

# EC DECLARATION OF CONFORMITY

The manufacturer of the product covered by this Declaration is.



NAP Brands Ltd.  
Napier House, Unit 7, Corunna Court,  
Warwick, United Kingdom CV34 5HQ

The manufacturer hereby declares that the machine as detailed in this declaration fulfils all the relevant provisions of the Machinery Directive and other appropriate directives as detailed below.

The manufacture further declares that the machine as detailed in this declaration, where applicable, fulfils the relevant provisions of the essential health and safety requirements.

## The Directives covered by this Declaration are as detailed below

98/37/EEC The Machinery Directive.  
2006/95/EC. Low Voltage Equipment Directive.  
2004/108/EC. Electromagnetic Compatibility Directive,  
93/68/EC. The CE Marking Directive.  
2002/95/EC. The Restriction of the Use of certain Hazardous Substances in Electrical Equipment (RoHS) Directive  
2002/96/EC as amended by 2003/108/EC The Waste Electrical and Electronic Equipment (WEEE) Directive.

## And is in conformity with the applicable requirements of the following documents

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### Product Details:


**Description:** Mig Welder

**Model No:** IM-MIG150

**Brand Name:** Impax

### Name and address of technical documentation holder.

The technical documentation required to demonstrate that the product meets the requirements of directive has been compiled and is available for inspection by the relevant enforcement authorities.

Signed:  Print: Mark Shannon

Senior Quality Control Manager.

NAP Brands Ltd.

Napier House, Unit 7, Corunna Court, Warwick, United Kingdom CV34 5HQ



Date: .30.08.2013

After sales support: Tel: 0844 264 2485 Website: [www.impaxpowertools.com](http://www.impaxpowertools.com)



# 150A MIG WELDER

IM-MIG150



Always Read Instruction Manual  
Retain for Future Reference

# CERTIFICATE OF GUARANTEE

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This product is guaranteed for a period of 1 Year, with effect from the date of purchase and applies only to the original purchaser. This guarantee only applies to defects arising from, defective materials and or faulty workmanship that become evident during the guarantee period only and does not include consumable items. The manufacturer will repair or replace the product at their discretion subject to the following. That the product has been used in accordance with the guidelines as detailed in the product manual and that it has not been subjected to misuse, abuse or used for a purpose for which it was not intended. That it has not been taken apart or tampered with in any way whatsoever or has been serviced by unauthorised persons or has been used for hire purposes. Transit damage is excluded from this guarantee, for such damage the transport company is responsible. Claims made under this guarantee must be made in the first instance, directly to the retailer within the guarantee period. Only under exceptional circumstances should the product be returned to the manufacturer. In this case it shall be the consumer's responsibility to return the product at their cost ensuring that the product is adequately packed to prevent transit damage and must be accompanied with a brief description of the fault and a copy of the receipt or other proof of purchase. The manufacturer shall not be liable for any special, exemplary, direct, indirect, incidental, or consequential loss or damage under this guarantee. This guarantee is in addition to and does not affect any rights, which the consumer may have by virtue of the Sale of Goods Act 1973 as amended 1975 and 1999.

## INTRODUCTION

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Thankyou for purchasing this product which has passed through our extensive quality assurance process. Every care has been taken to ensure that it reaches you in perfect condition. However, in the unlikely event that you should experience a problem, or if we can offer any assistance or advice please do not hesitate to contact our customer care department. For details of your nearest customer care department please refer to the telephone numbers at the back of this manual.

### **Safety First**

Before attempting to operate this product the following basic safety precautions should always be taken to reduce the risk of fire, electric shock and personal injury. It is important to read the instruction manual to understand the application, limitations and potential hazards associated with this product.

## HELPLINE & SPARE PARTS

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In the unlikely event of a defect occurring please contact our Helpline.  
Office hours: Monday - Friday 9:00am – 5:30pm.  
Telephone Number 0844 264 2485

# SAFETY INFORMATION

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Before attempting to operate the machine, it is essential that you read this manual thoroughly and carefully follow all instructions given. In doing so you will ensure the safety of yourself and that of others around you, and you can also look forward to the welder giving you long and satisfactory service.

## Important

**Warning!** If you have no welding experience, we recommend you seek training from an experienced person.

**Caution:** The pages of this manual are restricted to the basic safe use of an MIG/MAG (Metal Inert Gas / Metal Active Gas) welding power supply and very basic welding technique. We recommend you purchase a good quality publication on welding or if you have internet access visit one of the numerous welding related web sites to be able to use the welding power supply to its full potential.

The wire electrodes used in an MIG/MAG (Metal Inert Gas / Metal Active Gas) welding are many and varied. You are advised to seek advice from your local welding equipment supplier for the correct selection of wire electrode for the work being performed.

**THE QUALITY OF ANY WELDED JOINT IS DEPENDANT ON THE PREPARATION OF THE JOINT THE SELECTION OF THE CORRECT WIRE ELECTRODE AND THE SKILL AND EXPERIENCE OF THE WELDER.**

## General Welding Safety

### The Workshop Environment

Housekeeping is extremely important to avoid injury from slips, trips and falls, damage to equipment and fire. The work area should be kept clean and tidy at all times. Combustible materials must not be discarded or stored in the vicinity of the welding area.

Avoid using your welder in the vicinity of:

- a) other supply cables, control cables, signalling and telephone cables; above, below and adjacent to the welding equipment;
- b) radio and television transmitters and receivers;

- c) computer and other control equipment;
- d) safety critical equipment, e.g. guarding of industrial equipment;
- e) pacemakers and hearing aids etc.;
- f) equipment used for calibration or measurement;
- g) 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;

It may be possible to avoid the above by changing the time of day that welding or other activities are to be carried out.

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.

## Electrical Safety

As one of the principal dangers from welding operations is an electric shock, from the live parts of the welding circuit (the wire electrode torch and the work piece), the following practices are recommended.

## Shock Prevention

Exposed live conductors or other bare metal in the welding circuit, or in unearthed, electrically-LIVE equipment can fatally shock a person whose body becomes a conductor. **DO NOT STAND, SIT, LIE, LEAN ON, OR TOUCH** a wet surface when welding, without suitable protection.

## Protection for Wearers of Pacemakers

Magnetic fields from high currents can affect pacemaker operation. Persons wearing electronic life support equipment (pacemaker) should consult with their doctor before going near arc welding, gouging, or spot welding operations.

## To Prevent Against Shock

Keep body and clothing dry. Never work in damp area without adequate insulation against electrical shock. Stay on a dry duckboard, or rubber mat when dampness or sweat can not be avoided.

# SAFETY INFORMATION

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Sweat, sea water, or moisture between body and an electrically LIVE part - or earthed metal - reduces the body surface electrical resistance, enabling dangerous and possibly lethal currents to flow through the body.

## Earthing the Equipment

When arc welding equipment is earthed according to the National Electrical Code, and the workpiece is earthed, a voltage may exist between the electrode and any conducting object.

