INSTALLATION INSTRUCTIONS

300 W. Pontiac Way Clovis, CA 93612 toll free: 1-800-445-3767 web: www.belltech.com

6444 & 6445
4" REAR AXLE FLIP-KIT
2009-2012 FORD F-150 2WD SHORT BED

Thank you for being selective enough to choose our high quality 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 (page 7) 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 and six (6) support stands
- Wheel chocks
- Metric socket set up to 27mm
- Metric combination wrench set up to 27mm
- Impact wrench
- C-clamps
- Power Drill
- Drill bit set
- Abrasive cutter
- Grinder
- Safety Glasses

JACKING, SUPPORTING AND PREPARING THE VEHICLE

a) Block the front wheels of the vehicle with appropriate wheel chocks. Make sure the vehicle's transmission is in "Park" (automatic) or 1st gear (manual). Activate the parking brake.

b) Loosen, but **DO NOT REMOVE**, the rear wheel lug nuts.

c) Lift the rear of the vehicle off the ground using a properly rated floor jack. Lift the vehicle so that the rear tires are approximately 6-8 inches off the ground surface.

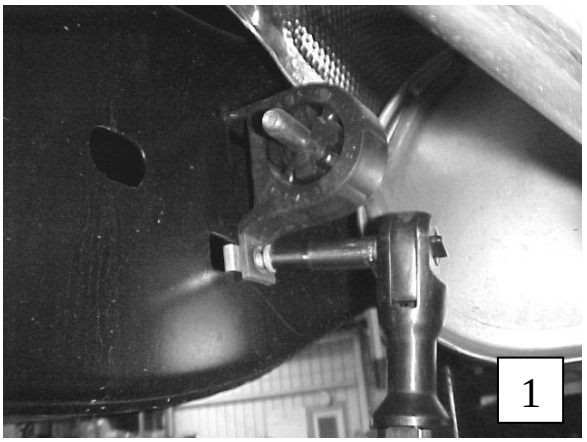
d) Support the vehicle using four (4) support stands, rated for the vehicle's weight. The stands should be positioned, two on each of the frame rails, just forward of the front leaf spring hangers and just below the

rear leaf spring shackle hangers. Prior to lowering the vehicle onto stands, make sure the supports will securely contact the straight, flat portions of the frame rails. It is very important that the vehicle is properly supported during this installation to prevent frame damage and personal injury! Make sure that the support stands are properly placed prior to performing the following procedures.

e) Lower the vehicle slowly onto the stands and, before placing the vehicle's weight on them, again check that they properly and securely contact the frame rails as described above. Check for possible interference with any lines, wires, or cables.

f) Remove the rear wheels from the vehicle.

SAFETY REMINDER: Check for safe vehicle stability before proceeding under the vehicle to begin the following procedures. Never work under a vehicle supported by only a jack. Always use properly rated support stands to support the vehicle.



PRE-INSTALLATION / DIS-ASSEMBLY

The exhaust will need to be unbolted and lowered so the leaf spring hanger can be easily removed.

1. EXHAUST

1a) Remove the exhaust hanger brackets before and after the muffler as well as the exhaust hanger behind the rear axle. (**photo 1**)

2. LEAF SPRING REMOVAL

Warning: Leaf springs may be under tension. Springs under tension store a great amount of energy. Use caution during the following steps to avoid personal injury and/or damage to vehicle. Be careful not to damage the brake hoses and/or driveline while relocating rear axle assembly.

2a) Properly support the axle using a jack or lifting device so that it can be raised and lowered. Also support the rear axle near the rear u-joint to keep the axle from rotating once unbolted.

