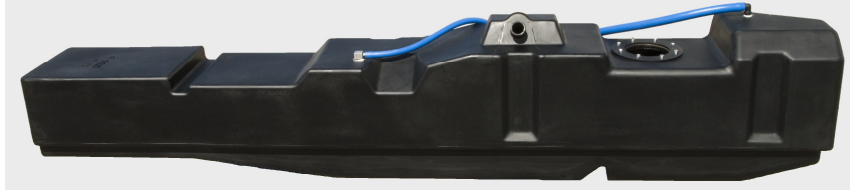


Important: Please read these instructions carefully and completely before starting the installation.

TITAN™ Fuel Tanks

INSTALLATION INSTRUCTIONS Generation V



Extended Capacity Replacement Tank for FORD Diesel Trucks

For Ford truck models F250 & F350 1999-2008: Crew Cab Short and Long Bed, and Extended Cab Long Bed

For Ford Extended Cab, Short Bed models 1999-2007

Required Tools:

- 1 ea. Ratcheting socket driver
- 1 ea. 13 mm socket
- 1 ea. 12 inch long socket driver extension
- 1 ea. 13 mm end wrench
- 1 ea. Medium flat blade screw driver
- 1 ea. Needle nose pliers
- 1 ea. Torque wrench handle to fit 13 mm socket

Recommended Optional Tools:

- 1 ea. Hydraulic transmission jack
- 1 ea. Vehicle hoist
- 1 ea. Mallet or small hammer

Parts List:

- 1ea. Extra heavy-duty cross link polyethylene fuel tank for one of the following Ford Motor Company diesel trucks:

Extended Cab, Short Bed
Crew Cab, Short Bed "Super Series"
Crew Cab & Extended Cab, Long Bed
Crew Cab Long Bed "Super Series"

Tank Identification: "FORD EXSB"

Tank Identification: "FORD CCSB"

Tank Identification: "FORD CCLB"

Tank Identification: "FORD CCLB" Also, low fuel trap baffle is visible in bottom of tank--visible from the outside.

Note: Each tank has one of the above identifications 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 Assembly) should already be installed on the tank (top flange and 5/16" nylon locking nuts should be loosely installed).

- 1 ea. Sending Unit Mounting Assembly, made of:
 - 2 ea. 1/2" flanges with 5/16" welded studs (mounted inside tank)
 - 1 ea. Flat flange gasket (mounted inside tank)
 - 8 ea. 5/16" flat retainers
 - 1 ea. "O" Ring sending unit gasket (primary "O" ring gasket)
 - 1 ea. Top sending unit flange
 - 8 ea. 5/16" nylon locking nuts

- 1 ea. Roll-over vent valve (installed in top of tank)
- 1 ea. Roll-over vent valve gasket (under roll-over vent valve)
- 1 ea. 1/2" X 36" vent hose
- 1 ea. 3/4" X 6" vent hose (short bed)
- 1 ea. 3/4" X 50" vent hose (long bed)
- 5 ea. 1/2" to 1" gear hose clamps
- 1 ea. 3/4" X 3/4" X 1/2" Tee connector
- 1 ea. 3/4" X 90 threaded elbow (installed in top of tank by fill hose king nipple)
- 1 ea. 1 1/2" Fill hose king nipple.

- 1 ea. Fill hose extension (1.5" OD X 3.25" plated)---For Long Bed Tanks ONLY (not included with other tanks).
- 2 ea. 1.5" to 2" gear hose clamps---For Long Bed Tanks ONLY (not included with other tanks)

- 1 ea. FORD CCLB High Strength Bolt Kit, consisting of:
 - 2 ea. Grade 10.9 plated cap screws
 - 2 ea. Flanged, plated lock nut
 - 2 ea. High strength flat washer

- 1 ea. Rear tank strap
- 1 ea. Front tank strap
- 2 ea. Adhesive Backed Rubber Bushings (IF optional Titan Shield was ordered, the bushings are NOT included)

- 1 ea. Vent Kit, consisting of:
 - 1 ea. 1/2" X 1/2" X 1/4" Tee Connector, barbed
 - 1 ea. 1/4" Hose Plug, barbed
 - 2 ea. 1/2" to 1" gear hose clamps

