MUREX

Operating Manual

Transmig 505

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

£2.50

Contents

⚠ WARNING ⚠

This welding equipment has been designed, manufactured and tested to the highest quality 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/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 general area.

ARC RAYS - Can Injure Eyes and Burn Skin

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

READ AND UNDERSTAND THIS 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 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.

2. 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.

3. 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 ultra-violet light.

4. 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.

5. 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.

6. 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 Murex Transmig 505 is a three phase thyristor controlled constant voltage d.c. power source for MIG, MAG or FCW welding using dip or spray transfer. Rated at 500A at 60% duty and up to 400A continuously the 505 can also be used for arc air gouging or even low current submerged arc welding.

The unit is designed to operate from 220/380/415V 50 Hz supplies. From the factory it is connected for 415V use and is fitted with a suitable primary cable for this input voltage level.

The Transmig 505 can be used with any 42V Murex wire feed unit, Transmatic 2 x 2, 4 x 4, 4 x 4HD etc. or with the Transmatic Suitcase units.

Some special features of the Murex Transmig 505 are as follows:-

- Continuous control of welding voltage enabling precise setting and adjustment either from the front panel or a remote location *e.g.* the wire feed unit or remote control device.
- Electronic feedback control system which maintains consistant output against temperature drift, mains voltage variations etc.
- Both thermal overload and overcurrent sensors which automatically shut off the machine output when safe operating conditions are exceeded.
- Thermostatic fan control which minimises the quantity of dirt, dust etc. drawn into the machine by the fan. The fan is automatically energised when sensitive components in the machine require cooling.
- Sealed electronic control pcb compartment preventing dust and dirt from damaging sensitive components.
- Two choices of volt ampere slope and both low and high inductance ranges with continuous control of welding inductance within each range. In combination with the continuous and precise control of welding voltage, the slope and inductance adjustments mean the Transmig 505 can be used for the widest range of MIG/MAG welding applications from heavy plate down to the thinnest sheet.
- Accurate volt and ammeter
- Preset voltage switch enabling welding/open circuit voltage to be preset or checked before welding.
- Solid state contactor function. The thyristors are used as the means of controlling both welding output and on-off welding contactor function.
- Full compliance with new British and IEC Standards covering such equipments. This means longer duty cycle operation, (10 minutes cf 5), improved insulation and greater safety criterea.

SPECIFICATION

Transmig 505 Power Source

Output:

Rating	500A/39V	60% duty
	400A/34V	100% duty
Range	50A/15V to 500A/39V	(See Fig. 1) continuously variable
OCV	15 to 56V dc	
Slope	Flat 2.5V/100A or Steep 5V/100A (300A max.)	
Inductance	2 overlapping ranges, low & high, with continuous control within range	

Input:

Mains Voltage	220/380/415V
(Note machine supplied set for 415V)	
Input Current	69/40/37A
Frequency	50 Hz
Phase	3
Power Factor	83%
Fuse Rating at 415V	40A slow

Auxiliaries & Control Voltages:

Wire Feed Unit	42Vac/10A	
Water Cooling Unit	220V/2A or 115V/5A	Available at Terminal Board on inside rear panel
CO_2 heater	42V or 115V at 150W	
Remote Control	0 - 10Vdc	

Dimensions:

Length	1270mm	including undergear
Width	500mm	
Height	950mm	
Weight	250kg (net)	

Standards:

BS 638 pt.10 1990
IEC 60974 - 1

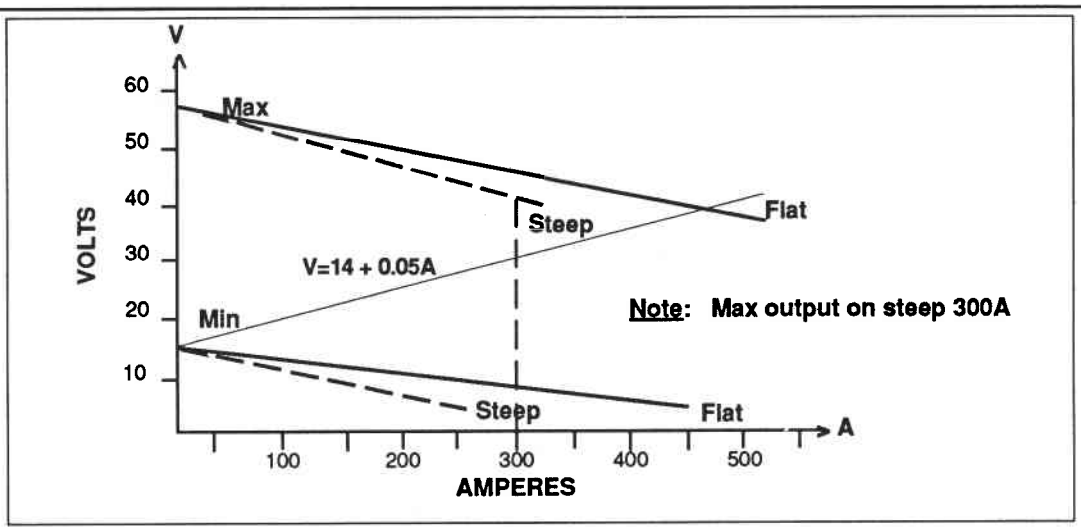

Fig. 1 Transmig 505 Volt Ampere Characteristics

INSTALLATION

WARNING
Installation should only be undertaken by a qualified electrician or trained individual.

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. Check the air louvres in the front and rear panels for any packing materials that might obstruct the air flow.

3. 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.

Connection to Mains Supply

WARNING
Before making electrical input connections to the unit, use 'machinery lockout procedures'. If the connection is to be made from a mains disconnect switch, the switch should be padlocked in the off position. If the connection is made from a fuse box, remove the fuses from the box and padlock the cover in the closed position. If locking facilities are not available, attach a red tag to the mains disconnect switch (or fuse) to warn others that the circuit is being worked on.

Placing the machine unit power switch in the 'Off' position does not shut off all power within the equipment.

Comply with local ordinances and electrical authorities.

The Murex Transmig 505 power source requires industrial 3 phase 50 Hz mains power of the proper voltage, 220, 380 or 415V, see SPECIFICATION section.

WARNING
From the factory the machine is set for 415V use and the fitted primary cable is suitable for use with 380 V or 415V supplies only.

Ensure the machine is connected for the correct supply voltage. Access to the primary reconnection panel, see Fig. 2, is via the hinged access door in the RHS panel.

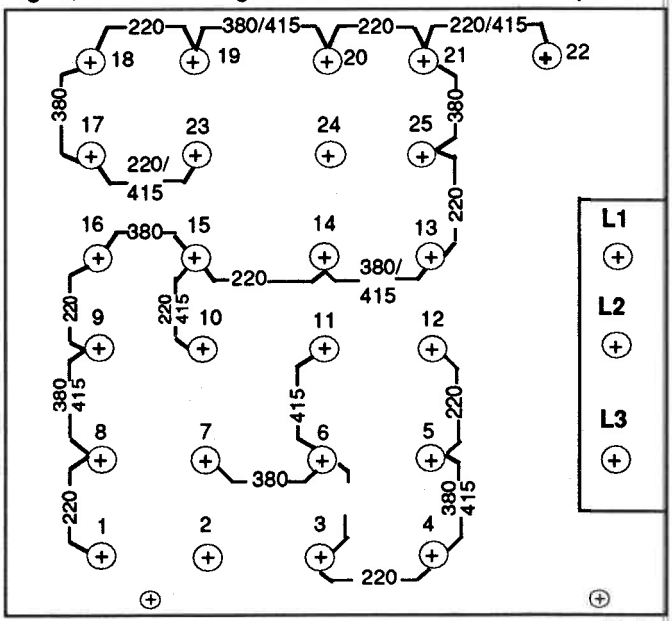

Fig. 2 Primary Reconnection Panel Position the links as shown for the appropriate mains input voltage

The power source should be connected to a separately fused circuit including a switched isolator. Fuse information is provided in the SPECIFICATION Section. Ensure the Green/Yellow ground cable is securely connected both to the supply ground system and the machine chassis.

Output Welding Connections

WARNING

Before making any connections to the power source output sockets ensure that all mains input power to the machine is off.

WARNING

If a gas cylinder is installed on the rear of the machine ensure the cylinder retaining chain is properly fitted.

Figure 3 illustrates the secondary welding circuit arrangement and connections to the power supply, wire feed unit and gas supply. It is essential that welding cables of the correct size are chosen relative to the maximum welding current being used. Figure 4 indicates the recommended welding cable sizes for various welding currents.

