

# Transfer Kit Instructions V2

Generation 3 and Generation 4 Vehicles

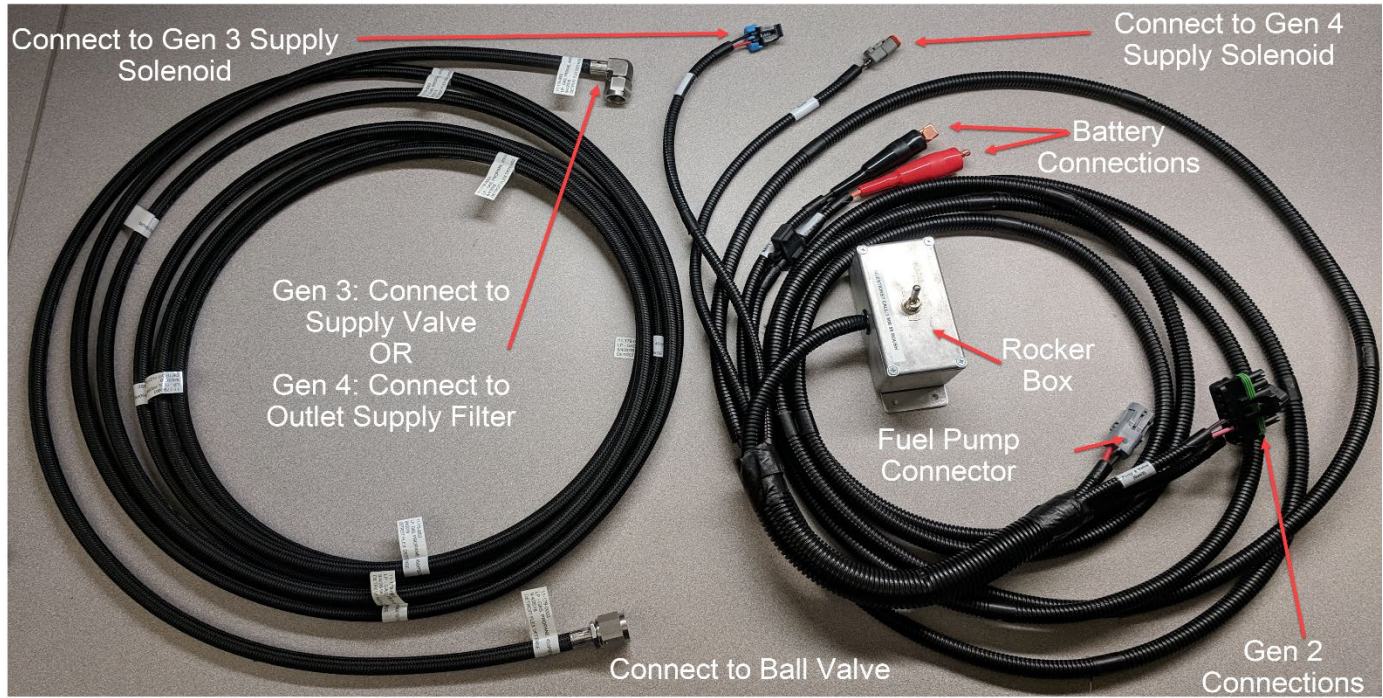


Figure 1. ROUSH CleanTech Fuel Transfer Kit



Figure 2. Gen 3 Supply Valve Adapter



Figure 3. Transfer Line Ball Valve

## Part Numbers

11996002-L  
11466001

Fuel Transfer Fuel Kit  
F650 Transfer Line Service Tool

## Optional Part Numbers

11494005  
11494006

Fill Adapter, Acme to Euro  
Fill Adapter, Euro to Acme

## Safety Notes

Technicians working with, or around, fuel systems should be properly trained to utilize extreme care and caution at all times. Failure to exercise extreme caution and care may lead to serious accidents which can result in property damage, personal injury, and/or death.

Safety glasses and cold-safe protective gloves are recommended to be worn at all times while using the fuel transfer kit.

Use in accordance with NFPA58 and local laws and regulations related to dispensing propane autogas.

## Overview

Instructions for the use of the ROUSH CleanTech Fuel Transfer Kit V2.

## Outline

1. Fuel Line Purging
2. Connecting Transfer Kit
3. Transferring Propane
4. Removing Transfer Kit
5. Returning Vehicle to Operating State

## Procedure

### Fuel Line Purging

**Note: follow ROUSH CleanTech vehicle service manual for model specific purging procedure.**

1. Park both vehicles, or vehicle and storage tank, in a well-ventilated area outdoors, at least 35ft. from any potential ignition source. Both vehicles should be parked on level ground when possible.
2. Remove the cover plate off of the fuel tank of the vehicle. The cover plate is removed by loosening the thumb screws on the cover plate. Removing the cover plate reveals the supply valve, return valve, and access flange.
3. Disconnect two (2) two-pin fuel pump electrical connectors, one black and one gray, from the access flange pass-through harness on the fuel tank.
4. Close the manual shut-off valve on the tank supply valve.
5. Start vehicle and let it run until the vehicle stalls. This purges the majority of the liquid propane from the supply and return fuel lines.

