



INSTRUCTION TO SERVICE

| ITS: 60505 | | August 24, 2022 |
|--------------------|-----------------------------------------------------------------------------------------------------------------|-----------------|
| SECTION: | 209-Steering System | |
| WRITTEN BY: | Troy Stutsky | |
| SUBJECT: | NHTSA Equipment Recall 22E-047 – RH Sheppard Steering Systems | |
| ISSUE: | The steering gears may have been assembled incorrectly, which can cause the gear to fracture. | |
| SUMMARY: | Inspect suspect steering gear to identify serial number. Remove and replace with new steering gear if required. | |

ITS60505

| Ref. NHTSA Recall No. | Ref. Transport Canada Recall No. |
|-----------------------|----------------------------------|
| 22V-637 | 2022-474 |

THIS ITS DOCUMENT SHOULD BE RETAINED AND REFERRED TO FOR FUTURE MAINTENANCE UNTIL THE NEW FLYER PARTS AND/OR SERVICE MANUAL IS UPDATED TO REFLECT WORK DONE AS A RESULT OF THIS DOCUMENT. ENSURE THAT THIS DOCUMENT IS AVAILABLE FOR PARTS AND MAINTENANCE STAFF GOING FORWARD.

PROCEDURE:

1. Set park brake and chock wheels.
2. Turn the main battery disconnect switch to the “OFF” position.
3. Locate the steering gear and steering gear serial number and part number located on the lip of the steering gear. See Figure 1. Use Steps 1 to 9 in the Identification Guideline for Sheppard Steering Gears in Appendix A to identify the serial number and part number on the steering gear. It will look something like 21D12345 or 22D12345 depending on what year the steering gear was manufactured and may have a -C at the end.

NOTE: Once you have the serial number use the recall website to access the Sheppard Steering Gear Classification Tool. <https://recall.rhsheppard.com/USA/en/USD> You can input your information and select New Flyer from the drop down on the left and enter the steering gear serial number on the right. Make sure you are omitting the -C at the end if required. The classification tool will give you a “Suspect” or “Good” response. If a “Not Found” response is given, check the number again and if it still will not match, contact Troy Stutsky @ serviceorganization_powertrain&systems@newflyer.com.



Figure 1: Serial Number and Part Number Location (Red Field is Example of Location)

4. Complete **all fields** on the steering gear inspection sheet in Appendix B. **Important** - This inspection sheet must be returned to Technical Services Specialist Troy Stutsky for documentation retention purposes. Please return by email to serviceorganization_powertrain&systems@newflyer.com.
5. If the steering gear serial number shows “Good” in the Sheppard Steering Gear Classification Tool, this steering gear is not affected by the recall and the bus can be safely returned back to revenue service.
6. If the steering gear serial number shows “Suspect” in the Sheppard Steering Gear Classification Tool, this steering gear will need to be replaced with a new steering gear (NF PN 497510) before the bus can be safely returned back to revenue service.
7. Once the steering gear has been replaced with a new one, please turn the main battery disconnect switch to the “ON” position and clean up all tools and debris and return the bus to revenue service.



| LABOUR ESTIMATE | | | | |
|------------------------|-----------------------|-------------------------|-------|-------------------|
| | Operation | Number of Technician(s) | Hours | Labor Time T X HR |
| 1 | Inspect Steering Gear | 1 | 0.3 | 0.3 |
| 2 | R&R Steering Gear | 1 | 4.5 | 4.5 |

| PARTS REQUIRED | | | | | |
|-----------------------|-------------|------------------------------|----------------|-------|-------|
| Item | Part Number | Description | Qty. per Coach | Units | Notes |
| 1 | 497510 | ASSY-STEERING GEAR M110 DISC | 1 | EA | |

Appendix A

Identification Guideline

Sheppard™ Steering Gears

RHS0007

Effective Date: 7/1/22

Identifying Sheppard™ Steering Gears Covered in this Field Action

A potentially defective steering gear can be identified by a serial number and a part number engraved into the steering gear housing. Perform the following procedure to identify the steering gear serial number and part number.

1. Park the vehicle on a flat surface.
2. Set the transmission to park or neutral and set the parking brake.
3. Ensure the vehicle ignition is turned off.
4. Install the wheel chocks.
5. Unlatch and open the hood to access the steering gear.
6. Locate the steering gear serial number and part number.

NOTE: If the serial number or part number cannot be easily read due to paint application, gently scrape the number(s) with a flathead screw driver, wire brush, or emery cloth, or apply acetone. Too much intervention may cause the numbers and letters to be illegible.

