



Operating Manual

Tradesmarc 151



**Please ensure that this
Instruction Manual
is made available
to the user of
the equipment**



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WARNING



This welding equipment has been designed, manufactured and tested to the highest standards to ensure long and trouble free life. However, regular maintenance is an essential part of keeping the machine operating in a reliable and safe manner and your attention is drawn to any maintenance instructions that are contained in this manual.

In general, all welding equipment should be thoroughly inspected, tested and serviced at least annually. More frequent checking will be required when the equipment is heavily used.

Wear and tear, particularly in electro-mechanical and moving components, are gradual processes. Caught in time, repair costs are small and the benefits in performance reliability and safety are significant. Left alone, they can put the equipment, and you, at risk.

Have this equipment regularly inspected and maintained by an approved service centre.



WARNING



ARC WELDING AND CUTTING CAN BE INJURIOUS TO YOURSELF AND OTHERS. TAKE PRECAUTIONS WHEN WELDING. ASK FOR YOUR EMPLOYER'S SAFETY PRACTICES WHICH SHOULD BE BASED ON MANUFACTURERS' HAZARD DATA.

ELECTRIC SHOCK - Can Kill

- Install and earth the welding unit in accordance with applicable standards.
- Do not touch live electrical parts or electrodes with bare skin, wet gloves, or wet clothing.
- Insulate yourself from earth and work.
- Ensure your working position is secure.

FUMES AND GASES - Can be Dangerous to Health

- Keep your head out of the fumes.
- Use ventilation, extraction at the arc, or both, to keep fumes and gases from your breathing zone and the general area.

ARC RAYS - Can Injure Eyes and Burn Skin

- Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing.
- Protect bystanders with suitable screens or curtains.

NOISE- Excessive noise can damage hearing

- Protect your ears. Use ear defenders or other hearing protection.
- Warn bystanders of the risks.

**READ AND UNDERSTAND THE INSTRUCTION MANUAL
BEFORE INSTALLING OR OPERATING AND SEE WMA PUBLICATION 237
'The arc welder at work' AVAILABLE FROM THE MANUFACTURER.**

PROTECT YOURSELF AND OTHERS

SAFETY

In any arc welding or gouging operation, it is the responsibility of the user to observe certain safety rules to ensure his personal safety and to protect those working near him.

Read all safety articles relevant to arc welding published by the WMA. Pay particular attention to any **CAUTION** or **WARNING** Notes included in this manual. **CAUTION** indicates possible equipment damage. **WARNING** indicates possible hazard to life.

⚠ **WARNING** ⚠

The ON/OFF switch on this equipment does not isolate the unit from the mains electrical supply. **AC POWER IS PRESENT ON THE ON/OFF SWITCH TERMINALS.**

The On/Off lamp is an indication that the supply is switched on and does not imply that the unit is isolated from the supply. **BEFORE REMOVING THE COVERS FOR MAINTENANCE, ISOLATE THE UNIT FROM THE MAINS ELECTRICAL SUPPLY.**

1. Electrical

- ⚠ Treat electricity with respect. Even the open circuit voltage of this equipment can be dangerous. Adjustments to the torch or replacement of torch parts should be undertaken with the mains supply isolated from the unit.
- If damaged torch cables or torch components are found, the unit must be disconnected from the mains and defective parts must be replaced using only Murex spare parts.
- ⚠ Do not work on live circuits or cables. Disconnect the main power supply before checking the machine or performing any maintenance operation.
- ⚠ Be sure the case of the welding machine is properly connected to a good electrical earth.
- ⚠ Have the wiring for the welding machine installed by a qualified electrician. All connections must be made according to specifications in force and to general safety standards.
- ⚠ Do not stand in water or on damp floors while using an arc welder or cutter. Do not use in the rain.
- ⚠ Do not operate with worn or poorly connected cables. Inspect all cables frequently for insulation failure, exposed wires and loose connections.
- ⚠ Do not overload cables or continue to operate with overheating cables. Cables which are too small for the current carried will overheat, causing rapid deterioration of the insulation.
- ⚠ Pay attention that live parts of the torch do not touch any metal which is connected to the earth cable. Fix an insulated hook to hang the torch on when it is not in use.

