General Service Bulletin (GSB):	Engine Oil Maintenance Inspection
GSB Overview:	This bulletin provides sample engine teardown images. Examples are intended to assist the dealership in determining if maintenance records should be reviewed.
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.	

GSB Topics Covered Include:

- Proper Maintenance Examples
- Marginal Maintenance Examples
- Improper Maintenance Examples
- Oil filter Identification

Engine Oil Maintenance Inspection

Proper Maintenance - Based on Upper End Evaluation

1999 Ford F-150, 4.2L V6 2-valve

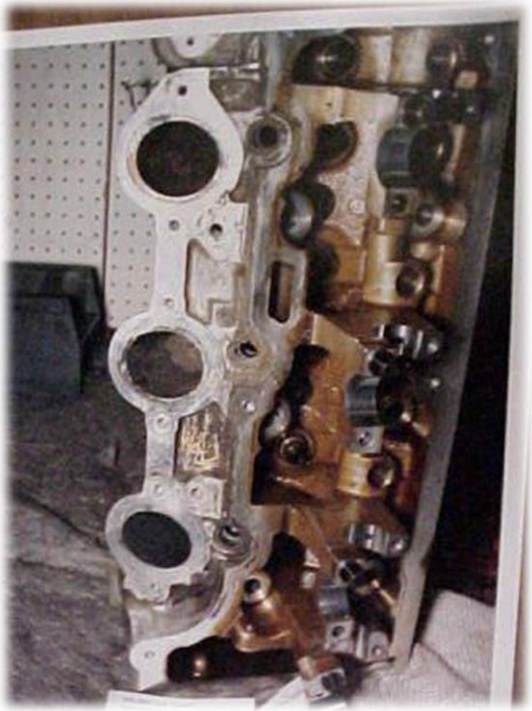
100,000 miles

- No sludge accumulation on valvetrain
- Oil is still clean and not thick.

If failure occurred, the failure would be warrantable.

Engine Oil Maintenance Inspection

Proper Oil Change Maintenance



1997 Ford Explorer 4.0L SOHC

169,999 miles

Proper maintenance performed every 3,000-5,000 miles

Items to note in photos:

- No sludge accumulation on valvetrain.
- Underside of valve cover does not have any buildup of sludge.

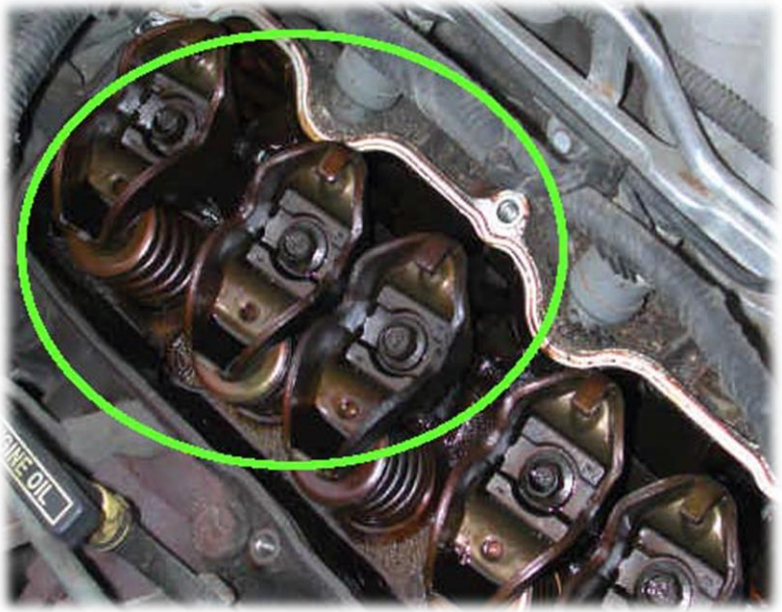
Engine Oil Maintenance Inspection

Proper Oil Change Maintenance

1994 Ford Taurus, 3.0L V6 2-valve

190,000 miles

- Oil and filter changes performed every 3000-5000 miles



Items to note in photos:

- No sludge accumulation on valvetrain
- Oil is still clean after 3000 miles and not thick
- Underside of valve cover does not have buildup of sludge

Engine Oil Maintenance Inspection

Marginal Maintenance – Varnish on Upper and Lower Engine

2000 Ford F-150, 5.4L SOHC

86,000 miles

- No sludge accumulation on valvetrain
- Oil is starting to varnish. The oil change intervals should be evaluated for timeliness.
- The level of varnish in the engine can be scraped with a fingernail.

