MUREX

Operating Manual

Transtig AC/DC 203i

Please ensure that this Instruction Manual and Parts List is made available to the user of the equipment

DECLARATION OF CONFORMITY

Murex Welding Products Ltd.

Declare hereby that:

Murex Transtig AC/DC 203i Power Source

Part No: 1415514

- is manufactured in accordance with the Council Directive 73/23/EEC (1973-02-19) and 89/336/EEC (1989-05-03) amended by Council Directive 93/68/EEC relating to electrical equipment designed for use within certain voltage limits.
- conforms with the protection requirements of Council Directive 89/336/EEC, amended by Council Directives 91/263/EEC, 92/31/EEC and 93/68/EEC relating to electromagnetic compatibility.
- is manufactured in accordance with EN60974-1 Safety Requirements for Arc Welding Equipment.
- is manufactured in accordance with EN50199 Electromagnetic Compatibility for Arc Welding Equipment.

On behalf of Esab Group (UK) Ltd
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P.G. Dodd
Managing Director
Esab Group (UK) Ltd
1st June 1999

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 work.
- Ensure your working position is secure.

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.

NOISE– Excessive noise can damage hearing

- Protect your ears. Use ear defenders or other hearing protection.
- Warn bystanders of the risks.

READ AND UNDERSTAND THE INSTRUCTION MANUAL BEFORE INSTALLING OR OPERATING AND SEE 18 PUBLICATION 237 'The arc welder at work' AVAILABLE FROM THE MANUFACTURER.

PROTECT YOURSELF AND OTHERS

MUREX

Contents

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 18. 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.

1. 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.

2. 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 ultra-violet light.

3. 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.

4. Fire

⚠ Ensure that the correct type of fire extinguisher is available in the welding area.

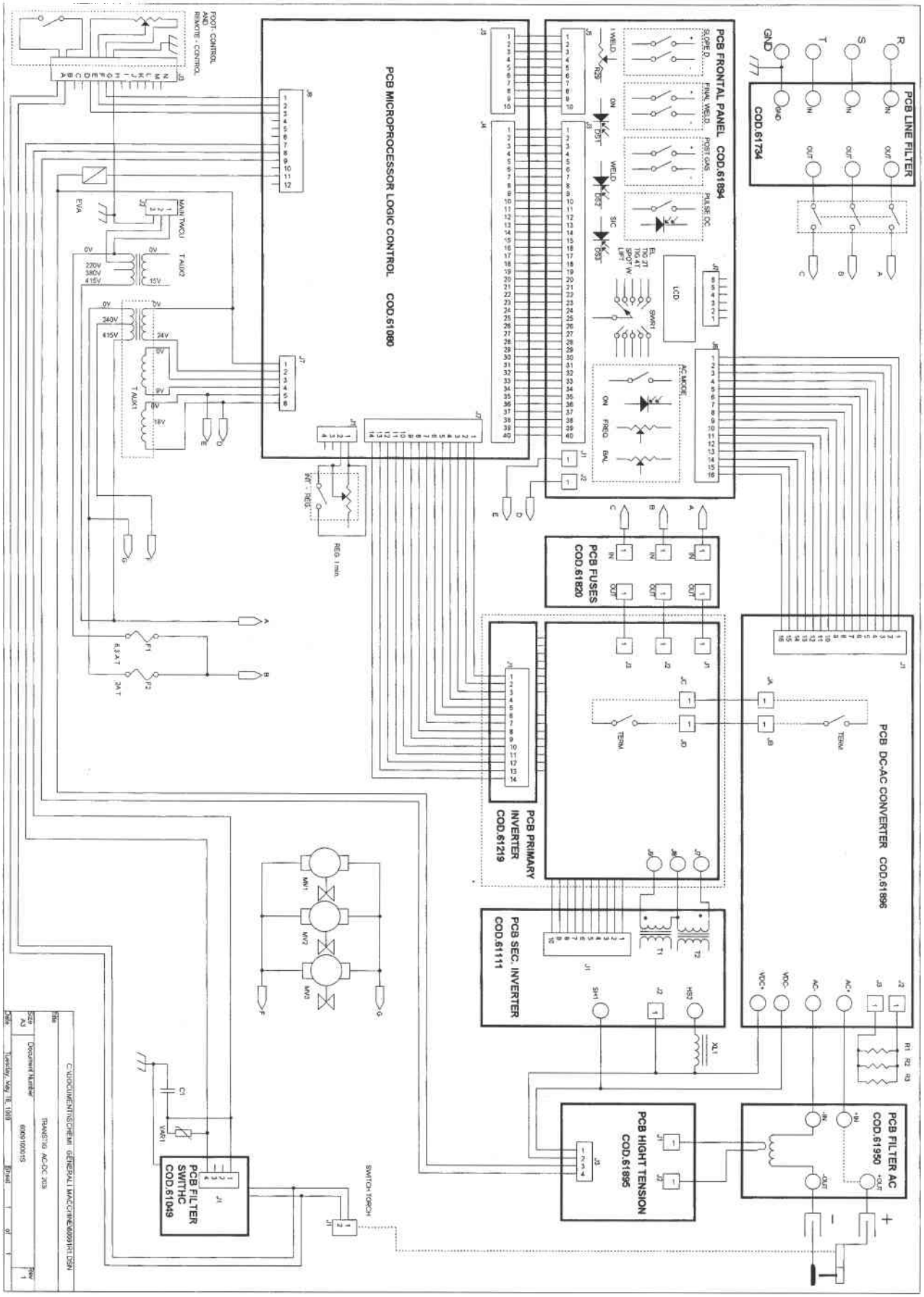
⚠ Do not weld near flammable materials or liquids, in or near explosive atmospheres, or on pipes carrying explosive gases.

