THM 4L60-E/4L65-E

NEW OIL PUMP TO CASE SEAL FOR 2004 MODELS

CHANGE: An improved oil pump to case seal design has been implemented on the 4L60-E/4L65-E family of transmissions, to replace the previous design "D" ring seal, as shown in Figure 1. The complete design was implemented in three phases, beginning in September, 2002 and completion in March 2004.

REASON: To eliminate damage to the previous design "D" ring seal during assembly.

PARTS AFFECTED:

(1) OIL PUMP BODY - Beginning in September 2002, the "D" ring seal groove moved 1.6mm (.062") inward on the pump body to place the sealing surface deeper into the case bore. The relocated pump body groove can be identified by measuring the groove location, as shown in Figure 2. Pump bodies that measure 2.3mm (.090"), as shown in Figure 2, are the ones with the relocated seal groove. Pump bodies that measure 3.9.. (.153"), as shown in Figure 2, are the prior to September 2002 design. Phase 3 eliminates the "D" ring seal and seal groove.

(2) TRANSMISSION CASE - Phase 1 also machined a modified case chamfer leading into the pump case bore, as shown in Figure 3. Phase 2 modified the case casting and again the machined chamfer into the pump bore. The casting change left additionsl material in the surrounding pump bore to allow deeper bore machining in order to create the necessary sealing surface for the new stamped steel molded rubber design seal, as shown in Figure 3.

(3) OIL PUMP TO CASE SEAL - Beginning in March 2004, the new stamped steel molded rubber seal is used to seal the pump assembly to the case, as shown in Figure 3 and 4.

(4) OIL PAN BOLTS - Beginning in January, 2004, 1.0 mm (.040") shorter pan bolts were put into production units in preperation for Phase 3. As a result of the modified casting and the deeper pump bore machining, the area between the oil pan mounting surface and the pump bore was decreased. Because of the reduced material in this area, it was necessary to use the shorter pan bolts. Early pan bolts, before November 2002, should not be used with the modified case design, since they are 1.0 mm (.040") longer and could deform the oil seal chamfer surface in the case bore. Refer to Figure 4 for pan bolt differences.

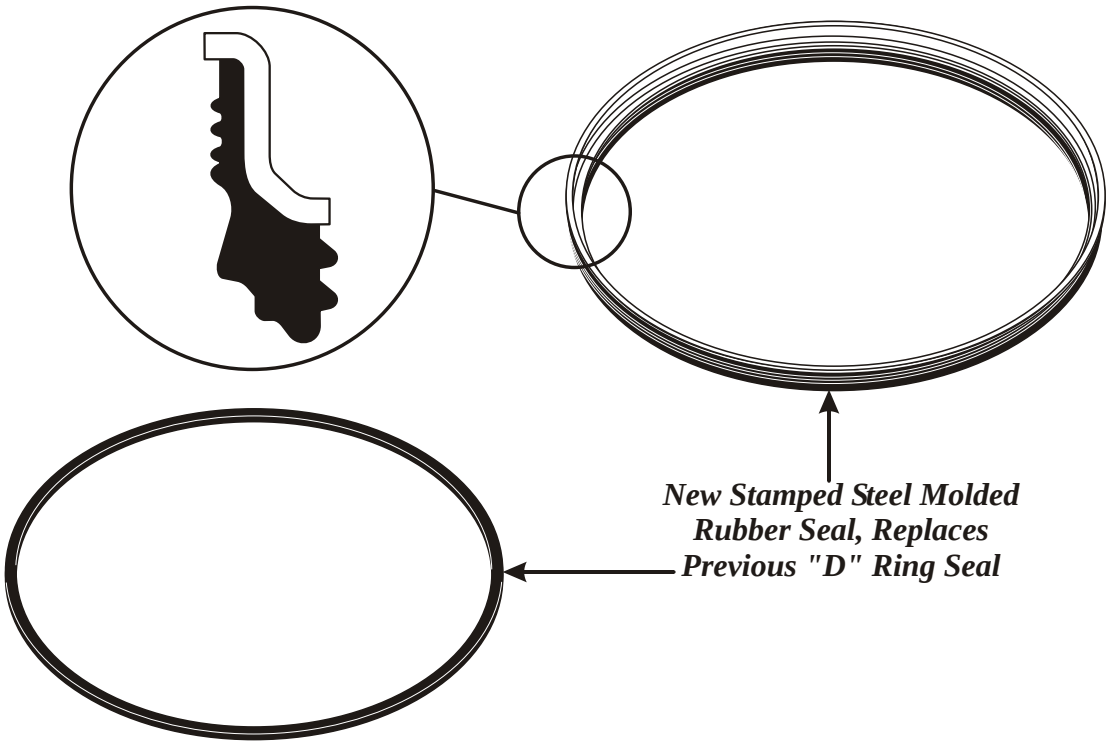
INTERCHANGEABILITY:

