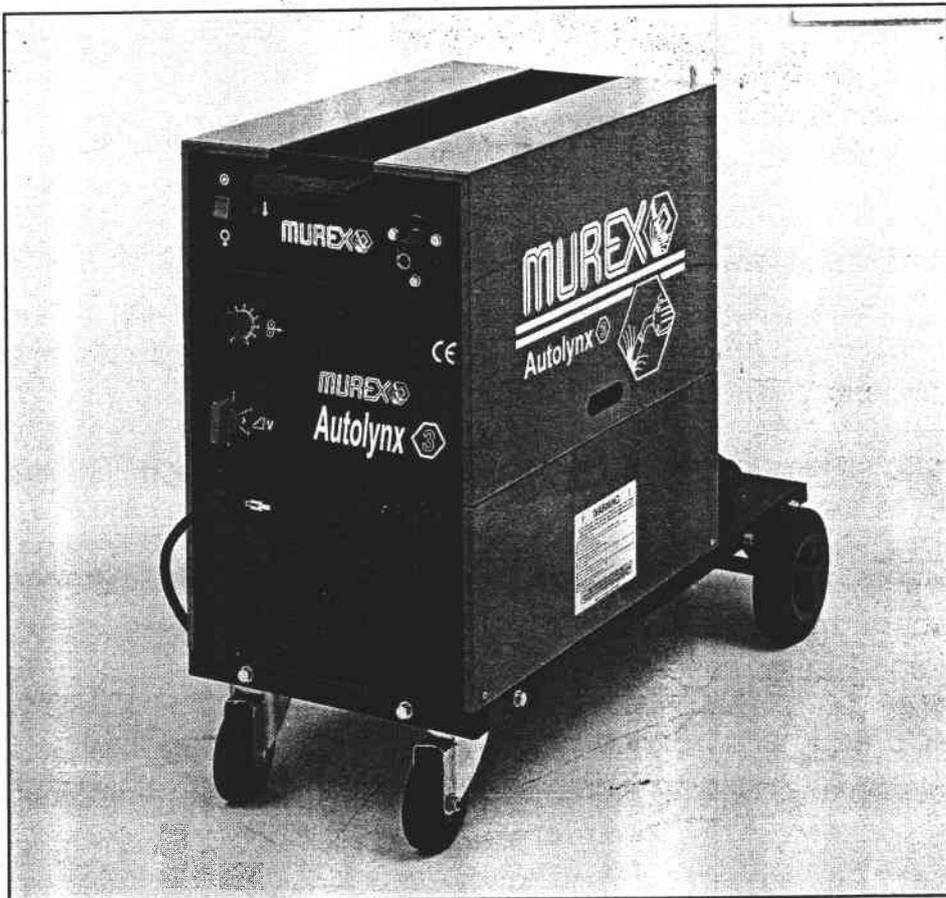




# Operating Manual

## Autolynx 3



**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 3 Power Source**

Part No: 1415411

Manufactured after 1st January 1998

- are 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.
- conform 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.
- are manufactured in accordance with EN60974-1 Safety Requirements for Arc Welding Equipment
- are 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

A handwritten signature in black ink, appearing to read "P.G. Dodd".

-----  
P.G. Dodd  
Managing Director  
Date: 3-7-1998

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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.

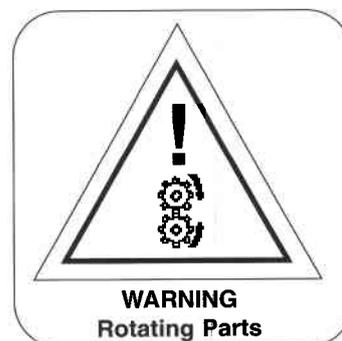
⚠ Do not weld near flammable materials or liquids, in or near explosive atmospheres, or on pipes carrying explosive gases.

### 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.

### 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 3 is a MIG/MAG welding power source fitted with an integral wire feed system suitable for welding mild and stainless steel and aluminium.

