

NEWMAR CORPORATION

WARRANTY DEPARTMENT

TECHNICAL SERVICE BULLETIN																	
DATE ISSUED	MODEL YEAR(S) AFFECTED		MODEL(S) AFFECTED			TSB #											
3/24/08	2007 - 2008		All on Spartan MM & K2 chassis w/tag axles			339											
BRAND						TYPE											
All	<input type="checkbox"/>	American Star	<input type="checkbox"/>	Mountain Aire	<input checked="" type="checkbox"/>	All	<input type="checkbox"/> T T <input type="checkbox"/>										
Cypress	<input type="checkbox"/>	Dutch Star	<input checked="" type="checkbox"/>	Kountry Aire	<input type="checkbox"/>	F W	<input type="checkbox"/> C A <input type="checkbox"/>										
Northern Star	<input type="checkbox"/>	Kountry Star	<input type="checkbox"/>	Essex	<input checked="" type="checkbox"/>	D P	<input type="checkbox"/> D B <input type="checkbox"/>										
Scottsdale	<input type="checkbox"/>	King Aire	<input type="checkbox"/>	London Aire	<input type="checkbox"/>												
All Star ME	<input type="checkbox"/>	Ventana	<input type="checkbox"/>														
<table border="0"><tr><td><input type="checkbox"/> Air Conditioning & Heating</td><td><input type="checkbox"/> Electrical Components</td></tr><tr><td><input type="checkbox"/> Appliances & Accessories</td><td><input type="checkbox"/> Exterior Components</td></tr><tr><td><input type="checkbox"/> Cabinets & Furniture</td><td><input type="checkbox"/> Interior Components</td></tr><tr><td><input checked="" type="checkbox"/> Chassis Components</td><td><input type="checkbox"/> Plumbing & Bath Components</td></tr><tr><td><input type="checkbox"/> Construction Components</td><td><input type="checkbox"/> Windows, Awnings, Vents, & Doors</td></tr></table>								<input type="checkbox"/> Air Conditioning & Heating	<input type="checkbox"/> Electrical Components	<input type="checkbox"/> Appliances & Accessories	<input type="checkbox"/> Exterior Components	<input type="checkbox"/> Cabinets & Furniture	<input type="checkbox"/> Interior Components	<input checked="" type="checkbox"/> Chassis Components	<input type="checkbox"/> Plumbing & Bath Components	<input type="checkbox"/> Construction Components	<input type="checkbox"/> Windows, Awnings, Vents, & Doors
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DESCRIPTION OF PROBLEM																	
Possible failure of Tag Axle Pivot Bolt.																	
RECOMMENDED SOLUTION																	
Inspect tag axle suspension and attaching hardware per attached manufacturers procedure. READ THE ENTIRE PROCEDURE BEFORE BEGINNING DIAGNOSIS OR REPAIRS TO A UNIT. THIS IS SPARTAN TSB08-350-001. Any questions regarding this procedure should be directed to Spartan Motors.																	



SPARTAN CHASSIS, INC.

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TECHNICAL SERVICE BULLETIN

SUBJECT: Rear Suspension – Tag Axle Pivot Bolt

APPLIES TO: Certain Mountain Master and K-2 Motorhome Chassis Equipped with a Hendrickson Tag axle and having a VDM (Vehicle Date of Manufacture) of August 15, 2006 through May 17, 2007.

CONDITION: Pivot Bolt is prone to failure.

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

PART / SERVICE INFORMATION:

Labor Time: (1) Pivot Bolt W/ Wear Pads & Alignment: **3.0 Hrs.**

(1) Pivot Bolt W/ Wear Pads, (1) Suspension Hanger & Alignment: **6.0 Hrs.**

<u>QTY.</u>	<u>Part Number</u>	<u>Description</u>
1	S-1927-001	Kit-Pivot Bolt W/ Wear Pads
1	S-1927-002	Kit-Pivot Bolt W/ Wear Pads & Suspension Hanger-Driver
1	S-1927-003	Kit-Pivot Bolt W/ Wear Pads & Suspension Hanger-Passenger
As needed	81801 or equivalent	Pipe Sealant w/Teflon

Kit # S-1927-001 Contains:

<u>QTY.</u>	<u>Part Number</u>	<u>Description</u>
1	007780	Pivot Bolt Kit w/ Wear Pads
1	TSB08-350-001	Document Instructions

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-1927-002 Contains:

<u>QTY.</u>	<u>Part Number</u>	<u>Description</u>
1	007780	Pivot Bolt Kit w/ Wear Pads
1	006734-1	Suspension Hanger Bracket-Driver Side
1	006912	Cross member Bolt Kit
4	08130150FH8Y	1/2 -13 X 1.50" Lg. Flg. Hd. Bolt Grd.8 Yellow
12	08130175FH8Y	1/2 -13 X 1.75" Lg. Flg. Hd. Bolt Grd.8 Yellow
16	0813FLN8Y	1/2 - 13 Flg. Lock Nut Grd.8 Yellow
1	TSB08-350-001	Document Instructions

Kit # S-1927-003 Contains:

<u>QTY.</u>	<u>Part Number</u>	<u>Description</u>
1	007780	Pivot Bolt Kit w/ Wear Pads
1	006734-2	Suspension Hanger Bracket-Passenger Side
1	006912	Cross member Bolt Kit
4	08130150FH8Y	1/2 -13 X 1.50" Lg. Flg. Hd. Bolt Grd.8 Yellow
12	08130175FH8Y	1/2 -13 X 1.75" Lg. Flg. Hd. Bolt Grd.8 Yellow
16	0813FLN8Y	1/2 -13 Flg. Lock Nut Grd.8 Yellow
1	TSB08-350-001	Document Instructions

STEP-BY-STEP INSTRUCTIONS:

1. Observe all industry safety standards, disconnect any necessary power source and secure vehicle for inspection/ replacement of tag axle pivot bolt.
2. Jack up rear of coach enough to remove the broken pivot bolt from the joint between the tag axle trailing arm and suspension hanger.
3. Remove pivot bolt, eccentric washer, flanged washer, hardened steel washers, nut and wear pads (if present) from joint and properly dispose of all hardware.
4. Refer to FIG. 3-1. Inspect edges of slot on inboard and outboard sides of hanger for damage. If damage to the hanger is evident proceed with step 4. If no damage to the suspension hanger is evident skip to step 18 and order service kit **S-1927-001**.

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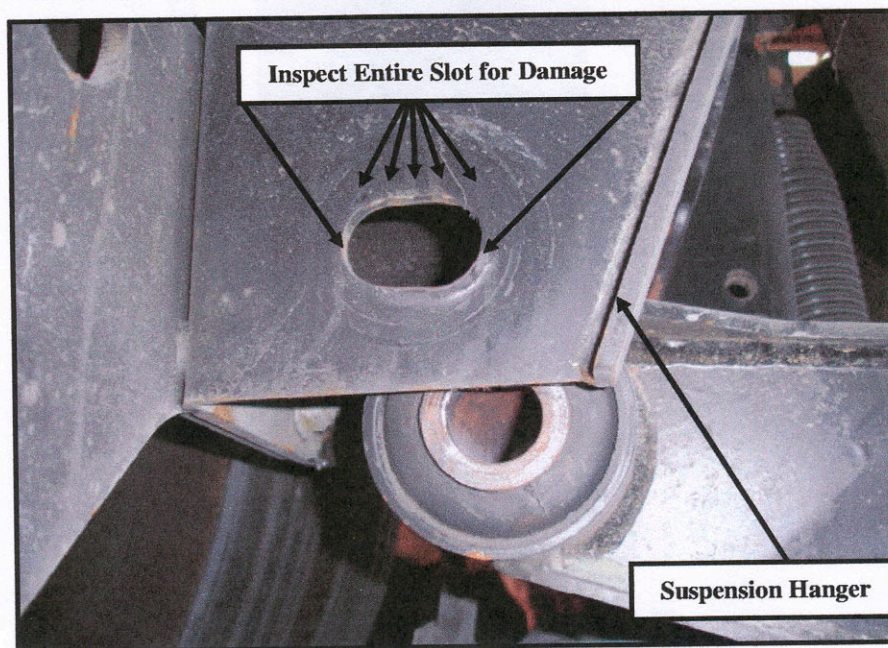
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- 4a. If driver side hanger is damaged order service kit S-1927-002.
- 4b. If passenger side hanger is damaged order service kit S-1927-003.
5. Jack up vehicle using the proper safety devices to support the vehicle.
6. Remove wheel dressings and retain for reuse.
7. Remove wheel assemblies from drive and tag axles to gain access to the damaged suspension hanger.
8. Disconnect top of shock absorber from upper shock absorber mounting bracket thus gaining access to the air spring. Retain hardware for reuse.



SUSPENSION HANGER

FIG. 3-1

9. Deflate the air spring, disconnect the air line from the fitting on air spring and remove fitting from port on air spring. Retain fitting for reuse.

