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THANK YOU FOR PURCHASING A TRANSFER FLOW CROSS THE BED REFUELING TANK FOR YOUR PICKUP OR CAB CHASSIS. READ THE FOLLOWING PROCEDURES CAREFULLY BEFORE STARTING THE INSTALLATION.

IMPORTANT-ALL TRANSFER FLOW, INC. REFUELING TANKS ARE TO BE INSTALLED ONLY AS PRESCRIBED IMMEDIATELY BEHIND THE CAB OF THE TRUCK ACROSS THE WIDTH OF THE VEHICLE. PLEASE CONTACT TRANSFER FLOW INC. IMMEDIATELY IF THERE ARE ANY QUESTIONS REGARDING THE INSTALLATION OF THE REFUELING TANK.

PLEASE READ THE FOLLOWING PROCEDURES CAREFULLY BEFORE STARTING THE INSTALLATION.

CAUTION: DO NOT HAVE ANY OPEN FLAME OR HEAT SOURCE CLOSE TO THE INSTALLATION AREA.

***IF USING FUEL FILTER KIT PLEASE REFER TO INSTRUCTION SHEET #689 FOR FILTER INSTALLATION.**

***If INSTALLING THE REFUELING TANK ON A 2015-2016 F-150 AND ALL 2017 F SERIES TRUCKS WITH ALUMINUM BODY PLEASE READ THE QVM BULLETIN: Q-222R1**

<https://www.fleet.ford.com/truckbbas/non-html/Q-222R1.pdf>

Section 1; preparing the vehicle

1. Disconnect the battery cables.
2. Empty the bed of any movable objects.
3. Extinguish any heat sources in the area.
4. You will have one of two different foot patterns for mounting.

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1. Feet are on both the front and sides of all 100 gallon L-Shape refueling tanks.



Feet on the
front of the
tank

Feet on the
side of the
tank

Feet on the
side of the
tank

2. Feet are on the front and back sides of the 40, 50, 82, 109 gallon refueling tanks and the 50/50 Split refueling tank.



Feet on the
front and
back of the
tank

TRANSFER FLOW, INC. removed INST841.pdf
Active 10/2/2017 10:20:42 AM
Requested by: Warren J. Engineering Reason: Need to add information on how to install and shock gas cap to instruction
Verbal by Warren!

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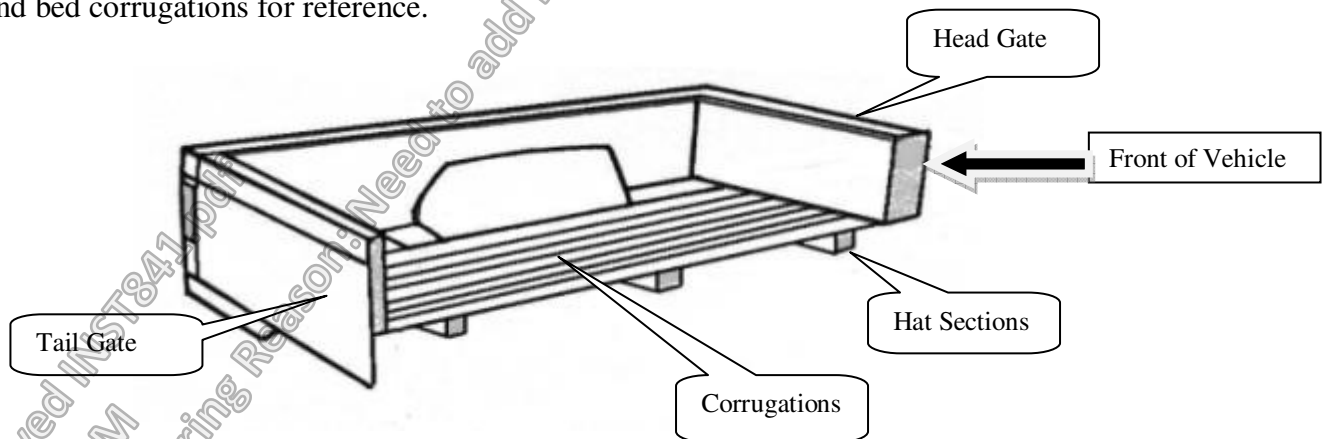
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Section 2; Pre-position the tank in the bed of the truck

5. Place the tank in the bed of the truck. The tank should be spaced about 1" away from the head gate and centered from side to side. In all cases the fill opening should be on the driver's side.
6. Mark the mounting holes with a Sharpie® or paint marker. If you cannot reach the mounting tabs near the cab, attach a Sharpie® or paint marker to a long stick with some electrical tape.



