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

AUTOMATIC TRANSMISSION SERVICE GROUP

INTRODUCTION
Chrysler A604

Since the introduction of the Chrysler A604 Transaxle in model year 1990, there have been many engineering changes to improve Pleaseability, Driveability, and Durability concerns. These changes have affected many parts used in the A604 transaxle. This "update handbook" will explain each change, and any parts interchangeability problem created by the change, along with any part numbers deemed necessary.

**We thank the Chrysler Corp.
for the illustrations and information
that made this booklet possible**

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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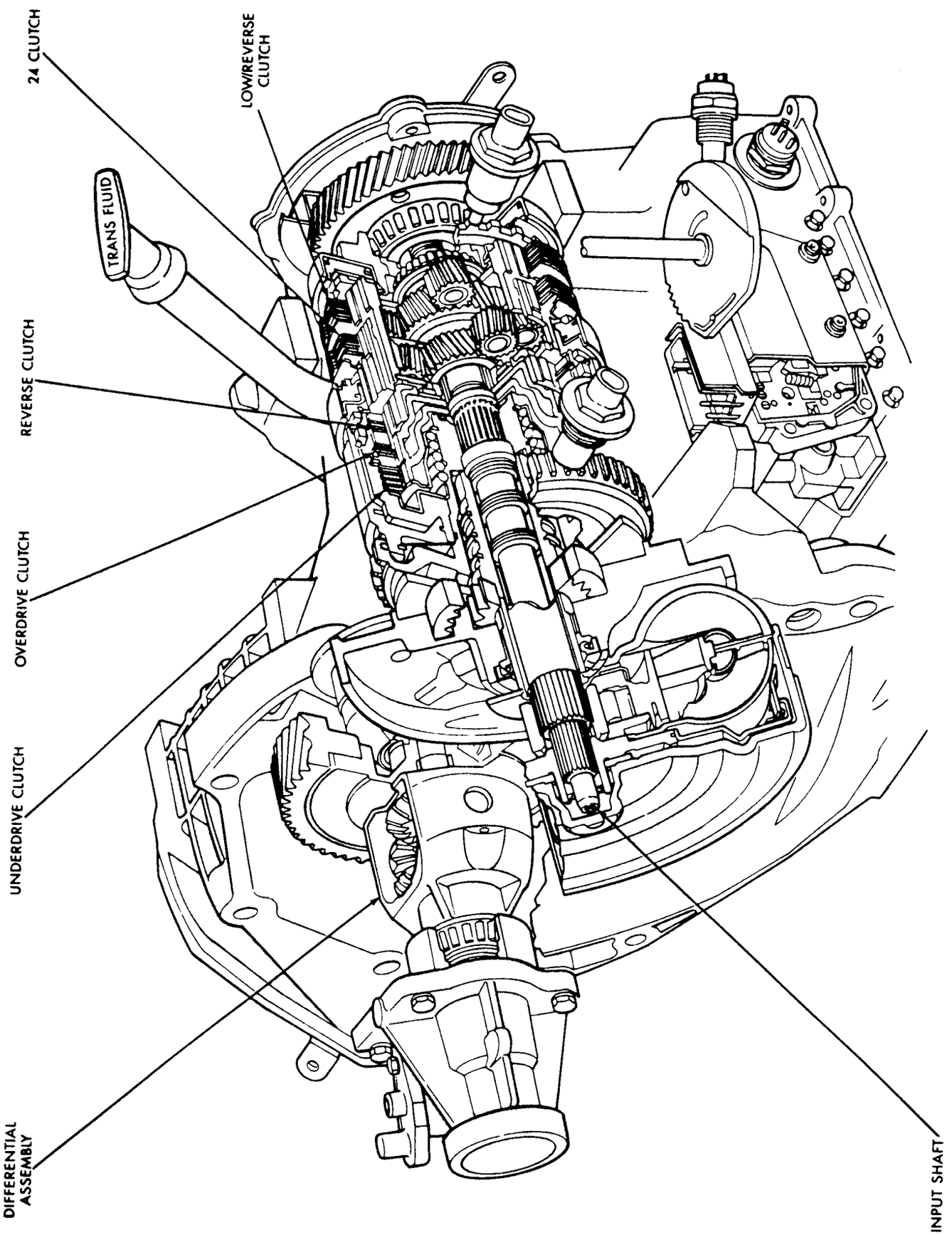

24 CLUTCH
LOW/REVERSE CLUTCH
TRANS FLUID
REVERSE CLUTCH
OVERDRIVE CLUTCH
UNDERDRIVE CLUTCH
DIFFERENTIAL ASSEMBLY
INPUT SHAFT

CHRYSLER A604

NEW 4 RING STATOR

CHANGE: Beginning in April, 1989 a new Reaction Shaft Support (Stator) was introduced, with the addition of another ring groove and sealing ring. The old support has 3 sealing rings, and the new support has 4 sealing rings (See Figure 1).

REASON: Improved control of oil flow to the Underdrive (Forward) Clutch, the Overdrive (3-4) Clutch, and the Reverse Clutch.

PARTS AFFECTED:

(1) REACTION SHAFT SUPPORT - The new support is longer, and has 4 sealing rings, where the old support only has three (See Figure 1).

(2) INPUT SHAFT/CLUTCH HUB - The new Input Clutch Hub bore is machined deeper to accomodate the additional length of the reaction shaft, created by the added sealing ring (See Figure 2).
The "O" Ring grooves are also cut shallower than the old input clutch hub, which increases the groove diameter, and provides improved compression or "Crush", between the "O" rings and the input clutch retainer. (See Figure 2).

(3) INPUT SHAFT/CLUTCH HUB "O" RINGS - The new "O" Rings are "Teflon Coated" for greater tear resistance during the assembly process. The coatings also identify the locations for the "O" Rings. The orange ring goes to the front, and the green one goes to the rear (See Figure 2). The early "O" rings were black.

(4) INPUT CLUTCH RETAINER - The Input Clutch Retainer was modified, by machining off the "Lip" (See Figure 3), to allow more travel of the overdrive/reverse piston. The old Input Clutch Retainer can be machined at the local machine shop if necessary.

(5) SPACER PLATE - The new Spacer Plate has a larger (.105") overdrive clutch feed orifice to provide increased oil flow to the overdrive clutch circuit (See Figure 4).

(6) TRANSAXLE CONTROLLER - If the Transaxle Controller is part number 5234623 or 5234649, REPLACE it with a 5234678 controller.

INTERCHANGEABILITY:

ALWAYS UPDATE to the four ring reaction shaft support. There is now available a repair package, OEM part number 4549248, that includes the following:

1. Reaction Shaft Support.
2. Input Clutch Hub.
3. Input Clutch Hub "O" Rings.
4. Spacer PLate.

SERVICE INFORMATION:

Repair Package	4549248
Gasket Package	4504558
Controller (As Required)	5234678
"O" Ring (Orange)	6502272
"O" Ring (Green)	6502270
Input Clutch Retainer (No Lip)	4431609

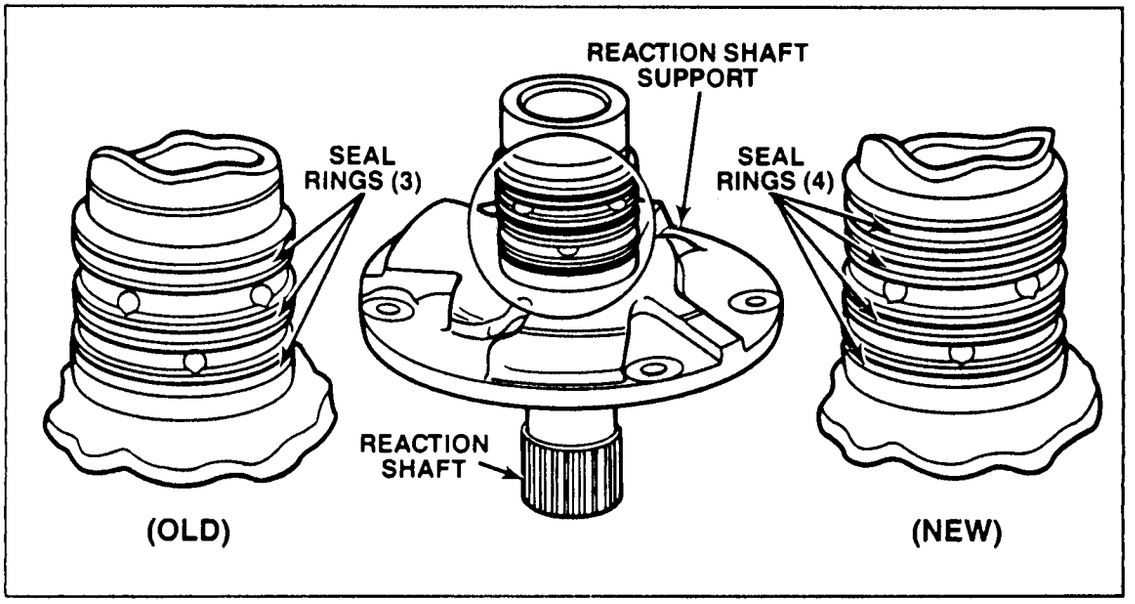


Figure 1

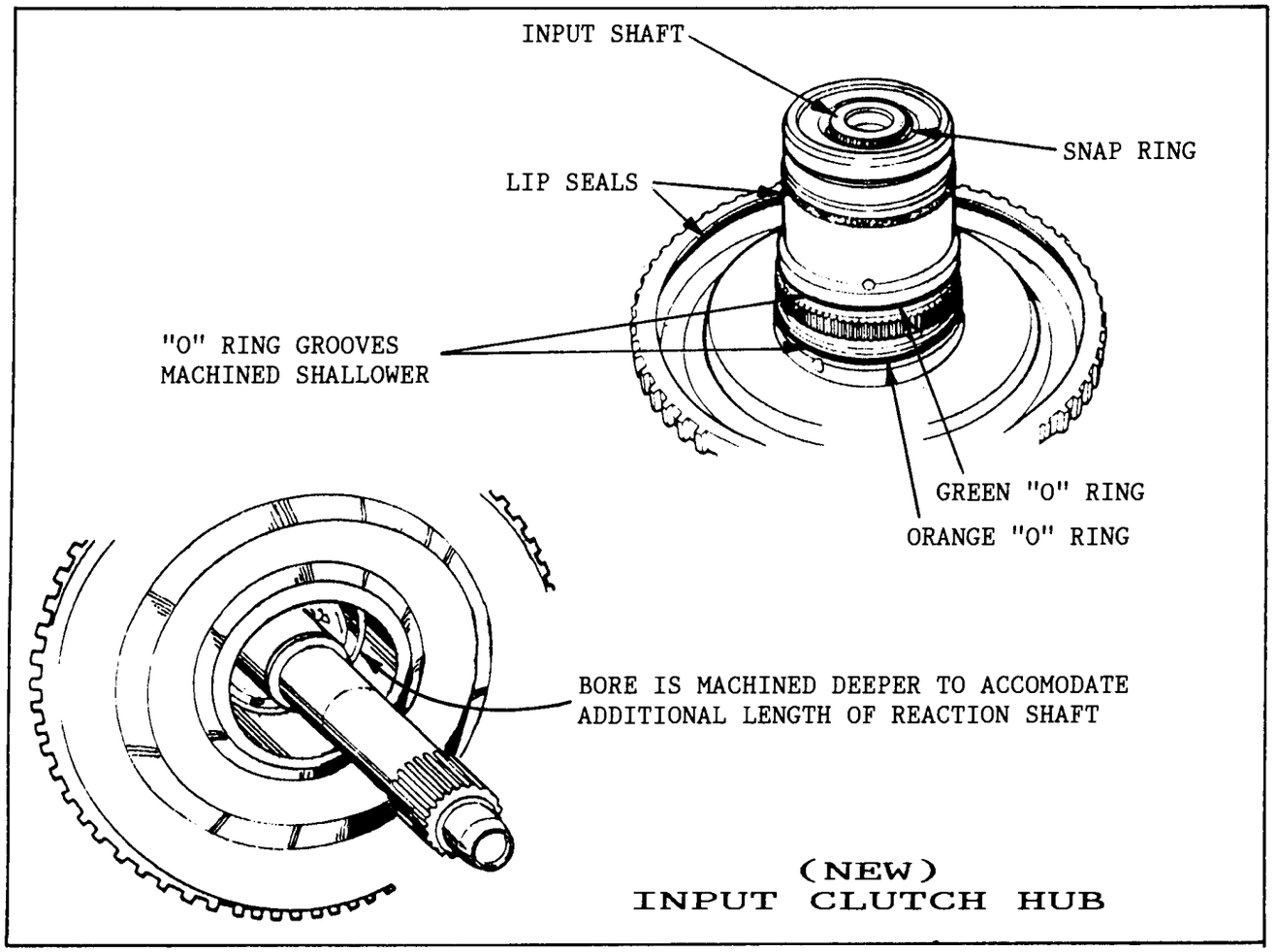


Figure 2

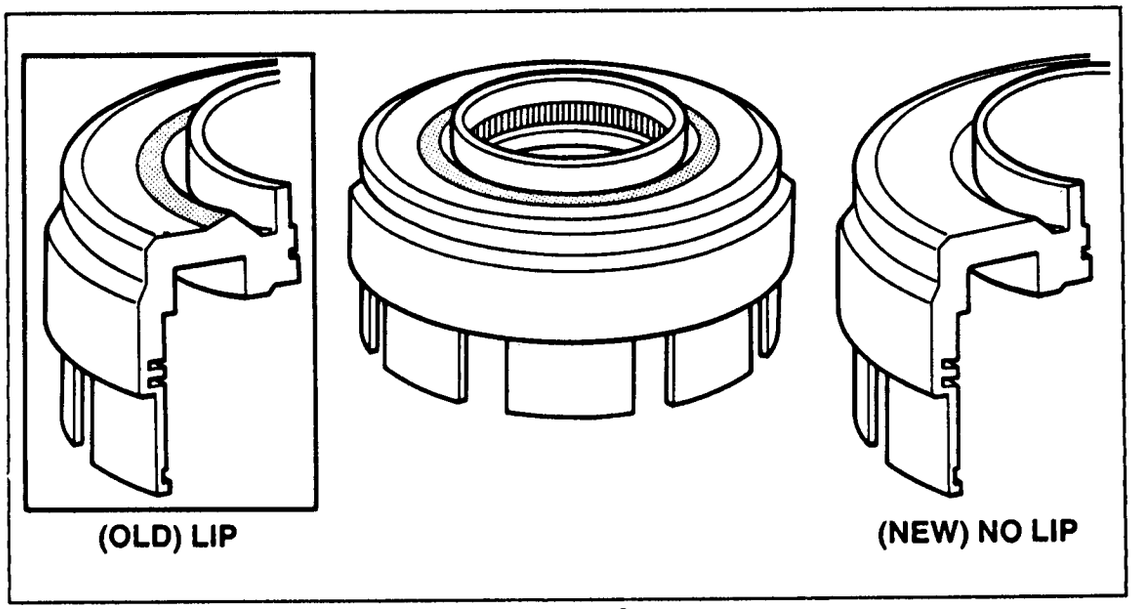


Figure 3

A604 SPACER PLATE

HOLE "C" ENLARGED TO .105" FOR INCREASED OIL FLOW

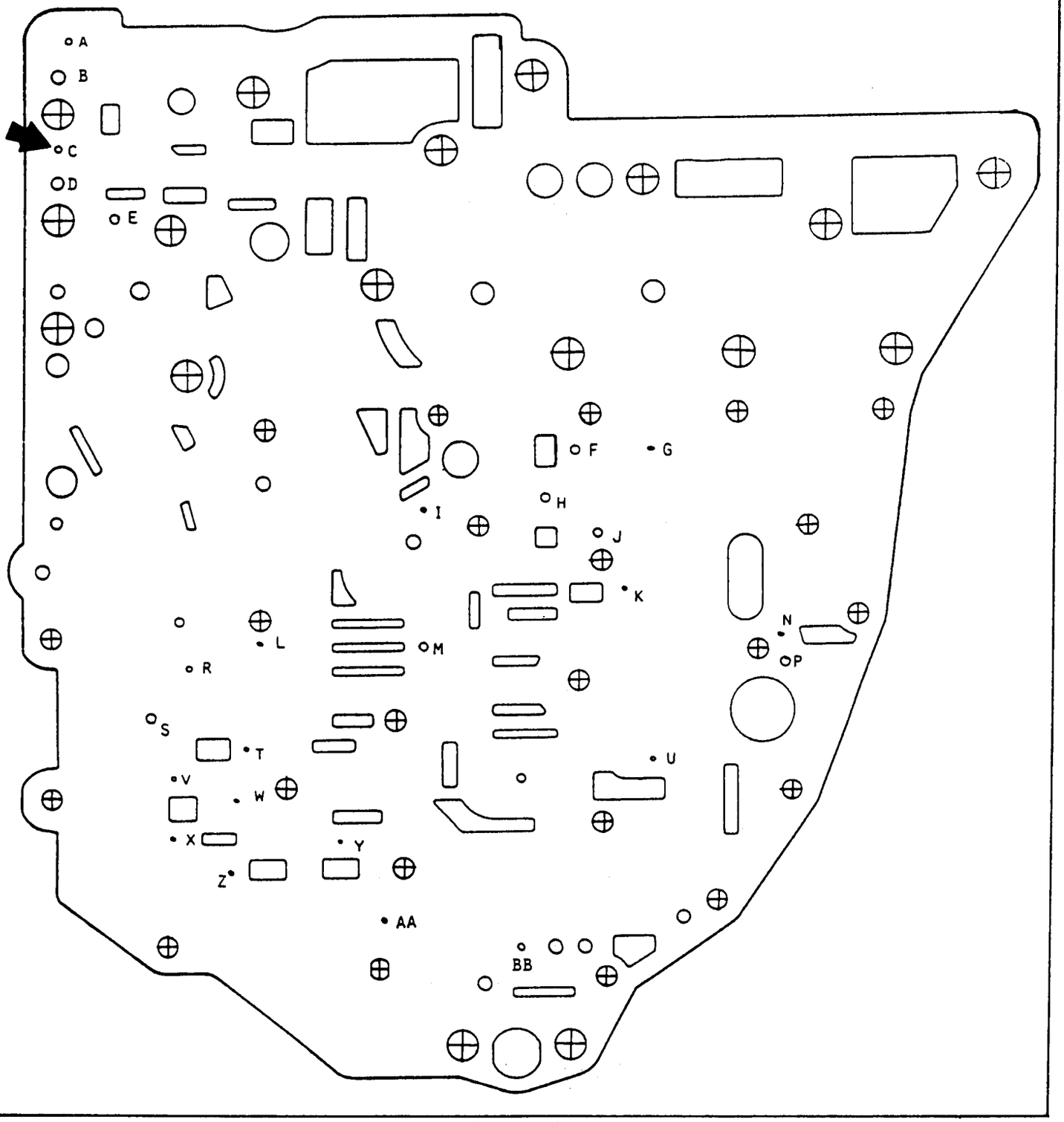


Figure 4

CHRYSLER A604

NEW LIP SEALS

CHANGE: The lip seals in the Overdrive/Reverse Clutch Piston and the Input Shaft/Clutch Hub are now replaced with lip seals made of different material (See Figure 5).

REASON: Improved reliability of the Overdrive and Reverse clutch packs.

PARTS AFFECTED:

(1) OD/REVERSE PISTON LIP SEAL - No dimensional changes, but the material changes, and the new lip seals can be identified by the code "FF" embossed into the seal. The old lip seal is embossed with the code "IPC", and should not be used (See Figure 5).

(2) INPUT CLUTCH HUB OUTER LIP SEAL - No dimensional changes, but the material changes, and the new lip seals can be identified by the code "FF" embossed into the seal. The old lip seal is embossed with the code "IPC", and should not be used (See Figure 5).

INTERCHANGEABILITY:

THE NEW LIP SEALS EMBOSSED WITH THE CODE "FF" WILL RETRO-FIT BACK TO ALL PREVIOUS MODELS, AND SHOULD BE USED DURING OVERHAUL.

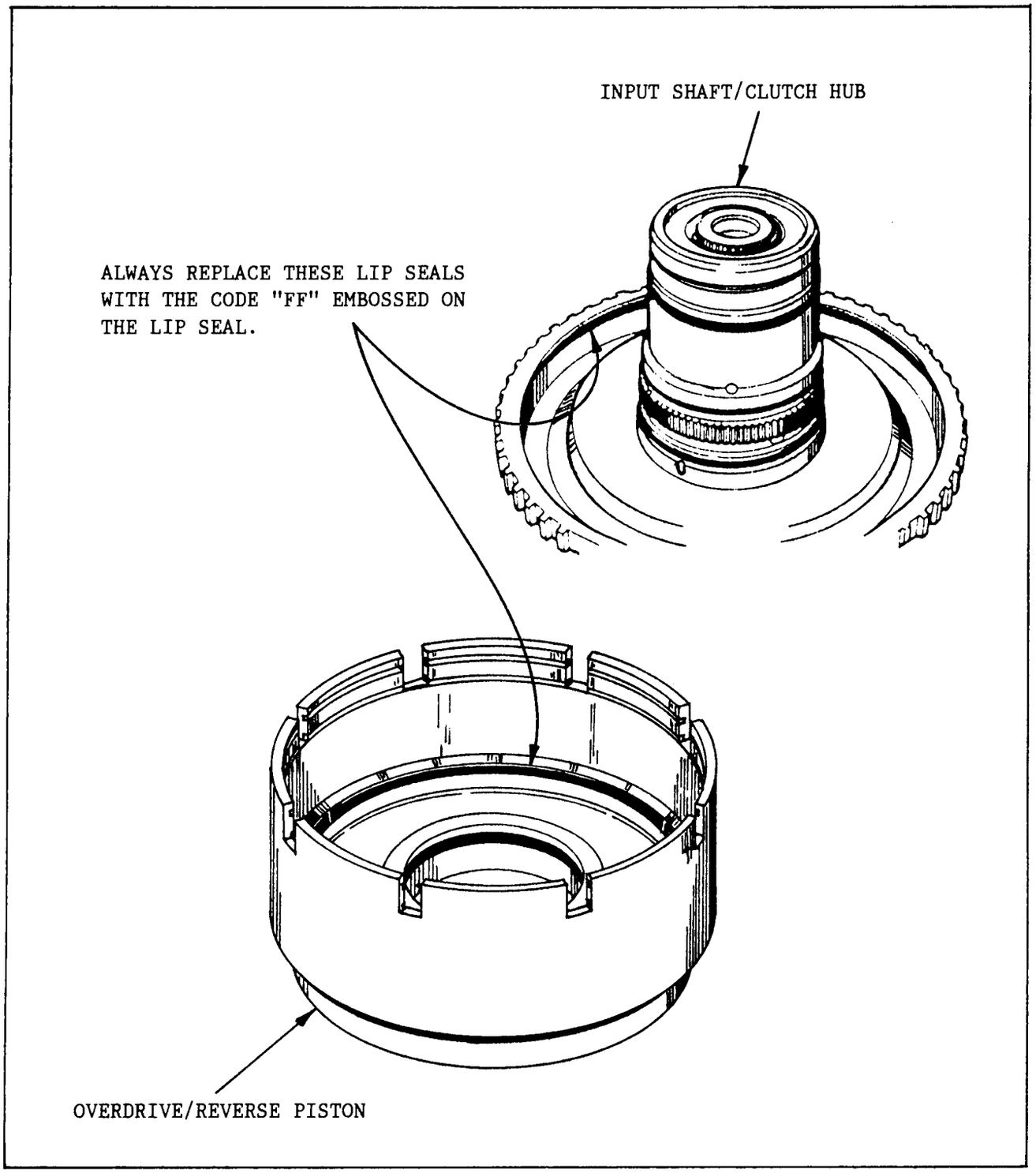

INPUT SHAFT/CLUTCH HUB
ALWAYS REPLACE THESE LIP SEALS WITH THE CODE "FF" EMBOSSED ON THE LIP SEAL.
OVERDRIVE/REVERSE PISTON

Figure 5

CHRYSLER A604

NEW PARKING GUIDE BRACKET AND PAWL

CHANGE: A new Parking Sprag Guide Bracket and Parking Pawl has been introduced as a 1989 running change (See Figure 6).

