SERVICE BULLETIN

MITSUBISHI MOTORS

GLOBAL AFTER SALES OFFICE, MITSUBISHI MOTORS CORPORATION

PURPOSE : INFORMATION	ISSUE NO. : MSB-12E11_13-001	DATE : 2012-01-18
SUBJECT : CHANGE OF THE MAINTENANCE POINT		<MODEL> (EUR) <M/Y> 12
GROUP : ENGINE/FUEL		LANCER(CY0A)/LANCER SPORTBACK(CX0A)

1. Description:

This Service Bulletin contains the information about the change of the maintenance points of the variable valve lift mechanism (Group11) and the diagnosis code No.P1040 (Group 13).

2. Applicable Manuals:

Applicable manual	Pub. No.	Applicable title(Info-ID)	Content
2012 LANCER/ LANCER SPORTBACK Workshop Manual	CG1E12E1-CD(Eng)) CG1F12E1-CD(Fre) CG1G12E1-CD(Ger) CG1S12E1-CD(Spa) CG1I12E1-CD(Ita)	Gr.11K: VARIABLE VALVE LIFT MECHANISM CHECK (M111-05-120-04900-01)	Attached sheet 4
		Gr.13F: Code No. P1040: MINIMUM VALVE LIFT NOT LEARNED YET (M131-28-930-04900-01)	Attached sheet 5

3. Details:

See Attached sheet (4-5)

VARIABLE VALVE LIFT MECHANISM CHECK

NOTE: If the diagnosis code related to the valve lift is output and the valve lift mechanism is questioned about its poor operation, perform this check.

1. Turn the ignition switch to the "LOCK" (OFF) position.
2. Remove the valve lift control motor. (Refer to Valve Lift Control Motor – Removal and Installation)
3. Visually check the position of the worm wheel through the valve lift control motor mounting hole.If the gear teeth is visible as shown in figure A, go to Step 4. If the gear teeth is not visible as shown in figure B, go to Step 5.

Figure A

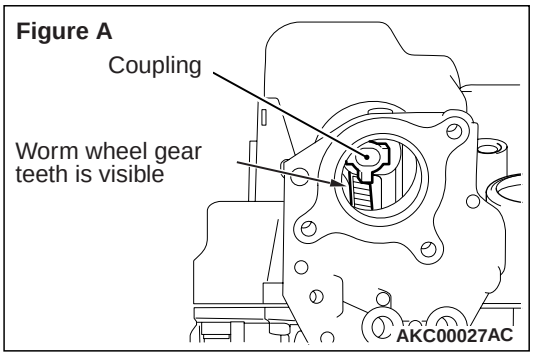
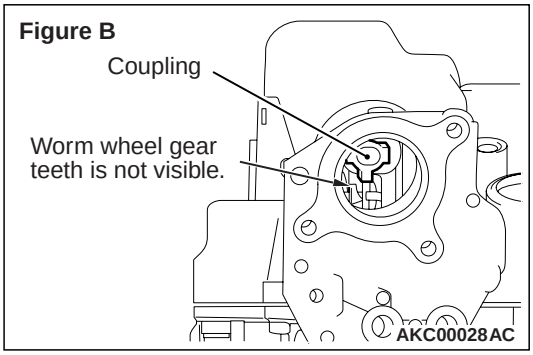
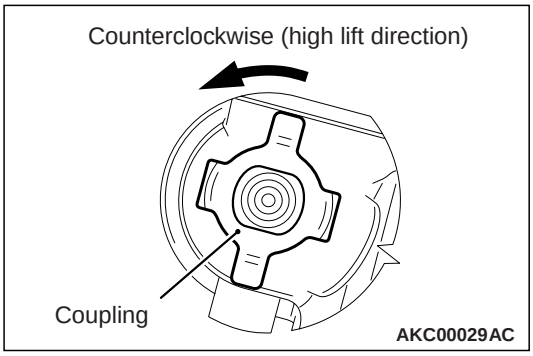


