



Technical Service Information

FORD 5R110W

EXTREME COLD WEATHER RELATED LOW DIODE FAILURE

COMPLAINT: Some, 2008-09 Ford E-Series, F-Super Duty and LCF vehicles , built with **No** external in-line filter and equipped with the 5R110W, may exhibit premature Low Diode Failure, due to operation in -35° F temperature.

CAUSE: The cause may be, that the cold temperature has caused the fluid to be restricted in the cooler, and without the external in-line filter, which has a bypass built in as shown in Figure 1, the **To cooler** pressure may build up and cause the Bypass Valve to stroke cutting off lube feed to the Front, Center and Rear lube circuits, creating Low Diode failure from lack of lubrication. See Figure 2 for valve identification for the pump cover. Also see Figures 3-5 which explains the function of the Bypass Valve and how its position with a restricted cooler will cut off Lube.

CORRECTION: To correct this condition, replace the pump assembly with the pump listed in service information. This new design pump has a connection that was made between the To Cooler passage and the Lube passage as shown in Figure 5. Refer to Figures 5 and 6 for Identification of this Pump, by the Rough Forging number listed. The RF number listed by Ford is only on the Pump body as shown in Figure 6. It may be necessary to split the pump and look for the notch to verify application, especially if the Pump Body has been changed. Note: This pump assembly is for versions that do **Not** use the external filter.

SERVICE INFORMATION:

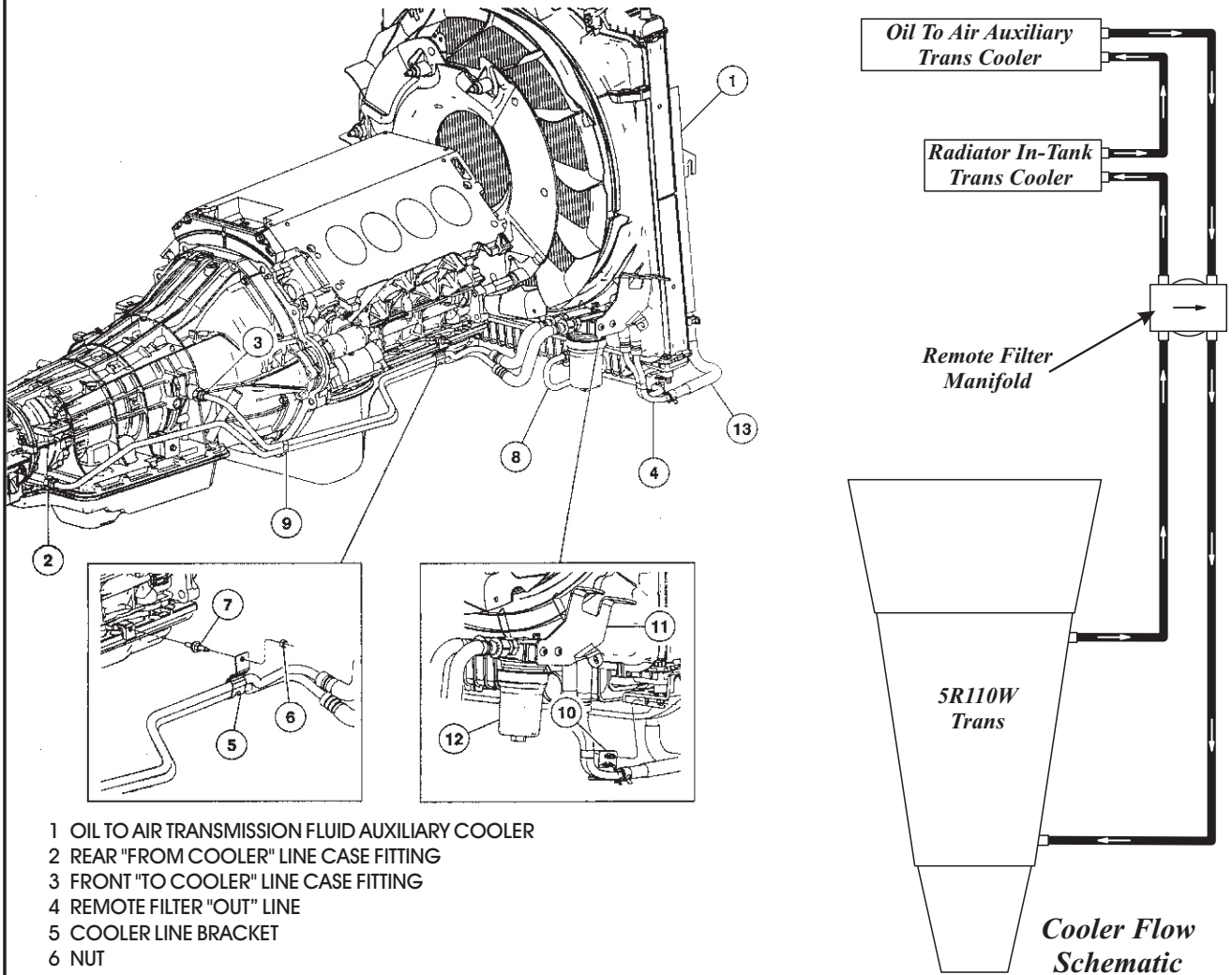
PUMP ASSEMBLY (Ford part #).....9C3Z-7A103-B

