

CHICAGO welding
ELECTRIC® systems

MIG 200 AMP WELDER

Model 03664

ASSEMBLY AND OPERATING INSTRUCTIONS



3491 Mission Oaks Blvd., Camarillo, CA 93011
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For technical questions and replacement parts, please call 1-800-444-3353

Specifications

ITEM	DESCRIPTION
Welding Current	30 ~ 200 amps AC
Welding Capacity	For welding 24 gauge metal and thicker
Duty Cycle	100% at 120 amps; 40% at 150 amps; 25% at 200 amps
Power Consumption	220 VAC, 12 amps at 60 Hz
Open Voltage	23V at 120A; 25V at 150A; 28V at 200A
Heat Control	30 ~ 200 amps, variable
Ground Cable	8 feet with heavy duty grounding clamp
Torch Power Cable	8 feet
Power Cord	3-core, double insulated, 12 AWG, U.L. approved
Thermal Overload with Light	Automatic shutdown and restart after cooldown
Wire Size	0.030" to 0.035"
Wire Spool Size	11-3/4" spool diameter
Overall Dimensions	27-3/4 (L) x 10-1/2 (W) x 25-3/4 (H) inches
Weight	79 lbs.
Accessories	Wheel kit, pulling handle, ground clamp, MIG torch, Includes 1lb. of .032" wire

Save This Manual

You will need the manual for the safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts list and diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep the manual and invoice in a safe and dry place for future reference.

Safety Warnings and Precautions

WARNING: When using tool, basic safety precautions should always be followed to reduce the risk of personal injury and damage to equipment.

Read all instructions before using this tool!

1. **Keep work area clean.** Cluttered areas invite injuries.
2. **Observe work area conditions.** Do not use machines or power tools in damp or wet locations. Don't expose to rain. Keep work area well lighted. Do not use electrically powered tools in the presence of flammable gases or liquids.
3. **Keep children away.** Children must never be allowed in the work area. Do not let them handle machines, tools, or extension cords.
4. **Store idle equipment.** When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep out of reach of children.
5. **Do not force tool.** It will do the job better and more safely at the rate for which it was intended. Do not use inappropriate attachments in an attempt to exceed the tool capacity.
6. **Do not overreach.** Keep proper footing and balance at all times. Do not reach over or across running machines.
7. **Dress properly.** Do not wear loose clothing or jewelry as they can be caught in moving parts. Protective, electrically non-conductive clothes and non-skid footwear are recommended when working. Wear restrictive hair covering to contain long hair.

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8. **Use the right tool for the job.** Do not attempt to force a small tool or attachment to do the work of a larger industrial tool. There are certain applications for which this tool was designed. Do not modify this tool and do not use this tool for a purpose for which it was not intended.
9. **Use eye and ear protection.** Always wear ANSI approved, arc shaded, impact safety full face shield (not included) when arc welding. Wear an ANSI approved dust mask or respirator when working around metal, chemical dusts, fumes and mists.
10. **Maintain tools with care.** Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and, if damaged, have them repaired by an authorized technician. The handles must be kept clean, dry, and free from oil and grease at all times.
11. **Disconnect power.** Unplug tool when not in use.
12. **Remove adjusting keys and wrenches.** Check that keys and adjusting wrenches are removed from the tool or machine work surface before plugging it in.
13. **Avoid unintentional starting.** Be sure the switch is in the Off position when not in use and before plugging in. Do not carry any tool with your finger on the trigger, whether it is plugged in or not.
14. **Stay alert.** Watch what you are doing, use common sense. Do not operate any tool when you are tired.
15. **Check for damaged parts.** Before using any tool, any part that appears damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment and binding of moving parts; any broken parts or mounting fixtures; and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician. Do not use the tool if any switch does not turn On and Off properly.
16. **Guard against electric shock.** Prevent body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerator enclosures.
17. **Replacement parts and accessories.** When servicing, use only identical replacement parts. Use of any other parts will void the warranty. Only use accessories intended for use with this tool. Approved accessories are available from Harbor Freight Tools.
18. **Do not operate tool if under the influence of alcohol or drugs.** Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not operate the tool.
19. **Maintenance.** For your safety, service and maintenance should be performed regularly by a qualified technician.
20. **Use proper size and type extension cord.** If an extension cord is required, it must be of the proper size and type to supply the correct current to the tool without heating up. Otherwise, the extension cord could melt and catch fire, or cause electrical damage to the tool. This tool requires use of an 220 VAC extension cord of **20 amps** minimum capability (up to 30 feet), with wire size rated at **10 AWG**. Longer extension cords require larger size wire. If you are using the tool outdoors, use an extension cord rated for outdoor use (signified by "WA" on the jacket).

