Technical Service Bulletin

SUBJECT:	No:
PROCEDURE FOR DIAGNOSTIC TROUBLE CODE AND ON-VEHICLE SERVICE FOR BELT & PULLEY ASSEMBLY ON CVT F1CJC AND W1CJC– SERVICE MANUAL REVISION	**TSB-24-23-001**
	DATE: **February 2024**
	MODEL: **See below**

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

PURPOSE

This TSB provides the addition of DIAGNOSIS and ON-VEHICLE SERVICE and changes to the following content in the applicable Service Manual sections:

- Change to the diagnosis trouble code procedure for DTC: P0776 and P084A
- Addition of trouble symptom for "Malfunction of hesitation or poor acceleration" in the TROUBLE SYMPTOM DIAGNOSIS CHART.

AFFECTED VEHICLES

2016-2017 Lancer
2016-2017 Lancer Sportback
2015-2021 Outlander Sport
2016-2020 Outlander
2018-2020 Eclipse Cross

AFFECTED SERVICE MANUAL

- 2016-2017 Lancer Service Manual
- 2016-2017 Lancer Sportback Service Manual
- 2015-2021 Outlander Sport Service Manual
- 2016-2020 Outlander Service Manual
- 2018-2020 Eclipse Cross Service Manual

PROCEDURE

Please use the following chart (attached sheet 1, pages 1 of 6) as a guide to add the indicated pages into the affected Service Manuals, Group 23, CVT and CONTINUOUSLY VARIABLE TRANSAXLE OVERHAUL BELT AND PULLEY ASSEMBLY.

Attached sheet 1 (1/6)

Applicable Manual	Pub. No.	Applicable Title (Info-ID)	Contents
2016 LANCER/ LANCER SPORTBACK Service Manual	MSCD-106B-2016	DTC P0776: Abnormality in Secondary Pressure Solenoid Valve Function (M231-20-650-32200-01)	Attached Sheet 2
		DTC P084A: Abnormality in Primary Pressure Sensor Function (M231-22-240-01300-01)	Attached Sheet 3
		Added below "TROUBLE SYMPTOM DIAGNOSIS CHART" (M231-22-050-07000-01)	Attached Sheet 4
		Added below "SPECIAL TOOLS" (M231-20-060-75201-01)	Attached Sheet 5
		Added below "SHIFT LOCK MECHANISM CHECK" (M232-10-030-42300-01)	Attached Sheet 6
		Added below "GENERAL SPECIFICATION" (M233-20-101-19400-01)	Attached Sheet 7
		Added below "TORQUE SPECIFICATIONS" (M233-20-500-87000-01)	Attached Sheet 8
		Added below "LUBRICANTS" (M233-20-040-56100-01)	Attached Sheet 9
		Added below "SPECIAL TOOLS" (M233-20-700-63800-01)	Attached Sheet 10
		Added below "TRANSAXLE DISASSEMBLY AND REASSEMBLY" (M233-20-801-14000-01)	Attached Sheet 11
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Attached sheet 1 (2/6)

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2015 OUTLANDER SPORT Service Manual	MSCD-017B-2015	DTC P0776: Abnormality in Secondary Pressure Solenoid Valve Function (M231-20-650-32200-01)	Attached Sheet 2
		DTC P084A: Abnormality in Primary Pressure Sensor Function (M231-22-240-01300-01)	Attached Sheet 3
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		Added below "SHIFT LOCK MECHANISM CHECK" (M232-10-030-50800-01)	Attached Sheet 6
		Added below "GENERAL SPECIFICATION" (M233-20-101-04200-01)	Attached Sheet 7
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		DTC P084A: Abnormality in Primary Pressure Sensor Function (M231-22-240-01300-01)	Attached Sheet 3
		Added below "TROUBLE SYMPTOM DIAGNOSIS CHART" (M231-22-050-07000-01)	Attached Sheet 4
		Added below "SPECIAL TOOLS" (M231-20-061-00101-01)	Attached Sheet 5
		Added below "SHIFT LOCK MECHANISM CHECK" (M232-10-030-64900-01)	Attached Sheet 6
		Added below "GENERAL SPECIFICATION" (M233-20-101-29100-01)	Attached Sheet 7
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		DTC P084A: Abnormality in Primary Pressure Sensor Function (M231-22-240-01300-01)	Attached Sheet 3
		Added below "TROUBLE SYMPTOM DIAGNOSIS CHART" (M231-22-050-07000-01)	Attached Sheet 4
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Attached sheet 1 (4/6)

Applicable Manual	Pub. No.	Applicable Title (Info-ID)	Contents
2021 OUTLANDER SPORT Service Manual	MSCD-017B-2021	DTC P0776: Abnormality in Secondary Pressure Solenoid Valve Function (M123120650040700)	Attached Sheet 2
		DTC P084A: Abnormality in Primary Pressure Sensor Function (M123122240001300)	Attached Sheet 3
		Added below "TROUBLE SYMPTOM DIAGNOSIS CHART" (M123122050007000)	Attached Sheet 4
		Added below "SPECIAL TOOLS" (M123120060100101)	Attached Sheet 5
		Added below "SHIFT LOCK MECHANISM CHECK" (M123210030064900)	Attached Sheet 6
		Added below "GENERAL SPECIFICATION" (M123320100129100)	Attached Sheet 7
		Added below "TORQUE SPECIFICATIONS" (M12332050A001600)	Attached Sheet 8
		Added below "LUBRICANTS" (M123320040056100)	Attached Sheet 9
		Added below "SPECIAL TOOLS" (M123320700063800)	Attached Sheet 10
		Added below "TRANSAXLE DISASSEMBLY AND REASSEMBLY" (M123320800185000)	Attached Sheet 11

<OUTLANDER>

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		Added below "TORQUE SPECIFICATIONS" (M233-20-500-98800-01)	Attached Sheet 8
		Added below "LUBRICANTS" (M233-20-040-56100-01)	Attached Sheet 9
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2018 OUTLANDER Service Manual	MSCD-007B-2018	DTC P0776: Abnormality in Secondary Pressure Solenoid Valve Function (M231-20-650-42900-01)	Attached Sheet 2
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2018 ECLIPSE CROSS Service Manual	MSCD-020B-2018	DTC P0776: Abnormality in Secondary Pressure Solenoid Valve Function (M231-20-650-43000-01)	Attached Sheet 2
		DTC P084A: Abnormality in Primary Pressure Sensor Function (M231-22-240-05700-01)	Attached Sheet 3
		Added below "TROUBLE SYMPTOM DIAGNOSIS CHART" (M231-22-050-07000-01)	Attached Sheet 4
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		Added below "GENERAL SPECIFICATION" (M233-20-101-30900-01)	Attached Sheet 7
		Added below "TORQUE SPECIFICATIONS" (M233-20-501-46400-01)	Attached Sheet 8
		Added below "LUBRICANTS" (M233-20-040-54900-01)	Attached Sheet 9
		Added below "SPECIAL TOOLS" (M233-20-700-61600-01)	Attached Sheet 10
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		DTC P084A: Abnormality in Primary Pressure Sensor Function (M231-22-240-05701-01)	Attached Sheet 3
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Attached sheet 2 (1/5)

DTC P0776: Abnormality in Secondary Pressure Solenoid Valve Function

DIAGNOSTIC FUNCTION

TCM conducts fault detection by measuring the difference between the target value and the actual value for the secondary pressure.

DESCRIPTIONS OF MONITOR METHODS

The following three conditions are met for 10 seconds.

- The engine is running.
- Selector lever position: Other than P, N.
- Fluid temperature: More than -20°C (-4°F).
- Difference between the target secondary pressure and actual secondary pressure is 1.2 MPa (174 psi) or more.

MONITOR EXECUTION

- Voltage of battery: 10 volts or more.

MONITOR EXECUTION CONDITIONS (OTHER MONITOR AND SENSOR)

Other Monitor (There is no temporary DTC stored in memory for the item monitored below)

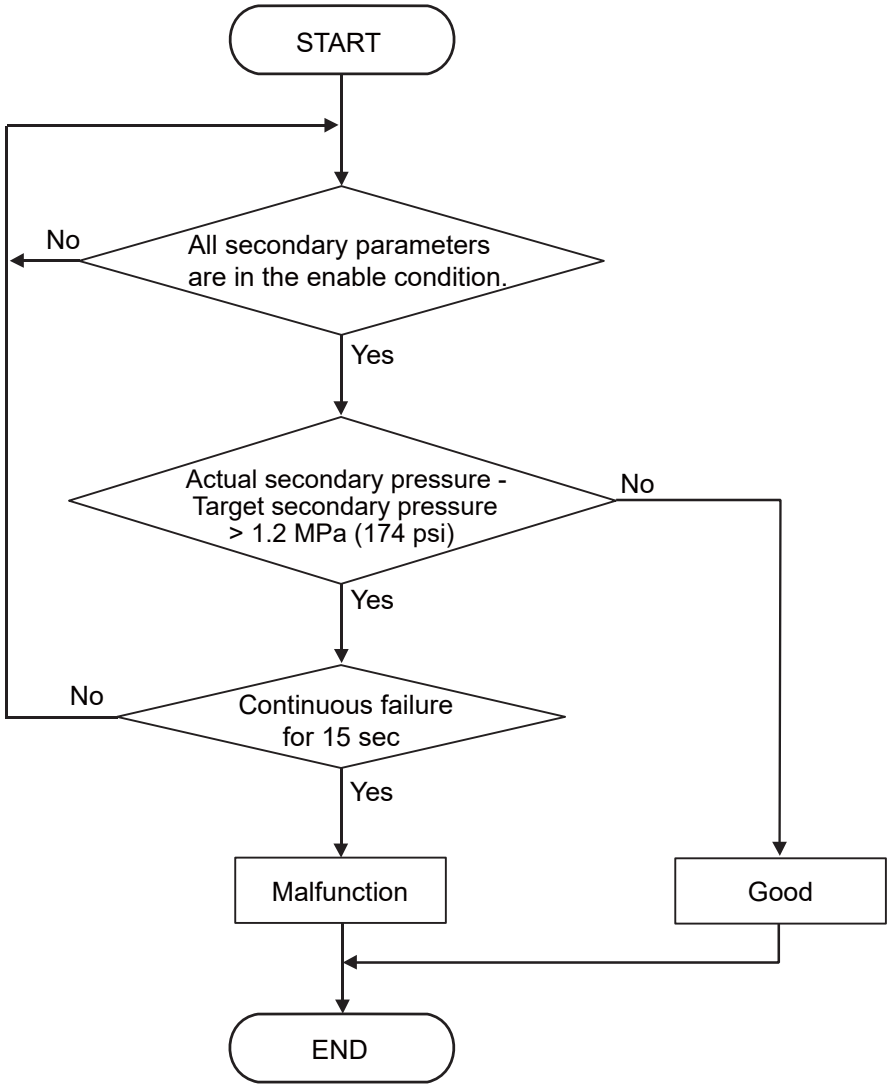
- Not applicable

Sensor (The sensor below is determined to be normal)

- Not applicable

Attached sheet 2 (2/5)

LOGIC FLOW CHARTS (Monitor Sequence-Output Functional High)



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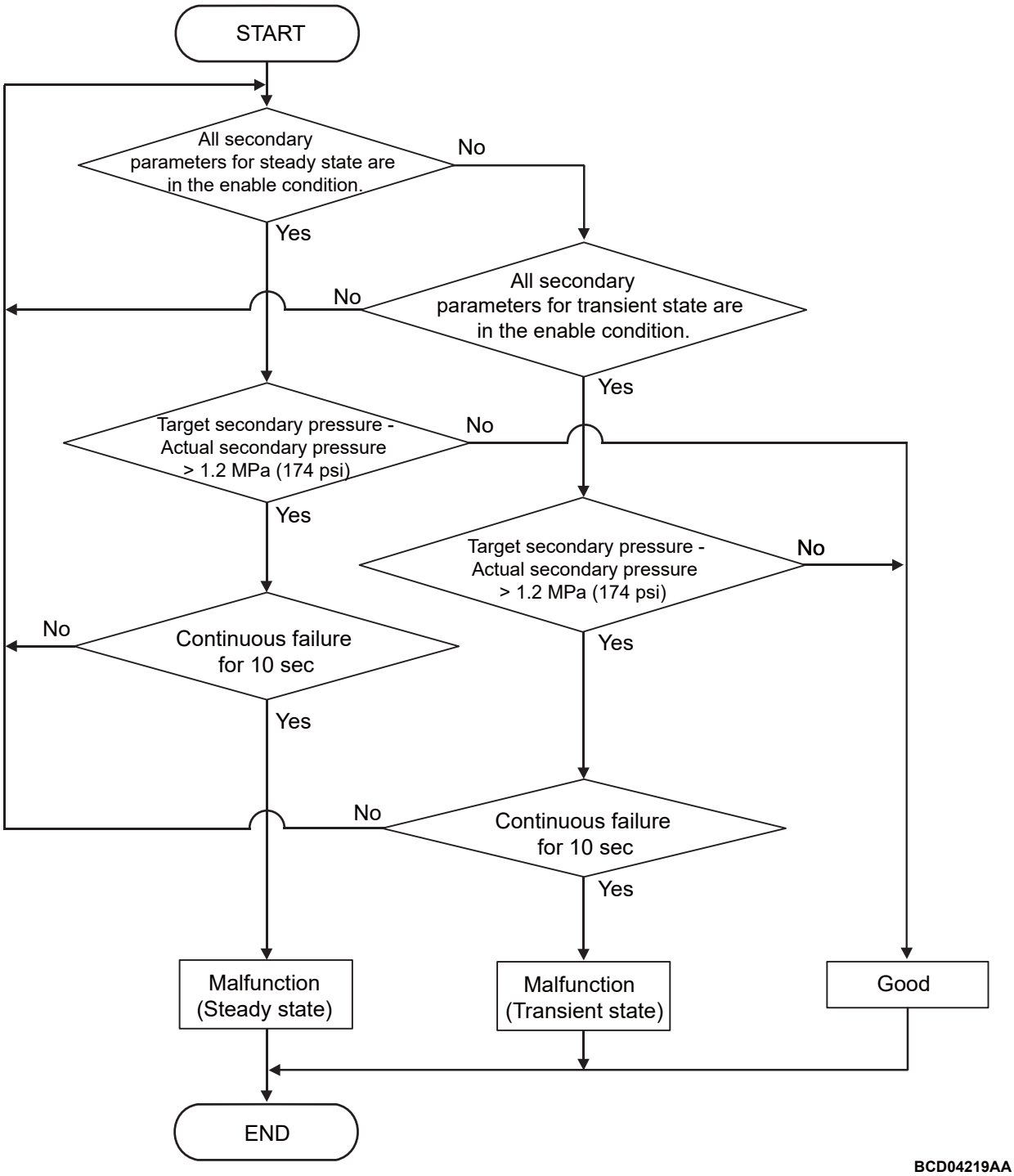
LOGIC FLOW CHARTS (Monitor Sequence-Output Functional Low)



DTC SET CONDITIONS

Check Conditions <Output Functional High>

- Voltage of battery: 10 volts or more.
- Transmission range switch position: D or R.

Check Conditions <Output Functional Low (Steady state)>

- Voltage of battery: 10 volts or more.
- Transmission range switch position: D or R.
- Engine speed: 450 r/min or more.
- Target secondary pressure: 0 MPa (0 psi) or more.
- Time since following conditions are approved: More than 1.52 seconds [2 times (Interval: 30 second)].
  a. Target secondary pressure - Actual secondary pressure: 0.25 MPa (36 psi) or more.

b. Actual secondary pressure: Less than minimum line pressure.
c. Accelerator pedal position change rate: 6.25% / 1.52 seconds or less.
d. Vehicle speed change rate: 15 km/h (9 mph) / 1.52 seconds or less.

Check Conditions <Output Functional Low (Transient state)>
- Voltage of battery: 10 volts or more.
- Transmission range switch position: D or R.
- Engine speed: 450 r/min or more.
- Target secondary pressure: 0 MPa (0 psi) or more.
- Time since following conditions are approved: More than 1 seconds.
  a. MIN [(Target secondary pressure - Actual secondary pressure), (Minimum line pressure - Actual secondary pressure)]: 2 MPa (290 psi) or more.

Judgment Criteria <Output Functional High>
- Actual secondary pressure - Target secondary pressure: More than 1.2 MPa (174 psi) (15 seconds).

Judgment Criteria <Output Functional Low (Steady state)>
- Target secondary pressure - Actual secondary pressure: More than 1.2 MPa (174 psi) (10 seconds).

Judgment Criteria <Output Functional Low (Transient state)>
- Target secondary pressure - Actual secondary pressure: More than 1.2 MPa (174 psi) (10 seconds).

OBD-II DRIVE CYCLE PATTERN

The vehicle is driven for at least 10 seconds with the accelerator opening angle at 20% or more.

PROBABLE CAUSES

- Malfunction of valve body assembly (Faulty secondary pressure solenoid valve)
- Malfunction of the CVT assembly
- Malfunction of the TCM

DIAGNOSIS

STEP 1. Scan tool (M.U.T.-IIISE) DTC.

Q: Is diagnostic trouble code No. P0966 or P0967 set?

YES : Carry out the appropriate troubleshooting.
NO : Go to Step 2.

STEP 2. Measure the output wave pattern of the secondary pressure solenoid valve at TCM connector (SCLS terminal).

(1) Connect the CVT assembly connector.
(2) Selector lever position: L range or sport mode (1st gear).
(3) Drive at a constant speed of approx. 20 km/h (13 mph).
(4) Connect an oscilloscope, and measure the voltage between TCM connector SCLS terminal and body ground.

OK: A wave pattern such as the one shown on (Check Procedure Using an Oscilloscope) should be output. There should be no noise in the output wave pattern.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Refer to diagnostic trouble code No.P0966: Malfunction of Secondary Pressure Solenoid Valve (low input), or diagnostic trouble code No.P0967: Malfunction of Secondary Pressure Solenoid Valve (high input).

Attached sheet 2 (5/5)

STEP 3. CVT belt inspection.
Use the bore scope (MQ600069) to check the appearance (Slip marks, the presence or absence of damage) of the CVT belt. (Refer to On-vehicle Service – CVT Belt Inspection)

Q: Is the CVT belt normal?

YES : Replace the valve body assembly. Then go to Step 4.
NO : Replace the belt & pulley and valve body assembly.

STEP 4. Check whether the DTC is stored again.
Erase the DTC.
Then, drive the vehicle for a while and check again.

Q: Is the diagnostic trouble code set?

YES : Replace the TCM.
NO : This diagnosis is complete.

DTC P084A: Abnormality in Primary Pressure Sensor Function

DIAGNOSTIC FUNCTION

The TCM determines that the system is defective when the primary pressure sensor output voltage is outside the predetermined value range.

DESCRIPTIONS OF MONITOR METHODS

All the conditions listed below remain for 5 seconds.

- The pulley ratio is 0.5 or more, 1.0 or less.
- The primary pulley speed is 300 r/min or more.
- The secondary pulley speed is 250 r/min or more.
- Target shifting speed is 0.1/sec or less.
- The primary pressure is outside the predetermined pressure range.

