

## **Please read before installing:**

This modification allows you to use the air space designed into the tank to allow for fuel expansion. If you fill your truck with fuel until you can see fuel in the filler neck on a hot summer day and then park your truck in the sun, there will be no place for the expanding fuel to go. This may cause fuel to leak. Use common sense when you fill your truck to the fill neck. This modification will probably void the warranty on your fuel tank. This modification has not been crash tested. If you have any doubts about whether you should attempt this installation and drill a hole in your fuel tank, I will refund the purchase price of the kit when it is returned to me minus the shipping. If you decide to sell the truck in the future, please inform the new owner about this modification so they know about the need for fuel to expand during hot temperatures. Make this modification at your own risk.

## **Recommended tools:**

-- 15mm or 16mm deep socket (depends on year of truck)

-- 8" and 4" extension

-- Socket universal joint (depends on year of truck)

-- 15mm or 16mm closed end ratcheting wrench (not needed if you have a deep 15mm or 16mm socket)

(Short bed trucks don't have the center drive shaft support around the forward tank strap bolt, so the closed end ratcheting wrench and universal joint for the deep socket won't be needed.)

-- Large adjustable wrenches, pipe wrenches, Channel-Lock pliers, or strap wrenches for the large bulkhead fitting.

-- Screwdriver

-- Blocks, hydraulic floor jacks, or an ATV jack to help lower tank.

-- Rubber mallet (for older style in-tank-module)

-- 1 3/8ths" (one and three eighths) hole saw and drill (a butterfly bit will work also)

-- Empty whipped cream tub or similar

-- Plastic zip ties

-- 2 part Epoxy to lock the threads on the bulkhead fitting

## Instructions:

(Please read the instructions all the way through. The people that have installed it have given many suggestions to make the install easier. I have included them here. Because of the detail, they are fairly long. Reading them all the way through will take away any surprises you might encounter during the install.)

There are also instructions online at my website – [www.innertruck.com](http://www.innertruck.com). You can link directly to them by following this link: <http://www.innertruck.com/ventkitinstructions/>.

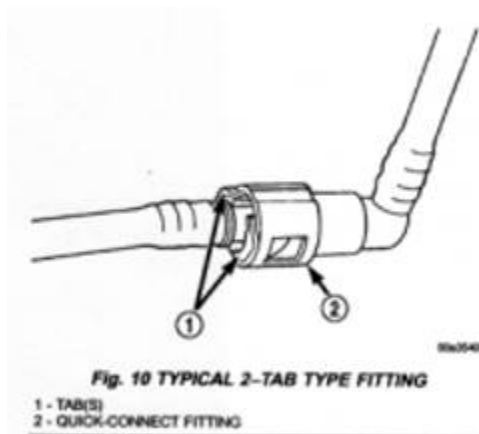
1. Make sure you have nearly an empty tank. Taking the Distance to empty down to zero is recommended. I drove 20 miles after I hit zero and had about two inches of fuel in the bottom of the tank. Working in warmer weather or in a heated garage will make the fuel lines and hoses easier to remove and work with.
2. Two wheel drive trucks or 4x4 trucks with nerf bars or steps should be jacked up and jack stands installed so you can slide the tank out from under the truck in step 7. Removing the wheel well liners (if equipped) may help access the fuel lines and electrical connector on top of the tank if you choose to access from them from the side. Also, it may help to remove the fender brace to make room to reach these fittings. 3 screws hold this brace on.
3. Disconnect the fuel filler and vent hose from the filler neck. Loosen the tank strap nuts. On the forward tank strap nut, I reached through the drive shaft support with the 15mm closed end ratcheting wrench to loosen the nut enough to get a universal joint and a deep socket on it (This won't be necessary with a short bed). A normal deep socket can be used if it is not fully seated on the extension. This will allow it to bite just enough of the nut to loosen it. Loosen the nuts to the bottom of the threads (do not remove nuts yet!) and disconnect the 2 fuel lines and electrical connector on top of the tank. You may get access to the lines through the fender well area also. You will have to remove the fender liners (if you have them) if you want to go this route.
4. To disconnect the electrical connector: Slide the red colored tab towards the rear of the truck to unlock. **DO NOT REMOVE THE RED TAB**. This will re-lock the connector in place. Push down on the tab on top of the connector near

where the wires enter the connector. It won't move much. Pull and wiggle the connector while pushing on the tab and it will slide off. If you need a better look at the connector, look behind the driver's side battery. There are two similar connectors there. See pic below and in the link on page 1.



