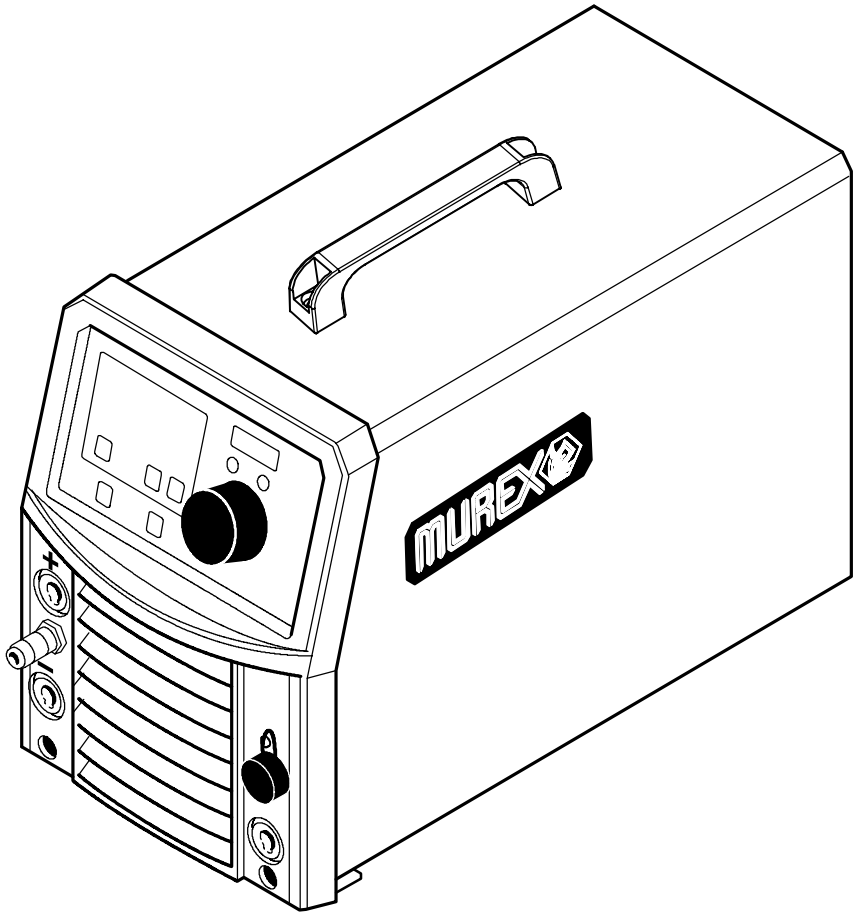
GB

Tradestig 150-1
Tradestig 200-1



Instruction manual and spare parts list

0459 758 074 050526

Valid for serial no. 517-xxx-xxxx

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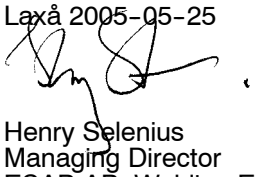
1 DIRECTIVE

DECLARATION OF CONFORMITY

Murex Welding Products Ltd, EN8 7TF England, gives its unreserved guarantee that welding power source **Tradestig 150-1** and **Tradestig 200-1** from serial number 517 complies with standards EN 60974-1/-3, in accordance with the requirements of directive (72/23/EEC) and addendum (93/68/EEC) and with standard EN 50199 in accordance with the requirements of directive (89/336/EEC) and addendum (93/68/EEC).

On behalf of Murex Welding Products Ltd.
Laxå 2005-05-25



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

2 SAFETY

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 extinquishing equipment must be clearly marked and close at hand.
   - Lubrication and maintenance must **not** be carried out on the equipment during operation.

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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.

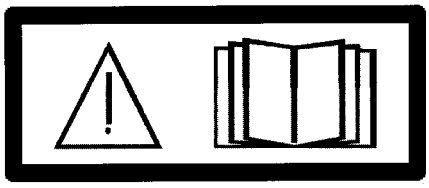
MALFUNCTION - Call for expert assistance in the event of malfunction.

READ AND UNDERSTAND THE INSTRUCTION MANUAL BEFORE INSTALLING OR OPERATING.

PROTECT YOURSELF AND OTHERS!

WARNING!

Read and understand the instruction manual before installing or operating.



We can provide you with all necessary welding protection and accessories.

WARNING!

Do not use the power source for thawing frozen pipes.

This product is solely intended for arc welding.

GB

3 INTRODUCTION

The **Tradestig 150-1, Tradestig 200-1** are a welding current power sources intended for use with coated electrodes (MMA welding) and TIG welding.

3.1 Equipment

The **Tradestig** is supplied with a mains cable and an instruction manual.

Accessories for the product can be found on page 23.

4 TECHNICAL DATA

	Tradestig 150-1	**Tradestig 200-1**
Mains voltage	230V, 1~ 50/60 Hz	230V, 1~ 50/60 Hz
Fuse (delayed-action)	16 A	20 A
Primary current I_{max}	36 A	36 A
Primary current I_{eff}	21 A	21 A
Voltage/current range		
(TIG)	3 A / 10 V -150 A / 16 V	3 A / 10 V - 200 A / 18 V
(MMA)	4 A / 20 V -150 A / 26 V	4 A / 20 V - 150 A / 27 V
Maximum permissible load at TIG		
25% duty cycle		200 A / 18 V
35% duty cycle	150 A / 16 V	180 A / 17 V
60% duty cycle	120 A / 15 V	140 A / 15,5 V
100% duty cycle	95 A / 14 V	110 A / 14,5 V
Maximum permissible load at MMA		
25% duty cycle	150 A / 26 V	150 A / 26 V
35% duty cycle	140 A / 25,5 V	140 A / 25,5 V
60% duty cycle	110 A / 24,5 V	110 A / 24,5 V
100% duty cycle	90 A / 23,5 V	90 A / 23,5 V
Power factor at maximum current	0,62	0,62
Efficiency at maximum current	77 %	79 %
Open-circuit voltage	71 - 78 V	71 - 78 V
Operating temperature	-10 °C - + 40°C	-10°C - + 40°C
Constant A-weighed sound pressure	<70 db	<70 db
Dimensions, l x b x h	380 x 180 x 300 mm	380 x 180 x 300 mm
Weight	9 kg	9 kg
Enclosure class	IP 23C	IP 23C
Application class	S	S

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.

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.

4.1 Parameter setting

Settings	Setting range	In steps of:	Default value
Welding method	TIG or MMA	-	TIG
2/4-stroke	2 stroke or 4 stroke	-	2-stroke
HF / Lift Arc™	HF or LiftArc™	-	HF
Slope down time	0-10 s	0.1 s	1.0 s
Gas post-flow	0-25 s	0.1 s	2.0 s
Current TIG Tradestig 150-1	3 - 150 A	1 A	100 A
Current TIG Tradestig 200-1	3 - 200 A	1 A	100 A
Current MMA Tradestig 150-1	4 - 150 A	2 A	60 A
Current MMA Tradestig 200-1	4 - 150 A	2 A	100 A

5 INSTALLATION

WARNING!
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 Placing

Place the power source so that its cooling air inlets and outlets are not obstructed.