MONITOR EXECUTION

- Voltage of battery: 10 volts or more.

MONITOR EXECUTION CONDITIONS (OTHER MONITOR AND SENSOR)

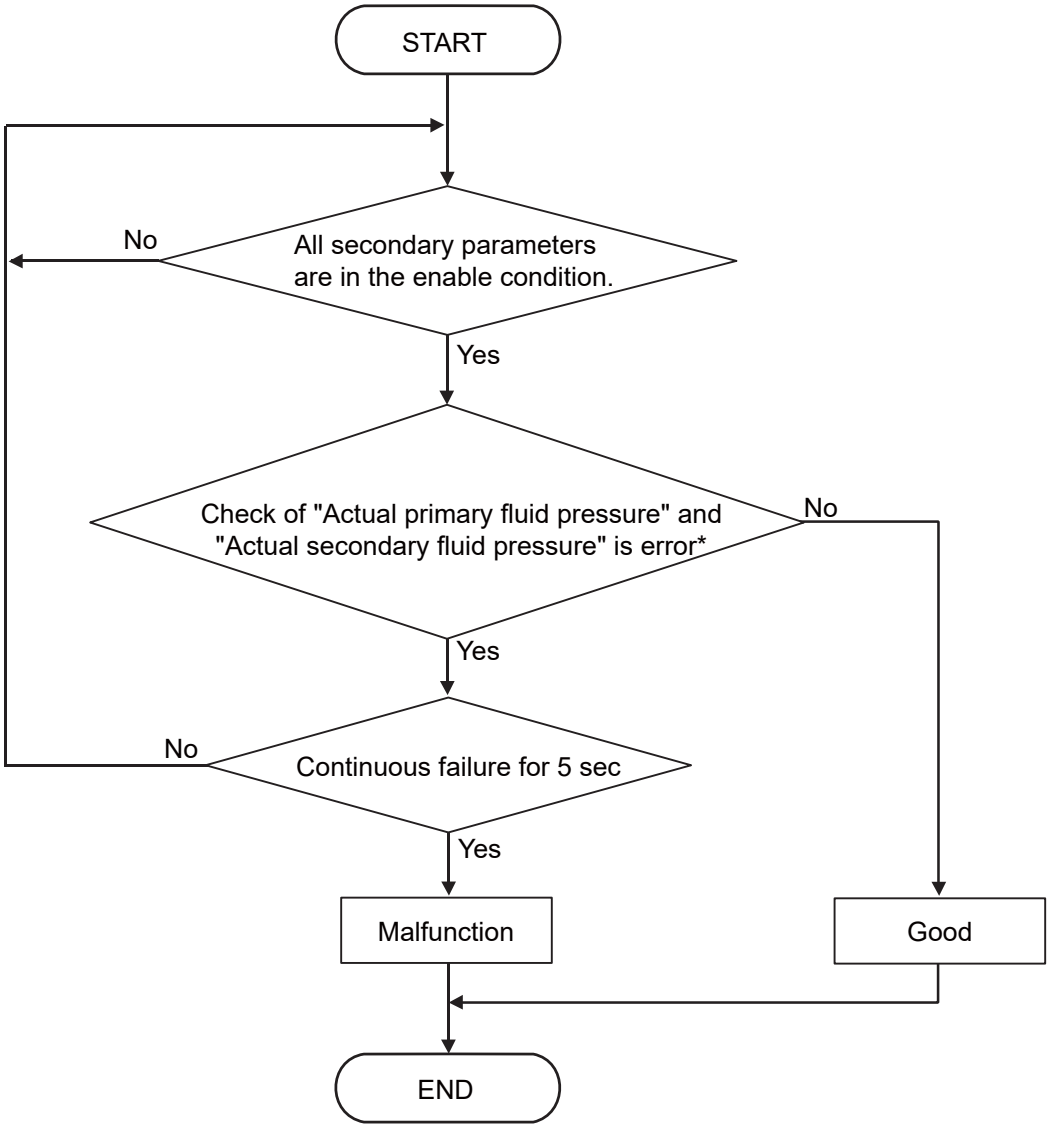
Other Monitor (There is no temporary DTC stored in memory for the item monitored below)

- P0966, P0967: Malfunction of secondary pressure solenoid valve
- P0970, P0971: Malfunction of primary pressure solenoid valve

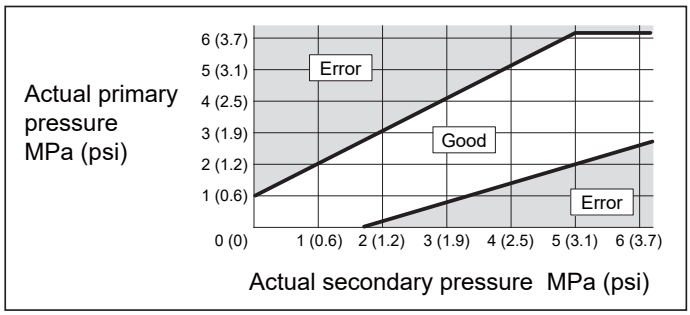
Sensor (The sensor below is determined to be normal)

- Not applicable

LOGIC FLOW CHARTS (Monitor Sequence)



NOTE: *:



ACD04282

DTC SET CONDITIONS

Check Conditions

- Voltage of battery: 10 volts or more.
- Primary pulley speed: 300 r/min or more.
- Secondary pulley speed: 250 r/min or more.
- Pulley ratio: More than 0.5, less than 1.0.

Judgment Criteria

- Check of "Actual primary pressure" and "Actual secondary pressure" is error. (5 seconds).

OBD-II DRIVE CYCLE PATTERN

Ignition switch: ON (start the engine and keep it for 10 seconds or more).

PROBABLE CAUSES

- Malfunction of valve body assembly (Faulty primary pressure sensor, secondary pressure sensor)
- Damaged wiring harness and connectors
- Malfunction of the CVT assembly
- Malfunction of the TCM

DIAGNOSIS

STEP 1. Scan tool (M.U.T.-IIISE) DTC.

Q: Is diagnostic trouble code No. P0842, P0843, P0847 or P0848 set?

YES : Carry out the appropriate troubleshooting.
NO : Go to Step 2.

STEP 2. CVT belt inspection

Use the bore scope (MQ600069) to check the appearance (Slip marks, the presence or absence of damage) of the CVT belt. (Refer to On-vehicle Service – CVT Belt Inspection)

Q: Is the CVT belt normal?

YES : Replace the valve body assembly. Then go to Step 3.
NO : Replace the belt & pulley and valve body assembly.

STEP 3.Check whether the DTC is stored again

Erase the DTC.
Then, drive the vehicle for a while and check again.

Q: Is the diagnostic trouble code set?

YES : Replace the TCM.
NO : This diagnosis is complete.

Attached sheet 4

TROUBLE SYMPTOM DIAGNOSIS CHART

Diagnose the system by referring to the trouble symptom chart and the possible cause chart. Then check, repair or replace if necessary.

Trouble symptom chart

NOTE: Diagnose the system in the order of "Possible cause No.".

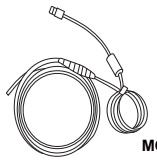
Trouble symptom		Possible cause No.
Others	Malfunction of hesitation or poor acceleration	2 → 3 → 1 → 18

Possible cause chart

Possible cause No.	Probable cause	Remedy
1	Malfunction of the engine system	Check the engine system, and repair or replace if necessary.
2	Improper transmission fluid level	Check the transmission fluid, and repair or replace if necessary.
3	Not within the standard value of the line pressure	Check the hydraulic system, and repair or replace if necessary.
18	Malfunction of the CVT belt & pulley assembly	Visually inspection of CVT belt.

Attached sheet 5

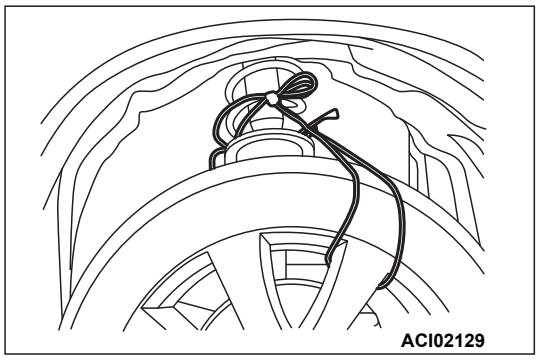
SPECIAL TOOLS

Tool	Tool number and name	Supersession	Application
 MQ600069	MQ600069 Bore scope	-	Check of the CVT belt

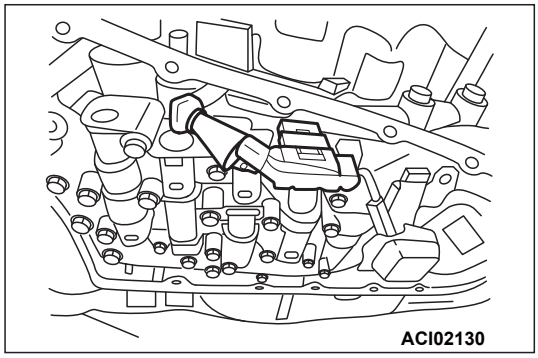
ON-VEHICLE SERVICE

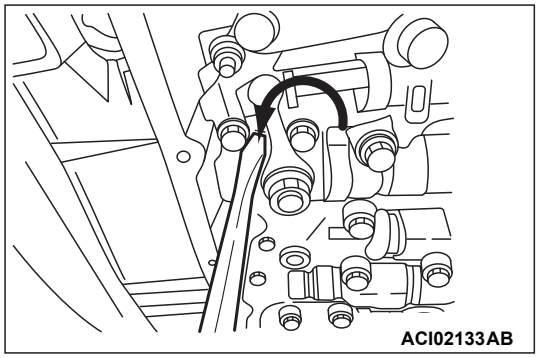
CVT BELT INSPECTION

<Valve Body Removal>


ACI02129

1. Place the vehicle on a lift, put gear in "N".
2. Turn the ignition switch to the "LOCK" (OFF) position.
3. Disconnect negative (-) battery terminal.
4. Raise the vehicle. Make sure gear is in "N" prior to raising the vehicle.
5. Tie the right front tire and any vehicle member with a rope not to rotate the wheel.
6. Remove the drain plug from CVT oil pan and then drain CVT fluid.
7. Remove the oil pan bolts, and then oil pan and oil pan gasket. (Refer to GROUP 23A – Oil pan and Valve body assembly)
8. Check CVT fluid condition and inside of the oil pan.
   - If large metal debris found, stop the incident CVT repair, re-install the removed oil pan and oil pan gasket with the removed oil pan bolts, and then replace with a new CVT assembly. (Refer to GROUP 23A – Transaxle assembly)
   - Otherwise, follow next steps for the repair.
9. Remove the magnets from the oil pan, and then thoroughly wipe and clean the magnets.


ACI02130


ACI02133AB

⚠ CAUTION

- **No need to disconnect the CVT terminal body connector from the vehicle harness.**
- **Do not remove the snap ring from the CVT terminal body connector.**
- **Do not press the CVT terminal body connector into the CVT case.**
- **Valve body harness connector is different from CVT ter-minal connector and it needs to disconnect the valve body harness connector to remove the valve body from the CVT.**

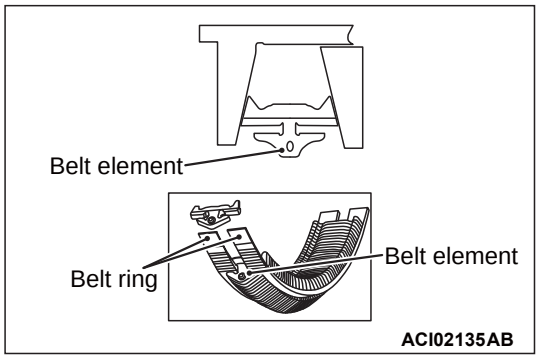
- **Use a flat head screwdriver to prevent manual plate shifting out of "N" position while removing the manual plate fixing nut as shown below figures.**

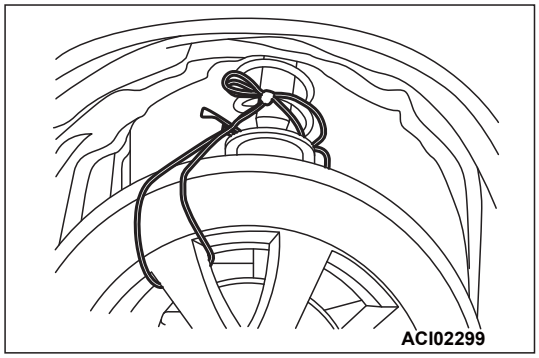
10. Remove the valve body assembly. (Refer to GROUP 23A – Oil pan and Valve body assembly)
    After valve body removal, leave the vehicle rose up on the lift for 30 minutes to drain CVT fluid residue.

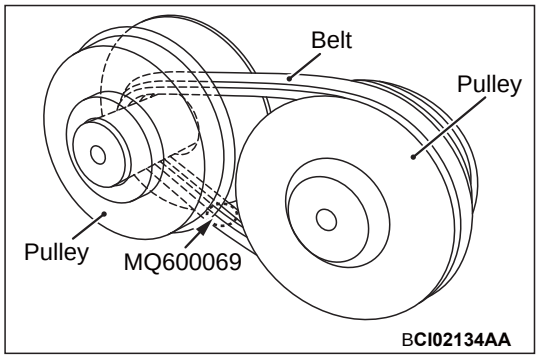
<Belt Visual Inspection>

Required Special Tools:

- MQ600069: Bore Scope







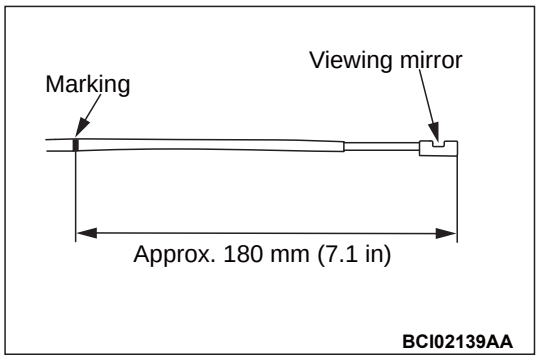
⚠ CAUTION

- **Slowly rotate the front left tire entire one round to rotate the belt to inspect all around of the belt flanks surfaces.**
- **Rotate the tire as slow as each belt element flank can be carefully inspected if any evidence of damage presented or not, or pose the rotation periodically such as every 9 - 10 elements movement on a camera view, and inspect, and then move to next 9 - 10 elements to inspect.**
- **The aim is performing inspection to each belt element flank if damaged or not.**

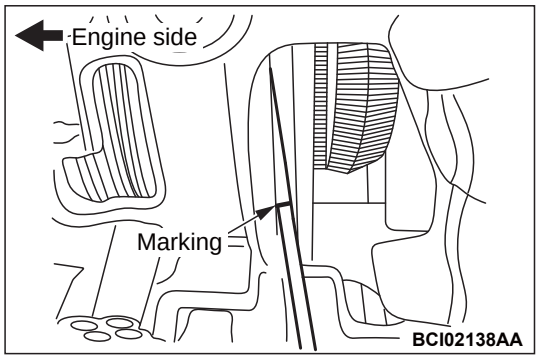
- **Make a mark on a side wall of the tire to recognize one round of rotation.**
- **Rotate the tire in the forward rotation only. If the tire is rotated in the backward rotation, the bore scope (MQ600069) camera lens may get caught between the belt and pulley.**
- **Make sure the front right tire is fixed by a rope not to rotate.**
- **Clean so that foreign matter does not adhere to the insertion portion of the bore scope (MQ600069) camera.**
- **Make sure the 90 degree viewing mirror is securely attached.**
- **When using the bore scope (MQ600069), connect it to the personal computer.**

Visually inspect all around of the both pulley mating surfaces of the belt (flanks surfaces of belt elements) using a bore scope (MQ600069) camera with a 90 degree viewing mirror.

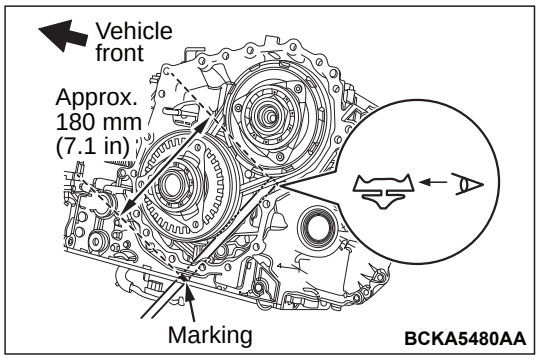
1. Inspect the near engine side - vehicle right side of flanks surfaces of the belt.
   (1) With the 90 degree viewing mirror, which is provided with the bore scope (MQ600069), attached to the bore scope (MQ600069), put a mark on the position shown in the figure.



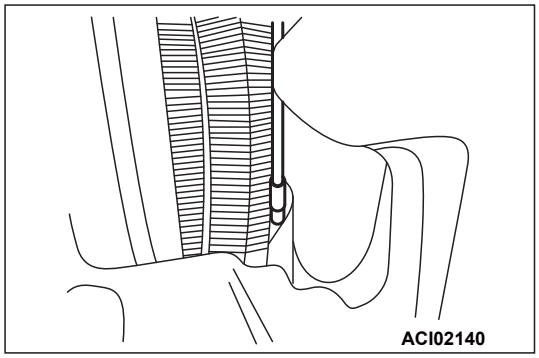
   (2) Insert the bore scope (MQ600069) into the transaxle case from the position shown in the figure until the mark [approximately 180 mm (7.1 inches)] on the bore scope comes to the end of the transaxle case, while making sure that the 90 degree viewing mirror is facing toward the left side of the vehicle.

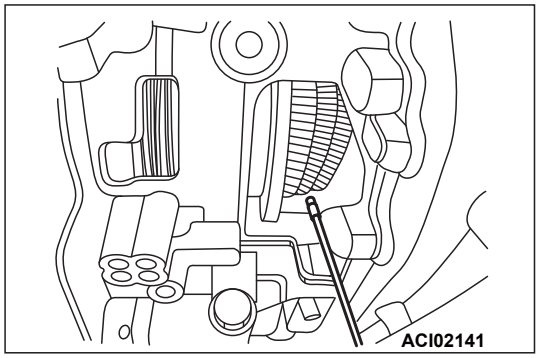


   (3) Adjust the position of the 90 degree viewing mirror of the bore scope (MQ600069) so that the side face of the belt element (the right side of the vehicle) can be seen.



Attached sheet 6 (5/7)





2. If the inspection result is OK, inspect the other side - near CVT side cover side - vehicle left side of flanks surfaces of the belt.

⚠ CAUTION

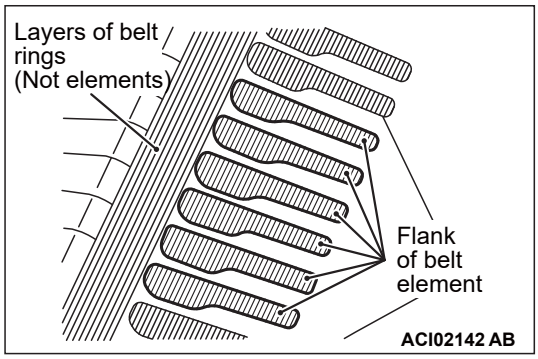
Refer to below damage sample illustrations.

