



## WELDER ARC 160

ITEM: 55051



### OWNER'S MANUAL AND SAFETY INSTRUCTIONS

SAVE THIS MANUAL: KEEP THIS MANUAL FOR SAFETY WARNINGS, PRECAUTIONS, ASSEMBLY, OPERATING, INSPECTION, MAINTENANCE AND CLEANING PROCEDURES. WRITE THE PRODUCT'S SERIAL NUMBER ON THE BACK OF THE MANUAL NEAR THE ASSEMBLY DIAGRAM (OR MONTH AND YEAR OF PURCHASE IF PRODUCT HAS NO NUMBER).

FOR QUESTIONS PLEASE CALL OUR CUSTOMER SUPPORT: (909) 628 4900 MON-FRI 9AM TO 3PM PST

# IMPORTANT SAFETY INFORMATION



## GENERAL SAFETY WARNINGS

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.

## SAFETY

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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. 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.

- **Read and understand all instructions.** Failure to follow all instructions may result in serious injury or property damage.
- **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. This product will be safer and do a better job at the capacity for which it was intended. **DO NOT** use this equipment for a purpose for which it was not intended.
- **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 product in confined work areas may put you dangerously close to cutting tools and rotating parts.
- **DO NOT use the product 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.
- **DO NOT allow the product to come into contact with an electrical source.** The tool is not insulated and contact will cause electrical shock.
- **Keep children and bystanders away from the work area while operating the tool. DO NOT** allow children to handle the product.
- **Be aware of all power lines, electrical circuits, water pipes, and other mechanical hazards in your work area.** Some of these hazards may be hidden from your view and may cause personal injury and/or property damage if contacted.
- Stay alert, watch what you are doing, and use common sense when operating the tool. **DO NOT** use the tool while you are tired or under the influence of drugs, alcohol, or medication.

# IMPORTANT SAFETY INFORMATION

- **Dress properly. DO NOT** wear loose clothing, dangling objects, or jewelry. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts. Air vents on the tool often cover moving parts and should be avoided.
- **Wear the proper personal protective equipment when necessary.** Use ANSI Z87.1 compliant safety goggles (not safety glasses) with side shields. Leather leggings, fire resistant shoes or boots should be worn when using this product This applies to all persons in the work area. Keep clothing free of grease, oil, solvents, or any flammable substances Wear dry, insulating gloves and protective clothing.
- **Check for damaged parts before each use.** Carefully check that the product will operate properly and perform its intended function. Replace damaged or worn parts immediately. **NEVER** operate the product with a damaged part.
- **NEVER leave the plasma cutter unattended when it is plugged into an electrical outlet.** Turn off the Plasma Cutter, and unplug it from its electrical outlet before leaving unplug the plasma cutter from its electrical outlet before performing any inspection, maintenance, or cleaning procedures, including changing accessories.
- **When possible, move the work to a location well away from combustible materials.** If relocation is not possible, protect the combustibles with a cover made of fire resistant material. Remove or make safe all combustible materials for a radius of 35 feet (10 meters) around the work area. Use a fire resistant material to cover or block all open doorways, windows, cracks, and other openings. Enclose the work area with portable fire resistant screens. Protect combustible walls, ceilings, floors, etc, from sparks and heat with fire resistant material.
- **If working on a metal wall, ceiling, etc, prevent ignition of combustibles on the other side by moving the combustibles to a safe location.** If relocation of combustibles is not possible, designate someone to serve as a fire watch, equipped with a fire extinguisher, during the cutting process and for at least one half hour after the cutting is completed. **DO NOT** weld or cut on materials having a combustible coating or combustible internal structure, as in walls or ceilings, without an approved method for eliminating the hazard.
- **After welding or cutting, make a thorough examination for evidence of fire.** Be aware that easily visible smoke or flame may not be present for some time after the fire has started. **DO NOT** weld or cut in atmospheres containing dangerously reactive or flammable gases, vapors, liquids, and dust.
- **Provide adequate ventilation in work areas to prevent accumulation of flammable gases, vapors, and dust. DO NOT** apply heat to a container that has held an unknown substance or a combustible material whose contents, when heated, can produce flammable or explosive vapors. Clean and purge containers before applying heat. Vent closed containers, including castings, before preheating, welding, or cutting.
- **INHALATION HAZARD:** Welding and cutting produce Toxic Fumes. Exposure to welding or cutting exhaust 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 welding or cutting exhaust 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. Use natural or forced air ventilation and wear a respirator approved by NIOSH to protect against the fumes produced to reduce the risk of developing the above illnesses.

