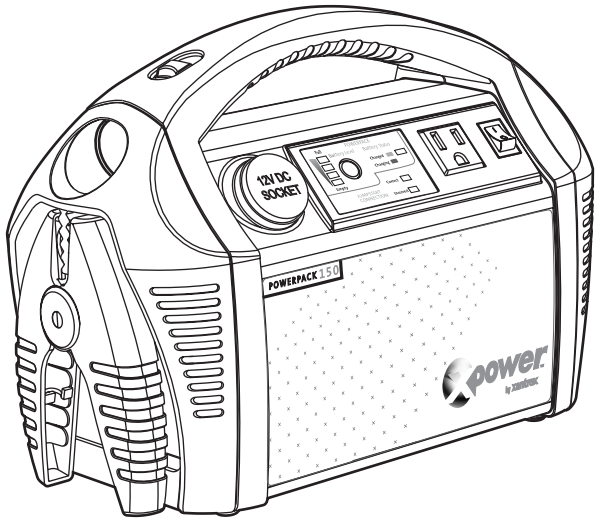
XPower Powerpack 150



Owner's Guide

xantrex

t 1-800-670-0707 (toll free in North America)
1-360-925-5097 (direct)
f 1-800-994-7828 (toll free in North America)
1-360-925-5143 (direct)
e CustomerService@xantrex.com

www.xantrex.com

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XPower Powerpack 150

Owner's Guide

About Xantrex

Xantrex Technology Inc. is a world-leading supplier of advanced power electronics and controls with products from 50 watt mobile units to one 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.

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Contact Information

Telephone:	1 800 670 0707 (toll free North America) 1 360 925 5097 (direct)
Fax:	1 800 994 7828 (toll free North America) 1 360 925 5143 (direct)
Email:	customerservice@xantrex.com
Web:	www.xantrex.com

About This Guide

Purpose

The purpose of this Owner's Guide is to provide explanations and procedures for installing, operating, maintaining, and troubleshooting the XPower Powerpack 150.

Scope

The Guide provides safety guidelines, detailed planning and setup information, procedures for installing the inverter, as well as information about operating and troubleshooting the unit. It does not provide details about particular brands of batteries. You need to consult individual battery manufacturers for this information.

Audience

The Guide is intended for anyone who needs to install and operate the XPower Powerpack 150. Installers should be certified technicians or electricians.

Organization

This Guide is organized into five chapters and an appendix:

Chapter 1, "Introduction", provides an overview of the main features of the XPower Powerpack 150.

Chapter 2, “Features”, provides a detailed description of the features of the XPower Powerpack 150.

Chapter 3, “Operation”, gives instructions for the main operational procedures of the XPower Powerpack 150, including operating AC and DC appliances and jumpstarting an engine.

Chapter 4, “Maintenance”, gives instructions for recharging the XPower Powerpack 150 and changing the built-in light bulb.

Chapter 5, “Troubleshooting”, provides a troubleshooting guide to the XPower Powerpack 150.

Appendix A, “Specifications”, provides the electrical and physical specifications of the XPower Powerpack 150.

“Warranty and Product Information” at the end of this Guide provides detailed warranty information and instructions for getting warranty service.

Conventions Used

The following conventions are used in this guide.

WARNING

Warnings identify conditions that could result in personal injury or loss of life.

CAUTION

Cautions identify conditions or practices that could result in damage to the unit or to other equipment.

Important: These notes describe an important action item or an item that you must pay attention to.

Abbreviations and Acronyms

A	Ampere(s)
AC	Alternating Current
AGM	Absorbed Glass Mat
Ah	Amp-hours
ASC	Authorized Service Center
DC	Direct Current
Hz	Hertz
mA	milli-Ampere
MHI	Metal halide arc
RMA	Returned Material Authorization
RMS	Root Mean Square
UPS	Uninterruptible Power Supply
V	Volt(s)
W	Watt(s)

Related Information

You can find more information about Xantrex Technology Inc. as well as its products and services at **www.xantrex.com**

Important Safety Instructions

The XPower Powerpack 150 generates a type of AC power similar to a normal household wall outlet. Operating the XPower Powerpack 150 incorrectly or misusing it may damage the equipment or create hazardous conditions for the user.

Important: Before using your XPower Powerpack 150, be sure to read and save these safety instructions.

Warnings and Cautions

WARNING: Shock hazard. Keep Away from Children.

The XPower Powerpack 150 generates the same potentially lethal AC power as a normal household wall outlet. Do not insert foreign objects into the AC Power Outlet, the DC Power Outlet, or the ventilation holes. Do not expose this product to water, rain, snow, or spray.
Do not open the XPower Powerpack 150. There are no user-serviceable parts inside the unit.

CAUTION

Do not connect any AC appliance with the neutral conductor connected to ground to the XPower Powerpack 150.

CAUTION

Do not expose the XPower Powerpack 150 to temperatures over 104 °F (40 °C).

WARNING: Explosion hazard

Do not use this product where there are flammable fumes or gases, such as in the bilge of a gasoline- powered boat, or near propane tanks. Do not use this product in an enclosure containing automotive-type lead acid batteries. These batteries, unlike the sealed AGM battery in XPower Powerpack 150, 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

Ensure at least 2" (5 cm) air space is maintained on all sides of the XPower Powerpack 150. During operation, keep away from materials that may be affected by high temperatures such as blankets, pillows and sleeping bags.

WARNING: Fire hazard

Never allow jumpstart cables' red and black clamps to touch each other or another common metal conductor. This could cause damage to the unit and/or create a sparking/explosion hazard. Always turn OFF the Jumpstart Power Switch after use.

WARNING: Fire hazard

Jumpstart cable clamps must be connected positive to positive (red clamp to battery "+") and negative to negative (black clamp to battery "-"). A reverse polarity connection (positive to negative) may cause damage to the unit and/or create a sparking/explosion hazard.

WARNING: Fire hazard

The jumpstart feature is designed for short term operation only—less than 4 seconds. Operating the jumpstart feature for more than 4 seconds may cause damage to the unit. Allow the XPower Powerpack 150 to cool down for at least 3 minutes after each jumpstart.