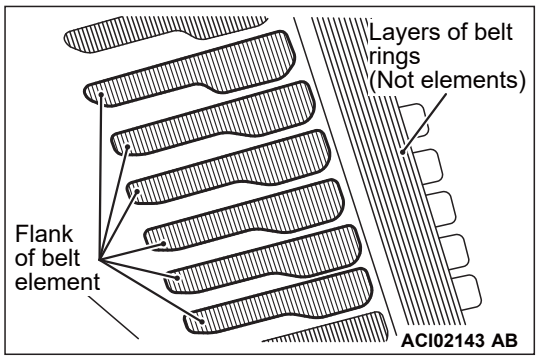
- **If damage is found on either side of mating surfaces of the belt, belt and pulley assembly and valve body assembly replacement is required. No component parts replacement is required while re-installing. And then replace the belt and pulley assembly and valve body assembly replacement.**
- **If no damage is found on mating surfaces of the belt, a new valve body Installation is required. Follow next steps.**

Attached sheet 6 (6/7)

<OK SAMPLES>

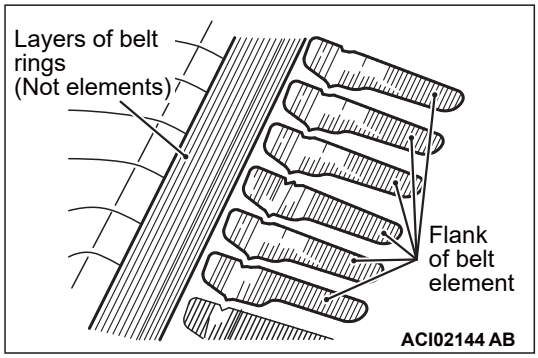
- No damage is observed on flanks (grooved surfaces) of belt elements.

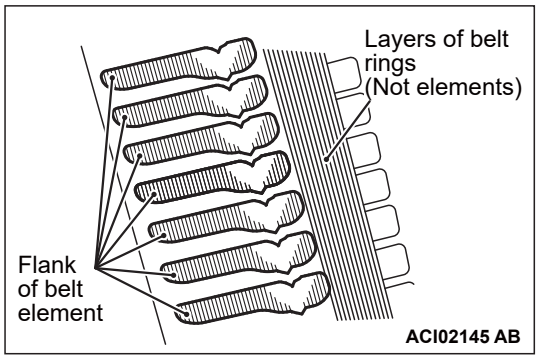




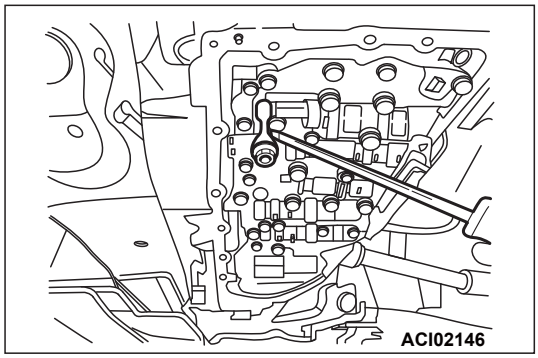
< DAMAGE SAMPLES >

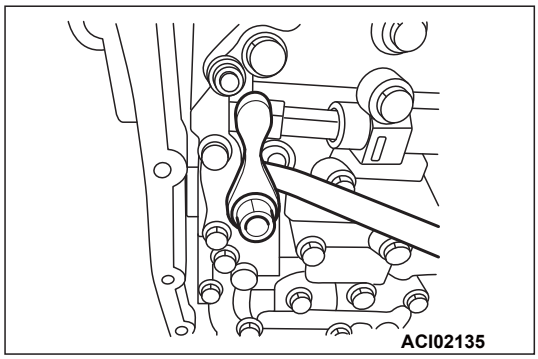
- Damages to grooves are observed on flanks of belt elements.

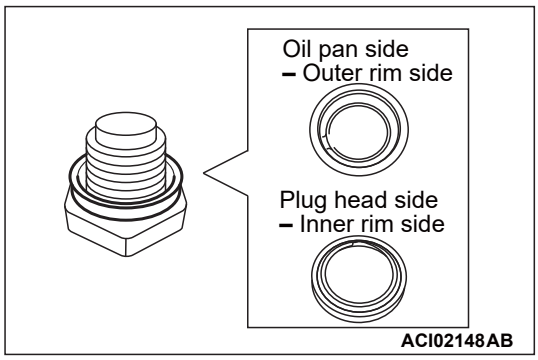




<New Valve Body Installation>


ACI02146


ACI02135



ACI02148AB

⚠ CAUTION
Place a flat head screwdriver as shown below figures while installing the manual plate to the valve body with the nut. It prevents damages to the manual valve spool. Do not pry the screwdriver. Shifting out from the "N" position is acceptable after the belt visual inspection.

1. Install the new valve body assembly.
   (Refer to GROUP 23A – Oil Pan and Valve Body assembly.)

⚠ CAUTION
The magnets and the oil pan must be thoroughly cleaned.

2. Place the magnets on the oil pan.

⚠ CAUTION
Do not re-use the old oil pan gasket.

3. Install an oil pan gasket and the oil pan.

⚠ CAUTION
- **Do not re-use the drain washer. Use a new one.**
- **Drain washer has two sides. Refer to below figures.**

4. Place a drain plug washer on the drain plug, and then install the drain plug with washer.
   Tightening torque: 33 ± 1 N·m (24 ± 0.4 ft-lb)
5. Connect the battery negative terminal.
6. Remove the rope which tying the front right tire and vehicle member.

⚠ CAUTION
Make sure no fluid leak.

7. Fill CVT fluid into CVT assembly.
8. Perform TCM initialization.
   (Refer to GROUP 23A – Initialization Procedure for CVT Learned Value)
9. Perform TCM Learning Procedure.
   (Refer to GROUP 23A – Learning Procedure)
10. Test drive the vehicle.

Attached sheet 7

THRUST BEARING FOR ADJUSTMENT

ADJUSTMENT THRUST BEARING (FOR TOTAL END PLAY ADJUSTMENT)

THICKNESS mm (in)	PARTS NUMBER
3.57 (0.141)	2721A028
3.75 (0.148)	2721A027
3.93 (0.155)	2721A026
4.10 (0.161)	2721A025
4.28 (0.169)	2721A024
4.46 (0.176)	2721A023
4.61 (0.181)	2721A022
4.79 (0.189)	2721A021

Attached sheet 8

TORQUE SPECIFICATIONS

Item	N·m
Valve body assembly mounting bolt	7.9 ± 1.0 (70 ± 8 in-lb)
Manual valve lever mounting nut	22 ± 1 (16 ± 0.5 ft-lb)
Bracket mounting bolt	7.9 ± 1.0 (70 ± 8 in-lb)
Oil strainer mounting bolt	7.9 ± 1.0 (70 ± 8 in-lb)
Oil pan mounting bolt	7.9 ± 1.0 (70 ± 8 in-lb)
Drain plug	33 ± 1 (24 ± 0.4 ft-lb)
Belt and pulley assembly mounting bolt	46 ± 1 (34 ± 0.6 ft-lb)
Dummy cover mounting bolt	19 ± 1 (14 ± 0.7 ft-lb)
L-bracket mounting bolt	26 ± 1 (19.2 ± 0.7 ft-lb)
Oil pump mounting bolt (allen head bolts)	19 ± 1 (14 ± 0.7 ft-lb)
Oil pump mounting bolt	28 ± 2 (21 ± 1 ft-lb)
Baffle plate A mounting nut	5.9 ± 1.0 (52 ± 8 in-lb)
Baffle plate B mounting bolt	5.9 ± 1.0 (52 ± 8 in-lb)
Baffle plate C mounting bolt	19 ± 1 (14 ± 0.7 ft-lb)
Lubrication tube mounting bolt	5.9 ± 1.0 (52 ± 8 in-lb)
Converter housing mounting bolt	46 ± 1 (34 ± 0.6 ft-lb)
Retainer bolt	28 ± 2 (21 ± 1 ft-lb)

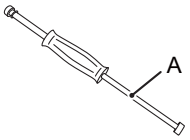
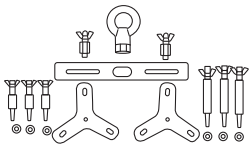
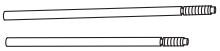
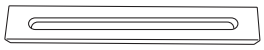
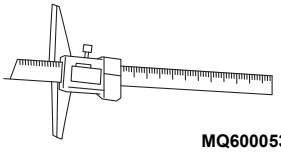
Attached sheet 9

SEALANT

ITEM	SPECIFIED SEALANT
Mating face for transaxle case and side cover	Loctite® SI5460 or equivalent
Mating face for transaxle case and convertor housing	

SPECIAL TOOLS

M12332070A0012

Tool	Tool number and name	Supersession	Application
 MQ600054	MQ600054 Slide hammer set A: MQ600056 Slide hammer bolt (or MB990211 Slide hammer)	-	Removal of the side cover and converter housing
 MQ600055	MQ600055 J hook case separator (or MB990212 Oil seal adapter)	-	
 MQ600050	MQ600050 CVT universal lifting	-	Removal and installation of the belt and pulley assembly
	MQ600103 CVT assembly guide pin	-	
 MQ600052	MQ600052 Gauge block	-	Check of the total end play
 MQ600053	MQ600053 Digital depth gauge	-	

Attached sheet 11 (1/33)

BELT AND PULLEY ASSEMBLY

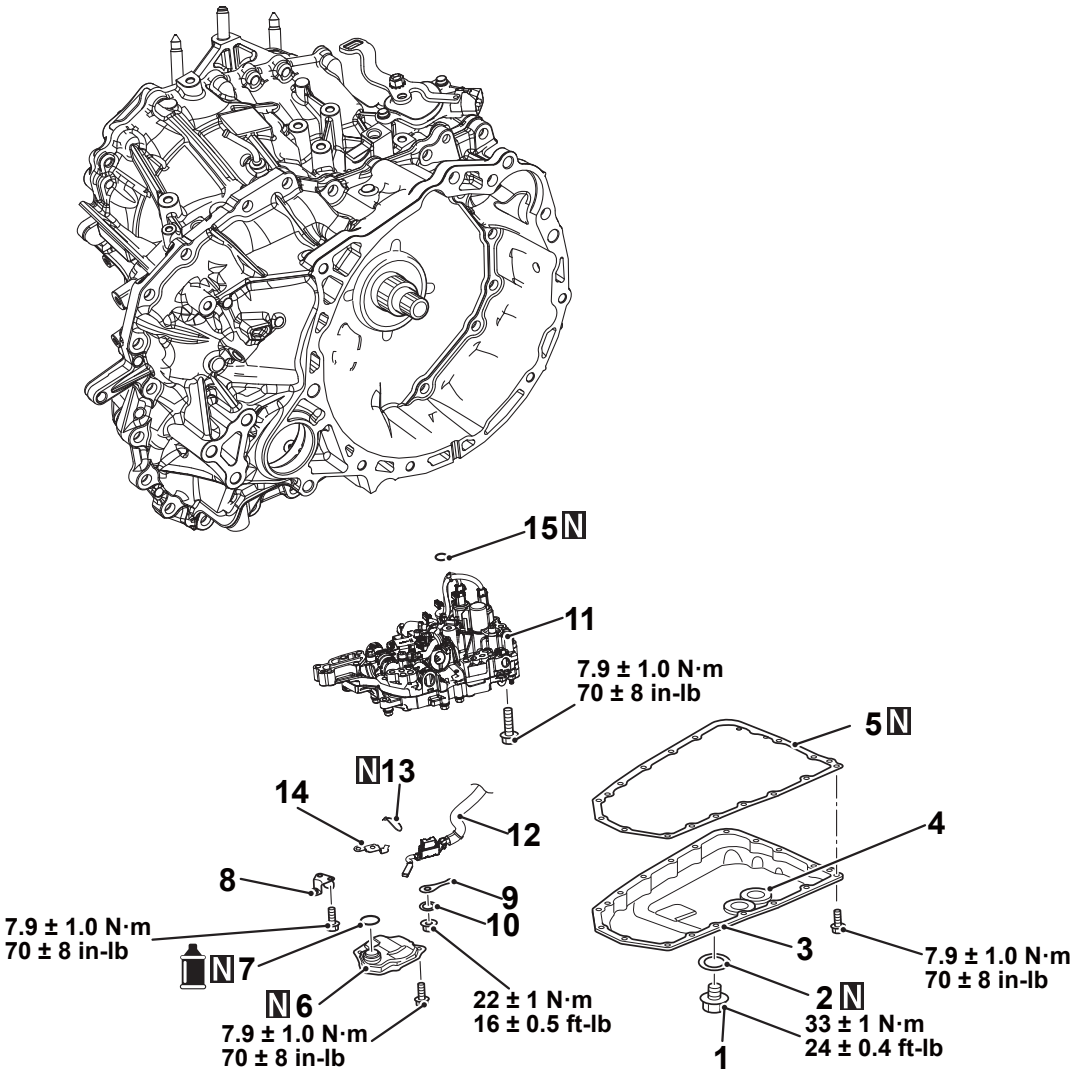
M12332023A0001

DISASSEMBLY AND REASSEMBLY

⚠ CAUTION

- **Only use transmission fluid of the specified brand. Use of transmission fluid other than specified will impair driveability and CVT endurance, and may lead to breakage of CVT.**
- **Only use the specified vaseline. Use of vaseline other than specified will impair driveability and CVT endurance, and may lead to breakage of CVT.**
- **Disassembly work should be done in a clean dust-proof room.**
- **Prior to disassembly, clean any sand or dirt adhered to the outer parts of transaxle using steam, washing oil or another solvent, outside the clean room, so as not to contaminate inner parts of transaxle during disassembly or assembly. (Do not allow steam to get inside the transaxle, and do not clean rubber parts with washing oil.)**
- **After cleaning, remove the torque converter, and drain the transmission fluid.**
- **Disassembly and assembly work should be done with bare hands or using plastic gloves.**
- **Do not touch inner parts of the transaxle after touching its outer parts. (Wash hands after touching the outer parts.)**
- **Do not use cotton gloves and rags to prevent from lint; instead, use paper rags.**
- **Prior to assembly or disassembly work, make sure conditions are appropriate.**
- **Do not re-use the drained transmission fluid.**
- **When the transmission assembly or the valve body assembly is replaced, carry out the following operations.**
  - **Initialization procedure for CVT learned value (Refer to GROUP 23A – Initialization Procedure for CVT Learned Value.)**
  - **Learning procedure (Refer to GROUP 23A – Learning Procedure.)**
- **Use only designated tool locations for a sliding hammer.**
- **Do not remove the pulley bearing retainer bolts (bolts for fixing pulleys and the side cover). Just turn the bolts counterclockwise 360° three times to loosen.**
- **Clean mating surfaces of the rims prior to applying form-in-place gasket (FIPG) sealant.**
- **Form-in-place gasket (FIPG) sealant should be applied to the center of the mating surfaces of the rims.**
- **Follow the bolt tightening sequence while it required.**
- **Each bearing has two sides. Check the sides of the bearing prior to installing.**
- **Keep flat the objects while measuring lengths, depths or heights. Measure two different points or more and use average as a measurement result value.**

Attached sheet
11 (2/33)



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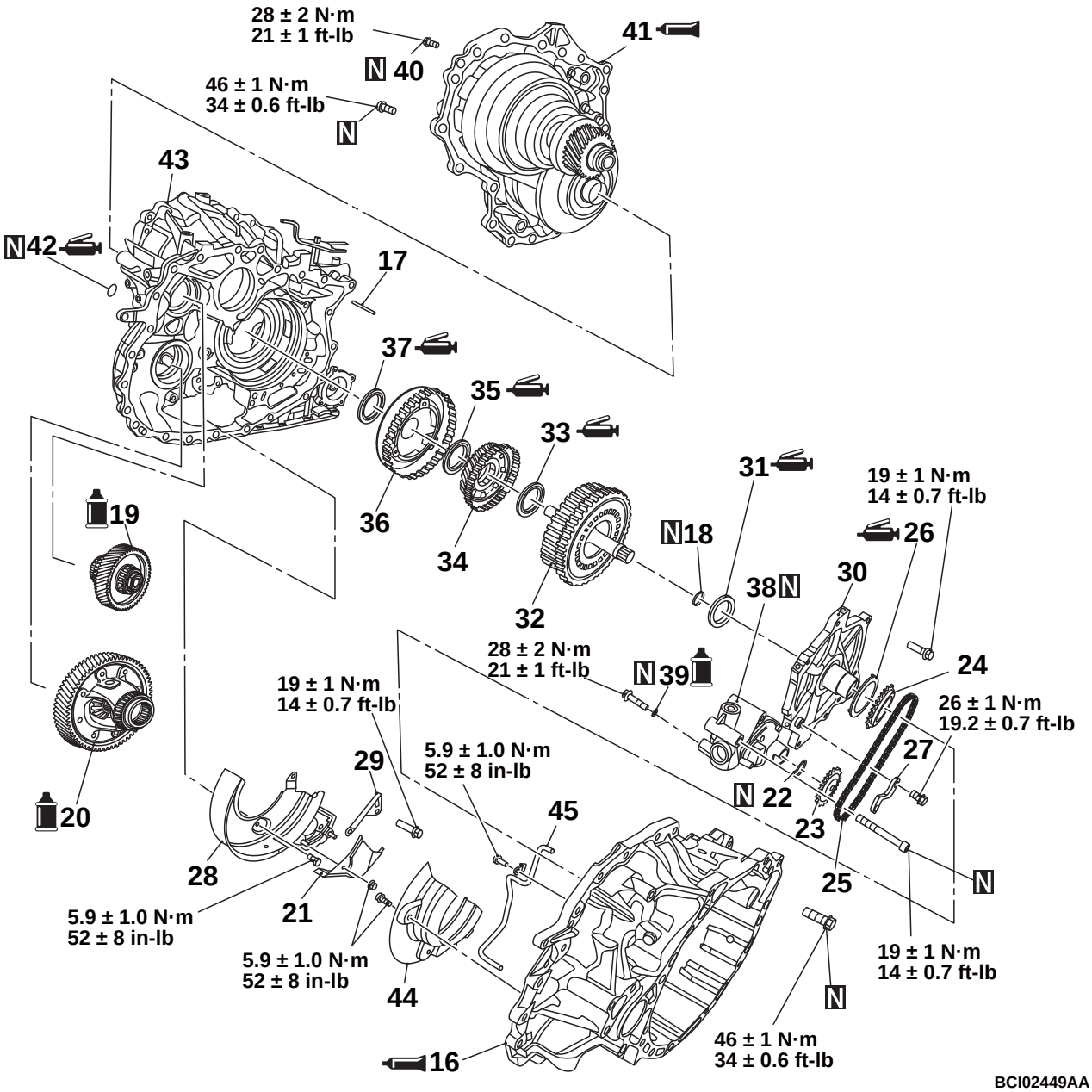
1. Drain plug
2. Drain plug gasket
3. Oil pan
4. Magnet
5. Oil pan gasket
6. Oil strainer
7. O-ring
8. Bracket
9. Manual valve lever
10. Spring washer
11. Valve body assembly
12. Valve body harness
13. Band
14. Bracket
15. Lip seal

