



## SERVICE BULLETIN

Classification:	Reference:	Date:
WT04-004d	NTB04-054d	November 21, 2011

### WHEEL ALIGNMENT INFORMATION

This bulletin has been amended. The "Operations Performed Report" was added on page 14.  
Discard previous versions of this bulletin.

**APPLIED VEHICLES:** All Nissan – except GT-R

### SERVICE INFORMATION

- When performing a wheel alignment it is important that you read and follow all of the instructions supplied with your alignment equipment.
- The information in this bulletin is not intended to be complete wheel alignment instructions.
- Use the information in this bulletin as a supplement to the instructions for your equipment.

### General Information and Recommendations

1. Four-Wheel Thrust Alignment should always be performed.
  - This type of alignment is recommended for all Nissan vehicles.
  - The four-wheel thrust process ensures that the vehicle is properly aligned, and helps ensure proper "centering" of the steering wheel.
2. Use the right alignment machine.
  - You must use a quality alignment machine that will give accurate results when performing alignment checks.
  - Refer to the Nissan TECH-MATE Service Equipment Catalog for recommended alignment equipment.
  - The alignment rack itself should be capable of accepting any Nissan vehicle.
  - The rack should be checked to ensure that it is level.

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.

3. Make sure the alignment machine is properly calibrated.

- Your alignment equipment should be regularly calibrated in order to give accurate readings.
- If any instrument that is part of the alignment machine is dropped or damaged, calibration should be checked immediately.
- Check with the manufacturer of your specific equipment for their recommended service/calibration schedule.

**NOTE:** In order to properly document any warranty alignment claim, the following item **MUST** be attached to the Repair Order:

- A copy of the alignment machine printout showing the **BEFORE** and **AFTER** alignment readings.

**IMPORTANT:** If you do not attach the above item to the Repair Order, the claim may be denied (rejected or charged back).

**ALSO:**

- A copy of the yearly alignment machine calibration certification must be held on file in the Service Dept.
- When finished, complete the Operations Performed Report (see page 14) and attach it to the repair order.

4. Make sure the “turn plates” and “slide plates” are in good working order:

- The surface of the front turn plates must be level with (the same height as) the rack surface.

If height is not the same; have the equipment repaired before performing any alignments.



Figure 1

- Make sure the front turn plates:
  - Do not wobble (no up/down movement).
  - Operate (slide and turn) smoothly in all directions.

If there is any issue with the turn plate operation – have the equipment repaired before performing any alignments.

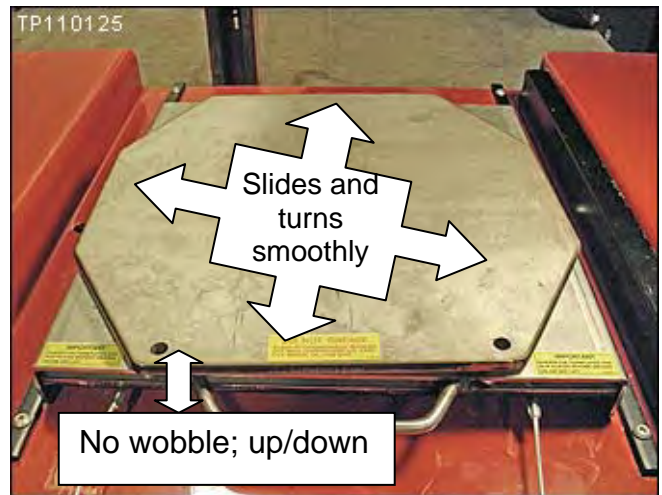


Figure 2

- Make sure the rear slide plates:
  - Do not wobble (no up/down movement).
  - Operate (slide) smoothly in all directions.

If there is any issue with the slide plate operation – have the equipment repaired before performing any alignments.

