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SIP Weldmate Autoplus 250A
MIG MMA TIG

SIP Code 05751

For help or advice please contact your distributor, or sip directly on:

Tel.: 01509 500400

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or

customerservice@sip-group.com

www.sip-group.com

Please read and fully understand the instructions in this manual before operation. Keep this manual safe for future reference.

CONTENTS

SAFETY SYMBOLS USED THROUGHOUT THIS MANUAL

Danger / Caution: Indicates risk of personal injury and / or the possibility of damage

Warning: Risk of electrical injury or damage

Note: Supplementary Information

Important: Please read the following instructions carefully, failure to do so could lead to

SAFETY INSTRUCTIONS

When using your inverter welder, basic safety precautions should always be followed to reduce the risk of personal injury and / or damage to the welder.
Read all of these instructions before operating the welder and save this user manual for future reference.
The welder should not be modified or used for any application other than that for which it was designed.
This welder was designed to supply electric current for MIG, Arc or DC TIG welding. If you are unsure of its relative applications do not hesitate to contact us and we will be more than happy to advise you.
Before each use of the welder always check no parts are broken and that no parts are missing.
Always operate the welder safely and correctly.
KNOW YOUR WELDER: Read and understand the owner's manual and labels affixed to the welder. Learn its applications and limitations, as well as the potential hazards specific to it.
KEEP WORK AREA CLEAN AND WELL LIT: Cluttered work benches and dark areas

invite accidents. Floors must not be slippery due to oil, water or sawdust etc.
DO NOT USE THE WELDER IN DANGEROUS ENVIRONMENTS: Do not use the welder in damp or wet locations, or expose it to rain. Provide adequate space surrounding the work area. Do not use in environments with a potentially explosive atmosphere.
KEEP CHILDREN AND UNTRAINED PERSONNEL AWAY FROM THE WORK AREA: All visitors should be kept at a safe distance from the work area.
STORE THE WELDER SAFELY WHEN NOT IN USE: The welder should be stored in a dry location and disconnected from the mains supply, and out of the reach of children.
USE SAFETY CLOTHING / EQUIPMENT: Use a CE approved welding mask at all times with the correct shade of filter lens. A fume extractor should be used particularly where there is little or no ventilation.
PROTECT YOURSELF FROM ELECTRIC SHOCK: When working with the welder, avoid contact with any earthed items (e.g. pipes, radiators, hobs and refrigerators, etc.). It is advisable wherever possible to use an RCD (residual current device) at the mains socket.
STAY ALERT: Always watch what you are doing and use common sense. Do not operate the welder when you are tired or under the influence of alcohol or drugs.
DISCONNECT THE WELDER FROM THE MAINS SUPPLY: When not in use and before servicing.
AVOID UNINTENTIONAL STRIKING: Make sure the switch is in the OFF position before connecting the welder to the mains supply.
NEVER LEAVE THE WELDER CONNECTED WHILST UNATTENDED: Turn the welder off and disconnect it from the mains supply between jobs. Do not leave the welder connected to the mains supply if no more welding is to be done.
DO NOT ABUSE THE MAINS LEAD: Never attempt to move the welder by the mains lead or pull it to remove the plug from the mains socket. Keep the mains lead away from heat, oil and sharp edges. If the mains lead is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid unwanted hazards. All extension cables must be checked at regular intervals and replaced if damaged.
CHECK FOR DAMAGED PARTS: Before every use of the welder, any damage found should be carefully checked to determine that it will operate correctly, safely and

perform its intended function. Any damaged, split or missing parts that may affect its operation should be correctly repaired or replaced by an authorised service centre unless otherwise indicated in this instruction manual.

KEEP ALL PANELS IN PLACE: Never operate the welder with the panels removed, this is extremely dangerous.

MAINTAIN THE WELDER WITH CARE: Keep the earth clamp and Tig torch consumables clean for the best and safest performance.

USE ONLY RECOMMENDED ACCESSORIES: Consult this user manual, your distributor or SIP directly for recommended accessories. Follow the instructions that accompany the accessories. The use of improper accessories may cause hazards and will invalidate any warranty you may have.

SECURE THE WORK-PIECE: Always use welding clamps to secure the work piece. This frees up both hands to operate the welder correctly.

DO NOT OVERREACH: Keep proper footing and balance at all times.

USE THE RIGHT TOOL: Do not use the welder to do a job for which it was not designed.

DO NOT OPERATE THE WELDER IN EXPLOSIVE ATMOSPHERES: Do not use the welder in the presence of flammable liquids, gases, dust or other combustible sources. Welding will create sparks which can ignite the dust or fumes.

DO NOT EXPOSE THE WELDER TO RAIN OR USE IT IN WET CONDITIONS: Water entering the welder will greatly increase the risk of electric shock and equipment damage.

HAVE YOUR WELDER REPAIRED BY A QUALIFIED PERSON: The welder is in accordance with the relevant safety requirements. Repairs should only be carried out by qualified persons using original spare parts, otherwise this may result in considerable danger to the user.

- Stop operation immediately if you notice anything abnormal.
- Always disconnect the plug from the mains supply before cleaning or servicing etc. Be alert at all times, especially during repetitive, monotonous operations; Don't be lulled into a false sense of security.
- Use of improper accessories may cause damage to the inverter welder and surrounding area as well as increasing the risk of injury.
- Do not modify the inverter welder to do tasks other than those intended.

- To avoid injury, the work-piece should never be held with bare hands; The work- piece will become hot during normal welding operations, and stay hot for a period after the weld is complete.
- Appropriate personal protective equipment must be worn and must be designed to protect against all hazards created. Severe permanent injury can result from using inappropriate or insufficient protective equipment - Eyes in particular are at risk.
- The work should be clamped firmly whilst welding, If its loose it could result in personal injury or damage to the machine or item that is being welded.
- Do not attempt any repairs to the welder unless you are a qualified electrician or competent service engineer.
- Ensure that the machine is connected to the correct supply voltage and protected by a fuse or circuit breaker of the recommend rating.
- Never allow the earth clamp and electrode holder to come into contact with each other.
- Understand the operating environment; Before each use the operator should assess, understand and where possible reduce the specific risks and dangers associated with the operating environment. Bystanders should also be made aware of any risks associated with the operating environment.
- Electromagnetic fields can interfere with various electrical and electronic devices such as pacemakers; Consult your doctor before using any electric welder or cutting device.
- Keep people with pacemakers away from your welding area when welding. Do not wrap cable around your body while welding.
- If the welder is to be used on business premises - ensure that all local and national regulations are followed concerning the use of portable electrical appliances at work.

