4L80-E

OVERDRIVE GEAR SET FAILURE

COMPLAINT: Immediately after overhaul the vehicle returns to the shop after a road test at hi-way speeds and a total failure of the overdrive planetary gear set is evident.

CAUSE: During the overhaul process either the transmission casing or the oil pump or pump cover was replaced using incompatible parts causing a loss of lube oil to the overdrive gear train.

CORRECTION: The transmission casing had a casting change for the 2004 model year.
The oil pump cover has been modified with the addition of an aluminum plug.
The change in the case casting will allow lube oil designated for the overdrive planetary gear set to exhaust back to the sump if the oil pump cover has not been modified with the installation of an aluminum plug to prevent this from happening.
When the transmission casing or pump requires replacement then care must be taken to properly identify which case will be used for the repair and/or determine if a pump modification is necessary.
The earlier design 1997 - 2003 "center lube" type casing can be identified externally by the presence of two bosses in the front cooler line fitting area. (See figure 1)
The later design 2004 casing can be identified externally by the presence of only one boss at the front cooler line area. (See figure 2) ***This case must use the pump with the aluminum plug present in the pump cover.***
With the transmission on the bench and the oil pump removed, the most important difference in these castings can be observed. Notice that the later design case has no aluminum or "blind hole" area present in the casing (See figure 3) as there was in the previous design "center lube" case. (See figure 4)

Note: *For 1991 - 1996 casings there would be a passage drilled at this location (See figure 5) for lube oil to return from the oil cooler via the lower front case cooler line fitting and back in to the pump for distribution to the internal lubrication circuits. With 1997 - 2003 cases, this passage was not drilled and would prevent lube oil for the overdrive section from exhausting back to the sump even though the corresponding front lube passage in the re-designed oil pump remained open.*

To modify the oil pump for use with the 2004 casing you must first acquire ***part # 24232339*** from your local GM dealer. This service package will include an aluminum plug, pump gasket and o-ring, and a turbine shaft o-ring as a kit.
Using figure 6 as a guide, remove the existing cup plug in the oil pump cover front lube passage by driving it out with a hammer and a punch, taking care not to damage the pump cover.
Insert the aluminum plug into the front lube hole. Seat the plug flush or no more than 1/16th of an inch below the pump cover outer diameter.
With a small chisel point tool, stake the plug in a cross pattern using figure 7 as a guide.
Make sure that the plug does not protrude outside of the pump cover or move under light pressure.

4L80-E

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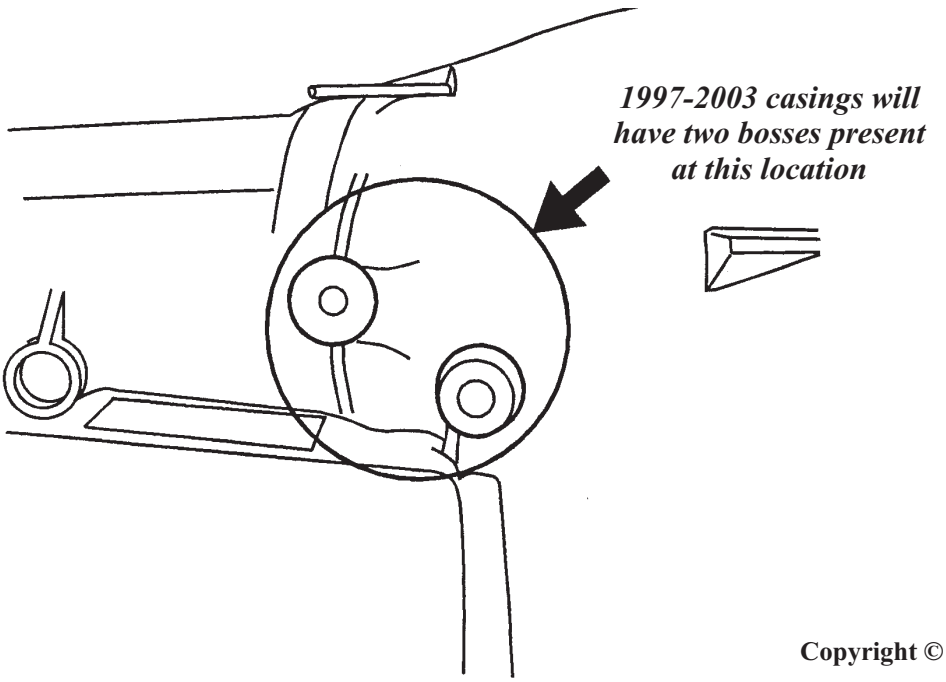

