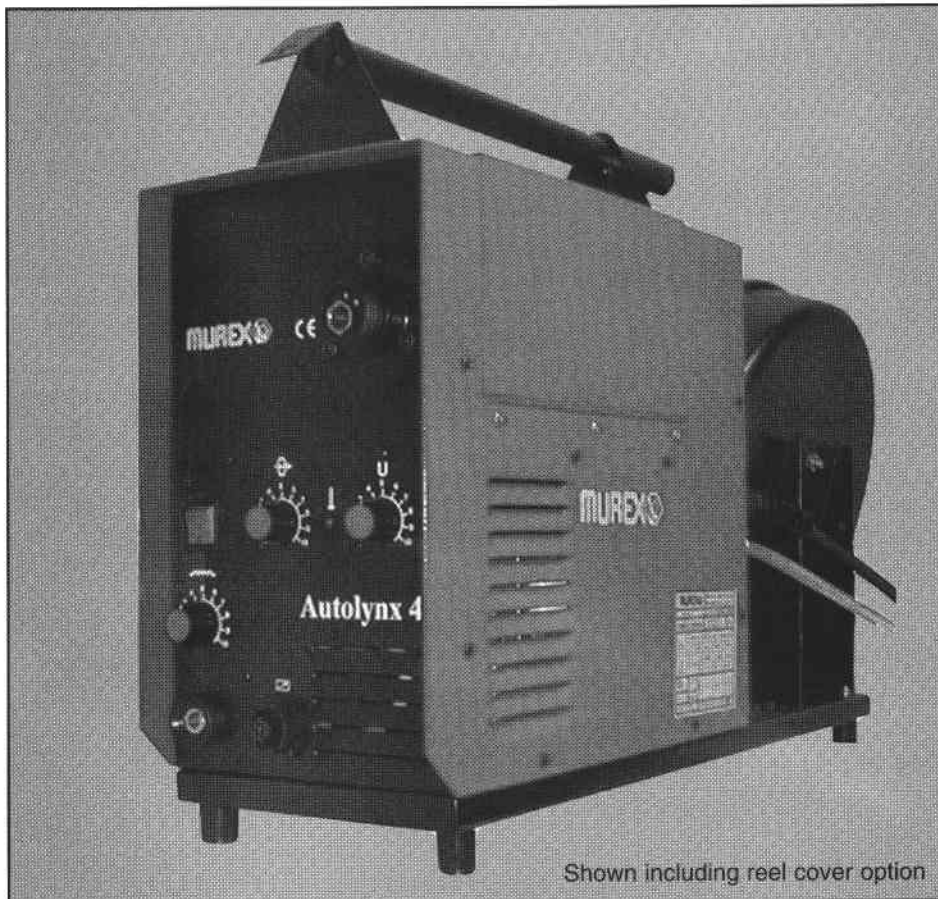


# Autolynx 4i



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



## DECLARATION OF CONFORMITY

### Murex Welding Products Ltd

Declare hereby that:

#### **Murex Autolynx 4i Power Source**

Part No: 1415641

Manufactured after 1st January 1998

- is manufactured in accordance with the Council Directive 73/23/EEC (1973-02-19) and 89/336/EEC (1989-05-03) amended by Council Directive 93/68/EEC relating to electrical equipment designed for use within certain voltage limits.
- conforms with the protection requirements of Council Directive 89/336/EEC, amended by Council Directives 91/263/EEC, 92/31/EEC and 93/68/EEC relating to electromagnetic compatibility.
- is manufactured in accordance with EN60974-1 Safety Requirements for Arc Welding Equipment
- is manufactured in accordance with EN50199 Electromagnetic Compatibility for Arc Welding Equipment.

