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OWNERS MANUAL
WIRE FEEDER
HEAVY DUTY, 4 ROLL DRIVE
MODEL NO. W30-5, REV. A
11/93



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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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.

1. SPECIFICATIONS

SUPPLY VOLTAGE 30 Volts A.C., 50 Hz.

MAX. SUPPLY CURRENT 10 Amps.

SUPPLY FUSE RATING 12 Amps.

MAX. WIRESPEEDS 4.9 / 7.6 / 16 Metres/min,
selected by external gear ratios.

MAX. DIMENSIONS L - 690mm, W - 320mm, H - 415mm.

2. WIREFEEDER CONTROLS

1. POWER ON INDICATOR

This is illuminated to confirm supply voltage is connected to the wirefeeder, and On/Off switch (3) is set to the 'ON' position.

2. WIRESPEED CONTROL

This control provides adjustment of the drive roller speed (rpm). Rotating the control in a clockwise direction will increase the speed.

3. POWER OFF / ON SWITCH

When in the 'OFF' position, this switch opens both sides of the 30 Vac supply connection.

4. GAS PURGE / WIRE INCH

Selecting 'INCH' runs the wirefeed motor to feed electrode wire through the gun cable without energising the welding power supply.

Selecting 'PURGE' energises the gas valve to fill the gas hoses with shielding gas, or to allow adjustment of the gas flow rate.

5. GUN SWITCH CONNECTOR

The gun switch (normally open contact) should be wired across pins 1 & 3 of this connector, or alternatively across the control pins of the 'EZ' gun connector (6).

6. EZ GUN ADAPTOR

Welding guns fitted with the 'Bernard EZ' type quick connect adaptor attach directly to this adaptor. It provides connections for welding current, gun switch control, and shielding gas.

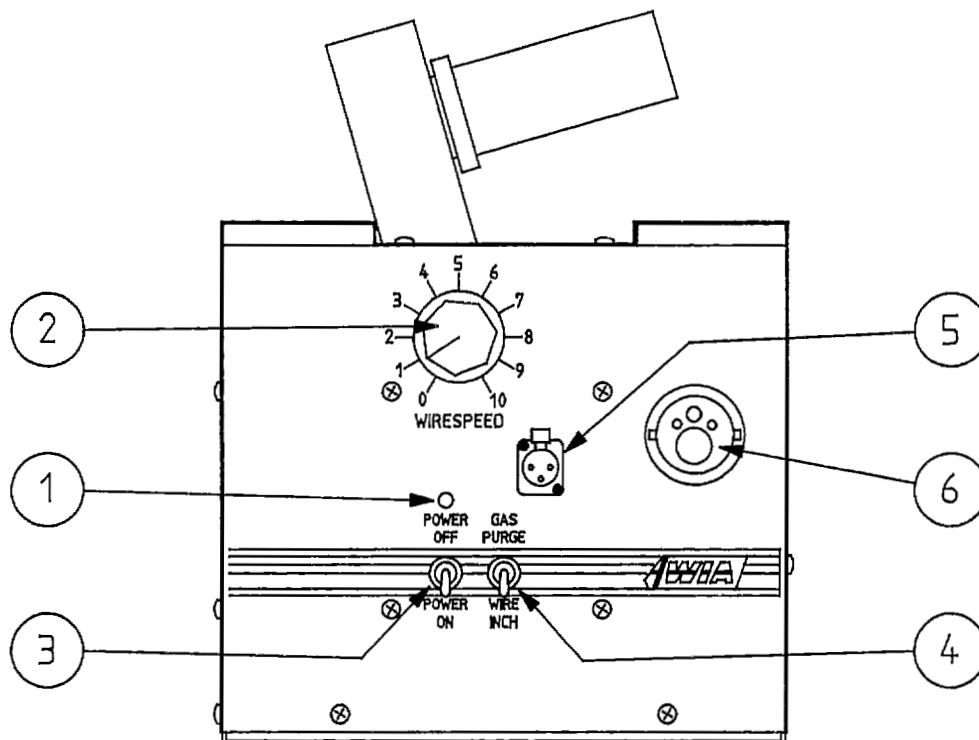


FIGURE 1. WIREFEEDER CONTROLS

3. INSTALLATION

SUPPLY CONNECTIONS

All supply connections to the W30 wirefeeder are represented in the drawings below.