# IMPORTANT SAFETY INFORMATION

- **Avoid overexposure to fumes and gases.** Always keep your head out of the fumes. **DO NOT** breathe the fumes. Use enough ventilation or exhaust, or both, to keep fumes and gases from your breathing zone and general area.
- Where ventilation is questionable, have a qualified technician take an air sampling to determine the need for corrective measures. Use mechanical ventilation to improve air quality. If engineering controls are not feasible, use an approved respirator.
- Follow the American Conference of Governmental Industrial Hygienists recommendations for Threshold Limit Values (TLVs) for fumes and gases. Have a recognized specialist in Industrial Hygiene or Environmental Services check the operation and air quality and make recommendations for the specific welding or cutting situation.
- Keep hoses away from welding/cutting area. Examine all hoses and cables for cuts, burns, or worn areas before each use. If any damaged areas are found, replace the hoses or cables immediately.
- Proper cylinder care. Secure cylinders to a cart, wall, or post, to prevent them from falling. All cylinders should be used and stored in an upright position. Never drop or strike a cylinder. **DO NOT** use cylinders that have been dented. Cylinder caps should be used when moving or storing cylinders. Empty cylinders should be kept in specified areas and clearly marked “empty”.
- **NEVER** use oil or grease on any inlet connector, outlet connector, or cylinder valves.
- **USE PROPER EXTENSION CORD.** Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. A 50 foot extension cord must be at least 12 gauge in diameter, and an 100 foot extension cord must be at least 10 gauge in diameter. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.
- **KEEP CHILDREN AWAY.** All visitors should be kept safe distance from work area. **MAKE WORKSHOP KID PROOF** with padlocks, master switches, or by removing starter keys.
- **SECURE WORK.** Use clamps or a vice to hold work. It’s safer than using your hand and it frees both hands to operate ARC Welder.
- **MAINTAIN WELDER WITH CARE.** Keep Welder clean for best and safest performance. Follow instructions for changing accessories.
- Excessive noise can be harmful to your hearing. Be sure to wear suitable hearing protection while using this product.
- Set the earth fitting according to applying standard. **DO NOT** touch the electric parts or electrodes with bare skin.
- When using this product, make sure the user and any bystanders are insulated from the ground and workshop.
- **DO NOT dispose of hot slag in containers holding combustible materials.** Keep a fire extinguisher nearby and know how to use it.



# MACHINE DESCRIPTION AND SPECIFICATIONS



## SPECIFICATIONS

110V 60HZ Single Phase
No Load Electric Voltage: 48V
Rated Duty: 10% at 160A
Current Range 65-160 AMPS
Suitable Welding Rod Diameter 5/64" to 7/32" (2mm-4mm)
Insulation grade H
Includes: Clamp Cable, Contact Tips & Welding Gun, Face Shield & Wire Brush

## ACCESSORIES:

- Power supply cord
- Electrode holder with cord
- Earth clamp
- Brush
- Welding mask

# OPERATION

## CONNECTION OF THE WELDING END

One end adjoins the cable for the welding torch through a quick joint and the other end adjoins the work piece by the cable with the quick joint. The quick joint at the output end must be screwed in a clockwise direction firmly. The work piece must be grounded during operation. Be sure to turn off the power box when adjoining the cable. The cables must be connected with the copper terminal. Be sure to use insulating tape after fixing it with a bolt and nut.