5.2 Rating plate

The rating plate is located on the rear side of the power source.

5.3 Mains power supply

Make sure that the welding power source is connected to the correct supply voltage and that it is protected by the correct fuse rating. The standards for the country in question must be complied with as regards the mains cable area. A protective earth connection must be made in accordance with regulations.

5.3.1 Recommended fuse sizes and minimum cable areas

	Tradestig 150-1	Tradestig 200-1
Mains voltage	230 V ±10 %, 1-phase	230 V ±10 %, 1-fas
Mains frequency	50-60 Hz	50-60 Hz
Fuse (delayed-action)		
85A 35% duty cycle MMA	10 A	10 A
120A 20% duty cycle MMA	16 A	16 A
150A 25% duty cycle MMA	20 A*)	20 A *)
Mains cable, area	3 x 2.5 mm^2	3 x 2,5 mm^2
Welding cable, area MMA	16 mm^2	16 mm^2
Welding cable, area TIG	16 mm^2	25 mm^2

*) ***NOTE!*** *The mains plug is approved for maximum 16A.*

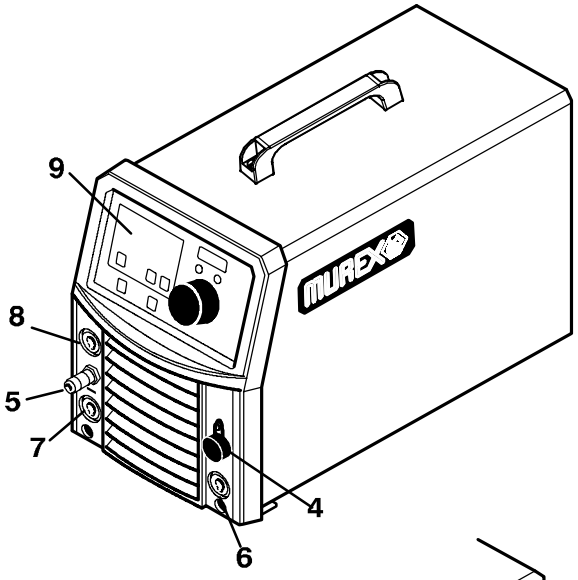
6 OPERATION

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

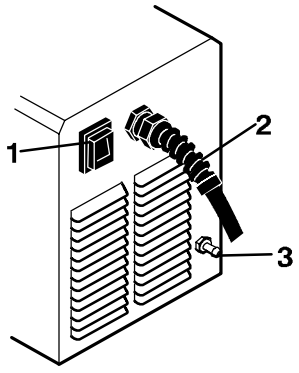
6.1 Connections and control devices

Make sure that the welding power source is connected to the correct supply voltage and that it is protected by the correct fuse rating.

1. Mains switch
2. Mains cable
3. Connection for gas from gas bottle
4. Connection for the TIG torch switch
5. Connection for gas to the TIG torch
6. TIG torch connection (-)
7. MMA: return cable connection (-)
8. TIG: return cable connection (+)
   MMA: welding cable connection (+)
9. Control panel (see 6.2)



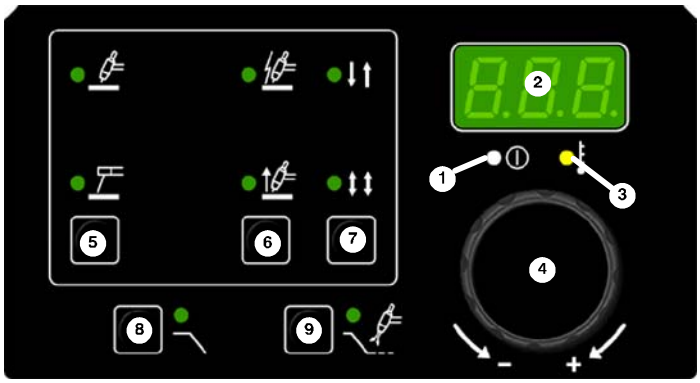
Note! **7** and **8** are used for welding current supply and return cable connection during MMA welding



6.2 Control panel

The power source checks the LEDs and all segments in the display when main switch is turned on. The machine type and program version are also displayed.

The control panel comprises a display, setting knob, LEDs and pushbuttons. Using the pushbuttons, it is possible to move between the various functions. The selected function is indicated by the relevant LED lighting up.



1. Indicating lamp, mains power supply On.
2. Display.
3. Indicating lamp, overheating.
4. Knob for setting data.
5. Selection of TIG or MMA welding mode.
6. Selection of TIG HF start or TIG LiftArc start .
7. Selection of TIG 2-stroke or TIG 4-stroke control mode.
8. Slope-down time.
9. Gas post-flow time.

6.3 Overheating protection

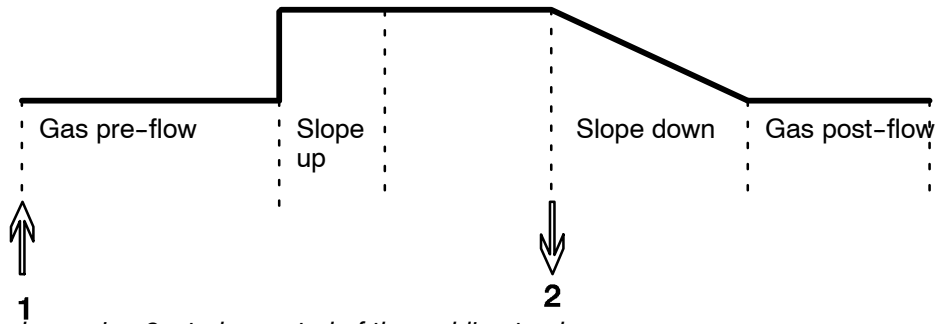
The welding power source has a thermal overload trip which operates if the temperature becomes too high, interrupting the welding current and lighting a yellow indicating lamp on the front of the power source. The thermal overload trip resets automatically when the temperature has fallen.

7 WELDING

7.1 TIG welding

During TIG welding, the return cable must be connected to (+) and the TIG torch to (–). If they are connected in reverse, the tungsten electrode will melt.

