



***LTH 161***

***Tigma 161***

**Service manual**

**LIST OF CONTENTS**

**Page**

LTH 161 DC INTRODUCTION	3
DIAGRAM	4
COMPONENT DESCRIPTIONS	5
SEQUENCE OF OPERATION	10
COMPONENT POSITIONS, CIRCUIT BOARD A1, 1 270 591	13
INSTRUCTIONS AND SPARE PARTS LIST	

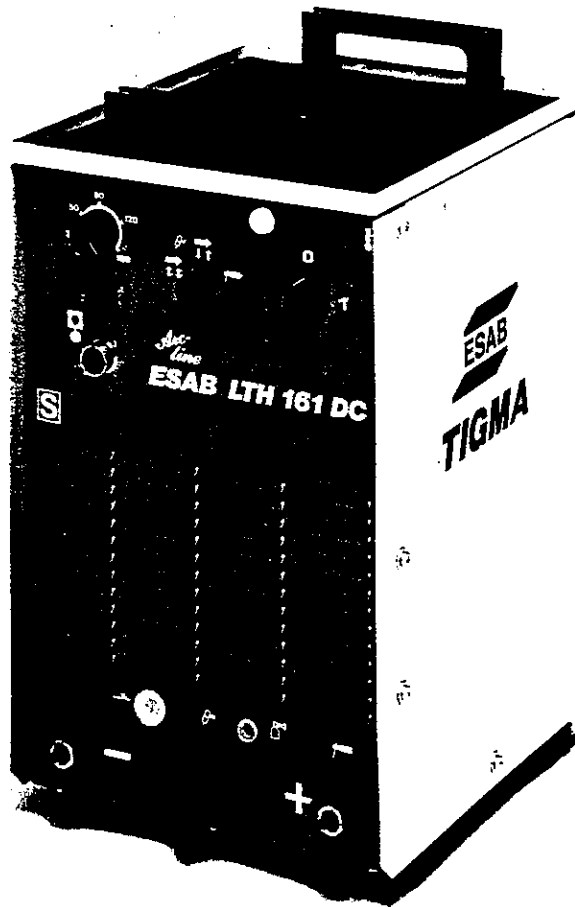
Rights reserved to alter specifications without notice

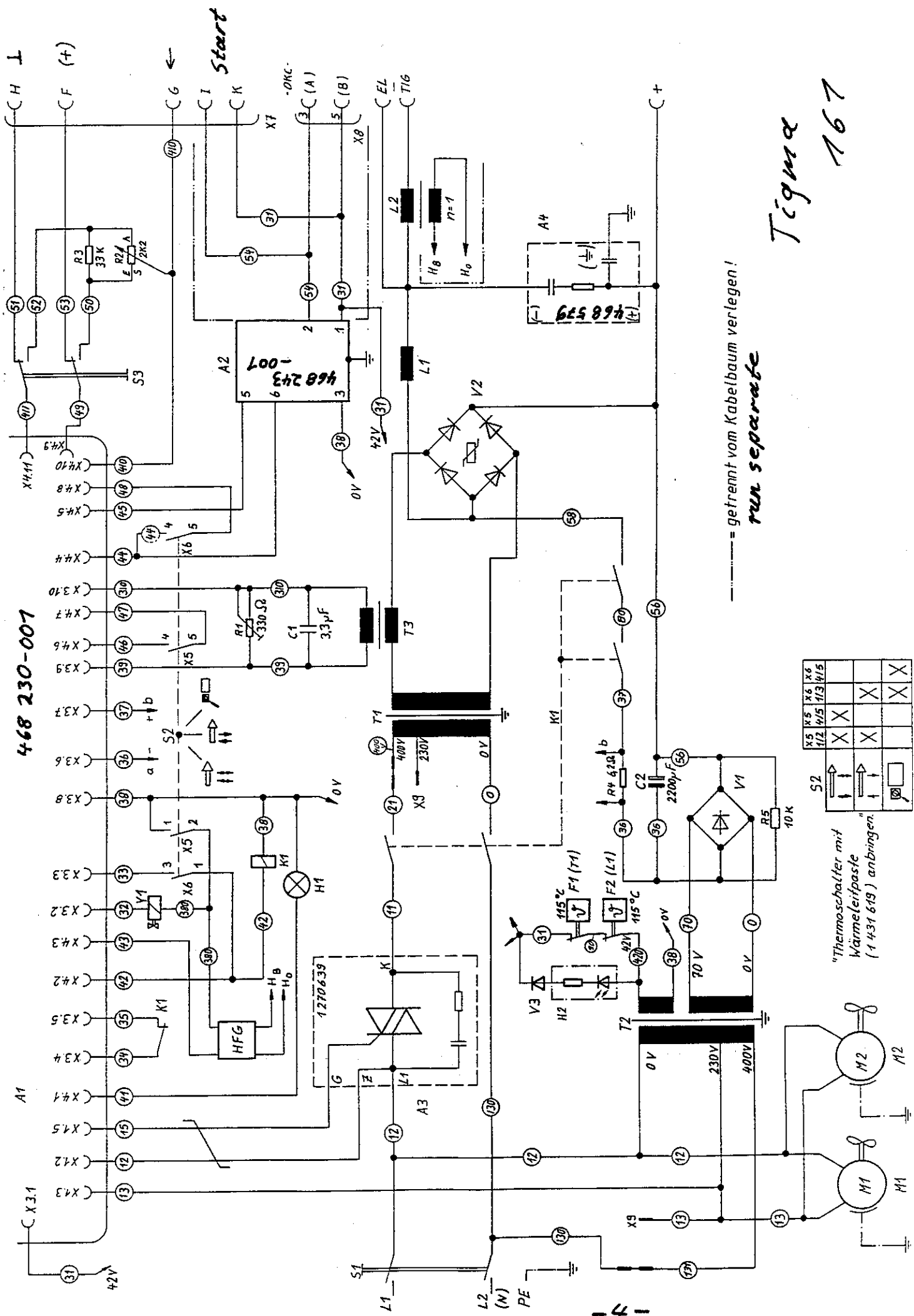
LTH 161 DC

**INTRODUCTION**

This service manual is intended to be used together with the instructions. The spare parts list can be found in the instructions.

The instructions can be found in the service manual after the service diagrams. Note that page numbering in the instructions starts again from 1, and that several page numbers are omitted. This is because only the English part of the instructions has been included.





468 230-007

Start

----- = getrennt vom Kabelbaum verlegen!  
*run separate*

Tigma  
 167

X5	X5	X6	X6
1/2	4/5	1/3	4/5
↑	X	X	X
↑	X	X	X
□			X

"Thermoschalter mit  
 Wärmeleitpaste  
 (1431 619) anbringen."

**COMPONENT DESCRIPTIONS**

**Component designations**

A1	Control PCB
A2	Start PCB
A3	Triac PCB
A4	R-C PCB
C1	Smoothing capacitor for current signal
C2	Smoothing capacitor
F1	Thermal cutout 115 ° C
F2	Thermal cutout 130 ° C
H1	Operating indicating lamp, 24 V incandescent lamp (not mains voltage). This lamp lights to indicate MMA welding and when the welding torch trigger is pressed when carrying out TIG welding.
H2	Over temp. indication lamp
K1	Main contactor
L1	Inductor
L2	HF transformer
M1,2	Fan motors
R1	Calibration resistor for current signal
R2	Current setting potentiometer
R4	Base current resistor
S1	Main switch
S2	Welding mode selector switch. See the service drawing for truth table.
S3	Remote/local changeover switch
T1	Main transformer
T2	Control power supply and base current transformer
V1	Base current rectifier
V2	Main rectifier. 4 x 4 press-fit diodes.
X7	Connection for remote control unit
X8	Connection for TIG torch
X9	Terminal block for mains voltage adjustment reconnection
Y1	Solenoid valve

### **Supply voltage**

As delivered, the machine is connected for 400 V. It can be reconnected for use on a 230 V single phase supply by changing connections on terminal strip X9, which is fitted on the left-hand side of the divider sheet.

Note that changes must be made to both transformers, T1 and T2.

