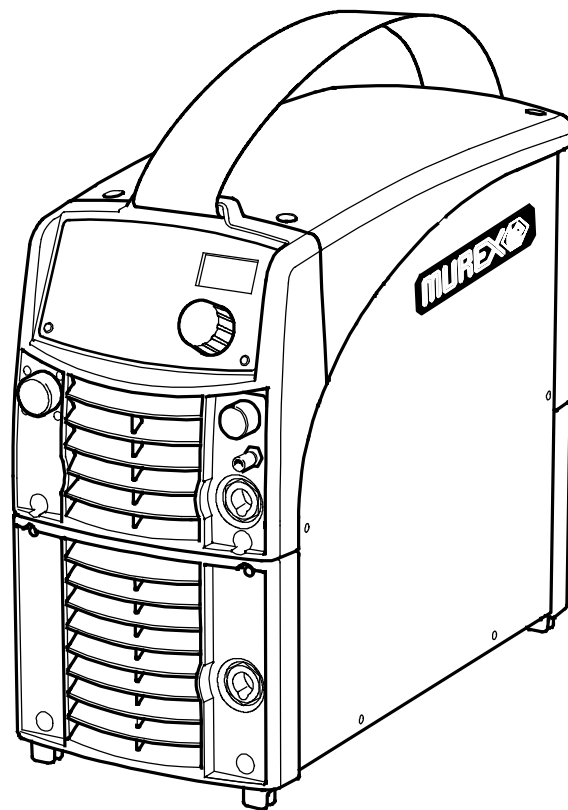


GB



# *Tradestig AC 220*

# *Tradestig AC 220a*



AH 0834

**Instruction manual and  
spare parts list**

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## 1 DIRECTIVE


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### DECLARATION OF CONFORMITY

Murex Welding Products Ltd, EN8 7TF England, gives its unreserved guarantee that welding power source **Tradestig AC 220** and **Tradestig AC 220a** from serial number 827 (2008 w 27) are constructed and tested in compliance with the standard EN 60974-1 /-3 and EN 60974-10 (Class A) in accordance with the requirements of directive (2006/95/EC) and (2004/108/EEC).

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On behalf of Murex Welding Products Ltd.  
Laxå 2008-08-28



Kent Embrodt  
Global Director  
Equipment and Automation

Manufactured by ESAB AB, Welding Equipment  
SE-695 81 Laxå Sweden

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## 2 SAFETY

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Users of welding equipment have the ultimate responsibility for ensuring that anyone who works on or near the equipment observes all the relevant safety precautions. Safety precautions must meet the requirements that apply to this type of welding equipment. The following recommendations should be observed in addition to the standard regulations that apply to the workplace.

All work must be carried out by trained personnel well-acquainted with the operation of the welding equipment. Incorrect operation of the equipment may lead to hazardous situations which can result in injury to the operator and damage to the equipment.

1. Anyone who uses the welding equipment must be familiar with:
  - its operation
  - location of emergency stops
  - its function
  - relevant safety precautions
  - welding
2. The operator must ensure that:
  - no unauthorized person is stationed within the working area of the equipment when it is started up.
  - no-one is unprotected when the arc is struck
3. The workplace must:
  - be suitable for the purpose
  - be free from drafts
4. Personal safety equipment
  - Always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves.
  - Do not wear loose-fitting items, such as scarves, bracelets, rings, etc., which could become trapped or cause burns.
5. General precautions
  - Make sure the return cable is connected securely.
  - Work on high voltage equipment **may only be carried out by a qualified electrician.**
  - Appropriate fire extinguishing equipment must be clearly marked and close at hand.
  - Lubrication and maintenance must **not** be carried out on the equipment during operation.



**CAUTION!**

*This product is solely intended for arc welding.*



**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 the workpiece.
- Ensure your working stance is safe.

**FUMES AND GASES - Can be dangerous to health**

- Keep your head out of the fumes.
- Use ventilation, extraction at the arc, or both, to take fumes and gases away 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.

**FIRE HAZARD**

- Sparks (spatter) can cause fire. Make sure therefore that there are no inflammable materials nearby.

**NOISE - Excessive noise can damage hearing**

- Protect your ears. Use earmuffs or other hearing protection.
- Warn bystanders of the risk.

**MALFUNCTION - Call for expert assistance in the event of malfunction.**

**Read and understand the instruction manual before installing or operating.**

**PROTECT YOURSELF AND OTHERS!**

**Murex can provide you with all necessary welding protection and accessories.**



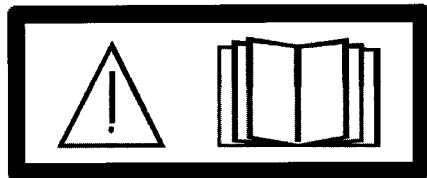
**WARNING!**

*Do not use the power source for thawing frozen pipes.*



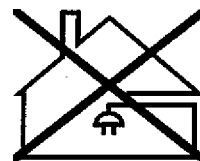
**CAUTION!**

*Read and understand the instruction manual before installing or operating.*



**CAUTION!**

*Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There may be potential difficulties in ensuring electromagnetic compatibility of class A equipment in those locations, due to conducted as well as radiated disturbances.*



### 3 INTRODUCTION POWER SOURCE

The **Tradestig AC 220 / Tradestig AC 220a** is a TIG welding power source, which can also be used for MMA welding. It can be used with alternating current (AC) or direct current (DC).

Accessories for the product can be found on page 42.

#### 3.1 Equipment

The power source is supplied with a 5 m return cable, 3 m mains cable, carrying strap, cable holder, shaft belt, instruction manual for power source and control panel.

#### 3.2 Control panels

Tradestig AC 220



Tradestig AC 220a



See the detailed description of the control panels, section No 9.1

### 4 TECHNICAL DATA

Tradestig AC 220 / Tradestig AC 220a	
<b>Mains voltage</b>	230V, ± 10%, 1~ 50/60 Hz
<b>Mains supply</b>	Z <sub>max</sub> 0.28 ohm
<b>Primary current</b>	
I <sub>max</sub> TIG	27 A
I <sub>max</sub> MMA	25 A
<b>No load power</b> demand when in the energy-saving mode, 6.5 min. after welding	40 W
<b>Setting range</b>	TIG AC* / DC MMA
	3 - 220 A 4 - 160 A
<b>Ignition voltage</b>	11.5 kV
<b>Permissible load at TIG AC/DC</b>	
20% duty cycle	220 A / 18.8 V
60% duty cycle	150 A / 16.0 V
100% duty cycle	140 A / 15.6 V
<b>Permissible load at MMA</b>	
30% duty cycle	160 A / 26.4 V
60% duty cycle	120 A / 24.8 V
100% duty cycle	110 A / 24.4 V
<b>Power factor at maximum current</b>	
TIG	0.99
MMA	0.99

Tradestig AC 220 / Tradestig AC 220a	
<b>Efficiency at maximum current</b>	
TIG	66 %
MMA	74 %
<b>Open-circuit voltage TIG</b>	55 – 60 V
<b>Open-circuit voltage MMA</b> with VRD	55 – 60 V < 35 V
<b>Operating temperature</b>	-10 to + 40 °C
<b>Transportation temperature</b>	-25 to + 55 °C
<b>Constant sound pressure in open-circuit</b>	< 70 dB (A)
<b>Dimensions, l x b x h</b>	418 x 188 x 345 mm
<b>Weight</b>	16 kg
<b>Shielding gas</b> max pressure	All types intended for TIG welding 5 bar
<b>Insulation class transformer</b>	H
<b>Enclosure class</b>	IP 23
<b>Application class</b>	<b>S</b>

\*) *The minimum current during AC welding depends on the alloy used for the aluminium plates and their surface cleanliness.*

**Duty cycle**

The duty cycle refers to the time as a percentage of a ten-minute period that you can weld at a certain load without overloading. The duty cycle is valid for 40 °C.

The duty cycle is valid for 40 °C ambient temperature.

**Enclosure class**

The IP code indicates the enclosure class, i. e. the degree of protection against penetration by solid objects or water. Equipment marked **IP23** is designed for indoor and outdoor use.

**Application class**

The symbol **S** indicates that the power source is designed for use in areas with increased electrical hazard.

**Mains supply, Z<sub>max</sub>**

Maximum permissible line impedance of the network in accordance with IEC 61000-3-11.

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## 5 INSTALLATION

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***The installation must be executed by a professional.***

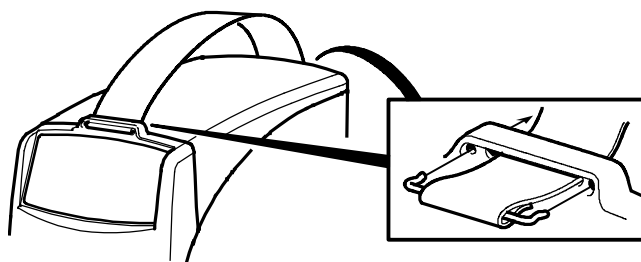


**CAUTION!**

*This product is intended for industrial use. In a domestic environment this product may cause radio interference. It is the user's responsibility to take adequate precautions.*

### 5.1 Lifting instructions

Install the carrying strap as illustrated and lift the power source by the strap.



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### 5.2 Location

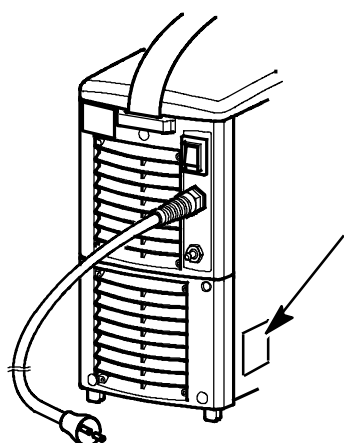
Position the welding power source such that its cooling air inlets and outlets are not obstructed.

### 5.3 Mains supply

**Note!**

**Mains supply requirements**

High power equipment may, due to the primary current drawn from the mains supply, influence the power quality of the grid. Therefore connection restrictions or requirements regarding the maximum permissible mains impedance or the required minimum supply capacity at the interface point to the public grid may apply for some types of equipment (see technical data). In this case it is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment may be connected.



Check that the welding power source is connected to the correct mains power supply voltage, and that it is protected by the correct fuse size. A protective earth connection must be made in accordance with regulations.

*Rating plate with supply connection data*

### Recommended fuse sizes and minimum cable area

Tradestig AC 220/ AC 220a	TIG	MMA
<b>Mains voltage</b>	230 V ±10 %,1~	230 V ±10 %,1~
<b>Mains frequency</b>	50 Hz	50 Hz
<b>Mains cable area mm<sup>2</sup></b>	3G2,5	3G2,5
<b>Phase current I<sub>1eff</sub></b>	14 A	15 A
<b>Fuse</b>		
anti-surge	16 A	16 A
type C MCB	16 A	16 A

**NOTE!** The mains cable areas and fuse sizes as shown above are in accordance with Swedish regulations. Use the welding power source in accordance with the relevant national regulations.