On behalf of Murex Welding Products Ltd  
Hertford Road  
Waltham Cross  
Herts. EN8 7RP  
England

  
-----  
P.G. Dodd  
Managing Director  
Date: 1st Jan 2001

## Contents

	<b>Page</b>
● <b>Warnings</b>	<b>4</b>
● <b>Safety</b>	<b>5</b>
● <b>Introduction</b>	<b>6</b>
● <b>Radio Interference</b>	<b>6</b>
● <b>Installation</b>	<b>7</b>
● <b>Welding notes</b>	<b>9</b>
● <b>Maintenance</b>	<b>10</b>
● <b>Optional Extras</b>	<b>10</b>
● <b>Circuit Diagram</b>	<b>11</b>
● <b>Parts List</b>	<b>12</b>



## 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.

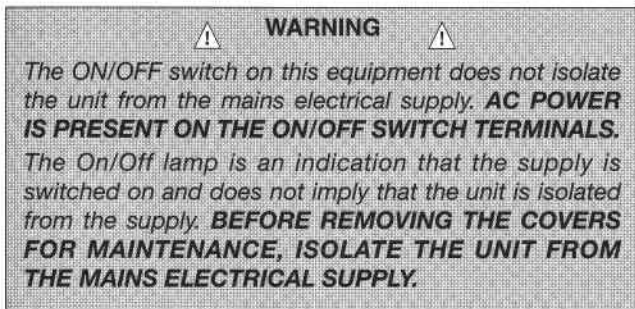
**READ AND UNDERSTAND THE INSTRUCTION MANUAL  
BEFORE INSTALLING OR OPERATING AND SEE WMA PUBLICATION 237  
'The arc welder at work' AVAILABLE FROM THE MANUFACTURER.**

**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.



### 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.

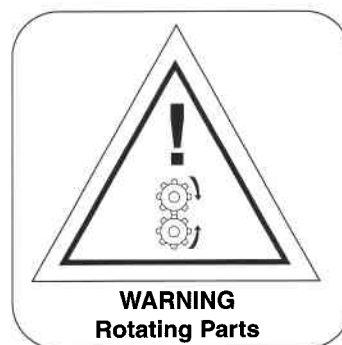
Do not weld near flammable materials or liquids, in or near explosive atmospheres, or on pipes carrying explosive gases.

### 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.

### 6. Warning



Switch off before accessing areas which contain moving parts. Particular care should be taken when accessing the wire feed mechanism.

## INTRODUCTION

The Autolynx 4i is a portable MIG/MAG welding power source utilising inverter technology. It is fitted with an integral wire feed system and is designed for welding mild, stainless steel or aluminium up to 5mm thick. The 4i accepts either a standard 15kg 300mm diameter wire reel or a smaller 200mm 5kg spool. An optional 15kg reel cover is available to protect the wire from dust and dirt. The unit operates from standard 220-240V single phase electricity supplies. For most applications it can be used on a standard domestic type13A circuit, however for high current and duty uses, a 16A rated supply is necessary.

Operator controls provide continuous adjustment of both welding voltage and wire feed speed (welding current) as well as

continuous control of inductance. Full remote control facilities are also standard and an optional remote control unit with both voltage and wire speed adjustment is available. Protection against overloading is provided by an internal thermal detector. In the event of overheating, output from the Autolynx 4i is shut off and the yellow indicator lamp illuminated. After the unit has cooled down it will reset automatically.

As a package the Autolynx 4i is supplied complete with the Murex MXE 15-30 euro connected MIG torch, work return lead and clamp, gas hose plus a 3/8" BSP nut and nipple for connecting it to the gas cylinder regulator, and a 2m primary mains cable.

## SPECIFICATION

Input		Output		Dimensions	
Voltage	220-240Vac	OCV	30 Vdc	Height	475 mm
Phase	1	Current Range	20 - 160 Amps (ArCO <sub>2</sub> )	Width	205 mm
Frequency	50/60Hz	Rated Output 40% Duty Cycle	160A/22V	Length	605 mm
Fuse Rating	16A*	60% Duty Cycle	140A/21V	Weight	18 Kg
kVA	5.1	100% Duty Cycle	120A/20V	(without wire)	
kW	4.6	Standards	EN60974-1 & EN50199	*A standard 13A plug and fuse can be used for most applications	
		Wires Sizes Steel	0.6/0.8mm		
		Aluminium	1.0mm (5% Mg)		
		Wire Speed	0-12/min		

## RADIO INTERFERENCE

1. Murex welding power sources have been designed to high standards of electromagnetic compatibility. However, arc welding, by its very nature, generates radio-frequency energy and may cause interference. By installing and using the equipment correctly, in accordance with these instructions, the problems of interference may be minimised.

