Technical Service Bulletin

SUBJECT:	No:	TSB-20-11-001
CHANGES TO DRIVE BELT AND TENSIONER PROCEDURES - SMR - REVISED	DATE:	**February 2020**
	MODEL:	**See below**

CIRCULATE TO:	[ ] GENERAL MANAGER	[X] PARTS MANAGER	[X] TECHNICIAN
[X] SERVICE ADVISOR	[X] SERVICE MANAGER	[ ] WARRANTY PROCESSOR	[ ] SALES MANAGER

This bulletin supersedes TSB-13-11-009, issued September, 2013, to add additional affected model years and additional corrections to Service Specifications. Revisions are indicated by ◀.

PURPOSE

This TSB updates the Engine section of the affected Service Manuals, to revise the accessory drive belt and tensioner repair and maintenance procedures.

AFFECTED VEHICLES

- ▶ 2012 - *2015* Lancer
- ▶ 2012 - *2015* Lancer Sportback
- ▶ 2012 - *2015* Outlander Sport/RVR

AFFECTED SERVICE MANUALS

- ▶ 2012 - *2015* Lancer/Lancer Sportback Service Manual, Group 11-Engine
- ▶ 2012 - *2015* Outlander Sport/RVR Service Manual, Group 11-Engine

Continued

Please delete the indicated information in the:

2012 Outlander Sport/RVR Service Manual, Group 11-Engine -> 11A-Engine Mechanical -> Special Tools

2012 Lancer/Lancer Sportback Service Manual, Group 11-Engine -> 11A-Engine Mechanical -> Special Tools

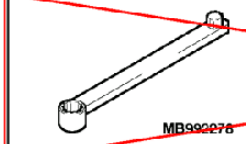
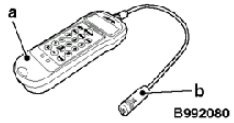
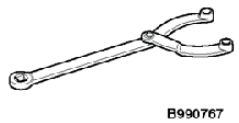
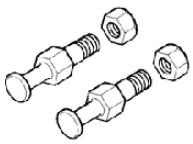
SEALANTS AND ADHESIVE

M1112000502364

Item	Specified sealant and adhesive	Remark
Rocker cover assembly (matching area of the cylinder head and the timing chain case)	ThreeBond 1227D, ThreeBond 1217G (Mitsubishi Genuine Part No.1000A923), LOCTITE 5900 or equivalent	Semi-drying sealant
Engine oil pan	ThreeBond 1227D, ThreeBond 1217G (Mitsubishi Genuine Part No.1000A923), ThreeBond 1207F (Mitsubishi Genuine Part No.1000A992), LOCTITE 5970, LOCTITE 5900 or equivalent	
Flywheel bolt <M/T> or drive plate bolt <CVT>	ThreeBond 1324 or equivalent	Anaerobic adhesive
Cylinder head gasket (matching area of the cylinder head, cylinder head gasket and the cylinder block)	ThreeBond 1217G (Mitsubishi Genuine Part No.1000A923), LOCTITE 5900 or equivalent	Semi-drying sealant
Timing chain case assembly		

SPECIAL TOOLS

M1112000503126

Tool <Deleted>	Tool number and name	Supersession	Application
 MB992278	MB992278 Belt tension release wrench	–	Drive belt auto-tensioner tension release
 a b B992080	MB992080 Belt tension meter set a: MB9912081 Belt tension meter b: MB992082 Microphone assembly	Tool not available	Drive belt tension check
 B990767	MB990767 Front hub and flange yoke holder	MB990767-01	Holding the crankshaft pulley
	MD998719 Pin	MIT308239	

Please make the indicated changes relating to the following information in the:

2012 Outlander Sport/RVR Service Manual, Group 11-Engine -> 11A-Engine Mechanical -> On-Vehicle Service -> Drive belt Auto-Tensioner Check

2012 Lancer/Lancer Sportback Service Manual, Group 11-Engine -> 11A-Engine Mechanical -> On-Vehicle Service -> Drive Belt Auto-Tensioner Check