REASON: Reduced effort required to pull the shift lever out of "Park" to the other drive ranges.

PARTS AFFECTED:

(1) PARKING GUIDE BRACKET - Previously the Parking Guide Bracket was a stamped steel unit, and has been replaced by a high quality casting, along with dimensional changes. See Figure 6 for identification.

(2) PARKING PAWL - The new Parking Pawl, or "Boot", also required some dimensional changes. The heel of the new "Boot" is wider than the previous models, as shown in Figure 6.

INTERCHANGEABILITY:

The new parts will retro-fit back to all previous models, but both pieces must be replaced as an assembly. (See Figure 6).

SERVICE INFORMATION:

Parking Pawl Service Package 4549239
Includes the following:
(1) Parking Guide Bracket (New Style)
(2) Parking Pawl or "Boot" (New Style)

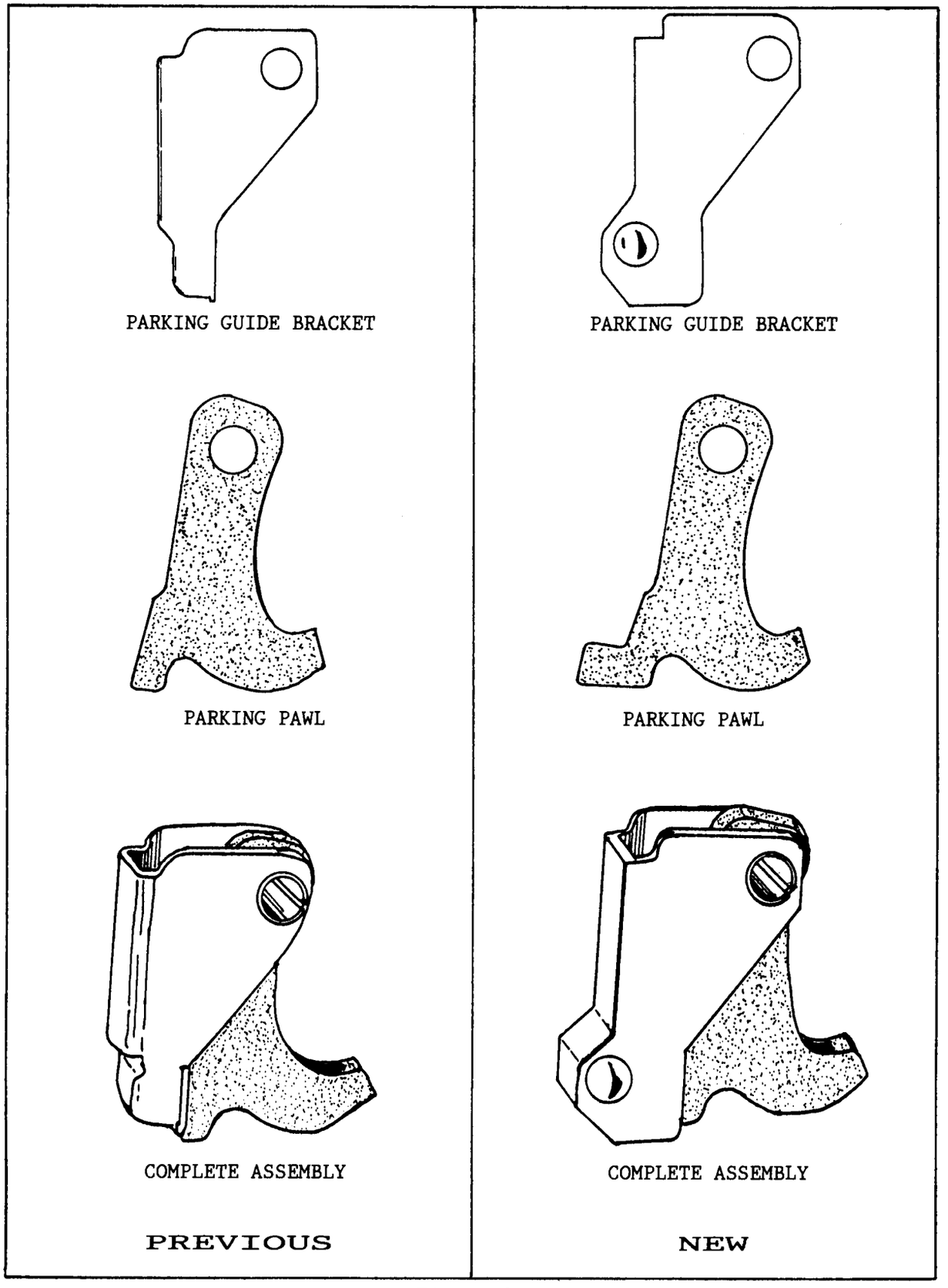

PARKING GUIDE BRACKET
PARKING GUIDE BRACKET
PARKING PAWL
PARKING PAWL
COMPLETE ASSEMBLY
COMPLETE ASSEMBLY
PREVIOUS
NEW

Figure 6

CHRYSLER A604

NEW TRANSAXLE CONTROLLER

CHANGE: A running change for 1989 also included a software upgrade, with the addition of a new #120 Transaxle Controller.

REASON: The new #120 Transaxle Controller offers sequential closed throttle downshifts, highway anticycling logic, permits earlier kickdown shifts to improve acceleration, and high altitude compensation to improve loss of engine power at high altitudes.

PARTS AFFECTED:

(1) TRANSAXLE CONTROLLER - The controllers are identified by the last three digits of the OEM part number. The part number is on a sticker that is located on the bottom of the controller as shown in Figure 7.
The locations of the controllers will vary depending on the model of the vehicle. Refer to Figure 7 for the different locations. Figure 7 and 8 also shows the locations of the EATX relay, as their location will also vary depending on the model of the vehicle.

INTERCHANGEABILITY:

The new #120 Transaxle Controller will retro-fit back to ALL previous model A604 transaxles equipped with the earlier part numbers 5234623, 5234649, or 5234678.

NOTE: When updating earlier controllers, do not Routinely replace the controller P/N 5234678 with P/N 4557120, Unless the customer has encountered highway cycling driveability conditions.
When updating controller P/N 5234623 or P/N 5234649, by all means use controller P/N 4557120.

SERVICE INFORMATION:

Transaxle Controller (New Design) 4557120

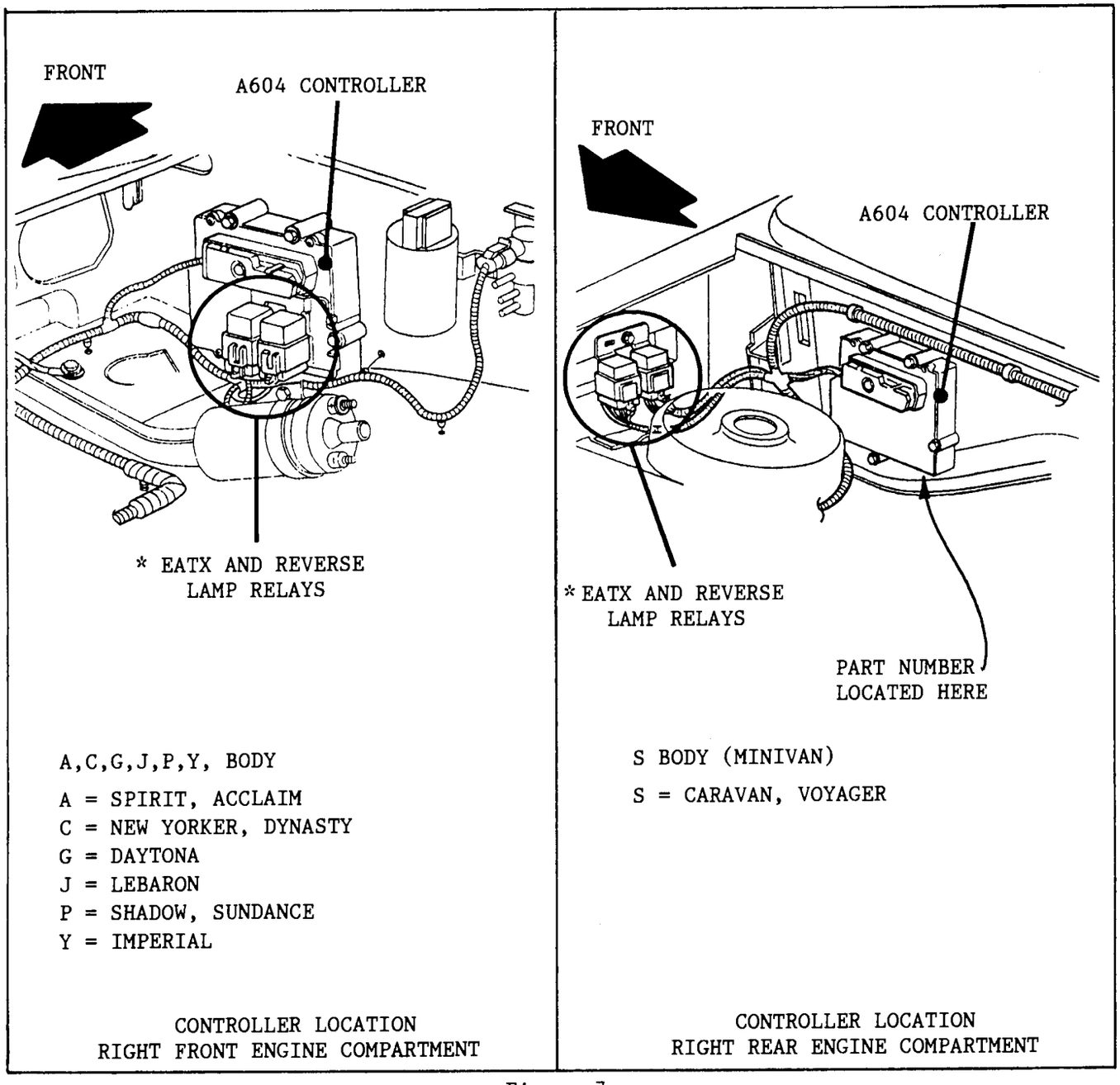


Figure 7

* NOTE: Since the EATX and the Reverse Lamp Relay connectors could be installed in either position, you must use the wire colors in the connectors to identify the correct relay.

(1) The EATX Relay has a Red and a Light Green wire in its connector.

(2) The Reverse Lamp Relay has a White and a Violet wire in its Conn.

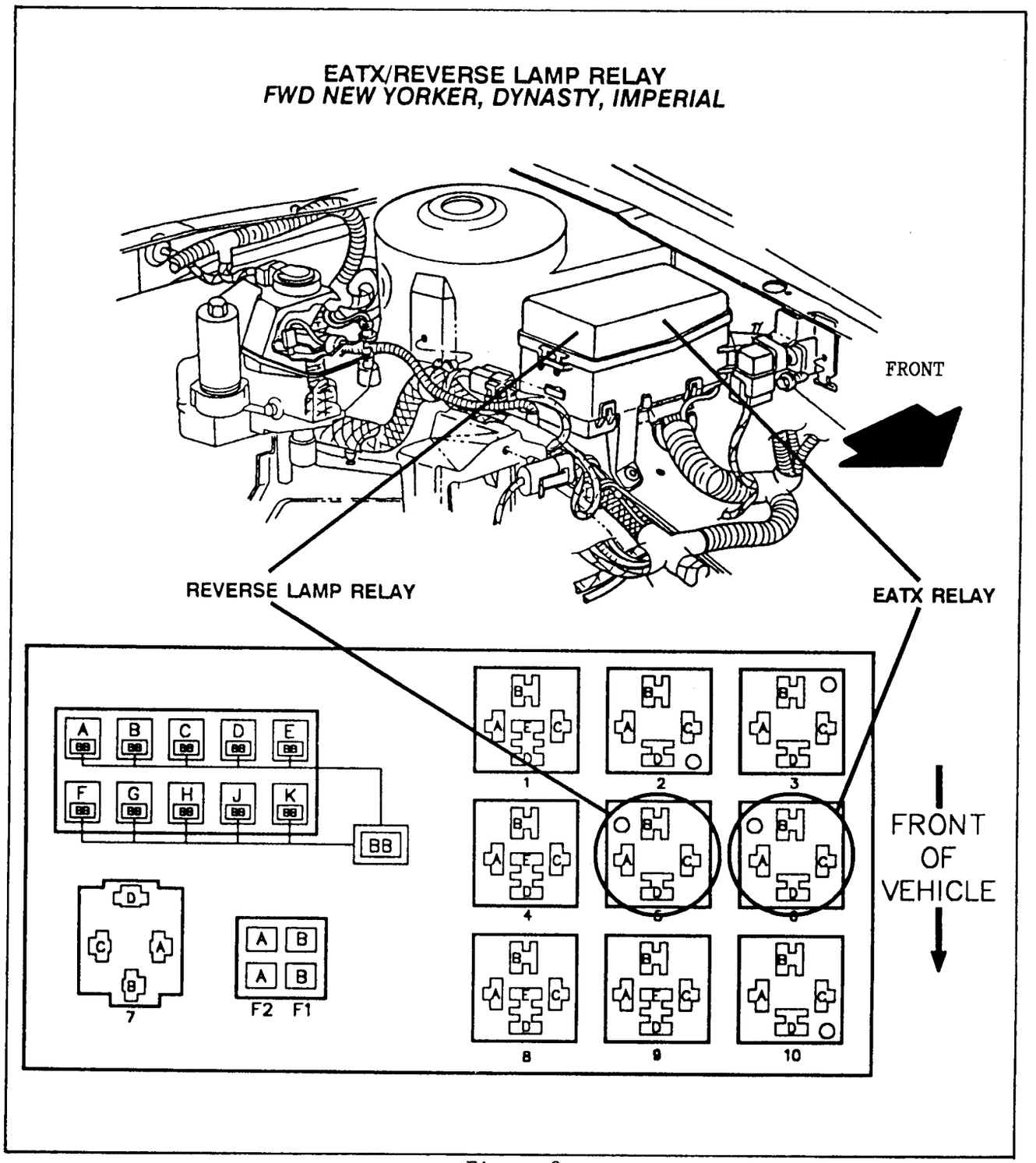

EATX/REVERSE LAMP RELAY
FWD NEW YORKER, DYNASTY, IMPERIAL
FRONT
REVERSE LAMP RELAY
EATX RELAY
A B C D E
F G H J K
BB
D C A B
7
A B A B
F2 F1
1 2 3 4 5 6 8 9 10
FRONT OF VEHICLE

Figure 8

CHRYSLER A604

NEW BELL HOUSING PATTERNS

CHANGE: The A-604 now has three different bell housing patterns, 2.5L (4 Cyl), 3.0L (V-6), and 3.3L (V-6).

REASON: Expanded model coverage.

PARTS AFFECTED:

(1) TRANSAXLE CASE - Because of the three different engines that are now used, it requires three different bell housing bolt patterns.
For the 2.5 Litre Bell Housing pattern, refer to Figure 9.
For the 3.0 Litre Bell Housing pattern, refer to Figure 10.
For the 3.3 Litre Bell Housing pattern, refer to Figure 11.

(2) TURBINE SHAFT SPLINES - The 2.5 Litre engine uses a turbine shaft with 22 splines for the torque converter, and the 3.0 and 3.3 Litre engines will use the current 24 spline turbine shaft (See Figure 12).

INTERCHANGEABILITY:

Not Interchangeable.

SERVICE INFORMATION:

2.5 Litre Case (573 Cast on Bell)	4505572
3.0 Litre Case (631 Cast on Bell)	4446652
3.3 Litre Case (577 Cast on Bell)	4505576
22 Spline Input Shaft (2.5L Only)	4505579
24 Spline Input Shaft (3.0L and 3.3L Only)	4412210