ELECTRIC SHOCK

- Electric inverter welders have the potential to cause a shock that could lead to injury or death. Touching electrically 'hot' parts can cause fatal shocks and severe burns; While welding, all metal components connected to the welder are electrically 'hot'.
- Keep your body and clothing dry. Never work in a damp area without adequate insulation against electrical shock, stay on a dry duck board, or rubber mat when dampness or sweat can not be avoided. Sweat, sea water or moisture between the body and an electrically 'hot' part or grounded metal reduces the body surfaces electrical resistance enabling dangerous and possibly lethal currents to flow through the body.
- Never allow live metal parts to touch bare skin or any wet clothing, be sure welding gloves are dry.
- Before welding, check for continuity; Be sure the earth clamp is connected to the work-piece as close to the welding areas as possible. Grounds connected to building frame work or other remote locations from the welding area reduce efficiency and increase the potential electric shock hazard. Avoid the possibility of the welding current passing through lifting chains, crane cables or other electric paths.
- Frequently inspect leads for wear, splits, cracks and any other damage. Immediately replace those with worn or damaged insulation to avoid a possibly lethal shock from bare leads.

FIRE

- During normal operation, the heat and sparks created during the welding process have the potential to ignite.
- Flammable liquids, gases or other combustible materials should be stored at least 10 metres away and out of the reach of sparks and heat. Otherwise protect against ignition with suitable and snug fitting, fire resistant covers or shields.

- Walls touching combustibles on opposite sides should not be welded on, walls, ceilings and the floor near the work area should be protected by heat resistant covers or shields.
- Openings (concealed or visible) in floors or walls within 10 metres may expose combustibles to sparks.
- Combustibles adjacent to walls, ceilings, roofs or metal partitions can be ignited by radiant or conducted heat.
- After the work is done, check that the area is free of sparks, glowing embers and flames.
- An empty container that has held combustibles, or that can produce flammable or toxic vapours when heated, must never be welded, unless the container has first been cleaned. Consult HSE INDG214, HSG250 and CS15. HSE document CS15 includes information on cleaning by thorough steam or solvent/ caustic cleaning followed by purging and inserting with nitrogen, carbon dioxide or water filling just below working level.
- A container with unknown contents should be treated as if it contained combustibles (see previous paragraph), Do not depend on sense of smell or sight to determine if it is safe to weld.
- Hollow items must be vented before welding as they can explode.
- Explosive atmosphere; Never weld when the air may contain flammable dust, gas or liquid vapours (such as petrol).

GLARES AND BURNS

- The welding arc produces ultraviolet (UV) and infrared (IR) rays as well as extreme temperatures that can cause injury to your eyes and skin. Do not look at the welding arc without proper eye protection.
- The electric welding arc must not be observed with the naked eye. Always use a welding mask; Ensure the welding mask is fitted with the correct shade of filter lens for the welding current level, and covers the entire face from neck to the top of the head.

- Welding gauntlet gloves should be worn to protect the hands from burns, non- synthetic overalls with buttons at the neck and wrist, or similar clothing should be worn. Greasy overalls should not be worn. Wear suitable protective footwear.
- Always wear correctly rated protective clothing which covers all areas of the body; The operator should not weld with any bare skin showing to reduce the chance of burns etc.
- Avoid oily or greasy clothing, a spark may ignite them.
- Hot metal such as electrode stubs and work-pieces should never be handled without gloves.
- First aid facilities and a qualified first aid person should be available for each shift unless medical facilities are close by for immediate treatment of flash burns to the eyes and skin.
- Flammable hair products should not be used by persons intending to weld. Warn bystanders not to watch the arc and not to expose themselves to the welding arc rays or to hot metal.
- Keep children away whilst welding, they may not be aware that looking at an arc can cause serious eye damage.
- Protect other nearby personnel from arc rays and hot sparks with a suitable non- flammable partition.

VENTILATION

- Ventilation is now regulation and must be adequate to remove the smoke and fumes during welding (see the relevant safety regulation for acceptable levels).
- Toxic gases may be given off when welding, especially if zinc or cadmium coated materials are involved, welding should be carried out in a well ventilated area and the operator should always be alert to fume build-up.
- Areas with little or no ventilation should always use a fume extractor.
- Vapours of chlorinated solvents can form the toxic gas phosgene when

exposed to UV radiation from an electric arc. All solvents, degreasers and potential sources of these vapours must be removed from the arc area.

- Severe discomfort, illness or death can result from fumes, vapours, heat, oxygen enrichment or depletion that welding (or cutting) may produce. This will be prevented by adequate ventilation or using a fume extractor. NEVER ventilate with oxygen.
- Lead, cadmium, zinc, mercury, beryllium bearing and similar materials when welded may produce harmful concentrations of toxic fumes. Adequate ventilation must be provided for every person in the area. The operator should also wear an air supplied respirator, for beryllium both must be used.
- Metals coated with or containing materials that emit toxic fumes should not be heated unless coating is removed from the work surface. The area should be well ventilated or the operator should wear an air supplied respirator.
- Work in a confined space only while it is being ventilated and if necessary whilst wearing an air supplied respirator.
- Gas leaks in a confined space should be avoided, leaking gas in large quanti-ties can change oxygen concentration dangerously. DO NOT bring gas cylin ders into a confined space.
- Leaving a confined space you must shut off the gas supply at the source to prevent possible accumulation of gases in the space if down stream valves are left open. Check to be sure that the space is safe before re-entering it.
- Vapours from chlorinated solvents can be decomposed by the heat of the arc (or flame) to form phosgene a highly toxic gas and other lung and eye-irritating products. The ultra violet (radiant) energy of the arc can also de compose tri- chloroethylene and perchlorethylene vapours to form phos gene. DO NOT WELD or cut where solvent vapours can be drawn into the welding atmosphere, or where the radiant energy can penetrate to at mospheres containing even minute amounts of trichloroethylene or per chlorethylene.

When using the welder always ensure the operator as well as those in the area use a welding mask with the correct shade filter lens.

Some metals and metal composites have the potential to be highly toxic; always wear a face mask .

CAUTION: The warnings and cautions mentioned in this user manual can not cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be applied.

ELECTRICAL CONNECTION

WARNING! It is the responsibility of the owner and the operator to read, understand and comply with the following:
You must check all electrical products, before use, to ensure that they are safe.
You must inspect power cables, plugs, sockets and any other connectors for wear or damage.
You must ensure that the risk of electric shock is minimised by the installation of appropriate safety devices; A residual current circuit Breaker (RCCB) should be incorporated in the main distribution board. We also recommend that a residual current device (RCD) is used. It is particularly important to use an RCD with portable products that are plugged into a supply which is not protected by an RCCB. If in any doubt consult a qualified electrician.

Connecting to the power supply:

The 05751 Weldmate Autoplus 250A welder is supplied without a plug fitted, it must not be connected to a 13A supply, consult the technical specification table for the required rating, if in doubt contact a qualified electrician. Before using the welder, inspect all the leads and plugs to ensure that non are damaged. If any damage is visible have the welder inspected / repaired by a suitably qualified person.
The wires for the plug are coloured in the following way:

Yellow / green	Earth
Blue	Neutral
Brown	Live

As the colours of the wires may not correspond with the markings in your plug, proceed as follows:
The wire which is coloured brown, must be connected to the terminal, which is marked L or coloured red.
The wire which is coloured blue, must be connected to the terminal marked with N or coloured black.
The wire which is coloured yellow / green should be connected to the terminal which is coloured the same or marked with this symbol.