7. Remove the tank from the mounting area.
8. Measure the mounting hole locations using the head gate and bed corrugations as reference lines.
9. Crawl under the truck.
10. Measure and mark the bed mounting holes on the bottom side of the bed. Use the head gate and bed corrugations for reference.



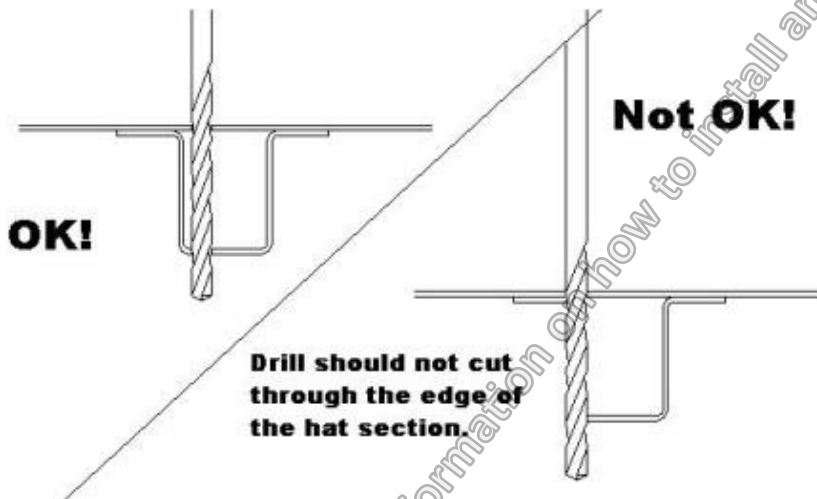
This cutaway drawing shows the head gate and bed corrugations.

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11. Look at the marks you have created and make sure that a 1/2" bolt with large shims will fit in the area you have marked. It is OK to drill through the hat section of the bed, but you don't want to be drilling through the tall edge of the hat section. Make sure that your drilled hole will pierce through the flat area of the hat section.
12. On some vehicles the tank may need to be pushed more towards the head gate. In this case make sure you are able to install the stiffener supplied in the kit on to the bolt before drilling.



13. **For 100 gallon L-Shape tanks:** There six mounting feet on these tanks, you do not need to mount the tank with all six feet. You are required to use the rear side feet (nearest the front of the vehicle) to mount the tank, but can choose if you want to use the front side feet or the front feet (nearest the rear of the vehicle) to mount the front of the tank. Either way the tank will be secured properly. On some vehicles the front feet are above the frame or OEM tank and make it difficult to mount the tank.
14. Move any wires, hoses or obstructions that may be scarred by a drill bit (you will be drilling from the top down).
15. Double check your measurements and move the tank if needed. If you move the tank you will need to remark the holes on the underside and double check your measurements once again.

Section 3; Mount the tank

16. Drill pilot holes with a long 1/8" drill bit. Did the pilot hole come through the bottom where you expected?
17. Drill a 1/8" pilot hole for the Wiring harness/Vent hose in the box side panel. This hole will be enlarged with a hole-saw later. Place the hole in the side of the bed about 2" up from the bed floor. The hole location relative to the head gate will be different depending on the

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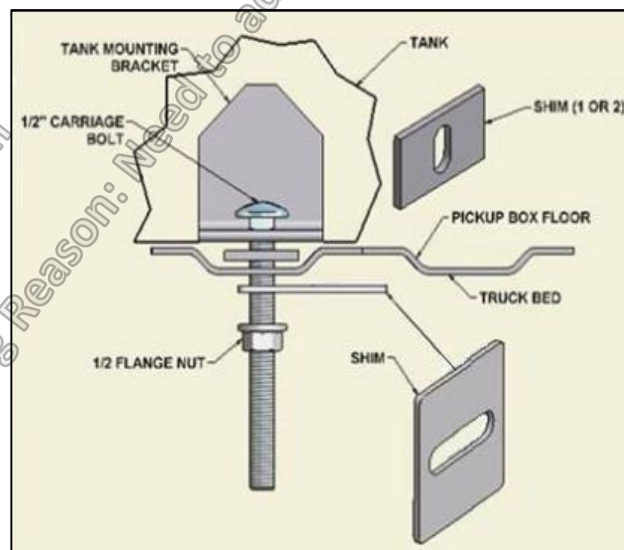
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model year of the vehicle. Before drilling the pilot hole make sure you are not drilling into anything valuable such as the outside of the bed, wiring, hoses or other brackets. **Do not drill these holes in the head gate.**

