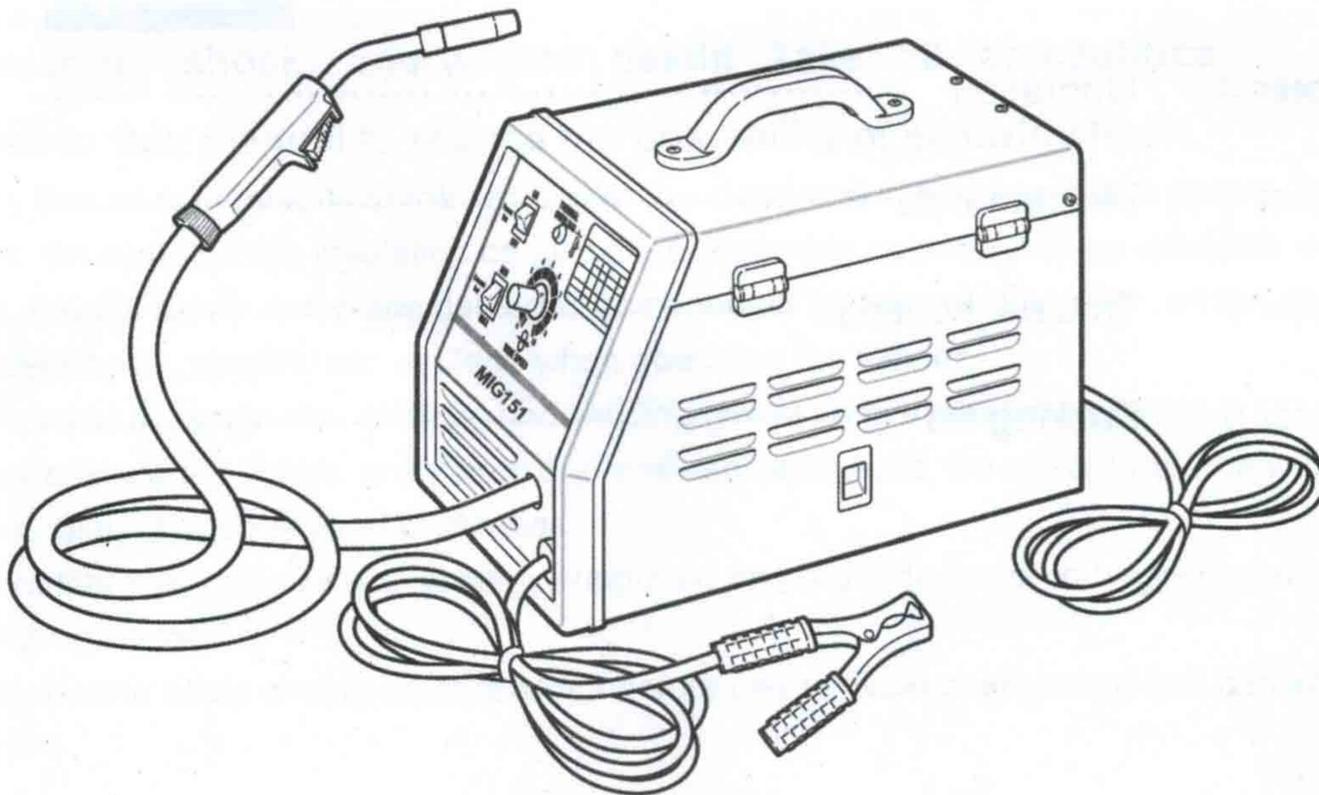


MI151058-2010

2010-12

MIG-150 *TURBO*

OPERATING INSTRUCTIONS



Caution

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Responsibility

The user shall inspect the equipment, and faulty equipment shall be stopped. All the faulted, missed, abrasive, distorted and polluted parts shall be changed promptly. When repair or change, the manufacturer advised the user to change the part forward the require in written or calling form to the licensed distributors.

The user can not change any parts without the manufactures advanced permission, Otherwise, the user shall be responsible for an the accidents caused by the inappropriate use.

Catalogue

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Safety Warning

GENERAL SAFETY



Danger

Danger means a hazard that will cause death or serious injury if the warning is ignored.



Warning

Warning means a hazard that could cause death or serious injury if the warning is ignored.



Caution

Caution means a hazard that may cause minor or moderate injury if the warning is ignored. It also may mean a hazard that will only cause damage to property.



Warning

Improper use of electric arc welders can cause electric shock, injury, and death! Take all precautions described in this manual to reduce the possibility of electric shock.