21. **Pacemaker safety warning.** People with pacemakers should consult with their physician(s) before using this product; operation of equipment in close proximity to a heart pacemaker could cause interference or failure of the pacemaker.
22. **Use tools with both hands when required.** Many tools such as chain saws, drills, routers, and welders, etc., require the use of both hands when operating. This helps maintain tool stability and keeps hands away from the working area of the tool.

Note: Performance of this tool may vary depending on variations in local line voltage. Extension cord usage may also affect tool performance.

Warning: The warnings, cautions, 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.

Arc Welding Safety Warnings and Precautions

Warning: This product, when used for welding and similar applications, produces chemicals known to the State of California to cause cancer and birth defects (or other reproductive harm). California Health & Safety Code 25249.5, et seq.

1. **Avoid electrical shock.** Do not permit electrically live parts, cables, or electrodes to contact skin, clothing, or gloves. Protective clothing should be free of holes, dry, and ANSI approved.

This unit draws enough current to cause serious injury or death. Before turning the welder on, check the electrode holder to be sure that there are no protruding screw heads, and that all insulation is secure. Do not weld unless you are insulated from ground and the work piece.

2. **Avoid breathing fumes or gases.** They can cause serious health problems. Use an active ventilation system directly above the welding area. Keep your head out of the fumes.

Inhalation Hazard

Welding Produces TOXIC FUMES and GASSES.



Exposure to welding gasses 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 gasses or fumes are:

- Early onset of Parkinson's Disease
- Damage to the reproductive organs
- Inflammation of the small intestine or stomach
- Respiratory diseases such as emphysema, bronchitis or pneumonia
- Heart Disease
- Ulcers
- Kidney damage

