Installation/Operators Manual
For use with WFCO ULTRA III Distribution Center
WF-8900ANP and WF-8900EC Series

(model number located on the door assembly label)

WFCO™

Distributed in the U.S.A. and Canada by
CHENG USA, INC.
Sales (574) 294-8997
Warranty Service (877) 294-8997
Fax (574) 294-8698

OEM Installation of the WFCO WF-8900 Series Power Center

Select a mounting location near the shore power and battery (batteries) and cut a rough opening 1/8" wider than the box to allow the power center to slide in easily.

- Do not install close to appliances that are a source of heat or water (such as water heaters, furnaces, and under refrigerators). It is not designed for mounting in humid wet locations. It must be protected from direct contact with water.

⚠ WARNING ⚠

This unit employs components that tend to produce arcs or sparks. To prevent fire or explosion, do not install in compartments containing batteries or flammable materials (LP gas).

⚠ CAUTION ⚠

To prevent fire, do not cover or obstruct ventilation openings. Do not mount in zero-clearance compartment. Overheating may result. For continued protection against risk of fire, or electric shock replace only with same type and ratings of fuse.

The fuse rating that the manufacturer suggests for the output fuses will be marked on the unit. Replace only with the same type and rating.

During the manufacturing process be sure that all converter openings are protected from debris falling into the unit **(this is a non-warranty item)**.

NOTE: If the reverse battery protection fuses are blown during installation, be sure that the battery has been connected properly, then replace the fuses with "Littelfuse®" Type 257 with the same rating as the original.

For proper wire sizes and torque requirements, refer to the label on the back of the door assembly.

General Consumer Information

- **Reverse Battery protection**
  This feature prevents permanent damage to the converter from an incorrect battery connection.

- **Automatic Cooling Fan**
  The fan is variable speed and current controlled.

- **Electronic Current Limiting**
  Automatically shuts down power during overload or short circuit conditions. Automatically returns to normal operation after conditions are corrected.

- **DC Fuses**
  - Eleven 12 Vdc circuits (including two circuit for slideouts)
  - Maximum of 30 Adc fuse for DC circuits 10 and 11 (all others max. 20 Adc)
  - Reverse battery protection fuses; replace only with ATC "Littelfuse®" Type 257 fuse

- **Circuit Breakers**
  - One 30 Aac "Main circuit" and a maximum of five 20 Aac "Branch circuits"

UL Listed Main Circuit Breakers, rated for 120 Vac, maximum 30 Aac
Acceptable circuit breakers are as follows:

Manufacturer:	Model/Cat. No./Type:
Cutler Hammer	Type BR and C
Thomas Betts	Type TB or TBBD
ITE/Siemens	Type QP or QT
Square D	Type HOM or HOMT
Murray	Type MP-T or MH-T

UL Listed Branch Circuit Breakers, rated for 120 Vac, maximum 20 Aac
Acceptable circuit breakers are as follows:

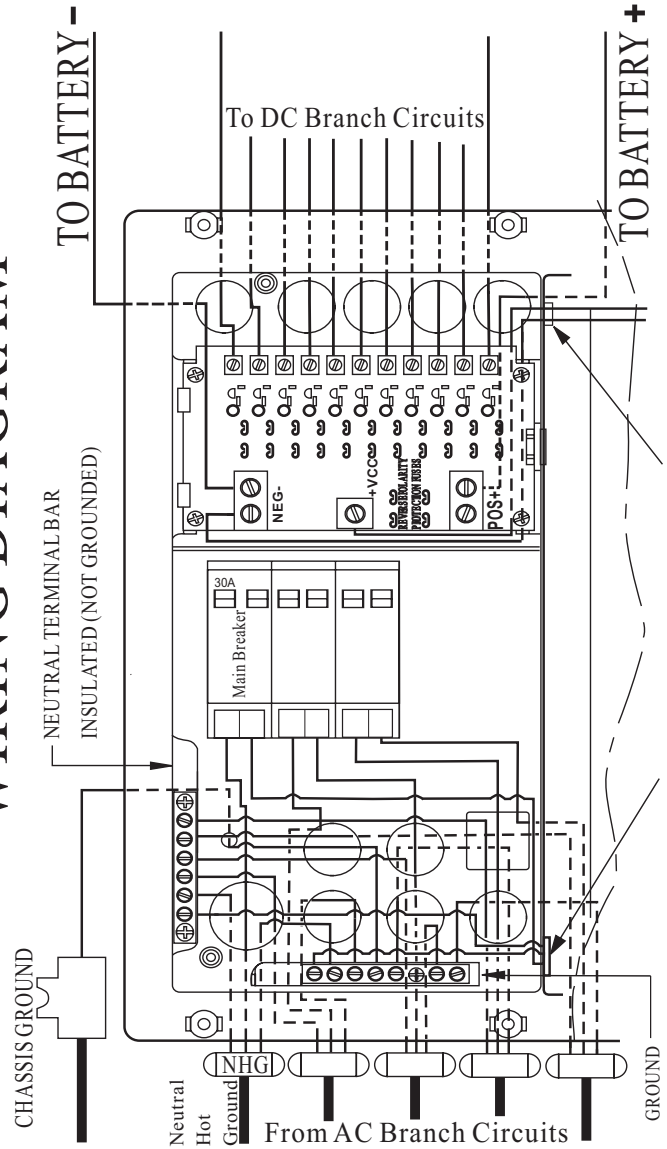
Manufacturer:	Model/Cat. No./Type:
Cutler Hammer	Type BR and C, Type BRD BD and A
Thomas Betts	Type TB and TBBD
ITE/Siemens	Type QP or QT
Square D	Type HOM and HOMT
Murray	Type MH-T or MP-T

- A replacement or additional circuit breaker shall be of the same manufacturer, type designation, and equal or greater interrupting rating, not to exceed 30 A
- "Short-Circuit-Current" rating for the breaker should be 10,000 A

