

# OPERATOR'S MANUAL

# ***DieHard***<sup>®</sup>

## **120 Watt Power Inverter**

**Model No.  
28.71520**



**Read and follow all Safety  
Rules and Operating Instructions  
before Every Use of this Product.**

**SAVE THESE INSTRUCTIONS.**

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**Sears Brands Management Corporation,  
Hoffman Estates, IL 60179 U.S.A.**

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### DIEHARD ONE-YEAR FULL WARRANTY

When operated and maintained according to all supplied instructions, if this DieHard product fails due to a defect in material or workmanship within 1 year from the date of purchase, return it to any DieHard outlet in the United States for free replacement.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Sears Brands Management Corporation, Hoffman Estates, IL 60179

**FOR CUSTOMER ASSISTANCE OR REPLACEMENT PARTS,  
CALL TOLL-FREE FROM 7 AM TO 5 PM CT  
MONDAY THROUGH FRIDAY: 1-800-732-7764**

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**IMPORTANT: READ AND SAVE THIS SAFETY AND INSTRUCTION MANUAL.**

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**SAVE THESE INSTRUCTIONS** – The 71520 offers a wide range of features to accommodate your needs. This manual will show you how to use your inverter safely and effectively. Please read, understand and follow these instructions and precautions carefully, as this manual contains important safety and operating instructions. The safety messages used throughout this manual contain a signal word, a message and an icon.

The signal word indicates the level of the hazard in a situation.

<b>▲DANGER</b>	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or bystanders.
<b>▲WARNING</b>	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or bystanders.
<b>▲CAUTION</b>	Indicates a potentially hazardous situation which, if not avoided, could result in moderate or minor injury to the operator or bystanders.
<b>IMPORTANT</b>	Indicates a potentially hazardous situation which, if not avoided, could result in damage to the equipment or vehicle or property damage.

Safety messages in this manual contain two different type styles.

- Unnumbered type states the hazard.
- Numbered type states how to avoid the hazard.

The icon gives a graphical description of the potential hazard.



Pursuant to California Proposition 65, this product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

## 1. IMPORTANT SAFETY INSTRUCTIONS

### SAVE THESE INSTRUCTIONS



**Risk of electric shock or fire.**

- 1.1 Keep out of reach of children.
- 1.2 Keep the inverter well ventilated in order to properly disperse heat generated while it is in use. Make sure there are several inches of clearance around the top and sides and do not block the slots of the inverter.
- 1.3 Make sure the inverter is not close to any potential source of flammable fumes, gases or clothing.
- 1.4 Do not place the inverter in areas such as battery compartments or engine compartments where fumes or gases may accumulate.
- 1.5 Keep the inverter dry.
- 1.6 DO NOT allow the inverter to come into contact with rain or moisture.
- 1.7 DO NOT operate the inverter if you, the inverter, the device being operated or any other surfaces that may come into contact with any power source are wet. Water and many other liquids can conduct electricity, which may lead to serious injury or death.
- 1.8 Do not place the inverter on or near heating vents, radiators or other sources of heat or flammable materials.
- 1.9 Do not place the inverter in direct sunlight. The ideal air temperature for operation is between 50° and 80°F.
- 1.10 Only connect the power inverter to a 12-volt accessory outlet. Do not attempt to connect the inverter to any other power source, including an AC power source. Connecting to a 6-volt or 16-volt battery will cause damage to the inverter.
- 1.11 Make sure the AC plug connection is tight.
- 1.12 Do not modify the inverter in any way including cables, plugs or switches as it may result in property damage or personal injury.
- 1.13 **Incorrect operation** of your inverter may result in damage and personal injury.  
**⚠WARNING** The inverter output is 110V AC and can shock or electrocute the same as any ordinary household AC wall outlet.
- 1.14 Do not open – No user serviceable parts inside.
- 1.15 This device does not include an internal Ground Fault Circuit Interrupter (GFCI).
- 1.16 Use only 15-amp fuses.

