

## **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 TRAX II**

## *User's Guide and Reference*

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*For auxiliary fuel tank systems  
manufactured by Transfer Flow, Inc.*

## 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 Trax-II 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 23003, 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.

# **TRAX-II**

## *Welcome to Transfer Flow and Trax-II*

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 Trax-II, Transfer Flow's auxiliary universal fuel system. Trax-II is a sophisticated computer controlled auxiliary fuel tank system that functions similarly to a computer controlled balance line.

How does it work? Although it may sound difficult, it's rather simple! The Trax-II computer determines the fuel level of the main tank, the level of the auxiliary tank, and the status of the vehicle's fuel system once every few seconds. When necessary, the Trax-II module will turn on the auxiliary fuel pump and transfer fuel to the main tank. The message, "PUMP ON" will be displayed on the dash mounted LCD when this is occurring. The fuel level in the main tank and auxiliary tank will decrease at the same rate. The LCD display will indicate the gallons in the main tank, the auxiliary tank, the combined gallonage, and the operational status of the fuel system. The Trax-II computer will also adjust the OEM fuel gauge accordingly based on the combined total\*.

With the addition of Trax-II, there's no need for a toggle switch to flip back and forth between the main and auxiliary tanks. The Trax-II module does the transferring of fuel for you. As an added safety feature, an anti-siphoning device is part of the system so there can never be an overflow of fuel! While a problem is unlikely to occur, a diagnostic mode allows the vehicle's operator to view previously stored diagnostic trouble codes in the Trax-II module.

Please read this user's guide to better understand Trax-II and to use it for troubleshooting purposes. We hope you enjoy your Transfer Flow auxiliary fuel tank system!

\* **NOTE:** *On 2005 - current Ford trucks, the OEM fuel gauge will read the main tank only.*

# Chapter 1

## *Understanding the Operation of the Trax-II Fuel Tank System*

**Q — What is included in the Transfer Flow auxiliary fuel system kit?**

**A —** The Transfer Flow system includes a legal auxiliary fuel tank, an auxiliary fuel pump, all mounting hardware, and all necessary fuel lines for a complete installation. The Transfer Flow system also includes a computer control module with a Liquid Crystal Display (LCD).

**Q — How does the auxiliary system operate?**

**A —** The operation of the Transfer Flow fuel system is actually quite simple. For example, say you have two tanks on your vehicle (the OEM tank and the Transfer Flow auxiliary tank). The Transfer Flow system essentially feeds fuel into the vent tube of the OEM tank by way of the Transfer Flow fuel pump. As the vehicle uses fuel from the OEM tank, the Transfer Flow system pumps fuel into the OEM tank to keep both tanks at or around the same level.

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

**A —** The Transfer Flow computer module monitors the fuel level in both fuel tanks. The control module basically keeps the tanks at the same level by transferring several gallons at a time. Typically, the transfer occurs after 3 to 5 gallons have been used out of the main tank. For more detailed transfer information for your specific vehicle, call Transfer Flow at 1-800-442-0056 or (530) 893-5209.

**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 truck you are buying. You may need to purchase just a computer module. If you change from a diesel to a gas or a gas to a diesel, there may be other components, including the computer module, that would be required. Call us at 1-800-442-0056 for more information.

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

**A —** No! If a problem develops with the Transfer Flow auxiliary fuel system, simply locate the fuse holder on the back of the display, and remove the fuse. The system will now operate from the OEM tank only, just as though the Transfer Flow system was never installed. The OEM fuel gauge will read only the OEM tank. Fuel will not transfer from the auxiliary tank to the OEM tank if the fuse is removed.

## LCD Adjustment Directions

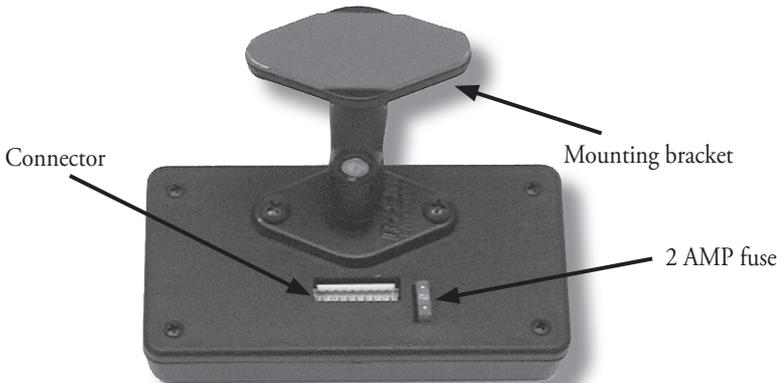
The two buttons on the front of TRAX LCD modules can be used to adjust the contrast and backlight of the LCD display. Follow these steps to adjust the contrast or backlight setting:

1. When your vehicle and the TRAX module are running, press both buttons at the same time on the front of the display to enter the "LCD Adjust" screen.
2. Press the Left or Right button to adjust the Contrast or Backlight respectively.
3. Press the + and - buttons until the desired Contrast or Backlight setting is achieved.
4. Press both buttons at the same time to exit the "LCD Adjust" mode and save your settings.



