



## SERVICE BULLETIN

Classification:

AT18-002a

Reference:

NTB18-019a

Date:

June 13, 2019

### 2013-2018 ALTIMA AND 2014-2018 ROGUE; ENGINE SUPPORT TOOLS

This bulletin has been amended. See **AMENDMENT HISTORY** on the last page.  
Please discard previous versions of this bulletin.

**APPLIED VEHICLES:** 2013-2018 Altima (L33)  
2014-2018 Rogue (T32)

#### SERVICE INFORMATION

A new Engine Support Tool and Engine Support Brackets are now available to allow the CVT to be removed from the Applied Vehicles without having to remove the engine.

The procedures in this bulletin are different from the procedures currently in the Electronic Service Manuals (ESMs), which will be updated with this information at a later date.

Please refer to the vehicle-specific service procedure to use these new tools:

**Altima QR25** Page 2

**Altima VQ35** Page 11

**Rogue AWD** Page 28

**Rogue FWD** Page 41

Nissan Bulletins are intended for use by qualified technicians, not 'do-it-yourselfers'. Qualified technicians are properly trained individuals who have the equipment, tools, safety instruction, and know-how to do a job properly and safely. NOTE: If you believe that a described condition may apply to a particular vehicle, DO NOT assume that it does. See your Nissan dealer to determine if this applies to your vehicle.

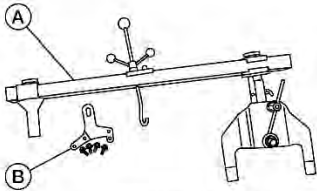
# SERVICE PROCEDURE

## Altima QR25

### Special Service Tools

INFOID:RDE-000700922

Tool number (TechMate No.) Tool name	Description
A. — (J-52389) Engine support tool B. — (J-52475) Engine support bracket	Supporting engine




RDE-000700922-01-DIA0030ZZ

### Commercial Service Tool

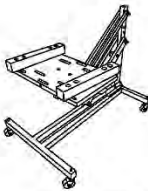
INFOID:RDE-000700920

Tool number Tool name	Description
Power tool	Loosening nuts, screws and bolts



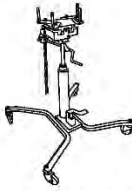
RDE-000700920-01-IIB1407E

Hydraulic lift table	Removing front suspension member
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RDE-000700920-02-DIA0077ZZ

Transmission jack	Removing transaxle assembly
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RDE-000700920-03-DIA0078ZZ

## Altima

### Removal

#### **WARNING:**

**Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.**

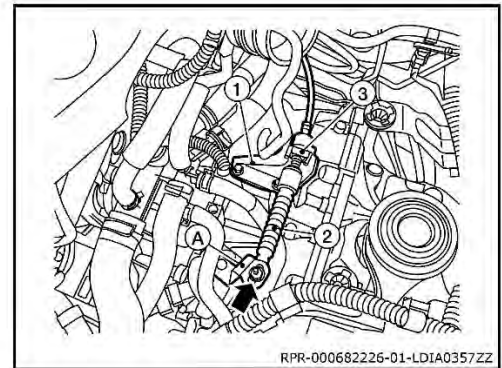
**CAUTION:**

- Perform when the engine is cold.
- When replacing the TCM and transaxle assembly as a set, replace the transaxle assembly first and then replace the TCM. Refer to "Description" in the Transaxle and Transmission section of the ESM.
- When replacing the transaxle assembly, perform "ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY." Refer to "Description" in the Transaxle and Transmission section of the ESM.

**NOTE:**

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove starter. Refer to "Removal and Installation" in the Starting System section of the ESM.
2. Disconnect the harness connector from the input speed sensor.
3. Remove the control cable nut (←), using suitable tool.



4. Remove control cable (2) from manual lever (A).
5. Remove the lock plate (3) from control cable (2).
6. Remove control cable (2) from bracket (1).
7. Disconnect the harness connector from transmission range switch.
8. Remove cotter pin from outer socket. Refer to "Exploded View" in the Steering System section of the ESM.

**CAUTION:**

**Do not reuse cotter pin.**

9. Loosen outer socket nut and separate outer socket from steering knuckle using suitable tool.

**CAUTION:**

**Leave the outer socket nut half threaded on the outer socket to prevent damage to threads and to prevent the suitable tool from coming off suddenly.**

10. Remove outer socket nut and outer socket from the steering knuckle (LH/RH).
11. Remove front fender protector side cover (LH/RH). Refer to "Exploded View" in the Exterior section of the ESM.
12. Remove nut and separate stabilizer connecting rod from strut (LH/RH).

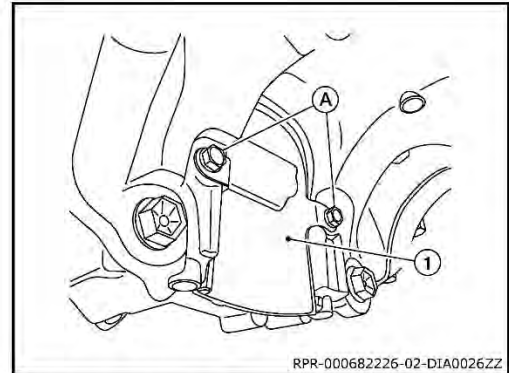
**CAUTION:**

**Do not reuse nuts.**

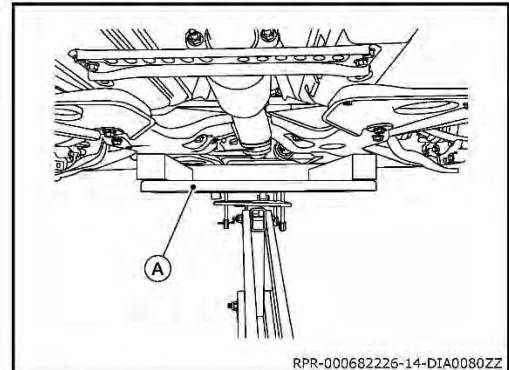
13. Remove front axle (LH/RH). Refer to "Removal and Installation" in the Front Axle section of the ESM.



14. Remove bolts (A) and drive plate inspection cover (1).



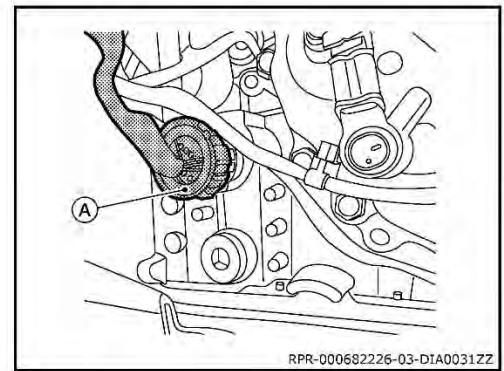
15. Hold drive plate using a suitable tool and remove torque converter nuts. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
16. Remove front exhaust tube. Refer to "Exploded View" in the Exhaust System section of the ESM.
17. Remove steering gear bolts. Remove steering gear from the front suspension member and support the steering gear with wire. Refer to "Exploded View" in the Steering System section of the ESM.
18. Remove front under cover. Refer to "Removal and Installation" in the Exterior section of the ESM.
19. Remove rear engine mount torque rod bolt. Refer to "Exploded View" in the Engine Mechanical section of the ESM.
20. Remove the power steering line from clips.
21. Set hydraulic lift table (A) or equivalent tool under the front suspension member, and remove the front suspension member stay bolts.



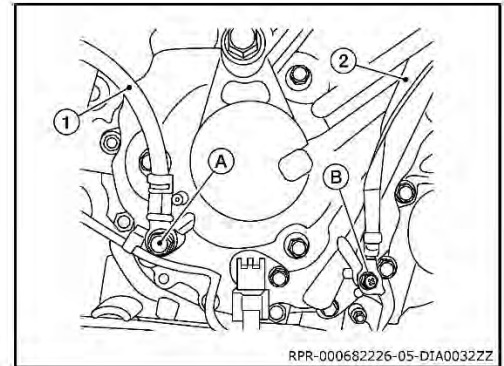
22. Remove front suspension member bolts and front suspension member stays.
23. Slowly lower hydraulic lift table (or equivalent tool) to remove the front suspension member from the vehicle.
- CAUTION:**  
**Secure front suspension member to hydraulic lift table (or equivalent tool) while removing it.**
24. Partially drain coolant. Refer to "Periodic Maintenance" in the Engine Cooling System section of the ESM.
25. Remove CVT water hose A and CVT water hose B from CVT oil warmer. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
26. Remove CVT fluid cooler hose A and CVT fluid cooler hose B from CVT oil warmer. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
27. Disconnect the harness connector from the primary speed sensor.
28. Disconnect the harness connector from the output speed sensor.



29. Disconnect harness connector (A) from transaxle assembly.

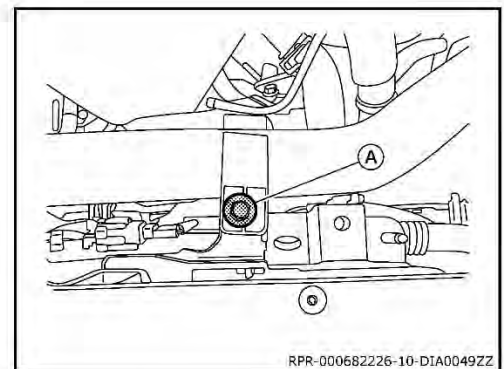


30. Remove bolts (A) and (B) and remove grounds (1) and (2) from transaxle.

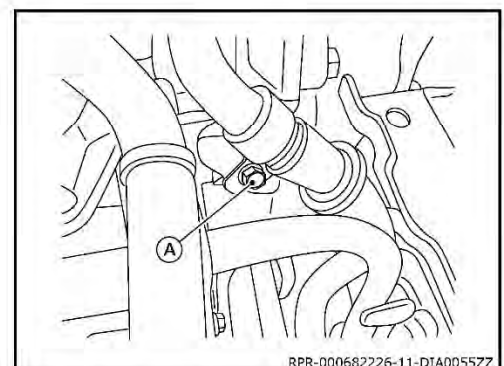


31. Using a suitable tool release harness retainers.

32. Remove upper radiator hose stay bolt (A).

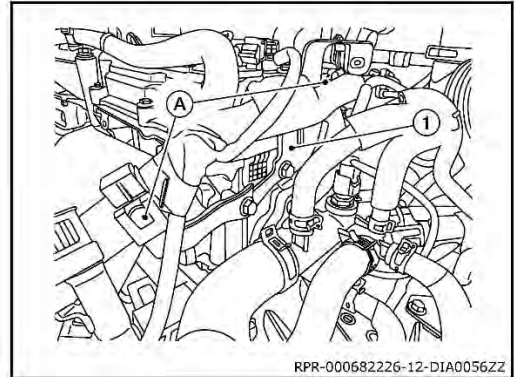


33. Remove CVT water hose C stay bolt (A).

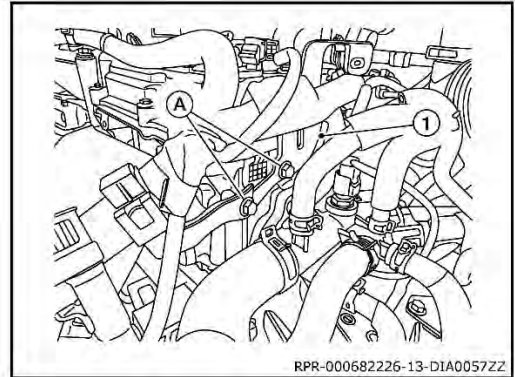


34. Using a suitable tool release clip from CVT fluid charging pipe and set CVT water hose A aside.
35. Remove bolt and place reservoir tank aside. Refer to "Exploded View" in the Engine Cooling System section of the ESM.
36. Disconnect harness connectors from exhaust valve timing control position sensor and camshaft position sensor (PHASE). Refer to "Component Part Location" in the Engine Control section of the ESM.

37. Using a suitable tool release harness retainers (A) from bracket (1).



38. Remove bolts (A) and remove bracket (1).

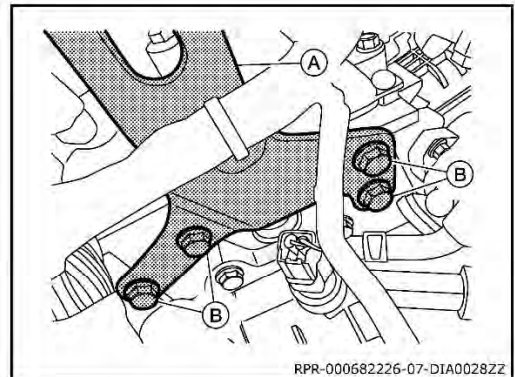


39. Install Tool (A) using bolts (B) and tighten to specification. Refer to Engine Support Tool Operating Instructions.

**NOTE:**

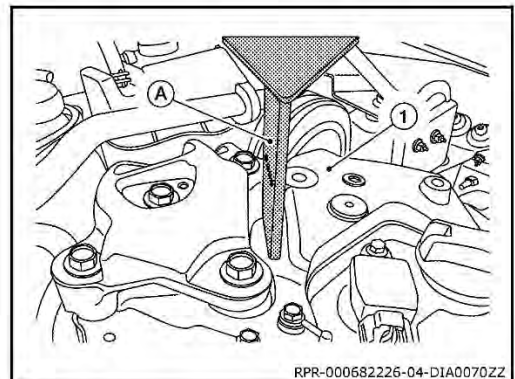
**Tool (A) and bolts (B) are part of J-52475**

Tool number : (J-52475)  
Bolts (B) : 20.34N·m (2.07 kg-m,  
15 ft-lb)



40. Install Tool (A) on top of engine mounting insulator [RH (1)] as shown. Refer to Engine Support Tool Operating Instructions.

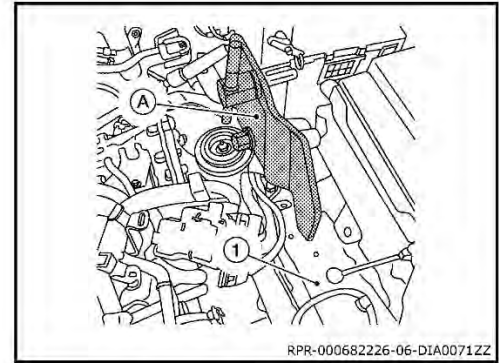
Tool number : (J-52389)





41. Install Tool (A) on top of driver's side frame rail (1) as shown.

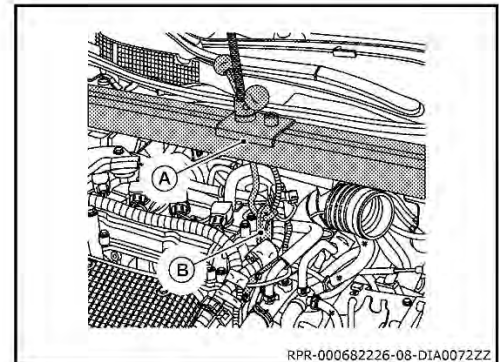
Tool number : (J-52389)



42. Install Tool (A) to Tool (B) as shown.

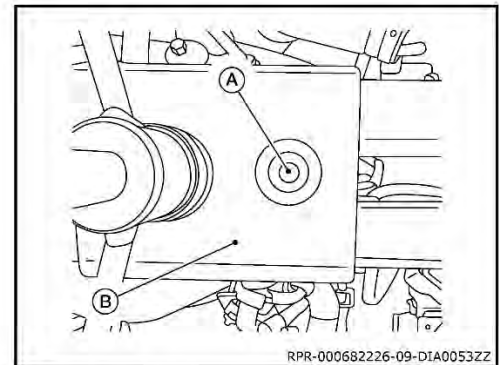
Tool (A) : (J-52389)

Tool (B) : (J-52475)



43. Using bubble level (A) on Tool (B) level Tool as shown.

Tool number : (J-52389)



44. Tighten handle of Tool to support the weight of the engine and transaxle assembly.

Tool number : (J-52389)

**CAUTION:**

**Before removing engine or transmission mount bolts, ensure that the engine support tool is properly installed and supporting the weight of the engine and transaxle assembly, otherwise damage could result.**

45. Remove engine mount torque rod bolt. Refer to "Exploded View" in the Engine Mechanical section of the ESM.
46. Loosen transmission mounting bracket nut. Refer to "Exploded View" in the Engine Mechanical section of the ESM.
47. Using suitable tool release transmission mounting bracket from engine mounting insulator (LH). Refer to "Exploded View" in the Engine Mechanical section of the ESM.
48. Remove nut from transmission mounting bracket.
49. Remove the upper bolts from the transaxle assembly. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
50. Using Tools lower engine and transaxle assembly until the transaxle assembly is low enough to clear the driver's side frame rail.

