



Operating Manual

Transarc Tradesman DC 135/DC 205



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



DECLARATION OF CONFORMITY

Murex Welding Products Ltd.

Declare hereby that:

Murex Tradesman DC 135 & 205 Power Sources

Part No. 1414700 & 1414702

From Production Serial No. 96Axxxxx

- 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 that reads "P G Dodd".

.....
P G Dodd
Managing Director

Date: 1/12/1995

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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 Transarc Tradesman DC135 and DC205 are designed for Manual Metal Arc (MMA) welding of most metals, including non-alloy and alloy steels, stainless steel and cast iron, using 1.6mm to 3.2mm diameter electrodes on the DC135 and 1.6mm to 4.0mm diameter on the DC205.

With the addition of a TIG torch argon gas supply and regulator, the units can also be used for "scratch start" welding of stainless or mild steel, with or without filler material.

The units are protected from thermal overload by a thermostat, which trips if the internal temperature rises too high. In the event of this happening, the unit will cease to weld and the yellow lamp will light. The machine must be left switched on, with the fan running, allowing it to cool down before the over temperature lamp goes out and welding can re-start.

INSTALLATION

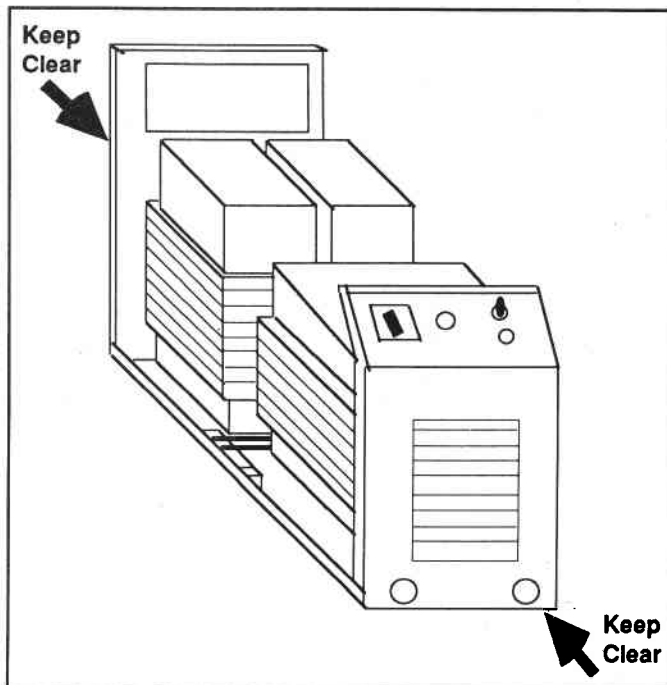
It is recommended that the unit is installed by a competent electrician or suitably trained person.

WARNING

Upon receipt or after periods of non-use carry out an insulation and continuity test to ensure isolation of all accessible metal parts from hazardous voltages.

Siting

Position the unit to give good all-round ventilation and freedom from excessive moisture or pools of water. The rear grill in particular must be kept free from obstruc-



Mains Electrical Connection

WARNING

The ON/OFF switch does not isolate this unit from the mains supply.

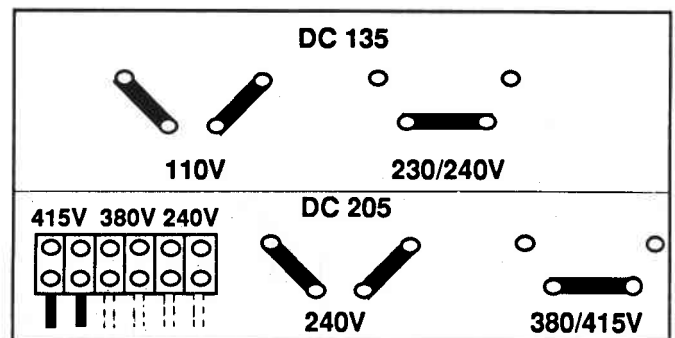
When the ON/OFF switch is in the OFF position, mains supply is still present on the switch terminals.

Before connecting to the mains supply, check that the mains voltage stated on the rating plate corresponds with the voltage to be used, and that the voltage tappings are correctly set (see Table 1).

WARNING

On delivery the DC 135 will be set for a 230 volt input and the DC 205 for a 415V input, and as such appropriately dimensioned primary input cable is already fitted.

If the DC 135 is to be connected to a 110 volt supply or the DC 205 is to be connected to a 240 volt supply then 3 x 4mm² cable should be fitted.



Mains Input Voltage Tappings - TABLE 1

CONTROLS

ON/OFF Switch

WARNING
This switch does not isolate the unit from the mains supply AC mains is still connected to the switch

Yellow Overtemperature Light

This lamp indicates that the thermal trip has activated. This will automatically reset when the unit has cooled down. In the event of this trip operating leave the main ON/OFF switch in the ON position to permit the cooling fan to continue running.

