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**OWNERS MANUAL**  
**WELDMATIC SUPER-MIG**  
**MODEL NO. CP65-0, REV. F**  
**06/1999**

**QUALITY WELDING PRODUCTS, SYSTEMS AND SERVICE**



**SAFETY**

Before this equipment is put into operation, the safety practices section at the back of the manual must be read completely. This will help to avoid possible injury due to misuse or improper welding applications.

**INTRODUCTION**

Gas Metal Arc Welding (G.M.A.) is a basically simple welding process, where a consumable wire is fed by motor driven drive rollers to a welding gun, and where welding current is supplied from the welding power source. The welding arc is struck between the work piece and the end of the wire, which melts into the weld pool. The arc and the weld pool are both shielded by gas flow from the gun, or in the case of "self shielded" wires, by gases generated by the wire core.

The process is very versatile in that by selection of the correct wire composition, diameter and shielding gas, it can be used for applications ranging from sheetmetal to heavy plate, and metals ranging from carbon steel to aluminium alloys.

**HANDLING**

Prior to installing this equipment, clean all packing material from around the unit and carefully inspect for any damage that may have occurred in shipment must be filed by the purchaser with Welding Industries of Australia, or authorised agent immediately. (Refer to Equipment Warranty Card enclosed with this Operating Manual). When requesting information concerning this equipment, it is essential to supply correct Model Identification and Machine serial number.

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## RECEIVING

The standard WELDMATIC SUPER-MIG package contains:

- CP65-0 Power Source.
- W17 Wirefeeder.
- AM196 Lead Kit, 3 metre.
- BE2-4610A BERNARD EZ Gun cable, 3 metre.
- Regulator and Flowmeter. (Argon)
- (This) Owners Manual.

Options available:

- AM210-0 Mobile Mounting Kit.
- FROK3 CO<sub>2</sub> Gas Pre-heater.
- AM111 Wirefeeder Swivel Kit.

## 1. SPECIFICATIONS

MACHINE TYPE.....	CP65-0
MACHINE CLASS .....	Heavy Duty Welding Power Source, Constant Voltage Type.
PRIMARY VOLTAGE .....	415 Volts A.C., Three Phase, 50 Hz.
RATED INPUT CURRENT.....	50 Amps per phase.
MAXIMUM INPUT CURRENT .....	70 Amps per phase.
SUPPLY ALTERNATOR CAPACITY.....	50 kVA to supply max. output.
OPEN CIRCUIT VOLTAGE.....	17 - 59 Volts.
WELDING CURRENT RANGE.....	40 - 825 Amps.
COOLING.....	Fan cooled, air drawn in through front grille.
DIMENSIONS.....	750mm H, 670mm W, 900mm L.
RATED OUTPUT.....	650 Amps at 40 Volts, 100% Duty cycle.
	825 Amps at 40 Volts, 60% Duty cycle.
INSULATION.....	Class B, 90°C Rise.
WEIGHT .....	300 Kg.

(Duty cycle is defined in Australian Standard AS1966.1 as the ratio of arcing time to 5 minutes in any 5 minute period, expressed as a percentage.)

## 2. INSTALLATION

### CONNECTION TO MAINS SUPPLY

**NOTE**

*All electrical work shall only be undertaken by a qualified electrician.*

The power source is suitable for connection to a 415 Volt 50Hz, 3 Phase supply. The recommended fuse size, primary cable size and welding cable sizes are shown below. Due to peak current requirements, the electrical supply to welding machines is best protected by fuses. Circuit breakers may trip frequently if used in this application.

- Fuse - 50 amp
- Primary Cable - 4 core 16mm<sup>2</sup> Heavy duty.

Access to the supply connection terminals in machine is gained by removing the side panel nearest to the Voltage Control switches. Terminate each supply phase in the terminal assembly. Clamp the supply cable ensuring that there is no strain on the terminal connections. The EARTH connection (green/yellow) must be securely fastened to the Earthing stud which is adjacent to the supply connection terminals.

### CABLE AND HOSE CONNECTIONS

All Welding Current, Control and Shielding gas connections are shown in Figure 1. The cables and hoses are contained in accessory kit AM196.

- **GAS.** The gas hose is used to connect the output of the gas regulator to the gas nipple on the rear panel of the W17 wirefeeder. The gas connector for the regulator end is included with the regulator.

Note that the wirefeeder gas fitting incorporates an 'O' ring seal and does not require excessive tightening.

- **CONTROL.** Fit the Wirefeeder cable male plug into marked socket on the power source front panel. Fit the Wirefeeder cable female plug into the socket at the rear of the wirefeeder.
- **WELDING CABLES.** Bolt the lugged end of the wirefeeder welding cable to the brass gun adaptor of the two roll drive. Attach the welding cable plug ends (Wirefeeder and Work lead) to the selected welding output terminals.

### OUTPUT VOLTAGE POLARITY

**POSITIVE WIRE:** Most gas shielded G.M.A. welding is carried out with the workpiece Negative and the welding consumable wire Positive. To set the machine for this condition, connect the 'Work' onto the selected (-) inductance output, and the wirefeeder welding lead to the (+) output as shown in Figure 1.

**NEGATIVE WIRE:** Some flux cored consumables are intended to be operated with the workpiece Positive and the consumable wire Negative. Refer to the manufacturers data for the particular consumable to be used. To set the machine for this condition, connect the wirefeeder welding lead onto the selected (-) inductance output, and the 'Work' lead to the (+) output.

