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TAF 1251

Instruction manual

0449 510 001 GB 20110715

Valid for serial no. 935-xxx-xxxx,126-xxx-xxxx

DECLARATION OF CONFORMITY

According to

The Low Voltage Directive 2006/95/EC, entering into force 16 January 2007

The EMC Directive 2004/108/EC, entering into force 20 July 2007

Type of equipment
Welding power source

Type designation etc.
TAF 1251 from serial number 935 xxx xxxx (2009 w.35)

Brand name or trade mark
ESAB

Manufacturer or his authorised representative established within the EEA
Name, address, telephone No, telefax No:

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The following harmonised standard in force within the EEA has been used in the design:
EN 60974-1, Arc welding equipment – Part 1: Welding power sources
EN 60974-10, Arc welding equipment – Part 10: Electromagnetic compatibility (EMC) requirements

Additional information: Restrictive use, Class A equipment, intended for use in locations other than residential

By signing this document, the undersigned declares as manufacturer, or the manufacturer's authorised representative established within the EEA, that the equipment in question complies with the safety requirements stated above.

Date
Laxå 2009-09-15

Signature

Kent Eimbrodt
Clarification

Position
Global Director
Equipment and Automation

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1 SAFETY

Users of ESAB 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 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 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 equipment must be familiar with:
   - its operation
   - location of emergency stops
   - its function
   - relevant safety precautions
   - welding and cutting
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.

CAUTION

This product is solely intended for arc welding.

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WARNING

Arc welding and cutting can be injurious to yourself and others. Take precausions when welding and cutting. Ask for your employer's safety practices which should be based on manufacturers' hazard data.

ELECTRIC SHOCK - Can kill

- Install and earth the 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.

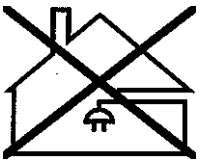
MALFUNCTION - Call for expert assistance in the event of malfunction.

Read and understand the instruction manual before installing or operating.

PROTECT YOURSELF AND OTHERS!

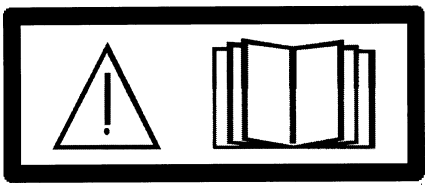
CAUTION

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.



CAUTION

Read and understand the instruction manual before installing or operating.



Dispose of electronic equipment at the recycling facility!

In observance of European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and its implementation in accordance with national law, electrical and/or electronic equipment that has reached the end of its life must be disposed of at a recycling facility.

As the person responsible for the equipment, it is your responsibility to obtain information on approved collection stations.

For further information contact the nearest ESAB dealer.

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

2 INTRODUCTION

TAF 1251 is a remote-controlled, two-phase AC welding power source designed for high-throughput, mechanised submerged-arc welding (SAW).

The welding power source converts, via a thyristor bridge-rectifier, the secondary voltage's sine wave to a square wave with excellent arc ignition and welding characteristics.

The welding power source is fan cooled and is overload protected by a thermal cut-out. Re-setting takes place automatically as soon as the temperature has reduced to a permitted level.

3 TECHNICAL DATA

	TAF 1251
Voltage	346/400/415/500 V, 1∼50 Hz 400/440/550 V, 1∼60 Hz
Primary current	I_{max} 210 A
Permissible load at:	
100 % duty cycle	1250 A /44 V
Setting range	400-1250 A /28-44 V
No-load voltage	70 V
No-load power	210 W
Effiency	89%
Power factor	0,75
Weight	608 kg
Dimensions L x W x H	774 x 598 x 1228
Insulation class (transformer):	**H**
Enclosure class	IP 23

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.

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4 INSTALLATION

The installation must be carried out by a professional.

Note

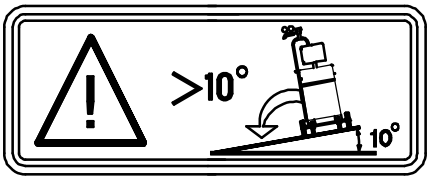
Mains supply requirements

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 distrubution network operator if necessary, that the equipment may be connected.