Tool numbers : (J-52389, J-52475)

51. Raise vehicle on hoist.



52. Support transaxle assembly using a suitable transmission jack.

**CAUTION:**

- Always secure transaxle assembly to transmission jack.
- Do not lift or support transaxle assembly using the bottom of oil pan or damage can occur.

53. Remove the lower bolts securing the transaxle to engine. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.

54. Separate transaxle from engine and remove transaxle.

**CAUTION:**

**Secure the torque converter to the transaxle while removing transaxle to prevent torque converter from falling.**

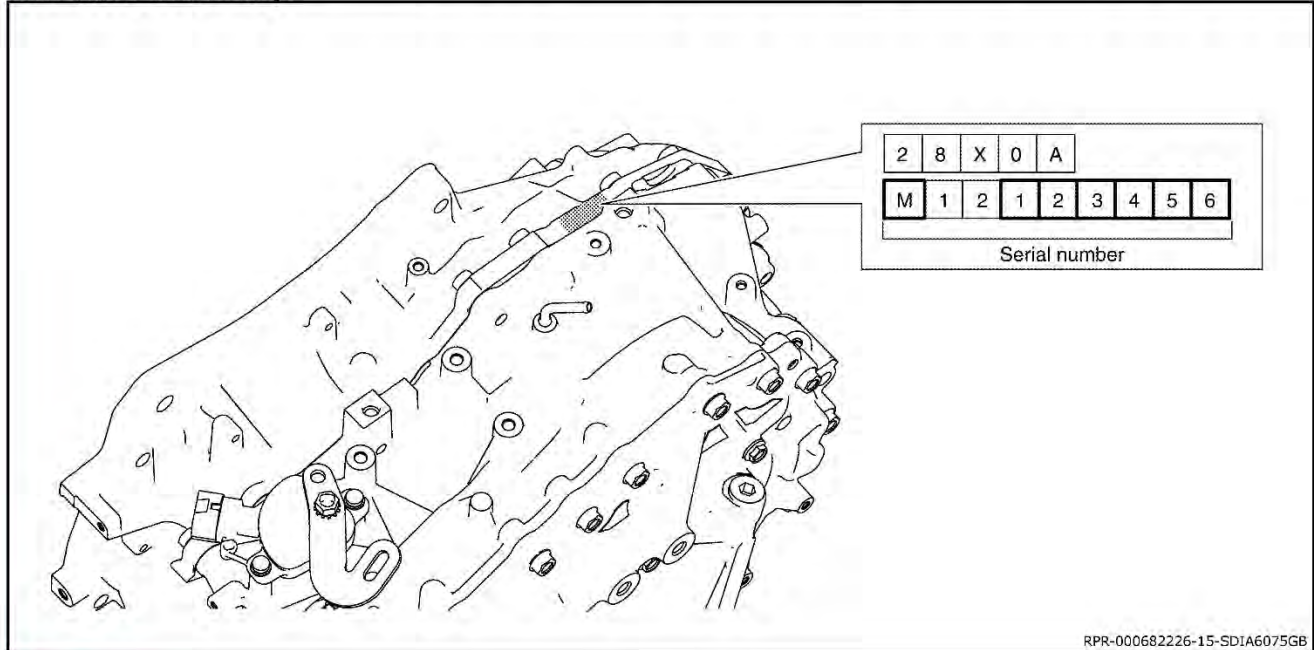
## INSTALLATION

Installation is in the reverse order of removal.

Perform inspection before installation. Refer to "Inspection Before Installation" below.

**NOTE:**

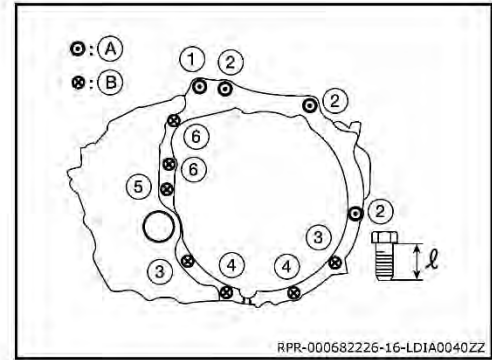
**If a new transaxle assembly is being installed, write down the serial number of the new transaxle assembly.**



**CAUTION:**

- When replacing an engine or transaxle you must make sure any dowels are installed correctly during re-assembly.
- Improper alignment caused by missing dowels may cause vibration, oil leaks or breakage of drivetrain components.
- Do not reuse O-rings or copper sealing washers.
- When turning crankshaft, turn it clockwise as viewed from the front of the engine.
- When tightening the nuts for the torque converter while securing the crankshaft pulley bolt, be sure to confirm the tightening torque of the crankshaft pulley bolt. Refer to "Removal and Installation" of the timing chain in the Engine Mechanical section of the ESM.
- After torque converter is installed to drive plate, rotate crankshaft several turns to check that CVT rotates freely without binding.
- When installing the CVT to the engine, align the matching mark on the drive plate with the matching mark on the torque converter.

When installing the CVT to the engine, attach the bolts in accordance with the following standard.



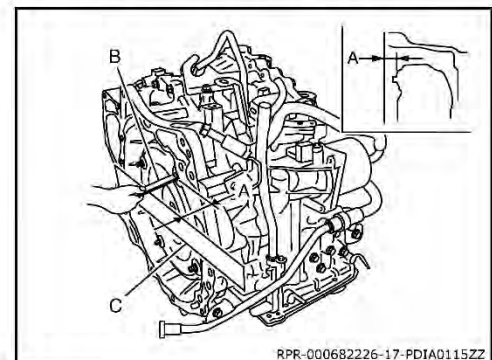
- (A) : Transaxle assembly to engine assembly.
- (B) : Engine assembly to transaxle assembly.

Bolt No.	1	2	3	4	5	6
Number of bolts	1	3	2	2	1	2
Bolt length "ℓ" mm (in)	45 (1.77)	45 (1.77)	45 (1.77)	35 (1.38)	45 (1.77)	45 (1.77)
Tightening torque N·m (kg- m, ft-lb)	35.3 (3.6, 26)	74.5 (7.6, 55)	42.7 (4.4, 31)	42.7 (4.4, 31)	74.5 (7.6, 55)	48.0 (4.9, 35)

- When installing the drive plate to torque converter nuts, tighten them temporarily, then tighten the nuts to the specified torque. Refer to "Exploded View" in the Transaxle & Transmission section of the ESM.
- Perform adjustment after installation. Refer to "Adjustment After Installation" below.
- Perform inspection after installation. Refer to "Inspection After Installation" below.

## INSPECTION BEFORE INSTALLATION

After inserting the torque converter to the CVT, check that dimension (A) is within the reference value limit.



- B : Scale  
C : Straightedge

Dimension (A) : Refer to "Service Data and Specifications (SDS)" in the Transmission and Transaxle section of the ESM.

## Adjustment After Installation

Perform the following.

- Adjust CVT position. Refer to "Adjustment" in the Transaxle and Transmission section of the ESM.
- Check and adjust the engine coolant level. Refer to "Engine Coolant" in the Engine Cooling System section of the ESM.
- Adjust the CVT fluid level. Refer to "Adjustment" in the Transaxle and Transmission section of the ESM.
- Perform accelerator pedal released position learning. Refer to "Description" in the Engine Control section of the ESM.

- Perform throttle valve closed position learning. Refer to "Description" in the Engine Control section of the ESM.
- Perform front wheel alignment. Refer to "Wheel Alignment" in the Front Suspension section of the ESM.
- Perform adjustment of steering angle sensor neutral position. Refer to "Description" in the Brake Control System section of the ESM.

## INSPECTION AFTER INSTALLATION

Check the following items:

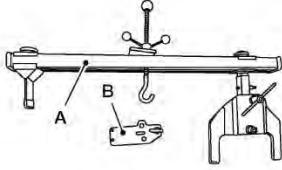
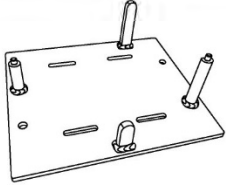
- CVT fluid leakage, refer to "Inspection" in the Transaxle and Transmission section of the ESM.
- For CVT shifter position, refer to "Inspection" in the Transaxle and Transmission section of the ESM.
- Start the engine and check for coolant leaks.



# Altima VQ35




## Special Service Tools

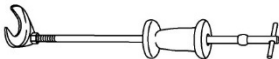
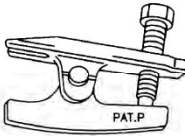
INFOID:RDE-001228547

Tool number (TechMate No.) Tool name	Description
<p>A. — (J-52389) Engine support tool</p> <p>B. — (J-52604) Engine support bracket</p>	Supporting engine
 <p>RDE-001228547-01-DIA0481ZZ</p>	
<p>(J-51307) CVT transmission jack adapter</p>  <p>RDE-001228547-02-DIA0537ZZ</p>	Removing CVT

## Commercial Service Tool

INFOID:RDE-001228548

Tool number Tool name	Description
<p>Power tool</p>  <p>RDE-001228548-01-IIB1407E</p>	Loosening nuts, screws and bolts
<p>Hydraulic lift table</p>  <p>RDE-001228548-02-DIA0077ZZ</p>	Removing front suspension member
<p>Transmission jack</p>  <p>RDE-001228548-03-DIA0078ZZ</p>	Removing transaxle assembly

Tool number Tool name	Description
Drive shaft joint puller    RDE-001228548-05-DIA0439ZZ	Removing drive shaft
Ball joint remover    RDE-001228548-04-T146	Removing steering outer socket

## Removal and Installation

### REMOVAL

#### **WARNING:**

Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

#### **CAUTION:**

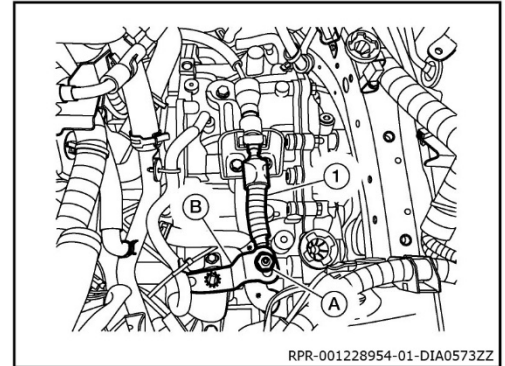
- Perform when the engine is cold.
- When replacing the TCM and transaxle assembly as a set, replace the transaxle assembly first and then replace the TCM. Refer to "Description" in the Transaxle and Transmission section of the ESM.
- When replacing the transaxle assembly, perform "ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY." Refer to "Description" in the Transaxle and Transmission section of the ESM.

#### **NOTE:**

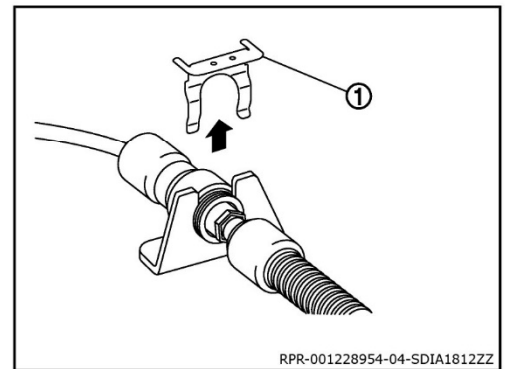
When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove starter motor. Refer to "Removal and Installation" in the Starting System section of ESM.

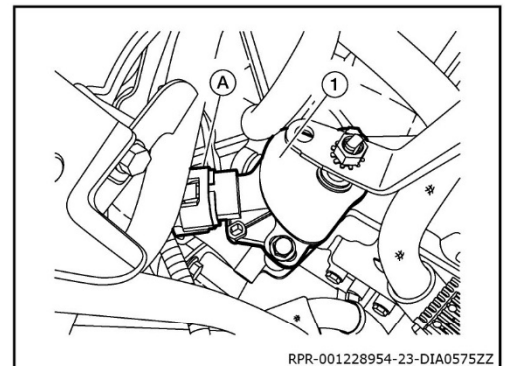
2. Remove control cable nut (A) and separate control cable (1) from the manual lever (B).



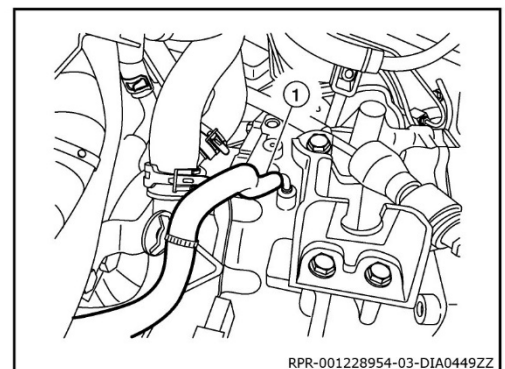
3. Remove lock plate (1) as shown.



4. Disconnect the harness connector (A) from the transmission range switch (1).



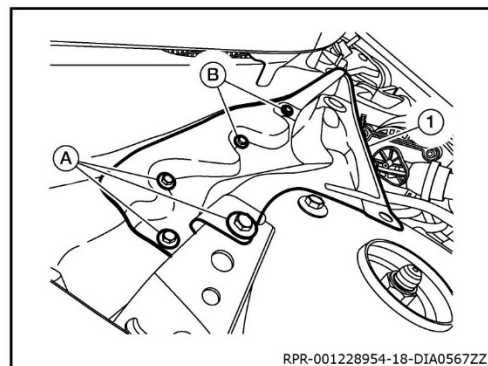
5. Disconnect transaxle breather hose (1) from transaxle assembly.



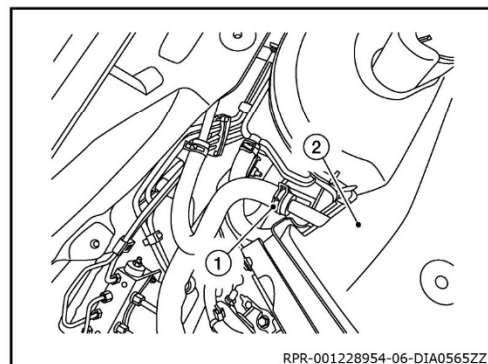
6. Remove the cowl top cover. Refer to "Removal and Installation" in the Exterior section of the ESM.
7. Remove the cowl top extension. Refer to "Exploded View" in the Exterior section of the ESM.



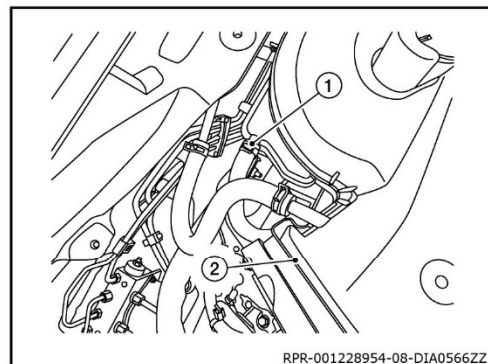
8. Remove bolts (A) and (B) and remove RH lower cowl shield (1).



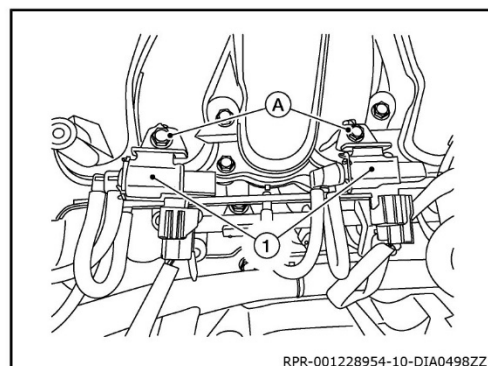
9. Disconnect the brake booster vacuum hose (1) from intake manifold collector (2).



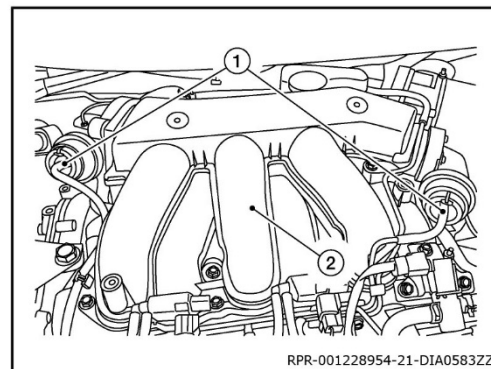
10. Disconnect the PCV hose (1) from intake manifold collector (2).



