

IMPORTANT

If you are experiencing any problems with the computer controlled fuel system, please call 1-800-442-0056 prior to any repairs being done.

**Keep this
User's Guide in
vehicle's glove box**

TRANSFER FLOW'S EXPRESS-UFS™

User's Guide and Reference

*For diesel and gas vehicles equipped
with a Transfer Flow Express-UFS™
auxiliary fuel tank system*

Important Safety Information — Please Read

Filling the Fuel Tank

- Never fill a fuel tank near a flame or ignition source which might ignite the fuel vapors.
- Avoid breathing fuel vapors or allowing the fuel vapors or liquid to contact the skin.
- Always fill the fuel tanks while the vehicle is on a flat level surface with the engine **OFF**.
- Open the fuel cap slowly to allow any pressure to escape.
- Never overfill or “top-off” any fuel tank. Overfilling the fuel tank may cause damage to the emissions system, cause dangerous spills and possibly result in a fire. The Transfer Flow Express-UFS system may also shut down in the event of an over-full condition.
- Never siphon fuel using the mouth. This practice is dangerous and potentially fatal. Use an appropriate pump.
- Do not allow fuel to contaminate soil or waterways. Properly contain and dispose of spilled fuels and cleanup materials.

Other Important Safety Information

- Use only Transfer Flow Inc. replacement parts. Many parts of our fuel system appear common, but are actually special parts which are critical for safe operation. Contact Transfer Flow for more information.
- Disconnect the battery before working on the Transfer Flow fuel system.
- Never place any fluid other than motor fuel in the fuel tanks.
- Never modify or over pressurize a fuel tank.
- Do not grind, torch, weld, cut, or modify a fuel tank.
- Do not sleep in a pickup with a camper shell that contains one of our in-bed fuel tank systems.
- NEVER connect a Transfer Flow Inc. fuel system to a previously modified fuel system without contacting Transfer Flow Inc.
- Do not smoke near a fuel tank.
- This fuel tank is not to be used in any manner not intended or in connection with aircraft.

Chapter 1

Understanding the Operation of the Express-UFS System

Either the vehicle you purchased has a Transfer Flow auxiliary fuel tank system installed on it or you purchased one yourself. In either case, we'd like to introduce you to Express-UFS, Transfer Flow's auxiliary universal fuel system. Please read this user's guide to better understand Express-UFS and to use it for troubleshooting purposes. We hope you enjoy your Transfer Flow auxiliary fuel tank system!

Q – *What is included in the Express-UFS system?*

A – The Express system includes an auxiliary fuel tank, an auxiliary fuel pump, all mounting hardware, wire harness, and all necessary fuel lines for a complete installation. Also included is the Express-UFS computer control module.

Q – *How does the auxiliary system operate?*

A – The operation of the TFI fuel system is actually quite simple. The TFI system feeds fuel into the vent tube of the OEM tank by way of the TFI fuel pump. As the vehicle consumes fuel from the OEM tank, the TFI system pumps fuel into the OEM tank until the auxiliary tank is empty.

Q – *How often does the Transfer Flow tank fill the OEM tank?*

A – The TFI Express-UFS computer module monitors the fuel level in the OEM fuel tank. When the fuel level on the OEM fuel gauge registers between $\frac{3}{8}$ and $\frac{1}{2}$ of a tank (see FIGURE 1) the Express system will start the transfer of fuel to the OEM tank. The computer module will continue to transfer fuel until the OEM fuel gauge registers approximately $\frac{3}{4}$ of a tank. In addition, the Express module is continuously monitoring the flow of fuel to the OEM tank to verify that fuel is transferring properly from the auxiliary fuel tank.

Q – *I typically keep trucks for one or two years and then get a new one. Do I need to buy a new Transfer Flow auxiliary fuel system each time?*

A – It depends on the make and model of your new vehicle. The Express-UFS system is available for use on most Dodge, Ford, and GM diesel and gas pickups. If you purchase a new Ford, GM or Dodge full size diesel vehicle, TFI can replace your Express computer module for a small fee and the rest of the components can be reused on your new vehicle.