5. Disconnect the fuel lines. The fuel lines have quick-connect fittings. Squeeze the 2 tabs together as you push the fuel line off. These lines are different sizes, so they cannot be put back on the wrong barb. These lines can be tricky to remove and re-install. It might be a good idea to see how they go back on right after you take them off. The tabs must line up with the expanded sides on the female end of the fuel line. The expanded sides can be located by the holes on the side of the female end of the fuel line. See the figure below of the fuel line quick disconnect. In the figure below, you squeeze (1) together, as you push (2) off the barb. (1) will remain on the barb and can rotate freely on the barb. It must be rotated to line up with (2) when re-installing. There is a fuel line barb that is between the electrical connector and the most rearward fuel line (see pics under step 9. The second one is the newer style module.) On some trucks, the line is twisted just enough that it is very difficult to get your fingers in there to release it. You may be able to get it off easier if you use a cable tie, wire, or fishing line and wrap it around the clips (1) and squeeze them while you push the fitting off. Another method is to grab the fitting with a pair of pliers and carefully twist the fuel line so that you can get your fingers on the quick disconnect tabs. Another method is when pinching the two tabs, push in - then quickly pull out. Yet another method (See step 6 first) is to unclip the fuel lines from the frame so you can very carefully lower the tank down to access the

fitting. Be careful that you don't kink the fuel lines as they are rigid metal lines.



6. **IMPORTANT:** Before lowering the tank, check the area where the bulkhead fitting will mount and make sure there is no cross member that will interfere with the fitting. Mark the tank with chalk, masking tape, or other means so you know where the cross members are and where the clear area above the rear part of the tank is. Once the hole is drilled, you can't go back and do this step!

7. If desired, you can stuff the ends of the fill and vent hoses with clean rags to keep any debris out of them while you drop the tank. The tank straps lift up and out of the frame brackets. Lower the tank to the ground and slide it out from underneath the truck.

8. Thoroughly clean the area around the tank module and the area on the top of the rear of the tank. Use a shop vac to make sure there is no dirt or sand that could make its way into your tank. Tip the tank over onto the passenger side at a 45-degree angle. This will drain some of the fuel from the sending unit and make removal less messy.

9. There are 2 types of tank modules. Check to see which one you have. The old style is the first pic below and the newer style ('05 and newer) is the second pic below. If you have the older style, in the pic below, make note of the position of the fuel inlet tubes and the triangle on top of the tank module (red arrow). This triangle lines up with alignment marks on the tank (white arrow). The unit must be installed in the same position it came out. This is for proper float clearance against the side of the tank. The green mark at about the 12:30 position (black arrow) on the outer ring and center can be used to determine how much to tighten the ring during installation. Using the rubber mallet, carefully tap the

