



## Technical Service BULLETIN

September 21, 2001

Title:

# STEERING WHEEL OFF CENTER ADJUSTMENT PROCEDURE

Models:

All '02 Models

ST003-01

STEERING

**Introduction** This bulletin provides the recommended adjustment procedure for correcting an off-center steering wheel. This procedure does not require the use of a 4-wheel alignment machine.

**Applicable Vehicles**

- All **2002** model year Toyota vehicles.

**Required  
Tools &  
Material**

| TOOLS & MATERIALS | QUANTITY |
|-------------------|----------|
| Vernier Calipers  | 1        |

**Warranty  
Information**

| OP CODE | DESCRIPTION                          | TIME | OPN         | T1 | T2 |
|---------|--------------------------------------|------|-------------|----|----|
| 044164  | Steering Wheel Off-Center (Tie Rods) | *    | 45046-29255 | 96 | 99 |

\* Use time published in Flat Rate Manual for each model.

**Applicable Warranty\*:**

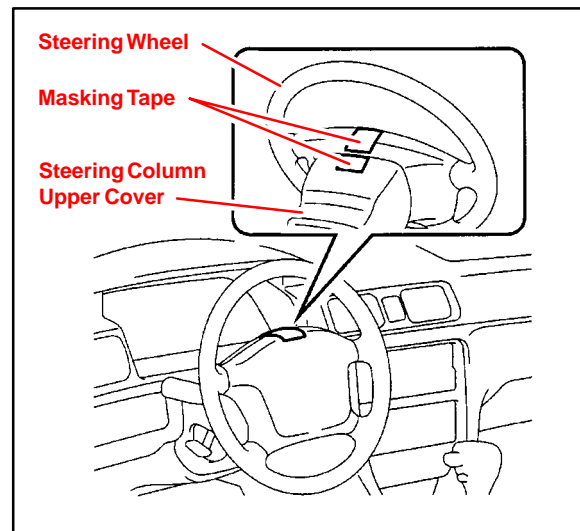
This repair is covered under the Toyota Comprehensive Warranty. This warranty is in effect for 12 months or 20,000 miles, whichever occurs first, from the vehicle's in-service date.

\* Warranty application is limited to correction of a problem based upon a customer's specific complaint.

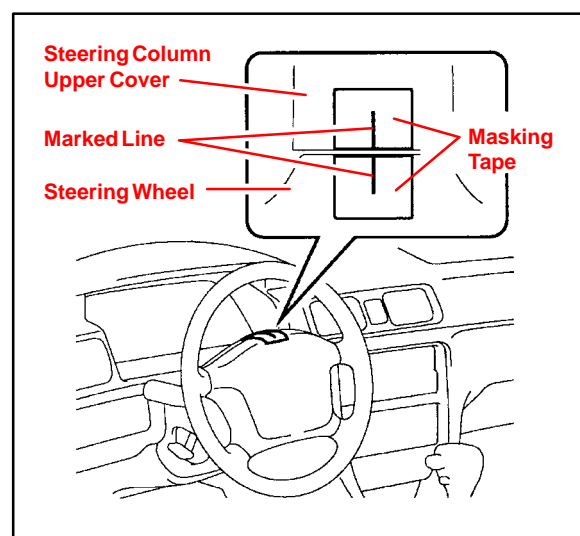


**Adjustment  
Procedure****1. Inspect steering wheel off center.**

- A. Apply masking tape to the top center of the steering wheel and steering column upper cover.



- B. Drive the vehicle in a straight line for 330 feet (100 meters), at a constant speed of 35 mph (56km/h), and hold the steering wheel to maintain the course.
- C. Draw a line on the masking tape as shown in the illustration.

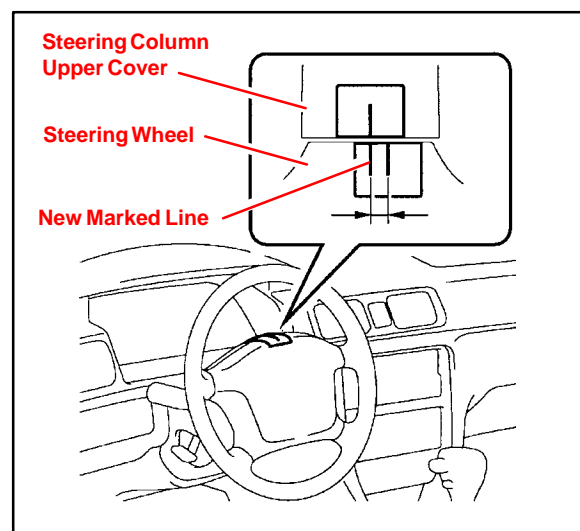


- D. Turn the steering wheel to its straight position.

**HINT:**

Use the upper surface of the steering wheel, steering spoke and SRS airbag line (when present) as a reference.

- E. Draw a new line on the masking tape of the steering wheel as shown in the illustration.
- F. Measure the distance (in millimeters) between the 2 lines drawn on the steering wheel.

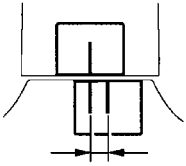

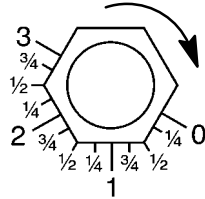
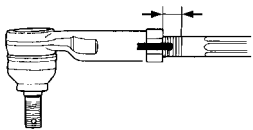
**HINT:**

Make a note of this measurement.

