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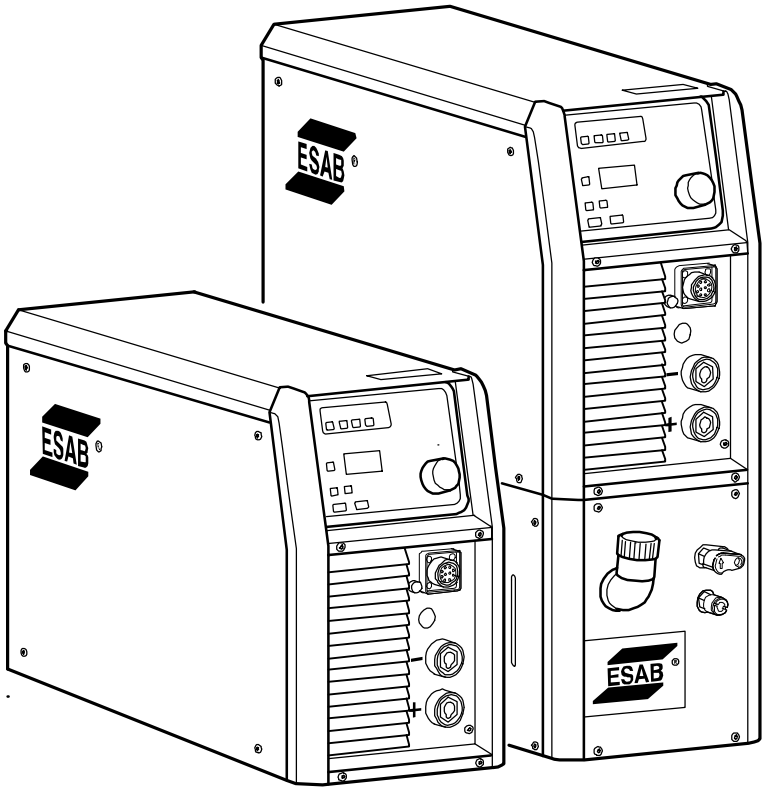
Origo™

Tig 3001i



Instruction manual

0460 742 001 GB 20121105

Valid for serial no. 840-xxx-xxxx, 950-xxx-xxxx, 039-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
Arc welding power source

Type designation
Tig 3001i, Tig 3001iw, TA23, TA24 from serial number 840 xxx xxxx (2008 w.40)
Tig 3001i, Tig 3001iw, TA23, TA24, are members of the ESAB Origo™ product family

Brand name or trade mark
ESAB

Manufacturer or his authorized representative established within the EEA:
Name, address, phone, website:
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Phone: +46 31 509 000
Website: www.esab.com

The following harmonized standards, in force within the EEA, has been used in the design:
EN 60974-1, Arc welding equipment – Part 1: Welding power sources
EN 60974-2, Arc welding equipment – Part 2: Liquid cooling systems
EN 60974-3, Arc welding equipment – Part 3: Arc striking and stabilizing devices
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 authorized representative established within EEA, that the equipment in question complies with the safety requirements stated above.

Date
2012-09-27

Signature

Jerker Funnemark
Clarification

Position
Managing Director
Equipment & Automation

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 unauthorised 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 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.

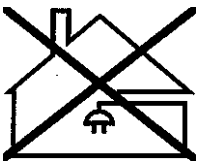
PROTECT YOURSELF AND OTHERS!

WARNING

Do not use the power source for thawing frozen pipes.

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.

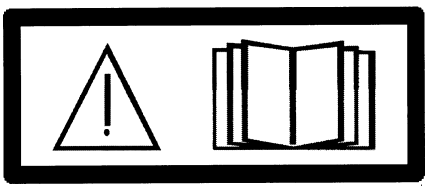


CAUTION

This product is solely intended for arc welding.

CAUTION

Read and understand the instruction manual before installing or operating.



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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.

2 INTRODUCTION

Tig 3001i is a TIG welding power source, which can also be used for MMA welding.

ESAB's accessories for the product can be found on page 17.

2.1 Equipment

Tig 3001i can be supplied with or without cooling unit.

The power source is supplied with:

- 4.5 m return cable with contact clamp
- instruction manual for the welding power source
- instruction manual for the control panel
- instruction manual for the cooling unit (if applicable)

Instruction manuals in other languages can be downloaded from the website, www.esab.com.

2.2 Control panels TA23 and TA24

The power source is supplied with one of the following control panels:

Welding process parameters are controlled via the control panel. See the separate instruction manual for a detailed description of the panels.

