

- **TRANSMISSION—4R70W—NEW DESIGN ENHANCEMENTS FOR 1998 VEHICLES**
- **TRANSMISSION—4R70W—NEW ONE-WAY CLUTCH (OWC) TO SERVICE AT THE INTERMEDIATE POSITION**

**Article No.
97-21-10**

FORD: 1998 CROWN VICTORIA, MUSTANG, ECONOLINE, EXPEDITION, EXPLORER, F-150, F-250 LD

LINCOLN: 1998 MARK VIII, TOWN CAR, NAVIGATOR

MERCURY: 1998 GRAND MARQUIS, MOUNTAINEER

ISSUE

Ford Motor Company would like to advise customers of the three new design enhancements in the 4R70W rear wheel drive transmission for 1998. These changes include:

- Using MERCON V® fluid
- A molded leadframe which replaces the bulkhead wiring harness
- The Mechanical Diode Intermediate One-Way Clutch (OWC)

ACTION

Refer to the following 1998 4R70W Transmission Upgrades for details.

1998 4R70W TRANSMISSION UPGRADES

MERCON V® fluid advantages:

- Reduces wear of the mechanical components
- Reduces vibration or shudder in the transmission torque converter
- Improves performance at cold ambient temperatures with lower cold viscosities

Molded leadframe (replaced internal wiring harness):

- The solenoid interconnect portion of the molded leadframe has posts and standoffs that contact the transmission pan and prevent electrical disconnection when the pan is bolted to the transmission
- The formed rigid structure of the molded leadframe system eliminates all concerns with pinched wires
- Transmission bulkhead connector pin assignments change due to molded leadframe (refer to the following Diagnostics)

DIAGNOSTICS

For 1998, the New Generation Star (NGS) Tester replaces the Rotunda Transmission Tester for most of the diagnostic procedures. Although the Rotunda Transmission Tester is still used in part of the Digital TR Sensor diagnosis, the NGS Tester will be the new transmission diagnostic tool. All of the pinpoint test steps have been revised using the NGS feature called Output State Control (OSC). OSC can be accessed through the Powertrain Control Module (PCM) Active Command Mode. OSC offers the technician a new level of diagnostic functionality, including:

- Functioning the main components of the transmission easily and quickly
- Providing accurate information to properly diagnose the transmission

OSC allows the technician to function the transmission when necessary. Here are two examples:

- OSC allows the technician to shift the transmission only when a gear change command is requested. If the technician commands 1st gear in OSC, the transmission will remain in 1st gear until the technician commands the next gear
- The technician can command a shift solenoid to turn on or off when performing an electrical circuit check

OSC has two modes of operation for transmission, the BENCH MODE and the DRIVE MODE.

NOTE

TO OPERATE OSC, THE DIGITAL TRANSMISSION RANGE (DTR) SENSOR AND THE VEHICLE SPEED SENSOR (VSS) MUST BE OPERATIONAL. NO DIAGNOSTIC TROUBLE

Article No. 97-21-10 Cont'd.

CODES (DTCs) RELATED TO THE DTR SENSOR OR THE VSS SENSOR CAN BE PRESENT.

Complete diagnostic procedures using OSC and NGS can be found in the appropriate Workshop Manual, Section 307-01. The OSC procedures must be followed exactly as written or the test is aborted. Read the entire procedure prior to beginning in order to perform the procedure properly.

Mechanical Diode Intermediate One-Way Clutch (OWC):

- Significantly higher torque capability for both normal torque applications and impact torque situations
- Significantly higher overrun speed capability
- Protection for overspeed failure
- Self-contained unit that is intended to eliminate concerns with imbalance failures of the roller OWC

Unlike the roller and sprag OWC, the Mechanical Diode OWC requires only one torque carrying device to be in position to take torque. This eliminates the common collapsed or broken spring failure of a roller OWC and the sprag rollover failure of a sprag OWC. There will now be only one OWC to service all AODE and 4R70W transmissions at the intermediate position.

Please continue to participate in advising the Livonia Transmission Plant of any issues you might be experiencing. Contact the Livonia Transmission Plant at (800) 551-0692 (8AM-4:30PM Eastern Time) if any problems arise with the 1998 4R70W transmission through December, 1997.

OTHER APPLICABLE ARTICLES: NONE
WARRANTY STATUS: INFORMATION ONLY
OASIS CODES: 504000, 590000