Note: This pump assembly is for versions that do Not use the external filter.

PUMP ASSEMBLY (Ford part #).....9C3Z-7A103-A

Note: This pump assembly is for versions that Use the external filter. It will retro-fit back to 2003 models.

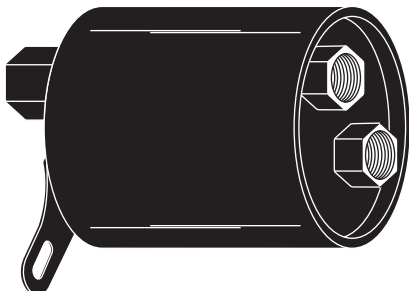
REMOTE TRANSMISSION FILTER IN COOLER LINES



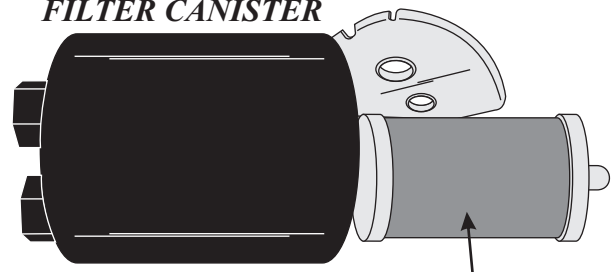
CAUTION: The transmission cooler lines must be disconnected prior to flushing out the cooler lines. Do Not attempt to flush the remote filter housing because of the internal orifice.

