Technical Service Bulletin

Mazda North American Operations
Irvine, CA 92618-2922

Subject:	**Bulletin No.:** 01-008/17
ROUGH IDLE WITH CHECK ENGINE LIGHT ON AND DTC P0015 / P0524	**Last Issued:** 07/24/2017

BULLETIN NOTES

This bulletin supersedes the previously issued bulletin(s) listed below. The changes are noted below in Red beside the change bars.

Previous TSBs:	Date(s) Issued:
01-009/16	06/16/16, 04/13/16 and 03/07/16
01-023/15	12/22/15, 11/03/15 and 09/28/15
01-009/14	09/13/14 and 04/07/14
01-003/13	01/16/15
01-028/12	12/18/12

APPLICABLE MODEL(S)/VINS

2014-2018 Mazda3	2016-2018 CX-3	2012-2013 Mazda3 SKYACTIV
2014-2018 Mazda6	2013-2016 CX-5	

DESCRIPTION

Some vehicles may experience a rough idle with the check engine light on and DTC P0015 / P0524 stored in memory.

- P0015:00 - Exhaust CMP timing over-retarded
- P0524:00 - Engine oil pressure too low

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This is caused by a drop in engine oil pressure due to a piece of foreign object stuck on the oil pump pressure relief valve or oil control valve (OCV). The temporary entry of the foreign object triggers a check engine light on, but rough idle will not be produced until a later time.

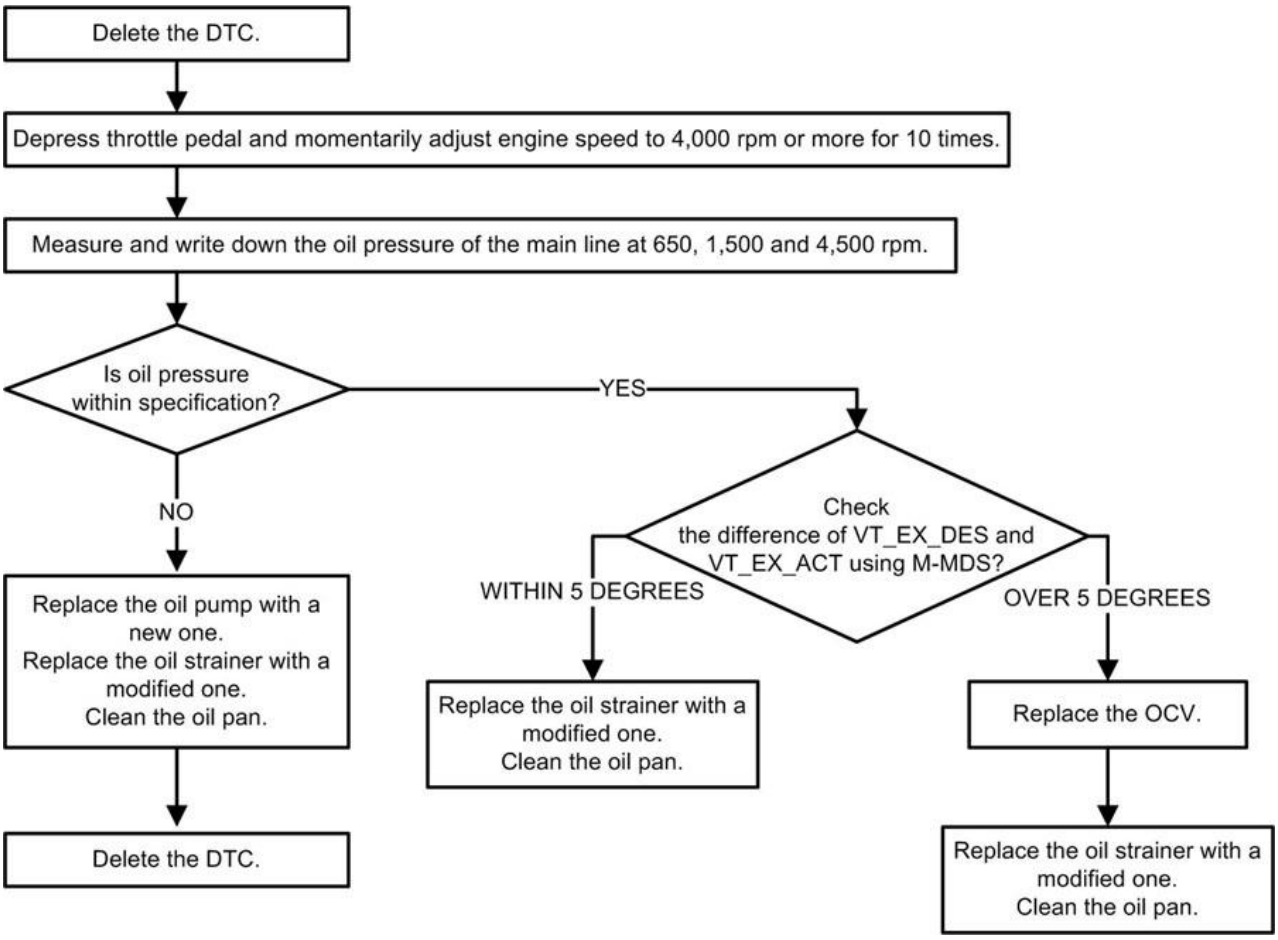
Customers having this concern should have their vehicle repaired using the following flow charts and repair procedure.

