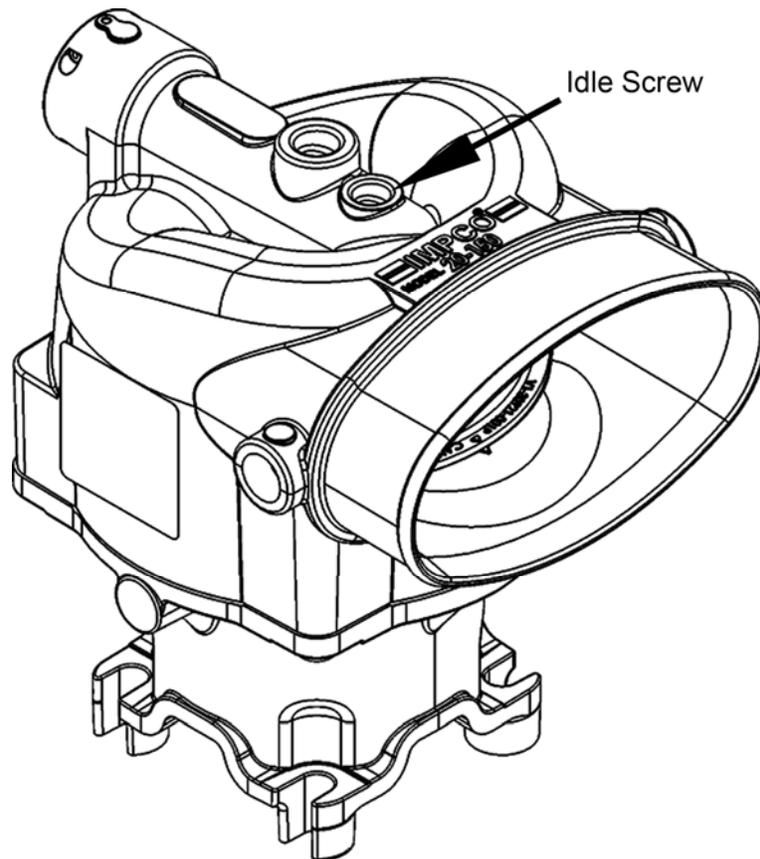




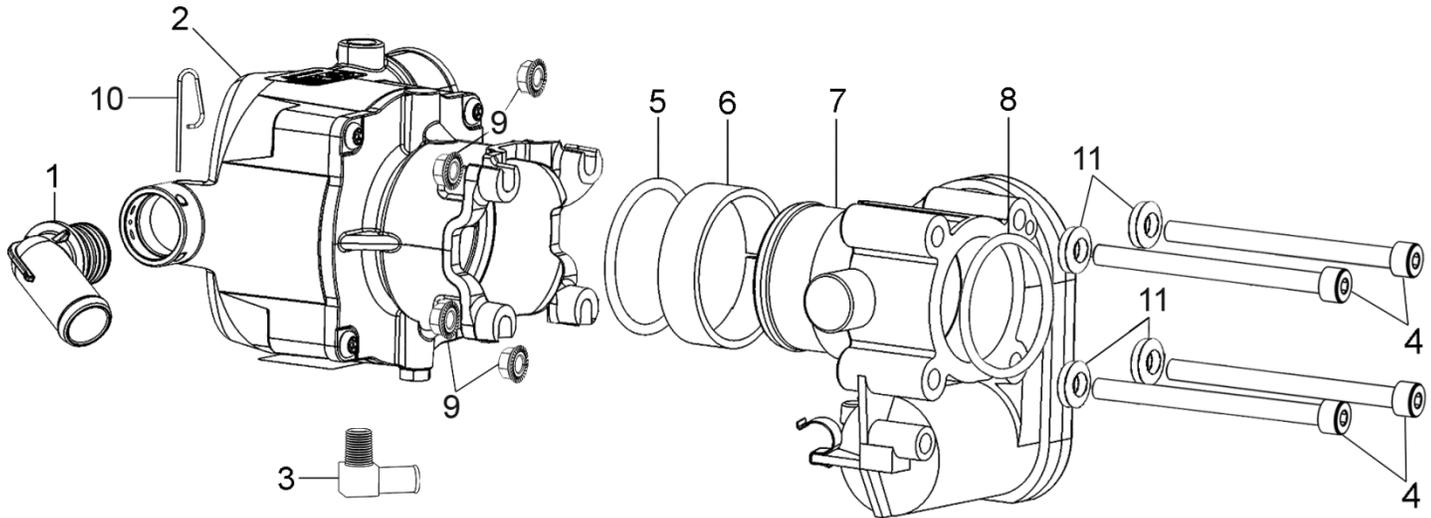
# INSTALLATION INSTRUCTIONS FOR FT150 MIXER WITH IDLE MIXTURE CENTERING SCREW



*FT150 with idle screw*

IMPCO has added an idle screw in the FT150 Mixer to allow a technician to center the air/fuel ratio more precisely at service replacement.

### FT150 Mixer, Throttle Body and Components



Item #	Description	Qty	Item #	Description	Qty
1	Fitting, 70-degree, 3/4" OD	1	7	Bosch Throttle Body, 40MM	1
2	FT150 Mixer	1	8	O-Ring Nitrile	1
3	Fitting, 1/8Npt 3/8Hs 90El Brs	1	9*	Nut, Hex Flange, Serrated	4
4*	Screw, Hex Sock Cap	4	10	Retaining Pin	1
5	O-Ring Nitrile	1	11*	Washer, Lock	4
6	Sleeve, Plastic Bosch Throttle	1			

\*Some mixers were assembled with screws (4) positioned 180 degrees from the above diagram, threading into mixer adapter. These assemblies did not include the washers (11) or nuts (9).

#### FT150 Mixer Removal Procedure

1. Disconnect the negative battery cable.

6. Remove the air intake duct.

7. Remove the Retaining Pin (10) holding the fuel hose Fitting (1) and remove fuel hose.



## CAUTION

**The LPG fuel system operates at pressure up to 21.5 bar (312 psi). To minimize personal injury, relieve the LPG fuel system pressure before servicing the LPG fuel system components.**



## WARNING

**Residual vapor pressure will be present in the fuel system. Ensure the work area is well ventilated before disconnecting any fuel line.**

2. Close the manual shut-off valve (MSV) on the LPG fuel tank.
