OWNER'S MANUAL

Pro-1200W, Pro-1600W
Pro-2000W, Pro-2500W
Pro-3000W

POWER INVERTERS

WHISTLER

Technology for the Way You Live

FEATURES

1. **Three 110 AC Outlets**
2. **Remote Operation Jack**
   The inverter is designed to be operated from a remote location via a WHISTLER Remote Control Switch (P/N Pro-RS01) which plugs into this socket. This optional accessory is available through WHISTLER or your WHISTLER dealer.
3. **USB Power Port**
   This port is always on and independent of the inverter's on/off switch.
4. **On/Off Switch**
   Turns the unit On/Off.
5. **Digital Power Meter**
6. **On/Shutdown Indicator Light**
   The LED will illuminate GREEN when the inverter is powered in normal conditions. This light will turn RED and the inverter will automatically shut down (except low voltage alarm) when any of the following problems occur:
   - **Short Circuit Protection.** The inverter will shut down until the short is removed.
   - **Low Voltage Alarm.** An alarm will sound when the voltage from the battery discharges to 10.5+/-0.5 volts DC. This is an indication that the battery needs to be recharged.
   - **Over Voltage Protection.** The inverter will turn itself off when the input exceeds 15.5+/-0.5 volts DC.
   - **Under Voltage Protection.** The inverter will turn itself off when the input is less than 10.0+/-0.5 volts DC.

FEATURES

   - **Overload Protection.** The inverter will turn itself off when the continuous draw or the surge draw of the equipment being operated exceeds the maximum power rating for the inverter.
   - **Thermal Protection.** The inverter will turn itself off when the internal temperature exceeds safe design parameters.
7. **Cooling Fans**
8. **Power Input Terminals**
   (Observe proper polarity)

Note:

In the event of an automatic shut down or continuous audible alarm, turn the inverter OFF (O) until the source of the related problem has been determined and resolved.

IMPORTANT INFORMATION

Important Information About Your New Whistler Inverter.
This manual will provide you with directions for the safe and efficient operation of your Whistle Power Inverter. Read the manual carefully before using your new Whistler inverter and keep the manual on file for future reference.

Important Note: Each of the following operating procedures and safety features must be carefully reviewed and thoroughly understood prior to using the inverter. Failure to do so may result in damage to the inverter, equipment or serious personal injury.

Notes:
Your Whistler inverter is designed to operate from a 12 volt power source only. Never attempt to connect your Whistler inverter to any other power source, including any AC power source.

- 110 volts can be lethal. Improper use of your Whistler inverter may result in property damage, personal injury or loss of life.
- Do not connect the inverter's output to any other power source.

INVERTER INFORMATION

Getting Started
Power equipment and appliances which operate with motors or tubes require an initial surge of power to get them up and running. This power surge is referred to as the "starting load" or "peak load." (By comparison, electrical devices such as standard light bulbs do not require a large starting load.) Once the equipment or appliance has been powered up, it settles down to a slower pace and requires far less electrical power to operate. This lower power requirement is referred to as the "continuous load."

In order to ensure that the capacity of your Whistler inverter is sufficient to meet the required start up load, you must first determine the power consumption of the equipment or appliance you plan to operate.

Power consumption is rated either in wattage or amperes, and information regarding the required "watts" or "amps" generally is stamped or printed on most appliances and equipment. If this information is not indicated on the appliance or equipment, check the owner's manual. **Contact the appliance or equipment manufacturer to determine if the device you are using (TV's, battery charger, computer, etc.) is compatible with a modified sine wave.**

If the power consumption is rated in amps, multiply the number of amps by 110 (AC voltage) to determine the comparable wattage rating. Induction motors may require 2 to 6 times their wattage rating to start up.

For further information on the fundamental operating principles of Whistler inverters and related technical data, see **"Technical Operating Principles."**

INVERTER INFORMATION

Don't Push It.

Although your Whistler power inverter has the capacity to provide power output (excess current) equal to approximately two times its rated wattage capacity for a very brief period, it is designed to operate equipment and appliances with start up load wattage ratings no higher than its own maximum continuous wattage rating.