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FLOWCHARTS

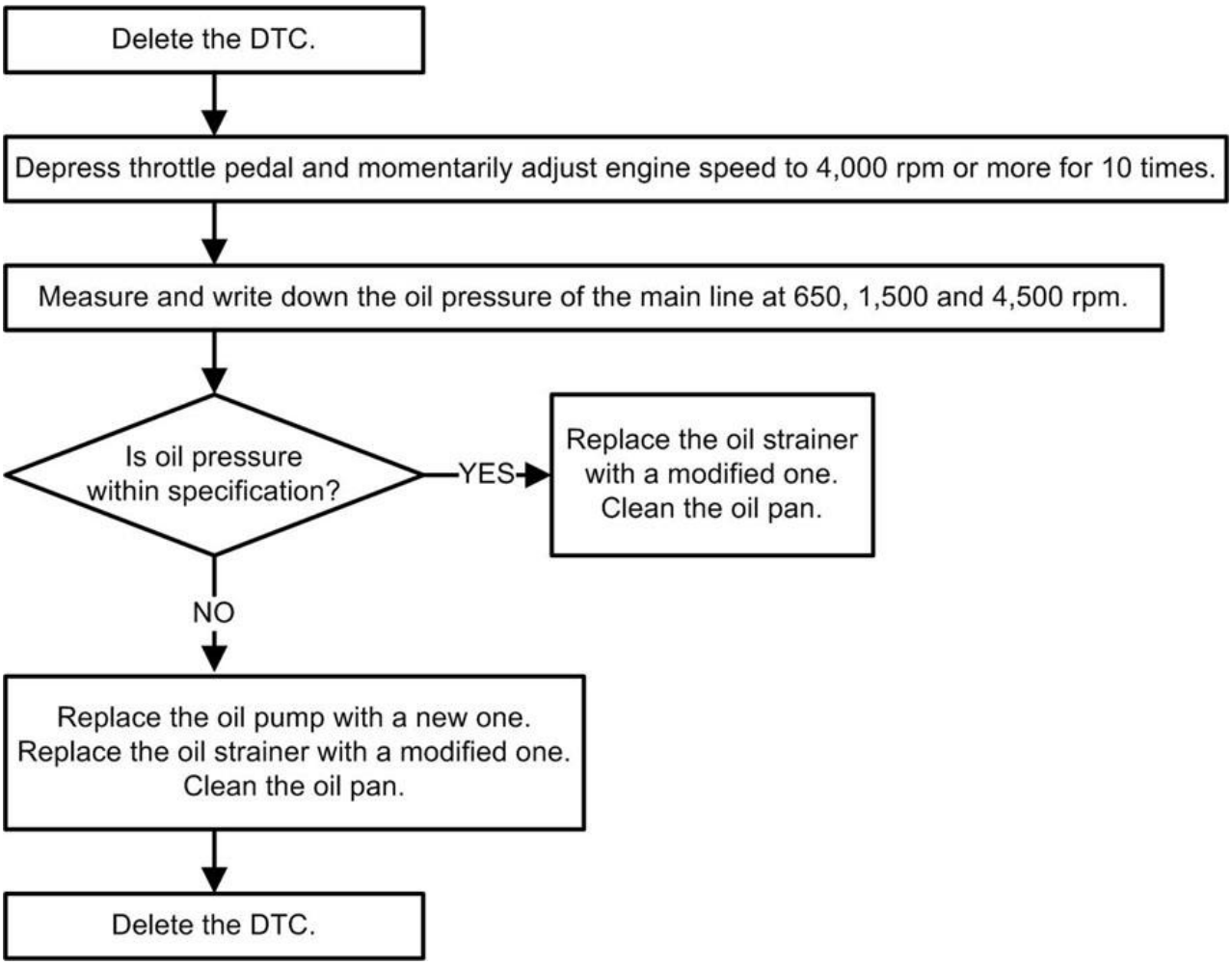
Only P0015 is stored:



