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INVESTIGATION

## WORKHORSE CUSTOM CHASSIS SERVICE BULLETIN

**BULLETIN NO:** 20601-C **May, 2006**

**BULLETIN TYPE:** Campaign Safety

**SUBJECT:** Steering Intermediate Shaft

**MODELS:** Certain 2005 and 2006 W20/22/24 Series Motorhome Chassis

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Workhorse Custom Chassis has determined that a defect which relates to motor vehicle safety may exist in certain W20/22/24 series motorhome chassis.

An incorrect steering intermediate shaft may have been installed on some of the subject chassis during the relevant production period. The incorrect part (W0007621) has a finer pitch spline than the correct part (W0000450). Use of the incorrect part may cause the spline not to match correctly with the corresponding steering gear input shaft. On vehicles equipped with the incorrect part, the spline can strip if the steering wheel is turned with a significant amount of force. The force required to strip the spline (i.e., steering wheel input of 10 to 90 ft-lbs of torque) is more than ordinary users will experience. This failure is likely only to occur when the vehicle is stopped or during tight turning maneuvers at very low speeds. This condition may result in a loss of steering control.

Workhorse Custom Chassis is conducting a safety recall campaign to inspect the steering shaft and gear connection. If the incorrect shaft was installed, it will be replaced with the correct part.

### VEHICLES INVOLVED

This recall involves certain Workhorse Model Year 2005 and 2006 W20, W22 and W24 chassis manufactured from April 28, 2005 through March 15, 2006. Approximately 3,881 units are involved. The VIN range for the affected vehicles is as follows (Last 8 digits of the 17 digit VIN starting with 5B4):

2005 Models	53404851 to 53412047
2006 Models	63411008 to 63417080

Dealers can check the WOW system to determine if a specific vehicle is involved. Workhorse believes that only a small number of vehicles in the VIN range may actually contain the defect.

**OWNER NOTIFICATION**

Workhorse Custom Chassis will notify retail owners and body companies regarding this campaign. Attached is the owner letter with owner instructions.

**DEALER CAMPAIGN RESPONSIBILITY**

1. WCC dealers must perform this campaign on identified customer vehicles at their request at no charge, regardless of time or vehicle mileage.
2. All dealer stock must be held and inspected/repaired before delivery to retail customers. Please note that it is a violation of Federal law for a dealer to deliver a new vehicle covered by this notice under a sale or lease until the defect is remedied. Also, any vehicle lessor receiving this recall notice must forward a copy of the notice to the lessee within ten (10) days

**SERVICE PROCEDURE**

The service procedure for this recall requires inspection of the steering intermediate shaft to determine if the correct part was installed (as shown in the attached Inspection Procedure). If an incorrect shaft is identified, it should be replaced with the correct part (Part Number W0000450). Torque pinch bolt to 36-40 ft-lbs.

**RECALL CAMPAIGN COMPLETION LABEL**

Complete the Recall Campaign Completion Label (Part Number W8001493) and attach it to the air cleaner housing in a visible area. These labels are available from the WCC Parts Department.

**WARRANTY INFORMATION**

Claim Type-----Complete campaign 20601-C  
Labor Operation Code-----T2002----0.5 hours --- Inspect for correct steering shaft.  
Labor Operation Code-----T2003----0.5 hours ---Replace incorrect shaft.  
Above times include 0.2 hours administrative time.

**PARTS INFORMATION**

The correct steering shaft is part number W0000450. It is expected that very few, if any, steering shafts will require replacement.

All replaced steering intermediate shafts are to be sent to:

Attn: Product Support Manager  
850 Stephenson Hwy Suite 510  
Troy, Michigan 48084