- 1 ea. 1/4" X 1/4" barbed Check Valve

- 1 ea. Hardware Kit For Reversing Fuel Level Sensor, consisting of:
 - 1 ea. #10-32 X 1" L Phillips, pan-head machine screw
 - 1 ea. #10-32 Machine Screw Nut
 - 1 ea. Spacer. Either 1/4" X 3/8" X 1/2" steel OR 1/4" X 1/2" X 1/2" Nylon

Note: The Ford tank straps are identified by designations cut into the very bottom of the strap or on one side. These designations are:

Extended Cab Short Bed

Separate front and rear straps
1999-2007 (Known as 1999 model) *Front & Rear Strap = "X"*

Separate front and rear straps
1999-2007 (Known as 1999 model) same as above only marked differently
Front Strap = "FXS F"
Rear Strap = "FXS R"

Crew Cab Short Bed

Separate front and rear straps
1999-2007 (Known as 1999 model) *Front Strap = "S"*
Rear Strap = "S"

1999-2007 (Known as 1999 model) same as above only marked differently
Front Strap = "FCCS F"
Rear Strap = "FCCS R"

1999-2007 (Known as 1999 model) same as above only marked differently
Front Strap = "FCS F"
Rear Strap = "FCS R"

2008+ *Ford Crew Cab Short Bed* *Front Strap = "S8"*
Rear Strap = "S8"

2008+ *Same as above only marked differently*
Front Strap = "8FS F"
Rear Strap = "8FS R"

Crew Cab Long Bed & Extended Cab Long Bed

Separate front and rear straps

1999-2007 (Known as 1999 model)

Front Strap = "FL F"

Rear Strap = "FL R"

Separate front and rear straps

1999-2007 (Known as 1999 model) same as above only marked differently

Front Strap = "FCL F"

Rear Strap = "FCL R"

2008 Ford Crew Cab Long Bed

Front Strap = "8FCL F"

Rear Strap = "8FCL R"

Please check to be sure the straps are identified as the proper parts for your truck.

Optional Parts List:

1 ea. Titan Shield, Cross-Linked Polyethylene

Step Description

- 1 Place the vehicle on a hoist that leaves the entire underside of the frame *unobstructed*.
- 2 Drain all the fuel from the original equipment tank using a pump or siphon.
- 3 Disconnect 1 1/2" fuel tank fill hose and 3/4" vent line hose from fill spout, leaving them attached to the tank.
- 4 Disconnect fuel gauge electrical connection, feed line and return line from the sending unit. Press in the blue tabs on the connection fittings to release fuel lines. Older truck models may have slightly different clips and some 1999 models may require fuel line release tool.
- 5 Remove vent lines on inside of the frame rail from tank by simply slipping them off. These vent lines will be used again later.
- 6 Support the original equipment tank.
- 7 Loosen original equipment tank straps by undoing inside bolts first with 13 mm wrench.
- 8 Remove original equipment tank with its straps from the vehicle.
- 9 Remove threaded clip from the original equipment tank's front strap; this clip is on the end closest to the driver's (or outboard) side of the vehicle. Place it on the corresponding end of the Titan Tank front strap (See Fig. 1).
- 10 Tuck the wiring harness, differential breather hose (if applicable), and brake lines up on top of the frame as the new tank will need to be positioned next to the frame for its entire length.

Note: Some truck models may be equipped with a wiring harness for gooseneck and 5th 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.



(Fig. 1) Remove threaded clip from original equipment tank's front strap and install on the Titan tank's front strap.

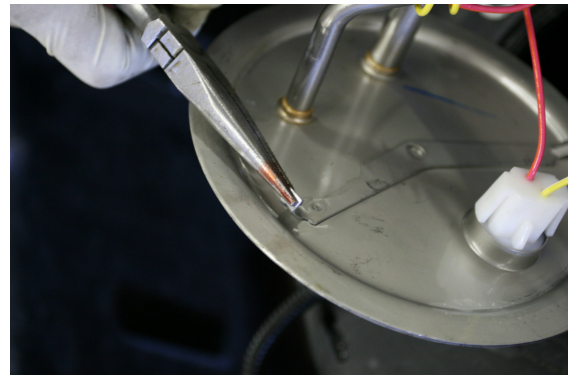


(Fig. 2) Remove the sending unit from the original equipment tank by rotating the hold-down ring counter clockwise.

