



*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 re-cycling agent. This will allow the recycling of raw materials and help protect the environment.*

**sip**  
SIP INDUSTRIAL

**machinery specialists since 1968**

## **SIP HG2400, HG3000 & HG3003** **Mig/Arc Inverter Welder**



**05769, 05772 & 05774**

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

**TEL: 01509500400**

**EMAIL: [sales@sip-group.com](mailto:sales@sip-group.com) or [technical@sip-group.com](mailto:technical@sip-group.com)**

**[www.sip-group.com](http://www.sip-group.com)**

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

**Declaration of Conformity**

We

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

As the manufacturer's authorised representative within the EC  
declare that the


SIP HG2400 Mig/Arc Inverter Welder (single phase) - SIP Part No. 05769  
SIP HG3000 Mig/Arc Inverter Welder (single Phase) - SIP Part No. 05772  
SIP HG3003 Mig/Arc Inverter Welder (3 phase) - SIP Part No. 05774

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

2006/95/EC	Low Voltage Directive
2004/108/EC	EMC Directive
2011/65/EU	RoHS Directive

**And the relevant harmonised standard(s), including**

EN 60974-1:2012  
EN 60974-10:2007

Signed:  .....

Mr P. Ippaso - Managing Director - SIP (Industrial Products) Ltd  
Date: 06/05/2016.



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## 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.

## SAFETY INSTRUCTIONS



**IMPORTANT:** Please read the following instructions carefully, *failure to do so could lead to serious personal injury and / or damage to the mig welder.*

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 or Arc 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.

## NOTES

**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, mig tip & shroud 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 WORKPIECE:** Always use welding clamps to secure the workpiece. 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.

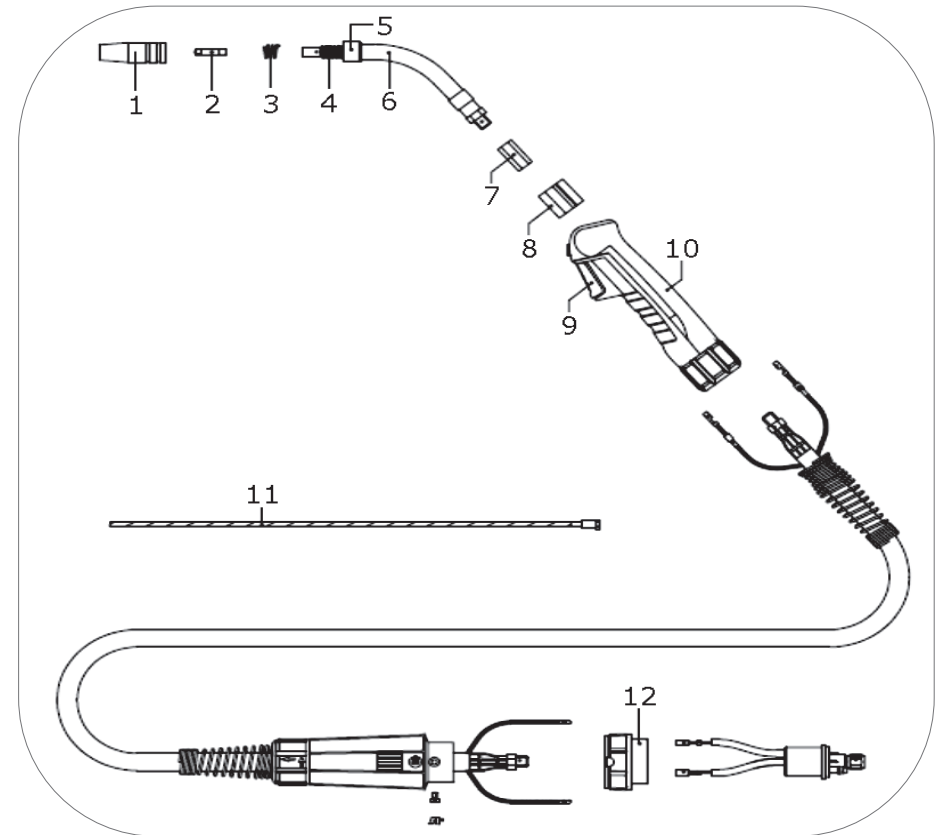
## SAFETY INSTRUCTIONS....cont

**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 workpiece should never be held with bare hands; The workpiece 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 competent electrician or 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.

## PARTS LIST (MIG TORCH)



Ref. No.	Description	Sip Part No.	Ref. No.	Description	Sip Part No.
1.	Shroud	02798	10.	Handle	09324
2.	0.8mm Tip	09080	11.	Steel liner	02676
	1.0mm Tip	09075			
3.	Spring	09084	N/A	Torch Complete	05505
4.	Gas diffuser	09130	N/A.	Teflon liner (1 metre)	09173
5.	Head insulator	09302	N/A.	Teflon liner collet	09152
6-7.	Swan neck	09315	N/A.	Teflon liner o-ring	09345
8.	Torch body (plastic)	09326	N/A.	Welding torch Complete	05505
9.	Trigger	09332			

## PARTS LIST - 05774...cont

Ref. No.	Description	Sip Part No.	Ref. No.	Description	Sip Part No.
52.	Amp meter	WE02-00203	63.	Bar	WE02-00278
53.	Potentiometer	WE02-00204	64.	Switch	WE02-00167
54.	Centre panel	WE02-00205	65.	Fixed plate bracket	WE02-00279
55.	Wire feed motor panel	WE02-00206	66.	Filter	WE02-00280
56.	Euro connector	WE02-00207	N/A.	Roller 0.8/1.0mm	WE02-00119
57.	Insulating spacer	WE02-00208	N/A.	Gas hose c/w fittings	WE02-00126
58.	Wire feed motor	WE02-00209	N/A.	Gas hose fitting (machine)	WE02-00093
59.	Left hand lower panel	WE02-00210	N/A.	Welding torch	05505
60.	Left hand upper panel	WE02-00277	N/A.	Arc welding accessory kit	05105
61.	Door latch	WE02-00002	N/A.	Regulator	09026
62.	Wire spool holder	WE02-00212			

## SAFETY INSTRUCTIONS...cont

### 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 workpiece 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 material.

