

4L80E - 97 and Later Models Lube Failure Prevention-Parts Change Reference

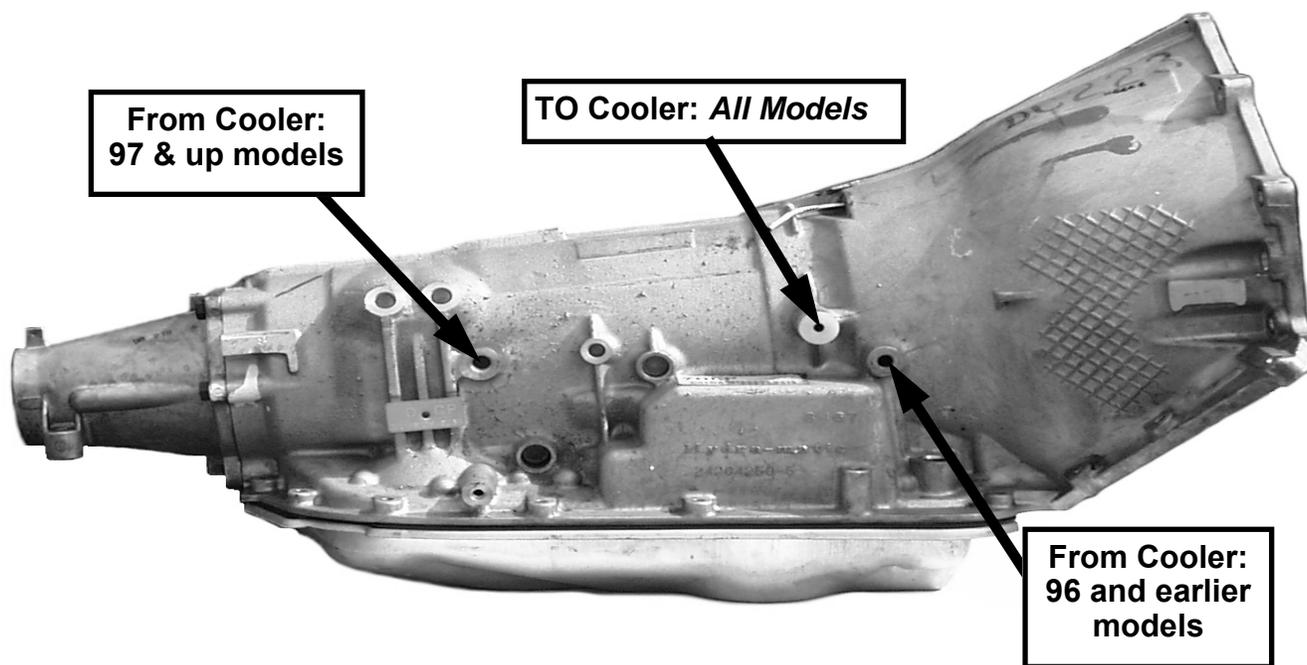
Case Changes

There are many minor looking lube system changes in 97up units. Many of them are **easy to overlook** and swapping 1st and 2nd design parts can cause **MAJOR** and **IMMEDIATE** gear train failure. It is our pleasure to share with you some observations and experience that will help you identify the parts and prevent lube type failure complaints.

The 1997 and later 4L80E's have a new lube system that feeds cooler return oil to the center of the case instead of to the front fitting like the earlier models. Many interchange problems can occur by swapping parts between 1st and 2nd design.

Following pages show how to ID the parts along with some interchange and failure prevention data.

SWAPPING PARTS BETWEEN 1st AND 2nd design UNITS CAN CAUSE TOTAL PLANET FAILURE. Wrong parts can also cause accidental lockup apply – kills engine. *Keep this data handy to ID parts during overhaul.*



2nd design, 97up, have a cooler line fitting that screws into the case at the center support location. This fitting must be removed before the trans can be disassembled. There are a few other changes to the case as well; like the passages connecting the pump, VB and (old) cooler line are not drilled. Also the rear lube pipe case hole is too small for an early type lube pipe.

1st and 2nd type cases are not interchangeable.

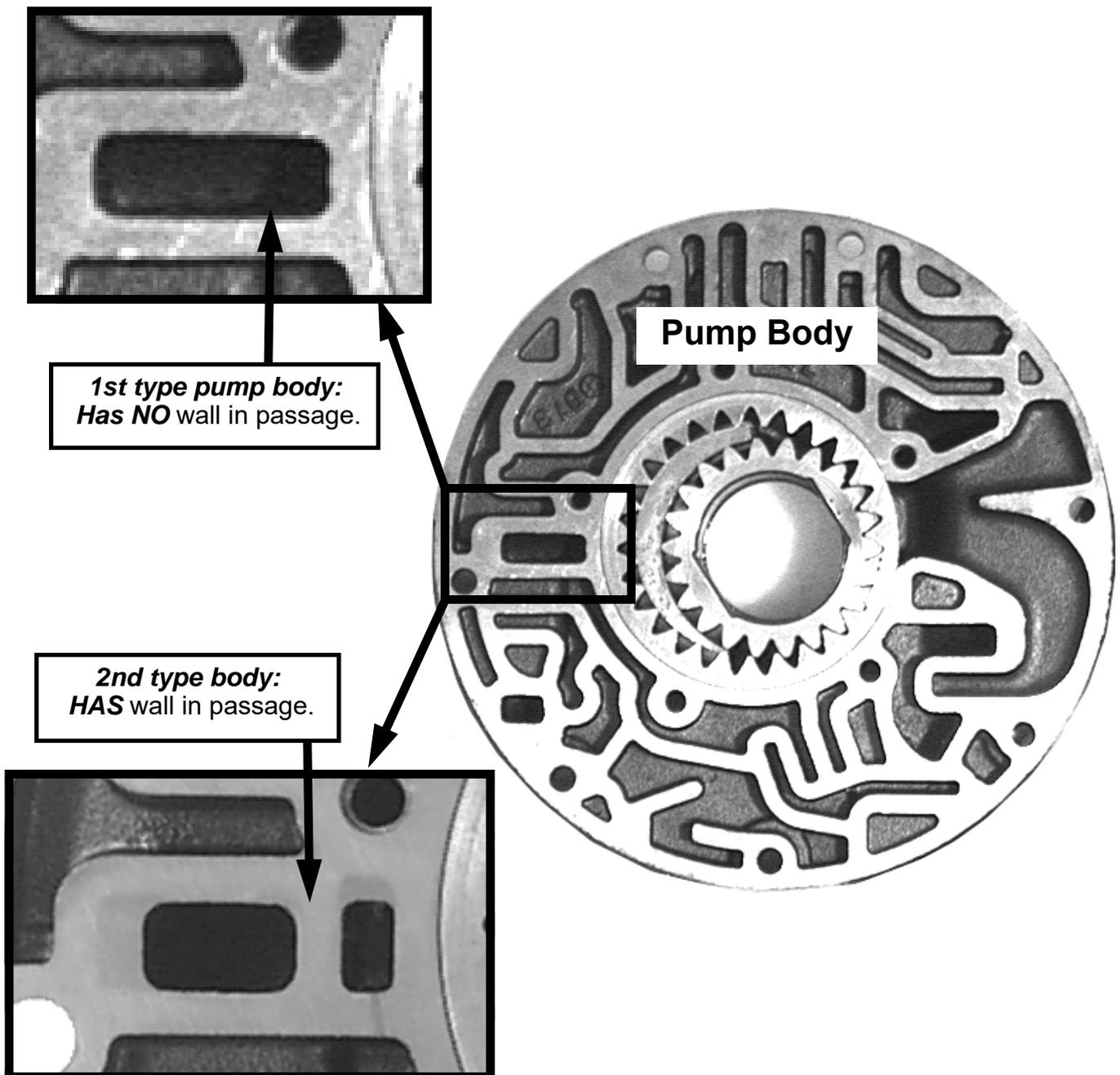
4L80E - 97 and Later Models **Pump Body**