There are three common styles of engraving locations to be aware of when locating the serial number and part number. **NOTE:** If you need assistance with locating or deciphering the steering gear serial number and/or part number, email steering22@rh-sheppard.com. Sending a photograph of the steering gear serial number and part number may be helpful.

Style 1: This style will have the serial number and part number engraved on one line with a space between the part number and serial number. The entire engraving should be centered on the machined surface as shown in *Figure 1*.

Style 2: This style will also have the serial number and part number engraved on one line with a space between the part number and serial number. The only difference is the amount of machined surface given for the engraving. The numbers should be engraved on more of a curve due to the lack of space provided. See *Figure 2*.

Style 3: The serial number and part number should be displayed on one line with a space between the part number and serial number. This style will also have a customer number printed on the housing opposite of the part number and serial number. See *Figure 3*.

7. Record the Vehicle Identification Number (VIN), steering gear serial number, and steering gear part number.
8. Use the URL provided by your vehicle manufacturer to access the Sheppard Steering Gear Classification Tool. This URL is expected to be available after August 1, 2022.

- **Vehicles with a "Good" steering gear serial number** can be returned to service with no further remedy action required. Sheppard will cover the labor involved in the serial number inspection.
- **Vehicles with a steering gear serial number identified as "Suspect"** will require removal and replacement. Sheppard will provide a 1:1 replacement gear (that does not contain the defect), free of charge, manufactured outside the stated dates. Follow the OEM instructions on recording the VIN, serial number, and part number in order to process a claim.
- **A "Not Found" serial number** indicates circumstances such as a possible character input error by the individual conducting the inspection or some other unique situation. Receipt of a Not Found classification will require you to contact the Sheppard Steering Gear Recall Product Action Center noted at the close of this letter.

9. Keep record of all inspected steering gears and their status outcomes.

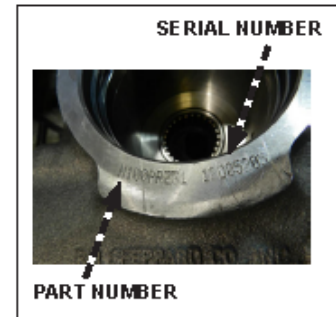


Figure 1 – Style 1



Figure 2 – Style 2



Figure 3 – Style 3

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Interpreting the Serial Number and Part Number:

A serial number and part number are engraved into the steering gear housing. See Figure 4 for further information on interpreting the serial number and part number.

SERIAL NUMBER EXAMPLE:

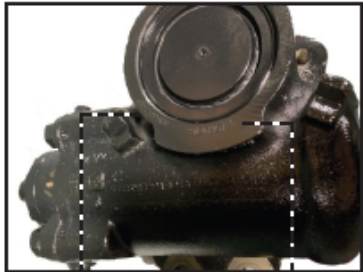
21 E 07957 -C

21 represents the year the steering gear was built.

E indicates the month the steering gear was built (A - January, B - February, C - March, D - April, E - May, etc.).

-C indicates the steering gear has a snap ring style sector cover with a retainer clip.

07957 is the sequential serial number for gears built that month.



PART NUMBER EXAMPLE:

SD 110 PAU 3


SD stands for "severe duty." The first character of the part number represents the steering gear family.

110 indicates the diameter of the piston in mm.

3 indicates the steering gear has automatic relief springs. Other designators are "1" for manual relief springs and "2" for special applications. An additional number after "3" indicates there is a pitman arm installed on the steering gear.

PAU: The first letter in this sequence will indicate "P" to indicate "Power" or "S" to indicate "Slave." "AU" represents the specific model for the M110 steering gear.

PART NUMBER



SERIAL NUMBER




Figure 4 – Serial Number and Part Number Interpretation

See Figure 5 for representations of each number (year) and letter (month) for steering gear serial numbers.

| ENGRAVED NUMBERS | ENGRAVED LETTERS |
|------------------|------------------|
| 0 | A - JANUARY |
| 1 | B - FEBRUARY |
| 2 | C - MARCH |
| 3 | D - APRIL |
| 4 | E - MAY |
| 5 | F - JUNE |
| 6 | G - JULY |
| 7 | H - AUGUST |
| 8 | I - SEPTEMBER |
| 9 | J - OCTOBER |
| | K - NOVEMBER |
| | L - DECEMBER |
| | P - POWER GEAR |
| | R - REMAN. GEAR |
| | S - SLAVE GEAR |

Figure 5 – Engraved Numbers and Letters

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Steering Gears NOT AFFECTED:

- **Remanufactured Steering Gears:** See Figure 6. If the steering gear part number ends with an "R" or the serial number begins with an "R," this indicates the steering gear is a remanufactured steering gear. This type of steering gear does not fall within the recall parameters.
- **Slave Gears:** Slave gears will not have an input shaft or a connection to a steering column. Note that slave gears are typically located on the passenger side of the vehicle. See Figure 4. A "P" in the part number represents a power steering gear. An "S" in the part number represents a slave gear. If the part number includes an "S," this indicates the steering gear is a slave gear. This type of gear does not fall within the recall parameters. See Figure 7 for an example of a slave gear part number and a side-by-side comparison of a power gear and a slave gear.
- **Steering Gears Outside the Date Range:** See Figure 4. If a steering gear serial number begins with 21 E (May 2021) or earlier (i.e. 21 D [April 2021], 21 C [March 2021], 21 B [February 2021], 21 A [January 2021], 20 L [December 2020], 20 K [November 2020], etc.), it does not fall within the recall parameters. If a steering gear serial number begins with 22 C (March 2022) or later (i.e. 22 D [April 2022], 22 E [May 2022], 22 F [June 2022], 22 G [July 2022], 22 H [August 2022], etc.), it does not fall within the recall parameters.

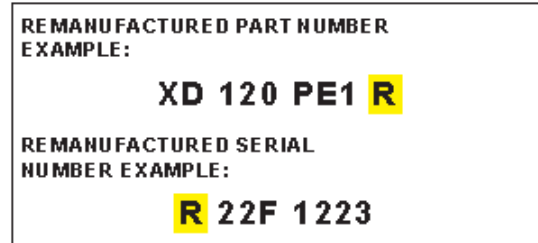


Figure 6 – Remanufactured Steering Gear Part and Serial Number Example

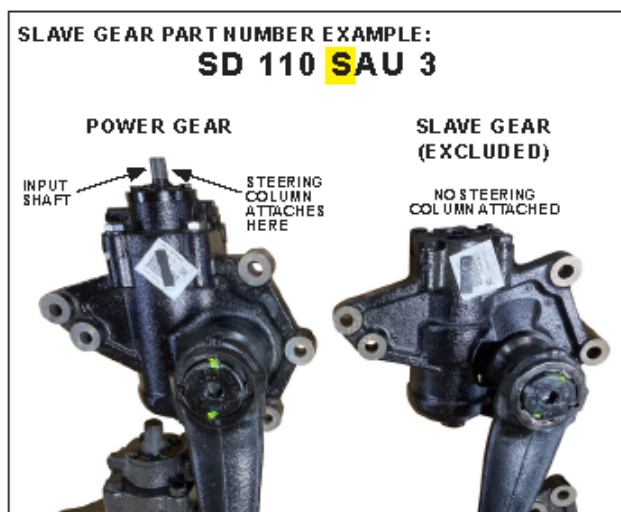


Figure 7 – Slave Gear Part Number and Image Example

What You Need To Do:

An OEM recall notice will be issued for all vehicles with affected steering gears. If a steering gear serial number or part number are not deemed as suspect numbers, no further action is required and the vehicle can remain in service. If a steering gear serial number or part number is deemed as a suspect number, the steering gear will need to be replaced. Further action will be advised.

Replacing a Defective Steering Gear:

Refer to the vehicle OEM service manual for instructions for replacing the steering gear. If necessary, refer to Sheppard Steering Gear Installation, RHS0006, on rhsheppard.com for instructions on replacing the steering gear.

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Submitting a Recall Claim:

This process must be followed to ensure that the claim is reimbursed in full.

- All recall claims are to be filed with the vehicle OEM.
- Claims will be filed using the standard part costs and labor rates provided by the OEM.
- Claims for "Inspection Only" will be paid at the Standard Repair Time (SRT) of 0.3 hours at the shop labor rate.
- The Vehicle Identification Number (VIN) and steering gear serial number are required for all claims (both inspection-only and replacement claims).
- All steering gears that fall within the suspect serial number population and are replaced must be returned directly to R.H. Sheppard.
 - » No pre-authorization or RGARMA is required.
 - » Contact PNG Logistics at 877-764-9441 for shipping instructions.
 - » Ship the replaced/defective steering gear to:
Sheppard Recall
Attn: (Use the steering gear Serial Number)
300 N. Forney Ave.
Hanover, PA 17331
- All claim reimbursements will be paid by Sheppard to the OEM.
- Steering gears returned for the recall with serial numbers that do not fall within the suspect serial number population may result in a denied recall claim.

Technical Support:

For support, first refer to the OEM instructions. You may contact Sheppard via email at steering22@rh-sheppard.com, or telephone the Sheppard Steering Gear Recall Action Line, toll-free, at 1-877-409-9869. Representatives are available to assist you Monday – Thursday, 8:00 a.m. – 6:00 p.m. ET and Friday, 8:00 a.m. – 5:00 p.m. ET.



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