FORD AODE/4R70W
FALLS OUT OF 4TH INTO NEUTRAL, REPEAT INTERMEDIATE ROLLER CLUTCH FAILURE REPEAT OVERDRIVE BAND FAILURE FORWARD DRUM AND /OR STATOR FAILURE

COMPLAINT: Some 1992-1993 model year Crown Victoria and Grand Marquis vehicles may exhibit any or all of the repeat failures listed above. Usually the vehicle comes in with 20 to 40 thousand original miles, and after overhaul, you experience a repeat failure in 1500 to 2500 miles.

CAUSE: ATSG feels that the repeat intermediate roller clutch failures are because of excess RPM of the reverse drum after an overdrive band failure. When the PCM commands 4th gear the forward clutch releases and the overdrive band is applied. If for whatever reason the overdrive band is not capable of holding the reverse drum and the forward clutch is released, the reverse drum will be spinning approximately 3 times engine speed. Since the inter-mediate clutch is still applied, this puts the intermediate roller clutch into an environment that it is not capable of surviving. There can be MANY causes for the repeat failures, and we are going to list all problem areas known at the time of this printing.

CORRECTION: ***NUMBER (1)*** - There is now a New Design EPC Solenoid available under OEM part number F3AZ-7G383-A. ALWAYS replace the Electronic Pressure Control (EPC) Solenoid with the new design, and ensure that retaining bracket is secured in the proper position. The retaining bracket must be installed with the "Fork" of the bracket over the body of the EPC solenoid, and the bracket secured with valve body bolt in the location shown in Figure 1. The EPC Solenoid may have to be repositioned slight-ly for "Fork" of the bracket to engage in the proper position. Refer to Figure 1. Manual shaft lever must be removed from the case to replace the EPC Solenoid.

NUMBER (2) - There is now a New Design Shift Solenoid Assembly avail-able under OEM part number F4AZ-7G484-A. ALWAYS replace the Shift Solenoid Assembly with the new design, as shown in Figure 2.

NUMBER (3) - There is now available a New Design Reverse Drum and Intermediate Roller Clutch Assembly with the following revisions;

1. Improved spring design for the rollers.
2. Revised cam to improve oil distribution.
3. Grooved outer race to reduce vibration.
4. Elimination of the gap between the outer race and reverse drum for improved roller clutch cage support.
5. Reverse drum assembly now balanced in production.
6. Machining tolerances reduced on reverse drum.

ALWAYS replace the Reverse Drum and Intermediate Roller Clutch Asm, with the new design, OEM part number F4AZ-7D044-A, as shown in Figure 3. ATSG recommends installing the spiral snap ring from a TBM 125 or 440-T4 final drive, OEM part number 11501326, in place of the original snap ring for the intermediate roller clutch.

NUMBER (4) - There are now New Design Forward Clutch Sealing Rings, available under OEM part number F4AZ-7D019-A, that are plated. ALWAYS replace the Forward Clutch Sealing Rings with the new design, as shown in Figure 4.

NUMBER (5) - Some early models were built with a Forward Clutch Drum and/or Pump Support (Stator), with a"Rough" micro-finish where the sealing rings ride in the Pump Support. Simply replacing these parts with the updated OEM parts will eliminate these concerns. The New Design Forward Clutch Drum is available under OEM part number F3LY-7F207-A, and the New Design Pump Support available under OEM part number F4AZ-7A108-A (See Figure 5).

NUMBER (6) - Inspect the .020" bleed orifice located in the overdrive servo bore, in the location shown in Figure 6. This bleed orifice is difficult to see, but MUST be there, and MUST BE OPEN, for the over-drive band to apply properly. ALWAYS inspect this bleed orifice to ensure that it is free of all contamination, and open to the inside of the case (See Figure 6).

NUMBER (7) - The Manual Lever Position Switch is very susceptible to contamination from road water, snow, mud, and interference with the insulation material on the floor pan above it. Simply cut away enough of the insulation to provide sufficient clearance between the top of the MLPS and the floor pan. Inspect for bent pins in the connector. ALWAYS replace the MLPS with a revised service level MLPS that is more resistant to internal contamination, with the following part numbers;
1992 Models, (Crown Victoria and Grand Marquis) F2VY-7A247-A
1993 Models, (Crown Victoria and Grand Marquis) F3VY-7A247-A
DO NOT USE MLPS WITH DATE CODES OF 2521 THRU 2LO6.
The date code is stamped on the outer cover of the Manual Lever Position Switch, as shown in Figure 7.

NUMBER (8) - There is now a New Design Output Shaft Speed Sensor, available under OEM part number F4AZ-7H103-A (See Figure 8). ALWAYS replace the Output Shaft Speed Sensor with the new design. If you have tried to remove the geartrain before removing the output shaft speed sensor from the case, and "Whacked" the OSS with the gear-train, the OSS becomes a MANDATORY REPLACEMENT PART, even if it is the new design. The Output Shaft Speed Sensor MUST be removed from the case BEFORE any attempt to remove the geartrain from the case (See Figure 8).

