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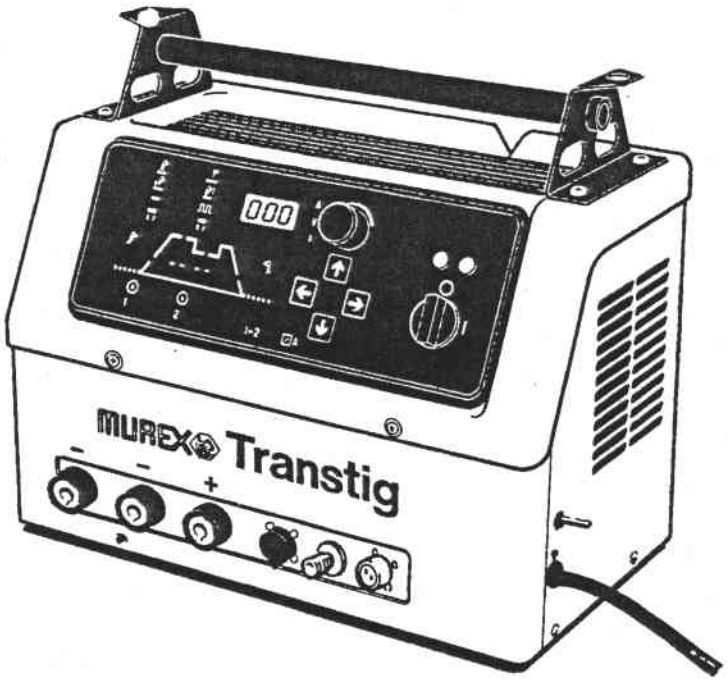
MUREX

Operating Manual

Transtig DC 160i/200i/250i



Please ensure that this Operating Manual is made available to the user of the equipment.

TT 160i/200i From Machine no 628-XXX-XXX
TT 250i From Machine no 822-XXX-XXX

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MUREX

Contents

DECLARATION OF CONFORMITY

Murex Welding Products Ltd.

Declare hereby that:

Murex Transtig DC 160i/200i Power Source

Part No.1415263/1415265

Manufactured after 1 st January 1996

- conform with the requirements of Council Directive 73/23/EEC,amended by Council Directive 93/68/EEC, relating to electrical equipment designed for use within certain voltage limits.
- conform with the requirements of Council Directive 89/336/EEC, amended by Council Directive 93/68/EEC, relating to electromagnetic compatibility.
- are manufactured in accordance with EN 60974-1 Safety Requirements for Arc Welding Equipment.
- are manufactured in accordance with EN 50199 Electromagnetic Compatibility for Arc Welding Equipment.

On behalf of Murex Welding Products Ltd.
Hertford Rd
Waltham Cross
Herts. EN8 7RP
England

.....
P.Karlsson
Managing Director.
Esab Welding Equipment AB
January 1996

Manufactured by Esab Welding Equipment AB.
S-695 81 Laxå Sweden

DECLARATION OF CONFORMITY

Murex Welding Products Ltd.

Declare hereby that:

Murex Transtig DC 250i Power Source

Part No.1415403

Manufactured after 1 st May 1998

- conform with the requirements of Council Directive 73/23/EEC,amended by Council Directive 93/68/EEC, relating to electrical equipment designed for use within certain voltage limits.
- conform with the requirements of Council Directive 89/336/EEC, amended by Council Directive 93/68/EEC, relating to electromagnetic compatibility.
- are manufactured in accordance with EN 60974–1 Safety Requirements for Arc Welding Equipment.
- are manufactured in accordance with EN 50199 Electromagnetic Compatibility for Arc Welding Equipment.

On behalf of Murex Welding Products Ltd.
Hertford Rd
Waltham Cross
Herts. EN8 7RP
England

Anders Birgersson
Managing Director.
Esab Welding Equipment AB
May 1998

Manufactured by Esab Welding Equipment AB.
S–695 81 Laxå Sweden

WARNING

WARNING

This welding equipment has been designed, manufactured and tested to the highest standards to ensure long and trouble free life. However, regular maintenance is an essential part of

keeping the machine operating in a reliable and safe manner and your attention is drawn to any maintenance instructions that are contained in this manual.