Figure 1

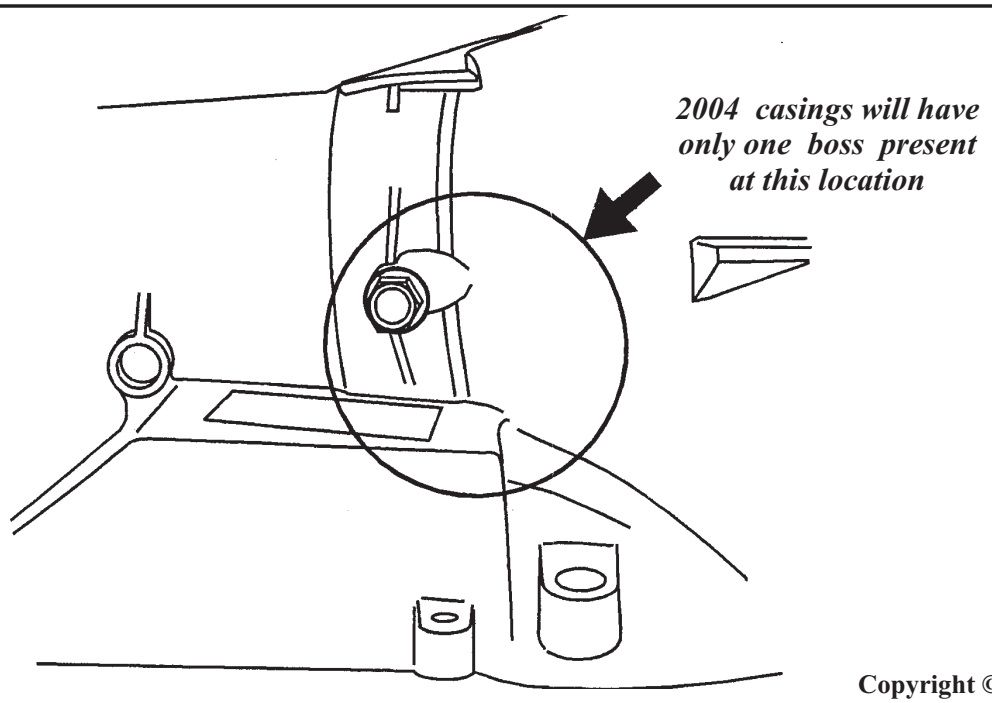

Figure 2

4L80-E

OVERDRIVE GEAR SET FAILURE

2004 CASE
PUMP ATTACHING SURFACE