Precautions When Working With Your Vehicle Battery

WARNING: Risk of Explosion, Fire or Burns

1. Follow all instructions published by the battery manufacturer and the manufacturer of the equipment in which the battery is installed.
2. Make sure the area around the battery is well-ventilated.
3. Never smoke or allow a spark or flame in vicinity of the engine or batteries.
4. Be careful not to drop a metal object on the battery or allow a metal tool to simultaneously touch the positive and negative cable ends or battery terminals. It might spark or short-circuit the battery or other electrical parts and cause an explosion.
5. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery produces a short-circuit current high enough to weld a ring or other similar objects to metal, causing a severe burn.
6. If you need to remove a battery, always remove the positive terminal from the battery first. Make sure all accessories are off so you don’t cause an arc.
7. Someone should be within range of your voice, or close enough to come to your aid when you work near a lead-acid battery.
8. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, and eyes.
9. Wear complete eye protection and clothing protection. Avoid touching your eyes while working near batteries.

10. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters your eyes, immediately flood them with running cold water for at least twenty minutes and get medical attention immediately.
11. Keep a supply of baking soda on hand in the area of the batteries. Baking soda neutralizes lead-acid battery electrolyte.

Precautions for Using Rechargeable Appliances

CAUTION

The output of the XPower Powerpack inverter is non-sinusoidal.

Most rechargeable battery-operated equipment use a separate charger or transformer that is plugged into an AC receptacle and produces a low voltage charging output.

Some chargers for rechargeable batteries can be damaged if connected to the XPower Powerpack 150.

Do not use the following with the XPower Powerpack 150:

- Small battery-operated appliances like flashlights, razors, and night lights that can be plugged directly into an AC receptacle to recharge.
- Some chargers for battery packs used in hand power tools. These affected chargers display a warning label stating that dangerous voltages are present at the battery terminals.

Note: If you are unsure about using your rechargeable appliance with the XPower Powerpack 150, contact the equipment manufacturer to determine the rechargeable appliance's compatibility with the modified sinewave (non-sinusoidal) AC waveform.

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1 Introduction

About the XPower Powerpack 150

Easy-to-use and designed for years of reliable service, the XPower Powerpack 150 can run many AC appliances and 12V DC appliances whenever you need power for work or play, at home or on the road.

XPower Powerpack 150:

- Powers 115V AC appliances
- Powers 12V DC appliances
- Jumpstarts vehicle engines
- Provides lighting for emergency use.

Comprehensive Protection

Automatic Overload

The XPower Powerpack 150 has built-in protection against output overload. If you connect an appliance that draws more than 120W to the AC Power Outlet on the XPower Powerpack 150, or one which draws excessive surge power, the power to the AC Power Outlet automatically shuts off.

Overheating

The XPower Powerpack 150 is protected from overheating. If the inverter exceeds a safe temperature, power to the AC Power Outlet automatically shuts off.

Low Battery Protection

Low battery protection protects the internal battery from excessive discharge and possible damage. When the AC Power On/Off Switch is turned on, an audible alarm alerts you when the internal battery is nearly discharged (11.0V DC) and the unit turns off at 10.5V DC.

2 Features

Chapter 2 describes the main features of the XPower Powerpack 150. We recommend that you familiarize yourself with these features before operating the unit.

Materials List

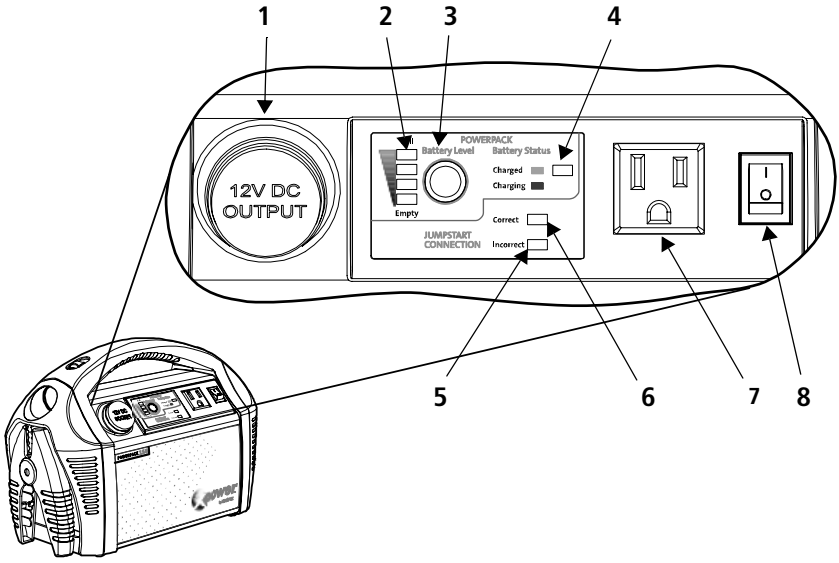
Your XPower Powerpack 150 package includes these items:

- ❒ XPower Powerpack 150
- ❒ Owner's Guide
- ❒ AC Charger
- ❒ DC Charging Cable

If any of these materials are missing or are unsatisfactory in any way, please contact Customer Service, see "Warranty and Product Information" at the back of this Guide.

XPower Powerpack 150 Features

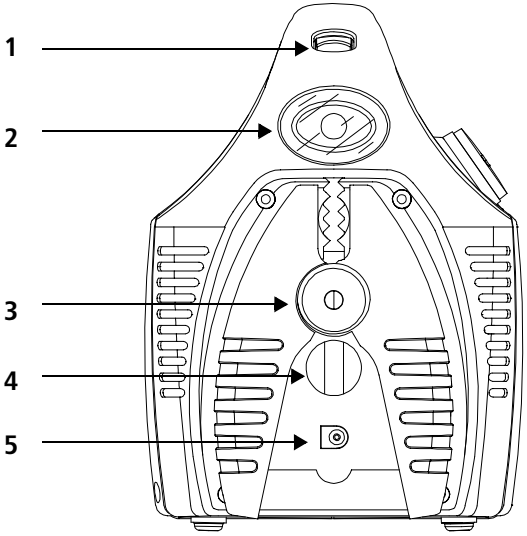
Front Panel Detail



Feature	Description
1	**DC Power Outlet**: • Powers 12V DC auto, RV or marine appliances • Recharges XPower Powerpack 150 from a 12V outlet in a vehicle using the DC Charging Cable.
2	**Battery Level** LEDs illuminate to indicate the XPower Powerpack battery charge level. All LEDs (two green, one yellow and one red) are illuminated when the battery is fully charged (Full), only the red LED is illuminated when the battery is completely discharged (Empty).
3	**Battery Level** button triggers the Battery Level Full/Empty LED indicators. Press to view the battery charge status.

