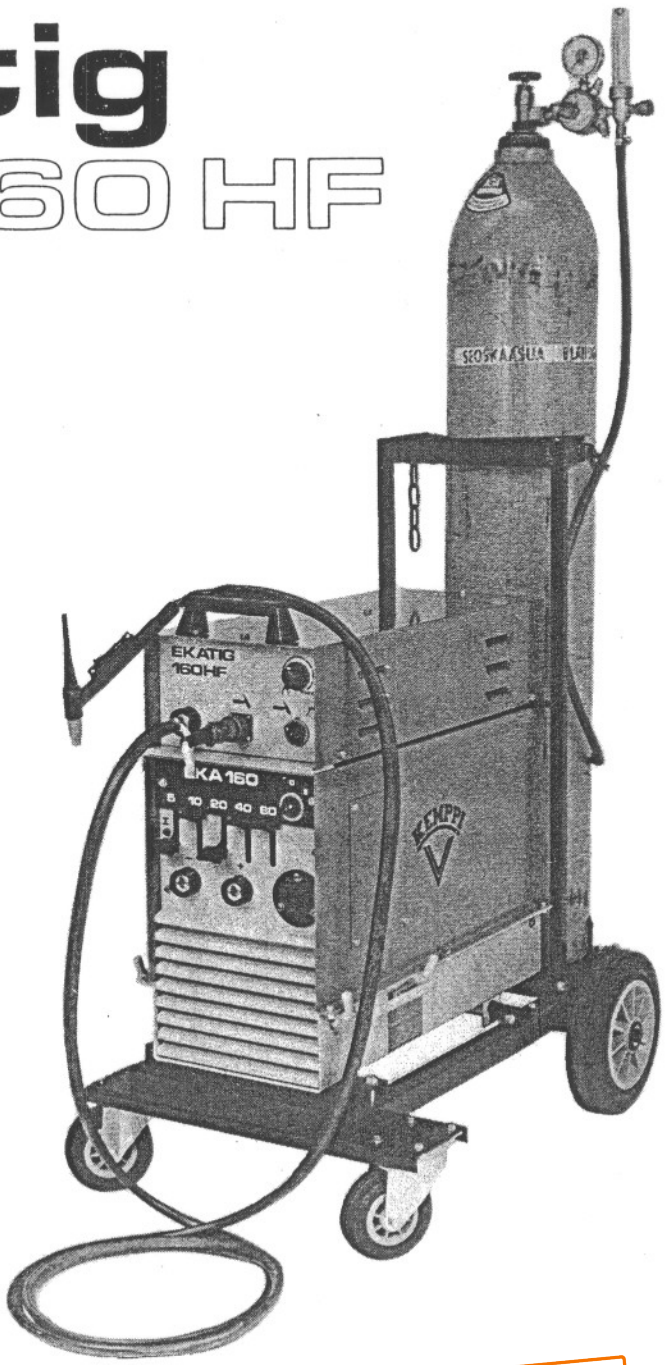
KEMPPI

TIG -HITSAUSTASASUUNTAAJA
TIG -SVETSLIKRIKTARE
TIG -WELDING RECTIFIER
WIG-SCHWEISSGLEICHRICHTER

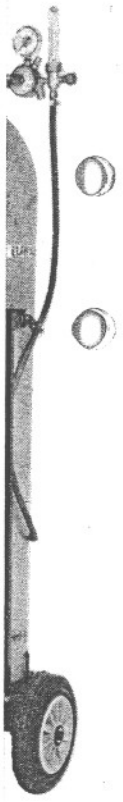
ekatig 160 HF



1912090

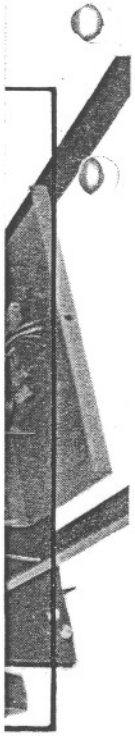
SUOMI

SVENSKA



ENGLISH

DEUTSCH



7

1

A Verkkokaapelin sisäänvienti
Införingsöppning för anslutningskabel
Entry hole for mains cable
Einführungsöffnung für Anschlusskabel