The 1st and 2nd design pump bodies are different:

1st Design 91-96: Lube comes from cooler to bottom fitting at front of case. It lubes the front unit and is then routed through a long tube to the rear for planet and rear case lube.

2nd Design 97up: The converter feed circuit lubes the OD planet and roller clutch. The entire rest of trans including all other planets, receives lube through the center support.

2nd design pump body will replace first design pump in all applications.
2nd design trans **MUST HAVE** 2nd design pump body.



4L80E - 97 and Later Models **Pump Cover**

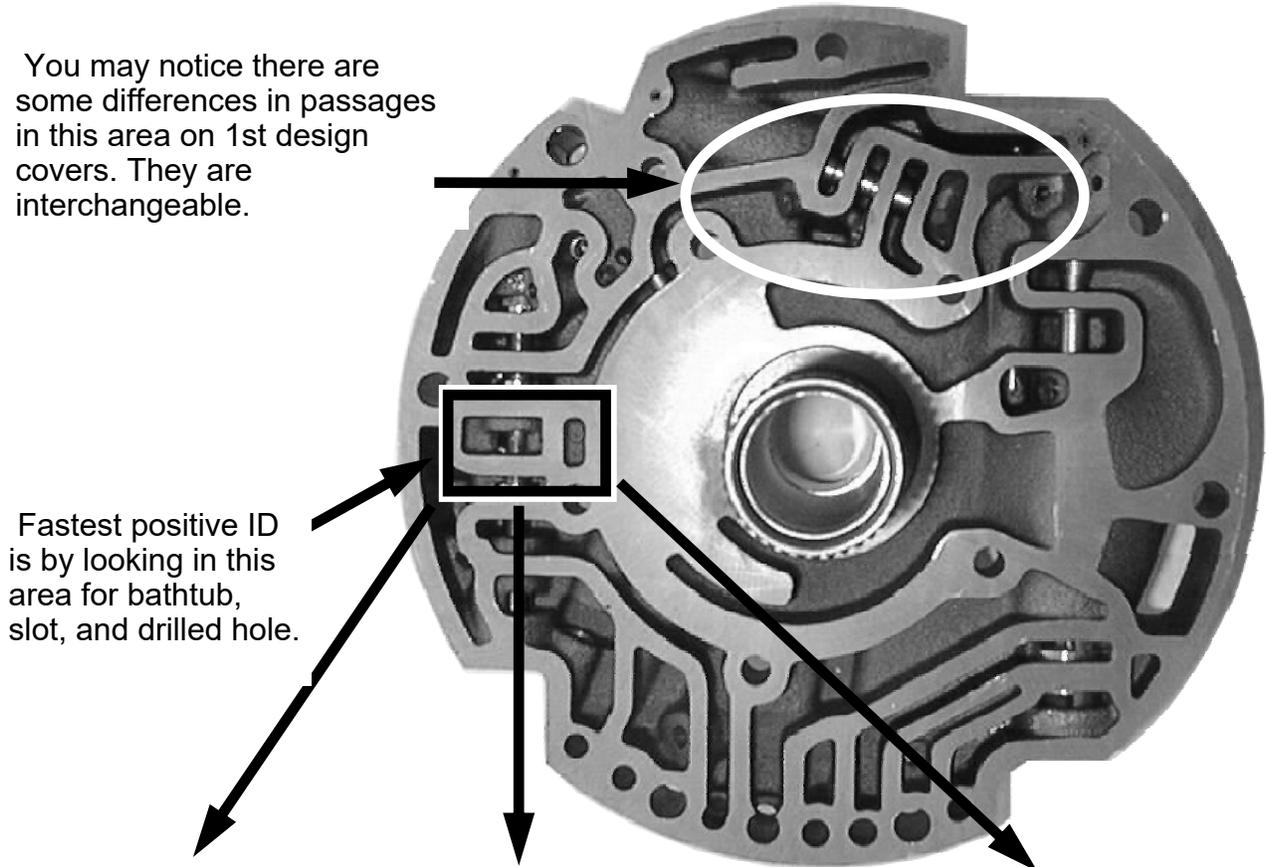
1st and 2nd type covers [Stator supports] are different.

1st design pump must have 1st design cover OR 1st design replacement cover with either 1st or 2nd pump body [page 14].

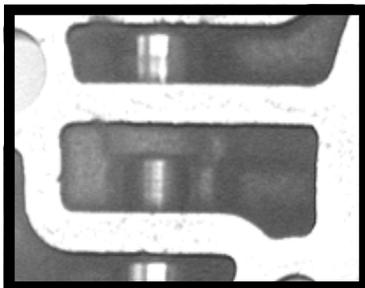
2nd design pump assemblies must have 2nd design pump body AND 2nd design cover.