### **Thermal cutout**

Pieces of copper, acting as a thermal conductor, are fitted to the main transformer and choke. Good thermal contact is assured by the use of zinc paste between the switch and the copper strip. The switches operate at 115°C at the transformer and at 130°C at the choke. It interrupts the 42 V control circuit power supply.

### **Current transformer**

The current transformer, T3, which is used instead of a shunt, is connected to the secondary side of T1 to produce an output signal of about 30 VRMS at a welding current of 165 A.

Resistor R1 is used to calibrate the equipment at a current of 165 A.

### **Main contactor**

The main contactor, K1, is fitted on the back of the enclosure. It has four normally-open contacts and one normally-closed contact, serving as three main contacts and two auxiliary contacts.

Two of the main contacts are used to switch the supply to the main transformer, while the third main contact and one of the auxiliary contacts switch the supply to the base current circuit.

The other (normally-closed) auxiliary contact is used to realise the gas post flow.

### **The control power supply transformer**

The control power supply transformer, T2, is fitted on the middle plate. When connected to a 400 V supply the 230 V winding becomes an autotransformer winding and supplies the cooling fan.

The secondary side of the transformer supplies 42 V for the control circuitry and 70 V for the base current circuit.

### **The base current circuit**

V1 is the rectifier for the base current circuit.

The base current resistor, R4 (6.2 ohm, 5 A) limits the base current and serves also as a current shunt to provide a voltage signal to indicate that base current is flowing and to operate the current relay.

**The control circuit page 8 and 9**

Conductors X1.2 and X1.3 supply transformer T1 on the circuit board with 230 V AC. The output voltage from the transformer is used as a synchronising signal for the triac, and is also rectified and regulated to produce a + 15 V power supply for the triarc firing pulses drive circuitry.

On N3 pin 3 is a sawtooth of 10 ms; approx. 13V to be observed when the power is switched on. The demand signal to the triac control (Usoll) is inverted!  
(Usoll min.; output max.)

Conductor X1.5 carries the firing pulses to the triarc.

**Voltage supply on the PC-board**

The +VR supply is a 42 V control power supply that is rectified and smoothed only, but not regulated. It can vary with changes in the supply voltage.

There is no direct electrical connection between 0 VR and other 0 V points in the unit.

The + 16 V supply to the current regulator is zener-stabilised. The unregulated supply is taken from the +VR supply via resistors R5 and R11 on the circuit board.

N2 on the circuit board is a +15 V voltage regulator, supplying the trigger circuits for the triarc. The regulator is supplied from transformer T1 on the circuit board.

The +15 V and + 16 V supplies have a common neutral point (0 V) at contact X4.11.

**Adjustments**

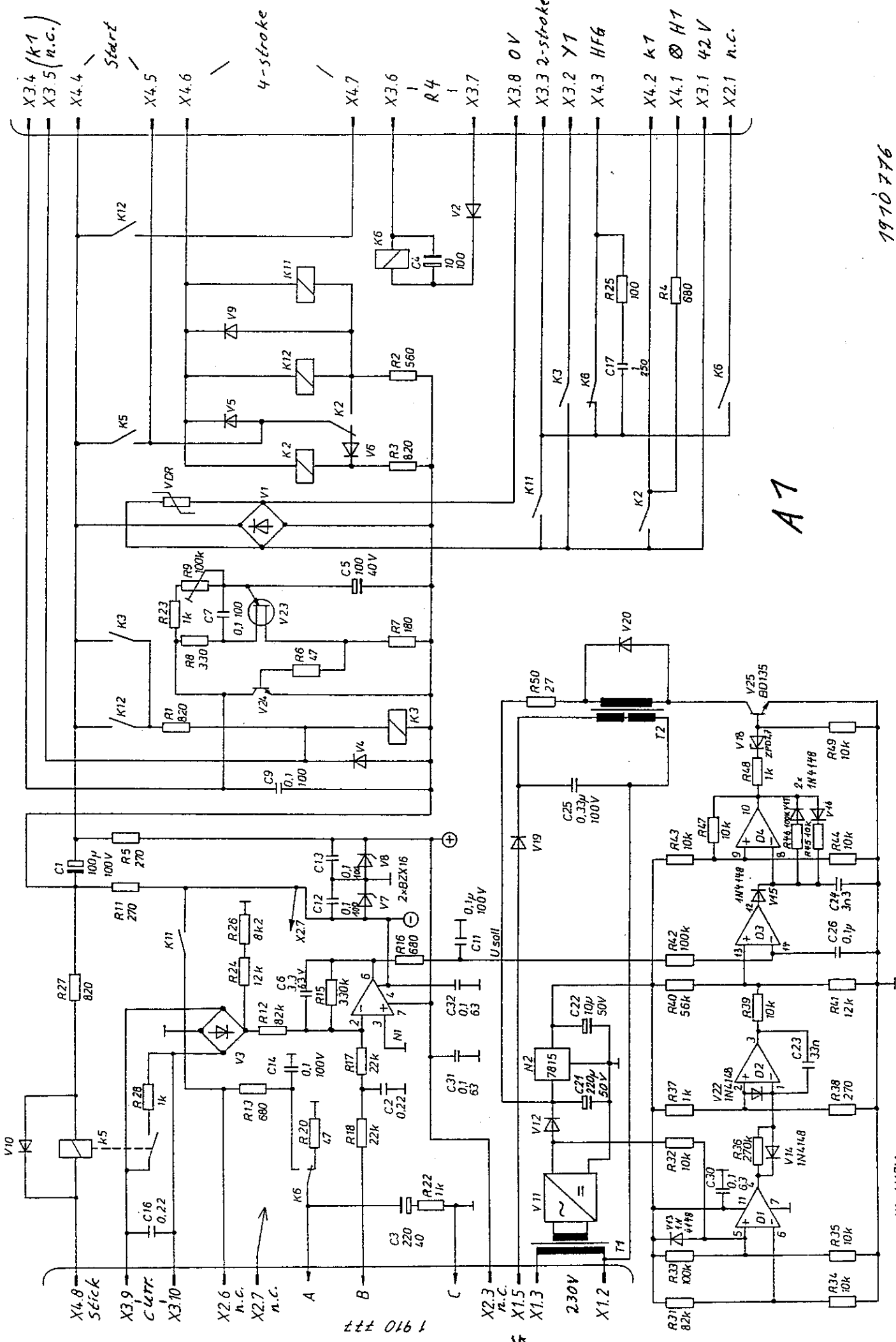
Gas post flow	R9	(max. 20 s)
Down slope	R76	(max. 10 s)

**Start PCB page 9**

This unit is build in, to achieve galvanic separation between the electronic and the TIG torch.

**Choke changed**

From machine nr.: 178 679 the windings have been increased from 59 to 89. Also the thermal switch is changed from 115°C to 130°C.