- Verify that all components of the arc welder are clean and in good condition prior to operating the welder. Be sure that the insulation on all cables, electrode holders, and power cords is not damaged. Always repair or replace damaged components before operating the welder. Always keep welder panels, shields, etc. in place when operating the welder.
- Always wear dry protective clothing and welding gloves, and insulated footwear.
- Always operate the welder in a clean, dry, well ventilated area. Do not operate the welder in humid, wet, rainy, or poorly ventilated areas.
- Be sure that the work piece is properly supported and grounded prior to beginning any electric arc welding operation.
- Coiled welding cable should be spread out before use to avoid overheating and damage to insulation.



Warning

Electric arc welding operations produce intense light and heat and ultraviolet (UV) rays. This intense light and UV rays can cause injury to eyes and skin. Take all precautions described in this manual to reduce the possibility of injury to eyes and skin.



- All persons operating this equipment or in the area while equipment is in use must wear protective welding gear including: welding helmet or shield with proper shade as specified in the following chart, flame resistant clothing, leather welding gloves, and full foot protection.
- Never look at arc welding operations without eye protection as described above. Never use a shade filter lens that is cracked, broken, or rated below number 10. Warn others in the area not to look at the arc.

Safety Warning



Warning

Electric arc welding operations cause sparks and heat metal to temperatures that can cause severe burns! Use protective gloves and clothing when performing any metal working operation. Take all precautions described in this manual to reduce the possibility of skin and clothing burns.



- Make sure that all persons in the welding area are protected from heat, sparks, and ultraviolet rays. Use additional face shields and flame resistant barriers as needed.
- Never touch work pieces until completely cooled.



Warning

Heat and sparks produced during electric arc welding and other metal working operations can ignite flammable and explosive materials! Take all precautions described in this manual to reduce the possibility of flames and explosions.



- Remove all flammable materials within 35 feet (10.7 meters) of welding arc. If removal is not possible, tightly cover flammable materials with fireproof covers.
- Do not operate any electric arc welder in areas where flammable or explosive vapors may be present. Take precautions to be sure that flying sparks and heat do not cause flames in hidden areas, cracks, behind bulkheads, etc.



Warning

Do not breathe fumes that are produced by the arc welding operation. These fumes are dangerous. If the welding area cannot be adequately ventilated, be sure to use an air-supplied respirator.



- Keep the head and face out of the welding fumes.
- Do not perform electric arc welding operations on metals that are galvanized or cadmium plated, or contain zinc, mercury, or beryllium without completing the following precautions:
 - a. Remove the coating from the base metal.
 - b. Make sure that the welding area is well ventilated.
 - c. Use an air-supplied respirator.

Extremely toxic fumes are created when these metals are heated.



Warning

The electromagnetic field that is generated during arc welding may interfere with the operation of various electrical and electronic devices such as cardiac pacemakers.



Persons using such devices should consult with their physician prior to performing any electric arc welding operations.

Safety Warning

- Never wrap arc welder cables around the body.
- Always position the electrode and ground leads so that they are on the same side of the body.
- Exposure to electromagnetic fields during welding may have other health effects which are not known.



Warning

Equipment maintenance----The wrong or

inappropriate equipment maintenance can cause injury or death.

- The licensed people can do assembly, maintenance and some other operation.
- The power source shall be turned off when any maintenance work in the power source needed.
- Endure that the cable, earth wire, connector, main lead and power supply are in the normal work.
- Do not abuse equipments and firing.
- Keep the safe equipment and cabinet shall in peace and good condition.
- Do not change any equipment.

1.1 Produce application

MIG series welding machine adopt special tapped transformer adjusting style. It is the economical and practical mechanical products, it has wire-feed system, small volume, easy to shift and simple operation, it applies to welding mild steel, low-alloy steel and so on.

1.2 Model unit

Item \ Model	MIG-150		
Rated input voltage	230V		
Frequency	50Hz		
Phase	Single		
Max. Input current	20A		
No-load voltage (peak value)	25-45VDC		
Heat Setting	MIN, 1	MAX, 1	MAX, 2
Rated output current	30A	75A	105A
Rated output voltage	15.5V	17.8V	19.2V
*Duty cycle	100%	25%	15%
Insulation grade	H		
Usable wire	0.8mm or 0.9mm flux core wire; 0.6mm to 0.8mm steel wire		
Weight	26.2Kg		
Dimension(L×W×H)	43cm×27cm×34.5cm		

***Duty cycle** is the ratio of the uninterrupted on-load duration to the total time (10 minutes here). It lies between 0 and 1, and can be expressed as a percentage. For example, in the case of a 60% duty cycle, a load is applied continuously for 6 min followed by a no-load period of 4 min.