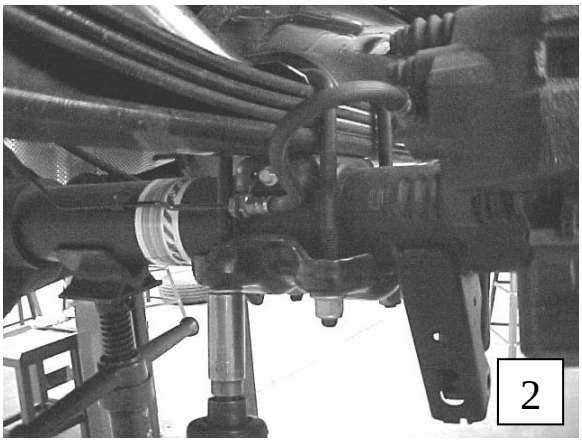
2b) Remove both shocks using an **18mm** and **15mm** socket and or wrench.

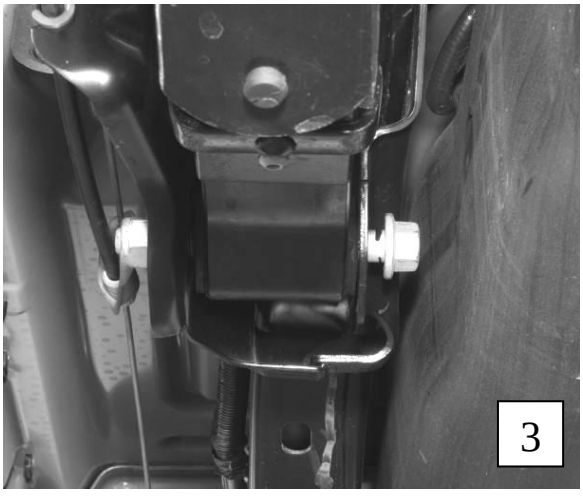
2c) Remove the U-bolts using a **21mm** socket **(photo 2)**.

2d) Remove the lower shackle bolt that connects it to the rear hanger and leave the shackle connected to the spring at this time.

2e) Remove the passenger side front spring hanger bolt using a **24mm** and **27mm** socket and or wrench.

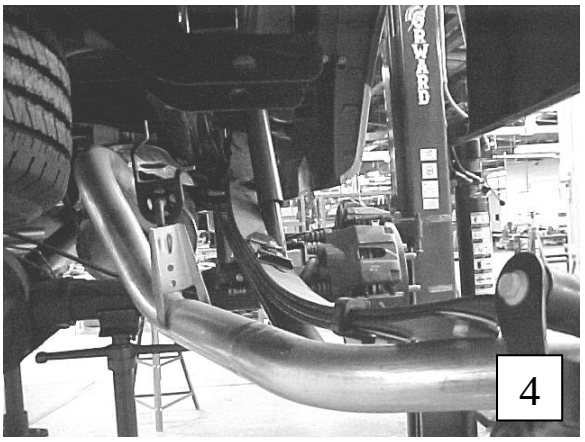
2f) Loosen the front spring hanger nut and bolt with **24mm** and **27mm** tools Back the bolt and nut off sufficiently to expose the bolt shank. Due to the fuel tank location, the driver side front spring hanger bolt needs to be cut off. Cut off the head of the bolt, being careful not to damage the fuel tank **(photo 3)**.





2g) Mark the leaf springs “Left” and “Right”. Also mark each forward spring end with a forward pointing arrow so that the springs can be properly reinstalled into their original locations.

2h) Remove both leaf springs from under the vehicle. It might be necessary to lower the axle before they can be removed (**photo 4**).



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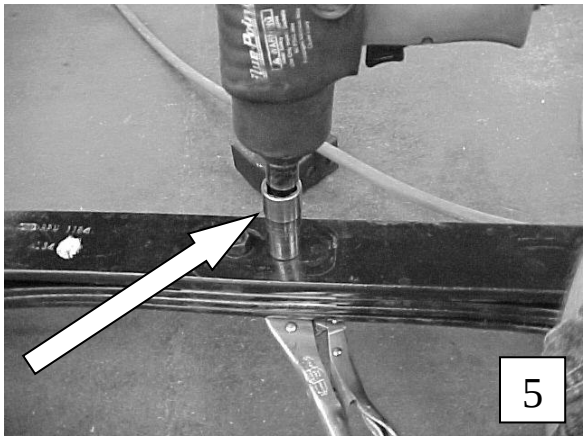
3. LEAF SPRING PREPARATION

3a) Remove and reverse both center bolts on the leaf springs using a **19mm** socket. **DO NOT** re-attach the U-bolt locating plate that’s bolted to the top of the spring: It is no longer needed. **NOTE**: It might be helpful to use a couple of C-clamps to hold the spring pack together while you reverse the center bolts, or loosen them and reverse one at a time. Tighten the center bolts using a vice grip and **19mm** socket **(photo 5)**.

