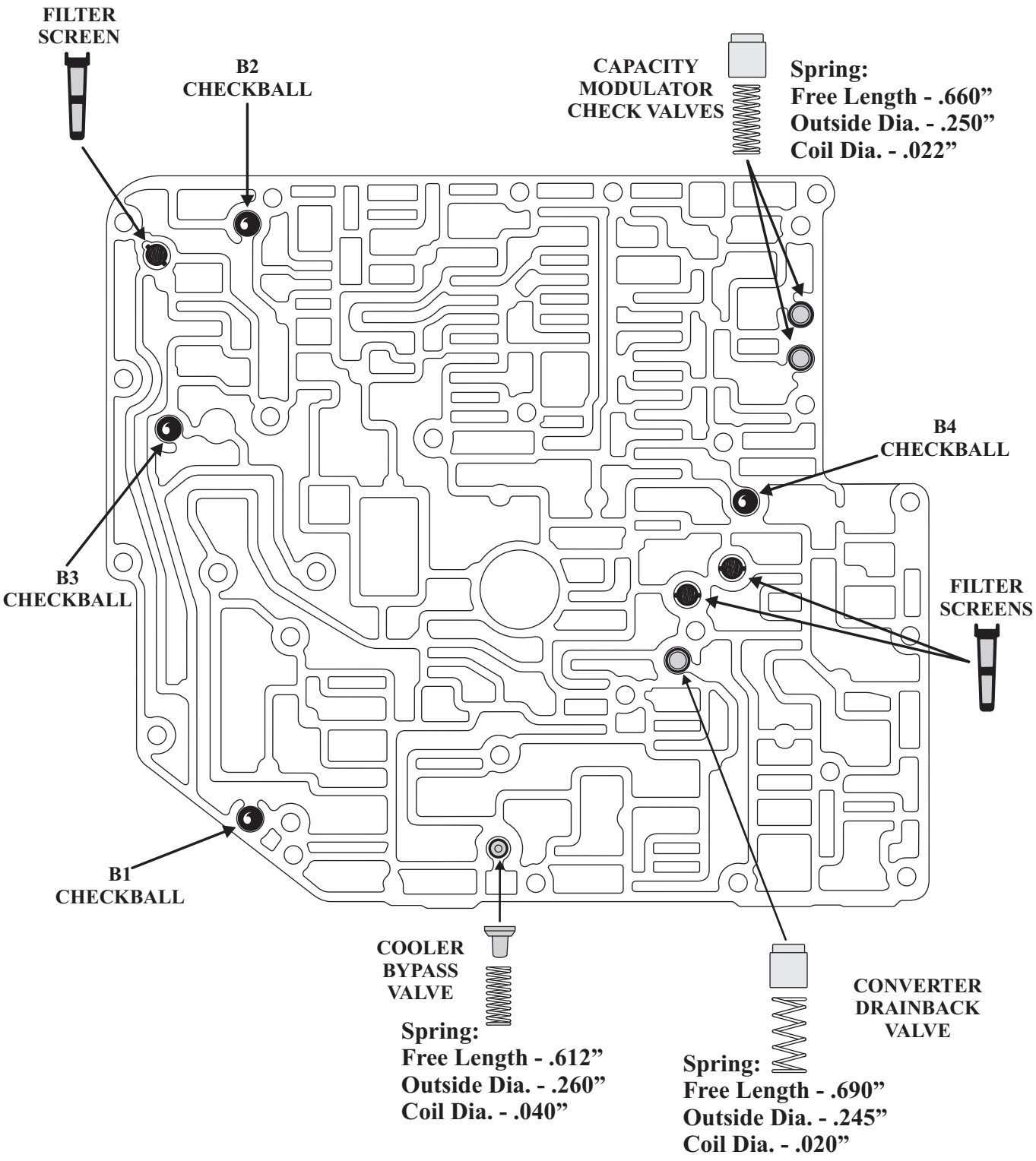
6 *CHECKBALL IS .312" DIAMETER - PLASTIC*

2000 - 2003 CHECKBALL FUNCTION

B1 - Seats during reverse clutch apply.
B2 - Seats during coast servo apply
B3 - Seats during low/intermediate clutch apply
B4 - Seats during forward clutch apply
B8 - Seats during direct clutch apply
B10 - Seats during intermediate clutch apply

FORD
4F50N

MAIN VALVE BODY - 2004 & LATER

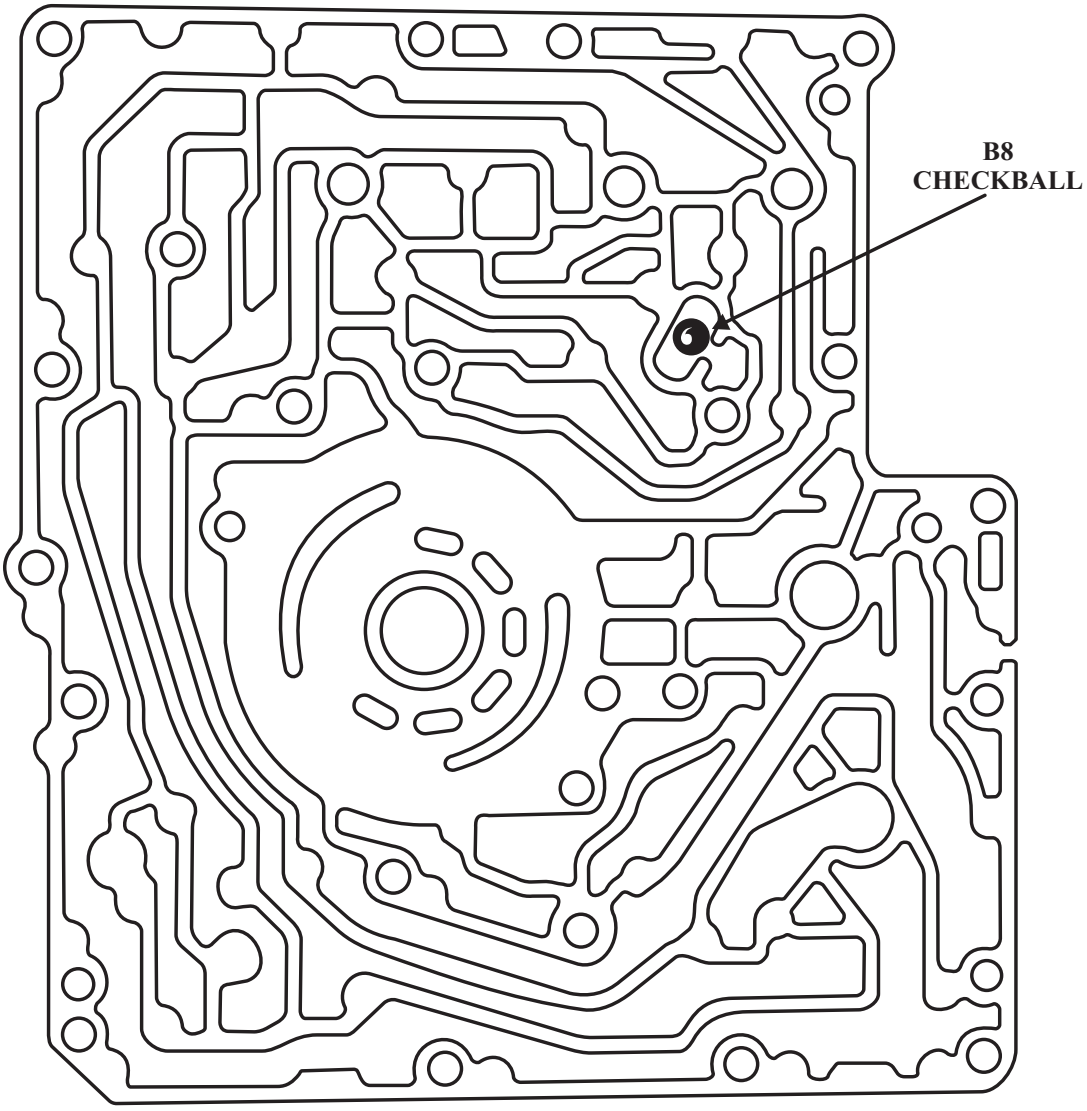


Items With Springs Are Installed With The Spring In First

6 *ALL FOUR CHECKBALLS ARE .312” DIAMETER PLASTIC*

FORD
4F50N

PUMP BODY - 2004 & LATER



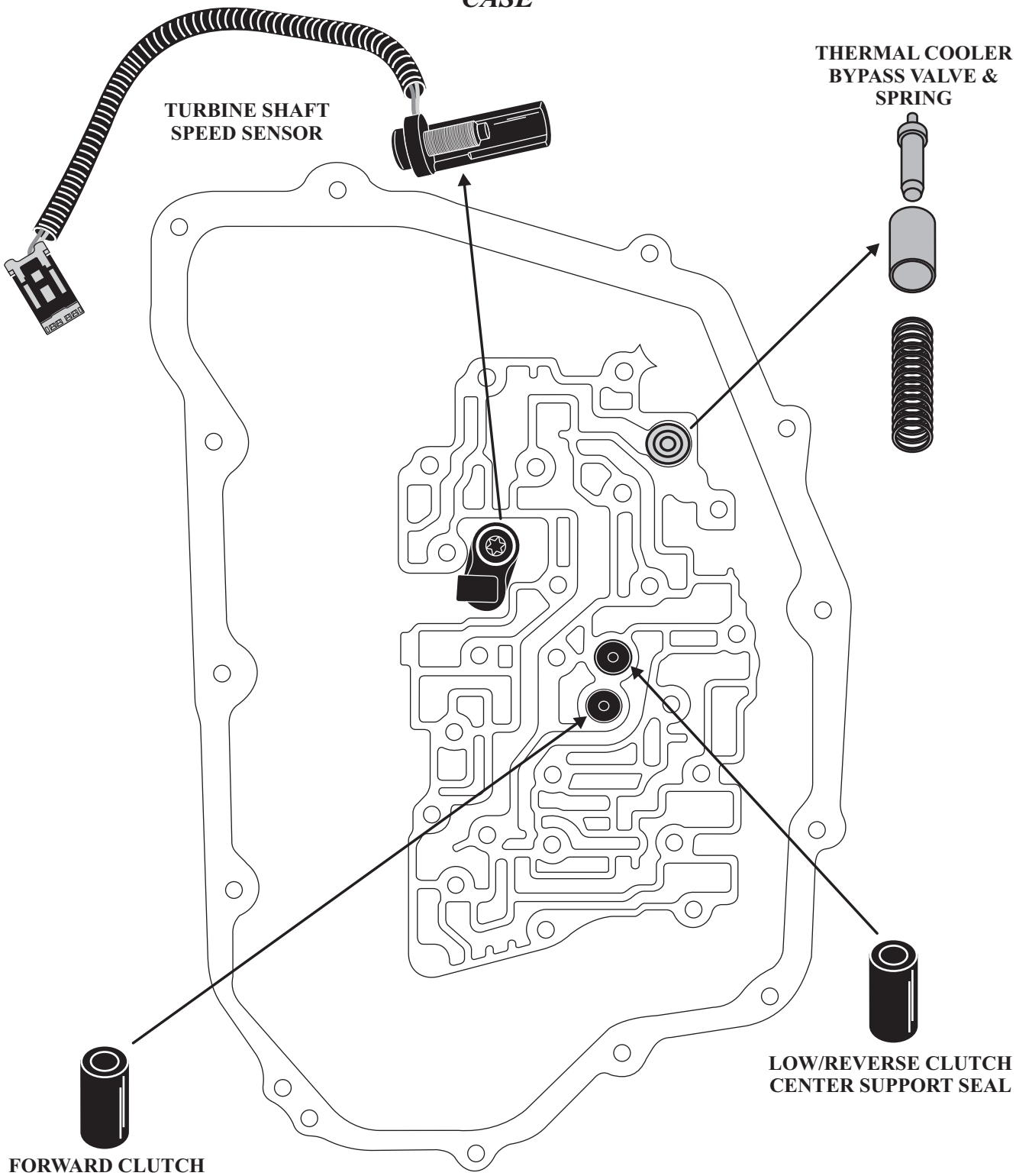
❻ *CHECKBALL IS .312" DIAMETER - PLASTIC*

2004 & LATER CHECKBALL FUNCTION

B1 - Seats during reverse clutch apply.
B2 - Seats during coast servo apply
B3 - Seats during low/intermediate clutch apply
B4 - Seats during forward clutch apply
B8 - Seats during direct clutch apply

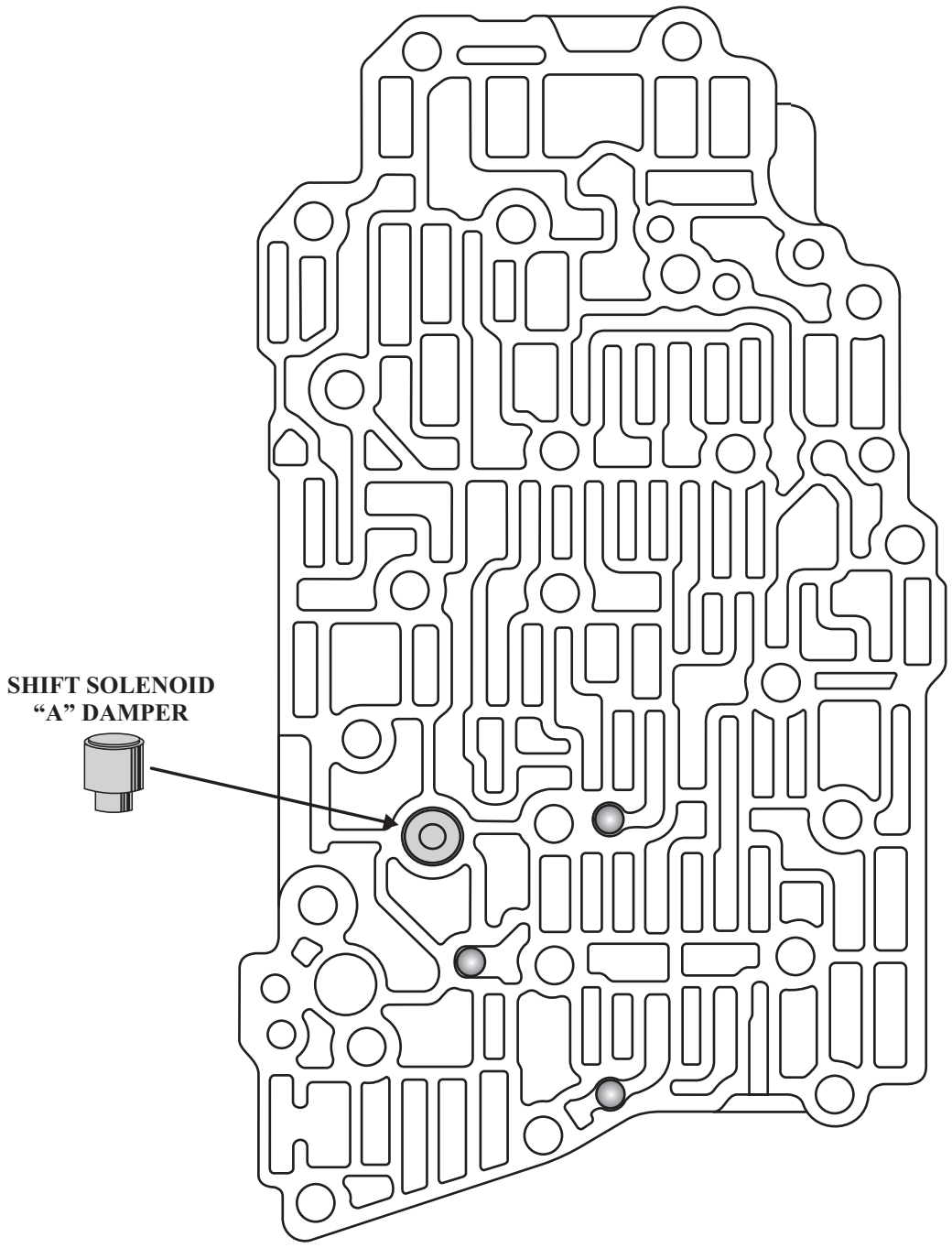
FORD
6F35

CASE



FORD
6F35

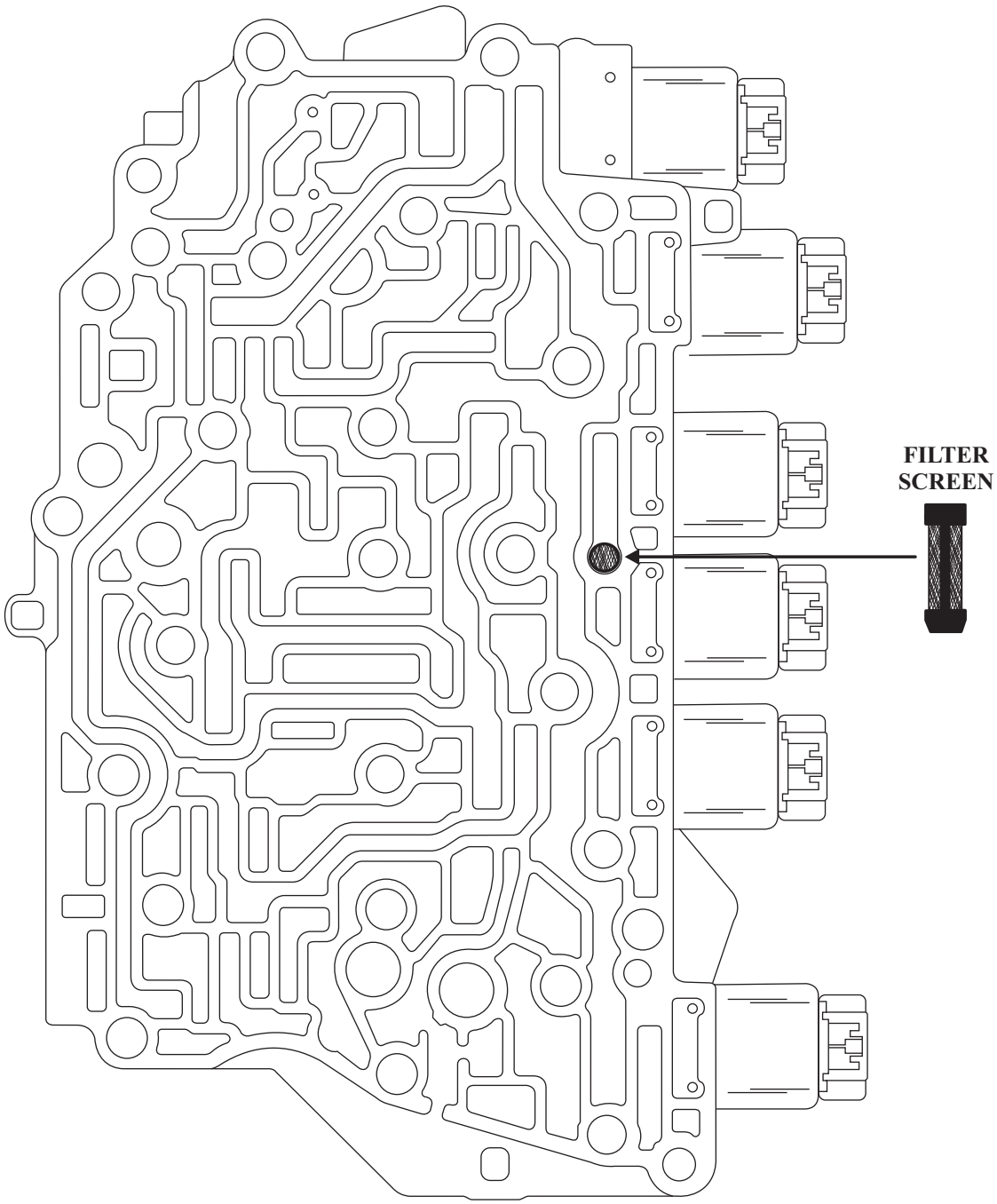
MAIN CONTROL VALVE BODY (OUTSIDE)



● *ALL THREE CHECKBALLS ARE .250" - STEEL*

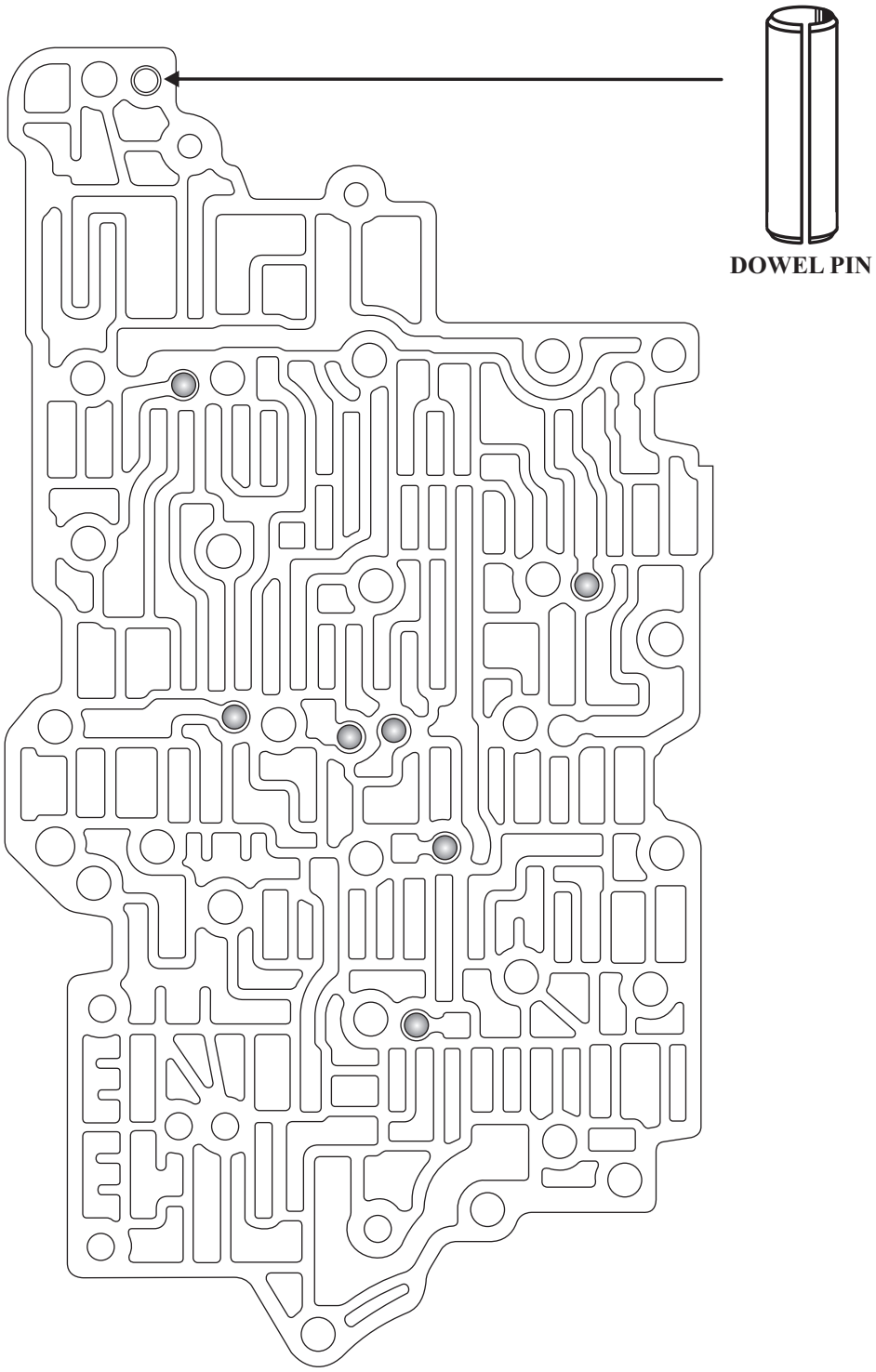
FORD
6F35

SOLENOID BODY (INSIDE)



FORD
6F50

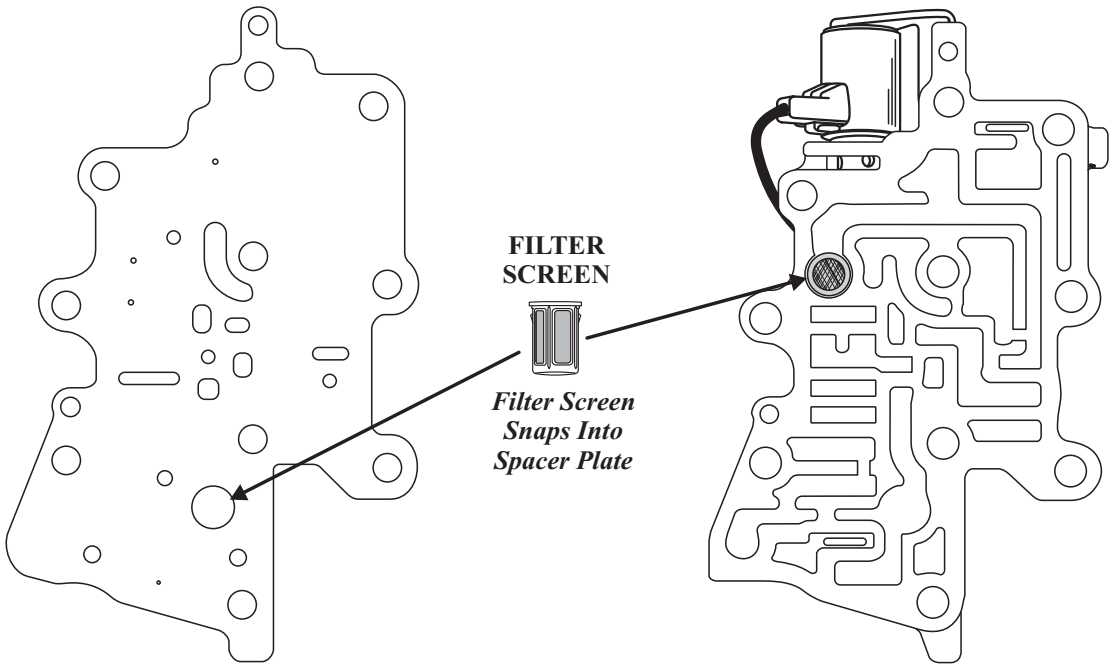
MAIN CONTROL VALVE BODY



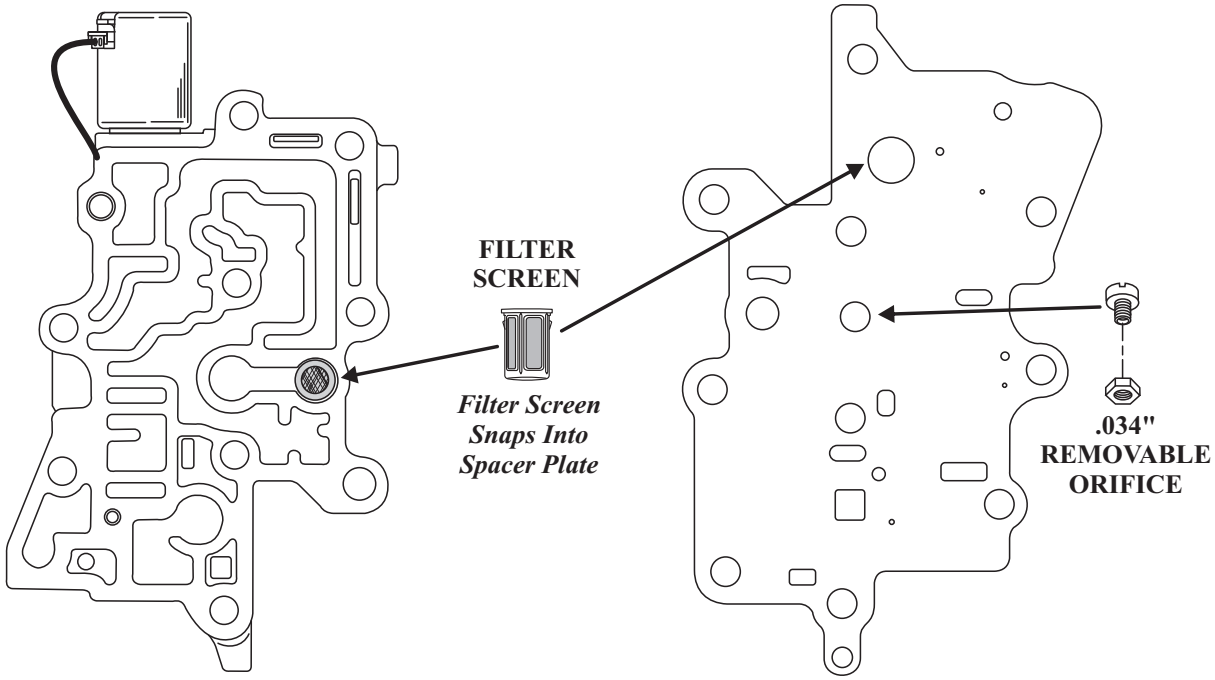
● *ALL SEVEN CHECKBALLS ARE .250" - STEEL*