Note: 1. The heating test of the welding power source is carried out at ambient temperature. Duty cycle at 40°C has been determined by simulation.

2. The welding power source belongs to Group 2 and Class B ISM equipment according to CISPR 11:2003.

1.3 Environmental condition

- Range of the temperature of the ambient air:
During welding: -10°C to $+40^{\circ}\text{C}$
After transport and storage at : -25°C to $+55^{\circ}\text{C}$
- Relative humidity of the air:
Up to 50% at 40°C
Up to 90% at 20°C
- Ambient air, free from abnormal amounts of dust, acids, corrosive gases or substances etc. other than those generated by the welding process.
- Altitude above sea level up to 1000m.

e) Base of the welding power source include up to 15° .

1.4 Voltage characteristic and current characteristic of welding power

The curve (as diagram 1-1) means "V-A" external static characteristic of welding power, gradient of curve named slope, normal means "drop off voltage per 100A". The curves show the output voltage we can get in any preset output current because the "V-A" slope is fixed.

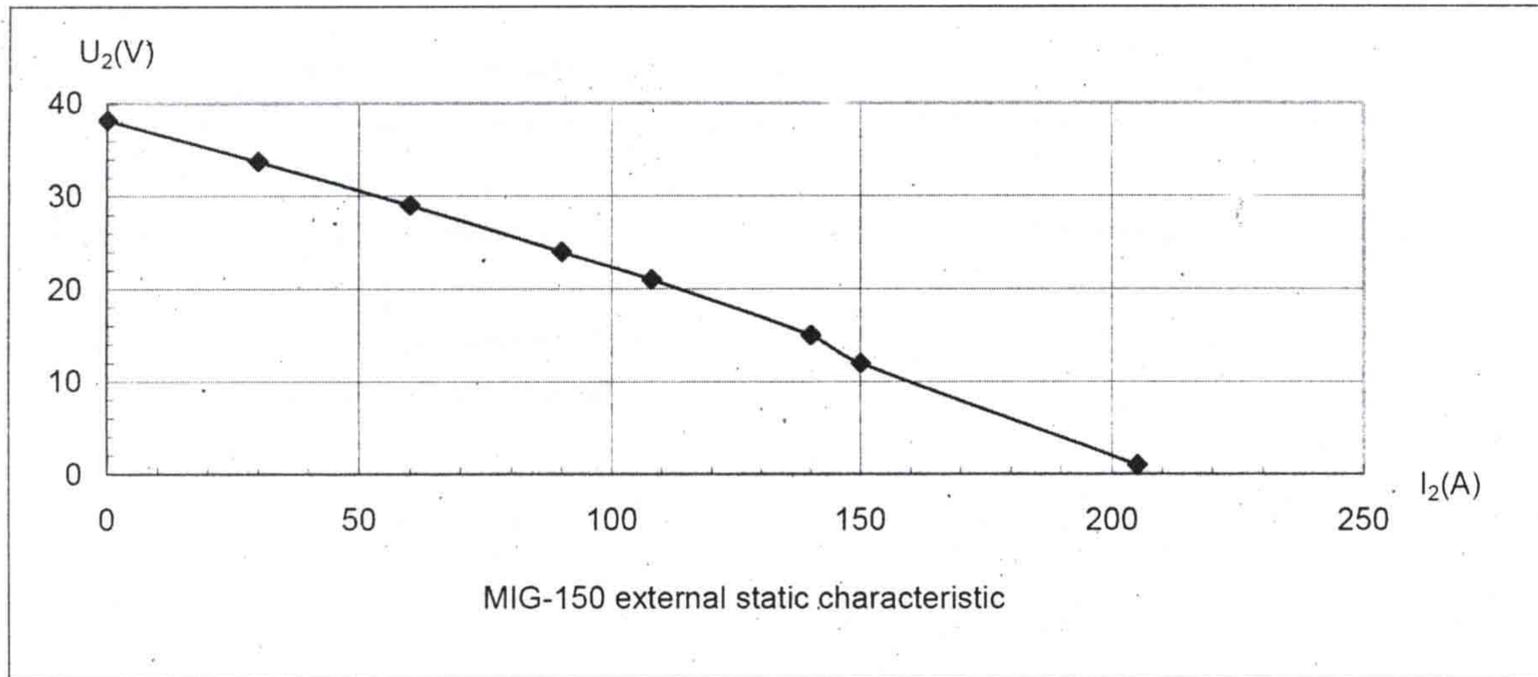


Diagram 1-1 static external characteristic curve

1.5 Safety

Before operating the equipment, you must read the safety directions to avoid the hurt due to the inaccurate and impropriety installing.