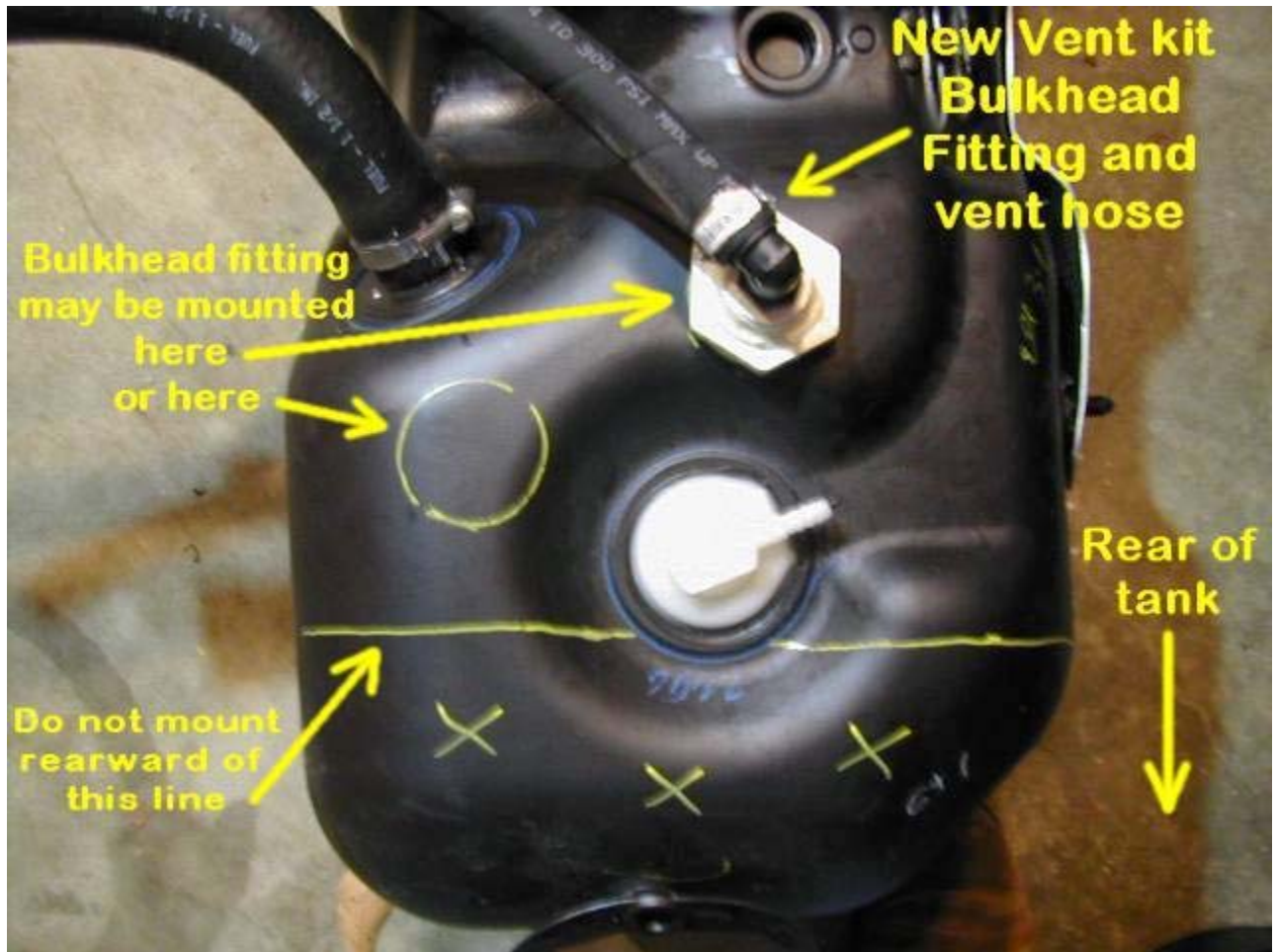
large white ring nut counterclockwise to remove. The top of the tank module is lightly spring loaded to pop up about 2". Remove the whole unit from the tank being careful of the float. The unit will contain some diesel fuel. There is a sleeve gasket that may remain on the tank or may come off with the unit. Dodge recommends that you replace this gasket when removing the unit. I re-used mine with no problems.



If you have the newer style in-tank module, you will have a metal ring to remove with a screwdriver and hammer. See the pic below. The module is indexed into the tank, and there is no need to align it with any marks when re-installing. The locking ring lines up a certain way on the tabs on the tank, so make note of the marks made at the factory to line up the holes in the ring with the tabs on the tank.



10. Time to drill. Drill in the highest part of the tank on the raised portion at the rear of the tank. See pic below for placement of bulkhead fitting. This is the same for long and short bed trucks. There is a cross member that will interfere with the bulkhead fitting if you mount it too far towards the rear of the truck. Stick with the locations illustrated below. Your tank may be slightly different than the pic below depending on year ('07 pictured).



**NOTE:** It is not necessary to disassemble the 90-degree fitting from the bulkhead fitting. It is pre-sealed with thread sealer, and the large nut will come off over the 90-degree fitting.

The orientation of the 90-degree fitting is different for long and short bed trucks. See step 12 below for more info on orientation of the 90-degree fitting. Mounting further rearward may interfere with a bed support cross member. Locate the hole so that there is enough flat area for the bulkhead fitting to seal against. Don't drill where there is contour in the tank. Use a plastic tub just large enough to get through the large in-tank-module hole to catch the shavings, and drill the 1 3/8" (one and three eighths) hole.