## 2. FEATURES



1. Inverter Holder
2. LED Indicator
3. AC Outlet
4. USB Port
5. 12 Volt Power Plug

## 3. BEFORE USING YOUR POWER INVERTER

**NOTE:** This inverter is designed to be used with a single battery, up to group 31 type and 130 Ah or smaller in size. Do not use with any larger battery type. Do not use with multiple batteries connected in parallel.

**NOTE:** Do not use the inverter with a product that draws a higher wattage than the inverter can provide, as this may cause damage to the inverter and product.

When you turn on a device or a tool that runs on a motor, the device basically goes through two stages:

1. Start Up – Requiring an initial surge of power (commonly known as the “starting or peak load”).
2. Continuous Operation – Power consumption drops (commonly known as the “continuous load”).

The wattage (WATTS) or amperes (AMPS) can normally be found stamped or printed on most devices and equipment, or in the user's manual. Otherwise, contact the manufacturer to find out whether the device you want to use is compatible with a modified sine wave.

To calculate the wattage:  $\text{Wattage} = \text{AMPS} \times 120 \text{ (AC Voltage)}$ .

To calculate the starting load: Starting Load = 2 x WATTS. In general, the start up load of the device or power tool determines whether your inverter has the capability to power it.

To calculate the continuous load: Continuous Load = AMPS x 120 (AC Voltage).

**IMPORTANT** Always run a test to establish whether the inverter will operate a particular piece of equipment or device. In the event of a power overload, the inverter is designed to automatically shut down. This safety feature prevents damaging the inverter while testing devices and equipment within the wattage range of the inverter.

**IMPORTANT** This inverter is designed to power 100 watt devices or less when used with the vehicle 12 volt accessory port. To use the full output you must purchase a 12 volt accessory outlet to battery clips adapter and connect the inverter directly to the battery.

**NOTE:** The 100 watt limit is to accommodate the fuse ratings for all vehicles. Some vehicles may allow the full output. If the vehicle's fuse blows when you switch on the device you are trying to use, you have to either use a smaller device or you must purchase the 12 volt accessory outlet to battery clips adapter and connect the inverter directly to the battery.

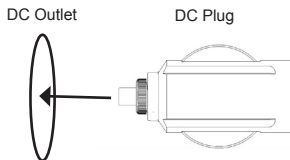
**IMPORTANT** This inverter uses a nonsinusoidal waveform. Therefore we do not recommend you use it to power the following devices:

1. Switch Mode Power Supplies;
2. Linear Power Supplies;
3. Class 2 Transformers;
4. Line Filter Capacitors;
5. Shaded Pole Motors;
6. Fan Motors;
7. Microwave Ovens;
8. Fluorescent and High Intensity Lamps (with a Ballast); and
9. Transformerless Battery Chargers.

Doing so, may cause the device to run warmer or overheat.

## 4. OPERATING INSTRUCTIONS

### Connect Inverter Power Cable:



- Plug the included power cable into the inverter. Note, the plug will only fit into the outlet one way.
- Push the 12V end (cigarette plug) of the power cable firmly into the 12V accessory outlet. The LED indicator light should glow BLUE verifying the inverter is receiving power. If the LED indicator is not on, check the connection and fuses.

### Connecting and using the AC or USB device:

- Make sure that the device to be operated is turned OFF.
- Plug the device into the Travel Inverter AC outlet or USB port.
- Turn the device on. If the device doesn't work and the LED blinks, refer to section 4.
- To disconnect, reverse the above procedure.

**NOTE:** You may hear a “buzzing” sound being emitted from inexpensive sound systems when operated with the inverter. This is due to ineffective filters in the sound system's power supply. Unfortunately, this problem can only be resolved by purchasing a sound system with a higher quality power supply or higher quality filter.