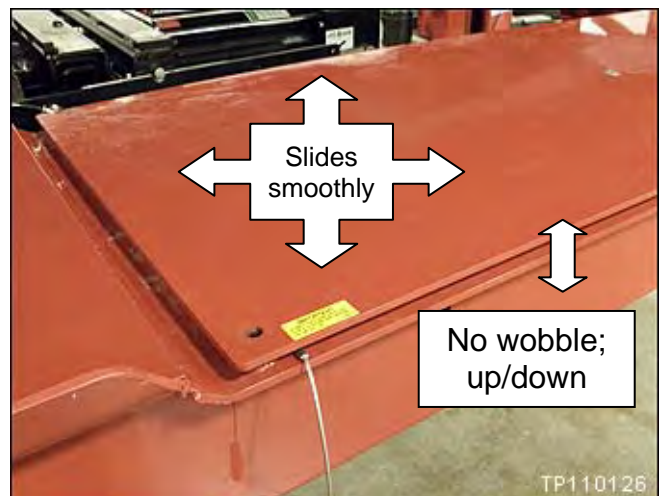


Figure 3

5. Make sure the lock pins for the front “turn plates” and rear “slide plates” are in place.

**NOTE:** Lock pins should remain in place until caster sweep.

## The Alignment Process

**IMPORTANT:** Use only the alignment specifications listed in the appropriate Service Manual when adjusting the alignment.

1. Make sure the vehicle is straight on the alignment rack.
  - Vehicle must be straight (in line) with the alignment rack before entering the rack as shown in Figure 4.
  - Do not straighten the vehicle while on the rack (see Figure 5).
  - If the vehicle needs to be straightened, exit the alignment rack, straighten the vehicle and then re-enter the rack.
  - Once the vehicle is straight on the rack, do not turn/center the steering wheel—keep the front wheels straight.

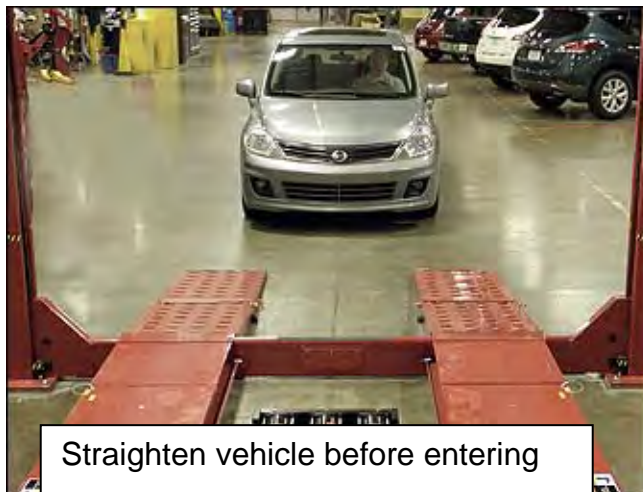


Figure 4



Figure 5

2. Position vehicle on the front turn plates as follows:

- Stop vehicle just behind the turn plates.



Figure 6

- Center the turn plates to the tires.



Figure 7

- Move the vehicle onto the turn plates by turning/pushing the rear wheel.

**DO NOT** push/pull on the vehicle body.



Figure 8



- Center the front wheels on the turn plates.

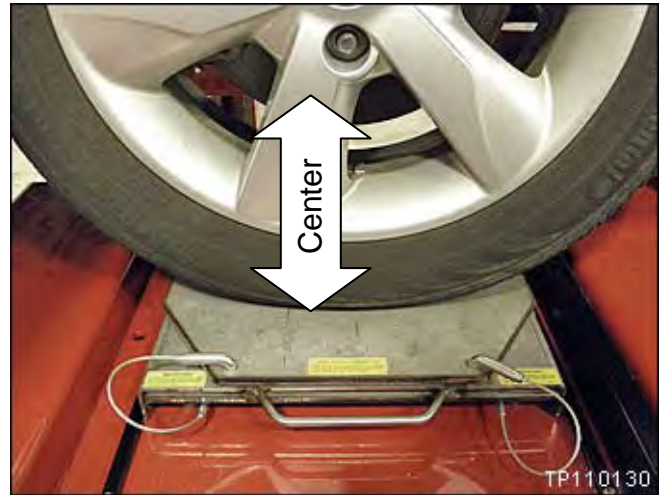


Figure 9

- Chock the left rear wheel.

