

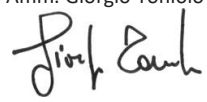
UWI MAXIMUS 503



**Unitor Welding Inverter
UWI MAXIMUS 503 & UWF 513
MMA, ACA, TIG and Wire Welding**

DECLARATION OF CONFORMITY

Applied directives	Waste electrical and electronic equipment (WEEE)
	Electromagnetic compatibility (EMC)
	Low voltage (LVD)
	Restriction of the use of certain hazardous substances (RoHS)
	Eco Design of energy-related products
Construction standards	EN 60974-1; EN 60974-10 Class A
Conformity markings	 Equipment compliant with European directives in force
	 Equipment compliant with UK directives in force
	 Equipment suitable in an environment with increased hazard of electric shock
	 Equipment compliant with WEEE directive
	 Equipment compliant with RoHS directive
	 Equipment compliant with Eco Design directive

 		DECLARATION OF CONFORMITY
We hereby state that the machine type:		UWI MAXIMUS 503
		Welding Power Source
is in compliance with the directives:		2014/30/EU (EMC) 2014/35/EU (LVD) 2011/65/EU (RoHS) 2009/125/EU (Ecodesign)
and that the following standards apply:		EN IEC 60974-1:2018+A1:2019 IEC 60974-10:2014+A1:2015 EN 60974-10:2014+A1:2015
 WELD THE WORLD		WECO Srl Corso Noblesville n.8, 35013, Cittadella, (Padova) ITALY
		02/05/2025 Amm. Giorgio Toniolo 

Maritime Safety Guidelines on Open Circuit Voltage (OCV) or No-Load Voltage

According to Maritime and Coastguard Agency's (MCA UK) - Code of Safe Working Practices for Merchant Seamen Chapter 24 on Hot Work (refer also to OCIMF SIRE and RIGHTSHIP RISQ on hot work safety), the open circuit voltage for shipboard welding machines must not exceed 70V for Direct Current (DC) welding machines and does not exceed 25V for Alternating Current (AC) welding machines.

The UnitorTM welding machine is manufactured in compliance with the Declaration of Conformity and is equipped with a Voltage Reduction Device (VRD) function. This feature enhances safety in areas with increased electric shock hazards by reducing the open circuit voltage (U_o) to a safer level (U_r).

For welding machines with VRD, the reduced open circuit voltage is read as U_r.

In the case of the **UWI-Maximus 503**, U_r is **12 V DC**.

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1 GENERAL INFORMATION



IMPORTANT! For your safety

This handbook must be consigned to the user prior to installation and commissioning of the unit.
Retain these documents for future consultation.

1.1 MEANING OF THE SYMBOLS



DANGER!

This pictogram warns of danger of death or serious injury.



WARNING!

This pictogram warns of a risk of injury or damage to property.



CAUTION!

This pictogram warns of a potentially hazardous situation.



NOTICE!

This pictogram gives important information concerning the execution of the relevant operations.



Information

This pictogram indicates additional information or refers to another section of the manual with the related information.

- In the illustrations:



press



turn the encoder



press the encoder

- **Note:** The figures in this manual are purely guideline and the images may contain differences with respect to the actual equipment to which they refer.

2 SAFETY INSTRUCTIONS



DANGER

ARC WELDING HAZARDS

The safety information given below is only a summary of the more complete safety information found in the Safety Standards listed in Section 1-5. Read and follow all Safety Standards.

Only qualified persons should install, operate, maintain, and repair this unit.

During operations, ensure all personnel, particularly children, are kept at a safe distance
ELECTRIC SHOCK CAN KILL.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

Do not touch live electrical parts. Wear dry, hole-free insulating gloves and body protection. Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground. Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling. Use AC output ONLY if required for the welding process. If AC output is required, use remote output control if present on unit.

Disconnect input power before installing or servicing this equipment. Always verify the supply ground – check and be sure that input power cord ground wire is properly connected to ground terminal in the cord plug and that the plug is connected to a properly grounded receptacle outlet.

When making input connections, attach proper grounding conductor first – double-check connections. Frequently inspect input power cord for damage or bare wiring –replace cord immediately if damaged – bare wiring can kill. Turn off all equipment when not in use.

Do not use worn, damaged, undersized, or poorly spliced cables. Do not drape cables over your body. If earth grounding of the work-piece is required, ground it directly with a separate cable. Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.

Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual. Wear a safety harness if working above floor level. Keep all panels and covers securely in place. Clamp work cable with good metal-to-metal contact to work-piece or worktable as near the weld as practical. Insulate work clamp when not connected to work-piece to prevent contact with any metal object. Do not connect more than one electrode or work cable to any single weld output terminal.

SIGNIFICANT DC VOLTAGE exists after removal of input power on inverters. Turn off inverter, disconnect input power, and discharge input capacitors before touching any parts.



ARC RAYS can burn eyes and skin.

Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld. Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching. Wear approved safety glasses with side shields under your helmet. Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc. Wear protective clothing made from durable, flameresistant material (leather and wool) and foot protection.

FUMES AND GASES can be hazardous.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health. Keep your head out of the fumes. Do not breathe the fumes. If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases. If ventilation is poor, use an approved air-supplied respirator. Read the Safety Data Sheets (SDSs) and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers. Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watchperson nearby.

Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe. Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases. Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

WELDING can cause fire or explosion.

Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding. Protect yourself and others from flying sparks and hot metal. Do not weld where flying sparks can strike flammable material. Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.

Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas. Watch for fire, and keep a fire extinguisher nearby. Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side. Do not weld on closed containers such as tanks, drums, or pipes, unless they are properly prepared. Connect work cable to the work as close to the welding area as practical to prevent welding current from travelling long, possibly unknown paths and causing electric shock and fire hazards. Do not use welder to thaw frozen pipes. Remove stick electrode from holder or cut off welding wire at contact tip when not in use. Wear oil-free protective garments such as leather gloves, heavy shirt, cuff-less trousers, high shoes, and a cap. Remove any combustibles, such as a butane lighter or matches, from your person before welding.

FLYING METAL can injure eyes.

Welding, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool, they can throw off slag. Wear approved safety glasses with side shields even under your welding helmet.

BUILDUP OF GAS can injure or kill.

Shut off shielding gas supply when not in use. Always ventilate confined spaces or use approved airsupplied respirator.

HOT PARTS can cause severe burns.

Do not touch hot parts bare handed. Allow cooling period before working on gun or torch.

MAGNETIC FIELDS can affect pacemakers.

Pacemaker wearers keep away. Wearers should consult their doctor before going near arc welding, gouging, or spot welding operations.

NOISE can damage hearing.

Noise from some processes or equipment can damage hearing. Wear approved ear protection if noise level is high.

CYLINDERS CAN EXPLODE IF DAMAGED.

Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully. Protect compressed gas cylinders from excessive heat, mechanical shocks, slag, open flames, sparks, and arcs. Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.

Keep cylinders away from any welding or other electrical circuits. Never drape a welding torch over a gas cylinder. Never allow a welding electrode to touch any cylinder. Never weld on a pressurized cylinder – explosion will result. Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition. Turn face away from valve outlet when opening cylinder valve. Keep protective cap in place over valve except when cylinder is in use or connected for use. Read and follow instructions on compressed gas cylinders, associated equipment, and CGA publication P-1 listed in Safety Standards.



WARNING!

Additional precautions for installation, operation, and maintenance

Do not install or place unit on, over, or near combustible surfaces. Do not install unit near flammables. Do not overload building wiring – be sure power supply system is properly sized, rated, and protected to handle this unit.



WARNING!



FALLING UNIT CAN CAUSE INJURY.

WARNING! The UWI MAXIMUS 503 weights 23,4kg / 51,6 lb.

LIFTING BY HAND

Lift the machine using the handle provided.

Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories. Use equipment of adequate capacity to lift and support unit. If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.

*Note: As safety requirements and regulations may vary from vessel to vessel depending on vessel's flag state for example, the vessel needs to check the prevailing manual handling safety requirements or regulations that it is subjected to.

INSTRUCTION FOR INSECURE POSITIONING.

Failure to properly secure the machine can cause personal injury. If machine is in an insecure position do not attempt to switch on. Do not put the machine on an unlevelled surface greater than 10°.

OVERUSE CAN CAUSE OVERHEATING.

Allow cooling period; follow rated duty cycle. Reduce current or reduce duty cycle before starting to weld again. Do not block or filter airflow to unit.

STATIC (ESD) CAN DAMAGE PC BOARDS.

Put on grounded wrist strap BEFORE handling boards or parts. Use proper static-proof bags and boxes to store, move, or ship PC boards.

MOVING PARTS CAN CAUSE INJURY.

Keep away from moving parts. Keep away from pinch points such as drive rolls.

WELDING WIRE CAN CAUSE INJURY.

Do not press gun trigger until instructed to do so. Do not point gun toward any part of the body, other people, or any metal when threading welding wire.

ARC WELDING CAN CAUSE INTERFERENCE.

Electromagnetic energy can interfere with sensitive electronic equipment such as computers and computer-driven equipment such as robots. Be sure all equipment in the welding area is electromagnetically compatible. To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor. Locate welding operation 100 meters from any sensitive electronic equipment. Be sure this welding machine is installed and grounded according to this manual. If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area.

2.1 SAFETY WARNINGS

The following safety symbols are used in this manual.

MANUAL LIFTING



- Use the handles and straps solely for manual lifting of the equipment.
- Manual lifting equipment must be correctly sized to lift the weight of the single unit where the equipment is installed. If auxiliary accessories are connected to the unit (cooling units, carts, wire feeders etc.), lift the entire assembly by holding it from its base.
- Refer to national standards to establish the maximum weight that can be lifted by a person.



NO HOOKING POINTS DEDICATED TO LIFTING WITH MECHANICAL DEVICES

- When no specific hooking points for mechanical lifting operations are provided on the unit, use:
 - a forklift truck able to lift the unit from its base;
 - ropes/chains that are slung around the base of the unit to be lifted.
- The unit must not be lifted by pulling it with ropes or chains connected to structures unsuitable for this purpose as they could break and cause the load to fall.



Lifting and positioning the unit can lead to the risk of falling or being crushed.

- Do not stand under the unit when it is raised or when it is standing on a raised platform.
- When the unit is located on the work surface, make sure that it cannot move and fall.



- To avoid falls and overturning do not place the equipment on gradients steeper than 10°.

GAS CYLINDERS



- Install the compressed gas cylinders in a vertical position and secure them to a fixed support or to the specifically designed holders. Protect gas cylinders from excessive heat, impact, welding slag, open flames and sparks.
- Keep the cylinders well clear of the welding operations and of any other electrical circuits.
- Close the gas cylinder valve or the main gas supply whilst the welding machine is not being used.

