



SERVICE BULLETIN

Classification: AT19-005a	Reference: NTB19-043a	Date: December 22, 2020
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This bulletin has been amended. See AMENDMENT HISTORY on the last page.
Discard all previous versions of this bulletin.

ENGINE SUPPORT TOOLS FOR CVT REMOVAL - FWD

APPLIED VEHICLES: 2015-2018 Murano (Z52) – FWD only
APPLIED ENGINE: VQ35DE

NOTE: For 2015-2020 AWD vehicles, refer to NTB20-097.

SERVICE INFORMATION

A new Engine Support Tool and Engine Support Bracket are now available to allow the CVT to be removed from the Applied Vehicles without having to remove the engine (Figure 1).

The procedure in this bulletin is different from the procedure currently in the Electronic Service Manual (ESM).

Please refer to the SERVICE PROCEDURE to use these new tools.

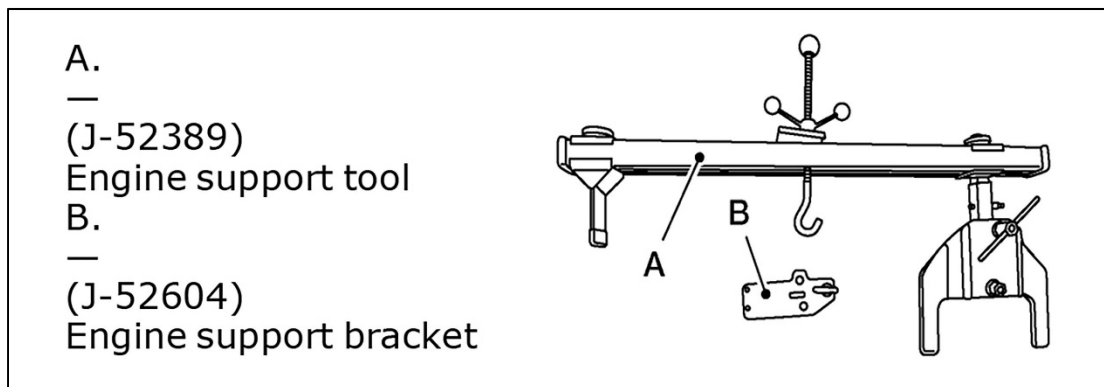


Figure 1

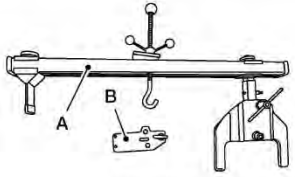
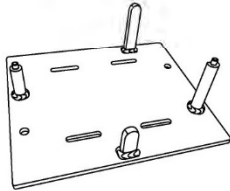
Nissan Bulletins are intended for use by qualified technicians, not 'do-it-yourselfers'. Qualified technicians are properly trained individuals who have the equipment, tools, safety instruction, and know-how to do a job properly and safely. NOTE: If you believe that a described condition may apply to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

SERVICE PROCEDURE

Murano FWD


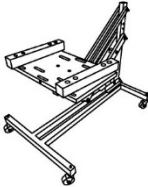

Special Service Tools

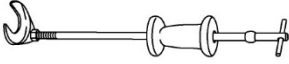
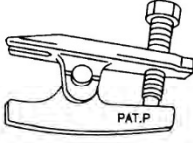
INFOID:RDE-001262163

Tool number (TechMate No.) Tool name	Description
A. — (J-52389) Engine support tool B. — (J-52604) Engine support bracket	Supporting engine  <p style="text-align: center;">RDE-001262163-01-DIA0481ZZ</p>
— (J-51307) CVT transmission jack adapter	Removing CVT  <p style="text-align: center;">RDE-001262163-02-DIA0537ZZ</p>

Commercial Service Tools

INFOID:RDE-001262164

Tool number Tool name	Description
Power tool	Loosening nuts, screws and bolts  <p style="text-align: center;">RDE-001262164-01-IIB1407E</p>
Hydraulic lift table	Removing front suspension member  <p style="text-align: center;">RDE-001262164-02-DIA0077ZZ</p>
Transmission jack	Removing transaxle assembly  <p style="text-align: center;">RDE-001262164-03-DIA0078ZZ</p>

Tool number Tool name	Description
Drive shaft joint puller  RDE-001262164-05-DIA0439ZZ	Removing drive shaft
Ball joint remover  RDE-001262164-04-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:

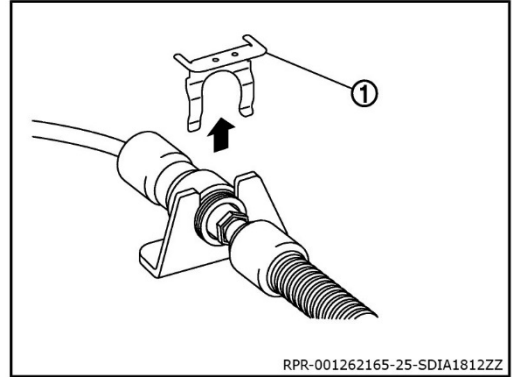
- Perform when the engine is cold.
- When replacing the TCM and transaxle assembly as a set, replace the transaxle assembly first and then replace the TCM. Refer to "Description" in the Transaxle and Transmission section of the ESM.
- When replacing the transaxle assembly, perform "ADDITIONAL SERVICE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