ON-VEHICLE SERVICE

DRIVE BELT TENSION CHECK

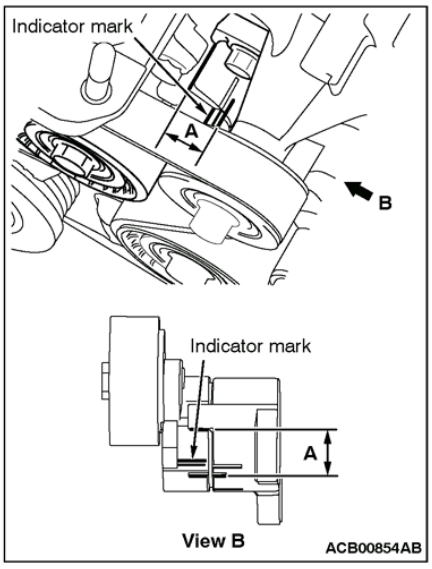
M1111003103688

1. Remove the radiator condenser tank mounting bolt, and move the radiator condenser tank to a place where it does not interfere with the drive belt tension check (Refer to GROUP 14 – Radiator).

⚠ CAUTION
Check the drive belt tension after turning the crankshaft clockwise one turn or more.

2. Make sure that the indicator mark on the drive belt auto-tensioner is within the area marked with A in the illustration.
3. If the mark is out of the area A, replace the drive belt.

   NOTE: The drive belt tension adjustment is not necessary as the drive belt auto-tensioner is adopted.
4. Install the radiator condenser tank to the original position (Refer to GROUP 14 – Radiator).



DRIVE BELT AUTO-TENSIONER CHECK

M1111003003432

OPERATION CHECK

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~~**Required Special Tool:**~~
~~MB992278: Belt tension release wrench~~

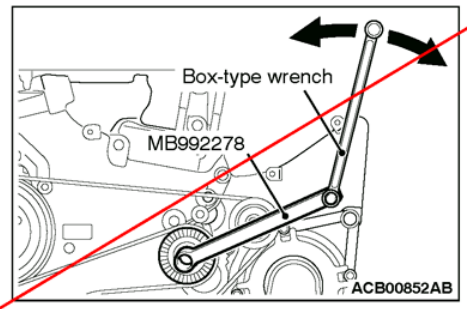
1. Stop the engine from the idle state.
2. Remove the radiator condenser tank mounting bolt, and move the radiator condenser tank to a place where it does not interfere with the drive belt auto-tensioner check (Refer to GROUP 14 – Radiator).
3. Check that the drive belt are not protruding from the pulley width of drive belt auto-tensioner.
4. Remove the drive belt .

<Old>

⚠ ***WARNING***
Always work from above when releasing the tension of the auto-tensioner. When you try to gain access from underneath the vehicle, you will experience difficulty, thus causing the tool to be dropped off.

⚠ **CAUTION**
To work at the optimum angle, you must choose a most suitable box-type wrench is applied to the special tool.

⚠ ***WARNING***
Be sure to set the box-type wrench and the special tool to the hexagonal parts securely to prevent the tool from falling off because the tension of the auto-tensioner is high.



5. Install special tool MB992278 and a box-type wrench at the optimum angle.
6. Check that no binding is present by turning the auto-tensioner in the left and right directions.
7. If there are any problems in the procedure 3 or 6, replace the drive belt auto-tensioner .
8. Install the drive belt .
9. Install the radiator condenser tank to the original position (Refer to GROUP 14 – Radiator).

Replace with information on next page

FUNCTION CHECK

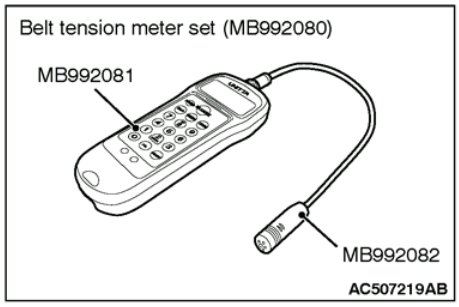
The drive belt auto-tensioner can be checked whether it is in good condition by checking its tension.

<When the vibration frequency is measured: Recommendation>

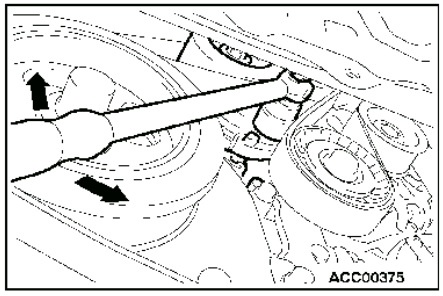
Required Special Tools:

- MB992080: Belt Tension Meter Set
  - MB992081: Belt Tension Meter
  - MB992082: Microphone Assembly

1. Check the tension of the drive belt.
2. Check the tension of the drive belt in the following procedures.
   (1) Connect special tool MB992082 to special tool MB992081 of special tool MB992080.
   (2) Press the "POWER" button to turn on the power supply.
   (3) Press number key "1". Check to ensure that "No.01" appears on the upper left of the display and that the following numeric values are displayed for individual items (M, W, and S):
   M 000.9 g/m
   W 010.0 mm/R
   S 0100 mm



<New>



⚠ ***WARNING***

Be sure to set the tool to the hexagonal part securely to prevent the tool from falling off because the tension of the auto-tensioner is high.

