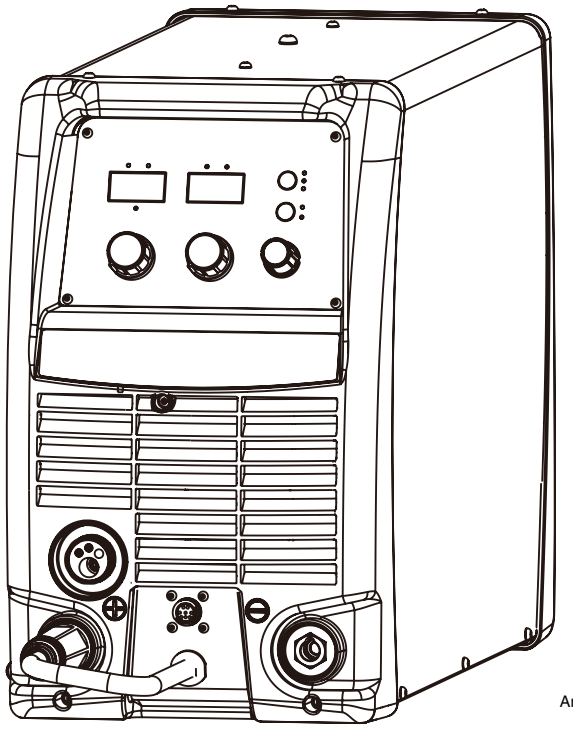
CIGWELD Professional

200i

TRANSMIG
MULTI PROCESS
WELDING INVERTER



Art # A-10749

Service Manual

Revision: AD **Issue Date:** March 26, 2013 **Manual No.:** 0-5210
Operating Features:

CE

WE APPRECIATE YOUR BUSINESS!

Congratulations on your new CIGWELD product. We are proud to have you as our customer and will strive to provide you with the best service and reliability in the industry. This product is backed by our extensive warranty and world-wide service network. To locate your nearest distributor or service agency call +1300 654 674, or visit us on the web at **www.victortechnologies.com**

This Service Manual has been designed to instruct you on the correct use and operation of your CIGWELD product. Your satisfaction with this product and its safe operation is our ultimate concern. Therefore please take the time to read the entire manual, especially the Safety Precautions. They will help you to avoid potential hazards that may exist when working with this product.

YOU ARE IN GOOD COMPANY!

The Brand of Choice for Contractors and Fabricators Worldwide.

CIGWELD is the Market Leading Brand of Arc Welding Products for Victor Technologies International Inc. We are a mainline supplier to major welding industry sectors in the Asia Pacific and emerging global markets including; Manufacturing, Construction, Mining, Automotive, Engineering, Rural and DIY.

We distinguish ourselves from our competition through market-leading, dependable products that have stood the test of time. We pride ourselves on technical innovation, competitive prices, excellent delivery, superior customer service and technical support, together with excellence in sales and marketing expertise.

Above all, we are committed to develop technologically advanced products to achieve a safer working environment for industry operators.

WARNINGS

Read and understand this entire Manual and your employer's safety practices before installing, operating, or servicing the equipment.

While the information contained in this Manual represents the Manufacturer's best judgement, the Manufacturer assumes no liability for its use.

Welding Power Supply
Service Manual Number 0-5210 for:

TRANSMIG 200i Inverter Plant	Part Number	W1005200
TRANSMIG 200i Inverter Power Source (packed)	Part Number	W1005201
TRANSMIG 200i Inverter Plant (Asia)	Part Number	W1005200M

Published by:
CIGWELD Pty Ltd
71 Gower Street
Preston, Victoria, Australia, 3072

www.victortechnologies.com

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Recision AD Date: March 26, 2013

Record the following information for Warranty purposes:

Where Purchased: _____

Purchase Date: _____

Equipment Serial #: _____

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SECTION 1:
SAFETY INSTRUCTIONS AND WARNINGS

WARNING

PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS KEEP AWAY UNTIL CONSULTING YOUR DOCTOR. DO NOT LOSE THESE INSTRUCTIONS. READ OPERATING/INSTRUCTION MANUAL BEFORE INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT.

Welding products and welding processes can cause serious injury or death, or damage to other equipment or property, if the operator does not strictly observe all safety rules and take precautionary actions.

Safe practices have developed from past experience in the use of welding and cutting. These practices must be learned through study and training before using this equipment. Some of these practices apply to equipment connected to power lines; other practices apply to engine driven equipment. Anyone not having extensive training in welding and cutting practices should not attempt to weld.

Safe practices are outlined in the Australian Standard AS1674.2-2007 entitled: Safety in welding and allied processes Part 2: Electrical. This publication and other guides to what you should learn before operating this equipment are listed at the end of these safety precautions. **HAVE ALL INSTALLATION, OPERATION, MAINTENANCE, AND REPAIR WORK PERFORMED ONLY BY QUALIFIED PEOPLE.**

1.01 Arc Welding Hazards

WARNING

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

1. Do not touch live electrical parts.
2. Wear dry, hole-free insulating gloves and body protection.
3. Insulate yourself from work and ground using dry insulating mats or covers.
4. Disconnect input power or stop engine before installing or servicing this equipment. Lock input power disconnect switch open, or remove line fuses so power cannot be turned on accidentally.
5. Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.
6. Turn off all equipment when not in use. Disconnect power to equipment if it will be left unattended or out of service.
7. Use fully insulated electrode holders. Never dip holder in water to cool it or lay it down on the ground or the work surface. Do not touch holders connected to two welding machines at the same time or touch other people with the holder or electrode.
8. Do not use worn, damaged, undersized, or poorly spliced cables.
9. Do not wrap cables around your body.
10. Ground the workpiece to a good electrical (earth) ground.
11. Do not touch electrode while in contact with the work (ground) circuit.
12. Use only well-maintained equipment. Repair or replace damaged parts at once.
13. In confined spaces or damp locations, do not use a welder with AC output unless it is equipped with a voltage reducer. Use equipment with DC output.
14. Wear a safety harness to prevent falling if working above floor level.
15. Keep all panels and covers securely in place.

WARNING

ARC RAYS can burn eyes and skin; NOISE can damage hearing.

Arc rays from the welding process produce intense heat and strong ultraviolet rays that can burn eyes and skin. Noise from some processes can damage hearing.

1. Use a Welding Helmet or Welding Faceshield fitted with a proper shade of filter (see ANSI Z49.1 and AS 1674 listed in Safety Standards) to protect your face and eyes when welding or watching.
2. Wear approved safety glasses. Side shields recommended.
3. Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
4. Wear protective clothing made from durable, flame-resistant material (wool and leather) and foot protection.
5. Use approved ear plugs or ear muffs if noise level is high.

6. Never wear contact lenses while welding.

WARNING

FUMES AND GASES can be hazardous to your health.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

1. Keep your head out of the fumes. Do not breath the fumes.

2. If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
3. If ventilation is poor, use an approved air-supplied respirator.
4. Read the Material Safety Data Sheets (MSDSs) and the manufacturer's instruction for metals, consumables, coatings, and cleaners.
5. Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Shielding gases used for welding can displace air causing injury or death. Be sure the breathing air is safe.
6. Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapours to form highly toxic and irritating gases.
7. 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 if necessary, while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

WARNING

WELDING can cause fire or explosion.

Sparks and spatter fly off from the welding arc. The flying sparks and hot metal, weld spatter, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode or welding wire to metal objects can cause sparks, overheating, or fire.

1. Protect yourself and others from flying sparks and hot metal.
2. Do not weld where flying sparks can strike flammable material.
3. Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
4. Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
5. Watch for fire, and keep a fire extinguisher nearby.
6. Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
7. Do not weld on closed containers such as tanks or drums.
8. 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.
9. Do not use welder to thaw frozen pipes.
10. Remove stick electrode from holder or cut off welding wire at contact tip when not in use.

WARNING

FLYING SPARKS AND HOT METAL can cause injury.

Chipping and grinding cause flying metal. As welds cool, they can throw off slag.

1. Wear approved face shield or safety goggles. Side shields recommended.
2. Wear proper body protection to protect skin.

WARNING

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.

1. Protect compressed gas cylinders from excessive heat, mechanical shocks, and arcs.
2. Install and secure cylinders in an upright position by chaining them to a stationary support or equipment cylinder rack to prevent falling or tipping.
3. Keep cylinders away from any welding or other electrical circuits.
4. Never allow a welding electrode to touch any cylinder.
5. Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
6. Turn face away from valve outlet when opening cylinder valve.
7. Keep protective cap in place over valve except when cylinder is in use or connected for use.
8. Read and follow instructions on compressed gas cylinders, associated equipment, and CGA publication P-1 listed in Safety Standards.

Recommended Protective Filters for Electric Welding		
Description of Process	**Approximate Range of Welding Current in Amps**	**Minimum Shade Number of Filter(s)**
Manual Metal Arc Welding - covered electrodes (MMAW)	Less than or equal to 100	8
	100 to 200	10
	200 to 300	11
	300 to 400	12
	Greater than 400	13
Gas Metal Arc Welding (GMAW) (MIG) other than Aluminium and Stainless Steel	Less than or equal to 150	10
	150 to 250	11
	250 to 300	12
	300 to 400	13
	Greater than 400	14
Gas Metal Arc Welding (GMAW) (MIG) Aluminium and Stainless Steel	Less than or equal to 250	12
	250 to 350	13
Gas Tungsten Arc Welding (GTAW) (TIG)	Less than or equal to 100	10
	100 to 200	11
	200 to 250	12
	250 to 350	13
	Greater than 350	14
Flux-cored Arc Welding (FCAW) -with or without shielding gas.	Less than or equal to 300	11
	300 to 400	12
	400 to 500	13
	Greater than 500	14
Air - Arc Gouging	Less than or equal to 400	12
Plasma - Arc Cutting	50 to 100	10
	100 to 400	12
	400 to 800	14
Plasma - Arc Spraying	—	15
Plasma - Arc Welding	Less than or equal to 20	8
	20 to 100	10
	100 to 400	12
	400 to 800	14
Submerged - Arc Welding	—	2(5)
Resistance Welding	—	Safety Spectacles or eye shield

Refer to standard AS/NZS 1338.1:1992 for comprehensive information regarding the above table.

WARNING

MOVING PARTS can cause injury.

Moving parts, such as fans, rotors, and belts can cut fingers and hands and catch loose clothing.

1. Keep all doors, panels, covers, and guards closed and securely in place.
2. Stop engine before installing or connecting unit.
3. Have only qualified people remove guards or covers for maintenance and troubleshooting as necessary.
4. To prevent accidental starting during servicing, disconnect negative (-) battery cable from battery.
5. Keep hands, hair, loose clothing, and tools away from moving parts.
6. Reinstall panels or guards and close doors when servicing is finished and before starting engine.

WARNING

This product, when used for welding or cutting, produces fumes or gases which contain chemicals know to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety code Sec. 25249.5 et seq.)

NOTE

Considerations About Welding And The Effects of Low Frequency Electric and Magnetic Fields

The following is a quotation from the General Conclusions Section of the U.S. Congress, Office of Technology Assessment, Biological Effects of Power Frequency Electric & Magnetic Fields - Background Paper, OTA-BP-E-63 (Washington, DC: U.S. Government Printing Office, May 1989): "...there is now a very large volume of scientific findings based on experiments at the cellular level and from studies with animals and people which clearly establish that low frequency magnetic fields and interact with, and produce changes in, biological systems. While most of this work is of very high quality, the results are complex. Current scientific understanding does not yet allow us to interpret the evidence in a single coherent framework. Even more frustrating, it does not yet allow us to draw definite conclusions about questions of possible risk or to offer clear science-based advice on strategies to minimize or avoid potential risks."

To reduce magnetic fields in the workplace, use the following procedures.

1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cable around the body.
4. Keep welding power source and cables as far away from body as practical.

ABOUT PACEMAKERS:

The above procedures are among those also normally recommended for pacemaker wearers. Consult your doctor for complete information.

1.02 Principal Safety Standards

Safety in Welding and Cutting, ANSI Standard Z49.1, from American Welding Society, 550 N.W. LeJeune Rd., Miami, FL 33126.

Safety and Health Standards, OSHA 29 CFR 1910, from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Recommended Safe Practices for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances, American Welding Society Standard AWS F4.1, from American Welding Society, 550 N.W. LeJeune Rd., Miami, FL 33126.

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 1235 Jefferson Davis Highway, Suite 501, Arlington, VA 22202.

Code for Safety in Welding and Cutting, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3.

Safe Practices for Occupation and Educational Eye and Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 1430 Broadway, New York, NY 10018.

Cutting and Welding Processes, NFPA Standard 51B, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

Safety in welding and allied processes Part 1: Fire Precautions, AS 1674.1-1997 from SAI Global Limited, www.saiglobal.com.

Safety in welding and allied processes Part 2: Electrical, AS 1674.2-2007 from SAI Global Limited, www.saiglobal.com.

Filters for eye protectors - Filters for protection against radiation generated in welding and allied operations AS/NZS 1338.1:1992 from SAI Global Limited, www.saiglobal.com.

1.03 Declaration of Conformity

Manufacturer and Merchandiser of Quality Consumables and Equipment: CIGWELD

Address: 71 Gower St, Preston

Victoria 3072

Australia

Description of equipment: Welding Equipment. (GMAW, FCAW, GTAW, MMAW) including, but not limited to CIGWELD Transmig 200i Multi Process Welding Inverter and associated accessories.

* Serial numbers are unique with each individual piece of equipment and details description, parts used to manufacture a unit and date of manufacture.

* The equipment conforms to all applicable aspects and regulations of the 'Low Voltage Directive' (Directive 73/23/EU, as recently changed in Directive 93/68/EU and to the National legislation for the enforcement of the Directive.

National Standard and Technical Specifications

The product is designed and manufactured to a number of standards and technical requirements among them are:

* AS 60974.10 / IEC 60974-10 EMC Directive applicable to arc welding equipment - generic emissions and regulations.

* AS 60974.1 / IEC 60974-1 2006 applicable to welding equipment and associated accessories.

* AS1674 Safety in welding and allied processes

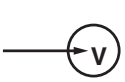
* Extensive product design verification is conducted at the manufacturing facility as part of the routine design and manufacturing process, to ensure the product is safe and performs as specified. Rigorous testing is incorporated into the manufacturing process to ensure the manufactured product meets or exceeds all design specifications.

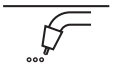
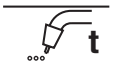
CIGWELD has been manufacturing and merchandising an extensive equipment range with superior performance, ultra safe operation and world class quality for more than 30 years and will continue to achieve excellence.

1.04 Symbol Chart

Note that only some of these symbols will appear on your model.

	On
	Off
	Dangerous Voltage
	Increase/Decrease
	Circuit Breaker
	AC Auxiliary Power
	Fuse
A	Amperage
V	Voltage
Hz	Hertz (cycles/sec)
f	Frequency
—	Negative
+	Positive
⎓	Direct Current (DC)
	Protective Earth (Ground)
	Line
	Line Connection
	Auxiliary Power
115V 15A ~	Receptacle Rating- Auxiliary Power

1 ~	Single Phase
3 ~	Three Phase
	Three Phase Static Frequency Converter-Transformer-Rectifier
	Remote
X	Duty Cycle
%	Percentage
	Panel/Local
	Shielded Metal Arc Welding (SMAW)
	Gas Metal Arc Welding (GMAW)
	Gas Tungsten Arc Welding (GTAW)
	Air Carbon Arc Cutting (CAC-A)
	Constant Current
	Constant Voltage Or Constant Potential
	High Temperature
	Fault Indication
	Arc Force
	Touch Start (GTAW)
	Variable Inductance
	Voltage Input

	Wire Feed Function
	Wire Feed Towards Workpiece With Output Voltage Off.
	Welding Gun
	Purging Of Gas
	Continuous Weld Mode
	Spot Weld Mode
	Spot Time
	Preflow Time
	Postflow Time
 2 Step Trigger Operation Press to initiate wirefeed and welding, release to stop.	
 4 Step Trigger Operation Press and hold for preflow, release to start arc. Press to stop arc, and hold for preflow.	
	Burnback Time
	Disturbance In Ground System
IPM	Inches Per Minute
MPM	Meters Per Minute

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1.05 Servicing Hazards

WARNING

The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard.

Only qualified persons should test, maintain, and repair this unit.

Only qualified persons should test, maintain, and repair this unit.

WARNING

ELECTRIC SHOCK can kill.

- Do not touch live electrical parts.
- Turn Off welding power source and wire feeder and disconnect and lockout input power using line disconnect switch, circuit breakers, or by removing plug from receptacle, or stop engine before servicing unless the procedure specifically requires an energized unit.
- Insulate yourself from ground by standing or working on dry insulating mats big enough to prevent contact with the ground.
- Do not leave live unit unattended.
- If this procedure requires and energized unit, have only personnel familiar with and following standard safety practices do the job.
- When testing a live unit, use the one-hand method. Do not put both hands inside unit. Keep one hand free.
- Disconnect input power conductors from de-energized supply line BEFORE moving a welding power source.

  SIGNIFICANT DC VOLTAGE exists after removal of input power on inverters.
- Turn Off inverters, disconnect input power, and discharge input capacitors according to instructions in Troubleshooting Section before touching any parts.

WARNING

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.

WARNING

FIRE OR EXPLOSION hazard.

- Do not place unit on, over, or near combustible surfaces.
- Do not service unit near flammables.

WARNING

FLYING METAL or DIRT can injure eyes.

- Wear safety glasses with side shields or face shield during servicing.
- Be careful not to short metal tools, parts, or wires together during testing and servicing.

WARNING

HOT PARTS can cause sever burns.

- Do not touch hot parts bare handed.
- Allow cooling period before working on equipment.
- To handle not parts, use proper tools and/or wear heavy, insulated welding gloves and clothing to prevent burns.

WARNING

EXPLODING PARTS can cause injury.

- Failed parts can explode or cause other parts to explode when power is applied to inverters.
- Always wear a face shield and long sleeves when servicing inverters.

WARNING

SHOCK HAZARD from testing.

- Turn Off welding power source and wire feeder or stop engine before making or changing meter lead connections.
- Use at least one meter lead that has a self-retaining spring clip such as an alligator clip.
- Read instructions for test equipment.

WARNING

FALLING UNIT can cause injury.

- 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.

WARNING

MOVING PARTS can cause injury,

- Keep away from moving parts such as fans.
- Keep away from pinch points such as drive rolls.
- Have only qualified persons remove doors, panels, covers, or guards for maintenance as necessary.
- Keep hands, hair, loose clothing, and tools away from moving parts.

- Reinstall doors, panels, covers, or guards when maintenance is finished and before reconnecting input power.

WARNING

MAGNETIC FIELDS can affect Implanted Medical Devices.

- Wearers of Pacemakers and other Implanted Medical Devices should keep away from servicing areas until consulting their doctor and the device manufacturer.

WARNING

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.

WARNING

H.F. RADIATION can cause interference.

- High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.
- Have only qualified persons familiar with electronic equipment install, test, and service H.F. producing units.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.

WARNING

READ INSTRUCTIONS.

- Use Testing Booklet (Part No. 150 853) when servicing this unit.
- Consult the Owner's Manual for welding safety precautions.
- Use only genuine replacement parts from the manufacturer.

1.06 EMF Information

Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields

Welding current, as it flows through welding cables, will cause electromagnetic fields. There has been and still is some concern about such fields. However, after examining more than 500 studies spanning 17 years of research, a special blue ribbon committee of the National Research Council concluded that: "The body of evidence, in the committee's judgment, has not demonstrated that exposure to power-frequency electric and magnetic fields is a human-health hazard." However, studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting.

To reduce magnetic fields in the workplace, use the following procedures:

1. Keep cables close together by twisting or taping them, or using a cable cover.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.
4. Keep welding power source and cables as far away from operator as practical.
5. Connect work clamp to workpiece as close to the weld as possible.

About Implanted Medical Devices:

Implanted Medical Device wearers should consult their doctor and the device manufacturer before performing or going near arc welding, spot welding, gouging, plasma arc cutting, or induction heating operations. If cleared by your doctor, then following the above procedures is recommended.

SECTION 2: INTRODUCTION

2.01 How to Use This Manual

This Manual usually applies to the part numbers listed on page i. To ensure safe operation, read the entire manual, including the chapter on safety instructions and warnings. Throughout this manual, the word WARNING, CAUTION and NOTE may appear. Pay particular attention to the information provided under these headings. These special annotations are easily recognized as follows:

WARNING

Gives information regarding possible personal injury.

CAUTION

Refers to possible equipment damage. Cautions will be shown in bold type.

NOTE

Offers helpful information concerning certain operating procedures. Notes will be shown in italics

You will also notice icons from the safety section appearing throughout the manual. These are to advise you of specific types of hazards or cautions related to the portion of information that follows. Some may have multiple hazards that apply and would look something like this:

2.02 Equipment Identification

The unit's identification number (specification or part number), model, and serial number usually appear on a nameplate attached to the machine. Equipment which does not have a nameplate attached to the machine is identified only by the specification or part number printed on the shipping container. Record these numbers for future reference.

2.03 Receipt of Equipment

When you receive the equipment, check it against the invoice to make sure it is complete and inspect the equipment for possible damage due to shipping. If there is any damage, notify the carrier immediately to file a claim. Furnish complete information concerning damage claims or shipping errors to the location in your area listed in the inside back cover of this manual. Include all equipment identification numbers as described above along with a full description of the parts in error.

Move the equipment to the installation site before un-crating the unit. Use care to avoid damaging the equipment when using bars, hammers, etc., to un-crate the unit.

2.04 Description

The Cigweld Transmig 200i is a self contained single phase multi process welding inverter that is capable of performing GMAW/FCAW (MIG), MMAW (Stick) and GTAW (Lift TIG) welding processes. The unit is equipped with an integrated wire feed unit, voltage reduction device (VRD applicable in stick mode only), digital voltage and amperage meters, and a host of other features in order to fully satisfy the broad operating needs of the modern welding professional. The unit is also fully compliant to Australian Standard AS 60974.1 and IEC 60974.1.

The Transmig 200i provides excellent welding performance across a broad range of applications when used with the correct welding consumables and procedures. The following instructions detail how to correctly and safely set up the machine and give guidelines on gaining the best efficiency and quality from the Power Source. Please read these instructions thoroughly before using the unit.

2.05 Transportation Methods

Disconnect input power conductors from de-energized supply line before moving the welding power source.

Lift unit with handles built into the top of the front and rear moulded panels.

Use handcart or similar device of adequate capacity.

If using a fork lift vehicle, secure the unit on a proper skid before transporting.

2.06 User Responsibility

This equipment will perform as per the information contained herein when installed, operated, maintained and repaired in accordance with the instructions provided. This equipment must be checked periodically. Defective equipment (including welding leads) should not be used. Parts that are broken, missing, plainly worn, distorted or contaminated, should be replaced immediately. Should such repairs or replacements become necessary, it is recommended that such repairs be carried out by appropriately qualified persons approved by CIGWELD. Advice in this regard can be obtained by contacting an Accredited CIGWELD Distributor.

This equipment or any of its parts should not be altered from standard specification without prior written approval of CIGWELD. The user of this equipment shall have the sole responsibility for any malfunction which results from improper use or unauthorized modification from standard specification, faulty maintenance, damage or improper repair by anyone other than appropriately qualified persons approved by CIGWELD.

2.07 Packaged Items

Transmig 200i Plant (Part No. W1005200)

- Transmig 200i Inverter Power Source
- Tweco Fusion 250 Mig Torch 3m
- Comet Professional Argon regulator / Flowmeter (Not included in Asia Version Plant Part No. W1005200M)
- Feedrolls 0.6/0.8mm "V" groove (fitted), 0.9/1.2mm "V" groove, 1.0/1.2mm "U" groove, 0.8/0.9mm "V" knurled, 1.2/1.6mm "V" knurled
- Contact Tips 0.6mm, 0.8mm (fitted), 0.9mm, 1.0mm
- Electrode Holder with 4m lead
- Work Clamp with 4m lead
- Shielding Gas hose assembly
- Shielding Gas adaptor (supplied in Asia Version Plant Part No. W1005200M only)
- Operating Manual

Transmig 200i Power Source (Part No. W1005201)

(South Pacific only)

- Transmig 200i Inverter Power Source
- Shielding Gas hose assembly
- Operating Manual

SECTION 3:
SAFETY AND INSTALLATION

3.01 Duty Cycle

The rated duty cycle of a Welding Power Source, is a statement of the time it may be operated at its rated welding current output without exceeding the temperature limits of the insulation of the component parts. To explain the 10 minute duty cycle period the following example is used. Suppose a Welding Power Source is designed to operate at a 20% duty cycle, 210 amperes at 24.5 volts. This means that it has been designed and built to provide the rated amperage (210A) for 2 minutes, i.e. arc welding time, out of every 10 minute period (20% of 10 minutes is 2 minutes). During the other 8 minutes of the 10 minute period the Welding Power Source must idle and allowed to cool. The thermal cut out will operate if the duty cycle is exceeded.