We have provided you with a chart in Figure 1, to help eliminate mis-assemblies

Special Note:

Beginning in March 2004, the "D" ring seal groove and the "D" ring were eliminated, and at the same time the new stamped steel molded rubber pump to case seal was implemented, which changes the assembly process. Unlike the "D" ring seal, the new seal is installed after the pump assembly is properly positioned and torqued in place. Seating the seal is accomplished when the bell housing is installed, which presses the seal into position between the pump and the case bore, as shown in Figure 4.

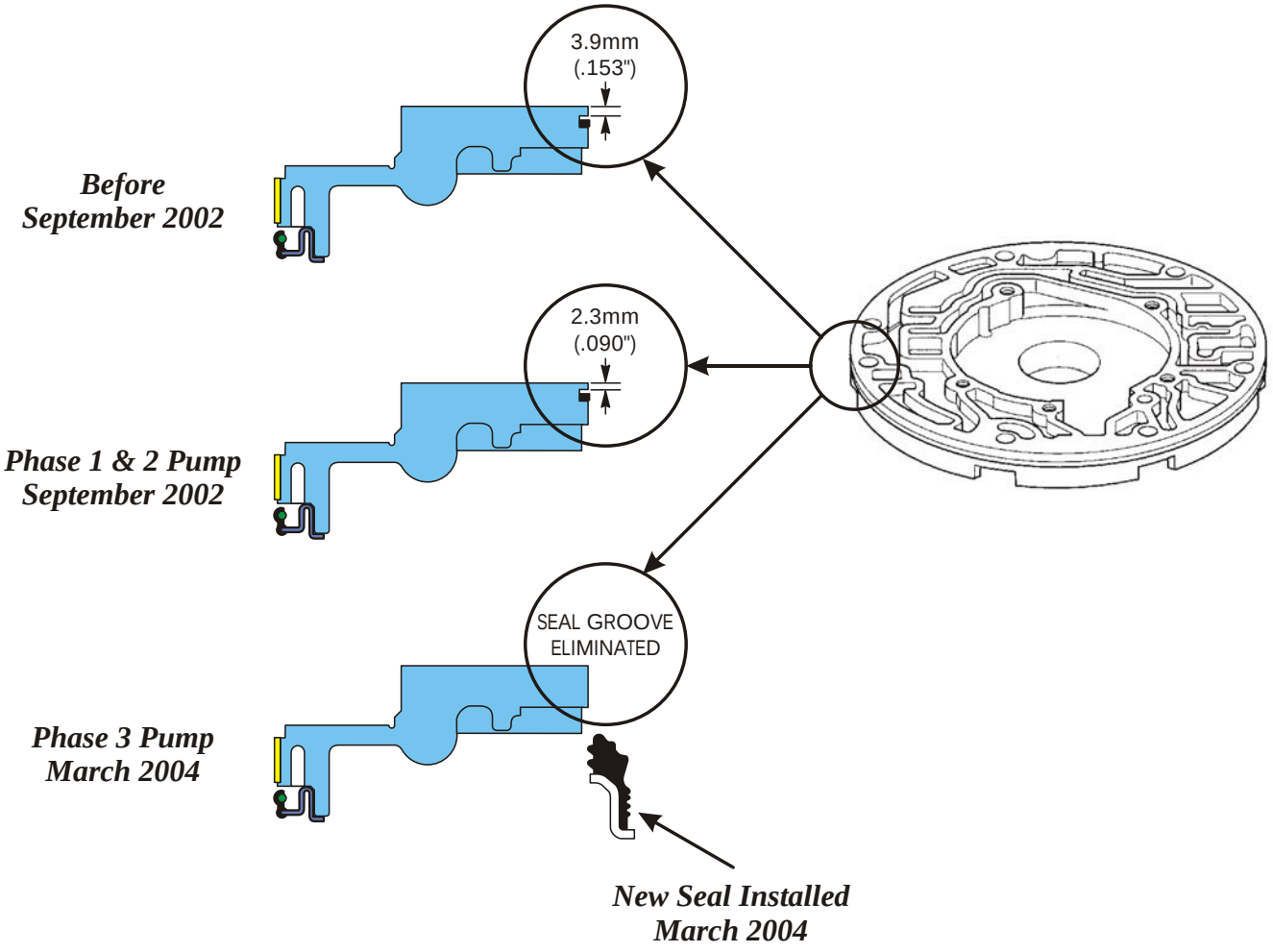
NEW OIL PUMP TO CASE SEAL



Component	Case Prior To July 2002	Phase 1 Case Modified Chamfer After Jan. 2003	Phase 2 Case Modified Casting After Nov. 2003	Phase 3 Case And New Seal After March, 2004
Pump Body 24230111 ***Without "D" ring seal groove***	DO NOT USE	DO NOT USE	DO NOT USE	"MUST" USE
Pump Body 24230110 ***Relocated "D" ring seal groove***	MAY USE	USE	USE	DO NOT USE
"D" Ring Seal 24210605	USE	USE	USE	DO NOT USE
New Stamped Steel Molded Rubber Seal 24226315	DO NOT USE	DO NOT USE	DO NOT USE	"MUST" USE
Previous Pan Bolt 8657000 M8 X 1.25 X 18.9 ***(Before Jan, 04)***	USE	USE	DO NOT USE	DO NOT USE
New Pan Bolt 24226008 M8 X 1.25 X 17.9 ***(After Jan, 04)***	MAY USE	MAY USE	MAY USE	"MUST" USE