5. Securely set the tool to the hexagonal part of the auto-tensioner.

Please make the indicated changes relating to the following information in the:

2012 Outlander Sport/RVR Service Manual, Group 11-Engine -> 11A-Engine Mechanical -> Crankshaft Pulley Removal and Installation -> Removal Service Points -> <<B>> Drive Belt Removal

2012 Lancer/Lancer Sportback Service Manual, Group 11-Engine -> 11A-Engine Mechanical -> Crankshaft Pulley Removal and Installation -> Removal Service Points -> <<B>> Drive Belt Removal

<Old>

ENGINE MECHANICAL
CRANKSHAFT PULLEY

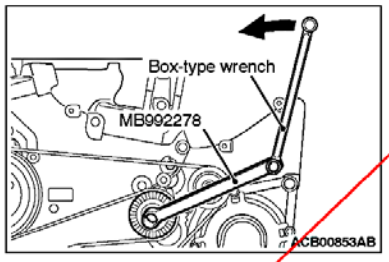
⚠ CAUTION
To reuse the drive belt, draw an arrow indicating the rotating direction on the back of the belt using chalk to install the same direction.

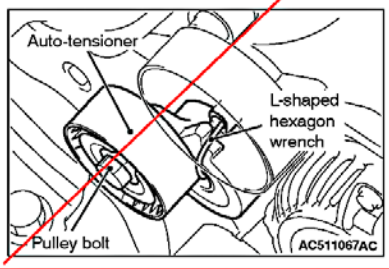
⚠ WARNING
Always work from above when releasing the tension of the auto-tensioner. When you try to gain access from underneath the vehicle, you will experience difficulty, thus causing the tool to be dropped off.

⚠ CAUTION
To work at the optimum angle, you must choose a most suitable box-type wrench is applied to the special tool.

⚠ WARNING
Be sure to set the box-type wrench and the special tool to the hexagonal parts securely to prevent the tool from falling off because the tension of the auto-tensioner is high.

1. Install special tool MB992278 and a box-type wrench at the optimum angle.
2. Rotate the pulley bolt of the auto-tensioner counterclockwise.
3. Insert the L-shaped hexagon wrench into the auto-tensioner hole to fix the auto-tensioner.
4. Remove the drive belt.



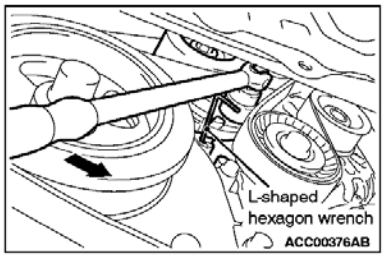


<New>

⚠ WARNING
Be sure to set the tool to the hexagonal part securely to prevent the tool from falling off because the tension of the auto-tensioner is high.

1. Securely set the tool to the hexagonal part of the auto-tensioner.
2. Rotate the auto-tensioner counterclockwise.
3. Insert the L-shaped hexagon wrench into the auto-tensioner hole to fix the auto-tensioner.

⚠ CAUTION
To reuse the drive belt, draw an arrow indicating the rotating direction on the back of the belt using chalk to install the same direction.



Please make the indicated changes relating to the following information in the:

2012 Outlander Sport/RVR Service Manual, Group 11-Engine -> 11A-Engine Mechanical -> Crankshaft Pulley Removal and Installation -> Removal Service Points -> <<B>> Drive Belt Removal

2012 Lancer/Lancer Sportback Service Manual, Group 11-Engine -> 11A-Engine Mechanical -> Crankshaft Pulley Removal and Installation -> Installation Service Points -> <<B>> Drive Belt Installation