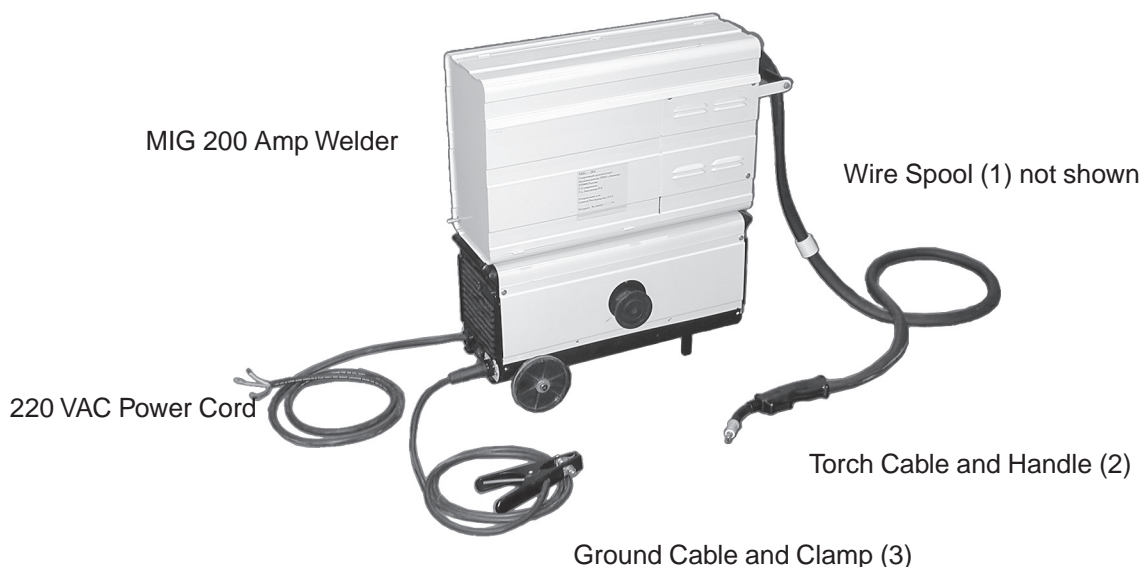


Safety precautions, such as using natural or forced air ventilation and wearing an ANSI approved respirator, are **ESSENTIAL** to reduce the risk of developing the above illnesses.

3. **Avoid eye and body damage.** Arc rays and infrared radiation can injure eyes and burn skin. Wear ANSI approved arc shaded, impact safety full face shield and body protection. Do not allow viewing by visitors without proper eye and body protection.
4. **Know proper arc welding practices.** Read and understand the manufacturer's instructions, and well as your employer's safety practices for arc welding.
5. **Connect only to a code approved power source.** Connect only to a grounding power source conforming to the National Electrical Code and Local Codes.
6. **Avoid fire and explosion.** Remove flammable and explosive material from at least 35 feet from the welding arc to prevent welding sparks or molten metal from starting a fire. Keep a type ABC fire extinguisher within easy reach. Thoroughly clean the object being welded of any paint, grease, or other foreign material.
7. **Avoid being burned.** Always wear ANSI approved welding gear: leather gloves, leather apron, and shoes.

Unpacking

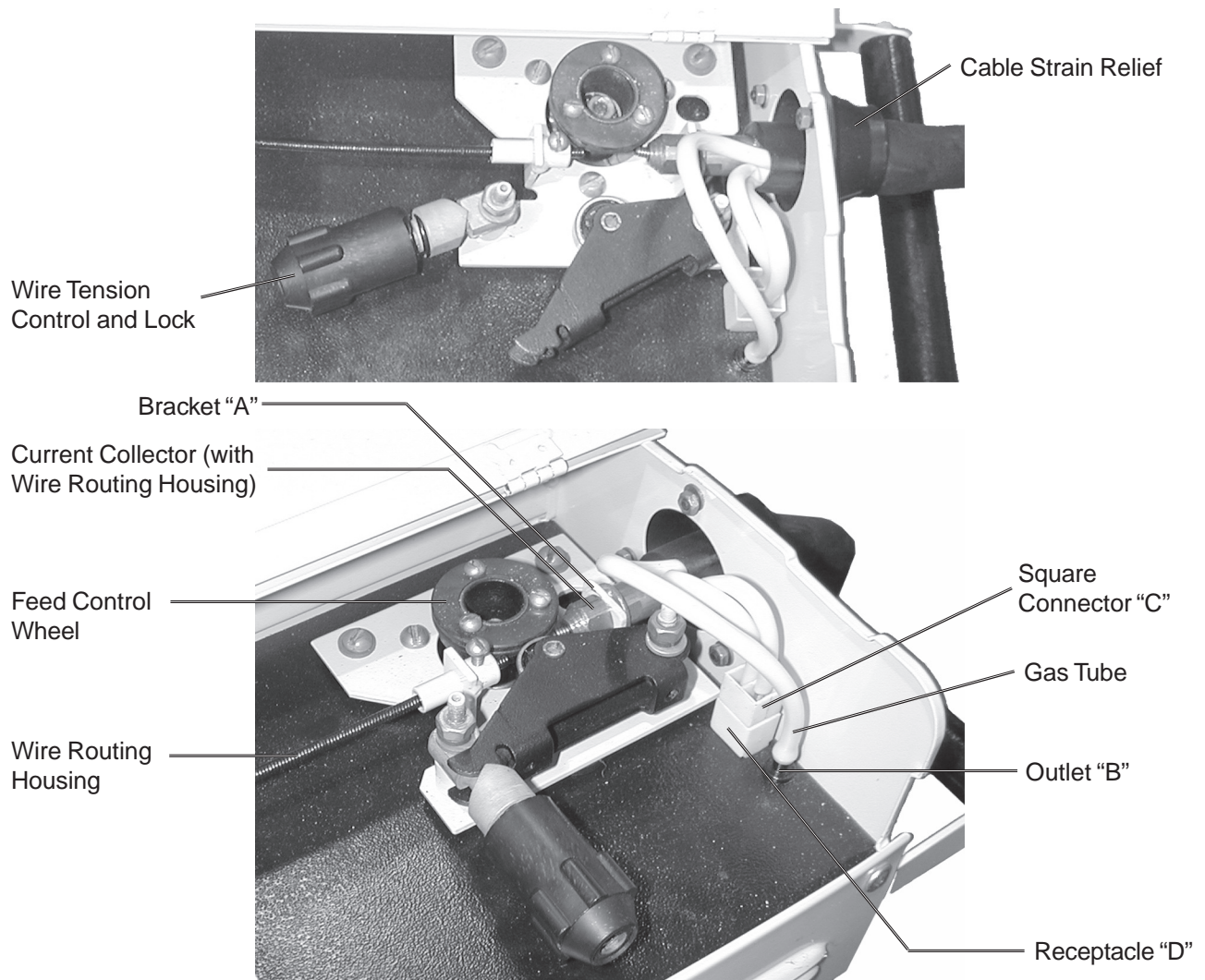
When unpacking, check to make sure the following parts are included.