2. This equipment satisfies the requirements of the EU Directive 89/336/EC on EMC and complies with the limits in EN 50 199, 'EMC product standard for arc welding equipment'. These limits are designed to provide reasonable protection against interference in heavy industrial areas.

3. If this equipment is used in domestic areas, eg. for repair or maintenance, particular care should be taken. The time of day should be chosen and the duration of welding limited, to minimise any potential problems.

4. If this equipment caused interference the guidance given below should be considered. If a solution cannot be found please contact your distributor or the manufacturer.

5. Before installing this welding equipment an assessment should be made of potential EMC problems that may occur. It is good practice not to install welding equipment next to computers or

safety critical control circuits, eg electronic machine guards, unless they have been suitably protected.

6. Primary cabling and welding cables should be kept separate to other mains wiring and control, signalling or communications (eg telephone) cables. If interference occurs then greater separation or re-routing should be considered. Welding cables should be kept as short as practically possible.

7. Interference may also be reduced by separating the welding equipment from the other equipment affected. A partition, brick wall or particularly, a metal screen will also reduce interference. Earthing and equi-potential bonding should also be considered but guidance should be sought from a competent person, the distributor or manufacturer.

8. To ensure continued compliance to the EMC Directive this equipment should be routinely maintained according to the manufacturers instructions and using only approved spare parts. In particular, the spark gaps of HF units should be adjusted and maintained according to the manufacturers recommendations.

9. All access and service door and covers should be closed and properly fastened when the equipment is being used. This equipment should not be modified in any way except for those changes and adjustments approved by the manufacturer.

## INSTALLATION

### INITIAL SET UP

1. Check that the ON/OFF switch is in the OFF position.

**WARNING**

*This power switch does not isolate the unit from the mains electrical supply.*

2. **Feed Roll and Guides**

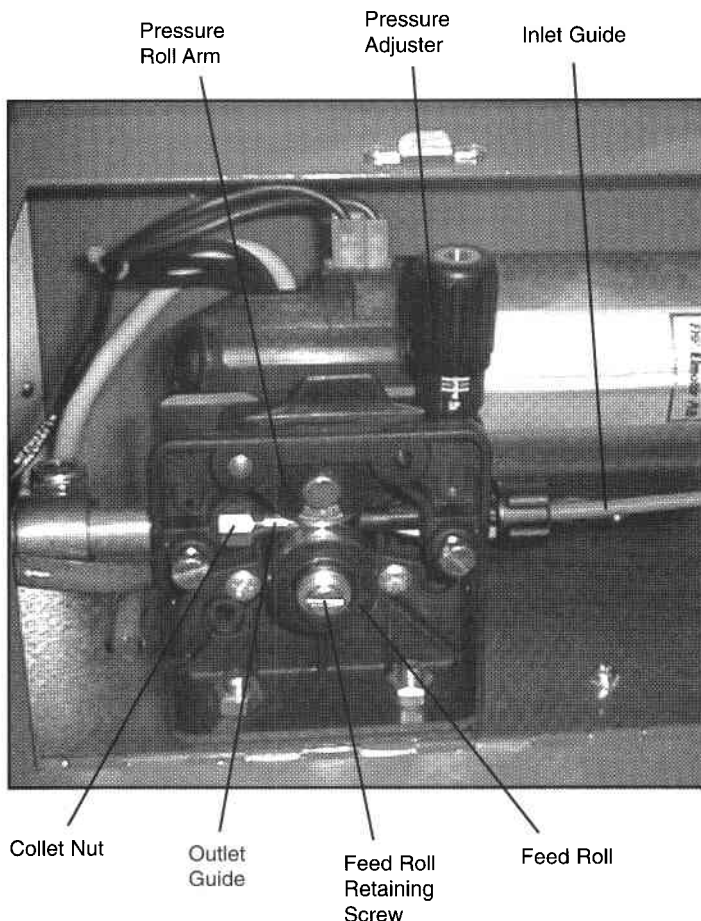
Before connecting the gas supplies, ensure that the wire feed mechanism is set up for the diameter and material of wire to be used. Refer to Replacements and Adjustments section.

