



Operating Manual

Tradestig AC/DC 200 S



**Please ensure that this
Instruction Manual and
Parts List 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 and 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 work return 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 ultraviolet 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 circuits which may be damaged by the arc.
- ⚠ Whilst welding be aware of the possibility of 'hidden wires' behind panels or bulkheads.



INSTALLATION

WARNING

Review the safety section at the front of this manual and comply with all applicable precautions.

Follow the instructions included elsewhere in this manual relative to proper installation to reduce radio interference.

To prepare the unit for installation, several items should be checked. Clear all packing materials from around the unit and carefully inspect for damage which may have been caused by shipping. Be sure to read all the instructions before attempting to operate the unit.

Location

A proper installation site should be selected for the welding equipment if the unit is to provide dependable service, and remain relatively maintenance free.

The site should allow air movement into and out of the welding unit, and be free from excessive dust, dirt, moisture, and corrosive vapours. The location should also permit easy removal of the welding unit panels for maintenance.

IMPORTANT

Do not place any filtering device over the air intake passages of the unit as this will restrict the movement of air and could cause overheating and possible failure. Warranty is void if any type of filtering device is used.

Electrical Input Connections

WARNING

Before making electrical input connections to the welding 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 box) to warn others that the circuit is being worked on.

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

Be sure that the switch box is attached directly or by cable to a suitable ground such as a water pipe or ground rod. Do not ground to gas piping or electrical conduits. Comply with local electrical inspection authorities.

Input Electrical Requirements

This AC/DC welding unit is a SINGLE-phase unit and must be connected to a SINGLE-phase power line or any two phases of a three-phase system of the proper voltage.

INPUT 415v 50 Hz FUSE 25A SLOW BLOW

If there is any question about the type of system used locally, or the proper connections to obtain a single-phase primary input voltage to the welding unit, consult the local power authorities.

Input Connections

The welding unit should be operated from a separately fused or circuit breaker-protected circuit. The maximum capacity of the welding unit is affected by the mains voltage and if the circuit is overloaded, the performance of the welding equipment will be impaired.

CAUTION

Connect the input cable to the unit before making connections to the single phase power line.

CAUTION

Be sure when installing the welding unit that an earth wire is connected from the ground lug to a suitable ground. This is absolutely necessary as any development of stray currents may give a severe shock should anyone touch the welding unit and at the same time touch any grounded object. The ground lug is connected to the welding equipment chassis and is for ground purposes only. If the welding unit is to be connected to two phases of a three-phase line, do not connect the third wire from a three-phase line to the ground lug as this will result in a 'live' welding unit chassis.

The input cable wires connect to terminals labelled 'L1 and L2'. A third conductor, ground connections, should be fastened to the ground lug, and leave sufficient slack in the earth wire so that, in the event of strain on the cable, the earth wire is the last to be affected.

Welding Connections

NOTE

To obtain the full rated output from this unit, it is necessary to select, install and maintain proper welding cables. Failure to comply in any of these areas may result in less than satisfactory welding performance.

Cable Length

It is recommended that the welding cables be kept as short as possible, spaced as described below, and be of adequate current carrying capacity. The resistance of the welding cables and connections causes a voltage drop which is added to the voltage of the arc. Excessive cable resistance may result in overloading as well as reducing the maximum current output of the welding unit. The proper operation of any welding unit is to a great extent dependent on the use of welding cables and connections that are in good condition and of adequate size. An insulated electrode holder should be used to ensure operator's safety.

Cable Insulation

It is important, especially where high frequency is used, that lugs or uninsulated portions of the welding cable do not touch or come too close to the case of the welding equipment.

Cable Spacing

When welding with AC or DC, if the welding cables are coiled up they will operate a magnetic field which will seriously affect the operation of the welding equipment. Always lay the welding cables out. The welding cables should not be taped together when using high-frequency, they should be placed about 1.9 to 2.5cm (3/4 inch to 1 inch) apart on a suitable board and fastened with plastic clamps or clips. Do not use metal clamps as they will tend to serve as an antenna and radiate high-frequency.

Gas Connections

CAUTION

When connecting to gas solenoid valve, use non-conductive hose.

1. The gas inlet is located on the rear panel. Connect the gas hose from the gas supply, to the gas valve connection labelled 'Gas In'.
2. The gas flow must be controlled accurately with the aid of a regulator and a flow-meter. No specific recommendations for rates of flow can be given, as this depends entirely on the specific welding conditions.



HIGH FREQUENCY RADIATION NOTES PREVENTATIVE MEASURES

To prevent the possibility of interfering with authorised radio communication services it is necessary to install the welding equipment properly. Field experience has shown that if the instructions outlined in this manual are followed in detail, the installation is unlikely to radiate disturbing energy.