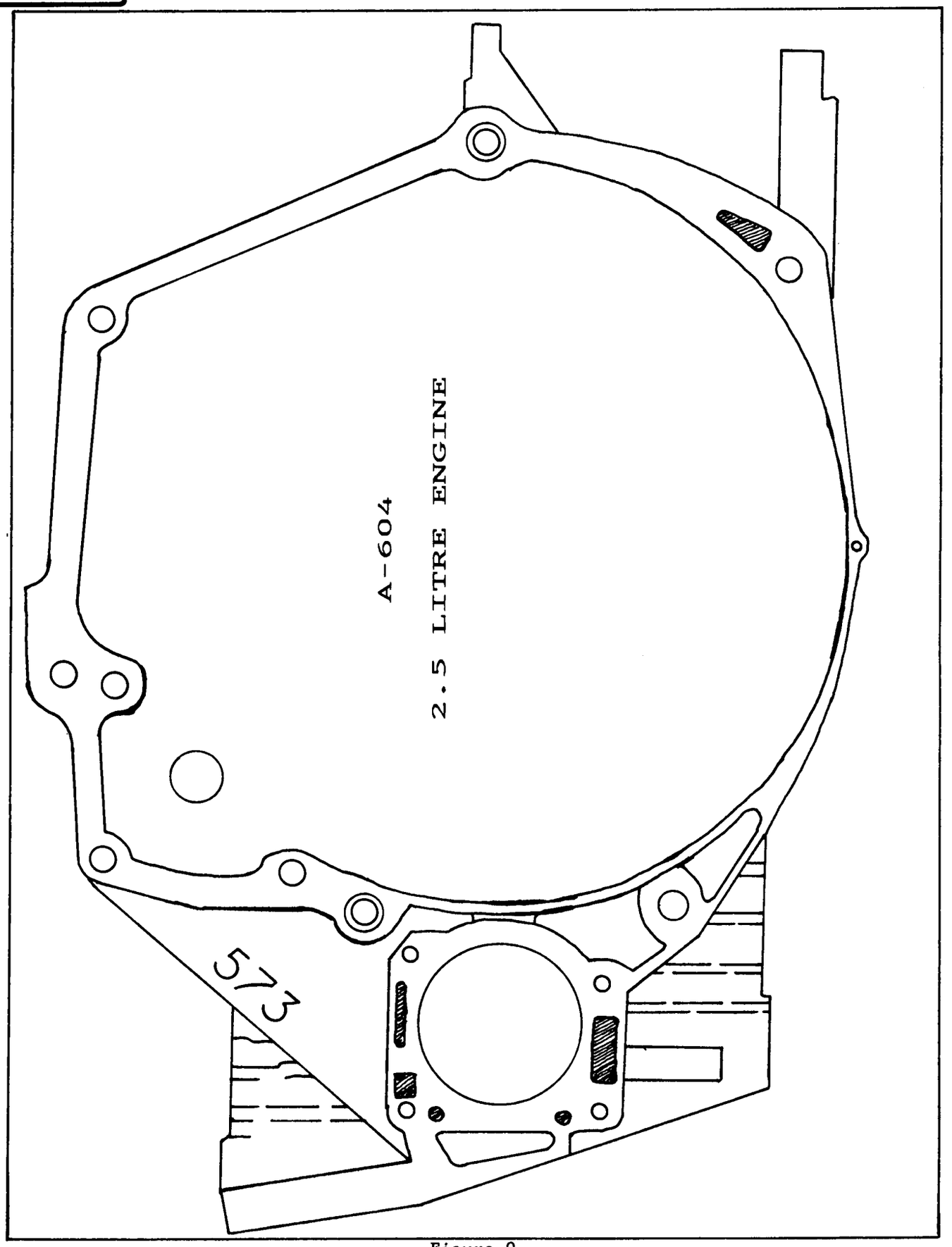


Figure 9

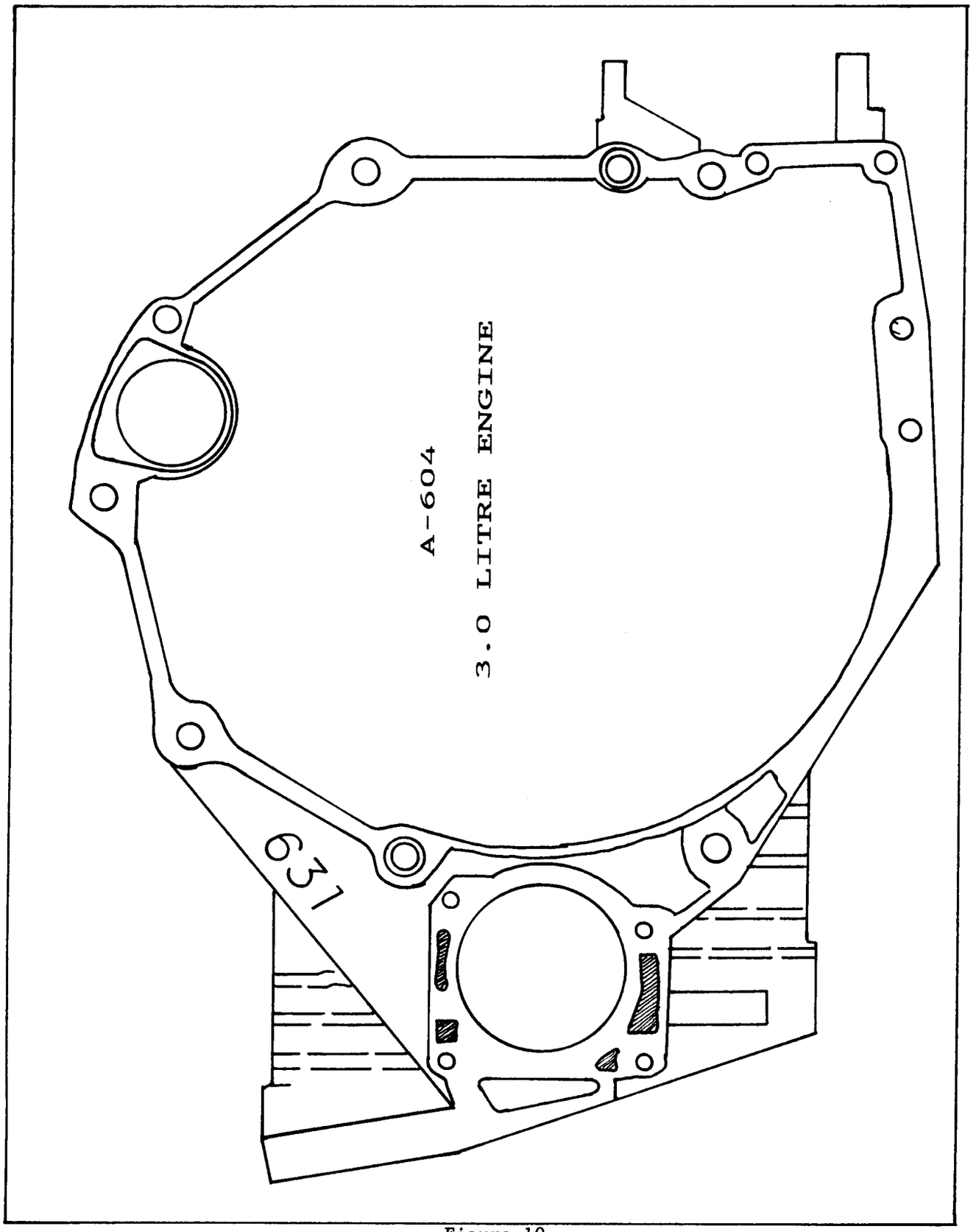


Figure 10

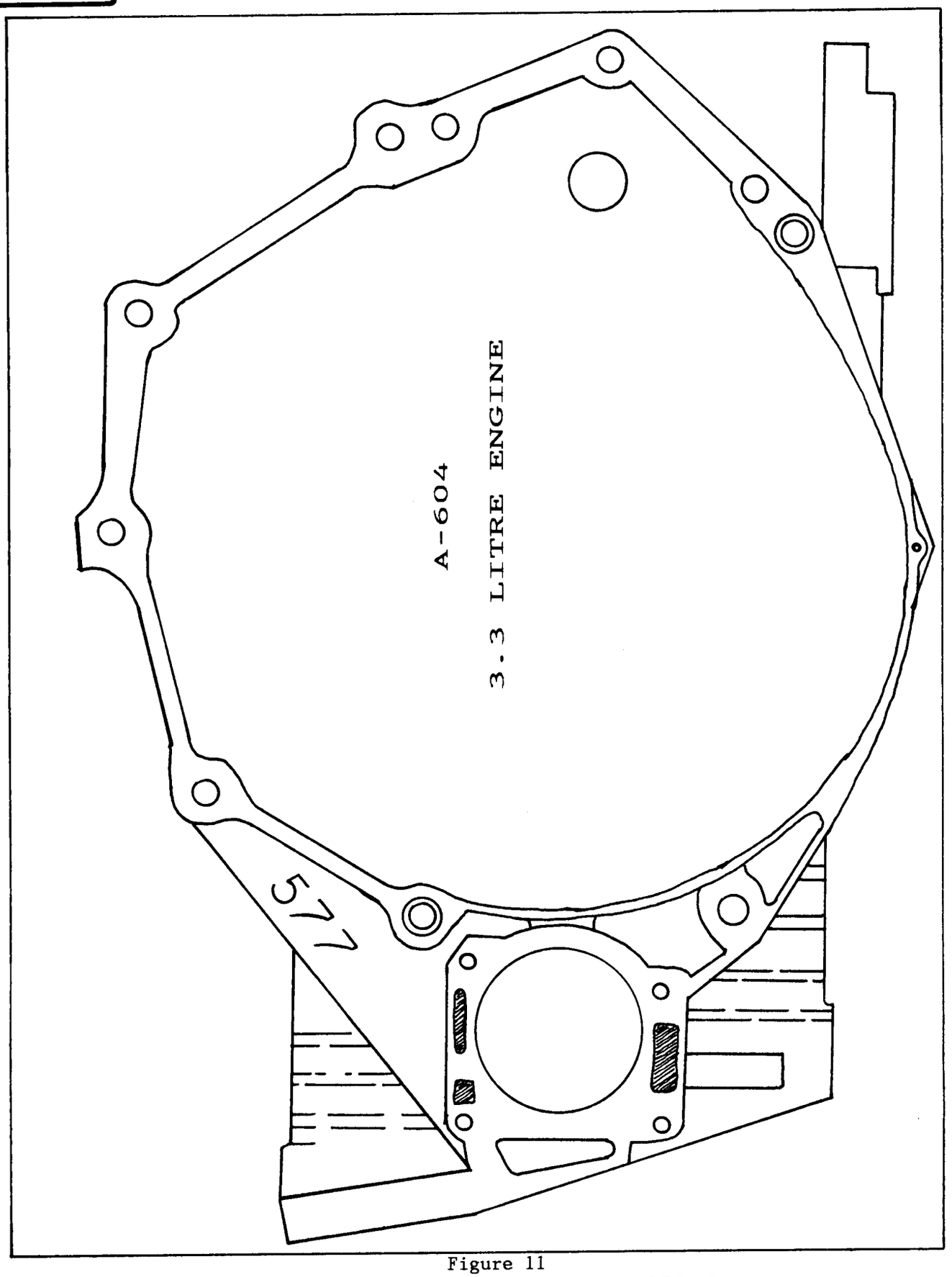


Figure 11

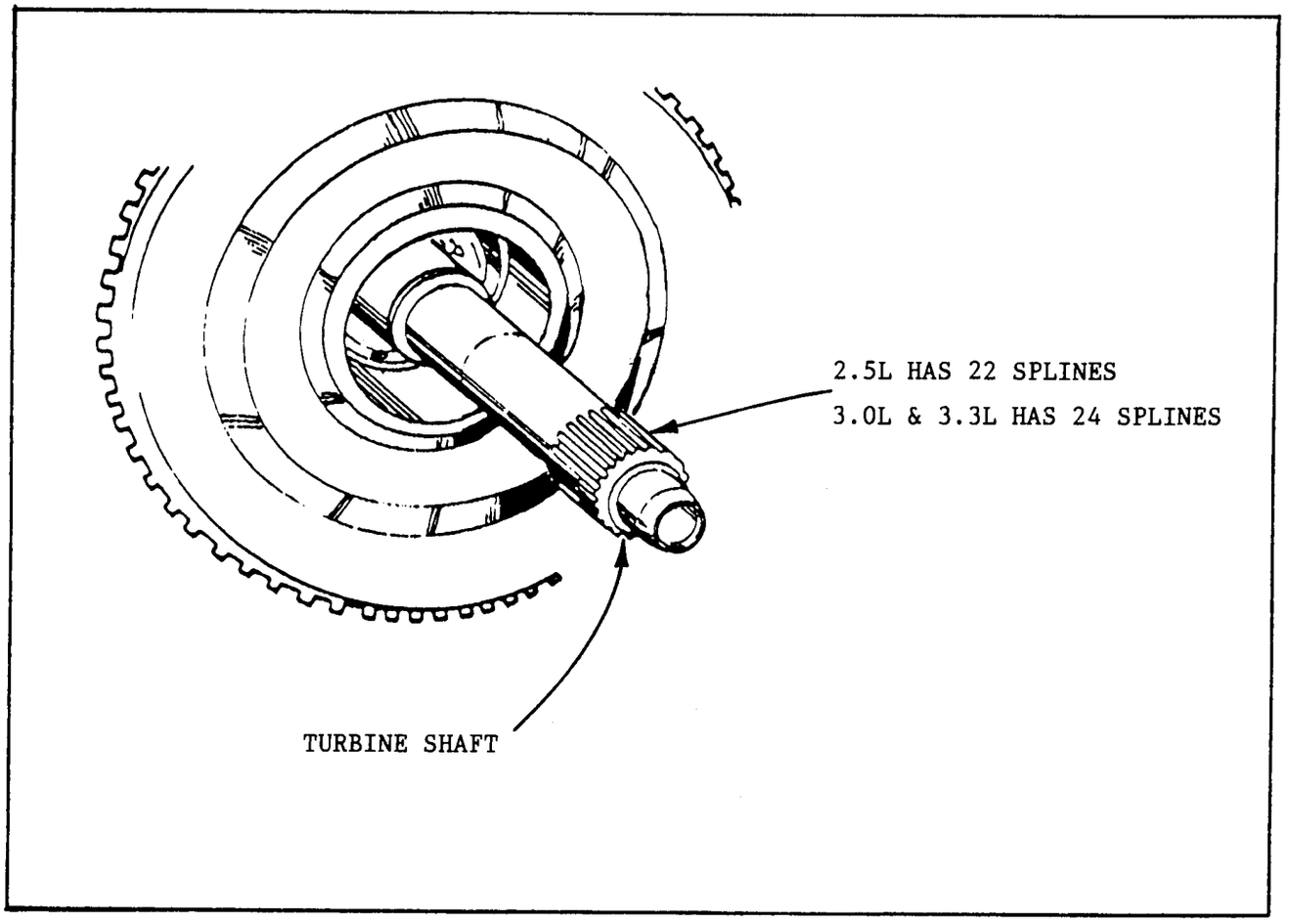


Figure 12

CHRYSLER A604

FOUR DISC OVERDRIVE CLUTCH ASSEMBLY

CHANGE: A running change for 1990 model A604 transaxles was the introduction of a four (4) disc Overdrive Clutch Assembly, to replace the previous three (3) disc assembly (See Figure 13).

REASON: Higher horsepower (3.3L V-6) engines introduced in New Yorker, Dynasty, Imperial, Caravan, and Voyager models.

PARTS AFFECTED:

(1) OVERDRIVE LINED PLATES - Now uses 4 lined plates instead of the previous 3 lined plates, and the lined plates for 1990 models are .014" thinner than the 1989 lined plates (See Figure 13), to help accomodate the extra lined plate. The 1989 lined plates will measure .083"-.088" thick, and the new lined plates will measure .069"-.074" thick (See Figure 13).

(2) OVERDRIVE STEEL PLATES - Now uses 3 steel plates instead of the previous 2 steel plates. The new steel plates are .030" thinner, and measure .068"-.072" thick. The previous steel plates measure .098"-.102" thick. (See Figure 13).

(3) UNDERDRIVE/OVERDRIVE REACTION PLATES - The 1989 Underdrive/Overdrive Reaction Plates have always been available in 4 different thicknesses to obtain proper clutch clearance. For 1990, each plate was reduced in thickness by .040", to help accomodate the extra overdrive plates. (See Figure 14).

(4) INPUT CLUTCH RETAINER - The underdrive/overdrive reaction plate tapered snap ring groove was moved "Down" by .040" (Can be Detected Visually) to accomodate the thinner underdrive/overdrive reaction plates (Figure 15). Another change that occured at the same time is the underdrive clutch outer lip seal groove depth is .040" "Shallower" to accomodate a new underdrive clutch outer lip seal (See Figure 16).

(5) UNDERDRIVE/OVERDRIVE TAPERED SNAP RING - The thickness of this snap ring was reduced by .010". The 1990 snap ring is easily identified, as they will be either Green, or White, in color. The previous 1989 snap rings were Blue in color. They WILL NOT interchange.

(6) UNDERDRIVE CLUTCH OUTER LIP SEAL - The lip seal cross section has been reduced by .040" (Smaller in Overall Diameter) to accomodate the change in the depth of the groove in the input clutch retainer (See Figure 16). The OEM part number is printed on the seals for identification. The 1989 (Large) is 4377173, and the 1990 (Small) is 4531408. This will confirm that you have the proper seal for this location (See Figure 16).

INTERCHANGEABILITY:

None of the parts listed above will interchange with one another between 1989 and 1990 model years. It is imperative that you "Positively" I.D. each part to insure that you are assembling with compatable parts.

SERVICE INFORMATION:

1989 MODEL YEAR:

Overdrive Lined Plates	4377167
Overdrive Steel Plates	4377190
Underdrive/Overdrive Reaction Plates (Selective)	
.254"-.258" Thick	4377185
.274"-.277" Thick	4377186
.293"-.297" Thick	4377187
.312"-.316" Thick	4377188
Input Clutch Retainer	4431609
Underdrive/Overdrive Tapered Snap Ring (BLUE)	4377189
Underdrive Clutch Outer Lip Seal	4377173

1990 MODEL YEAR:

Overdrive Lined Plates	4505629
Overdrive Steel Plates	4377183
Underdrive/Overdrive Reaction Plates (Selective)	
.215"-.219" Thick	4531570
.234"-.238" Thick	4531569
.253"-.257" Thick	4531568
.273"-.277" Thick	4531567
Input Clutch Retainer	4505623
Underdrive/Overdrive Tapered Snap Ring (GREEN or WHITE)	4531411
Underdrive Clutch Outer Lip Seal	4531408

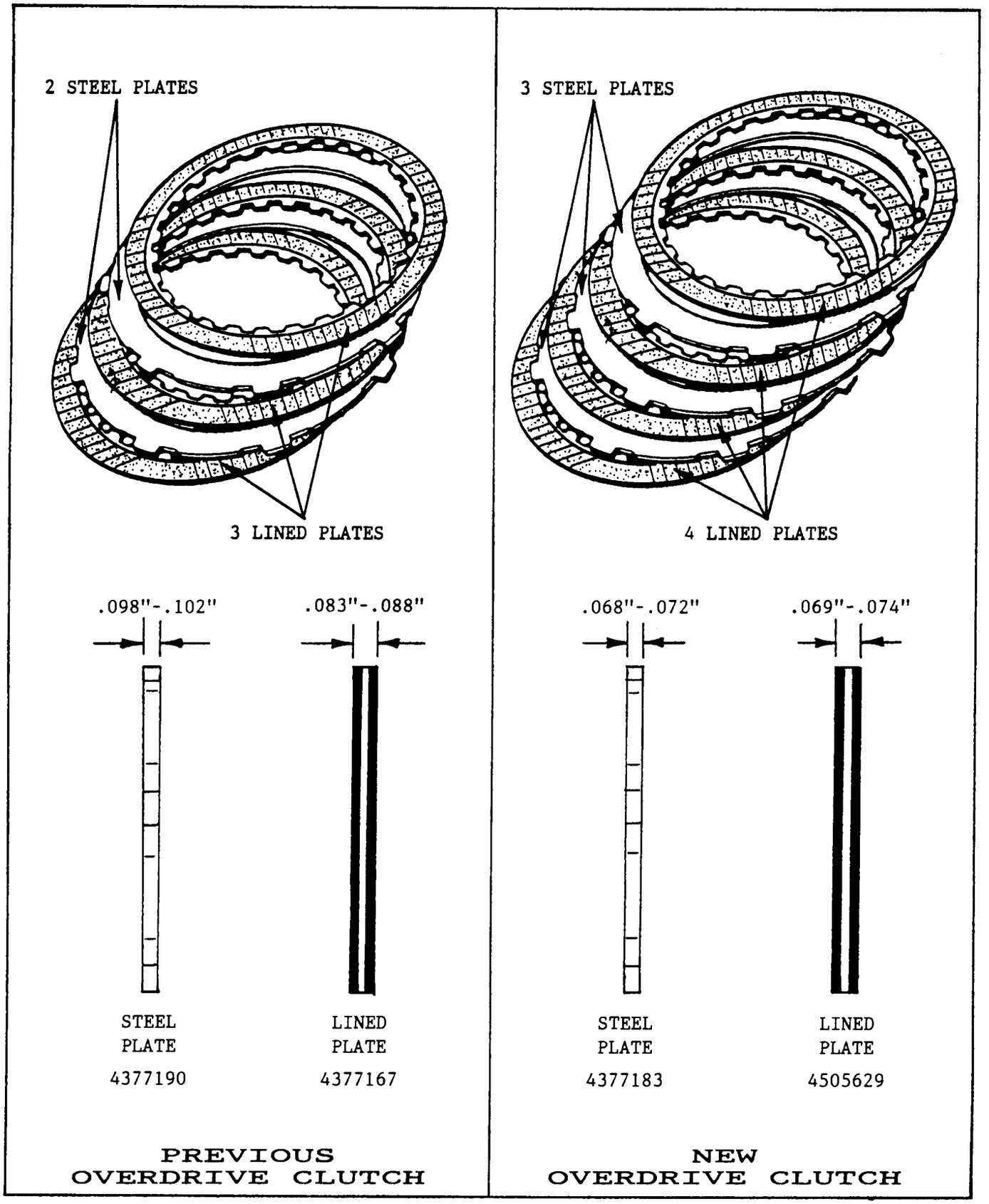
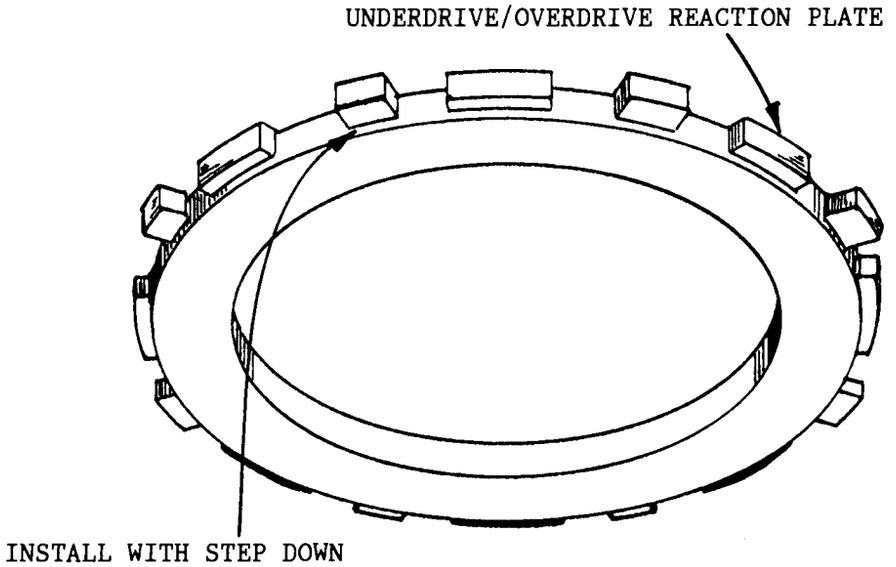

2 STEEL PLATES
3 LINED PLATES
.098"-.102"
.083"-.088"
STEEL PLATE
4377190
LINED PLATE
4377167
PREVIOUS OVERDRIVE CLUTCH
3 STEEL PLATES
4 LINED PLATES
.068"-.072"
.069"-.074"
STEEL PLATE
4377183
LINED PLATE
4505629
NEW OVERDRIVE CLUTCH

Figure 13

UNDERDRIVE/OVERDRIVE REACTION PLATES (SELECTIVE)



1989 MODEL YEAR

.254"-.258" THICKNESS	4377185
.274"-.277" THICKNESS	4377186
.293"-.297" THICKNESS	4377187
.312"-.316" THICKNESS	4377188

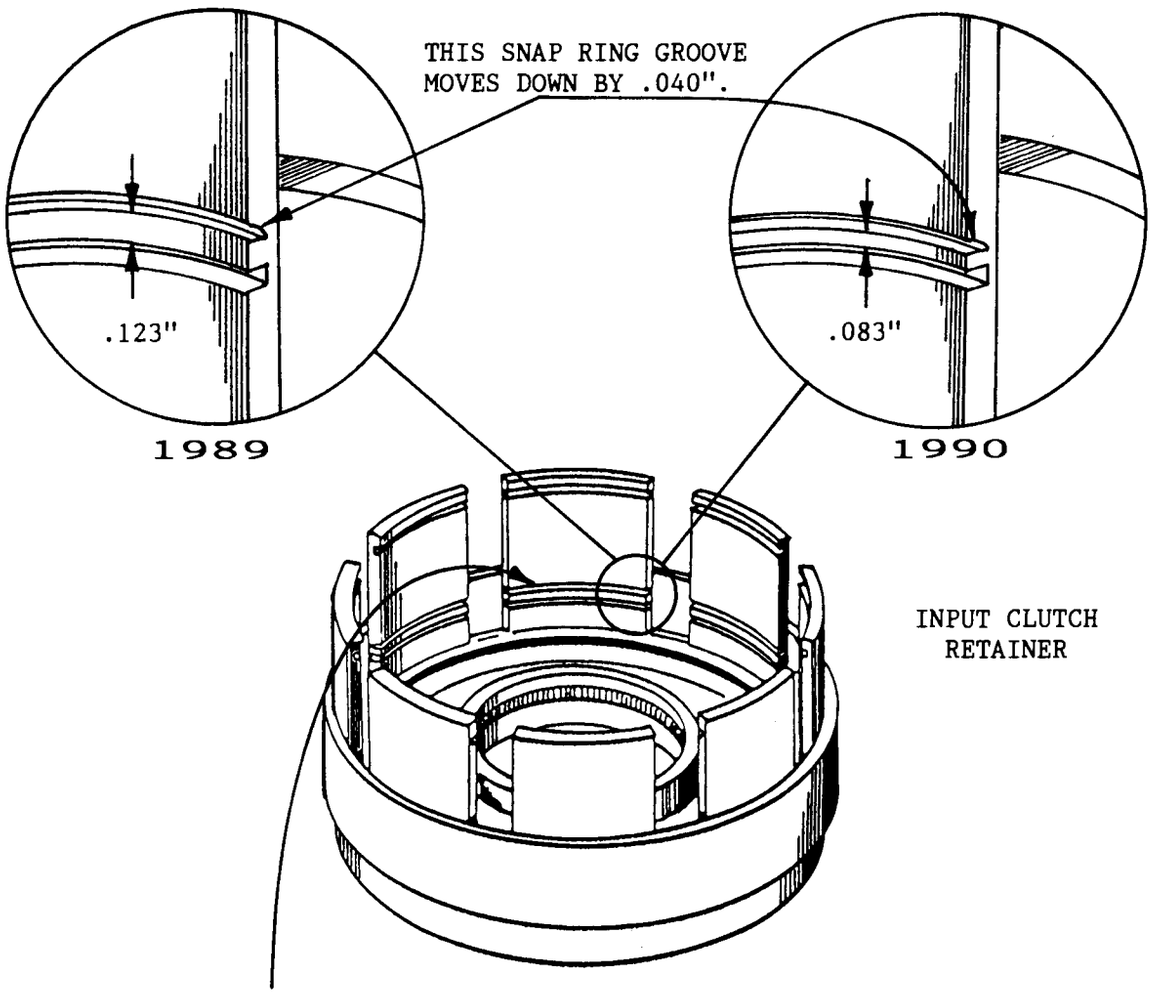
1990 MODEL YEAR

.215"-.219" THICKNESS	4531570
.234"-.238" THICKNESS	4531569
.253"-.257" THICKNESS	4531568
.273"-.277" THICKNESS	4531567

FOR 1990, EACH REACTION PLATE WAS REDUCED IN THICKNESS BY .040", TO ACCOMODATE THE EXTRA OVERDRIVE PLATES.