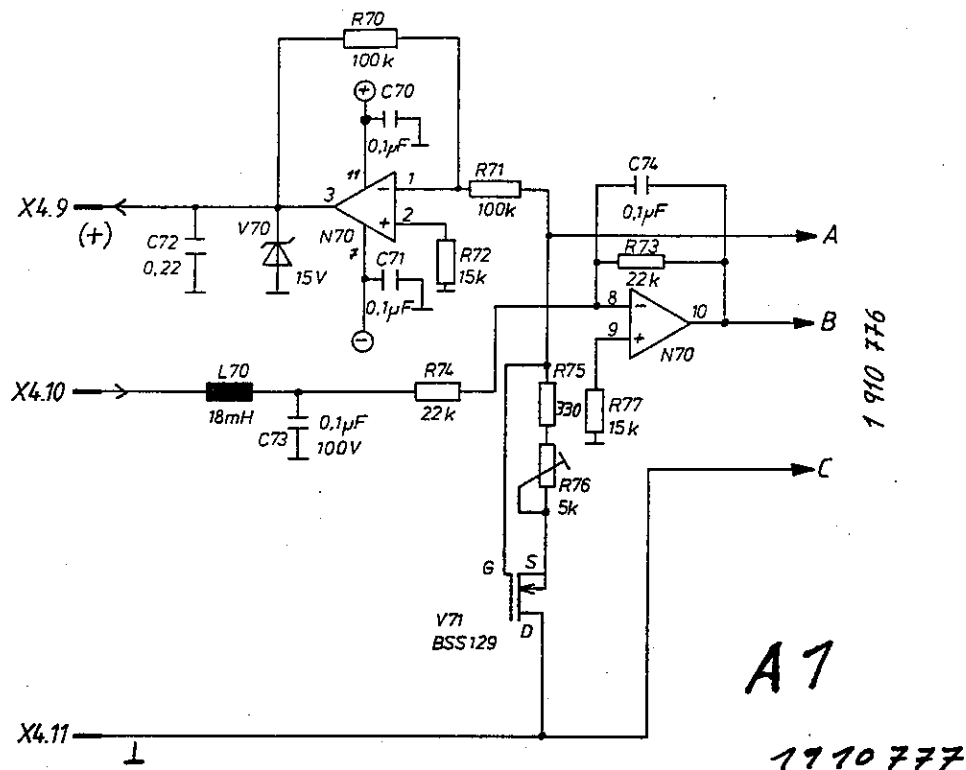
1910 776

nicht bezeichnete Dioden = 1N4004

N1 = LM741  
N3 = DI-D4 = RC4136

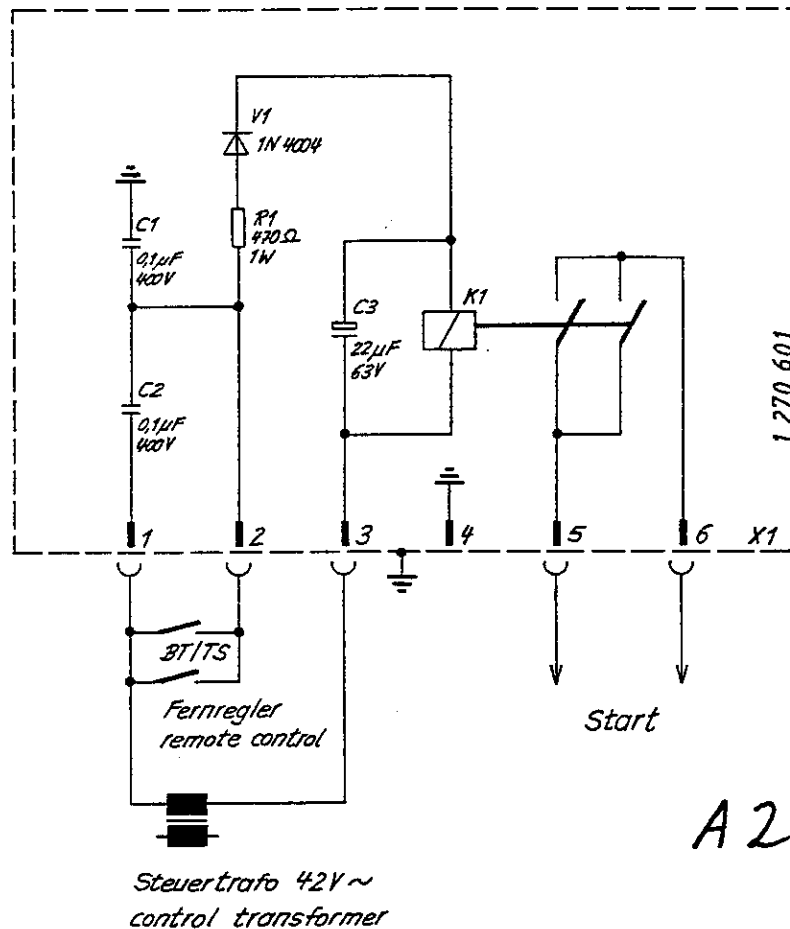
1910 0161





N70=RC4136

*Start PCB*



## SEQUENCE OF OPERATION

### MMA MODE

1. S2 switch contacts (X6) 1-3 and (X6) 4-5 are closed.  
MMA relay K5, located on the PCB, is now energised via contact (X6) 4-5.
2. One n/o contact on K5 energises relay K11 on the PCB. K11 in turn energises the main contactor K1 via S2 switch contacts (X6) 1-3. The indicator lamp H1 is also illuminated at this time via PCB connection X4.

Another n/o contact on K5 closes in the current feedback circuit, this switches in parallel resistor R28 to reduce the actual current signal and so increase the welding voltage as required in this mode of operation.

3. Pilot current is now available via a 70 V winding on T2, rectifier bridge V1, resistor R4 and two normally open contacts on the main contactor K1, an open circuit voltage of 100 V is now at the output terminals.
4. When pilot current flows as sensed by R4, current relay K6 is energised,  
- 13 V is now available at connection X 4.9 (page 9). Triac V3 is now fired  
and main welding current is now available depending on the setting of R2.  
The maximum value of current can be set using R1.

### 5. Current Feedback

This is achieved by transformer T3 in the welding circuit and rectifier V3 located on the PCB. The signal from V3 being summed with the reference signal from the current potentiometer thus phasing back the triac causing the machine to droop.

**TIG MODE - 2 stroke operation**

1. S2 switch contacts (X6) 4-5 now open, therefore the MMA relay K5 on the PCB cannot be energised.
2. S2 switch contacts (X5) 1-2 now closed making a 0 volt connection to the solenoid valve and the HF oscillator circuits.
3. S2 switch contacts (X6) 1-3 still closed.
4. **Torch switch closed**

Relays K11 and K12 now energised via diode V5.

5. Relay K11 energises the main contactor K1 and also illuminates indicator lamp H1, pilot and main currents are now available.
6. Another contact on K11 is used to energise the HF oscillator via a n/c contact on K6.
7. Relay K12 energises relay K3 which then uses a n/o contact to maintain itself energised, this relay then energises the solenoid valve.
8. When welding commences current relay K6 is energised, its n/c contact then opens switching off the HF oscillator.
9. **Torch switch released - post flow gas**

Relays K11 and K12 open.

Relay K11 de-energises the main contactor K1, pilot and main current is now switched off. A normally closed contact on K1 now connects voltage +VR to the post flow timer circuit comprising V24, V23, R9 and C5. Transistor V24 energises after the post flow times out, this pulls off the voltage energising K3 which switches off the solenoid valve.

The gas post-flow time is determined by R9 (see the component placing diagram on page 13). As delivered, the time is set at 8 seconds, but can be adjusted between approx. 1 and 20 seconds.

**TIG MODE - 4 stroke operation**

1. S2 switch contacts (X5) 1-2 closed as in 2 stroke operation.  
S2 switch contacts (X5) 4-5 closed.  
S2 switch contacts (X6) 1-3 now open, preventing the main contactor K1 from being energised by this circuit as was the case with MMA and 2 stroke operation.

2. **Torch switch closed first operation.**

Relays K11 and K12 energise.

Relay K11 energises the HF oscillator.

Relay K12 maintains itself via one of its n/o contacts and contact (X5) 4-5 on switch S2.

3. A n/o contact on K12 now energises relay K3, a n/o contact on K3 keeps K3 maintained. Relay K3 then energises the solenoid valve.

4. **Torch switch released first operation.**

Relay K2 is now energised which in turn energises the main contactor K1 via PCB connection X4.2.

Indicator lamp H1 is also illuminated at this time. Open circuit voltage is now present and welding can commence. Once welding commences K6 will energise and the HF oscillator will switch off.

5. **Torch switch closed second time.**

Relays K11 and K12 are now switched off.

The welding current now begins to slope down, ie C3 on the PCB discharges lowering the X4.9 connection to the weld current potentiometer.

At the end of the slope down time the unit reverts to base current only.

The slope down time is linear and adjustable between 1 and 10 seconds, with potentiometer R76, on the PC board.

As delivered it is set to 5 sec.

