A4LD UPDATE HANDBOOK

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Updated
April, 2004

INTRODUCTION

FORD A4LD
"UPDATE HANDBOOK"

Since the start of production in 1985, the FORD A4LD transmission has recieved many major engineering design changes. These design level changes have affected nearly every part used in the A4LD transmission.

This ***"Update Handbook"*** will explain the purpose of each change, the parts that are affected by the change, and any parts interchangeability problems created by the change.

The information and part numbers contained in this booklet have been carefully compiled from industry sources known for their reliability, but ATSG does not guarantee its accuracy.

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A4LD BELL HOUSING IDENTIFICATION

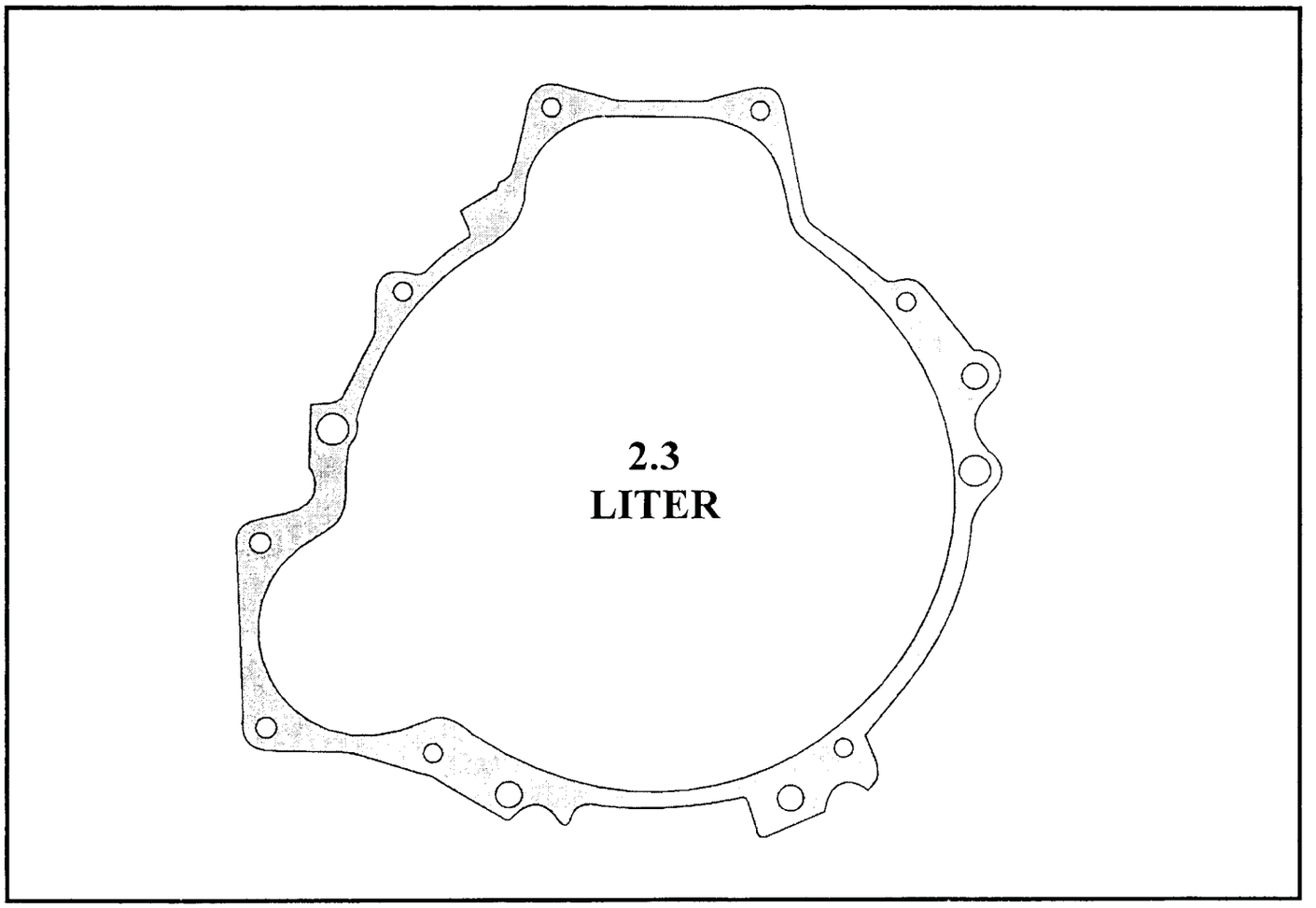


Figure 1

1 SOLENOID	2 SOLENOIDS	MODEL
1985 - 1987	1988 - UP	MUSTANG
1985 - 1987	1988 - UP	2WD RANGER
1986 - 1987	N/A	AEROSTAR
1987 ONLY	1988 - 1989	THUNDERBIRD

A4LD BELL HOUSING IDENTIFICATION

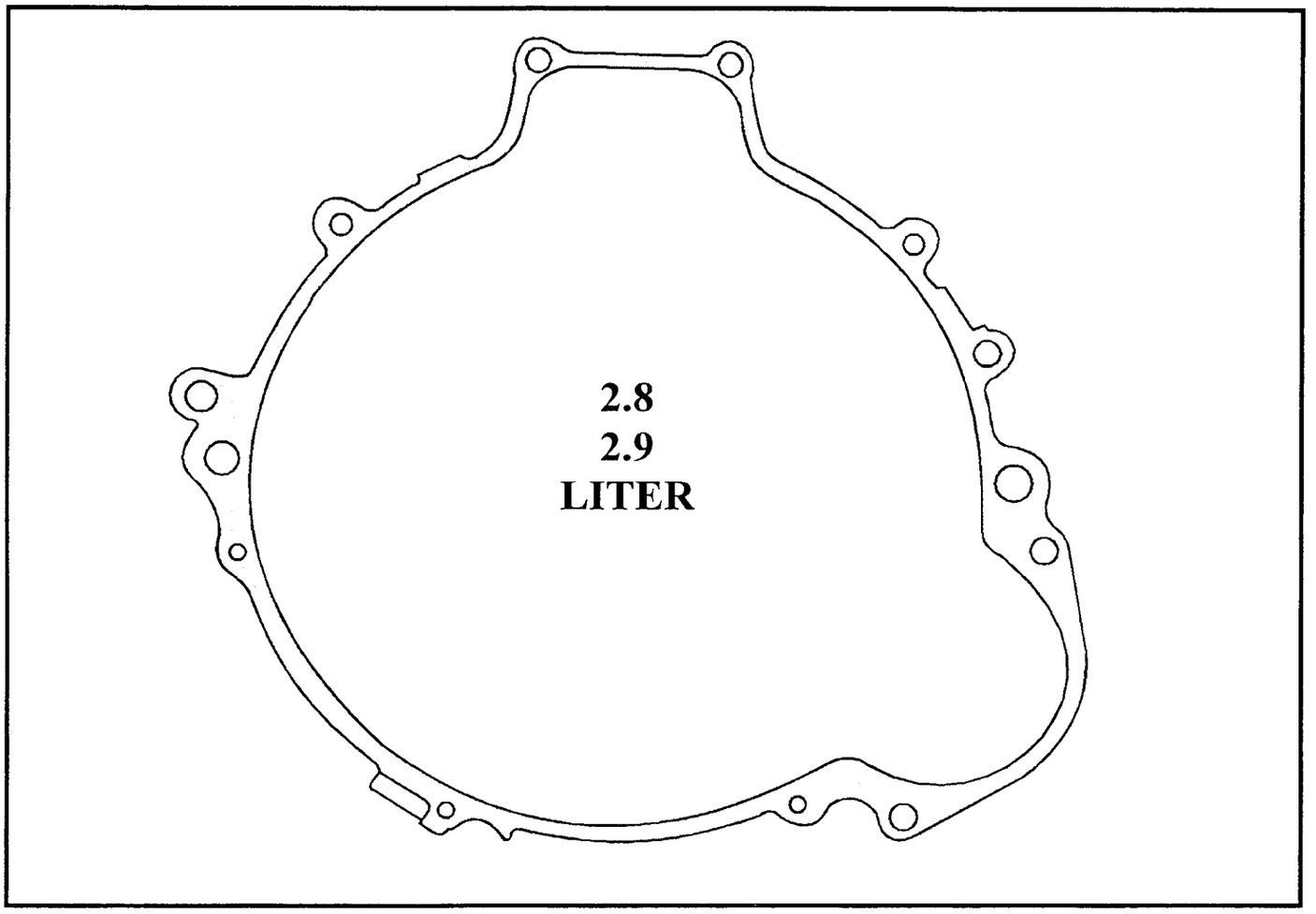


Figure 2

2.8 LITER

1 SOLENOID	2 SOLENOIDS	MODEL
1985 - 1987	N/A	2WD / 4WD RANGER
1985 - 1987	N/A	BRONCO II
1985 - 1987	N/A	AEROSTAR

2.9 LITER

1 SOLENOID	2 SOLENOIDS	MODEL
N/A	1988 - UP	2WD / 4WD RANGER
N/A	1988 - 1990	2WD / 4WD BRONCO II
1987 ONLY	1988 - 1990	MERKUR SCORPIO

A4LD BELL HOUSING IDENTIFICATION

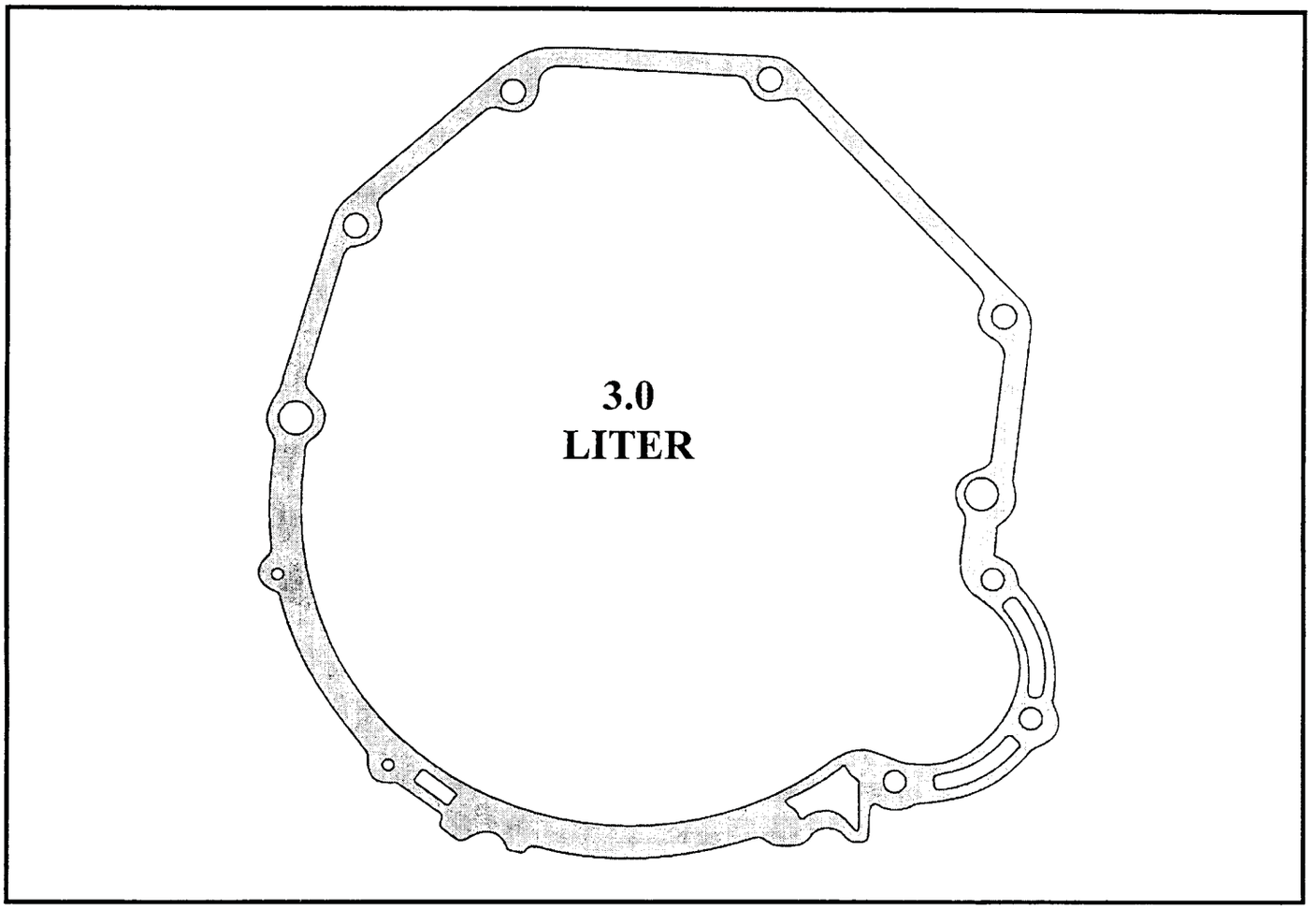


Figure 3

1 SOLENOID	2 SOLENOIDS	MODEL
1987 ONLY	1988 - UP	AEROSTAR
N/A	1991 - UP	2WD RANGER

A4LD BELL HOUSING IDENTIFICATION

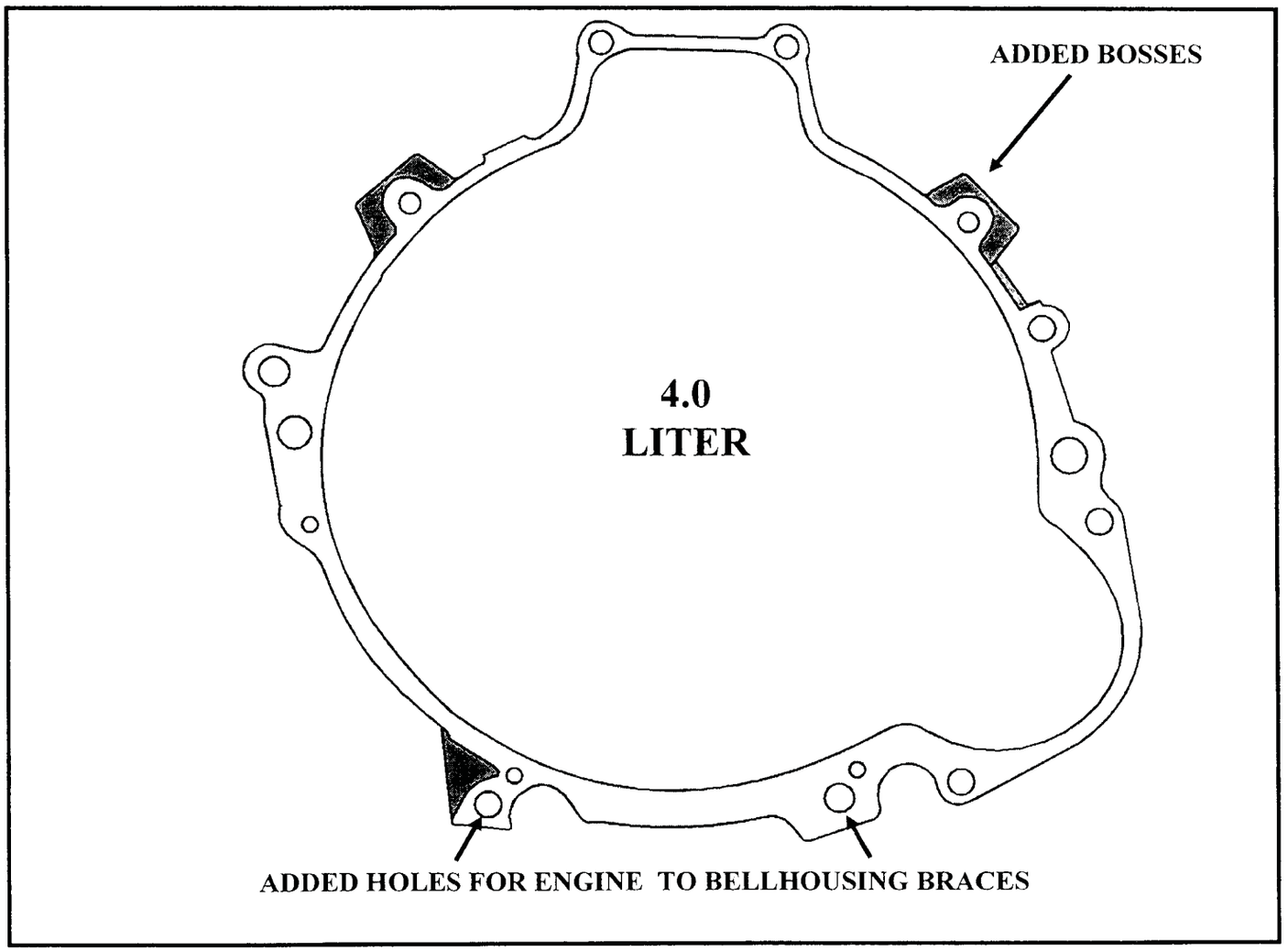


Figure 4

2 SOLENOIDS	MODEL
1990 - UP	AEROSTAR
1990 - UP	2WD / 4WD RANGER
1990 - UP	2WD / 4WD EXPLORER

BELL HOUSING CHANGES

CHANGE #1: A .105" machined lip was added at the front seal bore to allow the front seal to be staked into place.

REASON: To help prevent front seal blowout.

PARTS AFFECTED:

BELL HOUSING - A machined lip was added at the front seal bore to allow the front seal to be staked in place (Refer to Figures 5 & 6).

INTERCHANGEABILITY:

As long as the engine bolt pattern is the same (See Figures 1 thru 4), bell housings will interchange. However, using an early style bell housing without the lip is not recomended.

NOTE: Also see changes #2 and #3, On pages 8 & 9.

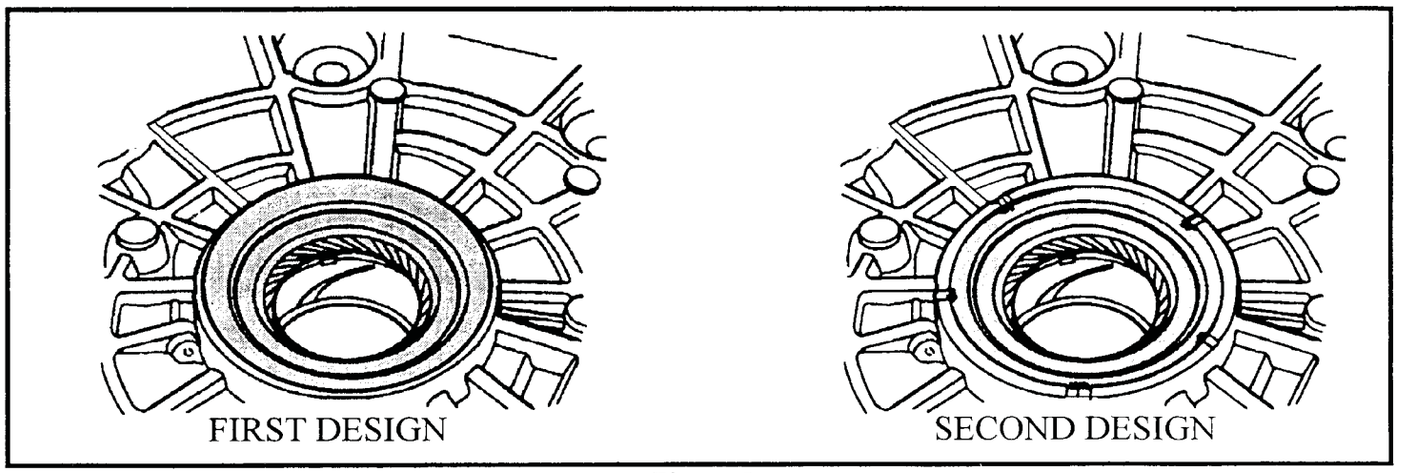


Figure 5

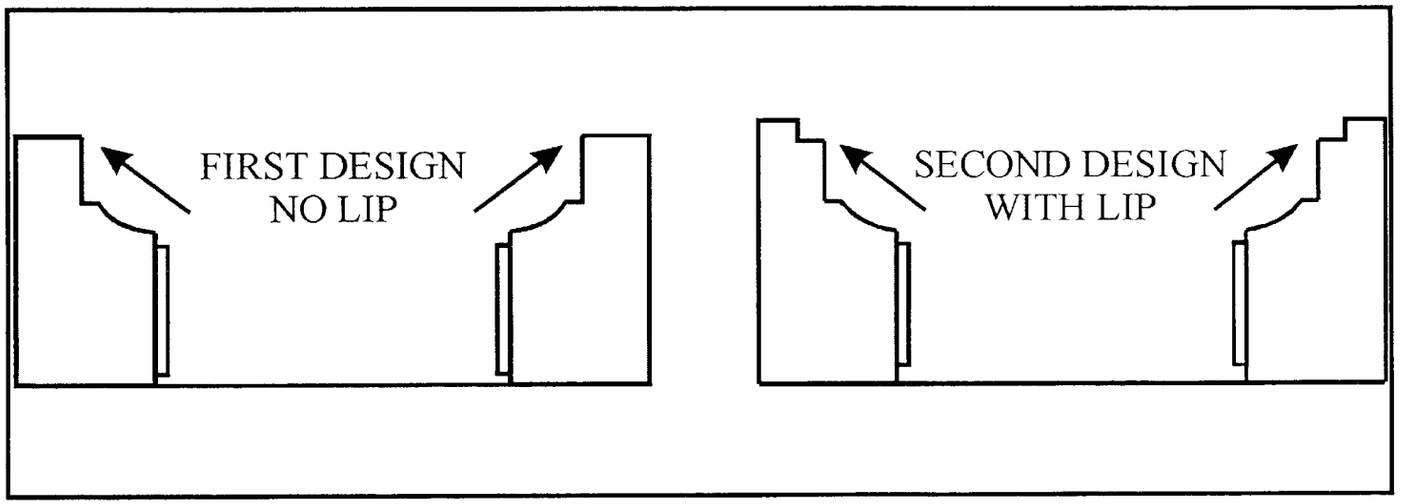


Figure 6

BELL HOUSING CHANGES

CHANGE #2: Enlarged area in the converter drain back passage.

REASON: To help prevent front seal blow out.

PARTS AFFECTED:

BELL HOUSING - Converter drain back passage area was enlarged for better flow to the drain back hole in the pump body (Refer to Figure 7). It is not necessary to replace the bell housing to cure this problem. Using a rotary file, or die grinder, remove material to allow "full flow" to the drain back hole (Refer to Figure 7). Also enlarge the existing drain back hole in both the bell housing and the pump body to 1/4" (Refer to Figure 8).

INTERCHANGEABILITY:

As long as the engine bolt pattern is the same (See Figures 1 thru 4), all late model bell housings will retrofit to early models. Early model bell housings will interchange but the drain back modifications must be made.

NOTE: Also see changes #1 and #3, On pages 7 & 9.

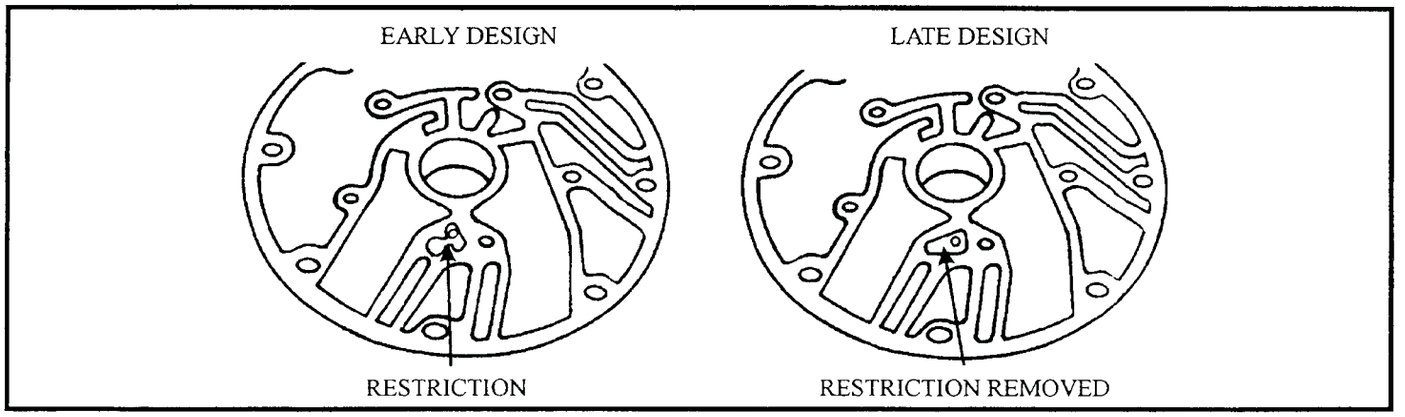


Figure 7

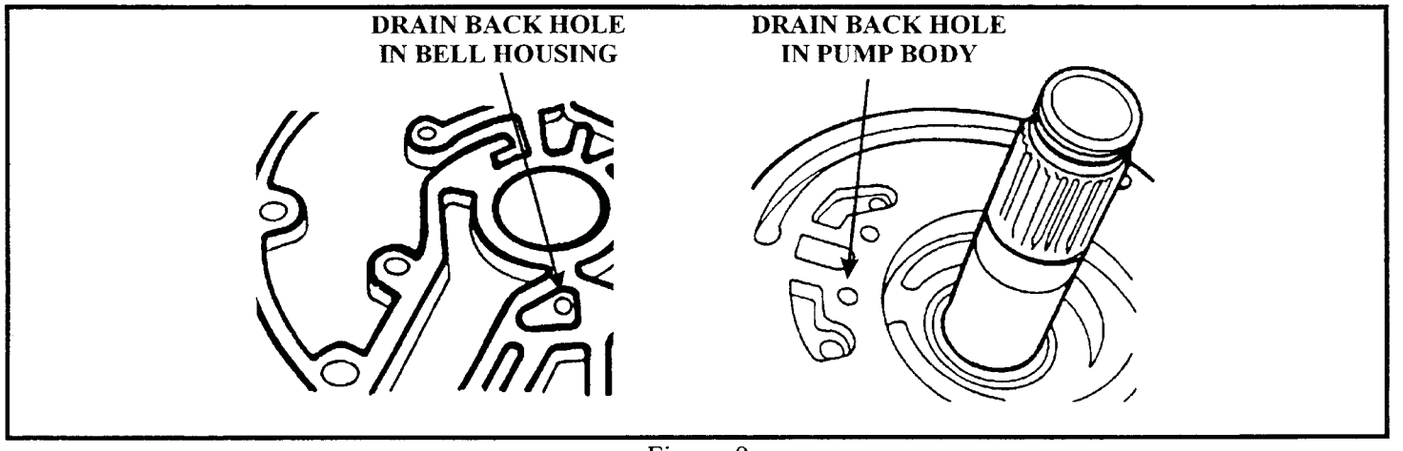


Figure 8

BELL HOUSING CHANGES

CHANGE #3: Pump bolt diameter and bolt head configuration.

REASON: Improved structural stability.

PARTS AFFECTED:

(1) PUMP BOLTS - Were enlarged from 6mm to 8mm and the bolt heads were changed from hex heads to allen heads and/or torx heads.
(2) BELL HOUSING - Thread size was enlarged to accommodate the larger (8mm) bolts.
(3) PUMP BODY - Bolt hole size was enlarged from 6mm to 8mm to accommodate the larger bolts.
(4) WEAR PLATE - Bolt hole size was enlarged to accommodate the larger (8mm) bolts.

INTERCHANGEABILITY:

Bell housings, plates, and pumps are interchangeable as a matched set. A C-3 pump plate can be used in an A4LD pump if the 3 holes shown in Figure 9 are drilled. An A4LD pump plate must be used to locate the holes.

NOTE: Also see changes #1 and #2 On pages 7 & 8.

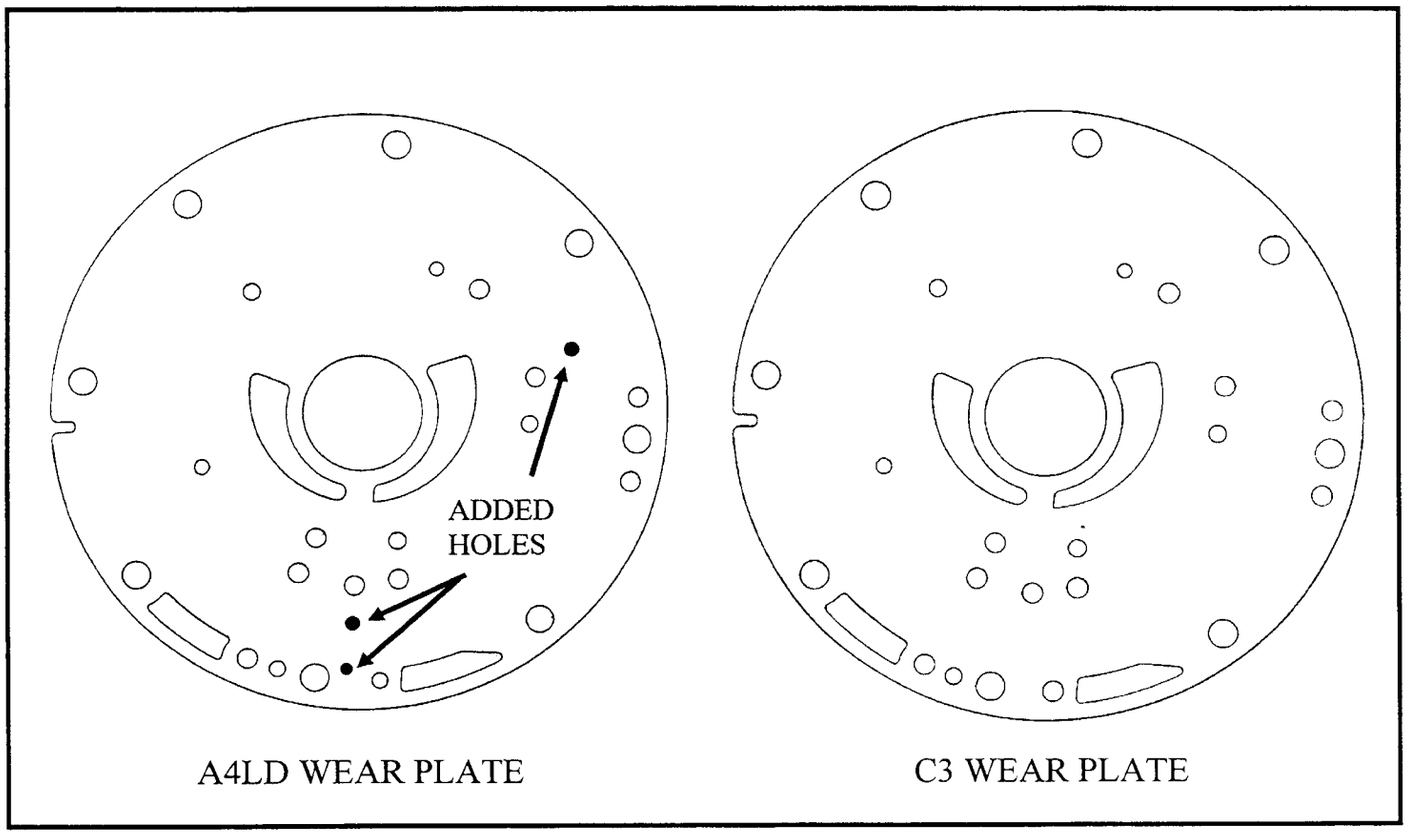


Figure 9

BELL HOUSING / PUMP ALIGNMENT

When assembling the pump body to the bell housing, a pump alignment tool must be used (Refer to Figure 10). Using the torque converter, will not produce proper pump alignment. If an alignment tool is not used, several problems may occur, such as:

(1) PUMP GEARS BREAKING
(2) PUMP WHINE
(3) IRREGULAR BUSHING WEAR
(4) IRREGULAR CONVERTER HUB WEAR
(5) FRONT SEAL LEAK OR BLOW OUT

Another concern that may be attributed to the above listed problems, is replacement of the front pump bushing in the bell housing. At the factory, Ford puts an oversized bushing in the bell housing and then bores the bushing to the proper size, and establish the centerline. When a new bushing is installed, (possibly off center) pump alignment may not be possible. Ford Motor Company recommends using a new bell housing if bushing replacement is necessary. Aftermarket exchange bell housings with line bored bushings are also available.

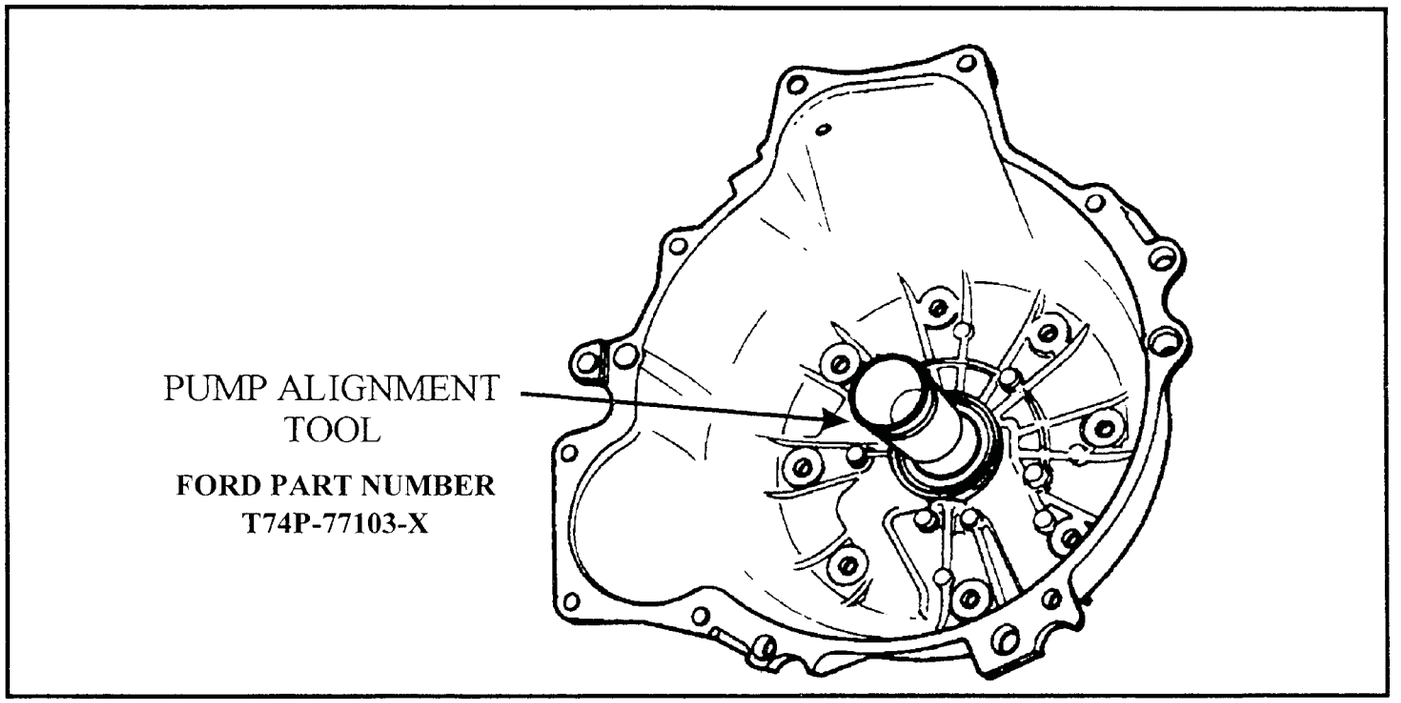


Figure 10

CONTINUOUS FRONT SEAL LEAK, PREMATURE CONVERTER HUB WEAR, PREMATURE PUMP GEAR DAMAGE, ON 2.8L, 2.9L, AND 4.0L ENGINES ONLY

COMPLAINT: Continuous leaks from the front pump seal area, possibly premature bushing wear and/or wear on the torque converter hub seal area, and in extreme cases may exhibit premature front pump gear breakage. The complaint may be any or all of the above, depending on the extent of the wear.

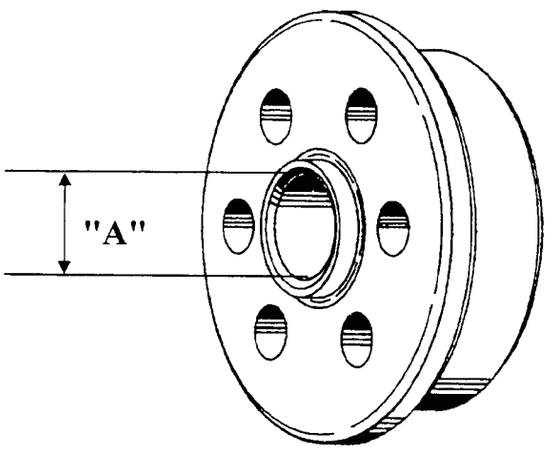
CAUSE: The cause may be a "Crankshaft to Flywheel Spacer" worn in the area that supports the converter pilot hub allowing a mis-allignment of the torque converter to the pump, on models equipped with 2.8, 2.9 and 4.0 liter engines.

CORRECTION: Inspect the "Crankshaft to Flywheel Spacer" for abnormal wear and replace as necessary.Refer to Dimension "A" in Figure 11 to measure the spacer. Dimension "A" on a new spacer is .750", and the OEM part number is D4ZZ-6434-A.

SERVICE INFORMATION:

Crankshaft to Flywheel spacer.....D4ZZ-6434-A

CRANKSHAFT TO FLYWHEEL SPACER
OEM PART NUMBER D4ZZ-6434-A



DIMENSION "A" SHOULD BE .750" ON NEW O.E. SPACER

Figure 11

STATOR CHANGES

CHANGE: The rear input shaft bushing location was moved closer to the top of the stator.

REASON: Improved support for the input shaft.

PARTS AFFECTED:

STATOR SUPPORT - The stator support wall was made thicker to accomodate the change in the bushing location (See Figures 12 and 13).

INTERCHANGEABILITY:

The early and late design pumps are interchangeable. However, all late design pumps will have the larger pump bolt holes. The late design pump bolt requires a late design pump plate and late design bellhousing.

EARLY DESIGN PUMP

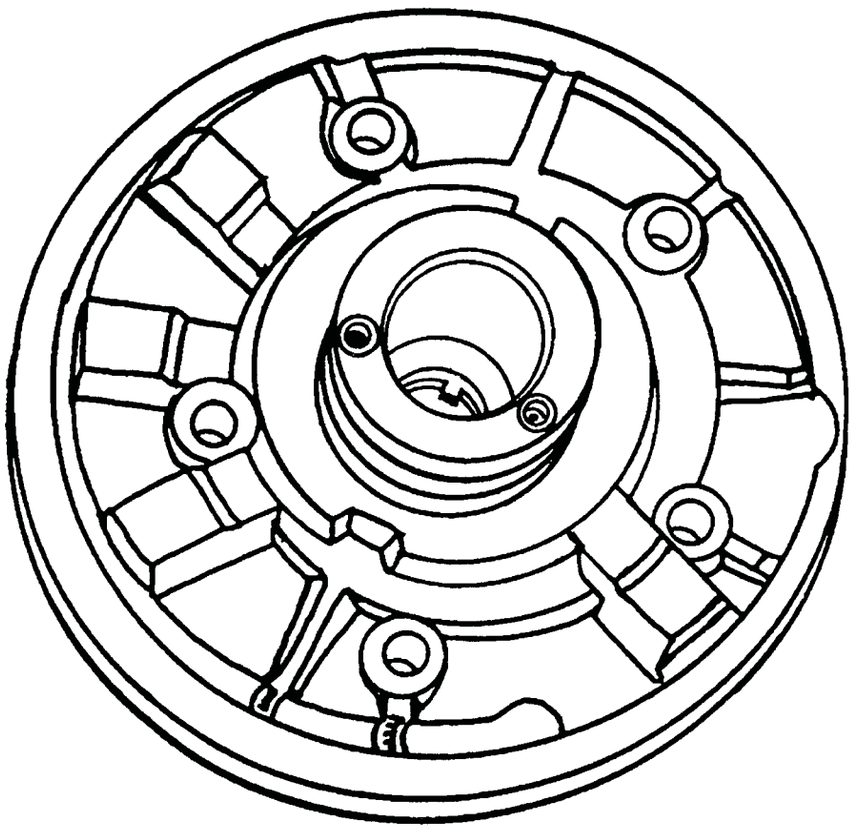


Figure 12

LATE DESIGN PUMP

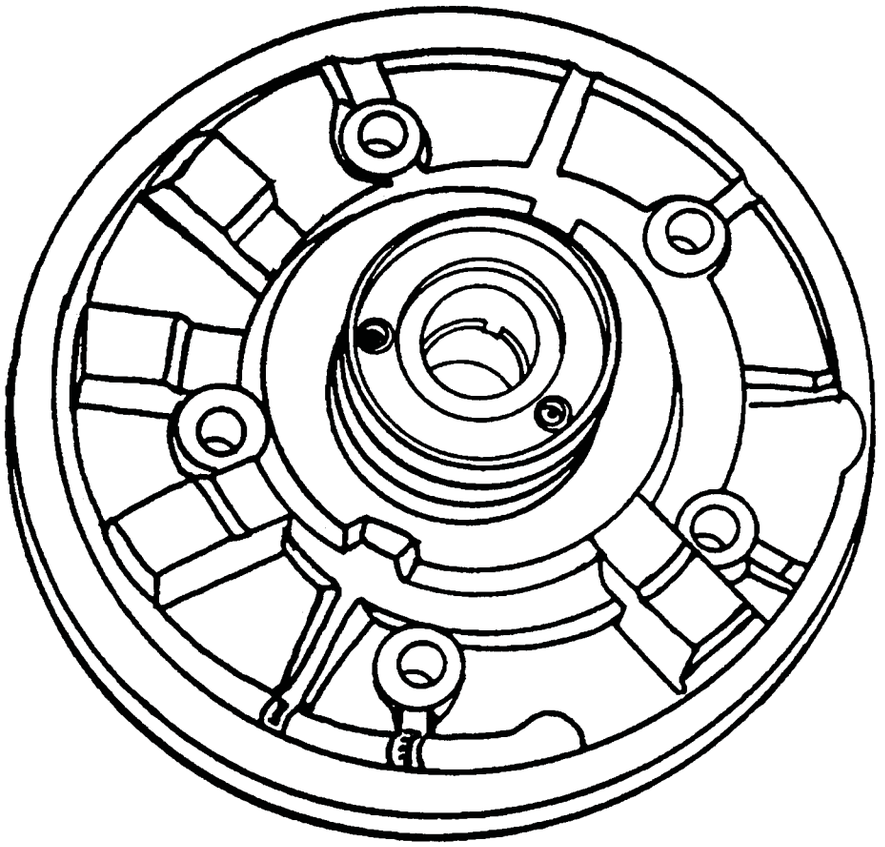


Figure 13

OVERDRIVE BAND CHANGES

CHANGE: Beginning in model year 1990, on 4.0L models, a "double wrap" overdrive band was introduced.

REASON: Ease of installation on the assembly line.

PARTS AFFECTED:

(1) OVERDRIVE BAND - Was changed to a double wrap design band (See Figure 14).

(2) BAND APPLY STRUT - Was redesigned to accommodate the double wrap band (See Figure 14).

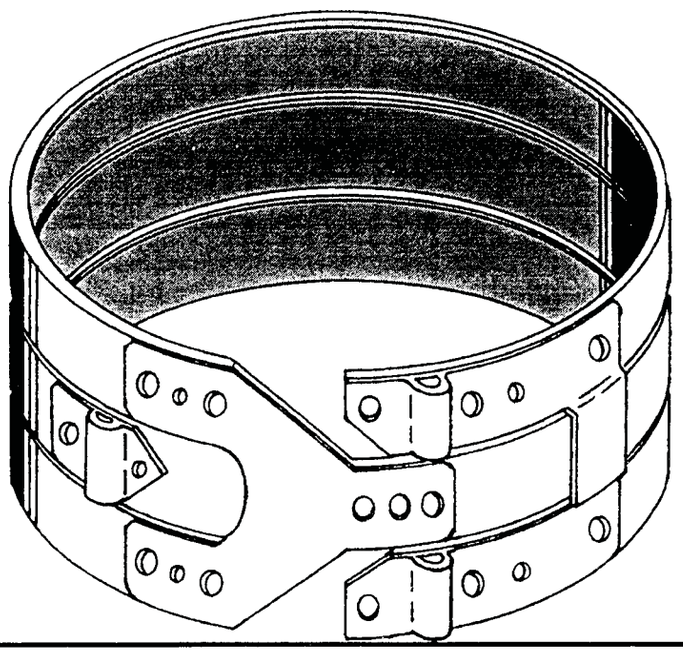
INTERCHANGEABILITY:

The previous design overdrive band will interchange provided both the previous design band & strut are used together (See Figure 15). Band adjustment must also be changed if the early design band is to be used.

DOUBLE WRAP BAND ADJUSTMENT 3.5 TURNS
EARLY DESIGN ADJUSTMENT 2.0 TURNS

NOTE: Sometime in 1992 the double wrap band was discontinued and the previous design band & strut are now used.

DOUBLE WRAP DESIGN BAND & STRUT
BAND ADJUSTMENT= 3.5 TURNS



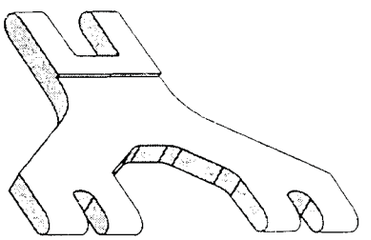


Figure 14

PREVIOUS DESIGN BAND & STRUT
BAND ADJUSTMENT= 2.0 TURNS

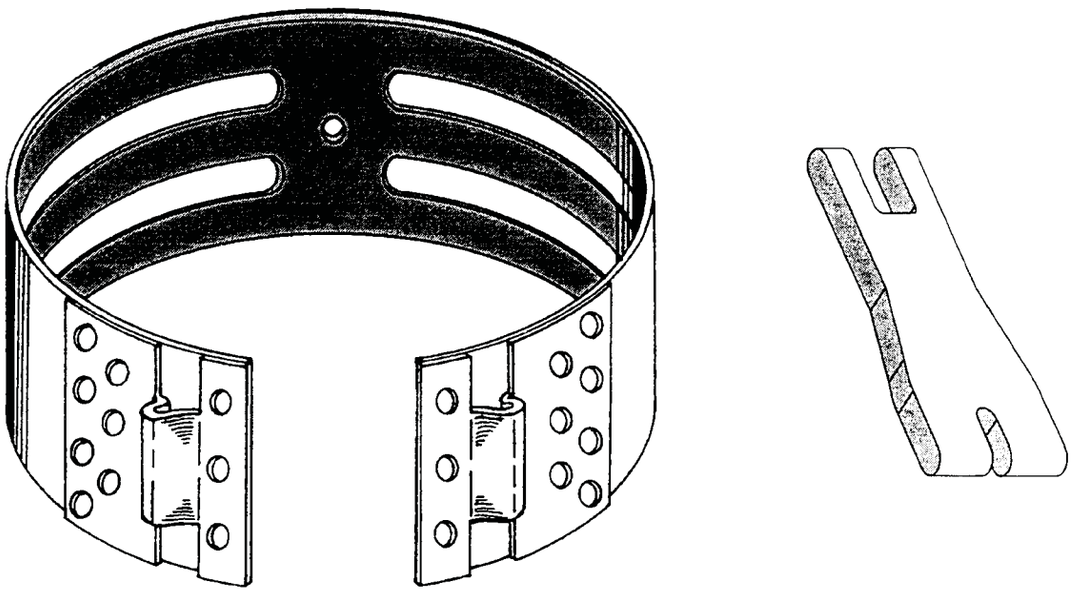


Figure 15

OVERRUN CLUTCH RETURN SPRINGS AND RETAINER DESTROYED

COMPLAINT: Before and/or after rebuild, the overrun clutch springs, and the overrun clutch spring retainer are destroyed, from what looks to be a twisting motion.

CAUSE: The cause may be:

A. Poorly supported overdrive planetary carrier, allowing the inside diameter of the hub on the overdrive carrier to contact, and turn in a twisting motion, the overrun clutch spring retainer. This will destroy the retainer and return springs in a very short period of time (See Figure 16). NOTE: The dimension between the outside diameter of the overrun clutch spring retainer, and the inside diameter of the overdrive carrier hub, is critical. (See Figure 16).

B. Bent or improperly installed overrun clutch spring retainer will also drastically affect the clearance between the retainer and the carrier hub.

CORRECTION: **A.** Inspect and replace the following, as necessary;

1. Turbine shaft bushings in the pump stator for wear and/or damage.
2. Turbine shaft splines (Overdrive Carrier End) for wear and/or damage.
3. Turbine shaft splines in overdrive planetary carrier, for wear and/or damage. Ensure a "snug" fit when installing the turbine shaft into the overdrive carrier.
4. Bushing in the front end of the output shaft for wear and/or damage. This will support the forward clutch drum and the overdrive center shaft. Replace this bushing on All units during rebuild (See Figure 17).
   NOTE: In later applications a caged needle bearing is used in this location. Inspect and replace as necessary (See Figure 17).
5. Overrun clutch housing bushing for wear and/or damage (See Figure 18).