In general all welding equipment should be thoroughly inspected, tested and serviced at least annually.
More frequent checking will be required when the equipment is heavily used.
Wear and tear, particularly in electro–mechanical and moving components, are gradual processes.
Caught in time, repair costs are small and the benefits in performance reliability and safety are significant.
Left alone they can put the equipment, and you, at risk.

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

WARNING

ARC WELDING AND CUTTING CAN BE INJURIOUS TO YOURSELF AND OTHERS. TAKE PRECAUTIONS WHEN WELDING. ASK FOR YOUR EMPLOYER'S SAFETY PRACTICES WHICH SHOULD BE BASED ON MANUFACTURERS' HAZARD DATA.

ELECTRIC SHOCK – Can kill
- Install and earth the welding unit in accordance with applicable standards.
- Do not touch live electrical parts or electrodes with bare skin, wet gloves or wet clothing.
- Insulate yourself from earth and the workpiece.
- Ensure your working stance is safe.

FUMES AND GASES – Can be dangerous to health
- Keep your head out of the fumes.
- Use ventilation, extraction at the arc, or both, to keep fumes and gases from your breathing zone and the general area.

ARC RAYS – Can injure eyes and burn skin.
- Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing.
- Protect bystanders with suitable screens or curtains.

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

NOISE – Excessive noise can damage hearing
- Protect your ears. Use ear defenders 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!

SAFETY

In any arc welding or gouging operation, it is the responsibility of the user to observe certain safety rules to ensure his personal safety and to protect those working near him. Read all safety articles relevant to arc welding published by the WMA. Pay particular attention to any CAUTION or WARNING Notes included in this manual. CAUTION indicates possible equipment damage. WARNING indicates possible hazard to life.

WARNING

The ON/OFF switch on this equipment does not isolate the unit from the mains electrical supply. **AC POWER IS PRESENT ON THE ON/OFF SWITCH TERMINALS.**

The ON/OFF lamp is an indication that the supply is switched on and does not imply that the unit is isolated from the supply.

BEFORE REMOVING THE COVERS FOR MAINTENANCE, ISOLATE THE UNIT FROM THE MAINS ELECTRICAL SUPPLY.

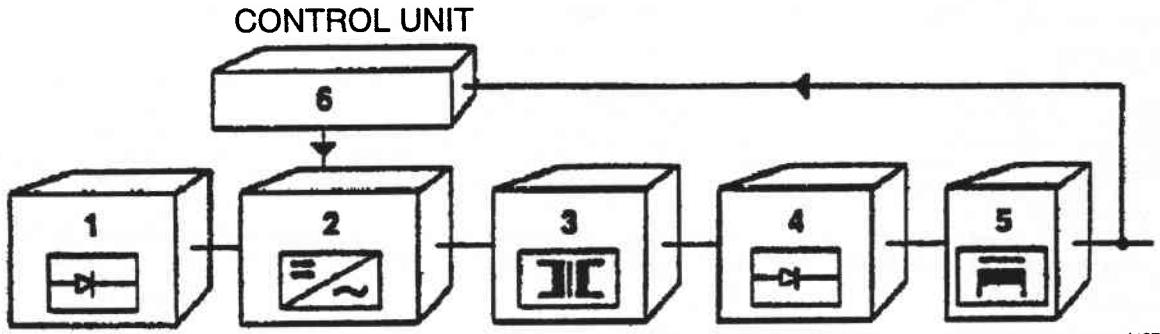
1. **Electrical**
   - Treat electricity with respect. Even the open circuit voltage of this equipment can be dangerous. Adjustments to the torch or replacement of torch parts should be undertaken with the mains supply isolated from the unit. If damaged torch cables or torch components are found, the unit must be disconnected from the mains and defective parts must be replaced using only Murex spare parts.
   - Do not work on live circuits or cables. Disconnect the main power supply before checking the machine or performing any maintenance operation.
   - Be sure the case of the welding machine is properly connected to a good electrical earth.
   - Have the wiring for the welding machine installed by a qualified electrician. All connections must be made according to specifications in force and to general safety standards.
   - Do not stand in water or on damp floors while using an arc welder or cutter. Do not use in the rain.
   - Do not operate with worn or poorly connected cables. Inspect all cables frequently for insulation failure, exposed wires and loose connections.
   - Do not overload cables or continue to operate with overheating cables. Cables which are too small for the current carried will overheat, causing rapid deterioration of the insulation.
   - Pay attention that live parts of the torch do not touch any metal which is connected to the earth cable. Fix an insulated hook to hang the torch on when it is not in use.
2. **Ventilation**
   - Do not weld or cut on containers which have held combustible or flammable materials, or materials which give off flammable or toxic vapours when heated, without proper cleaning.
   - Locate the welding/cutting operation far enough from any vapour-type degreaser using trichlorethylene or other chlorinated hydrocarbons as solvents. The ultraviolet light from the arc can decompose these vapours into toxic gases at a considerable distance from the arc, even though the concentration of the gases is low enough to be undetectable by smell.
   - Be sure to provide adequate ventilation for removal and dilution of fume and gases. Fume exhaust facilities near the arc, or a ventilated helmet should be used when cutting in confined spaces or on toxic material.
3. **Glare**
   - Never look at the arc without wearing eye protection. Always use the proper protective clothing, filter glasses, and gloves. Be careful to avoid exposed skin areas. Do not use cracked or defective helmets or shields.
   - Never strike an arc when there is someone near who is not protected from the strong light of the arc.
   - Warn bystanders who are not aware of the dangers of ultraviolet light.
4. **General**
   - Take care when lifting the unit.
   - Ensure that cylinders are secured by chains.
   - Locate the unit so that there is adequate air flow to the ventilation louvres.
   - Always dress correctly to protect against glare, radiation and spatter.
5. **Fire**
   - Ensure that the correct type of fire extinguisher is available in the welding area.
   - Do not weld near flammable materials or liquids, in or near explosive atmospheres, or on pipes carrying explosive gases.
6. **Vehicle electrics**
   - When working on motor vehicles, remove the battery and any circuitry which may be damaged by the arc.
   - Whilst welding be aware of the possibility of 'hidden wires' behind panels or bulkheads.