3. Start and run the vehicle until the engine stalls.
4. Turn the ignition switch to OFF.
5. Disconnect the negative battery cable.

8. Remove 3/8" hose from Brass Elbow Fitting (3).
9. Remove the four Screws (4) securing the Mixer (2).
10. Remove the Brass Elbow Fitting (3) from Mixer (2).

## FT150 Mixer Installation Procedure

1. Inspect all components and hardware for damage and replace if necessary. Clean all parts prior to assembly.
2. Install Brass Elbow Fitting (3) into Mixer (2).
3. Inspect O-rings (5 and 8) and replace if necessary.
4. Lightly lubricate O-rings (5 and 8) with petroleum jelly or Vaseline.
5. Place O-ring (5) on top of the Throttle Body (8) and align to screw holes. Install the Mixer (2) and secure with the four retaining screws (4). **Torque to 9 N•m (80 in. lb.).**
6. Install the fuel hose Fitting into the Mixer (2) and hold with the Retaining Pin (10).
7. Install the air intake duct.
8. Install 3/8" hose to the Brass Elbow Fitting (3).



### CAUTION

**The HEGO is sensitive to silicone based products and can become contaminated. Avoid using silicone sealers/lubricants on any fuel or exhaust related components.**

9. Reconnect the negative battery cable.
10. Open LPG tank manual shut-off valve.
11. Turn ignition to ON for approximately 30 seconds, then OFF.
12. Leak check the LPG fuel system at each serviced fitting.
13. Start the vehicle and leak check the LPG fuel system at each serviced fitting.