Figure 14

INPUT CLUTCH RETAINER



1989 INPUT CLUTCH RETAINER 4431609

1990 INPUT CLUTCH RETAINER 4505623

Figure 15

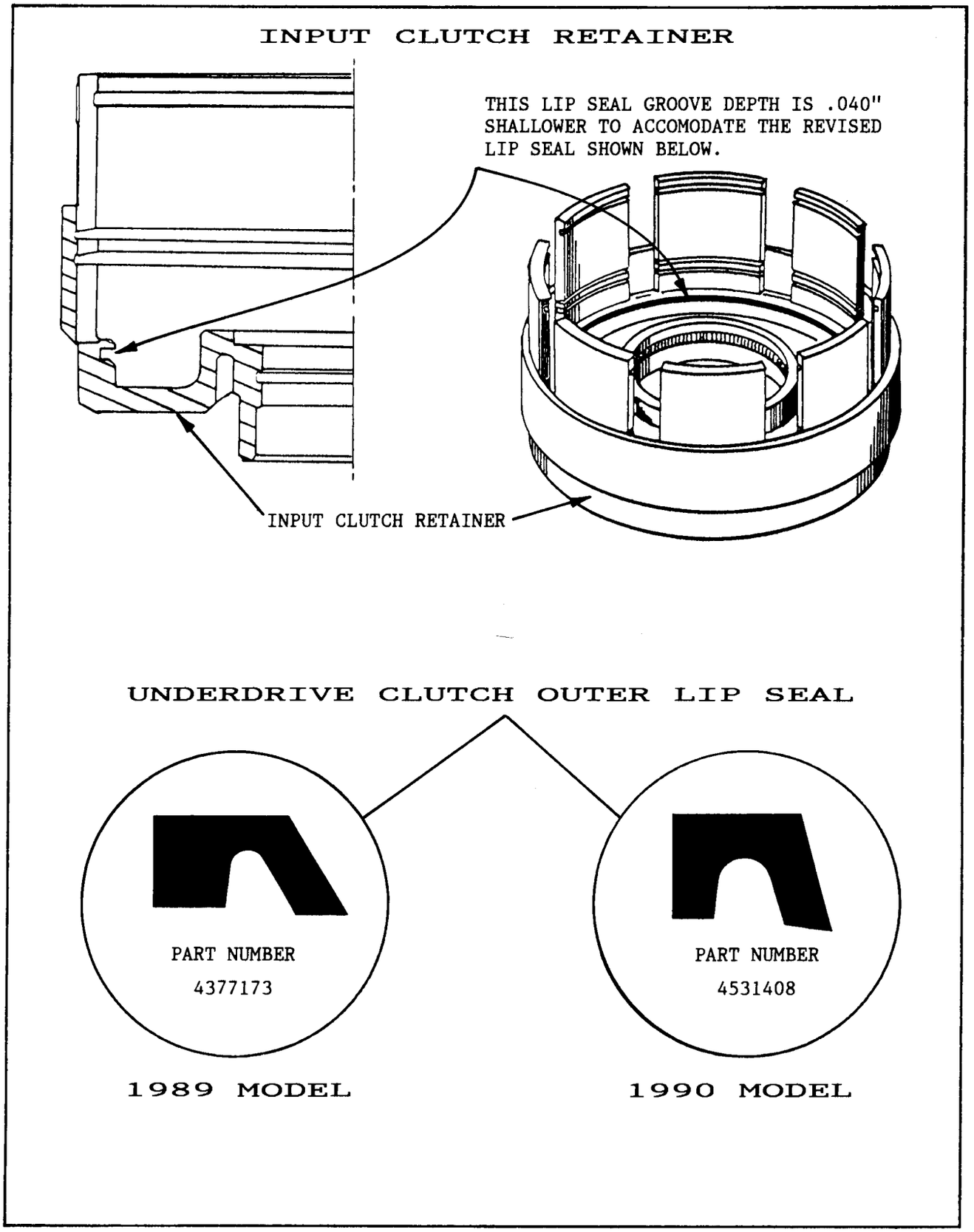

INPUT CLUTCH RETAINER
THIS LIP SEAL GROOVE DEPTH IS .040" SHALLOWER TO ACCOMODATE THE REVISED LIP SEAL SHOWN BELOW.
INPUT CLUTCH RETAINER
UNDERDRIVE CLUTCH OUTER LIP SEAL
PART NUMBER
4377173
PART NUMBER
4531408
1989 MODEL
1990 MODEL

Figure 16

CHRYSLER A604

NEW PRNODL AND NEUTRAL SAFETY SWITCHES

CHANGE: PRNODL Switch and Neutral Safety Switch have been changed for the 1990 model year, as well as the vehicle wiring harness connectors. Refer to Figure 17 for location of switches on the transaxle.

REASON: Positive locking mechanism, with a weathertight seal, to prevent the connection from becoming loose.

PARTS AFFECTED:

(1) PRNODL SWITCH AND CONNECTOR - The PRNODL Switch and its wiring harness connector have changed for 1990, and can be identified visually (See Figure 18). These PRNODL Switches WILL NOT interchange with one another.

(2) NEUTRAL SAFETY SWITCH AND CONNECTOR - The Neutral Safety Switch and its wiring harness connector have changed for 1990, and can be identified visually (See Figure 19). These Neutral Safety Switches WILL NOT interchange with one another.

INTERCHANGEABILITY:

The 1989 and 1990 Switches are not compatable with one another and WILL NOT interchange between these model years.

NOTE: Each of the new for 1990 switches may look similar at first glance, but the PRNODL switch features a "Coarse" thread, while the Neutral Safety switch is black and features "Fine" threads. (See Figures 18 and 19).

SERVICE INFORMATION:

PRNODL Switch (1989 Model)	5234022
PRNODL Switch (1990 Model)	5234393
Neutral Safety Switch (1989 Model)	3747361
Neutral Safety Switch (1990 Model)	5234319

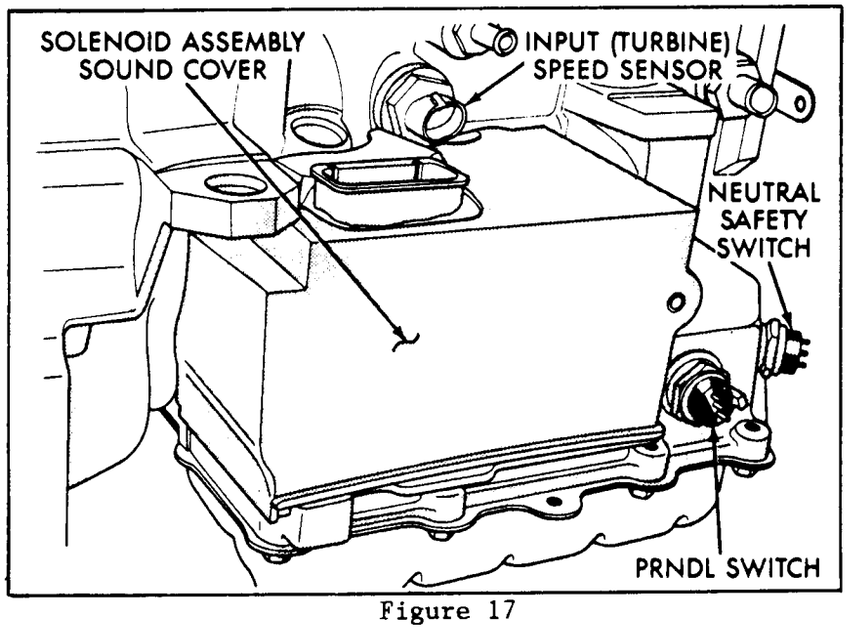
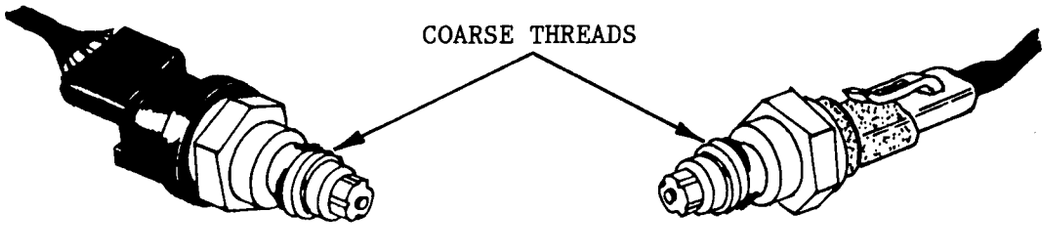


Figure 17

PRNODL SWITCH AND CONNECTOR

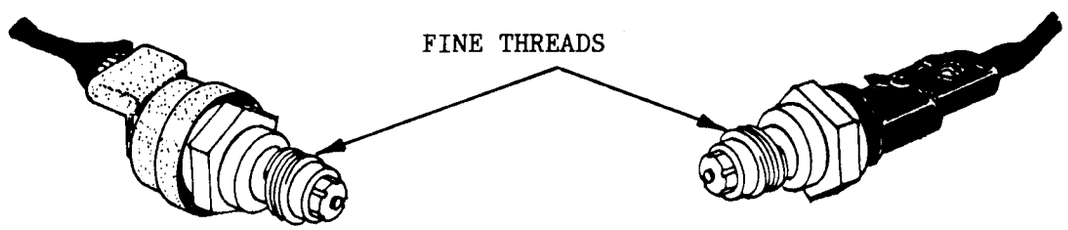


1989	1990
PART NUMBER	PART NUMBER
5234022	5234393

THESE PRNODL SWITCHES WILL NOT INTERCHANGE.

FIGURE 18

NEUTRAL SAFETY SWITCH AND CONNECTOR



1989	1990
PART NUMBER	PART NUMBER
3747361	5234319

THESE NEUTRAL SWITCHES WILL NOT INTERCHANGE.

FIGURE 19

CHRYSLER A604

NEW OVERALL GEAR RATIOS

CHANGE: For 1990 there are 3 different overall gear ratios, depending on the model and engine size. They have added a new final drive ratio, and a new output/transfer gear ratio.

REASON: Greatly expanded model coverage.

PARTS AFFECTED:

(1) OUTPUT AND TRANSFER GEARS - There are now 2 different gear combinations, (New) 55T-58T, and (Previous) 59T-54T, depending on model and engine size. "Shot Peened" output and transfer gears are used in 3.3 litre, 2.5 litre turbo, and transaxles exported to Mexico. Refer to the chart in Figure 20.

(2) TRANSFER SHAFT AND RING GEAR - There are now 2 different final drive combinations, (New) 17T-59T, and (Previous) 16T-60T, depending on model and engine size. Refer to the chart in Figure 20.

INTERCHANGEABILITY:

NOT INTERCHANGEABLE. It will be imperative that you identify the transaxle properly. The transaxle is identified by the "Last 3 Digits" of the OEM part number, and is found on a sticker located on the rear gear cover (See Figure 21). Then refer to the chart in Figure 24 for proper applications.

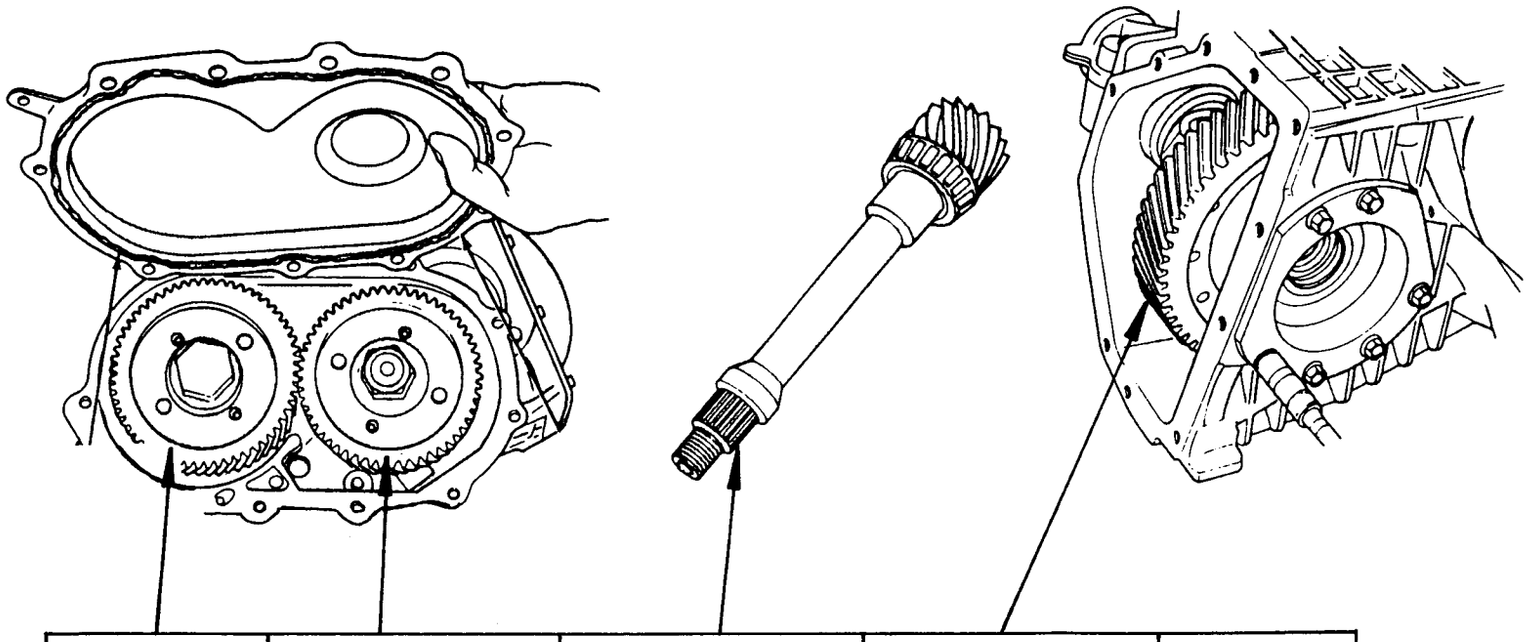
If that sticker is missing, or painted over, there is another bar code decal located on the case directly above the PRNODL and neutral safety switches (See Figure 22).

The most permanent form of identification is an etching, in the case, located near the rear gear cover (See Figure 23). It may be necessary to remove the rear cover to see the part number, but if the vehicle has been in service for some time, this may be the only way to identify the unit.

Then refer to the chart in Figure 24, for proper applications.

SERVICE INFORMATION:

Output Shaft Gear, 55T	4377112
Output Shaft Gear, 55T (Shot Peened)	4531579
Output Shaft Gear, 59T	4377113
Output Shaft Gear, 59T (Shot Peened)	4531577
Transfer Shaft Gear, 58T	4412276
Transfer Shaft Gear, 58T (Shot Peened)	4531578
Transfer Shaft Gear, 54T	4412277
Transfer Shaft Gear, 54T (Shot Peened)	4531576
Transfer Shaft, 17T	4377126
Transfer Shaft, 16T	4377128
Ring Gear, 59T	4431655
Ring Gear, 60T	4431660



OUTPUT SHAFT GEAR	TRANSFER SHAFT GEAR	TRANSFER SHAFT	RING GEAR	OVERALL GEAR RATIO
55T 4377112	58T 4412276	17T 4377126	59T 4431655	2.52
55T 4377112 4531579 SP	58T 4412276 4531578 SP	16T 4377128	60T 4431660	2.72
59T 4377113 4531577 SP	54T 4412277 4531576 SP	16T 4377128	60T 4431660	2.36

Figure 20

SP = SHOT PEENED

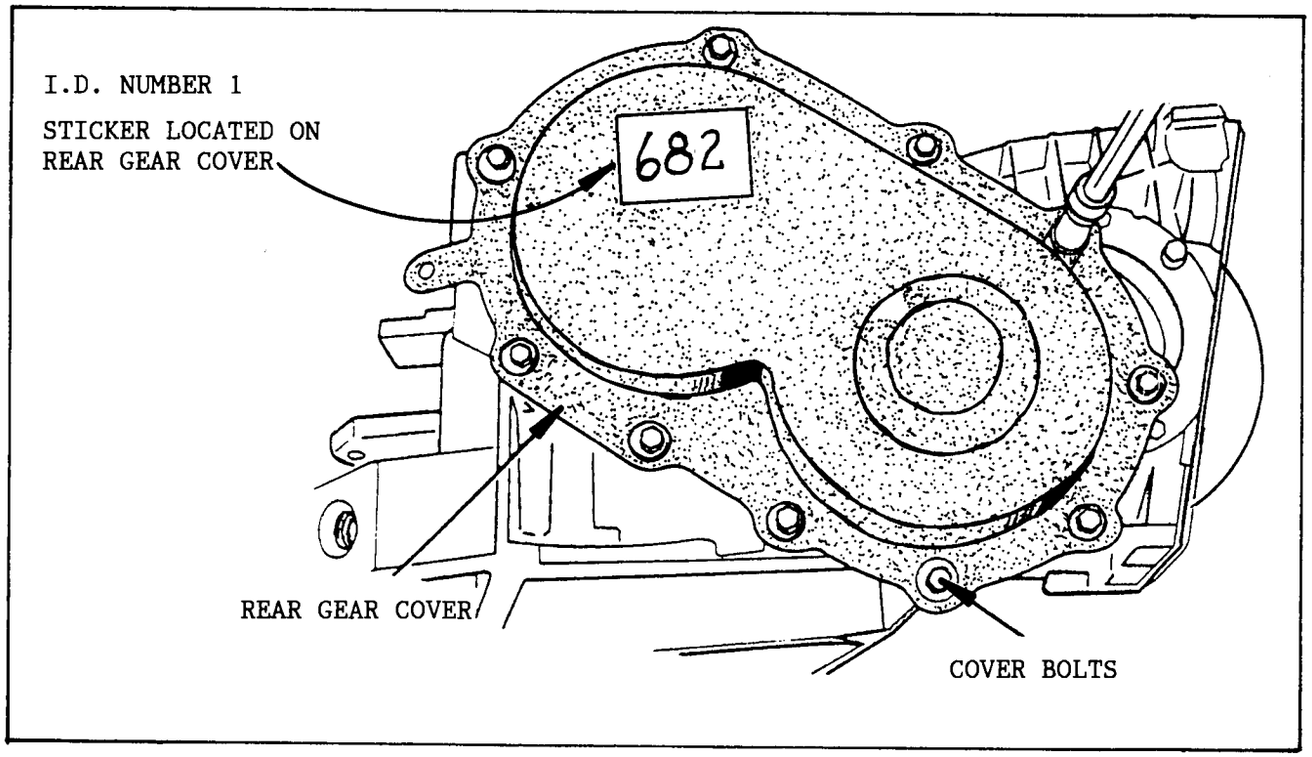


Figure 21

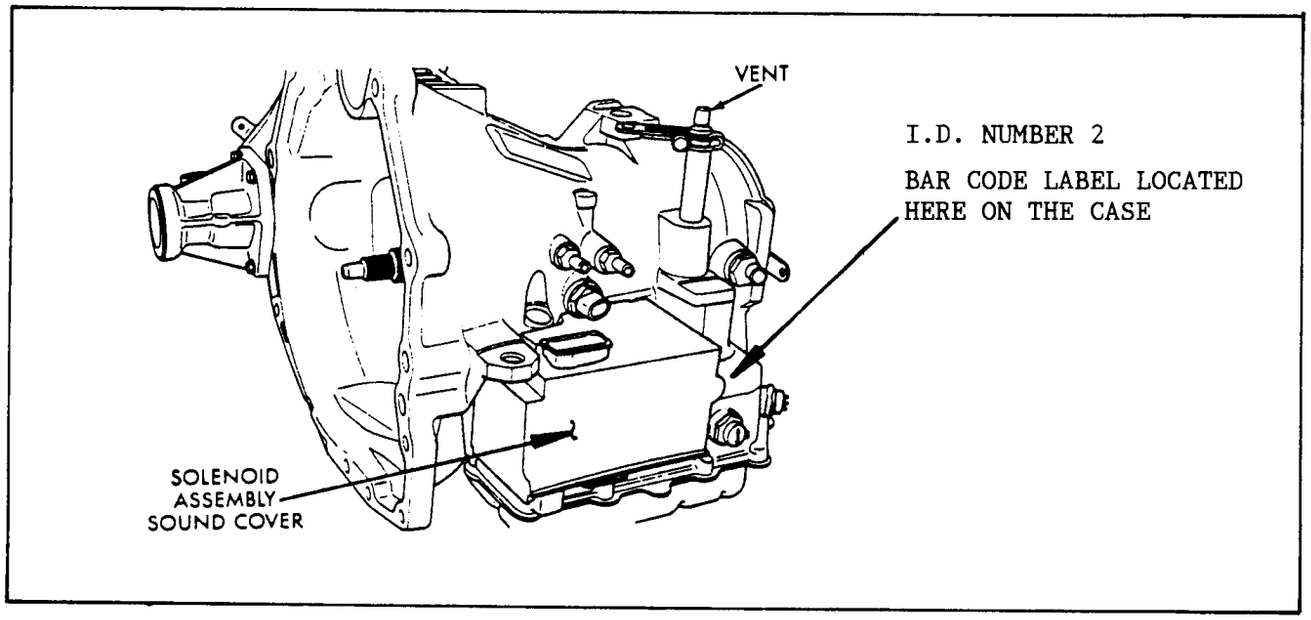


Figure 22

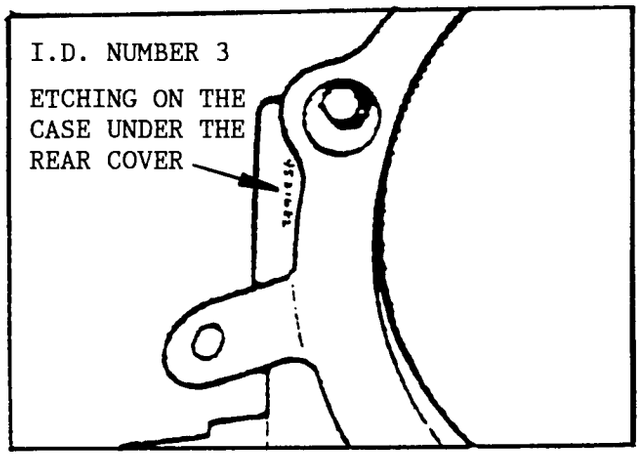


Figure 23

1989	1989 1/2	1990	1990 1/4	APPLICATION
4446 (659)	4531 (664)	4531 (551)	4531 (681)	3.0L 2.36 RATIO
----------	----------	4531 (630)	4531 (682)	3.3L 2.36 RATIO
----------	----------	4531 (553)	4531 (683)	2.5L 2.52 RATIO
----------	----------	4531 (554)	4531 (684)	2.5L 2.72 RATIO
----------	----------	4531 (555)	4531 (685)	2.5L TURBO 2.36 RATIO
----------	----------	4531 (635)	4531 (686)	2.5L TURBO 2.52 (MEX)

Figure 24

CHRYSLER A604

NEW (5TH DESIGN) TRANSAXLE CONTROLLER

CHANGE: As a running change for 1990, the A604 Transaxle Controller "Once Again" has been upgraded. The new #585 Controller entered production in late March of 1990.

Some owners may complain of a transaxle upshift/downshift hunting condition (3-4 Busyness) when the vehicle is fully loaded, driving up a grade, or into a headwind.

REASON: The new #585 Controller allows the torque converter clutch to unlock, instead of initiating a 4-3 downshift, during slight vehicle torque load changes.

