

SECTION **TM**
TRANSAXLE & TRANSMISSION

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PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000009162733

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precaution for Battery Service

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Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference. The automatic window function will not work with the battery disconnected.

Aluminum Die-Casting Parts Handling

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PROHIBITION OF WELDING OR BEATING REPAIR

- Material made of aluminum die-casting parts is heat-treated and loses strength when being exposed to welding heat. Do not perform welding repair for cracks, damage or others.
- For aluminum die-casting parts deformation, do not perform repair by beating. Always repair by replacement as an assembly.

CRACK CHECK

When the vehicle is damaged, always perform a visual deformation check and a crack check.

Crack Check Procedures

For a crack check, use dye penetrant inspection fluid (pre-cleaning fluid, penetrant fluid and developer fluid).

CAUTION:

Always perform a crack check in accordance with the procedures specified by the manufacturer of the dye penetrant inspection fluid.

1. Spray pre-cleaning fluid on the checking surface for cleaning.
2. Spray penetrant fluid on the checking surface and wait until the penetrant fluid soaks into any cracks.

PRECAUTIONS

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3. Wipe off excessive penetrant fluid, and then also lightly wipe off penetrant fluid using a wet cloth.
4. Spray developer fluid on the checking surface.
5. Cracks, if any, are dyed red in color.

STRAY CURRENT CORROSION

- Corrosion occurs to aluminum die-casting parts by the stray current corrosion phenomenon, when directly contacting other parts made of steel. Always apply anti-stray current corrosion paint (primer) on the mounting surface.
- Clean mounting surface to prevent any foreign matter, steel powder or others from being mixed in. Always apply the specified adhesive when installing.
- Corrosion by stray current corrosion may occur when installing with any other bolts than the specified bolt. Always use the specified bolt that is surface treated.
- When loosening the specified bolt that is tightened, the treated surface may peel. Never reuse the specified bolt that is tightened once.

TIGHTENING TORQUE CONTROL

Material made of aluminum die-casting parts is soft in term of hardness. Tightening torque must be controlled exactly as specified. Always use a torque wrench to install any part to the specified tightening torque.

WARNING:

Never use a power tool to remove or tighten bolts for aluminum die-casting part to prevent damage to aluminum die-casting parts.

General Precautions

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- Use "Genuine NISSAN Transmission oil R35 special".
- Work in a clean workplace.
- Avoid using cotton gloves or a waste cloth to prevent the entry of lint. Use paper towel.
- Check for the correct status prior to removal and installation, disassembly and assembly.
- Use genuine NISSAN parts for replacement.
- Do not drop foreign matter into the transmission assembly inside.
- Check for damage, breakage and twist when replacing the O-ring and gaskets, etc.
- Check that no dirt is present on the mounting area when installing the parts.
- Check that tools and shop waste cloths are not left after finishing service work.
- Check and replace the oil level with the vehicle in a horizontal position.
- Do not reuse drained transmission oil.
- Treat the replaced transmission oil and cleaning oil as waste oil.

Precautions Before Performing Diagnosis

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Check the following items before performing the diagnosis. Be careful that the applicable item may not always be malfunctioning.

PRECAUTION FOR MECHANISM

PRECAUTIONS

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Mechanism	Symptom	Use conditions and constraint conditions
Manual transmission base	<ol style="list-style-type: none"> Similar to manual transmission vehicle, it adopts parallel axis gear, which generates collision sound. The sound is louder than general torque converter type automatic transmission due to reasons below. <ul style="list-style-type: none"> Secures fairly large backlash in order to maintain lubrication capacity on gear surface in sport driving. Adopts drysump lubrication method which enables a stable oil supply even in sport driving. Adopts light weight flywheel in order to improve acceleration response. It could rattle, clang, or make pouring noise especially after sport driving. Clicking sound can be observed at shift operation. If shift lever is changed from R to A, M or A, M to R before vehicle stops, gear change could delay or could not be operated. 	<ol style="list-style-type: none"> The sound becomes small if the transmission oil temperature falls. — Always operate it after footing on foot brake and confirming that the vehicle is absolutely stopped.
Wet-type multi-plate clutch	With the vehicle stationary and the shift lever in the A ⇔ M, or R range, when the brake pedal is released, the vehicle enters the status just like partial engagement of clutch in vehicles with manual transmission to prepare for start-up, and starts moving slowly (or in some circumstances, it may not start at all).	Securely depress the brake pedal while the vehicle is stopped.
	If the brake pedal and the accelerator pedal are depressed simultaneously, the clutch becomes overheated to accelerate its wear and deterioration.	Restrict the simultaneous depression of the brake pedal and the accelerator pedal.
	If the vehicle is stopped by controlling the acceleration pedal on uphill road, the clutch will be overheated like manual transmission vehicle, which results in transmission damage or engine stall.	When stopping on a slope, depress the brake pedal and do not perform a stopping operation by depressing adjustment of the accelerator pedal.
Electronically controlled hydraulic control	<p>The following symptoms may occur by oil viscosity restriction variations due to temperature change.</p> <ol style="list-style-type: none"> Extremely high temperature after sport driving etc or extremely low ambient temperature can change the oil pressure response characteristics which can generate slip feeling or shock. At very low temperatures in winter, the system check time may be prolonged by oil pressure response characteristic variations. 	<ol style="list-style-type: none"> After the normal temperature is resumed, the slippage feeling and shock is reduced. During the system check, the shift lever cannot be moved out from the P position. Therefore, operate the shift lever only after the system check indicator turns off. In addition, operation noise like a clank may be heard or the engine speed may drop during the system check, but they are not malfunction.
Mode change	Since quick gear change is performed in M range, jerky movement can be observed at start or at gear change.	—
	In M range R mode, the gear change speed becomes maximum at sport driving. Therefore, the gear change becomes slower at normal driving.	—
Rear final drive (mechanical LSD)	If the vehicle accelerates from a stop with the steering wheel widely turned in cold temperatures, the inner wheel tire may slip and some noise or vibration may be heard. This phenomenon occurs because the viscosity of the differential oil becomes thicker and the Limited Slip Differential (LSD) operates with increasing strength.	When the steering wheel is returned to the straight ahead position or the differential oil warms up, the noise and vibration decrease.
Transfer (E-TS)	If the vehicle accelerates from a stop with the steering wheel widely turned in cold temperatures, it may be hard to move the vehicle when the accelerator pedal is depressed. This phenomenon is unique to AWD vehicles and is caused by the speed difference between the front and rear wheel. This is not a malfunction.	This phenomenon can be avoided by returning the steering wheel to the straight ahead position. The phenomenon can be reduced if the transmission setup switch is operated to switch to the 2WD mode only when turning the steering wheel widely at low speed.