NUMBER (9) - The vehicle wiring harness solenoid connector is very susceptible to contamination from road water, snow, and mud. It is located on the right rear of the transmission case. ALWAYS blow the vehicle wiring harness solenoid connector from both sides with compressed air, to remove any moisture that may have accum-ulated. Use a small amount of electrical grease, Ford part number F2AZ-19584-A, on the connector cavities to prevent corrosion.
THE GREASE MUST BE A NON-CONDUCTIVE GREASE!
If necessary, on the side of the vehicle wiring harness connector that the wires from the PCM enter the connector, use silicone sealer to prevent contamination from entering this area again.

NUMBER (10) - Use extra care when installing the O.D. servo piston to ensure that the return spring does not get "Cocked" in the bore. This would prevent the O.D. band from fully applying and burn the O.D. Band very rapidly.

NUMBER (11) - There are now available new calibration Powertrain Control Modules (PCM), for 1992 and 1993 models, which have revised shift strategy and revised TCC operating strategy.
YOU MUST MATCH THE CALIBRATION NUMBER TO THE PART NUMBER!
Calibration number is found on a white sticker usually located on the end of left door or on the left door jam on 2 door vehicles, and some-times on end of left rear door on 4 door vehicles. ALWAYS replace the PCM on any 1992 model vehicle, using the calibration numbers and part numbers listed below, IF IT HAS NOT BEEN UPDATED.

1992 Model, (Crown Victoria and Grand Marquis) 93-3-13
(Calibration 2-18F-ROO) F2PZ-12A650-RA
(Calibration 2-18G-ROO) F2PZ-12A650-SA
(Calibration 2-18H-ROO) F2PZ-12A650-TA
(Calibration 2-181-ROO) F2PZ-12A650-UA
(Calibration 2-18M-ROO) F2PZ-12A650-VA
(Calibration 2-18N-ROO) F2PZ-12A650-XA

ALWAYS replace the PCM on any 1993 model vehicle, using the calibration numbers and part numbers listed below, IF IT HAS NOT BEEN UPDATED. 1993 Model, (Crown Victoria and Grand Marquis) 93-12-11

(Calibration 3-18G-ROO)
(Calibration 3-18G-RlO) F3VY-12A650-HD
(Calibration 3-18H-ROO)
(Calibration 3-18H-RlO) F3VY-12A650-JC
(Calibration 3-181-ROO)
(Calibration 3-181-RlO) F3VY-12A650-KC
(Calibration 3-18M-ROO)
(Calibration 3-18M-RlO) F3VY-12A650-LD
(Calibration 3-18N-ROO)
(Calibration 3-18N-RlO) F3VY-12A650-MC

NUMBER (12) - ATSG has found that the bottom pan sump sometimes runs low on fluid at extended high vehicle speeds. ATSG recommends that the transmission be over-filled with enough fluid (Approx. 3/4 Qt.), to bring the fluid level up even with the pan rail, and make a new full mark on the dipstick.

NUMBER (13) - ALWAYS check and verify all line pressures, and that you have line pressure rise with throttle opening, BEFORE the vehicle is delivered back to the customer. Use the chart in Figure 9 for line pressure specifications, and the locations of the various pressure taps.

Electronic Pressure Control Solenoid (New Design) F3AZ-7G383-A
Shift Solenoid Assembly (New Design) F4AZ-7G484-A
Reverse Drum and Int. Roller Clutch (New Design) F4AZ-7D044-A
Forward Clutch Sealing Rings (New Design) F4AZ-7D019-A
Output Shaft Speed Sensor (New Design) F4AZ-7H103-A
Forward Clutch Drum Assembly (New Design) F3LY-7F207-A
Pump Support (Stator) (New Design) F4AZ-7A108-A
Manual Lever Position Switch (New Design)
1992 Crown Victoria and Grand Marquis F2VY-7A247-A
1993 Crown Victoria and Grand Marquis F3VY-7A247-A
Electrical Grease (Non-Conductive) F2AZ-19584-A