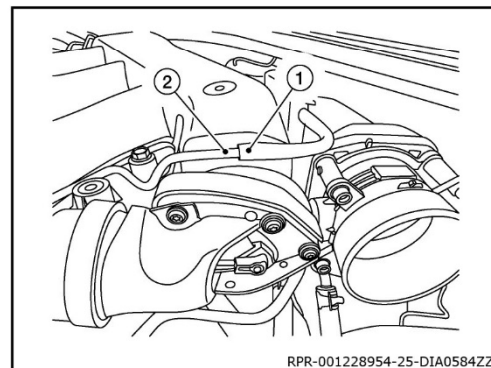
11. Remove bolts (A) and set VIAS control solenoid valves (1) aside.



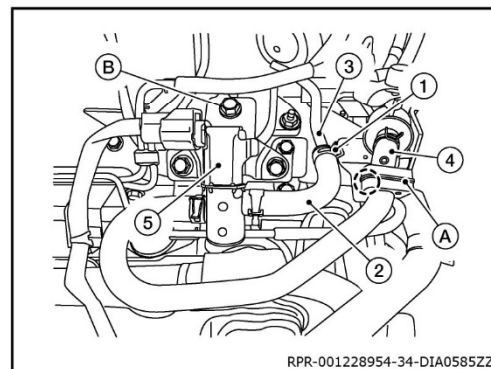
12. Disconnect vacuum hoses (1) from intake manifold collector (2).



13. Disconnect vacuum hose (1) from vacuum pipe (2).



14. Remove clamp (1) and disconnect hose (2) from pipe (3).



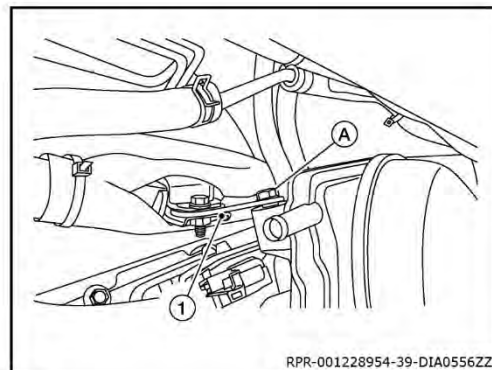
15. Release pawl and remove hose (4) from retainer (A).



: Pawl

16. Remove bolt (B) and set EVAP canister purge volume control solenoid (5) aside.

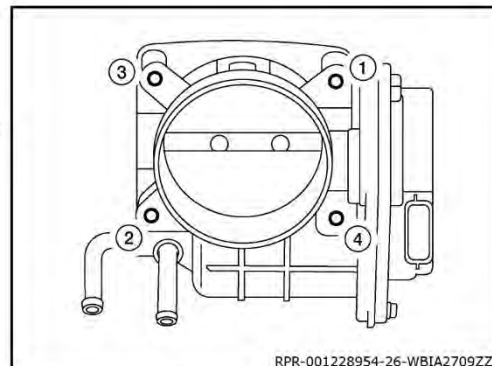
17. Remove bolt (A) and position bracket (1) aside.



18. Loosen bolts in reverse of sequence shown and remove electric throttle control actuator bolts, then remove electric throttle control actuator and position aside.

**CAUTION:**

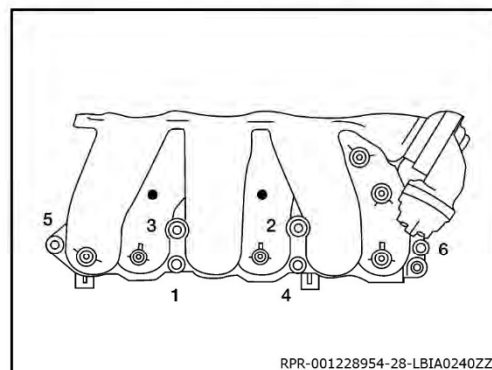
- **Handle carefully to avoid any shock to the electric throttle control actuator.**
- **Do not disassemble electric throttle control actuator.**



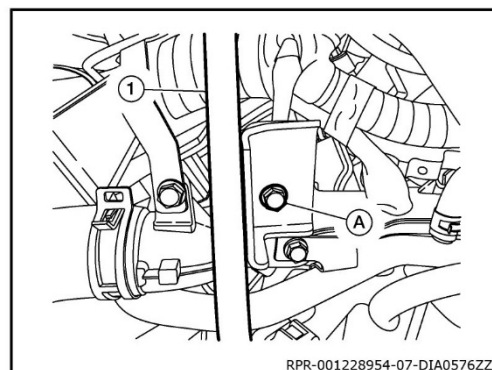
19. Loosen the intake manifold collector bolts and nuts in reverse of the sequence shown, then remove the intake manifold collector and gasket.

**CAUTION:**

**Do not reuse intake manifold collector gasket.**

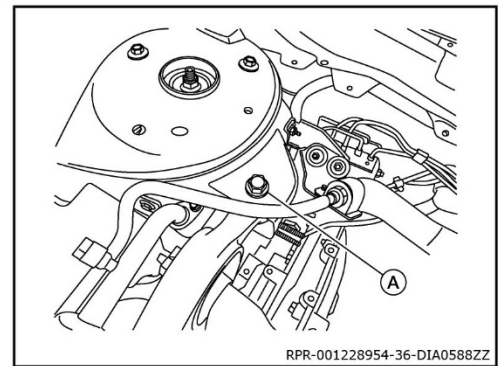


20. Remove bolt (A) from CVT charge pipe (1).

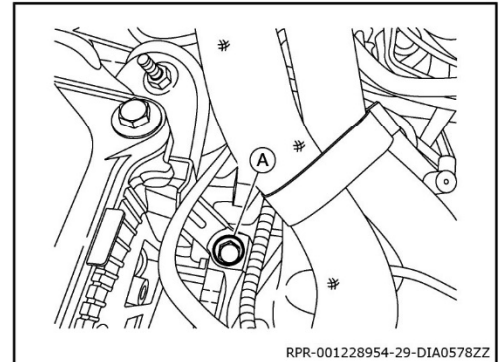




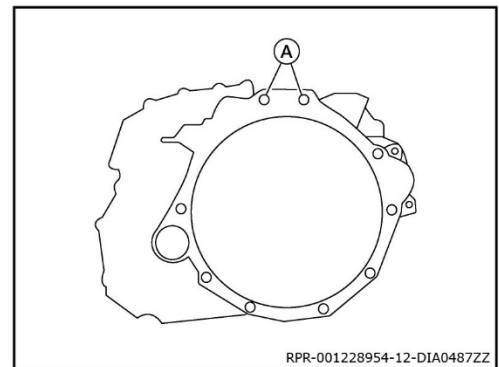
21. Remove bolt (A) from upper torque rod.



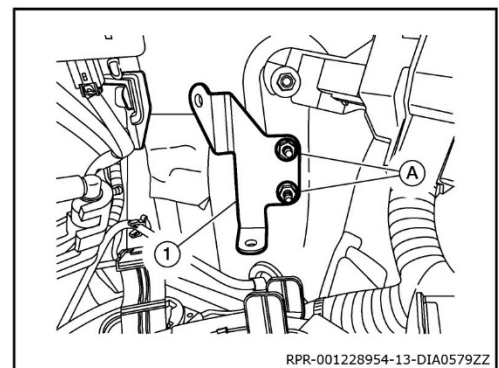
22. Remove CVT gusset bolt (A).



23. Remove bolts (A).



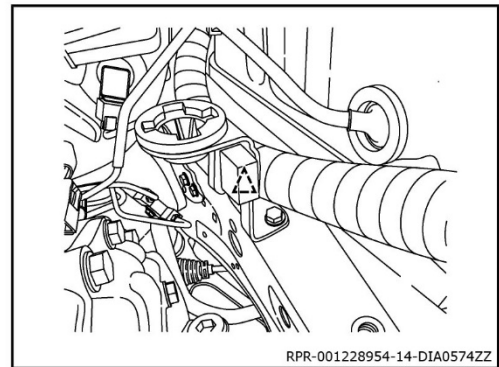
24. Remove nuts (A) and bracket (1).



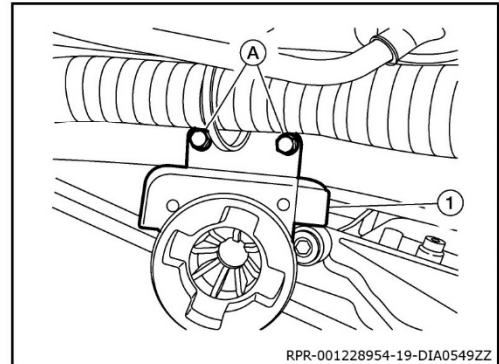
25. Using a suitable tool, release clip.



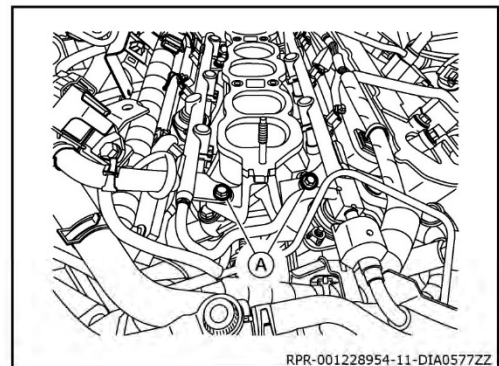
: Clip



26. Remove bolts (A) and remove bracket (1).

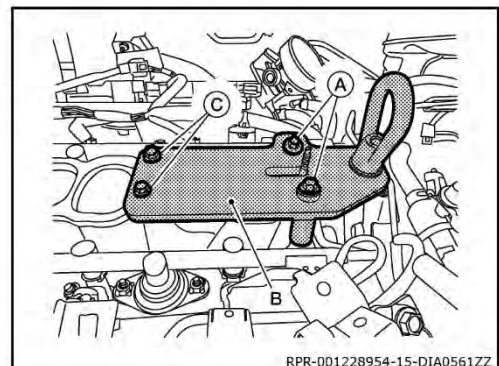


27. Remove fuel tube bolts (A).



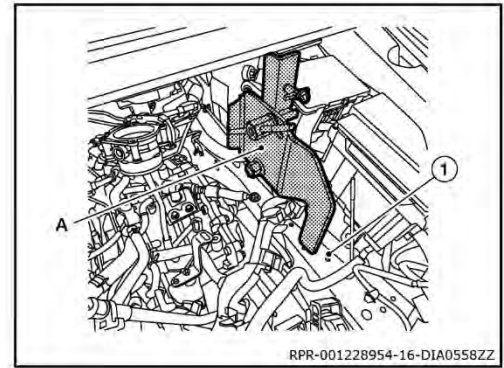
28. Install Tool (B) using bolts (A) and (C) supplied with Tool. Tighten bolts to specification. Refer to Engine Support Tool Operating Instructions.

Tool (B) : (J-52604)  
Bolts (A) : 20 N·m (2.0 kg-m, 15 ft-lb)  
Bolts (C) : 11 N·m (1.1 kg-m, 8 ft-lb)



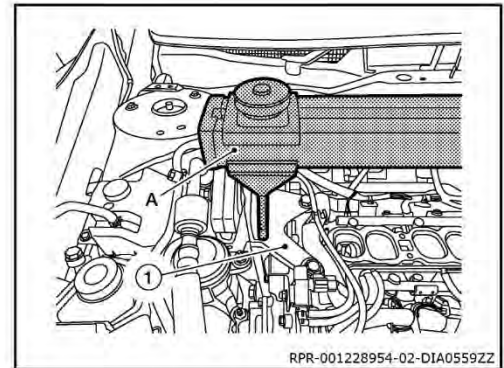
29. Install Tool (A) to drivers side frame rail (1) as shown. Refer to Engine Support Tool Operating Instructions.

Tool (A) : (J-52389)



30. Install Tool (A) on top of engine mounting insulator [RH (1)] as shown. Refer to Engine Support Tool Operating Instructions.

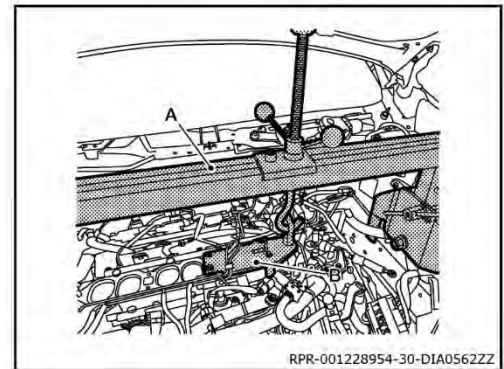
Tool (A) : (J-52389)



31. Install Tool (A) to Tool (B). Refer to Engine Support Tool Operating Instructions.

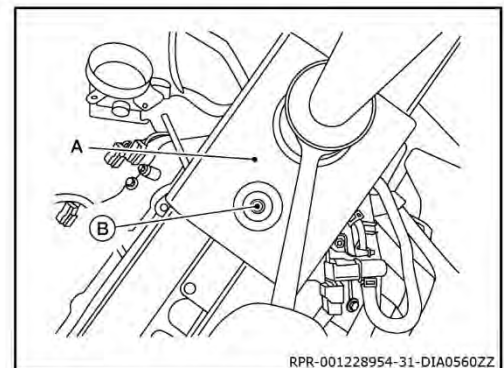
Tool (A) : (J-52389)

Tool (B) : (J-52604)



32. Using bubble level (B) on Tool (A) level Tool as shown. Refer to Engine Support Tool Operating Instructions.

Tool (A) : (J-52389)



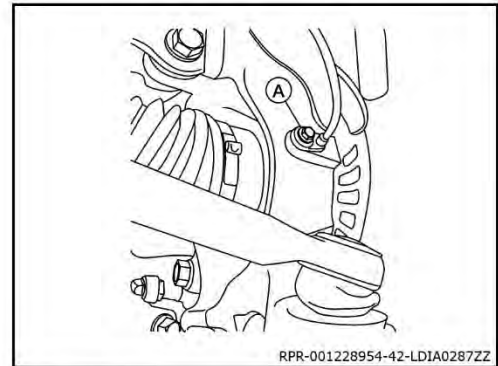
33. Remove nut from engine mounting insulator (front). Refer to Engine Assembly "Exploded View" in the Engine Mechanical section of the ESM.
34. Remove nut from engine mounting insulator (rear). Refer to Engine Assembly "Exploded View" in the Engine Mechanical section of the ESM.
35. Remove the front wheels and tires using power tool (LH/RH).



36. Remove wheel sensor bolt (A) and position wheel sensor aside (LH/RH).

**CAUTION:**

**Do not pull on wheel sensor harness.**



37. Remove brake hose retaining clip and brake hose from strut (LH/RH).  
38. Remove and discard cotter pin from front drive shaft (LH/RH).

**CAUTION:**

**Do not reuse cotter pins.**

39. Remove nut retainer from drive shaft (LH/RH).  
40. Loosen the wheel hub lock nut from the drive shaft using power tool (LH/RH).

**CAUTION:**

**Do not reuse wheel hub lock nuts.**

41. Remove brake caliper torque member bolts using power tool, leaving hydraulic hose attached to the brake caliper. Position the brake caliper aside with wire (LH/RH). Refer to Brake Caliper Assembly "Exploded View" in the Brake System section of the ESM.

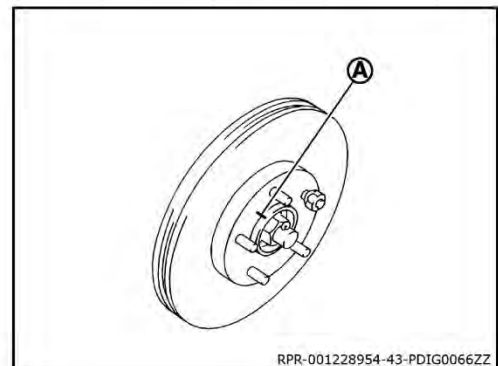
**CAUTION:**

- **Do not twist or stretch the brake hose.**
- **Do not depress brake pedal while brake caliper is removed.**

42. Remove front strut to steering knuckle bolts and nuts, then separate front strut from steering knuckle (LH/RH). Refer to Front Coil Spring and Strut "Exploded View" in the Front Suspension section of the ESM.  
43. Put alignment marks (A) on the disc brake rotor and on the wheel hub and bearing, then remove disc brake rotor (LH/RH).