PARTS AFFECTED:

(1) TRANSAXLE CONTROLLER - The controllers are identified by the last three digits of the OEM part number. The part number is on a sticker that is located on the bottom of the controller (See Figure 7).

The locations of the controllers will vary depending on the model of the vehicle (See Figure 7)

INTERCHANGEABILITY:

The new #585 Transaxle Controller will retro-fit back to ALL previous model A604 transaxles equipped with the earlier part numbers 5234623, 5234649, 5234678, or 4557120.

NOTE: When updating earlier controllers, do not Routinely replace the controller P/N 4557120 with P/N 4557585, Unless the customer has encountered upshift/downshift hunting conditions (3-4 Busyness) when the vehicle is fully loaded, driving up a grade, or into a headwind.

When updating controller P/N 5234623, 5234649, or 5234678, by all means use controller part number 4557585.

SERVICE INFORMATION:

Transaxle Controller (5th Design) 4557585

"A" BODY = ACCLAIM, SPIRIT, LEBARON
"C" BODY = DYNASTY, NEW YORKER LANDAU, SALON
"G" BODY = DAYTONA
"J" BODY = LEBARON COUPE, LEBARON CONVERTIBLE
"S" BODY = CARAVAN, GRAND CARAVAN, CARAVAN C/V, VOYAGER, GRAND VOYAGER, TOWN & COUNTRY
"Y" BODY = IMPERIAL, NEW YORKER 5TH AVENUE

CHRYSLER A604

NEW OVERDRIVE/REVERSE PISTON

CHANGE: A new Overdrive/Reverse Piston has been introduced for 1990 1/4 model transaxles, and features four reaction plate slots instead of eight slots (See Figure 25).

REASON: By using four slots, it leaves more material intact between the slots on the piston compared to the eight slot piston. This added material makes the piston stronger and more rigid.

PARTS AFFECTED:

(1) OVERDRIVE/REVERSE PISTON - The new Overdrive/Reverse Piston has four slots, for the pressure plate lugs, instead of the previous eight slots and can be identified visually (See Figure 25).

The inside diameter of the new pistons bottom corner also has a larger radius to accomodate a new 1990 1/4 Input Clutch Retainer dimensional change (See Figure 26).

(2) OVERDRIVE/REVERSE PRESSURE PLATE - The new Overdrive/Reverse Pressure Plate has only four lugs on the outside diameter, instead of the previous eight, and can be identified visually (See Figure 27).

(3) INPUT CLUTCH RETAINER - The new Input Clutch Retainer has a new radius on the outside diameter, to reduce the chance of damage to the lip seal during assembly (See Figure 28). This retainer has no identification marks, and is tough to identify visually. The OEM part number did not change.

INTERCHANGEABILITY:

The new Overdrive/Reverse Piston, and four lug pressure plate will retro-fit back to all previous models, if it is used as an assembly. The piston and pressure plate must BOTH be used in these instances.

The revised Input Clutch Retainer WILL NOT work with the previous style 8 lug overdrive/reverse piston. Since the part number did not change, to replace an input clutch retainer built in 1990, before the change to the 4 lug overdrive/reverse piston, you MUST also change to the 4 lug design piston and pressure plate.

SERVICE INFORMATION:

Overdrive/Reverse Piston, 4 Slot	4531492
Overdrive/Reverse Pressure Plate, 4 Lug	4531556
Service Package, 4 Lug (Includes Both of the Above)	5241063
Overdrive/Reverse Piston, 8 Slot	4431613
Overdrive/Reverse Pressure Plate, 8 Lug	4377191

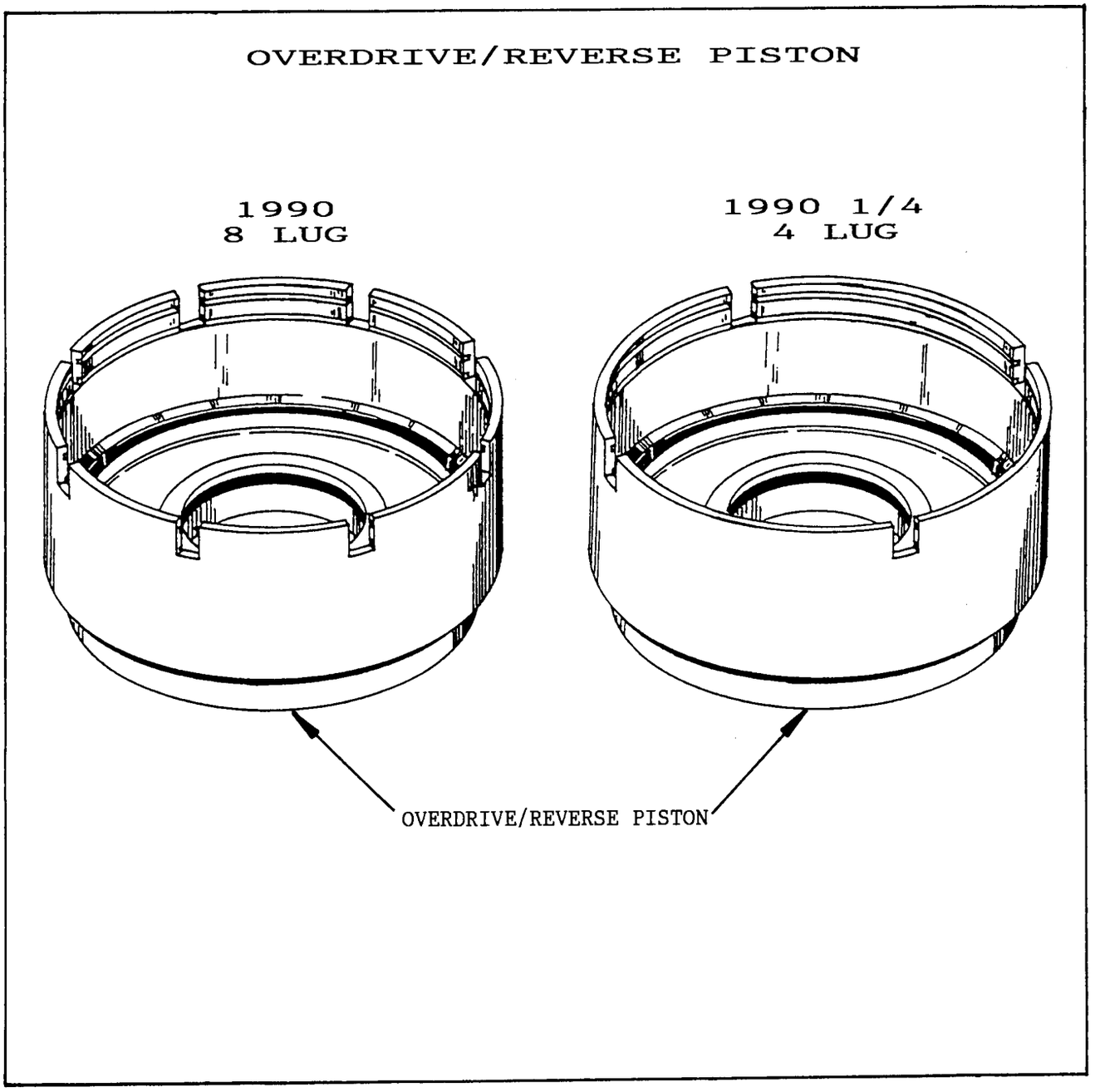

OVERDRIVE/REVERSE PISTON
1990
8 LUG
1990 1/4
4 LUG
OVERDRIVE/REVERSE PISTON

Figure 25

1990 1/4 OVERDRIVE/REVERSE PISTON WITH FOUR SLOTS

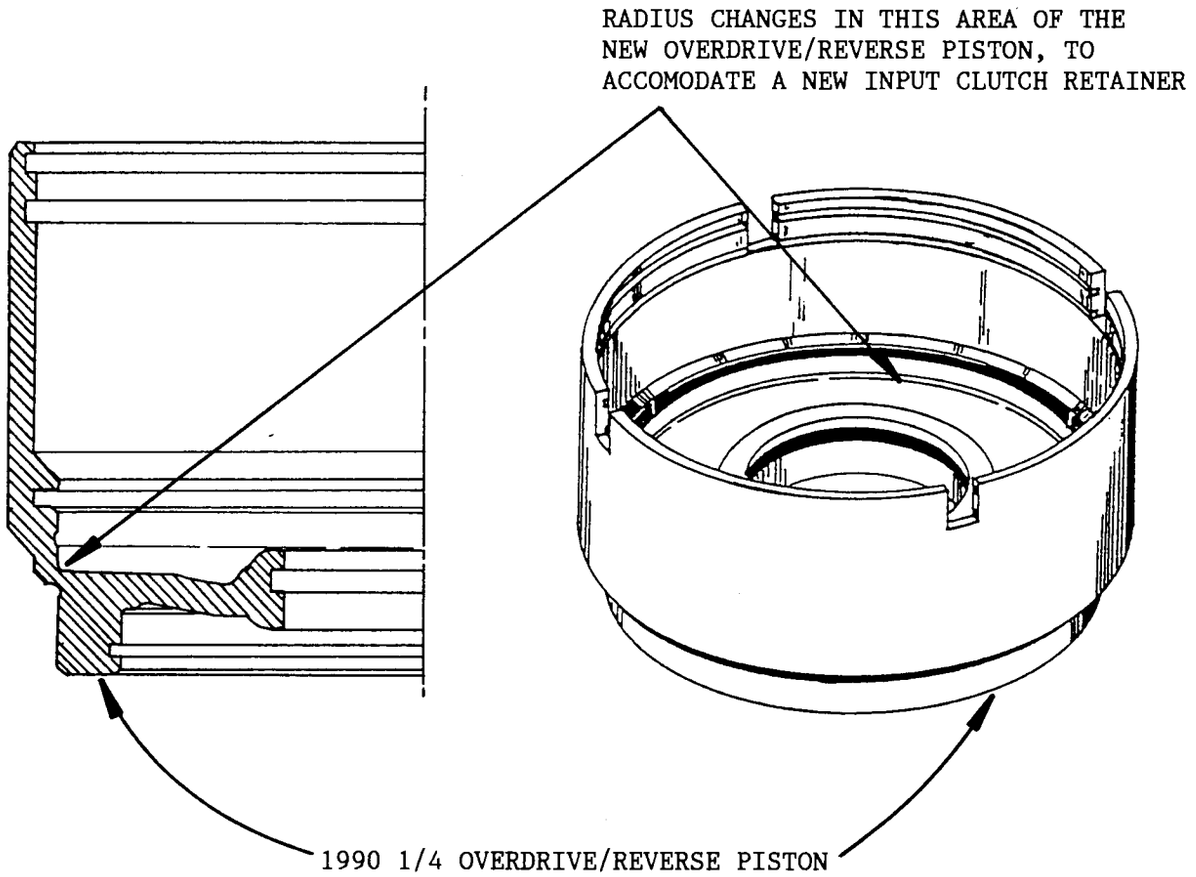


Figure 26

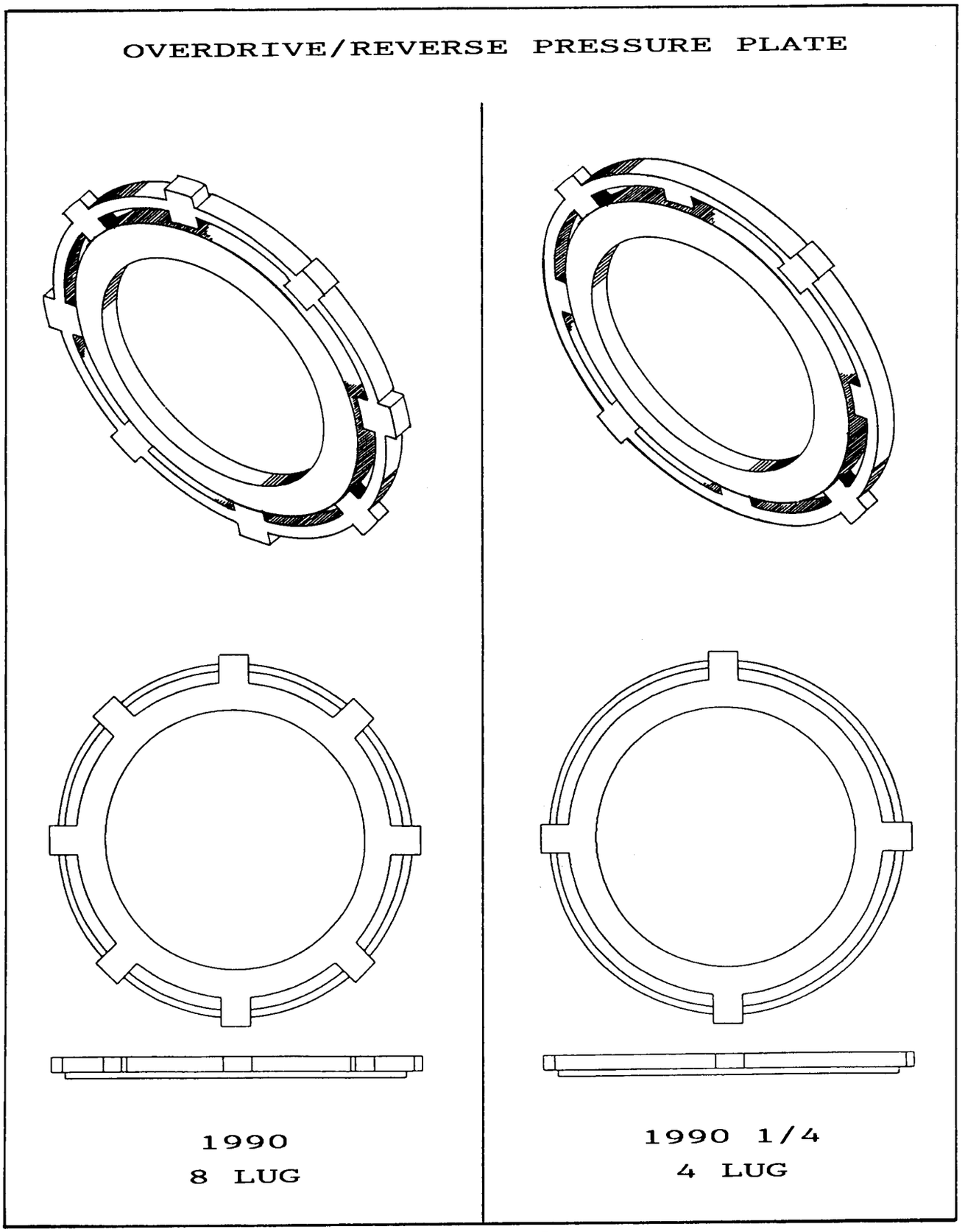
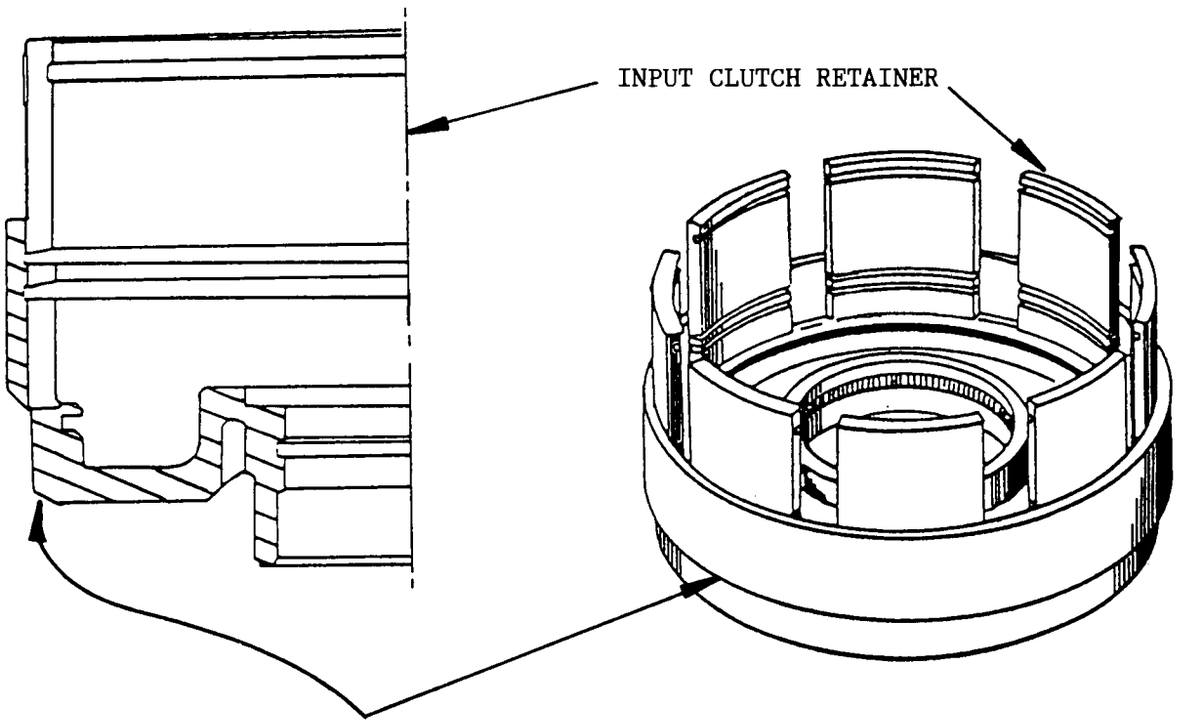


FIGURE 27

1990 1/4 INPUT CLUTCH RETAINER



1990 1/4 INPUT CLUTCH RETAINER HAS A REVISED RADIUS, LOCATED HERE, ON THE OUTSIDE DIAMETER TO REDUCE THE CHANCE OF DAMAGE TO LIP SEAL.

Figure 28

CHRYSLER A604

1990 1/4 INPUT CLUTCH HUB

CHANGE: For all 1990 1/4 model transaxles, the Input Clutch Hub, and the color coded "O" rings have once again been upgraded.

REASON: Improved overdrive and reverse clutch durability.

PARTS AFFECTED:

(1) INPUT CLUTCH HUB - The "O" ring grooves on the Input Clutch Hub are cut deeper to accomodate the larger cross section color coded "O" rings (See Figure 29).

(2) FRONT INPUT CLUTCH HUB "O" RING - This "O" ring now has a larger, .103" cross section and is color coded BLUE for identification purposes. Remember that this is the 3rd change on this "O" ring. The original "O" ring was BLACK with a .070" cross section, the 2nd design "O" ring was ORANGE with a .070" cross section, and the 3rd design "O" ring is BLUE with a .103" cross section (See Figure 30).

(3) REAR INPUT CLUTCH HUB "O" RING - This "O" ring now has a larger, .103" cross section and is color coded RED for identification purposes. Remember that this is the 3rd change on this "O" ring. The original "O" ring was BLACK with a .070" cross section, the 2nd design "O" ring was GREEN with a .070" cross section, and the 3rd design "O" ring is RED with a .103" cross section (See Figure 31).

INTERCHANGEABILITY:

You CANNOT interchange the 1990 1/4 Input Clutch Hub "O" Rings (BLUE and RED) with the 89-90 "O" rings (ORANGE and GREEN), nor with the original (BLACK) "O" rings.

The new Input Clutch Hub with the deeper "O" ring grooves, and the BLUE and RED "O" rings will retro-fit back to all previous models, but you MUST also use the 1990 input clutch retainer as well.

SERVICE INFORMATION:

Input Clutch Hub, 90 1/4 (Deeper Grooves)	4531637
Input Clutch Hub, 1990 (Shallow Grooves)	4531655
Input Clutch Retainer, 1990	4505623
Front "O" Ring, BLACK .070" (Original)	6501574
Rear "O" Ring, BLACK .070" (Original)	6501548
Front "O" Ring, ORANGE .070" (89-90)	6502272
Rear "O" Ring, GREEN .070" (89-90)	6502270
Front "O" Ring, BLUE .103" (90 1/4)	6502271
Rear "O" Ring, RED .103" (90 1/4)	6502269