The importance of correct installation cannot be over-emphasised since case histories of interference due to high frequency stabilised arc welding machines have shown that invariably an inadequate installation was at fault.

Under certain conditions, especially when this equipment is operated in very close proximity to sensitive radio frequency receivers, interference may still be caused in spite of the fact that field strengths may be within specified limits. In these cases the user is obligated to take any additional steps to clean up the interfering situation provided the receiver being subjected to interference is of good design and properly installed.

General Information

In a high frequency stabilised arc welding installation, interfering radiation can escape in four distinct ways as outlined below:

(a) Direct Radiation from the Welding Unit

This is radiation which escapes directly from the welding unit case. This is very pronounced if access doors are left open and unfastened and if the welding unit case is not properly grounded.

Any opening in the metal case will allow some radiation to escape.

The high frequency unit of this equipment is adequately shielded to prevent direct radiation of any consequence if proper grounding is carried out.

(b) Direct Feedback to the Mains Cable

High frequency energy may get on the mains cable by direct coupling inside the equipment of the high frequency unit, the cable then serving as a radiating antenna.

By properly shielding and filtering, direct coupling is prevented in this equipment.

(c) Direct Radiation from Welding Leads

Direct radiation from the welding leads, although very pronounced, decreases rapidly with distance from the welding leads. By keeping the welding leads as short as possible, the operator can do a great deal to minimise interference from the source.

The intensity and frequency of the radiation can be altered over wide limits by changing the location and relative position of the welding leads and work. If possible, loops and suspended sections should be avoided.

(d) Pick-up and Reradiation

Even though welding lead radiation falls off rapidly with distance, the field strength in the immediate vicinity of the welding area may be extremely high. Unshielded wiring and ungrounded metallic objects in this strong field may pick up the direct radiation, conduct the energy from some distance, and produce a strong interference field in another area.

This is usually the most troublesome source of interference, but careful adherences to proper installation procedure as outlined in this manual will minimise this type of interference.

Power Service

The specific installation instructions for making the proper primary connections to the equipment as outlined in this instruction manual should be followed carefully.

Ordinary helically wrapped conduit is designed for mechanical protection and is not suitable for electrical shielding. Only solid metallic conduit or conduit of 'equivalent electrical shielding ability' should be used to enclose the primary power service leads.

Solid metallic shielding shall enclose the primary power supply to the equipment from a point 15m (50 feet) from the equipment in an unbroken run.

This shielding shall be grounded at the farthest point from the equipment and should make good electrical contact with the casing of the equipment. Care should be taken that paint or corrosion at the junction of conduit and case, does not make good electrical contact.

There shall be no gap in this shielding run. This simply means that within 15m (50 feet) of the equipment, no portion of the power wires serving the equipment shall be unshielded. If there is any question about the electrical efficiency of the joints between individual conduit sections, outlet boxes and the equipment case, bonding should be carried out by soldering a copper strap or wire across the joint as shown.

No change in the wiring or the location of parts inside the equipment, other than power supply tap changes or other adjustments specifically covered, shall be made. The equipment shall not be modified in any way since changes in the equipment can affect the radiation characteristics.

While the equipment is in operation, all access and service doors shall be closed and properly fastened.

Spark gap settings shall be maintained at the minimum separation consistent with satisfactory welding results.

Welding Leads

To minimise direct weld lead radiation, the welding cables (electrode cable and work cable) must be kept as short as possible. Tests have been made with cables 7.6m (25 feet) long. Considerable improvement in radiation minimisation can be made by shortening the cables as much as possible.

Keeping the electrode cable and the work cable as close as possible and on the floor serves to reduce the radiation.

Wiring in the Vicinity of the Welding Area

As discussed in the general information section, the most serious source of interference is reradiation from wires located near the welding area.

Any ungrounded electrical conductor in the strong 'directly radiated' field, produced by the welding cables, serves as a pick-up device and may conduct the interference for some distance and reradiate strongly at another location.

For purpose of simplification and standardisation, the space all around the weld zone at a distance of 15m (50 feet) in all directions is referred to as the High Field Intensity (H.F.I.) zone.

To minimise radiation of this type, all wiring in the H.F.I. zone shall be in rigid metallic conduit, lead covered cable, copper braid, or material of equivalent shielding efficiency. Ordinary flexible helically wrapped metallic conduit is not satisfactory for shielding, and should not be used. The shield on all wiring should be grounded at intervals of 15m (50 feet) and good electrical bonding between sections shall be maintained.

This shielding requirement applied to all wiring, including telephone, intercommunication, signal and control, and incidental service.

Extreme precaution should be taken to make sure that the location of the zone is chosen so that none of the conditions is voided by unshielded wires off the premises but still within the radial dimensions of the H.F.I. zone.