Note that the gas hose connector incorporates an 'O' ring seal and does require excessive tightening.

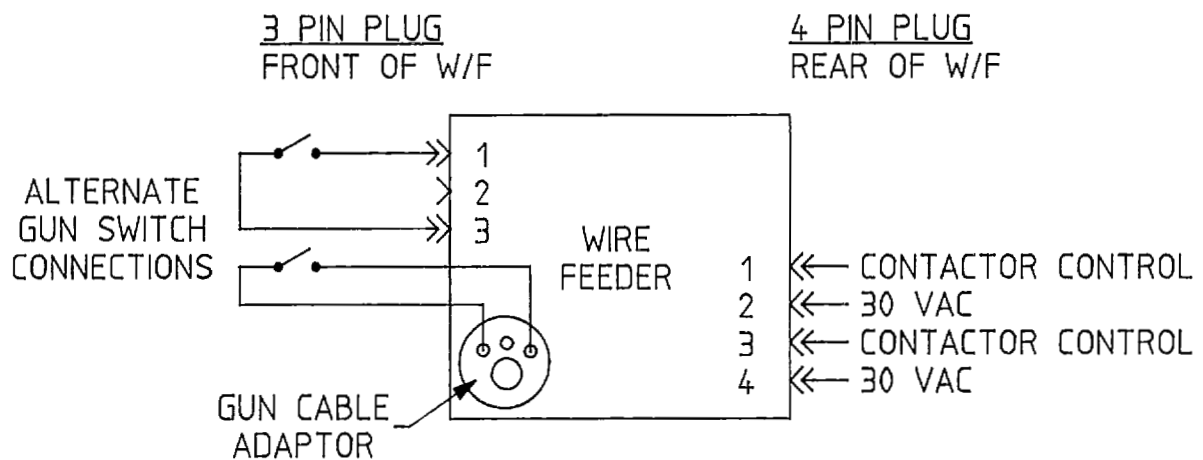
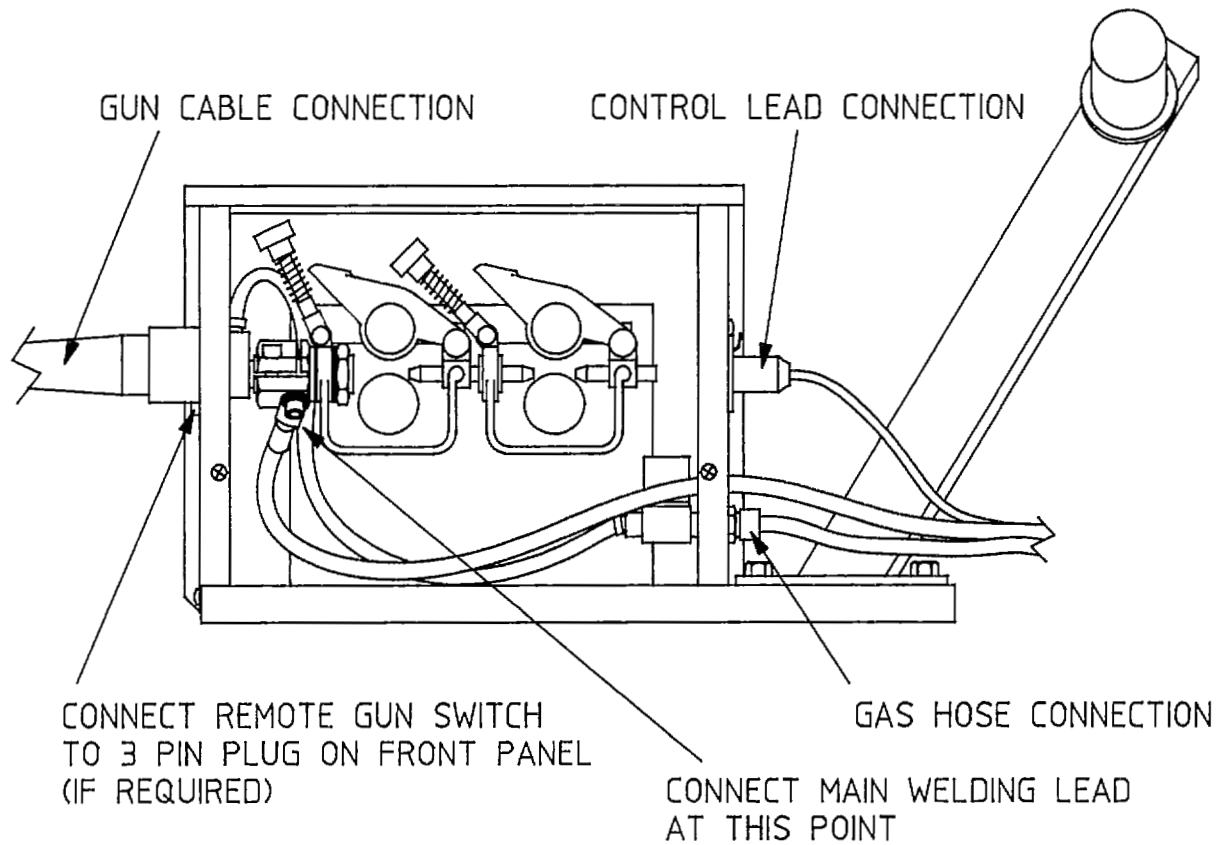