3 TECHNICAL DATA

Tig 3001i	
Mains voltage	400 V ±10%, 3~ 50/60 Hz
Mains supply	$S_{sc\ min}$ 1.4 MVA
Primary current	
I_{max} TIG	13 A
I_{max} MMA	19 A
No-load power demand when in the energy-saving mode, 6.5 min. after welding	30 W
Setting range	
TIG	4 - 300 A
MMA	16 - 300 A
Permissible load at TIG	
35 % duty cycle	300 A / 22 V
60% duty cycle	240 A / 19.6 V
100% duty cycle	200 A / 18 V
Permissible load at MMA	
30 % duty cycle	300A / 32 V
60% duty cycle	230 A / 29.2 V
100% duty cycle	190 A / 27.6 V
Power factor at maximum current	
TIG	0.9
MMA	0.89
Efficiency at maximum current	
TIG	81 %
MMA	84 %
Open-circuit voltage U_0 max	
without VRD function [1]	67 V
U_{0L} "Live TIG", VRD function deactivated [2]	60 V
MMA, VRD function deactivated [2]	60 V
VRD function activated [2]	<35 V
Operating temperature	-10 to +40° C
Transportation temperature	- 20 to +55° C
Constant sound pressure at no-load	< 70 dB (A)
Dimensions lxwxh	652 X 249 X 423 mm
with cooling unit	714 X 249 X 693 mm
Weight	33.5 kg
with cooling unit	54 kg
Insulation class transformer	H
Enclosure class	IP 23
Application class	S

1) Valid for power sources without VRD specification on the rating plate.

2) Valid for power sources with VRD specification on the rating plate.The VRD function is explained in the instructions for the control panel, if the panel has that function.

Mains supply, $S_{sc\ min}$
Minimum short circuit power on the network in accordance with IEC 61000-3-12

Duty cycle

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

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.