## 6 OPERATION

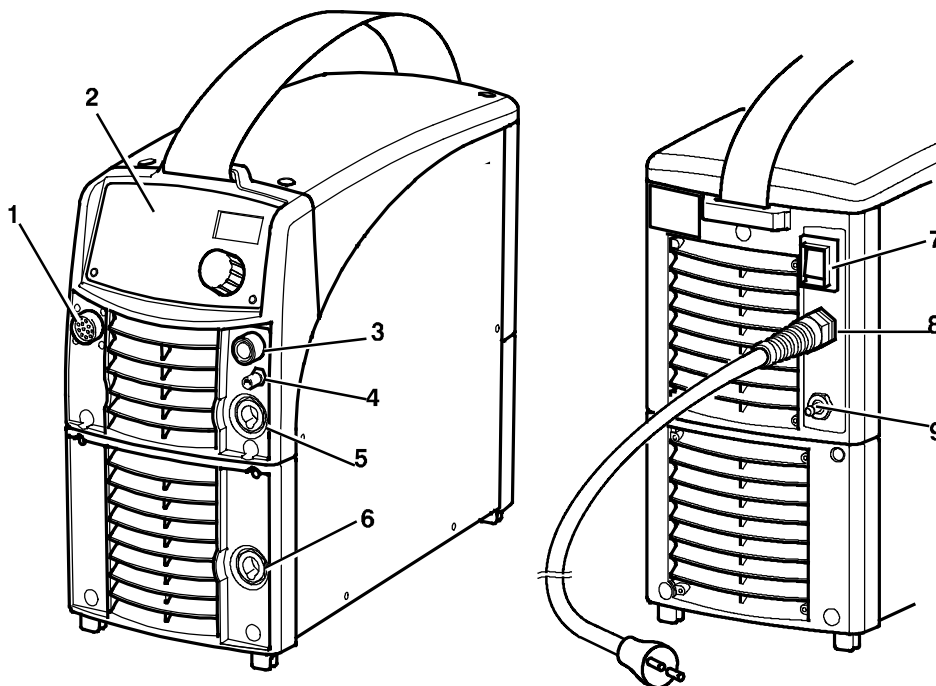
**General safety regulations for the handling of the equipment can be found on page 3. Read through before you start using the equipment!**

### 6.1 PFC - Power factor correction

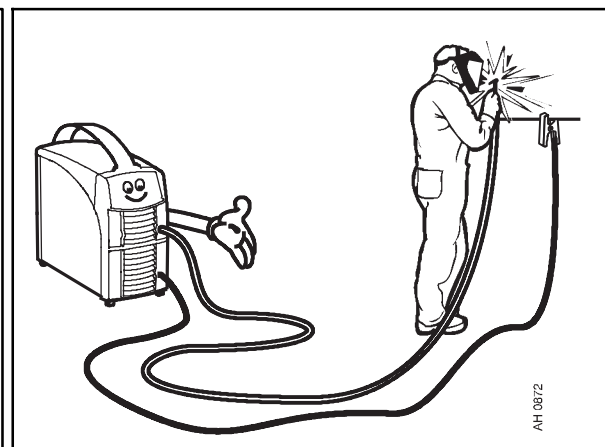
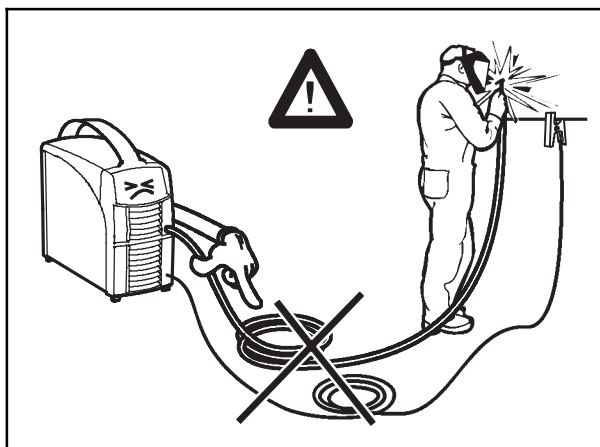
The Tradestig AC 200 and Tradestig AC 220a are 230 V single-phase power sources equipped with a PFC circuit making it possible to use the full range of the machine on a 16 A fuse. The PFC also protects the machines against fluctuating mains voltage and makes it safer to use with a generator. Tradesarc 200 can operate with extra long mains cables, over 100 m, giving you a very larger working radius.

### 6.2 Connections and control devices

- |   |                                       |   |                              |
|---|---------------------------------------|---|------------------------------|
| 1 | Connection for remote control unit    | 6 | Connection for return cable  |
| 2 | Control panel                         | 7 | Mains switch                 |
| 3 | Connection for torch                  | 8 | Mains cable                  |
| 4 | Connection for gas to the torch       | 9 | Connection for shielding gas |
| 5 | Connection for welding cable or torch |   |                              |

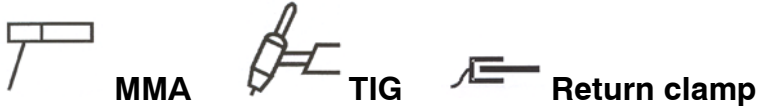


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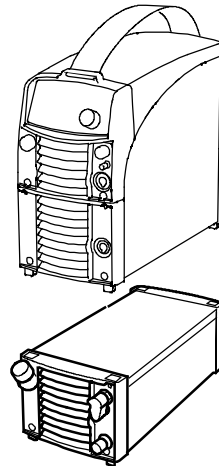
### 6.3 Key to symbols



### 6.4 Connection to cooling unit

*Only those persons who have appropriate electrical knowledge (authorized personnel) may remove the safety plates to connect or carry out service, maintenance or repair work on welding equipment.*

See installation instructions on page 26.



### 6.5 Turning on the power source

Turn on the mains power by turning the mains switch to the "1" position.

Turn the unit off by turning the switch to the "0" position.

Whether the mains power supply is interrupted or the power unit is switched off in the normal manner, welding data will be stored so that it is available next time the unit is started.

---

## 7 MAINTENANCE

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*Regular maintenance is important for safe, reliable operation.*

*Only those persons who have appropriate electrical knowledge (authorized personnel) may remove the safety plates to connect or carry out service, maintenance or repair work on welding equipment.*



### CAUTION!

*All guarantee undertakings from the supplier cease to apply if the customer himself attempts any work in the product during the guarantee period in order to rectify any faults.*

## 7.1 Inspection and cleaning



**WARNING!**

*The mains supply must be disconnected before cleaning!*

### Power source

Check regularly that the welding power source is not clogged with dirt.

How often and which cleaning methods apply depend on: the welding process, arc times, placement, and the surrounding environment. It is normally sufficient to blow down the power source with dry compressed air (reduced pressure) once a year.

Clogged or blocked air inlets and outlets otherwise result in overheating.

### Welding torch

The welding torch's wear parts should be cleaned and replaced at regular intervals in order to achieve trouble-free welding.

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## 8 FAULT-TRACING

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*Try these recommended checks and inspections before sending for an authorised service technician.*

Type of fault	Corrective action
No arc.	<ul style="list-style-type: none"> <li>• Check that the mains power supply switch is turned on.</li> <li>• Check that the welding current supply and return cables are correctly connected.</li> <li>• Check that the correct current value is set.</li> <li>• Check the mains power supply.</li> </ul>
The welding current is interrupted during welding.	<ul style="list-style-type: none"> <li>• Check to see whether the thermal cut-outs have tripped.</li> <li>• Check the mains power supply fuses.</li> </ul>
The thermal cut-out trips frequently.	<ul style="list-style-type: none"> <li>• Make sure that you are not exceeding the rated data for the welding power source (i.e. that the unit is not being overloaded.)</li> </ul>
Poor welding performance.	<ul style="list-style-type: none"> <li>• Check that the welding current supply and return cables are correctly connected.</li> <li>• Check that the correct current value is set.</li> <li>• Check that the correct electrodes are being used.</li> <li>• Check the gas flow.</li> </ul>

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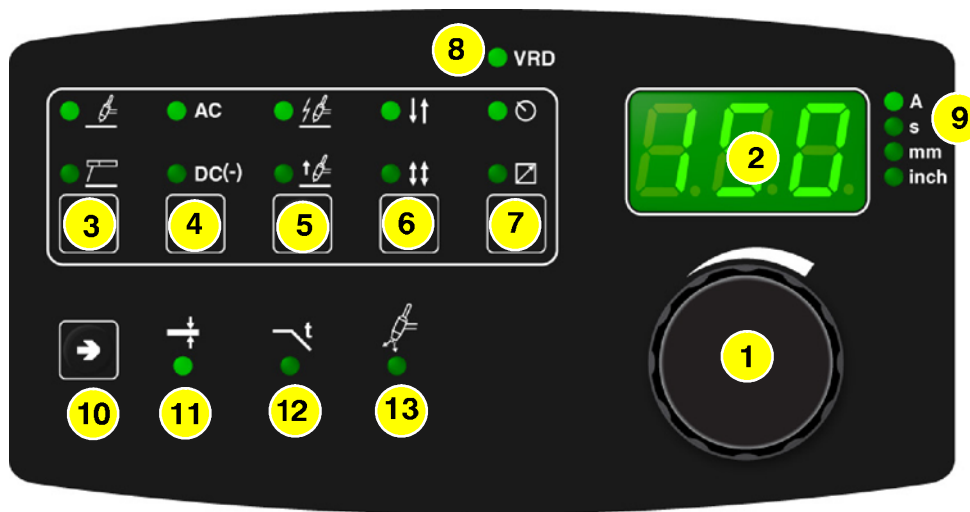
## 9 CONTROL PANEL









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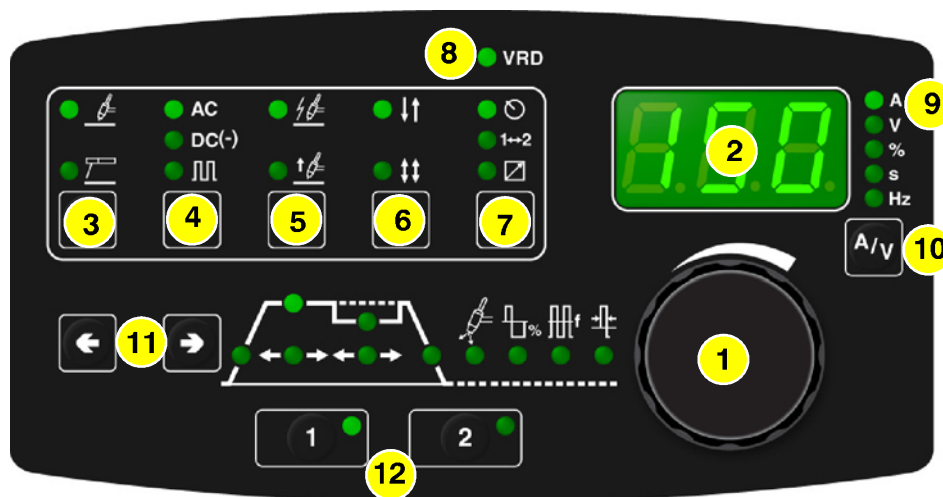
When mains power is supplied the unit runs a self diagnosis of the LEDs and the display, the program version is displayed and in this example the program version is 0.18.










## 9.1 Tradestig AC 220



- 1 Knob for setting data (current, voltage, material thickness or seconds)
- 2 Display
- 3 Choice of welding method TIG  or MMA 
- 4 Choice of TIG / MMA welding with alternating current **AC**, TIG / MMA welding with direct current **DC(-)**
- 5 Choice of HF start  or LiftArc™ 
- 6 Choice of 2-stroke  or 4-stroke 
- 7 Setting from panel  and connecting remote control unit 
- 8 Display of VRD function (reduced open-circuit voltage) is active or inactive.
- 9 Choice of current indication (A) or seconds (s) during welding, in the display. Indication of which unit of measurement is used (mm or inch).
- 10 Choice of parameter for material thickness slope down or gas post flow.
- 11 Indication of selected material thickness (mm/inch).
- 12 Indication of selected slope down time (s).
- 13 Indication of selected gas post flow time (s).

