

Part # 526.0003

Processes



MIG/MAG(GTAW) Arc
Welding
208-240 VAC

MIG WELDING MACHINE

DUAL-MIG 260



OPERATOR'S MANUAL

IMPORTANT: Read this Owner's Manual Completely before attempting to use this equipment. Save this manual and keep it handy for quick reference. Pay particular attention to the safety instructions we have provided for your protection. Contact your distributor if you do not fully understand this manual.

INSTRUCTION MANUAL FOR MG260D WELDING MACHINE

IMPORTANT: BEFORE STARTING THE EQUIPMENT, READ THE CONTENTS OF THIS MANUAL. THIS EQUIPMENT MUST BE USED SOLELY FOR WELDING OPERATIONS AND USED ONLY IN AN INDUSTRIAL OPERATING ENVIRONMENT.

1 SAFETY PRECAUTIONS

WELDING AND ARC CUTTING CAN BE HARMFUL TO YOURSELF AND OTHERS. The user must therefore be educated against the hazards, summarized below, deriving from welding operations. For more detailed information, order the manual.

ELECTRIC SHOCK - May be fatal.

Install and earth the welding machine according to the applicable regulations.

Do not touch live electrical parts or electrodes with bare skin, gloves or wet clothing.

Isolate yourselves from both the earth and the workpiece.

Make sure your working position is safe.

FUMES AND GASES - May be hazardous to your health.

Keep your head away from fumes.

Work in the presence of adequate ventilation and use ventilators around the arc to prevent gases from forming in the work area.

ARC RAYS - May injure the eyes and burn the skin.

Protect your eyes with welding masks fitted with filtered lenses and protect your body with appropriate safety garments.

Protect others by installing adequate shields or curtains.

RISK OF FIRE AND BURNS

Sparks (sprays) may cause fires and burn the skin; you should therefore make sure there are no flammable materials in the area and wear appropriate protective garments.

NOISE

This machine does not directly produce noise exceeding 80dB. The plasma cutting/welding procedure may produce noise levels beyond said limit; users must therefore implement all precautions required by law.

PACEMAKERS

The magnetic fields created by high currents may affect the operation of pacemakers. Wearers of vital electronic equipment (pacemakers) should consult their physician before beginning any arc welding, cutting, gouging or spot-welding operations.

EXPLOSIONS

Do not weld in the vicinity of containers under pressure, or in the presence of explosive dust, gases or fumes. All cylinders and pressure regulators should be handled with care.

ELECTROMAGNETIC COMPATIBILITY

This machine is manufactured in compliance with the instructions contained in the harmonized standard.

IN CASE OF MALFUNCTION, REQUEST ASSISTANCE FROM QUALIFIED PERSONNEL.

2 GENERAL TECHNICAL DESCRIPTION

2.1 SPECIFICATIONS

This manual has been prepared with the intent of instructing the operator on how to install, operate, and properly maintain this electric arc welding machine. This machine is a constant voltage power source for MIG and OPEN-ARC welding. Upon receiving and unpacking the machine, make a careful inspection to ensure that there are no damaged parts. Should there be a claim for losses or damage, it must be made by the purchaser directly to the shipper who handled the goods. When requesting information about this welding machine, please state the machine's part number and serial number to ensure receiving accurate information relating to your machine.

2.2 DESCRIPTION OF TECHNICAL SPECIFICATIONS

MODEL: The model of the machine

INTN'L STANDARDS: EN 60974-10:2003

SN: Machine Serial Number which must appear on requests or inquiries concerning the machine.



Single-phase transformer-rectifier

1-50/60Hz Single-phase input supply at 50 or 60 Hz.

U₀ Secondary no-load voltage (peak value).

X Duty-Cycle Percentage

The duty-cycle is the number of minutes, expressed as a percentage, the machine can operate (arc on) within a ten-minute period without overheating. The duty cycle varies according to the output current.