- 11 Remove the sending unit from the original equipment tank by rotating the hold-down ring counter-clockwise and lifting the unit out (See Fig. 2).
- 12 Remove the factory "O" ring gasket from the sending unit. Do not use on new tank.
- 13 Remove fill hose and vent line hose (if it is a short bed tank) from original equipment tank.



(Fig. 3) Leave the "O" ring gasket, studs and retainers assembled as they are (shown before sending unit, top flange, and 5/16" nylon locking nuts are installed).



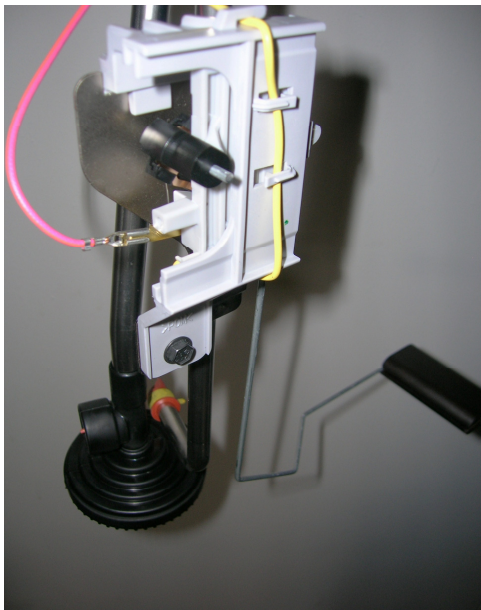
(Fig.4) If tabs on the bottom of sending unit interfere with proper mounting in the Titan tank, bend them slightly out of the way using needle nose pliers.

- 14 The new Titan fuel tank comes with the sending unit mounting hardware assembled. Remove the 5/16" 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. Leave the "O" ring gasket, studs, washers and retainers assembled as they are (See Fig. 3).

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.

- 15 CHECK THE ½ FLANGES INSIDE THE TANK TO BE SURE THEY ARE SEATED FLAT AND NOT OVERLAPPING. Make sure the flat gasket is in place between the ½ flanges and the top inside surface of the tank.
- 16 Check the tabs on the bottom of the sending unit for clearance in the mounting opening of the new fuel tank. It is possible these tabs will interfere with the proper mounting in the new tank. Bend them slightly out of the way using needle nose pliers (See Fig. 4).
- 17 Carefully place the sending unit into the new tank. Make sure the “O” ring gasket is placed properly under the sending unit to seal correctly.

Note: On some Ford trucks the fuel level sensor and float arm (on the sending unit), when installed, will face forward (towards front of the truck) in the tank. The short baffle of the low fuel trap (in “Super Series” tanks) will interfere with the proper functioning of the float arm. In these cases, the fuel level sensor, with the attached float arm, will need to be reversed. Remove hex head screw and carefully lift the level sensor off its mount and turn it around so it is facing the opposite direction. Slide back onto its mount. Use the hardware kit with spacer to fasten the sensor, in place of the hex head screw. (See Figs. 5 & 6)



(Fig. 5) Level sensor in original forward facing position. Loosen the small hex head screw at the bottom of the sensor, carefully lift the sensor assembly off its mounting bracket. Rotate the sensor 180° and slide it carefully back onto its mounting bracket.



(Fig. 6) Level sensor has been removed and turned so as to face toward the rear of the truck when installed in the fuel tank. It is secured with pan-head screw, spacer (either steel or nylon) and nut. Pointer is indicating position of screw, nut and spacer.

