



4WS System Adjustment

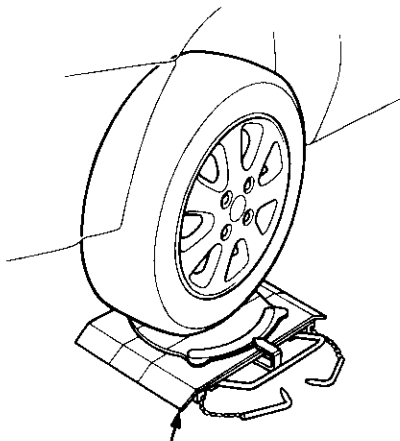
4WS System Adjustment

Adjust the 4WS system using the following procedure.

NOTE:

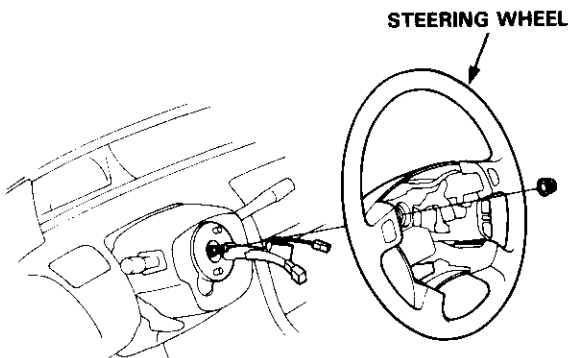
- If the power of the 4WS control unit was shut down for the following operations, start the engine and turn the steering wheel fully right and left.
 - Battery removal/installation
 - 4WS control unit removal/installation
 - No. 43 fuse CLOCK RADIO removal (in the under-hood fuse/relay box)

1. Jack up the car and place the wheel in the center of the turning radius gauge turn tables.



**TURNING RADIUS GAUGE
TURN TABLE**

2. Set the steering wheel so that it is positioned in the center of the range where the steering wheel turns fully to the right and left. (This centers the front steering rack.)
3. If the steering wheel spoke angle is not at the designated angle with the steering wheel set in the position explained in step 2, adjust the front main steering angle sensor and spoke angle as follows.
 - Set the steering wheel in the straight ahead driving position, then remove it.

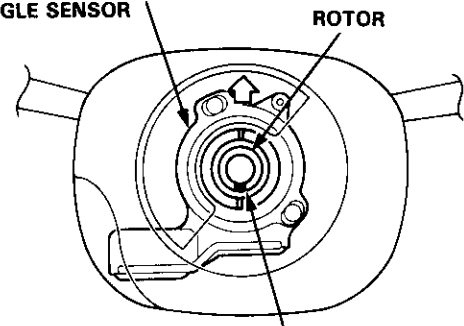


STEERING WHEEL

- Check whether the yellow paint mark of the front main steering angle sensor rotor is facing down (i.e. in neutral lock position where the rotor does not turn). This indicates that the front main steering angle sensor is electronically in neutral.

NOTE: If the paint mark is not facing down, adjust as instructed in step 5, (1) through (3) on page 17-87.

**FRONT MAIN STEERING
ANGLE SENSOR**

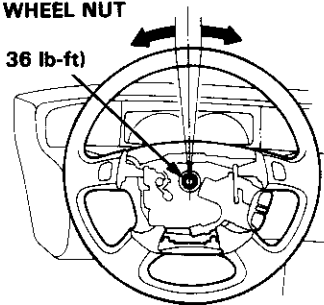


YELLOW PAINT MARK

- Install the steering wheel, aligning it with the serration which makes the spoke angle closest to horizontal.
 - If the spoke angle is not horizontal, adjust the steering wheel slightly right or left, being careful not to push in on the steering wheel.

STEERING WHEEL NUT

50 N·m
(5.0 kg·m, 36 lb·ft)



- With the spoke angle set at horizontal, then push the steering wheel in fully. Tighten the steering wheel nut while pushing the steering wheel in.