FORD
F4E-III

"97" PRESSURE CONTROL SOLENOID BODY AND SPACER PLATE

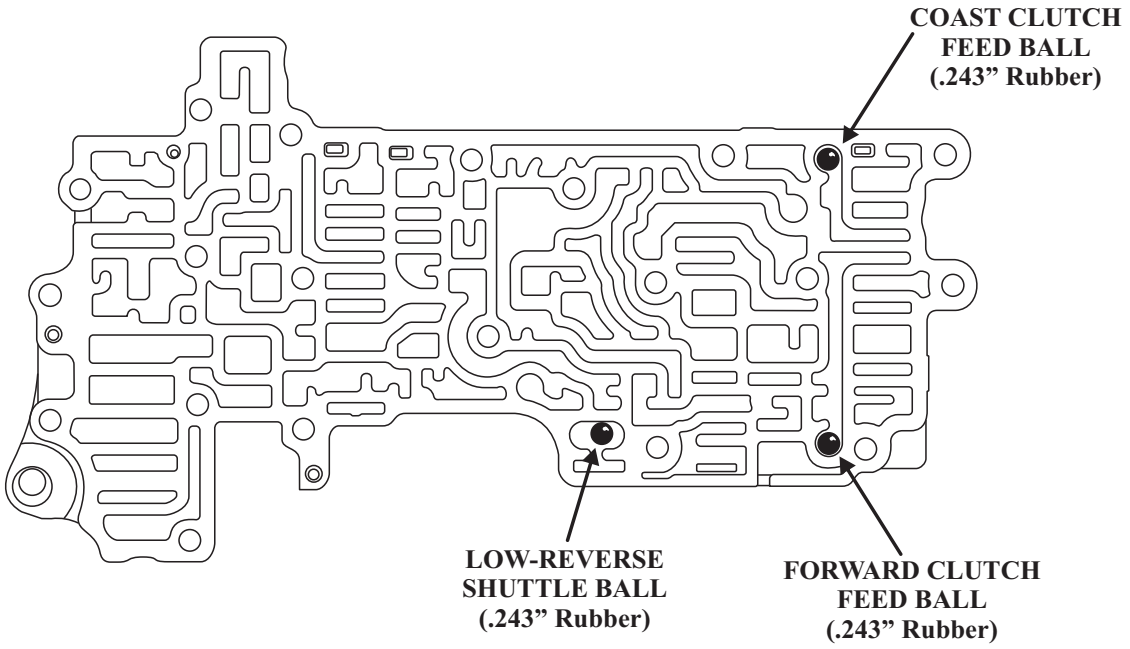


"98" PRESSURE CONTROL SOLENOID BODY AND SPACER PLATE

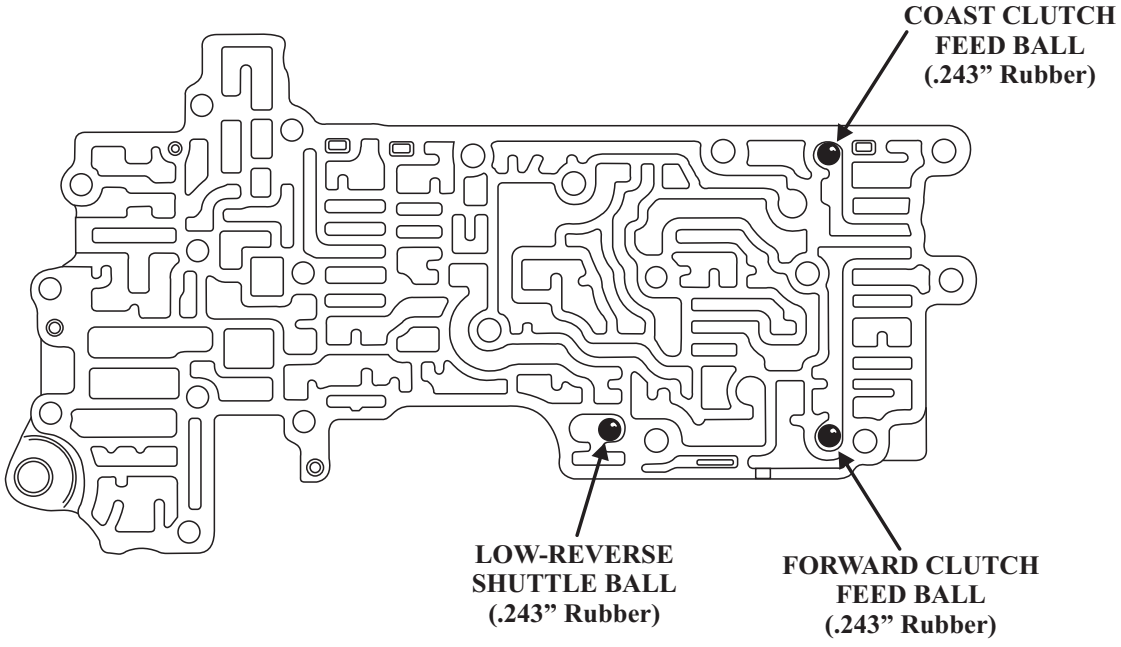


FORD
F4E-III

"97" MAIN VALVE BODY (LOWER)

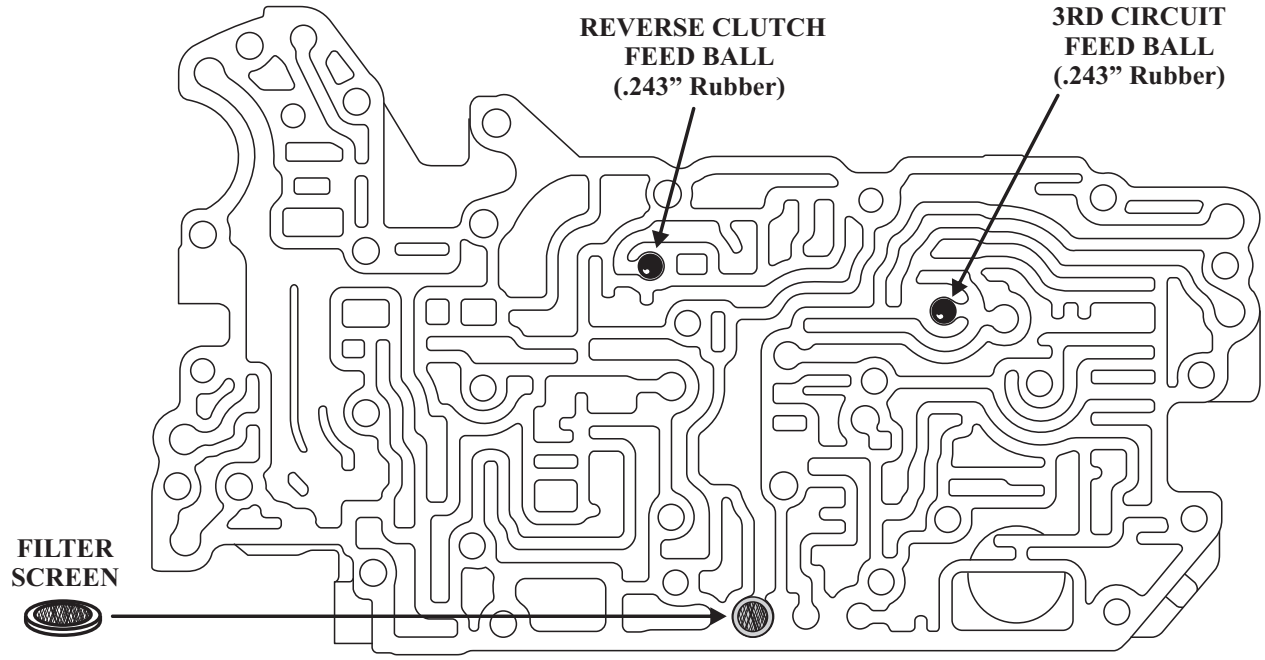


"98" MAIN VALVE BODY (LOWER)

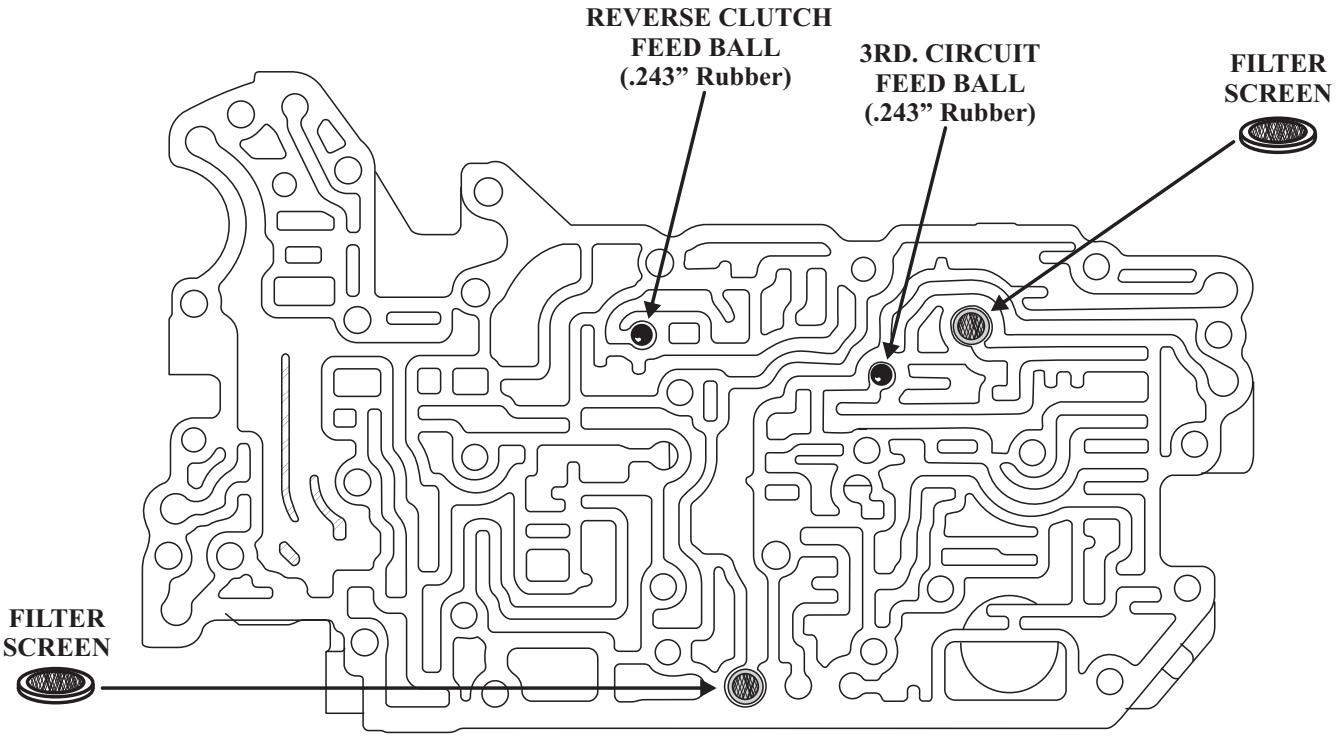


FORD
F4E-III

"97" PREMAIN VALVE BODY (UPPER)

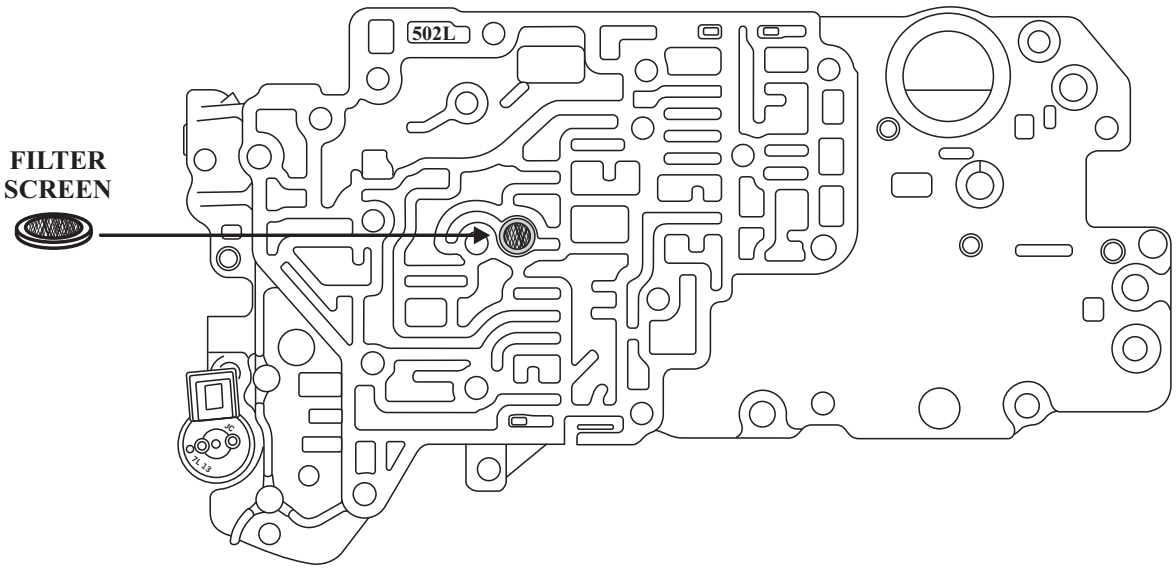


"98" PREMAIN VALVE BODY (UPPER)

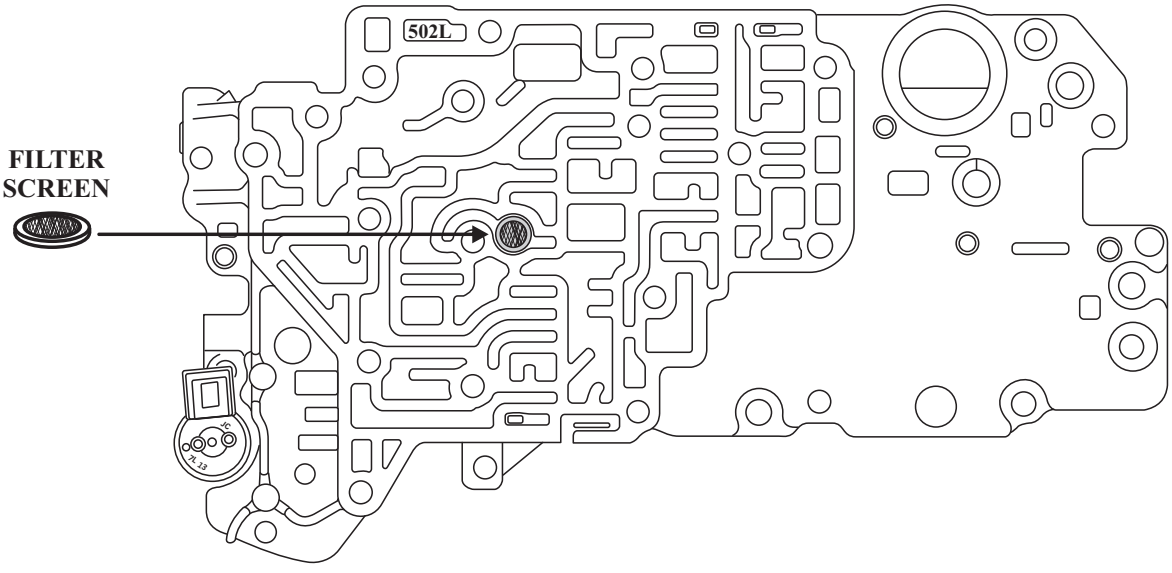


FORD
F4E-III

"97" PREMAIN VALVE BODY (LOWER)

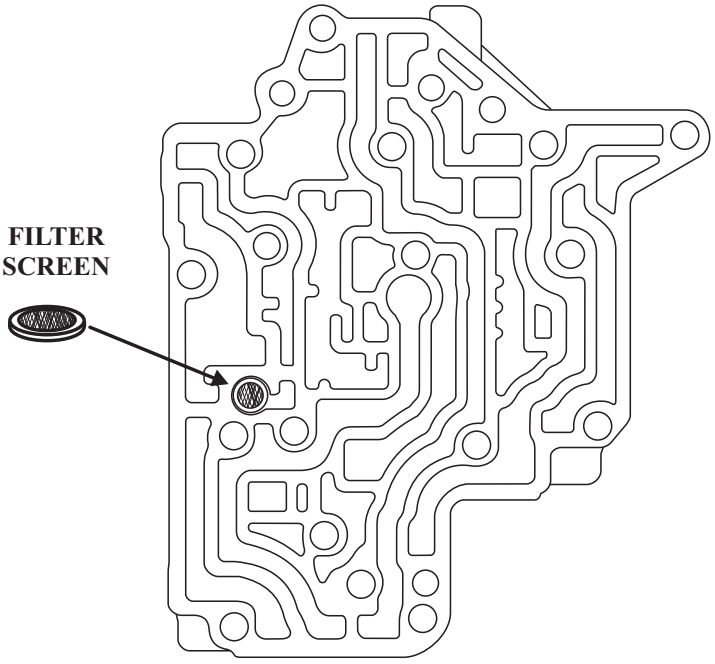


"98" PREMAIN VALVE BODY (LOWER)

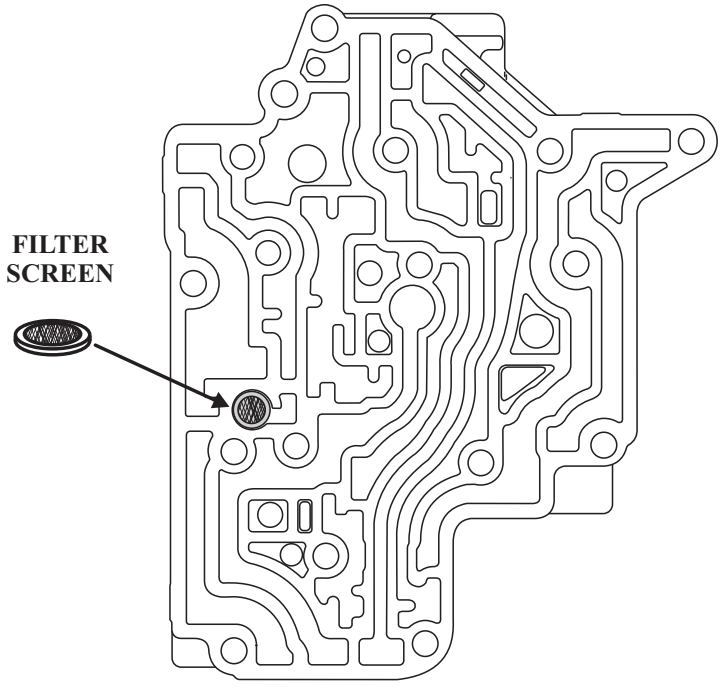


FORD
F4E-III

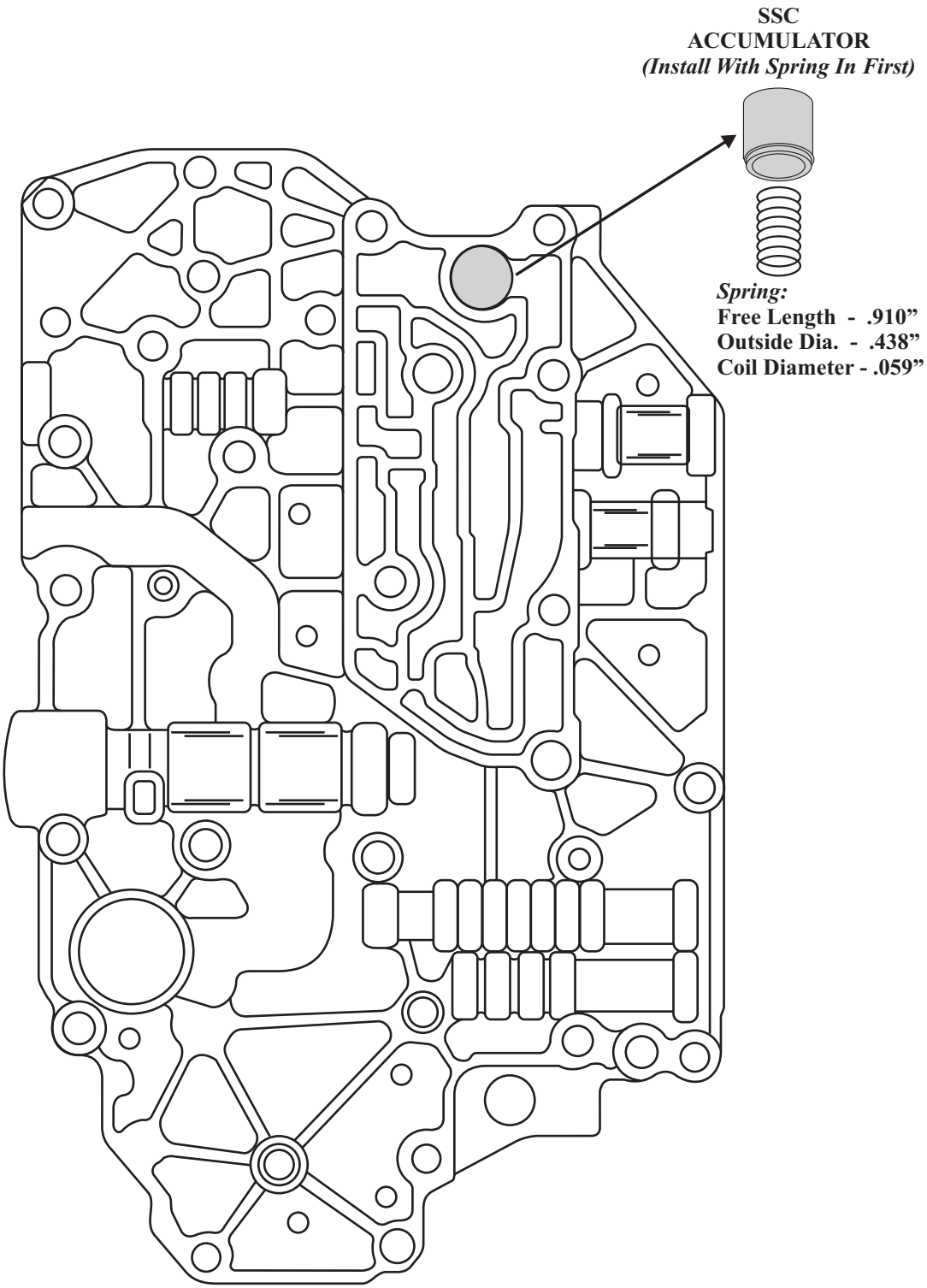
"97" PREMAIN COVER AND SPACER PLATE



"98" PREMAIN COVER AND SPACER PLATE

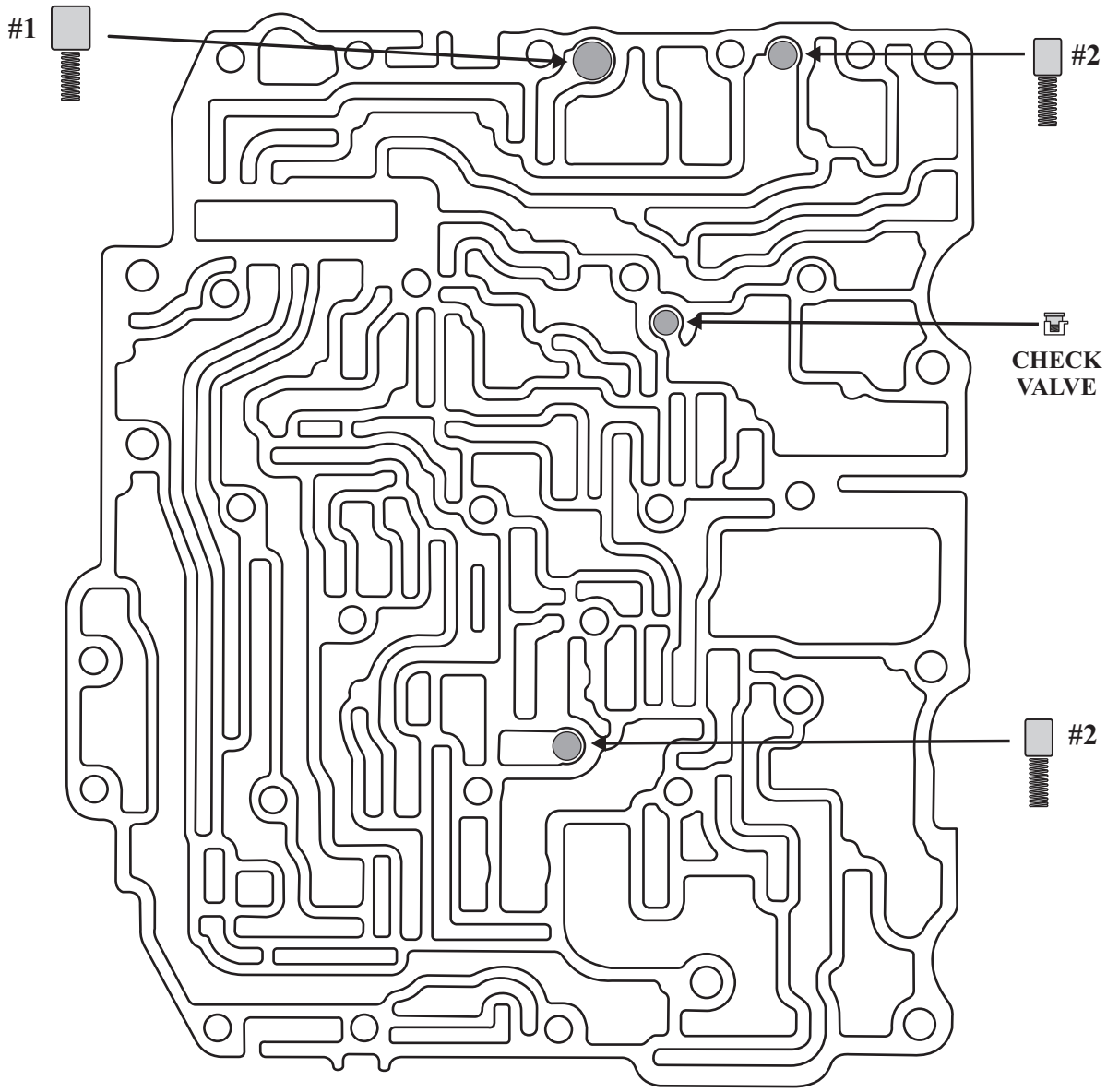


FORD
4F27E/FNR5
LOWER VALVE BODY



FORD
AF21

FRONT VALVE BODY (Center Valve Body Side)



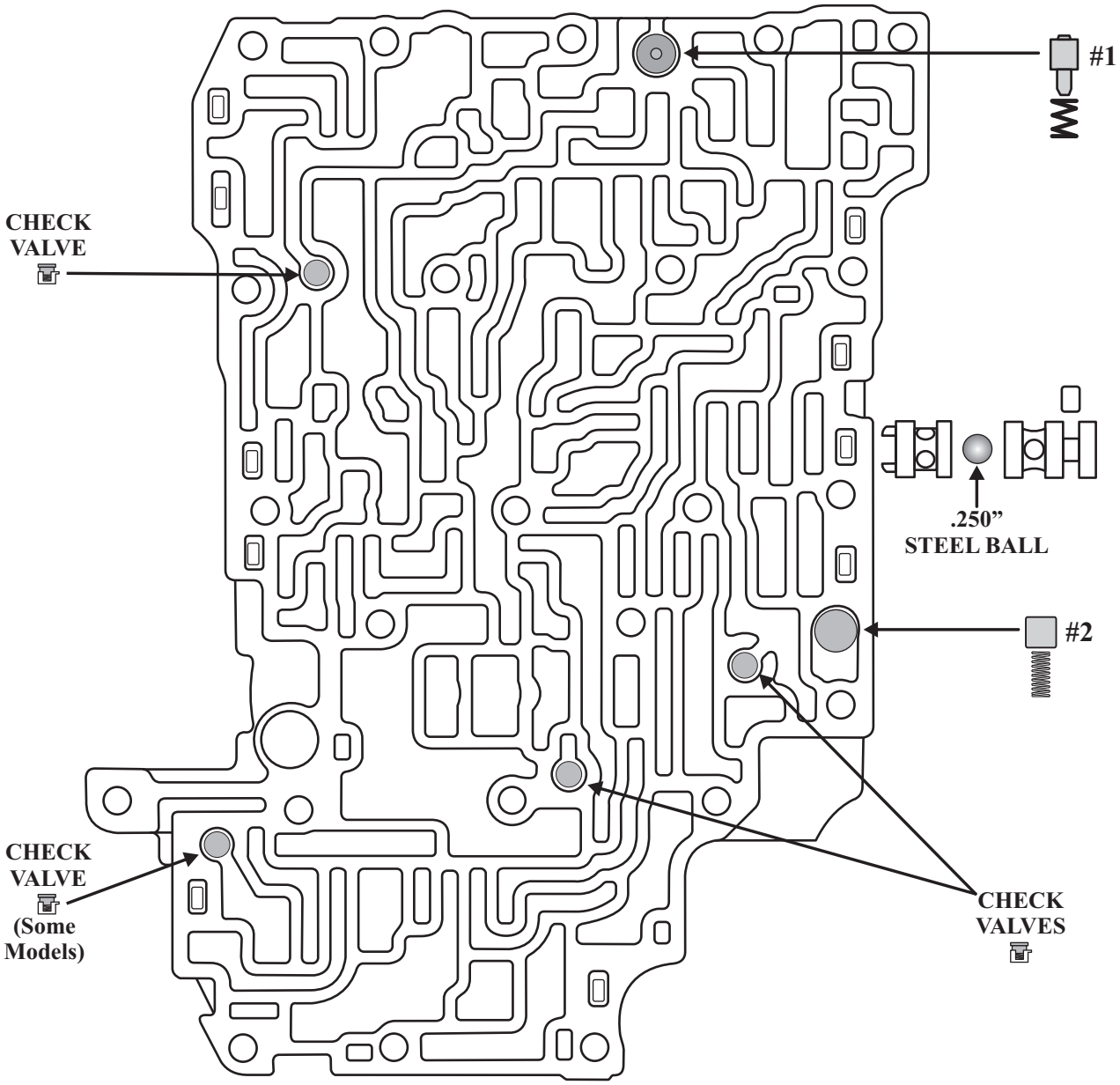
#1 **One Required**
Piston = .392” Outside Diameter
.433” Height
Spring = .585” Free Length
12 Coils
ID Color - None

