



## INSTALLATION INSTRUCTIONS

6613/6617

### REAR C-SECTION KIT

1999-UP CHEVROLET SILVERADO/GMC SIERRA 1500

**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.

This kit has been specifically engineered for the 1999 to current GMT 800 series ½ Ton trucks. **PLEASE NOTE** that this *Belltech* rear C-section kit will increase the axle to frame clearance of vehicles using the OEM leaf springs, hangers, and shackles. We **DO NOT RECOMMEND** using this kit on vehicles where other aftermarket suspension components have been previously installed. **If the vehicle's suspension has been modified from stock, please return it to its exact original configuration prior to installing this kit.**

In order to properly lower your truck, **we recommend** using only high quality *Belltech* lowering coil springs, spindle kits, flip-kits, and Nitro-Drop® or Nitro-Active® shock absorbers. Note that the shorter shocks are required following installation of many of our kits. We also suggest installing our Bed Cross-member C-notch assembly (P/N 6655). This kit helps to prevent the center-section of the rear axle housing from coming into contact with the underside of the bed. It also strengthens the central area of the bed so that loads can be carried while reducing the possibility of damage occurring to the bed floor.

**We recommend** that you install *Belltech* front and rear Anti-Sway Bars to further improve your vehicle's handling and performance.

**NOTE:** In order to properly install the REAR C-SECTION KIT, we find it important to follow, in sequential order, the step-by-step procedures listed on the following pages. BellTech R & D Techs have simplified the step-by-step installation procedure to minimize any difficulties that may arise during installation.

## RECOMMENDED TOOLS:

- Properly rated floor jack and six (6) support stands
- Wheel chocks
- Die grinder equipped with abrasive cut-off wheel
- Drill motor with ¼" & ½" twist drill bits
- Standard socket wrench set, including:
  - ¾"
  - 9/16"
  - 15/16" (deep)
- Standard box wrenches, including:
  - ¾"
  - 9/16"
  - 15/16"
- Metric sockets, including
  - 1mm
  - 23mm
- Metric box wrenches, including:
  - 15mm
  - 21mm
- Medium weight ball peen hammer
- Metal file
- Grinder with abrasive disc
- Flat bladed screw driver
- Cleaning solvent and rag
- C-clamps
- Masking tape
- Tape measure (inches)
- Air powered 3/8" drive ratchet
- Air powered ½" drive impact wrench
- Felt-tipped pen
- Steel construction square
- ½" drive torque wrench
- Safety Glasses

! It is very helpful to have an assistant available while performing this installation.

👉 **SAFETY REMINDER:** PROPER USE OF SAFETY EQUIPMENT AND EYE/FACE/HAND PROTECTION IS ABSOLUTELY NECESSARY WHEN USING THESE TOOLS TO PERFORM THE FOLLOWING PROCEDURES!

## 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. FRAME IDENTIFICATION:

Be aware that General Motors has produced several different style rear frame modules for the GMT800 ½ Ton trucks. **It is very important, prior to beginning installation, that you confirm that you have the correct parts for your vehicle's frame style.** Refer to Figure A below and Table A to confirm that you have obtained the correct kit.