Examples of conducting objects include, but are not limited to, buildings, electrical tools, work benches, welding power source cases, workpieces, etc.

Never touch the electrode and any metal object unless the welding power source is off. When installing, connect the frames of each unit such as welding power source, control, work table, and water circulator to the building earth.

Conductors must be adequate to carry earth currents safely. Equipment made electrically LIVE by stray current may shock, possibly fatally. Do NOT EARTH to electrical conduit, or to a pipe carrying ANY gas or a flammable liquid such as oil or fuel.

## Electrode Holders

Fully insulated electrode holders should be used. Do NOT use holders with protruding screws or with any form of damage.

## Connectors

Fully insulated lock-type connectors should be used to join welding cable.

## Cables

Frequently inspect cables for wear, cracks and damage. IMMEDIATELY REPLACE those with excessively worn or damaged insulation to avoid possibly lethal shock from bared cable. Cables with damaged areas may be taped to give resistance equivalent to original cable. Keep cable dry, free of oil and grease, and protected from hot metal and sparks.

## Terminals And Other Exposed Parts

Terminals and other exposed parts of electrical units should have insulating covers secured before operation.

## Electrode Equipment With Output On/Off Control (Contactor)

Welding power sources for use with the gas metal arc welding, gas tungsten arc welding and similar processes normally are equipped with devices that permit on/off control of the welding power output. When so equipped the electrode wire becomes electrically LIVE when the power source switch is ON and welding gun switch is closed. Never touch the electrode wire or any conducting object in contact with the electrode circuit unless the welding power source is off.

## Equipment Without Output On/Off Control (No Contactor)

Welding power sources used with shielded metal arc welding and similar processes may not be equipped with welding power output on/off control devices. With such equipment the electrode is electrically LIVE when the power switch is turned ON. Never touch the electrode unless the welding power source is off.

## Changing Wire Electrodes

When replacing a reel of wire, always switch off the welding set (welding power source plus wire-feed unit) and isolate it from the mains supply.

To avoid eye injury, never look down the end of the welding torch to check that the wire is feeding through the conduit satisfactorily. With the welding torch held in a safe position, wait until the wire emerges from the contact tip.

Never leave the work-area with the welding set turned on and the welding torch carelessly laid on the bench or work piece. The trigger of the welding torch can easily become pressed, causing wire to feed continuously. If this happens, a reel of wire may be discharged and wasted. Or, a loop of wire may be discharged and then contact the work piece or bench, at which point, rapid resistance heating of the wire loop takes place to create a dangerous ignition source which can easily start a fire. When not in use, the welding torch should be stowed correctly.

# SAFETY INFORMATION

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## Safety Devices

Safety devices such as interlocks and circuit breakers should not be disconnected or shunted out. Before installation, inspection, or service of equipment, shut OFF all power and remove line fuses (or lock or red-tag switches) to prevent accidental turning ON of power. Do not open power circuit or change polarity while welding. If, in an emergency, it must be disconnected, guard against shock burns, or flash from switch arcing.

Always shut OFF and disconnect all power to equipment. Power disconnect switch must be available near the welding power source.

## Checking the Equipment

**Warning!** Keep hands and body clear of the front of the welding torch. When the automatic feed is operated the wire electrode can easily penetrate gloves, clothing and skin causing injury.

Never point the welding torch towards your face as accidental operation of the wire electrode feed can cause serious injury to the eyes and face.

Check that the equipment is suitable for the operation and connected in accordance with the manufacturer's recommendations. The welder is responsible for checking the equipment (cable, wire electrode torch, coupling devices, wire feed operation and gas containers) daily for damage and defects. All external connections should be clean and tight and checked each time a reconnection is made. The welding return clamp should be connected directly to the work piece, as close as possible to the point of welding. Any damaged or defective parts must be replaced before continuing the welding operation.

## Fumes

Metals and metal coatings can contain substances which generate toxic fumes during welding. These can cause severe discomfort, illness or, in extreme cases, death as a result of inhalation. For example, when welding galvanised steel, the use of local exhaust ventilation (LEV) is very important to reduce the risk of a condition called 'metal-fume fever'. This produces flu-like symptoms which begin several hours after exposure with a thirst, cough, headache, sweat, pain in the limbs and fever.

Recovery usually occurs within 1 to 2 days of removal from exposure.

To minimise the generation of toxic fumes, anti-corrosion plating, paint, other coatings and surface contamination in the weld region should be removed, with due regard to health & safety issues, before welding.

It is extremely important that the effects of welding fume and the method of reducing the welder's exposure to fume are carefully considered before welding. Welding fume must be taken seriously.

The welding process vaporises metals, and anything that is resting on the surface. This gives rise to fumes, which is condensed fine particulate material. The fume is mostly oxides of the metals, including any alloying elements, but it also contains shielding gases and gases produced in the arc, such as ozone or oxides of nitrogen, and decomposition products from any paint or coating which was on the metal surface. The nature and quantity of this fume depends critically upon the welding process, the materials and the welding parameters.

## Warning!

Some fumes are harmful to health, for instance stainless steel fumes contain chromium, and welding galvanised steel produces zinc fumes and should be avoided.

Effects can vary from a bout of 'metal fume fever' to longer term, more serious problems if suitable fume removal is not carried out.

## Noise

Welding environments are frequently noisy as other operations such as grinding, etc. may also be taking place. Some operations, such as de-sludging may take the noise up to such a level where it will damage hearing. In such cases hearing protection must be used.

## Optical Radiation

The welding process produces a large quantity of visible light, ultraviolet and infrared. Exposure to the radiation from an arc causes damage to the eyes (Arc Eye). For this reason, welders need to wear efficient eye protection, which is usually supplied in the form of a protective shield.

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The precise choice of the shade of glass filter in these shields depends on the type of welding operation, since they vary in their light output.

## Hand Held and Head Shields

For most operations a hand-held or head shield constructed of lightweight insulating and non-reflecting material is used which conforms to EN175. The shield is fitted with a protective filter glass, sufficiently dark in colour and capable of absorbing the harmful infrared and ultraviolet rays. The filter glasses conform to the strict requirements of EN169 and are graded according to a shade number which specifies the amount of visible light allowed to pass through - the lower the number, the lighter the filter. The correct shade number for MMA welding must be used according to the welding current level, for example:

## Recommended shade number of filter for MIG/MAG welding:

Shade number	Welding current A		
	MIG Heavy metal	MIG Light metal	MAG
10	under 100	under 100	under 80
11	100 - 175	100 - 175	80 - 125
12	175 - 300	175 - 250	125 - 175
13	300 - 500	250 - 350	175 - 300
14	over 500	350 - 500	300 - 500
15		over 500	over 450

**Note:** The current ranges are different for other processes.

Welders assistants also need protective clothing and eye protection. Passers-by should be protected by placing opaque or properly filtered screens around the work area.

