



# SPARTAN CHASSIS, INC.

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NHTSA # 07V-300

RSB07-260-001

August, 2007

## RECALL SERVICE BULLETIN

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**SUBJECT:** Steering – ZF Steering Gear

**APPLIES TO:** Certain Spartan Firetrucks and K2 & K3 Motorhomes equipped with ZF servocom S2, type 8018 steering gear and having a VDM (Vehicle Date of Manufacture) of October 20, 2003 through June 16, 2005.

**CONDITION:** Higher force required at steering wheel; more adjustment to steering wheel while traveling in a straight line; interruption in the connection between the steering wheel and the wheels of vehicle.

**CAUSE:** Defect in steering gear.

**CORRECTION:** Replace steering gear.

**PLEASE READ THE ENTIRE BULLETIN BEFORE PROCEEDING WITH ANY WORK AND CONTACT SPARTAN CHASSIS IF THERE ARE ANY CONCERNS WITH THE PROCEDURES CONTAINED IN THIS DOCUMENT**

### **PART / SERVICE INFORMATION:**

*Steering gear must be returned to Spartan Chassis Inc. using the Spartan return policy.*

### **Specialty Tools**

Socket - 70MM

Gear Puller

**Labor Time:** 3.0 Hrs.

<b><u>QTY.</u></b>	<b><u>Part Number</u></b>	<b><u>Description</u></b>
1	S-1855-001A	Kit MH - ZF8018 LH THR Steering Gear
1	S-1855-002A	Kit FT - ZF8018 LH THR Steering Gear
As Required	N/A	Hydraulic Fluid AW46 or Equivalent
As Required	N/A	ATF Dexron 111 or Equivalent

Technical Service Bulletins are intended for use by Professional Technicians only. They are written to guide Professional Technicians in performing service to vehicles of product specific nature in conjunction with industry standards. Professional Technicians are appropriately trained on industry standards and have the tools and equipment to perform procedures safely and properly.



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### Kit # S-1855-001A MH Contains:

<u>QTY.</u>	<u>Part Number</u>	<u>Description</u>
1	1351-KK1-001	Steering Gear – ZF8018
1	M20150090H7B	Bolt-M20-1.50 X 90MM LG. Hex GRD.10.9 Blk.
3	M20150100H7B	Bolt-M20-1.50 X 100MM LG. Hex GRD.10.9 Blk.
4	M20150HSN7B	Nut, Hex-M20 X 1.50
8	12FWSAEB	Washer- 3/4" Flat SAE Blk.
1	0203-BB1-001	Pin- Cotter
1	3506	Clamp-Hose
1	RSB07-260-001	Document Instructions

### Kit # S-1855-002A FT Contains:

<u>QTY.</u>	<u>Part Number</u>	<u>Description</u>
1	1420-KK1-001	Steering Gear – ZF8018
4	M20150100H7B	Bolt-M20-1.50 X 100MM LG. Hex GRD.10.9 Blk.
4	M20150HSN7B	Nut, Hex-M20 X 1.50
8	12FWSAEB	Washer- 3/4" Flat SAE Blk.
1	0203-BB1-001	Pin- Cotter
1	RSB07-260-001	Document Instructions

### STEP-BY-STEP INSTRUCTIONS

1. Observe all industry safety standards and secure vehicle to allow for installation of the steering gear.
2. Drain power steering reservoir. Properly dispose of fluid.
3. Remove pressure and return hoses from fittings on steering gear. Mark hoses for pressure and return.
4. Refer to FIG. 3-1. Disconnect steering slip shaft from steering gear input shaft. Retain pinch bolt and nut.
5. Disconnect drag link from pitman arm. Retain castle nut and discard cotter pin.
6. Remove pitman arm from steering gear (may require a gear puller). Retain pitman arm for reuse.

