FORD 6R140
VALVE BODY VARIATIONS

COMPLAINT: One complaint may be related to converter charge pressure issues while another may be with a conflict in technical material. Some technical material presents upper valve body small parts location with having two check balls while another shows three (See Figure 1). Ford information says that only the three check ball version type valve body is in service.

CAUSE: Currently, ATSG has discovered three different versions of this valve body. Two of which use two check balls and one valve body using three check balls. Interchange of parts between these three different valve bodies may possibly produce a converter charge problem.

CORRECTION: Figure 2 shows a two check ball type valve body identified as version 1. Focus is given to the empty check ball pocket in the upper valve body and comparing it to the spacer plate. The spacer plate is completely closed over this area. The empty ball pocket is in the 3-5-R clutch feed passage. Casting numbers for both the upper and lower valve bodies are provided along with the spacer plate number. These parts must remain together as a complete set.

Figure 3 is a partial hydraulic schematic of the pressure regulator valve in relationship to the torque converter clutch charge control valve for the version 1 type two check ball valve body.

Figure 4 shows a two check ball type valve body identified as version 2. Focus is given to the same area as version 1 but with version 2 the casting does not allow a check ball. It is now an irregular shaped passage. The spacer plate now has an orifice and a slot sitting over this passage. Casting numbers for both the upper and lower valve bodies are provided along with the spacer plate number. These parts must remain together as a complete set.

Figure 5 is a partial hydraulic schematic of the pressure regulator valve in relationship to the torque converter clutch charge control valve for the version 2 type two check ball valve body. The schematic reveals a significant change from the version 1 schematic in figure 3. Regulated pump pressure is now being directed through this added .039" orifice in the spacer plate, through the irregular shape passage, through the slot in the spacer plate, and then on to both the pressure regulator valve and the torque converter clutch charge control valve.

Figure 6 shows a three check ball type valve body identified as version 3. Focus is given to the same area as versions 1 and 2 with version 3 having a casting change to accept the added ball. The spacer plate now has one hole in the plate above the added ball with a .041" orifice slightly below this hole. Casting numbers for both the upper and lower valve bodies are provided along with the spacer plate number. These parts must remain together as a complete set.

Figure 7 is a partial hydraulic schematic of the pressure regulator valve in relationship to the torque converter clutch charge control valve for the version 3 type three check ball valve body. The schematic reveals how the added ball was placed into the system. Figure 8 suggests that this ball is used to assist in keeping the converter from draining back once the vehicle shuts down.

One example of a mismatch that would affect converter charge would be to use a version 1 spacer plate on a version 3 valve body. This would restrict flow to the converter greatly and may even cause a no move condition.

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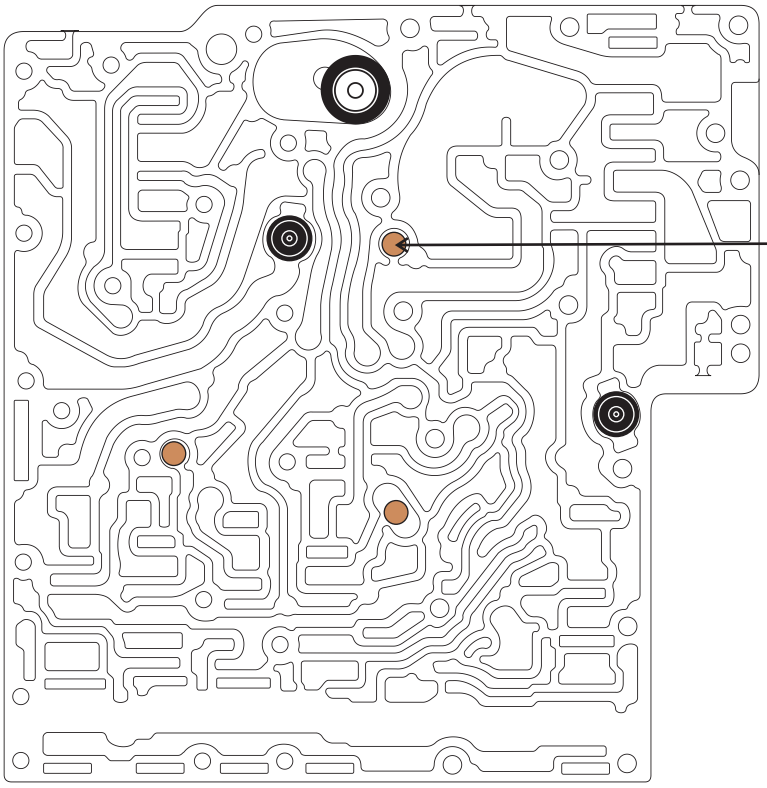