- 18 After placing the sending unit into the tank on top of the “O” ring gasket, rotate it

- (carefully so as not to displace “O” ring gasket) 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 properly or the float will press against the side of the tank resulting in improper operation of the fuel gauge.
- 19 Replace the top flange on the studs, on top of the sending unit, so as to hold it down securely.
 - 20 Use the 5/16” nylon locking nuts to tighten down the top flange. Tighten to 14 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 1/2” 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.
 - 21 On 2008+ only: Push brake line bracket that is holding the brake line over the rear axle up about 1 inch out of the way.
 - 22 On short bed tanks, if not already installed, install 3/4” X 6” long vent line hose on 90 degree elbow which is located in the top of the tank near the fill hose king nipple. Be sure it is pointing the same direction as the king nipple. On long bed tanks, both the 90 degree elbow and the front rollover valve must point at about a 45° angle toward each other in the direction opposite the king nipple (See Fig. 7).
 - 23 Slip 3/4” X 3/4” X 1/2” Tee into the 3/4” vent line hose. On LONG BED tanks this will require cutting the 3/4” hose approximately 28” from the 90° elbow and inserting the tee.
 - 24 Install 1/2” vent hose line, provided with the Titan tank, from the 1/2” barb on the 3/4” X 3/4” X 1/2” Tee to the rollover vent valve on the far (toward the front end of the tank) side of the sending unit.

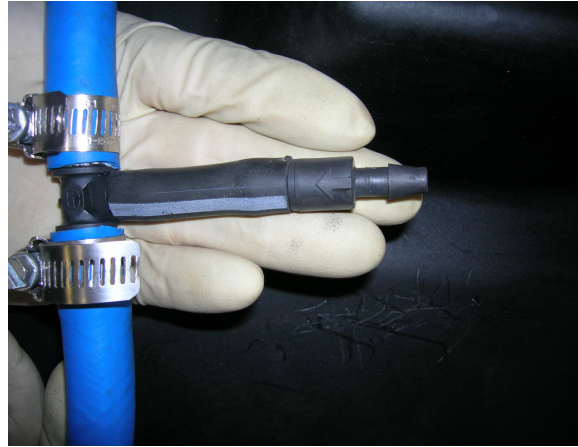
Note for all Ford Trucks: On the 1/2” vent hose line which is installed on the TITAN tank’s rollover vent valve, measure back 2” on the SHORT BED tank OR 22” on the LONG BED tank, from the rollover vent valve end of the hose; cut the hose and install the furnished 1/2” X 1/2” X 1/4” Tee Connector in the line with the exposed 1/4” barb in the vertical position. Secure the 1/2” hose with the two 1/2” to 1” gear hose clamps provided.

Go to the original equipment 1/4” vent line disconnected previously (See Step 5) and cut off three (3) inches of the line on the end closest to the truck’s rear axle; then fully insert the 1/4” barbed Hose Plug provided into this new end on the remaining attached line. Insert the discharge end of the 1/4” barbed Check Valve (provided) into one end of the three inch piece of vent line which was just cut off. The discharge end of the valve is the barb being pointed to by the arrow on the side of the valve. Then insert the other end of the 1/4” barbed Check Valve into the remaining open end (closest to the truck’s front axle) of the original equipment vent line. When the tank is lifted into place, slip the open end of the three inch piece onto the 1/4” barb on the Tee Connector. Note: The direction arrow on the side of the Check Valve in the vent line must point TOWARD the

tank (See Fig. 8). There is no need to secure the 1/4" vent line with hose clamps. This step is required to prevent vacuum build-up in tank.



(Fig. 7) LONG BED tank vent hose arrangement. This photo shows how the 90° x 3/4" elbow and the front rollover valve are pointed at 45° angles toward each other and the inboard side of the tank. This is different than short bed plumbing. The technician's hand is holding the 1/2" x 1/2" x 1/4" tee with the check valve for the truck's 1/4" vent system (See Fig. 8). There is approximately 22" of 1/2" hose between the rollover valve and the tee. When the tank is lifted into the truck, the vent hoses may have to curve around and through the vehicle's cross members. Be sure there are no sagging hoses to trap fuel.



(Fig. 8) The arrow on the 1/4" Check Valve MUST point towards the tank vent hose system. When the tank is lifted into the truck the open end of this check valve will be inserted into the end of the existing vent system mounted to the frame of the truck. This prevents vacuum build-up. This is required on all Ford trucks.

- 25 On short bed tanks, install 3/4" original equipment vent line hose onto the remaining, exposed 3/4" barb on the 3/4" X 3/4" X 1/2" Tee. For long bed tanks the original equipment 3/4" vent line hose is replaced by new vent hose as supplied (See Fig. 7).
- 26 Install the 1 1/2" fuel tank fill hose on the 1 1/2" king nipple on the Titan tank. Be sure all hose clamps are installed and tightened (See Fig. 9).