NOTE:

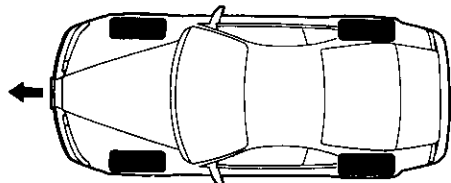
- Do not remove the steering wheel until adjustment is completed.
- Do not turn the steering wheel when pushing the steering wheel.

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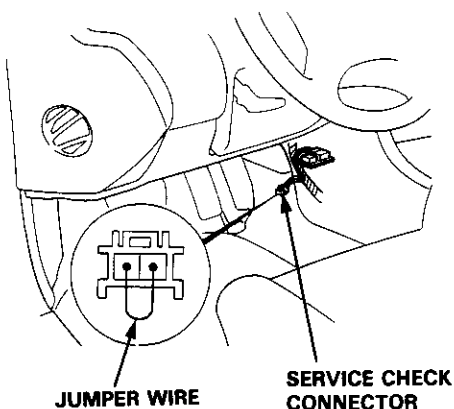
4WS System Adjustment

4WS System Adjustment (cont'd)

4. Be sure that the rear wheels are not steered to the right or left, but in the straight ahead driving position.



5. Take out the service check connector (BLU 2P) from behind the center console. Connect the terminals with a piece of jumper wire.



6. Check the sub and main steering angle sensors using the table shown below (see page 17-146).

NOTE:

- Turn the ignition switch on (engine off) to check.
- The 4WS indicator light does not indicate the electronic neutral position when it is indicating problem codes.
- Check the sensors by turning the specified wheel in the specified direction shown in the table below. The sensors are adjusted properly if the 4WS indicator light turns on in the specified range on the steering wheel, or if the center of the range where the 4WS indicator light blinks is within the specified range on the steering wheel.

Sensor type	Check	Parking brake lever	
		*1 Pull	*2 Release
Front main steering angle sensor	Turn front wheels to right	*2 ON	—
Front sub steering angle sensor	Turn front wheels to left	*3 Blinks	—
Rear sub steering angle sensor	*4 Turn rear wheels to left	—	*3 Blinks
Rear main steering angle sensor	*4 Turn rear wheels to right	—	*2 Blinks

*1: Be sure that the parking brake indicator light operates properly.

*2: The 4WS indicator light might look as if it is blinking at a point near the ends of the range where the light is ON.

*3: The 4WS indicator light blinks in the intervals of 0.2 seconds. When the indicator light is indicating the main steering angle sensor condition (light ON), indication of the sub steering angle sensor condition by blinking is canceled.

*4: Turn the rear wheel slowly by hand with the special tool (rear steering center lock pin) set in the rear steering actuator.



7. If the sensors are not adjusted properly, adjust each sensor.

- If the front main steering angle sensor is not adjusted properly, start with the step 2.
- Front sub steering angle sensor adjustment: see page 17-153.
- Rear sub steering angle sensor: see page 17-155.

NOTE: The rear main steering angle sensor cannot be adjusted. If the rear main steering angle sensor is abnormal, remove it and check it for damage.

Sub Steering Angle Sensor Adjustment

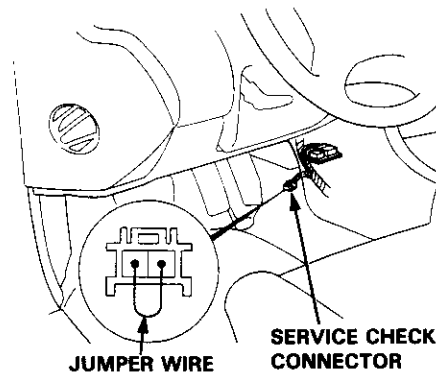
Front Sub Steering Angle Sensor

NOTE: Before adjusting the sub steering angle sensor, check that the front main steering angle sensor is adjusted properly (see page 17-146).