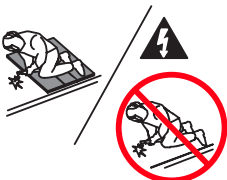
ELECTRIC SHOCK HAZARD



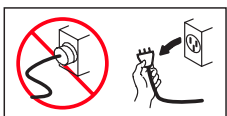
- When the machine is switched on and set to work in MMA mode, its welding sockets are live and ready to strike the welding arc.
- Do not touch the conductive part of the electrode holder and metal parts at the same time with your hands.
- Do not touch metal parts with the conductive part of the electrode holder or, with the electrode, while replacing the electrode.
- Do not touch two torches or electrode holders simultaneously.
- In MIG/MAG and TIG welding processes, the welding wire, the wire feed rollers, the wire spool and the parts in contact with the welding wire are also live.
- Make sure the earthing system of the electrical mains is properly connected and efficient.
- Extra safety precautions are required when working in electrically hazardous conditions such as in damp or humid conditions. Do not work alone!



- The risk of electric shock is higher if you touch metal parts and the electrode simultaneously.
- The operator must be insulated with respect to metal components connected to earth.



- When welding is required to be carried out in close contact with the ship's structure or is likely to make contact during ordinary movements (i.e. risk of ground potential conditions), a dry insulating mat or boards must be used.
- Insulate the unit from the ship's structure especially when the latter is conductive.
- The wire feeder must be isolated from conductive structures such as any hooks, metal ropes supporting it etc.



Disconnect the equipment from the mains power supply before opening it and before performing any maintenance procedures. Switching off the power supply switch does not guarantee the disconnection from the mains power supply (for instance: some boards can still be powered on even if the switch has been closed, or the switch contacts may be stuck). The only checks that can be carried out with the machine powered on are those specifically requested by the checking procedure.

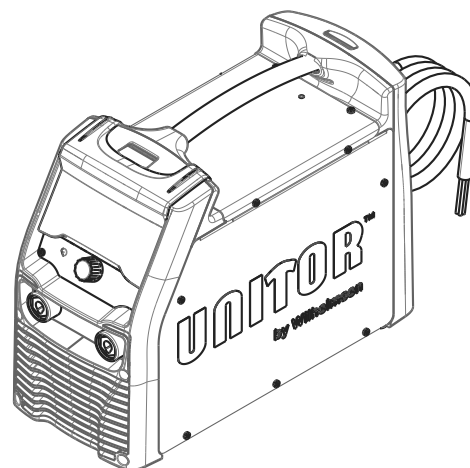
3 TECHNICAL DATA

UWI MAXIMUS 503

Model:				
Product number:				
3~ 		EN 60974-1 EN 60974-10 Class A		
	---	10A/20.4V		500A/40.0V
		X	40%	60% 100%
	U ₀ =64V	I ₂	500A	450A 400A
	U _r =12V	U ₂	40.0V	38.0V 36.0V
	---	10A/10.4V		500A/30.0V
		X	40%	60% 100%
	U ₀ =64V	I ₂	500A	450A 400A
	U _r =12V	U ₂	30.0V	28.0V 26.0V
	---	10A/14.5V		500A/39.0V
		X	40%	60% 100%
	U ₀ =64V	I ₂	500A	450A 400A
	U _r =12V	U ₂	39.0V	36.5V 34.0V
	3~ 50 / 60Hz		I _{1max}	I _{1eff}
			U ₁ =440V	31.7A 22.6A
			U ₁ =400V	35.1A 25.2A
COOLING AF		I.C.L.H.	IP 23S	

R1

R1_



Dimensions and Weight

Height : 368mm
Length : 499mm
Width : 214mm
Weight : 23,4kg

3.1 PRESENTATION

UWI MAXIMUS 503 is a compact but powerful 500 A welding inverter for all types of welding on board ship. It can weld all normal coated electrodes up to 6.0 mm.

Features

- Electrode (MMA) with automatic hot start and TIG Lift-Arc welding function.
- Ability to adjust the current via remote control
- The voltage reduction device (VRD) reduces the voltage of the open circuit to only 12V, reducing the risks of electric shock
- Line voltage compensation and thermal overload protection
- Made with high-quality aluminium casing that reduces weight and corrosion risks
- Improved power-to-weight ratio, delivering higher power output while maintaining a lighter and portable design
- Digital display for synergic welding control and an alarm message error codes to promptly alert users in case of any issues, ensuring optimal performance and safety.

Benefits

- Superior reliability in maritime environment
- Easy arc striking
- Full ability to weld all coated electrodes, including the 6.0 mm electrode which provides high welding productivity
- Active fan control reduces the amount of dust and dirt deposited inside the machine during cooling, thus eliminating the risk of short circuits.
- The remote control option allows the welder to fully control the arc and heat input during welding at a distance, particularly during arc descent and shutdown during finishing
- The parallel connection of two welding inverters provides a 1000 A output for the gouging process

4 INSTALLATION AND ASSEMBLY



DANGER!

Lifting and positioning

Read the warnings highlighted by the following symbols in the section "SAFETY WARNINGS".



DANGER!

Cylinder handling and positioning

Read the warnings highlighted by the following symbols in the section "SAFETY WARNINGS".



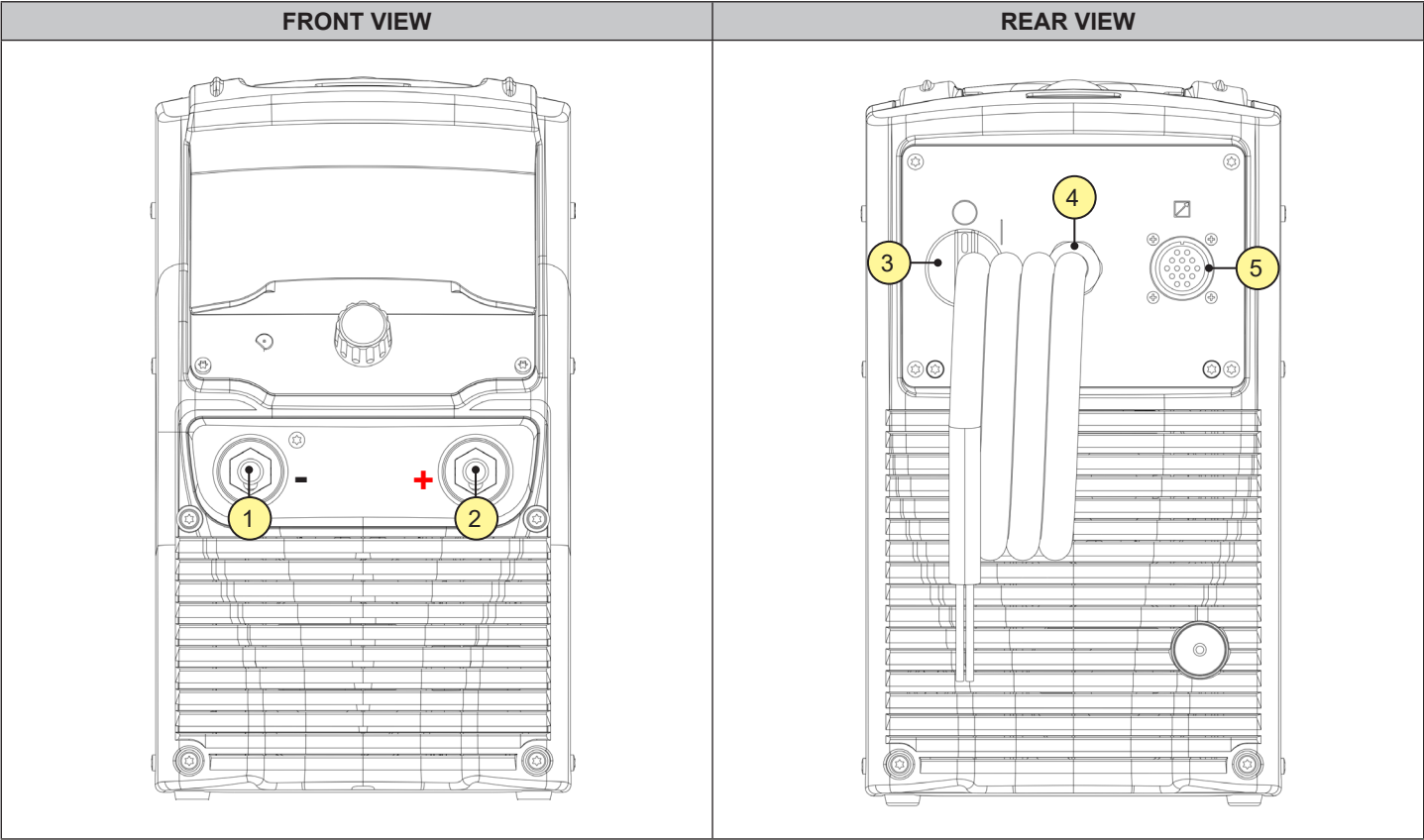
DANGER!

Disconnect the equipment from the mains before performing any assembly operations.
Closing the power switch does not guarantee disconnection from the mains.





4.1 CONNECTIONS AND SOCKETS

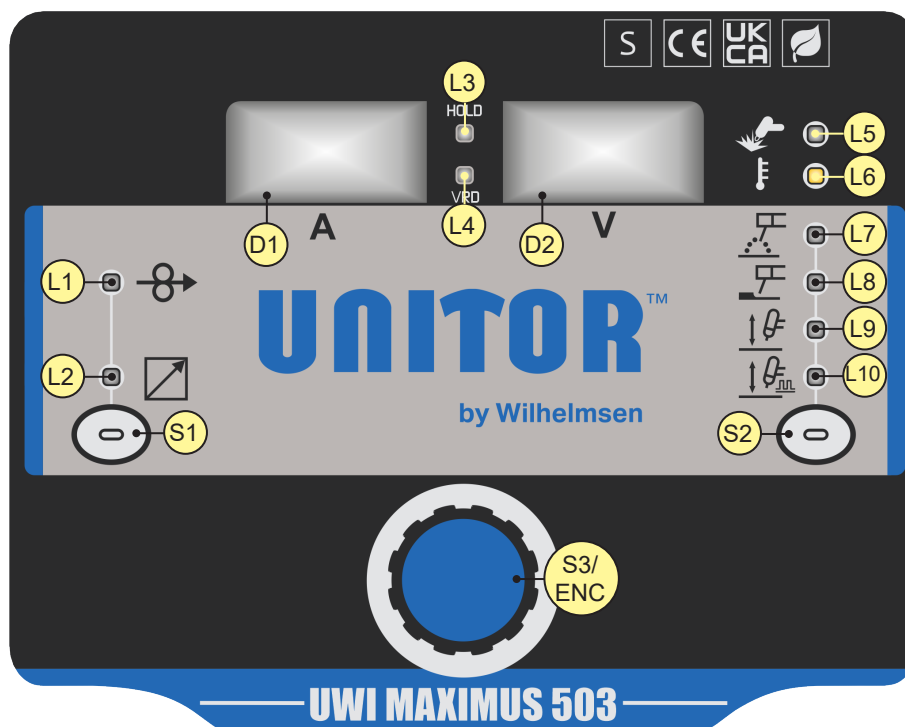


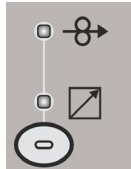
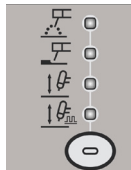
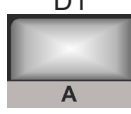
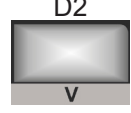
- [1] Negative polarity welding socket.
- [2] Positive polarity welding socket.
- [3] Switch for switching the welding inverter off and on.
- [4] Power cable.
 - Length: 4.4 m
 - Number and section of conductors: 4 x 4 mm²
 - Type of electrical plug: not supplied
- [5] Remote control connector or wire feeder trolley installation.