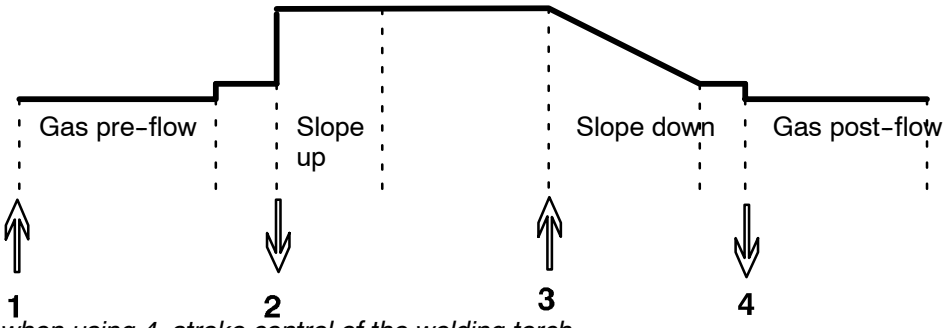
7.1.1 2-stroke



Functions when using 2-stroke control of the welding torch.

In the **2-stroke** control mode, pressing the trigger switch starts gas pre-flow (0.5 sec) and strikes the arc (1). 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.

7.1.2 4-stroke



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

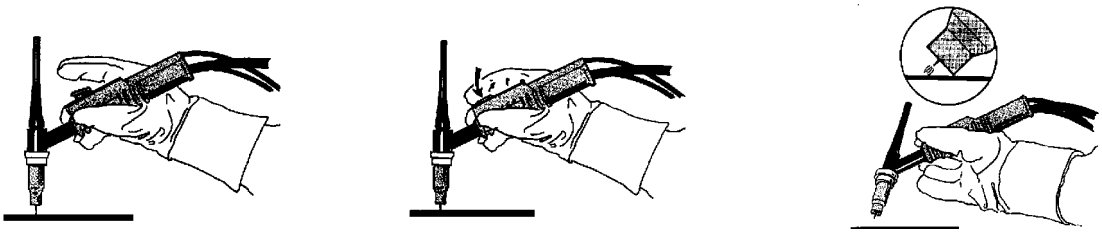
In the 4**-stroke** control mode, pressing the trigger switch starts gas pre-flow (0.5 sec) (1). At the end of the gas pre-flow time, the current rises to the pilot level (a few ampere), and the arc is struck. Releasing the trigger switch (2) increases the current to the set value (with slope up, if in use). At the end of welding, the welder presses the trigger switch again (3), which reduces the current to pilot level again (with slope down, if in use). Releasing the switch again (4) extinguishes the arc and starts gas post-flow.

7.1.3 HF

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

7.1.4 LiftArc™

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 Lift Arc ™ 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 torch from the workpiece: the arc strikes, and the current rises automatically to the set value.

7.1.5 Gas post-flow

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

7.1.6 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.

Current

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

The current set value can be changed irrespective of which menu is displayed. This value is displayed in the main menu only.

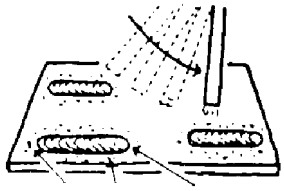
7.2 MMA welding

The Tradestig gives direct current, and you can weld most metals to alloy and non-alloy steel, stainless steel and cast iron.
The Tradestig 150-1 allows you to weld most coated electrodes from ∅ 1.6 to ∅ 3.25.
The Tradestig 200-1 allows you to weld most coated electrodes from ∅ 1.6 to ∅ 4.0

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

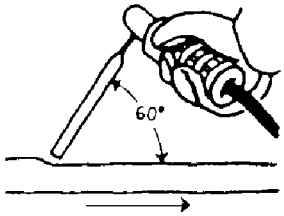
If, when striking the arc, the tip of the electrode is pressed against the metal, it immediately melts and sticks to the metal, rendering continued welding impossible. Therefore, the arc has to be struck in the same way that you would light a match.

Quickly strike the electrode against the metal, then raise it so as to give an appropriate arc length (approx. 2 mm). If the arc is too long, it will crackle and spit before finally going out completely.



If you are working on a welding bench, check before attempting to strike the arc that residual waste metal, pieces of electrode or other objects do not insulate the part to be welded.

Once the arc has been struck, move the electrode from left to right. The electrode must be at an angle of 60° to the metal in relation to the direction of welding.



When you want to weld wide beads, or when you want the weld to be so thick that you have to weld in a number of layers, however, you have to use lateral movements.

8 MAINTENANCE

Regular maintenance is important for safe, reliable operation.

Note!
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.

The Tradestig requires little maintenance. In normal cases, it is sufficient to blow it clean using dry compressed air once a year, but this should be done more often if it is set up in a dusty, dirty area.

9 FAULT TRACING

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

Type of fault	Action
No arc.	• Check that the mains power supply switch is turned on. • Check that the welding current supply and return cables are correctly connected. • Check that the correct current value is set.
The thermal overload trips operate frequently.	• Check whether the thermal overload trips have operated (indicated by the yellow lamp on the front panel). • Check the main power supply fuses.
The thermal overload trip operates frequently.	• Make sure that you are not exceeding the rated data for the welding power source (i.e. that the unit is not being overloaded).
Poor welding performance.	• Check that the welding current supply and return cables are correctly connected. • Check that the correct current value is set. • Check that the correct electrodes are being used.

9.1 Fault codes

The Tradestig comes with built-in fault monitoring. If a fault occurs, a code is shown in the display.