3b) Repeat this process on the other leaf spring.

3c) Remove the bolt securing the brake hydraulic line to the OEM leaf spring mount on each side of the axle using a **10mm** socket **(photo 6)**.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6

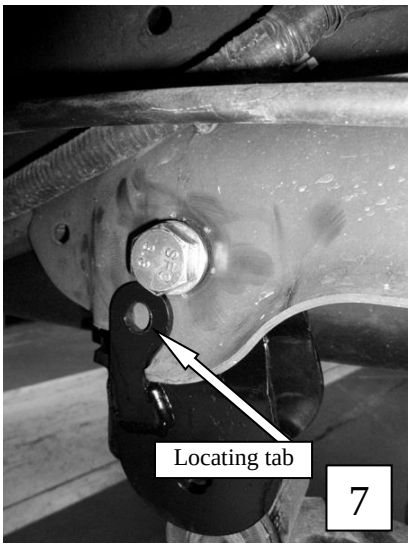
4. LEAF SPRING HANGER INSTALLATION

4a) Install the hanger into the front leaf spring mount and install the supplied mounting bolt, washers, and lock nuts. Do not tighten the bolts yet. (**photo 7**)

4b) Push the lower portion of the hanger forward on the vehicle until the support rests **firmly against the frame bracket**. (**photo 8**) During installation on the drivers side, place a barrier between the original frame bracket and the gas tank to prevent damage to the gas tank during drilling.

4c) Clamp the hanger into place or have an assistant hold the bracket in place during drilling to ensure the hole location does not move. Drill a ½” hole centered in the hole of the locating tab. (**photo 7**) Drill all the way through both sides of the original bracket.

4d) Install the supplied bolts, washers, and lock nuts through though the hole that now goes through the frame. (**photo 8**) Tighten ½” bolt to **40 ft. lbs**. Tighten large mounting bolts to **75 ft. lb**.



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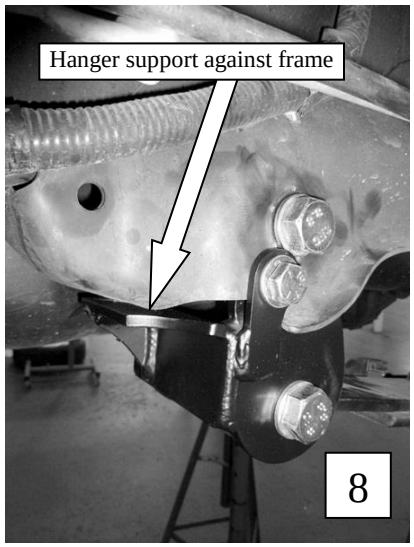

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5. LEAF INSTALLATION

5a) Raise the axle upward into the vehicle so the springs may pass under the axle and bolt onto the chassis.

5b) Starting from the passenger side, place the leaf spring in the Belltech front spring hanger and

insert the bolt. Once in, rotate the spring back and insert the lower shackle bolt in the rear hanger. Torque the front spring hanger bolt to **95 ft lb**; leave the rear shackle bolt loose it will be tightened after the vehicle has been set down.

5c) Repeat this process on the driver side leaf spring. For the driver side front leaf spring bolt, used the supplied 18x2.5x140mm bolt, Nyloc and washers. The bolt will need to be inserted from outside in and torqued to **95 ft lb** with **27mm** tools.

5d) Install the two axle saddles onto the leaf springs with the two locating holes forward on the saddles.

5e) Lower the axle into the saddles ensuring the two tabs are positioned up inside the factory spring mount.