NOTE:

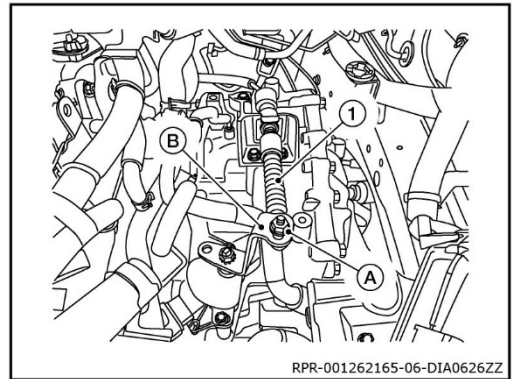
When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove starter. Refer to "Removal and Installation" in the Starting System section of the ESM.
2. Remove the cowl top cover and the cowl top extension. Refer to "Removal and Installation" in the Exterior section of the ESM.

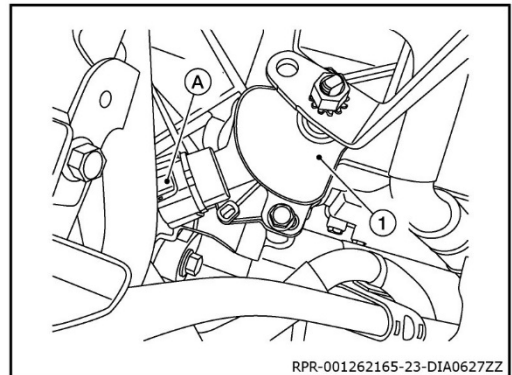
3. Remove lock plate (1) as shown.



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

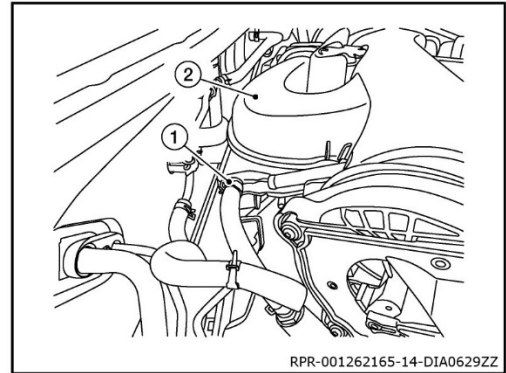


5. Disconnect the harness connector (A) from the transmission range switch (1).

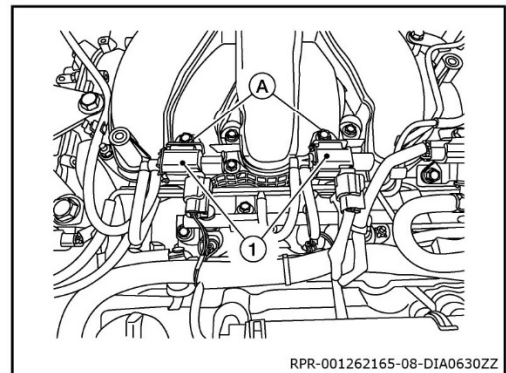


6. Disconnect brake booster vacuum hose from intake manifold collector. Refer to Vacuum Lines "Exploded View" in the Brake System section of the ESM.

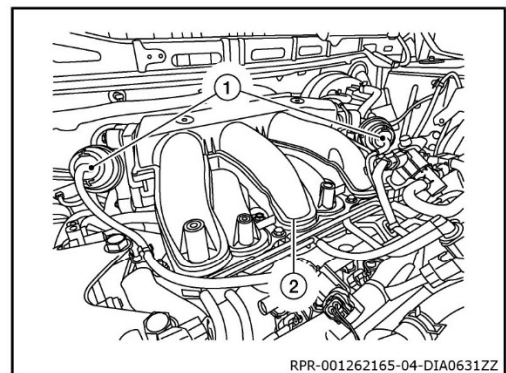
7. Release clamp and disconnect PCV hose (1) from intake manifold collector (2).



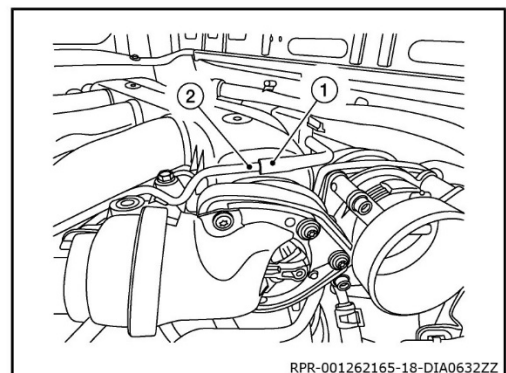
8. Remove bolts (A) and set VIAS control solenoid valves (1) aside.