## 9.2 Tradestig AC 220a



- 1 Knob for setting data (current, voltage, percentage, seconds, or frequency)
- 2 Display
- 3 Choice of welding method TIG  or MMA 
- 4 Choice of TIG welding with alternating current **AC**, TIG / MMA- welding with direct current **DC(-)** or TIG welding with pulsed current 
- 5 Choice of HF start  or LiftArc™ 
- 6 Choice of 2-stroke  or 4-stroke 
- 7 Setting from panel , program change with torch trigger switch **1↔2** or connecting remote control unit 
- 8 Display of VRD function (reduced open-circuit voltage) is active or inactive.
- 9 Indication of which parameter is shown in the display (current, voltage, percentage, seconds or frequency)
- 10 Choice of current indication (A) or voltage indication (V) during welding, in the display
- 11 Indication of selected setting parameter, see page 14.  
The right-hand button is also used for hidden functions
- 12 Buttons for weld data memory settings. See page 22.

## 10 TIG WELDING

### 10.1 Settings - Tradestig AC 220

Function	Setting range	In steps of	Default value
HF / LiftArc™ 2)	HF or LiftArc™	-	LiftArc™
2/4-stroke 2)	2 stroke or 4 stroke	-	2 stroke
Gas pre flow time 1)	0 - 5 s	0.1 s	0.5 s
Material thickness 1)	0.1 - 7.3 mm	0.1 mm	2 mm
Slope up-time 1)	0 - 9.9 s	0.1 s	0.0 s
Slope down time	0 - 10 s	0.1 s	1.0 s
Gas post flow time	0 - 25 s	0.1 s	10.0 s
Current	4 - 220 A	1 A	60 A
Active panel	OFF or ON	-	ON
Remote control unit	OFF or ON	-	OFF
Min current	0-99%	-	30%

1) These functions are hidden TIG functions, see description point 10.4.

2) These functions cannot be changed while welding is in progress

### 10.2 Settings - Tradestig AC 220a

#### TIG without pulsing AC/DC and TIG with pulsing DC

Function	Setting range	In steps of:	Default value
HF / LiftArc™ 2)	HF or LiftArc™	-	LiftArc™
2/4-stroke 2)	2 stroke or 4 stroke	-	2 stroke
Gas pre flow time 1)	0 - 5 s	0.1 s	0.5 s
Slope up-time	0 - 10 s	0.1 s	0.0 s
Slope down time	0 - 10 s	0.1 s	1.0 s
Gas post flow time	0 - 25 s	0.1 s	10.0 s
Current	4 - 220 A	1 A	60 A
Active panel	OFF or ON	-	ON
Changing trigger data	OFF or ON	-	OFF
Remote control unit	OFF or ON	-	OFF
Min current	0-99%	-	30%

#### TIG with AC

Function	Setting range	In steps of:	Default value
Balance setting	50 - 98 %*	1 %	50 %
Frequency setting	10 - 152 Hz	1 - 3 Hz	65 Hz
Electrode preheating	0 - 100	1	-

\*) Depending on frequency setting.

## TIG with pulsing DC

Function	Setting range	In steps of:	Default value
Pulse current	4 - 220 A	1 A	60 A
Pulse time	0.01 - 2.5 s	0.01 s	1.0 s
Micro pulse <sup>1)</sup>	0.001 - 0.250 s	0.001 s	
Background current	4 - 220 A	1 A	20 A
Background time	0.01 - 2.5 s	0.01 s	1.0 s
Micro pulse <sup>1)</sup>	0.001 - 0.250 s	0,001 s	

<sup>1)</sup> These functions are hidden TIG functions, see description point 10.4.

<sup>2)</sup> These functions cannot be changed while welding is in progress

## 10.3 Symbol and Function explanations



TIG welding melts the metal of the workpiece, using an arc struck from a tungsten electrode, which does not itself melt. The weld pool and the electrode are protected by shielding gas.

### AC Alternating current

The advantages of alternating current are reduced risk of magnetic arc blow and good oxide break-up capacity when welding aluminium.

### DC(-) Direct current

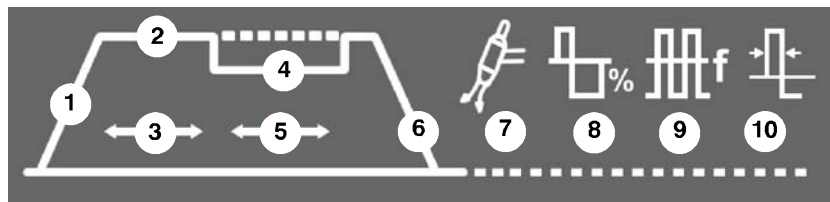
A higher current produces a wider weld pool, with better penetration into the workpiece.

### Pulsed current (only DC)

Pulsing is used for improved control of the weld pool and the solidification process. The pulse frequency is set so slow that the weld pool has time to solidify at least partially between each pulse. In order to set pulsing, four parameters are required: pulse current, pulse time, background current and background time.

### Parameter settings

1. Slope up
2. Welding current
3. Pulse time
4. Background current
5. Background time
6. Slope down
7. Gas post flow time
8. Balance
9. Frequency
10. Electrode preheating

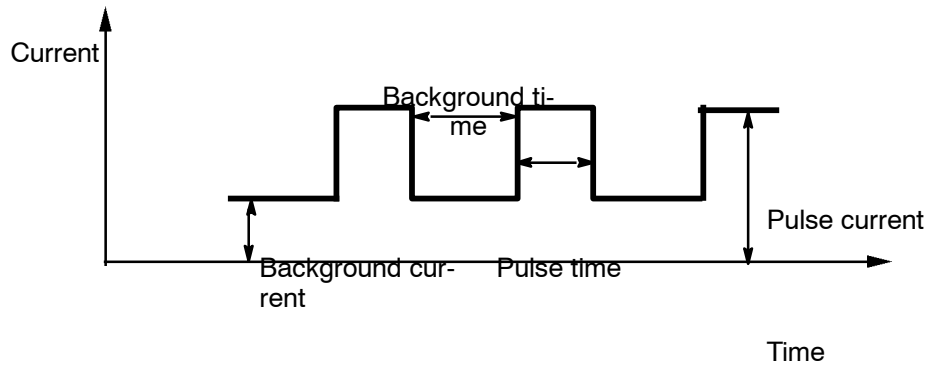


## Slope up

The slope up function means that, when the TIG arc strikes, the current rises slowly to the set value. This provides 'gentler' heating of the electrode, and gives the welder a chance to position the electrode properly before the set welding current is reached.

## Pulse current

The higher of the two current values in the event of pulsed current.



*TIG welding with pulsing.*

## Pulse time

The time the pulse current is *on* during a pulse period.

## Background current

The lower of the two current values in the event of pulsed current.

## Background time

Time for background current which, along with the time for pulse current, gives the pulse period.

## Slope down

TIG welding uses "slope down", by which the current falls 'slowly' over a controlled time, to avoid craters and/or cracks. when a weld is finished.

## Gas post-flow

This controls the time during which shielding gas flows after the arc is extinguished.

## Balance

Setting the balance between the positive (+) electrode and negative (-) electrode half period during alternating current welding (AC).

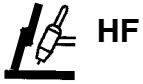
Lower balance value produces more heat on the electrode and better oxide break-up on the workpiece.

Higher balance value produces more heat to the workpiece and better penetration.

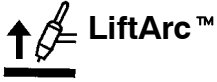
## Frequency

Lower frequency (alternating current) transfers more heat to the workpiece and produces a wider weld pool.

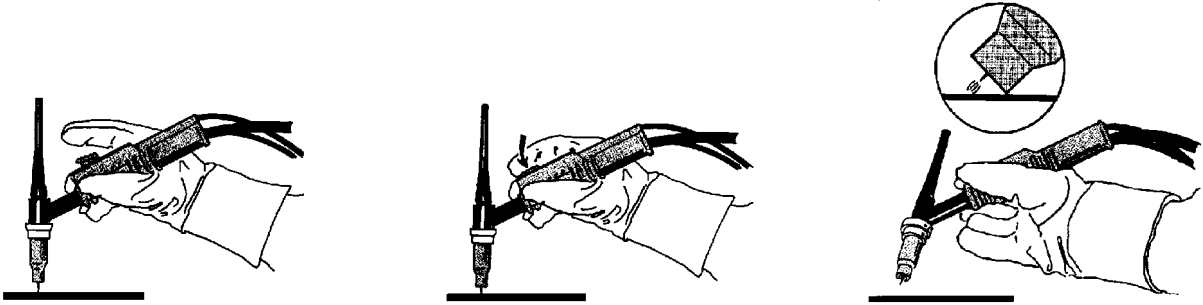
Higher frequency produces a narrower arc with higher arc force (narrower weld pool).



The HF function strikes the arc by means of a spark from the electrode to the workpiece as the electrode is brought closer to the workpiece.



The LiftArc™ function strikes the arc when the electrode is brought into contact with the workpiece and then lifted away from it.



*Striking the arc with the LiftArc function™. Step 1: the electrode is touched on to the workpiece. Step 2: the trigger switch is pressed, and a low current starts to flow. Step 3: the welder lifts the electrode from the workpiece: the arc strikes, and the current rises automatically to the set value.*

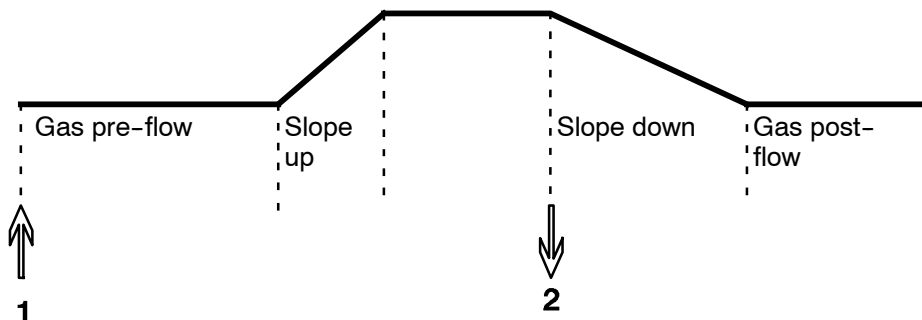
## Electrode preheating

Tungsten electrode				Setting value	
				Shielding gas	
Ø	Colour	Type		Ar	Ar + 30%He
1,6	Green	WP	V	-	-
1,6	Green	WP	U	30	35
1,6	Black	WL10	V	20	20
1,6	Black	WL10	U	30	35
2,4	Green	WP	V	45	-
2,4	Green	WP	U	55	60
2,4	Black	WL10	V	40	40
2,4	Black	WL10	U	45	50
3,2	Green	WP	V	55	-
3,2	Green	WP	U	65	65
3,2	Black	WL10	V	60	60
3,2	Black	WL10	U	70	70
4,0	Green	WP	V	70	75
4,0	Green	WP	U	80	85
4,0	Black	WL10	V	65	65
4,0	Black	WL10	U	70	75

WP = Pure tungsten electrode

WL10 = Lanthan alloyed tungsten electrode

↓ ↑ 2 stroke

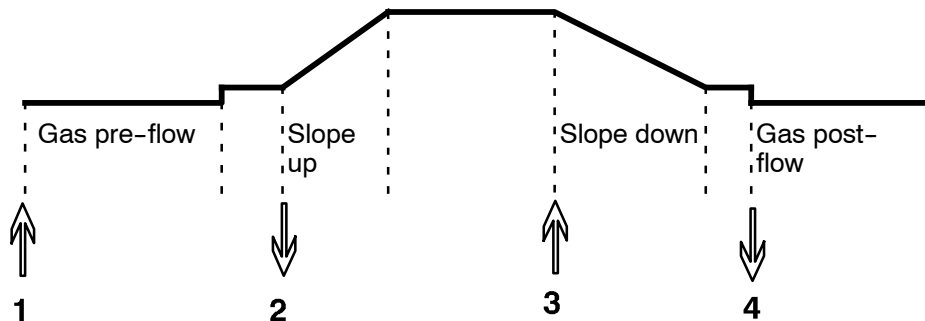


Functions when using 2 stroke control of the welding torch.

