

<b>Subject:</b>  <b>STEERING WHEEL OFF CENTER</b>	<b>Bulletin No:</b> 02-005/10
	<b>Last Issued:</b> 11/05/2010

## BULLETIN NOTE

- This bulletin supersedes the previous bulletin 02-005/10, issued on 03/26/10. The APPLICABLE MODEL(S)VINS has been revised.
- Changes are noted below in Red beside the change bar.

## APPLICABLE MODEL(S)/VINS

2011 Mazda2

2004-2011 Mazda3

2006-2010 Mazda5

2003-2011 Mazda6

2007-2011 Mazda CX-7

2007-2011 Mazda CX-9

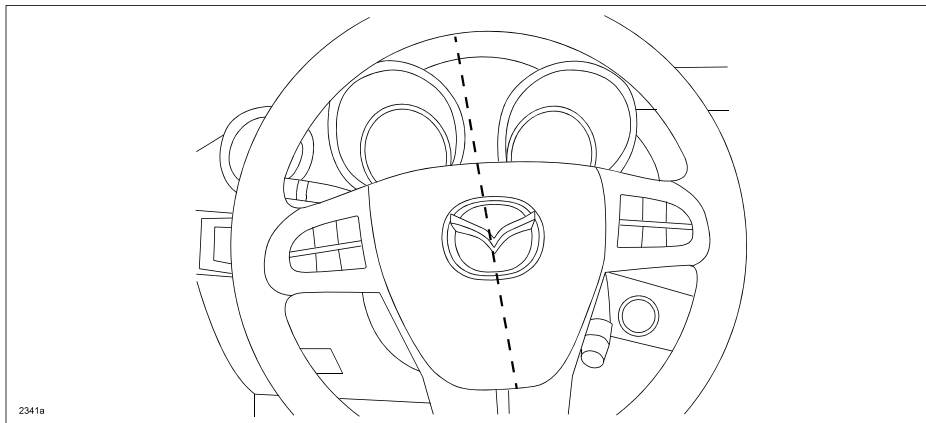
2006-2011 Mazda MX-5

2004-2011 Mazda RX-8

2001-2011 Tribute

## DESCRIPTION

Some customers may complain that the steering wheel is off center more than 3° even when driving straight on a flat road.



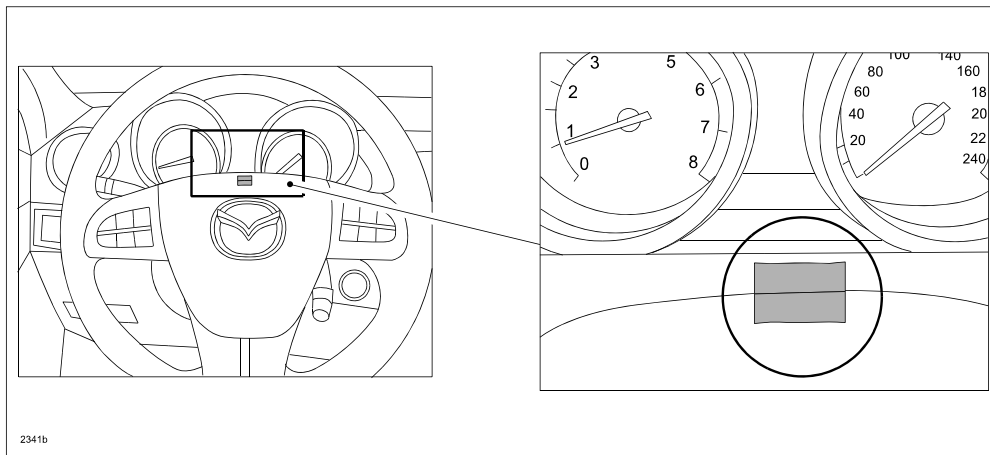
Customers having this concern should have their vehicle repaired using the following repair procedure.

