

Adjustable Solar Electric Fence Controller

Item 47454

⚠ WARNING

Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.



When unpacking, make sure that the product is intact and undamaged.
If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

Visit our website at: <http://www.harborfreight.com>

Email our tech support at: productsupport@harborfreight.com

IMPORTANT SAFETY INFORMATION

In this manual, on the labeling, and all other information provided with this product:



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

CAUTION

CAUTION, without the safety alert symbol, is used to address practices not related to personal injury.



WARNING Read all safety warnings and instructions. *Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.*

Save all warnings and instructions for future reference. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

Installation Precautions

1. Use as intended for animal control only.
2. Only a qualified, certified electrician should install the Fence Control.
3. Do not connect any other device, such as a poultry or cattle trainer, to a fence that is already connected to the Fence Control. Do not connect more than one fence controller to the same fence.
4. **Avoid accidental electric shock.** Do not install an electric fence below high voltage power plant transmission lines. Do not touch or attempt to climb over a fence that is electrically charged. Do not use more than one Fence Control on the same fence. Install “**Danger! Electric Fence! Risk of Electrical Shock if Touched!**” signs in visible areas to identify the electrified wires. Inform everyone who might possibly come in contact with the electrically charged fence about its location. Instruct everyone who might possibly come in contact with the electrically charged fence how to disconnect the Fence Control in case of emergency.
5. **Do not electrify barbed wire.** People or animals may get tangled in the barbed wire and be unable to move clear of the fence.
6. **Install all sensitive electrical components (including wiring connections, regulator, and battery) inside a weatherproof enclosure to prevent electric shock.**
7. **Do not use any means of charging the Battery (10) or energizing fence other than the Solar Panel (2) or a constant-potential-current-limited battery charger rated at 6VDC at 4.5 Amps per hour.**
8. **Do not overcharge the Battery when using a constant-potential-current-limited battery charger.** To use a battery charging system other than the Solar Panel, the Battery must be removed from the Fence Control.
9. **Do not focus light on panel.**
10. **Install components with enough space to allow proper cooling.**
11. **This product may occasionally produce more current and/or voltage than its rated output. Increase output ratings by 25% when determining component required voltage and amperage ratings.** Refer to Section 690-8 of the National Electrical Code for an additional multiplying factor of 125 percent (80 percent derating) which may apply.
12. Do not use solar panel as power supply for anything other than fence controller.
13. Verify that installation surface has no hidden utility lines before drilling or driving screws.
14. Install only according to these instructions. Improper installation can create hazards.
15. Wear ANSI-approved safety goggles and heavy-duty work gloves during installation. Do not wear jewelry or metal watches when working near solar panels, wiring or batteries.
16. Handle panel with care. Glass may break or a sharp edge may be exposed during movement.

17. Keep installation area clean and well lit.
18. Install out of reach of children.
19. Keep bystanders out of the area during installation.
20. Do not install when tired or when under the influence of drugs or medication.
21. People with pacemakers should consult their physician(s) before installation and/or service. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure.

Service Precautions

1. **Do not service or approach fence during rain or lightning storms. Do not service during rain, fog, or any other wet/humid weather.**
2. **Before service, maintenance, or cleaning:**
 - a. **Dry solar panel and outdoor wiring thoroughly while wearing electrically insulated gloves.**
 - b. **Cover solar panel with an opaque cover, such as a blanket.**
 - c. **Disconnect solar panel.**
 - d. **Disconnect all batteries.**
3. To avoid fire, turn off fence (and use other animal control means) in extremely dry weather.
4. In winter the battery may become drained. Swap the battery with an identical, fully charged battery as needed to maintain power to the fence.
5. Do not allow children to play with or near this item or electrical components.
6. Inspect at least monthly; do not use if damaged, parts are loose, water is found inside the housing, electrical insulation is cracked or damaged, or connections are loose.
7. Do not modify Fence Controller. It has built in safety features and could become dangerous if modified.
8. Maintain product labels and nameplates. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
9. **WARNING:** Handling the cord on this product will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling. (California Health & Safety Code § 25249.5, *et seq.*)



SAVE THESE INSTRUCTIONS.

Specifications

Input Voltage	8.7 VDC
Output Voltage	8KV +/- 2KV
Rated Wattage (in full sunlight)	1.3 W
Battery Type	6V, 4.5Ah, Lead-acid
Range of Fence Control	3 to 5 Miles (Single Strand Wire)

Note: Output will decrease as the panel gets hotter than room temperature (~70° F). Angle, solar intensity, cloud cover and other factors will effect output.