B Hitsauskaapeliliittimet
Svetskabelkopplingar
Welding cable connectors
Schweisskabelanschlüsse

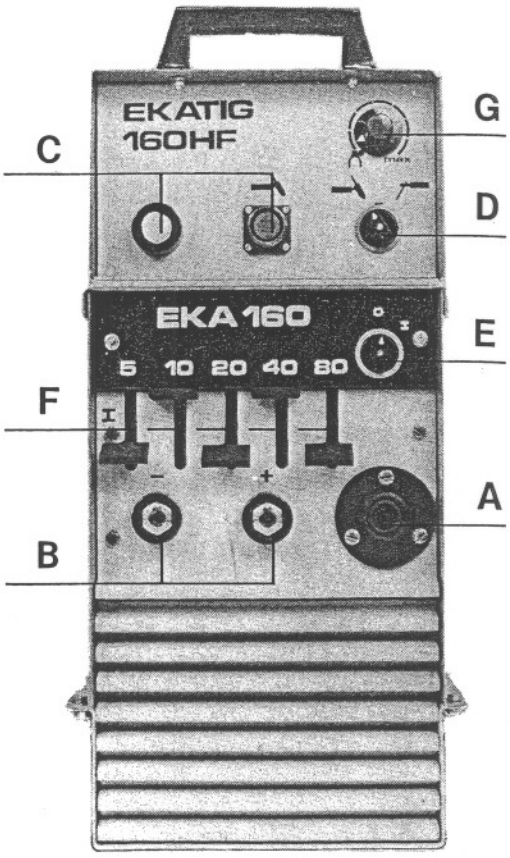
C TIG-hitsauspistoolin liittimet
Adapters för TIG-svetsbrännare
Adapters for TIG-welding torch
Anschlüsse für WIG-Schweissbrenner

D Käyttötavan valintakytkin
Valbrytare för användningssätt
Selecting switch for operating method
Wahlschalter für die Verwendungsart

E Pääkytkin
Huvudbrytare
Main switch
Hauptschalter

F Virransäätökytkimet
Strömregleringsbrytare
Current regulation switches
Stromregelungsschalter

G Jälkikaasuajan säätö
Reglering av eftergastid
Regulation of postgastime
Regelung der Nachgaszeit