1. Ventilation

- ⚠ Do not weld or cut on containers which have held combustible or flammable materials, or materials which give off flammable or toxic vapours when heated, without proper cleaning.
- ⚠ Locate the welding/cutting operation far enough from any vapour-type degreaser using trichlorethylene or other chlorinated hydrocarbons as solvents. The ultraviolet light from the arc can decompose these vapours into toxic gases at a considerable distance from the arc, even though the concentration of the gases is low enough to be undetectable by smell.
- ⚠ Be sure to provide adequate ventilation for removal and dilution of fume and gases. Fume exhaust facilities near the arc, or a ventilated helmet should be used when cutting in confined spaces or on toxic material.

2. Glare

- ⚠ Never look at the arc without wearing eye protection. Always use the proper protective clothing, filter glasses, and gloves. Be careful to avoid exposed skin areas. Do not use cracked or defective helmets or shields.
- ⚠ Never strike an arc when there is someone near who is not protected from the strong light of the arc.
- ⚠ Warn bystanders who are not aware of the dangers of ultraviolet light.

3. General

- ⚠ Take care when lifting the unit.
- ⚠ Ensure that cylinders are secured by chains.
- ⚠ Locate the unit so that there is adequate air flow to the ventilation louvres.
- ⚠ Always dress correctly to protect against glare, radiation and spatter.

4. Fire

- ⚠ Ensure that the correct type of fire extinguisher is available in the welding area.
- ⚠ Do not weld near flammable materials or liquids, in or near explosive atmospheres, or on pipes carrying explosive gases.

5. Vehicle Electrics

- ⚠ When working on motor vehicles, remove the battery and any circuitry which may be damaged by the arc.
- ⚠ Whilst welding be aware of the possibility of 'hidden wires' behind panels or bulkheads.

INTRODUCTION

The Tradesmarc 151 is a compact welding power source intended for MIG/MAG welding of mild and stainless steels, aluminium and also self shielded (gasless) cored wire.

A special connection block within the wire feed compartment allows easy reversal of welding polarity to enable quick change between welding with solid wires with a shielding gas and using gasless wires.

The Tradesmarc 151 accepts the standard 15Kg 300mm wire reel keeping it totally enclosed within the wire feed compartment.

The complete package consists of the welding power source with integral wire feed unit, PSG 14v welding torch, mains lead fitted with 13 amp fused plug, gas hose and the undergear.

Protections against the effects of overheating is provided by a thermal protection device. In the event of overheating, power from the MIGET is shut down and the yellow indicator lamp on the front panel illuminates.

SPECIFICATION

INPUT

Voltage	240v
Phase	1
Frequency	50 Hz
Fuse Rating	13 amp

OUTPUT

Open circuit Voltage	16.6 - 28.6 volts	
Current Range	40 - 150 amps	
Duty Cycle	20%	100 A/19v
	60%	55 A/17v
	100%	40 A/16v

150A/16V at 8% DUTY

Standard	IEC 974 - 1	
Enclosure Class	IP21	
Application Class	S	
Max. size gas Cylinder	Height 1m	Diameter 210mm

NB. The symbol S indicates that this power source is safe to use in areas where there is an increased electrical hazard. The enclosure class IP21 means the Tradesmarc 151 is designed for indoor use.

INSTALLATION

Correct installation is important for the reliable and safe operation of the equipment. Before continuing carry out the following checks:

1. Having unpacked the power source, inspect for evidence of damage or missing parts. Notify the carrier or Murex immediately.
2. Assemble undergear (see Figure 3).
3. Check the air louvres in the front and rear panels for any packing materials that might obstruct the air flow.
4. Position the equipment in a safe area. Leave at least 0.5m clearance around the unit to allow air to circulate freely. The position should be free from dust, fumes and heat. See SAFETY at the front of this manual.