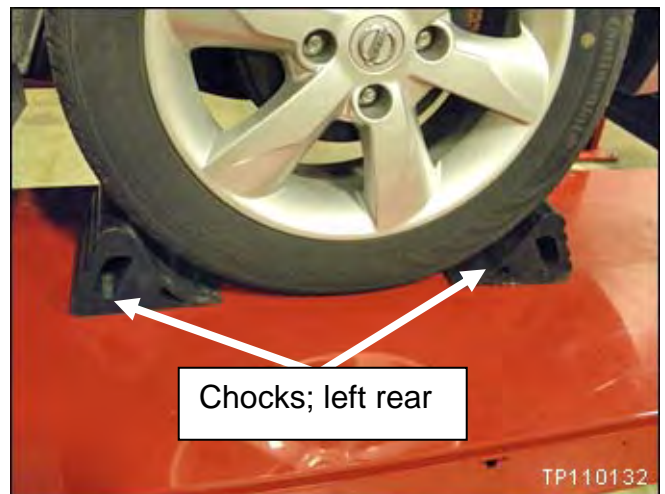


Figure 10

## Preliminary Checks:

### 3. Perform pre-alignment checks.

- Tire condition (wear, partial wear, flaws, etc.)
- Road wheel condition (damage and deformation)
- Tire pressure
- Inspect for visible damage to any suspension components
- Wheel bearing axial play
- Ball joints of suspension arms
- Shock absorber operation and visual check for oil leakage
- Condition of axle and suspension (check for bushing cracks and slack)
- Vehicle weight
  - Empty – no cargo, luggage, or passengers
  - Fuel level is full
  - Engine coolant and lubricating oils at specified levels
  - Spare tire, jack, hand tools, and floor mats in designated positions

**NOTE:** Refer to the appropriate Service Manual for information about any of the above checks and inspections.

4. Check the target mounts.

- If there is any visual damage (bent, worn, cracked, etc), have the equipment repaired before performing any alignments.
- Make sure the target mounts are properly adjusted and configured (see Figure 11).

**NOTE:** The target mount example shown in Figure 11 is for Hunter “camera type” alignment machines. Follow the operation manual for your specific equipment.