## Burns and Mechanical Hazards

Exposure to the radiation from an arc causes burns to the skin, For this reason, welders need to wear clothing to protect their bodies and arms, regardless of the weather conditions.

Welders need good quality gloves, preferably leather gauntlets, safety boots or shoes and good quality cap and overalls. A leather apron

may also be needed. Welding produces quantities of molten droplets of metal which are scattered in all directions. It is essential that the welder wears clothing which will not burn or melt, and which is stout enough to provide adequate protection.

## Fire and Explosion Prevention

Causes of fire and explosion are:

- 1) combustibles reached by the arc, flame, flying sparks, hot slag or heated material;
- 2) misuse of compressed gases and cylinders;
- 3) short circuits.

BE AWARE THAT flying sparks or falling slag can pass through cracks, along pipes, through windows or doors, and through wall or floor openings, out of sight of the goggled operator. Sparks and slag can fly 10M.

To prevent fires and explosion: keep equipment clean and operable, free of oil, grease, and (in electrical parts) of metallic particles that can cause short circuits.

If combustibles are in area, do NOT weld or cut. Move the work if practicable, to an area free of combustibles.

Avoid paint spray rooms, dip tanks, storage areas, ventilators. If the work cannot be moved, move combustibles at least 10M, away out of reach of sparks and heat; or protect against ignition with suitable and snug fitting, fire-resistant covers or shields.

Walls, ceilings, and floor near work should be protected by heat resistant covers or shields. Fire watcher must be standing by with suitable fire extinguishing equipment during and for some time after welding or cutting if:

- a) appreciable combustibles (including building construction) are within 10m.
- b) appreciable combustibles are further than 10m but can be ignited by sparks.
- c) openings (concealed or visible) in floors or walls within 10m can expose combustibles to sparks.

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d) combustibles adjacent to walls, ceilings, roofs or metal partitions can be ignited by radiant or conducted heat.

After work is done, check that area is free of sparks, glowing embers, and flames.

An empty container that held combustibles, or that can produce flammable or toxic vapours when heated, must never be welded on or cut, unless container has first been cleaned. This includes a thorough steam or caustic cleaning (or a solvent or water washing, depending on the combustible's solubility) followed by purging and inerting with nitrogen or carbon dioxide, and using protective equipment.

Water filling just below working level may substitute for inerting.

A container with unknown contents should be cleaned (see paragraph above), do NOT depend on sense of smell or sight to determine if it is safe to weld or cut.

Hollow castings or containers must be vented before welding or cutting - they can explode.

In explosive atmospheres, never weld or cut where the air may contain flammable dust, gas, or liquid vapours.

## **Safe Handling of Shielding Gas Cylinders and Regulators**

Compressed gas cylinders should be handled carefully and should be adequately secured when in use. Knocks, falls, or rough handling may damage cylinders or valves and may cause leakage or an accident.

The following should be observed when setting up and using cylinders of shielding gas:

store gas cylinders outside in a covered, well ventilated

Properly secure the cylinder.

Before connecting a regulator to the cylinder valve, the valve should be momentarily opened and closed immediately to clear the valve of dust or dirt that otherwise might enter the regulator. The operator should stand to one side of the cylinder valve, never in front of it.

After the regulator is attached, the adjusting

screw should be released by turning it anti-clockwise. The cylinder valve should then be opened slowly to prevent a surge of high pressure gas into the regulator.

The cylinder valve should be shut off if it is to be left unattended.

## **Specific Safety Instructions**

Use the welding power supply as indicated in the instruction manual. Improper use of this welding power supply can be dangerous for persons, animals or objects.

The user of the welding power supply is responsible for their own safety and the safety of others. It is important to read and understand this instruction manual.

Repair and maintenance must be carried out by qualified persons.

Maintain the welding power supply in good condition (keep clean and dry etc).

During welding do not locate the welding power supply in a confined space or close to a wall, which will block air outlets.

Avoid stretching the supply cable, disconnect from the mains supply before moving the welding power supply.

Keep welding cables, earth clamp and electrode holder in good condition.

Welders should not wear jewellery (especially rings) or metallic watch straps.

Appropriate clothing should be worn. Gloves, boots and overalls will provide some protection from electric shock.

The welder should check daily, and after each reconnection, that all external connections are clean and tight.

When changing the MIG/MAG (Metal Inert Gas / Metal Active Gas) electrode, the electrode holder should be isolated.

When welding stops for a short time, the MIG/MAG (Metal Inert Gas / Metal Active Gas) wire electrode torch should NOT be put on the face shield or flammable material as it may still hot enough to cause damage.



# SAFETY INFORMATION

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MIG/MAG (Metal Inert Gas / Metal Active Gas) welding produces fumes, sparks and fused metal projectiles.

Remove all flammable substances and materials from the work area.

Ensure adequate ventilation in areas where welding is being performed.

Do not weld on containers or pipes that hold or have held flammable liquid or gases (danger of explosion) or on materials cleaned with chlorinated solvents or on varnished surfaces (danger of toxic fumes).

Ensure there is adequate and suitable fire fighting equipment close by.

Do not use the welding power supply in damp or wet places or weld in the rain.

Always protect your eyes with an approved facemask with the appropriate filter.

Use gloves and proper protective clothing which are dry and not soiled by oil or grease.

Avoid exposing skin to the ultra violet rays produced by the arc.

## **Environments with Increased Hazard of Electric Shock**

These are as follows:

locations where the welder has restricted freedom of movement, working in a cramped position (kneeling or sitting) or in contact with conductive parts.

Areas which are fully or partially restricted by conductive elements with which the welder is likely to make accidental contact.

Welding in wet, damp or humid conditions which reduces the skin resistance of the body and insulating properties of accessories.

Where electrically conductive parts have been insulated close to the welder, there is no increased shock hazard.

## **Working in the Open Air**

When welding outside, the equipment should have the appropriate level of waterproofing; see manufacturer's Rating Plate (IP) codes for enclosures:

IP 23 protection against limited spraying

IP 24 protection against spraying from all directions

If there is a risk of heavy rain, a cover for the welding power supply, equipment and workpiece should be in place.

**Note:** Tubular / Flux Cored wire produces its own shielding gas and does not require the use of external shielding gas

The MIG/MAG (Metal Inert Gas / Metal Active Gas) welding is a versatile technique suitable for both thin sheet and thick section components in most metallic materials. In the process, an arc is struck between the end of a wire electrode and the work piece, melting both to form a weld pool. The wire serves as the source of heat (via the arc at the wire tip) and filler metal for the joint. The wire is fed through a copper contact tube (also called a contact tip) which conducts welding current into the wire. The weld pool is protected from the surrounding atmosphere by a shielding gas fed through a nozzle surrounding the wire. Shielding gas selection depends on the material being welded and the application. The wire is fed from a reel by a motor drive, and the welder moves the welding gun or torch along the joint line. The process offers high productivity and is economical because the consumable wire is continuously fed.