Always secure the wires in the plug terminal carefully and tightly. Secure the cable in the cord grip carefully.

ELECTRICAL CONNECTION Cont...

Warning: Never connect live or neutral wires to the earth terminal of the plug. Only fit an approved plug with the correct rated fuse. If in doubt consult a qualified electrician.

Note: Always make sure the mains supply is of the correct voltage and amperage and the correct fuse protection is used. In the event of replacing the fuse always replace the fuse with the same value as the original.

Note: If an extension lead is required in order to reach the mains supply; ensure that this too is rated for the correct voltage and fuse rating.

Note: The cross section of the extension lead should be checked so that it is of sufficient size so as to reduce the chances of voltage drops.

GUARANTEE

This SIP inverter welder range is covered by a 24 month parts and labour warranty covering failure due to manufacturers defects. This does not cover failure due to misuse or operating the welder outside the scope of this manual - any claims deemed to be outside the scope of the warranty may be subject to charges Including, but not limited to parts, labour and carriage costs.

Failure to regularly clean your welder will shorten its working life and reduce performance. The warranty does not cover consumable items such as tips, shrouds, liners & clamps etc.

Note: Proof of purchase will be required before any warranty can be honoured

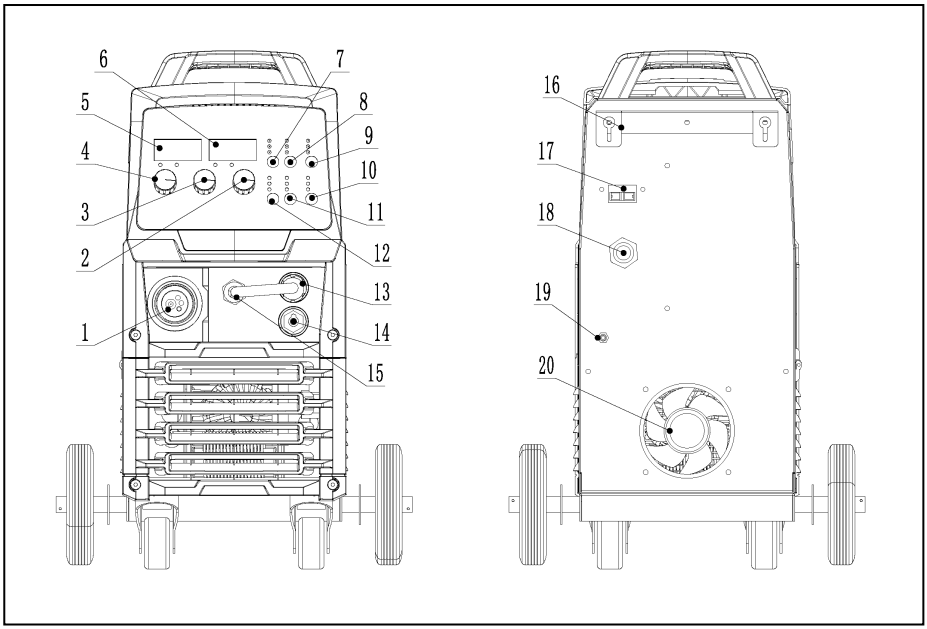
TECHNICAL SPECIFICATION

Model	**05751** **Weldmate Autoplus 250A MIG ARC TIG**
Input Voltage	230V 50Hz
Input Current - I_{max} / I_{eff}	53A / 33A
Open Circuit Volts (OCV)	63V
MIG Voltage Range	15.5V - 26.5V
MMA Voltage Range	21.2V - 30V
TIG Voltage Range	10.4 - 20V
MIG Current Range	30A - 250A
MMA Current Range	30A - 250A
TIG Current Range	10A - 250A
Duty Cycle 40°C MIG	250A @ 40%
	220A @ 60%
Duty Cycle 40°C MMA	250A @ 40%
	220A @ 60%
Duty Cycle 40°C TIG	250A @ 40%
	220A @ 60%
Protection / Insulation	21S / H
Packaged Dimensions L x W x H	670*400*620mm
Product Dimensions L x W x H	880*450*650mm
Weight GW	43kg
Weight NW	40kg

CONTENTS AND ACCESSORIES

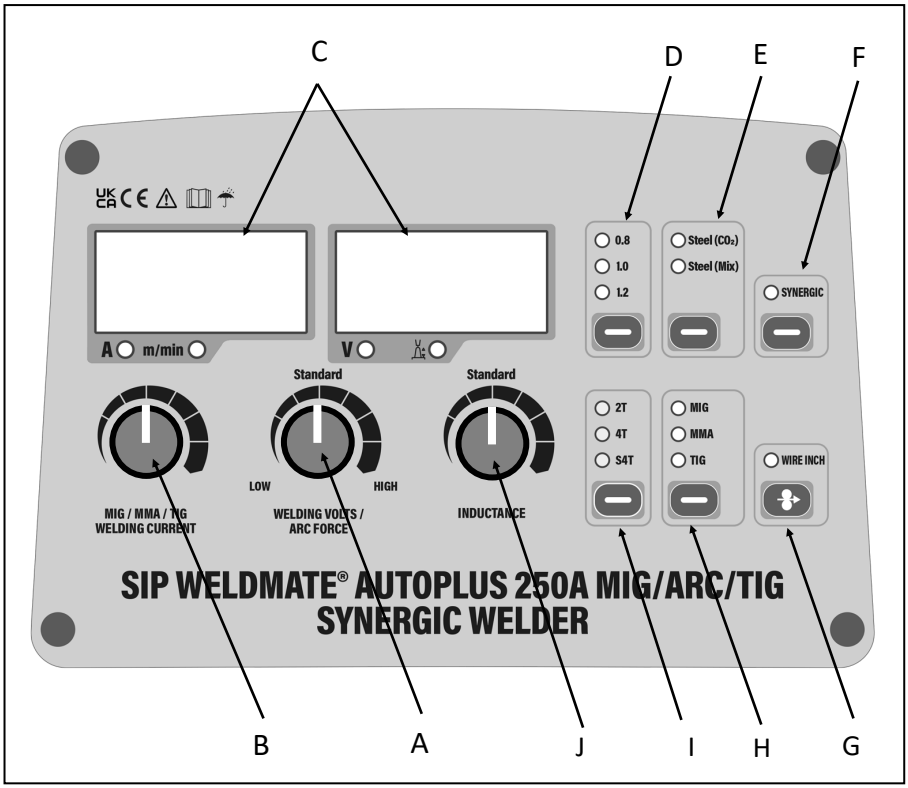
1	SIP25 x 3mtr Welding Torch	1	User Manual
1	Earth clamp with lead	1	Electrode holder with lead
1	Gas hose c/w hose clamps		

Note: If any of the above are missing or damaged, contact your distributor immediately.