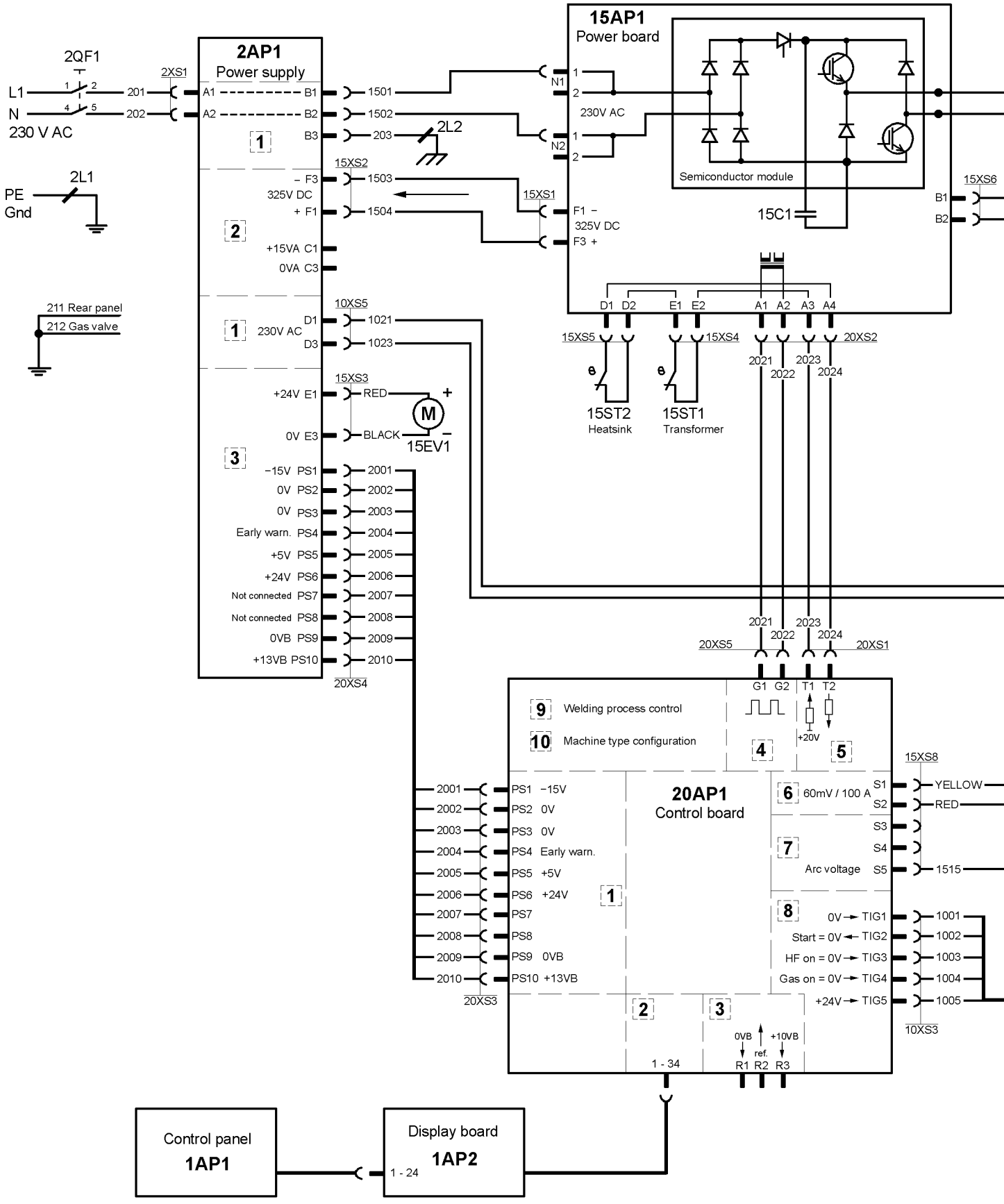
If any of these fault codes (**Exx**) reappears once the unit has been restarted, the welding power source should be sent to an authorised ESAB service workshop for repair.

