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OWNERS MANUAL

WELDMATIC WIREFEEDER

MODEL NO. W17-02, REV. G

04/2000

QUALITY WELDING PRODUCTS, SYSTEMS AND SERVICE

The information contained in this manual is set out to enable you to properly maintain your new equipment and ensure that you obtain maximum operating efficiency.

Please ensure that this information is kept in a safe place for ready reference when required at any future time.

When requesting spare parts, please quote the model and serial number of the machine and part number of the item required. All relevant numbers are shown in lists contained in this manual. Failure to supply this information may result in unnecessary delays in supplying the correct parts.

SAFETY

Before this equipment is put into operation, the SAFE 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.

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FIGURES

1. INTRODUCTION

The WELDMATIC W17-02 WIREFEEDER has been designed to feed a range of hard, soft, and flux-cored wires for the Gas-Metal Arc Welding process. A low inertia, Printed Circuit type motor with integral gear box is coupled to a two roll drive assembly forming the basic component of the wire feeder. The motor is controlled by an electronic speed control which ensures excellent speed regulation over the full torque range of the motor, and inherent compensation for supply voltage variations.

2. RECEIVING

Check the equipment received against the shipping invoice to make sure the shipment is complete and undamaged. If any damage has occurred in transit, please immediately notify your supplier.

The W17-02 Standard Package contains;

- WELDMATIC W17-02 WIRE FEEDER.
- (This) Owners Manual.

3. SPECIFICATIONS

SUPPLY VOLTAGE	30 Volts AC (From Welding Power Source)
FUSE RATING	10 Amps
DIMENSIONS	L - 430mm, W - 320mm, H - 320mm
MASS	15Kg
SPOOL SIZES	5Kg, 15Kg, 30Kg
WIRESPEED RANGE	0 - 126 RPM (0 - 16 Metres per min.)
WIRE SIZE RANGE	0.6mm - 2.4mm diameter

4. WIRE FEEDER CONTROLS

The controls for a STANDARD W17-02 WIRE FEEDER are shown in Figure 1.
(See Appendix for wirefeeder options.

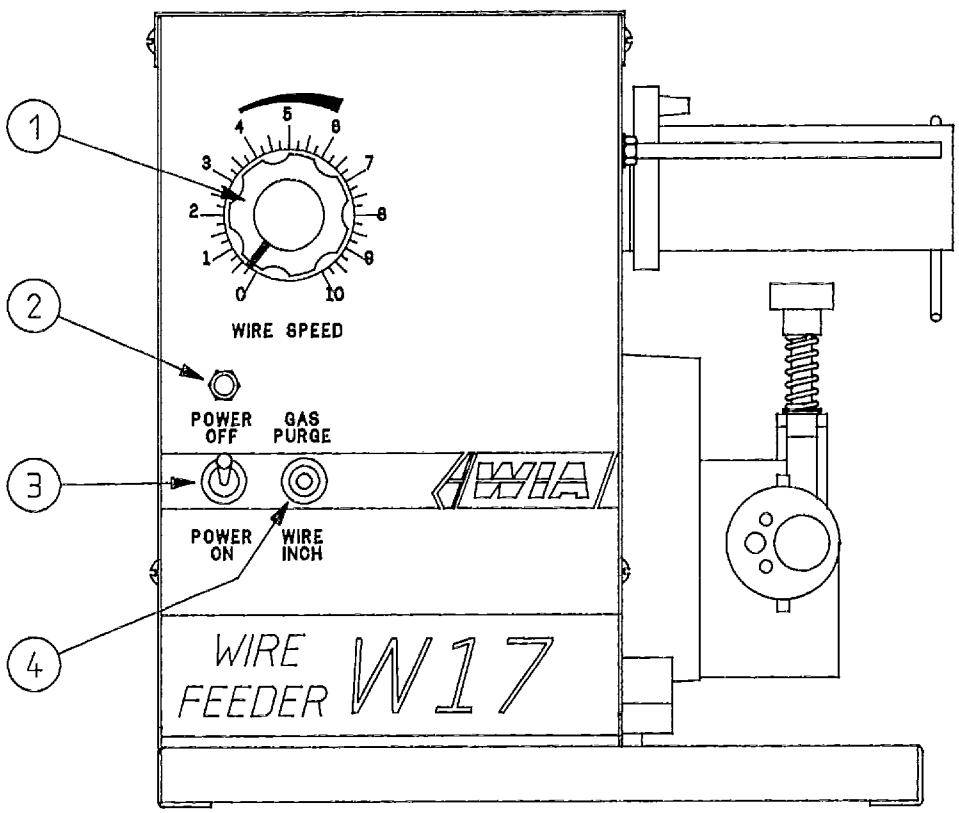


FIGURE 1. WIRE FEEDER CONTROLS

1. WIRE SPEED CONTROL

This control is used to set the speed of the wire drive motor within the specified range of 0 - 126 R.P.M., equivalent to 0 - 16 metres per minute of welding electrode wire. Rotate the control clockwise to increase wire feed rate.

2. POWER ON INDICATOR

This indicator is illuminated when power is connected to wire feeder unit and power switch is in on position.

3. POWER ON / OFF SWITCH

This switch is used to connect or disconnect the wire feeder from 30Vac supply.

4. INCH / PURGE SWITCH

This switch is spring loaded to return to the central off position.

When switch is raised to upper position, the gas valve is energised, allowing operator to set gas flow rate and/or purge gas lines.

When switch is depressed to lower position, the wire drive motor is energised, allowing operator to feed welding wire, without energising the power source contactor.

5. INSTALLATION

The WELDMATIC W17-02 WIRE FEEDER is connected to the power source with a lead kit consisting of,

- WELDING CABLE
- WORK LEAD
- CONTROL CABLE
- GAS HOSE

Connections are shown in Figure 2. Check all connections are firmly made to ensure good electrical contact, and to eliminate gas and air leaks. The welding cable is attached to the side of the two roll drive unit, using the M8 socket screw provided.

Check that the wire guide and drive rollers fitted are appropriate to the electrode wire to be used. For the recommended combinations, see Figure 12. Standard wire feeders are factory fitted with a W2-22 bottom roller, and W2-20 top roller, which is suitable for both 0.9mm and 1.2mm diameter steel wire.