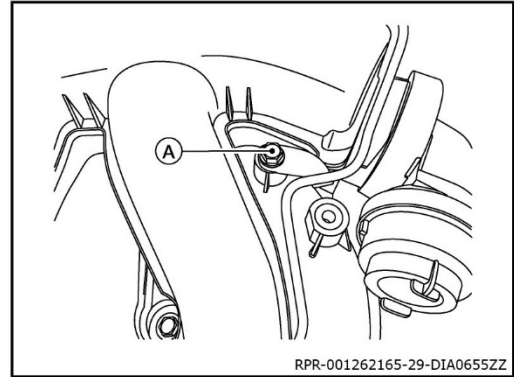
9. Disconnect vacuum hoses (1) from intake manifold collector (2).



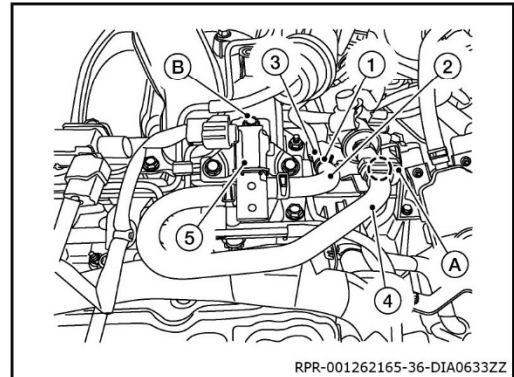
10. Disconnect vacuum hose (1) from vacuum pipe (2).



11. Remove bolt (A).



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



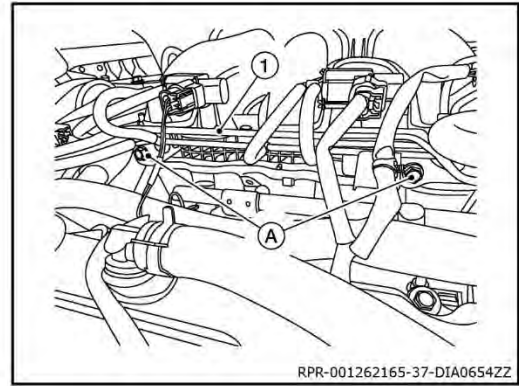
13. Release pawl and remove hose (4) from retainer (A).



: Pawl

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

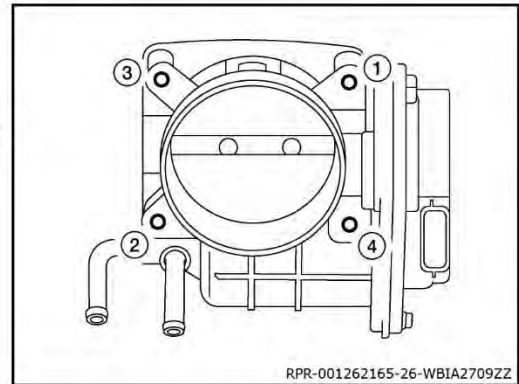
15. Remove bolts (A) and set vacuum tube assembly (1) aside.



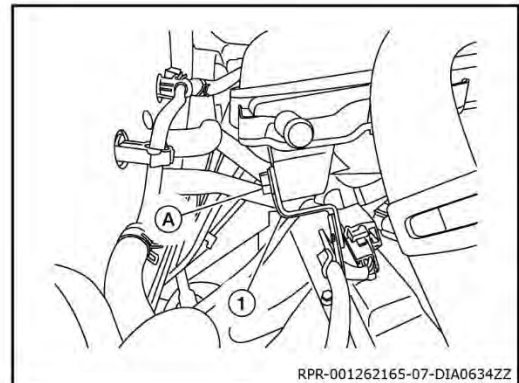
16. Loosen bolts in reverse of sequence shown and remove electric throttle control actuator bolts, then remove electric throttle control actuator and position aside.

CAUTION:

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



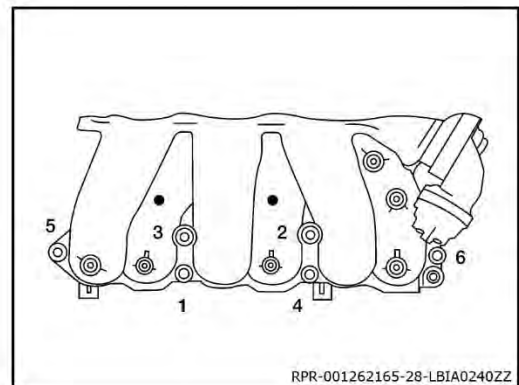
17. Remove bolt (A) and set O2 sensor harness bracket (1) aside.



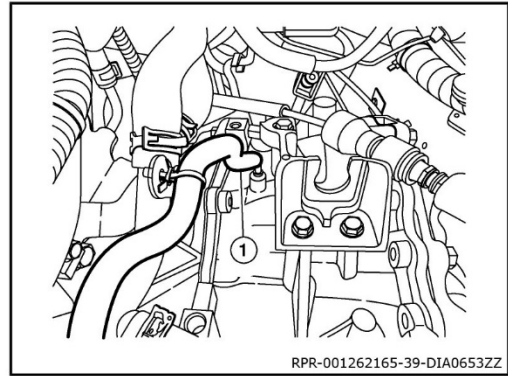
18. Loosen the intake manifold collector bolts and nuts in reverse of the sequence shown, then remove the intake manifold collector and gasket.

