Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference. 21k

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80 WATT SOLDERING STATION

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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.

⚠WARNING

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

Table of Contents

Safety 2
Specifications 6
Setup 6
Operation 7
Maintenance 10
Parts List and Diagram 11
Warranty 12

WARNING SYMBOLS AND DEFINITIONS	
⚠	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	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE CAUTION	Addresses practices not related to personal injury.

IMPORTANT SAFETY INFORMATION

General Power Tool Safety Warnings

⚠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 term "power tool" in the warnings refers to your mains-operated (corded) power tool.

Work area safety

1. **Keep work area clean and well lit.** *Cluttered or dark areas invite accidents.*
2. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** *Power tools create sparks which may ignite the dust or fumes.*
3. **Keep children and bystanders away while operating a power tool.** *Distractions can cause you to lose control.*

Electrical safety

1. **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with grounded power tools.** *Unmodified plugs and matching outlets will reduce risk of electric shock.*
2. **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.*
3. **Do not expose power tools to rain or wet conditions.** *Water entering a power tool will increase the risk of electric shock.*
4. **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** *Damaged or entangled cords increase the risk of electric shock.*
5. **If operating a power tool in a damp location is unavoidable, use a Ground Fault Circuit Interrupter (GFCI) protected supply.** *Use of a GFCI reduces the risk of electric shock.*

Personal safety

1. **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** *A moment of inattention while operating power tools may result in serious personal injury.*
2. **Use personal protective equipment. Always wear eye protection.** Safety *equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.*
3. **Prevent unintentional starting. Ensure the Trigger is in the off-position before connecting to power source, picking up or carrying the tool.** *Carrying power tools with your finger on the Trigger or energizing power tools that have the Trigger on invites accidents.*
4. **Do not overreach. Keep proper footing and balance at all times.** *This enables better control of the power tool in unexpected situations.*
5. **Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from hot parts.**
6. **Only use safety equipment that has been approved by an appropriate standards agency.** *Unapproved safety equipment may not provide adequate protection. Eye protection must be ANSI-approved and breathing protection must be NIOSH-approved for the specific hazards in the work area.*

Power tool use and care

1. **Do not force the power tool. Use the correct power tool for your application.** *The correct power tool will do the job better and safer at the rate for which it was designed.*
2. **Do not use the power tool if the Trigger does not turn it on and off.** *Any power tool that cannot be controlled with the Trigger is dangerous and must be repaired.*
3. **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools.** *Such preventive safety measures reduce the risk of starting the power tool accidentally.*
4. **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** *Power tools are dangerous in the hands of untrained users.*
5. **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** *Many accidents are caused by poorly maintained power tools.*
6. **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** *Use of the power tool for operations different from those intended could result in a hazardous situation.*

Service

Have your power tool serviced by a qualified repair person using only identical replacement parts.
This will ensure that the safety of the power tool is maintained.

Specific Safety Rules

1. **Avoid Serious Burns.** The Soldering Iron has a temperature range of 302° F - 896° F. Do not point the Soldering Iron, or turn yourself toward another person while soldering.
2. **Do not open Soldering Iron.** Do not attempt to open and repair this unit. It must be serviced by a qualified technician.
3. **To prevent electric shock, always de-energize any circuits or wires to be soldered before making connections and soldering.**
4. **Exposure to soldering fumes can increase the risk of developing certain cancers, such as cancer of the larynx and lung cancer.** Also, some diseases that may be linked to exposure to soldering fumes are:
   - Early onset of Parkinson's Disease
   - Heart disease
   - Ulcers
   - Damage to the reproductive organs
   - Inflammation of the small intestine or stomach
   - Kidney damage
   - Respiratory diseases such as emphysema, bronchitis, or pneumonia
5. **Keep head out of fumes.** Do not breathe soldering fumes. Use enough ventilation to keep fumes and gases from breathing zone and general area.
6. **Never lay the Soldering Iron down where the heated parts can contact flammable materials or electrical wires.**
7. **This product is not a toy.** Keep it out of reach of children.
8. **Maintain labels and nameplates on the tool.** These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
9. **Do not leave the tool unattended when it is plugged into an electrical outlet.** Turn off the tool, and unplug it from its electrical outlet before leaving.
10. 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.

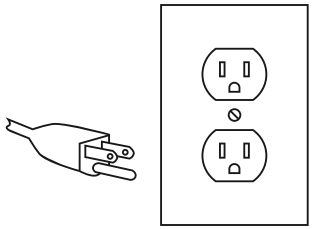
SAVE THESE INSTRUCTIONS.