Trax-II Computer Module (Front)

FIGURE 1



Trax-II Computer Module (Back)

FIGURE 2

**WARNING:** To prevent damage, loosen the knob on the adjustable ball-joint bracket prior to making any adjustments to the position of the display. Do not over tighten the knob or the adjustable ball-joint may be damaged.

# Chapter 2

## Monitoring Your Vehicle's Fuel System

**Q—What does the Trax-II module show me?**

**A—** The module's LCD displays the gallons currently in your OEM tank, the gallons in the Transfer Flow auxiliary tank, the total gallons of both tanks, and the operating status of the vehicle's fuel system (see Figure 1).

**Q—What is the “Status” of the fuel system?**

**A—** The “Status” section of the LCD display lets you know what the condition is of the vehicle's fuel system. In normal operation, the LCD will flash “OK” every few seconds. When the system is transferring fuel to the OEM tank, the LCD will read “PUMP ON”. Several other codes can also be displayed under the “Status” section on the LCD. For these additional codes, see Figure 3.

**Q—How accurate are the gallon values on the Transfer Flow Trax-II LCD?**

**A—** Typically, the numbers on the LCD should not vary more than a gallon or two from what is actually in each tank and, in most cases, are exact. Because the Transfer Flow system reads the in-tank sending units directly, the system itself is very accurate. However, the sending units in both the OEM tank and the Transfer Flow tank might have slight inaccuracies throughout the range, especially near Full or Empty conditions.

**Q—What about my OEM fuel gauge?**

**A—** The Trax-II module is wired into the trucks main wire harness, in between the main fuel tank and the fuel gauge. The Trax-II module monitors the level of fuel in the main tank, and then sends that same info to the fuel gauge on the dash. The OEM fuel gauge displays the level of fuel in the main tank as it did before installing the Trax-II auxiliary fuel system. If the Trax-II module gets an improper reading from the main tank sending unit, then the status on the Trax-II will change and display either “MSO” Main Sender Open, or “MSH” Main Sender High. Once one of these is seen under status then the gallons under MN will drop to “0”, and the OEM fuel gauge will drop to empty. The OEM fuel gauge will not be affected by an “ASO” Auxiliary Sender Open, an “ASL”/“ASH” Auxiliary Sender Low/Auxiliary Sender High, or a “NO FLOW”.

**Q—What if I have dual tanks on my vehicle and I install a Transfer Flow fuel tank system. I now have a total of three fuel tanks. How does the Transfer Flow fuel system work now?**

**A—** The Transfer Flow auxiliary tank only transfers fuel to one of the OEM tanks. The module will ALWAYS display the values from the Transfer Flow auxiliary tank and the OEM tank that is being refueled by the Transfer Flow tank.

**Q— My Trax-II module displays CHK FLTR in the status window, 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. When the filter is obstructed the TRAX-II will sense that fuel is not transferring and will send an alert to the operator. To replace the filter: remove the cover box to access the filter and fuel hoses. Replace the filter with WIX 33003 (or NAPA 23003, FRAM G3, or TFI 070-FL-32861) and make sure the direction of flow through the new filter is correct.

**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.

## TRAX-II Code Descriptions

If there is a problem with either the OEM fuel tank or the Transfer Flow auxiliary fuel tank, one of the following trouble codes will appear on the Trax-II LCD.

Problem	Code
Main Sender Low	MSL
Main Sender High	MSH
Main Sender Open	MSO
Auxiliary Sender Low	ASL
Auxiliary Sender High	ASH
Auxiliary Sender Open	ASO
No flow problem	CHK FLTR or NO FLOW

**MSL** — The Main Sender Low DTC is set when the resistance from the main sender drops below a predetermined set point, approaching ground. This condition could be caused by the sending unit going bad or a wire shorted to ground.

**MSH** — The Main Sender High DTC is set when the main sending unit resistance is above the normal operating range. This condition could be caused by a malfunctioning sender or an inaccurate module calibration.

