

**SUSPENSION—FRONT OR REAR—SIDE-TO-SIDE
LEVELING PROCEDURES AND ATTITUDE SERVICE
KITS FOR F-53 RV BASIC STRIPPED CHASSIS**

**Article No.
98-23-21**

FORD: 1989-1999 F SUPER DUTY, F-53

This TSB article is being republished in its entirety to include the latest level parts and to add 1999 model year vehicles.

ISSUE

Service procedures and Vehicle Attitude Service Kits have been developed to assist customers and vehicle modifiers with side-to-side leveling concerns related to weight distribution. The service procedures involve adding spacer(s) to the springs of the low corner of the vehicle.

ACTION

If service is required, use the appropriate service procedure and/or leveling service kit to properly level the vehicle.

NOTE

IT IS THE BODY BUILDER’S RESPONSIBILITY TO DESIGN THE VEHICLE SO AS TO PROVIDE PROPER SIDE-TO-SIDE WEIGHT DISTRIBUTION INCLUDING CONSIDERATION OF THE CUSTOMER’S STORAGE OF PERSONAL BELONGINGS AND/OR EQUIPMENT. INSTALLATION OF SPACER BLOCKS AND/OR ADDITIONAL SPRING LEAVES ON THESE MODIFIED VEHICLES IS NOT COVERED BY FORD FACTORY WARRANTY.

NOTE

IT SHOULD BE NOTED THAT THE SPRINGS USED IN THIS APPLICATION ARE EXTRA LONG, 102mm (4”) WIDE TAPER LEAF SPRINGS. UNDER NORMAL LOADING, THE SPRINGS WILL APPEAR FLAT AND/OR HAVE SOME REVERSE CAMBER. THIS CONDITION IS CONSIDERED NORMAL.

Determine which corner of the vehicle requires the addition of spacers by weighing each corner.

- If weighing equipment is not available, measure the distance from the top center of the axle adjacent to the spring pack to the bottom of the frame
- The weight method is preferred because rear side-to-side differences can affect the appearance of the front, regardless of the front side-to-side weight differential

Refer to the following Spacer Requirement Chart to determine the number of spacers to use.

SPACER REQUIREMENT			
Method	Front Differential	Rear Differential	Spacers Required
Weight	68-125 kg (150-275 lbs)	91-181 kg (200-400 lbs)	1
	125-181 kg (275-400 lbs)	181-272 kg (400-600 lbs)	2*
Height	6-13mm (0.25-0.50")	6-13mm (0.25-0.50")	1
	16-22mm (0.625-0.875")	16-22mm (0.625-0.875")	2*

(*) TWO 3/8” SPACERS MAXIMUM

FRONT VEHICLE LEVELING PROCEDURE

If the weight (height) differential is in the front of the vehicle, use Vehicle Attitude Kit. The following procedure is to be performed on the heavy (low) side of the vehicle only.

1. Jack up the front of the vehicle until the wheels are 102mm (4”) off the floor. Install floor stand under the frame, rearward of the front spring’s rear hanger, Figure 1.
2. Remove U-bolts, flatwashers, and nuts. Throw them away.
3. Install a C-clamp on the spring and tighten it to hold the leaves together, Figure 3.

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- Remove the center tie bolt and nut and discard.

NOTE

TO GAIN ENOUGH CLEARANCE SPACE TO REMOVE THE CENTER TIE BOLT, IT MAY BE NECESSARY TO LOOSEN THE U-BOLT NUTS ON THE OPPOSITE SIDE OF THE VEHICLE.

- Install spacer(s) using the new center tie bolt and nut included in the kit. Tighten the center tie bolt to 108 N•m (80 lb-ft).

NOTE

IF THE SPRING ORIGINALLY HAD A WEDGE INSTALLED BETWEEN IT AND THE AXLE, BE SURE TO INSTALL THE WEDGE BETWEEN THE SPACER(S) AND THE AXLE WITH THE THICK SIDE OF THE WEDGE TO THE REAR OF THE VEHICLE.

- If only one (1) spacer is used, cut off excess length of the center tie bolt so that only two (2) screw threads are visible. This is done to ensure the bolt will not interfere with the frame during full jounce. Remove the C-clamp.
- Install new U-bolts, flatwashers and nuts included in the kit. Tighten U-bolt nuts to 380 N•m (280 lb-ft).
- Recheck torque on the center tie bolt and be sure it is at 108 N•m (80 lb-ft).
- Remove jack stands and lower the vehicle to the ground.
- Recheck U-bolt torque and tighten if necessary.

REAR VEHICLE LEVELING PROCEDURE

If the weight (height) differential is in the rear of the vehicle, use Vehicle Attitude Kit. The following procedure is to be performed on the heavy (low) side of the vehicle only.