CAUTION:

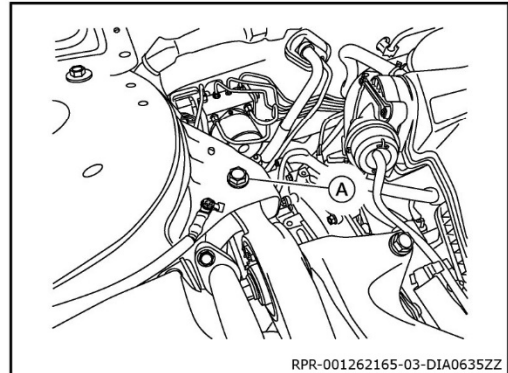
- Do not reuse intake manifold collector gasket.**



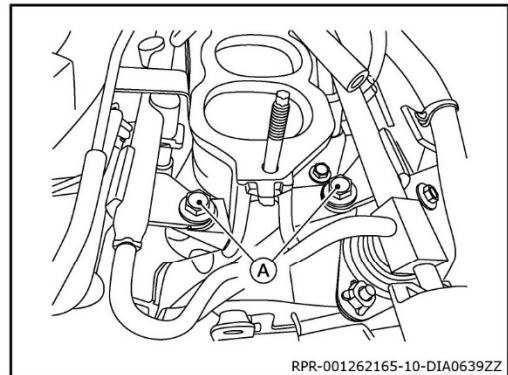
19. Disconnect transaxle breather hose (1) from transaxle assembly.



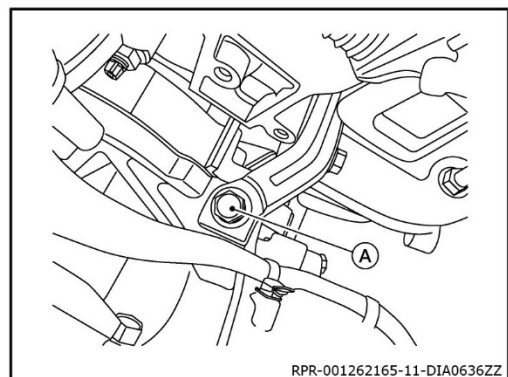
20. Remove bolt (A) from upper torque rod.



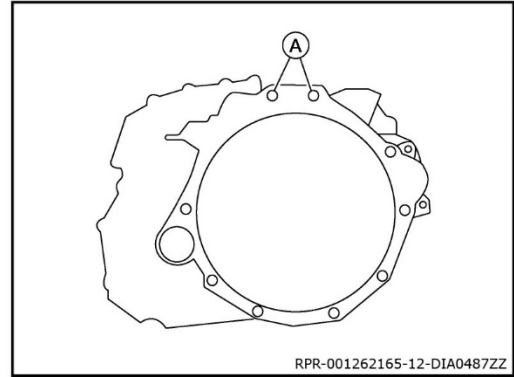
21. Remove fuel tube bolts (A).



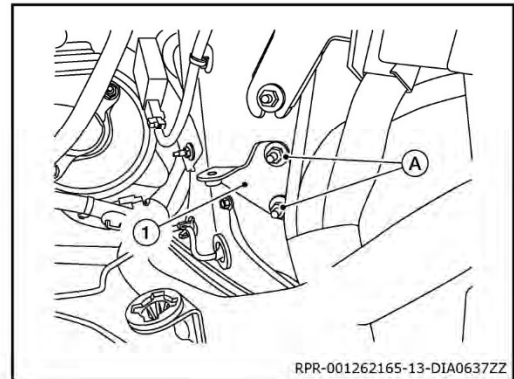
22. Remove CVT gusset bolt (A).



23. Remove bolts (A).

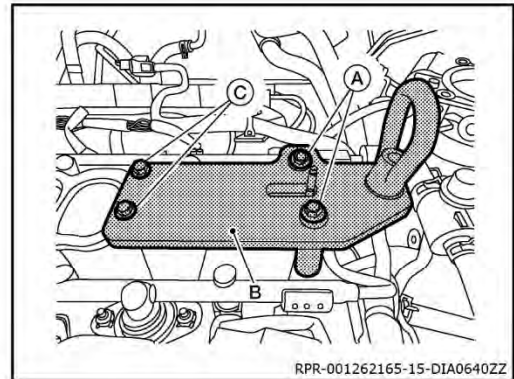


24. Remove nuts (A) and bracket (1).



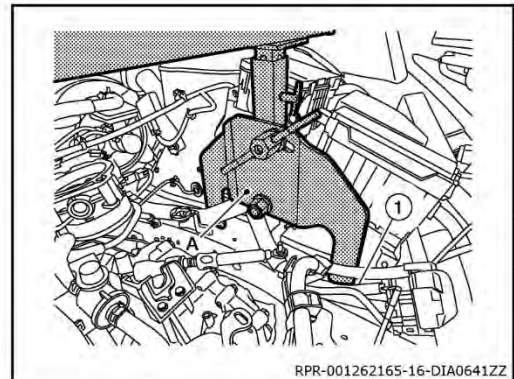
25. Install Tool (B) using bolts (A) and (C) supplied with Tool. Tighten bolts to specification. Refer to Engine Support Tool Operating Instructions.