**MSO** — The Main Sender Open DTC is set when the main sender resistance indicates the maximum value. This condition may be caused by a defective sender or an improper electrical connection.

**ASL, ASH, and ASO** — The Auxiliary Sender Low, Auxiliary Sender High, and Auxiliary Sender Open DTCs are set the same way as the OEM, but can have different predetermined set points.

**NO FLOW** — The No Flow or Check Filter DTC is set when the auxiliary pump is on, and after a set amount of time the fuel level in the auxiliary tank does not drop or the main tank does not increase by a set amount of gallons. A clogged filter, kinked line, bad pump or a broken connection could cause this condition.

FIGURE 3

## Chapter 3

### Troubleshooting Guide

**Q — The system does not work. The display does not light up.**

**A —** It sounds like the Transfer Flow system is not getting power. Check the Trax-II module on your dash. Is the LCD's backlight illuminated? If not, check the fuse, which is located on the module and at the power source.

**Q — The fuel levels displayed on the LCD change when cornering hard or during other rapid motions. Is this normal?**

**A —** Yes and no. No matter what, fuel will slosh around in fuel tanks when the vehicle is in motion. Your Transfer Flow fuel tank and system has been optimally designed to keep fuel sloshing to a minimum. However, it is not possible to completely eliminate all fuel sloshing. Many times, you will find that fuel sloshing will be greater in the OEM tank than the Transfer Flow tank. This is because the Transfer Flow tank is fully baffled while some OEM tanks are not. In either case, you should not see the fuel level change more than four or five gallons, except under periods of high cornering, braking, or acceleration loads.

**Q — My OEM fuel gauge is on empty and the Trax-II module shows that the OEM and auxiliary tanks are empty. The “Status” also shows a code other than “OK”. What is happening?**

**A —** The Transfer Flow system is telling you that there is a problem. The “Status” heading should have a trouble code displayed. See Figure 3 to further troubleshoot the system.

**Q — I have filled both tanks to the top, but one of the tanks does not display the correct gallonage at full (i.e. the vehicle has a 35 gallon fuel tank but the LCD reads only 21). What is the problem?**

**A —** Locate the sending unit on the tank that does not read correctly. Is the sending unit installed correctly? If it is the Transfer Flow tank, check the orientation of the arrow that is stamped in the top plate of the sending unit. The Transfer Flow instruction sheet will tell you how to correctly install the sending unit. Locate the computer module on the dash, and verify the year make, model, main tank and auxiliary tank size printed on the label matches the vehicle. If not, call Transfer Flow at (530) 893-5209.

**Q**— I just had a Transfer Flow auxiliary fuel tank system installed on my vehicle. I notice that when I turn the key to the “ON” position (with the engine off) the Trax-II dash mounted LCD turns on for a few seconds and then loses power. Is this normal?

**A**— Not to worry. Some Transfer Flow auxiliary fuel systems get their power from the OEM fuel pump. On some these vehicles, the fuel pump only receives continuous power when the engine is running. If the key is on the “ON” position, the pump will receive power for a short time and then it will turn off. When the fuel pump loses power, the Transfer Flow system loses power. If you are unable to start the vehicle but want to make sure that the Transfer Flow system is operating correctly, continue to turn the key to the “OFF” position and then back to “ON”.

**Q**— My vehicle has shown a Trax-II Code or my reading seems inaccurate. How can I access the diagnostic screens?

**A**— The Trax-II module’s diagnostic screens allow users to troubleshoot problems and read troubleshooting codes. To enter these screens, depress both buttons while keying on and starting your vehicle. Use the SELECT button to choose the “Diagnostic Screen” or the “DTC Screen”. The “Diagnostic Screen” will display the ohmage and gallons values for both tanks and the gauge ohmage and percentage. The “DTC Screen” will show information about error codes that have been logged by the module. To exit either screen, depress both buttons until the module restarts.

**Q**— My Trax-II module displays CHK FLTR in the status window, 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. When the filter is obstructed the TRAX-II will sense that fuel is not transferring and will send an alert to the operator. To replace the filter: remove the cover box to access the filter and fuel hoses. Replace the filter with WIX 33003 (or NAPA 23003, FRAM G3, or TFI 070-FL-32861) and make sure the direction of flow through the new filter is correct.