5f) Install the U-bolt Spring Pad Mount atop the axle, centering it atop the mount surface. (**Photo 9**) The U-Bolt Spring Pad Mount restricts slippage of the axle when torque is applied.

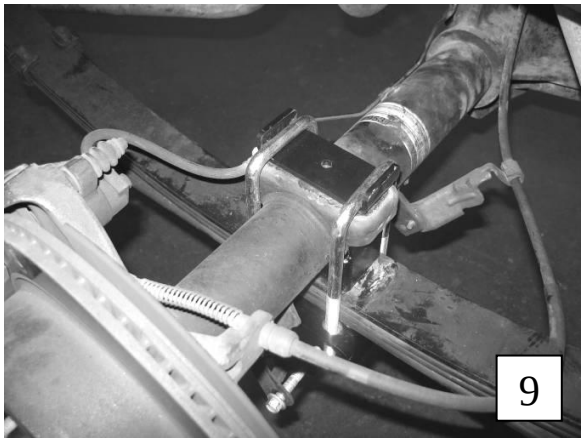
5g) Install the U-bolts and U-bolt plates onto the axle loosely threading the hardware in place.

5h) Tighten all the U-bolts using a **23mm** socket. **NOTE:** The U-bolts are longer than necessary for ease of installation. After securely fastening the U-bolts, the excess ends can be trimmed (**Photo 10**).

5i) Install shorter length shock absorbers. **THE OEM LENGTH SHOCKS WILL NO LONGER FIT**. We recommend the Belltech Street Performance (**2214EE**) or Nitro Drop 2 lowering shocks (**8537**).

5j) Use the supplied Belltech12x1.25x75mm bolt and flange nut for the bottom shock mount. Torque to **60 ft lb** using **19mm** tools**.** Install and tighten the OEM nut and bolt for the upper shock mount to **60 ft lb** using **10** and **18mm** tools.

5k) Install the brake hydraulic line bracket and securing bolt using a **10mm** socket tightened to **17 ft lb**. It may be necessary to grind down the tip of the bolt for proper seating.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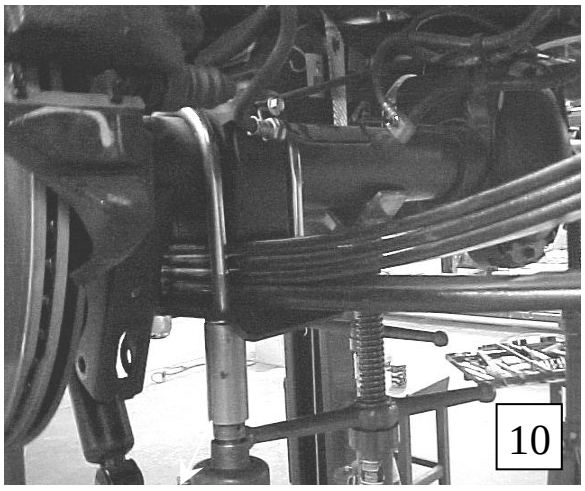
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11

6. RE-ASSEMBLY

6a) Re-connect the three exhaust mounts to the chassis.

6b) Bend the parking brake cable support bracket attached to the passenger side of the rear axle so that the parking brake cable has sufficient clearance from the hot exhaust tubing.

6c) Check to make sure that none of the hydraulic brake lines or ABS sensor lines running from the frame to the driver side of the rear axle do not become pinched as the rear axle compresses. Zip tie or rearrange these lines if necessary.

7. DRIVELINE ADJUSTMENTS

For regular cab applications you will need to use the supplied Belltech transmission spacer to relocate the transmission in a higher position.

7a) Remove the two nuts located on the transmission mount, lifting the transmission high enough to install the supplied spacer. (**photo 11**).

7b) Lower the transmission onto the spacer and tighten the two nuts to **75 ft lb**.

