

## **Installation Instructions – Please Read!**

Congratulations on your purchase of a “Banana Pan” for your Duramax Engine! Following these simple instructions will result in a smooth one-time installation and a lifetime of trouble-free service from your complete-draining “Banana Pan”!

Be sure to read these instructions completely before installing the “Banana Pan” on your Duramax and set aside the time needed for the engine to drain and for the sealant to thoroughly dry and cure before adding fresh motor oil and returning the vehicle to service. Failure to let the sealant properly cure could result in leaks and the necessity of repeating the procedure to get a proper oil-tight seal.

### **TOOLS NEEDED:**

Jack Stands, Wheel Chocks, Floor Jack or vehicle hoist to safely raise the truck enough to have access to underneath the engine and front axle. Torque wrench, breaker bar, Metric wrenches and sockets (10, 15, 18, 19mm), Large Oil Drain Pan, putty knife, seal cutter, new 3/4" wood chisel, wire-twisting pliers, 5 mm Allen Wrenches with extensions, pliers, copper wire brush, rags, brake cleaner, etc. as required. A straight T-handle 5mm Allen wrench can be very handy getting all the Allen Head screws started.

A tube of GM Delco Sealant P/N97720043 (Canada P/N 889901148) is included and highly recommended for your “Banana Pan” as it is really good stuff. When properly used, it will last the life of your engine, but you will need a caulk gun dispenser. (Racket type recommended, This is THICK stuff). Wear Eye Protection.

### **REMOVAL PROCEDURE:**

1. Raise the truck and support the frame with Jack Stands and chock the wheels. It is recommended that you remove the front wheels for better access especially if you are working without a hoist and doing this work on the ground.
2. Use the large drain pan under the Duramax to drain the oil. Replace the stock drain plug as there is almost 2/3 quart of old oil trapped in the OEM pan and you don't want that spilling on you when you dislodge the old lower pan. You may remove the old oil filter at this time as that will help drain the engine.
3. Remove the skid plates as required to gain access to the entire lower oil pan and remove the frame Crossmember that runs underneath the oil pan by removing the four 18mm bolts and nuts. Set these pieces aside.
4. Disconnect the Bosch Low Oil Sensor electrical connector and move the wires out of the way.
5. Use a 10mm socket with an extension to remove the two nuts and the 15 bolts holding the Lower Oil Pan to the Upper Oil Pan. If the transmission lines are too close, you may undo the retaining clip holding the lines to the engine to enable slight movement of the transmission lines. One of the bell housing bolts sticks out almost 1/2" toward the oil pan and needs to be removed. Set it aside.
6. At this point, you are ready to remove the OEM Lower Oil Pan. The factory sealant is very strong and you will need to be patient to get it off. You may try the GM Seal Cutter P/N J37228, but most experienced mechanics just use a strong putty knife, etc. to loosen the OEM pan. On two-

wheel drive models, there is plenty of access to the sealant area, but on the 4-Wheel Drives, the area is hard to get at. Be patient and just chip away at that sealant wherever you can. You may construct a “pry-bar” out of two lengths of ½ " steel pipe. One piece should be about 4-1/2", a 90-degree elbow, and another piece about 10"+ long. Remove the retaining clip on the Low-Oil Sensor connector and gently push the connector back into the oil pan. Save the clip. Use your “pry bar” (with a little tape on it to protect the inside surface of the connector hole) with the short length in the hole and the elbow on a flat spot just opposite the hole to pry down on the pan to break the seal. When the pan is loose, carefully lower the pan. It will still have the 2+ cups of oil trapped in it that you should drain into the drain pan. Note the orientation of the lower oil sensor, unbolt it, and set it aside.

7. At this point, you need to let the engine drain overnight to allow the old oil to drip out of the engine. It can drip for days and the more oil you drain out, the better.

8. Clean the old sealant off the upper oil pan being careful not to scratch the surface. The new 3/4" wood chisel works well and the copper brush and brake cleaner can completely clean the surface in preparation for installing the “banana pan”.

9. Prepare the “Banana Pan” for installation. Be sure the pan is clean and ready to install. Orientate the Low Oil Sensor in the “banana pan” and use the M6x25mm bolt, the M6x85mm bolt, Aluminum 2.25" Spacer and the two “Heico” Lock Washers to secure the Sensor in place. Inspect the Bosch Electrical Connector, its O-Ring, and install using a few drops of clean motor oil to ease the connector into the hold in the side of the “Banana Pan” and install the retaining clip.