3. **Work Return Lead**

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

### INSTALLING THE WELDING WIRE

1. Remove the hand nut from the hub. Disconnect the MIG torch from the euro adaptor.
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 should 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 under the feed roll and into the outlet guide tube so that it exits at the front of the euro adaptor. Lock down the pressure roll arm so that the welding wire is clamped into position in the groove.



6. Check the MIG torch liner is correct for the wire to be used and remove the gas nozzle and contact tip from the torch neck. Fit the torch to the euro adaptor guiding the wire into the liner inlet on the torch side of the euro adaptor. Ensure the euro adaptor collar nut is fully tightened.

7. Set the Power switch to ON checking that the pilot light is illuminated and that the fan runs.

**WARNING**

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

8. Press the torch mounted switch and check that wire feed is smooth and positive. If the wire slips in the feed rolls, tighten the pressure adjuster just enough to obtain positive wire feed. Do not overtighten. **The correct pressure setting is when the wire just does not slip.**
9. Continue feeding the wire until it exits from the torch neck. Fit the contact tip ensuring it is the correct size for the wire diameter and that it is in good condition. Fit the gas nozzle.
10. Turn on the shielding gas supply and set the flow rate at between 12 & 15 litres per minute. The gas flow should be checked with the torch switch pressed and with gas flowing out of the torch nozzle.

### REPLACEMENTS AND ADJUSTMENTS

1. **Outlet Guide Tube Liner Removal**

- (a) Release the pressure roll.
- (b) Using a suitable spanner loosen the collet nut on the outlet guide tube where the wire exits from the feedrolls.
- (c) If the guide tube liner will move freely, push it forward out of the torch adaptor using a pencil or soft wooden dowel rod, then withdraw it using a pair of long nose pliers.

**NOTE**

*Do not use a screwdriver or metal tool to push out the tube. Use of such a tool may damage the end of the guide and impair feeding.*

2. **Feed Roll Changing**

Remove the feed roll retaining screw. It may be necessary to give the screwdriver a sharp twist to avoid turning the motor. Lift the pressure arm and pull off the feed roll. When replacing the feed roll, note the wire size which is stamped on the face of the roll. The required size must face outwards when the roll is refitted. Ensure that the Woodruff Key is not lost. Fit the feed roll and lock the pressure arm. Refit the retaining screw giving it a sharp twist with the screwdriver to tighten.

3. **Feed Roll Pressure**

Correct feed roll pressure will provide smooth, uninterrupted feeding of the wire. Inspection of the wire should reveal only slight marks from the feed rolls and no deformation of the wire. Use of the correct pressure is especially important when feeding aluminium wires. **The pressure should be just enough to provide positive wire drive without slipping.**

4. **Wire Reel Overrun Adjustment**

Tighten or unscrew the hub tension nut in the centre of the wire reel hub until sufficient hub friction is achieved to prevent overrun.

**NOTE**

*Do not overtighten or the wire will slip in the feed rolls.*

## WELDING NOTES

1. Set the voltage and wire feed controls to the appropriate positions for the material to be welded. Select the level of inductance required. In general increasing values of inductance produce a "hotter" and "softer" welding condition and a flatter weld bead. Reducing inductance results in a colder and "crisper" arc condition
2. Ensure the work return clamp is securely connected to the workpiece.
3. Cut the wire so that approximately 3-5mm protrudes from the contact tip.
4. 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 surface.
  - (c) Position the torch so that the nozzle is parallel to the seam to be welded.
5. Warn bystanders to shield their eyes. Lower your helmet.
6. Press the torch switch to initiate the arc and, as the weld is deposited, push the torch slowly along the seam at a constant speed.

### WARNING

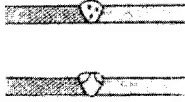





The wire, contact tip and wire feed mechanism are 'live' when the torch switch is pressed.

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

### WARNING

Faults in the electrical parts such as the control circuits, relays, switches, PCB's, etc, should only be attended to by an approved service engineer.