REMOTE FILTER CLOSE-UP

ASSEMBLED FILTER CANISTER



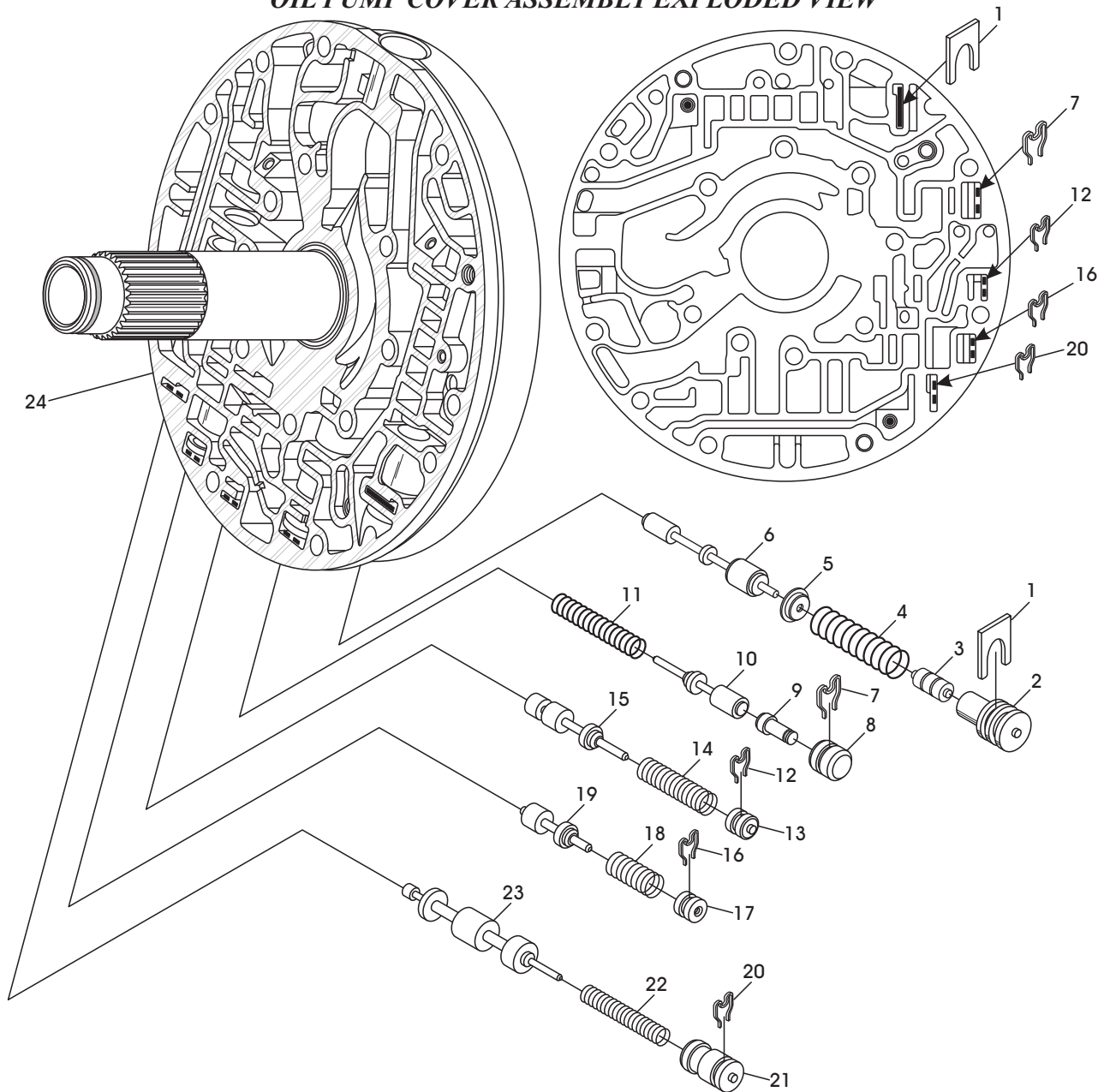
DIS-ASSEMBLED FILTER CANISTER



FILTER

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OIL PUMP COVER ASSEMBLY EXPLODED VIEW