This 15m (50 feet) H.F.I. zone is a minimum that is imposed on the installation. Tests by the manufacturer are based on this limit.

Keeping unshielded wires farther than 15m (50 feet) from the weld zone will materially aid in minimising interference.

If it is impossible to relocate unshielded wires, that section within the H.F.I. zone, should be placed in conduit and each end of the conduit section grounded.

NOTE

It must be emphasised that all changes in power and lighting should be made by a qualified electrician. Any shielding or relocation of telephone or signal wires must be done either by the service company concerned or with the specific permission of said company.

'Good Ground'

Frequent reference is made to a 'good ground' in previous sections. Although there is considerable leeway in the interpretation of this term, for the purpose covered here the following specifications apply:

A 'ground' connection should be made to a driven rod at least 2.4m (8 feet) long and driven into moist soil.

A cold water pipe can be used in place of the ground rod provided it enters the ground within 3m (10 feet) of the equipment to be grounded.

All leads connecting the point to be grounded to the ground rod or pipe should be as short as possible since the ground lead itself can become an effective radiating antenna.

The effectiveness of a ground in reducing interference depends upon the ground conductivity. In certain locations it may become necessary to improve the ground conductivity by treating the soil around the ground rod with a salt solution.

Metal Building

It is frequently thought that the operation of high frequency stabilised arc welding equipment in metallic buildings will completely eliminate troublesome radiation. This, however, is a false assumption. A metallic building structure, if properly grounded, may serve to reduce direct radiation from the weld zone but will have no effect on conducted interference and radiation. As a result, all installation requirements must be complied with.

If the metallic building is not properly grounded, bonding to several good electrical grounds placed around the periphery of the building itself is not contributing to the radiation.

Check List

The following questions may be used by the installer as a check to see if all installation requirements have been met.

1. Has the equipment been located so that ground leads can be kept short?
2. Are the mains cables, serving the unit, in conduit?
3. Is there good electrical contact between power conduit and case?
4. Do the conduit couplings make good electrical contact? (If in doubt, use bonding).
5. Is there good electrical contact between conduit and switch boxes?

6. If rigid metallic conduit is not used, is the shielding used of equivalent shielding efficiency? (Copper sleeving, lead covered cable, etc. is satisfactory. Spirally wound flexible metallic conduit is not suitable).
7. Is the conduit system ground to a point at least 15m (50 feet) from the equipment?
8. Is the conduit run complete (without any gap) in the H.F.I. zone?
9. Is the equipment case connected to the work terminal of the secondary?
10. Is the wire used for this connection of sufficient size?
11. Is the work terminal connected to a good electrical ground?
12. Is the cable or copper braid used for this connection equal to or greater in current carrying capacity than the welding cable?
13. Is the cable as short as possible?
14. Are the spark gaps set at 0.020cm (0.008 ins)?
15. Are all service and access doors closed and bolted?
16. Are the welding cables less than 7.6m (25 feet) long?
17. Are they as short as possible?
18. Are the welding cables on the floor or placed on a suitable board?
19. Are the welding cables a minimum of 1.9 to 2.5cm (3/4in to 1in) apart?
20. Have you visualised the H.F.I. zone, a sphere with 15m (50 feet) radius centred on the weld zone?
21. Have the unshielded power and light wires originally in the H.F.I. zone been placed in grounded shields or been relocated outside the zone?
22. Have all large metallic objects and any long guy or supporting wires in the H.F.I. zone been grounded?
23. Have you checked so that no external power or telephone lines off the premises are within the zone?
24. Are the grounds driven ground rods?
25. Is a cold water pipe used as a ground?
26. If so, does it enter the ground 3m (10 feet) or less from the connection?
27. Are the connections to the ground clean and tight?
28. If operated within a metal building, is the building properly grounded?