INITIAL SETTING UP

1. Check that the ON/OFF switch is 'off'.

WARNING

This switch does not isolate the unit from the mains electrical supply

2. Polarity Selection Cables

Connect the polarity selection cables (positioned above the wire feed black) according to the welding wire being utilised (see Figure 1).

NOTE

For solid wires using a shielding gas, the work return cable is connected to -ve

For gasless (cored/tube) wires, the work return cable is connected to the +ve

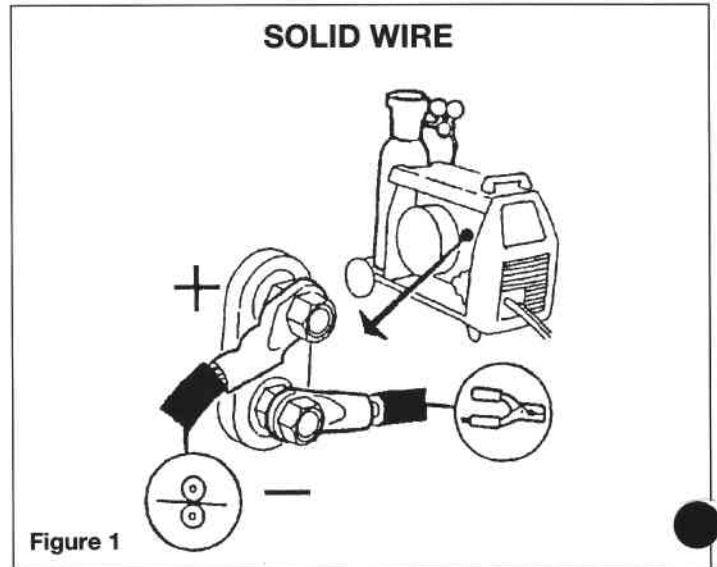


Figure 1

WELDING WIRE

Fit the reel of welding wire:

1. Remove the hand nut from the hub.
2. Place the reel of wire on the hub so that the wire will be drawn off from the top. Ensure that the pin on the hub locates in the hole in the side of the reel. Replace hub hand nut.
3. Release the end of the wire from the side of the reel but do not allow the coils to loosen. Cut off the kinked portion and remove any sharp edges from the end of the wire. This must be done every time the wire is threaded through the equipment.
4. Release the pressure roll arm.
5. Thread the wire through the inlet guide over the feed roll and into the outlet guide, for approximately 50mm (2in).

Adjust the pressure roll arm so that the welding wire is clamped into position in the groove.

NOTE

Too high tension may cause excessive wear on the pressure roller, feed roller and drive motor

6. Switch on the power source.

TORCH

1. Check that the torch lead is laid out straight and connect the torch to the torch adaptor, ensuring that the wire enters the liner correctly.
2. Remove the nozzle and contact tip from the torch. Using the torch switch, feed the wire through the torch. Thread a contact tip over the wire and screw it into the torch.
3. Fit the nozzle.

WARNING

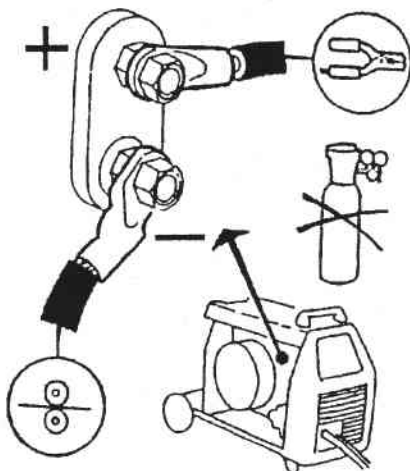
The wire contact tip, and wire feed mechanism are 'live' when the torch switch is pressed.

4. Press the torch switch.
5. Check that the wire feed is smooth and positive. If the wire slips in the feed roll, tighten the pressure adjusting screw just enough to obtain positive wire feed drive.

Do not overtighten the adjusting screw.