PRECAUTIONS

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Mechanism	Symptom	Use conditions and constraint conditions
Lightweight flywheel	The application of light fly wheels enables engine responses to accelerator operation. Therefore, engine speed varies widely, compared with conventional vehicles and this may generate a rattling sound or chattering sound.	—
	At the engine start or stop, a rattle may be heard.	—

PRECAUTIONS FOR SYMPTOM

Symptom	Cause	Action	
When or after the engine starts	The shift lever is not released from the P range.	The system performs the system check of transmission after the engine starts. Therefore, the shift lever is not released from the P range by shift lock even if the driver depresses the brake during the check. This is normal. The system check time may be prolonged at low oil temperature.	Wait until the system check finishes.
	The vehicle cannot be driven after starting the engine at the N range.	When the engine starts at the N range after the engine stops at the driving range (A/M or R range), the vehicle may not start for safety. This is normal. <ul style="list-style-type: none"> Conditions that the vehicle cannot be driven - The engine starts at the N range after stopping at the A/M range, and the R range is selected - The engine starts at the N range after stopping at the R range, and the A/M range is selected 	If the engine starts at the N range, the vehicle can be driven by selecting the desired driving range after selecting the P range once. Perform the engine stop or start at the P range for safety reasons.
	The gear shift takes time at low oil temperature.	The oil viscosity is high and the oil flow restriction is large at low oil temperature, and the oil pressure response takes time.	Smooth gear shift is resumed, when the oil temperature increases.
	The engine speed fluctuates when the shift lever shifts from the N range or P range to the driving range (A/M, R range) without the brake pedal depressed.	If the shift lever shifts to the driving range (A/M or R range) without the brake pedal depressed, the clutch becomes the partial clutch engagement status simultaneously with the gear engagement. Therefore, the engine load changes. As a result, the engine speed may vary or decrease.	Securely depress the brake before shifting the shift lever to the driving range (A/M, R range) for safety reasons.
	The vehicle cannot start at any gears higher than 2GR.	The gear position that the vehicle can start is only 1GR and reverse gears. The vehicle cannot start at any gears higher than 2GR because the load for the clutch is too great.	Start the vehicle in 1GR or reverse gear. On a slippery road, use SAVE mode of the A range.

PRECAUTIONS

< PRECAUTION >

[TRANSMISSION: GR6Z30A]

	Symptom	Cause	Action
The gear shift is not performed or slow.	No manual upshift is accepted during start-up.	The manual shift change is inhibited in order to reduce the load to the clutch during start-up (until the clutch is engaged).	Shift the gear only after the start-up is finished (after the clutch is engaged).
	Shift-down to 1GR is denied during the drive in 2GR.	Speed reduction during the drive in 2GR causes partial clutch engagement to prevent engine stall. Therefore, shift-down to 1GR is denied.	To shift down to 1GR, depress the brake pedal and stop the vehicle or accelerate to escape from 2GR partial clutch engagement.
	The gear shift takes time at low oil temperature.	The oil viscosity is high and the oil flow restriction is large at low oil temperature, and the oil pressure response takes time.	Smooth gear shift is resumed when the oil temperature increases.
	The gear shift is not performed even if the paddle shifter operation is performed.	<ul style="list-style-type: none"> The paddle shifter operation can be performed only in the M range. If the engine over revving occurs or the specified engine speed is not reached after a gear shift, the gear shift is inhibited, and the shift position indicator on the combination meter blinks to warn the driver. 	Use the M range and perform gear shift at the proper engine speed.

PRECAUTIONS

< PRECAUTION >

[TRANSMISSION: GR6Z30A]

	Symptom	Cause	Action	
	The continuous manual shift is not accepted.	The excessively fast continuous gear shift is prohibited for safety reasons. The gear shift that can be accepted during the gear shift is only the next gear shift.	Take interval time to continuously operate the paddle shifter.	A
	Shift lever operation is denied when parking the vehicle on a hill with the accelerator pedal depressed.	Shift lever operation is denied when parking the vehicle on a hill with the accelerator pedal depressed to protect transmission from being damaged.	When parking the vehicle on a hill, fully depress the brake pedal to operate the shift lever.	B C
	The gear shift in R mode of the M range is slow.	The predictive pre-shift control provides a waiting gear selection focusing on the full sport driving. Therefore in normal driving, it takes time for changing the waiting gear and the gear shift time may be prolonged.	R mode of the M range is basically used in sport driving.	TM
	No automatic upshift occurs in R mode of the M range.	In order to provide the operation feeling of manual transmission, no automatic upshift occurs like manual transmission.	Upshift manually or use in Normal mode of the M range.	E
	In Normal mode of M range, 2 speed gear shift is performed for one manual upshift.	Normal mode of M range performs the automatic upshift when the specified engine speed is reached. During the automatic upshift, if a manual upshift intervenes by the paddle shifter, a total of a 2-speed gear shift (1-speed automatic gear shift + 1-speed manual gear shift) is performed.	If the automatic upshift is used or a manual gear shift is done a little earlier, 1-speed gear shift can be attained. Or, R mode of the M range without automatic upshift is used.	F G
The gear shift is not performed or slow.	While driving in the A range, after the vehicle is accelerated for merging onto a freeway, for example, the automatic upshift does not occur soon after the accelerator pedal is released.	When the vehicle is accelerated rather hard for merging onto a freeway, or runs on a ramp curve with side G applied, the adaptive shift control works to activate the gear hold status in which no gear shift occurs for a certain period of time. This symptom stays longer in R mode than Normal mode.	Waiting for a certain period of time deactivates the gear hold status. Or upshift manually.	H I
		During a sudden deceleration, no automatic downshift occurs.	During a sudden deceleration, if a tire lock occurs, the actual vehicle speed cannot be judged (the vehicle body moves, but the wheels stop), therefore the appropriate gear can no longer be selected. For safety reasons, a gear shift is inhibited.	J K
	An upshift near the engine rev limit causes a drop of the drive power.	A manual upshift near the engine rev limit may activate the engine over-rev protection depending on the timing and lower the engine torque. Therefore, an upshift at this timing drops the drive power.	This symptom can be eliminated by upshifting a little earlier.	L M
	Shock generated by gearshift is great.	Shift shock varies depending on how the accelerator pedal depressed during a gear shift. Because the tuning allows an increase of the shift speed as the accelerator pedal travel increases, the shift shock also increases. For example, start the vehicle with the accelerator pedal fully depressed, as the vehicle speed increases, shift up to 2GR, after that release the accelerator pedal and shift up to 3GR. In this case, compared to 2GR to 3GR shift shock, 1GR to 2GR shift shock feels larger.	To prevent shift shock, drive with gentle accelerator operation.	N O P

PRECAUTIONS

< PRECAUTION >

[TRANSMISSION: GR6Z30A]