B. Ensure that the overrun clutch spring retainer is supported evenly, using an outer pump gear, when compressing the return springs to avoid ANY distortion. This is critical, and is easily distorted with any uneven pressure.

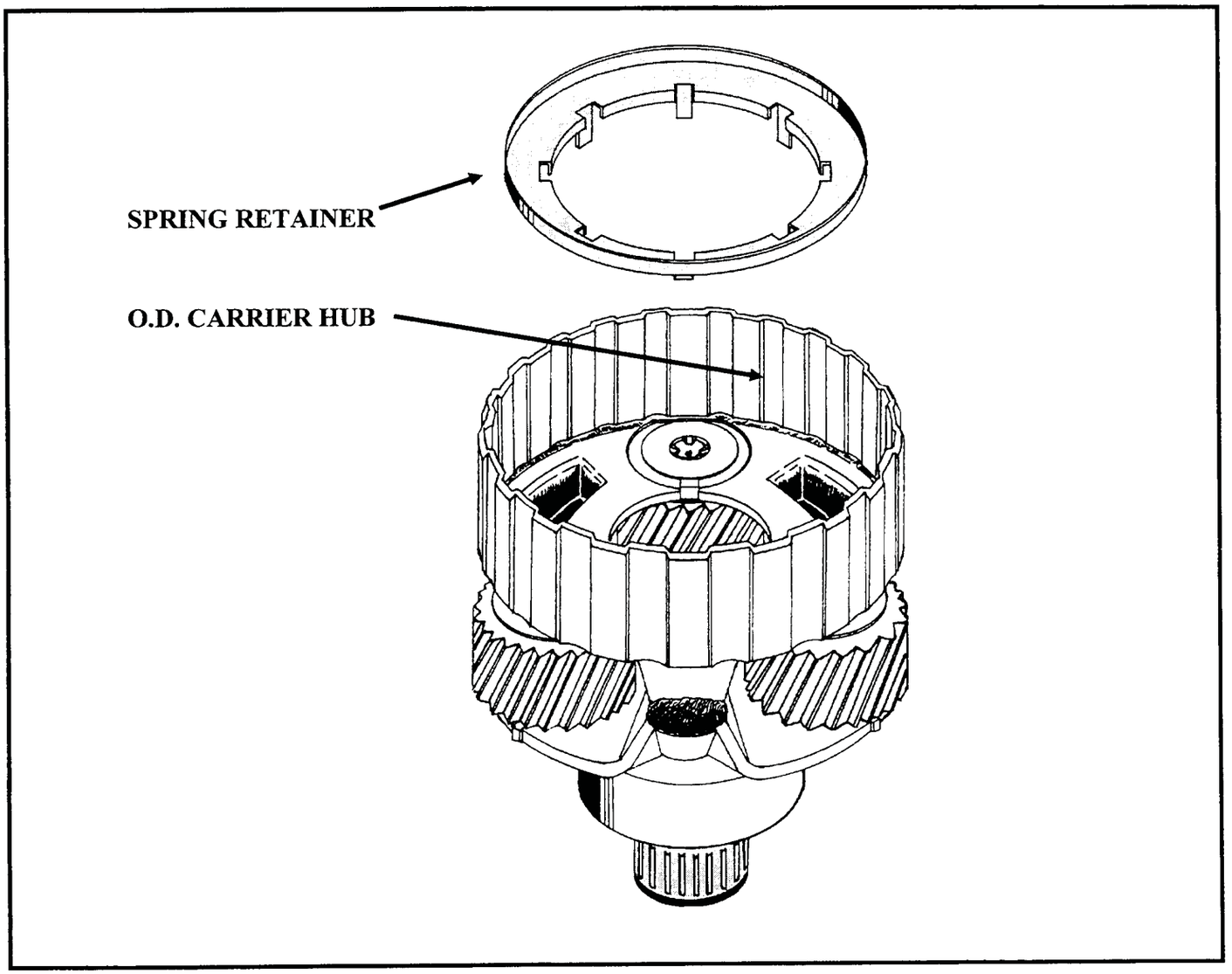


Figure 16

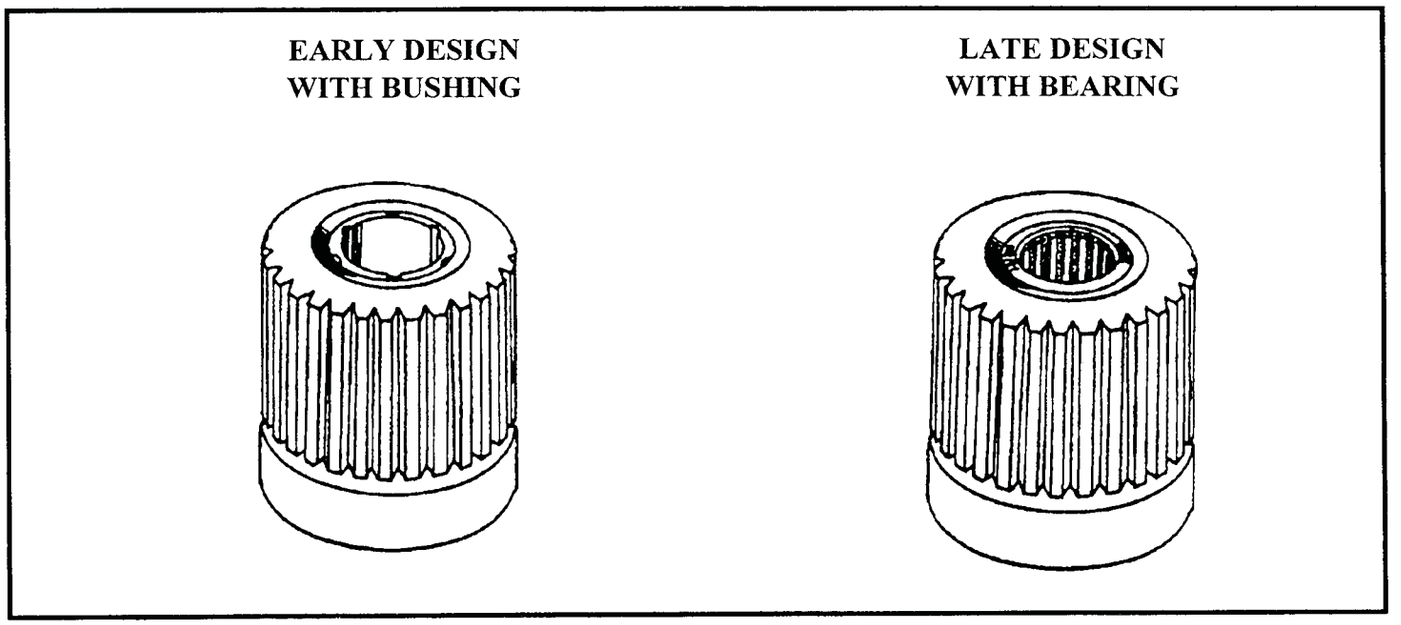


Figure 17

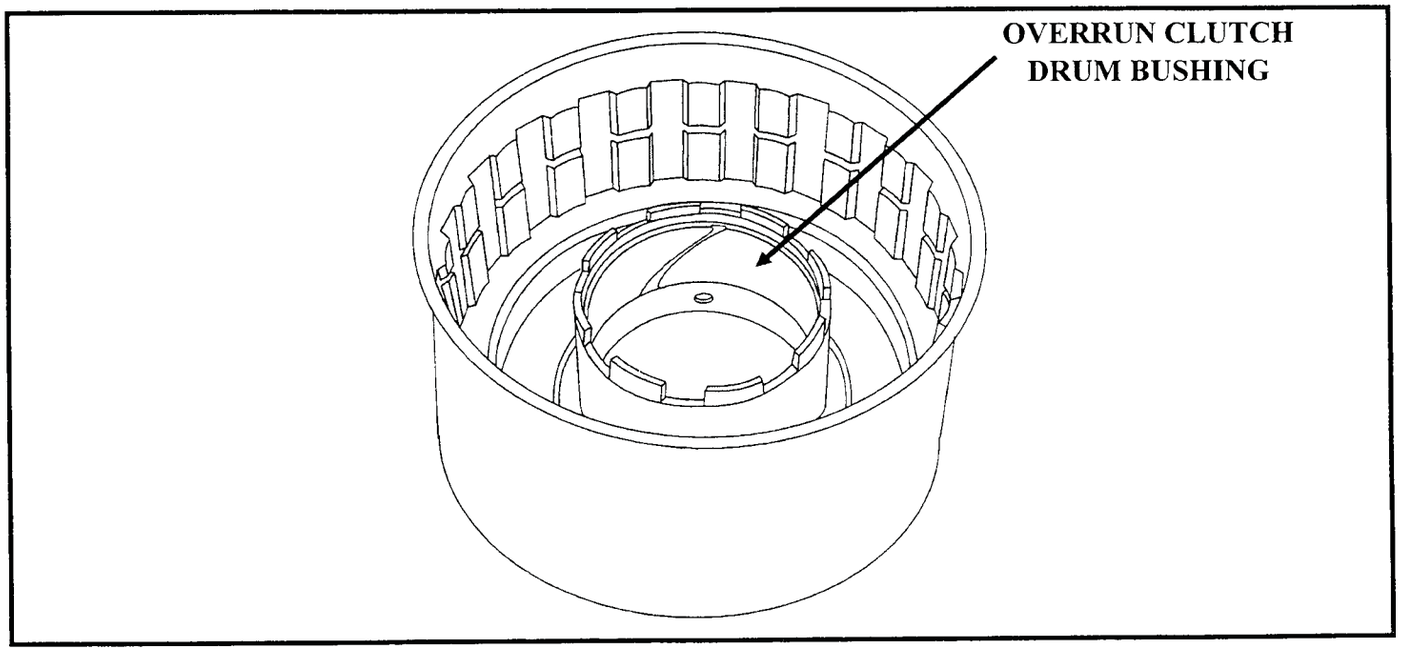


Figure 18

NO FOURTH GEAR

COMPLAINT: No fourth gear.

CAUSE: The cause may be, the overdrive sprag inner race broken loose from the carrier (See Figure 19). The problem is not always detectable because the bearing inside the carrier hides the broken area of the carrier. The sprag inner race and splined area for the input shaft "MUST NOT" turn. Use a little force if necessary to check this.

CORRECTION: Replace the overdrive carrier. Remanufactured "HEAVY DUTY" planetary carriers are available from aftermarket suppliers (See Figure 20).

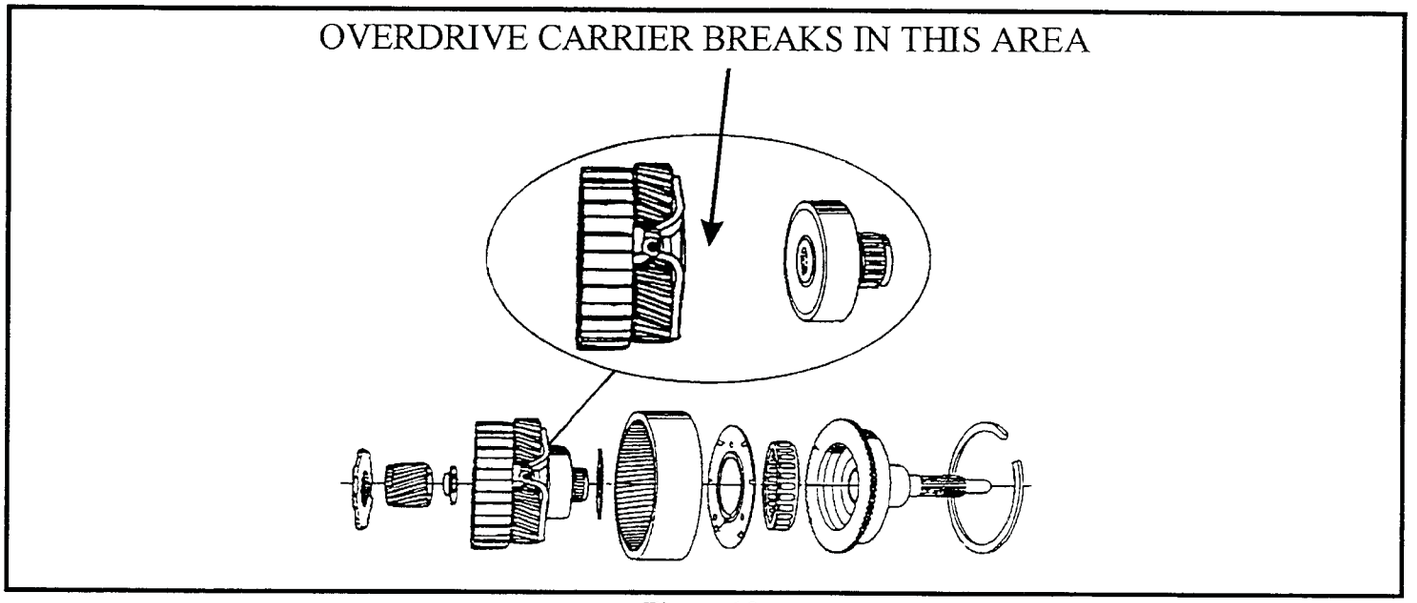


Figure 19

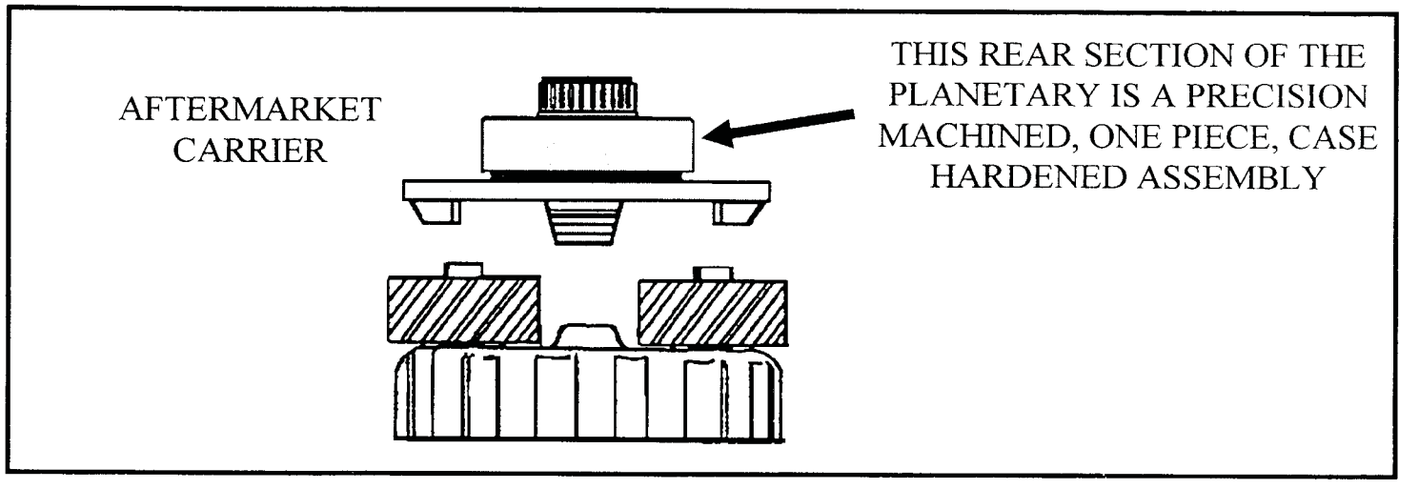


Figure 20

NO MOVEMENT IN THE OVERDRIVE RANGE

COMPLAINT: Vehicle will not move in the overdrive range, but will move in D3, 2, and 1. Another common complaint is a flair-up on a 4-3 kick down.

CAUSE: The cause may be the overdrive sprag in backwards or not holding (See Figure 21).

CORRECTION: Replace the overdrive sprag, and inspect the inner and outer sprag races for wear or damage.

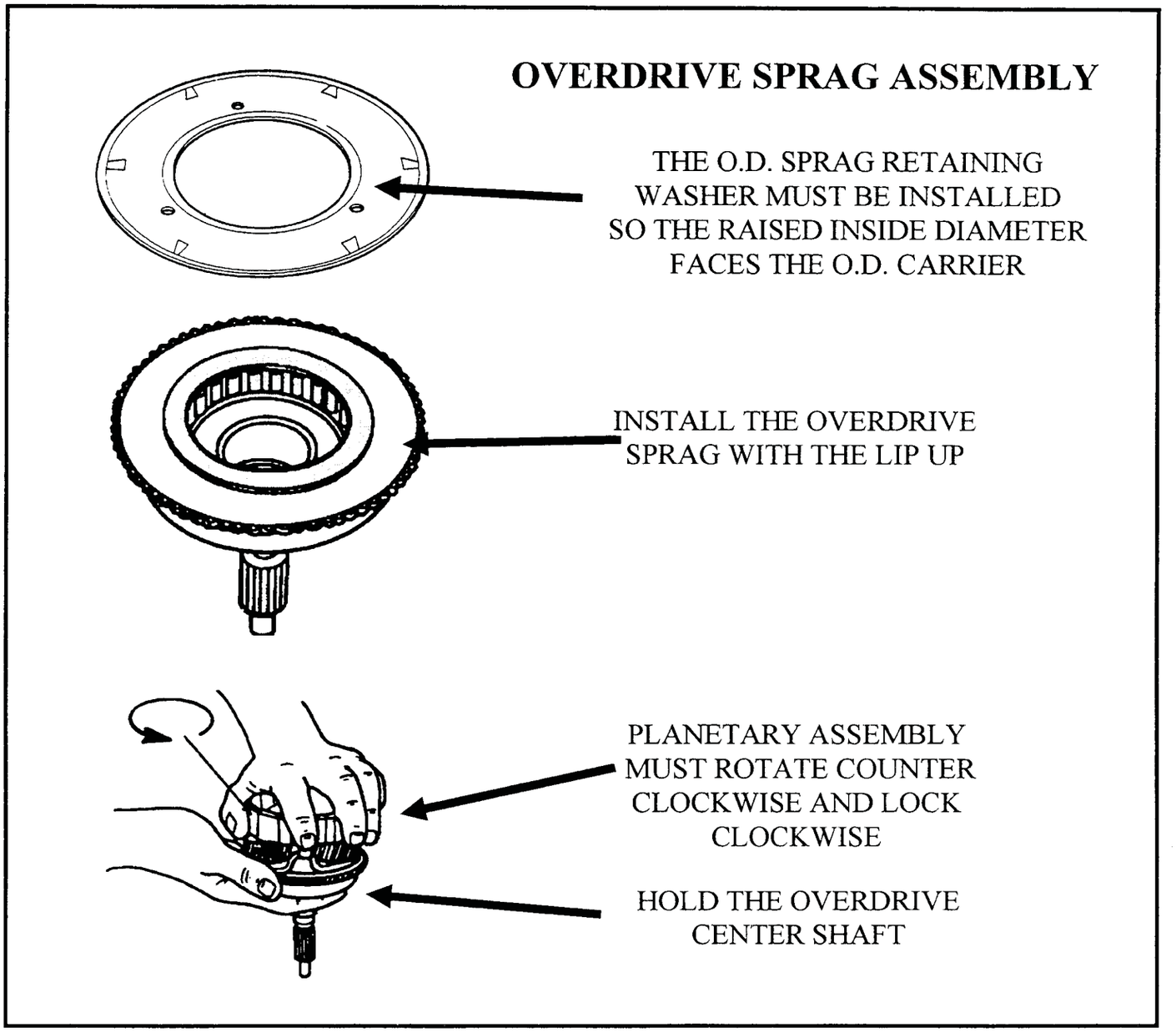


Figure 21

OVERDRIVE SPRAG CHANGE

CHANGE: Vehicles equipped with A4LD transmissions built after June 9, 1992 contain a plastic caged overdrive sprag assembly that is no longer serviced. The previous design steel caged sprag and all related parts must be used for service (See Figure 24).

REASON: Ford Motor Co. felt that the plastic caged overdrive sprag assembly could be damaged upon disassembly from the overdrive center shaft.

PARTS AFFECTED:

(1) OVERDRIVE SPRAG ASSEMBLY - Previous design steel caged sprag must be used, as the plastic caged sprag is no longer serviced, which requires the use of the previous design ring gear and the previous retaining washer (See Figure 22).

(2) OVERDRIVE RING GEAR - Previous design ring gear must be used to accommodate the steel caged sprag and retaining washer that must be used. Measure the overdrive ring gear, as shown in Figure 23, to ensure you have the proper one.

(3) RETAINING WASHER - Previous design retaining washer shown in Figure 22 must be used to accommodate the previous design overdrive ring gear.

SERVICE INFORMATION:

Overdrive Sprag Assembly (Previous Design) E5TZ-7A089-A
Overdrive Ring Gear (Previous Design) E5TZ-7Al53-A
Retaining Washer (Previous Design) E7TZ-7L339-A

PREVIOUS DESIGN RETAINING WASHER

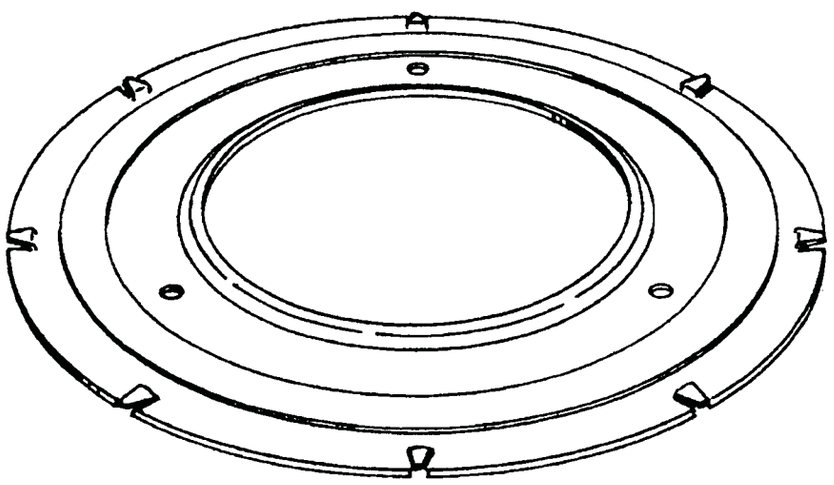
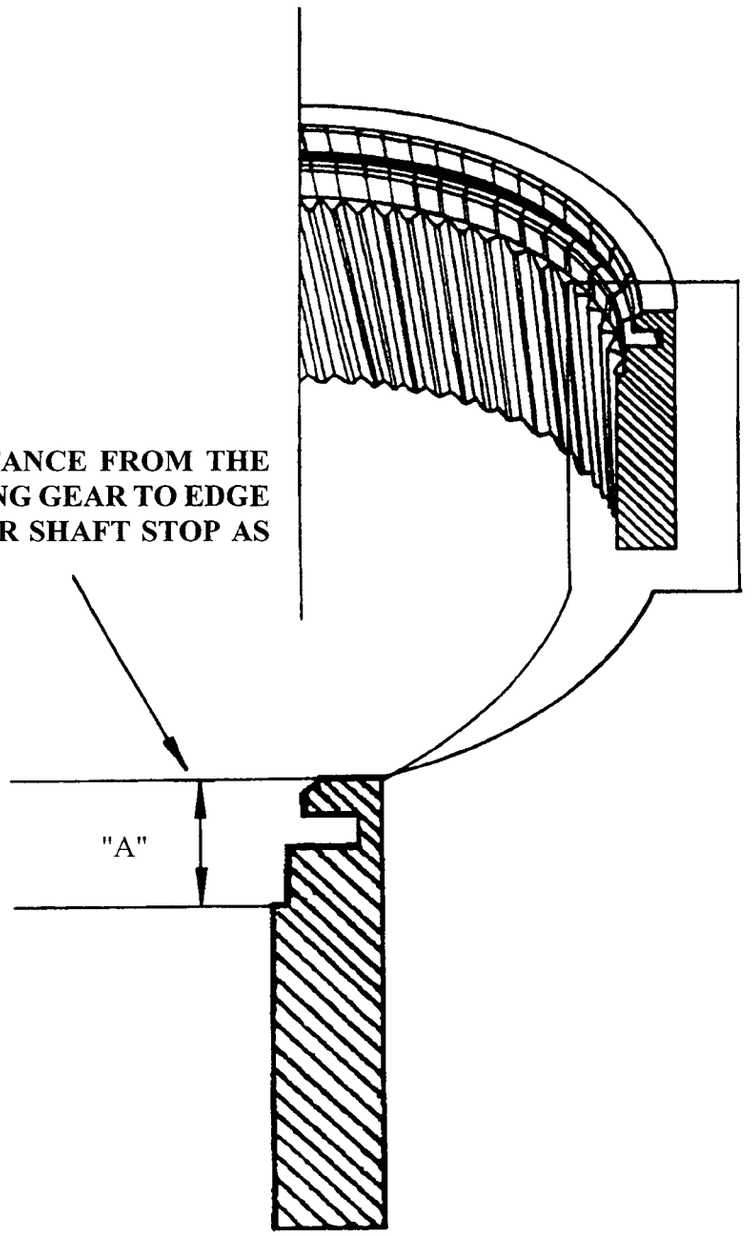


Figure 22

OVERDRIVE RING GEAR IDENTIFICATION



PREVIOUS DESIGN WITH STEEL CAGED SPRAG, "A" = .335"
DESIGN LEVEL WITH PLASTIC CAGED SPRAG, "A" = .295"

COMPATABLE PARTS MUST BE USED TOGETHER

Figure 23

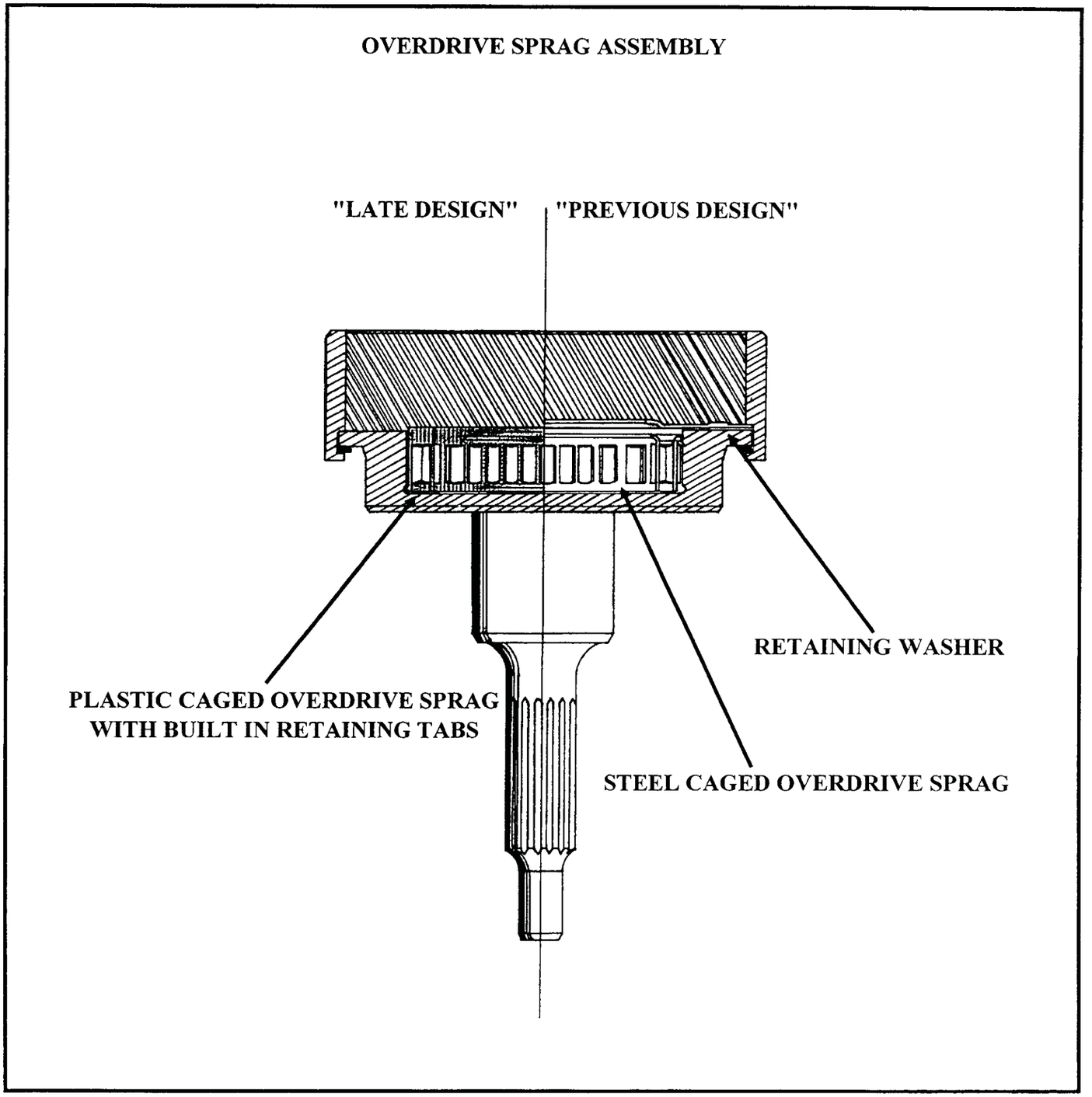

OVERDRIVE SPRAG ASSEMBLY
"LATE DESIGN"
"PREVIOUS DESIGN"
RETAINING WASHER
PLASTIC CAGED OVERDRIVE SPRAG
WITH BUILT IN RETAINING TABS
STEEL CAGED OVERDRIVE SPRAG

Figure 24

CENTER SHAFT CHANGE

CHANGE: Beginning in model year 1990, on 4.0L models, the O.D. center shaft pilot was machined .048" smaller in diameter.

REASON: To accommodate a new caged needle bearing assembly in the output shaft for improved stability and durability.

PARTS AFFECTED:

(1) O.D. CENTER SHAFT - The diameter of the pilot on the shaft was machined .048" smaller than the previous design, to accommodate the bearing added to the output shaft. The new design pilot diameter is .395", and the previous design pilot diameter is .443". (See Figure 25)

(2) OUTPUT SHAFT - Previous design bushing was replaced by a caged needle bearing. (See Figure 26). The caged needle bearing is not serviced separately from Ford Motor Co.

INTERCHANGEABILITY:

The O.D. Center Shaft will retro fit backwards, as long as the caged needle bearing in the output shaft is used.

SERVICE INFORMATION:

Caged Needle Bearing.....INA-1010
NOTE: This bearing can be purchased at your local bearing distributor.

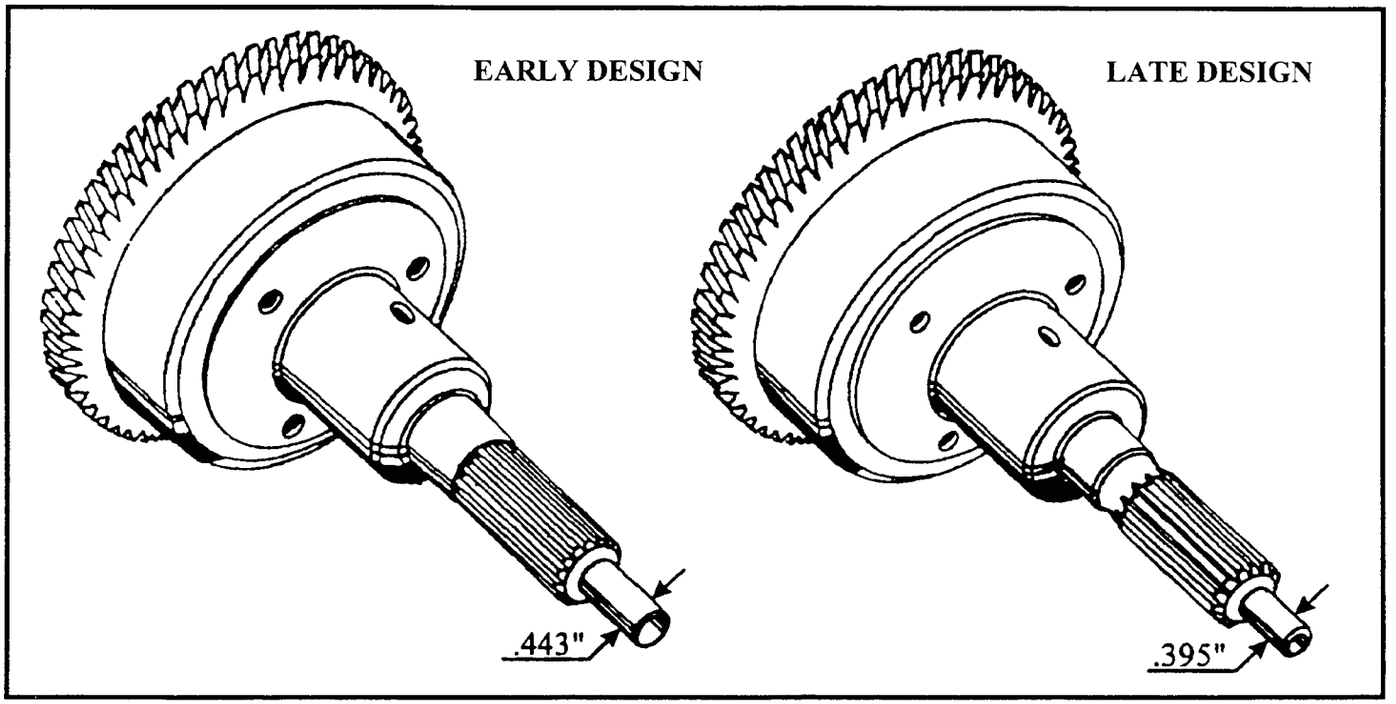


Figure 25

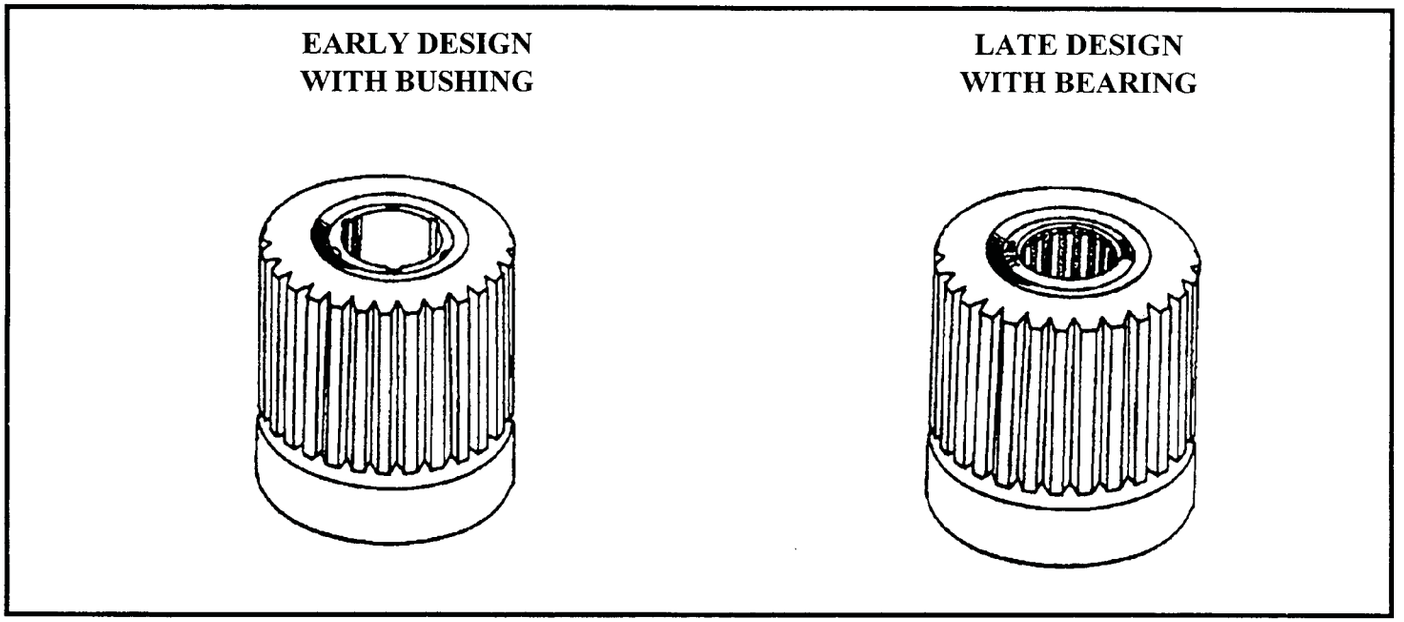


Figure 26

RETAINING WASHER CHANGE

CHANGE: The overdrive sprag retaining washer was changed, sometime in model year 1987, in vehicles equipped with A4LD transmissions.

REASON: Increased durability, as the new washer will not spin.

PARTS AFFECTED:

(1) OVERDRIVE SPRAG RETAINING WASHER - The new design retaining washer increased in overall diameter and has retaining tabs stamped into it to prevent the washer from rotating in the overdrive ring gear. (See Figure 27).

SERVICE INFORMATION:

Retaining Washer (New Design).....E7TZ-7L339-A

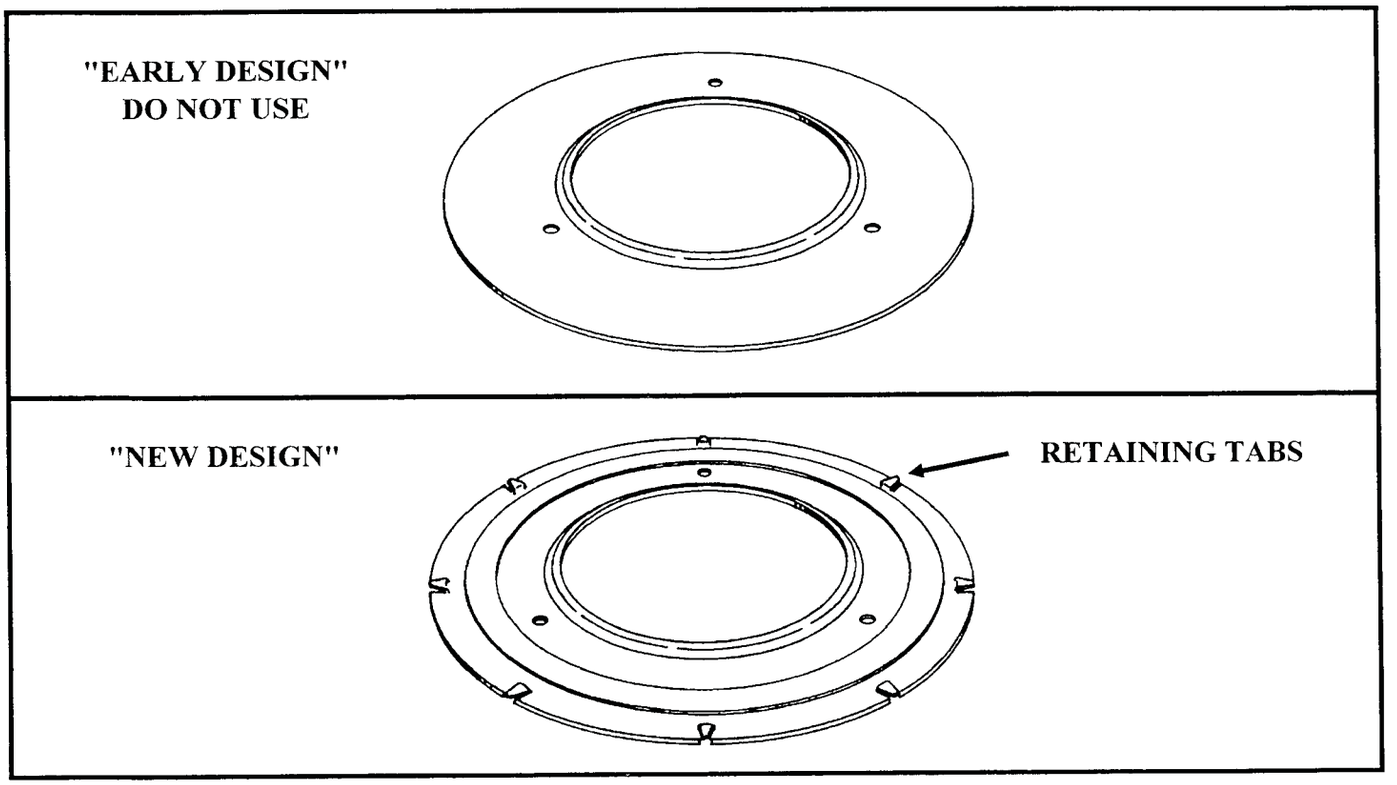


Figure 27

CENTER SUPPORT THRUST WASHER FAILURE

COMPLAINT: Failure of the selective #4 thrust washer between the center support and the direct drum.

CAUSE: The cause may be lack of lubrication to the #4 thrust washer.

CORRECTION: Drill a new lube hole in the center support. Measure 0.500" up from the bottom of the existing hole, drill a 0.086" hole all the way through the center support (See Figure 28).

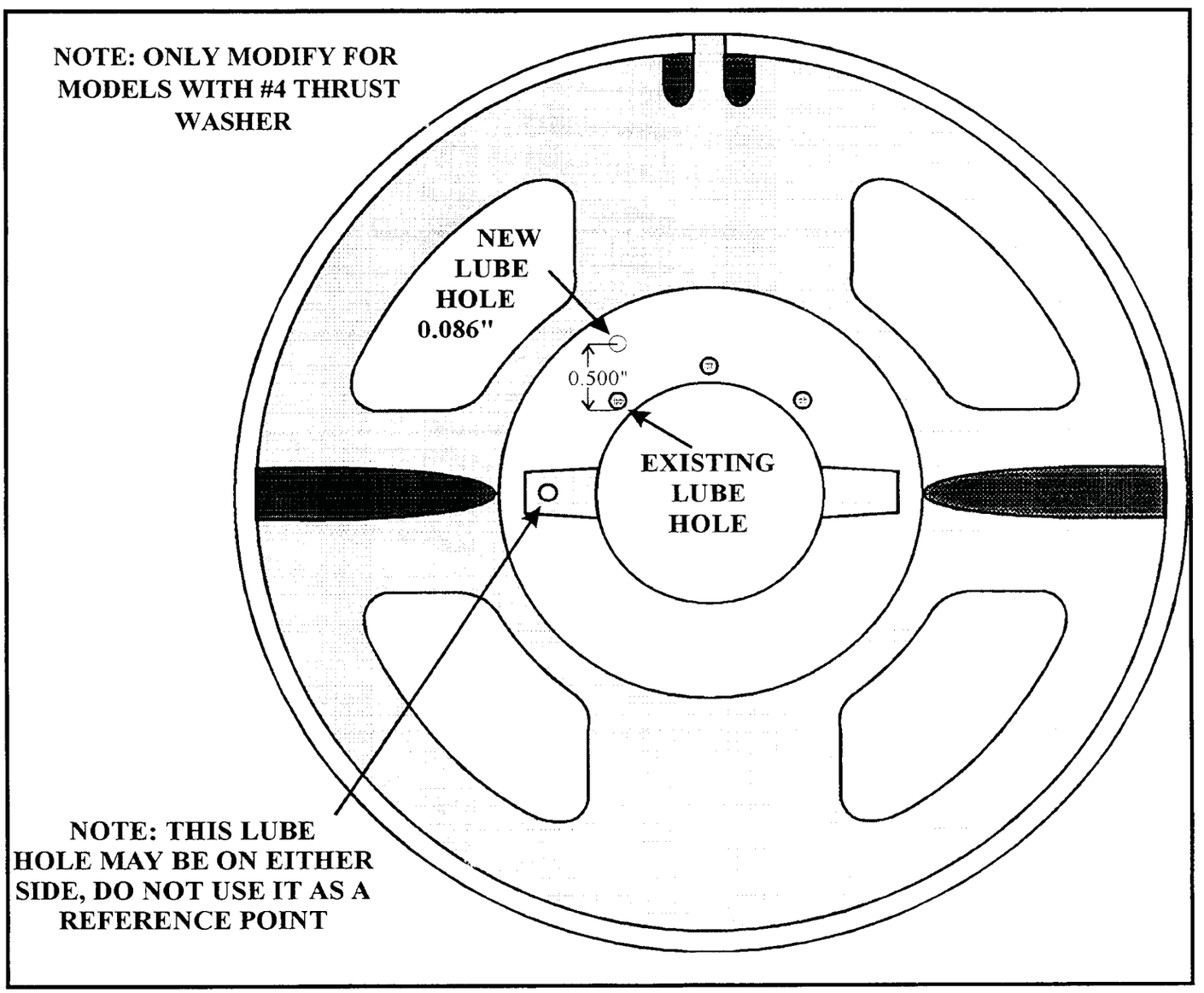


Figure 28

CENTER SUPPORT CHANGES

CHANGE: Sealing ring grooves were widened from .104" to .120", and the OEM part number did not change.

REASON: Ease of installation on the assembly line.

PARTS AFFECTED:

(1) CENTER SUPPORT - The sealing ring grooves were widened from .104" to .120" (See Figure 29).

(2) SEALING RINGS - The sealing rings were widened to fit the larger ring grooves.

INTERCHANGEABILITY:

The center supports are interchangeable, however, you must use the correct size rings for the center support you are using.

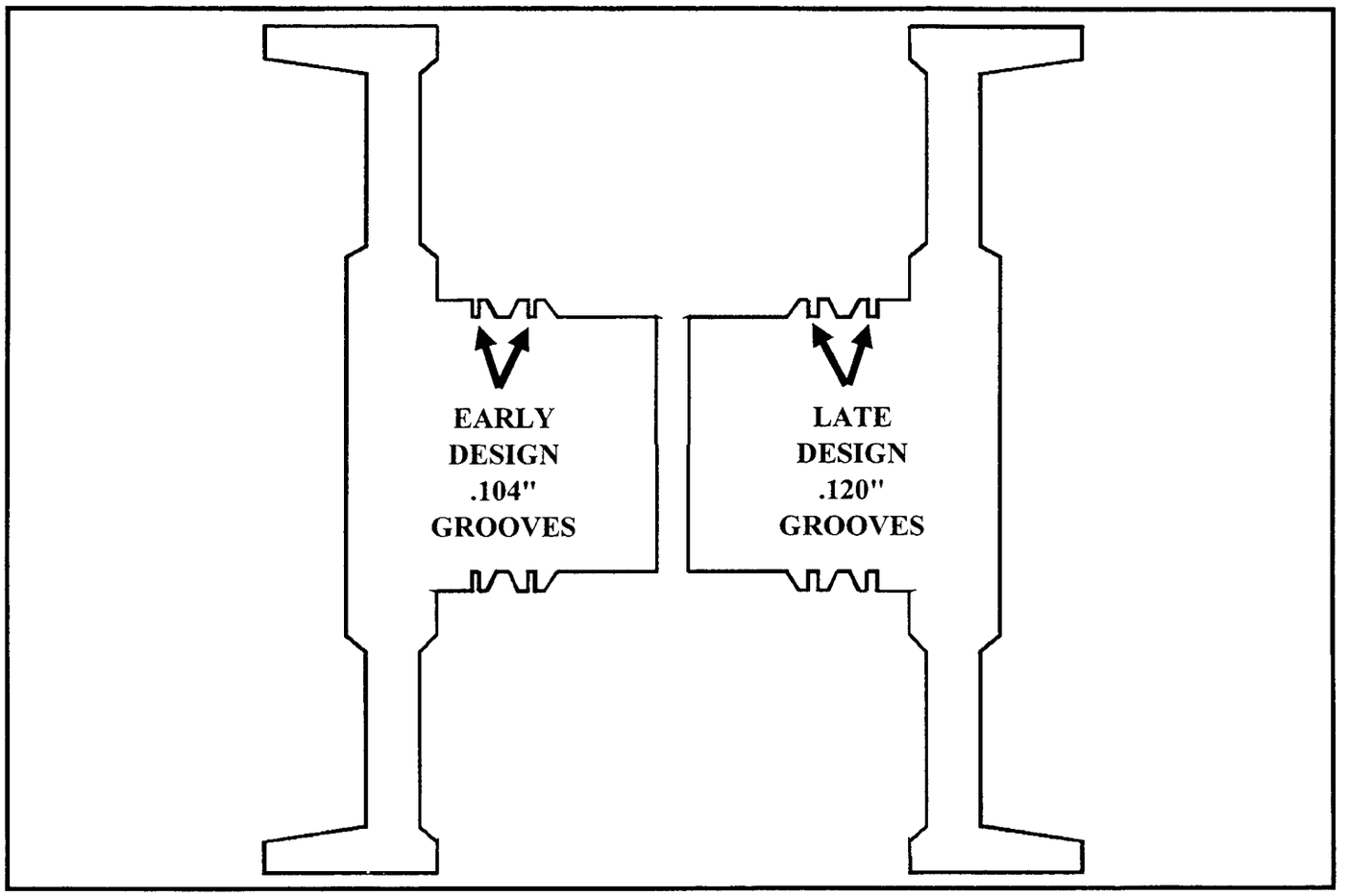


Figure 29

SUN GEAR, SUN GEAR SHELL, DIRECT CLUTCH DRUM, FORWARD CLUTCH DRUM, AND CENTER SUPPORT CHANGES

CHANGE: Beginning in model year 1990, and continuing through the 1993 model year on 4.0L models, many running changes have occured to all of the parts listed above. These changes have created confusion in the aftermarket, and they do affect the interchangeability of all of the parts listed above.

