

2004 Ford Mustang V8-4.6L SOHC VIN X

Vehicle > Technical Service Bulletins

## A/T - TRANSMISSION COOLER FLUSH INFORMATION

General Service Bulletin (GSB): Transmission Cooler Flush

|   |  |
|---|--|
| General Service Bulletin (GSB):   | Transmission Cooler Flush  |
| GSB Overview:   | This bulletin provides the process for using the transmission flush machine and provides an application reference chart. |
| NOTE: This information is not intended to replace or supersede any warranty, parts and service policy, Work Shop Manual (WSM) procedures or technical training or wiring diagram information. |  |

**Equipment Requirements** \_\_\_\_\_ **pg. 2**

**Unacceptable Flush Methods** \_\_\_\_\_ **pg. 3**

**Service Procedure** \_\_\_\_\_ **pg. 4-5**

**Front Wheel Drive Cooler Flush Chart** \_\_\_\_\_ **pg. 6-7**

**Rear Wheel Drive Cooler Flush Chart** \_\_\_\_\_ **pg. 8-9**

# Transmission Cooler Flush

## Why flush transmission coolers?

The number one cause for repeat transmission repairs is contamination trapped in the transmission cooling system. After a repair is made, or a new transmission is installed, clean transmission fluid will break this contamination loose and deposit it into the transmission. For this reason it is important to always flush the transmission cooler and cooler lines using the **Rotunda Heated Transmission Cooler Line Flusher (Rotunda Tool number 222-00007) or equivalent**. This tool uses heated transmission fluid, as well as a pulsating action to break contaminants free and remove them from the system.

---

## EQUIPMENT REQUIREMENTS

The transmission cooling system (cooler and lines) **MUST** be flushed every time the transmission is overhauled or replaced in order to minimize the likelihood of repeat repairs. It is mandatory that proper equipment and procedures (Workshop Manual section 307-01) be followed when flushing coolers and lines.

### The flushing equipment used **MUST**:

- Maintain fluid at 140° F (60° C)
- Pulsate during cleaning.
- Have a GPM flow meter.
- Have twin magnetic filters.
- Have air purge capability before and after flushing.
- Rotunda tool 222-00007 is recommended for this procedure.

**Note** - If the Transmission Heated Cooler Line Flusher or equivalent is not available, install a new transmission fluid cooler and/or auxiliary fluid cooler.

# Transmission Cooler Flush

## Unacceptable Flush Methods

### NEVER USE:

- Equipment not meeting the requirements specified in this bulletin.
- Equipment that uses solvents to clean coolers.
- Equipment that is not heated to clean coolers.
- Aerosol Solvents to clean coolers.
- Shop Air as a stand alone flush method to clean coolers.

**Previous equipment to clean & flush coolers, lines and torque-converters used solvents to remove contamination.**

There are two issues with this method:

- Residual solvent contamination can cause damage to friction bonding materials within the transmission (Clutches, Bands and Torque Converter Clutch).
- Lack of fluid heating and agitation prevents this method from completely removing contamination from lines, in-radiator coolers and auxiliary coolers (OTA).

**Aerosol Solvents should never be used for several reasons.**

- They do not provide the volume necessary to remove heavy contaminants.
- They evaporate quickly and essentially leave contaminants behind.

**NOTE: Failure to use proper equipment or follow proper flush procedures may result in dealer charge back of repairs.**

# Transmission Cooler Flush

## Service Procedure

**Notice** - Before beginning this procedure, please determine if the cooler in the vehicle being serviced can be flushed. Refer to the charts on page 6 - 9 of this bulletin for information.

### Preparation -

- The in-line transmission thermal by-pass valve (if equipped) must be removed for flushing.
- If an in-line filter has been installed on the vehicle, it will need to be removed before performing the flush procedure.
- Some 2003-2007 vehicles equipped with a 5R110 Torqshift transmission may have a remote filter (aluminum housing) that can be disassembled and cleaned. The cooler lines must be disconnected prior to flushing. Once flushing is complete, install a new filter element.
- Some 2008 vehicles with a 5R110 Torqshift transmission have a black can filter mounted in the bellhousing. The cooler lines must be disconnected at the filter housing prior to beginning the flush procedure. The filter must be replaced after completing the flush.