## OPERATION

1. Switch on the distributor box and power source.
2. Turn on the power switch of the welder, turning the switch handle at 100V - 120V
3. Adjust the welding current
4. Operate welding, wear proper protective clothing.
5. End operation and turn off the power to the welder.
6. Switch off the distributor box.

## WELDER PLACEMENT

1. Once finished, set the welding pieces at least 8 feet away from the wall.
2. Place in a clean, dry area free off iron powder, dust and paint.

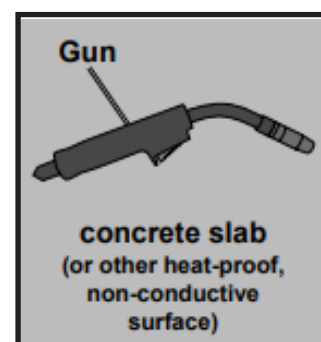
## CONNECTION

1. There is a ground terminal under the shell board. Be sure to ground with copper wire over 14mm.
2. If unsure about grounding operations, consult a qualified technician before operating further.

## DUTY CYCLE

**Avoid damage to the Welder by not welding for more than the prescribed duty cycle time.** The Duty Cycle defines the number of minutes, within a 10 minute period, during which a given welder can produce a particular welding current without overheating. For example, this Welder with a 20% duty cycle at rated output (90A) must be allowed to rest for at least 8 minutes after every 2 minutes of continuous weld. Failure to carefully observe duty cycle limitations can easily over-stress a welder's power generation system contributing to premature welder failure.

This Welder has an internal thermal protection system to help prevent this sort of over-stress. When the unit overheats, it automatically shuts down and the Overload Indicator lights. The Welder automatically returns to service after cooling off. Rest the Gun on an electrically non-conductive, heat-proof surface, such as a concrete slab, well clear of the ground clamp while allowing the Welder to cool with the Power Switch on, so that the internal Fan will help cool the Welder. When the Welder can be used again, use shorter welding periods and longer rest periods to prevent needless wear.



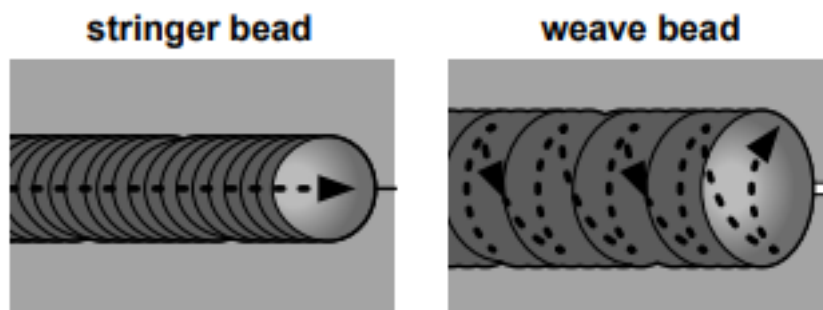
# OPERATION

## SETTING UP

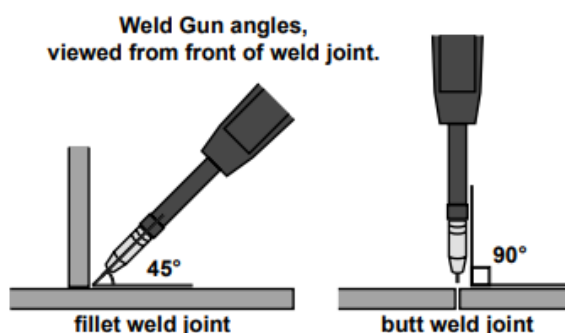
1. Make practice welds on pieces of scrap the same thickness as your intended work piece to practice technique before welding anything of value. Clean the weld surfaces thoroughly with a wire brush or angle grinder; there must be no rust, paint, oil, or other materials on the weld surfaces, only bare metal.
2. Use clamps (not included) to hold the work pieces in position so that you can concentrate on proper welding technique. The distance (if any) between the two work pieces must be controlled properly to allow the weld to hold both sides securely while allowing the weld to penetrate fully into the joint. The edges of thicker work pieces may need to be chamfered (or beveled) to allow proper weld penetration.
3. Clamp Ground Cable to bare metal on the work piece near the weld area, or to metal work bench where the work piece is clamped.
4. Set the Wire Speed Dial and the Current Switch to the desired settings. **WARNING! DO NOT SWITCH THE CURRENT WHILE WELDING.**
5. Flip the Power Switch to the OFF position, then plug the Welder into a dedicated circuit with delayed action type circuit breaker or fuses.
6. Hold the Gun, without touching the Trigger, with the wire and tip clearly away from any grounded objects. Then, turn the Power Switch to ON.