- 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)



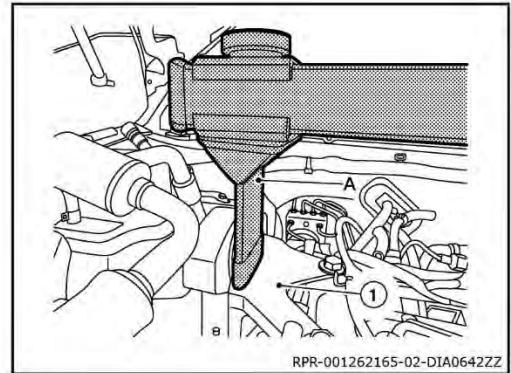
26. Install Tool (A) to drivers side frame rail (1) as shown. Refer to Engine Support Tool Operating Instructions.

- Tool (A) : (J-52389)



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

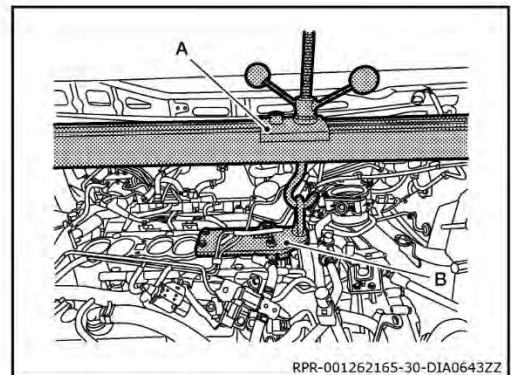
Tool (A) : (J-52389)



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

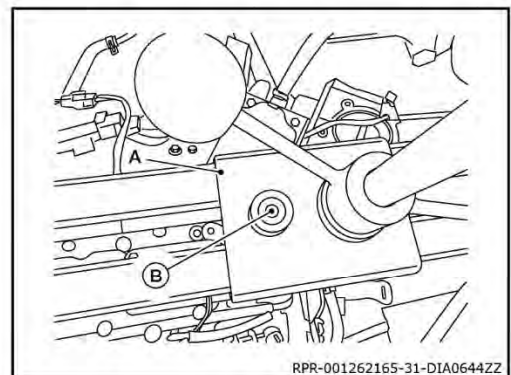
Tool (A) : (J-52389)

Tool (B) : (J-52604)



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

Tool (A) : (J-52389)



30. Remove nut from engine mounting insulator (front). Refer to Engine Assembly "Exploded View" in the Engine Mechanical section of the ESM.
31. Remove nut from engine mounting insulator (rear). Refer to Engine Assembly "Exploded View" in the Engine Mechanical section of the ESM.
32. Remove the front wheels and tires using power tool (LH/RH).
33. Remove brake hose retaining clip and brake hose from strut (LH/RH).
34. 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.

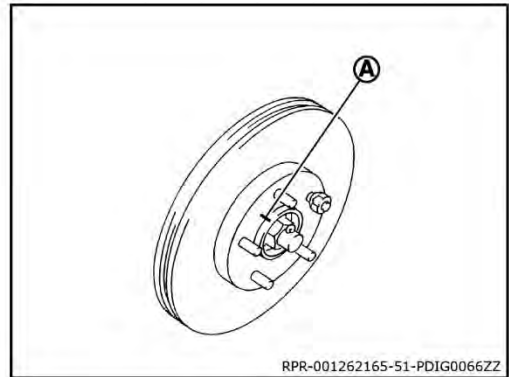
CAUTION:

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

35. Put alignment marks (A) on the disc brake rotor and on the wheel hub and bearing, then remove disc brake rotor (LH/RH).

CAUTION:

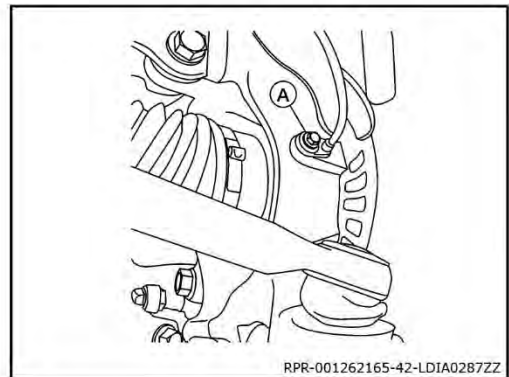
Do not drop the disc brake rotors.



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

CAUTION:

Do not pull on wheel sensor harness.



37. Remove and discard cotter pin from front drive shaft (LH/RH).

CAUTION:

Do not reuse cotter pins.

38. Remove nut retainer from drive shaft (LH/RH).

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

CAUTION:

Do not reuse wheel hub lock nuts.

40. 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.