REASON: Improved transmission lubrication, improved durability, and improved assembly line process.

PARTS AFFECTED:

(1) DIRECT CLUTCH DRUM - ***1st Change:*** Was changed from a stamped steel drum to a cast drum, and the sealing ring bore area was chamfered for ease of assembly (See Figure 30). ***2nd Change:*** The "Lug" area where the direct clutch drum engages the sun gear shell, was machined approximately .200" thinner, and a .050" deep groove was machined into the drum to accommodate the added retaining tabs on the "Snap Shell" (See Figure 31). This now allows the sun shell and the direct drum to "Snap" together for easier assembly (See Figure 32). This change also allows the elimination of the number 4 thrust washer, located between the direct clutch drum and center support.

(2) SUN GEAR - Both bushings, inside the sun gear, were eliminated to allow full lubrication flow to the front planetary (See Figure 33).

(3) SUN GEAR SHELL - "Snap Shell" was introduced in 1993 4.0L models, and has two retaining tabs stamped into the sides 180° apart, as shown in Figure 34. These tabs are used to retain the new direct clutch drum in the sun gear shell. The flat steel thrust washer (No. 14) on the back side of sun gear shell was eliminated when the sun gear bushings were eliminated.

(4) CENTER SUPPORT - When the "Snap Shell" was introduced in 1993, the number 3 thrust washer was eliminated (See Figure 35), & number 3 thrust bearing was added (See Figure 36). The addition of the number 3 thrust bearing required machining the surface deeper to accommodate the bearings added thickness (See Figure 36).
The new design center support also has a machined recess at the base of the sealing ring hub to accommodate the newly added number 5 thrust bearing (See Figure 38). Remember, the number 4 thrust washer was eliminated when this change occured (See Figure 37).
There are four easy ways to identify the new design center support:
1. Machined recess for added number 3 thrust bearing (See Figure 36).
2. Machined recess for added number 5 thrust bearing (See Figure 38).
3. Machined hole for turbine speed sensor getting ready for 4R55E (See Figures 36 and 38).
   NOTE: Some new design center supports are cast for, but no hole has been machined.
4. Casting number on new design center support is 92GT-7L328-AA.

(5) FORWARD CLUTCH DRUM - Was machined at the base of the sealing ring hub to eliminate the chamfer, and provide a flat surface to accommodate the added number 5 thrust bearing, as shown in Figure 39.

Continued on next Page

INTERCHANGEABILITY:

(1) The new design sun gear ***WITHOUT*** bushings ***WILL*** retro-fit back to all previous models (See Figure 33).

(2) The previous design sun gear ***WITH*** the bushings ***CANNOT*** be used forward into the 4.0L models (See Figure 33).

(3) The new design "Snap Shell" must only be used with the direct clutch drum that is machined to accept the retaining tabs (See Figure 31 and 32).

(4) The "3rd Design direct clutch drum ***WITH*** the machined groove for the "Snap Shell" ***WILL*** retro-fit back to ***ALL*** previous models that do not use "Snap Shell" (Figure 31). The "1st Design" stamped steel direct clutch drum is not recommended for use.

(5) The new design level center support ***CANNOT*** be used in ***ANY*** previous models, unless updated with ***ALL*** of the parts listed above (See Figures 36 and 38).

(6) The previous design center support ***CANNOT*** be used forward into ***ANY*** model that is using the "Snap Shell" (See Figure 35).

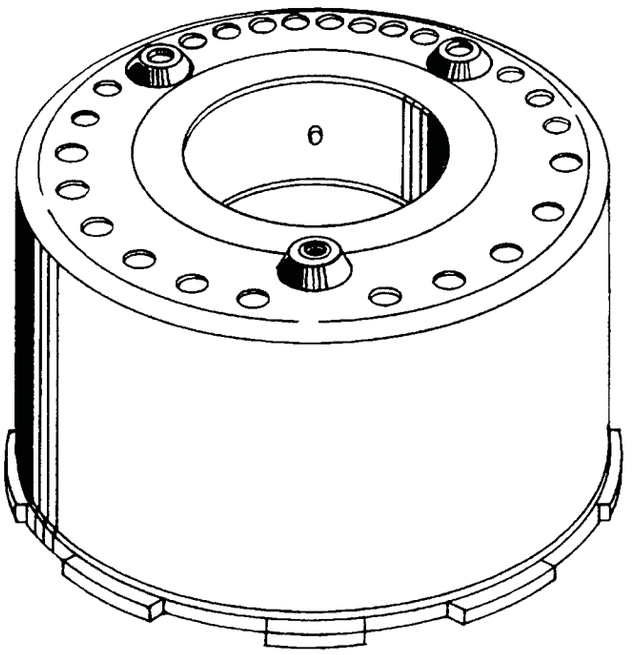
(7) The new design forward clutch drum ***WILL*** retro-fit back on ***ALL*** previous models. (See Figure 39).

(8) The previous design forward clutch drum ***CANNOT*** be used in 1993 and later models, as the chamfered area at the base of the hub will not let the number 5 bearing seat properly (See Figure 39).

SERVICE INFORMATION:

Sun Gear Shell ("Snap" Type - Includes Sun Gear)	F3TZ-7D064-A
Direct Clutch Drum (For "Snap Shell")	F0TZ-7D044-A
Forward Clutch Drum (Late Design)	F0TZ-7A360-B
Center Support (Late Design - Includes No. 5 Bearing)	F3TZ-7A130-A
Number 5 Thrust Bearing	F3TZ-7D234-A
Number 3 Thrust Bearing	F3TZ-7L326-A

"1ST DESIGN"
STAMPED STEEL DIRECT DRUM



"2ND DESIGN"
CAST IRON DIRECT DRUM

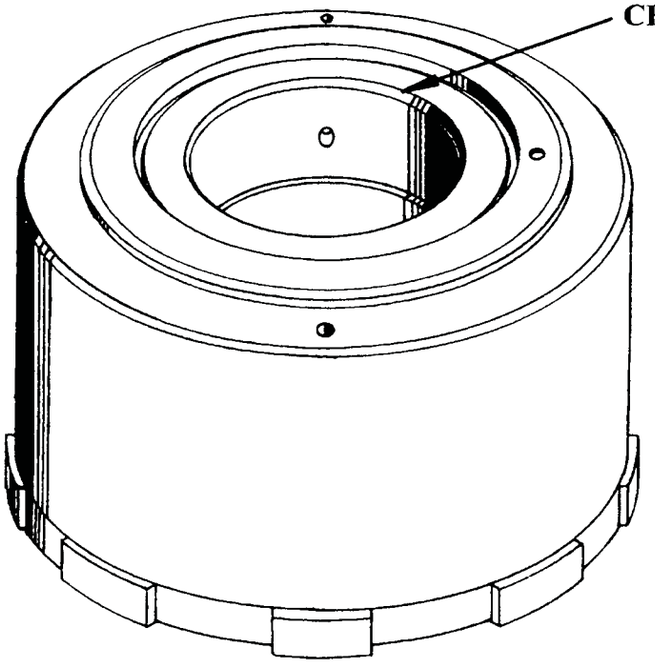


Figure 30

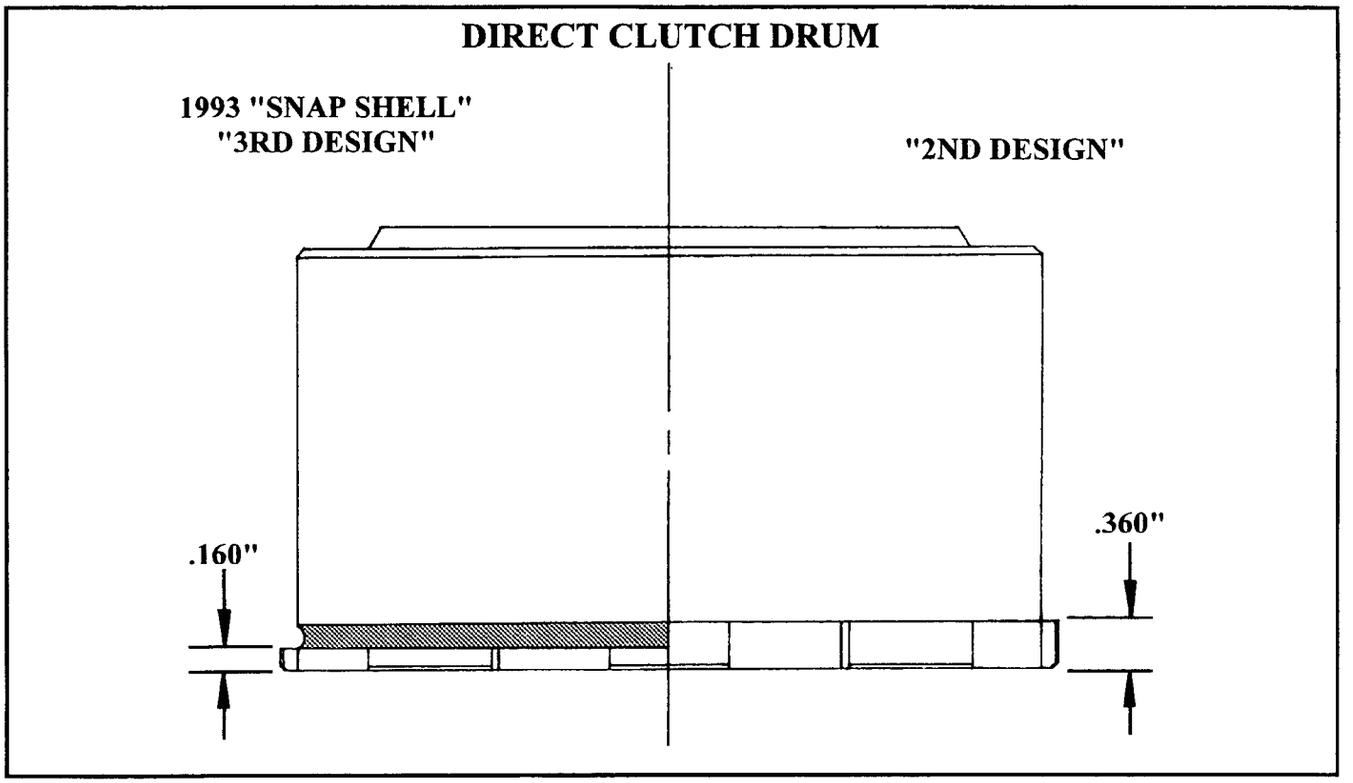


Figure 31

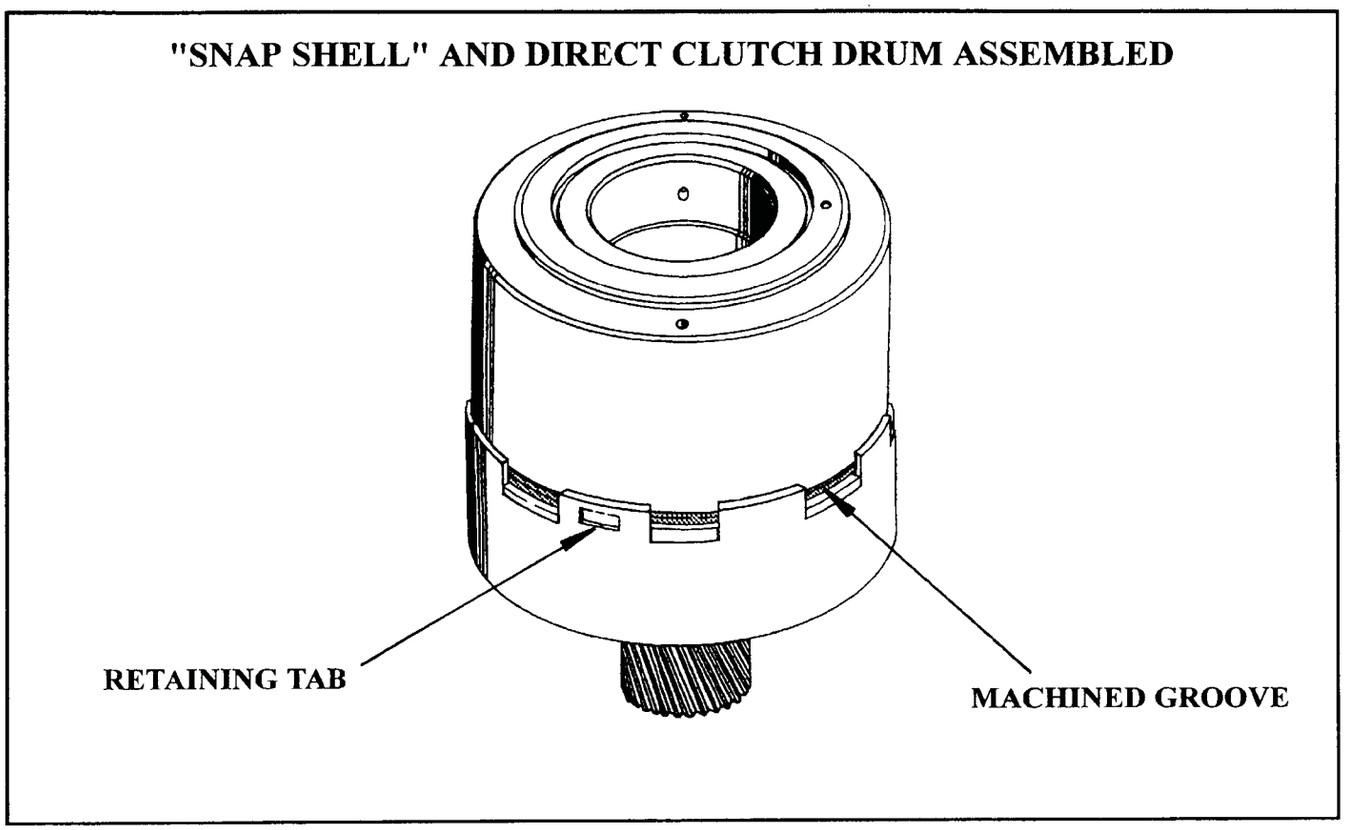


Figure 32

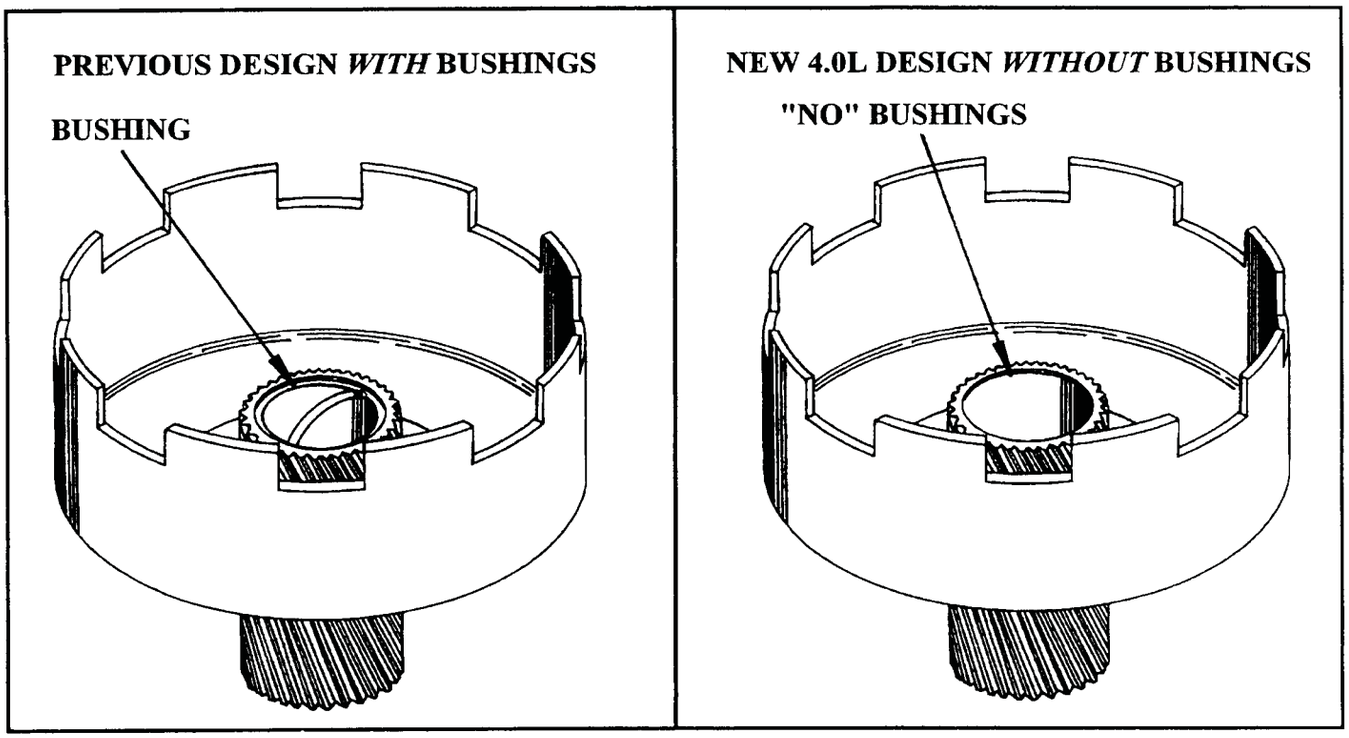


Figure 33

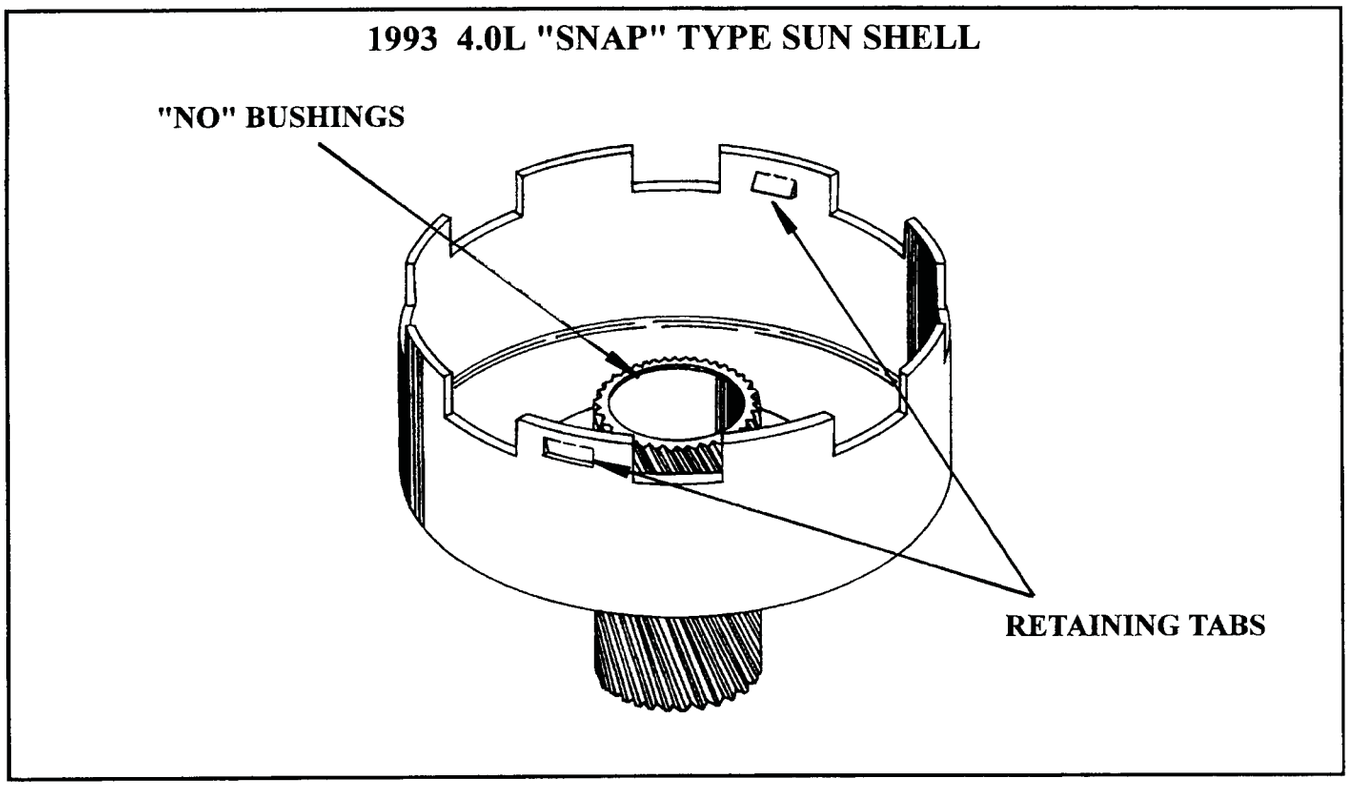


Figure 34

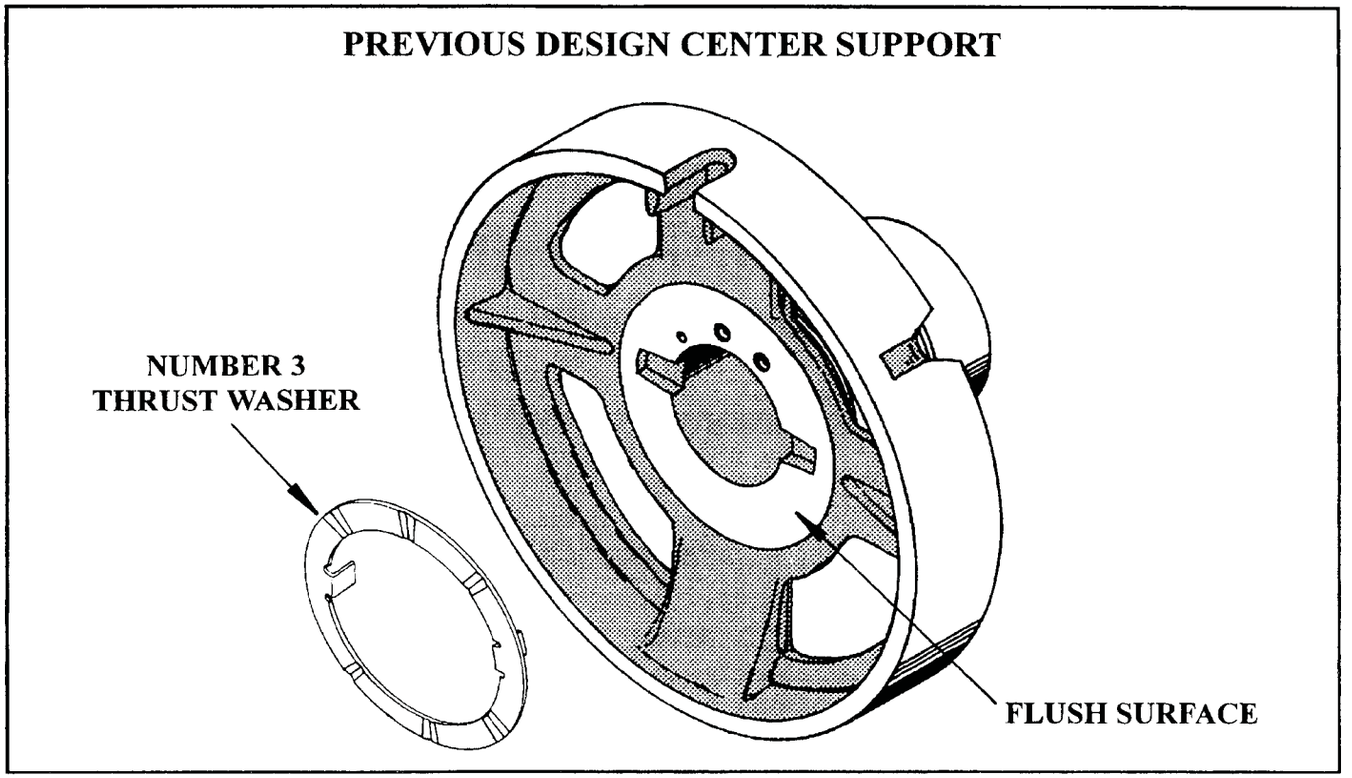


Figure 35

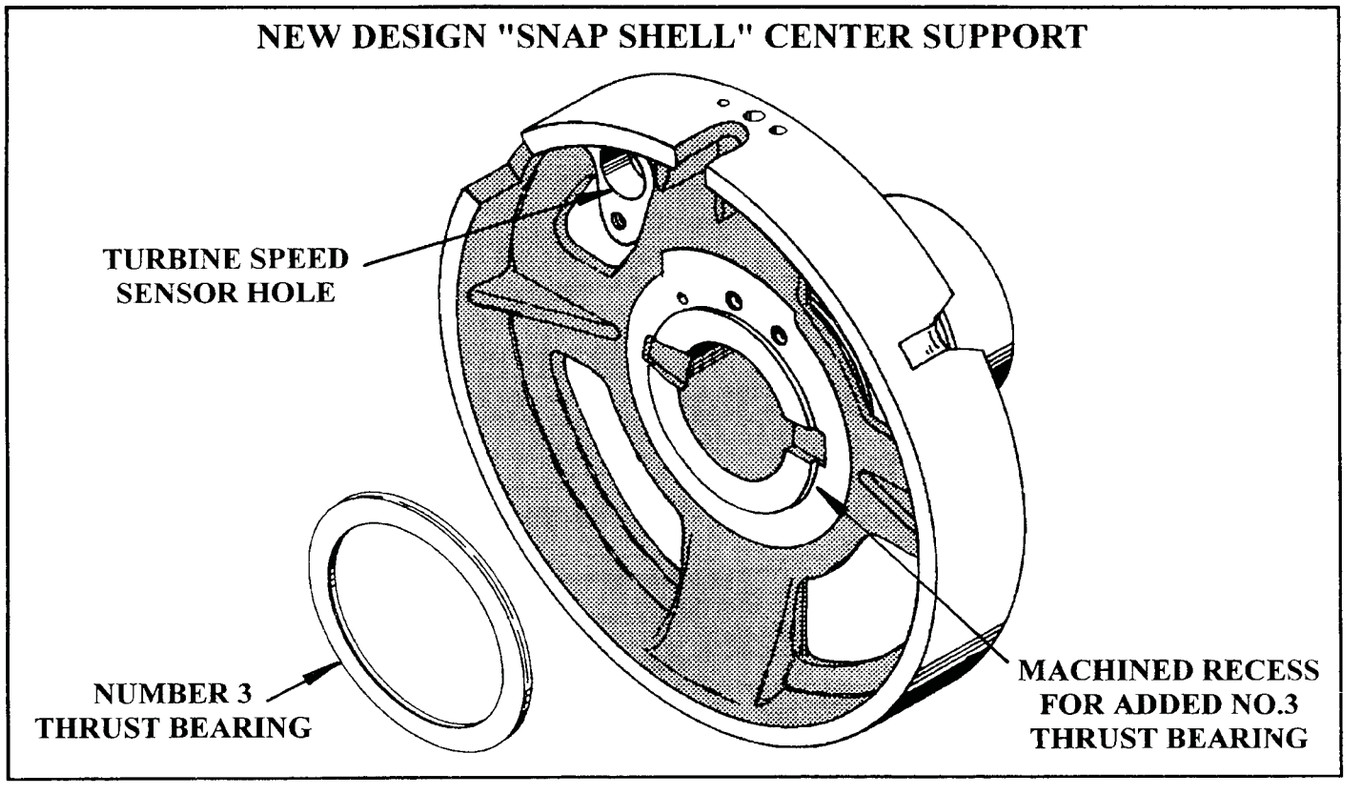


Figure 36

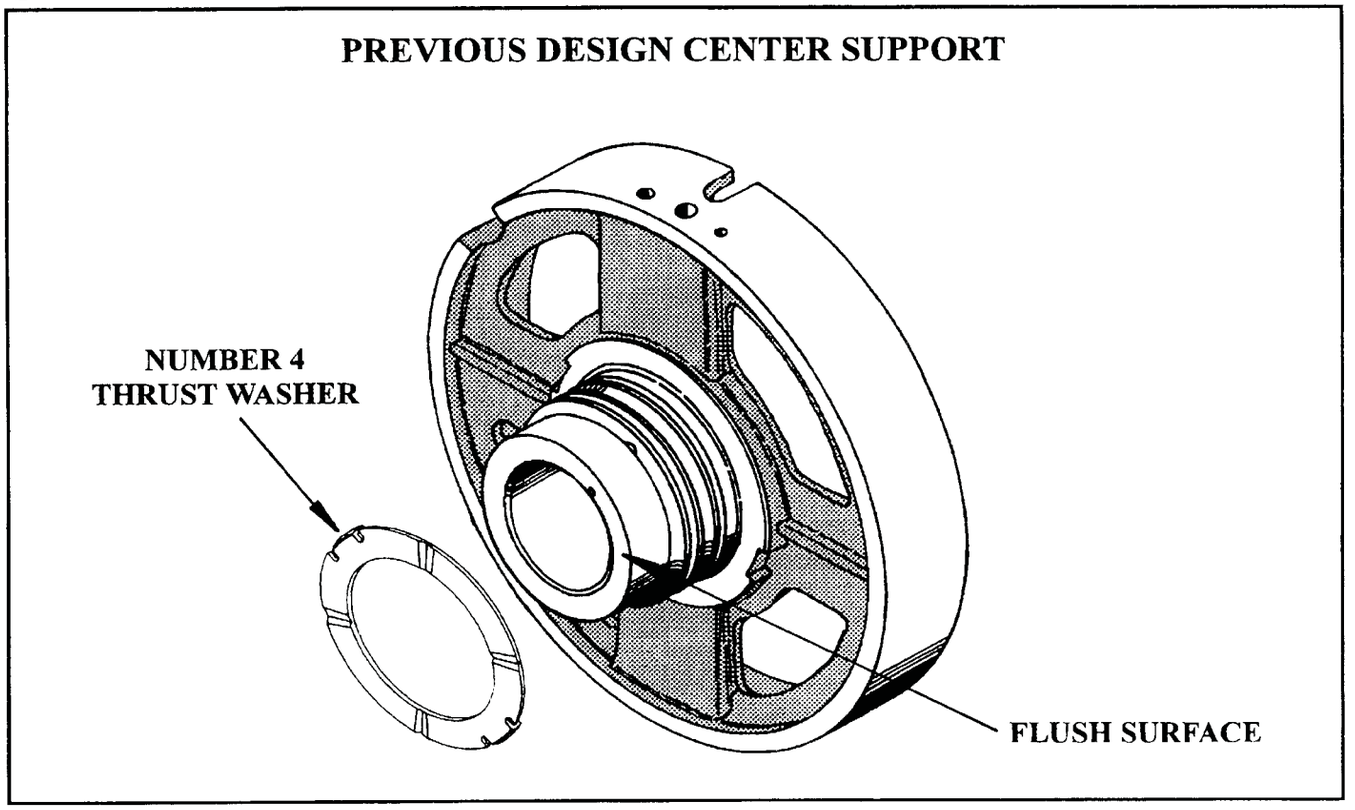


Figure 37

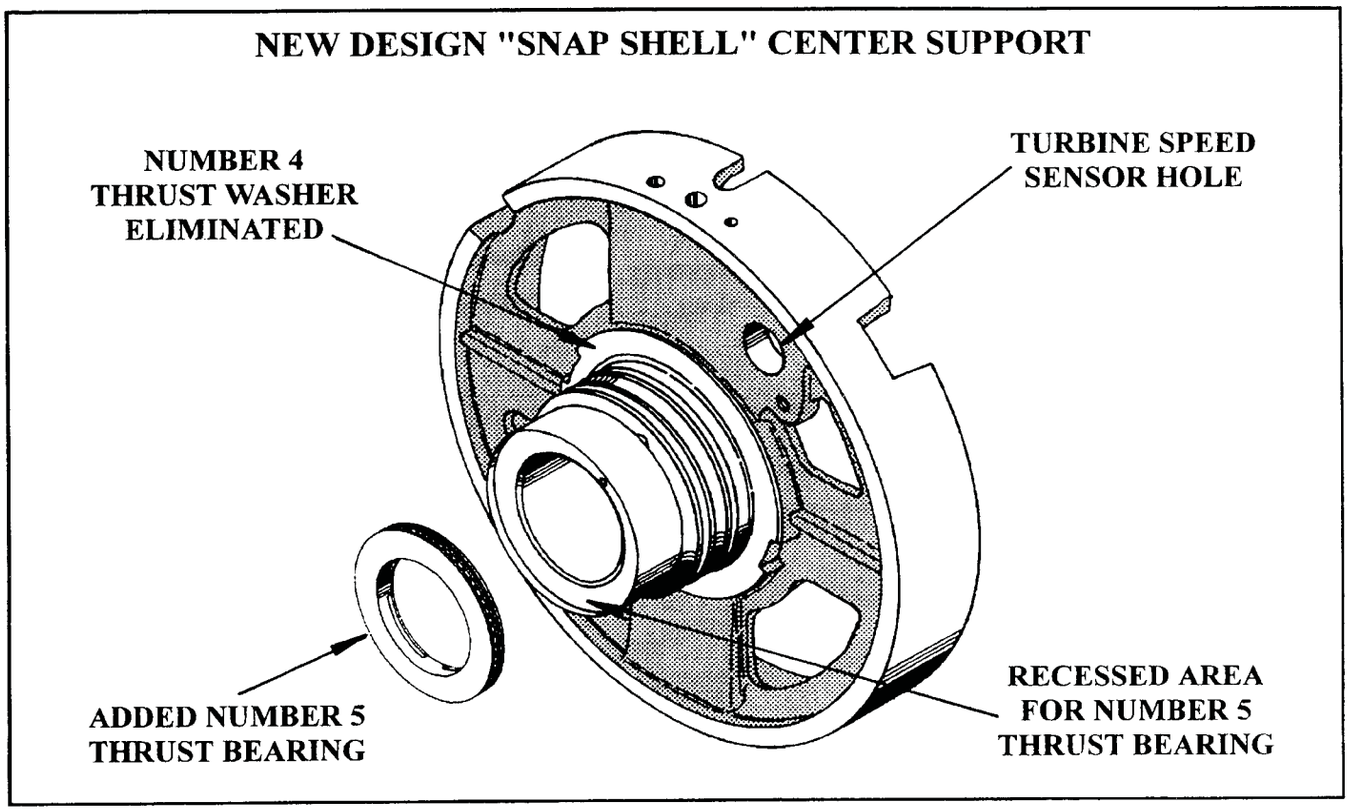


Figure 38

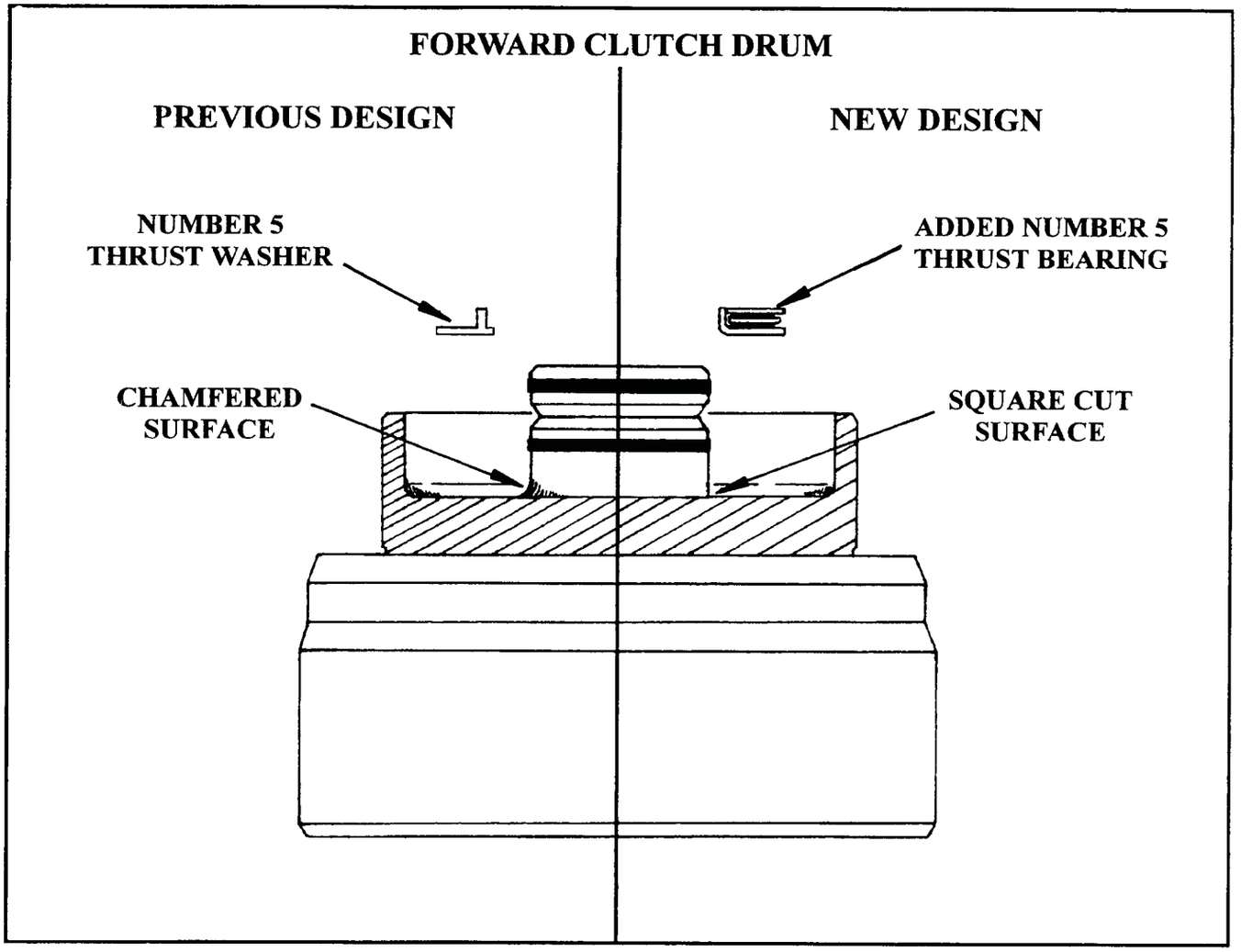

FORWARD CLUTCH DRUM
PREVIOUS DESIGN
NEW DESIGN
NUMBER 5
THRUST WASHER
ADDED NUMBER 5
THRUST BEARING
CHAMFERED
SURFACE
SQUARE CUT
SURFACE

Figure 39

DIRECT & OVERRUN PISTON SEAL CHANGE

CHANGE: Both the overrun clutch and direct clutch piston seals were changed in 1987 from "D"-ring seals to lip seals (See Figure 40).

REASON: For improved durability.

PARTS AFFECTED:
DIRECT & OVERRUN PISTON - Was machined to accept the new lip seal.

INTERCHANGEABILITY:
Although the early design "D"-ring & piston will interchange, we recommend using the later design lip seal, which requires changing the piston.

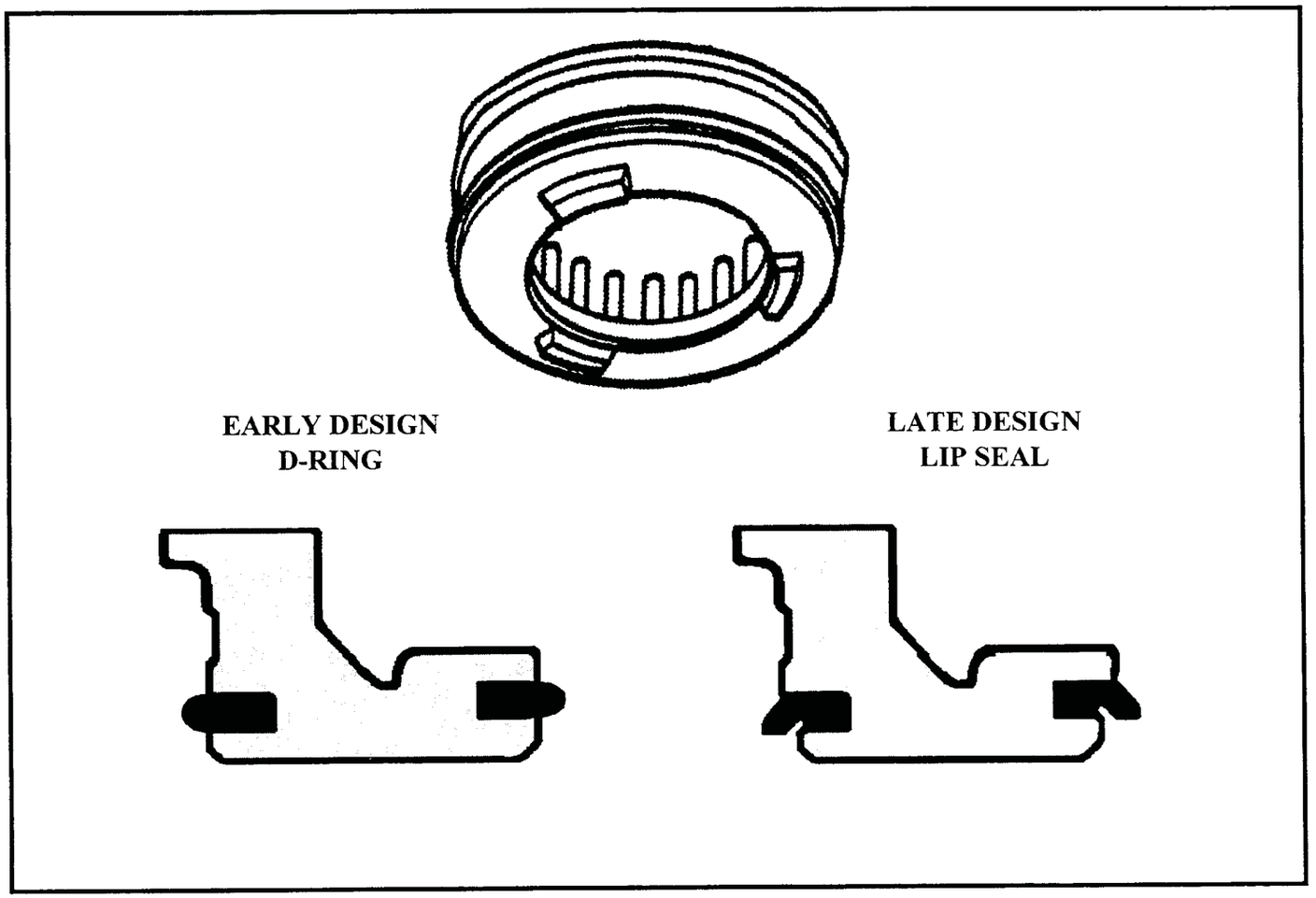


Figure 40

FRONT PLANETARY GEARSET CHANGES

CHANGE: Sometime in model year 1987, the 1st design ***3 pinion aluminum*** front planetary carrier was replaced with a revised ***4 pinion steel*** front planetary carrier (See Figures 41 and 43).
In model year 1990, on 4.0L engine models only, the steel front planetary carrier was once again revised to a ***6 pinion steel*** carrier (See Figures 41 and 43). These changes have affected many of the related parts and created confusion for many rebuilders.

REASON: Greater torque carrying capacity because of increased horsepower demands.

PARTS AFFECTED:

(1) FRONT PLANETARY CARRIER - The 1st design ***3 pinion aluminum*** carrier was eliminated and replaced with a revised ***4 pinion steel*** carrier. The snap ring groove and the snap ring that previously retained the carrier into the ring gear were eliminated (See Figure 41).
In 1990 the steel carrier was once again upgraded with a ***6 pinion steel*** carrier, for 4.0L engine models only. The 6 pinion steel carrier was also shortened in overall height, by approximately .125", to accommodate a new design number 6 (3 piece) thrust bearing (See Figures 41 & 43).
NOTE: The 1st Design 3 pinion aluminum and 2nd Design 4 pinion steel front carriers are no longer serviced by Ford Motor Co. They are now upgraded to the latest 3rd Design 6 pinion steel front planetary system, which comes as a service package and includes all necessary hubs and washers to make it compatable.

(2) FORWARD RING GEAR HUB - The 1st Design forward ring gear hub uses a number 7 thrust washer as shown in Figure 43. On the 2nd Design ring gear hub, a recess was machined to accommodate an added number 7 thrust bearing, that replaced the number 7 thrust washer. Refer to Figures 42 and 43. Both 1st and 2nd design ring gear hubs inside diameter measure 1.500", as shown in Figure 42.
On the 3rd Design ring gear hub the inside diameter was machined approximately .080" larger to accommodate a new design number 6 "Top Hat" thrust washer (See Figure 43). The inside diameter on the 3rd Design ring gear hub measures 1.580", as shown in Figure 42.

(3) NUMBER 6 THRUST WASHER - Was changed from a 3 tab thrust washer to a "Top Hat" design thrust washer in 1987 (See Figure 43). This change is what required the larger inside diameter on the ring gear hub.
Beginning in 1990, on 4.0L engine models, the number 6 "Top Hat" thrust washer was replaced with a new number 6 (3 Piece) thrust bearing, as shown in Figure 43. Notice also the added washer (7D090), that must be used with the 3 piece bearing design (See Figure 43). This is what required the carrier to be machined shorter. The 3 piece thrust bearing has now been changed to a normal "Torrington" (Snap Together) type bearing and replaces the 3 piece design without any other changes.

(4) NUMBER 7 THRUST WASHER - Sometime in 1986, the number 7 thrust washer was eliminated, and replaced with a number 7 thrust bearing as shown in Figure 43. This change required the machined recess in the ring gear hub, to make room for the thrust bearing, as shown in Figure 42. The number 7 thrust bearing is still used through current production (See Figure 43).

Continued on next Page

INTERCHANGEABILITY:

(1) The ***1st Design 3 pinion aluminum*** front planetary carrier system, as shown in Figure 43, is recommended for nothing larger than 2.3L engine models. The 1st Design 3 pinion aluminum front planetary carrier is no longer serviced by Ford Motor Co. It now upgrades to the latest 3rd Design 6 pinion steel front planetary carrier system, which comes as a service package and includes all necessary hubs and washers to make it compatable, and is available under OEM part number F0TZ-7A398-E.

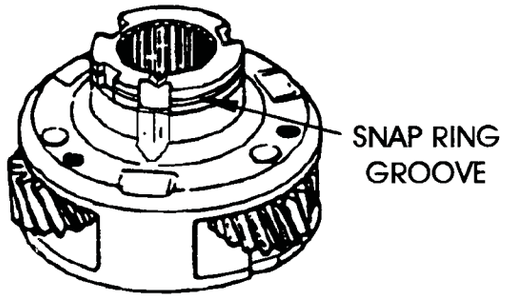
(2) The ***2nd Design 4 pinion steel*** front planetary carrier system, as shown in Figure 43, with the 1.580" inside diameter ring gear hub, the number 7 thrust bearing, the number 6 "Top Hat" thrust washer ***WILL*** retro-fit back on all models, except 4.0L engine models, but all parts listed above must be used as an assembly (See Figure 43). The 2nd Design 4 pinion steel front planetary carrier is no longer serviced by Ford Motor Co. It now upgrades to the latest 3rd Design 6 pinion steel front planetary carrier system, which comes as a service package and includes all necessary hubs and washers to make it compatable, and is available under OEM part number F0TZ-7A398-E.

(3) The ***3rd Design 6 pinion steel,*** 4.0L engine front planetary system, as shown in Figure 43, with the 1.580" inside diameter ring gear hub, the number 7 thrust bearing, number 6 (3 Piece) thrust bearing, and bushing (7D090) ***WILL*** retro-fit back on all previous models, but the parts listed above are ***mandatory on 4.0L models*** (See Figure 43).

