



**Countries:** CANADA, UNITED STATES **Document ID:** IK0500063  
**Availability:** ISIS, FleetISIS, Body Builder, IsSIR **Revision:** 2  
**Major System:** STEERING SYSTEM **Created:** 2/22/2021  
**Current Language:** English **Last Modified:** 5/10/2022  
**Other Languages:** NONE **Author:** David Horner  
**Viewed:** 631

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Coding Information

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**Title:** CV 4x4 Undesirable Turning Radius

**Applies To:** Feature Code: 0005PSS- STEERING GEAR {Bosch S2 8014 Plus} Power with 0001ANB AXLE CONFIGURATION {Navistar} 4x4 Built Before 3/21/22

## CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

05/10/2022 - Repair applicable on units built before 3/21/22  
 04/28/2021 - Updated coding for visibility  
 04/20/2021 - Initial article release

## DESCRIPTION

Navistar has identified a condition where some 4x4 vehicle operators may report a symptom of undesirable steering turning radius. This condition may exist when the poppets, also known as steering limiting screws, located in the steering gear assembly are initially misadjusted. This initial mis adjustment allows the steering gear to begin relieving internal pressure much before the design intent relief position. This article will provide diagnostic steps to determine if the condition is present and when present; the repair steps to resolve without using turn plates

## SYMPTOM(s)

**Diagnostic Trouble Code(s) & Dashboard Indicator Light(s):**

DTC/Light	Description
N/A	

**Customer Observations or Concerns:**

- Too great of turning radius required
- Wheel cut restricted
- Not enough steering wheel turns lock-to-lock

## SPECIAL TOOL(s) / SOFTWARE


Tool Description	Tool Number	Comments	Instructions
N/A			

## SERVICE PARTS INFORMATION

Kit Description	Part Number	Quantity Required	Notes
SCREW, BOSCH AUTOMATIC RELEIF POPPET, 42.6MM	6042264C1	2	Only required per step 4 of diagnostic procedure or step 17 of repair steps

## DIAGNOSTIC STEP(S)

The diagnostic steps below will be used to determine the symptom is present.

 <b>WARNING:</b>
Wear protective safety glasses and shoes

<b>CAUTION:</b>
The steering system has moving parts that may create pinch points when checking the items below.

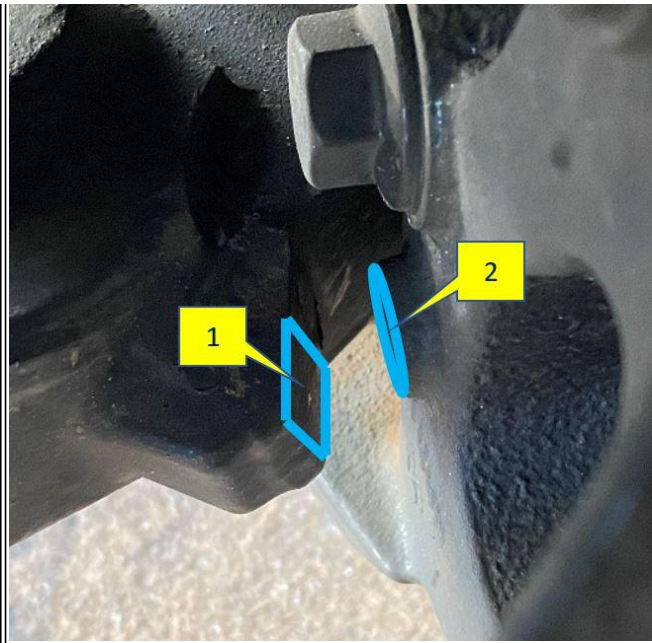
Step	Action	Decision
1	<b>DIAGNOSTIC:</b> Did the vehicle arrive with a symptom of undesirable turning radius?	<b>Yes</b> Proceed to step 2
		<b>No</b> Repair complete

Step	Action	Decision
2	<b>DIAGNOSTIC:</b> Inspect the steering linkage for loose or worn parts using the <a href="#">CV Technician Manual (Service and Diagnostic) 0001111853</a> Has the inspection been completed and any failed parts replaced?	<b>Yes</b> Proceed to step 3
		<b>No</b> Complete the inspection

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Step	Action	Decision
3	<p><b>DIAGNOSTIC:</b></p> <p>Inspect the pitman arm and steering gear shaft alignment marks per <a href="#">CV Technician Manual (Service and Diagnostic) 0001111853</a> to verify the pitman arm is properly aligned.</p> <p>Is the pitman arm properly aligned?</p>	<p><b>Yes</b></p> <p>Proceed to step 4</p>
		<p><b>No</b></p> <p>Realign the markings and then continue to step 4</p>

Step	Action	Decision
4	<p><b>DIAGNOSTIC:</b></p> <ol style="list-style-type: none"> <li>1. Park vehicle on dry, level ground, install wheel chocks, set parking brake, and place transmission in Park</li> <li>2. Have an assistant rotate the steering wheel fully to the left and hold it</li> <li>3. Measure &amp; document the distance between the steering arm (spindle) and axle stop (Figure 1)</li> <li>4. Repeat steps 2-3 while turning to the right</li> </ol> <p>Is either distance greater or less than 0.125" +/- 0.025" ?</p>	<p><b>One or both sides are greater than 0.150"</b></p> <p>Follow repair steps below</p>
		<p><b>One or both sides are less than 0.100"</b></p> <p>Steering gear poppets are allowing over travel condition. Follow repair step 17 below and then start over with Repair step 1.</p>
		<p><b>Both sides are 0.125" +/-0.025"</b></p> <p>Repair complete, meets specification</p>



**Figure 1: Steering Arm & Axle Stop**

Item 1: Steering Arm  
Item 2: Axle Stop

## **REPAIR STEP(s)**

When instructed by the diagnostics above, the following repair steps will resolve undesirable turning radius symptom without turn plate angle gauges or calculating turning radius.