For example, the Pro-1200W model has a maximum continuous rating of 1200 watts. Although this model has the capacity to briefly provide more than its continuous power (that is, excess current), it is designed to operate equipment and appliances with start up load requirements of 1200 watts or less.

Consequently, if the start up load rating of your equipment or appliance is slightly higher than the maximum continuous rating of the inverter, the inverter will attempt to start loads above the continuous rating.

Some refrigerators, freezers, pumps and other similar equipment and appliances require very high start up loads to operate. Before attempting to power up this type of equipment or appliance, make certain that all connections have been properly made and that the power source is fully charged.

To determine whether your inverter will operate a particular piece of equipment or appliance, run a test. The inverter is designed to shut down automatically in the event of a power overload. Testing appliances and equipment with start up load ratings comparable to your inverter wattage rating will not damage it.

If a piece of equipment or an appliance will not operate, first confirm that the inverter has been properly connected to the 12 volt power source (See "Making The Connection"). If all connections have been properly made, turn the inverter rocker switch ON (I), OFF (O) and ON (I) again in quick succession. If this procedure is unsuccessful, it is likely that the inverter does not have the required start up capacity or your battery supply isn't large enough to operate the equipment or appliance in question.

Selecting the Optimum Power Source.

Operating the inverter for extended periods combined with a high continuous load demand may result in excessive power drain from the battery. Therefore, the reserve capacity of the battery you select to power the inverter is an important consideration.

The potential power drain can be estimated by calculating the reserve power ("amp-hour"or Ah) of the battery and the amps required by the inverter to meet the continuous load demand of the equipment or appliance being operated.

BATTERY INFORMATION

1. To calculate the Ah of the battery, first determine its "reserve minutes" rating. (Deep cycle marine batteries generally have the highest reserve minute ratings). This rating typically is marked on the battery along with the "Cold Cranking Amps" (CCA) rating. Multiply the reserve minutes rating of the battery by 0.3 to determine the battery approximate Ah rating. A battery with a reserve minutes rating of 166 has an Ah rating of 49.8.

2. To estimate the maximum battery current the inverter will require to run a piece of equipment or appliance, divide its continuous load wattage requirement by 10.

   The Pro-1200W watt model utilizes 50 amps of battery power to operate an appliance with a 500 watt continuous load requirement. (500W divided by 10V = 50A).

3. Conclusion: The reserve power of the battery is sufficient to satisfy the continuous load demand placed on the inverter for a maximum of about one hour. (49.8 Ah divided by 50A = 1 hour).

Note:

- When the inverter will be operating equipment or appliances with high continuous load ratings for extended periods, it is not advisable to power the inverter with the same battery used to power your vehicle. If the car or truck battery is utilized for an extended period, it is possible that the battery voltage may be drained to the point where the battery has insufficient reserve power to start the vehicle.

BATTERY/CABLE INFORMATION

- It may be advisable to operate the inverter from a bank of batteries of the same type in a "parallel" configuration. Two such batteries will generate twice the Ah of a single battery; three batteries will generate three times the Ah and so on. See “Making a Connection” on page 13 for more information.

  This multiple parallel battery option is especially recommended for the Pro-2500W and Pro-3000W inverters due to the high level of amps these models require to produce up to 3000 watts of continuous load.

Wire Cable Gauges

For safe and proper operation of the inverter, connect the inverter to the power source with the proper gauge available and in the shortest length practical.

Pro-1200W and Pro-1600W

When the inverter and the battery are set up within three feet of each other, use a minimum of #4 gauge wire to make the connections. Within four to six feet, use a minimum of #2 gauge wire (Pro-1200W), #0 gauge for Pro-1600W. At distances between six feet to ten feet, use #0 gauge wire (Pro-1200W), #00 gauge for Pro-1600W.

CABLE INFORMATION

Pro-2000W and Pro-2500W

When the inverter and the battery are set up within three feet of each other, use a minimum of #2 gauge wire to make the connections. Within four to six feet, use a #0 gauge wire (Pro-2000W), #00 gauge for Pro-2500W. At distances between six feet to ten feet, use #000 gauge wires (Pro-2000W), #0000 for Pro-2500W connected in parallel to the battery.