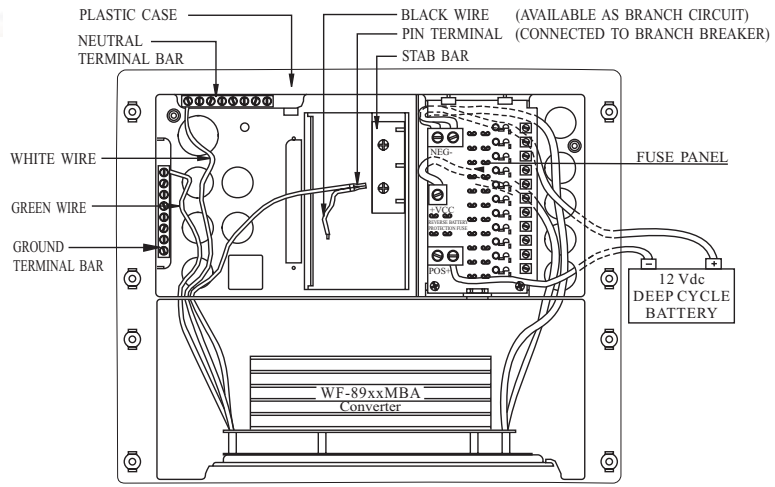
- **Breaker Filler Plates:**

Manufacturer:	Model/Cat. No./Type
WFCO	FP-01 or FP-01B

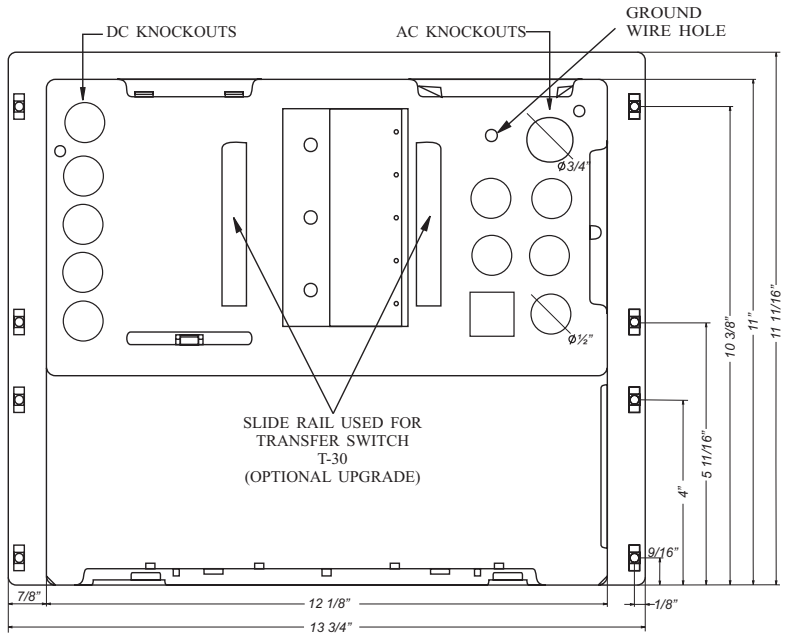
WIRING DIAGRAM



Front view



Rear view



Converter Operation Modes

All WFCO power converters are automatic three stage switching power supplies. The converter senses which mode it needs to be in by checking the RV system voltage.

The three modes/stages of operation include:
Absorption mode / Normal operation
Nominal battery charge and supplies power to appliances
Bulk mode / Charge mode
Fast battery charge and supplies power to appliances
Float mode / Trickle charge
Trickle battery charge during storage

Absorption Mode: During this mode the converter output is in the 13.6 Vdc range. This is the normal operation mode. This mode provides the 12 Vdc and current required by the 12 Vdc RV appliances, as well as slow charging the battery.

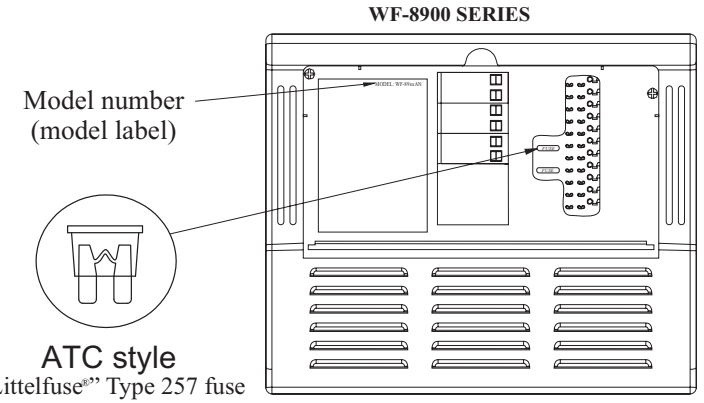
Bulk Mode: When the converter senses that the RV system voltage is less than 13.2 Vdc (equivalent to less than 50% of battery charge) the converter will automatically go into the "Bulk mode". In this mode the output voltage of the converter will switch to 14.4 Vdc for a maximum of 4 hours. If the converter cycles between "Absorption and Bulk mode", you could have a shorted battery cell or other issues.

If the output voltage drops below 13.2 Vdc, the converter automatically changes to a "Bulk mode" 14.4 Vdc (unless the converter is in overload condition). There are two signs of an overloaded converter:
Low output voltage, and full converter fold back or shutdown. In both cases the converter will automatically turn ON, once the complete load is removed. For low output condition, removing the extra (over the current rating) load will be sufficient. If it is impractical to remove all the load, resetting the main breaker will have the same effect.

Float Mode: If the RV is not being used for approximately 48 hours, with a "no load" condition and the shore power is plugged in, the converter will automatically go in to the "Float mode". In this mode the converter is charging the battery with a trickle voltage of 13.2 Vdc. When the converter senses a demand (by turning on lights) the converter automatically returns to the "Absorption mode" 13.6 Vdc.

Troubleshooting 8900 Series Power Center

If there is no DC output, check the reverse polarity fuses on the front panel of the WF-8900 series power center. First, visually inspect the fuses for any breaks; if none are found use a continuity tester to check for continuity.