Figure B



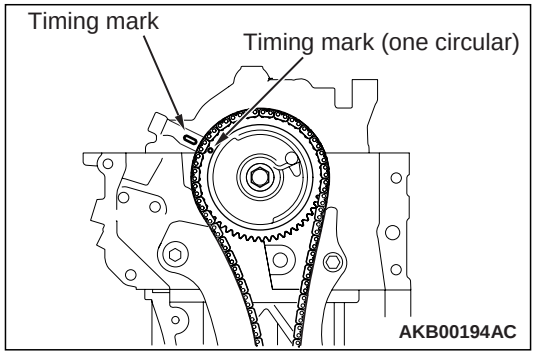


⚠ CAUTION

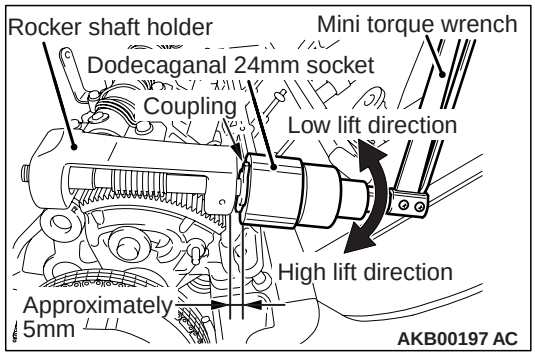
- **To avoid damage to the oil seal, make sure that the circumference of the socket is not scratched.**
- **To insert a 24-mm socket, apply engine oil to its circumference and the oil seal lip to avoid damage to the oil seal fitted in the valve lift control motor mounting hole.**
- **Be careful not to damage the oil seal lip when inserting and pulling out the socket.**
- **Keep the socket end 5 mm from the rocker shaft holder end when turning the coupling as the tool may trap the holder. Failure to do this will cause measurement errors.**

4. Insert a 12-point socket (24 mm) with a mini torque wrench into the coupling. Check rotational torque by turning the coupling anti-clockwise.
   - If the rotational torque is 0.7 N·m or less, go to Step 5.
   - If the rotational torque is more than 0.7 N·m and 3 N·m or less, turn the coupling anti-clockwise once while keeping the torque 3 N·m or less. After completion of the repair, perform road test to check whether the malfunction occurs again.
   - If the rotational torque exceeds 3 N·m, replace the rocker arm and camshaft assembly.
5. Remove all ignition coils.

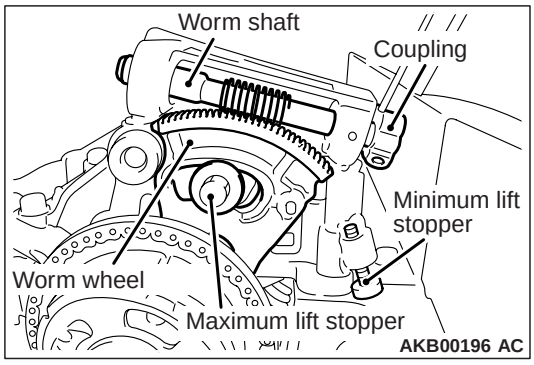
6. Remove the cylinder head cover.
7. Visually check the rocker arm and camshaft assembly for missing, breakage, falling off, jammed foreign matters, etc.
8. Rotate the crankshaft clockwise. Align the timing mark of the rocker shaft holder with the one circular timing mark of the V.V.T. sprocket. Therefore, the No. 1 cylinder is set at the top dead centre on its compression stroke.



9. Insert the dodecagonal 24 mm socket into the position on the coupling approximately 5 mm away from the rocker shaft holder. Connect the mini torque wrench.



10. Perform the visual check of the worm wheel. If the jam occurs at the position where the worm wheel pushes the minimum lift stopper or the maximum lift stopper, rotate the mini torque wrench to the following direction releasing the jam. Check the rotational torque and perform the conformity determination as follows:

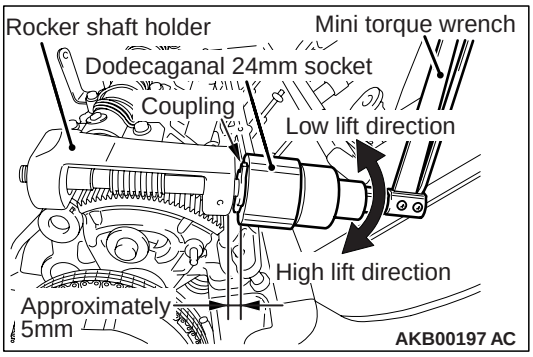


ROTATING DIRECTION

- If the worm wheel is placed in the position where the worm wheel pushes the minimum lift stopper, rotate the mini torque wrench counterclockwise.
- If the worm wheel is placed in the position where the worm wheel pushes the maximum lift stopper, rotate the mini torque wrench clockwise.