In the 2 stroke control mode, pressing the TIG torch trigger switch (1) starts gas pre-flow (if used) and strikes the arc. The current rises to the set value (as controlled

by the slope up function, if in operation). Releasing the trigger switch (2) reduces the current (or starts slope down if in operation) and extinguishes the arc. Gas post-flow follows if it is in operation.

## 4 stroke



*Functions when using 4 stroke control of the welding torch.*

In the 4 stroke control mode, pressing the trigger switch (1) starts gas pre-flow (if used). At the end of the gas pre-flow time, the current rises to the pilot current (a few ampere), and the arc is struck. Releasing the trigger switch (2) increases the current to the set value (with slope up, if in use). When the trigger switch is pressed in (3) the current returns to the set pilot current (with "slope down" if in use). When the trigger switch is released again (4) the arc is extinguished and any gas post flow occurs.

## Active panel

Settings are made from the control panel.

## Changing trigger data

This function permits changing between different welding data memories by a double press on the trigger of the welding gun.  
*Only applies for TIG welding.*

## Remote control unit

Settings are made from the remote control unit.

The remote control unit must be connected to the remote control unit socket on the machine before activation. When the remote control unit is activated the panel is inactive.


## 10.4 Hidden TIG functions

There are hidden functions in the control panel.



To access the functions, press  for 5 seconds. The display shows a letter and a value. Select function by pressing the right arrow. The knob is used to change the value of the selected function.



To leave hidden functions, press  for 5 seconds.

### Tradestig AC 220

Function	Settings
<b>A</b> = gas pre-flow	0 - 5 s
<b>b</b> = slope up	0 - 9.9
<b>C</b> = metric/inch	0 = inch, 1 = mm
<b>I</b> = min current	0 - 99%


### Tradestig AC 220a

Function	Settings
<b>A</b> = gas pre-flow	0 - 5 s
<b>b</b> = micro pulse	<b>0</b> = OFF; <b>1</b> = ON
<b>I</b> = min current	0 - 99%

#### Gas pre-flow

This controls the time during which shielding gas flows before the arc is struck.

#### Micro pulse

In order to select micro pulse, the machine must be in the pulsed current function . The value for pulse time and background current is normally 0.01 – 2.50 seconds. By using the micro pulse, the time can go down to 0.001 seconds. When the micro pulse function is active, times that are shorter than 0.25 seconds are shown in the display without decimal points.

#### Min current

Used to set the minimum current for the remote control T1 Foot CAN.

If the max current is 100 A and the min current is to be 50 A, set the concealed function min current to 50%.

If the max current is 100 A and the min current is to be 90 A, set the min current to 90%.

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## 11 MMA WELDING

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### 11.1 Settings - Tradestig AC 220a

Function	Setting range	In steps of:	Default value
Current	16 - max. A <sup>2)</sup>	1 A	100 A
Hotstart <sup>1)</sup>	0 - 99	1	0
Arc force <sup>1)</sup>	0 - 99	1	5
Drop welding <sup>1)</sup>	0=OFF or 1=ON	-	OFF
Weld regulator ArcPlus™ <sup>1)</sup>	1=OFF or 0=ON	-	ON
Active panel	OFF or ON	-	ON
Remote control unit	OFF or ON	-	OFF

<sup>1)</sup> These functions are hidden functions, see description point 11.3.

<sup>2)</sup> The setting range is dependent on the power source used.

### 11.2 Symbol and Function explanations



#### VRD (Voltage Reduction Device)

The VRD function ensures that the open-circuit voltage does not exceed 35 V when welding is not being carried out. This is indicated by a lit VRD LED. The VRD function is deactivated when the system senses that welding has started.

If the VRD function is activated and open-circuit voltage exceeds the 35 V limit, this is indicated by an error message (16) appearing in the display and welding cannot be started whilst the error message is displayed.



**NOTE!** The VRD function is not active (LED has gone out) on delivery. Contact an authorised Murex service technician to activate the function.



#### MMA welding

MMA welding may also be referred to as welding with coated electrodes. Striking the arc melts the electrode, and its coating forms protective slag.

During MMA welding, it is possible to weld with reversed polarity.

Select MMA welding  and then press .



#### Active panel

Settings are made from the control panel.



#### Remote control unit


Settings are made from the remote control unit.

The remote control unit must be connected to the remote control unit socket on the machine before activation. When the remote control unit is activated the panel is inactive.


### 11.3 Hidden MMA functions

There are hidden functions in the control panel.



To access the functions, press  for 5 seconds. The display shows a letter and a value. Select function by pressing the right arrow. The knob is used to change the value of the selected function.



To leave hidden functions, press  for 5 seconds.

#### Control panel - **Tradestig AC 220a**

Function	Settings
<b>C</b> = Arc Force	0 - 99
<b>d</b> = drop welding	<b>0</b> = OFF; <b>1</b> = ON
<b>F</b> = regulator type ArcPlus™	<b>1</b> = OFF; <b>0</b> = ON
<b>H</b> = Hotstart	0 - 99

#### Arc Force

The arc force is important in determining how the current changes in response to a change in the arc length. A lower value gives a calmer arc with less spatter.

#### Drop welding

Drop welding can be used when welding with stainless electrodes. The function involves alternately striking and extinguishing the arc in order to achieve better control of the supply of heat. The electrode needs only to be raised slightly to extinguish the arc.

#### Welding regulator ArcPlus™

Welding regulator ArcPlus™ is a new type of control that produces a more intense, more concentrated and calmer arc. It recovers more quickly after a spot short-circuit, which reduces the risk of the electrode becoming stuck. Most welding applications obtain the best results with ArcPlus™ ON (0).

#### Hot Start



Hot start increases the weld current for an adjustable time at the start of welding, thus reducing the risk of poor fusion at the beginning of the joint.



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## 12 WELDING DATA MEMORY

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Two different welding data programs can be stored in the control panel memory.

Press button  or  for 5 seconds to store the welding data in the memory. The welding data is stored when the green indicator lamp starts to flash.

To switch between the different welding data memories press button  or .

The welding data memory has a back-up battery so that the settings remain even if the machine has been switched off.

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## 13 FAULT CODES

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The fault code is used to indicate that a fault has occurred in the equipment. It is indicated in the display by an E followed by a fault code number.

A unit number is displayed to indicate which unit has generated the fault.

Fault code numbers and unit numbers are shown alternately.

If several faults have been detected only the code for the last occurring fault is displayed. Press any function button or turn the knob to remove the fault indication from the display.

NOTE! If the remote control is activated, deactivate the remote control by pressing



to remove the fault indication.

### 13.1 List of fault codes

**U 0** = welding data unit      **U 2** = power source      **U 5** = AC-unit  
**U 1** = cooling unit              **U 4** = remote control unit

Fault code	Description	U 0	U 1	U 2	U 4	U 5
4	Power supply 5 V	x				x
6	High temperature		x	x		x
7	High temperature					x
8	Supply voltage 24V/15V		x			x
9	Supply voltage -11V		x			x
12	Communication error (warning)	x	x		x	x
14	Communication error (bus off)	x				
15	Messages lost	x				
16	High open-circuit voltage VRD			x		
19	Memory error	x				
20	High inductance in the welding circuit			x		
25	Lost contact with AC-unit	x				
26	Program operating fault	x				
29	No cooling water flow	x	x			
41	Lost contact with the cooling unit	x				

## 13.2 Fault code descriptions

Fault code	Description
<b>E 4</b> <b>U 0</b> <b>U 5</b>	<b>5 V power supply low</b> The power supply voltage is too low. The current welding process is stopped and starting is prevented. <b>Action:</b> Turn off the mains power supply to reset the unit. Send for a service technician if the fault persists.
<b>E 6</b> <b>U 1</b> <b>U 2</b> <b>U 5</b>	<b>High temperature</b> The thermal overload cut-out has tripped. The current welding process is stopped and cannot be restarted until the temperature has fallen. <b>Action:</b> Check that the cooling air inlets or outlets are not blocked or clogged with dirt. Check the duty cycle being used, to make sure that the equipment is not being overloaded.
<b>E 7</b> <b>U 5</b>	<b>High temperature</b> The thermal overload cut-out has tripped. The current welding process is stopped and cannot be restarted until the temperature has fallen. <b>Action:</b> Check that the cooling air inlets or outlets are not blocked or clogged with dirt. Check the duty cycle being used, to make sure that the equipment is not being overloaded.
<b>E 8</b> <b>U 1</b> <b>U 5</b>	<b>Faulty 24 V/15 V supply voltage</b> The supply voltage is too high or too low. The current welding process is stopped and starting is prevented. <b>Action:</b> Turn off the mains power supply to reset the unit. Send for a service technician if the fault persists.
<b>E 9</b> <b>U 1</b> <b>U 5</b>	<b>Faulty 24 V/15 V supply voltage</b> The supply voltage is too high or too low. The current welding process is stopped and starting is prevented. <b>Action:</b> Turn off the mains power supply to reset the unit. Send for a service technician if the fault persists.
<b>E 12</b> <b>U 0</b> <b>U 1</b> <b>U 4</b> <b>U 5</b>	<b>Communication error (warning)</b> Less serious interference on the CAN bus. <b>Action:</b> Check that there are no faulty units connected on the CAN bus. Check the cables. Send for a service technician if the fault persists.
<b>E 14</b> <b>U 0</b>	<b>Communication error (bus off)</b> Serious interference on the CAN bus. <b>Action:</b> Check that there are no faulty units connected on the CAN bus. Check the cables. Send for a service technician if the fault persists.
<b>E 15</b> <b>U 0</b>	<b>Communication problems (lost message)</b> The system's CAN bus has been overloaded. <b>Action:</b> Send for a service technician if the fault persists.
<b>E 16</b> <b>U 2</b>	<b>High open-circuit voltage VRD</b> Open circuit voltage has been too high. <b>Action:</b> Turn off the mains power supply to reset the unit. Send for a service technician if the fault persists.
<b>E 19</b> <b>U 0</b>	<b>Memory error</b> Content of existing memory is incorrect. Basic data will be used. <b>Action:</b> Turn off the mains power supply to reset the unit. Send for a service technician if the fault persists.