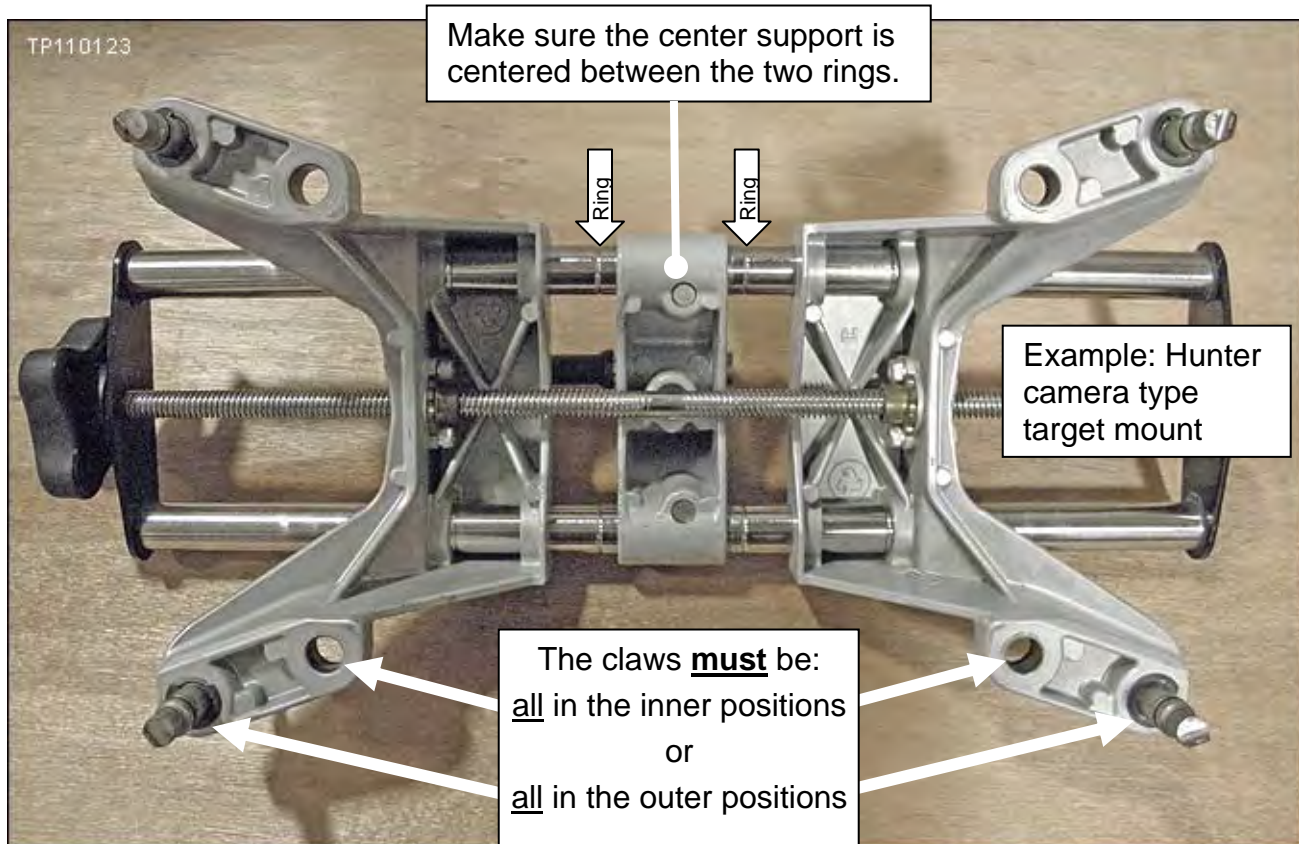


Figure 11

5. Make sure the targets are mounted correctly.

- Mount the top claws first.

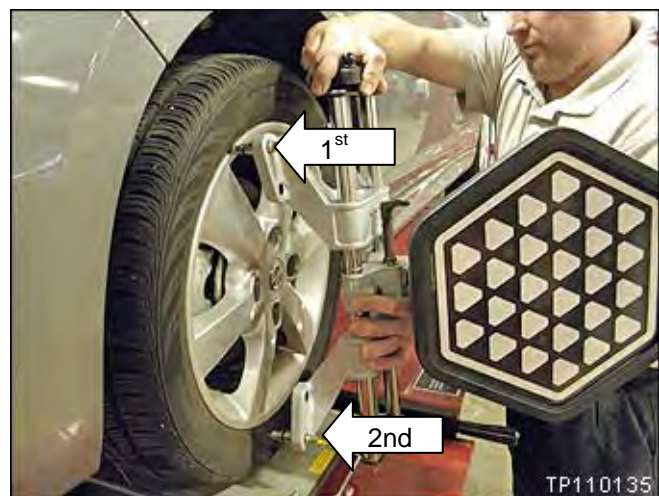


Figure 12



- Claws must be flush against the wheel as shown in Figure 13.