Pro-3000W

When the inverter and the battery are set up within three feet of each other, use a minimum of #0 gauge wire to make the connections. Within four to six feet, use a #000 gauge wires. At distances between six feet to ten feet, use 2 sets of #00 gauge wires connected in parallel to the battery.

Check Whistler's online store for cable availability.

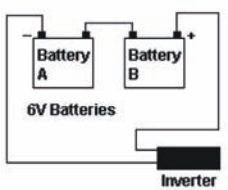
Cable options: For model Pro-2500 at 10 foot length, a subsitute for the #0000 gauge can be using 2 sets of #0 gauge wires connected in parallel to the battery.

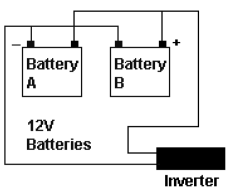
OPERATION

Making the Connection.

1. Make certain that the Power switch is in the OFF (O) position.
2. Connect the cables to the power input terminals at the rear of the inverter and tighten the screws to make a secure connection.

   (To make these connections, install the wire connectors flush with the metal backing plates and fasten the nuts securely.
3. Connect the cable from the Negative (-) terminal on the inverter to the Negative (-) terminal on the 12 volt power source. Make certain the connection is secure.
4. Confirm that the cable you have just installed is properly connected. Specifically, make certain that the cable is connected to the Negative (-) terminals on both the inverter and the 12 volt power source.
5. Connect the cable from the Positive (+) terminal on the inverter to the Positive (+) terminal on the power source.





OPERATION

Note:

- Loose connections can result in a severe decrease in voltage which may cause damage to the wires and insulation.
- Failure to make proper connection between the inverter and the power source will result in reverse polarity. Reverse polarity will blow the internal fuses in the inverter and may cause permanent damage to the inverter. **Damage caused by reverse polarity is not covered under the Whistler warranty.**
- Making the connection between the Positive (+) terminals may cause a spark as a result of current flowing to the capacitors in the inverter. This is a normal occurrence. Due to the potential for sparking, however, it is extremely important that both the inverter and the 12 volt battery be well removed from any possible source of flammable fumes or gases.***Failure to heed this warning could result in fire or explosion.***

6. Run a ground from the Ground Lug Terminal at the rear of the inverter to a proper grounding point using the shortest practical length of 18 AWG wire. Selection of the grounding point will depend on where you are using the inverter. The ground wire may be connected to the chassis of your vehicle or to the grounding system in your boat or to the earth***** if you are operating the inverter in a remote location. Before connecting the ground, make certain that the inverter is turned off. ***Operating the inverter without properly grounding it may result in electrical shock.***

***** This ground can't be the same ground as the AC ground.

7. Confirm that the equipment or appliance to be operated is turned off. Plug the equipment or appliance into one of the AC receptacles on the front panel of the the inverter.

8. Turn the inverter to the ON (I) position. Turn on the equipment or appliance.

9. Plug the USB powered device into the inverter's USB power port.

Note:

- The audible alarm may make a momentary "chirp" when the inverter is turned OFF (O). The same alarm may also sound when the inverter is being connected to or disconnected from the 12 volt power source.

- The use of an extension cord from the inverter to the appliance or equipment being operated will decrease the power being delivered to the load. For best operating results, the extension cord should be no more than 50 feet long.

OPERATION

- Check frequently to ensure that the input and output connections are secure. Loose connections may damage the inverter, the power source, or may generate excessive heat.

To generate the maximum output, the Pro-3000W watt model (for example) should be connected to a power supply which has the capacity to produce up to 300 amps. The loads should be distributed between the receptacles to ensure that each outlet is producing no more than its maximum 1500 watt output.

If more than one piece of equipment or appliance is to be operated at the same time, first turn on the inverter and then turn on each piece of equipment or appliance separately to enable the inverter to produce the required start up loads.