**CAUTION:**

**Do not drop the disc brake rotors.**



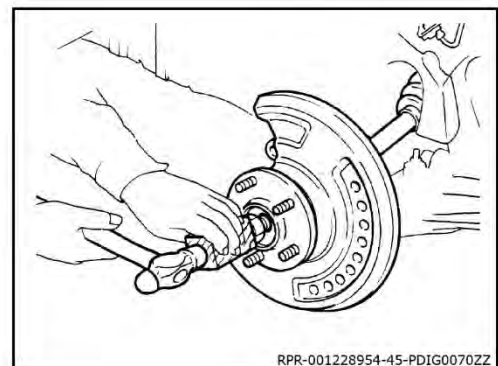
44. Using a piece of wood and a suitable tool, tap on the wheel hub lock nut to disengage the drive shaft from the wheel hub and bearing (LH/RH).

**CAUTION:**

- **Do not place drive shaft joints at an extreme angle. Be careful not to over extend slide joints.**
- **Do not allow drive shafts to hang without support.**

**NOTE:**

**Use suitable puller if drive shafts cannot be separated from wheel hub and bearings.**



45. Remove the wheel hub lock nut (LH/RH).

**CAUTION:**

**Do not reuse wheel hub lock nuts.**

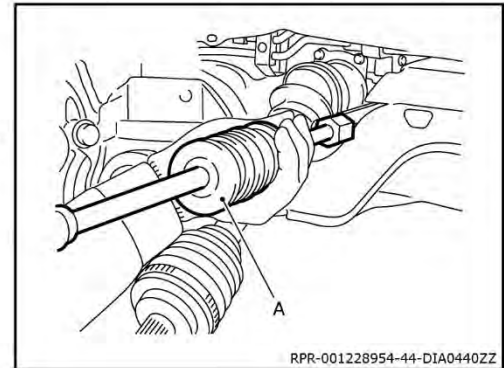


46. Remove bearing retainer to support bearing bracket bolts and remove bearing retainer (RH only).
47. Insert suitable tool (A) between the drive shaft and transaxle. Remove the drive shaft from the transaxle (LH/RH).

**CAUTION:**

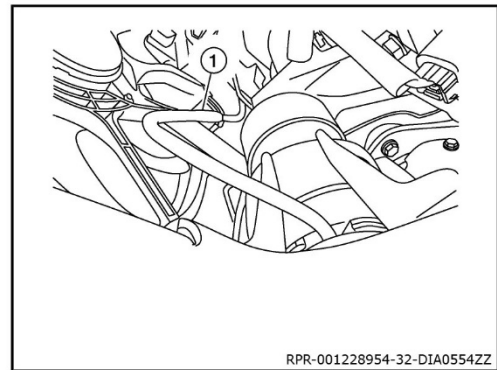
- **Confirm that the circular clips are attached to the drive shafts.**
- **Do not place drive shaft joints at extreme angles when removing drive shafts. Also be careful not to overextend slide joints.**
- **Do not reuse circular clips.**

Tool (A) : Drive shaft joint puller  
(Commercially available)

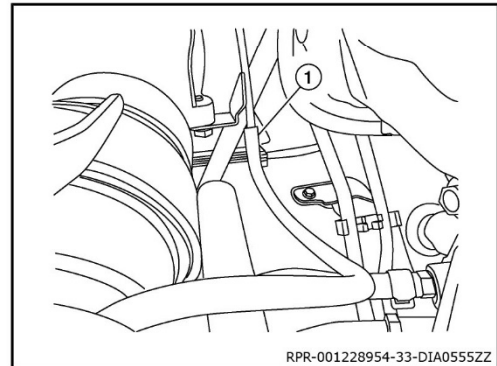


48. Remove the differential side oil seal (LH/RH).
- CAUTION:**  
**Do not reuse differential side oil seals.**
49. Remove outer socket cotter pin (LH/RH). Refer to Steering Gear and Linkage "Exploded View" in the Steering System section of the ESM.
- CAUTION:**  
**Do not reuse outer socket cotter pins.**
50. Loosen the outer socket nut and separate outer socket from the steering knuckle (LH/RH) using ball joint remover (commercially available).
- CAUTION:**  
**Leave the outer socket nut half threaded on the outer sockets to prevent damage to threads and to prevent the tool from coming off suddenly.**
51. Remove the outer socket nut and separate the outer socket from the steering knuckles (LH/RH).
52. Remove nut and separate stabilizer connecting rods from struts (LH/RH). Refer to Front Stabilizer "Exploded View" in the Front Suspension section of the ESM.
53. Remove front under cover. Refer to Under Cover "Removal and Installation" in the Exterior section of the ESM.
54. Remove the fender protector (LH/RH). Refer to Fender Protector "Removal and Installation" in the Exterior section of the ESM.
55. Remove the front exhaust tube. Refer to Exhaust System "Exploded View" in the Exhaust System section of the ESM.

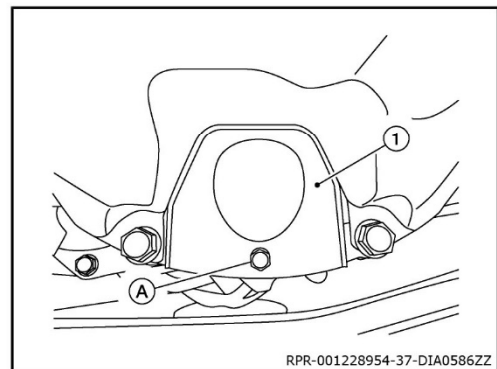
56. Disconnect the front engine mount insulator vacuum hose (1).



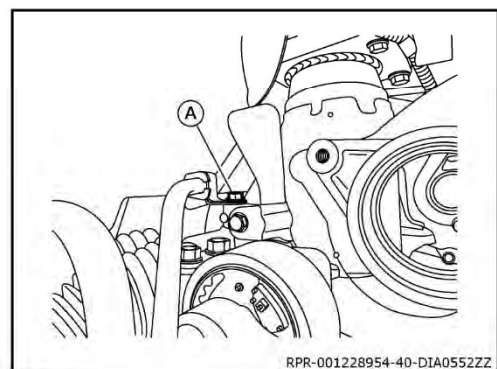
57. Disconnect the rear engine mount insulator vacuum hose (1).



58. Remove bolt (A) and remove rear cover plate (1).



59. Remove torque converter nuts. Refer to Transmission Assembly "Exploded View" in the Transaxle and Transmission section of the ESM.
60. Release clips and separate low pressure piping from front suspension member assembly. Refer to Hydraulic Line "Exploded View" in the Steering System section of the ESM.
61. Remove bolt (A).

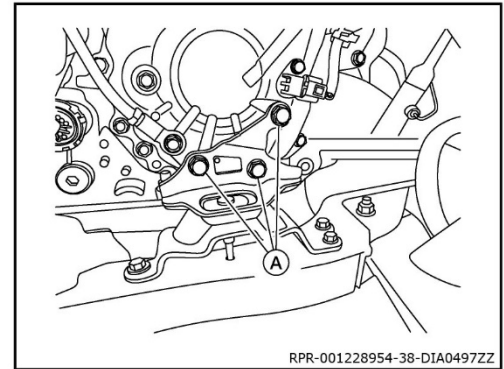


62. Remove the bolts and nuts from the steering gear. Refer to Steering Gear and Linkage "Exploded View" in the Steering System section of the ESM.
63. Secure the steering gear using suitable wire.

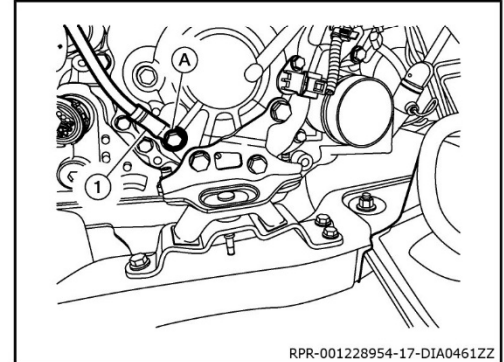
**CAUTION:**

**The steering gear will remain in vehicle. Secure steering gear using suitable wire.**

64. Remove bolts (A) from transaxle mount.

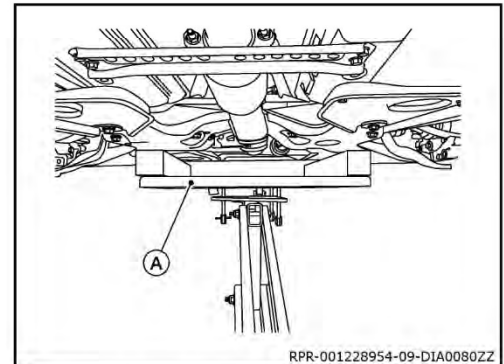


65. Remove bolt (A) and position ground (1) aside.



66. Remove rear torque rod bolt. Refer to Engine Assembly "Exploded View" in the Engine Mechanical section of the ESM.

67. Set hydraulic lift table (A) or equivalent tool under front suspension member.



68. Remove front suspension member bolts and front suspension member stays. Refer to Front Suspension Member "Exploded View" in the Front Suspension section of the ESM.

**CAUTION:**

**Secure front suspension member to hydraulic lift table (or equivalent tool) while removing it.**

69. Lower the front suspension member.

70. Remove bolt from heater thermostat bracket. Refer to Water Hose "Exploded View" in the Transmission and Transaxle section of the ESM.

71. Drain coolant. Refer to "Changing Engine Coolant" in the Engine Cooling System section of the ESM.

72. Remove CVT fluid cooler hose A and CVT fluid cooler hose B from the CVT oil warmer. Refer to CVT Fluid Cooler System "Exploded View" in the Transaxle and Transmission section of the ESM.

73. Remove CVT water hose A and CVT water hose B from CVT oil warmer. Refer to Water Hose "Exploded View" in the Transaxle and Transmission section of the ESM.

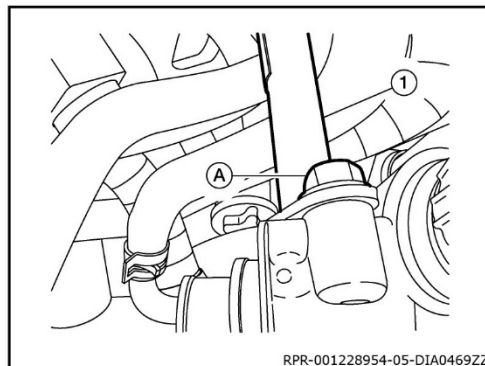
74. Using Tools lower engine and transaxle assembly until the transaxle assembly is low enough to clear driver's side frame rail.

Tool numbers

: (J-52389, J-52604)

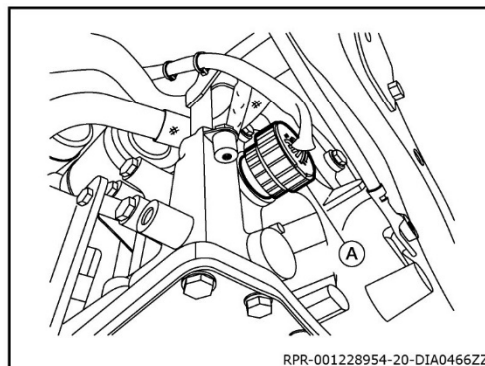


75. Remove bolt (A) and remove CVT fluid charging pipe (1).

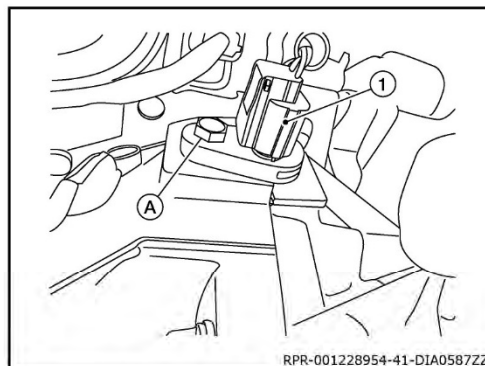


76. Separate the harness retainers from the transaxle assembly.

77. Disconnect the harness connector (A) from the transaxle assembly.



78. Remove bolt (A) and position crankshaft position sensor (1) aside.



79. Disconnect the harness connector from the output speed sensor. Refer to Output Speed Sensor "Exploded View" in the Transaxle and Transmission section of the ESM.

80. Disconnect the harness connector from the primary speed sensor. Refer to Primary Speed Sensor "Exploded View" in the Transaxle and Transmission section of the ESM.

81. Disconnect the harness connector from the input speed sensor. Refer to Input Speed Sensor "Exploded View" in the Transaxle and Transmission section of the ESM.

82. Support transaxle assembly using a suitable transmission jack and Tool.

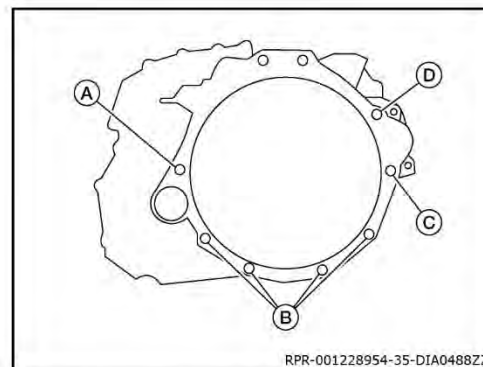
Tool number : (J-51307)

**CAUTION:**

- Always secure transaxle assembly to transmission jack.
- Do not lift or support transaxle assembly using the bottom of oil pan or damage can occur.



83. Remove bolts (A), (B), (C), and (D).



84. Separate the transaxle assembly from the engine assembly and lower transaxle assembly.

**CAUTION:**

**Secure the torque converter to the transaxle while removing transaxle to prevent torque converter from falling.**

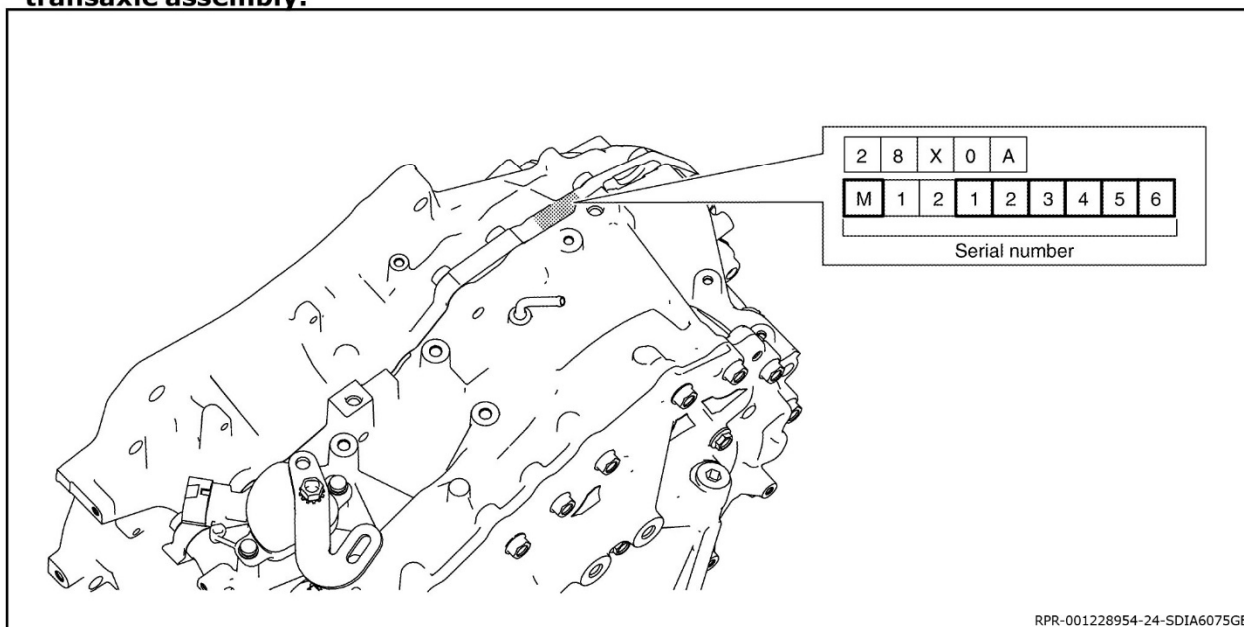
## INSTALLATION

Installation is in the reverse order of removal.

Perform inspection before installation. Refer to "Inspection Before Installation" below.