:Old>

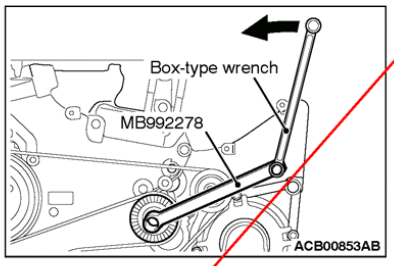
ENGINE MECHANICAL
CRANKSHAFT PULLEY

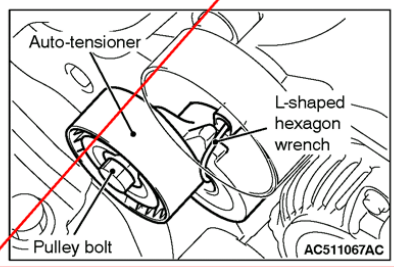
⚠ ***WARNING***
Always work from above when releasing the tension of the auto-tensioner. When you try to gain access from underneath the vehicle, you will experience difficulty, thus causing the tool to be dropped off.

⚠ **CAUTION**
To work at the optimum angle, you must choose a most suitable box-type wrench is applied to the special tool.

⚠ ***WARNING***
Be sure to set the box-type wrench and the special tool to the hexagonal parts securely to prevent the tool from falling off because the tension of the auto-tensioner is high.

2. Install special tool MB992278 and a box-type wrench at the optimum angle.
3. Rotate the auto-tensioner counterclockwise and remove the L-shaped hexagon wrench fixing the auto-tensioner.
4. Apply tension to the drive belt while slowly turning the auto-tensioner clockwise.

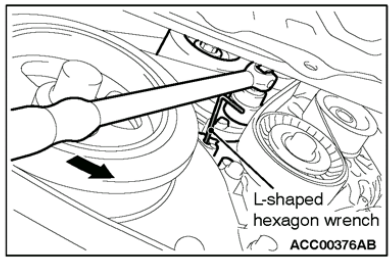




<New>

⚠ ***WARNING***
Be sure to set the tool to the hexagonal part securely to prevent the tool from falling off because the tension of the auto-tensioner is high.

2. Securely set the tool to the hexagonal part of the auto-tensioner.



Please make the indicated changes relating to the following information in the 2013 & 2014 Lancer/Lancer Sportback Service Manuals, Group 11-Engine -> 11E-Engine Mechanical -> Service Specifications

ENGINE MECHANICAL <2.4L ENGINE>
SERVICE SPECIFICATIONS

SYMPTOMS	PROBABLE CAUSE	REMEDY
Noisy valves	Incorrect valve clearance	Adjust valve clearance.
	Thin or diluted engine oil (low engine oil pressure)	Change the engine oil.
	Worn or damaged valve stem or valve guide	Replace the valve and/or the guide.
Connecting rod noise/main bearing noise	Insufficient oil supply	Check the engine oil level.
	Thin or diluted engine oil	Change the engine oil.
	Excessive bearing clearance	Replace the bearings.

SERVICE SPECIFICATIONS

M1111000302163

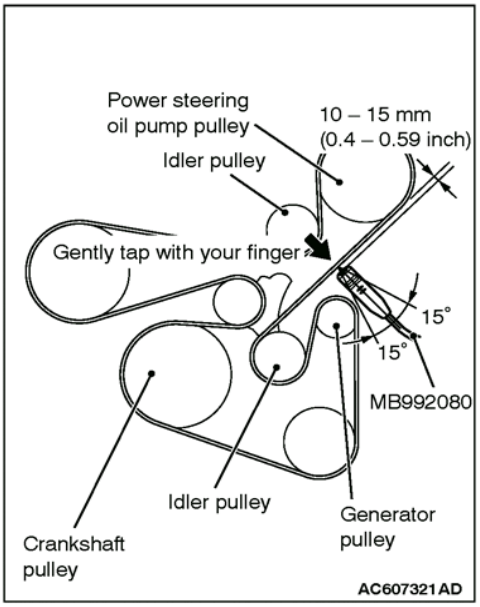
Item		Standard value	Limit
Drive belt tension	Vibration frequency Hz (Reference)	~~105 – 135~~ <Old>	– <New> 102 – 131
	Tension N (lb) (Reference) <Old>	~~262 – 430 (59 – 97)~~	– 260 – 421 (59 – 94)
Valve clearance (at cold) mm (in)	Intake valve	0.20 ± 0.03 (0.008 ± 0.0012)	– <New>
	Exhaust valve	0.30 ± 0.03 (0.012 ± 0.0012)	–
Basic ignition timing at idle		5°BTDC ± 3°	–
Actual ignition timing at curb idle		Approximately 10° 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)		1,440 (209)	Minimum 1,000 (145)
Compression pressure difference of all cylinder kPa (psi)		–	98 (14)
Intake manifold vacuum at curb idle kPa (in Hg)		–	Minimum 60 (18)