5. 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.

CIRCUIT DIAGRAM



INTRODUCTION

The Transtig AC/DC 203i is a state of the art DC and AC squarewave power source for TIG or MMA welding. It utilises inverter based technology in combination with microprocessor control. Rated up to 200A at 40% duty (TIG) the 203i operates from standard industrial 3 phase 415V supplies (16A fuses).

The operator control panel comprises both conventional type rotary controls together with membrane key switches to enable the precise setting of the required welding parameters. A large LCD display provides a precise readout of the various welding data, both preset and actual.

For DC TIG welding applications the 203i features both non-contact HF arc initiation and lift-arc striking facilities. HF starting is used for AC TIG applications but, unlike with other AC TIG units, the HF is switched off whilst the arc is established. This fact means that the possibility of electrical interference from the equipment is greatly reduced.

The power source is built in a small all metal enclosure incorporating convenient carrying handles and weighing only 25Kg. Multiple fans at the rear provide cooling for the internal components. Full thermal overload protection is standard. A 230Vac auxiliary supply is available, accessed through the rear panel, when using the 203i together with the Transtig T.W.C.U. TIG torch water cooling unit.

The Transtig AC/DC 203i is designed, manufactured and tested to meet the requirements of EN 60974-1 'Safety Requirements for Arc Welding Power Sources' and also complies with EN 50199 covering Electromagnetic Compatibility Requirements.

SPECIFICATION

Input	
Mains Supply	415V, 3 Phase, 50/60Hz
Fuses	16A slow
KVA	6
P.F.	0.9
Output	
TIG Current Range	5 - 200A
TIG Rating	200A 40% Duty 160A 60% 135A 100%
MMA Current Range	5 - 190A
MMA Rating	190A 35% Duty
O.C.V.	65V
AC Frequency	20 - 200Hz
AC Balance	10 - 90%
Pulse Frequency	0.4 - 300Hz DC, 0.4 - 2Hz AC
Pulse Time	33% of Cycle Time
Background (when pulsing)	25% of Peak Current
Slope Down Time	0.1 - 9.9 Seconds
Start/Crater Current (4S mode)	1 - 99% of main current
Post Purge Time	0.2 - 20 Seconds
Dimensions (Power Source)	
Height	510mm
Width	240mm
Depth	500mm
Weight	25Kg (Net)
Standards	EN 60974-1 & EN 50199

INSTALLATION

1. Radio Interference

Murex welding power sources have been designed to high standards of electromagnetic compatibility. However, arc welding, by its very nature, generates radio-frequency energy and may cause interference. By installing and using the equipment correctly, in accordance with these instructions, the problems of interference may be minimised.

This equipment satisfies the requirements of the EU Directive 89/336/EC on EMC and complies with the limits in EN50199, 'EMC product standard for arc welding equipment'. These limits are designed to provide reasonable protection against interference in heavy industrial areas.

If this equipment is used in domestic areas, e.g. for repair or maintenance, particular care should be taken. The time of day should be chosen and the duration of welding limited, to minimise any potential problems.

If this equipment causes interference the guidance given below should be considered. If a solution cannot be found please contact your distributor or the manufacturer.

Before installing this welding equipment an assessment should be made of potential EMC problems that may occur. It is good practice not to install welding equipment next to computers or safety critical control circuits, e.g. electronic machine guards, unless they have been suitably protected.