Figure 1

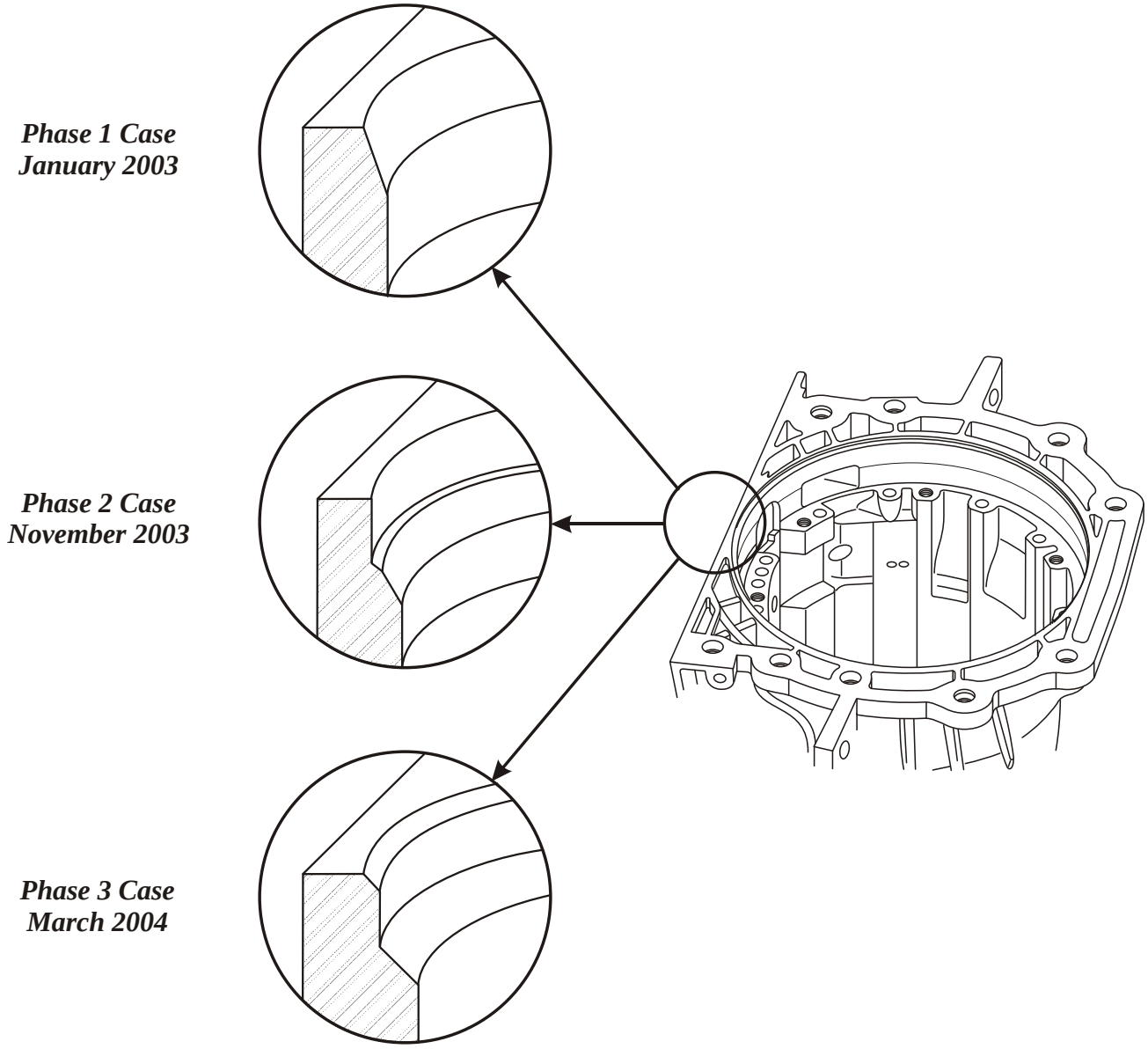
OIL PUMP BODY CHANGES



Phase 1 Pump Body:
Beginning in September 2002, the "D" ring seal groove moved 1.6mm (.062") inward on the pump body to place the sealing surface deeper into the case bore. The relocated pump body groove can be identified by measuring the groove location, as shown above.

Phase 3 Pump Body:
Beginning in March 2004, the "D" ring seal groove and the "D" ring were eliminated, and at the same time the new stamped steel molded rubber pump to case seal was implemented, which changes the assembly process. Unlike the "D" ring seal, the new seal is installed after the pump assembly is properly positioned and torqued in place. Seating the seal is accomplished when the bell housing is installed, which presses the seal into position between the pump and the case bore. Refer to Figure 4.