Important Information on Battery Chargers

Using your inverter with battery chargers for power tools, flashlights, video cameras and laptop computers may cause damage to the inverter or the charging unit. Check with the appliance manufacturer for compatibility with modified sine wave inverters if you're unsure.

Although we advise against it, if you attempt to use a charging unit, monitor the temperature of the charging unit for approximately 10 minutes. If the charging unit becomes unusually warm, disconnect it from the inverter immediately.

The Power Source.

When the engine is off, most batteries will provide ample power to the inverter for one to two hours. The actual length of time is a function of several variables including the age and condition of the battery, the number of batteries and the power demand being placed on it by the equipment being operated with the inverter. If you are using the inverter while the engine is off, we recommend you start the engine every 30 to 60 minutes and let it run for at least 10 minutes to recharge the battery. We also recommend that the device plugged into the inverter be turned off before turning over the engine.

Although it is not necessary to turn off the inverter when turning over the engine, the inverter may momentarily cease operation as the battery voltage decreases. When the inverter is not supplying power, and is turned on, it draws low amperage from the battery (see specifications).

For You Television Fans & Audiophiles.

Although the inverter is shielded and filtered to minimize signal interference, some interference with your television picture may be unavoidable, especially with weak signals. However, here are some suggestions that may improve the reception.

1. First, make certain that the television antenna produces a clear signal under normal operating conditions (i.e., at home plugged into a standard 110 AC wall outlet). Also, ensure that the antenna cable is properly shielded and of good quality.

2. Change the relative positions of the inverter, antenna cables and television power cord.

3. Isolate the television, its power cord and antenna cables from the 12 volt power source by running an extension cord from the inverter to the television set.

4. Coil the television power cord and the input cables running from the 12 volt power source to the inverter.

Note:
Inexpensive sound systems may emit a "buzzing" sound when operated with the inverter. This is due to inadequate filters in the sound system. There is no solution to his problem short of purchasing a sound system with a higher quality power supply.

For You Microwave Chefs.

The power rating commonly associated with microwave ovens is the "cooking power" which is the power being "delivered" to the item being microwaved. The actual operating power requirement rating is higher than the cooking power rating and typically is referenced on the back of the microwave. If the operating power requirement does not appear on the back of the microwave, check the owner's manual or contact the manufacturer.

OPERATION

Some Powerful Advice.

When driving with the inverter in operation, make certain that neither the inverter nor the power cords will impede safe operation of your vehicle. Keep the unit and all cords clear of the steering wheel, gas, brake and clutch pedals and gear shift.

To maintain your inverter in proper working condition, note the following important safety precautions:

- MOISTURE. Keep the inverter dry. Do not expose it to moisture. Do not operate the inverter if you, the inverter, the device being operated or any other surfaces that may come in contact with any power sources are wet. Water and many other liquids can conduct electricity which may lead to serious injury or death.
- HEAT. For peak efficiency, the ambient air temperature should be between 50° and 80° F. Avoid placing the inverter on or near heating vents, radiators or other sources of heat. Do not place the inverter in direct sunlight.
- VENTILATION. In order to disperse the heat generated while the inverter is in operation, keep it well ventilated. While in use, maintain several inches of clearance around the top and sides of the inverter.
- FUMES & GASES. Avoid using the inverter near flammable materials. Do not place the inverter in areas such as battery compartments, where fumes or gases may accumulate.

OPERATION

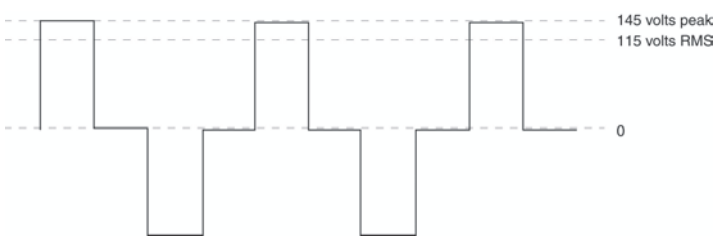
OPERATING PRINCIPALS

For You Technical Types.