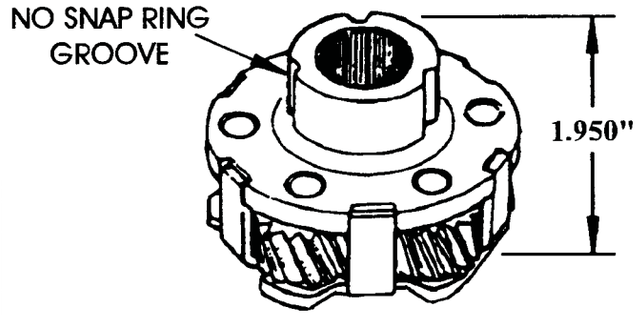
SERVICE INFORMATION:

3 Piece Thrust Bearing, 6 Pinion Steel Front Carrier F3TZ-7D234-A
Washer (7D090), 6 Pinion Steel Front Carrier F0TZ-7D090-A
Service Package, 6 Pinion Steel Front Carrier
(Includes the following:)
Front Planetary Assembly (7A398)
Number 7 Thrust Bearing (7F374)
Front Ring Gear Hub, 3rd Design (7B067)
Forward Clutch Thrust Washer (7D090)
3 Piece Thrust Bearing Assembly (7D234) F0TZ-7A398-E

"1ST DESIGN"
3 PINION ALUMINUM
FRONT PLANETARY



"2ND DESIGN"
4 PINION STEEL
FRONT PLANETARY



"3RD DESIGN"
6 PINION STEEL
FRONT PLANETARY

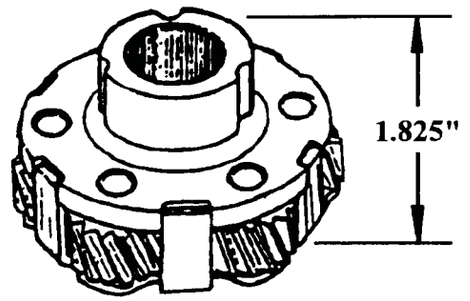


Figure 41

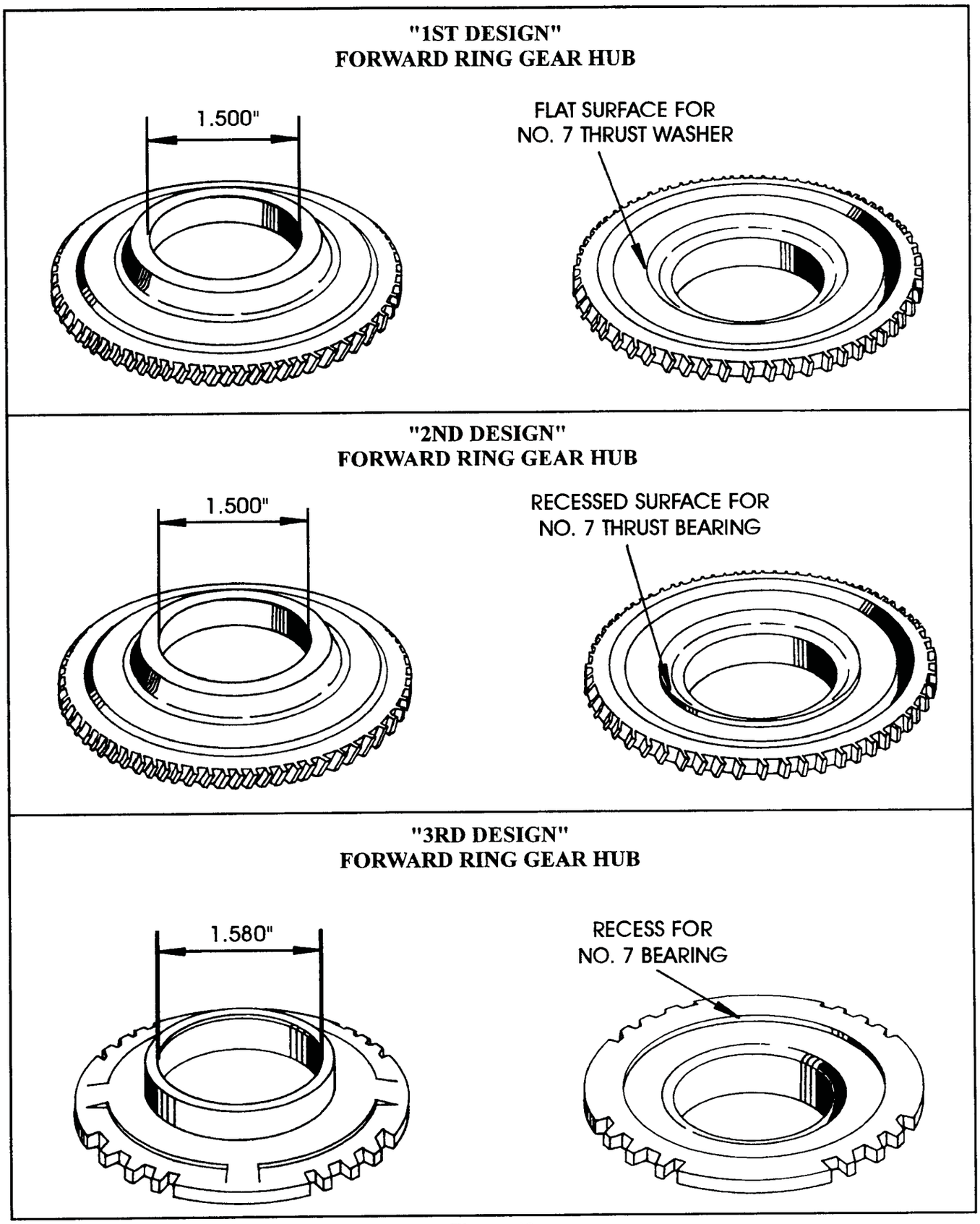
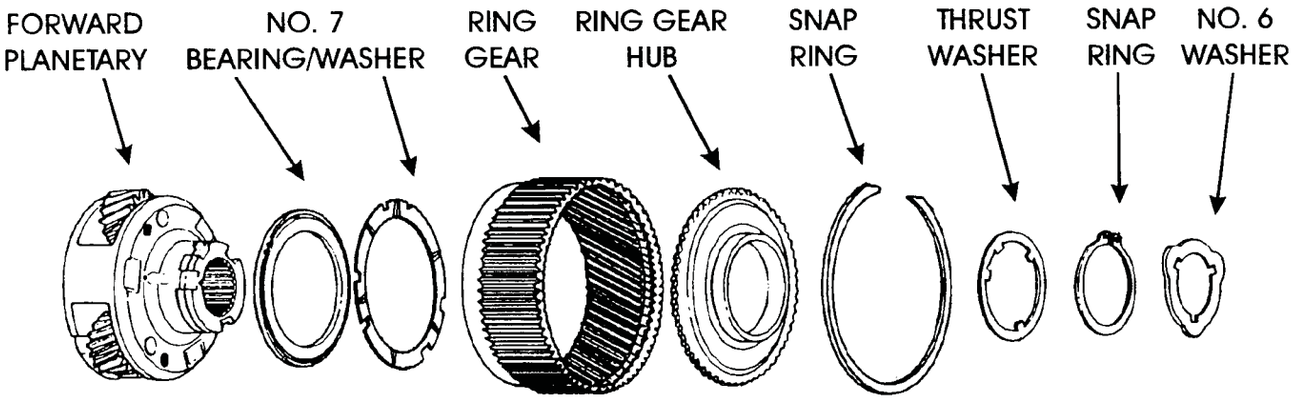
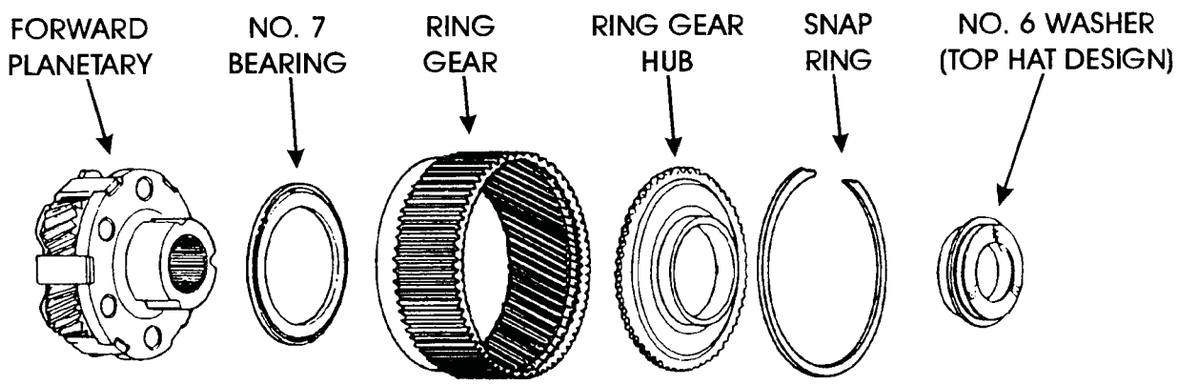

"1ST DESIGN"
FORWARD RING GEAR HUB
1.500"
FLAT SURFACE FOR
NO. 7 THRUST WASHER
"2ND DESIGN"
FORWARD RING GEAR HUB
1.500"
RECESSED SURFACE FOR
NO. 7 THRUST BEARING
"3RD DESIGN"
FORWARD RING GEAR HUB
1.580"
RECESS FOR
NO. 7 BEARING

Figure 42

"1ST DESIGN" *3 PINION ALUMINUM* FRONT CARRIER PARTS



"2ND DESIGN" *4 PINION STEEL* FRONT CARRIER PARTS



"3RD DESIGN" *6 PINION STEEL* FRONT CARRIER PARTS

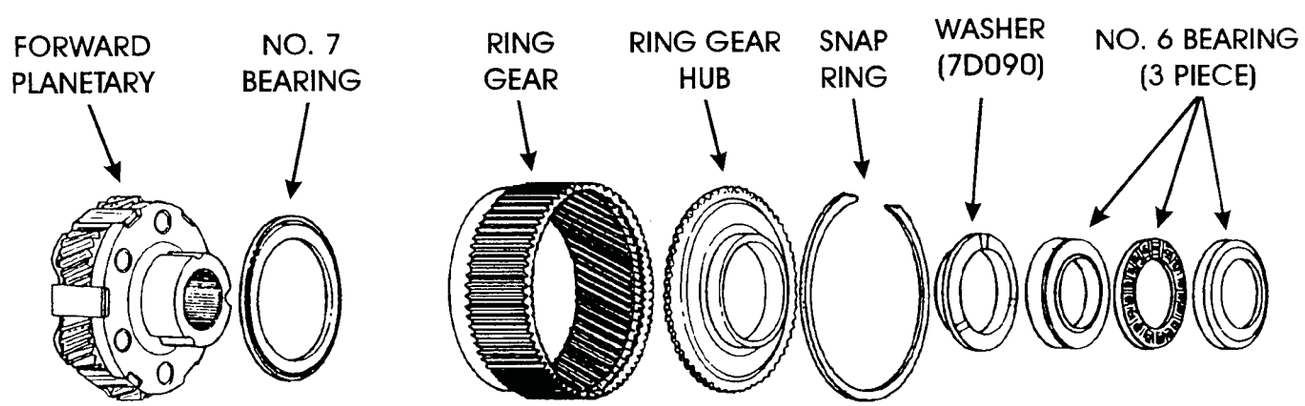


Figure 43

FORD A4LD
REAR PLANETARY CARRIER AND LUBE CIRCUIT CHANGES

CHANGE: Sometime in model year 1987, the 1st design ***3 pinion aluminum*** rear planetary carrier was replaced with a 2nd design ***4 pinion steel*** rear planetary carrier (See Figure 45).
In model year 1990, on 4.0L engine models only, the 4 pinion steel carrier was once again revised to a ***6 pinion steel*** rear planetary carrier (See Figure 45). Included in this change were changes in the internal lubrication circuit. These changes have affected many of the related parts and created confusion for many rebuilders.

REASON: Greater torque carrying capacity to meet increased horsepower demands.

PARTS AFFECTED:

(1) REAR PLANETARY CARRIER - The 1st design ***3pinion aluminum*** rear carrier was eliminated and replaced with a 2nd design ***4 pinion steel*** rear carrier, as shown in Figure 45. Both 1st and 2nd design rear carriers have 10 lugs where it lugs into the reverse drum, as shown in Figure 45. The 1st design 3 pinion aluminum rear carrier is no longer serviced by Ford Motor Co, and automatically supercedes to the 4 pinion steel rear carrier. It is available as a service package under OEM part number E7SZ-7D006-C, which includes the number 8 and number 9 thrust washers, to make it compatable.
Beginning in 1990, on 4.0L engine models only, Ford introduced a 3rd design ***6 pinion steel*** rear carrier, which has multiple lugs where it lugs into the reverse drum (See Figure 45).

(2) REVERSE DRUM - The 1st design Reverse Drum contains the ***low roller clutch*** and has the "Castles" on the front of the drum to accept the 10 lug, 4 pinion steel rear carrier, as shown in Figure 46.
The 2nd design Reverse Drum contains the ***low sprag clutch*** and is machined to accept the multiple lug, 6 pinion steel rear carrier for the 4.0L models, as shown in Figure 46.

(3) REAR RING GEAR HUB - The 1st design Rear Ring Gear Hub is identified with a "Stepped" washer surface as shown in Figure 47, and uses the 1st design number 9 thrust washer as shown in Figure 45.
The 2nd design Rear Ring Gear Hub is identified with a "Flat" washer surface as shown in Figure 47, to accommodate the new 2nd design number 9 thrust washer (See Figure 45).
The 3rd design Rear Ring Gear Hub is identified with a machined recess to accommodate the added oil sleeve and the thicker output shaft snap ring, and you can also see the added lube grooves in the spline area to accommodate the internal lube flow changes (See Figure 47).
The 2nd & 3rd design Ring Gear Hub also has step removed out next to the ring gear teeth, to accommodate larger diameter of the 2nd design number 9 thrust washer (See Figure 47).

(4) NUMBER 8 THRUST WASHER - Thrust washer tab locations and design changed, to accommodate the 2nd design 4 pinion steel rear carrier (See Figure 45).
The 2nd design number 8 thrust washer was carried forward, and used also on the 6 pinion steel rear carrier for the 4.0L engine models (See Figure 45).

Continued on next Page

PARTS AFFECTED: (Cont'd)

(5) NUMBER 9 THRUST WASHER - Thrust washer tab locations, and thrust washer surface area changed, to accommodate the 2nd design 4 pinion steel rear planetary carrier (See Figure 45). The 2nd design number 9 thrust washer was carried forward, and used also on the 6 pinion steel rear carrier for the 4.0L engine models (See Figure 45)

(6) NUMBER 10 THRUST WASHER - Recieved a change in outside diameter (See Figure 47), and is now used to retain the low sprag end bearing on 4.0L engine models. Refer to the cutaway illustrations in Figure 49.
The outside diameter on the number 10 thrust washer for the 4 pinion carrier is 2.275", and the outside diameter on the number 10 thrust washer for the 6 pinion carrier is 3.205", as shown in Figure 47.

(7) OIL SLEEVE - An added oil delivery sleeve, or lubrication guide, was added to the output shaft rear ring gear hub to direct lube oil from the added grooves in the hub, through the sun gear to the front planetary gear set (See Figures 44 and 47).

(8) OUTPUT SHAFT - The Output Shaft was revised in three areas:
- The front output shaft bushing was replaced with a caged needle bearing (See Figure 48).
- The output shaft snap ring groove was machined approximately .030" wider to make room for a revised thickness snap ring (See Figure 48). The new snap ring thickness is .077", as shown in Figure 48.
- The lube holes in the 1st design output shaft were eliminated entirely, to accommodate the revisions in the lube circuit on the 4.0L engine models (See Figure 48).

(9) OUTPUT SHAFT SNAP RING - The snap ring that retains the rear ring gear and hub onto the output shaft on 4.0L models was increased in thickness, and now measures .077" thick. On all other applications the snap ring measures .046" thick (See Figure 48).

(10) REVERSE DRUM SNAP RING - The snap ring that retains the 10 lug (4 Pinion) rear carrier in the Reverse Drum was eliminated on the "Multiple Lug" (6 Pinion) rear carrier for the 4.0L engine models (See Figure 49).

INTERCHANGEABILITY:

(1) 1ST DESIGN, 3 PINION ALUMINUM, REAR CARRIER - ***Not recommended for use in any A4LD,*** but if used, it must be used with all 1st design parts listed above.

(2) 2ND DESIGN, 4 PINION STEEL, REAR CARRIER - Recommended for all 2.3L, 2.8L, 2.9L, 3.0L engines, and ***mandatory*** for all 2.3L Turbo models. Must be used with all 2nd design parts listed above, except output shaft which must be 1st design.

(3) 3RD DESIGN, 6 PINION STEEL, REAR CARRIER - ***Mandatory for all 4.0L models,*** and must be used with all 3rd design parts listed above, and the 2nd design output shaft.

SERVICE INFORMATION:

Number 8 Thrust Washer (1st Design)	D4ZZ-7A166-A
Number 8 Thrust Washer (2nd Design)	FOTZ-7A166-A
Number 9 Thrust Washer (1st Design)	D4ZZ-7A166-A
Number 9 Thrust Washer (2nd Design)	FOTZ-7A166-B
Number 10 Thrust Washer (1st Design)	D4ZZ-7D422-B
Number 10 Thrust Washer (2nd Design)	FOTZ-7D422-A
Oil Sleeve, Output Shaft (4.0L Engine)	FOTZ-7B176-A
Snap Ring, Output Shaft (.046" Thick)	E661125-S
Snap Ring, Output Shaft (.077" Thick)	E860527-S
Rear Carrier, 4 Pinion Steel (Includes No. 8 & No. 9 Washers)	E7SZ-7D006-C
Rear Ring Gear Hub, (4 Pinion Steel)	E7SZ-7D164-A
Rear Carrier, 6 Pinion Steel (4.0L Engine)	FOTZ-7D006-A
Rear Ring Gear Hub, (6 Pinion Steel)	FOTZ-7D164-C

OIL SLEEVE FOR 4.0L MODELS

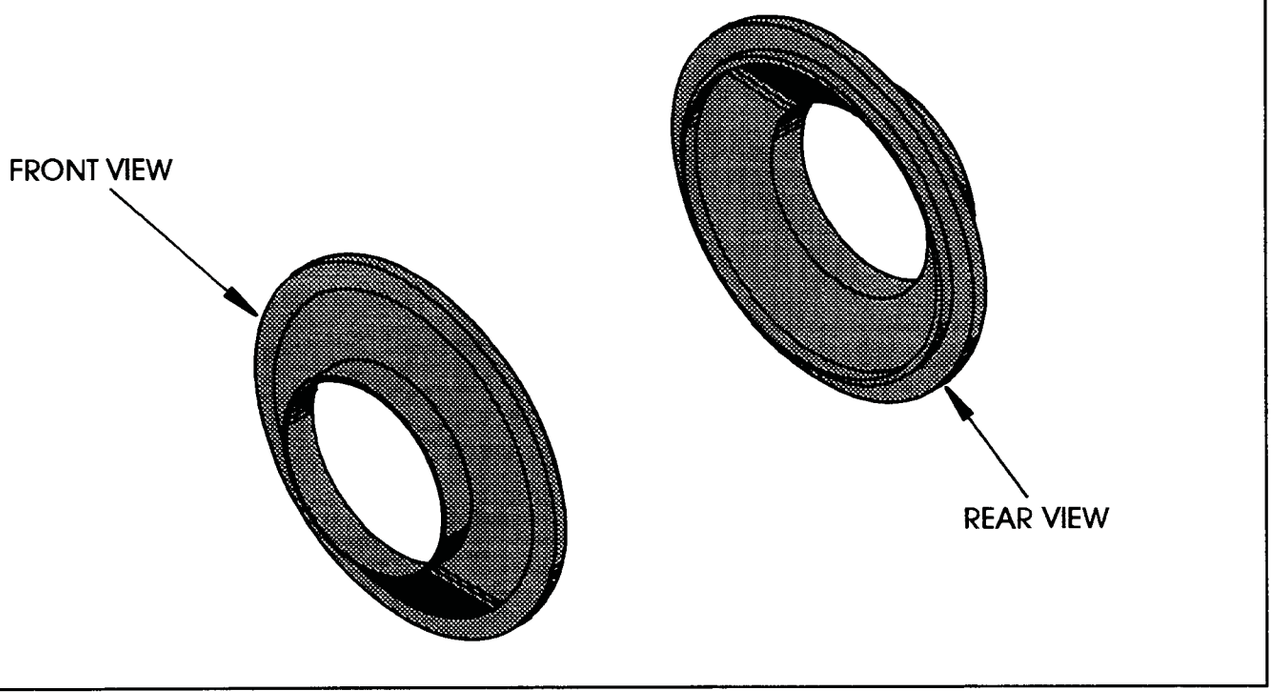
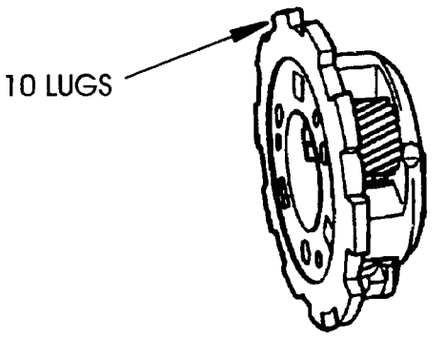
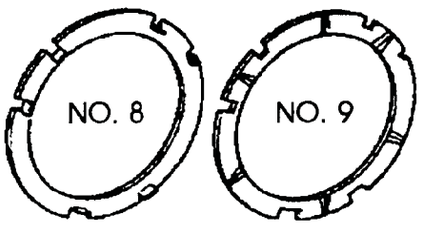


Figure 44

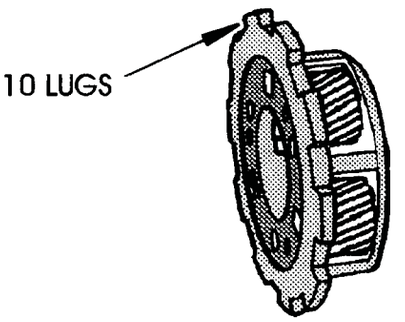
"1ST DESIGN"
3 PINION ALUMINUM
REAR PLANETARY CARRIER



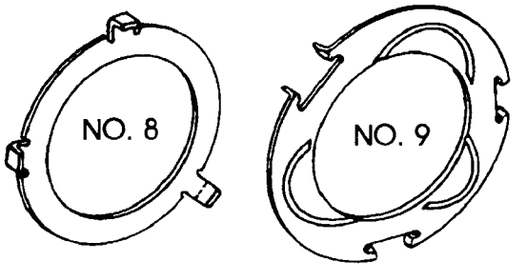
"1ST DESIGN" THRUST WASHERS



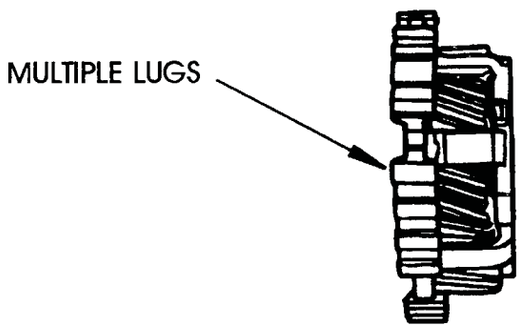
"2ND DESIGN"
4 PINION STEEL
REAR PLANETARY CARRIER



"2ND DESIGN" THRUST WASHERS



"3RD DESIGN"
6 PINION STEEL (4.0L)
REAR PLANETARY CARRIER



"2ND DESIGN" THRUST WASHERS

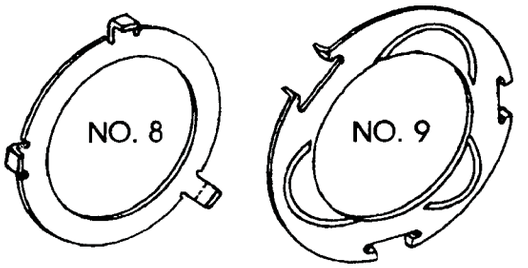
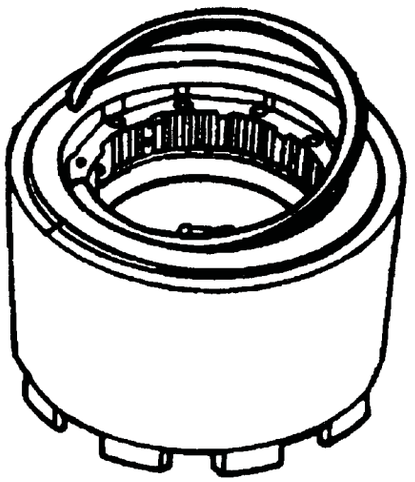
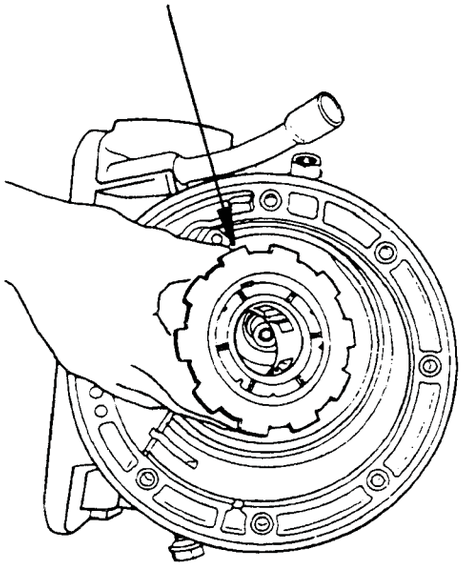


Figure 45

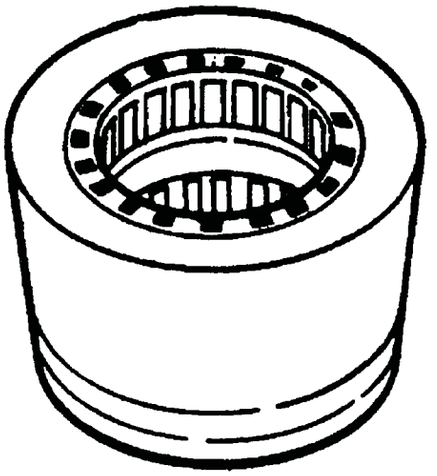
"1ST DESIGN"
REVERSE DRUM
WITH ROLLER CLUTCH



REQUIRES THE "2ND DESIGN"
10 LUG REAR CARRIER



"2ND DESIGN"
REVERSE DRUM
WITH SPRAG



REQUIRES THE "3RD DESIGN"
MULTIPLE LUG REAR CARRIER

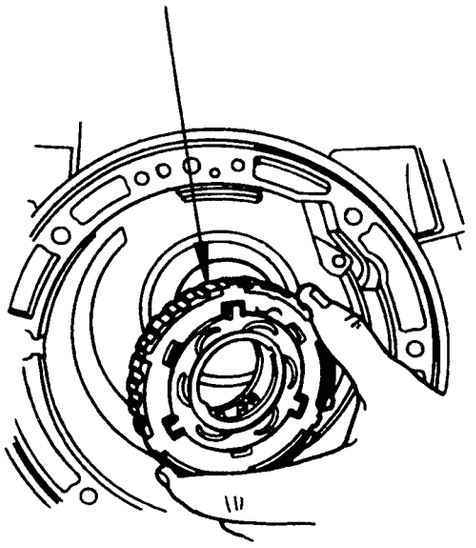


Figure 46

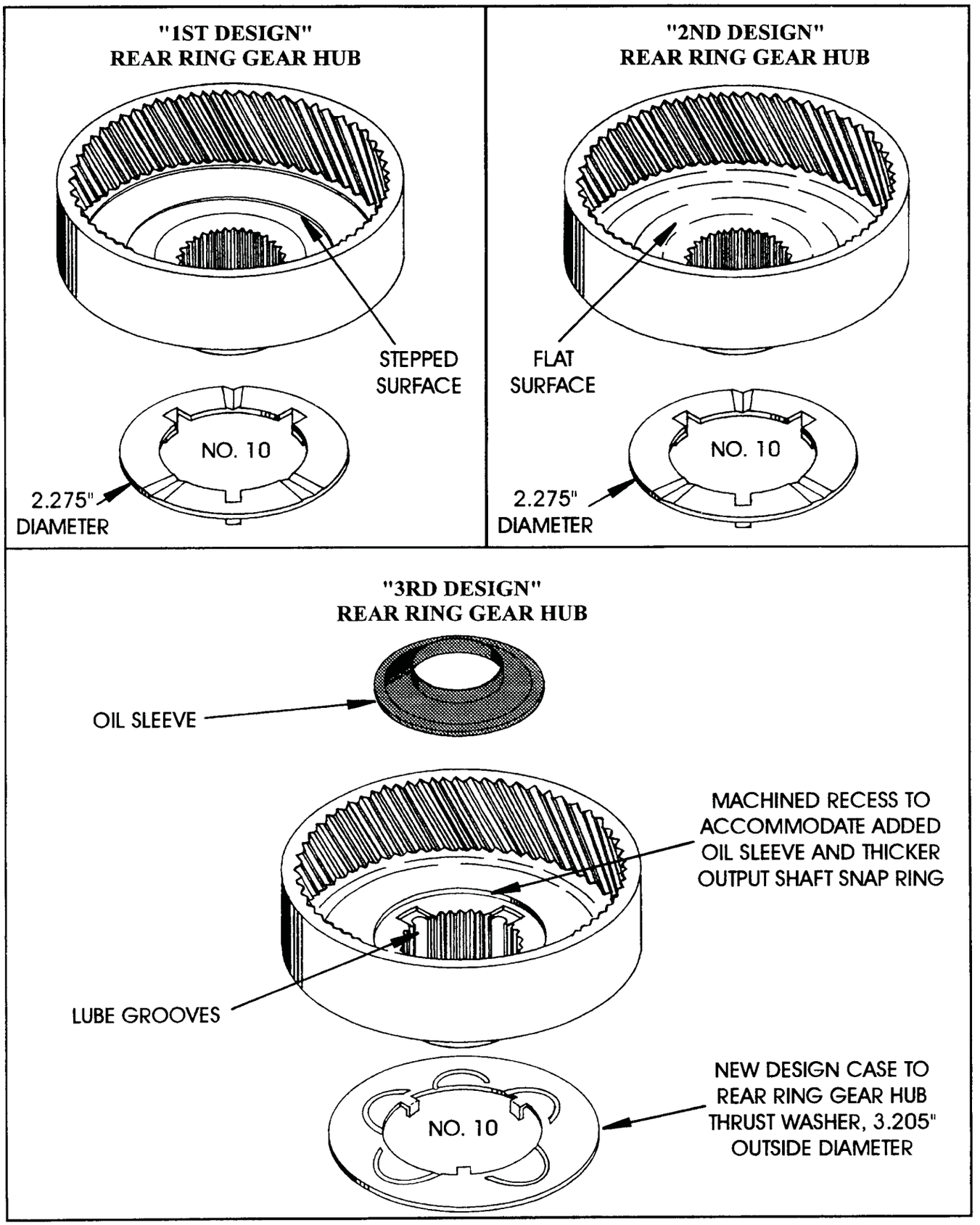

"1ST DESIGN"
REAR RING GEAR HUB
STEPPED SURFACE
NO. 10
2.275" DIAMETER
"2ND DESIGN"
REAR RING GEAR HUB
FLAT SURFACE
NO. 10
2.275" DIAMETER
"3RD DESIGN"
REAR RING GEAR HUB
OIL SLEEVE
MACHINED RECESS TO ACCOMMODATE ADDED OIL SLEEVE AND THICKER OUTPUT SHAFT SNAP RING
LUBE GROOVES
NEW DESIGN CASE TO REAR RING GEAR HUB THRUST WASHER, 3.205" OUTSIDE DIAMETER
NO. 10

Figure 47

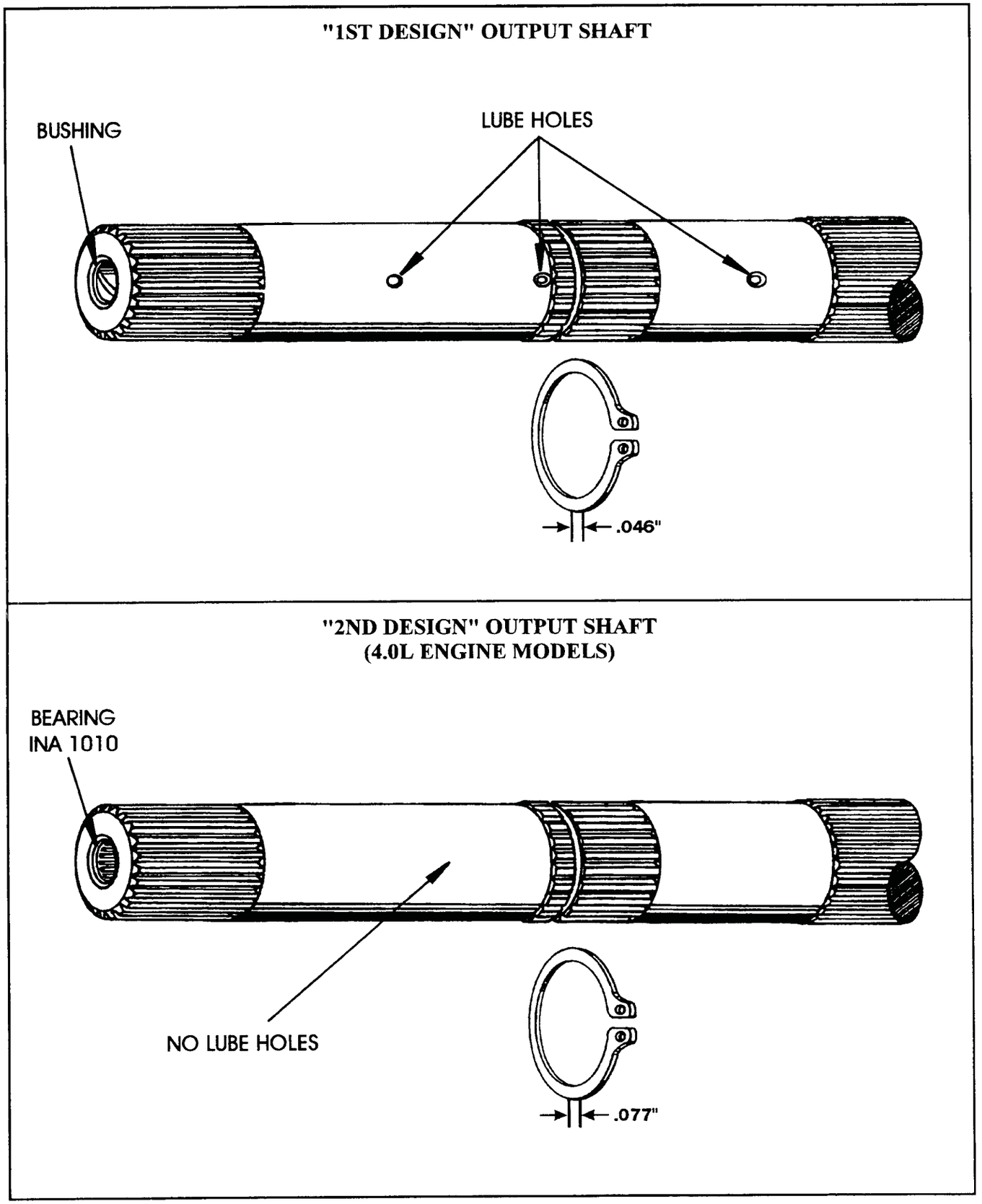
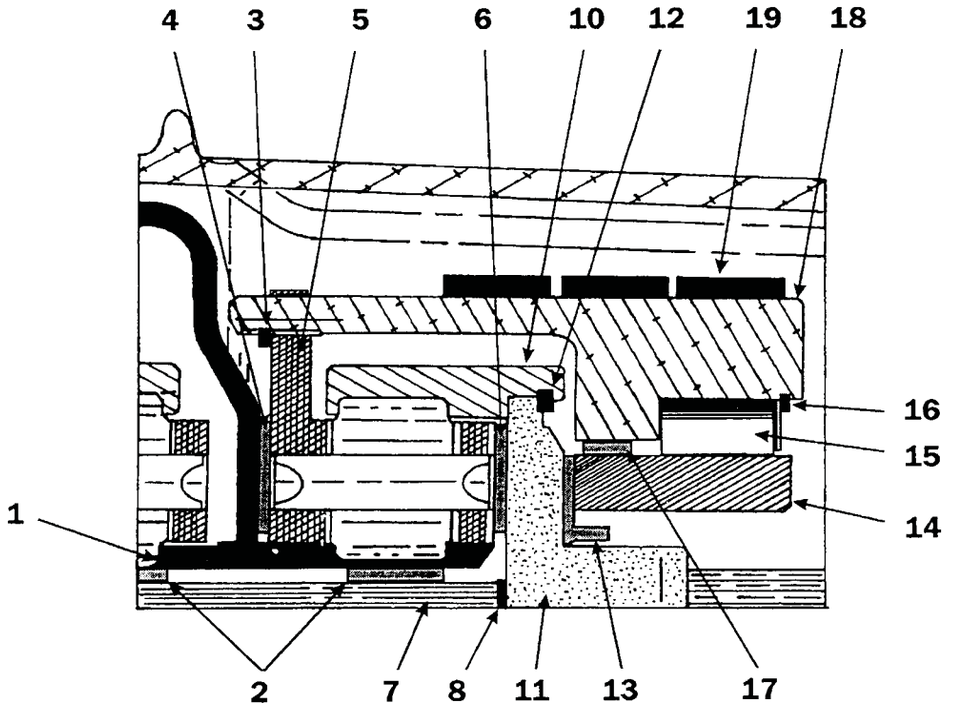

"1ST DESIGN" OUTPUT SHAFT
BUSHING
LUBE HOLES
.046"
"2ND DESIGN" OUTPUT SHAFT
(4.0L ENGINE MODELS)
BEARING
INA 1010
NO LUBE HOLES
.077"

Figure 48

EARLY LOW ONE WAY CLUTCH ASSEMBLY



LATE (4.OL) LOW ONE WAY CLUTCH ASSEMBLY

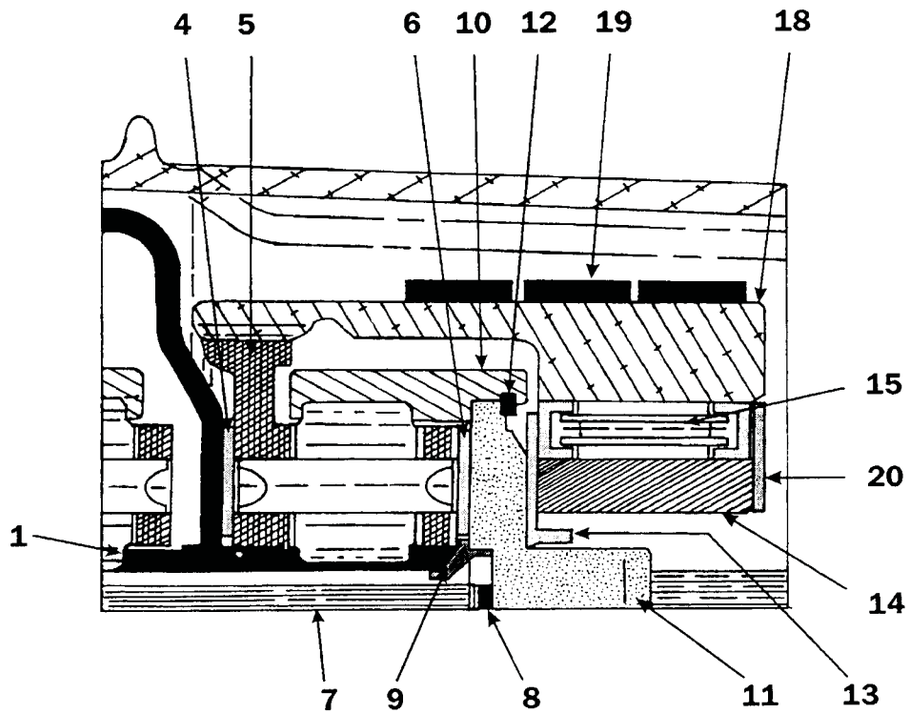


Figure 49

1. SUN GEAR.
2. SUN GEAR BUSHING.
3. REVERSE DRUM RETAINING SNAP RING.
4. NUMBER 8 THRUST WASHER.
5. REAR PLANETARY CARRIER.
6. NUMBER 9 THRUST WASHER.
7. OUTPUT SHAFT.
8. OUTPUT SHAFT TO REAR RING GEAR HUB RETAINING SNAP RING (.046" OR .077").
9. OIL SLEEVE, OUTPUT SHAFT (LUBE GUIDE).
10. REAR PLANETARY RING GEAR.
11. REAR RING GEAR HUB.
12. REAR RING GEAR TO RING GEAR HUB RETAINING SNAP RING.
13. NUMBER 10 THRUST WASHER.
14. LOW ROLLER / LOW SPRAG CLUTCH INNER RACE.
15. LOW ROLLER / LOW SPRAG ASSEMBLY.
16. LOW ROLLER CLUTCH TO REVERSE DRUM RETAINING SNAP RING.
17. REVERSE DRUM BUSHING.
18. REVERSE DRUM.
19. LOW & REVERSE BAND ASSEMBLY.
20. NUMBER 15 THRUST WASHER. (PART OF CASE)

Figure 49 Legend

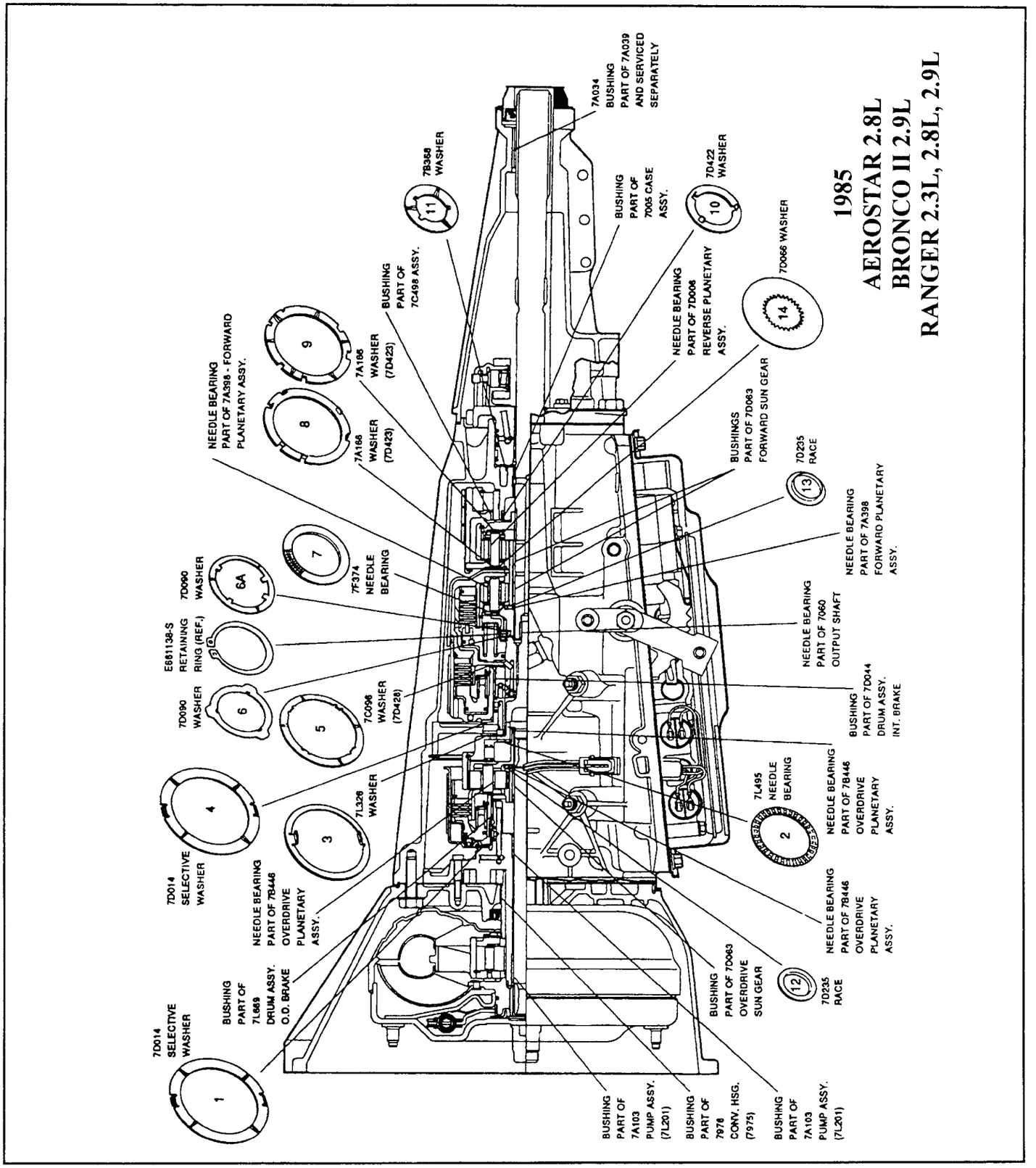

1985
AEROSTAR 2.8L
BRONCO II 2.9L
RANGER 2.3L, 2.8L, 2.9L
7D014 SELECTIVE WASHER
BUSHING PART OF 7L669 DRUM ASSY. O.D. BRAKE
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
7D014 SELECTIVE WASHER
7L326 WASHER
7D090 WASHER
E881138-S RETAINING RING (REF.)
7D090 WASHER
7C096 WASHER (7D428)
7F374 NEEDLE BEARING
NEEDLE BEARING PART OF 7A398 - FORWARD PLANETARY ASSY.
7A186 WASHER (7D423)
7A186 WASHER (7D423)
BUSHING PART OF 7C498 ASSY.
7B368 WASHER
7A034 BUSHING PART OF 7A039 AND SERVICED SEPARATELY
BUSHING PART OF 7005 CASE ASSY.
7D422 WASHER
7D066 WASHER
NEEDLE BEARING PART OF 7D008 REVERSE PLANETARY ASSY.
BUSHINGS PART OF 7D063 FORWARD SUN GEAR
7D235 RACE
NEEDLE BEARING PART OF 7A398 FORWARD PLANETARY ASSY.
NEEDLE BEARING PART OF 7060 OUTPUT SHAFT
BUSHING PART OF 7D044 DRUM ASSY. INT. BRAKE
7L495 NEEDLE BEARING
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
BUSHING PART OF 7D063 OVERDRIVE SUN GEAR
7D235 RACE
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
BUSHING PART OF 7A103 PUMP ASSY. (7L201)
BUSHING PART OF 7978 CONV. HSG. (7975)
BUSHING PART OF 7A103 PUMP ASSY. (7L201)

Figure 50

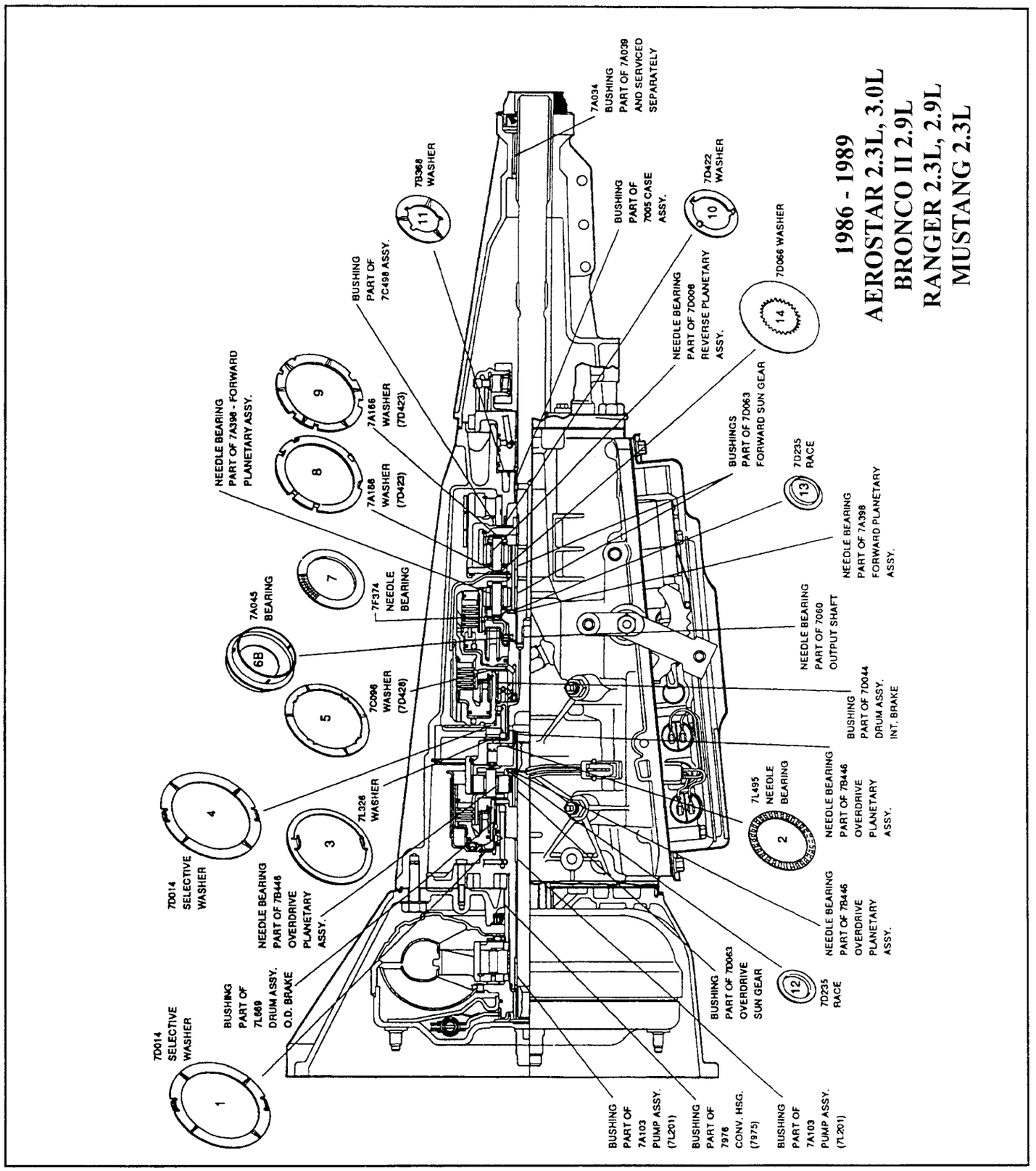

1986 - 1989
AEROSTAR 2.3L, 3.0L
BRONCO II 2.9L
RANGER 2.3L, 2.9L
MUSTANG 2.3L
7D014 SELECTIVE WASHER
BUSHING PART OF 7L869 DRUM ASSY. O.D. BRAKE
7D014 SELECTIVE WASHER
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
7L326 WASHER
7C096 WASHER (7D428)
7A045 BEARING
7F374 NEEDLE BEARING
NEEDLE BEARING PART OF 7A398 - FORWARD PLANETARY ASSY.
7A188 WASHER (7D423)
7A166 WASHER (7D423)
BUSHING PART OF 7C498 ASSY.
7B368 WASHER
7A034 BUSHING PART OF 7A039 AND SERVICED SEPARATELY
BUSHING PART OF 7005 CASE ASSY.
7D422 WASHER
NEEDLE BEARING PART OF 7D008 REVERSE PLANETARY ASSY.
7D066 WASHER
BUSHINGS PART OF 7D063 FORWARD SUN GEAR
7D235 RACE
NEEDLE BEARING PART OF 7A398 FORWARD PLANETARY ASSY.
NEEDLE BEARING PART OF 7060 OUTPUT SHAFT
BUSHING PART OF 7D044 DRUM ASSY. INT. BRAKE
7L495 NEEDLE BEARING
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
BUSHING PART OF 7D063 OVERDRIVE SUN GEAR
7D235 RACE
BUSHING PART OF 7A103 PUMP ASSY. (7L201)
BUSHING PART OF 7976 CONV. HSG. (7975)
BUSHING PART OF 7A103 PUMP ASSY. (7L201)