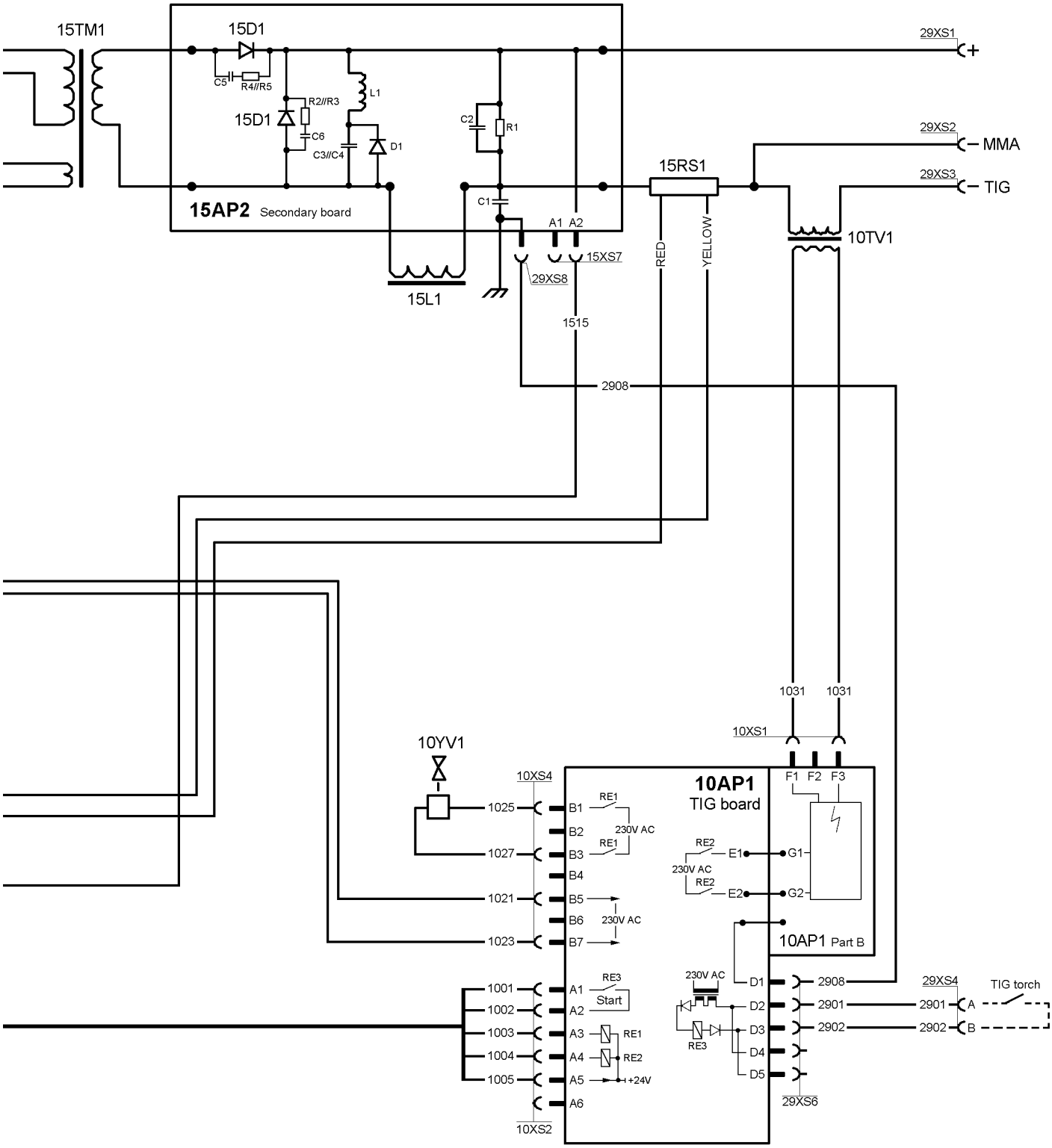
10 ORDERING SPARE PARTS

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

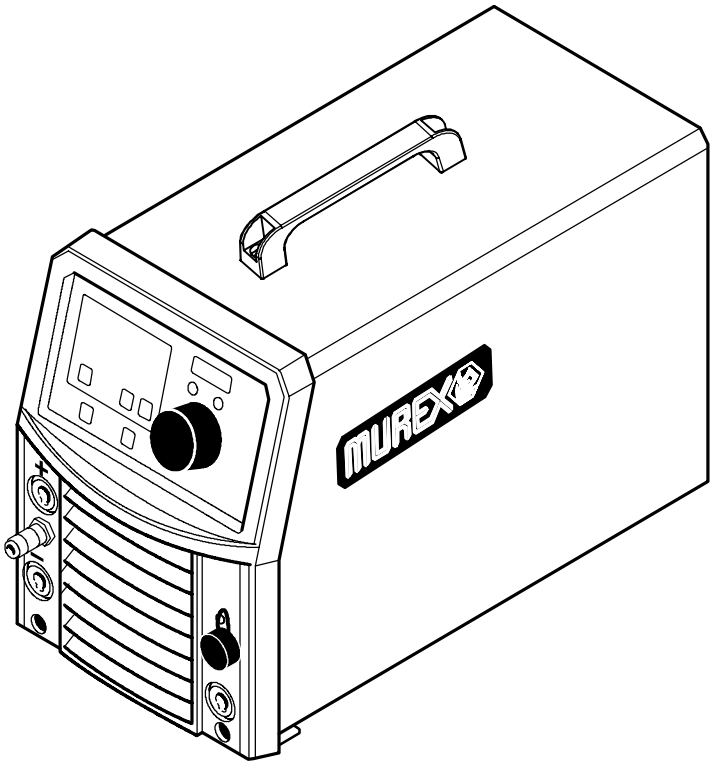
Tradestig 150-1 and Tradestig 200-1 are designed and tested in accordance with the international and European standards EN 60974-1/-3 and EN 50199. It is the obligation of the service untit which has carried out the service or repair work to make sure that the product still conforms to the said standard.

Tradestig 150-1, Tradestig 200-1




15TM1
15D1
C5
R4//R5
15D1
R2//R3
C6
C3//C4
L1
D1
C2
R1
C1
15AP2 Secondary board
15L1
A1 A2
15XS7
29XS8
1515
2908
15RS1
RED
YELLOW
10TV1
29XS1
+
29XS2
MMA
29XS3
TIG
1031
1031
10XS1
10YV1
10XS4
10AP1
TIG board
F1 F2 F3
1025
1027
1021
1023
1001
1002
1003
1004
1005
B1
B2
B3
B4
B5
B6
B7
A1
A2
A3
A4
A5
A6
RE1
230V AC
RE1
RE2
230V AC
RE2
E1
G1
E2
G2
230V AC
RE3
Start
RE1
RE2
+24V
10XS2
10AP1 Part B
D1
D2
D3
D4
D5
2908
2901
2902
29XS6
29XS4
2901
2902
A
B
TIG torch

Spare parts list



Valid for serial no. 517-xxx-xxxx

Ordering number

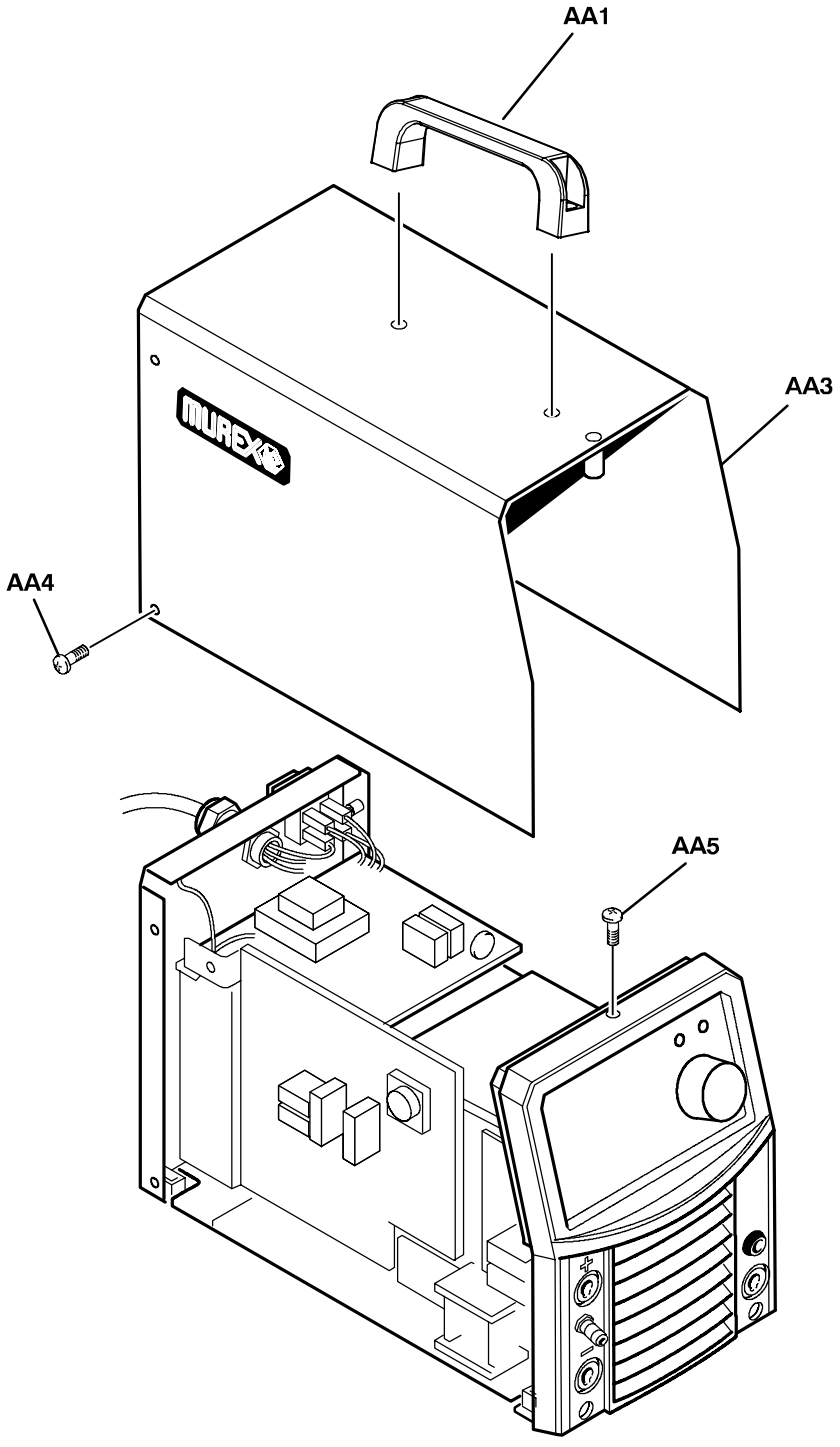
0459 760 881	Tradestig 150-1	for 230 V mains voltage
0459 760 883	Tradestig 200-1	for 230 V mains voltage

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.