## **Introduction**

This MIG/MAG process uses semiautomatic, equipment. In semiautomatic welding, the wire feed rate and arc length are controlled automatically, but the travel speed and wire position are under manual control.

Most metallic materials can be welded using the MIG/MAG welding process. The main considerations when selecting consumables for MIG/MAG welding (i.e. filler wire and shielding gas composition) are:

- Composition to suit parent material
- Mechanical properties required
- Deposition rate
- Welding position
- Bead appearance and penetration profile

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Both wire and shielding gas composition are essential variables in MIG/MAG welding and will, therefore, influence the process performance.

**Note:** Tubular / Flux Cored wire produces its own shielding gas and does not require the use of external shielding gas

## Key Characteristics:

Wires are available in a wide range of compositions to suit different metallic materials, e.g. steels, stainless steels, aluminium alloys, nickel alloys, titanium alloys

MIG/MAG wires are normally specified by composition.

Wires are typically supplied with diameters in the range 0.8mm to 2.4mm

Wires are normally available on 15kg reels,

The wire is often layer wound to ensure smooth feeding

The flux core produces its own shielding gas and does not require the use of external shielding gas

## Wire Composition

Selection of the appropriate composition of the wire electrode can be a difficult task

The selection of consumables should be confirmed by welding trials

The main sources of information are:

- Electrode manufacturer's handbook
- Electrode manufacturer's technical department
- Parent material manufacturer
- Previous experience.

## Carbon and Low Alloy Steels

AWS A5.20: Specification for carbon steel electrodes for flux cored arc welding.

AWS A5.29: Specification for low alloy steel electrodes for flux cored arc welding.

## Stainless Steels

AWS A5.22: Specification for stainless steel electrodes for flux cored arc welding and stainless steel flux cored rods for gas tungsten arc welding.

## Aluminium Alloys

The main concerns when welding aluminium alloys are the risk of solidification cracking and porosity. Wires for

AWS A5.10/A5.10M: Specification for bare aluminium and aluminium alloys welding electrodes and rods.

## Wire Diameter

Selection of the appropriate wire diameter is dependent on a number of factors, chiefly:

- Mode of metal transfer
- Welding current
- Deposition rate

The electrode manufacturer usually specifies the typical current ranges of operation for a particular wire size. It is then a case of ensuring that the welding current is in the mid-upper range of current-carrying capability.

## Storage of Wires

It is essential that all consumable wires are in first-class condition. This is particularly so for MIG/MAG welding where process stability relies on consistency of wire feed and electrical contact. In order that this can be achieved and maintained, the following control measures may be necessary -

The wire should be in a clean condition with the minimum of grease and drawn-in dirt. Therefore, when not in use, reels should be stored correctly and not left on equipment for long periods. Dust covers should be used, if available.

If a wire has been left on the equipment for a short period of time, it is good practice to run off at least one layer of wire to remove the worst of any surface oxidation or contamination that may have occurred.

For storage, consideration should be given to factors such as humidity, temperature and. Reels should be stored at a temperature above the dew point of the local area.

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The following types of welding operation must be performed by a qualified coded welder and approved by a qualified welding inspector.

- The welding of pressure vessels for liquid and gaseous substances.
- The welding of pressurised pipe work for liquid and gaseous substances.
- The repair of containers for flammable liquids and corrosive chemicals.
- Structural support and load bearing steelwork in buildings.
- Load lifting and moving equipment.
- Load lifting slings, chains, hooks and shackles.
- Hydraulic systems.
- Any type of safety critical equipment.

In addition to the above it is strongly recommended that the following welding operations are checked by a competent person.

- The repair of vehicle chassis and suspension and steering components.
- Vehicle load bearing attachment points ie, engine mounts seat and seat belt anchor points.
- Motor Cycle frames and components.

## General Safety Rules

**Warning!** Read all instructions Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury. The term "power tool" in all of the warnings listed below refers to your mains operated welder.

## Save These Instructions

### 1) Work Area

- a) **Keep work area clean and well lit.** Cluttered and dark areas invite accidents.
- b) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.

- c) **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

### 2) Electrical Safety

- a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
- b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- c) **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- d) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.

### 3) Personal Safety

- a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- b) **Use safety equipment. Always wear eye protection.** Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

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- c) **Avoid accidental starting. Ensure the switch is in the off position before plugging in.** Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.
  - d) **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
  - e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
  - f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
  - g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of these devices can reduce dust related hazards.
- 4) Power Tool Use And Care**
- a) **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
  - b) **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- c) **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
  - d) **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
  - e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
  - f) **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
  - g) **Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from intended could result in a hazardous situation.
- 5) Service**
- a) **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

## ELECTRICAL INFORMATION

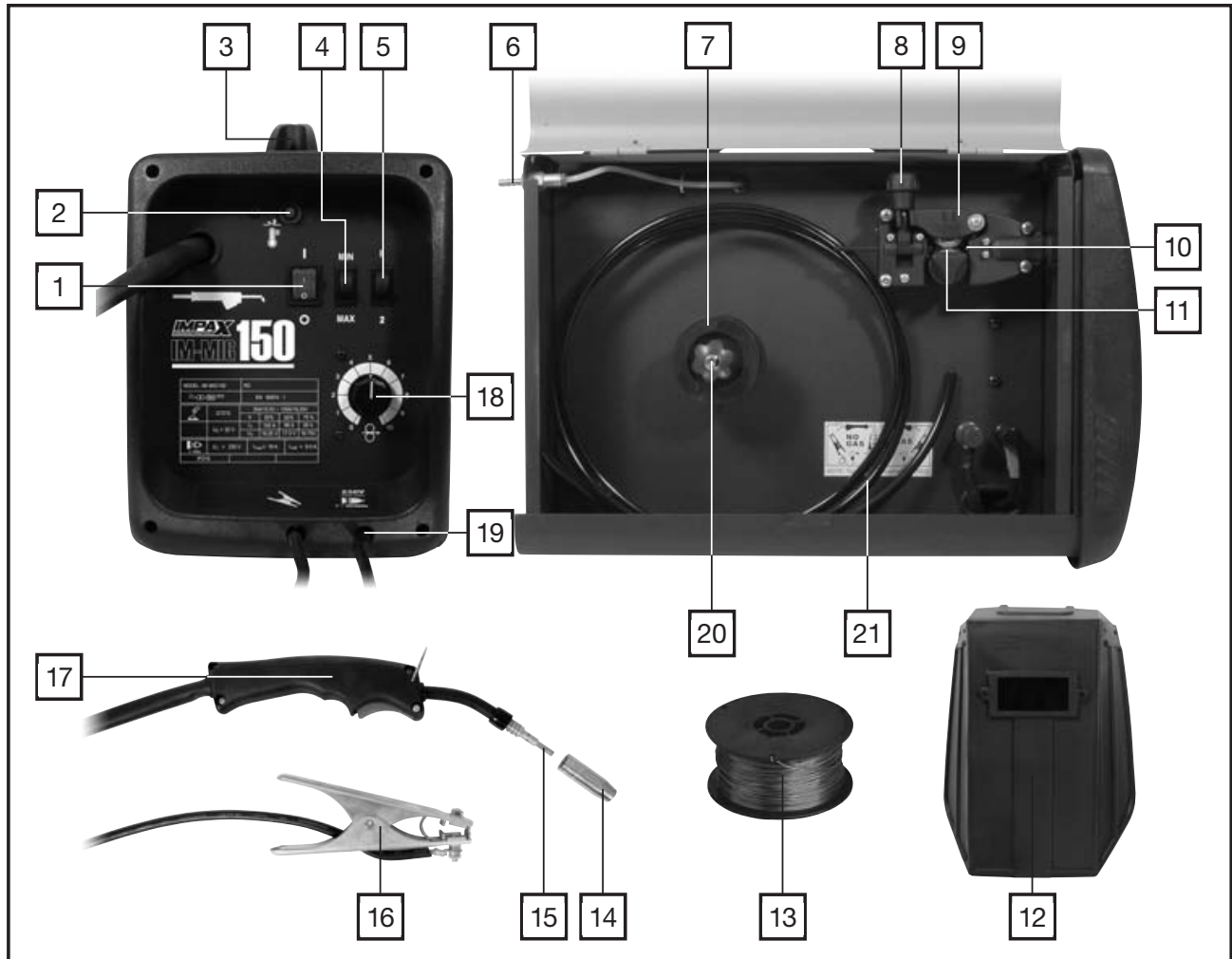
### THIS MIG WELDER REQUIRES A SEPERATE 16AMP OUTLET