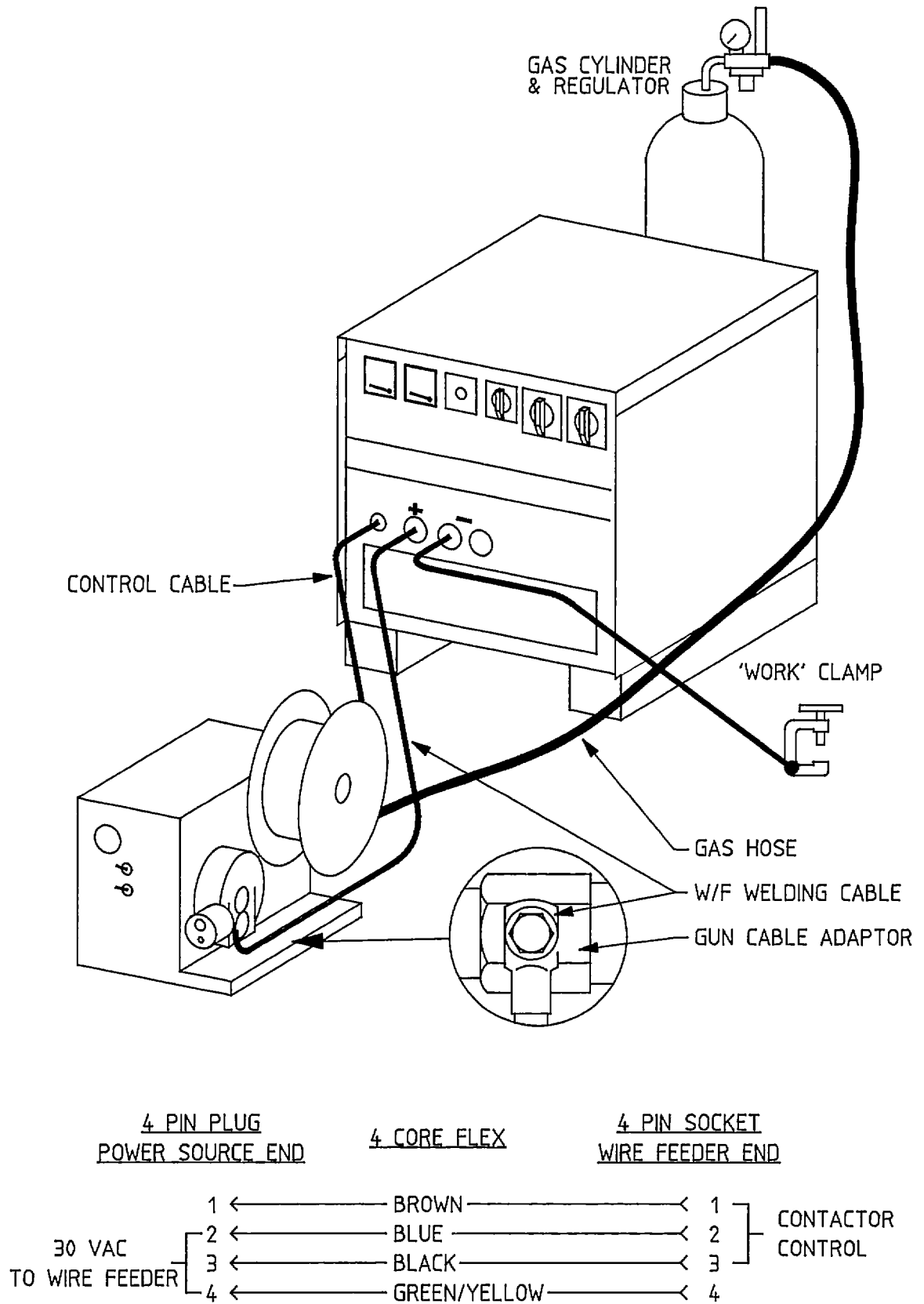


FIGURE 1. CABLE AND HOSE CONNECTIONS, ELECTRODE POSITIVE GMAW

### FITTING THE ELECTRODE WIRE

Place the spool of electrode wire onto the spool holder of the W17 wirefeeder. The location pin should mate with a hole in the wire spool body. Fit the spool retaining 'R' clip supplied.

Check the adjustment of the spool brake, which should be set to prevent over-run of the wire spool at the end of a weld, without unduly loading the wirefeed motor. The braking can be adjusted by rotating the Nyloc nut using a 15/16" AF or 24mm socket wrench.

Do not use dirty, rusty or kinked wire as it will not feed smoothly through the gun cable and will cause erratic welding. Deposits from contaminated wire will clog the gun cable liner requiring it to be replaced prematurely.

Check that the drive roller groove is correct for the electrode wire to be used. The drive roller part number is marked on the visible side of the installed roller. Refer to the drive roller selection chart in the W17 manual. Check also that the correct size contact tip is fitted to the gun.

Open the two roll drive mechanism by rotating the compression spring assembly towards the front of the wirefeeder, allowing the upper roller housing to be lifted away from the driven roller. Straighten the end of the welding wire and pass it through the inlet guide, over the bottom driven roller and into the gun cable adapter guide tube. Return the top roller to the closed position. The clamping pressure of the drive rollers should be just sufficient to provide adequate drive without deforming the consumable wire.

### CHOICE OF SHIELDING GAS

The choice of shielding gas is largely determined by the consumable wire to be used. Many proprietary shielding gas mixtures are available. The recommended shielding gases for use with the WELDMATIC SUPER-MIG are :

- Mild Steel ..... Argon + 5 to 25% Carbon Dioxide;  
100% Carbon Dioxide;
- Aluminium ..... 100% Argon;
- Stainless Steel..... Argon + 1 to 2% Oxygen.

Consult your gas supplier if more specific information is required.

If carbon dioxide shielding gas is to be used, a FROK3 gas pre-heater should be fitted between the gas bottle and gas regulator to prevent freezing of the regulator. Electrical power supply for the heater can be obtained from a 110 Vac output socket which is fitted to the rear of the machine.

### 3. SETUP FOR WELDING

In GMA welding, the wirefeed rate determines the welding current. Increasing the feed rate increases the current, and decreasing it decreases current. The selected wirefeed rate must be matched with sufficient arc voltage. An increase of wirefeed rate requires an increase of arc voltage.

If the voltage is too low the wire will stub and stutter, and there will not be a steady arc. If the voltage is too high the arc will be long with the metal transfer within the arc occurring as a series of large droplets.

The welding output voltage of the WELDMATIC SUPER-MIG is set by the use of Coarse and Fine selector switches. A total of 36 output voltage settings are available.

The welding current should be chosen to suit the thickness of the metal to be welded. It is important to check that the deposited weld provides sufficient strength to suit the application.

A "good" weld will have the general characteristics illustrated in figure 2. The weld has penetrated into the parent metal, fusing the root where the two plates meet, and the weld blends smoothly into the side walls.

A "bad" weld is shown in figure 3. The weld has not penetrated the joint root, and there is poor side wall fusion. This lack of fusion would normally be corrected by increasing the arc voltage, or by increasing both wirefeed rate and arc voltage to achieve a higher current weld setting.

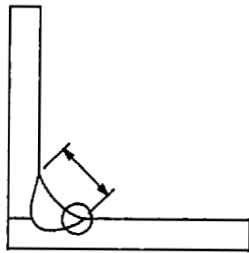


FIGURE 2. "GOOD" WELD

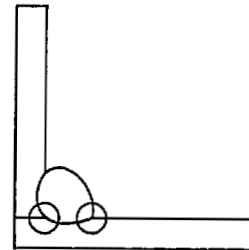


FIGURE 3. "BAD" WELD

#### GUN POSITION

For "down hand" fillet welding, the gun is normally positioned as in the figure below with the nozzle end pointing in the direction of travel.