Figure 51

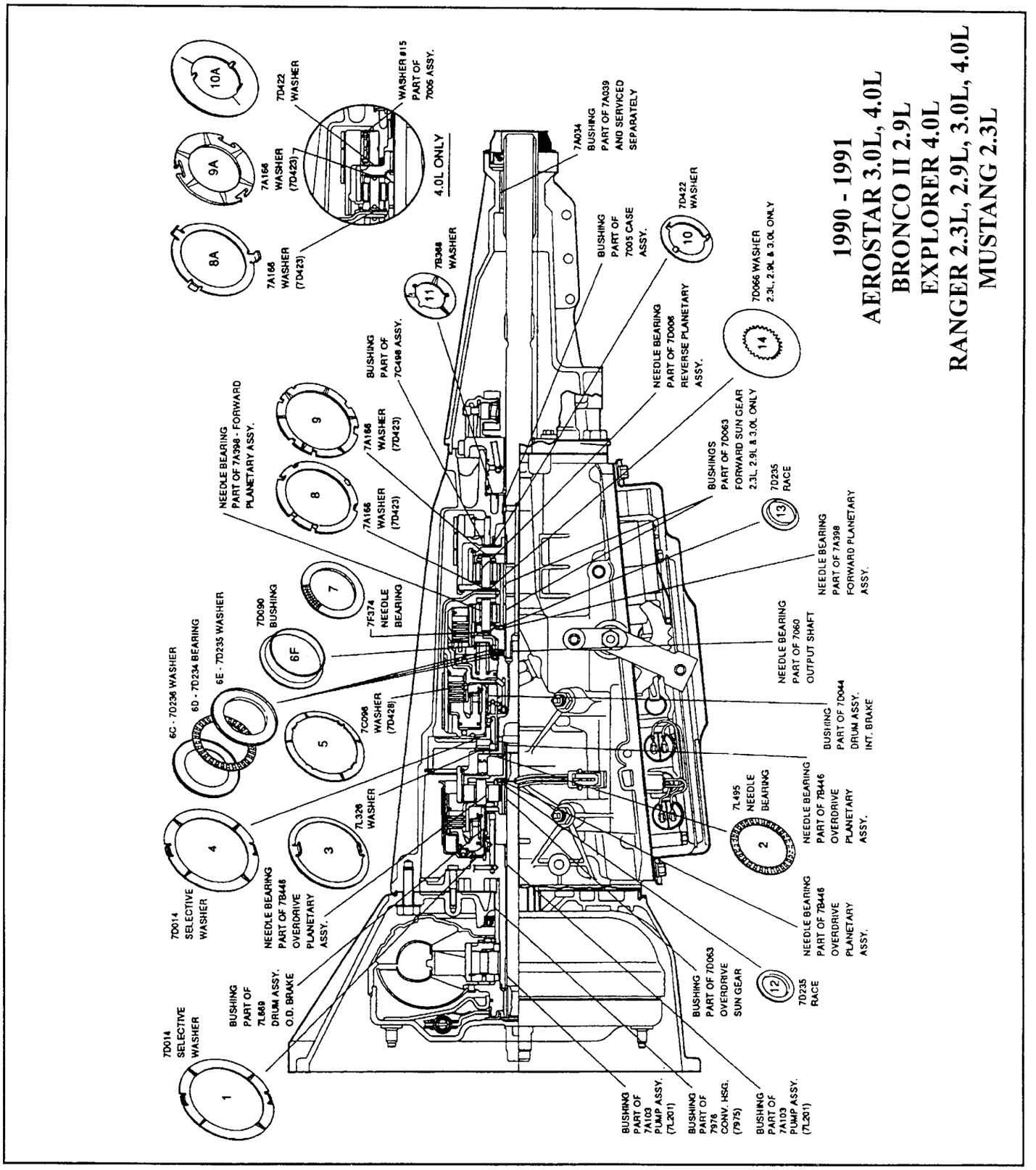

1990 - 1991
AEROSTAR 3.0L, 4.0L
BRONCO II 2.9L
EXPLORER 4.0L
RANGER 2.3L, 2.9L, 3.0L, 4.0L
MUSTANG 2.3L
4.0L ONLY
7D014 SELECTIVE WASHER
BUSHING PART OF 7L869 DRUM ASSY. O.D. BRAKE
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
7L329 WASHER
6C - 7D236 WASHER
6D - 7D234 BEARING
6E - 7D235 WASHER
7D090 BUSHING
7F374 NEEDLE BEARING
7C096 WASHER (7D428)
NEEDLE BEARING PART OF 7A398 - FORWARD PLANETARY ASSY.
7A166 WASHER (7D423)
BUSHING PART OF 7C498 ASSY.
7B368 WASHER
7A166 WASHER (7D423)
7A166 WASHER (7D423)
WASHER #15 PART OF 7005 ASSY.
7D422 WASHER
7A034 BUSHING PART OF 7A039 AND SERVICED SEPARATELY
BUSHING PART OF 7005 CASE ASSY.
7D422 WASHER
NEEDLE BEARING PART OF 7D008 REVERSE PLANETARY ASSY.
7D066 WASHER 2.3L, 2.9L & 3.0L ONLY
BUSHINGS PART OF 7D063 FORWARD SUN GEAR 2.3L, 2.9L & 3.0L ONLY
7D235 RACE
NEEDLE BEARING PART OF 7A398 FORWARD PLANETARY ASSY.
NEEDLE BEARING PART OF 7060 OUTPUT SHAFT
BUSHING PART OF 7D044 DRUM ASSY. INT. BRAKE
7L495 NEEDLE BEARING
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
7D014 SELECTIVE WASHER
BUSHING PART OF 7D063 OVERDRIVE SUN GEAR
7D235 RACE
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
BUSHING PART OF 7A103 PUMP ASSY. (7L201)
BUSHING PART OF 7976 CONV. HSG. (7975)
BUSHING PART OF 7A103 PUMP ASSY. (7L201)

Figure 52

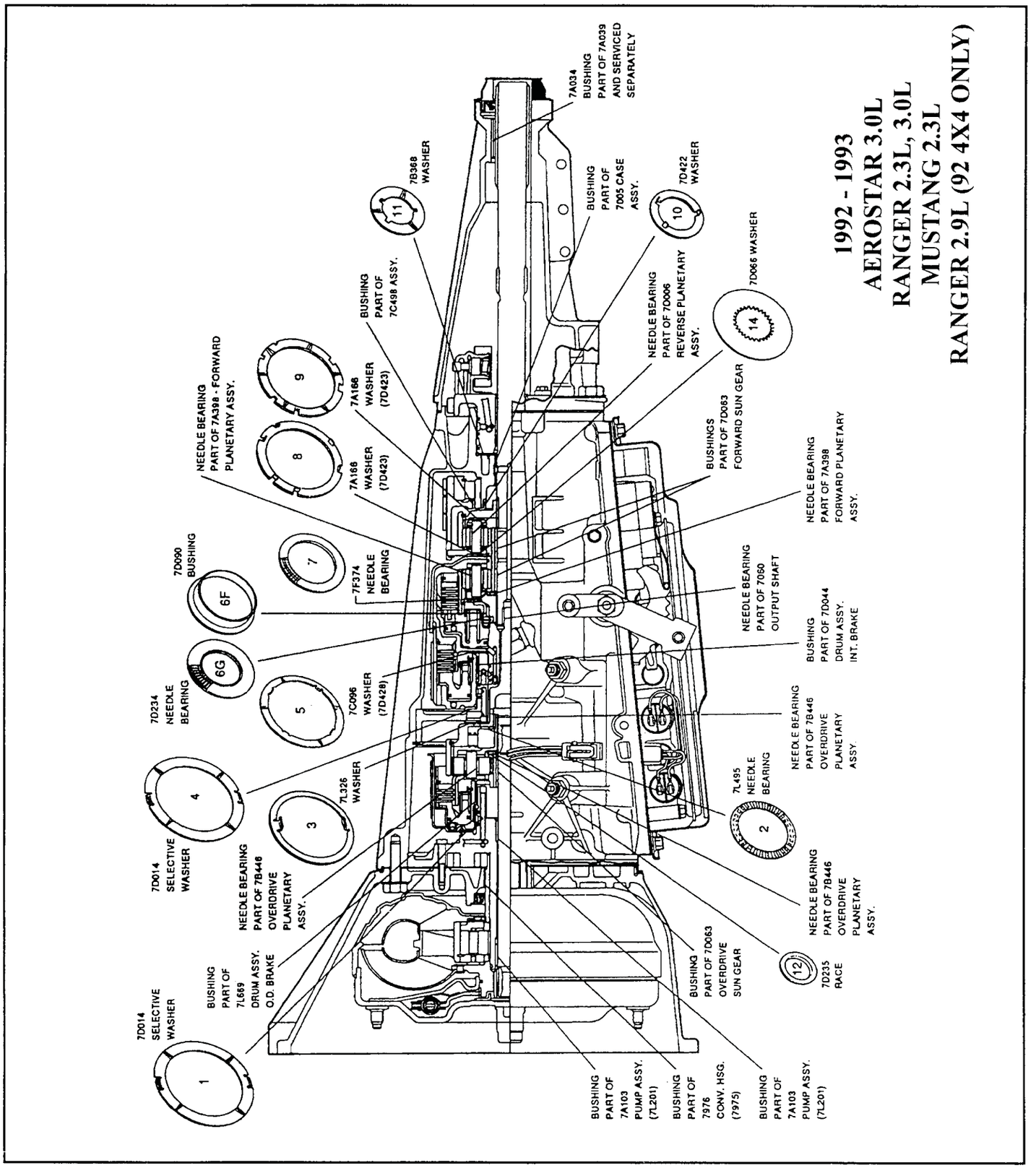

1992 - 1993
AEROSTAR 3.0L
RANGER 2.3L, 3.0L
MUSTANG 2.3L
RANGER 2.9L (92 4X4 ONLY)
7D014 SELECTIVE WASHER
BUSHING PART OF 7L689 DRUM ASSY. O.D. BRAKE
BUSHING PART OF 7A103 PUMP ASSY. (7L201)
BUSHING PART OF 7976 CONV. HSG. (7975)
BUSHING PART OF 7A103 PUMP ASSY. (7L201)
7D014 SELECTIVE WASHER
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
7L326 WASHER
7D234 NEEDLE BEARING
7C096 WASHER (7D428)
7D090 BUSHING
7F374 NEEDLE BEARING
NEEDLE BEARING PART OF 7A398 - FORWARD PLANETARY ASSY.
7A168 WASHER (7D423)
7A168 WASHER (7D423)
BUSHING PART OF 7C498 ASSY.
7B368 WASHER
7A034 BUSHING PART OF 7A039 AND SERVICED SEPARATELY
BUSHING PART OF 7005 CASE ASSY.
7D422 WASHER
NEEDLE BEARING PART OF 7D006 REVERSE PLANETARY ASSY.
7D066 WASHER
BUSHINGS PART OF 7D063 FORWARD SUN GEAR
NEEDLE BEARING PART OF 7A398 FORWARD PLANETARY ASSY.
NEEDLE BEARING PART OF 7060 OUTPUT SHAFT
BUSHING PART OF 7D044 DRUM ASSY. INT. BRAKE
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
7L495 NEEDLE BEARING
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
BUSHING PART OF 7D063 OVERDRIVE SUN GEAR
7D235 RACE

Figure 53

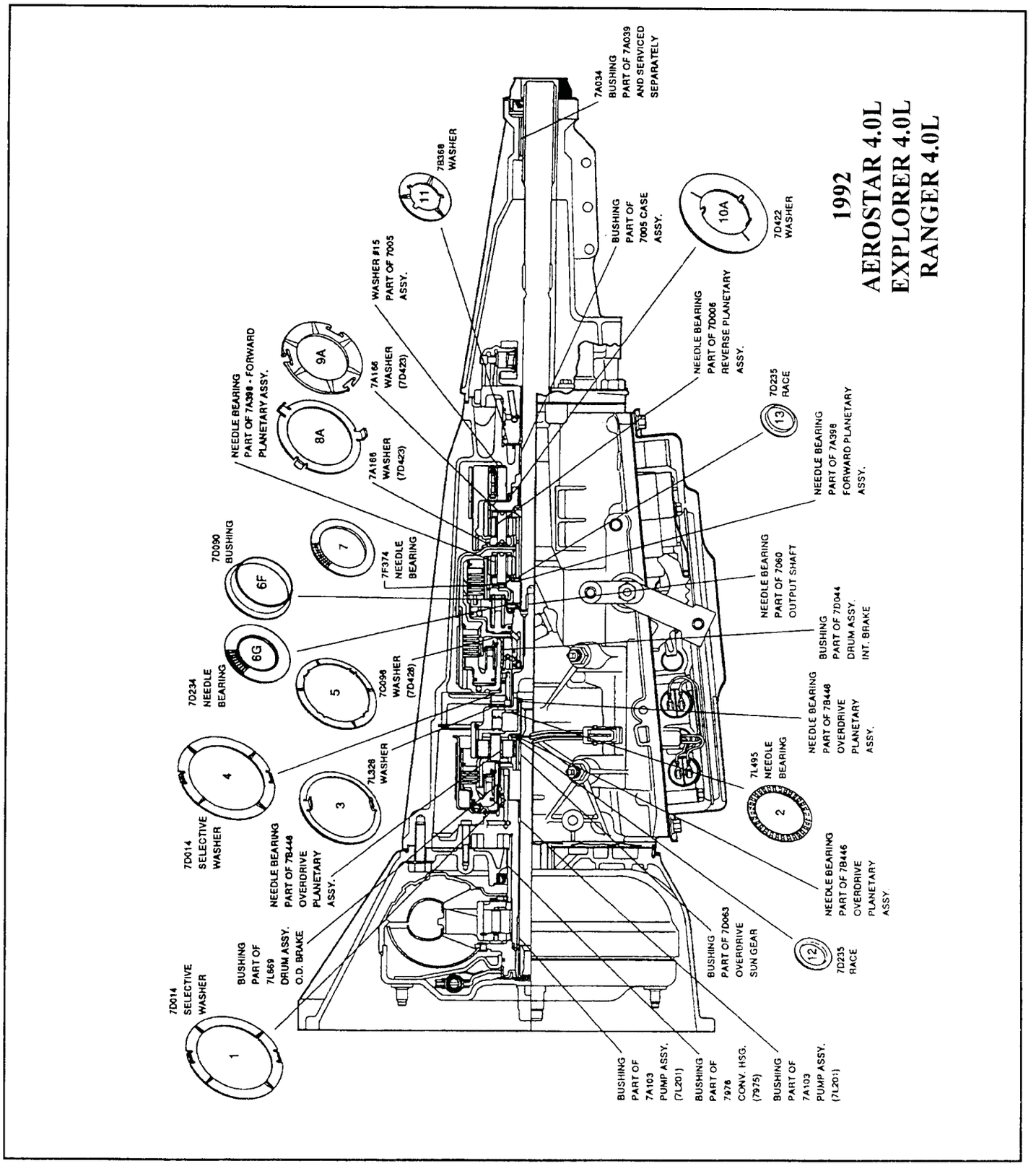

1992
AEROSTAR 4.0L
EXPLORER 4.0L
RANGER 4.0L
7D014 SELECTIVE WASHER
BUSHING PART OF 7L669 O.D. BRAKE DRUM ASSY.
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
7D014 SELECTIVE WASHER
7D234 NEEDLE BEARING
7L328 WASHER
7D096 WASHER (7D426)
7D090 BUSHING
7F374 NEEDLE BEARING
NEEDLE BEARING PART OF 7A398 - FORWARD PLANETARY ASSY.
7A166 WASHER (7D423)
WASHER #15 PART OF 7005 ASSY.
7B368 WASHER
7A034 BUSHING PART OF 7A039 AND SERVICED SEPARATELY
BUSHING PART OF 7005 CASE ASSY.
7D422 WASHER
NEEDLE BEARING PART OF 7D006 REVERSE PLANETARY ASSY.
7D235 RACE
NEEDLE BEARING PART OF 7A398 FORWARD PLANETARY ASSY.
NEEDLE BEARING PART OF 7060 OUTPUT SHAFT
BUSHING PART OF 7D044 DRUM ASSY. INT. BRAKE
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
7L495 NEEDLE BEARING
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
7D235 RACE
BUSHING PART OF 7D063 OVERDRIVE SUN GEAR
BUSHING PART OF 7978 CONV. HSG. (7975)
BUSHING PART OF 7A103 PUMP ASSY. (7L201)
BUSHING PART OF 7A103 PUMP ASSY. (7L201)

Figure 54

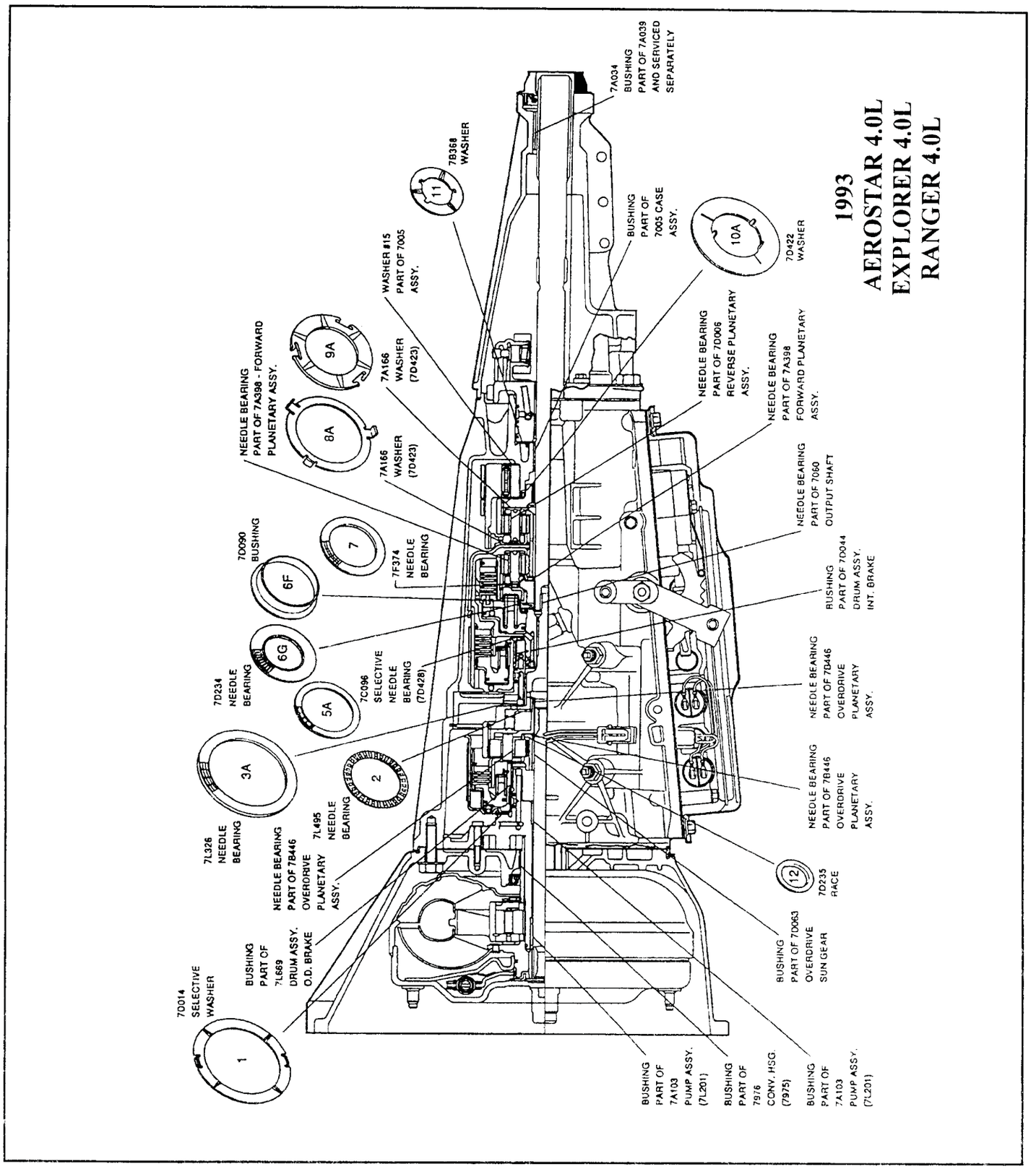

1993
AEROSTAR 4.0L
EXPLORER 4.0L
RANGER 4.0L
7A034 BUSHING PART OF 7A039 AND SERVICED SEPARATELY
7B368 WASHER
BUSHING PART OF 7005 CASE ASSY.
WASHER #15 PART OF 7005 ASSY.
7A166 WASHER (7D423)
NEEDLE BEARING PART OF 7A398 - FORWARD PLANETARY ASSY.
7A166 WASHER (7D423)
7F374 NEEDLE BEARING
7D090 BUSHING
7D234 NEEDLE BEARING
7C096 SELECTIVE NEEDLE BEARING (7D428)
7L326 NEEDLE BEARING
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
7L495 NEEDLE BEARING
70014 SELECTIVE WASHER
BUSHING PART OF 7L669 DRUM ASSY. O.D. BRAKE
BUSHING PART OF 7A103 PUMP ASSY. (7L201)
BUSHING PART OF 7976 CONV. HSG. (7975)
BUSHING PART OF 7A103 PUMP ASSY. (7L201)
BUSHING PART OF 70063 OVERDRIVE SUN GEAR
7D235 RACE
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
NEEDLE BEARING PART OF 7B446 OVERDRIVE PLANETARY ASSY.
BUSHING PART OF 70044 DRUM ASSY. INT. BRAKE
NEEDLE BEARING PART OF 7060 OUTPUT SHAFT
NEEDLE BEARING PART OF 70006 REVERSE PLANETARY ASSY.
NEEDLE BEARING PART OF 7A398 FORWARD PLANETARY ASSY.
70422 WASHER

Figure 55

REAR ENDPLAY CHECK PROCEDURE
MODELS *WITHOUT* SNAP DESIGN SUNSHELL

To perform the endplay check, fabricate a depth gauge fixture from a spare center support. A 1/8" inch hole must be drilled through the thrust washer surface of the center support. See Figure 56 for proper drilling location. This allows the depth micrometer access to the area between the thrust washer surface and the intermediate brake drum. Remove the rubber sealing rings from the spare center support to allow easy insertion into the drum.

ENDPLAY CHECK PROCEDURE:

(1) Place micrometer over drilled hole in the fabricated depth gauge fixture. Extend micrometer probe until it is flush with the thrust washer surface (See Figure 57). Record the measurement. This is reading A.

(2) Install the depth gauge and center support fixture into the direct clutch drum and make sure it is fully seated in the transmission case. Gently wiggle the input shaft to allow the center support fixture to slide into the direct clutch drum using its own weight.

(3) Place the micrometer over the drilled hole in the fixture. Extend the probe until it contacts the thrust washer surface of the direct clutch drum (See Figure 58). This is reading B.

(4) Subtract reading A from reading B. The difference between readings is dimension C

(5) Remove and rotate the fixture 180° and repeat steps 2 - 4.

(6) Average the two dimension C readings to obtain the final dimension C. Locate the final dimension C reading in the following chart and select the proper thrust washer to obtain the proper end play (.012" - .022").

DIMENSION C	I.D. NUMBER ON WASHER	PART NUMBER	WASHER THICKNESS
.065" - .073"	1	FOTZ-7D014-A	.053" - .055"
.074" - .077"	2	FOTZ-7D014-B	.061" - .063"
.078" - .081"	3	FOTZ-7D014-C	.065" - .067"
.082" - .085"	4	FOTZ-7D014-D	.069" - .071"
.086" - .089"	5	FOTZ-7D014-E	.073" - .075"
.090" - .093"	6	FOTZ-7D014-F	.077" - .079"
.094" - .100"	7	FOTZ-7D014-G	.081" - .083"

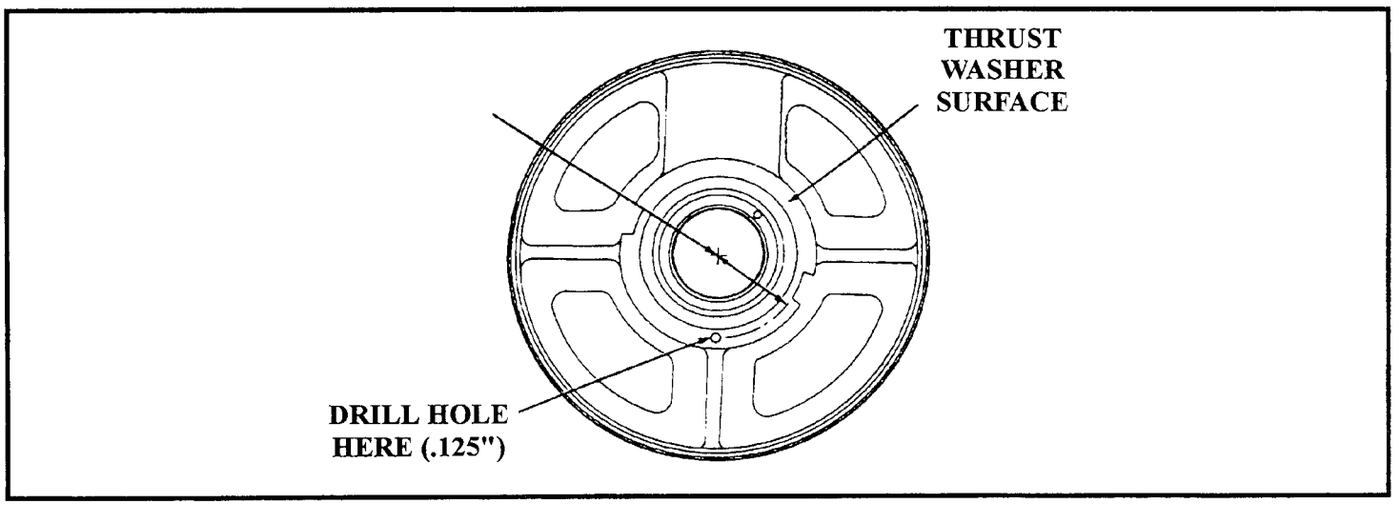


Figure 56

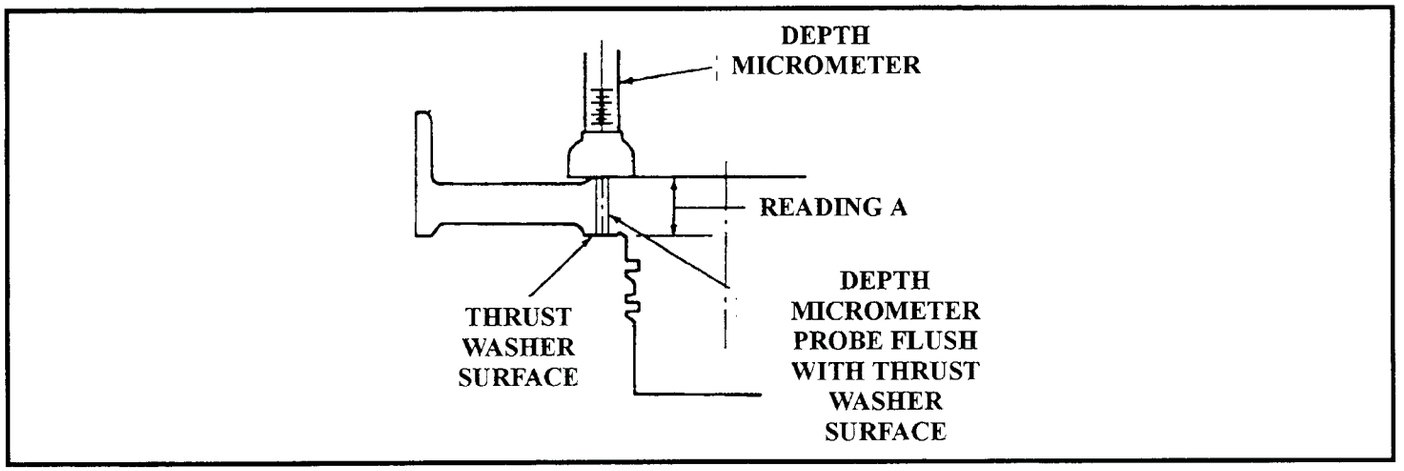


Figure 57

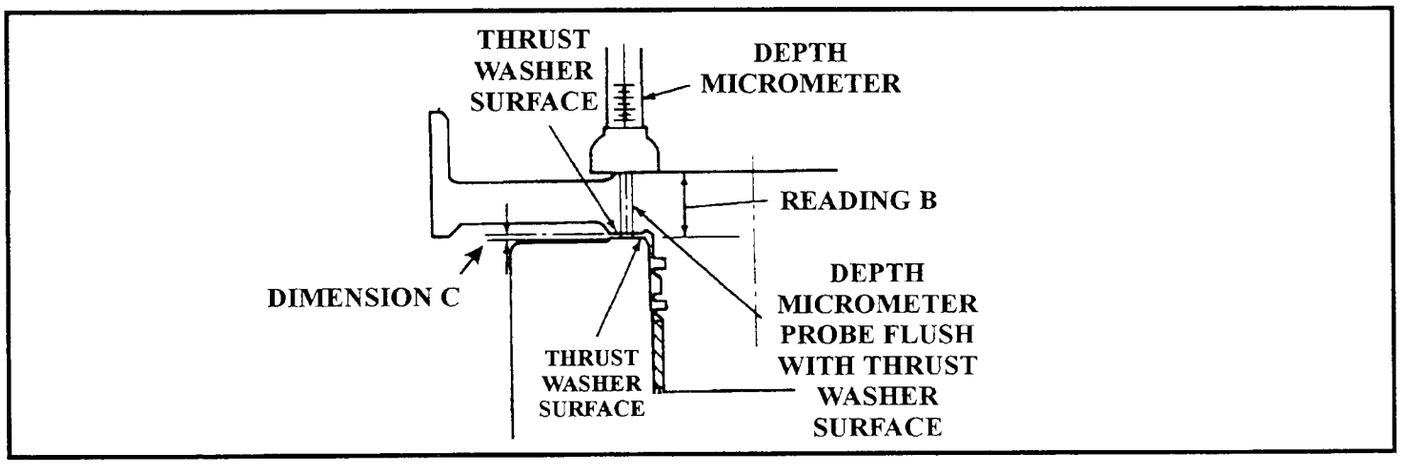


Figure 58

REAR ENDPLAY CHECK PROCEDURE FOR MODELS *WITH* "SNAP" DESIGN SUNSHELL

The center support fixture used on previous models, will not work on "Snap" shell design models. To perform the rear endplay check on these models you ***must*** use a gauging bar (T93T-77003-AH), as shown in Figure 59, and using the following procedure:

REAR ENDPLAY CHECK

(1) Place Gauging Bar (T93T-77003-AH) on case shoulder, as shown in Figure 59, and set the depth micrometer on top of gauging bar as shown in Figure 59.

(2) Extend gauging bar probe until it contacts number 5 thrust bearing surface of the forward clutch drum, as shown in Figure 59. ***Number 5 (Selective) thrust bearing is removed for this check.***

(3) Remove the depth micrometer and record this reading as Dimension "A".

(4) Move the depth micrometer to the opposite side of the gauging bar (180 degrees). Extend gauging bar probe until it contacts number 5 thrust bearing surface of the forward clutch drum, as shown in Figure 59.

(5) Remove the depth micrometer and record this reading as Dimension "B".

(6) Add Dimension "A" and "B" together, and divide by 2, to determine an average reading. Subtract the thickness of Gauging Bar (T93T-77003-AH) which is 0.700" (17.78mm). ***This is Dimension "C".***

(7) Using Dimension "C" in the chart provided below, choose the proper selective number 5 thrust bearing, which will now provide you with the proper end play of .004"-.024".

4.0L "SNAP SHELL" ONLY DIMENSION "C"	BEARING I.D. (NOTCHES)	SERVICE PART NUMBER	SELECTIVE NUMBER 5 BEARING THICKNESS
1.773" - 1.780" (45.04-4522mm)	4	F3PZ-7C096-D	.131" - .135" (3.33-3.44mm)
1.781" - 1.788" (45.23-45.41mm)	3	F3PZ-7C096-C	.138" - .143" (3.51-3.62mm)
1.789" - 1.796" (45.42-45.61mm)	2	F3PZ-7C096-B	.146" - .150" (3.70-3.81mm)
1.796" - 1.804" (45.62-45.81mm)	1	F3PZ-7C096-A	.154" - .158" (3.90-4.01mm)

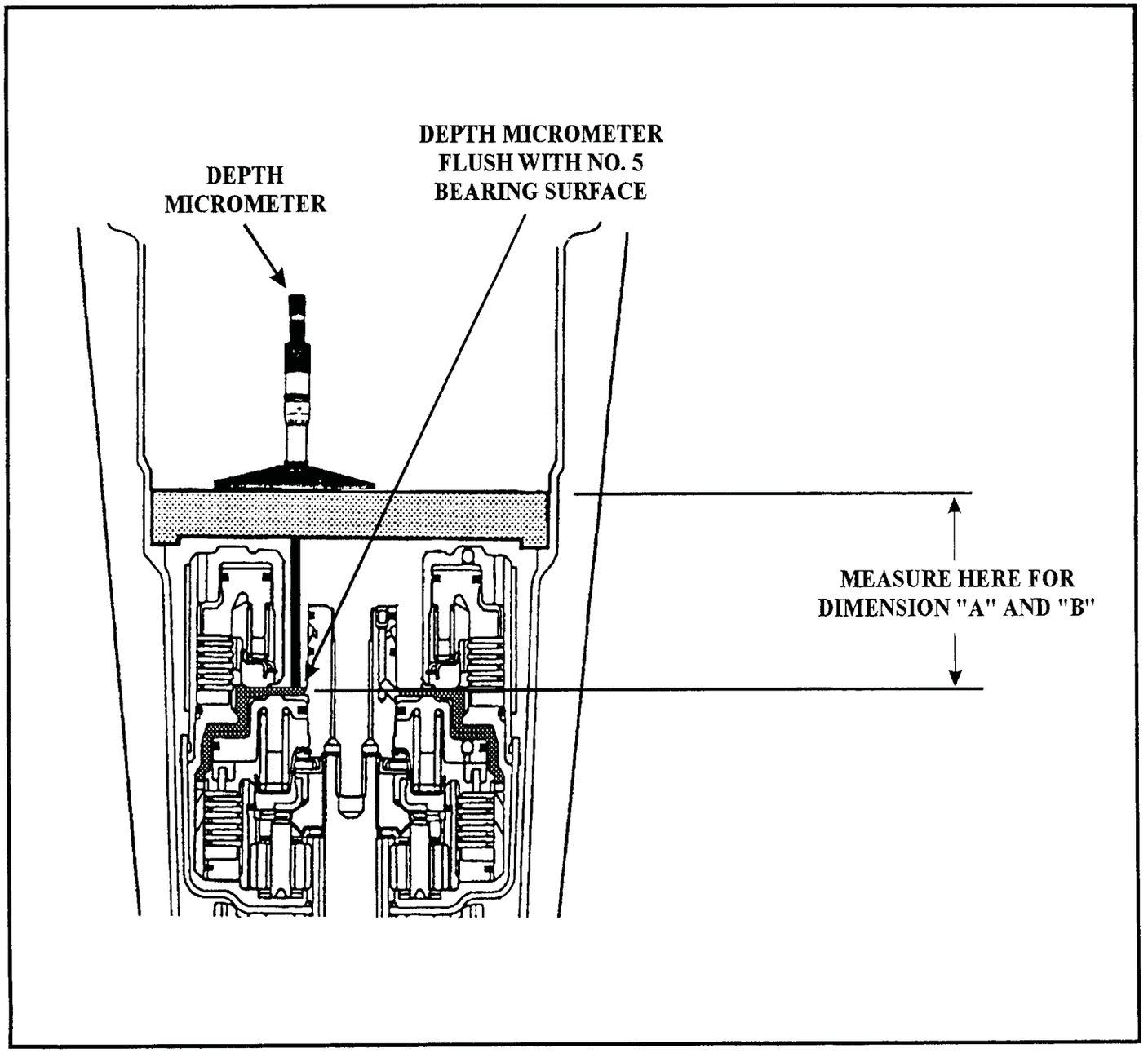

DEPTH MICROMETER
FLUSH WITH NO. 5
BEARING SURFACE
DEPTH
MICROMETER
MEASURE HERE FOR
DIMENSION "A" AND "B"

Figure 59

BLOWING FLUID OUT THE BREATHER

COMPLAINT: Fluid leaking out of the case air vent..

CAUSE: One possible cause may be governor rings leaking, causing pressure to build up in the case and blowing fluid out the vent.

CORRECTION: Check governor bore in case for ring grooves as shown in Figure 60. If ring grooves are present, replace the case, or install a sleeve kit. Also check governor rings for wear and/or damage as shown in Figure 60. Replace as necessary. It is recommended that the Tin-Nickel coated rings be used.

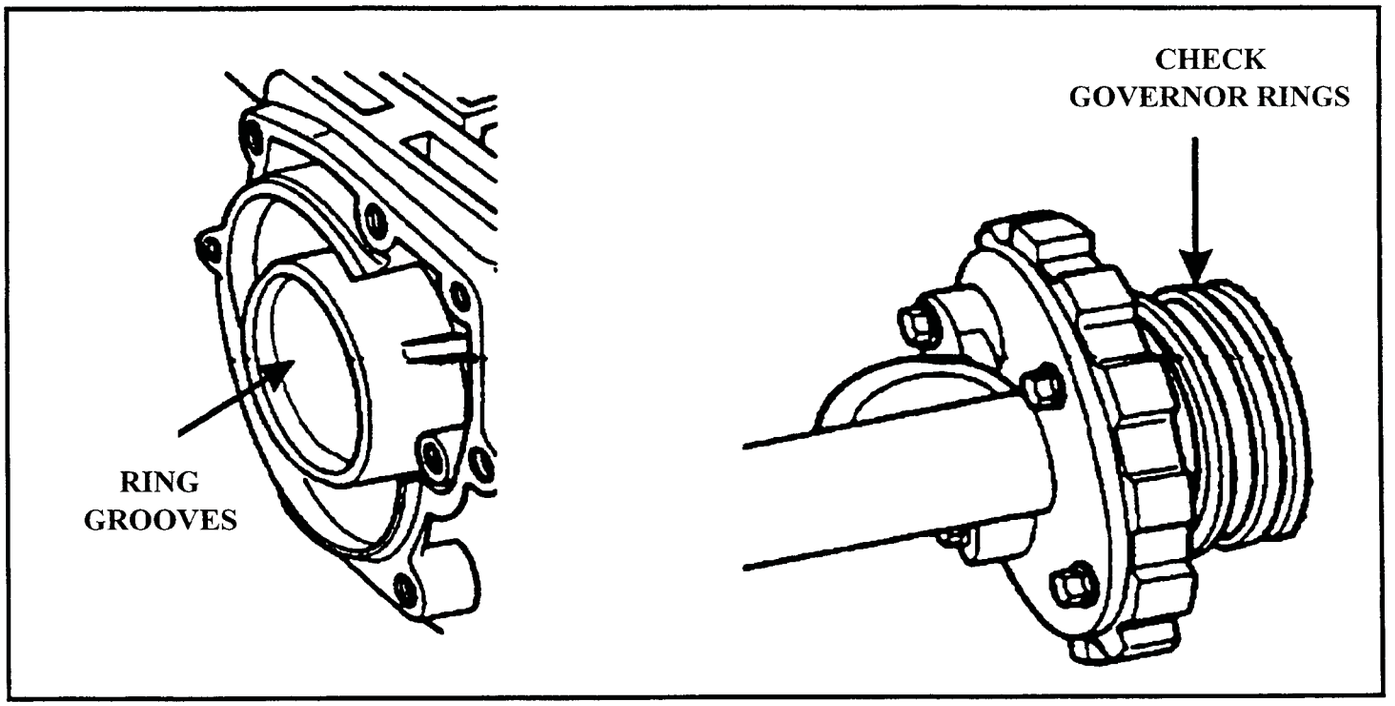


Figure 60

CONVERTER CLUTCH SOLENOID CASE FILTER

A spring was installed in the transmission case worm track to trap large machining chips and reduce engine stall complaints created by a stuck converter lock up valve in the valve body (See Figure 61).

