



LANCER EVOLUTION-IV EVOLUTION-V

WORKSHOP MANUAL

FOREWORD

This Workshop Manual contains procedures for service mechanics, including removal, disassembly, inspection, adjustment, reassembly and installation. Figures taken from registration documents are given in metric units only. All other figures are given in SI units with metric units in brackets. Use the following manuals in combination with this manual as required.

TECHNICAL INFORMATION MANUAL
N9806CNCP9

All information, illustrations and product descriptions contained in this manual are current as at the time of publication. We, however, reserve the right to make changes at any time without prior notice or obligation.

July 1998

RALLIART INC.

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GENERAL



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MODELS 2

MODELS**<LANCER EVOLUTION-IV>**

Model code	Class code	Model year	Grade	Engine model	Transmission model	Fuel supply system
E-CN9A	SNDF	'97	RS	4G63 (2,000-DOHC – 16 valves-intercooler turbo)	W5M51 (4WD-5M/T)	Electronically controlled fuel injection (MPI)
	SRGF	'97	GSR			

<LANCER EVOLUTION-V>

Model code	Class code	Model year	Grade	Engine model	Transmission model	Fuel supply system
GF-CP9A	SNDF	'98	EVOLUTION-V RS	4G63 (2,000-DOHC – 16 valves-intercooler turbo)	W5M51 (4WD-5M/T)	MPI
	SNGF	'98	EVOLUTION-V GSR			

Applicable serial numbers

E-CN9A: CN9A – 0000001 ~

GF-CP9A: CP9A – 0000001 ~

ENGINE

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SERVICE SPECIFICATIONS

Items	Standard value	Limit
Basic ignition timing	5° BTDC ± 3°	–
Ignition timing (at idle)	Approx. 5° BTDC	–
Idle speed rpm	850 ± 50	–
CO contents %	0.6 or less	–
HC contents ppm	300 or less	–
Compression pressure kg/cm ² – rpm	11.5 – 250	Min. 9.7 – 250
Compression pressure difference of all cylinders kg/cm ²	–	Max. 1.0
Intake manifold vacuum kPa {mmHg}	–	Min. 55 {410}
Cylinder head bolt shank length mm	–	99.4

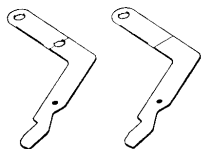
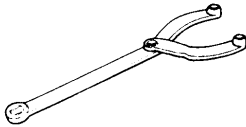
SEALANTS

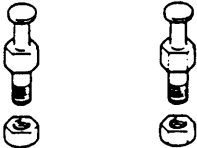
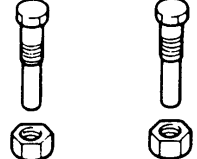
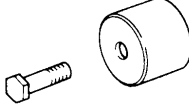
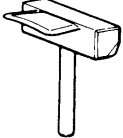
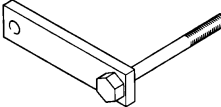

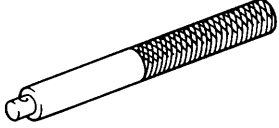
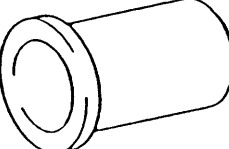

Items	Specified sealants
Rocker cover	Semi-drying sealant: THREEBOND 1207D [MZ 100168] (containing 150 g)
Oil pan	Semi-drying sealant: THREEBOND 1207F [MZ 100191] (containing 150 g)