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P0015 and P0524 or only P0524 is stored:



REPAIR PROCEDURE

1. Verify customer concern.

Only P0015 is stored:

2. Delete the DTC.
3. Depress the throttle pedal and momentarily adjust the engine speed to 4,000 rpm or more for 10 times.
4. Measure the main line oil pressure at 650 rpm, 1,500 rpm and 4,500 rpm according to the instructions on MGSS (OIL PRESSURE INSPECTION).

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a. Connect M-MDS to monitor ECT, OIL_TEMP and RPM.

b. Start the engine and turn off all electrical loads such as A/C, headlights, etc.

c. Warm up the engine until ECT and OIL_TEMP reach 90 °C (194 °F) or more.

d. Wait until RPM on IDS becomes stable at 650 rpm. DO NOT read RPM on the tachometer in the vehicle.

e. Measure and write down the main oil line pressure at 650 rpm, 1,500 rpm and 4,500 rpm.

RPM	*Normal oil pressure*
650	*50 kpa (7 psi) or more*
1,500	*110-175 kpa (16.0 - 25.3 psi)*
4,500	*300-430 kpa (43.6 - 62.3 psi)*

- If Abnormal oil pressure is observed:

1) Replace the oil pump with a new one and replace the oil strainer with a modified one according to the instructions on MGSS (OIL PAN REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5]).

NOTE: The removal procedure for the oil pump in the Workshop Manual has been changed. It is no longer necessary to remove the front cover when following the new procedure.

2) Clean the bottom of the oil pan with a clean cloth.

3) Erase any DTCs.

4) Replace the engine oil.

NOTE: There is no need to replace the oil filter or oil pan.

- If Normal oil pressure is observed:

1) Verify that the difference of VT_EX_DES (Exhaust valve opening angle - target) and VT_EX-ACT (Exhaust valve opening angle - actual) is within 5 degrees (between 1,500 rpm and 2,000 rpm) using M-MDS.

- Within 5 degrees:

a) Replace the oil strainer with a modified one.
b) Clean the bottom of the oil pan with a clean cloth.
c) Replace the engine oil.

NOTE: There is no need to replace the oil filter or oil pan.

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- Over 5 degrees:

a) Replace the oil control valve (OCV).
b) Replace the oil strainer with a modified one.
c) Clean the bottom of the oil pan with a clean cloth.
d) Replace the engine oil.

NOTE: There is no need to replace the oil pump, oil filter or oil pan.

5. Verify repair.

P0015 and P0524 or only P0524 is stored:

6. Delete the DTC.
7. Depress the throttle pedal and momentarily adjust the engine speed to 4,000 rpm or more for 10 times.
8. Measure the main line oil pressure at 650 rpm, 1,500 rpm and 4,500 rpm according to the instructions on MGSS (OIL PRESSURE INSPECTION).

a. Connect M-MDS to monitor ECT, OIL_TEMP and RPM.
b. Start the engine and turn off all electrical loads such as A/C, headlights, etc.
c. Warm up the engine until ECT and OIL_TEMP reach 90 °C (194 °F) or more.
d. Wait until RPM on IDS becomes stable at 650 rpm. DO NOT read RPM on the tachometer in the vehicle.
e. Measure and write down the main oil line pressure at 650 rpm, 1,500 rpm and 4,500 rpm.

