SERVICE BULLETIN

MITSUBISHI MOTORS

GLOBAL AFTER SALES OFFICE, MITSUBISHI MOTORS CORPORATION

PURPOSE : CORRECTION	ISSUE NO. : MSB-13EXML11-502	DATE : 2013-07-12
SUBJECT : Compression pressure difference of all cylinders		<Destination/Model> (AS PER ATTACHED) <M/Y> 12-14
GROUP : ENGINE(Gr.11)		LANCER/LANCER EX(CY0A),LANCER SPORTBACK(CX0A) OUTLANDER(GF0W)

1. Description :

Please refer to the attached document for the correction of the error in writing existing in the applicable service manual.

2. Applicable service manual :

Please refer to the attached document

3. About the details :

Please refer to the attached document

※ **Effective time : From the initial vehicle**

Attached sheet 2

MMNA

Applicable manual	Pub. No.	Applicable title(Info-ID)	Contents
2014 OUTLANDER Service Manual	MSCD-007B-2014	SERVICE SPECIFICATIONS (M112-00-033-11400-01)	Attached sheet11
		COMPRESSION PRESSURE CHECK (M111-00-264-27400-01)	Attached sheet12

EU

Applicable manual	Pub. No.	Applicable title(Info-ID)	Contents
2012 LANCER/LANCER SPORTBACK Workshop Manual	CG1E12E1-CD(ENG) CG1F12E1-CD(FRE) CG1G12E1-CD(GER) CG1S12E1-CD(SPA) CG1I12E1-CD(ITA)	SERVICE SPECIFICATIONS (M112-00-032-84300-01)	Attached sheet13
		COMPRESSION PRESSURE CHECK (M111-00-264-08100-01)	Attached sheet14
2013 LANCER/LANCER SPORTBACK Workshop Manual	CG1E13E1-CD(ENG) CG1F13E1-CD(FRE) CG1G13E1-CD(GER) CG1S13E1-CD(SPA) CG1I13E1-CD(ITA)	SERVICE SPECIFICATIONS (M112-00-033-03900-01)	Attached sheet15
		COMPRESSION PRESSURE CHECK (M111-00-264-08100-01)	Attached sheet14
2013 OUTLANDER Workshop Manual	CGFE13E1-CD(ENG) CGFF13E1-CD(FRE) CGFG13E1-CD(GER) CGFS13E1-CD(SPA) CGFI13E1-CD(ITA)	SERVICE SPECIFICATIONS (M112-00-032-92800-01)	Attached sheet16
		COMPRESSION PRESSURE CHECK (M111-00-264-16600-01)	Attached sheet17
2014 OUTLANDER/PHEV Workshop Manual	CGFE14E1-CD(ENG) CGFF14E1-CD(FRE) CGFG14E1-CD(GER) CGFS14E1-CD(SPA) CGFI14E1-CD(ITA)	SERVICE SPECIFICATIONS (M112-00-032-92800-01)	Attached sheet16
		COMPRESSION PRESSURE CHECK (M111-00-264-16600-01)	Attached sheet17

Hong Kong

Applicable manual	Pub. No.	Applicable title(Info-ID)	Contents
2012 LANCER/LANCER EX Workshop Manual	PWME1111R (ENGLISH), PWMS1112R (SPANISH)	SERVICE SPECIFICATIONS (M112-01-100-04400-01)	Attached sheet18
		COMPRESSION PRESSURE CHECK (M111-00-264-10000-01)	Attached sheet19

AUSTRALIA, NEW ZEALAND AND CHINA

Applicable manual	Pub. No.	Applicable title(Info-ID)	Contents
2013 OUTLANDER Workshop Manual	AU900304(AUSTRALIA), DRAFT(NEW ZEALAND, CHINA)	SERVICE SPECIFICATIONS (M112-00-033-06200-01)	Attached sheet20
		COMPRESSION PRESSURE CHECK (M111-00-264-24100-01)	Attached sheet21