2.1 The requirement of installing ground

Equal ground is necessary to the machine, the ground must be have good ventilation system, and can't be exposed in dust, dirt, wet and active steam, the minimum distance between side board and it's nearest bar must $\geq 46\text{cm}$ and the minimum distance between back board and it's nearest bar must $\geq 46\text{cm}$.

2.2 Check, discharged and placed

(1) After receiving the equipment, you should check if the equipment has been damaged during traffic; if damaged, you should notify the conveyances, if lack spare parts, please notify the dealer at once.

(2) Take the spare parts out from packing box, remove the packing material, and check if any cast in packing box.

(3) Check every airway in the shell, and make sure packing box can't block air circulating.

(4) Choose roomy ground to placed spare parts, in order to installing conveniently.

2.3 Installing the handle (Following the diagram 2-1)

1. Place the handle (1) on top of the cover.

2. Secure the handle, using the screws (2).

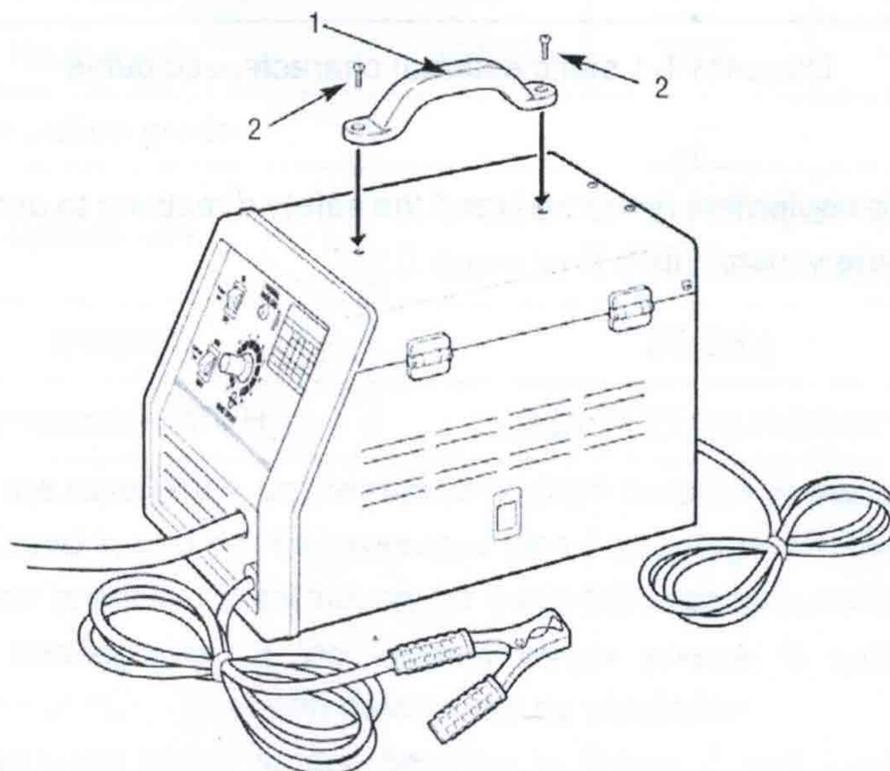


Diagram 2-1

2.4 Wire spool loading

NOTE: This welder can weld using 0.8mm or 0.9mm Flux-Cored wire (E71T-GS), 0.6mm or 0.8mm steel wire(E70S-6), wire spool size: 4"(102mm) diameter.

1. Verify unit is off and open door panel to expose wire feed mechanism.

2. Unscrew and remove the wing nut (1) and the spool locking knob (2) (see diagram 2-2).

3. Install wire spool (3) over the spool axle (4) and onto the spring (5). The wire on the spool should unwind clockwise, so wire can come off spool on the end closest to the wire feed guide tube.

4. Turn the spool (3) by hand while slowly tightening the spool locking knob (2) until a light drag is felt, and then tighten the wing nut (1) up against the spool locking knob (2).