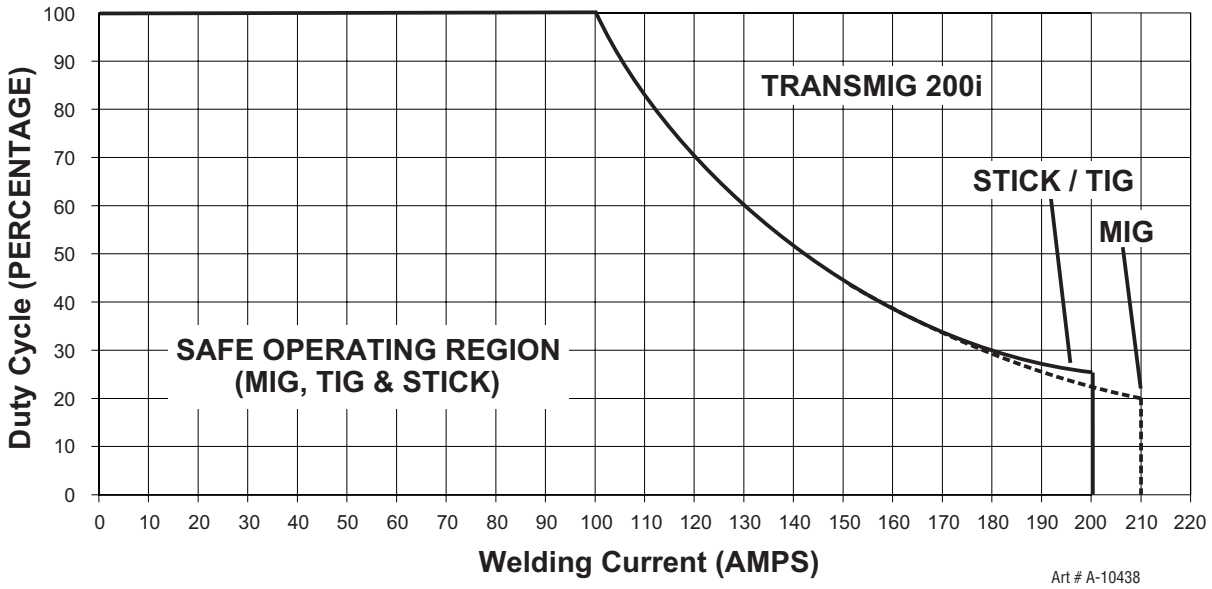

Figure 3-1: Transmig 200i Duty Cycle

3.02 Specifications

Description	TRANSMIG 200i (South Pacific Version)	TRANSMIG 200i (Asia Version)
Plant Part Number Power Source (Packed) Part Number	W1005200 W1005201	W1005200M
Power Source Dimensions	H435mm x W266mm x D617mm	H435mm x W266mm x D617mm
Power Source Mass	26kg	26kg
Cooling	Fan Cooled	Fan Cooled
Welder Type	Multi Process Inverter Power Source	Multi Process Inverter Power Source
Australian Standard	AS60974-1 / IEC60974-1	AS60974-1 / IEC60974-1
Number of Phases	Single Phase	Single Phase
Nominal Supply Voltage	240 VAC ± 15%	240 VAC ± 15%
Nominal Supply Frequency	50 / 60Hz	50 / 60Hz
Welding Current Range (MIG mode)	10 – 210A	10 – 210A
Wirefeed Speed Range	2.5 – 18MPM	2.5 – 18MPM
Factory Fitted Supply Plug Rating	15Amps	Asian Style Input Plug
Effective Input Current (I_{1eff}) (refer Note1)	15Amps	15Amps
Maximum Input Current (I_{1max})	29Amps	29Amps
Minimum Single Phase Generator Recommendation (refer Note 3)	8.1kW [10.1 kVA @ 0.8 Power Factor]	8.1kW [10.1 kVA @ 0.8 Power Factor]
Power Factor	0.99	0.99
MIG (GMAW) Welding Output, 40° C, 10 min.	210A @ 20%, 24.5V 130A @ 60%, 20.5V 101A @ 100%, 19.0V	210A @ 20%, 24.5V 130A @ 60%, 20.5V 101A @ 100%, 19.0V
STICK (MMAW) Welding Output, 40° C, 10 min.	200A @ 25%, 28.0V 130A @ 60%, 25.2V 101A @ 100%, 24.0V	200A @ 25%, 28.0V 130A @ 60%, 25.2V 101A @ 100%, 24.0V
TIG (GTAW) Welding Output, 40° C, 10 min.	200A @ 25%, 18.0V 130A @ 60%, 15.2V 101A @ 100%, 14.0V	200A @ 25%, 18.0V 130A @ 60%, 15.2V 101A @ 100%, 14.0V
Open Circuit Voltage (VRD active)	79V	79V
Protection Class	IP23S	IP23S

Table 3-1: Transmig 200i Specification

NOTE 1

The Effective Input Current should be used for the determination of cable size & supply requirements.

NOTE 2

Motor start fuses or thermal circuit breakers are recommended for this application. Check local requirements for your situation in this regard.

NOTE 3

Minimum Generator Recommendation at the Maximum Output Duty Cycle.

Due to large variations in performance and specifications of different brands and types of generators, Cigweld cannot guarantee full welding output power or duty cycle on every brand or type of generator.

Some small generators incorporate low cost circuit breakers on their outputs. These circuit breakers usually will have a small reset button, and will trip much faster than a switchboard type circuit breaker. This may result in not being able to achieve full output or duty cycle from the power source / generator combination. For this reason we recommend a generator that incorporates switchboard type circuit breakers.

In some circumstances, long welds at high welding current may trip the circuit breaker on the generator.

Cigweld recommends that when selecting a generator, that the particular power source / generator combination be adequately trialled to ensure the combination performs to the users expectations.

NOTE 4

CIGWELD reserves the right to change product performance and specifications without notice

NOTE 5

Transmig 200i Plant Part No. W1005200M (Asia Version) is not fitted with VRD. Additional safety precautions may be required when using unit in an environment with increased hazard of electric shock . Please refer to relevant local standards for further information prior to using in such areas.

NOTE 6

Due to variations that can occur in manufactured products, claimed performance, voltages, ratings, all capacities, measurements, dimensions and weights quoted are approximate only. Achievable capacities and ratings in use and operation will depend upon correct installation, use, applications, maintenance and service.

3.03 Environment

These units are designed for use in environments with increased hazard of electric shock as outlined in AS 60974.1 and AS 1674.2.

Examples of environments with increased hazard of electric shock are:

A. In locations in which freedom of movement is restricted, so that the operator is forced to perform the work in a cramped (kneeling, sitting or lying) position with physical contact with conductive parts.

B. In locations which are fully or partially limited by conductive elements, and in which there is a high risk of unavoidable or accidental contact by the operator.

C. In wet or damp hot locations where humidity or perspiration considerably reduces the skin resistance of the human body and the insulation properties of accessories.

Environments with increased hazard of electric shock do not include places where electrically conductive parts in the near vicinity of the operator, which can cause increased hazard, have been insulated.

3.04 Location

Be sure to locate the welder according to the following guidelines:

- In areas, free from moisture and dust.
- Ambient temperature between 0° C to 40° C.
- In areas, free from oil, steam and corrosive gases.
- In areas, not subjected to abnormal vibration or shock.
- In areas, not exposed to direct sunlight or rain.
- Place at a distance of 12" (300mm) or more from walls or similar that could restrict natural air flow for cooling
- The enclosure design of this power source meets the requirements of IP23S as outlined in AS 60529. This provides adequate protection against solid objects (greater than 12mm), and direct protection from vertical drops. Under no circumstances should the unit be operated or connected in a micro environment that will exceed the stated conditions. For further information please refer to AS 60529.
- Precautions must be taken against the power source toppling over. The power source must be located on a suitable horizontal surface in the upright position when in use.

3.05 Ventilation

Since the inhalation of welding fumes can be harmful, ensure that the welding area is effectively ventilated.

3.06 Mains Supply Voltage Requirements

The Mains supply voltage should be within ± 15% of the rated mains supply voltage. Too low a voltage may cause poor welding performance. Too high a supply voltage will cause components to overheat and possibly fail.

The Welding Power Source must be:

- Correctly installed, if necessary, by a qualified electrician.
- Correctly earthed (electrically) in accordance with local regulations.
- Connected to the correct size power point and fuse as per the Specifications on page 3-2.

WARNING

Any electrical work must be carried out by a qualified Electrical Tradesperson.

3.07 Electrical Input Connections

WARNING

ELECTRIC SHOCK can kill; SIGNIFICANT DC VOLTAGE is present after removal of input power.

DO NOT TOUCH live electrical parts.

SHUT DOWN welding power source, disconnect input power employing lockout/tagging procedures. Lock-out/tagging procedures consist of padlocking line disconnect switch in open position, removing fuses from fuse box, or shutting off and red-tagging circuit breaker or other disconnecting device.

• Electrical Input Requirements

Operate the welding power source from a single-phase 50/60 Hz, AC power supply. The input voltage must match one of the electrical input voltages shown on the input data label on the unit nameplate. Contact the local electric utility for information about the type of electrical service available, how proper connections should be made, and inspection required. The line disconnect switch provides a safe and convenient means to completely remove all electrical power from the welding power supply whenever necessary to inspect or service the unit.

Do not connect an input (WHITE or BLACK) conductor to the ground terminal.

Do not connect the ground (GREEN) conductor to an input line terminal.

1. Connection end of ground (GREEN or GREEN/YELLOW) conductor to a suitable ground. Use a grounding method that complies with all applicable electrical codes.
2. Connect ends of active (BROWN) and Neutral (BLUE) input conductors to a suitable power supply system that complies with all appliance local electrical codes.

Input Power

Each unit incorporates an INRUSH circuit. When the MAIN CIRCUIT SWITCH is turned on, the inrush circuit provides pre-charging for the input capacitors. A relay in the Main Power PCB1 will turn on after the input capacitors have charged to operating voltage (after approximately 5 seconds).

3.08 Electromagnetic Compatibility

WARNING

Extra precautions for Electromagnetic Compatibility may be required when this Welding Power Source is used in a domestic situation.

A. Installation and Use - Users Responsibility

The user is responsible for installing and using the welding equipment according to the manufacturer's instructions. If electromagnetic disturbances are detected then it shall be the responsibility of the user of the welding equipment to resolve the situation with the technical assistance of the manufacturer. In some cases this remedial action may be as simple as earthing the welding circuit, see NOTE below. In other cases it could involve constructing an electromagnetic screen enclosing the Welding Power Source and the work, complete with associated input filters. In all cases, electromagnetic disturbances shall be reduced to the point where they are no longer Trouble-some.

NOTE

The welding circuit may or may not be earthed for safety reasons. Changing the earthing arrangements should only be authorised by a person who is competent to assess whether the changes will increase the risk of injury, e.g. by allowing parallel welding current return paths which may damage the earth circuits of other equipment. Further guidance is given in IEC 974-13 Arc Welding Equipment - Installation and use (under preparation).

B. Assessment of Area

Before installing welding equipment, the user shall make an assessment of potential electromagnetic problems in the surrounding area. The following shall be taken into account.

1. Other supply cables, control cables, signaling and telephone cables; above, below and adjacent to the welding equipment.
2. Radio and television transmitters and receivers.
3. Computer and other control equipment.
4. Safety critical equipment, e.g. guarding of industrial equipment.
5. The health of people around, e.g. the use of pace-makers and hearing aids.
6. Equipment used for calibration and measurement.
7. The time of day that welding or other activities are to be carried out.
8. The immunity of other equipment in the environment: the user shall ensure that other equipment being used in the environment is compatible: this may require additional protection measures.

The size of the surrounding area to be considered will depend on the structure of the building and other activities that are taking place. The surrounding area may extend beyond the boundaries of the premises.

C. Methods of Reducing Electromagnetic Emissions

1. Mains Supply

   Welding equipment should be connected to the mains supply according to the manufacturer's recommendations. If interference occurs, it may be necessary to take additional precautions such as filtering of the mains supply. Consideration should be given to shielding the supply cable of permanently installed welding equipment in metallic conduit or equivalent. Shielding should be electrically continuous throughout its length. The shielding should be connected to the Welding Power Source so that good electrical contact is maintained between the conduit and the Welding Power Source enclosure.

2. Maintenance of Welding Equipment

   The welding equipment should be routinely maintained according to the manufacturer's recommendations. All access and service doors and covers should be closed and properly fastened when the welding equipment is in operation. The welding equipment should not be modified in any way except for those changes and adjustments covered in the manufacturer's instructions. In particular, the spark gaps of arc striking and stabilizing devices should be adjusted and maintained according to the manufacturer's recommendation

3. Welding Cables

   The welding cables should be kept as short as possible and should be positioned close together, running at or close to the floor level.

4. Equipotential Bonding

   Bonding of all metallic components in the welding installation and adjacent to it should be considered. However, metallic components bonded to the work piece will increase the risk that the operator could receive a shock by touching the metallic components and the electrode at the same time. The operator should be insulated from all such bonded metallic components.

5. Earthing of the Work Piece

   Where the work piece is not bonded to earth for electrical safety, nor connected to earth because of its size and position, e.g. ship's hull or building steelwork, a connection bonding the work piece to earth may reduce emissions in some, but not all instances. Care should be taken to prevent the earthing of the work piece increasing the risk of injury to users, or damage to other electrical equipment. Where necessary, the connection of the work piece to earth should be made by direct connection to the work piece, but in some countries where direct connection is not permitted, the bonding should be achieved by suitable capacitance, selected according to national regulations.

6. Screening and Shielding

   Selective screening and shielding of other cables and equipment in the surrounding area may alleviate problems of interference. Screening the entire welding installation may be considered for special applications.

3.09 Volt-Ampere Curves

Voltage-Amperage Curves shows maximum voltage and amperage output capabilities of welding power source. Curves of other settings fall between curves shown.

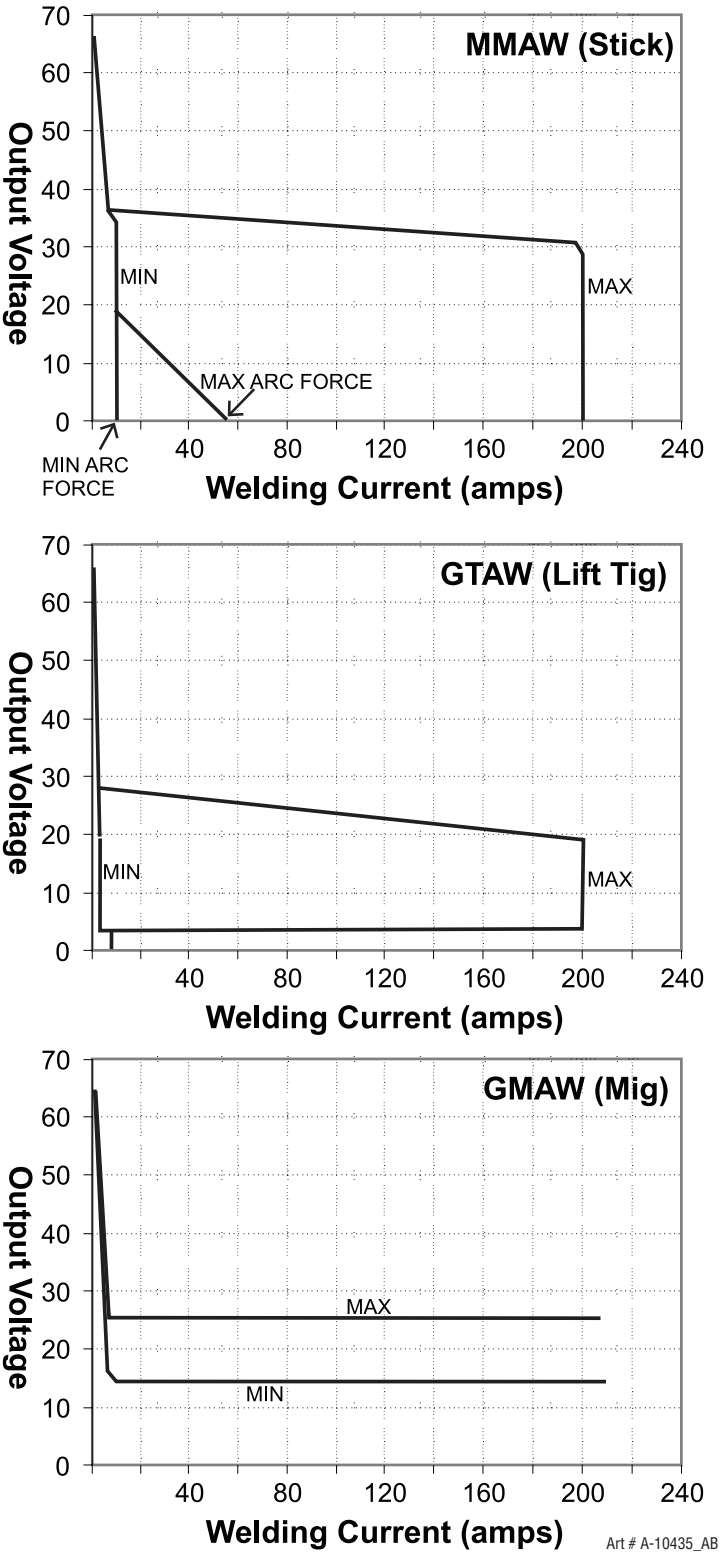

Figure 3-2: Transmig 200i Volt-Ampere Curves

Notes

SECTION 4: OPERATION

4.01 Transmig 200i Power Source Controls, Indicators and Features

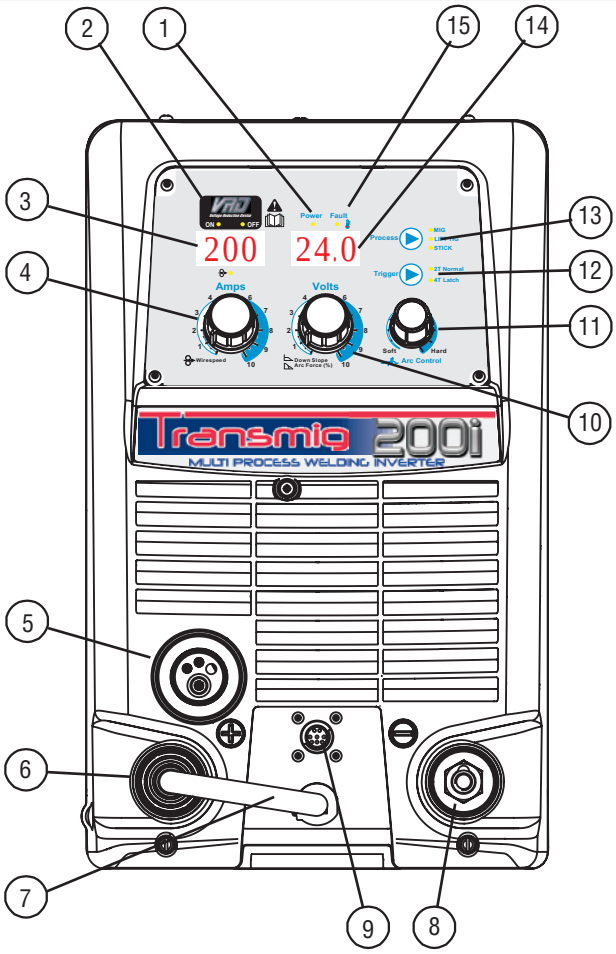

Figure 4-1: Front Panel

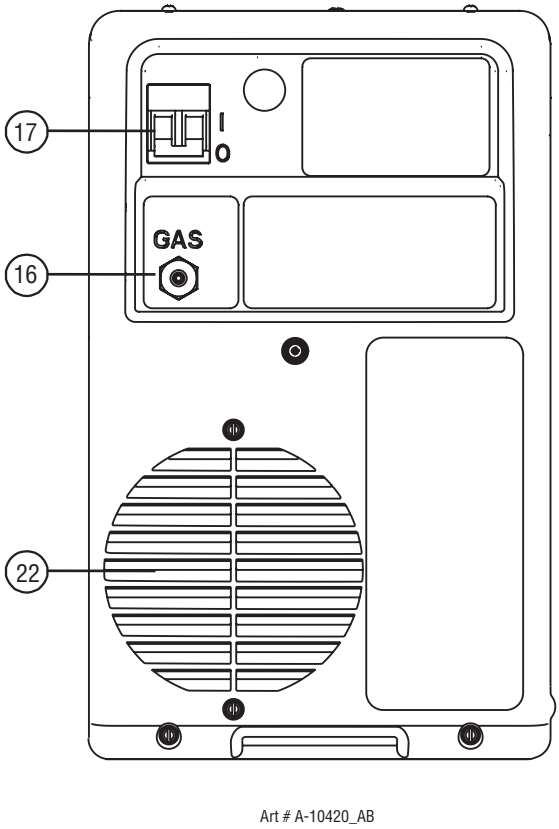

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Figure 4-2: Rear Panel

1. Power Indicator

The power indicator is illuminated when the correct mains power is applied to the power source and when the ON/OFF switch located on the rear panel is in the ON position.

2. VRD Indicator ON/OFF Lights

WARNING

VRD is NOT fitted to Transmig 200i (Asia Version) Plant Part No W1005200M.

A VRD (voltage reduction device) is a hazard reducing device designed to reduce electric shock hazards present on the output of welding power source when operating in MMAW (stick) mode. Note that the presence of VRD should not be used as a substitute for the use of appropriate safety practices as indicated in section one of this manual.

Both the green and red indicator lights only operate in MMAW (stick) mode.

The green VRD ON light illuminates (red light is off) when the VRD is active. Under this condition the open circuit voltage of the unit is limited to below 35V DC, thus reducing the potential of serious electric shock (such as when changing electrodes).

The red VRD OFF light illuminates (green light is off) when the VRD is inactive. Under this condition the output voltage of the unit will be at welding potential which in some cases may exceed 35V DC.

3. Digital Amps Meter (Left Digital Display)

MIG Mode

This digital meter is used to display the pre-set (preview) Wirefeed Speed in Meters Per Minute (MPM) in MIG mode and actual welding amperage of the power source when welding. At times of non-welding, the digital meter will display a pre-set (preview) value of Wirefeed Speed. This value can be adjusted by varying the Amperage Control Knob (4).

STICK and LIFT TIG Modes

The digital meter is used to display the pre-set (preview) amperage in STICK / LIFT TIG modes and actual welding amperage of the power source when welding. At times of non-welding, the amperage meter will display a pre-set (preview) value in both STICK and LIFT TIG modes. This value can be adjusted by varying the Amperage Control Knob (4).

When welding, this digital meter will display actual welding amperage in all modes.

At the completion of welding, the digital meter will hold the last recorded amperage value for a period of approximately 10 seconds in all modes. The amperage meter will hold the value until; (1) any of the front panel controls are adjusted in which case the unit will revert to preview mode, (2) welding is recommenced, in which case actual welding amperage will be displayed, or (3) a period of 10 seconds elapses following the completion of welding in which case the unit will return to preview mode.

NOTE

The preview functionality provided on this power source is intended to act as a guide only. Some differences may be observed between preview values and actual welding values due to factors including the mode of welding, differences in consumables/gas mixtures, individual welding techniques and the transfer mode of the welding arc (ie dip versus spray transfer). Where exact settings are required (in the case of procedural work), it is recommended that alternate measurement methods be utilised to ensure output values are accurate.

4. Amperage Control (Wirespeed)

The amperage control knob adjusts the amount of welding current delivered by the power source. In MMAW (stick) and GTAW (TIG) modes, the amperage control knob directly adjusts the power inverter to deliver the desired level of output current. In GMAW/FCAW modes (MIG), the amperage knob adjusts the speed of the wire feed motor (which in turn adjusts the output current by varying the amount of MIG wire delivered to the welding arc). The optimum wire speed required will dependent on the type of welding application. The setup chart on the inside of the wire feed compartment door provides a brief summary of the required output settings for a basic range of MIG welding applications.

NOTE

The preview functionality provided on this power source is intended to act as a guide only. Some differences may be observed between preview values and actual welding values due to factors including the mode of welding, differences in consumables/gas mixtures, individual welding techniques and the transfer mode of the welding arc (ie dip versus spray transfer). Where exact settings are required (in the case of procedural work), it is recommended that alternate measurement methods be utilised to ensure output values are accurate.

5. MIG Torch Adaptor (Euro Style)

The MIG torch adaptor is the connection point for the MIG welding torch. Connect the torch by pushing the torch connector into the brass torch adaptor firmly and screwing the plastic torch nut clockwise to secure in position. To remove the MIG Torch simply reverse these directions.

6. Positive Welding Output Terminal

The positive welding terminal is used to connect the welding output of the power source to the appropriate welding accessory such as the MIG torch (via the MIG torch polarity lead), electrode holder lead or work lead. Positive welding current flows from the power source via this heavy duty bayonet type terminal. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

CAUTION

Loose welding terminal connections can cause overheating and result in the male plug being fused in the bayonet terminal.

7. MIG Torch Polarity Lead

The polarity lead is used to connect the MIG torch to the appropriate positive or negative output terminal (allowing polarity reversal for different welding applications). In general, the polarity lead should be connected in to the positive welding terminal (+) when using steel, stainless steel or aluminium electrode wire. When using gasless wire, the polarity lead is generally connected to the negative welding terminal (-). If in doubt, consult the manufacturer of the electrode wire for the correct polarity. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

CAUTION

Loose welding terminal connections can cause overheating and result in the male plug being fused in the bayonet terminal.

8. Negative Welding Output Terminal

The negative welding terminal is used to connect the welding output of the power source to the appropriate welding accessory such as the MIG torch (via the MIG torch polarity lead), TIG torch or work lead. Negative welding current flows to the power source via this heavy duty bayonet type terminal. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

CAUTION

Loose welding terminal connections can cause overheating and result in the male plug being fused in the bayonet terminal.

9. Remote Control Socket

The 8 pin Remote Control Socket is used to connect remote control devices to the welding power source. To make connections, align keyway, insert plug, and rotate threaded collar fully clockwise.

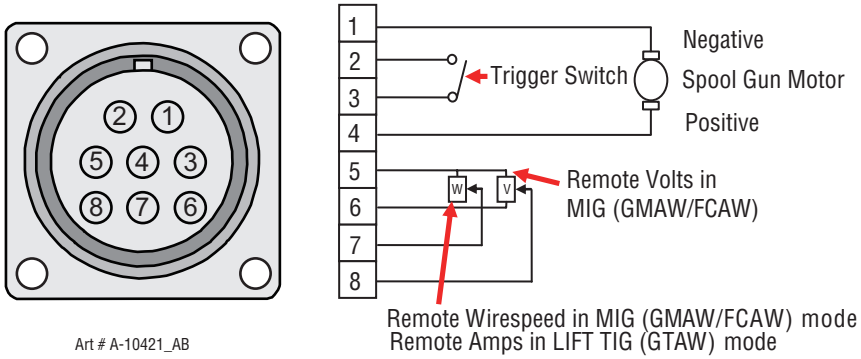

Figure 4-3: Remote Control Socket

Socket Pin	Function
1	Spool Gun Motor Negative
2	Trigger Switch Input
3	Trigger Switch Input
4	Spool Gun Motor Positive
5	5k ohm (maximum) connection to 5k ohm remote control potentiometer.
6	Zero ohm (minimum) connection to 5k ohm remote control potentiometer.
7	Wiper arm connection to 5k ohm remote control Wirespeed GMAW (MIG) mode potentiometer. Wiper arm connection to 5k ohm remote control Amps GTAW (TIG) mode potentiometer.
8	Wiper arm connection to 5k ohm remote control Volts GMAW (MIG) mode potentiometer.

Table 4-1

Note that the remote local switch (item 18) located in the wirefeed compartment should be set to remote for the amperage/voltage controls to be operative.

10. Multifunction Control - Voltage, Down Slope & Arc Force

The multifunction control knob is used to adjust Voltage (MIG Mode), Down slope (TIG Mode) and Arc Force (STICK Mode) depending on the welding mode selected.

NOTE

The preview functionality provided on this power source is intended to act as a guide only. Some differences may be observed between preview values and actual welding values due to factors including the mode of welding, differences in consumables/gas mixtures, individual welding techniques and the transfer mode of the welding arc (ie dip versus spray transfer). Where exact settings are required (in the case of procedural work), it is recommended that alternate measurement methods be utilised to ensure output values are accurate.

When GMAW/FCAW (MIG) Mode is Selected

In this mode the control knob is used to adjust the output voltage of the unit. The welding voltage is increased by turning the knob clockwise or decreased by turning the knob anti-clockwise. The optimum voltage level required will dependent on the type of welding application. The setup chart on the inside of the wire feed compartment door provides a brief summary of the required output settings for a basic range of MIG welding applications.

When MMAW (Stick) Mode is Selected

In this mode the multifunction control knob is used to adjust arc force. Arc force control provides an adjustable amount of welding force (or "dig") control. This feature can be particularly beneficial in providing the operator the ability to compensate for variability in joint fit-up in certain situations with particular electrodes. In general increasing the arc force control toward '10' (maximum arc force) allows greater penetration control to be achieved. Arc force is increased by turning the control knob clockwise or decreased by turning the knob anti-clockwise

When TIG Mode is Selected

In this mode the multifunction control knob is used to adjust down slope. Down slope allows the user to select the ramp down time at the completion of the weld. The main function of down slope is to allow the welding current to be gradually reduced over a pre-set time frame such that the welding pool is given time to cool sufficiently.