SHIFT SOLENOID ASSEMBLY

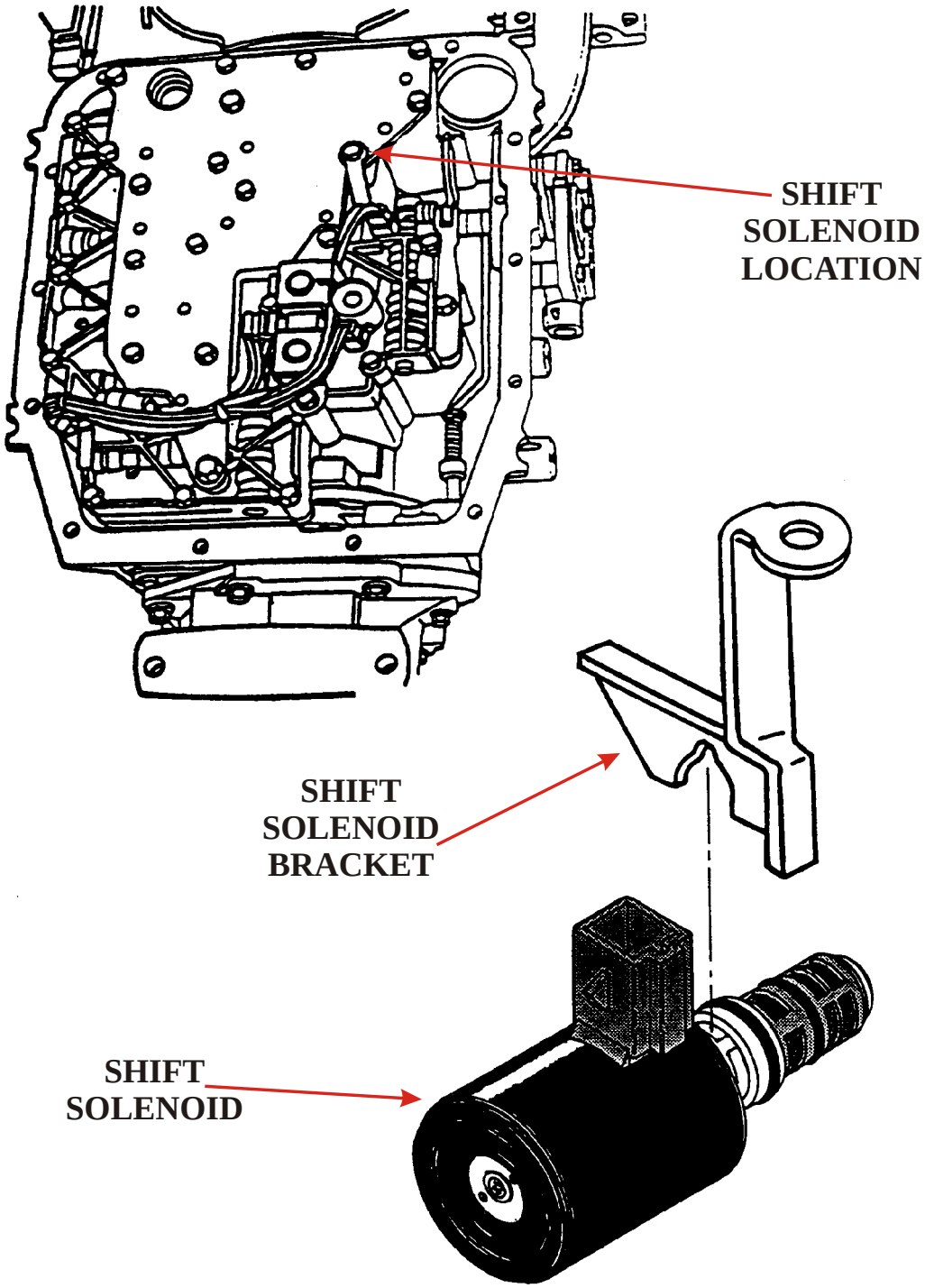


Figure 1

SHIFT SOLENOID ASSEMBLY

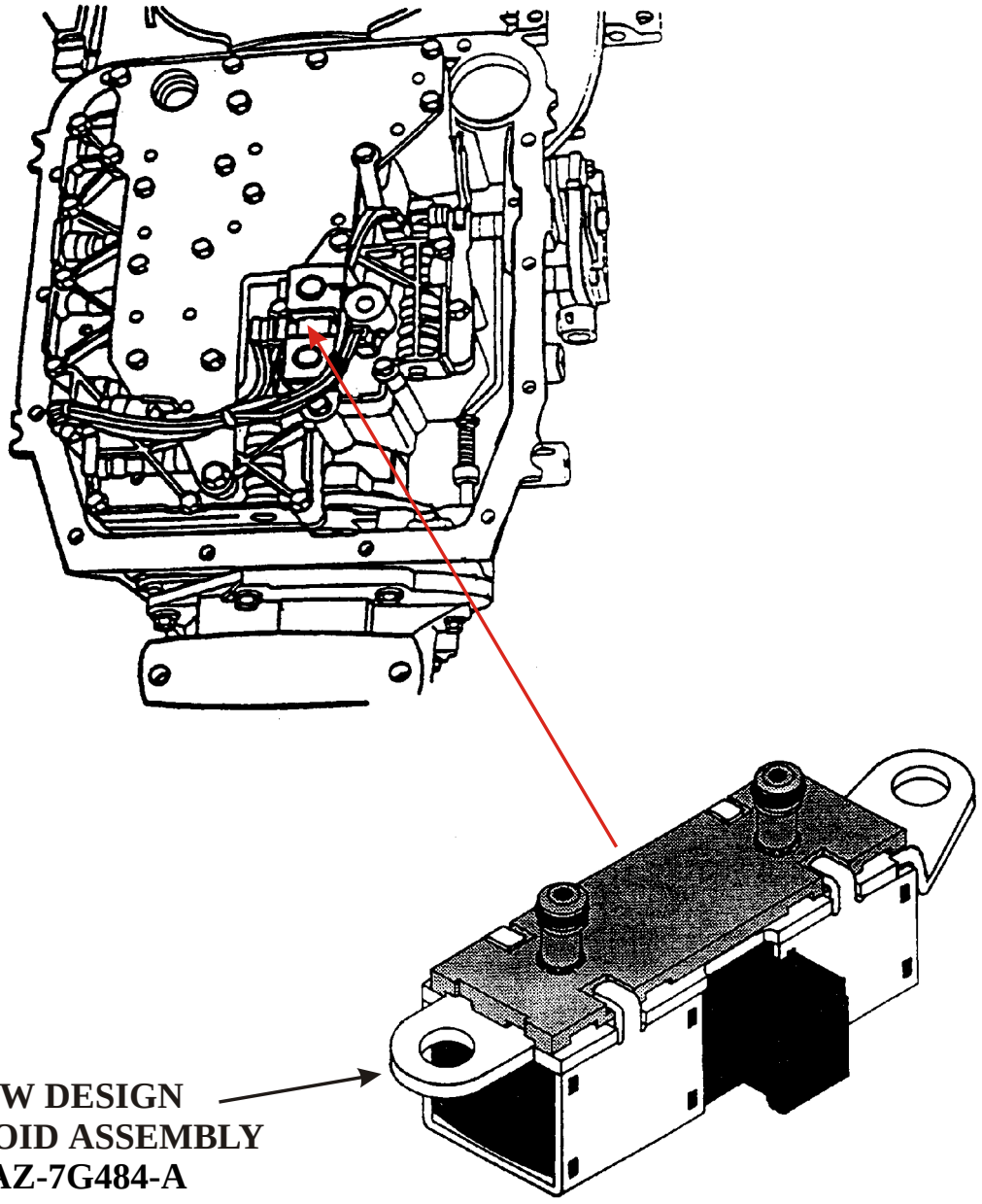