Grounding

⚠WARNING

TO PREVENT ELECTRIC SHOCK AND DEATH FROM INCORRECT GROUNDING WIRE CONNECTION:
Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the power cord plug provided with the tool. Never remove the grounding prong from the plug. Do not use the tool if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

Grounded Tools: Tools with Three Prong Plugs



3-Prong Plug and Outlet

1. Tools marked with "Grounding Required" have a three wire cord and three prong grounding plug. The plug must be connected to a properly grounded outlet. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk of electric shock. **(See 3-Prong Plug and Outlet.)**
2. The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool's grounding system and must never be attached to an electrically "live" terminal. **(See 3-Prong Plug and Outlet.)**
3. The tool must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The plug and outlet should look like those in the preceding illustration. **(See 3-Prong Plug and Outlet.)**

Extension Cords

1. ***Grounded*** tools require a three wire extension cord. ***Double Insulated*** tools can use either a two or three wire extension cord.
2. As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible tool damage. **(See Table A.)**
3. The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14 gauge cord can carry a higher current than a 16 gauge cord. **(See Table A.)**
4. When using more than one extension cord to make up the total length, make sure each cord contains at least the minimum wire size required. **(See Table A.)**
5. If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum cord size. **(See Table A.)**
6. If you are using an extension cord outdoors, make sure it is marked with the suffix "W-A" ("W" in Canada) to indicate it is acceptable for outdoor use.
7. Make sure the extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified electrician before using it.
8. Protect the extension cords from sharp objects, excessive heat, and damp or wet areas.

TABLE A: RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS* (120/240 VOLT)

NAMEPLATE AMPERES (at full load)	EXTENSION CORD LENGTH				
	25´	50´	75´	100´	150´
0 – 2.0	18	18	18	18	16
2.1 – 3.4	18	18	18	16	14
3.5 – 5.0	18	18	16	14	12
5.1 – 7.0	18	16	14	12	12
7.1 – 12.0	18	14	12	10	-
12.1 – 16.0	14	12	10	-	-
16.1 – 20.0	12	10	-	-	-

*** Based on limiting the line voltage drop to five volts at 150% of the rated amperes.**

Symbology

V	Volts
~	Alternating Current
A	Amperes
	WARNING marking concerning Risk of Eye Injury. Wear ANSI-approved safety goggles with side shields.

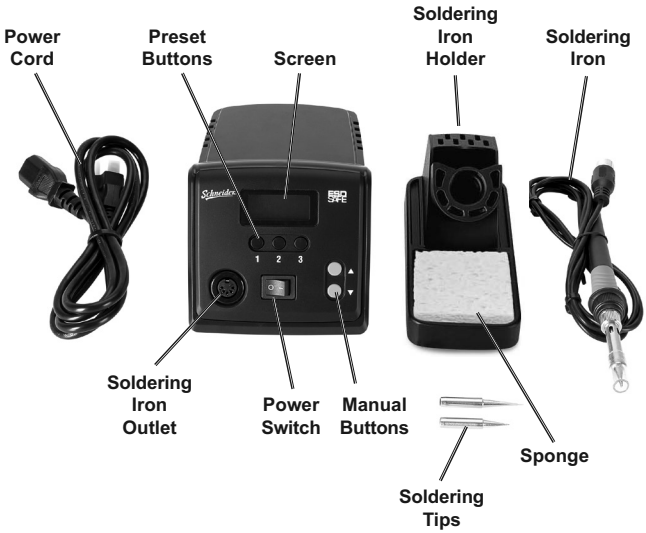
	Read the manual before set-up and/or use.
	WARNING marking concerning Risk of Fire. Do not cover ventilation ducts. Keep flammable objects away.
	WARNING marking concerning Risk of Electric Shock. Properly connect power cord to appropriate outlet.

Specifications

Electrical Rating	120VAC / 60Hz / 80W
Temperature Range	302° F - 896° F
Tip Leakage Voltage	<2mV
Soldering Tips	900M Conical: 0.2mm, 0.5mm 900M Chisel: 0.8mm

Setup - Before Use:

Components and Controls



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 *Parts List and Diagram* on page 11.

Workpiece and Work Area Set Up

1. Designate a work area that is clean and well-lit. The work area must not allow access by children or pets to prevent distraction and injury.
2. Route the power cord along a safe route to reach the work area without creating a tripping hazard or exposing the power cord to possible damage. The power cord must reach the work area with enough extra length to allow free movement while working.
3. There must not be objects, such as utility lines, nearby that will present a hazard while working.
4. If wires are to be soldered, thoroughly clean or scrape the wires so that only the clean metal is showing, then make the wire splice.
5. If other objects are to be soldered, thoroughly clean or scrape the metal surfaces. It may be necessary to apply acid flux (not included) to the metal surfaces before soldering.

Notice: If soldering on printed circuit boards, too much heat can soften the plastic form and loosen the metal eyelet connections. Use minimal heat. Never use acid-core solder on wiring circuits.

