



Amorphous Solar Panels

Owner's Manual



! WARNING: Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

Item #s 14002 14007 14020

SAVE THESE INSTRUCTIONS

Thank you very much for choosing a Nature Power product!

For future reference, please complete the owner's record below:

Model: _____

Serial Number/Lot Date Code: _____

Purchase Date: _____

Save the receipt, warranty, and this manual. It is important that you read the entire manual to become familiar with this product before you begin using it.

These Solar Panels are designed for certain applications only. Northern Tool and Equipment cannot be responsible for issues arising from modification or use of these products in an application for which they were not designed. We strongly recommend that these products not be modified and/or used for any application other than that for which they were designed.

For technical questions, please call **1-800-222-5381**.

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Intended Use

These solar panels are designed as trickle chargers to prevent rechargeable 12 Volt batteries from discharging and/or damaging themselves when left in storage for long periods of time. Some common uses of 12 Volt batteries are to provide power to RVs, water pumps, boats, car and trucks.

Technical Specifications

49689, 2W Solar Panel

Property	Specification
Maximum Wattage	2 Watts
Voltage at Pmax	17V
Current at Pmax	130 mA
Open Circuit Voltage	22V
Solar Panel Type	Amorphous
Measurements	14.5" x 8.37"
Weight	2 lbs

49690, 7W Solar Panel

Property	Specification
Maximum Wattage	7 Watts
Voltage at Pmax	17 V
Current at Pmax	467 mA
Open Circuit Voltage	22V
Solar Panel Type	Amorphous
Measurements	12.6" x 16" x 1.0"
Weight	3.1 lbs.

49691, 20W Solar Panel

Property	Specification
Maximum Wattage	20 Watts
Voltage at Pmax	17.5 V
Current at Pmax	Up to 1.33A
Open Circuit Voltage	21 V
Solar Panel Type	Amorphous
Measurements	13.5" x 37" x 1.0"
Weight	10 lbs.

Important Safety Information

⚠ WARNING

- Read and understand all instructions. Failure to follow all instructions may result in serious injury or property damage.
- The warnings, cautions, and instructions in this manual cannot cover all possible conditions or situations that could occur. Exercise common sense and caution when using this tool. Always be aware of the environment and ensure that the tool is used in a safe and responsible manner.
- Do not allow persons to operate or assemble the product until they have read this manual and have developed a thorough understanding of how it works.
- Do not modify this product in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the product. There are specific applications for which the product was designed.
- Use the right tool for the job. DO NOT attempt to force small equipment to do the work of larger industrial equipment. There are certain applications for which this equipment was designed. It will do the job better and more safely at the capacity for which it was intended. DO NOT use this equipment for a purpose for which it was not intended.
- Industrial or commercial applications must follow OSHA requirements.

WORK AREA SAFETY

- Inspect the work area before each use. Keep work area clean, dry, free of clutter, and well lit. Cluttered, wet, or dark work areas can result in injury. Using the solar panel in confined work areas may put you dangerously close to other cutting tools and rotating parts.
- Do not use the solar panel where there is a risk of causing a fire or an explosion; e.g., in the presence of flammable liquids, gases, or dust. The product can create sparks, which may ignite the flammable liquids, gases, or dust.

Assembly

None required except connections for operation. See Operating Instructions

Before Each Use

Check for damaged parts before each use. Replace damaged or worn parts immediately. Never use the solar panel with a damaged part.

Check that the panel, battery clamps and other parts are clean to ensure proper function. If necessary, wipe the components with a damp cloth – DO NOT use soap or solvents when cleaning and DO NOT pour chemicals on the panel.

Operating Instructions

⚠ WARNING

- Be sure products are securely fastened before using.
- Product should be placed in a well ventilated area, free from flammable gases.
- No alterations shall be made to this product.
- Do not use if product is damaged. Replace damaged parts before using.
- Do not wear dangling objects or jewelry when working with electrical equipment.
- Wear the proper personal protective equipment when necessary. Use ANSI Z87.1 compliant safety glasses with side shields.
- Do not overreach. Keep proper footing and balance at all times.
- Avoid body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators. There is an increased risk of electric shock if your body is grounded.
- Do not allow children to handle the solar panel.

⚠ CAUTION

- Do not drop a tool or other item on the solar panel.
- When connecting the system for use, ensure that the connections are positive-to-positive and negative-to-negative. Wrong connections will cause damage to the panel and/or the battery.

