

TITAN PN: 01 0000 0122

**Important:** Please read these instructions carefully and completely before starting the installation.

## TITAN™ Fuel Tanks

### INSTALLATION INSTRUCTIONS Generation V



**TITAN Models 7010101 & 7010301:** For Chevrolet / GMC models 2500 & 3500, model years 2001-2010, with Duramax diesel engines: Extended Cab Short Bed and Crew Cab Long Bed

#### *Required Tools:*

- 1 ea. Ratcheting socket driver
- 1 ea. ½" socket
- 1 ea. 8 mm socket
- 1 ea. 13 mm socket
- 1 ea. 5/8" socket
- 1 ea. Torque wrench handle to fit ½" socket
- 1 ea. ½" end wrench
- 1 ea. 11 mm end wrench
- 1 ea. Large flat blade screwdriver
- 1 ea. Medium flat blade screwdriver
- 1 ea. Diesel fuel line release tool
- 1 ea. Razor blade or sharp box cutting knife
- 1 ea. Small mallet or hammer.

#### *Optional Recommended Tools:*

- 1 ea. Hydraulic transmission jack
- 1 ea. Vehicle hoist

*Parts List:*

- 1 ea. Extra heavy-duty cross-linked polyethylene (XLHDPE) fuel tank for one of the following General Motors diesel trucks:

Extended Cab, Short Bed  
Crew Cab, Long Bed

Tank Identification: "GM EXSB"  
Tank Identification: "GM CCLB"

**Note:** Each tank has the above identification designation on its top. Please check to be sure the tank is properly identified as the one to fit your truck.

The following parts (Sending Unit Mounting Assy) should already be installed on the tank (top flange and 3/8" nylon locking nuts should be loosely installed).

- 1 ea. Sending Unit Mounting Assembly, made of:
- 2 ea. 01 0000 0137 Stainless steel ½ flanges with 3/8" welded studs (mounted inside tank)
  - 1 ea. 01 0000 0139 Flat flange gasket (mounted inside tank)
  - 8 ea. 02 0000 0162 3/8" flat retainers
  - 1 ea. 01 0000 0110 "O" Ring sending unit gasket (primary "O" ring gasket)
  - 1 ea. 01 0000 0138 Top sending unit flange
  - 8 ea. 02 0000 0163 3/8" nylon locking nuts
- 2 ea. Roll-over, fill-stop vent valves (installed in top of tank)  
2 ea. 5/16" vent hoses with caps  
1 ea. Rear cradle bracket  
2 ea. 99 0000 0103 Extruded Bushings  
1 ea. 01 0104 0000 Front Cross Member assembly  
2 ea. Nylon Quick Ties

**Note:** The General Motors straps are identified by designations stamped into them. These designations are:

**Crew Cab Long Bed**

*Cradle (front and rear straps tied together)                      Front &/or Rear = 01 0107 0000*

**Extended Cab Short Bed**

*Cradle (front and rear straps tied together)                      Front &/or Rear = 01 0109 0000*

Optional Parts List:

- 1 ea. "LB7 Kit", including:
  - 1 ea. 12 ga. Intermediate Top Flange (3 3/4" inside diameter)
  - 1 ea. 12 ga. LB7 Top Flange (3 3/8" inside diameter)
  - 1 ea. "O" Ring for LB7 sending unit (smaller than primary "O" ring gasket)

*For trucks equipped with LB7, LLY, LBZ and LMM engines:*

**IMPORTANT NOTICE:** *Before installation, be sure to thoroughly inspect inside of the tank for ANY foreign debris!*

<u>Step</u>	<u>Description</u>
1	Place the vehicle on a hoist that leaves the entire underside of the frame <i>unobstructed</i> . It is recommended that installer remove the driveline for better access to the tank and accessories. <b>IMPORTANT:</b> Aluminum drivelines can be easily damaged if care is not taken in handling. Be very careful, they are very expensive to replace.
2	Drain all the fuel from the original equipment tank using a pump or siphon.
3	Disconnect fuel tank fill hose from original equipment tank.
4	Remove bolts and drop fuel cooler, located at the front of tank, down to gain access to lines on top of tank.
5	Disconnect fuel gauge electrical connection, feed line and return line from sending unit. <i>Note:</i> Use fuel line release tool to remove fuel lines from sending unit.
6	Support original equipment tank.
7	Loosen and remove the two (2) 15 mm bolts on outside of straps.
8	Remove original equipment tank with its straps from vehicle.
9	Tuck the wiring harness, differential breather hose, and brake line up on top of the frame as the new tank will need to be positioned against the frame for its entire length.