Note: *On long bed tanks only: On some tanks the 3.25" long (see parts list above) fill hose extension may be required to reach the vehicle's fill spout. IF you know for sure it is required on this vehicle, you may want to cut the fuel tank fill hose and fit the fill hose extension before mounting the tank. Cut the original equipment fuel tank fill hose in the center of its middle straight section and fit the fill hose extension into the tank side's hose. Install this hose on the Titan tank.*

IF you are not sure the fill hose extension is required, you can wait to install it when the tank is installed.

- 27 The Titan tank straps will reuse the original equipment mounting bolts (except in the case of crew cab, long bed tanks) and bolt holes. Hang the outboard side of the front strap first; it should hang on the inside of the vehicle frame. Start the stock bolt and make sure at least 1/2 of the thread is through. Leave the bolt loose. Carefully grasp the strap and bend it down out of your way for the

moment.

Note on Crew Cab, Long Bed Tanks: *If you are installing a Crew Cab, Long Bed "Super Series" Tank you will find a "FORD CCLB High Strength Bolt Kit-COMplete" (pn. 02 0110 0000) included with the tank. Please use included bolts, nuts, and washers in place of the factory fasteners on the INBOARD side of the tank. Remove the threaded factory fastener and place the flanged, plated lock nut on top of the frame cross members. Place the high strength washers on the high strength cap screw (bolt) and thread the cap screw vertically up through the strap from below. Tighten all mounting fasteners securely.*

- 28 If the optional Titan Shield was ordered with the tank, place it under the tank with the open end toward the front of the tank.
- 29 Place tank (and shield if included) on a hydraulic transmission jack. Lift the tank high enough to reconnect the sending unit electrical connection, as well as both the return, and feed line hoses.
- 30 Once all connections are securely attached, lift the tank the rest of the way into place with the transmission jack.
- 31 Attach the rear strap similarly to the front. Once again leave it loose for the moment.
- 32 IF the optional Titan Shield is NOT to be installed, you will need to install the rubber bushings now. Remove the adhesive backing from one of the rubber bushings supplied. Place the rubber bushing, adhesive side down, on the inside bottom of the front strap. Place it so it is centered in the bottom of the strap and press it securely into place. Install the second rubber bushing supplied in a similar fashion into the rear strap.
- 33 Attach the inboard side of the rear strap and tighten into place. Then tighten the other side also.
- 34 Attach the inboard side of the front strap and tighten into place. Then tighten the other side also.
- 35 Attach the 1 ½" fuel tank fill hose to the vehicle's fill spout. If installing a long bed tank, and if the fill hose extension is required but not already installed, install it now as described in the "Note", below Step 26, above.



(Fig. 9) Top view of SHORT BED tank showing sending unit, tank vent hose plumbing, and original equipment fill hose and vent hose installation. The 1/2" x 1/2" x 1/4" tee is not shown installed in the 1/2" vent line hose. It will be installed approximately 2" from the rollover vent valve.



(Fig. 10) Attach fuel tank 1 1/2" fill hose and 3/4" vent hose to vehicle fill spout. Vent hose may have to be shortened about 6 inches to fit properly. On some long bed tanks, 1 1/2" fill hose may have to be extended with 3.35" hose extension.

- 36 Attach the 3/4" vent hose line on the vehicle fill spout. You may have to cut approximately 6" off the outside end of the line for it to fit properly (See Fig. 10).
- 37 Double check all hose lines for kinking or crushing. If any of the hoses are kinked or crushed, the tank will not fill or perform properly.
- 38 Make sure ALL mounting hardware, clamps, bolts, etc. are properly installed and tight.
- 39 Lower truck, fill tank completely with diesel fuel and check for leaks.

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.

Be sure to return the completed warranty registration for your new Titan fuel tank; or you can register on-line at www.titanfueltanks.com
 You will find your tank's serial number located approximately 1/2 way up the driver's side located towards the rear of the tank; adjacent to the sending unit.



TITAN™ Fuel Tanks, P.O. Box 2225, Idaho Falls, ID 83403, USA
Telephone (208) 522-1325, Fax (208) 529-2162

www.titanfueltanks.com Revised 9.26.08 ©2008 Supertanks, LLC