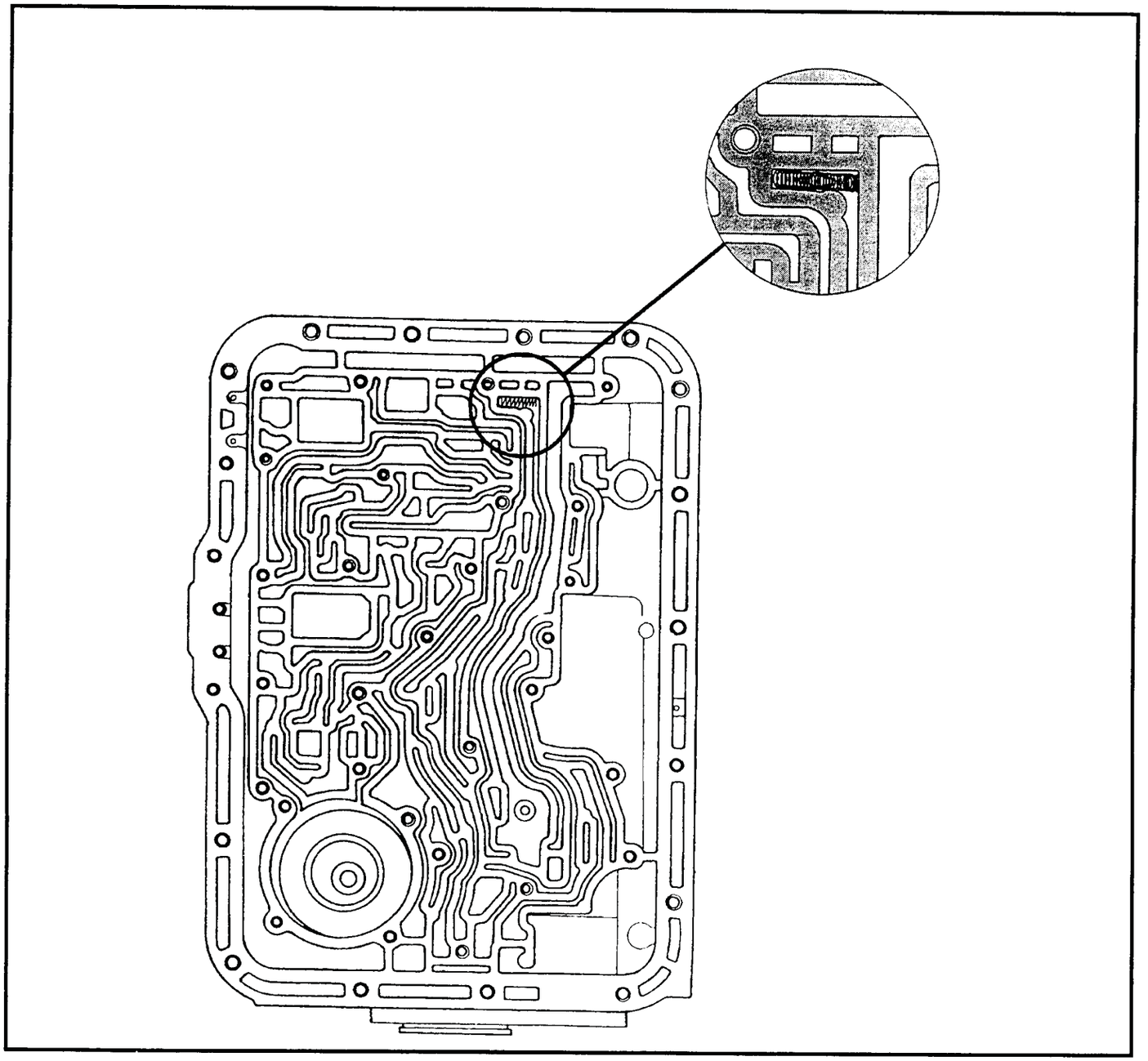


Figure 61

CHECK BALL LOCATION
SINGLE SOLENOID VALVE BODY
ALL EXCEPT SCORPIO/MERCUR

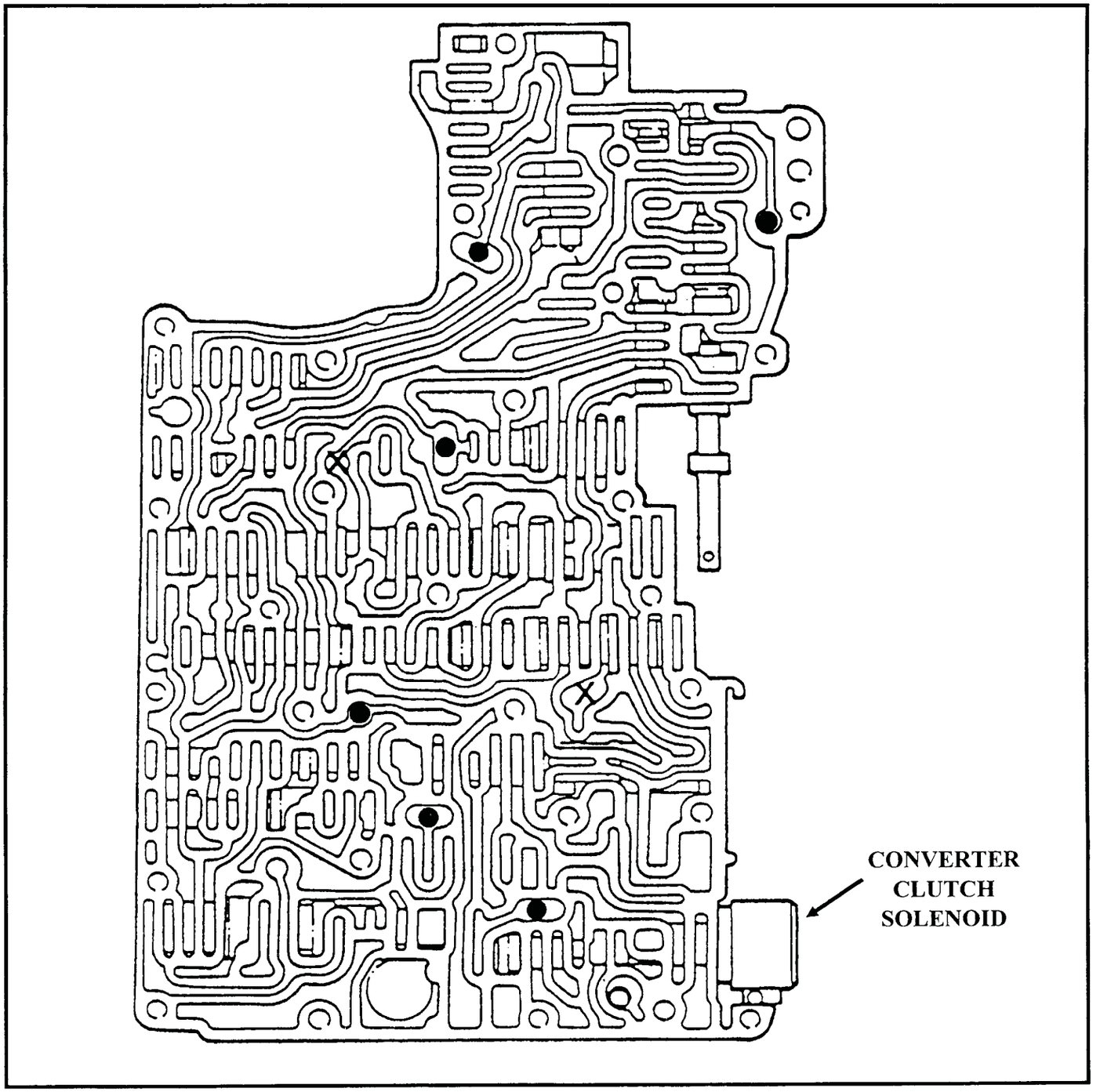


Figure 62

CHECK BALL LOCATION
SINGLE SOLENOID VALVE BODY
SCORPIO / MERCUR ONLY

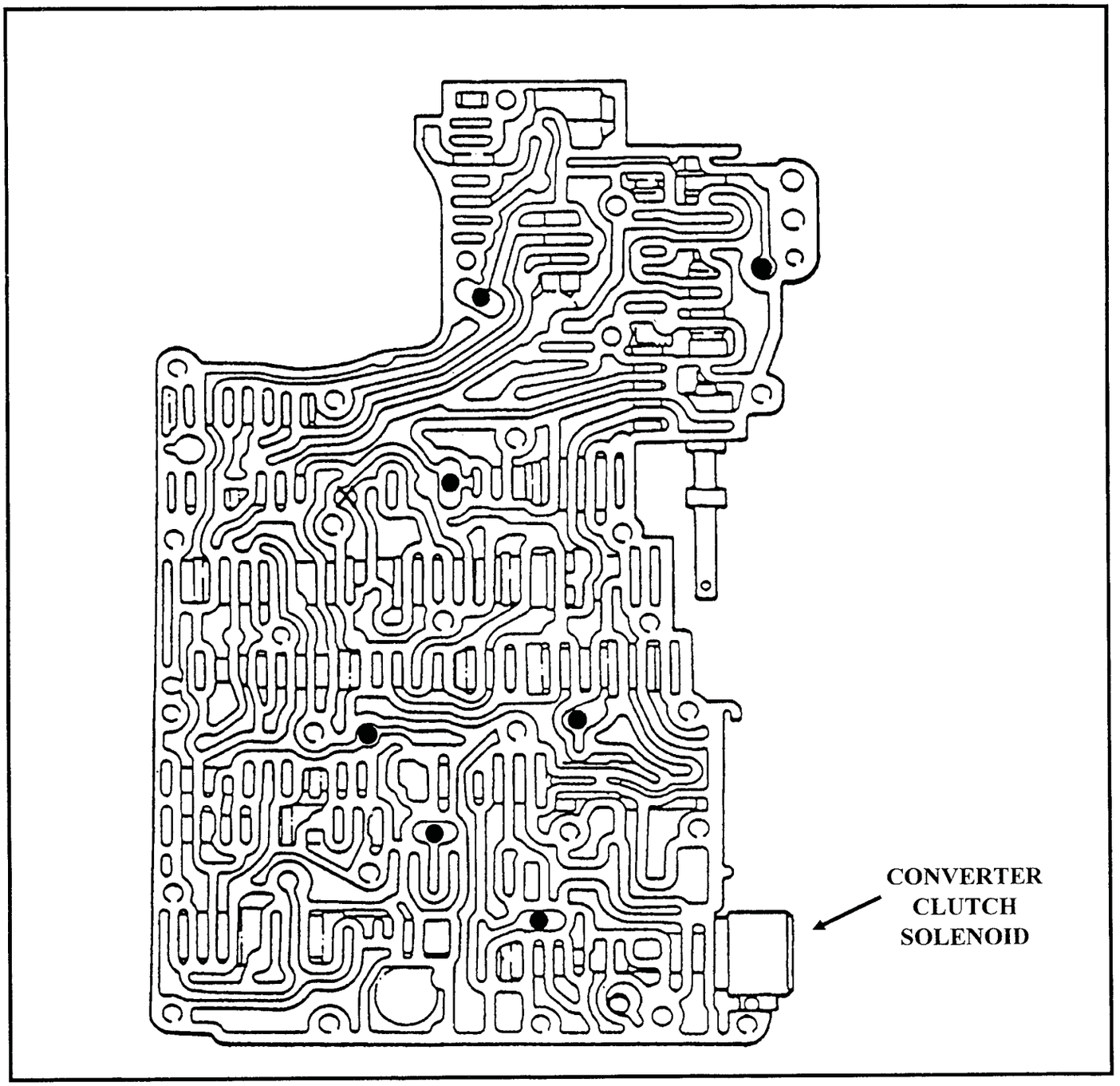


Figure 63

CHECK BALL LOCATION
DOUBLE SOLENOID VALVE BODY

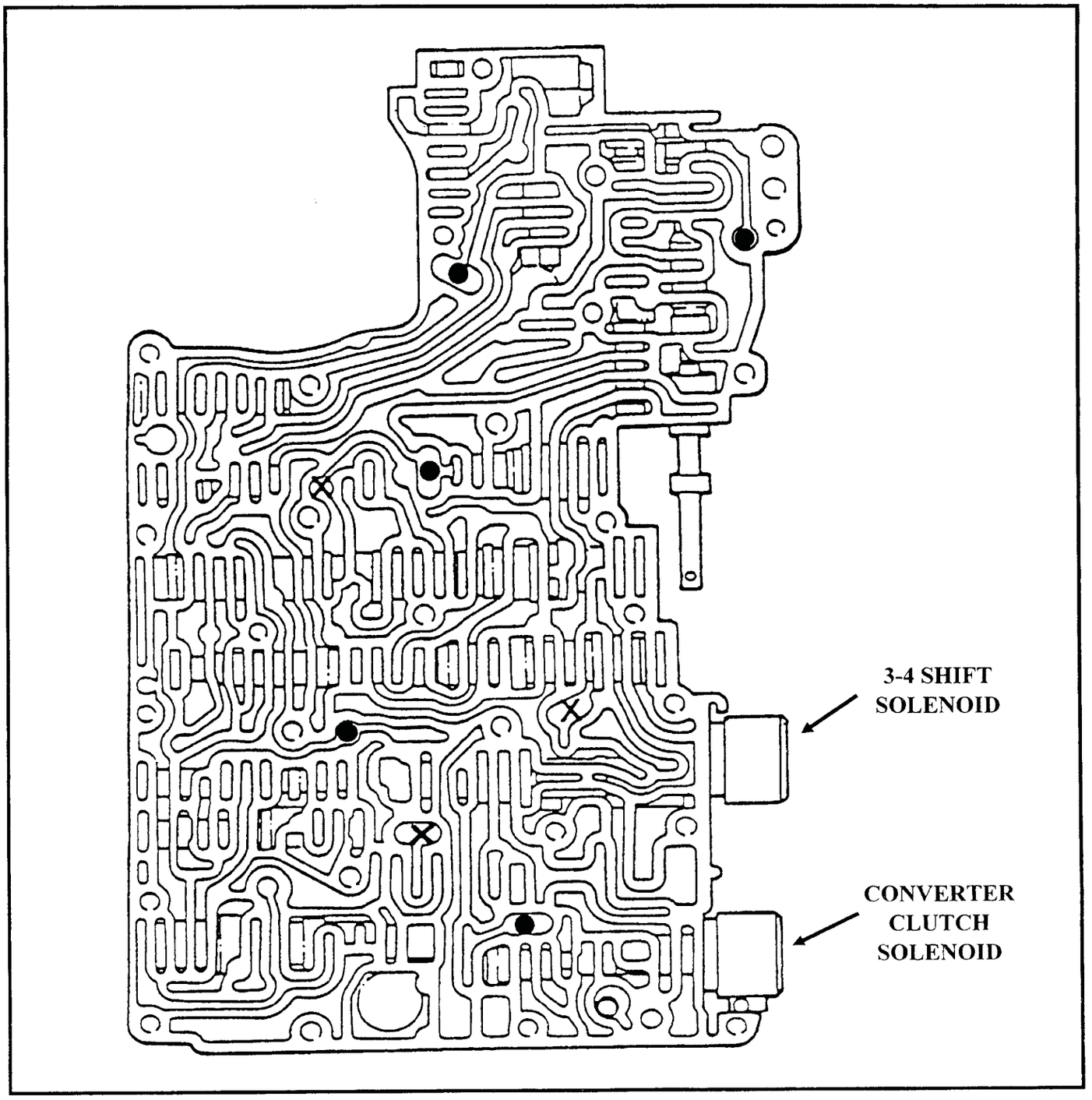


Figure 64

CHECK BALL LOCATION
DOUBLE SOLENOID VALVE BODY
WITH REVERSE ENGAGEMENT CONTROL VALVE

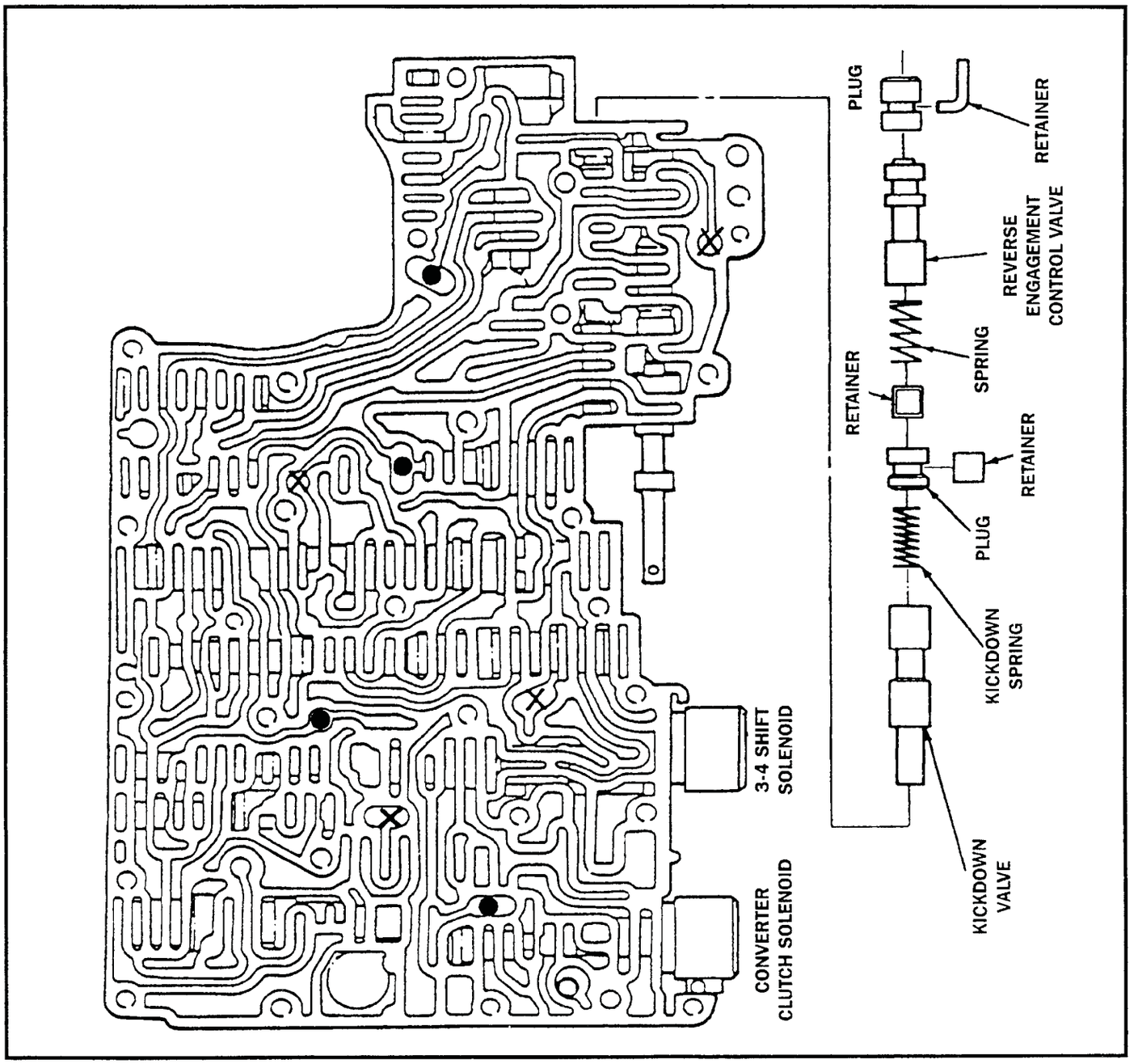


Figure 65

UPDATED 3-4 SHIFT SOLENOID

CHANGE: 3-4 shift solenoid was redesigned.

REASON: For improved solenoid durability.

PARTS AFFECTED:

3-4 SHIFT SOLENOID - The 2nd design 3-4 shift solenoid eliminates the screen, has dimensional changes on the solenoid itself, and includes a new plug with a boss machined on one end. The plug must be installed with the machined boss facing the solenoid as shown in Figure 66.

INTERCHANGEABILITY:

The 2nd design solenoid will retro-fit back to all previous models.

SERVICE INFORMATION:

2nd Design Solenoid.....E8TZ-7M107-A

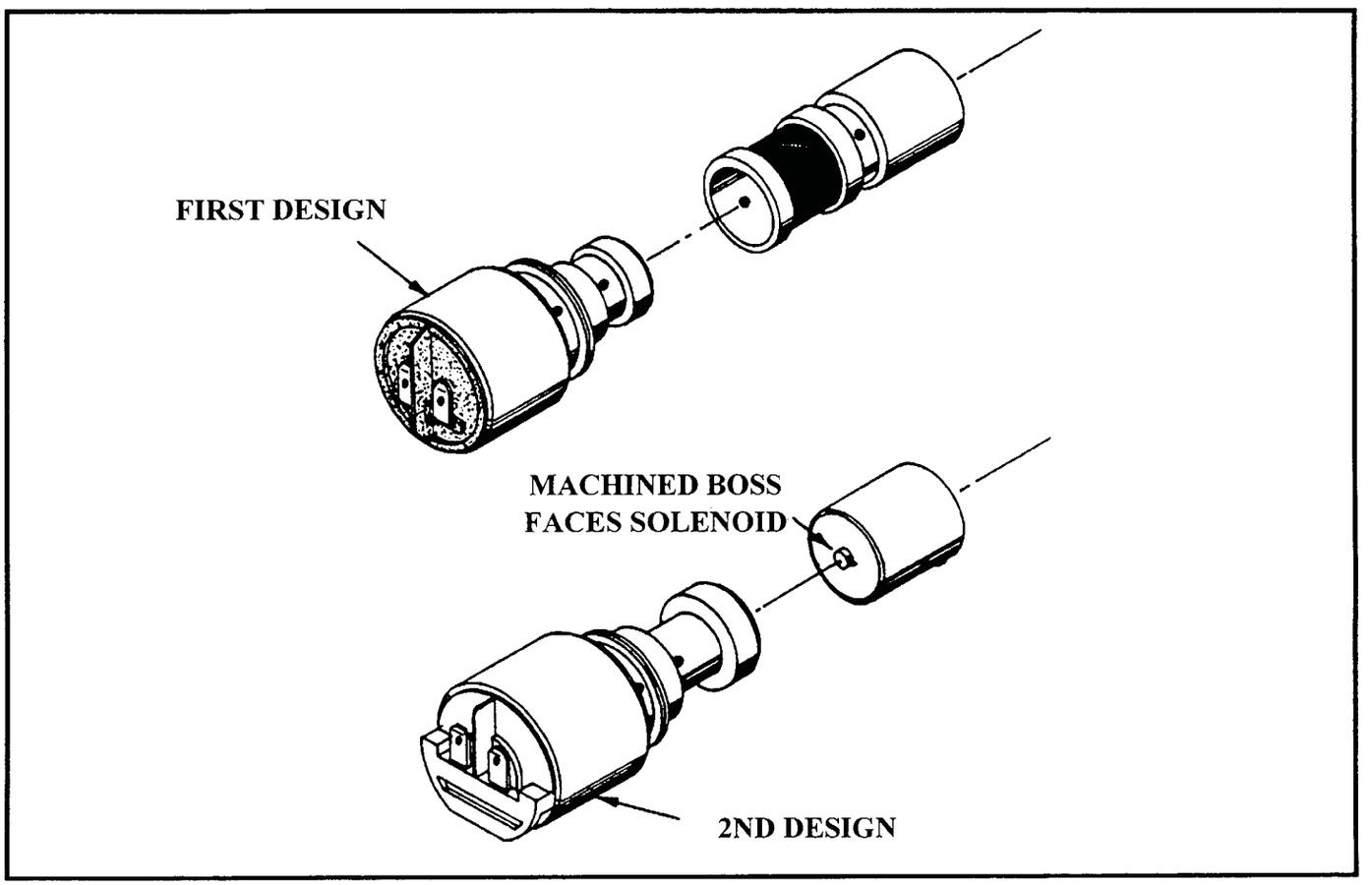


Figure 66

FORD A4LD

VALVE BODY AND SPACER PLATE IDENTIFICATION

COMPLAINT: There have been many minor changes in several of the valve trains in the valve bodies on the A4LD transmission over the years, which also affects the compatability of the spacer plate for the valve body you are using. Mis-matching these parts will create a wide variety of different complaints, depending on how they have been mis-matched.

CAUSE: Mis-matching of the valve body and spacer plates. Not all will interchange.

CORRECTION: **BORE 211, *1ST DESIGN:* (1-2 TRANSITION VALVE)**
This bore contains the 1-2 Transition Valve and is located as shown in Figure 67. Notice the location of the No. 2 retainer in valve body is also shown in Figure 67. Figure 68 shows the "Large Hole" spacer plate that is required on the valve body with the 1st design bore 211. Figure 68 also identifies the holes that were eliminated on the two solenoid valve bodies.

BORE 211, *2ND DESIGN:* (1-2 TRANSITION VALVE)
The 2nd design valve train has eliminated two springs and incorporated two spool valves into one, as shown in Figure 69. Figure 70 shows the "Small Hole" spacer plate that is required with the 2nd design line-up in bore 211.
Note: The 1st design bore 211 parts are not compatable with the 2nd design valve body casting, because the orifice control valve and the 1st design valve body bore are smaller in diameter

BORE 207, *1ST DESIGN:* ("WITHOUT" REVERSE ENGAGEMENT VALVE)
Figure 71 shows the correct line-up for this bore, and the No. 2 retainer location in the valve body casting. Figure 72 shows the "Slot" in the spacer plate that is required for the 1st design bore 207, "Without" reverse engagement valve.

BORE 207, *2ND DESIGN:* ("WITH" REVERSE ENGAGEMENT VALVE)
This is when the reverse engagement control valve was added to bore 207, as shown in Figure 73, and also shows the location of the No. 2 retainer in the valve body casting and the direction of the bore plugs. Figure 74 shows the "3 Hole" spacer plate that is required on valve bodies containing the reverse engagement control valve.
Note: Valve body castings are also different in the worm track area, when it comes to bore 207. Compare the inset in Figure 71 to the inset in Figure 73, and you will see the difference in the passages, which ***will not*** allow you to install reverse engagement valve into a 1st design valve body casting.

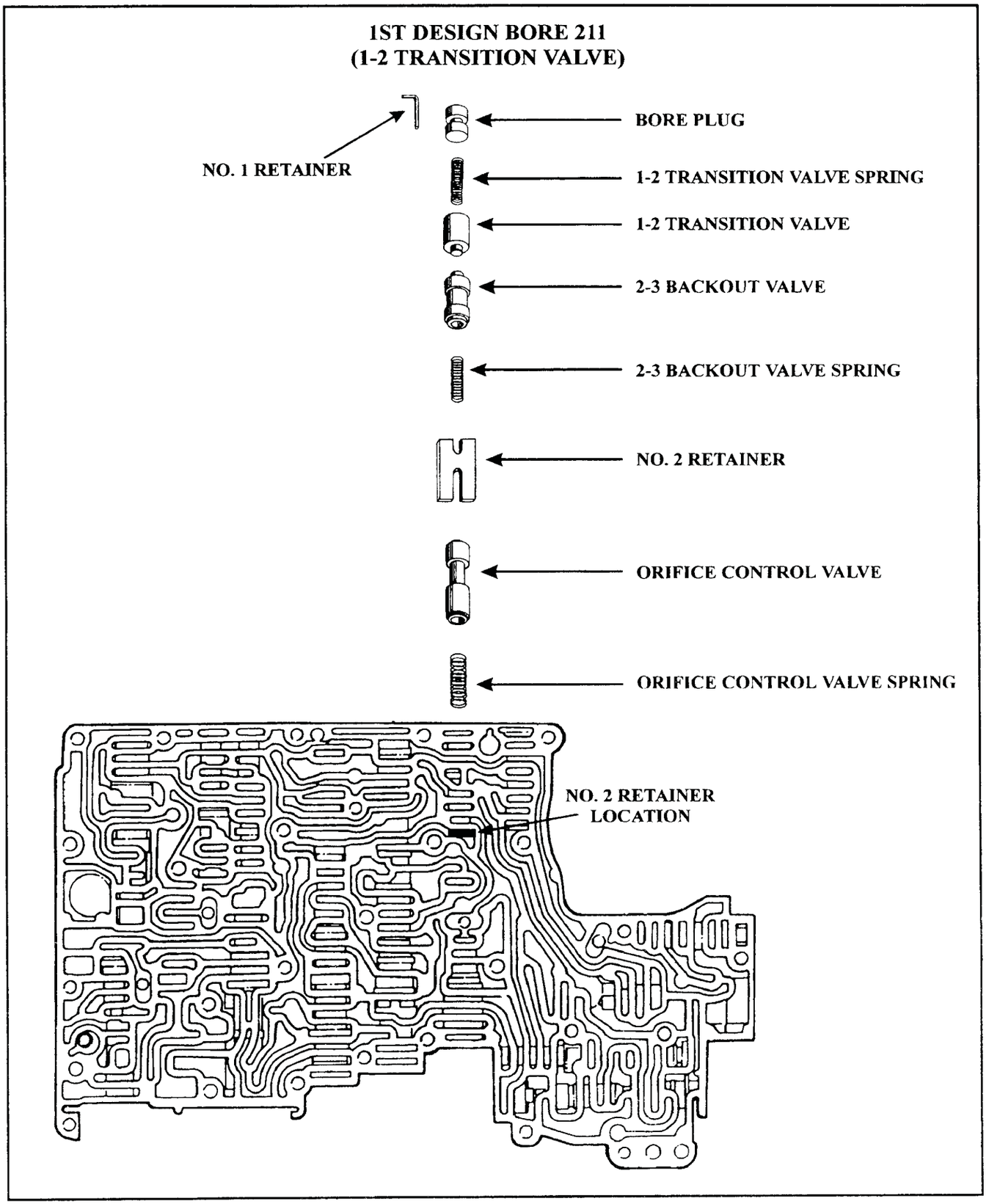

1ST DESIGN BORE 211
(1-2 TRANSITION VALVE)
NO. 1 RETAINER
BORE PLUG
1-2 TRANSITION VALVE SPRING
1-2 TRANSITION VALVE
2-3 BACKOUT VALVE
2-3 BACKOUT VALVE SPRING
NO. 2 RETAINER
ORIFICE CONTROL VALVE
ORIFICE CONTROL VALVE SPRING
NO. 2 RETAINER LOCATION

Figure 67

"LARGE HOLE" SPACER PLATE
REQUIRED WITH 1ST DESIGN BORE 211
(1-2 TRANSITION VALVE)

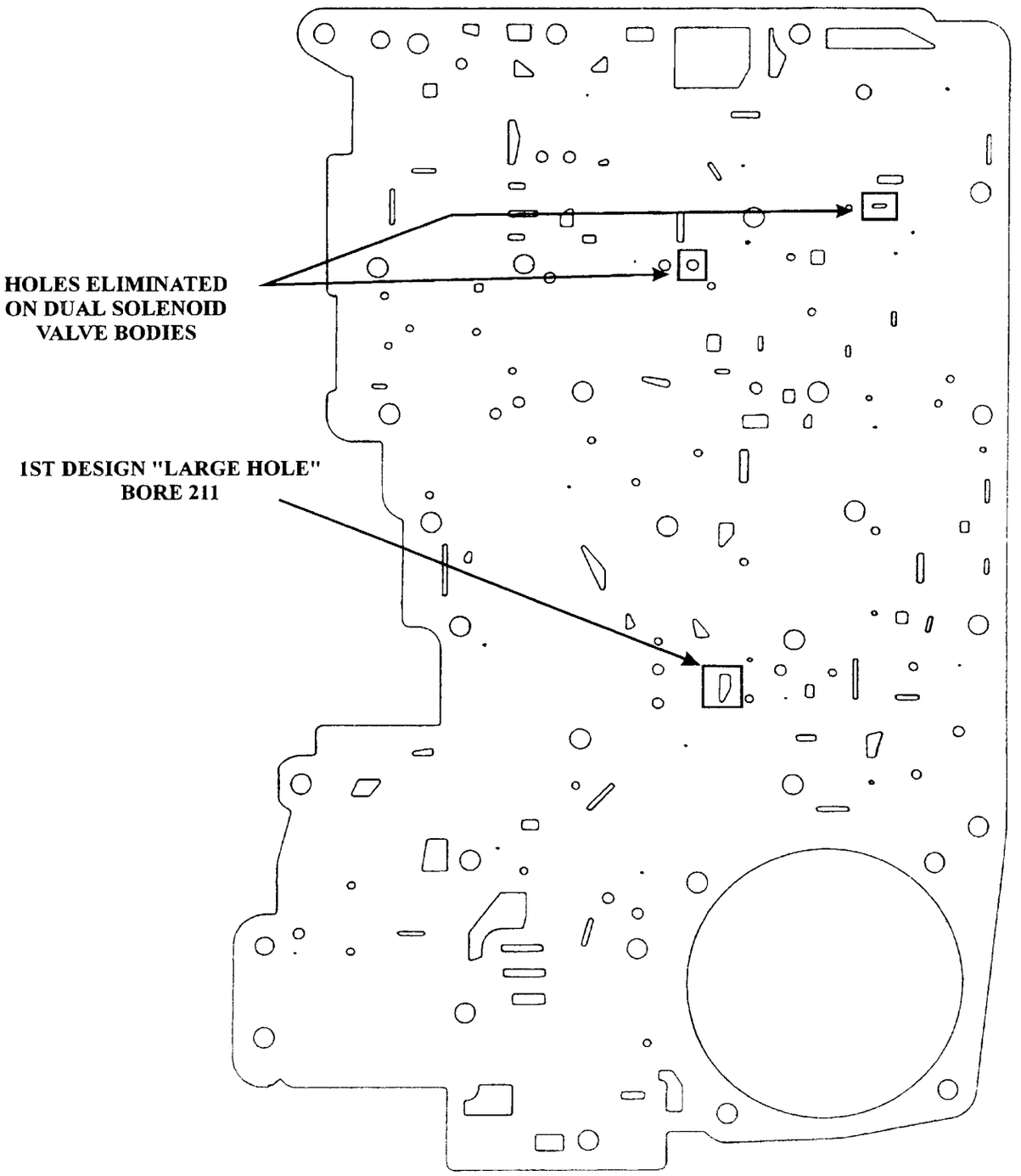


Figure 68

2ND DESIGN BORE 211
(1-2 TRANSITION VALVE)

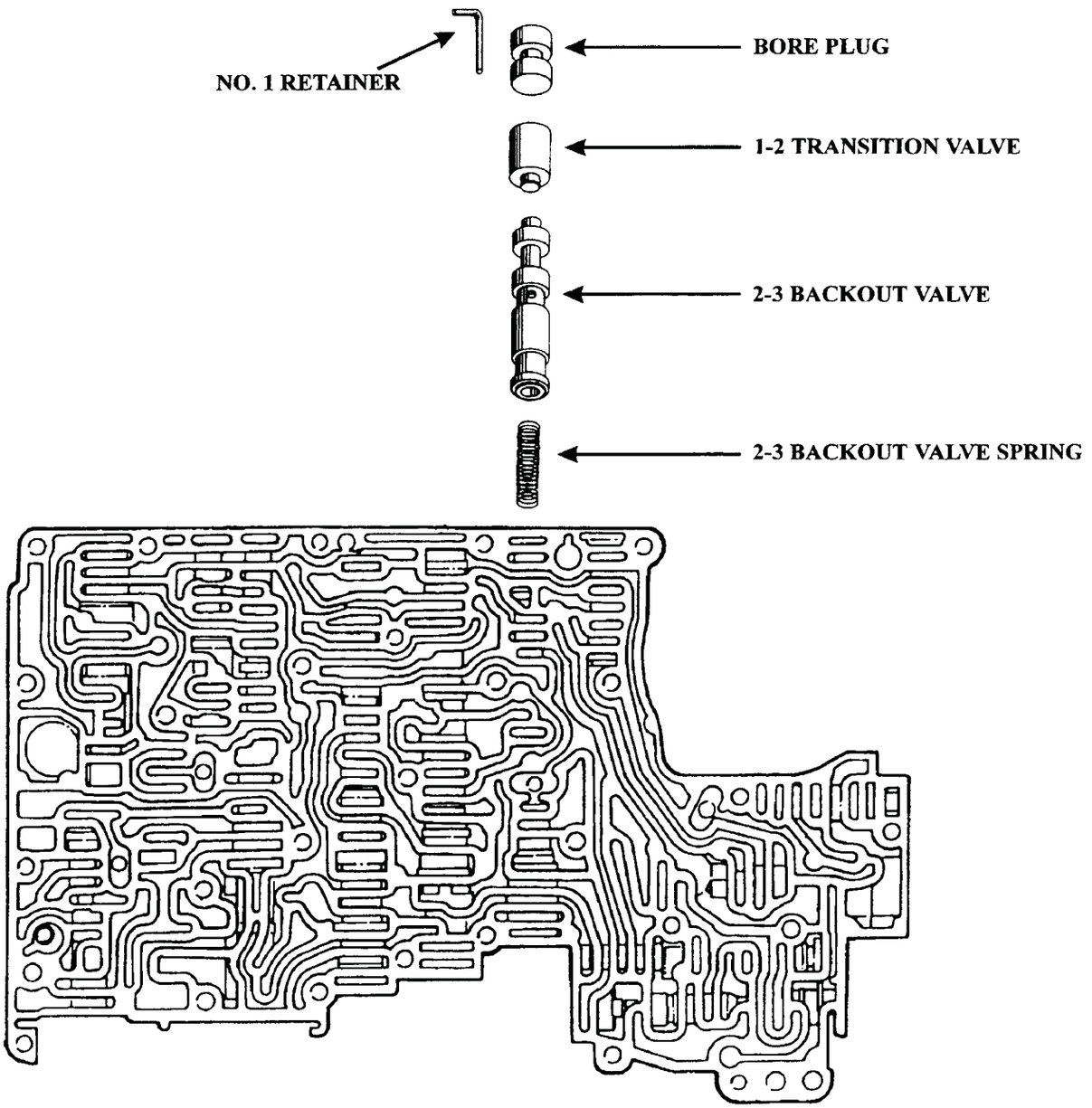


Figure 69

"SMALL HOLE" SPACER PLATE
REQUIRED WITH 2ND DESIGN BORE 211
(1-2 TRANSITION VALVE)

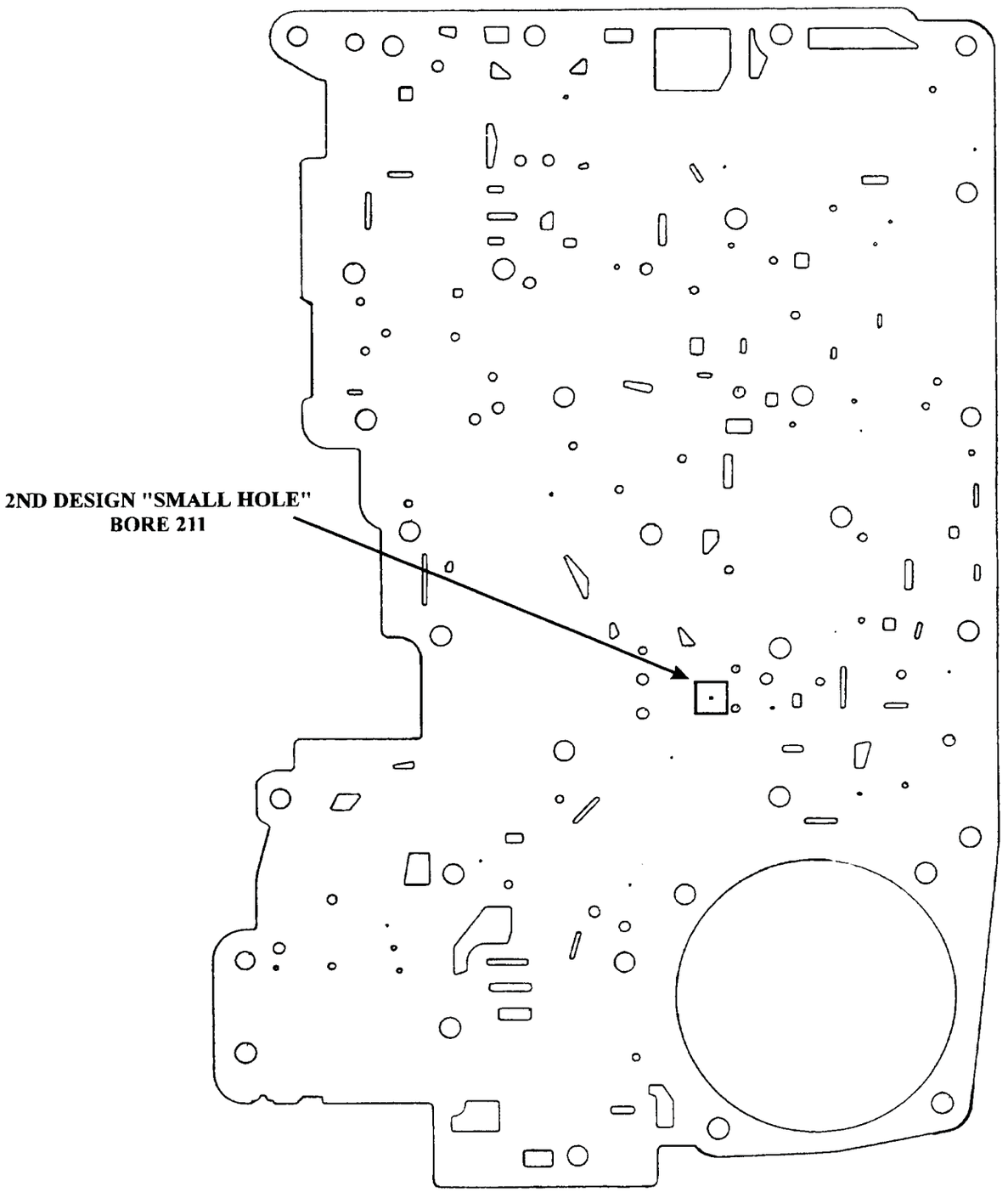


Figure 70

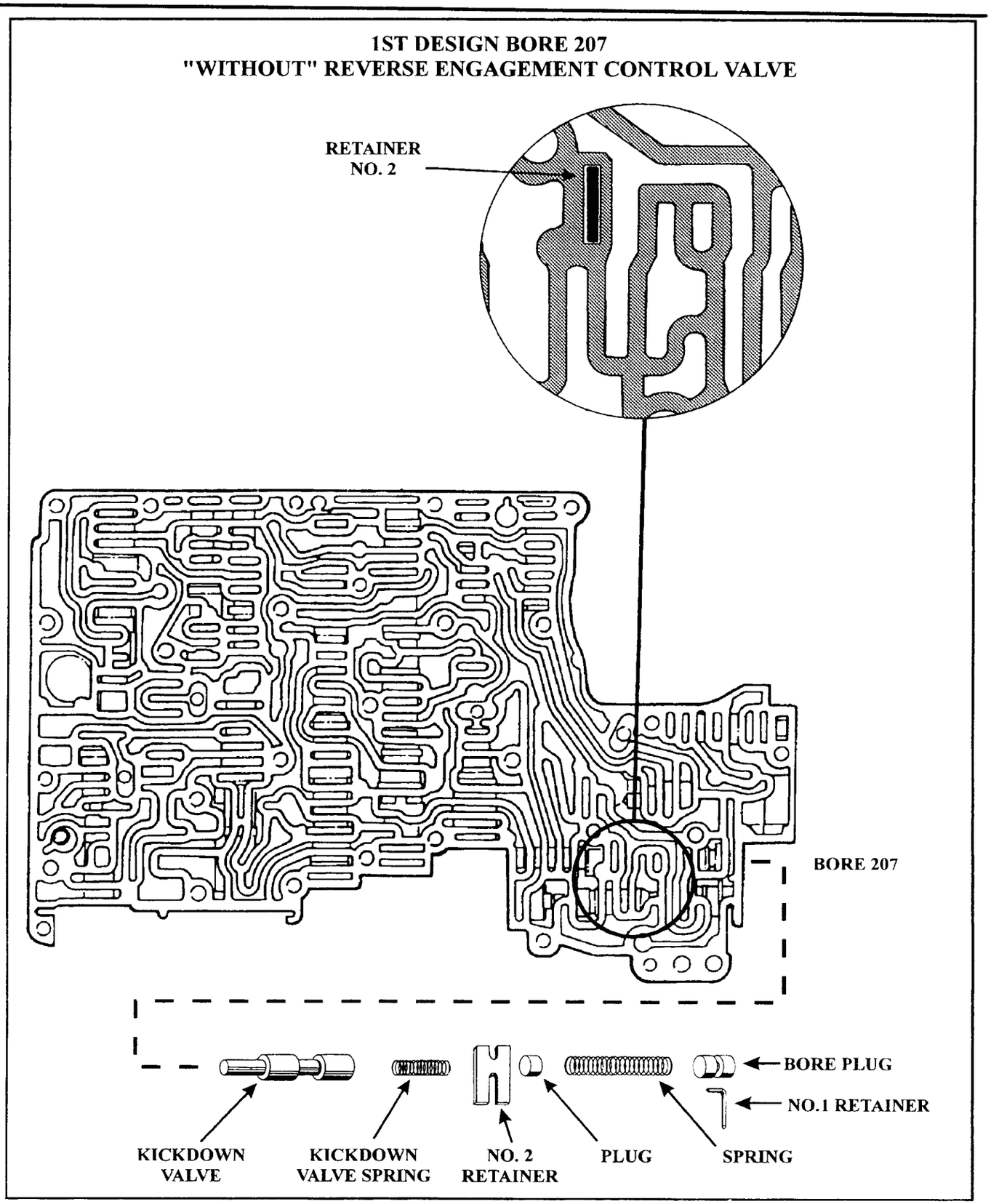

1ST DESIGN BORE 207
"WITHOUT" REVERSE ENGAGEMENT CONTROL VALVE
RETAINER
NO. 2
BORE 207
BORE PLUG
NO.1 RETAINER
KICKDOWN
VALVE
KICKDOWN
VALVE SPRING
NO. 2
RETAINER
PLUG
SPRING

Figure 71

"SLOT" IN SPACER PLATE
REQUIRED WITH 1ST DESIGN BORE 207
"WITHOUT" REVERSE ENGAGEMENT CONTROL VALVE

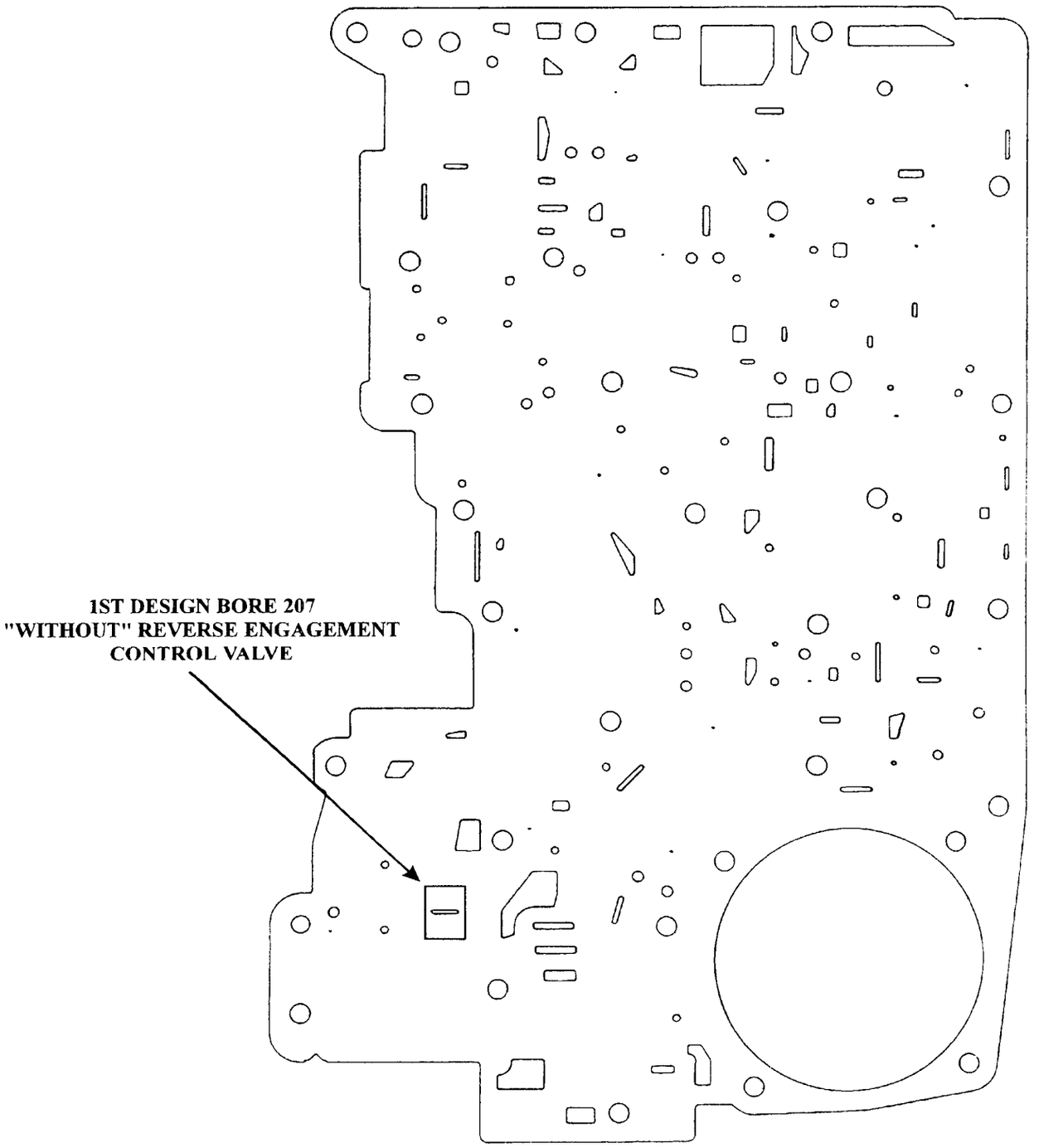


Figure 72

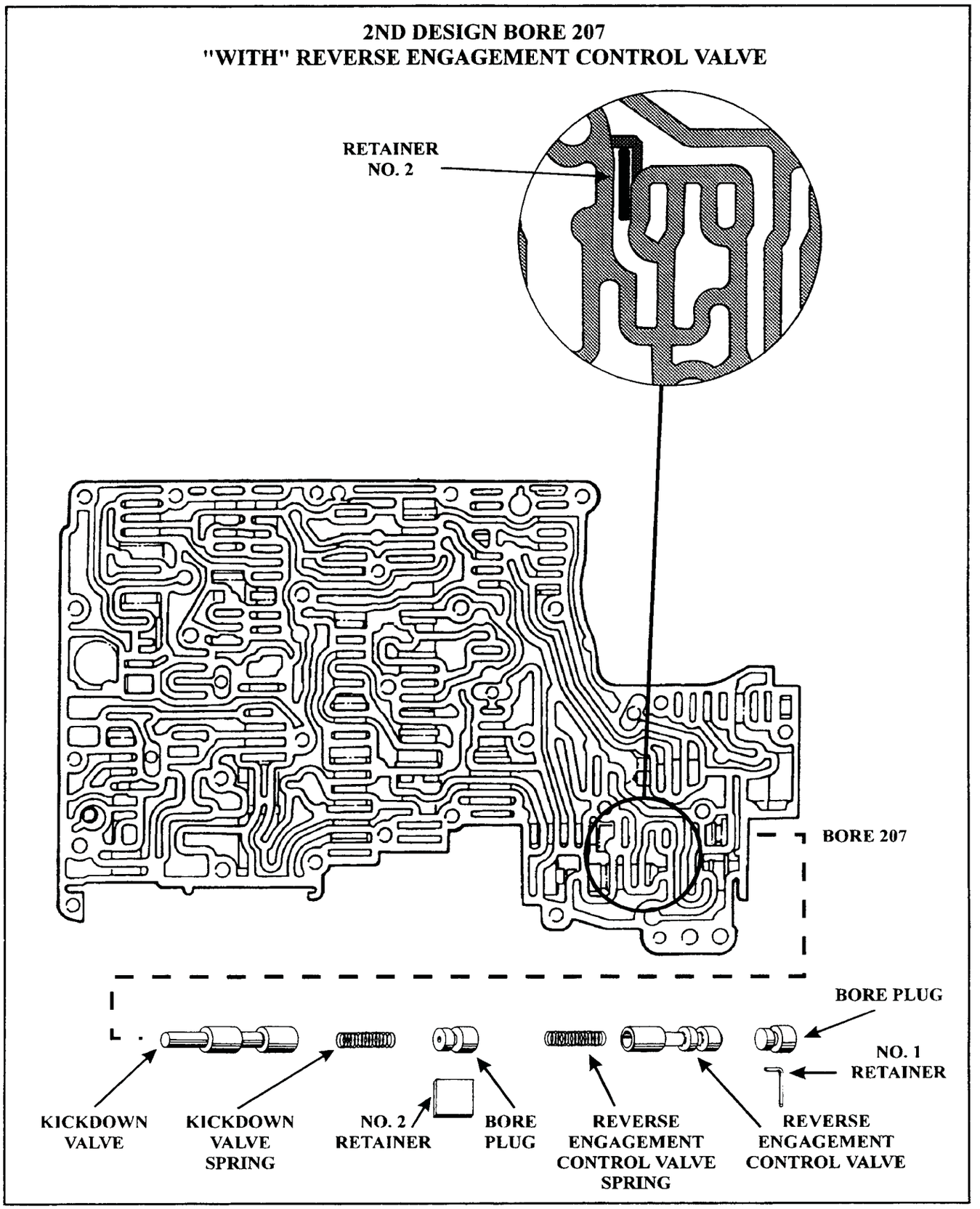

2ND DESIGN BORE 207
"WITH" REVERSE ENGAGEMENT CONTROL VALVE
RETAINER NO. 2
BORE 207
BORE PLUG
NO. 1 RETAINER
KICKDOWN VALVE
KICKDOWN VALVE SPRING
NO. 2 RETAINER
BORE PLUG
REVERSE ENGAGEMENT CONTROL VALVE SPRING
REVERSE ENGAGEMENT CONTROL VALVE

Figure 73

"3 HOLE" SPACER PLATE
REQUIRED WITH 2ND DESIGN BORE 207
"WITH" REVERSE ENGAGEMENT CONTROL VALVE

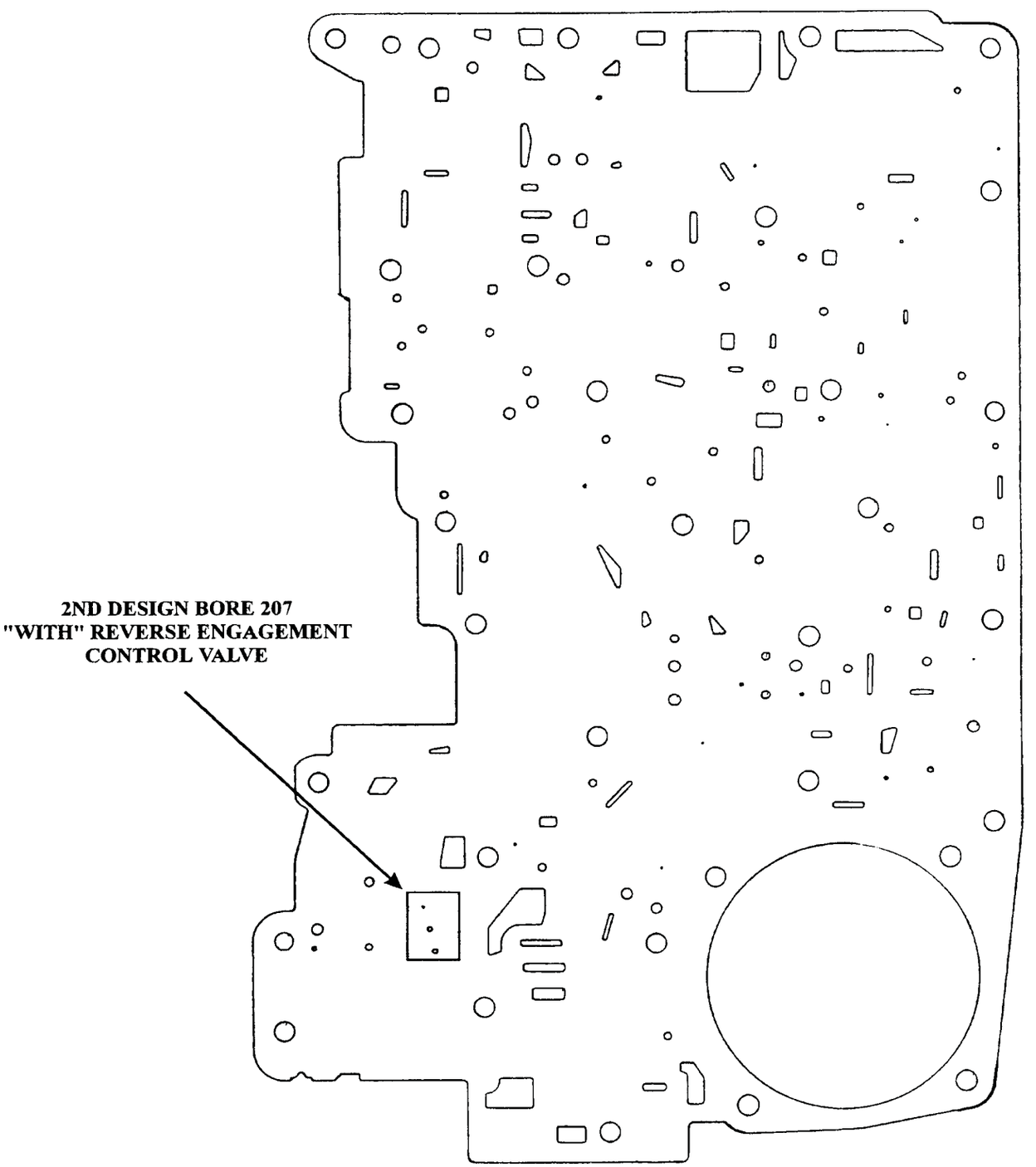


Figure 74

TIE UP IN THE PARK POSITION

COMPLAINT: After overhaul, your A4LD transmission exhibits a "Tie-Up" condition, when the selector lever is placed into the park position.

