



## INSTALLATION INSTRUCTIONS

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### 6521 REAR AXLE FLIP, SHACKLE & HANGER KIT 07-UP CHEVROLET 1500 EXTENDE CAB & QUAD CAB ONLY

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 and six (6) support stands
- Wheel chocks
- Die grinder equipped with abrasive cut-off wheel
- ½" drive torque wrench
- Standard socket wrench set
- Air powered ½" drive impact wrench
- Flat bladed screw driver
- Safety glasses
- Air powered chisel

#### KIT INSTALLATION

As this is a relatively involved installation, **we recommend** that a qualified mechanic at a properly equipped facility perform it. **We also recommend** that the installation be performed on a firm, flat and level surface, such as seasoned asphalt or concrete. The use of safe and properly maintained equipment is very important! In order to document any possible irregularities in the factory ride height of your vehicle, please take a few moments to fill out the ***Belltech Vehicle Inspection Record*** included with these instructions. **We also recommend** measuring and recording all stock driveline angles prior to installing this kit. This information may be helpful if vibration problems arise after installation.

## 1. JACKING, SUPPORTING AND PREPARING THE VEHICLE

- 1a) Block the front wheels of the vehicle with appropriate wheel chocks. Make sure the vehicle's transmission is in "Park"(automatic) or 1<sup>st</sup> gear(manual). Activate the parking brake.
- 1b) Loosen, but **DO NOT REMOVE** the rear lug nuts.
- 1c) Using a properly rated floor jack, lift the rear of the vehicle off the ground. Lift the vehicle so that the rear tires are approximately 6-8 inches off the ground surface.
- 1d) 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 the stands, make sure the supports will securely contact the straight, flat portions of the frame area.
- ! 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.
- 1e) Slowly lower the vehicle onto the stands and, before placing the vehicle's weight on them, again check that they properly and securely contact the frame rails described above. Check for possible interference with any lines, wires or cables.
- ! **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.

## 2. TRAILER HITCH REMOVAL (IF APPLICABLE)

- 2a) If your vehicle has come equipped with a Trailer Hitch, more than likely, this will interfere with the installation process. This will need to be removed. This makes access easier when mounting the REAR SHACKLE hardware.
- 2b) Disconnect the wire plug, as shown below in (Photo 1)
- 2c) Using a 21mm wrench, remove all the mounting hardware for the Trailer Hitch. There is a total of six bolts, three (3) per side.
- 2d) Lower and remove the Trailer Hitch and place out of the way, along with the hardware.

## 3. GAS TANK PROTECTIVE SHIELD AND GAS TANK REMOVAL

- 3a) In order to get to the front mounting hardware that mounts the leaf spring (driver's side), the GAS TANK will need to be lowered to get access to the bolt head.
- 3b) First, support the GAS TANK from underneath. **NOTE:** This step would be easier to do if the GAS TANK was near empty. Otherwise, moving a half-full or a full tank of gas is going to be more laborious.

- 3c) The PROTECTIVE SHIELD that shrouds the GAS TANK is mounted with three (3) mounting bolts on one side(driver's side), that mount directly to the frame. (Photo 2). Using a 13mm wrench, remove the bolts completely and set aside. On the inside (opposite of driver's side), the SHIELD hangs on four (4) rectangular hooks.(Photo 3) Lift this side up above the hooks. You should now be able to wiggle the PROTECTIVE SHIELD down and out. Set this aside. Put the three (3) mounting hardware back in their respective mounting holes for safe keeping.
- 3d) Holding the GAS TANK in place are two (2) straps that are mounted at each end of the TANK (Photo 4). Each strap is mounted directly to the frame on one end only. The opposite end is attached primarily by a hook attachment.
- 3e) Remove the two mounting bolts completely. These are located on the driver's side of the TANK itself and the inside part of the frame chassis.
- 3f) Pull the straps down from the driver's side and un-hook the straps from the other end.
- 3g) Next locate the three (3) mounting hardware that bolts the GAS NOZZLE INTAKE, behind the gas door (Photo 5). Remove the three (3) bolts completely.
- 3h) With the GAS TANK supported from underneath, slowly lower the GAS TANK six (6") to (12") inches, pulling the rubber gas neck down as the GAS TANK travels down.

#### 4. U-BOLT REMOVAL

- 4a) Before unbolting the u-bolts you will need to properly support the axle to keep it in place so it cannot fall from the leaf springs.
- 4b) There are two (2) sets of U-BOLTS, two per each LEAF SPRING, that is attached to the rear axle. Using a 21mm wrench, (Photo 6) un-bolt all mounting hardware (nuts and washers) on each U-BOLT. Remove all four (4) stock U-BOLTS completely and set aside as they will be used with the new kit.
- 4c) The LEAF SPRING is now detached from the rear axle remove it from the vehicle.
- 4d) Remove the stock leaf spring block from the axle it will not be used in the belltech kit (Photo 6).