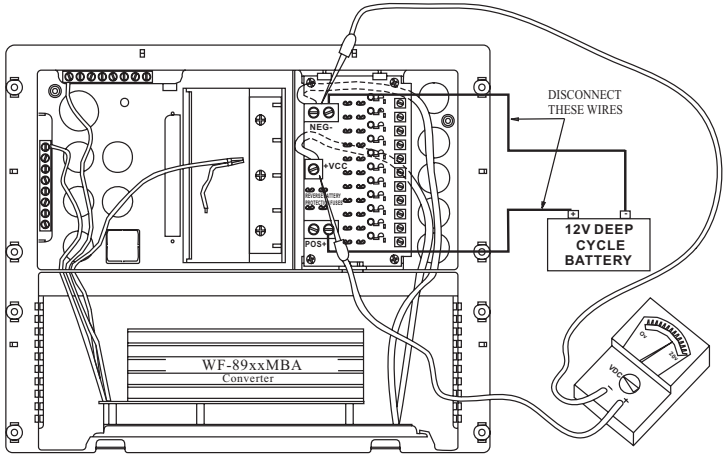
If the reverse polarity fuses are blown it means the RV battery was accidentally connected in reverse, either at the battery or at the converter. Reconnect properly, and then replace the fuse with the same type and amp rating as the original, "Littelfuse®" Type 257 automotive style fuse.

IMPORTANT: These fuses protect the converter from damage in the event that the RV battery is accidentally connected in reverse. A reverse battery connection, even for a second, is the only reason that these fuses will blow.

Transfer Switch
Transfer switch is used to automatically transfer 120 Vac between two power sources (Shore, Generator). The transfer switch protects the converter and other AC appliances from the unwanted initial voltage fluctuations.

Available transfer switch upgrades:
T-30
WF-89xxANP/T30 (used for 30 Amp AC service)

Before checking the converter output voltage, it is necessary to disconnect the battery terminal wires (as shown below). Cap each wire or wrap with electrical tape. Make sure the converter is plugged into 120 Vac source. Check the converter output voltage with a voltmeter. On the Fuse Panel place the **Positive** (red) probe on the **+VCC** output terminal lug and place the **Negative** (black) test probe on the **NEG-** output terminal lug. Be sure you have good connections at the terminals. If the voltage reads 13.6 Vdc (+/-.2) the converter is functioning properly.



If the converter output voltage reads in the 13.6 Vdc range, and the battery is not charging, check for:
- an open inline fuse in the battery wire (if provided)
- an open wire between the converter and the RV battery
- loose ground
- improper torques

If the converter fuses and AC voltage are good, but the converter output still reads zero volts, the converter is not functioning properly.
Contact Cheng USA, Inc. Tech Support at: 1 (877) 294-8997

GENERAL COMPLIANCE INFORMATION

The WF-8900 series units are UL, and cUL (Canadian) listed.
They comply with FCC Class B requirement (see below).

FCC Compliance Class B:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Consumer Limited Warranty
For
WFCO Electronic Products

WFCO extends, to the original owner a Two Year Limited Product Warranty. This Warranty is in effect from the date of original purchase for a period of two (2) years. This Limited Warranty is extended specifically for and is limited to recreational vehicle application and is only valid within the continental United States, Alaska, Hawaii and the provinces of Canada. WFCO warrants, to the owner, that it's products are free from defects in material and workmanship under normal use and service based on its intended use and function. This Warranty is limited to the repair or replacement, at WFCO' s discretion, of any defective parts or defective assembly. Any implied warranties of merchantability or fitness for intended use are limited in duration unless applicable State Law provides otherwise. You may have other rights as specified by each individual state.

EXCLUSIONS and LIMITATION

The OEM Warranty specifically does not apply to the following:
any WFCO product that has been repaired or altered by any unauthorized person. Any damage caused by misuse, faulty installation, testing, negligence or accident or any WFCO product installed in a commercial vehicle;
any WFCO product whose serial number has been defaced, altered or removed;
any WFCO product whose installation has not been in accordance to the WFCO written instruction; any consequential damages arising from the loss of use of the product including but not limited to: inconvenience, loss of service, loss of revenue, loss or damage to personal property and cost of all services performed in removing or replacing the WFCO product. Specifications are subject to change without notice or obligation.

CONSUMER WARRANTY CLAIM PROCEDURE

Upon determination and validation by an authorized OEM dealer that a WFCO product has a defect, the dealer shall contact the WFCO warranty service number (877) 294-8997 and obtain a return goods authorization (RGA) number. This number shall appear on all correspondence with warranty service. Upon validation of the warranty WFCO shall replace or repair the product with a like product. The RGA number shall be placed on the outside of the carton used to return the product for ease of identification. Do not mark directly on the product. The product must be packaged properly to avoid further damage to the product which could cause a non-warrantable condition.