Note that when in 2T normal mode (refer item 12), the unit will enter down slope mode as soon as the trigger switch is released (ie if the multifunction control knob is set to 5, the unit will ramp down from the present welding current to zero over 5 seconds). If no down slope time is selected then the welding output will cease immediately. If the unit is set to 4T latch mode, to enter down slope mode the trigger must be held in for the selected time period (ie press and release trigger to commence welding, then press and hold trigger again to enter down slope mode). Should the trigger be released during the down slope phase (4T only), the output will cease immediately.

11. Arc Control (Inductance)

The arc control operates in GMAW (MIG) mode only and is used to adjust the intensity of the welding arc. Lower arc control settings make the arc softer with less weld spatter. Higher arc control settings give a stronger driving arc which can increase weld penetration.

12. Trigger Mode Control (MIG and TIG Mode only)

The trigger mode control is used to switch the functionality of the of the torch trigger between 2T (normal) and 4T (latch mode)

2T Normal Mode

In this mode, the torch trigger must remain depressed for the welding output to be active. Press and hold the torch trigger to activate the power source (weld). Release the torch trigger switch to cease welding.

4T Latch Mode

This mode of welding is mainly used for long welding runs to reduce operator fatigue. In this mode the operator can press and release the torch trigger and the output will remain active. To deactivate the power source, the trigger switch must again be depressed and realised, thus eliminating the need for the operator to hold the torch trigger.

Note that when operating in GTAW (TIG mode), the power source will remain activated until the selected downslope time has elapsed (refer Item 10).

13. Process Selection Control

The process selection control is used to select the desired welding mode. Three modes are available, GMAW/FCAW (MIG), GTAW (Lift TIG) and (MMAW (Stick) modes. Refer to section 4.10, 4.11 or 4.12 for FCAW/GMAW (MIG) set up details, section 4.13 for GTAW (TIG) set-up details or section 4.14 for MMAW (stick) set-up details.

Note that when the unit is powered off the mode selection control will automatically default to MIG mode. This is necessary so as to prevent inadvertent arcing should an electrode holder be connected to the unit and mistakenly be in contact with the work piece during power up.

14. Digital Voltage Meter (Right Digital Display)

MIG Mode

This digital meter is used to display the pre-set (preview) Voltage in MIG mode and actual welding voltage of the power source when welding. At times of non-welding, the digital meter will display a pre-set (preview) value of Voltage. This value can be adjusted by varying the Multifunction Control Knob (10).

STICK and LIFT TIG Modes

This digital meter is used to display the Welding Output Terminal Voltage in STICK / LIFT TIG modes during non-welding or welding. This value cannot be adjusted by varying the Multifunction Control Knob (10).

When welding, this digital meter will display actual welding voltage in all modes.

At the completion of welding, the digital meter will hold the last recorded voltage value for a period of approximately 10 seconds in all modes. The voltage meter will hold the value until; (1) any of the front panel controls are adjusted in which case the unit will revert to preview mode, (2) welding is recommenced, in which case actual welding amperage will be displayed, or (3) a period of 10 seconds elapses following the completion of welding in which case the unit will return to preview mode.

NOTE

The preview functionality provided on this power source is intended to act as a guide only. Some differences may be observed between preview values and actual welding values due to factors including the mode of welding, differences in consumables/gas mixtures, individual welding techniques and the transfer mode of the welding arc (ie dip versus spray transfer). Where exact settings are required (in the case of procedural work), it is recommended that alternate measurement methods be utilised to ensure output values are accurate.

15. Thermal Overload Indicator

This welding power source is protected by a self resetting thermostat. The indicator will illuminate if the duty cycle of the power source has been exceeded. Should the thermal overload indicator illuminate the output of the power source will be disabled. Once the power source cools down this light will go OFF and the over temperature condition will automatically reset. Note that the mains power switch should remain in the on position such that the fan continues to operate thus allowing the unit to cool sufficiently. Do not switch the unit off should a thermal overload condition be present.

16. Gas Inlet (MIG mode only)

The Gas Inlet connection is used to supply the appropriate MIG welding gas to the unit. Refer to section 4.10 set up details.

WARNING

Only Inert Shielding Gases specifically designed for welding applications should be used.

17. On / Off Switch

This Single Phase circuit breaker performs a dual function.

It is used to turn the unit on/off and it will also trip in the event of a fault.

WARNING

When the front digital displays are lit, the machine is connected to the Mains supply voltage and the internal electrical components are at Mains voltage potential.

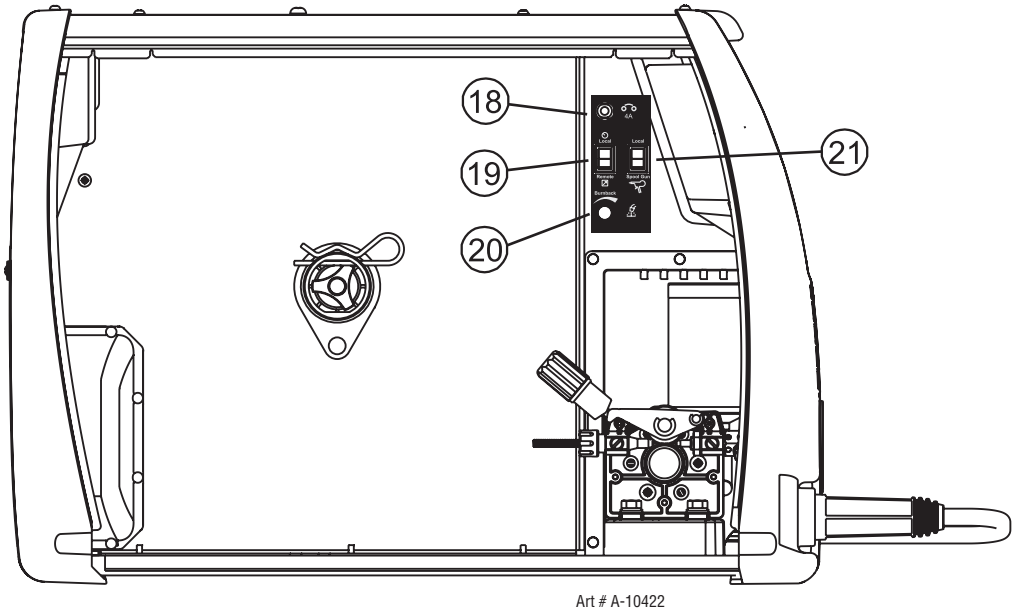

Figure 4-4: Wire Feed Compartment Control

18. Wiredrive Motor Circuit Breaker

The 4A Circuit Breaker protects the unit from electrical faults and will operate in the event of a motor overload.

NOTE

If a circuit breaker trips, a short cooling period must be allowed before an attempt is made to reset the unit by pressing the circuit breaker reset button.

19. Local / Remote Switch (located in wirefeed compartment)

The remote / local switch is used only when a remote control device (such as a TIG torch with remote current control) is fitted to the unit via the remote control socket (item 9). When the local/remote switch is in the remote position, the unit will detect a remote device and work accordingly. When in the local mode, the unit will not detect the remote device and will operate from the power source controls only. Note that the trigger will operate at all times on the remote control socket irrespective of the position of the local remote switch (ie in both local and remote modes).

Should a remote device be connected and the remote/local switch set to remote, the maximum setting of the power source will be determined by the respective front panel control, irrespective of the remote control device setting. As an example, if the output current on the power source front panel is set to 50% and the remote control device is set to 100%, the maximum achievable output from the unit will be 50%. Should 100% output be required, the respective front panel control must be set to 100%, in which case the remote device will then be able to control between 0-100% output.

20. Burnback Control (located in wirefeed compartment)

The burnback control is used to adjust the amount of MIG wire that protrudes from the MIG torch after the completion of MIG welding (commonly referred to as stick out). To decrease the burnback time (or lengthen the amount of wire protruding from the MIG torch at the completing of welding), turn the burnback control knob anti clockwise. To increase the burnback time (or shorten the amount of wire protruding from the torch at the completing of welding), turn the Burnback Control knob clockwise.

21. Local / Spool Gun Switch (located in wirefeed compartment)

The Local / Spool Gun switch is used only when a Spool Gun is fitted to the unit via the remote control socket (item 9). When the Local/Spool Gun switch is in the Spool Gun position, the unit will control the wire drive motor in a Spool Gun. When in the local mode, the internal Wire Drive Unit is active.

Note that the trigger will operate at all times on the remote control socket irrespective of the position of the Local / Spool Gun switch (ie in both local and Spool Gun modes).

22. Cooling Fan

The Transmig 200i is fitted with a fan as needed feature. Fan as needed automatically switches the cooling fan off when it is not required. This has two main advantages; (1) to minimize power consumption, and (2) to minimise the amount of contaminants such as dust that are drawn into the power source.

Note that the fan will only operate when required for cooling purposes and will automatically switch off when not required.

4.02 Attaching the Tweco Professional Fusion MIG Torch (Euro)

Fit the MIG Torch to the power source by pushing the MIG torch connector into the MIG torch adaptor and screwing the plastic torch nut clockwise to secure the MIG torch to the MIG torch adaptor.

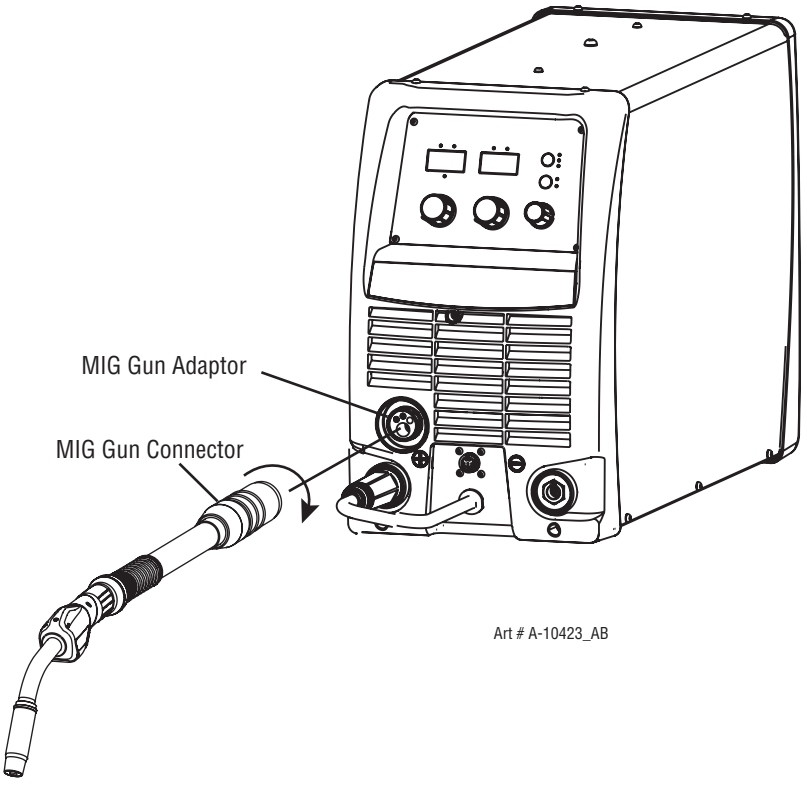

Figure 4-5: Attaching MIG Torch

4.03 Installing Spool (300mm diameter)

As delivered from the factory, the unit is fitted with a Wire Spool Hub which accepts a Spool of 300mm diameter.

Remove the locking pin from the spool hub.

Install the wire spool over the spool hub, locating the hole in the spool, with the alignment pin on the spool hub.

Insert the locking pin back into the spool hub.

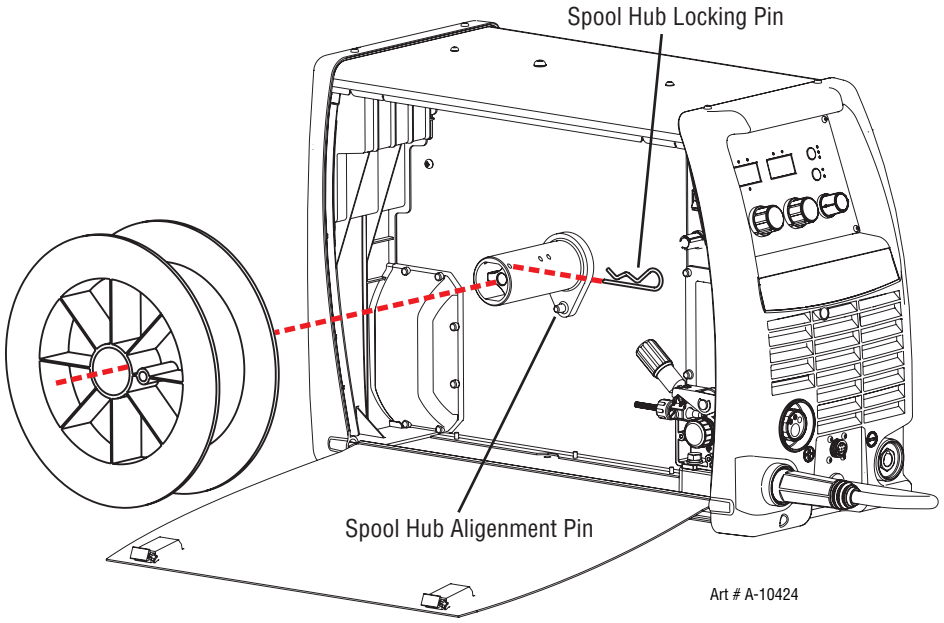

Figure 4-6: 300mm Spool Installation

4.04 Installing Handispool (200mm diameter)

Remove the locking pin from the spool hub.

Install the Handi Spool over the spool hub, locating the hole in the Handi Spool, with the alignment pin on the Spool Hub.

Insert the locking pin back into the spool hub, in the “rear” position, as shown, ensuring the wire spool is firmly secured in position.

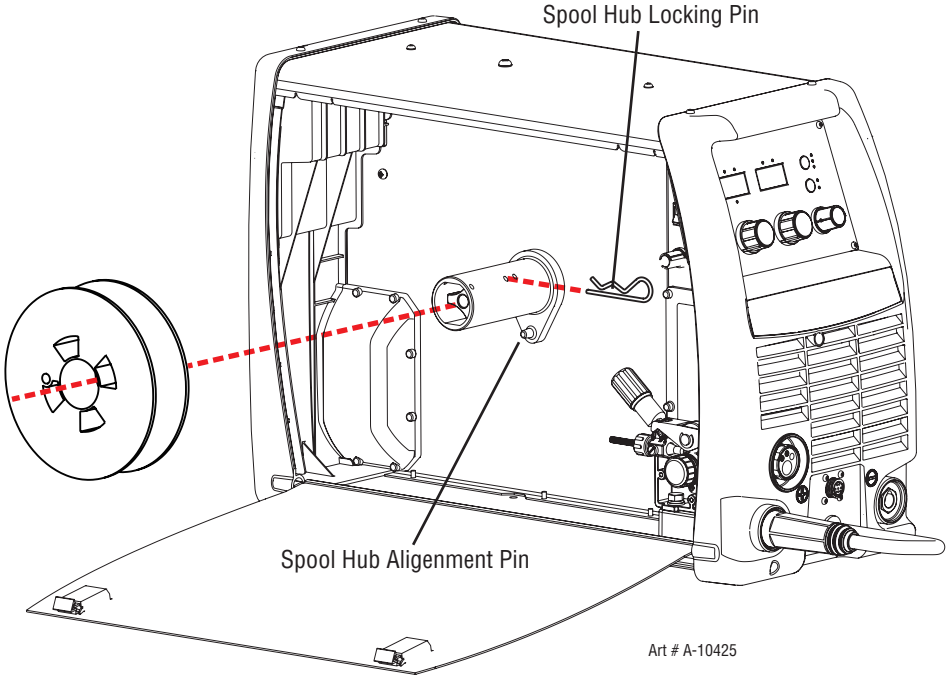

Figure 4-7: 200mm Handispool Installation

4.05 Inserting Wire into the Wire Feed Mechanism

Release the tension from the pressure roller by turning the adjustable wire drive tension screw in an anti-clockwise direction. Then to release the pressure roller arm push the tension screw toward the front of the machine which releases the pressure roller arm (Figure 4-8). With the MIG welding wire feeding from the bottom of the spool (Figure 4-9) pass the electrode wire through the inlet guide, between the rollers, through the outlet guide and into the MIG torch. Re-secure the pressure roller arm and wire drive tension screw and adjust the pressure accordingly (Figure 4-8). Remove the contact tip from the MIG torch. With the MIG Torch lead reasonably straight, feed the wire through the torch by depressing the trigger switch. Fit the appropriate contact tip.

WARNING

Before connecting the work clamp to the work make sure the mains power supply is switched off.

The electrode wire will be at welding voltage potential while it is being feed through the system.

Keep Mig Torch away from eyes and face.

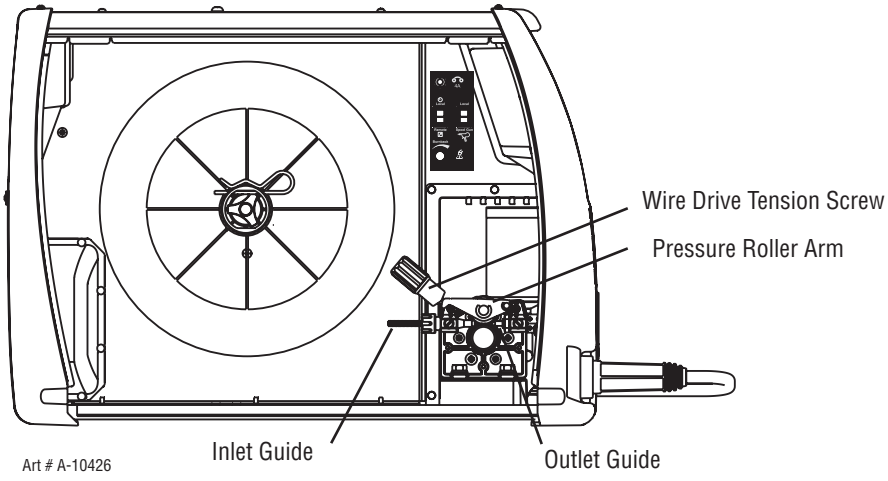

Figure 4-8: Wire Drive Assembly Components

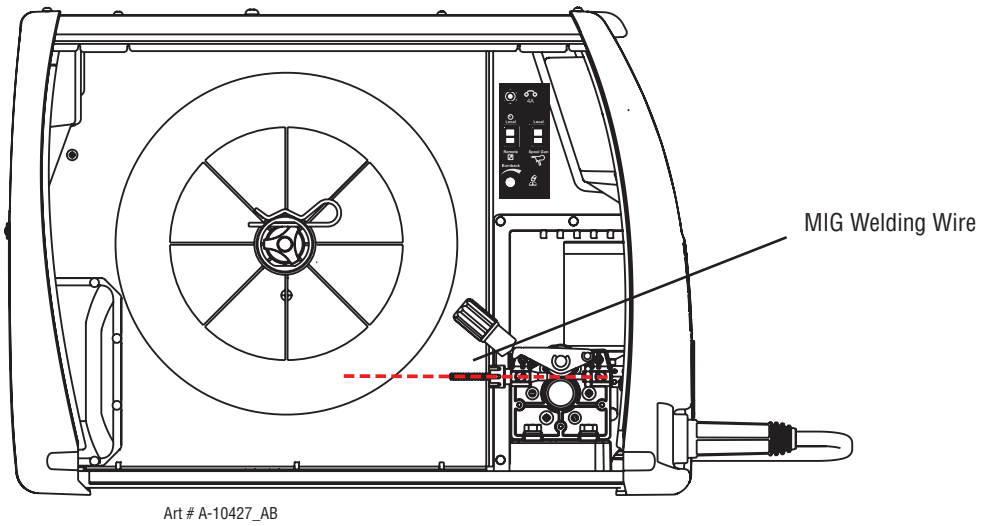

Figure 4-9: Mig Welding Wire - Installation

4.06 Feed Roller Pressure Adjustment

The pressure (top) roller applies pressure to the grooved feed roller via an adjustable pressure screw. These devices should be adjusted to a minimum pressure that will provide satisfactory WIREFEED without slippage. If slipping occurs, and inspection of the wire contact tip reveals no wear, distortion or burn back jam, the conduit liner should be checked for kinks and clogging by metal flakes and swarf. If it is not the cause of slipping, the feed roll pressure can be increased by rotating the pressure screw clockwise.

WARNING

Before changing the feed roller ensure that the mains supply to the power source is switched off.

CAUTION

The use of excessive pressure may cause rapid wear of the feed rollers, shafts and bearing.

4.07 Changing the Feed Roll

To change feed roll remove the feed roll retaining screw by turning in an anticlockwise direction. Once the feed roll is removed then to replace feed roll simply reverse these directions.

A dual groove feed roller is supplied as standard. It can accommodate 0.6/0.8mm diameter hard wires. Select the roller required with the chosen wire size marking facing outward.

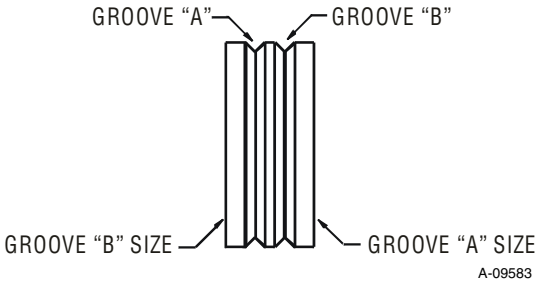

Figure 4-10: Dual Groove Feed Roller

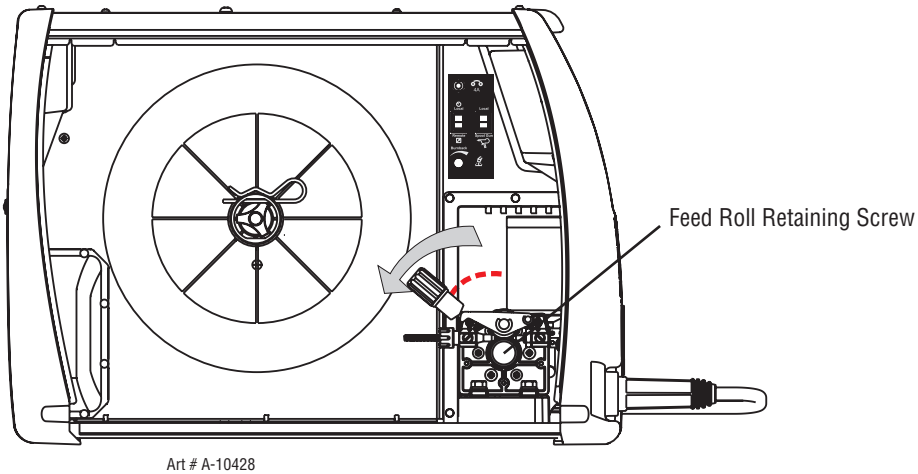

Figure 4-11: Changing the Feed Roll

4.08 Wire Reel Brake

The wire reel hub incorporates a friction brake which is adjusted during manufacture for optimum braking.

If it is considered necessary, adjustment can be made by turning the Thumb Screw inside the open end of the hub clockwise to tighten the brake. Correct adjustment will result in the wire reel circumference continuing no further than 10-20mm after release of the trigger. The electrode wire should be slack without becoming dislodged from wire spool.

CAUTION

Overtension of brake will cause rapid wear of mechanical WIREFEED parts, overheating of electrical componentry and possibly an increased incidence of electrode wire Burnback into contact tip.

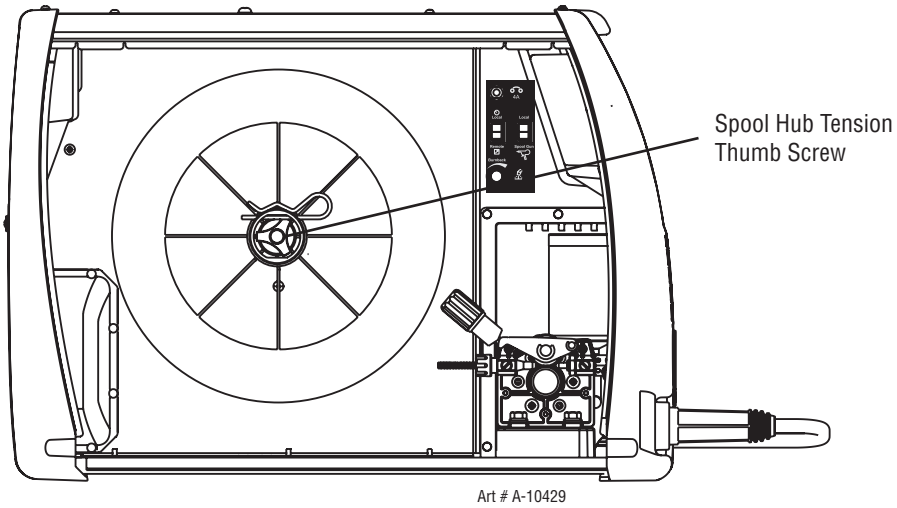

Figure 4-12: Wire Reel Brake

4.09 Shielding Gas Regulator Operating Instructions

WARNING

This equipment is designed for use with welding grade (Inert) shielding gases only.

NOTE

Shielding Gas Regulator not included in the Transmig 200i (Asia Version) Plant Part No W1005200M.

Shielding Gas Regulator Safety

This regulator is designed to reduce and control high pressure gas from a cylinder or pipeline to the working pressure required for the equipment using it.

If the equipment is improperly used, hazardous conditions are created that may cause accidents. It is the users responsibility to prevent such conditions. Before handing or using the equipment, understand and comply at all times with the safe practices prescribed in this instruction.

SPECIFIC PROCEDURES for the use of regulators are listed below.

1. NEVER subject the regulator to inlet pressure greater than its rated inlet pressure.
2. NEVER pressurize a regulator that has loose or damaged parts or is in a questionable condition. NEVER loosen a connection or attempt to remove any part of a regulator until the gas pressure has been relieved. Under pressure, gas can dangerously propel a loose part.
3. DO NOT remove the regulator from a cylinder without first closing the cylinder valve and releasing gas in the regulator high and low pressure chambers.

4. DO NOT use the regulator as a control valve. When downstream equipment is not in use for extended periods of time, shut off the gas at the cylinder valve and release the gas from the equipment.
5. OPEN the cylinder valve SLOWLY. Close after use.

User Responsibilities

This equipment will perform safely and reliable only when installed, operated and maintained, and repaired in accordance with the instructions provided. Equipment must be checked periodically and repaired, replaced, or reset as necessary for continued safe and reliable performance. Defective equipment should not be used. Parts that are broken, missing, obviously worn, distorted, or contaminated should be replaced immediately.

The user of this equipment will generally have the sole responsibility for any malfunction, which results from improper use, faulty maintenance, or by repair by anyone other than an accredited repairer.

CAUTION

Match regulator to cylinder. NEVER CONNECT a regulator designed for a particular gas or gases to a cylinder containing any other gas.