FIGURE 2. INSTALLATION CONNECTIONS

FITTING THE CONSUMABLE WIRE

The quality of the consumable wire greatly affects how reliably a G.M.A.W. machine will operate. 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.

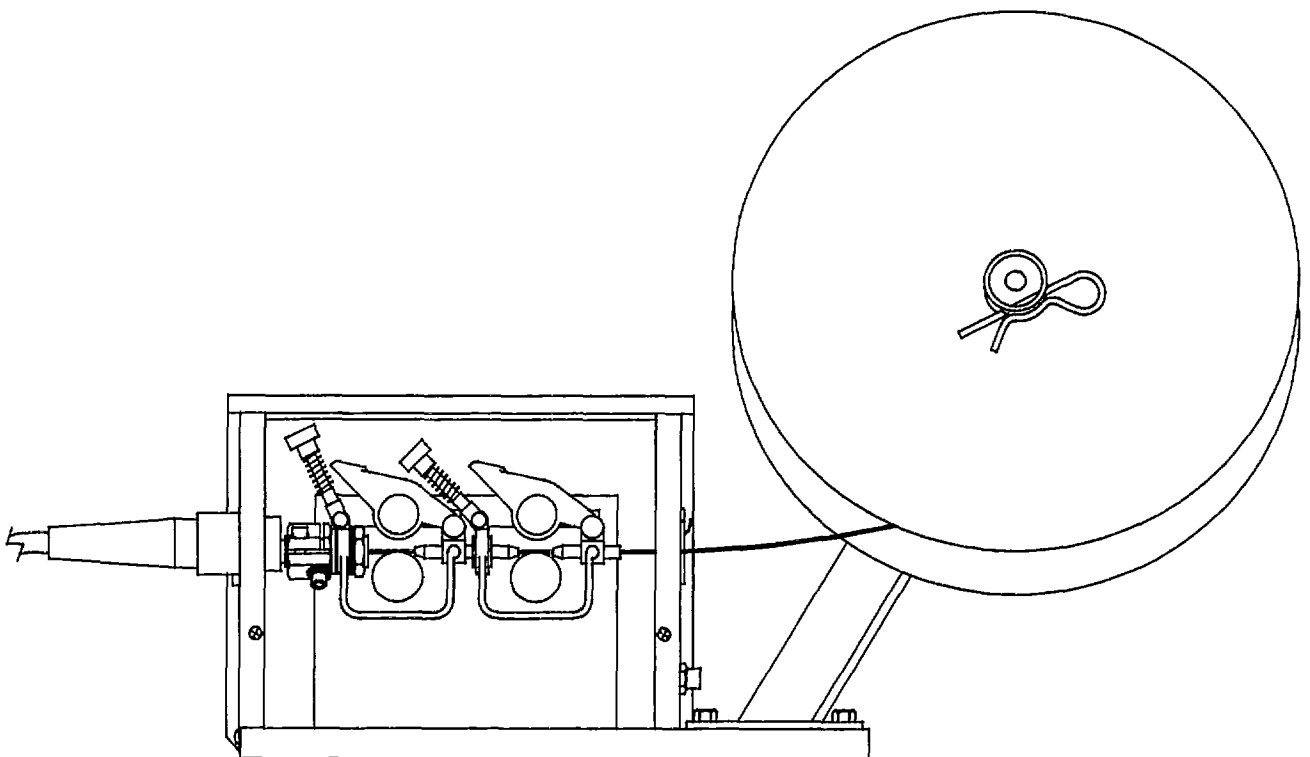
Check the adjustment of the spool brake, which should be set to prevent over-run of the wire spool at the end of a weld, without unduly loading the wirefeed motor. The braking can be adjusted by the Nyloc nut using a 15/16" AF or 24mm socket wrench.