- All inflammable materials must be removed from the area.
- Have a suitable fire extinguisher available close by.
- Causes of fire and explosion include; combustibles reached by the arc, flame, flying sparks, hot slag or heated material, misuse of compressed gases and cylinders and short circuits.
- Flying sparks or falling slag can pass through cracks along pipes, through windows or doors and through walls or floor openings and out of sight of the operator; Sparks and slag can fly up-to 10 metres.
- Keep equipment clean and operable; Free of oil, grease and of metallic particles (in electrical parts) that can cause short circuits.
- If combustibles are in the area. **Do not** weld, move the work if practical to an area free of combustibles, avoid paint spray rooms, dip tanks, storage areas and ventilators. If the work can not be moved, then move the combustibles at



## SAFETY INSTRUCTIONS...cont

least 10 metres away and out of the reach of sparks and heat or 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).

### GLARE 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.

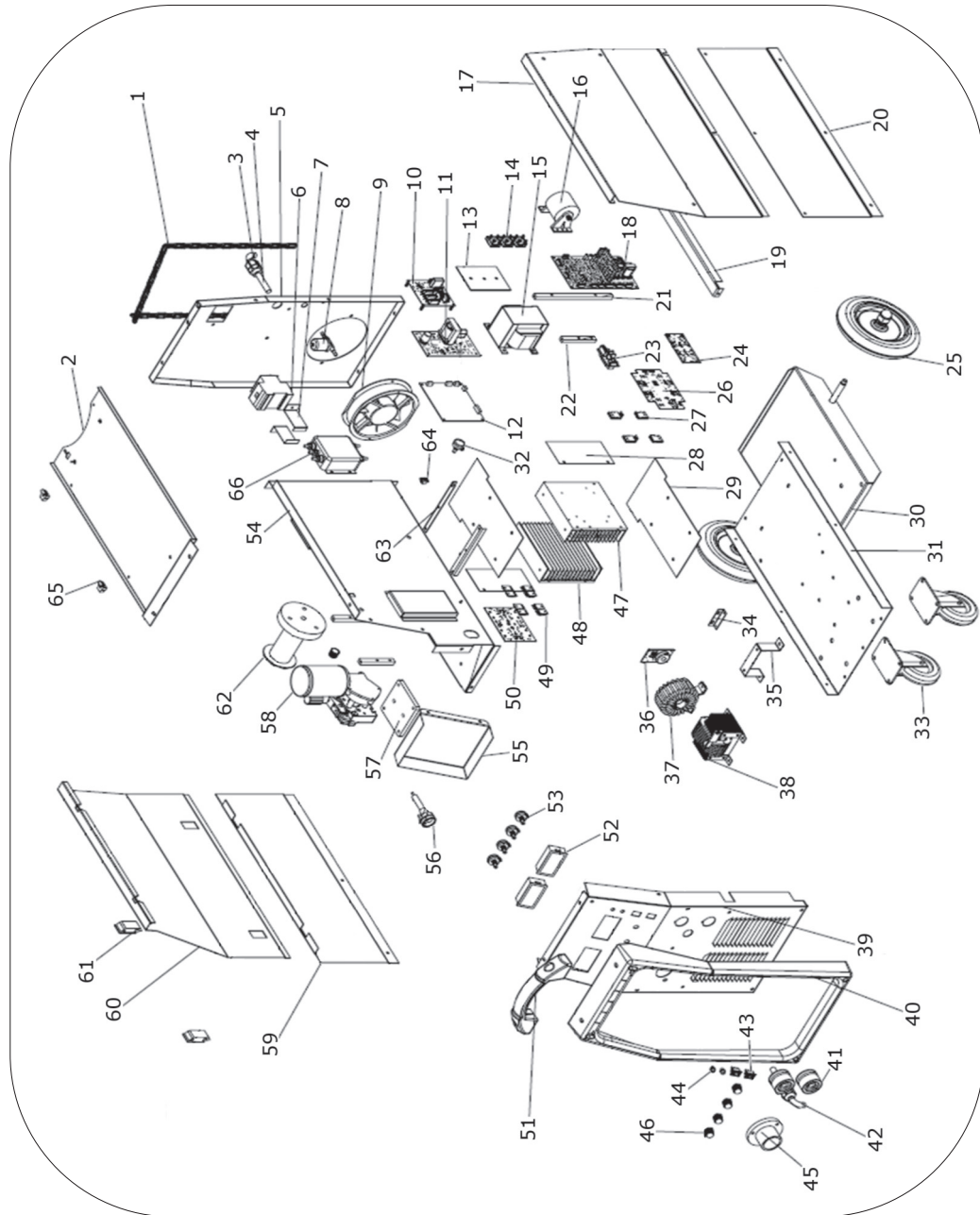
- The electric welding arc must not be observed with the naked eye. Always use a welding mask; Ensure the welding mask is fitted with the correct shade of filter lens for the welding current level, and covers the entire face from neck to the top of the head.
- Welding gauntlet gloves should be worn to 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 workpieces should never be handled

## PARTS LIST - 05774

Ref. No.	Description	Sip Part No.	Ref. No.	Description	Sip Part No.
1.	Gas bottle chain	WE02-00091	27.	IGBT	WE02-00269
2.	Upper panel	WE02-00213	28.	Radiator windscreen (left / right)	WE02-00270
3.	Cable gland	WE02-00255	29.	Radiator windscreen (upper / lower)	WE02-00271
4.	Mains lead	WE02-00256	30.	Wheel panel	WE02-00186
5.	Rear panel	WE02-00257	31.	Lower panel	WE02-00187
6.	Circuit breaker	WE02-00258	32.	Castor	WE02-00111
7.	Circuit breaker holder	WE02-00164	33.	Potentiometer	WE02-00170
8.	Gas valve	WE02-00165	34.	Transformer bracket	WE02-00189
9.	Fan	WE02-00259	35.	Bracket	WE02-00190
10.	Power resistance capacity board	WE02-00260	36.	Current sampling plate	WE02-00272
11.	Power PCB	WE02-00261	37.	Medium frequency transformer	WE02-00273
12.	Wire feed PCB	WE02-00169	38.	Choke	WE02-00193
13.	Rectifier bridge radiator	WE02-00262	39.	Front panel	WE02-00274
14.	Rectifier board	WE02-00171	40.	Plastic frame	WE02-00112
15.	Control transformer	WE02-00263	41.	Dinse socket	WE02-00195
16.	Filter capacitor	WE02-00264	42.	Cable gland	WE02-00160
17.	Right hand upper panel	WE02-00265	43.	Selector switch	WE02-00196
18.	Timing sequence board	WE02-00266	44.	LED holder	WE02-00197
19.	Bracket	WE02-00176	45.	Euro connector surround	WE02-00070
20.	Right hand lower panel	WE02-00177	46.	Potentiometer knob	WE02-00198
21.	Radiator support pin	WE02-00267	47.	IGBT radiator	WE02-00275
22.	Radiator support pin	WE02-00268	48.	Fast recovery tube radiator	WE02-00276
23.	PCB	WE02-00180	49.	Fast recovery diode	WE07-00014
24.	PCB	WE02-00181	50.	Rectifier board	WE02-00201
25.	Rear wheel	WE02-00097	51.	Handle	WE02-00077
26.	PCB	WE02-00182	52.	Voltmeter	WE02-00202