### IMPORTANT

Always inspect the LPG fuel system for leaks after performing service. Check for leaks at the fittings of the serviced or replaced component. Use a commercially available liquid leak detector or an electronic leak detector. When using both methods, use the electronic leak detector first to avoid contamination by the liquid leak detector



### CAUTION

**Never use an open flame of any type to check for LPG leaks.**



## Centering the FT150 Mixer Idle A/F Ratio at Service Replacement

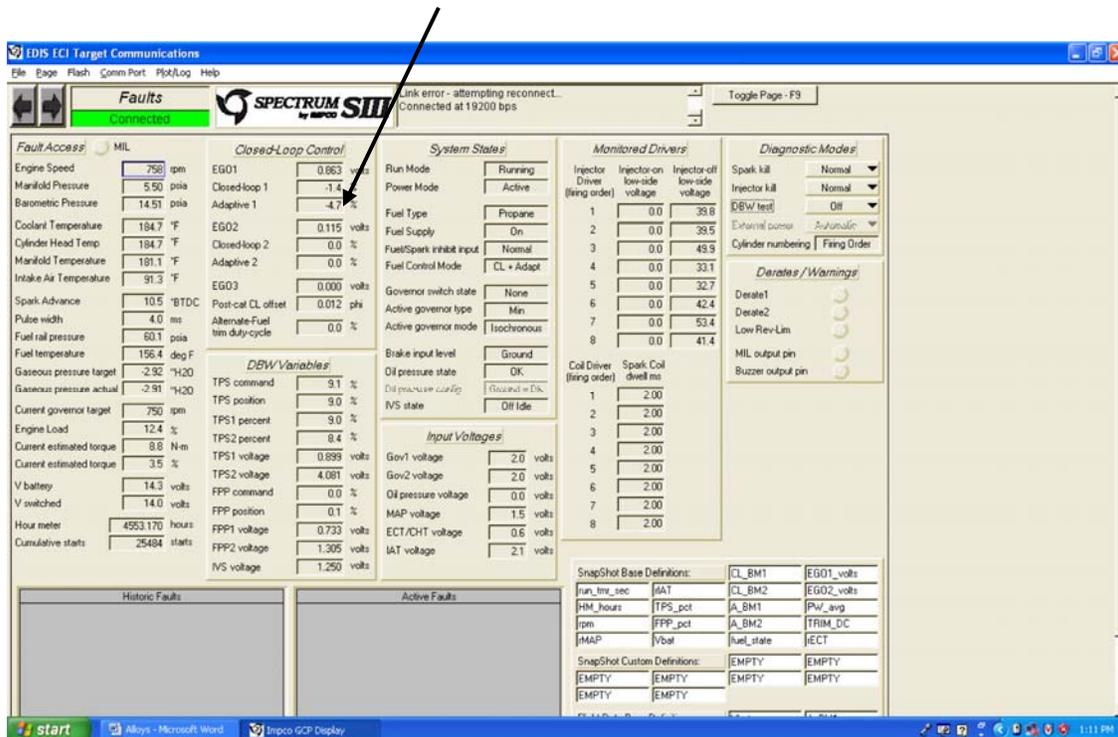
1. Connect the DST (Diagnostic Scan Tool) to the truck (refer to DST section of the IMPCO Parts & Service Manual).
2. Reconnect the negative battery cable.
3. Open the fuel supply valve (manual shut-off valve) on the tank.
4. Start engine and let run at idle until it reaches normal operating temperature.
5. Once the DST is connected, go to the Faults screen and wait until the Fuel Control Mode reads "CL + Adapt" (closed loop plus adaptive) as shown below.