18. Enlarge the hole for the wiring harness & vent hose with a 1 1/4" hole-saw. Insert the provided rubber grommet into the hole.
19. Enlarge the tank mounting holes with a 9/16" drill.
20. Using a rust inhibiting paint is advised on all holes drilled in the vehicle. Aluminum vehicles it is mandatory to paint bare metal to prevent corrosion.
21. Attach the (3) sticky back foam strips to the bottom of the tank or truck bed. Position one strip next to each mounting angle and one strip under the middle of the tank. These strips will prevent the tank from rubbing directly on the bed.

NOTE: If the bed of the truck has a sprayed on or plastic bed liner the rubber strips may not be required.

22. Place the tank in its final position. Route vent hose through the rubber grommet. Make sure to end of the hose is clear of all heat sources as fuel vapor will emit from this hose end.
23. Place shims under the mounting brackets to prevent the corrugations from collapsing. It may be necessary to cut the shim to properly fit some GM pickup boxes. See drawing below.



24. Insert the 1/2" carriage head bolts through the mounting brackets and bed.
25. Secure fasteners with washers and nuts and torque the nuts. Refer to Instruction Sheet #484 for proper torque specifications.

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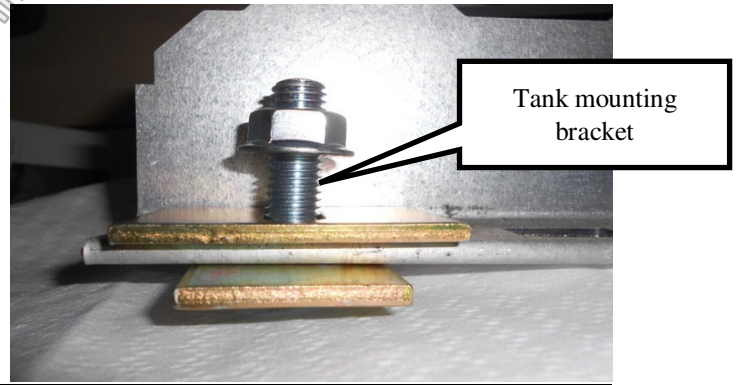
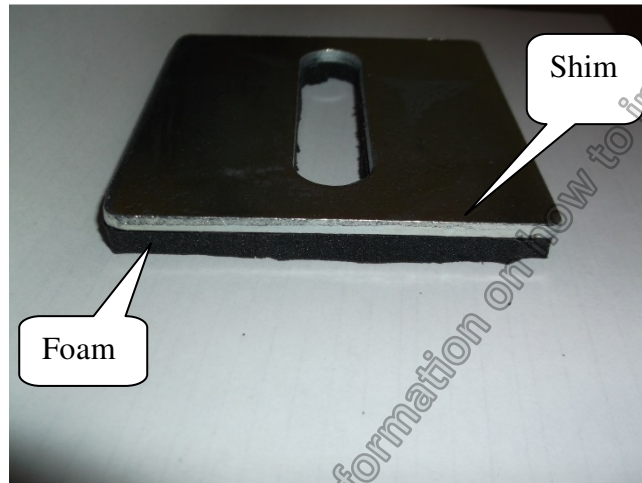
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***On some vehicles it may be necessary to install the carriage bolt from under the truck. In this case place one shim on the head side of the bolt before installing in the bed hole. On the tank feet use one shim and the ½" flange nut to secure the tank.**

On 2015-2016 F-150 and all 2017 F series trucks the use of foam is necessary on the shim for the mounting hardware.