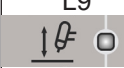
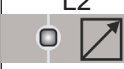
 **NOTICE!** If you use extension cords for the power supply, respect the following indications for cable length:

CONDUCTOR SIZE	CABLE LENGTH
4 mm ²	≤ 50 m
6 mm ²	≤ 100 m
10 mm ²	≤ 150 m

5 USER INTERFACE



ELEMENT	FUNCTION
S1 	The key enables: - The remote control. - The wire feeder mechanism.
S2 	This button selects the welding mode.
S3/ENC 	ENCODER WITH BUILT-IN BUTTON Turning the knob sets the welding current. Setup Menu: Press the button for 2 seconds to access the Setup menu. Pressing the button inside the setup menu scrolls the list of parameters for the selected welding mode. During welding: Turning the knob changes the value of the active parameter.
D1 	Display 1 (Unit of measurement: Ampere.) • The display shows the current set by the encoder. • If one enters the parameters menu in MMA, the display shows the name of the parameter. • During welding the display shows the actual current value. • After welding, it displays the last current reading value.
D2 	Display 2 (Unit of measurement: Volt.) ▶ The display shows the actual voltage present between the welding sockets. ▶ If one enters the parameters menu in MMA, the display shows the value of the parameter ▶ After welding, it displays the last current reading value

ELEMENT	FUNCTION
L3 	The LED on signals the display of the last current and voltage value measured during welding. The LED will turn off when the welding resumes and the actual values will be displayed.
L4 	The LED on indicates that the [VRD= VOLTAGE REDUCTION DEVICE] function is enabled. When it is on, it indicates that the voltage reduction device is active, reducing the voltage on the welding sockets. This is done within 2 seconds of switching off the welding arc, to protect the welder from electric shock. The arc trigger voltage will be automatically restored when the welding circuit is re-established by touching the electrode on the workpiece to be welded.
L5 	This LED illuminates to confirm the presence of power on the output sockets.
L6 	This LED illuminates to show an anomaly in the operating conditions. An alarm message is shown in the displays.
L7 	The LED on indicates that the coated electrode procedure [MMA] is activated.
L8 	The LED on indicates that the gouging procedure [ACA] is activated.
L9 	The LED on indicates that the [TIG] procedure is activated.
L10 	The LED on indicates that the [TIGPULSED] procedure is activated.
L1 	Switching on signals activation of the wire feeder trolley. The wire feeder must be connected to the respective connector in the rear panel.
L2 	Switching on signals the activation of the remote control.

6 PREPARING FOR WELDING



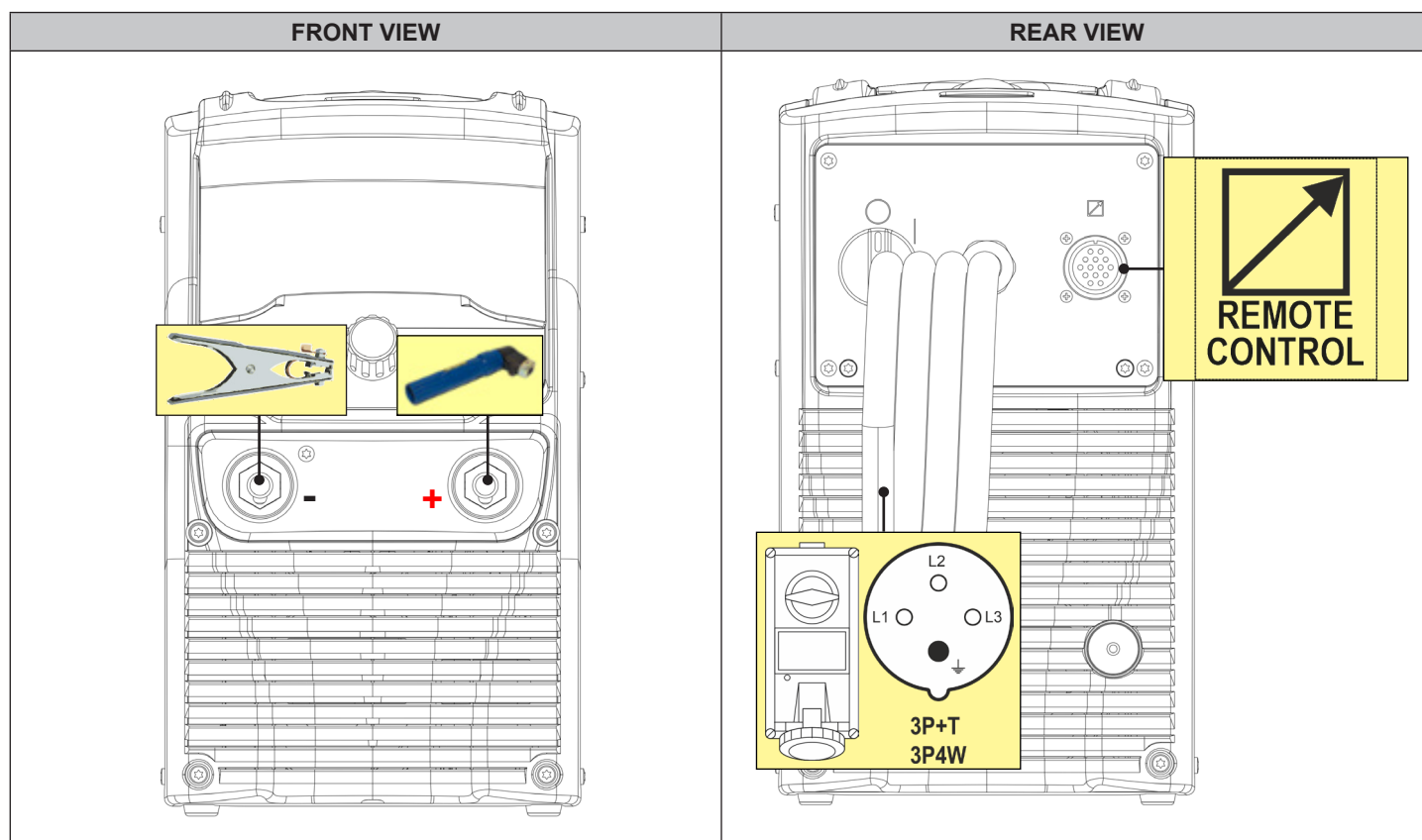
DANGER!

Electric shock hazard!

Read the warnings highlighted by the following symbols in the section "SAFETY WARNINGS".

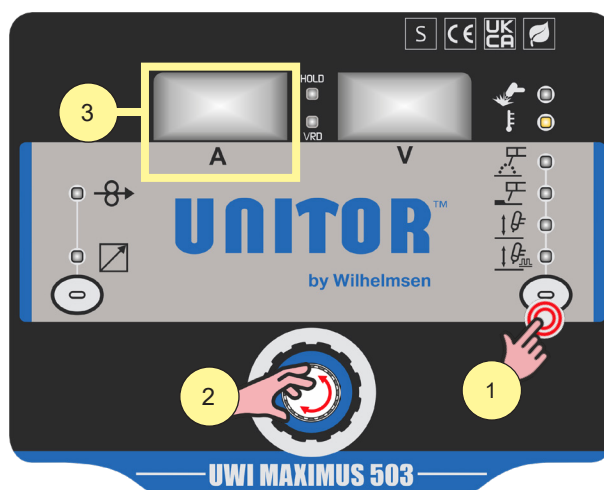


6.1 PREPARING FOR COATED ELECTRODE WELDING (MMA)



1. Set the welding inverter ON/OFF switch to "O" (unit switched off).
2. Choose the electrode based on the type of material and thickness of the workpiece to be welded.
3. Insert the electrode in the electrode holder.
4. Connect the electrode holder cable to the welding socket based on the polarity requested by the type of electrode used.
5. Connect the plug of the ground clamp to the welding socket on the basis of the polarity required.
6. Connect the ground clamp to the workpiece being processed.
7. Plug the power cable plug into a mains socket outlet.
8. Set the welding inverter ON/OFF switch to "I" (unit powered).

Welding current adjustment



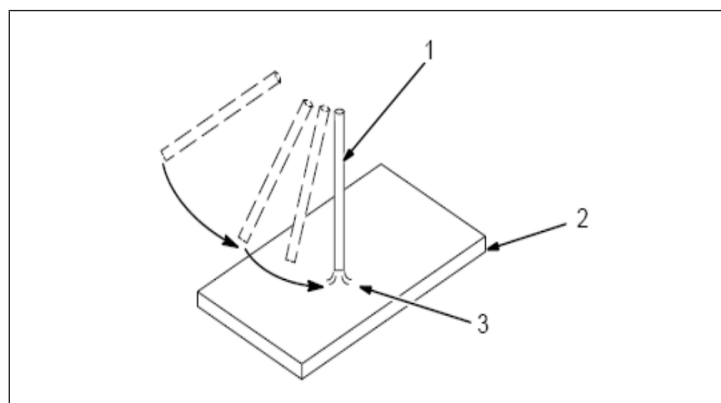
1. Press the [S2] key to set the MMA welding mode .
2. Turn the knob to set the welding current.
3. The Display [D1] displays the value of the set current.

Information

By connecting and activating the remote control [RC] the current value will be adjusted through it.
(Activation of remote control page 28).

Procedure for switching the electric arc on and off

4. Select the polarity and amperage according to the type of electrode used.
5. Drag the electrode onto the workpiece to be processed as if lighting a match and lift the electrode slightly after it has touched the workpiece.
6. To turn off the arc, quickly move the electrode away from the workpiece.



- 1: Coated electrode
2: Piece to be processed
3: Electric arc



NOTICE! If the electrode sticks to the workpiece being processed, rotate quickly to release it before it becomes too hot. If this proves difficult, turn off the machine, disconnect the electrode holder from the electrode, turn the machine back on and start the process again from the beginning.

Welding parameters

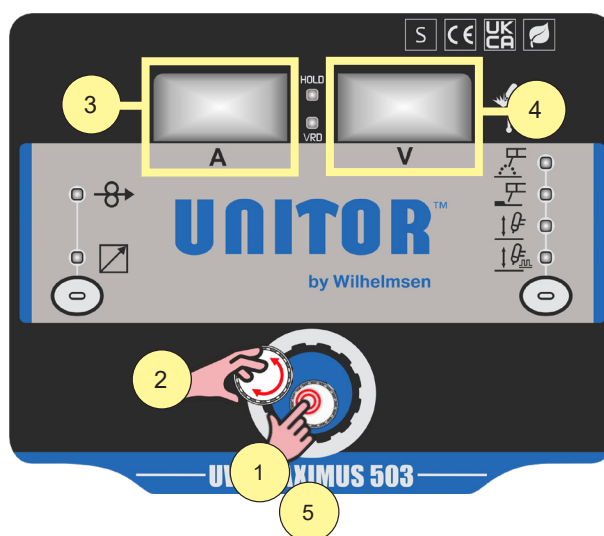
HoS (HOT-START)

- ▶ Adjustment range: minimum (0) - default (50) - maximum (100)
- ▶ This parameter regulates the intensity of the current during the striking of the arc to facilitate its being switched on. The value of the parameter is set as a percentage referring to the main current value.
 - An increase in value leads to an easier triggering of the arc with a significant increase in projections.
 - A decrease in value leads to a more difficult triggering of the arc with a significant reduction in projections.