Current Control
 Output current can be adjusted steplessly throughout the full range

Remote control switch
 UP-current is controlled by the panel mounted control DOWN - current is controlled by the remote control device

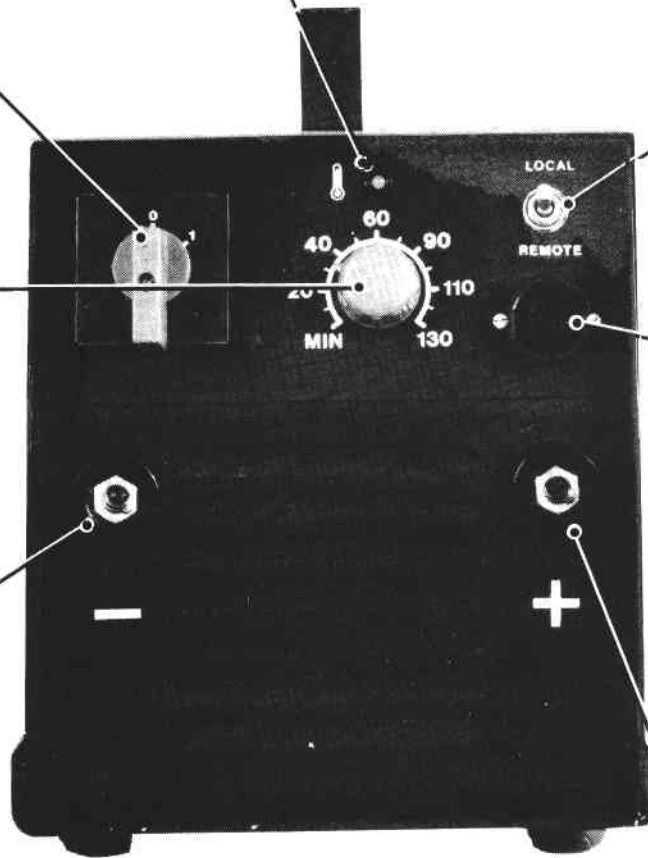
Remote Control Socket

Work Return Lead Socket
 This output is connected to the workpiece.

WARNING
This terminal is NOT earthed. A separate earth must be connected to the equipment earthing terminal - see page 3.

For TIG applications, the torch should connect to this output.

Electrode Holder Socket
 For TIG applications the work return lead should be connected here



MMA Welding

(Read again the Safety Notes on page 2)

Set the switches on the front panel to their appropriate positions.

WARNING

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Whilst welding try to adopt a relaxed attitude

1. Always commence with a last minute check for safety and protection.
2. Check that the electrode holder and work return lead connections are secure.
3. Fit the appropriate size of electrode
4. Using the current control, set the welding current.
5. Hold the electrode away from the work, trailing the welding lead over the shoulder to reduce the weight on the hand doing the welding.
6. Keeping the electrode clear of any exposed metal surface, switch on the unit.
7. Position the electrode close to the point where welding is to commence, without actually touching the work.

8. Cover the eyes with a headsreen or handshield and warn bystanders.

9. (a) Scrape the electrode on the work surface at the start point (as though striking a match).
The arc should strike.

(b) Carry on scraping the electrode across the surface of the workpiece until the arc is almost continuous, then feed the electrode into the hot pool of molten metal keeping the electrode at approximately 65-80° to the workpiece.

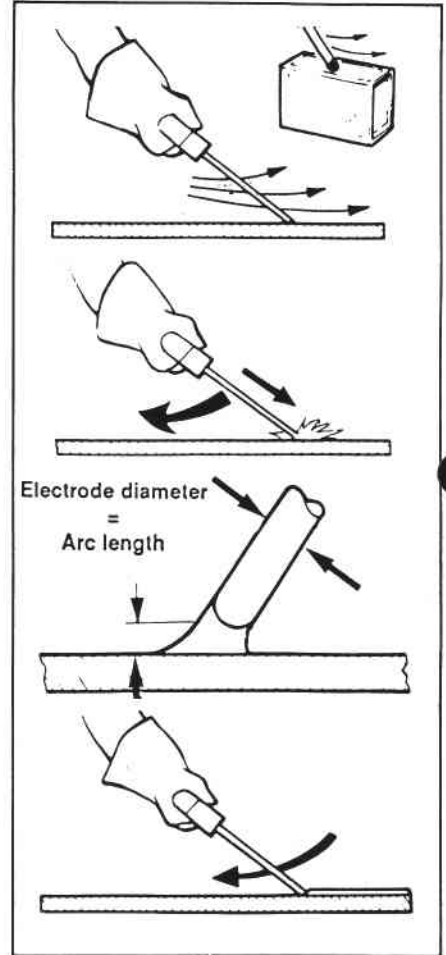
If the electrodes 'freezes', i.e. sticks to the workpiece, gently twist the electrode and pull it free. If this is not possible, switch off the supply, release the electrode from the holder, and cut the electrode free with a chisel. Freezing will occur if heavy contact is made with the workpiece at too low a current setting.