#### 5. LEAF SPRING REMOVAL

**! CAUTION:** 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 the vehicle. **BE CAREFUL** not to damage the brake hoses/and or driveline when re-locating the rear axle assembly.

**Note:** For ease of removal and reinstallation it might be helpful to detach the shocks from the axle housing.

- 5a) With the vehicle raised and the chassis supported with stands, raise the rear axle to remove the load from the shackle.
- 5b) Starting with the front end of the LEAF SPRING towards the engine (front), using a 21mm wrench, un-bolt the hardware and remove completely. (Photo7) With the GAS

TANK lowered slightly, you should be able to get to this hardware. Once the bolt is removed, the LEAF SPRING should be able to sit atop the rear axle.

- 5c) With the LEAF SPRING sitting atop the rear axle, move back to the REAR SHACKLE HANGER. (Photo 8) Using a 21mm wrench, un-bolt the hardware and remove completely.
- 5d) Also, for ease of re-installation, mark each LEAF SPRING left, right, front or rear to insure that the same ones go back on the same side as they were removed.
- 5e) The center bolt pin on both the LEAF SPRINGS will need to be reversed for proper reinstallation. Use a c-clamp to keep the leaf spring assembly in tack while reversing the center bolt (Photo 9). Reverse both center bolts and re-torque.

## **6. AXLE SADDLE PREPARATION**

- 6a) Locate the bracket under the stock saddle that holds the brake line and sensor wire. Detach the brake line and sensor wire from this mount and cut the mount from the axle (Photo 10 & 11). The new saddle will have an incorporated mounting surface to reattach these components.

## **7. REAR SHACKLE HANGER REMOVAL (STOCK)**

- 7a) With the LEAF SPRING removed and set aside, you now have easy access to the REAR SHACKLE. (One on each side of the vehicle) Below are the steps to follow to remove the stock REAR SHACKLE from the chassis frame;
- 7b) Using a cut-off wheel or a type of abrasive cutting tool, makes a slot thru the heads of the rivets, three (3) each on each REAR SHACKLE HANGER. (Photo 12) There are three (3) rivets on each side that need to be removed. The slots should be straight thru the rivet heads and flush with the surface they are mounted to
- 7c) With a pneumatic hammer and chisel attachment, remove the rivet heads. (Photo 13). It should take no more than a few seconds to chisel each head off. Once all rivet heads have been removed, it is helpful to use a punch and hammer or a punch with the air hammer to push the rivets thru the chassis.

**NOTE:** if the rivets heads are not easily chiseled off the cut thru the center is probably not deep enough. Increasing the depth of the slot thru the center will increase the time it takes to remove the rivets.

- 7d) Also located here on the REAR SHACKLE HANGER is a single bolt, that mounts, along with the rivets, to the chassis. Using a 15mm wrench, un-bolt the hardware and remove completely.
- 7e) Remove the entire REAR SHACKLE HANGER completely off the chassis.
- 7f) Also located in this area is the REAR SHACKLE HANGER SUPPORT BRACKET. This is a stock piece that is no longer needed and more than likely will interfere with the new BELLTECH HANGER. Mounted by a small weld to the chassis frame, it is also mounted with a heavy-duty rivet. Using a cut-off wheel or type of abrasive cutting tool, make a slot straight (PHOTO 14) thru the rivet head and flush with surface they are mount to.

Using a hammer, channel-locks or vice-grips, pull and push the SUPPORT BRACKET upwards towards the spare tire. Repeat procedure back and forth until it breaks free. (Photo 15)

## 8. REAR SHACKLE HANGER INSTALLATION (BELLTECH)

- 8a) Prior to installing the REAR SHACKLE HANGER, our R & D Techs have found it easier to pre-assemble the REAR SHACKLE HANGER and the SPRING SHACKLE MOUNT.
- 8b) Using the kit supplied hardware, bolt up the new BELLTECH REAR SHACKLE HANGER to the existing holes in the chassis. (Photo 16)

**NOTE:** It might be necessary to bend the flange on the underside of the bed to allow for additional clearance when installing the hanger in the highest position.

### IMPORTANT NOTE:

Located on your new REAR SHACKLE HANGER, are four (4) sets of holes, four (4) on each side of the HANGER. Using the top hole and the third hole from the top, (Photo 16) this **lowers the vehicle 5"**. Using the second and fourth holes from the top, **lowers the vehicle 6"**.