**NOTE:**

- If the same transaxle assembly will be reinstalled, replace differential side oil seals (LH/RH). Refer to Differential Side Oil Seal "Exploded View" in the Transaxle and Transmission section of the ESM.
- If a new transaxle assembly is being installed, write down the serial number of the new transaxle assembly.



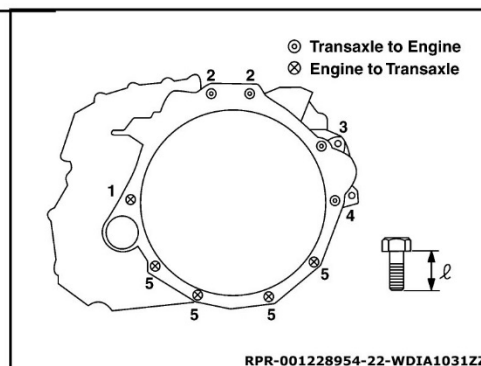
**CAUTION:**

- When replacing an engine or transaxle you must make sure any dowels are installed correctly during re-assembly
- Improper alignment caused by missing dowels may cause vibration, oil leaks or breakage of drivetrain components.
- Do not reuse O-rings or copper sealing washers.
- When turning crankshaft, turn it clockwise as viewed from the front of the engine.
- When tightening the nuts for the torque converter while securing the crankshaft pulley bolt, be sure to confirm the tightening torque of the crankshaft pulley bolt. Refer to front timing chain case "Removal and Installation" in the Engine Mechanical section of the ESM.
- After torque converter is installed to drive plate, rotate crankshaft several turns to check that CVT rotates freely without binding.
- When installing the CVT to the engine, align the matching mark on the drive plate with the matching mark on the torque converter.
- Do not reuse differential side oil seals.
- When installing the CVT to the engine, align the matching mark on the drive plate with the matching mark on the torque converter.

**NOTE:**

- When installing the drive plate to torque converter nuts, tighten them temporarily. then tighten the nuts to the specified torque. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
- Install the transaxle assembly and engine assembly mounting bolts according to the following standards.

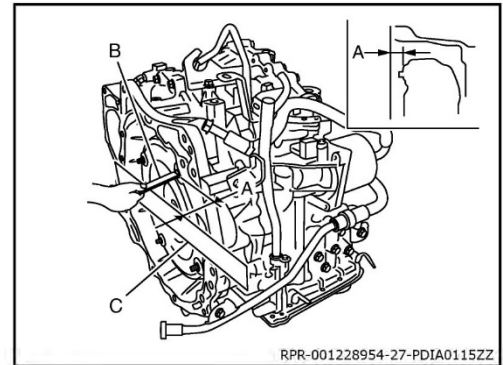
Bolt No.	1	2	3	4	5
Number of bolts	1	2	1	1	4
Bolt length "ℓ" mm (in)	55 (2.17)	39 (1.54)	35 (1.38)	50 (1.97)	45 (1.77)
Tightening torque N·m (kg-m, ft-lb)	74.5 (7.6, 55)				50.0 (5.1, 37)



- Perform adjustment after installation. Refer to "Adjustment After Installation" below.
- Perform inspection after installation. Refer to "Inspection After Installation" below.

## INSPECTION BEFORE INSTALLATION

After inserting a torque converter to the CVT, check that dimension (A) is within the reference value limit.



B : Scale

C : Straightedge

Dimension (A) : Refer to "Service Data and Specifications (SDS)" in the Transaxle and Transmission section of the ESM.

## ADJUSTMENT AFTER INSTALLATION

Perform the following:

- Adjust CVT position. Refer to "Adjustment" in the Transaxle and Transmission section of the ESM.
- Check and adjust the engine coolant level. Refer to "Changing Engine Coolant" in the Engine Cooling System section of the ESM.
- Adjust the CVT fluid level. Refer to "Adjustment" in the Transaxle and Transmission section of the ESM.
- Perform accelerator pedal released position learning. Refer to "Description" in the Engine Control section of the ESM.
- Perform throttle valve closed position learning. Refer to "Description" in the Engine Control section of the ESM.
- Perform front wheel alignment. Refer to "Wheel Alignment" in the Front Suspension section of the ESM.
- Perform adjustment of steering angle sensor neutral position. Refer to "Description" in the Brake Control System section of the ESM.

## INSPECTION AFTER INSTALLATION

Check the following items:

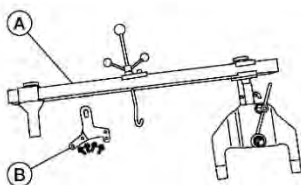
- CVT fluid leakage, refer to "Inspection" in the Transaxle and Transmission section of the ESM.
- For CVT shifter position, refer to "Inspection" in the Transaxle and Transmission section of the ESM.
- Start the engine and check for coolant leaks.

## Rogue AWD

### Special Service Tools

INFOID:RDE-000700922

Tool number (TechMate No.) Tool name	Description
A. — (J-52389) Engine support tool B. — (J-52475) Engine support bracket	Supporting engine



RDE-000700922-01-DIA0030ZZ

### Commercial Service Tool

INFOID:RDE-000700920

Tool number Tool name	Description
Power tool	Loosening nuts, screws and bolts
Hydraulic lift table	Removing front suspension member
Transmission jack	Removing transaxle assembly



RDE-000700920-01-IIB1407E



RDE-000700920-02-DIA0077ZZ



RDE-000700920-03-DIA0078ZZ

## Rogue AWD

### Removal

#### **WARNING:**

**Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.**



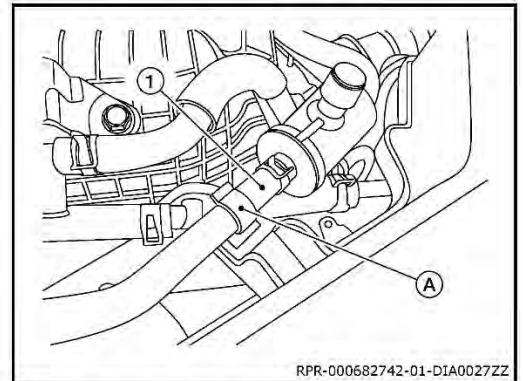
**CAUTION:**

- Perform when the engine is cold.
- When replacing the TCM and transaxle assembly as a set, replace the transaxle assembly first and then replace the TCM. Refer to "Description" in the Transaxle and Transmission section of the ESM.
- When replacing the transaxle assembly, perform "ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY." Refer to "Description" in the Transaxle and Transmission section of the ESM.

**NOTE:**

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove starter. Refer to "Removal and Installation" in the Starting System section of the ESM.
2. Disconnect the harness connector from the input speed sensor.
3. Remove EVAP hose (1) from clip (A) on air duct assembly (aft).



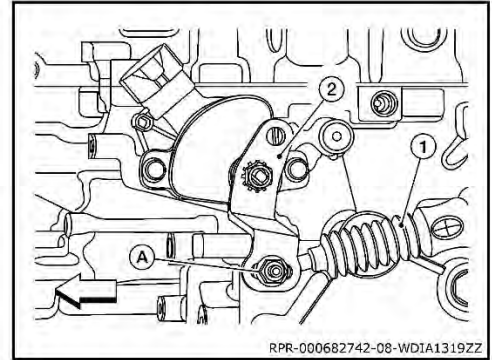
4. Remove air duct assembly (aft). Refer to "Exploded View" in the Engine Mechanical section of the ESM.
5. Disconnect the harness connector from the mass air flow sensor.
6. Using a suitable tool release harness retainer from air cleaner assembly.
7. Remove air cleaner assembly. Refer to "Exploded View" in the Engine Mechanical section of the ESM.
8. Remove the column hole cover. Refer to "Exploded View" in the Steering System section of the ESM.
9. Remove bolt and separate steering column from steering gear pinion shaft.

**CAUTION:**

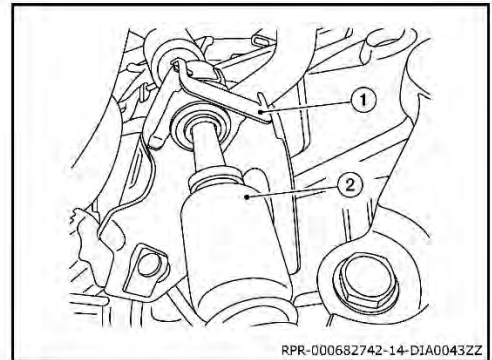
With the steering linkage disconnected, the spiral cable may snap by turning the steering wheel beyond the limited number of turns. Secure the steering wheel during removal of the front suspension member.

10. Shift the transaxle to the neutral position.

11. Remove nut (A) from control cable (1) and separate control cable from manual lever (2).



12. Remove clip (1) and control cable (2) from bracket.



13. Remove the front drive shaft (LH/RH). Refer to "Removal and Installation" in the Front Axle section of the ESM.
14. Partially remove front over fender (LH/RH). Refer to "Exploded View" in the Exterior section of the ESM.
15. Remove front air spoiler (LH/RH). Refer to "Exploded View" in the Exterior section of the ESM.
16. Partially remove the fender protector (LH/RH). Refer to "Exploded View" in the Exterior section of the ESM.
17. Remove the nut and separate the stabilizer connecting rod from the strut (LH/RH). Refer to "Exploded View" in the Front Suspension section of the ESM.

**CAUTION:**

**Do not reuse nuts.**

18. Loosen outer socket nut and separate outer socket from steering knuckle (LH/RH) using suitable tool.

**CAUTION:**

**Leave the outer socket nut half threaded on the outer socket to prevent damage to threads and to prevent the suitable tool from coming off suddenly.**

19. Remove the nut and the outer socket from the steering knuckle (LH/RH). Refer to "Exploded View" in the Steering System section of the ESM.

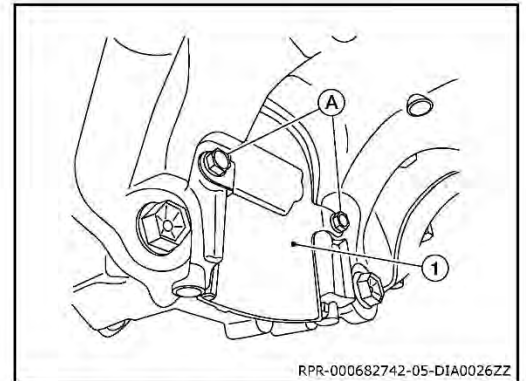
**CAUTION:**

**Do not reuse nuts.**

20. Remove engine under cover. Refer to "Removal and Installation" in the Exterior section of the ESM.
21. Partially drain coolant. Refer to "Draining" in the Engine Cooling System section of the ESM.



22. Remove bolts (A) and remove drive plate inspection cover (1).



23. Hold drive plate with a suitable tool and remove torque converter nuts. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
24. Remove the front exhaust tube. Refer to "Exploded View" in the Exhaust System section of the ESM.
25. Put matching marks onto rear propeller shaft and transfer companion flanges.

**CAUTION:**

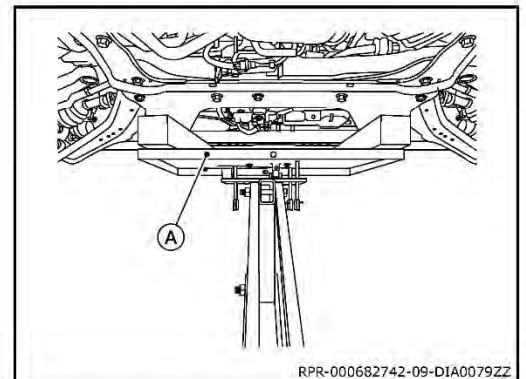
**For matching marks, use paint. Do not damage rear propeller shaft flange yoke and transfer companion flange.**

26. Remove bolts and separate rear propeller shaft from transfer case.

**CAUTION:**

**Do not reuse bolts.**

27. Use suitable wire to support rear propeller shaft.
28. Remove lower torque rod. Refer to "Exploded View" in the Engine Mechanical section of the ESM.
29. Set hydraulic lift table (A) or equivalent tool under front suspension member, and remove the front suspension member stay bolts.



30. Remove front suspension member bolts and front suspension member stay.
31. Slowly lower hydraulic lift table (or equivalent tool) to remove the front suspension member from the vehicle.

**CAUTION:**

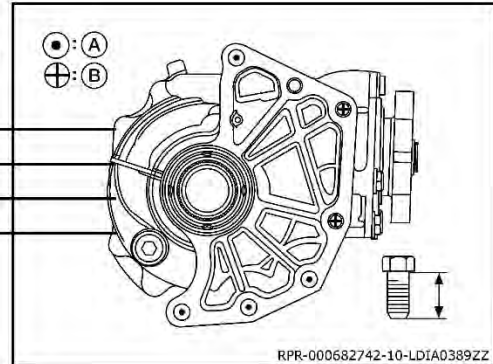
**Secure front suspension member to hydraulic lift table (or equivalent tool) while removing it.**

32. Remove transaxle assembly to transfer assembly bolts.

**CAUTION:**

**Be careful not to damage gear ring oil seal inside of CVT.**

Bolt No.	(A)	(B)
Quantity	4	2
Bolt length "ℓ" mm (in)	44 (1.73)	42 (1.65)

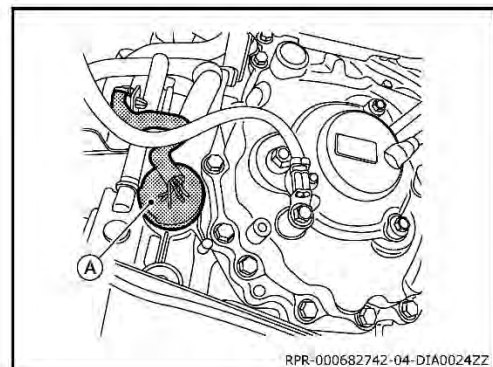


33. Remove transfer assembly from the vehicle.

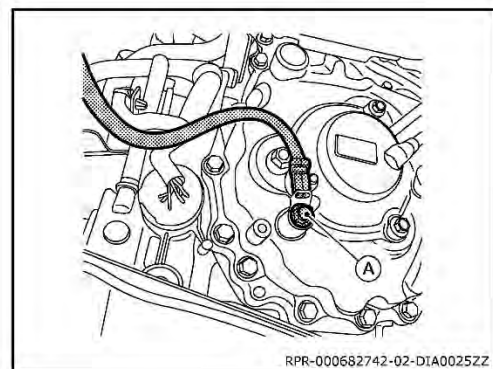
**CAUTION:**

- Do not damage air breather hose.
- After removing transfer from transaxle, always replace oil seal of the transfer side with new one. Refer to "Disassembly and Assembly" in the Driveline section of the ESM.

34. Disconnect the harness connector from output speed sensor. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
35. Disconnect the harness connector from primary speed sensor. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
36. Disconnect the harness connector (A) from transaxle assembly and release harness retainers.



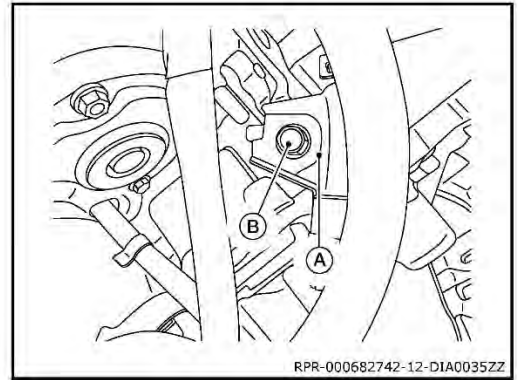
37. Remove bolt (A) and remove ground cable from transaxle assembly.



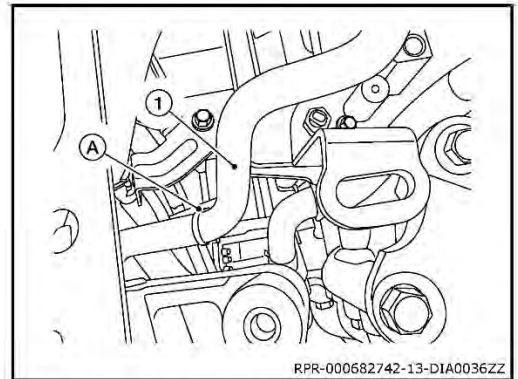
38. Using suitable tool release harness retainers.
39. Remove fluid cooler hose A and fluid cooler hose B from CVT oil warmer. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
40. Remove CVT fluid cooler hoses from CVT oil warmer. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.