If any parts are missing or broken, please call Harbor Freight Tools at the number on the cover of this manual as soon as possible.

Assembly

1. Insert the Torch Cable (connection end) into the cable strain relief on the end of the unit. Refer to the photos on the next page.
2. Loosen and unlock the Wire Tension Control.



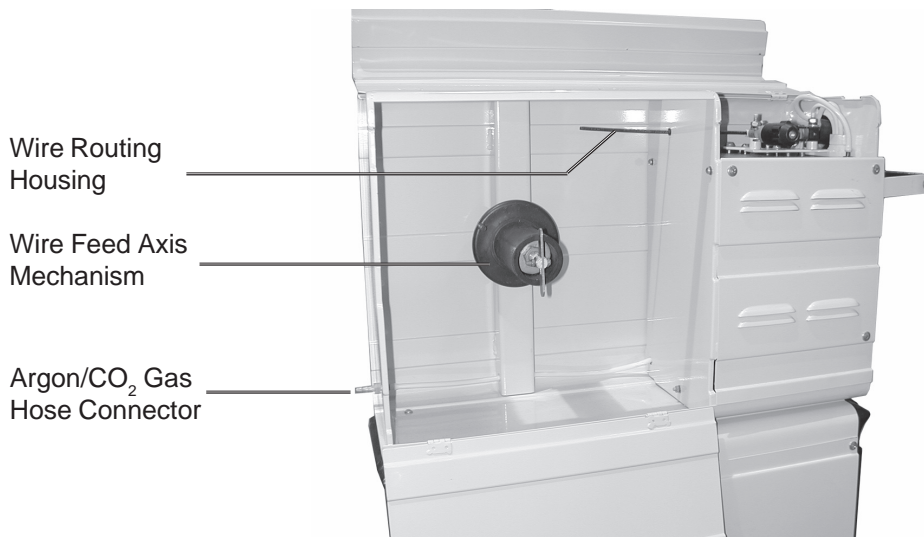
3. Attach the Current Collector (with Wire Routing Housing) to Bracket "A" and tighten. Refer to photos above.
4. Press the white Gas Tube onto the black outlet "B".
5. Plug the white tube Square Connector "C" into the matching receptacle "D".
6. Wind (or place) the welding wire onto the Wire Spool (not shown), and mount the Wire Spool onto the Wire Feed Axis Mechanism. See photo on next page.
7. Guide the welding wire into the Wire Routing Housing until it passes the Feed Control Wheel, and into the Torch Cable.
8. Connect a 220 VAC plug (not supplied) to the line cord. This step must be done by a licensed electrician.
9. Plug the line cord into a 220 VAC electrical outlet.
10. Flip the Power Switch on the front of the unit to the ON (I) position. The blower will start.