(c) Once the arc is successfully struck adjust the arc length to about the size of the electrode diameter.

(d) The correct length of arc, (size of weld 'bead') is acquired by feeding the electrode backwards and downwards into the weld.

This combination of backward and downwards movement requires a little skill which will be acquired after a few practice welds.

10. Allow the weld to cool.



MANUAL METAL ARC ELECTRODES

Electrode Type	Materials	Electrode Type	Materials
Satlnex	Mild Steel Medium tensile steels	Bronzoid 1	Bronzes, Brass & Copper
		Armold 1	High tensile Stainless Steels Dissimilar
Fortrex 7018	Carbon & low alloy, Mild steel and medium tensile steels	Cinex	Cast Iron - normal grades
Ferex 7018LT	Medium tensile steels & mild steels	Ferrolloid 3	Cast Iron - high duty grades
Nicrex E316L-16	Stainless steels		

This chart is given as a general guide to MUREX electrodes for the Transarc Tradesman DC135 and DC205. For more detailed information, contact your local MUREX distributor.

WELDING AND GENERAL FAULTS

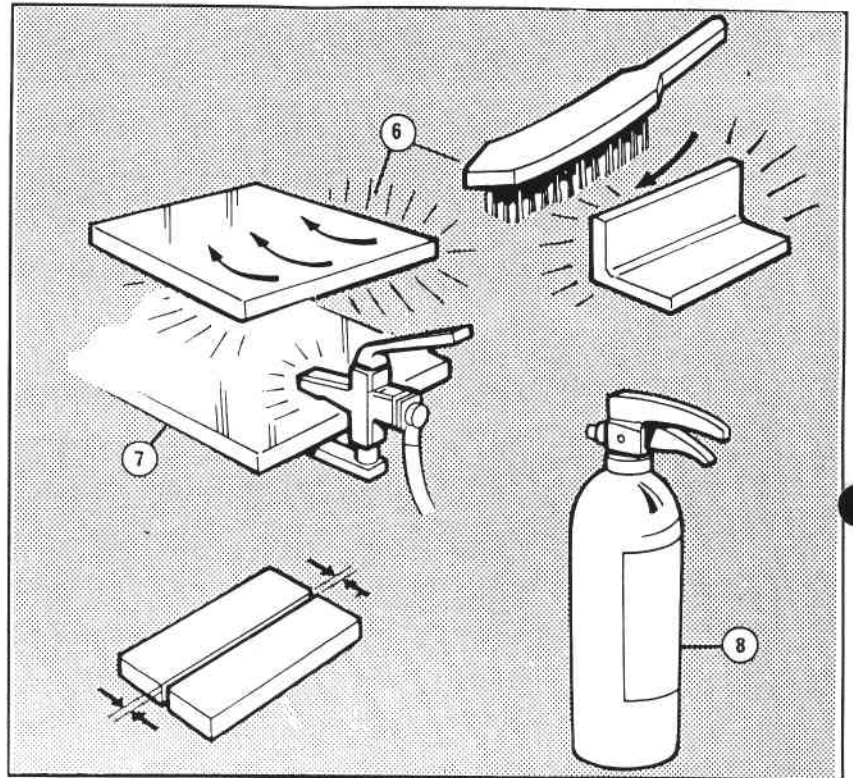
	Fault	Remedies
Surface porosity	a) Insufficient shielding gas (TIG). b) Bore of nozzle too small (TIG). c) Surplus degreasing agent (MMA & TIG) d) Arc too long (MMA and TIG). e) Incorrect torch or rod angle (TIG). f) Poor quality materials (MMA and TIG)	a) Check shielding gas flow. b) Fit larger ceramic nozzle. c) Remove degreasing agent and dry. d) Shorten the arc. e) Correct the angles -see TIG welding f) Use better quality materials.
Undercut (MMA and TIG)	a) Incorrect welding technique. b) Current too high. c) Incorrect welding speed. d) Wrong electrode (MMA).	a) Correct rod handling. b) Reduce current setting. c) Increase hand travel speed. d) Change to correct size (type).
Lack of penetration (MMA and TIG)	a) Insufficient current. b) Welding too fast.	a) Increase current setting. b) Decrease hand travel speed.
Cracking and Inclusions	These faults are difficult to detect without the use of specialised equipment. If cracking shows, seek the advice of a welding engineer.	
No welding output	a) Thermostat tripped b) Mains input fuses blown.	a) Cease welding and allow the fan to continue to run thereby cooling the unit. Decrease welding duty cycle (welding on to off time). b) Replace with the same value fuse.
No Arc Strike in TIG	a) Contaminated Tungsten b) Poor welding circuit	a) Regrind/Replace Tungsten b) Check cables

TIG WELDING

Preparation

Read again the Safety Notes on page 2.