CAREFUL: Some new covers **LOOK** like the 2nd type but are **ACTUALLY** the 1st type. **Compare parts to pictures.**

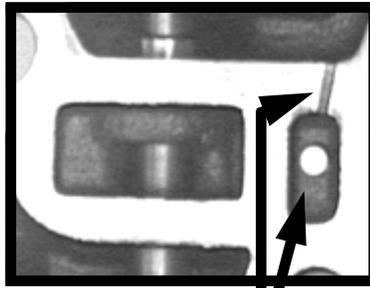
You may notice there are some differences in passages in this area on 1st design covers. They are interchangeable.



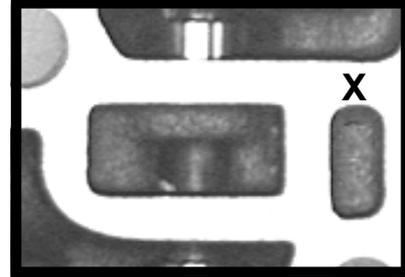
Fastest positive ID is by looking in this area for bathtub, slot, and drilled hole.



1st Design:
Has **NO** bathtub, slot, or drilled hole.
Fits 1st Design pump.



2nd Design:
HAS bathtub, slot, and drilled hole in bathtub.
Fits 2nd Design pump.



1st Design Replacement Part:
HAS bathtub, but **NO** slot or drilled hole in bathtub.

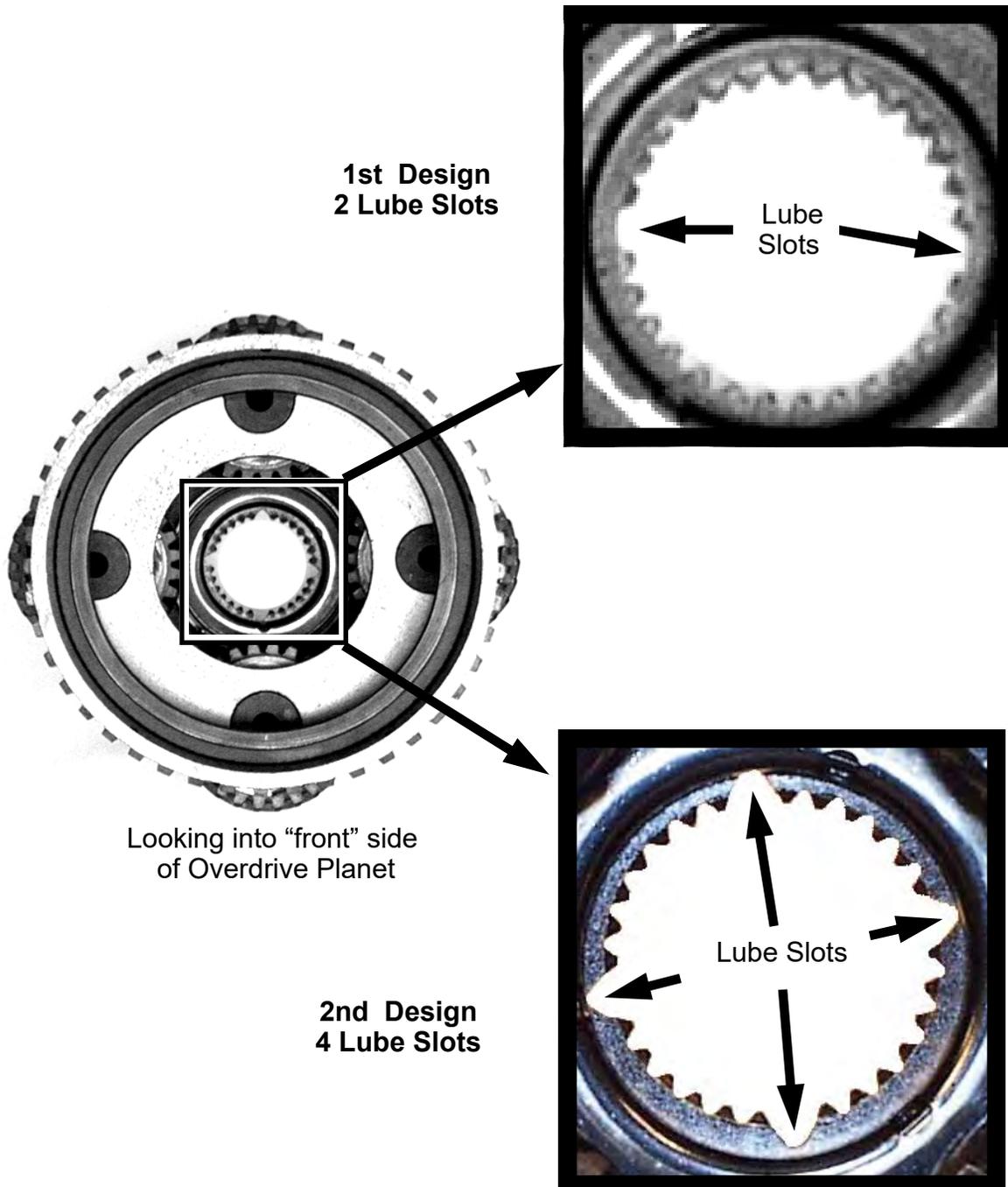
Fits 1st Design pump.
Can be converted to 2nd Design by carefully drilling .156 hole thru bottom of bathtub to intersect passage below. **DO NOT** drill all the way thru cover. **ALSO** cross-drill .055" hole thru wall at "X".

4L80E - 97 and Later Models **OD Planet**

The overdrive planet was changed in the internal spline area. The amount of lube slots was increased from 2 slots to 4 slots.

The 2nd design units should use the 4 lube slot type overdrive planet for lube flow to rear side of OD planet.

The 1st design (91-96 models) can use EITHER the 2 slot or 4 slot type overdrive planet.