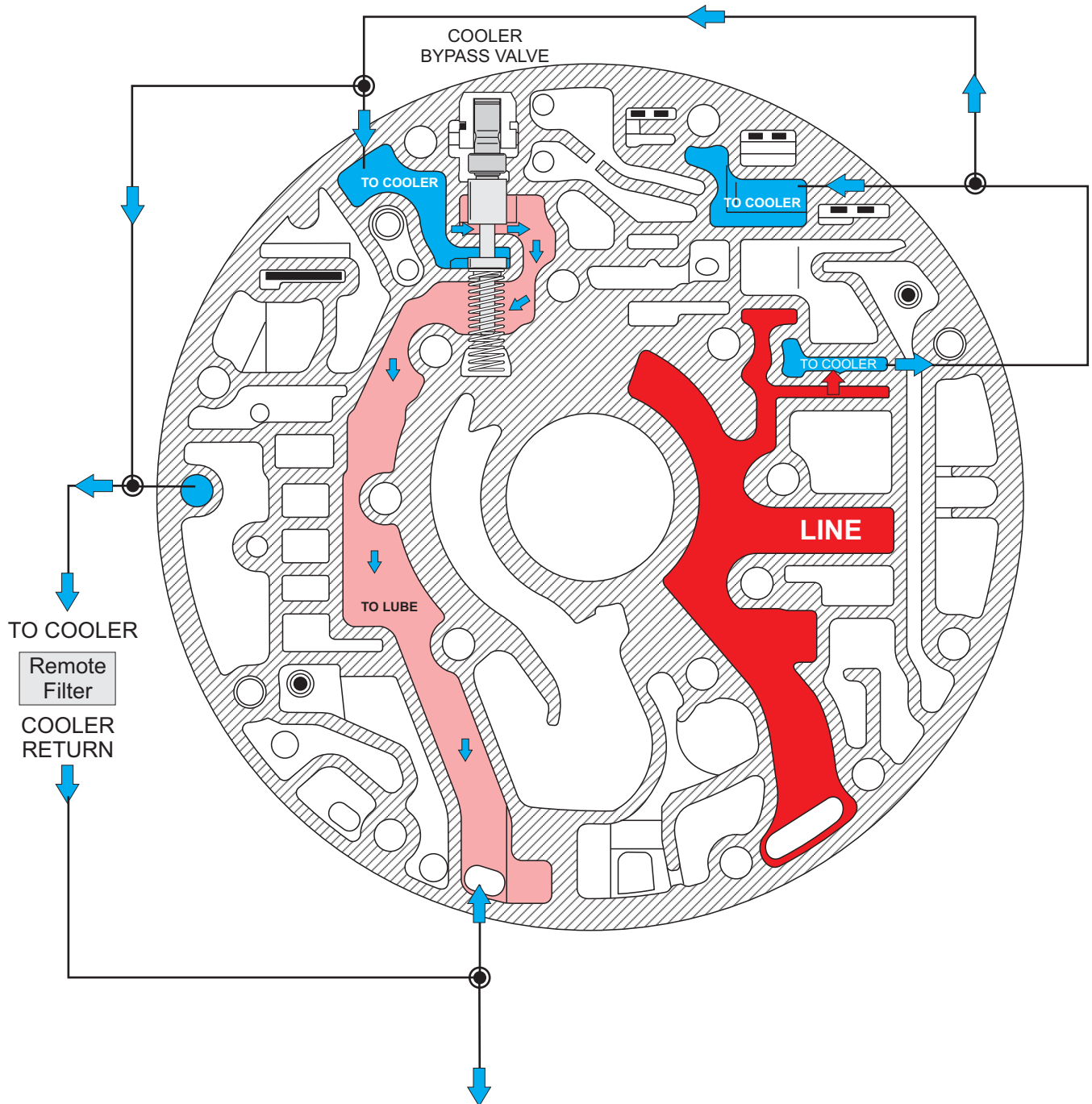
- 1 CONVERTER CLUTCH CONTROL VALVE BORE PLUG RETAINER.
- 2 CONVERTER CLUTCH CONTROL VALVE SLEEVE.
- 3 CONVERTER CLUTCH CONTROL VALVE PLUG.
- 4 CONVERTER CLUTCH CONTROL VALVE SPRING.
- 5 CONVERTER CLUTCH CONTROL VALVE SPRING SEAT.
- 6 CONVERTER CLUTCH CONTROL VALVE.
- 7 COOLER BYPASS VALVE BORE PLUG RETAINER (ORANGE I.D.).
- 8 COOLER BYPASS VALVE BORE PLUG.
- 9 THERMOSTATIC VALVE ASSEMBLY.
- 10 COOLER BYPASS VALVE.
- 11 COOLER BYPASS VALVE SPRING.
- 12 CONVERTER PRESSURE LIMIT VALVE BORE PLUG RETAINER.