1. Begin by identifying the cooler return line. Refer to the charts below.

| Rear Wheel Drive    | Return Line Location |
|---------------------|----------------------|
| 4R100               | Rear case fitting    |
| 4R75E/4R70W/AODE    | Top case fitting     |
| Torqshift (5R110)   | Rear case fitting    |
| 6R60/6R75/6R80      | Top case fitting     |
| 6HP26               | Top case fitting     |
| Torqshift 6 (6R140) | Top case fitting     |
| E4OD                | Rear case fitting    |
| 4R44/55E            | Top case fitting     |
| 5R55S/E/N/W         | Top case fitting     |

| Front Wheel Drive | Return Line Location          |
|-------------------|-------------------------------|
| 6F35              | Lower case fitting            |
| 6F50/55           | Rear case fitting             |
| CD4E              | Rear (Pump) end case fitting  |
| 4F27E             | Rear (Cover) end case fitting |
| FNR5              | Rear (Cover) end case fitting |
| Aisin AW21        | Top case fitting              |
| AXOD/AXODE        | Bottom case fitting           |
| AX4S/AX4N/4F50N   | Bottom case fitting           |

**Note:** Follow equipment instructions, air purge cooler lines and cooler prior to starting flushing procedure. Use the Air purge valve and fluid purge valve with clear hose located on the flush equipment.

# Transmission Cooler Flush

## Service Procedure (cont.)

2. Check and top off fluid level of the Transmission Heated Cooler Line Flusher tank with new, clean transmission fluid.
3. Allow the fluid in the flusher 15-30 minutes to heat up to 60° C (140° F) before using.
4. Install line adapter fittings to the transmission cooler lines.
5. Attach the flusher's blue line to the transmission return cooler line adapter fitting.
6. Attach the flusher's red line to the transmission outlet cooler line adapter fitting.
7. Located on the Flusher Machine is the fluid purge valve and hose. Purge the cooler and the cooler lines of contaminated fluid before starting the back flush procedure.
8. Allow the cooling system to back-flush for 15 minutes, and then flush the cooler in a forward/normal flow direction for an additional 10-15 minutes.

**Note** - The machine flow rate must be equal to or greater than the published cooler flow rates (View the flow meter located on the Transmission Heated Cooler Line Flusher). Refer to flushing instructions in the Workshop Manual.

**For Transmission Heated Cooler Line Flusher (222-00007) ordering information, contact Rotunda at 800-ROTUNDA (800-768-8632) or <https://rotunda.service-solutions.com>**