4.1 Location

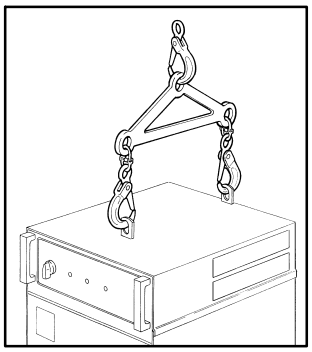
WARNING

Fasten the equipment - particularly if the ground is uneven or sloping.

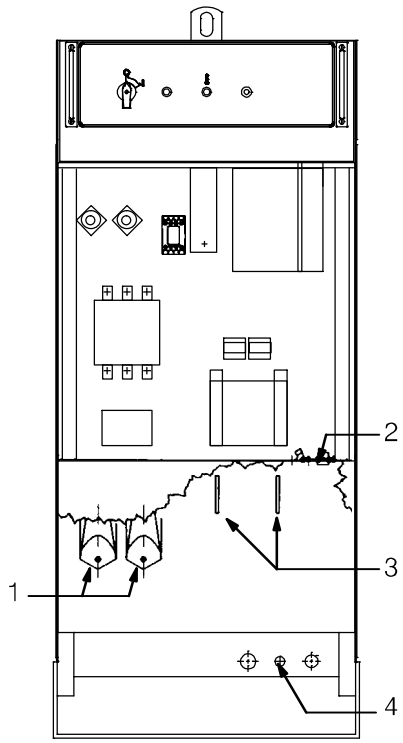


- Place the welding power source on a level foundation.
- Make sure there is nothing to prevent the cooling.

Lifting instructions



4.2 Connections



- On delivery the welding power source is connected for 400 V. For other supply voltage, switch over to the desired voltage on the main transformer and the control transformer according to the connection instructions on page 16.
- Make sure the mains cable has the right sectional area and fuse it with an adequate fuse according to applicable local directions (see table on page 8).
- Connect the earth cable to the screw marked ⏚ .
- Connect the mains cable to the main terminal blocks L1 and L3.
- Tighten the cable support (***1***).
- Connect the control cable between the welding power source and the control unit to the 28-pole contact (***2***) inside the welding power source.
- Connect the 1-pin measuring cable (***4***) for measuring the arc voltage to the return cable/welding head.
- Connect a suitable welding and return cable to the contacts (***3***) marked ⎍⎍⎍ on the front of the power source.

Mains connection

TAF 1251	**50 Hz**			**60 Hz**	
Voltage (V)	346	400 / 415	500	400 / 440	550
Phase current I_{1eff} (A)	249	212	170	212	170
Cable area (mm^2)	2x(2x70+35)	2x(2x70+35)	2x95+50	2x(2x70+35)	2x95+50
Fuse, slow (A)	250	200	200	200	200

Note:
The mains cable areas and fuse sizes as shown above are in accordance with Swedish regulations. They may not be applicable in other countries: make sure that the cable area and fuse sizes comply with the relevant national regulations.

5 OPERATION

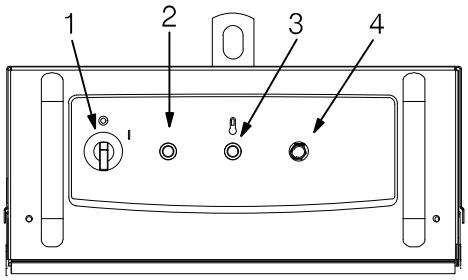
General safety regulations for handling of the equipment can be found on page 4. Read through before you start using the equipment!

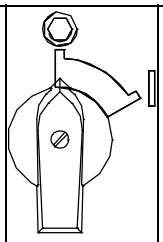
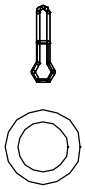
Note! Never use the welding power source without side plates.

Note! The power source must be set to analogue mode to use the PEI control unit.

5.1 Controls

The front panel contains:



1.		Main circuit-breaker for switching the mains voltage and the fan on and off in the welding power source. • Position "1" On • Position "0" Off
2.		• The indicator lamp (white) illuminates when the main switch is switched on.
3.		Indicator lamp for overheating (yellow) • The indicator lamp illuminates when the thermal cutout is deployed due to excess temperature in the welding power source. • The indicator lamp goes out when the temperature in the welding power source has decreased to a permitted level.
4.		Pushbutton resetting the automatic fuse *FU2* for 42 V supply voltage.

