

B&W Turnover Ball Installation

www.CarboniteCummins.com

By Flopster843

02 Jan 2012

I wanted to start this article out by stating one very important thing. Installing a gooseneck hitch is not a task to be taken lightly. If you improperly install a hitch, it could fail while you are towing a trailer. Having a trailer come loose from the truck is very dangerous to you and everybody else around you. When you're towing a 20,000 pound trailer down the interstate and your hitch fails allowing the trailer to separate from the truck, many people can easily be seriously injured or killed, and it will be YOUR fault. **If you have any doubts about your ability to properly install a trailer hitch and the electric trailer brake controller properly, DO NOT ATTEMPT THE INSTALLATION AND HAVE A PROFESSIONAL SHOP INSTALL IT FOR YOU.**

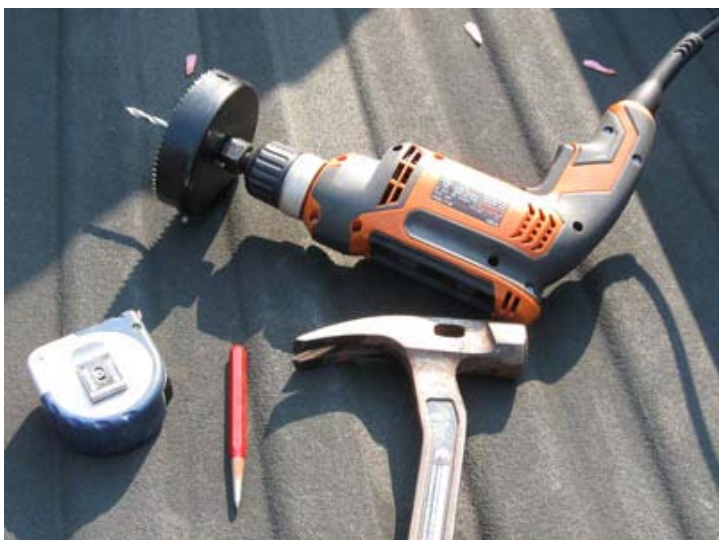
The factory installed hitch receiver is usually sufficient for the basic towing/hauling needs that most people plan to use their truck for. But what about those people who plan to use their truck for extremely heavy or larger loads than the factory hitch will allow? I'm talking about 20,000+ lbs gross weight or trailers in excess of 20 feet in length. These people commonly utilize a gooseneck style trailer. Nearly everybody has seen one, and good number of you either own or have used one.

For those that don't know what a gooseneck trailer is, it's a trailer that connects to a ball hitch located in the center of the bed. The tongue is designed to arch up over the bed sides of the truck. This style of trailer hitch centers the tongue weight over the rear axle of the truck allowing for better handling with heavy loads. It also allows you to have a much better turning radius because you don't have to worry about the trailer hitting your bumper when you turn. You can literally turn short enough to jam the front corner of the trailer into the front doors of the truck if you wish, although that wouldn't be a good idea. I have some pictures of my truck on the Media page of the website hooked to our 20+5 ft 10 ton trailer, hauling my 13,000 lb M35A3.

A gooseneck hitch is not OEM equipment on the truck. Therefore an aftermarket unit must be purchased and installed. As with most aftermarket equipment, the choices are nearly endless. There were a few things that I was looking for in a hitch, so I started my search. First, I wanted a hitch that connected directly to the frame of the truck. I've seen a few cheap hitches that bolted to the bed, which is not a very good idea for a lot of weight. Second, I wanted a hitch that had a high load rating. And third, I wanted a hitch that would allow me to remove the ball so I could convert my truck bed back into a flat floor when I didn't have the trailer hooked up. For these reasons, I chose the B&W Turnover Ball. It connects directly to the frame, it has a 30,000 lb rating, and I can easily flip the ball over to convert my bed floor back into a smooth surface. I had one of these in my old truck and loved it, so I had to get another one.

As usual, I started the search for my new hitch on the internet. I ended up finding one local on Craigslist for a steal, so I quickly acquired it. It had all the major parts, but was missing a few of the mounting bolts. A quick trip to the local Fastenal store took care of that problem. The directions for installing the hitch can be downloaded from B&W's website. The directions include a complete hardware list so you can make sure you have everything before you start.

I started the install by removing the spare tire. This will give you more room to work under the truck. After the tire is removed, start the installation procedure by marking your bed where the hole must be drilled for the hitch ball to pass through. It's a 4" hole, so you will need a large hole saw. Measure the location from the back end of the bed floor by the tailgate and center it between the wheel wells. Use a center punch to mark the hole. Utilizing the hole saw, drill the 4" hole through the center of the bed. This is the worst part of the entire installation. I don't like drilling holes in my truck.