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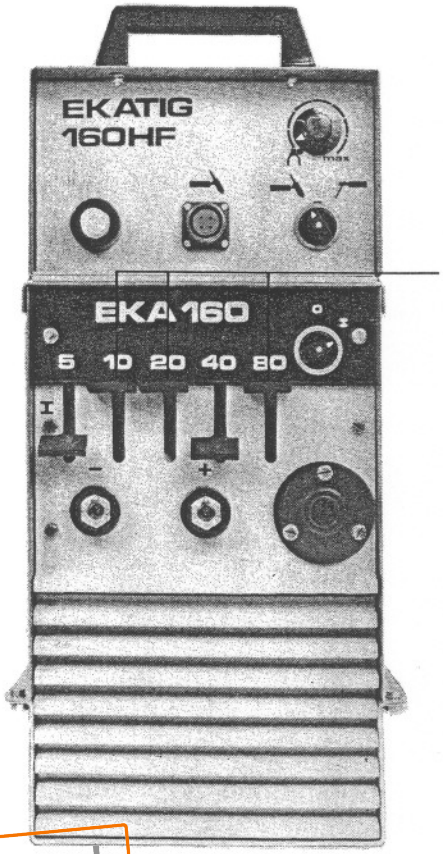
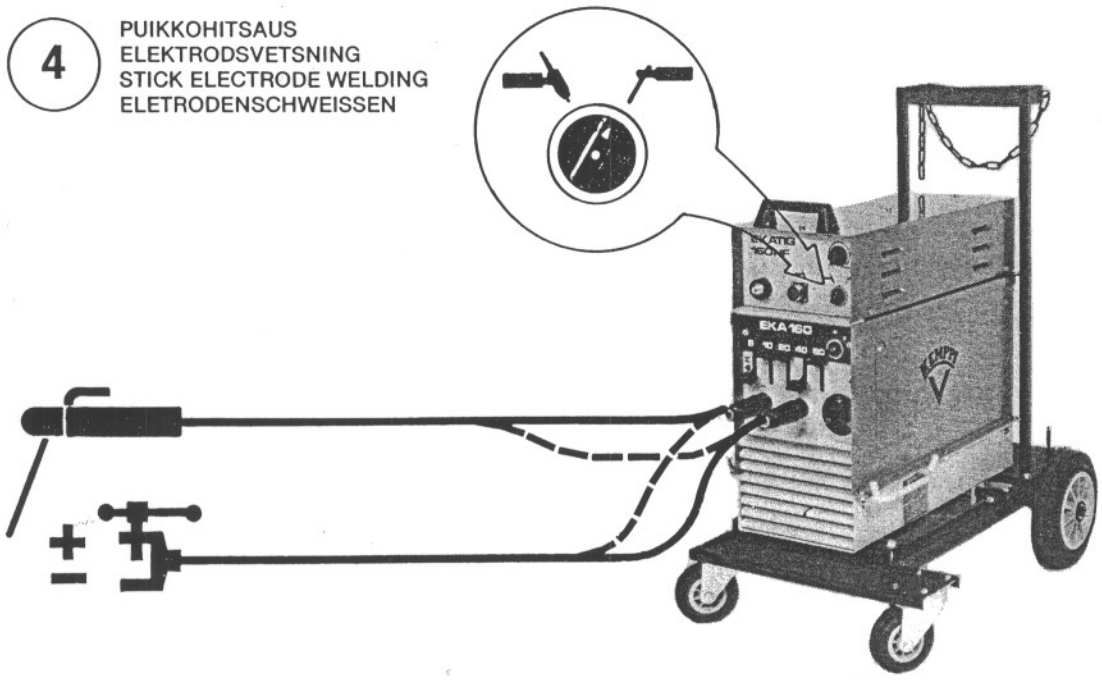
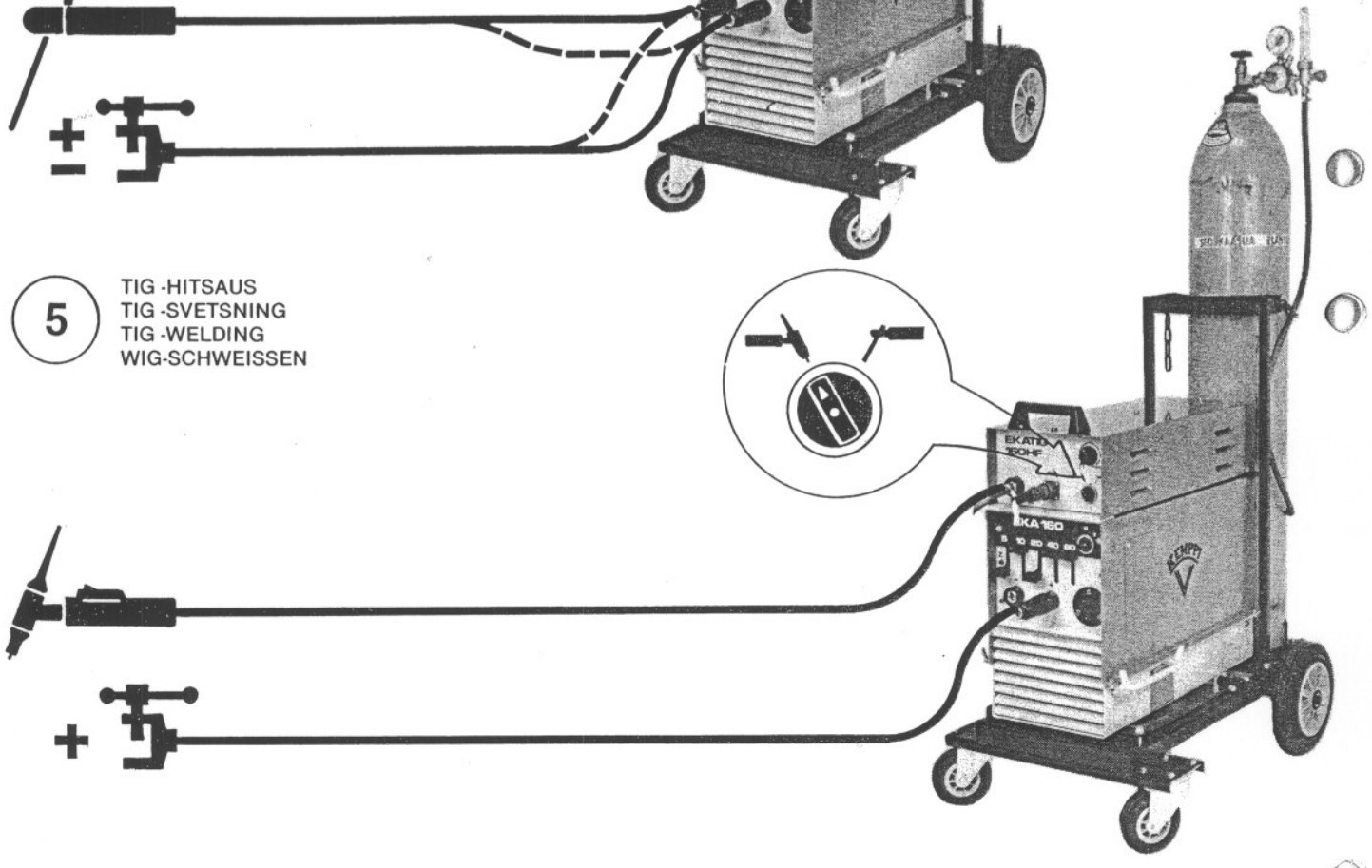