6 MAINTENANCE

CAUTION

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

6.1 Cleaning

6.1.1 Welding power source

WARNING!
Blocked air inlets or outlets will lead to overheating.

- Clean the welding power source as necessary.
  Dry compressed air is recommended for the purpose.

6.1.2 Contactor

WARNING!
Never use compressed air to clean the contactor without first taking it apart completely.

Note:
To ensure the reliable operation of the contactor, the magnetic parts must be kept clean.
If the contactor has to be cleaned it ***must*** be taken apart, and all the pieces be cleaned.
Alternatively, the contactor can be replaced.

7 ORDERING OF SPARE PARTS

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

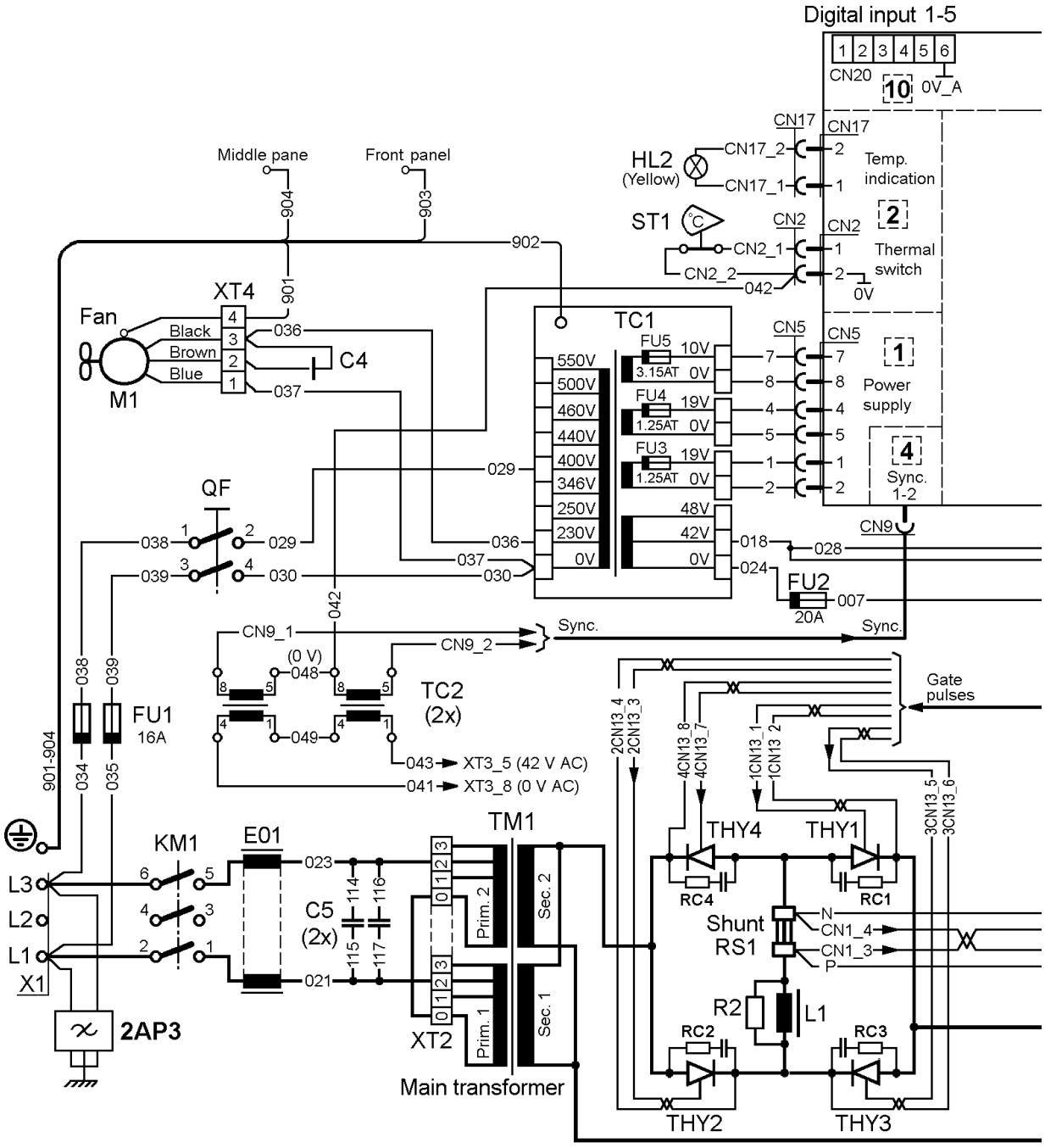
TAF 1251 is designed and tested in accordance with the international and European standards EN 60974-1 and EN 60974-10. It is the obligation of the service unit which has carried out the service or repair work to make sure that the product still conforms to the said standard.