Warning: The Torch Handle is now active. Do not touch anything grounded while performing the next step.

11. While holding the Torch Handle away from any grounding points, press and hold the Trigger Switch to begin feeding the welding wire through the Torch Cable until it reaches the Torch Head.

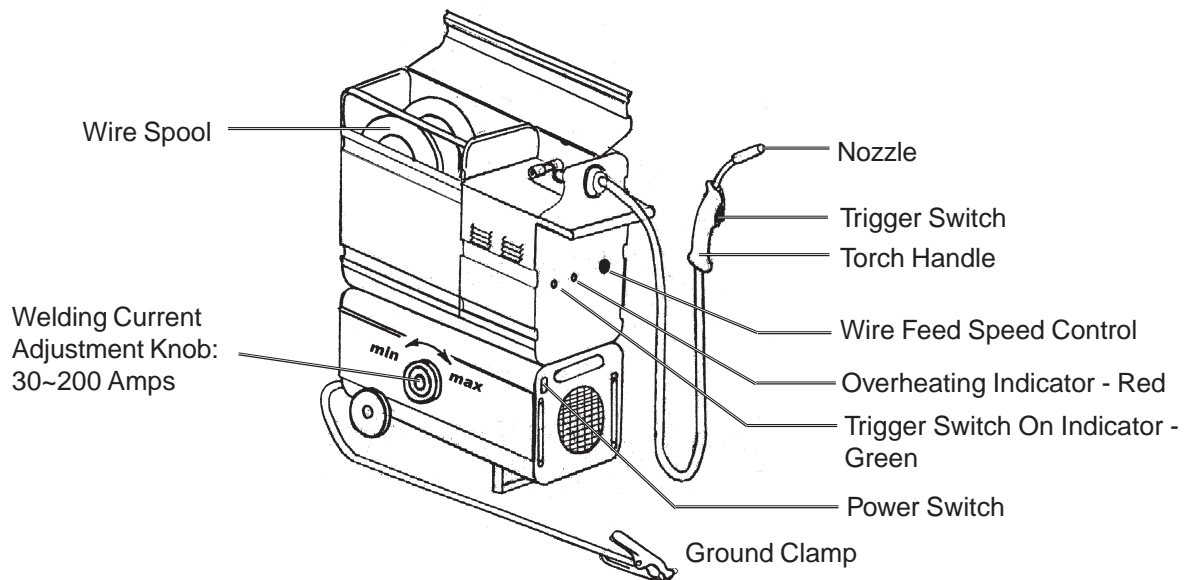
Turn the Wire Feed Speed Control clockwise to increase the wire feed. If the wire is not feeding properly, It may also be necessary to increase the tension of the Wire Tension Control knob by turning it clockwise.

12. Release the Trigger Switch and flip the Power Switch to the OFF (0) position.
13. Close all unit compartment doors. The unit is now ready for welding.



Operation

Controls and Indicators



Welding

Warning: Before arc welding, read and understand all safety precautions and warnings listed on pages 2 through 5.