	Symptom	Cause	Action
The drive power is not generated or weak, or the engine races.	The drive power is weak when the temperature becomes extremely cold. The engine does not race.	The engine torque and engine speed are restricted to protect the transmission and engine at low temperature (the transmission oil temperature is approximately -20°C (-4°F) or less, or the engine oil temperature is approximately 0°C (32°F) or less). The drive power becomes weak or the engine speed does not increase over the specified speed.	If the oil temperature rises, the restriction of engine torque and engine speed is cancelled.
	The drive power is not generated at high oil temperature. The engine does not race.	The engine torque and engine speed are restricted to protect the transmission and engine at high temperature (the transmission oil temperature is approximately 150°C (302°F) or more, or the engine oil temperature is approximately 135°C (275°F) or more). The drive power becomes weak or the engine speed does not increase over the specified speed.	Reduce the speed or stop the vehicle in a safe place until the engine oil temperature decreases or the transmission warning lamp turns off.
	The drive power is not generated at high clutch temperature.	The engine torque and engine speed are restricted to protect the clutch at high clutch temperature. The drive power is not transmitted when the temperature is further increased. At this time, the vehicle may move if the brake pedal is not depressed on a slope.	Reduce the speed or stop the vehicle with the brake pedal depressed until the transmission warning lamp turns off.
	At very low temperature, hard acceleration causes engine racing.	At low oil temperature, because of a high oil viscosity, oil pressure response takes time. Therefore, before the clutch is engaged, the engine speed increases, which may cause an engine racing.	Do not perform hard acceleration at low outside temperature with cold transmission.
	After the vehicle stops with a sudden deceleration, depressing the accelerator pedal causes engine racing.	Under a sudden deceleration, tire lock easily occurs. To prevent an engine stall when a lock occurs, the clutch is released. Under that status, depressing the accelerator pedal may cause racing.	With a certain period of time after releasing the accelerator pedal, the clutch is engaged and the racing stops.
	Driving force is weak when using R mode start.	If R mode starting is performed four times consecutively, it restricts engine torque for protection which makes R mode starting unable. R mode starting cannot be used when a warning lamp is illuminated.	It can be recovered by performing cool down running [approx. 2 km (1.2 mile) at 60-80 km/h (38-49 MPH), gear in 5th or 6th] until transmission warning lamp turns off. Confirm the warning lamp content.
The engine stalls.	If the accelerator pedal and brake pedal are depressed together to stop, the engine stalls.	Because the clutch engagement pattern is adjusted for start-up or acceleration depending on the accelerator pedal operation, if the brake pedal is depressed together, a force to stop the engine is generated by braking force and the engine may stall.	Refrain from simultaneous footing on accelerator pedal and brake pedal as much as possible.

PRECAUTIONS

< PRECAUTION >

[TRANSMISSION: GR6Z30A]

Symptom	Cause	Action
The set-up switch cannot be changed.	The mode changes by 1 step per 1 mode switch operation.	When changing from SAVE mode to R mode, set to Normal mode once, and then press and hold the switch for 1 second to select R mode.
		When changing from R mode to SAVE mode, set to Normal mode once, and then press the switch for SAVE mode.
The combination meter display is malfunctioning.	The oil change history is reset if the power supply is cut off when the battery is removed at the battery replacement.	Note the history before removing the battery. Perform manual setting of history after reconnecting.

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PERIODIC MAINTENANCE

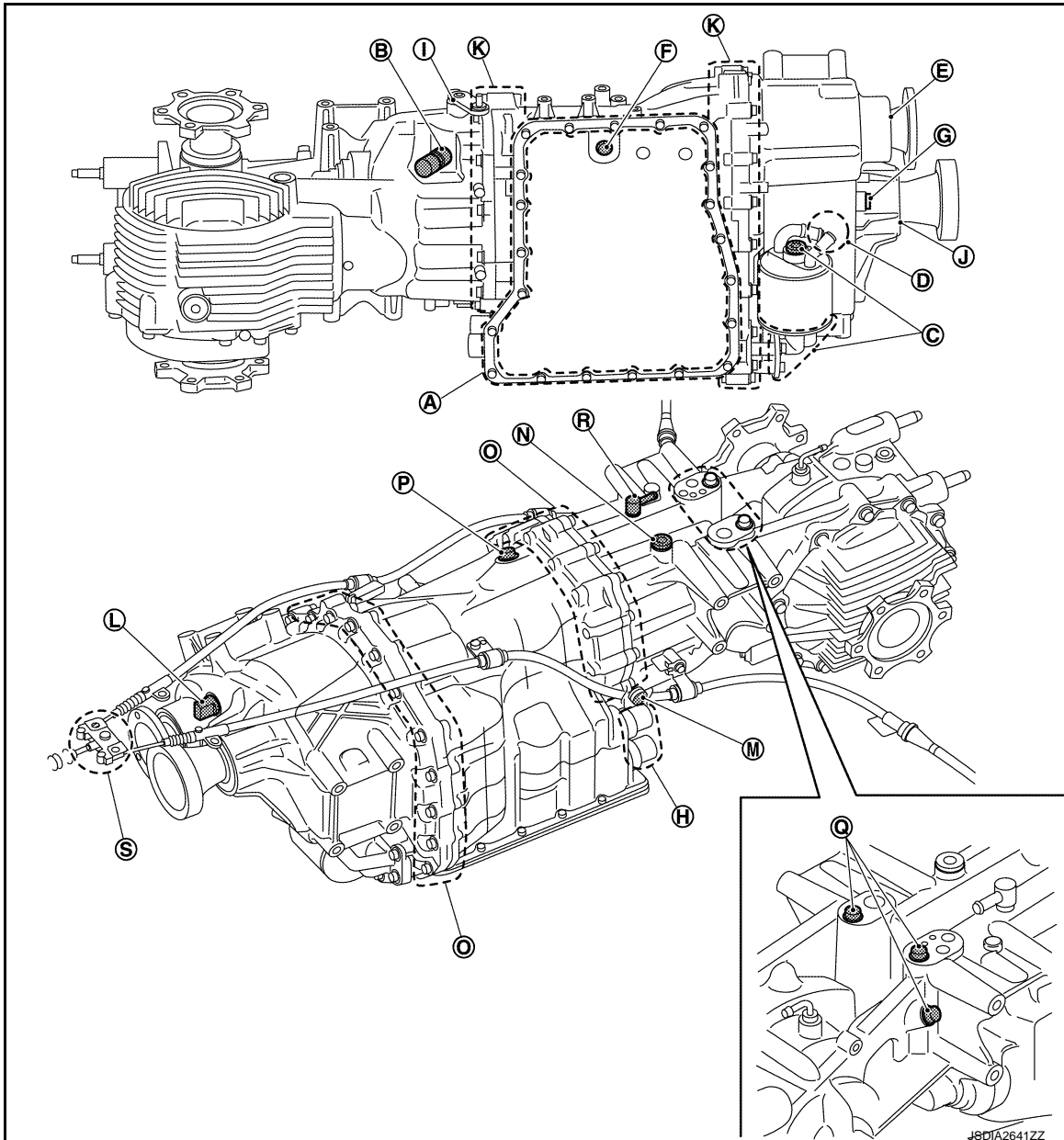
TRANSMISSION OIL

Inspection

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LEAKAGE CHECK

- Visually check transmission assembly surrounding area (oil seal, drain plug, filler plug, transmission case, etc.) for smears and leakage of transmission oil.
- Check also the leakage or bleeding around rear final drive. For rear final drive check, refer to [DLN-25, "Inspection"](#).