RPM	Normal oil pressure
650	50 kpa (7 psi) or more
1,500	110-175 kpa (16.0 - 25.3 psi)
4,500	300-430 kpa (43.6 - 62.3 psi)

- If Abnormal oil pressure is observed:

1) Replace the oil pump with a new one and replace the oil strainer with a modified one according to the instructions on MGSS (OIL PAN REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5]).

NOTE: The removal procedure for the oil pump in the Workshop Manual has been changed. It is no longer necessary to remove the front cover when following the new procedure.

2) Clean the bottom of the oil pan with a clean cloth.

3) Erase any DTCs.

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4) Replace the engine oil.

NOTE: There is no need to replace the oil filter or oil pan.

- If Normal oil pressure is observed:

1) Replace the oil strainer with a modified one.
2) Clean the bottom of the oil pan with a clean cloth.
3) Replace the engine oil.

NOTE: There is no need to replace the oil pump, oil filter or oil pan.

9. Verify repair.

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PARTS INFORMATION

NOTE: Refer to the EPC for old part number of the Oil Strainer for the concerned vehicle and order the applicable new Oil Strainer shown below. If the new part number is "N/A" in the list, the oil strainer is already modified and does not need to be replaced. Refer to the EPC for proper part number of all parts.

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Part Number		Description	Qty.	Notes
New				Old
PE01-14-100	-	Oil Pump (2.0L)	1	When replacing oil pump
PY01-14-100	-	Oil Pump (2.5L)	1	When replacing oil pump
PE01-14-420	-	Oil Control Valve (OCV)	1	When replacing OCV
PE01-10-235	-	Head Cover Gasket (2.0L)	1	When replacing OCV
PY01-10-235	-	Head Cover Gasket (2.5L)	1	When replacing OCV
9956-41-400	-	Gasket	1	When cleaning oil pan
PEDD-14-240	PE01-14-240	Oil Strainer	1	2013-2018 SKYACTIV-G 2.0L (with some exceptions)
PEY1-14-240	PE07-14-240	Oil Strainer	1	2012-2013 SKYACTIV-G 2.0L (Mazda3 only)

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N/A	PE7W-14-240	Oil Strainer	N/A	2014 Mazda3 SKYACTIV-G 2.0L with VINs starting with 3MZ (Mexico built) produced before July 2014
N/A	PEDD-14-240	Oil Strainer	N/A	2014-2018 Mazda3 SKYACTIV-G 2.0L with VINs starting with 3MZ (Mexico built) produced after July 2014
PYY1-14-240	PY01-14-240	Oil Strainer	1	2014-2018 SKYACTIV-G 2.5L

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WARRANTY INFORMATION

NOTE:

- This warranty information applies only to verified customer complaints on vehicles eligible for warranty repair.
- This repair will be covered under Mazda’s Powertrain Limited Warranty term or CA PZEV Emission Warranty where applicable.
- Additional diagnostic time cannot be claimed for this repair.

When replacing the OCV and oil strainer and cleaning the oil pan:	
Warranty Type	A
Symptom Code	6X
Damage Code	9W
DTC	P0015
Part Number Main Cause	7777-SP-K50
Quantity	0
Operation Number / Labor Hours	XXL8MBRX / 1.8 Hrs.

NOTE: Claim parts as related parts.

When replacing the oil pump and oil strainer and cleaning the oil pan:	
Warranty Type	A
Symptom Code	6X
Damage Code	9W
DTC	P0015 or P0524
Part Number Main Cause	7777-SP-K50
Quantity	0
Operation Number / Labor Hours	XXL8MCRX / 1.5 Hrs (CX-3) / 1.7 Hrs (except CX-3)

NOTE: Claim parts as related parts.

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When replacing the oil strainer and cleaning the oil pan:		
Type	Warranty	A
Code	Symptom	6X
Code	Damage	9W
	DTC	P0015 or P0524
Number Main Cause	Part	7777-SP-K50
	Quantity	0
Number / Labor Hours	Operation	XXL8MARX / 1.4 Hrs.

NOTE: Claim parts as related parts.

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