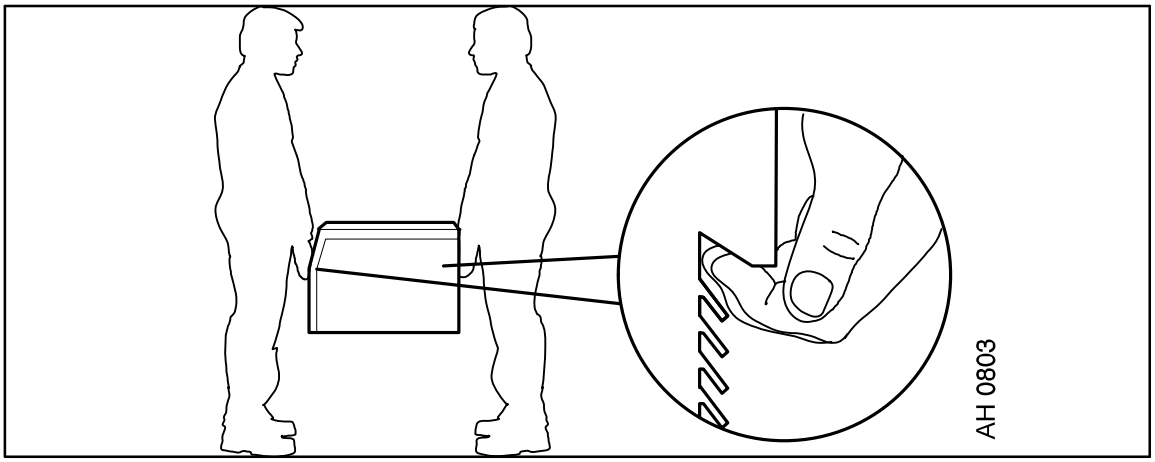
Application class

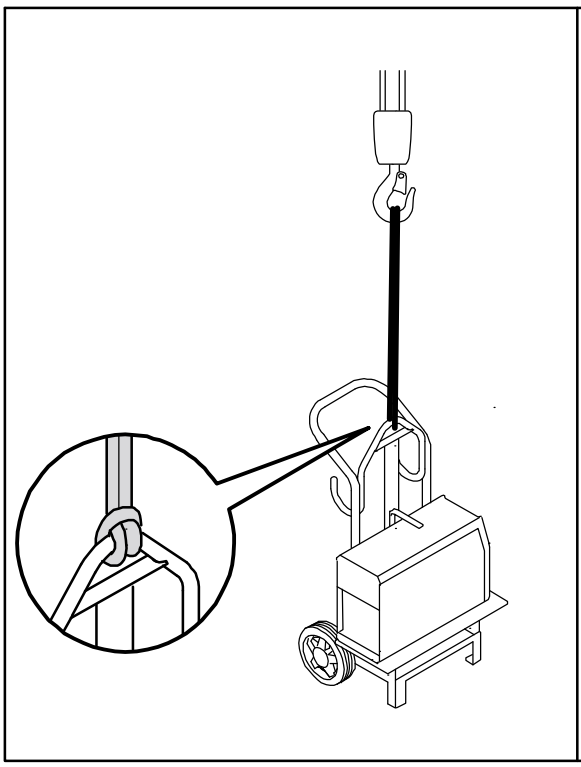
The symbol S indicates that the power source is designed for use in areas with increased electrical hazard.

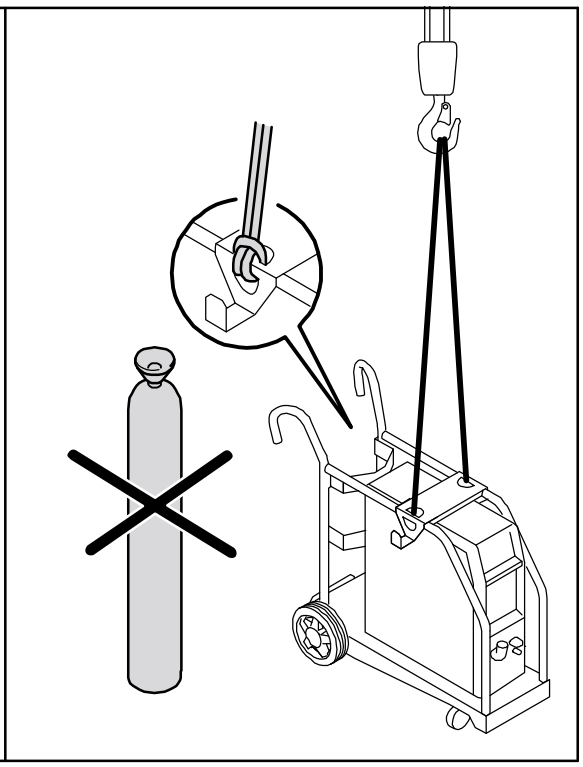
4 INSTALLATION

The installation must be carried out by a professional.

4.1 Lifting instructions







4.2 Location

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

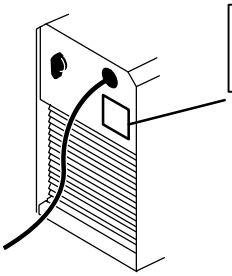
4.3 Mains supply

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.

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



Rating plate with supply connection data

NOTE! *The welding power source is designed for connection to a 400 volt system with four conductors.*

