

Technical Service Bulletin

Mazda North American Operations
Irvine, CA 92618-2922

**Subject:**

COOLANT LEAKS AT CYLINDER HEAD

Bulletin No.: 01-002/23

Last Issued : 02/10/2023

BULLETIN NOTES

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

Previous TSBs:	Date(s) Issued:
01-002/23	01/19/23
01-007/22	06/27/22
01-013/21	12/02/21 and 10/15/21

APPLICABLE MODEL(S)/VINS**US Spec.:**

2019-2020 CX-5 SKYACTIV-G 2.5T vehicles with VINs lower than JM3KF*****830243 (produced before Jun. 9, 2020)

2016-2020 CX-9 SKYACTIV-G 2.5T vehicles with VINs lower than JM3TC*****422801 (produced before Jun. 9, 2020)

2018-2020 Mazda6 SKYACTIV-G 2.5T vehicles with VINs lower than JM1GL*****523967 (produced before Mar. 25, 2020)

Mexico Spec.:

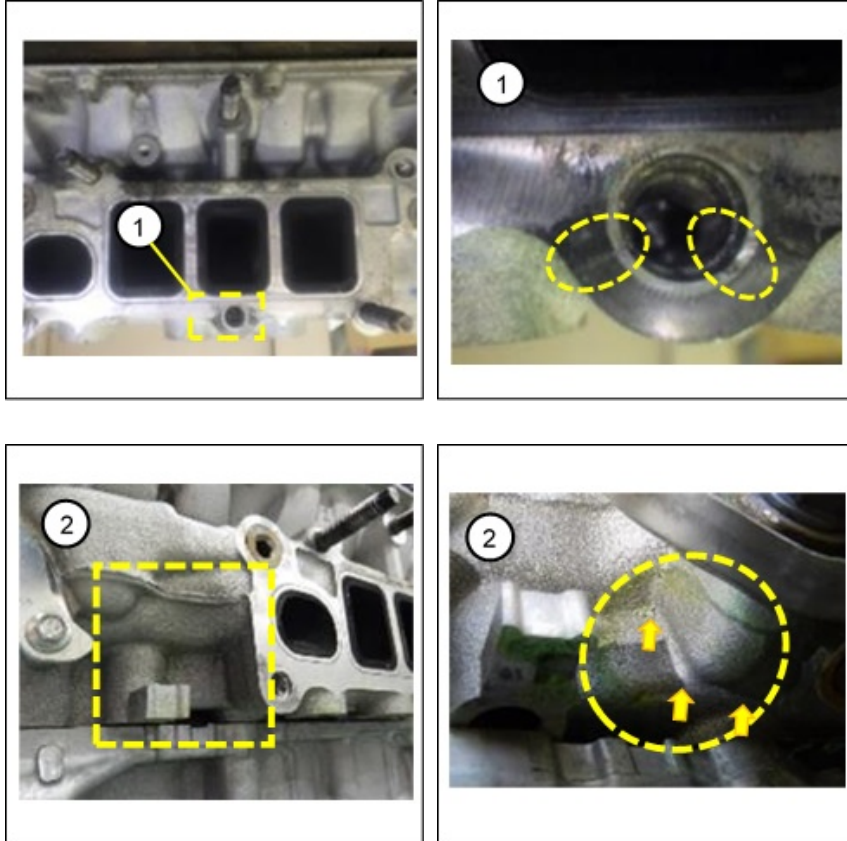
2019-2020 Mazda6 SKYACTIV-G 2.5T vehicles with VINs lower than JM1GL*****523672 (produced before Mar. 21, 2020)

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DESCRIPTION

Some vehicles may have coolant leaks at the cylinder head around the exhaust manifold (as shown below). There may be cracks at the stud bolt hole (1) or at the outside of the exhaust manifold flange (2) on the cylinder head.



Cracks may be caused by:

- **Expansion characteristics** of the exhaust manifold during usage causing unexpected force to certain areas of the cylinder head.
- Residual stress generated during production in the cylinder head material may be greater than expected. The external force from the exhaust system when driving over bumps may cause unexpected force to certain areas of the cylinder head.

To eliminate this concern, the design of the exhaust manifold gasket and the cylinder head has been modified to reduce the force on the cylinder head.