#2 **Two Required**
Piston = .313” Outside Diameter
.298” Height
Spring = .377” Free Length
10 Coils
ID Color - Orange

Items With Springs Are Installed With The Spring In First

FORD
AF21

CENTER VALVE BODY (Rear Valve Body Side)



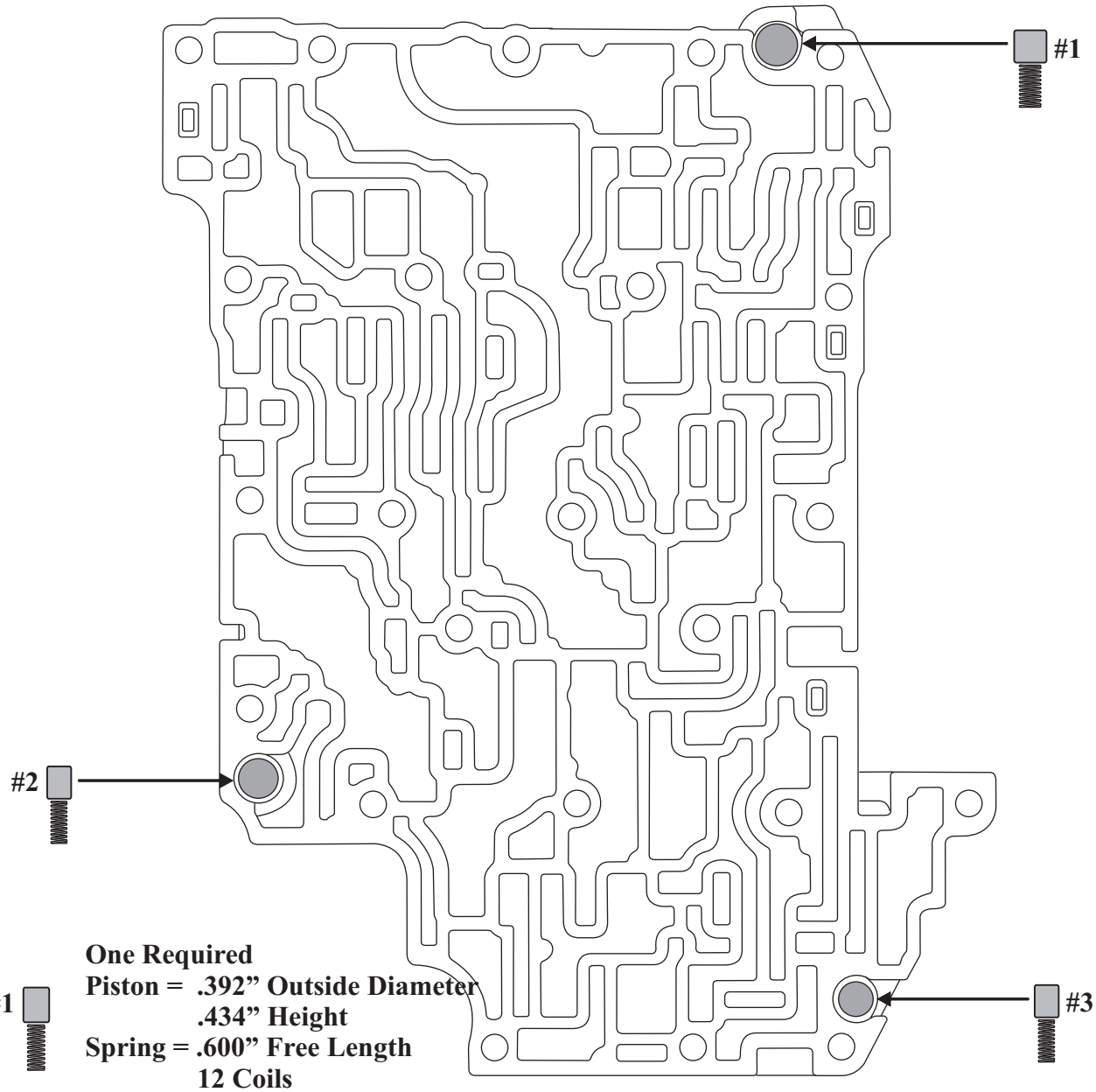
#1 One Required
Piston = .392" Outside Diameter
.635" Height
Spring = .430" Free Length
4 Coils
ID Color - None

#2 One Required
Piston = .392" Outside Diameter
.360" Height
Spring = .460" Free Length
10 Coils
ID Color - None

Items With Springs Are Installed With The Spring In First

FORD
AF21

CENTER VALVE BODY (Front Valve Body Side)



#1

One Required
Piston = .392” Outside Diameter
.434” Height
Spring = .600” Free Length
12 Coils
ID Color - White

#2

One Required
Piston = .313” Outside Diameter
.298” Height
Spring = .557” Free Length
8 Coils
ID Color - Lt. Blue

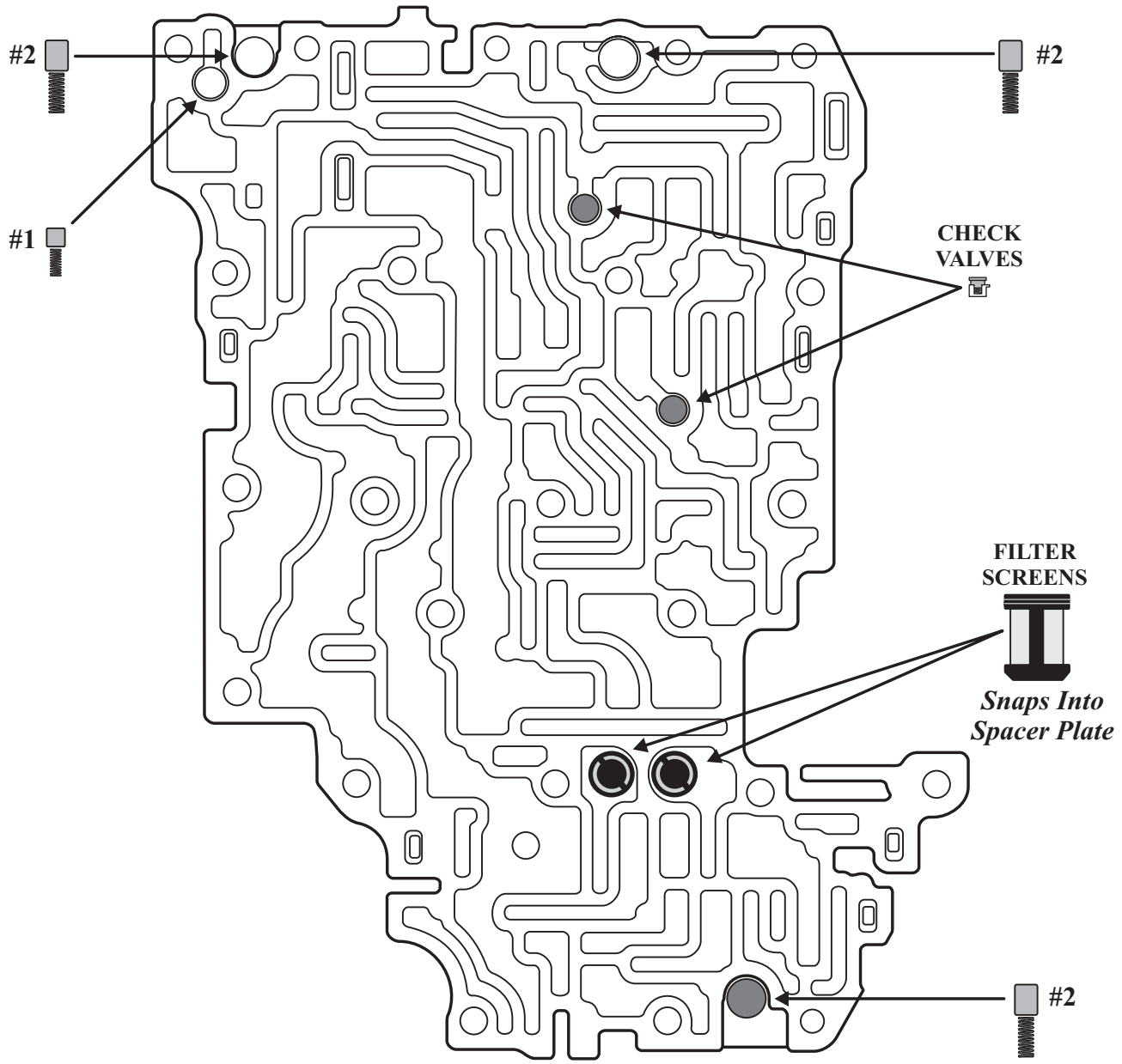
#3

One Required
Piston = .313” Outside Diameter
.298” Height
Spring = .625” Free Length
8 Coils
ID Color - Orange

Items With Springs Are Installed With The Spring In First

FORD
AF21

REAR VALVE BODY (Spacer Plate Side)



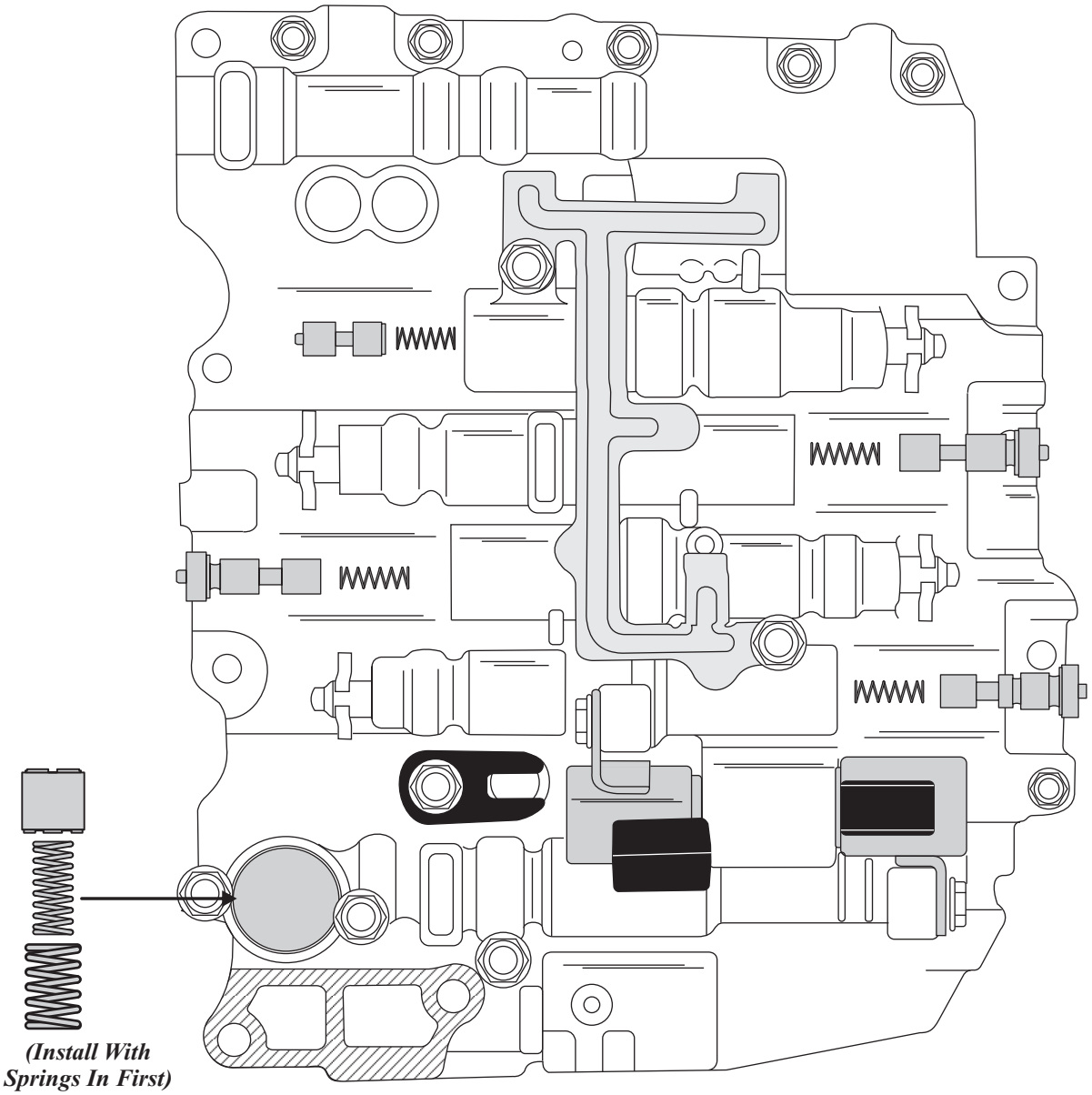
#1 **One Required**
Piston = .313" Outside Diameter
.298" Height
Spring = .379" Free Length
11 Coils
ID Color - None

#2 **Three Required**
Piston = .392" Outside Diameter
.434" Height
Spring = .600" Free Length
12 Coils
ID Color - White

Items With Springs Are Installed With The Spring In First

FORD
AF21

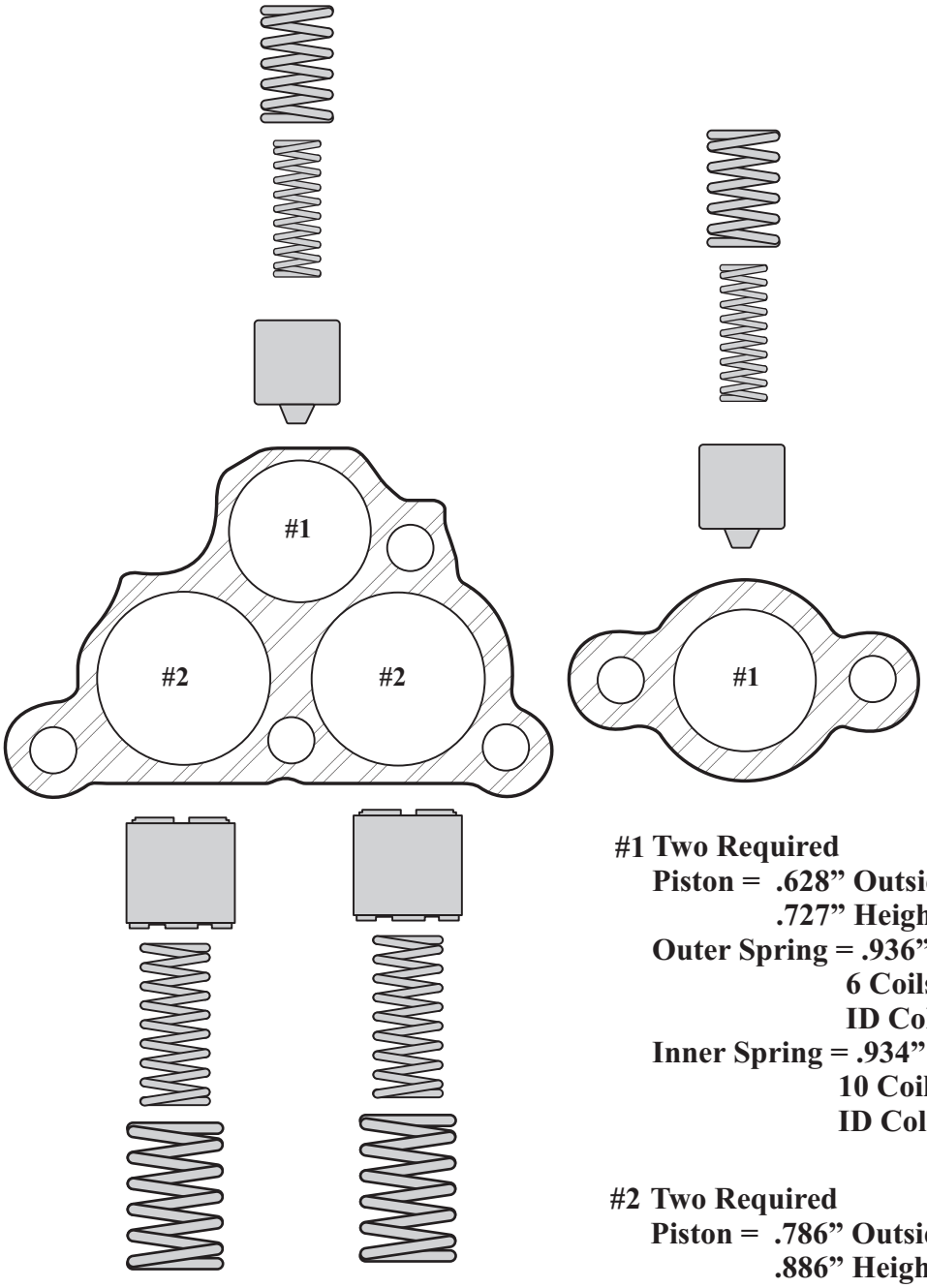
FRONT VALVE BODY (Pan Side)



One Required.
Piston = .786” Outside Diameter
.886” Height
Outer Spring = 1.082” Free Length
6 Coils
ID Color – None
Inner Spring = 1.073” Free Length
9 Coils
ID Color - Blue

FORD
AF21

REAR VALVE BODY (Case Side)



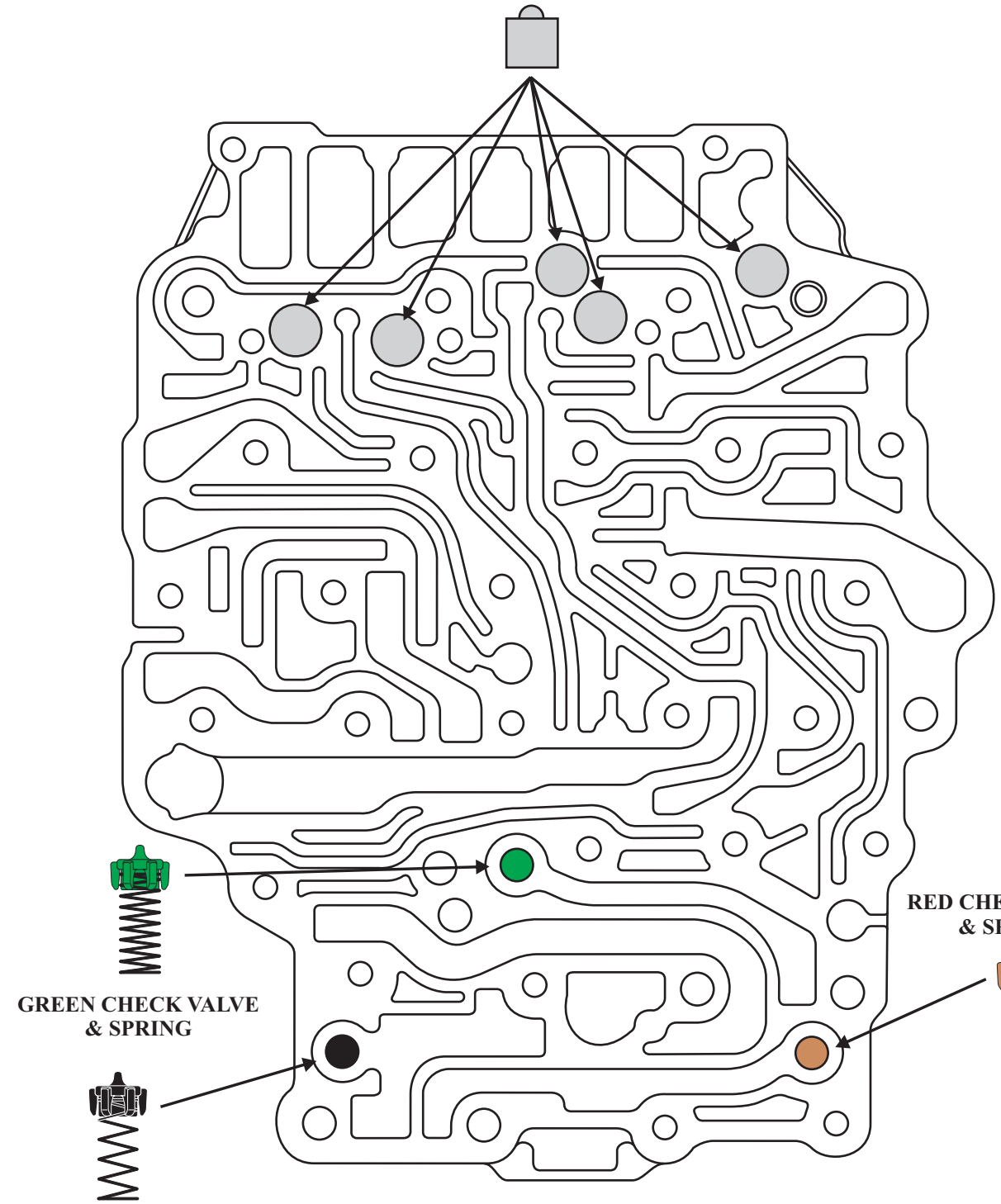
#1 Two Required
Piston = .628" Outside Diameter.
.727" Height
Outer Spring = .936" Free Length
6 Coils
ID Color - None
Inner Spring = .934" Free Length
10 Coils
ID Color - None

#2 Two Required
Piston = .786" Outside Diameter
.886" Height
Outer Spring = 1.082" Free Length
6 Coils
ID Color - None
Inner Spring = 1.073" Free Length
9 Coils
ID Color - Blue