Attached sheet11

SERVICE SPECIFICATIONS

Item		Standard value	Limit
Drive belt tension	Vibration frequency Hz (Reference)	123 – 156	–
	Tension N (lb) (Reference)	268 – 421 (60.3 – 94.6)	–
Basic ignition timing at idle		5°BTDC ± 3°	–
Actual ignition timing at curb idle		Approximately 5° BTDC	–
CO contents %		0.5 or less	–
HC contents ppm		100 or less	–
Curb idle speed r/min		650 ± 100	–
Compression pressure (200 r/min) kPa (psi)		1,180 (171)	Minimum 800 (116)
Compression pressure difference of all cylinder kPa (psi)		– <Incorrect>	~~Minimum 100 (15)~~
Intake manifold vacuum at curb idle kPa (in Hg)		–	Minimum 60 (18)

Maximum 150 (22)
<Correct>

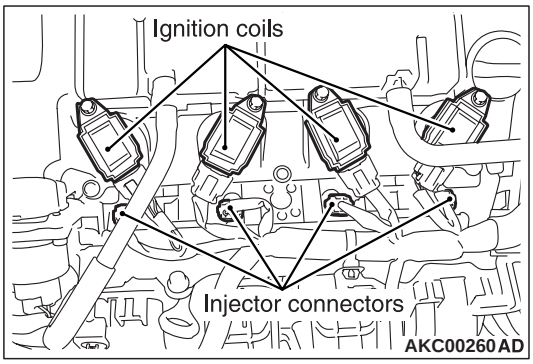
Attached sheet12

COMPRESSION PRESSURE CHECK

Required Special Tools:

- MB992744: Vehicle communication interface-Lite (V.C.I.-Lite)
- MB992745: V.C.I.-Lite main harness A
- MB992747: V.C.I.-Lite USB cable short
- MB992748: V.C.I.-Lite USB cable long
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

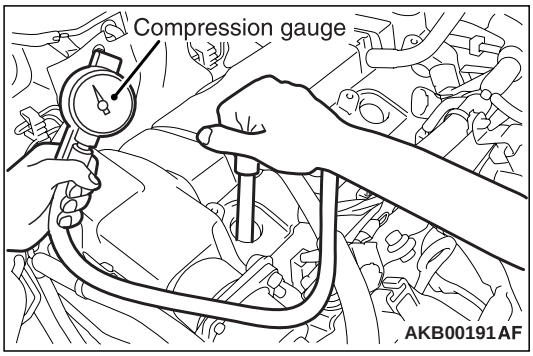
1. Before inspection, check that the engine oil, starter and battery are normal. Also, set the vehicle to the pre-inspection condition.
2. Remove all of the ignition coils and spark plugs. (Refer to GROUP 11B – Generator and Ignition System).
3. Disconnect the all of the injector connectors.



WARNING

Keep your distance from the spark plug hole when cranking. Oil, fuel, etc., may spray out from the spark plug hole and may cause serious injury.

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



5. Set compression gauge to one of the spark plug holes.
6. Cranking the engine with the accelerator pedal fully depressed, measure the compression pressure.

   Standard value (at engine speed of 200 r/min): 1,180 kPa (171 psi)
   Limit (at engine speed of 200 r/min): Minimum 800 kPa (116 psi)

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

   Limit: ~~Maximum 100 kPa (15 psi)~~ <Incorrect>

Maximum 150 kPa(22 psi)
<Correct>

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 from 5 to 7.
   (1) 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.
   (2) 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 all of the injector connector.

Attached sheet13

SERVICE SPECIFICATIONS

Item		Standard value	Limit
Drive belt tension	Vibration frequency Hz (Reference)	125 – 161	–
	Tension N (Reference)	265 – 440	–
Basic ignition timing		5° BTDC ± 3°	–
Ignition timing		Approximately 10° BTDC	–
Idle speed r/min		650 ± 100 <M/T> 700 ± 100 <CVT>	–
CO contents %		0.3 or less	–
HC contents ppm		200 or less	–
Valve clearance (at cold) mm	Intake valve	0.15 ± 0.03 (0.15 ± 0.03*)	–
	Exhaust valve	0.20 ± 0.03	–
Compression pressure (at engine speed of 200 r/min) kPa		1,200	800
Compression pressure difference of all cylinders kPa		–	~~Maximum 100~~
Intake manifold vacuum kPa		–	Minimum 60

