XANTREX
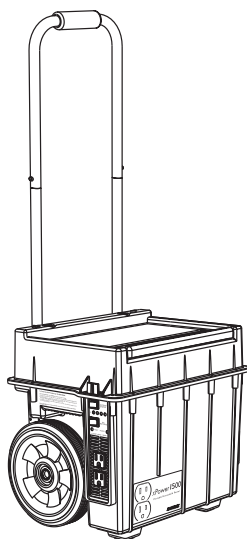
*Smart Choice For **Power***

Owner's Guide

xPower1500™
Portable Household Power

About Xantrex

Xantrex Technology Inc. is a world-leading supplier of advanced power electronics with a product line that ranges from 50-watt mobile units to 1 MW utility-scale systems for wind, solar, batteries, fuel cells, microturbines and backup power applications in both grid-connected and stand-alone systems. Xantrex products include inverters, battery chargers, programmable power supplies, and variable speed drives that convert, supply, control, clean and distribute electrical power.

Trademarks

Notice of Copyright

Disclaimer

Date and Revision

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Contact Information

Tel:	604.422.8595
	1.800.670.0707
Fax:	604.420.1591
	1.800.994.7828
Email:	support.xpower@xantrex.com
Web:	www.xantrex.com

Contents

Safety First …

Misuse of xPower1500 may result in danger to the user. We urge you to pay special attention to all **CAUTION** and **WARNING** statements. **CAUTION** statements identify conditions or practices that may result in damage to xPower1500 or to other equipment. **WARNING** statements identify conditions that may result in personal injury or loss of life.

WARNING! Not for use with medical or life-support equipment.

- xPower1500 will run a wide variety of consumer electronics, power tools and household appliances. This product is not designed for use with medical or life-support equipment.

WARNING! Shock hazard. Keep away from children.

- xPower1500 generates the same potentially lethal AC power as a normal household wall outlet. Treat it with the same respect that you would any AC outlet.

- Do not insert any foreign objects into xPower1500's AC outlets, its DC Power Socket, or the ventilation holes. Do not remove the covers on the High Power DC Terminals, unless connecting cables. Do not expose xPower1500 to water.

- Do not, under any circumstances, connect xPower1500's AC receptacle to power utility AC distribution wiring.

- Failure to follow the above safety instructions may result in personal injury and/or damage to xPower1500.

WARNING! Explosion hazard.

- Do not use xPower1500 where there are flammable fumes or gases, such as in the bilge of a gasoline powered boat, or near propane tanks. Do not use xPower1500 in an enclosure containing automotive-type lead acid batteries. These batteries, unlike the sealed battery pack in the xPower1500, vent explosive hydrogen gas, which can be ignited by sparks from electrical connections.

- When working on electrical equipment always ensure someone is nearby to help you in an emergency.

WARNING! Heated surface.

- xPower1500's internal inverter components may become uncomfortably warm, reaching 140°F (60°C) under extended high power operation. Ensure at least 15 cm (6 in) of air space is maintained on all sides and on top of xPower1500. During operation, keep away from materials that may be affected by high temperatures such as blankets, pillows and sleeping bags.

CAUTION:

- Do not connect any AC load whose neutral conductor is connected to ground, to xPower1500.

- Do not expose xPower1500 to temperatures in excess of 104°F (40°C).

1   Introduction

Thank you for purchasing xPower1500™, the 1500-watt electronic generator that's portable and rechargeable. Designed for both indoor and outdoor use, xPower1500 can run a wide range of electrical products – from power tools to entertainment equipment, and even refrigerators. xPower1500's rugged, cart-like design gives you go-anywhere AC power and its "plug-in-and-forget" charging system keeps it fully charged and ready for use any time the power goes out. With an optional set of jump-start cables, xPower1500 can even start a vehicle or boat.

Read this guide before using xPower1500 and save it for future reference.

Be sure to charge xPower1500 immediately after purchase (see Section 7). xPower1500's "plug-in-and-forget" charging system can be left permanently plugged into a wall outlet to keep its battery pack fully charged and ready for use.

To ensure you enjoy all the features of xPower1500, the following topics are covered in this manual:

- How to use xPower1500 as a source of 115-volt AC power to run household or workplace products.
- How to use xPower1500 as a source of 12-volt DC power to run typical auto or marine accessories.
- How to use xPower1500 to jump-start a vehicle.
- How to recharge xPower1500's internal battery pack.
- How to connect an external battery to xPower1500.

2   Quick Start Guide

Overview

A brief overview of xPower1500's features is provided below. For complete information, be sure to read this manual fully. Figure 1 below shows xPower1500's key features and accessories.
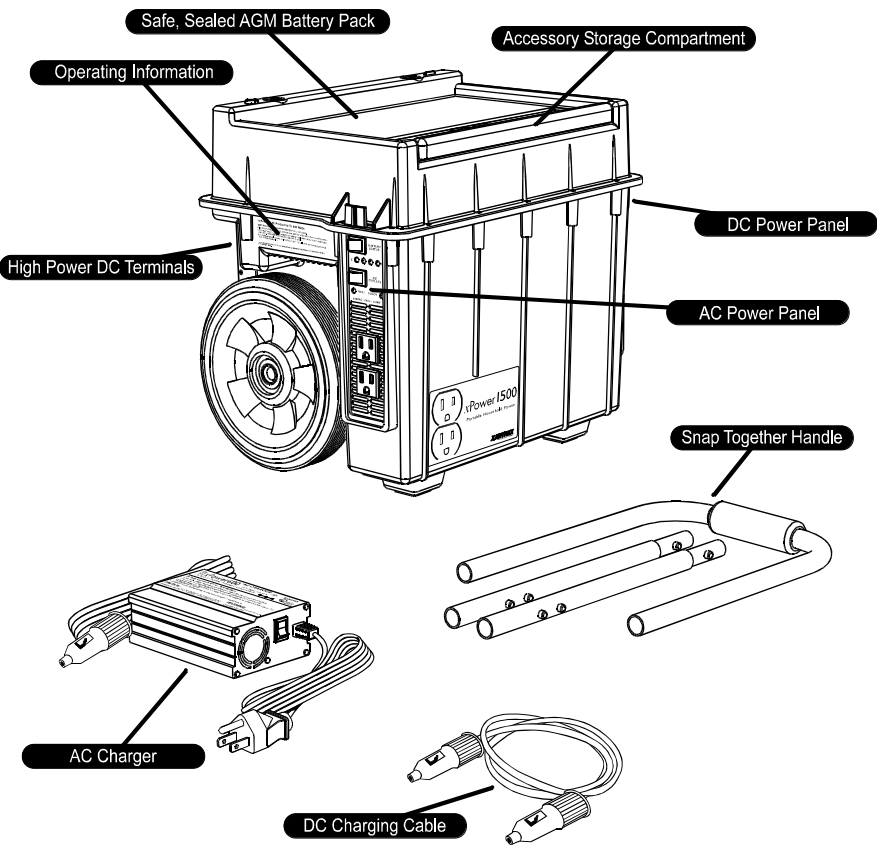
Figure 1 - Key Features and Accessories

Assembling xPower1500's Handle

Figure 2 shows how to assemble the handle and attach it to xPower1500.