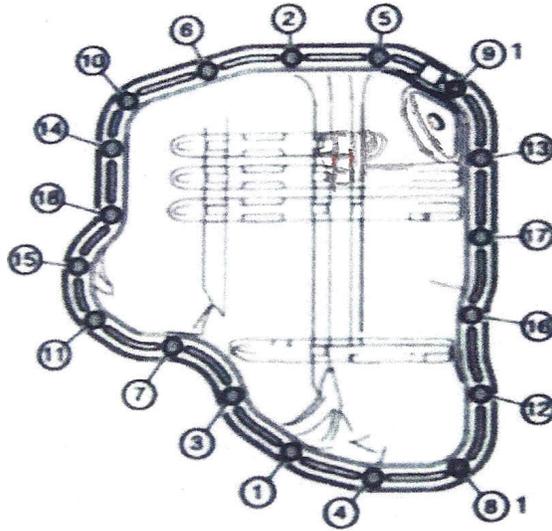
10. Before using any sealant, practice installing the “Banana Pan” on to the upper oil pan of your Duramax. With the four-wheel drive models, the engine bay is snug and challenging; start by orientating the pan in the way it wants to be when installed and when you are facing the front of the vehicle, try turning the “banana pan” slightly clockwise and start the right rear corner in first, turn the casting back straight, and then push it up into the engine bay. The two threaded 6mm studs will help you orient the pan and they greatly aide the installation process. Once you see how the “banana pan” hooks into the engine bay as you push up and over against the transmission lines you will be able to do it. Practice installing the “dry” pan a few times and you will be confident enough to install the “banana pan” in your truck. Note the threaded studs, and where you must position yourself to install the Allen head cap screws and their washers. Take a little time here to clean up the threads of old sealant, etc. in preparation for the install.

11. Lay out the Allen-Head cap screws and their washers so they will be easy to get to or have an assistant hand you the hardware as you ask for them. When you are confident that you can install the “banana pan” without making a mess of the AC DELCO sealant and that your hardware is laid out and ready to go, read all the directions on the sealant tube so you are completely familiar with the process. When you are ready and both the surfaces are clean, put the sealant tube in the caulk gun and cut off the tip of the applicator to produce a narrow bead of sealant that you will use to go completely around the surface of the “Banana Pan” with a 2-3mm wide bead about .5-1.5mm high on the mating surface of the new pan. You want to surround the bolt holes with sealant and be sure there are no gaps or “thin spots” in your application. You have only a short time to install the pan and get the bolts in. Do the “turn-twist-push” movement you rehearsed earlier to get the “Banana Pan” up in the engine bay and gently hold it in place. Install all the hardware and lightly tighten the bolts and nuts. Do them all with your fingertips at first to get the Allen Head caps screws started correctly with three complete turns so you know nothing is cross-threaded. When all the bolts and



nuts are started, lightly go around the pan using the criss-cross pattern recommended by General Motors and with each pass, tighten the bolts a little bit more until you eventually get to 89 inch pounds. At this point it is **EXTREMELY IMPORTANT TO LET THE SEALANT CURE FOR AT LEAST 12 HOURS (24 HOURS IS IDEAL)** before adding oil to the engine. The sealant cures after being exposed to air so if you put the oil in right away, the sealant has no way to properly cure.

Here is the tightening sequence **recommended** by the Factory:



12. Connect the Low Oil Sensor Connector. Install the New Oil Filter(s) and the drain plug. If you ordered the optional GoldPlug, then install it now. The GoldPlug is Stainless Steel, drilled for a safety wire, and uses a state-of-the-art rare earth super strong Neodymium magnet to extract the small ferrous wear particles from your motor oil. It can easily be wiped clean with a paper or cloth towel at future oil changes. Use the 24" length of .032" SS Safety Wire to secure the GoldPlug to the drilled and extended web just above the drain hole.
13. Re-Install the Crossmember and bolts. Tighten to 74 foot pounds. Install the Oil Pan Skid Plate (if applicable). Tighten the bolts to 15 ft. lbs.

**If** you ordered the Oil Pan Heater Kit, read the installation instructions and install it now.

14. After waiting a day for the sealant to dry and cure, then install 8 quarts of fresh oil. After test running the engine and checking for leaks, you may top off the engine to the proper level with another 2+ quarts. Apply the stickers and you're done!

If you would like to read another "Installation Guide, there is an excellent article by Todd Smith on "The DieselPage.com" Forum with very good pictures and narrative.

Congratulations! You have successfully Installed a "Banana Pan" on your Duramax that will enable you to completely service your engine!

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