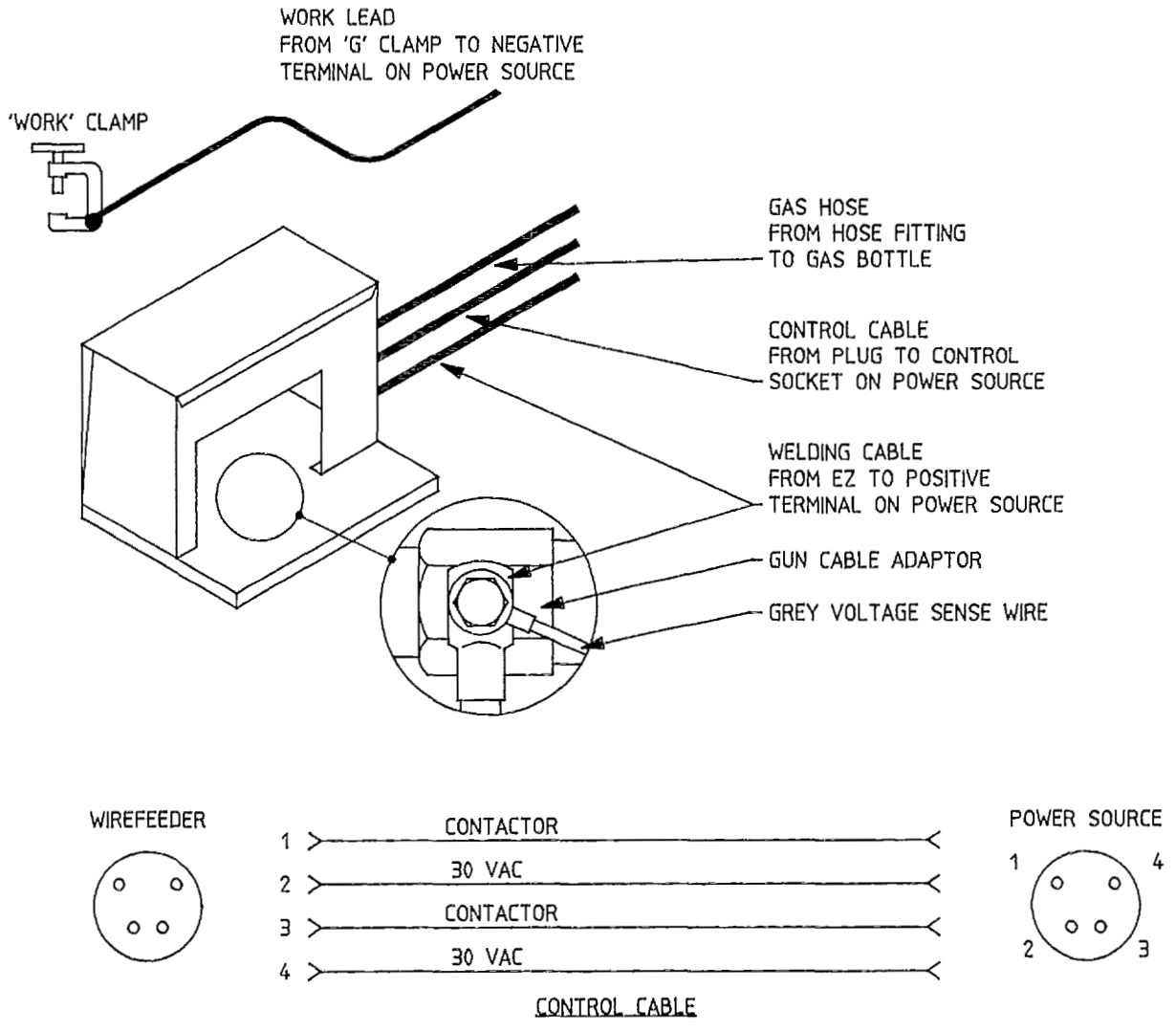


FIGURE 2. CONNECTIONS TO POWER SOURCE

6. WIRE FEEDER OPERATION

FITTING THE GUN CABLE

The W17-02 WIREFEEDER equipped with a BERNARD 'EZ' Gun Cable connector which incorporates all required connection points to the gun cable for welding current, shielding gas and gun switch control.

To attach the gun cable to the wirefeeder mechanism, engage the mating parts of the male and female 'EZ' connectors, then rotate the locking ring clockwise to firmly secure the connection.

FITTING THE CONSUMABLE WIRE

The quality of the consumable wire greatly affects how reliably a gas metal arc welder will operate. For best results when welding mild steel, we recommend quality WIA AUSTMIG ES6. Dirty, rusty or kinked wire will not feed smoothly through the gun cable and will cause erratic welding. Deposits from the wire will clog the gun cable liner requiring it to be replaced prematurely.

Place the spool of welding wire onto the spool holder. The location pin should mate with a hole provided on 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 the Nyloc nut using a 15/16" AF or 24mm socket wrench.

FEEDING THE CONSUMABLE WIRE / WIRE INCH

To feed wire through the gun cable liner, first carefully straighten the free end of the electrode wire, then cut it in the centre of the straightened section Release the top feed roll gate assembly, and rotate the pressure arm to the open position. The end of the welding wire can now be passed through the inlet guide, over the bottom driven roller, and into the output wire guide tube. Check that the drive roller grooves are correct for the wire in use. The appropriate size is stamped on the visible side of the installed roller. Check also that the correct size contact tip is fitted at the gun end. Drive roller and tip details are available in Section 10 of this manual.

Return the top feed roll gate to the closed position and adjust the compression screw to provide sufficient clamping of the drive rolls to achieve constant wirefeed. Do not over tighten. Excessive pressure between the drive rollers will result in deformation of the electrode wire, and will result in erratic wire feeding.

Using the "Wire Inch" switch, advance the wire down the gun cable and out of the welding tip. Cut the wire approximately 10mm from the welding tip.

For information regarding weld settings, gas flow rates etc. consult the welding power source manual.

NOTE! When the welding power source contactor is energised, the two roll drive and the spool of wire are at welding potential with respect to the work lead.

7. MAINTENANCE

The wire feeder should require little maintenance other than regular "blowing out" of any accumulated dust, in order to ensure the efficient cooling of the electronic components. The wire drive motor gearbox is lubricated with a long life grease, and should not normally require any maintenance procedure.

To gain access to the electronic components of the wire feeder, remove the two 3/16" mushroom head screws from the top front of the wire feeder enclosure, and hinge the lid upwards.

To ensure consistent wire feeding, the following points, with regard to the gun cable assembly, should be noted.

- Blow out gun cable and liner with dry compressed air at regular intervals and, preferably after each spool or coil of wire.
- Contact tips should be kept clear of spatter and hole size should be checked regularly.
- Regularly check gas lines and connections for tightness to prevent gas or air leaks, which may lead to porosity occurring in welds.
- Keep gun cable free from sharp bends; loop in a "C" curve in preference to an "S" curve. If wire feeder can be suspended from overhead, this will greatly improve consistency of wire feed rate.
- For CO2 gases, use gas pre-heater at all times to eliminate gas flow irregularities caused by gas "freezing" in the regulator.

8. TROUBLE SHOOTING

Note. All electrical work shall only be performed by a qualified electrician.

However, the following points may be checked by the operator.

- DRIVE MOTOR WILL NOT TURN WHEN GUN SWITCH IS OPERATED AND SPEED CONTROL IS SET TO DESIRED SPEED.
  - Check that 30 Volts A.C. power is turned on and all fuses are intact.
  - Operate "Inch" switch. If motor turns, fault may be either in gun switch or the switch wires in the gun cable. If motor does not turn, visually check both printed circuit boards and ensure that all components, wiring and electrical connections are secure. Check motor relay on printed circuit board and ensure that it is operating correctly.
- FUSES FAIL REPEATEDLY WHILE WELDING
  - Check to ensure that a 10 Amp fuse has been installed in the "wire feeder" fuse holder in the power source.
  - Motor may be overloaded -- check:-
    - Spool Holder or Wire Reel brake. Reel or Spool should only have sufficient pressure applied to prevent over-run when motor stops.
    - Feed roll pressure should only be sufficient to push the wire evenly. Excessive pressure can deform electrode wires.
    - Dirt in the wire feed liner. - blow out or replace liner.
    - Obstruction in tip - ream out. Replace tip when oversize.
    - Buckles in weld wire - cut out.
    - Rusty wire - replace.
    - Check feed roll gear teeth for interfering material, dirt or wire "bits".