Discontinued product

4 PUIKKOHITSAUS
ELEKTRODSVETSNING
STICK ELECTRODE WELDING
ELETRODENSCHWEISSEN

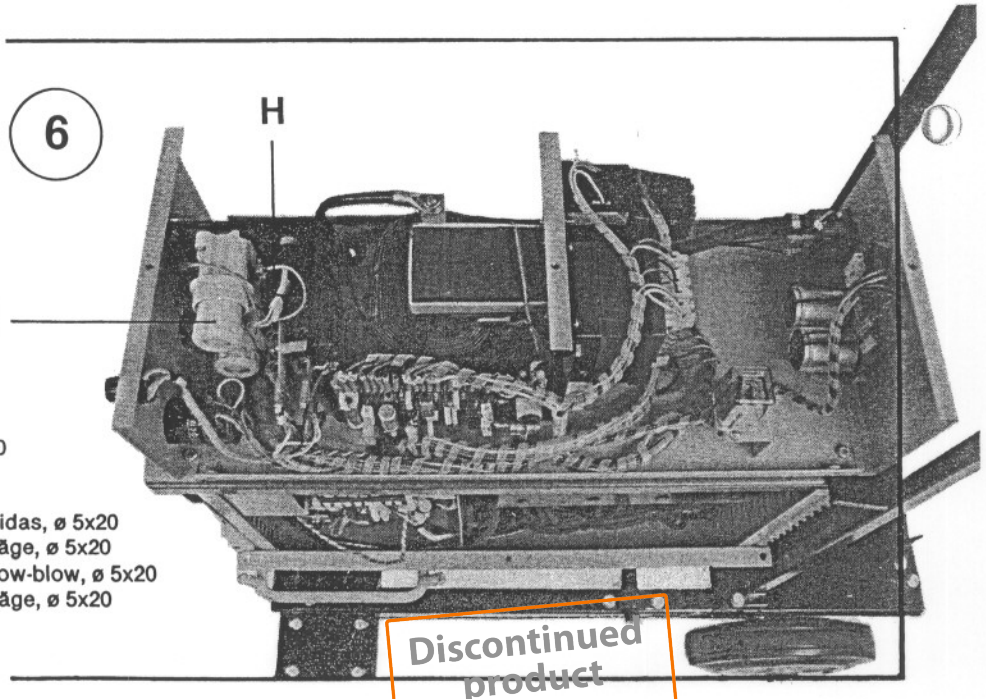


5 TIG -HITSAUS
TIG -SVETSNING
TIG -WELDING
WIG-SCHWEISSEN



10 + 20 + 80 ≙ 110A

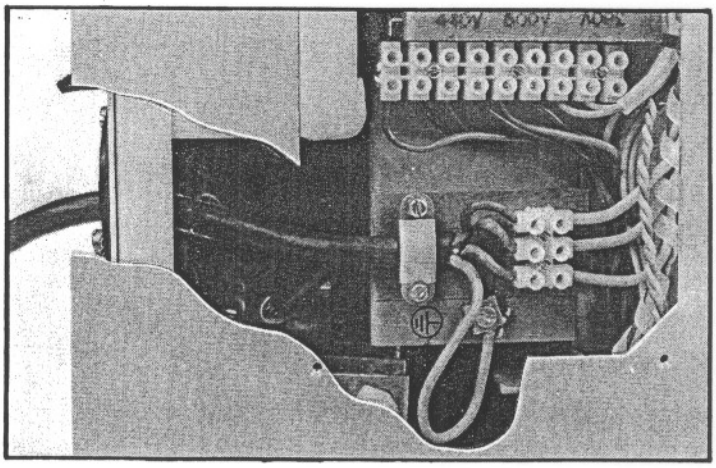
6



H	Sulake	2A/250 V Hidas, ø 5x20	
	Säkring	2A/250V Träge, ø 5x20	
	Fuse	2A/250V Slow-blow, ø 5x20	
	Sicherung	2A/250V Träge, ø 5x20	
J	Sulakkeet	2A/500V tai	2A/250 V Hidas, ø 5x20
	Säkringar	2A/500V eller	2A/250V Träge, ø 5x20
	Fuses	2A/500V or	2A/250V Slow-blow, ø 5x20
	Sicherungen	2A/500V oder	2A/250V Träge, ø 5x20