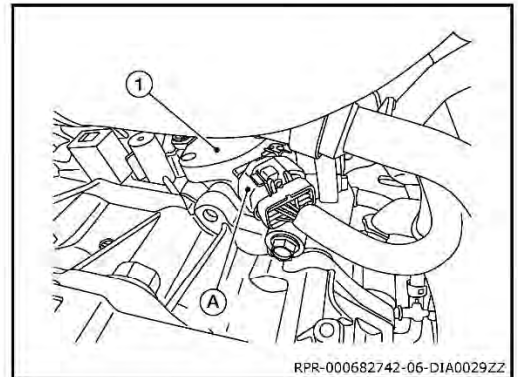
41. Remove heater thermostat bracket (A) bolt (B) and place water hose aside.



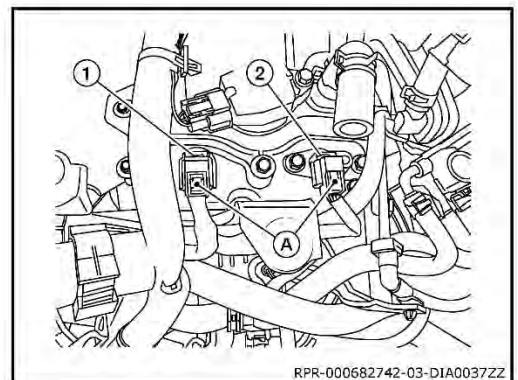
42. Using a suitable tool release CVT fluid cooler hose (1) retainer (A) and place CVT fluid cooler hose aside.



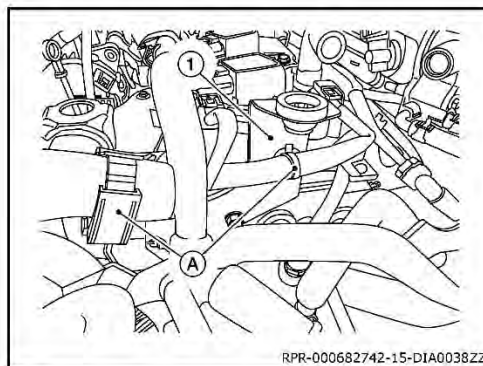
43. Disconnect the harness connector (A) from transmission range switch (1).



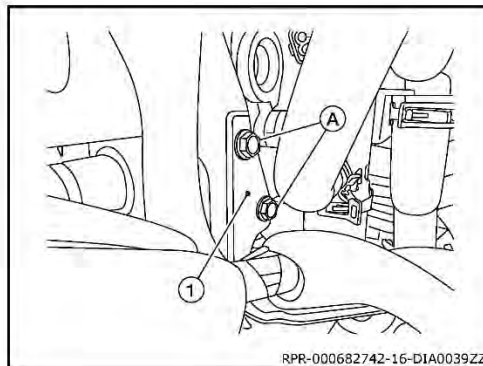
44. Disconnect harness connectors (A) from exhaust valve timing control position sensor (1) and camshaft position sensor [PHASE (2)].



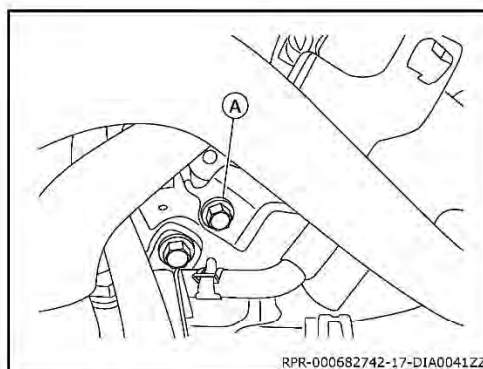
45. Using a suitable tool release harness retainers (A) from bracket (1).



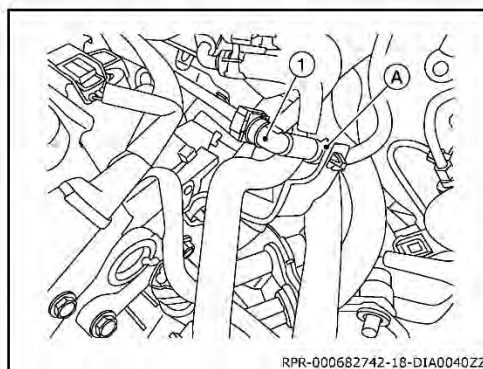
46. Remove bolts (A) and remove bracket (1).



47. Remove bolt (A).



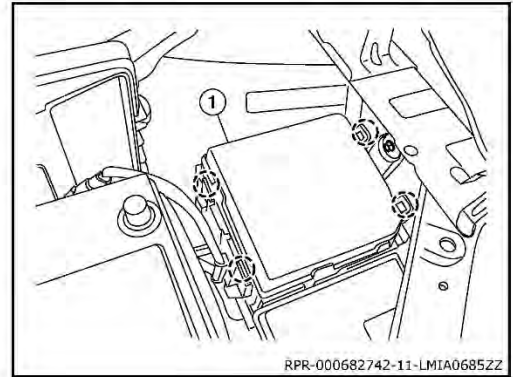
48. Remove fuel hose (1) from clip (A) and remove bracket.



49. Disconnect the harness connectors from the battery terminal with fusible link and set battery terminal with fusible link aside. Refer to "Exploded View" in the Power Supply, Ground & Circuit Elements section of the ESM.

50. Release pawls on IPDM E/R cover (1) and remove.

○: Pawls

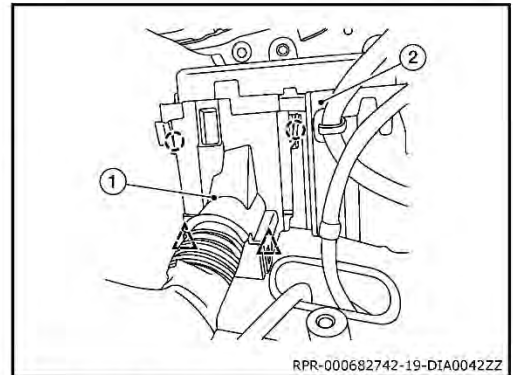


51. Release clips and pawls using suitable tool and remove IPDM E/R harness cover A (1) from IPDM E/R case (2).

**NOTE:**

**Harness cover A is being removed to allow the harness to be moved. This is necessary to allow space for engine support tool J-52389 and engine adapter bracket J-52475.**

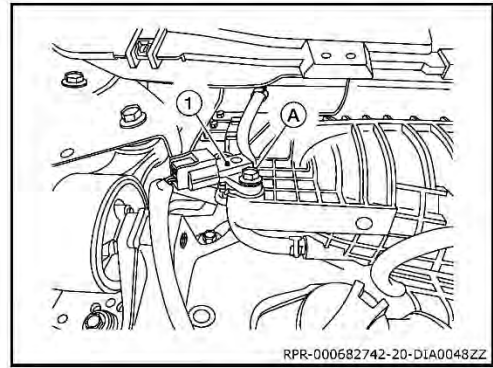
○ : Pawl  
△ : Clip



52. Remove upper torque rod bolt. Refer to "Exploded View" in the Engine Mechanical section of the ESM.



53. Remove bolt (A) from atmospheric pressure sensor (USA production) or evap line pressure sensor (except USA production) and set sensor (1) aside (if equipped).

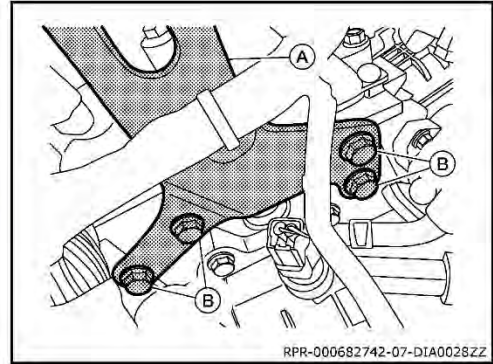


54. Install Tool (A) using bolts (B) and tighten to specification. Refer to Engine Support Tool Operating Instructions.

**NOTE:**

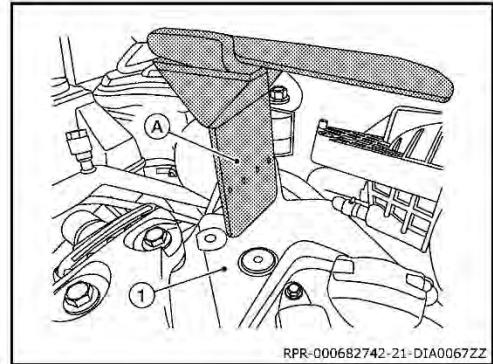
**Tool (A) and bolts (B) are part of J-52475.**

Tool number : (J-52475)  
Bolts (B) : 20.34 NM (2.07 kg-m, 15 ft-lb)



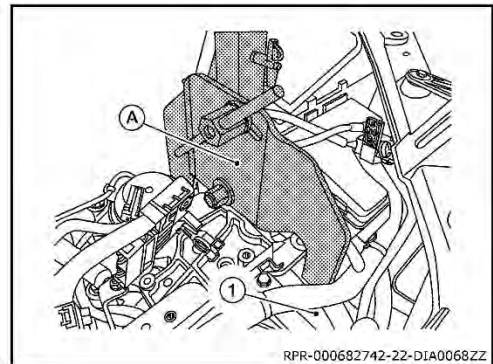
55. Install Tool (A) on top of engine mounting insulator [RH (1)] as shown. Refer to Engine Support Tool Operating Instructions.

Tool number : (J-52389)



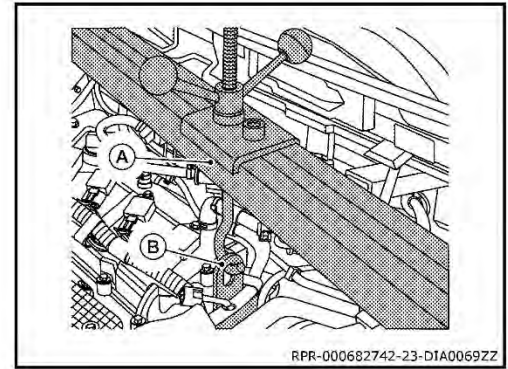
56. Install Tool (A) on top of driver's side frame rail (1) as shown.

Tool number : (J-52389)



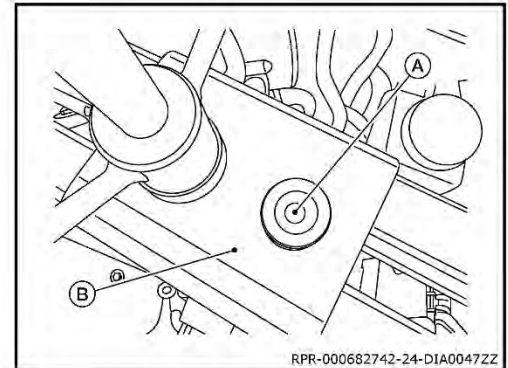
57. Install Tool (A) to Tool (B) as shown.

Tool (A) : (J-52389)  
Tool (B) : (J-52475)



58. Using bubble level (A) on Tool (B) level Tool as shown.

Tool number : (J-52389)



59. Tighten handle of Tool to support the weight of the engine and transaxle assembly.

Tool number : (J-52389)

**CAUTION:**

**Before removing engine or transmission mount bolts, ensure that the engine support tool is properly installed and supporting the weight of the engine and transaxle assembly, otherwise damage could result.**

60. Remove the upper bolts from the transaxle assembly. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
61. Remove bolts securing transaxle assembly to engine mounting insulator (LH). Refer to "Exploded View" in the Engine Mechanical section of the ESM.
62. Using Tools lower engine and transaxle assembly until the transaxle assembly is low enough to clear the driver's side frame rail.

Tool numbers : (J-52389, J-52475)

63. Raise vehicle on hoist.
64. Support transaxle assembly using a suitable transmission jack.

**CAUTION:**

- **Always secure transaxle assembly to transmission jack.**
- **Do not lift or support transaxle assembly using the bottom of oil pan or damage can occur.**

65. Remove the lower bolts from the transaxle assembly. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
66. Separate the transaxle assembly from the engine assembly and lower transaxle assembly.

**CAUTION:**

**Secure the torque converter to the transaxle while removing transaxle to prevent torque converter from falling.**

## INSTALLATION

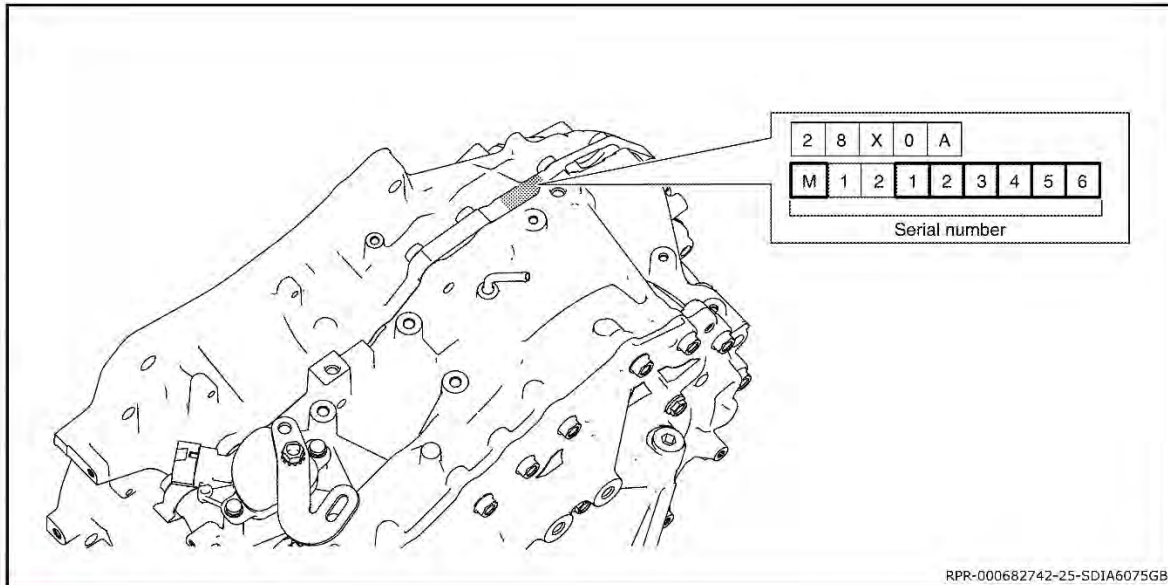
Installation is in the reverse order of removal.

Perform inspection before installation. Refer to "Inspection Before Installation" below.

**NOTE:**

**If a new transaxle assembly is being installed, write down the serial number of the new transaxle assembly.**





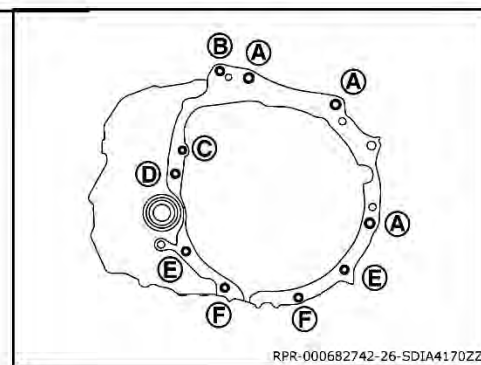
### CAUTION:

- When replacing an engine or transaxle you must make sure any dowels are installed correctly during re-assembly
- Improper alignment caused by missing dowels may cause vibration, oil leaks or breakage of drivetrain components.
- Do not reuse O-rings or copper sealing washers.
- When turning crankshaft, turn it clockwise as viewed from the front of the engine.
- When tightening the nuts for the torque converter while securing the crankshaft pulley bolt, be sure to confirm the tightening torque of the crankshaft pulley bolt. Refer to "Removal and Installation" of the timing chain in the Engine Mechanical section of the ESM.
- After torque converter is installed to drive plate, rotate crankshaft several turns to check that CVT rotates freely without binding.
- When installing the CVT to the engine, align the matching mark on the drive plate with the matching mark on the torque converter.
- When installing the drive plate to torque converter nuts, tighten them temporarily. then tighten the nuts to the specified torque. Refer to "Exploded View" in the Transaxle and Transmission" section of the ESM.



- Install the transaxle assembly and engine assembly mounting bolts according to the following standards.