6. Purge remaining fuel from the lines:

a. Gen 3 Vehicles

- i. Loosen return line union. This is located along the return line on the frame rail. The position of the return line union varies depending on the chassis.
- ii. Key vehicle to start. After twenty (20) seconds, key the vehicle off. Repeat this process until the fuel pressure is out of the supply line (hissing at return line union will discontinue when fuel lines are empty).
- iii. Tighten fuel return line to 19-22NM (13-16lb-ft.)
- iv. With Key On, Engine Off (KOEO), monitor fuel rail pressure with capable OBDII scan tool. Fuel pressure should measure less than 15psi.
  1. We recommend the Roush Diagnostic Tool (RDT) or Ford IDS.
    - a. Using RDT, select the RPR\_FR\_PRS (Fuel Rail Pressure) PID.
    - b. Using IDS, select the FRP (Press) PID.

b. Gen 4 Vehicles

- i. Slowly loosen the fuel line connection at the outlet of the supply line filter.
- ii. Slowly loosen the line at the return valve on the tank to allow remaining fuel to bleed off.
  1. **Note: Inspect O-ring at return valve. If the O-ring is damaged in any way, replace the O-ring with a green AC O-ring (3-904KA158-70).**

7. Disconnect fuel supply line.

a. Gen 3 Vehicles

- i. Using a 3/8" Jiffy-Tite removal tool, remove the quick connect line from the supply valve on the tank.
- ii. Using a 3/4" or 19mm wrench, remove Jiffy-Tite fitting from supply valve (see Figure 4).
  1. **Note: Inspect Jiffy-Tite fitting and O-ring. If damaged, replace.**

b. Gen 4 Vehicles

- i. Disconnect supply line from outlet side of supply line filter (see Figure 5).

## Connecting Transfer Kit

8. Set up vehicle for transfer.
  - a. Gen 3 Vehicles
    - i. Using the Gen 3 Supply Valve Adapter, thread the O-ring boss side into supply valve where Jiffy-Tite fitting was previously attached.  
**Note: Be careful not to strip brass threads.**
    - ii. Thread transfer line on to flare side of adapter fitting.
  - b. Gen 4 Vehicles
    - i. Thread 90-degree fuel line fitting on to outlet side of supply line filter.
9. Thread transfer line ACME fill adapter on to fill valve of vehicle or tank you want to transfer the fuel to (see Figure 6).
10. Disconnect the supply solenoid electrical connector.
11. Plug in solenoid adapter from transfer wire harness into the supply solenoid. The supply solenoid can be found on the fuel tank. There are two connectors on the transfer wire harness, one for Gen 3 and one for Gen 4.
12. Connect transfer wiring harness fuel pump adapters to fuel pump connectors.
  - a. Connect the black wiring harness fuel pump adapter to the black fuel pump connector on the access flange.
  - b. Connect the grey wiring harness fuel pump adapter to the grey fuel pump connector on the access flange.
13. Connect positive and negative transfer wiring harness terminal leads to a 12-volt DC power source.