ArF (ARC-FORCE)

- ▶ Adjustment range: minimum (0) - default (100) - maximum (200)
- ▶ This parameter allows you to avoid sticking the electrode to the workpiece being processed during the welding phase. During the liquid bridges between the electrode and the molten bath, the machine increases the amount of current supplied according to the value of the parameter. The value of the parameter is set as a percentage referring to the main current value.
 - An increase in the value reduces the risk of sticking, increases the melting of the electrode, increases the smoothness of the molten bath and increases spraying.
 - A decrease in the value increases the risk of sticking, decreases the melting of the electrode, decreases the smoothness of the molten bath and decreases spraying.

Parameter adjustment



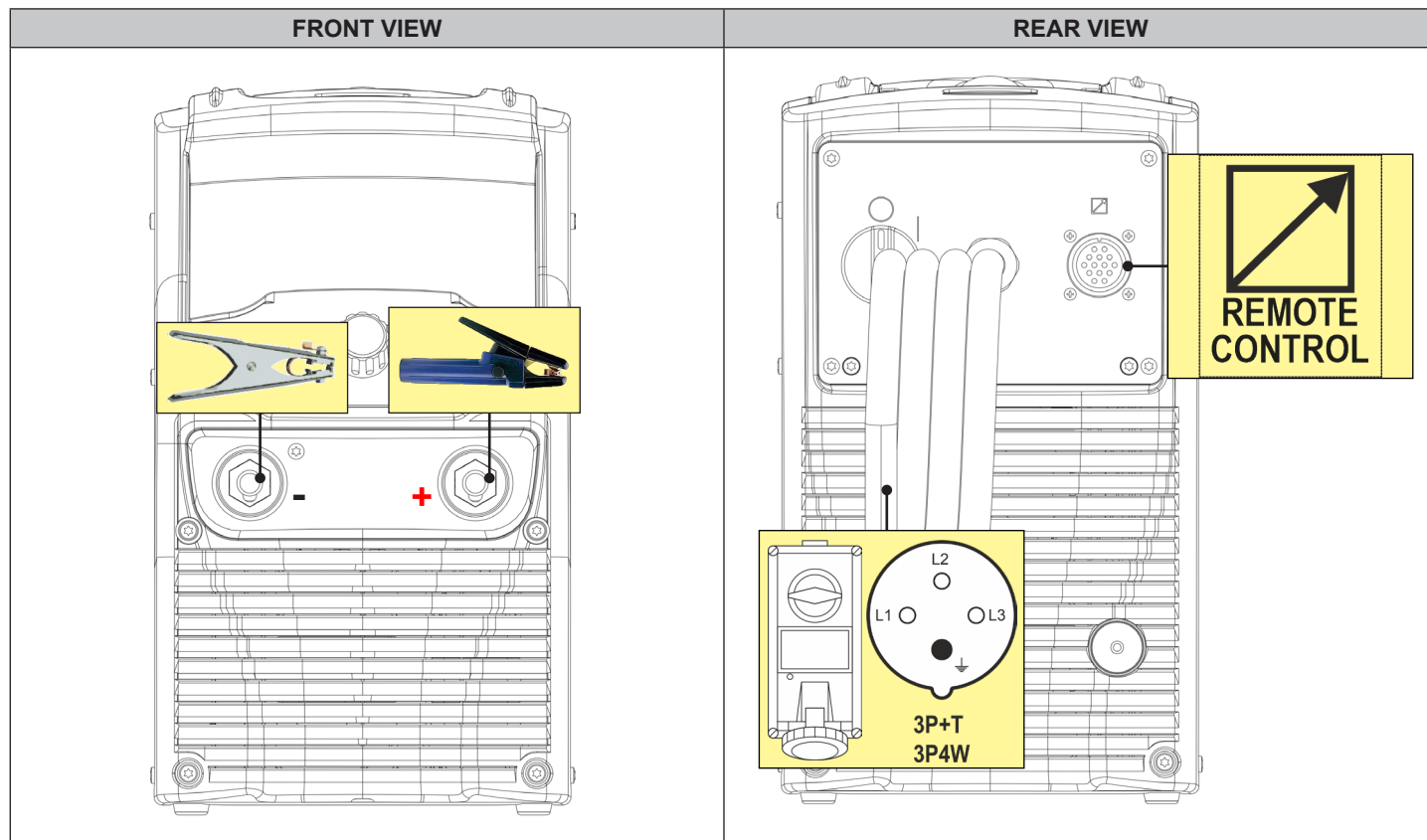
1. Press and hold the [S3] key for 2 seconds to enter the parameters menu.
2. Turn the knob to set the desired value.
3. The Display [D1] displays the name of the parameter.
4. The Display [D2] displays the set value of the parameter.
5. Press the [S3] key again for 2 seconds, or the [S1] or [S2] keys to exit the parameters menu.

6.2 Gouging with AIR CARBON ARC (ACA)

⚠ WARNING! Gouging is a process that generates several sparks and it is therefore very important that the operator is equipped with the appropriate protection devices.

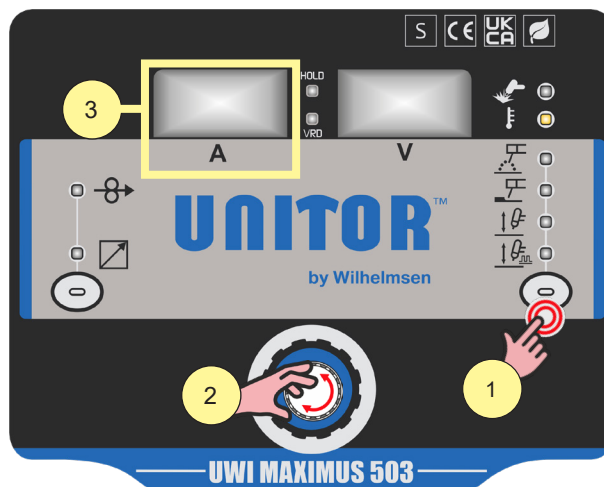
⚠ DANGER! Ensure that the projected melted material does not reach flammable or explosive substances. If necessary, use protective screens.

Preparing for gouging (ACA)



1. Set the welding inverter ON/OFF switch to "O" (unit switched off).
2. Choose the diameter of the carbon/graphite electrode according to the type of processing to be performed.
3. Insert the electrode in the electrode holder.
4. Connect the plug of the electrode holder clamp to the positive polarity welding socket
5. Connect the plug of the ground clamp to the negative polarity welding socket.
6. Connect the ground clamp to the workpiece being processed.
7. Plug the power cable plug into a mains socket outlet.
8. Set the welding inverter ON/OFF switch to "I" (unit powered).

Gouging current adjustment



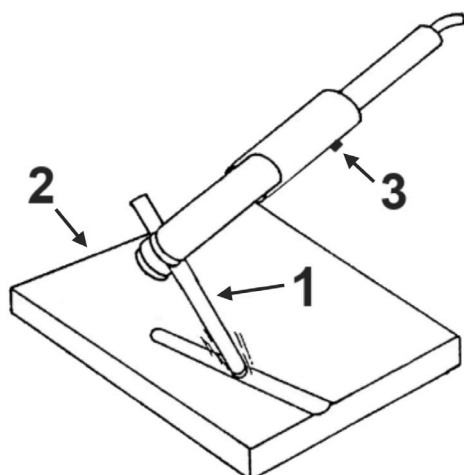
1. Press the [S2] key to set the ACA welding mode .
2. Turn the knob to set the gouging current.
3. The Display [D1] displays the value of the set current.

Information

By connecting and activating the remote control [RC] the current value will be adjusted through it.
(Activation of remote control page 28).

Procedure for switching the carbon arc on and off

4. Set the correct amperage for the selected electrode size.
5. Activate the air flow through the opening valve.
6. Hit the tip of the electrode on the workpiece being processed and lift the electrode slightly.
 - This action creates an electric arc between the carbon electrode tip and the workpiece being processed.
 - The heat of the carbon arc cuts and melts the metal.
 - The compressed air flow is used to remove the molten metal from the surface of the metal workpiece.
 - The metal is cut or grooved only along the direction of the air flow.



- 1: Carbon/graphite electrode
2: Workpiece being processed
3: Air opening/closing valve

7. Carefully move the electrode away from the workpiece to extinguish the arc.
8. Close the air valve.

Configuration of two welding inverters in parallel for gouging

For electrodes larger than 8 mm, more than 500 A may be required.

It is possible to exceed the 500 A threshold of a single machine and reach 1000 A by placing two distinct UWI MAXIMUS 503 welding inverters in parallel.

To configure two welding inverters in parallel:

- Triple connector DIX-70 male-female-female, product number 632901
- Conversion assembly (2 pcs), product number 634121.
- A parallel connection cable is required here, product number 503520.