Please refer to the Ford QVM bulletin Q-222R1



Double check your work: at this point the tank should be secured in the bed and all of the hardware should be properly torqued. The grommet should be installed in the hole for the wire harness and vent hose.

Section 4; Refueling hose and nozzle installation

26. Remove the ¾" MPT plastic pipe plug from the pump. The pump is already mounted on the tank.

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27. If a fuel filter upgrade kit was purchased, install the filter by following the instructions that came in the upgrade kit.
28. Install the dispensing hose. Apply sealant to the 3/4" MPT threads of the hose and secure it to the pump (or filter if one was installed).
29. If a flow meter upgrade kit was purchased, install the flow meter by following the instructions that came in the upgrade kit.
30. Install the dispensing nozzle. Apply sealant to the 3/4" MPT threads of the open end of the hose (or flow meter if one was installed) and secure the nozzle to the hose.
31. **For 100 gallon L-shape tanks:** The nozzle bracket will need to be moved to the lip of the bed rail in between the refueling tank and the bed rail. To do this you will need to remove the nozzle bracket from the refueling pump using a 7/16" wrench or socket. Once the nozzle bracket is removed use this as a template to mark holes to attach to the side of the bed. Drill the holes to the size you will need to bolt the nozzle bracket to the side of the bed where you can get to it easily. The following picture is where TFI recommends bolting the nozzle bracket.

NOTE: Hardware to relocate this bracket is not provided by TFI. You may be able to reuse the bolts you removed from the pump and get some nuts to secure the bolts.



32. Pressure tests the connections by filling the tank with 5 psi compressed air. Spray soap and water around the fittings and check for bubbles. Do not put fuel in the tank until any leaks are resolved.

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33. After 100 miles of driving, check the torque of the pump nut. Re-torque it to 55 ft/lbs if needed.

Section 5; Wire harness installation

CAUTION: IF YOU ARE INSTALLING A 50-50 SPLIT REFUELER, YOU WILL NEED TO RUN TWO WIRE HARNESSES TO THE TANK INSTEAD OF ONE.

1999-2017 Ford Vehicles w/ Automatic Transmissions: Locate the black rubber grommet in the driver's side foot well. This grommet will be located just to the left and behind the accelerator pedal with the transmission gear selector cable running through it. Make an incision out from the center of this grommet, so that the grommet is still one piece, but is now open on one side. This grommet will allow the TFI wiring harness to enter into and out of the passenger cab.



GROMMETT ON
VEHICLES WITH
AUTOMATIC
TRANSMISSIONS

34. **1999-2017 Ford Vehicles w/ Manual Transmissions:** Either drill a 1¼" diameter hole into the firewall, and install a TFI 1¼" rubber grommet, or use an existing OEM rubber grommet to route the end of the TFI wiring harness into and out of the passenger cab. Prior to drilling the hole, make sure that the hole will not enter or interfere with any other components on the vehicle, such as the floor mat. After the hole has been drilled, insert the supplied 1¼" rubber grommet.
35. **Dodge Vehicles Only:** Either drill a 1¼" diameter hole into the firewall, and install a TFI 1¼" rubber grommet, or use an existing OEM rubber grommet to route the end of the TFI wiring harness into and out of the passenger cab. Prior to drilling the hole, make sure that the hole will not enter or interfere with any other components on the vehicle, such as the floor mat. After the hole has been drilled, insert the supplied 1¼" rubber grommet.

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36. **GM Vehicles Only:** Either drill a 1¼" diameter hole into the firewall, and install a TFI 1¼" rubber grommet, or use an existing OEM rubber grommet to route the end of the TFI wiring harness into and out of the passenger cab. Prior to drilling the hole, make sure that the hole will not enter or interfere with any other components on the vehicle, such as the floor mat. After the hole has been drilled, insert the supplied 1¼" rubber grommet.
37. Remove the TFI wiring harness from the installation kit. Locate the end of this harness, which has the switch. From inside the vehicle, insert both open ends of the wire harness through the access hole towards the ground. If drilling a hole and using the provided grommet, route the wires through the grommet and hole before inserting the grommet into position.
38. Find a suitable location for the switch and light, the switch and light should only be located in the cab or another sealed compartment. **The switch and light are not waterproof.** After confirming that there are no objects or electrical wires that could be damaged, drill two 1/2" diameter holes. Drill these holes, or at least the one for the light in a very visible location.
39. Insert the switch into the hole so the up position is "MAINTAINED ON", the middle position is "OFF" and the down position is "MOMENTARY REVERSE". Holding the switch in the "MOMENTARY REVERSE" position for 15 seconds with the nozzle open will run the pump in reverse to drain the fuel from the refueling pump supply hose. Leave the switch in the "OFF" position during the installation process. Install the supplied switch label plate and the nut onto the switch and tighten down.
40. Insert the light through the hole and tighten the nut. Connect the male and female bullet connectors coming off the light and switch together, they can only go together one way. The light on the harness will turn on every time the switch is in the on position, the light is there so that the pump does not run continuously and burn up the motor.