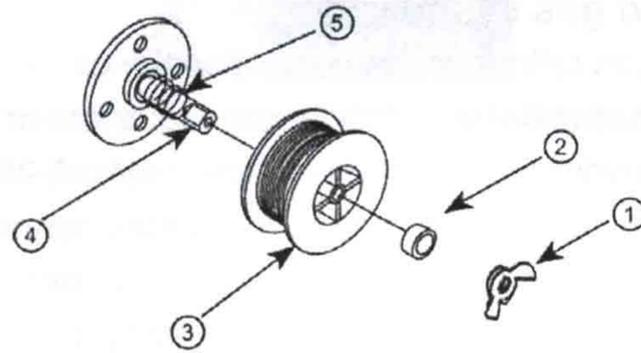


Diagram 2-2

2.5 Wire threading

1. Loosen and lower the tension adjusting knob (7), rotate the swing arm (8) away from the wire feed drive roll (9).

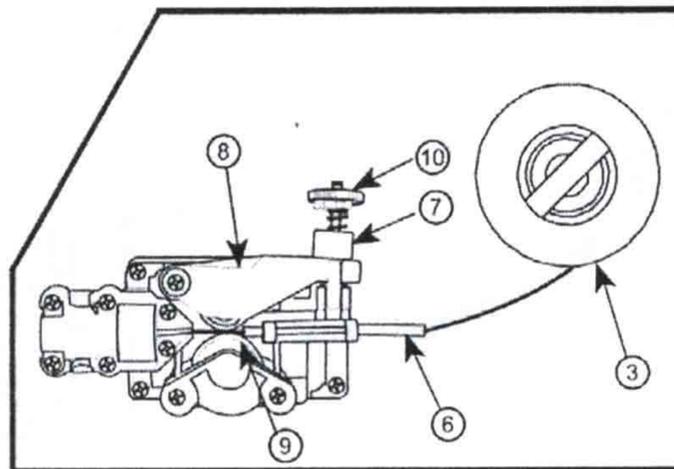


Diagram 2-3

2. Carefully detach the end of the wire from the spool (3). To prevent the spool from unwinding, maintain tension on the wire until after step 5.
3. Cut the wire end from spool and straighten the first 4" (100mm). **Do not allow wire to unravel.** Make sure the cut end has no burrs or sharp edges (cut again, if needed).
4. Thread the wire through wire feed guide tube (6), over the groove in drive roll (9) and into torch tube.
5. Close the swing arm (8) and latch the tension adjusting knob (7) in place. Make sure the wire is positioned in the groove of the drive roll.
6. The milled nut (10) on the tension adjusting knob (7) adjusts the pressure on the wire. Adjust pressure by turning the milled nut (10) until smooth and easy wire feeding. Start with the pressure set to an intermediate value. Readjust, if necessary. Slightly less pressure maybe required. If the drive roll slips while feeding wire, the pressure should be increased until the wire feeds properly.
7. Remove nozzle (11) by turning clockwise, then unscrew contact tip (12) from end of welding torch (See diagram 2-4). Plug welder into a proper power supply receptacle.
8. Turn on welder and set wire speed rate to 6. Lay the torch cable out in a straight line and press torch trigger until wire feeds out past the torch end. **Turn welder off.**
9. Carefully slip contact tip (12) over wire and screw tip into torch end. Cut wire off approximately 1/4 inch from contact tip end. Install nozzle by turning clockwise.

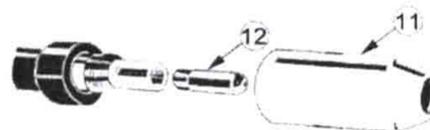


Diagram 2-4

2.6 Connection welder to gas cylinder

Clean the threads of the gas cylinder valve. Also open the gas valve for a few seconds to blow out any dirt or particulates that may have gotten into the richer in order to prevent them from entering the regulator. Check your regulator (outlet flow meter: 0-25L/Min, inlet gauge:0-25Mpa, pressure range for safe outpouring: 0-0.35Mpa) to make sure that it was supplied with a gasket. Tighten the regulator coupling to the cylinder gas valve. Now connect the welder gas line to the hose barb outlet on your regulator; a stainless steel hose clamp can be used to insure a leak-proof connection. (See diagram 2-5)

Check all connections for leaks by opening the regulator and cylinder gas valves.

Always shut off the regulator and cylinder gas valves when the machine is not in use.