Attached sheet
11 (3/33)



BCI02449AA

16. Converter housing
17. Retaining pin
18. O-ring
19. Reduction gear assembly
20. Differential assembly
21. Baffle plate A
22. Snap ring
23. Driven sprocket
24. Drive sprocket
25. Oil pump chain
26. Thrust washer
27. L-bracket
28. Baffle plate B
29. Baffle plate C
30. Dummy cover
31. Thrust needle bearing
32. Forward clutch assembly
33. Thrust needle bearing
34. Sun gear
35. Thrust needle bearing
36. Planet carrier
37. Thrust needle bearing
38. Oil pump
39. O-ring
40. Retainer bolt
41. Belt and pulley assembly
42. O-ring
43. Transaxle case
44. Baffle plate
45. Lubrication tube

Attached sheet 11 (4/33)

Required Special Tools:

- MQ600054: Slide Hammer Set (or MB990211: Slide Hammer)
- MQ600055: J Hook Case Separator (or MB990212: Oil Seal Adapter)
- MQ600050: CVT Universal Lifting
- MQ600103: CVT Assembly Guide Pin
- MQ600052: Gauge Block
- MQ600053: Digital Depth Gage

DISASSEMBLY SERVICE POINT

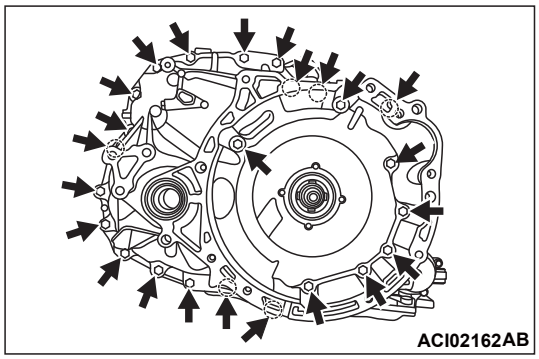
⚠ CAUTION

- **Do not remove Transmission range switch.**
- **If it is removed it needs to be replaced with a new one.**

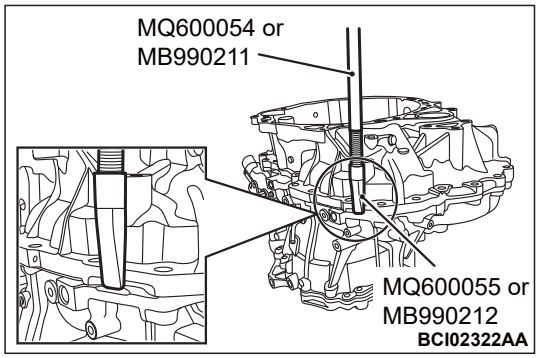
1. Transaxle disassembly (Refer to GROUP 23B – Transaxle).
2. Remove the converter housing from the transaxle case. (Bolt: 24 bolts.)

NOTE:

- Apply rust remover to dowel pins as necessary.
- No bolt removal sequence specified.
- Retain three bolts for use during the repair.


ACI02162AB

3. Using special tools, on the rim of the converter housing. Alternatively, use plastic hammer to apply light shock to remove the converter housing from the transaxle case.
   - Slide hammer set (MQ600054) or Slide hammer (MB990211)
   - J hook case separator (MQ600055) or Oil seal adapter (MB990212)

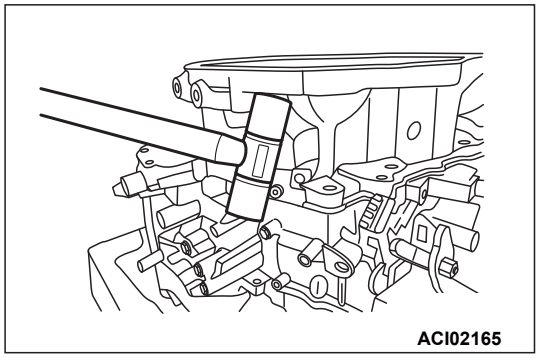


BCI02322AA

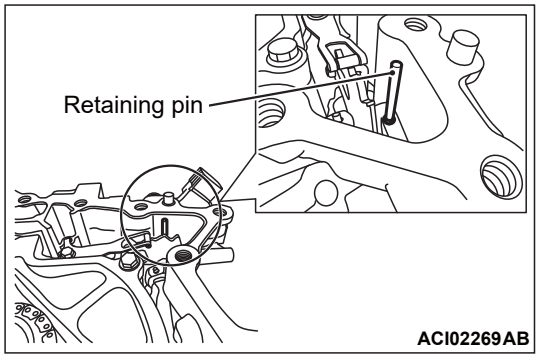
⚠ CAUTION

- **Do not pry between the converter housing and transaxle case while separating them.**
- **Do not use any bars or wedges to separate the converter housing and transaxle case.**

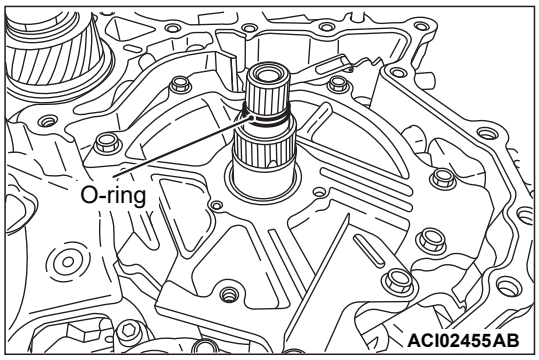
4. Lift the converter housing up with level.


ACI02165

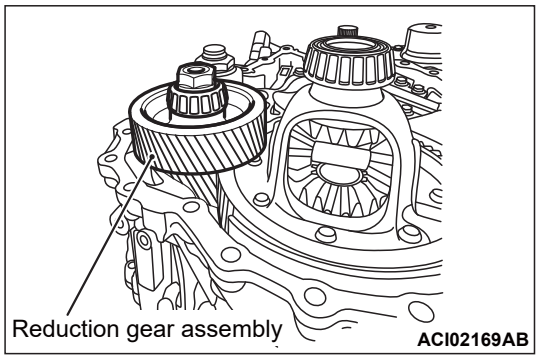
Attached sheet 11 (5/33)



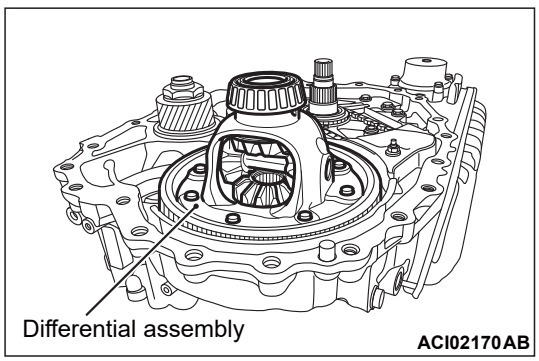
5. Remove the retaining pin.



6. Remove the O-ring from the input shaft.

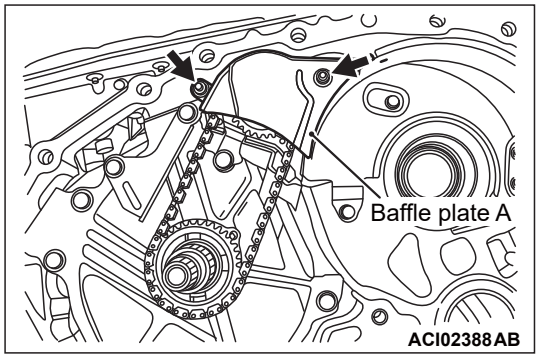


7. Remove the reduction gear assembly.

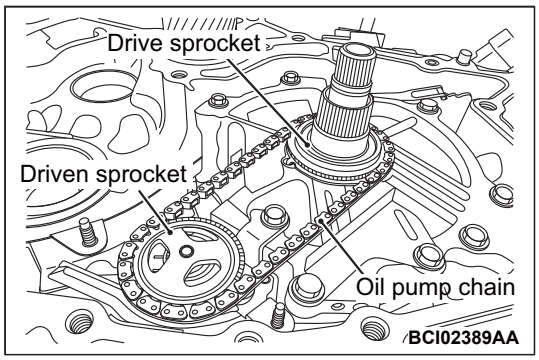


8. Remove the differential assembly.

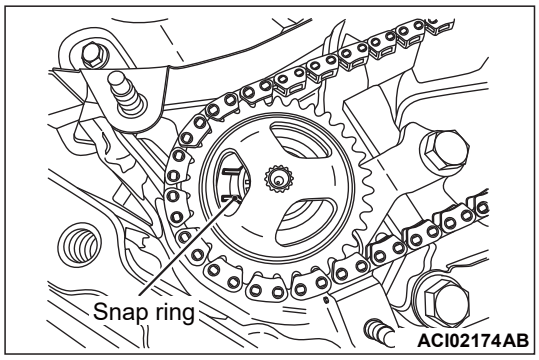
Attached sheet 11 (6/33)



9. Remove the nuts securing the baffle plate A (chain cover), and then remove the baffle plate A.

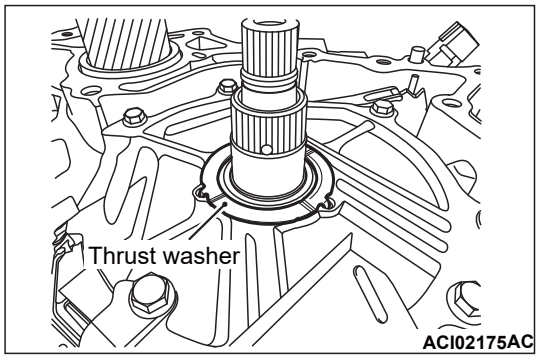


10. Remove the drive sprocket along with the oil pump chain and the driven sprocket at the same time.



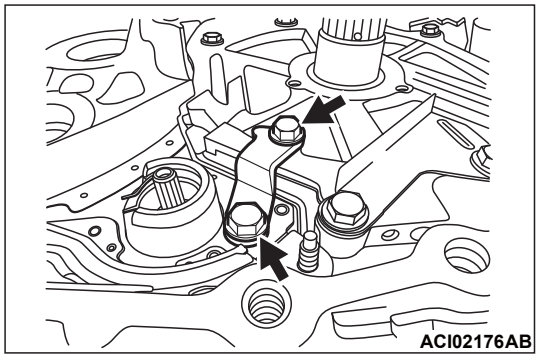
For removing the driven sprocket, spread out the snap ring by snap ring pliers and raise the sprocket.

NOTE: Keep the sprocket and the chain together as one set after the removing.

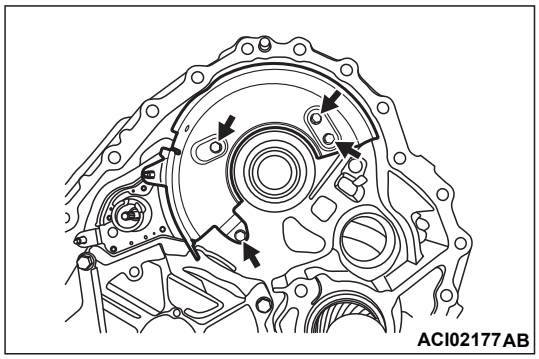


11. Remove the thrust washer from the dummy cover.

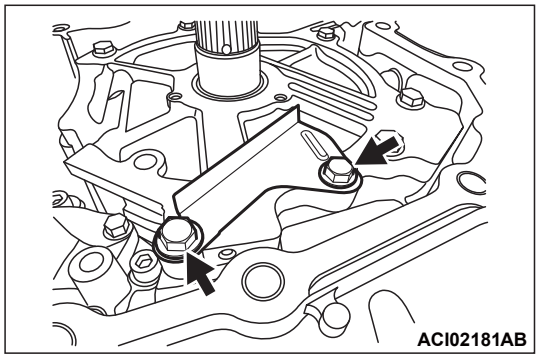
Attached sheet 11 (7/33)



12.Remove the fix bolt of L-bracket and then remove L-bracket.

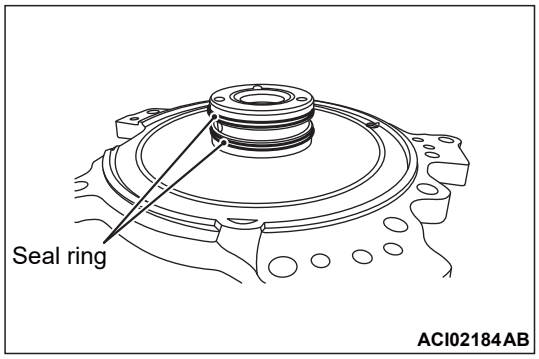


13.Remove the bolts, and then remove the baffle plate B.

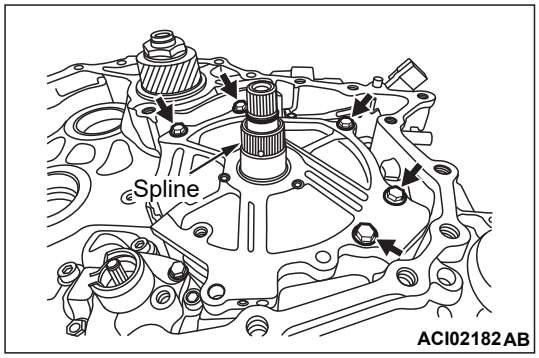


14.Remove the bolts, and then remove the baffle plate C.

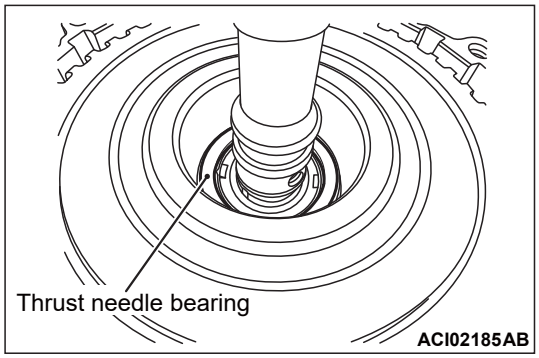
Attached sheet 11 (8/33)



⚠ CAUTION
Do not remove the seal ring from the dummy cover. (Reuse parts).

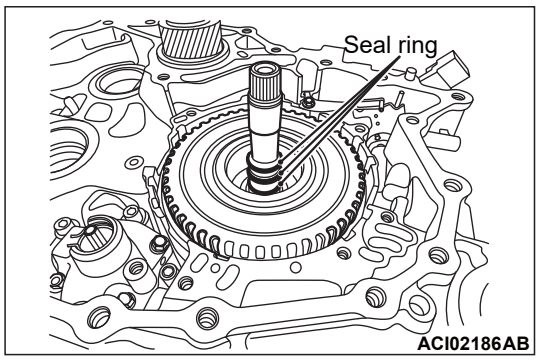


15.Remove the five bolts which fix the dummy cover, and then remove the dummy cover with holding the spline portion of the dummy cover.



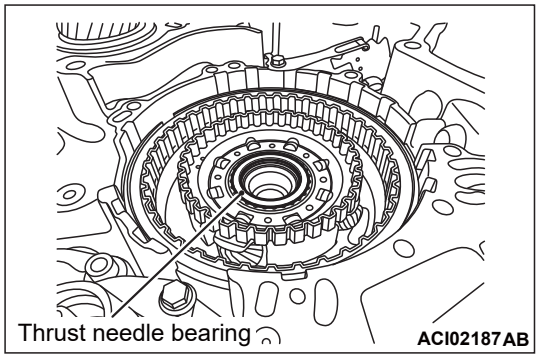
16.Remove the thrust needle bearing from the forward clutch assembly bore.

⚠ CAUTION
Do not remove seal ring

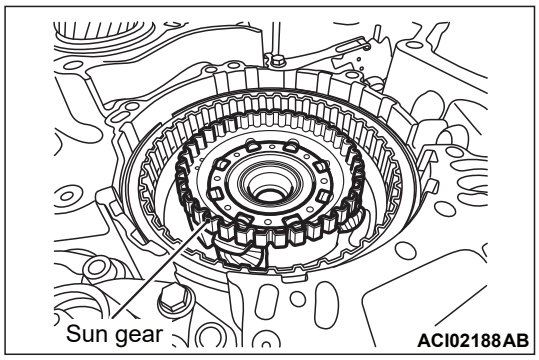


17.Remove the forward clutch assembly from transaxle case.

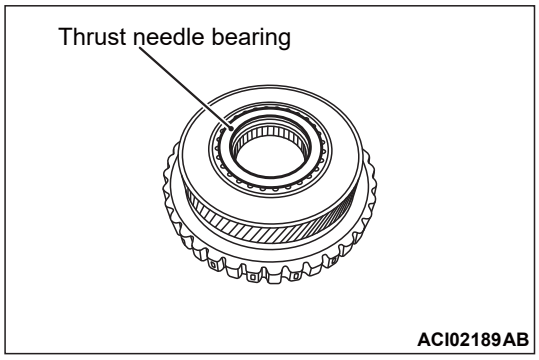
Attached sheet 11 (9/33)



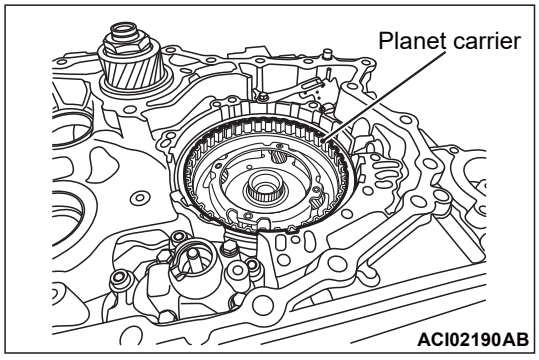
18.Remove the thrust needle bearing between forward clutch drum and sun gear.



19.Remove the sun gear from planet carrier.

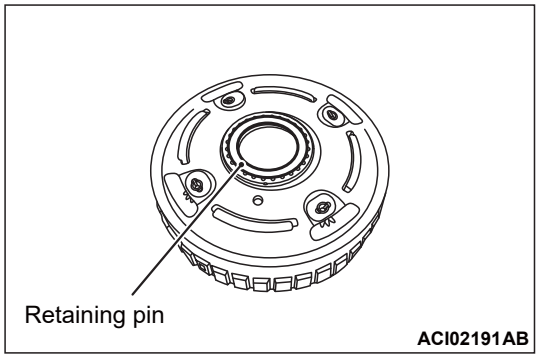


20.Remove thrust needle bearing from sun gear of primary pulley side.