1. Connect and secure the Argon/CO₂ gas hose to the rear of the MIG Welder.
2. Securely clamp the Ground Cable Clamp as close as possible to the metal object to be welded, or to the metal work bench where the object is mounted and electrically connected.
3. Set the Welding Current Adjustment Knob (30~200 Amps) to the desired current setting for the type of metal being welded. Thinner metals use lower current. Heavier metals use higher current.
4. Verify that the Power Switch is in the OFF (0) position, then plug the MIG Welder plug into a dedicated, 220 VAC, 20 amp line with delayed action type circuit breaker or fuses. If an extension cord is used, it must have the following wire size: up to 30 feet, use 10 AWG size wire; 30 to 50 feet, use 8 AWG wire; Over 50 feet, use 6 AWG wire.
5. While holding the Torch Handle with electrode wire clearly out of the way of any grounded objects, turn the Power Switch to the ON (I) position.
6. Momentarily press the Torch Trigger Switch to test the wire feed speed.
Adjust the speed by turning the Wire Feed Speed Control knob.
7. Orient yourself on the area to be welded, then place the Arc Shaded Face Shield over your eyes.

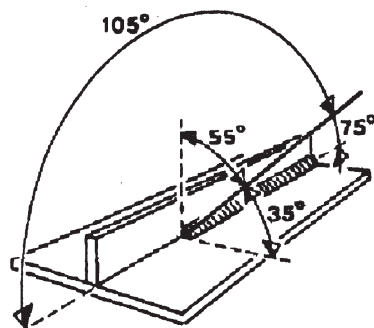
Warning: Never look at the ignited arc without ANSI approved, arc shaded, eye protection in a full face shield. Permanent eye damage or blindness can occur. Skin burns can occur. Never breath arc fumes.

8. Press (and hold) the Torch Trigger Switch and stroke the area to be welded with the electrode wire to ignite the arc.

Never tap the electrode wire into the welding surface to ignite the arc. This damages its external coating on the electrode which prevents oxygen in the air from coming into contact with the molten metal, causing it to oxidize.

9. Once the arc is ignited, tilt the electrode wire forward at an angle of about 35°. Refer to the illustration below.

The wire feeds automatically at a speed dependent on the Min. or Max. current setting. The wire speed can also be adjusted using the Wire Feed Speed Control.



Note: If too much current is drawn from the MIG Welder, the Thermal Overload protector will activate, the red Overheating indicator will light, and the Arc Welder will turn off until it cools down. If this happens, turn the Power Switch to the OFF (0) position and wait about 3 ~ 5 minutes.

10. When the weld is complete, lift the Torch Handle electrode wire clearly away from any grounded object, lift your Face Shield, and turn the Power Switch to the OFF (0) position.
11. Unplug the Power Cord from the electrical outlet.

Maintenance

Warning: Before performing any maintenance on the MIG Welder, unplug the Power Cord from the electrical outlet.

1. Periodically using compressed air, open the top and side panels and blow out all dust from the interior.
2. Store the unit in a clean and dry location.
3. Periodically clean out the Torch Head.

Replacing the Wire Reel

When the wire on the Feed Reel is used up, you will need to replace it as described on page 6, step 6 through step 13.