**Note:** *Some truck models may be equipped with a wiring harness for gooseneck and 5<sup>th</sup> wheel trailers. This will need to be moved to a new location and secured once the new tank is installed—generally behind the tank is best.*

- 10 Remove feed and return lines from sending unit and reinstall in factory position on truck.
- 11 Reinstall fuel cooler.

**Note:** *Older trucks equipped with LB7 engines (2001 to early 2004) require an additional "LB7 Kit." If you are installing on an LB7 and the kit was not ordered, contact your Titan dealer to obtain one.*

- 12 Remove sending unit from original equipment tank using hammer and screw driver to rotate factory sending unit flange counter-clockwise until it releases the sending unit. Leave original equipment factory “O” ring gasket behind, do not use on new tank (See Fig. 1).
- 13 The new Titan fuel tank comes with the sending unit mounting hardware assembled. Remove the 3/8” nylon locking nuts from the studs holding the top flange. Remove the top flange. You will see the “O” ring gasket in place under the flange or it will be inserted in warranty envelope. (See Fig. 2).

**Note:** Check the two ½ flanges mounted inside the tank to be sure the flat gasket is in place between the flanges and the inside top of the tank. Also, be sure to check the ½ flanges to be sure they are seated properly and do not overlap.



(Fig. 1) Remove sending unit from original equipment tank using mallet or hammer and large screwdriver.



(Fig. 2) Sending unit mounting hardware before sending unit, top flange, and 3/8” nylon locking nuts are installed.

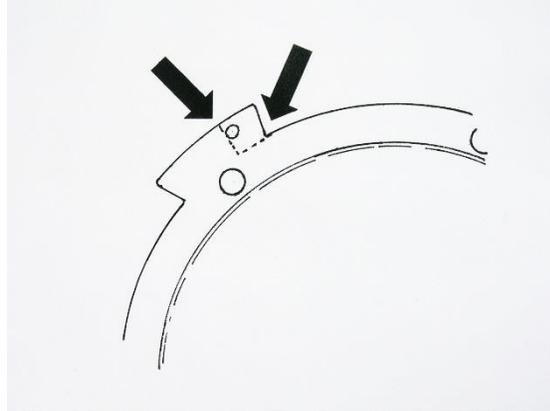
**Note:** On trucks equipped with LB7 engines (2001 to early 2004) please refer to “Special LB7 Sending Unit Installation Instructions” located after the main instructions. They replace steps 14-18 shown here.

- 14 Check the tab(s) on the sending unit for clearance in the mounting opening of the new fuel tank.

**Note:** On some GM trucks the sending unit tab is situated such that the flange studs on the TITAN Tank will not allow it to be set at the same angle as in the original equipment tank (See Step 16 below). In this case, part of the tab will have to be removed so that the sending unit will align properly (See Figs 3&4).



(Fig. 3) New GM sending unit showing tab which, in some cases, interferes with mounting studs in the TITAN Tank. If the tab interferes, it will need to be trimmed.



(Fig. 4) Diagram showing where to trim sending unit tab. Cut the tab along the dotted line as shown above using a pair of diagonal cutters, a hack saw or a grinder.