Items With Springs Are Installed With The Piston In First

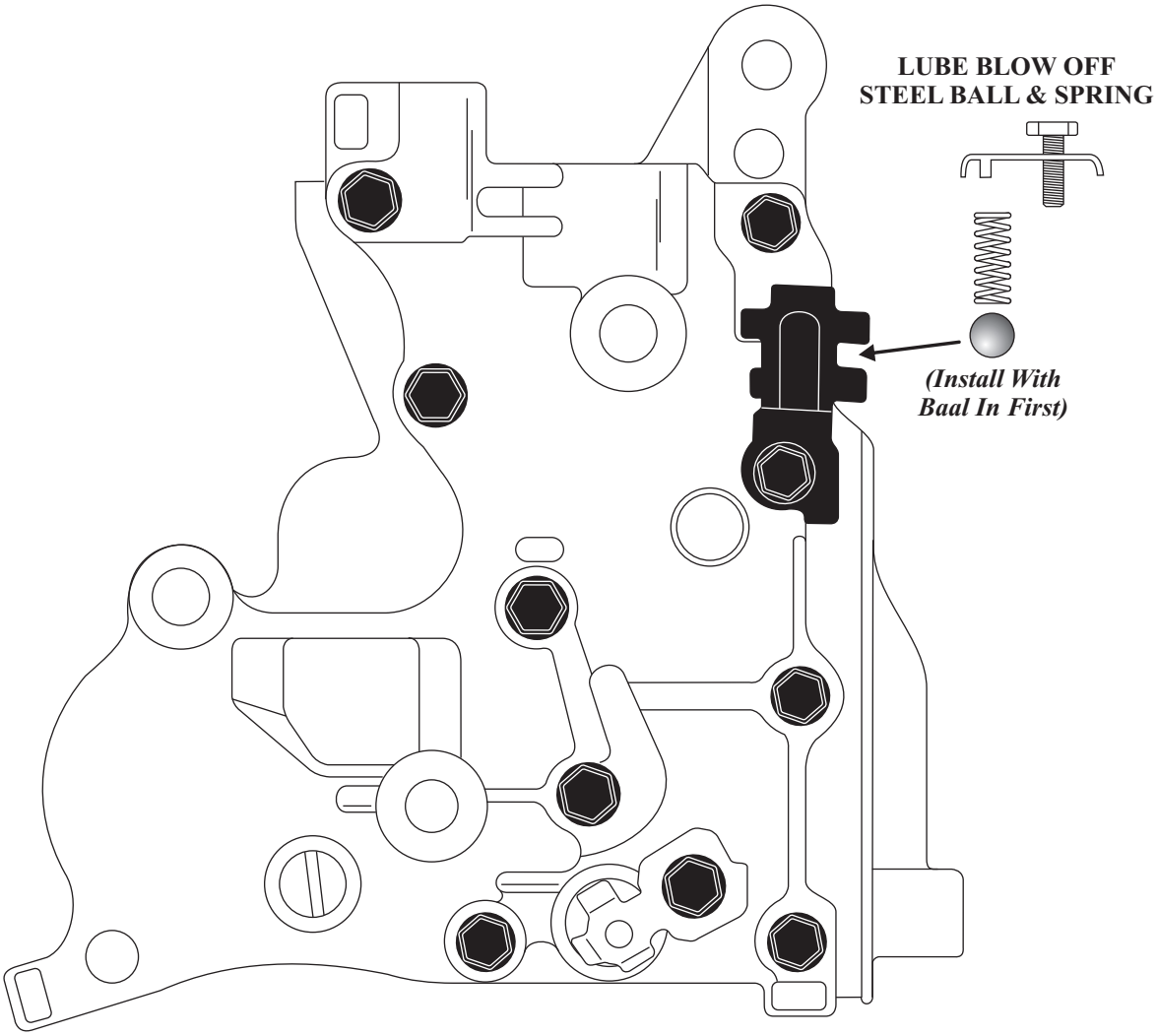
FORD
CFT30

MAIN VALVE BODY



Items With Springs Are Installed With The Spring In First

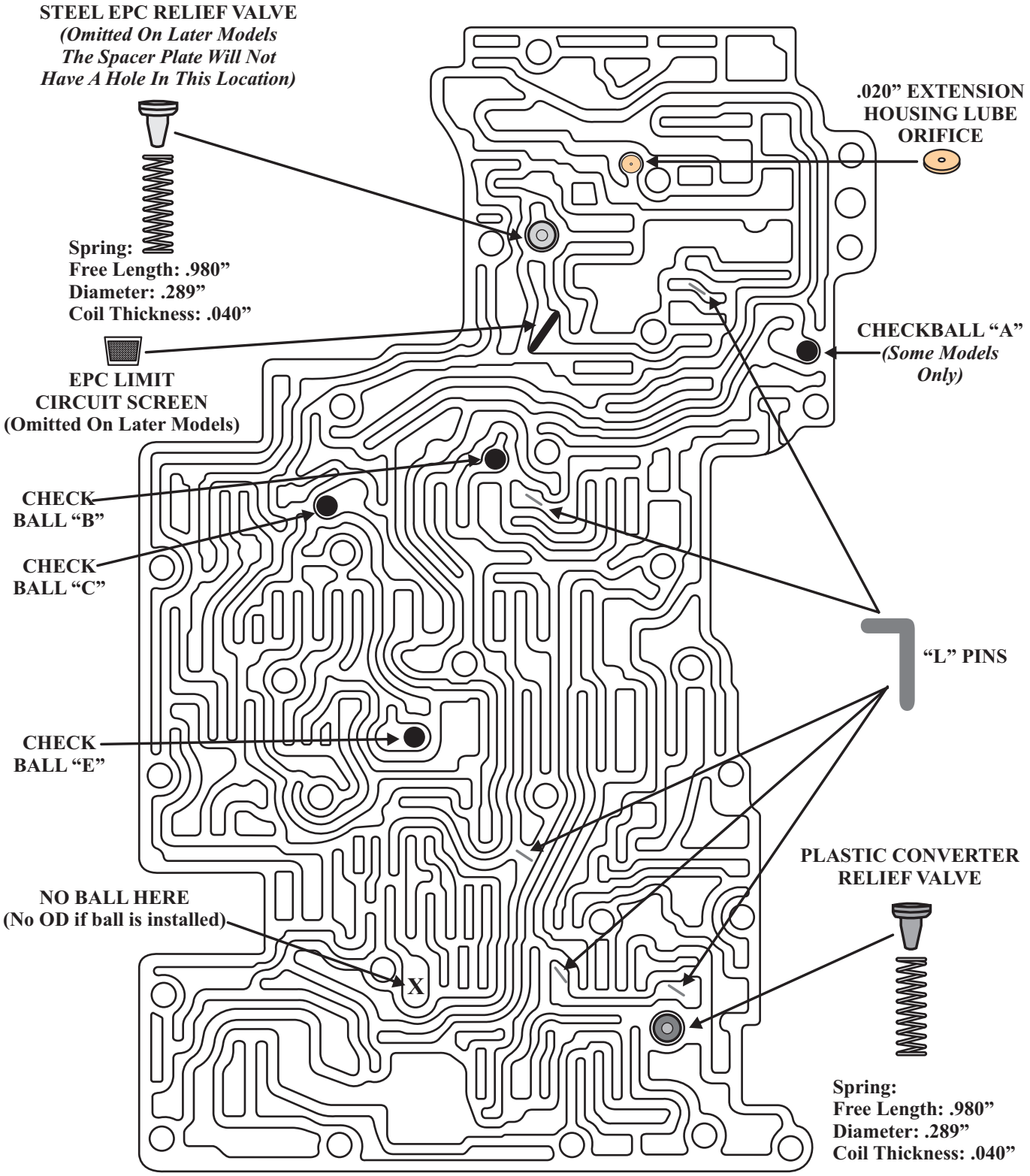
FORD
eCVT
LUBRICATION PUMP



NOTE: THIS IS THE ONLY CHECKBALL IN THIS TRANSMISSION

FORD
4/5R55E

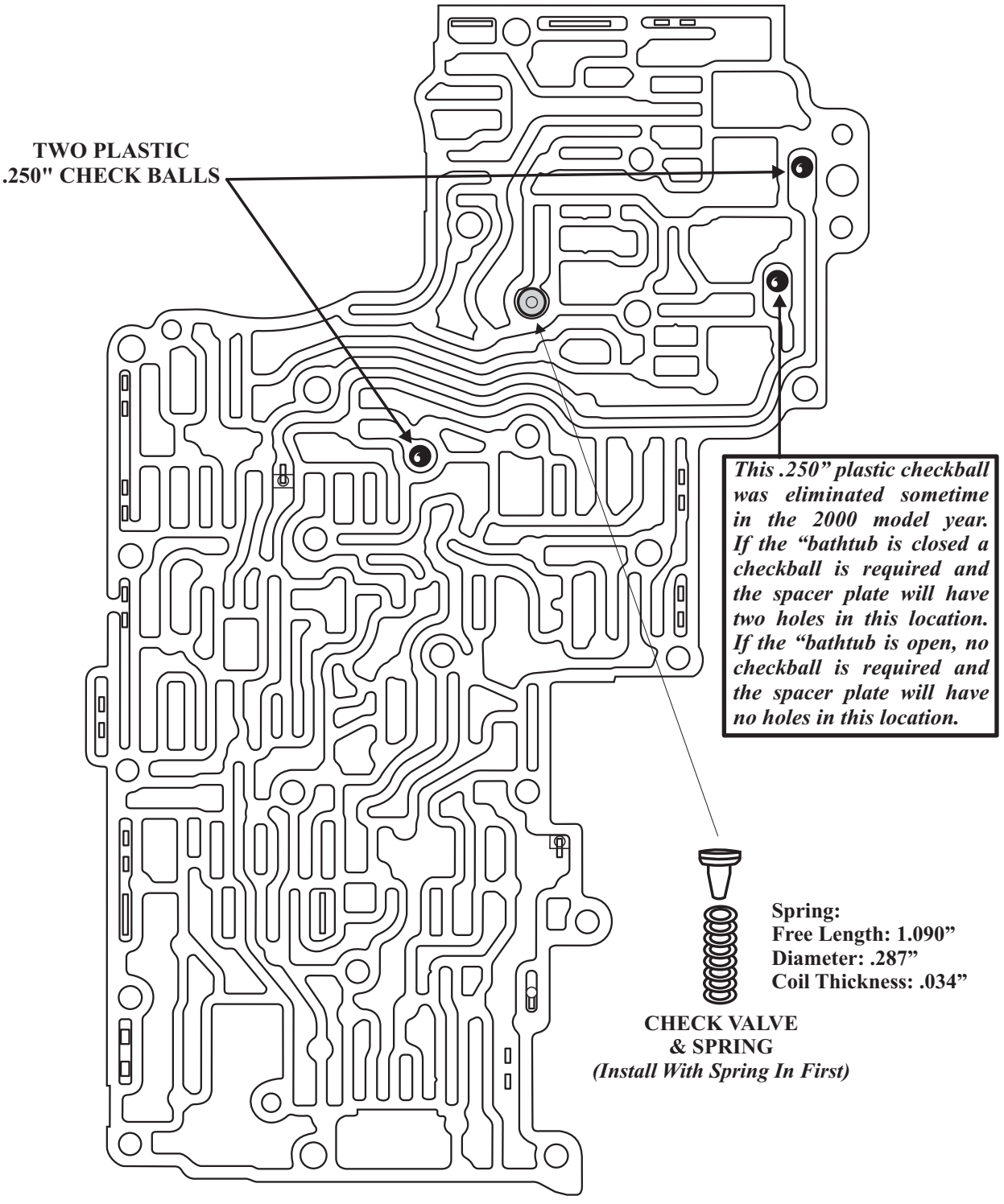
MAIN VALVE BODY



● *ALL CHECKBALLS ARE .250" DIAMETER RUBBER*

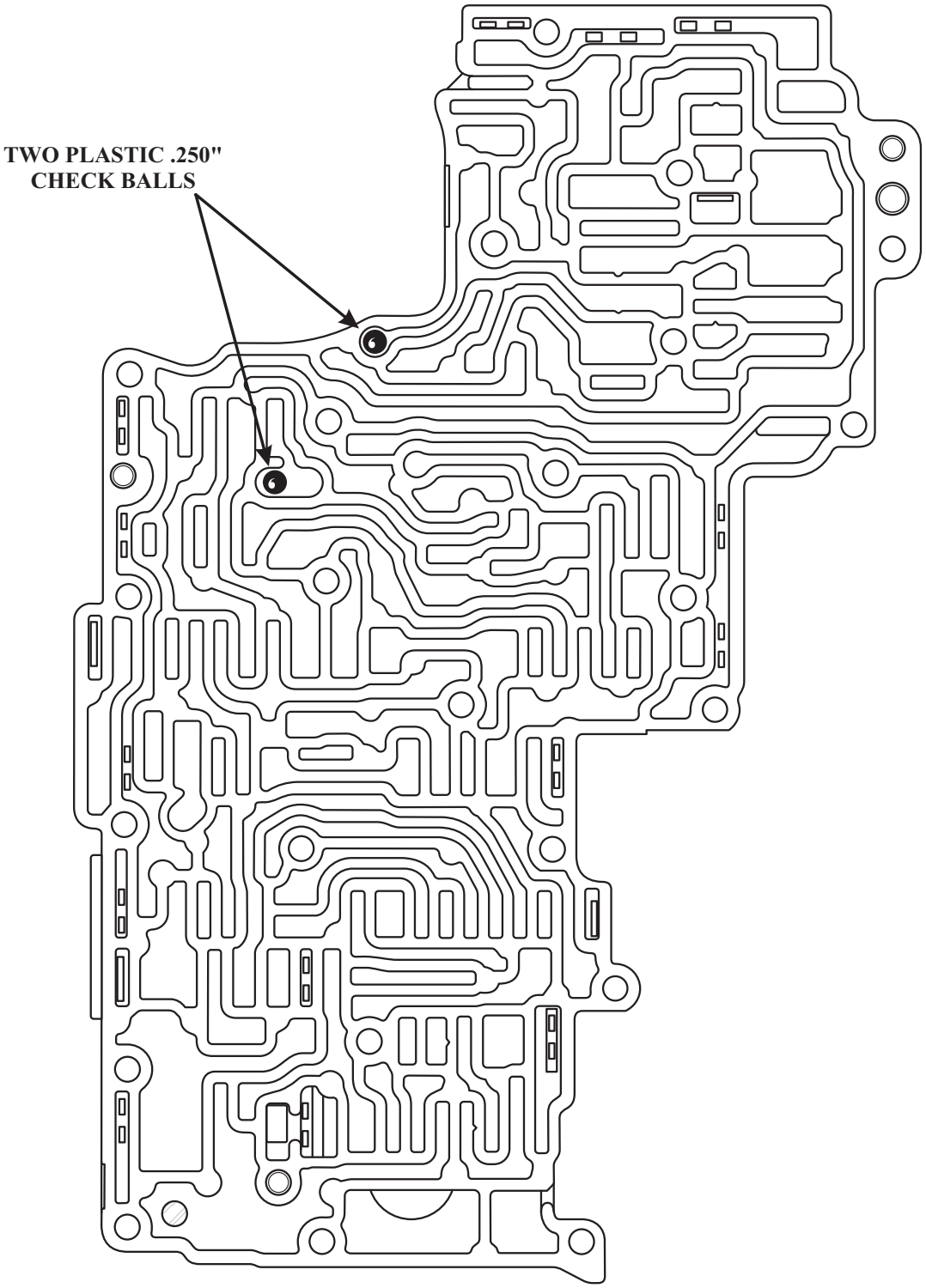
FORD
5R55N

MAIN VALVE BODY

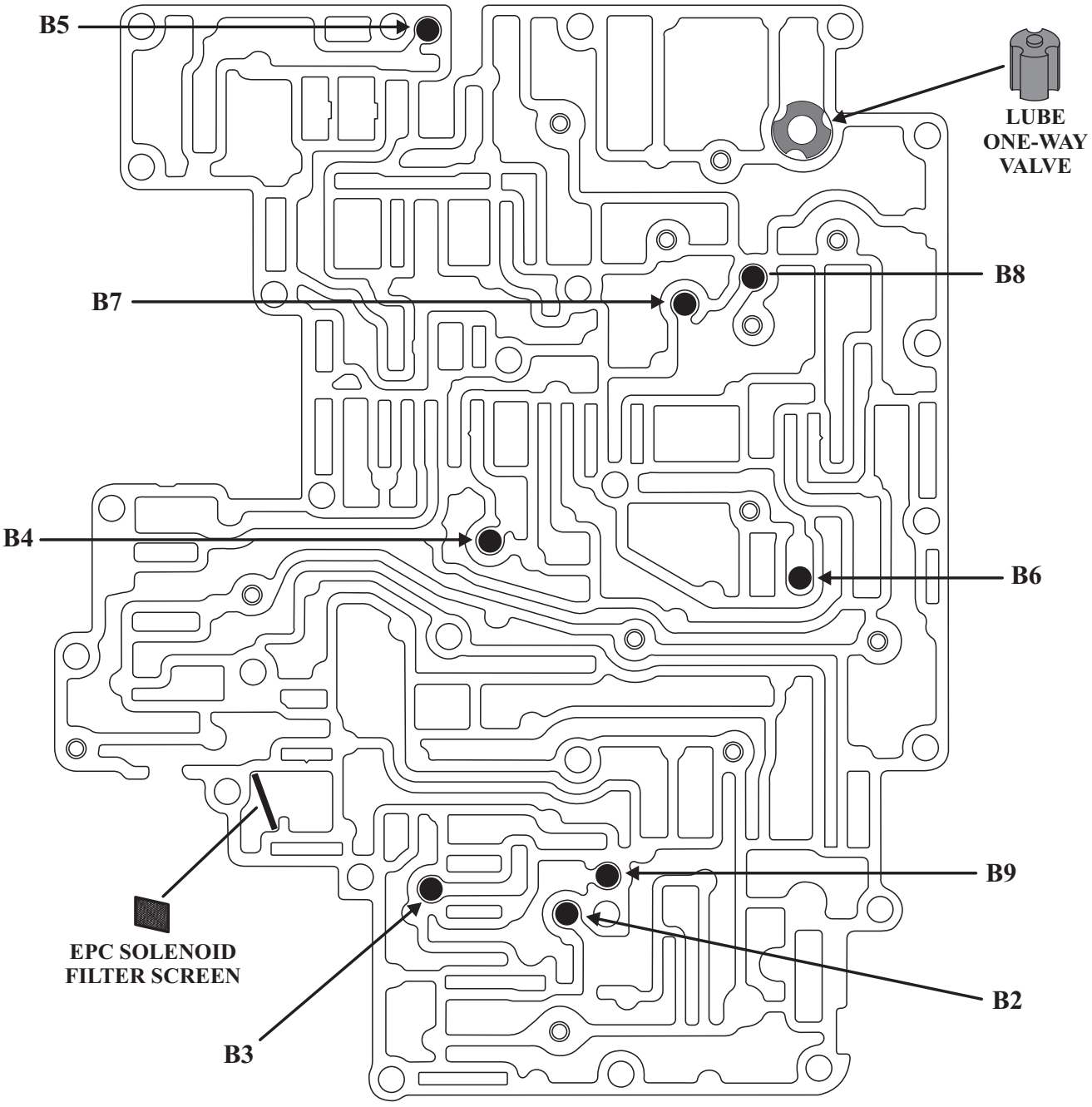


FORD
5R55W/S

MAIN VALVE BODY



FORD
4R75E
MAIN VALVE BODY

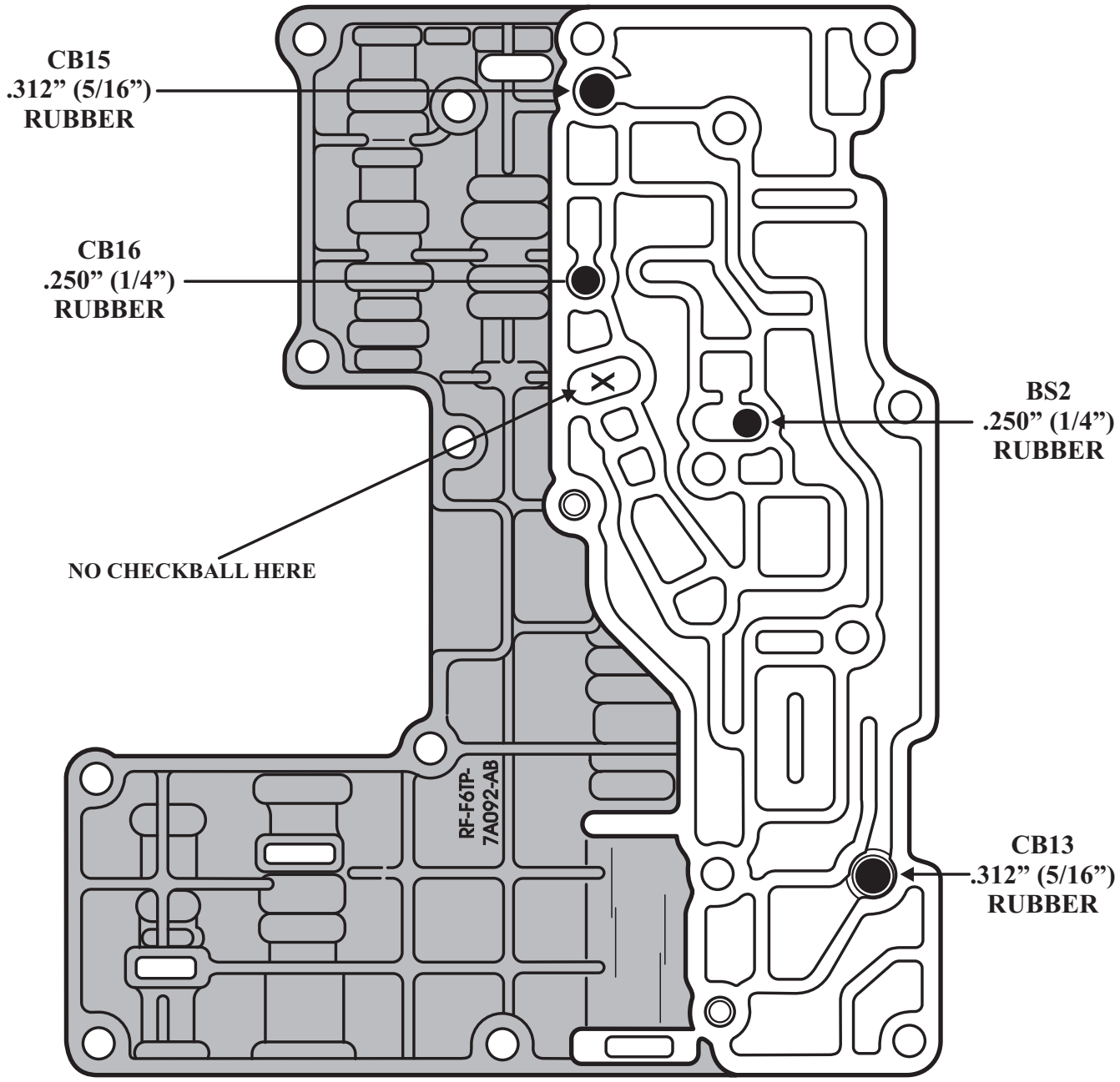


● *EIGHT CHECKBALLS ARE .250" DIAMETER - RUBBER*

B2 - In the Forward Clutch circuit near the 3-4 shift valve.
B3 - In the Direct Clutch circuit near the 2-3 backout valve.
B4 - In the Overdrive and Forward Clutch circuits near the 1-2 shift valve.
B5 - In the Reverse circuit near orifice number one.
B6 - Shuttle ball between the Low and Reverse circuits.
B7 - Between the L234 and Torque Converter Clutch circuits.
B8 - Between the L234 and Intermediate Clutch circuits.
B9 - Between the FC34 and 23BP circuits (1996-Up Only).

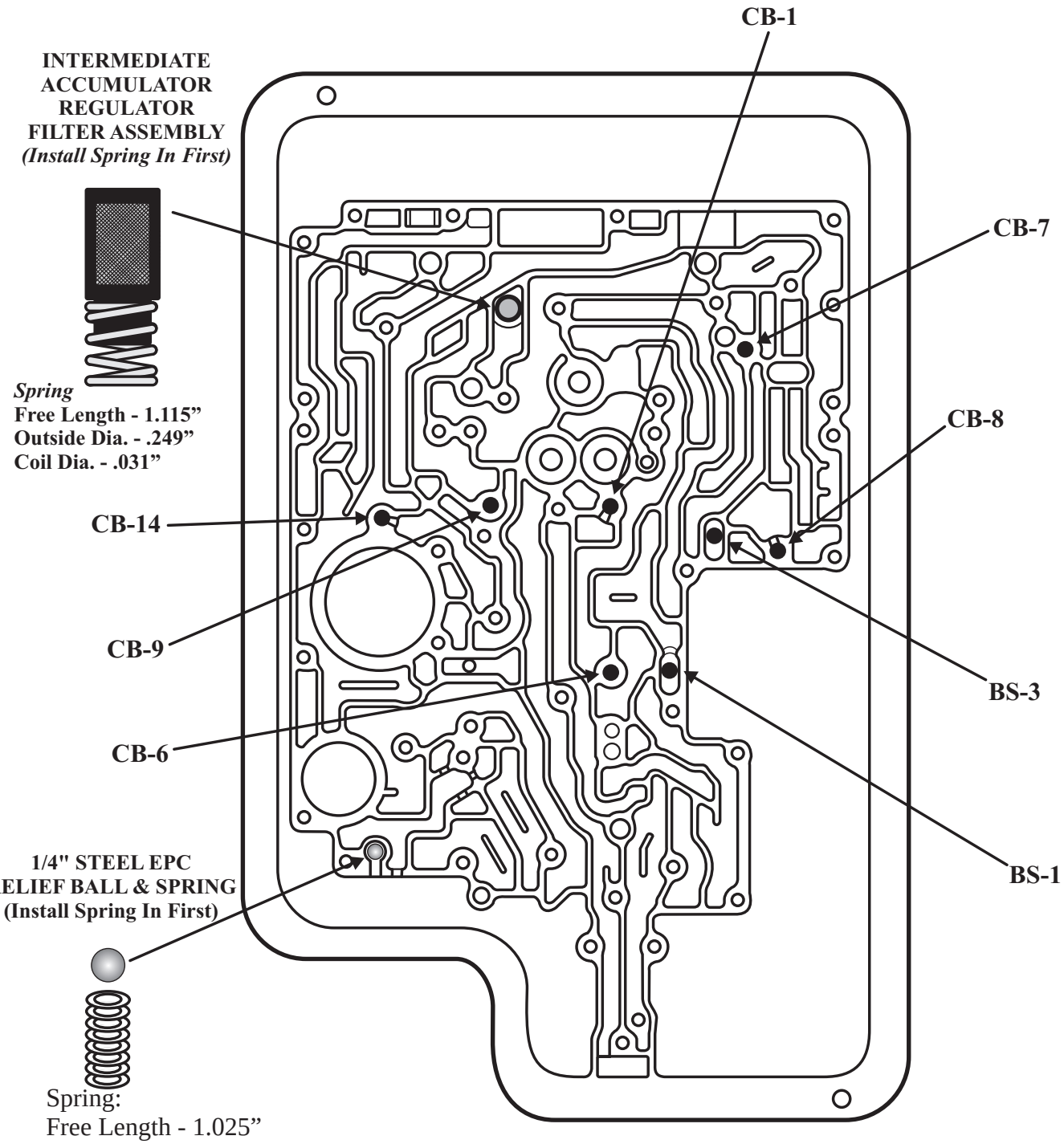
FORD
4R100

MAIN VALVE BODY



FORD
4R100

CASE



EIGHT CHECKBALLS ARE .312" (5/16") DIAMETER - RUBBER

FORD
4R100

CHECKBALL FUNCTION

VALVE BODY

BS2 - This checkball is located between shift solenoid 2 and the SS2 air bleed, the 3-4 shift valve and the 4-3-2 manual timing valve. It is also positioned between the manual valve, the BS1 checkball and the BS2 checkball as well as between the BS1 checkball, the BS3 checkball, the 4-3-2 timing valve and the CB1 checkball.

CB13 - The checkball is located between the manual valve, the 3-4 shift valve, the 2-3 shift valve, the 1-2 and D2 shift valve, the engagement control valve and the forward clutch circuit.

CB15 - This checkball is located between the manual valve and the reverse circuit, the low/reverse modulator valve, the 3-4 shift valve, the engagement control valve, the 1-2 &D2 shift valve, the CB1 checkball, the line modulator valve and the direct clutch accumulator.

CB16 - This checkball is located between the reverse circuit, the BS1 checkball, the converter clutch control valve, the main pressure regulator valve and the low/reverse modulator valve.

CASE

BS1 - This checkball is located between the reverse circuit, the BS1 checkball, the converter clutch control valve, the main pressure regulator valve and the low/reverse modulator valve. It is also positioned between the manual valve, the BS1 checkball and the BS2 checkball as well as between the BS3 checkball, the 4-3-2 timing valve and the CB1 checkball.

BS3 - This checkball is located between the BS1 checkball, the 4-3-2 timing valve and the reverse circuit.

CB1 - This checkball is located between the BS1 checkball, the 4-3-2 timing valve and the reverse circuit, the manual valve, the low/reverse modulator valve, the 3-4 shift valve, the engagement control valve, the 1-2 and D2 shift valve, the line modulator valve and the direct clutch accumulator.

CB6 - The checkball is located between the 2-3 shift valve and the direct clutch accumulator.

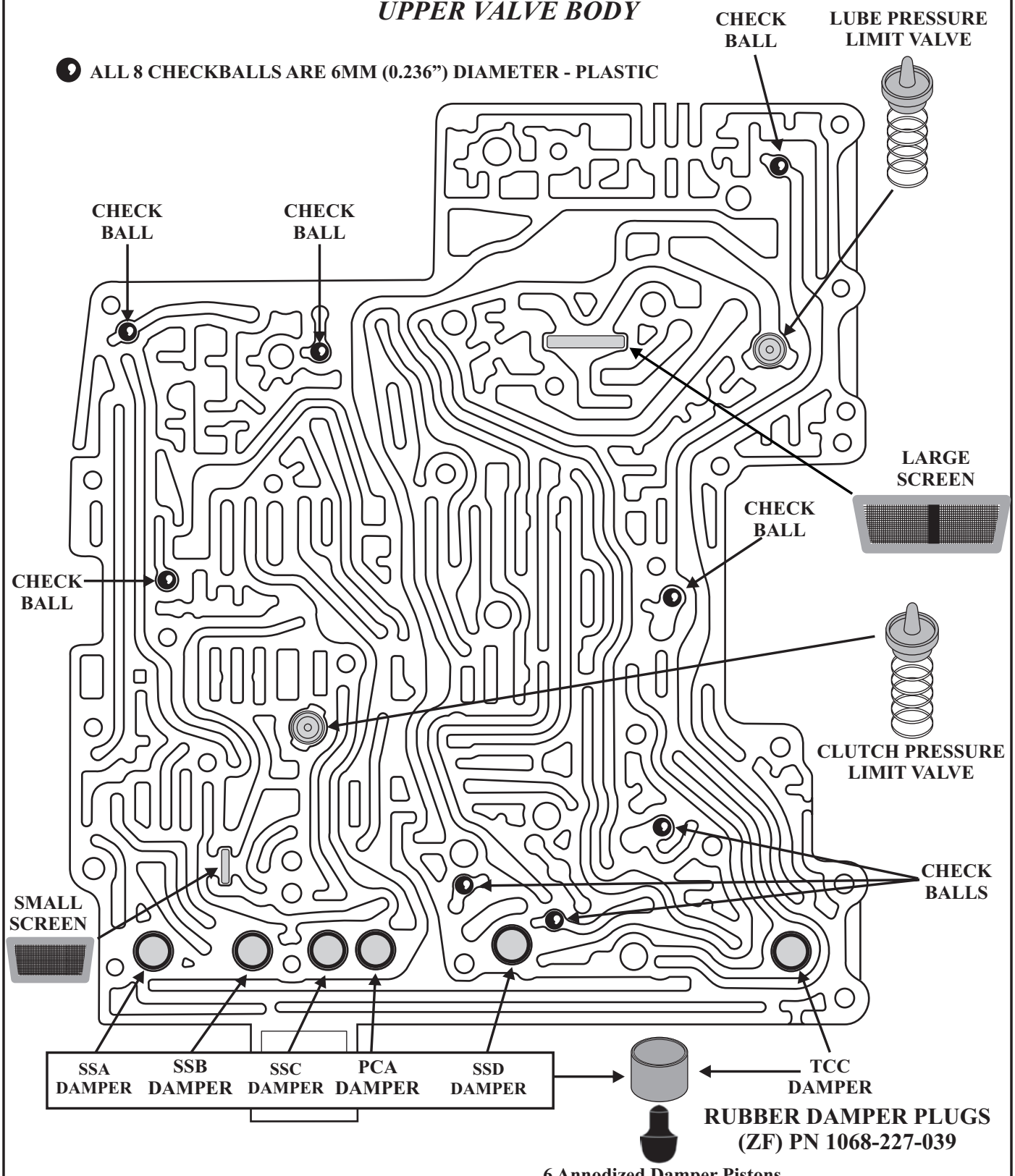
CB7 - The checkball is located between the 3-4 shift valve and the overdrive clutch accumulator.

CB8 - The checkball is located between the coast clutch shift valve and the coast clutch circuit.

CB9 - The checkball is located between the 1-2 and D2 shift valve and the intermediate servo.