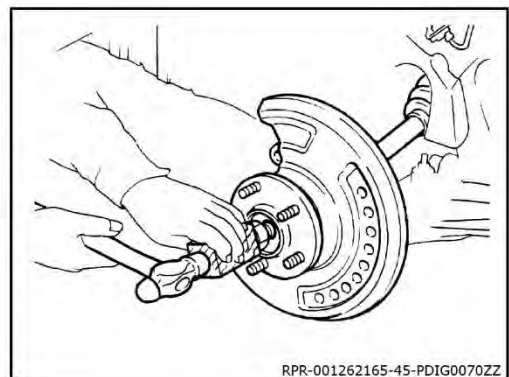
41. Using a piece of wood and a suitable tool, tap on the wheel hub lock nut to disengage the drive shaft from the wheel hub and bearing (LH/RH).

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.



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

CAUTION:

Do not reuse wheel hub lock nuts.

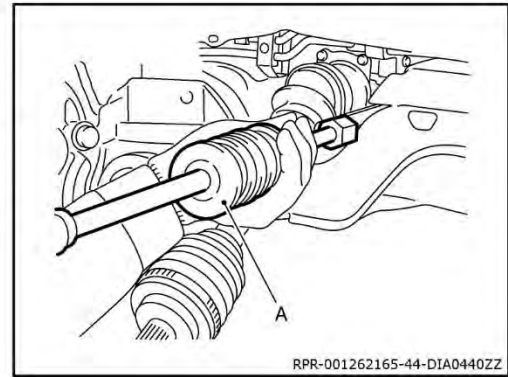
43. Remove bearing retainer to support bearing bracket bolts and remove bearing retainer (RH only).

44. 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)



45. Remove the differential side oil seal (LH/RH).

CAUTION:

Do not reuse differential side oil seals.

46. 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.
47. Remove outer socket cotter pins (LH/RH). Refer to Steering Gear and Linkage "Exploded View" in the Steering System section of the ESM.

CAUTION:

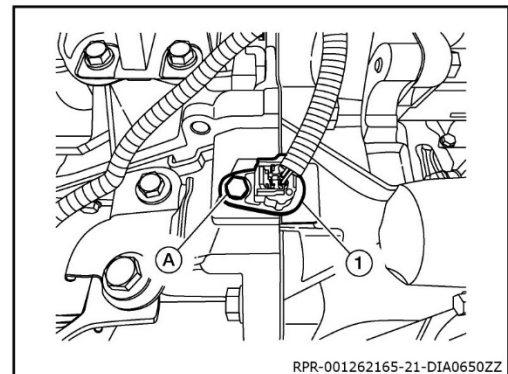
Do not reuse outer socket cotter pins.

48. Loosen the outer socket nuts and separate outer sockets from the steering knuckles (LH/RH) using ball joint remover (commercially available).

CAUTION:

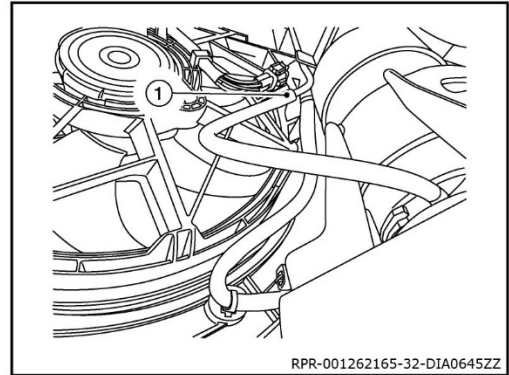
Leave the outer socket nuts half threaded on the outer sockets to prevent damage to threads and to prevent the tool from coming off suddenly.

49. Remove the outer socket nuts and separate the outer sockets from the steering knuckles (LH/RH).
50. Remove front under cover. Refer to Under Cover "Exploded View" in the Exterior section of the ESM.
51. Remove the front half of front over fenders (LH/RH). Refer to Front Over Fender "Exploded View" in the Exterior section of the ESM.
52. Remove engine side cover (LH/RH). Refer to Fender Protector "Exploded View" in the Exterior section of the ESM.
53. Remove the front half of front fender protectors (LH/RH). Refer to Fender Protector "Exploded View" in the Exterior section of the ESM.
54. Remove bolt (A) and position crankshaft position sensor (1) aside.