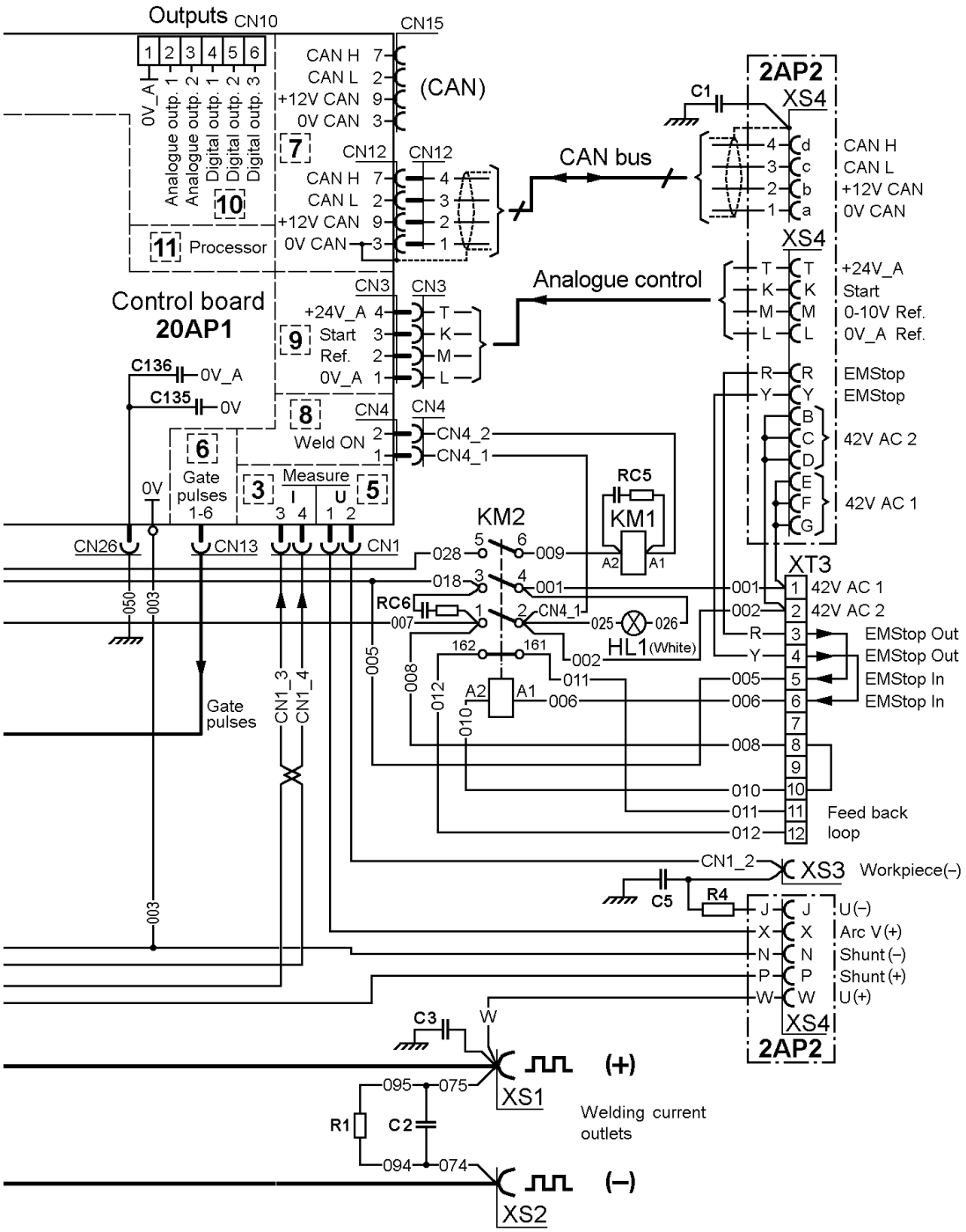
Spare parts may be ordered through your nearest ESAB dealer, see the last page of this publication.