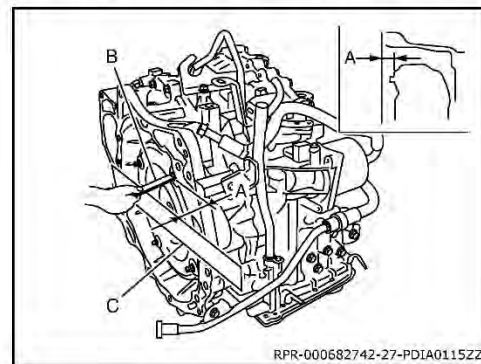
Bolt No.	(A)	(B)	(C)	(D)	(E)	(F)
Insertion direction	Transaxle to engine		Engine to transaxle			
Number of bolts	3	1	1	1	2	2
Bolt length "ℓ"mm (in)	45 (1.77)	45 (1.77)	45 (1.77)	45 (1.77)	45 (1.77)	35 (1.38)
Bolt pitch mm	1.75	1.5	1.5	1.75	1.5	—
Tightening torque N·m (kg-m, ft-lb)	74.5 (7.6, 55)	50.0 (5.1, 37)	50.0 (5.1, 37)	74.5 (7.6, 55)	50.0 (5.1, 37)	



- Perform adjustment after installation. Refer to "Adjustment After Installation" below.
- Perform inspection after installation. Refer to "Inspection After Installation" below.

## INSPECTION BEFORE INSTALLATION

After inserting a torque converter to the CVT, check that dimension (A) is within the reference value limit.



- B : Scale  
C : Straightedge

Dimension (A) : Refer to "Service Data and Specifications (SDS)" in the Transaxle and Transmission section of the ESM.

## Adjustment After Installation

Perform the following.

- Adjust CVT position. Refer to "Adjustment" in the Transaxle and Transmission section of the ESM.
- Check and adjust the engine coolant level. Refer to "Engine Coolant" in the Engine Cooling System section of the ESM.
- Adjust the CVT fluid level. Refer to "Adjustment" in the Transaxle and Transmission section of the ESM.
- Refill transfer oil. Refer to "Refilling" in the Driveline section of the ESM.
- Perform accelerator pedal released position learning. Refer to "Description" in the Engine Control section of the ESM.

- Perform throttle valve closed position learning. Refer to "Description" in the Engine Control section of the ESM.
- Perform front wheel alignment. Refer to "Wheel Alignment" in the Front Suspension section of the ESM.
- Perform adjustment of steering angle sensor neutral position. Refer to "Description" in the Brake Control System section of the ESM.

## INSPECTION AFTER INSTALLATION

Check the following items:

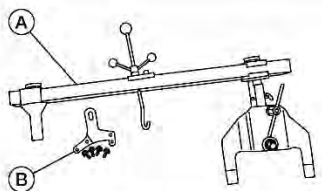
- CVT fluid leakage, refer to "Inspection" in the Transaxle and Transmission section of the ESM.
- For CVT shifter position, refer to "Inspection" in the Transaxle and Transmission section of the ESM.
- Transfer oil leakage, refer to "Inspection" in the Driveline section of the ESM.
- Start the engine and check for coolant leaks.

## Rogue FWD

### Special Service Tools

INFOID:RDE-000700922

Tool number (TechMate No.) Tool name	Description
A. — (J-52389) Engine support tool B. — (J-52475) Engine support bracket	Supporting engine



RDE-000700922-01-DIA0030ZZ

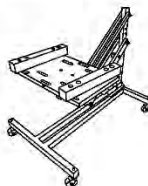
### Commercial Service Tool

INFOID:RDE-000700920

Tool number Tool name	Description
Power tool	Loosening nuts, screws and bolts
Hydraulic lift table	Removing front suspension member
Transmission jack	Removing transaxle assembly



RDE-000700920-01-IIB1407E



RDE-000700920-02-DIA0077ZZ



RDE-000700920-03-DIA0078ZZ

## Rogue FWD

### Removal

#### **WARNING:**

**Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.**



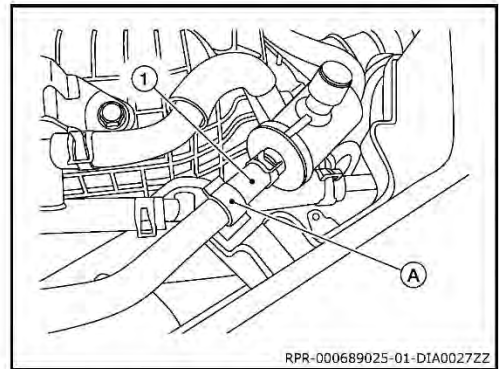
**CAUTION:**

- Perform when the engine is cold.
- When replacing the TCM and transaxle assembly as a set, replace the transaxle assembly first and then replace the TCM. Refer to "Description" in the Transaxle and Transmission section of the ESM.
- When replacing the transaxle assembly, perform "ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY." Refer to "Description" in the Transaxle and Transmission section of the ESM.

**NOTE:**

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove starter. Refer to "Removal and Installation" in the Starting System section of the ESM.
2. Disconnect the harness connector from the input speed sensor.
3. Remove EVAP hose (1) from clip (A) on air duct assembly (aft).

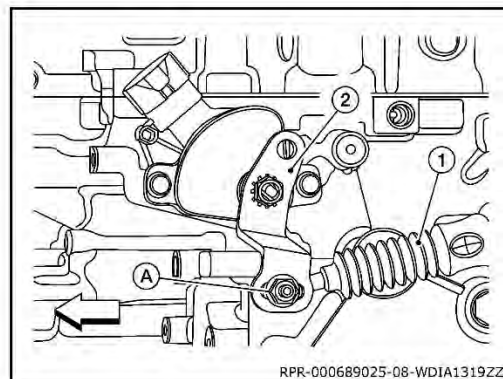


4. Remove air duct assembly (aft). Refer to "Exploded View" in the Engine Mechanical section of the ESM.
5. Disconnect the harness connector from the mass air flow sensor.
6. Using a suitable tool release harness retainer from air cleaner assembly.
7. Remove air cleaner assembly. Refer to "Exploded View" in the Engine Mechanical section of the ESM.
8. Remove the column hole cover. Refer to "Exploded View" in the Steering System section of the ESM.
9. Remove bolt and separate steering column from steering gear pinion shaft.

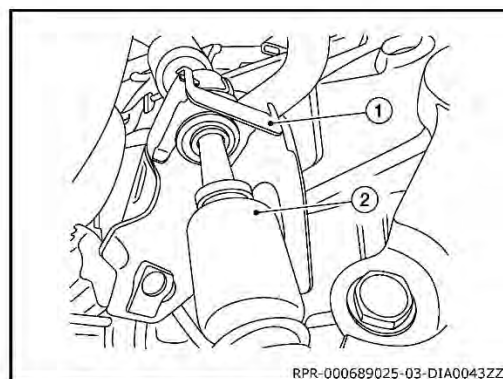
**CAUTION:**

With the steering linkage disconnected, the spiral cable may snap by turning the steering wheel beyond the limited number of turns. Secure the steering wheel during removal of the front suspension member.

10. Remove nut (A) from control cable (1) and separate control cable from manual lever (2).



11. Remove clip (1) and control cable (2) from bracket.



12. Remove front drive shaft (LH/RH). Refer to "Removal and Installation" in the Front Axle section of the ESM.
13. Partially remove front over fender (LH/RH). Refer to "Exploded View" in the Exterior section of the ESM.
14. Remove front air spoiler (LH/RH). Refer to "Exploded View" in the Exterior section of the ESM.
15. Partially remove the fender protector (LH/RH). Refer to "Exploded View" in the Exterior section of the ESM.
16. Remove the nut and separate the stabilizer connecting rod from the strut (LH/RH). Refer to "Exploded View" in the Front Suspension section of the ESM.

**CAUTION:**

**Do not reuse nuts.**

17. Loosen outer socket nut and separate outer socket from steering knuckle using suitable tool (LH/RH).

**CAUTION:**

**Leave the outer socket nut half threaded on the outer socket to prevent damage to threads and to prevent the suitable tool from coming off suddenly.**

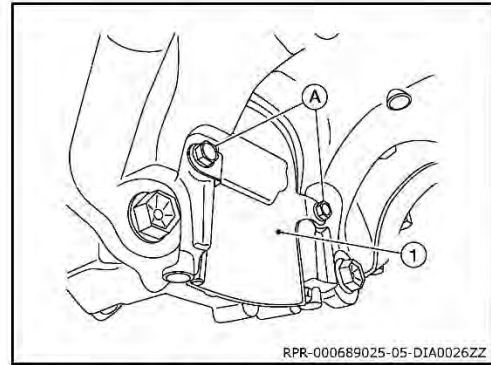
18. Remove the nut and the outer socket from the steering knuckle (LH/RH). Refer to "Exploded View" in the Steering System section of the ESM.

**CAUTION:**

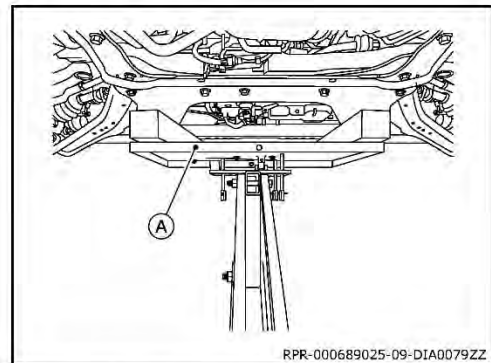
**Do not reuse nuts.**

19. Remove engine under cover. Refer to "Removal and Installation" in the Exterior section of the ESM.
20. Partially drain coolant. Refer to "Draining" in the Engine Cooling System section of the ESM.

21. Remove bolts (A) and remove drive plate inspection cover (1).



22. Hold drive plate with a suitable tool and remove torque converter nuts. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
23. Remove front exhaust tube. Refer to "Exploded View" in the Exhaust System section of the ESM.
24. Remove lower torque rod. Refer to "Exploded View" in the Engine Mechanical section of the ESM.
25. Set hydraulic lift table (A) or equivalent tool under front suspension member, and remove the front suspension member stay bolts.



26. Remove front suspension member bolts and front suspension member stay.
27. Slowly lower hydraulic lift table (or equivalent tool) to remove the front suspension member from the vehicle.

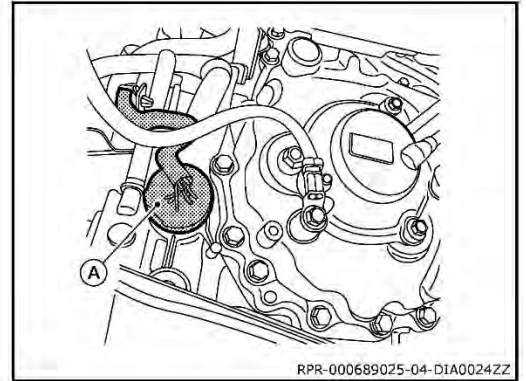
**CAUTION:**

**Secure front suspension member to hydraulic lift table (or equivalent tool) while removing it.**

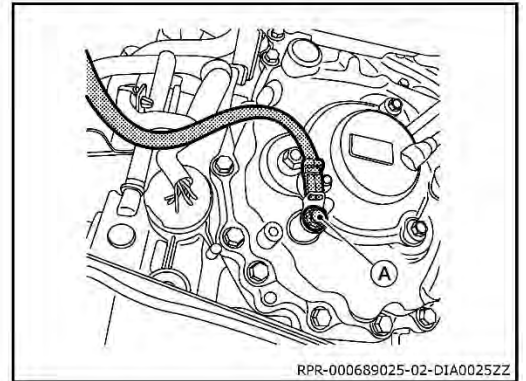
28. Disconnect the harness connector from the output speed sensor. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
29. Disconnect the harness connector from the primary speed sensor. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.



30. Disconnect the harness connector (A) from transaxle assembly and release harness retainers.

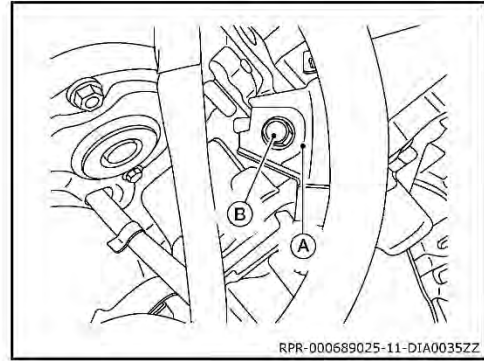


31. Remove bolt (A) and remove ground cable from transaxle assembly.

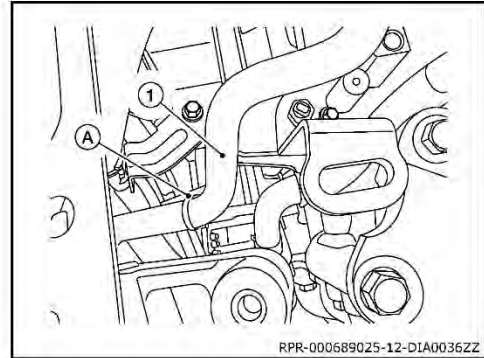


32. Using suitable tool release harness retainers.
33. Remove fluid cooler hose A and fluid cooler hose B from CVT oil warmer. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.
34. Remove CVT fluid cooler hoses from CVT oil warmer. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.

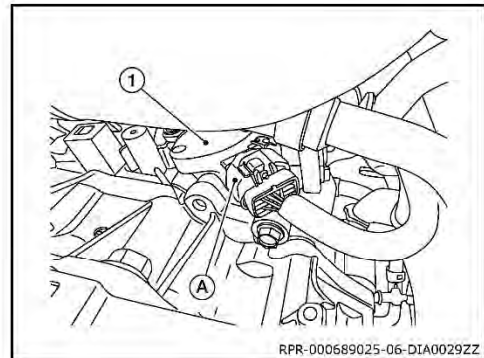
35. Remove heater thermostat bracket (A) bolt (B) and place water hose aside.



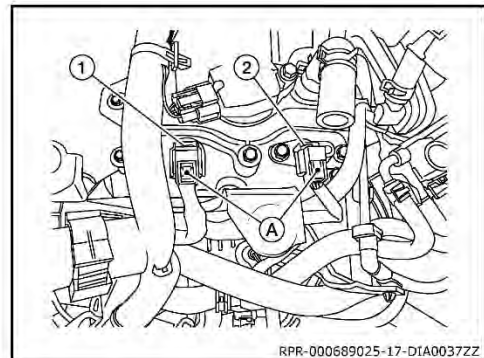
36. Using a suitable tool release CVT fluid cooler hose (1) retainer (A) and place CVT fluid cooler hose aside.



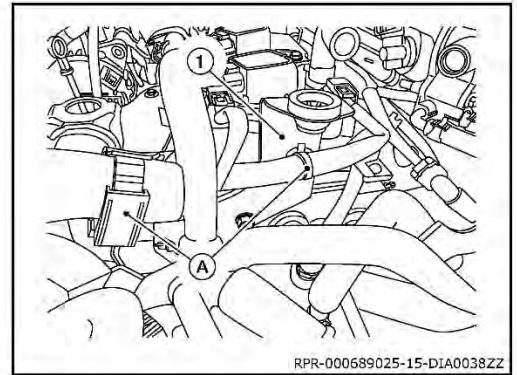
37. Disconnect the harness connector (A) from transmission range switch (1).



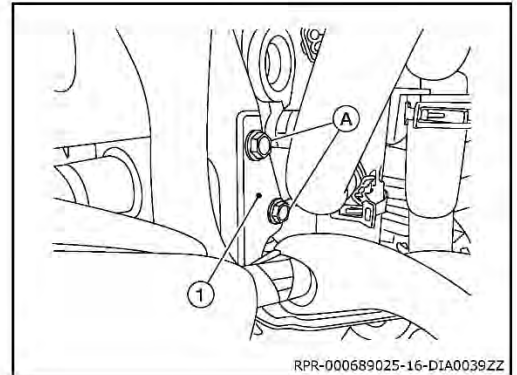
38. Disconnect harness connectors (A) from exhaust valve timing control position sensor (1) and camshaft position sensor [PHASE (2)].



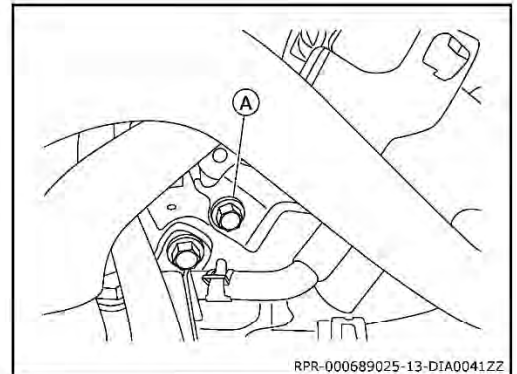
39. Using a suitable tool release harness retainers (A) from bracket (1).



