

# Service Information

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Category <b>D</b>	<b>Repair Information</b>	Ref. No. R088/12	Page 1 of 7
Coverage <input type="checkbox"/> Distributor only <input checked="" type="checkbox"/> Please inform your dealers		Date Issued December 11, 2012	
Please convey this information to your <input type="checkbox"/> Director <input checked="" type="checkbox"/> General Manager <input checked="" type="checkbox"/> Warranty Dept. <input checked="" type="checkbox"/> Parts Dept. <input checked="" type="checkbox"/> Training Dept. <input checked="" type="checkbox"/> Field Rep.		Date Revised	
Applicable Model 2012-2013 Mazda3(BL) & 2013 CX-5(KE) with SKYACTIV-G 2.0 engine		Applicable Countries or Specifications Worldwide	

## Subject: Rough idle with MIL On with DTC P0015 / P0524

### DESCRIPTION

Some vehicles may experience rough idle with MIL illumination and DTC P0015 / P0524 stored in memory.

**P0015:00** Exhaust CMP timing over-retarded

**P0524:00** Engine oil pressure too low

### CAUSE

The engine oil pressure drops due to a stuck oil pump pressure relief valve or OCV caused by foreign material.

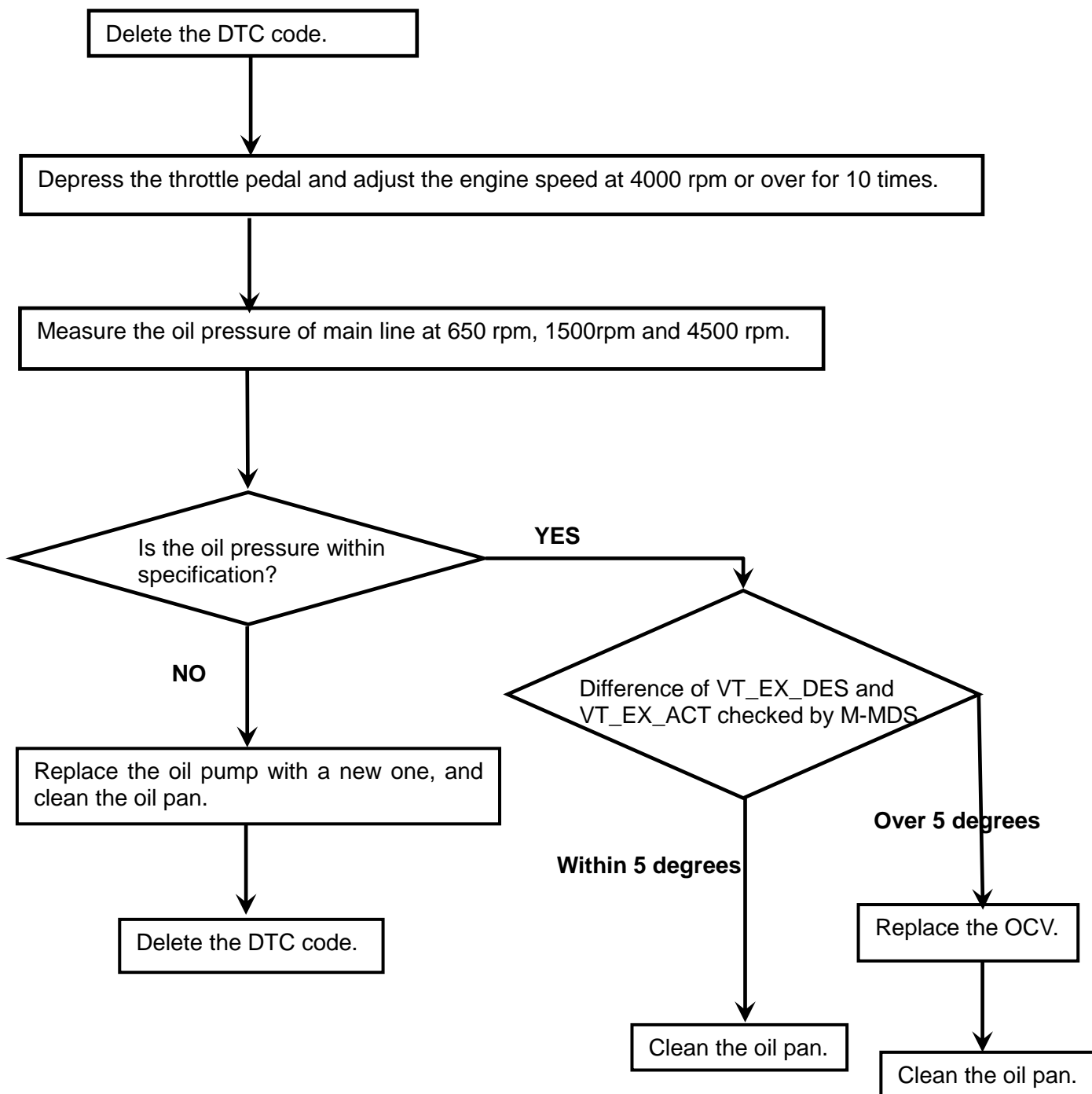
The temporary entry of foreign object triggers MIL illumination consequently, but rough idle won't be reproduced later.