Fault code	Description
<b>E 20</b> <b>U 2</b>	<b>High inductance in the welding circuit</b> The power source cannot produce the desired current because the measured inductance in the welding circuit is too high. The fault indication is reset if the inductance reading receives a sufficiently low value at weld start. Resetting can also be achieved by turning off the power. <b>Action:</b> Use shorter welding cables and ensure that the cables are not coiled up. Place the welding cable and connector cable next to each other. If possible, the inductance can be reduced by welding with a shorter arc Send for a service technician if the fault persists.
<b>E 25</b> <b>U 0</b>	<b>Lost contact with AC-unit</b> The control panel has lost contact with the AC unit. The current welding process stops. <b>Action:</b> Send for a service technician if the fault persists.
<b>E 26</b> <b>U 0</b>	<b>Program operating fault</b> Something has prevented the processor from performing its normal tasks in the program. The program restarts automatically. The current welding process will be stopped. This fault does not disable any functions. <b>Action:</b> Send for a service technician if the fault persists.
<b>E 29</b> <b>U 0</b> <b>U 1</b>	<b>No cooling water flow</b> The flow monitor switch has tripped. The current welding process is stopped and starting is prevented. <b>Action:</b> Check the cooling water circuit and the pump.
<b>E 41</b> <b>U 0</b>	<b>Lost contact with the cooling unit</b> The welding data unit has lost contact with the cooling unit. The welding process stops. <b>Action:</b> Check the wiring. If the fault persists, send for a service technician.

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## 14 ORDERING SPARE PARTS

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*Repair and electrical work should be performed by an authorized serviceman.  
Use only original spare and wear parts.*

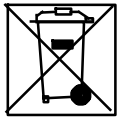
**Tradestig AC 220, Tradestig AC 220a is designed and tested in accordance with the international and European standards IEC/EN 60974-1 /-3 and EN 60974-10. It is the obligation of the service unit which has carried out the service or repair work to make sure that the product still conforms to the said standard.**

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## 15 DISMANTLING AND SCRAPPING

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Welding equipment primarily consists of steel, plastic and non-ferrous metals, and must be handled according to local environmental regulations.  
Coolant must also be handled according to local environmental regulations.

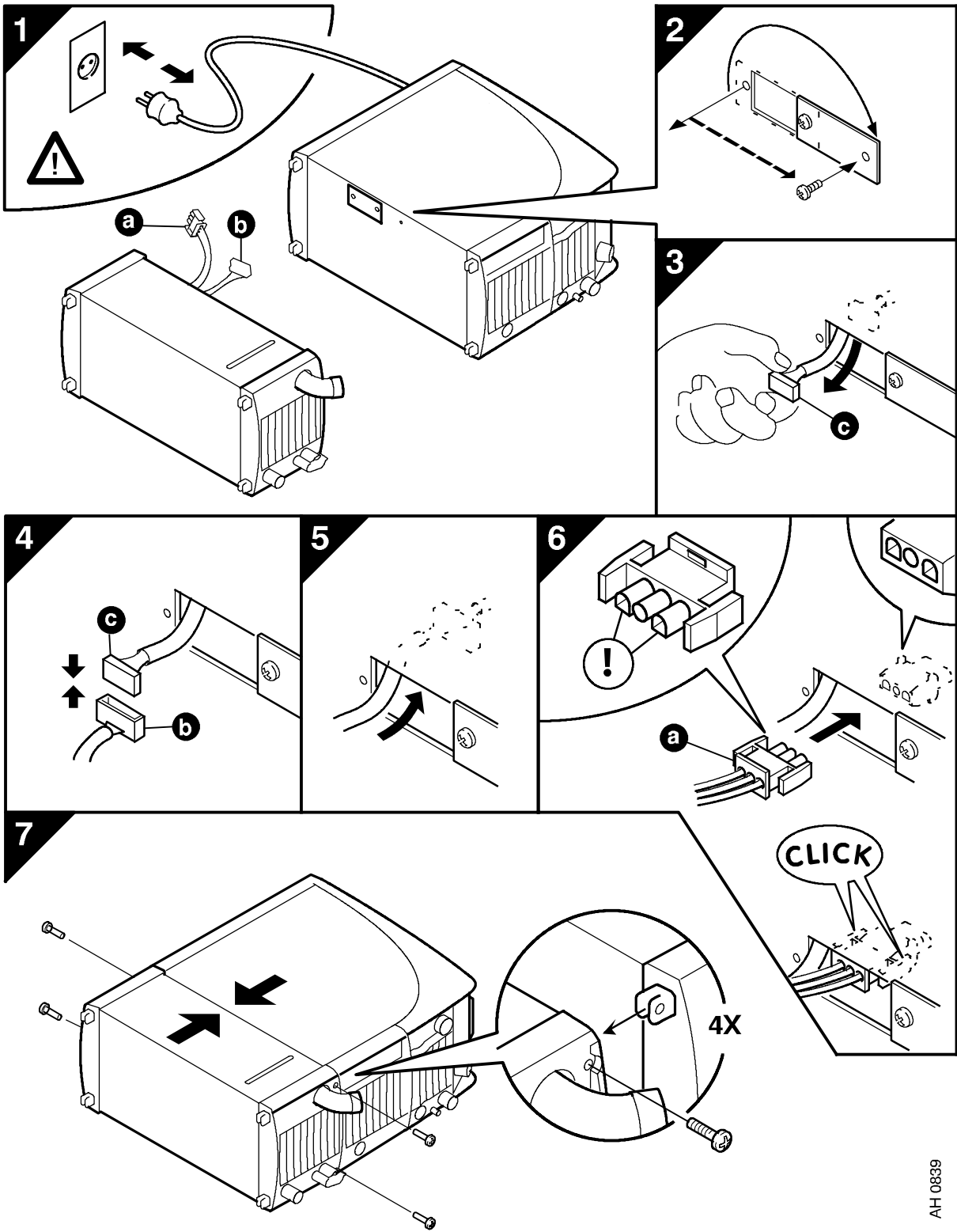


**Do not dispose of electrical equipment together with normal waste!**

In observance of European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and its implementation in accordance with national law, electrical equipment that has reached the end of its life must be collected separately and returned to an environmentally compatible recycling facility. As the owner of the equipment, you should get information on approved collection systems from our local representative.

By applying this European Directive you will improve the environment and human health!