- 15 Carefully place the sending unit into the new tank. Make sure that the “O” ring gasket is placed properly under the sending unit to seal correctly.
- 16 After placing the sending unit in the tank on top of the “O” ring gasket, rotate it so the fuel line fittings are positioned at the *same* angle as in the original equipment tank. If the fittings point too far either direction they will not hook up correctly or the float will press against the side of the tank resulting in improper operation of the fuel gauge (See Fig. 5).
- 17 Replace the top flange on the studs, on top of the sending unit, so as to hold it down securely.
- 18 Use the 3/8” nylon locking nuts to tighten down the top flange. **Tighten to 20 foot pounds (ft. lbs) of torque using torque wrench.** Be sure to tighten in a “star” pattern, starting with the four studs adjacent to where the ½ flanges meet so as to prevent the flanges from overlapping, and to ensure all nuts are equally tightened and the “O” ring gasket is properly seated. Carefully “snug” the nuts equally before tightening to specification (See Fig. 6). After tightening the nuts to specification, wait at least fifteen (15) minutes and check torque again.



(Fig. 5) Make sure fuel line fittings point at the same angle as in original equipment tank.



(Fig. 6) Tighten using torque wrench and a “star” pattern to ensure all nuts are equally tightened and the “O” ring gasket is properly seated.

- 19 Install strap bushing for tank: Place a rubber bushing, channel side down on the bottom of the front strap (the one that is flat, not curved) of the rear mounting cradle, centering it in the bottom of the inside of the strap, and press securely.
- 20 Place tank on a hydraulic transmission jack. Lift the tank high enough to reconnect the sending unit electrical connection, as well as both the return, feed line hoses, and primary vent line.
- 22 The tank is equipped with rollover valves and vent lines on the rear and front of the tank which vent to atmosphere. The ends of the vent lines must be routed to a point higher than the fill tower (where the fill hose attaches) on the tank (See Figs. 7-8).



(Fig. 7) Rear rollover valve with vent hose attached.



(Fig. 8) The ends of both vent hoses must be installed higher than the tank's fill tower. Front vent hose is shown here.



(Fig. 9) One of the vent hoses routed up and attached to the vehicle's body with quick tie.



(Fig. 10) Tighten cross member against frame using 5/16" plated bolts, washers and nylon locking nuts provided. Note exhaust particulate filter above cross member.



(Fig. 11) Shown: Right-Hand Bracket for GM Cross Bar. The Cross Bar is held fast by tightening the 5/16" cap screw seen here at the upper left hand corner of the bracket. It is recommended that the installer position the Cross Bar, tighten down the cap screw as shown, and then drill a hole in the frame lip through the hole seen in the right-hand corner of the bracket. A 5/16" cap screw and nylon locking nut are provided for fastening this hole. It is advisable to apply Loctite Thread locker or equivalent to the bolts.



(Fig. 12) On vehicles with LB7 engines only, an interior fill hose is located inside the main fill hose. The tank vents through the space provided between the two hoses. Ten (10) inches needs to be cut off of the interior hose on end that goes to the tank as shown.

- 23 Once all connections are securely attached, lift the tank the rest of the way into place with the transmission jack. As the tank is lifted be sure the two vent line hoses are routed up higher than the fill tower and attached to the vehicle's body with the included quick ties. **Important: For proper venting, be sure the vent hoses are sloped down to the rollover valves with no "sags" of any kind. "Sags" can fill with fuel and prevent the tank from venting properly. Cut the vent hoses and shorten them to fit if needed** (See Fig. 9).
- 24 The rear mounting cradle has two hangers that hang in the inboard original equipment mounting points. There are bolt holes in the frame rail side that attach directly into the original equipment bolt holes. Hang the inboard side of the cradle first.
- 25 On the rear outboard section of the strap cradle, start the stock 15 mm bolt into the retaining clip until approximately half of the thread is through. Now, move to the forward strap and start the 15 mm bolt and tighten too the same depth. It is important to check the straps all the way around before tightening to ensure proper alignment and seating of the brackets. After checking alignment, tighten stock mounting bolts to original equipment specifications.
- 26 A front cross-bar support is included with the tank. It will require no drilling of the truck's frame rails to install. However, in cases where severe conditions might be expected, a small optional "locking hole" might be desirable (See Fig. 11).
- 27 Locate the second rubber bushing supplied. Place the rubber bushing, channel side down, on the bottom of the cross-bar tank cradle.

Align the rubber bushing so that the center of the bushing is lined up with the center of the bottom of the inside of the cradle, and press it securely into place.