## 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 service engineer.

### 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. Check the overrun adjustment setting

## SIX MONTHLY (MAINTENANCE DEPARTMENT)

### WARNING

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

1. Using a soft brush and/or a supply of clean dry compressed air clean out the inside of the power source. Remember to wear suitable eye and mouth protection.
2. Inspect the incoming chassis ground connection ensuring it is clean and tight.
3. Inspect the welding output dinse connections for signs of overheating or cracking. Replace if necessary.

## ANNUALLY (QUALIFIED ELECTRICIAN OR APPROVED SERVICE CENTRE)

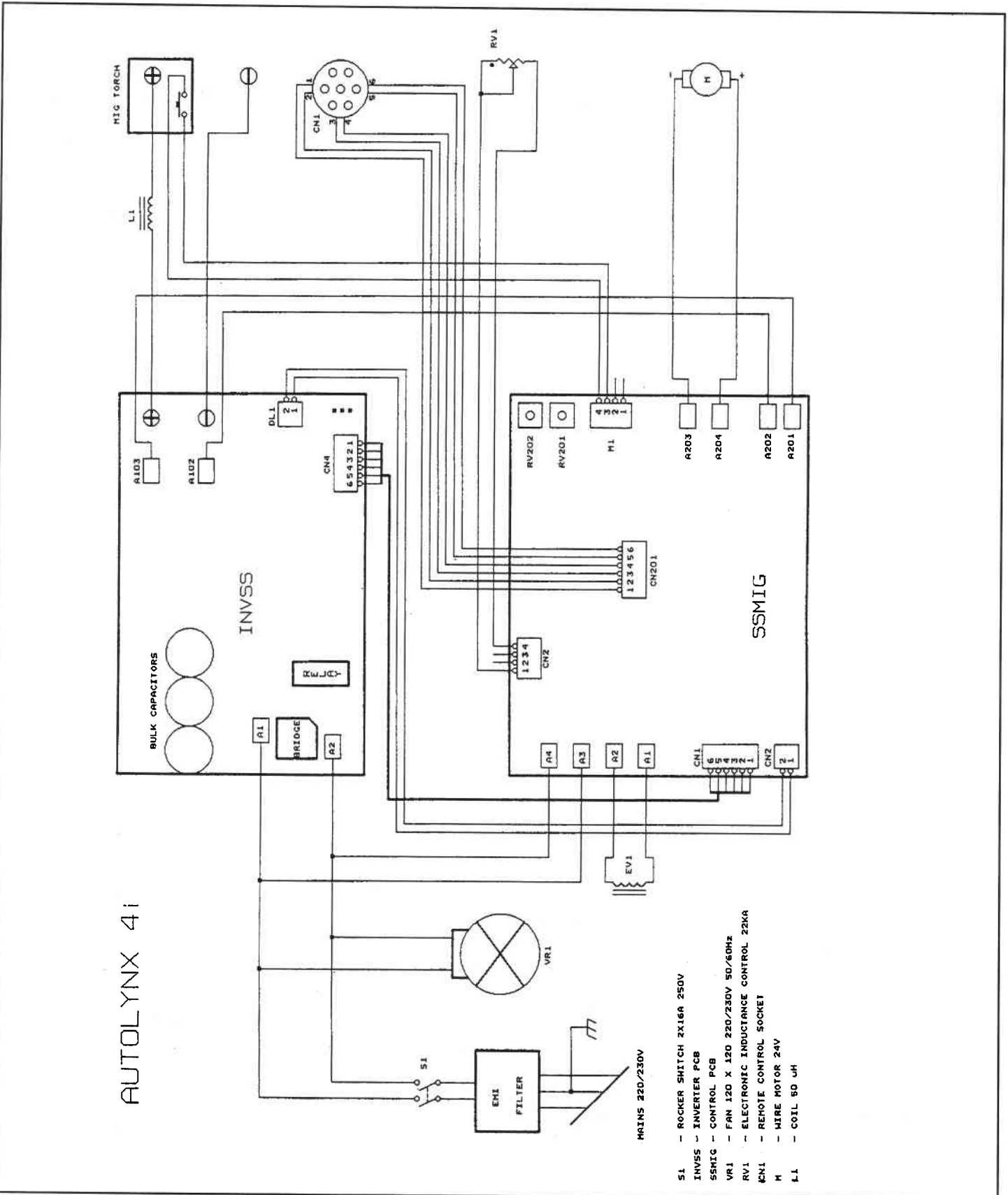
Carry out a full insulation and high potential test using a PAT tester or similar equipment. Note this unit must not be tested using a dielectric tester as it contains mains input filtering circuitry which could be damaged by very high voltage AC supplies.