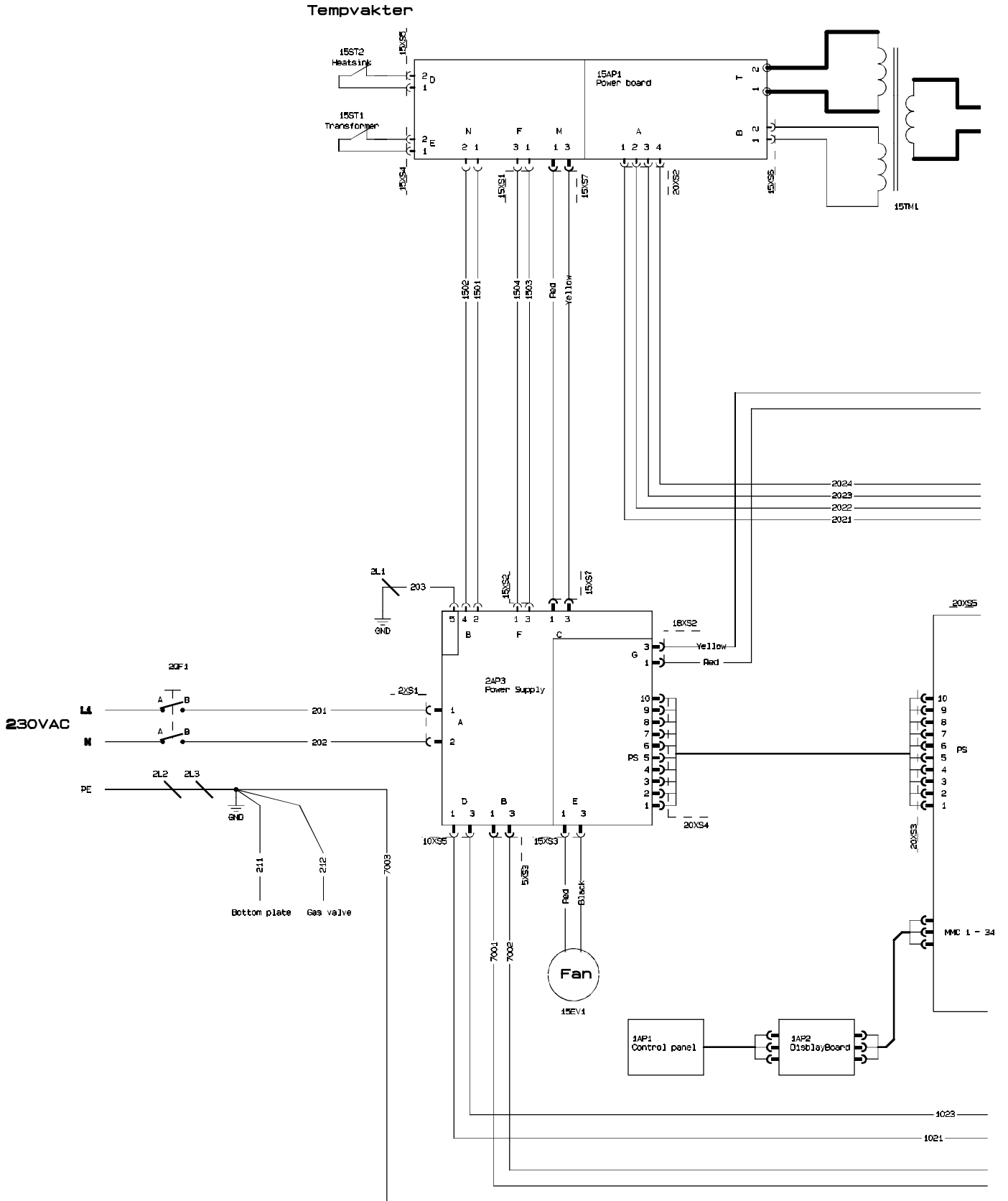
# Assembly instructions

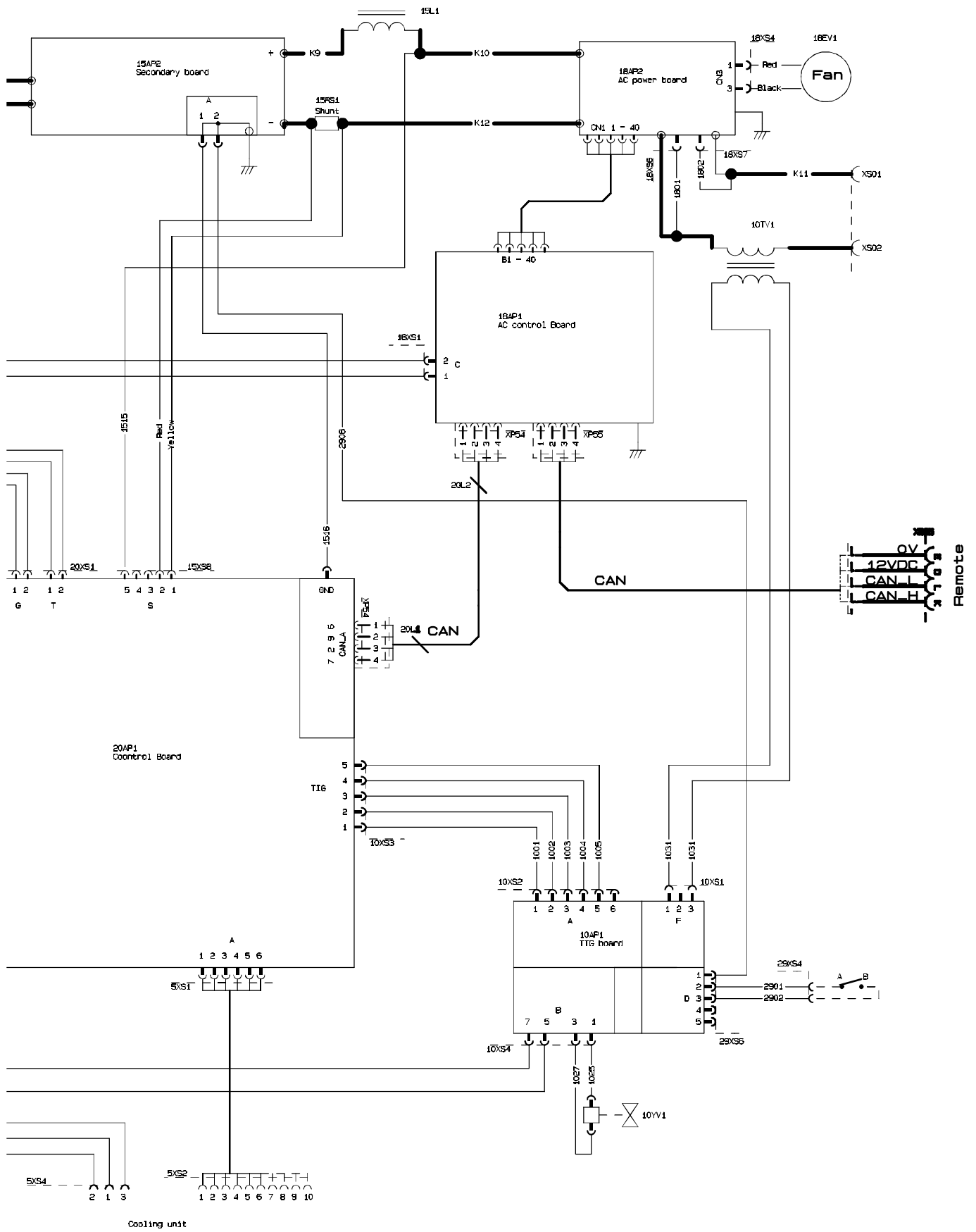


AH 0839



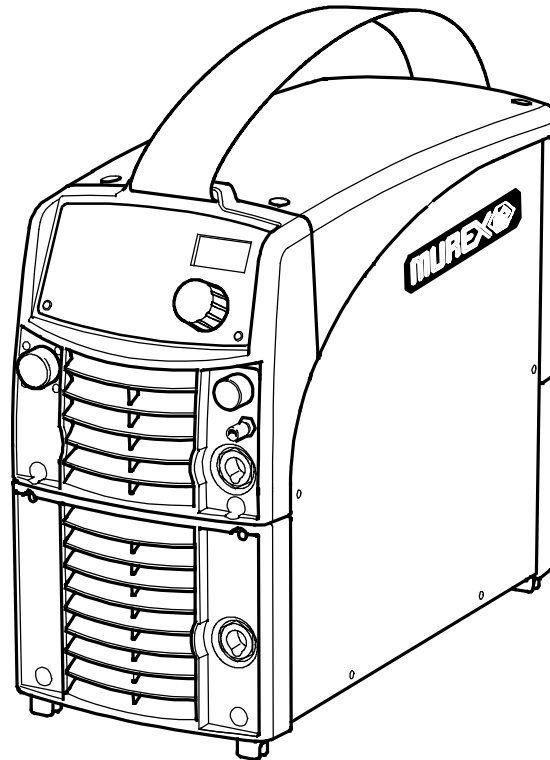
# Diagram







## **Spare parts list**



AH 0834

**Valid for serial no. 827-xxx-xxxx**

### **Ordering number**

0460 750 880 Tradestig AC 220, 230 V 50/60 Hz with MMA kit

0460 750 881 Tradestig AC 220a, 230 V 50/60 Hz with MMA kit

Spare parts are to be ordered through the nearest MUREX agency. Kindly indicate type of unit, serial number, denominations and ordering numbers according to the spare parts list.

Maintenance and repair work should be performed by an experienced person, and electrical work only by a trained electrician. Use only recommended spare parts.

## Tradestig AC 220, Tradestig AC 220a

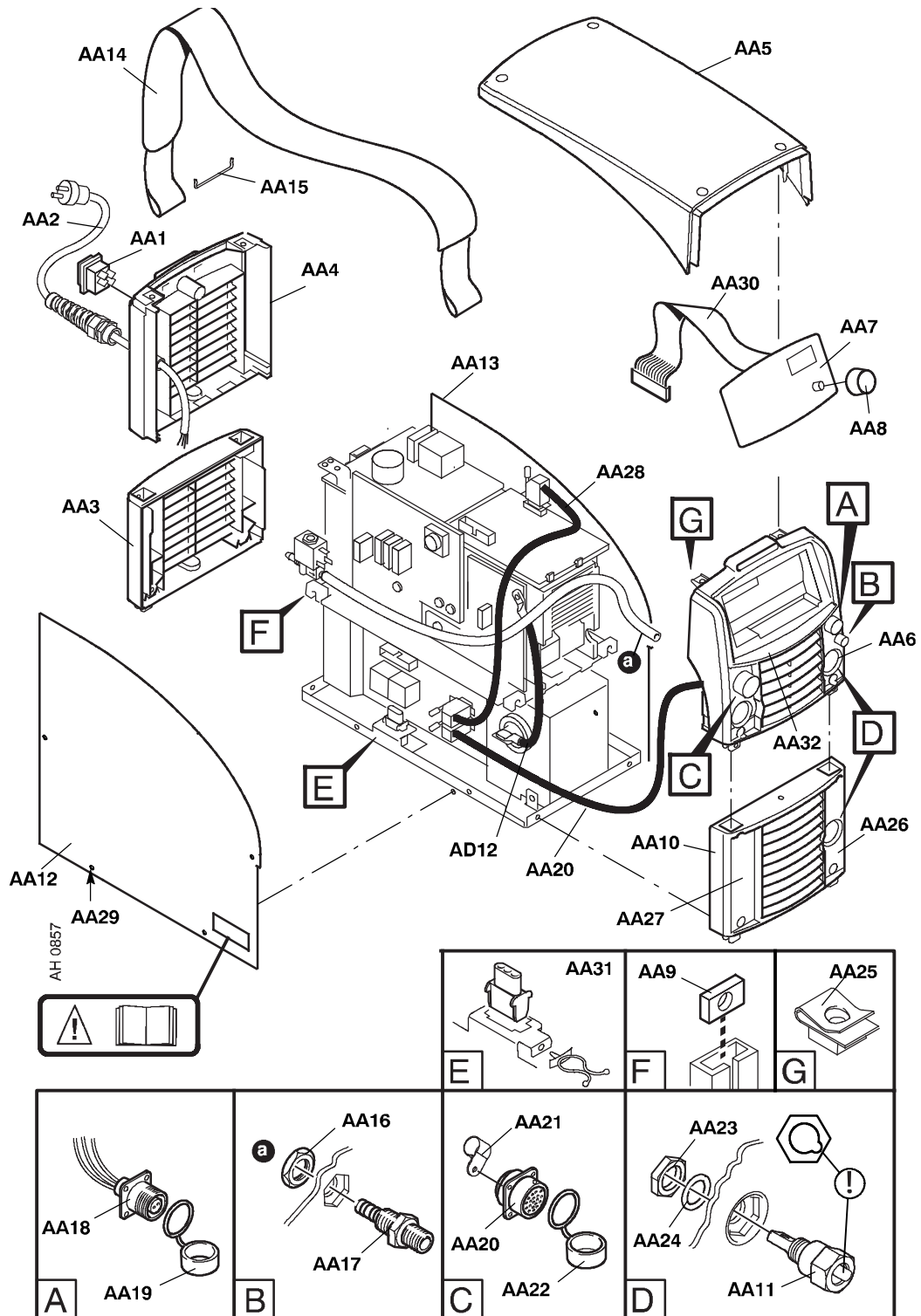
C = component designation in the circuit diagram

Item	Qty	Ordering no.	Denomination	Notes	C
AA1	1	0193 317 001	Switch	Included in item AA50	2QF1
AA2	1		Cord set	Included in item AA50	
AA3	1	0460 139 001	Rear panel AC		
AA4	1	0460 140 001	Rear panel		
AA5	1	0460 143 001	Cover		
AA6	1		Front panel	Included in item AA51	
AA7	1	0460 476 885	Control panel	Tradestig AC 220	
	1	0460 476 886	Control panel	Tradestig AC 220a	
AA8	1	0321 475 895	Knob		
AA9	5	0366 588 001	Nut		
AA10	1	0460 141 001	Front AC	Front panel	
AA11	3	0160 362 025	Connector OKC 50	Included in item AA51	XS1, XS2
AA12	1	0460 155 003	Side panel		
AA13	1	0460 155 003	Side panel		
AA14	1	0460 265 001	Strap		
AA15	2	0468 497 001	Holder		
AA16	1		Nut	Included in item AA51, M8	
AA17	1	0459 269 002	Gas connection	Included in item AA51	
AA18	1		Socket	2 pole included in item AA52	29XS4
AA19	1	0457 626 001	Protection cap		
AA20	1	0458 681 897	Cable with connectors		XS25, XP5
AA21	1	0194 227 003	Clamp		
AA22	1	0366 285 001	Protection cap		
AA23	2	0366 247 001	Nut		
AA24	2	0366 306 003	Spring washer	Ø21/15x1	
AA25	6	0469 381 002	Fast lock nut	M5	
AA26	1	0460 230 022	Sticker		
AA27	1	0460 230 021	Sticker		
AA28	1	0458 681 898	Cable	Included connectors 20XP1, 20XP3 and ferrite rings 20L1 and 20L3	<-----
AA29		0194 179 327	Screw MRT	ground cutter, M5x12	
AA30	1	0193 700 711	Ribbon cable with connectors	34 pole	1XS1, 1XS2
AA31	1	0193 700 713	Ribbon cable with connectors	10 pole	5XS1, 5XS2
AA32	1	0460 690 006	Sticker	Tradestig AC 220	
AA33	1	0460 690 007	Sticker	Tradestig AC 220a	

# Tradestig AC 220, Tradestig AC 220a

## SPARE PARTS SETS

Item	Ordering no.	Denomination	Notes
AA50	0459 183 880	Mains module	Includes items: AA1 switch, AA2 mains cable with plug, cable clamp and two ferrite rings 2L1.
AA51	0460 379 890	Front complete	Includes items: AA6, AA11, AA16, AA17, AA18, AA19, AA20, AA21, AA22, AA23, AA24
AA52	0459 280 892	Cable set	Including item AA18, 2 pole socket 29XS4, 5 pole socket 29XS6, and the wires between them.