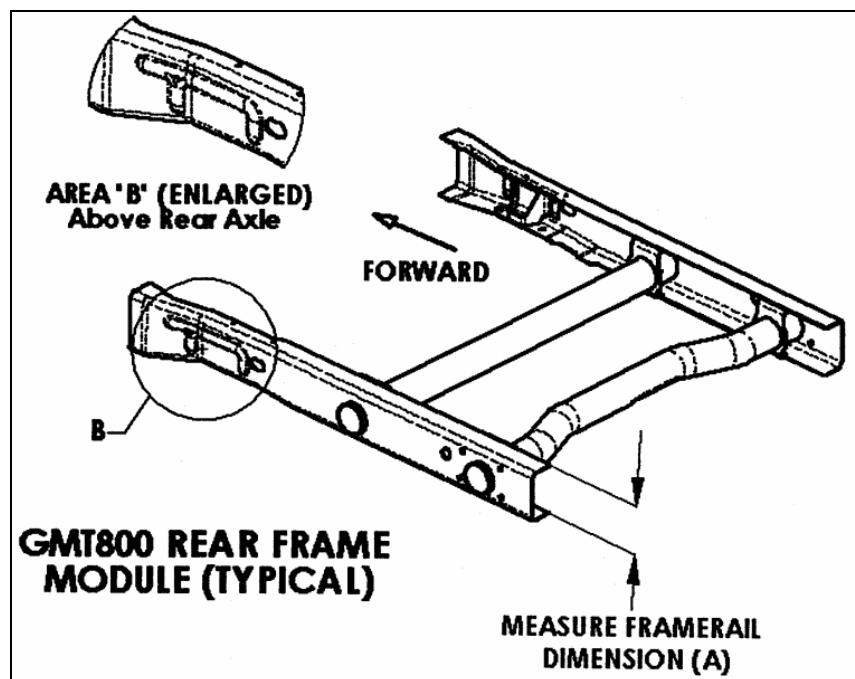


Figure A

Table A: Frame style and Flip Kit identification information

Vehicle Year	Dimension "A"	Area B	Belltech C-Section P/N
1999	5.0"	Flat without dimple	6613
Late '99-2000	5.0"	Dimpled (as shown)	6613
Late 2000-01	5.25"	Flat without dimple	6617

- Indicates Extended Cab Model Kits only

## 2. 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 1<sup>st</sup> gear (manual). Activate the parking brake.
- b) Loosen, but **DO NOT REMOVE**, the rear wheel lug nuts.
- c) 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.
- 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) 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 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.

- g) On Step side models, remove the rear inner-fender liners from the vehicle.
- h) Using the floor jack located directly below the differential, lift the axle housing just enough to remove a significant portion of the axle load from the leaf springs. This step is required to minimize the load applied to frame rails during notching operations. **BE CAREFUL NOT TO LIFT THE VEHICLE OFF OF THE SUPPORT STANDS.**
- i) Support the axle housing with two (2) additional support stands at this height. Make sure the support stands securely contact the axle housing tubes so that the axle housing cannot fall when detached from leaf springs.

## 3. FRAME NOTCH SUPPORT (C-SECTION) INSTALLATION LEFT-HAND

Due to the design of the included Frame Notch Supports (heretofore referred to as "C-sections"), pickup box removal is not required with this kit. However, some installers may prefer to remove the box to facilitate access to the frame. If it is decided to remove the vehicle's bed assembly, please refer to the appropriate *General Motors Service Manual* for recommendations regarding *Pickup Box Removal Procedures*.

👉 **Safety Reminder:** Proper use of safety equipment and eye/face/hand protection is absolutely necessary when performing the following procedures!

- a) Working from the LH rear wheel opening, remove the small plastic clip (Photo 1), which secures the rear brake line and wiring harness to the top of the frame rail. This is accomplished by removing the small rivet from its' mounting hole. The clip is located on the top of the LH frame rail just rearward of the fuel tank. This clip will not be reused.

! **To avoid chassis damage, perform the following procedures to only ONE frame rail at a time.**

- b) Remove the rear brake line bracket from the top of the driver's side (LH) frame rail (Photo 2) by removing two hex-head sheet metal screws using a 13mm wrench. The bracket is located above and just behind the rear axle. To avoid damage, temporarily secure the rear brake line, bracket and brake hose, away from the frame rail, using zip ties or elastic straps secured to the rear axle housing or frame cross-member.

- c) Remove factory jounce stop by loosening and removing the attachment nut, located within the frame rail internal support, using a 15mm wrench.
- d) Clean frame rail area (Photo 3) with solvent to remove the factory coating. CAUTION: *Do not use flammable solvents around sparks or open flames.*
- e) Using the supplied steel template, align slot in template with the slot located on the LH frame rail above and just behind rear axle housing (Photo 4). Also, align the top and bottom edges of the template parallel with the frame rail edges. Be sure that the arrow is pointing forward (towards front of truck). If necessary, fasten template to frame rail using clamps.

! It is very important that the template be positioned exactly as shown/described, so that the C-Section Assembly fits over the frame rail properly. **Check for proper alignment PRIOR to cutting the frame!** Also, be aware that this template properly aligns the C-Section notch with the axle **ONLY WHEN** using the stock leaf springs, hangers, shackles, and other stock components.

- f) Using a felt tipped pen, mark the exact shape of the C-Notch opening onto the outside face of the LH frame rail (Photo 5).
- g) Using a center punch, mark the center location of the 1/4" hole, provided on the template, as shown (Photo 6). This hole is made so that there will be a round corner at the intersection of the cuts. This will eliminate the possibility of cracks forming at the intersections of the cuts. The rear corner of the C-notch cut intersects within the slot; therefore *NO hole is required there.*
- h) Remove the template. Extend marked lines in places covered by template (Photo 7).
- i) Using a steel square, transfer and mark the lower corners of the C-notch opening, perpendicular to the outer face of the frame rail, back to the underside portion of the frame rail (Photo 8). Be sure the lines are perpendicular (90°) to the outer face of frame rail.
- j) **NOTE:** As gasoline fumes are extremely explosive, check to make sure the fuel tank cap is properly installed and secured, and that the fuel tank is fully sealed.