Item	*Description*	*Item*	*Description*
1	Torch Euro - Connector	11	Process Selector
2	Inductance	12	Trigger Functions
3	Welding Volts / Arc Length	13	Positive Electrical socket
4	Welding Current Control	14	Negative Electrical socket
5	Current “A” Display	15	Polarity Lead
6	Volts “V” Display	16	Bottle Bracket
7	Wire Size Selector	17	Mains On/Off Switch
8	Gas Type Selector	18	Mains Input Cable
9	Synergic Control - On/Off	19	Gas Connection
10	Wire Inch	20	Air Intake / Fan

CONTROL PANEL



Item	Description	Item	Description
A	Welding Volts (Arc Length) / Arc Force	F	Synergic Control - ON/OFF
B	Welding Current Adjuster	G	Wire Inch Button
C	Digital Display	H	Process Selector Button
D	Wire Size Selector	I	Trigger Functions
E	Gas Selector	J	Inductance

BOTTLE / CYLINDER TROLLEY

- Locate the bottle carrier plate & wheel axle.
- Fit carrier as shown in Fig A.
- Fasten all screws securely.

Fig, A

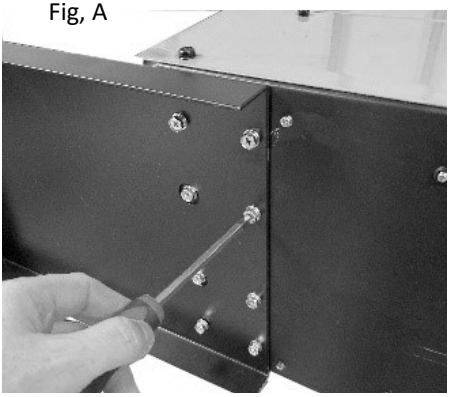


Fig. B

- Fit wheel as shown in Fig. B.

WHEELS

- Fit wheel to axle and secure with split pin. Fig. C.
- Repeat for the other side.

Fig. C

- Fit front castor wheels. Fig. D.

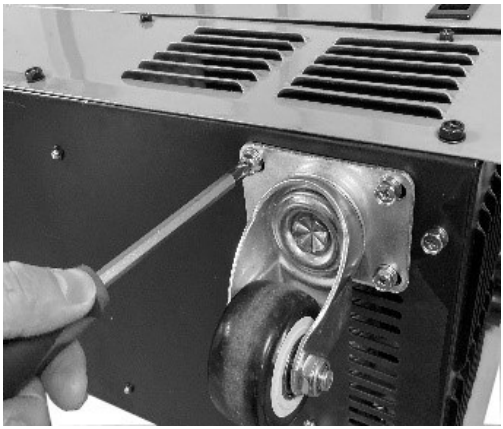


Fig. D

MIG WELDING

FITTING THE TORCH & WELDING WIRE

- Screw the welding torch into the euro-connector on the front of the welder.
- Ensure that the 2 pins align. Fig.1.
- Do not force; the torch will screw on easily if correctly aligned.

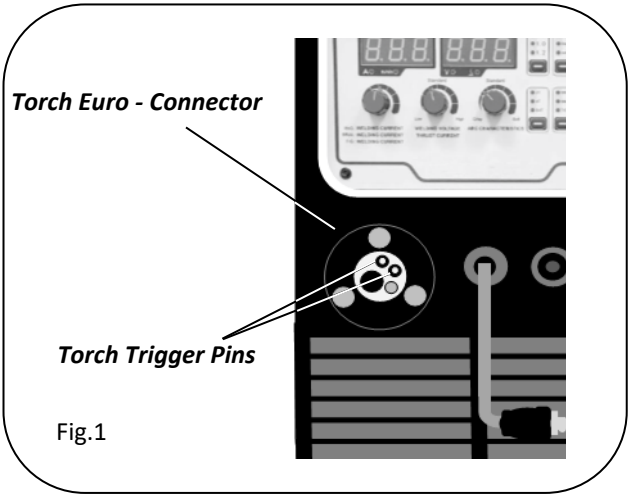


Fig.1

- Insert the wire.
- This welder can take 200mm (5kg) & 270mm (15kg) reels.
- The wire is fitted the same for gas & gasless welding. Fig.2.
- Pull the tension adjuster of the wire feed assembly towards you , the tension arm will spring upwards.
- Feed the wire onto the wire inlet guide. Feed from the bottom of the reel.
- NOTE: Wire diameter and feed roll size must be the same.
  Use a “V” groove feed roll for solid wire (when welding with gas) or “Knurled” groove feed roll for flux cored gasless welding.

- Feed the wire between the wire feed roll grove and into the torch inlet wire guide.
- Lift the wire tension adjuster up.
- Set tension to a medium pressure to begin with. Fig.3.

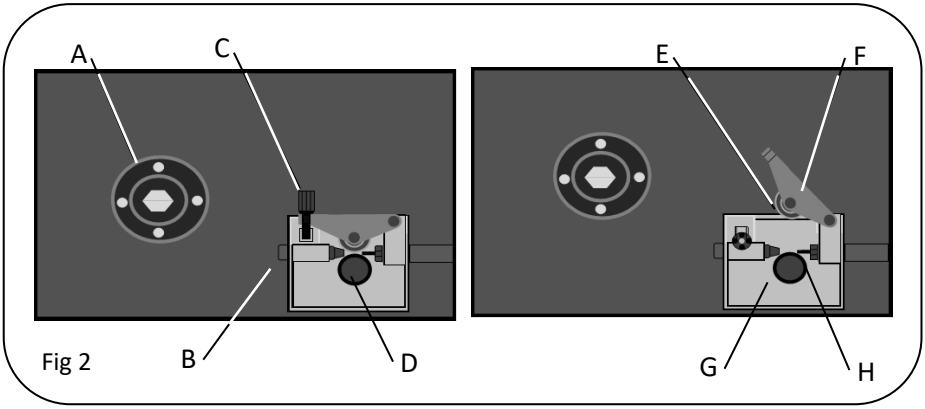


Fig 2

Item	*Description*	*Item*	*Description*
A	Reel Hub Assembly	*E*	Top Pressure Roll
B	Wire Inlet Guide	*F*	Top Pressure Arm
C	Wire Tension Adjuster	*G*	Drive Roll
D	Feed Roll Retaining Cap	*H*	Wire Guide Tube Inlet

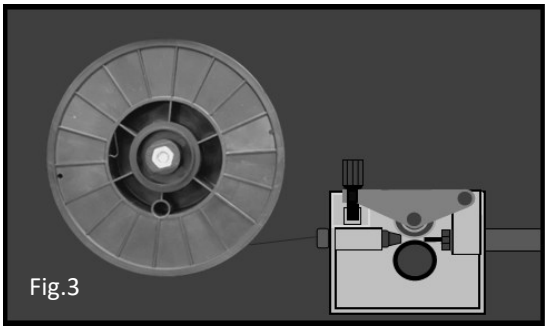


Fig.3

WELDING WITH FLUX CORED GASLESS MIG WIRE

With the welding torch attached and Flux Cored wire fitted in the machine follow the next steps:-

- Switch the welder on at the rear.
- Using the buttons on the front panel.
- Select MIG.
- Select wire diameter - 0.8, 01.0 & 1.2mm (use 0.8mm setting for flux core).
- Select “Synergic” .
- See Fig.4 for all.