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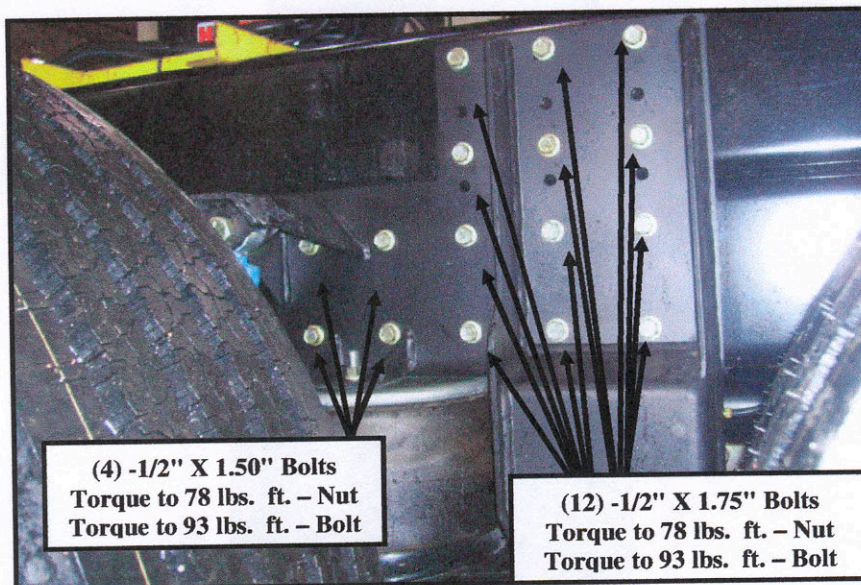
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10. Disconnect the air spring from the upper air spring support. Retain hardware for reuse.
11. Refer to FIG. 8-1. Detach the cross member from the front of each suspension hanger and discard fasteners, retaining cross member for reuse.
12. Remove leveling jack and jack mounting bracket to allow removal of the suspension hanger. Retain all components and hardware for reuse.
13. Remove dump valve from inside of the suspension hanger. Retain hardware and valve for reuse.
14. Refer to FIG. 4-1. Remove suspension hanger from frame rail. Discard suspension hanger and mounting hardware.
15. Refer to FIG. 4-1 & 8-1. Install new suspension hanger using new 1/2" X 1.50" and 1/2" X 1.75" bolts and nuts from kit. Torque to 78 lbs. ft. from nut or 93 lbs. ft. from bolt head.
16. Reinstall dump valve to the mounting holes on the new suspension hanger and secure as needed.



SUSPENSION HANGER

FIG. 4-1

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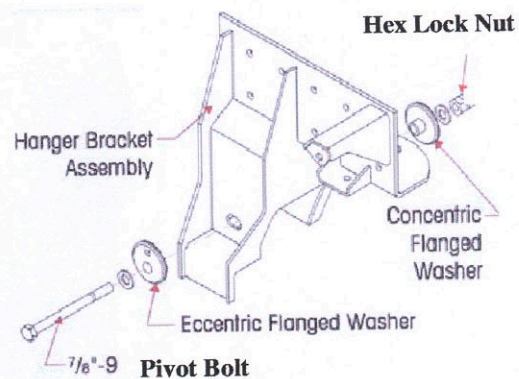
17. Reinstall the cross member to the front of the suspension hangers using new hardware from the Hendrickson Cross Member Bolt Kit (006912) included in the Spartan kit. Torque to 175-190 lbs. ft.
18. Refer to FIG. 5-1. Install a new Hendrickson Pivot Bolt Kit (007780) included in the Spartan Kit into the joint between suspension hanger and trailing arm. The two (2) wear pads (nylon washers) must be between the trailing arm and sides of the hanger, the flanged eccentric washer (washer with square hole) must be on the outside of the outboard side of suspension hanger with the square hole located at the 12 O'clock position, and the flanged inner washer must be on the outside of the inboard side of the hanger. The pivot bolt may be installed either with the head outboard or inboard depending on access. **Do not torque** until after alignment.

NOTE: If hanger was replaced continue with the next step. If hanger replacement was not necessary proceed to "Alignment" instructions.

19. Reattach air spring to upper air spring support reusing original hardware. Torque the nut on the outer (solid) stud to 25-35 lbs. ft. Torque the nut on the inner (hollow) stud to 40-50 lbs. ft.

NOTE: Apply 81801 pipe sealer w/Teflon or equivalent to pipe threads only.

20. Reinstall the air fitting into the hollow air spring mounting stud and secure.
21. Reinstall the air line into the fitting in the air spring and secure.
22. Reattach top of shock absorber to upper shock absorber mounting bracket reusing original hardware. Torque to 150-200 lbs. ft.
23. Reattach leveling jack and jack mounting bracket to the suspension hanger and secure.
24. Reinstall wheel assemblies. Torque wheel nuts in a star pattern to 450-500 lbs. ft.
25. Reinstall wheel dressings and secure as needed.