1. Basic Operating Principles:

Whistler inverters work in two stages. During the first stage, the DC to DC converter increases the DC input voltage from the power source (e.g. a 12 volt battery) to 145 volts DC. In the second stage, the high voltage DC is converted to 110 volts (60 Hz AC) using advanced power MOSFET transistors in a full bridge configuration. The result is excellent overload capability and the capacity to operate difficult reactive loads. The output waveform resulting from these conversions is a "quasi-sine wave" or a "modified sine wave" as shown on below.

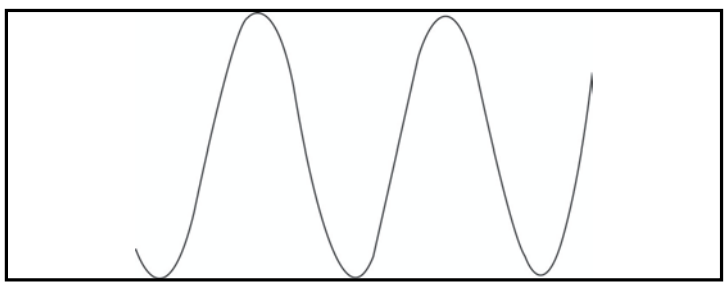
This stepped waveform is similar to the power generated by utilities and has a broad range of applications.



The modified sine wave produced by the Inverter

The modified sine wave produced by your Whistler inverter has a root mean square (RMS) voltage of 110 volts. The majority of AC voltmeters measure RMS voltage and assume that the measured waveform will be a pure sine wave.

Consequently, these meters will not read the RMS modified sine wave voltage correctly and, when measuring your Whistler inverter output, the meters will read about 20 to 30 volts too low. To accurately measure the output voltage of your inverter, use a true RMS reading voltmeter such as a Fluke 87, Fluke 8060A, Beckman 4410, Triplett 4200 or any multimeter identified as "True RMS."



A true sine wave typical of home AC outlet.

OPERATING PRINCIPALS/SUMMARY

In Review.

- Never attempt to operate your Whistler inverter from any power source other than a 12 volt battery or a group of batteries that total 12 volts.
- Always make certain that the power cable terminal connections Negative (-) to Negative (-) and Positive (+) to Positive (+). Check these connections frequently to ensure that they are secure.
- Make certain the rated power consumption of the appliance or equipment you wish to operate is compatible with the capacity of your inverter.
- If the rated power consumption of the equipment is in the range of the maximum specified wattage of your converter, test the inverter to ensure that it will operate properly.
- Before attempting to use a battery charger see page 16.
- Before attempting to use medical equipment see page 6.
- Use the proper gauge cable (smaller the number, the larger the cable) available to connect the inverter to the power source.
- When operating the inverter with the engine off, start the engine every 30 to 60 minutes and let it run for at least 10 minutes to recharge the battery.

OPERATION SUMMARY

- In the event of automatic shut down, turn the inverter OFF (O) immediately. Do not restart the inverter until the source of the problem has been identified and corrected.
- To avoid battery drain, always disconnect the inverter when the vehicle is not in use for long periods.
- Do not expose the inverter to moisture.
- Avoid placing the inverter near sources of heat or in direct sunlight.
- When in use, make certain that the inverter is properly ventilated.
- Do not use the inverter near flammable materials, fumes, or gases.
- Always operate the inverter in accordance with the instructions in this manual. Failure to do so may result in property damage, personal injury, or loss of life.
- While connecting the inverter to the power source, make certain that the inverter is well removed from any potential source of flammable fumes or gases.
- In the event a continuous audible alarm or automatic shut off, turn the inverter OFF immediately. Do not restart the inverter until the source of the problem has been identified and corrected.

TROUBLESHOOTING

PROBLEM: TV Interference

Problem	Solution
Electrical interference from filter inverter.	Add a Ferrite data line on to the TV power cord. This filter is available at electronic supply stores.

PROBLEM: Low or No Output Voltage

Problem	Solution
Using incorrect type of voltmeter to test output voltage.	Use true RMS reading meter See **"For You Technical Types"** Section of this manual.