## BASIC WELDING TECHNIQUE

1. Press (and hold) Trigger and contact area to be welded with electrode wire to ignite arc.
2. For a narrow weld, you can usually draw the wire in a steady straight line. This is called a stringer bead. For a wider weld, draw the wire back and forth across the joint. This is called a weave bead.



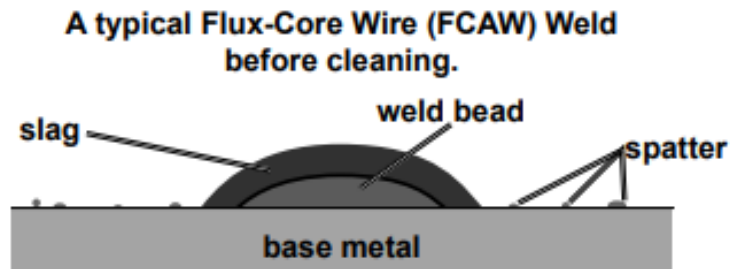
3. Hold Gun in one hand and the face shield in the other. both hands can be used to control gun.
2. Direct the welding wire straight into the joint. This gives an angle of  $90^\circ$  (straight up and down) for butt (end to end) welds, and an angle of  $45^\circ$  for fillet (T-shaped) welds.



# OPERATION

## CLEANING THE WELD

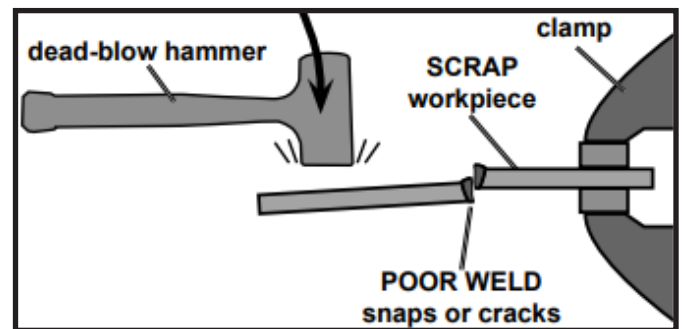
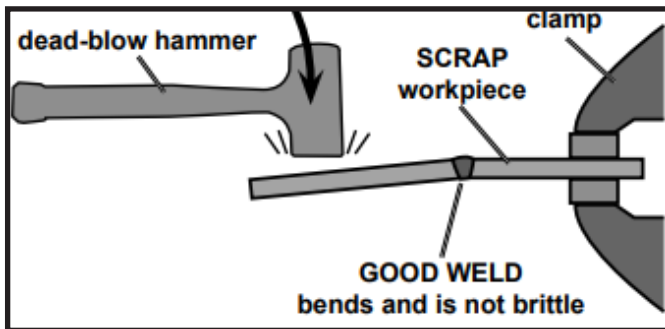
1. A weld from flux-core wire will be covered by slag. Use a Chipping Hammer to knock this off. Be careful not to damage the weld or base material.
2. Then, use a Wire Brush to further clean the weld or use an angle grinder (sold separately) to shape the weld.