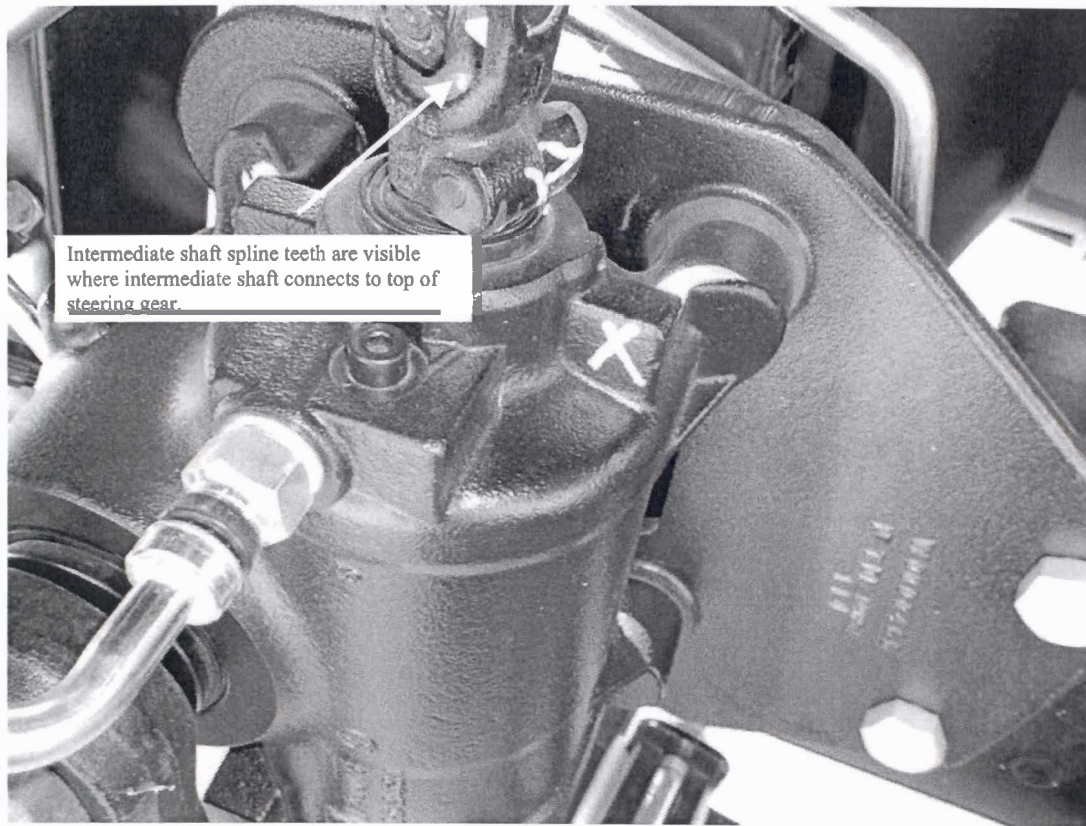
## Inspection Procedure

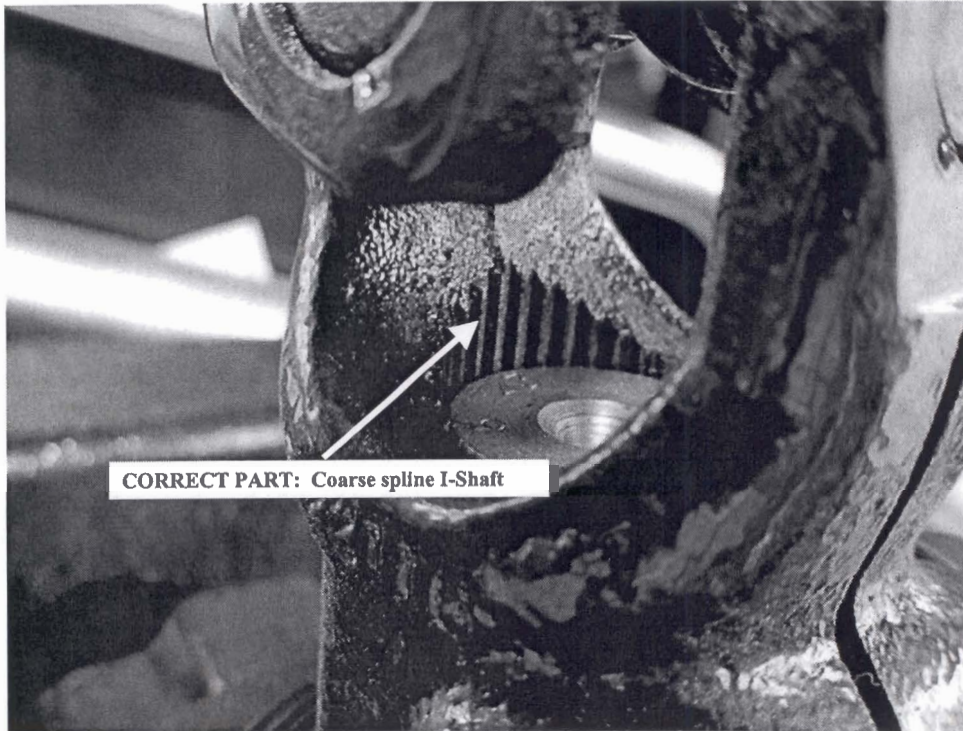
The below procedure should be used to determine if the correct steering intermediate shaft has been installed on the vehicle.