Installation

IMPORTANT! Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product:

Note: For additional information regarding the parts listed in the following pages, refer to the Assembly Diagram near the end of this manual.

DISCLAIMER

Due to the unpredictable nature of large animals, their ownership and confinement creates certain liability risks that are the responsibility of their owners. Harbor Freight Tools makes no guarantee, expressed or implied, that the use of this product will prevent potential property damage or injury to humans or animals caused by an attempt to contain such animals.

Mounting Fence Control On Horizontal Or Vertical Surface

1. **CAUTION!** Before mounting, verify Power Switch (5) is in the OFF position.
2. To mount Solar Fence Controller onto a **wood surface**, place the Fence Control against the desired location on the wood surface. Use the two mounting holes located at the top of the Main Body (4) as a template with which to mark two holes to be drilled into the wood surface. Set aside the Solar Fence Controller, and drill the two holes in the wood surface. Use two wood screws (not included) of appropriate diameter and length to secure the Solar Fence Controller to the wood surface. See Figure 1, below.

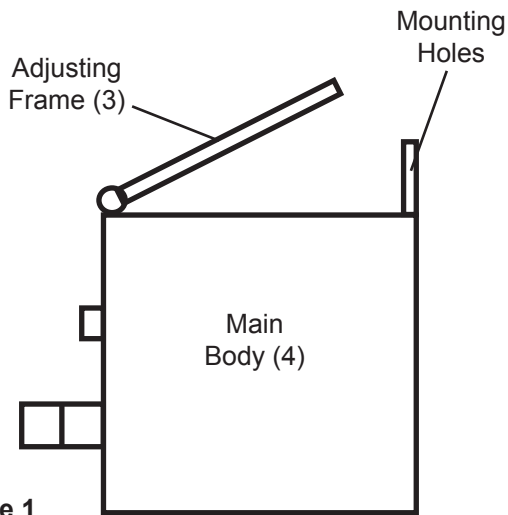


Figure 1

3. To mount Solar Fence to a **metal surface**, place the Solar Fence Controller against the desired location on the metal surface. Use the two mounting holes located at the top of the Main Body as a template with which to mark two holes to be drilled all the way through the metal surface. Set aside the Solar Fence Controller, and drill the two holes through the metal surface. Then, use two machine bolts of appropriate diameter and length, two lock washers, and two nuts (not included) to secure the Solar Fence Controller to the metal surface.

Properly Grounding Fence Control

1. Ground Rod (not provided) is required to properly ground Solar Fence Controller. A Ground Rod should be made of copper, galvanized pipe, or a steel rod driven approximately **six to eight feet** into the ground as near to Solar Fence Controller as possible.
2. **CAUTION!** Do not use an existing Ground Rod that is hooked up to other electrical systems or to a water pipe. See Figure 2, below.

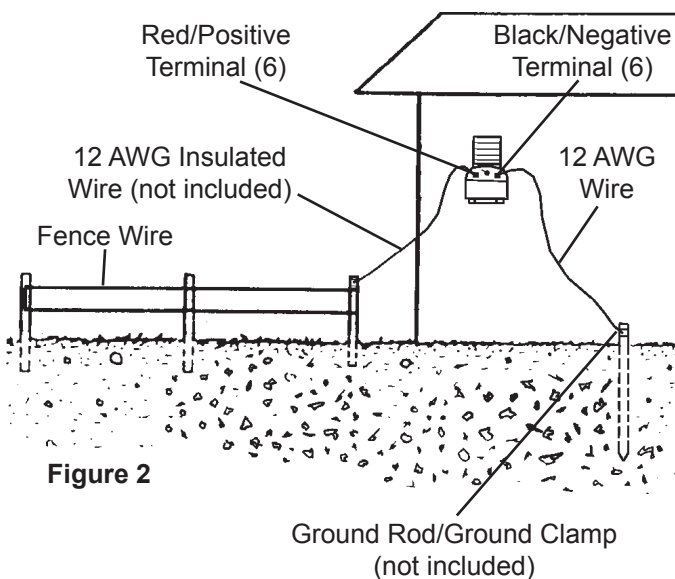


Figure 2

3. The front side of the solar panel (with terminals and switch/key) should face the sunlight.

The solar panel should face towards south to expose the solar panel to the maximum possible sunlight.