9. SERVICE INFORMATION

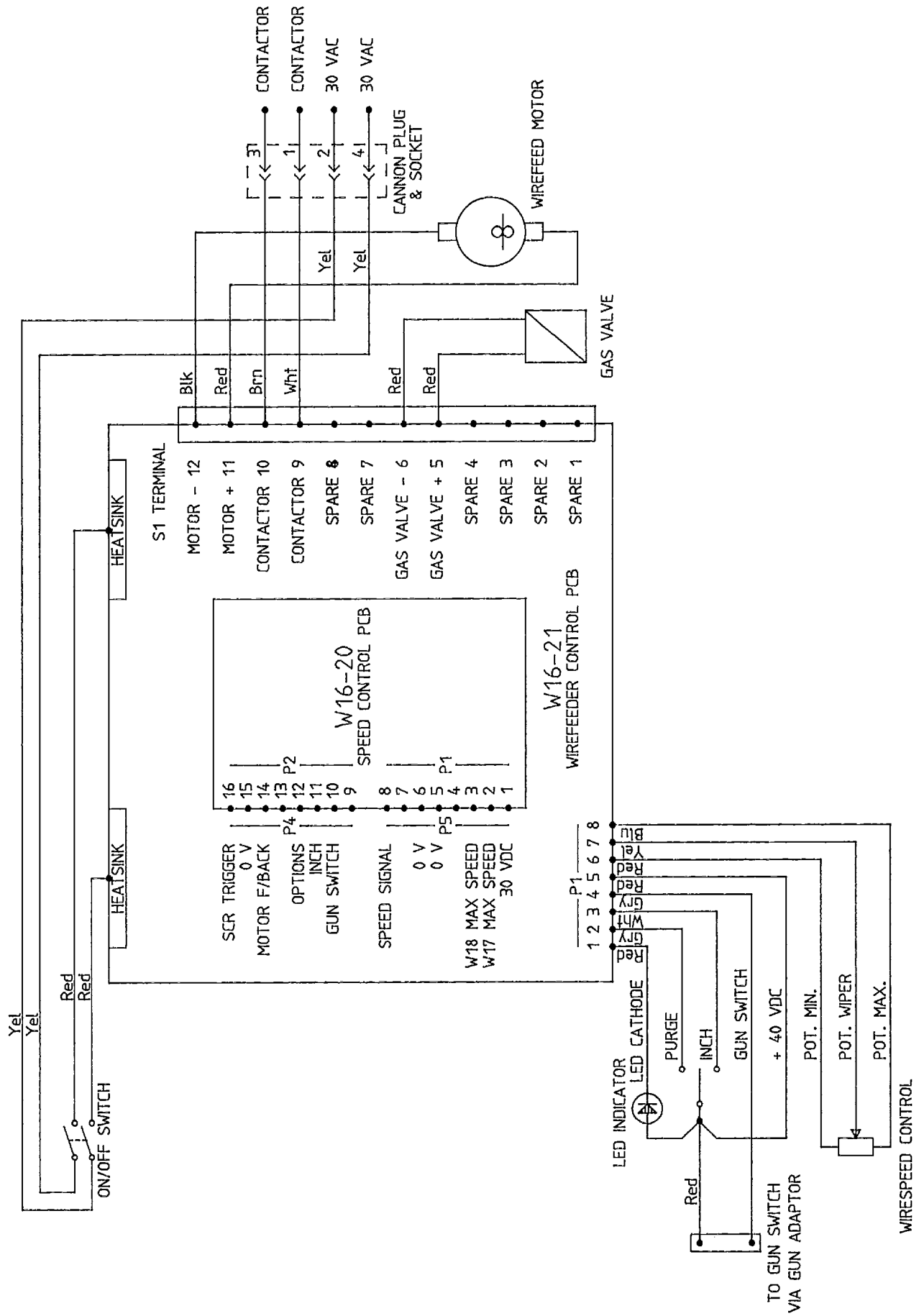


FIGURE 3. WIREFEEDER CIRCUIT DIAGRAM

W16-20 MOTOR SPEED CONTROL BOARD

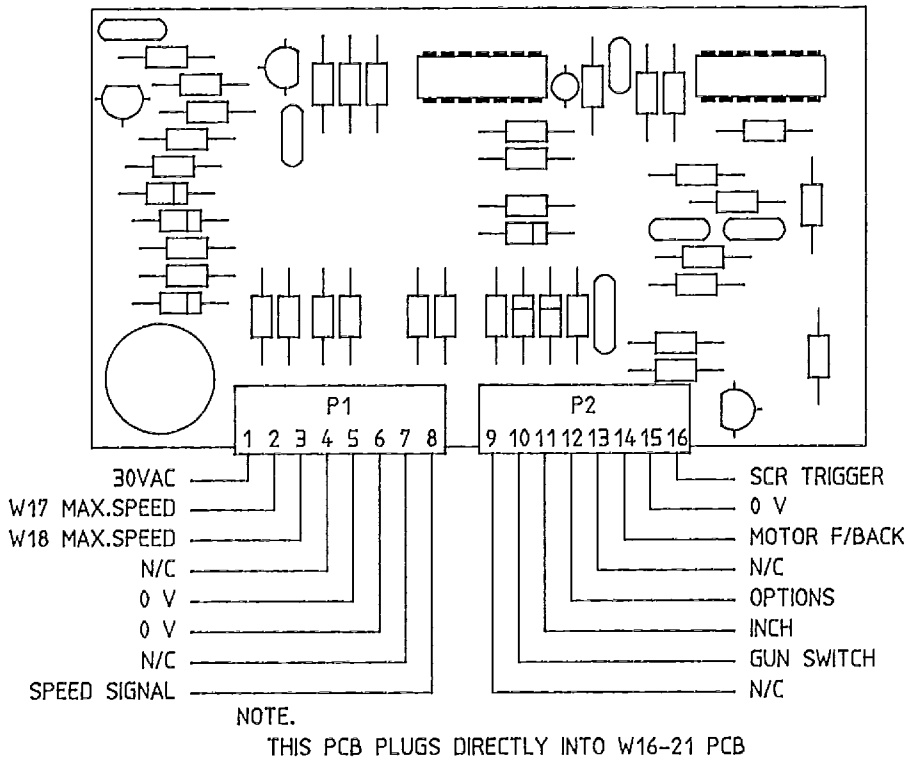


FIGURE 4. W16-20 MOTOR SPEED CONTROL BOARD

W16-21 WIREFEEDER CONTROL BOARD

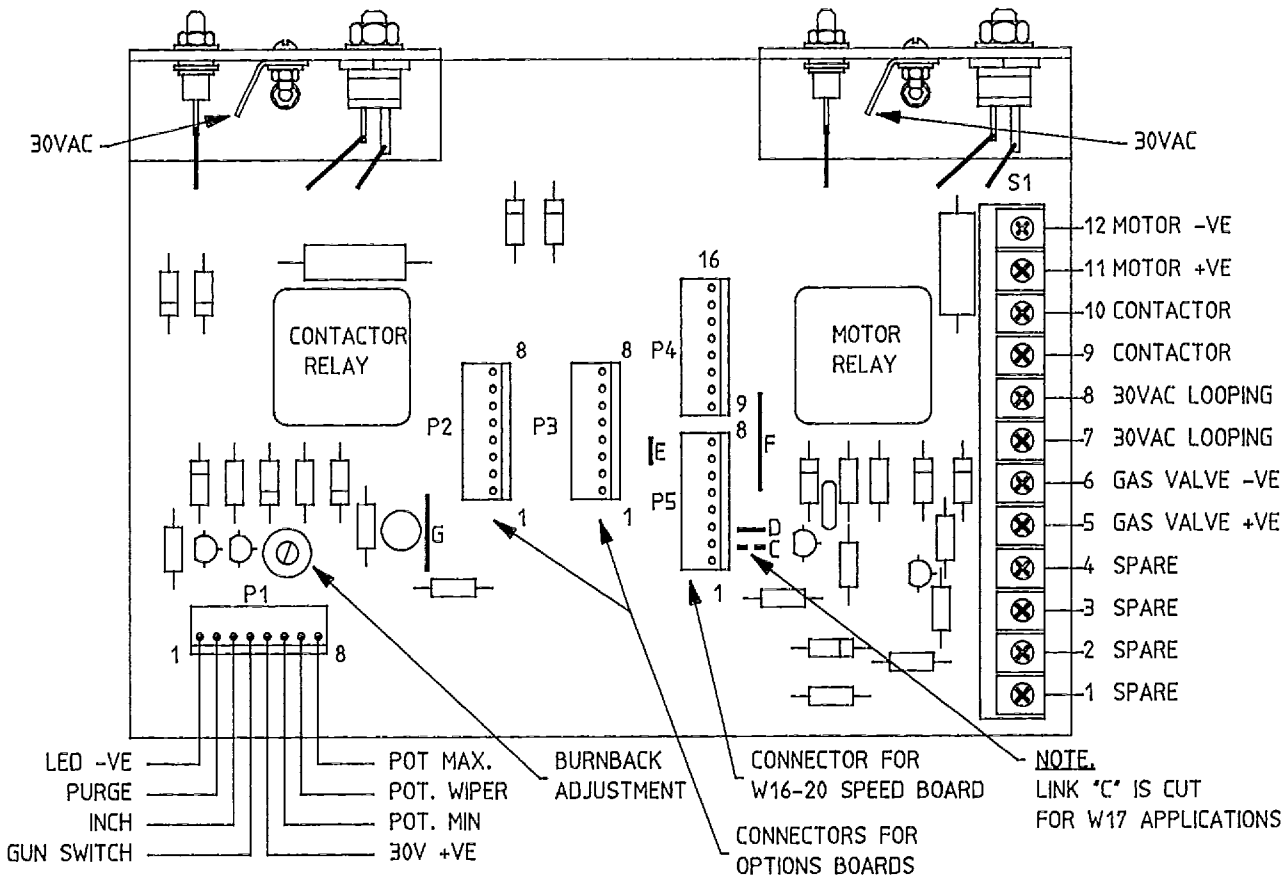


FIGURE 5. W16-21 WIREFEEDER CONTROL BOARD

10. PARTS LISTS

WELDMATIC W17 WIREFEEDER

ITEM #	PART #	DESCRIPTION
1	W16-20	PCB Assembly Motor Speed Control
2	W16-21	PCB Assembly Wirefeeder Control
3	W17-11Y	Wirefeeder Base
4	W17-12Y	Wirefeeder Case
5	W17-13/8Y	Front Panel
6	W24	Motor and 2 Roll Drive
7	CP101-0/18	Gas Valve
8	W1-19	On / Off Switch
9	W17-0/13	Inch / Purge Switch
10	W11-0/16	Knob
11	MC11-32/2	Insulating Bush (4)
12	W11-13	Mounting Insulator
13	WIN44	Type No./Serial No. Nameplate
14	W11-11/1	Hose Barb
15	W17-14/1	Gas Valve Connector
16	TC262N	Nut
17	W17-15	Terminal Nameplate
18	W17-0/24	Loom Assembly
Includes		
18.1	W17-0/11	Indicator Light
18.2	W11-02/15	Potentiometer 10K
18.3	K31	Control Socket
19	AM177	Spool Holder Assembly
Includes		
19.1	AM133-1/1	Spool Holder Moulding
19.2	AM133-1	Thrust Washer
19.3	AM133-3	Retainer (R) Clip
19.4	AM177-3	Tab Washer