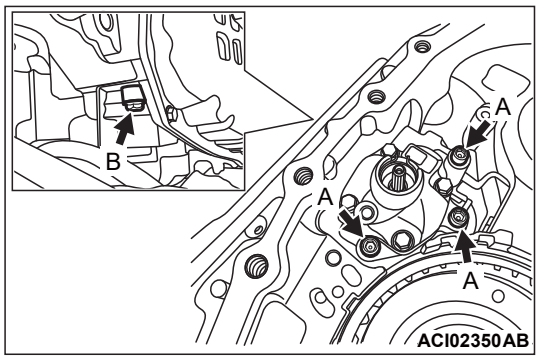


21.Remove planet carrier from transaxle case.

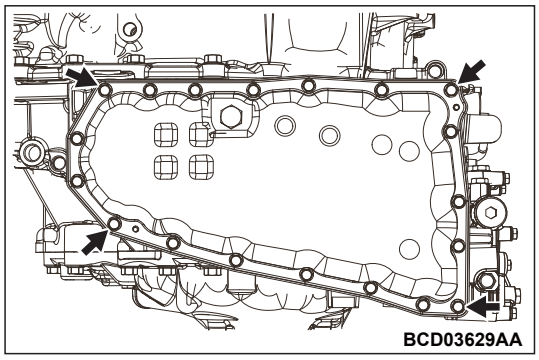
Attached sheet 11 (10/33)



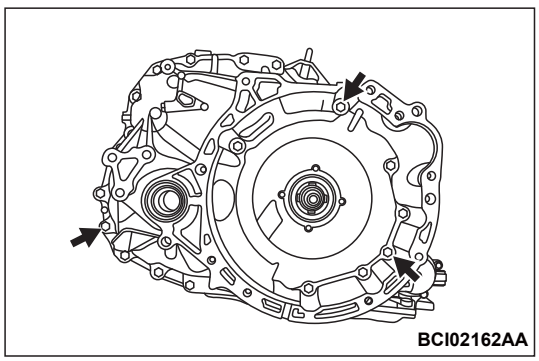
22.Remove thrust needle bearing from planet carrier.



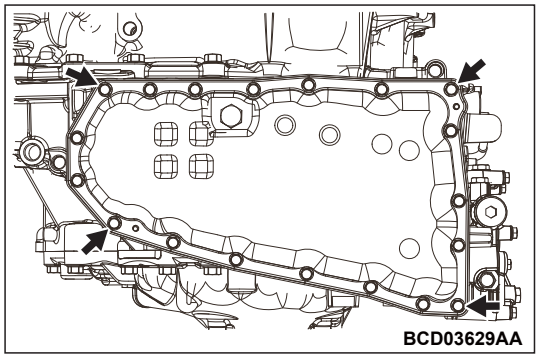
23.Using 6 mm hexagon wrench, loosen allen head bolts (A) which fix the oil pump.
24.Remove the bolt (B), and then remove the O-ring from the bolt (B).
25.Remove the allen head bolts (A) and oil pump.



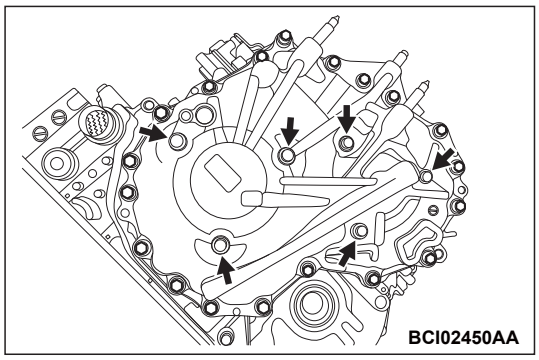
26.In order to protect the inside of the transaxle case, install the oil pan to the transaxle case and temporarily tighten the four bolts at locations shown in the figure.



27.Install the converter housing to the transaxle case, and temporarily tighten the three bolts shown in the figure.
28.Place the transaxle assembly with the oil pan facing down. Then turn the transaxle assembly 90° so that the side cover is on the top side.

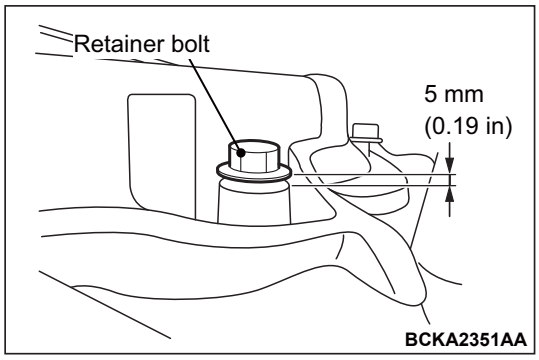

BCD03629AA

29.Remove the four temporarily-tightened bolts shown in the figure, and remove the oil pan from the transaxle case.


BCI02450AA

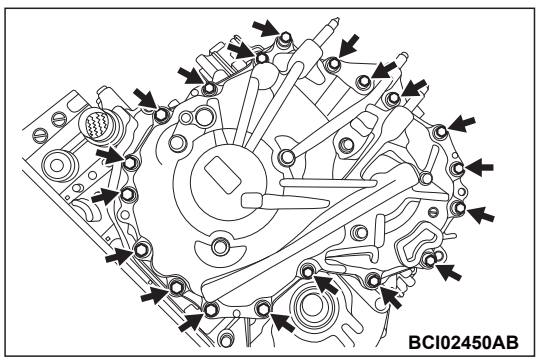
⚠ CAUTION

- **When loosening the retainer bolts (the bolt for fixing the pulley and the side cover) shown in the figure, be careful not to remove the bolts from the side cover.**
- **Do not remove all the retainer bolts (6 bolts) from the side cover simultaneously. If all the retainer bolts are removed simultaneously, the mounting holes of the retainer bolts on the pulley side move from the original positions, and the bolts of the CVT universal lifting (MQ600050) cannot be installed.**



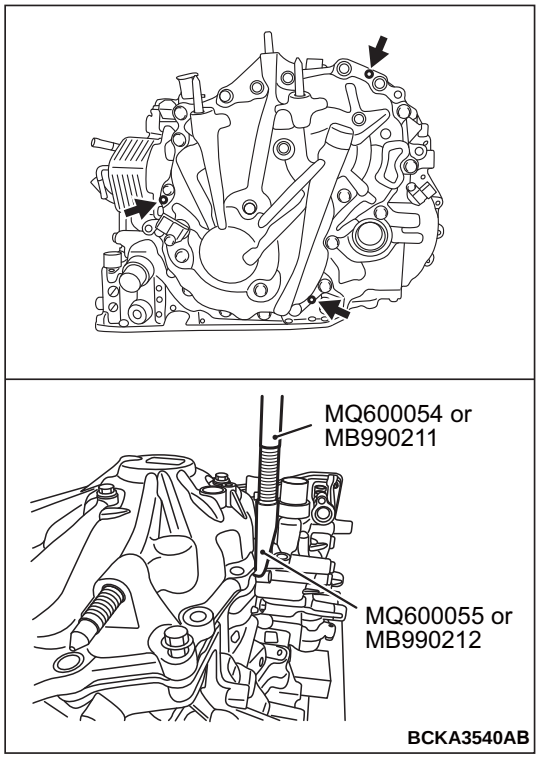
BCKA2351AA

30.Loosen the six retainer bolts so that the clearance between the bolt seating surface and the side cover is approximately 5 mm (0.19 inch) (turn the bots counterclockwise 360° three times).


BCI02450AB

31.Remove the side cover mounting bolts (19 bolts).

Attached sheet 11 (12/33)

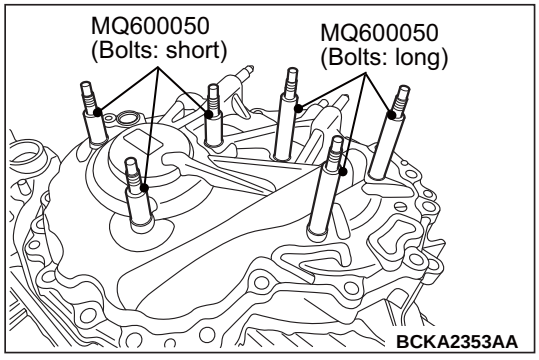


⚠ CAUTION

- **Do not pry between the converter housing and transaxle case while separating them.**
- **Do not use any bars or wedges to separate the side cover and CVT case.**

32. Using special tools, separate the side cover from the transaxle case.
    - Slide hammer set (MQ600054) or Slide hammer (MB990211)
    - J hook case separator (MQ600055) or Oil seal adapter (MB990212)

    NOTE: Use the special tool at three locations of the side cover shown in the figure (protruded part).

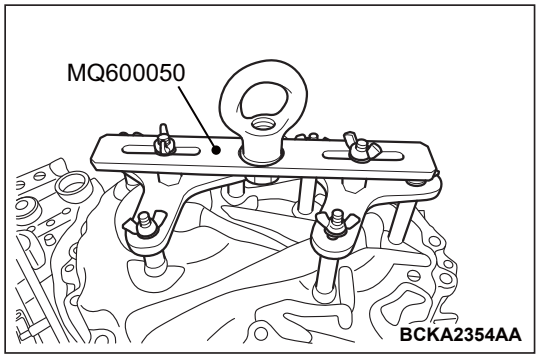


⚠ CAUTION

- **Do not remove all the retainer bolts (6 bolts) from the side cover simultaneously. If all the retainer bolts are removed simultaneously, the mounting holes of the retainer bolts on the pulley side move from the original positions. Due to this, the bolts of the CVT universal lifting (MQ600050) cannot be installed and the belt and the pulley gets separated when the side cover is removed.**
- **Check that there is no clearance between the mating surfaces of the transaxle case and the side cover, and then install the bolts of the CVT universal lifting (MQ600050).**
- **Every time one retainer bolt is removed, be sure to install one bolt of the CVT universal lifting (MQ600050).**

33. Remove one retainer bolt from the side cover and install one bolt of the CVT universal lifting (MQ600050) instead and tighten it by hand.
34. Repeat the same procedure six times.

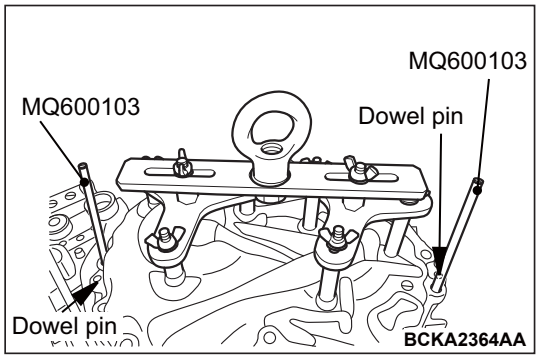
Attached sheet 11 (13/33)



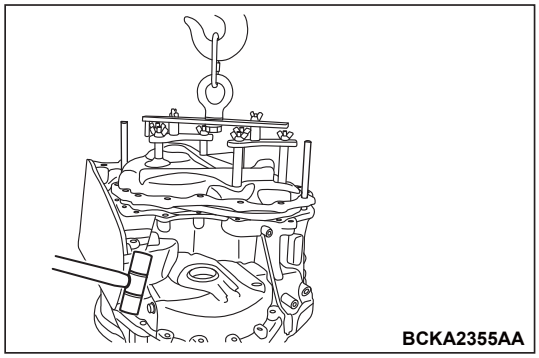
35. Assemble the CVT universal lifting (MQ600050) temporarily as shown in the figure.

⚠ CAUTION
When assembling the CVT universal lifting (MQ600050) to the side cover, adjust the CVT universal lifting (MQ600050) to prevent the belt and pulley assembly from tilting when it is lifted up.

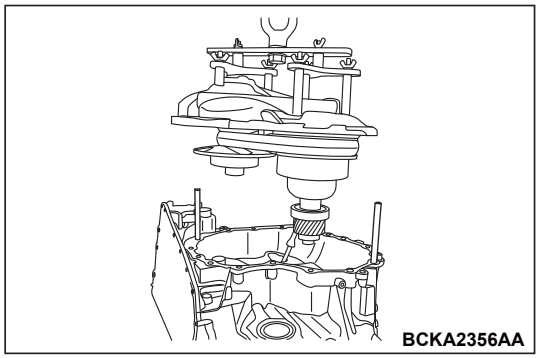
36. Check that the CVT universal lifting (MQ600050) and the side cover are horizontal. If they are not horizontal, adjust by using the spacer of the CVT universal lifting (MQ600050).
37. Fix each connection securely.
38. Install the CVT assembly guide pin (MQ600103) to the transaxle case through the side cover mounting bolt hole (two places) next to the dowel pin.



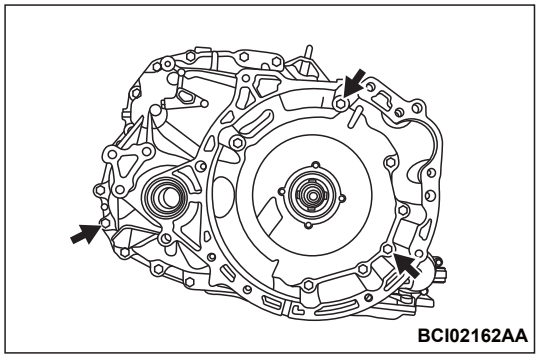
39. Connect a crane or others to the CVT universal lifting (MQ600050) and lift up the side cover slightly.
40. Tap the thick part of the transaxle case lightly with a plastic hammer to disconnect the side cover from the transaxle case.



41. Lift up the side cover and the belt and pulley assembly slowly by using a crane or others, and remove the belt and pulley assembly from the transaxle case.
42. Remove the CVT assembly guide pin (MQ600103) from the transaxle case.
43. Remove the CVT universal lifting (MQ600050) from the side cover and the belt and pulley assembly that have been removed.



Attached sheet 11 (14/33)

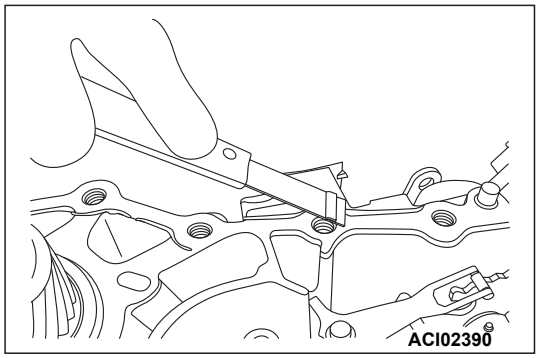

BCI02162AA

44. Remove the three temporarily-tightened bolts shown in thefigure, and remove the converter housing from the transaxle case.

REASSEMBLY SERVICE POINT

⚠ CAUTION
- **Metal scraper and oilstone can be used.**
- **Never use disk sander and brush or similar grinding tools.**
- **Can be used only washing liquid and paper towel.**
- **Prevent trash or fragments to come inside of transaxle case.**

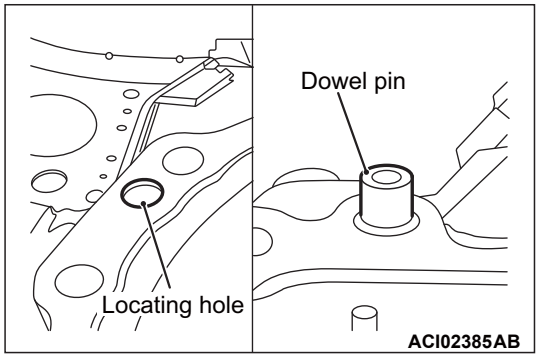
1. Remove the FIPG from the mating surfaces of the transaxle case and the convertor housing.


ACI02390

2. Make the dowel pin and the locating hole clean, not to exist rust, trash or fragment.

⚠ *WARNING*
When use the air blower or washing material, wear protective equipment which cover eyes and face.

⚠ CAUTION
- **Pressure of the air blower must be less than 517 kPa (82.8 psi). (Reduce to suitable pressure if excessive.)**
- **When blowing air, never stand in front of the oil circuit.**



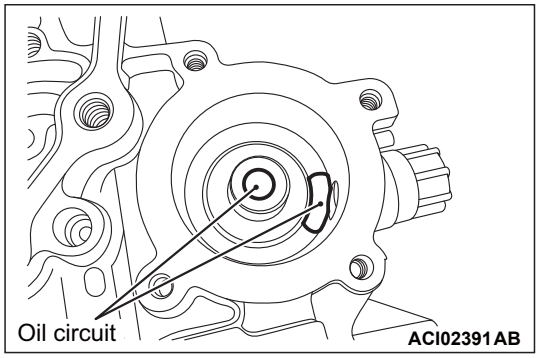
ACI02385AB

3. Wash the transaxle case, dummy cover, hydraulic circuit of the transmission fluid filter.

   NOTE: Wash the oil circuit with washing material (brake cleaner or suitable washing material) and air blower.

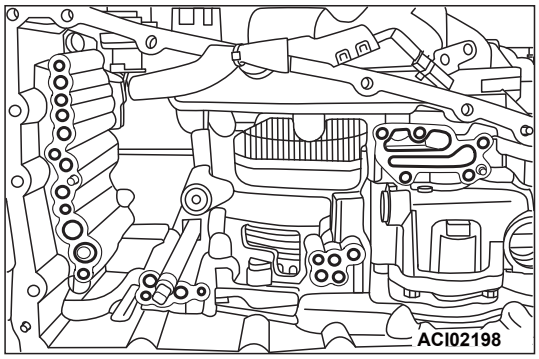
⚠ CAUTION
- **Never stand in front of the oil circuit.**
- **Prevent scattering by the rags or the like.**

(1) Make the attaching section of transmission fluid filter and the oil circuit clean with washing material.



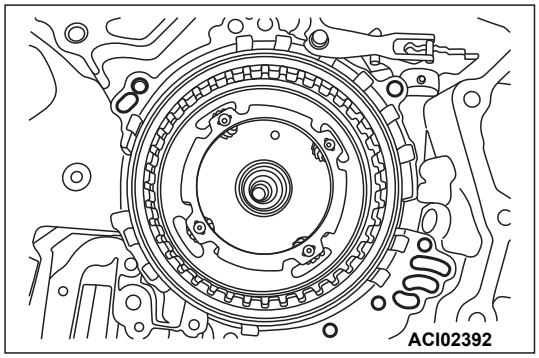
ACI02391AB

Attached sheet 11 (15/33)



⚠ CAUTION
- **Never stand in front of the oil circuit.**
- **Prevent scattering by the rags or the like.**

(2) Wash each hydraulic circuit hole which on the attaching section of the control valve in the transaxle case.



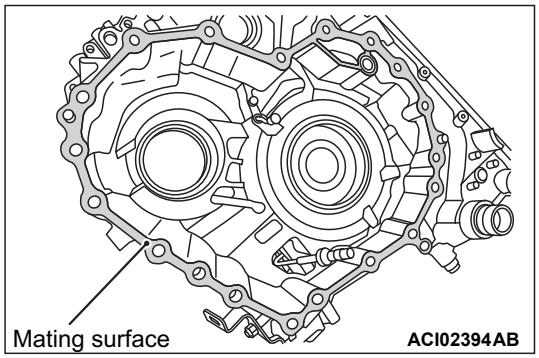
⚠ CAUTION
- **Never stand in front of the oil circuit.**
- **Prevent scattering by the rags or the like.**

(3) Wash each hydraulic circuit hole which on the attaching section of the dummy cover.