1990 1/4 INPUT CLUTCH HUB

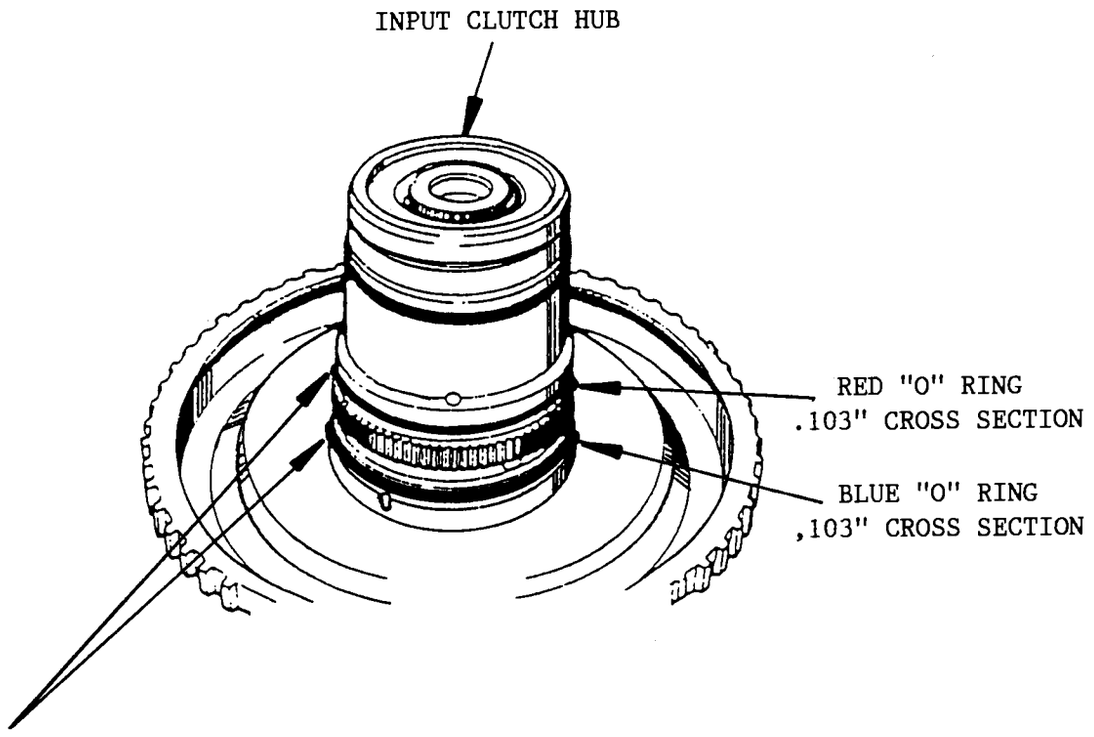


Figure 29

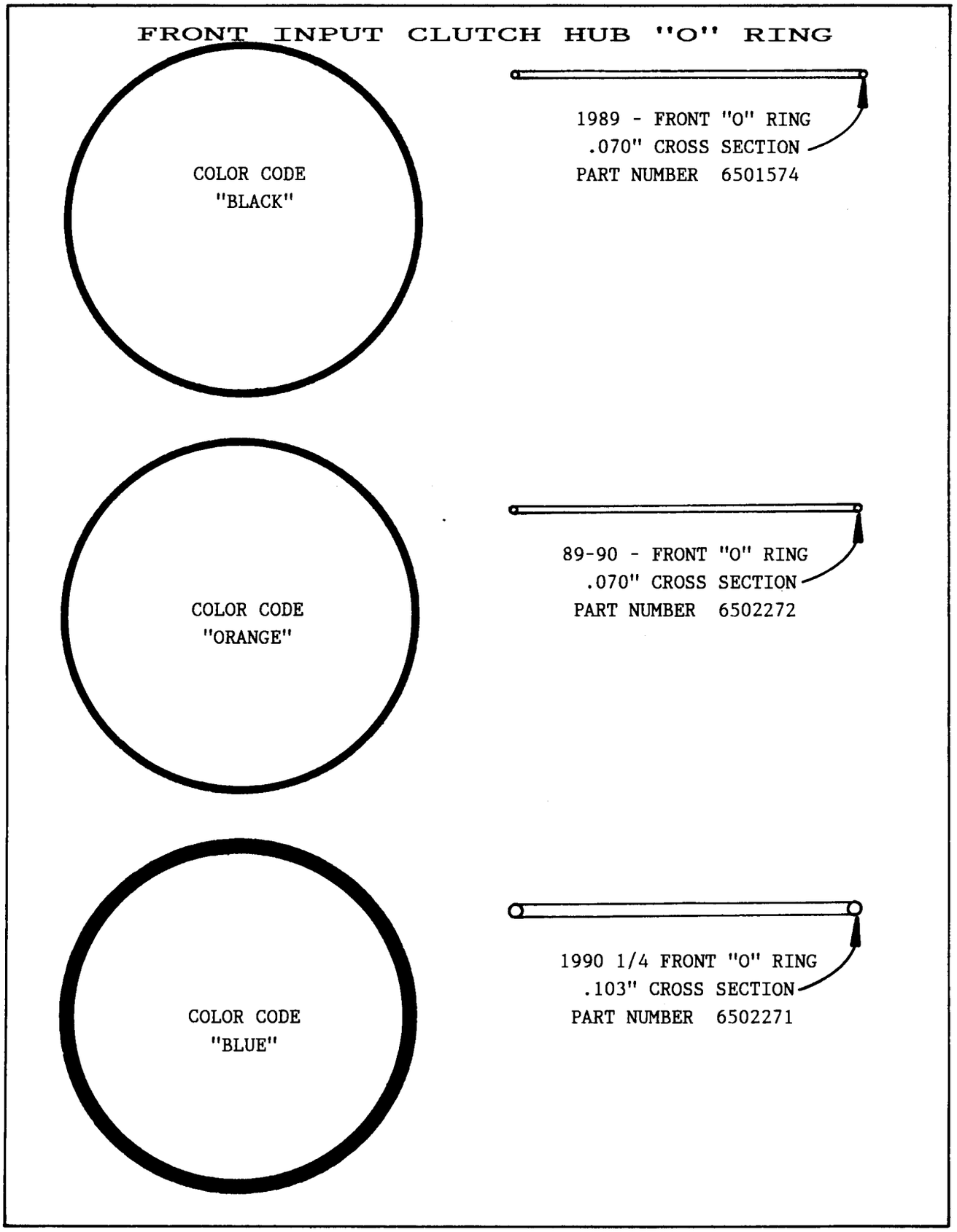
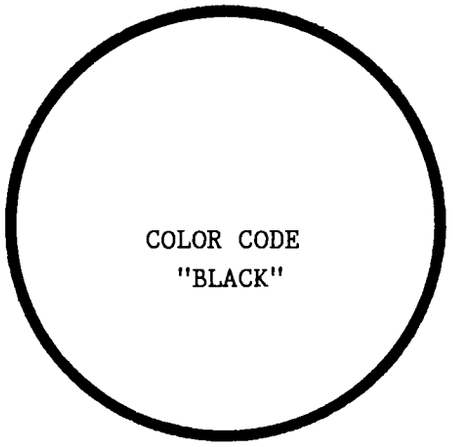
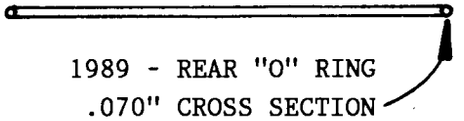

FRONT INPUT CLUTCH HUB "O" RING
COLOR CODE
"BLACK"
1989 - FRONT "O" RING
.070" CROSS SECTION
PART NUMBER 6501574
COLOR CODE
"ORANGE"
89-90 - FRONT "O" RING
.070" CROSS SECTION
PART NUMBER 6502272
COLOR CODE
"BLUE"
1990 1/4 FRONT "O" RING
.103" CROSS SECTION
PART NUMBER 6502271

Figure 30

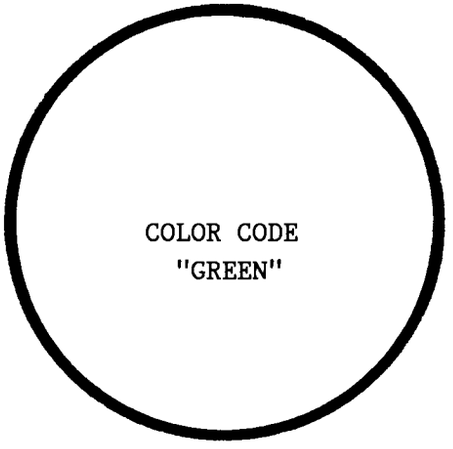
REAR INPUT CLUTCH HUB "O" RING



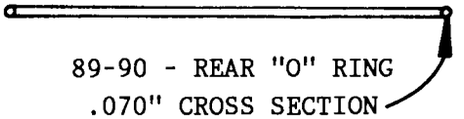
COLOR CODE
"BLACK"



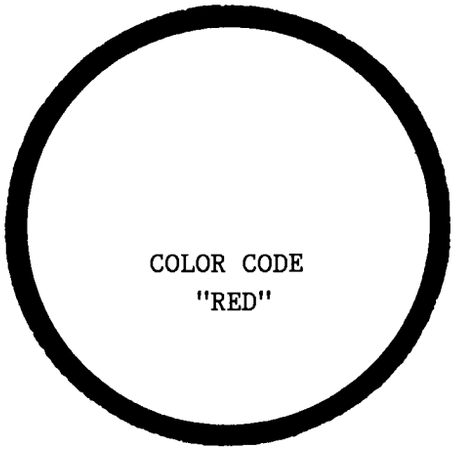
1989 - REAR "O" RING
.070" CROSS SECTION
PART NUMBER 6501548



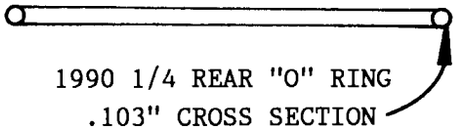
COLOR CODE
"GREEN"



89-90 - REAR "O" RING
.070" CROSS SECTION
PART NUMBER 6502270



COLOR CODE
"RED"



1990 1/4 REAR "O" RING
.103" CROSS SECTION
PART NUMBER 6502269

Figure 31

CHRYSLER A604

ASSEMBLY OF 2/4 AND L/R CLUTCH PACKS

Extra attention is needed when assembling the Low/Reverse clutch pack and the Two/Four clutch pack into the case, as both of the clutch packs are very similar, but are not compatable with one another.

THINGS TO WATCH FOR:

(1) Both clutch packs, on the steel plates, have the same tooth profile, but the thicknesses are different (See Figure 32).
   A. 2/4 STEEL PLATE THICKNESS IS .100" (4 Required).
   B. L/R STEEL PLATE THICKNESS IS .070" (5 Required).

(2) Both clutch packs, on the lined plates, have the same tooth count and the same lining, but the thicknesses are different (See Figure 32).
   A. 2/4 LINED PLATE THICKNESS IS .085" (4 Required).
   B. L/R LINED PLATE THICKNESS IS .070" (5 Required).

There are 5 lined plates and 5 steel plates in the Low/Reverse clutch pack.
There are 4 lined plates and 4 steel plates in the Two/Four clutch pack.
There is also a common pressure plate used between the clutch packs.

We have provided you with the proper clutch stack up for these clutch packs, to assist you with proper assembly for the 2/4 and L/R clutch packs. Refer to Figure 33 for proper assembly procedures.

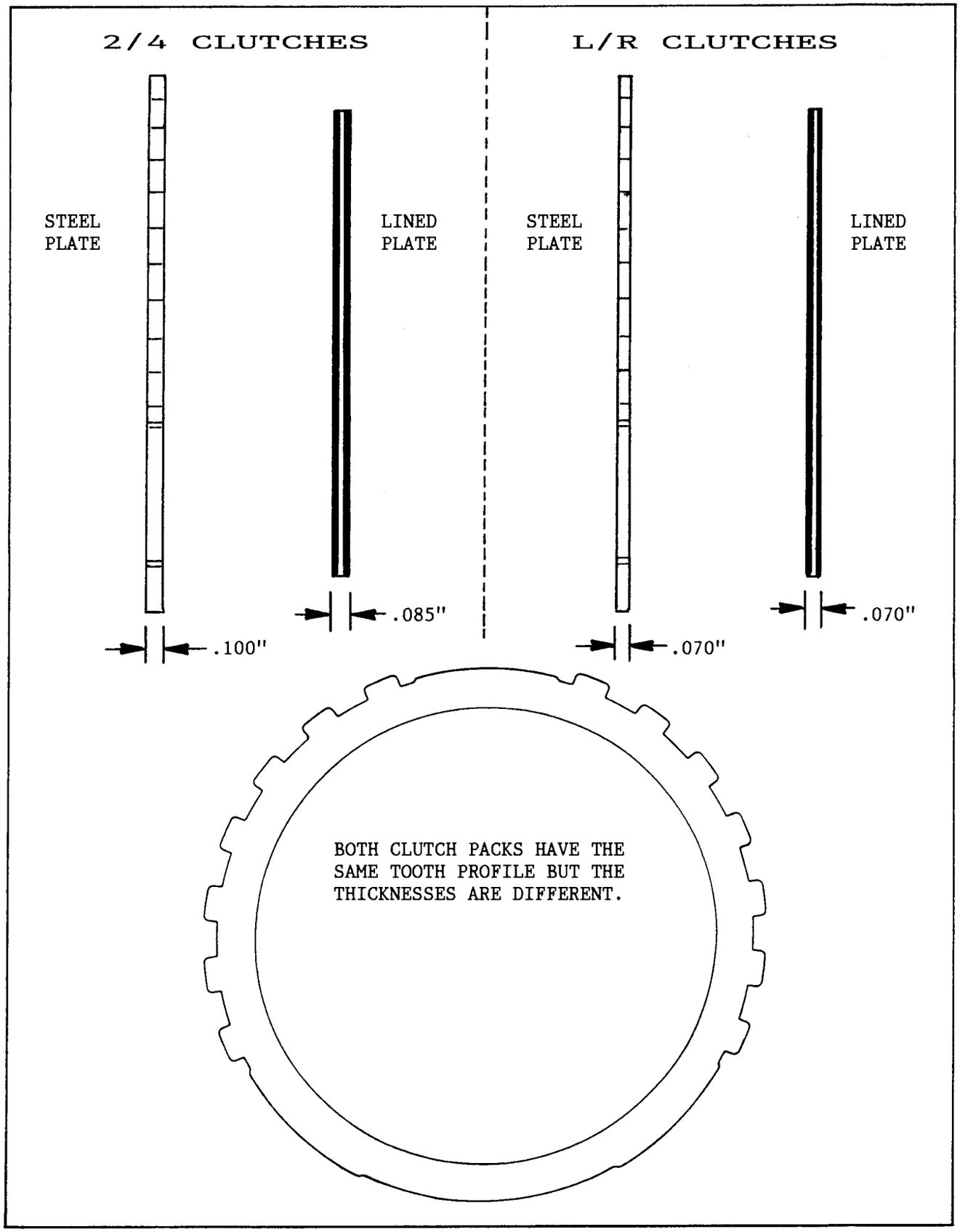
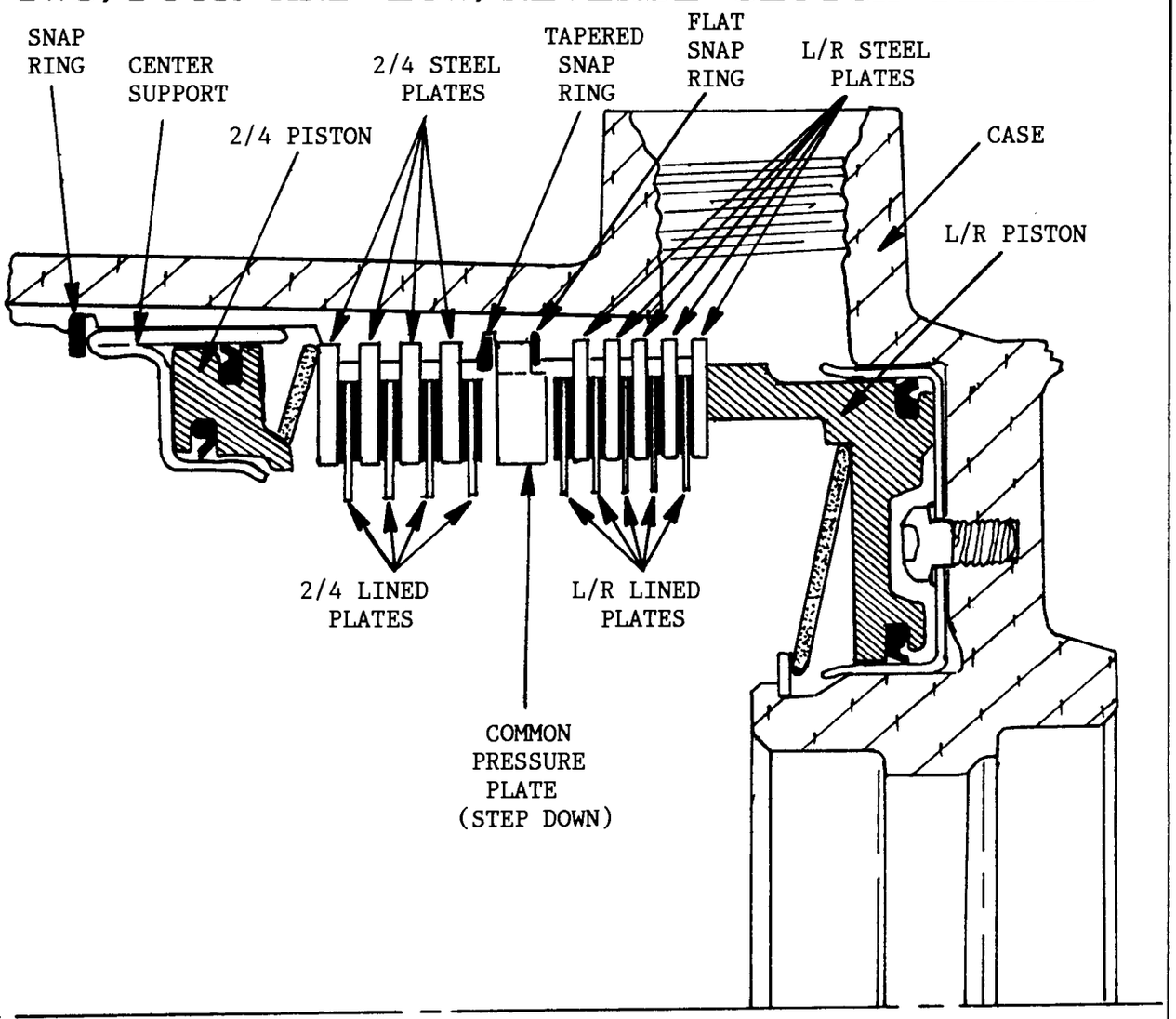

2/4 CLUTCHES
L/R CLUTCHES
STEEL PLATE
LINED PLATE
STEEL PLATE
LINED PLATE
.100"
.085"
.070"
.070"
BOTH CLUTCH PACKS HAVE THE SAME TOOTH PROFILE BUT THE THICKNESSES ARE DIFFERENT.

Figure 32

TWO/FOUR AND LOW/REVERSE CLUTCH PLATES



LOW/REVERSE CLUTCH PACK TAKES 5 STEEL PLATES (.070") AND 5 LINED PLATES (.070")

TWO/FOUR CLUTCH PACK TAKES 4 STEEL PLATES (.100") AND 4 LINED PLATES (.085")

LOW/REVERSE CLUTCH PACK CLEARANCE IS .042" TO .065" AND IS SET WITH THE COMMON SELECTIVE PRESSURE PLATE, AVAILABLE IN SEVEN THICKNESSES.

TWO/FOUR CLUTCH PACK CLEARANCE IS .030" TO .104" AND IF NOT WITHIN SPEC, THE CLUTCH IS NOT ASSEMBLED PROPERLY.

THERE IS NO ADJUSTMENT FOR THE TWO/FOUR CLUTCH CLEARANCE.

Figure 33

CHRYSLER A604

PREMATURE FAILURE OF O.D. AND REVERSE CLUTCHES

COMPLAINT: Premature failure of the overdrive and the reverse clutch plates, and all lip seals and "O" rings are good.

CAUSE: The cause may be an orifice and screen assembly blown out of the overdrive/reverse piston (See Figure 34).

CORRECTION: Replace the Orifice/Screen Assembly with a new one, available under OEM part number 4531903, and stake the new assembly in place (See Figure 34). They were not all staked in place at the factory.

SERVICE INFORMATION:

Overdrive/Reverse Piston Orifice/Screen Assy 4531903

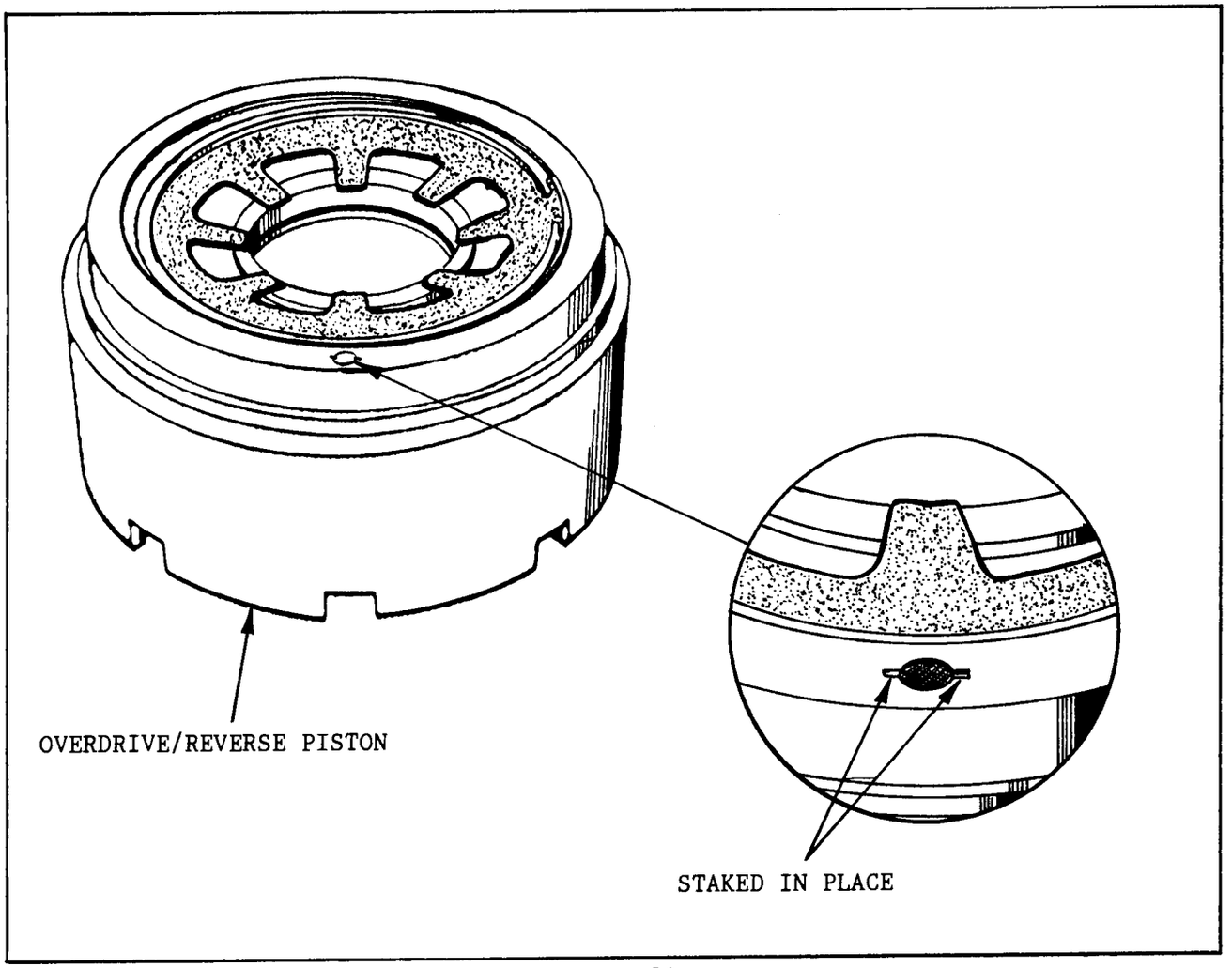


Figure 34

CHRYSLER A604

DIAGNOSTIC FAULT CODE CHART

FAULT	CODE	LIMP-IN
INTERNAL A604 CONTROLLER	11	YES
BATTERY WAS DISCONNECTED	12	NO
INTERNAL A604 CONTROLLER	13	YES
EATX RELAY OUTPUT ALWAYS ON	14	YES
EATX RELAY OUTPUT ALWAYS OFF	15	YES
INTERNAL A604 CONTROLLER	16	YES
INTERNAL A604 CONTROLLER	17	YES
ENGINE SPEED SIGNAL CIRCUIT	18	YES
BUS COMUNICATION WITH ENGINE CONTROLLER	19	NO
SWITCHED BATTERY	20	YES
OD PRESSURE SWITCH CIRCUIT	21	YES
2/4 PRESSURE SWITCH CIRCUIT	22	YES
2/4 AND OD PRESSURE SWITCH CIRCUITS	23	YES
L/R PRESSURE SWITCH CIRCUIT	24	YES
L/R AND OD PRESSURE SWITCH CIRCUITS	25	YES
L/R AND 2/4 PRESSURE SWITCH CIRCUITS	26	YES
ALL PRESSURE SWITCH CIRCUITS	27	YES
CHECK PRNODL SIGNAL	28	NO
THROTTLE POSITION SIGNAL	29	NO
OD HYDRAULIC PRESSURE SWITCH	31	YES
2/4 HYDRAULIC PRESSURE SWITCH	32	YES
OD AND 2/4 HYDRAULIC PRESSURE SWITCH	33	YES
FAULT IMMEDIATELY AFTER SHIFT	36	YES
SOLENOID SWITCH VALVE (STUCK IN LU POSITION)	37	NO
LOCKUP CONTROL	38	NO
GEAR RATIO ERROR	39	YES
L/R SOLENOID CIRCUIT ERROR	41	YES
2/4 SOLENOID CIRCUIT ERROR	42	YES
OD SOLENOID CIRCUIT ERROR	43	YES
UD SOLENOID CIRCUIT ERROR	44	YES
INTERNAL A604 CONTROLLER	45	NO
3-4 SHIFT ABORT	46	NO
SOLENOID SWITCH VALVE (STUCK IN L/R POSITION)	47*	YES
GEAR RATIO ERROR IN REVERSE	50*	YES
GEAR RATIO ERROR IN 1ST	51*	YES
GEAR RATIO ERROR IN 2ND	52*	YES
GEAR RATIO ERROR IN 3RD	53*	YES
GEAR RATIO ERROR IN 4TH	54*	YES
TURBINE SENSOR ERROR	56*	YES
OUTPUT SENSOR ERROR	57*	YES
SENSORS GROUND ERROR	58*	YES
INADEQUATE L/R ELEMENT VOLUME	60*	NO
INADEQUATE 2/4 ELEMENT VOLUME	61*	NO
INADEQUATE OD ELEMENT VOLUME	62*	NO
INADEQUATE UD ELEMENT VOLUME	63*	NO

*DENOTES NEW FOR 1991

Code 11:	Internal A-604 Controller (Watchdog Circuit Test)

Background: The internal Watchdog (WD) circuit continuously monitors the Central Processing Unit (CPU) for normal operation and provides a transaxle limp-in when it detects a problem in the CPU. On the other hand the CPU periodically TEST's the WD's ability to provide this shutdown function.