# Transmission Cooler Flush

| FWD Transaxles |                     |                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|---------------------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|                |                     | Cooler Flush or Replacement Guide |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                |                     | Model Year                        |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Transmission   | Vehicle             | 2000                              | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| 4F27E          | Focus               | F                                 | F    | F    | F    | F    | F    | F    | F    | F    | F    | F    | F    |      |      |      |      |
|                | Transit Connect     |                                   |      |      |      |      |      |      |      |      |      | F    | F    | F    | F    |      |      |
| 4F50N (AX4N)   | Freestar            |                                   |      |      |      | F    | F    | F    | F    | F    |      |      |      |      |      |      |      |
|                | Sable               | F                                 | F    | F    | F    | F    | F    |      |      |      |      |      |      |      |      |      |      |
|                | Taurus              | F                                 | F    | F    | F    | F    | F    | F    | F    |      |      |      |      |      |      |      |      |
|                | Windstar            |                                   | F    | F    | F    |      |      |      |      |      |      |      |      |      |      |      |      |
| 6F35           | Edge/MKX            |                                   |      |      |      |      |      |      |      |      |      |      |      | F    | F    | F    | F    |
|                | Escape              |                                   |      |      |      |      |      |      |      |      | F    | F    | F    | F    | F    | F    | F    |
|                | Explorer            |                                   |      |      |      |      |      |      |      |      |      |      |      | F    | F    | F    | F    |
|                | Fusion/MKZ          |                                   |      |      |      |      |      |      |      |      |      | F    | F    |      | F    | F    | F    |
|                | Mariner             |                                   |      |      |      |      |      |      |      |      | F    | F    | F    |      |      |      |      |
|                | Milan               |                                   |      |      |      |      |      |      |      |      |      | F    | F    |      |      |      |      |
|                | MKT                 |                                   |      |      |      |      |      |      |      |      |      |      |      |      | F    | F    | F    |
|                | Interceptor Sedan   |                                   |      |      |      |      |      |      |      |      |      |      |      |      | F    | F    | F    |
|                | Interceptor Utility |                                   |      |      |      |      |      |      |      |      |      |      |      |      | F    | F    | F    |
|                | Taurus              |                                   |      |      |      |      |      |      |      |      |      |      |      |      | F    | F    | F    |
|                | Transit Connect     |                                   |      |      |      |      |      |      |      |      |      |      |      |      |      | F    | F    |
| 6F50/55        | Edge/MKX            |                                   |      |      |      |      |      |      | F    | F    | F    | F    | F    | F    | F    | F    | F    |
|                | Explorer            |                                   |      |      |      |      |      |      |      |      |      |      | F    | F    | F    | F    | F    |
|                | Flex                |                                   |      |      |      |      |      |      |      |      | F    | F    | F    | F    | F    | F    | F    |
|                | MKS                 |                                   |      |      |      |      |      |      |      |      | F    | F    | F    | F    | F    | F    | F    |
|                | MKT                 |                                   |      |      |      |      |      |      |      |      |      | F    | F    | F    | F    | F    | F    |
|                | Interceptor Sedan   |                                   |      |      |      |      |      |      |      |      |      |      |      |      | F    | F    | F    |
|                | Interceptor-Utility |                                   |      |      |      |      |      |      |      |      |      |      |      |      | F    | F    | F    |
|                | Sable               |                                   |      |      |      |      |      |      |      | F    | F    |      |      |      |      |      |      |
|                | Taurus              |                                   |      |      |      |      |      |      |      | F    | F    | F    | F    | F    | F    | F    | F    |
|                | Taurus X            |                                   |      |      |      |      |      |      |      | F    | F    |      |      |      |      |      |      |

**Legend:**

|         |  |
|---------|--|
| F       | Flush cooler during transmission overhaul or replacement                     |
| R       | Replace cooler during transmission overhaul or replacement                   |
| R (OTA) | Replace OTA cooler (if equipped) during transmission overhaul or replacement |

# Transmission Cooler Flush

|              |   | FWD Transaxles                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|---|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|              |   | Cooler Flush or Replacement Guide |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|              |   | Model Year                        |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Transmission | Vehicle                                   | 2000                              | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| AX4S         | Sable/<br>Taurus                          | F                                 | F    | F    | F    |      |      |      |      |      |      |      |      |      |      |      |      |
|              | Windstar                                  | F                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| CD4E         | Cougar                                    | F                                 | F    | F    | F    |      |      |      |      |      |      |      |      |      |      |      |      |
|              | Escape                                    |                                   | F    | F    | F    | F    | F    | F    | F    | F    |      |      |      |      |      |      |      |
|              | Mariner                                   |                                   |      |      |      |      | F    | F    | F    | F    |      |      |      |      |      |      |      |
| CVT          | Five<br>Hundred/<br>Freestyle/<br>Montego |                                   |      |      |      |      | R    | R    | R    |      |      |      |      |      |      |      |      |
| AW21         | Five<br>Hundred/<br>Freestyle/<br>Montego |                                   |      |      |      |      | R    | R    | R    |      |      |      |      |      |      |      |      |
|              | Fusion                                    |                                   |      |      |      |      |      | F    | F    | F    | F    | F    | F    | F    |      |      |      |
|              | Milan                                     |                                   |      |      |      |      |      | F    | F    | F    | F    | F    | F    |      |      |      |      |
|              | MKZ                                       |                                   |      |      |      |      |      |      | F    | F    | F    | F    | F    | F    |      |      |      |
|              | Zephyr                                    |                                   |      |      |      |      |      | F    |      |      |      |      |      |      |      |      |      |
| FNR5         | Fusion                                    |                                   |      |      |      |      |      | F    | F    | F    | F    |      |      |      |      |      |      |
|              | Milan                                     |                                   |      |      |      |      |      | F    | F    | F    | F    |      |      |      |      |      |      |
|              | MKZ                                       |                                   |      |      |      |      |      | F    | F    | F    | F    |      |      |      |      |      |      |
|              | Zephyr                                    |                                   |      |      |      |      |      | F    |      |      |      |      |      |      |      |      |      |
| HF35         | C-MAX<br>Hybrid/<br>Energi                |                                   |      |      |      |      |      |      |      |      |      |      |      |      | F    | F    | F    |
|              | Fusion<br>Hybrid                          |                                   |      |      |      |      |      |      |      |      |      |      |      |      | F    | F    | F    |
|              | MKZ                                       |                                   |      |      |      |      |      |      |      |      |      |      |      |      | F    | F    | F    |