Figure 2

NEW DESIGN REVERSE DRUM AND INTERMEDIATE ROLLER CLUTCH ASSEMBLY

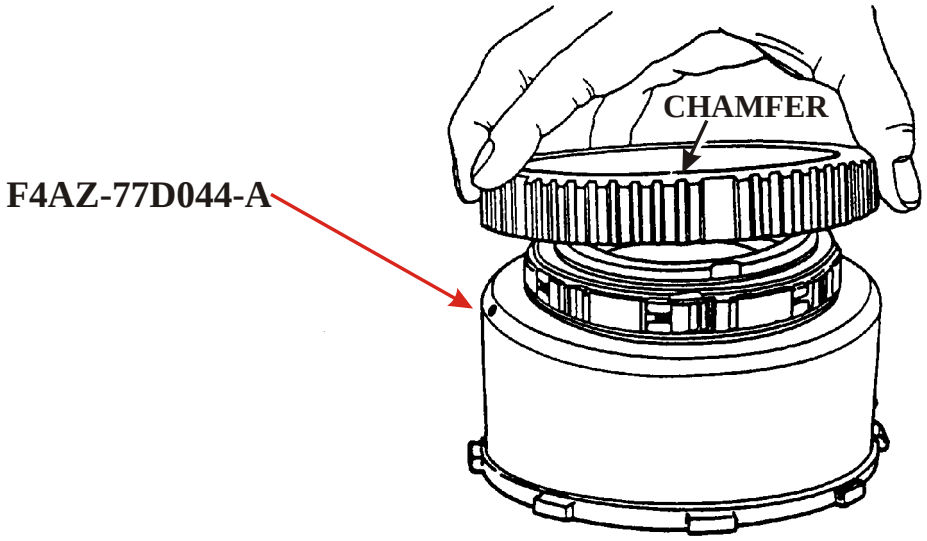


Figure 3