## REPAIR PROCEDURE

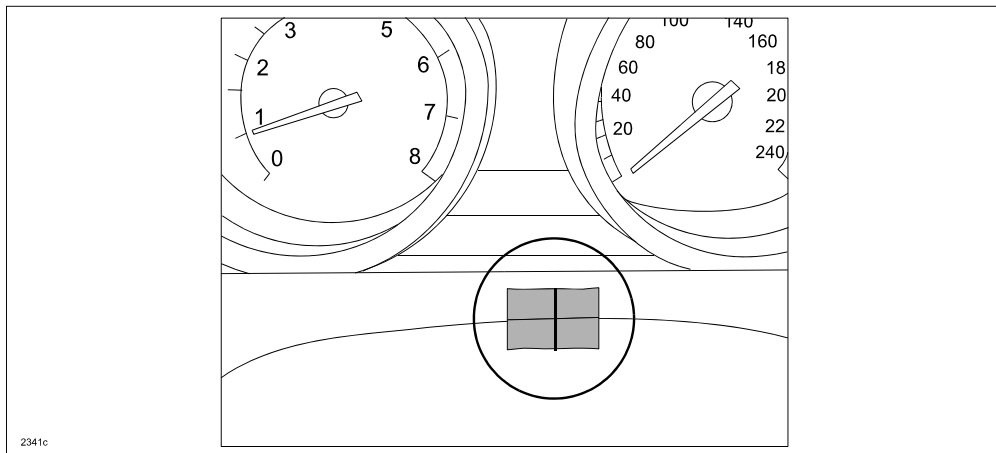
1. Verify customer concern.
2. Measure the offset using "Measurement of Steering Wheel Offset."
  - If the offset is  $3^{\circ}$  or less, it is considered normal.
  - If the offset is more than  $3^{\circ}$ , adjust the steering wheel center using "Adjustment of Steering Wheel Center."
  - If the steering is pulling to the right or the left, this procedure does not apply. Refer to MS3 online instructions for troubleshooting.
3. Verify repair.

### Measurement of Steering Wheel Offset

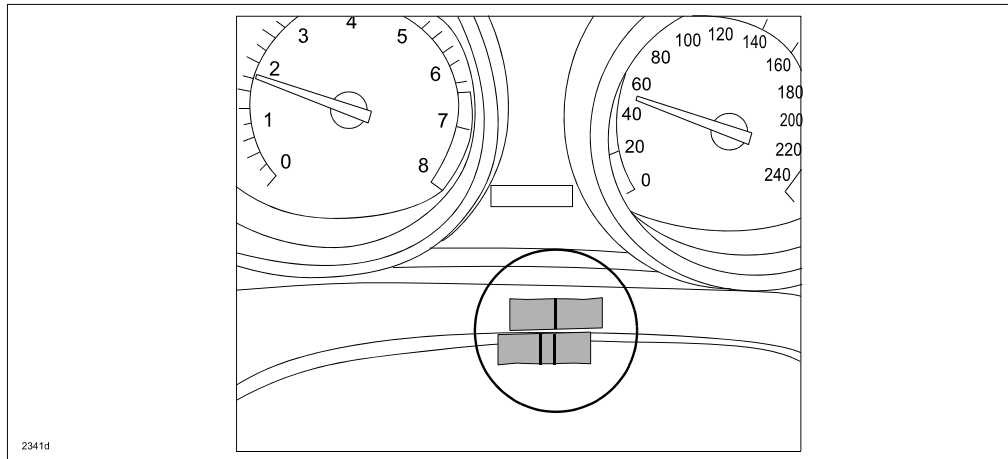
1. Visually align the steering wheel to its center, then apply tape on the steering wheel and the steering column cover.



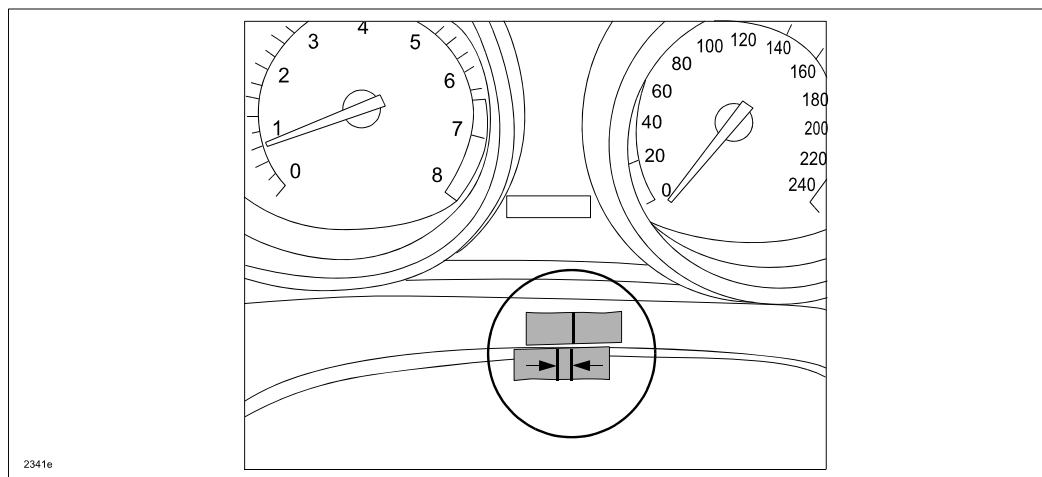
2. Put an alignment mark on the tape.