**IMPORTANT! DO NOT CONNECT TO A STANDARD 13A SOCKET AS THIS WILL OVERLOAD THE CIRCUIT AND CAUSE THE CIRCUIT BREAKER TO TRIP.**

#### **CAUTION:**

**Seek professional electrical advice on the installation of a 16 amp outlet supply.**

# COMPONENTS



## Component List

- |   |                                 |
|---|---------------------------------|
| 1. ON/OFF switch                            | 12. Face mask                   |
| 2. Thermal cut out indicator                | 13. Flux cored wire             |
| 3. Carry handle                             | 14. Shroud                      |
| 4. Welding current control switch (Min/Max) | 15. Contact tip                 |
| 5. Welding current control switch (1/2)     | 16. Earth clamp                 |
| 6. Gas pipe attachment point                | 17. Torch                       |
| 7. Spool holder spring and collar           | 18. Wire feed control           |
| 8. Plastic knob                             | 19. Power cable                 |
| 9. Pivoted pressure roller bracket          | 20. Spool holder fastening knob |
| 10. Wire liner                              | 21. Guide tube                  |
| 11. Roller groove                           |                                 |

## Technical specification

Input power:	230-240V~50Hz	Wire capacity:	0.6-0.9mm
Phase:	1	Insulation grade:	H
Rated no load voltage:	32V DC	Cooling type:	Fan cooled
Rated input capacity:	3.1kVA	Torch:	Non live
Duty cycle:	20% @ 105A	Case protection class:	IP21S
Output current range:	30-105A	External dimensions:	42 x 24.5 x 37.5mm
Peak current:	150A	Weight:	18kg

# UNPACKING AND ASSEMBLY

## Unpacking

**Caution!** This packaging contains sharp objects. Take care when unpacking. Remove the machine, together with the accessories supplied, from the packaging. Check carefully to ensure that the machine is in good condition and account for all the accessories listed in this manual. Also make sure that all the accessories are complete. If any parts are found to be missing, the machine and its accessories should be returned together in their original packaging to the retailer.

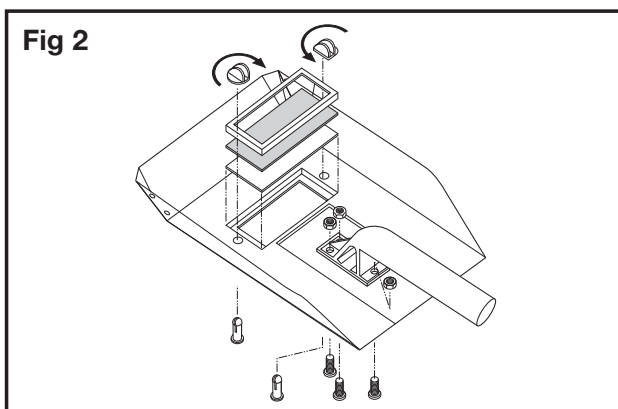
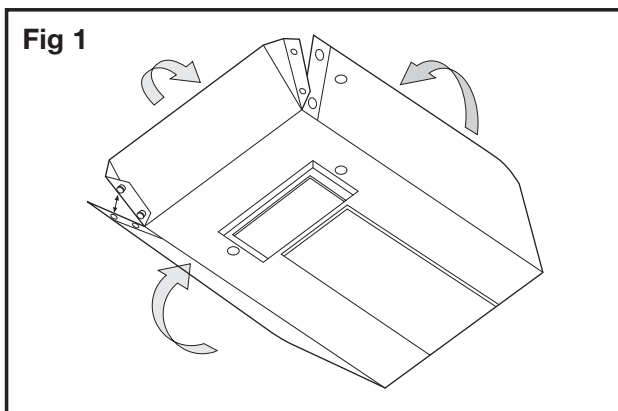
Do not throw the packaging away, keep it safe throughout the guarantee period, then recycle if possible, otherwise dispose of it by the proper means. Do not let children play with empty plastic bags due to the risk of suffocation.

## Assembly

**Note:** Before carrying out any assembly or disassembly of the unit please ensure that the unit is not connected to the electrical supply.

### Assembling the Face Mask

To assemble the mask bend in the top and side flaps (Fig.1) and clip into place then attach the handle and mask glass shield as shown in Fig.2.



Insert the clear glass panel first, followed by the dark glass panel into the recess in the shield, i.e. the clear glass MUST be on the outside of the shield. Securing them with the plastic screws provided.

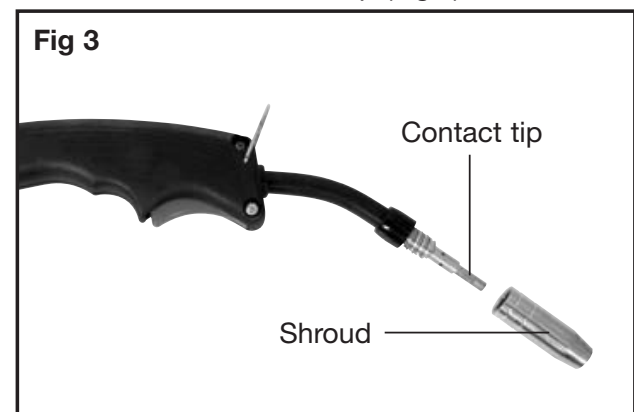
The dark panel is a certified, specific optical class, and should not be exchanged for any other type.