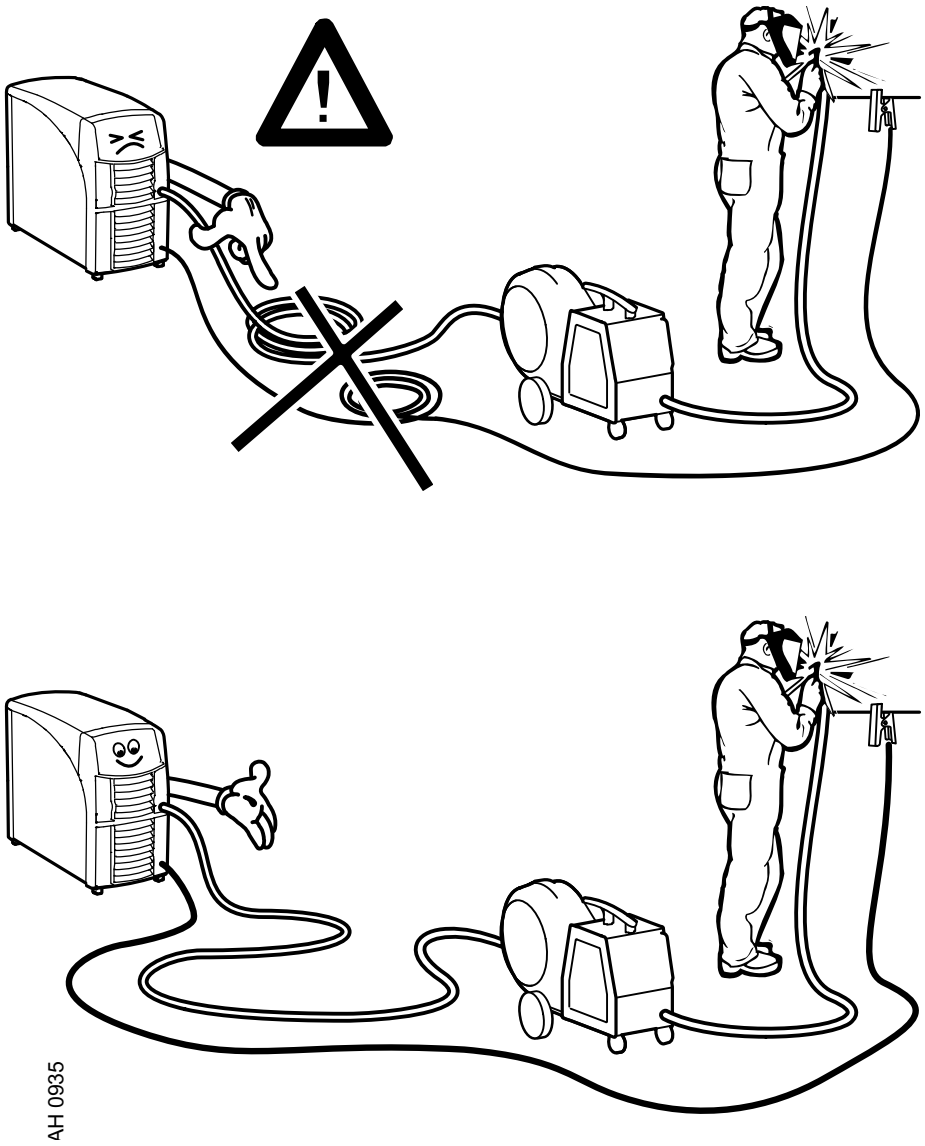
Recommended fuse sizes and minimum cable area

Tig 3001i	
Mains voltage	400 V 3~ 50 Hz
Mains cable area mm^2	$4G4mm^2$
Phase current I_{eff}	10 A
Fuse	
anti-surge	16 A
type C MCB	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.*

5 OPERATION

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



5.1 Connections and control devices

1 Control panel, see separate instruction manual

2 Connection for remote control unit

3 Connection for start signal from the welding torch

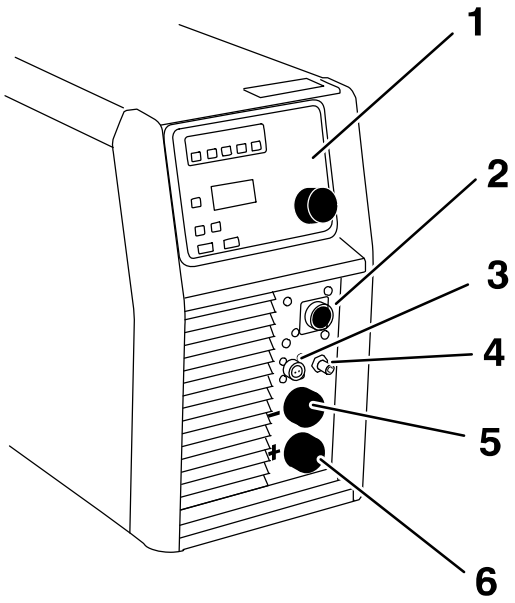
4 Connection for gas to the torch

5 Connection (-) TIG: Welding torch
MMA: Welding cable or return cable

6 Connection (+) TIG: Return cable
MMA: Return cable or welding cable

7 Mains voltage switch

8 Connection for shielding gas



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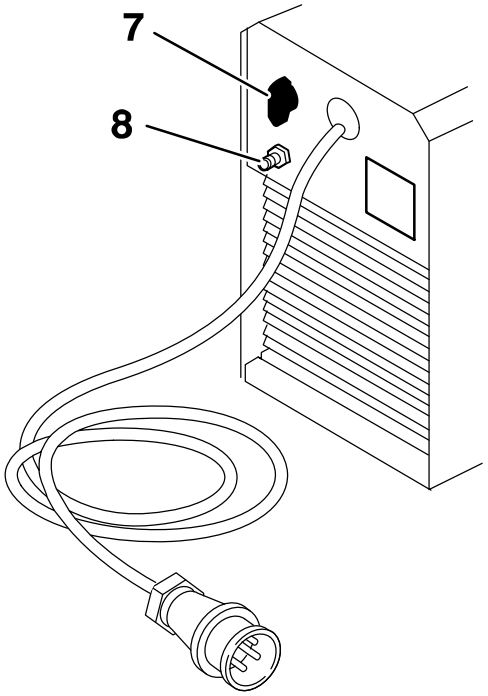


5.2 Connection of welding and return cable

The power source has two outputs, a positive terminal (+) and a negative terminal (-), for connecting welding and return cables. The output to which the welding cable is connected depends on the welding method or type of electrode used.