6. Cut off the wire to protrude 10mm from the contact tip.

GASLESS/CORED WIRE



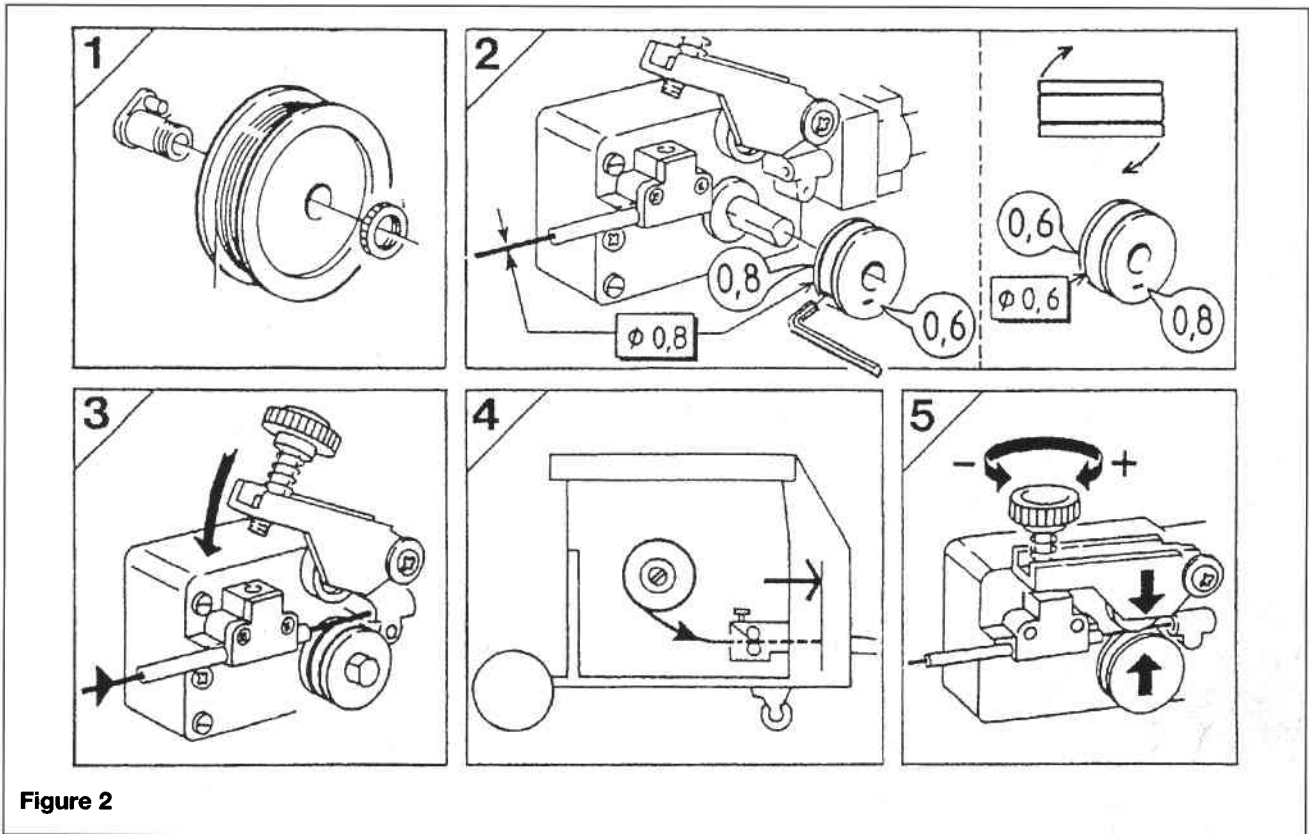
3. Feed Roll

Before connecting the gas supplies, ensure that the equipment is set up for the type and size of wire to be used (see Figure 2).