! Check the backside of the frame rail to be sure that all lines, electrical wiring, control cables and other components are cleared from this area to avoid damaging them in the following steps. Be sure to wear proper safety protection when using power tools! **DO NOT** create sparks near flammable or explosive materials.

- k) Using the drill motor equipped with a 1/4" drill bit, drill a hole through frame centered on the mark made above in Step 3g (Photo 9).
- l) With the frame properly supported as described above, use the die-grinder equipped with a cut-off wheel to cut the C-Notch opening along the scribed lines (Photo 10& 11). Use the forward 1/4" hole, drilled in Step 3k above, to form the front C-Notch corner. If required, a reciprocating saw may be used to cut through the internal OEM jounce-stop reinforcement.

! Be careful when cutting the frame rail. **DO NOT** remove any material from the frame rail that is not shown/described here. Be careful not to damage any lines or other components located behind the frame rail. Avoid creating any sharp corners or other defects that may cause unnecessary stress-concentrated areas in the frame rail. Avoid overheating frame rail.

**Hand Safety Recommendation:** Due to the close proximity of fuel tank to this area, **we DO NOT recommend using a flame-cutting torch or plasma cutter** when performing these operations. Also, excess heat can easily damage the frame rail and other adjoining components.

! Some care should be taken when cutting through the center portion of the c-Notch, as the factory jounce stop reinforcement bracket is located within the frame rail in this area. Secondary cutting may be required from the inside of the frame rail to remove any portion of this bracket that might interfere with subsequent C-Section installation.

- m) This Step is required only for vehicles using the 6616/6618 kits as described in Table A. An additional notch is required in the lower frame rail flange just behind the C-notch cut out in Step

- Working from the inside of the frame area, use a solvent soaked rag to clean coat from the inside upper surface of the lower frame flange (Photo 12).
- Using a felt tip pen and tape measure, mark out a line, parallel to the rear C-Notch cut made in Step 3l above, 3 ½" back towards rear of vehicle (Photo 13).
- Mark out a line, parallel to the inner edge of the frame rail flange, 1 ¼" towards inner area of the frame rail (Photo 14). Photo 15 shows the proper notch layout.
- Again using the die-grinder equipped with cut-off wheel, cut the notch (Photo 16) as shown.

- n) Deburr all freshly cut edges using hand file or grinder.
- o) Paint all bare metal surfaces and edges to prevent rust.
- p) Install the outer C-section shell over the frame rail, aligning the C-notch Support portion with the C-notch cut made in the frame rail. Make sure the C-section fits properly over the frame rail and that all profiles align correctly (Photo 17). Check that the support is properly aligned to where the square notch, located in the top surface of C-section, is evenly aligned with central bed cross-member (Photo 18).

**!** It may be necessary to use a soft-faced hammer to position the C-Section shell over the frame rail. Make sure the C-section is properly installed prior to proceeding with following hole-drilling procedures.

- q) With the C-section installed tightly against the outside face of frame rail, use the drill motor, equipped with a ½" drill bit, to transfer the nine (9) ½" holes to the frame rail. Use the C-section holes to locate the drill bit (Photo 19). Use cutting lubricant or light oil to facilitate the drilling and to extend drill bit life. To prevent movement while drilling, use C-clamps to fix the C-section shell to the frame rail. *Be careful not to damage any lines or other components located behind the frame rail.*

**!** Be cautious when drilling these holes, as the fuel tank is located directly behind this area (LH only). While drilling, we recommend placing a protective metal plate in the fuel tank area to prevent puncture and/or other damage.

- r) Working from the outside of the frame rail, insert four (4) ½-20 x 1 ¼" (shorter) hex head bolts with washers into the two most forward and two most rearward holes (Photo 20). Secure these bolts with washers and locknuts. These four (4) nuts/washers should directly contact the inner surface of frame rail. Tighten and torque these bolts to 110 lb ft.

**!** It is **important** that these shorter, outermost bolts be installed and tightened **PRIOR** to the internal stiffener installation procedures (below), as the forward holes cannot be accessed after the stiffener is in position. **NOTE:** Follow these instructions exactly as the bolt installation sequence is **VERY IMPORTANT!**

- s) Install the kit-supplied urethane jounce stop to the C-notch portion of the C-section shell with the supplied locknut (Photo 21). It may be necessary to bend the rearward ear of the internal factory jounce stop reinforcement bracket (cut in Step 3l above) forward to clear the replacement jounce stop stud and nut.