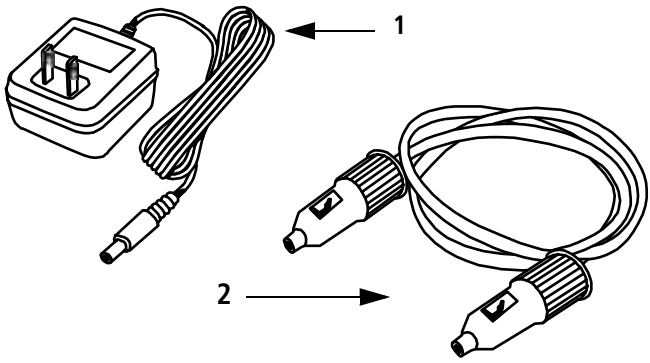
Feature	Description
4	**Battery Status** LED illuminates when the XPower Powerpack 150 is in Charging Mode (i.e., an AC Charger is connected to the XPower Powerpack's AC Charger Input Socket and plugged into the household 120V AC outlet).
5	**Red Jumpstart Connection** LED illuminates and an alarm is sounded when the clamps are improperly connected to the vehicle battery.
6	**Green Jumpstart Connection** LED illuminates when the jumpstart clamps are properly connected to the vehicle battery.
7	**AC Power Outlet** is a standard 3-prong outlet supplying 120V AC power for running an AC appliance.
8	**AC Power On/Off Switch** illuminates when the switch is turned on.
Not shown	**Audible Alarm** (inside the unit) sounds in the event of overheating, low XPower Powerpack battery condition, or if the jumpstart clamps are connected incorrectly to the vehicle battery.

Left Side View



Feature	Description
1	**Light On/Off Switch**
2	**Incandescent Light** illuminates for about 15 hours when the battery is fully charged.
3	**Jumpstart Clamp**
4	**Jumpstart Power Switch**
5	**AC Charger Input Socket**

Accessories



Accessory	Description
1	**AC Charger** lets you recharge the XPower Powerpack 150 from a standard AC wall outlet and can only be used to recharge the internal battery of the XPower Powerpack.
2	**DC Charging Cable** lets you recharge the XPower Powerpack 150 from a 12V system in a car, SUV, RV or a boat.

3 Operation

Chapter 3 explains how to operate the XPower Powerpack 150 efficiently. This chapter covers:

- Recharging the XPower Powerpack 150 for first time use
- Using the built-in light
- Operating AC appliances and 12V DC appliances
- Jumpstarting a vehicle's engine
- Connecting to an external battery for additional run time.

Operating Conditions and Guidelines

CAUTION

Read all operating instructions before operating the XPower Powerpack 150.

CAUTION

Do not use the XPower Powerpack 150 to operate any AC appliances or 12V DC appliances while recharging with the AC Charger.
The AC Charger may fail if AC appliances or 12V DC appliances are operated while the AC Charger is connected.

CAUTION

The XPower Powerpack 150 is not intended for use as a UPS (Uninterruptible Power Supply).

Choosing a Location

WARNING: Fire or explosion

The XPower Powerpack 150 contains components that tend to produce arcs or sparks. To prevent fire or explosion, do not operate the XPower Powerpack 150 in compartments containing batteries or flammable materials, or in locations that require ignition-protected equipment.

The XPower Powerpack 150 should be operated only in a location that meets these requirements:

Dry	Do not allow water or other liquids to drop or splash on the XPower Powerpack 150.
Cool	Ambient air temperature should be between 32 and 104ºF (0 and 40ºC)—the cooler the better within this range.
Ventilated	Leave at least 2" (5 cm) clearance around the XPower Powerpack 150 for air flow. Ensure that the ventilation openings are not obstructed.
Safe	Do not operate the unit in the same compartment as batteries or in any compartment capable of storing flammable liquids like gasoline.
Protected from battery gases	Do not operate the XPower Powerpack where it will be exposed to battery gases. These gases are very corrosive, and prolonged exposure will damage the XPower Powerpack 150.

Using XPower Powerpack 150 for the First Time

Important: Prior to operating your AC appliance or 12V DC appliance, ensure that the battery of the XPower Powerpack 150 is fully charged. If the battery has been fully discharged, recharging with the AC Charger may take up to 24 hours.

Recharging with the AC Charger

Note: The XPower Powerpack Battery Level LEDs are only accurate when the XPower Powerpack 150 has been disconnected from all appliances and all charging sources for fifteen minutes.

Recharging with the AC Charger is a true "plug-in-and-forget" charging method. We recommend leaving the AC Charger connected when the XPower Powerpack 150 is not in use.

To recharge with the AC Charger:

1. Disconnect any 12V DC appliances and turn the light off.
2. Turn the AC Power On/Off Switch to OFF.
3. Plug the AC Charger into a standard AC wall outlet.
4. Insert the AC Charger cable end into the AC Charger Input Socket located under the Jumpstart Power Switch (see figure on page 2–2).

The Battery Status LED changes from red to green when charging is complete (about 24 hours if the battery is completely discharged).

Important: The 24 hour charging time for the XPower Powerpack 150 assumes that there is 120V at the AC wall outlet. If the voltage is less than 120V AC, it may take more than 24 hours to fully recharge the XPower Powerpack 150. If, after 24 hours of charging, the Battery Status LED remains red, continue to charge the unit for another 12 hours. The unit will be ready for use even if the Battery Status LED remains red.

Important: If you keep the XPower Powerpack 150 in storage, the battery will self-discharge over time. Remember to recharge the battery every three months to keep the XPower Powerpack 150 operational.

Note: Once fully charged, the charging current automatically reduces to a maintenance charge mode, and the XPower Powerpack 150 may be left permanently connected to the AC Charger.

Using the Built-In Light

The XPower Powerpack 150 has a built in incandescent light which will operate for about 15 hours before the unit needs to be recharged. The On/Off switch is located above the light.

Operating AC Appliances

Understanding AC Appliances

AC appliances are rated by how much electrical power (in watts) they consume. XPower Powerpack 150 can power most appliances within its continuous power rating (120 W, 1 A).

Some appliances may be difficult or impossible to operate from the XPower Powerpack 150. They may have high surge requirements or should not be run from the XPower Powerpack 150. See “High Surge Appliances” on page 3–5 and “Trouble Appliances” on page 3–6.

Run Time on Typical AC Appliances

Note: The fewer watts an AC appliance uses, the longer the XPower Powerpack 150 will operate before recharging is required.

Typical AC appliances that can be used on the XPower Powerpack 150 are listed in Table 3-1.

Table 3-1 AC Appliances and Run Times

AC Appliance	Watts[a]	Hours[b]
Cordless telephone (stand by)	5	20
Clock radio	8	11
Portable stereo	10	9
Fluorescent work light	14	5
Fireplace fan	20	4
Laptop computer	25	3
Table lamp	40	1 hr. 30 min.
Color TV – 13"	60	1 hr. 15 min.

a. Represents actual power consumption as measured on sample appliances.
b. Operating times assume a fully charged 12 Ah battery and may vary based on model/brand of appliance.