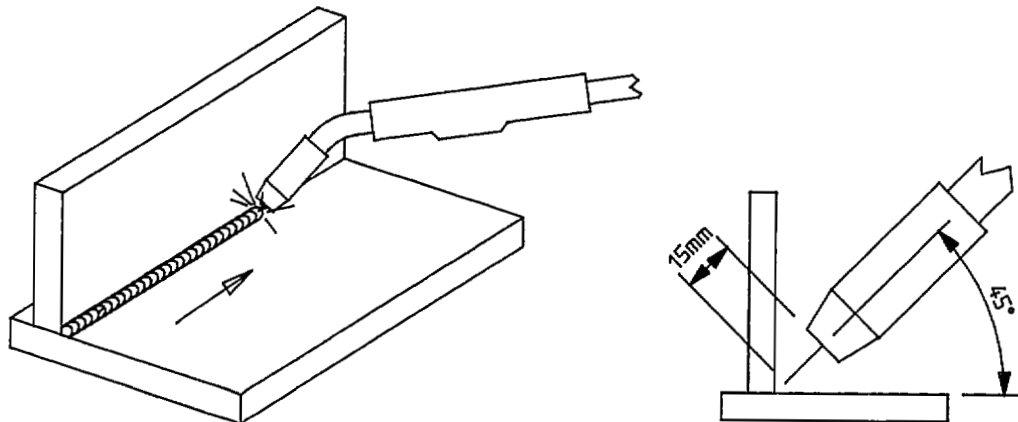


FIGURE 4. GUN POSITION

#### 4. WELD SETTING CHART

The setting details given below are for welding grade CO<sub>2</sub> shielding gas, used with a gas pre-heater. The recommended gas flow rate for CO<sub>2</sub> is 8 - 10 litres/min.

If mixed gases are to be used, the voltage setting may need to be reduced by one or two 'Fine' voltage steps. For mixed gases use a gas flow rate of 10 - 15 litres/minute.

WIRE SIZE and TYPE	WIRE SPEED DIAL SETTING	---VOLTS---		INDUCTANCE	---WELDING---	
		COARSE	FINE		AMPS	VOLTS
0.9mm Mild Steel  (Vertical down)	3.3	2	1	1	60	18
	4.4	2	2	1	100	18
	5.0	2	4	2	110	20
	6.1	3	1	2	140	22
1.2mm Mild Steel	3.4	2	5	2	130	20
	4.0	3	1	2	150	23
1.6mm Fluxofil	4.1	3	4	1	200	25
	4.1	3	4	2	200	25
	5.4	3	4	2	260	25
	6.3	4	5	2	290	28
	6.6	5	3	2	350	32
2.0mm Fluxofil	3.9	5	1	2	300	30
2.4mm Fluxofil	4.6	5	6	2	430	34
	5.3	6	2	2	500	37

The recommended wire stick-out is 6-9mm for up to 200 amps welding current, and 12-19mm for over 200 amps.

FIGURE 5. WELD SETTING CHART



## 5. GENERAL MAINTENANCE

### **WARNING**

*Before removing any machine covers, ENSURE that the unit is disconnected from the mains power supply. When the unit is energised LETHAL VOLTAGES are present on the electrical components enclosed.*

### **DUST**

Care should be taken to prevent excessive build up of dust and dirt within the welding power source. It is recommended at regular intervals, according to prevailing conditions, the machine covers and enclosed wirefeeder covers be removed and any accumulated dust be removed by the use of dry, low pressure compressed air, or a vacuum cleaner.

### **WIREFEED**

In order to obtain the most satisfactory welding results from the G.M.A.W. process, the wirefeed must be smooth and constant. It is therefore important to observe the following points;

- Keep the gun cable liner clear of dust and swarf build-up. When replacement becomes necessary, fit only the correct liner to suit the gun cable model. The build-up of dust in a cable liner can be minimised by regular purging of the liner with dry compressed air. This may be conveniently done each time the wire spool is replaced.
- Replace the welding tip as it becomes worn.
- Keep the wire drive mechanism clean. Periodically check the drive rollers for wear and for free rotation.
- Check that the consumable wire spool holder rotates smoothly and that the braking action is not excessive. This also may be conveniently done each time the wire is replenished.

### **THERMOSTATS**

In the event of the power source becoming overheated, thermostats on the diode heat sinks will operate and prevent further welding. With the cooling fan operating, the thermostats automatically reset in approximately 10 minutes. Check to ascertain the reason for the overheating such as: fan motor not operating, restriction of the cooling air flow, excessive internal dust build up, use above duty cycle rating.

### **FUSES**

Fuses for the wirefeeder and contactor circuits are mounted on the machine front panel. Fuses for the 415Vac control supply are mounted internally. These may be accessed by removing the side cover closest to the Voltage Control switches. Fuse ratings are shown below. Before replacing any fuse, attempt to identify and rectify the cause of failure.

- Wirefeeder ..... 10 Amp, 3AG, standard action
- Contactor ..... 5 Amp, 3AG, delayed action
- 415 Vac Control Supply ..... 6 Amp, HRC Cartridge type

## 6. ACCESSORIES

### FITTING MOBILE KIT

- Lift the power source onto the mobile-kit frame (1). Use a crane or fork lift with chains and hooks and insert hooks through the eye nut on the top cover of the power source.
- Line-up holes in the side beams of the frame with the slots in the sides of the Power Source base.
- Insert all four  $\frac{3}{8}$ "W x 1" screws (3) through the four holes and slots.
- Thread on all four  $\frac{3}{8}$ "W Hex "Nyloc" nuts (4).
- Tighten all four nuts (you will need spanners for both the screw and the nut).
- Remove screws (7), spring washers (6) and flat washers (5) from back panel of the power source.
- Fit bottle cradle (2) with the chain slots uppermost.
- Refit screws and washers and then tighten.

#### **WARNING**

*Do not attempt to lift the power source and mobile kit assembly with a gas bottle in place.*

### WIREFEEDER SWIVEL MOUNTING

The W17 wirefeeder may be fitted to a swivel socket mounted on the top of power source. Remove the eye nut from the stud in the centre of the power source cover, and replace it with the AM111 Swivel Socket. Tighten securely. Fit the W16-14 pivot pin assembly to the wire feeder and ensure the fibre thrust washer is on the pin before locating it in the swivel mounting. Check that the wire feeder is free to swivel in all directions, and if necessary apply a small amount of graphite grease to the shaft.