**Legend:**

|         |  |
|---------|--|
| F       | Flush cooler during transmission overhaul or replacement                     |
| R       | Replace cooler during transmission overhaul or replacement                   |
| R (OTA) | Replace OTA cooler (If equipped) during transmission overhaul or replacement |

Note: CVT remanufactured transmissions include the cooler specific to the vehicle application in the packaging.



# Transmission Cooler Flush

|                  |                              | RWD Transmissions                 |         |         |         |         |         |      |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------|-----------------------------------|---------|---------|---------|---------|---------|------|------|------|------|------|------|------|------|------|------|
|                  |                              | Cooler Flush or Replacement Guide |         |         |         |         |         |      |      |      |      |      |      |      |      |      |      |
|                  |                              | Model Year                        |         |         |         |         |         |      |      |      |      |      |      |      |      |      |      |
| Transmission     | Vehicle                      | 2000                              | 2001    | 2002    | 2003    | 2004    | 2005    | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| 4R100            | Blackwood                    |                                   |         | R (OTA) | R (OTA) |         |         |      |      |      |      |      |      |      |      |      |      |
|                  | E-150                        | F                                 | F       | F       | F       | F       |         |      |      |      |      |      |      |      |      |      |      |
|                  | E250/350/450                 | F                                 | F       | F       | F       | F       |         |      |      |      |      |      |      |      |      |      |      |
|                  | Excursion                    | R (OTA)                           | R (OTA) | R (OTA) | R (OTA) | R (OTA) | R (OTA) |      |      |      |      |      |      |      |      |      |      |
|                  | Expedition/Navigator         | F                                 | F       | F       | F       | F       |         |      |      |      |      |      |      |      |      |      |      |
|                  | F-150                        | F                                 | F       | F       | F       | F       |         |      |      |      |      |      |      |      |      |      |      |
|                  | F250/350/450                 | R (OTA)                           | R (OTA) | R (OTA) | R (OTA) | R (OTA) |         |      |      |      |      |      |      |      |      |      |      |
| 4R44/ 5R44/ 5R55 | Explorer/Mountaineer         | R                                 | R       | R       | R       | R       | R       | R    | F    | F    | F    | F    |      |      |      |      |      |
|                  | Explorer Sport               |                                   | R       | R       | R       |         |         |      |      |      |      |      |      |      |      |      |      |
|                  | Explorer Sport-Trac          |                                   | R       | R       | R       | R       | R       |      |      |      |      |      |      |      |      |      |      |
|                  | Ranger                       | R                                 | R       | R       | R       | R       | R       | R    | F    | F    | F    | F    | F    |      |      |      |      |
| 4R70/75          | Crown Victoria/Grand Marquis | R                                 | R       | R       | R       | R       | R       | R    | R    | R    | R    | R    | R    |      |      |      |      |
|                  | E-150                        | F                                 | F       | F       | F       | F       | F       | F    | F    | F    | F    | F    | F    | F    | F    | F    |      |
|                  | E250/350/450                 | F                                 | F       | F       | F       | F       | F       | F    | F    | F    | F    | F    | F    | F    | F    | F    |      |
|                  | Expedition                   | F                                 | F       | F       | F       | F       | F       | F    |      |      |      |      |      |      |      |      |      |
|                  | Explorer/Mountaineer         | F                                 | F       |         |         |         |         |      |      |      |      |      |      |      |      |      |      |
|                  | F-150                        | F                                 | F       | F       | F       | F       | F       | F    | F    | F    |      |      |      |      |      |      |      |
|                  | Marauder                     |                                   |         |         | R       | R       |         |      |      |      |      |      |      |      |      |      |      |
|                  | Mustang                      | F                                 | F       | F       | F       | F       |         |      |      |      |      |      |      |      |      |      |      |
|                  | Navigator                    | F                                 | F       | F       | F       | F       | F       | F    |      |      |      |      |      |      |      |      |      |
|                  | Town Car                     | R                                 | R       | R       | R       | R       | R       | R    | R    | R    | R    | R    | R    |      |      |      |      |