INTRODUCTION

Note!
This product is solely intended for arc welding.

Transtig DC 160i/200i and **250i** are rectifiers designed using inverter technology and are intended for TIG and MMA welding using coated electrodes. Inverter technology contributes towards low power consumption, low weight and compact dimensions.
The advanced electronics with microprocessor control provides, amongst other features fast response and top class welding characteristics.

These machines are equipped with **ARC PLUS**, a new type of control that for MMA welding provides a more intensive, more concentrated and smoother arc. It reacts quicker after a short circuiting drop transfer, which reduces the risk of the electrode sticking.
In addition, the machine is equipped with Arc Force, which means that the power source's dynamics can be adjusted, softer or harder depending on the type of electrode and the welder's preference.
ARC PLUS – because of the regulator's good characteristics it is only necessary to change the Arc Force settings in exceptional circumstances.
When make and break welding using stainless steel electrodes a special feature of the machine can be activated to facilitate welding.
Transtig DC 160i/200i and 250i are designed using inverter technology according to the following principle:



1. The primary current is rectified.
2. The current is converted in a transistor module to a very high frequency.
3. The current is transformed to a suitable level for welding.
4. The current is rectified.
5. The current passes an inductor that "equalizes" the current.
6. The microprocessor based electronics control the process.

The rectifier, transistor module, transformer, secondary rectifier and inductor are integrated in a single air-cooled unit.
The control unit consists of the control electronics and the operator control panel.
The machine is built into a single case of heavy duty steel plate which is surfaced finished using an aluminum/zinc alloy.