## Tradestig AC 220, Tradestig AC 220a

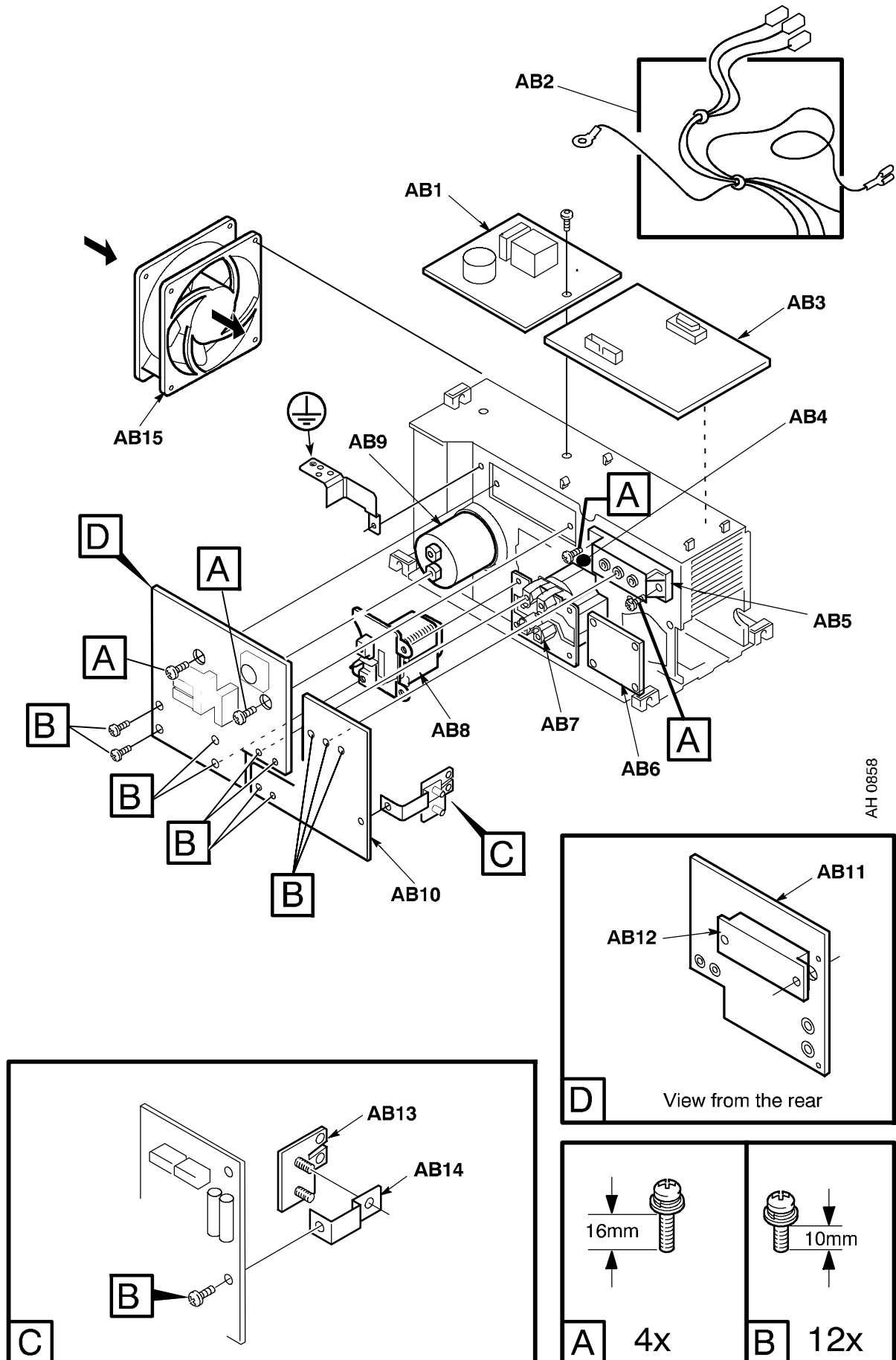
C = component designation in the circuit diagram

Item	Qty	Ordering no.	Denomination	Notes	C
AB1	1	0487 064 884	Power supply board		2AP1
AB2	1	0193 700 702	Ribbon cable with connectors	10 pole	20XS3, 20XS4
AB3	1	0487 344 886	Control board	Configured for Tradestig AC 220	20AP1
		0487 344 888	Control board	Configured for Tradestig AC220a	20AP1
AB4	1	0468 940 005	Thermal switch	Socket connector 15XS5 included	15ST2
AB5	1		Diode module	See item AB50	15D1
AB6	1		Cover plate		
AB7	1	0459 355 881	Transformer	Includes: main transformer, socket 15XS4, socket 15XS6, thermal switch 15ST1	15TM1
AB8	1	0460 117 001	Inductor	PFC	15L2
AB9	1	0194 158 004	Capacitor	2200 uF 450 V DC	15C1
AB10		0487 303 880	Secondary board		15AP2
AB11	1		Circuit board	See item AB51	15AP1
AB12	1		Semiconductor module	See item AB51	
AB13	1	0468 030 880	Shunt		15RS1
AB14	1	0459 194 001	Busbar		
AB15	1	0458 065 002	Fan	24 V DC; With cables and socket 15XS3	15EV1

### SPARE PARTS SETS

Item	Qty	Ordering no.	Denomination	Notes
AB50	1	0459 385 881	Diode module kit	Includes: item AB5 diode module, screws (type A and B), thermal compound and roller.
AB51	1	0459 384 884	Power board kit	Includes: item AB11 power board, item AB12 semiconductor module, screws (type A and B), thermal compound and roller.
-		0458 910 002	Roller handle	For the roller in the spare parts sets above
-		0192 058 101	Thermal compound	

Tradestig AC 220, Tradestig AC 220a



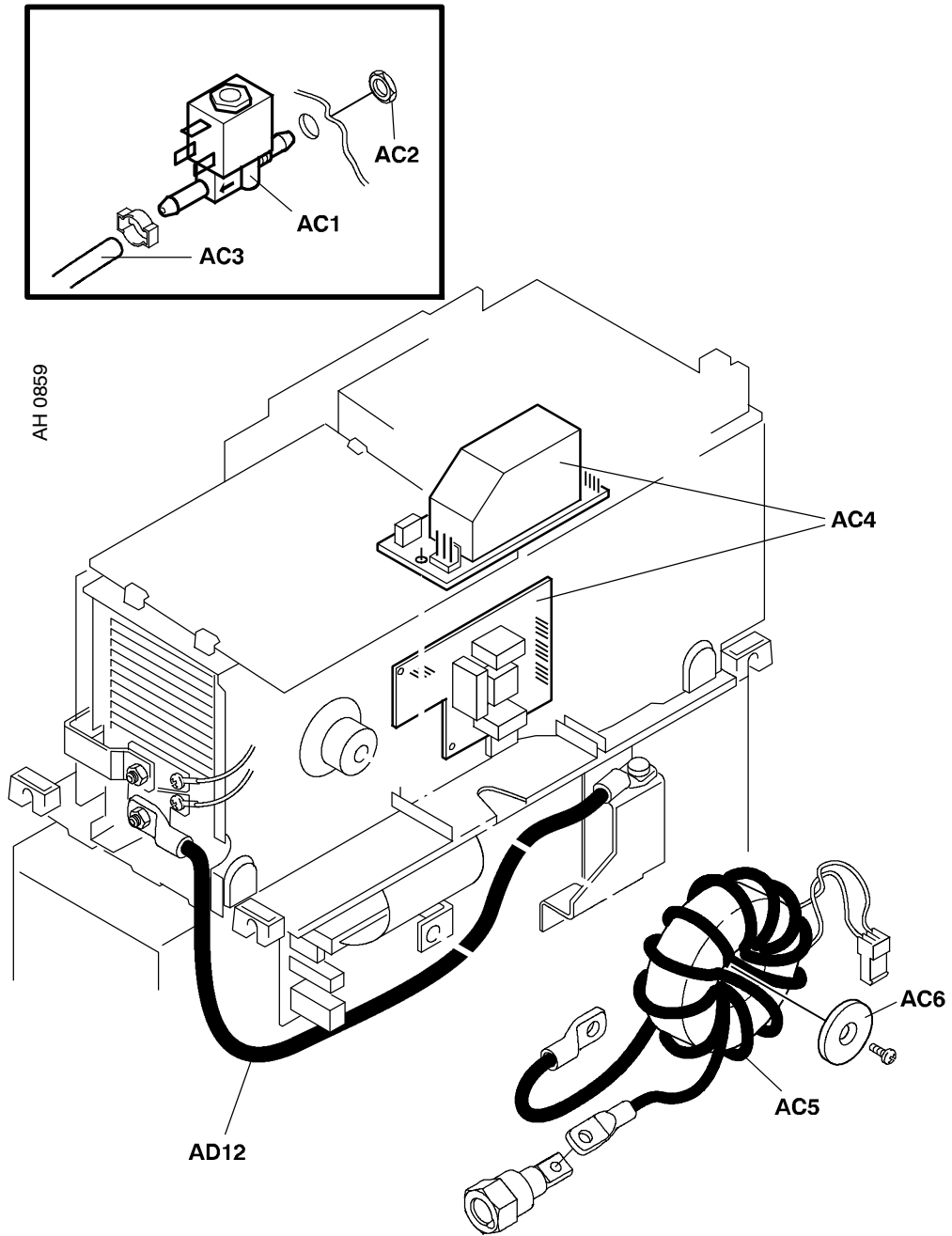
AH 0858

## Tradestig AC 220, Tradestig AC 220a

C = component designation in the circuit diagram

Item	Qty	Ordering no.	Denomination	Notes	C
AC1	1	0193 054 005	Solenoid valve	230 V AC	10YV1
AC2	1		Nut	ML6M MF10x1	
AC3	1	0456 496 001	Hose	D = 9/5 mm, L = 0.57 metre reinforced PVC	
AC4	1	0487 028 880	Circuit board TIG		10AP1
AC5	1	0460 135 002	HF coil		10TV1, 10XS1
AC6	1	0459 258 001	Coil bracket		

**Tradestig AC 220, Tradestig AC 220a**



## Tradestig AC 220, Tradestig AC 220a

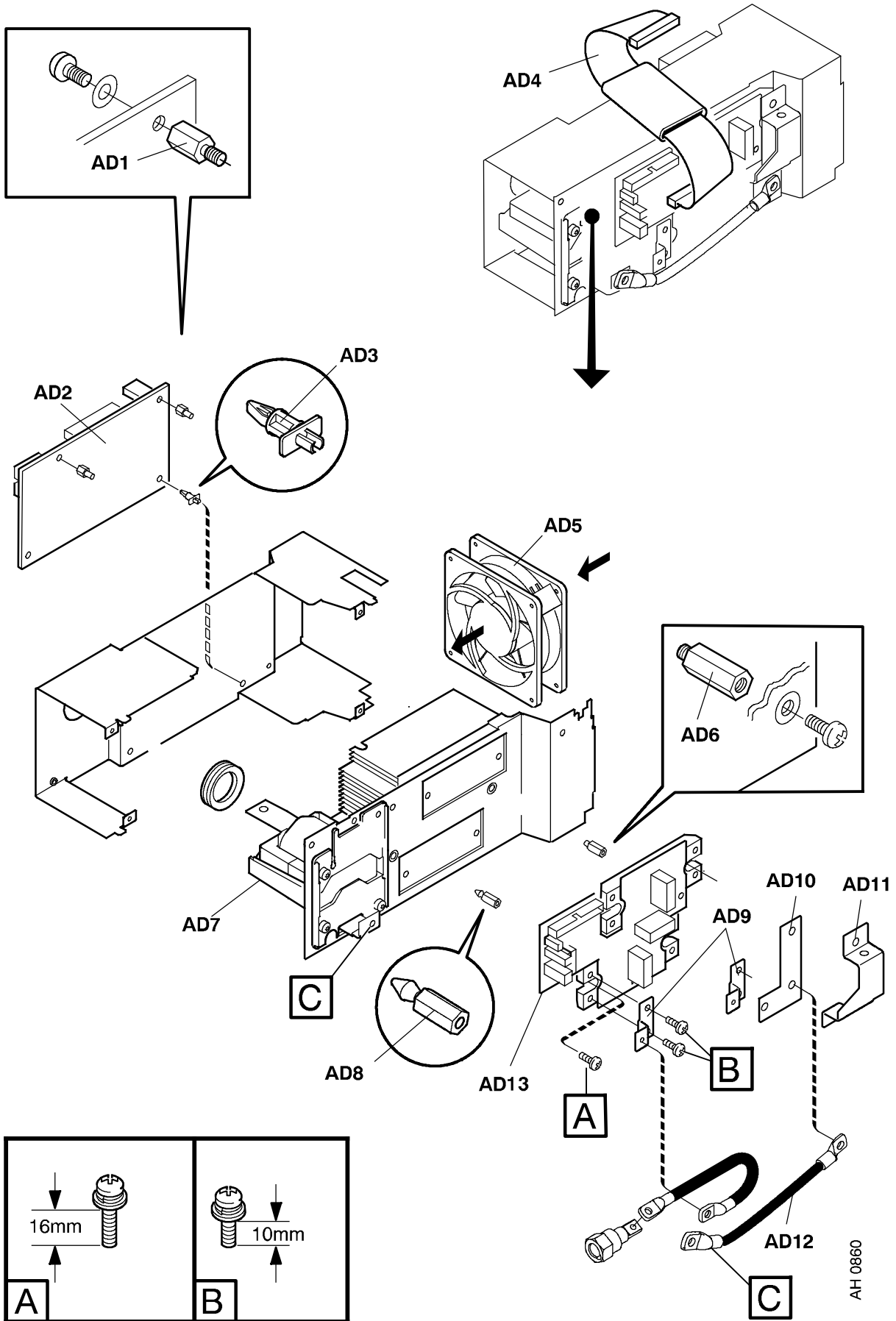
C = component designation in the circuit diagram