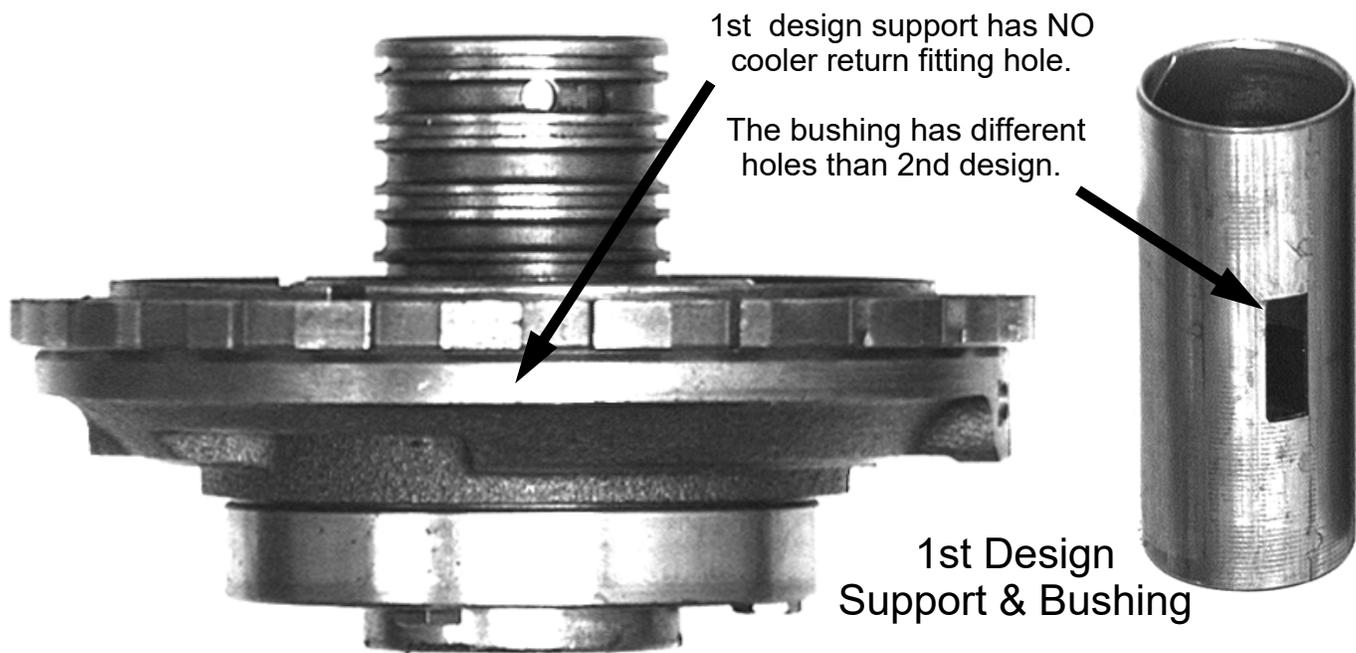
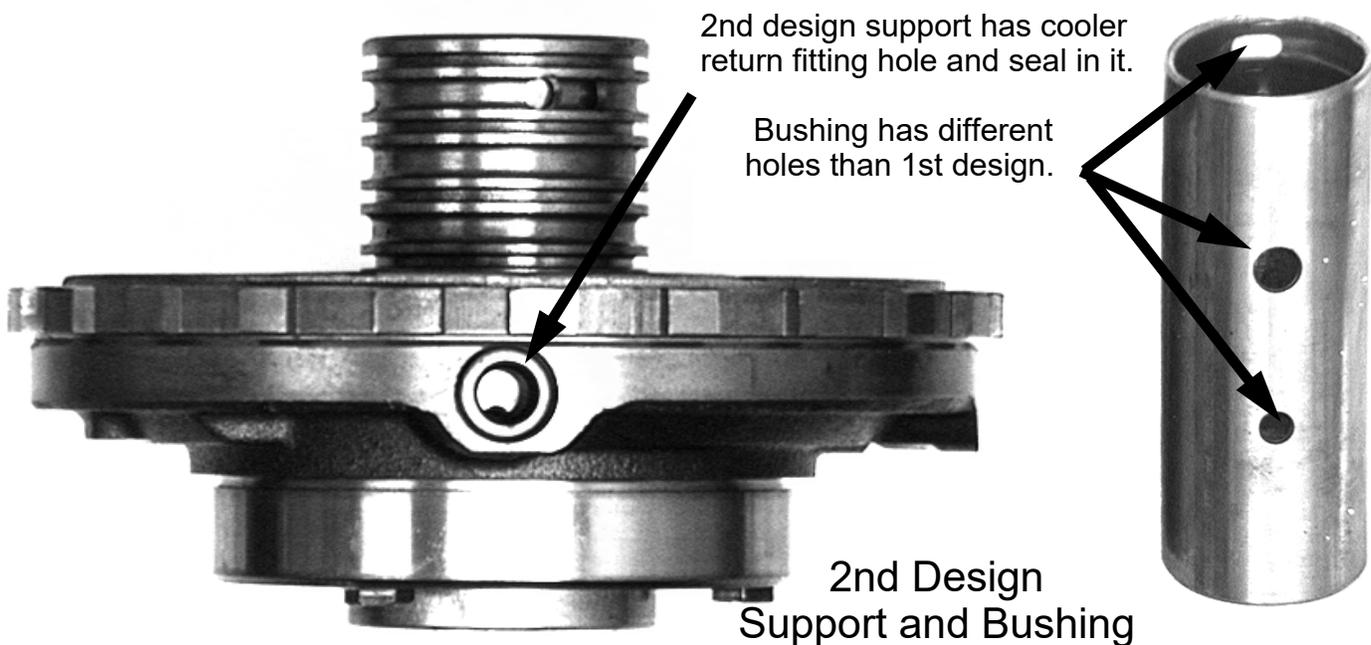


4L80E - 97 and Later Models **Center Support**

1st and 2nd design supports and bushings are not interchangeable.

2nd design has a round hole on the OD to accept cooler line fitting. A small metal clad seal installs in the hole to seal the support and cooler fitting joint. The 2nd design center support bushing has different hole locations than 1st design. Bushings do not interchange either.

NOTE: See next page for additional data on 1999 type shaft/support/bearing shim.