- Jack up the rear of the vehicle until the wheels are 204mm (8") off the floor. Install floor stand under the frame, forward of the rear spring's front hanger, Figure 1.

- Support the axle on the side to be worked on using either a tire wheel jack or a floor jack positioned under the axle to the inside of the U-bolt lower bracket, Figure 2.
- Remove and discard U-bolts, nuts, and flatwashers.
- Install a C-clamp on the spring and tighten to hold the leaves together. It may be necessary to loosen the U-bolt nuts on the opposite side of the vehicle to accomplish this step, Figure 4.
- Remove the center tie bolt and nut. Throw them away.
- Install spacer(s) using the new center tie bolt and nut included in the kit. Tighten the center tie bolt to 108 N•m (80 lb-ft).
- Remove C-clamp.
- Install new U-bolts. Use new flatwashers and nuts included in the kit. Tighten U-bolt nuts to 380 N•m (280 lb-ft).
- Remove the jack stands and lower the vehicle to the ground.
- Recheck U-bolt torque and tighten if necessary.

SUGGESTED LABOR TIMES	
OPERATION	SUGGESTED TIME
Install One Spacer In Front Axle	1.4 Hrs.
Install Two Spacers In Front Axle	1.3 Hrs.
Install One Or Two Spacers In Rear Axle	0.8 Hr.

PART NUMBER	PART NAME
F7TZ-5K648-AA	Vehicle Attitude Kit (For Front Leveling)
F7TZ-5A581-AA	Vehicle Attitude Kit (For Rear Leveling)

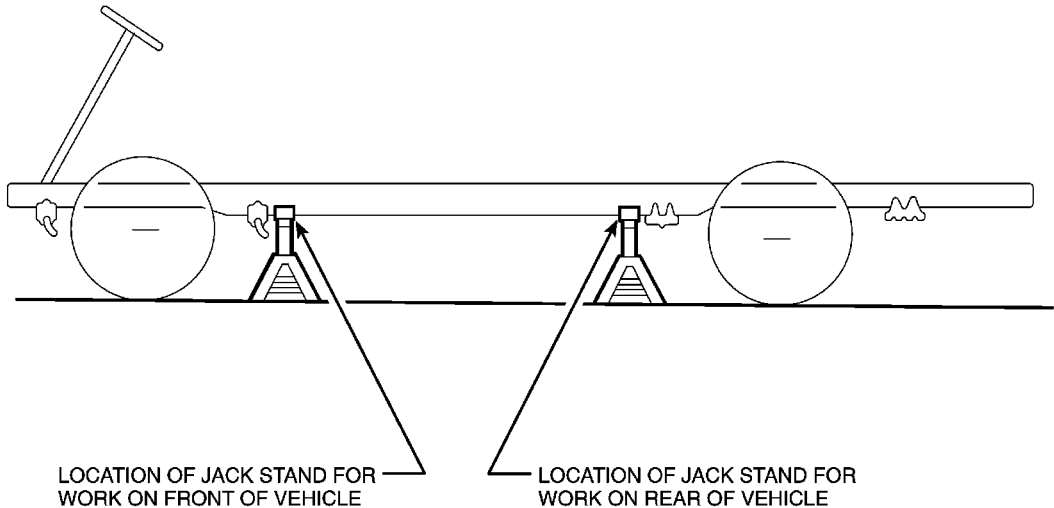
OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 96-24-13