TECHNICAL DATA

	Transtig DC 160i	Transtig DC 200i	Transtig DC 250i
Permitted load at			
35 % duty cycle, TIG	160 A/16 V	200 A/18 V	250 A/20 V
35 % duty cycle, MMA	140 A/26 V	200 A/28 V	250 A/30 V
60 % duty cycle	110 A/24 V	150 A/26 V	180 A/27 V
100 % duty cycle	80 A/23 V	115 A/25 V	140 A/26 V
Setting range, TIG	3–160 A	3–200 A	3–250 A
Setting range, MMA	4–140 A	4–200 A	4–250 a
Slope up	0–10 s	0–10 s	0–10 s
Slope down	0–10 s	0–10 s	0–10 s
Gas pre-flow	0–25 s	0–25 s	0–25 s
Gas post-flow	0–25 s	0–25 s	0–25 s
Pulse time	0.02–5.0 s (0.001–5.0 s)	0.02–5.0 s (0.001–5.0 s)	0,02–5,0 s (0,001–5,0 s)
Pause time	0.02–5.0 s (0.001–5.0 s)	0.02–5.0 s (0.001–5.0 s)	0.02–5.0 s (0.001–5.0 s)
Open-circuit voltage	70 V	70 V	70–80 V
Open-circuit power	30 W	50 W	40 W
Useful Power, P at max current MMA	4.8 kW	7.2 kW	8,78 kW
Apparent Power, S at max current MMA	6.9 kVa	11.7 kVa	13,3 kVa
Power factor, at max current MMA	0.69	0.63	0,65
Efficiency, at max current MMA	0.75	0.78	0,85
Fuse, slow rupture	16 A	10 A	16 A
Mains cable,cross section	3x2.5 mm^2	4x1.5 mm^2	4x1,5 mm^2
Dimensions lxwxh	515x285x415	515x285x415	515x285x415
Weight	23 kg	23 kg	25 kg
Application class	S	S	S
Class of enclosures	IP 23	IP 23	IP 23

These welding power sources comply with the requirements of EN 60974-1 or BS 638 pt10.

The symbol S indicates that this power source is designed for use in areas where there is an increased electrical hazard.
The **IP** code indicates the enclosure class, i.e. the degree of protection against penetration by solid objects and water.
Equipment marked **IP 23** is designed for in- and outdoor use.

INSTALLATION

	Transtig DC 160i	Transtig DC 200i	Transtig DC 250i
Mains voltage	230 V ± 10 %, 1-phase	400 V ± 10 % , 3-phase	400 V ± 10 % , 3-phase
Mains frequency	50-60 Hz	50-60 Hz	50-60 Hz
Fuse, slow rupture	16 A*)	10 A	16 A
Mains cable, cross section	3x2.5 mm^2	4x1.5 mm^2	4x1.5 mm^2
Welding cable, cross sect.	25 mm^2	25 mm^2	35 mm^2

*) When welding with max 100 A a 13 A slow rupture fuse is sufficient.

The DC 160i/200i and 250i are equipped with mains voltage compensation, which means that a ±10 % variation in the mains voltage only results in a ±0,2 % variation in the welding current.

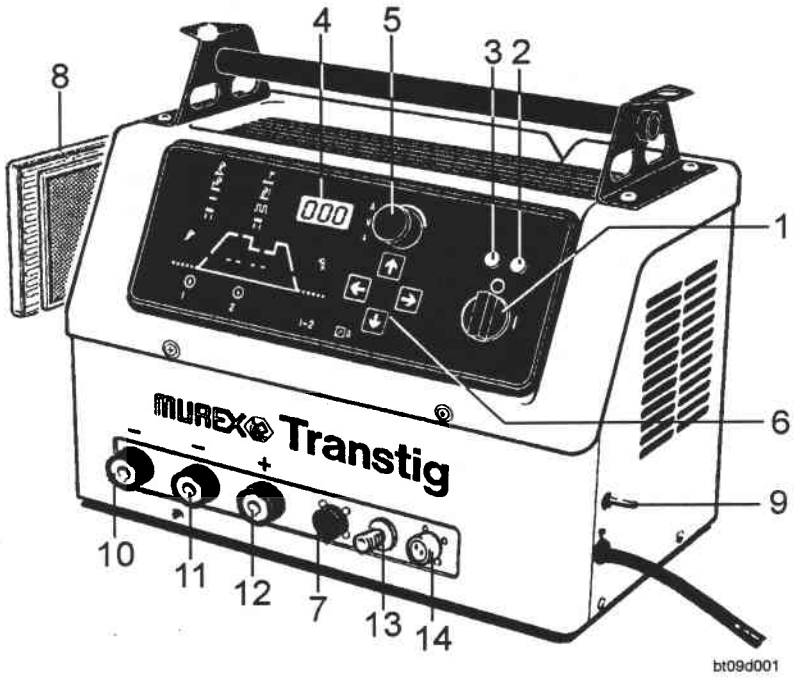
1. Place the equipment in a suitable place and make sure the rectifier is not covered or set-up so that cooling is prevented.
2. Make sure the machine is connected to the correct mains voltage. Earth according to applicable directives.
3. Connect the shielding gas.
4. Connect the TIG torch or MMA electrode holder and the return cable.