If failure occurred, the failure could be warrantable.

Maintenance records should be evaluated prior to repairs.

Engine Oil Maintenance Inspection

Proper Oil Change Maintenance

- 1997 Ford Crown Victoria, 4.6L SOHC
- **140,000 miles**
- Regular maintenance performed with Motorcraft oil and filters

Improper Oil Change Maintenance

- 2001 Ford Expedition, 5.4L SOHC
- **27,304 miles**
- No maintenance history available
- Heavy oil sludge on valvetrain.

Any lubrication-related condition should not be covered by warranty or ESP.

Engine Oil Maintenance Inspection

Improper Oil Change Maintenance- No Record of Service

2012 Ford F-150, 3.5L GTDI.
15,899 miles
No maintenance history
Items to note in photos:

- Heavy oil sludge build-up on cam caps, head and VCT Solenoids from lack of oil changes.
- Heavy oil sludge build-up on underside of valve cover

Any lubrication-related condition should not be covered by warranty or ESP.

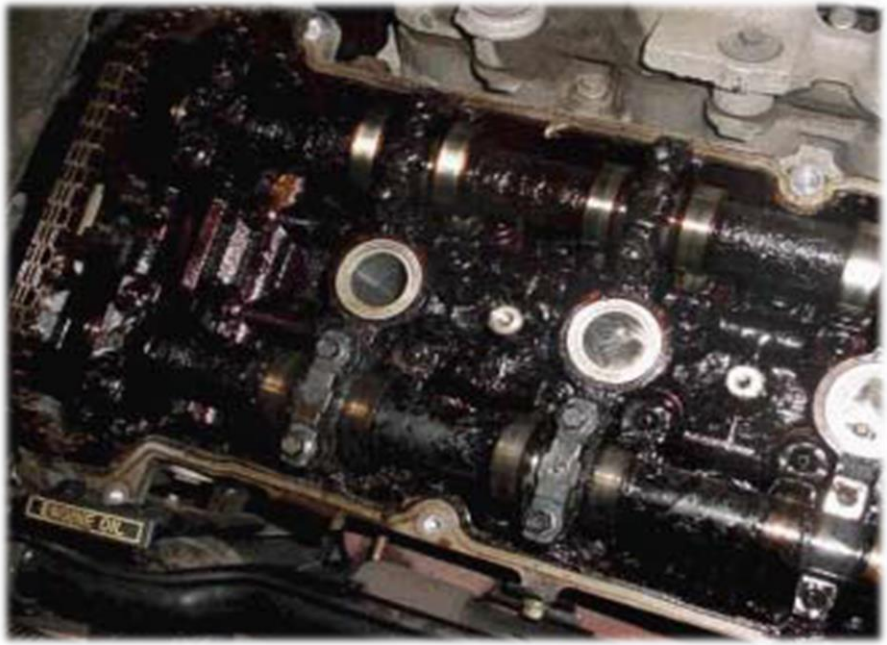
Engine Oil Maintenance Inspection

Improper Maintenance - Lower End Failure and Sludge

1999 Ford Taurus, 3.0L DOHC V6
46,000 miles

- Sludge accumulation on valvetrain.
- Oil is thick and broken down.
- The bearing shown has significant signs of lubrication restriction from sludge accumulation.

This failure is not warrantable.