Top section
(1 piece)

Side sections
(identical)

1

Press

Slide into
top
section

2

Press

Push
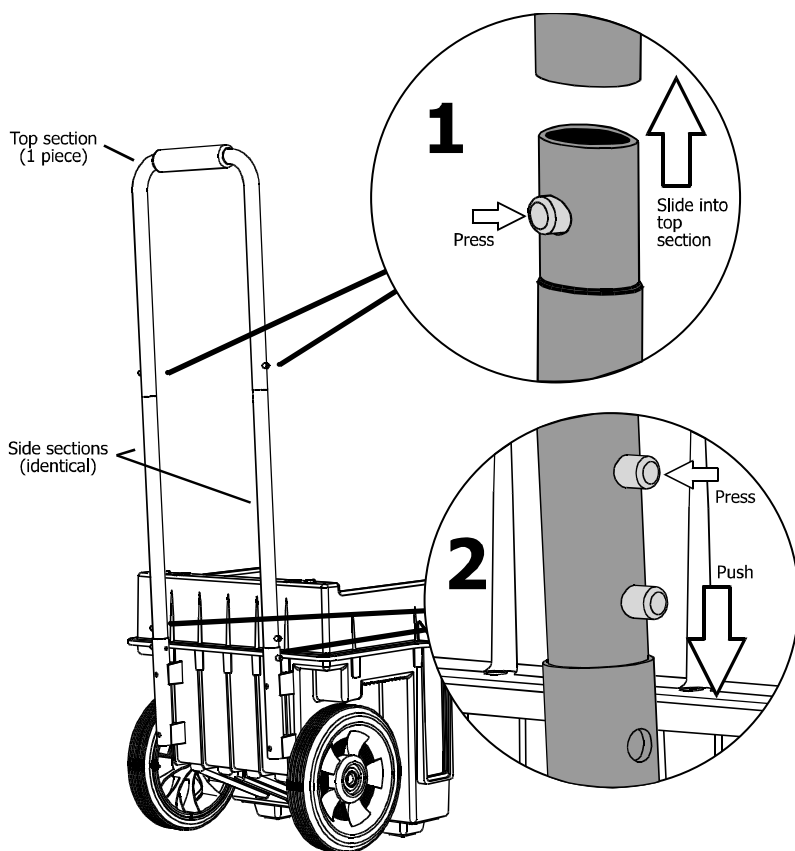
Figure 2 - Handle Assembly

An Explanation of Power Ratings and Battery Life

AC powered products are rated by how much electrical power (in watts) they consume. xPower1500 is capable of generating a maximum of 1350 watts (maximum continuous) to power AC products plugged into the AC outlets. As an example, a lamp with a 40-watt light bulb can be operated from xPower1500 for up to 9½ hours when xPower1500's internal battery pack is fully charged.

12-volt DC auto and marine accessories are generally rated according to how much electrical current (in amperes or "amps") they draw from the battery. For example, a small 12-volt fluorescent light draws less than 0.7 amps. When connected to xPower1500's DC Power Socket, this light could be expected to operate for about 75 hours before xPower1500's battery pack needs recharging. xPower1500 is designed to supply up to 12 amps from its DC Power Socket.

Remember: The fewer watts an AC product uses, or the fewer amps a DC accessory draws, the longer xPower1500 will operate before recharging is required.

Operating 115-Volt AC Products

1. Ensure xPower1500's battery pack is fully charged. See Section 7 for details.

2. Turn the AC Outlets switch ON. The green POWER light indicates AC power is available at the AC outlets.

3. Plug the AC product(s) you wish to operate into the AC outlet(s) and switch the product(s) ON, one at a time. xPower1500 will operate most devices rated up to 1350 watts.

4. In the event of an overload, low battery voltage or overheating, the AC outlets will automatically shut down and the red FAULT light will illuminate. See Section 4 - **Automatic Protection: Overload, Overheating and Low Battery** for details.

5. Fully recharge xPower1500's battery pack as soon as possible after each use.

Operating 12-Volt DC Accessories

1. Ensure xPower1500's battery pack is fully charged. See Section 7 for details.

2. Plug the accessory into xPower1500's DC Power Socket, and switch the accessory on (if required). xPower1500 will operate any 12-volt DC auto or marine accessory that draws 12 amps or less.

3. Because the DC Power Socket is internally wired directly to xPower1500's internal battery pack, extended operation of a 12-volt accessory may result in excessive battery discharge.

IMPORTANT: Care must be taken to ensure the battery pack does not become totally discharged. See Section 5 for details.

NOTE: The internal cooling fan is thermally activated whenever the AC Outlet's switch is ON. The cooling fan helps maintain xPower1500's output power when products with high power requirements are run.

Recharging xPower1500

1. The battery's charge level may be seen by pressing the Battery Status switch on the AC Power Panel.

2. To recharge, plug the AC Charger into a standard 115-volt AC outlet and the DC plug into the DC Power Socket (located on the DC Power Panel). The Recharge Indicator on the AC Charger will change from amber to green when charging is complete (up to 15 hours). It is safe (and recommended) to leave the AC Charger connected indefinitely.

IMPORTANT: Review the safety information in the AC Charger Owner's Guide (also enclosed) before recharging xPower1500.

3. Charging may also be done from an automobile lighter socket. See Section 7 for details.

Using xPower1500 to Jump-Start Your Vehicle

Due to potential dangers, see Section 6 for a detailed explanation.