Figure 2

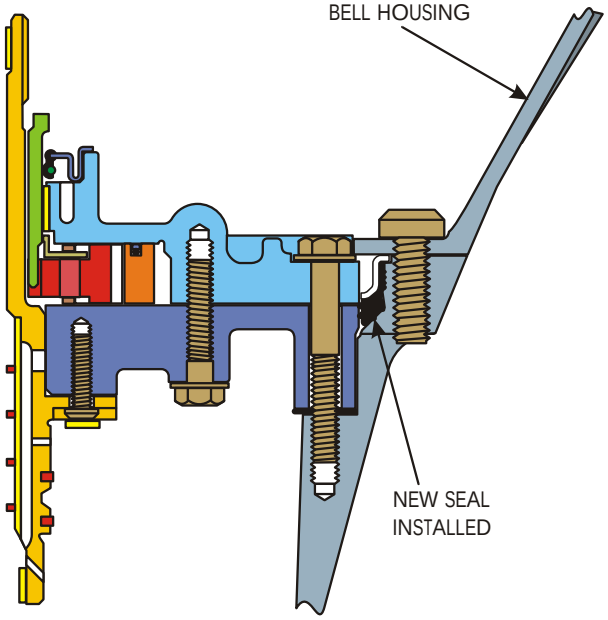


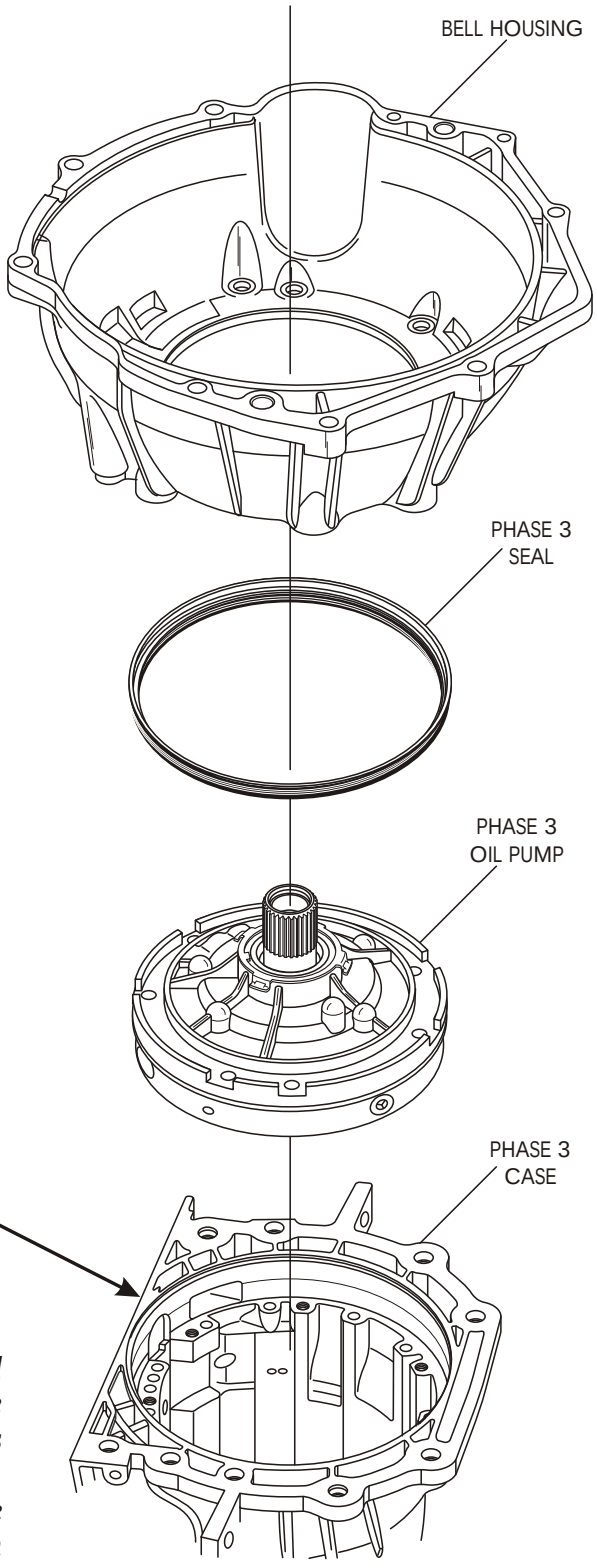
Phase 1 Case:
Revised machining with a case chamfer leading into the pump bore. This chamfer is designed to help eliminate possible "D" ring damage during pump installation on the assembly line.

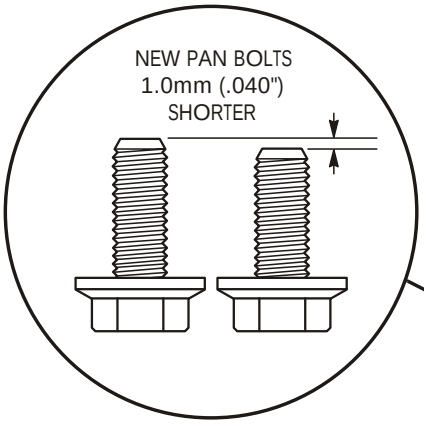
Phase 2 Case:
The case casting and the chamfer into the case bore were both modified. The casting change left additional material in the surrounding pump bore to allow deeper bore machining in order to create the necessary sealing surface for the new pump seal design. The leading surface into the pump bore was also machined with a modified chamfer.

Figure 3

PHASE 3 COMPONENTS







Phase 3 Assembly Procedure:
Beginning in March 2004, the "D" ring seal groove and the "D" ring were eliminated, and at the same time the new stamped steel molded rubber pump to case seal was implemented, which changes the assembly process. Unlike the "D" ring seal, the new seal is installed after the pump assembly is properly positioned and torqued in place. Seating the seal is accomplished when the bell housing is installed, which presses the seal into position between the pump and the case bore, as shown above.

Figure 4