

- **VIBRATION—SHUDDER OR VIBRATION UNDER LIGHT TO MODERATE ACCELERATION ABOVE 56 KM/H (35 MPH) WHILE IN 3RD OR 4TH GEAR—VEHICLES EQUIPPED WITH AODE OR 4R70W TRANSMISSION**
- **TRANSMISSION—AODE—4R70W—SHUDDER OR VIBRATION UNDER LIGHT TO MODERATE ACCELERATION ABOVE 56 KM/H (35 MPH) WHILE IN 3RD OR 4TH GEAR**

**Article No.  
98-8-7**

**FORD:** 1992-1997 CROWN VICTORIA  
1994-1997 MUSTANG, THUNDERBIRD

**LINCOLN:** 1992-1997 TOWN CAR  
1993-1997 MARK VIII

**MERCURY:** 1992-1997 GRAND MARQUIS  
1994-1997 COUGAR

This TSB article is being republished in its entirety to add models and applicable service parts.

**CALIBRATION**

6-16F-R10, 6-16T-R10, 6-18F-R12, 6-18H-R12, 6-18I-R10, 6-18M-R12, 6-18N-R12, 6-18B-R11, 6-18J-R11, 6-18E-R11, 6-18P-R11, 6-18Q-R11, 6-18S-R11, 7-18B-R10, 7-18F-R10, 7-18H-R10, 7-18M-R10, 7-18N-R10, 7-18J-R10, 7-18E-R10, 7-18P-R10, 7-18Q-R10, 7-18S-R10, 7-18I-R11

**WARNING**

**THIS MODIFICATION IS AUTHORIZED ONLY FOR THE LISTED ENGINE(S). PERFORMING THIS MODIFICATION ON OTHER ENGINE CALIBRATIONS IS UNAUTHORIZED AND COULD CREATE LIABILITY UNDER APPLICABLE FEDERAL OR LOCAL LAWS.**

All prior calibration revision levels to the calibrations listed above are also included in this TSB.

**ISSUE**

Vehicles equipped with an AODE or 4R70W transmission (refer to Vehicle Application Chart) may experience a torque converter clutch shudder or vibration. This occurs under light to moderate acceleration above 56 km/h (35 mph) while in 3rd or 4th gear or on 3-4/4-3 shifts. This may be due to temperature related automatic transmission fluid breakdown.

**ACTION**

Perform normal diagnostics and refer to the following Service Procedure for required service.

VEHICLE APPLICATION		
Model Year	Vehicle	Equipment
1992-97	Town Car	Non-Trailer Tow
1992-97	Crown Victoria/Grand Marquis	Non-Police, Non-Trailer Tow
1992-94	Crown Victoria/Grand Marquis	Police, Trailer Tow
1995-97	Town Car/Crown Victoria/Grand Marquis	Police, Trailer Tow
1994-97	Mustang	
1994-97	Thunderbird/Cougar	
1993-97	Mark VIII	

**NOTE**

**IF QUESTIONS STILL ARISE AFTER REVIEWING THIS TSB ARTICLE, CALL THE LIVONIA TRANSMISSION HOTLINE AT (800) 821-5046. PLEASE HAVE THE VEHICLE IDENTIFICATION NUMBER (VIN), BUILD DATE, MILEAGE, AND PAST HISTORY AVAILABLE. HOTLINE HOURS ARE: 7:00AM TO 7:30PM EST.**

# Article No. 98-8-7 Cont'd.

## SERVICE PROCEDURE

Perform Steps 1-10 for listed model year vehicles operating in mostly stop-and-go traffic, areas of high ambient temperatures and humidity or the following states:

- Alabama
- Arkansas
- Florida
- Georgia
- Hawaii
- Louisiana
- Mississippi
- North Carolina
- Oklahoma
- South Carolina
- Tennessee
- Texas

Perform Steps 1-6 and 8-10 for vehicles that are not normally operated in stop-and-go traffic, areas of high ambient temperatures and humidity or the previously listed states. If you have questions regarding the vehicle operating parameters, call the Transmission Hotline.

1. Perform normal diagnosis and repair of all Diagnostic Trouble Codes (DTCs) prior to continuing with the following Steps.
2. Verify concern. Torque converter shudder occurs during 3rd or 4th gear under light to moderate acceleration. If vibration or shudder occurs only in 1st or 2nd gear, or when brakes are applied, then it is not torque converter shudder.