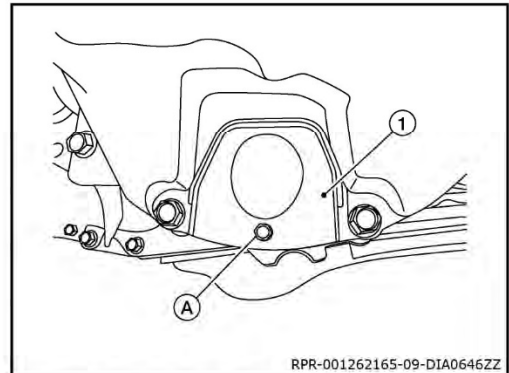


55. Remove the front exhaust tube. Refer to Exhaust System "Exploded View" in the Exhaust System section of the ESM.

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



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

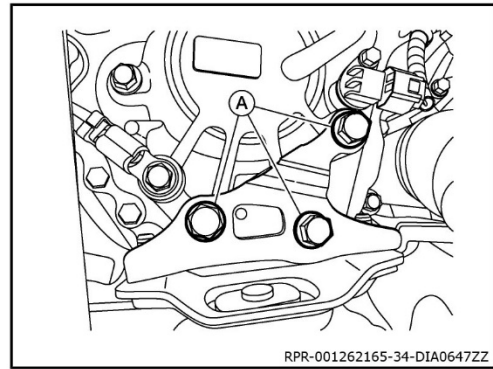


58. Remove torque converter nuts. Refer to Transmission Assembly "Exploded View" in the Transaxle and Transmission section of the ESM.
59. Remove the power steering tube bracket bolts. Refer to Hydraulic Line "Exploded View" in the Steering System section of the ESM.
60. Remove the bolts and nuts from the steering gear. Refer to Steering Gear and Linkage "Exploded View" in the Steering System section of the ESM.
61. Secure the steering gear using suitable wire.

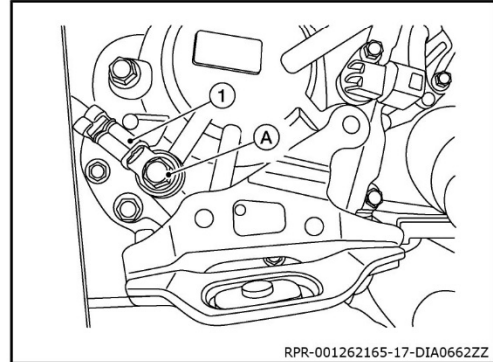
CAUTION:

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

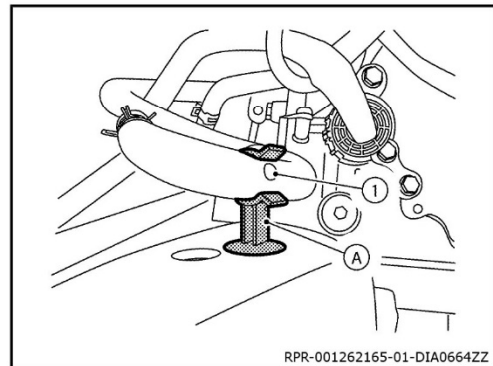
62. Remove bolts (A) from transaxle mount.



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

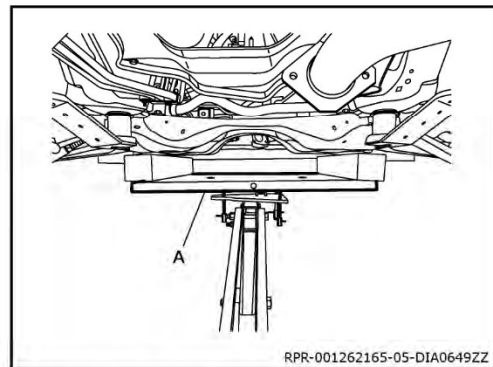


64. Remove water hose (1) from retainer (A).



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

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



67. 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.

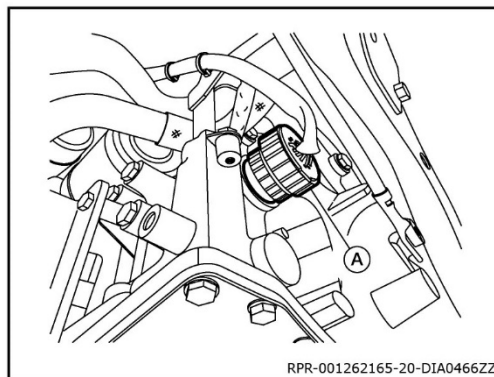
CAUTION:
Secure front suspension member to hydraulic lift table (or equivalent tool) while removing it.

68. Lower the front suspension member.

69. Remove bolt from heater thermostat bracket. Refer to Water Hose "Exploded View" in the Transmission and Transaxle section of the ESM.
70. Drain coolant. Refer to "Changing Engine Coolant" in the Engine Cooling System section of the ESM.
71. Remove CVT fluid cooler hose A and CVT fluid cooler hose B from the CVT oil warmer. Refer to Fluid Cooler Hose "Exploded View" in the Transaxle and Transmission section of the ESM.
72. 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.
73. 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)

74. Release the harness retainers from the transaxle assembly.
75. Disconnect the harness connector (A) from the transaxle assembly.



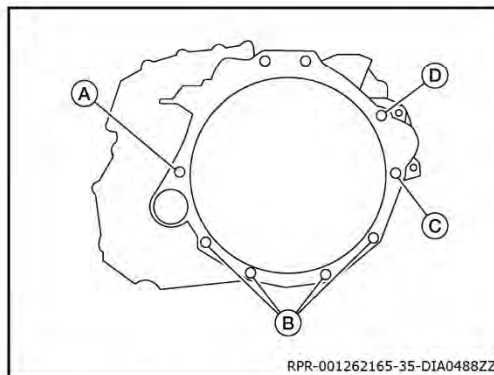
76. Disconnect the harness connector from the output speed sensor. Refer to Output Speed Sensor "Exploded View" in the Transaxle and Transmission section of the ESM.
77. Disconnect the harness connector from the primary speed sensor. Refer to Primary Speed Sensor "Exploded View" in the Transaxle and Transmission section of the ESM.
78. 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.
79. 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.