The Autolynx 3 accepts the standard 15Kg 300mm  $\varnothing$  wire reel keeping it totally enclosed within the wire feed compartment.

Rugged undergear ensures portability even with the larger size gas cylinders mounted on the cylinder carrier.

The Autolynx 3 is supplied complete with the MXA 153B detachable (Euro connector) 3 metre Welding Torch, Work Return Lead and Clamp, Gas Hose plus  $\frac{3}{8}$  BSP Nut and Nipple, Primary Mains Cable and 13A plug.

Protection against the effects of overheating is provided by a thermal protection device. In the event of overheating, power from the Autolynx 3 is shut down and the yellow indicator lamp illuminates.

## SPECIFICATION

Input		Output	
Voltage	230V	OCV	16.6-27.0 Volts
Phase	1	Welding Current Range (ArCO <sup>2</sup> )	30 - 175 Amps
Frequency	50Hz	Rated Output	
Fuse Rating	13A	20% Duty Cycle	130A/21v
Max KVA	4.5 KVA	35% Duty Cycle	100A/19v
		60% Duty Cycle	75A/18v
		Standards	EN60974-1 & EN50199
		Insulation Class	F & H

### Dimensions (inclusive of undergear) Wire Sizes

Height	710 mm	Steel	0.6/0.8mm
Width	500 mm	Aluminium	1.0mm
Length	890 mm		
Weight	59 Kg		

## INSTALLATION

### 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. **Feed Roll**

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

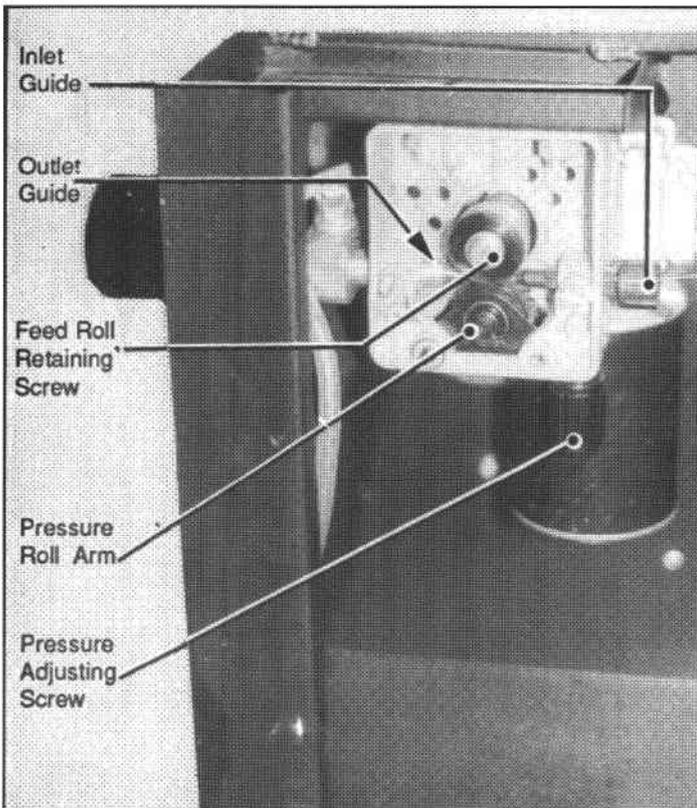
3. **Work Return Lead**

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

### 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 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, for approximately 50mm (2in.). Lock the pressure roll arm so that the welding wire is clamped into position in the groove.
6. Switch on the power source.



7. Push the inching button and check that the wire is driven smoothly through the outlet guide.
8. Check that 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.**

9. Cut off the wire to protrude 10mm from the torch connector.

### 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 inching button, feed the wire through the torch. Thread a contact tip over the wire and screw it into the torch. Tighten the contact tip with the key provided.
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 and check that wire feeds smoothly from the torch.