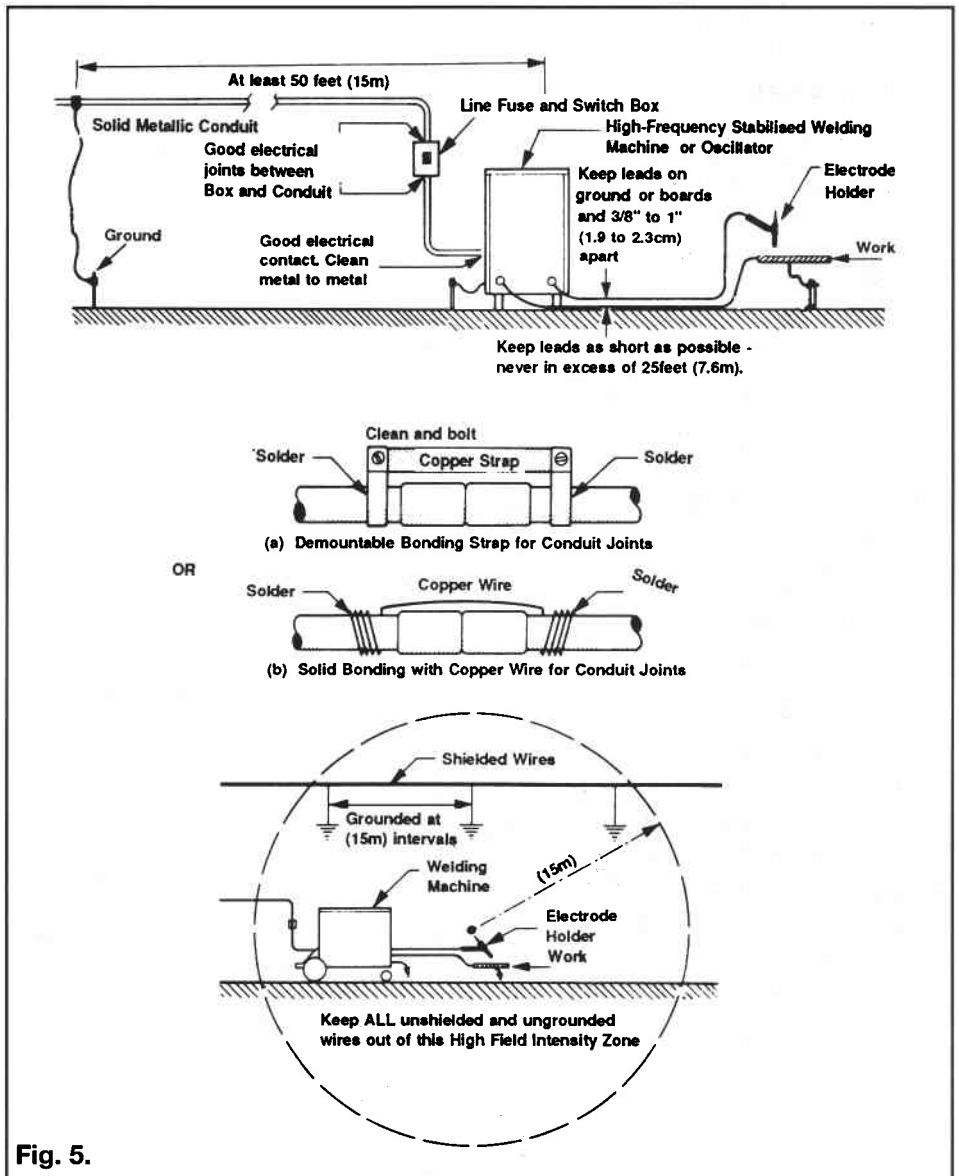


Fig. 5.

INTRODUCTION

The Tradestig AC/DC 200S is an electronically controlled power source suitable for TIG welding in both AC and DC modes.

In the TIG-DC welding mode the unit may be used to weld stainless steel and copper and its alloys.

In the TIG-AC mode good quality welds may be produced in aluminium and its alloys.

The Tradestig AC/DC 200S can also be utilised in the DC mode for MMA welding.

Equipment Features Include:

- Slope up and slope down of welding current.
- Adjustable gas post flow time.
- Mains voltage compensation.
- AC/DC selector switch.
- MMA/TIG selector switch.
- 2 stroke and 4 stroke torch switch control.

Optional Extras Available:

Foot Control Unit	FS002	349090886
Pulse Control Unit	PHA5	367970880 ↗
Connection Cable for PHA5 5m		367144881 ↗
Digital Meter Kit		1415183
Undergear/Cylinder Carrier		1415182

HIGH FREQUENCY (HF) STRIKING AND MAINTENANCE

HF is used to enable "touch free" arc striking in the DC position and to maintain the arc during the AC transition periods.

In the DC Mode HF is present at the welding torch until the arc is established. It is then automatically switched off until the arc is extinguished.

In the AC Mode HF is held on throughout the welding period. When AC welding the arc tends to be extinguished during crossover periods, the HF maintains the arc during these periods.

OPTIONS (FITTING)

Digital Ammeter Kit Part No. 1415183

WARNING

Fitting of the Ammeter Kit should only be undertaken by suitably trained and qualified personnel

- Remove the top cover of Tradestig AC/DC 200S.
- Remove the blanking plate for the display positioned on the top left hand side of the front panel.
- Connect the 4 pole connector to the display.

NOTE

Ensure that the black lines on both parts of the connector are in line

- Screw display with the window plate to the front panel.
- Connect the 20 way socket to connector X5 positioned on the add on PCB which stands on the main control PCB.