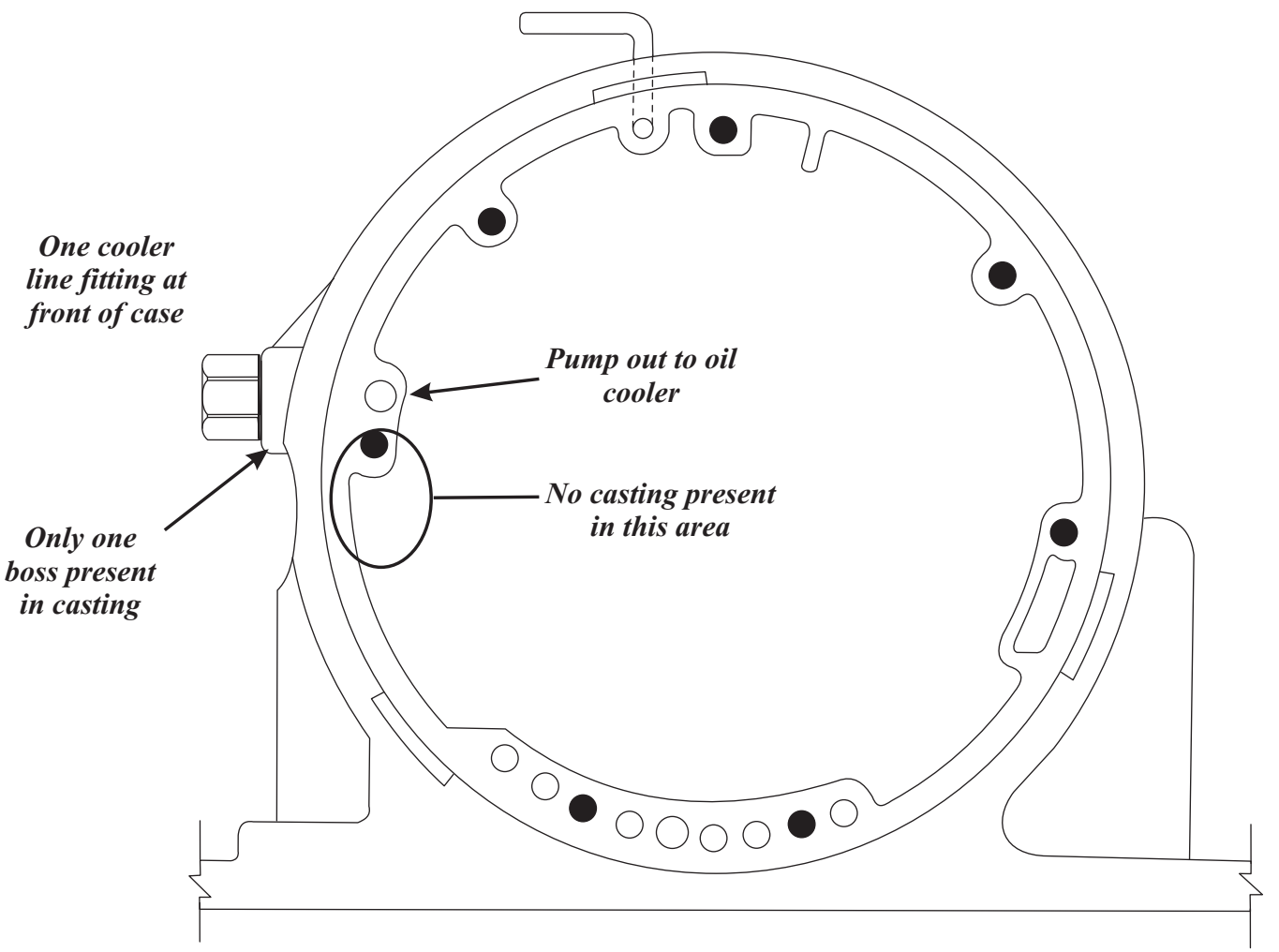

Figure 3

4L80-E

OVERDRIVE GEAR SET FAILURE

1997 - 2003 CASE
PUMP ATTACHING SURFACE

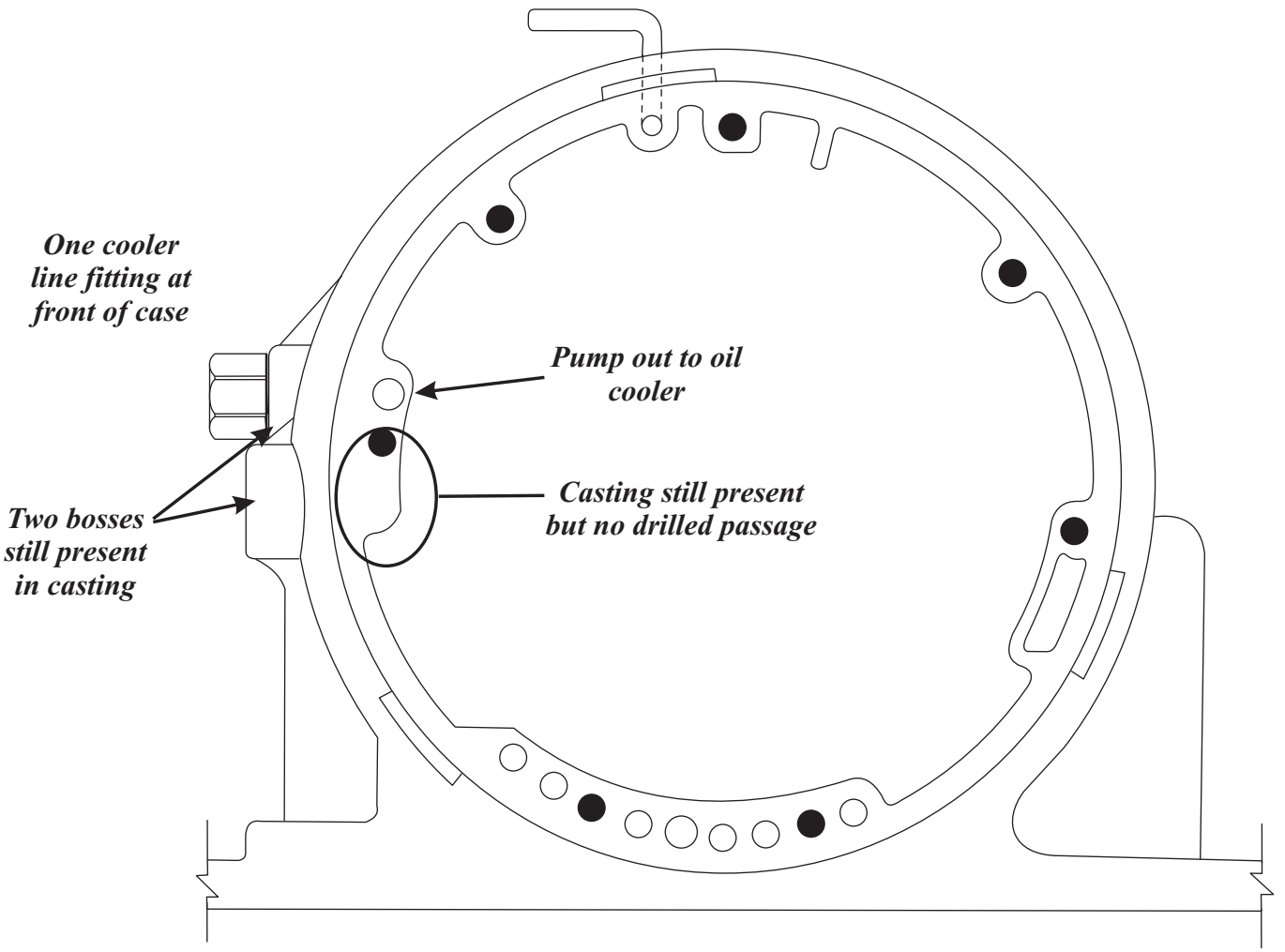