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

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REPAIR PROCEDURE

1. Verify the customer concern.
2. Confirm the crack(s) and coolant leak(s) are located at the area(s) shown in the "Description" above:
 - If the coolant leaks are coming from other than the cylinder head itself, this Service Information is not applicable.Diagnose the leaks according to the instructions on MGSS online.
 - If the coolant leaks are coming from the area(s) shown in the "Description" above, proceed to Step 3.
3. Inspect for DTC P111A:
 - If DTC P111A is stored in memory, engine overheating is suspected. This Service Information is not applicable. Diagnose the cause and repair, replacing the partial engine according to MGSS online. **Contact MASH for partial engine approval.**
 - If DTC P111A is not stored in memory, proceed to Step 4.
4. Drain some engine oil into a container.
5. Inspect the color of the engine oil. Is it a milky light brown color indicating coolant is mixed in with it?
 - If Yes, this Service Information is not applicable. **Contact MASH for partial engine approval.**
 - If No, proceed to Step 6.
6. Replace the cylinder head assembly with a new one using a modified exhaust manifold gasket according to the instructions on MGSS online:
NOTE: MASH approval is NOT required for cylinder head assembly replacement.
 - CX-5: CYLINDER HEAD GASKET REPLACEMENT [SKYACTIV-G 2.5T]
 - CX-9: CYLINDER HEAD GASKET REPLACEMENT [SKYACTIV-G 2.5T]
 - Mazda6: CYLINDER HEAD GASKET REPLACEMENT [SKYACTIV-G 2.5T]**NOTE:** Reuse the water outlet, fuel distributor, fuel injectors, OCV oil filter, rocker arms, HLA, CMP sensors and engine hanger brackets.
7. Perform "Engine Oil Data Reset" according to the instructions on MGSS online:
 - CX-5: ENGINE OIL DATA RESET [SKYACTIV-G 2.5T]
 - CX-9: ENGINE OIL DATA RESET [SKYACTIV-G 2.5T]
 - Mazda6: ENGINE OIL DATA RESET [SKYACTIV-G 2.5T]
8. Verify the repair.

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PARTS INFORMATION

Parts Number	Description	Qty.	Notes
PYY1-10-SJ0	HEAD, CYLINDER	1	
PYY1-10-S50	GASKET SET A	1	[R]
PYY1-13-S50	GASKET KIT B	1	[R]
PYY1-13-SRZ	GASKET KIT C	1	[R]
PYY1-13-W8Z	GASKET KIT D	1	[R]
9956-41-400	GASKET	1	[R] for oil drain plug
PYY1-13-223	HOSE, AIR INTAKE-I/COOL LER	1	[R]
PE23-40-584	STUD, FLANG	2	[R] for TWC
9956-41-400	GASKET	1	[R] for drain plug at AT oil pan
B455-32-099B	BOLT, SHAFT	1	[R] Joint Bolt A (Lower), Intermediate shaft
T060-26-169A	PIN, SNAP	2	[R] for tie-rod end
D651-33-042A	NUT	2	[R] for hub center nut
H010-25-421A	CLIP	1	[R] for drive shaft
CN01-27-397	SEAL, OIL	1	[R] [4WD] for transfer
KN01-27-398	SEAL, OIL	1	[R] [4WD] for transfer
9956-41-800	WASHER	1	[R] [4WD] for transfer drain plug
PY88-40-584	STUD, FLANG	2	[R] for turbocharger
PY89-40-584	STUD, FLANG	1	[R] for turbocharger
PY90-40-584	STUD, FLANG	2	[R] for turbocharger
FU31-19-423	PLUG	1	[R] Pressure detection square head plug (for line pressure check)
L2Y1-33-247	GREASE		For knuckle (one tube does ten vehicles)