- If necessary adjust potentiometer R1 (mounted on the display PCB) until the display reads 000 (zero).

- Using an arc or load bank adjust the main current control potentiometer on the front panel until you have an output of 200 amps (measured with a master instrument). Adjust potentiometer R2 (mounted on the display PCB) until the display reads 200 amps.

- Replace the top cover.

Trolley with Cylinder Carrier Part No. 1415182

- Remove the right hand side panel of the Tradestig AC/DC 200S.

- Using the M 6 x 50mm screws supplied with the trolley secure the trolley and side panel to the Tradestig AC/DC 200S by inserting the screws into the captive nuts that originally secured the side panel (see figure below).

NOTE

To enable correct alignment of holes it may be necessary to loosen the nuts and bolts on the cylinder support cross member. This will allow the position of the trolley's uprights to be adjusted slightly in relation to the Tradestig AC/DC 200S chassis.

WARNING

This undergear is designed to carry the T or Y size Argon Cylinders 925mm high x 203mm diameter.



CONTROLS

1. Power On/Off Switch

WARNING

Placing the power switch in the off position does not remove power from all the welding unit internal circuits. Completely isolate all electrical power to the power source by employing 'machinery lockout procedures' before attempting any inspection work on the inside of the unit. If the power source is connected to a disconnect switch, padlock the switch in an open position. If connected to a fuse box, remove the fuses and padlock the cover in the closed position. If the unit is connected to a circuit breaker, or other disconnecting device without locking facilities, attach a red tag to the device to warn others that circuit is being worked on.

2. AC/DC Selector Switch

Selects either DC or AC welding output.

3. Thermal Overload Indicator

This lamp is normally OFF but will light when the equipment has thermally cut out.

NOTE

When this indicator is illuminated the welding output is disabled.

In the event of a thermal overload leave the unit switched ON with the fan running until it resets.

Persistent operation of the thermal overload must be investigated.

4. Indicator Light

This light illuminates when welding power is available at the welding output terminals.

5. Current Control

Provides infinitely variable current control up to the 200 amp maximum output of the machine.

6. TIG/MMA Selector Switch

7. 2 Stroke/4 Stroke

In the 2 stroke position depressing the torch switch starts the welding cycle and releasing the switch terminates the cycle.

In the 4 stroke position depressing the torch switch starts the welding cycle. Once the arc has struck the torch switch can be released and welding will continue. Depressing the torch switch again will activate the slope down of the welding current. After the slope down period has finished the welding current will remain at the machines minimum current until the torch switch is released.

8. Local/Remote Switch

In the up position the welding output is controlled via the front panel mounted current potentiometer, see item 5.

In the down position the welding output is controlled via a remote control device eg. FS002 or PHA5.

9. Remote Control Socket

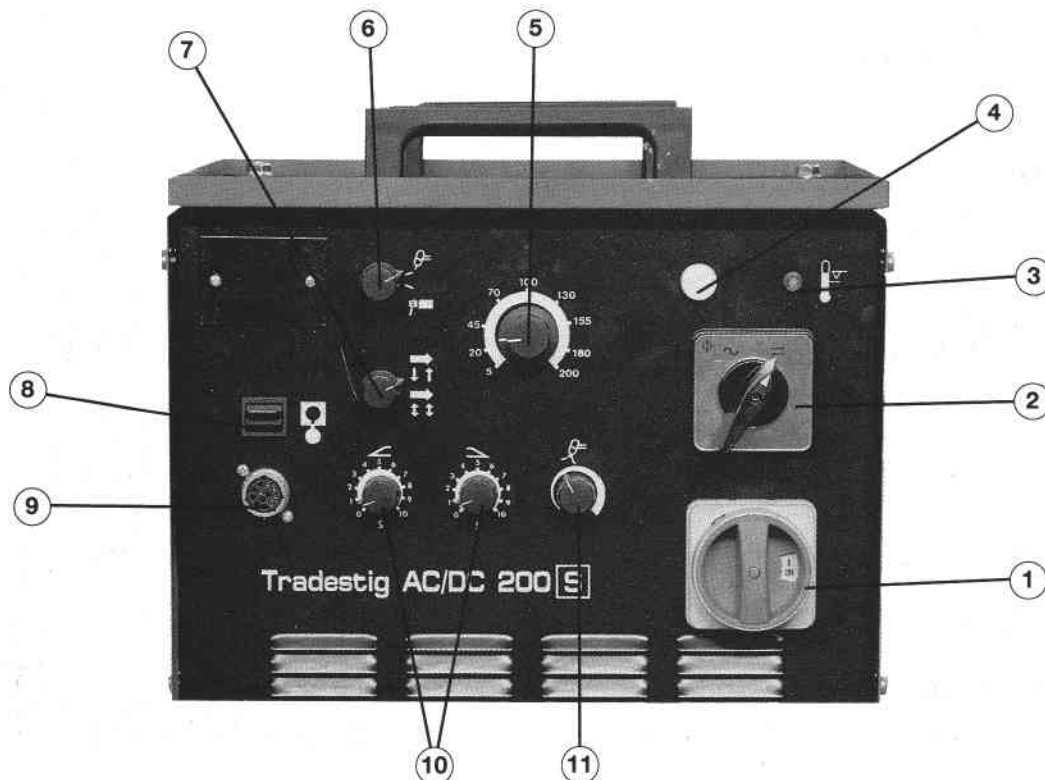
To enable connection of a Foot Control Unit or pulse unit.