TRANSMISSION OIL

< PERIODIC MAINTENANCE >

[TRANSMISSION: GR6Z30A]

Status	Parts	Required operation	Reference	
Oil leakage ^{*1, *2}	A: Mating surface between oil pan and case	Check the seal surface condition. Replace the oil pan gasket only if there is a non-standard condition. Check for oil leakage.	This work is recommended to be performed by GT-R certified NIS-SAN dealer.	
	B: Park position switch	Check the mounting surface condition. Replace the plain washer only if there is not any other malfunctioning condition. Check for oil leakage.		
	<ul style="list-style-type: none"> • C: Heat exchanger & bracket mounting surface and heat exchanger mounting bolt • D: Water hose connection (Engine coolant) 	<ul style="list-style-type: none"> • C: Check the seal surface condition. If it is normal, replace the O-ring of the part where oil leakage arises and the single-use parts removed during procedure. Check for oil leakage. • D: Check the seal surface condition. If it is normal, replace the clamp of the part where engine coolant leakage arises. Check for engine coolant leakage. 		
	E: Front oil seal	Check the oil seal mounting surface and sliding surface condition. Replace the front oil seal only if there is not any other malfunctioning condition. Check for oil leakage.		
	F: Drain plug	Replace the drain plug. Check for oil leakage.		TM-19
	G: Filler plug	Replace the filler plug gasket. Check for oil leakage.		TM-20
	<ul style="list-style-type: none"> • H: Transmission harness connector • I: Oil seal of parking lever • J: Oil seal of companion flange (transmission side) of main propeller shaft assembly • K: Transmission case joining portion • L: AWD solenoid 	Replace the transmission assembly.		This work is recommended to be performed by GT-R certified NIS-SAN dealer.
	M: 3rd-5th check pin	Replace the plain washer. Check for oil leakage.		
	N: Filler plug	Replace the filler plug gasket. Check for oil leakage.		
	Transmission assembly (single unit)	O: Transmission case joining portion	Replace the transmission assembly.	—
		<ul style="list-style-type: none"> • P: Idler bolt • Q: Plug 	Replace the plain washer or O-ring. Check for oil leakage.	
R: Breather		Clean and wipe spouted oil with a part cleaner. Fill with oil to the specified oil level, if necessary.		
Oil smears ^{*3}	Each part of the transmission assembly, including the parts requiring oil leakage check.	Use part cleaner or the equivalent to wipe out smeared oil. Then, check for oil leakage.	—	
Grease drop ^{*4}	S: Parking cable	Wipe excess grease off.	—	

- *1: When the oil drops
- *2: If oil leakage is detected, perform necessary procedures, check for oil leakage, and adjust oil level to the proper level.
- *3: When the oil does not drop
- *4: The grease applied to parking cable part can melt to generate a drop due to heat. Be careful not to confuse it with transmission oil leakage.

CONDITION CHECK

Remove the filler plug, insert a finger into the filler hole, and judge the oil conditions from the transmission oil applied to the inside of the transmission case.

CAUTION:

Be careful not to cut the finger with edges.

TRANSMISSION OIL

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[TRANSMISSION: GR6Z30A]

Transmission oil status	Possible cause	Required operation
Varnish-like condition (It is as thick as varnish).	Clutch is burned.	Change the transmission oil. Check the transmission assembly or any other parts on the vehicle.
Milky or cloudy	Water is mixed in the fluid. Example: • Inflow of engine coolant by internal explosion of heat exchanger • Inflow of water from breather by flood, etc.	Change the transmission oil. Check for flooded area.
A large amount of metal particles are contained in the fluid.	Sliding portions in the transmission assembly are excessively worn.	Change the transmission oil. Check the transmission assembly operation for any malfunctioning condition.

OIL CHANGE TIMING

Judging When to Change Transmission Oil by Oil Temperature

Transmission oil temperature while driving	Interval of transmission oil change
Not exceeding 120°C (248°F)	Change both transmission oil and differential oil every 60,000 km (36,000 miles)
From 120°C (248°F) – 140°C (284°F)	Change both transmission oil and differential oil every 5,000 km (3,000 miles)
Higher than 140°C (284°F)	Change both transmission oil and differential oil immediately.

How to Check Transmission Oil Temperature History With CONSULT

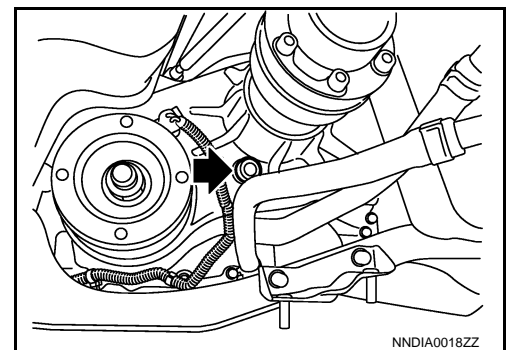
1. Turn ignition switch ON.
2. Select "SHOW OIL TEMP HISTORY" in "Work support" in "TRANSMISSION".
3. Check transmission oil temperature frequency history to judge the timing of oil change.

Transmission oil temperature frequency history	Timing of oil change
At least one count in "Oil Temperature Frequency 5"	Change both transmission oil and differential oil immediately.
At least one count in "Oil Temperature Frequency 4"	Change both transmission oil and differential oil ever 5,000 km (3,000 miles).
No count in both "Oil Temperature Frequency 4" and "Oil Temperature Frequency 5"	Change both transmission oil and differential oil ever 60,000 km (36,000 miles).

Draining

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1. Remove the front diffuser. Refer to [EXT-39, "FRONT DIFFUSER : Exploded View"](#).
2. Remove the heat insulator.
3. Remove the filler plug (←).



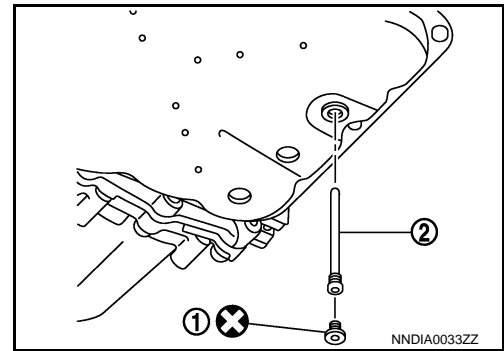
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TRANSMISSION OIL

< PERIODIC MAINTENANCE >

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4. Remove the drain plug (1) and drain tube (2) from the oil pan, and then drain the transmission oil.
5. Install the drain tube to the oil pan. Refer to [TM-19, "Exploded View"](#).



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Filling

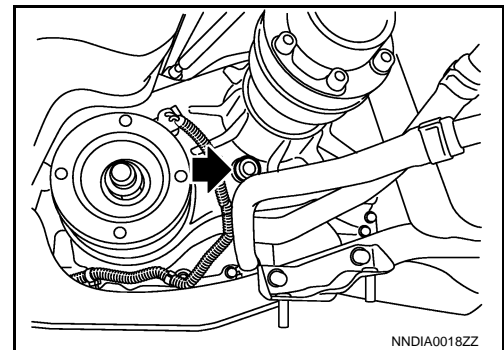
REPLACEMENT/ADJUSTMENT PROCEDURE

NOTE:

Replace the filler plug gasket and drain plug with new ones after oil level adjustment.

1. Remove the filler plug (◀) and drain plug, and then fill with the transmission oil until it leaks from the drain hole.

Transmission oil : Refer to [TM-21, "General Specification"](#).



CAUTION:

- Always use the specified transmission oil. In addition, always use the filler after cleaning. If use/mixed use/misuse of the transmission oil other than the specified brand occurs, the original performance cannot be obtained or it may cause serious malfunctions.
- Check that dust does not mix.
- Always use paper towels. Never use waste cloth.

2. Install the filler plug and drain plug. Refer to [TM-20, "Exploded View"](#) (filler plug), [TM-19, "Exploded View"](#) (drain plug).
3. Start engine with shift position in P range and keep it until transmission system check is complete.

CAUTION:

- If the oil does not fully circulate in transmission oil line after engine start, it could cause an oil flowing sound (such as hissing sound). Keep it at idle for several minutes in that case.
- Because of incomplete oil circuit in transmission oil line, a transmission warning light could illuminate at transmission system check. In this case, keep it at idle for several minutes, and then restart the engine.