CAUSE: The cause may be, an improperly adjusted manual valve. The .075" puck supplied in some gasket sets & some valve body kits WILL NOT WORK ON ALL MODELS. On SOME valve bodies, using the "Puck" to adjust the manual valve, will allow the manual valve to move past the Park position and apply the forward clutch.

CORRECTION: Check the manual valve adjustment as follows:

(1) Measure the link hole in the manual valve to ensure that it is .157" in diameter, and has not elongated due to wear. It is also recommended to use the latest manual valve, with the I.D. groove near the hole, OEM #E8TZ-7C389-A (See Figure 75).

(2) With the valve body installed on the transmission, place the manual lever in the "D2" position.

(3) With the selector in the "D2" position, the first land on the manual valve should be flush with the valve body casting, as shown in Figure 75. However .010" below flush to .020" above flush with the valve body casting is totally acceptable.

(4) Bend the manual valve link as necessary to achieve the dimensions listed above.

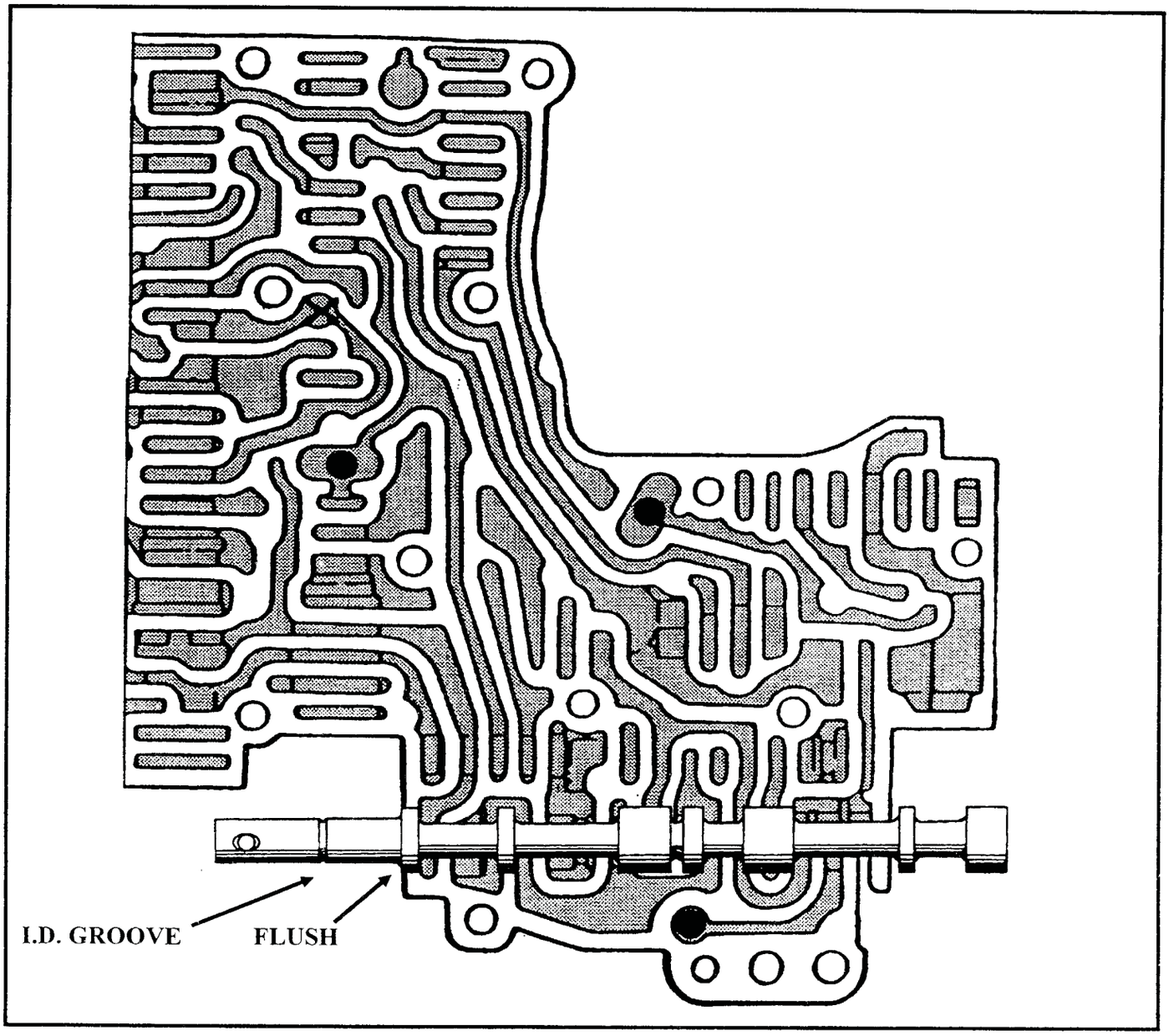


Figure 75

UPDATED MANUAL VALVE

CHANGE: In model year 1988 the manual valve was redesigned.

REASON: For improved direct clutch durability.

PARTS AFFECTED:

MANUAL VALVE - The 2nd design manual valve has a thinner land on it as shown in Figure 76, and is identified by a groove just behind the manual valve link hole.

INTERCHANGEABILITY:

The 2nd design manual valve will retro fit to all models and is highly recommended.

SERVICE INFORMATION

Manual Valve (2nd Design)..... E8TZ-7C389-A

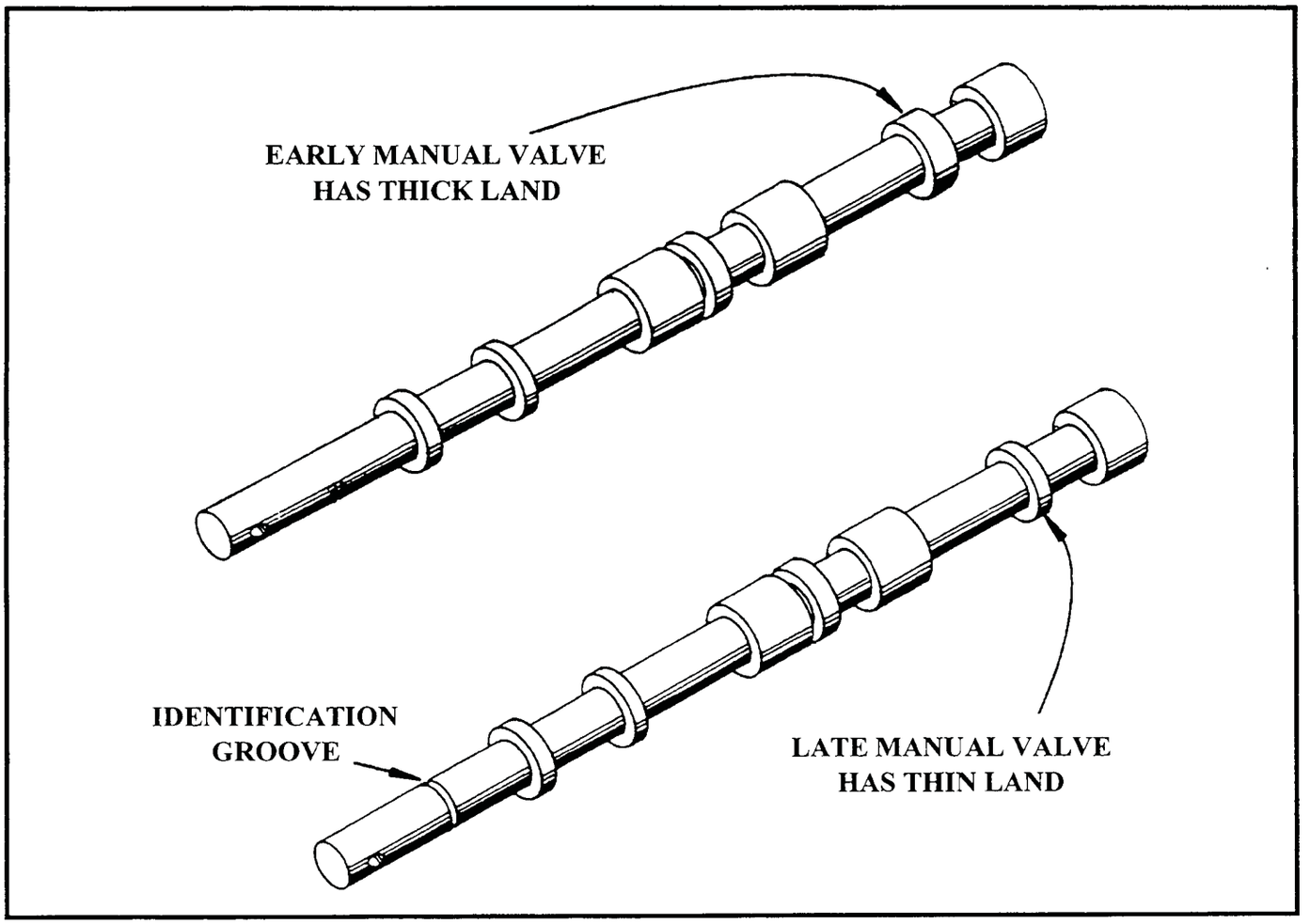


Figure 76

HARSH 2-3 BACKOUT UPSHIFT

COMPLAINT: Some 1990-92 transmissions may exhibit a harsh 2-3 backout upshift under certain conditions. This may be better described as being harsh when releasing the accelerator pedal during the 2-3 upshift. This condition is most evident when operating the vehicle at high altitudes.

CAUSE: This is caused by the incorrect calibration of the 2-3 backout valve spring in the valve body.

CORRECTION: A new 2-3 backout valve spring is available from Ford that has a revised calibration. It is light blue in color. See Figure 77 for proper bore identification and spring location.

SERVICE INFORMATION:

2-3 Backout Valve Spring..... F3TZ-7D230-B

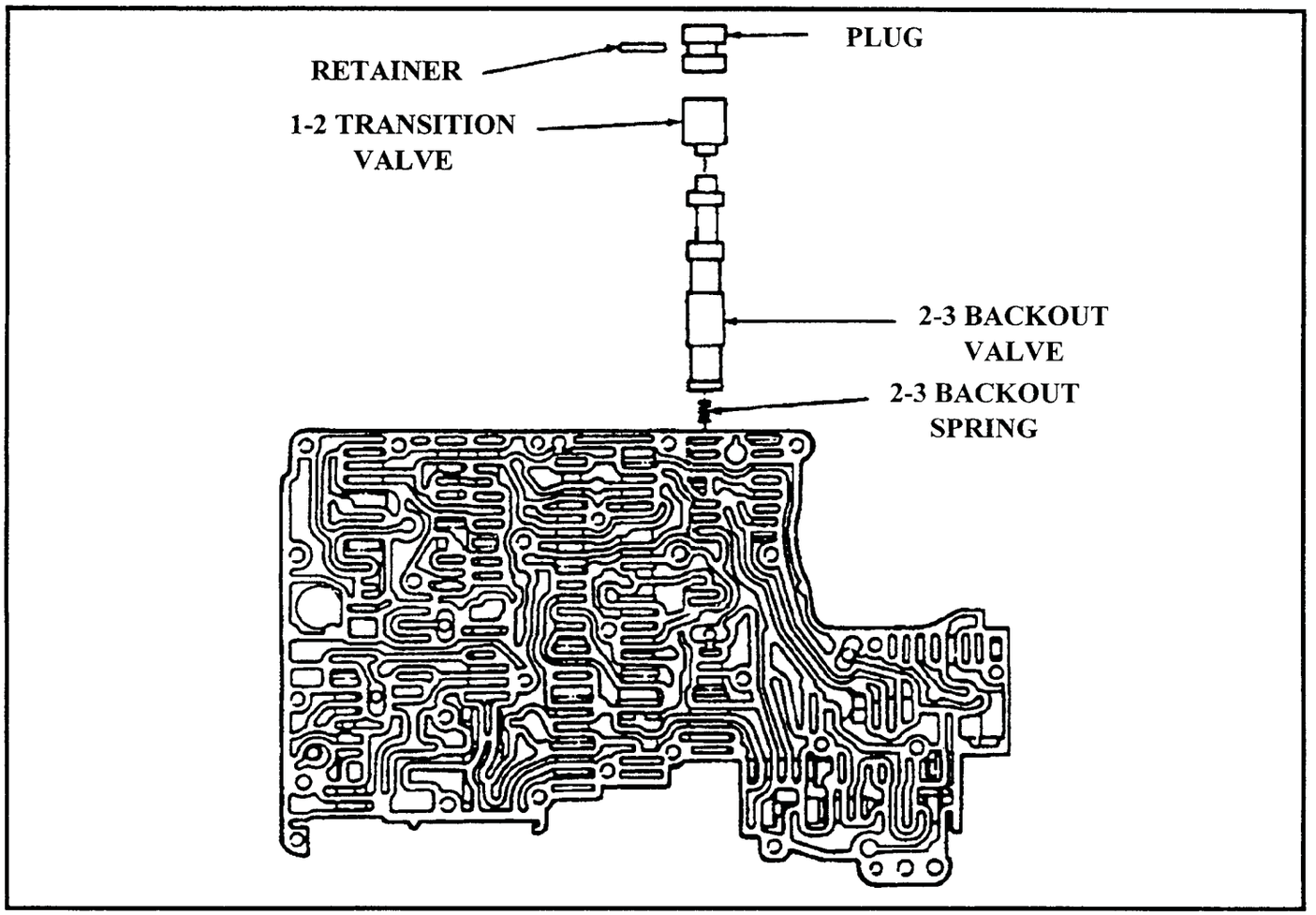


Figure 77

CONVERTER CLUTCH STAYS ON

COMPLAINT: Engine shudder during coastdown due to late disengagement of the torque converter clutch.

CAUSE: **(1)** The lock-up solenoid may not have been correctly bench checked during overhaul or when failure is suspected. This is due to confusion in printed material regarding air test procedures and ohms check procedures.

(2) The converter clutch shuttle spring is broken or collapsed

(3) The converter clutch TV modulator spring is not strong enough to shut off line pressure to the converter clutch shuttle valve during coastdown.

CORRECTION:

(1) The proper air test procedure is shown in Figure 78. You must use no more than 70psi. when checking the lock-up solenoid or else the results will not be valid. Ohms check the solenoid across the two terminals, There should be 25 - 40 ohms of resistance across both terminals but no continuity to the solenoid body.

(2) Remove the converter clutch shuttle valve and spring from the valve body. Inspect and replace as necessary, (See Figure 79). the converter clutch shuttle valve spring should be 1.10 inches in length and should weigh about 2 lbs. before coil bind.

(3) Replace the converter clutch shift valve spring with a stronger spring. This spring weighs about 5 lbs. in single solenoid valve bodies, and about 2 lbs in double solenoid valve bodies. (See Figure 80). Increase the tension in double solenoid valve bodies by 2 - 2 1/2 lbs. to about 4 1/2 - 5 1/2 lbs. maximum total weight.

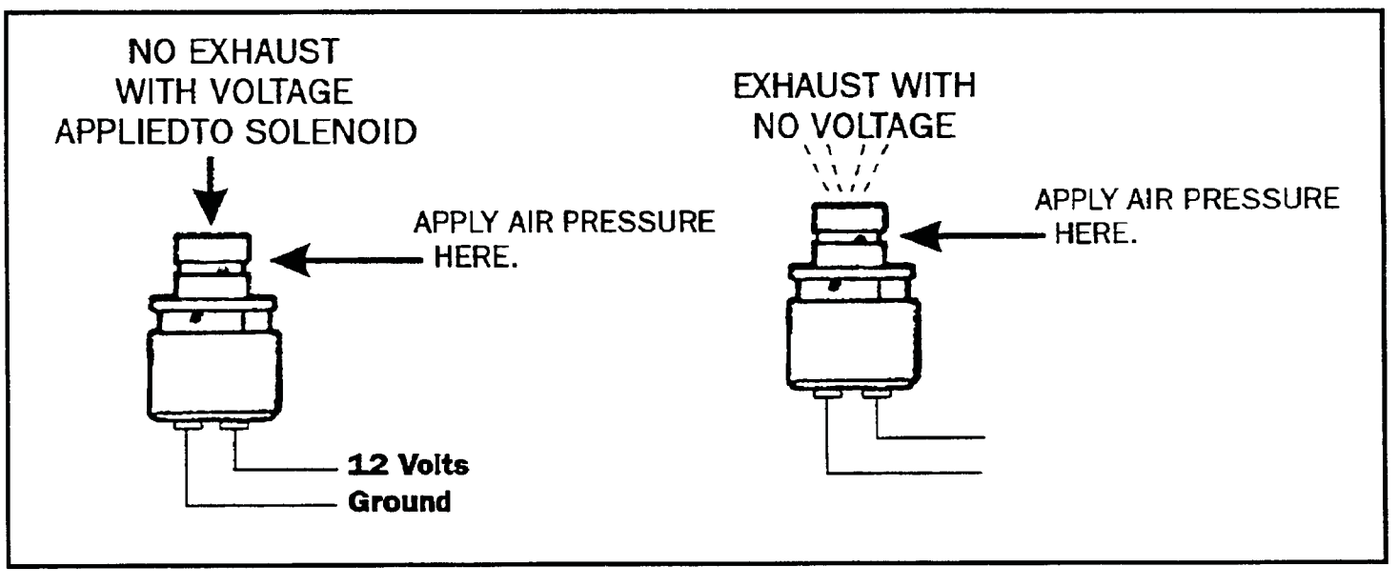
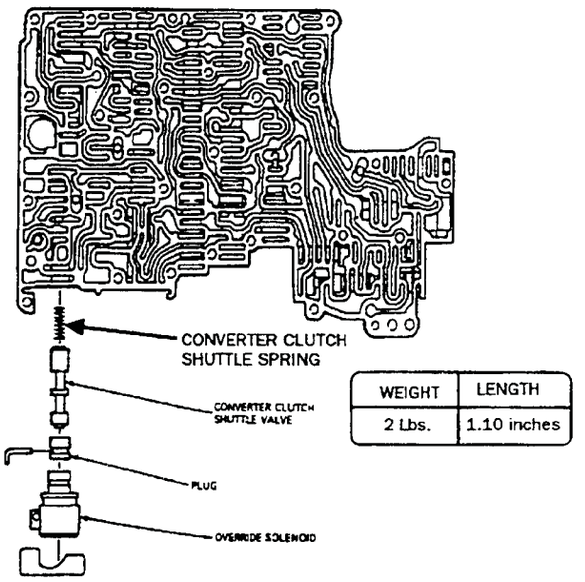
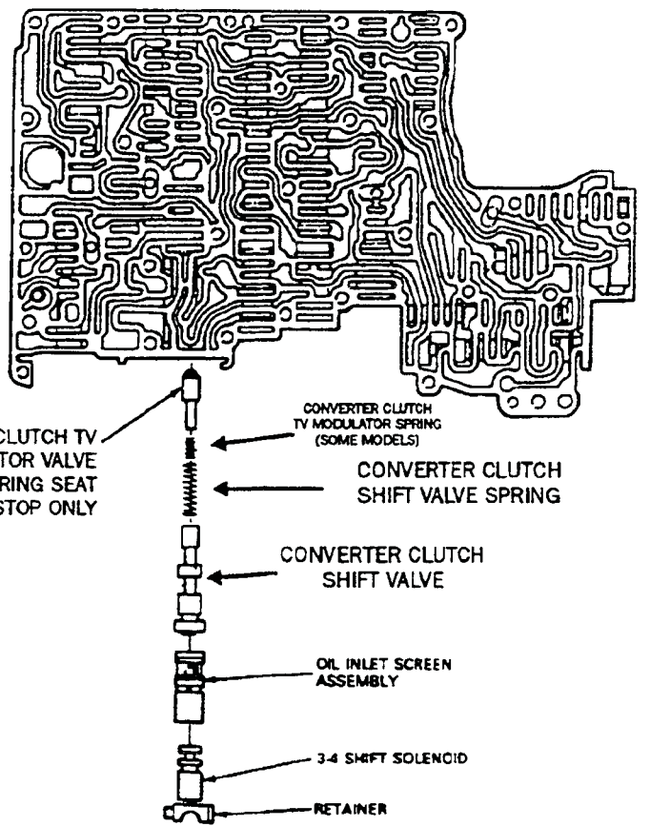


Figure 78



WEIGHT	LENGTH
2 Lbs.	1.10 inches

Figure 79



If the converter clutch shift valve spring in your valve body is weak (less than 5 1/2 lbs), make it stronger to prevent converter clutch hanging on during coastdown conditions. Total weight 5 1/2 max.

Figure 80

ENGINE STALLS ON FORWARD OR REVERSE ENGAGEMENT

COMPLAINT: Engine stalls when the selector is placed into froward or reverse.

CAUSE: The cause may be a broken converter clutch shuttle valve spring.

CORRECTION: Replace the broken converter clutch shuttle valve spring with updated spring (See Figure 81).

SERVICE INFORMATION:

Shuttle Valve Spring.....E5TZ-7L490-A

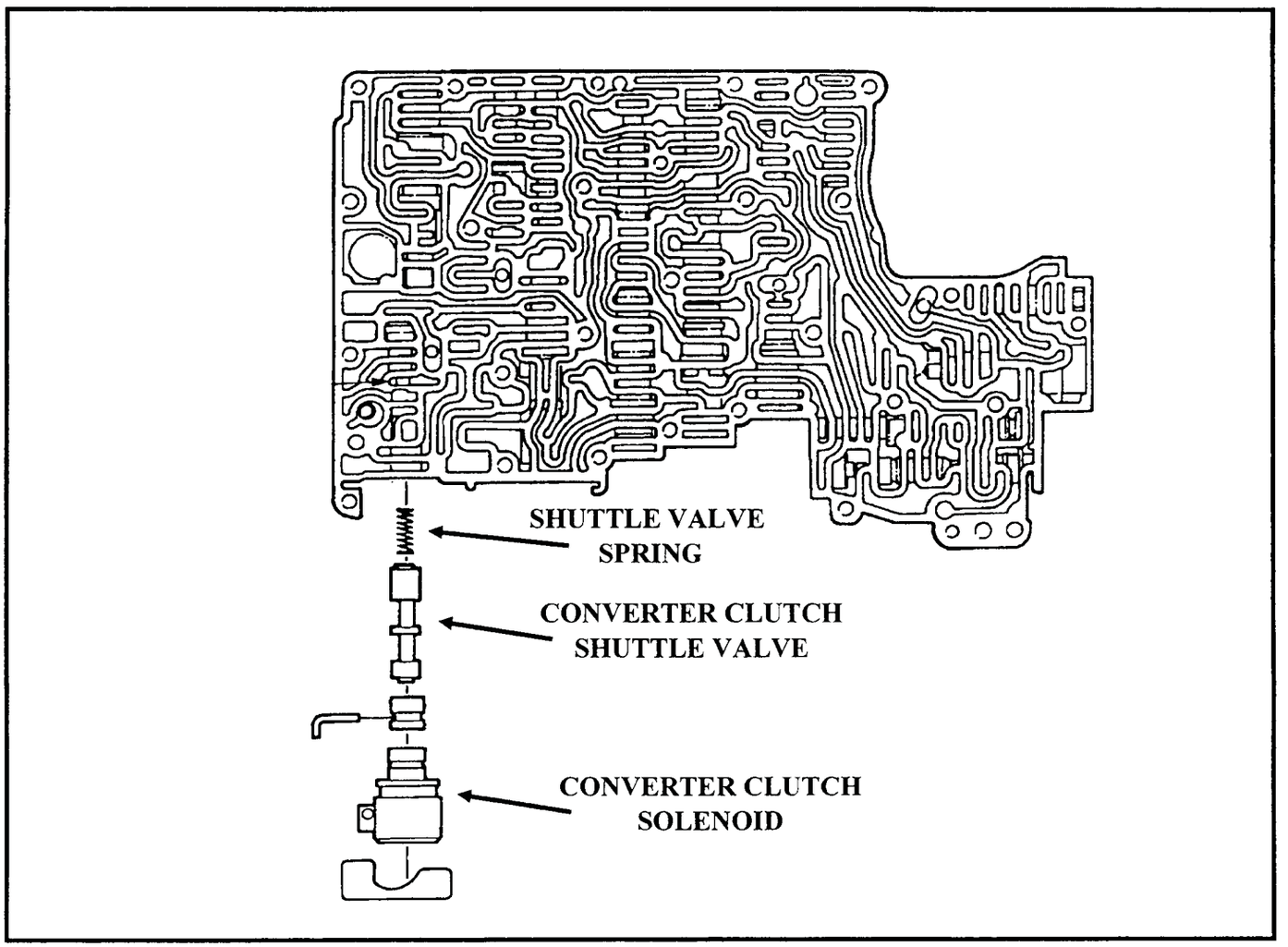


Figure 81

SENSITIVE 4-3 DOWNSHIFT (1985 MODELS ONLY)

COMPLAINT: Sensitive 4-3 downshift on 1985 models built between 05/85 thru 10/85.

CAUSE: The cause may be an incorrectly calibrated throttle pressure boost spring and 4-3 torque demand control valve spring (See Figure 82).

CORRECTION: Replace both the throttle pressure boost spring and 4-3 torque demand control valve spring

SERVICE INFORMATION:

Service Kit..... E5TZ-7E479-A

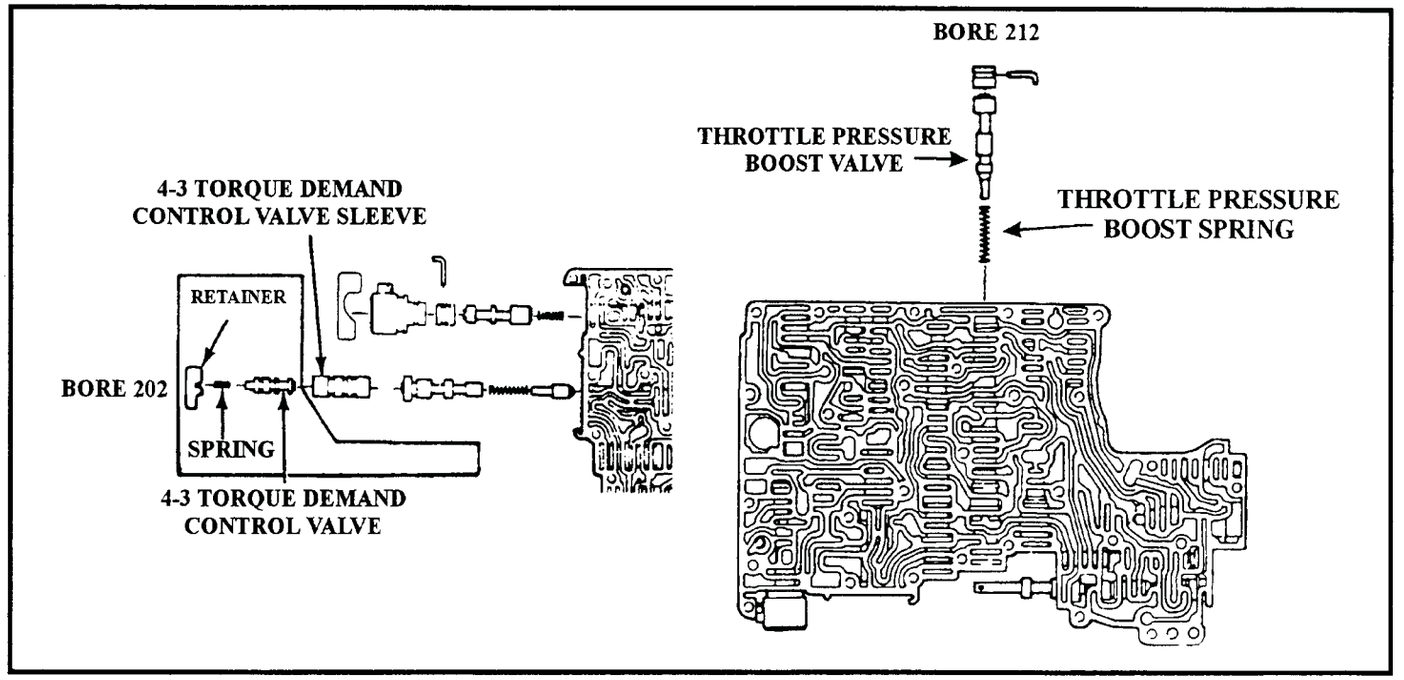


Figure 82

FLARE ON 4-2 OR 3-2 KICKDOWN

COMPLAINT: Flare up on 4-2 or 3-2 kickdown, on models built 7/86 thru 10/86.

CAUSE: The cause may be a casting flaw with a mispositioned channel in bore # 214, which is the 3-2 kickdown timing valve bore.

CORRECTION: To compensate for the casting flaw, replace the 3-2 kickdown timing valve with an updated valve (See Figure 83).

SERVICE INFORMATION:

3-2 Kickdown Timing Valve.....E7TZ-7D045-A

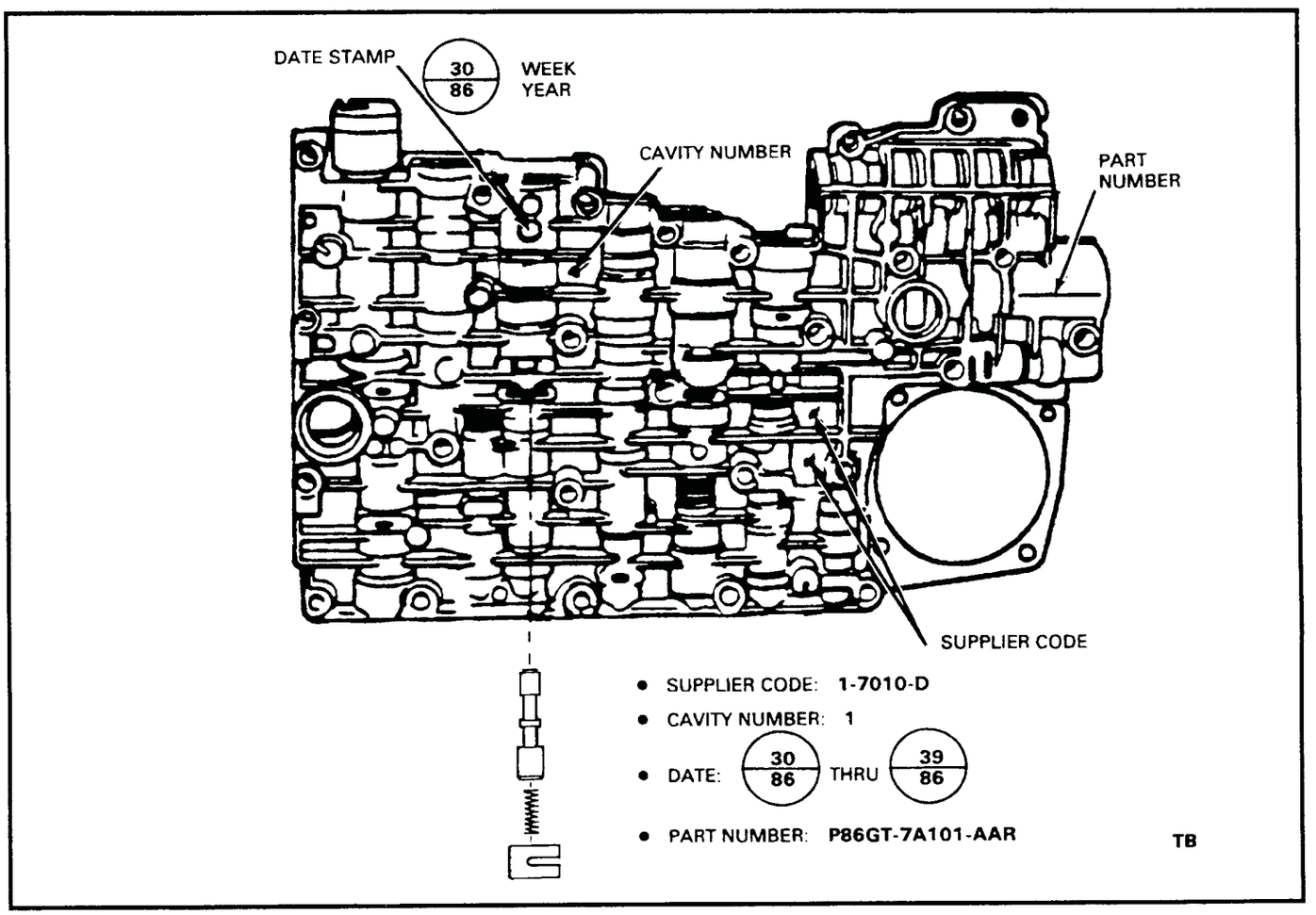


Figure 83

DELAYED REVERSE ENGAGEMENT

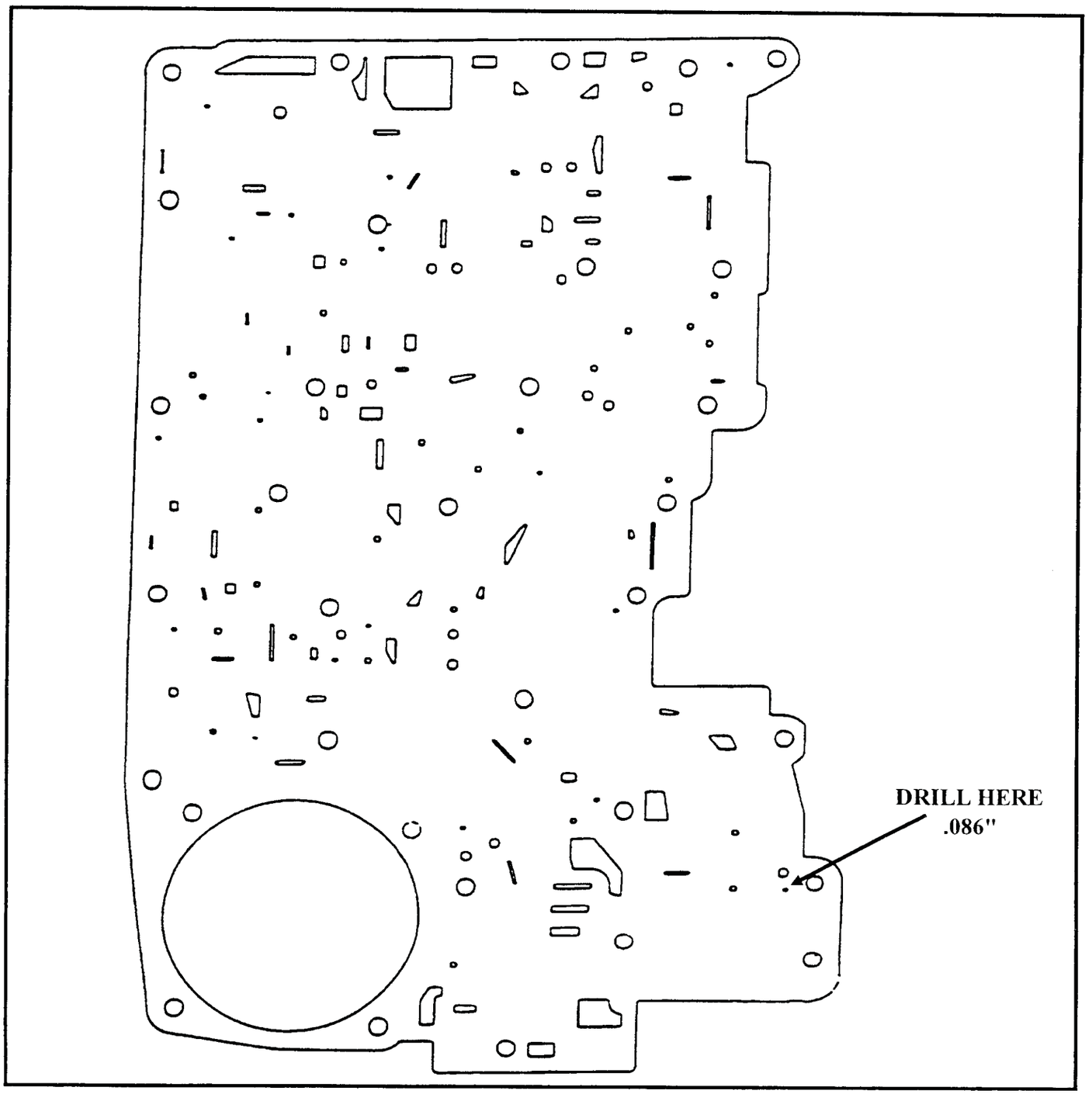
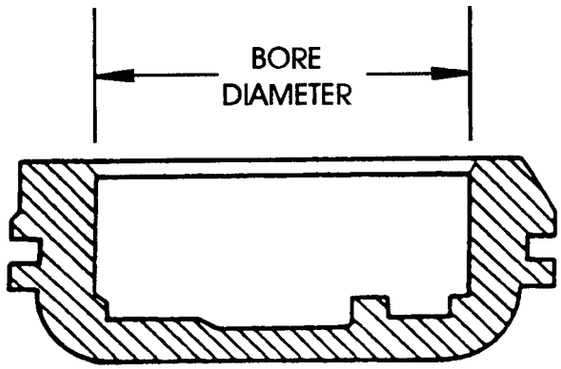


Figure 84

INTERMEDIATE SERVO PISTON CHART

APPROXIMATE SERVO COVER BORE DIAMETER	ENGINEERING NUMBER CAST INTO SERVO PISTON	SERVO PISTON PART NUMBER
1.625" (41.275mm)	90GT-7E221-F1A	FOTZ-7D021-B
1.695" (43.053mm)	90GT-7E221-E1A	FOZZ-7D021-A
1.805" (45.847mm)	83DT-7E221-C1A, C2B	E3ZZ-7D021-A
1.920" (48.768mm)	78DT-7E221-B2A	D8DZ-7D021-A

On the following pages, in Figures 85 thru 93, we have provided you with charts to identify transmission model, engine size, intermediate servo piston, return spring color, and the intermediate servo lever required.



SERVO COVER

OVERDRIVE SERVO PISTON CHART

APPROXIMATE SERVO COVER BORE DIAMETER	ENGINEERING NUMBER CAST INTO SERVO PISTON	SERVO PISTON PART NUMBER
2.075" (52.705mm)	78DT-7E221-A2A	D4ZZ-7D021-A

Beginning on Page 93, in Figures 94 thru 102, we have provided you with charts to identify transmission model, engine size, overdrive servo piston, return spring color, and the overdrive servo lever required.

INTERMEDIATE BAND STRUT IDENTIFICATION

1985 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
85GT-ABA, ACA	2.3L-1V	84DT-7L439-CA	83DT-7E221-C1A	80DT-7D028-AA (BLUE)	74DT-7D396-GB	G
85GT-AEA, AGA ALA, AMA, BAA BCA	2.3L-2V	84DT-7L439-CA	83DT-7E221-C1A	80DT-7D028-AA (BLUE)	74DT-7D396-GB	G

Figure 85

1986 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
85GT-ACA 86GT-AAA 85GT-AMA, BCA	2.3L(EFI) 2.8L-2V	84DT-7L439-CB	83DT-7E221-C1A	80DT-7D028-AA (BLUE)	74DT-7D396-GB	G
86GT-ABA, ACA BAA, CAA, DAA EAA	2.9L(EFI)	84DT-7L439-BB	78DT-7E221-B2A	74DT-7D028-AB (ORANGE)	74DT-7D396-EB	E
86GT-KAA, LAA	3.0L(EFI)	84DT-7L439-BB	78DT-7E221-B2A	74DT-7D028-AB (ORANGE)	74DT-7D396-EB	E

Figure 86

1987 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
87GT-ABA, CAA CAB	2.3L(EFI)	84DT-7L439-CB	83DT-7E221-C1A	80DT-7D028-AA (BLUE)	74DT-7D396-GB	G
87GT-AAA, BAA	2.3L(EFI) TURBO	84DT-7L439-BB	83DT-7E221-B2A	80DT-7D028-AA (BLUE)	74DT-7D396-EB	E
87GT-DAA, FAA HAA, KAA, DAC FAD, HAE, KAG	2.9L(EFI)	84GT-7L439-BB	78DT-7E221-B2A	74DT-7D028-AB (ORANGE)	74DT-7D396-EB	E
87GT-MAA, NAA	3.0L(EFI)	84GT-7L439-BB	78DT-7E221-B2A	74DF-7D028-AB (ORANGE)	74DT-7D396-EB	E

Figure 87

INTERMEDIATE BAND STRUT IDENTIFICATION

1988 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
88GT-GAA, KAA	2.3L(EFI) TURBO	84DT-7L439-BB	78DT-7E221-B2A	80DT-7D028-AA (BLUE)	74DT-7D396-EB	E
88GT-ABB, HAA NAA	2.3L(EFI)	84DT-7L439-CB	83DT-7E221-C1A	80DT-7D028-AA (BLUE)	74DT-7D396-GB	G
88GT-BAA, CAA DAA, EAA 88GT-LAA, MAA	2.9L(EFI) 3.0L(EFI)	84GT-7L439-BB	78DT-7E221-B2A	74DT-7D028-AB (ORANGE)	74DT-7D396-EB	E

Figure 88

1989 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
89GT-RAA, SAA	2.3L(EFI)	84DT-7L439-CB	83DT-7E221-C1A	84GT-7D028-AA (YELLOW)	74DT-7D396-GB	G
89GT-AAB, BBB	2.3L(EFI)	84DT-7L439-CB	83DT-7E221-C1A	74DT-7D028-AB (ORANGE)	74DT-7D396-GB	G
89GT-AAA, BAA CAA, DAA 89GT-EAA, GAA	2.9L(EFI) 3.0L(EFI)	84DT-7L439-BB	83DT-7E221-B1A	74DT-7D028-AB (ORANGE)	74DT-7D396-EB	E

Figure 89

INTERMEDIATE BAND STRUT IDENTIFICATION

1990 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
90GT-TAA, TBA	2.3L-(EFI)	90GT-EB	90GT-E1A	83DT-AA (GREEN)	84GT-EB	E
90GT-TCA	2.3L-(EFI)	90GT-FB	90GT-F1A	80DT-AA (BLUE)	90GT-DB	D
90GT-GAA, GBA, GCA	2.3L-(EFI)	90GT-FB	90GT-F1A	84DT-AA (YELLOW)	90GT-DB	D
90GT-KAA, LAA, LCA, MAA, NAA	2.9L-(EFI)	90GT-DB	90GT-D1A	74DT-AB (ORANGE)	84GT-AB	A
90GT-RAA, SAA RBA, SBA	3.0L-(EFI)	90GT-FB	90GT-F1A	83DT-AA (GREEN)	84GT-AB	A
90GT-EAA, FAA, CAA, EBA, FBA, DAA	4.0L-(EFI)	84DT-BB	83GT-B1A	74DT-AB (ORANGE)	84GT-AB	A
90GT-ADA, ADD AAA,AEA,AEE,BAA	4.0L-(EFI)	84DT-BB	83GT-B1A	74DT-AB (ORANGE)	84GT-AB	A

Figure 90

1991 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
91GT-MUA, MUB	2.3L-(EFI)	90GT-FB	90GT-F1A	80DT-AA (BLUE)	80GT-DB	D
91GT-TPA, TPB	2.3L-(EFI)	90GT-FB	90GT-F1A	84GT-AA (YELLOW)	90GT-DB	D
91GT-RAA, RBA	2.9L-(EFI)	90GT-DB	90GT-D1A	74DT-AB (ORANGE)	84GT-AB	A
91GT-AEA, AEB, AEC, AED, RCA, RDA	2.9L-(EFI)	90GT-FB	90GT-F1A	83DT-AA (GREEN)	84GT-AB	A
91GT-GAA,HAA, KAA,LAA,MAA,NAA SAA, SBA, SCA, SDA, SEA, SFA	4.0L-(EFI)	84DT-BB	83DT-B1A	74DT-AB (ORANGE)	84GT-AB	A
91GT-AAA, BAA, DAA, EAA	4.0L-(EFI)	84DT-BB	83DT-B1A	84GT-AA (YELLOW)	84GT-AB	A

Figure 91

INTERMEDIATE BAND STRUT IDENTIFICATION

1992 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
91GT-MUA, MUB	2.3L-(EFI)	90GT-FB	90GT-F1A	80DT-AA (BLUE)	80GT-DB	D
92GT-BDB, BGB	2.3L-(EFI)	90GT-FB	90GT-F1A	80DT-AA (BLUE)	90GT-DB	D
91GT-RAA, RBA	2.9L-(EFI)	90GT-DB	90GT-D1A	74DT-AB (ORANGE)	84GT-AB	A
92GT-ABA, ACA, ADA, AEA, AFA, AGA	3.0L-(EFI)	90GT-FB	90GT-F1A	83DT-AA (GREEN)	84GT-AB	A
92GT-DBA, DCA, DDA, DEA, AHA, AKA, ALA, AMA, ANA, ARA, ASA, ATA	4.0L-(EFI)	84DT-BB	83DT-B1A	74DT-AB (ORANGE)	84GT-AB	A
92GT-CBA, CDA, CEA, CFA	4.0L-(EFI)	84DT-BB	83DT-B1A	84GT-AA (YELLOW)	84GT-AB	A

Figure 92

1993 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
93GT-RBA, SBA	2.3L-(EFI)	90GT-FB	90GT-F1A	80DT-AA (BLUE)	80GT-DB	D
93GT-AAA, BAA	2.3L-(EFI)	90GT-EB	90GT-E1A	84GT-AA (YELLOW)	90GT-EB	D
93GT-CAA, DAA, TAA, UAA, FBA, GBA	3.0L-(EFI)	90GT-FB	90GT-F1A	83DT-AA (GREEN)	84GT-AB	A
93GT-EAA, FAA	3.0L-(EFI)	90GT-DB	90GT-D1A	74DT-AB (ORANGE)	84GT-AB	A
93GT-BBA, CBA, HBA, KBA, DBA, EBA, MBA, NBA, GAA, HAA, MAA, NAA, RAA, SAA, KAA, LAA	4.0L-(EFI)	84DT-BB	78DT-B2A	74DT-AB (ORANGE)	84GT-AB	A
93GT-LBA, SBB	4.0L-(EFI)	84DT-BB	78DT-B2A	90GT-AA (LT. BLUE)	84GT-AB	A

Figure 93

OVERDRIVE BAND STRUT IDENTIFICATION

1985 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
85GT-ABA, ACA	2.3L-1V	84DT-7D027-AA	78DT-7E221-A2A	80DT-7D028-AA (BLUE)	84GT-7D396-GA	G
85GT-AEA, AGA, ALA, AMA, BAA, BCA	2.8L-2V	84DT-7D027-AA	78DT-7E221-A2A	80DT-7D028-AA (BLUE)	84GT-7D396-GA	G