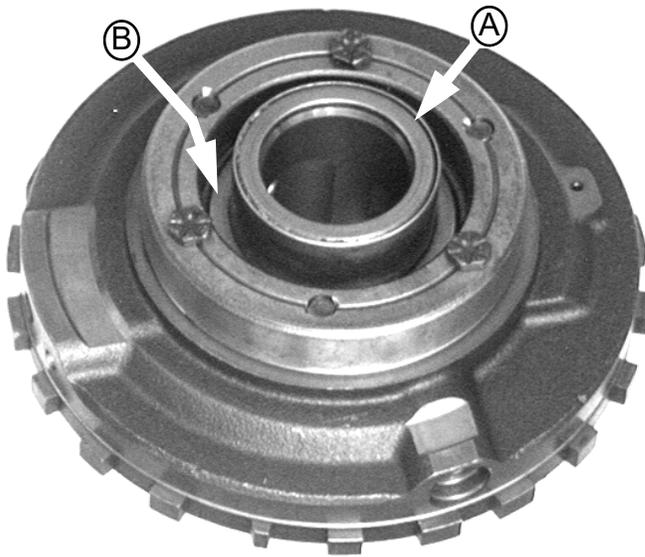


4L80E - 97 and Later Models

Center Support/Shim/Sun Shaft (99up Models)

The **99up model** 4L80E's have a different center support, planetary carriers, sun shaft, and also use a new shim under the rear bearing. The new planets have slight longer gear teeth (.075") than previous design, and the changes described on this page were required to "re-center" the geartrain. Mismatched parts can cause too tight or too loose geartrain endplay. The details of these parts differences are listed below.

2nd design shaft and support (used as a set) have been used to replace 3rd design by leaving out shim during assembly.

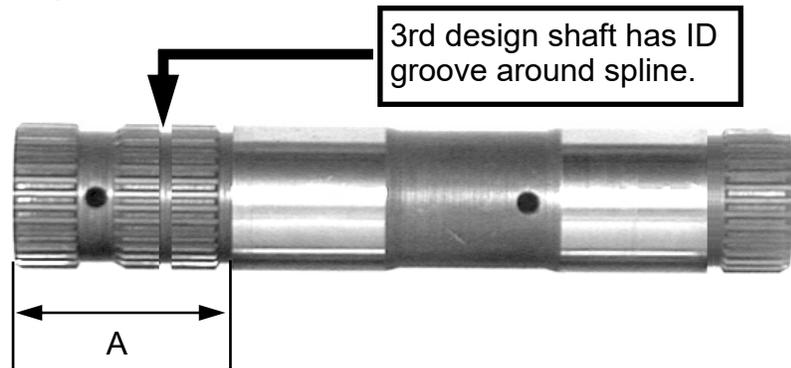


Center Support

The **BEARING** seat surface (A) is cut approximately .041" deeper (closer to the **WASHER** surface) (B) than 2nd design.

Washer surface to bearing surface measurements:

.950" 2nd Design (97/98 Type)
.900" 3rd Design (99 Type)



Sun Shaft

The long splines on the 3rd design shaft are approximately .040" longer than 2nd design.

ID Method: Measure the length of the LONG SPLINE end of shaft (Dimension "A").

A = 1.955" – 2nd Design (97/98 Type)

A = 1.995" - 3rd Design (99 Type)



Shim

A .040" thick shim is located between the rear internal ring gear and rear bearing race. Shim must have internal notches for lube flow.

4L80E - 97 and Later Models **Sun Shaft/Sun Gear**

1st design shaft has a hole in the side and a passage drilled all the way through the shaft to allow lube to flow throughout planet.

2nd design shaft has **NO** hole in the side and **NO** drilled passage (solid). Lube flows on outside of shaft to planets.

Installing 2nd design shaft into 1st design will restrict lube to planets.

Installing 1st design shaft into 2nd design will channel lube forward and reduce lube to planets.

1st design shafts have holes thru middle and out the side.



Sun Gear ID

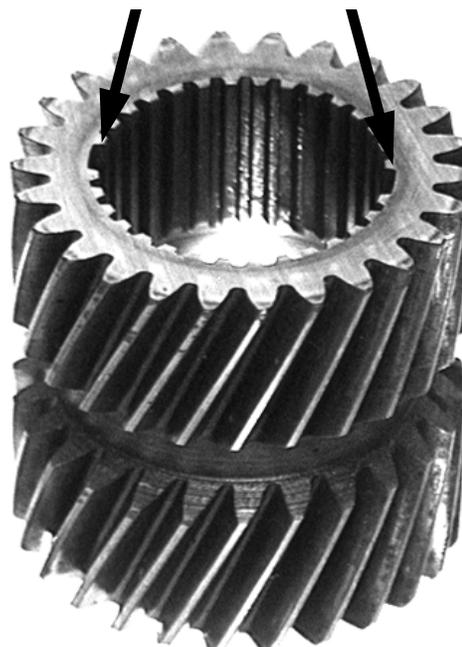
The **2nd design** sun gear has **4 deep notches** (and small hole between gears) for lube to flow from the sun shaft, into the sun gear, and on to the planets.

The **1st design** sun gear has **2 small/shallow notches** and a large hole between gears for lube to flow to planets.

2nd design gear has 4 deep lube notches.



1st design gear has 2 shallow lube notches.



4L80E - 97 and Later Models **Ring Gear/Bearing Race**

2nd design rear bearing race that installs on the front side of the rear ring gear has 3 cutouts on the inside diameter.

Lube can then flow through the cutouts, the slots in the ring gear splines, and to the front bushing/bearing of the output shaft.

1st design does not have cutouts. Installing a bearing race without the cutouts into a 2nd design unit will seal off lube from reaching the front output shaft bearing and bushing.

NOTE: See page 6 of this bulletin for data on 99 type shaft/support/bearing shim.