I₂ Output welding current

I₁ Input Amps absorbed corresponding to different output levels (I₂).

U₂ Secondary voltage with welding current I₂.

U₁ Nominal supply voltage

IP21 Machine case protection class. The 1 in the second digit place means that this unit is not fit to work outdoors in the rain.

F Insulation Class

NOTE: This machine has also been designed to work in class 3 pollution areas.

3 INSTALLATION

3.1 SET-UP

Place the machine in a clean, well-ventilated area. Dust, dirt, or any other foreign material that might enter the machine may restrict the cooling (ventilation) which could affect the machine's performance. Fasten the (rotating support to the machine top and fix the handle) the wheels and the bottle support.

3.2 INPUT POWER CONNECTIONS

This machine must be installed by skilled personnel and wired in accordance with local codes.

When installing qualified plug make sure to connect Green (w/yellow stripe) wire to ground and other two powers leads to LINE.

The machine must be connected to supply voltage marked on the input power cord (208-240VAC).

This machine must never be used without the top and side covers. This is both for obvious safety reasons and to avoid interference with the machine's internal cooling system. The warranty is to be considered null and void if this machine is used without the protection of its top and side covers.

3.3 OUTPUT CONNECTIONS

3.3.1 Wire feeder connection

This power source is compatible with external wire feeders. To connect the power source to the wire feeder unit, use the extension cable provided on the feeder.

3.3.2 Connecting the earth work lead clamp.

Connect the male end of the work return lead to one of the impedance taps on the front panel of the machine. The impedance tap designated by  provides the maximum amount of impedance and is recommended when welding thinner aluminum, stainless steel, and carbon steels of binary or ternary composition. The impedance tap is designated by  and provides the least amount of impedance and is recommended when using carbon dioxide (Co2) as a shielding gas to weld thicker carbon steels of binary or ternary composition.

It is generally advisable to use low impedance values for small diameter wires and high values for big diameter wires.

After having selected the proper impedance tap, attach the work return clamp to the work to be welded.

Make sure that the ground clamp is tightly fastened to the work return cable and periodically check that this connection remains well tightened. A loose connection can cause weld current drops or overheating of the work return lead and clamp which, in turn, creates the risk of burns from accidental contact with the work return lead. The weld circuit must not be placed deliberately in direct or indirect contact with the ground conductor if it is not on the work to be welded.

3.3.3 Connecting Cylinder Gas Hose.

Keep the cylinders in an upright position by chaining them to both upper and lower supports.

Do not lift the machine with the cylinder on its support shelf.

Keep the cylinder away from the welding area and uninsulated electric circuits.

Cylinders containing inert gas must be equipped with a pressure regulator and a flow meter.

After having positioned the cylinder(s), connect the gas hose that comes out from the rear of machine to the gas regulator output. NOTE: separate gas lines to MIG gun and spool gun machine connects

Regulate the gas flow to 8-10 L/min (15-20 CFH).

4 DESCRIPTION OF CONTROLS

4.1 CONTROLS ON FRONT PANEL

A: Digital control

B: Connector of torch

C: Power switch

D: Rotary weld voltage switch:

This switch adjusts the weld voltage range.

D2: Rotary weld voltage switch:

This switch allows the fine tuning of the welding voltage selected with switch G.

(Step adjustment)

E: Quick connector for earth clamp lead

F: control socket

G: toggle switch (torch selection)