Conditions To Set Code: Watchdog circuit test fails.

When Checked: After a reset (ignition key turned to the RUN position or after cranking engine), and periodically thereafter.

Effect: Transaxle limp-in (2nd gear).

Probable Causes: Internal controller failure.

Code 12:	Battery Was Disconnected or an open occurs in the power line. It exists to provide reference information only.

Background: Keep alive memory is used to maintain some learned values. When the battery is disconnected, this memory is lost and, when battery is re-connected, the loss of memory will be detected by the controller. The code will be set and the learned values will be initialized to known constants.

Conditions To Set Code: Battery disconnected, first installation, or open power line.

When Checked: After a reset (ignition key turned to the RUN position or after cranking engine).

Effect: Setting the code has no effect except for reinitialization of some parameters. In other words the transaxle would have to relearn shift characteristics. If the controller looses its power supply while the vehicle is being driven, all electronic control features are lost, and the transaxle would be operating as if it was in the limp-in mode of operation.

Probable Causes: Battery disconnected or open circuits in power line.

Code 13:	Internal A-604 Controller (Watchdog Circuit Shutdown)

Background: The internal Watchdog (WD) circuit continuously monitors the CPU. It provides a shutdown function when it detects a problem in the CPU.

Conditions To Set Code: A problem with the microprocessor detected by WD.

When Checked: After a reset (ignition key turned to the RUN position or after cranking engine), and periodically thereafter.

Effect: Transaxle limp-in (2nd gear).

Probable Causes: Internal controller failure.

Code 14:	EATX Relay Always On

Background: The EATX relay is used to supply power to the solenoid pack (when in normal operating mode) and to turn off power (when the transaxle has been placed into the "limp-in" mode of operation). The relay output (which supplies power to the solenoid pack) is fed back to the controller through pins 16 and 17. It is referred to as SWITCHED BATTERY.

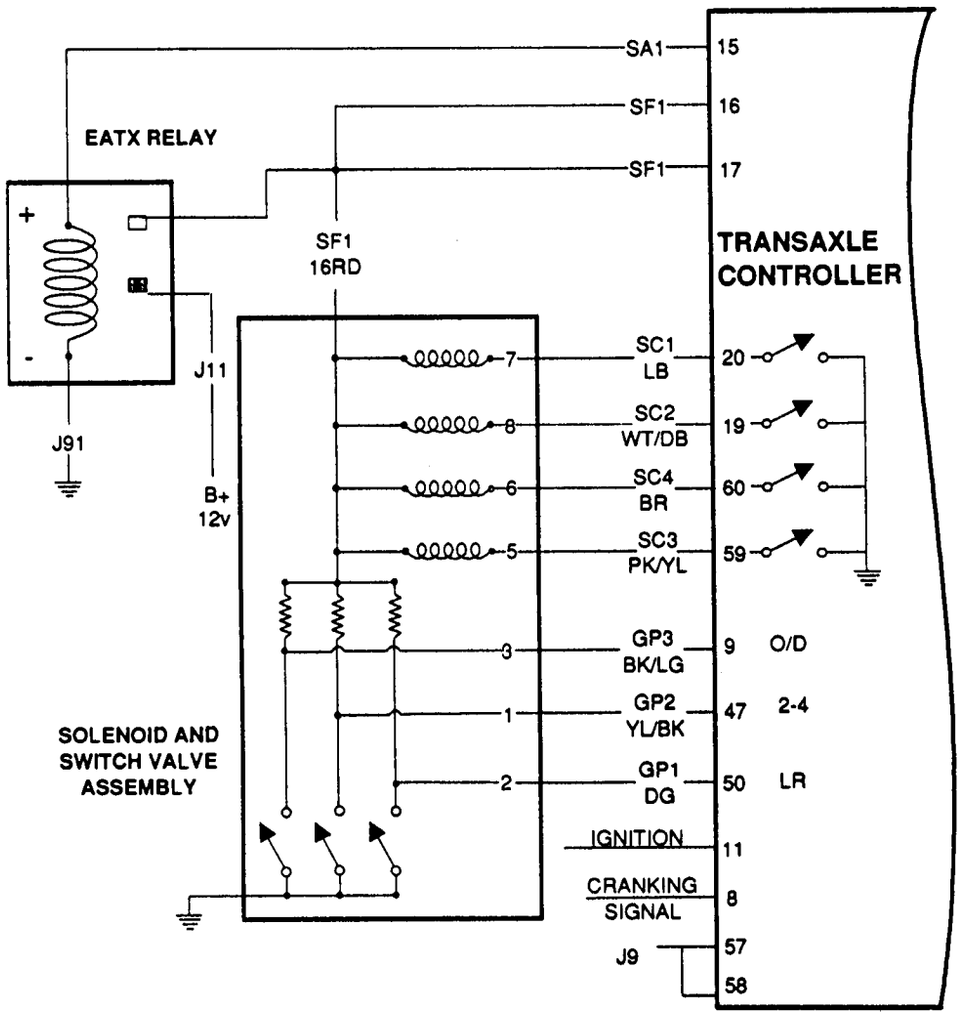
After a controller reset (ignition key turned to the RUN position or after cranking engine), the controller energizes the relay. But before this is done, the controller verifies that the relay contacts are open by checking for no voltage on Switched battery (ie. relay output).

Conditions To Set Code: Relay output (Switched Battery) has more than 3 volts when relay is not energized by controller.

When Checked: After a reset (ignition key turned to the RUN position or after cranking engine), and after a "power-down" from turning ignition off.

Effect: Transaxle limp-in (2nd gear).

Probable Causes:
- Relay failure (Welded contacts).
- Short to battery in SA1 circuit.
- Short to battery in SF1 circuit.
- 60-way connector problem (cavities 15, 16, and 17).
- Internal controller failure.


SA1
15
SF1
16
SF1
17
EATX RELAY
+
-
SF1
16RD
TRANSAXLE
CONTROLLER
J11
J91
B+
12v
7
SC1
LB
20
8
SC2
WT/DB
19
6
SC4
BR
60
5
SC3
PK/YL
59
3
GP3
BK/LG
9
O/D
1
GP2
YL/BK
47
2-4
2
GP1
DG
50
LR
SOLENOID AND
SWITCH VALVE
ASSEMBLY
IGNITION
11
CRANKING
SIGNAL
8
J9
57
58

Code 15:	EATX Relay Always Off

Background: The EATX relay is used to supply power to the solenoid pack (when in normal operating mode) and to turn off power (when the transaxle is in "limp-in" mode). The relay output (which supplies power to the solenoid pack) is fed back to the controller through pins 16 and 17. It is referred to as SWITCHED BATTERY.

After a controller reset (ignition key turned to the RUN position or when cranking engine), the controller energizes the relay. Then the controller verifies that the relay contacts are closed by checking for voltage on Switched battery (ie. relay output).

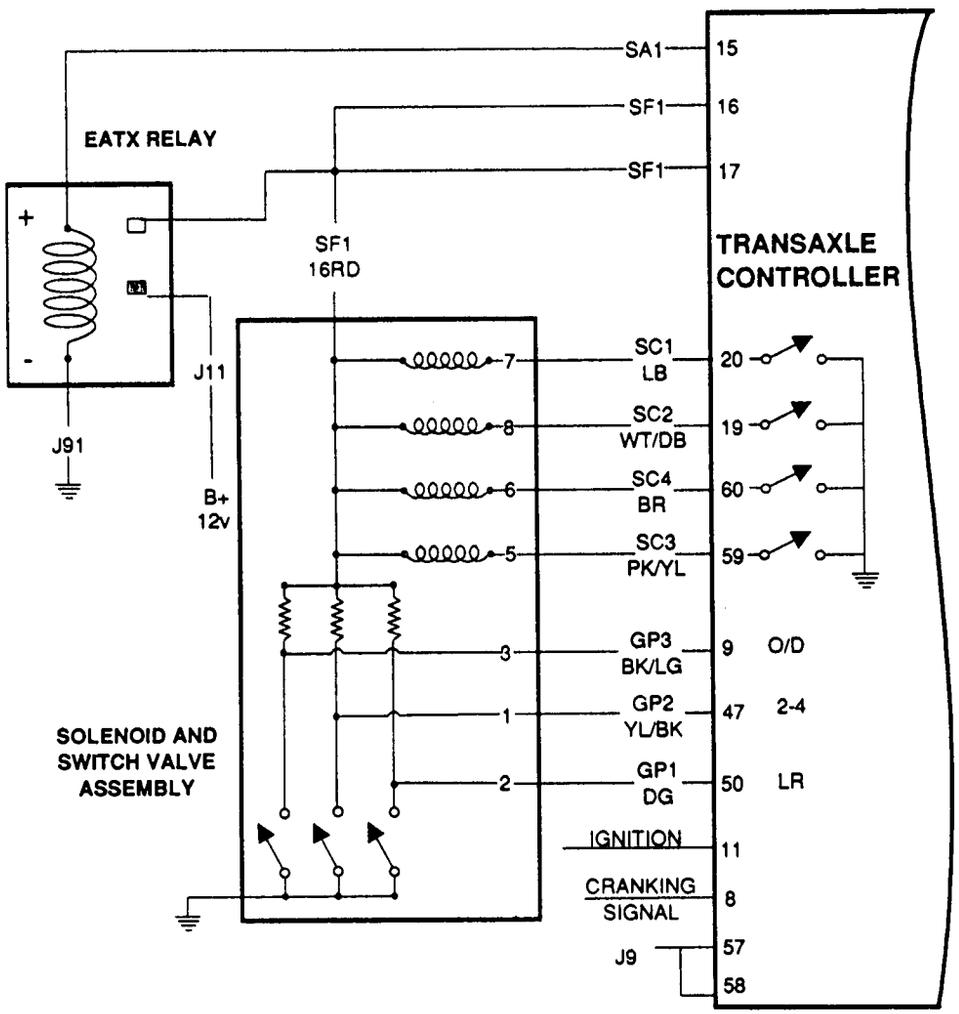
Conditions To Set Code: Relay output (Switched Battery) has less than 3 volts when relay is energized by controller.

When Checked: After a reset (ignition key turned to the RUN position or after cranking engine).

Effect: Transaxle limp-in (2nd gear).

Probable Causes:

- Relay failure (Open contacts).
- Short to ground in SA1 circuit.
- Open SA1 circuit between relay and controller.
- Open SF1 circuit between relay and controller.
- Open J91 circuit from relay to ground.
- Open J11 circuit from relay to splice.
- 60-way connector problem (cavities 15, 16, and 17).
- Internal controller failure.


EATX RELAY
+
-
J91
J11
B+
12v
SF1
16RD
SA1
SF1
SF1
15
16
17
TRANSAXLE
CONTROLLER
SC1
LB
SC2
WT/DB
SC4
BR
SC3
PK/YL
7
8
6
5
20
19
60
59
GP3
BK/LG
GP2
YL/BK
GP1
DG
3
1
2
9
47
50
O/D
2-4
LR
SOLENOID AND
SWITCH VALVE
ASSEMBLY
IGNITION
11
CRANKING
SIGNAL
8
J9
57
58

Code 16:	Internal A-604 Control (ROM Check failure)

Background: When the controller is reset, the CPU checks the integrity of the program memory (ROM). It adds all used bytes in the program memory. The sum should be the same as a known constant (stored in program memory).

Conditions To Set Code: ROM checksum does not match a known constant.

When Checked: After a reset (ignition key turned to the RUN position or after cranking engine).

Effect: Transaxle limp-in (2nd Gear).

Probable Causes: Internal controller failure.

Code 17:	Internal A-604 Controller (RAM Check Failure)

Background: When the controller is reset, the CPU checks the integrity of each RAM location by writing to it and reading back from it. The read value should be the same as value written.

Conditions To Set Code: Data read from at least one RAM location does not match data written to it.

When Checked: After a reset (ignition key turned to the RUN position or after cranking engine).

Effect: Transaxle limp-in (2nd gear).

Probable Causes: Internal controller failure.

Code 18:	Engine Speed Signal Circuit

Background: EATX uses a distributer signal to calculate the engine rpm (which could be zero when the ignition key is in the RUN position and engine is not running). When the calculated engine rpm is almost zero, it is compared to the engine speed received from the engine controller over the C²D bus to confirm that the engine is actually not running. Otherwise this means a problem with the engine speed signal circuit.

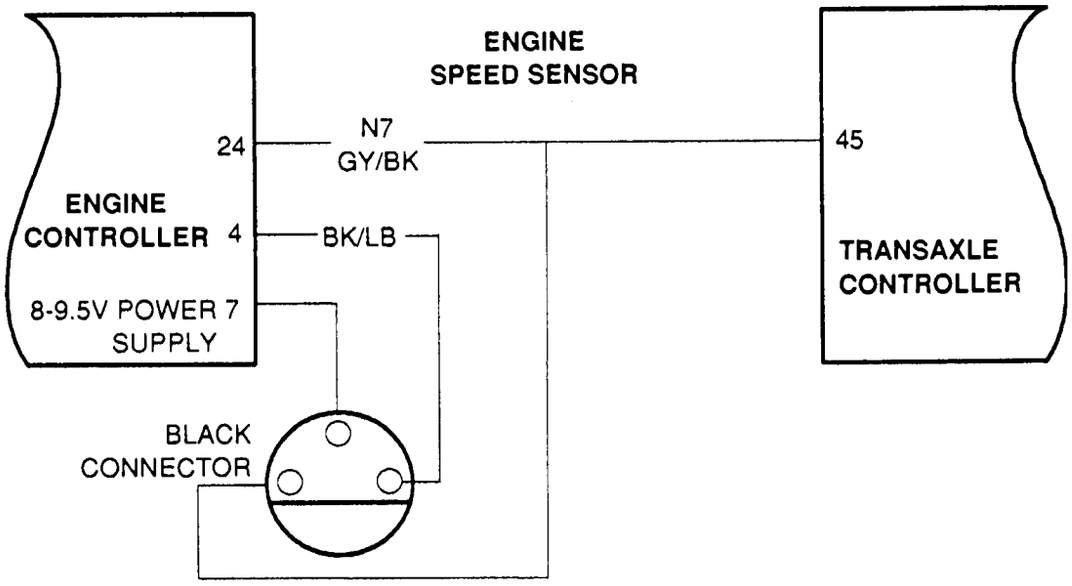
Conditions To Set Code:
- Calculated engine speed is less than a threshold rpm.
- C²D bus is operational.
- Engine speed received from the engine controller over the C²D bus is more than the threshold rpm.

NOTE: If C²D was not operational, code will not be set.

When Checked: Continuously.

Effect: Transaxle limp-in (2nd gear).

Probable Causes:
- Open/short in N7 circuit (distributor pick up signal).
- Defective sensor in distributor.
- 60-way connector problem (cavity 45).
- Internal controller failure.



Code 19:	C²D Bus Communication

Background: EATX communicates with the engine controller over the C²D bus. Engine RPM, Engine and Ambient Temperature are among the information received by EATX. The controller continuously monitors the bus activity and receives the messages it needs.

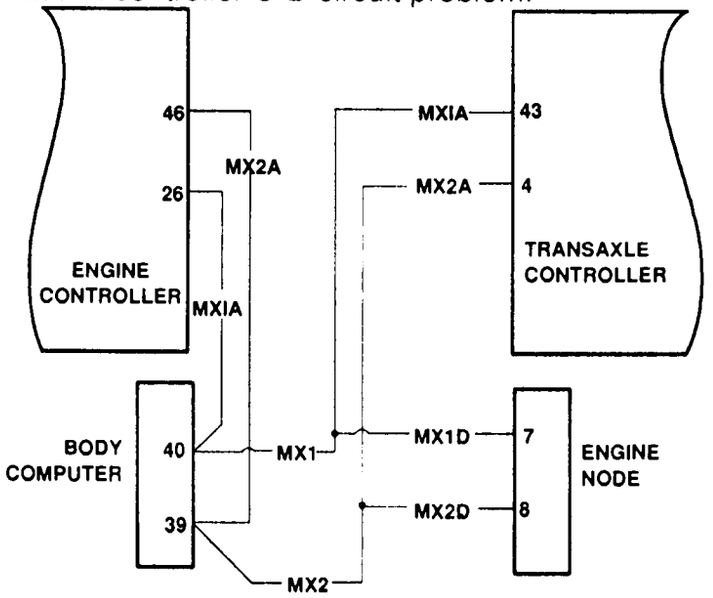
Conditions To Set Code: No activity on the C²D bus.

When Checked: Continuously.

Effect:
- No limp-in.
- Due to loss of temperature information:
  a. Delayed 3-4 shift and early 4-3 shift for few minutes after engine is started.
  b. No lock up operations for a few minutes after engine is started.

NOTE: When the C²D bus becomes operational again, EATX will resume receiving the needed messages. However, the code will remain set.

Probable Causes:
- Open MX1 or MX2 circuits between EATX and engine controller.
- Shorted MX1 or MX2 circuit.
- C²D bus biasing problem (bus has to be properly biased by one of the vehicle's controllers).
- Engine controller C²D problem circuit.
- EATX controller C²D circuit problem.



EXAMPLE: C2D BUS CIRCUIT C AND Y BODIES

Code 20:	Switched Battery

Background: The EATX relay is used to supply power to the solenoid pack (when in normal operating mode) and to turn off power (when the transaxle is in "limp-in" mode). The relay output (which supplies power to the solenoid pack) is fed back to the controller through pins 16 and 17. It is referred to as SWITCHED BATTERY.

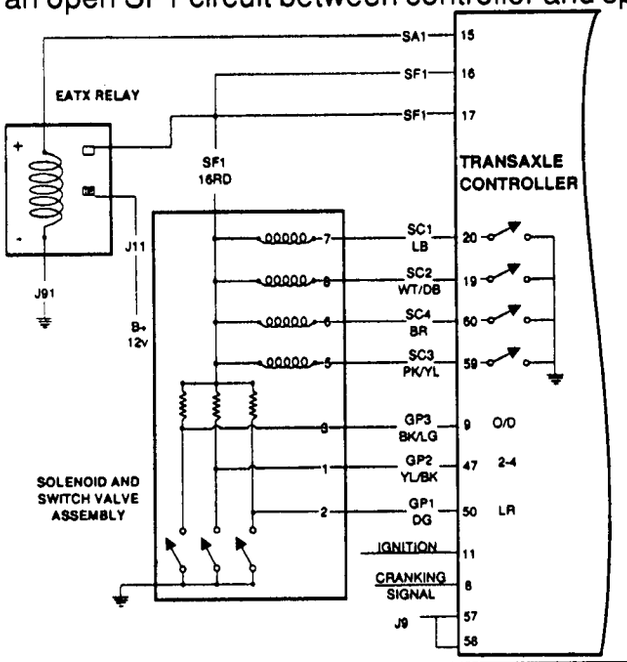
After a controller reset (ignition key turned to the RUN position or after cranking engine), the controller energizes the relay. But before this is done, the controller verifies that the relay contacts are open by checking for no voltage on Switched battery (ie. relay output). After switched battery is verified for no voltage, the voltage of the solenoid pack pressure switches is also checked. Since the solenoid pack is not powered up, there should be no voltage on any of the pressure switches. Otherwise there is a problem on the switched battery.

Conditions To Set Code: A voltage is detected on any of the pressure switches before the relay is energized.

When Checked: After a reset (ignition key turned to the RUN position or after cranking engine).

Effect: Transaxle limp-in (2nd gear).

Probable Causes:
- Defective EATX relay (welded contacts) with an open SF1 circuit between controller and splice.
- Intermittent short to battery on SF1 circuit.
- Defective relay (intermittent contacts).
- Internal controller failure.



Code 21 to 27: Pressure Switch Circuits

Code 21 OD Pressure Switch Circuit
Code 22 24 Pressure Switch Circuit
Code 23 24 & OD Pressure Switch Circuits
Code 24 LR Pressure Switch Circuit
Code 25 LR & OD Pressure Switch Circuits
Code 26 LR & 24 Pressure Switch Circuits
Code 27 All Pressure Switch Circuits

Background: The A-604 transaxle system uses three pressure switches to monitor the fluid pressure in the LR, 24, and OD elements. The pressure switches are continuously checked for the correct states in each gear as indicated below:

Normal Pressure Switch States

GEAR	LR	24	OD
P	1	0	0
R	0	0	0
N	1	0	0
1ST	1	0	0
2ND	0	1	0
3RD	0	0	1
4TH	0	1	1

0 = Switch is open
1 = Switch is closed

When a pressure switch mismatch is detected, the solenoid circuits are tested for continuity. If that test fails, solenoid circuits are blamed for the pressure switches mismatch. Otherwise the appropriate pressure switch code is set.