The clear glass panel should be replaced when it becomes badly pitted.

**Warning!** NEVER look at an electric arc without eye protection as this can injure the eyes permanently. ALWAYS use a protection mask or welding helmet.

### Installing the Welding Wire

Unscrew the shroud from the end of the torch then unscrew the contact tip (Fig.3).



Open up the side cover of the welder. If the wire spool is mounted on the spool holder, it needs to be removed in order to remove the plastic wrapper. To do this, proceed as follows:

Unscrew and remove the plastic knob (A), followed by the spring and collar (B) from the hub, Fig.4.



# ASSEMBLY

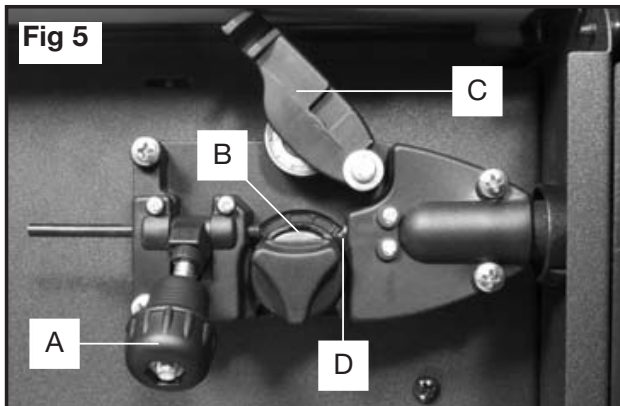
Remove the plastic wrapper then slide the spool back over the hub, ensuring that it sits snugly, and replace the collar, spring and plastic knob, tightening it sufficiently to allow the spool to rotate smoothly but with a slight amount of braking friction.

Do not over tighten as this will exert undue pressure on the wire drive motor and may cause serious damage.

## Threading the Welding Wire (Fig.5)

Loosen the plastic knob (A) by turning it anticlockwise, (this device maintains pressure on the wire).

Pull, on the plastic knob, so that the screw rod hinges out of its slot. This releases the pivoted pressure roller bracket (C). Raise the bracket and pull out any wire that has been left in the wire liner (D), pulling it from the nozzle end of the hose.



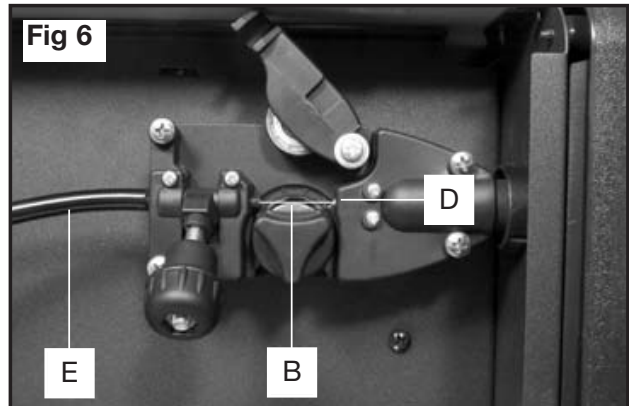
Pull out the end of the wire from the rim of the spool, taking care NOT to release it. The spool is wound firmly and should remain this way.

Ensuring the wire is straight and not kinked in any way, clip off the end cleanly, ensuring there are no burrs or sharp edges. If it is remove the end using sharp wire cutters.

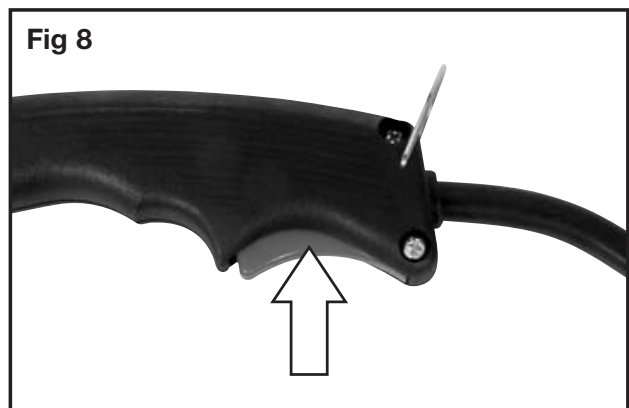
Proceed to feed it through the guide tube (E), over the groove on the roller (B), and into the wire liner (D), by about 10 - 15 cm (Fig.6).

Reposition the pressure roller bracket (C, Fig.5) and plastic knob (A, Fig.5) and tighten slightly.

**Caution:** Tightening the knob too tightly will crush the wire and damage the wire feed.



Close the side panel of the machine and plug into a 230-240V, 50HZ outlet. Turn the welder On using the On/Off switch (Fig.7) then holding the torch straight out from the welder press the trigger on the torch (Fig.8). The wire feed roller will operate feeding the welding wire through the torch.



Do not point the end of the torch at any part of your body or face, the welding wire is very sharp and can cause an injury. When the wire has emerged from the end of the torch release the pressure on the trigger, turn the On/Off switch to the Off position then refit the contact tip and shroud. Finally trim off any excess wire to 3mm from the end of the contact tip.

# ASSEMBLY

## Earth Clamp

Ensure that the area of the work piece where the earth clamp is to be connected is cleaned using a file or a grinder to ensure a good electrical contact. Attach the earth clamp to the work piece. The earth clamp must only be connected to the work piece. The area to be welded must be clean and free from dirt, rust, grease and oil.

## Electrode Polarity

The polarity of the electrode can be changed depending on the material to be welded.

Open up the side cover of the welder and change the polarity by swapping the position of the electrode and earth clamp wires on the terminal connections (Fig.9).



## Converting to Gas Welding

For welding stainless steel or aluminium, it is necessary to convert your NO-GAS machine to GAS operation. This is a simple process once you have purchased the following parts:

**Welding Wire:** Either Mini or 5kg wire spools, at 0.6mm or 0.8mm diameter.

**Contact Tips:** The appropriate tip must be used to suit the thickness of wire being used. i.e., 8mm wire requires a 0.8mm tip and 0.9mm wire requires a 1.0mm tip.

**Gas Regulator:** Decide in advance whether you are going to use disposable or rechargeable gas bottles as this will effect the type of regulator purchased.

**Gas:** Disposable gas bottles are available from your Impax dealer, or rechargeable bottles from your welding supply shop.

Always use the appropriate gas for the material being welded.