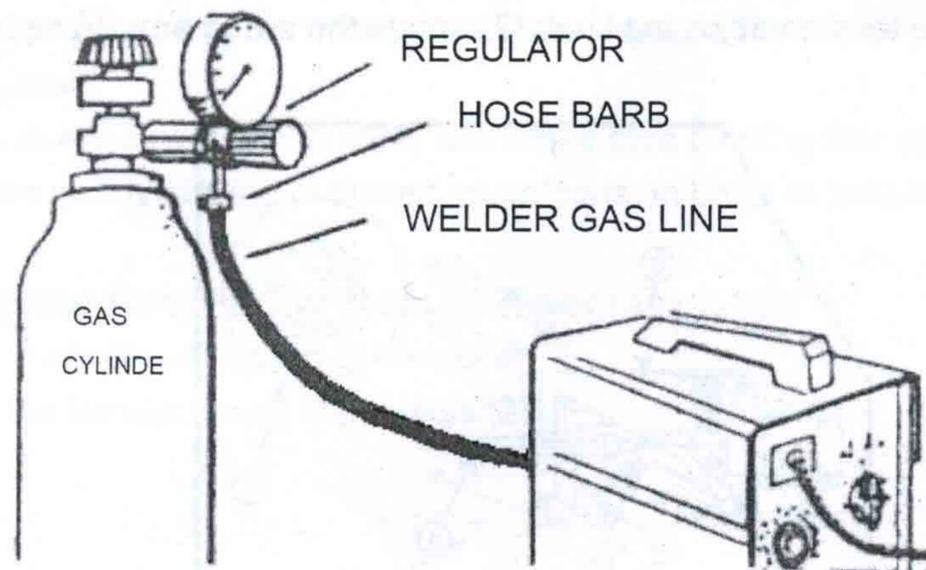


Diagram 2-5



Cautions

Do not operate the machine when the shell has been opened, improper cooling can damage the parts; make sure the sideboard have been closed. When welding, you must wear helmet, glove and other guard.

3.1 Controls and component (diagram 3-1)

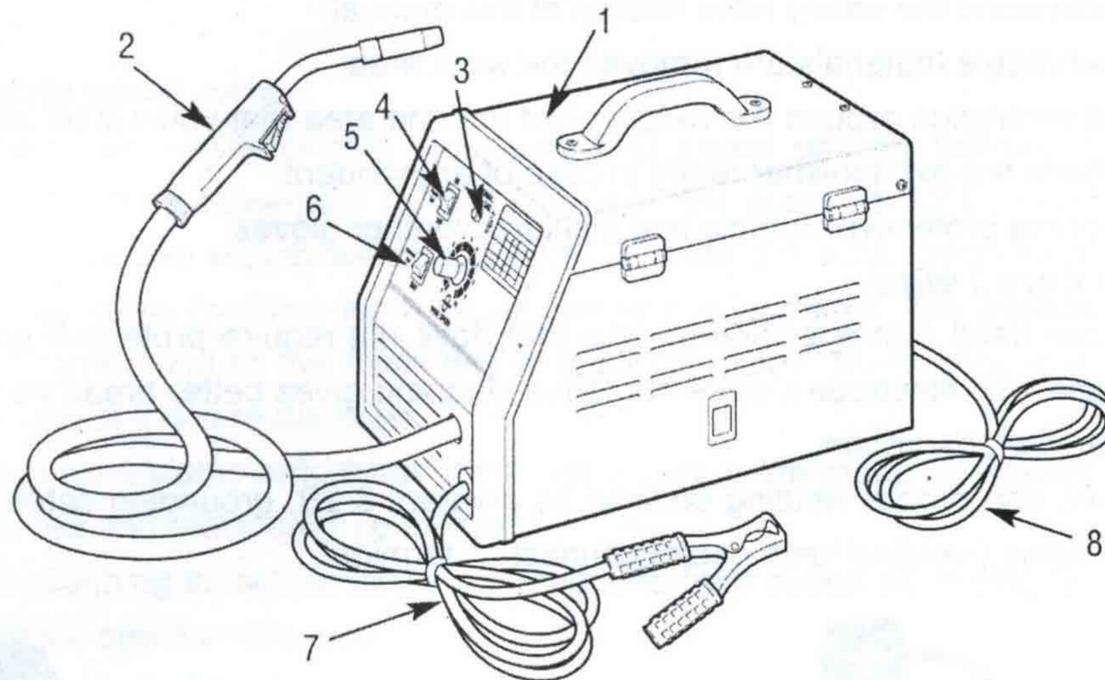


Diagram 3-1

1. Welder
2. Torch
3. Overload lamp
4. Power switch
5. Wire speed control
6. Amperage selection switch
7. Grounding cable
8. Power cord

3.2 Graphic symbols and technical data

U_0V This symbol shows the secondary no-load voltage (in volts).