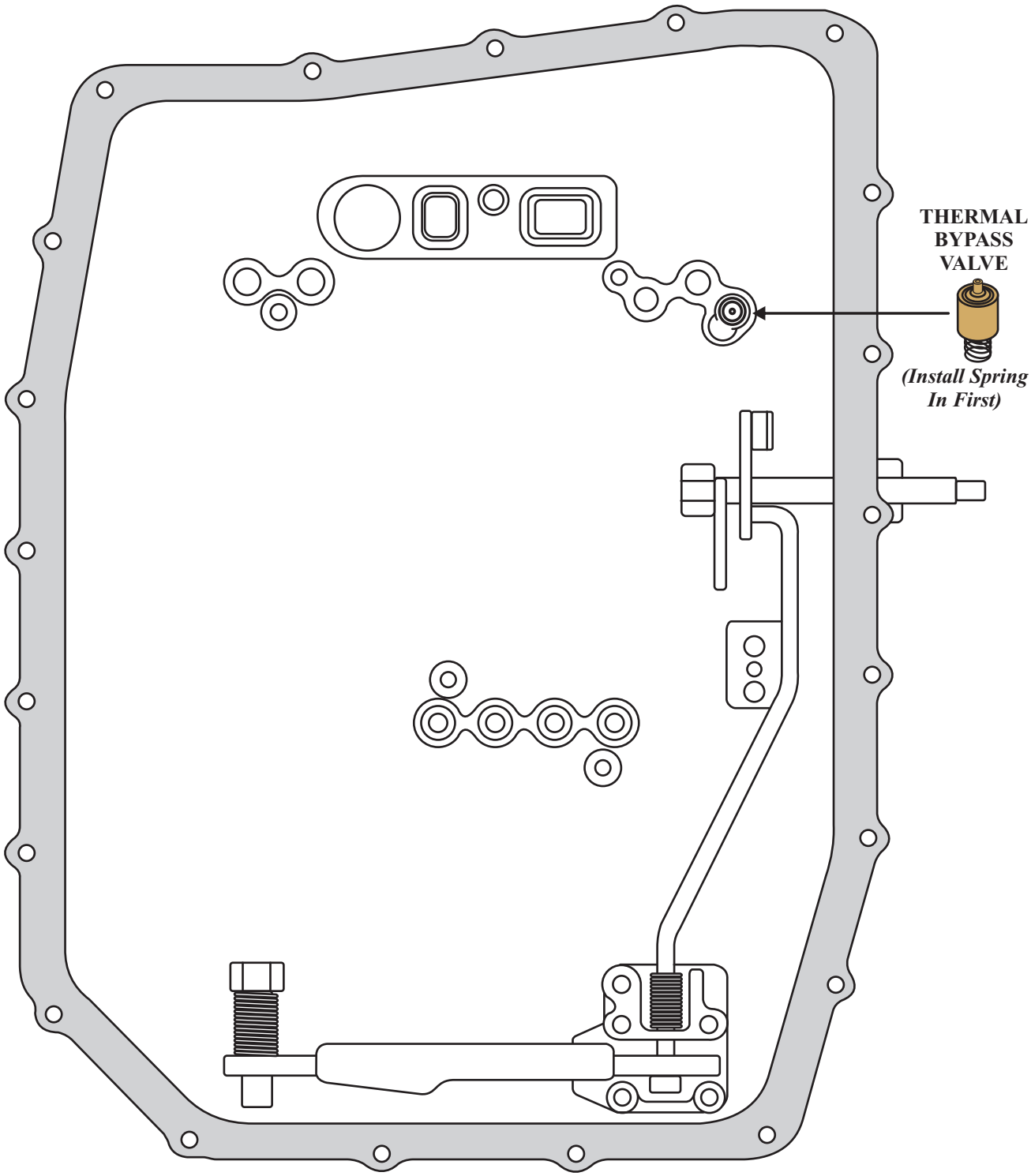
CB14 - The checkball is located between the 1-2 and D2 shift valve, the engagement control valve and the intermediate clutch accumulator.

FORD
6R60
UPPER VALVE BODY



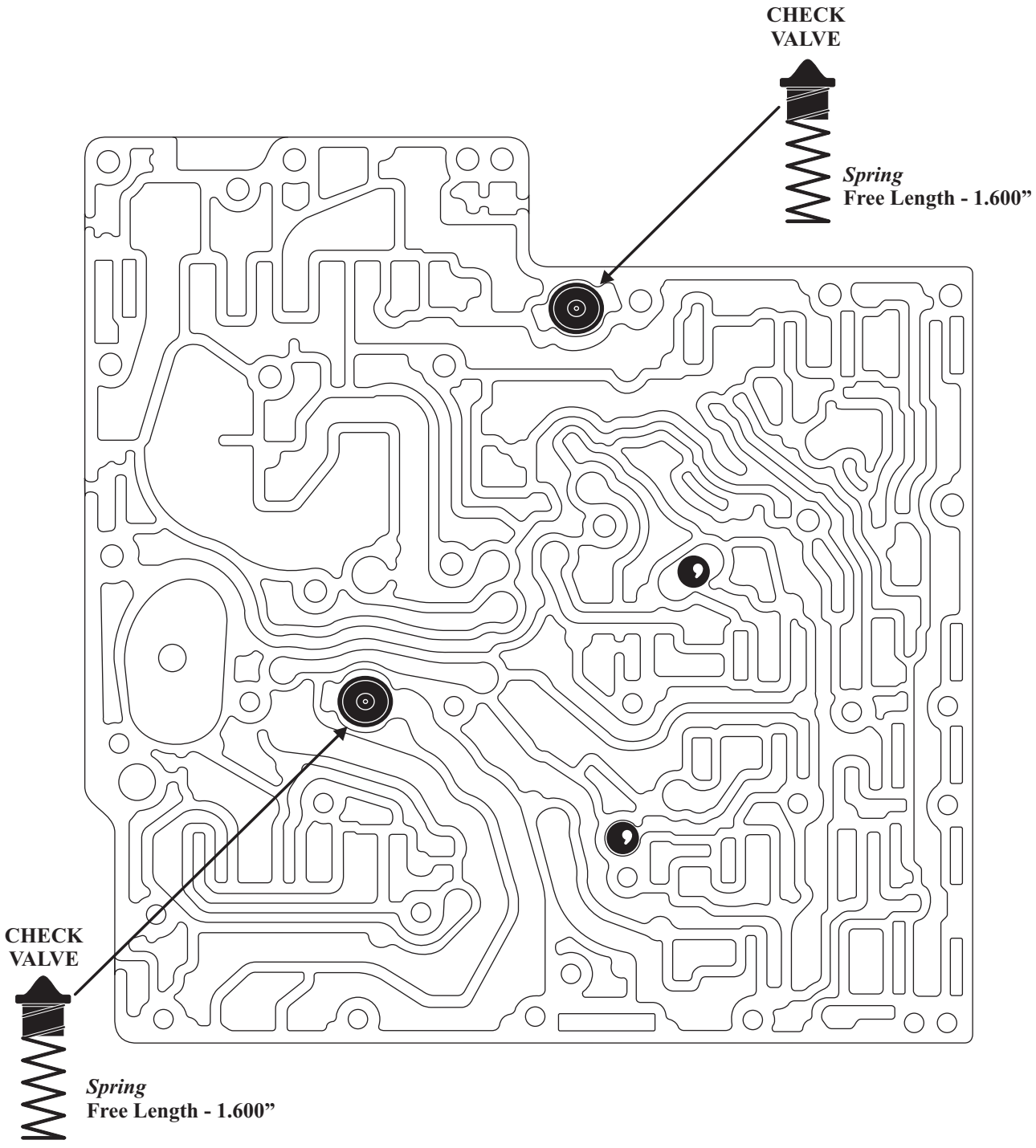
Items With Springs Are Installed With The Spring In First

FORD
6R60
CASE



FORD
6R140W

MAIN VALVE BODY

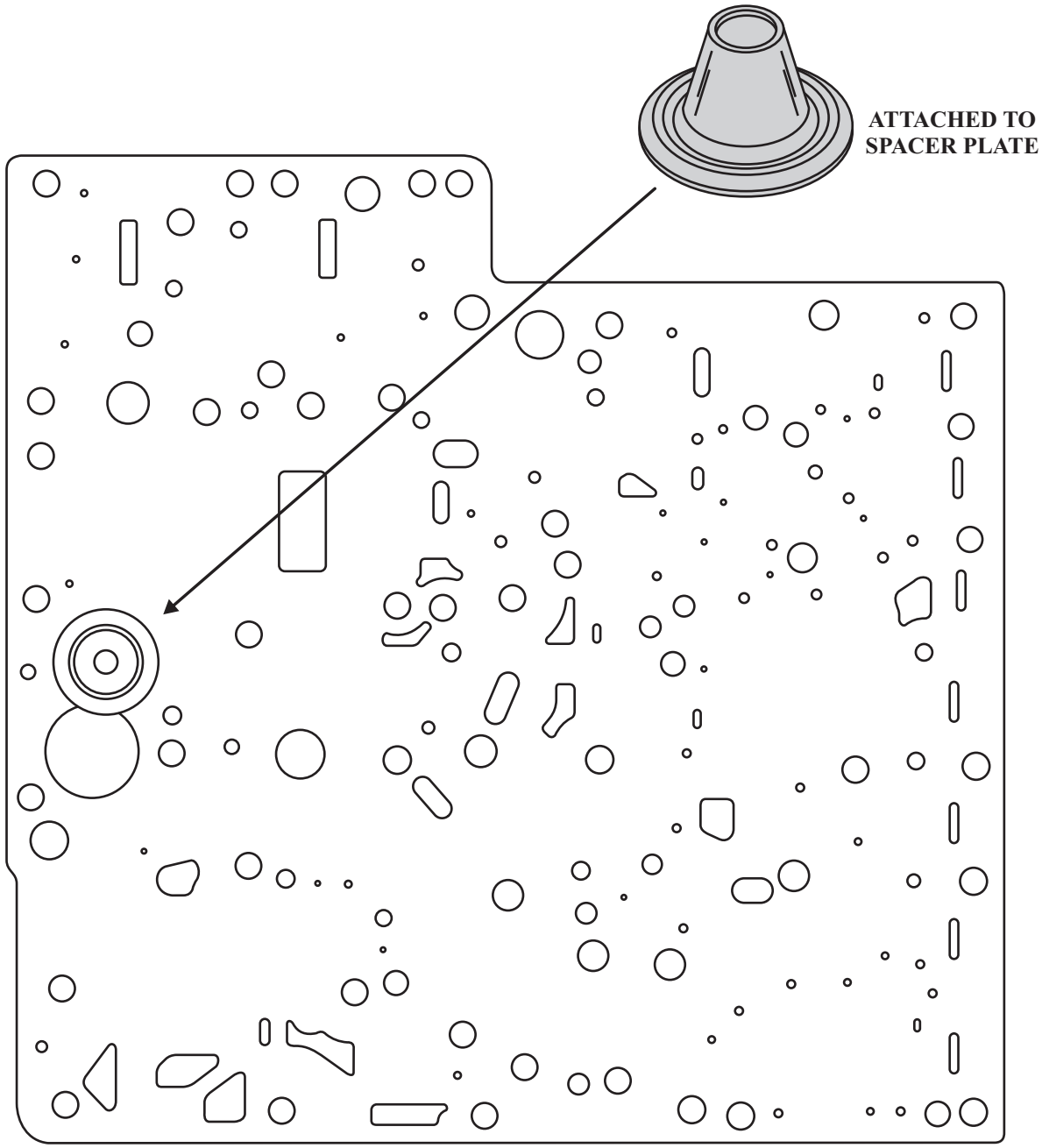


BOTH CHECKBALLS ARE .375” DIAMETER - PLASTIC

Items With Springs Are Installed With The Spring In First

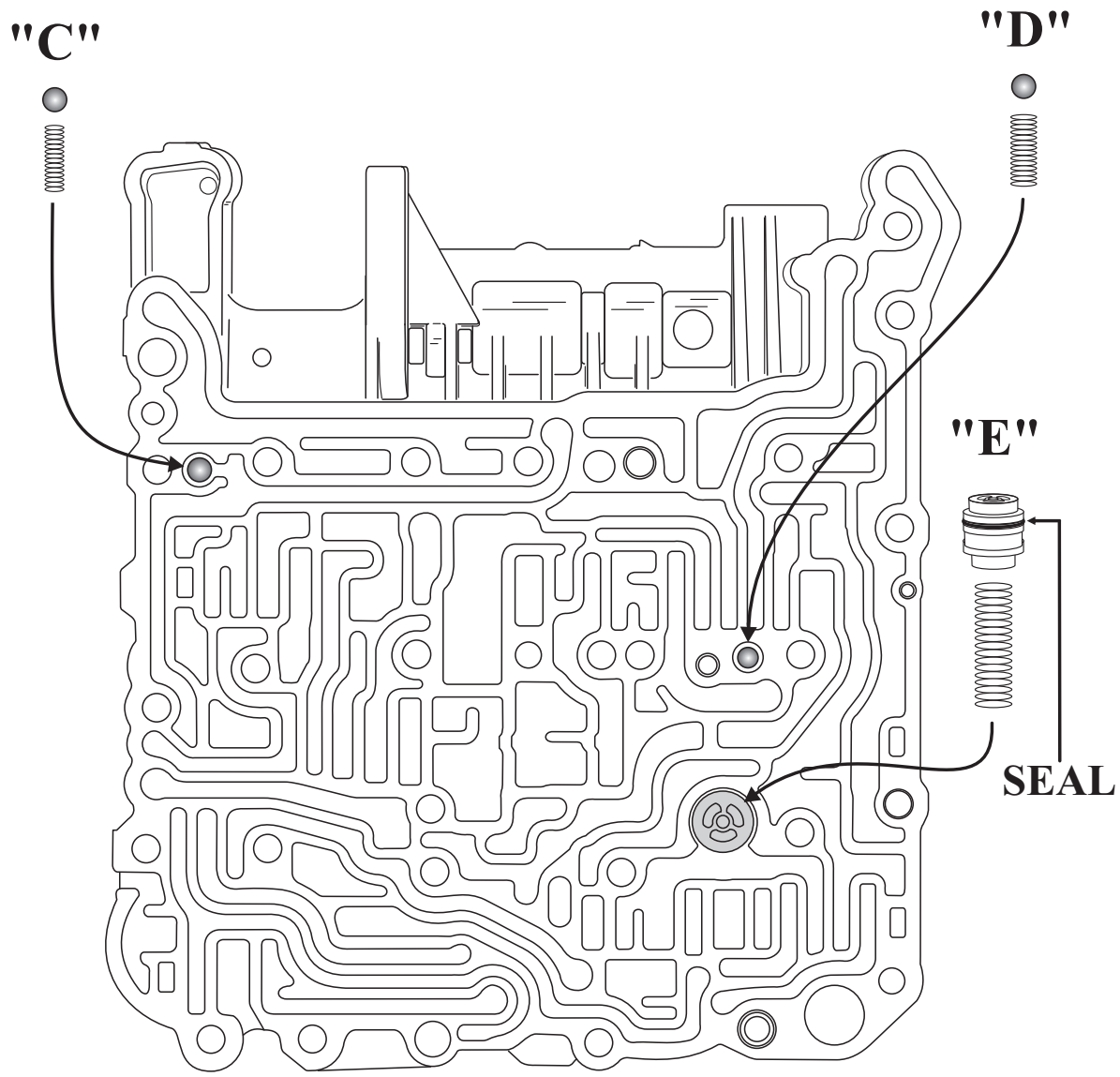
FORD
6R140W

SPACER PLATE



CHRYSLER/DODGE
F4A51

MAIN VALVE BODY (CASE SIDE)

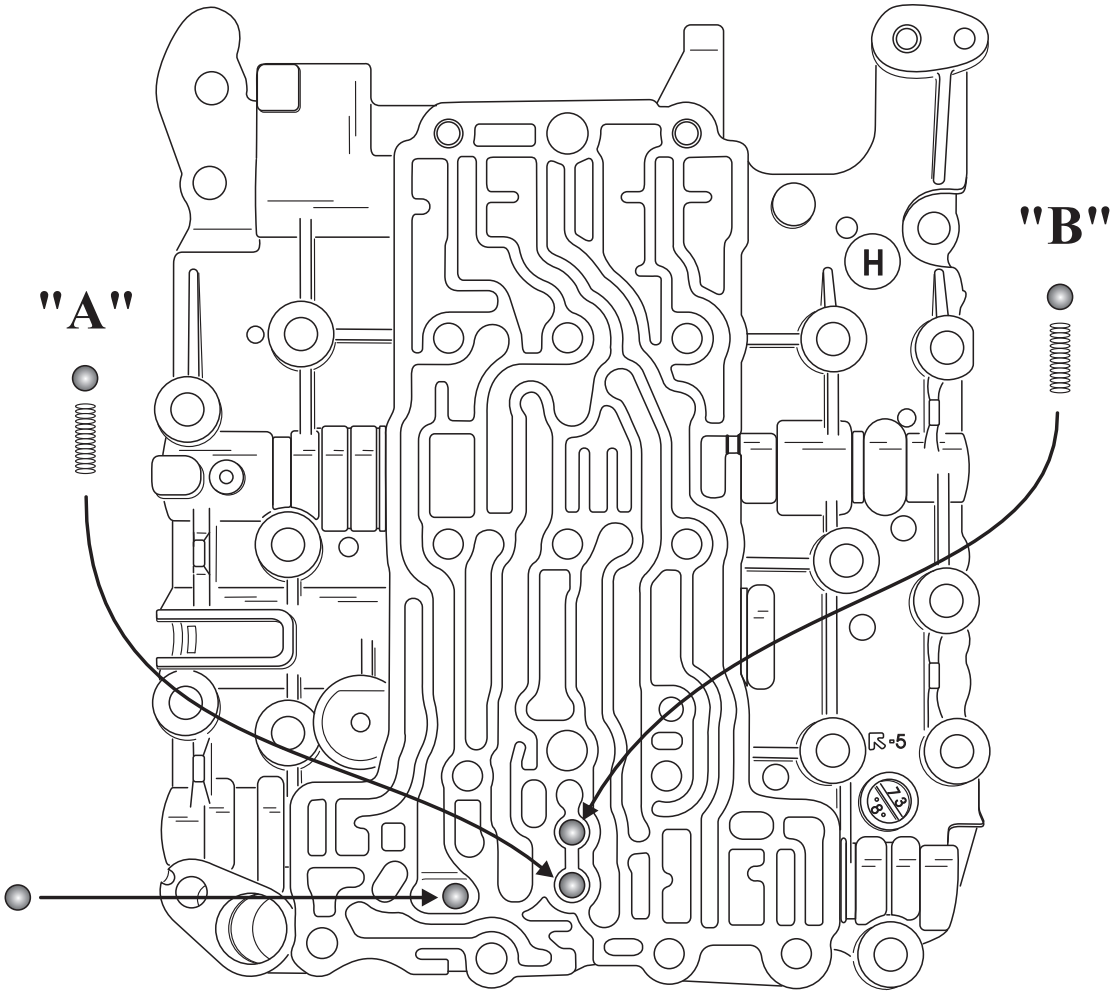


CHECKBALL AND SPRING DIMENSIONS		
SPRING	**LENGTH**	**DIAMETER**
"C"	**.665"**	**.177"**
"D"	**.677"**	**.277"**
"E"	**1.398"**	**.300"**
ALL CHECKBALLS ARE .250" DIAMETER STEEL		

Items With Springs Are Installed With The Spring In First

CHRYSLER/DODGE
F4A51

MAIN VALVE BODY (SOLENOID BODY SIDE)

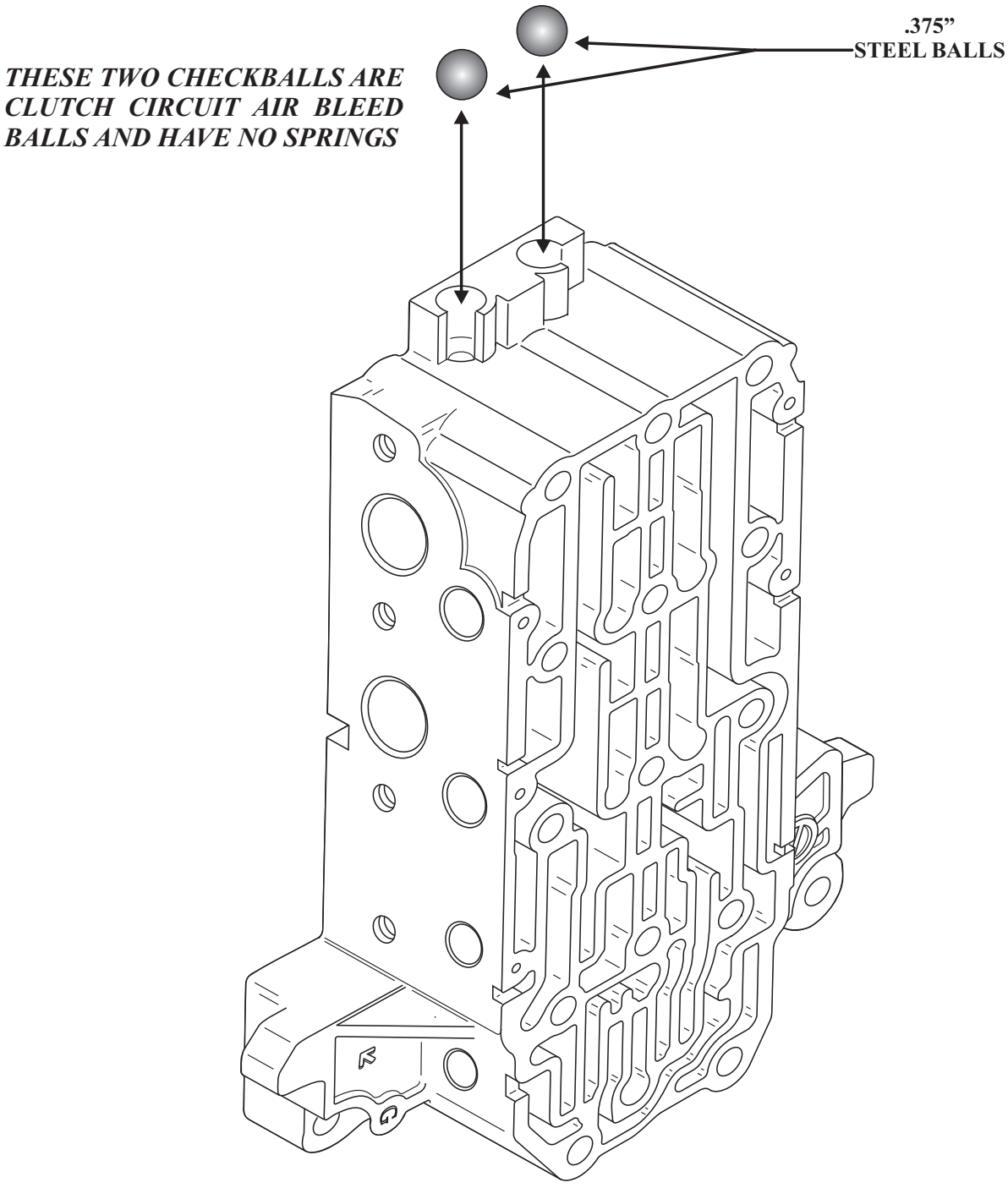


CHECKBALL AND SPRING DIMENSIONS		
SPRING	**LENGTH**	**DIAMETER**
"A"	**.665"**	**.177"**
"B"	**.665"**	**.177"**
ALL CHECKBALLS ARE .250" DIAMETER STEEL		

Items With Springs Are Installed With The Spring In First

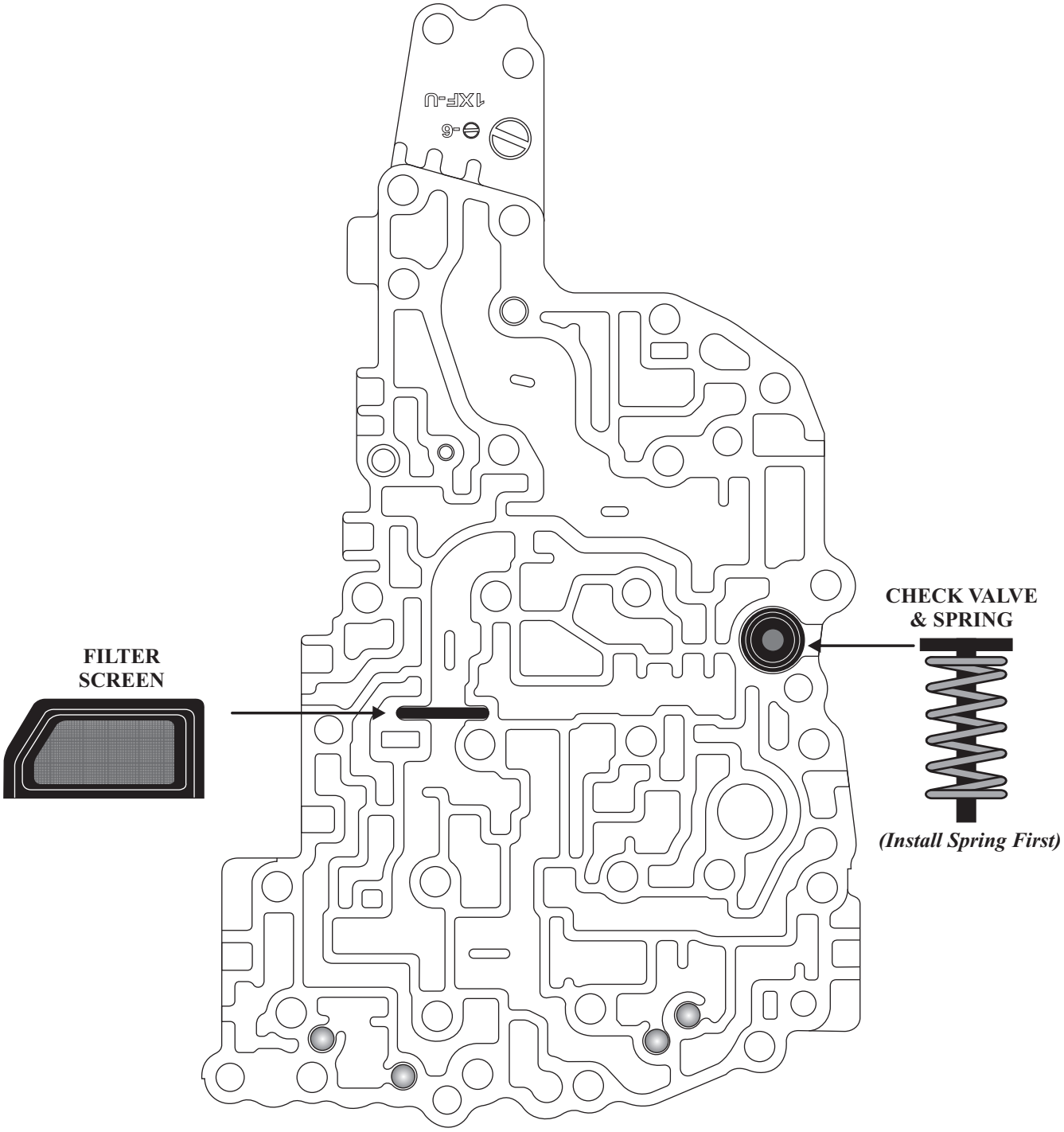
CHRYSLER/DODGE
F4A51

SOLENOID VALVE BODY



DODGE/JEEP
JF011E CVT

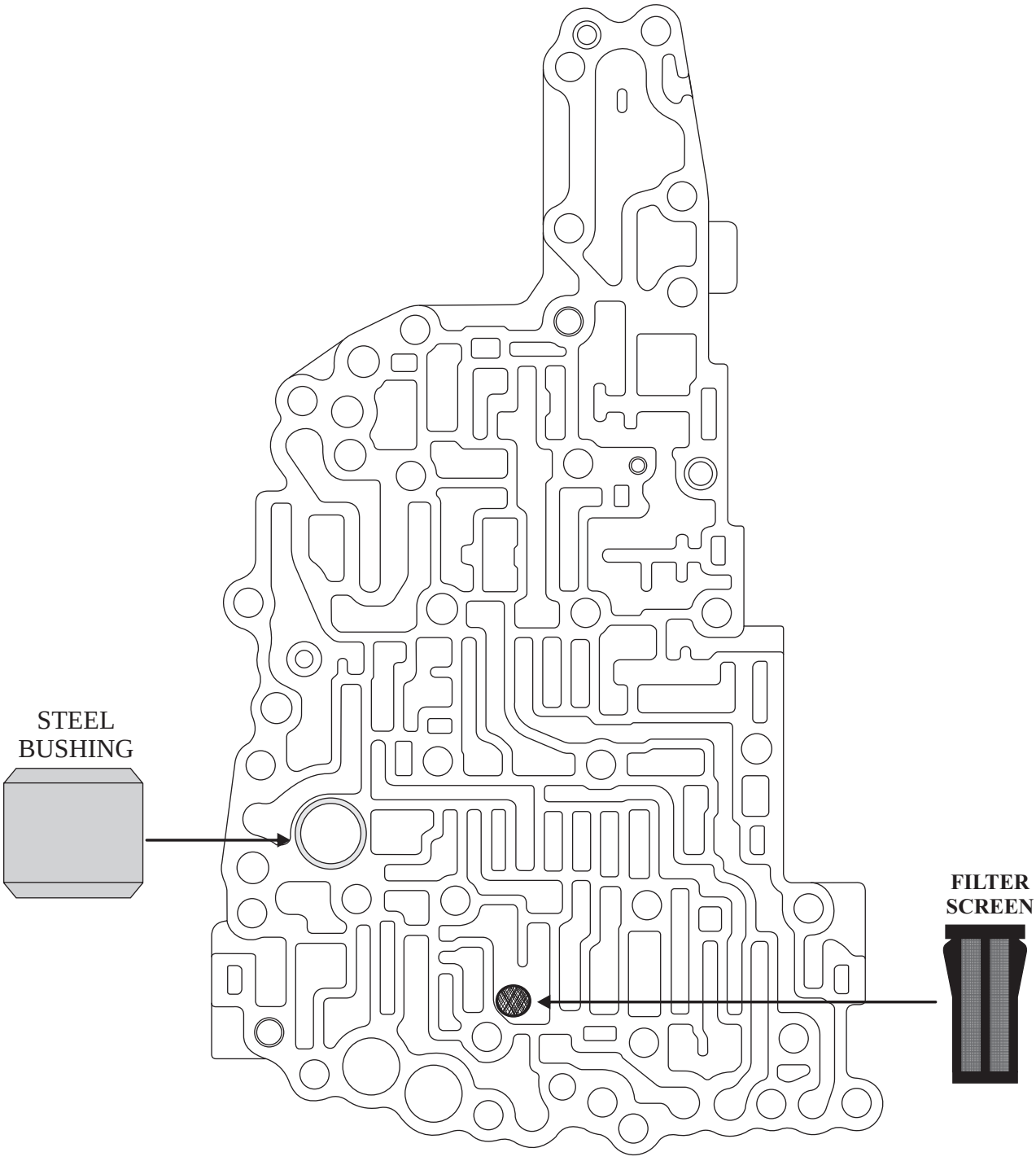
INTERMEDIATE VALVE BODY (UPPER)