The machine is now ready for welding.

WARNING

This product is intended for industrial use. In a domestic environment this product may cause radio interference. It is the users responsibility to take adequate precautions.

OPERATION



1	Mains power on/off switch	9	Gas nipple (connection to gas regulator)
2	Yellow thermal overload indicator lamp	10	Connection for TIG torch power
3	White power on indicator lamp	11	MMA connection
4	Digital display	12	Connection for return cable when TIG welding
5	Setting control	13	Gas outlet connection to torch
6	Push–buttons	14	Torch switch connection
7	Remote control connection		
8	Dust filter		

The welding cable and return cable should be connected to 11 and 12 for MMA.

When the main power switch is switched on, the white indicating lamp on the front comes on.

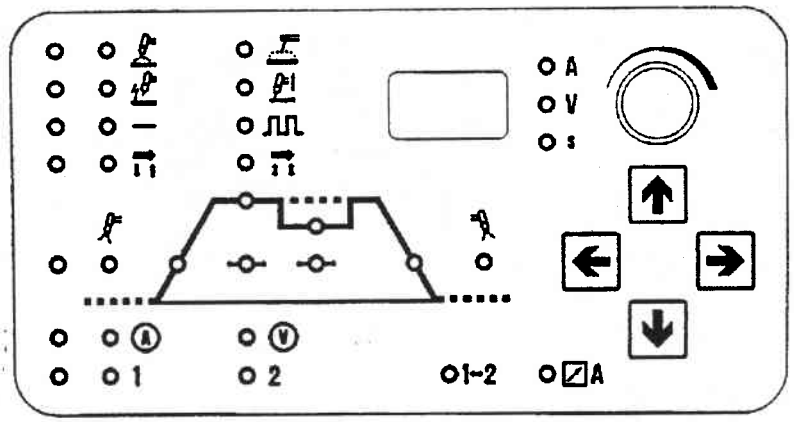
To eliminate the risk of overloading the machine it has been equipped with an integrated thermostat that trips if the temperature becomes too high.
When this occurs the welding current is cut out and the yellow indicating lamp comes on. In addition, the error code "E13" is displayed. When the temperature has dropped the thermostat automatically resets.

Control panel

On the front of the machine there is a control panel for the selection of functions and setting of parameters. This consists of a display, setting control, LEDs and push–buttons. By using the push–buttons you can move between the different functions. The selected function is indicated by the respective LEDs coming on.
One row at a time is set, the row is indicated by a red LED. Movement between rows takes place using the red arrow keys ⇧⇩ .
Movement between each column takes place using the green arrow keys ⇦⇨ . All numeric settings are made using the setting control. The LEDs to the right of the display indicate the actual unit (ampere/volt/seconds). On the rows where only a function is selected, "---" is shown on the display.

Description of the functions:

- Row 1
- Row 2
- Row 3
- Row 4
- Row 5
- Row 6
- Row 7



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Row 1 TIG welding or MMA welding

If MMA welding is chosen, the current is set here and rows 2–5 are ignored.

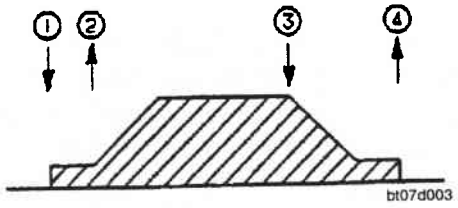
Row 2 TIG/HF ignition or TIG/Liftarc ignition

For a description of Liftarc ignition, see page 14.

Row 3 Continuous current or pulsed current

Row 4 2 stroke or 4 stroke trigger action

2 stroke trigger action means that the arc is ignited when the torch trigger is pressed in and is extinguished when the trigger is released.
4 stroke trigger action means that when the torch trigger is pressed in "1" the machine starts with the pilot current and then slopes up to the set current when the trigger is released "2". When the trigger is pressed in again "3" the machine slopes down to the pilot current. The arc is extinguished when the trigger is released "4".



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