## EXPLODED DRAWING - 05774



## SAFETY INSTRUCTIONS...cont

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 must be adequate to remove the smoke and fumes during welding (see the relevant safety standard 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 U.V 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 quantities can change oxygen concentration dangerously. **DO NOT** bring gas cylinders 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.

## SAFETY INSTRUCTIONS....cont

- 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 decompose trichloroethylene and perchlorethylene vapours to form phosgene. **DO NOT WELD** or cut where solvent vapours can be drawn into the welding atmosphere, or where the radiant energy can penetrate to atmospheres containing even minute amounts of trichloroethylene or perchlorethylene.



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.

## PARTS LIST - 05772....cont

Ref. No.	Description	Sip Part No.	Ref. No.	Description	Sip Part No.
52.	Amp meter	WE02-00203	62.	Wire spool holder	WE02-00212
53.	Potentiometer	WE02-00204	63.	Upper panel	WE02-00213
54.	Centre panel	WE02-00205	64.	Upper panel screw	WE02-00088
55.	Wire feed motor panel	WE02-00206	N/A.	Roller 0.8/1.0mm	WE02-00119
56.	Euro connector	WE02-00207	N/A.	Gas hose c/w fittings	WE02-00126
57.	Insulating spacer	WE02-00208	N/A.	Gas hose fitting (machine)	WE02-00093
58.	Wire feed motor	WE02-00209	N/A.	Welding torch	05505
59.	Left hand lower panel	WE02-00210	N/A.	Arc welding accessory kit	05105
60.	Left hand upper panel	WE02-00211	N/A.	Regulator	09026
61.	Door latch	WE02-00002			

## PARTS LIST - 05772

Ref. No.	Description	Sip Part No.	Ref. No.	Description	Sip Part No.
1.	Gas bottle chain	WE02-00091	27.	IGBT	WE02-00183
2.	EMI filter	WE04-00071	28.	Heatsink bracket	WE02-00184
3.	Cable gland	WE02-00160	29.	Heatsink plate	WE02-00185
4.	Mains lead	WE02-00161	30.	Wheel panel	WE02-00186
5.	Rear panel	WE02-00162	31.	Lower panel	WE02-00187
6.	Circuit breaker (on/off)	WE02-00163	32.	Castor	WE02-00111
7.	Circuit breaker holder	WE02-00164	33.	Strut	WE02-00188
8.	Gas valve	WE02-00165	34.	Transformer bracket	WE02-00189
9.	Fan	WE02-00166	35.	Bracket	WE02-00190
10.	Switch	WE02-00167	36.	Amperage PCB	WE02-00191
11.	PCB	WE02-00168	37.	Transformer	WE02-00192
12.	Wire feed board	WE02-00169	38.	Choke	WE02-00193
13.	Potentiometer	WE02-00170	39.	Front panel	WE02-00194
14.	Rectifier board	WE02-00171	40.	Plastic frame	WE02-00112
15.	Control transformer	WE02-00172	41.	Dinse socket	WE02-00195
16.	Fan	WE02-00173	42.	Cable gland	WE02-00161
17.	Right hand upper panel	WE02-00174	43.	Selector switch	WE02-00196
18.	Main control board	WE02-00175	44.	LED holder	WE02-00197
19.	Bracket	WE02-00176	45.	Euro connector surround	WE02-00070
20.	Right hand lower panel	WE02-00177	46.	Potentiometer knob	WE02-00198
21.	Heatsink bracket	WE02-00178	47.	IGBT heatsink	WE02-00199
22.	Heatsink bracket	WE02-00179	48.	FRD heatsink	WE02-00200
23.	PCB	WE02-00180	49.	Fast recovery diode	WE07-00014
24.	PCB	WE02-00181	50.	Rectifier board	WE02-00201
25.	Rear wheel	WE02-00097	51.	Handle	WE02-00077
26.	PCB	WE02-00182	52.	Voltmeter	WE02-00202

## 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.

### 05769 / 05772 SIP HG2400 & HG3000 (SINGLE PHASE):

#### Connecting to the power supply:

These SIP HG inverter welders are supplied without a plug fitted, they must not be connected to a standard 13A supply, consult the technical specification table (page 14) for the required rating, if in doubt contact a qualified electrician. Before using the welder, inspect all the leads and plugs to ensure that none are damaged. If any damage is visible have the welder inspected / repaired by a suitably qualified person.

#### The wires for the plug / connection 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 / connection, 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  $\perp$

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

## ELECTRICAL CONNECTION....cont

05774 SIP HG3003 (3 PHASE):

### Connecting to the power supply:

The 05774 SIP HG3003 inverter welder is supplied without a plug fitted, it must not be connected to a 230V single phase supply; It requires a 400v 50hz 3 phase supply. Before using the welder, inspect the mains lead and plug (where applicable) to ensure that neither are damaged. If any damage is visible have the welder inspected / repaired by a suitably qualified person.

The wires for the plug / connection are coloured in the following way:

Yellow / green	Earth
Brown	Phase
Black	Phase
Blue	Phase

Always secure the wires in the terminal carefully and tightly. Secure the cable in the cord grip, where applicable, carefully.



**Warning:** Never connect phase wires to the earth terminal. Only fit an approved plug and the correct rated fuse. If in doubt consult a qualified electrician.