4. With depressing the brake pedal, shift the selectro lever to A range (wait for 5 seconds) → N range (wait for 5 seconds) → R range (wait for 5 seconds) → P range.
5. Stop the engine.
6. Remove the filler plug and drain plug, and then fill with the transmission oil until it leaks from the drain hole.
7. Install the filler plug and drain plug. Refer to [TM-20, "Exploded View"](#) (filler plug), [TM-19, "Exploded View"](#) (drain plug).
8. Install the heat insulator.
9. Start the engine and run it at idle. Run the engine until the oil temperature reaches 50°C (122°F) while checking FLUID TEMP in "DATA MONITOR" of CONSULT.
10. With depressing the brake pedal, shift the selectro lever to A range (wait for 5 seconds) → N range (wait for 5 seconds) → R range (wait for 5 seconds) → P range.
11. Stop the engine and wait for 5 minutes.
12. Remove the drain plug. Install the drain plug when the transmission oil begins to drip (1 drop/1 second). Refer to [TM-19, "Exploded View"](#).

CAUTION:

- Perform from step 11 to step 12 within 25 minutes.
- Repeat the procedure from step 6 if the transmission oil does not leak from the drain hole.

< PERIODIC MAINTENANCE >

- **Never reuse drain plug.**

13. Replace the filler plug gasket with new ones.

CAUTION:

- **Never reuse filler plug gasket.**

14. Install the front diffuser. Refer to [EXT-39, "FRONT DIFFUSER : Exploded View"](#).

15. Select "OIL TEMP HISTORY RESET" in "WORK SUPPORT" of CONSULT.

16. Touch "START" to reset oil temperature history.

REFILL ADJUSTMENT PROCEDURE

NOTE:

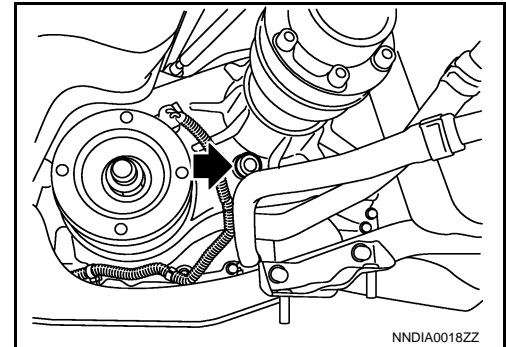
Replace the filler plug gasket and drain plug with new ones after oil level adjustment.

1. Remove the front diffuser. Refer to [EXT-39, "FRONT DIFFUSER : Exploded View"](#).
2. Remove the heat insulator.
3. Start engine with shift position in P range and keep it until transmission system check is complete.
4. With depressing the brake pedal, shift the selectro lever to A range (wait for 5 seconds) → N range (wait for 5 seconds) → R range (wait for 5 seconds) → P range.
5. Stop the engine.
6. Remove the filler plug (←) and drain plug, and then fill with the transmission oil until it leaks from the drain hole.

Transmission oil : Refer to [TM-21, "General Specification"](#).

CAUTION:

- **Always use the specified transmission oil. In addition, always use the filler after cleaning. If use/mixed use/misuse of non-specified transmission oil other than the specified brand occurs, the original performance cannot be obtained or it may cause serious malfunctions.**
- **Check that dust does not mix.**
- **Always use paper towels. Never use waste cloth.**



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7. Install the filler plug and drain plug. Refer to [TM-20, "Exploded View"](#) (filler plug), [TM-19, "Exploded View"](#) (drain plug).
8. Install the heat insulator.
9. Start the engine and run it at idle. Run the engine until the oil temperature reaches 50°C (122°F) while checking FLUID TEMP in "DATA MONITOR" of CONSULT.
10. With depressing the brake pedal, shift the selectro lever to A range (wait for 5 seconds) → N range (wait for 5 seconds) → R range (wait for 5 seconds) → P range.
11. Stop the engine and wait for 5 minutes.
12. Remove the drain plug. Install the drain plug when the transmission oil begins to drip the drop status (1 drop/1 second). Refer to [TM-19, "Exploded View"](#).

CAUTION:

- **Perform from step 11 to step 12 within 25 minutes.**
- **Repeat the procedure from step 6 if the transmission oil does not leak from the drain hole.**
- **Never reuse drain plug.**

13. Replace the filler plug gasket with new ones.

CAUTION:

- **Never reuse filler plug gasket.**

14. Install the front diffuser. Refer to [EXT-39, "FRONT DIFFUSER : Exploded View"](#).

SHIFT POSITION

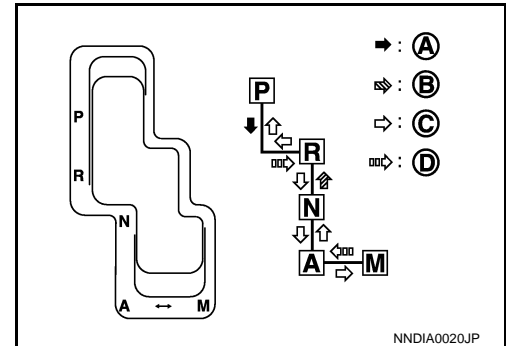
Inspection and Adjustment

INFOID:00000009162744

INSPECTION

1. Turn the ignition switch to ON at the shift lever P position.
2. The shift lever can shift from the P position to the R position when the brake pedal is depressed. Alternatively, the shift lever cannot shift from the P position to the R position without the brake pedal depressed.
3. Operate the shift lever and check for excessive effort, sticking, noise or rattle.
4. When the shift lever is operated, a click is felt, and the fixed position is correct and corresponds to the shift position indicator in the combination meter
5. Check that the shift lever is shifted through all the shift positions in the manner shown in the figure.

- A : Depress the brake pedal. Press and operate the knob button.
 B : Press and operate the knob button.
 C : Operate without condition.
 D : Automatic return.



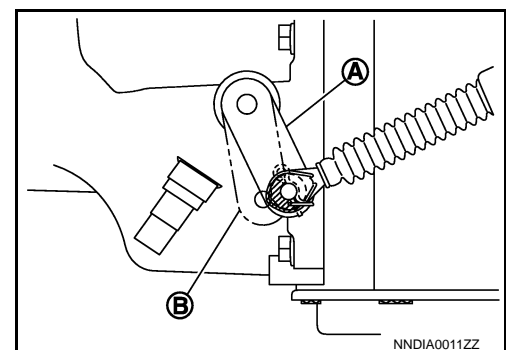
6. Check in the P and N positions that the knob button can be operated without sticking when the button is pressed without the shift lever pressed forward and backward.
7. Check that in the R position the shift lever can be operated without sticking when the shift lever is operated left and right.
8. The back-up lamp can turn on and the reverse warning buzzer can sound with the shift lever in the R position only.
9. Check that the engine can be started with the shift lever in the P and N positions only.
10. The transmission is completely locked with the shift lever in the P position.
11. The shift position indicator of combination meter should change to the A range display or M range display when the shift lever is operated to the M position.
12. The shift position indicator in the combination meter should not change when each load of 30 N (3.1 kg) is applied (pressed) to front and rear side at the shift lever in the P position, front side at the shift lever in the R position, front side at the shift lever in the N position and rear side at the shift lever in the A position.

ADJUSTMENT

1. Disconnect the control cable from the A/T shift selector assembly.
2. Shift the parking lever of transmission assembly to the P range (A).