PROBLEM: Low Battery Alarm On All The Time

Problem	Solution
Input voltage below 11 volts.	Keep input voltage above 11 volts to maintain regulation.
Poor or weak battery condition.	Replace battery.
Inadequate power being delivered to the inverter or excessive voltage drop.	Use lower gauge wire. See “Wire Cable Gauges” section of this manual. Keep wire length as short as possible.

Overload LED on

Problem	Solution
Equipment has a high start up surge.	Turn inverter power switch OFF (O) and then ON (I) again until the inverter powers your appliance. Repeat as necessary to get your appliance "started".
Battery voltage below 10 volts.	Recharge or replace battery.
Equipment being operated draws too much power.	Use a higher capacity inverter.
Inverter is too hot (thermal shutdown mode).	Allow inverter to cool. Check for adequate ventilation. Reduce the load on the inverter to rated continuous power output.

SPECIFICATION

Pro-1200W WATT INVERTER SPECIFICATIONS

Maximum Continuous Power . . . . . .1200 Watts
Maximum Surge Capability (Peak Power) . . . . . .2400 Watts*
No Load Current Draw . . . . . .≤ 1.0A
Waveform . . . . . .Modified Sine Wave
Operating Input Voltage Range . . . . . .11-15±0.5 Volts DC
AC Receptacle . . . . . .Three North American 3 Prong
USB . . . . . .5 Volt 500mA Max
Approximate Dimensions . . . . . .8.9" L x 7.4" W x 3.54" H
Approximate Weight . . . . . .4.5 lbs

Pro-1600W WATT INVERTER SPECIFICATIONS

Maximum Continuous Power . . . . . .1600 Watts
Maximum Surge Capability (Peak Power) . . . . . .3200 Watts*
No Load Current Draw . . . . . .≤ 1.0A
Waveform . . . . . .Modified Sine Wave
Operating Input Voltage Range . . . . . .11-15±0.5 Volts DC
AC Receptacle . . . . . .Three North American 3 Prong
USB . . . . . .5 Volt 500mA Max
Approximate Dimensions . . . . . .8.9" L x 7.4" W x 3.54" H
Approximate Weight . . . . . .5.4 lbs

Pro-2000W WATT INVERTER SPECIFICATIONS

Maximum Continuous Power . . . . . .2000 Watts
Maximum Surge Capability (Peak Power) . . . . . .4000 Watts*
No Load Current Draw . . . . . .≤ 1.0A
Waveform . . . . . .Modified Sine Wave
Operating Input Voltage Range . . . . . .11-15±0.5 Volts DC
AC Receptacle . . . . . .Three North American 3 Prong
USB . . . . . .5 Volt 500mA Max
Approximate Dimensions . . . . . .12" L x 8.9" W x 3.54" H
Approximate Weight . . . . . .7.3 lbs

SPECIFICATION

Pro-2500W WATT INVERTER SPECIFICATIONS

Maximum Continuous Power . . . . . .2500 Watts
Maximum Surge Capability (Peak Power) . . . . . .5000 Watts*
No Load Current Draw . . . . . .≤ 1.2A
Waveform . . . . . .Modified Sine Wave
Operating Input Voltage Range . . . . . .11-15±0.5 Volts DC
AC Receptacle . . . . . .Three North American 3 Prong
USB . . . . . .5 Volt 500mA Max
Approximate Dimensions . . . . . .12" L x 8.9" W x 3.54" H
Approximate Weight . . . . . .8.7 lb

Pro-3000W WATT INVERTER SPECIFICATIONS

Maximum Continuous Power . . . . . .3000 Watts
Maximum Surge Capability (Peak Power) . . . . . .6000 Watts*
No Load Current Draw . . . . . .≤ 1.3A
Waveform . . . . . .Modified Sine Wave
Operating Input Voltage Range . . . . . .11-15±0.5 Volts DC
AC Receptacle . . . . . .Three North American 3 Prong
USB . . . . . .5 Volt 500mA Max
Approximate Dimensions . . . . . .15.5" L x 8.9" W x 3.54" H
Approximate Weight . . . . . .12.5 lb

**Under certain conditions your inverter may provide up to 2 times the continuous rating for a brief period.*