- 13 CONVERTER PRESSURE LIMIT VALVE BORE PLUG.
- 14 CONVERTER PRESSURE LIMIT VALVE SPRING.
- 15 CONVERTER PRESSURE LIMIT VALVE.
- 16 CONVERTER ANTI-DRAIN BACK VALVE BORE PLUG RETAINER.
- 17 CONVERTER ANTI-DRAIN BACK VALVE BORE PLUG.
- 18 CONVERTER ANTI-DRAIN BACK VALVE SPRING.
- 19 CONVERTER ANTI-DRAIN BACK VALVE.
- 20 MAIN REGULATOR VALVE BORE PLUG RETAINER.
- 21 MAIN REGULATOR VALVE BORE PLUG.
- 22 MAIN REGULATOR VALVE SPRING.
- 23 MAIN REGULATOR VALVE.
- 24 OIL PUMP COVER ASSEMBLY.

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Figure 2

PREVIOUS DESIGN COOLER BYPASS OPERATION "COLD MODE"

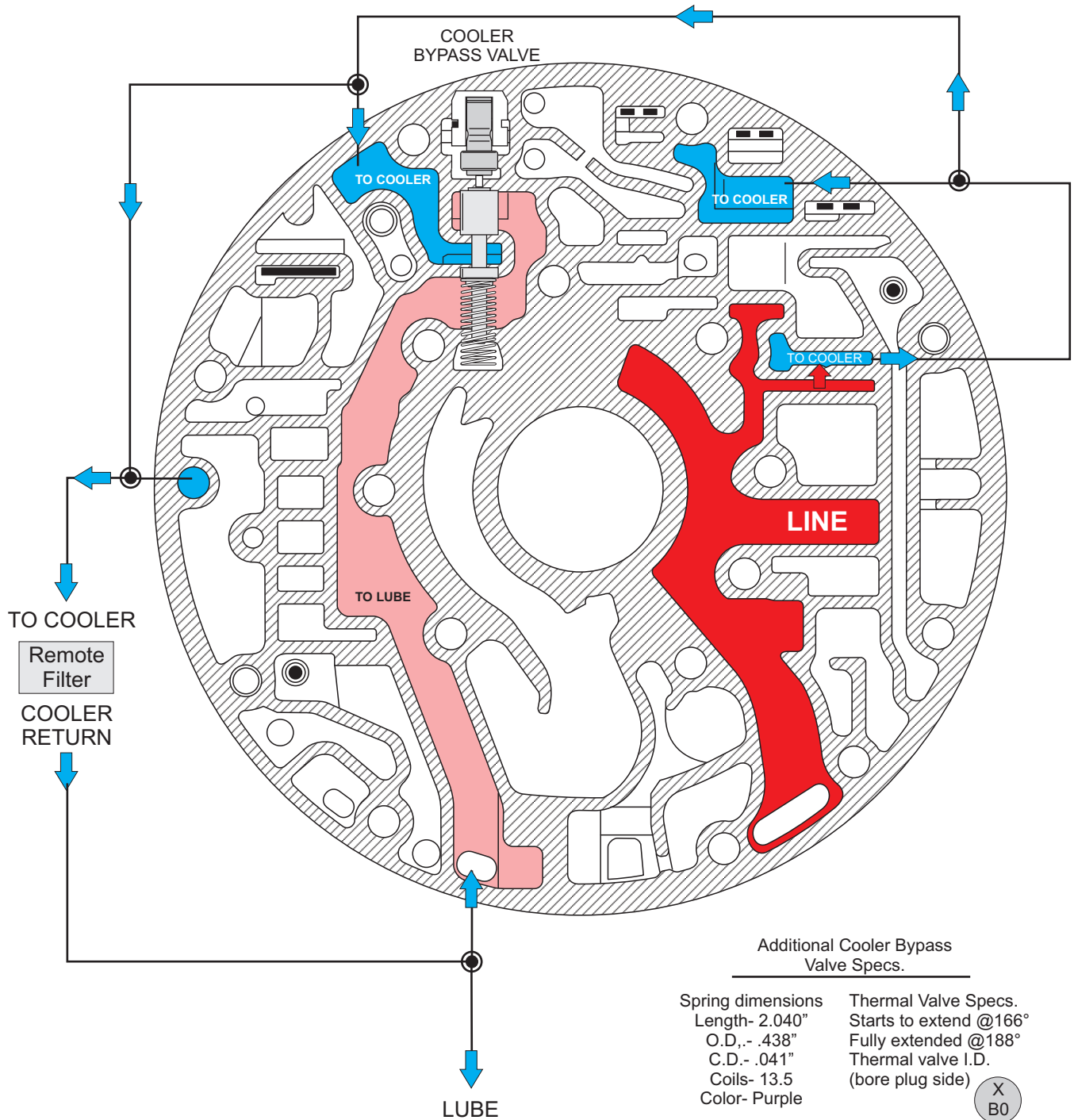


Summary: When Transmission fluid temperature is Cold, "To Cooler" pressure flows thru the Cooler Bypass Valve into the Front, Center and Rear Lube circuits, as well as the Coolers and remote filter.

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Figure 3

PREVIOUS DESIGN COOLER BYPASS OPERATION "HOT MODE"



Summary: When Transmission fluid temperature is Hot, "To Cooler" pressure flows thru the Coolers and remote filter before it enters into the Front, Center and Rear Lube circuits.

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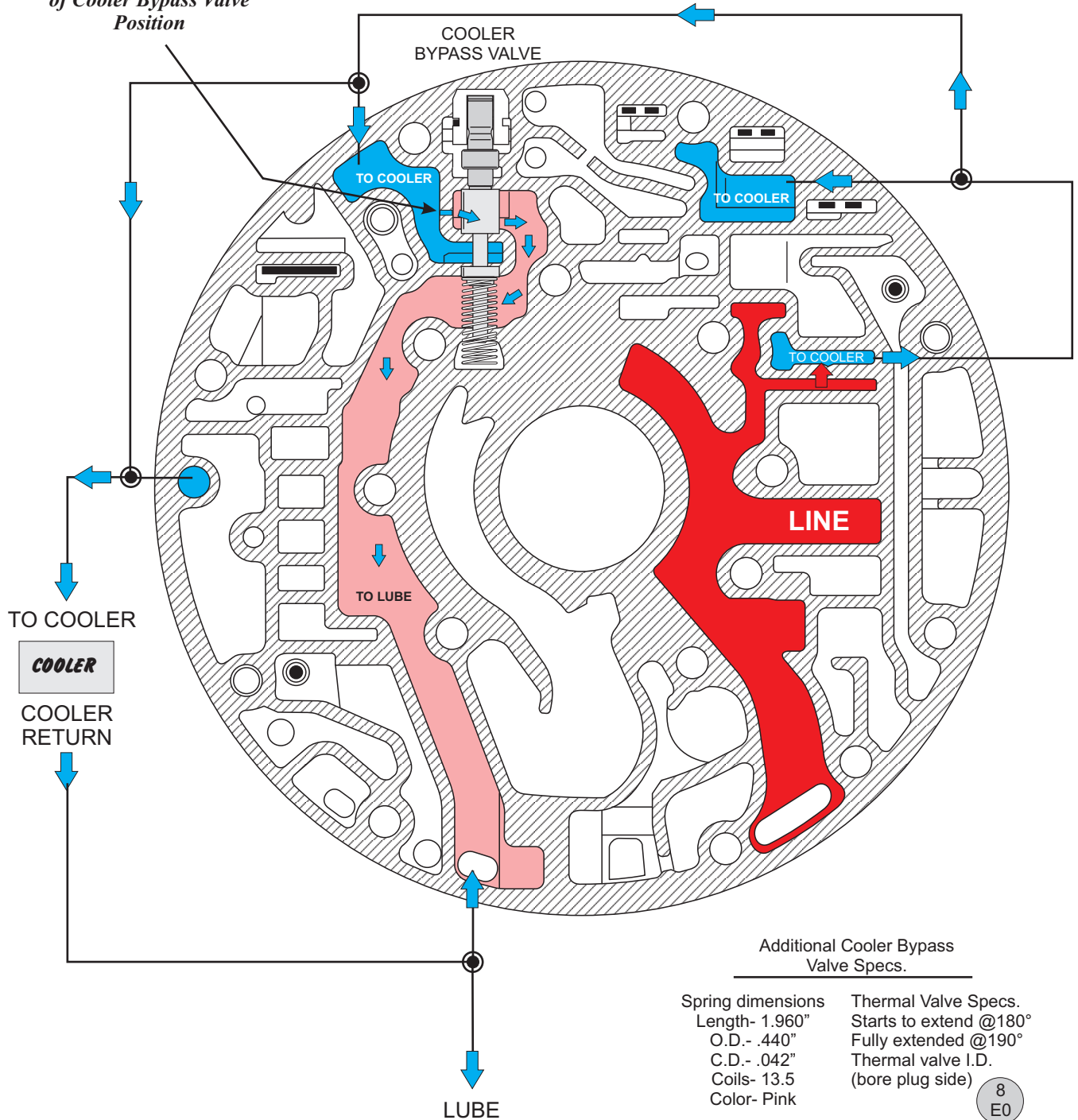
Figure 4