7

VERKKOKAAPELIN KYTKENTÄ
KOPPLING AV ANSLUTNINGSKABEL
CONNECTION OF MAINS CABLE
KUPPLUNG VON ANSCHLUSSKABEL



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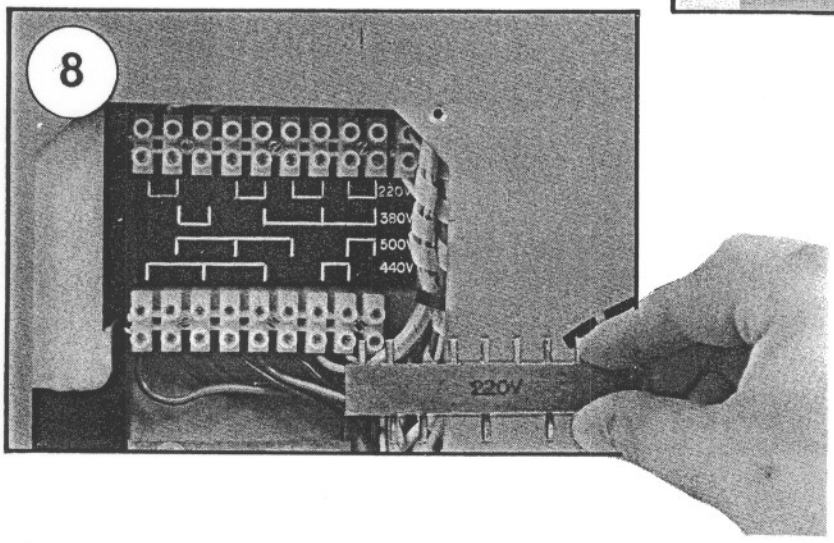
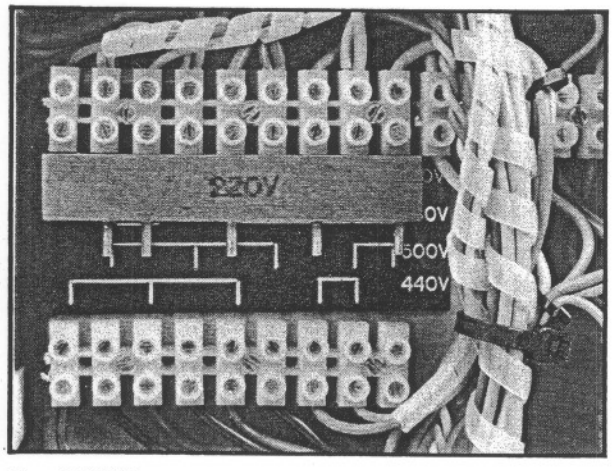
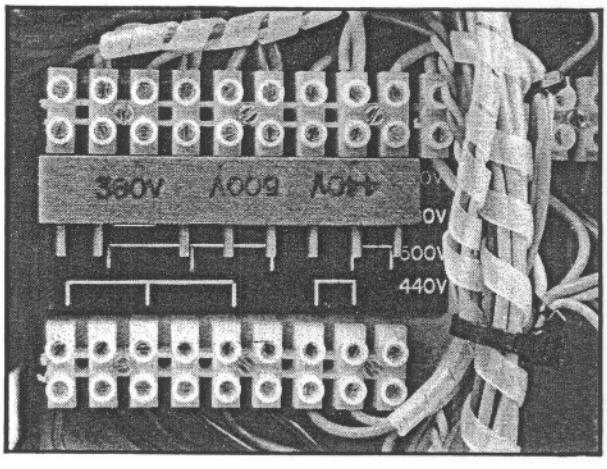