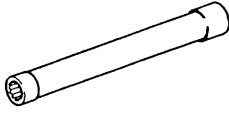
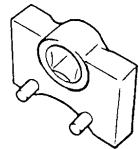
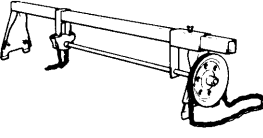
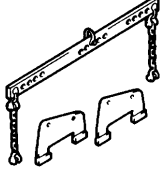
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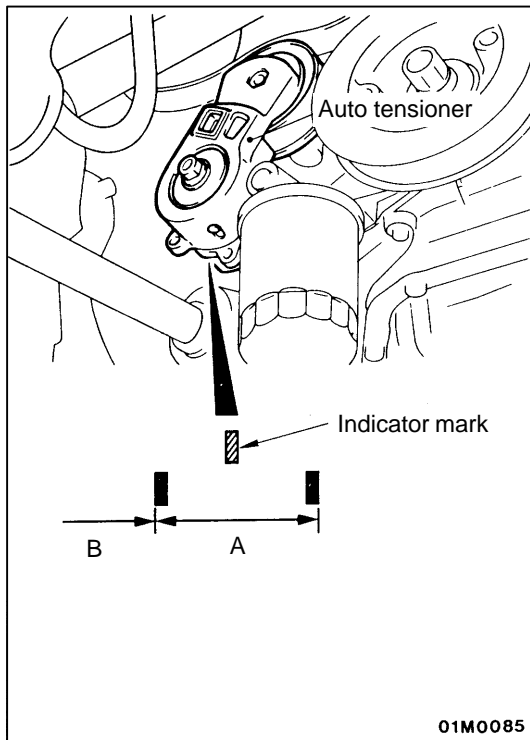
Given in [] are MITSUBISHI GENUINE PART numbers.

SPECIAL TOOLS

Tool	Number	Name	Use
	MD998782	Valve lifter set	Replacing the lash adjuster
	MB990767	End yoke holder	<ul style="list-style-type: none"> ● Holding the crankshaft pulley ● Holding the camshaft sprocket

Tool	Number	Name	Use
	MD998719	Crankshaft pulley holder pin	<ul style="list-style-type: none"> ● Holding the crankshaft pulley ● Holding the camshaft sprocket
	MD998715	Pulley holder pin	
	MD998713	Camshaft oil seal installer	Pressfitting the camshaft oil seal
	MD998727	Oil pan remover	Removing the oil pan
	MD998781	Flywheel stopper	Securing the flywheel or drive plate
	MD998776	Crankshaft rear oil seal installer	Pressfitting the crankshaft rear oil seal
	MB990938	Handle	
	MD998382	Crankshaft front oil seal installer	Installing the crankshaft front oil seal
	MD998285	Crankshaft front oil seal guide	

Tool	Number	Name	Use
	MB991654	Cylinder head bolt wrench	Removing and reinstalling the cylinder head bolt
	MD998767	Tensioner pulley socket wrench	Timing belt tension adjustment
	Recommended tool MZ203826 by Anzen Jidosha or MZ203827 by Banzai	Engine lifter	Supporting the engine assembly during removal and installation of the transmission
	MD991453	Engine hanger assembly	



ENGINE ADJUSTMENTS

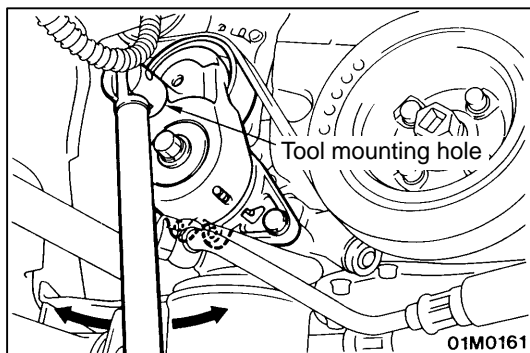
1. DRIVE BELT TENSION CHECK

NOTE

Use of the auto tensioner eliminates the need for belt tension adjustment. Check that the indicator mark on the auto tensioner is in the range of A shown.

If it is outside the specified range (i.e., in range of B shown), replace the drive belt.

(For the removal and installation of the drive belt, refer to P.11-9.)



2. AUTO TENSIONER CHECK

- (1) Stop the engine from the idle speed and check that the belt rests within the auto tensioner pulley width.
- (2) Remove the drive belt.
(For the removal of the drive belt, refer to P.11-9.)
- (3) Fit a spinner handle or similar tool into the tool mounting hole of the auto tensioner and turn the tensioner clockwise and counterclockwise to ensure that it does not bind.
- (4) If step (1) or (3), or both, have been checked abnormally, replace the auto tensioner.
- (5) Reinstall the drive belt.