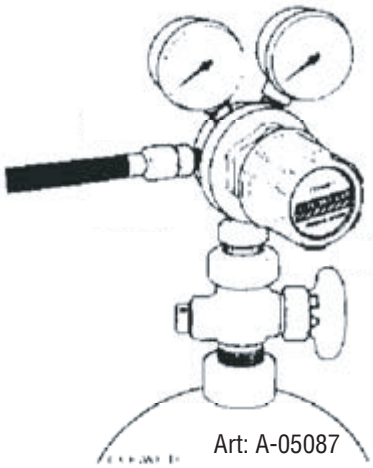

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Figure 4-13: Fit Regulator to Cylinder

Installation

1. Remove cylinder valve plastic dust seal. Clean the cylinder valve outlet of impurities that may clog orifices and damage seats before connecting the regulator.

   Crack the valve (open then close) momentarily, pointing the outlet away from people and sources of ignition. Wipe with a clean lint free cloth.
2. Match regulator to cylinder. Before connecting, check that the regulator label and cylinder marking agree and that the regulator inlet and cylinder outlet match. NEVER CONNECT a regulator designed for a particular gas or gases to a cylinder containing any other gas.
3. Connect the regulator inlet connection to cylinder or pipeline and tighten it firmly but not excessively, with a suitable spanner.
4. Connect and tighten the outlet hose firmly and attach down-stream equipment.
5. To protect sensitive down-stream equipment a separate safety device may be necessary if the regulator is not fitted with a pressure relief device.

Operation

With the regulator connected to cylinder or pipeline, and the adjustment screw/knob fully disengaged, pressurize as follows:

1. Stand to one side of regulator and slowly open the cylinder valve. If opened quickly, a sudden pressure surge may damage internal regulator parts.
2. With valves on downstream equipment closed, adjust regulator to approximate working pressure. It is recommended that testing for leaks at the regulator connection points be carried out using a suitable leak detection solution or soapy water.
3. Purge air or other unwanted welding grade shielding gas from equipment connected to the regulator by individually opening then closing the equipment control valves. Complete purging may take up to ten seconds or more, depending upon the length and size of the hose being purged.

Adjusting Flow Rate

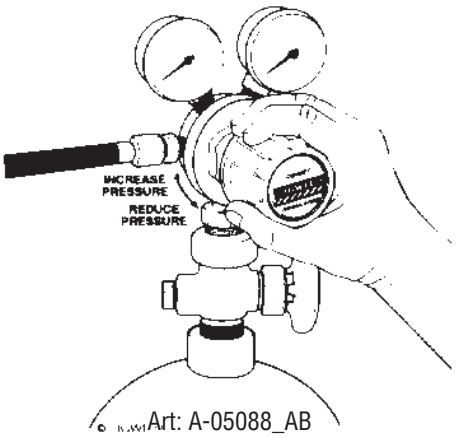


Figure 4-14: Adjust Flow Rate

With the regulator ready for operation, adjust working flow rate as follows:

1. Slowly turn adjusting screw/knob in (clockwise) direction until the outlet gauge indicates the required flow rate.

NOTE

It may be necessary to re-check the shielding gas regulator flow rate following the first weld sequence due to back pressure present within shielding gas hose assembly.

2. To reduce flow rate, allow the welding grade shielding gas to discharge from regulator by opening the downstream valve. Bleed welding grade shielding gas into a well ventilated area and away from any ignition source. Turn adjusting screw counterclockwise, until the required flow rate is indicated on the gauge. Close downstream valve.

Shutdown

Close cylinder valve whenever the regulator is not in use. To shut down for extended periods (more than 30 minutes).

1. Close cylinder or upstream valve tightly.
2. Open downstream equipment valves to drain the lines. Bleed gas into a well ventilated area and away from any ignition source.
3. After gas is drained completely, disengage adjusting screw and close downstream equipment valves.
4. Before transporting cylinders that are not secured on a cart designed for such purposes, remove regulators.

4.10 Setup for MIG (GMAW) Welding with Gas Shielded Mig Wire

A. Select MIG mode with the process selection control. (refer to Section 4.01.13 for further information)

B. Connect the Mig torch polarity lead to the positive welding terminal (+). If in doubt, consult the electrode wire manufacturer. Welding current flows from the Power Source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

C. Fit the Mig Torch to the power source. (Refer to section 4.02 Attaching the Tweco Fusion Mig Torch).

D. Connect the work lead to the negative welding terminal (-). If in doubt, consult the electrode wire manufacturer. Welding current flows from the Power Source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

E. Fit the welding grade shielding gas regulator/flowmeter to the shielding gas cylinder (refer to Section 4.09) then connect the shielding gas hose from the rear of the power source to the regulator/flowmeter outlet.

F. Refer to the Weld Guide located on the inside of the wirefeed compartment door for further information.

WARNING

Before connecting the work clamp to the work make sure the mains power supply is switched off.

Secure the welding grade shielding gas cylinder in an upright position by chaining it to a suitable stationary support to prevent falling or tipping.

CAUTION

Loose welding terminal connections can cause overheating and result in the male plug being fused in the terminal.

Remove any packaging material prior to use. Do not block the air vents at the front or rear of the Welding Power Source.

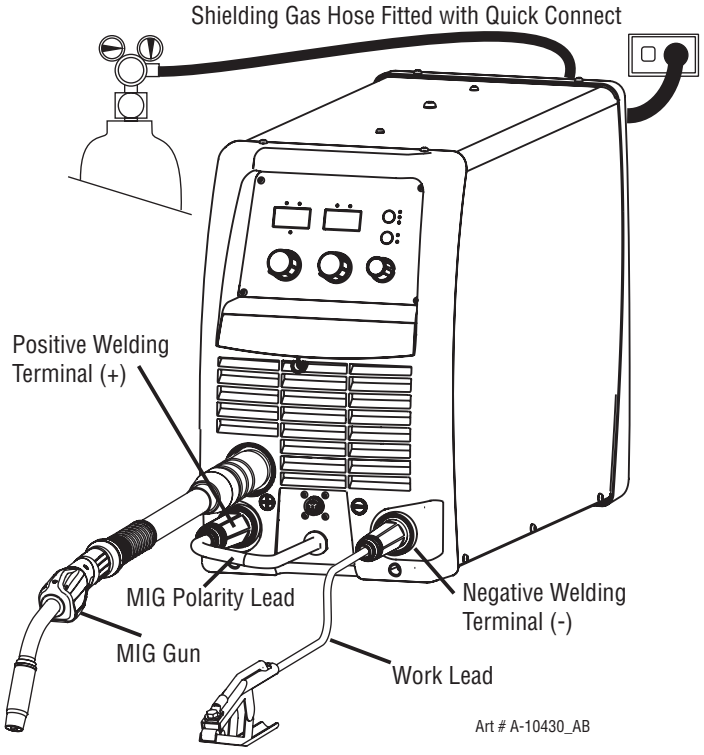


Figure 4-15: Setup for Mig Welding with Gas Shielded Mig Wire

4.11 Setup for MIG (GMAW) Welding with Gasless Mig Wire

A. Select MIG mode with the process selection control (refer to Section 4.01.13 for further information).

B. Connect the Mig Torch polarity lead to the negative welding terminal (-). If in doubt, consult the electrode wire manufacturer. Welding current flows from the power source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

C. Connect the work lead to the positive welding terminal (+). If in doubt, consult the electrode wire manufacturer. Welding current flows from the power source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

D. Refer to the Weld Guide located on the inside of the wirefeed compartment door for further information.

WARNING

Before connecting the work clamp to the work make sure the mains power supply is switched off.

CAUTION

Loose welding terminal connections can cause overheating and result in the male plug being fused in the terminal.

Remove any packaging material prior to use. Do not block the air vents at the front or rear of the Welding Power Source.

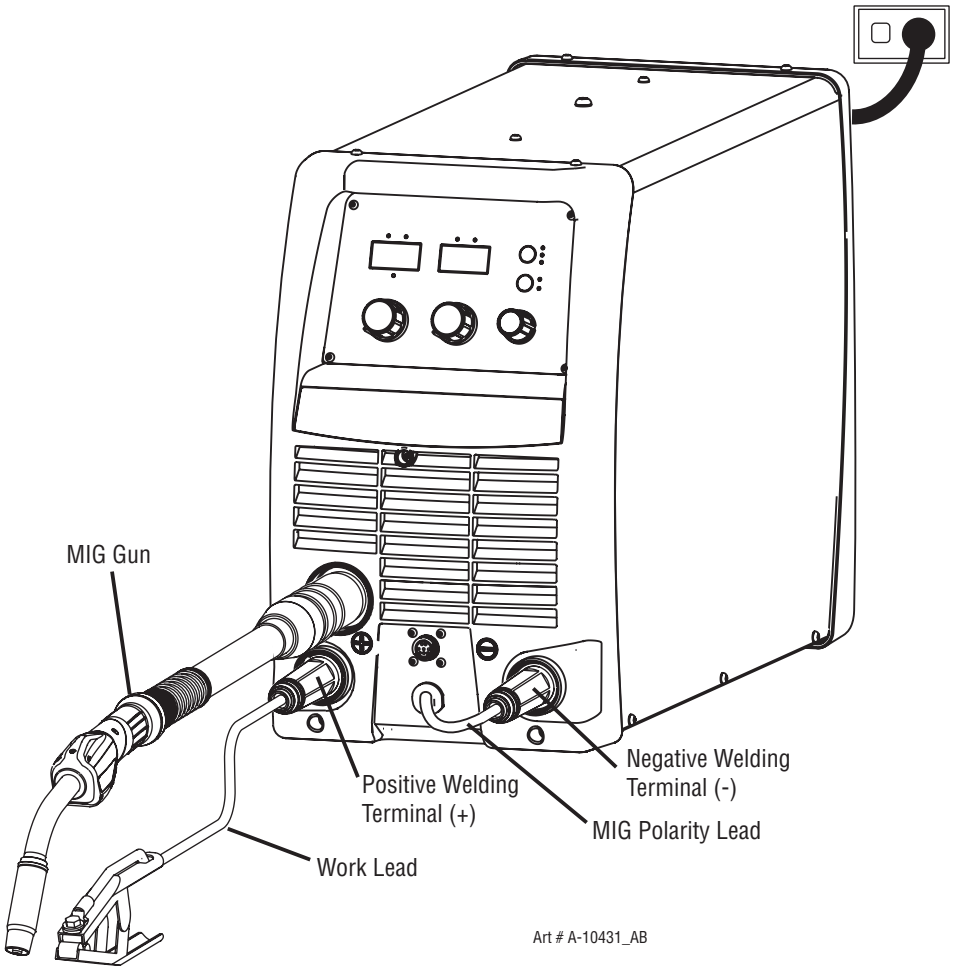


Figure 4-16: Setup for Mig Welding with Gasless Mig Wire

4.12 Setup for SPOOL GUN MIG (GMAW) Welding with Gas Shielded Mig Wire

A. Select MIG mode with the process selection control (refer to Section 4.01.13 for further information).

B. Connect the Mig torch polarity lead to the positive welding terminal (+). If in doubt, consult the electrode wire manufacturer. Welding current flows from the Power Source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

C. Fit the Euro Spool Gun to the power source using the front panel EURO torch adaptor (refer also to section 4.02 Attaching the Tweco Fusion Mig Torch). Connect the 8 pin Remote Control Plug to the 8 pin Remote Control Socket on the power source.

D. Connect the work lead to the negative welding terminal (-). If in doubt, consult the electrode wire manufacturer. Welding current flows from the Power Source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

E. Fit the welding grade shielding gas regulator/flowmeter to the shielding gas cylinder (refer to Section 4.09) then connect the shielding gas hose from the rear of the power source to the regulator/flowmeter outlet.

F. Refer to the Weld Guide located on the inside of the wirefeed compartment door for further information.

G. Select MIG mode with the process selection control (refer to section 4.01.13 for further information).

H. Set the Spool Gun Switch located inside the wire drive compartment, to SPOOL GUN.

WARNING

Before connecting the work clamp to the work make sure the main power supply is switched off.

Secure the welding grade shielding gas cylinder in an upright position by chaining it to a suitable stationary support to prevent falling or tipping.

CAUTION

Loose welding terminal connections can cause overheating and result in the male plug being fused in the terminal.

Remove any packing material prior to use. Do not block the air vents at the front or rear of the Welding Power Source.

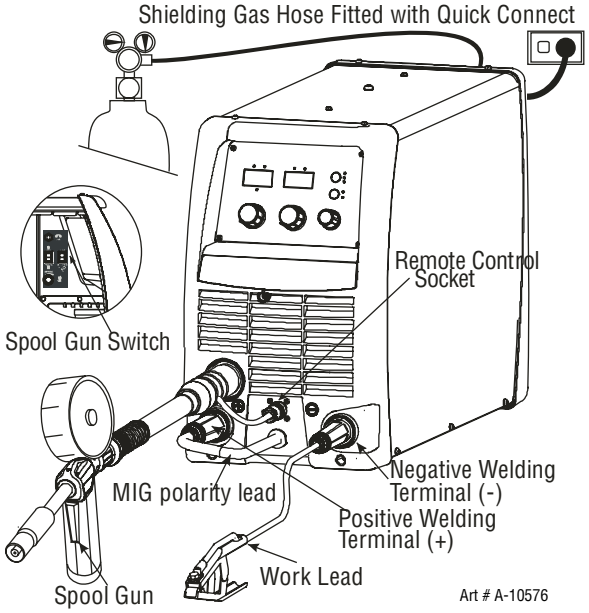


Figure 4-17: Setup for Spool Gun Welding with Gas Shielded Mig Wire

4.13 Setup for TIG (GTAW) Welding

A. Select Lift TIG mode with the process selection control (refer to Section 4.01.13 for further information).

B. Connect the TIG Torch to the negative welding terminal (-). Welding current flows from the power source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

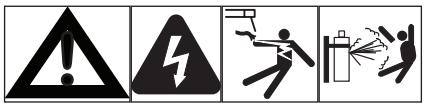
C. Connect the work lead to the positive welding terminal (+). Welding current flows from the Power Source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

D. Connect the TIG torch trigger switch via the 8 pin socket located on the front of the power source as shown below. The TIG torch will require a trigger switch to operate in Lift TIG Mode.

NOTE

If the TIG torch has a remote TIG torch current control fitted then it will require to be connected to the 8 pin socket. (Refer to section 4.01.9 Remote Control Socket for further information).

E. Fit the welding grade shielding gas regulator/flowmeter to the shielding gas cylinder (refer to Section 4.09) then connect the shielding gas hose from the TIG torch to the regulator/flowmeter outlet. Note that the TIG torch shielding gas hose is connected directly to the regulator/flowmeter. The power source is not fitted with a shielding gas solenoid to control the gas flow in TIG mode therefore the TIG torch will require a gas valve.



WARNING

Before connecting the work clamp to the work and inserting the electrode in the TIG Torch make sure the mains power supply is switched off.

Secure the welding grade shielding gas cylinder in an upright position by chaining it to a stationary support to prevent falling or tipping.

CAUTION

Remove any packaging material prior to use. Do not block the air vents at the front or rear of the Welding Power Source.

Loose welding terminal connections can cause overheating and result in the male plug being fused in the terminal.

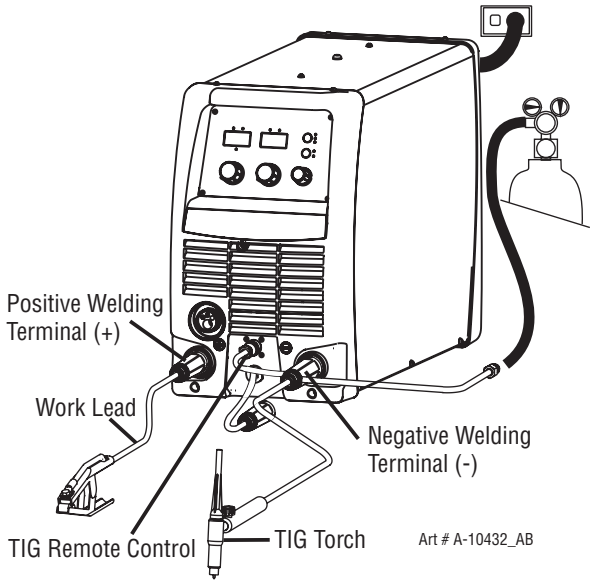


Figure 4-18: Setup for TIG Welding

4.14 Setup for STICK (MMAW) Welding

A. Connect the Electrode Holder lead to the positive welding terminal (+). If in doubt, consult the electrode manufacturer. Welding current flows from the Power Source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

B. Connect the work lead to the negative welding terminal (-). If in doubt, consult the electrode manufacturer. Welding current flows from the power source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

C. Select STICK mode with the process selection control (refer to Section 4.01.13 for further information).

WARNING

VRD is NOT fitted to Transmig 200i (Asia Version) Plant Part No W1005200M.

WARNING

Before connecting the work clamp to the work and inserting the electrode in the electrode holder make sure the mains power supply is switched off.

CAUTION

Remove any packaging material prior to use. Do not block the air vents at the front or rear of the Welding Power Source.

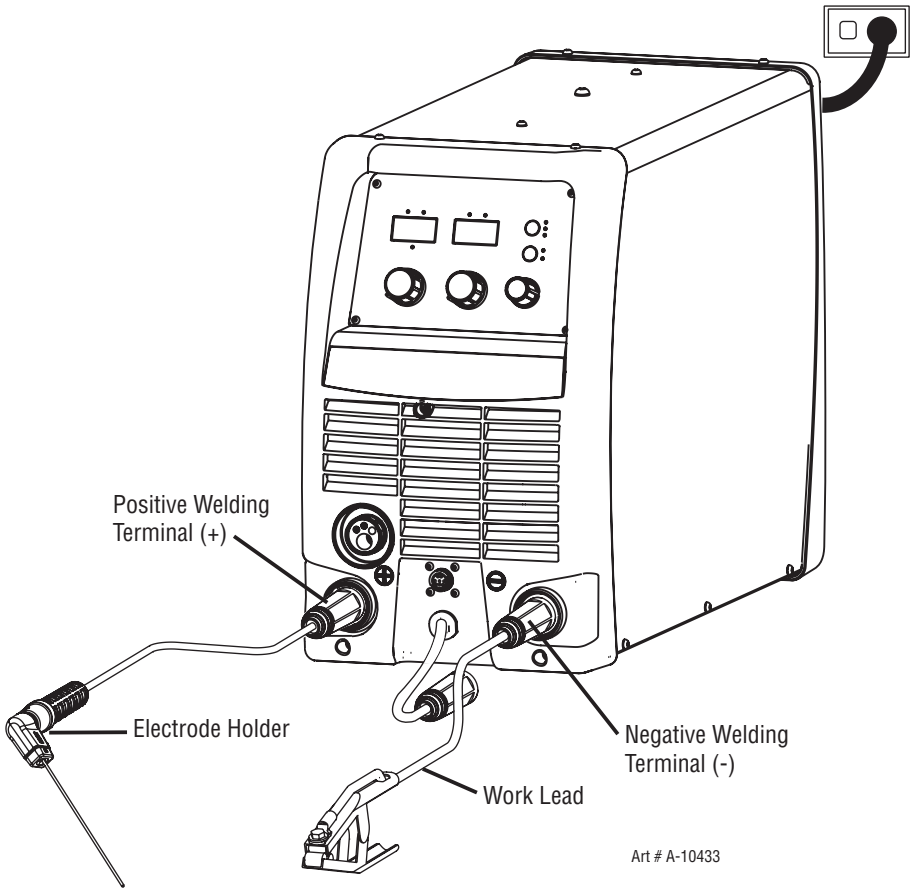


Figure 4-19: Setup for Manual Arc Welding.

4.15 Leak Testing the System

Leak test the system before putting into operation.

1. Be sure that there is a valve in the downstream equipment to turn off the gas flow.
2. With the cylinder valve open, adjust the regulator to deliver the maximum required delivery flow rate.
3. Close the cylinder valve. Watch to see if the high pressure or contents gauge drops, if it does you have a leak in the connection between the regulator and the cylinder.
4. Once leak testing has been performed and there are no leaks in the system, slowly open the cylinder valve and proceed.

WARNING

If a leak has been detected anywhere in the system, discontinue use and have the system repaired. DO NOT use leaking equipment. Do not attempt to repair a leaking system while the system is under pressure.

SECTION 5: TROUBLESHOOTING

5.01 Basic Troubleshooting-Power Source Faults

The following table is a guide for analysing problems and making repairs to the Power Source.

	Fault		Possible Cause		Remedy
1	There is no weld output and all front panel displays are off	A	The main Power Switch is set to OFF	A	Set main Power Switch to ON
		B	Line fuse is blown	B	Replace Line fuse
		C	The main Power Switch is faulty	C	Replace main Power Switch
		D	Loose connection to EMC board	D	Tighten connections
		E	Faulty Power Inverter board	E	Replace Power Inverter board
		F	Faulty Control board	F	Replace Control board
		G	Faulty Display board	G	Replace Display board
2	There is no weld output and all front panel displays are off or flickering on & off	A	The internal protection circuit to shut the unit down if the mains supply voltage is too high has operated	A	Check to see if mains supply voltage is <274VAC. A generator with poor voltage regulation may cause a supply voltage in excess of 274VAC. Connect Power Source to a supply voltage <274VAC.
3	There is no weld output and the yellow over temperature light is on	A	Unit has overheated	A	Allow unit to cool with fan running until over temperature light extinguishes
		B	Airflow inlet or outlet ducts are blocked	B	Remove blockages from airflow ducts
		C	Fan does not operate	C	Replace fan. Check fan wiring header is plugged securely into Control board. Check fan wiring is not damaged
4	Mode switch does not change welding mode	A	Faulty Display board	A	Replace Display board
5	The wirefeed motor and the weld output do not operate when the torch trigger switch is depressed	A	Internal wiring fault	A	Check continuity of internal wiring from Torch adaptor through to boards
		B	Over temperature light is on	B	Allow unit to cool
		C	Power Source set to REMOTE	C	Set switch to LOCAL
		D	Trigger wires shorted to weld voltage inside torch	D	Repair trigger wires in torch
		E	Trigger wires or torch switch faulty	E	Check & Repair
		F	Faulty Power Inverter board	F	Replace Power Inverter board
		G	Faulty Control board	G	Replace Control board
		H	Faulty Display board	H	Replace Display board
6	The wirefeed motor does not operate when the torch trigger switch is depressed	A	Power Source set to TIG or STICK mode	A	Set power Source to MIG mode Check motor wiring
		B	Wirefeeder motor wiring has become loose	B	Check & Repair
		C	Trigger wires or torch switch faulty	C	Replace Power Inverter board
		D	Faulty Power Inverter board	D	
7	The wirefeed motor operates at maximum speed and cannot be adjusted.	A	Faulty Power Inverter board	A	Replace Power Inverter board
		B	Faulty Display board	B	Replace Display board

Table 5-1 Power Source Faults

The following table is a guide for analysing problems and making repairs to the Power Source

	Fault		Possible Cause		Remedy
8	Wirefeed motor operates when the torch trigger switch is depressed but the gas valve does not operate.	A	Internal wiring fault	A	Check solenoid wiring header is plugged securely into Control board. Check solenoid wiring is not damaged
		B	Faulty Solenoid	B	Replace Solenoid
		C	Impurity in gas system causing solenoid to stay open or closed	C	Clean out gas system. Disassemble solenoid & clean out impurities
		D	Faulty Power Inverter board	D	Replace Power Inverter board
		E	Faulty Control board	E	Replace Control board
9	A welding arc can be established but the weld is erratic or inconsistent	A	Work Lead cable too small	A	Use correct weld cable size
		B	Loose welding connections	B	Tighten welding connections
		C	Loose earth clamp	C	Tighten earth clamp
		D	Incorrect weld polarity selected	D	Correct weld polarity. Refer to weld consumable manufacturers recommended polarity
		E	No shielding gas	E	Connect shielding gas
		F	Wind blows shielding gas away	F	Shield welding area from draughts
		G	Incorrect TIG tungsten electrode	G	Use correct tungsten type
		H	Poorly prepared or worn TIG tungsten	H	Regrind tungsten to correct shape

Table 5-2 Power Source Faults

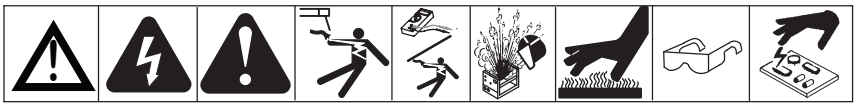
5.02 Advanced Troubleshooting

If the problem cannot be solved by the basic (external) troubleshooting guide, the Power Source cover will have to be removed to allow the technician to analyse failures with a few common tools.

WARNING

Turn off power and disconnect mains supply plug from receptacle before working on the unit. Allow two minutes for capacitors to discharge after disconnection from mains supply voltage.

Checking Unit Before Applying Power



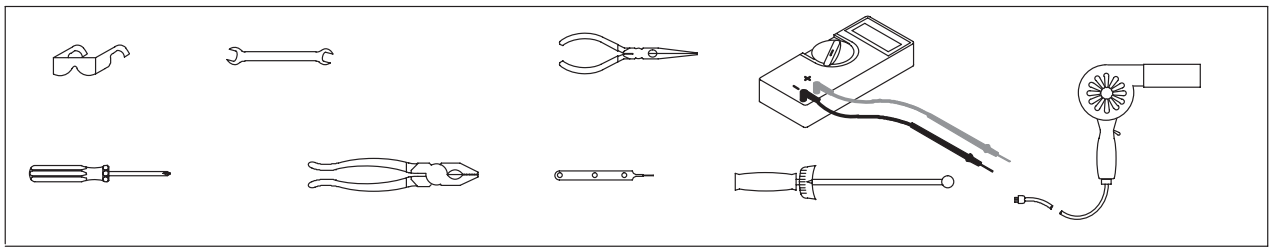
Turn SW1 to OFF position, and disconnect unit from primary line voltage before working on unit.

Significant DC voltage can remain on capacitors after unit is Off. Wait until all front panel LED's are off before removing case.

Check DC bus voltage according to Section 5.05 after removing case.

Before troubleshooting or applying power to unit, complete the following checks to avoid causing further damage.

5.03 Test equipment and Tools Needed for Troubleshooting and Servicing



Art # A-09849

- Digital Multimeter
- DC clip-on ammeter
- Screwdriver and spanner
- CRO (20 Mhz bandwidth) & isolating transformer

5.04 Visually Inspect

Visually inspect the inside of the Power Source. The levels of current present in these units can cause burning or arcing of PCB, transformers, switches, or rectifier when a failure occurs. Carefully inspect all components within these units.

Look in particular for the following:

a) Loose or broken wires or connectors.

b) Burned or scorched parts or wires or evidence of arcing.

c) Any accumulation of metal dust or filings that may have caused shorting or arcing.