High Surge Appliances

The wattage rating of AC appliances is the average power used by the appliance. Appliances such as televisions and appliances with motors consume much more power than their average rating when they are first switched on.

Although the XPower Powerpack 150 can supply momentary surge power up to 320W, some appliances may exceed the capabilities of the XPower Powerpack and trigger the safety overload shutdown circuit.

Trouble Appliances

CAUTION

The output of the XPower Powerpack 150's inverter is non-sinusoidal.
Some equipment may be damaged by the XPower Powerpack's inverter modified sine wave output (non-sinusoidal).

Some appliances, including the types listed below, may be damaged if they are connected to the inverter:

- Electronics that modulate RF (radio frequency) signals on the AC line will not work and may be damaged.
- Speed controllers found in some fans, power tools, kitchen appliances, and other loads may be damaged.
- Some chargers for small rechargeable batteries can be damaged. See "Precautions for Using Rechargeable Appliances" on page x for details.
- Metal halide arc (MHI) lights can be damaged.

Note: If you are unsure about powering any device with the inverter, contact the manufacturer of the device.

Operating Several Appliances at Once

You can run several AC appliances if the total rating of all the appliances (in watts) does not exceed 120 W. You can run appliances using an AC power bar.

Run time, however, will decrease accordingly with the number of appliances being operated and the AC power being consumed.

Operating an AC Appliance

Before operating your AC appliance, ensure that the battery of the XPower Powerpack 150 is fully charged. See “Recharging with the AC Charger” on page 3–3 for details.

To operate an AC appliance:

1. Turn the AC Power On/Off Switch to the ON position.

   The switch illuminates to indicate AC power is available at the AC Power Outlet.

2. Plug the AC appliance into the AC Power Outlet and turn the appliance on. XPower Powerpack 150 will operate most devices rated up to 120W.

3. Recharge the XPower Powerpack 150 as soon as possible after each use.

   When using the XPower Powerpack 150 to operate an AC appliance and the low battery warning sounds, the warning gives you time to shut your AC appliance off before loss of AC power.

   If you ignore the warning, the XPower Powerpack 150 automatically turns off a few minutes later to prevent battery damage.

   In the event of an overload, low battery voltage or overheating, the XPower Powerpack 150 automatically shuts down.

Operating 12V DC Appliances

The XPower Powerpack 150 can operate 12V DC auto, RV, marine, or other portable appliances that draw 12A or less from a 12V DC power outlet or from a vehicle's lighter socket.

CAUTION: Equipment damage

The DC Power Outlet does not automatically switch off when the internal battery is discharged. To protect the internal battery against damage resulting from total discharge, We recommend that the AC Power On/Off Switch is turned ON when using the XPower Powerpack 150 to operate a 12V DC appliance.
Having the AC Power On/Off Switch turned ON enables the alarm to warn you when the 12V DC appliance has nearly depleted the internal battery.

Note: The fewer watts a 12V DC appliance draws, the longer the XPower Powerpack 150 will operate before recharging is required.

Typical 12V DC appliances that can be used on the XPower Powerpack 150 are listed in Table 3-2.

Table 3-2 12V DC Appliances and Run Times

12V DC Appliance	Watts[a]	Hours[b]
Cellular telephone[c]	6	15
Stereo/CD player	10	9
Portable Cooler	30	2

a. Represents actual power consumption as measured on sample appliances.
b. Operating times assume a fully charged 12 Ah battery and may vary based on model or brand of appliance.
c. Represents talks time available from 5 recharge cycles.

To operate a 12V DC appliance:

1. Open the protective cover on the DC Power Outlet of the XPower Powerpack 150.
2. Plug the 12V DC appliance into the DC Power Outlet on the left side of the unit, and turn the 12V DC appliance on (if required).

   If the 12V DC appliance draws more than 12 A (or has a short-circuit defect), the internal circuit breaker of the XPower Powerpack 150 shuts off the power to the 12V DC appliance. If this occurs, unplug the 12V DC appliance, and the internal circuit breaker automatically resets after a few seconds.
3. Fully recharge the XPower Powerpack 150 as soon as possible after each use.

   As the DC Power Outlet is internally wired directly to the XPower Powerpack's battery, extended operation of a 12V DC appliance may result in excessive battery discharge. See Caution for ": Equipment damage" on page 3–8.

Jumpstarting a Vehicle's Engine

You can use the XPower Powerpack 150 to jumpstart a vehicle or boat engine (all 4 cyl. and most 6 cyl.) that has a 12V starting battery using the supplied jumpstart cables.

WARNING: Fire hazard

Never allow cables' red and black clamps to touch each other or another common metal conductor. This could cause damage to the unit and/or create a sparking/explosion hazard. Always switch off the Jumpstart Power Switch after use.

WARNING: Fire hazard

Jumpstart cable clamps' connection to the vehicle's battery terminals must be positive to positive (red clamp to battery "+") and negative to negative (black clamp to battery "–"). A reverse polarity connection (positive to negative) may cause damage to the unit and/or create a sparking/explosion hazard.

Important: Closely follow these instructions for jumpstarting your vehicle as they may be different from the instructions supplied with other jumpstart products or jumpstart cables.

To jumpstart a vehicle or boat engine:

1. Turn off the vehicle or boat ignition and all accessories.
2. Engage the park or emergency brake and place the transmission in park for an automatic or neutral for a manual.
3. If jumpstarting a boat engine, purge the engine compartment and bilge of all fumes before jumpstarting.
4. Position the XPower Powerpack 150 on a flat, stable surface near the battery and away from all moving parts of the engine.

   Ensure that the Jumpstart Power Switch is OFF.

5. Connect the red positive (+) clip of the cables to the positive (+) terminal of the engine battery.

   The battery's positive terminal is usually larger in diameter than the negative terminal. In most vehicles, the battery's positive terminal has a red wire connected to it.

6. Connect the black negative (–) clip of the cables to the negative (–) battery terminal.

   If the Red Jumpstart Connection LED illuminates and the XPower Powerpack's alarm sounds, then reverse polarity has been detected. Correct polarity must be established before proceeding. Disconnect the Jumpstart Clamps from the vehicle's battery and redo steps 5 and 6 above.

   If no alarm sounds, and the Green Jumpstart Connection LED is illuminated, then proceed to the next step.