19.5	AM177-4	Shaft
19.6	AM177-5	Nut Hex. Nyloc 5/8" UNF
19.7	MC11-65/17	Wave Washer 5/8" Dia.
19.8	W11-9/1	Spool Holder Collar
20	AM138	Spool Dust Cover
21	62513	Gas Hose 5mm.
22	CP3-0/23	Grommet (2)
23	BE4920WIA	Adaptor Kit

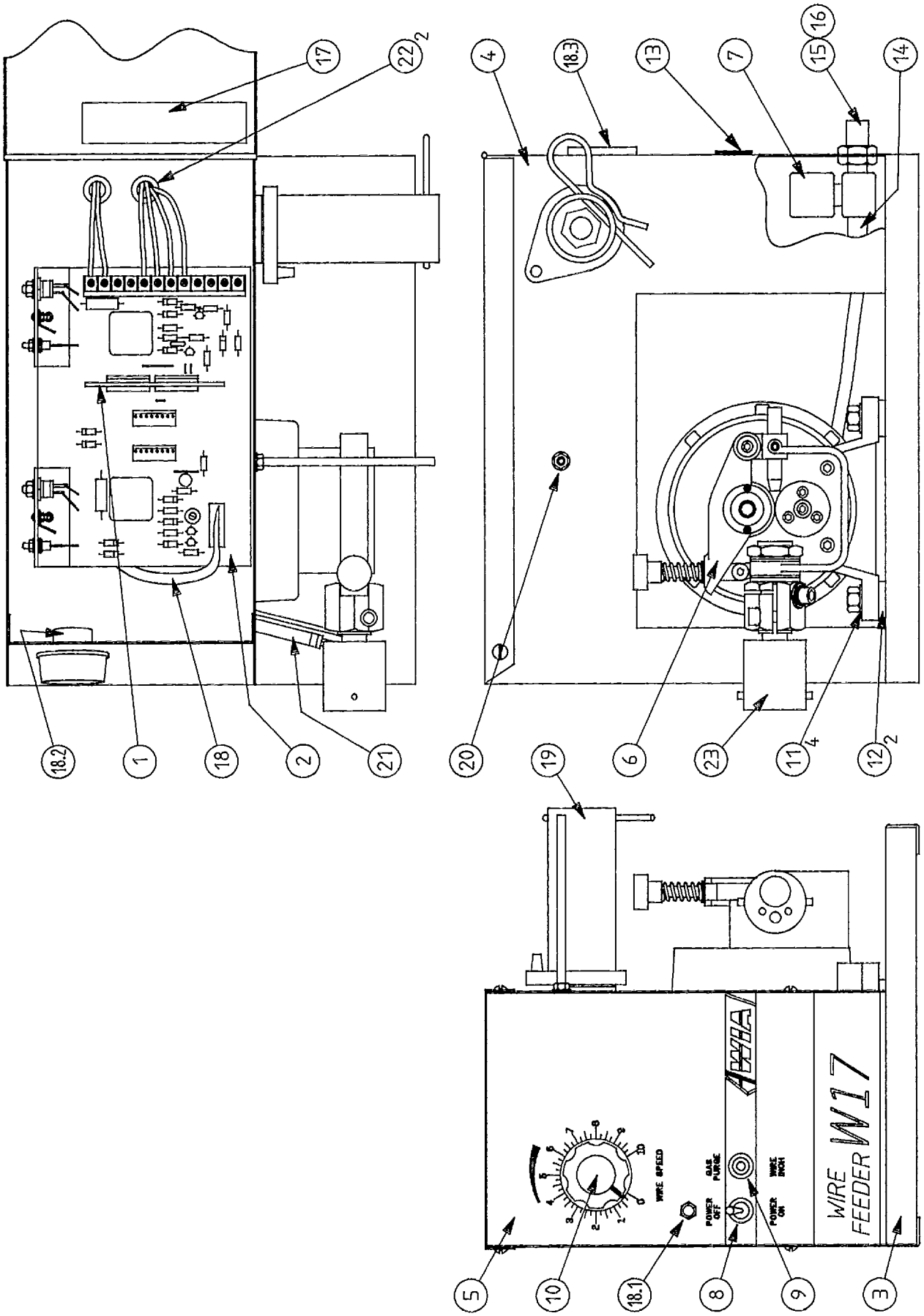


FIGURE 6. W17-02 WIREFEEDER ASSEMBLY

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	SSGM510U	M5 Skt. Grub Screw x 10 long
5	W2-17	Washer
6	WSE5Z	5 Dia Shakeproof Washer
7	SSKM510U	M5 Skt. Hd. Screw x 10 long
8	W2-44/35	M8 Shoulder Skt. Screw x 20 long
9	JW417	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	W2-44/031	Bearing(Inner)608ZZ
15	W2-44/030	Bearing(Outer)FL608ZZ
16	W2-44/016	M6 Hex Dome Nut
17	W2-15	Driven Gear Wheel
19	S0305029	8-32 UNC Skt. Hd. Screw x ½"long
20	W2-16	Driving Gear Wheel
21	SSNM36Z	M3 Pan Hd. Screw x 6 long
22	SSKM515U	M5 Skt. Hd. Screw x 15 long
23	SSKM612U	M6 Skt. Hd. Screw x 12 long
24	SSSM612U	M6 Csk. Skt. Hd. Screw x 12 long
27	W2-44/26	Adaptor Bush
28	W2-44/22	M24 x 1P Brass Locknut
29	SSKM825U	M8 Skt. Hd. Screw x 25 long
30	WSS8Z	8 Dia Spring Washer
31	SSKM815U	M8 Skt. Hd. Screw x 15 long
32	WSP8Z	8 Dia Plain Washer
33	W2-44/5	Insulating Ring
34	W2-44/21	Flat Washer