Item	Qty	Ordering no.	Denomination	Notes	C
AD1	2		Spacer	M5x8	
AD2	1	0487 503 880	AC Control board		18AP1
AD3	2		Spacer	28.6 mm	
AD4	1	0193 700 712	Ribbon cable with connectors	40 pole	18XS2, 18XS3
AD5	1	0467 801 002	Fan	24VDC socket 18XS4 included	18EV1
AD6	2		Spacer	M5x20	
AD7	1	0459 751 882	Inductor		15L1
AD8	2		Spacer	TCBS-10R	
AD9	2	0460 112 001	Bar	HF	
AD10	1	0460 114 001	Bar	plus	
AD11	1	0460 113 001	Bar	minus	
AD12	1	0460 152 980	Cable set	coarse	K9, K10, K11, K12
AD13	1		AC Power board	See item AD50	18AP2

### SPARE PARTS SETS

Item	Qty	Ordering no.	Denomination	Notes
AD50	1	0459 384 885	AC Power board set	incl. AC power board AD13, semi conductor module, screws (type A and B) thermal compound and roller.

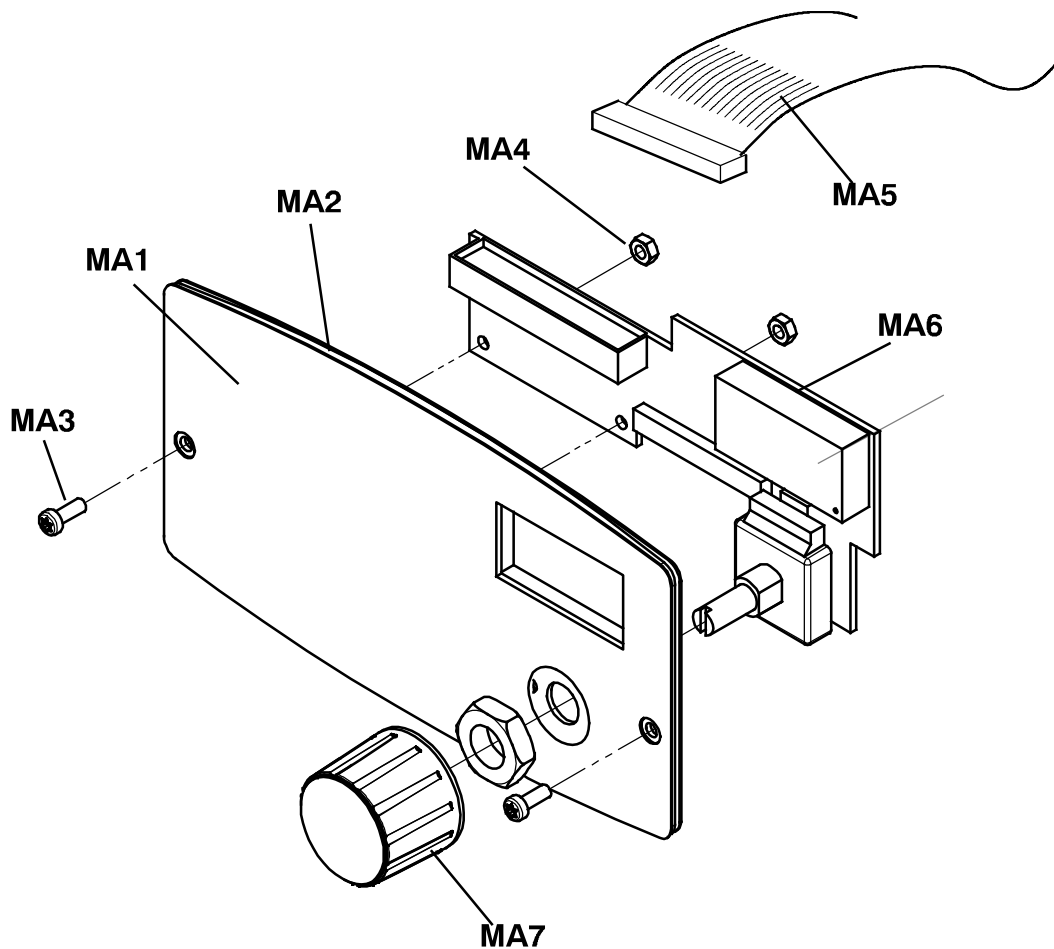
Tradestig AC 220, Tradestig AC 220a



# Tradestig AC 220, Tradestig AC 220a

C = component designation in the circuit diagram






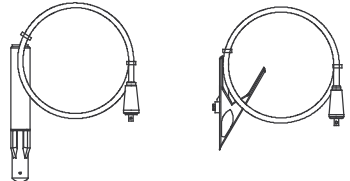
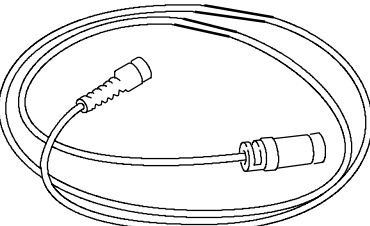
Item	Qty	Ordering no.	Denomination	Notes	C
	1	0460 476 885	Operating panel, complete	Tradestig AC 220 includes item MA1, MA2, MA3 MA4, MA5, MA6 and MA7	
	1	0460 476 886	Operating panel, complete	Tradestig AC 220a, includes item MA1, MA2, MA3 MA4, MA5, MA6 and MA7	
MA1	1	0460 477 885	Operating panel	Tradestig AC 220	
MA1	1	0460 477 886	Operating panel	Tradestig AC 220a	
MA2	1	0460 420 001	Insulation sticker		
MA3	2	0455 661 012	Rivet plastic		
MA4	2		Nut	M4	
MA5	1	0193 700 711	Ribbon cable with connectors	34 pole	
MA6	1	0487 550 880	Circuit board, Display		1AP2
MA7	1	0460 600 528	Knob		



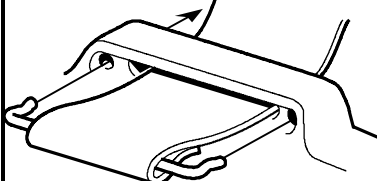


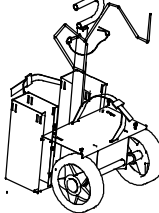

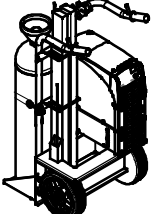
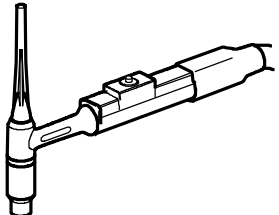


## Tradestig AC 220, Tradestig AC 220a


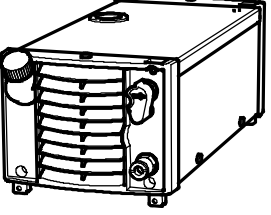
### Accessories

	<p><b>Remote control adapter RA12</b> 12 pole . . . . 0459 491 910 For analogue remote controls to CAN based equipment.</p>										
	<p><b>Remote control unit MTA1 CAN</b> . . . . . 0459 491 880 MIG/MAG: wire feed speed and voltage MMA: current and arc force TIG: current, pulse and background current</p>										
	<p><b>Remote control unit M1 10Prog CAN</b> . . . . . 0459 491 882 Choice of on of 10 programs MIG/MAG: voltage deviation TIG and MMA: current deviation</p>										
	<p><b>Remote control unit AT1 CAN</b> . . . . . 0459 491 883 MMA and TIG: current</p>										
	<p><b>Remote control unit AT1 CF CAN</b> . . . . . 0459 491 884 MMA and TIG: rough and fine setting of current.</p>										
	<p><b>Welding cable kit</b> . . . . Tradestig AC 220 . . . 0700 006 900 <b>Return cable kit</b> . . . . Tradestig AC 220 . . . 0700 006 901</p>										
	<p><b>Remote cable CAN 4 pole - 12 pole</b></p> <table data-bbox="651 1630 1390 1809"> <tr> <td>5 m . . . . .</td> <td>0459 544 880</td> </tr> <tr> <td>10 m . . . . .</td> <td>0459 554 881</td> </tr> <tr> <td>15 m . . . . .</td> <td>0459 554 882</td> </tr> <tr> <td>25 m . . . . .</td> <td>0459 554 883</td> </tr> <tr> <td>0.25 m . . . . .</td> <td>0459 554 884</td> </tr> </table>	5 m . . . . .	0459 544 880	10 m . . . . .	0459 554 881	15 m . . . . .	0459 554 882	25 m . . . . .	0459 554 883	0.25 m . . . . .	0459 554 884
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25 m . . . . .	0459 554 883										
0.25 m . . . . .	0459 554 884										

**Tradestig AC 220, Tradestig AC 220a**

	<p><b>Strap</b> ..... 0460 265 001</p>
	<p><b>Cable holder</b> ..... 0460 265 002</p>
	<p><b>Shoulder holder</b> ..... 0460 265 003</p>
	<p><b>Trolley</b> for 5-10 litre gasbottle ..... 0459 366 885</p>
	<p><b>Trolley</b> for 20-50 litre gasbottle ..... 0459 366 886</p>
	<p><b>Trolley</b> for 20-50 litre gasbottle ..... 0460 330 880</p>
	<p><b>Tig torch TXH 200</b> 4 m ..... 0460 012 840</p>

**Tradestig AC 220, Tradestig AC 220a**

 A black foot pedal with a coiled black cable and a connector.	<b>Foot pedal TI Foot CAN</b> ..... 0460 315 880
 A black rectangular cooling unit with a front grille and a handle.	<b>Cooling unit Tradescool</b> ..... 0460 144 881

AH 0836









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**Please ensure that this  
Operating Manual is  
available to the user of  
the equipment.**



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England