FEEDING THE CONSUMABLE WIRE

Open the four roll drive mechanism by rotating the compression springs forwards, allowing the upper rollers to be rotated away from the driven rollers. The end of the welding wire can now be passed through the wire guides, over the bottom rollers, and into the brass gun cable adapter end.

Check that the drive roller groove is correct for the wire in use. Refer to section 1 for drive roll and wire guide part numbers.

Return the top rollers to their closed position and, with the machine turned on, press INCH to feed wire through the gun cable. Adjust the compression screws to provide sufficient clamping of the drive rolls drive to achieve constant wirefeed. Do not overtighten.

**FIGURE 3. FEEDING THE CONSUMABLE WIRE**

4. NORMAL WELDING SEQUENCE

WELD START

Closing the welding gun switch initiates this sequence of events:

- The gas valve is energised and gas flow commences;
- The power source contactor function is initiated. Welding voltage is applied between the work-piece and the consumable wire.
- The wire drive motor is energised, wirefeed commences and the arc is established.

WELD END

Releasing the gun switch initiates this sequence of events:

- The wire drive motor is de-energised, and is dynamically braked to a stop;
- After a short pre-set period, known as the 'burn-back' time, the power source contactor function is released. This period ensures that the consumable wire does not 'freeze' in the weld pool. To adjust the 'burn-back' time, refer to circuit board W16-21 in Section 6 of this manual.
- The gas valve is de-energised and the flow of shielding gas ceases.

5. GENERAL MAINTENANCE

CAUTION

Before removing the machine cover, ENSURE that the unit is disconnected from the associated welding power supply.

DUST

Care should be taken to prevent excessive build-up of dust and dirt within the wirefeeder. It is recommended that at regular intervals, according to the prevailing conditions, the machine 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. welding 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 minimized 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.

LUBRICATION

At intervals of approximately 1000 hours use, the external reduction gearbox should be stripped and degreased. Inspect gears and bearings for wear and replace as required. Repack the gearbox with a Molybdenum Disulphite bearing grease.