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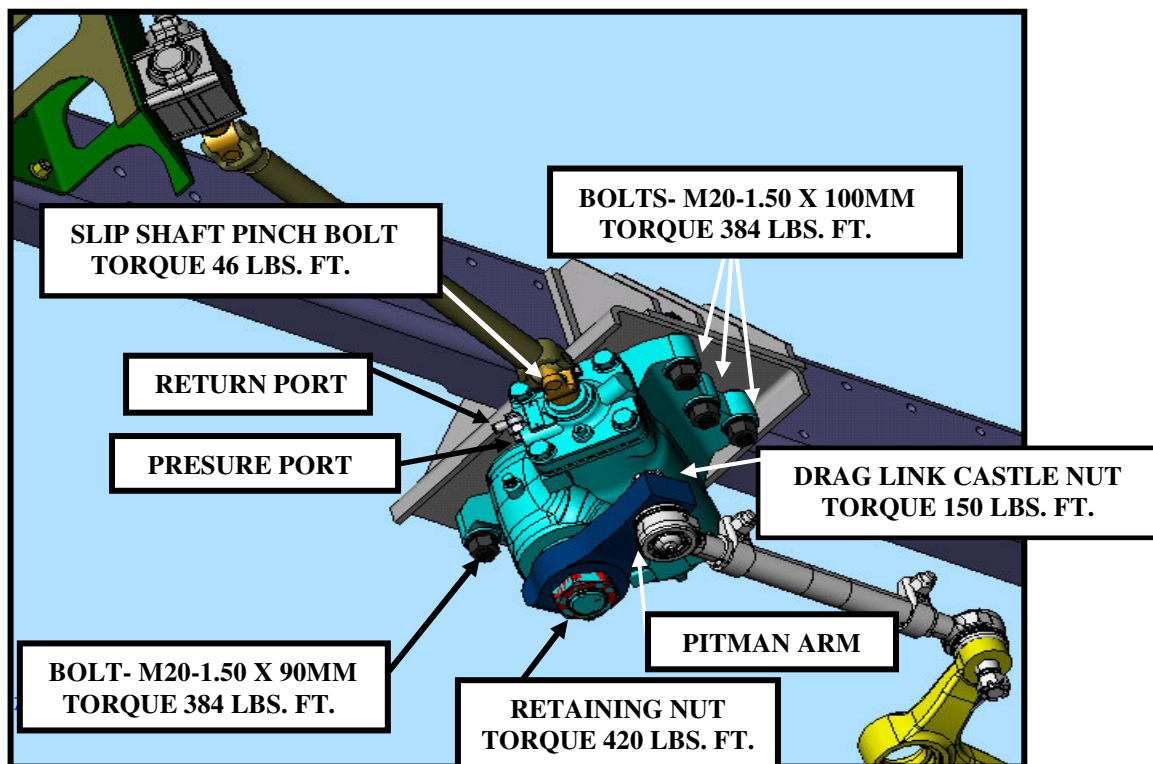
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**NOTE: Keep retaining nut with gear for return to Spartan Chassis.**

7. Remove hose fittings from steering gear, mark which one was pressure and which one was return. Retain fittings for reuse.
8. Remove steering gear from steering gear support. Steering gear must be returned to Spartan Chassis Inc. Discard mounting bolts, nuts and washers.
9. Remove all corrosion from steering gear mating surfaces on steering gear support.
10. Install new steering gear to support using new bolts, nuts and washers. Apply Loctite® 242® Threadlocker to the new M20-1.50 X 90mm and M20-1.50 X 100MM hex head bolts to the first five threads from the end. Torque nuts to 384 lbs. ft.