*NOTE: *: The dial gauge reading is shown.*

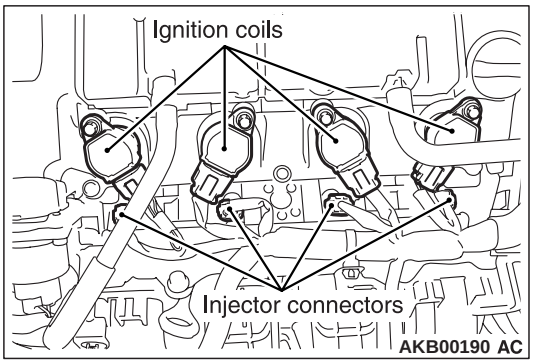
<Incorrect>

Maximum 150
<Correct>

Attached sheet14

COMPRESSION PRESSURE CHECK

1. Before inspection, set the vehicle to the pre-inspection condition.
2. Disconnect the connector of the ignition coil, and then remove all of the ignition coils and spark plugs.
3. Disconnect all of the injector connectors.



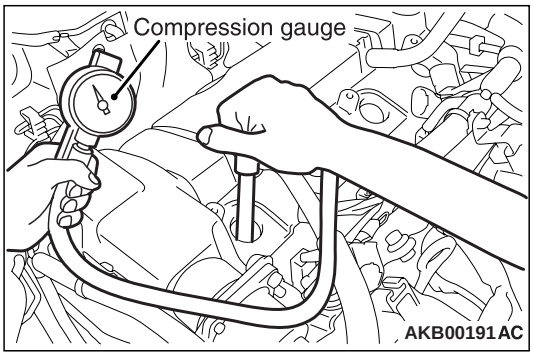
CAUTION

- **Keep away from the spark plug hole when cranking.**
- **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.**

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.
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 200 r/min): 1,200 kPa

   Limit (at engine speed of 200 r/min): Minimum 800 kPa



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

   Limit: ~~Maximum 100 kPa~~ <Incorrect>

   Maximum 150 kPa <Correct>

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 from 5 to 7.
   (1) 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.
   (2) 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 all of the injector connectors.
10. Install the spark plugs and spark plug cables.

Attached sheet15

SERVICE SPECIFICATIONS

Item		Standard value	Limit
Drive belt tension	Vibration frequency Hz (Reference)	125 – 161	–
	Tension N (Reference)	265 – 440	–
Basic ignition timing		5° BTDC ± 3°	–
Ignition timing		Approximately 10° BTDC	–
Idle speed r/min		650 ± 100 <M/T> 700 ± 100 <CVT>	–
CO contents %		0.3 or less	–
HC contents ppm		200 or less	–
Valve clearance (at cold) mm	Intake valve	0.15 ± 0.03 (0.15 ± 0.03*)	–
	Exhaust valve	0.20 ± 0.03	–
Compression pressure (at engine speed of 200 r/min) kPa		1,200	800
Compression pressure difference of all cylinders kPa		–	~~Maximum 100~~
Intake manifold vacuum kPa		–	Minimum 60

*NOTE: *: The dial gauge reading is shown.*

<Incorrect>

Maximum 150
<Correct>

Attached sheet16

SERVICE SPECIFICATIONS

Item		Standard value	Limit
Drive belt tension	Vibration frequency Hz (Reference)	115 – 156	–
	Tension N (Reference)	234 – 421	–
Basic ignition timing		5° BTDC ± 3°	–
Ignition timing		Approximately 10° BTDC	–
Idle speed r/min		650 ± 100	–
CO contents %		0.3 or less	–
HC contents ppm		200 or less	–
Valve clearance (at cold) mm	Intake valve	0.15 ± 0.03 (–0.11 ± 0.03*)	–
	Exhaust valve	0.20 ± 0.03	–
Compression pressure (at engine speed of 200 r/min) kPa		1,180	800
Compression pressure difference of all cylinders kPa		–	~~Maximum 100~~
Intake manifold vacuum kPa		–	Minimum 60