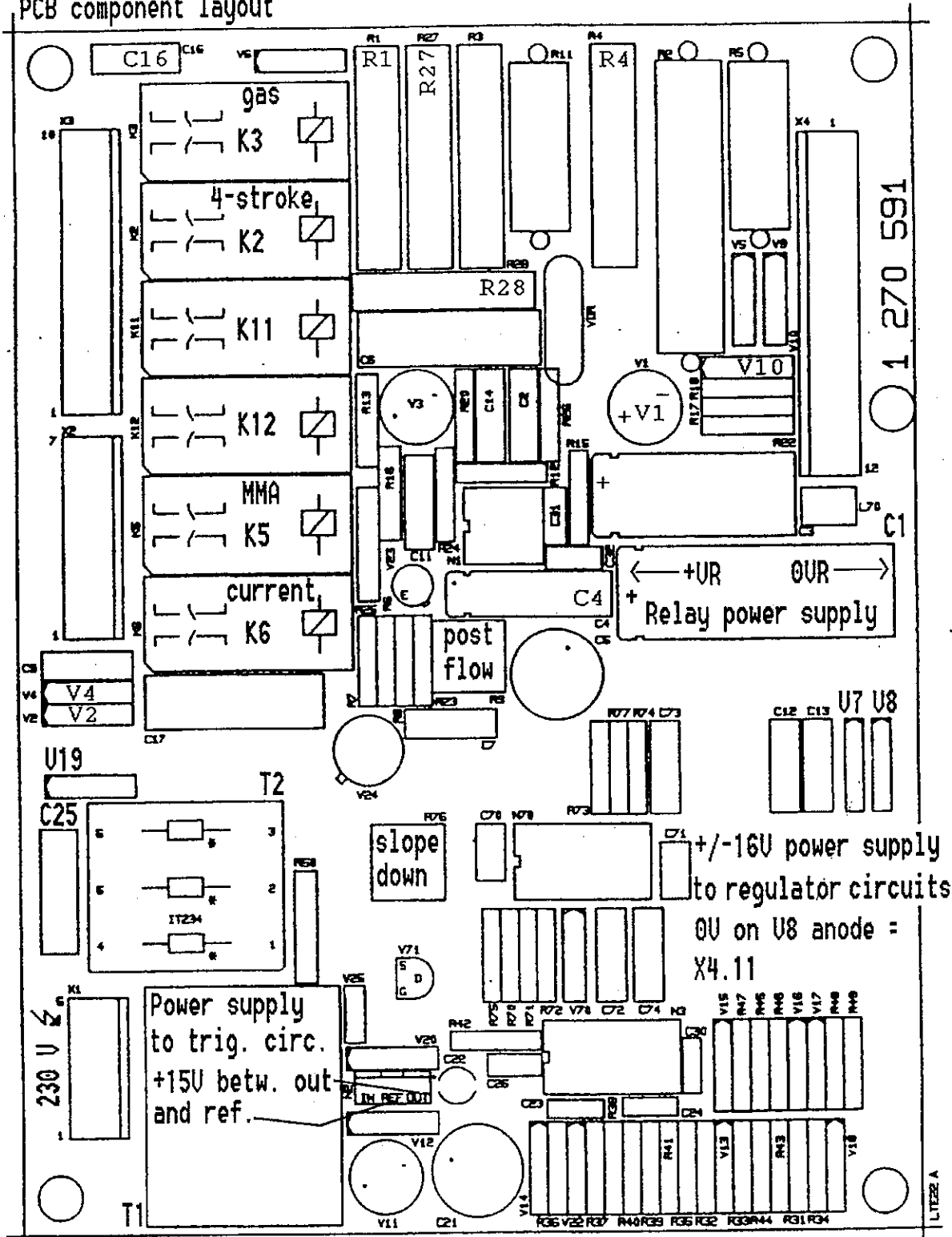
6. **Torch switch released second time.**

Relay K2 is now de-energised switching off K1, base current now stops.

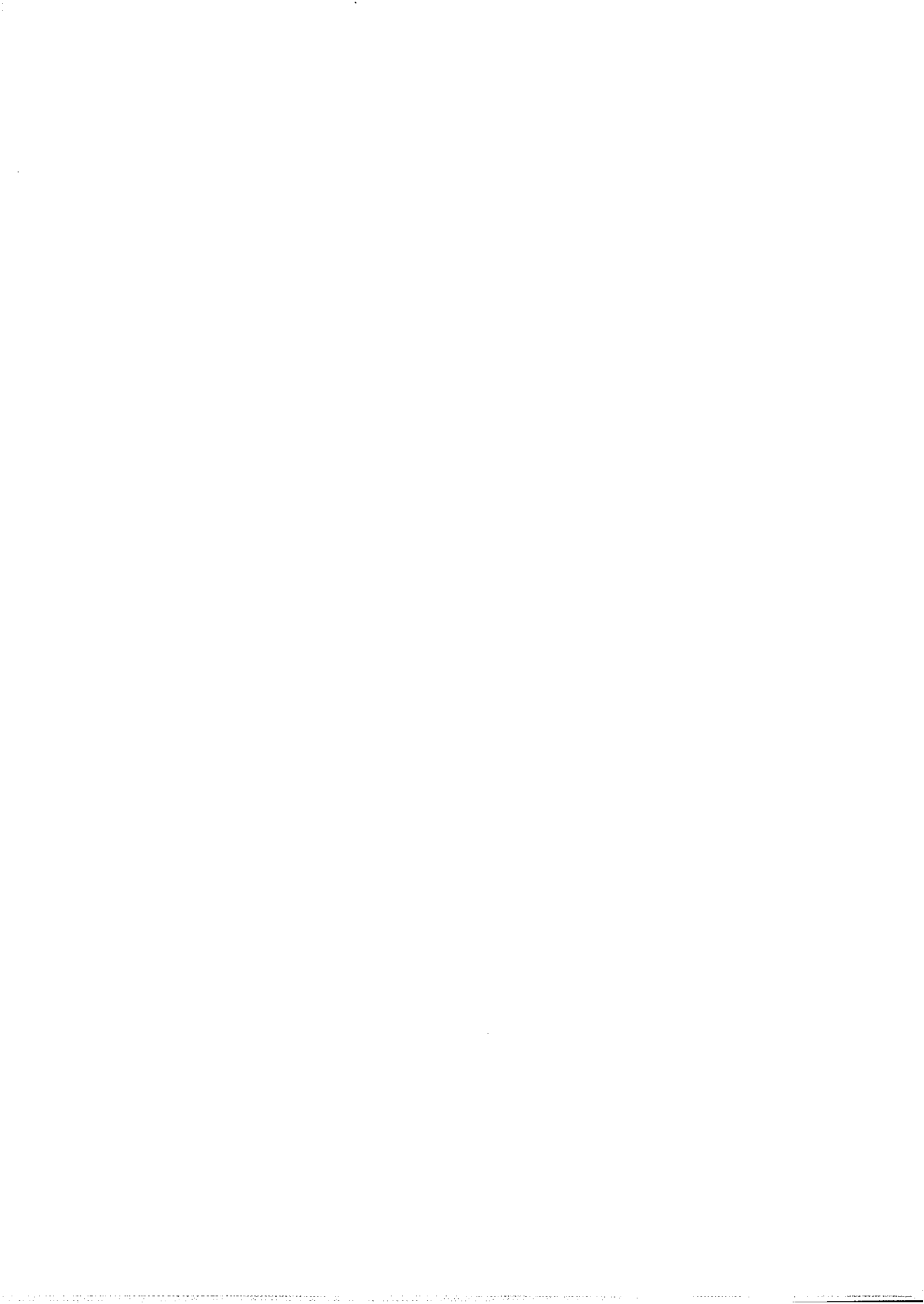
Post gas now times out as explained in the 2 stroke mode of operation.

# COMPONENT POSITIONS, CIRCUIT BOARD A1,

PCB component layout



cnj0ae05



---

The ESAB logo consists of the word "ESAB" in a bold, sans-serif font, centered between two thick, parallel horizontal bars. The top bar is slightly shorter than the bottom bar, creating a sense of depth or a 3D effect.