Q— *What do I need to do to operate the Express-UFS fuel system?*

A— Unlike a switch and valve system, the operation of the Express computer module is transparent to the user. When the fuel level of the OEM gauge drops below 3/8 of a tank, the user knows that the auxiliary tank is out of fuel and the OEM tank has only 3/8 remaining. Before running out of fuel, it is mandatory for the user to completely refill the OEM fuel tank. For best performance and durability, refuel both the main and auxiliary tanks.

Q— *What if the Transfer Flow system develops a problem? Does that mean my vehicle cannot be driven until it is fixed?*

A— It depends on the problem. If a problem develops with your Express-UFS auxiliary fuel system, it can easily be disabled. Refer to the troubleshooting section of this User's guide or call Transfer Flow at (530) 893-5209 or (800) 442-0056. If the tank has a fuel leak, contact Transfer Flow immediately.

Q— *How often should I replace the filter in my TFI Auxiliary Fuel System?*

A— TFI recommend that the filter be replaced every 12 months on vehicles that see normal service. If your vehicle is operated in dusty conditions or you drive more than 20,000 miles per year, the filter should be changed every 4 months. Please note that vehicles travelling outside the United States and Canada may be exposed to filling stations that contain elevated levels of contaminants, it may be wise to carry spare filters when travelling outside of the country.

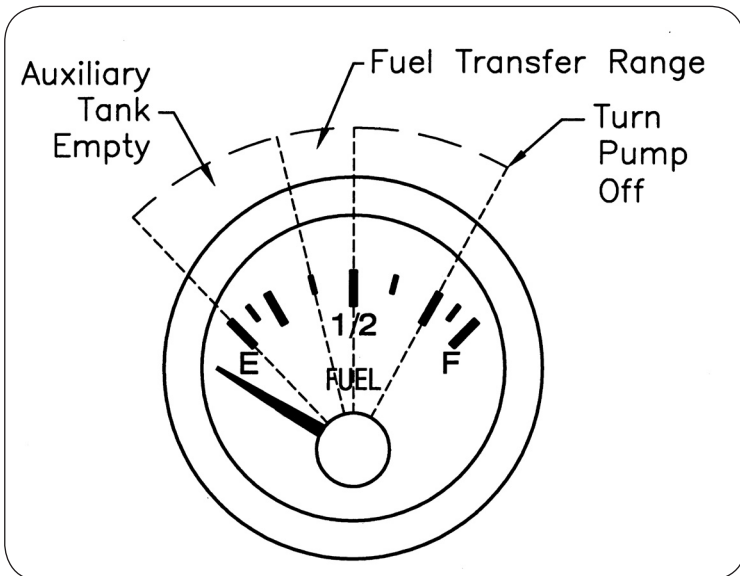


FIGURE 1: Express-UFS Gauge Operation

Chapter 2

Monitoring Your Vehicle's Fuel System

Q — *How can I determine the fuel level of my Express fuel system?*

A — The user has a few ways of determining the fuel level and status of the fuel system. First, the OEM fuel gauge indicates the fuel level in the OEM tank as it would in a stock system. The user will notice the gauge increase as fuel is transferred from the auxiliary fuel tank to the OEM fuel tank by the Express computer module. See Figure 1 for more detail on fuel transfer levels. When the OEM fuel gauge registers below $3/8$ of a tank, this indicates that all fuel has been emptied from the auxiliary tank and that only $3/8$ is remaining in the OEM fuel tank. The Express computer module knows that there is no fuel remaining in the auxiliary tank so it will cease to turn on the auxiliary fuel pump when the OEM gauge is below the $3/8$ level.

Second, by monitoring vehicle mileage the user can obtain a more accurate picture of the total remaining fuel. With the help of your odometer and the added range achieved with the auxiliary tank, the user can estimate the remaining fuel in the auxiliary tank.

Upgrade an EXPRESS-UFS system to Transfer Flow's patented TRAX-II® operating system. With the upgrade to TRAX-II, you'll receive a dash mounted LCD display that will show the gallons in the main tank, the aux tank, and the vehicle's total gallons.

Q — *What if I have dual tanks on my vehicle and I install an Express-UFS auxiliary fuel system. I now have a total of three fuel tanks. How does the Express-UFS fuel system work now?*

A — The Express-UFS auxiliary system only monitors and transfers fuel to one of the OEM fuel tanks. Typically, on Ford vehicles, the front OEM tank is the one that is refueled by the Express system. The OEM fuel gauge will indicate the fuel level in the selected OEM tank as it would in a stock system. When the switch is connected to the "front" OEM tank, the Express module will be enabled and has the ability to refuel the "front" tank. When the switch is connected to the "rear" OEM tank, the Express module is disabled and the gauge reads the level of the "rear" tank.