- B : Other than P position

3. Rotate the wheels at least a quarter turn and the Park position mechanism is fully engaged.
4. Shift the shift lever to the P position.
5. Install the socket of the control cable to the A/T shift selector assembly, and fix them with lock plate.
6. Insert the I-end bolt into the cable lever of the A/T shift selector assembly, and apply the load of 9.8 N (1 kg) in the cable lever P direction (toward vehicle front) to the control cable.



7. Release the control cable and temporarily tighten the lock nut. Then, tighten the lock nut to the specified torque.

:14.7 N·m (1.5 kg·m, 11 ft·lb)

A/T SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

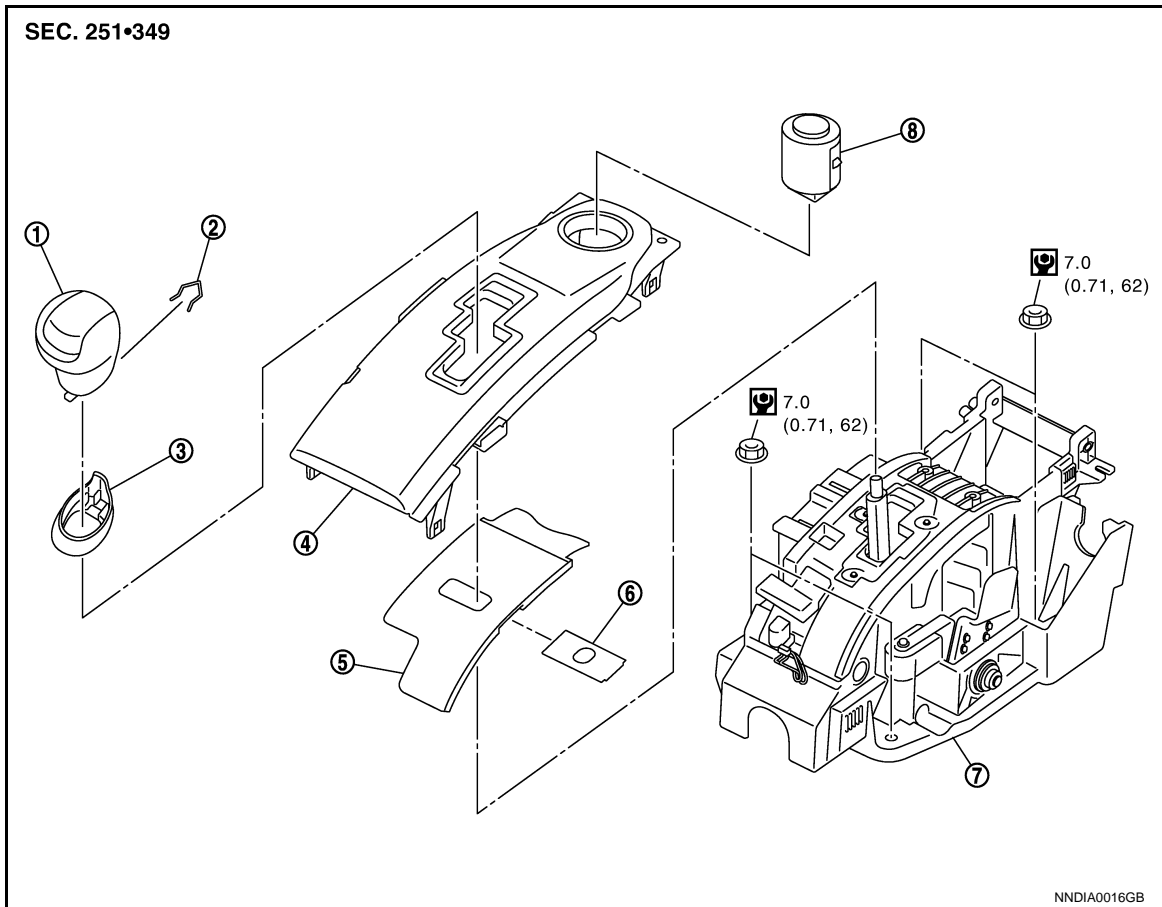
[TRANSMISSION: GR6Z30A]

REMOVAL AND INSTALLATION

A/T SHIFT SELECTOR

Exploded View

INFOID:000000009162748



- | | | |
|--------------------------------|--------------------------------|----------------|
| 1. Shift lever knob | 2. Lock pin | 3. Knob cover |
| 4. Position indicator lamp | 5. Slide cover | 6. Slide plate |
| 7. A/T shift selector assembly | 8. Push-button ignition switch | |

Refer to [GI-4. "Components"](#) in GI section for the symbols shown in the figure.

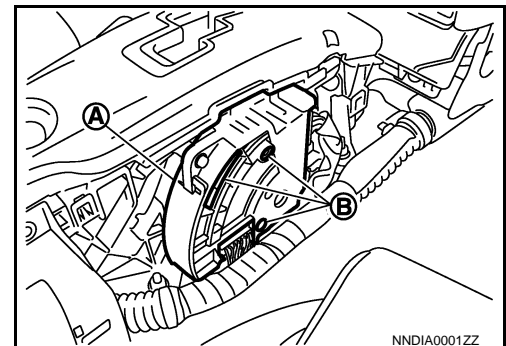
Removal and Installation

INFOID:000000009162749

CAUTION:

Be careful of the following items because the range sensor is an important device to detect the shift lever position.

- Keep range sensor (A) away from magnetic cards and magnetic objects during work.
- For a person with an electro-medical apparatus, keep the range sensor away from the device.
- Keep foreign objects away from the opening (B) of range sensor during work.
- Never touch the range sensor and sensor mounting screw.
- Always shift the shift lever to the P position during work.



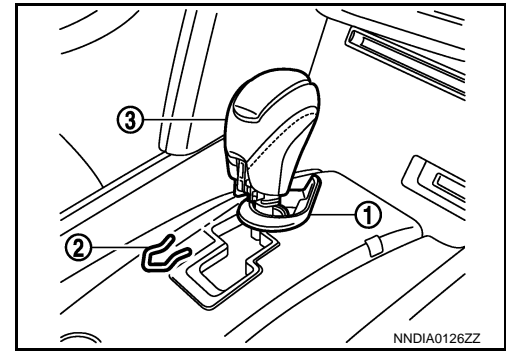
REMOVAL

A/T SHIFT SELECTOR

[TRANSMISSION: GR6Z30A]

< REMOVAL AND INSTALLATION >

1. Shift the shift lever to the P position.
2. Lower the rear side of the knob cover (1) downward.
3. Pull out the lock pin (2) from the shift lever knob (3).
4. Remove the shift lever knob and the knob cover.
5. Remove the console finisher assembly, instrument side panel LH/RH, and center console assembly. Refer to [IP-23, "Exploded View"](#).
6. Disconnect the control cable from the A/T shift selector assembly.
7. Disconnect the push-button ignition switch connector and the range sensor connector, and remove the harness clip.
8. Remove the A/T shift selector assembly mounting bolt.
9. Remove the A/T shift selector assembly from the vehicle.



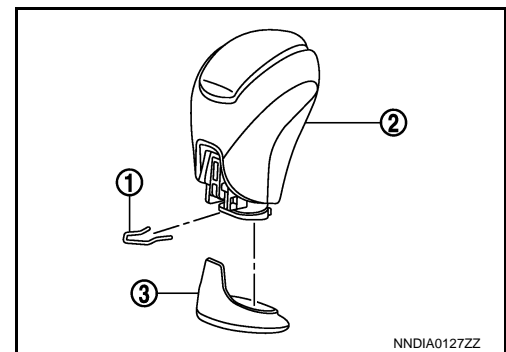
CAUTION:

Never place the A/T shift selector assembly upside-down after removal. In addition, never place the range sensor side down.