## 9. LEAF SPRING INSTALLATION

- 9a) Start with the front end of the LEAF SPRING (towards the engine) (Photo 17). With the GAS TANK still slightly lowered, install the original hardware from the GAS TANK side outward towards the driver's side of the vehicle, thru the frame and the LEAF SPRING eye. Start the lock nut, but do not tighten completely.
- 9b) Swing the LEAF SPRING upward. The LEAF SPRING will now locate underneath the rear axle.
- 9c) Swing the rear of the LEAF SPRING upward to the SPRING SHACKLE MOUNT, align the LEAF SPRING eye with the SPRING SHACKLE MOUNT holes. (Photo 18)

Insert the hardware and but do not tighten completely. This is to be done once the vehicle has been lowered and put on the ground.

- 9d) Using a 21mm wrench, re-tighten the front hardware on the LEAF SPRING.

## 10. AXLE SADDLE AND U-BOLT INSTALLATION

- ! Locate the BELLTECH axle ADPATER SADDLES supplied in the kit. Place the ADPATER SADDLES on top of the springs with the hole over the head of the spring center bolt. To properly position the axle, the attached mounting plate for the brake line and sensor wire (If Applicable) will face the rear of the vehicle. Slowly lower the rear axle assembly down onto the saddles. (Photo 19) The ears should fit into the stock spring perches on the axle tubes. Make sure both ears on each SADDLE locate completely in the perches.

- 10a)** Place the U-BOLT SPRING PAD MOUNTS on top of the axle spring pad and with the stock u-bolts place the horizontal portion inside the two bent flanges so they are locked in position (Photo 11).
- 10b)** Install the U-BOLT PLATES below (under the LEAF SPRINGS), with the off-set holes forward, so the U-BOLTS pass through the appropriate slots. (Photo 20) Attach the PLATES using washers and locknuts. Tighten and torque locknuts to 90 lb ft.
- !** The AXLE ADAPTER SADDLES have been designed to properly position the rear axle pinion shaft relative to the driveline so that vibrations are 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 driveline vibrations, as U-joint wear could occur prematurely. Be sure to lubricate the U-joints if deemed necessary.

## **11. TRANSMISSION SPACER INSTLATION**

- 12a)** We have included a transmission to correct a small drive line vibration. The spacer will install between the transmission mount and the rubber isolator (Photo 26).
- 12b)** Remove the two bolts from the isolator to the transmission, lift and insert the spacer, install the two supplied 10mm bolts thru the spacer and back into the transmission.

## **12. BUMP STOP INSTALLATION**

- 13a)** The Stock BUMP STOP mount will need to be removed from the chassis to allow for additional travel (Photo 21). Unbolt the bump stop To remove the bump stop mount from the chassis use an abrasive cutting wheel to cut thru the welds around the mount, make sure NOT to cut into the chassis.
  - 13b)** once the welds have been cut you will need to use a hammer and possibly a chisel to remove the mount from the frame (Photo 21 & 22).
  - 13c)** once the bracket has been removed use an abrasive grinder to remove the excess weld on the frame. Use black spray paint to protect the raw exposed material.
  - 13d)** you will need to drill a pilot hole for the self threading bolt. (Drill size 3/16") Locate the hole centered over the axle so the bump stop will come in contact with the bump pad on the axle (Photo 23 & 25).
  - 13e)** Use the supplied self tapping bolt with washer to attach the stock bump stop to the chassis (Photo 24 & 25).
- 13.** All hardware being fastened to the vehicle's original fastening points should be torqued to the proper specifications. To prevent chassis damage, never over-torque the hardware.
  - 14.** Check that all components and fasteners have been properly installed, tightened and torqued.
  - 15.** Lift vehicle and remove support stands. Carefully lower vehicle to ground.
  - 16.** 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 modified.

17. Installation is complete. Check all of the hardware and re-torque at intervals for the first 10, 100, 1000 miles.

### Parts List: 6521 Axle flip kit

Part #	Description	Quantity
6521-020	Axle Saddle	2
6521-010	U-Bolt Plate	2
6521-004	U-Bolt Spring Pad Mount	2
6519-010	Rear Leaf Hanger	2
6521-003	Transmission Spacer	1
110645	Flat Washer A325 7/16" ( <i>Hanger</i> )	12
110303	Stover Lock Nut 7/16"-20 ( <i>Hanger</i> )	6
110650	HH Cap Screw 7/16"-20 X 1-1/4" ( <i>Hanger</i> )	6
112002	HHCS 8mm-1.25 x 20 ( <i>Axle Saddle</i> )	2
112280	Flange Nut 8mm x 1.25 ( <i>Axle Saddle</i> )	2
112026	HHCS 10mm-1.5 x 35mm ( <i>Transmission Spacer</i> )	2
110625	Flat Washer 3/8" ( <i>Axle Saddle</i> )	2
110060	1/4" Self Tapping Bolt ( <i>Bump Stop</i> )	2
110204	Flat washer 5/16 ( <i>Bump Stop</i> )	2