### A. Visual Inspection of Steering Intermediate Shaft Spline

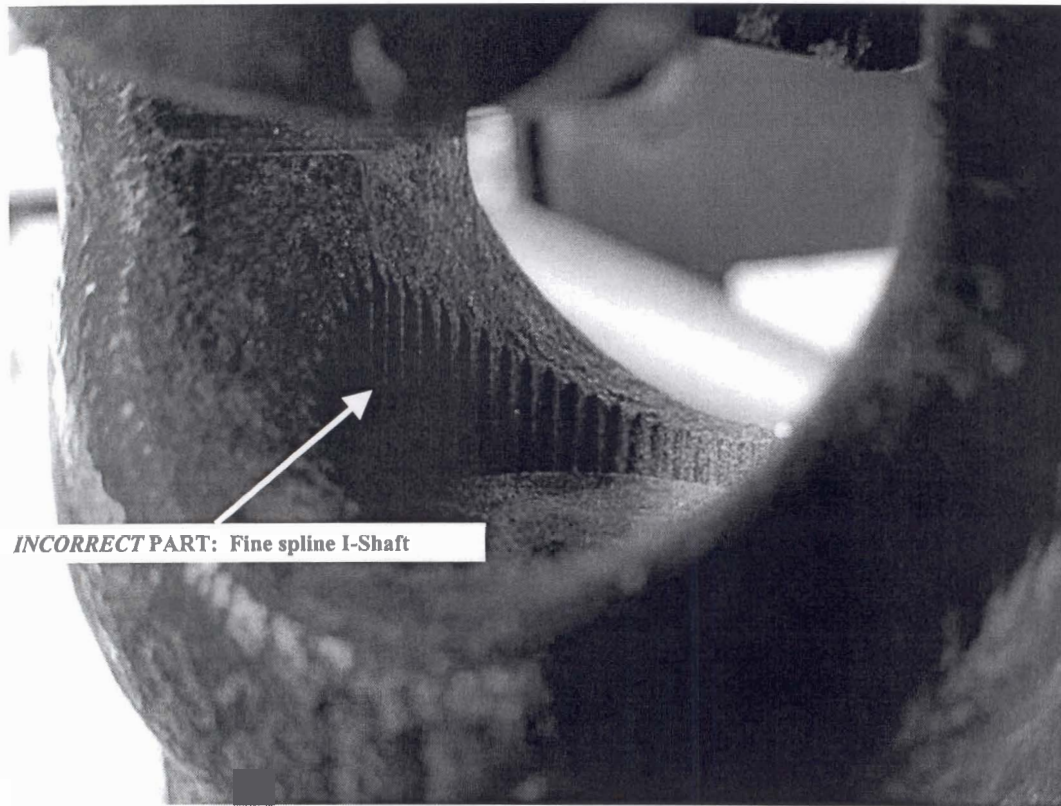
You will need a flashlight when inspecting a completed unit (with a body attached). A flashlight may not be necessary when inspecting an incomplete chassis (without a body).

Inspect the intermediate shaft where it is connected to the input shaft at the top of the steering gear. The spline on the intermediate shaft is visible above the tip of the steering gear input shaft, as indicated in the photograph below:





The coarse spline I-shaft is shown above. This is correct for W20/22/24 models.



The fine spline I-shaft is shown above. This is *incorrect* for W20/22/24 models.