### REPLACEMENTS AND ADJUSTMENTS

1. **Guide Tube Removal**

(a) Release the pressure roll.

(b) If the guide tube will move freely, push it forward out of the torch adaptor using a pencil or soft wooden dowel rod, then withdraw it from the torch adaptor using a pair of long nose pliers.

If the guide tube does not move freely, it may be necessary to drive it out using a hard wooden dowel or old guide tube.

**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.

Drop 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.**

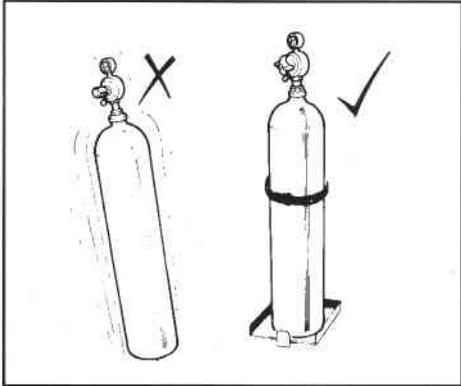
4. **Overrun adjustment**

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

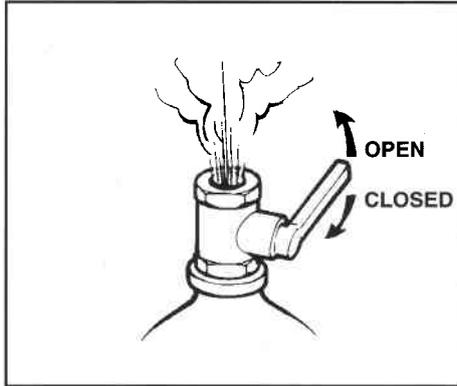
**NOTE**

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

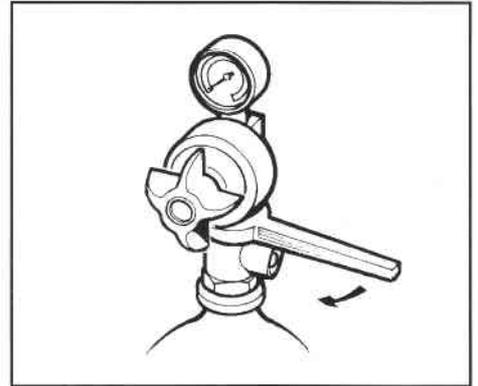
## INSTALLATION (continued)



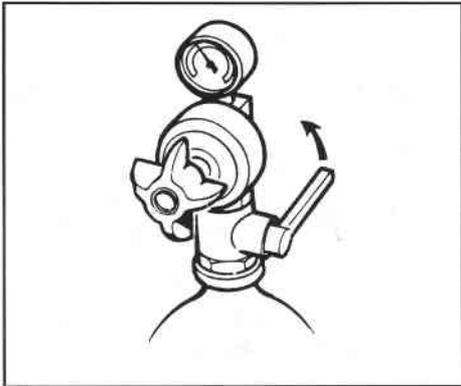
Support the gas cylinder with a retaining strap or mount it on a trolley



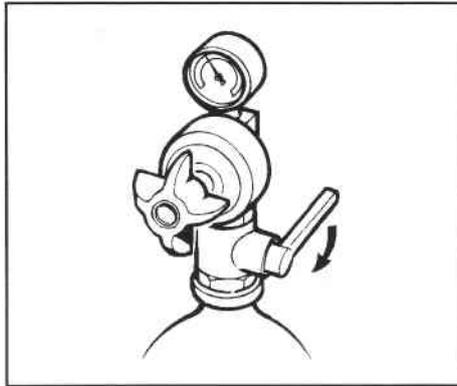
Protect the eyes and open the cylinder valve to remove any dirt in valve socket