3. Drive the vehicle and align the steering wheel to its driving center, then put another mark on the tape.

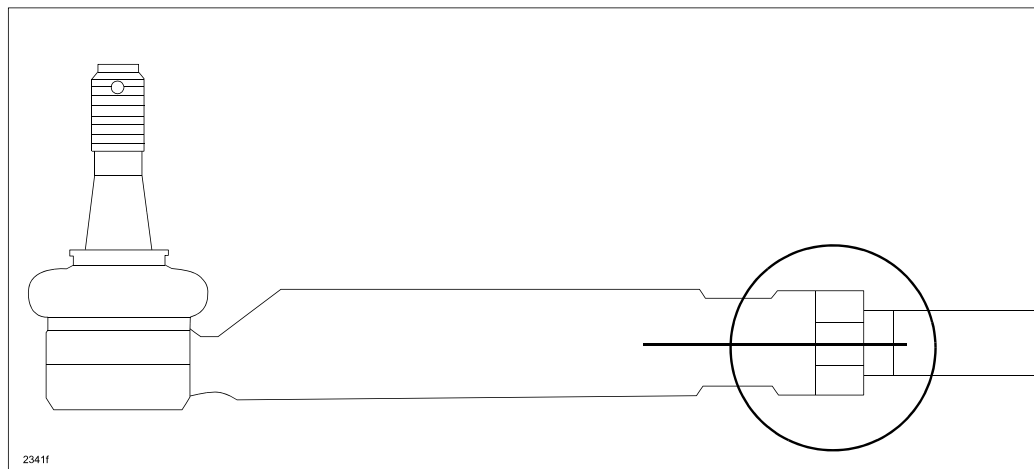


4. Measure the distance between the two lines. The offset can be approximately calculated using  $1\text{mm} = 1^\circ$  of offset.

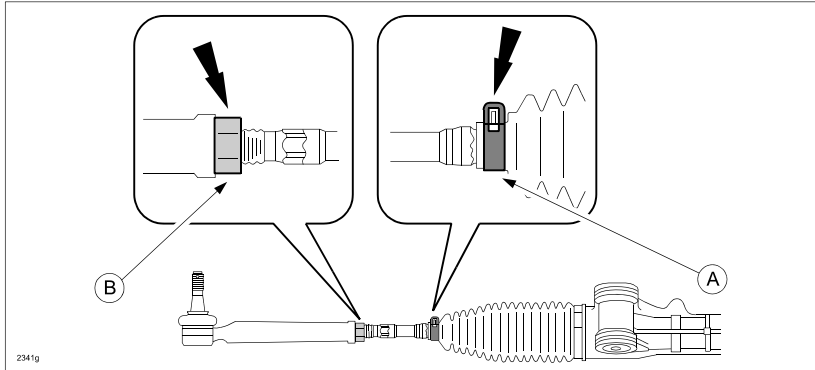


### Adjustment of Steering Wheel Center

1. Put an alignment mark over the tie-rod end and tie-rod as shown.



2. Remove the boot clamp (A), then loosen the lock nut (B).



3. Rotate the tie-rod to adjust the steering wheel center. Refer to the following charts for rotating direction.

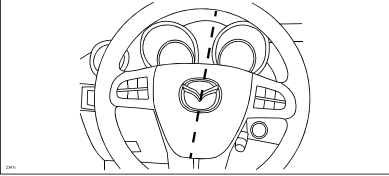
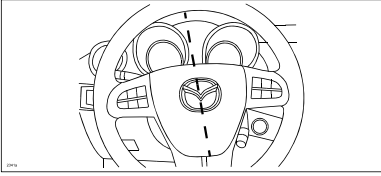
**NOTE:** Rotate both sides of the tie-rod by the same amount.