Connect the return cable to the other output on the power source. Secure the return cable's contact clamp to the work piece and ensure that there is good contact between the work piece and the output for the return cable on the power source.

For MMA welding, the welding cable can be connected to the positive terminal (+) or negative terminal (-) depending on the type of electrode used. The connecting polarity is stated on the electrode packaging.

5.3 Fan control

The power source has a time control that means that the fans continue to run for 6.5 minutes after welding has stopped, and the unit switches to energy-saving mode. The fans start again when welding restarts.

The fans run at reduced speed for welding currents up to 110 A, and at full speed for higher currents.

5.4 Overheating Protection

The welding power source has overheating protection that operates if the temperature becomes too high. When this occurs the welding current is interrupted and a fault code is displayed on the control panel.

The overheating protection resets automatically when the temperature has fallen.

5.5 TIG welding

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.

For TIG welding, the welding power source is supplemented with:

- TIG torch, see accessories page 17
- an argon gas cylinder
- an argon gas regulator
- tungsten electrode

5.6 MMA welding

For MMA welding, the power source is supplemented with:

- welding cable with electrode clamp, see accessories page 17

6 MAINTENANCE

Regular maintenance is important for safe, reliable operation.

Only those persons who have appropriate electrical knowledge (authorized personnel) may remove the safety plates.

CAUTION

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

6.1 Power unit

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 the power source clean with dry compressed air (reduced pressure) once a year. Clogged or blocked air inlets and outlets otherwise result in overheating.

6.2 Welding torch

Wear parts should be cleaned and replaced at regular intervals in order to achieve trouble-free welding.

7 FAULT-TRACING

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

Type of fault	Corrective action
No arc.	• Check that the mains power supply switch is turned on. • Check that the welding and return cables are correctly connected. • Check that the correct current value is set. • Check the mains power supply fuses.
The welding current is interrupted during welding.	• Check whether the overloading protection has deployed (indicated in the control panel). • Check the mains power supply fuses.
The overheating protection trips 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). • Check that the air inlets and outlets are not obstructed or blocked.
Poor welding performance.	• Check that the welding and return cables are correctly connected. • Check that the correct current value is set. • Check that the correct electrodes are being used. • Check the mains power supply fuses. • Check gas flow and gas quality