### COMMON VEHICLE CONCERNS THAT HAVE BEEN MISDIAGNOSED AS TORQUE CONVERTER CLUTCH SHUDDER

- Spark plugs - check for cracks, high resistance or broken insulator
- Fuel injector - filter may be plugged
- Plug wires
- Fuel contamination - poor engine performance
- EGR valve - valve may let in too much exhaust gas and cause engine to run lean
- Vacuum leak - engine will not get proper air/fuel (A/F) mixture
- MAP/MAF sensor - improper A/F mixture
- HEGO sensor - too rich/lean A/F mixture
- Fuel pressure - may be too low
- Engine mounts - loose/damaged mounts can cause vibration concerns
- Axle joints - check for vibration

## NOTE

**RESIDUAL FLUID IN THE SYSTEM (CONVERTER COOLERS AND LINES) WILL CAUSE SHUDDER TO RETURN.**

3. Drain all transmission fluid including the torque converter. Completely drain the cooler and cooler lines. Refer to the appropriate model/year Service Manual, Section 07-01, for more details.
4. Remove the transmission pan and clean the pan and magnet.
5. Inspect the transmission gasket and filter. Reuse the pan gasket and filter if they are not damaged.
6. Reinstall the transmission filter, pan gasket, and pan.
7. For vehicles operating in mostly stop-and-go traffic, areas of high ambient temperature and humidity or the previously listed states, install a new Transmission Fluid Cooler and Transmission Fluid Cooler Installation Kit (refer to the Transmission Fluid Cooler and Fluid Cooler Installation Kit Application Chart for correct part usage). Refer to the Instruction Sheet included with the installation kit for details.

TRANSMISSION FLUID COOLER INSTALLATION KIT APPLICATION		
Model	Years	Part Number
Crown Victoria/Grand Marquis - Base Only	1995-97	F8AZ-7K177-AA
Town Car - Base Only	1995-97	F8VZ-7K177-AA
Town Car/Crown Victoria/Grand Marquis - Police and Trailer Tow	1995-97	Kit Not Required
Crown Victoria/Grand Marquis - Base, Police and Trailer Tow	1992-94	F2AZ-7K177-AA
Town Car - Base Only	1992-94	F2VZ-7K177-AA
Mustang	1994-97	F4ZZ-7K177-AA
Thunderbird/Cougar	1994-97	F4SZ-7K177-AA
Mark VIII	1993-96	F3LZ-7K177-AA
Mark VIII	1997	F7LZ-7K177-AA

## NOTE

**FLUIDS LABELED MERCON®V ARE RECOMMENDED FOR SERVICING 1992 AND BEYOND AODE/4R70W TRANSMISSIONS WHICH ORIGINALLY SPECIFIED MERCON®. SERVICE**

**FLUID RECOMMENDATIONS FOR ALL OTHER  
FORD TRANSMISSIONS AND/OR POWER  
STEERING REMAINS UNCHANGED.**

8. Refill transmission with the proper amount of Motorcraft MERCON®V (XT-5-QM) or equivalent.
9. For all 1996-97 Town Car, Crown Victoria/Grand Marquis, Thunderbird/Cougar vehicles, check emissions decal to verify vehicle has the latest calibration. If it does not, reprogram the Powertrain Control Module (PCM) to the new calibration level using Service Bay Diagnostic System (SBDS) or New Generation Star (NGS) Tester with latest CD-ROM. Refer to the Recalibration Cross Reference Chart for the correct PCM calibration.
10. Road test vehicle at normal operating temperature to verify repair. If shudder is still present, vehicle may have to be driven up to 80 km (50 miles) for break-in. Torque converter should return to normal operation.