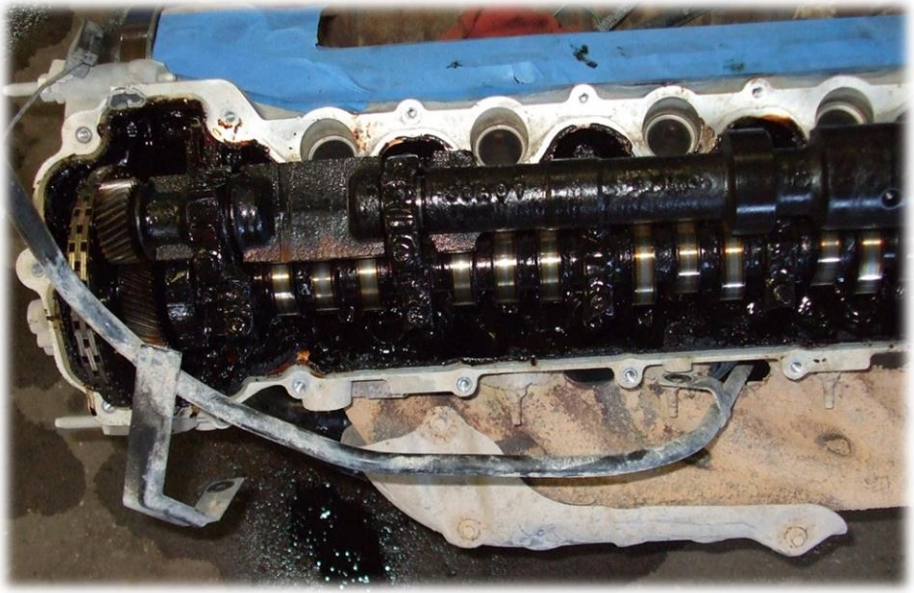
Engine Oil Maintenance Inspection

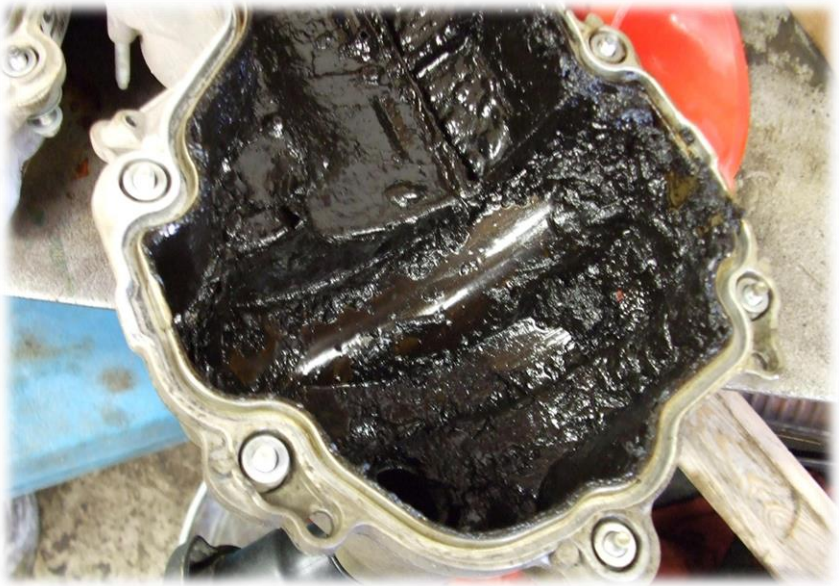
Improper Maintenance- Insufficient Records and Sludge

2008 F-250, 6.8L 3V

58,251 miles

- 3 oil changes performed





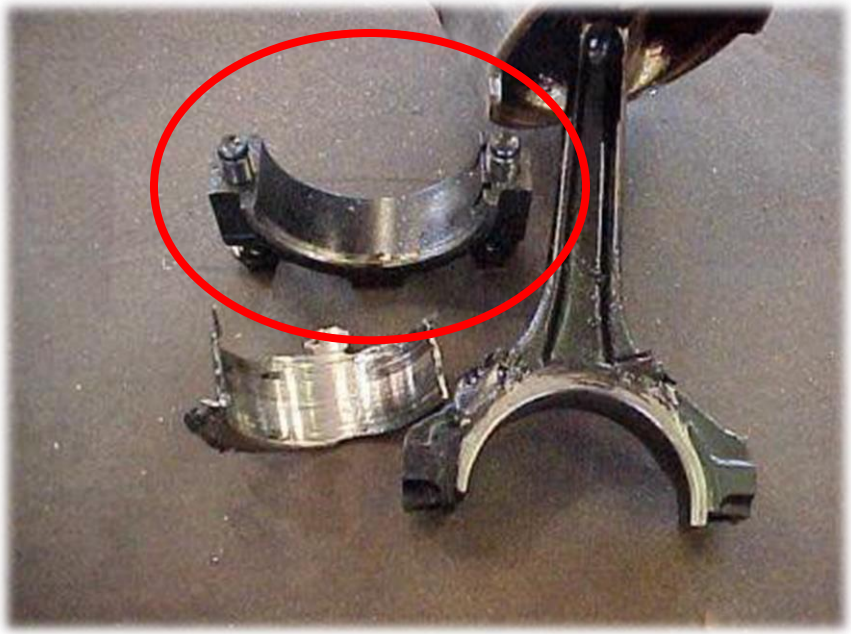
- Heavy oil sludge on valvetrain
- Heavy oil sludge on underside of valve cover