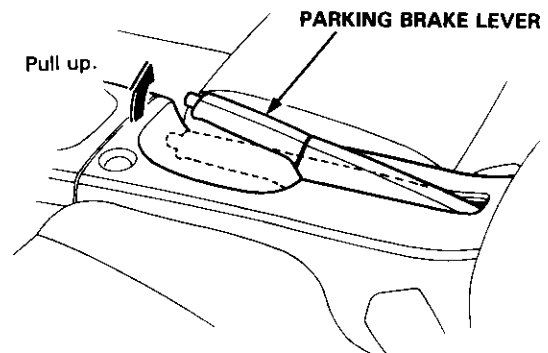
1. Jack up the car and raise all four wheels off the ground. Place the safety stands in the proper locations to support the car (see section 1).
2. Set the steering wheel in the straight ahead driving position.
3. Take out the service check connector (BLU 2P) from behind the center console. Connect the terminals with a piece of jumper wire.

NOTE:

- The 4WS indicator light will not indicate that the sensors are in the electronic neutral position when displaying stored Diagnostic Trouble Codes (DTC).
- Check and verify problem codes displayed before checking the electronic neutral position.



4. Set the parking brake lever and turn the ignition switch on (engine off). Be sure that the parking brake indicator light turns on.
5. Turn the ignition switch off.



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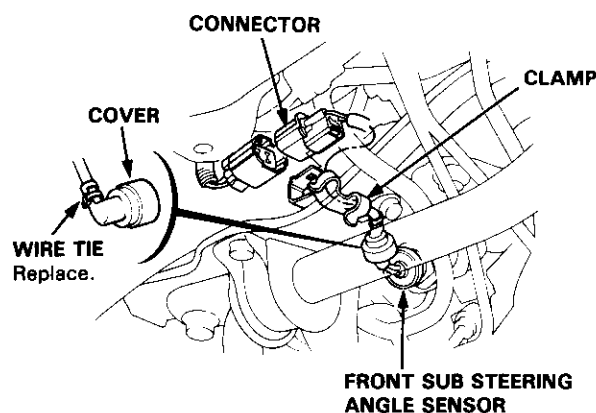
4WS System Adjustment

Sub Steering Angle Sensor Adjustment (cont'd)

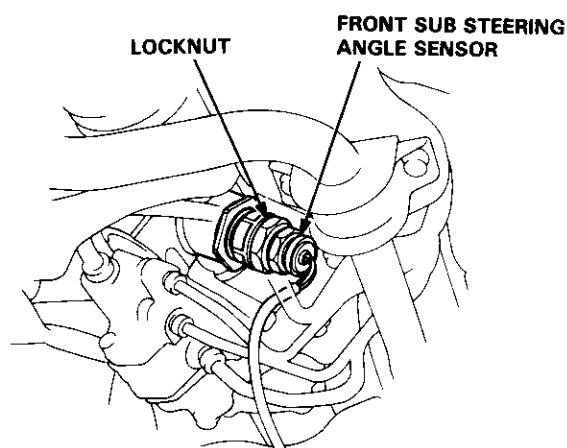
6. Cut the wire tie from the cover, then remove the cover from the front sub steering angle sensor.

CAUTION: Use care when cutting the wire tie so as not to cut into the wire harness.

7. Remove the sensor wire harness from the clamp and disconnect the connector.



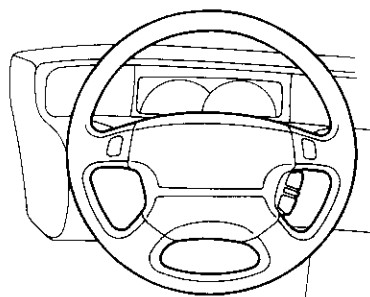
8. Loosen the locknut. Tighten the locknut fully by hand, back it off about 3/4 turns and connect the connector.



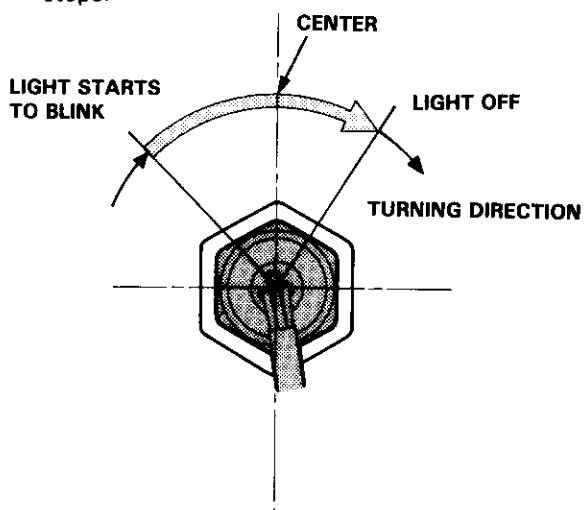
9. Turn the ignition switch on (engine off).