### REPAIR PROCEDURE

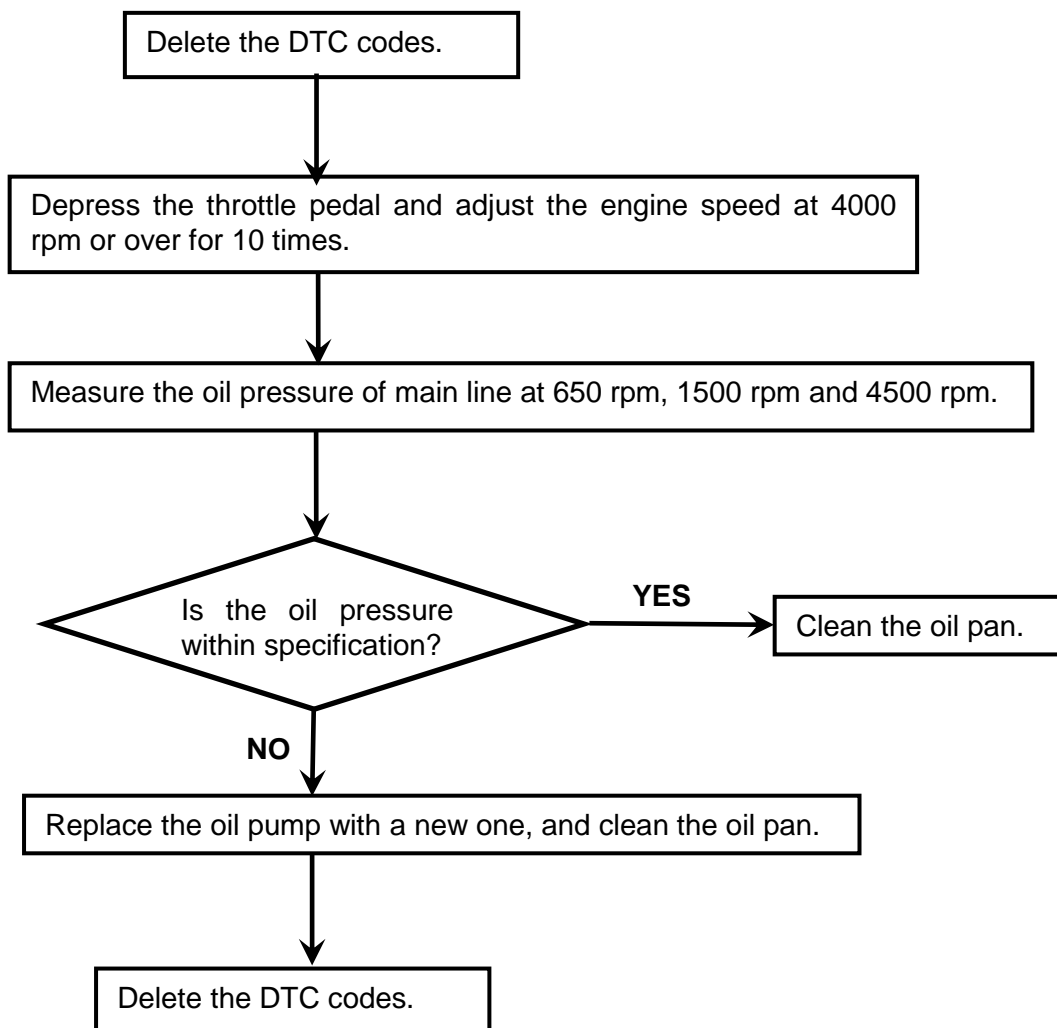
Following the descriptions in the Flow Chart and Repair Procedure below, perform check and repair.