**Legend:**

|         |  |
|---------|--|
| F       | Flush cooler during transmission overhaul or replacement                     |
| R       | Replace cooler during transmission overhaul or replacement                   |
| R (OTA) | Replace OTA cooler (If equipped) during transmission overhaul or replacement |

Cooler Flush GSB

December 2014

Version 2.0

Page 8

# Transmission Cooler Flush

|              |                                   | RWD Transmissions                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|-----------------------------------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|              |                                   | Cooler Flush or Replacement Guide |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|              |                                   | Model Year                        |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Transmission | Vehicle                           | 2000                              | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| 5R110        | E-150                             |                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|              | E-250/350/450                     |                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|              | Excursion                         |                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|              | F-Series Super Duty               |                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|              | Low Cab Forward                   |                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 5R55N/W/S    | Aviator                           |                                   |      |      | R    | R    | R    |      |      |      |      |      |      |      |      |      |      |
|              | Explorer/Mountaineer              |                                   |      | R    | R    | R    | R    | R    | R    | R    | R    | F    |      |      |      |      |      |
|              | Explorer Sport-Trac               |                                   |      |      |      |      |      |      | F    | F    | F    | F    |      |      |      |      |      |
|              | Mustang                           |                                   |      |      |      |      | R    | R    | R    | R    | R    | F    |      |      |      |      |      |
|              | Lincoln LS                        | F                                 | F    | F    | R    | R    | R    | R    |      |      |      |      |      |      |      |      |      |
|              | Thunderbird                       |                                   |      | F    | R    | R    | R    |      |      |      |      |      |      |      |      |      |      |
| 6HP26        | Expedition/Navigator              |                                   |      |      |      |      | R    | R    | R    | R    |      |      |      |      |      |      |      |
| 6R140        | F-Series Super Duty 6.7L Diesel   |                                   |      |      |      |      |      |      |      |      |      |      | F    | F    | F    | F    | F    |
|              | F-Series Super Duty 6.2L Gasoline |                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 6R60/75/80   | Expedition/Navigator              |                                   |      |      |      |      |      |      | R    | R    | F    | F    | F    | F    | F    | F    | F    |
|              | Explorer/Mountaineer              |                                   |      |      |      |      |      | R    | R    | R    | F    | F    |      |      |      |      |      |
|              | Explorer Sport-Trac               |                                   |      |      |      |      |      |      | R    | R    | F    | F    |      |      |      |      |      |
|              | F-150                             |                                   |      |      |      |      |      |      |      |      | F    | F    | F    | F    | F    | F    | F    |
|              | Mustang                           |                                   |      |      |      |      |      |      |      |      |      |      | F    | F    | F    | F    | F    |
|              | Transit                           |                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

## Legend:

- F** Flush cooler during transmission overhaul or replacement
- R** Replace cooler during transmission overhaul or replacement
- R (OTA)** Replace OTA cooler (If equipped) during transmission overhaul or replacement
- Replace OTA cooler during transmission replacement, flush cooling system during transmission overhaul**
- Replace OTA cooler (If equipped) during transmission overhaul or replacement- Gasoline engine vehicles only**

**NOTE:** 5R110 remanufactured transmissions include the cooler specific to the vehicle application in the packaging.

Cooler Flush GSB

December 2014

Version 2.0

Page 9

## GSB Overview:

This bulletin provides the process for using the transmission flush machine and provides an application reference chart.

## NOTE:

This information is not intended to replace or supersede any warranty, parts and service policy, Work Shop Manual (WSM) procedures or technical training or wiring diagram information.

**NOTE:** The information in Technical Service Bulletins is intended for use by trained, professional technicians with the knowledge, tools, and equipment to do the job properly and safely. It informs these technicians of conditions that may occur on some vehicles, or provides information that could assist in proper vehicle service. The procedures should not be performed by "do-it-yourselfers". Do not assume that a condition described affects your car or truck. Contact a Ford, Lincoln, or Mercury dealership to determine whether the Bulletin applies to your vehicle.

## Disclaimer