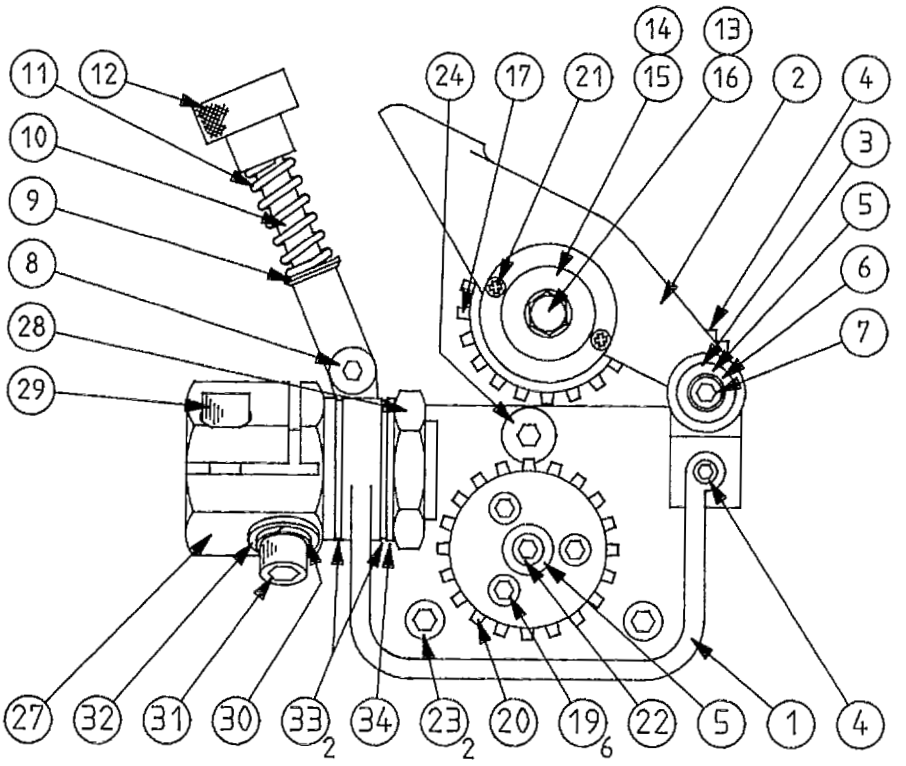


FIGURE 7. W2-44 TWO ROLL DRIVE ASSEMBLY

W24 MOTOR & TWO ROLL DRIVE ASSEMBLY

ITEM #	PART #	DESCRIPTION
1	W17-01/6	Wirefeed Motor
2	W2-44	2 Roll Drive Assembly
3	W2-20	Drive Roll
4	W2-22	Drive Roll
5	W2-44/121	Input Wire Guide
6	W24-0/6	Quick Connect Assembly
7	W2-44/19	Adaptor
8	W2-44/20	Guide Tube
9		M4x4 Socket Grub Screw

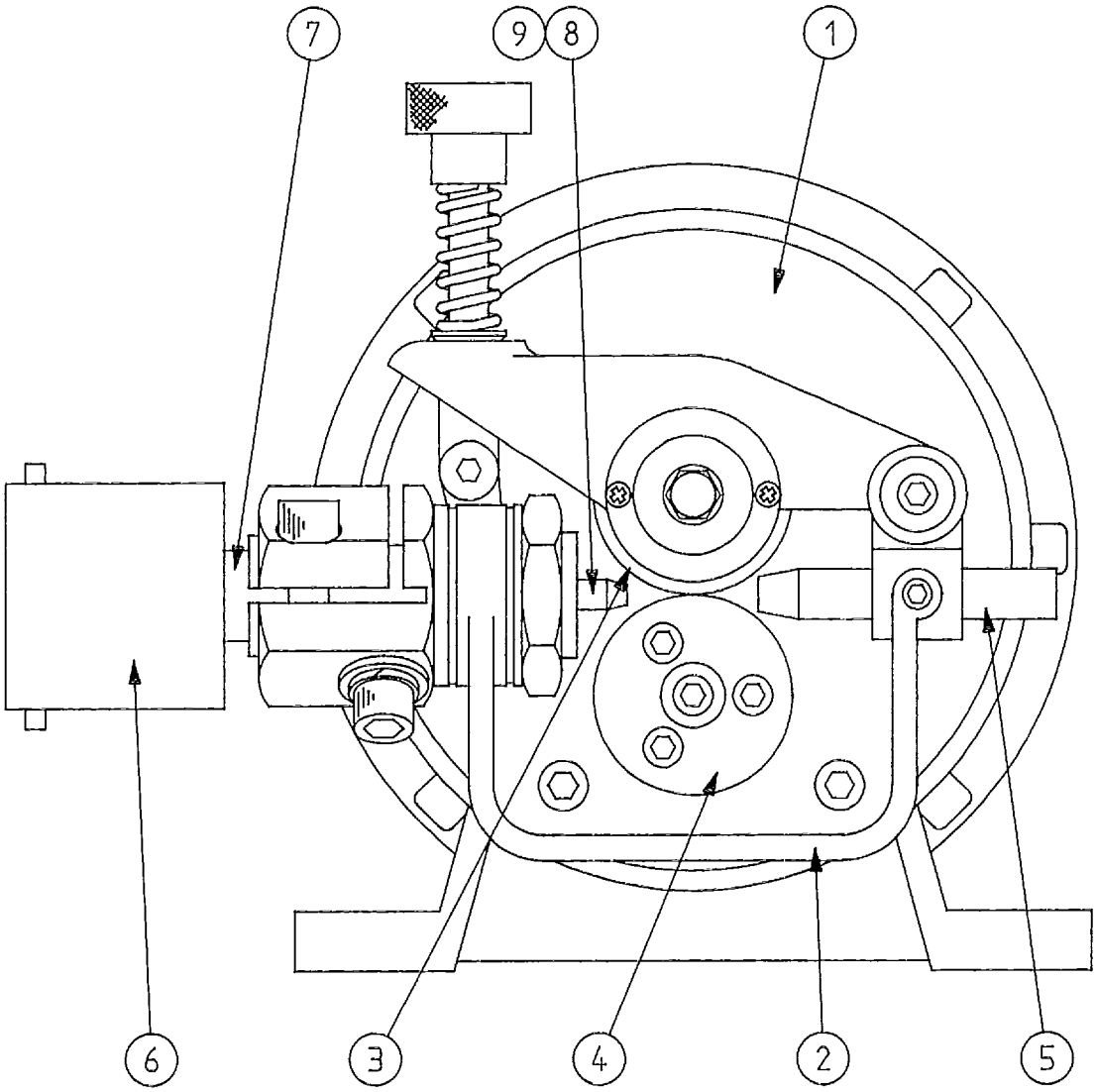
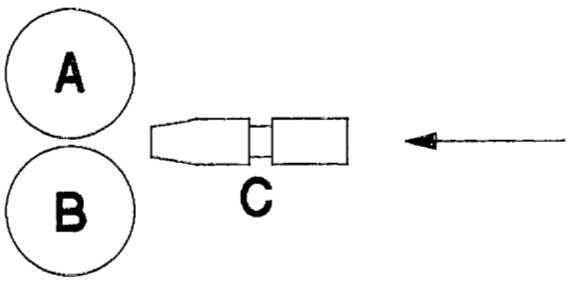


FIGURE 8. W24 MOTOR & TWO ROLL DRIVE ASSEMBLY



MATERIAL	WIRE DIA INCHES	A	B	C
SOLID AND FLUX CORED WIRES		FLAT ROLLER	PLAIN 'V' ROLLER	BRASS
	.030"	W2-20	W2-21	W2-44/12-1
	.035"	W2-20	W2-22	
	.047"			
		PLAIN 'V' ROLLER	PLAIN 'V' ROLLER	
	.062"	W2-22	W2-22	W2-44/12-2
		KNURLED 'V' ROLLER	KNURLED 'V' ROLLER	
	.047"	W2-51	W2-51	W2-44/12-1
	.062"	W2-24	W2-24	W2-44/12-2
	.078"			
	.094"	W2-25	W2-25	W2-44/12-3
	.125"	W2-26	W2-26	
	.156"	W2-27	W2-27	W2-44/12-4
	.195"	W2-28	W2-28	
ALUMINIUM WIRES		FLAT ROLLER	60°'V'ROLLER DOUBLE GROOVE	NYLON
	.047"	W2-20	W2-54	W2-44/12-1N
	.062"	W2-20	W2-54	W2-44/12-2N
		PLAIN 'V' ROLLER	PLAIN 'V' ROLLER	
	.062"	W2-22	W2-22	W2-44/12-2N
	.094"	W2-23	W2-23	W2-44/12-3N
		FLAT ROLLER	OPEN 'U' ROLLER	
	.035"	W2-49	W2-48	W2-44/12-1N
	.047"			
	.047"	W2-49	W2-50	W2-44/12-1N
	.062"			W2-44/12-2N

FIGURE 9. DRIVE ROLL AND WIRE GUIDE TABLE

AM195 ACCESSORY LEAD KIT.