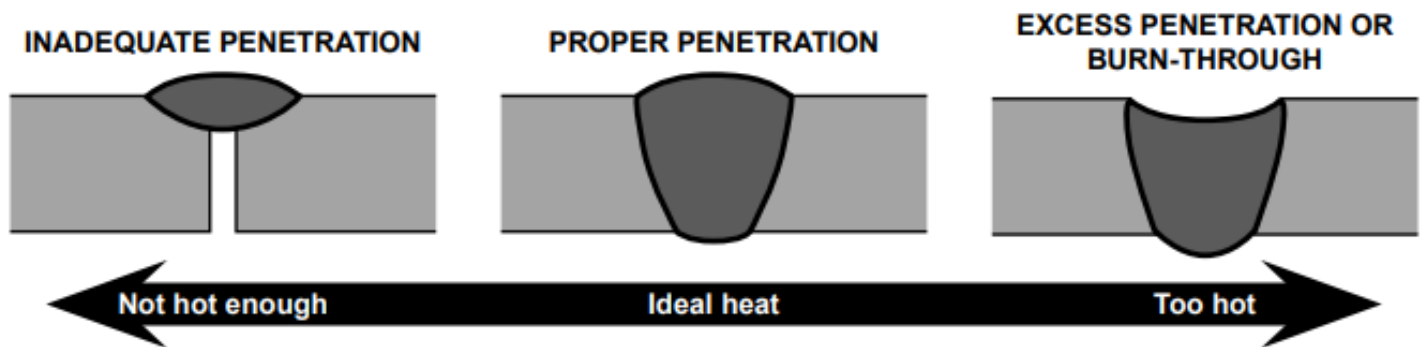
## STRIKE TEST

A test weld on a **PIECE OF SCRAP** can be **WEAR ANSI-APPROVED SAFETY GOGGLES DURING THIS PROCEDURE. WARNING!** This test **WILL** damage the weld it is performed on. This test is **ONLY** an indicator of weld technique and is not intended to test working welds.

1. After two scraps have been welded together and the weld has cooled, clamp one scrap in a sturdy vise.
2. Stay clear from underneath while you strike the opposite scrap with a heavy hammer, preferably a dead-blow hammer.
3. A **GOOD WELD** will deform but not break, as shown on top. A **POOR WELD** will be brittle and snap at the weld, as shown on bottom.



## Workpiece Heat Control / Weld Penetration



**How to increase workpiece heat and increase penetration:**  
(to weld **THICKER** workpieces properly)

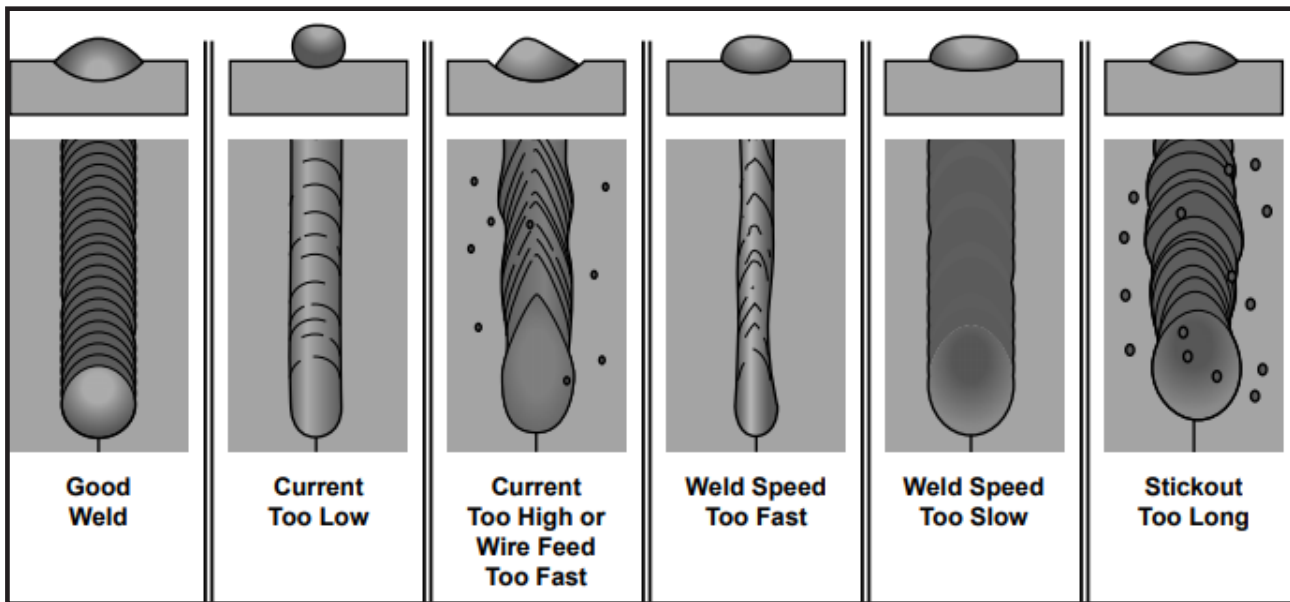
- a. Use MAX setting
- b. Weld more slowly
- c. Use faster wire feed
- d. Use shorter stickout