The resistance of the welding cables and connections causes a voltage drop which is added to the arc voltage. Excessive cable resistance may result in overloading or reducing the maximum output current of which the power source is capable. In addition long cables, which can become coiled or wound around metal objects, may impair the welding characteristics of the machine.

Where long cables >15m, are to be used it is recommended that the cable size is increased relative to the current by one size (or more) and that 'go and return' cables are placed close together.

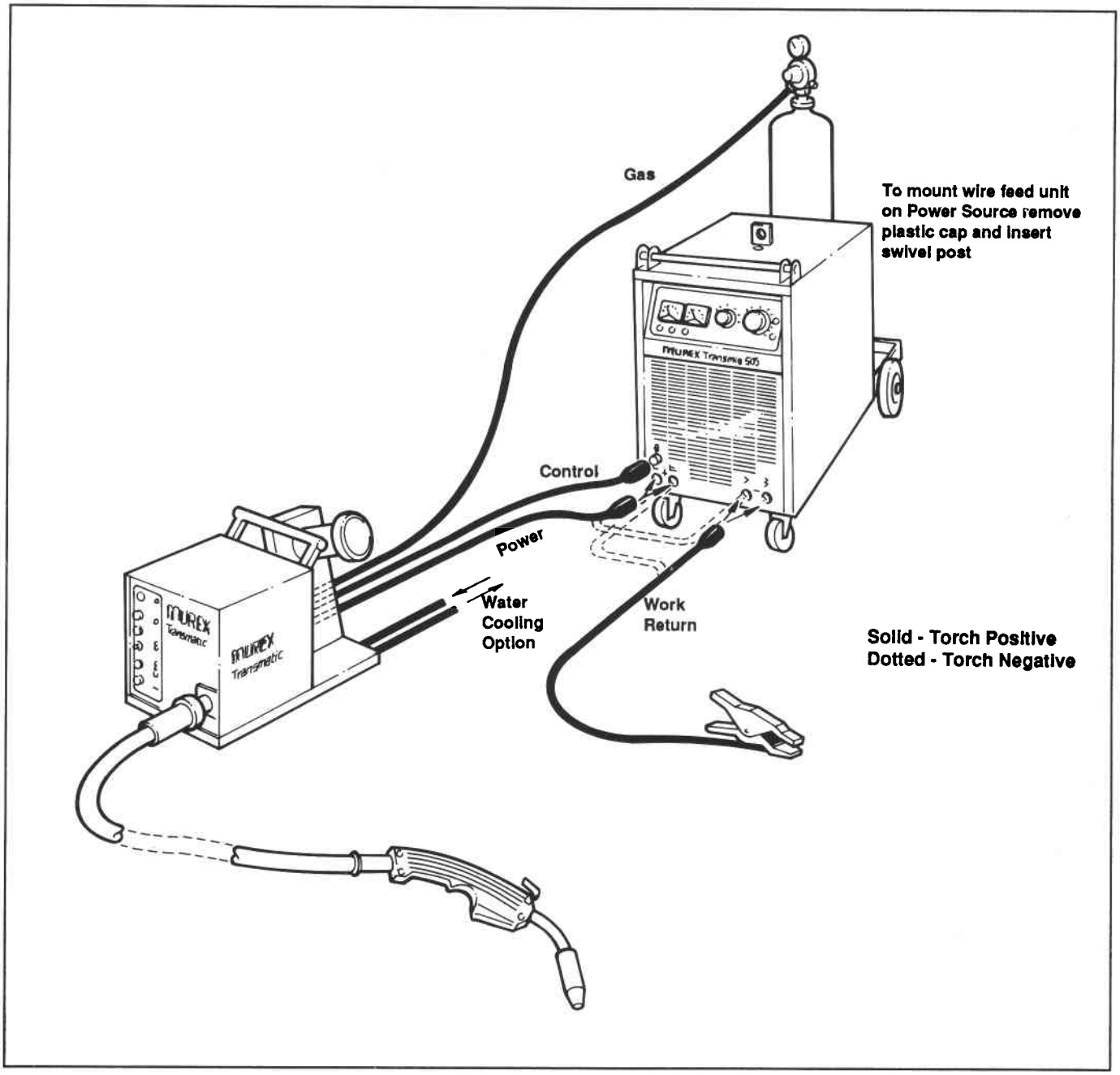

Fig. 3 Transmig 505 Secondary & Wire Feed Unit Connections