3 Indicators, Controls and Connection Points

AC Power Panel

As shown in Figure 3 below, the AC Power Panel contains the Battery Status Switch, Battery Level Indicator, AC Outlets Switch, AC Power Light, Fault Light, and dual AC Outlets.
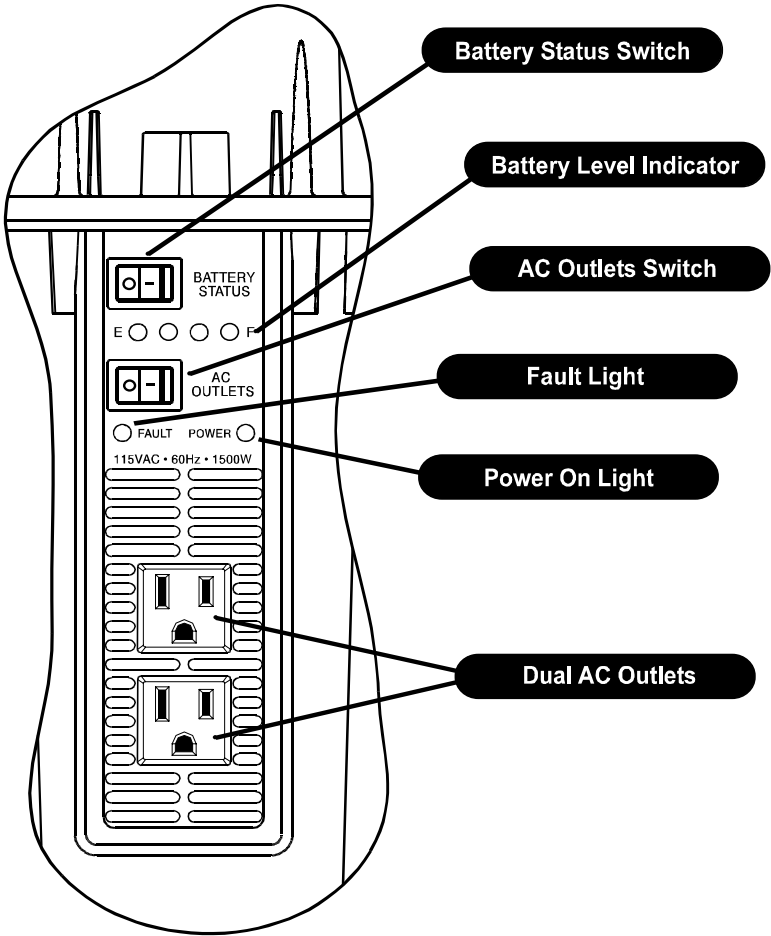
Figure 3 - AC Power Panel

Battery Status Switch / Battery Level Indicator

The Battery Level Indicator shows the state of charge of xPower1500's battery pack. Its function is similar to the fuel gauge in a car. When pressing and holding the Battery Status Switch, one or more of the four lights in the display will illuminate, showing the approximate amount of charge remaining in the battery pack. The following diagram shows the function of each light:
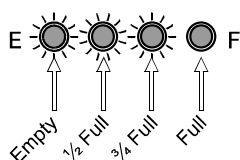
Figure 4 - Battery Level Indicator

When the battery pack is fully charged, all four lights will illuminate. When discharged (empty), only the red light will illuminate and the battery pack must be recharged promptly. Figure 4 shows the battery pack to be approximately ¾ full.

Battery charge level is indicated most accurately when the battery pack has been unused for 15 minutes. Pressing the Battery Status Switch while supplying power to an AC product may result in a false battery charge level reading.

AC Outlets Switch / POWER Light / AC Outlets

Turning this switch ON supplies power to both AC Outlets. An audio tone sounds briefly when the AC Outlets are turned on. The POWER light illuminates to confirm the AC Outlets are on. Turning this switch OFF cuts power to the AC Outlets. When the POWER Light is off, the AC Outlets are off.

IMPORTANT: The vents around the AC Outlets should never be covered or blocked when xPower1500 is used. These vents are essential for maintaining optimal performance.

FAULT Light

The FAULT Light illuminates when automatic shutdown occurs as a result of low battery voltage, overload, or over temperature conditions. See Section 4 - **Automatic Protection: Overload, Overheating and Low Battery** for details.

DC Power Panel

As shown in Figure 5 below, the DC Power Panel contains the DC Power Socket, which provides 12 volts for operating automotive and marine type products. The DC Power Socket also serves as the input for recharging with either the AC Charger or DC Charging Cable. See Section 7 for details.

DC POWER SOCKET
12 Volts • 12 Amps Maximum
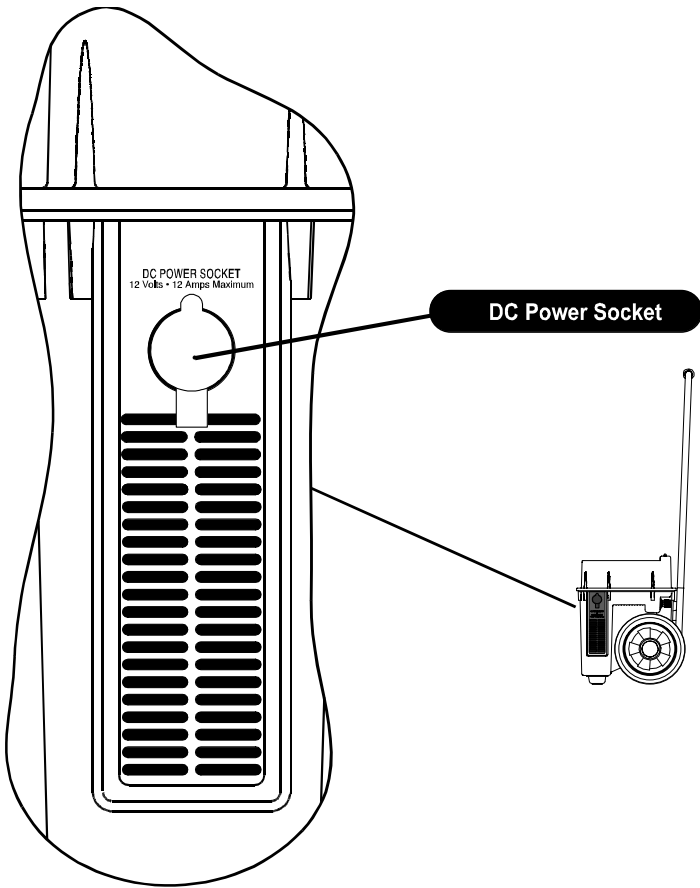
DC Power Socket

Figure 5 - DC Power Panel

IMPORTANT: The vents below the DC Power Socket should never be covered or blocked when xPower1500 is used. These vents are essential for maintaining optimal performance.

High Power 12-Volt DC Terminals

Referenced in Figure 6 below, the High Power DC Terminals are wired directly to xPower1500's battery pack and supply power for jump-starting a vehicle. See Section 6 for details. These terminals also can be used to connect an external battery, which can increase xPower1500's total battery capacity and extend operating times. See Section 8 for details.