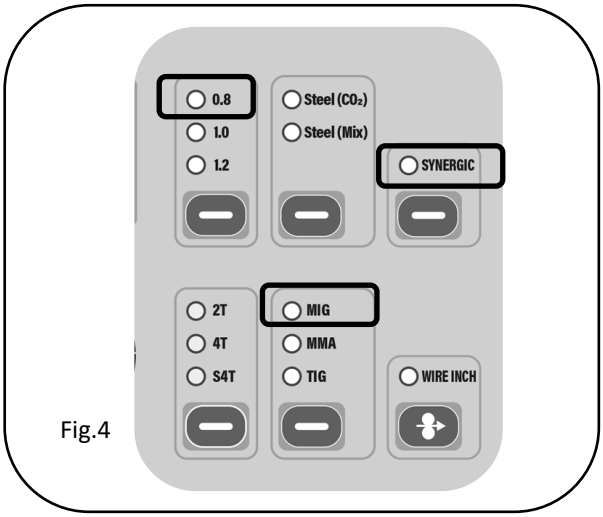


Fig.4

- Remove the shroud and the MIG contact tip from the MIG welding torch.
- Hold the MIG torch out straight and press the trigger or the “ Wire Inch Button”.
- The wire will begin to feed through the torch.
- Using the control knob, turn clockwise to increase the wire speed, set to mid -range speed.

- Make sure your finger or any other object is not in front of the welding gun swan neck where the wire will feed through.
- Once the wire is all the way through the torch, re-fit the MIG contact tip (make sure it is the correct diameter for the wire) and refit the shroud by pushing on to the swan neck.

- For welding with Flux Cored Gasless wire insert the polarity lead plug into the Negative (-) socket. Fig.5
- Align the key in the plug, insert in to the socket and twist to secure.
- Place the earth lead into the positive (+) socket.
- Twist to secure.

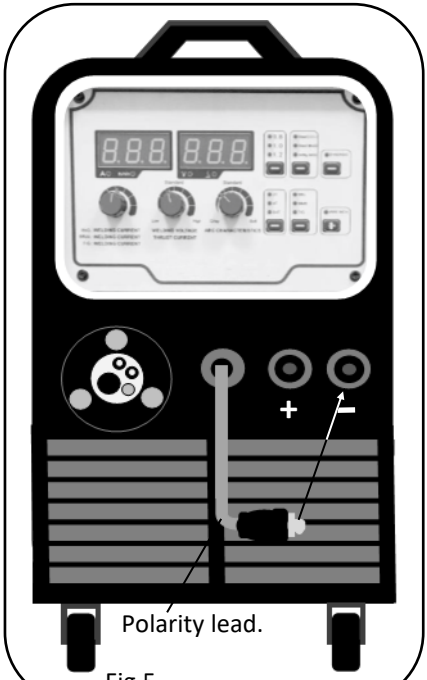


Fig.5

The welder has a Synergic Control; turn the middle knob and the "Arc Length" icon will illuminate. See Fig.6

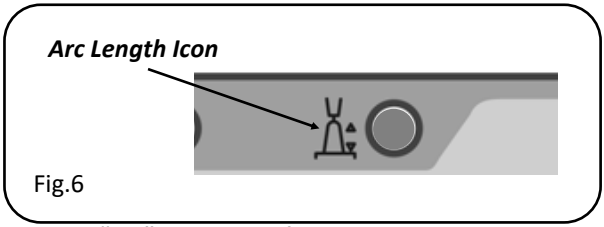


Fig.6

Turn the knob until the display shows ***"0.0";*** once set, after 3 seconds this will change to display welding volts and the ***"V"*** icon will illuminate.

It is important to set the ***right*** display in "Arc Length" position to ***"0.0".***

<u>This is the factory set position for synergic wire to power (welding current) ratio.</u>

You are now ready to weld.

PREPARATION FOR WELDING

- Clean the area to be welded including the earthing point; remove all rust, paint & contaminates.
- Place the earth clamp on to a cleaned area of the workpiece.

WELDING

- Position the torch so the MIG contact tip is about 6mm from the point where the welding is to commence.
  Press the torch trigger and the wire will feed, move the torch slowly in the chosen direction.
- Once the weld is completed, release the torch trigger.
  For future reference make a note the welding current and ARC Length for the material that has been welded.
- Rule of thumb is: weld right to left if you are right handed & left to right if you are left handed.
- During welding you may want to *slightly increase* the wire speed (ARC Length) or *slightly decrease* the ARC Length.
  This can be achieved by illuminating the **"Arc Length"** icon / function on the control panel.
  Turn the middle control knob anti-clockwise; this will increase the ARC Length (wire speed). This can be adjusted from ***minus (-)*** 0.1 to 5.
  If you want to decrease the ARC Length (wire speed) turn the middle control knob clockwise and the display will show 0.1 to 5.
- Once all work has been done, switch the machine off.
- On page 24 there is a table to assist setting the power to material thickness.
  <u>This is only a guide. Adjust the welding current using the left control knob..</u>

Material - Steel					
E711T Flux Cored Tubular	*Material Thickness*	*2.0mm*	*2.4mm*	*3.2mm*	*4.8mm*
	Welding Current	70 - 90A	110A - 125A	140 - 155A	155A - 170A

WELDING WITH SOLID MIG WIRE & GAS

With the welding torch attached and solid wire fitted in the machine follow the next steps:-

- Switch the welder on at the rear.
- Using the buttons on the front panel.
- Select MIG.
- Select Gas - use Mix for Argon/CO^2mix or CO^2 Carbon Dioxide.
- Select wire diameter - 0.8, 1.0 & 1.2mm.
- Select “Synergic”. See Fig.7.