4.2 CONTROLS ON REAR PANEL

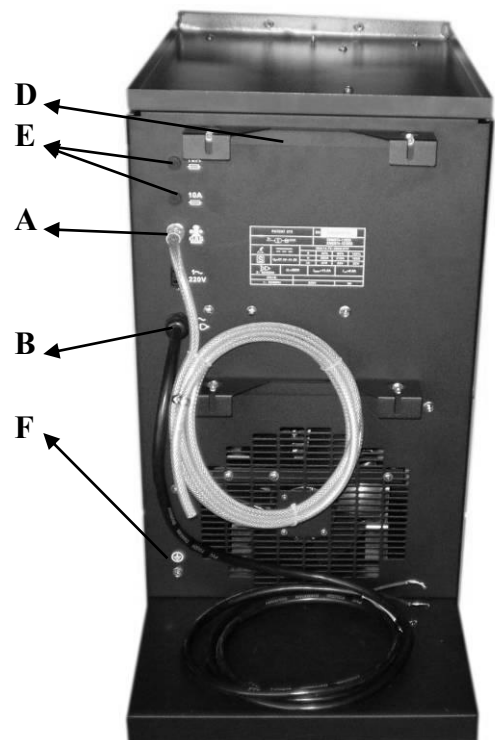
A: Gas pipe connector

B: Input power cable (Confirm the power voltage before use)

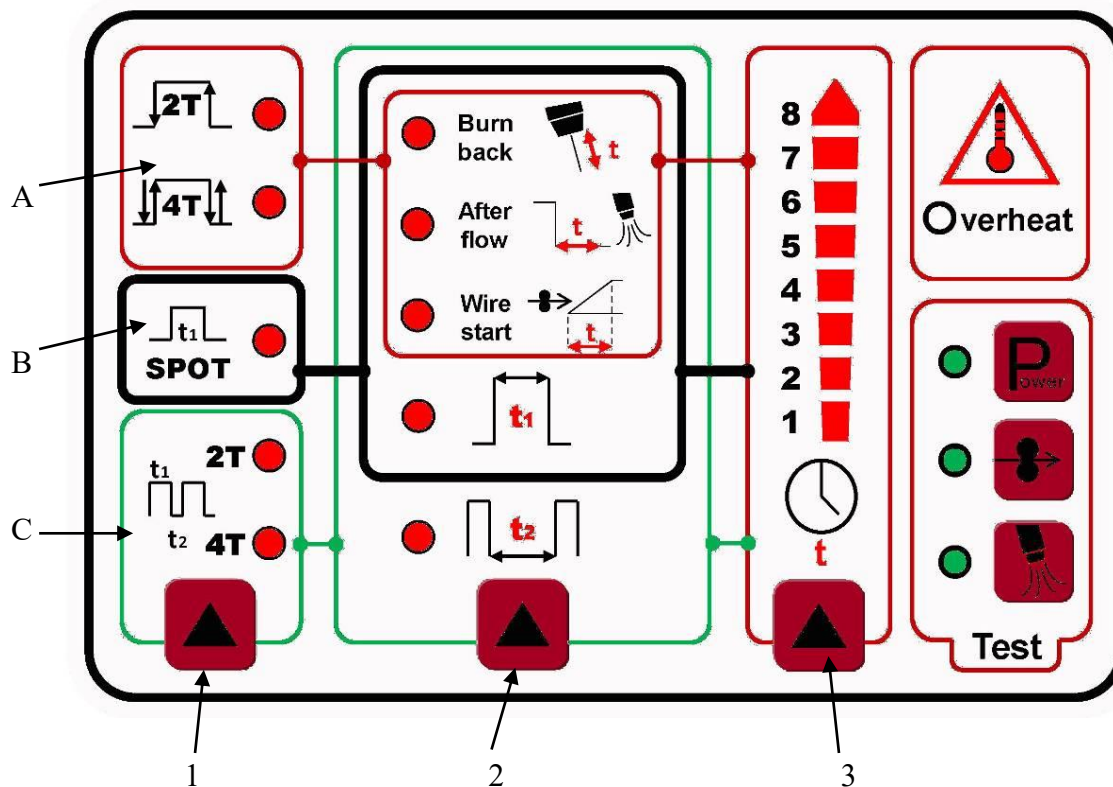
D: Support for cylinder

E: Power fuses for control power and wire feed power

F: Ground connector



4.3 Digital Control description



1---Trigger Function Select Button: Three modes to select

A---MIG welding mode: ---MIG welding 2T mode (non-latching trigger)