10. Slope Up and Slope Down Control

Provides variable (0 - 10 seconds) welding current output slope up or slope down.

11. Post Flow Gas Control

Provides variable (2 - 20 seconds) post weld gas flow.



OPERATION

TIG WELDING WITH DC CURRENT

1. Connect the TIG torch to the designated terminal and the work return lead to the + terminal.
2. Set the TIG MMA switch to the TIG position.
3. Set the mode selection switch to DC (=) welding.

NOTE

Do not operate this switch whilst the machine is welding.

4. Select 2 stroke or 4 stroke torch switch mode.
5. Check that the local/remote switch is in the correct position.
6. Set the welding current to the required value.
7. Adjust the welding up-slope and down-slope times to the required position.
8. The machine is now ready to use.

NOTE

If an arc is not established within 5 seconds of depressing the torch switch the high frequency will switch off.

TIG WELDING WITH AC CURRENT

The same as TIG welding with DC but set the mode selection switch to AC.

NOTE

Refer to page 11 for information relating to the selection of tungsten electrodes.

DC MMA WELDING

1. Connect the electrode holder and work return cable between the +ve and -ve output terminals. Set the polarity of the electrode holder according to the requirement of the particular electrode being utilised.
2. Set the TIG/MMA switch to the MMA position.

NOTE

In the MMA position the indicator light (4 in control section) will illuminate thereby indicating that welding power is available at the output terminals.

TIG WELDING

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

WARNING

When changing tungsten electrodes or when converting the unit for manual welding, the unit must be isolated from the mains supply.

Always commence with a last minute check for safety and protection.

Check for correct and secure torch and work return lead connections.

Check for correct position of machine controls.

Using the current control handle set the welding current on the scale.

Check that the electrode tip sticks out by 4 to 7mm and that it is ground as shown.

Switch on the mains ON/OFF switch.

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 flowmeter.

Hold the torch and filler rod at the correct angles as shown. Holding the rod and torch at these angles is necessary to ensure satisfactory results.

Position the torch over the welding area (about 5mm above), warn bystanders to shield their eyes and lower your headscreen.

Press the torch switch and slowly lower the torch. **(DO NOT TOUCH THE WORKPIECE WITH THE ELECTRODE).** The high frequency output will allow the arc to strike without the electrode touching the workpiece.

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.

Adjust the post weld gas flow (if necessary) using the gas timer on the front panel.

Electrode Selection

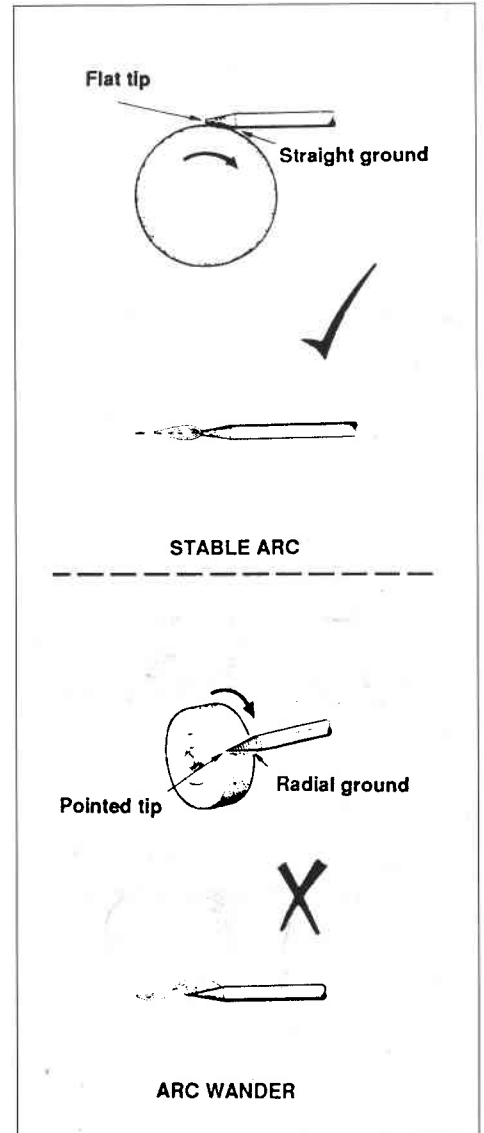
TIG Electrodes

1. **1% Thoriated:** The introduction of Thorium to pure tungsten gives electrodes longer life by reducing the tendency to melt at high current levels. These electrodes are recommended for DC welding of mild steel, stainless steel, copper and rare metals. They can also be used for aluminium.