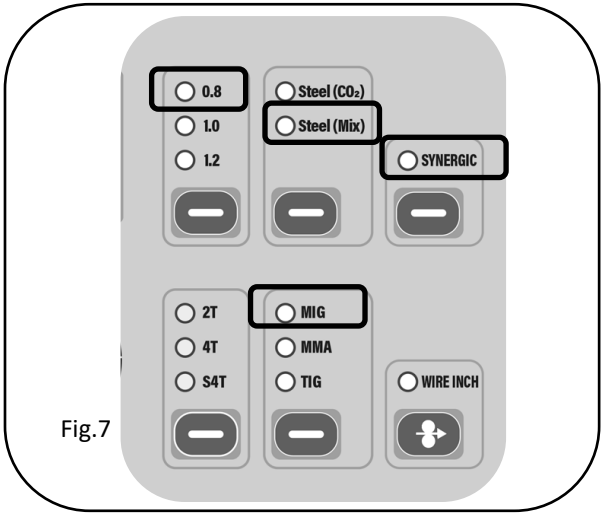


Fig.7

- Remove the shroud and the MIG contact tip from the MIG welding torch.
- Hold the MIG torch out straight and press the trigger.
- The wire will begin to feed through the torch.
- Remove the shroud and the MIG contact tip from the MIG welding torch.
- Make sure your finger or any other object is not in front of the welding gun swan neck where the wire will feed through.
- Hold the MIG torch out straight and press the trigger or the " Wire Inch
- For welding with solid wire with Gas insert the polarity lead plug into the Positive (+) socket. Fig.8
- Align the key in the plug, insert in to the socket and twist to secure.
- Place the earth lead into the Negative socket (-) socket.
- Twist to secure.
- Connect one end of the gas hose to the rear of the machine using the hose clamps.
- Connect the other end to the gas regulator* on your chosen gas* bottle. (*not supplied).

Fig.8

Turn the gas on and check for leaks. Set the gas flow 7.5 - 15litres / min.

MIG WELDING - GAS SELECTION

SIP has a selection of disposable bottle welding gases.
The type and application is below:-

SIP Code	*Gas Type*	*Material Type*
04020	Argon & Carbon Dioxide Mix	Mild Steel; Standard Stainless Steel
04015	Carbon Dioxide - 390grams	Mild Steel
04012	Carbon Dioxide - 600grams	Mild Steel
04025	Argon	Aluminium

Note: In order to use disposable gas you will need to purchase a regulator (04030) along with your chosen gas.

Note: In order to use a refillable gas bottle you will need to purchase or rent a bottle (not supplied by SIP), and also purchase a regulator.

The welder has a Synergic Control; turn the middle knob and the "Arc Length" icon will illuminate. See Fig.9

Fig.9

Turn the knob until the display shows ***"0.0";*** once set, after 3 seconds this will change to display welding volts and the ***"V"*** icon will illuminate.

It is important to set the ***right*** display in "Arc Length" position to ***"0.0".***

<u>This is the factory set position for synergic wire to power (welding current) ratio.</u>

You are now ready to weld.

PREPARATION FOR WELDING

- Clean the area to be welded including the earthing point; remove all rust, paint & contaminates.
- Place the earth clamp on to a cleaned area of the workpiece.

WELDING

- Position the torch so the MIG contact tip is about 6mm from the point where the welding is to commence.
  Press the torch trigger and the wire will feed, move the torch slowly in the chosen direction.
- Once the weld is completed, release the torch trigger.
  For future reference make a note the welding current and ARC Length for the material that has been welded.
- Rule of thumb is: weld right to left if you are right handed & left to right if you are left handed.
- During welding you may want to *slightly increase* the wire speed (ARC Length) or *slightly decrease* the ARC Length.
  This can be achieved by illuminating the **"Arc Length"** icon / function on the control panel.
  Turn the middle control knob anti-clockwise; this will increase the ARC Length (wire speed). This can be adjusted from ***minus (-)*** 0.1 to 5.
  If you want to decrease the ARC Length (wire speed) turn the middle control knob clockwise and the display will show 0.1 to 5.
- Once all work has been done, switch the gas and the machine off.
- On page 28 there is a table to assist setting the power to material thickness.
  <u>This is only a guide. Adjust the welding current using the left control knob.</u>

E70S Mild Copper Coated Mild Steel	*Material Thickness - mm*	*0.8*	*0.9*	*1.2*	*1.6*	*2.9*	*3.2*	*4.8*	*6.4*
	Welding Current	40A - 55A	40A - 60A	70A - 80A	90A - 110A	120A - 130A	160A - 170A	170A - 200A	190A - 210A

316 Stainless Steel Wire	*Material Thickness - mm*	*1.2*	*1.6*	*2.0*	*2.6*	*3.2*	*4.8*	*6.4*	*7.5*
	Welding Current	50A - 60A	70A - 80A	90A - 110A	110A - 130A	130A - 150A	160A - 170A	180A - 190A	200A - 210A

MIG TRIGGER OPTIONS

When using all the MIG processes there are three “Trigger Function” options:-

2T	This is the normal press trigger to weld - release to stop welding.
4T	This is “latch” function; press trigger and let go - welding starts; press during welding and let go - welding stops.
S4T	Like 4T but with the facility to set start current and end / crater current*

MIG NON-SYNERGIC OPTION

The welder can be used as a conventional traditional MIG welder.
Press the “Synergic” button until the LED is not lit.
This is now in “non-synergic “ mode.
The Power / Welding Volts & the Wire Feed can be set independently using the left and middle knobs.

Set the welder up as in normal solid wire / welding with gas mode.
Using the left knob set the welding volts & use the right knob to set the wire feed speed.
You may need to practice on a piece of scrap plate to set the your chosen parameters.
Follow information on preparation & welding on pages 29 & 30.

MMA / ARC WELDING

There are no hard and fast rules by which a particular gauge of electrode is selected, usually this is determined by the type of welding required and the thickness of the workpiece e.g. *a butt weld in 1.5mm (1/16") sheet metal can be done by a 1.6mm or 2.0mm electrode, the difference being that the 2.0mm electrode will do the job more quickly.*
The table gives a guide as to which electrode is most suitable according to the material thickness. This table is only a guide, and values given are an indication only.
These welding current values are for the E6013 electrodes, for other types of electrode consult their data sheet.

Electrode Size - mm	*Material Thickness - mm*	*Welding Current - A*
1.6	1 - 1.6	25 - 40
2.0	1.6 - 2.6	40 - 70
2.5	2.6 - 4.0	60 - 100
3.25	3.0 - 5.0	80 - 130
4.00	5.0 - 7.0	130 - 170

Note: The above is a guide only; always try a short weld test at the setting selected. It is normal to make minor adjustments to achieve the required weld.

WELDING CURRENT CONTROL

- Switch the welder on at the rear.
- Using the buttons on the front panel.
- Select MMA. See Fig.10.

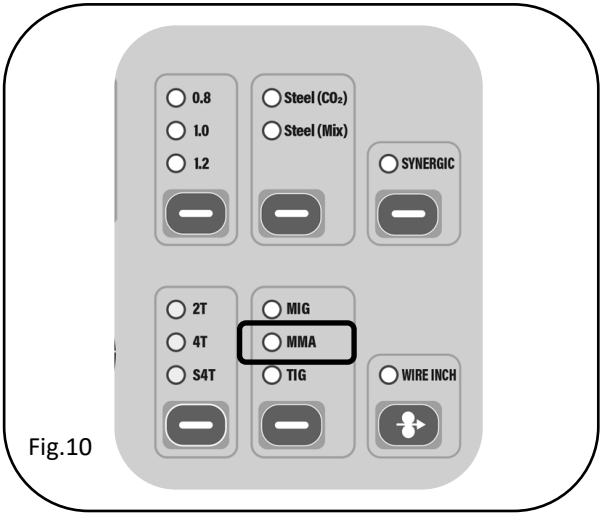


Fig.10

PREPARATION FOR WELDING

Clean the area to be welded, and the earthing point of all rust, paint and contaminants etc.