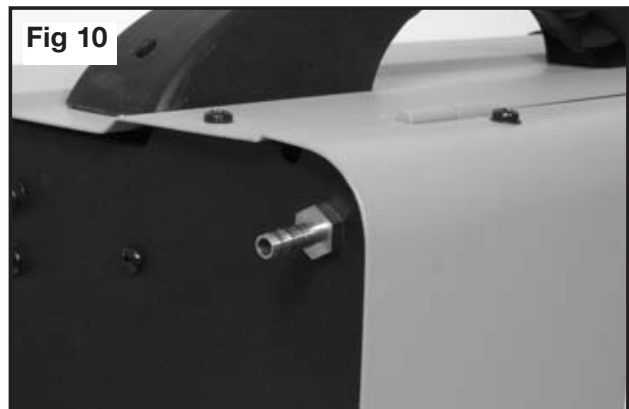
Carbon Dioxide (CO<sub>2</sub>): For Mild Steel

Argon: For Aluminium

CO<sub>2</sub>/Argon Mix: For Thin Sheet metal

## Attaching Gas Bottle and Regulator

Fit a suitable regulator and gas supply tube onto your gas bottle (Please note; regulator, gas supply tube and gas bottle not supplied). Attach the other end of your gas supply tube onto the gas pipe attachment point on the back of the welder (Fig.10).



**Note:** shielding gas is not required when using flux cored welding wire.

## Adjusting the Gas Flow

Turn the control knob on your gas regulator until the required gas flow is achieved.

## Adjusting the Output (Fig.11)

Set the amperage using the current control switch (11.1) and the wire speed control knob (11.2) located on the front panel, switching from one setting to another adjusts the output and wire speed. On thin materials use a low setting through to a higher speed for thicker materials. Welding on thick materials will significantly reduce the duty cycle of the welder.





# OPERATION

## Operation

**Warning!** If you have no welding experience, we recommend you seek training from an experienced person.

**Caution:** This manual is a basic guide to welding. We recommend you purchase a good quality welding book to be able to use the welder to its full potential.

## Important!

It is VITAL that the workpiece is perfectly clean at the point of weld. Any coating, plating or corrosion MUST be removed, otherwise a good weld will be impossible to achieve.

## Switching On and Off (Fig.12)

Connect to the mains supply and press the On/Off switch to the ON position (I) to stop the machine press the On/Off switch to the OFF position (O).



**Warning!** Always wear a full face mask, welding gloves and protective clothing. Wear goggles while chipping slag.

Do not switch on the power supply until you are ready to start welding. Practice welding on a piece of scrap material.

The workpiece must be prepared correctly and the area must be free from dirt, grease, oil, paint and rust. Position the earth clamp as close to the welding point as possible ensuring there is good contact.

Set the correct gas flow (when required) and amperage output for the material you are welding.

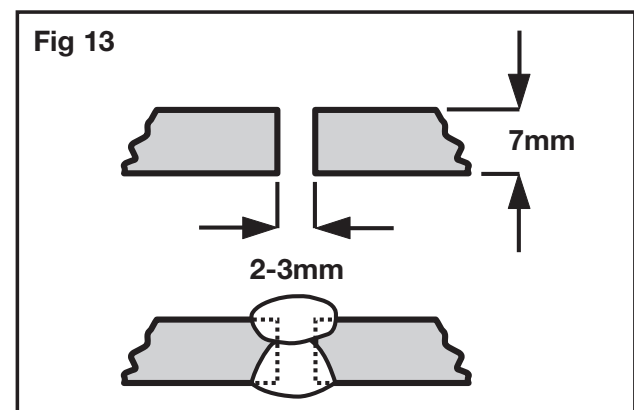
The gas shield required will be either CO<sub>2</sub> or Argon or a mix of CO<sub>2</sub> & Argon. Use the correct

gas (when required) for the material to be welded. When welding outside it may be necessary to create a windbreak as a break down in the gas shield can result in a poor weld.

**Important:** If you are welding on a vehicle disconnect the vehicles battery or fit an electronic circuit protector.

Position the tip about 6mm from the material to be welded, hold the face mask in front of your face then press the trigger on the torch. When the arc strikes move the torch along the workpiece. Maintain a steady gap between the end of the contact tip and the workpiece. Maintain this distance as constantly as possible during the weld. The position of the welding rod is critical to obtain the best result and achieve a good quality bead. The torch should be positioned 75° horizontally and 35° vertically. Make sure the gas shroud remains clear of spatter as a build up of spatter will reduce the flow / effect of the gas shield. Keep the contact tip clean to ensure smooth unrestricted wire feed. The use of an anti-spatter spray will help to ensure a good result.

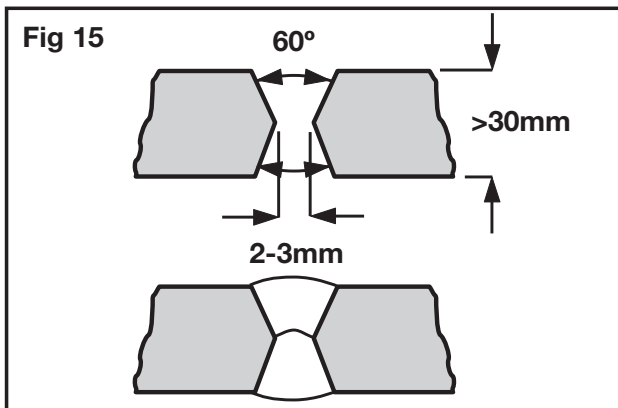
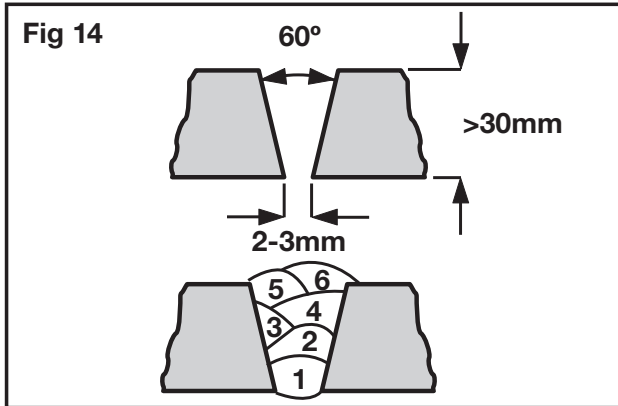
When welding material up to 7mm in thickness place the pieces 2-3mm apart, run the welding bead along the join. A second bead can go along the underside for extra strength (Fig.13).



When welding material from 7mm to 30mm thick prepare the material as shown in Fig.14 filling up the space with several layers of weld.

When welding together material over 30mm in thickness prepare the material as shown in Fig.15 filling up the space with several layers of weld.

# OPERATION



Disconnect the welder from the mains power supply before changing or removing wire reels. Use pliers to move the welded pieces as they will be extremely hot.

**Notes:** As MIG welding is an acquired skill, it is strongly advised that, if you are not fully familiar with this type of welding, you practise on a piece of material with the same characteristics as that of your workpiece until you are satisfied with the result, and you have fine tuned your welder to produce a satisfactory weld.

One of the problems experienced with novice welders, is the welding wire sticking to the contact tip. This is as a result of the wire feed speed being too slow. It is always better therefore to start with too high a speed, and back off slightly, to avoid the possibility of the wire welding itself to the tip. This is the reason position 6 is recommended for start up.