NEW DESIGN FORWARD CLUTCH SEALING RINGS

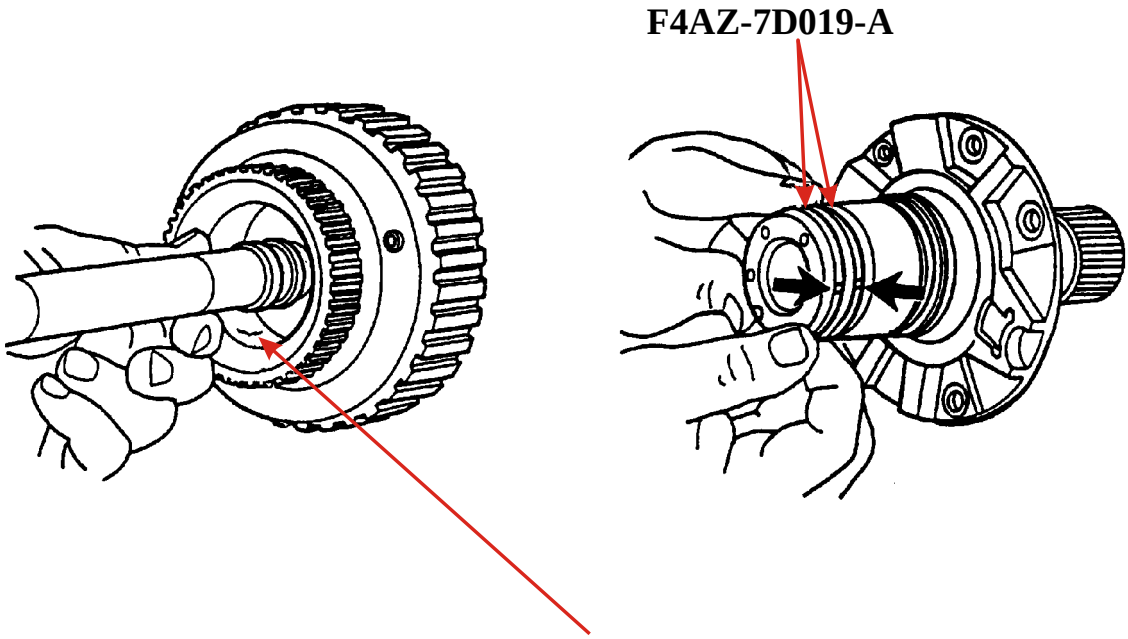


Figure 4

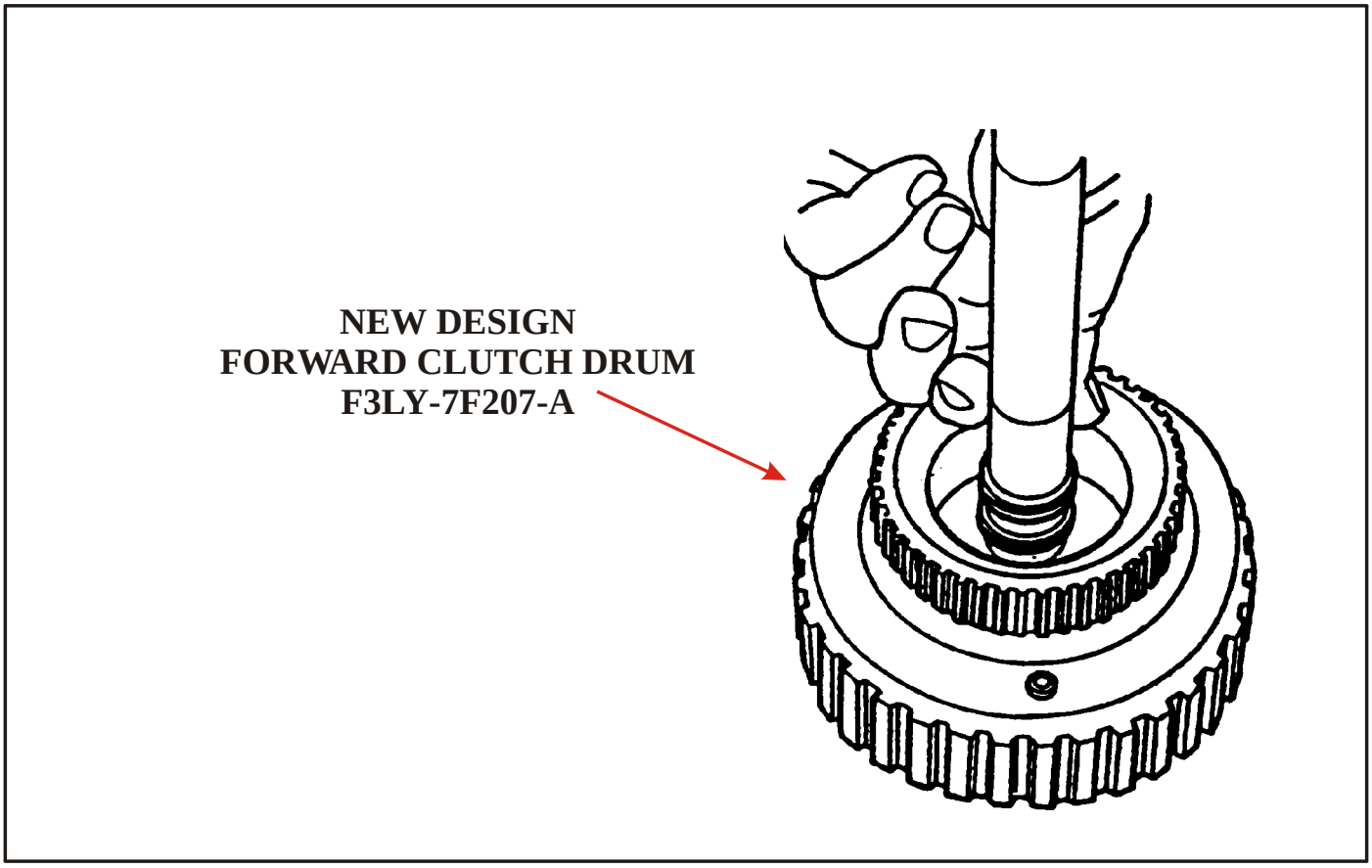