*NOTE: *: The dial gauge reading is shown.*

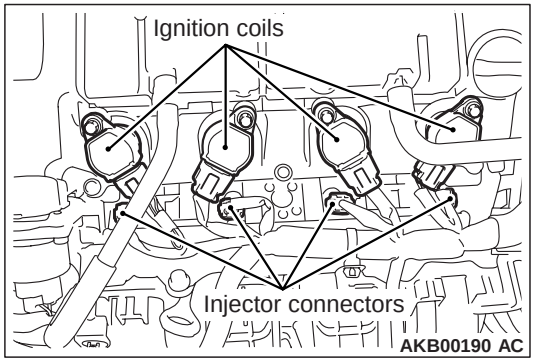
<Incorrect>

Maximum 150
<Correct>

Attached sheet17

COMPRESSION PRESSURE CHECK

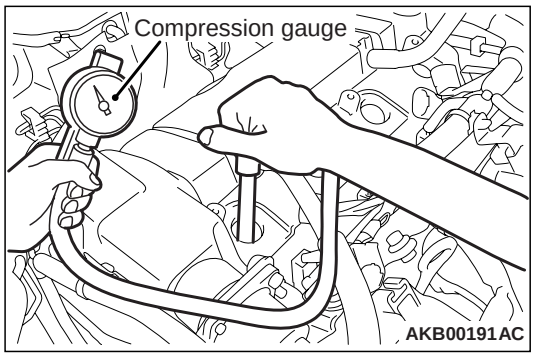
1. Before inspection, set the vehicle to the pre-inspection condition.
2. Disconnect the connector of the ignition coil, and then remove all of the ignition coils and spark plugs (Refer to GROUP 11D – Alternator and Ignition System).
3. Disconnect all of the injector connectors.



⚠ CAUTION

- **Keep away from the spark plug hole when cranking.**
- **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.**

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.
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 200 r/min): 1,180 kPa
   Limit (at engine speed of 200 r/min): Minimum 800 kPa

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

   Limit: ~~Maximum 100 kPa~~ <Incorrect>

   Maximum 150 kPa
   <Correct>

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 from 5 to 7.
   (1) 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.
   (2) 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 all of the injector connectors.
10. Install the spark plugs and ignition coils (Refer to GROUP 11D – Alternator and Ignition System).
11. Turn the ignition switch to the "LOCK" (OFF) position and then connect the M.U.T.-III to the diagnosis connector (Refer to GROUP 00 – Precautions Before Service – M.U.T.-III Sub Assembly).
12. Use the M.U.T.-III to erase the diagnosis codes.

    NOTE: This will erase the diagnosis code resulting from the injector connectors being disconnected.

Attached sheet18

SERVICE SPECIFICATIONS

Item		Standard value	Limit
Drive belt tension	Vibration frequency Hz (Reference)	125 – 161	–
	Tension N (Reference)	265 – 440	–
Basic ignition timing		5° BTDC ± 3°	–
Ignition timing		Approximately 10° BTDC	–
Idle speed r/min		700 ± 50	–
CO contents %		0.6 or less	–
HC contents ppm		200 or less	–
Valve clearance (at cold) mm	Intake valve	0.15 ± 0.03 (-0.11 ± 0.03*)	–
	Exhaust valve	0.20 ± 0.03	–
Compression pressure (at engine speed of 200 r/min) kPa		1,200	800
Compression pressure difference of all cylinders kPa		–	Maximum 100
Intake manifold vacuum kPa		–	Minimum 60

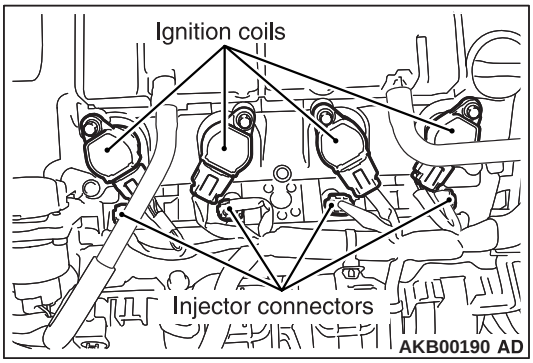
*NOTE: *: Value indicated by dial gauge is indicated.*

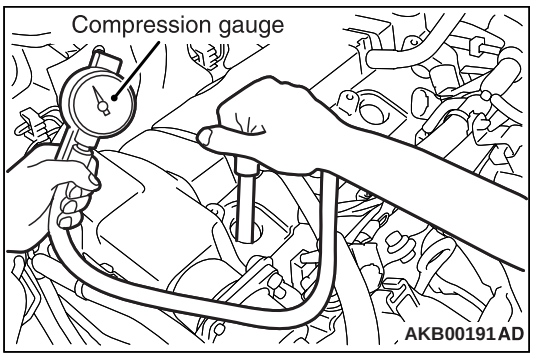
<Incorrect>

Maximum 150
<Correct>

Attached sheet19

COMPRESSION PRESSURE CHECK





1. Before inspection, set the vehicle to the pre-inspection condition.(Refer to GROUP 00 - Precautions before Service - Pre-inspection condition)
2. Disconnect the connector of the ignition coil, and then remove all of the ignition coils and spark plugs.
3. Disconnect the all of the injector connectors.