ITEM #	PART #	DESCRIPTION
1	AM15	Welding Current Plug Assembly
2	AA2	`G' Type Work Clamp
3	CABW50	Welding Cable 50mm^2
4	H1422	Crimp Lug
5	AM112-3/1	Cannon Cord Plug, 4 pin Male
6	CAB4C32	4 Core Control Cable
7	K32	Cannon Cord Plug, 4 pin Female
8	62513	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

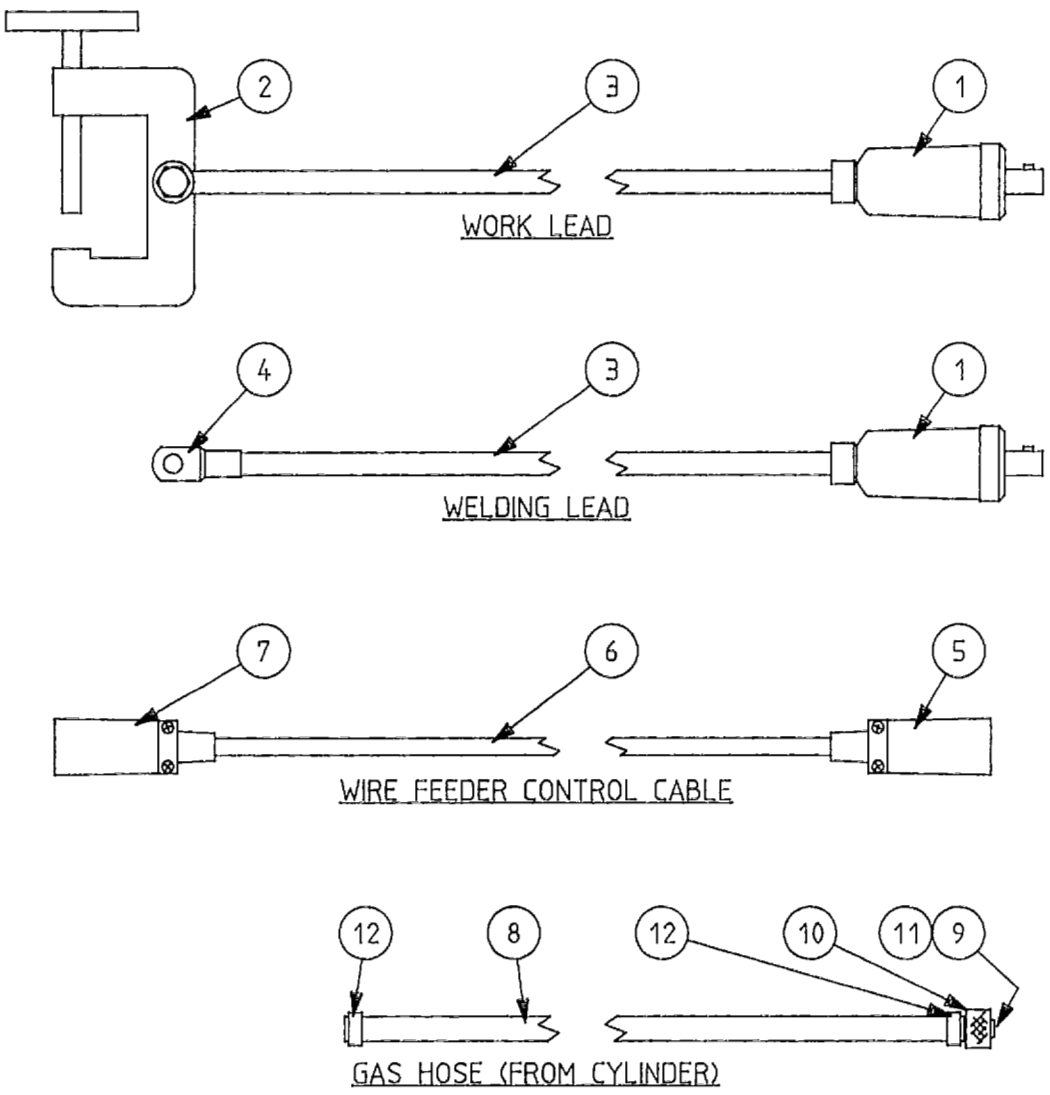


FIGURE 10. AM195 LEAD KIT

APPENDIX 1.

AM111 SWIVEL MOUNT OPTION

This option provides a swivel mounting which allows the wirefeeder to rotate when fitted to the top of the power source.

Option kit contains:

AM111/1 ..... Socket
W14-16 ..... Swivel Pin
..... Fastening Kit

INSTALLATION INSTRUCTIONS

1. Ensure Power Source is switched off.
2. Unscrew the eye nut from the top of the welding power source, and replace it with the AM111/1 socket. Tighten, using a small bar through the 7mm hole in the socket.
3. Invert the wire feeder to fit the W14 swivel pin. The pin and bracket are secured to the wire feeder using the four 1/4" B.S.W. and one 3/8" B.S.W. set screws supplied, inserted through the pre-punched holes in the wire feeder sheet metal. Note that the pin is offset on the mounting bracket, and will only fit correctly in one position. Secure all fastenings firmly.
4. Fit the fibre thrust washer onto the swivel pin, then lower the assembly onto the AM111 socket.
5. For more information, please contact your WIA branch or service agent.

APPENDIX 2.

AM126 PRE AND POST GAS TIMER OPTION

This option provides adjustment for time period of shielding gas flow before and after welding.

Option kit contains:

AM126-50 ..... PCB Assembly
Includes
CP29-0/39..... Potentiometer 50K "A" curve (2)
W5-10/19 ..... Potentiometer Knob (2)
W17-13/1Y..... Front Panel

INSTALLATION INSTRUCTIONS

1. Ensure Power Source is switched off.
2. Remove existing front panel from wirefeeder.
3. Fit new front panel (W17-13/1Y) to wirefeeder.
4. Transfer Speed Control potentiometer, Power On LED, On/Off switch, etc. from original panel to new front panel.
5. Fit new potentiometers (2) to holes in front panel designated PRE-GAS and POST-GAS.
6. Plug the AM126 PCB into either of the vacant 8 pin Option Board Receptacles (P2 or P3) on W16-21 Wirefeeder control PCB. Ensure correct alignment of connector.
7. Ensure wires from potentiometers to PCB are connected securely.
8. Close covers and check operation of wirefeeder.
9. For more information, please contact your WIA branch or service agent.

OPERATION

Pre-gas potentiometer controls time period during which shielding gas flows, before welding current begins.

Post-gas potentiometer controls time period during which shielding gas flows, after welding current ceases.

APPENDIX 3.

AM127 SOFT START-CRATER FILL OPTION

This option provides adjustment for time period and wirefeed rate at commencement and completion of weld.

Option kit contains:

AM127-50..... PCB Assembly
Includes
W11-02/15 ..... Potentiometer 10K x 3W (2)
CP29-0/39 ..... Potentiometer 50K "A" curve (2)
W11-28 ..... Current Relay Coil Assembly
W5-10/19 ..... Potentiometer Knob (4)
W17-13/4Y ..... Front Panel

INSTALLATION INSTRUCTIONS

1. Ensure Power Source is switched off.
2. Remove existing front panel from wirefeeder.
3. Fit new front panel (W17-13/1Y) to wirefeeder.
4. Transfer Speed Control potentiometer, Power On LED, On/Off switch, etc. from original panel to new front panel.
5. Fit new potentiometers (4) to holes in front panel designated SOFT START SPEED, SOFT START TIME, CRATER FILL SPEED and CRATER FILL TIME.
6. Plug the AM127 PCB into either of the vacant 8 pin Option Board Receptacles (P2 or P3) on W16-21 Wirefeeder control PCB. Ensure correct alignment of connector.
7. Ensure wires from potentiometers to PCB are connected securely.
8. Fit the Current Relay brass block to the rear wirefeeder motor mounting bolt, connecting the welding cables as shown in diagram.
9. Connect the two wires with spade lugs from the AM127 PCB into the W16-21 Wirefeeder Control PCB terminals 2 and 3 along with the two wires from the current relay. (The wires are not polarity sensitive.)
10. Remove link 'E' on W16-21 Wirefeeder Control PCB (See page 9).
Note. If AM127 PCB is removed, link 'E' must be replaced to resume normal operation.
11. Close covers and check operation of wirefeeder.
12. For more information, please contact your WIA branch or service agent.