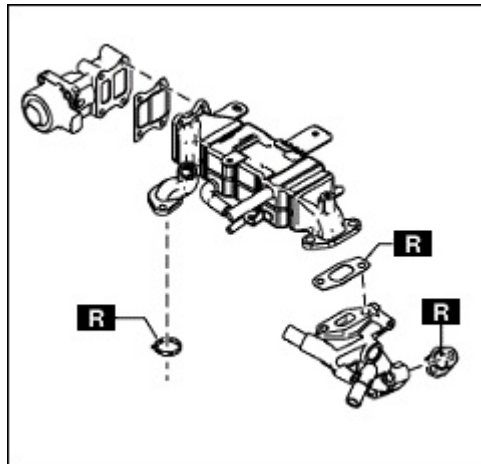
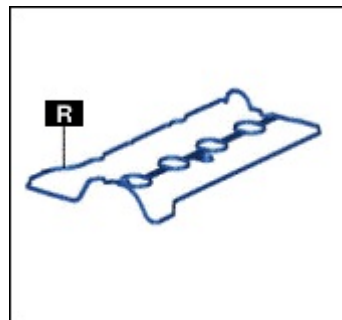
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Dealers can now utilize the Limited Parts Ordering (LPO) page on eMDCS to order the repair parts for 2.5L (with cylinder deactivation) and 2.5L turbo cylinder head repairs. There is no longer a need to contact hotline for part ordering. If there are any questions on part ordering or part status, contact the DAG group for assistance.

NOTE: It is necessary to order Gasket Kit A, B, C & D for each vehicle repair.

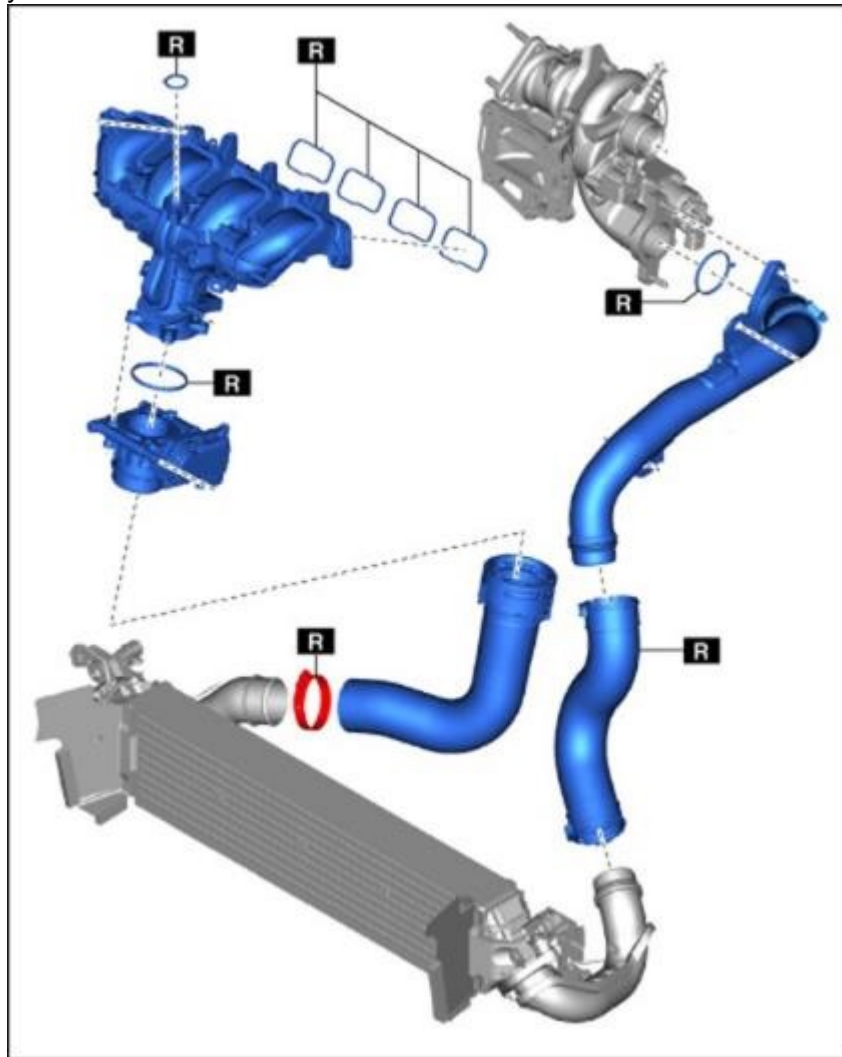
Non-reusable parts locations:

- Gasket for cylinder head cover
- Gaskets for EGR cooler and EGR valve component