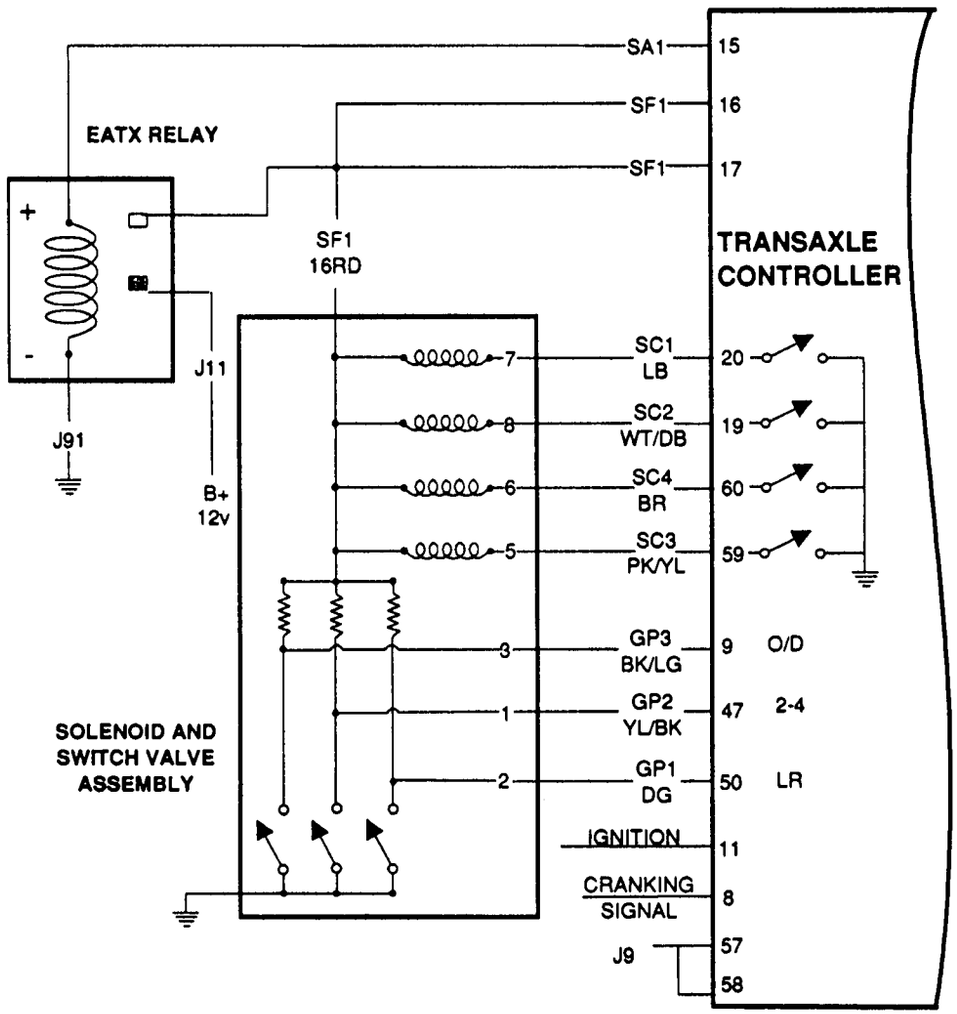
Conditions To Set Code: The pressure switch states are checked when:

- Engine has been running for at least a few seconds.
- Correct transaxle fluid level.
- Transaxle is in gear.
- Pressure switch mismatch.

When Checked: Continuously.

Effect: Transaxle limp-in (2nd gear).

Probable Causes: - Low/high fluid level in transaxle.
- Short/open in GP1, GP2, or GP3 circuits.
- Solenoid pack internal problem.
- Internal transaxle problem.
- 60-way connector problem (cavities 9, 47, and 50).
- Internal controller failure.



Code 28:	Check PRNDL Signal

Background: PRNDL and Neutral/Start (N/S) switches are used to:
1. Determine the Shift Lever Position (SLP).
2. Supply a ground to the Starter Relay in Park and Neutral only.
3. Supply a ground to the Backup Lamp Relay in Reverse only.

The controller reads the switch signals (NS1 and RL1 from Neutral/Start switch, NS2 and RL2 from PRNDL switch) according to the table below which includes two recognized temporary codes that occur while moving SLP.

Normal PRNDL & Neutral/Start Switch States

SLP	NS2	NS1	RL2	RL1
P	1	1	0	0
R	0	0	1	1
N	0	1	1	0
OD	0	0	0	1
D	0	0	1	0
L	1	0	0	0
T1	1	0	0	0
T2	0	0	0	0

0 = Switch is open
1 = Switch is closed

When an invalid code is seen, the controller tries to determine SLP through hydraulic interpretation (by energizing some solenoids and monitoring the pressure switch responses).

Conditions To Set Code: An invalid SLP code is seen for a few seconds.

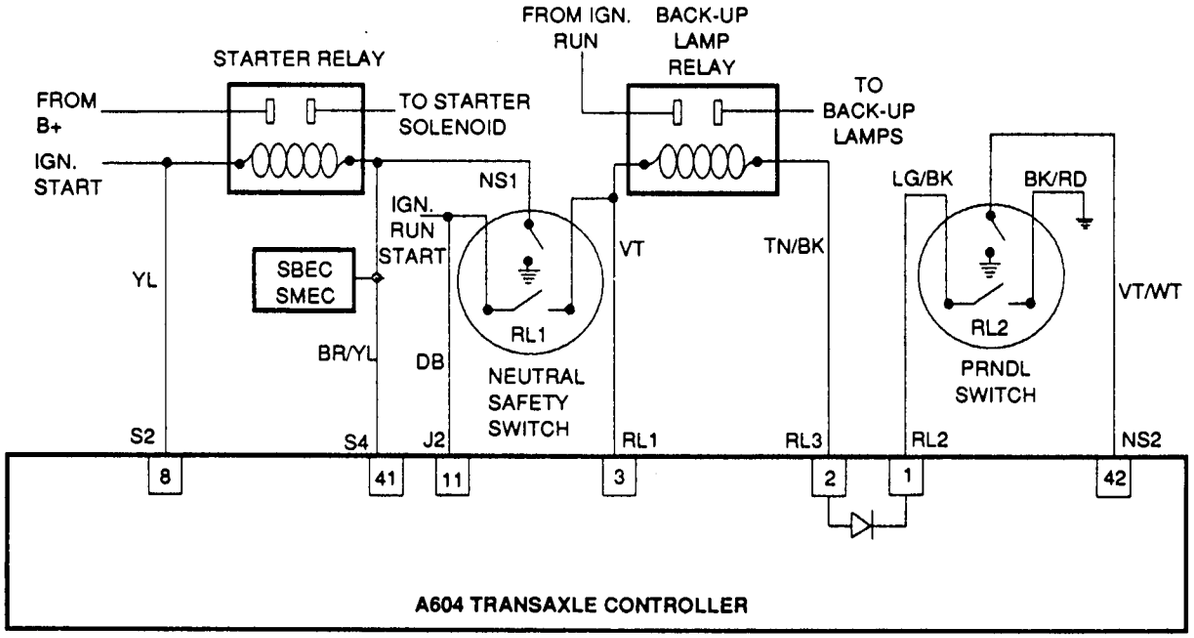
When Checked: Continuously.

Effect: No limp-in. However, valid but incorrect PRNDL and Neutral/Start signals, (eg. shift lever is in OD position where R code is being received), may result in other fault codes and possibly a limp-in.

This is why it is very important to verify the correctness of the SLP signals before diagnosing any problems.

Probable Causes:
- Open/short S4 (same as NS1), NS2, RL1, RL2 or RL3.
- Open J2 circuit between N/S switch and splice.
- Open J91 circuit between PRNDL switch and splice.
- Defective or disconnected N/S or PRNDL switch
- Defective or disconnected Backup Lamp Relay.
- 60-way connector problem (cavities 1,2,3,41,42).
- Internal controller failure.

NOTE: If transaxle has been serviced recently one of these codes may appear, erase and retest to verify fault code was not set from lack of fluid in passages after service.



Code 29:	Throttle Position Signal

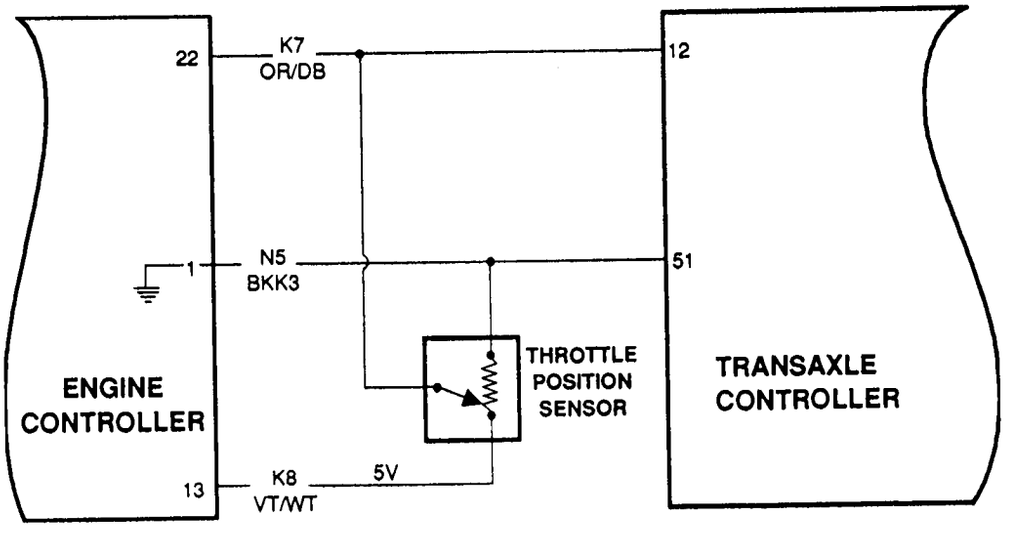
Background: The EATX controller receives the throttle signal (K7 circuit) and its ground (N5 circuit) from the Throttle Position Sensor (TPS). The TPS has a 5 volt pull up (K8 circuit) supplied by the engine controller. The throttle signal is checked for out-of-range as well as intermittency (excessive signal changes).

Conditions To Set Code:
- Throttle signal out-of range.

When Checked: Continuously.

Effect:
- No limp-in.
- A default throttle value is used.
- No lockup.
- No 4th gear.
- Limited shift schedule.
- Earlier coastdown shifts (ie. at higher speeds).

Probable Causes:
- Open/shorted K7 circuit.
- Open N5 circuit.
- Open K8 between TPS and engine controller.
- 60-way connector problem.
- Defective TPS.
- Defective engine controller.
- Internal controller failure.



Code 31 to 33: Hydraulic Pressure Switches

Code 31 OD Hydraulic Pressure Switch
Code 32 24 Hydraulic Pressure Switch
Code 33 OD/24 Hydraulic Pressure Switches

Background: The controller tests the OD and 24 pressure switches when they are off (ie. when the corresponding friction element is not applied). The test verifies that the switches are operational. The controller verifies that the switch closes when the corresponding element is applied. If a switch fails to respond, it is retested.

Conditions To Set Code:
- Transaxle is at normal operating temperature.
- Engine rpm is adequate to provide pump pressure.
- No speed or pressure switch mismatch exist.
- Transaxle is in gear:
  for OD --> in 1st or 2nd
  for 24 --> in 1st or 3rd.
- The pressure switch fails the test twice.

When Checked: After a shift is made, periodically thereafter.

Effect: Transaxle limp-in (2nd gear).

Probable Cause:
- Low/high transaxle fluid level.
- Solenoid pack problem.
- Internal transaxle problem.

Code 36:	**Fault Immediately After Shift (1991)**

Background: This code is not stored alone. It is stored if a speed error (codes 50 through 58) is detected immediately after a shift.

The existence of code 36 indicates a mechanical or hydraulic (non-electrical) related problems. It should be noted, however, that all mechanical problems don't necessarily result in code 36.

When this code exists, diagnosing the system should be based on the associated code and ONLY mechanical causes should be considered first.

Conditions To Set Code: Speed Error detected immediately after a shift.

When Checked: Speed Error code is stored.

Effect: Same as the associated code.

Probable Causes: Internal transaxle problem (refer to Speed Errors).

Code 37:	**Solenoid Switch Valve (Stuck in the LU position)**

Background: The Solenoid Switch Valve (SSV) controls the direction of the transmission fluid when the LR/LU solenoid is energized. SSV will be in the downshifted position in 1st gear, thus directing the fluid to the LR element. In 2nd, 3rd and 4th, the SSV will be in the upshifted position and directs the fluid into the Lockup Switch Valve which controls Torque Converter lockup.

When shifting into 1st gear, a special sequence is followed to insure SSV movement into the downshifted position. LR pressure switch is monitored to confirm SSV movement. If SSV movement is not confirmed, 2nd gear is substituted for 1st gear.

Conditions To Set Code:
- Transaxle is in normal operating temperature.
- Three unsuccessful attempts to shift into 1st (ie. SSV is stuck in the upshifted position).

When Checked: Prior to a shift into 1st.

Effect:
- No limp-in.
- No 1st gear (2nd gear is substituted).
- No lockup operation.

Note: Once the SSV fails to move to the downshifted position, the above effects will be noticed. However, the code will be set only after 3 attempt to shift into 1st gear.

Probable Causes: - Internal transaxle problem.

Code 38:	**Lockup Control**

Background: When in 2nd, 3rd or 4th gear, the torque converter can be locked when certain conditions are met. The LU piston is modulated (partial lock up) by modulating the LR/LU solenoid until the torque converter slip (difference between engine and turbine rpm) is within a desired range. Then the LR/LU solenoid is fully energized (full lockup).

Conditions To Set Code:
- Lock up conditions are met.
- The torque converter fails to lock up within the allowed time.
- Throttle less than 30 degrees.

Note: The general requirements for torque converter lock up are:
- Normal operating or high temperature.
- Brake is released.
- Throttle within proper range.
- No speed, pressure switch or throttle data error.
- Minimum vehicle speed which is a function of Shift Lever Position, gear, and engine temperature (eg. 46 mph with Shift Lever in OD and 4th gear).
- No Solenoid Switch Valve problem detected.

When Checked: When in partial lock up (PL).

Effect:
- No limp-in
- Lock up operation is inhibited.

Probable Causes:
- Low/high transaxle fluid.
- Internal transaxle problem.

Code 39:	**Gear ratio error for 89/90. For 91 code 39 has been broken down into codes 50-58. Refer to fault codes 50 through 58 for gear ratio fault code explanations and probable causes.**

Code 41 to 44: Solenoid Circuit Error

Code 41 LR Solenoid Circuit Error
Code 42 24 Solenoid Circuit Error
Code 43 OD Solenoid Circuit Error
Code 44 UD Solenoid Circuit Error

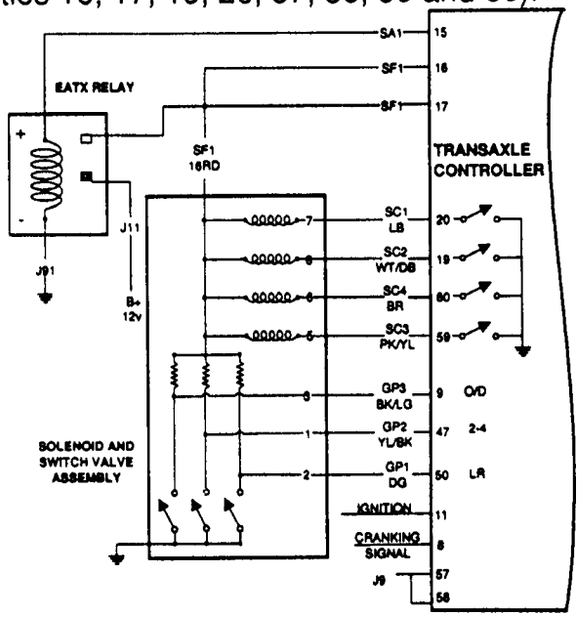
Background: Four solenoids are used to control the friction elements (clutches). The continuity of the solenoid circuits are tested periodically. Each solenoid is turned off and an inductive spike should be detected. When no spike is detected, the solenoid circuits are tested a second time to verify the failure. In addition to the periodic testing, solenoid circuits are tested when a speed or pressure switch circuit error occurs. In this case, one failure will result in setting the appropriate code.

Conditions To Set Code:
- Transaxle is in gear.
- Solenoid circuits fail the test.

When Checked:
- After reset, then periodically thereafter.
- When speed error or pressure switch mismatch is detected.

Effect: Transaxle limp-in (2nd gear).

Probable Causes:
- Open/shorted SC1, SC2, SC3 and SC4.
- Open J9 circuit.
- 8-way connector problem (cavities 4, 5, 6, 7, 8).
- 60-way connector problem (cavities 16, 17, 19, 20, 57, 58, 59 and 60).
- Solenoid Pack internal problem.
- Internal controller failure.



Code 45:	Internal A-604 Controller (EEPROM Memory Failure)

Background: The A-604 transmission system supports several engine models, each requiring different shift schedule and calibration constants. The EATX controller receives the engine model code from the engine controller and stores it in the microprocessor's EEPROM memory. Once the engine model code is established in the EEPROM memory, it is used thereafter to select the appropriate shift schedule and other calibrations.

The EEPROM memory location used for the engine model code is checked to verify its ability to hold data. If this EEPROM memory location fails the checks, the code is set.

Conditions To Set Code:
- A new transaxle controller is installed.
- C^2D bus is operational.
- The EEPROM memory location used to store engine model fails the checks (data read from it doesn't match data written to it).

When Checked: After a reset (ignition key turned to the RUN position or after cranking engine).

Effect: No limp-in.

Probable Causes: Internal controller failure.

Code 46: 3-4 Shift Abort

Background: The following table shows the clutches applied in each gear:

Gear	UD	OD	REV	24	LR
Park					X
Reverse			X		X
Neutral					X
1st	X				X
2nd	X			X	
3rd	X	X			
4th		X		X	

When shifting from third to fourth gear, a delayed speed change will indicate a problem in the UD hydraulic circuit. When this is detected, the 3-4 shift is aborted temporarily. The controller will reattempt the 3-4 shift. After three unsuccessful shift attempts, the code is set.

Conditions To Set Code: Three unsuccessful 3-4 shift attempts.

When Checked: Prior to the 3-4 shift.

Effect: No limp-in.

Probable Causes: Internal transaxle failure.

Code 47:	Solenoid Switch Valve (1991) (Stuck in the LR position)

Background: The solenoid switch valve (SSV) controls the direction of the transmission fluid when the LR/LU solenoid is energized. The SSV will be in the down shiftedposition in 1st gear, thus directing the fluid to the LR element. In 2nd, 3rd and 4th, it will be in the upshifted position and directs the fluid into the lockup switch valve which controls torque converter lockup.

When doing partial lockup (PL) or full lockup (FL), the LR pressure switch should indicate no pressure if SSV is in the LU position. If LR pressure switch indicates pressure for some time while in PL or FL, lockup operation is aborted and inhibited to avoid inadvertent application of the LR clutch.

Conditions To Set Code:
- In partial or full lock up.
- Two back to back occurrences of LR pressure build up.

When Checked: Continuously when doing partial or full lock up.

Effect: Transaxle limp-in (2nd gear).

Probable Causes:
- Internal transaxle problem.

Code 50 to 58: Speeds Error (1991)

Code 50	**Gear Ratio In Reverse**
Code 51	**Gear Ratio In 1st**
Code 52	**Gear Ratio In 2nd**
Code 53	**Gear Ratio In 3rd**
Code 54	**Gear Ratio In 4th**
Code 55	**Gear Ratio In Neutral (Will not be stored; reserved for future use).**
Code 56	**Turbine Speed Sensor**
Code 57	**Output Speed Sensor**
Code 58	**Speed Sensors Ground**

Note: Prior to 1991 MY, all these codes correspond to code 39.

Background: The A-604 system uses two speed sensors for turbine rpm (Nt) and output rpm (No). These inputs are very essential for the transaxle operation. Therefore the integrity of this data is verified through the following checks:

1. When in gear, if Nt/No doesn't compare to a known gear ratio, the corresponding in-gear fault code is set (50 through 55).
2. An excessive change in turbine or output speeds indicating signal intermittency will result in codes 56 and 57 respectively.
3. After a reset in neutral, observing a certain Nt/No ratio indicates a loss of the common speed sensors ground which sets code 58.

Note: When any of these codes are set immediately after a shift, code 36 will also be set which indicates mechanical hydraulic problems (see code 36).

Conditions To Set Code: Codes 50 through 54 - In-Gear Ratio Error Nt/No doesn't compare to the particular gear ratio.

Code 55 - In-Neutral Ratio Error Code will not be seen. (Reserved for future use.)

Code 56 - Turbine Speed Sensor An excessive change in turbine rpm (Nt) in any gear.

Code 57 - Output Speed Sensor An excessive change in output rpm (No) in any gear.

Code 58 - Sensors Ground After a reset in Neutral and Nt/No equals a certain ratio (turbine gear teeth / output gear teeth).

When Checked: Continuously when transaxle is in gear.

Effect: Transaxle limp-in (2nd gear).

Note: Errors in speed data are tolerated for some time before going into limp-in. However, once an error is detected, this sequence of events will be followed:

- Shifts are inhibited.
- Lock up operation is inhibited.
- Solenoid circuits are tested and, if they fail, are blamed for the speeds error.
- Limp-in (2nd gear).

Probable Causes:

	Speed Error Code									
Probable Causes	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	
Open/shorted SO1 circuit	X	X								
Defective Output Sensor	X	X					X			
Output Sensor Connector Problem	X	X					X			
60-way Connector Problem										
Cavity 13	X	X					X	X		
Cavity 14	X	X						X		
Cavity 52	X	X					X			
Open/shorted ST1 circuit	X	X								
Defective Turbine Sensor	X	X					X			
Turbine Sensor Connector Problem	X	X					X			
Open SG5 circuit (Sensors Ground)									X	
Internal Controller Failure	X	X					X	X	X	
Internal Transaxle Problem	X	X	X	X	X					

Note: Code 55 will not be seen in 1991. It is reserved for future use.

Code 60 to 63: Inadequate Element Volumes (1991)

Code 60 Inadequate LR Element Volume
Code 61 Inadequate 24 Element Volume
Code 62 Inadequate OD Element Volume
Code 63 Inadequate UD Element Volume

Background: The volumes of the transmission fluid needed to apply the friction elements are continuously monitored and learned for adaptive controls. As the friction material wears, the volume of fluid needed to apply the element increases. The following are the typical A-604 clutch volumes beyond which the clutches might be damaged:

LR: 35 to 83	OD: 75 to 150
24: 20 to 77	UD: 24 to 70

However, certain transaxle mechanical problems (such as broken return spring, out-of-position snap ring, etc..) can cause near-zero learned volumes which would result in setting the appropriate code.

Conditions To Set Code: The updated learned element volume is below a threshold value.

When Checked: When volumes are updated:

- LR: When doing a 21 or 31 shift.
- 24: When doing a 12 shift.
- OD: When doing a 23 shift.
- UD: When doing a 43 or 42 shift.

Effect: No limp-in.

Probable Causes: Internal transaxle problem.

DIAGNOSTIC CONNECTOR LOCATION

A light blue six-way connector with four male pins. This connector allows the DRBII access to the CCD (Chrysler Collision Detection) Bus. With the DRBII connected here, the technician can perform diagnostic tests on the following:

The Body Computer
The Security Alarm System (SAM)
The A-604 Transaxle
The Electronic Instrument Cluster
The Air Suspension System

Location:

On the C body, this connector is located inside the vehicle, under the dash, just to the right of the steering column.

On the Y body, this connector is located inside the vehicle, under the dash, to the left of the steering column.

On the A, G, J, P and S bodies, the connector is located inside the vehicle, under the dash, on the extreme left, behind the fuse access panel.