NOTES

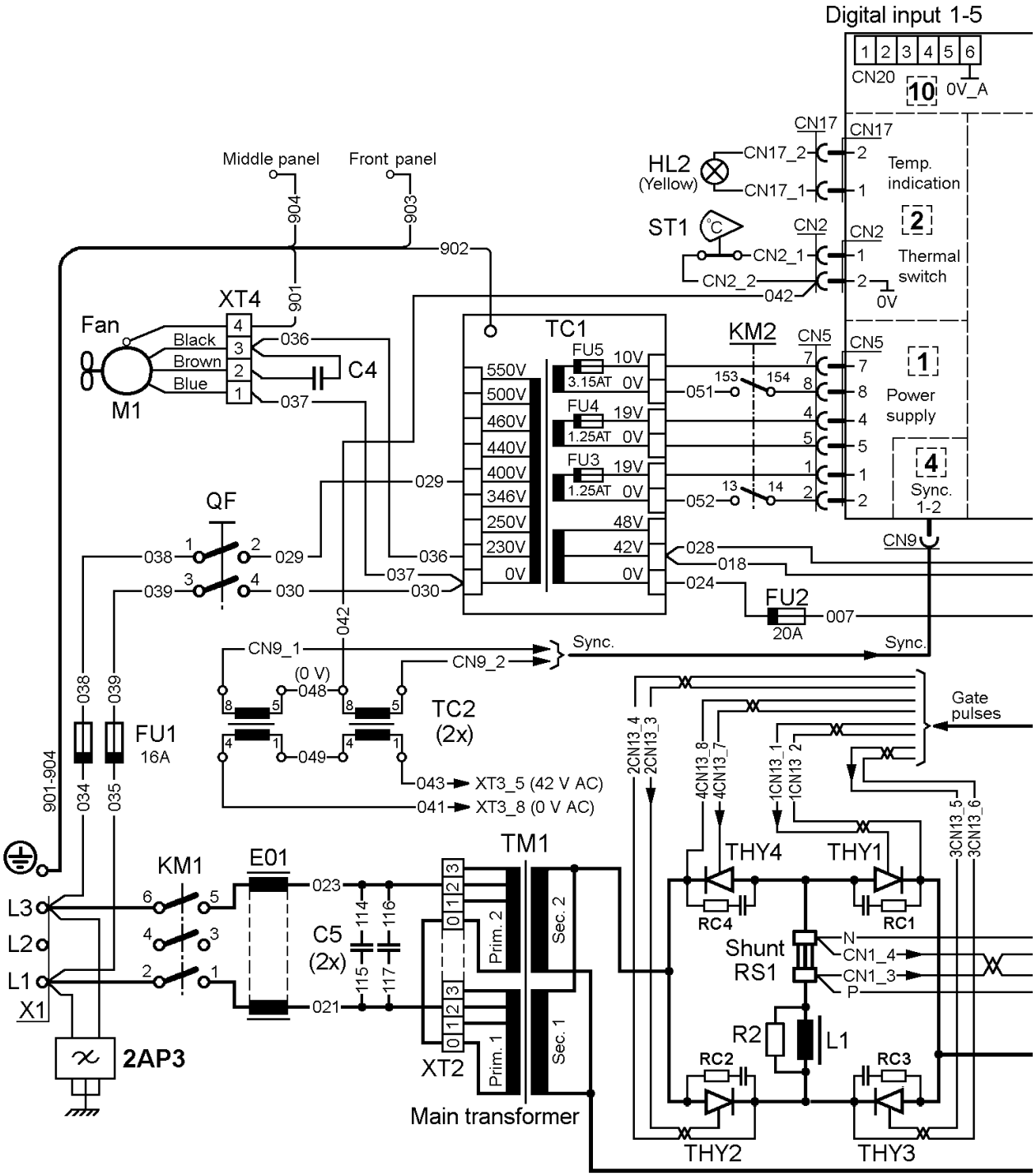
Diagram

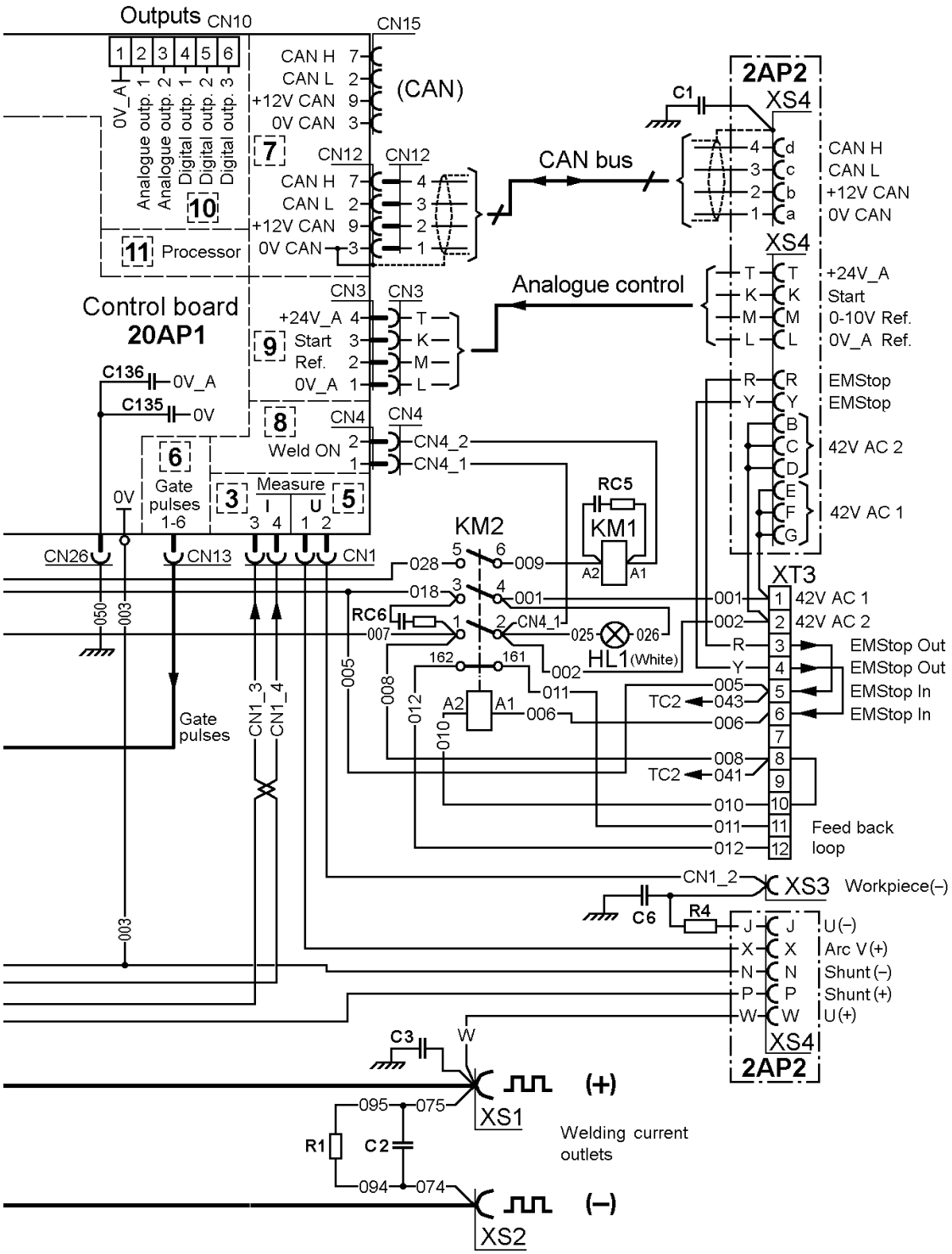
Valid for serial no. 935-xxx-xxxx



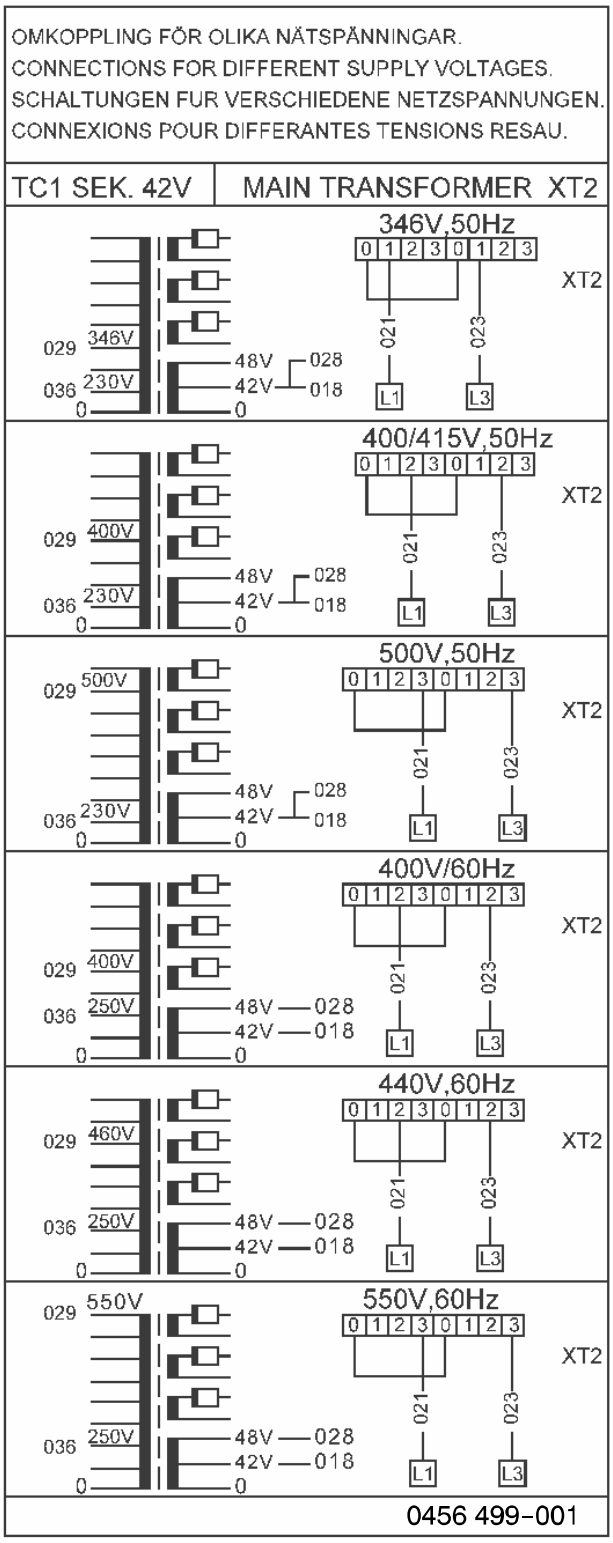

Outputs CN10
CN15
(CAN)
CAN bus
2AP2
XS4
Control board
20AP1
Processor
Analogue control
Start
Weld ON
Gate pulses 1-6
Measure
Gate pulses
KM1
KM2
RC5
RC6
HL1 (White)
XT3
EMStop Out
EMStop In
Feed back loop
42V AC 1
42V AC 2
Workpiece(–)
Arc V(+)
Shunt(–)
Shunt(+)
U(–)
U(+)
Welding current outlets
XS1
XS2
XS3

Valid for serial no. 126-xxx-xxxx




Outputs CN10
CN15
(CAN)
CAN bus
2AP2
XS4
C1
CAN H
CAN L
+12V CAN
0V CAN
Control board
20AP1
Processor
Analogue control
+24V_A
Start
0-10V Ref.
0V_A Ref.
EMStop
42V AC 2
42V AC 1
C136
C135
0V_A
0V
Weld ON
Gate pulses 1-6
Measure
CN26
CN13
CN1
KM2
KM1
RC5
RC6
HL1 (White)
XT3
EMStop Out
EMStop In
TC2
Feed back loop
CN1_2
XS3
Workpiece(–)
C6
R4
U(–)
Arc V(+)
Shunt(–)
Shunt(+)
U(+)
C3
XS1
(+)
Welding current outlets
R1
C2
XS2
(–)

Connection instruction



Ordering number

Ordering no.	Denomination	Notes
0460 517 880	Welding power source	TAF 1251
0459 839 063	Spare parts list	TAF 1251

The spare parts list is available on the Internet at **www.esab.com**

NOTES

NOTES

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