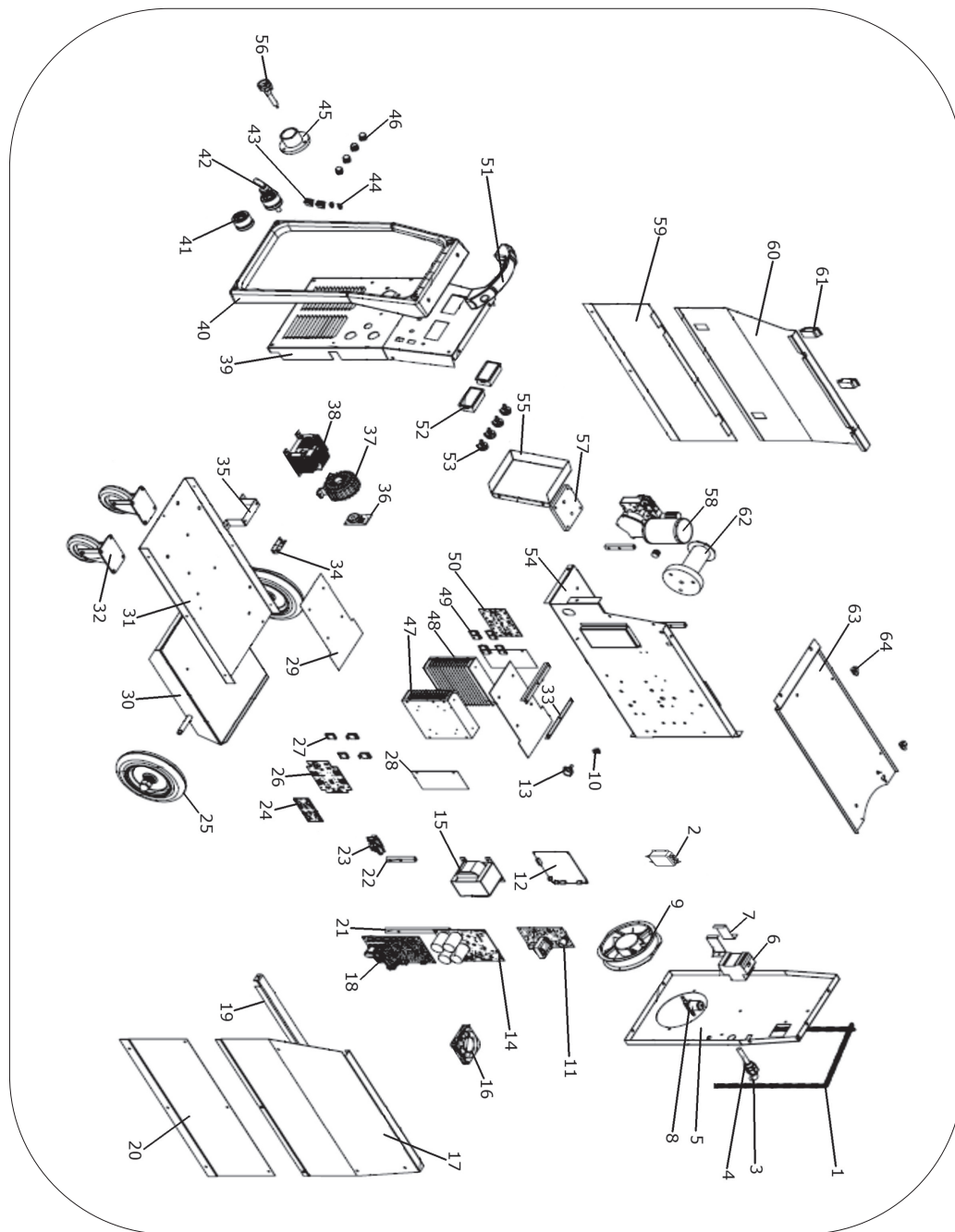


**Note:** Always make sure the electrical supply is of the correct voltage and the correct fuse protection is used.



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

## EXPLODED DRAWING - 05772



## PARTS LIST - 05769....cont

Ref. No.	Description	Sip Part No.	Ref. No.	Description	Sip Part No.
52.	Wire feed motor panel	WE02-00206	60.	Upper panel	WE02-00213
53.	Euro connector	WE02-00207	61.	Upper panel screw	WE02-00088
54.	Insulating spacer	WE02-00208	N/A.	Roller 0.8/1.0mm	WE02-00119
55.	Wire feed motor	WE02-00209	N/A.	Gas hose c/w fittings	WE02-00126
56.	Left hand lower panel	WE02-00210	N/A.	Gas hose fitting (machine)	WE02-00093
57.	Left hand upper panel	WE02-00300	N/A.	Welding torch	05505
58.	Door latch	WE02-00002	N/A.	Arc welding accessory kit	05105
59.	Wire spool holder	WE02-00212	N/A.	Regulator	09026

## GUARANTEE

### Guarantee:

These SIP inverter welders are 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 & clamps etc.