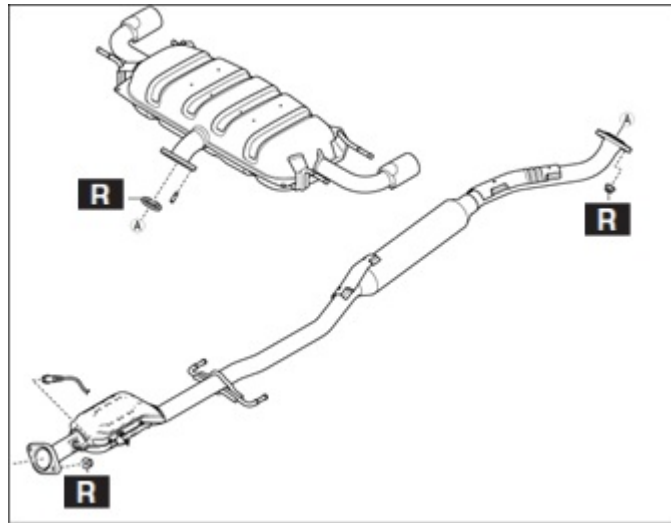
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- Gaskets for intake-air system

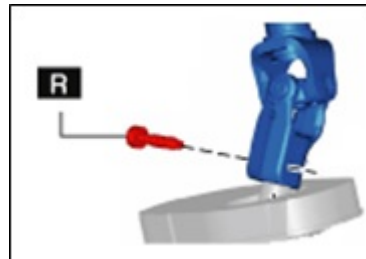


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- Gasket and nuts for TWC

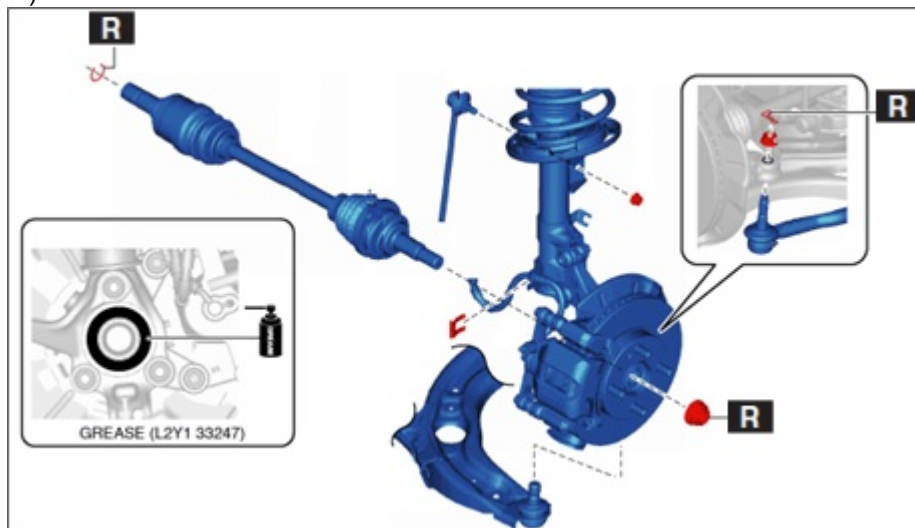