The screenshot displays the EDIS ECI Target Communications software interface. The main window is titled "Faults" and shows a "Connected" status. The interface is divided into several sections:

- System States:** Run Mode: Running; Power Mode: Active; Fuel Type: Propane; Fuel Supply: On; Fuel/Spark inhibit input: Normal; Fuel Control Mode: CL + Adapt (indicated by an arrow).
- Monitored Drivers:** A table showing injector driver data:
 

Injector Driver (firing order)	Injector-on low-side voltage	Injector-off low-side voltage
1	0.0	39.3
2	0.0	42.8
3	0.0	55.0
4	0.0	42.2
5	0.0	36.6
6	0.0	42.4
7	0.0	48.8
8	0.0	41.4
- Diagnostic Modes:** Spark kill: Normal; Injector kill: Normal; DBW test: Off; Derates/Warnings: Derate1, Derate2, Low Rev-Lim, MIL output pin, Buzzer output pin.
- Input Voltages:** Gov1 voltage: 2.0 volts; Gov2 voltage: 2.0 volts; Oil pressure voltage: 0.0 volts; MAP voltage: 1.5 volts; ECT/CHT voltage: 0.6 volts; IAT voltage: 2.0 volts.
- DBW Variables:** TPS command: 9.2%; TPS position: 9.1%; TPS1 percent: 9.1%; TPS2 percent: 8.5%; TPS1 voltage: 0.904 volts; TPS2 voltage: 4.076 volts; FPP command: 0.0%; FPP position: 0.0%; FPP1 voltage: 0.733 volts; FPP2 voltage: 1.305 volts; IVS voltage: 1.250 volts.
- Historic Faults:** DTC 1152: Closed-loop LPG low.
- Active Faults:** DTC 1152: Closed-loop LPG low.

9. Clear any faults and note the Adaptive Value as shown below.



### Changing the Adaptive Value

The ideal Adaptive value is 0.0% +/-5%. A negative (-) number indicates a mechanically rich condition and a positive (+) number indicates a mechanically lean condition.



**Set the idle screw on the FT150 Fuel Mixer (note the air inlet has been removed for clarity)**



1. Using a small screw driver, turn the idle screw counter clockwise to increase the adaptive number and clockwise to reduce the number. **Note that Adaptive value may take 60 seconds or more once the idle screw is changed. Make small 1/8 turn changes to the idle screw and wait at least one minute prior to making another change.**
2. Once the value is between -5% and +5% allow to run at least ten minutes, pushing on the foot pedal once or twice to increase the engine rpms, then allow to idle. Recheck the Adaptive value and continue to center again if necessary.
3. Place the tamper resistant cap (P/N P3-17956-22) over the idle screw and using a hammer and small flat punch, tap into place.
4. The vehicle may be returned to service.

### Future Adjustments

If the idle screw centering does not correct the DTC(s), refer to the Parts and Service Manual for further diagnostic information.

## WARNING:

**IMPROPER INSTALLATION OR USE OF THIS PRODUCT MAY CAUSE  
SERIOUS INJURY AND/OR PROPERTY DAMAGE.**

### SERVICE TECHNICIANS AND USERS

SHOULD CAREFULLY READ AND ABIDE BY THE PROVISIONS SET FORTH IN NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET #37 FOR STATIONARY ENGINES, #52 FOR CNG VEHICULAR FUEL SYSTEMS OR #58 FOR LPG SYSTEMS.

### INSTALLERS

LPG INSTALLATIONS IN THE UNITED STATES MUST BE DONE IN ACCORDANCE WITH FEDERAL STATE OR LOCAL LAW, WHICHEVER IS APPLICABLE AND NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET #58, STANDARD FOR STORAGE AND HANDLING OF LIQUEFIED PETROLEUM GASES TO THE EXTENT THESE STANDARDS ARE NOT IN VIOLATION WITH FEDERAL, STATE OR LOCAL LAW.

### IN CANADA

REFER TO CAN/CGA PROPANE INSTALLATION CODES.

### CNG INSTALLATIONS IN THE UNITED STATES

MUST RE DONE IN ACCORDANCE WITH FEDERAL STATE OR LOCAL LAW AND NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET #52, COMPRESSED NATURAL GAS (CNG) VEHICULAR FUEL SYSTEMS TO THE EXTENT THESE STANDARDS ARE NOT IN VIOLATION WITH FEDERAL, STATE OR LOCAL LAW.

### IN CANADA

REFER TO CAN/CGA CNG INSTALLATION CODES.

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