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

## TECHNICAL SPECIFICATION

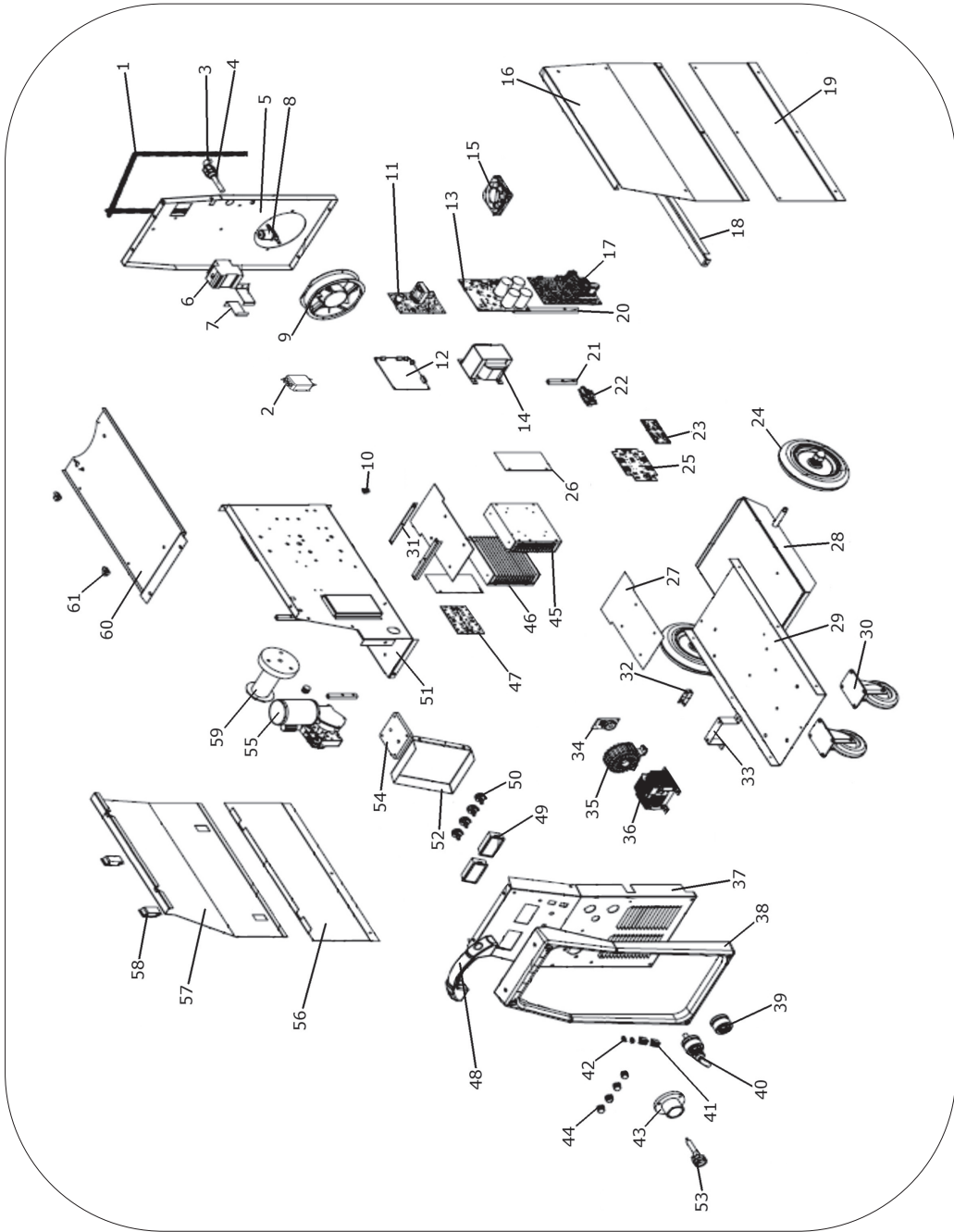
Model	SIP HG2400	SIP HG3000	SIP HG3003
Input Voltage	230V ~ 50/60Hz	230V ~ 50/60Hz	400V ~ 50/60Hz
Input Current	30.6A	40.3A	11A
Output Current - Mig	50A - 200A	50A - 250A	50A - 250A
Output Voltage - Mig	16.5V - 24V	16.5V - 26.5V	16.5V - 26.5V
Output Current - Arc	30A - 200A	30A - 200A	30A - 250A
Output Voltage - Arc	21.2V - 28V	21.2V - 28V	21.2V - 30V
Wire Diameter	0.8mm - 1.0mm	0.8mm - 1.0mm	0.8mm - 1.0mm
Wire Spool Size	5Kg - 15Kg	5Kg - 15Kg	5Kg - 15Kg
Wire Type	Solid / Flux cored	Solid / Flux cored	Solid / Flux cored
Duty Cycle @ 20°C	200 amps @ 80% - Mig	250 amps @ 80% - Mig	250 amps @ 80% - Mig
	200 amps @ 80% - Arc	200 amps @ 80% - Arc	250 amps @ 80% - Arc
	179 amps @ 100% - Mig	224 amps @ 100% - Mig	224 amps @ 100% - Mig
	179 amps @ 80% - Arc	179 amps @ 100% - Arc	224 amps @ 100% - Arc
Duty Cycle @ 40°C	200 amps @ 60% - Mig	250 amps @ 60% - Mig	250 amps @ 60% - Mig
	200 amps @ 60% - Arc	200 amps @ 60% - Arc	250 amps @ 60% - Arc
	155 amps @ 100% - Mig	192 amps @ 100% - Mig	194 amps @ 100% - Mig
	155 amps @ 100% - Arc	154 amps @ 100% - Arc	194 amps @ 100% - Arc
Insulation Class	H	H	H
Protection	IP21S	IP21S	IP21S

## PARTS LIST - 05769

Ref. No.	Description	Sip Part No.	Ref. No.	Description	Sip Part No.
1.	Gas bottle chain	WE02-00091	27.	Heatsink plate	WE02-00185
2.	Filter	WE04-00071	28.	Wheel panel	WE02-00186
3.	Cable gland	WE02-00160	29.	Lower panel	WE02-00187
4.	Mains lead	WE02-00161	30.	Castor	WE02-00111
5.	Rear panel	WE02-00162	31.	Strut	WE02-00188
6.	Circuit breaker (on/off)	WE02-00163	32.	Transformer bracket	WE02-00189
7.	Circuit breaker holder	WE02-00164	33.	Bracket	WE02-00190
8.	Gas valve	WE02-00165	34.	Amperage PCB	WE02-00191
9.	Fan motor	WE02-00166	35.	Output reactor	WE02-00192
10.	Inching switch	WE02-00167	36.	Transformer	WE02-00193
11.	Power PCB	WE02-00168	37.	Front panel	WE02-00299
12.	Wire feed board	WE02-00169	38.	Plastic frame	WE02-00112
13.	Rectifier PCB	WE02-00295	39.	Dinse socket	WE02-00195
14.	Control transformer	WE02-00172	40.	Link lead	WE02-00301
15.	Fan	WE02-00173	41.	Selector switch	WE02-00196
16.	Right hand upper panel	WE02-00296	42.	LED holder	WE02-00197
17.	Timing sequence PCB	WE02-00297	43.	Euro connector surround	WE02-00070
18.	Bracket	WE02-00176	44.	Potentiometer knob	WE02-00198
19.	Right side lower panel	WE02-00177	45.	IGBT heatsink	WE02-00199
20.	Bracket	WE02-00178	46.	FRD heatsink	WE02-00200
21.	Bracket	WE02-00179	47.	Rectifier board	WE02-00201
22.	PCB	WE02-00180	48.	Handle	WE02-00077
23.	PCB	WE02-00181	49.	Voltmeter	WE02-00202
24.	Wheel	WE02-00097		Amp meter	WE02-00203
25.	IGBT power amplifier PCB	WE02-00298	50.	Potentiometer	WE02-00204
26.	Heatsink bracket	WE02-00184	51.	Centre panel	WE02-00205