1. Connect the work return lead to the positive socket.
2. Connect the torch power lead to the negative 'work' socket.
3. Fit the regulator and gas flow meter to the gas cylinder and, using a cylinder key, turn on the gas and adjust the gas flow for a 6 to 7.5 litres/minute (12-15cu. ft/hr.) indication on the flow-meter.
4. Connect the torch gas lead to the regulator, and turn on the gas supply.
5. Fit an appropriate sized 2% thoriated electrode to the torch - see 'Electrode Guide' and set the electrode 'stickout' to between 4 - 7mm. Check the electrode is correctly ground.



6. Clean the material to be welded with a wire brush or grinder.

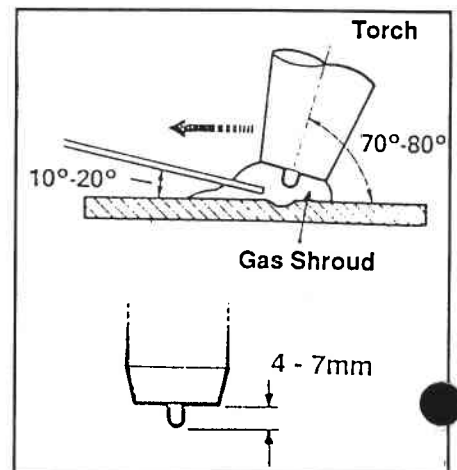
7. Clamp the work return lead to the work piece ensuring good electrical contact.

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

WELDING TECHNIQUE

1. Set the output current control as required - See 'TIG Electrode, page 8.'
2. Switch on the unit at the mains supply.
3. Switch on the gas flow to 'purge' the gas lines, adjust the gas flow for a 6-7.5ltrs/per min. (12-15 cu.ft/hr) indication on the flow meter.
4. Adopt a good welding position and hold the torch and filler rod at the correct angles. Holding the rod and torch at these angles is necessary to ensure satisfactory results.

5. Position the torch over the welding area (about 25mm above) warn bystanders to shield their eyes and lower your headscreen.
6. Strike the arc by scratching the tungsten electrode on the workpiece in the same manner as that described for manual metal arc. Improved striking will be obtained by striking the arc on a carbon block and then transferring the arc to the workpiece.
7. Wait for a pool to form and, when the edges of the molten material flow together, move the torch from right to left (right handed welder) adding filler wire as necessary. (Keep the filler rod tip inside the gas shroud).



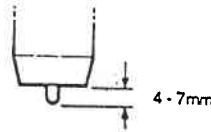
Torch and Filler Rod angles and Electrode stick-out.

TIG Electrodes

In order to obtain the optimum arc striking performance it is recommended that 2% Thoriated tungstens are exclusively used (red tip).

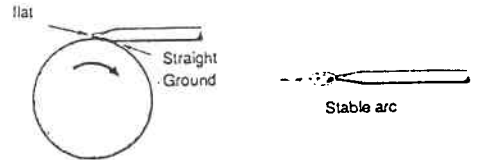
Maximum Electrode Ratings d.c.

Electrode Dia.	Length	Max. Current	Part No.
1.2mm (3/6in.)	150mm	70A	604245
1.6mm (1/16in.)	150mm	150A	607992



WARNING

Always wear goggles and a mask when grinding electrodes



Do not grind the electrode radially or 'arc wander' may occur



WARNING

TIG Electrode Preparation

The point is developed by rotation of the electrode against a grade O to M grinding wheel of 60 grit size with water cooling. The wheel should be restricted to tungsten electrode use only.

When re-grinding encrusted or bulbous end electrodes, the tip should be stub ground before reforming, as hammering the electrode end causes splits which will be propagated by tip grinding and cause spluttering when used for welding.

The usual precautions when using abrasive wheels, as laid down in The Abrasive Wheel Regulations 1970 S.I. No. 535, must be followed and the displaying of Cautionary Notice. Regulation No. 16 of these Regulations as approved by the Department of Employment is recommended.

Thoriated tungsten electrodes should be used in accordance with the 1985 Ionising Radiation Regulations. It is particularly important that the pointing of these electrodes is undertaken using equipment and facilities to prevent the inhalation of grinding dust.

To prevent damaging the collet, always ensure that at least 9mm of the electrode is gripped by the collet.

The electrode should not protrude more than 7mm from the nozzle except when acute angle welding or using a gas lens.