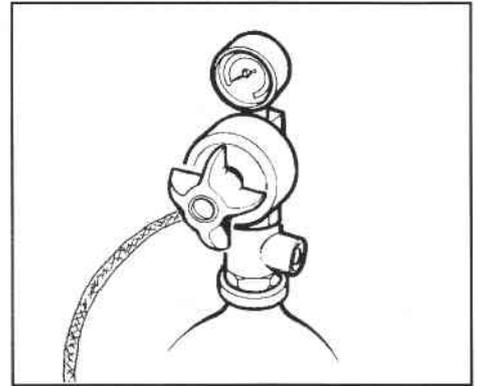
Fit the gas regulator to the cylinder and hand tighten using the correct size spanner. (A sharp blow with the hand at the end of the spanner will ensure a gas-tight seal.)



Open the cylinder valve and check the cylinder pressure. (Must be greater than 10 bar (150lb/in<sup>2</sup>).)



Close the cylinder valve



Fit the gas hose to the regulator and open cylinder valve

Clean the material to be welded with a wire brush

Clamp the work return cable to a clean area of the workpiece

Keep the gap between pieces to be welded to a minimum

Clear the welding area and check that a fire extinguisher is available

Preparation

## WELDING NOTES

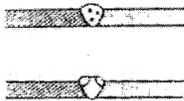
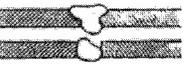
1. Set the voltage and wire feed controls to the appropriate positions for the material to be welded.
2. Cut the electrode wire so that approximately 3-5mm of wire protrudes from the contact tip.
3. Position the torch over the seam to be welded as follows-
  - (a) Hold the contact tip approximately 10mm from the work surface.
  - (b) Hold the torch so that it makes an angle of approximately 70° to the work surface.
  - (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"> <li>1. Pressure roller inadequately loaded</li> <li>2. Dirt in wire guide and/or contact nozzle.</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> </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>

**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.

## 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. 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)

### WARNING

Before carrying out these tests, ensure that the unit is isolated from the electrical mains supply.

### Preparation

1. Join together the live and neutral wires which are connected to TB1.
2. Connect together the welding output SK1 and work return socket SK2.
3. Close the On/Off switch S1.
4. Remove the pcb completely.
5. Disconnect the earth lead from the fan F.
6. Mechanically close the main contactor MC1/4.