This equipment should be connected to the primary supply using the cable provided. However, for permanent installation, if interference problems occur, shielded cable or conduit should be considered. The primary cabling and welding cables should be kept separate to other mains wiring and control, signalling or communications leg (telephone) cables. If interference occurs then greater separation or re-routing should be considered. Welding cables should be kept as short as practically possible.

Interference may also be reduced by separating the welding equipment from the other equipment affected. A partition, brick wall or particularly, a metal screen will also reduce interference. Earthing and equi-potential bonding should also be considered but guidance should be sought from a competent person, the distributor or manufacturer.

To ensure continued compliance to the EMC Directive this equipment should be routinely maintained according to the manufacturer's instructions and using only approved spare parts. In particular, the spark gaps of HF units should be adjusted and maintained according to the manufacturer's recommendations.

All access and service doors and covers should be closed and properly fastened when the equipment is being used. This equipment should not be modified in any way except for those changes and adjustments approved by the manufacturer.

2. Trolley Unit

Assemble the trolley/cylinder carrier unit if supplied. Refer to Figure 2. for assembly details. Locate the 203i power source on the sloping shelf; temporarily removing the gas cylinder support/chain holder bracket makes this easier.

WARNING!

Do not let the 203i slide backwards off the shelf when the cylinder support bracket is not fitted.

3. Connection to the Supply

The Transtig AC/DC 203i requires a standard 3 phase 415V 50Hz electricity supply, note that there is no neutral connection. Supplies should be fused at 16A and HRC types are recommended. If circuit breaker protection is to be used, type D/4 breakers should be specified. Ensure the green/yellow earth conductor is securely connected to mains earth.

4. T.W.C.U. Torch Water Cooler

If supplied install the T.W.C.U. on the base of the trolley, the 4 moulded feet should sit inside the retaining corner angles.

WARNING!

Ensure the 203i power source is isolated from the mains supply.

Remove the 8 retaining screws and lift the top lid off the 203i power source. Locate the 230Vac auxiliary access hole/strain relief in the upper RH corner of the rear panel. Loosen the 2 screws that mount the strain relief moulding and feed the T.W.C.U. primary cable through the hole/strain relief.

The 230Vac auxiliary supply 3 way terminal block is located next to the access hole on the inside of the rear panel, see Figure 1. Install the 3 insulated push-on connectors as shown. Ensure the green/yellow earth wire connection is made to the LH terminal as viewed from the front of the machine. The position of the other 2 connections is not important.