10. Set the steering wheel in the straight ahead driving position. Set the front main steering angle sensor electronically in neutral (4WS indicator light is blinking) this time.

NOTE: Hold the steering wheel in this position until adjustment is completed. If the steering wheel is moved in error, repeat the adjustment procedure starting with step 10.



11. Turn the front sub steering angle sensor slowly clockwise, and check the range from where the 4WS indicator light starts to blink to where it stops.
12. Loosen the front sub steering angle sensor. Repeat the step 11 several times to set the sub steering angle sensor in the center of the range from where the 4WS indicator light starts to blink to where it stops.



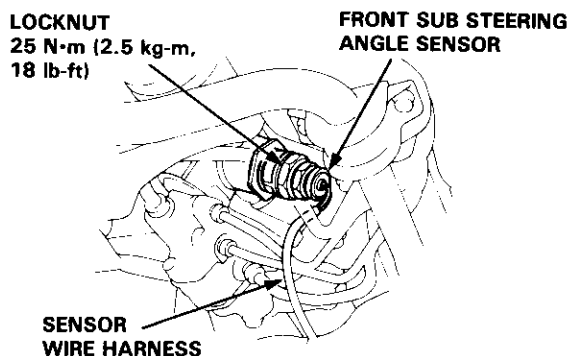
NOTE:

- Turn the front sub steering angle sensor clockwise to make the 4WS indicator light blink.
- If the sub steering angle sensor wire is twisted excessively, turn the ignition switch off, disconnect the connector, and straighten the wire.



13. Tighten the locknut while holding the front sub steering angle sensor with a wrench.

NOTE: Take care not to turn the front sub steering angle sensor.

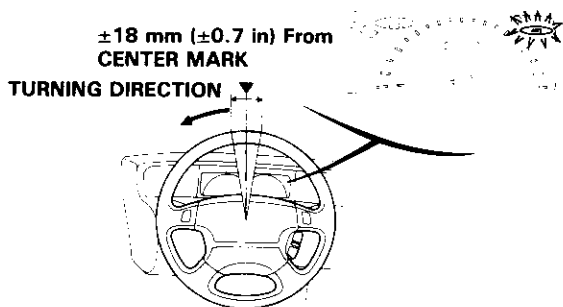


14. Disconnect the front sub steering angle sensor connector to straighten the sensor wire harness. Reconnect the connector.

NOTE: Do not contaminate the front sub steering angle sensor connector terminals with mud, oil, and grease.

15. Check that each sensor is electronically in neutral (see page 17-146).

NOTE: Be sure that the center of the range where the 4WS indicator light blinks (indicating that the front sub steering angle sensor is electronically in neutral), is in the range ± 18 mm (± 0.7 in/ $\pm 5.5^\circ$) from the center mark on the steering wheel.



16. Reconnect the connector and secure the sub steering angle sensor wire harness with the clamp and install the cover.

NOTE:

- Be sure the sensor wire harness does not interfere with the stabilizer or other moving parts.
- Be certain that the wire is not twisted before connecting it.

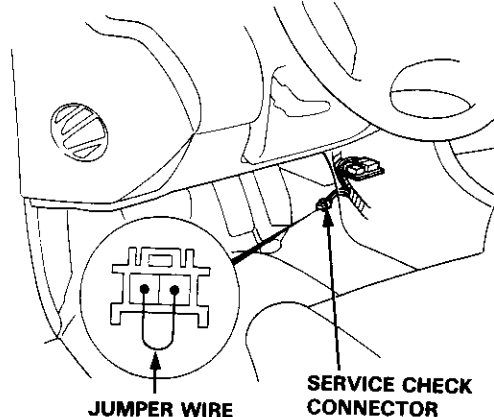
17. Secure the cover with a new wire tie.