3. LASH ADJUSTER CHECK

NOTE

If an unusual knocking noise can be heard immediately after the engine has started or while it is running and if that is probably attributable to the lash adjuster, make the following checks.

- (1) Check the engine oil and add or change oil as necessary.

NOTE

- (1) If the engine oil level is low, air is taken in through the oil screen, entering the oil passage.
- (2) If the oil level is too high, the cranks agitate oil causing oil to trap a large amount of air.
- (3) Air does not easily separate from a deteriorated oil that can contain an increased amount of air.

When air trapped in oil for these reasons gets into the high-pressure chamber of the lash adjuster, the air in the high-pressure chamber is compressed to shrink the lash adjuster excessively while the valve is opening, resulting in an unusual noise occurring. This is the same symptom developing when the valve clearance is adjusted to an excessive value.

The problem in this case is gone when air is released from the lash adjuster.

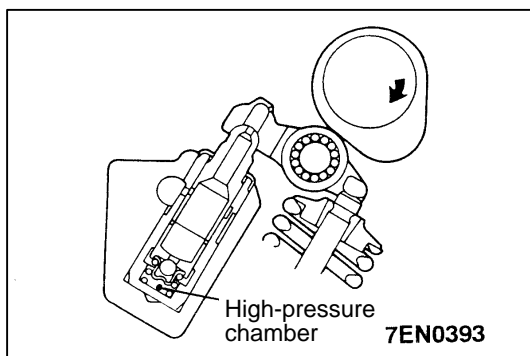
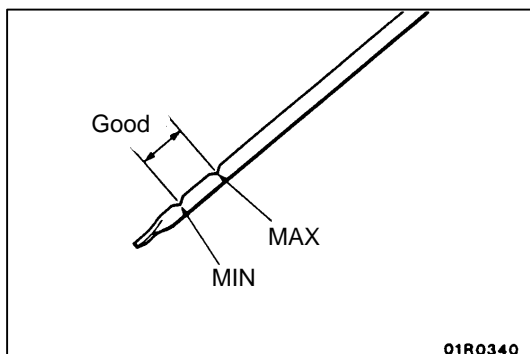
- (2) Start the engine and carry out several cycles (10 or less) of mild racing*.

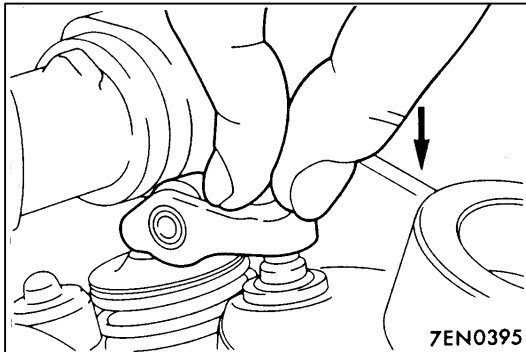
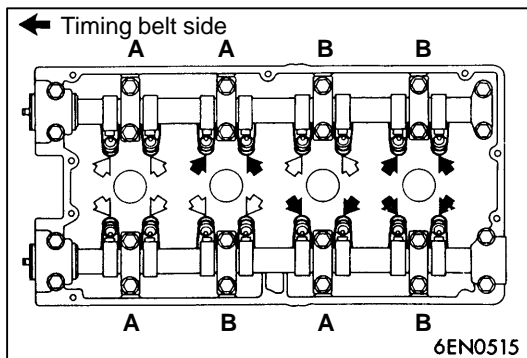
If the noise is gone after racing, it indicates that air has been released from the high-pressure chamber of the lash adjuster, restoring the lash adjuster to normal operating conditions.

*: Gradually (extending over a 30-sec. period) increase the engine speed from idle speed to 3,000 r/min and then reduce it down to the idle speed gradually (extending over a 30-sec. period).

