



INSTALLATION INSTRUCTIONS

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6420 SHACKLE & HANGER KIT FORD F-350

Congratulations! You were selective enough to choose a BELLTECH PRODUCT. We have spent many hours developing our line of products so that you will receive maximum performance with minimum difficulty during installation.

- Note:** Confirm that all of the hardware listed in the parts list is in the kit. **Do not** begin installation if any part is missing. Read the instructions thoroughly before beginning this installation.
- Warning:** **DO NOT** work under a vehicle supported by only a jack. Place support stands securely under the vehicle in the manufacturer's specified locations unless otherwise instructed.
- Warning:** **DO NOT** drive vehicle until all work has been completed and checked. Torque all hardware to values specified.
- Reminder:** Proper use of safety equipment and eye/face/hand protection is absolutely necessary when using these tools to perform procedures!
- Note:** It is very helpful to have an assistant available during installation.

RECOMMENDED TOOLS:

- Properly rated floor jack, support stands, and wheel chocks
- Combination wrench set
- Torque wrench: *0-75 lb ft. range*
- Ratcheting socket wrench and socket sets
- Air Chisel / Die grinder W/ cut off wheel
- Safety Glasses

KIT INSTALLATION

1. Open the hardware kit and remove all of the contents. Refer to the part list (Page 5) to verify that all parts are present.
2. Park the vehicle on a smooth level asphalt or concrete surface. Place a block in front of and behind the front wheels. Jack up the rear of the vehicle and place jack stands securely under the frame in the manufacturer's specified locations. Remove the rear wheels.
3. Block the front wheels of the vehicle and raise the rear wheels of the vehicle off of the ground with a floor jack rated for this load. Position a set of jack stands rated for this load forward of the front leaf spring hanger brackets. Lower the vehicle down onto these jack stands and verify the vehicle's stability with the floor jack located under the center of the rear axle housing. Remove the rear wheels from the vehicle.
4. With the floor jack located under the center of the rear axle housing, apply a slight amount of preload to the leaf springs by raising the floor jack pad to touch the rear axle housing and then raising the rear axle housing another $\frac{1}{2}$ " to 1", or as necessary.

5. Remove the lower shock absorber eye hardware, and swing the shock absorber bodies down and away from the rear axle housing.
6. Remove the sway bar end links from the chassis side rails and the ends of the Sway Bar. (PHOTOS 1 & 2)
7. Starting on the driver's side of the vehicle, remove the U-bolt nuts, leaf spring plate and U-bolts. Remove the leaf spring pack overload leaf and mounting pad from the top of the leaf spring pack assembly. (PHOTOS 3,4 & 5)
8. Supporting the forward end of the leaf spring pack, remove the forward leaf spring eyebolt and nut from the forward leaf spring hanger. Retain this hardware for reuse. (PHOTO 6)
9. Clamp the leaf spring pack together using "C" type clamps or a suitable tool. Remove the leaf spring pack center bolt nut and remove the bolt. Install the kit supplied leaf spring pack center bolt from the bottom of the leaf spring pack, having first fitted the kit supplied spacer onto the bolt shaft. Torque the leaf spring pack center bolt and nut to 88-93 Ft.-lbs. Using the die grinder with a cutoff wheel, or similar tool, remove the excess leaf spring center bolt that extends above the nut. **CAUTION: Always wear eye protection when using power tools or striking tools.** (PHOTOS 7, 8 & 9)
10. Remove the leaf spring pack upper overload leaf fore aft bumpers from the chassis rail by grinding a slot in the rivet heads of the bumper using a die grinder with a cutoff wheel, or suitable tool. (PHOTO 10) Remove the slotted rivet heads by using an air chisel or suitable tool. Using a punch, or suitable tool, drive the remaining rivet shank through the chassis rail. Remove the bumper from the chassis rail. **CAUTION: Always wear eye protection when using power tools or striking tools. CAUTION: The fuel tank is mounted close to the inboard sides of the chassis rails. Use caution when driving rivet shanks through the chassis rails when working in the vicinity of the fuel tank.**
11. Remove the OEM bump stop and bracket from the chassis. This may be accomplished by first unbolting the bump stop. Removal of the bracket is accomplished by slotting the rivet heads using a die grinder with a cutoff wheel, or similar tool. (PHOTO 11) Remove the slotted rivet heads with an air chisel or suitable tool. Using a punch, or suitable tool, drive the remaining rivet shank through the chassis rail. Re-install the kit supplied bump stop in the original bump stop hole. **CAUTION: Always wear eye protection when using power tools or striking tools.**
12. Remove the forward leaf spring hanger from the chassis rail by grinding a slot in the rivet heads using a die grinder with a cutoff wheel, or suitable tool. (PHOTO 12) Remove the slotted rivet heads by using an air chisel or suitable tool. Using a punch, or suitable tool, drive the remaining rivet shank through the chassis rail. Remove the hanger from the chassis rail. **CAUTION: Always wear eye protection when using power tools or striking tools. CAUTION: The fuel tank is mounted close to the inboard sides of the chassis rails. Use caution when driving rivet shanks through the chassis rails when working in the vicinity of the fuel tank.**
13. Using a ½" drill bit, drill through the existing rivet holes to allow clearance for the kit supplied hanger securing hardware. Install the kit supplied hangers by first inserting the kit-supplied hardware from the inside of the chassis rails and then slipping the hanger onto the bolts. (PHOTO 13) Torque the kit supplied hardware to 140-145 Ft.-lbs. **CAUTION: Always wear eye protection when using power tools. CAUTION: The fuel tank and electrical and brake components may be closely located behind the chassis rails on your vehicle. Use caution when drilling through the chassis to avoid damaging these components.**
14. Loosen the rear leaf spring pack eye-to-shackle and shackle-to-hanger hardware. Raise the leaf spring pack assembly and locate the forward end into the kit supplied hanger. Install the retained OEM forward leaf spring eye hardware through the hanger and the leaf spring pack eye. Install the leaf spring pack eyebolt nut, but do not tighten at this time. Supporting the rear end of the leaf spring pack,