1. Park vehicle on dry, level ground, install wheel chocks, set parking brake, and place transmission in Park
2. Start the engine
3. Center the steering wheel to the straight-ahead position
4. Place a piece of tape at the 12 o' clock position on the steering wheel
5. Count & document the number of steering wheel turns while rotating the steering wheel to the left until it stops
6. Document the position of the tape while the steering wheel is turned to the left as far as it will go

**NOTE: Take picture for future reference in step 12**

7. Center the steering wheel to the straight-ahead position
8. Count & document the number of turns while rotating the steering wheel to the right until it stops
9. Document the position of the tape while the steering wheel is turned to the right as far as it will go

**NOTE: Take picture for future reference in step 12**

10. Center the steering wheel to the straight-ahead position
11. Disconnect the Relay Rod (also known as drag link) from the end of the pitman arm [CV Technician Manual \(Service & Diagnostic\) 0001111853- Relay Rod Removal](#)

**NOTE: Do not remove pitman arm from steering gear**

12. Turn the steering wheel in each direction so the tape rotates 1/2 a steering wheel turn (180°) past the previously documented end of travel position

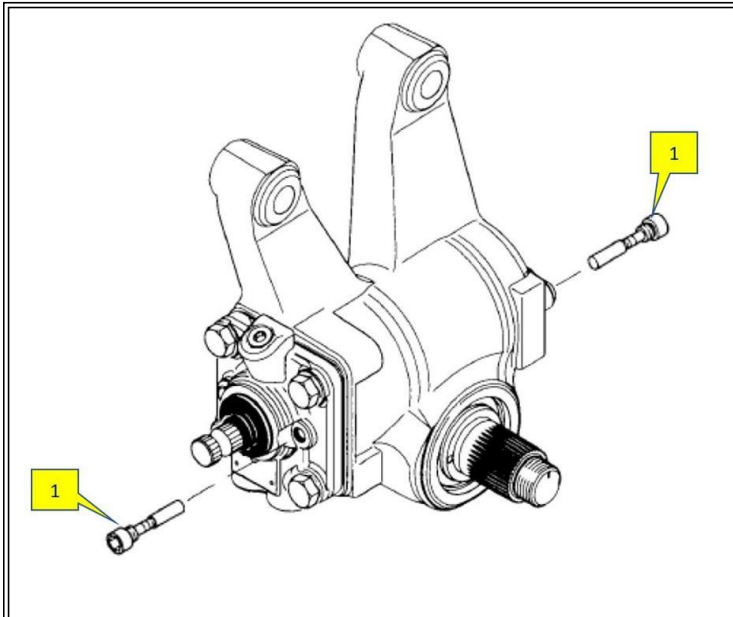
**NOTE: If completing this a 2nd time per step 18 below, then only turn the wheel in 1/8th turn increments until reaching specifications listed in diagnostics above**

13. Reconnect Relay Rod [CV Technician Manual \(Service & Diagnostic\) 0001111853- Relay Rod Installation](#)

14. Steer the wheels to the full left and right positions
15. Measure the distance from the spindle to the steering stop (Figure 1), if 0.125" +/- 0.025" go to step 20
16. If the spindle is making contact to the steering stop, center the steering wheel and shut off the engine
17. Remove and replace both steering gear poppets (Figure 2) with 6042264C1- SCREW, BOSCH AUTOMATIC RELIEF POPPET, 42.6MM and torque to 10ft-lbs

**NOTE: If the 42.6mm relief poppets are not available using Navistar parts catalog, replace the steering gear**

18. Repeat repair steps 1-15 but this time turn the steering wheel in 1/8th turns in step 12
19. Repeat steps 10-15 until the distance from the spindle to the steering stop is 0.125" +/- 0.025"
20. Repair complete



**Figure 2: Steering Gear Poppet Location**

Item 1: Poppets / Limiting Screws

## **WARRANTY INFORMATION**

### **Warranty Claim Coding:**

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

### **Standard Repair Time(s):**

Refer to the [SRT Manual](#) for Repair Times

## **OTHER RESOURCES**

[Master Service Information Site](#)

Hidden Keywords in White text- Turning Radius, Turning Radius, Turning Radius, Wheelcut, Wheelcut, Wheelcut, Wheel cut, Wheel cut, Wheel cut, doesn't turn, doesn't turn, doesn't turn, does not turn, does not turn, does not turn, turnplate, turnplate, turnplate, turnplates, turnplates, turnplates, turn angle, turn angle, turn angle, turning angle, turning angle, turning angle

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