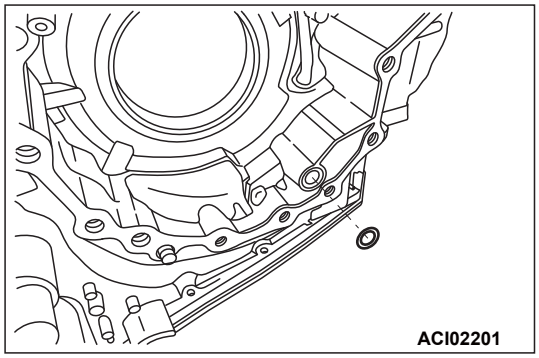
4. Make the mating surfaces clean. (Scraper can be used.) Remove the sealant by oilstone.

⚠ CAUTION
- **Never use disk sander or similar grinding tools.**
- **Can be used only brake cleaner or lint free towel.**
- **Prevent trash or fragments to come inside of CVT.**
- **Not to exist rust, trash or fragment on the dowel pin and the locating hole.**

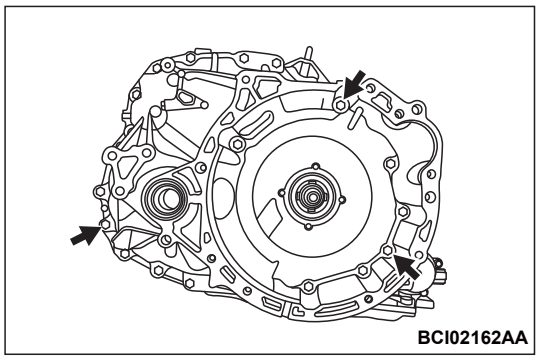
5. Check the dowel pin remain on the transaxle case. If not, remove the dowel pin remained on side cover side and return on the transaxle case.
6. Remove grease from the mating surfaces by washing liquid.



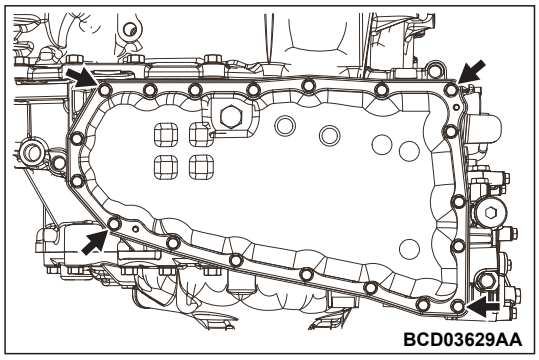
Attached sheet 11 (16/33)


ACI02201

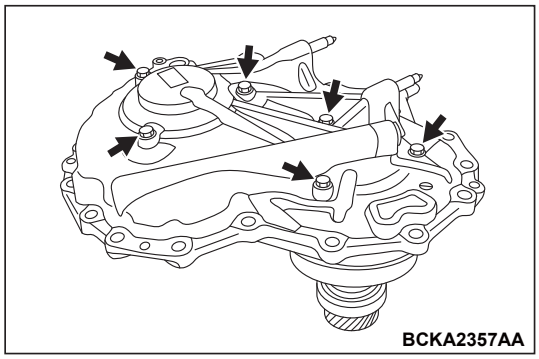
7. Replace the O-ring on the transaxle case side to new one and install by vaseline.


BCI02162AA

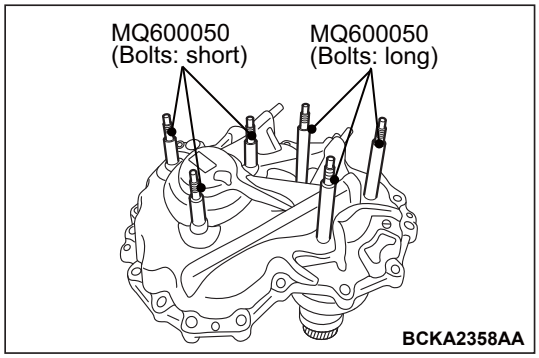
8. Install the converter housing to the transaxle case, and temporarily tighten the three bolts shown in the figure.


BCD03629AA

9. In order to protect the inside of the transaxle case, install the oil pan to the transaxle case and temporarily tighten the four bolts at locations shown in the figure.
10. Place the transaxle assembly with the oil pan facing down.Then turn the transaxle assembly 90° so that the belt and pulley assembly is on the top side.

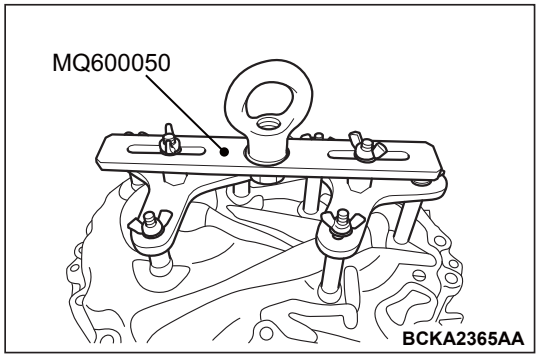

BCKA2357AA

⚠ CAUTION
- **Do not remove all the retainer bolts (6 bolts) from the side cover simultaneously. If all the retainer bolts are removed simultaneously, the belt and the pulley are separated and they cannot be returned to the original state.**
- **Every time one retainer bolt is removed, be sure to install one bolt of the CVT universal lifting (MQ600050).**
- **Do not reuse the removed retainer bolts.**



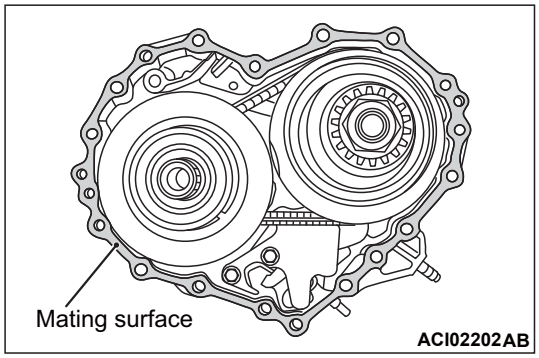
BCKA2358AA

11. Remove one retainer bolt from the new side cover and install one bolt of the CVT universal lifting (MQ600050) instead and tighten it by hand.
12. Repeat the same procedure six times.



BCKA2365AA

13. Assemble the CVT universal lifting (MQ600050) temporarily as shown in the figure.
14. Check that the CVT universal lifting (MQ600050) and the side cover are horizontal. If they are not horizontal, adjust by using the spacer of the CVT universal lifting (MQ600050).
15. Fix each connection securely.

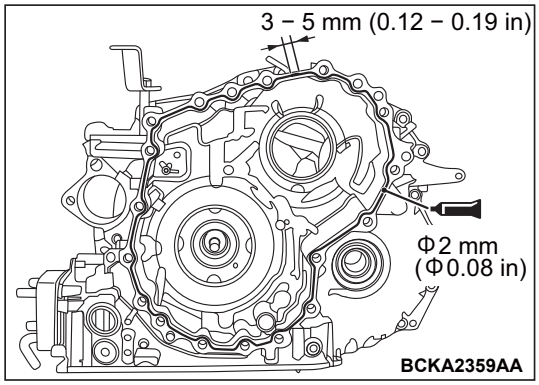


ACI02202AB

16. Connect a crane or others to the CVT universal lifting (MQ600050) and lift up the side cover slightly and remove grease from the mating surfaces.

    Weight of the belt and pulley assembly: Approx. 20 kg (44 lbs)

Attached sheet 11 (18/33)

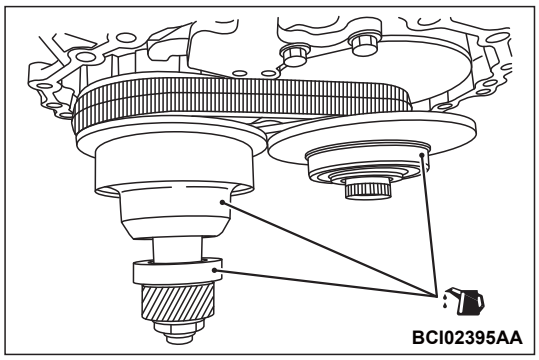


17.Apply sealant to the transaxle case.

Specified sealant: Loctite® SI5460 or equivalent

NOTE:

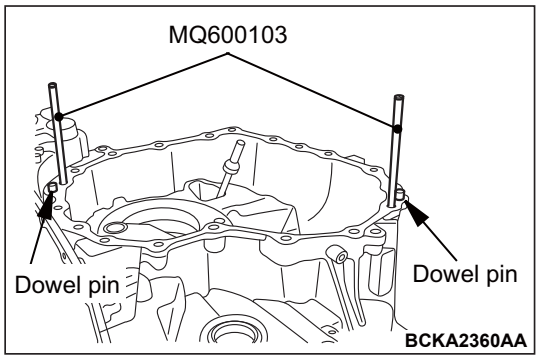
- Bead size approximately ϕ2 mm (ϕ0.08 inch).
- Around bolt hole: Apply on inner rim.
- Between bolt holes: Apply on center of rim.
- A section of bead break: Apply additional coats around 3 - 5 mm (0.12 - 0.19 inch).



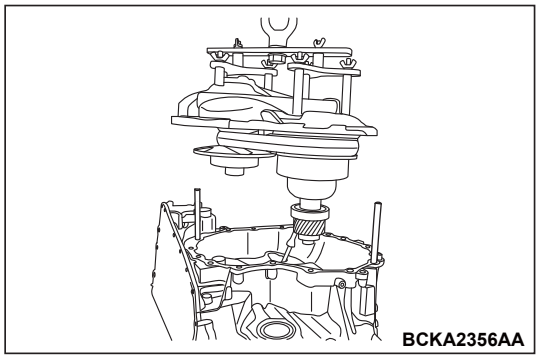
⚠ CAUTION

Be careful not to let the fluid adhere to the mating surfaces of the side cover and transaxle case.

18.Apply fluid to the tapered part of the pulley and the bearing.



19.Install the CVT assembly guide pin (MQ600103) to the bolt holes (two places) next to the dowel pin of the transaxle case.



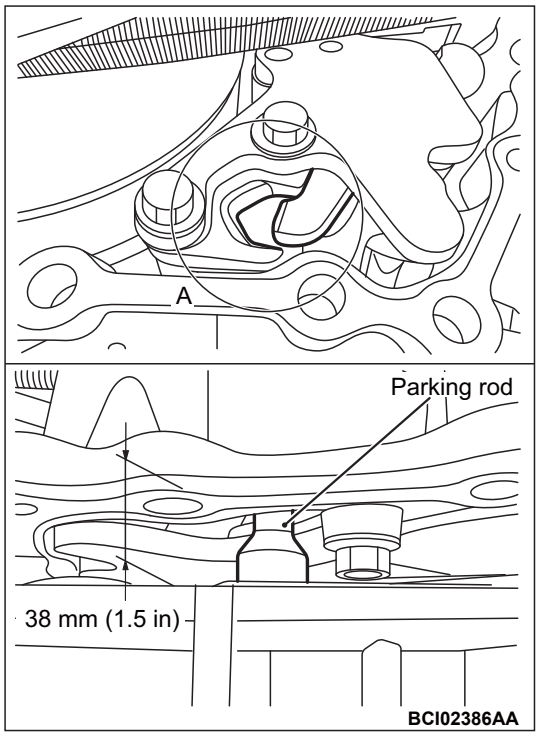
⚠ CAUTION

- **Perform the work with two people until the side cover is seated to the transaxle case tightly.**
- **When installing the side cover and the belt and pulley assembly to the transaxle case, keep them horizontal to prevent them from contacting the sealant on the transaxle case.**

20.Lower the side cover and the belt and pulley assembly slowly while checking the installation position and insert the CVT assembly guide pin (MQ600103) into the mounting bolt holes (two places) of the side cover.

21.Set the manual lever of the transaxle case to "P" range and extend the parking rod to the maximum.

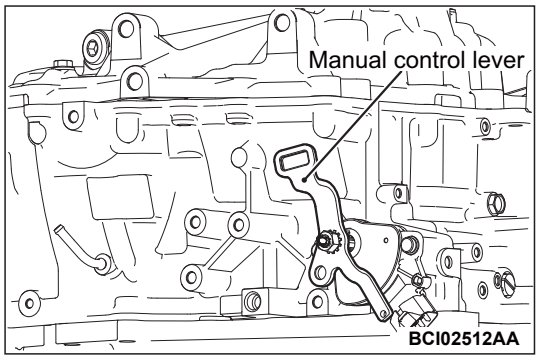
Attached sheet 11 (19/33)



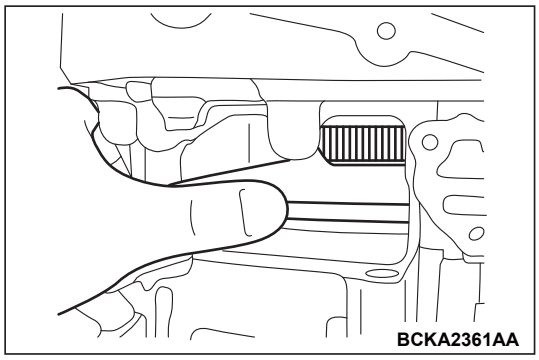
⚠ CAUTION

- **Insert the tip of the parking rod while peeping into part A.**
- **Be careful not to interrupt the sealant by touching parts other than the mating surface.**

22. Slowly lower the side cover and the belt and pulley assembly until the clearance between the side cover and the belt and pulley assembly and the transaxle case is approximately 38 mm (1.5 inches). Then adjust the position of the parking rod using a magnet stick to insert the tip of the parking rod into part A.
23. Lower the side cover and the belt and pulley assembly again and check that the tip of the parking rod is inserted into part A. Then pull out the magnet stick and install the side cover and the belt and pulley assembly to the transaxle case.

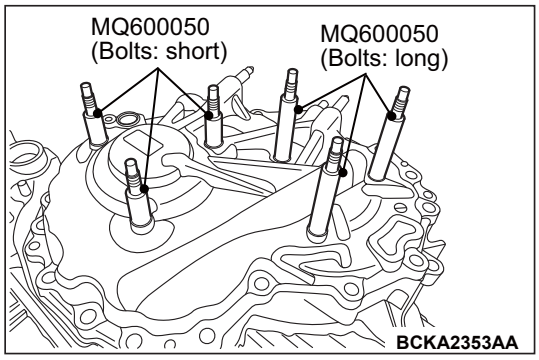


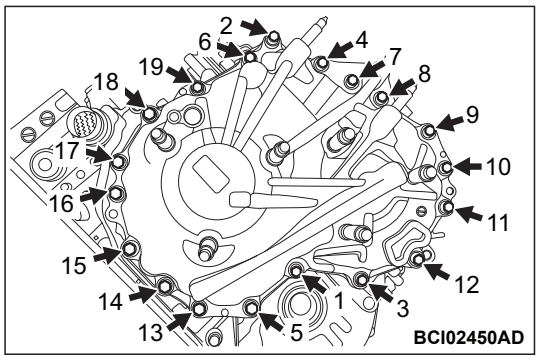
24. Check that the manual control lever moves smoothly to each position. If the manual control lever does not work, remove the FIPG and repeat from Step 17.

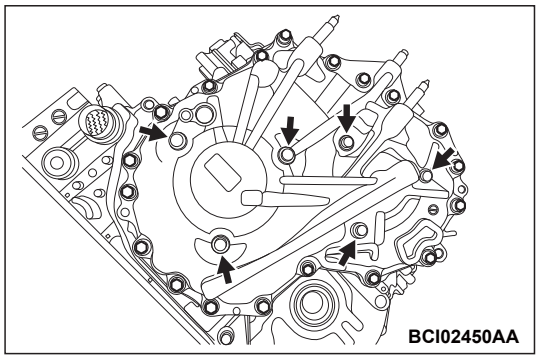


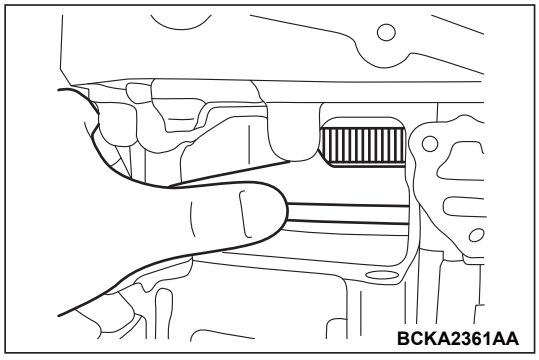
25. Turn the pulley by hand to check that it turns smoothly.

Attached sheet 11 (20/33)









⚠ CAUTION

- **Keep the bolts of the CVT universal lifting (MQ600050) attached to the side cover.**
- **Do not remove all the six bolts of the CVT universal lifting (MQ600050) from the side cover simultaneously. If all the bolts are removed simultaneously, the mounting holes of the retainer bolts on the pulley side move from the original positions, and the retainer bolts cannot be installed.**

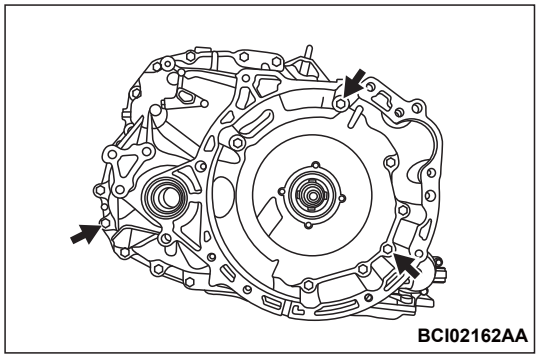
26. Remove the CVT universal lifting (MQ600050) except the bolts and remove the CVT assembly guide pin (MQ600103).

27. Tighten the new bolts in order shown illustration.
Tightening torque: 46 ± 1 N·m (34 ± 0.6 ft-lb)

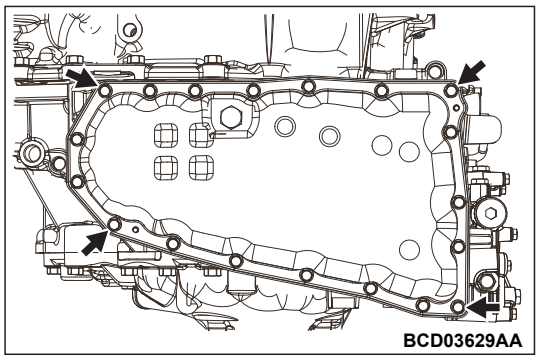
⚠ CAUTION

- **Do not remove all the six bolts of the CVT universal lifting (MQ600050) from the side cover simultaneously. If all the bolts are removed simultaneously, the mounting holes of the retainer bolts on the pulley side move from the original positions, and the retainer bolts cannot be installed.**
- **Every time a bolt of the CVT universal lifting (MQ600050) is removed, install a new retainer bolt.**
- **Do not use the retainer bolts removed in Step 11.**

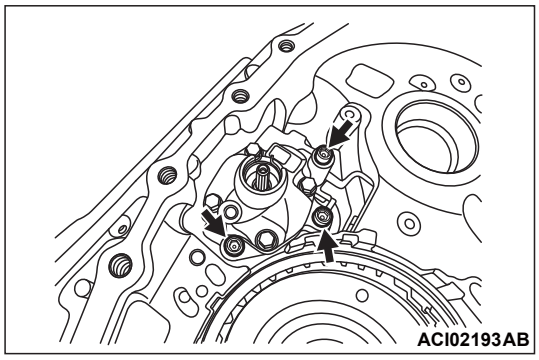
28. Remove one bolt of the CVT universal lifting (MQ600050) from the side cover, and install a new retainer bolt instead. Then temporarily tighten the retainer bolt.
29. Repeat the same procedure six times.
30. Tighten the retainer bolts to the specified torque.
Tightening torque: 28 ± 2 N·m (21 ± 1 ft-lb)
31. Turn the pulley by hand to check that it turns smoothly.
32. Place the transaxle assembly with the oil pan facing down. Then turn the transaxle assembly 90° so that the converter housing is on the top side.