11. Install the bulkhead fitting into the hole you made in the tank. The flange and gasket go inside the tank and the nylon washer and nut go on the outside of the tank. Do not tighten the fitting all the way at this time.

12. On LONG BED trucks, you have the option to run the vent hose inside the frame rails or outside the rails. There are some edges for the hose to rub against inside the frame rail, so be careful to protect the hose or secure it so it doesn't rub when you run it this way. To run the vent hose outside the frame rails (as pictured under step 15), angle the fitting toward the drivers side as pictured above under step 10. To run the vent hose inside the frame rails, point the fitting straight forward.

On SHORT BED trucks, the fitting should point toward where the stock vent line is pre formed to sit beside the fill line. Avoid the temptation to cut off any excess hose at this time. The vent line has to go over a tubular cross member and you will need the extra length.

**THE BULKHEAD FITTING AND NUT HAVE REVERSE THREADS.** The Buna-N gasket will seal well with moderate pressure. The nut on the bulkhead fitting should be installed with the word "tighten" facing out. The nut goes on very tight otherwise. It should thread on easily. Install the bulkhead fitting as pictured below. The flange and gasket are inside the tank and the nylon washer and large nut are outside the tank.



Do not use thread-locking compounds on the bulkhead fitting, as they are not compatible with nylon. To lock the threads, apply a bead of 2-part epoxy where the nut meets the threads after the fitting is tightened down. This will keep the nut from backing off.

13. Attach the 3/4" hose to the 90-degree fitting and secure it with a hose clamp. Make sure the screw housing on the hose clamp itself is not on top of the hose, but to either side of, or below the hose. This step allows more clearance between the bed and the hose.

14. If you have the newer style tank module, make sure the O-ring is absolutely clean and the groove where the O-ring seats is clean. Make sure you install the O-ring onto the tank in the O-ring groove and that it is properly seated when you install the tank module. Double check to make sure the O-ring is still seated in its groove and hasn't fallen into the tank before you tighten the locking ring. Failure to do this could result in leaks and having to drop the tank again because of a poor seal!!!

If you have the old style tank module, install the tank module with the sleeve gasket that was on the tank. Make sure the gasket is seated properly and that it hasn't fallen into the tank. If this gasket is not installed properly, your tank will leak and you will have to remove the tank to seat the gasket properly. Make sure to line up the triangle with the alignment marks (see step 9) and the green outer ring mark with the mark on the center part of the tank module. This green mark lets you know how much to tighten the outer ring by getting it back to where it was installed originally. Be careful not to cross thread the white ring. It is difficult to start these threads. To help line up the threaded plastic locking collar that holds the sending unit down, look at the threads on the collar and the threads on the tank. Locate the beginning of the first thread on the collar, and first thread on the tank. Make sure you align them before you start tightening the collar. This should make the installation easier. Another suggestion is to warm up the collar a little with a heat gun, this seems to make it go on easier.

15. Install the tank in the truck making sure to connect the fuel lines and electrical connectors. On short bed trucks, carefully run the fill line and old and new vent line so that there are no kinks and no pinched hoses

On long bed trucks, there's more room for you to work and you can run the vent hose outside of the frame and zip tie it to the bed cross member. You may also run the hose inside the frame rails. It's a matter of personal preference.

**Important:** Also make sure there are no low spots in the vent line that could gel up in cold weather. Tie them up to keep fuel from getting trapped. Failure to do this could result in a temporarily plugged vent line that will not allow you to fuel the truck properly. See pic below.



**16. Connect the new  $\frac{3}{4}$ " vent hose to the metal vent line that the original vent line came off of. Tighten the hose clamp.**

**17. Install the hose barb and cap (it's already sealed with thread sealer) into the factory vent hose to cap it off. Install and tighten the factory hose clamp. You can zip tie the original fuel vent to the fuel fill line to secure it. This picture was taken facing the rear of the truck. I cut my original metal vent line on the original installation. You will have metal vent line parallel with the fill line. This pic is of a long bed truck. Short bed trucks use only 2 feet of hose and the metal vent line is much closer to the bulkhead fitting installed in the tank.**

**If you have any questions, please feel free to call me at home at 812-656-8223 or on my cell at 717-808-7376.**