- Joint bolt A for Intermediate shaft

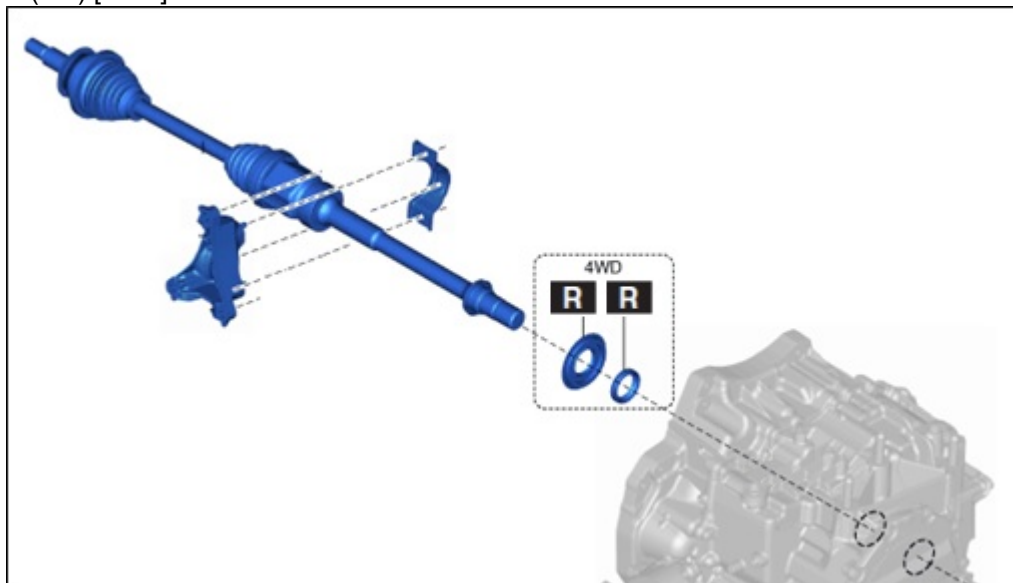


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- Snap pin for Tie-rod end
- Lock nut for Driveshaft
- Clip for Drive shaft (LH)
- Grease (L2Y1-33-247) for knuckle

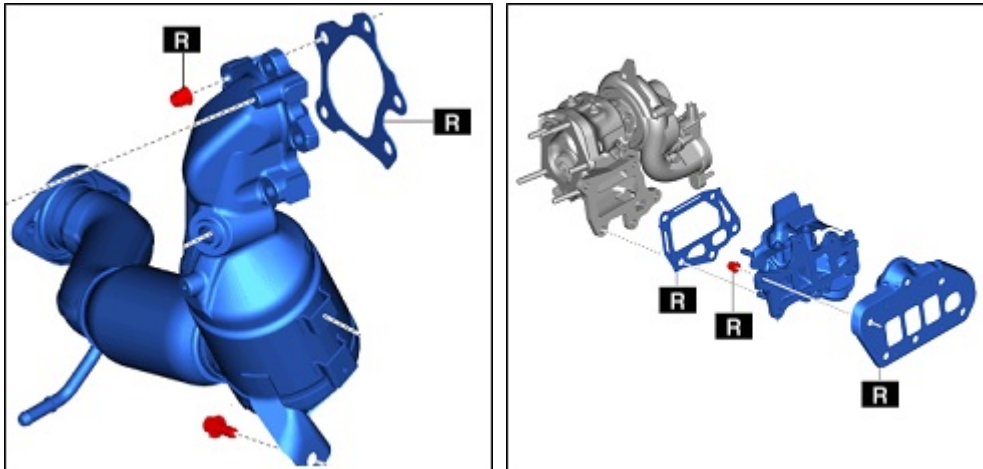


- Transfer oil seals (RH) [4WD]