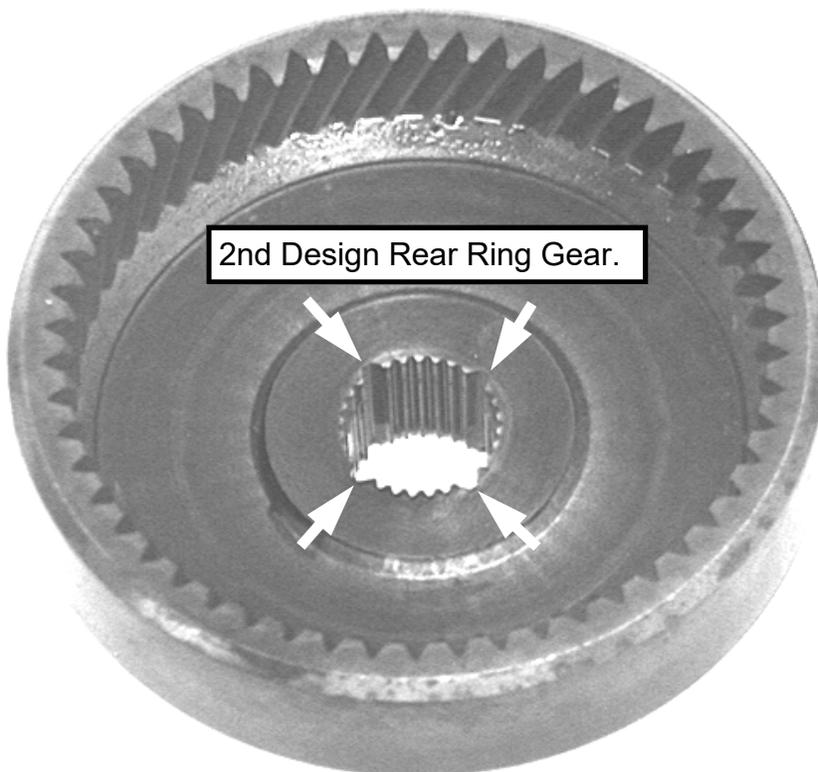


2nd Design Rear Bearing Race.

The **2nd design** rear ring gear has 4 extra wide & deep splines (slots), as shown, so lube can flow to bushing and bearing behind ring gear.

Installing **1st design** ring gear in **2nd design** unit will cut off lube to the bearings/bushings and create failure.

1st design ring gear does not have lube slots.



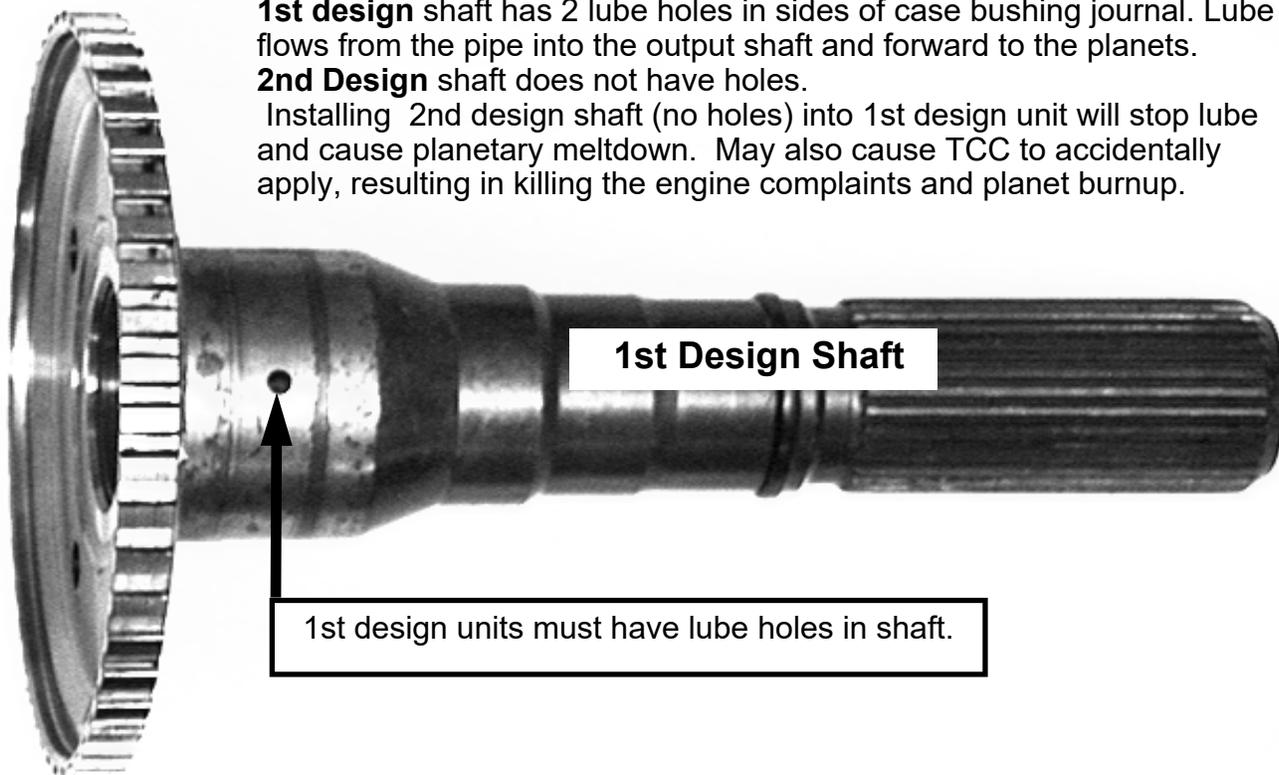
2nd Design Rear Ring Gear.

4L80E - 97 and Later Models **Output Shaft**

1st design shaft has 2 lube holes in sides of case bushing journal. Lube flows from the pipe into the output shaft and forward to the planets.

2nd Design shaft does not have holes.