***Note- The purge function requires two people to run!**

To purge system place the fuel nozzle into the fill neck of the TFI refueling tank. Have one person operate the switch described above as the other person holds the nozzle in the open position. Purge for 15 seconds then return the nozzle to its bracket and re-install the fuel cap on the tank.

CAUTION:

1. **The rated duty cycle of this pump is 30 minutes ON and 30 minutes OFF. Allow the pump to cool for 30 minutes.**
2. **An automatic bypass valve prevents pressure build up when the pump is on with the nozzle closed. To avoid motor damage, do not run the pump more than 10 minutes with the nozzle closed.**

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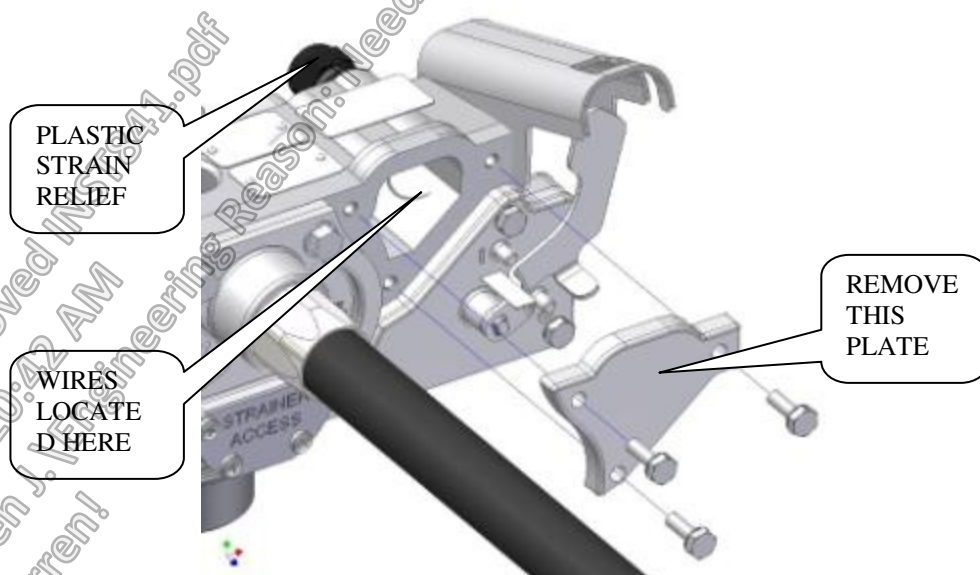
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3. Do not leave the system running without fluids. "Dry running" can damage the pump. If the system fails to deliver fuel after 15 to 20 seconds, turn the system off and refer to the troubleshooting section in the fuel pump owner's manual.

41. Route the end of the wire harness with the two butt connectors towards the rear of the vehicle. Avoid routing the harness close to any hot or sharp objects. Use some of the provided nylon ties to secure the harness to the vehicle. Do not secure the harness to any brake or fuel lines.
42. Route the wire harness and vent hose through the grommet into the bed of the truck.



43. To gain access to the pump wires, remove the plate on the front of the refueling pump. Push both pump wires through the plastic strain relief until they stick out the back. This is where the wire connections will be made.