**ESAB**

# **LTH 161**

# **Tigma 161**

**Svetsutrustning**  
**Welding equipment**  
**Schweißausrüstung**  
**Equipement de soudage**

**Bruksanvisning och reservdelsförteckning**  
**Instruction manual and spare parts list**  
**Betriebsanweisung und Ersatzteilverzeichnis**  
**Manuel d'instructions et liste de pieces detachees**

<b>INNEHÅLLSFÖRTECKNING</b>	<b>Sida</b>	<b>INHALTVERZEICHNIS</b>	<b>Seite</b>
VARNING .....	3	WARNUNG .....	17
INLEDNING .....	4	EINLEITUNG .....	18
TEKNISK BESKRIVNING .....	5	TECHNISCHE BESCHREIBUNG .....	19
INSTALLATION .....	6	INSTALLATION .....	20
DRIFT .....	7	BETRIEB .....	21
UNDERHÅLL .....	8	WARTUNG .....	22
TILLBEHÖR .....	9	ZUBEHÖR .....	23
SCHEMA .....	31	SCHALTPLAN .....	31
RESERVDELSFÖRTECKNING ..	32	ERSATZTEILVERZEICHNIS .....	32

<b>LIST OF CONTENTS</b>	<b>Page</b>	<b>SOMMAIRE</b>	<b>Page</b>
WARNING .....	10	AVERTISSEMENT .....	24
INTRODUCTION .....	11	INTRODUCTON .....	25
TECHNICAL DESCRIPTION .....	12	DESCRIPTION TECHNIQUE .....	26
INSTALLATION .....	13	INSTALLATION .....	27
OPERATION .....	14	OPÉRATION .....	28
MAINTENANCE .....	15	ENTRETIEN .....	29
ACCESSORIES .....	16	ACCESSOIRES .....	30
DIAGRAM .....	31	SCHÉMA .....	31
SPARE PARTS LIST .....	32	LISTE DE PIÈCES DÉTACHÉES ..	32

Rätt till ändring av specifikationer utan avisering förbehålles  
Rights reserved to alter specifications without notice  
Änderungen vorbehalten  
Sous réserve de modifications sans avis préalable





- WARNING

WARNING



## 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 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.

### FIRE HAZARD

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

### MALFUNCTION

- Call for expert assistance in the event of malfunction.

**READ AND UNDERSTAND THE INSTRUCTION MANUAL  
BEFORE INSTALLING OR OPERATING.**

**PROTECT YOURSELF AND OTHERS!**

## INTRODUCTION

LTH 161 is the name of ESAB's new rectifier intended for TIG and MMA welding. The machine is connected to single phase and has selectable voltage of 230 V or 400 V, 50 Hz.

Trouble-shooting and repairs demand a good professional knowledge. As a rule, all major repairs should only be carried out by specially trained personnel

When contacting either ESAB or one of their retail dealers please state the machine type and serial number found on the rating plate.



## TECHNICAL DESCRIPTION

### TECHNICAL DESCRIPTION

LTH 161 consists of a power unit, a control unit and an ignition unit. The power unit is air cooled and contains a main transformer, bridge rectifier, inductor, cooling fan, main power switch and a control lamp. The control unit contains a potentiometer for current setting and the control electronics.

Slope down function is operational when the 2/4 step switch is in the 4 step position and the trigger is pressed in and the current slopes down to 5 A in 5 seconds. (R76 at the PCB)


By pressing the torch trigger while welding and releasing it immediately the welding process is stopped without the slope-down function.

The machine is mains-stabilised and has a feed-back control system to maintain a constant welding current. The welding current is not affected by changes of temperature or fluctuations in mains voltage.

#### Automatic Gas Flow

When the torch trigger is pressed the gas flow starts automatically. The gas post-flow time is preset to 8 seconds. (R9 at the PCB)

### TECHNICAL DATA

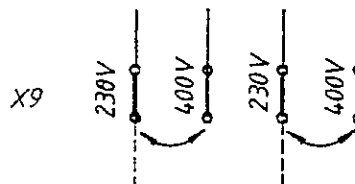
Power supply single phase 50 Hz Fuse slow blow	230/400 V 16/10 A
Permissible load	
35%	165 A/16 V
60%	115 A/15 V
100%	90 A/14 V
Power factor $\lambda$	0.85
Slope-up	0.1 sec, not adjustable
Slope-down	5sec.
Setting range TIG	5-165 A
Gas post-flow	8 sec fixed time.
Open Circuit voltage	100 V
Weight	51 kg
Dimension (lxwxh)	<b>342 x 313 x 532 mm</b>
Enclosure type	IP 21
Temperature Class	F
Standard	<b>EN 60974-1</b> VDE 0544
	

## INSTALLATION

OKC-connectors, mains cable and 5m of return cable are supplied with delivery.  
**WARNING!** Disconnect mains cable before opening side wall.

1. The machine is connected to single phase 230 or 400V, 50Hz. The voltage selection is made on terminal X9 (left side above main transformer) see wiring diagram, cables 130 and 21 are connected to the required voltage which is marked on the transformer.

**Do not touch this side where 4 contacts are connected**



**Change here (2 wires)**

2. When MMA welding the return cable is connected to either the - or + socket depending on the electrodes used.
3. When TIG welding the torch is connected to the central socket the return cable is connected to the OKC socket marked +.
4. Connect the gas and set the correct flow.

## OPERATION

### OPERATION

All the LTH 161 controls are situated on the front panel.

- Switch the main power switch (1) on. The fan starts, check that the air flow through the machine is not obstructed.

- **TIG Welding**

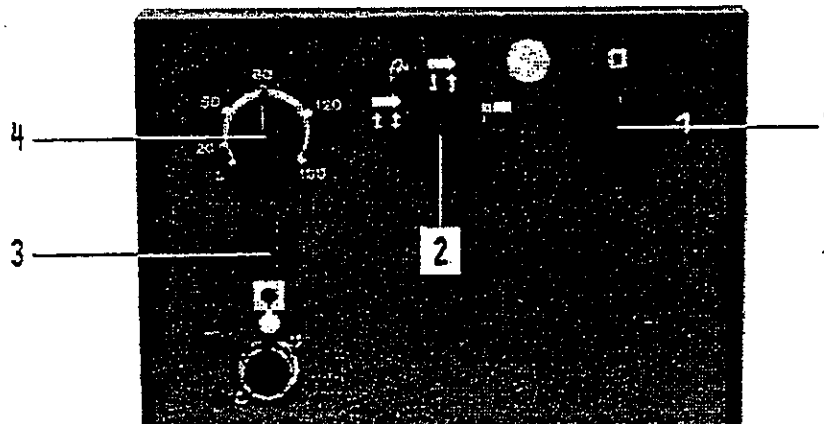
Set the mode selector (2) in the TIG position, the lamp is lit when the torch trigger is activated.

- Check that the TIG torch and the return cable are properly connected.
- Check that a correctly ground electrode is fitted to the torch.
- Use the correct gas and set the flow.
- Select internal or remote control with switch (3).
- Set the required welding current (4).
- The machine is now ready for welding. Refer to ESAB's TIG Handbook for welding instructions.

- **MMA Welding**

Check that the electrode holder and the return cable are properly connected.

- Check that a D.C. electrode is to be used.
- Set the mode selector (2) in the MMA position, the lamp is lit.
- Select internal or remote control with the switch (3).
- Set the required welding current (4).
- The machine is now ready for welding.



**MAINTENANCE**

LTH 161 needs little maintenance. Normally it is enough to clean the machine using dry compressed air at a reduced pressure once a year. However, if the machine is used in a dusty or dirty environment cleaning should occur on a more regular basis.

**IMPORTANT**

This welding equipment has been designed, manufactured and tested to the highest quality standards to ensure long and trouble free life. However, regular maintenance is an essential part of keeping the machine operating in a reliable and safe manner and your attention is drawn to any maintenance instructions that are contained in this manual.

In general, all welding equipment should be thoroughly inspected, tested and serviced at least annually. More frequent checking will be required when the equipment is heavily used.

Wear and tear, particularly in electro-mechanical and moving components, are gradual processes. Caught in time, repair costs are small and the benefits in performance, reliability and safety are significant. Left alone, they can put the equipment, and you at risk.

Have this equipment regularly inspected and maintained by an approved service centre.