6. SERVICE INFORMATION.

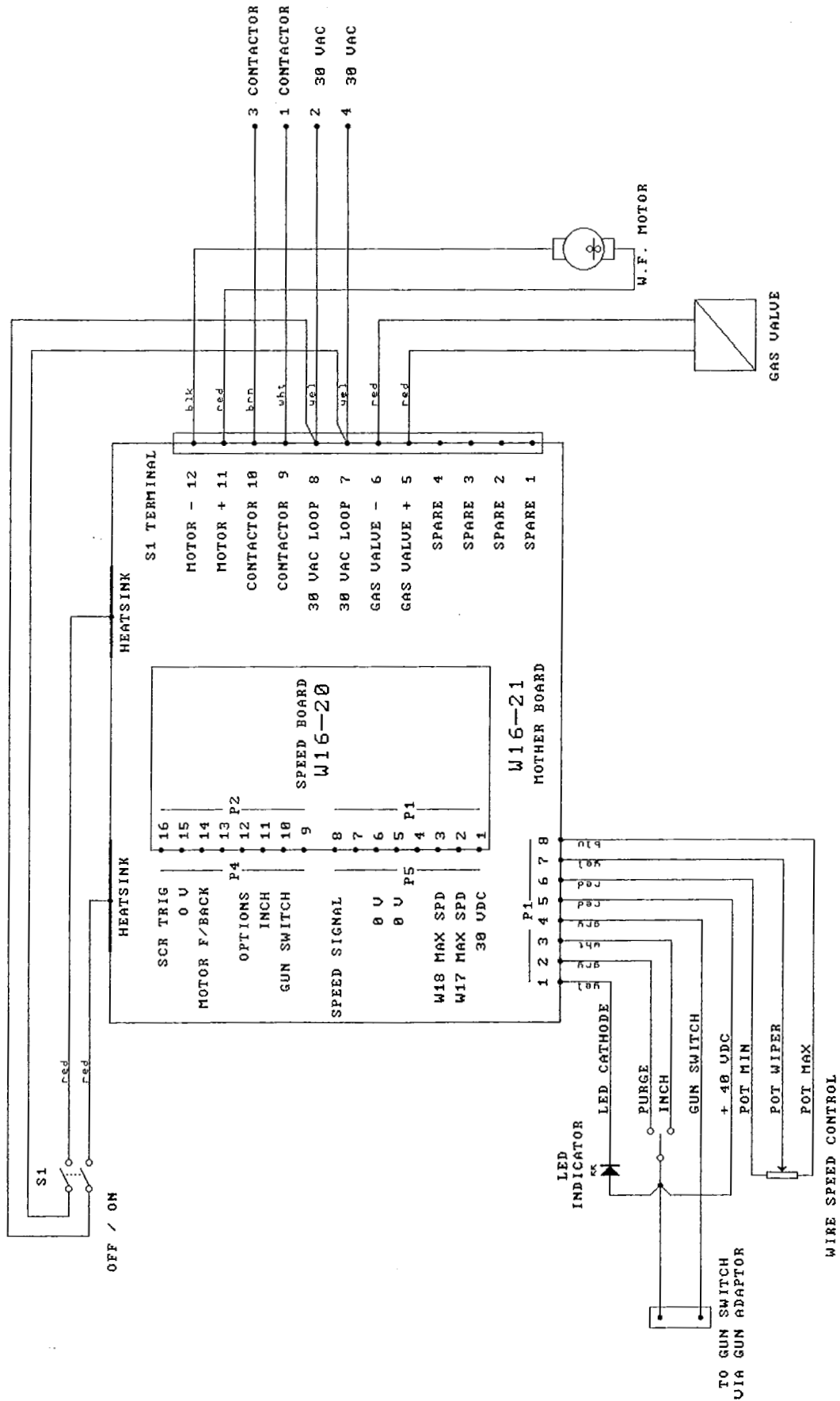


FIGURE 4. W30-5 CIRCUIT DIAGRAM

PRINTED CIRCUIT BOARDS

SPEED BOARD W16-20

The circuit boards W16-20 and W16-21 together provide the following circuit functions;

- Wirefeed motor On/off control in response to the gun-switch.
- Speed control of the wirefeed motor.
- 'Burn-back' control.
- Braking of the wirefeed motor at end of weld.
- Control of the gas solenoid valve.

Connections to the board, and service points are detailed in the drawings below.

The W16-20 Speed board is factory set for a maximum motor speed of 126 rpm.