Chapter 3

Troubleshooting Guide

Q – *With 1/4 tank of fuel left in the OEM tank I refueled the auxiliary tank. Why won't the Express system start transferring fuel to the OEM tank?*

A – The Express computer module is designed to transfer fuel to the OEM tank based on predefined fuel levels. See Figure 1 for more detail. When the OEM gauge drops below 3/8 of a tank, the Express module thinks that fuel has been depleted from the auxiliary tank and it will not attempt to transfer fuel. In order to restart the system, the user must refuel the main tank to move the OEM gauge above the 1/2 tank mark.

Q – *Once in a while, my Express-UFS fuel system starts a fuel transfer cycle and ends the cycle before the OEM gauge reaches 3/4. Is there a problem with my system?*

A – No, the Express computer module is properly responding to changes in the OEM sending unit. Under certain driving conditions (rapid acceleration, rapid deceleration, corners, and hills) sloshing in the fuel tank will cause the sending unit signal to drop and the module will be disabled. However, this will not affect the performance of your fuel system because the module will be re-enabled after waiting for 30 minutes. If a short fuel transfer cycle occurs every time, collect diagnostic information as described below.

Q – *The pump on the Express-UFS continues to turn on even though the auxiliary tank is out of fuel. Is this okay?*

A – The Express-UFS fuel system does not have a sending unit or other indication of the fuel level in the auxiliary tank. When the main tank is in the transfer range, the pump will turn on for a minimum of 8-10 minutes and try to transfer fuel. This will not damage the pump. If there is fuel remaining in the auxiliary tank, it will be transferred to the main tank and the pump will continue running. If the auxiliary tank is empty, the pump will turn off due to this “no flow” condition.

If you do not plan to use the auxiliary fuel tank for an extended period of time, you can disable the pump by unplugging its 3-pin black connector.

Q — *My Express-UFS fuel system is not properly transferring fuel. How can I obtain diagnostic information about the system?*

A — The Express computer module has the ability to enter a diagnostic mode to output the make and model programmed in the module and data about the operation of the system. The Express module outputs data by pulsing the pump ON and OFF. For this reason, verify that the OEM tank is NOT FULL when starting the diagnostic mode. The user can monitor the output by listening or feeling the auxiliary fuel pump. Connecting a 12V light or buzzer (found at any auto parts store) to the pump output connector will also help the user observe the diagnostic codes. To Initiate the Diagnostic mode, perform the following steps below.

To Initiate the Diagnostic mode, perform the following steps:

1. With the vehicle off, turn the ignition to the Key ON position for 5 seconds.
2. Key OFF the ignition for at least 10 seconds.
3. Key ON the ignition for 5 seconds.
4. Key OFF the ignition for at least 10 seconds.
5. Key ON and start the vehicle.
6. After a few seconds, the Express module will start to output the make and model programmed into the Express-UFS computer module. The third code corresponds to the status of the system after the last fuel transfer cycle. The fourth code is the number of program loops during the last transfer cycle. This value relates to the duration of the last transfer cycle.
7. Approximately 10 seconds following the Make and Model code the module will do a flow test, which will run the pump for five minutes. You can use this test to verify the transfer of fuel to the main tank. Turn off the vehicle if the main tank is full or if you want to stop the test.

Express-UFS Diagnostic Codes

Code	Value (# of Pulses)	Description
Vehicle Make Code	1 - 3	Ford = 1, GM = 2, Dodge = 3
Model Year Code	1 - 10	(i.e 1 = current model Ford/GM/Dodge)
Diagnostic Code	1 = Passed	OEM has reached 3/4 and transfer completed
	2 = No Flow	Error. No fuel or flow restriction in Aux tank
	3 = Invalid	Error. Invalid readings from OEM sending unit
Flow Count	1 - 20	# of loops during last completed transfer cycle. Transfer Cycle Time = flow count x 3 minutes