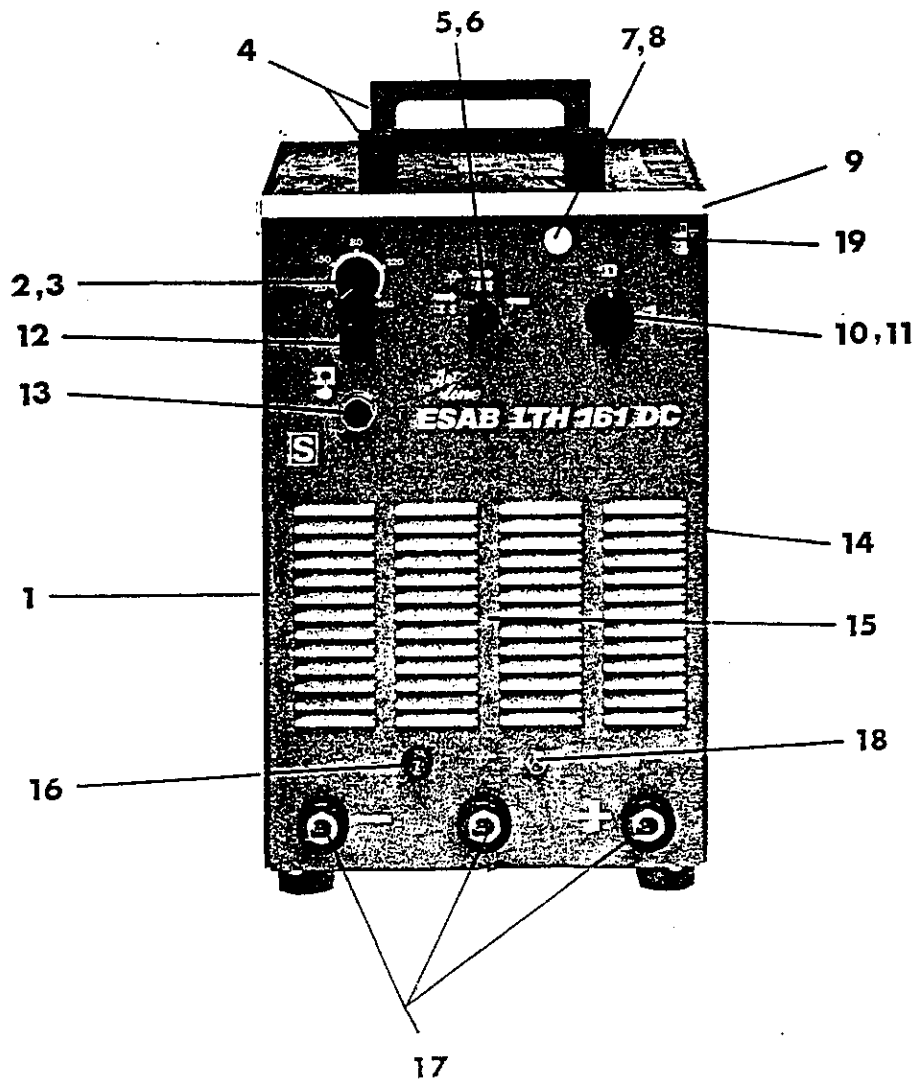
ACCESSORIES

ACCESSORIES

	Order Number.
TIGMA 161 230/400V, 50Hz - <b>CC</b> - - <b>OKC</b> -	468 970-881 468 970-880
Trolley	347 480-882
Pulse unit PHA 5	367 970-880
5 m Connecting cable to PHA 5	367 144-881
10 m Connecting cable to PHA 5	367 144-882
Foot pedal FS 002 incl. cable	349 090-886
TIG torch BTD 153 self-cooled 4 m - <b>CC</b> -	368 347-886
TIG torch BTD 153 self-cooled 8 m - <b>CC</b> -	368 347-887
TIG torch BTD 153 self-cooled 4 m - <b>OKC</b> -	368 347-881
TIG torch BTD 153 self-cooled 8 m - II -	368 347-882
Scanorama, welding helmet	366 734-880







## Reservdelsförteckning

Reservdelar beställs genom närmaste ESAB-representant, se sista sidan. Vid beställning v.v. uppge typ och tillverkningsnummer samt benämningar och beställningsnummer enl. reservdelsförteckningen.

## Spare parts list

Spare parts are to be ordered through the nearest ESAB agency as per the list on the back of the cover. Kindly indicate type of unit, serial number, denominations, and ordering numbers acc. to the spare parts list.

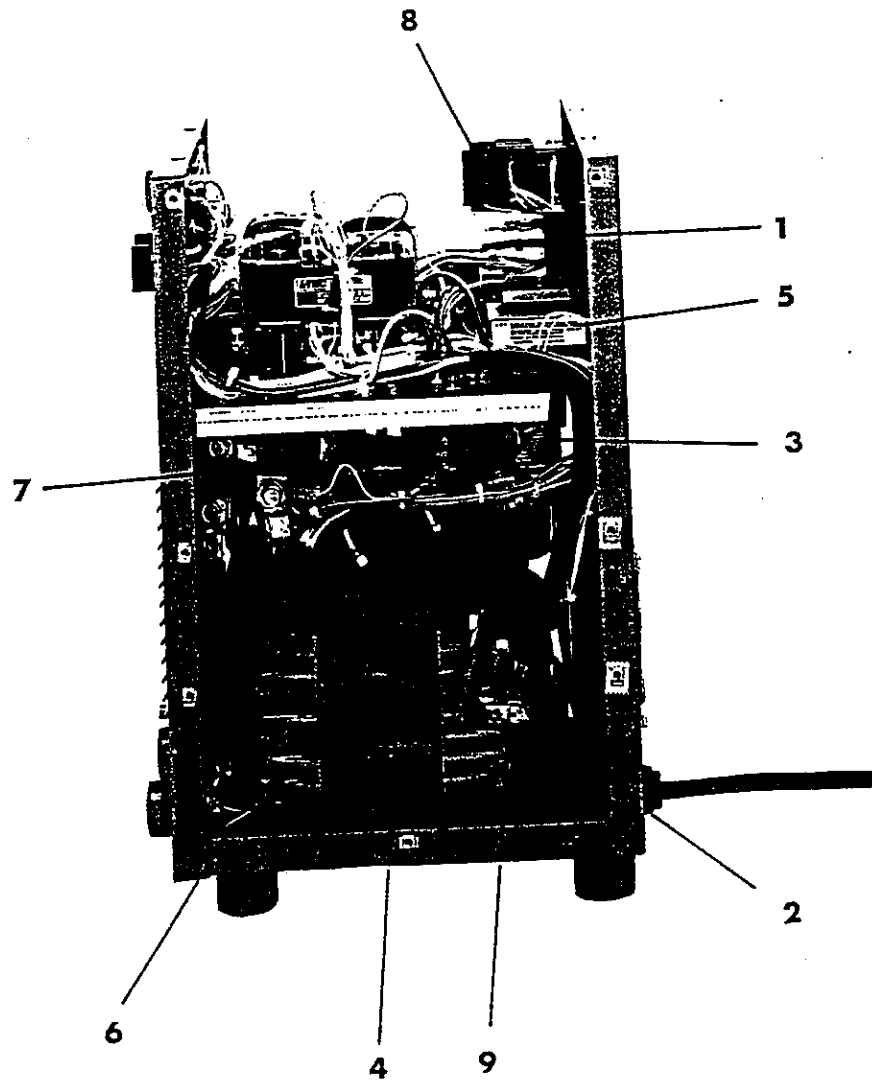
## Ersatzteilverzeichnis

Die Ersatzteile können bei der nächsten ESAB-Vertretung bestellt werden, siehe letzte Seite. Bitte geben Sie Typenbezeichnung und Herstellungsnummer sowie Bezeichnungen und Bestellnummern lt. Ersatzteilverzeichnis an.

## Liste de pièces détachées

Au dos de la brochure, vous trouverez l'adresse du représentant ESAB le plus proche. Prière de lui adresser votre commande, après avoir pris le soin de mentionner le type et le numéro de série de l'unité ainsi que le numéro de commande et la désignation conformément à la liste de pièces détachées.