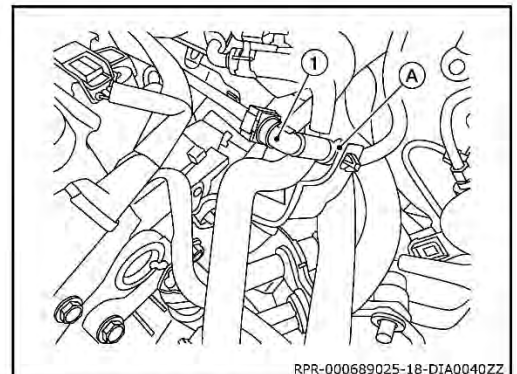
40. Remove bolts (A) and remove bracket (1).



41. Remove bolt (A).



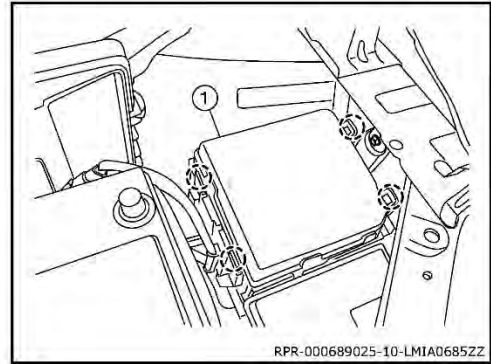
42. Remove fuel hose (1) from clip (A) and remove bracket.



43. Disconnect the harness connectors from the battery terminal with fusible link and set battery terminal with fusible link aside. Refer to "Exploded View" in the Power Supply, Ground & Circuit Elements section of the ESM.



44. Release pawls on IPDM E/R cover (1) and remove.  
○: Pawls

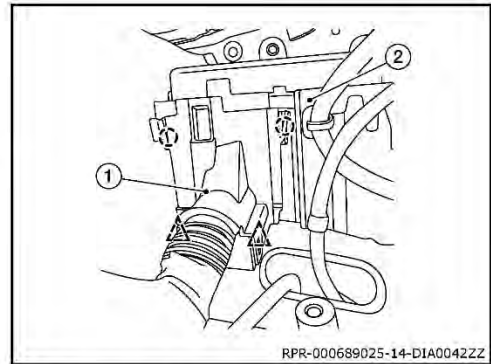


45. Release clips and pawls using suitable tool and remove IPDM E/R harness cover A (1) from IPDM E/R case (2).

**NOTE:**

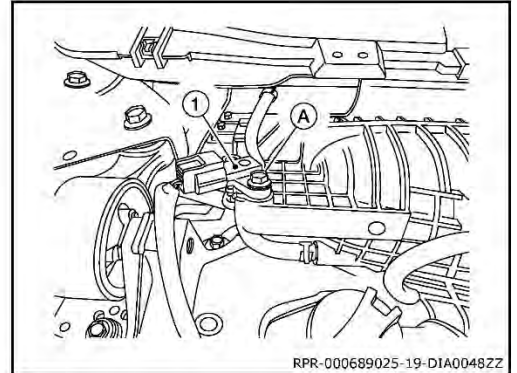
**Harness cover A is being removed to allow the harness to be moved. This is necessary to allow space for engine support tool J-52389 and engine adapter bracket J-52475.**

- : Pawl  
△ : Clip



46. Remove upper torque rod bolt. Refer to "Exploded View" in the Engine Mechanical section of the ESM.

47. Remove bolt (A) from atmospheric pressure sensor (USA production) or evap line pressure sensor (except USA production) and set sensor (1) aside (if equipped).

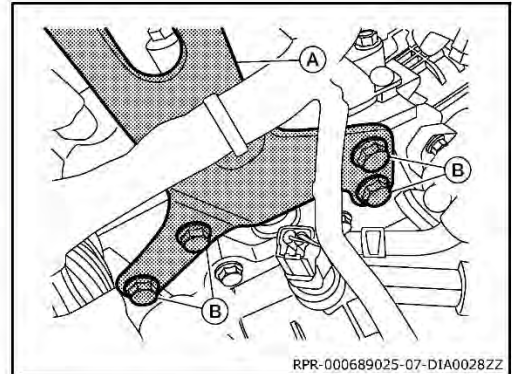


48. Install Tool (A) using bolts (B) and tighten to specification. Refer to Engine Support Tool Operating Instructions.

**NOTE:**

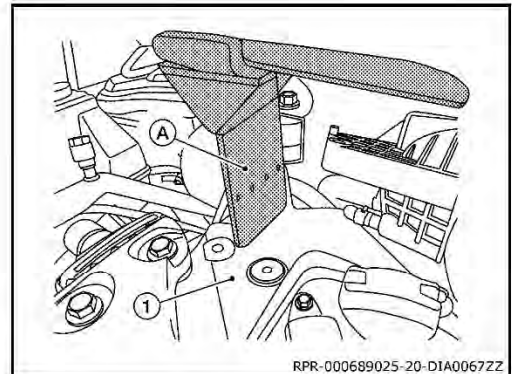
**Tool (A) and bolts (B) are part of J-52475.**

Tool number : (J-52475)  
Bolts (B) : 20.34N·m (2.07 kg·m, 15 ft·lb)



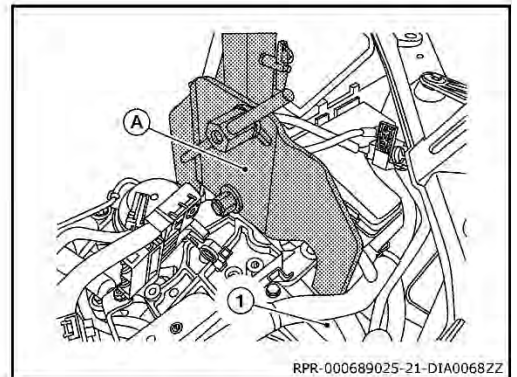
49. Install Tool (A) on top of engine mounting insulator [RH (1)] as shown. Refer to Engine Support Tool Operating Instructions.

Tool number : (J-52389)



50. Install Tool (A) on top of driver's side frame rail (1) as shown.

Tool number : (J-52389)

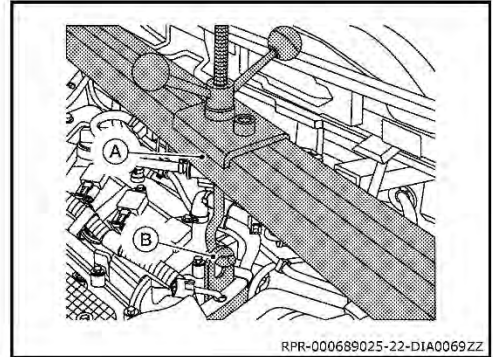




51. Install Tool (A) to Tool (B) as shown.

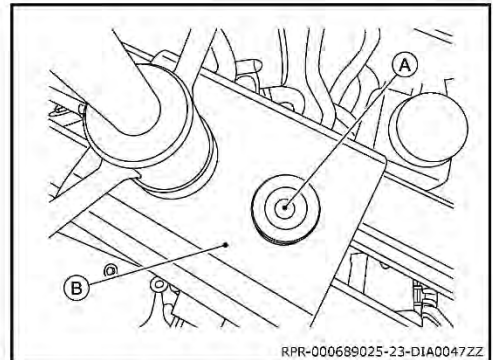
Tool (A) : (J-52389)

Tool (B) : (J-52475)



52. Using bubble level (A) on Tool (B) level Tool as shown.

Tool number : (J-52389)



53. Tighten handle of Tool to support the weight of the engine and transaxle assembly.

Tool number : (J-52389)

**CAUTION:**

**Before removing engine or transmission mount bolts, ensure that the engine support tool is properly installed and supporting the weight of the engine and transaxle assembly, otherwise damage could result.**

54. Remove the upper bolts from the transaxle assembly. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.

55. Remove bolts securing transaxle assembly to engine mounting insulator (LH). Refer to "Exploded View" in the Engine Mechanical section of the ESM.

56. Using Tools lower engine and transaxle assembly until the transaxle assembly is low enough to clear the driver's side frame rail.

Tool numbers : (J-52389, J-52475)

57. Raise vehicle on hoist.

58. Support transaxle assembly using a suitable transmission jack.

**CAUTION:**

- **Always secure transaxle assembly to transmission jack.**
- **Do not lift or support transaxle assembly using the bottom of oil pan or damage can occur.**

59. Remove the lower bolts from the transaxle assembly. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.

60. Separate the transaxle assembly from the engine assembly and lower transaxle assembly.

**CAUTION:**

**Secure the torque converter to the transaxle while removing transaxle to prevent torque converter from falling.**

## INSTALLATION

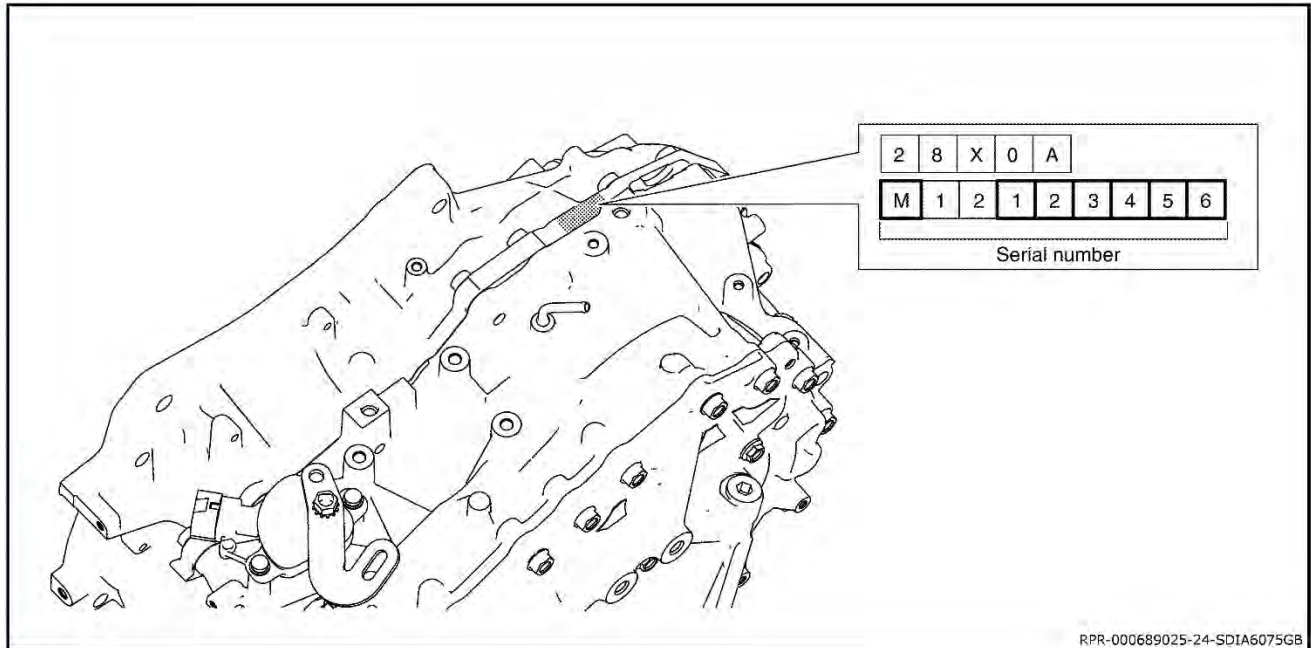
Installation is in the reverse order of removal.

Perform inspection before installation. Refer to "Inspection Before Installation" below.

**NOTE:**

**If a new transaxle assembly is being installed, write down the serial number of the new transaxle assembly.**



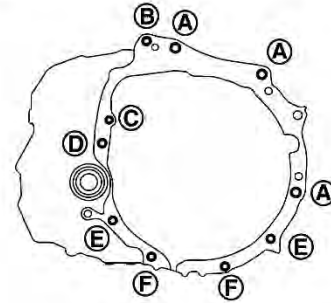


**CAUTION:**

- When replacing an engine or transaxle you must make sure any dowels are installed correctly during re-assembly
- Improper alignment caused by missing dowels may cause vibration, oil leaks or breakage of drivetrain components.
- Do not reuse O-rings or copper sealing washers.
- When turning crankshaft, turn it clockwise as viewed from the front of the engine.
- When tightening the nuts for the torque converter while securing the crankshaft pulley bolt, be sure to confirm the tightening torque of the crankshaft pulley bolt. Refer to "Removal and Installation" of the timing chain in the Engine Mechanical section of the ESM.
- After torque converter is installed to drive plate, rotate crankshaft several turns to check that CVT rotates freely without binding.
- When installing the CVT to the engine, align the matching mark on the drive plate with the matching mark on the torque converter.
- When installing the drive plate to torque converter nuts, tighten them temporarily. then tighten the nuts to the specified torque. Refer to "Exploded View" in the Transaxle and Transmission section of the ESM.

- Install the transaxle assembly and engine assembly mounting bolts according to the following standards.

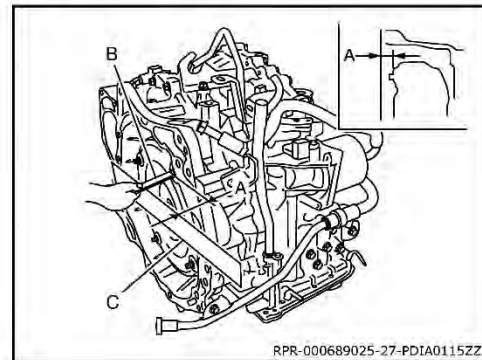
Bolt No.	(A)	(B)	(C)	(D)	(E)	(F)
Insertion direction	Transaxle to engine		Engine to transaxle			
Number of bolts	3	1	1	1	2	2
Bolt length "ℓ"mm (in)	45 (1.77)	45 (1.77)	45 (1.77)	45 (1.77)	45 (1.77)	35 (1.38)
Bolt pitch mm	1.75	1.5	1.5	1.75	1.5	—
Tightening torque N·m (kg-m, ft-lb)	74.5 (7.6, 55)	50.0 (5.1, 37)	50.0 (5.1, 37)	74.5 (7.6, 55)	50.0 (5.1, 37)	



- Perform adjustment after installation. Refer to "Adjustment After Installation" below.
- Perform inspection after installation. Refer to "Inspection After Installation" below.

## INSPECTION BEFORE INSTALLATION

After inserting a torque converter to the CVT, check that dimension (A) is within the reference value limit.



B : Scale  
C : Straightedge

Dimension (A) : Refer to "Service Data and Specifications (SDS)" in the Transaxle and Transmission section of the ESM.

## Adjustment After Installation

Perform the following.

- Adjust CVT position. Refer to "Adjustment" in the Transaxle and Transmission section of the ESM.
- Check and adjust the engine coolant level. Refer to "Engine Coolant" in the Engine Cooling System section of the ESM.
- Adjust the CVT fluid level. Refer to "Adjustment" in the Transaxle and Transmission section of the ESM.
- Perform accelerator pedal released position learning. Refer to "Description" in the Engine Control section of the ESM.
- Perform throttle valve closed position learning. Refer to "Description" in the Engine Control section of the ESM.

- Perform front wheel alignment. Refer to "Wheel Alignment" in the Front Suspension section of the ESM.
- Perform adjustment of steering angle sensor neutral position. Refer to "Description" in the Brake Control System section of the ESM.

## INSPECTION AFTER INSTALLATION

Check the following items:

- CVT fluid leakage, refer to "Inspection" in the Transaxle and Transmission section of the ESM.
- For CVT shifter position, refer to "Inspection" in the Transaxle and Transmission section of the ESM.
- Start the engine and check for coolant leaks.



## CLAIMS INFORMATION

MODEL	DESCRIPTION	OP CODE	FRT
Altima	CVT R&I	JD01AA	(1)
Rogue			

- (1) The new procedures in the bulletin will alter the Flat Rate Time (FRT) for operations involving removal of the CVT from the vehicle. Refer to the current Nissan Warranty Flat Rate Manual for current FRTs.

## AMENDMENT HISTORY

PUBLISHED DATE	REFERENCE	DESCRIPTION
March 5, 2018	NTB18-019	Original bulletin published.
June 13, 2019	NTB18-019a	2013-2018 Altima VQ35 vehicles applied.