Figure 4

4L80-E

OVERDRIVE GEAR SET FAILURE

1991 - 1996 CASE
PUMP ATTACHING SURFACE

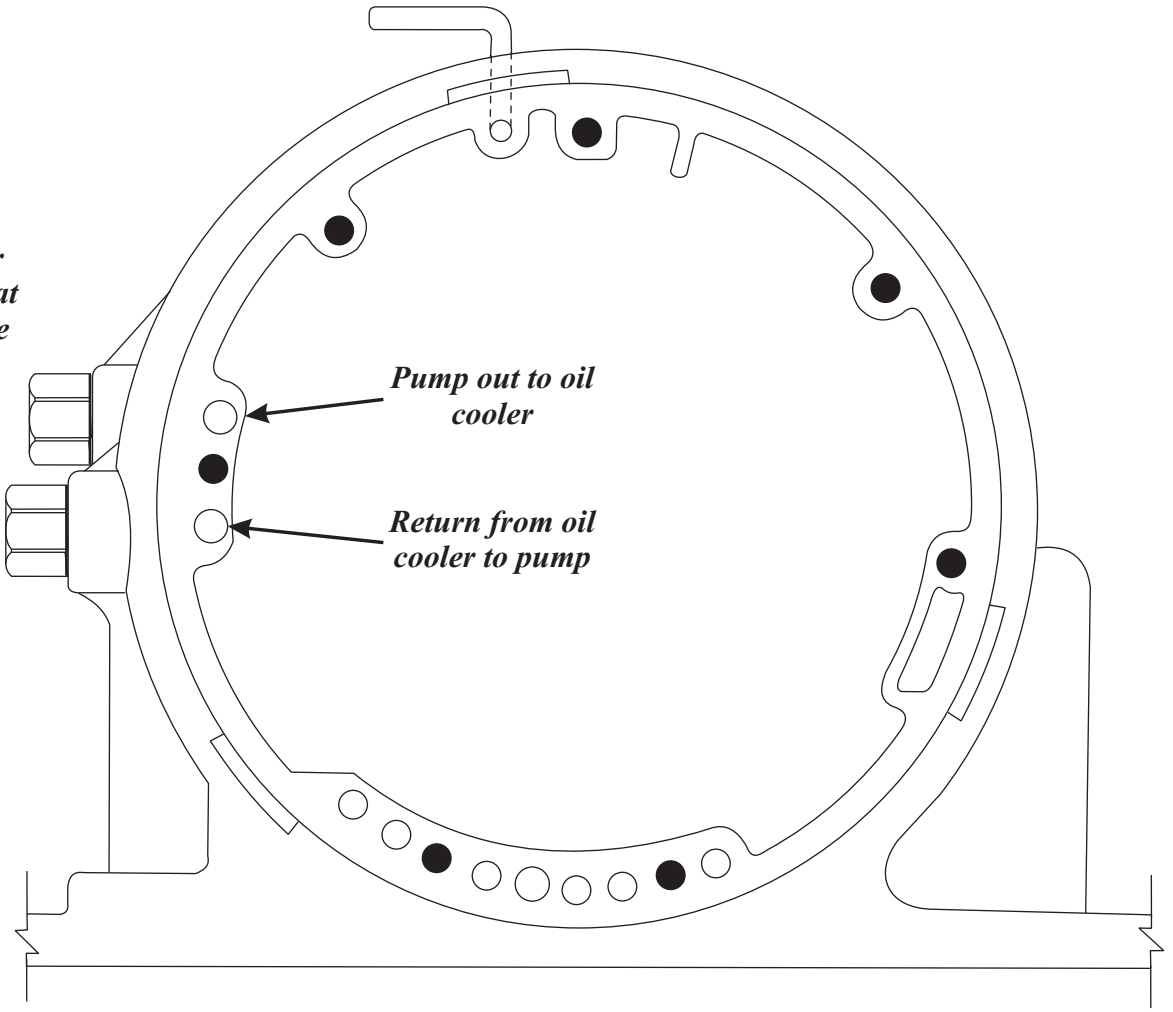