NEGATIVE (Black Cap)   POSITIVE (Red Cap)
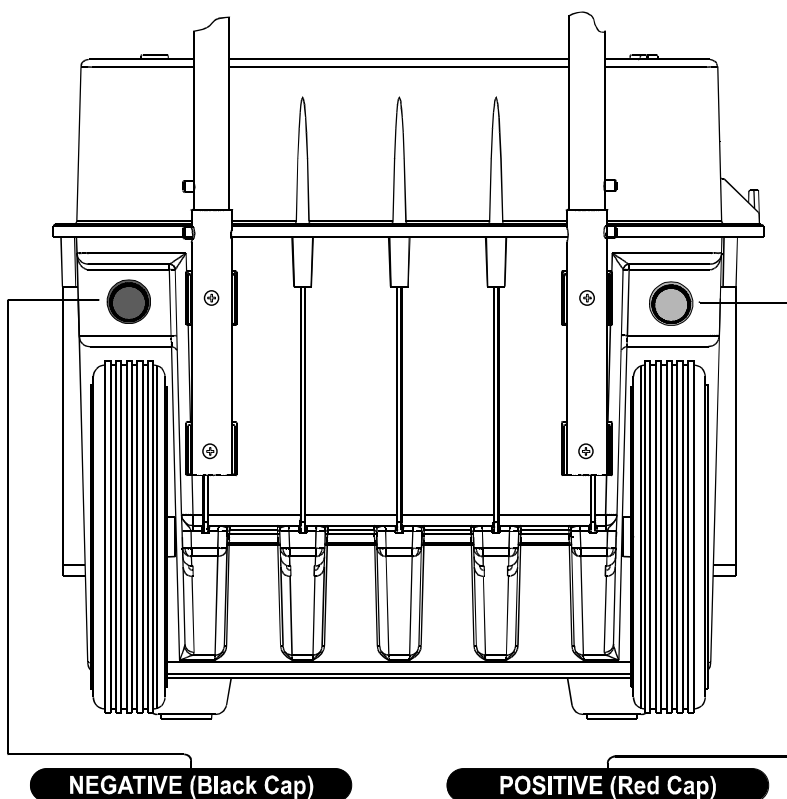
Figure 6 - High Power 12-Volt DC Terminals

4   Powering 115-Volt AC Products

xPower1500 is capable of powering most 115-volt AC products and equipment that use 1350 watts or less. Its AC output waveform, called a "quasi-sine wave" or "modified sine wave", is designed to function similarly to the sine wave shape of utility power.

> ⚠ **CAUTION:** Do not use xPower1500 with the following equipment:
>
> - Small battery operated products such as rechargeable flashlights, some rechargeable shavers, and night-lights that are plugged directly into an AC receptacle to recharge.
> - Certain battery chargers for battery packs used in hand power tools. These chargers sometimes have a warning label stating that dangerous voltages are present at the charger's battery terminals. Check with the manufacturer of the power tool to verify whether the battery charger supplied with the tool should be used with xPower1500.

The power, or "wattage", rating of AC products is the power they use. During the first moments after they are switched on, many products such as power tools or pumps, consume much more power than their average rating. Although xPower1500 can supply momentary surge power greater than 1350 watts, some products may exceed its capabilities and trigger the inverter's safety overload shutdown circuit. See **Automatic Protection: Overload, Overheating and Low Battery** in this section for the reset procedure. If this problem occurs when attempting to operate several products at the same time, try first switching on the AC Outlets with all products switched off, then one by one switch each on, starting with the high surge product first.

Connecting Your AC Products

The following steps assume you have fully charged xPower1500's battery pack. See Section 7.

1. Turn on the AC Outlets Switch located on the AC Power Panel. The green POWER light illuminates to confirm AC power is now on and available at the two AC Outlets. See Figure 3 in Section 3.

2. Plug the AC product you wish to operate into one of the two AC outlets and switch the product on. The product should operate normally, just as it would if plugged into a wall outlet at home.

3. While operating the AC product you can check the level of the battery as detailed in Section 3. This will tell you the approximate charge level of the battery and whether you are approaching the point when recharging is required.

4. As the battery pack becomes nearly discharged, or "empty", a low voltage warning will sound. This will give you time to shut down a computer, for example. If this warning is ignored, the inverter will switch off automatically a few minutes later to prevent battery damage. See below - **Automatic Protection: Overload, Overheating and Low Battery** for details.

5. Fully recharge xPower1500's battery pack as soon as possible after each use. See Section 7.

Automatic Protection: Overload, Overheating and Low Battery

xPower1500 has built-in protection against output overload and from overheating. If an AC product rated higher than 1350 watts (or which draws excessive surge power at start up) is connected, or if the inverter exceeds a safe temperature, it will automatically shutdown. The green POWER light will go off and the red FAULT light will switch on. To reset, unplug the product and turn the AC Outlets Switch off for 5 seconds, then turn it back on. Normal operation should resume. If not, turn the AC Outlets Switch off again and allow xPower1500 to cool for several minutes. While AC power is off, press the Battery Status Switch to make sure the charge level is sufficient.

If the battery pack is allowed to discharge excessively, damage may occur. To prevent this, xPower1500 has a built-in audible warning that alerts you when the battery pack is nearly discharged and that recharging is needed. If this warning is ignored, xPower1500 will automatically switch off the AC Outlets and the red FAULT light will illuminate when the battery pack reaches "empty". The FAULT light will remain on until the AC Outlet's Switch is turned off. Promptly recharge xPower1500 to help maintain the internal battery pack. See Section 7.

Interference with Electronic Equipment

Buzzing Sound in Audio Systems

Some inexpensive stereo systems and "boom-boxes" will emit a buzzing sound from their loudspeakers when operating from the AC output of xPower1500. This is because the power supply in the equipment does not adequately filter the modified sine wave produced by xPower1500. Unless the stereo can be operated directly from xPower1500's 12-volt DC Power Socket, the only solution is a sound system with a higher quality internal power filter.

Television Interference

xPower1500 is shielded to minimize interference with TV signals. In some cases, particularly with weak TV signals, some interference may still be visible in the form of scrolling lines across the screen. In this case, take the following corrective measures:

1. Use an extension cord to position xPower1500 as far away as possible from the television, antenna, and cables.

2. Adjust the orientation of xPower1500, television, antenna, and cables to minimize interference.

3. Maximize TV signal strength by using a better antenna, and ensure a shielded antenna cable is used.

4. Try a different TV. Different models of TV sets vary greatly in their susceptibility to interference.

Battery Operating Times

Below are typical AC products that may be operated by xPower1500 with estimated operating times. See Section 8 for information about connecting to an external battery to increase operating time.

Operating times will vary depending on the battery charge level and the actual AC product being operated.

xPower1500 will not continuously operate AC products rated at more than 1350 watts, such as air conditioners or motors over 12 amps.

Examples - AC Powered Products	Watts (1)	Hours (2)
Radio	8	60
Portable Stereo	20	23
13" TV-VCR	100	4
Refrigerator - 18 cu. ft. (4)	150	4
Fax Machine (3)	120	3
Computer with 15" Monitor	200	2
Hedge Trimmer	230	1.2
Circular Saw (up to 12 amps) (5)	900	0.25
Microwave Oven	1000	0.2

(1) Represents actual power consumption as measured on sample products.
(2) Operating times assume a fully charged battery and may vary based on model/brand used.
(3) Assumes continuous operation (send or receive).
(4) Assumes 40% duty cycle.
(5) Assumes continuous operation (blade engaged, but not cutting).