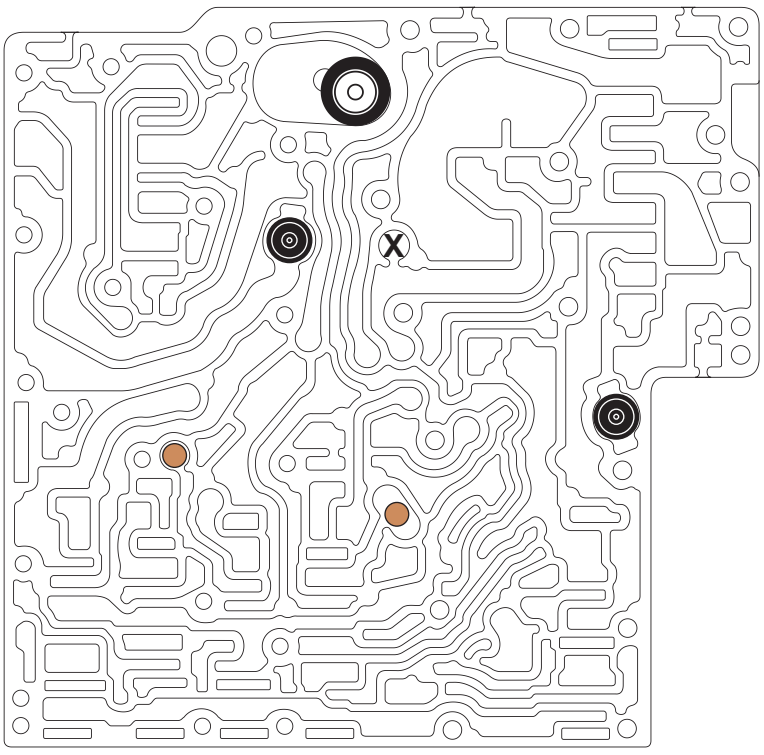

Figure 1

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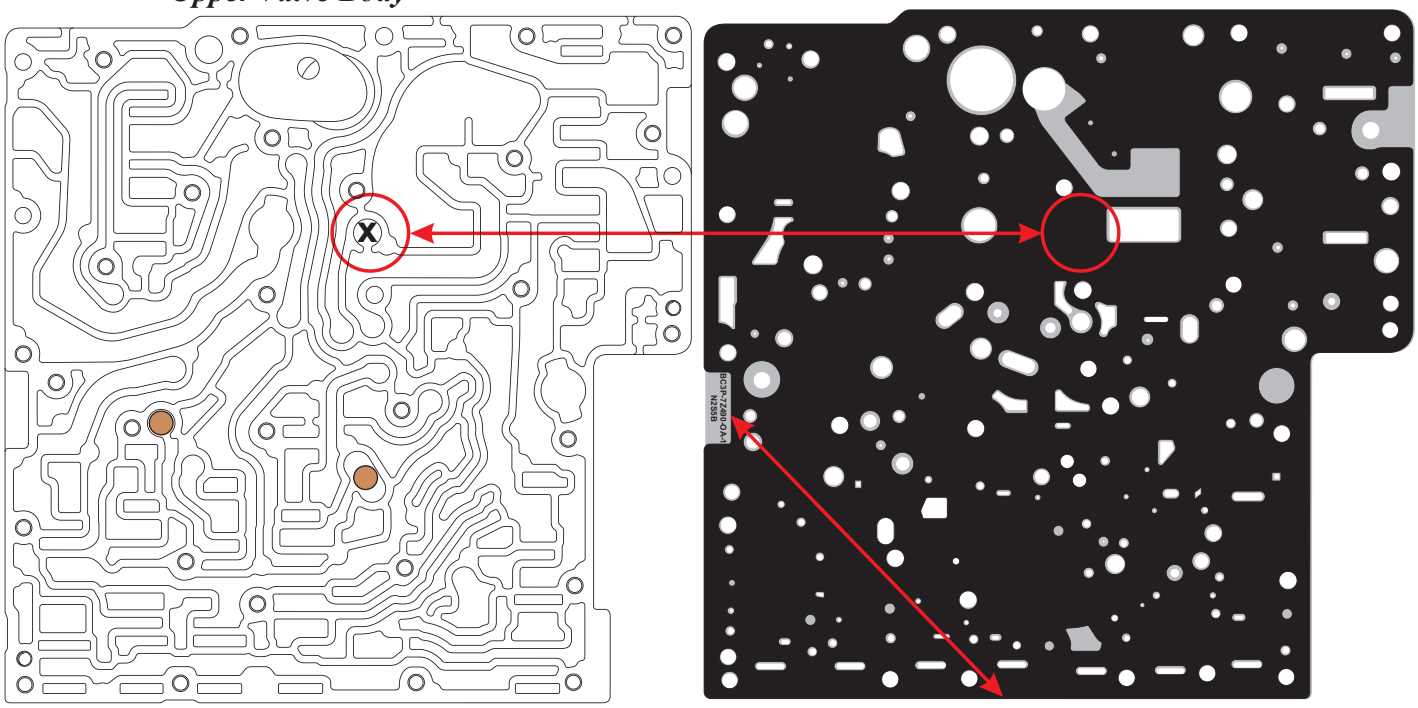
VALVE BODY VARIATIONS