1. Connect the included battery clamps or the DC plug (49689 panel) to the wires from the panel by the J-plug connectors.
2. If using the clamps: Attach the positive battery clamp (red, +) to the positive battery terminal (+) and the negative battery clamp (black, -) to the negative battery terminal (-).
If using the DC plug: insert the plug into the vehicle's 12-colt power socket.
3. Expose the solar panel to sunlight.

The solar panel will produce a current when exposed to sunlight. Direct sunlight will produce best results. Diffused or low light will result in lower or no output.

After Each Use

- Clean the panel, battery clamps and other parts of dirt and debris to prepare it for the next use. Wipe the components with a damp cloth but **DO NOT** use soap or solvents.
- Dry the components so that no moisture remains to possibly corrode the electrical connections.
- **DO NOT** pour chemicals on the panel when cleaning.

Store the solar panel when it is not in use. Store it in a dry, secure place out of the reach of children. Inspect the panel and clips for good working condition prior to storage and again before use.

Maintenance

The solar panel requires no maintenance except occasional cleaning and replacement of damaged or worn parts. Use only identical replacement components. Components that may be suitable for one device may create a risk of injury when used with another device.

Parts Lists

Item No.	Description	Qty		
		49689, 2W	49690, 7W	49691, 20W
1	Solar Panel	1	1	1
2	Battery Clamps	1	1	1
3	Z Brackets	-	4	4
4	Screws	-	4 + 8	4 + 8
5	Tilt Mounting Poles	2	2	2
6	DC Plug	1	-	-

Replacement Parts

- For replacement parts and technical questions, please call Customer Service at **1-800-222-5381**.
- Not all product components are available for replacement. The illustrations provided are a convenient reference to the location and position of parts in the assembly sequence.
- When ordering parts, the following will be required: model number, serial number/lot date code, and description.
- The distributor reserves the rights to make design changes and or improvements to product lines and manuals without notice.

Limited Warranty

Northern Tool and Equipment Company, Inc. ("We" or "Us") warrants to the original purchaser only ("You" or "Your") that the Nature Power product purchased will be free from material defects in both materials and workmanship, normal wear and tear excepted, for a period of **two years** from date of purchase. In addition, this item is warranted to generate up to 80% of rated power for a period of **ten years** from date of purchase. The foregoing warranty is valid only if the installation and use of the product is strictly in accordance with product instructions. There are no other warranties, express or implied, including the warranty of merchantability or fitness for a particular purpose. If the product does not comply with this limited warranty, Your sole and exclusive remedy is that We will, at our sole option and within a commercially reasonable time, either replace the product or product component without charge to You or refund the purchase price (less shipping). This limited warranty is not transferable.

Limitations on the Warranty

This limited warranty does not cover: (a) normal wear and tear; (b) damage through abuse, neglect, misuse, or as a result of any accident or in any other manner; (c) damage from misapplication, overloading, or improper installation; (d) improper maintenance and repair; (e) product alteration in any manner by anyone other than Us, with the sole exception of alterations made pursuant to product instructions and in a workmanlike manner; and (f) broken glass.

Obligations of Purchaser

You must retain Your product purchase receipt to verify date of purchase and that You are the original purchaser. To make a warranty claim, contact Us at 1-800-222-5381, identify the product by make and model number, and follow the claim instructions that will be provided. The product and the purchase receipt must be provided to Us in order to process Your warranty claim. Any returned product that is replaced or refunded by Us becomes our property. You will be responsible for return shipping costs or costs related to Your return visit to a retail store.

Remedy Limits

Product replacement or a refund of the purchase price is Your sole remedy under this limited warranty or any other warranty related to the product. We shall not be liable for: service or labor charges or damage to Your property incurred in removing or replacing the product; any damages, including, without limitation, damages to tangible personal property or personal injury, related to Your improper use, installation, or maintenance of the product or product component; or any indirect, incidental or consequential damages of any kind for any reason.

Assumption of Risk

You acknowledge and agree that any use of the product for any purpose other than the specified use(s) stated in the product instructions is at Your own risk.

Governing Law

This limited warranty gives You specific legal rights, and You also may have other rights which vary from state to state. Some states do not allow limitations or exclusions on implied warranties or incidental or consequential damages, so the above limitations may not apply to You. This limited warranty is governed by the laws of the State of Minnesota, without regard to rules pertaining to conflicts of law. The state courts located in Dakota County, Minnesota shall have exclusive jurisdiction for any disputes relating to this warranty.



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