5 Powering 12-Volt DC Accessories

Connecting 12-Volt DC Accessories

xPower1500 can operate any accessory that is intended to run from a vehicle's lighter socket. Simply insert the accessory's plug into the DC Power Socket on xPower1500's DC Power Panel. xPower1500's DC Power Socket will operate any 12-volt DC auto, marine or other 12-volt accessory that draws 12 amps or less. The following steps assume you have first fully charged xPower1500's internal battery pack according to instructions in Section 7.

1. Plug the accessory into xPower1500's DC Power Socket, and switch the accessory on (if required).

2. The 12-volt accessory will operate until the battery pack runs out of power. Refer to step 4 (below) to avoid battery damage due to excessive discharge.

3. If an accessory that draws more than 12 amps (or which has a short circuit defect) is connected, xPower1500's internal circuit breaker will immediately switch off power to the accessory. If this occurs, unplug the accessory and the breaker will automatically reset after a few seconds.

4. Fully recharge xPower1500's battery pack as soon as possible after each use.

IMPORTANT: The DC Power Socket does not automatically switch off the load when the internal battery pack is discharged. To protect the battery pack against damage resulting from total discharge, turn the AC Outlets Switch ON, even when powering 12-volt accessories only. This will enable the xPower1500's low battery alarm to warn you when the 12-volt accessory has nearly depleted the battery pack. The battery power used by xPower1500 to monitor the internal battery voltage level is negligible.

Battery Operating Times

Below are typical DC accessories that may be operated by xPower1500 with estimated operating times.

Operating times will vary depending on the battery charge level and the specific accessory being operated.

Examples - DC Powered Products	Watts (1)	Hours (2)
Cellular Telephone (3)	6	100
Fluorescent Light	8	75
Portable Cooler	30	14
Tire Inflator	100	3

(1) Represents actual power consumption as measured on sample products.
(2) Operating times assume fully charged battery pack and may vary based on model/ brand used.
(3) Represents talk time available from 34 recharge cycles.

6 Vehicle or Boat Engine Starting Assistance

Jump-Starting Directly to the Battery

xPower1500 may be used to jump-start a 12-volt vehicle or small boat engine using standard jump-start cables available from most auto parts stores.

Jump-starting causes very high current surges and possible sparking. Unless care is taken, the possibility of battery explosion exists. Read the safety warnings in the beginning of this Owner's Guide before proceeding, then follow these instructions exactly. Before proceeding, remove the Terminal Covers (rotate counter clockwise) and place them in xPower1500's Accessory Storage Compartment.

⚠ **WARNING:** Connect only in the following order and make sure the polarity is correct. The battery's positive terminal is identified as being larger in diameter than the negative terminal. In most vehicles it has a red wire connected to it. Do not proceed until you are sure you have identified the positive terminal.

1. Turn off the vehicle or boat ignition, and all accessories.

2. Engage the vehicle's park or emergency brake and place the transmission in park (automatic) or neutral (manual).

3. Purge the area where connections will be made of all fumes before making any connections.

4. Position xPower1500 so that it is a convenient distance from the battery that supplies power to the engine you wish to start, but will not cause the jump-start cables to come in contact with any moving parts of the engine. If helpful, remove xPower1500's handle to improve placement.

5. Connect the cable's red positive (+) clamp to the positive (+) terminal of the engine's battery.

6. Making sure the cables are clear of the engine's belts and fans, take the other end of the jump-start cables and connect the red positive (+) clamp to xPower1500's positive High Power DC Terminal (red).

7. As far from the battery as possible, connect the cable's black negative (-) clamp to the engine block, cylinder head, or other stationary heavy metal part of the engine. Do not attach the black negative clamp to the engine's battery terminal.

8. Take the other end of the jump-start cables and connect the black negative (-) clamp to xPower1500's negative High Power DC Terminal (black). You are now ready to start the engine.

9. If the vehicle fails to crank, disconnect the jump-start cables in reverse order of steps 5-8. Ensure that the contact areas are clean, then repeat steps 5 through 8.

10. After the vehicle is started and while the cables are still connected, it is a good idea to run the motor at fast idle for 5 minutes to fast-charge xPower1500's battery pack. After recharging, remove the jump-start cables in the reverse order of steps 5-8.

Jump-Starting via a Vehicle's Lighter Plug Socket

The following simple procedure is often sufficient to start a vehicle when its battery has sufficient power to "crank the engine" slightly, but not start it.

1. Connect your vehicle's cigarette lighter socket to xPower1500's DC Power Socket using the DC Charging Cable. You may need to switch the ignition key to the "accessory" position to supply power to the lighter socket. Be sure to also turn off all accessories that may be running from the vehicle's battery.

2. Wait 15 minutes while xPower1500 partially charges your vehicle's battery, then remove the DC Charging Cable before attempting to start the engine.

3. If your vehicle does not start, attempt to jump-start as described in the previous section - **Jump-Starting Directly to the Battery**.

⚠ **CAUTION:** Do not attempt to start your vehicle while the DC Charging Cable is connected to the vehicle's 12-volt outlet or lighter socket. Remove the DC Charging Cable first, then start your vehicle. This will prevent the fuse protecting the vehicle's 12-volt outlet from blowing.

7 Recharging xPower1500

Charging Options

These charging options are possible with xPower1500:

- Charging with the fully automatic "plug-in-and-forget" AC Charger.

- Charging from your vehicle as you drive with the DC Charging Cable.

- Charging from a generator equipped with a 12-volt battery charging outlet.

- Charging from a solar panel.

Battery Self-Discharge and Shelf Life

All rechargeable batteries gradually discharge when left standing. Periodic charging is necessary to maintain maximum battery capacity. The AC Charger supplied with xPower1500 is designed to regulate the charging process, ensuring the battery pack is always fully charged, but never overcharged. To ensure safe recharging and maximum battery life, charge only with Xantrex supplied or approved products.

CAUTION: Due to inherent self-discharge, lead acid batteries must be charged at least every 3 months, especially in a warm environment. Leaving a battery in a discharged state, or not recharging every 3 months, risks permanent damage.

CAUTION: Do not attempt to recharge xPower1500's battery if it is frozen. A frozen battery should be gradually warmed to 32°F (0°C) before charging.

Recharging with the AC Charger

CAUTION: Do not use xPower1500 to operate any AC products or DC accessories while charging with the AC Charger. Do not use xPower1500's AC Charger to recharge nickel-cadmium or dry-cell batteries commonly used with home appliances and electronic equipment. These batteries may burst and cause personal injury or damage property. See the AC Charger Owner's Guide enclosed for additional safety related information.

xPower1500's 5-amp AC Charger offers the convenience of "plug-in-and-forget" recharging. To use the AC Charger, follow these steps:

1. Disconnect any 12-volt DC accessories and turn the AC Outlets Switch off.

2. Plug the other end of the AC Charger into a standard 115-volt AC receptacle.

3. Insert the DC plug end into the DC Power Socket.

4. Switch the AC Charger ON. Switch is located on the AC Charger's end panel.

5. As xPower1500 charges, the Recharge Indicator on the AC Charger will illuminate amber. A full recharge will take up to 15 hours.