Version 1
Two Check Ball Type

Upper Valve Body



Casting number - RFBC3P-7A101-DA

BC3P-7Z490-0A-1
N2S5B

Note: The lower valve body also has significant passage differences specific for this application and cannot be interchanged with other versions.

Lower Valve Body Casting number:
RFBC3P-7A101-DA (same as upper).

Figure 2

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VALVE BODY VARIATIONS

Version 1
Two Check Ball Type

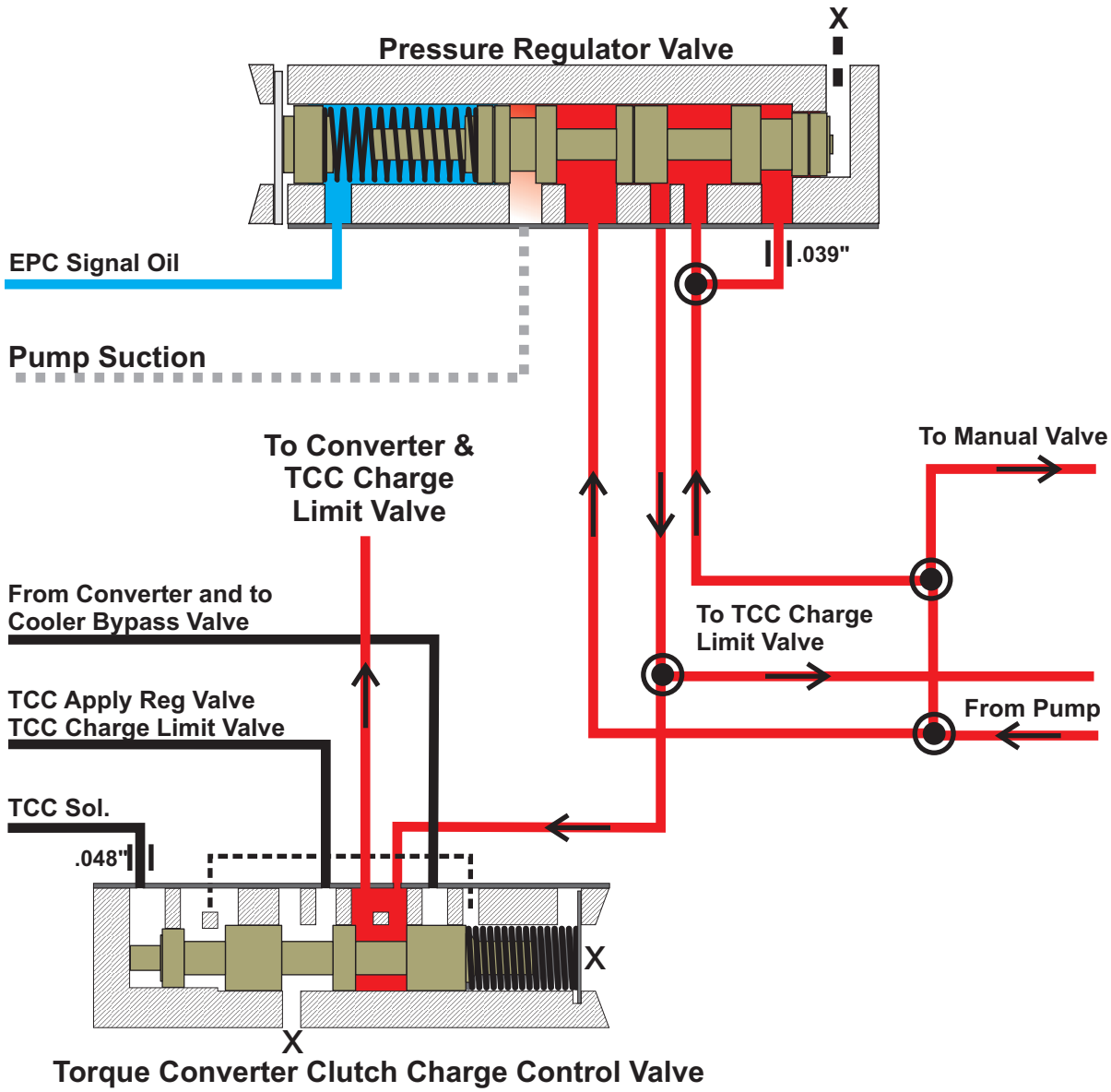

Figure 3

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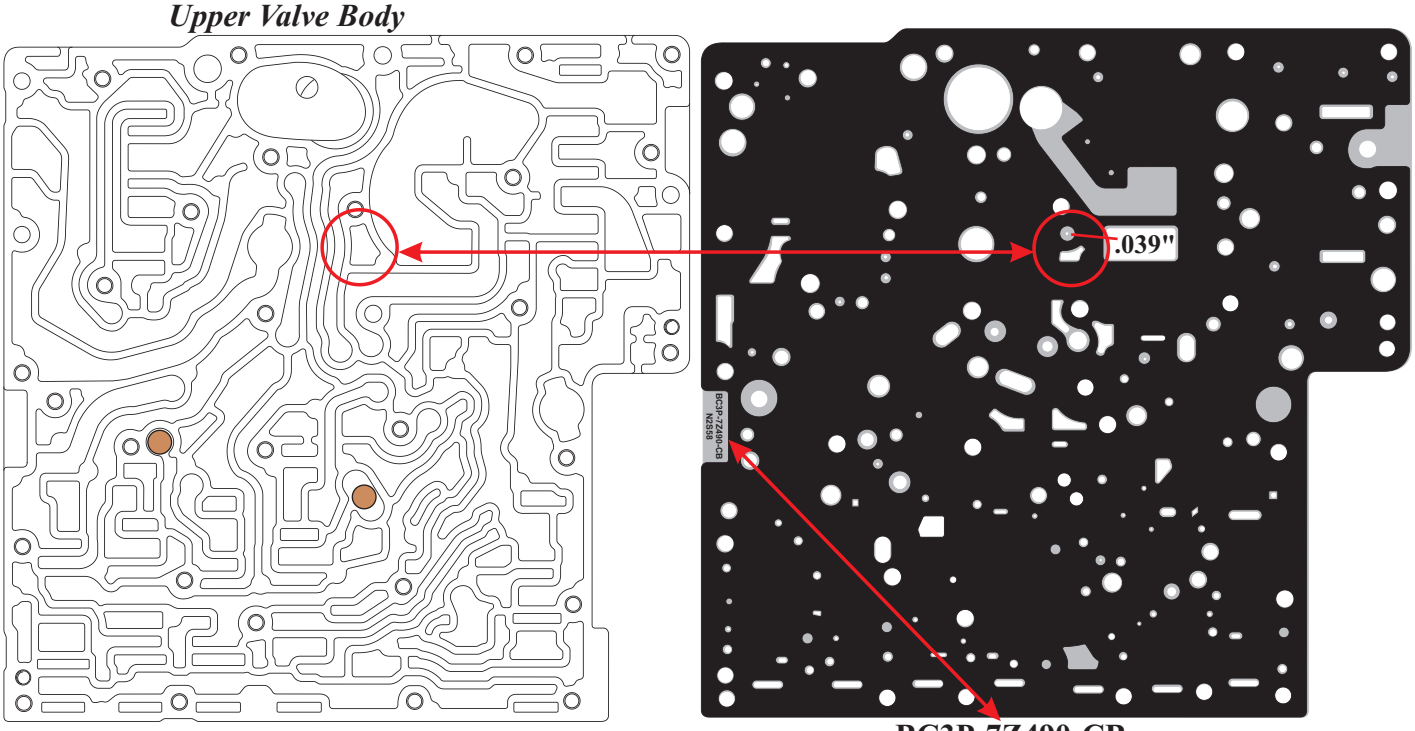
VALVE BODY VARIATIONS