4. Work Return Lead

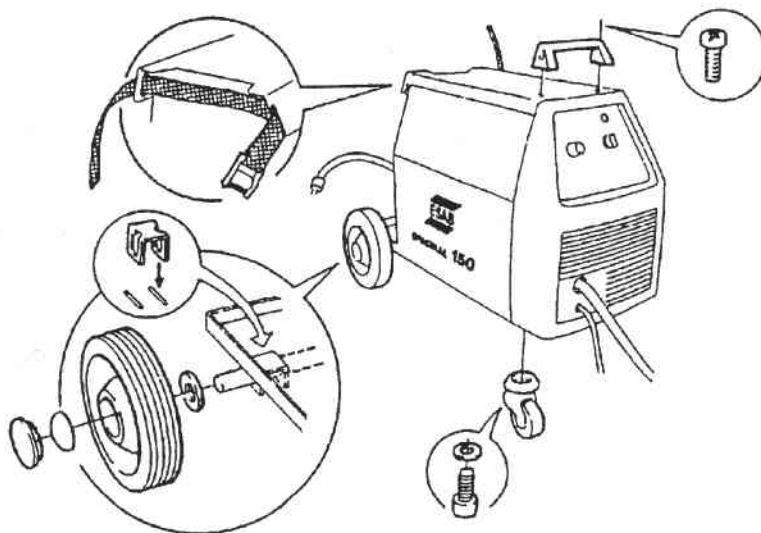
Connect the work return lead between the work return socket and a clean area on the work piece.

INSTALLATION (Continued)



INSTALLATION

Assembly of components



GAS CONNECTION

Does not apply to tube electrode

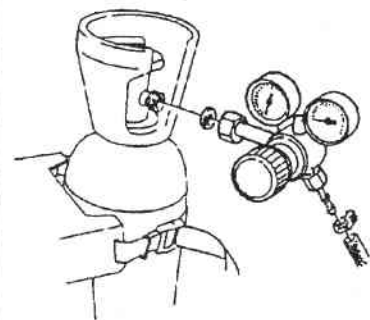

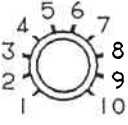
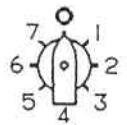
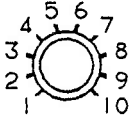
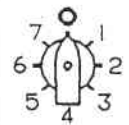
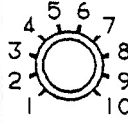
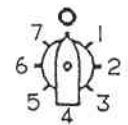
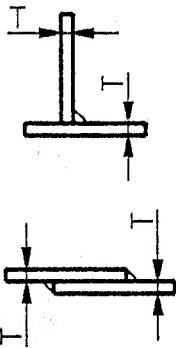
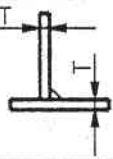
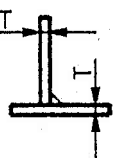


Figure 3

WELDING GUIDELINES

	T mm	TRAD WIRE DRAHT FIL	MIX		CO ₂					
										
Fe 	0,6	Fe 0,6	5,5	3						
		Fe 0,8	3,5	3						
		Gl 0,8					5	1		
	0,8	Fe 0,6	5,5	4	6	6				
		Fe 0,8	4,5	3						
		Gl 0,8					5	1		
	1,0	Fe 0,6	6,5	5	6,5	6				
		Fe 0,8	5	4	4,5	6				
		Gl 0,8					5,5	2		
	1,5	Fe 0,6	7	6	7,5	7				
		Fe 0,8	6	5	5	6				
		Gl 0,8					6	4		
2,0	Fe 0,6	8	6							
	Fe 0,8	7	6	6,5	6					
	Gl 0,8					6	5			
3,0	Fe 0,8	8	7	7,5	7					
	Gl 0,8					8	7			
Al 	Ar									
	1,0	Al 1,0	7,5	2						
	1,5	Al 1,0	8	4						
	2,0	Al 1,0	8	6						
	3,0	Al 1,0	8	7						
Ss 	Ar + O₂									
	1,0	Ss 0,6	6,5	4						
		Ss 0,8	6	4						
	1,5	Ss 0,6	8	5						
		Ss 0,8	6,5	5						
	2,0	Ss 0,6	8,5	6						
		Ss 0,8	7	6						
	3,0	Ss 0,6	10	7						
		Ss 0,8	8	7						

469 387-001

WELDING NOTES

1. Set the voltage and wire feed controls to the appropriate positions for the material to be welded. (See Guidelines on page 10).
2. Cut the electrode wire so that approximately 3-5mm of wire protrudes from the contact tip.
3. Position the torch over the seam to be welded as follows -
 - (a) Hold the contact tip approximately 10mm from the work surface.
 - (b) Hold the torch so that it makes an angle of approximately 70° to the work face.
 - (c) Position the torch so that the nozzle is parallel to the seam to be welded.
4. Warn bystanders to shield their eyes. Lower your helmet.
5. Press the torch switch to strike arc and, as the weld is deposited push the torch slowly along the seam at a constant speed.