C = component designation in the circuit diagram

Item	Qty	Ordering no.	Denomination	Notes	C
AA1	1	0459 654 001	Handle		
	2		Screw	M8x50	
AA3	1	0459 173 002	Cover		
AA4	4		Screw	M5x12	
AA5	1		Screw	M5x16 Included in item AB51, see page 18.	

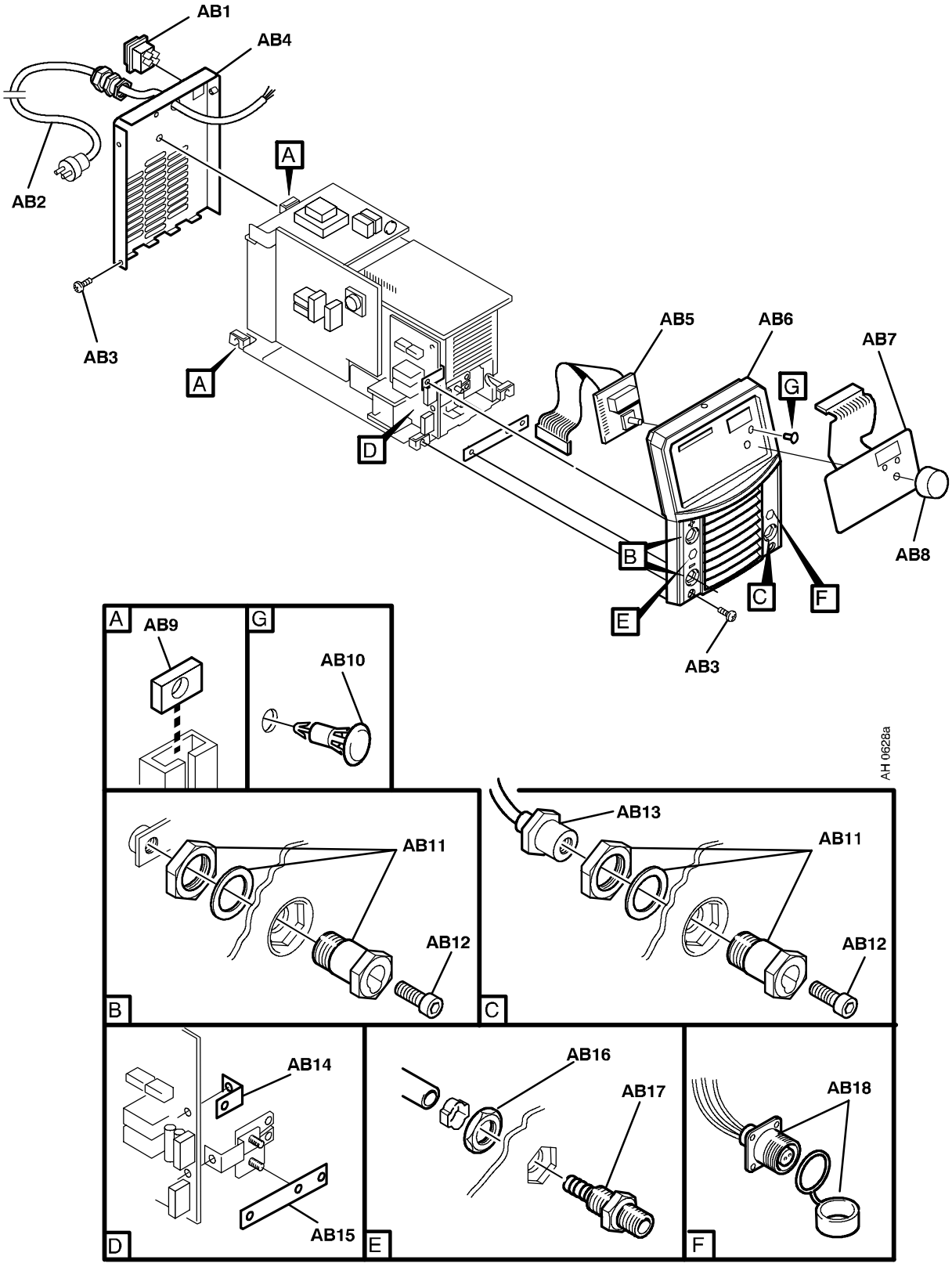


C = component designation in the circuit diagram

Item	Qty	Ordering no.	Denomination	Notes	C
AB1	1	0193 317 001	Switch	Included in item AB50	2QF1
AB2	1		Cord set	Included in item AB50	
AB3			Screw	Included in item AB51 and AB53	
AB4	1	0459 174 001	Rear panel		
AB5	1	0487 018 880	Display board	Included in item AB51	1AP2
AB6	1		Front panel	Included in item AB51 and AB53	
AB7	1		Control Panel	Included in item AB51	1AP1
AB8	1	0321 475 893	Knob	Included in item AB51	
AB9	5	0366 588 001	Nut		
AB10			Spacer	Included in item AB51	
AB11	3	0366 306 883	Connector OKC 25	Included in item AB51	29XS1, 29XS2, 29XS3
AB12	3		Screw	M5x12 Torx. Included in item AB51	
AB13	1		Cable shoe	Included in item AD4, see page 22	
AB14	1	0459 194 003	Busbar, positive		
AB15	1	0459 194 002	Busbar, negative		
AB16	1	0194 130 120	Nut	Included in item AB51	
AB17	1	0459 269 001	Gas connection	Included in item AB51	
AB18	1		Socket	2 pole. Included in item AB52	29XS4

SPARE PARTS SETS

Item	Ordering no.	Denomination	Notes
AB50	0459 183 880	Mains module	Includes items: AB1 switch, AB2 mains cable with plug, cable clamp and two ferrite rings 2L1.
AB51	0459 386 886	Front complete, TIG	Includes items: AA5, AB3, AB5, AB6, AB7, AB8, AB10, AB11, AB12, AB16, AB17, AB18
AB52	0459 280 891	Cable set	2 pole socket 29XS4, 5 pole socket 29XS6, 1 pole socket 29XS8 and the wires between them.