### Continuity

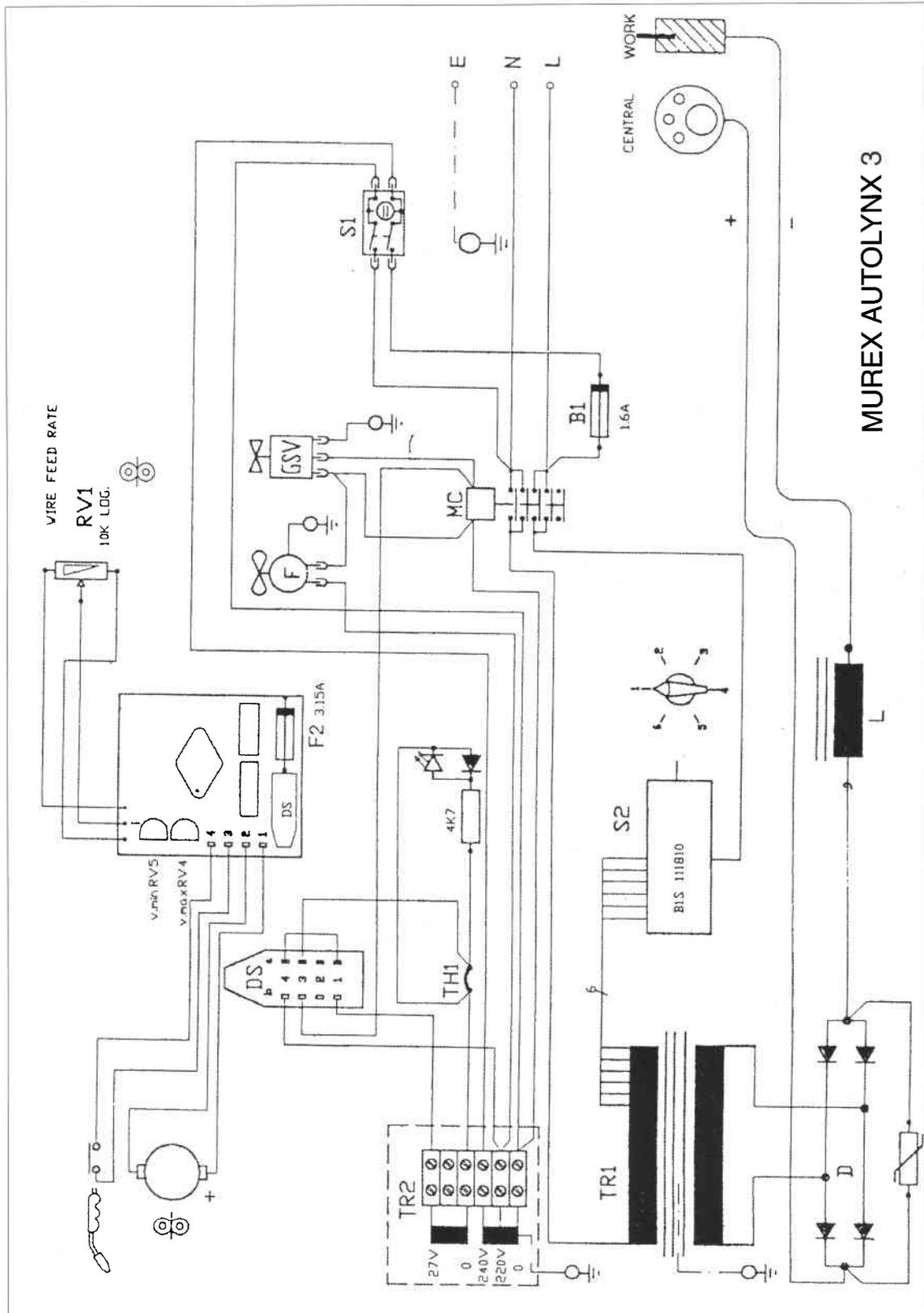
Using an ohm meter of 10,000 ohms per volt or better (e.g. AVO) check for continuity between the mains input cable earth wire and chassis earth points - see wiring diagrams.

### Insulation Tests

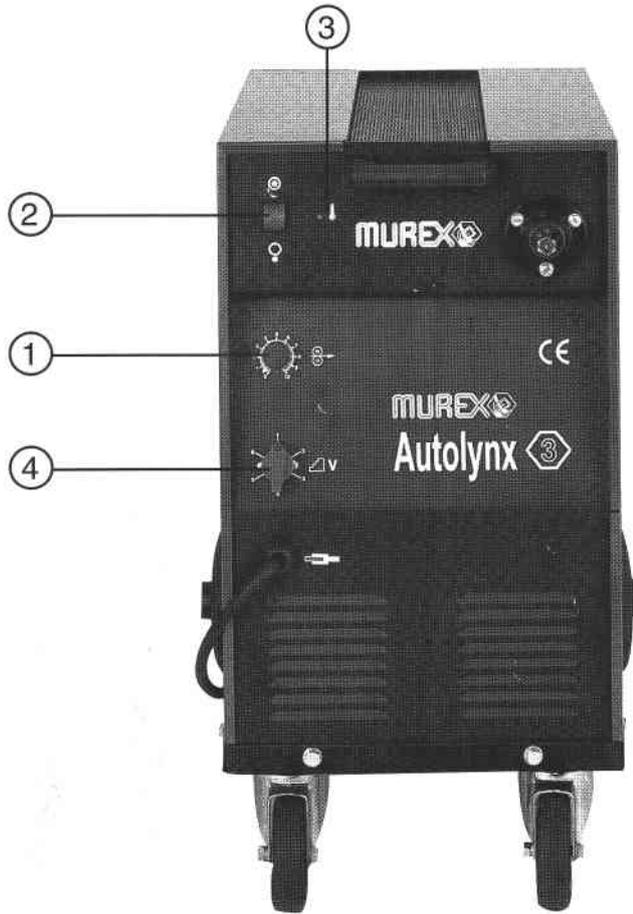
With an insulation tester (e.g. Megger), check for readings greater than 100K ohms between:

- (a) The mains input wires and output terminals
- (b) The mains input wires and earth wire.