NOTE

- (1) If the vehicle is parked on a slope for a long time, the amount of oil in the lash adjuster will decrease, causing air to get into the high-pressure chamber when the engine is started.
- (2) After the vehicle has been parked for a long time, oil drains out of the oil passage and it takes a long time for the oil to reach the lash adjuster. This can cause air to get into the high-pressure chamber.



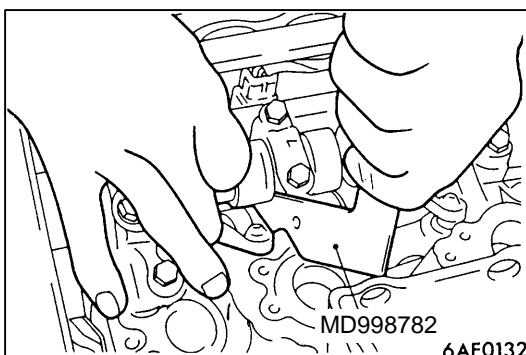
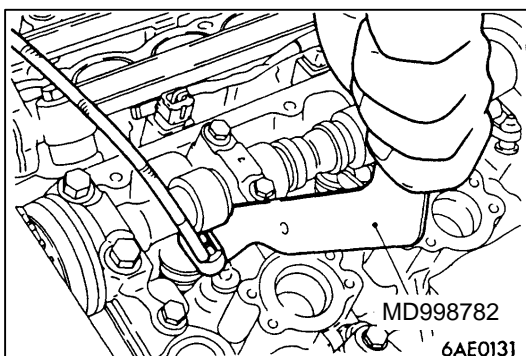


- (3) If the noise is not eliminated by racing, follow these steps to check the lash adjuster.
- Stop the engine.
 - Bring no. 1 cylinder to TDC on the compression stroke.
 - Push the rocker arms indicated by arrow A on the left to see if they go down.
 - Slowly turn the crankshaft clockwise 360°.
 - Perform the same step as step c for rocker arms indicated by arrow B.

- Push the part of the rocker arm which contacts the top of the lash adjuster. If the rocker arm can be easily moved down to the bottom, the lash adjuster is defective, requiring replacement. When the lash adjuster is replaced, be sure first to bleed the lash adjuster of air before installation. Then, perform steps a through e to ensure that no abnormal symptoms are noted.

NOTE

- The leak-down test is an effective means to accurately determine if the lash adjuster is operational or not.
- For the leak-down test and bleeding procedures, refer to ENGINE WORKSHOP MANUAL. If the rocker arm is felt binding and cannot be pushed downward as you push it, the lash adjuster is operational. Check for other possible causes for the noise.



- (4) Lash adjuster replacement

Caution

From the cylinder from which the lash adjuster is to be removed, turn the crankshaft to lower the piston, as the valve contacts the piston when pushed down. A rocker arm cannot be removed if it is lifted by the cam. If this is the case, turn the crankshaft so that the arm is not lifted.

- Using the special tool, push the valve downward to remove the roller rocker arm.
- Remove the lash adjuster from the cylinder head.
- Mount a brandnew lash adjuster which has been bled of air in the cylinder head.
- Using the special tool, lower the valve and install the roller rocker arm.

NOTE

To mount the roller rocker arm, first place the pivot side of the rocker arm on the lash adjuster, then push down the valve; next, place the slipper side of the rocker arm on the valve system side.

4. LASH ADJUSTER REPLACEMENT

Refer to (4) of the preceding paragraph.

5. IGNITION TIMING CHECK

Check that ignition timing is at the standard value.

Standard value: approx. 5° BTDC

NOTE

Ignition timing is variable within about $\pm 7^\circ$, even under normal operating.

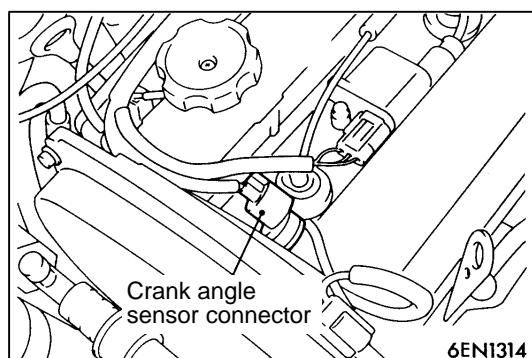
6. IDLE SPEED CHECK AND IDLE MIXTURE CHECK

- (1) Run the engine at 2,000 to 3,000 r/min for 2 minutes.
- (2) Check the CO and HC contents at idle.