X This symbol shows the rated duty cycle.

I_2A This symbol shows the welding current in AMPS.

U_2V This symbol shows the welding voltage in VOLTS.

U_1 This symbol shows the rated supply voltage.

I_{1max} ...A This symbol shows the welding unit's maximum absorbed current in AMP.

I_{1eff} ...A This symbol shows the welding unit's maximum effective supply current in AMP.

IP21 This symbol shows the welding unit's protection class.



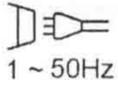
This symbol shows that the welding unit is suitable for use in environments where there is a high risk of electric shocks.



This symbol shows read the operating instructions carefully before operation.



This symbol shows a single phase transformer rectifier welder.



This symbol shows the supply power phase and line frequency in Hertz.



This symbol shows the welder is metal inert and active gas welding including the use of flux cored wire.

3.3 Operation process

Before Welding

- Read and understand the safety rules section of this manual.
- Be sure all flammable materials are removed the work area.
- There is good ventilation around the welding unit and the area that you will be working.
- Be sure you have fire-extinguisher ready in case of an accident.
- Put on appropriate protective clothing and insulated leather gloves.

3.3.1 Use with cored wire

The welder can used with special Flux wire that dose not require protective gas. This wire, contrary to the case with electrodes, does not leave slag and gives better bread penetration with substantially lower line absorption.

Make sure you use proper welding polarity: as diagram 3-2B. grounding cable connects "+" terminal, another cable (welding torch cable) connect "-" terminal.



Diagram 3-2

- Step1: Connect work clamp onto metal to be welded, or to the metal workbench where the object is mounted and electrically connected.
- Step2: Before plugging in, adjust amperage and wire feed speed according to material type and thickness, and the wire size.
- Step3: Check the power switch is in OFF position, and then plug the power cord into its electrical outlet.
- Step4: While holding the Torch with the wire and tip clearly out of the way of any grounded objects, turn the power switch to ON position.
- Step5: Orient yourself on the area to be welded, and then place the 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 breathe arc fumes.**
- Step6: Press (and hold) the torch button and stroke the area to be welded with the electrode wire to ignite the arc.
- Step7: Once the arc is ignited, tilt the electrode wire forward at an angle of approximately 35° (as diagram 3-3).
- Step8: When the weld is complete, loose the torch button and lift the wire clearly away form any ground object, set the Face Shield down and turn the Power Switch to the "OFF" position.

Step9: Unplug the Power Cord from the electrical outlet.

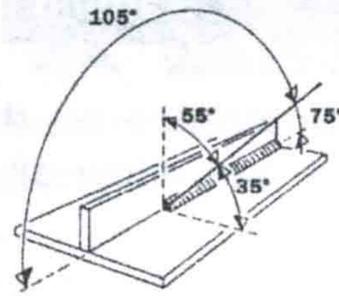


Diagram 3-3

3.3.2 Use mild steel wire

The welder can use with mild steel wire and shield gas for welding carbon steel. The shielding gas should be either pure (100%) CO₂ or a 75% argon-25% CO₂ mixture.

Make sure you use proper welding polarity: as diagram 3-2A. grounding cable connect “-” terminal, another cable (welding torch cable) connect “+” terminal. The diameter of the wire you select should correspond to the thickness of the work piece. Make sure that the contact tip is matching the size of the wire diameter.

Step1: Connect work clamp onto metal to be welded, or to the metal workbench where the object is mounted and electrically connected.

Step2: Before plugging in, adjust amperage and wire feed speed according to material type and thickness, and the wire size.

Step3: Open the gas valve of regulator; press (and hold) the torch trigger set a flow of 5-7 L/Min (depending on the welding position chosen).

Step4: Check the power switch is in OFF position, and then plug the power cord into its electrical outlet.

Step5: While holding the Torch with the wire and tip clearly out of the way of any grounded objects, turn the power switch to ON position.

Step6: Orient yourself on the area to be welded, and then place the 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 breathe arc fumes.

Step7: Press (and hold) the torch trigger and stroke the area to be welded with the electrode wire to ignite the arc.

Step8: Once the arc is ignited, tilt the electrode wire forward at an angle of approximately 35° (as diagram 3-3).

Step9: When the weld is complete, loose the torch button and lift the wire clearly away form any ground object, set the Face Shield down and turn the Power Switch to the “OFF” position.

Step10: Unplug the Power Cord from the electrical outlet.

Step11: Close the gas cylinder valve.

Step12: Depress torch trigger to release gas in regulator, gas pressure indicator will return to 0.