## EXPLODED DRAWING - 05769



## CONTENTS AND ACCESSORIES

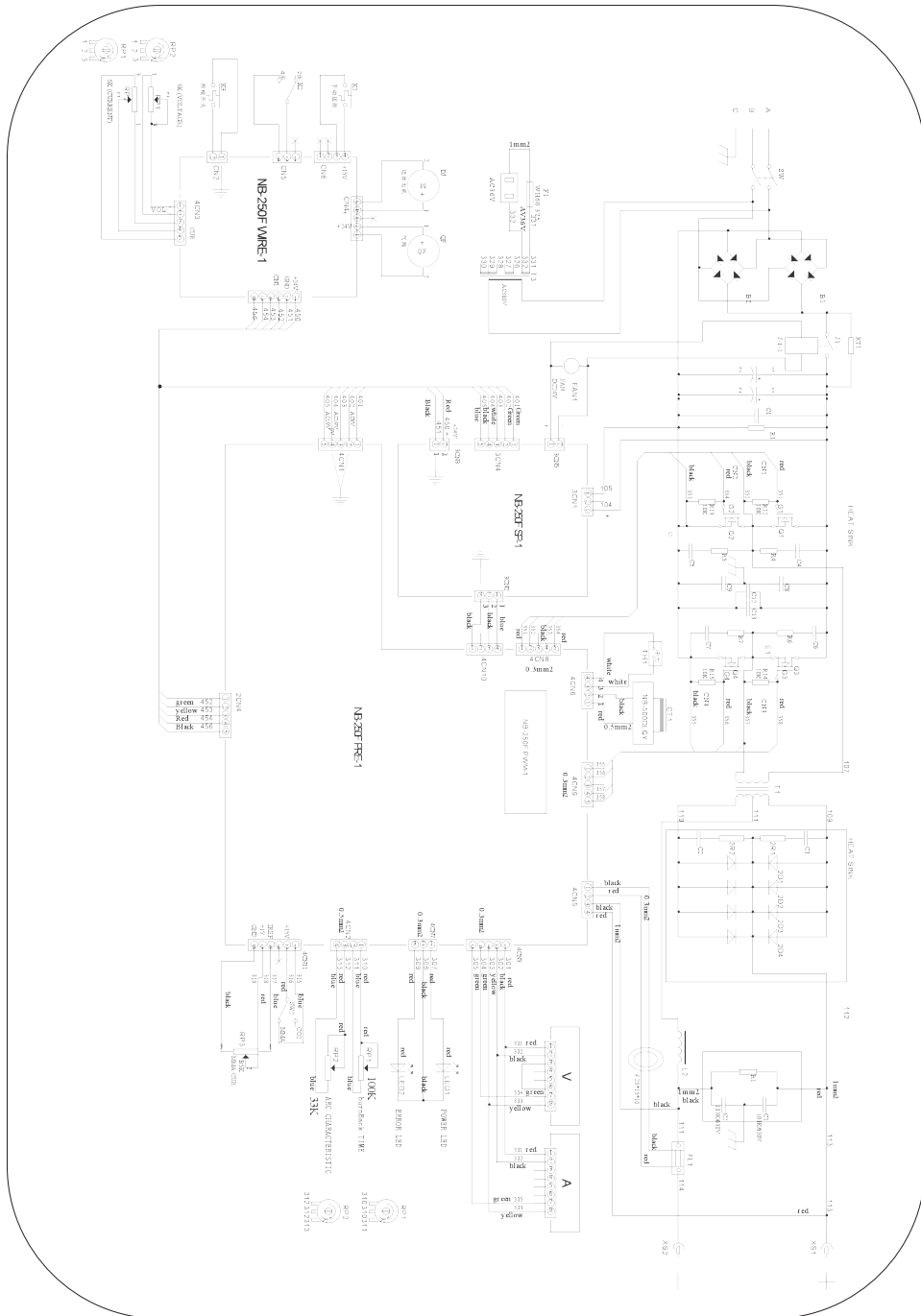
HG Mig/Arc Welder	0.8 & 1.0mm contact tip (1 pc for each)
3m earth cable with earth clamp	
Instruction Manual	
3m MB25 Mig torch with 0.8mm contact tip	
3m x 8mm Ø gas hose and hose clamp	