remove the leaf spring pack eye-to-shackle and shackle-to-hanger hardware. Remove the OEM shackle and replace with the kit-supplied shackle. Re-install the rear leaf spring pack eye-to-shackle and shackle-to-hanger hardware but **do not** tighten at this time. (PHOTO 14)

15. Raise the rear axle housing toward the rear leaf spring pack. Install the kit supplied rear axle pad shims with the thicker portion of the shims facing forward so that the cutout in the shim is butted up against the leaf spring pack center bolt spacer. (PHOTO 15) Raise the rear axle to locate the spring center bolt in the axle tube-housing pad. Install the U-bolts, spring plate and U-bolt washers and nuts, but **do not** tighten the U-bolt nuts to final torque at this time.
16. Repeat steps 5 through 13 for the passenger side of the vehicle.
17. Torque all U-bolt nuts to 85-110 Ft.-lbs.
18. Remove the two bolts that secure the rear transmission housing to the transmission rubber mount. (PHOTO 16) Remove the two nuts that secure the rear transmission mount to the vehicle cross member. With a jack rated for this load, lift the rear of the transmission to allow removal of the transmission rubber mount. **NOTE: Do not** raise the transmission so as to damage any of the transmission fittings or couplers.
19. Slip the kit supplied transmission spacer, over the studs of the transmission rubber mount and re-install the mount. Re-install the stock flange nuts and transmission mount bolts. Transmission mount bolts should have a thread-locking agent such as Locite applied before installation. Torque all previously removed transmission mount hardware to 50-60 Ft.-lbs. (PHOTO 17)
20. Supporting the drive shaft at the center carrier bearing, remove the bolts that secure the drive shaft center carrier bearing into place. (PHOTO 18) Secure the drive shaft to the chassis rail of the vehicle to gain access to the drive shaft center carrier-bearing mount.
21. Slot the center carrier bearing mount rivet heads using a die grinder with a cutoff wheel, or suitable tool. (PHOTO 19) Cut off the rivet heads using an air chisel or suitable tool. Punch the remaining rivet shanks up through the center carrier bearing mount and remove the mount from the cross member. **CAUTION: Always wear eye protection when using power tools or striking tools.**
22. Install the kit supplied center carrier bearing relocater plate to the vehicle cross member using the kit supplied hardware. **NOTE:** install the kit supplied 7/16" by 2" bolts through the center carrier bearing relocater plate before bolting the plate to the cross member. Install the center carrier bearing into position with the kit supplied 1/2" spacer between the center carrier bearing and the center bearing and the center carrier bearing relocater plate. Torque all 7/16" hardware to 88-93 Ft.-lbs. (PHOTO 20) **NOTE:** On some vehicles it may be necessary to remove a portion of the under-cab cross member so that the drive shaft can be raised as described. The cross member should be modified so that a minimum of 1/2" of clearance exists between the drive shaft and the cross member. (PHOTO 21) As the center carrier bearing should be kept at a right angle to the drive shaft, on some vehicles it may be necessary to space the front or rear of the kit supplied center carrier bearing mount away from the vehicle cross member to maintain this right angle between components.
23. Re-install the rear shock absorbers into their mounts and install the lower shock absorber eyebolts and nuts. Torque the lower shock absorber hardware to 51-74 Ft.-lbs.
24. Raise the rear of the vehicle to unload the jack stands and relocate the jack stands under the rear axle housing tubes. Lower the vehicle onto the jack stands and check for stability with the floor jack located under the center of the rear axle housing.