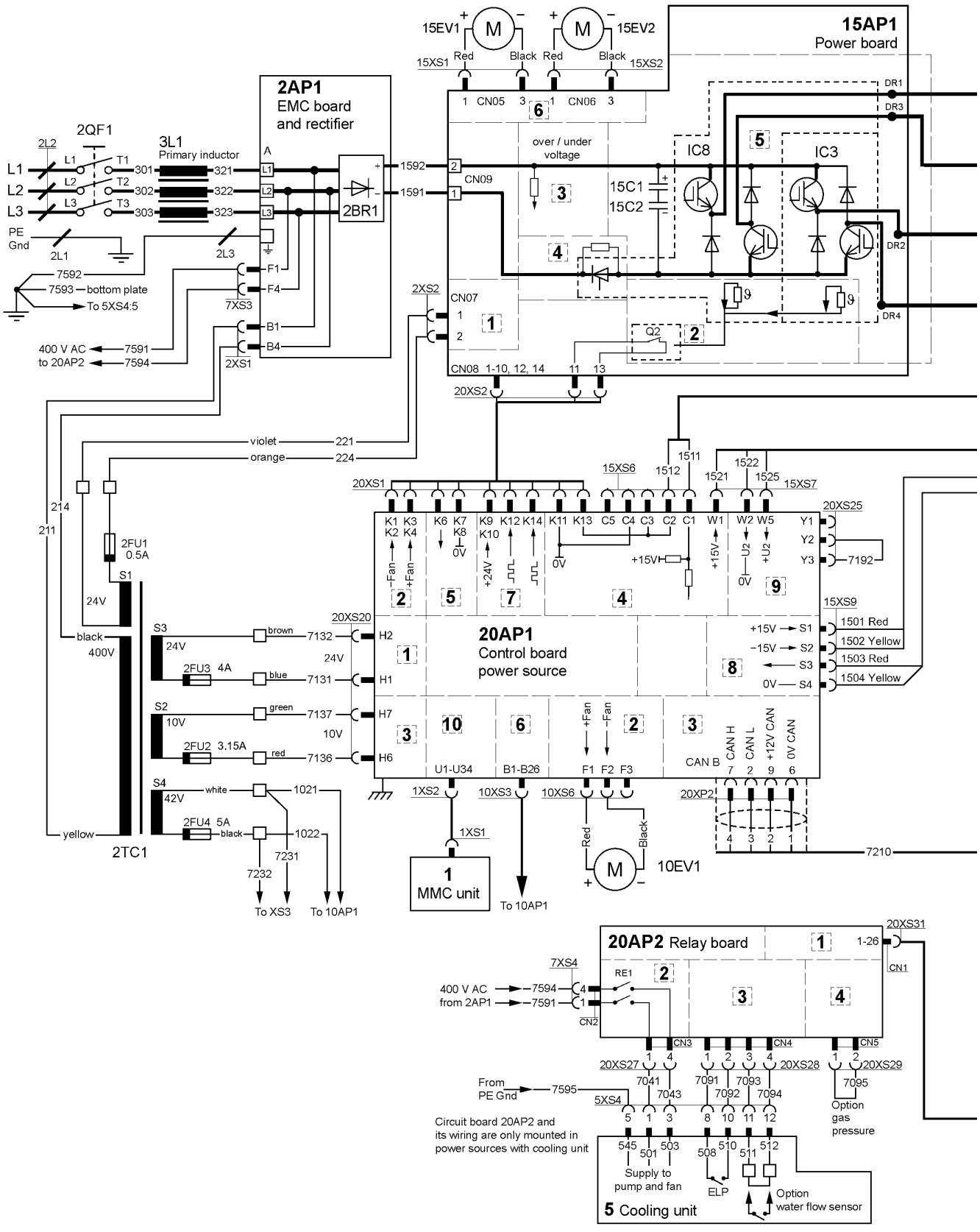
8 ORDERING SPARE PARTS

Tig 3001i is designed and tested in accordance with the international and European standards EN 60974-1, 60974-2, 60974-3 