Now that the worst is over, it's time to focus on the bottom of the truck. You have to slide both of the cross members between the frame and bed so they rest on the frame. The thick rectangle bar will slide right up into place, but the angle piece will not. To get it to fit you must make a clearance notch through one of the holes in the pinch weld area on the passenger side of the bed. It's nowhere near as bad as drilling the hole in the bed though.



After you get both cross members up on the frame, it's time to move on to the heavy part. You've got to maneuver the main plate up over the axle and attach it to the two cross members you just installed. I'm not going to lie; this part sucks and is better with two people. Simply hold it in place and insert the 7 bolts and nuts to attach everything together. Leave everything loose for now.



Once you get that monstrosity secured, it's time to move on to the side plates that hold everything to the frame. Slide these in on the outside of the frame rail through the wheel well attach them to the frame utilizing a very large U-bolt in the front and a large bolt vertically through the frame in the rear. I had to buy these two bolts from Fastenal since they weren't with my hitch. Be sure to get grade 8 bolts, there's a lot of stress on them when you have the trailer hooked up. Attach the cross members to the side plate. On the driver's side you will have to remove the bracket that holds the parking brake cable and reattach it to the side plate. After both plates are loosely attached, start tightening all the bolts you just installed.



Next install the latch pin release handle through the driver's side wheel well. The handle is set up so you can pull it out and rotate it to lock it in the out position. This allows you to climb in the bed to pull out the ball, flip it over, insert it back into the hitch, and then rotate the handle to let it go back in. Hence the "Turnover Ball" name. Pay attention to the directions to make sure you install latch release handle correctly and the bolt goes the correct way. If you don't install it correctly it won't lock in the out position when you rotate the handle, which makes it really hard to turn the ball over by yourself.

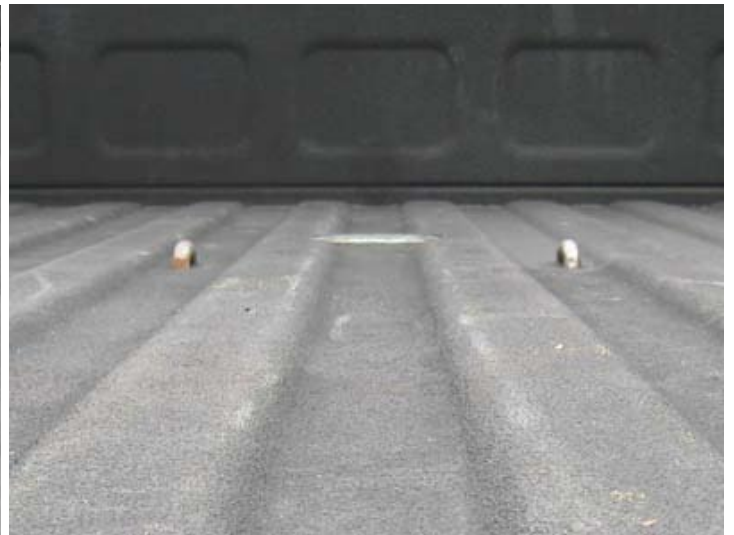


To finalize the hitch install you need to install the safety chain loops. Safety chains are a requirement (by law) when towing a trailer, besides they are just a really good idea to have. I've had a trailer come loose before (neglected to latch it correctly) and the chains kept it from coming out of the truck. After that episode I always triple check three things when hooking up the trailer; the latch is securely engaged, the safety chains are installed, and the emergency break away cable is attached. I haven't had an incident since.

The holes for the safety chain loops must be drilled from the bottom after you have the hitch securely bolted in. Climb under the truck and locate the set of holes that are aligned with the lower section of the bed ribs. Drill two holes on either side of the ball for the loops. Insert the loops from the top of the bed and secure them on the bottom utilizing two springs and lock nuts. Be sure to use lock nuts on the loops. They aren't going to be tightened against anything and will vibrate loose if you use standard nuts. The springs hold the loops down in the bed to keep them from rattling.



Here are a couple pictures of the final product showing the hitch ball in the raised position, and the flat bed floor with the ball in the lowered position.