## Transferring Propane

14. Open up ball valve on ACME fill adapter.

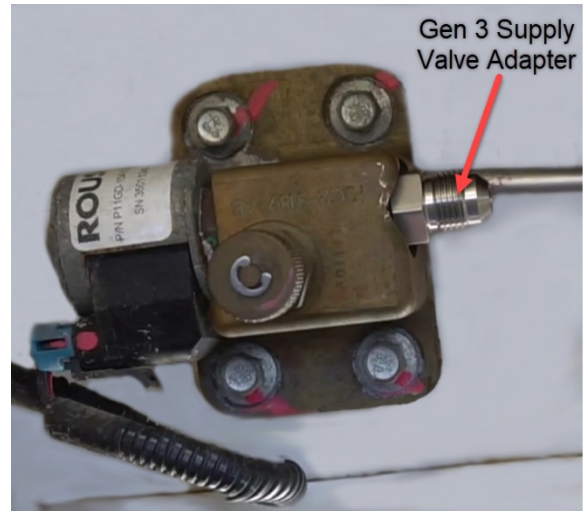


Figure 4. Gen 3 Supply Valve Connection

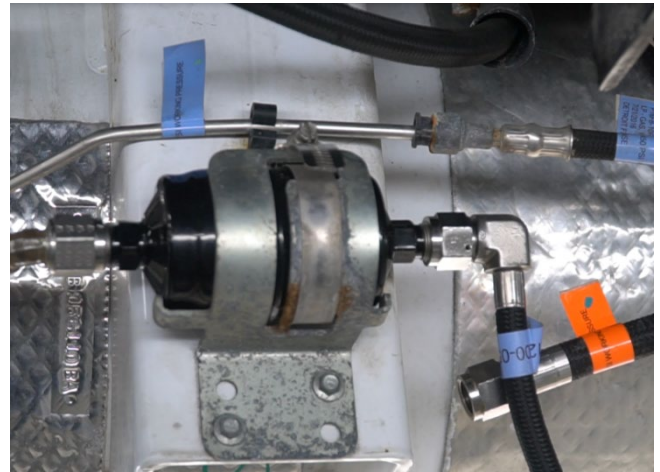


Figure 5. Gen 4 Supply Filter Connection



Figure 6. OPEN Ball Valve Connection to Donor Tank

15. Flip the rocker switch to ON position.
16. Slowly open manual shutoff valve on the fuel tank.
  - a. If the Excess Flow Valve (EFV) trips (indicated by a high-pitched fuel pump sound and lack of fuel flow), turn the rocker switch to OFF, close the manual shutoff valve, and wait approximately thirty (30) seconds to reset the EFV. After the EFV is reset, return to step 15.
17. Use sending unit twinsight as a gauge of fuel level to determine when the vehicle tank is close to empty.

**Note: Be sure to monitor the fuel level on the tank receiving fuel to ensure that the receiving tank is not full.**

18. Immediately flip the rocker switch Off once the fuel pump tone changes. This indicates that liquid is no longer present.

**Note: You can also use a non-contact amp clamp to read amp draw on one of the fuel pump wires. The current should drop approximately 2amps once no more liquid is present.**

19. Close the ball valve and slowly unthread the transfer line from the receiving vehicle or tank.

**Note: The fuel tank will not be completely empty at this point. Approximately two to four (2-4) gallons of fuel will remain in the tank. Do not remove tank components until the remaining fuel has been evacuated from the tank.**



Figure 7. CLOSED Ball Valve Connection to Donor Tank

20. After ensuring that the vehicle is 35 ft. away from any potential ignition source, remove the remaining propane from the transfer line. There are two options for removing the remaining liquid from the transfer line.

**Note: Follow all local, state, and federal laws related to propane venting.**

- a. The first is to connect the transfer line to a liquid propane flare and burn off the remaining fuel. Follow all instructions provided by your propane flare manufacturer.
- b. The other option is to slightly crack the ball valve open while facing away from the vehicle and any ignition source to release remaining propane.
21. Remove remaining vapor from the rest of the tank. There are three approved ways of doing this.
  - a. Open bleeder valve to vent out remaining vapor.
  - b. Attach line from transfer kit to an approved flare tower to burn off remaining vapor. Follow all instruction provided by your propane flare manufacturer.
  - c. Connect to an approved propane evacuation pump to draw out the remaining fuel in the tank. Follow the instructions provided by the propane evacuation pump manufacturer for proper use of the propane evacuation pump.

### Verifying Tank Depressurization

22. Ensure the fuel tank is completely depressurized.

- a. Open the bleeder valve, no pressure should escape.
  - i. Repeat opening and closing of bleeder valve a second time.
- b. Close the manual shutoff valve on the tank.
- c. Ensure that the ball valve on the transfer line is open and turn the rocker switch on the transfer wiring harness to ON.
- d. Slowly open the manual shutoff valve. No pressure should come out of the line.

**Warning: If propane pressure is still present, close the manual shutoff valve and call ROUSH CleanTech Support at 800-59-ROUSH.**

23. It is now safe to service tank components. Always remove tank components slowly and note that non-pressured propane vapor is still in the tank.

### Removing Transfer Kit

**Warning: Ensure there is no propane vapor present before disconnecting electrical connector.**

24. Disconnect transfer harness terminal leads from power source.

25. After pressure in transfer line is relieved, remove from source vehicle.

- a. Gen 3

- i. Remove supply valve adapter and torque supply valve Jiffy-Tite to 28Nm (21 ft-lb).
- ii. Lubricate Jiffy-Tite fitting on the vehicle supply line with clean engine oil and re-connect. Ensure proper connection using the push-pull method.

- b. Gen 4

- i. Remove transfer line from the outlet side of the supply line filter. Reinstall the supply line to the outlet of the supply filter and torque to 28 Nm (21 ft-lb).
- ii. Tighten fuel return line on return valve to 31 Nm (23 ft-lb).

26. Disconnect transfer wiring harness from vehicle.

- a. Disconnect wiring harness from supply solenoid and connect supply harness.
- b. Connect the two fuel pump connectors and vehicle harness fuel pump connectors.

**Important: Follow your vehicle service manual for fuel tank component replacement. Opening the fuel tank allows air into the tank. Always perform the Fuel Tank Purging Procedure before putting the vehicle back in service.**

### Questions/Assistance:

ROUSH CleanTech Customer Service  
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