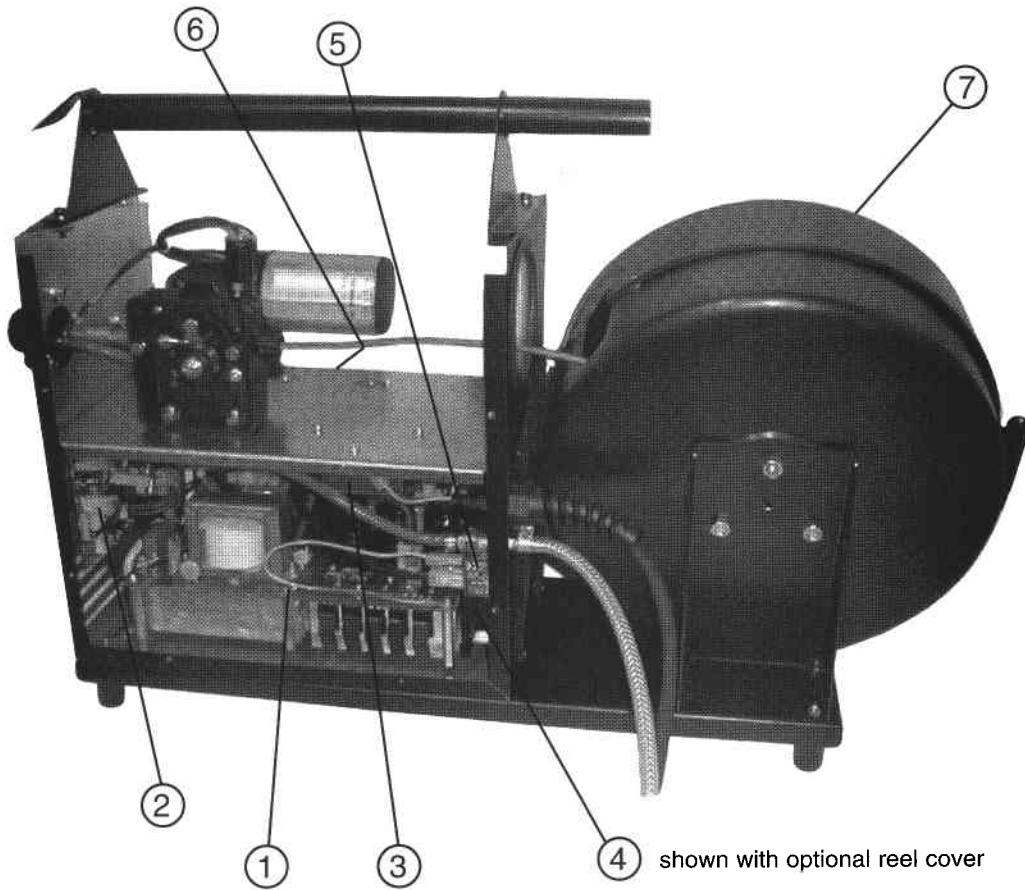
## OPTIONAL EXTRAS

(refer to MXE15-30 leaflet for MIG torch spare parts)