BCI02162AA

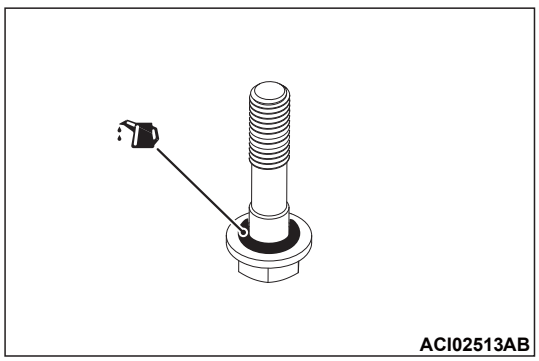
33. Remove the three temporarily-tightened bolts shown in the figure, and remove the converter housing from the transaxle case.


BCD03629AA

34. Remove the four temporarily-tightened bolts shown in the figure, and remove the oil pan from the transaxle case.


ACI02193AB

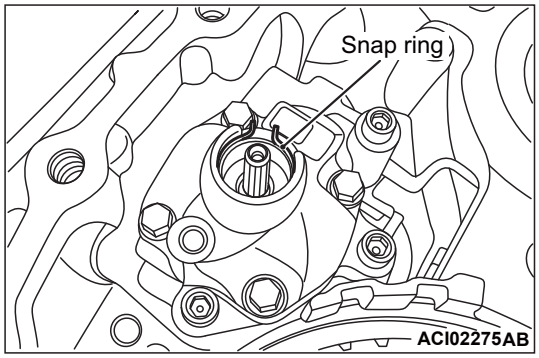
35. Temporary install new oil pump by using new hexagon socket head bolts.


ACI02513AB

36. Install the new O-ring coated by CVT fluid to the hexagon bolt, then temporary install to the new oil pump.
37. Tighten the hexagon socket head bolts and hexagon bolt.

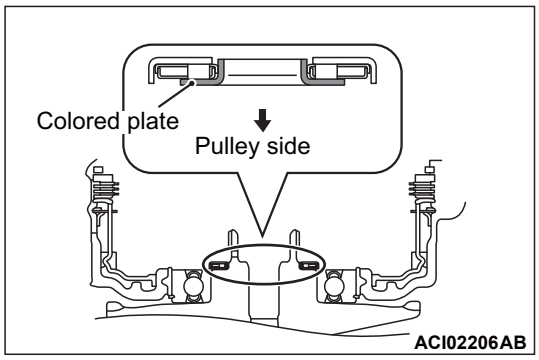
Tightening torque
Hexagon socket head bolts: 19 ± 1 N·m (14 ± 0.7 ft-lb)
Hexagon bolt: 28 ± 2 N·m (21 ± 1 ft-lb)

Attached sheet
11 (22/33)

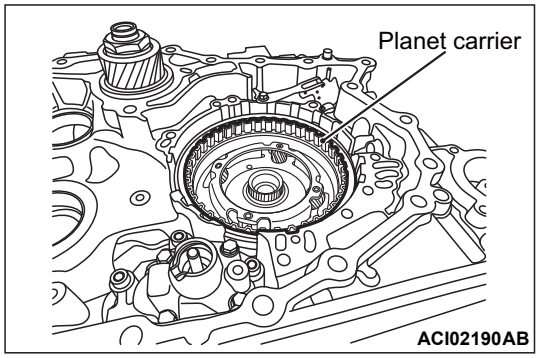


38.Install the new snap ring.
NOTE: Put the ring into the groove.

⚠ CAUTION
Colored plate is pulley side.

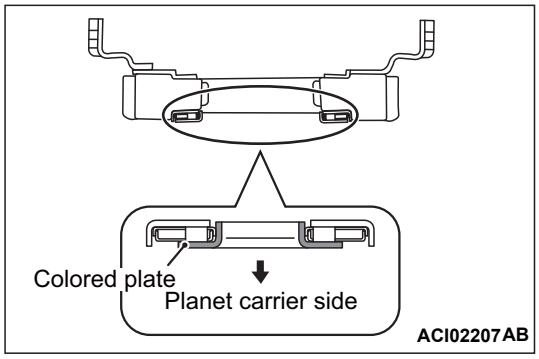


39.Apply vaseline to the thrust needle bearing, and install into the transaxle case.

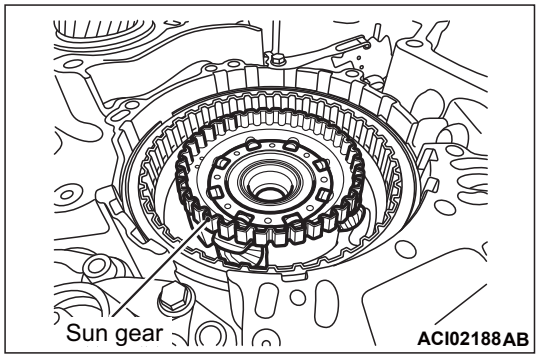


40.Install the planet carrier it to the transaxle case.

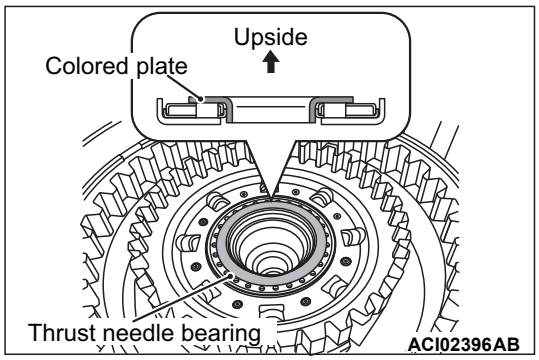
⚠ CAUTION
Colored plate is planet carrier side.



41.Apply vaseline to the thrust needle bearing, and install into the sun gear under side.

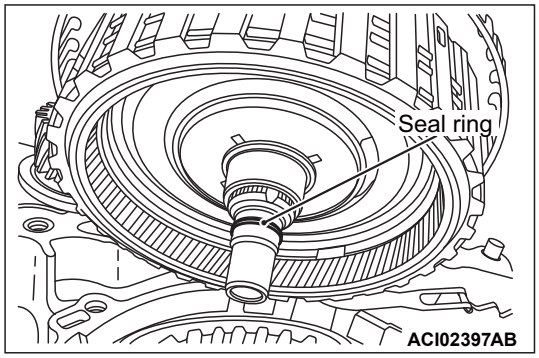


42.Install the sun gear into the planet carrier and thrust needle bearing.



⚠ CAUTION
Colored plate is upside.

43.Apply vaseline to the thrust needle bearing, and install into the sun gear upper side.



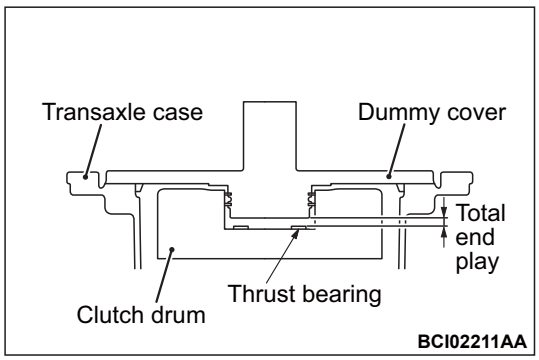
44.Install forward clutch assembly.

NOTE:
- To confirm seal ring is surely installed in the groove entire circumference.
- How to confirm it is completely installed: Put straight bar horizontally on seating surface of the dummy cover, then confirm forward clutch drum is located lower than 1 - 3 mm (0.04 - 0.11 inch) than its seating surface of the dummy cover.
- If the clutch assembly is located higher than the seating surface of the dummy cover, pull out the parts and re-install from the carrier because it is not installed completely.

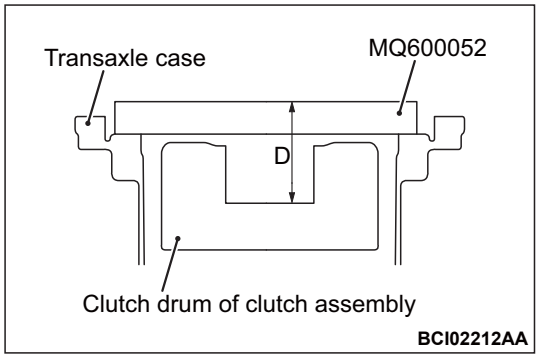
45.Adjustment of total end play. (Select thrust bearing)

NOTE:
- Adjust the total end play between forward clutch drum and dummy cover when change belt and pulley, to adjust the thickness of thrust bearing.
- There are 8 kinds of thickness of thrust bearing for the total end play adjustment.

(1) Conduct zero point adjustment of the digital depth gauge (MQ600053) after clean up.
(2) Clean up the gauge block (MQ600052).
(3) Confirm the seating surface of transaxle case is cleaned.

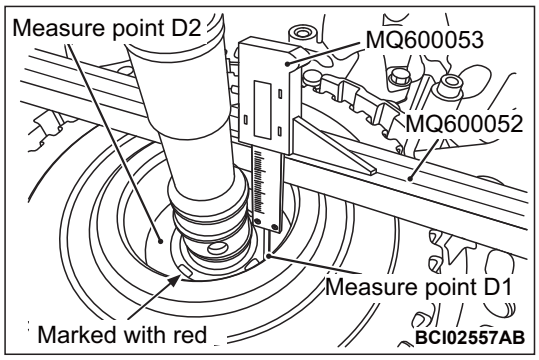


Attached sheet 11 (24/33)

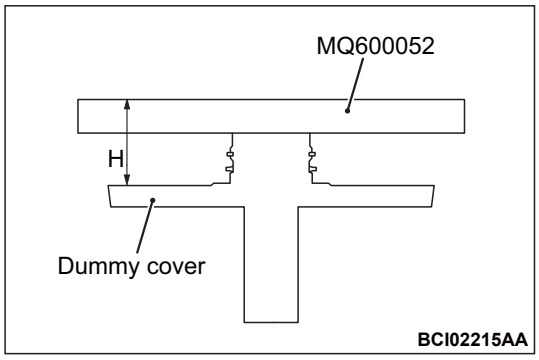


(4) Calculate the average by measuring of 2 locations (D1) and (D2) of internal diameter depth of forward clutch (dimension D) by gauge block (MQ600052) and digital depth gauge (MQ600053).

The calculated (measured) value "D"
Calculating formula: D=(D1+D2) / 2

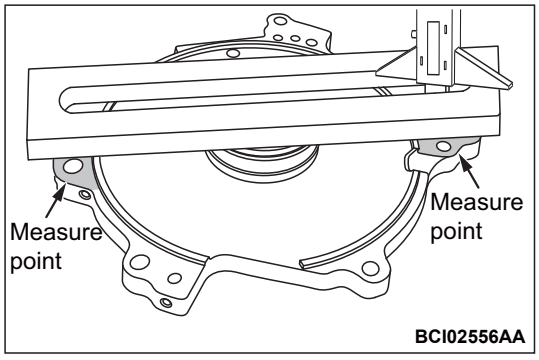


⚠ CAUTION
Do not measure the higher place.



(5) Clean up the seating surface of dummy cover.
(6) Put the dummy cover with the seating surface up.
(7) Put gauge block (MQ600052) on the side of thrust bearing of dummy cover.
(8) Calculate the average by measuring of 2 locations (H1) and (H2) of seating surface height of dummy cover (dimension H) by gauge block (MQ600052) and digital depth gauge (MQ600053).

The calculated (measured) value "H"
Calculating formula: H=(H1+H2) / 2



(9) Select the thrust bearing to adjust the total end play (A).

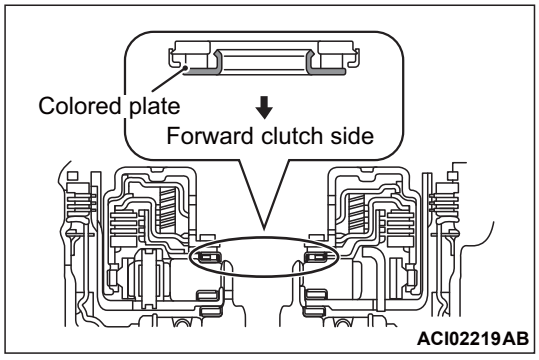
- Calculate "A" (The value of the total end play)
- Total end play "A" = "D" - "H" (The thickness of thrust bearing)
- Measurement value of "D" ____ mm - Measurement value of "H" ____ mm = "A" ____ mm
- Select suitable bearing from following Table "A". (Eight kinds variations of the thickness)
- (e.g.) If "A" = 4.3 mm (0.169 inch), select 3.93 mm (0.155 inch) as the thickness of bearing.
- Measure the thickness of bearing to confirm if is it correct before installation.

Attached sheet 11 (25/33)

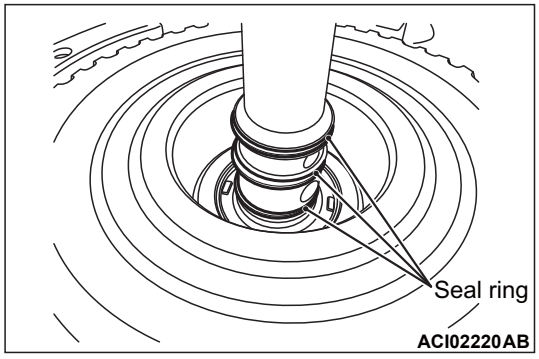
Parts number	"A"="D" - "H" Value of a clearance mm (in)	Thickness of bearing mm (in)
2721A028	3.87 - 4.07 (0.153 - 0.160)	3.57 (0.141)
2721A027	4.07 - 4.23 (0.161 - 0.166)	3.75 (0.148)
2721A026	4.23 - 4.43 (0.167 - 0.174)	3.93 (0.155)
2721A025	4.43 - 4.58 (0.175 - 0.180)	4.10 (0.161)
2721A024	4.58 - 4.78 (0.181 - 0.188)	4.28 (0.169)
2721A023	4.78 - 4.94 (0.189 - 0.194)	4.46 (0.176)
2721A022	4.94 - 5.09 (0.195 - 0.200)	4.61 (0.181)
2721A021	5.09 - 5.29 (0.201 - 0.208)	4.79 (0.189)

⚠ CAUTION
Colored plate is forward clutch side.

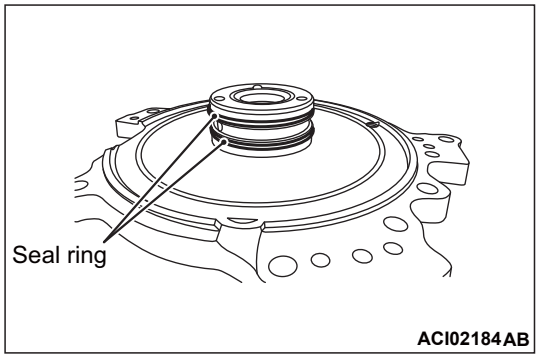
46. Apply vaseline to the thrust needle bearing, and install into the forward clutch assembly.



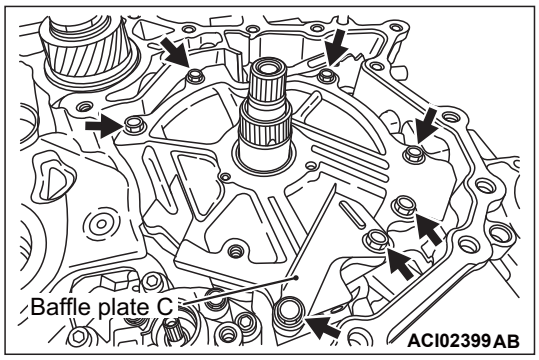
47. Check the three seal rings of input shaft whether it is on correct position.



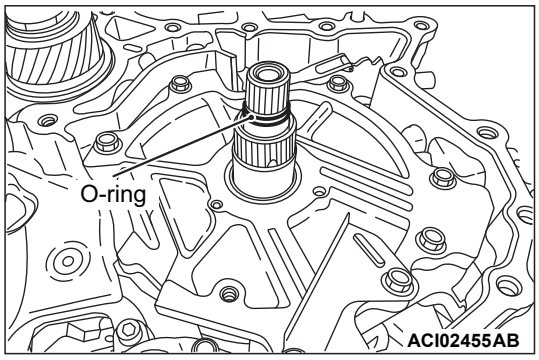
Attached sheet 11 (26/33)



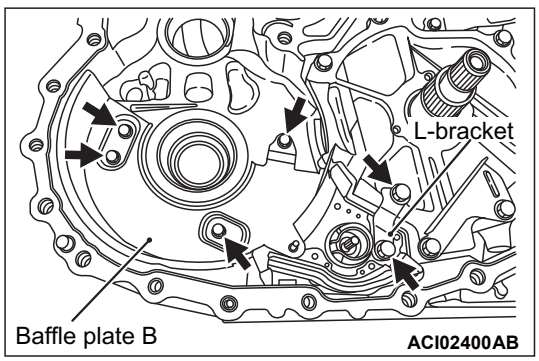
48. Check the two seal rings of dummy cover under side whether it is on correct position.