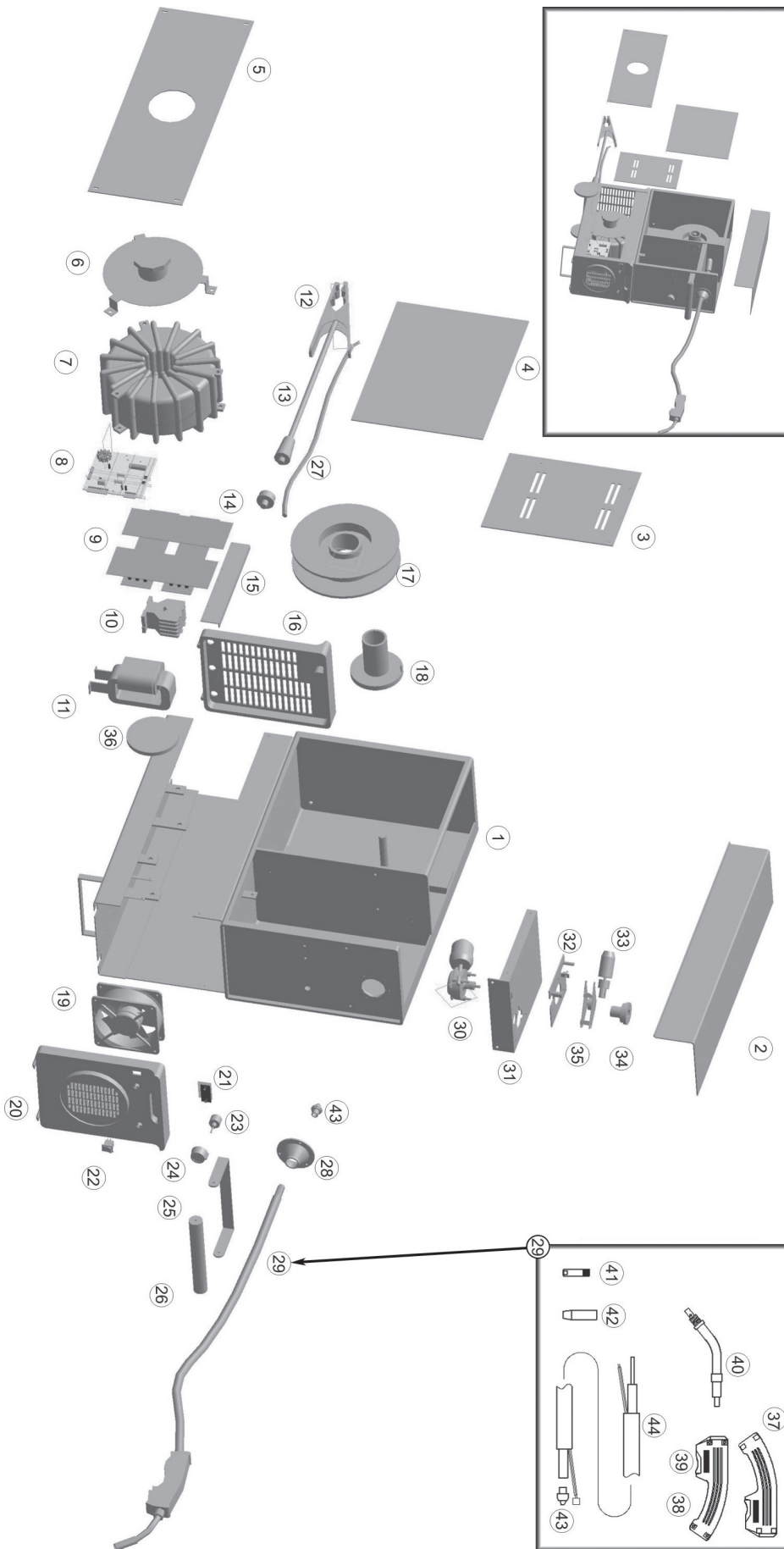
Parts List

Part	Description	Part	Description	Part	Description
1	Case	17	Wire Spool	32	Panel
2	Folding Cover	18	Brake	33	Wire Tension Control/ Lock
3	Vent Cover	19	Fan		
4	Coil Cover	20	Front Panel	34	Feed Control Wheel
5	Transformer Cover	21	LED Display	35	Current Collector
6	Current Adjusting Knob	22	Power Switch	36	Wheels
7	Main Transformer	23	Wire Speed Control	37	Right handle
8	Circuit Board	24	Wire Speed Knob	38	Left handle
9	Diode Board	25	Handle Bracket	39	Trigger
10	Starter	26	Handle	40	Nozzle Tube
11	Throttle	27	Input Line Cord	41	Tip
12	Ground Clamp	28	Cable Strain Relief	42	Nozzle
13	Ground Cable	29	Torch & Hose Assy (Contains parts 37-44)	43	Tip
14	Ground Terminal			44	Cord
15	Retainer	30	Electric Motor	45	1 Lb. Spool of .032" Welding Wire
16	Back Panel	31	Panel		