Figure 5

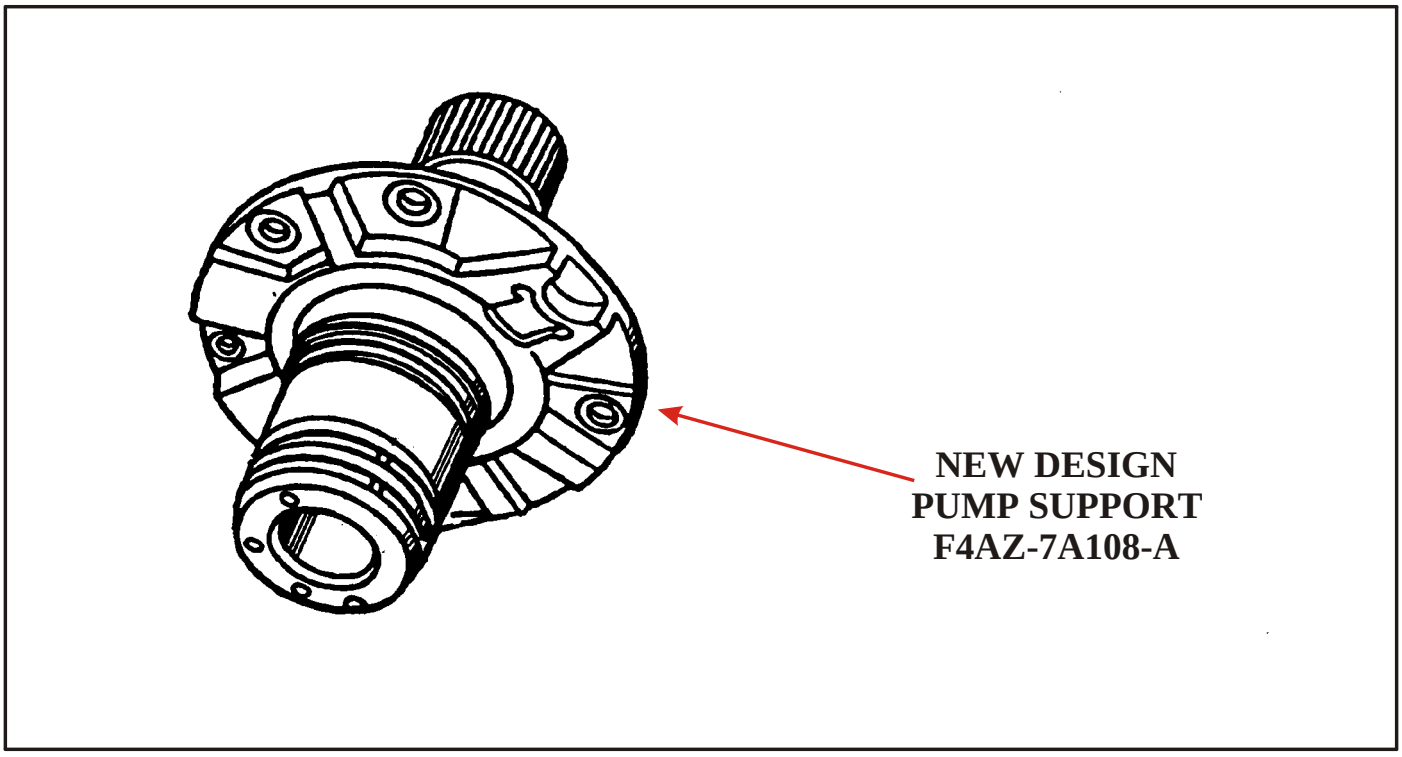
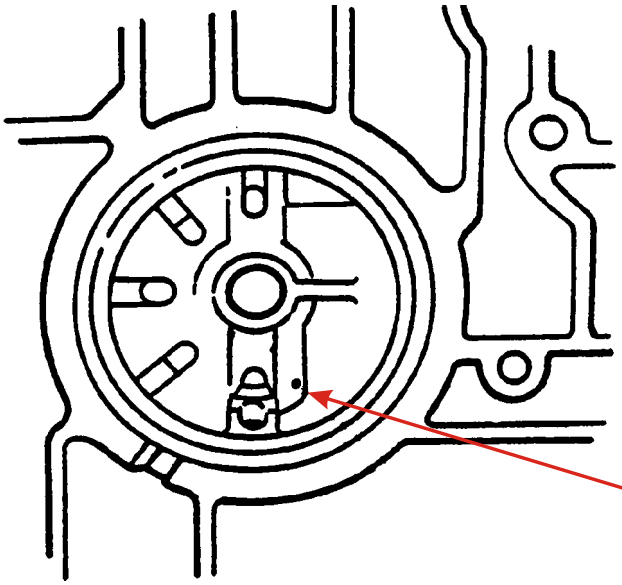
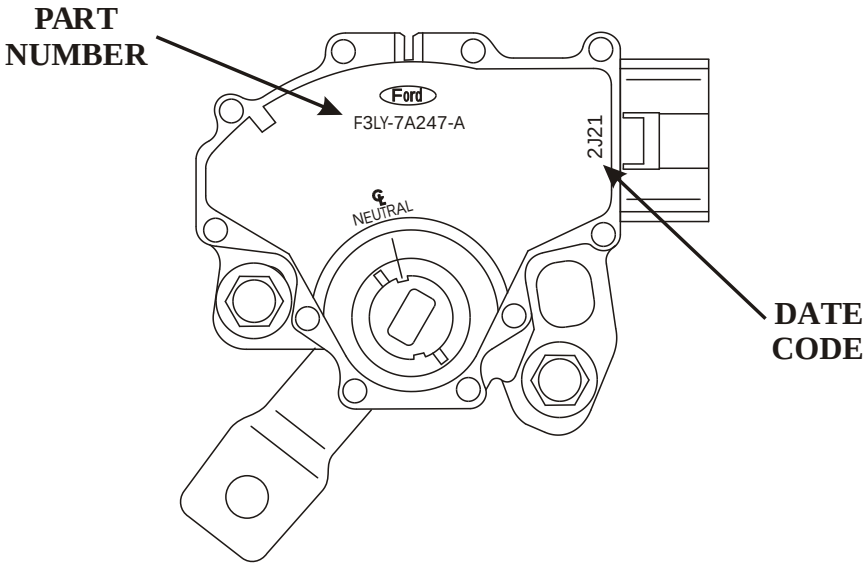