### Flow Chart

When only P0015 is stored:



**P0524 or P0015 & P0524:**



## Only P0015 is stored:

### Procedure:

1. MIL illuminated (only P0015 is stored).
2. Delete the DTC code.
3. Depress the throttle pedal and adjust the engine speed at 4000 rpm or over for 10 times.
4. Measure the main line oil pressure at 650 rpm, 1500 rpm and 4500 rpm.  
(Refer to "oil pressure inspection" in workshop manual)

### Oil pressure within specification:

- |                |                                 |
|----------------|---------------------------------|
| 1. at 650 rpm  | 50kpa (7psi) or more            |
| 2. at 1500 rpm | 110 – 175 kpa (16.0 – 25.3 psi) |
| 3. at 4500 rpm | 300 – 430 kpa (43.6 – 62.3 psi) |

### <Oil pressure measurement condition>

- (1) Connect M-MDS (to monitor ECT, OIL\_TEMP, and RPM).
- (2) Warm up the engine completely until water temp (ECT) and oil temp (OIL\_TEMP) reach to 90 degrees Celsius or more.
- (3) Turn off the whole electrical loads such as A/C and head lamp, etc.
- (4) Wait until M-MDS RPM becomes stable at 650 rpm. (Do not read RPM by the meter on the vehicle.)
- (5) Measure the main line's oil pressure at 650 rpm.
- (6) Measure the oil pressure at 1500 rpm and 4500 rpm as well.

**Abnormal oil pressure:** Replace the oil pump and clean the oil pan, then delete DTC.  
(Refer to "OIL PUMP REMOVAL/INSTALLATION" in workshop manual)

- Note:** \*Clean up the bottom of oil pan by clean cloth.  
\*You don't have to replace oil filter, strainer, and oil pan.  
\*Replace the engine oil

**Oil pressure within specification:** Go to next step.

5. Verify the difference of VT\_EX\_DES, Exhaust valve opening angle(target), and VT\_EX\_ACT, Exhaust valve opening angle(actual) with M-MDS is within 5 degrees.(Between 1500 rpm to 2000 rpm)

### **Within 5 degrees**

- 1). Clean up the bottom of oil pan by clean cloth.
  - 2). Replace the engine oil.
- Note:** You don't have to replace oil pump, oil filter, strainer, and oil pan.

### **Over 5 degrees**

- 1). Replace the OCV with new one.
  - 2). Clean up the bottom of oil pan by clean cloth.
  - 3). Replace the engine oil.
- Note:** You don't have to replace oil pump, oil filter, strainer, and oil pan.

**P0524 or P0015 & P0524:**

**Procedure:**

1. MIL illuminated (P0524 or P0015 & P0524 stored)  
(incl. the case of P0524 storage of the past failure)
2. Delete the DTC code.
3. Depress the throttle pedal and adjust the engine speed at 4000 rpm or over for 10 times.
4. Measure the main line oil pressure at 650 rpm, 1500 rpm and 4500 rpm.  
(Refer to "oil pressure inspection" in workshop manual)

**Oil pressure within specification:**

1. at 650 rpm      50kpa (7psi) or more
2. at 1500 rpm    110 – 175 kpa (16.0 – 25.3 psi)
3. at 4500 rpm    300 – 430 kpa (43.6 – 62.3 psi)

**<Oil pressure measurement condition>**

- (1) Connect M-MDS (to monitor ECT, OIL\_TEMP, and RPM).
- (2) Warm up the engine completely until water temp(ECT) and oil temp(OIL\_TEMP) reach to 90 degrees Celsius or more.
- (3) Turn off the whole electrical loads such as A/C and head lamp, etc.
- (4) Wait until M-MDS RPM becomes stable at 650 rpm. (Do not read RPM by the meter on the vehicle)
- (5) Measure the main line's oil pressure at 650 rpm.
- (6) Measure the oil pressure at 1500 rpm and 4500 rpm as well.