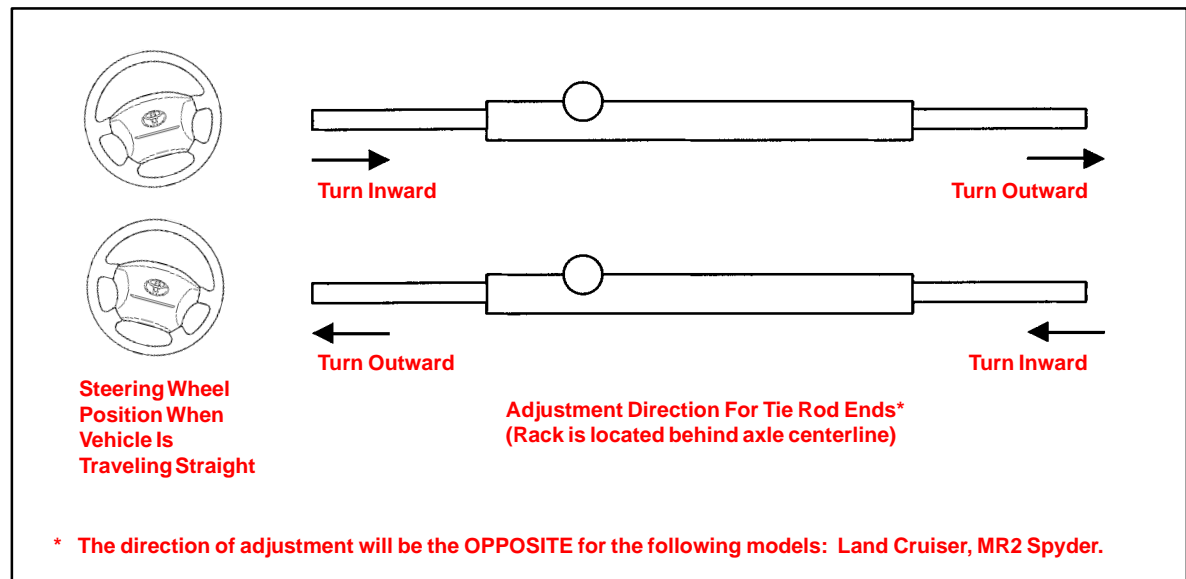
**Adjustment  
Procedure**  
(Continued)

**2. Determine the amount and direction of tie rod adjustment.**

- A. Use the measurement made in 1 (F) to determine the amount of adjustment necessary to the tie rod ends.

| Distance Measured<br>Between 2 Lines Drawn<br>on Steering Wheel                   | Approximate Angle Steering<br>Wheel Is Off Center<br>(Based on Measured Value)    | Amount of Rotation<br>of Each Tie Rod End<br>(Rotate Each Rod End<br>Same Amount but<br>in Different Directions) |                    | Change in Length<br>of Tie Rod End<br>(One Gets Longer,<br>the Other Gets Shorter)  |
|---|---|--|--------------------|---|
|  |  |                                |                    |  |
| Measurement<br>(mm)   | Approximate Angle (°)   | Starting<br>Position   | Ending<br>Position | Verification Measurement<br>(mm)  |
| 1.0   | 1.0   | 0  | 1/2                | ±0.125  |
| 2.0   | 2.0   | 0  | 1                  | ±0.2  |
| 3.0   | 3.0   | 0  | 1-1/2              | ±0.375  |
| 4.0   | 4.0   | 0  | 2                  | ±0.5  |
| 5.0   | 5.0   | 0  | 2-1/2              | ±0.625  |

- B. The direction of adjustment is shown below.



**Adjustment  
Procedure**  
(Continued)

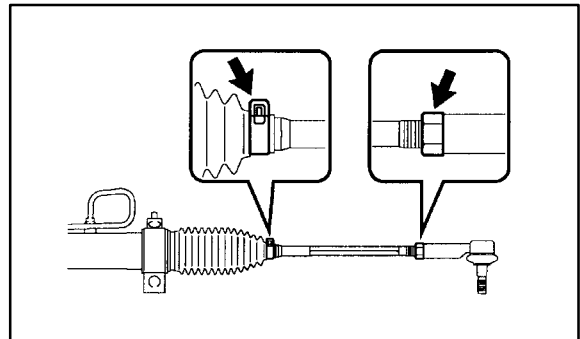
**3. Adjust steering angle.**

- A. Lift up the vehicle.
- B. Draw a line on the RH and LH tie rod and rack ends where it can easily be seen.
- C. Measure the distance from RH and LH tie rod ends to the rack end screws.

**NOTE:**

- **Measure the RH side and LH side.**
- **Make a note of the measured values.**

- D. Remove the RH and LH boot clips from the rack boots.
- E. Loosen the RH and LH lock nuts.
- F. Turn the RH and LH rack end by the same amount (but in different directions) according to the steering angle. (See illustration.)
- G. Tighten the RH and LH lock nuts to the specified torque.



**NOTE:**

**Make sure that the difference in length of the threaded portion of the RH and LH tie rod ends and rack ends are within 1.5 mm (0.059 in.).**

- H. Install the RH and LH boot clips.