## Article No. 98-8-7 Cont'd.


RECALIBRATION CROSS REFERENCE				
Application	Old Calibration	Old Part Number (-12A650-)	New Calibration	New Part Number (-12A650-)
<b>1996 Crown Victoria/Grand Marquis</b>				
49S/Canada/High Altitude	6-18F-R05/R12	F6AF-AE	6-18F-R12	F6PF-DJA
49S/Canada/High Altitude	6-18H-R05/R12	F6AF-BE	6-18H-R12	F6PF-DKA
Mexico	6-18H-R05/R12	F6AF-KE	6-18H-R12	F6PF-DMA
California	6-18M-R05/R12	F6AF-DE	6-18M-R12	F6PF-DNA
California	6-18N-R05/R12	F6AF-EE	6-18N-R12	F6PF-DPA
Police	6-18I-R10	F6AF-CF	6-18I-R12	F6PF-DLA
<b>1997 Crown Victoria/Grand Marquis</b>				
49S/Canada/High Altitude	7-18F-R10	F7AF-BE	7-18F-R11	F7PF-JA
49S/Canada/High Altitude	7-18H-R10	F7AF-CE	7-18H-R11	F7PF-KA
Mexico	7-18H-R10	F7AF-DE	7-18H-R11	F7AF-DE
California	7-18M-R10	F7AP-FE	7-18M-R11	F7PF-MA
California	7-18N-R10	F7AP-GE	7-18N-R11	F7PF-NA
Police	7-18I-R11	F7AF-EF	7-18I-R12	F7PF-LA
<b>1996 Town Car</b>				
49S/Canada/High Altitude	6-18J-R05/R11	F6VF-BE	6-18J-R11	F6PF-DEA
49S/Canada/Mexico/High Altitude	6-18E-R05/R11	F6VF-AE	6-18E-R11	F6PF-DFA
California	6-18Q-R05/R11	F6VF-CE	6-18Q-R11	F6PF-DGA
California	6-18S-R05/R11	F6VF-DE	6-18S-R11	F6PF-DHA
<b>1997 Town Car</b>				
49S/Canada/High Altitude	7-18J-R10	F7VF-AD	7-18J-R11	F7VF-AE
49S/Canada/Mexico/High Altitude	7-18E-R10	F7VF-BD	7-18E-R11	F7VF-BE
California	7-18Q-R10	F7VF-CD	7-18Q-R11	F7VF-CE
California	7-18S-R10	F7VF-DD	7-18S-R11	F7VP-DE
<b>1996 3.8L Thunderbird/Cougar</b>				
49S/Canada/Mexico/High Altitude	6-16F-R10	F6SF-AE	6-16F-R10	F6SF-AF
California	6-16T-R10	F6SF-BE	6-16T-R10	F6SF-BF
<b>1997 3.8L Thunderbird/Cougar</b>				
49S/Canada/Mexico/High Altitude	6-16F-R10	F6SF-AE	7-16F-R10	F6SF-AF
California	6-16T-R10	F6SF-BE	7-16T-R10	F6SF-BF
<b>1996 4.6L Thunderbird/Cougar</b>				
49S/Canada/Mexico/High Altitude	6-18B-R11	F6SF-CD	6-18B-R11	F7SF-AB
California	6-18P-R11	F6SF-DD	6-18P-R11	F7SF-BB
<b>1997 4.6L Thunderbird/Cougar</b>				
49S/Canada/Mexico/High Altitude	7-18B-R10	F7SF-AA	7-18B-R11	F7SF-AB
California	7-18P-R10	F7SF-BA	7-18P-R11	F7SF-BB

**NOTE**

PCM REPLACEMENT IS NOT AUTHORIZED BY THIS TSB. REFER TO THE POWERTRAIN CONTROL/EMISSIONS DIAGNOSIS (PC/ED)

**SERVICE MANUAL FOR APPROPRIATE DIAGNOSTIC PROCEDURES IF PCM HARDWARE CONCERNS EXIST.**

Obtain an Authorized Modifications Decal (FPS 8262 - obtainable through DOES II, 25/pkg) and list the date, dealer number, and summary of modifications performed. Select a prominent place adjacent to the Vehicle Emission Control Information Decal suitable for installing the Authorized Modifications Decal. Clean the area, install the decal, and cover it with a clear plastic decal shield.

 <b>AUTHORIZED MODIFICATIONS</b>	
<b>THE FOLLOWING MODIFICATIONS HAVE BEEN MADE:</b>	
<i>Reprogrammed Powertrain Control Module (PCM) per TSB 98-8-7</i>	
<b>THESE MODIFICATIONS HAVE BEEN APPROVED, AS APPROPRIATE, BY EPA AND CARB.</b>	
<b>DEALER NUMBER:</b>	<b>DATE:</b>
<b>CHANGE AUTHORITY:</b>	
FPS 8262 9/78	FORD MOTOR COMPANY
PRINTED IN U.S.A.	