FIGURE 3: Express-UFS Diagnostic Codes

Q — *What if the Transfer Flow system develops a problem? Does that mean my vehicle cannot be driven until it is fixed?*

A — If a problem develops with your Express-UFS auxiliary fuel system, it can easily be disabled through one of the following methods:

1. Unplugging the auxiliary fuel pump connector on the side of your auxiliary fuel tank will disable the transfer of fuel. If you have other electrical problems you can disable the Express computer module using one of the methods below.
2. When the Express computer module loses power or is unplugged, the OEM gauge and sender will be electrically disconnected. Unplug the Express module 5-pin connector from the TFI wire harness. Using a small jumper wire or paper clip, jumper the yellow and white wires in the TFI harness connector to reestablish the OEM sender/gauge connection. Use electrical tape to hold the jumper in place and insulate the other wire harness pins from the environment.

If the tank has a fuel leak, contact Transfer Flow immediately. For further troubleshooting assistance, please call Transfer Flow, Inc. at (530) 893-5209 or (800) 442-0056.

Q — *When I leave the ignition Keyed ON for a long time, the gauge pegs to Empty or Full. What is happening to my Express module?*

A — For safety reasons, many applications call for the Express-UFS module to be connected to the OEM in-line fuel pump as the power source. Power to this pump is disconnected when the vehicle is not running as a safety mechanism. The design of the Express computer module will allow the OEM sender and gauge to remain connected for up to five minutes after the module loses power. After that time duration, the OEM sender and gauge will be electrically disconnected causing the gauge to peg to Empty or Full. While the user should be aware of this condition it will in no way effect or damage their OEM or auxiliary fuel system.

Q – *I have filled up my auxiliary tank and the gauge is in the transfer zone, the system refuses to transfer fuel. What do I do?*

A – Your TFI auxiliary fuel system has been outfitted with a replaceable fuel filter and may be obstructed from fuel contaminants and dust. To replace the filter: remove the cover box to access the filter and fuel hoses. Replace the filter with WIX 33003 (or NAPA 3003, FRAM G3 or TFI 070-FL-32861) and make sure the direction of flow through the new filter is correct.

Important Notice

Transfer Flow Replacement Parts

Transfer Flow, Inc. fuel systems are designed to work only with specific components which have been selected for their unique properties. Years of design work have produced the finest auxiliary fuel system available that relies on relatively few but critical parts. The components used in Transfer Flow fuel systems are not generic or “off-the-shelf” parts and cannot be replaced with parts that appear to be similar.

For example, the in-line fuel pump used with our Express-UFS system appears to be a normal fuel pump, but it is actually a high quality solenoid pump with a critical forward and reverse check feature. **Under no condition should any other pump be substituted for this pump.**

This auxiliary fuel system has been outfitted with a replaceable fuel filter that requires periodic service. The filter is available through automotive parts retailers and is not covered by Transfer Flow’s warranty. The filter should be inspected/replaced every 4-12 months depending on the conditions that the vehicle is operated in and the quality of fuel purchased. Transfer Flow will not honor warranty claims from diagnosis or replacement of obstructed filters.

Filter Interchange:

FRAM G3, WIX 3303, NAPA 3003, TFI 070-FL-32861

Contact Transfer Flow immediately at (530) 893-5209 or 1-800-442-0056 if your Transfer Flow auxiliary fuel system fails to operate properly, or if you have any questions regarding part replacement.

Certificate of Limited Warranty Transfer Flow Aftermarket & O.E.M. Fuel Tank Systems