Tool Set Up

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Unplug the tool from its electrical outlet before performing any procedure in this section.

Note: Practice soldering on scrap wires and splices prior to actual use.

1. Set the Soldering Station on a fireproof workbench away from all flammable materials.
2. Unplug unit, then plug Soldering Iron into Soldering Iron Outlet.
3. Install Soldering Tip according to ***Maintenance and Servicing on page 10.***
4. Wet Sponge with water and wring out until damp. Place sponge in Soldering Iron Holder.
5. Place Soldering Iron in Holder.

General Operating Instructions

⚠WARNING

TO PREVENT SERIOUS INJURY:
Wear ANSI-approved safety goggles with side shields.

1. Plug Power Cord into grounded 120VAC outlet.
2. Turn Power Switch on.
3. **Set Temperature**
   a. When Screen displays **REAL** press Manual Buttons ▲▼ until desired temperature is selected.
   b. To store temperature press and hold one of the three Preset Buttons for three seconds.
   c. To lock temperature press and hold 1, 2, and 3 Buttons for three seconds. Buttons become non-operational. To unlock press and hold 1, 2, and 3 Buttons for three seconds.

4. Clean and tin Tip, apply a sufficient amount of rosin-core solder to melt over the entire Soldering Tip. Wipe the Tip on the sponge until the Tip is clean and shiny.
5. Apply solder to the wire splice or metal to be soldered, not the Soldering Tip. When the splice or metal is hot enough, it will melt the solder causing it to flow within the splice or between the metal surfaces.
6. When the solder has flowed over the entire wire splice or metal surface, move Tip away.
7. After use, clean and tin Tip as explained in step 4.
8. To prevent accidents, turn off the tool and unplug it after use. Let cool, then store the tool indoors out of children's reach.

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Settings

To enter Settings mode, press and hold ▲▼ for three seconds.

1. **Calibration**
   a. Press 1, Screen will display **CAL** and last calibration value will be shown.
   b. Calibrate with Soldering Iron Tip Thermometer (sold separately).
      • Clean and tin Tip, then measure temperature and record.
      • Compare actual temperature to displayed temperature. Record any difference.
      • Adjust difference by pressing ▲▼. Example: measured temperature is 380° F, displayed temperature is 400° F, difference is -20° F. Press down ▼ to -20°.
   c. Press 1 when finished to store setting.

2. **Temperature Increments**
   a. Press 2, Screen will display **F IΠ** and current setting will be shown. **Press** ▲▼ to change setting.
      • **OΠ** - Temperature will adjust 1° for each press of Manual Buttons.
      • **OFF** - Temperature will adjust 5° for each press of Manual Buttons.
   b. Press 2 when finished to store setting.

3. **Switch Temperature Scale**
   a. Press 3, Screen will display **C - F** and current scale will be shown.
   b. Press ▲▼ to change temperature scale.
   c. Press 3 when finished to store setting.

4. **Automatic Standby**
   a. Enter Settings mode, then press ▼.
   b. Press 1, Screen will display **Stb** and current status will be shown.
   c. Press ▲▼ to set Standby time (1 to 120 minutes) or set to **OFF.**
   d. Press 1 when finished to store setting.

5. **Automatic Shutdown**

NOTE: This feature will only work if Automatic Standby is on. After entering Shutdown, the Soldering Station cannot be controlled until power is turned off and back on.
   a. Enter Settings mode, then press ▼.
   b. Press 2, Screen will display **SdΠ** and current status will be shown.
   c. Press ▲▼ to set Shutdown time (1 to 120 minutes) or set to **OFF.**
   d. Press 2 when finished to store setting.

6. **Sound**
   a. Enter Settings mode, then press ▼.
   b. Press 3, Screen will display **bL** and current status will be shown.
   c. Press ▲▼ to set to **ON** for audible beep when pushing Buttons or set to **OFF**.
   d. Press 3 when finished to store setting.

7. **Restore Factory Settings**
   a. Enter Settings mode, then press ▼ twice.
   b. Press 1, Screen will display **FAC.**
   c. Press ▲▼ to set to **ON** then press 1 to restore settings**.**

8. **Manually Exit Settings**

Note: After 10 seconds of no activity, unit will automatically exit Settings.
   a. While in Settings mode, press ▼ until bottom of Screen displays **FAC** and **ESC**.
   b. Press 2, Screen will display **ESC.**
   c. Set to **ON** then press 2 to exit settings**.**

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

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Make sure that the Trigger is in the off-position, unplug the tool from its electrical outlet, and allow it to cool completely before performing any procedure in this section.

TO PREVENT SERIOUS INJURY FROM TOOL FAILURE:
Do not use damaged equipment. If abnormal noise or vibration occurs, have the problem corrected before further use.