---MIG welding 4Tmode (latching trigger)

B---Spot welding mode: Set time with "3" Select Button

C---Stitch welding mode: ---Stitch welding 2Tmode (non-latching trigger)

---Stitch welding 4Tmode (latching trigger)

2---Parameter Setting Select Button: Please note frame color on the panel:

A) MIG Welding modes (RED frame)

---burn back ---gas after flow ---wire start

t3 Timer: 1 (short) to 8 (long)

B) Spot welding modes (frame)

t1---Welding time for "spot" or "stitch ON" operation.

C) Stitch welding modes (GREEN frame)

t2---Welding time for "stitch OFF" operation.

3--- Timer Setting Select Button:

The higher the number, the longer the time for the selected function.

4---Set-Up & Diagnostics Indicators



Overheat ---Overheat warning. The machine will auto-reset after cooling period and light will go off.



---Power test. Confirms machine is wired correctly to 230VAC line power supply.



---Fast wire feeding test. Confirms wire feed motor is functional and used for set-up.



---Gas test. Confirms shield gas solenoid valve system is functioning correctly.

5 WELDING

5.1 INSTALLATION AND START-UP

Machine installation must be done by licensed professional. All connections must correspond to the rules in force and must respect local laws and codes concerning accidents.

Confirm that the wire diameter selected matches that indicated on the drive roll and mount spool.

Loosen drive roll “Pinch” arm and slide wire over rollers and into guide tube 1-2 inches.

Reconnect “Pinch” arm and set wire tension being careful not to detent softer wires.

Check that the gas line is connected but the cylinder valve closed.

Position the welding machine to allow free air circulation in both front and rear panels.

5.2 THE MACHINE IS READY TO WELD

Connect the earth clamp (ground) to the part to be welded as close to the weld area as possible.

Turn the machine power “ON”.

Remove the gas nozzle from the gun neck by rotating it clockwise.

Remove the contact tip from the tip holder making sure not to loosen the tip holder/nozzle seat.

Hold the torch away from work and press the trigger to feed the wire from the machine to the torch.

WARNING: Keep the torch away from operator (face) while waiting for wire to feed out.

Slide contact tip over wire, making sure that the hole diameter is the same as that the wire being used, and screw tip firmly into torch neck. Loose tip can cause poor weld and permanently damage the torch. Reinstall gas nozzle and open the gas cylinder with flowmeter set at 8-10L/min. (15-20 CFH)

WARNING: Check that the gas selected is correct for the material to be welded.

5.3 WELDING CARBON STEELS.

Requirements for carbon steel welding:

1) Shielding gas, which is most commonly Argon and Carbon dioxide, in a ratio of 75-80 % Argon and 25-20% Carbon Dioxide. Some applications, however, may require a mix of three gases: Argon, Carbon dioxide (CO₂), and dioxide (O₂). These gas mixtures generate heat during welding and as a result the weld bead will be well filleted and neat in appearance. The penetration, however, will not be deep.

The use of Carbon dioxide as the shield gas results in a narrow weld bead with deep penetration, but the ionization of the gas will have an influence on arc stability.

2) Welding (Filler) wire should be of the same quality and type as the steel to be welded. It is recommended that high quality wires be used and that welding with rusted wires be avoided because they can give rise to defects in the weld bead. Generally, the wire current range can be calculated in the following manner:

Diameter Ø of welding wire x 100 = minimum Amperage.

Diameter Ø of welding wire x 200 = maximum Amperage

Example: 1.20 Ø wire = 120 Amps Min. and 240 Amps Max. These amperages are based on the use of an Argon/CO₂ mixture as the shield gas and welding in the Short Arc transfer mode.

3) Avoid welding on rusted work pieces or work having spots of oil and grease present on the surface.