LIITÄNTÄJÄNNITTEEN VAIHTO
OMKOPPLING AV ANSLUTNINGSSPÄNNING
CHANGE OF MAINS VOLTAGE
UMTAUSCH DER ANSCHLUSSPANNUNG

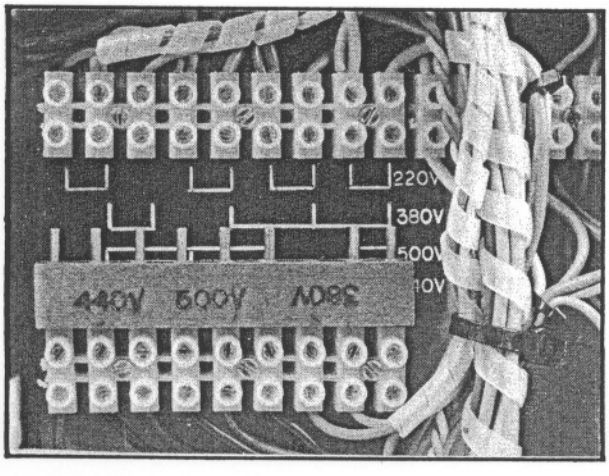


U_1 = 3x220V

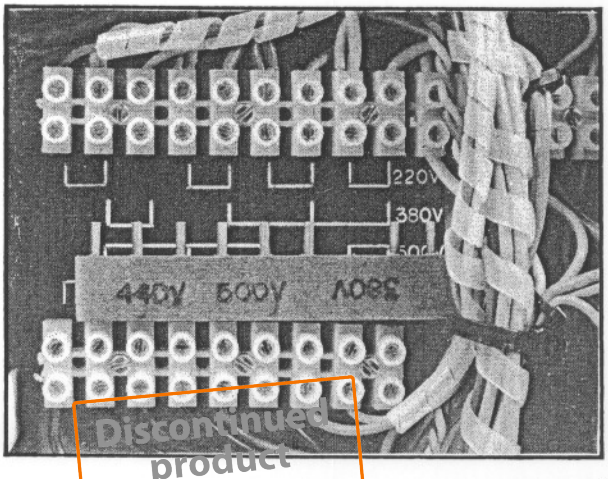


U_1 = 3x380V

U_1 = 3x415 . . . 440V



U_1 = 3x500V



ENGLISH

GENERAL

The EKATIG-160HF is a TIG-welding machine as well as a machine for stick electrode welding with direct current. The Ekatig-160HF is a high class welding machine specially developed to meet the requirements of repair shop and production line welding. In addition to its versatile characteristics, it also is very easy to move about and has a low connection effect.
Its excellent welding characteristics are based on the resistor control principle, which enables welding of thin-walled, acid-proof and stainless steel pipes and plates.

TECHNICAL DESCRIPTION

CONSTRUCTION

The lower part of the machine is made of the Eka-rectifier, built in a strong steel plate housing. The TIG high frequency unit is placed in the upper part of the housing. The machine is mounted on a four wheeled under-carriage of steel construction, which has a stand for the gas cylinder as well.

Control equipment and cable connections are situated on the front panel of the machine. Cooling air is circulated with the aid of a fan mounted in the air duct on the interior wall of the machine. This design ensures efficient cooling of the rectifying unit and the main transformer.

OPERATION

The Eka welding rectifier is a machine which transforms 3-phase mains current into clean direct current suitable for welding. Its main components and purposes are as follows:

— The main transformer separates primary and secondary circuits. It reduces the mains voltage to a safer and more usable value.
— The resistor unit regulates welding current. It is operated by a switch on the front panel.
— The silicone diode rectifier changes the alternating current into direct current.
— The machine contains a thermostat to protect it against overheating.
— The TIG high frequency unit ignites the TIG-arc without touching the work piece. The high frequency unit is also equipped with a manouvering system for the contactor as well as a time control for the gas-after flow.

TECHNICAL SPECIFICATION

Mains supply: — mains voltage	V	3 x 380 50 Hz 3 x 220/380/415/500
— rated current at 100 % duty cycle xx) — effect coefficient — mains fuses	kVA A delayed	5,5 0,96 10
Welding current values: — open circuit voltage — welding current 35 % duty cycle xx) 60 % duty cycle 100 % duty cycle	V A A A	98 155 120 92
Welding current range: — minimum current/voltage — maximum current/voltage	A/V A/V	5/20 155/26
Electrode diameter	mm	1,5 - 3,25 (4,0)
Dimensions: — length — width — height — height with undercarriage	 mm mm mm mm	 620 390 515 1010
Weight	kg	120

xx) VDE 0542/7.65 standard
Cycle time (5 min.) is made up of actual welding time and pauses in between.
Duty cycle is the actual welding time expressed as a percentage of 5 minutes.

For example: duty cycle at 60 %
3 minutes actual welding time
and
2 minutes pause time for inspection

PUTTING THE MACHINE INTO SERVICE AND USE

HOW TO LIFT THE MACHINE

THE GAS CYLINDER MUST ALWAYS BE REMOVED BEFORE LIFTING THE MACHINE! Lifting the machine should be done according to a so called "four-point-lift". A secure lift can be carried out by pulling the wires at the back between the support of the gas cylinder stand to the lifting rings (see picture 2).

LOCATION

When choosing a place for the machine it should be noted that the best is a clean and dry area. In areas where conductive dust is plentiful, care must be taken to prevent such particles from being directed towards the air intake duct of the welding machine. Using the machine out of doors when the air is damp or if it is raining is not recommended, because voltage overlaps in the high frequency unit could happen.