Version 2
Two Check Ball Type

Upper Valve Body



Casting number - BSBC3P-7A092-CA

BC3P-7Z490-CB
N2S58

Note: The lower valve body also has significant passage differences specific for this application and cannot be interchanged with other versions.

Lower Valve Body Casting number:
RFBC3P-7A101-CB

Figure 4

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VALVE BODY VARIATIONS

Version 2
Two Check Ball Type

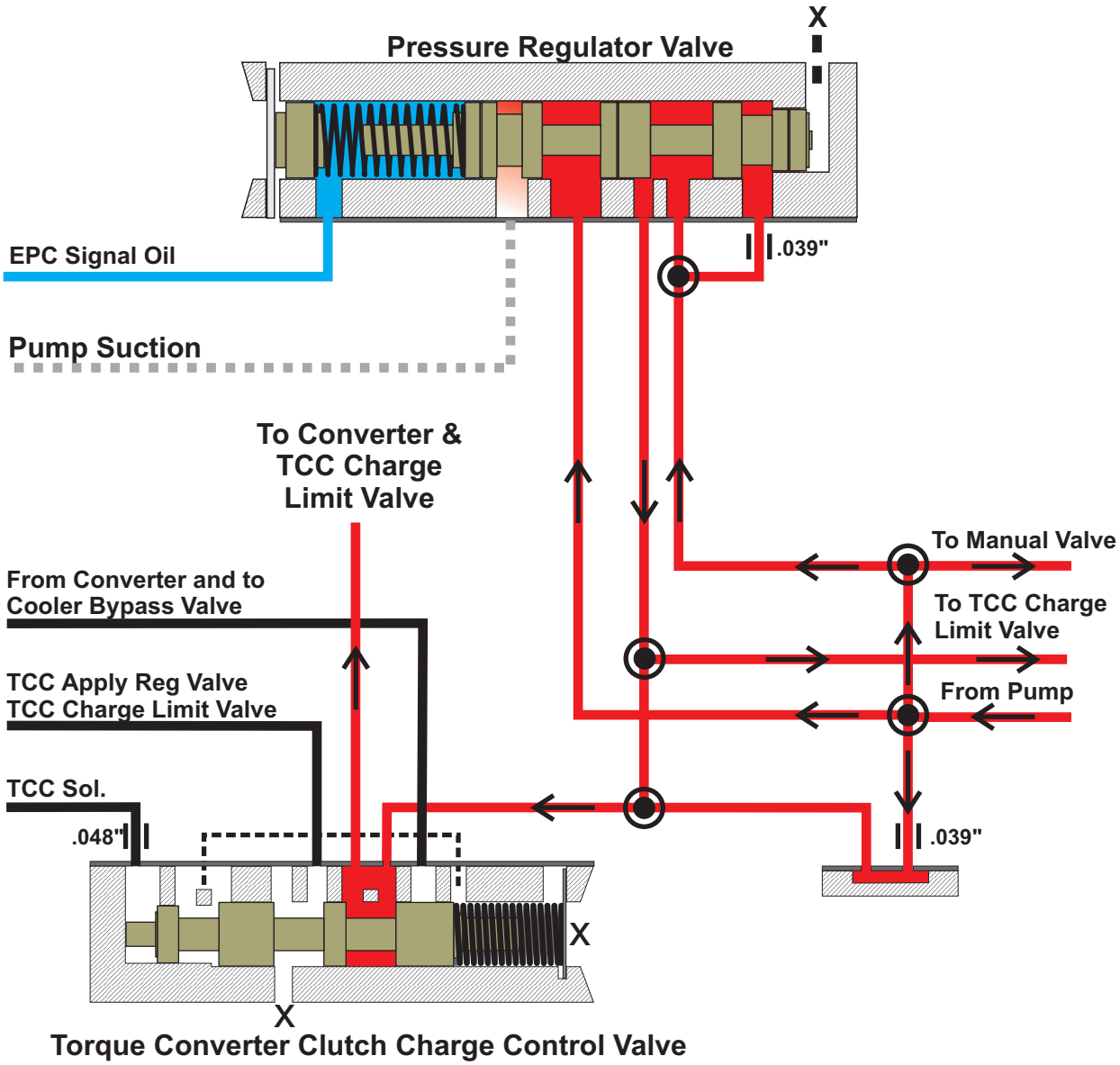

Figure 5

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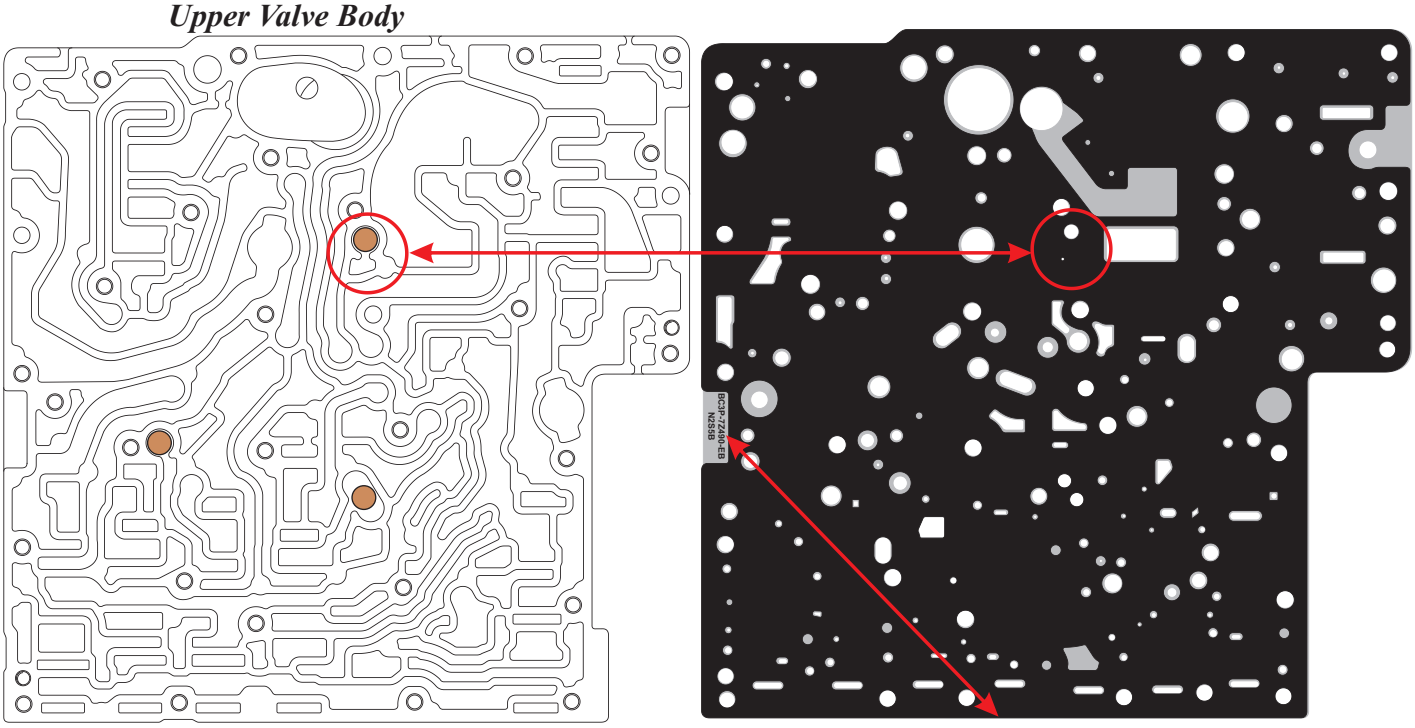
VALVE BODY VARIATIONS

Version 3
Three Check Ball Type

Upper Valve Body



Casting number - RFBC3P-7A092-EB

BC3P-7Z490-EB
N2S5B

Note: The lower valve body also has significant passage differences specific for this application and cannot be interchanged with other versions.