4) Welding torch must be rated for the welding currents (Amps) that are going to be used.

5) Periodically check that the two handles making up the ground clamp are not damaged and that the welding cables (torch cable and the return lead) do not have any cuts or burn marks that would reduce their efficiency.

5.4 WELDING STAINLESS STEEL

Requirements for stainless steel welding:

Welding parameters are similar to carbon steel but shielding stainless steels in the 300 series (the austenitic series) must be done using a shield gas mixture of predominantly Argon with a small percentage of O₂ added to stabilize the arc. The recommended mixture is AR/O₂ in the ratio of 98/2. Do not use CO₂ or AR/CO₂ shield gases.

Stainless must be very clean for good welds. Do not touch the welding wire with your bare hands.

The wire must be of a higher quality than the work to be welded and the weld area must be clean.

5.5 WELDING ALUMINIUM

Requirements for aluminum welding:

1) 100% Argon as welding shield gas.

2) A torch wire of composition suitable for the basic material to be welded.

For ALUMINUM welding wire 3.5% silicon.

For ANTICORODAL welding wire 3.5% silicon.

For PERALUMAN welding wire 5% magnesium.

For ERGAL welding wire 5% magnesium.

3) A torch prepared for aluminum welding with special Teflon liner and AL style contact tip or Aluminum spool gun attached to machine.

4) Use drive rolls that are suitable for aluminum wire with “U”-groove. The drive rolls, when installed, must be tightened as tight as possible.

5) Use contact tips that are suitable for aluminum wire and make sure that the diameter of the contact tip hole corresponds to the wire diameter that is going to be used.

6) Use abrasive grinders and tool brushes specifically designed for aluminum. Never use these tools on other materials. REMEMBER that cleanliness equals quality.

The wire spools must be stored in plastic bags with a dehumidifier.

6 COMMON ALUMINUM WELDING DEFECTS

A- DEFECT- Porosity (in, or on the surface of the weld bead)

CAUSES Bad wire (rust on the surface).

Insufficient gas shielding due to:

- Inadequate gas flow due to a block in the gas line.
- Defective flowmeter.
- Gas regulator covered with frost because CO2 heater regulator was not used.
- Failure of gas valve solenoid.
- Gas nozzle plugged up with spatter.
- Air drafts in the welding area.

B- DEFECT- Shrinkage Cracks

CAUSES Welding wire or work to be welded dirty or rusty.

Welding bead is too small.

Welding bead is too concave.

Too much penetration.

C- DEFECT- Lateral cracking

CAUSES Welding speed too fast.

Low current and high arc voltages.

D- DEFECT- Spatter volume very high

CAUSES Voltage too high

Insufficient impedance

No gas heater used for CO2 shielding gas.

7 GENERAL MAINTENANCE

Torch Nozzle: Periodically clean the nozzle of all weld spatter that may have accumulated during welding operations. If the nozzle should become distorted or oval in shape, then it must be replaced.

Contact Tip: Good contact between the contact tip and the wire ensures a stable arc and optimal current output. Therefore, following steps must be followed:

A) The contact tip hole must be kept free of dirt or oxidation.

B) After lengthy welds, spatter can easily accumulate on the contact tip and prevent the wire from being fed. The contact tip must be cleaned regularly and if necessary, it must be replaced.

C) The contact tip must always be screwed tightly on to the body of the torch. The thermal cycles which the torch undergoes during operation may loosen the contact tip which, in turn, may cause the torch body and nozzle to overheat or cause unsteady wire feed.

Torch Liner: Check for deposits of copper dust or tiny metal shavings in the lining. Periodically clean the liner with dry compressed air. Wire liners are exposed to continual wear and therefore they must be replaced after normal wear causes excessive drag.

Wire Feed Drive: Periodically clean the wire feed assembly and the drive rolls from any rust or metal shavings due to the feeding of the wire. A periodic check of all the components of the wire feed assembly, spool holder, drive rolls, wire liner and the contact tip.