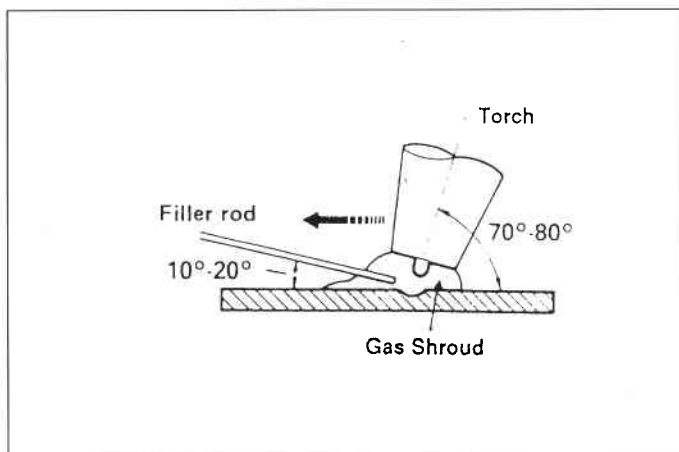
Features: Long life, superior arc starting characteristics, high current carrying capacity, greater arc stability. Colour coded YELLOW for easy identification.

2. **1% Zirconiated:** Tungsten Electrodes containing 1% Zirconium are recommended when it is vital that tungsten contamination of the weld is to be avoided particularly where high quality AC welding of aluminium and magnesium and their alloys is called for.

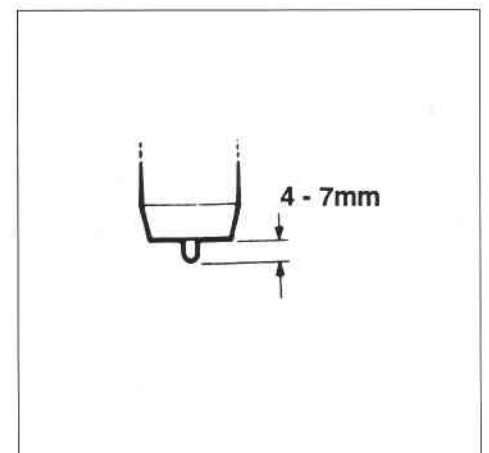
Features: Long life, self cleaning, maintains a 'balled' end. High current carrying capacity. Colour coded WHITE for easy identification.



1. **Electrode Grinding:** to obtain a stable arc the electrode should be ground as shown