## **B. Steering Wheel Torque Procedure**

**After performing the visual inspection described above, the following supplemental procedure should be used as a precaution:**

- 1. Place the vehicle in “Park” and apply the parking brake.**
- 2. With the engine shut down and the key in the “On” position, turn the steering wheel completely to the left (counterclockwise) with the maximum force that you can apply. Repeat this process by turning the steering wheel completely to the right (clockwise), again using the maximum force that you can apply. (Please note that it takes over 120 ft-lbs of torque to turn the wheels in a static condition without power steering.)**
- 3. If the incorrect shaft was installed, the steering shaft will become loose at the gear box (in the range of 10 to 90 foot pounds of torque).**

## SAFETY RECALL NOTICE

Dear Workhorse Custom Chassis Owner:

May, 2006

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act.

Workhorse Custom Chassis has decided that a defect which relates to motor vehicle safety may exist in certain 2005 and 2006 W20/22/24 models. An incorrect steering shaft may have been installed in some units.

A copy of Dealer Bulletin 20601-C is attached with this letter so that you will have complete information regarding this safety recall campaign.

### **REASON FOR THIS SAFETY RECALL CAMPAIGN**

On some chassis, an incorrect steering shaft may have been installed during production. If an incorrect shaft is installed on your vehicle, it could cause the shaft to become loose at the steering box during tight steering maneuvers (e.g., while the vehicle is stopped or at very low speeds). If this occurs, steering control could be lost, possibly resulting in a vehicle crash. The purpose of this recall is to inspect the shaft on your vehicle and replace it if necessary.

### **WHAT YOU SHOULD DO**

Workhorse is providing the following inspection/remedy options for this recall:

**Option A.** Using the attached bulletin, you may inspect your vehicle yourself to determine whether the correct shaft was installed.

- If you determine that the correct steering shaft was installed, please drive the unit to your nearest Workhorse dealer to have the campaign process completed. The dealer will attach a Recall Campaign Completion Label to the Air Cleaner Housing.
- If you determine that the correct steering shaft was not installed, please contact Workhorse Custom Chassis Customer Service at 877-946-7731 to have your vehicle towed to your nearest Workhorse dealer. **DO NOT DRIVE THE VEHICLE.**
- If you are uncertain about whether your vehicle is equipped with the proper steering shaft, please refer to Option B or Option C below.

**Option B.** Place the vehicle in “Park” and apply the parking brake. With the engine shut down and the key in the “On” position, turn the steering wheel completely to the left (counterclockwise) with the maximum force that you can apply. Repeat this process by turning the steering wheel completely to the right (clockwise), again using the maximum force that you can apply. (Please note that it takes over 120 ft-lbs of torque to turn the wheels in a static condition without power steering.) If the incorrect shaft was installed, the steering shaft will become loose at the gear box (in the range of 10 to 90 foot pounds of torque), and you will feel the steering wheel rotate freely in your hand. A strong person can apply a torque of about 100 foot pounds on the steering wheel.

- If the steering wheel does not become loose after this procedure, please drive your unit to your nearest Workhorse dealer to have the campaign completed. The dealer will conduct the inspection procedure described in the enclosed bulletin.
- If the steering wheel becomes loose during this procedure or if you are uncertain whether the proper shaft was installed, please contact Workhorse Customer Service at 877-946-7731 to have your unit towed to your nearest Workhorse dealer. ***DO NOT DRIVE THE VEHICLE.***

**Option C.** If you are unable to perform Option A or Option B above, or if you remain uncertain about your unit, please contact Workhorse Customer Service at 877-946-7731 to have your unit towed to the nearest Workhorse dealer.

To ensure your safety, Workhorse recommends that you have this safety campaign completed as soon as possible.

Federal regulations require that any vehicle lessor receiving this recall notice must forward a copy of this notice to the lessee within ten (10) days.

If you are unable to obtain the specified repair promptly and without charge, please contact Workhorse Custom Chassis at 877-946-7731. If you believe that Workhorse Custom Chassis has failed or is unable to remedy the condition outlined above without charge within a reasonable period of time, you may contact the Administrator, National Highway and Traffic Safety Administration, at 400 Seventh Street, S.W., Washington, D.C. 20590; or call the toll-free Auto Safety Hotline at 1-888-327-4326 (TTY: 1-800-424-9153); or go to <http://www.safercar.gov>

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We certainly appreciate your buying our product and truly regret the inconvenience that this recall may cause you.

Workhorse Custom Chassis