25. Install the kit supplied end links into the Sway Bar ends with the bushings, washers and nuts installed but not tightened. Rotate the Sway Bar in its rear axle housing mounts so that the upper ends of the new end links are against the chassis bottom rails with the end links in as near a vertical position as possible. (PHOTO 22) Mark the position of contact between the upper end of the sway bar end links and the vehicle chassis rail. **NOTE:** To aid in the function of the rear Sway Bar after the installation, the marked locations should each be a similar distance from a known, side-to-side, symmetrical entity on the vehicle chassis rails, such as an existing rivet head or other evident point. The marked locations should also be centered, side-to-side; on the bottom of the chassis side rails flanges.
26. Drill a 9/16" hole up through the chassis rail at each of these points. First drilling with a small "pilot" drill bit can ease this step, and working up gradually in drill size until the final drill size is used. **CAUTION: Be aware of brake fluid lines and chassis wiring that may be in the vicinity of the drilled holes, so that component damage does not result during the drilling process.** Also the brake fluid lines may have to be reconfigured to stay clear of the end links after the completion of the installation. **CAUTION: Always wear eye protection when using power tools.**
27. Rotate the Sway Bar end links up into the drilled holes and complete the installation of the end link hardware. The nuts on the end links should only be tightened to the point that the end links can still be rotated, firmly by hand, after completion of the installation. (PHOTO 23)
28. Torque all leaf spring pack hardware to 150-210 Ft. lbs.
29. Re-install the rear wheels and tires. Raise the rear of the vehicle to clear the jack stands, remove the jack stands and lower the vehicle to the ground. The installation is complete.
30. U-bolt hardware torque should be rechecked after the first 10, 100, and 1,000 miles.

PART LIST FOR 6420

SHACKLE & HANGER KIT

PART No.	DESCRIPTION	QTY.
6420-001	Hanger	2
6425-001	Shackle Rear	2
4977-001	Pinion Shim 4°	4
6415-005	Drive Shaft Center Plate	1
110305	7/16-20 Nylon LN ZP	16
110645	Flat Washer 7/16"	24
110650	7/16-20 x 1-1/4" Grade 8 CS ZP	10
110408	1/2-20 x 1-1/4" Grade 8 CS ZP	12
110402	1/2"-20 GRC LN ZP	12
5415-040	End Link Rod ZP	3
6415-050	Stem Cushion	8
401377	Coin Washer ZP	8
110660	Flat Washer 1/2"	24
110314	Spring Center Bolt 7/16"-20 x 5"	2
110321	Coupling Nut 7/16"-20 x 1-1/8"	2
6420-003	Transpacer Plate	1
6420-005	Center Carrier Bearing	1
6420-007	Sleeve Spacers .625" x .095" x .625	2
110312	7/16"-20 x 2" Grade 8 CS ZP	2