7. Switch ON the Jumpstart Power Switch.

   Before starting the engine, make sure the XPower Powerpack 150 and the cables are clear of belts and fans.

8. Crank the engine for 4 seconds or until it starts, whichever is first.

WARNING: Fire hazard

Do not crank the engine for more than 4 seconds. The jumpstart feature is designed for short term operation only. Operating the jumpstart feature for more than 4 seconds may cause damage to the unit. Allow the XPower Powerpack 150 to cool down for at least 3 minutes after each jumpstart.

9. Switch OFF the Jumpstart Power Switch.
10. Remove the black negative (–) clip and then the red positive (+) clip from the vehicle's battery terminal.
11. Store in the appropriate holder on each side of the XPower Powerpack 150.

Important: Recharge the XPower Powerpack 150 as soon as possible after each use. See “Recharging the XPower Powerpack 150 Battery” on page 4–2.

Connecting to an External Battery

You can extend battery operating times by connecting the XPower Powerpack 150 to a larger external battery.

For example, an external 60 Ah battery gives approximately five times the operating time of the XPower Powerpack 150 internal 12 Ah battery.

WARNING: Fire hazard

Never allow jumpstart cables’ red and black clamps to touch each other or another common metal conductor. This could cause damage to the unit and/or create a sparking/explosion hazard.

WARNING: Fire hazard

Jumpstart cable clamps must be connected positive to positive (red clamp to battery “+”) and negative to negative (black clamp to battery “–”). A reverse polarity connection (positive to negative) may cause damage to the unit and/or create a sparking/explosion hazard.

WARNING: Acid spills

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. Common auto and marine batteries contain acid, which is hazardous if spilled. Wear eye protection and protective clothing when connecting the XPower Powerpack 150 to an external battery.

To connect the XPower Powerpack 150 to an external battery using the jumpstart cables:

1. Ensure that the Jumpstart Power Switch is OFF.
2. Connect the red positive (+) clip of the cables to the red positive (+) terminal of the external battery.
3. Connect the black negative (–) clip of the cables to the black negative (–) terminal of the external battery.

   If the Red Jumpstart Connection LED illuminates and the XPower Powerpack's alarm sounds, then reverse polarity has been detected. Correct polarity must be established before proceeding. Disconnect the Jumpstart Clamps from the battery and redo steps 2 and 3 above.

   If no alarm sounds and the Green Jumpstart Connection LED is illuminated, then proceed to the last step.
4. Switch the Jumpstart Power Switch to ON.

To disconnect the cables from an external battery and from the XPower Powerpack 150:

1. To disconnect the XPower Powerpack 150 from the external battery when the external battery is discharged or no longer needed, switch OFF the Jumpstart Power Switch.
2. Remove the red positive (+) clip, and then remove the black negative (–) clip from the external battery terminals.
3. Recharge the XPower Powerpack 150 as soon as possible after use.

CAUTION

Do not recharge the XPower Powerpack 150 when an external battery is connected. The AC charger may be damaged.

4 Maintenance

Chapter 4 provides information on maintaining your internal battery, recharging options for the internal battery, and replacing user-replaceable parts.

Routine maintenance is required to keep your XPower Powerpack 150 operating properly. Occasionally clean the exterior of the unit with a damp cloth to remove the accumulated dust and dirt.

WARNING: Shock hazard

Disconnect all sources of AC power and DC power before performing any type of maintenance.

Battery Maintenance

All rechargeable batteries gradually discharge when left standing, and you need to recharge them periodically to maintain maximum battery capacity. The AC Charger supplied with the XPower Powerpack 150 is designed to regulate the charging process, ensuring that the battery is always fully charged but never overcharged. To ensure safe recharging and maximum battery life, recharge the XPower Powerpack 150 only with the supplied charger or approved battery chargers.

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, may result in permanent battery damage and poor jumpstart performance.

CAUTION

Do not attempt to recharge the XPower Powerpack 150 battery if it is frozen. Gradually warm the frozen battery to 32°F (0°C) before recharging.

Recharging the XPower Powerpack 150 Battery

To check the XPower Powerpack's charge level, press the Battery Level button.

Note: The XPower Powerpack 150 Battery Level LEDs are only accurate when the XPower Powerpack has been disconnected from all appliances and all charging sources for fifteen minutes.

You can recharge the battery using:

- the fully automatic "plug-in-and-forget" AC Charger.
- the DC Charging Cable to recharge from your vehicle as you drive.
- a generator equipped with a regulated 12V battery charging outlet.
- a solar panel.

Recharging with the AC Charger

Recharging with the AC Charger is a true “plug-in-and-forget” charging method.

CAUTION

Do not operate AC or DC appliances while the XPower Powerpack 150 is being recharged with the AC Charger. The AC Charger may be permanently damaged if AC appliances or 12V DC appliances are operated while the AC Charger is connected.

To recharge with the AC Charger:

1. Disconnect any 12V DC appliance and turn the light switch to OFF.
2. Turn the AC Power On/Off Switch to OFF.
3. Plug the AC Charger into a standard AC wall outlet.
4. Insert the AC Charger cable end into the AC Charger Input Socket located below the Jumpstart Power Switch.
5. While the XPower Powerpack 150 is recharging, the Battery Status LED is red. If the XPower Powerpack is completely discharged, a typical recharge may take up to 24 hours. When fully charged, the Battery Status LED changes to green and the XPower Powerpack 150 is ready to use.

Important: The 24-hour charging time for the XPower Powerpack 150 assumes that there is 120V at the AC wall outlet. If the voltage is less than 120V AC, it may take more than 24 hours to fully recharge the XPower Powerpack 150. If, after 24 hours of charging, the Battery Status LED is still red, continue to charge the unit for another 12 hours. The XPower Powerpack will be ready for use even if the Battery Status LED remains red.

Once the XPower Powerpack 150 is fully charged, the charging voltage and current automatically reduces to a maintenance level and the XPower Powerpack may be left permanently connected to the AC Charger. If your utility power is interrupted, the charging process automatically restarts when power returns.

Recharging with the DC Charging Cable

Using the DC Charging Cable, the XPower Powerpack 150 can be recharged while you drive your vehicle.

Important: Although the charge regulation circuitry in the XPower Powerpack 150 does not operate with this charging method, most vehicle voltage regulators will ensure that the XPower Powerpack is not overcharged.

WARNING: Fire and Explosion Hazard

Do not use this recharging method if your vehicle has abnormally high voltage electrical systems that operate above 15V DC. This may lead to accumulations of hydrogen, causing exposure to fire and explosion hazard.