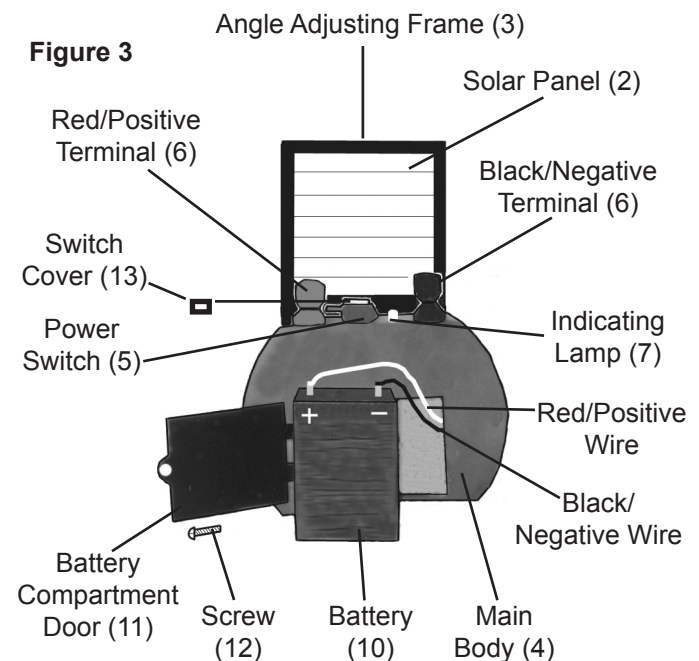
4. Connect one end of an appropriate length of 12 AWG Insulated Wire to the Ground Rod, using a Ground Clamp (not included). See Figure 2.
5. Connect the other end of the 12 Gauge Insulated Wire to the **Black/Negative** Terminal (6) of the Solar Fence Controller. See Figure 2.

Connecting Fence Line to Solar Fence Controller

1. **CAUTION!** Prior to connecting the Fence Line to the Solar Fence Controller, make sure its Power Switch (5) is in the OFF position.

NOTE: The Switch Cover (13) must be removed from the Power Switch when the Solar Fence Controller is not in operation.

2. Splice one end of an appropriate length of 12-1/2 Gauge Insulated Wire onto the Fence Line. See Figure 2.
3. Connect the other end of the 12 Gauge Insulated Wire to the **Red/Positive** Terminal (6) of the Solar Fence Controller. See Figure 3, below.



NOTE: The solar panel should face the Sun, and not be blocked by shadows. The location should allow the panel to be protected from accidental damage.

4. Angle face of Controller Frame toward true south¹ according to chart that follows:

Latitude	Solar Panel Angle
0-4°	10°
5-20°	Latitude + 5°
21-45°	Latitude + 10°
46-64°	Latitude + 15°
65° or more	80°

Wiring

Note: Only a licensed electrician and a licensed building contractor can safely design and implement a grid tie-in system. Any grid tie-in system must meet all applicable building and electrical codes, and must meet standards established by the area power company.

1. Run wires from panels, through weatherproof grommets and into enclosure where charge controller/regulator is located. Use wires of the proper size and rating and use Twist Connectors (not included) to connect wires.
2. Secure all connections using terminals, or solder all wire splices to ensure good connections.
3. Weatherproof all connections and route the wire in a way that it will not be torn loose from the panel.

Operation

NOTE: To operate Solar Fence Controller, the Switch Cover (13) must be inserted into Power Switch (5) cover and the Power Switch must be lifted up to ON position.


1. Once installed, allow Solar Fence Controller to charge at least eight hours in full, direct sunlight in order to fully charge the Battery (10). If necessary, adjust the Solar Panel to increase the pickup of solar energy.

NOTE: After making sure that all safety warnings and precautions are adhered to, the Solar Fence Controller is ready to be activated.

2. When the Battery is fully charged, place the Switch Cover (13) on the Power Switch and turn the Power Switch to its "ON" position.
3. Observe the Indicating Lamp (7).
A blinking Indicating Lamp shows that the electrical output is working properly. The fence is now electrically activated.

NOTE: If the Indicating Lamp does not blink, turn the Power Switch to its OFF position. Have a qualified, certified electrician disconnect both 12 Gauge Insulated Wires from the Fence Control. Then, turn the Power Switch to its ON position. If the Indicating Lamp does blink, the problem is with the fence. If the Indicating Lamp does not blink, the problem is with the Solar Fence Controller or its Battery.

¹ Angle towards true north if installed in southern hemisphere.

4.  **TO AVOID FIRE, turn off fence (and use other animal control means) in extremely dry weather.**

NOTE: In winter the battery may become drained. Swap the battery with an identical, fully charged battery as needed to maintain power to the fence. (See Battery Replacement/Removal on page 6.)

Recommended Electric Fence Accessories

NOTE: For personal safety, it is recommended that only a qualified, certified, electrician install fence accessories.