Figure 6



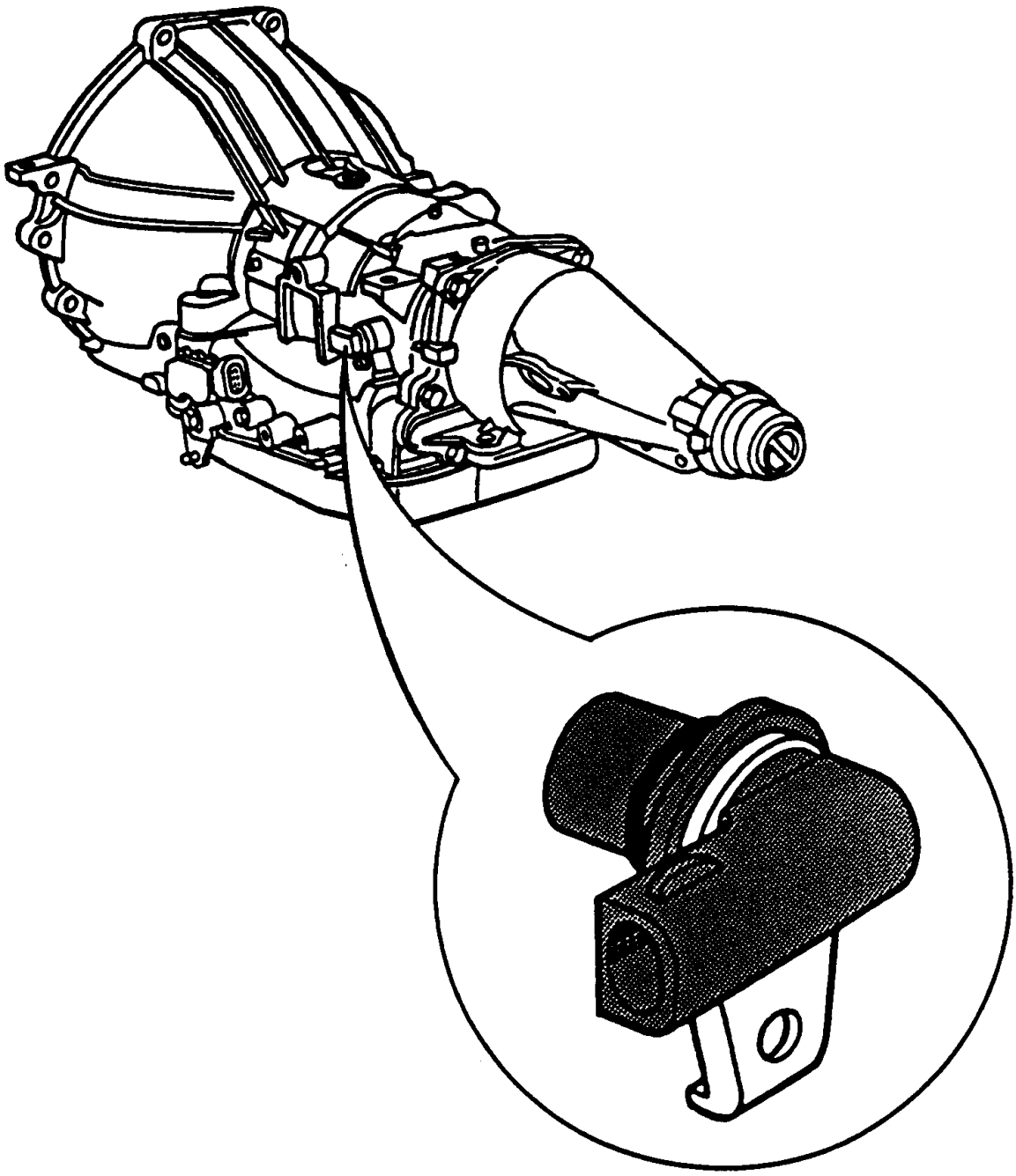
THIS .020” BLEED ORIFICE MUST BE FREE FROM CONTAMINATION