CAUTION

Do not operate AC or DC appliances while the XPower Powerpack 150 is being recharged with the DC Charging Cable from your vehicle.

To recharge the XPower Powerpack 150 while you drive using the DC Charging Cable:

1. While the vehicle engine is running, plug one end of the DC Charging Cable into the DC Power Outlet of the XPower Powerpack 150.
2. Plug the opposite end of the DC Charging Cable into the vehicle's lighter socket or 12V accessory outlet.

3. Once the XPower Powerpack 150 is fully charged or if your vehicle's engine is not running, disconnect the DC Charging Cable from both sockets.

   Most of the XPower Powerpack 150's capacity will be restored in 2 ½ hours while the vehicle engine is running.

Note: The Battery Status LED will not illuminate when the XPower Powerpack 150 is recharged through the DC Charging Cable.

Note: The Battery Level LEDs are only accurate when the XPower Powerpack 150 has been disconnected from all appliances and all charging sources for fifteen minutes.

Important: Do not leave the XPower Powerpack 150 permanently connected to the vehicle's lighter socket or 12 V accessory outlet.

Recharging with a Generator's Regulated 12V DC Outlet

WARNING: Fire and Explosion Hazard

The generator output must be intended for battery charging and have an output of 15V or less. An unregulated output or one that exceeds 15V DC can damage the battery.
This may lead to accumulations of hydrogen, causing exposure to fire and explosion hazard.

Refer to the Owner's Guide accompanying your generator for detailed instructions on connecting the generator to a unit like the XPower Powerpack 150.

You can recharge the XPower Powerpack 150 using a generator in several ways:

- Using the AC Charger to recharge the XPower Powerpack from a generator is possible, but would require extended generator running time.
- Using a generator which has an auxiliary regulated 12V DC output designed for charging 12V DC batteries. Most generators are equipped with them. Use this power source for faster charging.
- Using a generator with a regulated 12V DC lighter socket. Follow the connection instructions in "Recharging with the DC Charging Cable" on page 4–4.

Most of the XPower Powerpack 150's battery capacity will be recharged in a few hours.

Note: The Battery Level LEDs are only accurate when the XPower Powerpack 150 has been disconnected from all appliances and all charging sources for fifteen minutes.

Recharging From a Solar Panel

Small, unregulated 12V solar panels rated to produce a maximum of 2.5 A (or 30 W) can be used to charge the XPower Powerpack 150 through the AC Charger Input Socket.

You will need to purchase a standard 5.5 mm OD x 2.5 mm (0.217” x 0.10”) ID DC Coaxial (barrel type center positive) connector to mate with the AC Charger Input Socket.

To recharge with a solar panel:

1. Connect the solar panel’s red positive (+) wire to the coaxial plug’s inner or center contact.
2. Connect the solar panel’s black negative (–) wire to the plug’s outer contact.

   Once the connector is inserted into the AC Charger Input Socket and the solar panel is placed in the sun, the XPower Powerpack 150 charges automatically just as with the AC Charger. See “Recharging with the AC Charger” on page 4–3.

   It takes about six hours in direct sunlight to recharge the XPower Powerpack 150 from a 2.5 A solar panel.

Replacing the Built-In Light

To replace a light bulb:

1. Turn the light switch off.
2. Pop out the plastic lens cover.
3. Gently grasp the bulb and twist clockwise to unscrew the bulb.
4. Insert a replacement bulb of the same type and rating into the light reflector assembly.
5. Snap in the lens cover.

5 Troubleshooting

Troubleshooting will help you identify the common problems than can occur with the XPower Powerpack 150.

Read this chapter before calling Customer Service.

If you cannot solve the problem with the XPower Powerpack 150, record the information asked for on “Information About Your System” on page WA–5 and then call Customer Service.

Common Problems

Buzz in Audio Equipment

Some inexpensive stereo systems have inadequate internal power-supply filtering and may buzz slightly when powered by the XPower Powerpack 150. The best solution to eliminate the buzzing is to use an audio system with a good quality filter.

Television Interference

The XPower Powerpack 150 is shielded to minimize interference with TV signals. If TV signals are weak, you may see interference in the form of lines scrolling across the TV screen. Try one of the following suggestions to minimize or eliminate the interference:

- Use an extension cord to increase the distance between the XPower Powerpack 150 and the TV, antenna, and cables.
- Adjust the orientation of the XPower Powerpack 150, television, antenna, and cables.

- Maximize TV signal strength by using a better antenna. Use a shielded antenna cable where possible.
- Try a different TV. Different models vary considerably in their susceptibility to interference.

Troubleshooting Reference

WARNING: Electric shock hazard

Do not remove the cover of the XPower Powerpack 150 or disassemble the XPower Powerpack. The XPower Powerpack 150 does not contain any internal user-serviceable parts and attempting to service the unit yourself could result in electrical shock or burn.

Table 5-1 Troubleshooting reference

Problem	Possible Cause	Solution
AC appliance will not operate; audible alarm is not sounding.	AC appliance rated more than 120 W, the safety overload has tripped.	Use an AC appliance with a power rating less than 120W.
	AC appliance is rated less than 120 W, high starting surge has tripped the safety overload.	AC appliance may exceed the XPower Powerpack 150's surge capability. Use an AC appliance with a starting surge within the XPower Powerpack surge rating.
Overload shutdown	Appliance power requirements exceed the capability of the XPower Powerpack 150.	Unplug the appliance and confirm that the appliance's power requirement is 120W or less before attempting to restart the appliance.

Table 5-1 Troubleshooting reference

Problem	Possible Cause	Solution
AC appliance will not operate; audible alarm is sounding.	Battery has discharged to 10.5V.	Turn OFF the AC Power On/Off Switch and recharge the XPower Powerpack.
	XPower Powerpack 150 has overheated due to poor ventilation or excessively warm environmental conditions.	Turn the AC Power On/Off Switch off and allow the XPower Powerpack to cool for 15 minutes or more. Clear blocked opening or remove objects covering the unit, then restart the XPower Powerpack. Move the XPower Powerpack to a cooler environment.
Alarm sounds	XPower Powerpack 150 battery is nearly discharged (11.0V). If you ignore this warning, the XPower Powerpack automatically switches off when the battery reaches 10.5 V.	Turn OFF the AC Power On/Off Switch and recharge the XPower Powerpack.
Run time is less than expected.	XPower Powerpack 150 battery is not fully charged.	Recharge using the AC Charger, until Battery Status LED is green.
	AC appliance power consumption is higher than expected.	Check AC appliance power or wattage rating (or current draw for 12V DC appliances) and compare with Table 3-1 on page 3–5 and Table 3-2 on page 3–9.
	Environmental temperature is less than 32°F (0°C) or more than 104°F (40°C)	Operate within correct temperature range.