8 TROUBLESHOOTING

TROUBLE	PROBABLE CAUSE	REMEDY
Limited electric output	Wrong input voltage or a phase missing	Check the voltage on all phases of the feed line and/or the remove control switch contacts
	A line fuse is blown	Replace it
	Wrong connection on the voltage changer terminal board	Check the terminal board connections by following the plate scheme
	The rectifier or diode(s) is blown	Replace the rectifier
	Loosened torch or ground connections	Tighten all connections
	Welding regulation contactor has burnt contacts	Replace the contactor
	Loose transformer wire on contactor	Remove wire under terminal, inspect for good connection and reinstall on contactor.
Welding with a lot of metal spatter	Wrong adjustment of the welding parameters	Select the correct parameters through the welding voltage switch and the wire-speed adjustment potentiometer
	Wire advancing improperly	Uncorrected sheath diam.
	Insufficient grounding	Check grounding connections
Wire not advancing	Wire roller with too wide groove	Replace roller
Wire advancing improperly.	Obstructed or clogged liner	Extract it and clean
	Loose wire pressing roller.	Tighten it
	Coil reel friction too tight	Loosen and adjust it
	Current nozzle clogged	Replace it
The wire jam. or entangles between the drive rolls and the torch feed wire guide	Wrong contact tip diameter	Replace it
	Wrong drive roller groove or alignment	Flip, replace or re-align roller
	Obstructed torch cable connection or clogged/kinked wire conduit liner.	Remove and clean obstruction, tighten torch cable and clean or replace wire liner.

Note: All repair work must be done by qualified personnel.

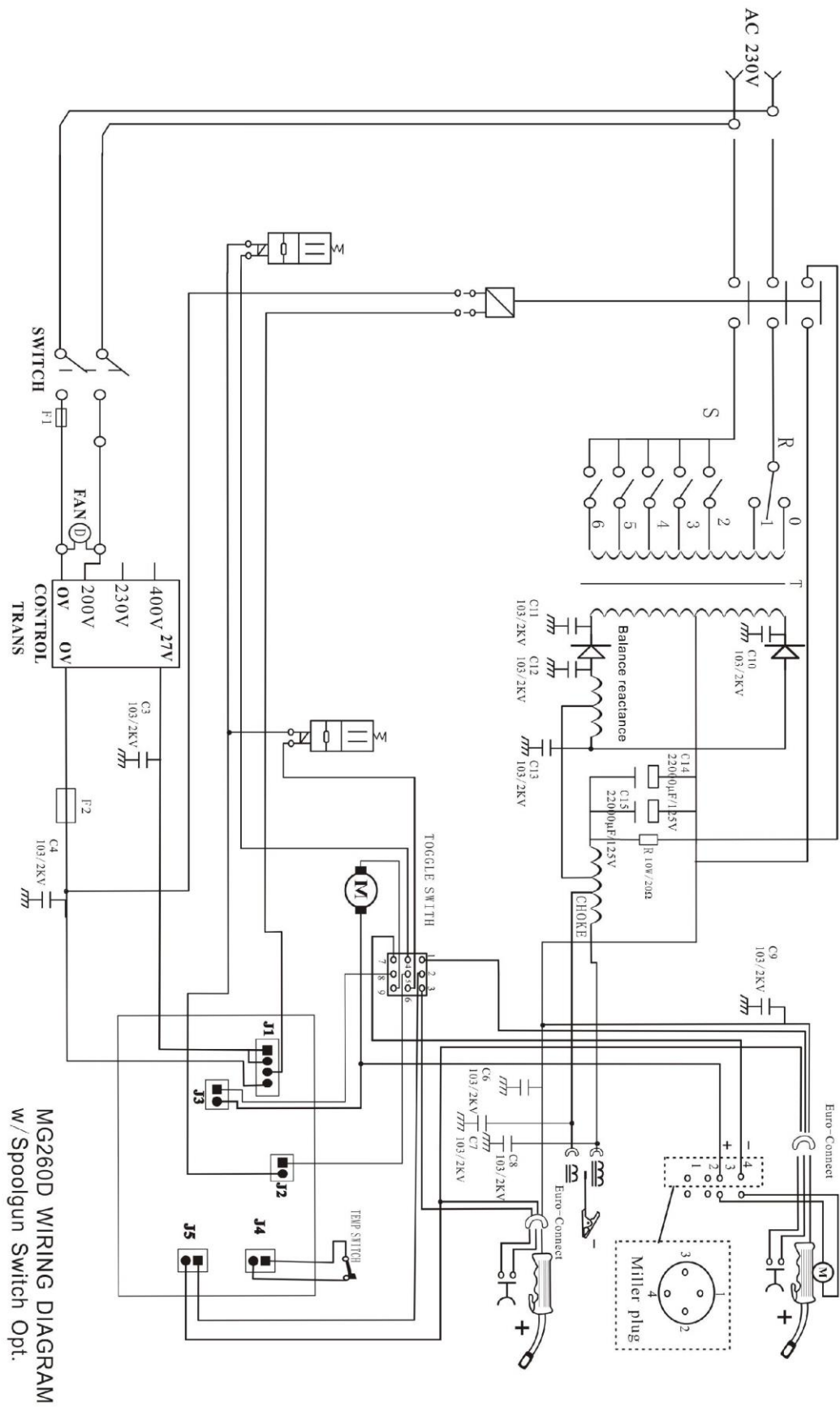
Disconnect the power input cable from the mains supply before replacing cables or before removing the unit covers. The machine is equipped with a thermostat that shuts the machine down when the power source overheats. After the thermostat intervenes, let the power source cool down for several minutes before resuming welding operations.