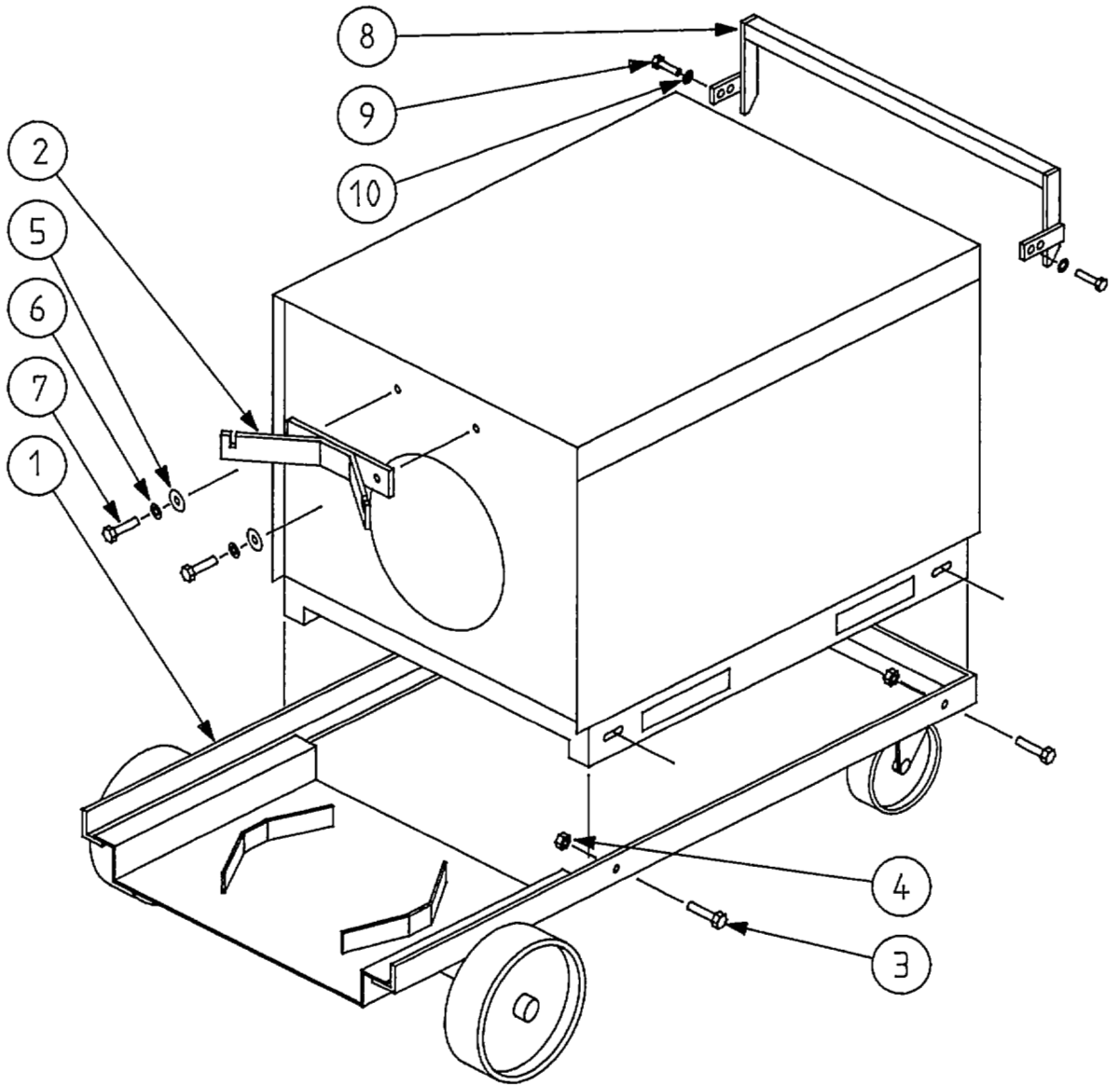


FIGURE 6. FITTING MOBILE KIT

## 7. PARTS LISTS

## POWER SOURCE ASSEMBLY

ITEM	PART	DESCRIPTION
1.....	CP65-11.....	Base Assembly
2.....	CP65-26.....	Rectifier Assembly
Including		
2.1.....	CP6-5/2.....	Diode 300U40A
2.2.....	CP6-5/3.....	Diode 300UR40A
3.....	CP65-19.....	Transformer Assembly
Including		
3.1.....	CP65-20.....	Primary-Secondary Coil
4.....	CP65-14.....	Inductance Assembly
5.....	CP25-0/7.....	Control Transformer
6.....	CP3-0/4.....	Fan Blade
7.....	MC35-0/6.....	Fan Motor
8.....	CP65-12.....	Back Panel
9.....	CP65-13.....	Baffle
10.....	CP65-14.....	Top Cover
11.....	CP65-15.....	Side Cover
12.....	CP65-16.....	Front Panel
13.....	CP15-0/7.....	3 Pin 110v Socket
14.....	CP65-0/16.....	Loom Assembly
15.....	CP5-25.....	Rectifier Protection Assembly
16.....	CP5-0/19.....	Contactator
17.....	AM16.....	Output Terminal Assembly
18.....	CP15-0/14.....	4 Pin Cannon Socket
19.....	CP65-0/22.....	Voltmeter
20.....	CP65-0/23.....	Ammeter
21.....	CP65-0/24.....	Ammeter Shunt
22.....	W1-22.....	Indicator Light
23.....	10029f.....	Eye nut
24.....	CP29-0/20.....	Off-On Switch
25.....	CP65-0/28.....	Coarse Voltage Switch
26.....	CP65-0/29.....	Fine Voltage Switch
27.....	W1-23.....	Fuse Holder 3AG
28.....	CP33-0/12.....	Fuse Holder HRC (Mounted Internally)
29.....	CP65-0/44.....	Fuse Link 6A (Mounted Internally)
30.....	CP5-0/10.....	Supply Terminal
33.....	CP65-17.....	Fan Mounting Bracket
34.....	CP65-28.....	Inductance Connection Link
35.....	CP65-18.....	Tie bar
37.....	WIN44.....	Serial Number Label
38.....	FW3/4.....	Fibre Washer.