● *ALL FOUR CHECKBALLS ARE .250" DIAMETER - STEEL*

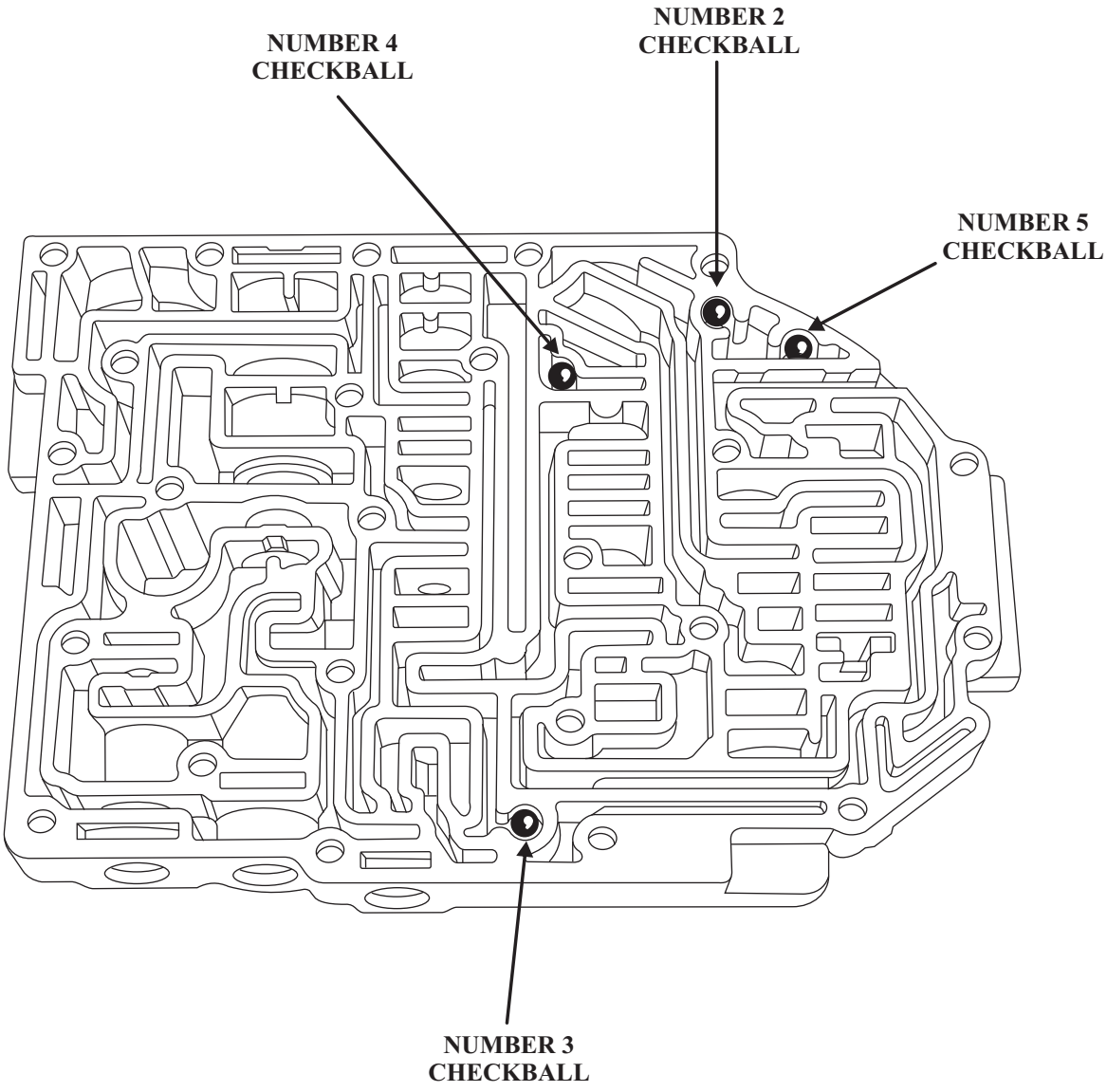
DODGE/JEEP
JF011E CVT

INTERMEDIATE VALVE BODY (LOWER)



CHRYSLER/DODGE/JEEP
42RLE/42RLE-VLP

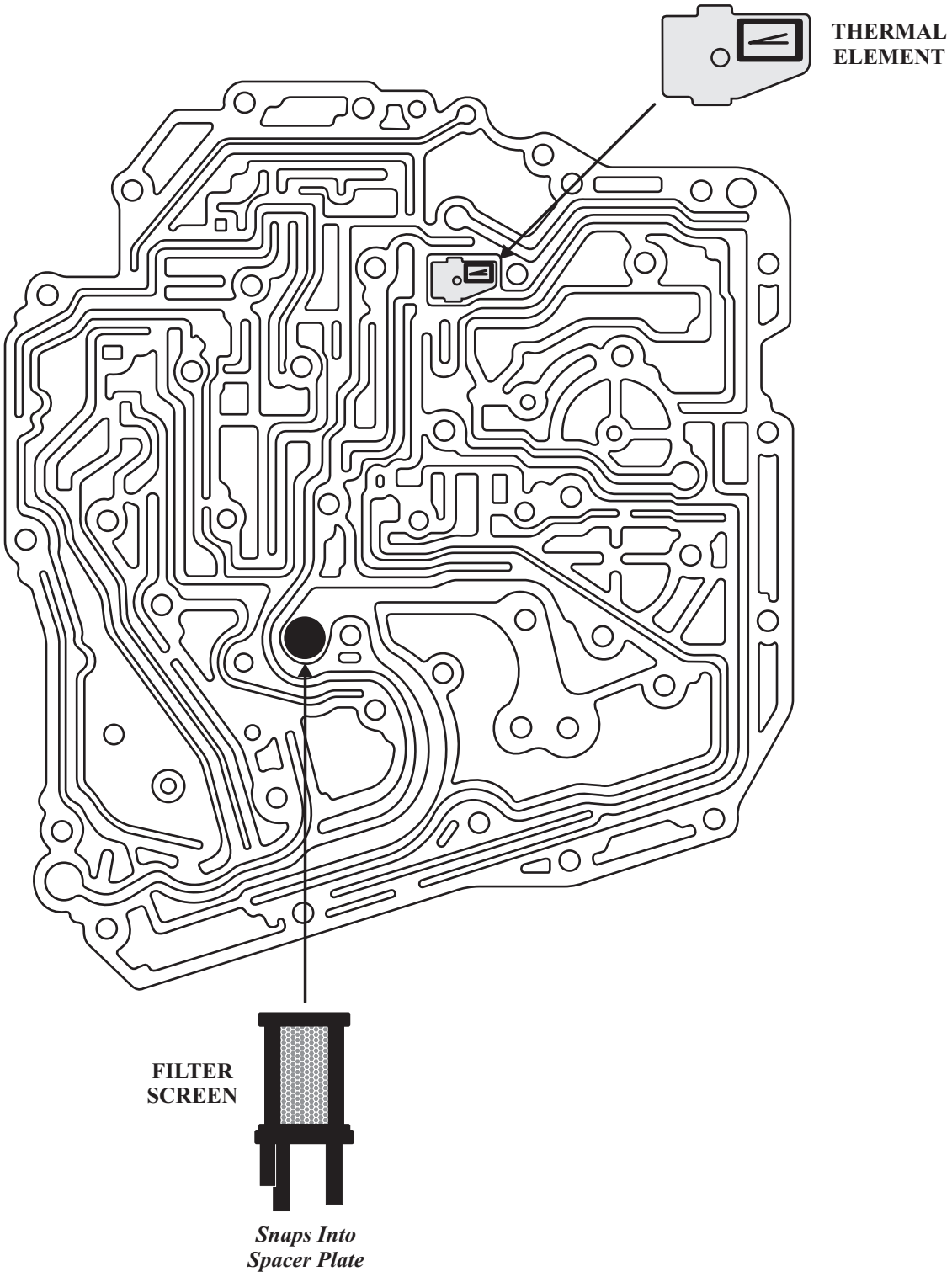
MAIN VALVE BODY



● *ALL FOUR CHECKBALLS ARE .250" DIAMETER - TORLON®*

CHRYSLER/DODGE/JEEP
42RLE/42RLE-VLP

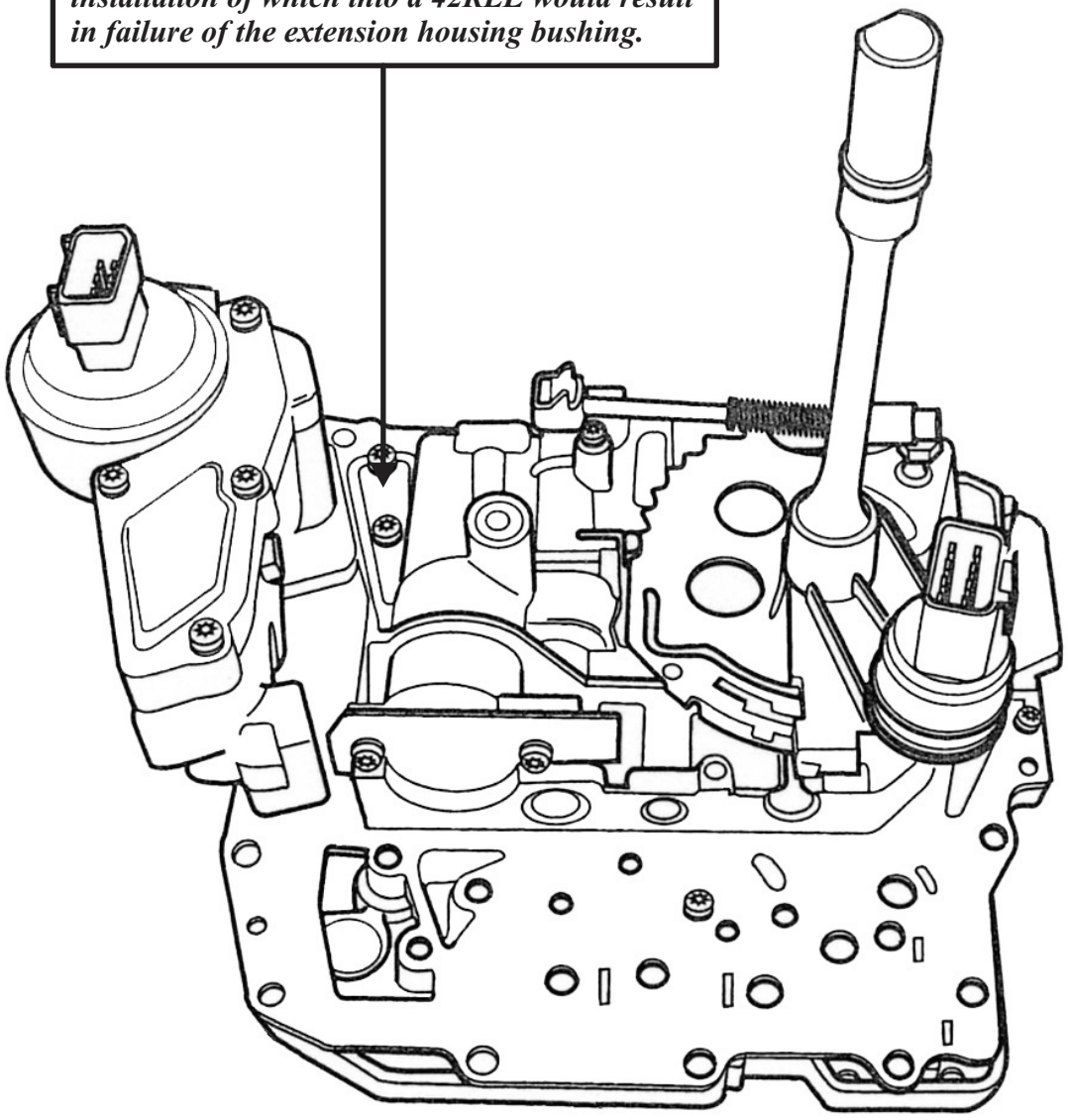
TRANSFER PLATE



CHRYSLER/DODGE/JEEP 42RLE/42RLE-VLP

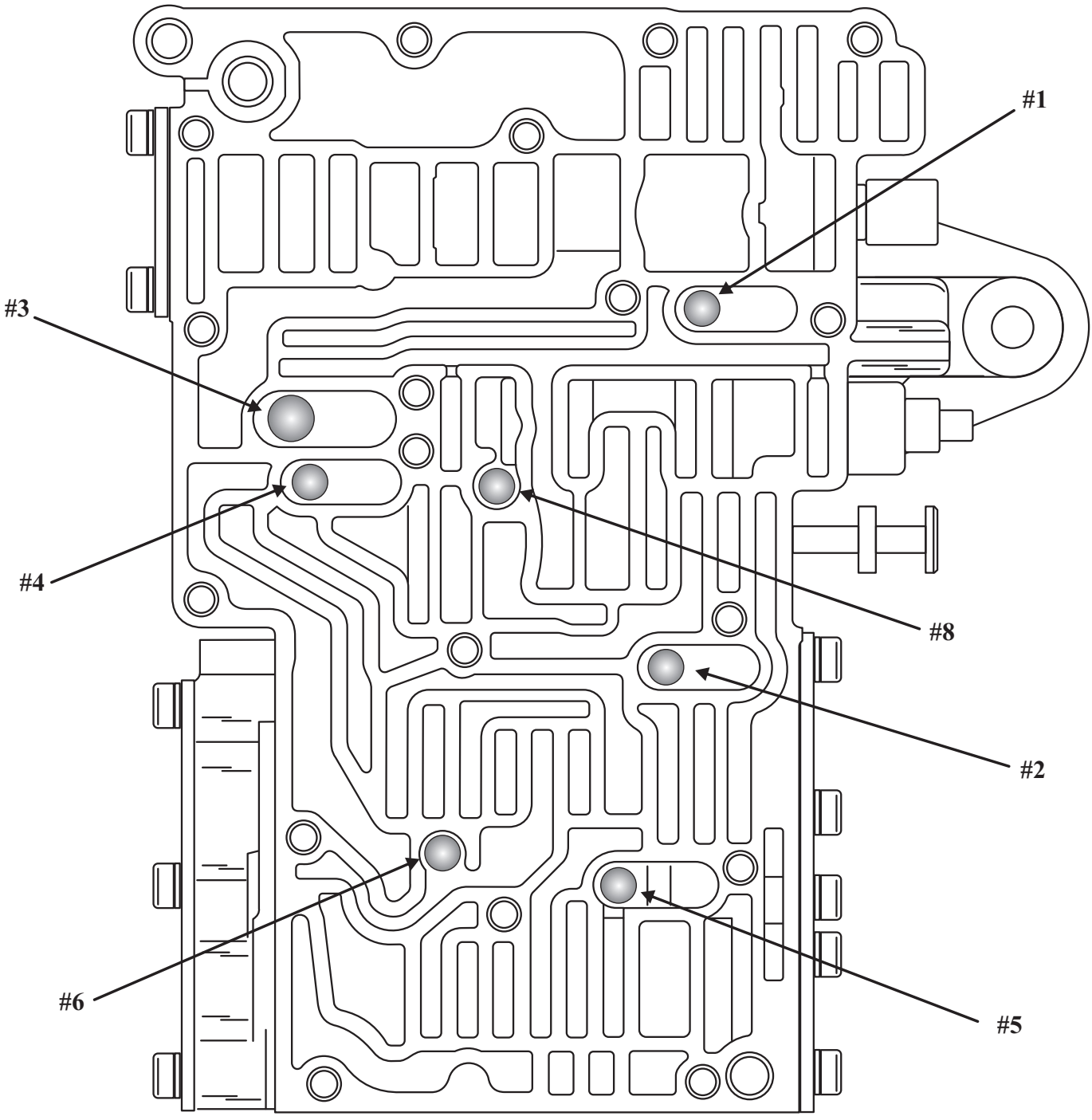
VALVE BODY ASSEMBLY

IMPORTANT NOTE:
This reinforcement plate seals the lube circuit to the extension housing for rear bushing lube. A 42LE valve body does not have this and the installation of which into a 42RLE would result in failure of the extension housing bushing.



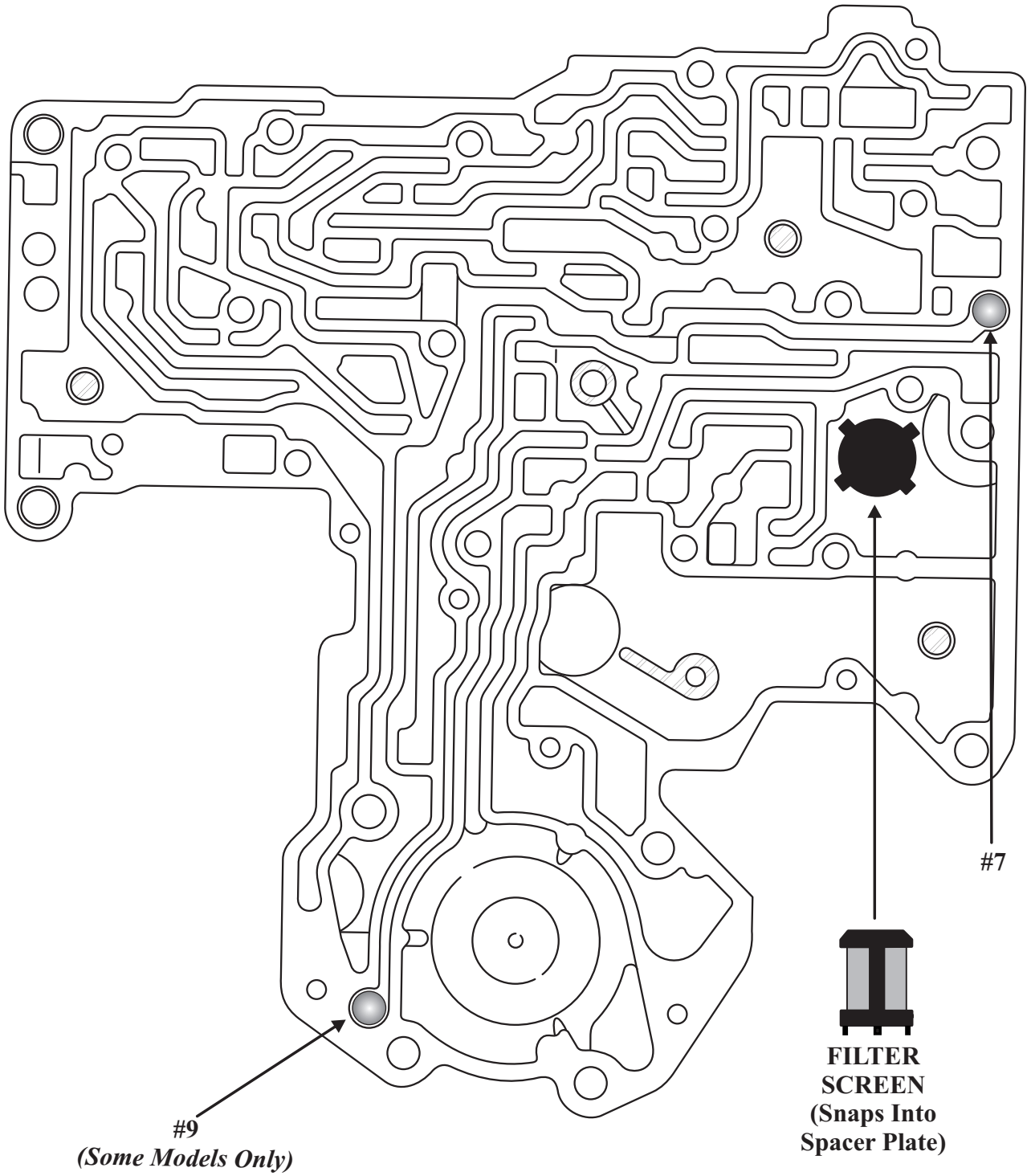
DODGE/JEEP
46RE/47RE

MAIN VALVE BODY



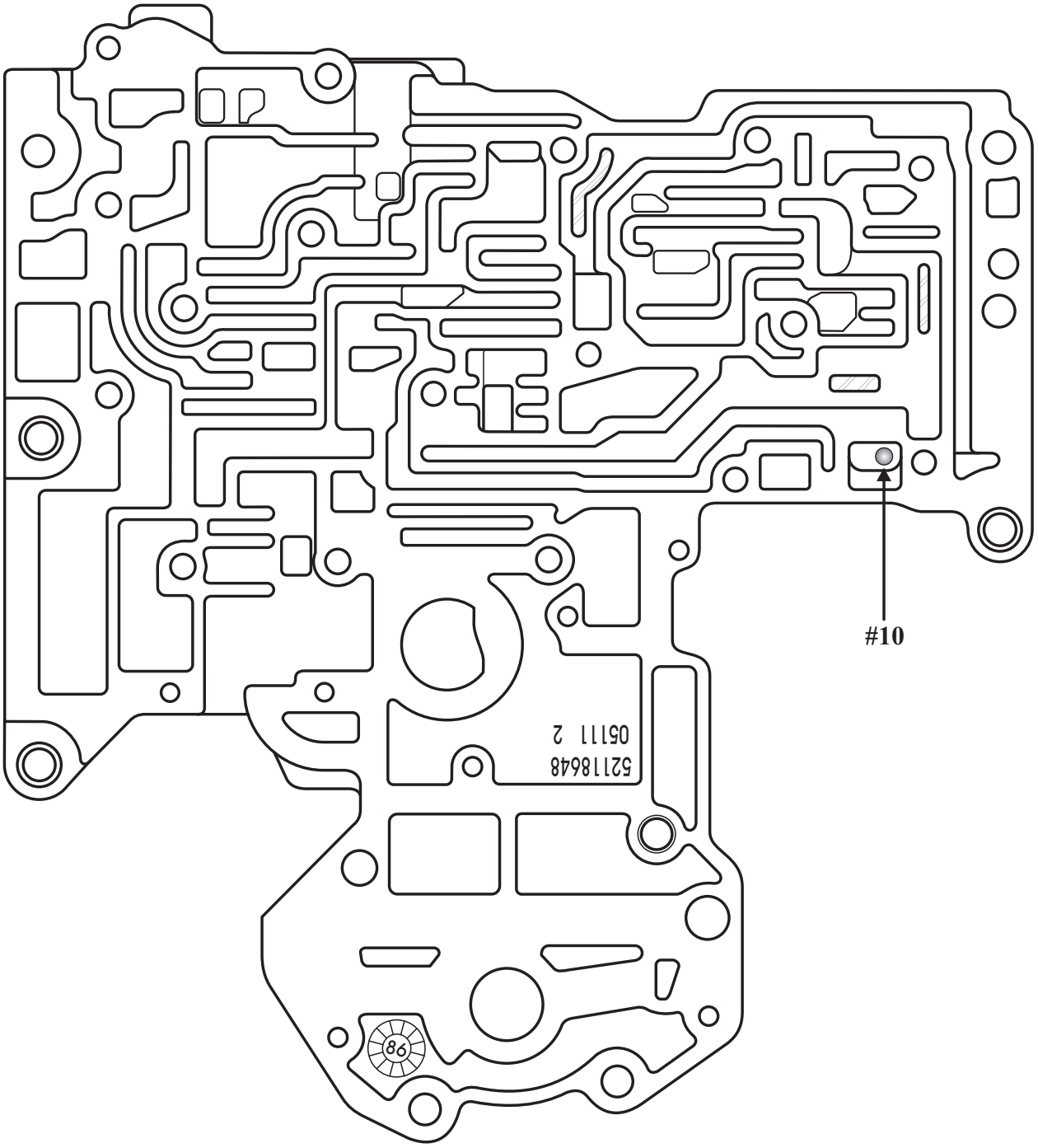
DODGE/JEEP
46RE/47RE

TRANSFER PLATE (UPPER SIDE)



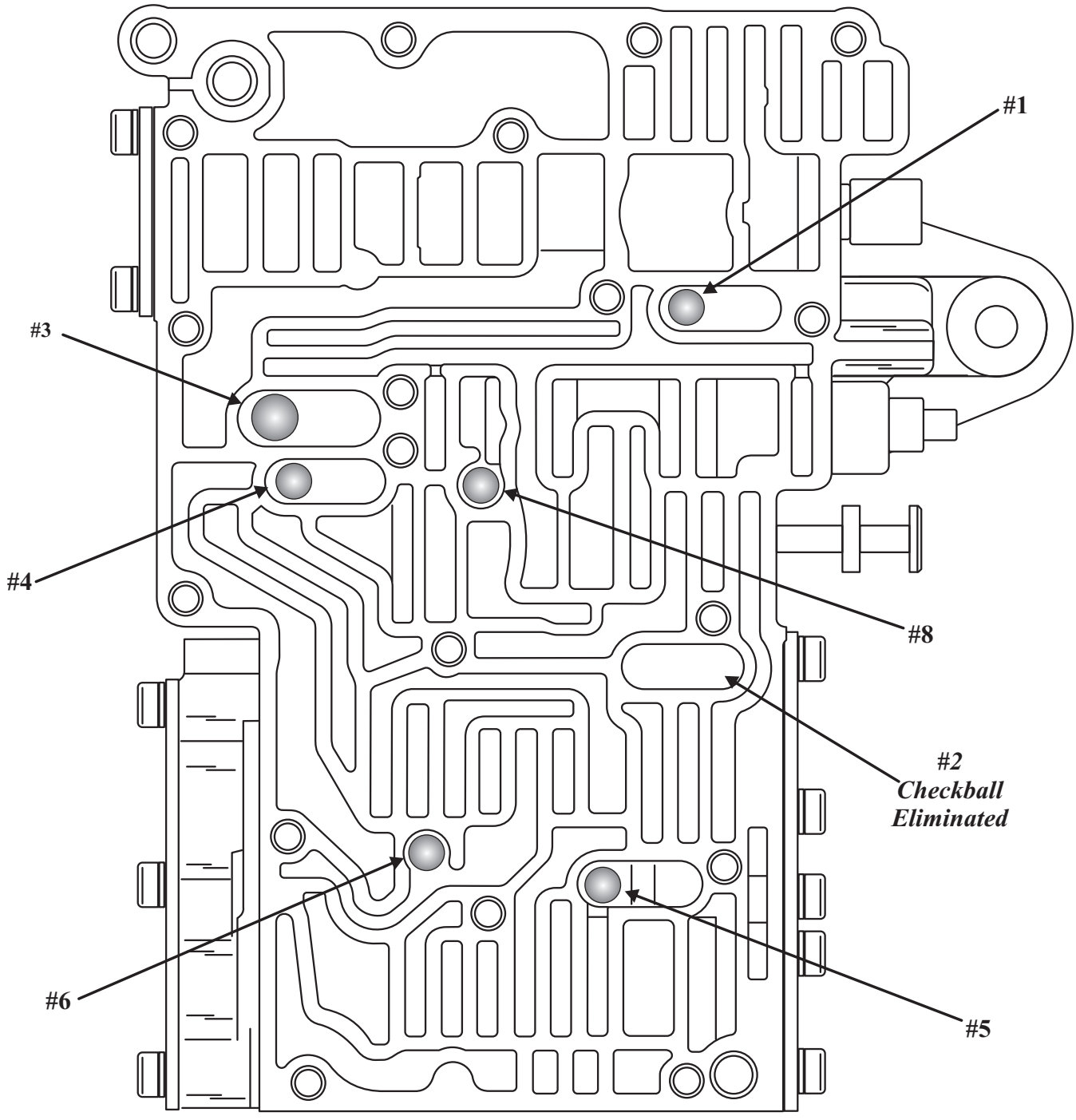
DODGE/JEEP
46RE/47RE

46RE /47RE TRANSFER PLATE(LOWER SIDE)