OPERATION

Soft Start Speed potentiometer controls the initial speed of the welding wire.

Soft Start Time potentiometer controls the duration of the soft start speed after welding current commences.

Crater Fill Speed potentiometer controls the speed of the welding wire during crater fill period.

Crater Fill Time potentiometer controls the duration of the crater fill period after the gun switch is released.

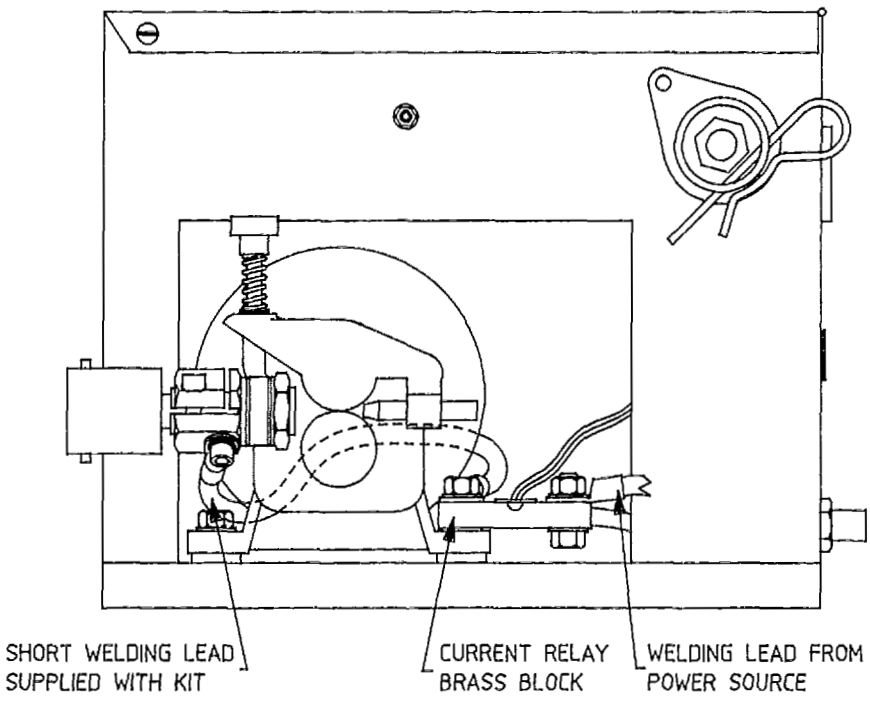


FIGURE 11. SOFT START-CRATER FILL OPTION

APPENDIX 4.

AM128 SPOT TIME / CYCLE ARC TIMER OPTION

This option provides the dual functions of a spot timer for accurate time control when arc spotting, and cycle arc timer for use during welding for applications such as in sheet metal work.

Option kit contains:

AM128-50..... PCB Assembly
Includes
CP29-0/39..... Potentiometer 50K "A" curve (2)
AM128-3..... Switch
W11-28 ..... Current Relay Coil Assembly
W5-10/19 ..... Potentiometer Knob (2)
W17-13/8Y..... Front Panel

INSTALLATION INSTRUCTIONS

1. Ensure Power Source is switched off.
2. Remove existing front panel from wirefeeder.
3. Fit new front panel (W17-13/8Y) to wirefeeder.
4. Transfer Speed Control potentiometer, Power On LED, On/Off switch, etc. from original panel to new front panel.
5. Fit new potentiometers (2) to holes in front panel designated SPOT TIME and CYCLE ARC TIME.
6. Plug the AM128 PCB into either of the vacant 8 pin Option Board Receptacles (P2 or P3) on W16-21 Wirefeeder control PCB. Ensure correct alignment of connector.
7. Ensure wires from potentiometers to PCB are connected securely.
8. Close covers and check operation of wirefeeder.
9. For more information, please contact your WIA branch or service agent.

OPERATION

Spot Time potentiometer controls the time period during which arc spot welding occurs.

Cycle Arc Time potentiometer controls the duration of the time interval between welds.

APPENDIX 5.

AM130 VERNIER WIRE SPEED CONTROL OPTION

This option provides a 10 turn vernier calibrated potentiometer for fine control of wire speed.

Option kit contains:

CP28-0/20..... Vernier Dial
CP28-0/21..... Potentiometer 10K. 10 Turn x 3W (2)

INSTALLATION INSTRUCTIONS

1. Ensure Power Source is switched off.
2. Remove existing Speed Control potentiometer and knob from front panel of wirefeeder.
3. Fit new 10 turn Speed Control potentiometer to front panel of wirefeeder.
4. Fit new vernier dial and dial cover to potentiometer shaft. (Extra hole may be required for key on dial cover).
5. Remove wires from existing potentiometer and fit to new 10 turn potentiometer.
6. Close cover and check operation of wirefeeder.
7. For more information, please contact your WIA branch or service agent.

OPERATION

Vernier Wire speed control allows fine adjustment of wirespeed and accurate resetting of previously noted wire speeds.

APPENDIX 6.

AM140 WIRE SPOOL COVER OPTION

This option provides a plastic cover and removable lid to cover the wire spool and protect it from dust and moisture during operation.

Option kit contains:

AM140..... Spool Cover and Lid

INSTALLATION INSTRUCTIONS

1. Ensure Power Source is switched off.
2. Remove wire spool from wirefeeder.
3. Remove spool holder from spool holder axle. (ensure washers, spool holder and nut etc. are kept in correct order).
4. Fit spool cover base over axle, then refit spool holder. (keep components in correct order).
5. Refit wire spool, adjust tension and feed wire through to gun.
6. Fit cover to spool cover base and check operation of wirefeeder
7. For more information, please contact your WIA branch or service agent.

APPENDIX 7.

AM227-0 PUSH / PULL CONVERSION OPTION (WITHOUT GUN)

This option provides all the necessary items to convert a standard wirefeeder to a push/pull unit.

Option kit contains:

AM146-9..... PCB Assembly
Includes
AM146-1..... PCB Assembly
AM131-2..... PCB Assembly
Includes
K57..... Socket 10 Pin
W1-20 ..... Local/Remote Switch
AM131-2/3..... Heatsink
AM126-50..... PCB Assembly
Includes
CP29-0/39..... Potentiometer 50K "A" curve (2)
TC396-6 ..... Euro Adaptor Kit
W5-10/19 ..... Potentiometer Knob (4)
W17-13/5Y..... Front Panel
W2-44/12N..... Nylon Wire Guide 0.8/1.2mm
W2-49 ..... Chromed Grooved Roller
W2-49 ..... Chromed Flat Roller

INSTALLATION INSTRUCTIONS

1. Ensure Power Source is switched off.
2. Remove existing front panel from wirefeeder.
3. Fit new front panel (W17-13/5Y) to wirefeeder.
4. Transfer Speed Control potentiometer, Power On LED, On/Off switch, etc. from original panel to new front panel.
5. Fit Euro Connector and associated panel to wirefeeder base and wire drive unit.
6. Fit 10 pin socket and local/remote switch to front panel.
7. Fit Pre and Post Gas Timer Option. (follow installation instructions described in appendix 2). **Note**. PCB must be fitted to P3 in this instance.
8. Plug the AM146 PCB and AM131-2 with associated heatsink into the 8 pin Option Board Receptacle P2 and P1 on W16-21 Wirefeeder control PCB. Ensure correct alignment of connectors. (See below for procedure to adjust Minimum and Maximum wirespeed).
9. Ensure wires from PCB to 10 pin socket and local/remote switch are connected correctly and securely.
10. If wirefeeder is to be used for aluminium welding, substitute new nylon wire guide and chromed rollers for existing parts.
11. For more information, please contact your WIA branch or service agent.