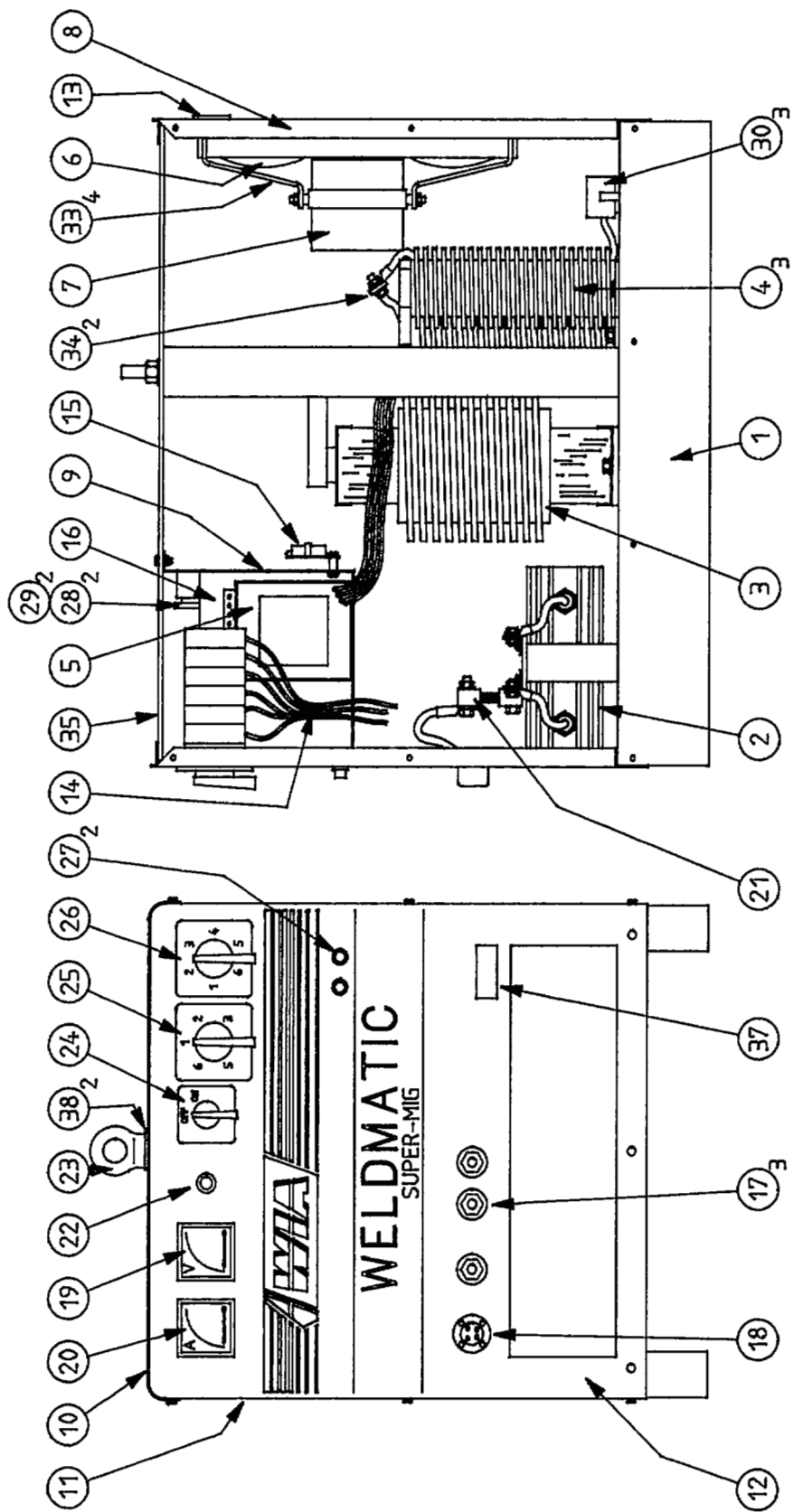
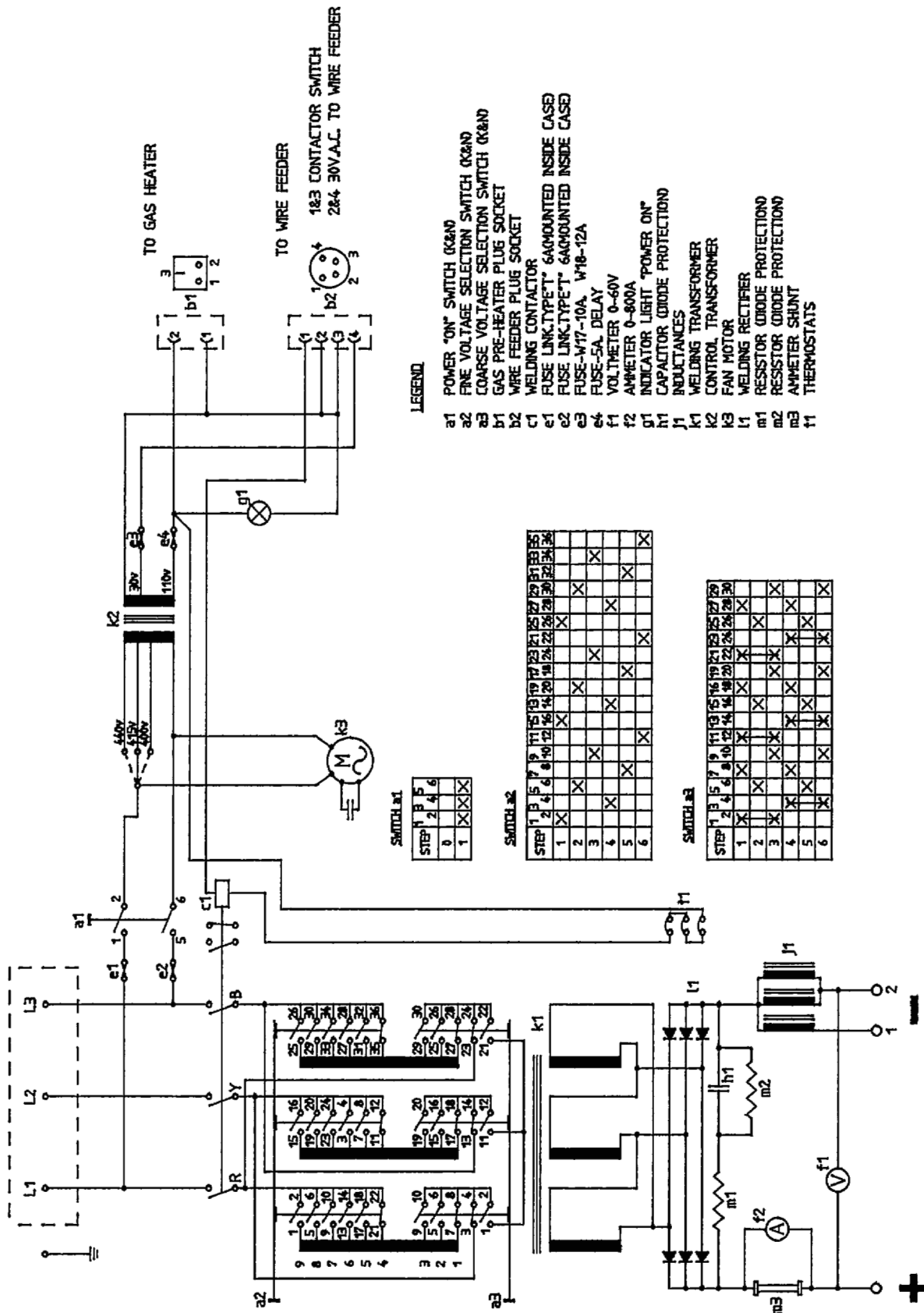


FIGURE 7. CP65 POWER SOURCE ASSEMBLY



LEGEND

- a1 POWER "ON" SWITCH (G&D)
- a2 FINE VOLTAGE SELECTION SWITCH (G&D)
- a3 COARSE VOLTAGE SELECTION SWITCH (G&D)
- b1 GAS PRE-HEATER PLUG SOCKET
- b2 WIRE FEEDER PLUG SOCKET
- c1 WELDING CONTACTOR
- e1 FUSE LINK-TYPE\*\* 6A/MOUNTED INSIDE CASE
- e2 FUSE LINK-TYPE\*\* 6A/MOUNTED INSIDE CASE
- e3 FUSE-W17-10A W18-12A
- e4 FUSE-5A DELAY
- f1 FUSE-W17-10A W18-12A
- f2 FUSE-5A DELAY
- g1 FUSE-W17-10A W18-12A
- h1 FUSE-W17-10A W18-12A
- i1 FUSE-W17-10A W18-12A
- j1 FUSE-W17-10A W18-12A
- k1 FUSE-W17-10A W18-12A
- k2 FUSE-W17-10A W18-12A
- k3 FUSE-W17-10A W18-12A
- l1 FUSE-W17-10A W18-12A
- m1 FUSE-W17-10A W18-12A
- m2 FUSE-W17-10A W18-12A
- m3 FUSE-W17-10A W18-12A
- t1 FUSE-W17-10A W18-12A