**Abnormal oil pressure:** Replace the oil pump and clean the oil pan, then delete DTC.  
(Refer to "OIL PUMP REMOVAL/INSTALLATION" in workshop manual)

- Note:** \* Clean up the bottom of oil pan by clean cloth.  
\* You don't have to replace oil filter, strainer, and oil pan.  
\* Replace the engine oil.

**Oil pressure within specification:** Clean up the bottom of oil pan by clean cloth.

- Note:** \* You don't have to replace oil pump, oil filter, strainer, and oil pan.  
\* Replace the engine oil.

**PART INFORMATION**

Part Number	Part Name	Q'ty	Remark
PE01 14 100	Oil Pump	1	When replacing oil pump
PE01 14 420	Oil Control Valve (OCV)	1	When replacing OCV.
PE01 10 235	Head Cover Gasket	1	When replacing oil pump or OCV
PE01 12 257	"O" Ring	1	When replacing oil pump
9956 41400	Gasket	1	When cleaning oil pan

WARRANTY INFORMATION

**CX-5(KE)**

When replacing the OCV, and cleaning oil pan:

Assembly group	D - Lubrication System
Subassembly group	01 - OIL PUMP & FILTER
Symptom Code	6X
Damage Code	9W
DTC Code	P0015
Causal Part No.	PE01 14 420
Q'ty	1
Operation No.	XXH9YXRX
Labor Hours	1.8 Hrs
Period Covered	Normal warranty period

**Note:** Claim other parts as related parts.

When replacing the oil pump, and cleaning the oil pan:

	Without i-stop	With i-stop
Subassembly group	D - Lubrication System	
Symptom Code	01 - OIL PUMP & FILTER	
Symptom Code	6X	
Damage Code	9W	
DTC Code	P0015 or P0524	
Causal Part No.	PE01 14 100	
Q'ty	1	
Operation No.	XXH9ZXRX	XXHAAXRX
Labor Hours	3.9 Hrs	4.0 Hrs
Period Covered	Normal warranty period	

**Note:** Claim other parts as related parts.

When cleaning the oil pan only:

Assembly group	D - Lubrication System
Subassembly group	01 - OIL PUMP & FILTER
Symptom Code	6X
Damage Code	9W
DTC Code	P0015 or P0524
Causal Part No.	PE01 14 100
Q'ty	0
Operation No.	XXHA1XRX
Labor Hours	1.4 Hrs
Period Covered	Normal warranty period

**Mazda3 (BL)**

**When replacing the OCV, and cleaning oil pan:**

	Without i-stop	With i-stop
Subassembly group	D - Lubrication System	
Symptom Code	01 - OIL PUMP & FILTER	
Symptom Code	6X	
Damage Code	9W	
DTC Code	P0015	
Causal Part No.	PE01 14 420	
Q'ty	1	
Operation No.	XXHA2XRX	XXHA3XRX
Labor Hours	1.8 Hrs	1.9 Hrs
Period Covered	Normal warranty period	

**Note:** Claim other parts as related parts.

**When replacing the oil pump, and cleaning the oil pan:**

Assembly group	D - Lubrication System
Subassembly group	01 - OIL PUMP & FILTER
Symptom Code	6X
Damage Code	9W
DTC Code	P0015 or P0524
Causal Part No.	PE01 14 100
Q'ty	1
Operation No.	XXHA4XRX
Labor Hours	4.0 Hrs
Period Covered	Normal warranty period

**Note:** Claim other parts as related parts.

**When cleaning the oil pan only:**

Assembly group	D - Lubrication System
Subassembly group	01 - OIL PUMP & FILTER
Symptom Code	6X
Damage Code	9W
DTC Code	P0015 or P0524
Causal Part No.	PE01 14 100
Q'ty	0
Operation No.	XXHA5XRX
Labor Hours	1.4 Hrs
Period Covered	Normal warranty period