Shielding Gas

To prevent oxidation, always purge the argon hose before welding and maintain the argon flow until the tungsten has cooled sufficiently after welding has ceased.

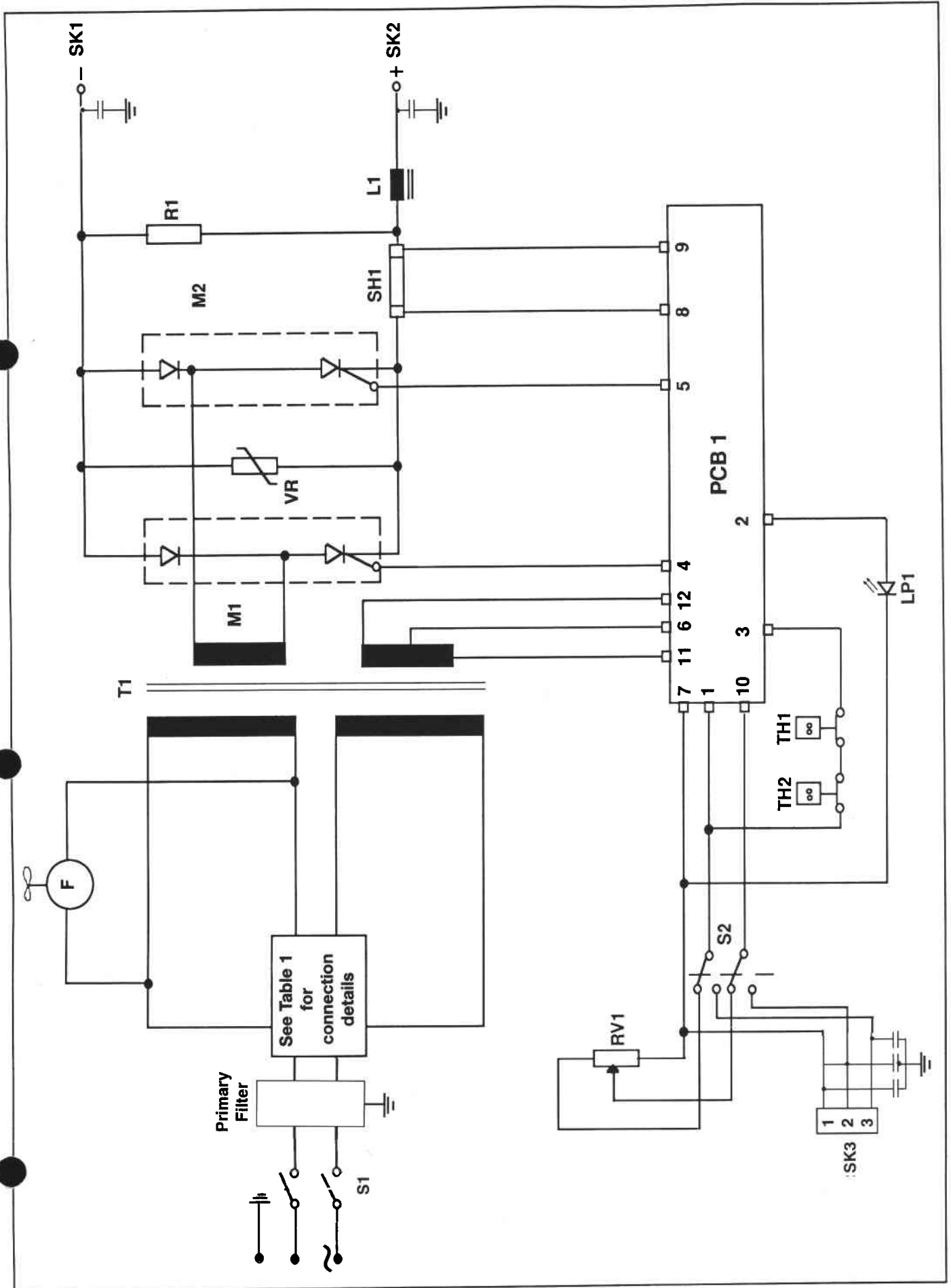
Transarc Tradesman

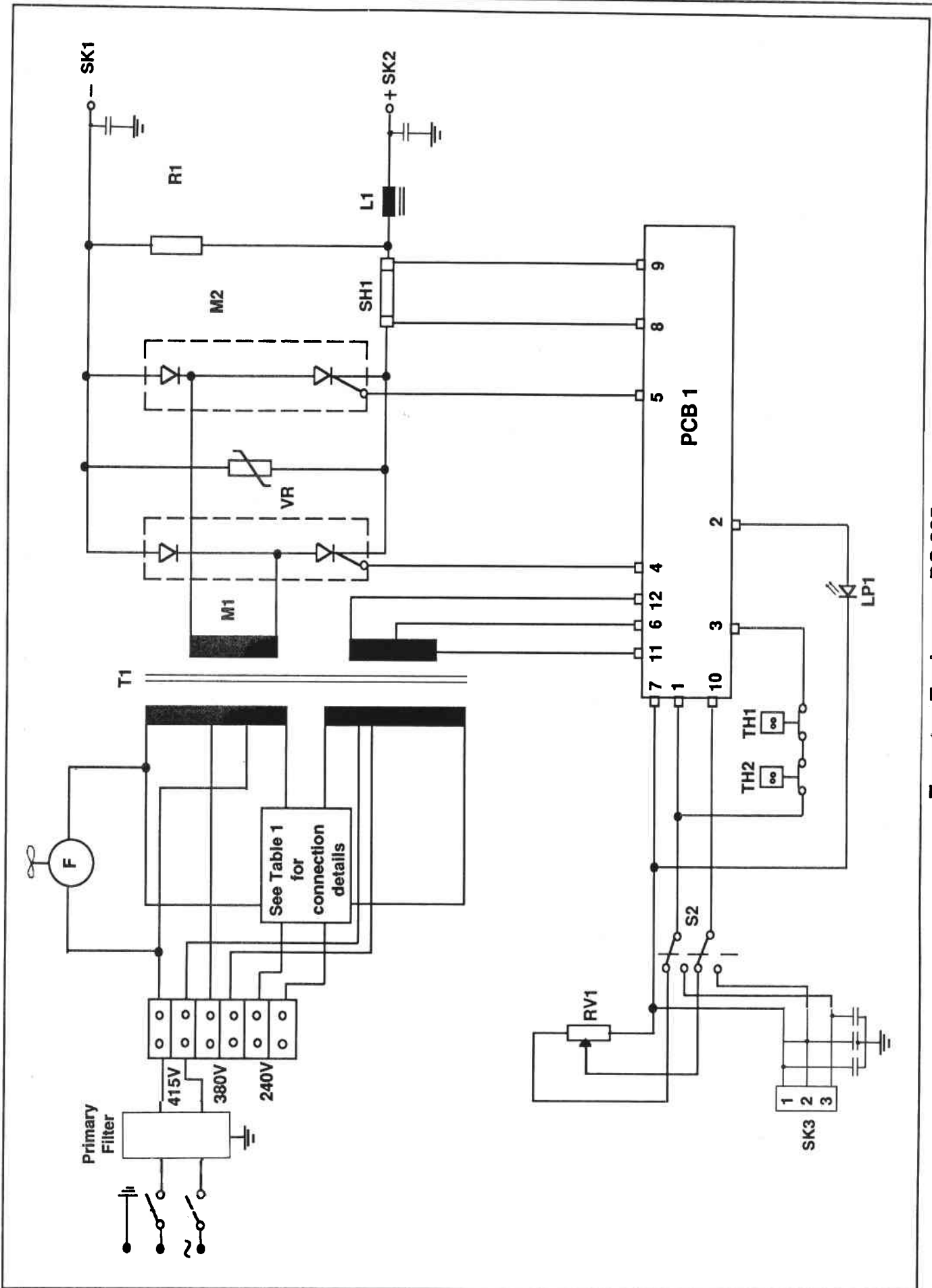
DC135/DC205

Technical Notes

Technical Specification

	DC 135	DC 205
Input		
Mains Voltage	110/240V	240/415V
Input Phases	1 50Hz	1 50Hz
Input Current (Max.)	64A @ 110V 32A @ 240V	47A @ 240V 27A @ 415V
Output		
Open Circuit Voltage	76V dc	79V dc
Current Range	10 - 135A	10 - 200A
Duty Cycle	125A 15% 60A 60% 50A 100%	200A - 20% 115A 60% 90A 100%
Net Weight	31kg	49kg
Dimensions (mm)	410(L) x 215(w) x 245(h)	450(L) x 265(w) x 300(h)
Insulation Class	H	H
Protection Class	IP21	IP21
Standard	EN 60 974-1 EN 50199	EN 60 974-1 EN 50199





MAINTENANCE

WARNING

Maintenance involving the removal of outer covers must only be undertaken by qualified or suitably trained personnel.

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

Daily (Operator task)

1. Check all welding and electrical cables for signs of cracking or general deterioration.

2. Check that all electrical (and gas) connections are in good physical condition.

3. Check the torch or electrode holder for damage. Replace any suspect part(s).

ALWAYS CHECK THE WELDING AREA DAILY FOR POSSIBLE SAFETY HAZARDS. IF IN DOUBT CONSULT YOUR SAFETY OFFICER.

Monthly (Maintenance Department Task)

1. Switch off the unit and disconnect from the mains electrical supply.

2. Remove the cover (retain the fixing screws).

3. Using a soft brush, remove any dust or dirt from the interior of the unit. If compressed air is used to clean the unit the pressure must not exceed (2k/cm²), (30lbs/in²), and the air must be dry.