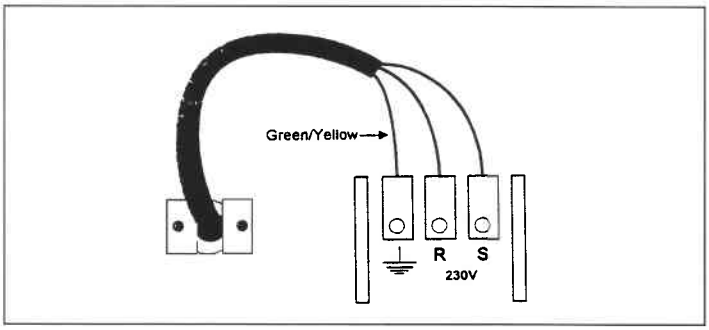
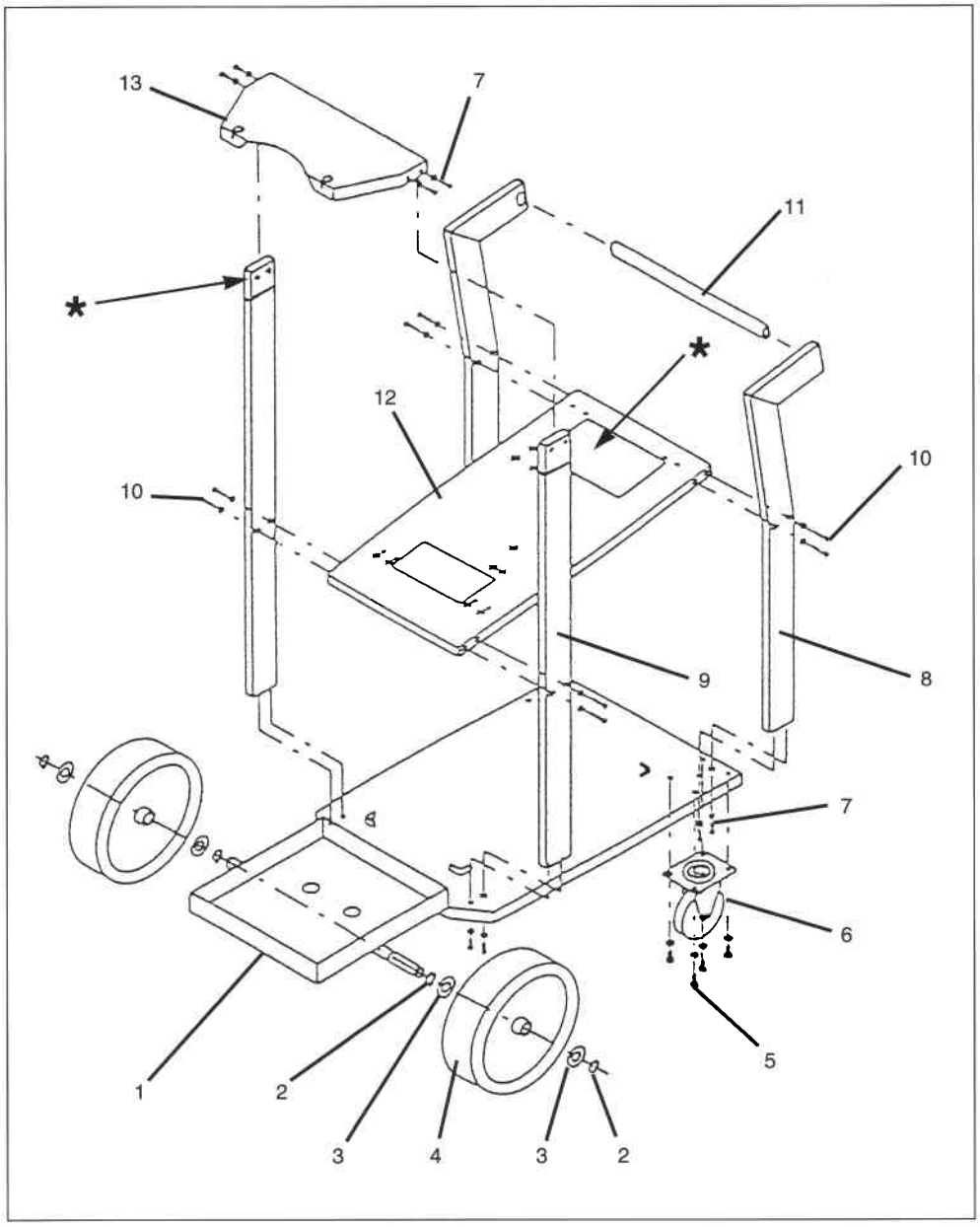


Figure 1. 230V ac Auxiliary Connection

Figure 2. Transtig AC/DC 203i Undergear Pt. No. 1415510
Assembly Instructions



1. Fix rear uprights (9) to upper tray (12) using M6 x 30 bolts and washers (10). Ensure the uprights are correctly oriented as shown.
2. Fit front uprights (8) to upper tray (12) using M6 x 30 bolts and washers (10). Ensure the handle bar (11) is inserted between the uprights before fastening.
3. Fit the cylinder/lower tray assembly (1) to the bottoms of the 4 uprights using M6 x 15 bolts and washers (7).
4. Fit the upper cylinder plate (13) to the rear uprights (9) using M6 x 15 bolts and washers (7).
5. Fit the 2 front caster wheels (6) to the underside of (1) using M8 x 12 bolts and washers (5).
6. Fit circlips (2) to inner grooves of both rear axle stubs. Place a large washer (3) onto each axle and then slide on the rear wheels. Fit another large washer (3) onto the axle stubs outside each rear wheel and then install the circlips (2) to retain them.

WARNING!

Remove extender plates (marked ✱) when using trolley unit with AC/DC203i.

WARNING!

Ensure the green/yellow earth wire is correctly connected to the LH terminal.

Tighten the 2 strain relief mounting screws so as to retain the T.W.C.U. primary cable. Refit the lid of the 203i ensuring star washer(s) are properly refitted. Before energising the cooler ensure it is correctly filled with coolant, refer to T.W.C.U. Instruction Sheet, and connect the TIG torch cooling hoses to its front panel.

IMPORTANT!

Ensure the T.W.C.U. is correctly filled with coolant and that the TIG torch water hoses are connected before switching on. Failure to do so may damage the motor and pump.

When MMA welding with the 203i ensure the T.W.C.U. is switched off using its front panel on/off switch.

After running the cooler for a few minutes the coolant level should be checked and topped-up if necessary.