INSTALLATION

Note the following, and install in the reverse order of removal.

- Refer to "ADJUSTMENT" in [TM-15, "Inspection and Adjustment"](#) when installing the control cable to the A/T shift selector assembly.
- Note the following items when installing the shift lever knob.
 1. Install the lock pin (1) to the shift lever knob (2).
 2. Install the knob cover (3) to the shift lever knob.
 3. Insert the shift lever knob into the shift lever until it clicks.



Disassembly and Assembly

DISASSEMBLY

CAUTION:

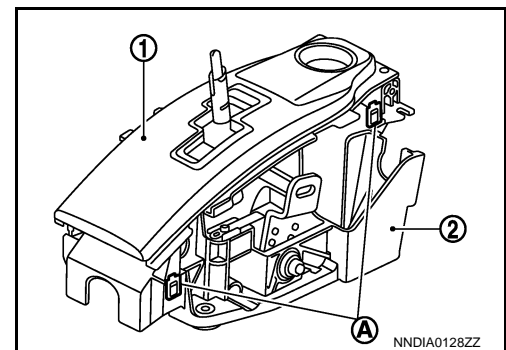
Always shift the shift lever in the N position when performing disassembly and assembly of A/T shift selector assembly.

1. Press the shift lock release button, and then shift the shift lever in the N position.
2. Insert a flat-bladed screwdriver into tabs (A: 4 locations), and remove the position indicator plate (1) from the A/T shift selector assembly (2) while lifting it up.

CAUTION:

The tabs crack easily. Be careful when removing.

3. Remove the starter switch from the position indicator plate.
4. Remove the slide cover from the A/T shift selector assembly.



Assembly

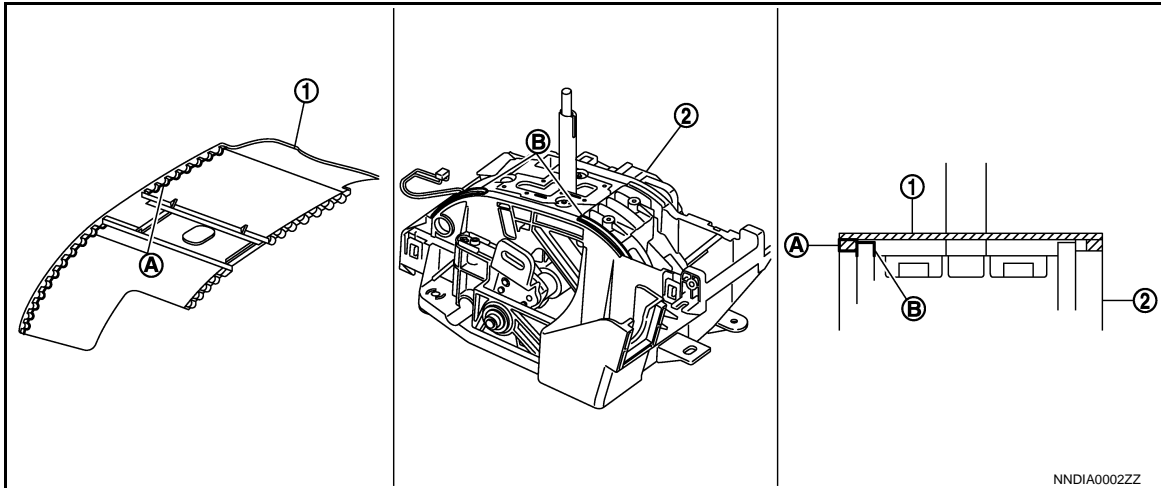
Note the following, and assemble in the reverse order of disassembly.

- Align the convex area (A) of slide cover (1) with the convex area (B) of A/T shift selector assembly (2) as shown in the figure, and then install the position indicator plate. Check the shift lever movement after installation. Assemble again if any malfunctioning condition is detected.

A/T SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

[TRANSMISSION: GR6Z30A]



Inspection

INFOID:000000009162751

INSPECTION AFTER INSTALLATION

Check the shift position after installation. Adjust the shift position if any malfunctioning condition is detected. Refer to [TM-15, "Inspection and Adjustment"](#).

OIL PAN

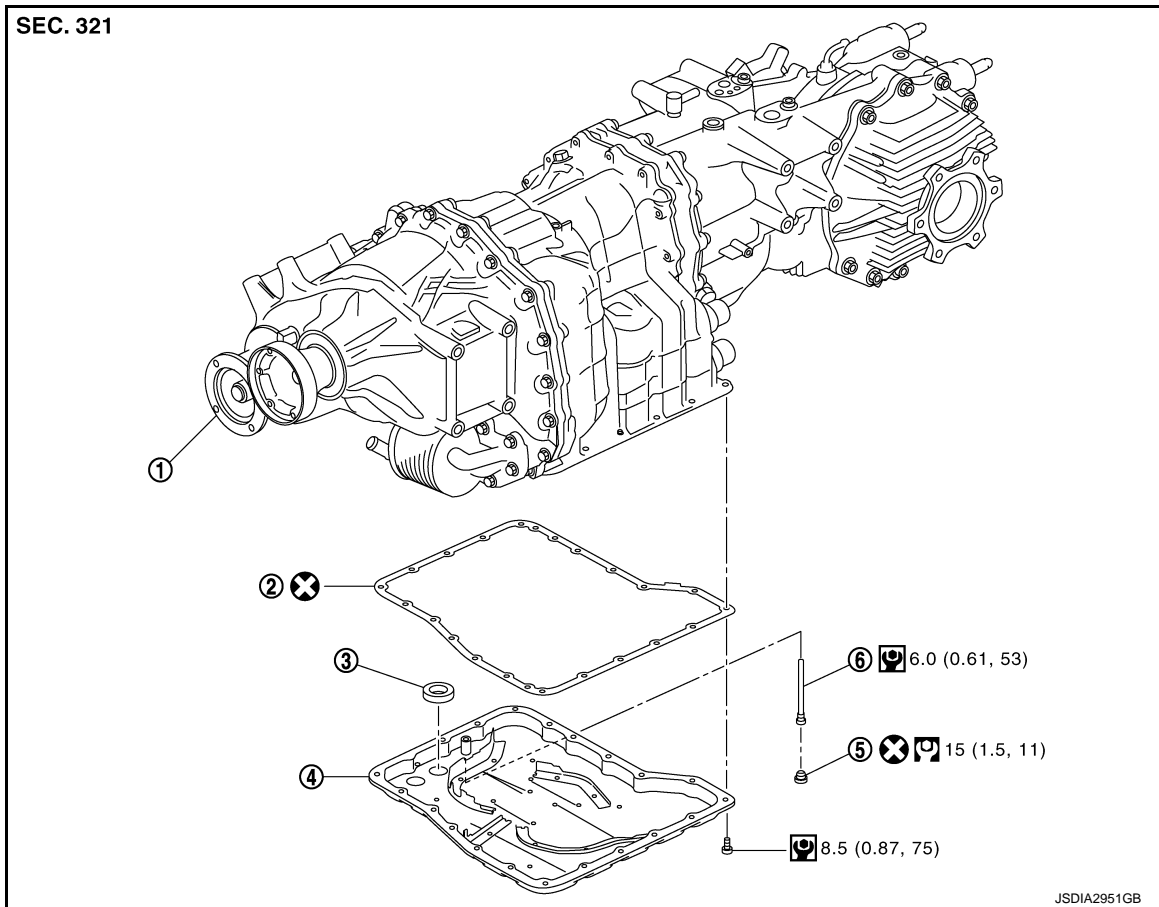
< REMOVAL AND INSTALLATION >

[TRANSMISSION: GR6Z30A]

OIL PAN

Exploded View

INFOID:000000009162757



1. Transmission assembly

2. Oil pan gasket

3. Magnet

4. Oil pan

5. Drain plug

6. Drain tube

Refer to [GI-4, "Components"](#) in GI section for the symbols shown in the figure.