Pos nr Item no. Pos.Nr. No de ref.	Ant Qty Anz. Qte	Best nr Ordering no. Bestellnr. No de commande	Benämning	Denomination	Bezeichnung	Designation	Ann. Remarks Ann. Remarque
		468 970-880	LTH 161 OKC				
		468 970-881	LTH 161 ZA				
01	1	468 570-001	Sidoplåt	Side plate	Seitenblech	Plaque latérale	
02	1	467 619-001	Potentiometer	Potentiometer	Potentiometer	Potentiometre	R 2
03	1	467 622-001	Ratt	Knob	Knebel	Bouton	
04	2	156 388-001	Handtag	Handle	Griff	Poignée	
05	1	467 604-001	Kretskort	PC-board	Leiterplatte	Circuit imprimé	S 2
06	1	467 623-001	Vred	Knob	Knebel	Bouton	
07	1	467 618-001	Lamphållare	Lampholder	Lampenhalter	Porte de la lampe	
08	1	467 613-001	Lampa	Lamp	Meldeleuchte	Lampe	H 1
09	1	468 571-001	Lock	Cover	Deckblech	Couvercle	
10	1	347 316-101	Strömbrytare	Switch	Schalter	Interrupteur	S 1
11	1	347 316-102	Vred	Knob	Knebel	Bouton	S 1
12	1	467 620-001	Öppkopplare	Switch	Schalter	Sélecteur	S 3
13	1	368 544-003	Uttag	Terminal	Anschluß	Prise	X 7
14	1	468 572-001	Sidoplåt	Side plate	Seitenblech	Plaque latérale	
15	1	468 573-001	Frontplåt	Front panel	Frontteil	Plaque frontale	
16	1	468 555-001	Bussning	Socket	Buchse	Douille	X 8
17	3	160 362-881	Maskinkontakt	Welding Current Terminal	Schweisstrom- anschluss	Borne de courant de soudage	
18	1	468 234-001	Nippel Gas	Nipple gas	Gasnippel	Raccord	
19	1	468 580-001	Lampa	Signal lamp	Meldeleuchte	Lampe	H 2



Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Reservdelsförteckning

Reservdelar beställs genom närmaste ESAB-representant, se sista sidan. Vid beställning v.v. uppge typ och tillverkningsnummer samt benämningar och beställningsnummer enl. reservdelsförteckningen.

Spare parts list

Spare parts are to be ordered through the nearest ESAB agency as per the list on the back of the cover. Kindly indicate type of unit, serial number, denominations, and ordering numbers acc. to the spare parts list.

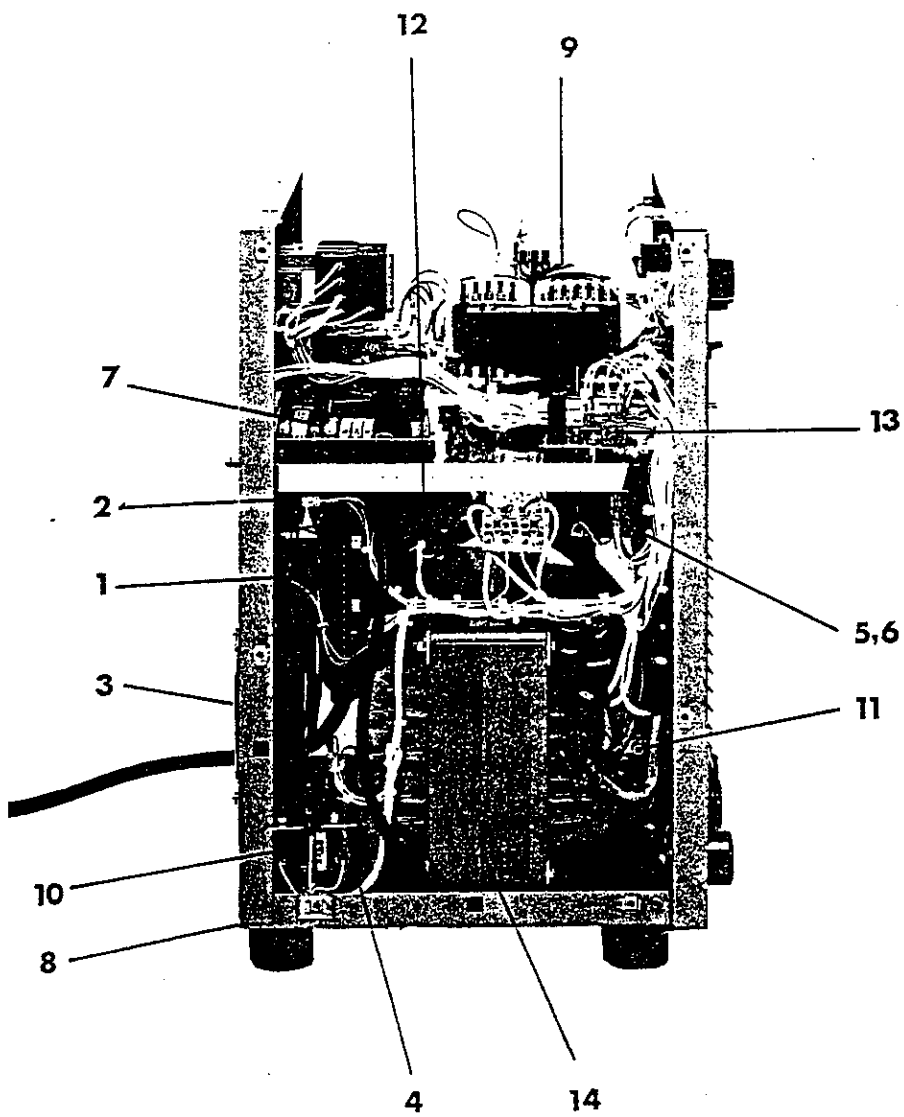
Ersatzteilverzeichnis

Die Ersatzteile können bei der nächsten ESAB-Vertretung bestellt werden, siehe letzte Seite. Bitte geben Sie Typenbezeichnung und Herstellnummer sowie Bezeichnungen und Bestellnummern lt. Ersatzteilverzeichnis an.

Liste de pièces détachées

Au dos de la brochure, vous trouverez l'adresse du représentant ESAB le plus proche. Prière de lui adresser votre commande, après avoir pris le soin de mentionner le type et le numéro de série de l'unité ainsi que le numéro de commande et la désignation conformément à la liste de pièces détachées.

Pos nr Item no. Pos.Nr. No de ref.	Ant Qty Anz. Qte	Best nr Ordering no. Bestellnr. No de commande	Benämning	Denomination	Bezeichnung	Designation	Ann Remarks Ann. Remarque
01	1	467 610-001	Motsland	Resistor	Widerstand	Resistance	R 1
02	1	467 815-001	Kabelavlastare	Cable clamp	Leitungsentlastung	Porte-cable	
03	1	468 564-001	HF-spoje	HF-coil	HF-Spule	Bobine HF	L 2
04	1	468 578 001	Induktor	Inductor	Induktor	Inducteur	L 1
05	1	468 228-001	HF-don	HF-unit	HF-Gerät	Dispositif HF	HF6
06	1	468 579-001	Kort R-C	PC-board R-C	Platine R-C	Carte R-C	A 4
07	1	467 624-001	Likriktare	Rectifier	Gleichrichter	Redresseur	V 2
08	1	467 612-001	Kontaktor	Contacteur	Schutz	Contacteur	K 1
09	1	468 600-001	Onkopplare	Thermal-switch	Thermoschalter	Selecteur-Thermo	F 2



Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Reservdelsförteckning

Reservdelar beställs genom närmaste ESAB-representant, se sista sidan. Vid beställning v.v. uppge typ och tillverkningsnummer samt benämningar och beställningsnummer enl. reservdelsförteckningen.

Spare parts list

Spare parts are to be ordered through the nearest ESAB agency as per the list on the back of the cover. Kindly indicate type of unit, serial number, denominations, and ordering numbers acc. to the spare parts list.

Ersatzteilverzeichnis

Die Ersatzteile können bei der nächsten ESAB-Vertretung bestellt werden, siehe letzte Seite. Bitte geben Sie Typenbezeichnung und Herstellnummer sowie Bezeichnungen und Bestellnummern lt. Ersatzteilverzeichnis an.