SWITCH a1

STEP	1	2	3	4	5	6
1	X	X	X	X	X	X
2						
3						
4						
5						
6						

SWITCH a2

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	X																													
2		X																												
3			X																											
4				X																										
5					X																									
6						X																								

SWITCH a3

STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	X																													
2		X																												
3			X																											
4				X																										
5					X																									
6						X																								

FIGURE 8. CP65 CIRCUIT DIAGRAM

AM196 ACCESSORY LEAD KIT

ITEM #	PART #	DESCRIPTION
1	AM15	Welding Current Plug Assembly
2	AA2	'G' Type Work Clamp
3	CABW70	Welding Cable 70mm <sup>2</sup>
4	H1431	Crimp Lug
5	AM112-3/1	Cannon Cord Plug, 4 pin Male
6	CAB4C32HD	4 Core Control Cable
7	K32	Cannon Cord Plug, 4 pin Female
8	HOS5R	Gas Hose 5mm ID
9	TC362	Gas Hose Tail
10	TC362N	Hose Tail Nut
11	OR1 0.6	Rubber 'O' Ring
12	OCL13	'O' Clip

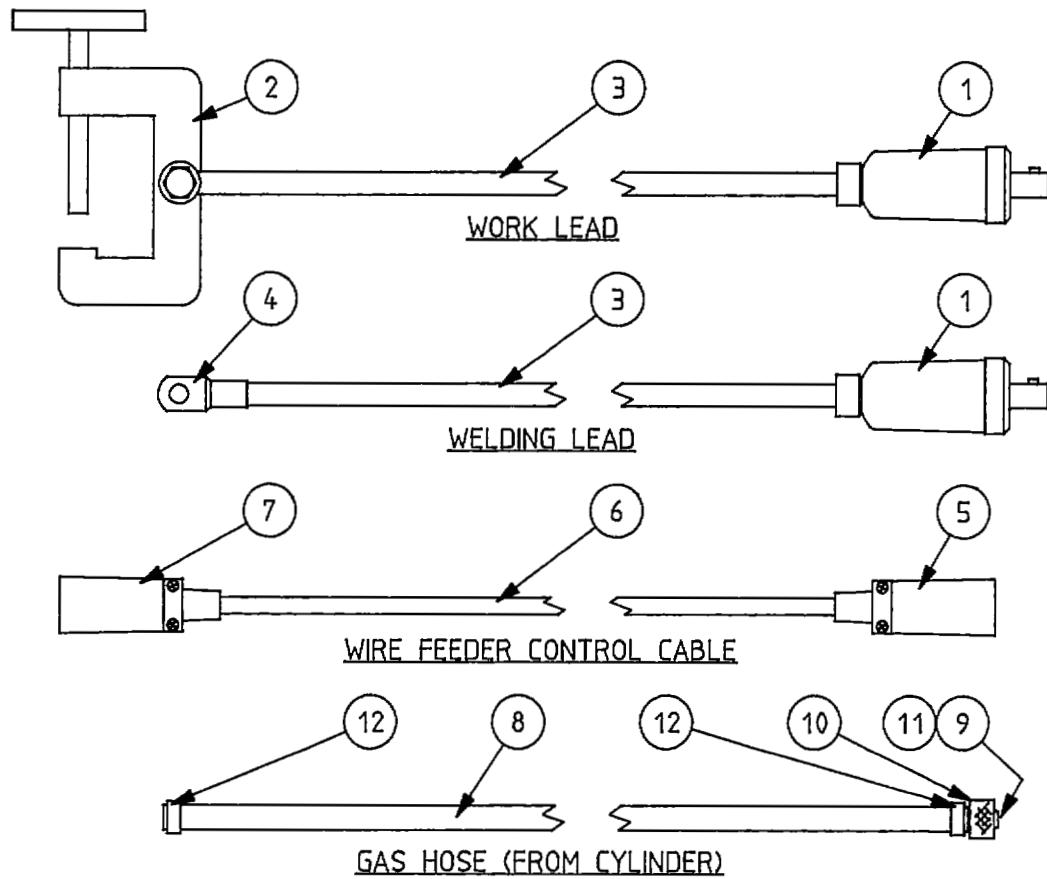


FIGURE 9. ACCESSORY LEAD KIT

W2-44 TWO ROLL DRIVE ASSEMBLY

ITEM #.....	PART #.....	DESCRIPTION
1.....	W2-44/1.....	Die Cast Body
2.....	W2-44/2.....	Top Roller Housing
3.....	W2-44/25.....	Shaft
4.....		M5 Skt.Grub Screw x 10 long
5.....	W2-17.....	Washer
6.....		5 Dia Shakeproof Washer
7.....		M5 Skt.Hd.Screw x 10 long
8.....		M8 Shoulder Skt. Screw x 20 long
9.....	JW418.....	8 Dia Belleville Washer
10.....	W2-44/6.....	Tension Arm
11.....	W2-44/13.....	Spring
12.....	W2-44/7.....	Nut
13.....	W2-44/8.....	Top Roll Shaft
14.....	W15-1/5.....	Bearing(Inner)608ZZ
15.....	W2-44/030.....	Bearing(Outer)FL608ZZ
16.....	W2-44/016.....	M6 Hex Dome Nut
17.....	W2-15P.....	Driven Gear Wheel(Plastic)
19.....		8-32 UNC Skt.Hd.Screw x 1/2"long
20.....	W2-16P.....	Driving Gear Wheel(Plastic)
21.....		M3 Pan Hd. Screw x 6 long
22.....		M5 Skt.Hd. Screw x 15 long
23.....		M6 Skt.Hd. Screw x 12 long
24.....		M6 Csk.Skt.Hd. Screw x 12 long
27.....	W2-44/26.....	Adaptor Bush
28.....	W2-44/22.....	M24 x 1P Brass Locknut
29.....		M8 Skt.Hd. Screw x 25 long
30.....		8 Dia Spring Washer
31.....		M8 Skt.Hd. Screw x 15 long
32.....		8 Dia Plain Washer
33.....	W2-44/5.....	Insulating Ring
34.....	W2-44/21.....	Flat Washer