WARNING

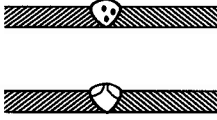

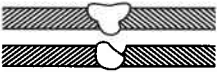



The wire, contact tip and wire feed mechanism are 'live' when the torch switch is pressed.

6. Using the wire feed speed control, adjust for a 'crisp' sounding arc.

NOTE

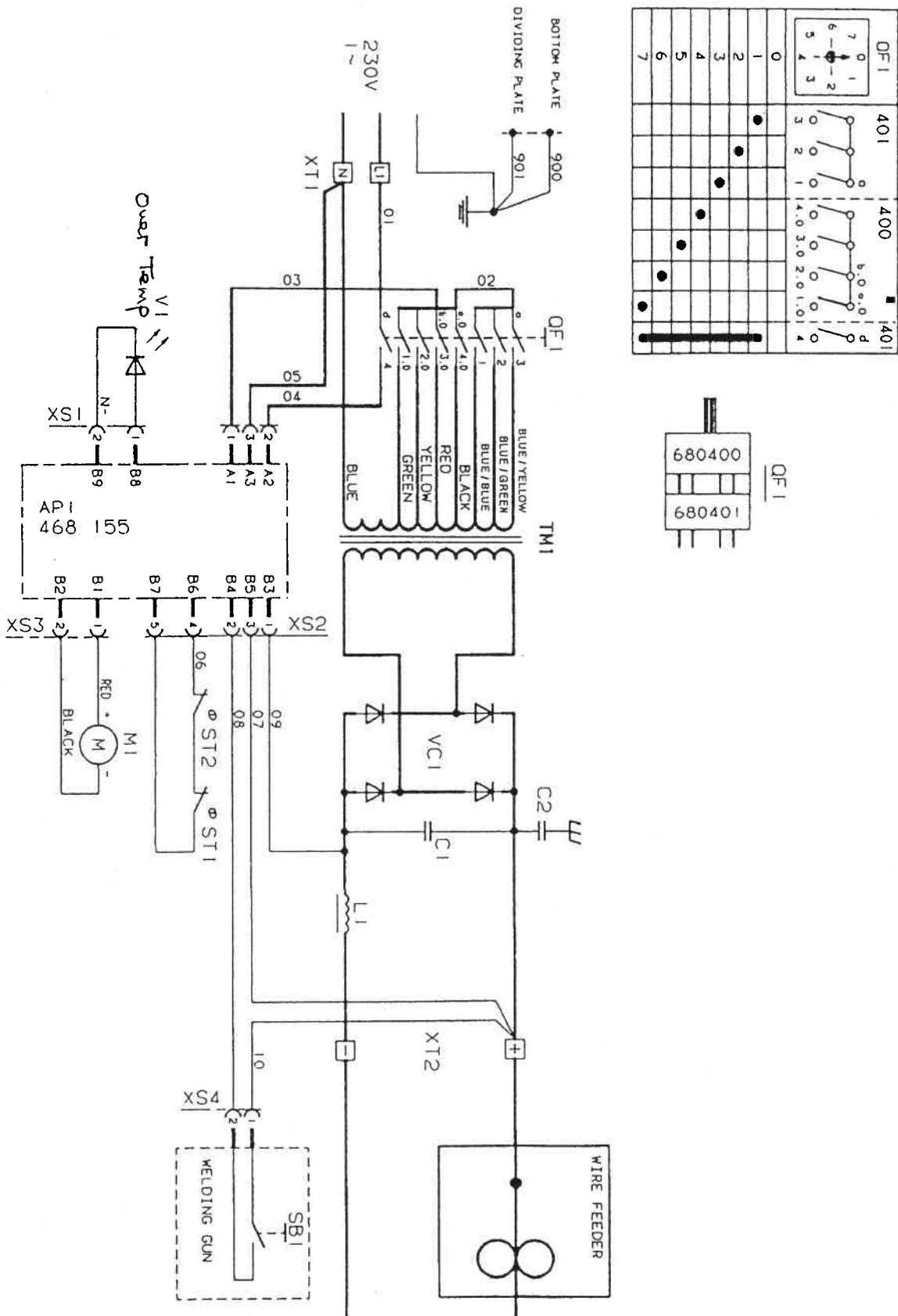
Low settings of wire feed speed will cause a long drawn out arc and spattering, high settings of wire feed will cause stubbing.