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44. Route the wire harness to the plastic strain relief on the back of the refueling pump. Place a piece of heat shrink tubing over the red and black wires on the wire harness. Crimp the red wire from the refueling pump to the red wire on the wire harness. Repeat the operation for the black wire.
45. Position the heat shrink tubing over each non-insulated butt connector. Use a heat gun to seal the heat shrink over each butt connector.
46. Remove the plastic nut on the back of the strain relief and push wires into pump until the convolute can be inserted onto the strain relief. Then reinstall the nut to secure the convolute.
47. Reinstall the plate on the front of the refueling pump. Make sure not to pinch any of the wires.
48. Back near the access hole in the cab, route the end of the wire harness with the inline fuse towards the vehicle's battery. Avoid routing the harness close to any hot or sharp objects. Use the provided nylon ties to secure the harness to the inner fender components.
49. Some vehicles have top post batteries while others have side post batteries. On some posts, a 5/16" eyelet will fit while on others a 3/8" eyelet will be required. In either case, secure the appropriate eyelet to the TFI black wire.



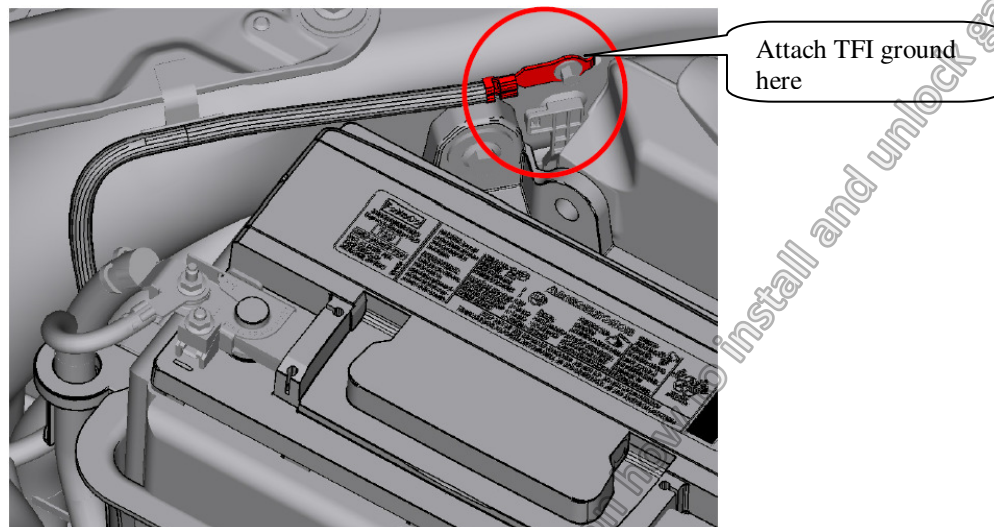
CAUTION: On the 2015 Ford F-150 battery charge state is determined with a Hall Effect sensor on the negative battery lead. All negative current must pass through this sensor. Failure to do so will result in malfunction of the vehicle charging system and shortened battery life. Do not make direct to battery connections at the negative battery post. To ensure proper charging system function, the battery return should be made at the

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grounding point shown and circled in the picture below:



50. Secure the black ground wire to the negative side of the battery. If you have a side post battery, remove the existing OEM side post bolt, and install the provided brass side post extension. Secure the appropriate eyelet to the end of this extension. See picture above.
51. Repeat the procedure for securing the appropriate eyelet to the red power wire. Secure the TFI red power wire to the positive side of the battery.
52. Be careful when securing the red power wire to the positive side of the battery. Avoid touching any ground when tightening this fastener as it can result in a dangerous electrical arc.

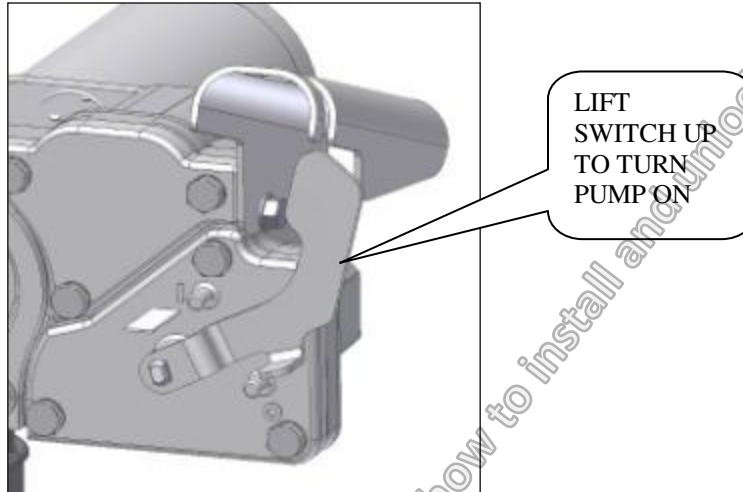
CAUTION: TOUCHING A GROUND WIRE TO THE POSITIVE SIDE OF A BATTERY CAN INJURE THE PERSON OR DAMAGE ELECTRICAL COMPONENTS ON THE VEHICLE.