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TRANSMISSION ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

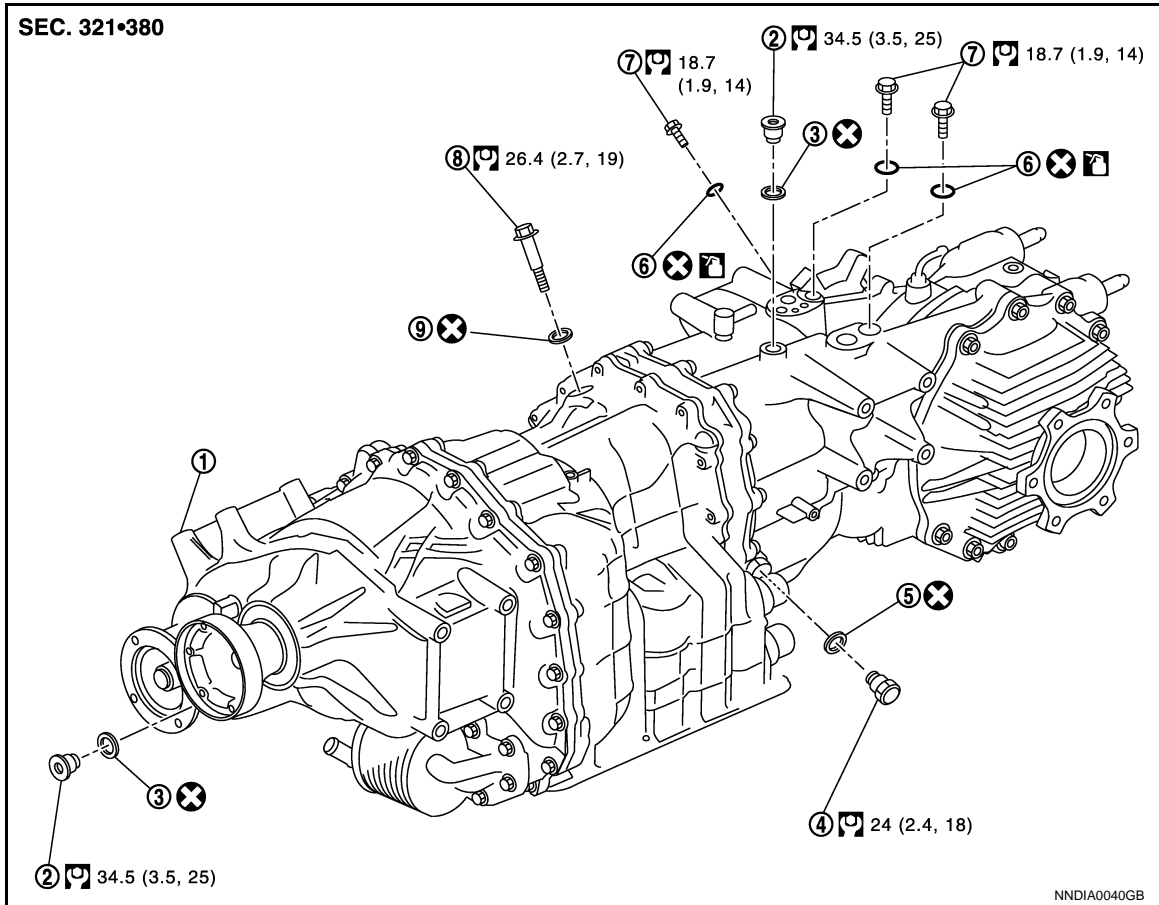
[TRANSMISSION: GR6Z30A]

UNIT DISASSEMBLY AND ASSEMBLY

TRANSMISSION ASSEMBLY

Exploded View

INFOID:000000009162778



- | | | |
|--------------------------|-----------------|-----------------------|
| 1. Transmission assembly | 2. Filler plug | 3. Filler plug gasket |
| 4. 3rd-5th check pin | 5. Plane washer | 6. O-ring |
| 7. Plug | 8. Idler bolt | 9. Plane washer |

 : Apply Genuine NISSAN Transmission oil R35 Special.

Refer to [GI-4. "Components"](#) in GI section for the symbols other than above.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[TRANSMISSION: GR6Z30A]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specification

INFOID:000000009162780

Applied model	VR38DETT
	AWD
Transmission model	GR6Z30A

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SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[TRANSMISSION: GR6Z30A]

Applied model		VR38DETT		
		AWD		
		KJ10A		
Transmission model code number ^{(*)1}				
Operating system		Remote control floor shifter and paddle shifter		
Transmission	Shift position	P	Fixed to output shaft (engine start is possible)	
		R	Reverse	
		N	Neutral (engine start is possible)	
	A	R	1←→2←→3←→4←→5←→6	
		Normal	1←→2←→3←→4←→5←→6	
		SAVE	1←→2←→3←→4←→5←→6	
	M	R	6 ^M	Fixed to 6GR
			5 ^M	Fixed to 5GR
			4 ^M	Fixed to 4GR
			3 ^M	Fixed to 3GR
			2 ^M	Fixed to 2GR
			1 ^M	Fixed to 1GR
		Normal	6 ^M	Fixed to 6GR
			5 ^M	Fixed to 5GR
			4 ^M	Fixed to 4GR
3 ^M			Fixed to 3GR	
2 ^M			Fixed to 2GR	
1 ^M			Fixed to 1GR	
SAVE		6 ^M	Fixed to 6GR	
		5 ^M	Fixed to 5GR	
		4 ^M	Fixed to 4GR	
		3 ^M	Fixed to 3GR	
		2 ^M	Fixed to 2GR	
		1 ^M	Fixed to 1GR	
Gear ratio	1GR	4.056		
	2GR	2.301		
	3GR	1.595		
	4GR	1.248		
	5GR	1.001		
	6GR	0.796		
	Reverse	3.383		
Control system		Electronic controls		
Function	Self-diagnosis function	With		
	Fail safe function	With		
Synchronizer system		Borg Warner type triple cone synchronizer		
Oil pump	Type	External gear pump		
	Drive type	Drive with the engine		
Oil	Recommended	Genuine NISSAN Transmission Oil R35 Special		
	Capacity	9.4 liter (9-7/8 US qt, 8-1/4 Imp qt) ^{(*)2}		

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[TRANSMISSION: GR6Z30A]

- *1: The model No. refers to the lower five digits of the part number (32000 XXXXX).
- *2: The indicated oil level is only a guide, therefore check the oil level according to the Service Manual.

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