Place the earth clamp on to a cleaned area of the workpiece.

Connect the welder to the electrical supply but do not switch on.

WELDING

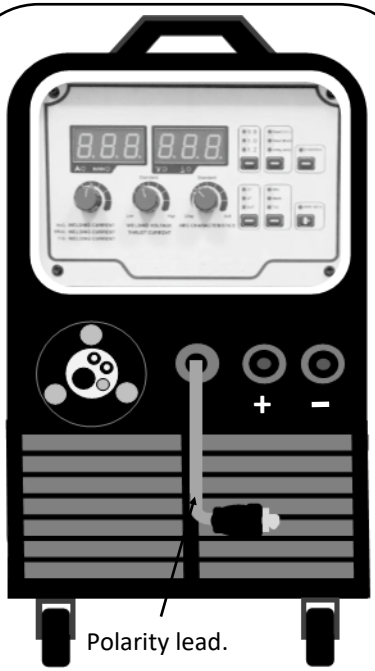


Fig.11

- Remove the polarity lead plug and leave it disconnected; it is not required for MMA / ARC welding. Fig.11.
- Connect the electrode lead plug into the positive (+) socket; twist to secure.
- Connect the earth lead plug to the negative (-) socket; twist to secure.

CAUTION: Ensure all protective equipment is worn and bystanders are not in the vicinity

- Select your required welding current; the table on page 32 can be used as a guide.
- The welding current adjustment is made by turning the left control knob; anti-clockwise to reduce or clockwise to increase the power.
- Fit the correct size welding electrode.

CAUTION: Be aware that the electrode is now live, simply touching any part of the workpiece with the electrode will create a spark.

- Place a welding headshield / headshield over your face (not supplied).
- Initiate the arc by striking the electrode; several attempts may be required.
- Once the arc is started, proceed steadily in one direction keeping the gap between the electrode and workpiece small and constant.

- The welder is fitted with a “Arc Force” control.
- This can be applied and adjusted by turning the middle knob either anti-clockwise or clockwise to deliver the required force.

- When the weld is complete simply “break” the arc by pulling the electrode away from the workpiece.
- Whilst wearing protective goggles or a face visor remove the slag from the weld using a chipping hammer and clean the weld using a wire brush.
- Once all work is completed, switch off the machine.

TIG WELDING

The following items are not supplied with the welder and will need to be purchased before being able to TIG weld.

TIG Torch with Gas Valve*	Gas Regulator	Tungsten Electrode
Gas - Disposable or Refillable	Filler Rod	PPE

***SIP Code 05029.**

The required tungsten diameter is determined by the thickness of the material to be welded, for each tungsten size there are strict current limits which should be adhered to.

Too great a current causes excessive tungsten consumption and weld pool contamination, whilst a too small a current causes arc instability.

The table below gives a guide as to which tungsten is most suitable according to the material thickness. This table is only a guide, and values given are a indication only.

Welding Mode	Tungsten Type	Colour	Welding Thickness mm	Tungsten Diameter mm	Welding Current - Steel / Amps
AC or DC	Ceriated 2%	Grey	0.5	1.0	30 - 60
AC or DC	Lanthanated 1%	Black	1.0	1.6	50 - 70
AC or DC	Lanthanated 1.5%	Gold	1.5	1.6	90 - 110
AC or DC	Lanthanated 2%	Blue	2.0	1.6	100 - 130
DC	Thoriated 2%	Red	3.0	2.4	120 - 140
DC	Zirconiated	White	4.0	2.4	150 - 200

Note: The table is a guide only; always try a short weld test at the setting selected. It is normal to make minor adjustments to achieve the required weld.

It is important to choose a tungsten with the correct diameter for the current to be used.

The tungsten will normally protrude from the ceramic nozzle by 2 or 3mm; in order to gain access to areas such as internal corners the tungsten can be made to protrude by up to 8mm.

The tungsten should be sharpened facing the grinding wheel as shown below.

Fig.13

The tip should be perfectly concentric in order to avoid arc deviations on DC TIG, and "domed" at the end for AC TIG**** see note on page 36.***

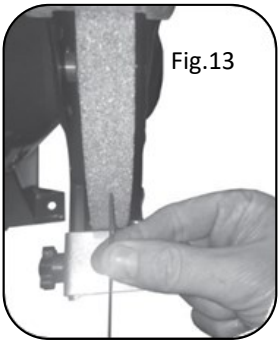


Fig.13

Note: Dust created by grinding tungsten's may require collection and disposal - contact your local authority or the HSE for advice.

Note: This welders output for TIG welding is DC.
This means that in TIG mode this machine ***cannot*** be used to weld Aluminium or its alloys.

PREPARATION FOR WELDING

- Clean the area to be welded, and the earthing point of all rust, paint and contaminants etc.
- Place the earth clamp onto a cleaned area of the workpiece. Fit the ground tungsten into the TIG torch head.

- Connect the regulator (not supplied) onto the gas bottle.
- Connect the gas pipe from the TIG torch directly to the regulator. Turn the regulator on. Set the gas flow via the valve on the torch to 5 - 7L/Min. Connect the welder to the electrical supply but do not switch on

WELDING

- Connect the TIG Torch & earth leads to the front of the welder. Fig.14
- TIG Torch to the Negative (-) socket & earth to the Positive (+) socket.
- Remove the polarity lead plug - it is not required for TIG welding.
- The gas hose on the torch is connected directly to the gas regulator.

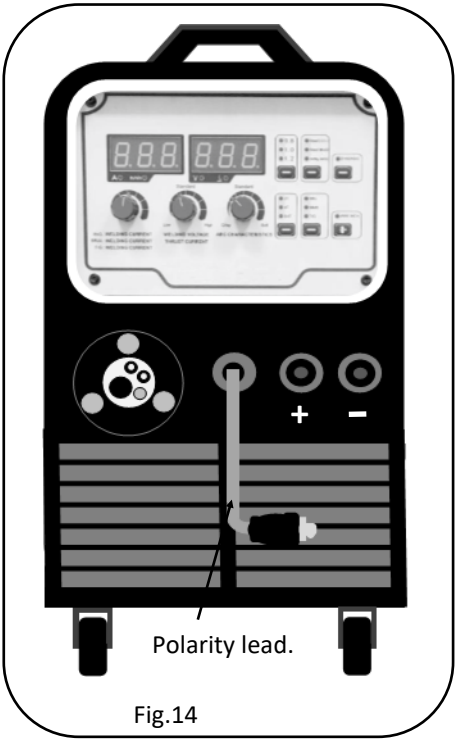


Fig.14

Switch the machine on and select TIG from the front control panel using the selection button.