Table 5-1 Troubleshooting reference

Problem	Possible Cause	Solution
Measured AC output voltage is too low.	Use of an average-reading, AC voltmeter to read output voltage. XPower Powerpack 150 battery is almost fully discharged.	The modified sinewave (MSW) output of the XPower Powerpack requires a true RMS reading meter, such as the Fluke 87 series, for accurate measurement. Press Battery Level button to verify battery status and recharge the XPower Powerpack as necessary. Battery Level LEDs are only accurate when the XPower Powerpack has been disconnected from all appliances and all charging sources for fifteen minutes.
Battery Status LED is OFF when AC Charger is connected	No AC power at the AC wall outlet. AC Charger is faulty.	Ensure power is available at the AC wall outlet. Replace the AC Charger.
Battery Status LED is red and Battery Level LEDs show the battery is full when the Battery Level button is triggered.	Battery Level lights are only accurate when the XPower Powerpack 150 has been disconnected from all appliances and all charging sources for fifteen minutes.	Unplug the charging sources and any appliances and let the XPower Powerpack rest for 15 minutes to obtain an accurate reading.

Table 5-1 Troubleshooting reference

Problem	Possible Cause	Solution
Battery Status LED is red and has not changed to green after 24 hours of charging.	The voltage at the AC wall outlet is less than 120V AC.	Use AC wall outlet that supplies 120V AC. Continue to charge the unit for another 12 hours; the unit will be ready to use even if the Battery Status light remains red.
The engine being jumpstarted will not start.	XPower Powerpack 150 battery is not fully charged. The engine condition is poor. Jumpstart Power Switch is OFF. The engine start capacity exceeds the XPower Powerpack 150 jumpstart capability.	Recharge the XPower Powerpack battery. Have the engine serviced. Turn ON the Jumpstart Power Switch. Use a higher power XPower XPower Powerpack.
The battery clamps of the jumpstart cables measure zero volts.	Jumpstart Power Switch is OFF. XPower Powerpack 150 battery is dead	Turn ON the Jumpstart Power Switch. Battery is not user-replaceable. If still under warranty, see “Return Procedure” on page WA–4 for insturctions on how to return the unit to Xantrex for repair.
The light does not turn on.	Light bulb has burnt out.	Remove lens cover and replace bulb with one of the same type and rating.

A Specifications

Electrical Specifications

12V DC Section	
Internal battery type	sealed, AGM (Absorbed Glass Mat) lead acid
Internal battery voltage (nominal)	12V DC
Internal battery capacity (minimum)	12 Ah
Internal battery CCA rating	120 CCA
DC Power Outlet (maximum continuous load)	12 A with automatic reset
Built-in incandescent light (replaceable)	5 W bulb

AC Power Section	
Output power • Continuous output power • Five minute AC output power • AC output surge capacity	 120 W 150 W 320 W
Output voltage	115 ± 10 V AC RMS
Output frequency	60 Hz ± 4 Hz
Output wave form	modified sinewave
No load current draw	<0.20 A DC
Input voltage range	10.5 to 15.5 V DC
Low battery alarm	11.0 V DC
Low battery shutdown	10.5 V DC
High battery voltage shutdown	Yes, automatic reset
Over temperature shutdown	Yes, automatic reset
Overload shutdown	Yes, automatic reset
AC output short circuit protection	Yes, automatic reset
Fuse (internal)	25 A
Operating temperature range	32 – 104 ºF (0 – 40 ºC)
Storage temperature range	32 – 86ºF (0 – 30 ºC)

Internal Battery Charging Controller System	
AC Charger bulk charging current	500 mA
Peak charging voltage (nominal)	14.2 V
Charge restart voltage (nominal)	12.9 V
Float charge after full charge is completed (nominal)	1 mA
AC Charger input socket maximum current	2.5 A

Accessories	
DC charge cable	39" (1 m) 18 AWG with male to male lighter plugs
AC Charger	Input: 120V AC, 60 Hz, 11 W Output: 13.5 V DC, 500 mA

Physical Specifications

Physical specifications	XPower Powerpack 150
Depth	6.1" (15.5 cm)
Width	12.4" (31.5 cm)
Height	8.7" (22.1 cm)
Weight	11.8 lb. (5.4 kg)

Important: All specifications are subject to change without notice.

Warranty and Product Information

Warranty

What does this warranty cover? This Limited Warranty is provided by Xantrex Technology, Inc. ("Xantrex") and covers defects in workmanship and materials in your XPower Powerpack 150. This warranty period lasts for 6 months from the date of purchase at the point of sale to you, the original end user customer. You require proof of purchase to make warranty claims.

What will Xantrex do? Xantrex will, at its option, repair or replace the defective product free of charge, provided that you notify Xantrex of the product defect within the Warranty Period, and provided that Xantrex through inspection establishes the existence of such a defect and that it is covered by this Limited Warranty.

Xantrex will, at its option, use new and/or reconditioned parts in performing warranty repair and building replacement products. Xantrex reserves the right to use parts or products of original or improved design in the repair or replacement. If Xantrex repairs or replaces a product, its warranty continues for the remaining portion of the original Warranty Period or 90 days from the date of the return shipment to the customer, whichever is greater. All replaced products and all parts removed from repaired products become the property of Xantrex.

Xantrex covers both parts and labor necessary to repair the product, and return shipment to the customer via a Xantrex-selected non-expedited surface freight within the contiguous United States and Canada. Alaska and Hawaii are excluded. Contact Xantrex Customer Service for details on freight policy for return shipments outside of the contiguous United States and Canada.

How do you get service? If your product requires troubleshooting or warranty service, contact your merchant. If you are unable to contact your merchant, or the merchant is unable to provide service, contact Xantrex directly at:

Telephone:	1 800 670 0707 (toll free North America) 1 360 925 5097 (direct)
Fax:	1 800 994 7828 (toll free North America) 1 360 925 5143 (direct)
Email:	customerservice@xantrex.com

Direct returns may be performed according to the Xantrex Return Material Authorization Policy described in your product manual. For some products, Xantrex maintains a network of regional Authorized Service Centers. Call Xantrex or check our website to see if your product can be repaired at one of these facilities.

What proof of purchase is required? In any warranty claim, dated proof of purchase must accompany the product and the product must not have been disassembled or modified without prior written authorization by Xantrex.