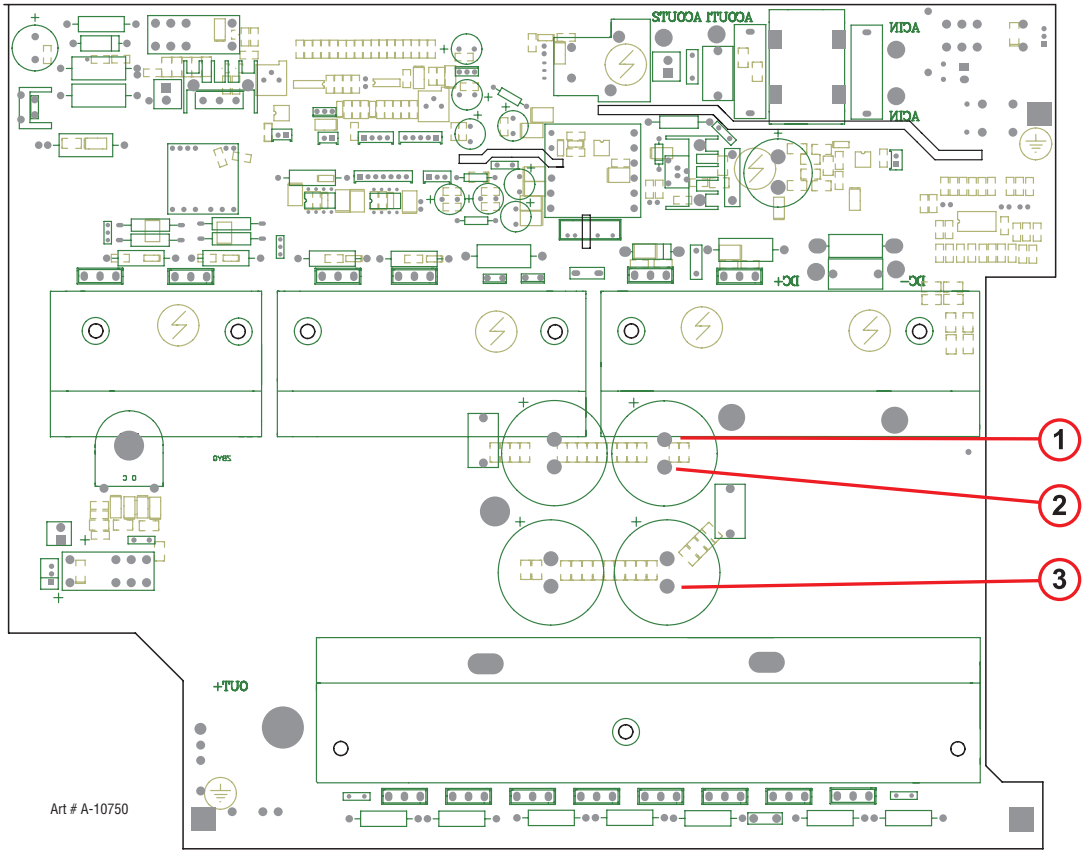
If any parts are damaged, they must be replaced. Refer to the Spare Parts section for a complete list of components used in the Power Source.

Locate the faulty component(s) then replace where necessary.

5.05 Preliminary DC Bus Measurement of the Main Inverter Board

WARNING

Check DC bus voltage has discharged to less than 5VDC before servicing. Ensure the mains supply plug is disconnected from receptacle

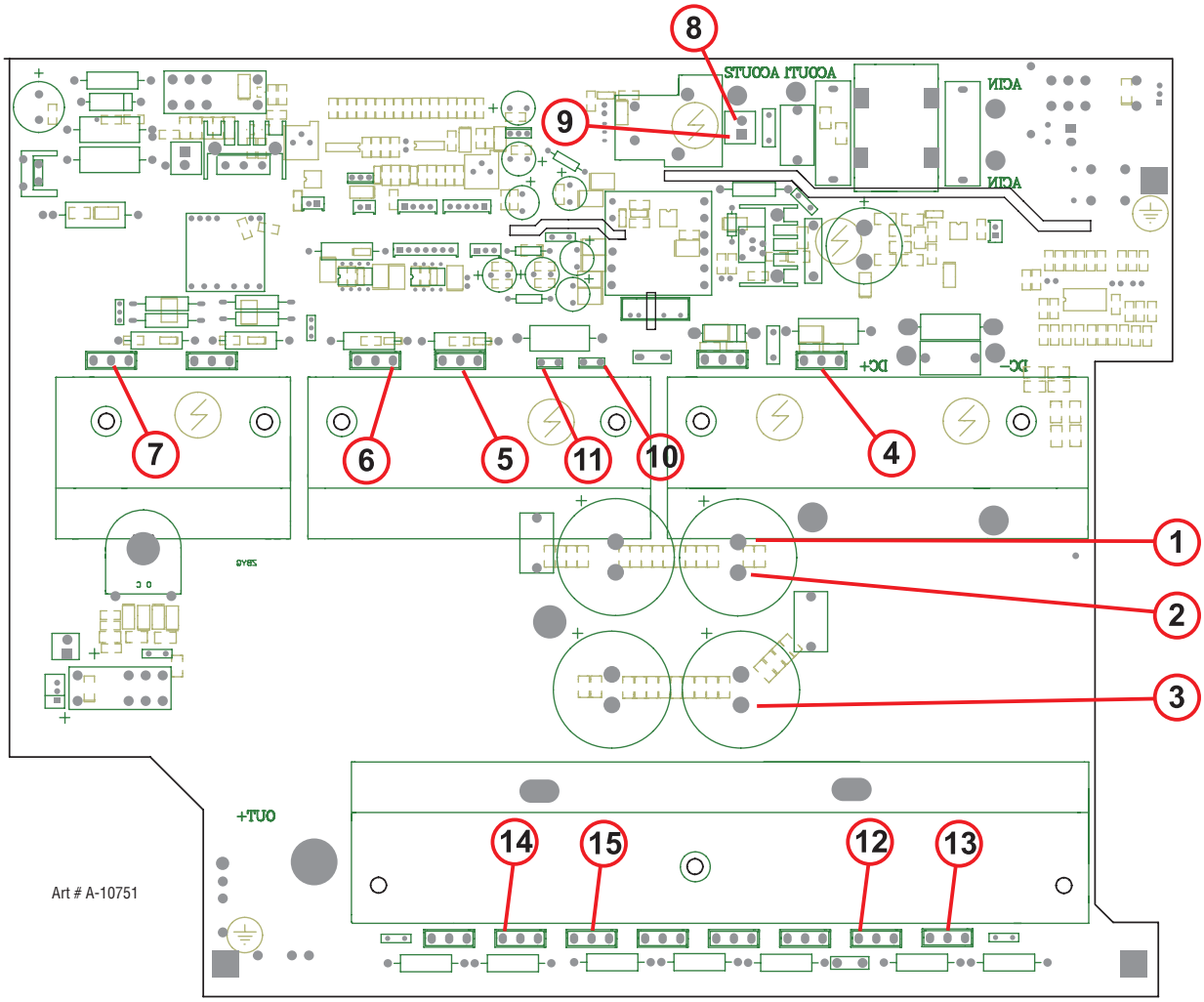


DC Bus Testing	Multimeter Lead Placement	Voltage with Supply Voltage OFF
Upper capacitor bank	Positive meter lead to testpoint 1 Negative meter lead to testpoint 2	0 VDC
Lower capacitor bank	Positive meter lead to testpoint 2 Negative meter lead to testpoint 3	0 VDC

Table 5-3 DC BUS, Multimeter set to measure DC volts

5.06 Preliminary Check of the Main Inverter Board

Read and follow safety information in Section 5.02 before proceeding.



IGBT Testing	Multimeter Lead Placement	Diode Voltage
IGBT V8 & V8-1	Positive meter lead to testpoint 3 Negative meter lead to testpoint 4	0.2 – 0.8 VDC
IGBT T1 & T2	Positive meter lead to testpoint 6 Negative meter lead to testpoint 5	0.2 – 0.8 VDC
IGBT T4 & T5	Positive meter lead to testpoint 3 Negative meter lead to testpoint 7	0.2 – 0.8 VDC

Table 5-4 IGBT's, Multimeter set to measure Diode Voltage

IGBT Testing	Multimeter Lead Placement	Ohms
IGBT V8 & V8-1	Positive meter lead to testpoint 4 Negative meter lead to testpoint 3	>150 Ω
IGBT T1 & T2	Positive meter lead to testpoint 5 Negative meter lead to testpoint 6	>150 Ω
IGBT T4 & T5	Positive meter lead to testpoint 7 Negative meter lead to testpoint 3	>150 Ω

Table 5-5 IGBT's, Multimeter set to measure ohms (Ω)

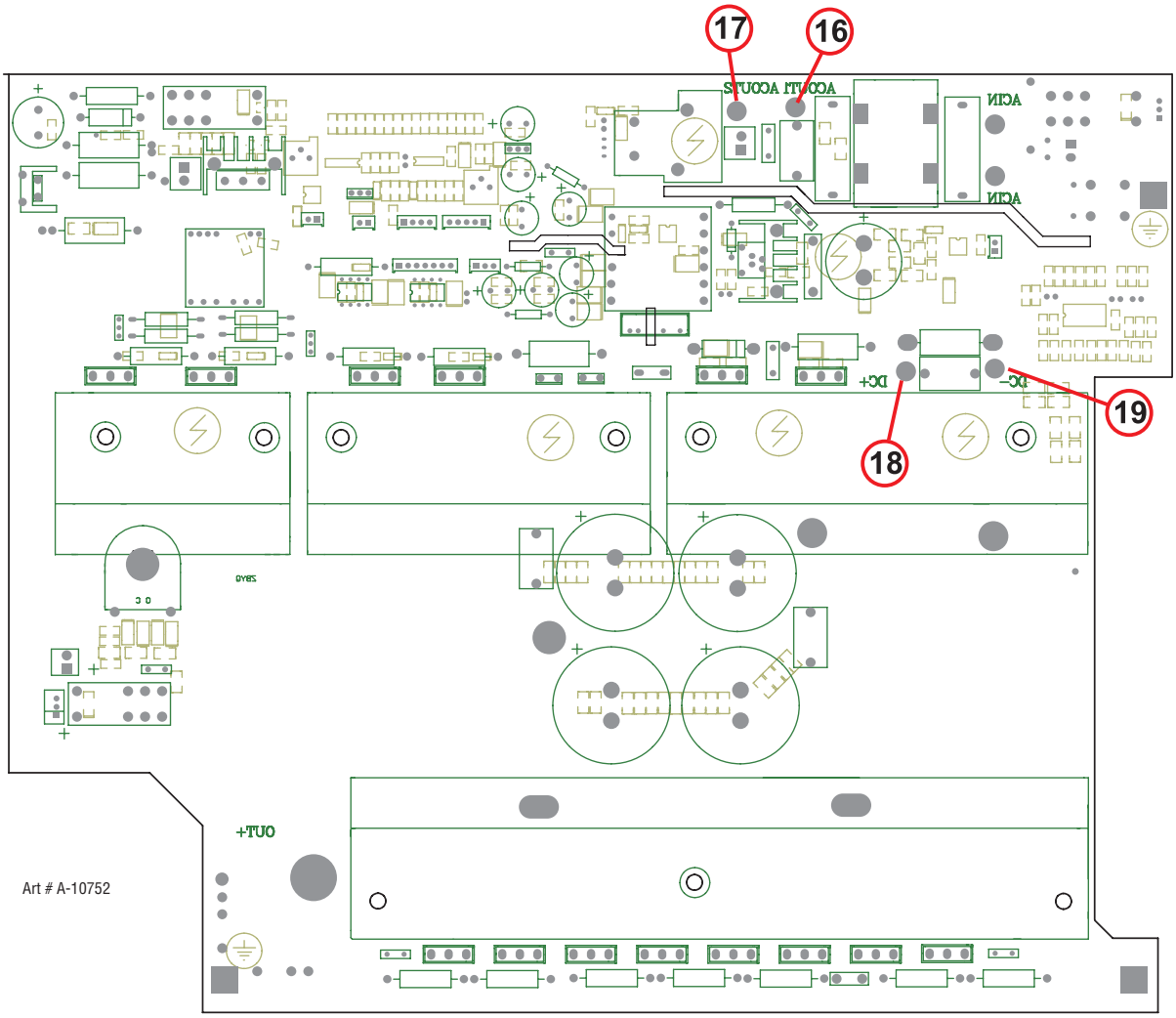
Inrush Resistor	Multimeter Lead Placement	Ohms
Resistor	Positive meter lead to testpoint 8 Negative meter lead to testpoint 9	3 Ω

Table 5-6 Inrush PTC, Multimeter set to measure ohms (Ω)

DIODE Testing	Multimeter Lead Placement	Diode Voltage
DIODE V7 & V7-1	Positive meter lead to testpoint 10 Negative meter lead to testpoint 11	0.2 – 0.8 VDC
DIODE T18, T19, T20, T21	Positive meter lead to testpoint 12 Negative meter lead to testpoint 13	0.2 – 0.8 VDC
DIODE T14, T15, T16, T17	Positive meter lead to testpoint 14 Negative meter lead to testpoint 15	0.2 – 0.8 VDC

Table 5-7 Diodes, Multimeter set to measure Diode Voltage

5.07 Check Main Input Rectifier



Input Rectifier Testing	Multimeter Lead Placement	Diode Voltage
AC1 to DC+	Positive meter lead to 16 Negative meter lead to testpoint 18	0.2 – 0.8 VDC
AC2 to DC+	Positive meter lead to 17 Negative meter lead to testpoint 18	0.2 – 0.8 VDC
AC1 to DC-	Positive meter lead to testpoint 19 Negative meter lead to testpoint 16	0.2 – 0.8 VDC
AC2 to DC-	Positive meter lead to testpoint 19 Negative meter lead to testpoint 17	0.2 – 0.8 VDC

Table 5-8 Input Rectifier, Multimeter set to measure Diode Voltage

Measurements may be made directly onto the main input rectifier. AC1 and AC2 may be measured from the pins on the mains supply plug with the main power switch set to the ON position.

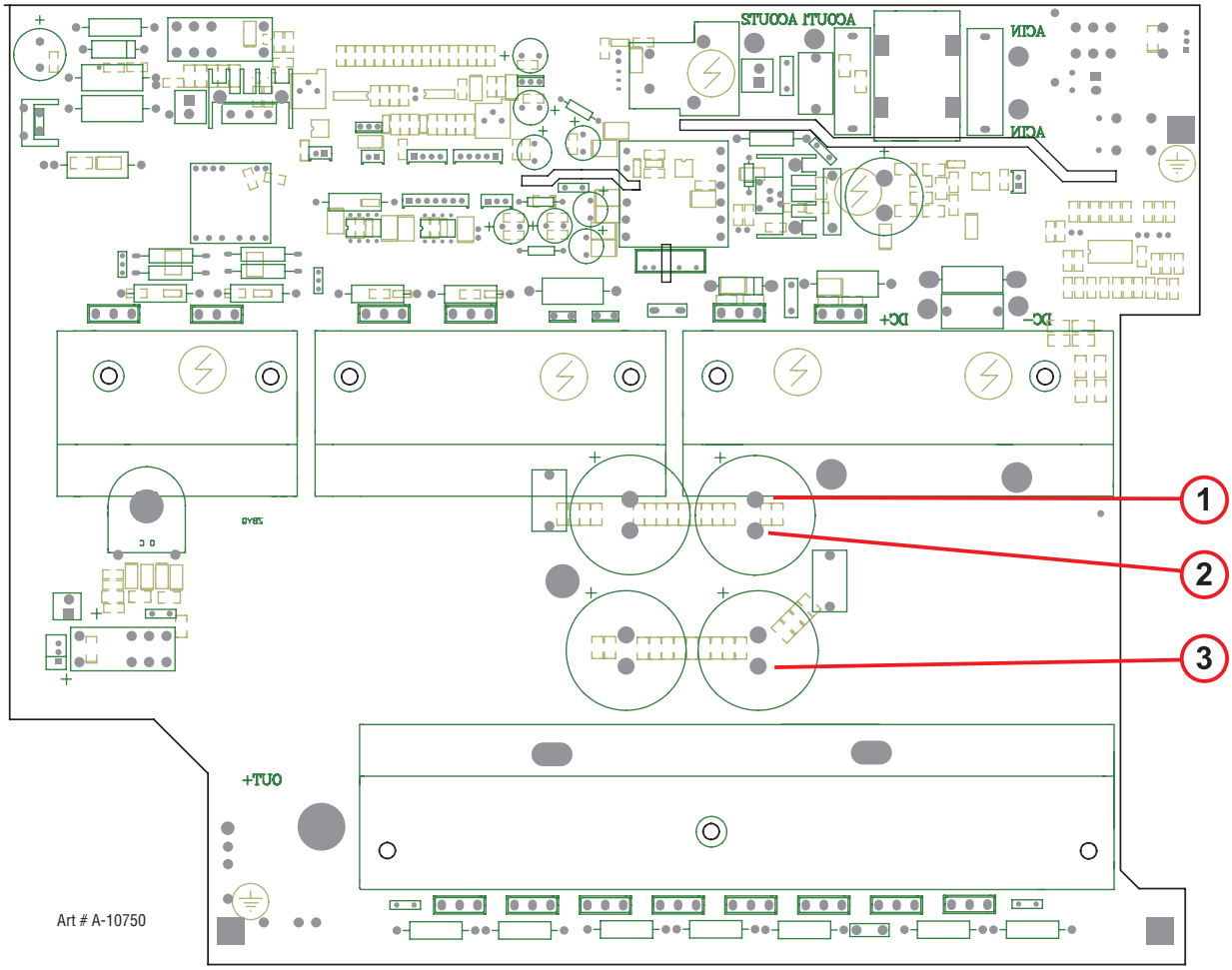
5.08 DC Bus Voltage Measurement

Apply voltage to the Power Source.

There are extremely dangerous voltage and power levels present inside these Power Sources. Do not attempt to diagnose or repair unless you have had training in power electronics measurement and trouble-shooting techniques.

Once power is applied to the Power Source, there are extremely hazardous voltage and power levels present.

Do not touch any live parts.



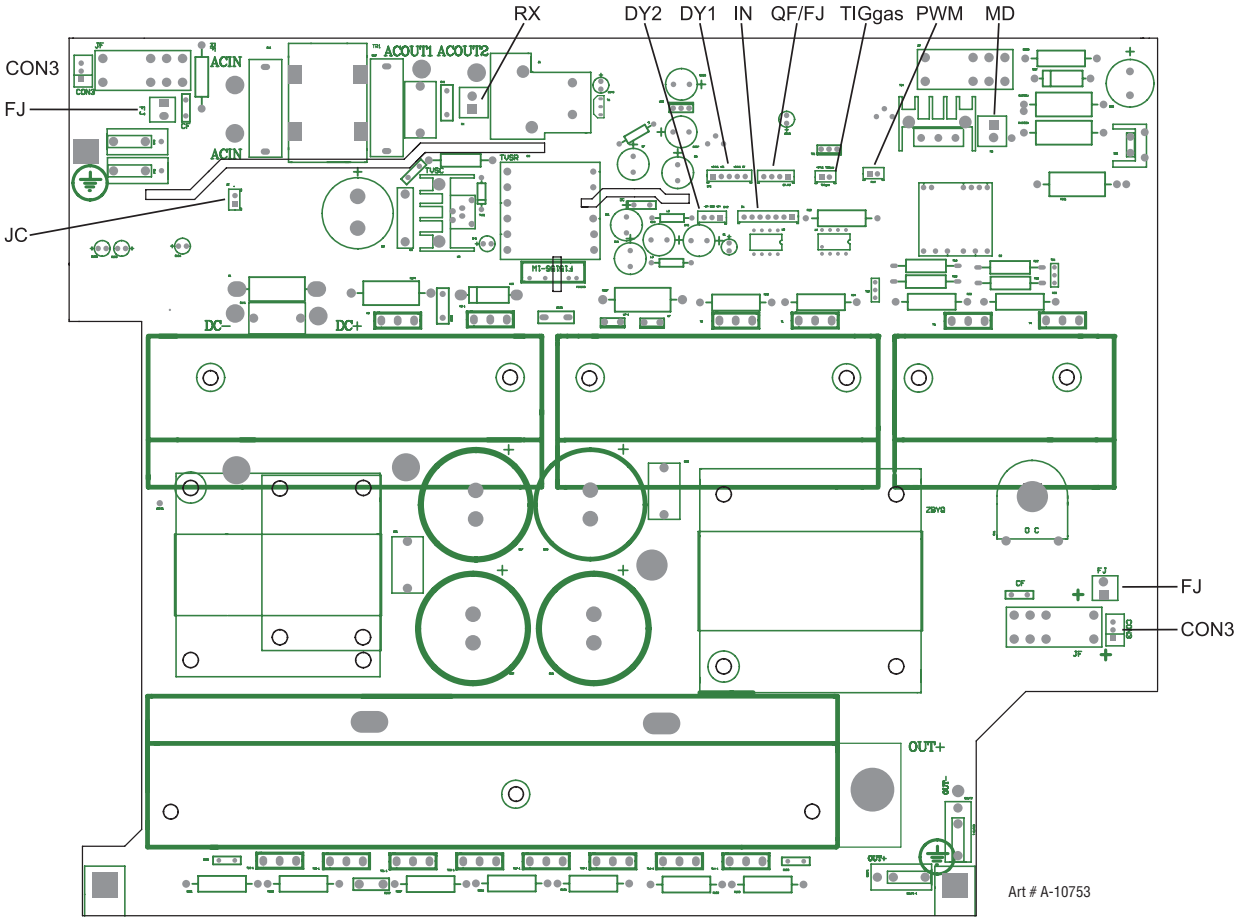
DC Bus Testing	Multimeter Lead Placement	Voltage with Supply Voltage ON
Upper capacitor bank	Positive meter lead to testpoint 1 Negative meter lead to testpoint 2	190 VDC +/-10%
Lower capacitor bank	Positive meter lead to testpoint 2 Negative meter lead to testpoint 3	190 VDC +/-10%
Overall capacitor bank	Positive meter lead to testpoint 1 Negative meter lead to testpoint 3	385 VDC +/-10%

Table 5-9 DC BUS, Multimeter set to measure DC volts

Note: These DC voltages are at nominal mains supply voltage of 240VAC.

5.09 PCB Connectors

1 Inverter PCB



IN Header Pin	Pin function	Signal
1	+15V	15 VDC
2	IGBT 1 pwm drive signal, 15V p-p square wave	15 VDC pk
3	IGBT 2 pwm drive signal, 15V p-p square wave	15 VDC pk
4	IGBT 2 pwm drive signal, 15V p-p square wave	15 VDC pk
5	IGBT 1 pwm drive signal, 15V p-p square wave	15 VDC pk
6	Rectified secondary of current transformer TR8	15 VDC pk
7	0V	0 VDC

Table 5-10 IN Header pin function (connects to DRIVE header on control PCB)

PWM Header Pin	Pin function	Signal
1	0VDC	0 VDC
2	Motor pwm drive signal	5 VDC pk

Table 5-11 PWM Header pin function (connects to PWM header on control PCB)

MD Header Pin	Pin function	Signal
1	Motor positive	24 VDC
2	Motor negative	0 VDC

Table 5-12 MD Header pin function (connects to MT-IN header on motor PCB)

DY2 Header Pin	Pin function	Signal
1	+24V	24 VDC
2	0V	0 VDC
3	-24V	-24 VDC

Table 5-13 DY2 Header pin function (connects to SOURCE header on control PCB)

DY1 Header Pin	Pin function	Signal
1	+24V (solenoid positive)	24 VDC
2	0V	0V
3	No connection	n/c
4	+24V (solenoid positive)	24 VDC
5	Solenoid negative	0 VDC

Table 5-14 DY1 Header pin function

QF/FJ Header Pin	Pin function	Signal
1	+24V (VRD positive)	24 VDC
2	Solenoid negative	0 VDC
3	+24V (solenoid positive)	24 VDC
4	0V	0 VDC

Table 5-15 QF/FJ Header pin function (Connects to QF/DY header on control PCB)

RX Header Pin	Pin function	Signal
1	Inrush Resistor	
2	Inrush Resistor	

Table 5-16 RX Header pin function (connects to Inrush Resistor)

JC Header Pin	Pin function	Signal
1	+5V	+5 VDC
2	PFC OK signal, 5V = PFC OK	

Table 5-17 JC Header pin function (connects to PFC header on control PCB)

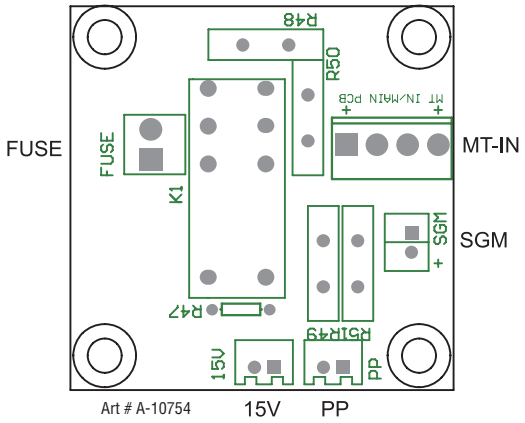
FJ Header Pin	Pin function	Signal
1	Fan positive	+24 VDC
2	Fan negative	0 VDC

Table 5-18 FJ Header pin function (connects to FAN)

CON3 Header Pin	Pin function	Signal
1	24VDC	+24 VDC
2		
3	Fan control signal, 0V = Fan ON	0VDC

Table 5-19 CON3 Header pin function (connects to FUNs on control PCB)

2 Motor PCB



MT-IN Header Pin	Pin function	Signal
1	Motor positive from Inverter PCB	24 VDC
2	Motor negative from Inverter PCB	0 VDC
3	Motor negative	0 VDC
4	Motor positive	24 VDC

Table 5-20 MT-IN Header pin function (Connects to MD header on Inverter PCB & to Motor)

SGM Header Pin	Pin function	Signal
1	Spool Gun Motor negative	0 VDC
2	Spool Gun Motor positive	24 VDC

Table 5-21 SG-M Header pin function (connects to SGM header on display PCB)

PP Header Pin	Pin function	Signal
1	Spool Gun Switch	
2	Spool Gun Switch	

Table 5-22 PP Header pin function (connects to Spool Gun Switch)

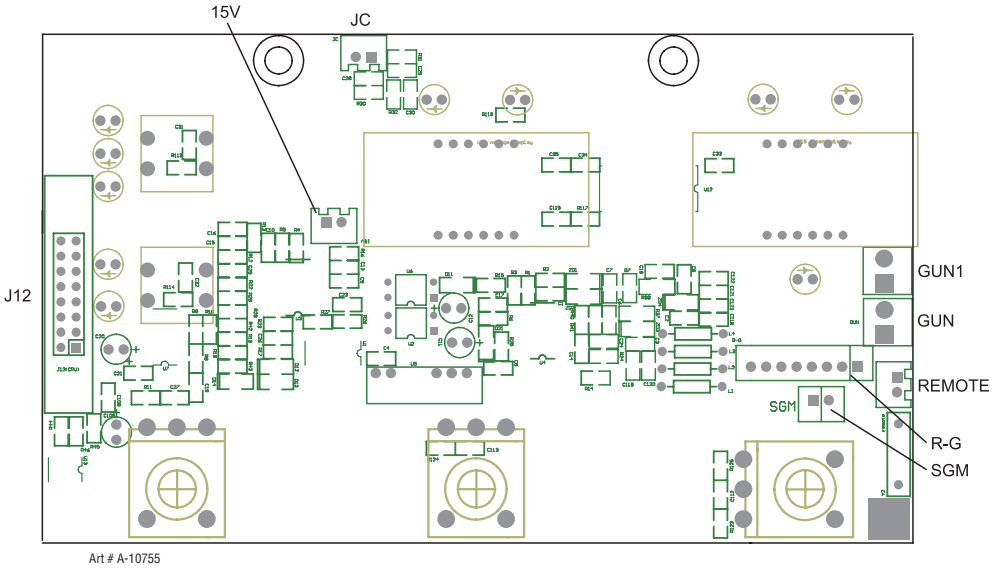
15V Header Pin	Pin function	Signal
1	0VDC	0 VDC
2	15VDC	15 VDC