Lower Valve Body Casting number:
RFBC3P-7A101-EB

Figure 6

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VALVE BODY VARIATIONS

Version 3
Three Check Ball Type

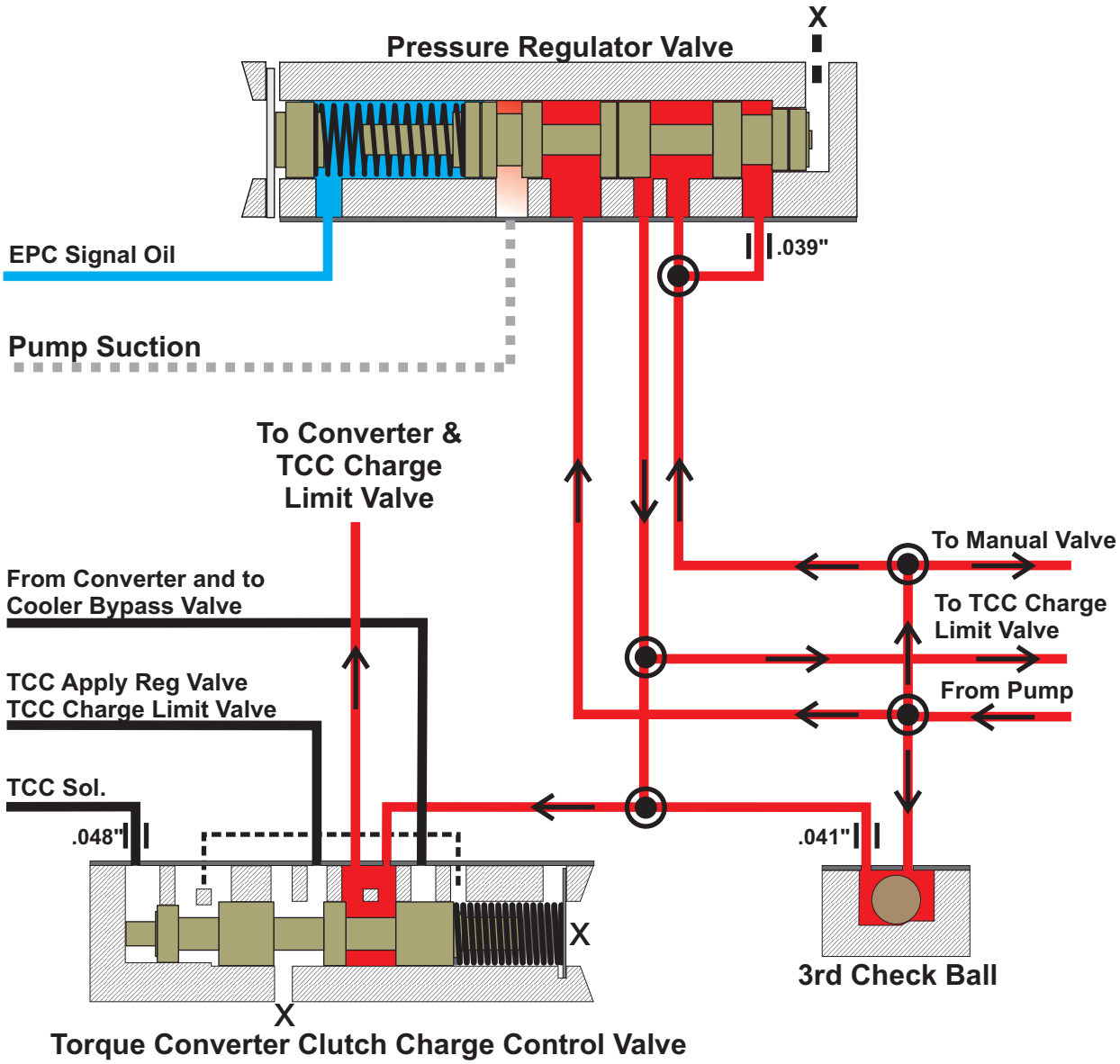

Figure 7