### Mounting the Travel Inverter 120 in your car:

- Peel and stick the Velcro strips on back of holder
- Attach holder to desired location in vehicle
- Slide inverter into case

## 5. LED INDICATOR AND SHUTDOWN PROTECTION

The LED glows BLUE automatically when plugged into a 12-volt DC source and will not glow under the following conditions:

1. When the power input from the vehicle's battery drops to approximately 10.5-volts, low battery shutdown occurs and inverter shuts off. Solution: Recharge or Replace the battery.
2. When the power input from the vehicle's battery exceeds 15.5-volts, high voltage protection occurs. Solution: Reduce the voltage range to between 11-volts and 15-volts.
3. The continuous load demand from the equipment or device being operated exceeds the continuous load rating of the inverter being used. Solution: Use a higher capacity inverter or lower rated device.
4. The case temperature becomes hot (exceeds 145°F). Solution: Allow the inverter to cool. Do not block the cooling slots or air flow over and through the inverter. Reduce the load on the inverter to the continuous rated output.

**RESET:** To reset after shutdown occurs, remove the 12-volt plug from the accessory outlet. Check the source of the problem and correct. Reinsert the 12-volt plug into the accessory outlet.

## 6. POWER SOURCE

Your average automobile or marine battery at full charge will provide an ample power supply to the inverter for approximately 3 hours when the engine is off. The actual length of time the inverter will function depends on the age and condition of the battery and the power demand being placed by the device being operated with the inverter.

If you decide to use the inverter while the engine is off, we recommend you turn OFF the device plugged into the inverter before starting the engine. To maintain battery power, start the engine every 2 to 3 hours and let it run for approximately 10 minutes to recharge the battery.

Although it is not necessary to disconnect the inverter when turning over the engine, it may briefly cease to operate as the battery voltage decreases. While the inverter draws very low amperage when not in use, it should be unplugged to avoid battery drain.

## 7. IF THE INVERTER FUSE BLOWS

Your power inverter is fitted with a fuse, which should not have to be replaced under normal operating conditions. A blown fuse is usually caused by reverse polarity or a short circuit within the device or equipment being operated.

If the fuse does blow:

1. Disconnect the device or equipment immediately.
2. Find the source of the problem, and repair it.
3. Install a new 15-amp fuse. The fuse can be found on the end of the plug on the inverter.
4. Do not tighten the fuse cap too tight; finger tight is sufficient.

### **IMPORTANT**

Do not install a fuse higher than 15-amp, as this may damage the inverter. Make sure to correct the cause of the blown fuse before using the inverter again.

## 8. TROUBLESHOOTING

PROBLEM	REASON	SOLUTION
LED does not light, or inverter does not function.	Poor contact at terminals.	Unplug and reinsert the 12-volt plug.
	Fuse Blown.	See "IF THE INVERTER FUSE BLOWS" section.
	Inverter shutdown.	See "LED INDICATOR AND SHUTDOWN PROTECTION" section.
	Inverter may not be working properly.	See Warranty and call Customer Service 1-800-732-7764 (Hours: 7:00 am – 5:00 pm CST).

## 9. SPECIFICATIONS

Maximum Continuous Power	120 Watts
Surge Capacity (Peak Power)	240 Watts
No Load Current Draw	<0.4 Amp, 400mA
Wave Form	Modified Sine Wave
Input Voltage Range	10.5 – 15.5V DC
Low Battery Alarm	N/A
Output Voltage	110 – 125V AC
Low Battery Shutdown	9.9V – 10.8V DC
High Battery Shutdown	15.0V – 16.0V DC
Optimum Efficiency	>85%
AC Receptacles	One, NEMA 5-15 (USA) 110V AC 3-Prong
USB Port	One, 5V, 0.5A
Dimensions	3.75"H x 2.75"W x .875"D
Product Weight	Approximately .4 lbs.
Fuse	15 Amp (250V)

## 10. BEFORE RETURNING FOR REPAIRS

When an UNKNOWN OPERATING PROBLEM arises, please read the complete manual and call the customer service number for information that will usually eliminate the need for return.

If the above solutions do not eliminate the problem or for information about troubleshooting or replacement parts, call toll-free from anywhere in the U.S.A.  
1-800-732-7764

7:00 am to 5:00 pm Central Time Monday through Friday