Table 5-23 15V Header pin function (connects to 15V header on display PCB)

FUSE Header Pin	Pin function	Signal
1	Circuit Breaker	
2	Circuit Breaker	

Table 5-24 FUSE Header pin function (connects to Motor Circuit Breaker)

3 Display PCB



GUN Header Pin	Pin function	Signal
1	+24V trigger positive (0V when trigger closed)	24 VDC
2	0VDC	0 VDC

Table 5-25 GUN Header pin function (connects to GUN header on control PCB)

GUN1 Header Pin	Pin function	Signal
1	+24V trigger positive (0V when trigger closed)	24 VDC
2	0VDC	0 VDC

Table 5-26 GUN Header pin function (connects to front panel torch trigger terminals)

REMOTE Header Pin	Pin function	Signal
1	Remote switch	
2	Remote switch	

Table 5-27 REMOTE Header pin function (connects to remote switch)

J12 Header Pin	Pin function	Signal
1	Serial display data & eprom (D-IN)	5 VDC digital
2	Serial display data (LOAD)	5 VDC digital
3	Serial display data (CLK)	5 VDC digital
4	2T/4T pushbutton (0V when button pushed)	0VDC
5	Serial display eprom (D-OUT)	5 VDC digital
6	Stick mode (used for remote / local)	
7	Chip select	5 VDC digital
8	MODE pushbutton (0V when button pushed)	0VDC
9	15VDC	15 VDC
10	Remote / Local switch	
11	Inductance pot terminal 2	
12	Volts setpoint	0 – 5 VDC
13	Inductance pot terminal 1	
14	Amps setpoint	0 – 5 VDC
15	5VDC	5 VDC
16	0V	0 VDC

Table 5-28 J12 Header pin function (connects to MB header on control PCB)

R-G Header Pin	Pin function	Signal
1	Spool gun motor negative	24 VDC
2	+24V trigger positive (0V when trigger closed)	24 VDC
3	0VDC	0 VDC
4	Spool gun motor	0 VDC
5	-12VDC	-12 VDC
6	+12VDC	+12 VDC
7	Remote amps	-12 to +12 VDC
8	Remote volts	-12 to +12 VDC

Table 5-29 R-G Header pin function (connects to front panel 8 pin remote socket)

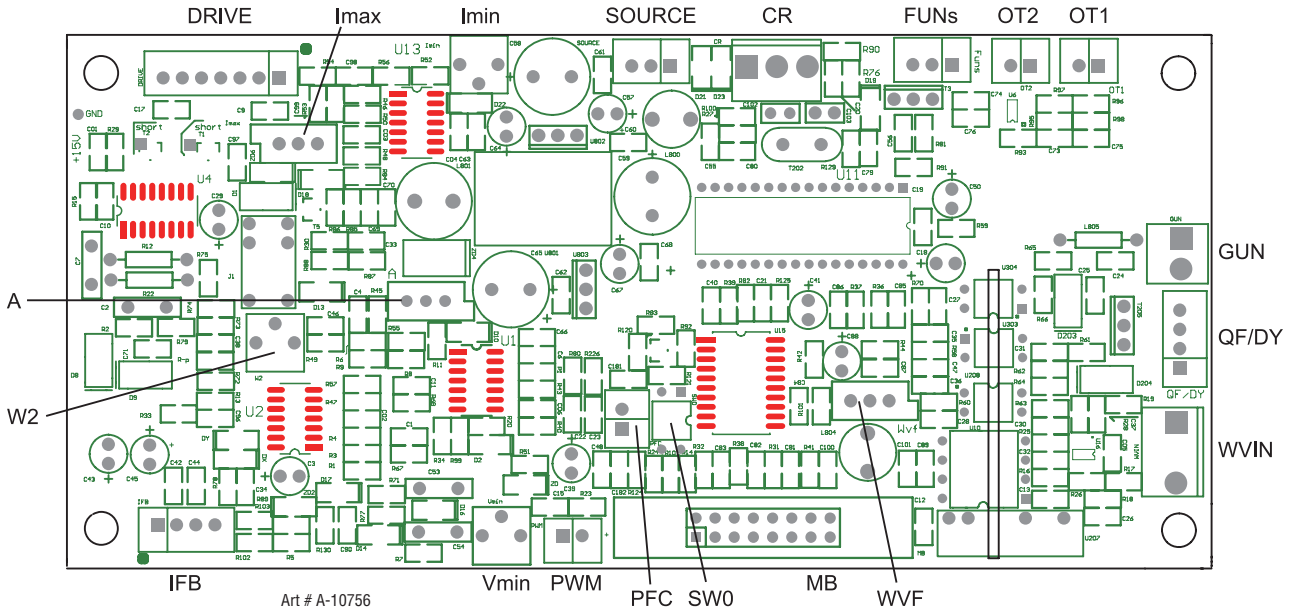
SGM Header Pin	Pin function	Signal
1	Motor negative	0 VDC
2	Motor positive	24 VDC

Table 5-30 SGM Header pin function (connects to SGM header on motor PCB)

15V Header Pin	Pin function	Signal
1	0VDC	0VDC
2	15VDC	15 VDC

Table 5-31 15V Header pin function (connects to 15V header on motor PCB

4 Control PCB



GUN Header Pin	Pin function	Signal
1	+24V trigger positive (0V when trigger closed)	24 VDC
2	0VDC	0 VDC

Table 5-32 GUN Header pin function (connects to GUN header on display PCB)

PWM Header Pin	Pin function	Signal
1	0VDC	0 VDC
2	Motor pwm drive signal	5 VDC pk

Table 5-33 PWM Header pin function (connects to PWM header on inverter PCB)

PFC Header Pin	Pin function	Signal
1	5V	+5 VDC
2	PFC OK signal, 1= PFC OK	

Table 5-34 PFC Header pin function (connects to JC header on inverter PCB)

QF/DY Header Pin	Pin function	Signal
1	+24V (VRD positive)	24 VDC
2	Solenoid negative	0 VDC
3	+24V (solenoid positive)	24 VDC
4	0V	0 VDC

Table 5-35 QF/FJ Header pin function (Connects to QF/FJ header on inverter PCB)

FUNs Header Pin	Pin function	Signal
1	24VDC	+24 VDC
2		
3	Fan control signal, 0V = Fan ON	

Table 5-36 FUNs Header pin function (not used)

DRIVE Header Pin	Pin function	Signal
1	+15V	15 VDC
2	IGBT 1 pwm drive signal, 15V p-p square wave	15 VDC pk
3	IGBT 2 pwm drive signal, 15V p-p square wave	15 VDC pk
4	IGBT 2 pwm drive signal, 15V p-p square wave	15 VDC pk
5	IGBT 1 pwm drive signal, 15V p-p square wave	15 VDC pk
6	Rectified secondary of current transformer TR8	15 VDC pk
7	0V	0 VDC

Table 5-37 DRIVE Header pin function (connects to IN header on inverter PCB)

WVIN Header Pin	Pin function	Signal
1	Positive welding terminal	positive VDC
2	No connection	n/c
3	Negative welding terminal	0 VDC

Table 5-38 WVIN Header pin function

IFB Header Pin	Pin function	Signal
1	+15V	15 VDC
2	-15V	-15 VDC
3	Current sensor signal	
4	0V	0 VDC

Table 5-39 IFB Header pin function (Connects to welding output current sensor)

SOURCE Header Pin	Pin function	Signal
1	+24V	24 VDC
2	0V	0 VDC
3	-24V	-24 VDC

Table 5-40 SOURCE Header pin function (connects to DY2 header on control PCB)

CR Header Pin	Pin function	Signal
1	+5V	5 VDC
2	Wiper 10k Burnback potentiometer	0 – 5 VDC
3	0V	0 VDC

Table 5-41 CR Header pin function (connects to 10k Burnback potentiometer)

OT1 Header Pin	Pin function	Signal
1	Diode thermostat	
2	Diode thermostat	

Table 5-42 OT1 Header pin function (connects to igbt thermostat)

OT2 Header Pin	Pin function	Signal
1	Igbt thermostat (0VDC when thermostat closed)	
2	0V	0 VDC

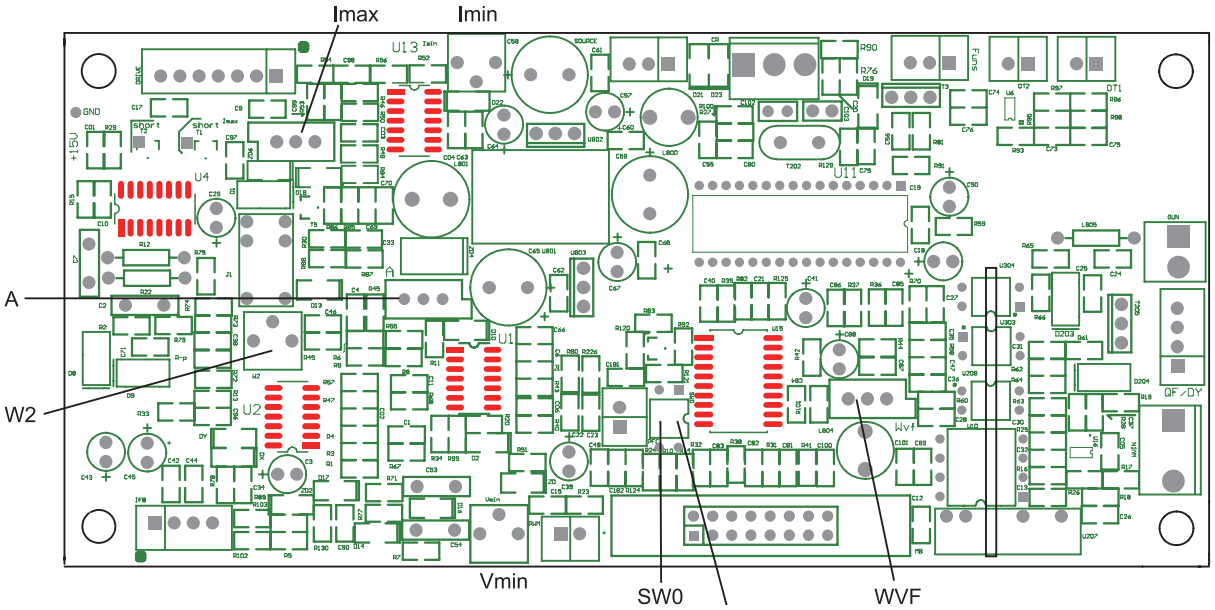
Table 5-43 OT2 Header pin function (connects to NTCS header on inverter PCB)

MB Header Pin	Pin function	Signal
1	Serial display data & eprom (D-IN)	5 VDC digital
2	Serial display data (LOAD)	5 VDC digital
3	Serial display data (CLK)	5 VDC digital
4	2T/4T pushbutton (0V when button pushed)	0VDC
5	Serial display eprom (D-OUT)	5 VDC digital
6	Stick mode (used for remote / local)	
7	Chip select	5 VDC digital
8	MODE pushbutton (0V when button pushed)	0VDC
9	15VDC	15 VDC
10	Remote / Local switch	
11	Inductance pot terminal 2	
12	Volts setpoint	0 – 5 VDC
13	Inductance pot terminal 1	
14	Amps setpoint	0 – 5 VDC
15	5VDC	5 VDC
16	0V	0 VDC

Table 5-44 MB Header pin function (connects to J12 header on display PCB)

5.10 DIP Switch Settings, Control PCB

1 DIP Switch SW0, control PCB

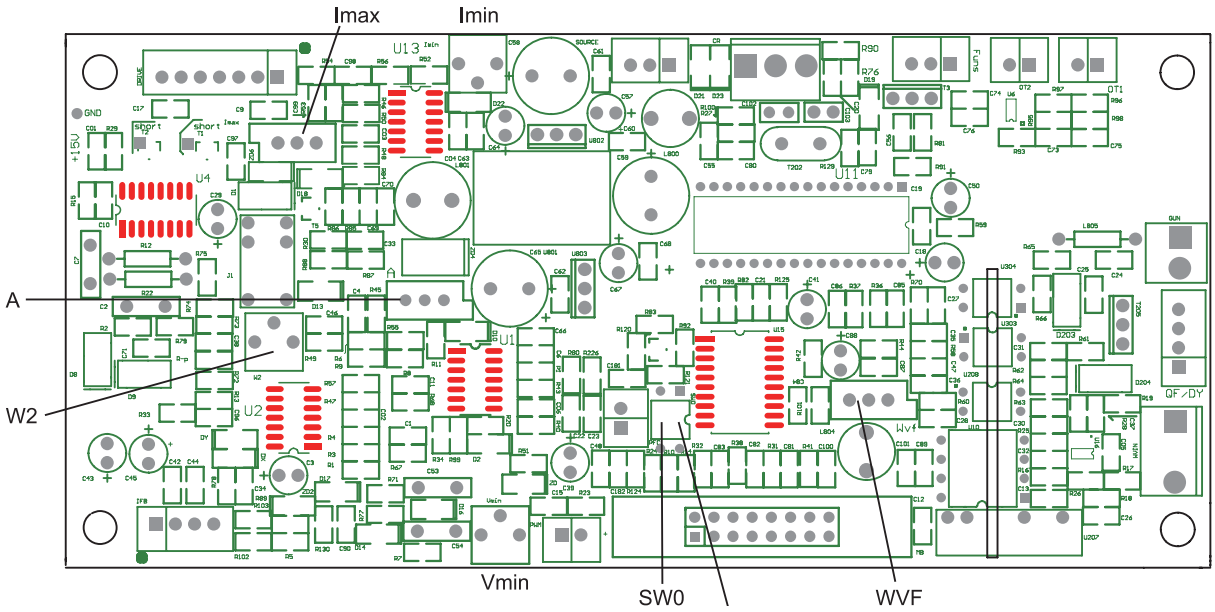


SW0 position	Function
1	Set to OFF for Transmig 200i
2	Set to ON for Transmig 200i

Table 5-45 SW0 Dip Switch functions

5.11 Calibration

1 Calibration



Set SW0 position 1 to ON while the power source is turned off, to allow calibration of output volts & amps.

2 Output Current Calibration

Select STICK mode on the front panel.

Measure no load output welding voltage and adjust WVF potentiometer so Volts display reads within 0.2V of the measured value.

Connect a load to the output terminals. The load should be of a resistance to give 25V at 250A.

Set front panel AMPS potentiometer to minimum.

Adjust Imin trimpot until output amps is 10A +/- 0.2A

Set front panel AMPS potentiometer to maximum.

Adjust Imax trimpot until output amps is 200A +/- 1A

Recheck settings

Set front panel AMPS potentiometer to maximum.

Adjust A potentiometer so Amps display reads within 0.5A of the measured value.

3 Output Voltage Calibration

Select MIG mode on the front panel.

Remove the load from the output terminals.

Set front panel VOLTS potentiometer to minimum.

Adjust Vmin trimpot until output volts is 14.0V +/- 0.2V

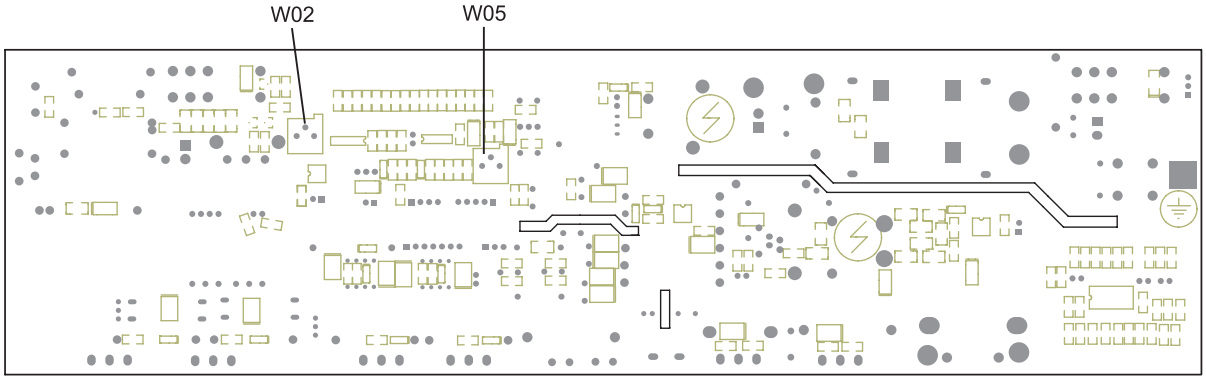
Set front panel VOLTS potentiometer to maximum.

Adjust W2 trimpot until output volts is 26V +/- 0.2V

Recheck settings

4 Wire Speed Calibration

NOTE: these adjustments are on the wiring side of the main inverter module circuit board.



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Select MIG mode on the front panel.

Remove the load from the output terminals.

Set MIG output voltage to maximum.

Set front panel WIRESPEED (AMPS) potentiometer to minimum. AMPS display should read “30”

Adjust W02 trimpot until motor volts are 4.2V +/- 0.2V or motor feedroll shaft speed is 27rpm

Set front panel WIRESPEED (AMPS) potentiometer to maximum. AMPS display should read “218”

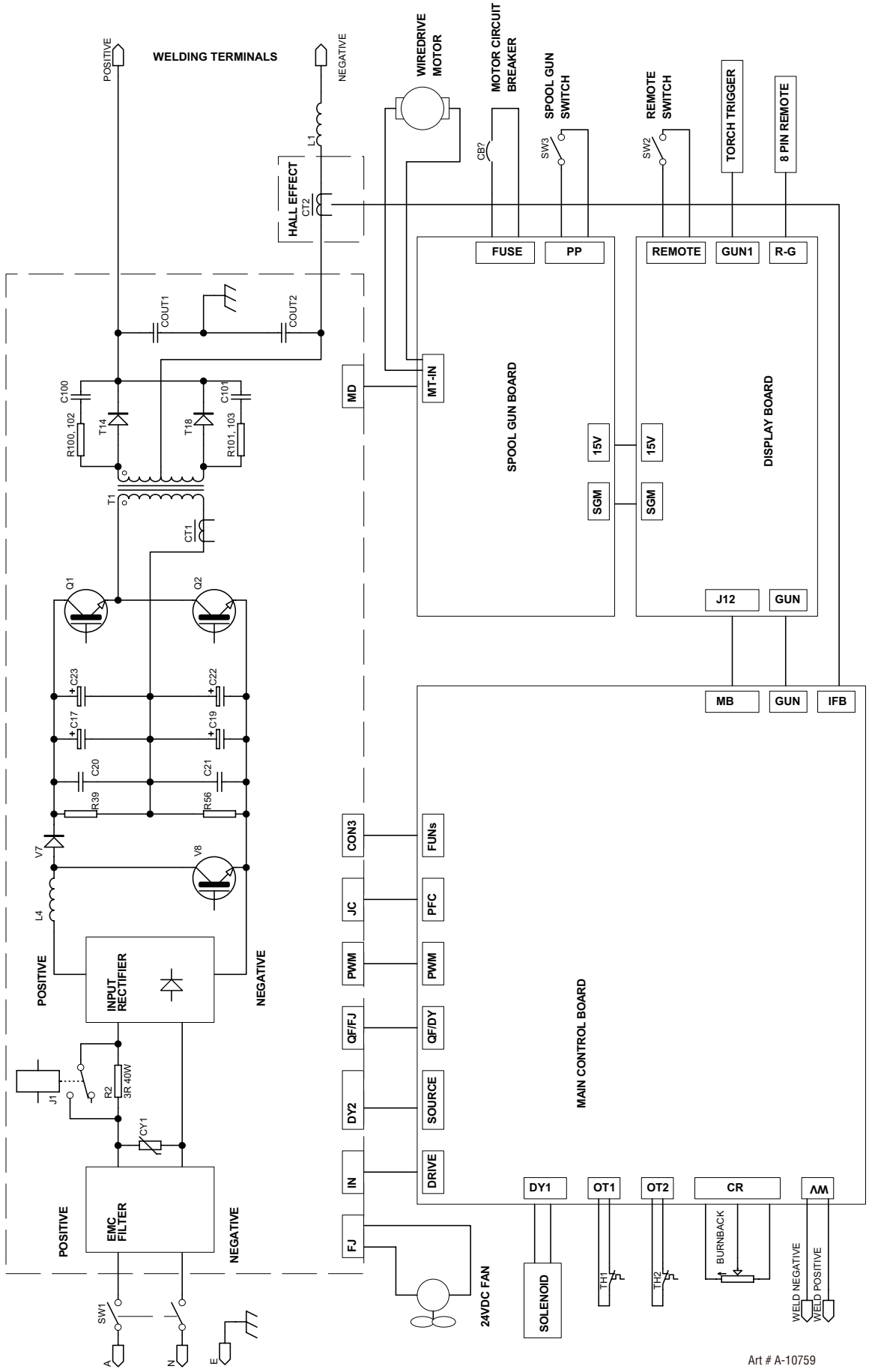
Adjust W05 trimpot until motor volts are 24.7V +/- 0.2V or motor feedroll shaft speed is 191rpm

Recheck settings

Turn Mains power off & allow power supplies to discharge

Set SW0 position 1 to OFF while the power source is turned off, to resume normal power source operation.

5.12 Circuit Diagram



5.13 Main Circuit Description

 Turn off power and disconnect mains supply plug from receptacle before working on the unit. Allow two minutes for capacitors to discharge after disconnection from mains supply voltage.

The mains supply voltage is connected via a double pole switch to the input rectifier Q1 through an EMC filter. Overvoltage protection is provided by varistor CY1.

The rectifier output charges the main capacitor bank (C16, C17, C18, C19, C22 and C23) to high voltage. Inrush current limiting is provided by a PTC which is then bypassed by relay J1 after a few seconds.

The primary igbt transistors (T1, T2, T4, and T5) switch the transformer primary at high frequency and varying duty cycle. The transformer return wire is taken from the junction of the capacitors C20 and C21 (the voltage at this point is approximately half the DC bus voltage).

Secondary output voltage from the transformer is rectified by the output diodes (T13, T14, T15, T16, T17, T18, T19, and T20) to DC. This DC is controlled by the PWM of the primary side igbt transistors, and is filtered by an inductor before connecting to the welding output terminals.

A thermal overload device (thermistor) is fixed to the rectifier heatsink. When an over temperature occurs, the control circuit inhibits the trigger, gas solenoid, wire drive system and the welding output. The thermal overload indicator LED on the front panel is illuminated.

The current transformer TR8 provides a signal to the control circuit to indicate both transformer primary current, and also detect transformer saturation. The Hall effect current sensor is powered from regulated + & - 15VDC supplies and provides a voltage signal proportional to the output DC welding current to allow the control circuit to regulate welding current.

SECTION 6:
DISASSEMBLY PROCEDURE

6.01 Safety Precautions for Disassembly

Read and follow safety information in Section 5.02 before proceeding.

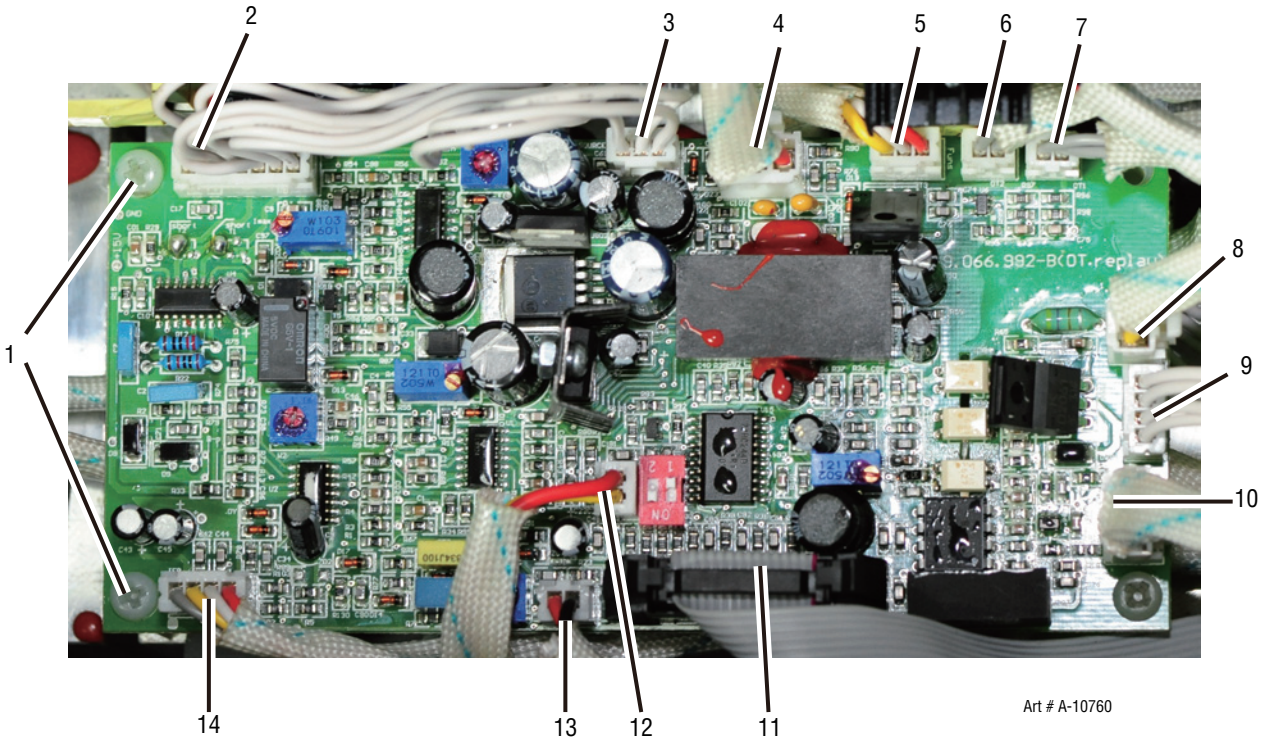
Unplug unit before beginning Disassembly procedure.

6.02 Control Board Removal

Read and follow safety information in Section 5.02 before proceeding with disassembly

Remove case (refer to 5.04) before remove control board.