The Wire Feed control is for fine tuning the wire speed. The speed of wire delivery will increase automatically as the current is increased from MIN to MAX, and vice versa. Therefore, once the ideal speed is achieved, by fine tuning, it should not be necessary to adjust this control when the

welding current is changed.

Listen to the sound made. An irregular crackling sound denotes too high a wire speed. Decrease the speed until a regular, strong buzzing sound is heard.

## IMPORTANT – Thermostatic Protection (Duty Cycle)

This product has a rated duty cycle of 60%. The percentage represents the welding time in a 10 minute period for example 60% means that the welding time is 6 minutes with a rest time of 4 minutes in a ten minute period although the actual duty cycle will depend on the amperage used. If the welder is used for longer than the duty cycle you may experience a temporary current shut off. This is to protect the transformer inside the welder from overheating. The thicker the material being welded, the greater the current required, therefore, the hotter the machine will become and the quicker it will cut out. When the windings reach performance temperature the cut out switch will operate illuminating the indicator lamp on the front panel (Fig.16). After a few minutes the cut out switch will reset and the welder will be ready for use.



## Tips

Try to maintain the tip of the nozzle at an angle of approx. 45° and at a constant distance of approx 5-7mm from the workpiece.

Try to maintain a constant speed of movement with the torch.

Do not weld in windy conditions or in an area where ventilation is a problem, or where air flow fluctuates.

ALWAYS keep the wire and nozzle clean. NEVER use rusted wire.

# MAINTENANCE

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Avoid sharp bends or kinks in the welding hose.

Periodically remove the dust, using LOW PRESSURE compressed air, within the casing. Adequate heat dissipation is essential during the welders operation.

## **Maintenance**

**Warning!** Ensure the welder is disconnected from the electrical mains power supply before attempting any service or maintenance.

The welder must be kept clean and dry at all times. Use a dry cloth to clean the welder.

Keep the shroud and contact tip clean and ensure all cables are in good condition.

**Caution:** Water must never come into contact with the welder.

Regularly check that all the fixing screws are tight. They may vibrate loose over time.

If the supply cord requires replacing, the task must be carried out by the manufacturer, the manufacturer's agent, or an authorised service centre to avoid a safety hazard.

## **Welding Mask Maintenance**

Always maintain the welding mask in good condition. If the clear glass protection lens becomes badly pitted, sufficient to interfere with vision, or cracked, have it replaced immediately.

NEVER use any dark filter lens other than that provided by Impax, or one with the same certified 'Optical class' (degree of protection).

The shield should always be cleaned with a clean soft cloth after use, ensuring the lenses are clean. Remove any dust that may have accumulated and store it in a safe place where it cannot be damaged.

NEVER use a shield that is not in perfect condition.

# TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
No weld current (plug fuse blowing).	Blown rectifier.	Replace rectifier.
No weld current	Poor earth clamp connection.	Check and clean up connections.
	Break in earth lead.	Replace earth lead.
	Break in torch lead.	Replace torch or lead.
Feed motor not working.	Defective motor or defective gears.	Replace.
Roller rotates but no wire feed or uneven wire feed.	Incorrect roller adjustment.	Adjust pressure arm.
	Deformed welding wire.	Check roller tension.
	Dirt in torch liner.	Clean or replace.
	Shroud or contact tip faulty.	Replace.
Unstable arc.	Incorrect settings.	Check settings.
	Impurities in the weld area.	Clean the weld area prior to welding.
	Faulty shroud.	Replace.
Weld current interrupted.	Thermal trip has operated.	Allow the welder to cool down.
Porous weld.	Rusty or dirty joints.	Clean the weld area prior to welding.
	Problem with the gas flow.	Check the regulator, and gas hoses.
	Torch at wrong angle or too far from the workpiece.	Check the contact tip. Use a windbreak when welding outside.
Irregular weld cap.	Torch incorrectly held.	Weld with the torch at the correct distance and angle to the workpiece.
	Wire weaving in weld pool.	Check roller tension.
Narrow raised weld cap.	Weld speed too fast / weld current too low.	Adjust settings. Move the torch slower.
Weld cap too wide	Weld speed too slow / weld current too high.	Adjust settings. Move the torch faster.
	Arc too long	Move the torch closer to the workpiece.
Poor penetration.	Weld current too low.	Adjust settings.
	Arc too long	Move the torch closer to the workpiece.
Excessive penetration.	Weld speed too slow / weld current too high.	Adjust settings.
	Torch is too far from the workpiece.	Weld with the torch at the correct distance and angle to the workpiece.

# ENVIRONMENTAL PROTECTION & SYMBOLS

Information for (private householders) for the environmentally responsible disposal of Waste Electrical and Electronic Equipment (WEEE)



This symbol on products and or accompanying documents indicates that used and end of life electrical and electronic equipment should not be disposed of in household waste. For the proper disposal, treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your retailer upon the purchase of an equivalent new product. Disposing of this product correctly will help to save valuable resources and prevent any potential adverse effects on human health and the environment which could otherwise arise from inappropriate waste disposal and handling. Please contact your local authority for further details of your nearest designated collection point. Penalties may be applicable for incorrect disposal of this waste in accordance with national legislation.

environment which could otherwise arise from inappropriate waste disposal and handling. Please contact your local authority for further details of your nearest designated collection point. Penalties may be applicable for incorrect disposal of this waste in accordance with national legislation.

## FOR BUSINESS USERS IN THE EUROPEAN UNION.

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

## Information on Disposal in other Countries outside the European Union.

This Symbol is only valid in the European Union.

If you wish to dispose of this product, please contact your local authorities or dealer and ask for the correct method of disposal.

The rating plate on this product may show symbols. These represent important information about the product or instructions on its use.



Conforms to relevant safety standards.



Read the instruction manual.



Product conforms to RoHS requirements



Warning! Electrical welding process



Protect operator and passer by from the effect of uV radiation. This can cause permanent damage to the eye. Make sure the arc and resulting flash is shielded at all times.



Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your Local Authority or retailer for recycling advice




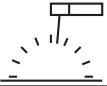
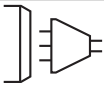

Always wear approved face mask with correct filter, gloves and apron to protect against welding operation

Do not use this welder in damp conditions



Keep bystanders and pets clear of the welding power supply when in use.

# SYMBOLS

Symbols and Technical Data	
EN 60974-1: 1998+A1+A2	European standard relating to Welding Power Supply's for limited use
IM-MIG150	Type ID
	Single phase transformer
	Metal inert & active gas welding including the use of flux cored wire
50Hz	Nominal mains frequency
S	Suitable for welding in an environment with increased hazard of electric shock
$U_0$	No load voltage
...A/...V to ...A/...V	Range of output
X%	Duty cycle
$I_2$	Conventional welding current
$U_2$	Conventional load voltage
$U_1$	Mains voltage
$I_1 \text{ max}$	Maximum absorbed current
$I_1 \text{ eff}$	Effective supply current
IP21S	Grade of protection
	Standardized plug
	Suitable for welding in an environment with increased hazard of electric shock