Liste de pièces détachées

Au dos de la brochure, vous trouverez l'adresse du représentant ESAB le plus proche. Prière du lui adresser votre commande, après avoir pris le soin de mentionner le type et le numéro de série de l'unité ainsi que le numéro de commande et la désignation conformément à la liste de pièces détachées.

Pos nr Item no. Pos.Nr. No de ref.	Ant Qty Anz. Qte	Rest nr Ordering no. Bestellnr. No de commande	Benämning	Denomination	Bezeichnung	Designation	Ann Remarks Ann. Remarque
01	1	467 610-001	Motstånd	Resistor	Widerstand	Résistance	R 4
02	1	193 054-002	Magnetventil	Solenoid valve	Magnetventil	Electrovanne	Y 1
03	2	467 621-001	Fläkt	Fan	Gebläse	Ventilateur	M1/2
04	1	467 615-001	Kondensator	Capacitor	Kondensator	Condensateur	C 2
05	1	468 574-001	Kylkropp med triac	Cooling element with triac	Kühlkörper mit Triac	Élément réfrigérant avec triac	A 3
06	1	467 617-001	Triac	Triac	Triac	Triac	A 3
07	1	468 230-001	Kretskort	PC-board	Platine	Circuit imprimé	A 1
08	1	468 575-001	Bottenplåt och bakstycke	Base plate and rear panel	Grundplatte und Rückteil	Plaque de base et plaque	
09	1	468 576-001	Manövertransformator	Control transformer	Steuertrafo	Transformateur de commande	T 2
10	1	467 611-001	Likriktare	Rectifier	Gleichrichter	Redresseur	V 1
11	1	467 850-001	Termostat	Thermostat	Thermostat	Thermostat	F 1
12	1	467 600-001	Strömavkännare	Current Transformer	Stromabnehmer	Détecteur de courant	T 3
13	1	468 243-001	Kretskort	PC-board Start	Platine Start	Circuit imprimé	A 2
14	1	468 577-001	Transformator	Transformer	Trafo	Transformateur	T 1

# ESAB subsidiaries and representative offices

## Europe

### AUSTRIA

ESAB Ges.m.b.H  
Vienna-Liesing  
Tel: +43 1 888 25 11  
Fax: +43 1 888 25 11 85

### BELGIUM

S.A. ESAB N.V.  
Brussels  
Tel: +32 2 745 11 00  
Fax: +32 2 726 80 05

### THE CZECH REPUBLIC

ESAB VAMBERK s.r.o.  
Prague  
Tel: +420 2 819 40 885  
Fax: +420 2 819 40 120

### DENMARK

Aktieselskabet ESAB  
Copenhagen-Valby  
Tel: +45 36 30 01 11  
Fax: +45 36 30 40 03

### FINLAND

ESAB Oy  
Helsinki  
Tel: +358 9 547 761  
Fax: +358 9 547 77 71

### FRANCE

ESAB France S.A.  
Cergy Pontoise  
Tel: +33 1 30 75 55 00  
Fax: +33 1 30 75 55 24

### GERMANY

ESAB GmbH  
Solingen  
Tel: +49 212 298 0  
Fax: +49 212 298 204

### GREAT BRITAIN

ESAB Group (UK) Ltd  
Waltham Cross  
Tel: +44 1992 76 85 15  
Fax: +44 1992 71 58 03

### ESAB Automation Ltd

Andover  
Tel: +44 1264 33 22 33  
Fax: +44 1264 33 20 74

### HUNGARY

ESAB Kft  
Budapest  
Tel: +36 1 20 44 182  
Fax: +36 1 20 44 186

### ITALY

ESAB Saldatura S.p.A.  
Mesero (Mi)  
Tel: +39 02 97 96 81  
Fax: +39 02 97 28 91 81

### THE NETHERLANDS

ESAB Nederland B.V.  
Utrecht  
Tel: +31 30 248 59 22  
Fax: +31 30 248 52 60

## NORWAY

AS ESAB  
Larvik  
Tel: +47 33 12 10 00  
Fax: +47 33 11 52 03

## POLAND

ESAB Sp.z.o.o  
Warszaw  
Tel: +48 22 813 99 63  
Fax: +48 22 813 98 81

## PORTUGAL

ESAB Lda  
Lisbon  
Tel: +351 1 837 1527  
Fax: +351 1 859 1277

## SLOVAKIA

ESAB Slovakia s.r.o.  
Bratislava  
Tel: +421 7 44 88 24 26  
Fax: +421 7 44 88 87 41

## SPAIN

ESAB Ibérica S.A.  
Alcobendas (Madrid)  
Tel: +34 91 623 11 00  
Fax: +34 91 661 51 83

## SWEDEN

ESAB Sverige AB  
Gothenburg  
Tel: +46 31 50 95 00  
Fax: +46 31 50 92 22  
  
ESAB International AB  
Gothenburg  
Tel: +46 31 50 90 00  
Fax: +46 31 50 93 60

## SWITZERLAND

ESAB AG  
Dietikon  
Tel: +41 1 741 25 25  
Fax: +41 1 740 30 55

## North and South America

### ARGENTINA

CONARCO  
Buenos Aires  
Tel: +54 11 4 753 4039  
Fax: +54 11 4 753 6313

### BRAZIL

ESAB S.A.  
Contagem-MG  
Tel: +55 31 333 43 33  
Fax: +55 31 361 31 51

### CANADA

ESAB Group Canada Inc.  
Mississauga, Ontario  
Tel: +1 905 670 02 20  
Fax: +1 905 670 48 79

### MEXICO

ESAB Mexico S.A.  
Monterrey  
Tel: +52 8 350 5959  
Fax: +52 8 350 7554

### USA

ESAB Welding & Cutting Products  
Florence, SC  
Tel: +1 843 669 44 11  
Fax: +1 843 664 44 58

## Asia/Pacific

### AUSTRALIA

ESAB Australia Pty Ltd  
Ermington  
Tel: +61 2 9647 1232  
Fax: +61 2 9748 1685

### CHINA

Shanghai ESAB A/P  
Shanghai  
Tel: +86 21 6539 7124  
Fax: +86 21 6543 6622

### INDIA

ESAB India Ltd  
Calcutta  
Tel: +91 33 478 45 17  
Fax: +91 33 468 18 80

### INDONESIA

P.T. Esabindo Pratama  
Jakarta  
Tel: +62 21 460 01 88  
Fax: +62 21 461 29 29

### MALAYSIA

ESAB (Malaysia) Snd Bhd  
Selangor  
Tel: +60 3 703 36 15  
Fax: +60 3 703 35 52

### SINGAPORE

ESAB Singapore Pte Ltd  
Singapore  
Tel: +65 861 43 22  
Fax: +65 861 31 95  
  
ESAB Asia/Pacific Pte Ltd  
Singapore  
Tel: +65 861 74 42  
Fax: +65 863 08 39

### SOUTH KOREA

ESAB SeAH Corporation  
Kyung-Nam  
Tel: +82 551 289 81 11  
Fax: +82 551 289 88 63

### UNITED ARAB EMIRATES

ESAB Middle East  
Dubai  
Tel: +971 4 338 88 29  
Fax: +971 4 338 87 29

## Representative offices

### BULGARIA

ESAB Representative Office  
Sofia  
Tel/Fax: +359 2 974 42 88

### EGYPT

ESAB Egypt  
Dokki-Cairo  
Tel: +20 2 390 96 69  
Fax: +20 2 393 32 13

### ROMANIA

ESAB Representative Office  
Bucharest  
Tel/Fax: +40 1 322 36 74

### RUSSIA-CIS

ESAB Representative Office  
Moscow  
Tel: +7 095 937 98 20  
Fax: +7 095 937 95 80

### ESAB Representative Office

St Petersburg  
Tel: +7 812 325 43 62  
Fax: +7 812 325 66 85

## Distributors

*For addresses and phone numbers to our distributors in other countries, please visit our home page*

[www.esab.com](http://www.esab.com)



ESAB AB  
SE-695 81 LAXÅ  
SWEDEN  
Phone +46 584 81 000  
Fax +46 584 123 08

[www.esab.com](http://www.esab.com)