**!** The jounce stop must be installed PRIOR to stiffener plate installation below.

- t) Insert five (5) ½-20 x 3 ½" (longer) hex head bolts with washers, from outside and through the remaining holes drilled in Step 3q (Photo 22).
- u) From the inside of the frame rail, install five (5) tubular spacers over the threaded-ends of these bolts. Position the brake line and electrical wiring harness so that they route outside of frame rail and the Internal Stiffener. Zip-tie the wiring harness to the brake line as shown (Photo 23). Be sure that none of these components are pinched or damaged by the hardware.

- v) Locate the LH C-section Internal Stiffener inside the C-section shell so that the five (5) bolts pass through the appropriate holes and the tubular spacers are located between the frame rail and internal Stiffener (Photo 24). The tabs on the Stiffener should point towards the inside of the vehicle, so that they align with the tabs on the C-section shell.

**!** Make sure the five (5) bolt spacers are sandwiched between the inside portion of the frame rail and the C-section stiffener.

- w) Loosely secure the five (5) bolts, installed in Step 3t, with washers and locknuts but **DO NOT TIGHTEN** until instructed to below.
- x) Adjust the C-section stiffener position until the remaining five (5) holes and tabs align with the corresponding holes in the C-section shell. It may be necessary to bend some of the stiffener plate tabs slightly to align with the corresponding tabs of the C-section shell. In some cases it may be necessary to enlarge one or more of the holes slightly, using the die-grinder or round file to achieve proper alignment.
- y) Install two (2) 3/8-24 x 1 H.H.C.S. (bolts) with washers through the top two forward holes of the C-section shell and then through the tabs of the Internal Stiffener.
- z) Install one (1) 3/8-24 x 1 H.H.C.S. first through the factory rear brake line bracket (removed in Step 3b), then through the rearward most top bolt hole of the C-section and finally through the rear Stiffener tab (Photo 25). Note: The hole in the OEM bracket might need to be enlarged slightly using a round file.
- aa) Secure the three (3) bolts with washers and locknuts but **DO NOT TIGHTEN** until instructed to below.
- bb) Install two (2) 3/8-24 x 1 H.H.C.S. through the lower two holes of the C-section shell and then through the tabs of the Internal Stiffener (Photo 26) from the bottom. Secure with washers and locknuts but **DO NOT TIGHTEN** until instructed to below.
- cc) Tighten and torque the five (5) 1/2" bolts and locknuts installed in Step 3t & 3w to 110 lb ft.
- dd) Tighten and torque the five (5) 3/8" bolts and locknuts installed in Step 3y, 3z, 3bb, & 3cc to 45 lb ft.

#### 4. **FRAME NOTCH SUPPORT (C-SECTION) INSTALLATION RIGHT-HAND**

- a) Repeat Steps 3a through 3dd for passenger's side (RH) of vehicle. Note: the brake line and fuel tank Steps are not applicable for the RH side. Be sure to have the LH side fully installed prior to beginning RH side C-section installation. The completed installation should appear as shown (Photo 27).

#### 5. **FINALIZING THE INSTALLATION**

- a) On Step side models, replace the rear inner-fender liners.
- b) Re-install the wheels and torque to the Manufacturer's specifications.
- c) Check that all components and fasteners have been properly installed, tightened and torqued.
- d) Lift vehicle and remove support stands. Carefully lower vehicle to ground.
- e) Check brake hoses, cables and other components for any possible interference.
- f) Check for wheel/tire to chassis/body interference.
- g) 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 if it has been lowered.
- h) If the suspension has been modified, take the vehicle to a qualified shop for 4-wheel alignment.
- i) Check all of the hardware and re-torque at intervals for the first 10, 100, and 1000 miles.

**Parts List: 6613/6617 GMT800 Rear C-Section Kit**

<b>Part #</b>	<b>Description</b>	<b>Quantity</b>
6612/6616-001	LH C-section Frame Support	1
6612/6616-003	RH C-section Frame Support	1
6612/6616-008	LH C-section Stiffener	1
6612/6616-010	RH C-section Stiffener	1
6612-014	C-section Bolt Spacer	10
110424	½-20 x 3 ¾ H.H.C.S. Grade. 8	10
110408	½-20 x 1 ¼ H.H.C.S. Grade. 8	8
110403	½-20 Locknut	18
110660	½" AN Washer	36
110251	3/8-24 x 1 H.H.C.S. Grade. 8	10
110254	3/8-24 Locknut	10
110625	3/8" AN Washer	20
4915-001	Bump Stop	2
9999-975	7" Zip-Tie	2
6612-889	Installation Template C-section	1