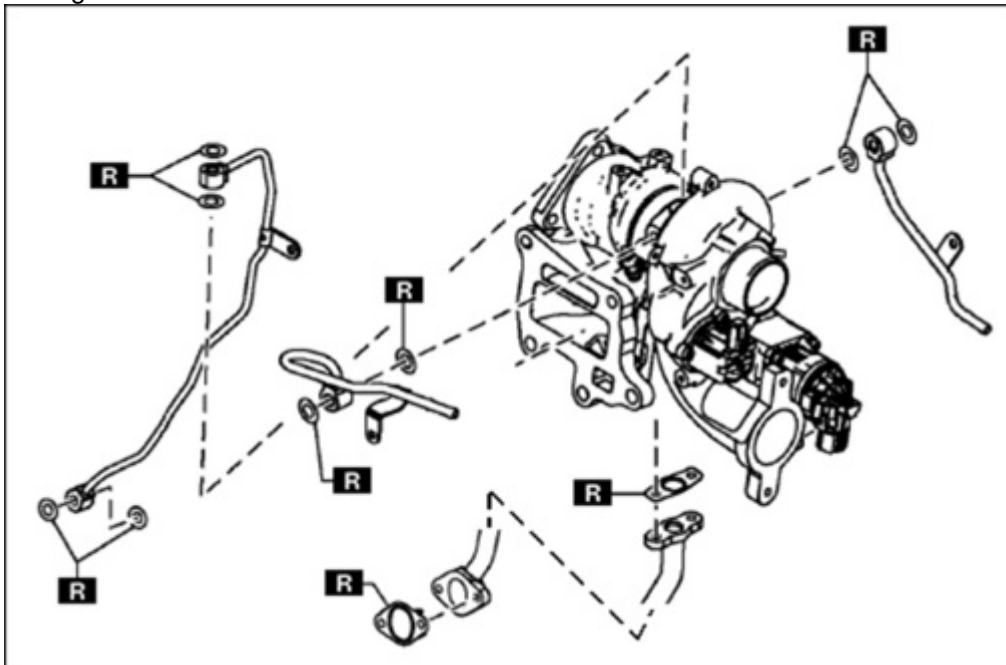


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- Gasket and nuts for WU-TWC
- Gasket and nuts for exhaust manifold