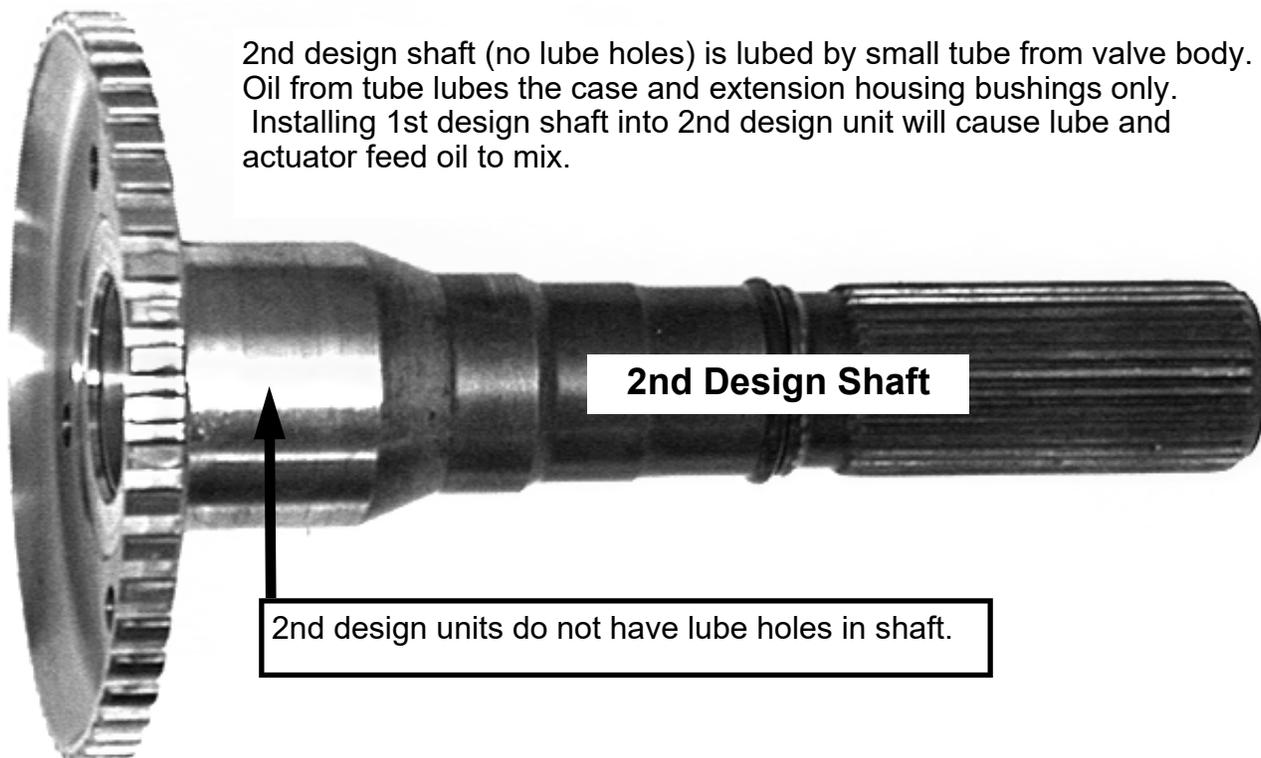
Installing 2nd design shaft (no holes) into 1st design unit will stop lube and cause planetary meltdown. May also cause TCC to accidentally apply, resulting in killing the engine complaints and planet burnup.



1st and 2nd design shafts do not interchange.

2nd design shaft (no lube holes) is lubed by small tube from valve body. Oil from tube lubes the case and extension housing bushings only.

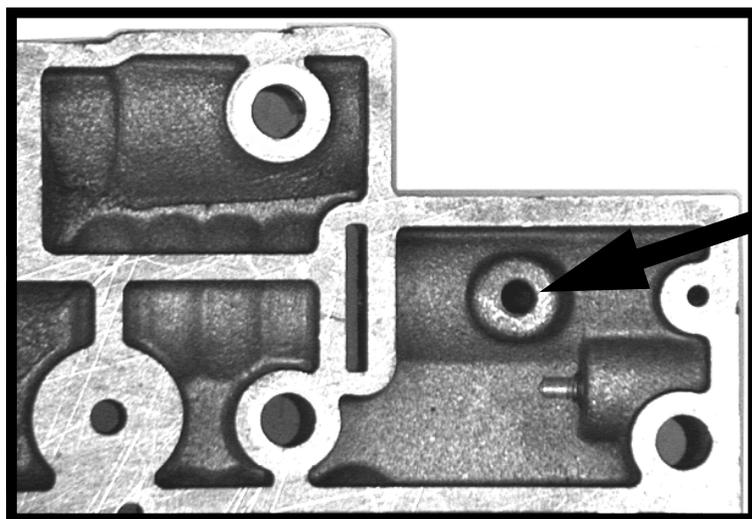
Installing 1st design shaft into 2nd design unit will cause lube and actuator feed oil to mix.



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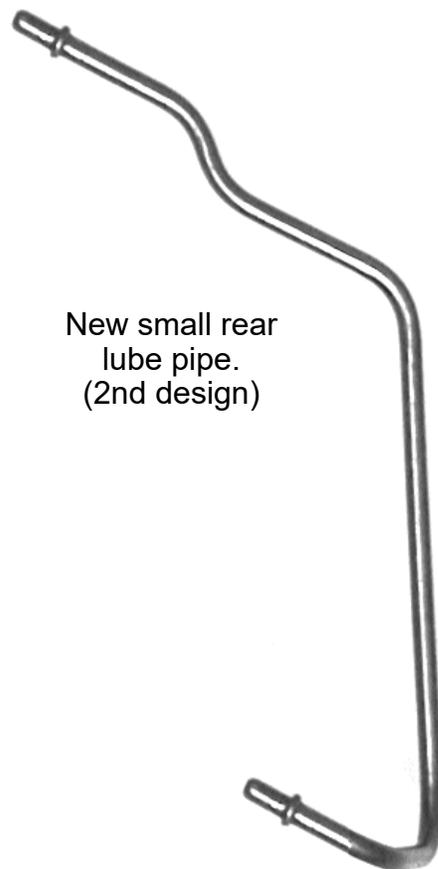
Valve Body

1st design has large lube tube from front of VB to rear of case to supply lube. Valve body has large drilled hole in front corner for lube tube. Lube tube on these models supplies all planetary lube. 2nd design does NOT have large tube, or hole in front corner of valve body. There is a new smaller lube tube hole in the rear area of the VB casting for the new smaller tube. This tube delivers orificed actuator feed oil to lube only the rear case bushing and extension housing bushings. 1st and 2nd design valve bodies are not interchangeable.