Figure 94

1986 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
85GT- ACA, 86GT- AAA	2.3L-(EFI)	84DT-7L439-AB	74DT-7E221-A2A	80DT-7D028-AA (BLUE)	84GT-7D396-GA	G
85GT- AMA, BCA	2.8L-2V			80DT-7D028-AA (BLUE)	84GT-7D396-GA	E
86GT- ABA, ACA, BAA, CAA, DAA, EAA	2.9L-(EFI)	84DT-7L439-AB	78DT-7E221-A2A	83DT-7D028-AA (GREEN)	84GT-7D396-EA	E
86GT- KAA, LAA	3.0L-(EFI)	84DT-7L439-AB	78DT-7E221-A2A	83DT-7D028-AA (GREEN)	84GT-7D396-EA	E

Figure 95

1987 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
87GT- ABA, CAA, CAB	2.3L-(EFI)	84DT-7L439-AB	78DT-7E221-A2A	80DT-7D028-AA (BLUE)	84GT-7D396-GA	G
87GT- AAA, BAA	2.3L-(TURBO)	84DT-7L439-AB	78DT-7E221-A2A	80DT-7D028-AA (BLUE)	84GT-7D396-GA	E
87GT- DAA, FAA, HAA, KAA, DAC, FAD, HAE, KAG	2.9L-(EFI)	84DT-7L439-AB	78DT-7E221-A2A	83DT-7D028-AA (GREEN)	84GT-7D396-EA	E
87GT- MAA, NAA	3.0L-(EFI)	84DT-7L439-AB	78DT-7E221-A2A	83DT-7D028-AA (GREEN)	84GT-7D396-EA	E

Figure 96

OVERDRIVE BAND STRUT IDENTIFICATION

1988 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
88GT-ABB	2.3L-(EFI)	84GT-7L439-AB	74DT-7E221-A2A	80DT-7D028-AA (BLUE)	84GT-7D396-GA	G
88GT-HAA, NAA	2.3L-(EFI)	84GT-7L439-AB	74DT-7E221-A2A	80DT-7D028-AA (BLUE)	84GT-7D396-GB	G
88GT-GAA, KAA	2.3L-(EFI) (TURBO)	84GT-7L439-AB	78DT-7E221-A2A	83DT-7D028-AA (GREEN)	84GT-7D396-AB	A
88GT-LAA, MAA	3.0L-(EFI)	84GT-7L439-AB	78DT-7E221-A2A	83DT-7D028-AA (GREEN)	84GT-7D396-AB	A
88GT-BAA, CAA DAA, EAA	3.0L-(EFI)	84GT-7L439-AB	78DT-7E221-A2A	83DT-7D028-AA (GREEN)	84GT-7D396-AB	C

Figure 97

1989 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
89GT-AAB, BBB	2.3L-(EFI)	84GT-7L439-AB	74DT-7E221-A2A	80DT-7D028-AA (BLUE)	84GT-7D396-EB	E
89GT-RAA, SAA	2.3L-(EFI)	84GT-7L439-AB	74DT-7E221-A2A	80DT-7D028-AA (BLUE)	84GT-7D396-GB	G
89GT-EAA, GAA	3.0L-(EFI)	84GT-7L439-AB	78DT-7E221-A2A	83DT-7D028-AA (GREEN)	84GT-7D396-CB	C
89GT-AAA, BAA, CAA, DAA	3.0L-(EFI)	84GT-7L439-AB	78DT-7E221-A2A	83DT-7D028-AA (GREEN)	84GT-7D396-AB	A

Figure 98

OVERDRIVE BAND STRUT IDENTIFICATION

1990 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
90GT-TAA, TBA	2.3L-(EFI)	84GT-AB	78DT-A2A	80DT-AA (BLUE)	84GT-GB	G
90GT-TCA	2.3L-(EFI)	84GT-AB	78DT-A2A	80DT-AA (BLUE)	84GT-EB	E
90GT-GAA, GBA, GCA	2.3L-(EFI)	84GT-AB	83DT-A1A 78DT-A2A	80DT-AA (BLUE)	84GT-EB	E
90GT-KAA, LAA, LCA, MAA, NAA	2.9L-(EFI)	84GT-AB	83DT-A1A 78DT-A2A	83DT-AA (GREEN)	88GT-CB	C
90GT-RAA, SAA, RBA, SBA	3.0L-(EFI)	84GT-AB	83DT-A1A 78DT-A2A	83DT-AA (GREEN)	84GT-EB	A
90GT-EAA, FAA, CAA, EBA, FBA, DAA, ADA, ADD, AAA, AEA, AEE, BAA	4.0L-(EFI)	84GT-AB	83DT-A1A 78DT-A1A	83DT-AA (GREEN)	88GT-CB	C

Figure 99

1991 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
91GT-MUA, MUB, TPA, TPB	2.3L-(EFI)	84DT-AB	78DT-A2A	80DT-AA (BLUE)	84GT-EB	E
91GT-RAA, RBA	2.9L-(EFI)	84DT-AB	78DT-A2A	83DT-AA (GREEN)	88GT-CB	C
91GT-AEA, AEB, AEC, AED, RCA, RDA	3.0L-(EFI)	84GT-AB	78DT-A2A	83DT-AA (GREEN)	84GT-AB	A
91GT-AAA, BAA, DAA, EAA, GAA, HAA, KAA, LAA, MAA, NAA, SAA, SBA, SCA, SDA, SEA, SFA	4.0L-(EFI)	84GT-AB	78DT-A2A	83DT-AA (GREEN)	88GT-CB	C

Figure 100

OVERDRIVE BAND STRUT IDENTIFICATION

1992 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
91GT-MUA, MUB,	2.3L-(EFI)	84DT-BB	78DT-B2A	80DT-AA (BLUE)	84GT-EB	E
92GT-BDB, BGB	2.3L-(EFI)	84DT-AB	78DT-A2A	84GT-AA (YELLOW)	84GT-EB	E
91GT-RAA, RBA	2.9L-(EFI)	84DT-AB	78DT-A2A	83DT-AA (GREEN)	88GT-CB	C
92GT-ABA, ACA, ADA, AEA, AFA, AGA	3.0L-(EFI)	84DT-AB	78DT-A2A	83DT-AA (GREEN)	84GT-AB	A
92GT-DBA, DCA, AHA, AKA, ALA, AMA, ANA, ARA, ASA, ATA, CBA, CDA, CEA, CFA	4.0L-(EFI)	84DT-AB	78DT-A2A	83DT-AA (GREEN)	84GT-AB	A

Figure 101

1993 MODEL YEAR

MODEL APPLICATION	ENGINE	SERVO COVER	PISTON & ROD ASSEMBLY	SERVO SPRING	SERVO LEVER	LEVER I.D.
93GT-RBA, SBA	2.3L-(EFI)	84DT-BB	83DT-B1A	80DT-AA (BLUE)	84GT-EB	E
93GT-AAA, BAA	2.3L-(EFI)	84DT-AB	78DT-A2A	84GT-AA (YELLOW)	84GT-EB	D
93GT-CAA, DAA, TAA, UAA, FBA, GBA	3.0L-(EFI)	84DT-AB	78DT-A2A	83DT-AA (GREEN)	84GT-AB	A
93GT-EAA, FAA	3.0L-(EFI)	84DT-AB	78DT-A2A	83DT-AA (GREEN)	84GT-CB	C
93GT-BAA, CBA, HBA, KBA, MBA, NBA, GAA, HAA, MAA, NAA, RAA, SAA, KAA, LAA, LBA, SBA	4.0L-(EFI)	84DT-AB	78DT-A2A	83DT-AA (GREEN)	84GT-AB	A

Figure 102

COOLER LINE FITTINGS

There are currently two different size cooler line fittings for the A4LD case. The cases for the small fittings (1/8" Pipe Thread) are no longer serviced by Ford Motor Co. There are adapters available from Ford, for installing the small cooler line fittings into a large thread case, and are available under OEM part number E7TZ-7D273-B.

However, the large black cooler line fitting from the THM 440-T4 transaxle will also fit in the A4LD large thread case, ***but you must remove and discard the ball and spring from the 440 fitting.*** (See Figure 103).

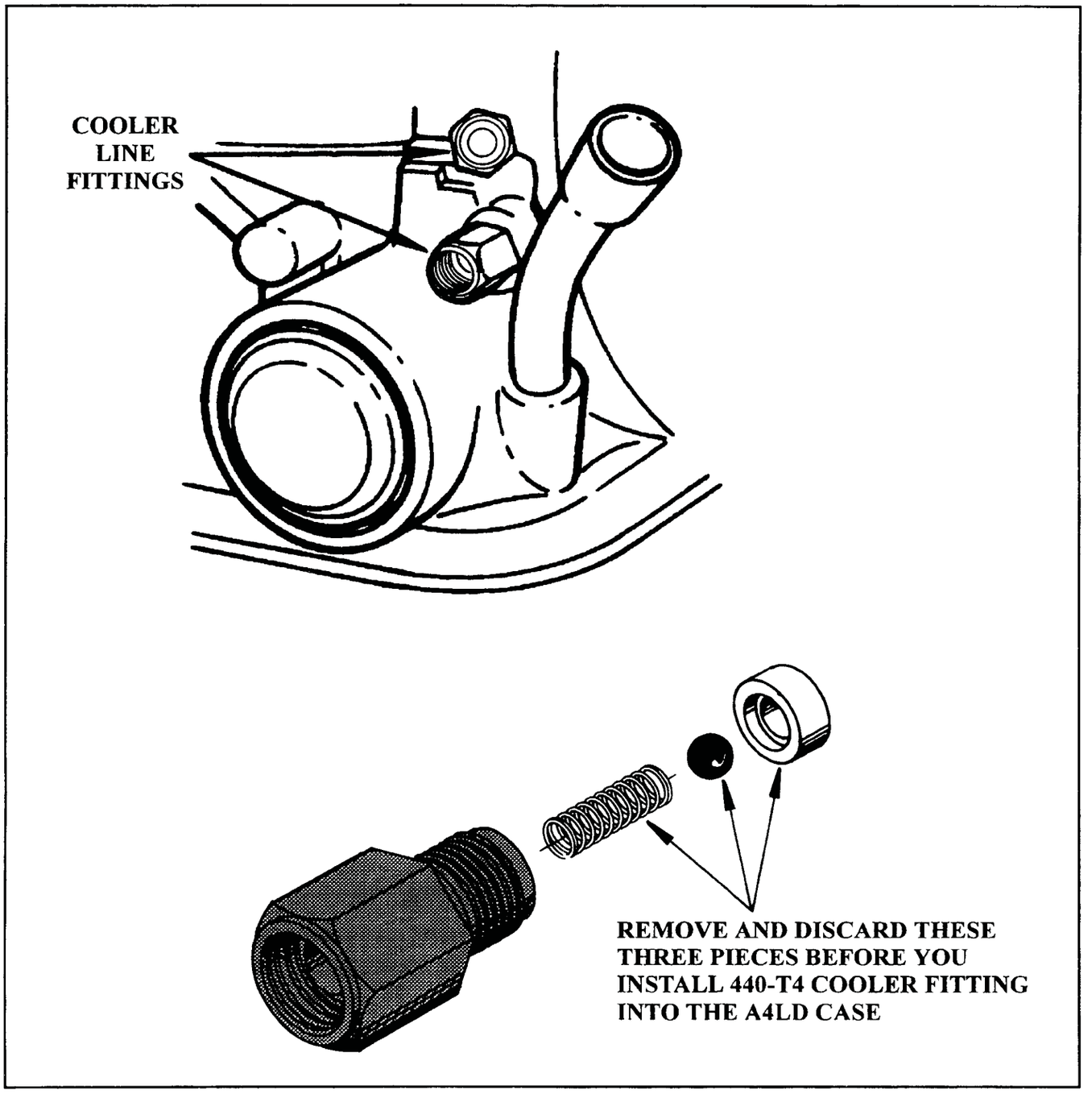


Figure 103

GOVERNOR APPLICATION AND IDENTIFICATION CHARTS

When identifying governor primary valves for model years 85 thru 89, the charts in Figures 106 thru 109 on Page 99, will refer you to "Valve 1" or "Valve 2". Identification for these primary valves are found in Figure 104 below.

When identifying governor primary valves for model years 90 thru 93, the charts in Figures 110 thru 113, will give you a position of an I.D. ring for positive identification. The I.D. ring positions for these valves are shown in Figure 105 below.

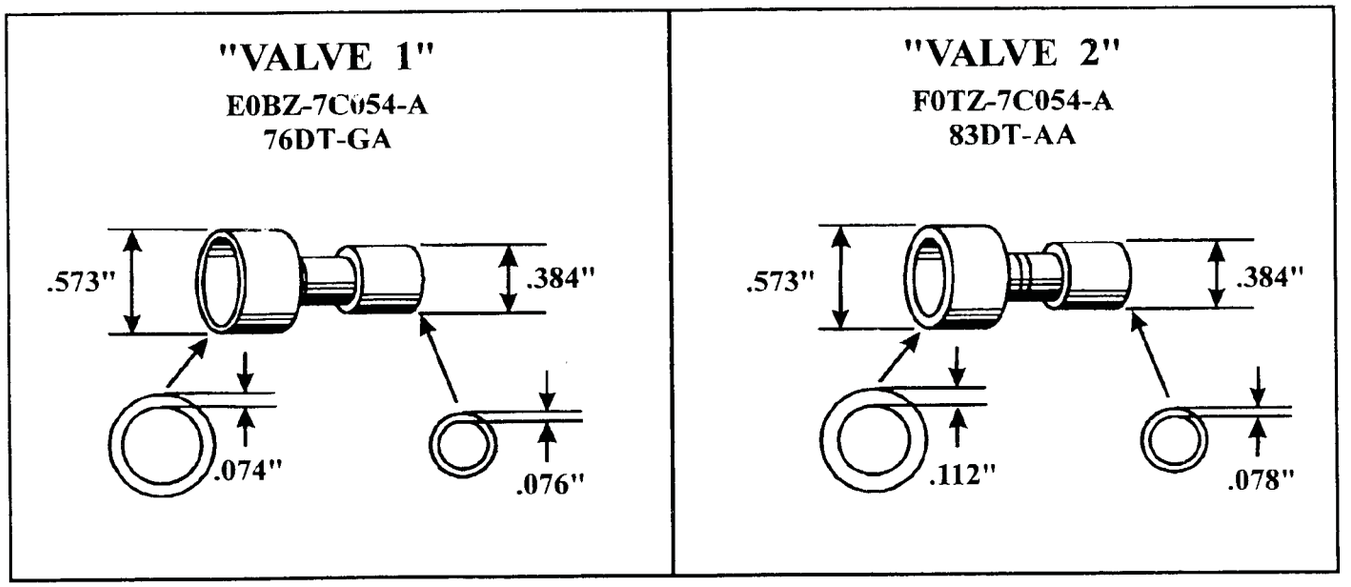


Figure 104

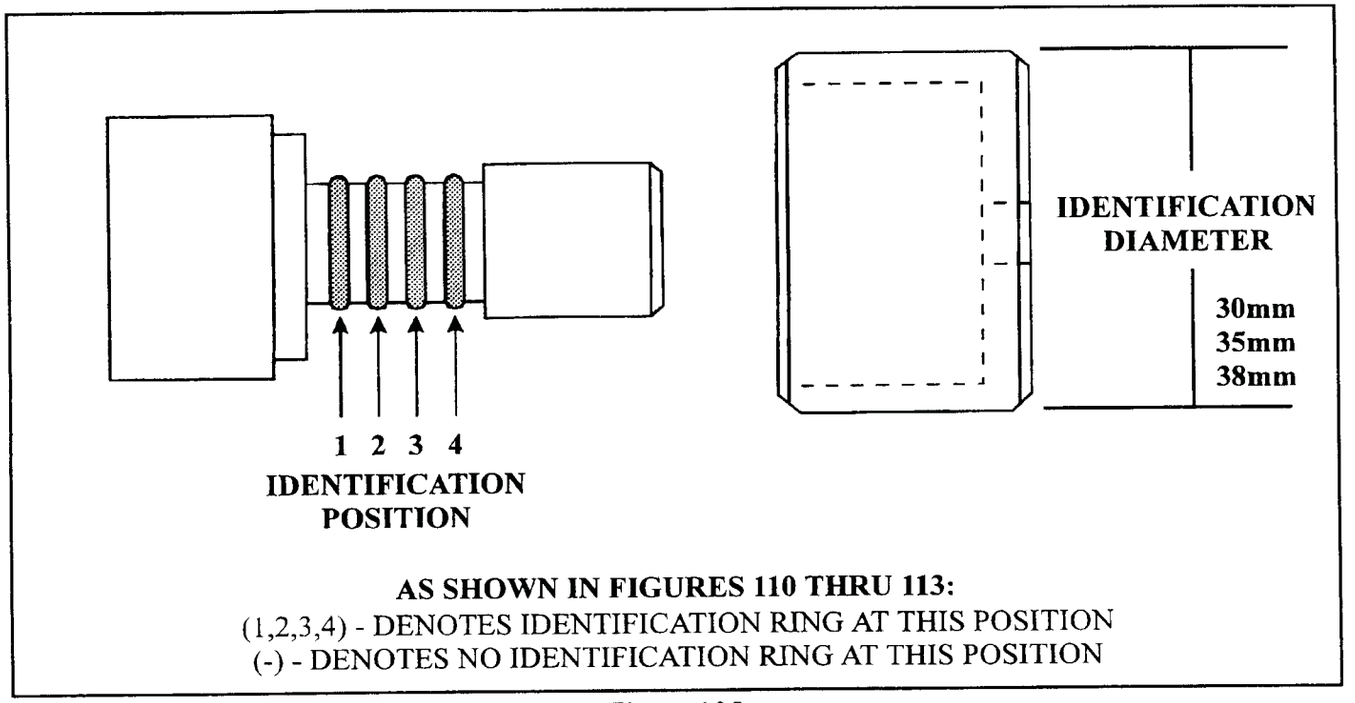


Figure 105

1985

-7A300- GOVERNOR BODY	-7A302- SPRING	-7D324- INNER WEIGHT	-7C054- PRIMARY VALVE	MODELS
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	77DT-AA (N/A)	85GT-ABA, ACA
84GT-BA	78DT-DA (BROWN)	76DT-CA (35mm)	76DT-GA (VALVE 1)	85GT-AEA, AGA, ALA AMA, BAA, BCA

Figure 106

1986

-7A300- GOVERNOR BODY	-7A302- SPRING	-7D324- INNER WEIGHT	-7C054- PRIMARY VALVE	MODELS
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	77DT-AA (N/A)	85GT-ACA 86GT-AAA
84GT-BA	78DT-DA (BROWN)	76DT-CA (35mm)	76DT-GA (VALVE 1)	85GT-AMA, BCA 86GT-ABA, ACA, BAA CAA, DAA, EAA
84GT-BA	86DT-AA (GREEN)	76DT-CA (35mm)	77DT-AA (N/A)	86GT-KAA, LAA

Figure 107

1987

-7A300- GOVERNOR BODY	-7A302- SPRING	-7D324- INNER WEIGHT	-7C054- PRIMARY VALVE	MODELS
84GT-BA	78DT-DA (BROWN)	76DT-CA (35mm)	77DT-AA (N/A)	87GT-AAA. BAA
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	83DT-AA (VALVE 2)	87GT-ABA, CAA, CAB
84GT-BA	78DT-DA (BROWN)	76DT-CA (35mm)	76DT-GA (VALVE 1)	87GT-DAA, FAA, HAA, KAA, DAC, FAD, HAE, KAG
84GT-BA	86DT-AA (GREEN)	76DT-CA (35mm)	77DT-AA (N/A)	87GT-MAA,NAA

Figure 108

1988-1989

-7A300- GOVERNOR BODY	-7A302- SPRING	-7D324- INNER WEIGHT	-7C054- PRIMARY VALVE	MODELS
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	83DT-AA (VALVE 2)	88GT-ABB, HAA, NAA
84GT-BA	78DT-DA (BROWN)	76DT-CA (35mm)	76DT-GA (VALVE 1)	88GT-BAA, CAA, DAA, EAA
84GT-BA	86DT-AA (GREEN)	76DT-CA (35mm)	77DT-AA (N/A)	88GT-LAA, MAA
84GT-BA	78DT-CA (N/A)	76DT-CA (35mm)	77DT-AA (N/A)	88GT-GAA,KAA

Figure 109

1990

-7A300- GOVERNOR BODY	-7A302- SPRING	-7D324- INNER WEIGHT	-7C054- PRIMARY VALVE	MODELS
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	83DT-AA 1,-,3,4,	90GT-TAA, TBA, EAE, FAA, EBA, FBA, ADA, AEA, BAA, ADD, AEE, CAA, DAA, AAA
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	76DT-GA 1,-,-,-,	90GT-TCA
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	77DT-AA 1,2,-,-,	90GT-GAA, GCA, GBA
84GT-BA	78DT-DA (BROWN)	76DT-CA (35mm)	76DT-GA 1,-,-,-,	90GT- KAA, LAA, LCA MAA, NAA
88GT-AA	88GT-BA (DK. BLUE)	76DT-DA (38mm)	88GT-AA -,2,-,-,	90GT-RAA, SAA, RBA SBA

Figure 110

1991

-7A300- GOVERNOR BODY	-7A302- SPRING	-7D324- INNER WEIGHT	-7C054- PRIMARY VALVE	MODELS
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	77DT-AA 1,2,-,-,	91GT-MUA, MUB, TPA TPB
84GT-BA	78DT-DA (BROWN)	76DT-CA (35mm)	76DT-GA 1,-,-,-,	91GT- RAA, RBA
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	83DT-AA 1,-,3,4,	91GT-AAA, BAA, DAA, EAA, GAA, HAA, KAA, LAA, MAA, NAA, SAA, SBA, SCA, SDA, SEA, SFA
88GT-AA	88GT-BA (DK. BLUE)	76DT-DA (38mm)	88GT-AA -,2,-,-,	91GT-AEA, AEB, AEC, AED, RCA, RDA

Figure 111

1992

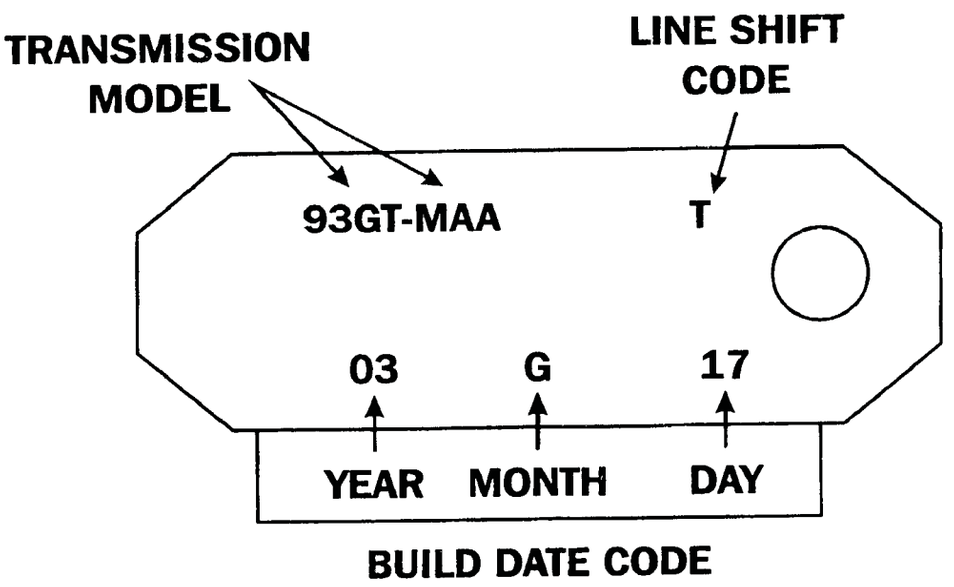
-7A300- GOVERNOR BODY	-7A302- SPRING	-7D324- INNER WEIGHT	-7C054- PRIMARY VALVE	MODELS
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	77DT-AB 1,2,-,-,	91GT-MUA, MUB 92GT-BDB, BGB
84GT-BA	78DT-DA (BROWN)	76DT-CA (35mm)	76DT-GB 1,-,-,-,	91GT-RAA, RBA
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	90GT-AB 1,-,3,4,	92GT-DBA, DCA, DDA DEA, CBA, CDA, CEA CFA, AHA, AKA, ALA AMA, ANA, ARA, ASA ATA
88GT-AA	88GT-BA (DK. BLUE)	76DT-DA (38mm)	88GT-AB -,2,-,-,	92GT-ABA, ACA, ADA AEA, AFA, AGA

Figure 112

1993

-7A300- GOVERNOR BODY	-7A302- SPRING	-7D324- INNER WEIGHT	-7C054- PRIMARY VALVE	MODELS
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	77DT-AB 1,2,-,-,	93GT-AAA, BAA, RBA SBA,
84GT-BA	78DT-DA (BROWN)	76DT-CA (35mm)	76DT-GB 1,-,-,-,	93GT-EAA, FAA
84GT-BA	78DT-DA (BROWN)	83DT-AA (30mm)	90GT-AB 1,-,3,4,	92GT-BBA, CBA, HBA KBA, HAA, KAA, LAA LBA, DBA, EBA, MBA NBA, MAA, NAA, RAA SAA, SBB
88GT-AA	88GT-BA (DK. BLUE)	76DT-DA (38mm)	88GT-AB -,2,-,-,	93GT-CAA, DAA, FBA GBA, TAA, UAA

Figure 113



BUILD DATE CODE

A = JANUARY
B = FEBRUARY
C = MARCH
D = APRIL
E = MAY
F = JUNE
G = JULY
H = AUGUST
J = SEPTEMBER
K = OCTOBER
L = NOVEMBER
M = DECEMBER

The Identification Tag, located on extension housing bolt, will give us the transmission model code and the exact date that it was manufactured. At times, this is important information to order parts, because of the many running engineering changes.
In the example listed above we can see that it was built for a 1993 vehicle, because the first two digits in the transmission model code are 93 (93GT-MAA). We can also see that it was manufactured on July (G) the 17th (17) of 1993 (03).
On the following pages, in Figures 115 thru 122, we have provided you with charts to identify the application and engine size for which it was originally produced, using the transmission model code. In the example above, using the transmission model code (93GT-MAA), turn to the 1993 chart in Figure 122, and you can see that it fits a 1993 Explorer, 4X4, with a 4.0L engine.

Figure 114

1985-1986 MODELS

TRANSMISSION ASSEMBLY PART NUMBER	VEHICLE	ENGINE	3-4 SHIFT		49 STATES AND CANADA	CALIF.	MOUNTAIN REGIONS	MAIN CONTROL	1985	1986
			VAC.	ELEC.				7A100	NUMBER OF CHECK BALLS	
85GT-AEA	RANGER 4x2	2.9L	X		X	X		88-BAA	6	
85GT-BCA	AEROSTAR 4x2	2.8L	X		X	X		88-AAA		6
85GT-ACA	AEROSTAR 4x2	2.3L	X		X	X		88-CAA		6
85GT-ABA	RANGER 4x2	2.3L	X		X	X		88-HAA	6	
85GT-AGA	RANGER 4x2	2.8L	X		X	X		88-BAA	6	
85GT-ALA	RANGER 4x2 BRONCO II 4x2	2.8L	X				X	88-BAA	6	
85GT-AMA	AEROSTAR VAN/BUS 4x2	2.8L	X				X	88-BAA		6
85GT-BAA	RANGER 4x2 BRONCO II 4x2	2.8L	X				X	88-BAA	6	
85GT-ACA	EFI AEROSTAR VAN/BUS 4x2	2.3L	X		X	X		88-CAA		6
86GT-AAA	RANGER 4x2	2.3L	X		X	X		88-HAA	6	6
86GT-BAA	RANGER 4x2	2.9L	X		X	X		88-DAA	6	6
86GT-GAA	RANGER 4x2	2.9L	X				X	88-JAA	6	6
86GT-EAA	BRONCO II 4x4	2.9L	X				X	88-JAA	6	6
86GT-DAA	RANGER 4x4 BRONCO II 4x4	2.9L	X		X	X		88-DAA	6	6
86GT-ABA	BRONCO II 4x2	2.9L	X		X	X		88-DAA	6	6
86GT-KAA	AEROSTAR 4x2	3.0L	X		X	X		88-KAA		6
86GT-CAA	RANGER 4x2	2.9L	X				X	88-JAA	6	6
86GT-ACA	BRONCO II 4x2	2.9L	X				X	88-JAA	6	6
86GT-LAA	EFI AEROSTAR 4x2	3.0L	X				X	88-KAA		6

Figure 115

1987-1988 MODELS

TRANSMISSION ASSEMBLY PART NUMBER	VEHICLE	ENGINE	3-4 SHIFT		49 STATES AND CANADA	CALIF.	MOUNTAIN REGIONS	MAIN CONTROL	'85	'86	'87	'88
			VAC.	ELEC.				7A100	NUMBER OF CHECK BALLS			
87GT-AAA	TC T-BIRD 4x2	2.3L		X	X	X		88-FAA			5	
87GT-ABA	EFI MUSTANG 4x2	2.3L	X		X	X		88-GAA	6	6	6	
87GT-BAA	TC T-BIRD 4x2	2.3L		X			X	88-FAA			5	
87GT-CAB	RANGER 4x2	2.3L	X		X	X		88-HAA	6	6	6	
87GT-DAA	RANGER 4x2	2.9L	X		X	X		88-JAA	6	6	6	
87GT-DAC	RANGER 4x2	2.9L	X		X	X		88-JAA	6	6	6	
87GT-HAA	RANGER BRONCO II 4x2 / 4x4	2.9L	X		X	X		88-JAA	6	6	6	
87GT-HAE	RANGER BRONCO II 4x2 / 4x4	2.9L	X		X	X			6	6	6	
87GT-HAG	RANGER BRONCO II 4x2 / 4x4	2.9L	X				X	88-JAA	6	6	6	
87GT-MAA	AEROSTAR 4x2	3.0L	X		X	X		88-KAA		6	6	
87GT-NAA	AEROSTAR 4x2	3.0L	X				X	88-KAA		6	6	
87GT-KAG	RANGER 4x4 3/8" BRONCO II 4x2 4x4	2.9L	X				X	88-JAA	6	6	6	
87GT-CAA	EFI RANGER 4x2	2.3L	X		X	X		88-HAA	6	6	6	
87GT-KAA	RANGER 4x4 BRONCO II 4x4	2.9L	X				X	88-JAA	6	6	6	
87GT-FAA	EFI RANGER 4x2	2.9L	X				X	88-JAA	6	6	6	
87GT-LAA	EFI RANGER 4x2	2.3L	X		X	X		88-CAA		6	6	
88GT-MAA	AEROSTAR 4x2	3.0L		X			X	88-RAA				5
88GT-CAA	EFI RANGER 4x2	2.9L		X			X	88-NAA				5
88GT-ABB	EFI RANGER 4x2	2.3L	X		X	X		88-TAA	6	6	6	6
88GT-BAA	EFI RANGER 4x2	2.9L		X	X	X		88-NAA				5
88GT-DAA	EFI RANGER BRONCO II 4x2 / 4x4	2.9L		X	X	X		88-SAA				5
88GT-EAA	EFI RANGER BRONCO II 4x2 / 4x4	2.9L		X			X	88-SAA				5
88GT-GAA	TC T-BIRD 4x2	2.3L		X	X	X		88-MAA			6	5
88GT-LAB	AEROSTAR 4x2	3.0L		X	X	X		88-RAA				5
	AEROSTAR 4x2	3.0L		X			X	88-RAA				5
	MUSTANG 4x2	2.3L	X		X	X		88-LAA			6	5
	EFI AEROSTAR 4x2	3.0L		X	X	X		88-RAA				5
	TC T-BIRD 4x2	2.3L		X			X	88-MAA			6	5
	MUSTANG 4x2	2.3L	X				X	88-LAA				5

Figure 116

1989 MODELS

TRANSMISSION ASSEMBLY PART NUMBER	VEHICLE	ENGINE	3-4 SHIFT		49 STATES AND CANADA	CALIF.	MOUNTAIN REGIONS	MAIN CONTROL	'87	'88	'89	
			VAC.	ELEC.				7A100	NUMBER OF CHECK BALLS			
89GT-GAA	AEROSTAR 4x2	3.0L		X				89-EAA		4	4	
89GT-GAB	AEROSTAR 4x2	3.0L		X			X	89-EAA		4	4	
89GT-BAA	BRONCO II 4x2	2.9L		X			X	89-DAA			4	
89GT-TBB	AEROSTAR 4x2	3.0L		X	X	X	X	89-EAA		4	4	
89GT-TBA	AEROSTAR 4x2	3.0L		X			X	89-EAA		4	4	
89GT-AAA	EFI RANGER 4x2	2.9L		X	X			89-CAA			4	
89GT-BBB	EFI TWIN PLUG HE RANGER 4x2	2.3L		X	X			89-FAA			4	
89GT-CAA	EFI RANGER 4x4 BRONCO II 4x2	2.9L		X	X			89-CAA			4	
89GT-DAA	EFI RANGER BRONCO II 4x4	2.9L		X			X	89-DAA			4	
89GT-EAA	EFI AEROSTAR 4x2	3.0L		X	X			89-EAA		4	4	
89GT-RAA	EFI MUSTANG 4x2	2.3L	X		X			89-BAA	5	5	5	
89GT-SAA	EFI MUSTANG 4x2	2.3L	X				X	89-BAA	5	5	5	
89GT-TAA	EFI AEROSTAR 4x2 WAGON	3.0L		X	X			89-EAA		4	4	
89GT-BBA	EFI BRONCO II 4x2	2.9L		X	X			89-CAA			4	
89GT-EAB	EFI AEROSTAR 4x2	3.0L		X	X			89-EAA		4	4	
89GT-TAB	EFI EXT. AEROSTAR 4x2	3.0L		X	X			89-EAA		4	4	
89GT-AAB	RANGER 4x2	2.3L		X	X		X	89-FAA			4	

Figure 117

1990 MODELS

TRANSMISSION ASSEMBLY PART NUMBER	VEHICLE	ENGINE	3-4 SHIFT		49 STATES AND CANADA	CALIF.	MOUNTAIN REGIONS	MAIN CONTROL	'87	'88	'89	'90
			VAC.	ELEC.				7A100	NUMBER OF CHECK BALLS			
90GT-GAA	RANGER 4x2	2.3L		X	X			90-GAA			4	4
90GT-GBA	RANGER 4x2	2.3L		X			X	90-GAA			4	4
90GT-GCA	RANGER 4x2	2.3L		X		X		90-GBA			4	4
90GT-KAA	RANGER 4x2	2.9L		X	X			90-BAA			4	4
90GT-LAA	RANGER 4x2 BRONCO II 4x2	2.9L		X		X	X	90-BAA			4	4
90GT-LCA	BRONCO II 4x2	2.9L		X		X		90-BAA				4
90GT-MAA	RANGER 4x4 BRONCO II 4x4	2.9L		X	X			90-BAA			4	4
90GT-NAA	RANGER 4x4 BRONCO II 4x4	2.9L		X		X	X	90-BAA			4	4
90GT-RAA	AEROSTAR 4x2	3.0L		X	X			90-DAA			4	4
90GT-RBA	AEROSTAR 4x2	3.0L		X	X			90-DAA			4	4
90GT-SAA	AEROSTAR 4x2	3.0L		X			X	90-DAA			4	4
90GT-SBA	AEROSTAR 4x2	3.0L		X			X	90-DAA	5	5	5	5
90GT-TAA	MUSTANG 4x2	2.3L	X		X			90-EAA	5	5	5	5
90GT-TBA	MUSTANG 4x2	2.3L	X				X	90-EAA				4
90GT-TCA	MUSTANG 4x2	2.3L		X		X		90-FAA				4
90GT-AAA	RANGER 750 N•m 4x4	4.0L		X	X			90-MAA				4
90GT-ADA	AEROSTAR 750 N•m 4x4	4.0L		X	X			90-MAA				4
90GT-ADD	AEROSTAR 750 N•m 4x4	4.0L		X	X			90-MAA				4
90GT-AEA	AEROSTAR 750 N•m 4x4	4.0L		X			X	90-MAA				4
90GT-AEE	AEROSTAR 750 N•m 4x4	4.0L		X			X	90-MAA				4
90GT-CAA	RANGER 750 N•m 4x2	4.0L		X	X			90-AAA				4
90GT-DAA	RANGER 750 N•m 4x2	4.0L		X			X	90-AAA				4
90GT-EAA	AEROSTAR 750 N•m 4x2	4.0L		X	X			90-AAA				4
90GT-EBA	AEROSTAR 750 N•m 4x2	4.0L		X	X			90-AAA				4
90GT-FAA	AEROSTAR 750 N•m 4x2	4.0L		X			X	90-AAA				4
90GT-FBA	AEROSTAR 750 N•m 4x2	4.0L		X			X	90-AAA				4
90GT-BAA	RANGER 750 N•m 4x4	4.0L		X			X	90-MAA				4

Figure 118

1991 MODELS

TRANSMISSION ASSEMBLY PART NUMBER	VEHICLE	ENGINE	3-4 SHIFT		49 STATES AND CANADA	CALIF.	MOUNTAIN REGIONS	MAIN CONTROL	1991
			VAC.	ELEC.				7A100	NUMBER OF CHECK BALLS
91GT-TPA	RANGER 4x2	2.3L		X	X			90-GBA	4
91GT-TPB	RANGER 4x2	2.3L		X		X	X	90-GBA	4
91GT-RCA	RANGER 4x2	3.0L		X	X			90-DAA	4
91GT-RDA	RANGER 4x2	3.0L		X		X	X	90-DAA	4
91GT-KAA	RANGER 750 N•m 4x2	4.0L		X	X			91-CAA	4
91GT-LAA	RANGER 750 N•m 4x2	4.0L		X		X	X	91-CAA	4
91GT-RAA	RANGER 750 N•m 4x4	2.9L		X	X			90-BAA	4
91GT-RBA	RANGER 750 N•m 4x4	2.9L		X		X	X	90-BAA	4
91GT-MAA	RANGER 750 N•m 4x4	4.0L		X	X			91-KAA	4
91GT-NAA	RANGER 750 N•m 4x4	4.0L		X		X	X	91-KAA	4
91GT-AAB	EXPLORER 750 N•m 4x2	4.0L		X	X			91-AAB	4
91GT-BAB	EXPLORER 750 N•m 4x2	4.0L		X		X	X	91-AAB	4
91GT-DAB	EXPLORER 750 N•m 4x2	4.0L		X	X			91-AAB	4
91GT-EAB	EXPLORER 750 N•m 4x4	4.0L		X		X	X	91-AAB	4
91GT-AEA	AEROSTAR VAN 4x2	3.0L		X	X			90-DAA	4
91GT-AEB	AEROSTAR VAN 4x2	3.0L		X		X	X	90-DAA	4
91GT-AEC	AEROSTAR WAGON 4x2	3.0L		X	X			90-DAA	4
91GT-AED	AEROSTAR WAGON 4x2	3.0L		X		X	X	90-DAA	4
91GT-GAA	AEROSTAR VAN 750 N•m 4x2	4.0L		X	X			91-CAA	4
91GT-HAA	AEROSTAR VAN 750 N•m 4x2	4.0L		X		X	X	91-CAA	4
91GT-SAA	AEROSTAR WAGON 750 N•m 4x2	4.0L		X	X			91-CAA	4
91GT-SBA	AEROSTAR WAGON 750 N•m 4x2	4.0L		X		X	X	91-CAA	4
91GT-SCA	AEROSTAR VAN 750 N•m 4x4	4.0L		X	X			91-KAA	4
91GT-SDA	AEROSTAR VAN 750 N•m 4x4	4.0L		X		X	X	91-KAA	4
91GT-SEA	AEROSTAR WAGON 750 N•m 4x4	4.0L		X	X			91-KAA	4
91GT-SFA	AEROSTAR WAGON 750 N•m 4x4	4.0L		X		X	X	91-KAA	4
91GT-MUA	MUSTANG TWIN PLUG	2.3L		X	X			91-BBA	4
91GT-MUB	MUSTANG TWIN PLUG	2.3L		X		X	X	91-BBA	4

Figure 119

1992 MODELS

TRANSMISSION ASSEMBLY PART NUMBER	VEHICLE	ENGINE	3-4 SHIFT		49 STATES AND CANADA	CALIF.	MOUNTAIN REGIONS	MAIN CONTROL	1991	1992
			VAC.	ELEC.				7A100	NUMBER OF CHECK BALLS	
92GT-CBB	EXPLORER 750 N•m 4x2	4.0L		X	X			92-ABB		4
92GT-CDB	EXPLORER 750 N•m 4x2	4.0L		X		X	X	92-ABB		4
92GT-CEB	EXPLORER 750 N•m 4x4	4.0L		X	X			92-ABB		4
92GT-CFB	EXPLORER 750 N•m 4x4	4.0L		X		X	X	92-ABB		4
92GT-MUA	MUSTANG TWIN PLUG	2.3L		X	X			92-BBA	4	4
92GT-MUB	MUSTANG TWIN PLUG	2.3L		X		X	X	92-BBA	4	4
92GT-ADA	AEROSTAR VAN 4x2	3.0L		X	X			92-DAB		4
92GT-AEA	AEROSTAR VAN 4x2	3.0L		X		X	X	92-DAB		4
92GT-AFA	AEROSTAR WAGON 4x2	3.0L		X	X			92-DAB		4
92GT-AGA	AEROSTAR WAGON 4x2	3.0L		X		X	X	92-DAB		4
92GT-AHA	AEROSTAR VAN 750 N•m 4x2	4.0L		X	X			92-CAB		4
92GT-AKA	AEROSTAR VAN 750 N•m 4x2	4.0L		X		X	X	92-CAB		4
92GT-ALA	AEROSTAR WAGON 750 N•m 4x2	4.0L		X	X			92-CAB		4
92GT-AMA	AEROSTAR WAGON 750 N•m 4x2	4.0L		X		X	X	92-CAB		4
92GT-ANA	AEROSTAR VAN 750 N•m 4x4	4.0L		X	X			92-KAB		4
92GT-ARA	AEROSTAR VAN 750 N•m 4x4	4.0L		X		X	X	92-KAB		4
92GT-ASA	AEROSTAR WAGON 750 N•m 4x4	4.0L		X	X			92-KAB		4
92GT-ATA	AEROSTAR WAGON 750 N•m 4x4	4.0L		X		X	X	92-KAB		4
92GT-BDB	RANGER 4x2	2.3L		X	X			92-GBB		4
92GT-BGB	RANGER 4x2	2.3L		X		X	X	92-GBB		4
92GT-RAA	RANGER 4x4	2.9L		X	X			92-BAA	4	4
92GT-RBA	RANGER 4x4	2.9L		X		X	X	92-BAA	4	4
92GT-ABA	RANGER 4x2	3.0L		X	X			92-DAC		4
92GT-ACA	RANGER 4x2	3.0L		X		X	X	92-DAC		4
92GT-DBA	RANGER 750 N•m 4x2	4.0L		X	X			92-CAB		4
92GT-DCA	RANGER 750 N•m 4x2	4.0L		X		X	X	92-CAB		4
92GT-DDA	RANGER 750 N•m 4x4	4.0L		X	X			92-KAB		4
92GT-DEA	RANGER 750 N•m 4x4	4.0L		X		X	X	92-KAB		4

Figure 120

1993 MODELS

TRANSMISSION ASSEMBLY PART NUMBER	VEHICLE	ENGINE	3-4 SHIFT		49 STATES AND CANADA	CALIF.	MOUNTAIN REGIONS	MAIN CONTROL	1993	11/3 1993
			VAC.	ELEC.				7A100	NUMBER OF CHECK BALLS	
93GT-GAB	EXPLORER 750 N•m 4x2	4.0L		X	X			93-EAA	4	
93GT-HAB	EXPLORER 750 N•m 4x2	4.0L		X		X	X	93-EAA	4	
93GT-MAB	EXPLORER 750 N•m 4x4	4.0L		X	X			93-EAA	4	
93GT-NAB	EXPLORER 750 N•m 4x4	4.0L		X		X	X	93-EAA	4	
93GT-RBA	MUSTANG TWIN PLUG	2.3L		X	X			91-BBA	4	4
93GT-SBA	MUSTANG TWIN PLUG	2.3L		X		X	X	91-BBA	4	4
93GT-TAA	AEROSTAR VAN 4x2	3.0L		X	X			92-DAB	4	4
93GT-UAA	AEROSTAR VAN 4x2	3.0L		X		X	X	92-DAB	4	4
93GT-FBA	AEROSTAR WAGON 4x2	3.0L		X	X			92-DAB	4	4
93GT-GBA	AEROSTAR WAGON 4x2	3.0L		X		X	X	92-DAB	4	4
93GT-BBB	AEROSTAR VAN 750 N•m 4x2	4.0L		X	X			93-FAA	4	
93GT-CBB	AEROSTAR VAN 750 N•m 4x2	4.0L		X		X	X	93-FAA	4	
93GT-HBC	AEROSTAR WAGON 750 N•m 4x2	4.0L		X	X			93-FAA	4	
93GT-KBB	AEROSTAR WAGON 750 N•m 4x2	4.0L		X		X	X	93-FAA	4	
93GT-DBB	AEROSTAR VAN 750 N•m 4x4	4.0L		X	X			93-GAA	4	
93GT-EBB	AEROSTAR VAN 750 N•m 4x4	4.0L		X		X	X	93-GAA	4	
93GT-MBB	AEROSTAR WAGON 750 N•m 4x4	4.0L		X	X			93-GAA	4	
93GT-NBC	AEROSTAR WAGON 750 N•m 4x4	4.0L		X		X	X	93-GAA	4	
93GT-AAA	RANGER 4x2	2.3L		X	X			93-AAA	4	4
93GT-BAA	RANGER 4x2	2.3L		X		X	X	93-AAA	4	4
93GT-EAA	RANGER 4x4	2.9L		X	X			93-BAA	4	4
93GT-FAA	RANGER 4x4	2.9L		X		X	X	93-BAA	4	4
93GT-CAA	RANGER 4x2	3.0L		X	X			93-BAA	4	4
93GT-DAA	RANGER 4x2	3.0L		X		X	X	93-BAA	4	4
93GT-KAB	RANGER 750 N•m 4x2	4.0L		X	X			93-CAA	4	
93GT-LAB	RANGER 750 N•m 4x2	4.0L		X		X	X	93-CAA	4	
93GT-RAB	RANGER 750 N•m 4x4	4.0L		X	X			93-CAA	4	
93GT-SAB	RANGER 750 N•m 4x4	4.0L		X		X	X	93-CAA	4	
93GT-LBB	RANGER 750 N•m 4x2	4.0L		X	X			93-DAA	4	
93GT-SBC	RANGER 750 N•m 4x4	4.0L		X	X			93-DAA	4	

Figure 121

1993 MODELS (Cont'd)

TRANSMISSION ASSEMBLY PART NUMBER	VEHICLE	ENGINE	3-4 SHIFT		49 STATES AND CANADA	CALIF.	MOUNTAIN REGIONS	MAIN CONTROL	11/3 1993
			VAC.	ELEC.				7A100	NUMBER OF CHECK BALLS
93GT-GAA	EXPLORER 750 N•m 4x2	4.0L		X	X			93-EAA	4
93GT-HAA	EXPLORER 750 N•m 4x2	4.0L		X		X	X	93-EAA	4
93GT-MAA	EXPLORER 750 N•m 4x4	4.0L		X	X			93-EAA	4
93GT-NAA	EXPLORER 750 N•m 4x4	4.0L		X		X	X	93-EAA	4
93GT-BBA	AEROSTAR VAN 750 N•m 4x2	4.0L		X	X			93-FAA	4
93GT-CBA	AEROSTAR VAN 750 N•m 4x2	4.0L		X		X	X	93-FAA	4
93GT-HBA	AEROSTAR WAGON 750 N•m 4x2	4.0L		X	X			93-FAA	4
93GT-KBA	AEROSTAR WAGON 750 N•m 4x2	4.0L		X		X	X	93-FAA	4
93GT-DBA	AEROSTAR VAN 750 N•m 4x4	4.0L		X	X			93-GAA	4
93GT-EBA	AEROSTAR VAN 750 N•m 4x4	4.0L		X		X	X	93-GAA	4
93GT-MBA	AEROSTAR WAGON 750 N•m 4x4	4.0L		X	X			93-GAA	4
93GT-NBA	AEROSTAR WAGON 750 N•m 4x4	4.0L		X		X	X	93-GAA	4
93GT-KAA	RANGER 4x2	2.3L		X	X			93-CAA	4
93GT-LAA	RANGER 4x2	2.3L		X		X	X	93-CAA	4
93GT-RAA	RANGER 4x4	2.9L		X	X			93-CAA	4
93GT-SAA	RANGER 4x4	2.9L		X		X	X	93-CAA	4
93GT-LBA	RANGER 4x2	3.0L		X	X			93-DAA	4
93GT-SBB	RANGER 4x2	3.0L		X		X	X	93-DAA	4

Figure 122