NEW DESIGN COOLER BYPASS OPERATION "HOT MODE"

*Passage cut thru
worm track connecting
the two circuits regardless
of Cooler Bypass Valve
Position*

Width
Dimension
.078"

Depth
Dimension
.050"



Summary: When Transmission fluid temperature is Cold or Hot, "To Cooler" pressure flows around the Cooler Bypass Valve into the Front, Center and Rear Lube circuits, as well as the Cooler.
The To Cooler and Lube Circuits are connected thru a notch in the worm track.

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Figure 5

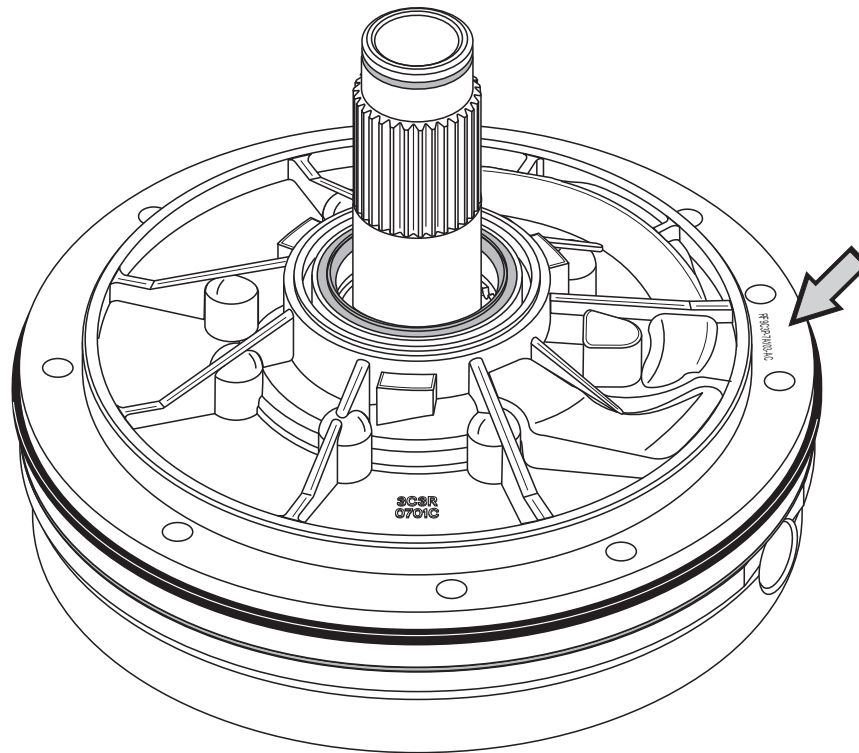
PUMP CASTING NUMBER LOCATION

***05 Models
With External
Filter***

NO RF NUMBER ON BODY

***08-09 Models
Without External
Filter***

RF NUMBER
RF9C3P-7A103-AC



Note: Rough Forging numbers provided by Ford are only on the Pump Body. It may be necessary to dis-assemble the pump to look for the notch as shown in Figure 5 to verify application, in case the Pump body has been changed.

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Figure 6