Rear Sub Steering Angle Sensor

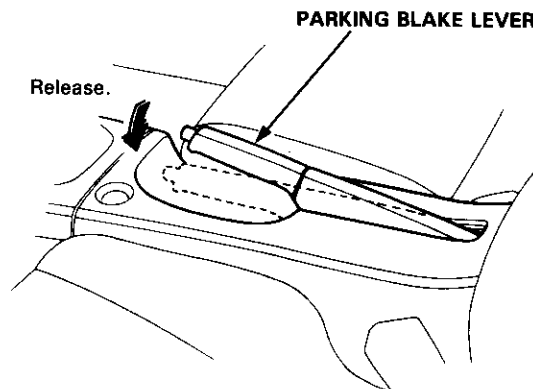
1. Jack up the car and raise all four wheels off the ground. Place the safety stands in the proper locations to support the car (see section 1).
2. Take out the service check connector (BLU 2P) from behind the center console. Connect the terminals with a piece of jumper wire.

NOTE:

- The 4WS indicator light will not indicate that the sensor is in electronic neutral position, when displaying stored Diagnostic Trouble Codes (DTC).
- Check and verify problem codes displayed before checking the electrically neutral position.



3. Release the parking brake lever fully and turn the ignition switch on (engine off). Be sure that the parking brake indicator light goes off.
4. Turn the ignition switch off.

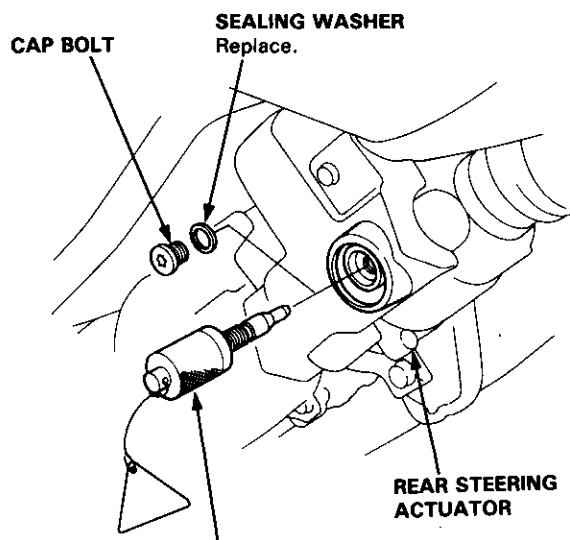


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4WS System Adjustment

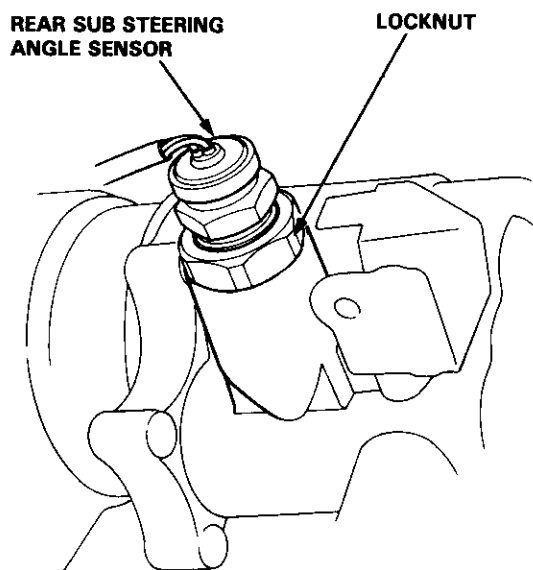
Sub Steering Angle Sensor Adjustment (cont'd)

5. Remove the rear steering actuator cover
6. Remove the cap bolt and sealing washer from the rear steering actuator. Screw the special tool in as far as it will go.