- 28 Place the cross-member on the frame at the very front of the tank. Hang it on the in-board side of the driver's side frame rail first. Lift cross-member to opposite frame rail (passenger's side). Set the separate tapered passenger side bracket on the frame and then bolt the cross member to it using two of the 5/16" plated bolts, with washers, and nylon locking nuts supplied.
- 29 Slide the cross-member along the frame rail towards the rear of the truck until it is under the tank, and in contact with it enough to substantially support it.

**Note:** *If the truck is equipped with an exhaust particulate filter canister (it looks like a small muffler located in-line before the truck's main muffler), move the end of the cross-member support on the passenger's side of the frame one direction or the other (forward or rear) until you obtain 1/4" of clearance or more under the canister.*

- 30 Using the other two 5/16" plated bolts provided; thread a 5/16" bolt into the nut welded on the tapered bracket on each end of the cross-bar and tighten against the frame (See Fig. 10). Be sure the cross-bar is secured well.
- 31 Connect the fill hose and vent hose (where applicable) and securely tighten with clamps. Make sure neither hose is kinked and both have a consistent downward slope.

**Note:** *LB7 trucks have an interior fill tube inside the fill hose. Ten inches (10") of the interior fill tube should be cut off the tank end of the tube (See Fig. 12 ).*

- 32 Make sure that ALL mounting hardware, clamps, bolts, etc. are tight.
- 33 Replace drive line assembly on the truck.
- 34 Lower vehicle, completely fill with diesel fuel and check for leaks. VERY IMPORTANT!**

## Special LB7 Sending Unit Installation Instructions

*These Instructions Replace Steps 14-18 Above*

These Steps Require an "LB7 Kit"

- 14 Put the top flange you have removed aside, it will not be needed again. Place the thinner flange, from the LB7 Kit (the Intermediate Top Flange), with the larger inside diameter, onto the studs; making sure the primary "O" ring gasket (the one shipped in-place on the tank) is placed properly under the flange to seal correctly.
- 15 From the bottom of the sending unit, thread the provided smaller "O" ring gasket over the unit until it is at the base of the unit's top. Carefully place the sending unit into the new tank on top of the flange you installed above. Make sure the "O" ring gasket is placed properly under the sending unit to seal correctly.
- 16 After placing the sending unit in the tank on top of the "O" ring gasket, rotate it so the fuel line fittings are positioned at the *same* angle as in the original equipment tank. If the fittings point too far either direction they will not hook up correctly or the float will press against the side of the tank resulting in improper operation of the fuel gauge.
- 17 Place the remaining thin flange (with the smaller inside diameter; the LB7 Top Flange) from the LB7 Kit onto the studs, on top of the sending unit, so as to hold it down securely.
- 18 Use the 3/8" nylon locking nuts to tighten down the top flange. **Tighten to 20 foot pounds (ft. lbs) of torque using torque wrench.** Be sure to tighten in a "star" pattern to ensure all nuts are equally tightened and the "O" ring gasket is properly sealed. After tightening the nuts to specification, wait at least fifteen (15) minutes and check torque again.

NOW GO TO STEP 19 ABOVE AND FOLLOW THROUGH TO STEP 34

### How do you know if you need an LB7 Kit?

**Answer:** LB7 engines were used on all 2001 to 2003 General Motors diesel trucks. On 2004 models it is required if the eighth character in the VIN is a "1". Contact your TITAN™ dealer if you have any questions.

**Important:** *Be sure that all vent lines are free of any sagging areas. Sags can fill with and trap fuel and prevent the vent lines from venting the tank. Slow filling, "spitting" and surging can result. Shorten vent lines and/or tie them to the body and chassis as needed to be sure they drain and do not trap liquid fuel.*

\* All capacities are approximate

**Be sure to return the completed warranty registration for your new Titan fuel tank; or you can register on-line.**

**You will find your tank's serial number located approximately ½ way up the driver's side located towards the rear of the tank; adjacent to the sending unit.**

**Write your tank's Serial Number here: \_\_\_\_\_**

**A tank must be registered within sixty (60) days of receipt for the warranty to be valid.**

**Warranty is void if product is improperly installed.**

**For questions or customer service call (800) 728-4982**



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