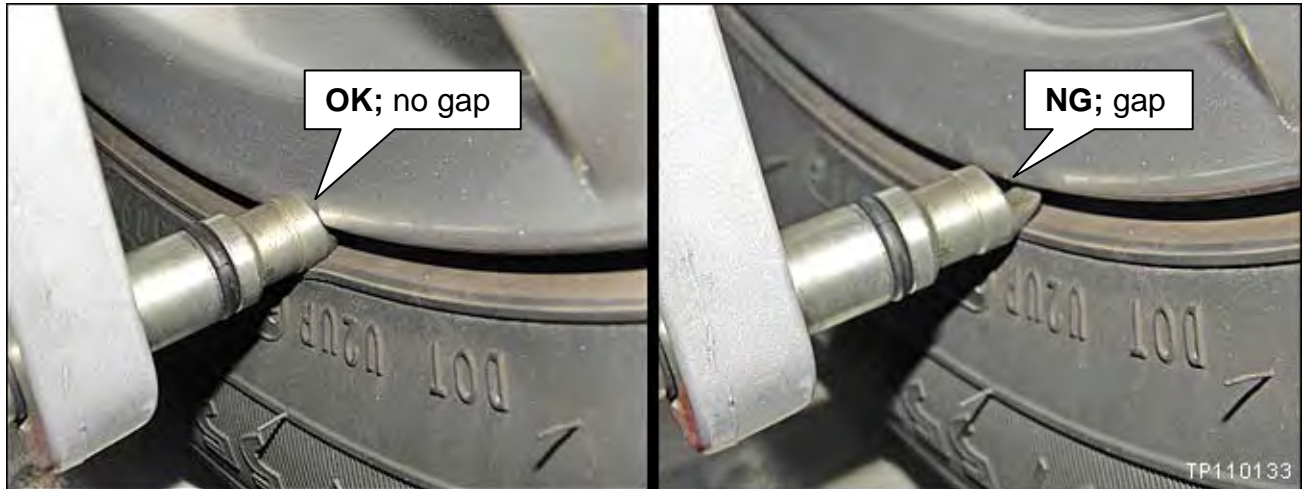


Figure 13

- Target must be flush against the center support as shown in Figure 14.



Figure 14

- Make sure the targets are positioned with the arrow UP or level.

**IMPORTANT:** Once you have set the target position, **DO NOT reset it** at anytime during the alignment process.

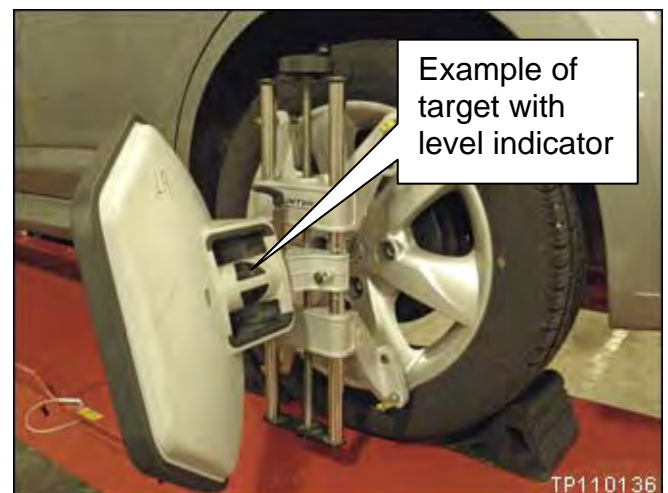


Figure 15

6. Begin the alignment procedure.

- Follow all of the instructions for your particular equipment.
- Refer to the Service Manual for alignment specifications.