Cautions

If welding with large current for a long time and exceed the duty cycle, the overload lamp will light (yellow), and the welder will turn off until it cools down. If this happens, you must stop welding and wait about 5 minutes, then you can continue.

**Warning**

Before performing any maintenance on the Welder, unplug the Power Cord from the electrical out let and allow all parts of the welder to cool thoroughly.

1. Periodically open the Access Panel from the unit and, using compressed air, blow out all dust and debris from the interior. Inspect all air vents and cooling slots to ensure that they are clean and unobstructed.
2. Always store the Welder in a clean, dry, safe location out of reach of children and other unauthorized people.
3. For optimal weld quality, clean and inspect the Contact Tip and Nozzle before each use, as follows:

NOZZLE INSPECTION, CLEANING, AND REPLACEMENT

1. Turn the Nozzle counterclockwise while pulling to remove.
2. Scrub the interior of the Nozzle clean with a wire brush.
3. Examine the end of the Nozzle. The end should be flat and even. If the end is uneven, chipped, melted, cracked, or otherwise damaged, the Nozzle will adversely effect the weld and should be replaced.
4. Reinstall the Nozzle after inspecting and cleaning the Contact Tip.

CONTACT TIP INSPECTION, CLEANING, AND REPLACEMENT

1. Make sure the entire Welding Torch is completely cool before proceeding.
2. Remove the Nozzle as explained above. Then remove the Contact Tip.
3. Scrub the exterior of the Contact Tip clean with a wire brush. Check that the Contact Tip is the proper type for the wire size used.
4. Examine the hole at the end of the Contact Tip for the following problems: The hole should be an even circle, and should not be oblong or have any bulges in it; The Contact Tip will decrease in efficiency as the center hole enlarges.
5. If any problems are noted with a Contact Tip, it is recommended to have it replaced.
6. When inspection and maintenance is completed, reinstall the Contact Tip and Nozzle.

**Warning**

Be **CERTAIN** to shut off the welder, disconnect it from power, and discharge the torch to ground before adjusting, cleansing, or repairing the unit.

Electrical repairs should only be made by trained technician.

TROUBLESHOOTING

Symptom	Possible Cause	Corrective Action
No output	<ol style="list-style-type: none"> 1. Duty cycle exceeded 2. Poor work clamp connection 3. Blown breaker or fuse 	<ol style="list-style-type: none"> 1. Allow welder to cool until lamp goes out 2. Be sure all connections are secure, and attaching surface is clean 3. Reduce circuit load, reset breaker or replace fuse
Wire tangles at drive roller	<ol style="list-style-type: none"> 1. Wrong size contact tip 2. Torch liner clogged or damaged 3. Contact tip clogged or damaged 4. Drive roller worn 5. Not enough tension 	<ol style="list-style-type: none"> 1. Use proper size contact tip 2. Clean or replace wire liner 3. Clean or replace contact tip 4. Replace drive roller 5. Tighten tension knob
Gun nozzle arcs to work surface	<ol style="list-style-type: none"> 1. Slag inside gun nozzle 2. Insulation ring melted or expired 	<ol style="list-style-type: none"> 1. Clean slag from gun nozzle 2. Replace nozzle
Work clamp and/or cable gets hot	<ol style="list-style-type: none"> 1. Poor contact 2. Using an extension cord with excessive length 	<ol style="list-style-type: none"> 1. Be sure all connections are secure, and attaching surface is clean 2. Never use an extension cord longer than 20 ft
Wire does not feed	<ol style="list-style-type: none"> 1. Wire jammed 2. Out of wire 3. Not enough tension 4. Wire liner worn 5. Contact tip clogged 	<ol style="list-style-type: none"> 1. Reload wire 2. Replace wire spool 3. Tighten tension knob if wire is slipping 4. Replace liner 5. Replace contact tip
Weld pops and sputters	<ol style="list-style-type: none"> 1. Wire speed setting 2. Contact tip size too large 3. Polarity set incorrectly 4. Drive roller slipping 5. Gas bottle empty 	<ol style="list-style-type: none"> 1. Tune in correct setting 2. Replace contact tip 3. Reverse polarity 4. Increase tension 5. Replace gas bottle

Packing list

No.	Name	Specification	Qty	Remark
1	Welding power	MIG-150	1	
2	Operating manual		1	
3	Weld wire		1	
4	Handle		1	
5	Screw	GB9074.4 M5×16	2	
6	Gas hose		1	
7	Hose clamp		2	