PART NO. 528703 AIR CARBON ARC TORCH 600A



PART NO. 503520 UWI-MAXIMUS 503 PARALLEL CONNECTION CABLE

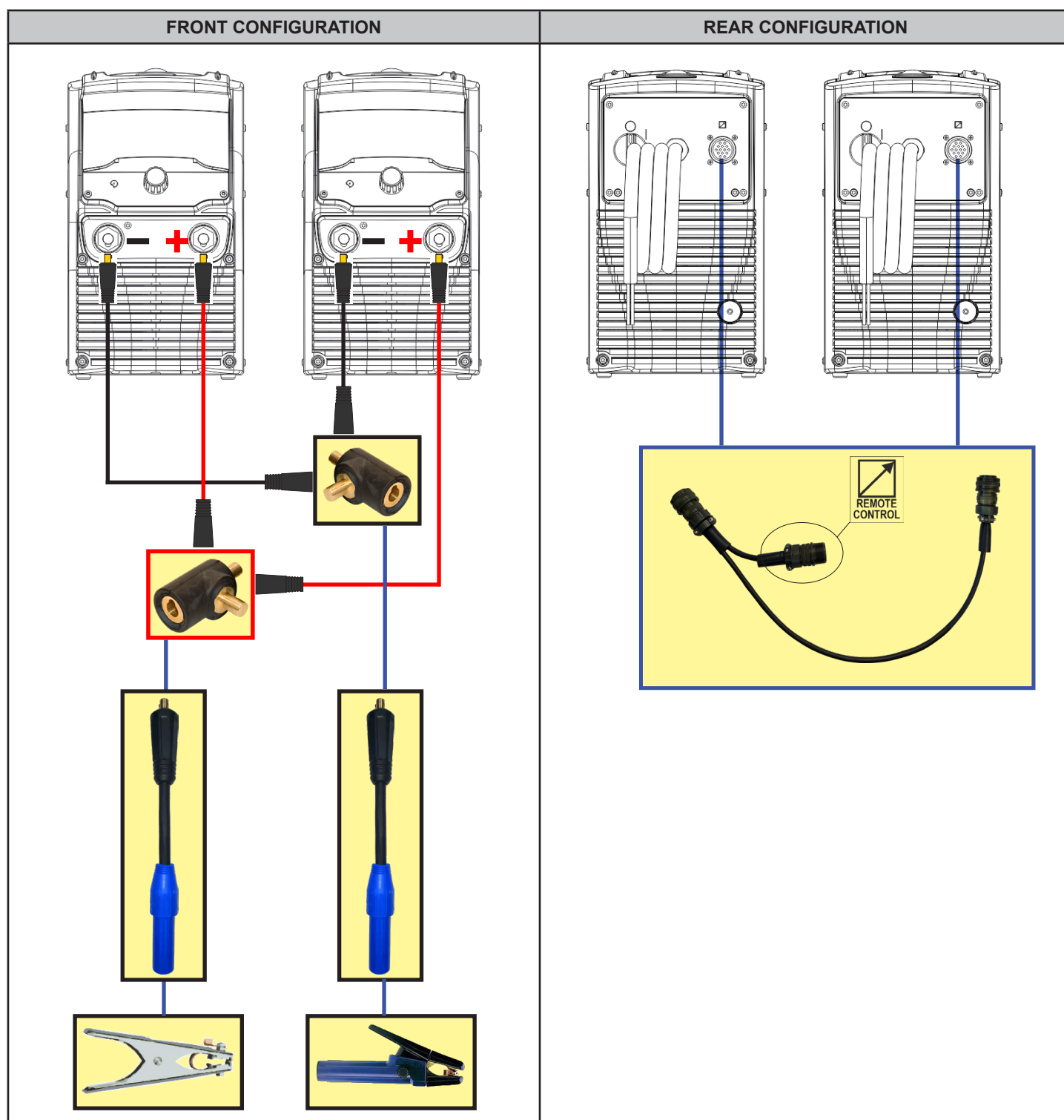


PART NO. 632901 TRIPLE CONNECTION DIX-70 MMF, 2 PCS



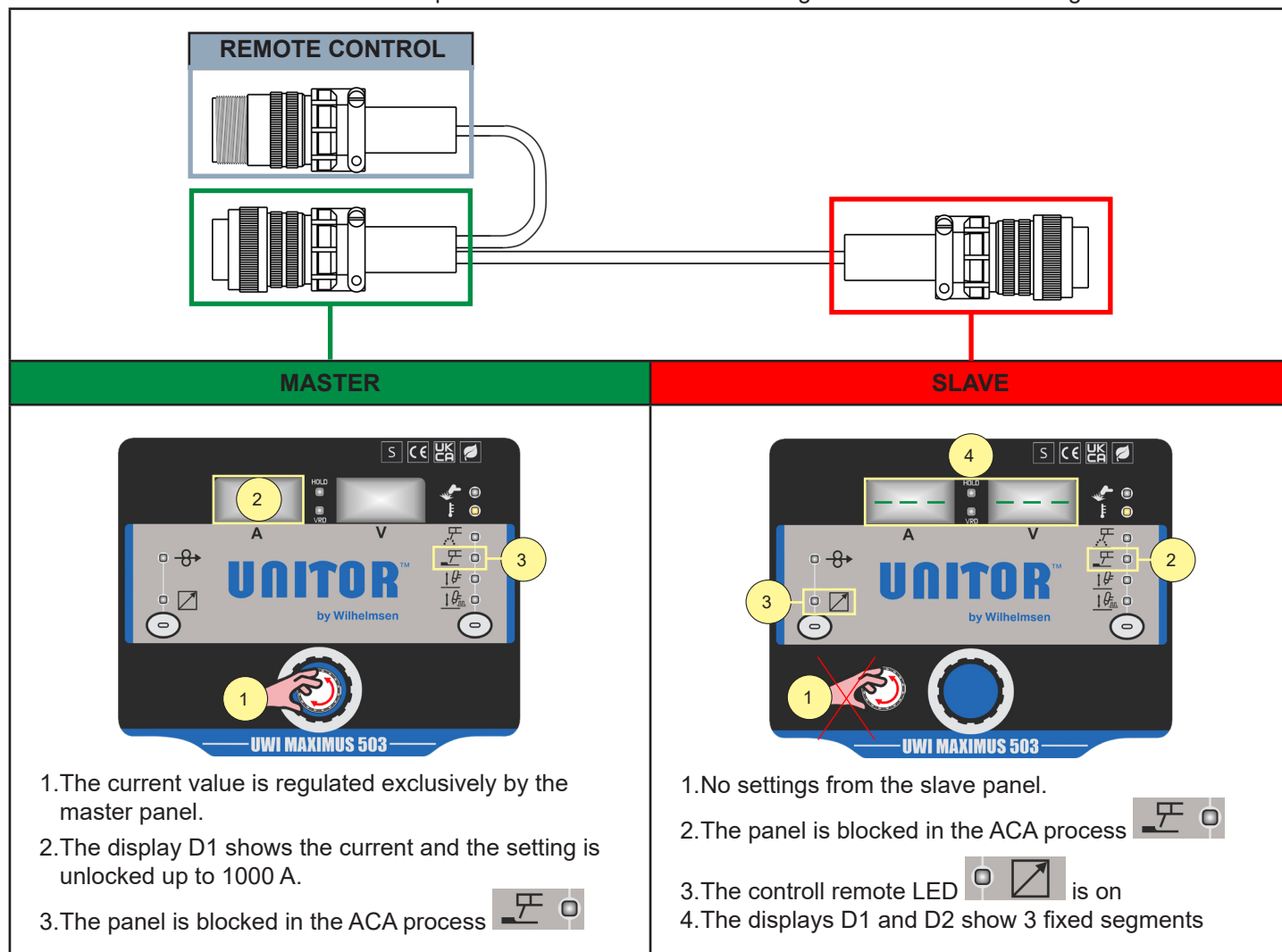
PART NO. 634121 CONVERSION ASSEM. 2 PCS

- Connect the ACA torch 600A (product number 528703) gripper and ground gripper sockets following the diagram below.



i Information Welding cables from both machines must be of equal length to the work site where the parallel connecting three-way connector DIX70 male-female-female is used to connect both machines to the same ACA torch and the same ground socket.

Information The connection of the parallel cable establishes the configuration of the two welding inverters.



Information

The procedure for switching the arc on and off remains the same as the procedure for a single welding inverters

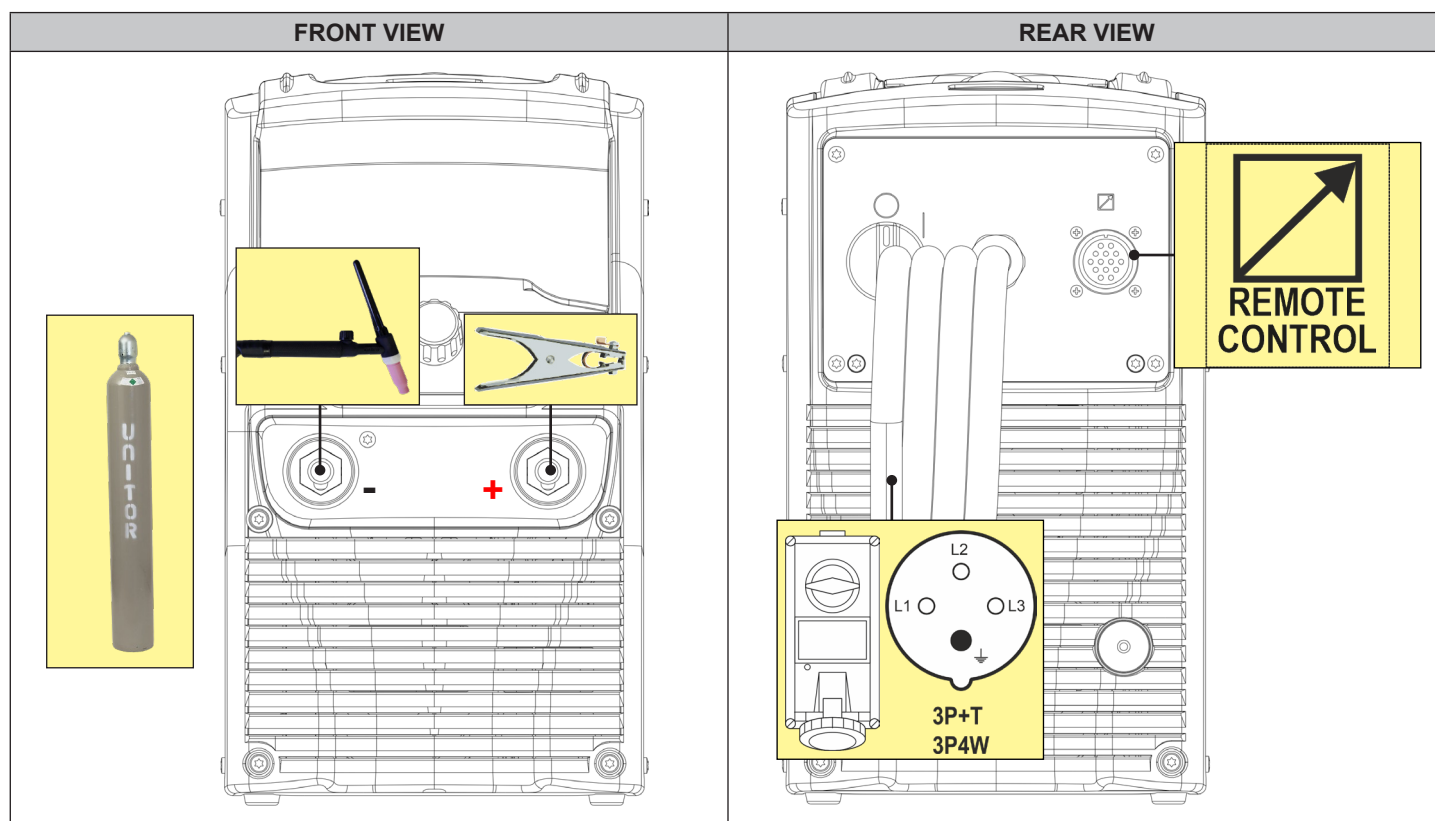
4.1 PREPARING FOR TIG WELDING



DANGER!