**If your equipment requires “rolling compensation”, follow these additional tips:**

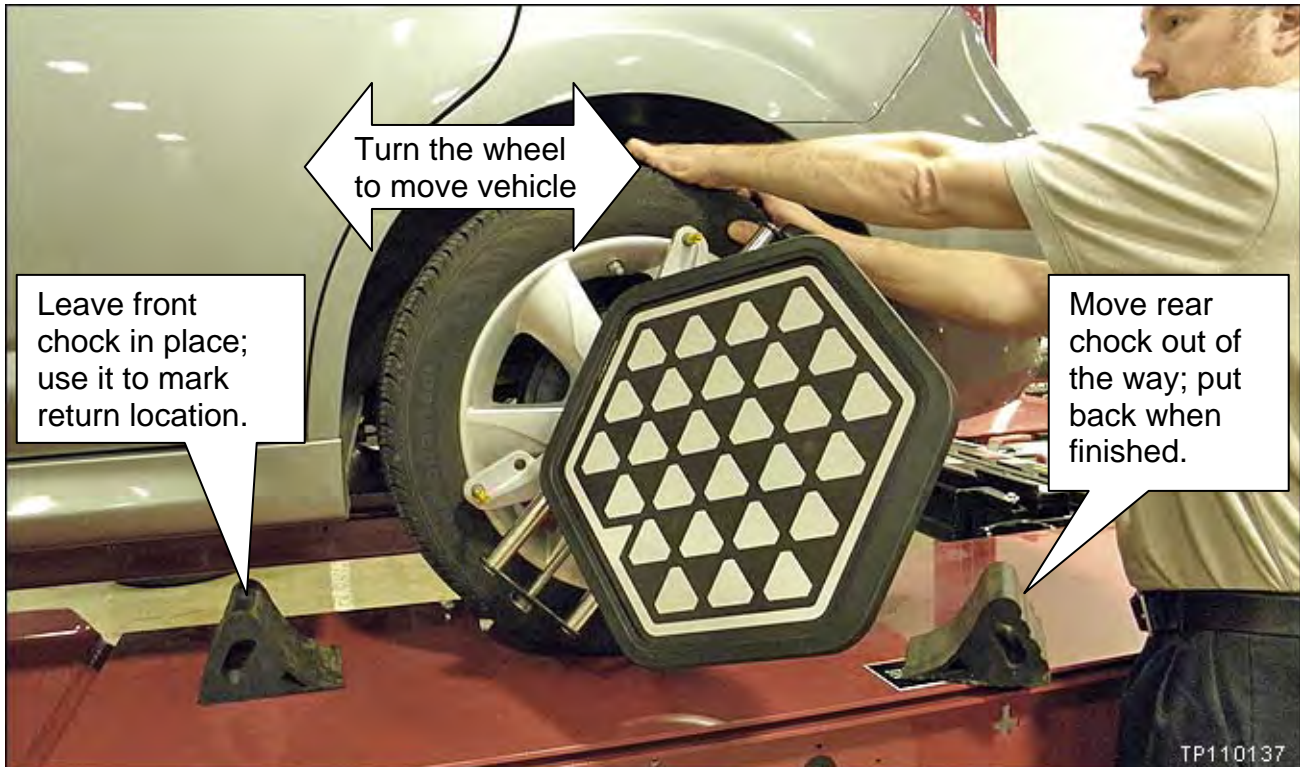


Figure 16

- **DO NOT** push or pull on the vehicle body.



Figure 17

**IMPORTANT:** After performing “rolling compensation”, **DO NOT** reset the target position.



**When performing “caster sweep”, follow these tips:**

- Apply the brakes as shown.
- Start the engine to allow brake boost.
- Turn the engine OFF,



Figure 18

- Remove all lock pins—front “turn plates” and rear “slide plates”.
- Make sure the bridge plate will not interfere with movement of the turn plate.

Put the bridge plate in the down position.

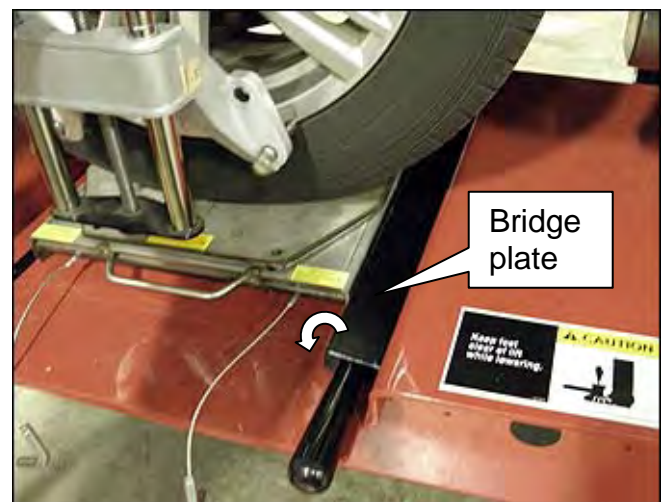


Figure 19

- Perform caster sweep by turning the steering wheel from outside the vehicle.