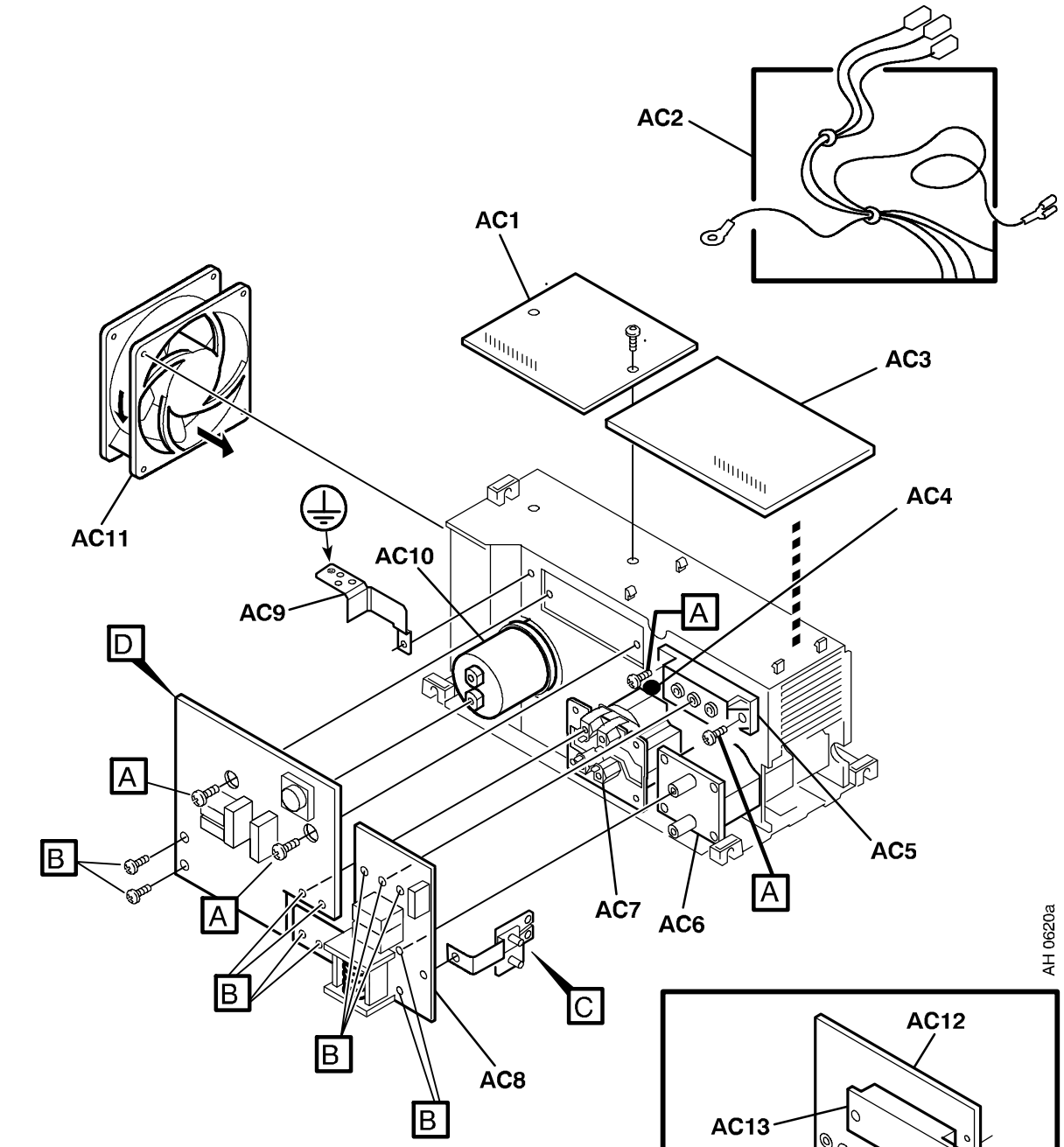

AB1
AB4
AB2
A
AB3
A
D
AB5
AB6
AB7
G
B
C
F
E
AB3
AB8
A
AB9
G
AB10
A-H 0628a
AB11
AB12
B
AB13
AB11
AB12
C
AB14
AB15
D
AB16
AB17
E
AB18
F

C = component designation in the circuit diagram

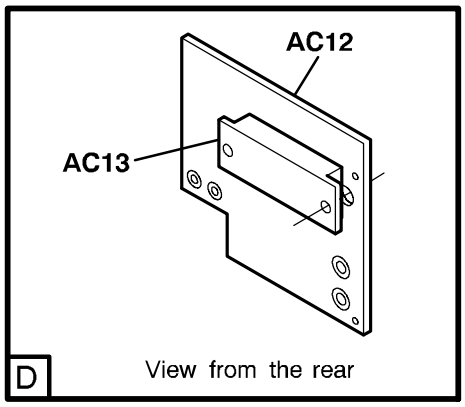
Item	Qty 150	Qty 200	Ordering no.	Denomination	Notes	C
AC1	1	1	0487 064 880	Power supply board		2AP1
AC2	1	1	0459 280 880	Cable set	Including wires 1501, 1502 and their sockets	15XS1, 15XS2, 15XS7, 15XS8
	1	1	0193 700 702	Cable set		20XS3, 20XS4
	1	1	0459 280 881	Cable set		20XS1, 20XS2, 20XS5
AC3	1	1	0459 390 880	Control board kit	Before mounting the board, the strapping must be set up to fit CaddyTig 150 or CaddyTig 200. See the service manual.	20AP1
AC4	1		0468 940 004	Thermal switch	Socket connector 15XS5 included	15ST2
		1	0468 940 005	Thermal switch	Socket connector 15XS5 included	15ST2
AC5	1	1		Diode module	See item AC50	15D1
AC6	1	1	0459 177 001	Inductor		15L1
AC7	1	1	0459 355 880	Transformer	Includes: main transformer, socket 15XS4, socket 15XS6, thermal switch 15ST1	15TM1
AC8			0487 060 880	Secondary board		15AP2
AC9	1	1	0459 273 001	Earth bracket		
AC10	1		0194 158 001	Capacitor	1000 uF 400 V DC	15C1
		1	0194 158 002	Capacitor	2000 uF 400 V DC	15C1
AC11	1		0467 801 002	Fan	24 V DC; With cables and socket 15XS3	15EV1
AC11		1	0458 065 002	Fan	24 V DC; With cables and socket 15XS3	15EV1
AC12	1	1		Circuit board	See item AC51	15AP1
AC13	1	1		Semiconductor module	See item AC51	
AC14	1	1	0468 030 880	Shunt		15RS1
AC15	1	1	0459 194 001	Busbar		