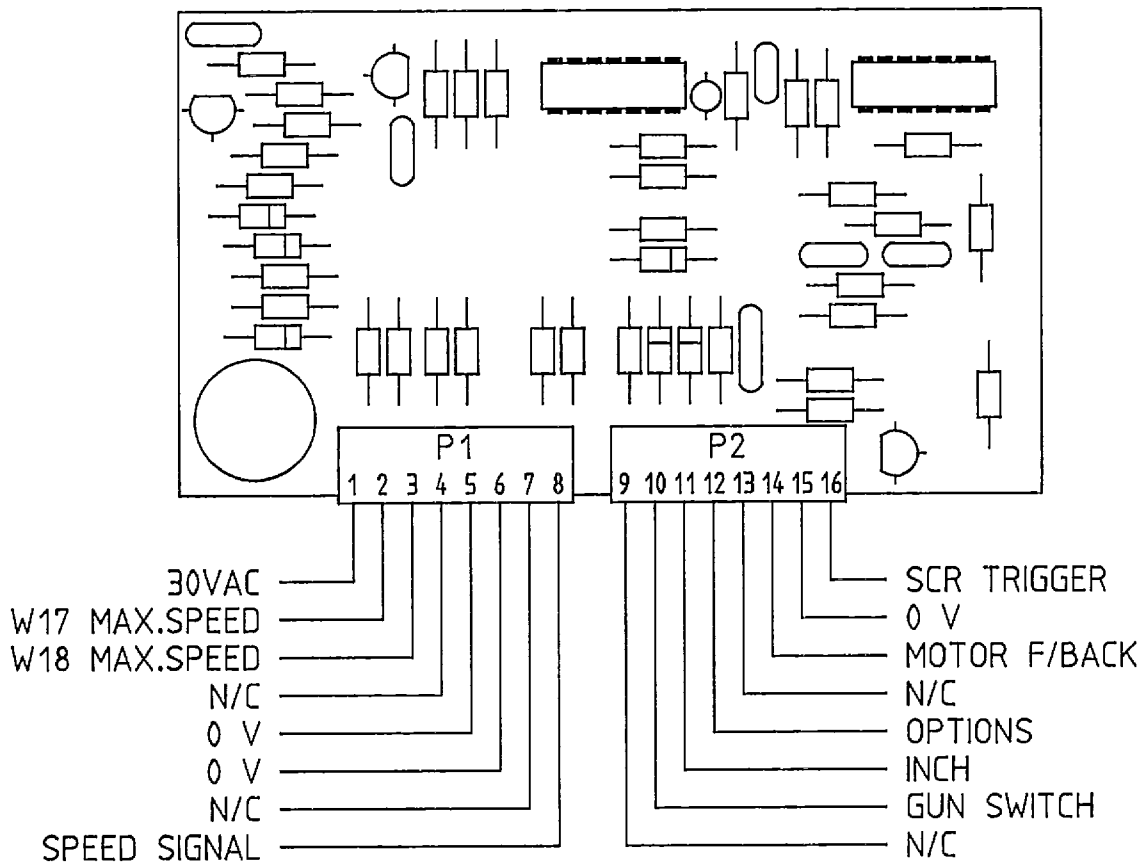


FIGURE 5. WIREFEED SPEED BOARD

MOTHER BOARD W16-21