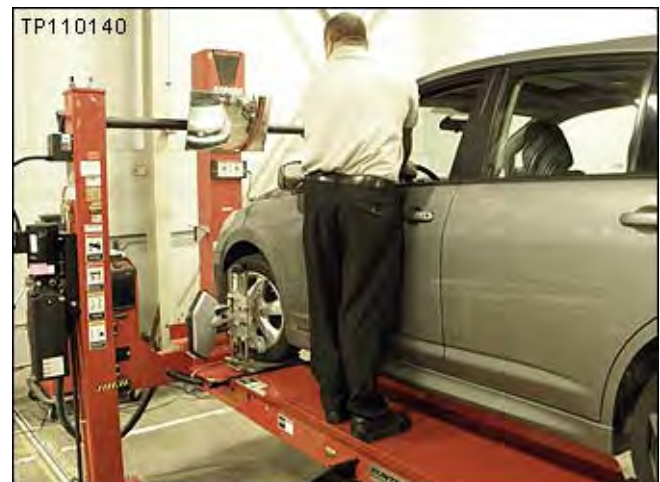


Figure 20

- **DO NOT** push/pull on the tire to perform the caster sweep.



Figure 21

7. Make sure the steering wheel is centered when performing toe-in measurements and adjustments.

**NOTE:**

If you are using a Hunter alignment machine equipped with the WinToe<sup>®</sup> Alignment Adjustment System:

- There is no need to lock the steering wheel. The WinToe<sup>®</sup> system is not affected by steering system movement during the adjustment process.
- Bumping the tire or re-centering the steering wheel when adjusting “near frozen” tie rods is not necessary. This makes the adjustment process faster and easier.
- WinToe<sup>®</sup> eliminates the effect of lash in the steering system.

If you are using a John Bean alignment machine equipped with EZ Toe:

- There is no need to lock the steering wheel. The EZ Toe system is not affected by steering system movement during the adjustment process.
- This software routine is an improved method of setting front toe, making it easier to obtain a centered steering wheel.
- With EZ Toe, it is possible to adjust toe with the steering wheel turned at any angle left or right. This is helpful when setting toe on engine wall mounted rack and pinion units.

**IMPORTANT:** If during the alignment process the vehicle was lifted off of the rack; after lowering, make sure to jounce (bounce) the vehicle before confirming adjustments are correct.

## **After you have checked and adjusted vehicle alignment**

8. Print the BEFORE and AFTER measurements and attach them to the Repair Order.
9. Road test the vehicle to make sure the steering wheel is “centered” when driving on a straight flat road.
10. When finished, complete the Operations Performed Report on the next page and attach it to the repair order.

### **Warranty Claim Information:**

In order to properly document any warranty alignment claim, the following item **MUST** be attached to the Repair Order:

- A copy of the alignment machine printout showing the BEFORE and AFTER alignment readings.

**IMPORTANT:** If you do not attach the above item to the Repair Order, the claim may be denied (rejected or charged back).

### **ALSO:**

- A copy of the yearly alignment machine calibration certification must be held on file in the Service Dept.
- When finished, complete the Operations Performed Report (see page 14) and attach it to the repair order.





## Operations Performed Report – page 1

When repairs are finished, complete this report and attach it to the repair order.

### 1. Vehicle Identification

Model \_\_\_\_\_ VIN \_\_\_\_\_  
Production Date \_\_\_\_\_ Tire Size \_\_\_\_\_

### 2. Tire condition and air pressure (refer to NTB08-097).

	Condition found					Correction needed (if any)			
Tires									
Air pressure	FR LH		FR RH			FR LH		FR RH	
	RR LH		RR RH			RR LH		RR RH	

### 3. Road Test Results (refer to NTB08-097).

- How much “road crown” did the test drive road have: \_\_\_\_\_ Degrees

	YES	NO		
• Was the steering wheel off center 2 mm or more on the test drive?			If yes, how much?	mm
			If yes, was wheel alignment adjusted?	
• Did the vehicle pull on the test drive?			If yes, which direction?	
			If yes, how many seconds to complete a lane change?	
			If yes, was wheel alignment adjusted?	

**NOTE:** If wheel alignment is performed, attach a copy of the alignment machine print-out showing the Before and After alignment readings.

Report continued on the next page.

## Operations Performed Report – page 2.

### 4. Pull corrective action (refer to NTB08-097).

- If the vehicle had a pull, place check marks in the boxes of the flow chart to indicate work flow and actions taken.