TRANSFER FLOW, INC.'S (TFI) fuel systems are covered by a three year or 60,000 mile limited warranty, against defects in material and workmanship. Transfer Flow, Inc. sending units and pump sending units are covered by a warranty period of one year. This excludes sending units and pump sending units that come with our TRAX-II® and Express-UFS® auxiliary fuel systems, which are covered by our 3 year/60,000 mile limited warranty. Our warranty is in effect in the U.S. from the date the unit is purchased by the original purchaser. "Original Purchaser" shall mean the person who purchases for his own use. If a part must be replaced, TFI will furnish the replacement part on an exchange basis, F.O.B. the factory. TFI will pay our established warranty labor rates, listed below, to service points or service dealers who have service agreements with TFI. No payment will be made for parts purchased or repaired in the field without prior authorization from TFI. TFI must be contacted for authorization to repair or replace parts prior to the work being performed. Charges for warranty service in excess of our warranty labor rates are not the responsibility of TFI. The warranty for replacement parts shall be for the unexpired term of the original warranty. TFI does not warrant against rusting when Pickled and Oil material is used in the manufacture of tanks and parts. TFI systems are compatible with a maximum 5% concentration of biodiesel fuel (B5) manufactured to ASTM D975 specifications. Concentrations above 5%, or failing to comply with ASTM D975 may invalidate Transfer Flow's warranty. TFI reserves the right to examine the claimed defect in the field or upon return of the tank or component to our facility with all shipping charges being prepaid. If the claim is determined valid, repair or replacement will be made at the manufacturer's option. This warranty will not apply when product failure is caused by conditions beyond the control of TFI such as (1) Damage from misuse or negligence; (2) Damage caused by improper installation; (3) Damage caused in shipment or improper handling; (4) Incorrectly ordered product; (5) Damage caused by contaminated fuels or fuel additives. This warranty shall be void if the product is altered in any way or the identification label affixed to the fuel tank has been removed or defaced. This warranty does not cover consequential damages, including, but not limited to: loss of use of the warranted product, loss of time, inconvenience, transportation expenses, towing, expenses for travel, lodging, telephone and gasoline, loss or damage to personal property or loss of revenue. This warranty gives you specific legal rights. You may also have other rights which vary from state to state, and in accordance with specific federal regulations. TFI does not authorize any person to create for it any other obligation or liability in connection with these fuel systems. GPI warrants their fuel transfer pumps to be free from defect in workmanship and material for a period of two years from the date of purchase. The in-line fuel filter provided with the TFI fuel system is not covered by the warranty. This is a standard maintenance item and no payment will be made with regards to this item.

Warranty Claim Procedure

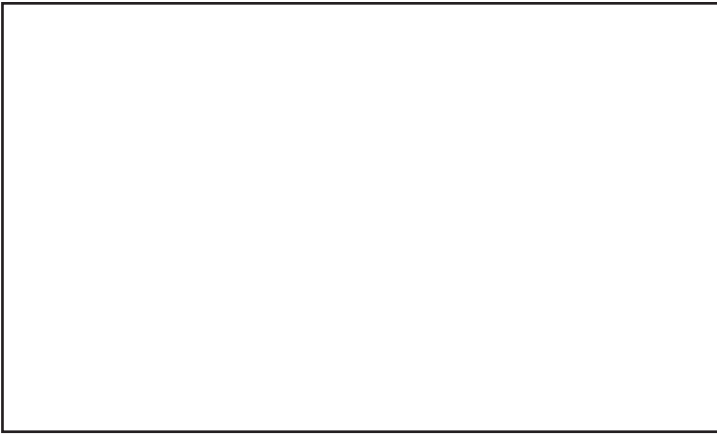
If you have difficulty with your fuel system, consult the dealer where the unit was originally purchased. Your dealer will then call or write the factory describing the trouble and request assistance. TFI will require model, part and serial numbers, proof of purchase, vehicle's VIN #, date of installation, and documented mileage reading. If a part is defective and must be replaced, TFI will give an RMA (Returned Merchandise Authorization) number, authorization and instructions for replacement or further handling. If an item is shipped as a replacement for a defective part, a charge will be made for this part. Credit will be considered upon return of the defective item. All returned items must be identified with the RMA number and returned within 30 days of opening the claim.

Remedies

If TFI fails to successfully perform its obligation under this warranty, the owner has available the remedies provided by the Magnuson-Moss Warranty and Federal Trade Commission Improvement Act (P.L. 93-637; 88STAT.2183FF; 154SC2301FF) and any applicable state law.

Certificate of Conformity

If needed, Transfer Flow ICC fuel tanks conform to all rules pertaining to side mounted and non side mounted fuel tanks and meets all FHWA side mounted and non side mounted fuel tank requirements as stated in section 393.67.



Important Label Information

If you are experiencing any problems with your Transfer Flow auxiliary fuel tank system, please call 1-800-442-0056 prior to any repairs being done! Please refer to the information found on this label when calling for technical support. **DO NOT REMOVE THIS LABEL.**



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TFI Part # 070-IS-32166