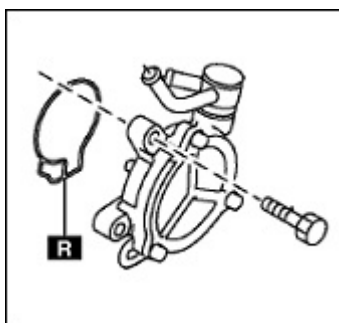


- Gaskets for turbocharger

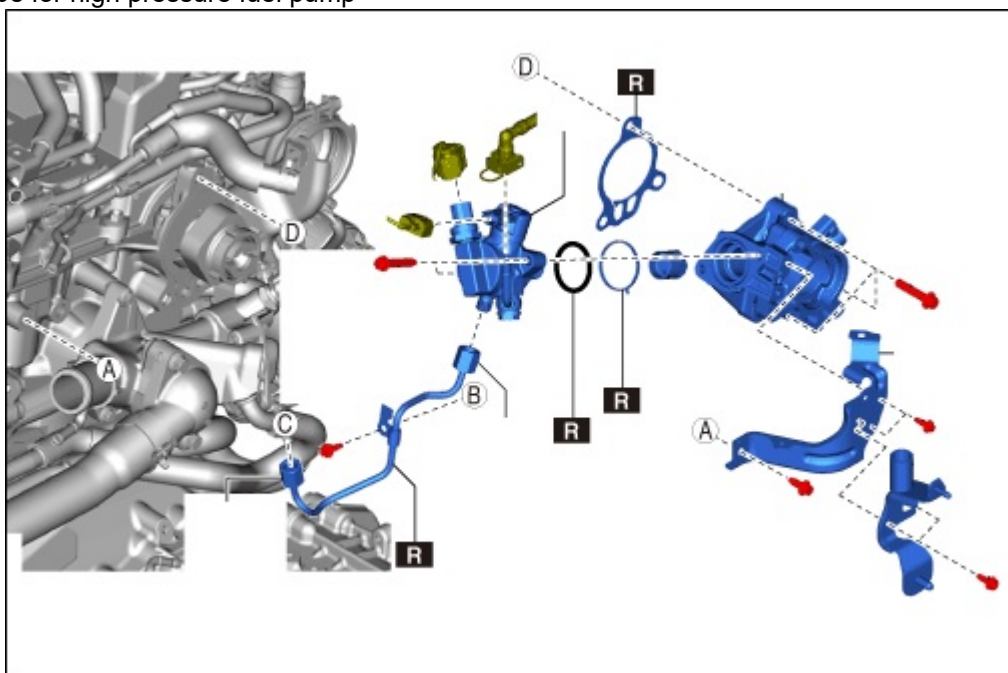


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- O-ring for vacuum pump

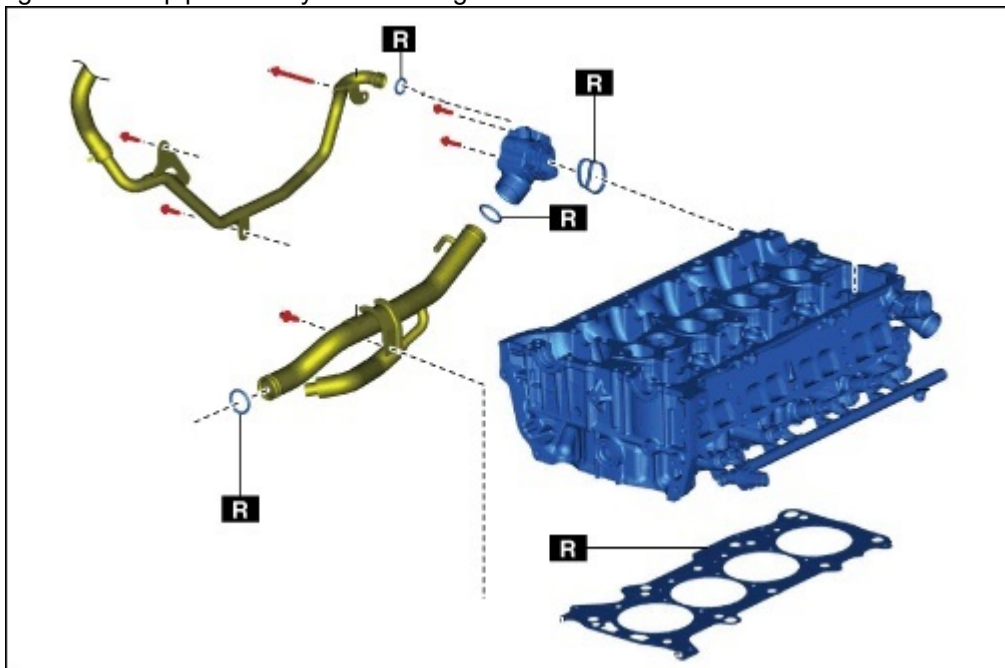


- Gaskets and pipe for high pressure fuel pump

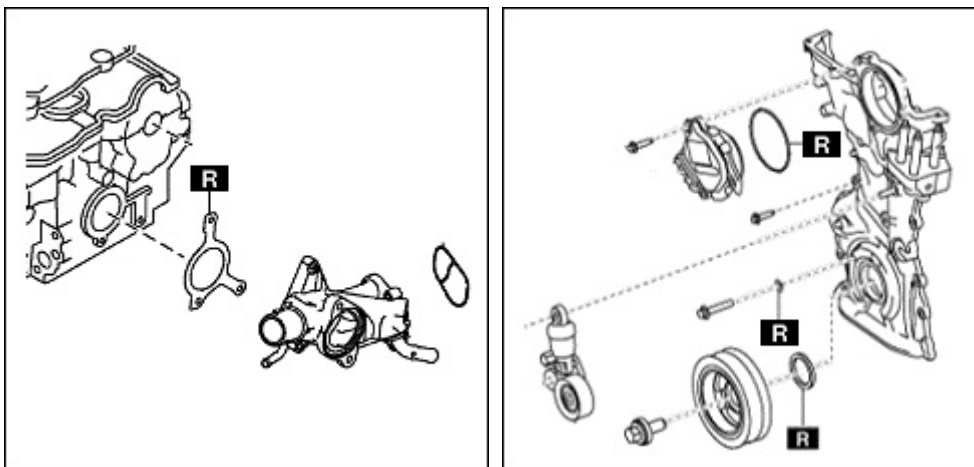


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- Gasket and O-rings for water pipes and cylinder head gasket

