

Your Ultimate Source for OEM Repair Manuals

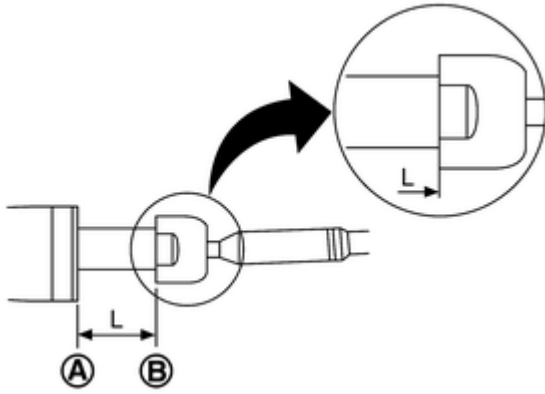
FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

2003 NISSAN XTerra OEM Service and Repair Workshop Manual

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STEERING GEAR AND LINKAGE : Service Data

RDE-001933827

Item		Standard
 <p>RDE-001933827-01-000337612</p>		
Ⓐ	: Gear housing end	
Ⓑ	: Inner shock end	
Rack stroke neutral position		37.6 mm (1.48 in)
Rack stroke (Full stroke)		156.0 mm (6.14 in)
Outer socket ball joint	Swing force *Ⓐ (Spring balance measurement)	4.0 – 41.0 N (0.41 – 4.18 kg-f, 0.90 – 9.21 lb-f)
	Ball joint rotating torque	0.3 – 3.5 N·m (0.03 – 0.36 kg-m, 2.66 – 30.97 in-lb)
	Axial end play	0.5 mm (0.020 in) or less
Inner socket ball joint	Swing force *Ⓑ (Spring balance measurement)	3.0 – 35.0 N (0.31 – 3.57 kg-f, 0.67 – 7.86 lb-f)
	Ball joint rotating torque	0.5 – 7.0 N·m (0.051 – 0.714 kg-m, 4.42 – 61.9 in-lb)
	Axial end play	0.2 mm (0.008 in) or less
Inner socket length		56.2 mm (2.21 in) MAX

*: For measuring position, Refer to [STEERING GEAR AND LINKAGE : Inspection.](#)

Wiring Diagram

Click Link to [Wiring Diagram](#).

Sample

STEERING WHEEL AXIAL END PLAY

1. Check if movement exists when steering wheel is moved up and down, to the left and right and to the axial direction.

Steering wheel axial end play

: Refer to [STEERING WHEEL : Service Data](#)

2. Check the following items when steering wheel axial end play is out of the standard.

Check the steering column assembly mounting condition. Refer to [STEERING COLUMN : Exploded View](#)

STEERING WHEEL PLAY

1. Turn steering wheel so that front wheels come to the straight-ahead position.
2. Start engine and lightly turn steering wheel to the left and right until front wheels start to move.
3. Measure steering wheel movement on the outer circumference.

Steering wheel play on the outer circumference

: Refer to [STEERING WHEEL : Service Data](#)

4. Check the following items when steering wheel play is out of the standard.
 - Check backlash for each joint of steering column assembly.
 - Check installation condition of steering gear assembly.

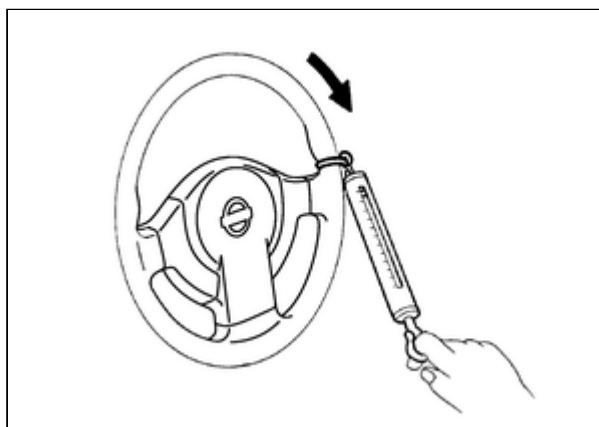
NEUTRAL POSITION STEERING WHEEL

Check neutral position on steering wheel after confirming that wheel alignment is correct. Refer to [WHEEL ALIGNMENT : Inspection](#).

1. Turn tires to the straight ahead position on a flat surface equalizing left and right individual toe, check if steering wheel is in the neutral position.
2. If it is not in the neutral position, place steering wheel in the neutral position and perform wheel alignment again. Refer to [WHEEL ALIGNMENT : Inspection](#).

STEERING WHEEL TURNING FORCE

1. Park vehicle on a level and dry surface, set parking brake.
2. Tires need to be inflated to normal pressure. Refer to [TIRE AIR PRESSURE : Service Data](#)
3. Start engine.
4. Check steering wheel turning force using pull gauge [SST: — (J-44372)] when steering wheel has been turned 360° from neutral position.