POSSIBLE WELDING PROBLEMS

Fault		Possible Cause
Wire does not move forward despite rotation of feed rollers		<ol style="list-style-type: none"> 1. Pressure roller inadequately loaded 2. Dirt in wire guide and/or contact nozzle
Irregular wire feed		<ol style="list-style-type: none"> 1. Faulty contact nozzle 2. Dirt in groove of feed roller 3. Feed roller groove faulty
Arc will not strike		<ol style="list-style-type: none"> 1. Poor contact between earth return and workpiece
Arc too long and irregular		<ol style="list-style-type: none"> 1. Voltage too high
Very small arc		<ol style="list-style-type: none"> 1. Voltage too low
Welding fault	Appearance	Possible cause
Pores		<ol style="list-style-type: none"> 1. Incorrect gas flow. Rec. 8-10 l/min. 2. Inadequate gas shielding due to spatter in nozzle 3. Draughty workplace 4. Welding distance too long and/or welding torch wrongly held 5. Damp, oil, rusty workpiece
Poor filling up		<ol style="list-style-type: none"> 1. Welding speed too high 2. Current too low relative to welding speed
Binding faults		<ol style="list-style-type: none"> 1. Irregular movement of torch 2. Voltage too low
Spatter		<ol style="list-style-type: none"> 1. Voltage too high 2. Gas nozzle dirty
Uneven joint		<ol style="list-style-type: none"> 1. Wire tip too long 2. Current too high relative to voltage 3. Welding speed too low
Poor penetration		<ol style="list-style-type: none"> 1. Current too low relative to voltage

NOTE! Faults in the electrical parts such as the control circuits, relays, switches, transformers, etc, should only be attended to by a proficient service technician

CIRCUIT DIAGRAM



MAINTENANCE

All welding equipment should be thoroughly inspected, tested and serviced at least annually. More frequent checking will be required when the equipment is heavily used. Should this equipment fail to operate correctly, stop work immediately and have the problem investigated. Maintenance work must be performed by a trained person and electrical work by a qualified electrician.

WARNING

Switch off and disconnect the unit from the mains supply before undertaking any maintenance tasks.

DAILY TASKS (OPERATOR)

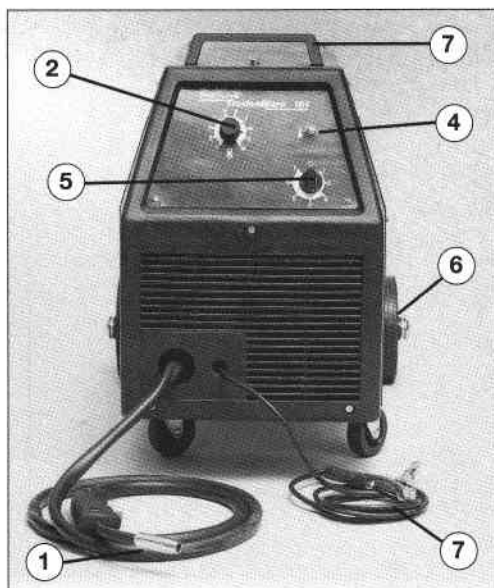
1. Check all welding and electrical cables for signs of damage, cracking or general deterioration. Have defective cables replaced.
 2. Check that all welding connections are in good condition. In particular inspect the work return to workpiece connections and check all welding connections at the power source output and the wire feed unit are secure.
 3. Inspect the wire feed unit drive mechanism ensuring the drive rolls are in good condition and correct for the wire in use. Remove any dust or debris that may have collected around the rolls or drive stand. Ensure the wire reel is correctly fitted and its retaining nut is in place.
 4. Check the welding torch for signs of damage. Replace any suspect parts.
 5. Using low pressure dry compressed air blow the wire liner in the PSG 14v welding torch clean.
- Remember to wear suitable eye and mouth protection.
6. Check the overrun adjustment setting (see notes on page 7).