⚠ CAUTION

- **Keep away from the spark plug hole when cranking.**
- **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.**

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.
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 200 r/min): 1200 kPa
   Limit (at engine speed of 200 r/min): 800 kPa

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

   Limit: ~~Maximum 100 kPa~~ <Incorrect>

   Maximum 150 kPa
   <Correct>

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 from 5 to 7.
   (1) 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.
   (2) If the compression dose 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 all of the injector connectors.
10. Install the spark plugs and ignition coils.

Attached sheet20

SERVICE SPECIFICATIONS

Item		Standard value	Limit
Drive belt tension	Vibration frequency Hz (Reference)	115 – 156	–
	Tension N (Reference)	234 – 421	–
Basic ignition timing		5° BTDC ± 3°	–
Ignition timing		Approximately 5° BTDC	–
Idle speed r/min		650 ± 100	–
CO contents %		0.3 or less	–
HC contents ppm		200 or less	–
Valve clearance (at cold) mm	Inlet valve	0.15 ± 0.03 (–0.11 ± 0.03*)	–
	Exhaust valve	0.20 ± 0.03	–
Compression pressure (at engine speed of 200 r/min) kPa		1,180	800
Compression pressure difference of all cylinders kPa		–	~~Maximum 100~~
Inlet manifold vacuum kPa		–	Minimum 60

*NOTE: *: The dial gauge reading is shown.*

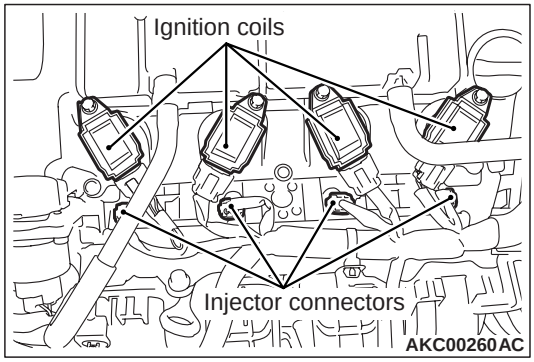
<Incorrect>

Maximum 150
<Correct>

Attached sheet21

COMPRESSION PRESSURE CHECK

1. Before inspection, set the vehicle to the pre-inspection condition.
2. Disconnect the connector of the ignition coil, and then remove all of the ignition coils and spark plugs (Refer to GROUP 11B – Alternator and Ignition System).
3. Disconnect all of the injector connectors.

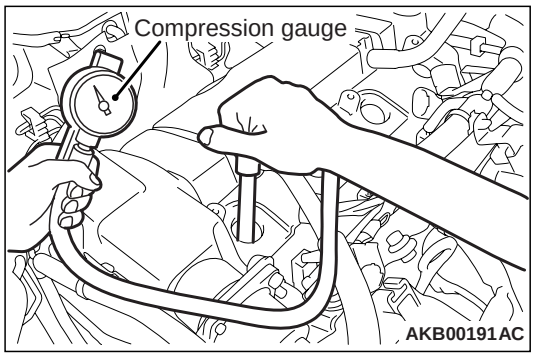


⚠ CAUTION

- **Keep away from the spark plug hole when cranking.**
- **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.**

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.
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 200 r/min): 1,180 kPa
   Limit (at engine speed of 200 r/min): Minimum 800 kPa



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

   Limit: ~~Maximum 100 kPa~~ <Incorrect>

   Maximum 150 kPa <Correct>

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 from 5 to 7.
   (1) 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.
   (2) 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 all of the injector connectors.
10. Install the spark plugs and ignition coils (Refer to GROUP 11B – Alternator and Ignition System).
11. Turn the ignition switch to the "LOCK" (OFF) position and then connect the M.U.T.-III to the diagnosis connector (Refer to GROUP 00 – Precautions Before Service – M.U.T.-III Sub Assembly).
12. Use the M.U.T.-III to erase the diagnosis codes.

    NOTE: This will erase the diagnosis code resulting from the injector connectors being disconnected.