6. When fully charged, the Recharge Indicator on the AC Charger changes to green and xPower1500 is ready to use.

7. Once xPower1500 is fully charged, charging voltage and current automatically reduce to a low maintenance level and xPower1500 may be left permanently connected to its AC Charger. Should your utility power be interrupted, the charging process will automatically restart when power returns.

8. If the Recharge Indicator on the AC Charger illuminates red, disconnect the AC Charger from the AC outlet and from xPower1500 immediately. Red illumination indicates a short circuit condition in the output cable / DC plug (the section from the AC Charger to xPower1500) or a possible defect in the DC Power Socket. Should this occur, contact Xantrex Customer Service for assistance. See Section 12 for details.

9. After the AC Charger is turned off or disconnected from an AC outlet, the Recharge Indicator may continue to illuminate for a brief period. This is normal and occurs because of the residual electrical energy that is stored in the AC Charger's circuitry.

NOTE: Battery Level Indicator readings will not be accurate until the batteries have "rested" for 15 minutes after charging.

Recharging From Your Vehicle

Using the DC Charging Cable, xPower1500 can be recharged as you drive. Simply plug either end of the DC Charging Cable into xPower1500's DC Power Socket, and the other end into the vehicle's cigarette lighter socket or 12-volt accessory outlet. With the motor running, the battery pack will be fully charged in 6 to 8 hours.

When using the DC Charging Cable there is no automatic charge regulation; however, most vehicle voltage regulators will ensure xPower1500 is not overcharged. This charging method must not be used with vehicles having abnormally high voltage systems that operate above 15 volts DC.

Disconnect the DC Charging Cable at both ends once xPower1500 is fully charged or when your vehicle's motor is not running. Do not leave xPower1500 permanently connected to the vehicle's lighter socket or 12-volt accessory outlet.

CAUTION: While xPower1500 is being recharged with the DC Charging Cable from your vehicle, do not operate AC products over 120 watts from its AC outlets.

Recharging with a Generator's 12-Volt DC Power Outlet

Recharging xPower1500 from a generator using the AC Charger is possible, but could require extended generator running time before xPower1500 is fully charged. Since many generators have an auxiliary regulated 12-volt DC output designed for charging 12-volt batteries, using this power source will result in a shorter recharge time. If the generator has a cigarette lighter style socket for its 12-volt output, follow the connection instructions above - **Recharging From Your Vehicle**.

Most of xPower1500's capacity will be restored in about 6 to 8 hours when using a generator's regulated 12-volt DC output. Level of charge can be verified by checking the Battery Level Indicator 15 minutes after disconnecting the charging source.

CAUTION: The generator output must be intended for battery charging. An unregulated output or one that exceeds 15 volts DC can damage the battery pack.

Recharging with a Solar Panel

A 12-volt solar panel rated to produce a maximum of 12 amps can be used to charge xPower1500 via the DC Power Socket. Once the solar panel's DC plug is inserted into the DC Power Socket and the solar panel is placed in the sun, xPower1500 will charge automatically just as with the AC Charger. With direct sunlight, a typical 3 Amp solar panel will charge xPower1500 in about 24 hours. If the solar panel does not have a regulated output, disconnect it immediately after xPower1500 is charged.

CAUTION: A solar panel with an unregulated output left connected after charging is complete, or one with an output that exceeds 15 volts DC, can damage the battery pack.

8 Connecting to an External Battery

Extended Operating Time

Much longer battery operating time is possible when connecting xPower1500 to an additional external battery. For example, an external 21 amp-hour battery will increase xPower1500's operating time by about 33%. Since xPower1500 uses three 21 amp-hour batteries, we recommend connecting one or more 21 amp-hour batteries externally when you want to increase operating time.

⚠ **WARNING:** Explosion hazard. Use a sealed, non-spillable battery for indoor use. Common auto and marine batteries are not suitable for indoor use unless their fumes are vented outdoors.

⚠ **WARNING:** Battery acid is corrosive. Wear eye protection and protective clothing when working with batteries.

Preparing the Cables

To connect an external battery to xPower 1500 you will need two pieces of #2 AWG cable with appropriate connectors fastened to each end. Keep the length of each cable as short as possible, and when using #2 AWG cable, the length of each piece should not exceed 5 feet. One cable will be used to connect the positive (+) terminal of the external battery to xPower 1500's positive High Power DC Terminal (red cover), and the other cable will be used to connect the negative (-) terminal of the external battery to xPower 1500's negative High Power DC Terminal (black cover).

Remove ½" of insulation from the end of each cable. On one end of each cable attach a 5/16" ring terminal. On the opposite end of each cable attach a permanent type connector that is designed for connecting to the terminals of your external battery. Make sure all terminals are securely connected to the cable ends and check them any time the cables are used to connect the external battery to xPower 1500.

The cable and connectors specified above are typically available at RV, marine, or auto parts stores. When possible, we recommend purchasing one length of cable with red insulation and the other length of cable with black insulation. Use the red cable length to connect the positive terminals and the black length of cable to connect the negative terminals.

⚠ **WARNING:** Do not connect an external battery to xPower 1500 using automotive jump-start cables or any other type of cables that are designed for making a temporary connection. These types of cables will not provide the secure connection required when operating AC products with high power requirements and their use can create a fire hazard.

Connecting the Cables

⚠ **WARNING:** Connect only in the following order and make sure the polarity is correct. The external battery's positive terminal may be identified with a (+) or may be larger in diameter than the negative terminal. The negative terminal may be identified with a (-). Do not connect any cables until you are sure you have identified the positive terminal.

Position the external battery on a stable and level surface close to xPower1500. Then follow these steps to connect the cables from the external battery to xPower 1500:

1. Remove xPower1500's Terminal Covers (rotate counter clockwise) and place them in the unit's Accessory Storage Compartment.

2. If you have one red cable and one black cable, attach the end of the red cable with the battery terminal connector to the positive (+) terminal of the external battery. If both cables are the same color, use red tape or another method to clearly mark which cable is positive and which cable is negative.

3. Use the red Terminal Cover to fasten the 5/16" ring type connector on the other end of the positive cable (red or marked positive) to xPower1500's positive (+) High Power DC Terminal (red). Tighten the terminal cover firmly by hand, but do not over tighten.

4. Attach the end of the second cable (black or marked negative) with the battery terminal connector to the negative (-) terminal of the external battery.

5. Use the black Terminal Cover to fasten the 5/16" ring type connector on the other end of the negative (black or marked negative) cable to xPower1500's negative High Power DC Terminal (black). Again, tighten firmly, but do not over tighten.