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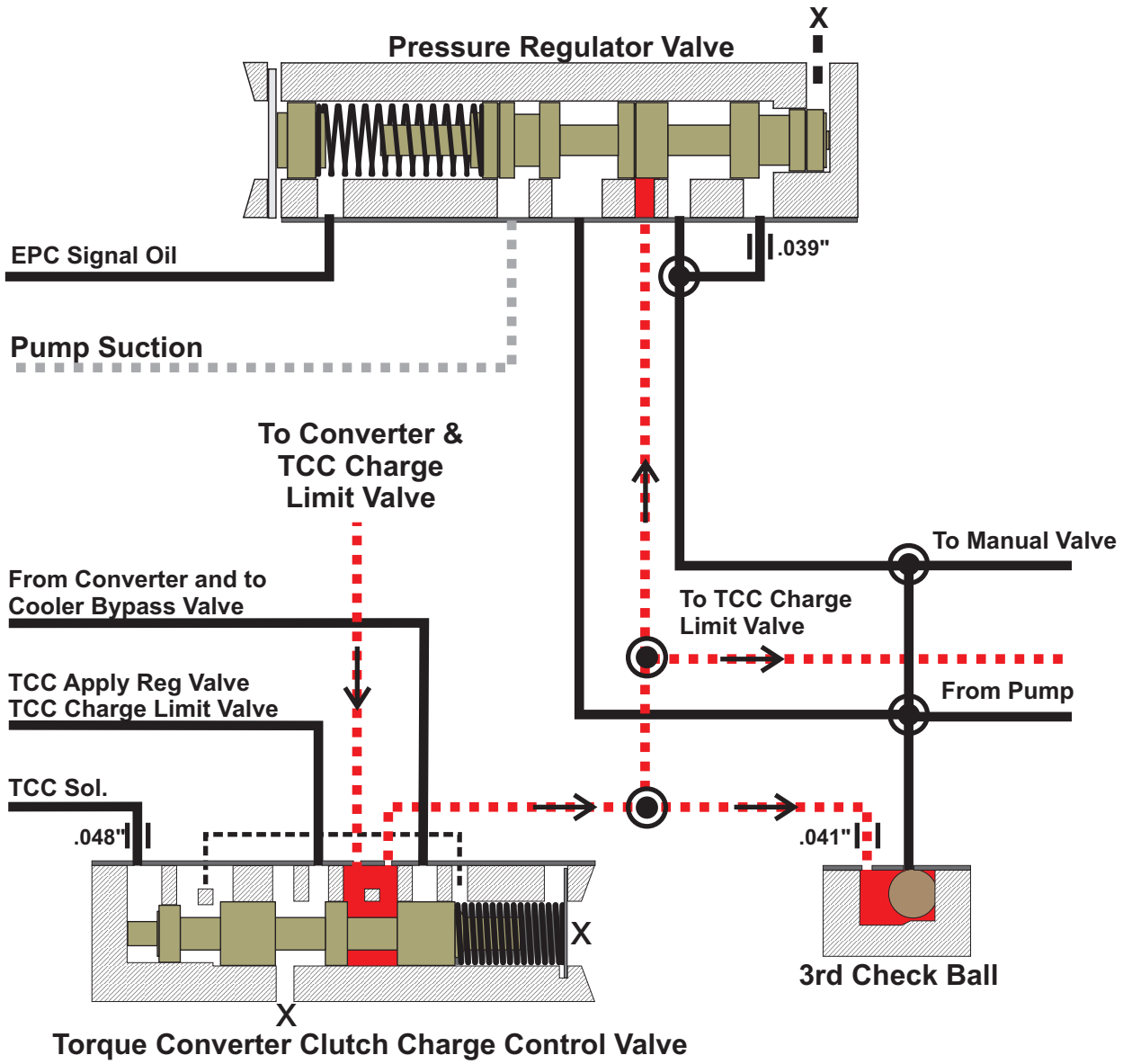
VALVE BODY VARIATIONS

Version 3
Three Check Ball Type



The added 3rd check ball appears to be used to prevent converter drain back once the vehicle is shut down

Figure 8