**BOTTOM VIEW OF STEERING GEAR FOR RV**

**FIG. 3-1**

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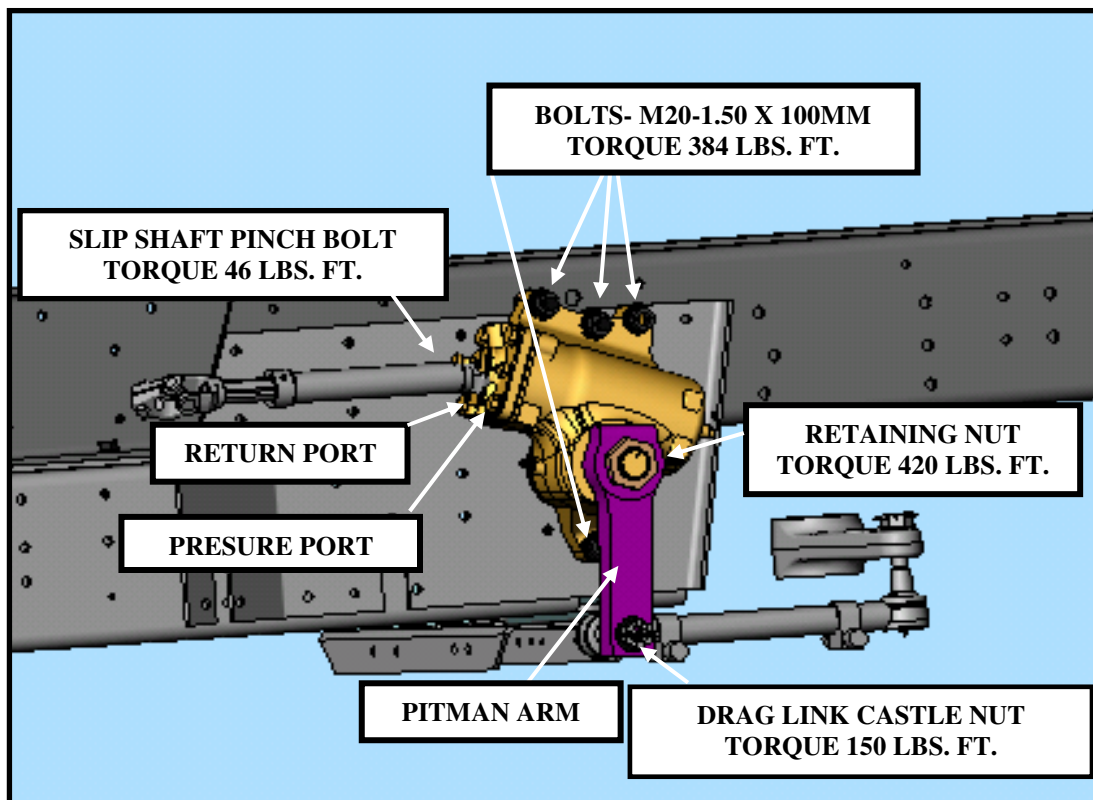
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11. Install hose fittings removed from original steering gear into ports on new gear. Torque to 48 lbs. ft.



**SIDE VIEW OF STEERING GEAR FOR FIRETRUCK**

**FIG. 4-1**

12. Install pitman arm removed from original steering gear onto output shaft of new gear making sure that timing marks on steering gear output shaft and pitman arm are all in line. Tighten pitman arm retaining nut finger tight at this time.
13. Reinstall drag link to pitman arm. Torque castle nut to 150 lbs. ft. and install new cotter pin.

**NOTE: It may be necessary to rotate the pitman so that it will line up with the drag link. This may be accomplished by rotating the steering gear input shaft.**

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14. Torque the pitman arm retaining nut to 420 lbs. ft. Stake the collar on the nut into the dimple in the steering gear output shaft.
15. Reinstall pressure and return hoses to fittings on steering gear. Use a new hose clamp for return hose, if clamp is provided in kit.
16. Reinstall steering slip shaft to steering gear input shaft. Torque pinch bolt nut to 46 lbs. ft.
17. Fill the reservoir nearly full with the **appropriate fluid**. Do not steer. Start and run the engine for 10 seconds, then shut it off. Check and refill the reservoir. Repeat at least three times, checking the reservoir each time.

**NOTE: Motorhome application requires Hydraulic oil AW46.  
Firetruck application requires ATF Dexron 111.**

18. Start the engine and let it idle for 2 minutes. Do not steer. Shut off the engine and check the fluid in the reservoir. Refill as required.

### **CAUTION**

**DO NOT ALLOW THE FLUID LEVEL TO DROP SIGNIFICANTLY OR RUN OUT OF THE RESERVOIR. THIS MAY INDUCE AIR INTO THE SYSTEM.**

19. Start the engine again. Steer the vehicle from full left to full right several times. Add fluid, as necessary, to the full line on the dip stick.
20. Drive vehicle slowly forward while steering fully left and fully right to set the steering poppets.

**NOTE: If it is necessary to realign the steering wheel this should be done at the steering gear input shaft.**

**NOTE: The steering gear must be returned to Spartan Chassis Inc. for claim reimbursement.**

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