The troubleshooting table lists causes and remedies for the troubles that occur most commonly.

9 WELDING MACHINE SERVICING

Machine should be serviced by trained welding professional only...please contact your dealer for repair locations or the manufacturers' technical service department at 704-935-5242

10 ILLUSTRATION OF WORKING PRINCIPLE



11 ILLUSTRATION OF MG260D EXPLODED PARTS & SERVICE HOTLINE 704-935-5242

No.	Code No.	Description	No.	Code No.	Description
1	EW064004-12-1	front panel	30	526.0025	main transformer
4	530.0011	wire speed knob	31	526.0016	rectifier
6	511N9997	torch connector plastic case	32	WA055000-2E	Inductance choke
7	530.0020	power switch	33	WB063000-E	balance reactance
8	511N0014	ground socket	34	EW063004-19-3	Big side panel (right)
9	511N0015	ground plug	35	EW063004-12-6-A	back panel
10	513N0003	earth clamp	36	100N9000	power cord
13	526.0029	digital control PCB	37	526.0026	gas pipe
14	526.0021	2 steps switch	38	GMC-1	power fuse 1A
15	526.0022	7 steps switch		GMC-5	power fuse 5A
16	EW063004-19-1	top tray	40	709.0116	gas solenoid
17	EW063004-12-3	inside baffle	41	526.0015	fan
18	501N9994	torch connector	45	CA055003	capacitor
19	526.0010	wire feeder	48	EK055010	stainless wire
20	526.0013	wire feeder reel	58	199.0025	work return lead
23	RD062009-E	resistor	67	530.0017	closing
24	526.0017	control transformer	69	EE055000	chain
25	526.0014	magnetic switch	70	SE055004	gland
26	EW063004-19-2	Small side panel (left)	71	EW063004-19-4	door panel
27	EW063004-12-4	bottom board	73	525.0025	20mm fuse-holder
28	526.0019	front swivel caster	74	530.0019	Hinge
29	526.0020	2-wheels & axel set	75	526.0011	toggle switch
			76	526.0018	Machine handle