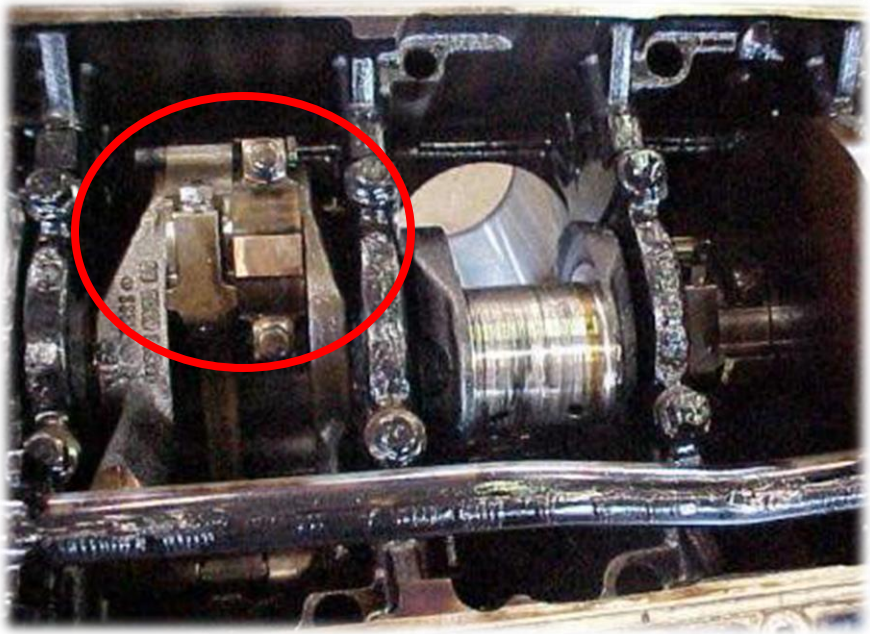
Any lubrication related condition should not be covered by warranty or ESP.

Note: Positive Crankcase Ventilation (PCV) system malfunctions may cause oil sludge if left uncorrected.

Engine Oil Maintenance Inspection

Improper Maintenance - Damage from Oil Starvation





Oil starvation/lack of maintenance caused the failure in the photos above. Note the bearing damage and bluing of the bearing cap from heat in the first photo, and the lack of oil sludge on the connecting rod bearing caps in the second photograph. This damage may occur when the oil deteriorates and burns (causing low level) and loses its lubrication qualities. The bearings may be damaged because they no longer have oil cooling and lubricating them which generates heat (evidenced by bluing/discoloration).

Engine Oil Maintenance Inspection

Original vs. Service Oil Filter Identification

Figure – 1: White lettering in a black box

Figure – 2: Black can with white lettering

Figure – 3: Global language w/ line drawings

Figure – 4: Black Square

Figure – 5: White Motorcraft lettering in a red box

Figure – 6: All red Motorcraft lettering

- **Original factory-installed oil filter identifiers:**
  - All-white filter can with "FoMoCo" in white lettering in a black box. (Figure - 1)
  - All-black filter can with white "FoMoCo" lettering (6.7L OEM and authorized remanufactured engines). (Figure - 2)
  - All-white filter can , line drawn labels with global language and "FoMoCo" in black. (Figure -3)
  - All-white filter can with a black or red square. (Figure - 4)
- **Service replacement oil filter identifiers:**
  - White "Motorcraft" lettering inside a red box (Figure - 5)
  - Red "Motorcraft" lettering with other labeling in black. (FL-1995) (Figure - 6)