Posts

Use posts made of treated wood, steel, aluminum or fiberglass.

Fence Wire

Use size 20 through 9 American wire gauge. Use a smooth, galvanized steel electric fence wire. Or use an aluminum wire which conducts electricity four times better than steel. Or use a plastic/metallic wire according to the manufacturer's recommendations.

Note: Do not mix different wire types. Different wire types will interact electrically, loosen connections and reduce the fence's effectiveness.

Insulated Wire

Use size 12 Gauge for running under roads and under gates. If desired, use insulated wire with PVC tubing.

Insulators

Use standard insulators on rod-type line support posts, or on wooden posts. At the starting point, and at fence corners, use corner post insulators. Always insulate wooden posts. Do not staple fence wire directly to the post.

Splices

Two types of splicing may be used; hand splicing, or the use of specially designed splicing bolts and connectors.

Gates

A simple gate can be constructed from a single "hot" wire line with the use of an insulated gate handle. However, disconnecting the gate handle also disconnects electric flow in the fence. A typical gate can be used without interfering with electric flow in fence by running an insulated wire under gate, beneath ground level. A "hot" wire line may be mounted on a typical gate itself to prevent animals from rubbing or pushing through gate.

Servicing



Procedures not specifically explained in this manual must be performed by a qualified technician.

!WARNING

TO PREVENT SERIOUS INJURY FROM ELECTRIC SHOCK:

Before service, maintenance or cleaning:

- Dry solar panel and outdoor wiring thoroughly while wearing electrically insulated gloves.
- Cover all solar panels with an opaque cover, such as a blanket.
- Disconnect all solar panels.
- Disconnect all batteries.



TO PREVENT SERIOUS INJURY FROM ELECTRIC SHOCK OR CUTS:

Do not use damaged solar panel.

If wiring insulation is damaged or weathered, glass is cracked, or housing

is opened, have problem corrected before further use. Check to make sure the “Danger! Electric Fence! Risk of Electrical Shock if Touched!” signs are still up and visible in areas to identify the electrified wires. Check for loose, cracked or broken parts, loose or damaged electrical connections, and any other condition that may affect the safe operation of this equipment. If a problem occurs, immediately turn Power Switch to its OFF position and remove the Switch Lock.

Have the problem corrected by a qualified, certified electrician before further use. Do not use damaged equipment.

Battery Replacement/Removal

NOTE: In winter the battery may become drained. Swap the battery with an identical, fully charged battery as needed to maintain power to the fence.

- To use battery charging system other than the Solar Panel (2), the Battery must be removed from the Solar Fence Charger.

CAUTION! Do not use any means of charging Battery other than Solar Panel or a constant-potential-current-limited charger rated at 6VDC at 4.5 amps.

- To remove Battery, loosen and remove Screw (12) located at rear of Fence Control. Open Battery Compartment Door (11). Pull Battery out of unit and disconnect Black wire that is connected to the negative battery terminal.

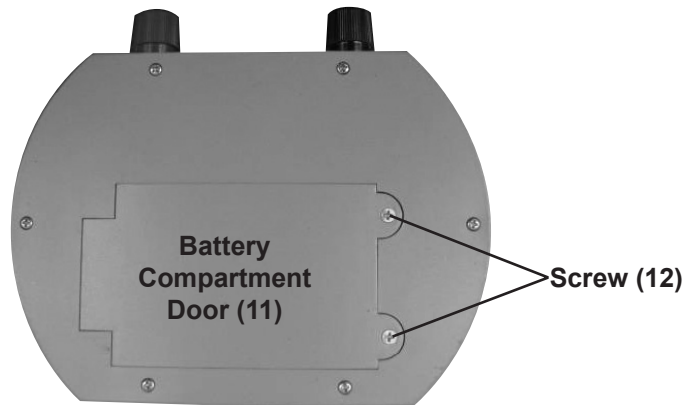


Figure 4

- Disconnect Red wire connected to positive battery terminal. Follow battery charger manufacturer's instructions to fully charge Battery. Once Battery is fully charged, reconnect Black wire to negative Battery terminal and reconnect Red wire to positive Battery terminal.
- Reinstall Battery in Solar Fence Charger unit and close Battery Compartment Door. Replace Screw to lock the Battery Compartment Door in position.

Cleaning

Clean and inspect the Solar Fence Charger **MONTHLY**, or more frequently to maintain peak efficiency.