Proof of purchase may be in any one of the following forms:

- The dated purchase receipt from the original purchase of the product at point of sale to the end user, or
- The dated dealer invoice or purchase receipt showing original equipment manufacturer (OEM) status, or
- The dated invoice or purchase receipt showing the product exchanged under warranty

What does this warranty not cover? This Limited Warranty does not cover normal wear and tear of the product or costs related to the removal, installation, or troubleshooting of the customer's electrical systems. This warranty does not apply to and Xantrex will not be responsible for any defect in or damage to:

a) the product if it 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;
b) the product if it has been subjected to fire, water, generalized corrosion, biological infestations, or input voltage that creates operating conditions beyond the maximum or minimum limits listed in the Xantrex product specifications including high input voltage from generators and lightning strikes;
c) the product if repairs have been done to it other than by Xantrex or its authorized service centers (hereafter "ASCs");
d) the product if it is used as a component part of a product expressly warranted by another manufacturer;
e) the product if its original identification (trade-mark, serial number) markings have been defaced, altered, or removed.

Disclaimer

Product

THIS LIMITED WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY PROVIDED BY XANTREX IN CONNECTION WITH YOUR XANTREX PRODUCT AND IS, WHERE PERMITTED BY LAW, IN LIEU OF ALL OTHER WARRANTIES, CONDITIONS, GUARANTEES, REPRESENTATIONS, OBLIGATIONS AND LIABILITIES, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE IN CONNECTION WITH THE PRODUCT, HOWEVER ARISING (WHETHER BY CONTRACT, TORT, NEGLIGENCE, PRINCIPLES OF MANUFACTURER'S LIABILITY, OPERATION OF LAW, CONDUCT, STATEMENT OR OTHERWISE), INCLUDING WITHOUT RESTRICTION ANY IMPLIED WARRANTY OR CONDITION OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE TO THE EXTENT REQUIRED UNDER APPLICABLE LAW TO APPLY TO THE PRODUCT SHALL BE LIMITED IN DURATION TO THE PERIOD STIPULATED UNDER THIS LIMITED WARRANTY.

IN NO EVENT WILL XANTREX BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES, COSTS OR EXPENSES HOWEVER ARISING WHETHER IN CONTRACT OR TORT INCLUDING WITHOUT RESTRICTION ANY ECONOMIC LOSSES OF ANY KIND, ANY LOSS OR DAMAGE TO PROPERTY, ANY PERSONAL INJURY, ANY DAMAGE OR INJURY ARISING FROM OR AS A RESULT OF MISUSE OR ABUSE, OR THE INCORRECT INSTALLATION, INTEGRATION OR OPERATION OF THE PRODUCT.

Exclusions

If this product is a consumer product, federal law does not allow an exclusion of implied warranties. To the extent you are entitled to implied warranties under federal law, to the extent permitted by applicable law they are limited to the duration of this Limited Warranty. Some states and provinces do not allow limitations or exclusions on implied warranties or on the duration of an implied warranty or on the limitation or exclusion of incidental or consequential damages, so the above limitation(s) or exclusion(s) may not apply to you. This Limited Warranty gives you specific legal rights. You may have other rights which may vary from state to state or province to province.

Warning: Limitations On Use

Please refer to your product manual for limitations on uses of the product.

SPECIFICALLY, PLEASE NOTE THAT THE XPOWER POWERPACK 150 SHOULD NOT BE USED IN CONNECTION WITH LIFE SUPPORT SYSTEMS OR OTHER MEDICAL EQUIPMENT OR DEVICES. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, XANTREX MAKES NO REPRESENTATIONS OR WARRANTIES REGARDING THE USE OF THE XANTREX XPOWER POWERPACK 150 IN CONNECTION WITH LIFE SUPPORT SYSTEMS OR OTHER MEDICAL EQUIPMENT OR DEVICES.

Please note that the XPower Powerpack 150 is not intended for use as an uninterruptible power supply and Xantrex makes no warranty or representation in connection with any use of the product for such purposes.

Return Material Authorization Policy

Before returning a product directly to Xantrex you must obtain a Return Material Authorization (RMA) number and the correct factory "Ship To" address. Products must also be shipped prepaid. Product shipments will be refused and returned at your expense if they are unauthorized, returned without an RMA number clearly marked on the outside of the shipping box, if they are shipped collect, or if they are shipped to the wrong location.

When you contact Xantrex to obtain service, please have your instruction manual ready for reference and be prepared to supply:

- The serial number of your product
- Information about the installation and use of the unit
- Information about the failure and/or reason for the return
- A copy of your dated proof of purchase

Record these details in “Information About Your System” on page WA–5.

Return Procedure

1. Package the unit safely, preferably using the original box and packing materials. Please ensure that your product is shipped fully insured in the original packaging or equivalent. This warranty will not apply where the product is damaged due to improper packaging.
2. Include the following:
   - The RMA number supplied by Xantrex Technology, Inc. clearly marked on the outside of the box.
   - A return address where the unit can be shipped. Post office boxes are not acceptable.
   - A contact telephone number where you can be reached during work hours.
   - A brief description of the problem.
3. Ship the unit prepaid to the address provided by your Xantrex customer service representative.

If you are returning a product from outside of the USA or Canada In addition to the above, you MUST include return freight funds and are fully responsible for all documents, duties, tariffs, and deposits.

If you are returning a product to a Xantrex Authorized Service Center (ASC) A Xantrex return material authorization (RMA) number is not required. However, you must contact the ASC prior to returning the product or presenting the unit to verify any return procedures that may apply to that particular facility.

Out of Warranty Service

If the warranty period for your XPower Powerpack 150 has expired, if the unit was damaged by misuse or incorrect installation, if other conditions of the warranty have not been met, or if no dated proof of purchase is available, your XPower Powerpack may be serviced or replaced for a flat fee.

To return your XPower Powerpack 150 for out of warranty service, contact Xantrex Customer Service for a Return Material Authorization (RMA) number and follow the other steps outlined in “Return Procedure” on page WA–4.

Payment options such as credit card or money order will be explained by the Customer Service Representative. In cases where the minimum flat fee does not apply, as with 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 has been received.

Information About Your System

As soon as you open your XPower Powerpack 150 package, record the following information and be sure to keep your proof of purchase.

- ❒ Serial Number (on DC end) _____
- ❒ Purchased From _____
- ❒ Purchase Date _____

If you need to contact Customer Service, please record the following details before calling. This information will help our representatives give you better service.

- ❒ Type of installation [e.g. vehicle, home] _____
- ❒ Appliances operating when problem occurred _____
- ❒ Description of problem _____

_____

_____

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