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.

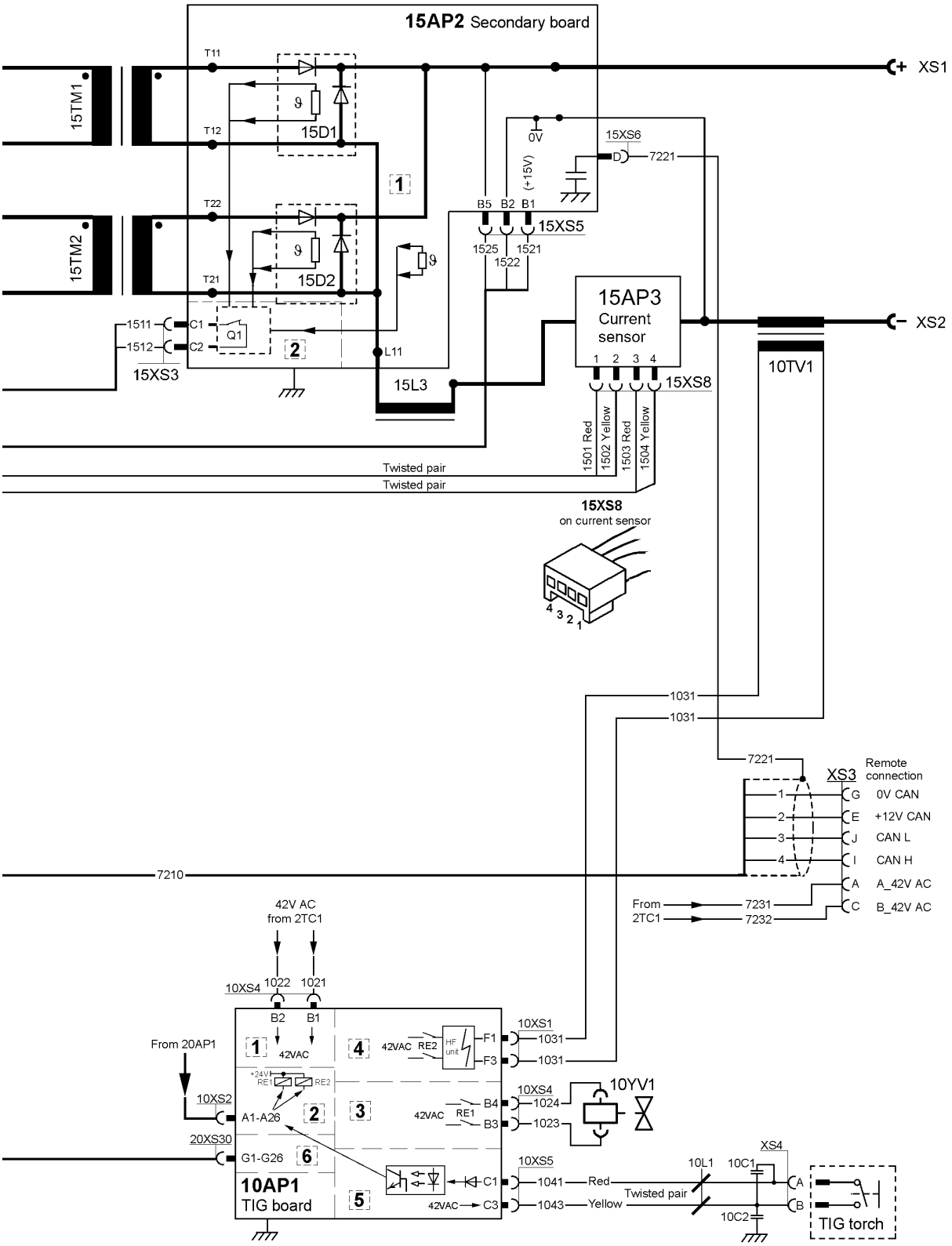
Repair and electrical work should be performed by an authorised ESAB service technician. Use only ESAB original spare and wear parts.