Standard value

CO contents: 0.6% or less

HC contents: 300 ppm or less



7. COMPRESSION PRESSURE CHECK

- (1) Before inspection, check that the engine oil, starter and battery are normal. In addition, set the vehicle to the pre-inspection condition.
- (2) Remove all of the spark plugs.
- (3) Disconnect the crank angle sensor connector.

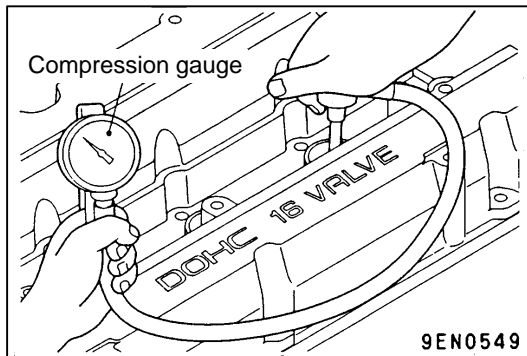
NOTE

Doing this will prevent the engine-ECU from carrying out ignition and fuel injection.

- (4) Cover the spark plug hole with a shop towel etc., and after the engine has been cranked, check that no foreign material is adhering to the shop towel.

Caution

- (1) Keep away from the spark plug hole when cranking.
- (2) If compression is measured with water, oil, fuel, etc., that has come from cracks inside the cylinder, these materials will become heated and will gush out from the spark plug hole, which is dangerous.



- (5) Set compression gauge to one of the spark plug holes.
- (6) Crank the engine with the throttle valve fully open and measure the compression pressure.

Standard value

(at engine speed of 250 r/min): 11.5 kg/cm²

Limit (at engine speed of 250 r/min): 9.7 kg/cm²

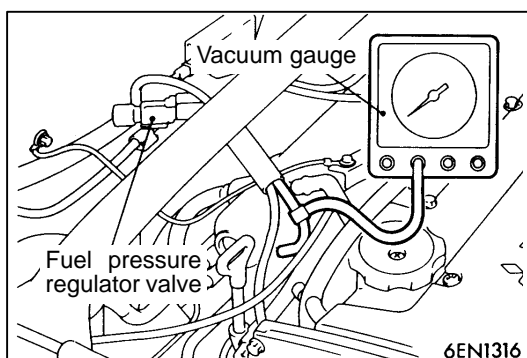
- (7) Measure the compression pressure for all the cylinders, and check that the pressure differences of the cylinders are below the limit.

Limit: Max. 1.0 kg/cm²

- (8) If there is a cylinder with compression or a compression difference that is outside the limit, pour a small amount of engine oil through the spark plug hole, and repeat the operations in steps (5) through (7).
 - a. If the compression increases after oil is added, the cause of the malfunction is a worn or damaged piston ring and/or cylinder inner surface.
 - b. If the compression does not rise after oil is added, the cause is a burnt or defective valve seat, or pressure is leaking from the gasket.
- (9) Connect the crank angle sensor connector.
- (10) Install the spark plugs.
- (11) Install the ignition coil and connect the ignition coil connector.
- (12) Erase the diagnosis codes by keeping the battery minus (-) cable disconnected for more than 10 seconds.

NOTE

This will erase the diagnosis code resulting from the crank angle sensor connector being disconnected.



8. MANIFOLD VACUUM CHECK

- (1) Before inspection, set the vehicle to the pre-inspection condition.
- (2) Connect a tachometer connector.
- (3) Attach a three-way union to the vacuum hose between the fuel pressure regulator valve and the intake manifold, and connect a vacuum gauge.
- (4) Start the engine and check that idle speed is within standard value.

Standard value: 850 ± 50 r/min

5. Check the manifold vacuum at idling.

Limit: Min. 55 kPa {410 mmHg}