SUITABLE EYE AND MOUTH PROTECTION SHOULD BE WORN.

4. Replace the cover.

5. Reconnect the unit to the mains supply.



Transarc Tradesman

DC135/ DC 205

Parts List

Optional Extras

	DC 205
DC 205 Undergear complete	1414189

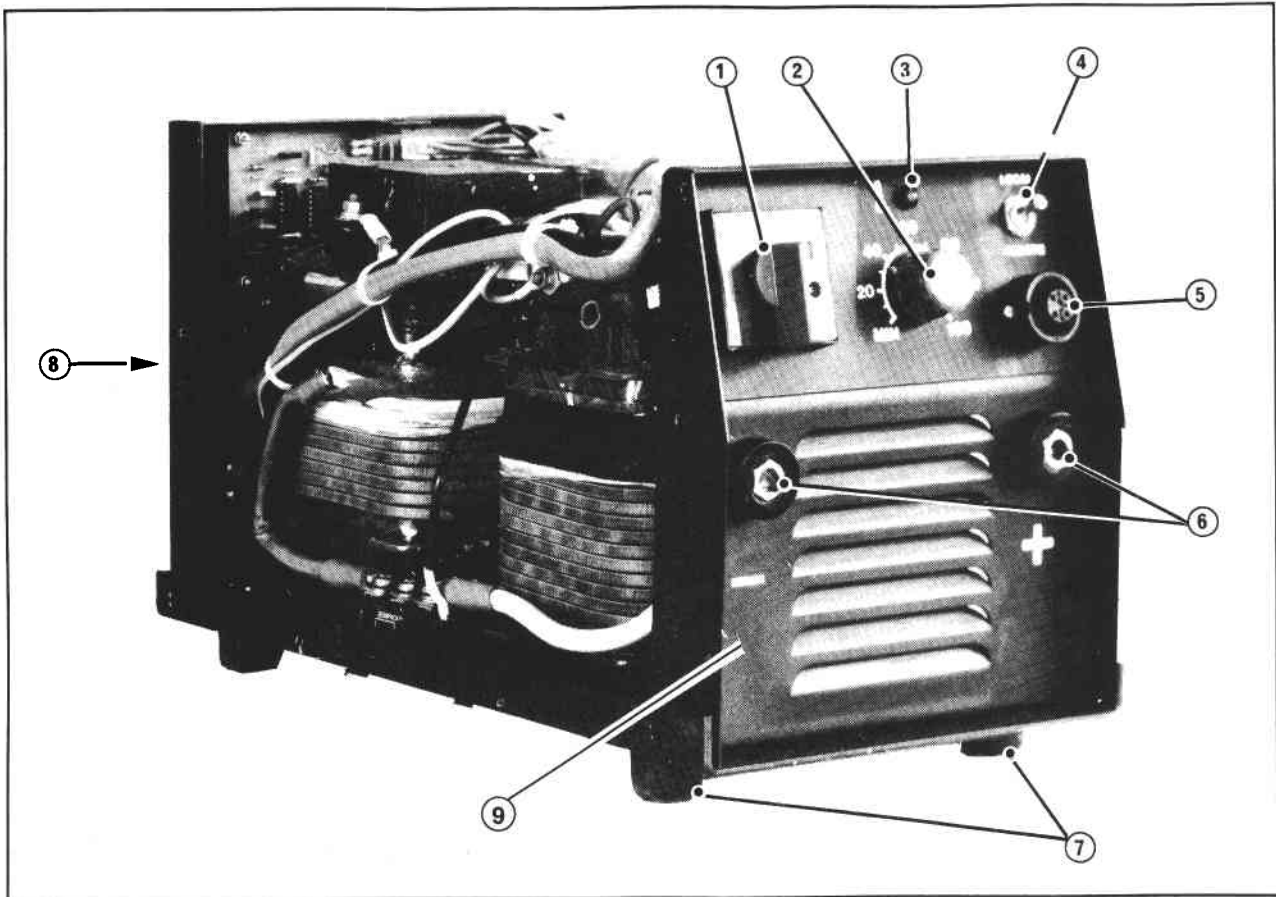


Fig. A - Front 3/4 View

DC 135 - Part No. 1414700

DC 205 - Part No. 1414702

Item	Cct Ref.	Description	Part No.	
			DC135	DC205
-	-	Handle (not shown)	1414167	1414180
1	S1	Switch	1414160	1414160
-	-	Knob for item 1	1414161	1414161
2	RV1	Potentiometer	1414162	1414162
-	-	Knob for item 2	1414163	1414163
3	LP1	LED	1414164	1414164
4	S2	Switch	1414165	1414165
5	SK3	Socket (for plug see item 13 page 15)	1414166	1414166
6	SK1/2	Welding sockets	1404314	17242
-	-	Plug for item 6	1380444	1380441
7	-	Foot	1414168	1414168
8	-	Fan guard	1414169	1414185
9	-	Primary Cable Clamp	1414170	1414170