5. If steering wheel turning force is above specification, check steering gear for malfunction.

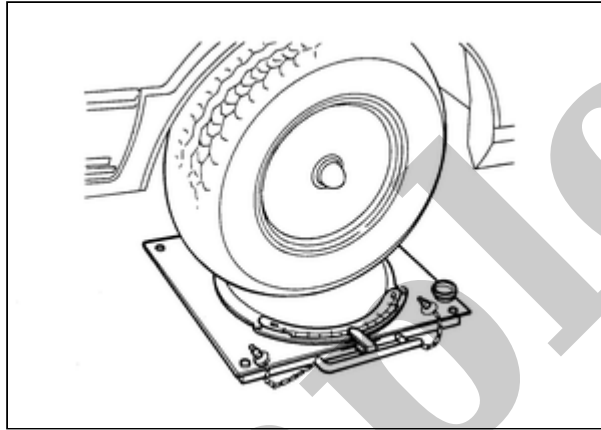
FRONT WHEEL TURNING ANGLE

1. Perform toe-in inspection. Refer to [WHEEL ALIGNMENT : Inspection](#).

CAUTION:

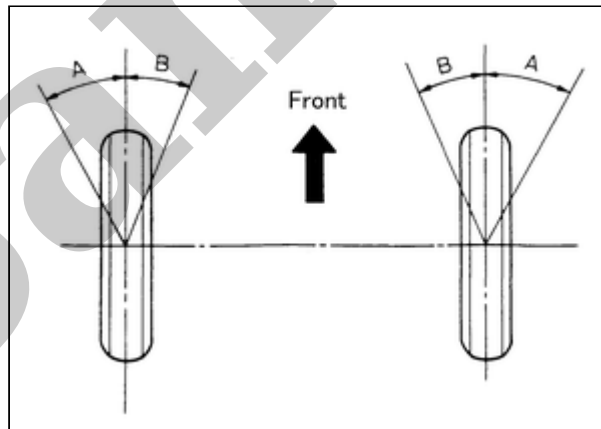
Perform front wheel turning angle inspection, after toe-in inspection.

2. Place front wheels on turning radius gauges and rear wheels on stands, so that vehicle can be level.



SIEMD-7204247-03-AA0016D

3. With the engine at idle, turn steering wheel from full left stop to full right stop and measure the turning angles.

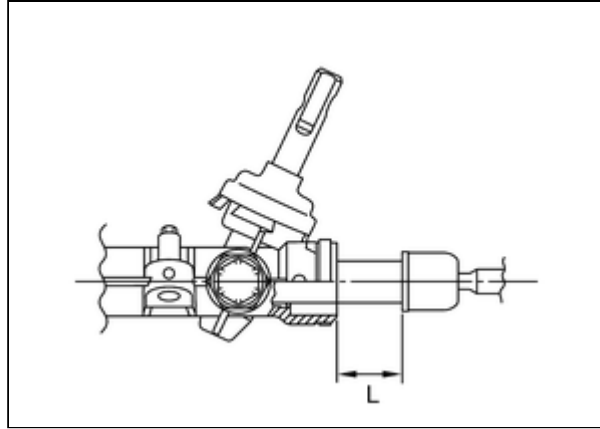


SIEMD-7204247-04-GIA0055E

A	: Inner wheel angle
B	: Outer wheel angle

4. Check the following items when turning angle is out of the standard.

1. Check rack stroke (L).



SIEMD-7204247-02-000366035

Rack stroke neutral position (L)

: Refer to [STEERING GEAR AND LINKAGE : Service Data](#)

2. Disassemble steering gear assembly to check the cause that rack stroke is outside of the standard.

- Steering angles are not adjustable. Check steering gear assembly, steering column assembly, and front suspension components for wear or damage if any of the turning angles are different from the specified value. Replace any of them, if any non-standard condition exists.

DETAILED FLOW

1. OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred) as much as possible when the customer brings the vehicle in.

>>

[GO TO 2.](#)

2. REPRODUCE THE MALFUNCTION INFORMATION

Check the malfunction on the vehicle that the customer describes.

Inspect the relation of the symptoms and the condition when the symptoms occur.

>>

[GO TO 3.](#)

3. IDENTIFY THE MALFUNCTIONING SYSTEM WITH “SYMPTOM DIAGNOSIS”

Use “Symptom diagnosis” from the symptom inspection result in step 2 and then identify where to start performing the diagnosis based on possible causes and symptoms.

>>

[GO TO 4.](#)

4. IDENTIFY THE MALFUNCTIONING PARTS WITH “COMPONENT DIAGNOSIS”

Perform the diagnosis with “Component diagnosis” of the applicable system.

>>

[GO TO 5.](#)

5. REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace the specified malfunctioning parts.

>>

[GO TO 6.](#)

6. FINAL CHECK

Check that malfunctions are not reproduced when obtaining the malfunction information from the customer, referring to the symptom inspection result in step 2.

Are the malfunctions corrected?

YES>>

INSPECTION END

NO>>

[GO TO 2.](#)

Sample

Symptom Description

SIEMD-7204256

- The heated steering wheel does not warm up.
- The heated steering wheel system cannot be turned OFF.

Sample

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Power switch ON.
2. Select “Self Diagnostic Result” mode of “HVAC” using CONSULT.
3. Check DTC.

Is DTC detected?

B24F4-12 is detected.>>

Refer to [Diagnosis Procedure](#).

B24F4-14 is detected.>>

Refer to [Diagnosis Procedure](#).

NO>>

[GO TO 2.](#)

2. CHECK POWER SOURCE AND GROUND CIRCUIT

1. Power switch OFF.
2. Remove the heated steering wheel. Refer to [STEERING WHEEL : Removal & Installation](#).
3. Power switch ON.
4. Turn heated steering wheel switch ON.
5. Check voltage between steering wheel harness connector terminals.

steering wheel		Condition	Voltage (Approx.)
Connector	Terminal		
M304	44 – 43	Within 30 seconds after turning ON the heated steering switch.	Battery voltage
		Other conditions.	0 V

Is the inspection result normal?

YES>>

[GO TO 3.](#)

NO>>

[GO TO 4.](#)

3. CHECK HEATED STEERING WHEEL

Check heated steering wheel. Refer to [Component Inspection](#).

Is the inspection result normal?

YES>>

INSPECTION END