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 303000, 304000, 305000

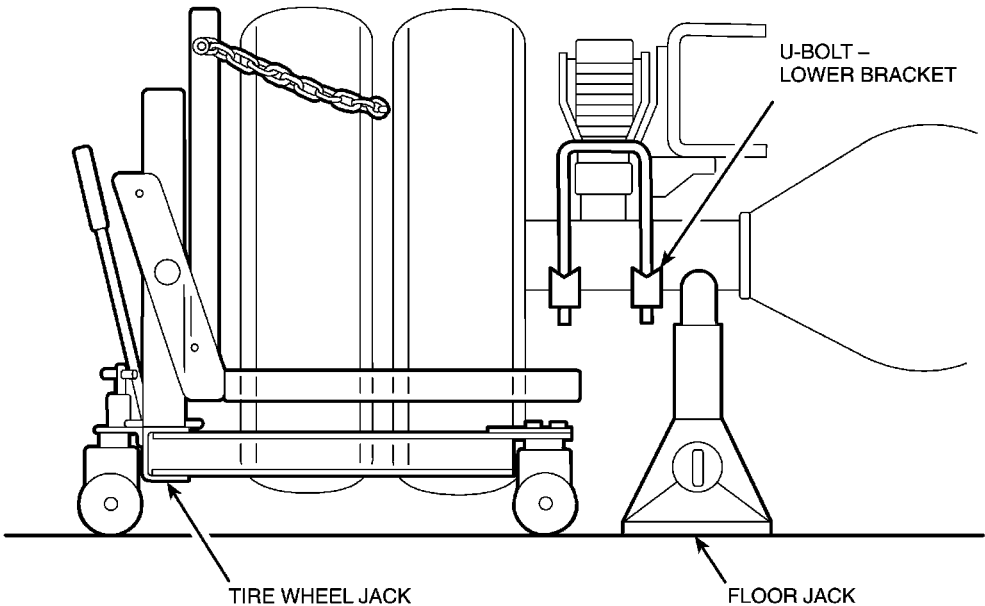
LOCATIONS FOR JACK STANDS



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Figure 1 - Article 98-23-21

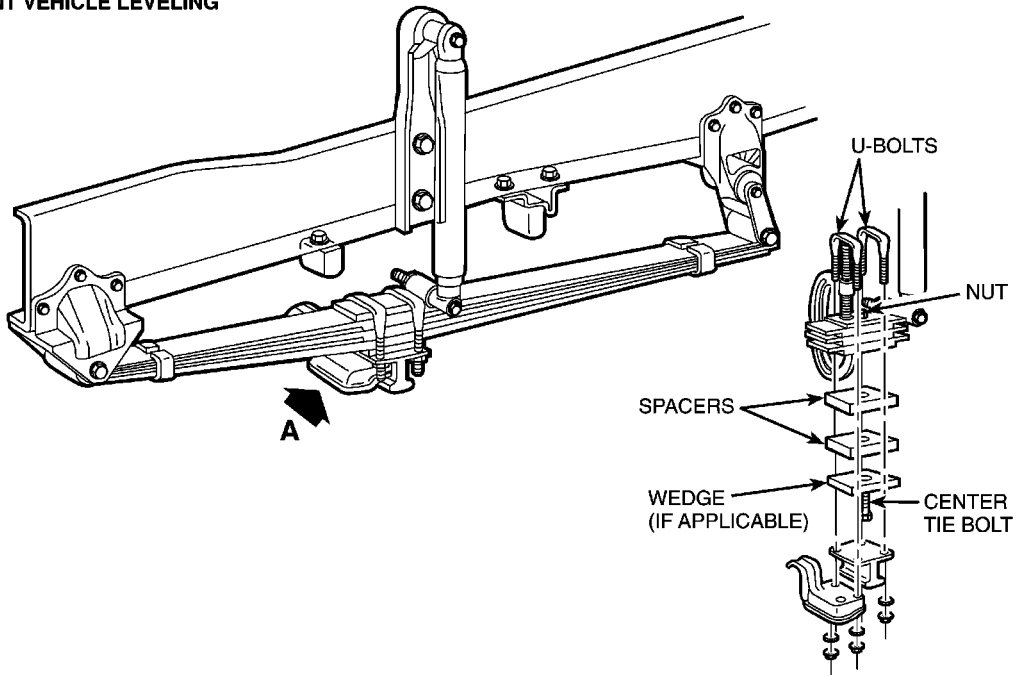
AXLE SUPPORT FOR REAR VEHICLE LEVELING



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Figure 2 - Article 98-23-21

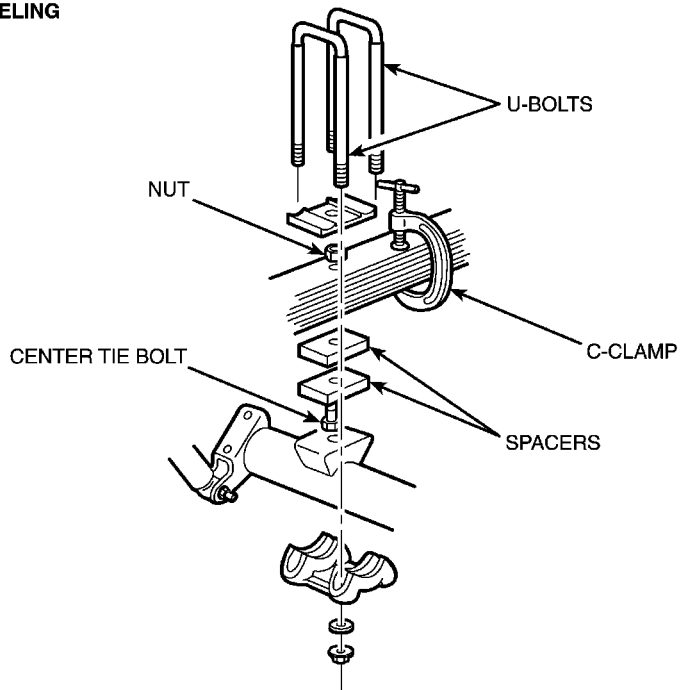
FRONT VEHICLE LEVELING



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Figure 3 - Article 98-23-21

REAR VEHICLE LEVELING



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Figure 4 - Article 98-23-21