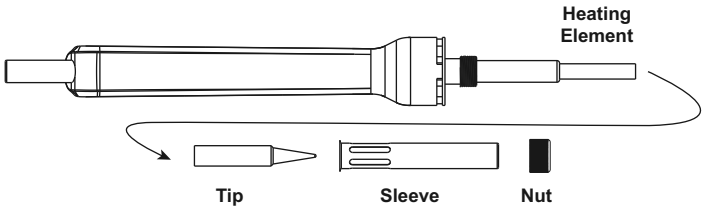
Inspection, Maintenance, and Cleaning

1. **BEFORE EACH USE,** inspect the general condition of the tool. Check for:
   - loose hardware
   - misalignment or binding of moving parts
   - damaged cord/electrical wiring
   - cracked or broken parts
   - any other condition that may affect its safe operation.
2. **⚠WARNING! TO PREVENT SERIOUS INJURY: If the supply cord of this power tool is damaged, it must be replaced only by a qualified service technician.**

Change Tip

Note: Replace the Soldering Tip if it cracks or becomes eroded.

1. Let Soldering Iron cool.
2. Remove Nut, Sleeve and Tip.
3. Push Tip into Sleeve, place Sleeve over heating element, then secure in place with Nut.



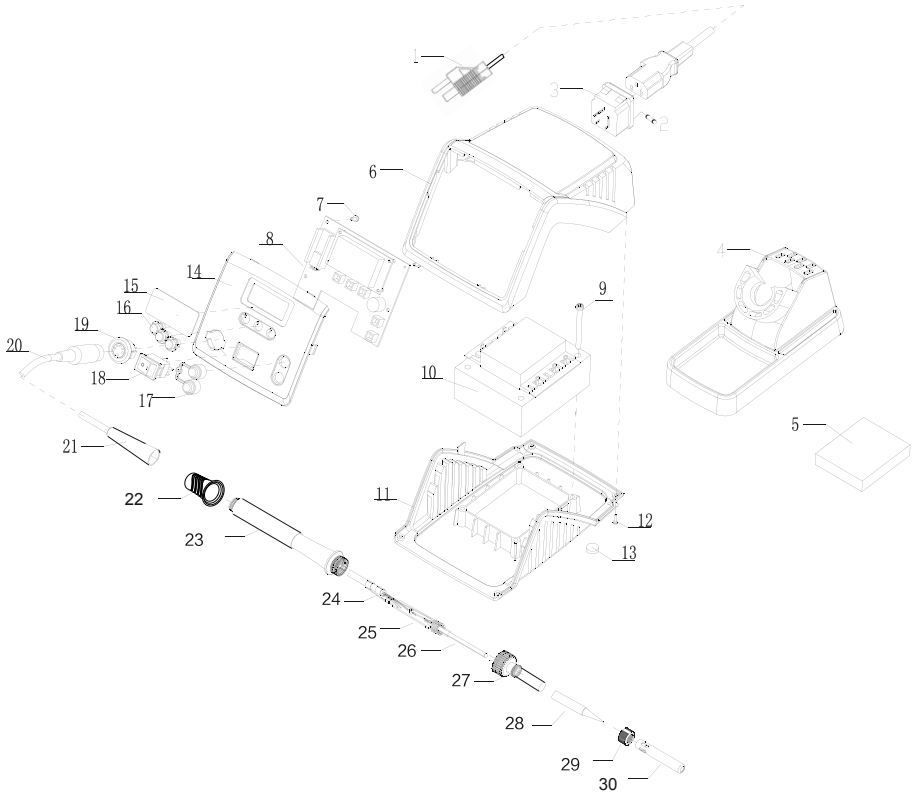
PLEASE READ THE FOLLOWING CAREFULLY

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.

Parts List and Diagram

Part	Description	Qty
1	Power Cord	1
2	Fuse (T2.0A)	1
3	Male Socket	1
4	Soldering Iron Stand	1
5	Sponge	1
6	Top Housing	1
7	PCBA Screw	4
8	PCBA	1
9	Transformer Screw	4
10	Transformer	1
11	Bottom Housing	1
12	Bottom Housing Screw	4
13	Foot	4
14	Front Panel	1
15	Screen Cover	1

Part	Description	Qty
16	Preset Temperature Button Set	1
17	Manual Temperature Button Set	1
18	Power Switch	1
19	Soldering Iron Outlet	1
20	Soldering Iron Cable	1
21	Soldering Iron handle end sleeve	1
22	Soldering Iron handle sleeve	1
23	Soldering Iron handle	1
24	Metal board	1
25	Soldering iron PCBA	1
26	Heating Element	1
27	Fixing base	1
28	Soldering tip	1
29	Fixing swivel nut	1
30	Soldering tip fixing tube	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. Specify UPC 193175430687 when ordering parts.

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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