## CIRCUIT DIAGRAM

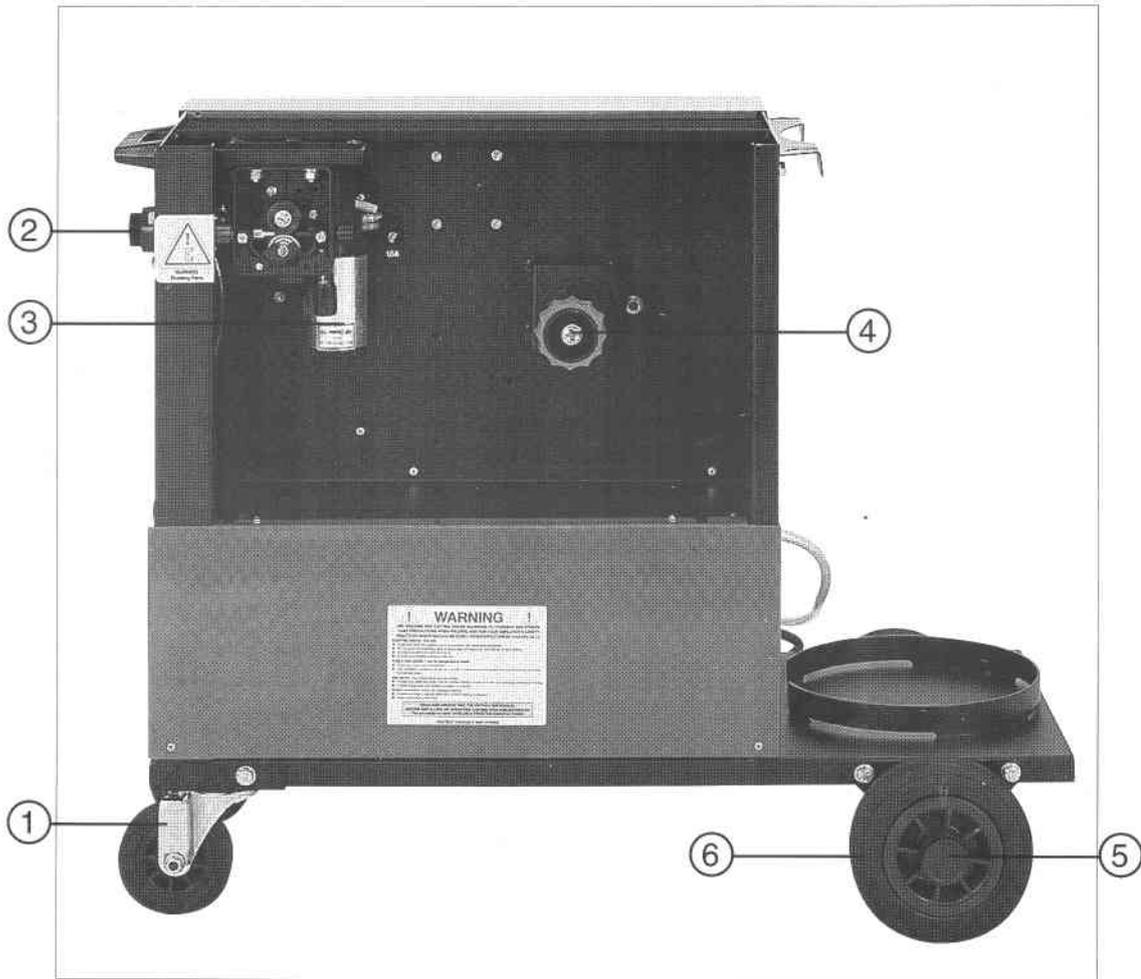


MUREX AUTOLYNX 3

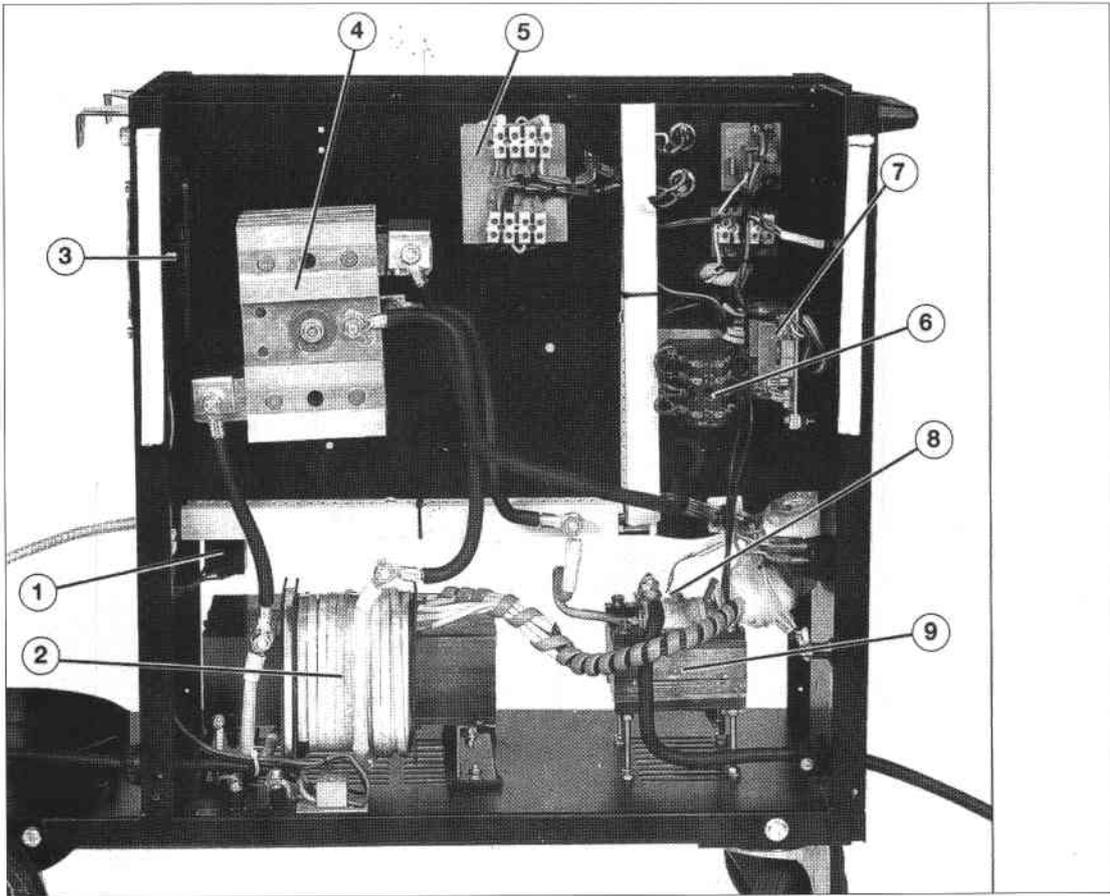


ITEM	DESCRIPTION	PART No
1	Potentiometer	1415010
-	Knob for item 1	<del>50041003</del>
2	On/Off Switch	1411458
3	Fault Indicator	1413447
4	Six Position Switch	1411459
-	Knob for item 4	1413442