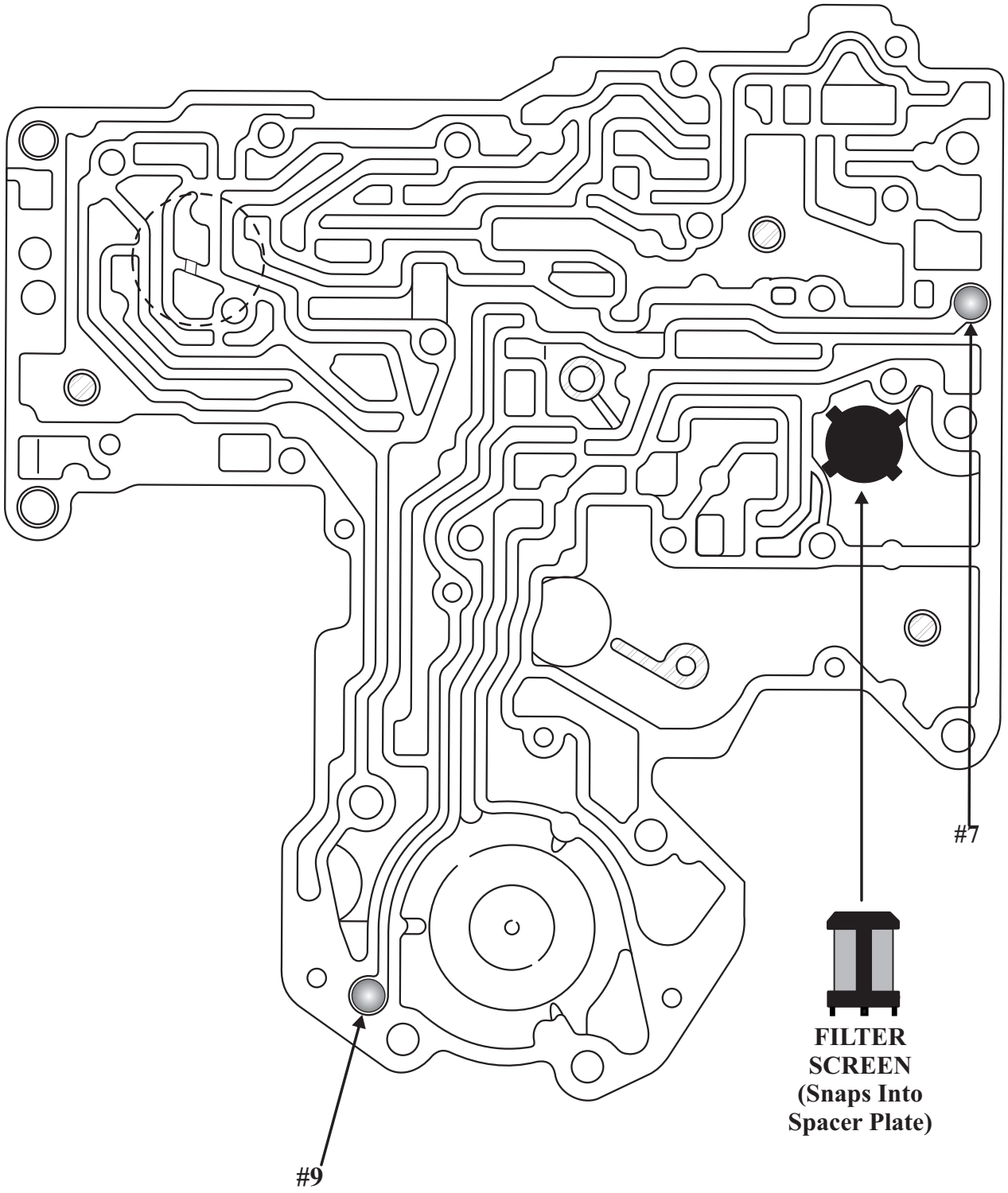
DODGE
48RE

MAIN VALVE BODY



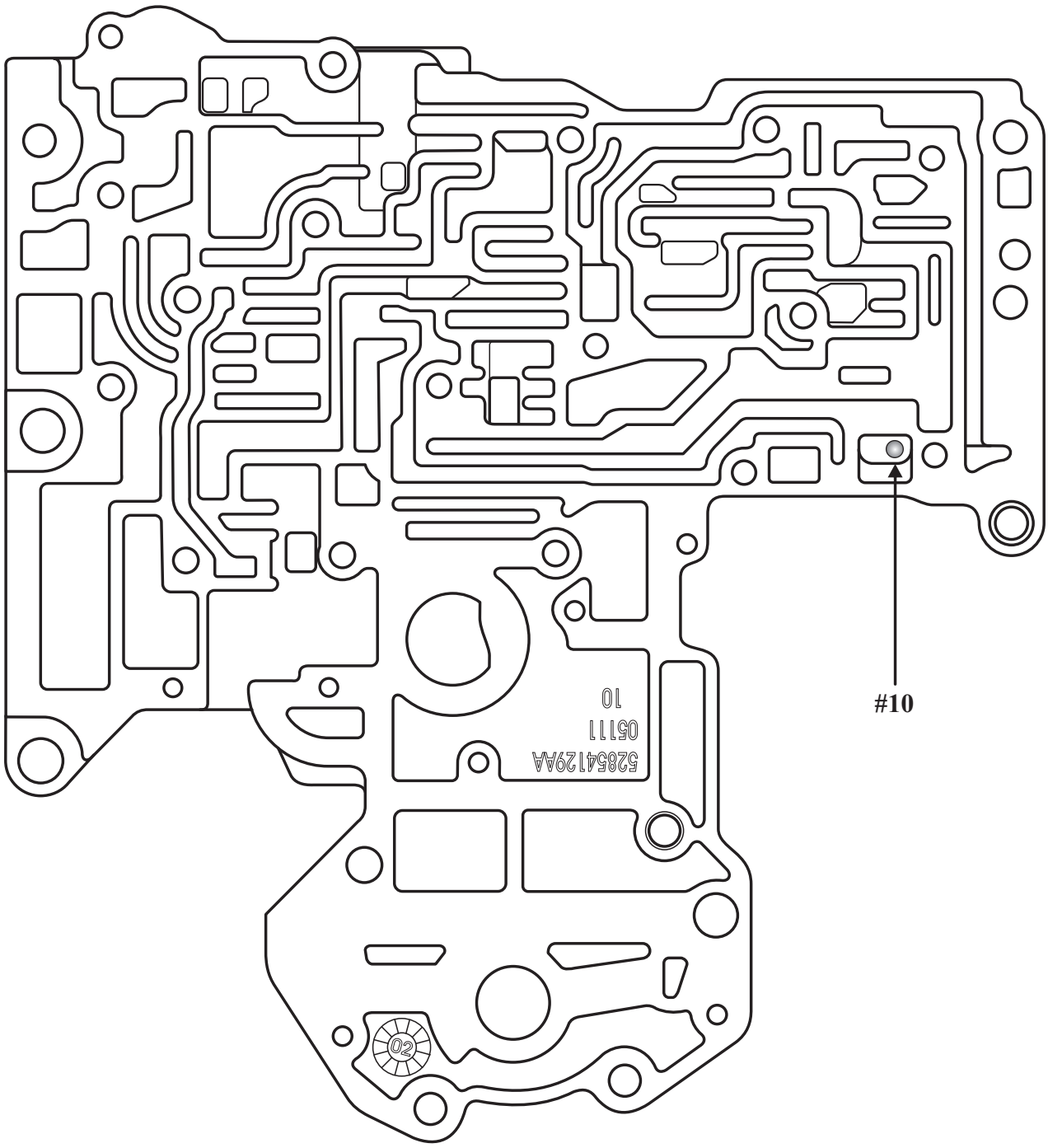
DODGE
48RE

TRANSFER PLATE (UPPERSIDE)



DODGE
48RE

TRANSFER PLATE (LOWER SIDE)



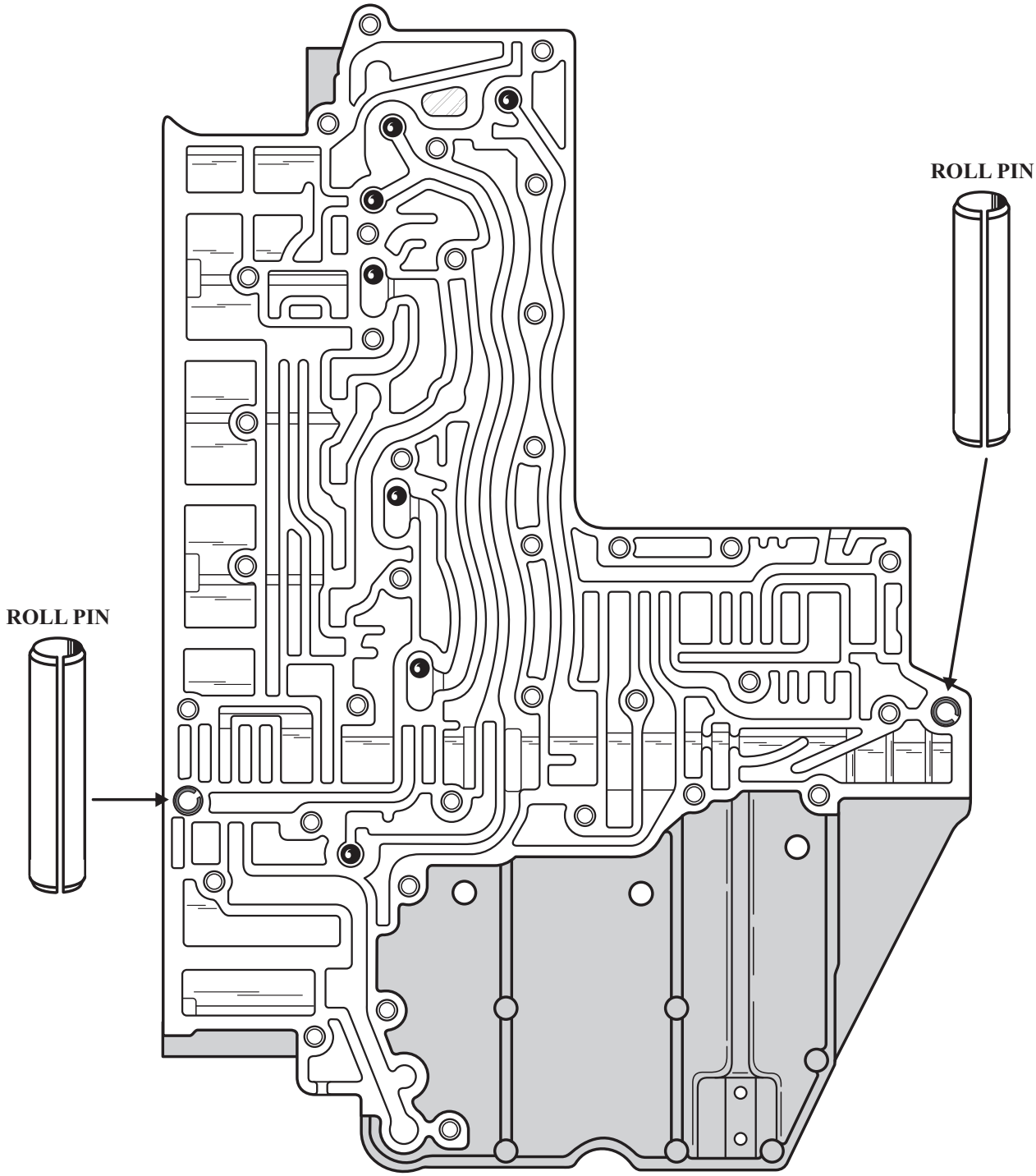
DODGE/JEEP
46RE/47RE/48RE

CHECKBALL IDENTIFICATION AND FUNCTIONS

Checkball	*Size*	*Function*
No. 1	*1/4" Steel*	*A) Checkball No. 1 forces line pressure behind the 1-2 shift control valve and both the 1-2 and 2-3 governor plugs to prevent an upshift into 2nd and/or 3rd gear when the selector lever is placed into Manual Low.* *B) Checkball No. 1 directs throttle pressure behind the 1-2 shift control valve and blocks the passage to the 1-2 governor plug in order to inhibit a 3-1 downshift during a forced 3-2 downshift when the vehicle is above the calibrated speed.*
No. 2	*1/4" Steel*	*A) Checkball No. 2 forces line pressure behind the 2-3 shift valve to prevent a 2-3 upshift when the selector lever is placed into Manual 2nd.* *B) Checkball No. 2 blocks the manual 2nd circuit and directs throttle pressure to the 2-3 shift valve during a forced 3-2 downshift.*
No. 3	*11/32" Steel*	*A) Checkball No. 3 blocks front (Direct) clutch oil, after a 2-3 upshift, from entering the reverse band circuit and allows front (Direct) clutch oil to enter the intermediate band release circuit.* *B) Checkball No. 3 blocks the intermediate band release circuit and allows reverse oil to apply the front (Direct) clutch when the selector lever is placed into Reverse.*
No. 4	*1/4" Steel*	*A) Checkball No. 4 blocks rear band apply pressure from entering the front (Direct) clutch circuit when the selector lever is placed into Manual Low.* *B) Checkball No. 4 blocks the manual low circuit and directs line pressure into the rear band circuit when the selector lever is placed into Reverse.*
No. 5	*1/4" Steel*	*A) Checkball No. 5 blocks the manual 2nd circuit and directs throttle pressure to the back side of both shift valves and the shuttle valve, when the selector lever is placed into either Drive or Reverse.* *B) Checkball No. 5 blocks the throttle pressure circuit and directs line pressure to back side of 2-3 shift valve to prevent a 2-3 upshift when selector lever is placed in Manual 2nd.*
No. 6	*1/4" Steel*	*A) Checkball No. 6 forces intermediate band apply oil through an orifice to apply the intermediate band and stroke the 1-2 accumulator on a 1-2 upshift.*
No. 7	*1/4" Steel*	*A) Checkball No. 7 forces rear (Forward) clutch through an orifice for a smooth garage shift into any forward range.*
No. 8	*1/4" Steel*	*A) Checkball No. 8 blocks line pressure from entering the rear (Forward) clutch circuit when the selector lever is placed into Park, Reverse or Neutral.*
No. 9	*1/4" Steel*	*A) Checkball No. 9 forces rear band apply oil through an orifice for a smooth reverse band apply when the selector lever is placed into Reverse or Manual Low. (Not used in 47RE)*
No. 10	*3/16" Steel*	*A) Checkball No. 10 blocks orificed rear (Forward) clutch oil from entering the converter clutch apply circuit and allows orificed rear (Forward) clutch oil to pre-fill the overdrive clutch circuit.* *B) Checkball No. 10 prevents converter clutch apply oil from entering the overdrive circuit, and allows converter apply oil to stroke the 3-4 timing valve, which in turn loads the 2-3 shift valve in the upshifted position when the converter clutch is on in third gear.*

DODGE/JEEP
45/545/68RFE

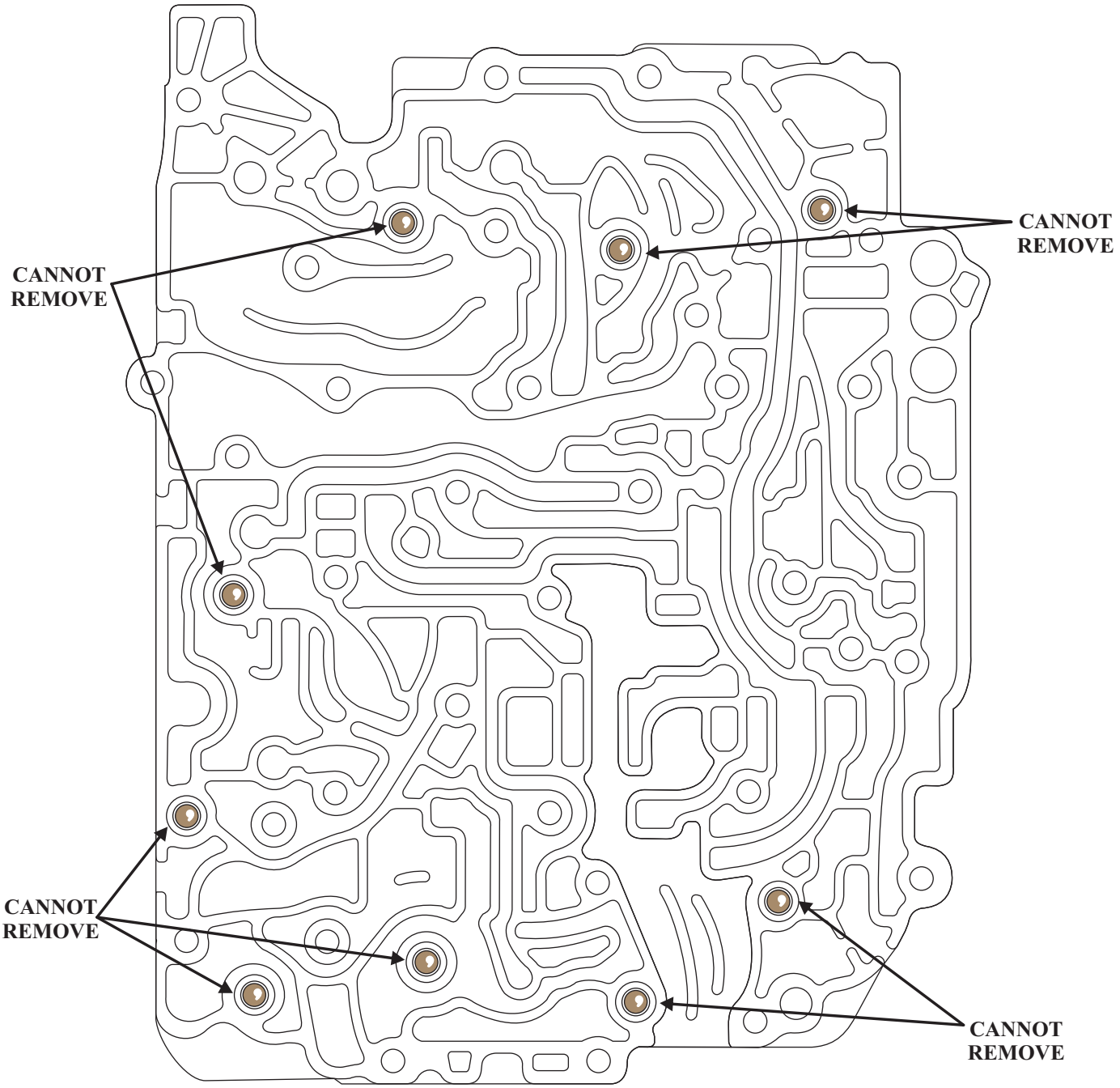
MAIN VALVE BODY



❻ *ALL SEVEN CHECKBALLS.250" CHECKBALLS - TORLON ®*

CHRYSLER/DODGE
62TE

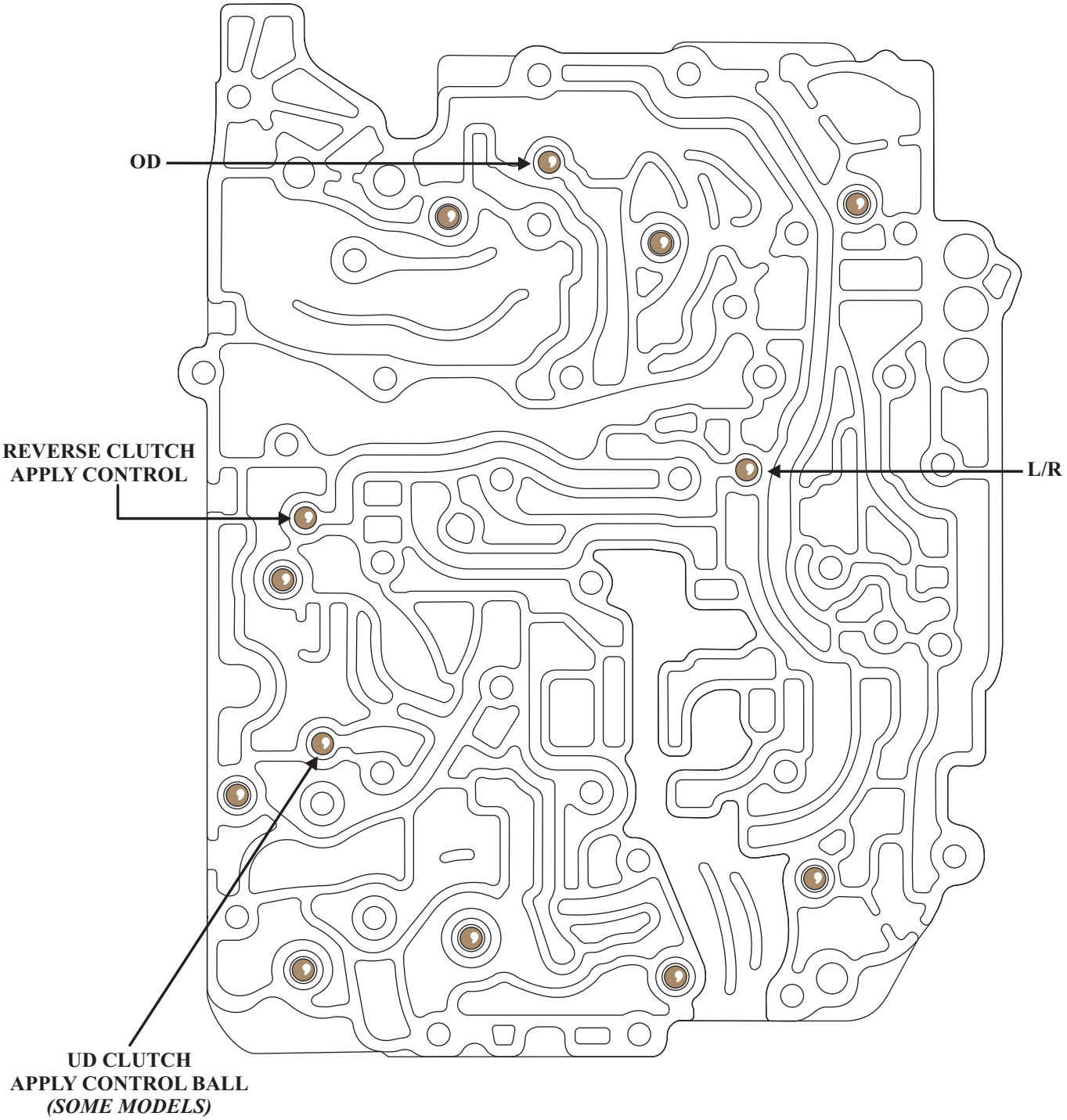
MAIN VALVE BODY PRESSURE SEALING BALLS



The Torlon® checkballs shown here are permanently installed, they seal clutch circuits and are used in place of clutch pressure ports.

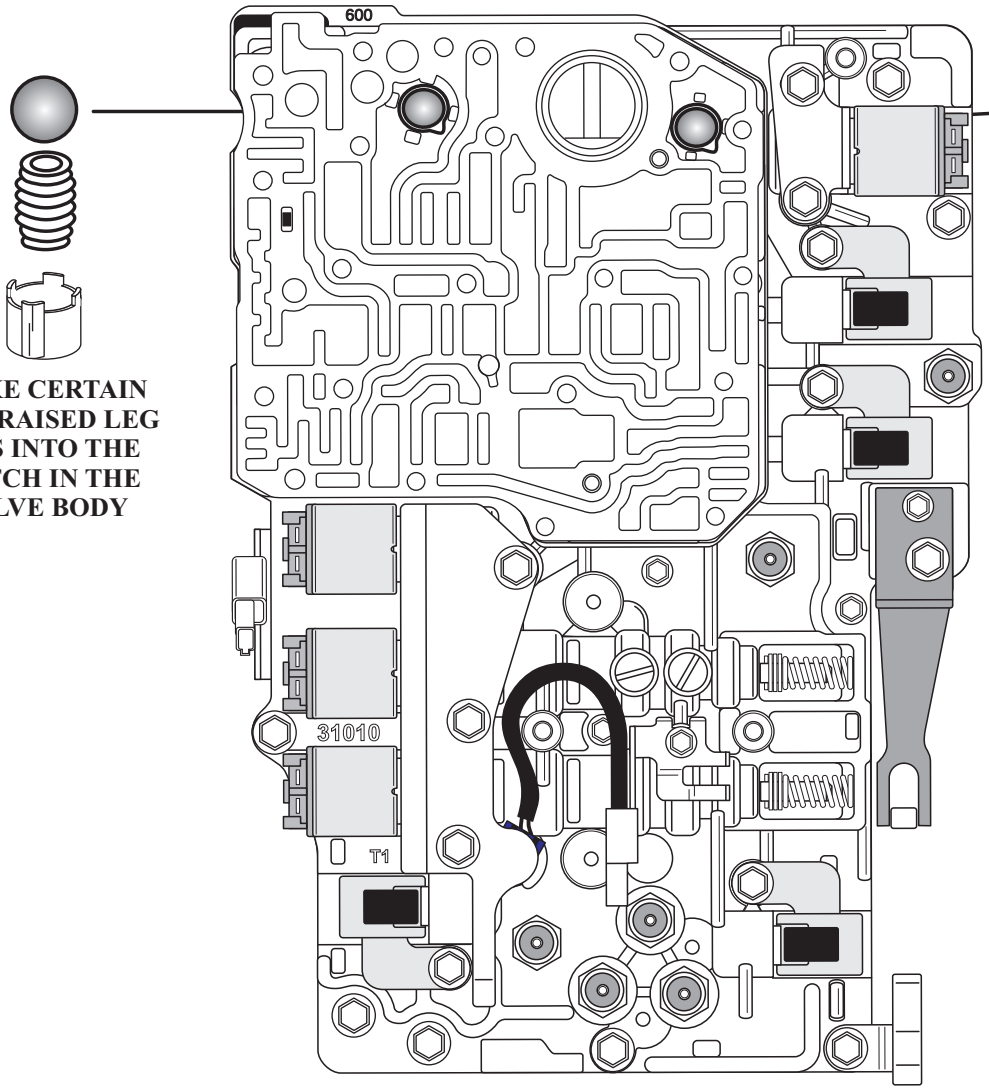
CHRYSLER/DODGE
62TE

MAIN VALVE BODY CHECKBALLS



THE CHECKBALLS SHOWN HERE ARE REMOVABLE & ARE .250" DIAMETER - TORLON®

DODGE
AS68RC
LOWER VALVE BODY (Filter Side)

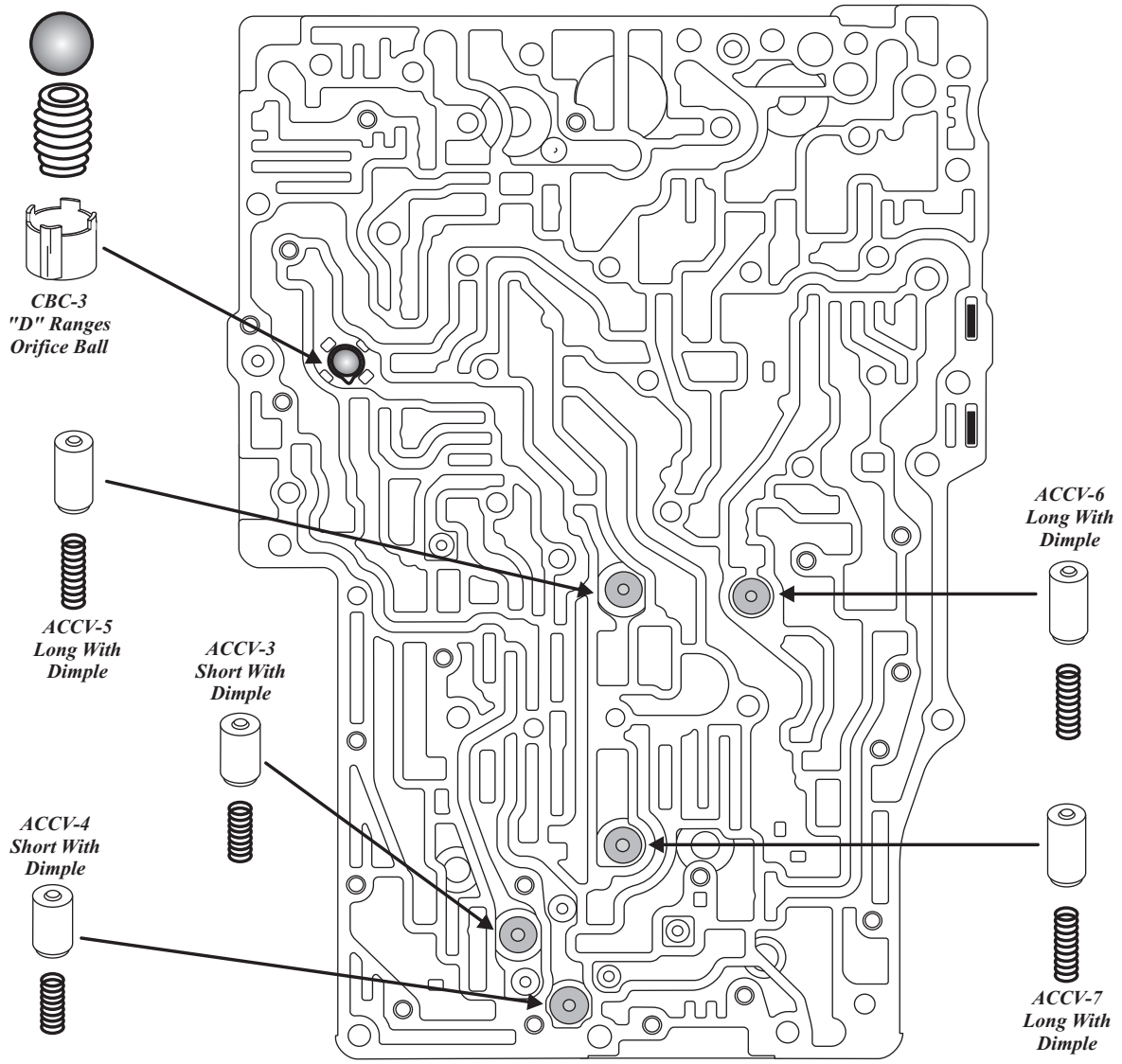


MAKE CERTAIN THIS RAISED LEG FITS INTO THE NOTCH IN THE VALVE BODY

MAKE CERTAIN THIS RAISED LEG FITS INTO THE NOTCH IN THE VALVE BODY

Check Ball And Capsule
CHECK BALL DIAMETER = .499"
CAPSULE DIAMETER = .667"
SPRING FREE LENGTH = .758" (WHITE PAINT)
SPRING WIRE DIAMETER = .019" (WHITE PAINT)
SPRING APPROX. COILS = 8 (WHITE PAINT)