6. To disconnect the external battery, simply follow steps 2-5 in reverse order.

IMPORTANT: Unless the external battery is a lead acid, 21 amp-hour, AGM design, it must be disconnected from xPower 1500 prior to recharging xPower1500's internal battery pack. The AC Charger and DC Charging Cable supplied should only be used to charge (a connected) external battery that has the same amp-hour rating and design as xPower 1500's internal battery pack. If your external battery is not the type specified above, disconnect it from xPower1500 and charge it with a separate battery charger.

⚠ **WARNING:** Disconnect the external battery prior to moving xPower1500 to prevent damage to the connecting cables or the external battery, and to avoid possible injury to you or another person.

9 Battery Replacement

The batteries used in xPower1500 are a high quality, state-of-the-art design that will serve as a reliable power source for years when properly maintained.

To maximize battery life it is important to recharge xPower1500's battery pack after each use, recharge fully every three months if placed in storage, and store in a location that maintains a temperature range of 32° to 104°F (0° to 40°C). Also, discharging the battery pack below 10.0 volts will shorten its life.

IMPORTANT: The battery pack is covered under warranty only when it is properly maintained.

Replacing xPower1500's Internal Battery Pack

Before attempting to replace the battery pack, contact Xantrex Customer Service for specific instructions. See contact information in the front of this Owner's Guide. Provide Customer Service with the serial number of your unit (located under the lid of the Accessory Storage Compartment). If you do not know how to safely remove and install higher amperage batteries, have this task preformed by a qualified service technician.

WARNING: To avoid potentially serious injury, follow these precautions when working with batteries:

1. Someone should be within range of your voice or close enough to come to your aid when you work near a lead-acid battery.

2. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.

3. Wear complete eye protection and clothing protection. Avoid touching your eyes while working near batteries.

4. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters your eye. immediately flood it with running cold water for at least twenty minutes and get medical attention.

5. Keep a supply of baking soda on hand in the area of the batteries. Baking soda neutralizes lead-acid battery electrolyte.

6. NEVER smoke or allow a spark or flame in vicinity of the engine or batteries.

7. Be extra cautious to reduce the risk of dropping a metal tool on the battery. It might spark or short-circuit the battery or other electrical parts that may cause an explosion.

8. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. When a short circuit if created, a lead-acid battery can produces a current high enough to weld a ring or the like to metal, causing a severe burn.

Obtaining a Replacement Battery

The internal battery pack in your xPower1500 is either version A or version B as described below:

(A) Three separate 21 amp-hour batteries, each with a positive and negative terminal visible, connected in parallel with cables.

or

(B) A single 63 amp-hour battery pack with only one positive and one negative terminal showing.

There are different options for battery replacement depending on which battery pack version is in your xPower1500.

If your xPower1500 has version A, replace the three existing batteries with three new, sealed, lead acid, AGM type batteries. In addition to the factory installed 21 amp-hour DiaMec DMU12-21 batteries, you may also use other approved batteries as listed below. These batteries are available in most areas from stores that specialize in higher amperage, deep cycle batteries.

Replacement Battery	Amp Hours	Where to Buy
Yuasa (#NP18-12B-HYC)	18	Eastern U.S. 1-800-962-1287 Western U.S. 1-800-423-4667 www.yuasa-exide.com
Panasonic (#LCR-12V17P)	17	Panasonic 1-800-833-9626 Digi-Key 1-800-344-4539 www.pasc.panasonic.com

To maximize run time, select a battery with the highest amp-hour rating. It is acceptable to use batteries with ratings of 17, 18, or 21 amp-hours provided all three batteries have the same amp-hour rating. Do not install replacement batteries unless all are sealed, lead acid, AGM designs with the same amp-hour rating and with the same manufacturer's part number. Using batteries with a 17 or 18 amp-hour rating will not impact xPower1500's output power of 1350 watts continuous, but will result in slightly shorter run times for AC or DC products.

IMPORTANT: If you do not know how to safely remove and install higher amperage batteries, have this task preformed by a qualified service technician. See Section 9 for safety information.

If your xPower1500 has the version B battery pack, contact Xantrex Customer Service to purchase a replacement battery pack or for instructions that will enable you to use other types of approved batteries.

If you are not able to find replacement batteries in your area or wish to purchase a version B battery pack, note the serial number of your xPower1500 (located under the Accessory Storage Compartment lid) and contact Xantrex Customer Service for assistance. See front of this Owner's Guide for contact information.

10 Troubleshooting

Problem: AC product will not operate, red FAULT light is on.

Possible Cause	Suggested Remedy
Product rated more than 1350 watts, safety overload circuit has tripped.	Use an AC product with a power rating less than 1350 watts.
Product is rated less than 1350 watts, high starting surge has tripped overload.	AC product may exceed xPower1500's surge capability. Use an AC product with starting surge power within the unit's surge rating.
Battery pack is discharged (alarm is sounding).	Turn off all AC and DC products and recharge battery pack.
xPower1500 has overheated due to poor ventilation.	Turn AC Outlets Switch OFF and allow unit to cool for 15 minutes. Remove objects covering ventilation areas, then restart.

Problem: Run time is less than expected.

Possible Cause	Suggested Remedy
xPower1500 battery pack is not fully charged.	Recharge using AC Charger until Recharge Indicator is green.
AC product power consumption is higher than expected.	Check AC product power or "wattage" rating (or current draw for DC accessories) and compare with tables in Sections 4 and 5.

Problem: Measured voltage at AC Outlets is too low.

Possible Cause	Suggested Remedy
Use of standard "average" reading AC voltmeter to read output voltage.	"Modified-sine wave" output of xPower1500 requires "true RMS" reading meter, such as Fluke 87 series multimeter, for accurate measurement.
Battery pack is almost "empty".	Check Battery Level Indicator and recharge battery pack as needed.

Problem: Charging light is OFF when AC Charger is connected.

Possible Cause	Suggested Remedy
No AC power at wall outlet.	Ensure power is available at wall outlet.