CONFORMITY DETERMINATION

- If the jam can be released with the rotational torque less than 3 N·m, repeat the jam by the trial run after the repair. If the jam reoccurs, replace the rocker arm and camshaft assembly.
- If the rotational torque is more than 3 N·m, replace the rocker arm and camshaft assembly.



11. If the jam does not occur at the position where the worm wheel pushes the minimum lift stopper or the maximum lift stopper, check as follows:
    Slowly rotate the mini torque wrench. Move the worm wheel from the minimum lift position to the maximum lift position.
    Check the rotational torque and perform the conformity determination as follows:

CONFORMITY DETERMINATION

- If the rotational torque is more than 2 N·m, replace the rocker arm and camshaft assembly.
- If the rotational torque is more than 0.7 N·m and less than 2 N·m, repeat the jam by the trial run after the repair. If the jam reoccurs, replace the rocker arm and camshaft assembly.
- If the rotational torque is less than 0.7 N·m, the rocker arm and camshaft assembly is not defective.

12. To prevent the gear jam, let the worm wheel push the minimum lift stopper. Rotate the coupling two revolutions counterclockwise.
13. Install the rocker cover. (Refer to Rocker Cover Assembly – Removal and Installation)
14. Install the ignition coils.
15. Install the valve lift control motor. (Refer to Valve Lift Control Motor – Removal and Installation)
16. If the rocker arm and camshaft assembly is replaced, initialize the learnt value, using the MUT-III. (Refer to GROUP 00 – Precautions Before Service – Initialisation Procedure for Learning Value in MPI Engine)

Code No. P1040: Minimum Valve Lift Not Learned Yet

FUNCTION

- The engine-ECU monitors whether the initial learning for a minimum valve lift position is complete. If other diagnosis code is stored in the engine-ECU, the system cannot perform the initial learning for a minimum valve lift position.
- The engine-ECU will erase the diagnosis code automatically when the system has learned the minimum valve lift position completely.

TROUBLE JUDGMENT

Check Condition

- Ignition switch is "ON" position.

Judgement Criterion

- The system has not completed the initial learning for a minimum valve lift position yet.

PROBABLE CAUSE

- The system has not completed the initial learning for a minimum valve lift position yet.
- Malfunction of the variable valve lift mechanism.

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III diagnosis code

Q: Is any other diagnosis code than P1040 set?

YES : Refer to Inspection Chart for Diagnosis Code.
NO : Go to Step 2

STEP 2. Perform the initial learning for a minimum valve lift position, and then check whether the diagnosis code is reset.

- Initialise the learned value for the MPI engine (Refer to GROUP 00 – Precautions Before Service – Initialisation Procedure for Learning Value in MPI Engine). Then perform idling learning for the MPI engine (Refer to GROUP 00 – Precautions Before Service – Learning Procedure for Idling in MPI Engine).
- After completing the learning, erase the diagnosis code. Then check whether the diagnosis code is reset.

Q: Is diagnosis code set?

YES : Go to Step 3
NO : Check end

STEP 3. Variable valve lift mechanism check

- Variable valve lift mechanism check (Refer to GROUP 11 – On-vehicle Service – Variable valve lift mechanism check).

Q: Is the check result normal?

YES : Go to Step 4
NO : Repair

STEP 4. Perform the initial learning for a minimum valve lift position, and then check whether the diagnosis code is reset.

- Initialise the learned value for the MPI engine (Refer to GROUP 00 – Precautions Before Service – Initialisation Procedure for Learning Value in MPI Engine). Then perform idling learning for the MPI engine (Refer to GROUP 00 – Precautions Before Service – Learning Procedure for Idling

in MPI Engine).
- After completing the learning, erase the diagnosis code. Then check whether the diagnosis code is reset.

Q: Is diagnosis code set?

YES : Go to Step 5
NO : Check end

STEP 5. M.U.T.-III diagnosis code number check

Q: Is the stored diagnosis code P1040?

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).
NO : Refer to Inspection Chart for Diagnosis Code.