REAR STEERING CENTER LOCK PIN
07NAJ-SS0020A

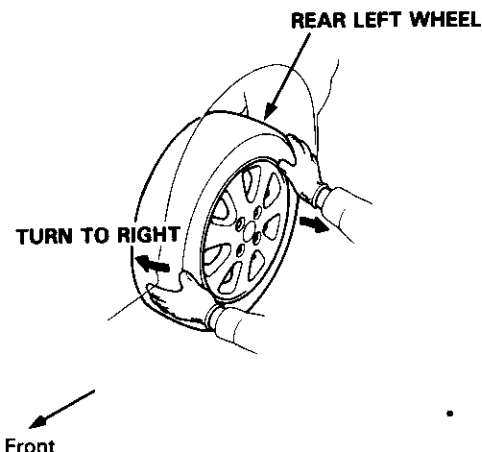
7. Remove the rear sub steering angle sensor wire from the clamp and disconnect the connector.
8. Loosen the locknut. Tighten the locknut fully by hand, then back it off about 1/2 turn and connect the connector.



9. Set the steering wheel in the straight ahead driving position to prevent the rear wheels from steering if the engine is started in error.

10. Turn the ignition switch on (engine off).

11. Push the rear left wheel fully to the left by hand, then push it slowly to the right to turn the 4WS indicator light on (i.e. rear main steering angle sensor is electronically in neutral).

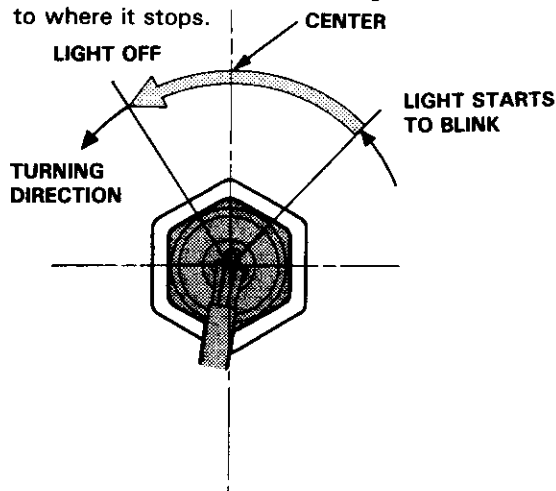


NOTE:

- The 4WS indicator light turns on in a narrow range. Do not overlook it.
- Work with care so as not to move the rear wheels from this neutral position.



12. Turn the ignition switch on (engine off).
13. Turn the rear sub steering angle sensor slowly counterclockwise, and check the range from where the 4WS indicator light starts to blink, to where it stops.
14. Tighten the rear sub steering angle sensor a little. Repeat the step 13 several times to set the sub steering angle sensor in the center of the range from where the 4WS indicator light starts to blink, to where it stops.

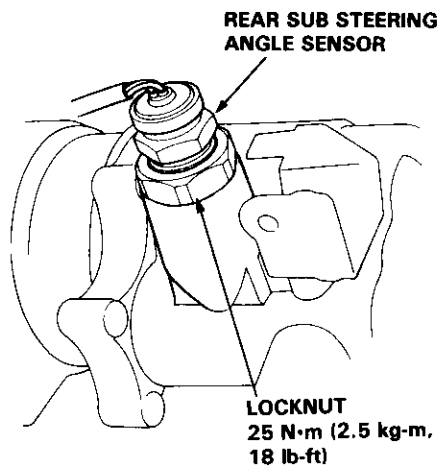


NOTE:

- Turn the rear sub steering angle sensor counterclockwise to make the 4WS indicator light blink.
- If the rear sub steering angle sensor wire is twisted excessively, turn the ignition switch off, disconnect the connector, and straighten the wire.

15. Tighten the locknut while holding the rear sub steering angle sensor with a wrench.

NOTE: Take care not to turn the rear sub steering angle sensor.



LOCKNUT
25 N·m (2.5 kg-m,
18 lb-ft)

16. Disconnect the rear sub steering angle sensor connector to straighten the wire. Reconnect the connector.

NOTE: Do not contaminate the rear sub steering angle sensor connector terminals with mud, oil, and grease.

17. Check that each sensor is electronic in neutral (see page 17-146).
18. Turn the ignition switch off. Remove the special tool from the rear steering actuator, and install the cap bolt and the new sealing washer on the rear steering actuator.

19. Install the rear steering actuator cover.