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

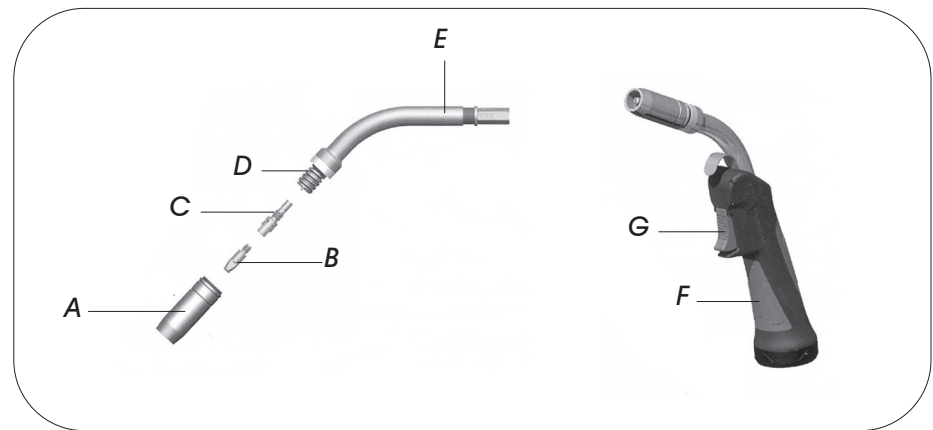






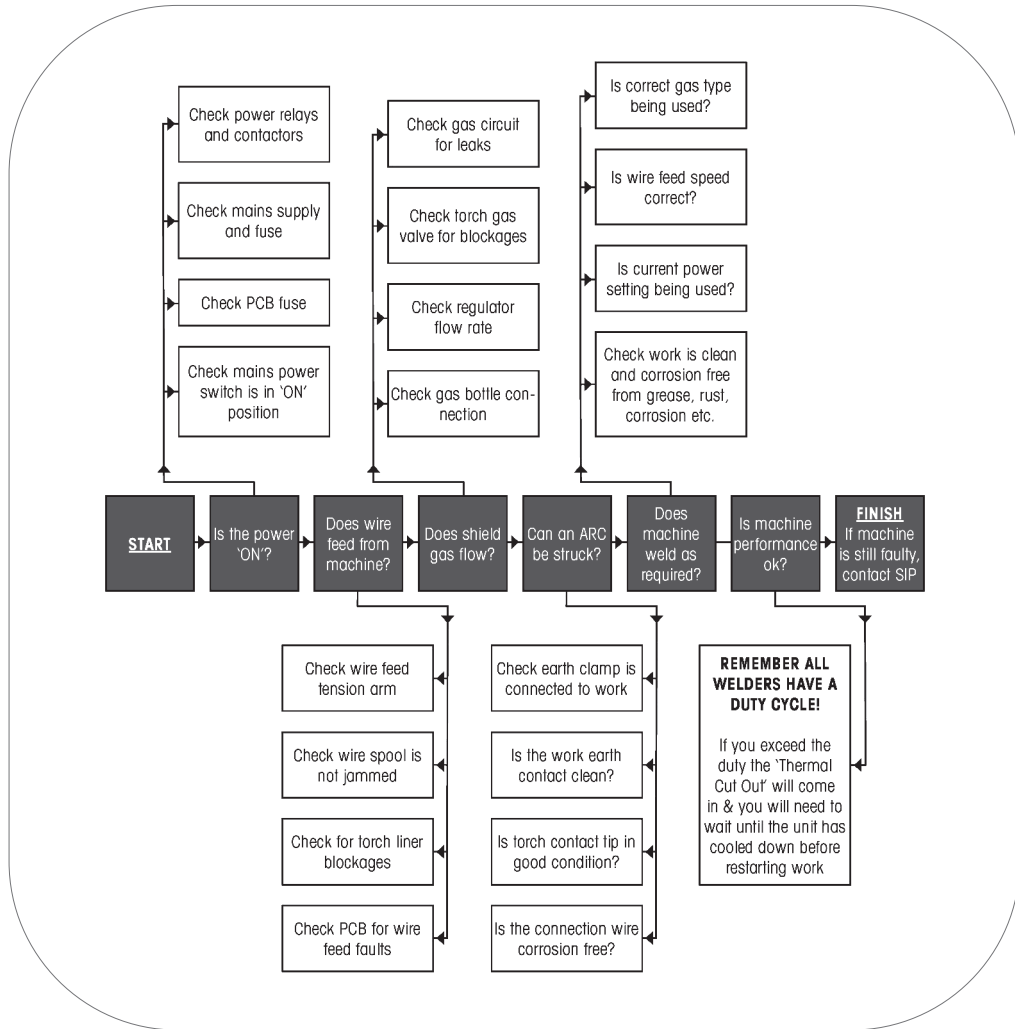
Ref. No.	Description	Ref. No.	Description
1.	Mig Torch Euro Socket	15.	Earth Clamp
2.	Inductance Control	16.	Earth Lead
3.	Wire Speed Control	17.	Earth Dinse Plug
4.	Mig Welding Voltage Control	18.	Large Gas Bottle Carrier
5.	Output Current Display	19.	Gas Input Connection
6.	Output Voltage Display	20.	Mains Lead
7.	Power Light	21.	On/Off Switch
8.	Thermal Overload Light	22.	Large Bottle Retaining Chain
9.	Mig/Arc Mode Selector	23.	Fan Inlet
10.	Arc Welding Output Control	24.	Wire Spool Holder
11.	2 Touch / 4 Touch Mode Selector	25.	Wire Feed 'inching' Button
12.	Positive Output Socket	26.	Burn-Back Control
13.	Negative Output Socket	27.	Wire Feed Motor
14.	Mig Torch	28.	Wire Feed Assembly

## MIG TORCH



Ref.	Description	Ref.	Description
A.	Shroud	E.	Swan Neck
B.	Mig Tip	F.	Torch Handle
C.	Gas Diffuser	G.	Trigger Switch
D.	Shroud Spring		

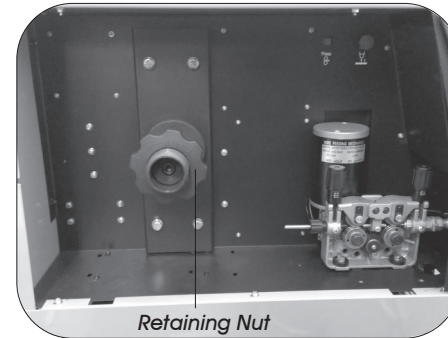




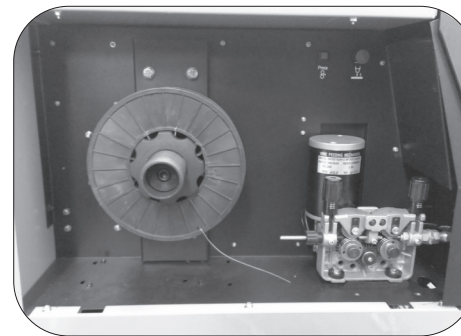
**Note:** If none of the above solutions work then contact your local distributor for repair, or contact SIP technical for more advise.

## Loading the welding wire:

- Pull up on the 2 door latches to open the door.
- Turn the wire retaining nut clockwise to loosen and remove it.



- Fit the welding wire over the spool holder so that the wire will feed from the bottom of the roll.
- Refit the retaining nut, and secure in place by tightening it (turn anti-clockwise).



## Feeding the welding wire:

Before feeding the wire, you should ensure that the correct wire feed rollers are fitted. To check / change the roller:

- Pull the pressure adjustment knob on the wire feed motor forwards so it takes the pressure from the tension arms, (see picture on page 20).
- Loosen and remove the roller retaining screw.
- The size of the roller should be clearly marked on the side.
- Change as required by simply pulling the roller from the roller shaft.
- To refit the roller ensure that the 2 roller drive pins line up with the 2 holes on the roller.



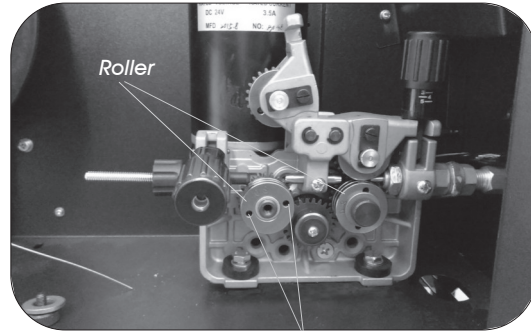
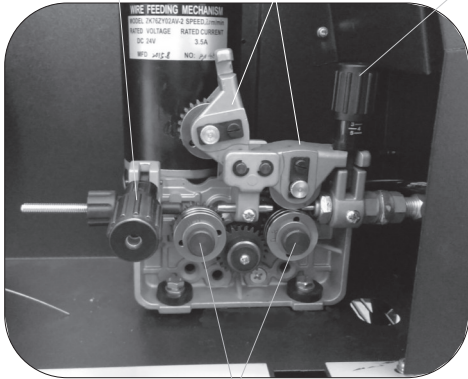
## OPERATING INSTRUCTIONS...cont

- Refit and tighten the retaining screw to secure the roller in place.