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

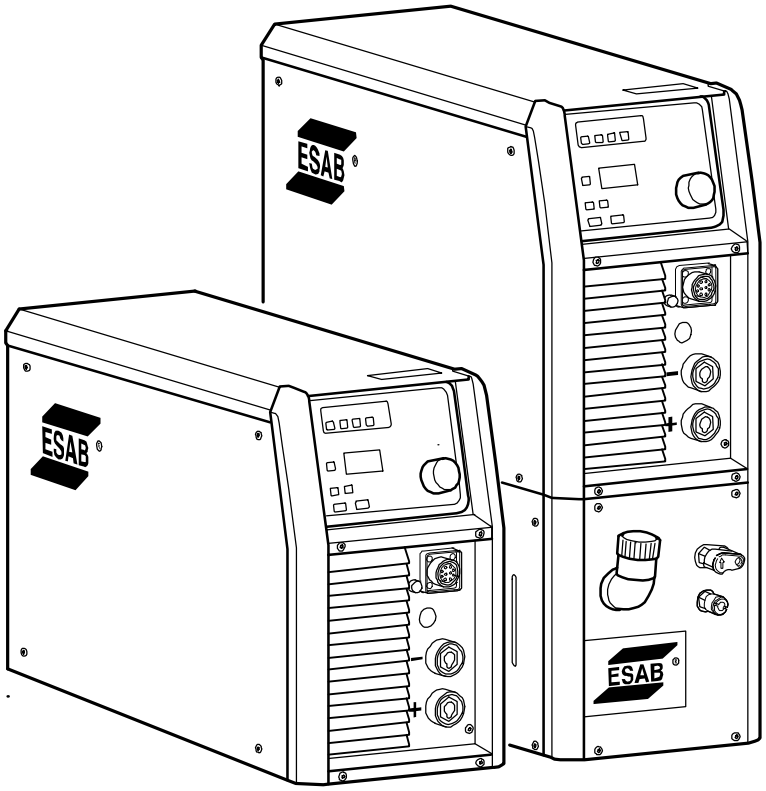
Diagram



Diagram

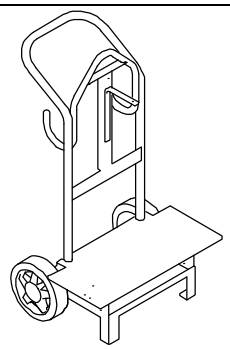
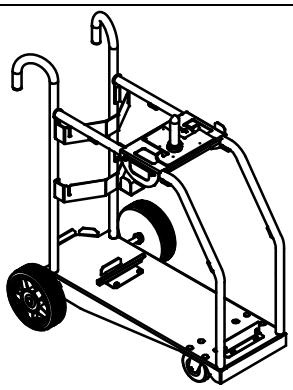
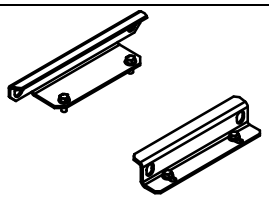
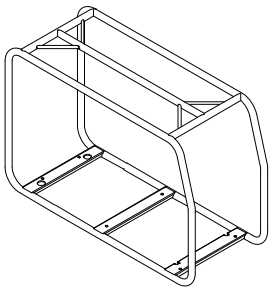
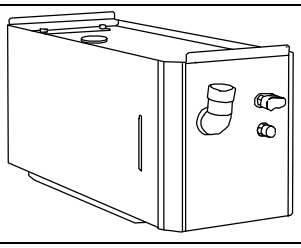


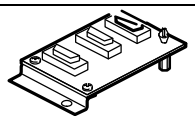
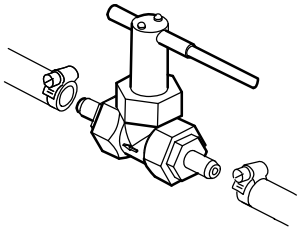
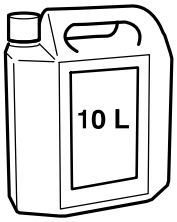
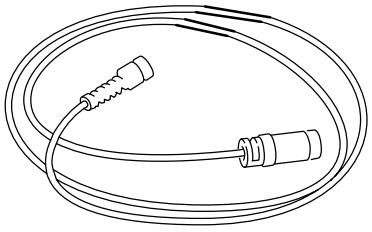
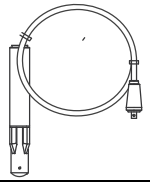
Order number

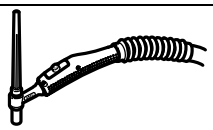


Ordering no.	Denomination	Type	Notes
0459 745 883	Welding power source	Origo™ Tig 3001i TA23	with control panel TA23
0459 745 884	Welding power source	Origo™ Tig 3001iw TA23	with control panel TA23 and cooling unit CoolMidi 1000
0459 745 885	Welding power source	Origo™ Tig 3001i TA24	with control panel TA24
0459 745 886	Welding power source	Origo™ Tig 3001i wTA24	with control panel TA24 and cooling unit CoolMidi 1000
0459 839 033	Spare parts list	Origo™ Tig 3001i	
0460 032 1	Instruction manual	Control panel Origo™ TA23	
0459 945 1	Instruction manual	Control panel Origo™ TA24	

Accessories

	**Trolley with two wheels** 0460 564 880
	**Trolley with four wheels** 0460 565 880
	**Insulating bushing for guide pin, included in trolley** 0278 300 401
	**Mounting brackets** 0460 911 880
	**Protection frame** ..... 0460 459 880 *Only for air version*
	**Cooling unit CoolMidi 1000** 0460 490 880

	**Connection kit for cooling unit** . . . . . *valid before serial number 039 -xxx-xxxx*	0460 685 881
	Connection kit for cooling unit . . . . . *valid from serial number 039 -xxx-xxxx*	0460 685 880
	**Water flow guard** 0.7 l/min	0456 855 881
	**Coolant** (Ready mixed) 50% water and 50% mono-ethylene glycol (10 l)	0007 810 012
	**Remote control unit MTA1 CAN** . . . . . MIG/MAG: wire feed speed and voltage MMA: current and arc force TIG: current, pulse and background current	0459 491 880
	**Remote control unit AT1 CAN** . . . . . MMA and TIG: current	0459 491 883
	**Remote control unit AT1 CF CAN** . . . . . MMA and TIG: rough and fine setting of current.	0459 491 884
	**Remote control cable 10 pole - 4 pole** 5 m . . . . . 10 m . . . . . 25 m	 0459 960 880 0459 960 881 0459 960 882
	**Return cable** 4.5 m 50 mm^2	0156 743 907
	**Welding cable** 5 m with electrode holder Handy 300	 0700 006 888

	**Tig torch TXH 200** 4 m	0460 012 840
	Tig torch TXH 200 8 m	0460 012 880
	Tig torch TXH 250w 4 m	0460 013 840
	Tig torch TXH 250w 8 m	0460 013 880

More information on Tig torches can be found in separate brochures.

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