**OTHER APPLICABLE ARTICLES:** 95-23-4,  
96-25-17,  
97-10-6,  
97-5-11

**SUPERSEDES:** 98-4-10

**WARRANTY STATUS:** Eligible Under The Provisions Of Bumper To Bumper Warranty Coverage

<b>OPERATION</b>	<b>DESCRIPTION</b>	<b>TIME</b>
980807A	Drain And Refill Transmission, Torque Converter, Cooler And Lines, Road Test	1.2 Hrs.
980807B	Additional Time To Clean, Inspect, And Reuse Pan Gasket	0.1 Hr.
980807C	Additional Time To Reprogram Powertrain Control Module (PCM) - 1996-97 Crown Victoria/Grand Marquis, Town Car, Thunderbird/Cougar	0.2 Hr.
980807D	Additional Time To Install Transmission Fluid Cooler - 1995-97 Crown Victoria, Grand Marquis (Base Only)	1.3 Hrs.
980807E	Additional Time To Install Transmission Fluid Cooler - 1992-94 Crown Victoria, Grand Marquis (Base, Police, And Trailer Tow)	0.5 Hr.
980807G	Additional Time To Install Transmission Fluid Cooler - 1995-97 Town Car (Without Trailer Tow)	1.4 Hrs.
980807I	Additional Time To Install Transmission Fluid Cooler - 1992-94 Town Car (Without Trailer Tow)	0.8 Hr.
980807J	Additional Time To Install Transmission Fluid Cooler - 1993-96 Mark VIII	1.2 Hrs.
980807K	Additional Time To Install Transmission Fluid Cooler - 1994-97 Mustang	0.8 Hr.
980807L	Additional Time To Install Transmission Fluid Cooler - 1994-97 Thunderbird/Cougar	0.9 Hr.
980807M	Additional Time To Install Transmission Fluid Cooler - 1995-97 Town Car (With Trailer Tow)	0.6 Hr.

<b>PART NUMBER</b>	<b>PART NAME</b>
XT-5-QM	Motorcraft MERCON®V Automatic Transmission Fluid (ATF)
F8VZ-7A095-AA	Transmission Fluid Cooler (1992-97 Town Car, Crown Victoria/Grand Marquis)
F8AZ-7K177-AA	Installation Kit - Transmission Fluid Cooler (1995-97 Crown Victoria/Grand Marquis - Base Only)
F8VZ-7K177-AA	Installation Kit - Transmission Fluid Cooler (1995-97 Town Car - Base Only)
F2AZ-7K177-AA	Installation Kit - Transmission Fluid Cooler (1992-94 Crown Victoria/Grand Marquis - Base, Police And Trailer Tow)
F2VZ-7K177-AA	Installation Kit - Transmission Fluid Cooler (1992-94 Town Car - Base Only)
F4ZZ-7K177-AA	Installation Kit - Transmission Fluid Cooler (1994-97 Mustang)
F4SZ-7K177-AA	Installation Kit - Transmission Fluid Cooler (1994-97 Thunderbird/Cougar)
F3LZ-7K177-AA	Installation Kit - Transmission Fluid Cooler (1993-96 Mark VIII)
F7LZ-7K177-AA	Installation Kit - Transmission Fluid Cooler (1997 Mark VIII)
F8LZ-7A095-AA	Transmission Fluid Cooler (1994-97 Mustang, Thunderbird/Cougar, 1993-97 Mark VIII)
F5AZ-3D746-AA	Transmission Fluid Cooler (1995-97 Town Car, Crown Victoria/Grand Marquis - Police And Trailer Tow)

**Article No. 98-8-7 Cont'd.**

			<b>DEALER CODING</b>	<b>CONDITION</b>
980807N	Additional Time To Install Transmission Fluid Cooler - 1995-97 Crown Victoria/Grand Marquis (Police, Trailer Tow)	0.5 Hr.	BASIC PART NO. 7902	CODE 42
980807O	Additional Time To Install Transmission Fluid Cooler - 1997 Mark VIII	1.0 Hr.	<b>OASIS CODES:</b> 501000, 502000, 504000, 610000, 703000, 703200, 703300	