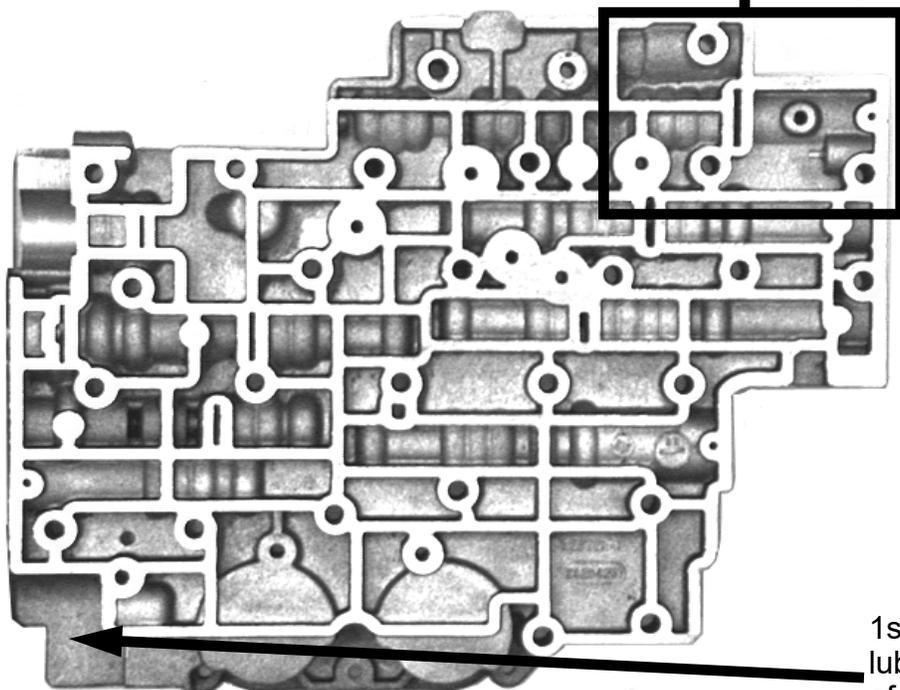


2nd design VB has small rear lube tube hole here. Front corner of VB is notched out where old lube pipe fit. 1st design does not have this hole.

See Spacer Plate next page.



New small rear lube pipe. (2nd design)

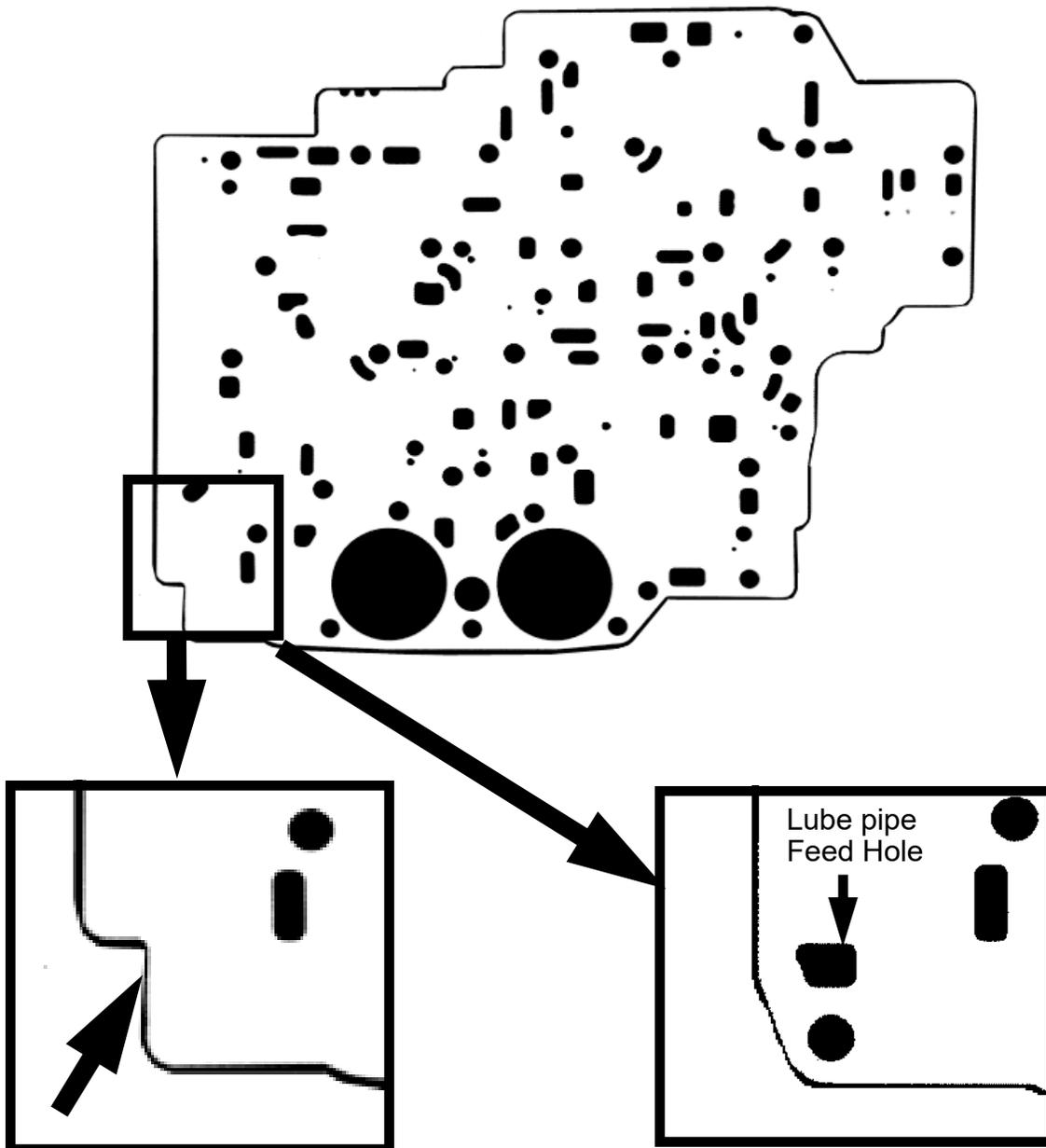


1st design valve body has lube tube hole here instead of this notched corner.

4L80E - 97 and Later Models **Spacer Plate**

1st design 91-96: Has lube hole and NO notch. Installing a 2nd design plate (notched corner) on an 1st design VB/unit dumps lube oil to the pan.

2nd design 97up: Spacer plate has a notch in the corner and no lube feed hole.



2nd design plate has "Notched" corner - No lube tube feed hole.

1st design plate has "square" corner with lube tube feed hole.