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53. Confirm that the pump operates by turning the cab switch and the pump switch on.



CAUTION: DO NOT RUN THE PUMP FOR MORE THAN 5 SECONDS WITHOUT FUEL IN THE TANK. PERMANENT DAMAGE TO THE PUMP MAY OCCUR.

54. The refueling pump requires a 25 amp fuse. An inline 25 amp mini fuse is located in the wire harness near the vehicle's battery. An extra 25 amp mini fuse is supplied with this kit.

Section 6; finalizing the installation

55. Route the free end of the 5/16" I.D hose to an area where it can safely vent. Avoid routing the hose near any heat source or in any enclosed areas of the vehicle.

56. Apply labels to the TFI refueling tank.

1. **DIESEL APPLICATION ONLY:** Place the small **DIESEL** label on the TFI refueling tank near the fill tube, where it can be easily seen by the operator dispensing the fuel. Place the **COMBUSTIBLE** label on the TFI refueling tank where it can be easily seen. It is a requirement of the special permit to install both of these labels on the refueling tank.
2. **GAS & ALL OTHER FUELS:** Place the small **GAS** label on the TFI refueling tank near the fill tube, where it can be easily seen by the operator dispensing the fuel. Place the **FLAMMABLE** label on the TFI refueling tank where it can be easily seen. It is a requirement of the special permit to install these labels on the refueling tank.

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Section 7; Trouble Shooting Guide

57. If the pump does not run:

1. Confirm that cab switch is in "MAINTAINED ON" position.
2. Confirm that cab switch is not mounted upside down.
3. Confirm that pump switch is in "ON" position.
4. Confirm that the 25 amp inline fuse is not blown or missing.
5. Confirm that at least 12 volts is measured at the fuel pump strain relief connection.
6. Confirm that the red wire is positive volts and the black wire is ground.

58. If the pump runs but no fuel comes out the dispensing nozzle:

1. Confirm that the dispensing nozzle trigger is compressed.
2. Confirm that there is fuel in the refueling tank.
3. Confirm that the draw tube is not hitting the bottom of the tank.
4. Confirm that the gasket was installed into the 1½" FPT pump inlet nut.

59. If the light stays on when the switch is in the off position, then the harness is installed backwards.

60. For more troubleshooting information refer to the pump owner's manual.

OPERATING INFORMATION:

61. This refueling pump is not designed to be operated at 100% duty cycle. It has a duty cycle of 30 minutes when the dispensing nozzle is open and fuel is flowing through the pump. When the dispensing nozzle is closed, it should not be run for more than 10 minutes.

CAUTION: PERMANENT DAMAGE TO THE PUMP COULD OCCUR IF THE DUTY CYCLE AND OPERATING INFORMATION IS NOT FOLLOWED.

62. When not using the refueling pump, the cab switch should be in the OFF position. This will eliminate the possibility of running the vehicle's battery down. It will also reduce the possibility of an unauthorized person taking fuel from the refueling tank.

CAUTION:

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1. The gas cap may vent to atmosphere and may not be completely sealed, depending on which cap has been purchased
2. The TFI dispensing nozzle is designed to fill gas and/or diesel vehicles. The operator dispensing the fluid from a TFI refueling tank is hereby warned that they can accidentally fill a gas vehicle with diesel fuel or a diesel vehicle with gas.

Tool List

1/8" Drill bit	9/16" Drill bit	1/4" Hole saw
1/2" Drill bit	Pipe wrench	Drill
7/16" Wrench or Socket	Ratchet Wrench	Wire Strippers
Crimping pliers	8mm or 5/16" Socket	12" Crescent wrench
Measuring tape	felt pen or Paint marker	Heat gun

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