49. Install the dummy cover and install the baffle plate C temporary (tightening by hand), then tighten the bolts.
Tightening torque: 19 ± 1 N·m (14 ± 0.7 ft-lb)

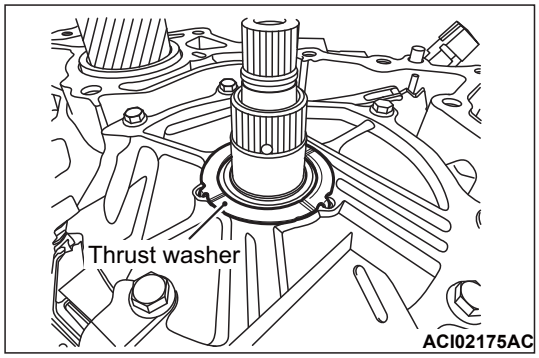


50. Install the new O-ring coated by CVT fluid to the input shaft.

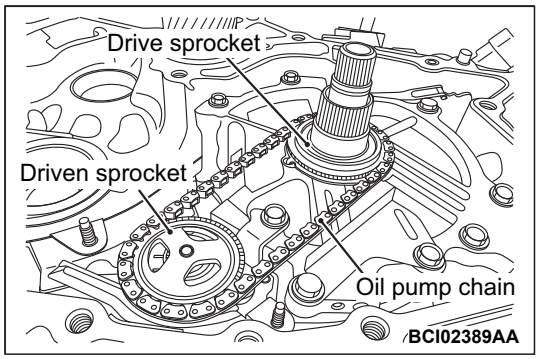


51. Install the baffle plate B and L-bracket temporary (tightening by hand), then tighten the bolts.
Tightening torque:
Baffle plate B: 5.9 ± 1.0 N·m (52 ± 8 in-lb)
L-bracket: 26 ± 1 N·m (19.2 ± 0.7 ft-lb)

Attached sheet 11 (27/33)

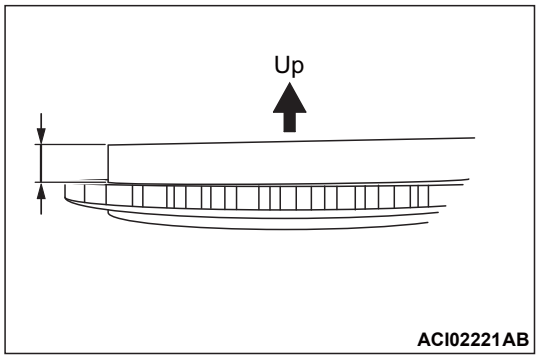


52.Fit the click of the thrust washer to hole of the dummy cover and install.



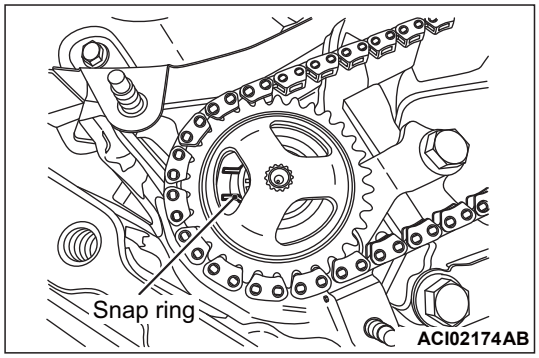
53.Hold the state of integrated the drive sprocket, driven sprocket and chain and install.

Attached sheet 11 (28/33)



⚠ CAUTION

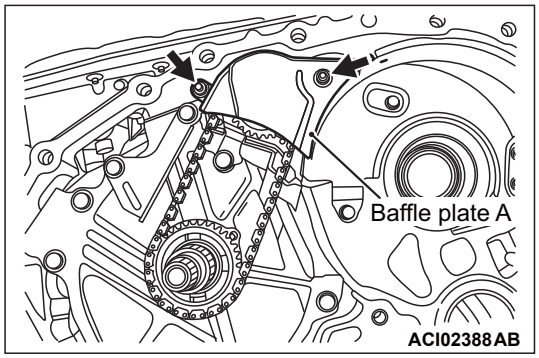
- **Be careful the installment direction, because the drive sprocket is the different on both sides.**
- **Make sure the correct side of the drive sprocket, it is impossible to install a torque converter if it faces wrong side.**



- **Spread out the snap ring by snap ring plier and hold down the driven sprocket until touch the bottom. Then, take the snap ring pliers and raise the driven sprocket until the snap ring falls into a ditch.**
- **Lift up the driven sprocket and make confirm it will not fall off.**

54.Tighten the baffle plate A by two nuts.

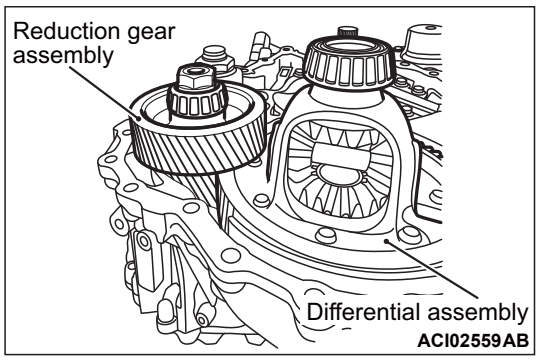
Tightening torque: 5.9 ± 1.0 N·m (52 ± 8 in-lb)

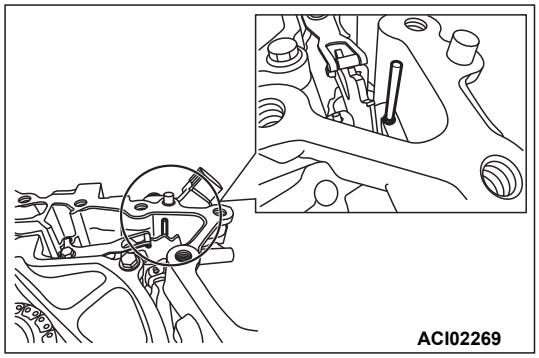


⚠ CAUTION

- **Make clean completely before installment.**
- **Apply the CVT fluid to the bearing and gear tooth surface before installment.**

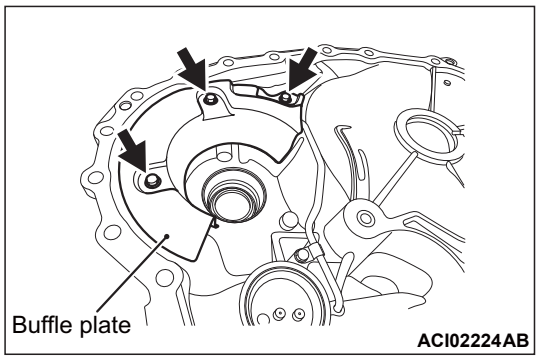
55.Install the differential assembly and reduction gear assembly.



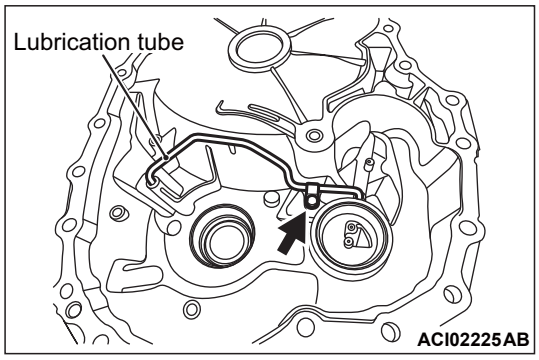


56. Install the retaining pin whether it is at a prescribed position on the transaxle case before install the convertor housing.

    NOTE: Confirm the edge of pin not stick out from the height of mating surfaces of the transaxle case.

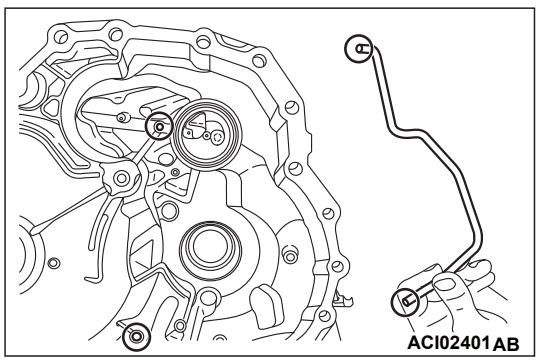


57. Remove the bolts and baffle plate from the converter housing.



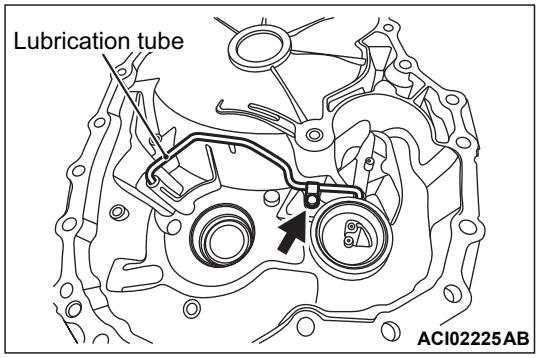
58. Remove a bolt, bracket and lubrication tube.

⚠ CAUTION
When blowing air, never stand in front of the oil circuit.



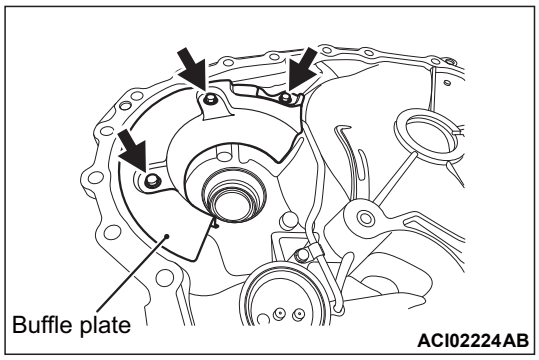
59. Wash the hydraulic circuit of convertor housing and lubrication tube by brake cleaner or suitable washing material.

Attached sheet 11 (30/33)



60.Install the lubrication tube by bolt with spring washer.

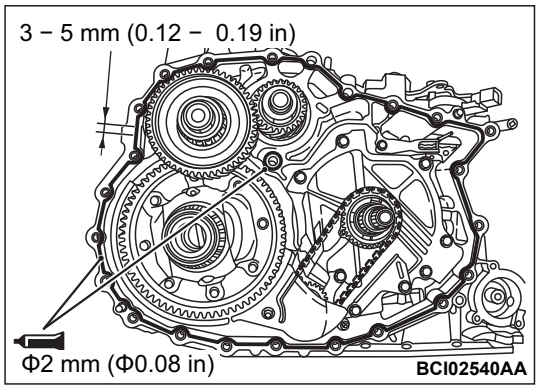
Tightening torque: 5.9 ± 1.0 N·m (52 ± 8 in-lb)



61.Install the baffle plate by bolts.

Tightening torque: 5.9 ± 1.0 N·m (52 ± 8 in-lb)

62.Before apply the sealant, wash and remove grease from the mating surfaces, make sure not remain oil, stain or crud on mating surface.

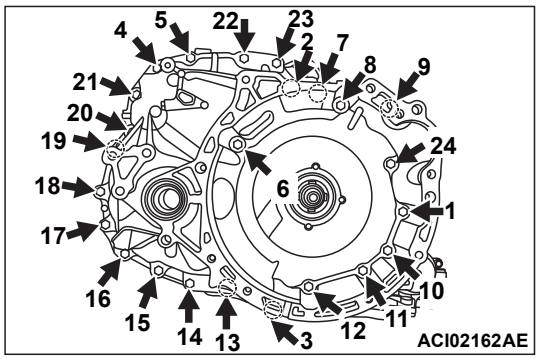


63.Apply the sealant to the converter housing mating surface on the transaxle case.

Specified sealant: Loctite® SI5460 or equivalent

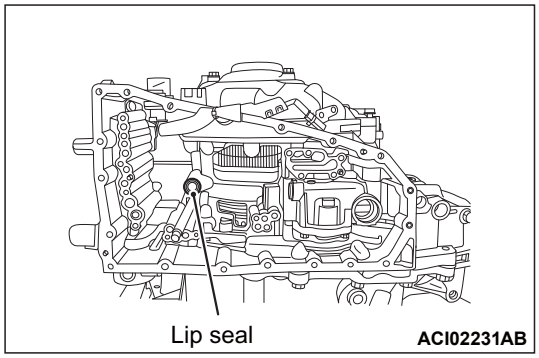
NOTE:

- Bead size approximately ϕ2 mm (ϕ0.08 inch).
- To apply the liquid gasket following the track of the chart. Starting and ending point should be the middle location between bolt and bolt.
- Overlapping length to be 3 - 5 mm (0.12 - 0.19 inch).
- Do not forget to apply around the bolt in the middle of transaxle case.

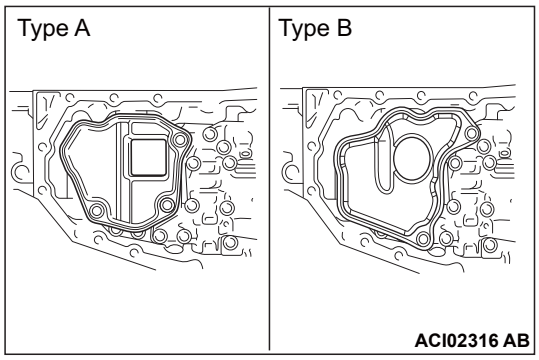


64.Install the convertor housing into transaxle and tighten new bolts (24 bolts) in the order shown.

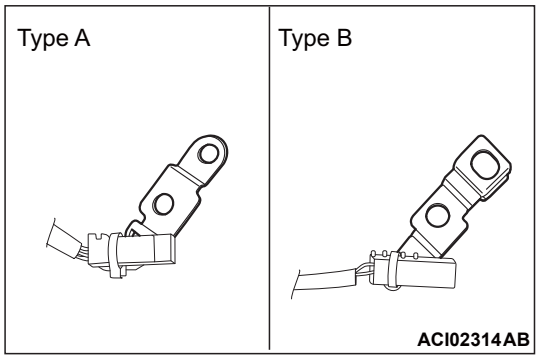
Tightening torque: 46 ± 1 N·m (34 ± 0.6 ft-lb)



65.Install new lip seal.



66.If the oil strainer is type A, change to type B.

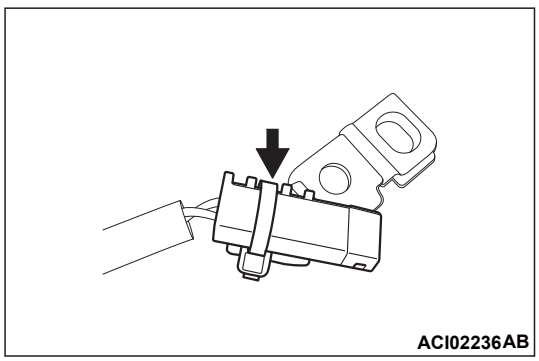


67.Change to type B if the oil temperature sensor mounting bracket is type A.

68.Procedure for replacing oil temperature sensor mounting bracket.

(1) With the control valve connector removed, cut the band fixing the oil temperature sensor to the bracket with the nipper.

NOTE: Do not reuse the band.

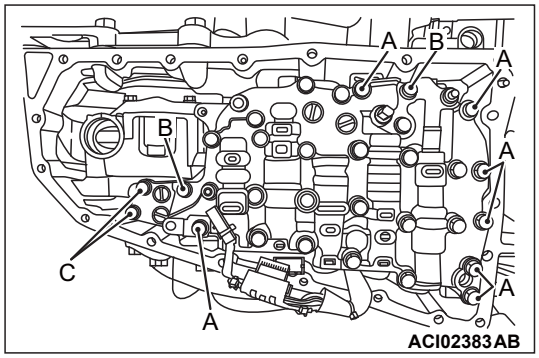


⚠ CAUTION

- **To stop the band of the oil temperature sensor, stop at the center of three notches.**
- **Cut the surplus part of the binding band tip.**

(2) Fix the oil temperature sensor to the type B sensor mounting bracket with the binding band.

Attached sheet 11 (32/33)



69. Install the fastening bolts of control valve assembly, and tighten the bolts.

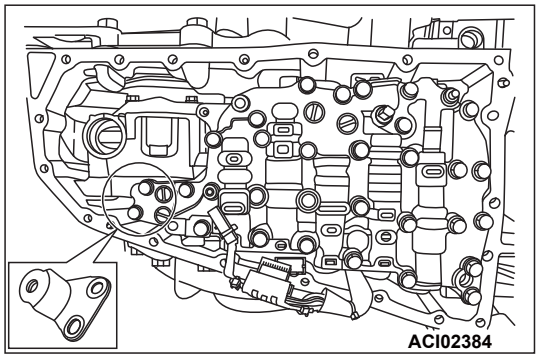
Bolt symbol	Shank length	Quantity
A	54 mm (2.1 in)	7
B	44 mm (1.7 in)	2
C	25 mm (1.0 in)	2

Tightening torque: 7.9 ± 1.0 N·m (70 ± 8 in-lb)

NOTE:

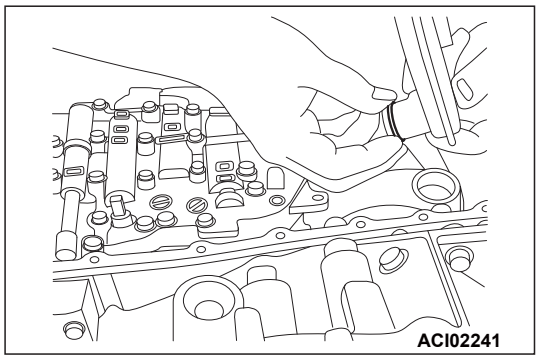
- Tighten the oil temperature sensor mounting bracket and valve body together.
- When replacing the oil temperature sensor mounting bracket from type A to type B, do not install two brackets and oil strainer mounting bolts that were in this position.

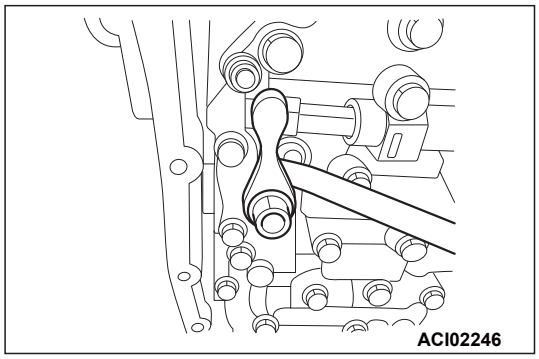
70. Connect the valve body harness connector.

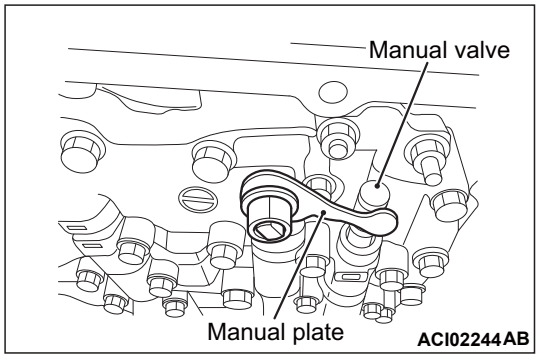


71. Apply vaseline on the O-ring of oil strainer.
72. Install the oil strainer, and tighten the fastening bolts to the specified torque.

Tightening torque: 7.9 ± 1.0 N·m (70 ± 8 in-lb)







⚠ CAUTION

- **When tightening the manual plate fixing nut, tighten the nut in a state with the manual plate secured with a flat-head screwdriver or the like. At this time, it is difficult to insert a flathead screwdriver in the gap of the manual plate. Therefore, once the manual plate is shifted counterclockwise, insert a flathead screwdriver in the formed gap and fix the manual plate. Then tighten the nut with specified torque.)**
- **Be careful of over torque.**
- **After the visual confirmation of the belt is completed, it is not necessary to hold the N range.**

73. Install the manual plate, washer and tighten the fastening nut to the specified torque.

    NOTE: Set the tipping part of manual plate to the notch of Manual valve.

    Tightening torque: 22 ± 1 N·m (16 ± 0.5 ft-lb)

74. Connect the CVT unit connector.
75. Transaxle reassembly (Refer to GROUP 23B – Transaxle).