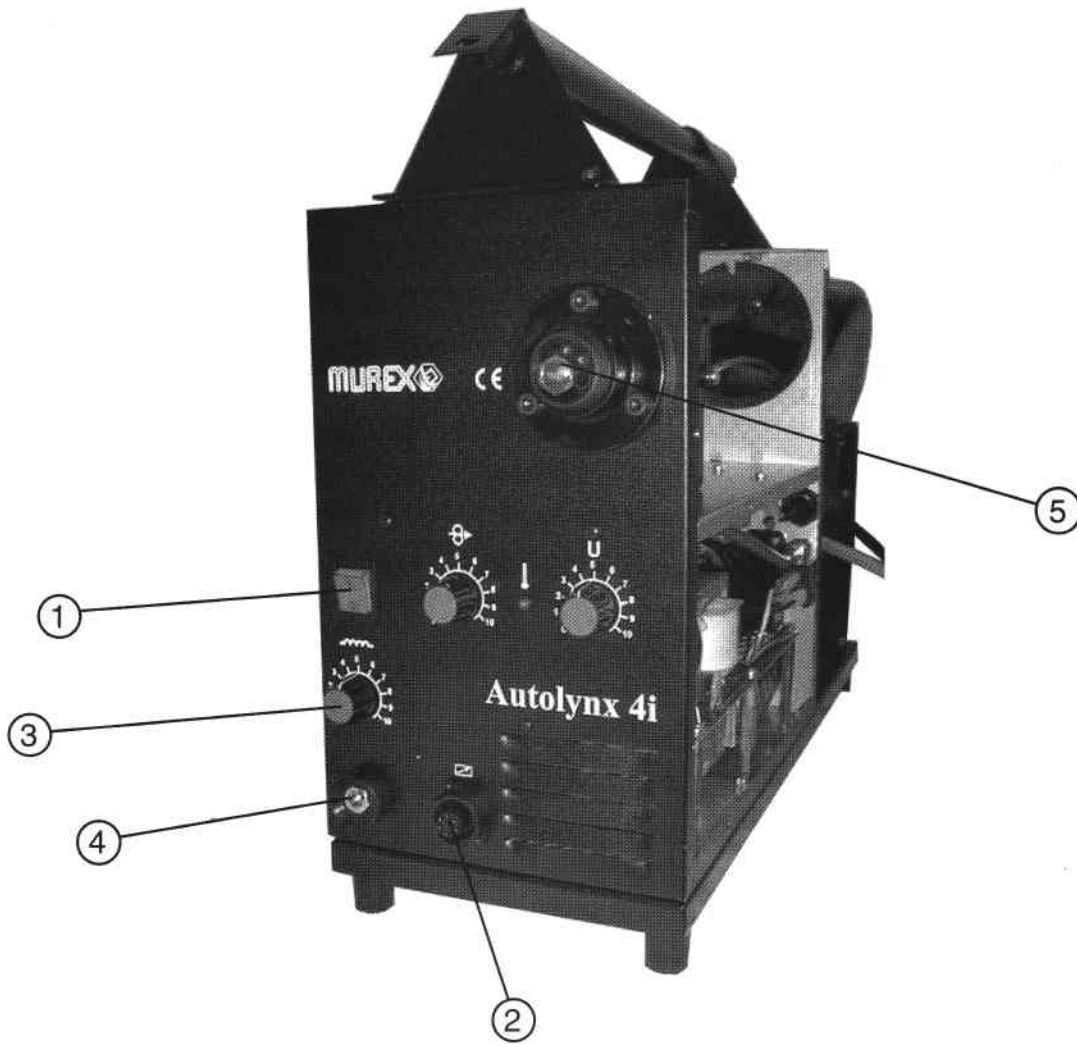
1415645	MXE15-30 MIG Torch
1409324	3.5m Work Return Lead and Clamp
1415646	Remote Control Unit with 5m cable
1415647	15kg Reel Cover Kit
1411470	0.6/0.8mm Feed Roll for Steel Wires
1411489	1.0/1.2S Feedroll for Aluminium Wires
1413883	Outlet Guide Tube Liner for 1mm Aluminium Wires (Nylon Lined)