CONNECTION TO MAINS SUPPLY

The mains cable is brought into the machine through the grommet in the front panel and clamped in position (A). The mains cable phase leads are connected to terminals L1, L2 and L3. The yellow-green protective earth ⏚ lead must be connected to the earthing screw on the terminal board (see picture 7).
Before the machine is connected to the mains, make sure that the mains voltage is the same as that marked on the specification plate of the machine.
If the machine has several mains voltage facilities, make sure that the voltage selector is in the right position (see picture 8).
Recommended sizes of mains connection cables and fuses are shown in the following table:

Mains connection cable mm²			Delayed fuses A		
Mains voltage			Mains voltage		
220V	380-440V	500V	220V	380-440V	500V
4x2,5	4x1,5	4x1,5	16	10	10

Note! Only delayed fuses are to be used.

TIG-WELDING (see pictures 1 and 4)

The gas cylinder will be fastened at the back of the undercarriage and the gas hose is connected to the contact on the back panel of the machine.
The TIG-welding torch LTP-160 is connected to the gas-/current contact on the front panel of the high frequency unit and the switch lead of the torch is connected to the control cable contact beside it.
The earth cable is connected to the plus-contact (+), otherwise welding is not possible, because the minuspole is stationarily connected to the contact of the welding torch.
The selector switch for the welding method will be turned to indicate TIG-welding (TIG-welding torch symbol).
The machine is started by turning the main switch to position I.
Current regulation will be made with the switches on the front panel of the machine. You will get the rated value of the welding current by arithmetically adding the current values of the switches together (see picture 3).

ADJUSTMENTS TO THE WELDING CURRENT MUST NOT BE MADE WHILE WELDING!

The gas after flow time can be adjusted from 1 to 10 seconds with the regulator on the front panel of the machine.

STICK ELECTRODE WELDING (see pictures 1 and 5)

The welding and earth cables are connected to the DIX-snap connectors on the front panel of the machine. Recommended sizes of welding cables and auxiliary equipment are shown in the following table:

Welding cable mm²			Cable connector	Electrode holder	Earthing clamp
Cable length					
5 - 10 m	10 - 15 m	15 - 25 m			
16	25	35	K50	DIX200K	PZ50K

The selector switch for the welding method will be turned to the position for electrode welding (electrode holder symbol).
The machine is started by turning the main switch to position I.
Current regulation (see TIG-welding).
ADJUSTMENTS TO THE WELDING CURRENT MUST NOT BE MADE WHILE WELDING!

MAINTENANCE (see picture 6)

Method of use and ambient conditions are important factors in maintenance. Proper use and sensible preventive maintenance guarantee the most troublefree use of the machine with no unforeseen interruptions. A thorough service should be carried out at least twice a year. If the machine is used in places where there is a lot of conductive coal or metal dust, thorough service should be carried out at more frequent intervals. Basic maintenance steps:

- Remove the sideplates of the lower part and the cover of the high frequency unit and clean the interior parts and components with compressed air.
- Inspect all connections and repair if necessary.
- Inspect all screw and bolt connections and tighten them if necessary.
- Check the operation of all switches and replace if necessary.
- Check the condition of all cables and DIX connectors and replace if necessary.

IN CASE OF DISTURBANCES IN THE FUNCTIONS OF THE MACHINE, CONTACT THE NEAREST KEMPPI-AUTHORIZED REPAIR SHOP.

GUARANTEE

The machines produced and products represented by Kemppi Oy are guaranteed against defects in material or manufacture.
Within the limits of the guarantee the defective part will be replaced by a new one, or when possible, repaired free of charge.
The guarantee is valid for one year provided that the machine is used in one-shift work.
The guarantee does not compensate for damage due to improper use, neglect or normal wear. Possible travelling costs or freight or postage charges are not covered by the Kemppi guarantee.
Guarantee repairs must be carried out at the Kemppi works in Lahti, Finland or by the customer's nearest Kemppi authorised repair shop. In all cases the guarantee card must be presented.