Pressure Adjust Knob

Tension Arm

Pressure Adjust Knob



Roller

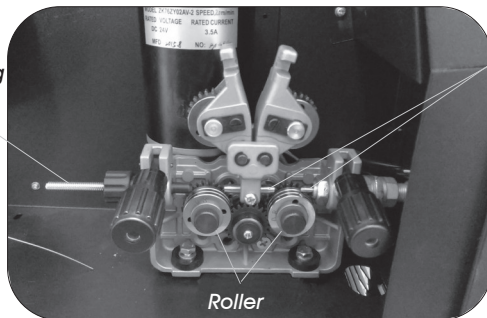
Drive Pins

Roller Retaining Screw

The wire can now be fed through the torch:

- Remove the shroud from the torch by rotating the shroud clockwise and pulling at the same time.
- Remove the Mig tip.
- Pull both pressure adjustment knobs on the wire feed motor forwards so it takes the pressure from the tension arms (see above, left).
- Remove the free end of the Mig wire from the side of the wire spool, trim off the distorted end of the wire with a pair of wire cutters; **Hold the wire carefully as it will try to unwind from the spool.**
- Feed the wire through the inlet guide spring, over the wire feed rollers and into the guide tube (you may need to straighten the first 50mm or so of wire if it doesn't fit in to the guide tube easily).

Inlet Guide Spring



Guide Tube

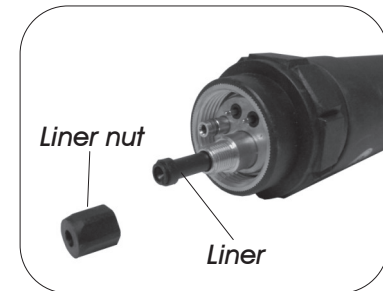
Roller

## MAINTENANCE

- Clear dust from the machine at regular intervals, if used in a dirty environment the machine should be cleaned 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 cable for damaged or degradation to the insulation, replace if any 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.
- Mig tip and shroud must be cleaned frequently to removes spatter.
- Replace the torch Mig tip regularly good electrical contact between the tip and wire is essential.
- The torch liner should be blown through with dry compressed air from time to time, if the wire does not pass freely through the liner it should be replaced.

### REPLACING THE LINER

- Remove the liner nut from the torch.
- Pull the old liner completely out.
- Hold the torch as straight as possible.
- Push the new liner back through the torch.
- Re-fit the liner nut.



Liner nut

Liner

## OPERATING INSTRUCTIONS...cont

### ARC WELDING



**Caution:** Ensure all protective equipment is worn and bystanders are not in the vicinity.

- Connect the electrode lead (+) and earth lead (-) to the appropriate terminal on the front of the welder.
- Fit the required electrode securely into the electrode holder.
- Switch the welder on.
- Select the ARC welding mode, press the arrow button up on the welding selector switch.
- Set the amperage control to match your electrode size.
- Place a face mask over your face.



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

- Bring the electrode into contact with the workpiece using a light tapping action and withdrawing to create a gap of 1.5 mm – 3.0 mm.
- When the arc is created, proceed steadily in one direction keeping the gap between the electrode and the workpiece constant.
- When the weld is complete simply remove the electrode from the workpiece.
- Remove any excess weld / slag with a wire brush / hammer.

## OPERATING INSTRUCTIONS...cont

- Lower the tension arms and ensure the wire sits in the groove of the wire feed roller.
- Push the pressure adjustment knobs back over the tension arms.
- Screw the pressure adjustment knob down, but not too tight as it will crush the wire.
- Plug the welder in to the mains supply and turn it on.
- Set the mode selector switch to Mig mode.
- Lay the mig torch out as straight as possible.
- Press and hold the “inching” button until the wire comes out from the end of the torch.
- Release the “inching” button.
- Re-fit the Mig tip and shroud.



**Caution:** Ensure that no body parts are in line with the torch when the wire comes out as the wire could be sharp.



**Note:** Be sure the wire feeds from the bottom of the spool and not from the top.

### FITTING THE GAS PIPE



**Note:** In order to use gas you will need to purchase gas and a gas regulator suitable for the type of welding required.

- Screw the gas pipe on to the gas fitting on the rear of the machine, tighten the nut using a spanner.

### SETTING THE POLARITY

For gasless (flux cored) welding; The torch link lead is connected to the **negative** (-) dinse socket. If using solid wire where a separate shielding gas is required, the torch link lead should be connected to the **positive** (+) dinse socket. In both cases, the earth lead should be connected to the opposite dinse socket.

## OPERATING INSTRUCTIONS...cont

### 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.

### WELDING

- Use the main On/Off switch on the rear of the welder to turn it on.
- Set the voltage, wire speed, burnback and the inductance by turning the appropriate controls.
- Press the torch trigger and feed the wire out a little.
- Cut the wire about 3mm from the Mig tip.
- Turn the gas on (where applicable).
- Place a face mask over your face (not supplied).
- Select either 2 touch or 4 touch mode on the 2 touch / 4 touch mode switch.
- Position the torch so the Mig tip is around 6mm from the point where the welding is to commence.
- Press the torch trigger and move the torch slowly in the chosen direction.
- Once the weld is complete, release the torch trigger.



**Note:** If the welder has a humming sound and a blob forms on the tip end, then you have insufficient wire feed speed and it should be increased. If the welder has an erratic sound and the torch feels that the wire is hitting against the work, then you have the wire feed speed too high and it should be reduced, when the wire feed speed is correct you should get a steady crackling sound.



**Note:** For future reference make a note of the voltage and wire speed setting for the material that has been welded.

## OPERATING INSTRUCTIONS...cont

### 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 below 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
4.0	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.

### AMPERAGE CONTROL

The welder should be set to a specific amperage to match the electrode size (see above table).

The amperage control is operated by rotating the output current control on the front of the welder; Rotate the knob clockwise to increase the amperage and anti-clockwise to reduce the amperage. Once the amperage control is set do a short weld and check for correct fusion.

### 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.