DODGE
AS68RC
LOWER VALVE BODY (Spacer Plate Side)



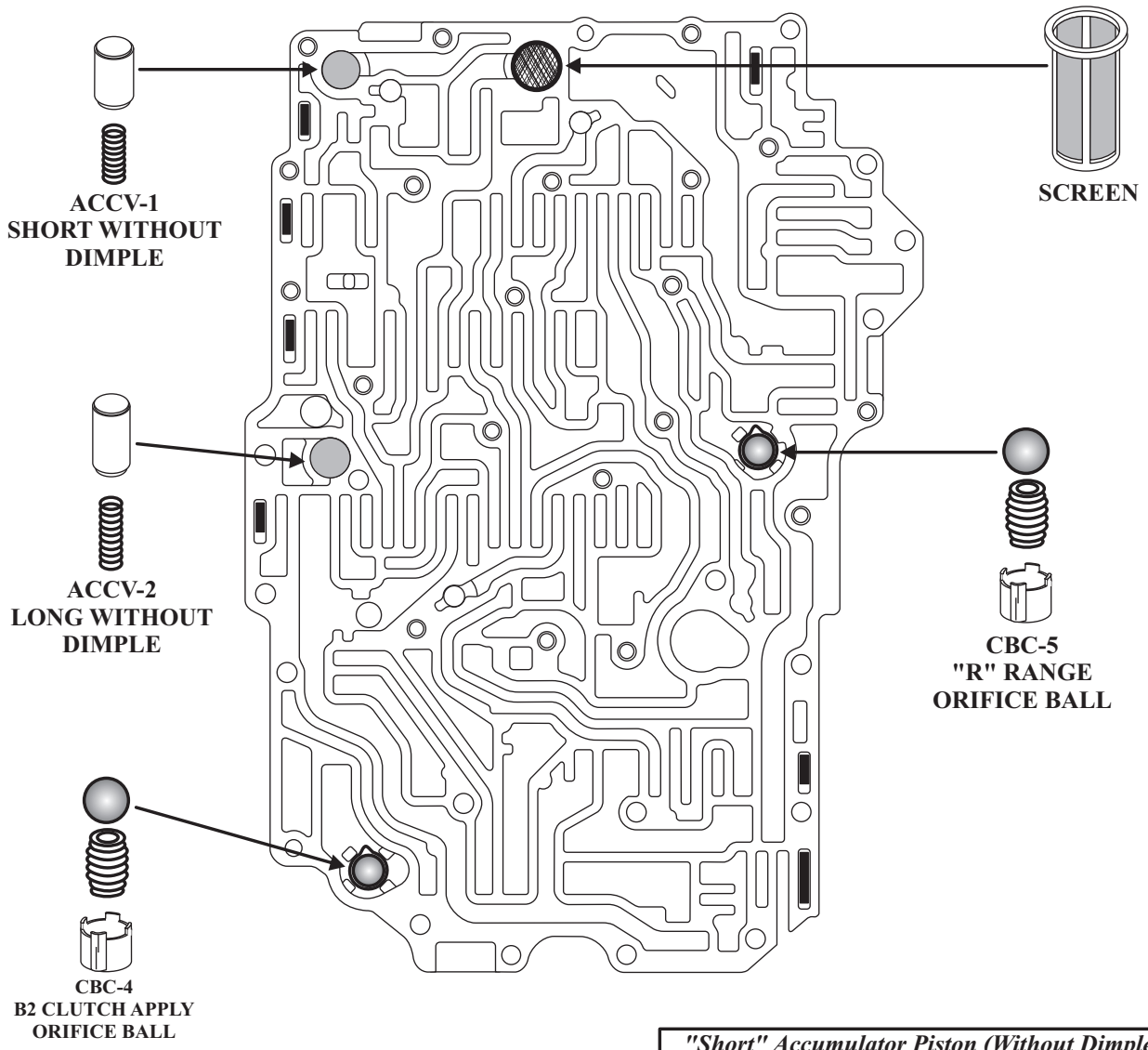
ACCV-3 = LINEAR "A" SOLENOID OUTPUT ACCUMULATOR TO PSW-1.
ACCV-4 = LINEAR "B" SOLENOID OUTPUT ACCUMULATOR TO PSW-2.
ACCV-5 = LINEAR "C" SOLENOID FEED ACCUMULATOR.
ACCV-6 = LINEAR "A" SOLENOID FEED ACCUMULATOR.
ACCV-7 = LINEAR "B" SOLENOID FEED ACCUMULATOR.

"Short" Accumulator Piston (With Dimple)
PISTON DIAMETER = .491"
PISTON OVERALL LENGTH = .785"
SPRING FREE LENGTH = .895" (LT GREEN PAINT)
SPRING WIRE DIAMETER = .063" (LT GREEN PAINT)
SPRING APPROX. COILS = 9 (LT GREEN PAINT)

"Long" Accumulator Piston (With Dimple)
PISTON DIAMETER = .471"
PISTON OVERALL LENGTH = .996"
SPRING FREE LENGTH = 1.140" (RED PAINT)
SPRING WIRE DIAMETER = .049" (RED PAINT)
SPRING APPROX. COILS = 10 (RED PAINT)

Check Ball And Capsule
CHECK BALL DIAMETER = .393"
CAPSULE DIAMETER = .526"
SPRING FREE LENGTH = .502" (ORANGE PAINT)
SPRING WIRE DIAMETER = .014" (ORANGE PAINT)
SPRING APPROX. COILS = 7 (ORANGE PAINT)

DODGE
AS68RC
UPPER VALVE BODY (Spacer Plate Side)



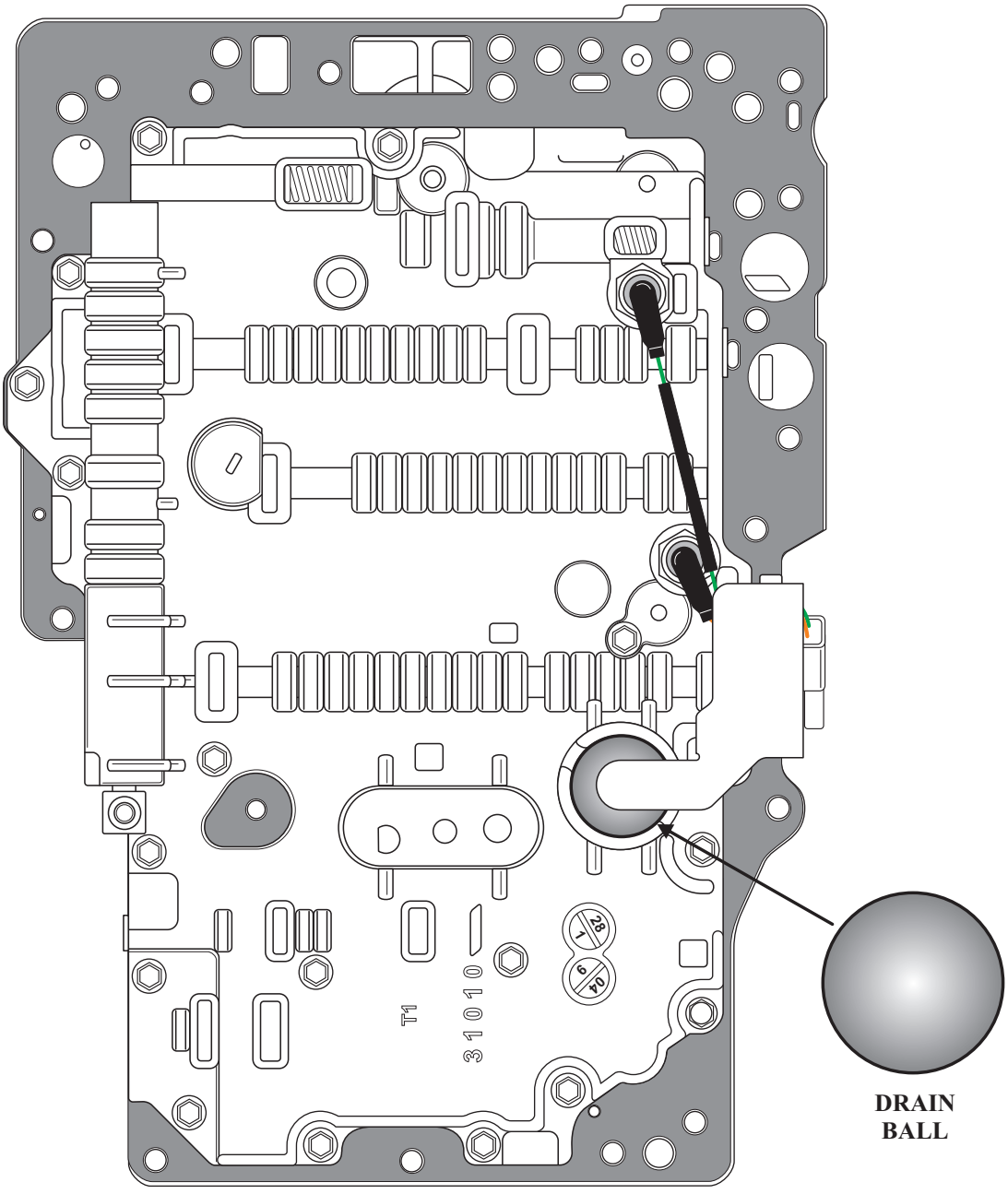
ACCV-1 = COOLER BLOW-OFF.
ACCV-2 = SOLENOID MODULATING PRESSURE BLOW-OFF.

"Short" Accumulator Piston (Without Dimple)
PISTON DIAMETER = .470"
PISTON OVERALL LENGTH = .650"
SPRING FREE LENGTH = .932" (WHITE PAINT)
SPRING WIRE DIAMETER = .047" (WHITE PAINT)
SPRING APPROX. COILS = 11 (WHITE PAINT)

"Long" Accumulator Piston (Without Dimple)
PISTON DIAMETER = .510"
PISTON OVERALL LENGTH = .913"
SPRING FREE LENGTH = 1.325" (LT BLUE PAINT)
SPRING WIRE DIAMETER = .054" (LT BLUE PAINT)
SPRING APPROX. COILS = 13 (LT BLUE PAINT)

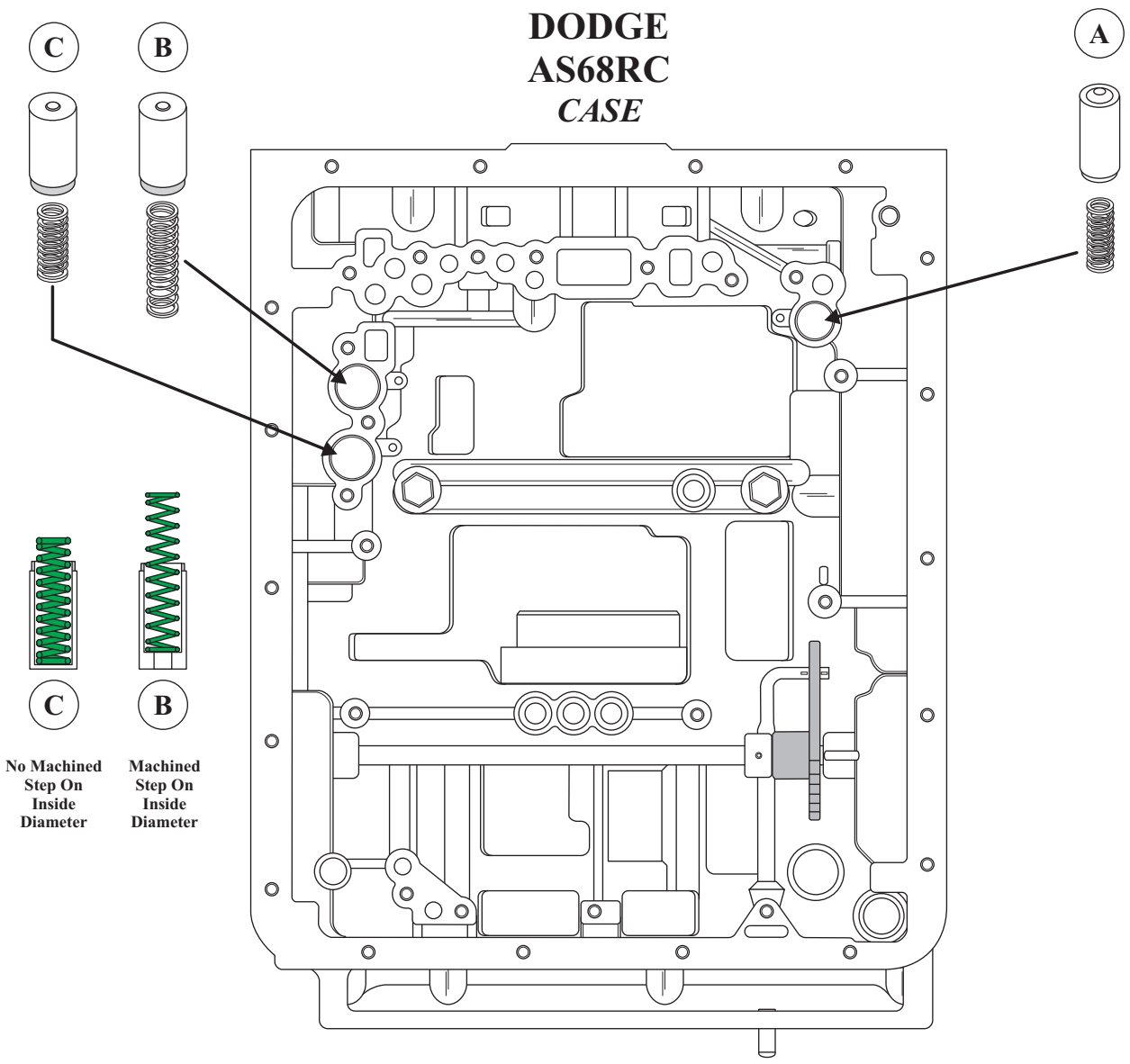
Check Ball And Capsule
CHECK BALL DIAMETER = .393"
CAPSULE DIAMETER = .526"
SPRING FREE LENGTH = .502" (ORANGE PAINT)
SPRING WIRE DIAMETER = .014" (ORANGE PAINT)
SPRING APPROX. COILS = 7 (ORANGE PAINT)

DODGE
AS68RC
UPPER VALVE BODY (Case Side)



The Drain Ball is 1.062" in diameter and has no spring.

DODGE
AS68RC
CASE



Notice that accumulator "B" piston has a machined step on the inside diameter and requires the long blue spring. Accumulator "C" piston does not have the machined step and requires the shorter yellow spring.

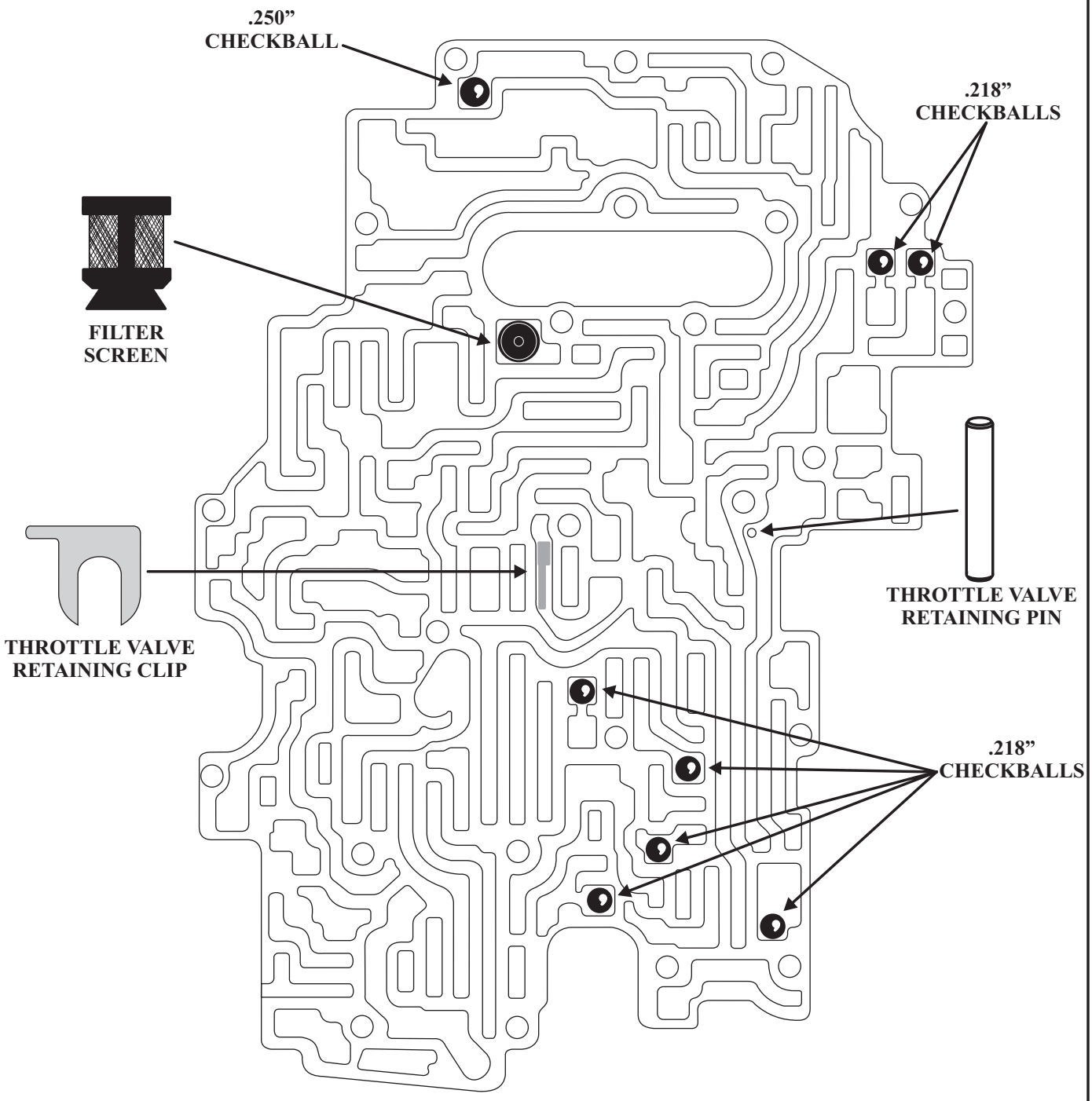
The bore in the case for accumulator "B" is deeper than the bore for accumulator "C". When the accumulators are installed correctly, accumulator piston "B" will stick out of case approximately 3/4" and accumulator piston "C" will be almost flush with the case. Note: these two accumulators are used for Forward and Reverse engagements and are connected in the same oil circuit.

Note: These are Isuzu calibrations. Chrysler calibrations may be different.

CASE ACCUMULATOR SPRING SPECIFICATIONS

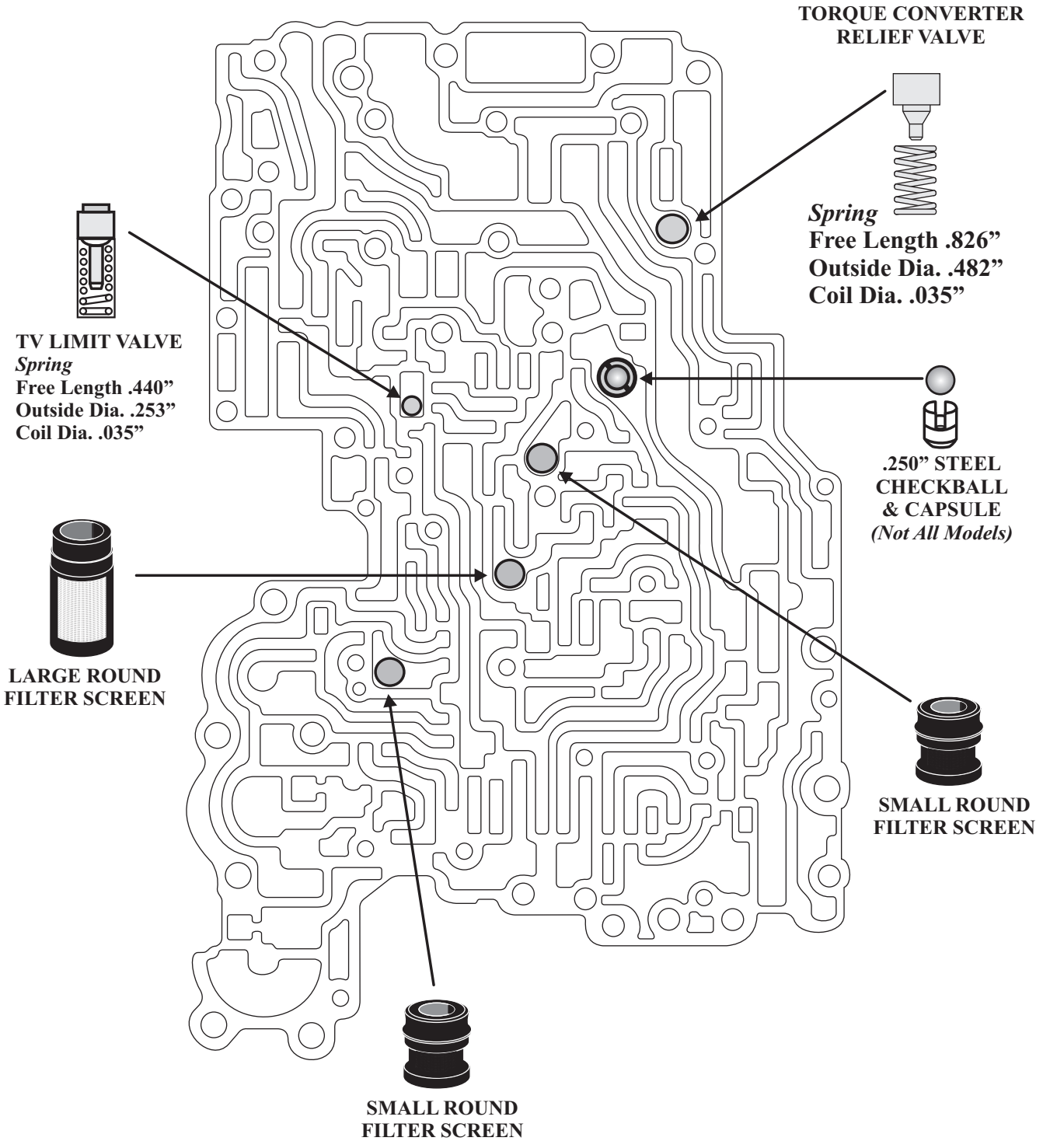
ACCUMULATOR "A" Free Length = 1.720" Spring Diameter = .433" Wire Diameter = .075" Approx Coils = 13 (PURPLE)	ACCUMULATOR "A" Piston Height = 1.471" Piston Diameter = .630"
ACCUMULATOR "B" Free Length = 2.590" Spring Diameter = .598" Wire Diameter = .060" Approx Coils = 12 (BLUE)	ACCUMULATOR "B" Piston Height = 1.460" Piston Diameter = .786" Machined Step Inside
ACCUMULATOR "C" Free Length = 1.987" Spring Diameter = .598" Wire Diameter = .103" Approx Coils = 12 (YELLOW)	ACCUMULATOR "C" Piston Height = 1.500" Piston Diameter = .786" NO Machined Step Inside

JEEP
AW4 (2000 & LATER)
UPPER VALVE BODY



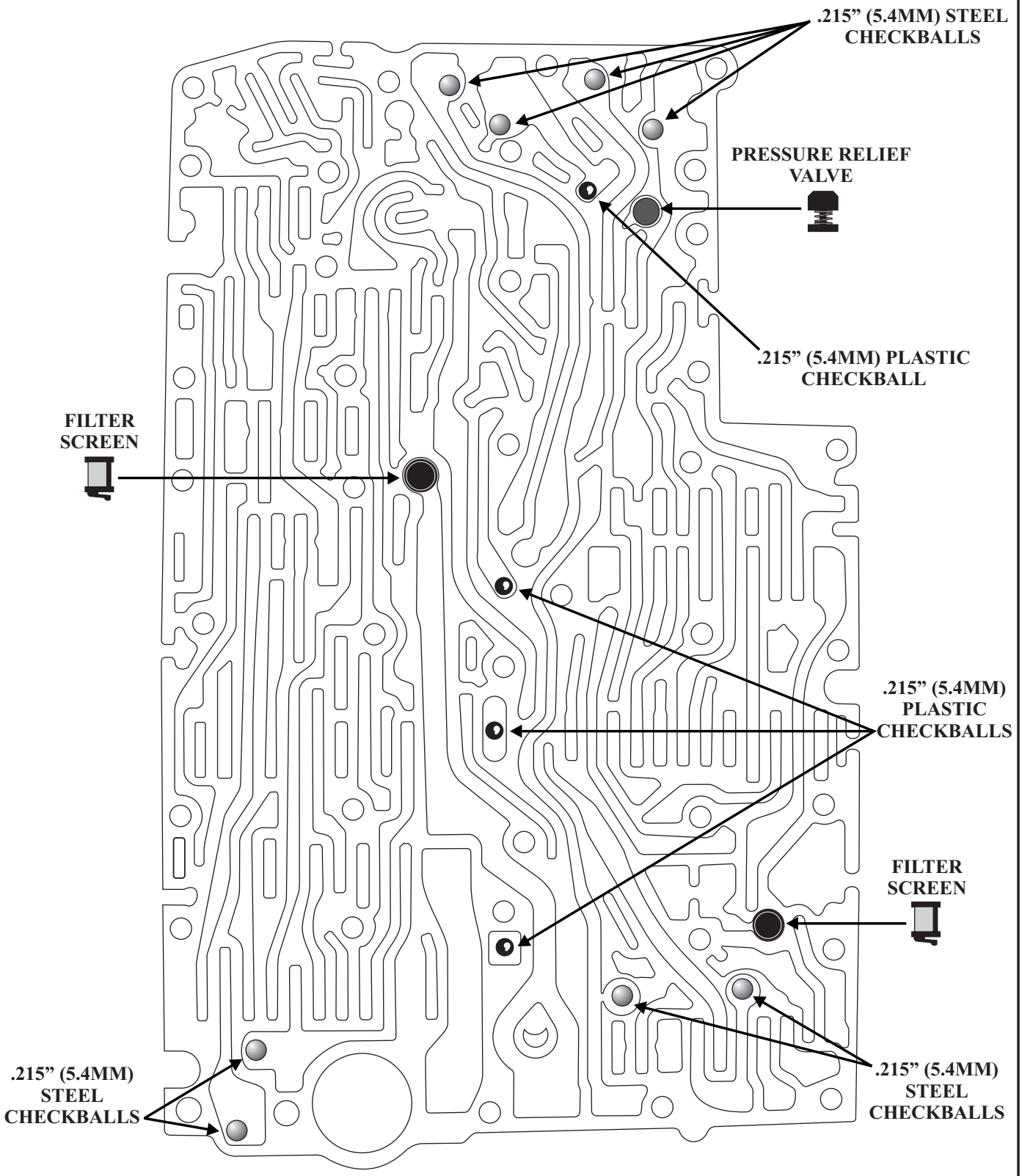
ALL CHECKBALLS ARE PLASTIC

JEEP
AW4 (2000 & LATER)
LOWER VALVE BODY



DODGE/JEEP NAG1

LOWER VALVE BODY



DODGE/JEEP NAG1

UPPER VALVE BODY