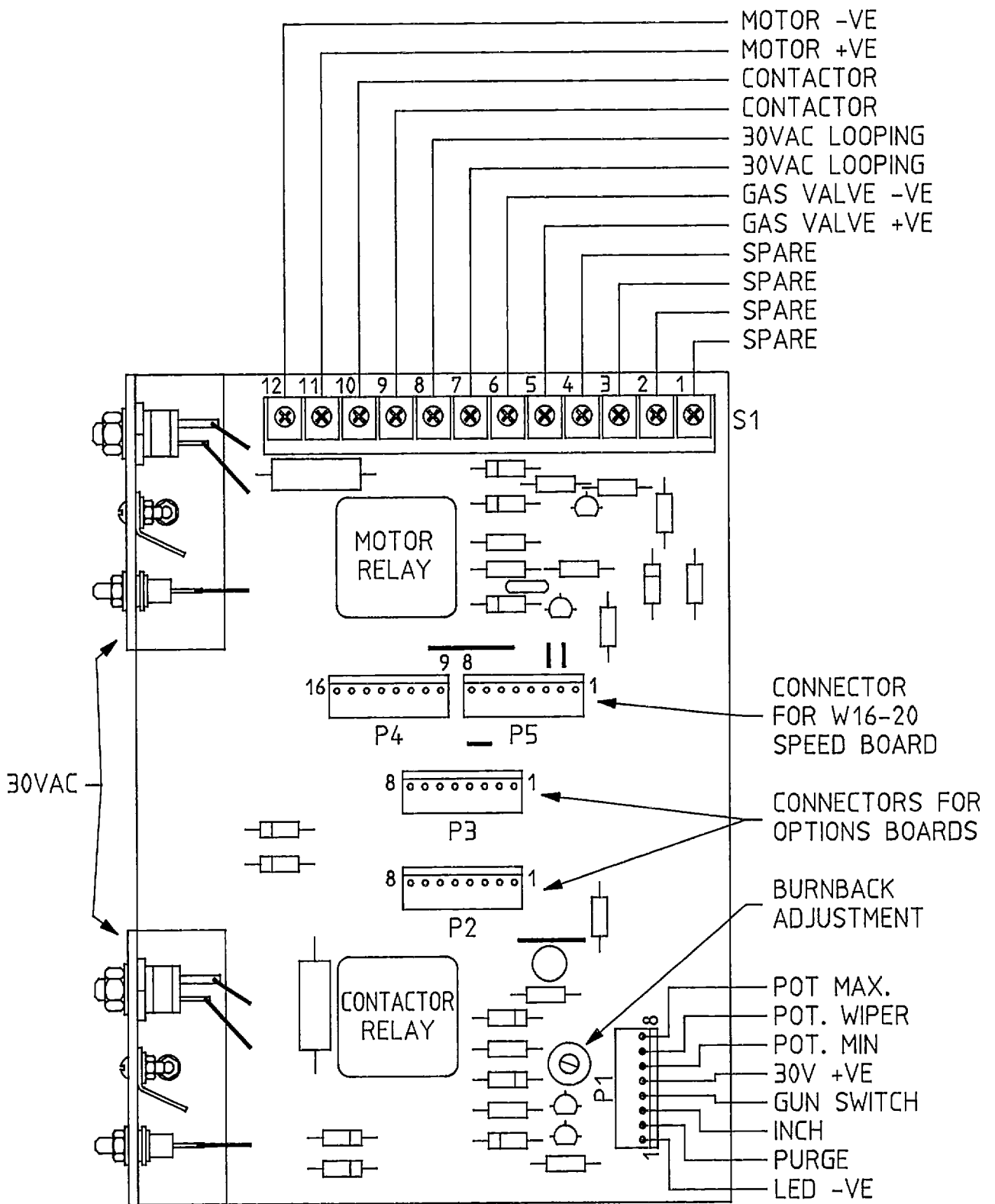
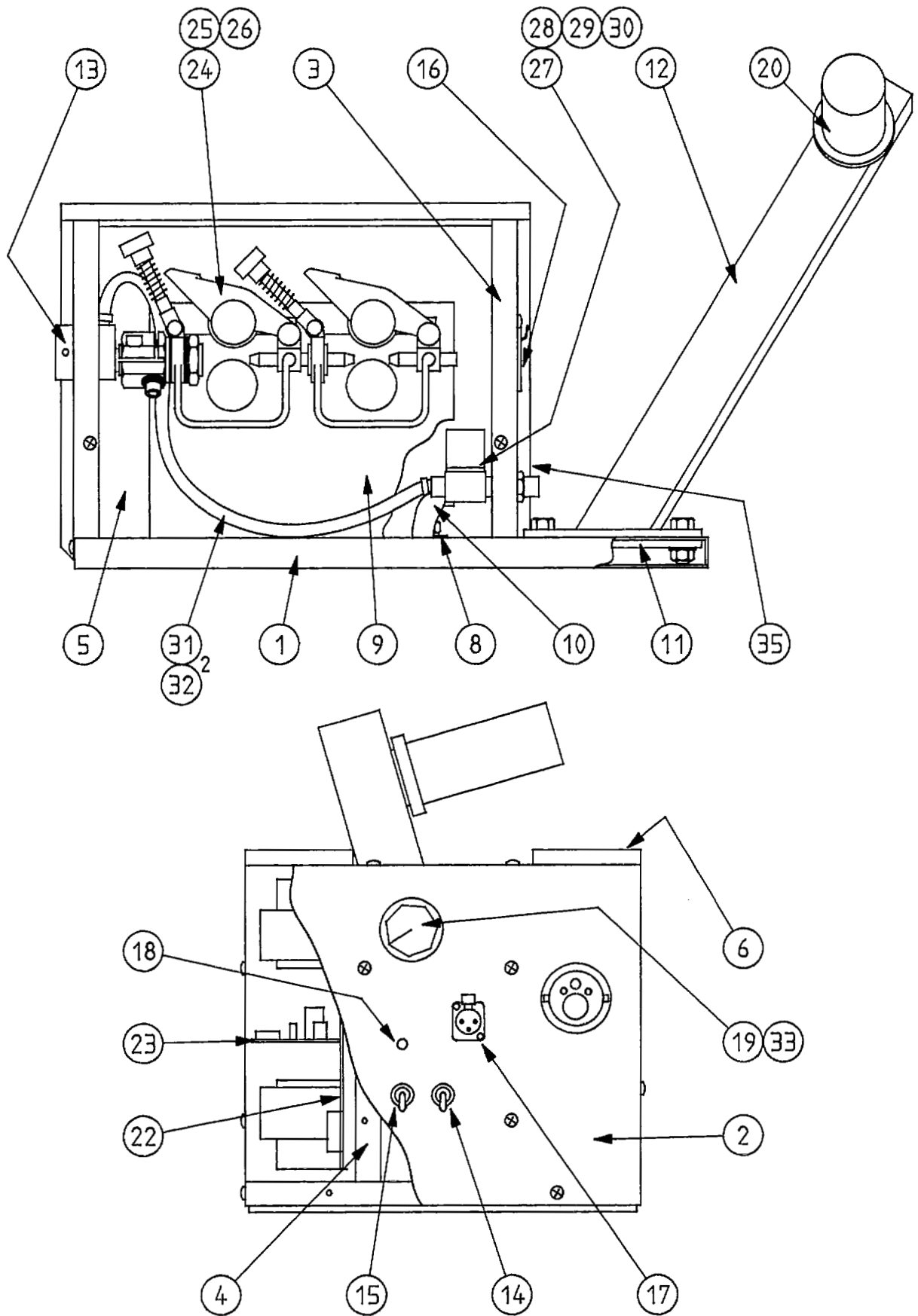