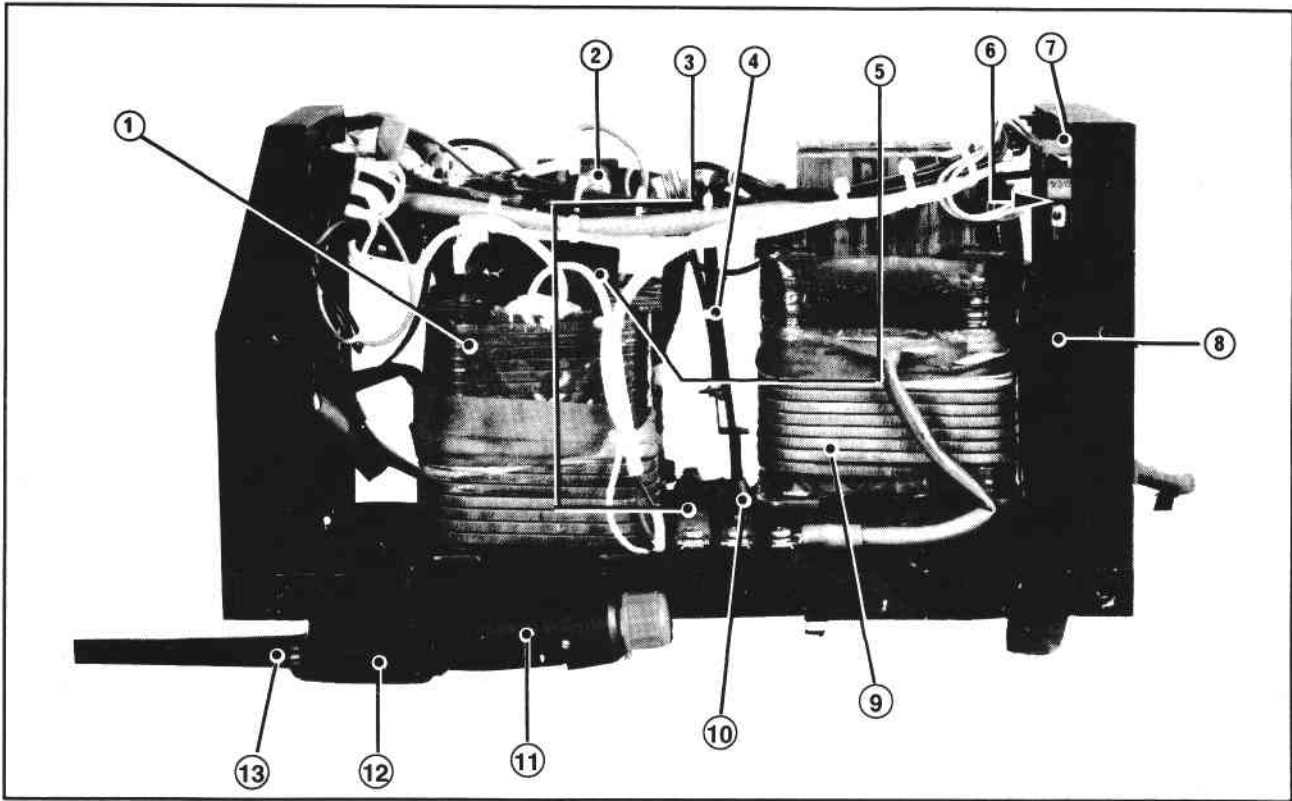


Fig. B. Side View

Item	Cct Ref.	Description	Part No.	
			DC135	DC205
1	L1	Inductor	1414171	1414181
2	R1	Resistor	1414172	1414172
3	M1/M2	Thyristor Module	1414173	1414182
-	-	Thermal Washer	1413393	1414195
-	TH2	Thermostat (Rectifier)	1414194	1414194
4	SH1	Shunt	1414174	1414193
5	TH1	Thermostat (Inductor)	1414179	1414179
6	PCB1	Printed circuit board	1414176	1414176
7	-	Socket	1414177	1414177
8	F	Fan	1414178	1414184
9	T1	Transformer	1414192	1414183
10	VR	Varistor	1414175	1414175
11	-	Housing	1414188	1414188
12	-	Plug	1414187	1414187
13	-	Remote control complete	14186	1414886



NOTES



Murex Welding Products Limited
Hertford Road, Waltham Cross,
Herts. EN8 7RP. England
Telephone: Lea Valley (01992) 710000
Telex: 25743

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