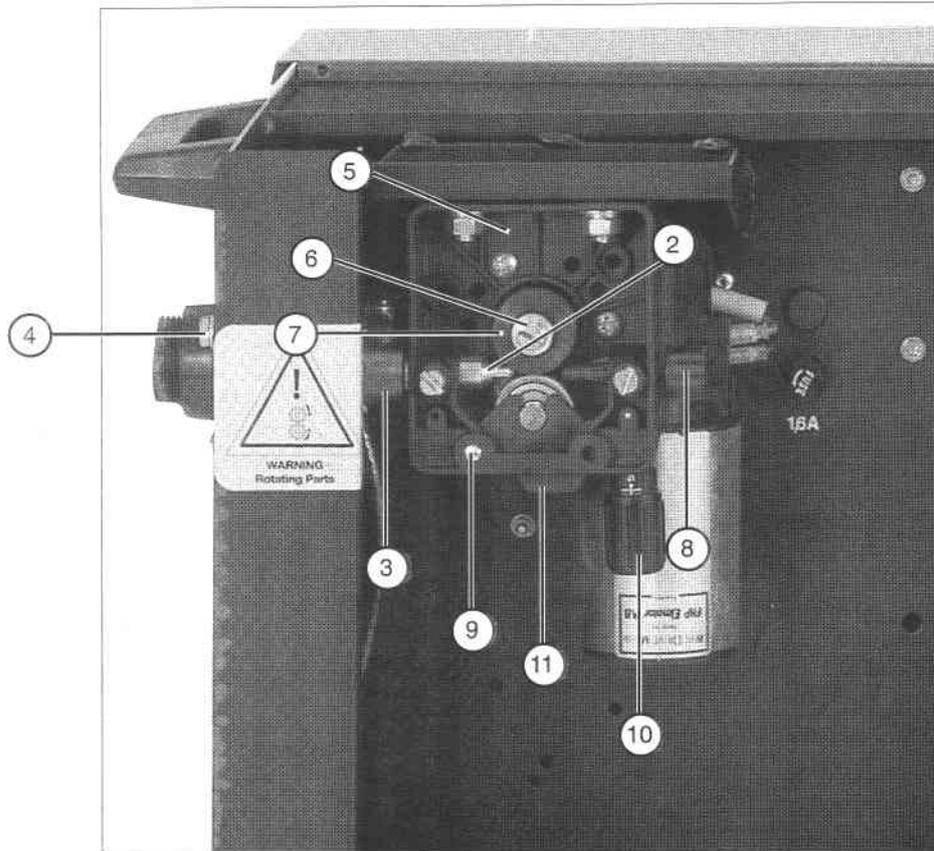
1415545



ITEM	DESCRIPTION	PART No
1	Castor Assembly	1413475
2	Central Adaptor	1413108
3	Wire Feed Motor	1415007
4	Reel Hub Assembly	1411467
5	Axle & Rear Wheel Assembly	1413474
6	Wheel	1413488



ITEM	DESCRIPTION	PART No
1	Solenoid Valve	1411464
2	Main Transformer	1415563
3	Fan	1411477
4	Diode Bridge	1415014
5	Auxilliary Transformer	1415015
6	Contactor	1411456
7	P.C.B.	1415016
8	Thermostat	1415017
9	Inductor	1415564
-	Fuse 3.15A 20 x 5mm	-
-	Fuse 1.6A	1415019



ITEM	DESCRIPTION	PART No
2	Guide Tube Liner	1413456
3	Guide Tube	1413454
4	Central Adaptor	1413108
5	Feedplate	1413874
6	Feed Roll Retaining Screw	1413104
-	Woodruff Key	1411549
7	Feed Roll 0.6/0.8 (H)	1411470
-	Feed Roll 1.0mm (S) (Note Aluminium Only)	1411489
8	Inlet Guide	1413103
9	Locating Pin (Pressure Device)	1413861
10	Pressure Device	1413897
11	Pressure Arm Complete	1415001



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**Pt. No. 100556**  
**Issue 1**