- Wear electrically insulated gloves and ANSI-approved safety goggles. Dry solar panel and outdoor wiring thoroughly.
- Clean solar panel with mild, non-abrasive cleanser and soft cloth and paper towels. Do not clean with brushes or abrasive cleaners.
- Inspect general condition of Solar Fence system (panel, batteries and mounting). Check for loose hardware, wiring insulation damage or weathering, cracked glass, open housing, cracked or broken parts, loose or corroded contacts, and any other condition that may affect its safe operation.
- Inspect and maintain batteries according to supplier's instructions.

Adjustment

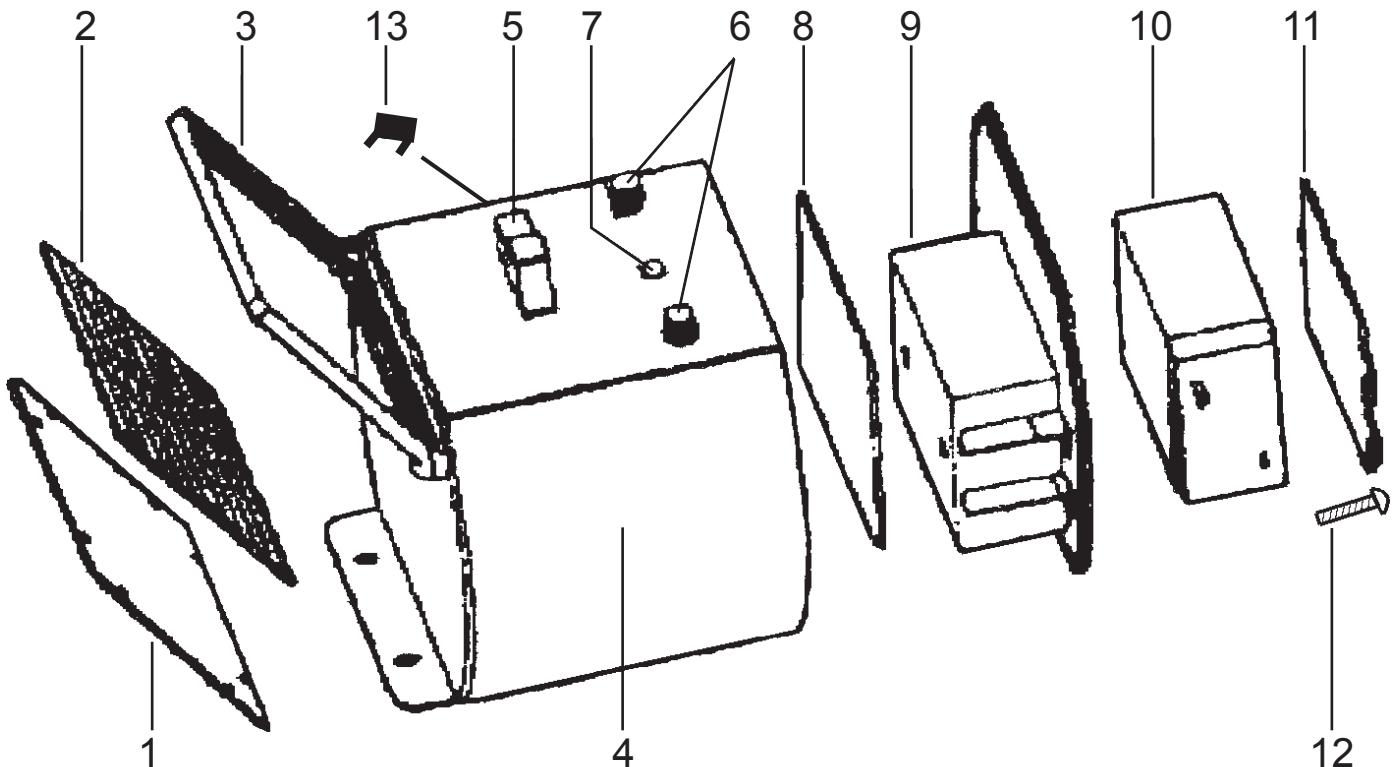
To increase efficiency:

- In the Winter**, increase the panel's angle by 10°.
- In the Summer**, decrease the angle by up to 10°.
- In the Spring and Fall**, keep the panel at the angle recommended on page 5.

Parts List and Assembly Diagram

Part	Description	Qty.
1	Panel Fixing Plate	1
2	Solar Panel	1
3	Angle Adjusting Frame	1
4	Main Body	1
5	Power Switch	1
6	Terminals	2
7	Indicating Lamp	1

Part	Description	Qty.
8	PCB	1
9	Bottom Case	1
10	Battery (6V)	1
11	Battery Compartment Door	1
12	Screw	6
13	Switch Cover	1



Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Limited 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

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

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