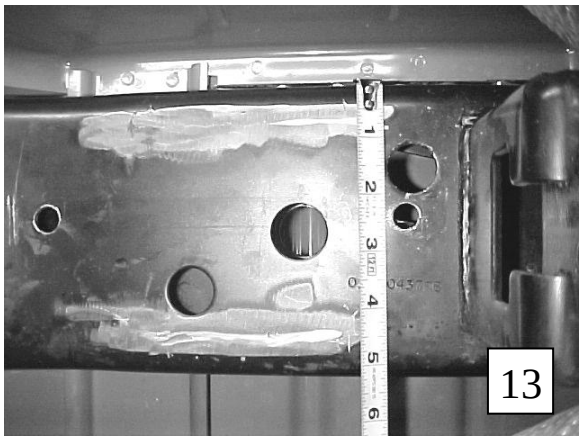
For models with two piece driveshafts you will need to re-locate the center carrier bearing mount.

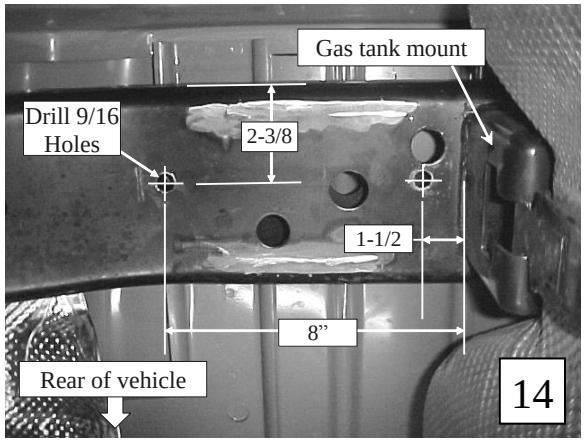
7c) Move the driveline by unbolting the two center carrier-bearing bolts. Push the center carrier bearing towards the passenger side of the car and support it in place with a jack or stand. **NOTE:** Be very careful not to drop and dent or damage the two-piece driveline or it might have to be replaced.

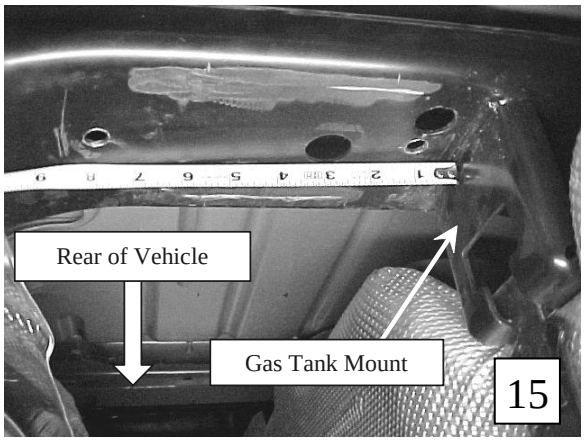
7d) Remove the center-carrier bearing mount by cutting the weld that connects it to the cross member (**photo 12**). For best results use a thin abrasive cutting wheel.

7e) Use a grinder to clean up any excess material that was not cut off when removing the mount. You should have two smooth surfaces where the two welds were (**photo 13**).

7f) Drill two **9/16"** holes in the cross member to re-attach the center-carrier bearing. **Photo 14** shows the dimensions needed to layout the location of two holes for drilling. The dimensions will be referenced from welded gas tank mount and the front edge of the cross member (**photo 15**).