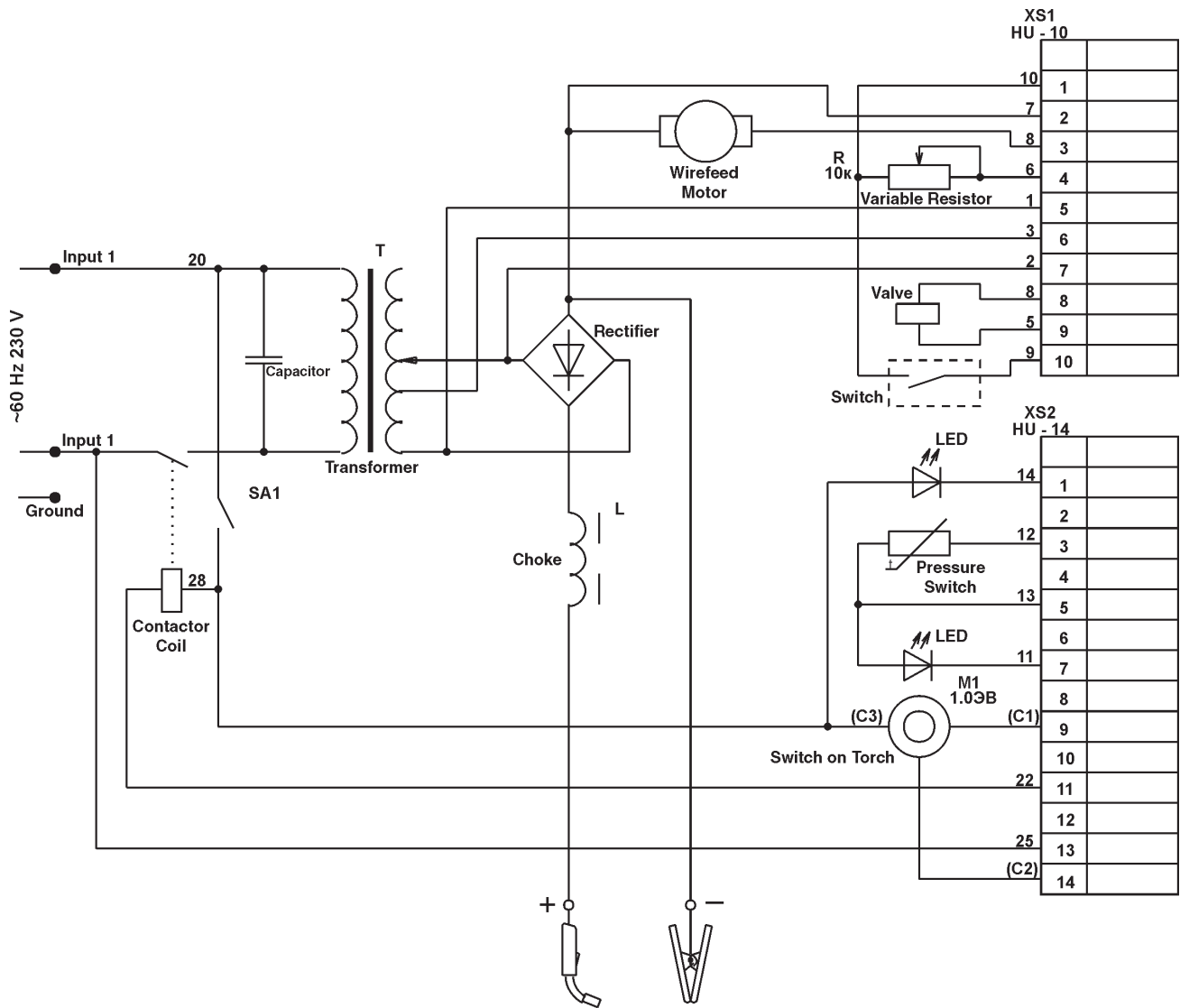
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Assembly Diagram

NOTE: Some parts are listed and shown for illustration purposes only and are not available individually as replacement parts. This diagram and the parts list that preceded it show the major components of this unit and are not comprehensive. Part 45 - Welding Wire - not shown.



Schematic Diagram



PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER NOR 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.

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