11 Specifications

12-Volt DC Section

Internal battery type	sealed lead acid, AGM
Internal battery voltage (nominal)	12 Vdc
Internal battery capacity	63 Ah
Maximum load current through 12-volt DC Power Socket (continuous)	12 A
DC Power Socket circuit breaker rating (internal, automatic reset)	12 A

115-Volt AC Section

AC output voltage (nominal)	115 Vac
Maximum continuous AC output power	1350 W
AC output power (10 minutes)	1500 W
Maximum AC surge power	3000 W
AC output frequency	60 Hz ±4 Hz
AC output waveform	modified sine wave
Battery drain with no load/outlets on	0.3 A
Operating/storage temperature	32° - 104°F (0° - 40°C)
Low battery alarm trigger point (nominal)	10.7 V
Low battery shutdown point (nominal)	10.0 V

Charging System

AC charger - bulk charging current (maximum)	5 A
Bulk charge to float charge transition voltage (peak charging voltage)	14.4 V
Float charge to bulk charge transition voltage (charge restart voltage)	13.6 V

Mechanical

Dimensions (L x W x H) without handle	15.6 x 12.3 x 14.5 in (39.5 x 31.3 x 37.0 cm)
Height (with handle)	38 in (96.5 cm)
Weight	60 lbs (27.3 kg)

12 Limited Warranty (USA and Canada only) and Out-of-Warranty Service Information

What Does This Warranty Cover? Xantrex manufactures its products from parts and components that are new or equivalent to new, in accordance with industry standard practices. This warranty covers any defects in workmanship or materials.

How Long Does The Coverage Last? This warranty lasts for 12 months from the date of purchase except for the internal battery pack (see details below). Implied warranties of merchantability and fitness for a particular purpose are limited to twelve months from date of purchase. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

What Does This Warranty Not Cover? This warranty will not apply where the product has been misused, neglected, improperly installed, physically damaged or altered, either internally or externally, or damaged from improper use or use in an unsuitable environment. Xantrex does not warrant uninterrupted operations of its products. Xantrex shall not be liable for damages, whether direct, incidental, special, or consequential, or economic loss even though caused by the negligence or fault of Xantrex. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

What Will Xantrex Do? With the exception of the internal battery pack, Xantrex will, at its option, repair or replace the defective product free of charge. Xantrex will, at its own option, use new and/or reconditioned parts made by various manufacturers in performing warranty repair and building replacement products. If Xantrex repairs or replaces a product, its warranty term is not extended. Xantrex owns all parts removed from repaired products.

What Will Xantrex Do To Remedy A Battery Defect? Xantrex will replace the internal battery pack free of charge, should it be found defective within 6 months of purchase. During the balance of the 12-month warranty period, Xantrex will charge a fee of $80 US to replace the original batteries with new batteries when the product is returned under warranty.

How Do You Get Service? In order to qualify for the warranty, dated proof of purchase must be provided and the product must not be disassembled or modified without prior authorization by Xantrex. If your product requires warranty service, please return it to the place of purchase along with a copy of your dated proof of purchase. If you are unable to contact your merchant, or the merchant is unable to provide service, contact Xantrex directly:

Phone:	(604) 422-8595
	(toll free) 1-800-670-0707
Fax:	(604) 420-2145
	(toll free) 1-800-994-7828
Email:	support.xpower@xantrex.com

You must obtain a Return Material Authorization (RMA) number from Xantrex before returning a product directly to Xantrex. Do not return a product to Xantrex without first obtaining an RMA number. When you contact Xantrex to obtain service, be prepared to supply the serial number of your product and its date of purchase as well as information about the installation or use of the unit.

If you are returning a product from the USA or Canada, follow this procedure:

1. Obtain an RMA number and a shipping address from Xantrex. *Product(s) returned without an RMA number or shipped collect, will be refused.*

2. Package the unit safely, preferably using the original box and packing materials. Include the RMA number, a copy of your dated proof of purchase, a return address where the repaired unit can be shipped, a contact telephone number, and a brief description of the problem.

3. Ship the unit to the address provided in Step 1, freight prepaid. Obtaining proof of delivery is recommended.

How Other Laws Apply: This warranty gives you specific legal rights, and you may also have other rights, which vary from jurisdiction to jurisdiction.

For Our Canadian Customers: When used herein "implied warranties of merchantability and fitness for a particular purpose" includes all warranties and conditions, express or implied, statutory or otherwise, including without limitation implied warranties and conditions of merchantability and fitness for a particular purpose.

Service Out Of Warranty: If the warranty period for your xPower1500 has expired, if the unit was damaged due to misuse, incorrect installation or if other conditions of the warranty have not been met, or if no dated proof of purchase is available, your unit may be serviced/replaced for a minimum flat fee of $235.00 U.S. ($350.00 CDN). To return your xPower1500 for out of warranty service, contact Xantrex customer service for a Return Material Authorization (RMA) number and follow the other steps outlined in the section "How Do You Get Service?" above. The customer service representative will explain options for payment (e.g. credit card or money order). In cases where the minimum flat fee does not apply (e.g. incomplete units or units with excessive damage), an additional fee will be charged. If applicable, you will be contacted by customer service once your unit is received. The minimum flat fee is subject to change without notice.

13 Other Products from Xantrex

Xantrex develops, manufactures and markets power electronic products. Our goal is to offer you top quality products that convert and control electric power. We specialize in DC to AC inverters, battery chargers, backup power supplies and other products associated with mobile or power backup applications.

xPower300 Provides 300 watts of portable household power and can even jump-start vehicles. Accessories include an emergency light, jump-start cables, AC charger, and DC charging cable.

PORTAWATTZ 150 Inverter An ultra compact and versatile inverter, the Portawattz 150 provides 150 watts of AC power for running everything from small TVs and VCRs to laptop computers. It is also ideal for recharging many of the battery-operated devices found on the market today (e.g. camcorders, cellular phones, etc.).

PORTAWATTZ 400 Inverter This model delivers 400 watts of AC power yet is still small enough to store in your vehicle's glove box. It's ideal for running small power tools, full size TV sets, desktop computers and other applications that are beyond the power capacity of the PORTAWATTZ 150.

PORTAWATTZ 700 Inverter Designed for recreational and industrial applications, the PORTAWATTZ 700 produces 700 watts of continuous power from a 12-volt DC source, and can run loads ranging from power drills to small microwave ovens. It is also ideal for operating a computer, inkjet printer, and fax machine simultaneously.

PORTAWATTZ 1000 Inverter A compact 1000-watt inverter designed for installation in trucks, vans, boats and RV's. This inverter can operate tools and equipment and even refrigerators.

PORTAWATTZ 1750 Inverter A compact 1750-watt inverter designed for permanent installation in a boat, vehicle, or remote home. This inverter can operate power tools, kitchen appliances, and a wide range of other electrical and electronic equipment.

PORTAWATTZ 3000 Inverter The perfect inverter for running multiple loads simultaneously, or almost any household appliance.

The PROsine line of True Sine Wave Inverters and Inverter•Chargers High-tech, high-power, high-efficiency, True Sine Wave output inverters and inverter-chargers provide 1000 to 3000 watts at a fraction of the size and weight of older, low frequency technology.

The TRUE*CHARGE* line of smart Battery Chargers Microprocessor controlled for precise charging under all conditions and for maximum battery capacity and life, these full 3-stage battery chargers provide 10 to 40 amps of charging current.

Contact your Xantrex retailer for more information or visit our web site at **http://www.xantrex.com**.

XANTREX
Smart Choice For **Power**