**- Steering wheel offset direction and tie-rod rotating direction -**

FRONT WHEEL DRIVE (Vehicles with steering gear mounted to the rear side of the front axle)

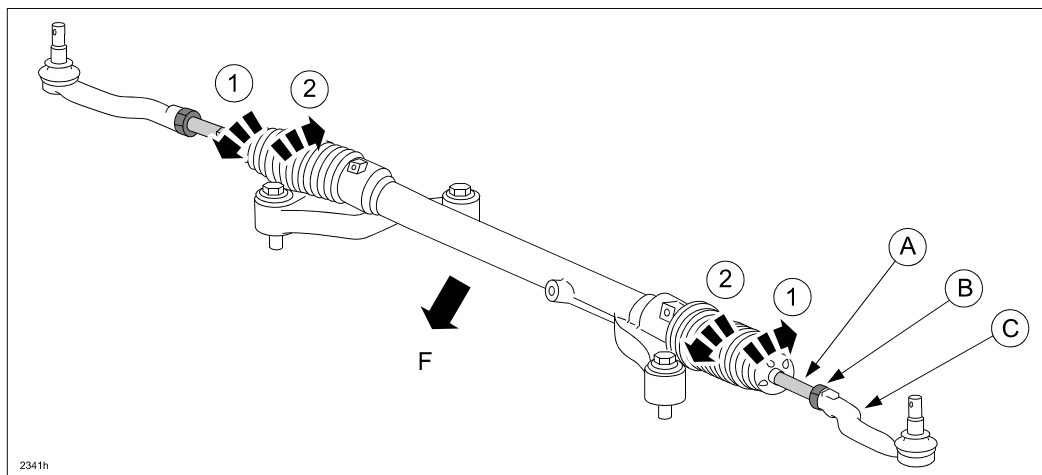
Steering wheel offset direction	Tie-rod adjust	Tie-rod rotating direction to adjust
<p>Right</p>	Right side	Tighten the tie-rod towards the tie-rod end to decrease the length of the tie-rod.
	Left side	Loosen the tie-rod from the tie-rod end to increase the length of the tie-rod.
<p>Left</p>	Right side	Loosen the tie-rod from the tie-rod end to increase the length of the tie-rod.
	Left side	Tighten the tie-rod towards the tie-rod end to decrease the length of the tie-rod.

**REAR WHEEL DRIVE** (Vehicles with steering gear mounted to the front side of the front axle)

Steering wheel offset direction	Tie-rod adjust	Tie-rod rotating direction to adjust
<p>Right</p> 	Right side	Loosen the tie-rod from the tie-rod end to increase the length of the tie-rod.
	Left side	Tighten the tie-rod towards the tie-rod end to decrease the length of the tie-rod.
<p>Left</p> 	Right side	Tighten the tie-rod towards the tie-rod end to decrease the length of the tie-rod.
	Left side	Loosen the tie-rod from the tie-rod end to increase the length of the tie-rod.

- A: Tie-rod
- B: Lock nut
- C: Tie-rod end
- F: Front of vehicle

- 1: Turn in this direction to loosen the tie-rod from the tie-rod end and increase the length.
- 2: Turn in this direction to tighten the tie rod towards the tie-rod end and decrease the length.



**- (Reference) Steering wheel offset and tie-rod rotating angle -**

<b>Steering wheel offset to adjust</b>	<b>Tie-rod rotating angle</b>
4 mm (approximately 4°)	150°
5 mm (approximately 5°)	180° (half turn)
6 mm (approximately 6°)	210°
7 mm (approximately 7°)	240°

4. Tighten the lock nut. Refer to MS3 online instructions for the tightening torque.
5. Straighten the boot, then attach the boot clamp.
6. Verify repair.

**WARRANTY INFORMATION**

**NOTE:**

- This warranty information applies only to verified customer complaints on vehicles eligible for warranty repair.
- This repair will be covered under Mazda's Service Adjustment Warranty term (12 months/12,000 miles).
- Additional diagnostic time cannot be claimed for this repair.

Warranty Type	A
Symptom Code	30
Damage Code	9H
Part Number Main Cause	5555-FE-001
Quantity	0
Operation Number / Labor Hours:	XXF11XAX / 0.4 Hrs.