Please make the indicated changes relating to the following information in the 2013 & 2014 Lancer/Lancer Sportback Service Manuals, Group 11-Engine -> 11E-Engine Mechanical -> On-Vehicle Service -> Drive Belt Auto-Tensioner Check

ENGINE MECHANICAL <2.4L ENGINE>
ON-VEHICLE SERVICE

⚠ CAUTION

- **When measuring, make sure that the engine is cold.**
- **Measure after turning the crankshaft clockwise one turn or more.**
- **Do not allow any contaminants such as water or oil to get onto the microphone.**
- **If strong gusts of wind blow against the microphone or if there are any loud sources of noise nearby, the values measured by the microphone may not correspond to actual values.**
- **If the microphone is touching the belt while the measurement is being made, the values measured by the microphone may not correspond to actual values.**
- **Do not take the measurement while the vehicle's engine is running.**



(5) Hold special tool MB992080 to the middle of the belt between the pulleys (at the place indicated by arrow) where it does not contact the belt [approximately 10 – 15 mm (0.4 – 0.59 inch) away from the rear surface of the belt] so that it is perpendicular to the belt (within an angle of ± 15 degree angle.)

(6) Press the "MEASURE" button.

(7) Gently tap the middle of the belt between the pulleys (the place indicated by the arrow) with your finger as shown in the illustration, and check that the vibration frequency of the belt is within the standard value.

Standard value (Reference): ~~105 – 135 Hz~~ <Old> 102 131 Hz <New>

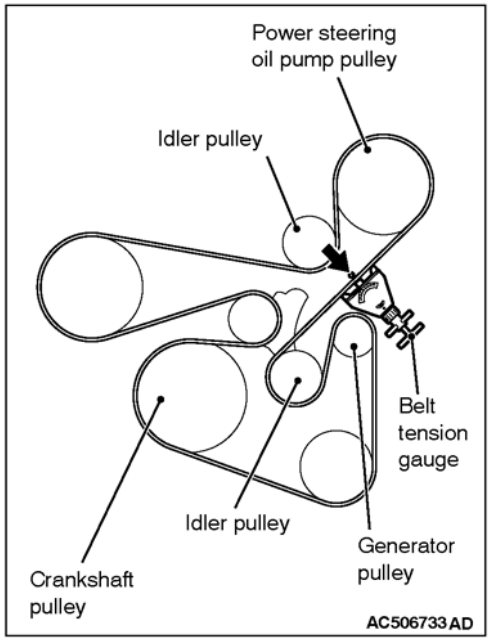
NOTE: To take the measurement repeatedly, tap the belt again.

(8) Press and hold the "POWER" button to turn off the power supply.

3. If not within the standard value, replace the auto-tensioner.

<When using a tension gauge>

1. Check the tension of the drive belt.



⚠ CAUTION

- **When measuring, make sure that the engine is cold.**
- **Measure after turning the crankshaft clockwise one turn or more.**

2. Use a belt tension gauge in the middle of the belt between the pulleys shown in the figure (at the place indicated by the arrow) to check that the belt tension is within the standard value.

<Old>
Standard value (Reference): ~~262 – 430 N (59 – 97 lb)~~
<New>
260 — 421 N (59 — 94 lb)

3. If not within the standard value, replace the auto-tensioner.

VALVE CLEARANCE CHECK AND ADJUSTMENT

M1111001502029

Refer to GROUP00, General – Maintenance service <2.0L ENGINE NON-TURBO, 2.4L ENGINE> – Intake And Exhaust Valve Clearance (Inspect And Adjust)

IGNITION TIMING CHECK

M1111001702302

Required Special Tool:

MB991958: Scan Tool (M.U.T.-III Sub Assembly)

- MB991824: V.C.I.
- MB991827: M.U.T.-III USB Cable
- MB991910: M.U.T.-III Main Harness A

1. Before inspection, set the vehicle in the following condition:

- Engine coolant temperature: 80 – 95°C (176 – 203°F)
- Lights and all accessories: OFF
- Transaxle: Neutral (P range on vehicles with CVT)

NOTE: On vehicles for Canada, the headlight, taillight, etc. remain lit even when the lighting switch is in "OFF" position but this is no problem for checks.