**Pivot Bolt & Hanger Assembly
FIG. 5-1**

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26. Reinflate the suspension to ride height.
27. If any power source was disconnected reconnect power source.

NOTE: Alignment Procedures should only be performed on the side of the vehicle that the pivot bolt was replaced.

Alignment Machine Procedure

1. Install alignment equipment on drive axle and tag axle.
2. Measure the angle between the drive axle and tag axle.
 - 2a. If the angle is between 0° and $\pm 0.08^{\circ}$ no alignment is necessary.
 - 2b. If the angle is greater than $\pm 0.08^{\circ}$ it will be necessary to align the tag axle. Proceed to the next step for correcting tag axle alignment.
3. Ensure the $\frac{1}{2}$ " square hole on the eccentric washer is at the 12 o'clock position.
4. Refer to FIG. 7-1. Using a $\frac{1}{2}$ " square drive breaker bar, rotate the eccentric washer to adjust the axle alignment until the axle is aligned.

NOTE: Be sure axle alignment occurred without compressing the pivot bushing.

5. Snug the pivot connection fasteners and recheck alignment. Torque fastener to 500-600 lbs. ft.

Trammel Bar Alignment Procedure

1. Refer to FIG. 6-1. Using a Trammel Bar, measure the distance between the drive axle spindle center to the tag axle spindle center on the left side of the vehicle (A).
2. Refer to FIG. 6-1. Using a Trammel Bar, measure the distance between the drive axle spindle center to the tag axle spindle center on the right side of the vehicle (B).

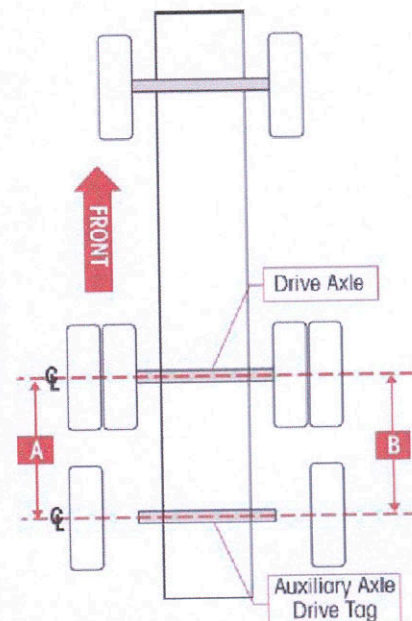


FIG. 6-1

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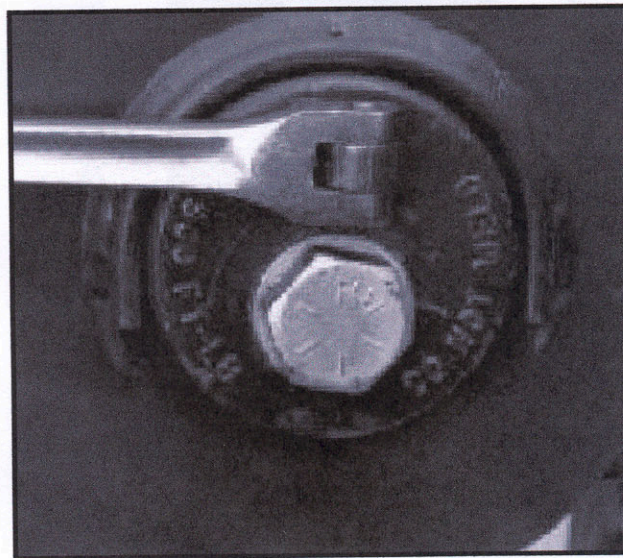
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3. Refer to FIG. 6-1. Calculate the difference between the two measurements (A-B).
 - 3a. If the difference is $1/16$ " or less, the auxiliary axle drive tag axle alignment is acceptable.
 - 3b. If the difference is greater than $1/16$ " it will be necessary to align the tag axle. Proceed to the next step for correcting tag axle alignment.
 4. Ensure the $1/2$ " square hole on the eccentric washer is at the 12 O'clock position.
 5. Refer to FIG. 7-1. Using a $1/2$ " square drive breaker bar, rotate the eccentric washer to adjust the axle alignment until the axle is aligned.
- NOTE: Be sure axle alignment occurred without compressing the pivot bushing.**
6. Snug the pivot connection fasteners and recheck alignment. Torque fastener to 500-600 lbs. ft.



Eccentric Washer Shown at the 12 O' Clock Position

FIG. 7-1

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