1992 CROWN VICTORIA AND GRAND MARQUIS F2VY-7A247-A
1993 CROWN VICTORIA AND GRAND MARQUIS F3VY-7A247-A



BUILD DATE CODE						
2 J 21 YEAR MONTH DAY	YEAR CODE	MONTH CODE			
	1991 = 1 1992 = 3 1993 = 3	JAN - A FEB - B MAR - C	APR - D MAY - E JUN - F	JUL - G AUG - H SEP - J	OCT - K NOV - L DEC - M
THERE IS NO LETTER “I” IN THE DATE CODE						

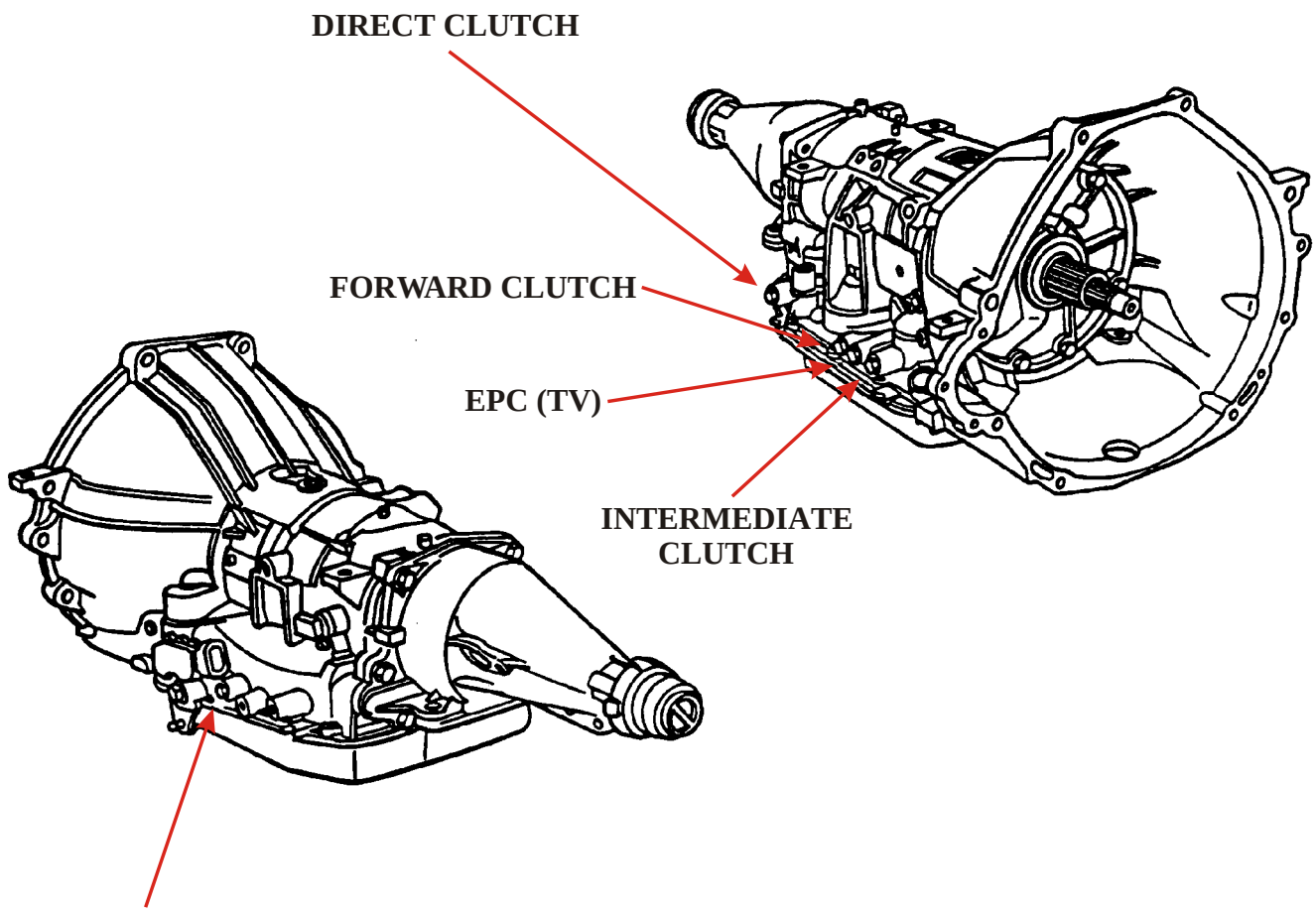
Figure 7



NEW DESIGN OUTPUT SHAFT SPEED SENSOR 74AZ-7H103-A

Figure 8

PRESSURE TAP LOCATIONS



RANGE	IDLE		STALL	
	EPC	LINE	EPC	LINE
P, N, OD, 2, 1	0 - 9	50 - 75	83 - 93	160 - 210
REVERSE	0 - 9	80 - 012	83 - 93	220 - 280

ALL PRESSURES IN PSI

Figure 9