Please make the indicated changes relating to the following information in the 2013 & 2014 Lancer/Lancer Sportback Service Manuals, Group 11-Engine -> 11F-Engine Overhaul -> Generator and Ignition System -> Removal and Installation

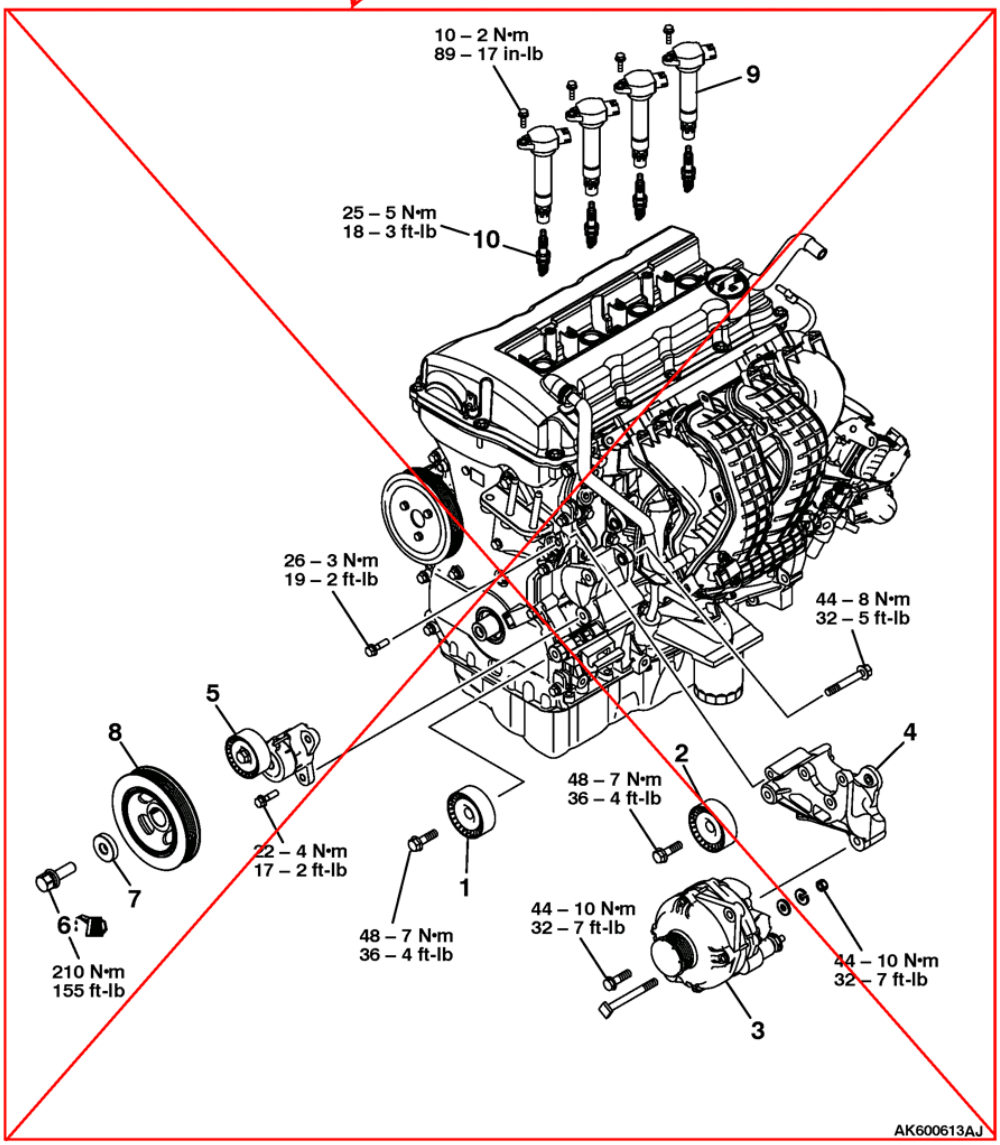
GENERATOR AND IGNITION SYSTEM

REMOVAL AND INSTALLATION

Replace with information on next page

M1113001002310

<Old>



Removal steps

1. Idler pulley
2. Idler pulley

>>C<< 3. Generator

>>C<< 4. Power steering pump bracket

5. Auto tensioner

Removal steps (Continued)