WARRANTY

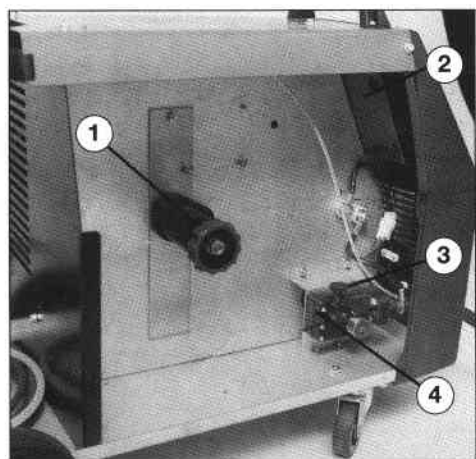
The Trademarc 151 is covered by 12 months parts and labour warranty (excluding the PSG 14v welding torch). This warranty covers defects which arise solely from faulty design, materials or workmanship during proper use of the equipment. It does not cover consumable items that come into contact with the welding wire such as feed/pressure rolls, contact tips and wire conduit etc.

If service is required under warranty return the equipment complete with proof of date of purchase to the point of sale or to your nearest Murex Service centre.

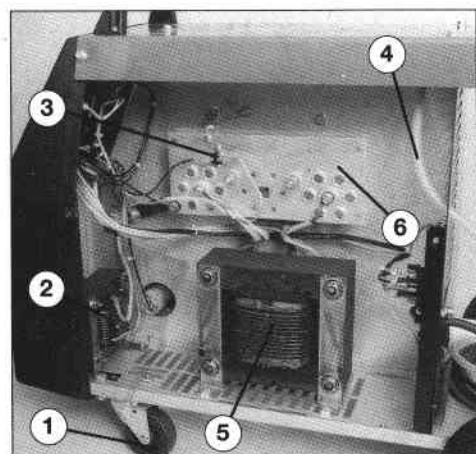
SPARE PARTS



ITEM	PART No.	DESCRIPTION
1	469408880	Welding Gun PSG 14v
a	469518881	Gas Nozzle
b	469518886	Spot Welding Gas Nozzle
c	469518888	Swan Neck
d	469518889	Handle
e	469518890	Trigger Spring
f	469518880	Teflon Liner & 5x10mm Contact Tips for Al;uminium
g	469 518896	Pack of 10 Contact Tips 0.6mm
h	469518895	Pack of 10 Contact Tips 0.8mm
j	469518883	Pack of 5 Contact Tips 1.0mm
2	191510104	Knob
3	469437001	Handle
4	193759002	Indicator
5	469 471001	Switch
-	366296003	Knob for Item 5
6	469467001	Wheel
a	469390001	Axle
b	469391001	Axle Mounting Bracket
7	469571880	Return Cable Complete



ITEM	PART No.	DESCRIPTION
1	469474001	Brake Hub
2	486155880	Printed Circuit Board
3	469517880	Feed Roll Kit Contains:
-	-	Inlet Nozzle
-	-	Pressure Arm Complete
-	-	Feed Roller 0.6/0.8
-	469517881	Feed Roller 1.0mm Aluminium
Not Shown	368265001	Gas Cylinder Securing Strap
4	469475880	Wire Feed System Complete with Motor



469468001

ITEM	PART No.	DESCRIPTION
1	469478001	Castor Wheel x2
2	469300880	Inductor
3	321229003	Thermal Switch
4	-	Gas Hose
5	469280880	Main Transformer
6	469315880	Diode Bridge