**How to reduce workpiece heat and limit penetration:**  
(to weld **THINNER** workpieces properly)

- a. Use MIN setting
- b. Weld more quickly
- c. Use slower wire feed
- d. Use longer stickout



# TROUBLESHOOTING



ISSUE	POSSIBLE CAUSE	POSSIBLE SOLUTION
<b>Wire Feed Motor Runs But Wire Does Not Feed Properly</b>	Insufficient wire feed tension	Increase wire feed tension properly
	Incorrect wire feed roll size	Replace with the proper wire feed roll. Flip over wire feed roll if necessary
	Damaged Gun, cable, or liner assembly	Have a qualified technician inspect these parts and replace as necessary
<b>Wire Creates A Bird's Nest During Operation</b>	Excess wire feed tension	Adjust wire feed tension properly
	Incorrect contact tip size	Replace with the proper tip for the wire
	Gun end not inserted into drive housing properly	Loosen gun securing bolt and push gun end into housing just enough
	Damaged liner	Have a qualified technician inspect and repair/replace as necessary
<b>Wire Feeds, But Arc Does Not Ignite</b>	Improper ground connection	Make certain that the workpiece is contacted properly by the Ground Clamp and that the workpiece is properly cleaned near the ground clamp and the welding location
	Improperly sized or excessively worn Contact Tip	Verify that Contact Tip is the proper size for the wire. Check that the hole in the tip is not deformed or enlarged. Also, check that the tip is not dirty; this would prevent a good connection. If needed, replace Contact Tip with proper size and type
<b>Power Switch Lights, But Welder Does Not Function When Switched On</b>	Tripped thermal protection device	Shut the Welder's switch to off and allow it to cool for at least 20 minutes. Reduce duration or frequency of welding periods to help reduce wear on the Welder.
	Faulty or improperly connected Trigger	Qualified technician must check and secure/replace Trigger
<b>Weak Arc Strength</b>	Incorrect line voltage	Check the line voltage and, if insufficient, have
	Improper gauge or length of extension	Extension cords are not recommended.
<b>Welding Arc Not Stable</b>	Incorrect contact tip size	Replace with the proper tip for 0.030" wire
	Incorrect wire feed speed	Adjust wire feed speed to achieve a more
	Loose Gun cable or ground cable	Check to ensure that all connections are tight
	Damaged Gun or loose connection within Gun	Have a qualified technician inspect and repair/replace as necessary
	Adjust current setting	Make sure setting matches recommended setting on chart

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## PLEASE READ THE FOLLOWING CAREFULLY

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**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.



**SAVE THESE INSTRUCTIONS.**

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**PRODUCT MADE IN CHINA**