Now that the hitch is physically installed it's time to move on to the other portion of the install, the electronic brake controller. The electronic brake controller does exactly what you'd expect; it controls the brakes on the trailer. Without the controller, you won't have any brakes on your trailer. The brakes on the truck are sufficient for stopping the truck, but they will not stop the truck with a heavy load behind it. A runaway truck without brakes is very dangerous. As stated above, **If you have any doubts about your ability to properly install a trailer hitch and the electric trailer brake controller properly, DO NOT ATTEMPT THE INSTALLATION AND HAVE A PROFESSIONAL SHOP INSTALL IT FOR YOU.**

The electronic brake box that I am installing in my truck is the Tekonsha Voyager. I know it's not as fancy or as popular as the Tekonsha Prodigy P3, but I've had it for years in my old truck and it has NEVER failed me. That's a pretty good track record. So I removed the controller from the old truck when I got rid of it and now I'm installing it in this one.

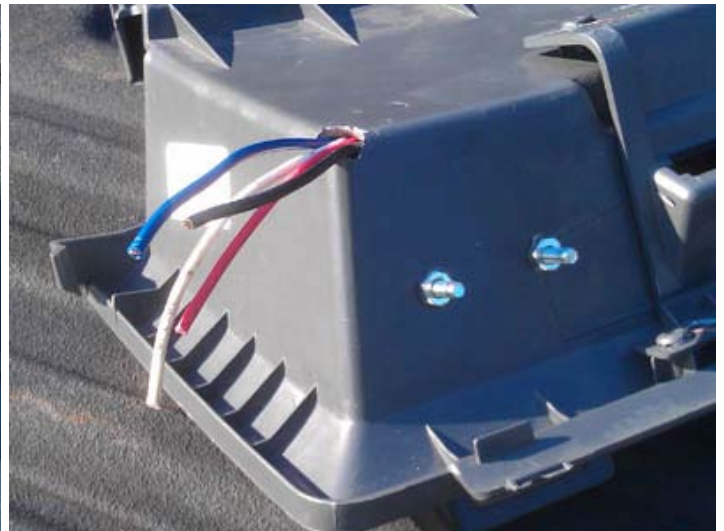
The first step of installing the controller is to find a suitable mounting location for it. I prefer to have the box on my right side within arm's reach while driving. This allows me to make slight adjustments or to manually activate the brakes by sliding the lever on the front of it. I also wanted it to be installed somewhere where it wouldn't get hit by anything and would be generally out of the way. I decided that I would mount the box on the left-hand side of the cutout in the lower center dash area. It clears the shifter, clears my legs, doesn't block anything, and is still easily accessible within arm's reach while driving.



I started the install by removing the closeout panel that I am going to mount the controller to. In order to remove this panel, I had to remove the center console. There are 3 screws under the cup holders to remove the aft piece, and two screws under the first piece to remove the forward section. Once that is out of the way, you can remove the two screws in the closeout panel and pull it away from the dash.



I wanted to keep all the wires out of sight and well protected, so I chose to route them through the upper corner of the panel behind the controller. I drilled a hole in the top corner for the wires, and then drilled two holes in the top for the controller bracket. The wires were routed through the hole and the controller was secured with its mounting bracket.



After the controller mounting was taken care of, I turned my attention to the wiring harness. The OEM harness connects to a blue connector on top of the main electrical connector behind the parking brake assembly. Don't connect the connector until the rest of the wiring is finished. It's never smart to work with live wires. I ran the harness from the blue connector over to the brake box mounting location and through another hole I drilled in the center dash behind the closeout panel. I covered the entire wiring harness with wire loom. Be sure to double and triple check that the routing of your harness won't be anywhere near any pinch points or chafe points that could damage the harness in any way.



After both halves of the install are complete, it's time to join them together to make it work. I used some quality crimp connectors to attach the OEM wiring harness to the brake controller harness. Be sure to use a quality connection method. Solder and heat shrink is best, crimp connectors second. Don't twist the wires together and wrap them with electrical tape. All you'd be doing is setting yourself up for failure and a potential serious accident. After the connections were made, I inserted the remaining wires into the wire loom and even stuck the wire loom through the hole in the closeout panel and ran it all the way to the back of the brake controller. Every part of the entire harness is protected with loom.



Once the harness is finished, you can now connect the blue electrical connector for the harness. Reinstall the closeout panel with the two screws you removed earlier and then reinstall the center console. The crimp connectors are located in the space behind the closeout panel in the area between it and the inner dash. After everything is put back together, no wire is visible until you look up under the dash. Hook up your trailer and go through the manufacture's procedure to properly adjust and test the brake controller. After everything checks out ok, you're free to tow your trailer whenever you want.