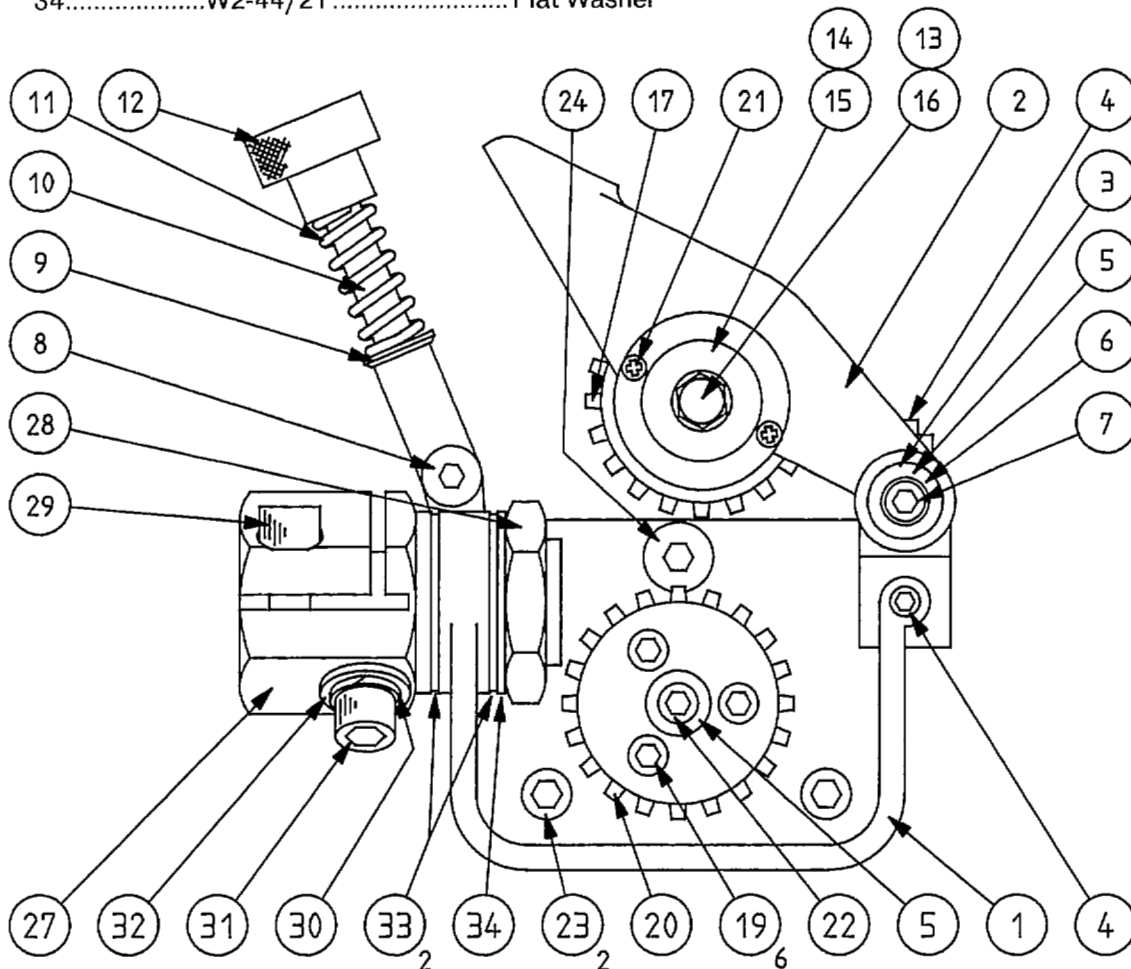


FIGURE 10. TWO ROLL DRIVE ASSEMBLY



These notes are provided in the interests of improving operator safety. They should be considered only as a basic guide to Safe Working Habits. A full list of Standards pertaining to industry is available from the Standards Association of Australia, also various State Electricity Authorities, Departments of Labour and Industry or Mines Department and other Local Health or Safety Inspection Authorities may have additional requirements. WTIA Technical Note TN7-98 also provides a comprehensive guide to safe practices in welding.

### EYE PROTECTION

NEVER LOOK AT AN ARC WITHOUT PROTECTION. Wear a helmet with safety goggles or glasses with side shields underneath, with appropriate filter lenses protected by clear cover lens. This is a MUST for welding, cutting, and chipping to protect the eyes from radiant energy and flying metal. Replace the cover lens when broken, pitted, or spattered.

#### Recommended shade filter lens.

Amps	TIG	MMAW	MIG	Pulsed MIG
0-100	10	9	10	12-13
100-150	11	10	10	12-13
150-200	12	10-11	11-12	12-13
200-300	13	11	12-13	12-13
300-400	14	12	13	14
400-500	--	13	14	14
500 +	--	--	14	14

### BURN PROTECTION.

The welding arc is intense and visibly bright. Its radiation can damage eyes, penetrate lightweight clothing, reflect from light-coloured surfaces, and burn the skin and eyes. Burns resulting from gas-shielded arcs resemble acute sunburn, but can be more severe and painful.

Wear protective clothing - leather or heat resistant gloves, hat, and safety-toe boots. Button shirt collar and pocket flaps, and wear cuffless trousers to avoid entry of sparks and slag.

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.

Ear plugs should be worn when welding in overhead positions or in a confined space. A hard hat should be worn when others are working overhead.

Flammable hair preparations should not be used by persons intending to weld or cut.

### TOXIC FUMES.

Adequate ventilation with air is essential. Severe discomfort, illness or death can result from fumes, vapours, heat, or oxygen depletion that welding or cutting may produce. NEVER ventilate with oxygen.

Lead, cadmium, zinc, mercury, and beryllium bearing and similar materials when welded or cut may produce harmful concentrations of toxic fumes. Adequate local exhaust ventilation must be used, or each person in the area as well as the operator must wear an air-supplied respirator. For beryllium, both must be used.

Metals coated with or containing materials that emit fumes should not be heated unless coating is removed from the work surface, the area is well ventilated, or the operator wears an air-supplied respirator.

Work in a confined space only while it is being ventilated and, if necessary, while wearing air-supplied respirator.

## 8. SAFE PRACTICES WHEN USING WELDING EQUIPMENT

These notes are provided in the interests of improving operator safety. They should be considered only as a basic guide to Safe Working Habits. A full list of Standards pertaining to industry is available from the Standards Association of Australia. Various State Electricity Authorities, Departments of Labour and Industry or Mines Department and other Local Health or Safety Inspection Authorities may have additional requirements.

### EYE PROTECTION

NEVER LOOK AT AN ARC WITHOUT PROTECTION. Wear a full face helmet ,with an appropriate shade filter lens protected by clear cover glass. This is a MUST for any arc process to protect the eyes and face from radiant energy and flying sparks etc. Replace the cover glass when it is broken, pitted, or spattered.

The lens shade number should be chosen in accordance with the following list.

WELDING CURRENT	SHADE NUMBER
Below 30 Amps .....	6
30 - 75 Amps.....	8
75 - 200 Amps.....	10
200 - 400 Amps .....	12
Above 400 Amps .....	14

### BURN PROTECTION

The welding arc is intense and visibly bright. Its radiation can damage eyes, penetrate lightweight clothing, reflect from light-coloured surfaces, and burn the skin and eyes. Burns resulting from gas-shielded arcs resemble acute sunburn, but can be more severe and painful.

Wear protective clothing - leather or heat resistant gloves, hat, and safety-toe boots. Button shirt collar and pocket flaps, and wear cuffless trousers to avoid entry of sparks and slag.

Avoid oily or greasy clothing. A spark may ignite them. Hot metal such as electrode stubs and workpieces should never be handled without gloves.

Ear plugs should be worn when welding in overhead positions or in a confined space. A hard hat should be worn when others are working overhead.

Flammable hair preparations should not be used by persons intending to weld or cut.

### TOXIC FUME PREVENTION

Adequate ventilation with air is essential. Severe discomfort, illness or death can result from fumes, vapors, heat, or oxygen depletion that welding or cutting may produce. NEVER ventilate with oxygen.