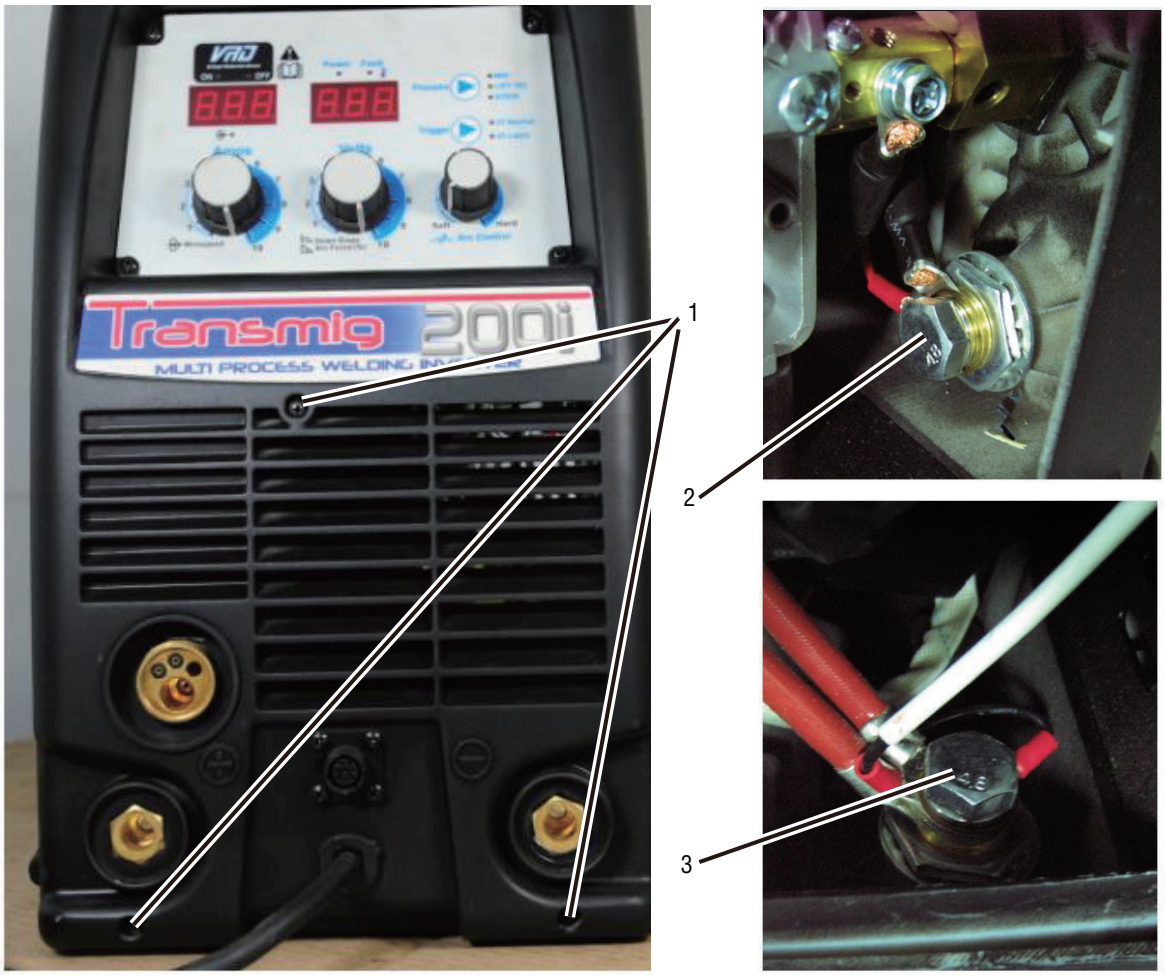
1. M4 Screw. Remove 4 screws from Control panel.
2. Disconnect DRIVE harness from DRIVE connector.
3. Disconnect SOURCE harness from SOURCE connector.
4. Disconnect CR harness from CR connector.
5. Disconnect FUNs harness from FUNs connector.
6. Disconnect IGBT OT2 harness from IGBT OT2 connector.
7. Disconnect IGBT OT1 harness from IGBT OT1 connector.
8. Disconnect GUN harness from GUN connector.
9. Disconnect QF/DY harness from QF/DY connector.
10. Disconnect WVIN harness from WVIN connector.
11. Disconnect MB harness from MB connector.
12. Disconnect JC harness from JC connector.
13. Disconnect PWM harness from PWM connector.
14. Disconnect IFB harness from IFB connector.



6.03 Front Panel Assembly Removal

Read and follow safety information in Section 5.02 before proceeding with disassembly

1. Screws on front panel.
2. Positive output terminal bolts. Unscrew output terminal bolts.
3. Negative output terminal bolts. Unscrew Negative output terminal bolts.



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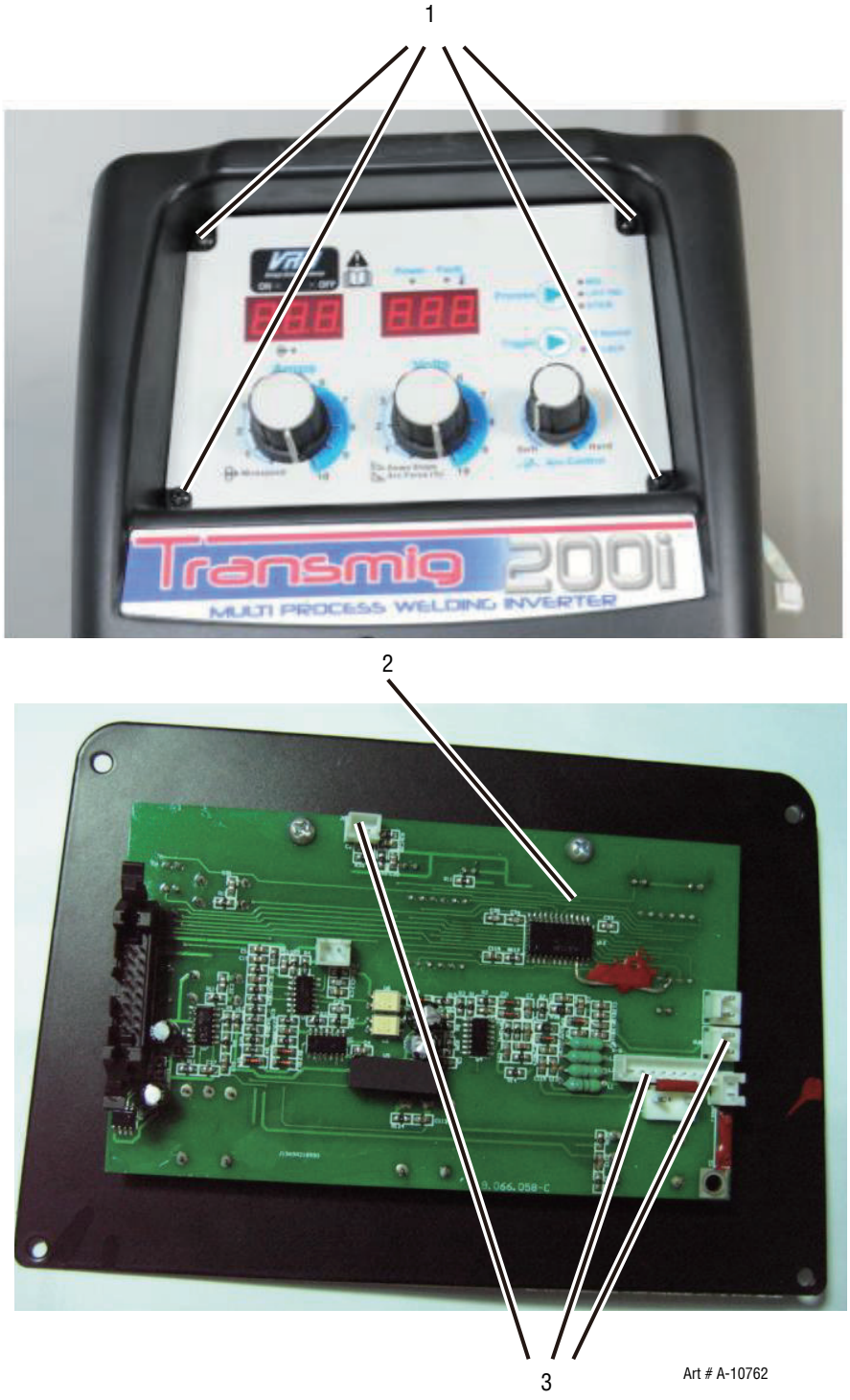
6.04 Front Panel (Operator Interface) Circuit Board PCB3 Removal

⚠ Read and follow safety information in Section 5.02 before proceeding with disassembly

1. Remove Control Panel screw (4).
2. Front Panel PCB.
3. Disconnect the harnesses from the connectors

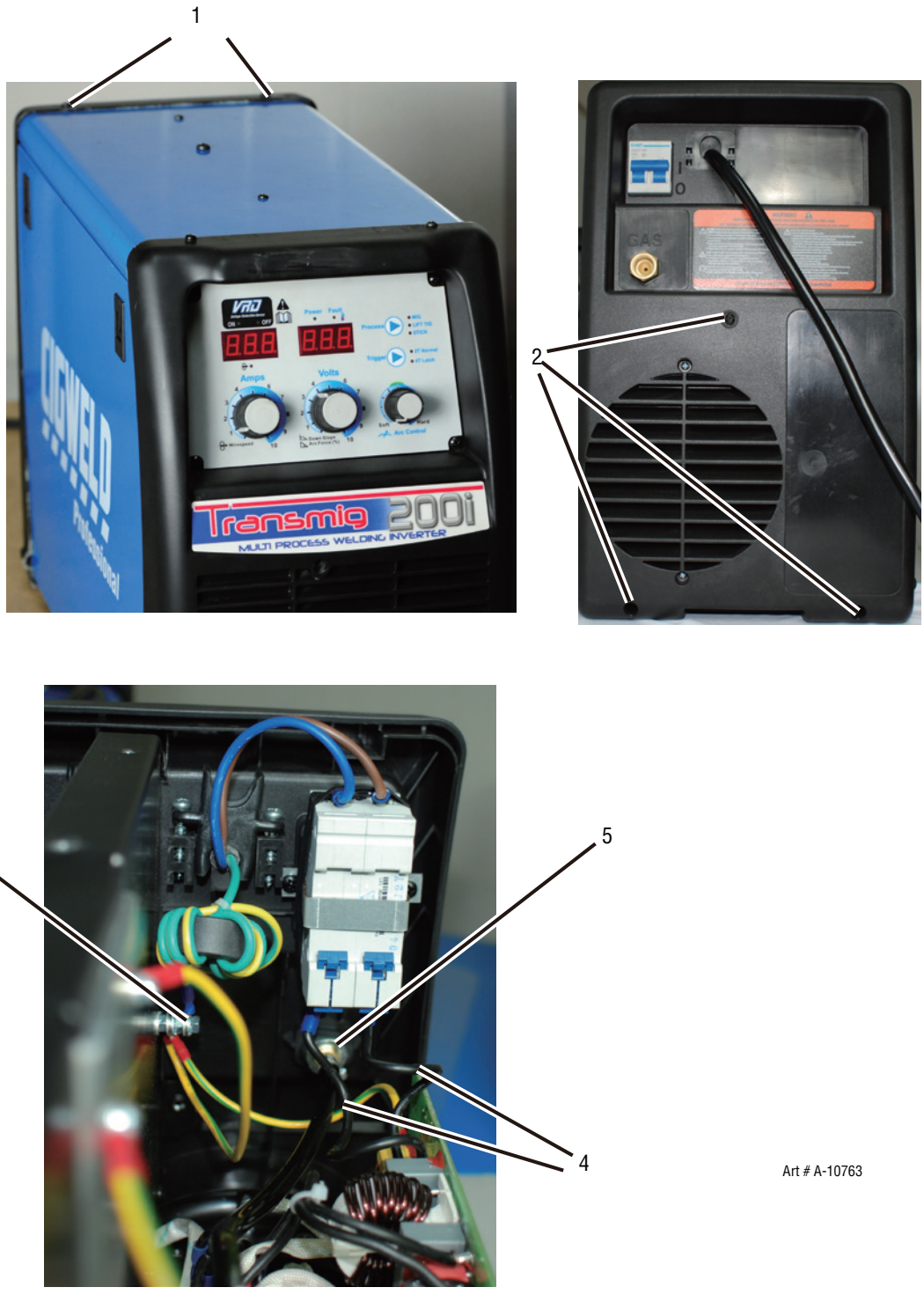


6.05 Back Panel Removal

Read and follow safety information in Section 5.02 before proceeding with disassembly

1. Remove the screws on the back .
2. Remove Rear Panel screws .
3. Remove The Ground Wire.
4. Wire from Main PCB1.

   Disconnect the two wires from switch.
5. Remove The Screw and Disconnect the pipe from gas inlet.



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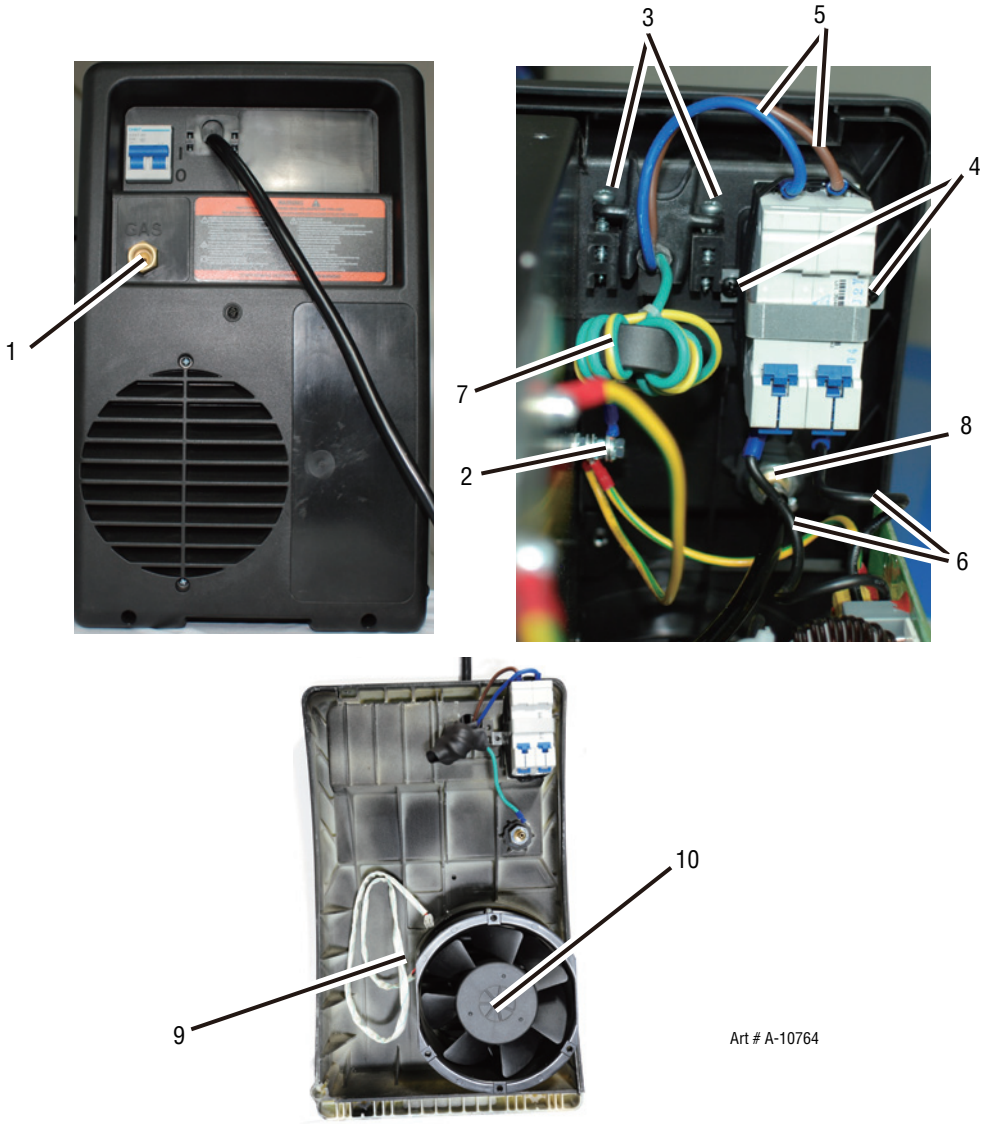
6.06 Power Switch S1 and Power Cord Removal

Read and follow safety information in Section 5.02 before proceeding with disassembly

1. Gas inlet. Remove gas inlet from rear panel.
2. Remove The Ground Wire.
3. Remove the screws which control the supply cord.
4. Remove the two screws and push SW1 out from the rear panel.
5. Remove the two supply wires from the switch.
6. Remove the supply wires which connect to main PCB.
7. Input Power Cord ground wire filter.

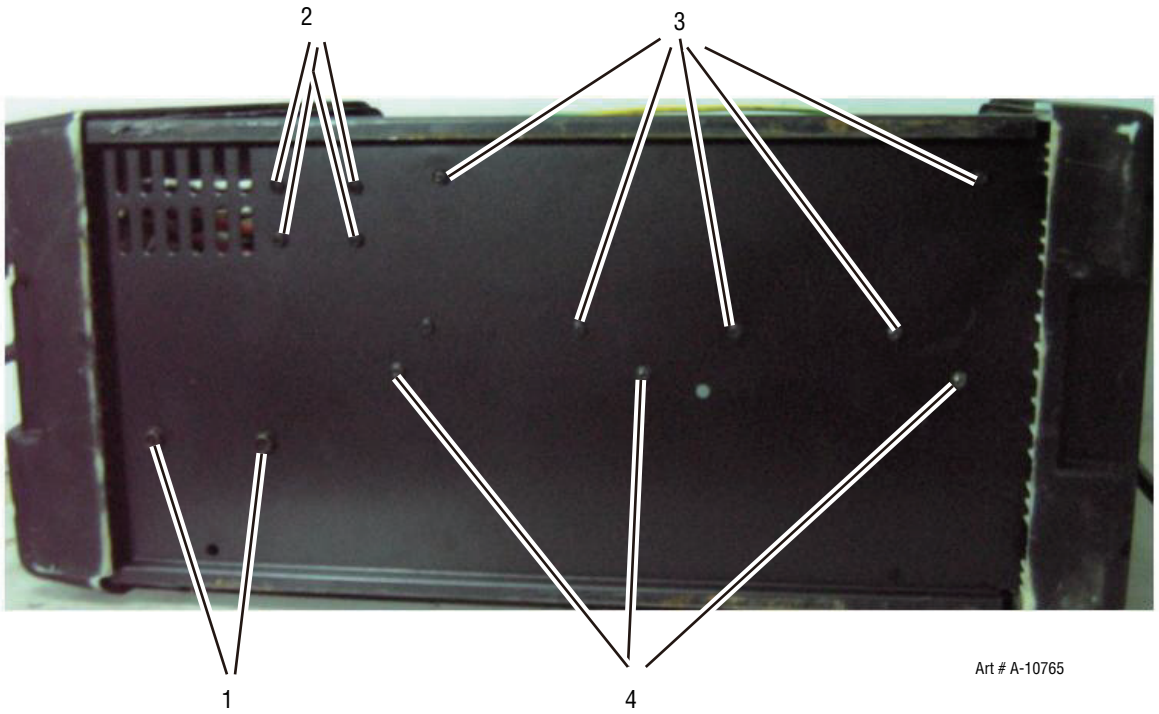
   Cut the tie-wrap and remove the Ferrite core from the ground wire.
8. Remove The Screw and Disconnect the pipe from gas inlet.
9. Disconnect harness from main PCB1.
10. Remove Fan.



6.07 Base Panel Removal

Read and follow safety information in Section 5.02 before proceeding with disassembly

1. Remove Wire Feeder Screws.
2. Remove inductor assembly Screws.
3. Remove Main PCB assembly Screws.
4. Remove Central Panel Screws.

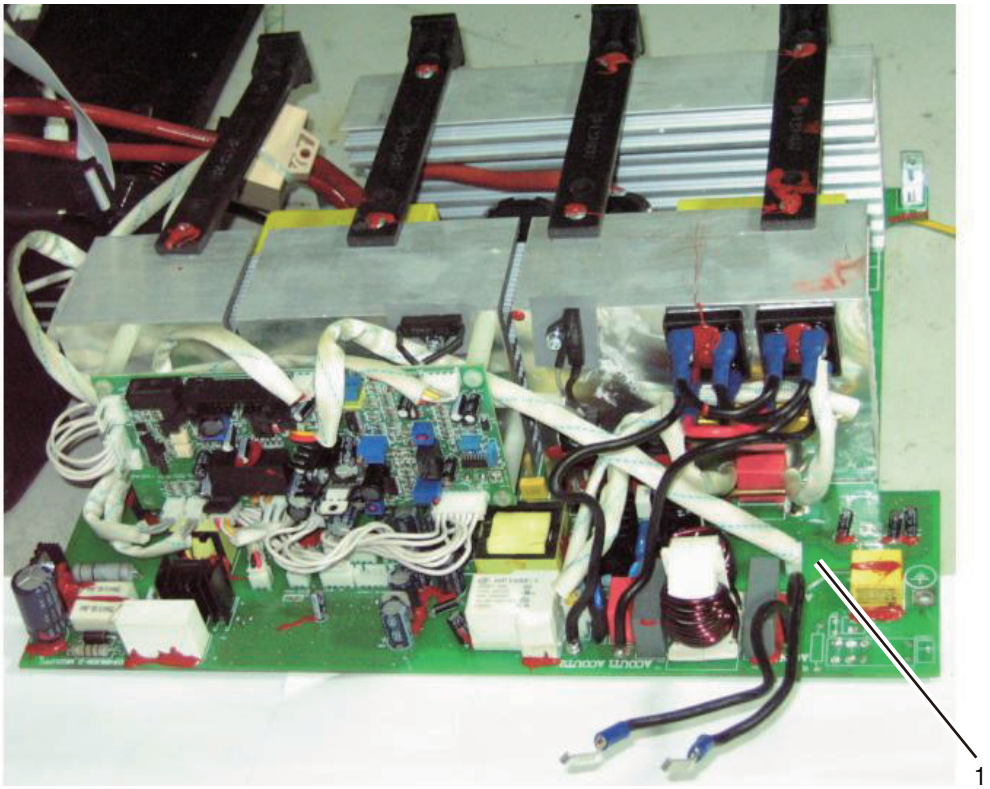


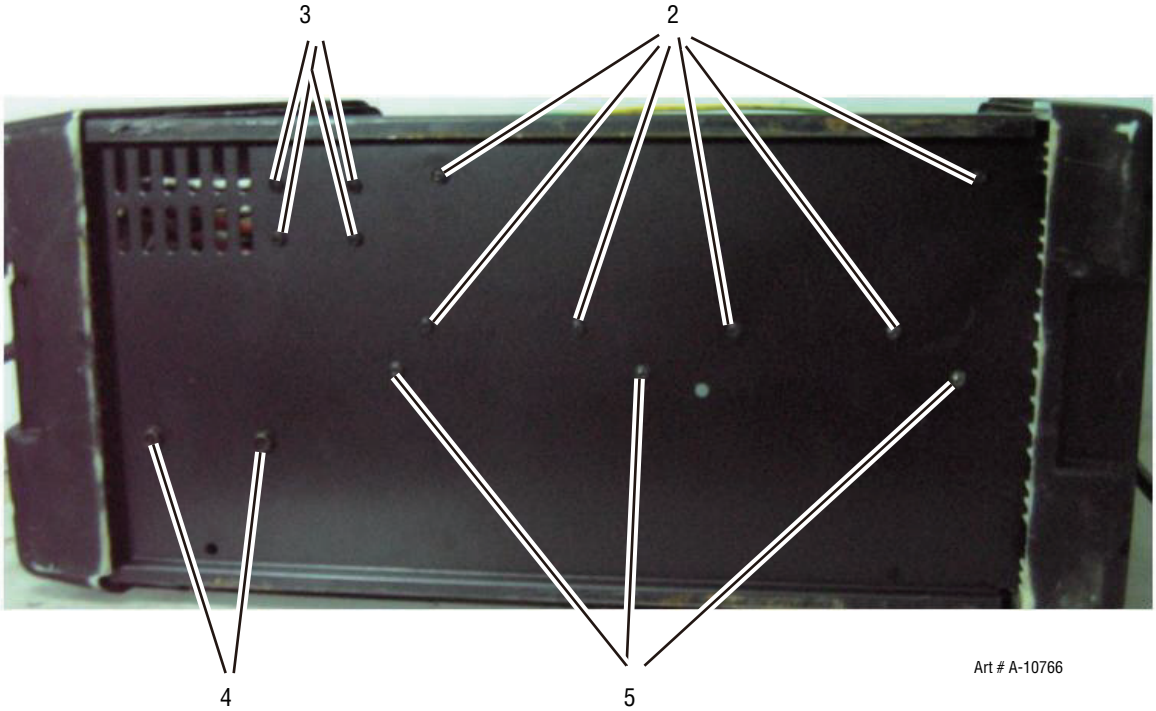
Notes

SECTION 7:
ASSEMBLY PROCEDURES

7.01 Installing Base Board

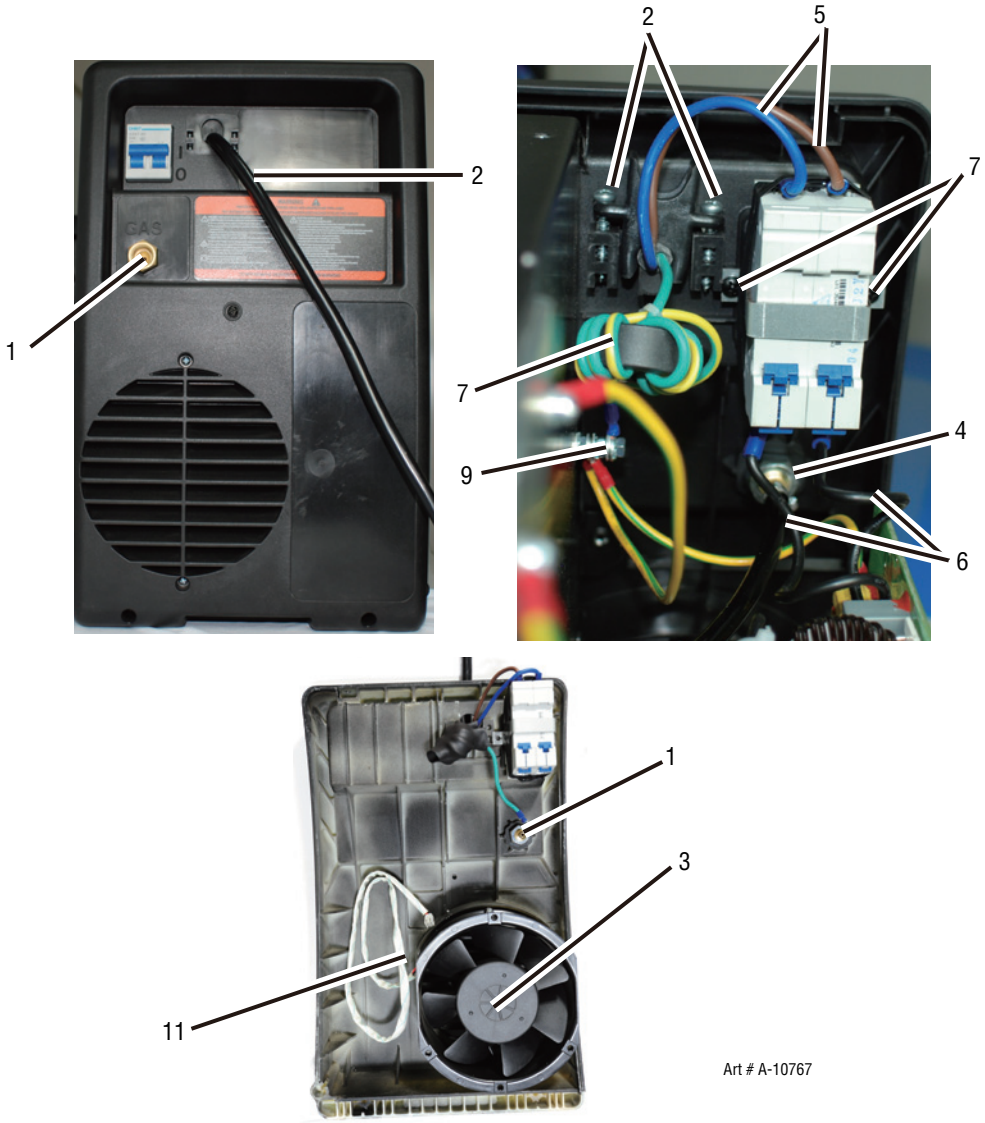
1. Main Power PCB assembly.
2. Install main PCB assembly screws
3. Install inductor assembly Screws.
4. Install Wire Feeder Screws.
5. Install Central Panel Screws.