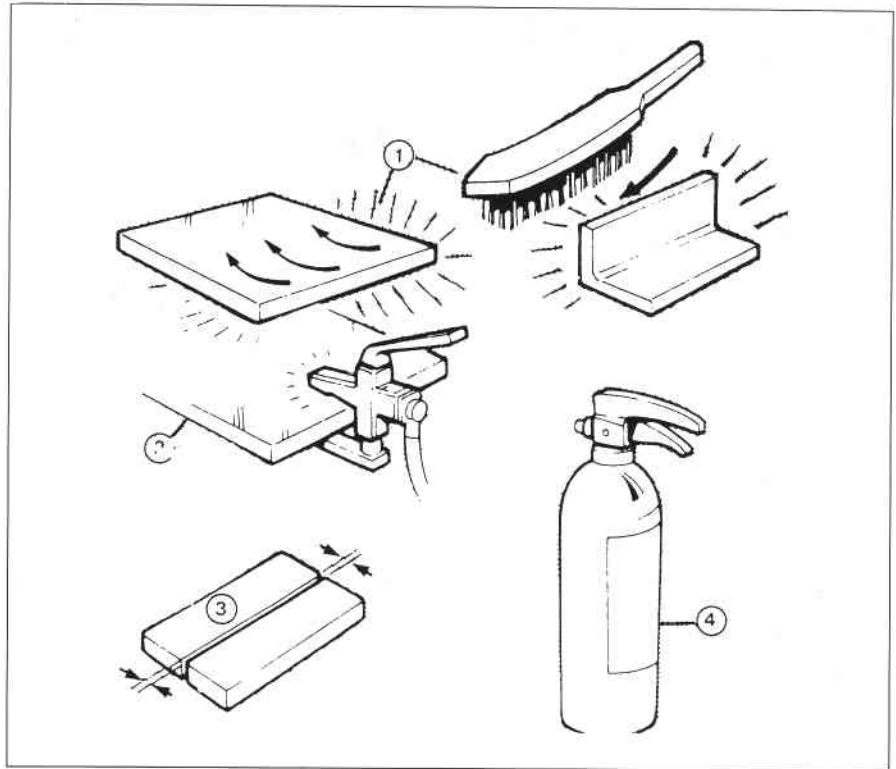
Filler Rod and Torch angles



Electrode Stickout 4-7mm

Welding Preparation

1. Clean the material to be welded with a wire brush.
2. Clamp the work return cable to a clean area of the workpiece.
3. Keep the gap between pieces to be welded to a minimum.
4. Clear the welding area and check that a fire extinguisher is available.



MMA WELDING

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

WARNING

When changing tungsten electrodes or when converting the unit for manual welding, the unit must be isolated from the mains supply.

Always commence with a last minute check for safety and protection.

Check that the electrode holder and work return lead connections are correct and secure.

Check for correct position of machine controls.

Using the current control handle set the welding current on the upper scale of the current control.

Hold the electrode away from the work, trailing the welding lead over the shoulder to reduce the weight on the hand doing the welding.

Keeping the electrode clear of any exposed metal surface, switch on the unit.

Position the electrode close to the point where welding is to commence, without actually touching the work.

Cover the eyes with a headscreen or handshield and warn bystanders.

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

(ii) 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.

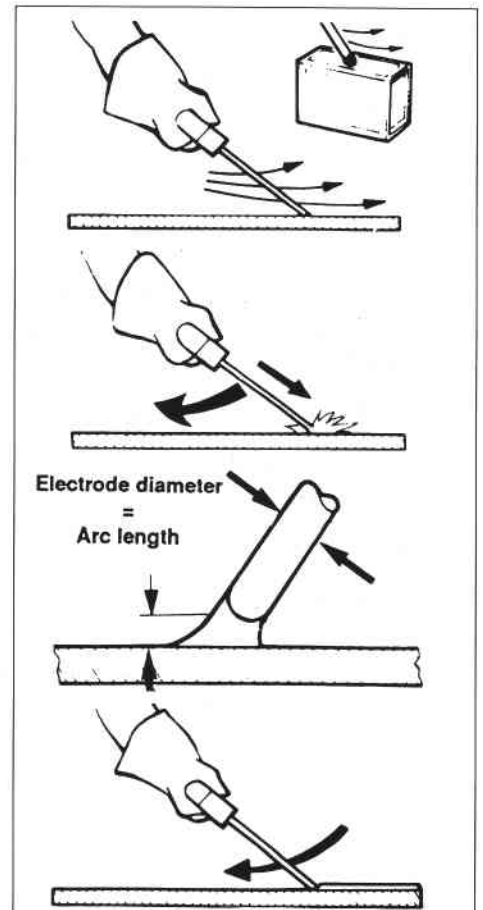
If the electrode 'freezes', ie. sticks to the workpiece, gently twist the electrode and pull it free. If this is not possible, release the electrode from the holder, switch off the supply and cut the electrode free with a chisel. Freezing will occur if heavy contact is made with the workpiece at too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

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

(iv) 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.

Switch off the mains supply when welding is completed.





Tradestig AC/DC 200S

Technical Notes

Specification

Tradestig AC/DC 200S

Input

415v 50Hz Single Phase (two phases of a three phase supply)

Fuse 25A slow blow

Power factor 0.85

Output

OCV DC 100V

OCV AC 44V

Welding Range	DC TIG	=	5A @ 10V	-	200A @ 18V
	AC TIG	=	20A @ 10V	-	200A @ 18V
	MMA DC	=	5A @ 10V	-	150A @ 26V

Duty Cycle	AC/DC TIG	=	200A @ 20%	120A @ 60%
	DC MMA	=	150A @ 35%	120A @ 60%

Weight	60kg	Max kW	6.7
Dimensions (l x w x h)	370 x 480 x 560mm		
Enclosure Type	IP23 M		
Insulation Class	F		

Standards EN 60974-1
IEC 974-1



MAINTENANCE

The Tradestig AC/DC 200S requires little maintenance. Clean the inside of the machine once a year with dry compressed low pressure air. When the machine is used in a dirty or dusty environment it must be cleaned more frequently.

WARNING

Suitable eye and mouth protection should be worn.

WARNING

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

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

Daily Tasks

1. Check all welding and electrical cables for signs of cracking or general deterioration.
2. Check that all electrical connections are in good physical condition.
3. Check the 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.