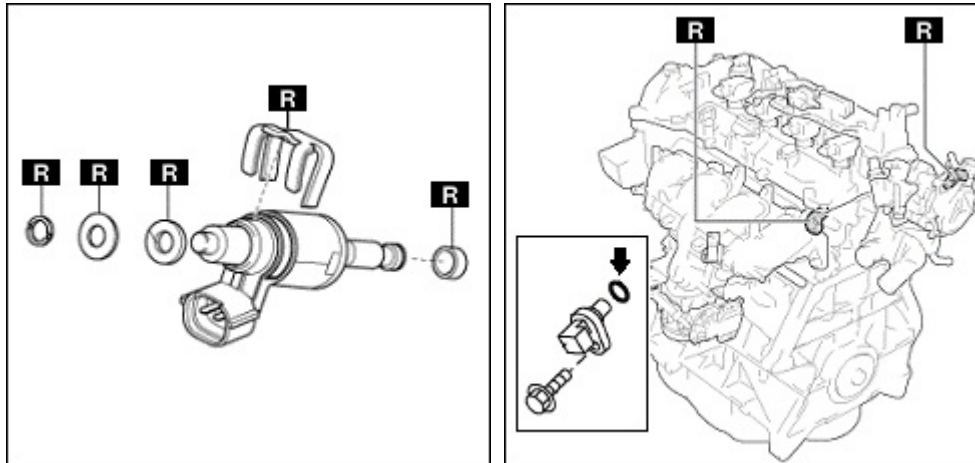


- Gasket for water outlet
- O-ring for electric variable valve timing motor/driver
- Sealing washer for bolt
- Front oil seal

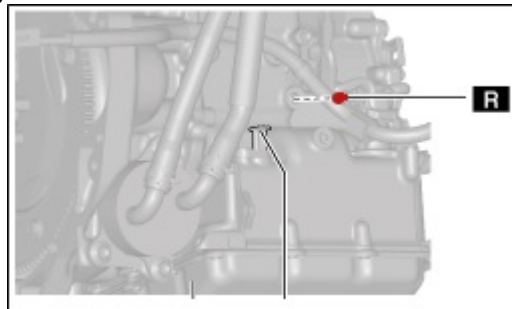


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- Spacer and O-rings for fuel injector
- O-rings for CMP sensor

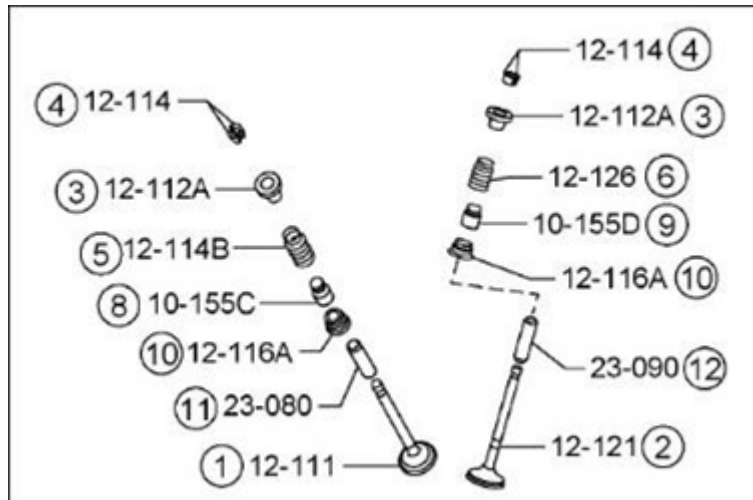


- Pressure detection square head plug



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NOTE: For information only, DO NOT order the parts shown below. They are already included with the Cylinder Head Set (PYY1-10-SJ0).



No.	Description	Qty.
1	VALVE, INLET	8
2	VALVE, EXHAUST	8
3	SEAT, VALVE SPG-UP	16
4	COTTER, VALVE	32
5	SPRING, VALVE	8
6	SPRING, OUTER-EX. VALVE	8
8	SEAL, INLET VALVE	8
9	SEAL, EXHAUST VALVE	8
10	SEAT, VALVE SPG.-LWR	16
11	GUIDE, VALVE	8
12	GUIDE, VALVE	8

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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 Warranty.
- Additional diagnostic time cannot be claimed for this repair.

Warranty Type	A
Symptom Code	77
Damage Code	9A
Part Number Main Cause	PYY1-10-SJ0
Quantity	1
Operation Number / Labor Hours:	XXS82BRX / 11.2 Hr. (CX-5 2WD) XXS82CRX / 11.1 Hr. (CX-5 4WD) XXS82FRX / 11.3 Hr. (CX-9) XXS82ARX / 10.9 Hr. (Mazda6)

NOTE:

- Claim engine oil (5.9 L {6.2 US qt, 5.2 Imp qt} maximum), ATF (4.9 L {5.1 US qt, 4.3 Imp qt} maximum), gear oil (0.45 L {0.48 US qt, 0.40 Imp qt} maximum) and coolant (9.9 L {10.5 US qt, 8.7 Imp qt} maximum) as related parts.
- If Wheel Alignment Check and Adjust is performed at outside shop, claim the actual invoice amount with sublet code "C1".

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