7.02 Installing Back Panel

1. Install gas inlet.
2. Install the power supply cord and the screws.
3. Install fan.
4. Reconnect the pipe to gas inlet and the screw.
5. Reconnect the supply wires.
6. Reconnect the supply wires which connect to main PCB.
7. Install the two screws
8. Reinstall magnetic core onto Ground Wire.
9. Reconnect Ground Wire to the terminal.
10. Reconnect Rear Panel screws.
11. Reconnect the harness to FAN connector.



Art # A-10767

7.03 Installing Front Panel

1. Reinstall output Dinse on front panel with 27mm wrench.

   Reconnect positive output terminal bolts and tighten with 17mm wrench. (Note: reconnect wires, pay attention to the wire colour.)

   Reconnect negative output terminal bolts and tighten with 17mm wrench. (note: reconnect wires and pay attention to the wire colour.)

2. Place front panel PCB assembly into front panel and install screws.
3. Reconnect Front Panel screws.

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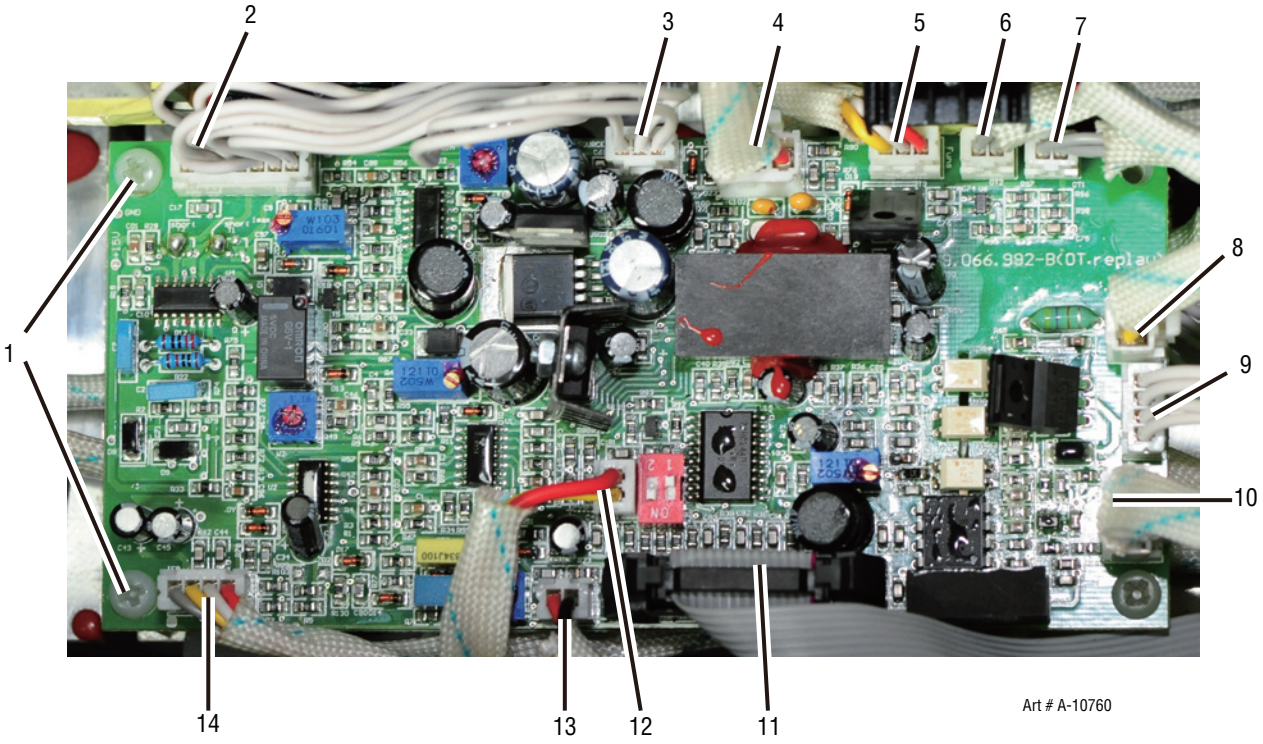
7.04 Installing Main Control Panel and Clear Cover Sheet

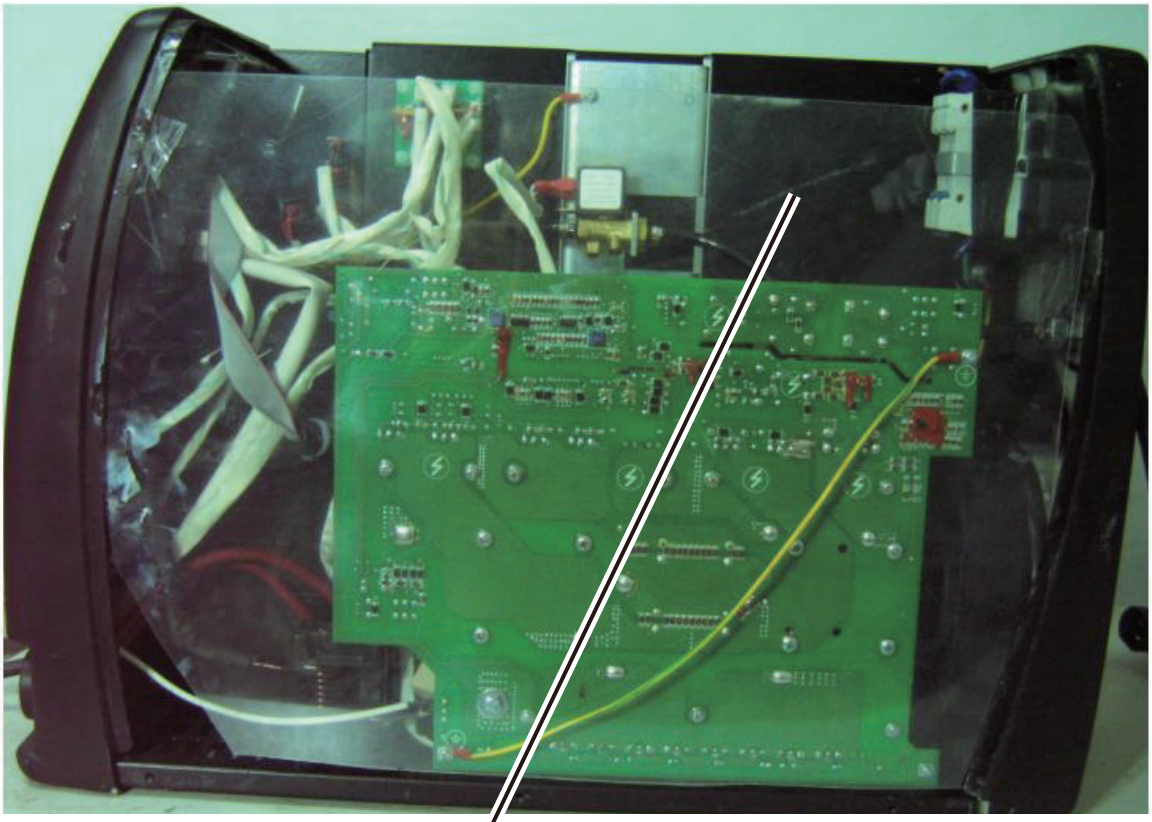
Refer to diagram on page 7-5.

1. Install 4 screws.
2. Plug harness into DRIVE connector.
3. Plug harness into SOURCE connector.
4. Plug harness into CR connector.
5. Plug harness into FUNs connector.
6. Plug harness into m IGBT OT2 connector.
7. Plug harness into IGBT OT1 connector.
8. Plug harness into GUN connector.
9. Plug harness into QF/DY connector.
10. Plug harness into WVIN connector.
11. Plug harness into MB connector.
12. Plug harness into JC connector.
13. Plug harness into PWM connector.
14. Plug harness into IFB connector.

    Verify harness connections with the system schematic to insure all connections are correct.
15. Install clear protective sheet.



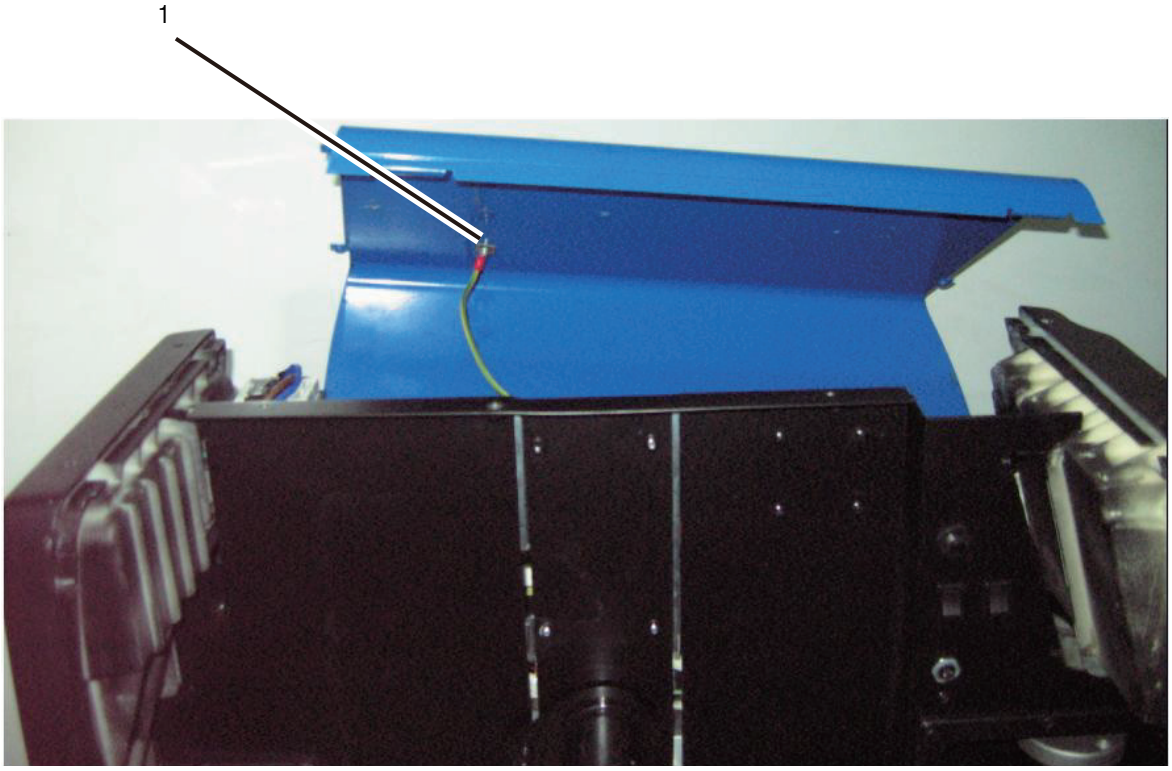
Art # A-10760



Art # A-10769

7.05 Installing Case

1. Install Ground Screw, which connects the ground wire to the cover.
2. Install case. Install Screws. Tighten screws.

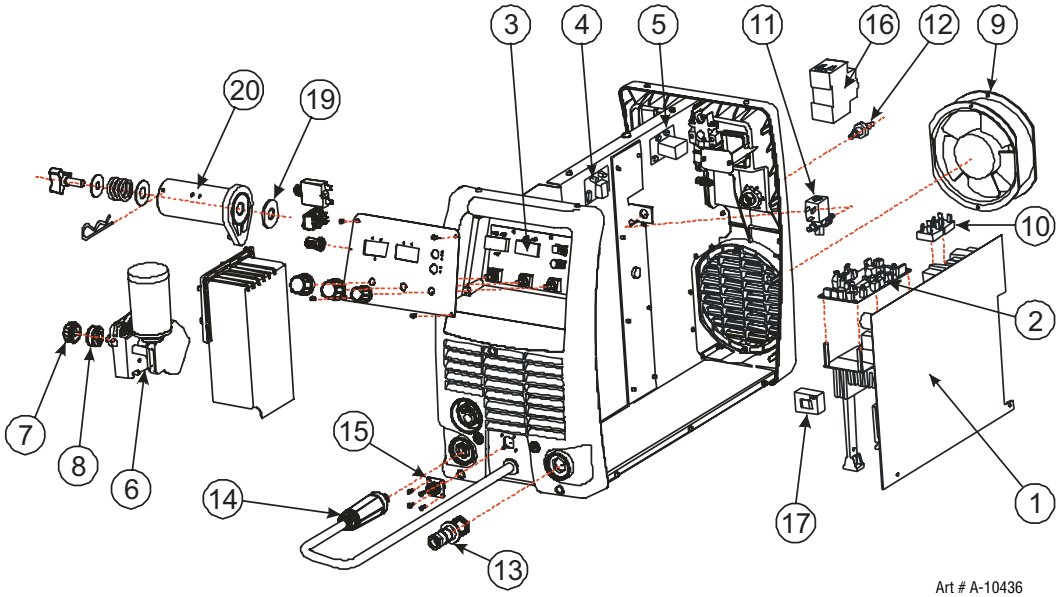


Art # A-10770

Art # A-10771

SECTION 8:
KEY SPARE PARTS

8.01 Power Source

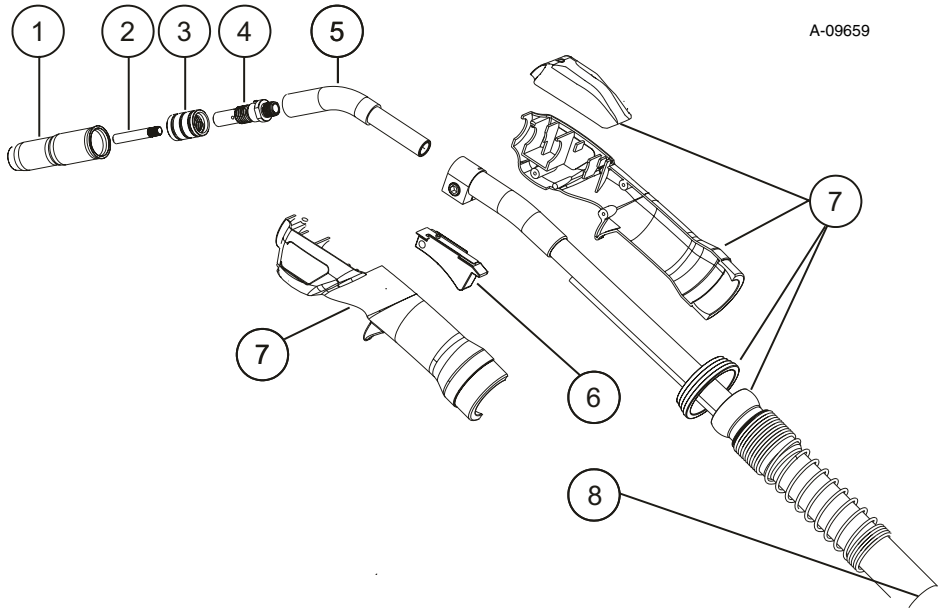


Item	Part Number	Description
1	W7005600	PCB Power
2	W7005601	PCB Control
3	W7005602	PCB Display
4	W7005607	PCB Spool Gun
5	W7004902	PCB EMC Filter
6	W7005603	Wiredrive Assembly
7	W7004906	Feed Roll Retaining Thumbscrew
8	7977036	Feed Roll 0.6/0.8mm V groove (fitted as standard) (Refer to options and accessories table for other feed rolls available).
9	W7005604	Fan
10	W7003010	Input Rectifier (2 required)
11	W7004908	Gas Solenoid Valve Assembly
12	W7005605	Gas Inlet Fitting
13	W7004909	Dinse Socket 50mm²
14	704461	Dinse Plug Male 50mm²
15	W7003036	Control Socket 8 pin (Note that 8 pin control plug part number is UOA706900).
16	W7005606	Supply Circuit Breaker / Mains Supply Switch
17	W7004911	CT, Output
18	W7004913	Shielding Gas Hose Assembly (not shown)
19	7976411	Friction Washer for Spool Hub
20	702337	Spool Hub
21	W7005635	Latch, door, slide (not shown)
22	W7005636	Resistor, Inrush 200i

Table 8-1 Key Spare Parts

8.02 Tweco Fusion 250 Mig Torch

MIG Torch Part No: W4013701



TWECO FUSION MIG TORCH PARTS		
ITEM	**PART NO.**	**DESCRIPTION**
1	OTW22/50	Nozzle 13mm
	OTW22/62	Nozzle 16mm
2	OTW14/23	Contact Tip 0.6mm
	OTW14/30	Contact Tip 0.8mm
	OTW14/35	Contact Tip 0.9mm
	OTW14/40	Contact Tip 1.0mm
	OTW14/45	Contact Tip 1.2mm
3	OTW32	Insulator
4	OTW52	Gas Diffuser
5	62J-45S	Conductor Tube, 45 Degree
6	W7005001	Trigger Assembly
7	W7005000	Handle Mouldings
8	OTW42/3035	Liner 0.8-0.9mm Hard Wire
	OTW42/4045	Liner 1.0-1.2mm Hard Wire
	OTW42N/3545	Liner 0.9-1.2mm Soft Wire

Table 8-2

SECTION 9:
OPTIONS AND ACCESSORIES

9.01 Options and Accessories

Part Number	Description
W4013701	Tweco professional Fusion 250A MIG Torch, 3.0 metre EURO
OTWX212/3035	TWECO #2, 250A MIG torch, 3.6 metre EURO
W4013801	TIG Torch 17V with 4m lead
W4013800	TIG Torch 17V with 4m lead and remote control
W4015000	Power Source Trolley with inbuilt cylinder carrier
W4015103	Power Source Roll Cage
7977036	Feed Roll 0.6/0.8mm V groove (hard), (fitted)
7977660	Feed Roll 0.9/1.2mm V groove (hard)
7977731	Feed Roll 0.8/0.9mm U groove (soft)
7977264	Feed Roll 1.0/1.2mm U groove (soft)
7977732	Feed Roll 0.8/0.9mm V groove knurled (flux cored)
704277	Feed Roll 1.2/1.6mm V groove knurled (flux cored)
W7004913	Shielding Gas Hose Assembly
WSPLIER	MIG Pliers

Table 9-1: Transmig 200i Options and Accessories List

CIGWELD - LIMITED WARRANTY TERMS

LIMITED WARRANTY: CIGWELD Pty Ltd, A Victor Technologies Company, hereafter, “CIGWELD” warrants to customers of its authorized distributors hereafter “Purchaser” that its products will be free of defects in workmanship or material. Should any failure to conform to this warranty appear within the time period applicable to the CIGWELD products as stated below, CIGWELD shall, upon notification thereof and substantiation that the product has been stored, installed, operated, and maintained in accordance with CIGWELD’s specifications, instructions, recommendations and recognized standard industry practice, and not subject to misuse, repair, neglect, alteration, or accident, correct such defects by suitable repair or replacement, at CIGWELD’s sole option, of any components or parts of the product determined by CIGWELD to be defective.

CIGWELD MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHERS, INCLUDING, BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

LIMITATION OF LIABILITY: CIGWELD SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, SUCH AS, BUT NOT LIMITED TO, LOST PROFITS AND BUSINESS INTERRUPTION. The remedies of the Purchaser set forth herein are exclusive and the liability of CIGWELD with respect to any contract, or anything done in connection therewith such as the performance or breach thereof, or from the manufacture, sale, delivery, resale, or use of any goods covered by or furnished by CIGWELD whether arising out of contract, negligence, strict tort, or under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the goods upon which such liability is based. No employee, agent, or representative of CIGWELD is authorized to change this warranty in any way or grant any other warranty.

PURCHASER’S RIGHTS UNDER THIS WARRANTY ARE VOID IF REPLACEMENT PARTS OR ACCESSORIES ARE USED WHICH IN CIGWELD’S SOLE JUDGEMENT MAY IMPAIR THE SAFETY OR PERFORMANCE OF ANY CIGWELD PRODUCT. PURCHASER’S RIGHTS UNDER THIS WARRANTY ARE VOID IF THE PRODUCT IS SOLD TO PURCHASER BY NON-AUTHORIZED PERSONS.

The warranty is effective for the time stated below beginning on the date that the authorized distributor delivers the products to the Purchaser. Notwithstanding the foregoing, in no event shall the warranty period extend more than the time stated plus one year from the date CIGWELD delivered the product to the authorized distributor.

TERMS OF WARRANTY – JULY 2010

1. The Trade Practices Act 1974 (Commonwealth) and similar State Territory legislation relating to the supply of goods and services, protects consumers' interests by ensuring that consumers are entitled in certain situations to the benefit of various conditions, warranties, guarantees, rights and remedies (including warranties as to merchantability and fitness for purpose) associated with the supply of goods and services. A consumer should seek legal advice as to the nature and extent of these protected interests. In some circumstances, the supplier of goods and services may legally stipulate that the said conditions, warranties, guarantees, rights and remedies are limited or entirely excluded. The warranties set out in Clause 2 shall be additional to any nonexcludable warranties to which the Customer may be entitled pursuant to any statute.

2. Subject to Clause 3. CIGWELD gives the following warranties to the Customer:

   Insofar as they are manufactured or imported by CIGWELD, goods will upon delivery be of merchantable quality and reasonably fit for the purpose for which they are supplied by CIGWELD.

   CIGWELD will repair or, at its option, replace those of the goods which, upon examination, are found by CIGWELD to be defective in workmanship and/or materials.

   CIGWELD reserves the right to request documented evidence of date of purchase.

3. The Warranty in Clause 2;

   Is conditional upon:

   The Customer notifying CIGWELD or our Accredited Distributor in writing of its claim within seven (7) days of becoming aware of the basis thereof, and at its own expense returning the goods which are the subject of the claim to CIGWELD or nominated Accredited Distributor/Accredited Service Provider. The goods being used in accordance with the Manufacturer's Operating Manuals, and under competent supervision.

   Does not apply to:

   Obsolete goods sold at auction, second-hand goods and prototype goods.

   Breakdown or malfunction caused by accident, misuse or normal wear and tear.

   Repairs or replacement made other than by CIGWELD or Accredited Service Providers, unless by prior arrangement with CIGWELD.

   Replacement parts or accessories which may affect product safety or performance and which are not manufactured, distributed or approved by CIGWELD.

4. CIGWELD declares that, to the extent permitted by law, it hereby limits its liability in respect of the supply of goods which are not of a kind ordinarily acquired for personal, domestic or household use or consumption to any one or more of the following (the choice of which shall be at the option of CIGWELD).

   The replacement of the goods or the supply of equivalent goods.

   The repair of goods.

   The payment of cost of replacing the goods or acquiring equivalent goods.

   The payment of the cost of having goods repaired.

5. Except as provided in Clauses 2 to 4 above, to the extent permitted by statute, CIGWELD hereby excludes all liability for any loss, damage, death or injury of any kind whatsoever occasioned to the Customer in respect of the supply of goods including direct, indirect, consequential or incidental loss, damage or injury of any kind.

WARRANTY SCHEDULE – JULY 2010

These warranty periods relate to the warranty conditions in clause 2. All warranty periods are from date of sale from the Accredited Distributor of the equipment. Notwithstanding the foregoing, in no event shall the warranty period extend more than the time stated plus one year from the date CIGWELD delivered the product to the Accredited Distributor. Unless otherwise stated the warranty period includes parts and labour. CIGWELD reserves the right to request documented evidence of date of purchase.

TRANSMIG 200i POWER SOURCE	WARRANTY PERIOD	LABOUR
Original main power magnetics.	3 Years	2 Years
Original main power rectifiers, printed circuit boards and power switch semiconductors.	2 Years	2 Years
All other circuits and components including, but not limited to, relays, switches, contactors, solenoids, fans and electric motors.	1 Year	1 Year
ACCESSORIES	**WARRANTY PERIOD**	
MIG torch, electrode holder lead and work lead.	3 Months	
MIG torch consumable items.	NIL	
Gas regulator/flowmeter (excluding seat assembly, pressure gauges, elastomer seals and “O” rings).	1 Year	
Regulator seat assemblies and pressure gauges.	6 Months	
Elastomer seals and “O” rings used in the equipment.	3 Months	

Please note that the information detailed in this statement supersedes any prior published data produced by CIGWELD.

GLOBAL CUSTOMER SERVICE CONTACT INFORMATION

Cigweld, Australia
71 Gower Street
Preston, Victoria
Australia, 3072
Telephone: 61-3-9474-7400
Fax: 61-3-9474-7391
Email: enquiries@cigweld.com.au

Victor Technologies USA

2800 Airport Road
Denton, Tx 76207 USA
Telephone: (940) 566-2000
800-426-1888
Fax: 800-535-0557
Email: sales@thermalarc.com

Victor Technologies Canada

2070 Wyecroft Road
Oakville, Ontario
Canada, L6L5V6
Telephone: (905)-827-1111
Fax: 905-827-3648

Victor Technologies Europe

Europe Building
Chorley North Industrial Park
Chorley, Lancashire
England, PR6 7Bx
Telephone: 44-1257-261755
Fax: 44-1257-224800

PT. Victor Technologies Utama Indonesia

Jl. Angsana II Blok AE No. 28
Delta Silicon I, Cikarang - Sukaresmi
Bekasi, 17550
Indonesia
Tel: +62 21 8990 6095
Fax: +62 21 8990 6096 / 1867
http://www.victortechnologies.com

Victor Technologies, China

No.100 Lao Hongjing Rd,
Minhang District
Shanghai 200235
China
Telephone: 86-21-64072626
Fax: 86-21-64483032

Victor Technologies Asia Sdn Bhd

Lot 151, Jalan Industri 3/5A
Rawang Integrated Industrial Park - Jln Batu Arang
48000 Rawang Selangor Darul Ehsan
West Malaysia
Telephone: 603+ 6092 2988
Fax : 603+ 6092 1085

Victor Technologies Italy

OCIM, S.r.L.
Via Benaco, 3
20098 S. Giuliano
Milan, Italy
Tel: (39) 02-98 80320
Fax: (39) 02-98 281773

Victor Technologies International

2070 Wyecroft Road
Oakville, Ontario
Canada, L6L5V6
Telephone: (905)-827-9777
Fax: 905-827-9797

Asia Pacific Regional Headquarters
71 Gower Street
Preston, Victoria, Australia, 3072
Telephone: +61 3 9474 7400
FAX: +61 3 9474 7391
Email: enquiries@cigweld.com.au

www.cigweld.com.au