ADJUSTMENT PROCEDURE

The AM146 PCB has two trimpots to adjust maximum and minimum wirespeed. These trimpots should be set up so that:-

- The pull motor runs faster than the push motor without wire but with the top rolls closed with correct pressure
- The pull motor runs not so fast that it mills the wire away, with correct drive roll pressure.

ADJUSTMENTS

Without welding wire in the gun cable.

a) Set both trimpots to minimum, ie. turn anticlockwise until clicking is heard.

b) Set the wirefeed speed potentiometer to minimum.

c) Set the "Min." trimpot so that the pull motor runs at 140cm/min. surface speed or 25 RPM. (** Approximately 400mA ** see Fine Tuning)

d) Set the wirefeed speed to maximum, which should be 16 Metres/min. (126 RPM).

e) Set the "Max." trimpot so that the pull motor runs at 17 Metres/min. or 310 RPM. (** Approximately 300mA ** see Fine Tuning)

FINE TUNING

Use a multimeter with a DC Amp range of 1 or 2 Amps.

f) With the gun cable laid out straight on the floor and the correct drive roll pressure on both pull and push motors, feed wire through gun cable.

g) Remove the fuse from the AM146 assembly. (Ensure power is off as fuse may come in contact with heatsink).

h) Connect the multimeter to read current passing through the fuse holder.

Repeat steps a to e, noting a current of 300mA to 400mA through the wirefeed range. Normally higher at minimum, ie. 400mA, and 300mA at 16Metres/min.

Ensure drive rolls are not milling away the wire with normal drive roll pressure. If milling is evident then reduce the current at min. or max. as required.

Close cover and check operation of wirefeeder. (Purge gun cable for several minutes before welding).

APPENDIX 8.

AM174 & W17-17 COIL HOLDER AND COIL BRACKET PLATE OPTION

This option replaces the existing wire spool holder with a device which enables the wirefeeder to mount 30Kg wire coils.

Option kit contains:

AM174 ..... Coil Holder
Includes
AM174-1 ..... Spider
AM174-2 ..... Clamp (4)
..... 1/2" BSW Wing Nut (4)
W17-17 ..... Coil Mounting Bracket
Includes
..... Fastening Kit

INSTALLATION INSTRUCTIONS

1. Ensure Power Source is switched off.
2. Remove complete spool holder assembly. (Undo fixing bolt inside top cover of wirefeeder cover.
3. Fit Coil Mounting Bracket to side of wirefeeder case, using fasteners supplied. (Plain washer is required on each bolt between bracket and wirefeeder case to allow clearance for cover to shut.)
4. Fit Coil Holder to top end of bracket with fasteners supplied.
5. Adjust rotation tension of coil holder.
6. Fit 30Kg wire coil, feed wire through gun cable, and check operation of wirefeeder.
7. For more information, please contact your WIA branch or service agent.

APPENDIX 9.

W11-14 SUSPENSION BRACKET OPTION

This option allows the wirefeeder to be suspended from an overhead position giving greater flexibility and access for welding in a production environment etc.

Option kit contains:

W11-14 ..... Suspension Bracket

INSTALLATION INSTRUCTIONS

1. Ensure Power Source is switched off.
2. Remove complete spool holder assembly. (Undo fixing bolt inside top cover of wirefeeder cover.
3. Fit Suspension Bracket to side of wirefeeder case, using fasteners supplied in two holes, and refit spool holder assembly in original position
4. Close cover, refit wire spool and test operation of wirefeeder.
5. For more information, please contact your WIA branch or service agent.

APPENDIX 10.

AM89-0 BALANCE BOOM OPTION

This option provides a swivel mounting for the wirefeeder and a counter balanced support for the gun and cable, thereby reducing operator fatigue when repetitive production welding etc.

Option kit contains:

AM89-1 ..... Boom Arm
AM89-2 ..... Wirefeeder Pivot
AM89-3 ..... Boom Swivel Mount
AM89-10 ..... Boom Pivot
AM89-11 ..... Bracket For Wirefeeder
AM89-15 ..... Wire Guide Assembly
AM89-0/15 ..... Fastener Kit

INSTALLATION INSTRUCTIONS

1. Ensure Power Source is switched off.
2. Fit Swivel Mount to top cover of power source
3. Fit Wirefeeder Pivot to wirefeeder, mount onto boom and mount boom assembly onto power source swivel mount.
4. Relocate wire spool and spool holder to new mounting position.
5. Fit extension wire guide assembly
6. Refit gun cable to boom mount and feed wire through to gun.
7. Test operation of wirefeeder.
8. For more information, please contact your WIA branch or service agent.

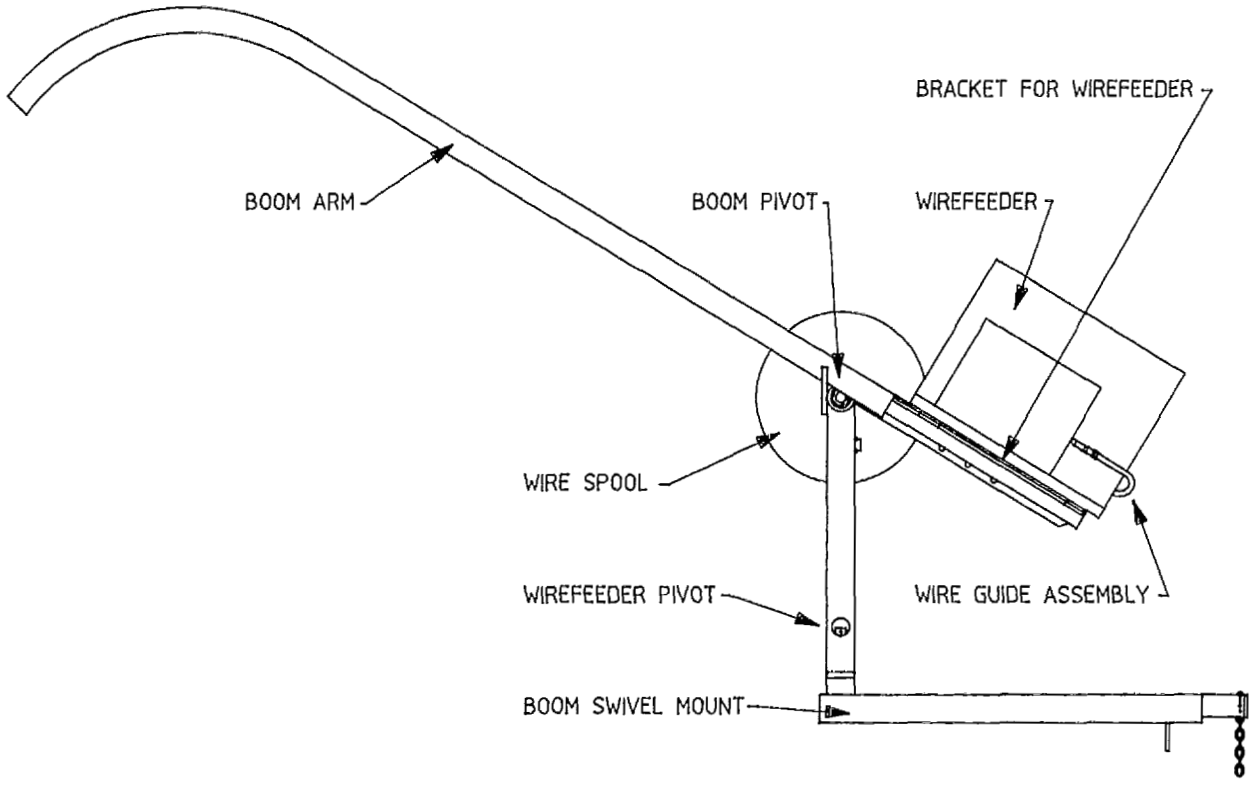


FIGURE 12. BALANCE BOOM OPTION

11. SAFE PRACTICES IN 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, 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.

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 vapours to form phosgene. Do not weld or cut where solvent vapours 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 percholorethylene.

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.

A tank or drum which has contained combustibles can produce flammable vapours 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.