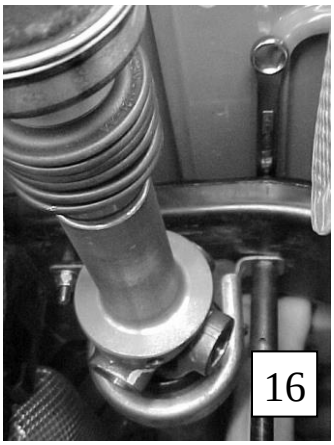






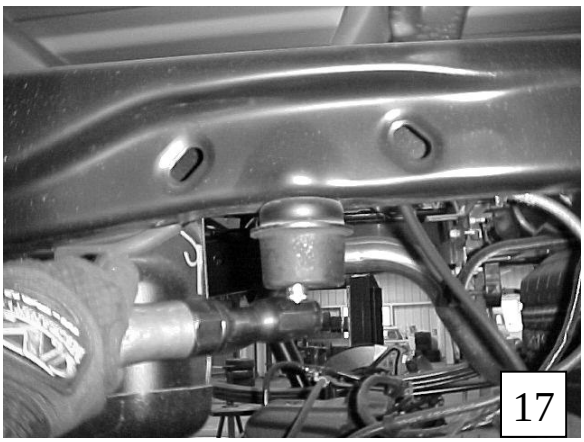
7g) Drill the two holes in the specified locations. The hole closest to the gas tank mount only needs to be drilled threw the lower portion of the cross member because of the cutout directly above it. The second hole furthest away from the gas tank mount will need to pass threw the lower and upper section of the cross member (**Photo 15**).

7h) Connect the center-carrier bearing assembly onto the cross member using the supplied bolts, nuts, and washers (**Photo 16**). Tighten the bolts to 50 ft lb.



8. FINALIZING THE INSTALLATION

8a) Unthread the stock OEM bump stop with a socket wrench or by hand and rethread the new Belltech progressive bump stop securely in place **(photo 17 & 18)**.
8b) Re-install wheels and torque to the Manufacturer's specifications.
8c) Check that all components and fasteners have been properly installed, tightened and torqued.
8d) Lift vehicle and remove support stands. Carefully lower vehicle to ground.
8e) Check brake hoses, cables and other components for any possible interference.
8f) Check for wheel/tire to chassis/body interference.
8g) Once vehicle has been lowered to the ground securely fasten the shackle bolts in place to **100 ft-lb** using an **18mm** and **21mm** socket and or wrench.
8h) Immediately test-drive the vehicle in a remote location so that you can become accustomed to the revised driving characteristics and handling. Be aware that the vehicle will handle substantially different now that it has been lowered.
8i) Take the vehicle to a qualified shop for 4-wheel alignment.
8j) Check all of the hardware and re-torque at intervals for the first 10, 100, and 1000 miles.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18

The front of the vehicle **MUST BE** lowered accordingly for proper handling and performance and also to maintain warranty. See the current *Belltech Application Guide* or contact you nearest *Belltech Dealer* for the appropriate part numbers for your application.

The axle adapter saddles have been design to properly position the rear axle pinion shaft relative to the driveline, so that vibrations can be eliminated. If driveline vibrations are experienced, take the vehicle to a driveline service shop immediately for driveline angle inspection and necessary adjustments. *DO NOT* drive vehicles exhibiting extreme driveline vibrations, as U-joint wear could occur prematurely. Be sure to lubricate the U-joints if deemed necessary.

Parts List: 6444 & 6445

Part #	Description	Quantity
6442-025	Axle Adapter Saddle	2
6592-007	U-Bolt 9/16-18x31/8x9	4
110455	9/16-18 Locknut	8
110670	9/16” Washer	8
6440-020	U-Bolt Plate	2
5922-001	Bump Stop	2
6443-001	Transmission Spacer (6445 only)	1
110404	½”-13 x 2 ¾” Flange Bolt (For CCB)	2
110401	Stover Lock Nut ½-13 (For CCB)	2
110660	½” Washer	10
6440-002	U-Bolt Spring Pad Mount	2
112294	Stover Lock Nut 12-1.75 (for lower shock mount)	2
112053	M12 X 1.75 X 75mm Hex Bolt (for lower shock mount)	2
110264	M18-2.5 x 140mm Hex Bolt (for driver side front spring mount and hanger mounts)	3
110265	M18-2.5 Nyloc nut (for driver side front spring mount and hanger mounts)	3
6444-030	Leaf Spring Hanger - Left	1
6444-040	Leaf Spring Hanger - Right	1
110403	½” -20 Nylon Lock Nut (for leaf spring hanger)	2
110430	½” -20 x 5” Hex Bolt (for leaf spring hanger)	2
110502	5/8” Washer (for leaf spring hanger)	6