***Notice For Early 2000 Model Year F350-550 Ford Cab Chassis Owners With 40 Gallon Aft Axle Tank***

The Trax-II computer system utilizes the OEM sending unit to determine the level of fuel in the OEM tank. Due to the design of the OEM fuel sender, the LCD and fuel gauge will not seem to function after a fill up for as long as 200 miles. After using six to eight gallons of fuel, the LCD and gauge should become accurate again.

# *Important Safety Information*

## *Filling Your Fuel Tank and Safety Procedures*

### *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 Trax-II 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.

## CERTIFICATE OF LIMITED WARRANTY

### 1. Three Year/Unlimited Mile Warranty

TRANSFER FLOW, INC. ("TFI") fuel systems and parts are - EXCEPT AS NOTED IN PARAGRAPHS 2, 3, AND 4 BELOW - covered by a three year unlimited mile warranty against defects in material and workmanship. This warranty is in effect in the United States and Canada from the date the unit is purchased by the Original Purchaser ("Original Purchaser" shall mean the person who purchases for his own use).

### 2. Specific Parts Warranty

Specific parts purchased from TFI are warranted against defects in material and workmanship as follows:

- Sending units are covered by a one year warranty from the date of purchase by the Original Purchaser.
- 12-volt refueling pumps are covered by a two year warranty from the date of purchase by the Original Purchaser (AND ARE NOT TO BE USED FOR AVIATION FUEL).
- Spray-on bedliners are covered by a three year warranty from the date of installation for the Original Purchaser.

### 3. Exclusions And Limitations

THE TFI WARRANTY, DESCRIBED IN PARAGRAPHS 1 AND 2 ABOVE, IS SUBJECT TO THE FOLLOWING EXCLUSIONS AND LIMITATIONS:

- The rights of the Original Purchaser under the TFI warranty are LIMITED to return of the goods and repair or replacement of nonconforming goods.
- THIS WARRANTY DOES NOT COVER INCIDENTAL OR 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. NOTE: SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.
- Warranties will only cover products on which the identification label is affixed; if the label has been removed or defaced, the warranty is no longer valid.
- TFI fuel systems are compatible with a maximum 20% concentration of biodiesel fuel manufactured ASTM D7467 specifications. Concentrations above 20% or failing to comply with ASTM D7467 specifications will void warranty.
- THE WARRANTY PROVIDED IN PARAGRAPHS 1 AND 2 ABOVE IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES (EXPRESS, IMPLIED, OR OTHERWISE) INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN THE EVENT IMPLIED WARRANTIES MAY NOT BE EXCLUDED, THE TERM OF ANY IMPLIED WARRANTY SHALL NOT EXCEED THE TERM OF THE APPLICABLE EXPRESS WARRANTY PROVIDED IN PARAGRAPHS 1 AND 2 ABOVE. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.
- The warranty will not apply when product failure is caused by conditions beyond the control of TFI, such as:
  - (1) Malfunction due to incorrectly ordered product
  - (2) Damage from misuse, negligence, or failure to provide reasonable and necessary maintenance
  - (3) Damage caused by improper installation
  - (4) Damaged caused in shipment or improper handling
  - (5) Damage caused by contaminated fuels or fuel additives
  - (6) Product modification or alteration
- Products made from pickled and oil material are not covered under warranty for corrosion.
- The in-line fuel filter provided with the TFI fuel system is not covered by warranty as it is a standard maintenance item.
- Any action against TFI for breach of the warranty must be commenced within one (1) year after the cause of action has accrued.
- Any action against TFI for breach of the warranty must be commenced in the Superior Court of Butte County, State of California.

### 4. Warranty Claim Procedures

- If you have difficulty with your fuel system, consult the dealer where the unit was originally purchased. Your dealer will then contact TFI and request assistance. TFI will require model, part and serial numbers, proof of purchase, and date of installation. TFI reserves the right to examine the claimed defect in the field or upon return of the tank or component to TFI's facility with all shipping charges being prepaid. If a part is defective and must be replaced, TFI will provide a Returned Merchandise Authorization ("RMA") number, authorization, and instructions for replacement or further handling.
- No payment will be made for parts purchased or repaired in the field without prior authorization by TFI.
- TFI will pay its established warranty labor rates to service points or service dealers who have service agreements with TFI.
- 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.

### 5. Federal Regulatory Provisions

This warranty gives you specific legal rights, and 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 TFI any other obligation or liability in connection with TFI fuel systems. If TFI fails to successfully perform its obligation under this warranty, the Original Purchaser has available the remedies provided by the Magnuson-Moss Warranty Act (P.L. 93-637) and any applicable state law.



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TFI Part # 070-IS-32088