Lead, cadmium, zinc, mercury, and beryllium bearing and similar materials when welded or cut may produce harmful concentrations of toxic fumes. Adequate local exhaust ventilation must be used, or each person in the area as well as the operator must wear an air-supplied respirator. For beryllium, both must be used.

Metals coated with or containing materials that emit fumes should not be heated unless coating is removed from the work surface, the area is well ventilated, or the operator wears an air-supplied respirator.

Work in a confined space only while it is being ventilated and, if necessary, while wearing air-supplied respirator.

Vapours from chlorinated solvents can be decomposed by the heat of the arc (or flame) to form PHOSGENE, a highly toxic gas, and lung and eye irritating products. The ultra-violet (radiant) energy of the arc can also decompose trichlorethylene and perchlorethylene vapors to form phosgene. Do not weld or cut where solvent vapors can be drawn into the welding or cutting atmosphere or where the radiant energy can penetrate to atmospheres containing even minute amounts of trichlorethylene or perchlorethylene.

### **FIRE AND EXPLOSION PREVENTION.**

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 operator. Sparks and slag can travel up to 10 metres from the arc.

Keep equipment clean and operable, free of oil, grease, and (in electrical parts) of metallic particles that can cause short circuits.

If combustibles are present in the work 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 can not be moved, move combustibles at least 10 metres away out of 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 or cut. Walls, ceilings, and floor near work should be protected by heat-resistant covers or shields.

A person acting as Fire Watcher must be standing by with suitable fire extinguishing equipment during and for some time after welding or cutting if;

- Combustibles (including building construction) are within 10 metres.
- Combustibles are further than 10 metres but can be ignited by sparks.
- 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 work is done, check that area is free of sparks, glowing embers, and flames.

An tank or drum which has contained combustibles can produce flammable vapors when heated. Such a container must never be welded on or cut, unless it has first been cleaned as described in AS.1674-1974, the S.A.A. Cutting and Welding Safety Code. 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 as recommended in AS.1674-1974. Water-filling just below working level may substitute for inerting.

Hollow castings or containers must be vented before welding or cutting. They can explode. Never weld or cut where the air may contain flammable dust, gas, or liquid vapours.

### **SHOCK PREVENTION**

Exposed conductors or other bare metal in the welding circuit, or ungrounded electrically alive equipment can fatally shock a person whose body becomes a conductor. Ensure that the machine is correctly connected and earthed. If unsure have machine installed by a qualified electrician. On mobile or portable equipment, regularly inspect condition of trailing power leads and connecting plugs. Repair or replace damaged leads.

Fully insulated electrode holders should be used. Do not use holders with protruding screws. Fully insulated lock-type connectors should be used to join welding cable lengths.

Terminals and other exposed parts of electrical units should have insulated knobs or covers secured before operation.

REPLACEMENT

PAGES TO CONVERT

CP65-0

TO MACHINE FOR

CHINA (380V)

**RECEIVING**

The standard WELDMATIC SUPER-MIG package contains:

- CP65-0 Power Source.
- W17 Wirefeeder.
- AM196 Lead Kit, 3 metre.
- BE2-4610A BERNARD EZ Gun cable, 3 metre.
- Regulator and Flowmeter. (Argon)
- (This) Owners Manual.

Options available:

- AM210-0 Mobile Mounting Kit.
- FROK3 CO<sub>2</sub> Gas Pre-heater.
- AM111 Wirefeeder Swivel Kit.

**1. SPECIFICATIONS**

MACHINE TYPE .....	CP65-0
MACHINE CLASS .....	Heavy Duty Welding Power Source, Constant Voltage Type.
PRIMARY VOLTAGE .....	380 Volts A.C., Three Phase, 50 Hz.
RATED INPUT CURRENT .....	50 Amps per phase.
MAXIMUM INPUT CURRENT .....	70 Amps per phase.
SUPPLY ALTERNATOR CAPACITY .....	50 kVA to supply max. output.
OPEN CIRCUIT VOLTAGE .....	17 - 59 Volts.
WELDING CURRENT RANGE .....	40 - 825 Amps.
COOLING .....	Fan cooled, air drawn in through front grille.
DIMENSIONS .....	750mm H, 670mm W, 900mm L.
RATED OUTPUT .....	650 Amps at 40 Volts, 100% Duty cycle.
	825 Amps at 40 Volts, 60% Duty cycle.
INSULATION .....	Class B, 90°C Rise.
WEIGHT .....	300 Kg.

(Duty cycle is defined in Australian Standard AS1966.1 as the ratio of arcing time to 5 minutes in any 5 minute period, expressed as a percentage.)

## 2. INSTALLATION

### CONNECTION TO MAINS SUPPLY

**NOTE.**

*All electrical work shall only be undertaken by a qualified electrician.*

The power source is suitable for connection to a 380 Volt 50Hz, 3 Phase supply. The recommended fuse size, primary cable size and welding cable sizes are shown below. Due to peak current requirements, the electrical supply to welding machines is best protected by fuses. Circuit breakers may trip frequently if used in this application.

- Fuse - 50 amp
- Primary Cable - 4 core 16mm<sup>2</sup> Heavy duty.

Access to the supply connection terminals in machine is gained by removing the side panel nearest to the Voltage Control switches. Terminate each supply phase in the terminal assembly. Clamp the supply cable ensuring that there is no strain on the terminal connections. The EARTH connection (green/yellow) must be securely fastened to the Earthing stud which is adjacent to the supply connection terminals.

### CABLE AND HOSE CONNECTIONS

All Welding Current, Control and Shielding gas connections are shown in Figure 1. The cables and hoses are contained in accessory kit AM196.

- **GAS.** The gas hose is used to connect the output of the gas regulator to the gas nipple on the rear panel of the W17 wirefeeder. The gas connector for the regulator end is included with the regulator.

Note that the wirefeeder gas fitting incorporates an 'O' ring seal and does not require excessive tightening.

- **CONTROL.** Fit the Wirefeeder cable male plug into marked socket on the power source front panel. Fit the Wirefeeder cable female plug into the socket at the rear of the wirefeeder.
- **WELDING CABLES.** Bolt the lugged end of the wirefeeder welding cable to the brass gun adaptor of the two roll drive. Attach the welding cable plug ends (Wirefeeder and Work lead) to the selected welding output terminals.

### OUTPUT VOLTAGE POLARITY

**POSITIVE WIRE:** Most gas shielded G.M.A. welding is carried out with the workpiece Negative and the welding consumable wire Positive. To set the machine for this condition, connect the 'Work' onto the selected (-) inductance output, and the wirefeeder welding lead to the (+) output as shown in Figure 1.

**NEGATIVE WIRE:** Some flux cored consumables are intended to be operated with the workpiece Positive and the consumable wire Negative. Refer to the manufacturers data for the particular consumable to be used. To set the machine for this condition, connect the wirefeeder welding lead onto the selected (-) inductance output, and the 'Work' lead to the (+) output.