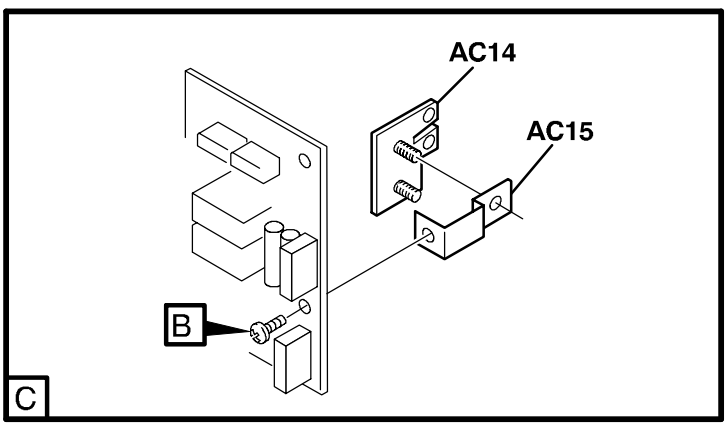
SPARE PARTS SETS

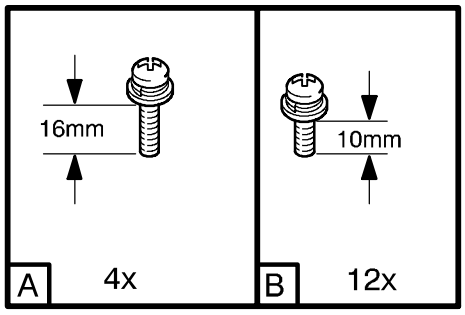
Item	Qty 150	Qty 200	Ordering no.	Denomination	Notes
AC50	1		0459 385 880	Diode module kit	Includes: item AC5 diode module, screws (type A and B), thermal compound and roller.
		1	0459 385 881	Diode module kit	Includes: item AC5 diode module, screws (type A and B), thermal compound and roller.
AC51	1		0459 384 880	Power board kit	Includes: item AC12 power board, item AC13 semiconductor module, screws (type A and B), thermal compound and roller.
		1	0459 384 881	Power board kit	Includes: item AC12 power board, item AC13 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	


AC2
AC1
AC3
AC4
AC11
AC10
AC9
AC5
AC7
AC6
AC8
A
B
C
D

AH 0620a

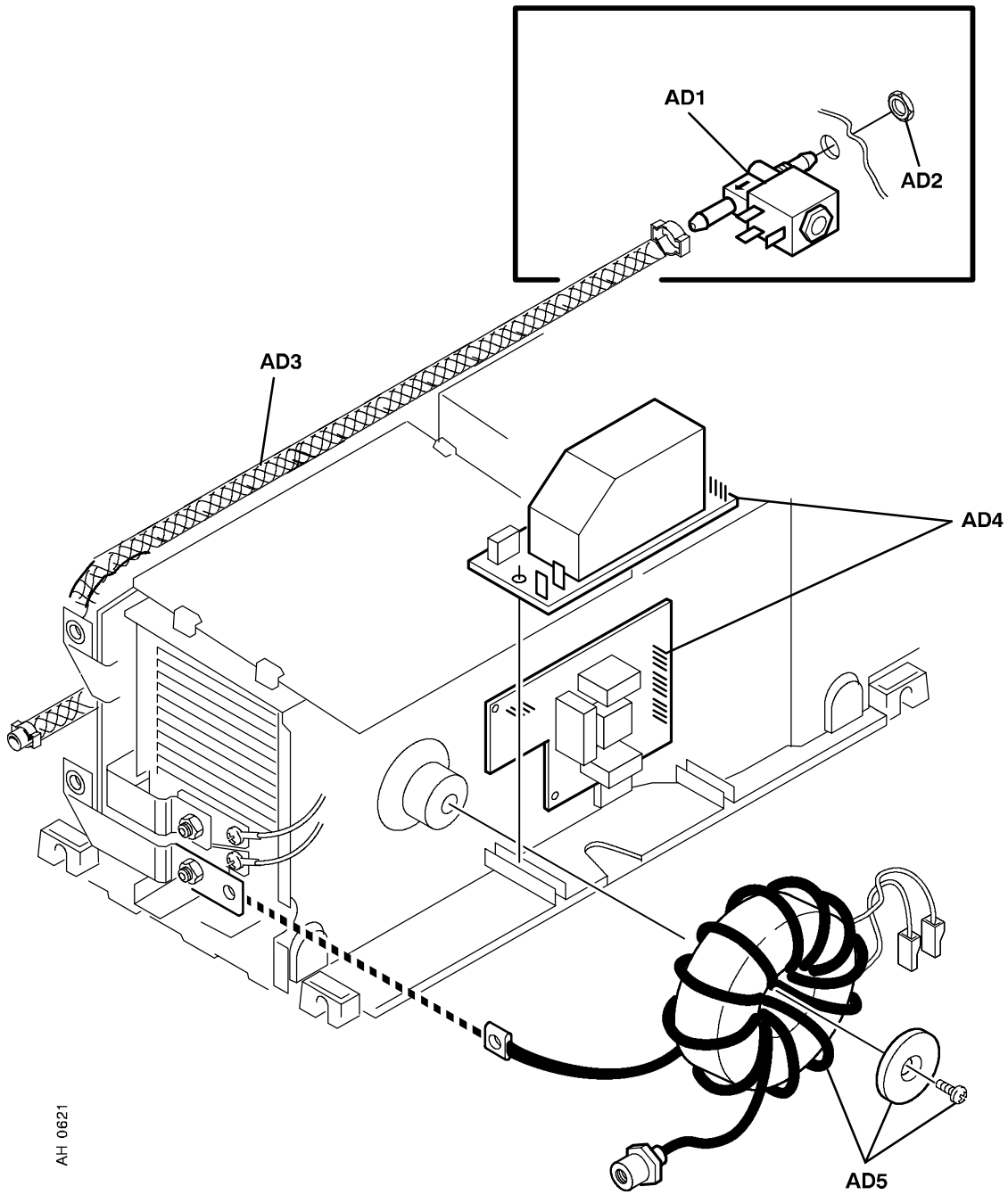

AC12
AC13
D
View from the rear


AC14
AC15
B
C

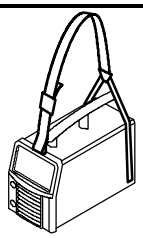
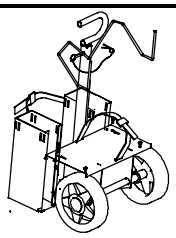

16mm
10mm
A
4x
B
12x

C = component designation in the circuit diagram

Item	Qty	Ordering no.	Denomination	Notes	C
AD1	1	0193 054 005	Solenoid valve	230 V AC	10YV1
AD2	1	0194 130 120	Nut		
AD3	1	0456 496 001	Hose	D = 9/5 mm, L = 0.57 metre reinforced PVC	
AD4	1	0487 028 880	Circuit board TIG		10AP1
AD5	1	0459 389 880	HF coil, complete		10TV1, 10XS1



Accessories

	MMA welding and return cable kit ("crocodile" type holder) . . . . . 0349 501 078 *Suitable for Tradestig 150-1*
	MMA welding and return cable kit ("screwe" type holder) . . . . . 0349 501 079 *Suitable for Tradestig 150-1*
	MMA welding and return cable kit ("screwe" type holder) . . . . . 0700 006 881 *Suitable for Tradestig 200-1*
	**Shoulder strap** 0459 368 880
	**Trolley for small gas bottle** 0459 366 880

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