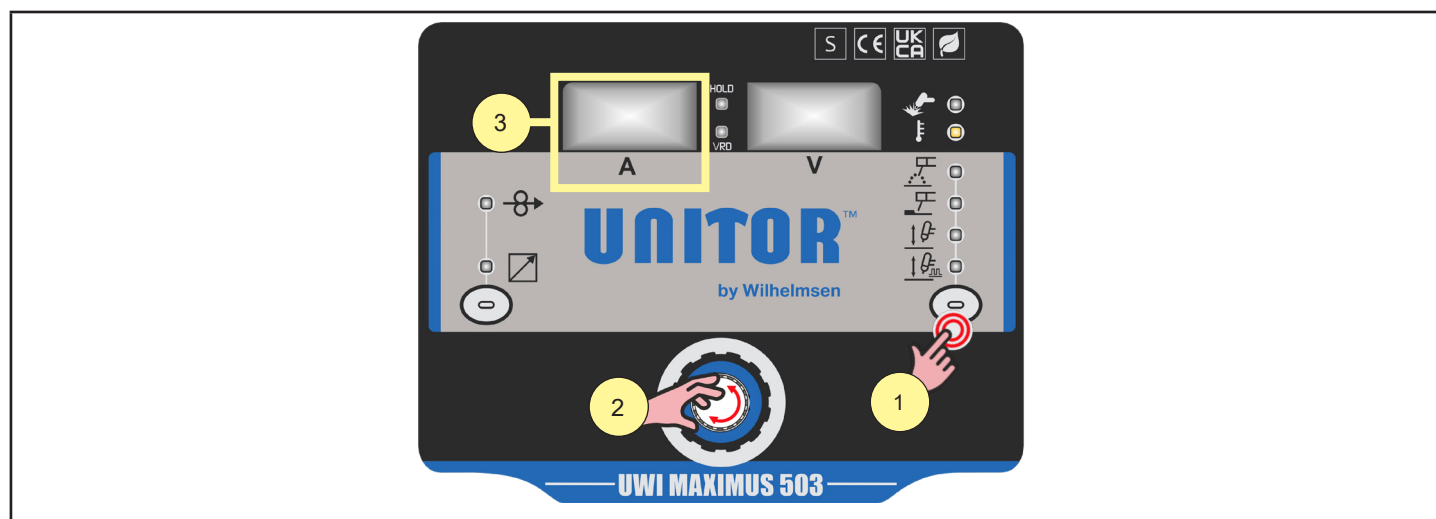
Electric shock hazard!

Read the warnings highlighted by the following symbols in the section "SAFETY WARNINGS".



1. Set the welding inverter ON/OFF switch to "O" (unit switched off).
2. Connect the torch plug to the negative polarity welding socket.
3. Choose the electrode according to the type of material and the thickness of the workpiece to be welded; insert the electrode into the TIG torch.
4. Connect the ground clamp plug to the positive polarity welding socket.
5. Connect the ground clamp to the workpiece being processed.
6. Plug the power cable plug into a mains socket outlet.
7. Set the welding inverter ON/OFF switch to "I" (unit powered).

Continuous TIG welding current adjustment

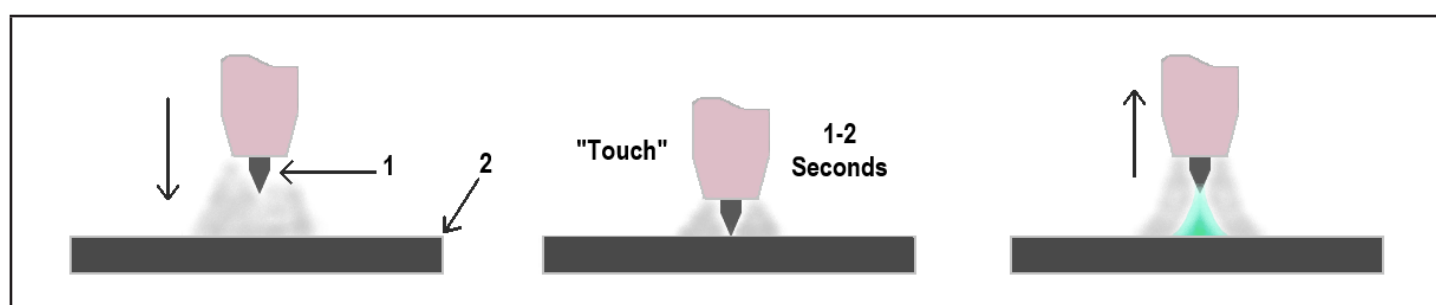


1. Press the [S2] key to set the CONTINUOUS TIG welding mode .
2. Turn the knob to set the welding current.
3. The display shows the value of the set current.

i Information By connecting and activating the remote control [RC] the current value will be adjusted through it.
(Activation of remote control page 28).

Procedure for switching the electric arc on and off

1. Open the gas tap.
2. Touch the tungsten electrode with the workpiece being processed at the starting point of the weld.
3. Hold the electrode on the workpiece being processed for a maximum of 1-2 seconds and slowly lift the electrode.
 - The arc forms when the electrode is lifted.
 - This can be done by tilting the electrode holder laterally until the gas nozzle touches the workpiece and the electrode is lifted.



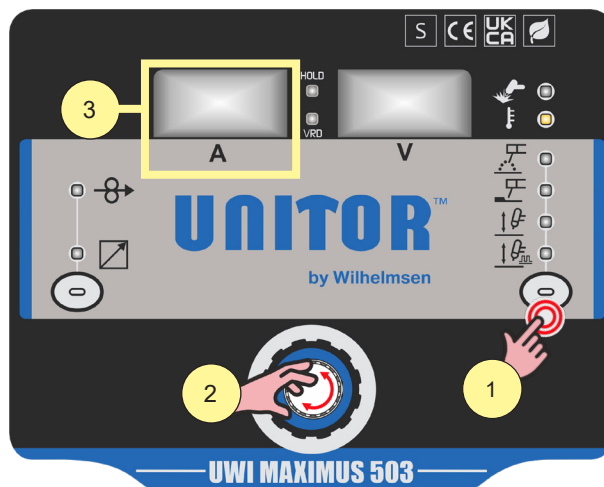
1: Electrode
2: Workpiece

Touch the workpiece
with the electrode

Raise the electrode
to turn on the arc

4. Quickly raise the torch to turn off the arc.
5. Close the gas tap.

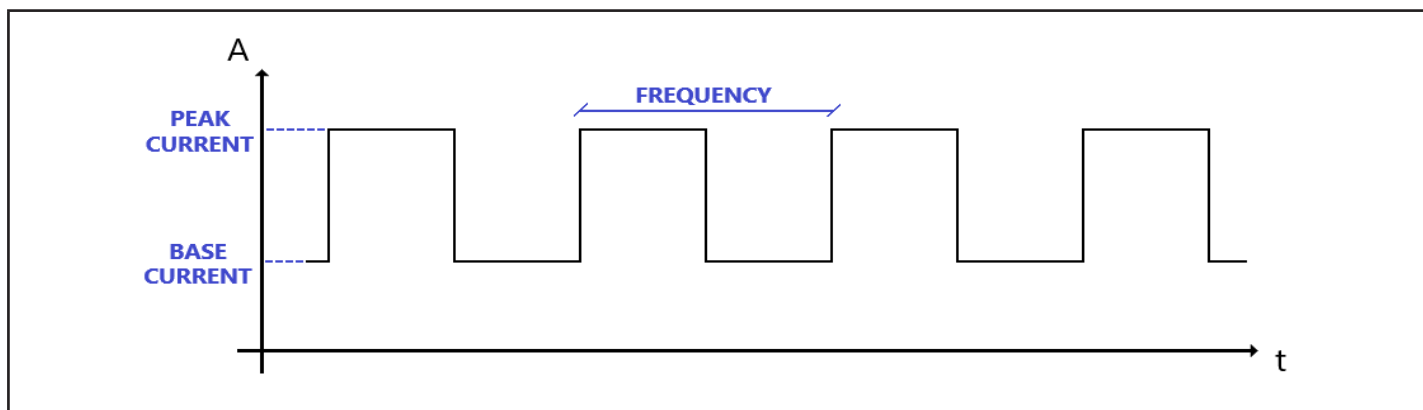
Pulsed TIG welding current adjustment



1. Press the [S2] key to set the PULSED TIG welding mode .
2. Turn the knob to set the welding current.
3. The display shows the value of the set current.

Pulsed TIG characteristics

- Reduction of the average heat input at the same welding speed.
- Less deformation of the workpieces during and after welding.
- More homogeneous and linear weld bead.
- Joining of the parts to be welded during the ignition phase and formation of the molten bath is easier and faster.



- Two distinct current levels are created alternating with a fixed frequency (100Hz).
- The set current value corresponds to the base current value.
- The peak current is automatically set to +50% of the base current.
- The duration of the peak current time is 50% of the total period.

4.2 PREPARING FOR WELDING MIG/MAG



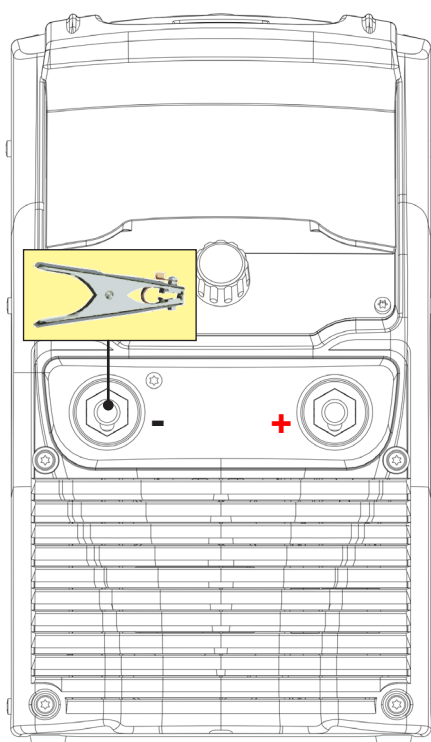
DANGER!

Electric shock hazard!

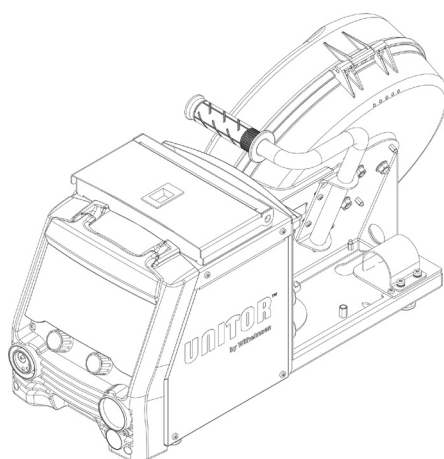
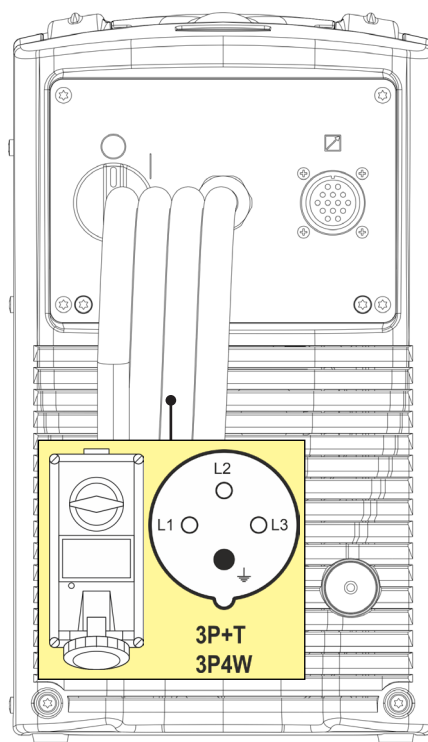
Read the warnings highlighted by the following symbols in the section "SAFETY WARNINGS".