Figure 5

4L80-E

OVERDRIVE GEAR SET FAILURE

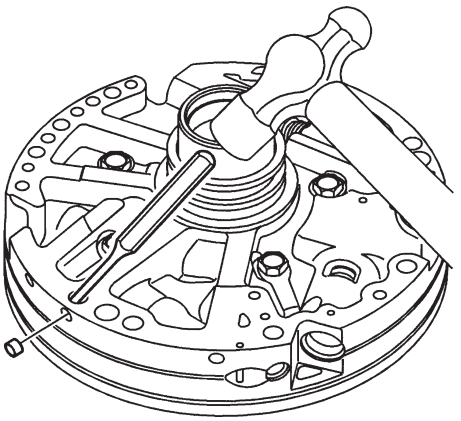

Figure 6

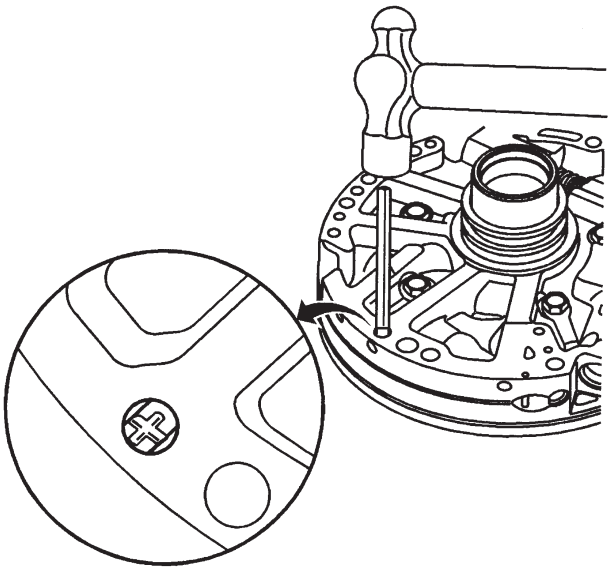

Figure 7