<<A>> >>B<< 6. Crankshaft pulley center bolt

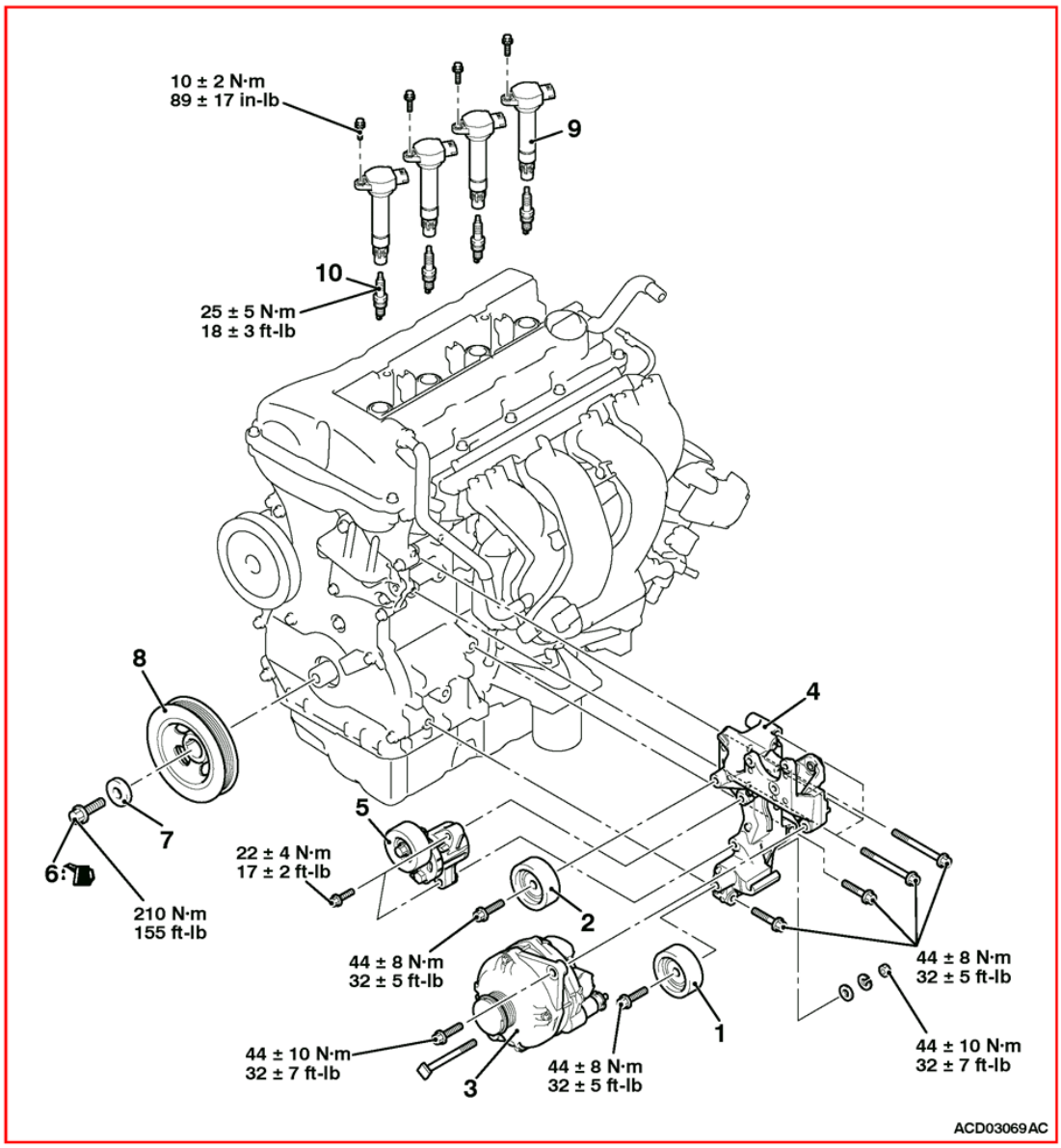
>>B<< 7. Crankshaft pulley washer

>>B<< 8. Crankshaft pulley

9. Ignition coil

<<B>> >>A<< 10. Spark plug

<New>


10 ± 2 N·m
89 ± 17 in-lb
9
10
25 ± 5 N·m
18 ± 3 ft-lb
8
4
5
7
6
22 ± 4 N·m
17 ± 2 ft-lb
210 N·m
155 ft-lb
2
44 ± 8 N·m
32 ± 5 ft-lb
44 ± 8 N·m
32 ± 5 ft-lb
1
44 ± 10 N·m
32 ± 7 ft-lb
3
44 ± 8 N·m
32 ± 5 ft-lb
44 ± 10 N·m
32 ± 7 ft-lb
ACD03069AC