FRONT VIEW

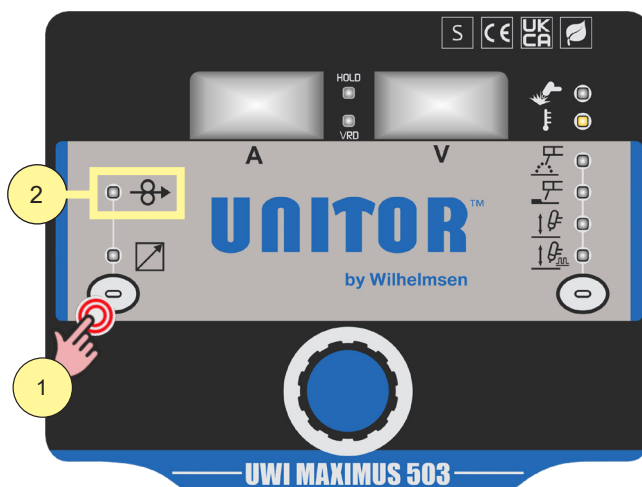


REAR VIEW



1. Set the welding inverter ON/OFF switch to "O" (unit switched off).
2. Install the wire feeder unit using the connection extension
-  **Information** For installation, refer to the user manual UWF-513.
3. Connect the plug of the ground clamp to the negative polarity welding socket.
4. Connect the ground clamp to the workpiece being processed.
5. Plug the power cable plug into a mains socket outlet.
6. Set the welding inverter ON/OFF switch to "I" (unit powered).

Activation of the wire feeder unit UWF-513

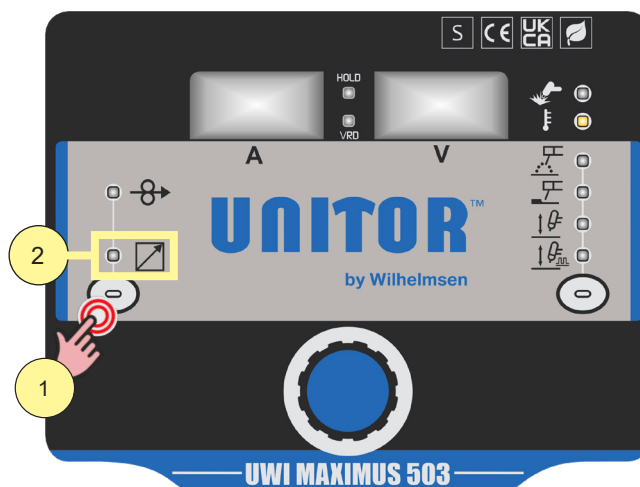


1. Press the [S1] key for 3 seconds.
2. The LED of the wire feeder unit lights up .
3. The panel is disabled.
4. The UWF-513 wire feeder unit panel is activated

i Information Refer to the user manual UWF-513 for information on parameters and settings of the wire feeder unit.

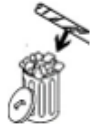
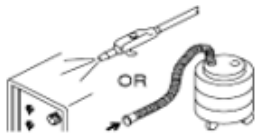
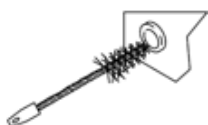


Remote control activation



1. Press the [S1] key to activate the remote control.
2. The remote control LED lights up .
3. The current adjustment knob is disabled.
4. The current parameter can only be adjusted by remote control.
5. To disable, return to step 1 and press S1 key again.

5 ROUTINE MAINTENANCE

CHECKPOINT		ACTION	INTERVAL
Primary plug and socket		Check connections and stretch relief	3 months or more often if needed
Primary cable		Check for damage and replace if necessary	3 months or more often if needed
Primary cable stretch relief and connection		Check for damage and tightness	3 months or more often if needed
Labels		Replace damaged or unreadable labels	3 months or more often if needed
Internal dust and dirt		Blow out or vacuum inside	6 months or more often if needed
Welding current sockets		Check and clean	3 months or more often if needed
Cable connectors		Check, clean if needed and tighten	Prior to use / every 3 months
Welding cables		Repair or replace if damaged	Prior to use / every 3 months
Electrode holders and torches		Check, clean and replace if damaged	Prior to use / every 3 months
Ground clamps		Check tightness and clean contact points	Prior to use / every 3 months
Remote controls, if relevant.		Check function and condition of cables	3 months or more often if needed

6 QUICK TROUBLESHOOTING GUIDE

6.1 ALARM (ERROR CODES) MANAGEMENT

E04: VOUT DISCONNECTED ALARM

- ▶ Indicates that there is a short circuit between the (+) and (-) welding sockets.
- ▶ Solution:
 - Check that the welding torch is not resting on the piece to be welded connected to the ground.
 - Check that when the welding inverter is switched on there is no short circuit between the sockets (the voltage must be greater than/equal to U_r).
 - If the problem persists, Electro-Technical Officer (ETO) is required for further troubleshooting and repair in line with the instructions given in the Troubleshooting Manual, section “ALARM (ERROR CODES)” and contact the manufacturer if further support needed.

E28: POWER SUPPLY OVERVOLTAGE ALARM

- ▶ High supply voltage.
- Solution:
 - Check that the mains power supply does not exceed the maximum allowed values.

E29: ALARM PHASE MISSING

- ▶ Lack of a phase.
- Solution:
 - Check that all three phases come from the mains.
 - Check the integrity of the line fuses on the power supply panel.
 - If the problem persists, Electro-Technical Officer (ETO) is required for further troubleshooting and repair in line with the instructions given in the Troubleshooting Manual, section “ALARM (ERROR CODES)” and contact the manufacturer if further support needed.

E30: PRIMARY OVERCURRENT ALARM

- ▶ Exceeding the current threshold at the primary.
- ▶ Solution:
 - The welding currents are at the limit of the maximum threshold: lower the welding parameters.
 - If the problem persists, Electro-Technical Officer (ETO) is required for further troubleshooting and repair in line with the instructions given in the Troubleshooting Manual, section “ALARM (ERROR CODES)” and contact the manufacturer if further support needed..

E31: INVERTER THERMAL ALARM

- ▶ It indicates that the overheating thermal cut-out switch has tripped.
- Solution:
 - Leave the equipment running so that the overheated components cool as rapidly as possible. When the problem is solved, the welding inverter restores itself.
 - Check the correct operation of the fans.
 - Check that the power required by the cutting process in progress is less than the maximum declared power.
 - Check that the operating conditions are in compliance with the welding inverter data plate specifications.
 - Check for the presence of adequate air circulation around the welding inverter.

E32: SECONDARY THERMAL ALARM

- ▶ It indicates that the welding inverter thermal cut-out switch has tripped.
- ▶ Solution:
 - Leave the equipment running so that the overheated components cool as rapidly as possible. When the problem is solved, the welding inverter will reset automatically.
 - Check the correct operation of the fans.
 - Make sure that the power required by the welding process is lower than the maximum rated power output.
 - Check that the operating conditions are in compliance with the welding inverter data plate specifications.
 - Check for the presence of adequate air circulation around the welding inverter.

E40: ALARM CAN BUS COMMUNICATION

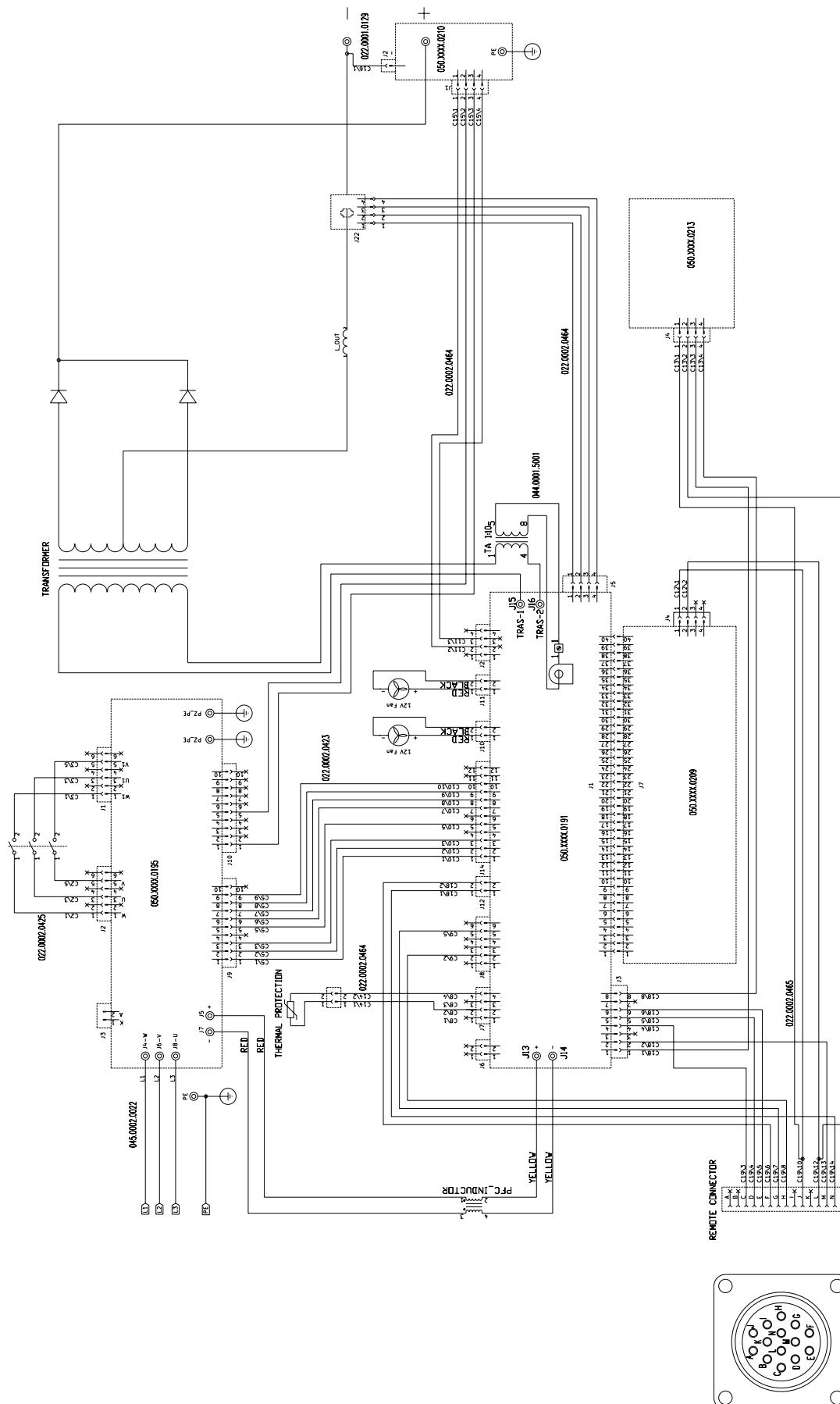
- ▶ Indicates a communication error between the front panel and the power board.
Solution:
 - Qualified technical personnel are required for repair on site, following the instructions given in the Troubleshooting Manual, section "ALARM MESSAGES".