## CIRCUIT DIAGRAM

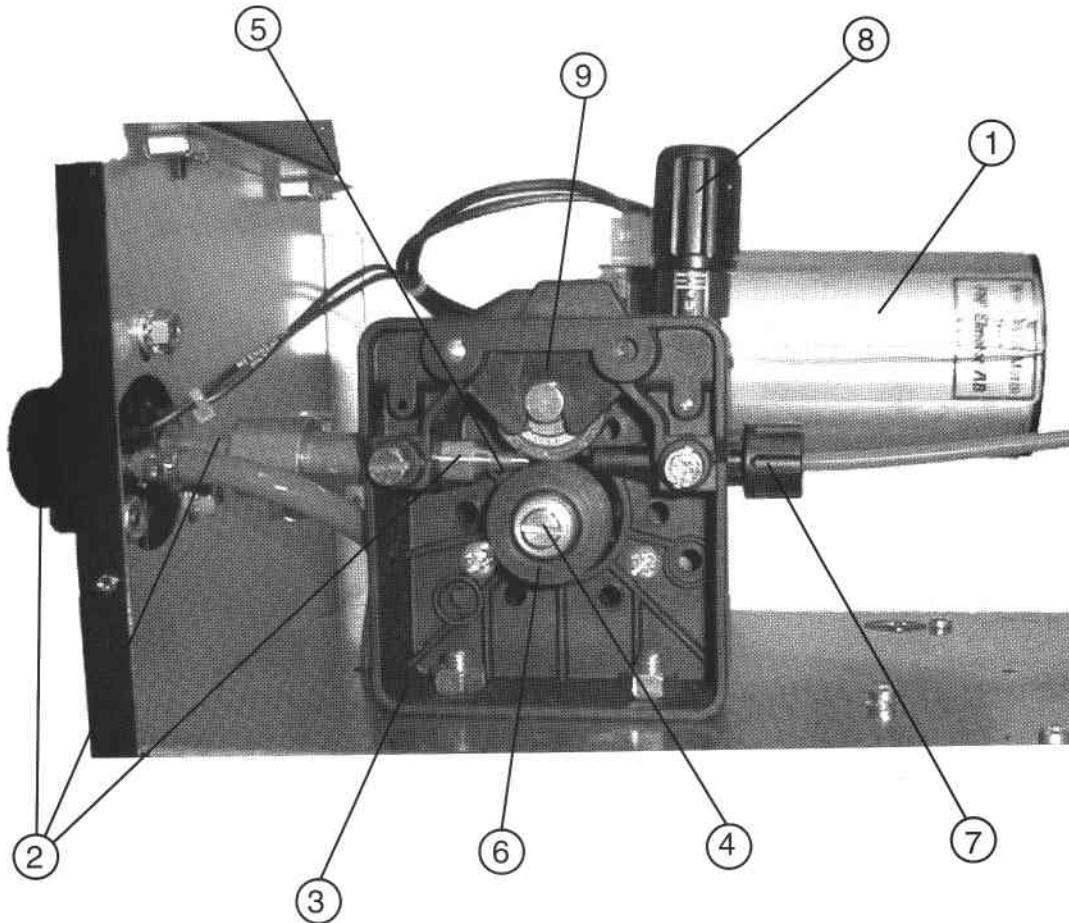




Item	Part No.	Description	Cct Ref
1	1415824	Main Inverter PCB	INVSS
2	1415825	MIG Control PCB	SSMIG
3	1415481	EMI Filter	EMI
4	1415480	Fan	VR1
5	1415483	Gas Valve	EV1
6	1415826	Inductor	L1
7	1413840	Reel Hub Ass'y	



Item	Part No.	Description	Cct Ref
1	1415485	Swth Power on/off	S1
2	1415827	Remote Control Socket	CN1
3	1415828	Potentiometer 22K $\Omega$	RV1
4	1404314	Dins Socket 10/25	-
5	1413108	Central Adaptor Ass'y	-



Item	Part No.	Description	Cct Ref
1	1415007	Wire Feed Motor	M
2	1413108	Central Adaptor Ass'y	-
3	1413874	Feedplate	-
4	1413104	Retaining Screw	-
5	1413103	Outlet Guide Tube Liner	-
6	1411470	Feed Roll 0.6-0.8H	-
7	1411470	Inlet Guide	-
8	1413897	Pressure Adjuster	-
9	1415001	Pressure Arm Ass'y	-







**Murex Welding Products Limited**  
Hertford Road, Waltham Cross,  
Herts. EN8 7RP. England  
Telephone: Lea Valley (0992) 710000

**Pt. No. 100566**  
**Issue 1**