Only the TIG selectable. Fig.15
The Left display show the welding current & the Right display shows the welding volts.
Turn the left control knob clockwise to increase the welding current and anti-clockwise to decrease the welding current.
Use the table on page 36 to set your parameters.
This is only a guide.

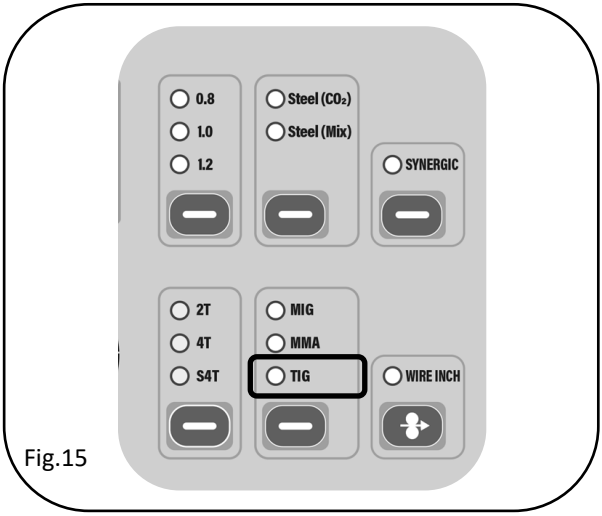


Fig.15

DC TIG MILD & STAINLESS STEEL WELDING

Base Metal mm	*Tungsten Ø mm*	*Filler Wire Ø mm*	*Gas Flow L/min*	*Joint Types & Welding Current (A)*
1.6	1.6	1.6	5 - 8	Butt 50 - 80: Corner 50 - 80: Fillet 60 - 90
2.4	1.6 / 2.4	1.6 / 2.4	5 - 10	Butt 80 - 110: Corner 80 - 110: Fillet 90 - 120
3.2	2.4	2.4	5 - 10	Butt 80 - 120: Corner 90 - 120: Fillet 100 - 140
4.8	2.4	2.4	6 - 12	Butt 120 - 200: Corner 150 - 200:Fillet 170 - 220

CAUTION: Ensure all protective equipment is worn and bystanders are not in the vicinity

CAUTION: Be aware that the electrode is now live, simply touching any part of the workpiece with the electrode will create a spark.

- With the welder switched on, turn the gas on at the bottle.
- Open the valve on the TIG torch to allow the gas to flow - adjust the flow using the table Page 36.
- Connect the earth clamp & lead to the workpiece.
- With the tungsten prepared and inserted in the torch, place your headshield (not supplied) over your face.
- Initiate the arc; scratch the tungsten onto the workpiece, and lean the TIG torch back onto the ceramic, in turn lifting the tungsten off the workpiece to initiate a welding arc. When the arc is created proceed steadily in one direction, maintaining a constant distance between the tip of the tungsten and the workpiece.
- Use filler rod (not supplied) as required.
  Once all work has been done, switch the machine off and turn the gas off.

Once all work has been done, switch the machine off and turn the gas off.

MAINTENANCE

- Clear dust from the machine at regular intervals, if used in a dirty environment the machine should be cleaned at least once a month.
- Check all connections are clean and tight, if there is any oxidization clean the connection with a mild abrasive or wire brush.
- Check all cables for damage or degradation to the insulation, replace if any is found.
- Check earth clamp condition ensure they clamp tightly, replace if damaged or loose.
- If the machine is not to be used for a long time, store it in the original packing a dry place.
- All consumables in the torch must be checked and cleaned / replaced frequently.

PARTS INFORMATION

For exploded drawings and parts list visit:-

www.sip-group.com

Type the SIP 5 digit code into the search bar: 05751.

TROUBLESHOOTING

No	*Description*	*Symptom*	*Remedy*
1	Yellow indicator is on.	Mains voltage is too high. Mains voltage is too low. Poor ventilation - Over-heating. Thermal Overload Duty Cycle Exceeded.	Switch off & check the mains supply. Improve ventilation. Machine will auto reset.
2	No Wire Feed.	Potentiometer too low. Contact tip is blocked. Feed roll tension low.	Turn up potentiometer. Change MIG contact tip. Adjust tension pressure. Check roller size.
3	Cooling fan not working	Check if welder is on. Fan faulty. Loose connection cable.	Switch on welder. Replace fan. Check connections.
4	Unstable arc / excess spatter	Contact tip too large. Used on undersized sup-ply / extension lead. Erratic wire feed. Incorrect settings	Check & replace with correct size. Plug directly into socket. Check torch liner & consumables. Correct the welding parameters.
5	Arc not stable.	Earth clamp & cable worn. Rusty, dirty workpiece.	Replace clamp & cable. Clean any rust, grease etc.
6	Other	Contact SIP Customer Service	

UK - DECLARATION OF CONFORMITY

We

SIP (Industrial Products) Ltd
Gelders Hall Road
Shepshed Loughborough
Leicestershire
LE12 9NH
England

As the manufacturer within England, Scotland and Wales, we declare that the
SIP Weldmate Autoplus 250A MIG/ARC/TIG : SIP Code 05751

Conforms to the requirements of the following regulation(s), as indicated:

Electromagnetic Compatibility Regulations 2016
Electrical Equipment (Safety) Regulations 2016
The Restriction of the Use of Certain Hazardous Substances in
Electrical & Electronic Equipment Regulations 2012

And the following harmonised standard(s):

BS EN60974-10:2014+A1
BS EN IEC 60974-1:2018/AI:2019

Signed.
Mr. Paul Ippaso
Managing Director
SIP (Industrial Products) Ltd
Date: 23 February 2024

UK CA

EU - DECLARATION OF CONFORMITY

We

SIP Machinery Europe Ltd
Quayside Business Park
Dundalk
County Louth

As the manufacturer within England, Scotland and Wales, we declare that the

SIP Weldmate Autoplus 250A MIG/ARC/TIG Welder: SIP Item Number 05751

Conforms to the requirements of the following directive(s), as indicated:

EMC 2014/30/EU
Low Voltage Directive 2014/35/EU
RoHS 2011/65/EU & 2015/863/EU
And the following harmonised standard(s):

EN60974-10:2014+A1
EN IEC 60974-1:2018/AI:2019

Signed.
Mr. Paul Ippaso
Managing Director
SIP (Machinery Europe) Ltd
Date: 23 February 2024

CE

Please dispose of packaging for the product in a responsible manner. It is suitable for recycling. Help to protect the environment, take the packaging to the local amenity tip and place into the appropriate recycling bin.

Never dispose of electrical equipment or batteries in with your domestic waste. If your supplier offers a disposal facility please use it or alternatively use a recognised recycling agent. This will allow the recycling of raw materials and help protect the environment.

FOR HELP OR ADVICE ON THIS PRODUCT PLEASE CONTACT YOUR DISTRIBUTOR, OR SIP

DIRECTLY ON:
TEL: 01509 500400
EMAIL:
sales@sip-group.com
or
customerservice@sip-group.com
www.sip-group.com

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