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



81. 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.

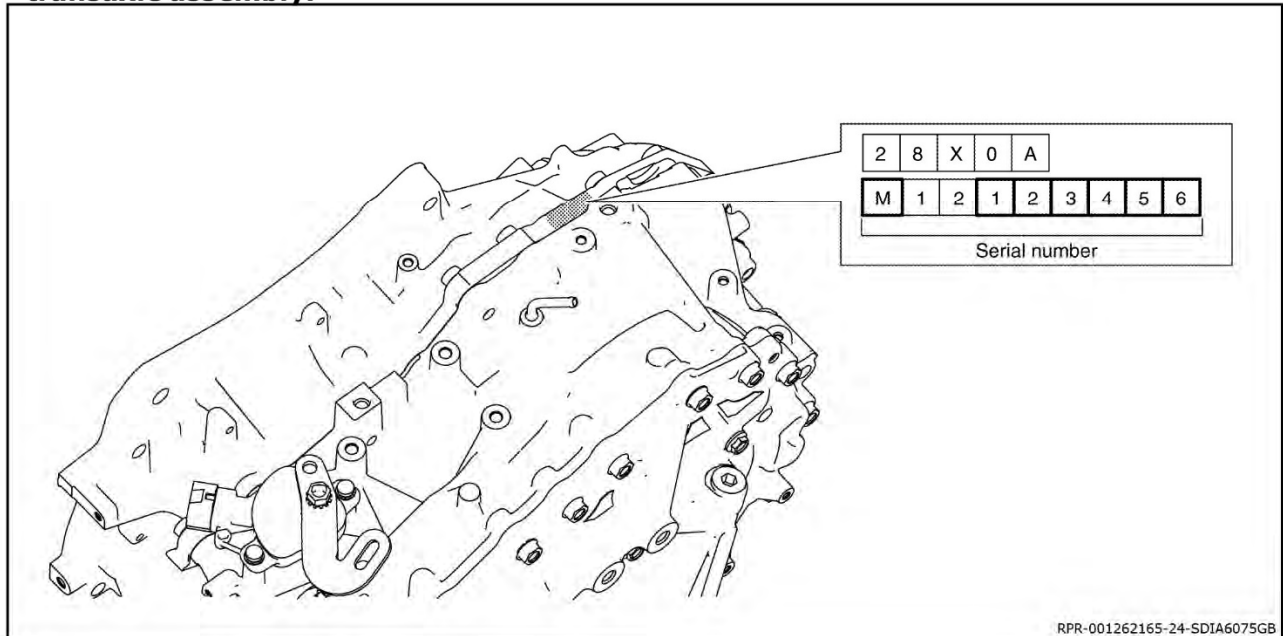
INSTALLATION

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.



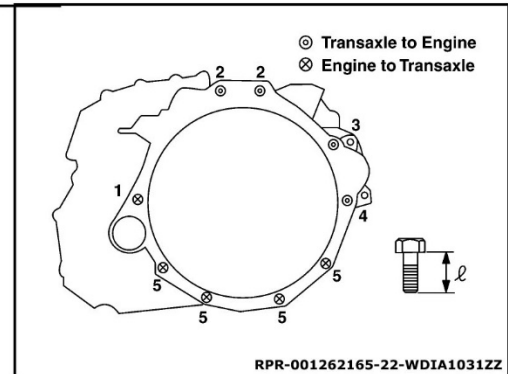
CAUTION:

- 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.

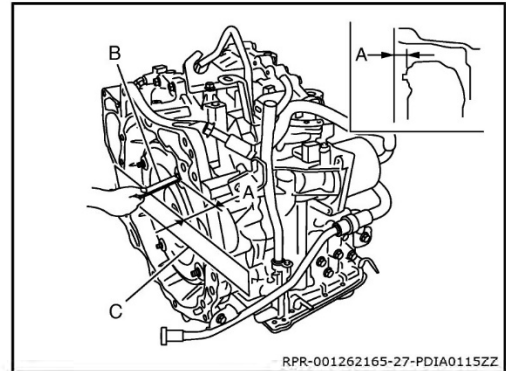
Bolt No.	1	2	3	4	5
Number of bolts	1	2	1	1	4
Bolt length "ℓ"mm (in)	55 (2.17)	39 (1.54)	35 (1.38)	50 (1.97)	45 (1.77)
Tightening torque N·m (kg-m, ft-lb)	74.5 (7.6, 55)				50.0 (5.1, 37)



- 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.

PARTS INFORMATION

Refer to the Library in the EPC for the Single Use Parts List.

CLAIMS INFORMATION

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

- (1) The new procedure 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
June 3, 2019	NTB19-043	Original bulletin published.
December 22, 2020	NTB19-043a	APPLIED VEHICLES updated. APPLIED ENGINE, NOTE under APPLIED ENGINE , and PARTS INFORMATION added.