6.2 FAULT SYMPTOMS AND POSSIBLE SOLUTIONS

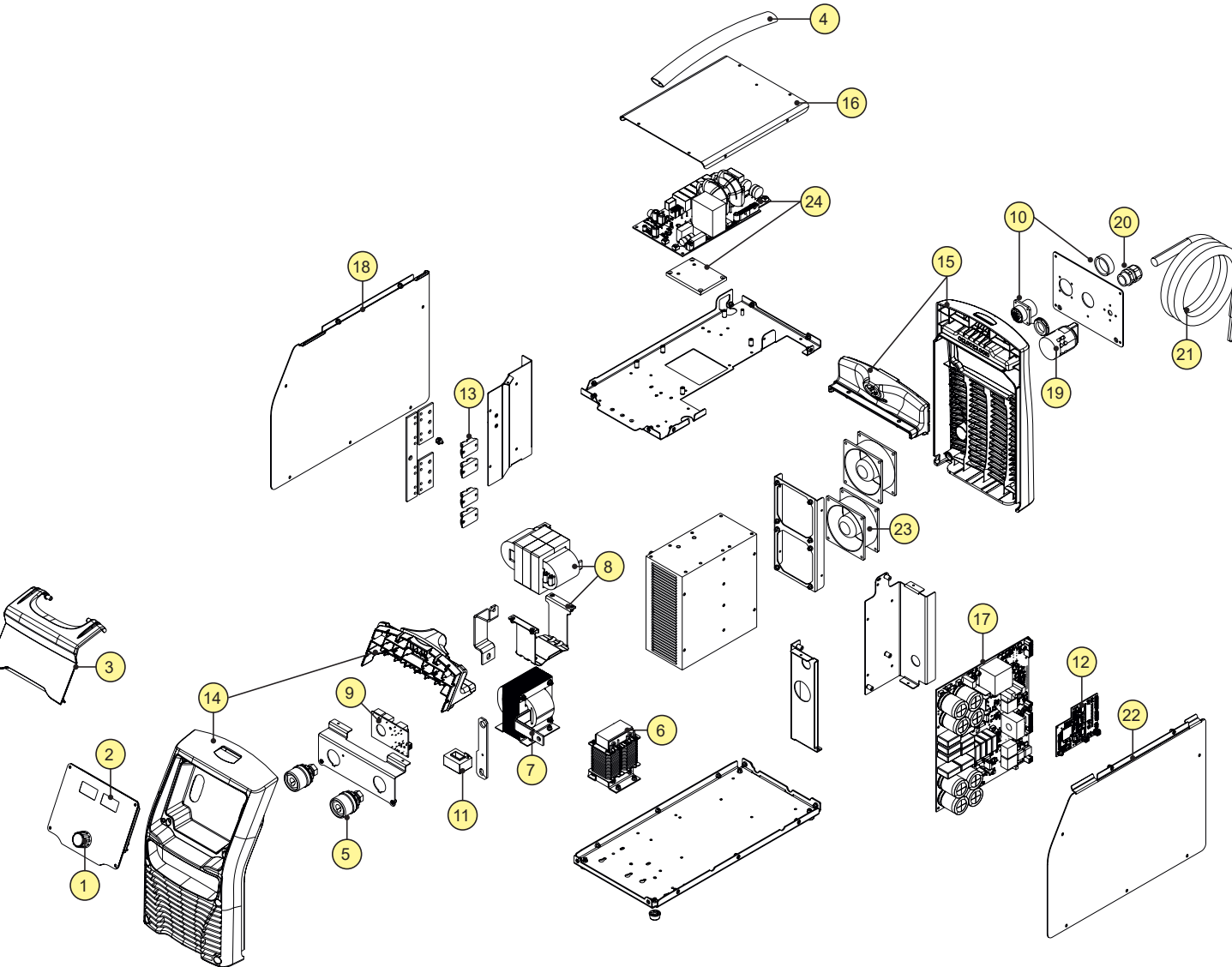
SYMPTOM	POSSIBLE REASON	SOLUTION
No output, No warning light, Fan not running	Primary power does not reach the machine	Mains fuses blown
		Machine is not plugged in
		Broken primary cable
		Cable connection to machine is loose
		Machine not switched on
		On/off switch damaged
No output, Yellow warning light	Voltage protection activated	Too high or too low input voltage, should be within 342 - 484V
	Thermal protection activated	Used at too high duty cycle, wait until machine has cooled down and power returns. Weld with more breaks or lower current
		Cooling air flow is hindered, remove obstructions
		Heat development in loose electrode holder or ground cable connections
		Broken fan, repair or replace
		Too much dirt in power source compartment, clean out.
No arc, No warning light	Incomplete circuit	Check ground cable connections and torch connection
Unstable arc	Polarity	Check that polarity set on the machine matches the wire
	Poor contact	Check ground clamp and torch connections
	Contaminated work piece	Clean

Information

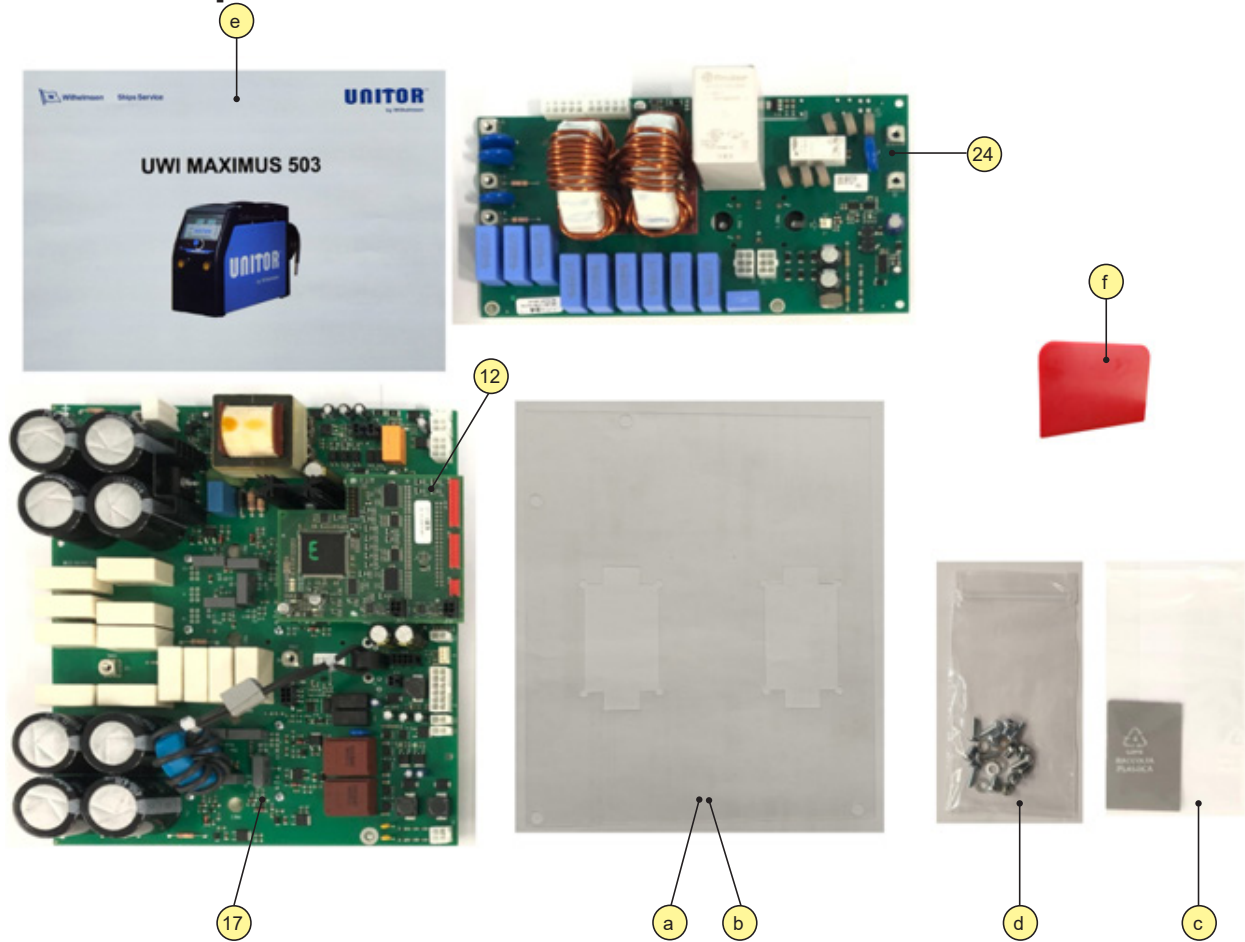
If the proposed solutions do not resolve the problem, Electro-Technical Officer (ETO) is required for further troubleshooting and repair in line with the instructions given in the Troubleshooting Manual, section "EQUIPMENT OPERATING PROBLEMS" and "WELDING PROBLEMS". Contact the manufacturer if further support needed.



8 SPARE PARTS LIST



[WSS PART NO. 503505] SPARE PART KIT F/UWI-MAXIMUS 503



Spare part kit for UWI-MAXIMUS 503 consists of:

WSS PART NO.	N.	DESCRIPTION
503505	12	CONTROL BOARD
	17	POWER BOARD
	24	INPUT FILTER BOARD
	a	TEMPLATE FOR THERMIC INTERFACE
	b	THERMIC INTERFACE
	c	THERMIC GREASE (10 g)
	d	SCREWS
	e	INSTRUCTIONS FOR INSTALLATION
	f	SPATULA



SPARE PART LIST (ON-REQUEST BASIS)

N.	WSS PART NO.	DESCRIPTION
1	1000732	KNOB WITH CAP
2	1000733	COMPLETE LOGIC FRONT PANEL
3	1000734	PLEXIGLASS PROTECTION
4	1000735	PIPE HANDLE
5	1000643	COMPLETE FIX PLUG 500A
6	1000736	INPUT INDUCTOR
7	1000737	OUTPUT INDUCTOR
8	1000738	POWER TRANSFORMER
9	1000739	OUTPUT FILTER BOARD
10	1000740	14 PIN EXTERNAL CONNECTOR
11	1000741	HALL EFFECT SENSOR
13	1000742	ISOTOP DIODE
14	1000743	FRONT PLASTIC
15	1000744	REAR PLASTIC
16	1000745	UPPER COVER PLATE
18	1000746	LEFT COVER PLATE
19	1000747	THREE-POLE SWITCH
20	1000748	COMPLETE CABLE CLAMP
21	1000749	NEOPRENE SUPPLY CABLE
22	1000750	RIGHT COVER PLATE
23	1000751	FAN



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Attention

Please use these Unitor products exclusively for the purpose indicated by WSS and only if the operator fully understands current practices and procedures. If any further information or assistance is required please contact your local WSS specialist.

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