▶ *Please make the indicated changes in the:*

▶ *2013 - 2015 Outlander Sport/RVR Service Manual, Group 11-Engine -> 11A-Engine Mechanical <2.0L Engine> -> Service Specifications*

▶ *2013 - 2015 Lancer/Lancer Sportback Service Manual, Group 11-Engine -> 11A-Engine Mechanical <2.0L Engine> Service Specifications*

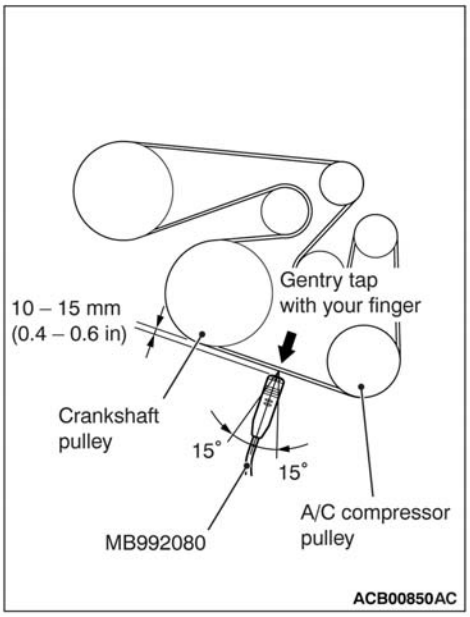
▶ **NOTE: The following two pages are new additions since TSB-13-11-009 was released.**

▶ **SERVICE SPECIFICATIONS**

<New>
123 — 156

Item		Standard value	Limit
Drive belt tension	Vibration frequency Hz (Reference)	~~115 — 156~~ <Old>	–
	Tension N (lb) (Reference) <Old>	~~234 – 421 (52.7 – 94.6)~~	–
Valve clearance (at cold) mm (in)	Intake valve	0.20 ± 0.03 (0.008 ± 0.0012)	–
	Exhaust valve	0.30 ± 0.03 (0.012 ± 0.0012)	–

<New>
268 — 421
(60.3 — 94.6)



(5) Hold special tool MB992080 to the middle of the belt between the pulleys (at the place indicated by arrow) where it does not contact the belt [approximately 10 – 15 mm (0.4 – 0.6 inch) away from the rear surface of the belt] so that it is perpendicular to the belt (within an angle of ± 15 degrees angle).
(6) Press the "MEASURE" button.
(7) Gently tap the middle of the belt between the pulleys (the place indicated by the arrow) with your finger as shown in the illustration, and check that the vibration frequency of the belt is within the standard value.

123 – 156 Hz <New>

Standard value (Reference): ~~115 – 156 Hz~~ <Old>

NOTE: To take the measurement repeatedly, tap the belt again.

(8) Press and hold the "POWER" button to turn off the power supply.

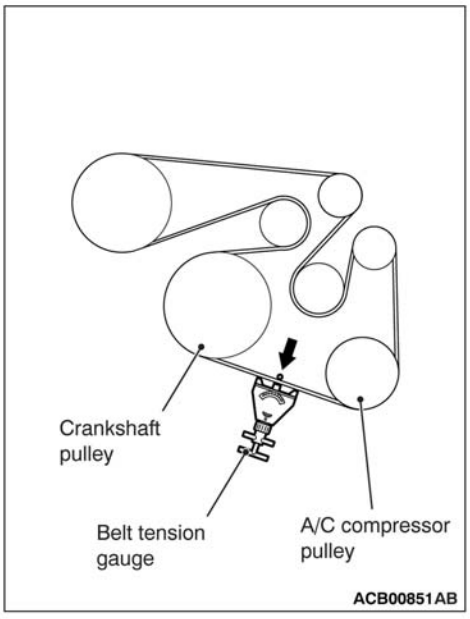
3. If not within the standard value, replace the drive belt auto-tensioner (Refer to).

<When using a tension gauge>

1. Check the tension of the drive belt (Refer to).

⚠ CAUTION

- **When measuring, make sure that the engine is cold.**
- **Measure after turning the crankshaft clockwise one turn or more.**



2. Use a belt tension gauge in the middle of the belt between the pulleys shown in the figure (at the place indicated by the arrow) to check that the belt tension is within the standard value.

<Old>

Standard value (Reference): ~~234 – 421 N (52.7 – 94.6 pounds)~~

3. If not within the standard value, replace the drive belt auto-tensioner (Refer to).

<New>
268 – 421 N (60.3 – 94.6 lb)