FIGURE 6. WIREFEED MOTHER BOARD

7. PARTS LISTS

W30 WIREFEEDER

ITEM #.....	PART #.....	DESCRIPTION
1.....	W30-11.....	Base
2.....	W30-5/1.....	Front Panel
3.....	W30-5/2.....	Back Panel
4.....	W30-14.....	PCB Mounting Panel
5.....	W30-15.....	Dividing Panel
6.....	W30-16.....	Top and Side Panel
7.....	W30-17.....	Access Panel
8.....	W30-18.....	Standoff Panel
9.....	W30-19.....	Insulating Panel
10.....	W30-20.....	Inside Insulating Panel
11.....	W30-21.....	Reinforcing bar
12.....	W30-22.....	Spool Mounting Bracket
13.....	4290WIA.....	Bernard Quick Connect
14.....	W1-19.....	Off/On Switch
15.....	W17-0/13.....	Inch/Purge Switch
16.....	K31.....	Cannon Socket, 4 pin
17.....	W1-35/1.....	Cannon Socket, 3 pin
18.....	W17-0/11.....	Led and Housing
19.....	W11-0/16.....	Potentiometer Knob
20.....	AM177.....	Spool Holder Assembly
22.....	W16-21.....	Wirefeed Mother Board
23.....	W16-20.....	Wirefeed Speed Board
24.....	W31-0.....	Four Roll Drive Assembly
25.....	W11-13.....	Spacer Bush
26.....	MC11-32/2.....	Nylon Bush
27.....	CP101-0/18.....	Gas Valve
28.....	W17-14/1.....	Gas Valve Connector
29.....	W11-11/1.....	Hose Barb
30.....	TC262N.....	Nut
31.....	OCL13.....	'O' Clip
32.....	HOS5R.....	Black Rubber Hose 5mm
33.....	W11-02/15.....	Potentiometer 10K, 3W
35.....	WIN44.....	Nameplate Label



NOTE
ACCESS PANEL, ITEM 7 NOT SHOWN IN SIDE VIEW

FIGURE 7. W30-5 WIREFEEDER ASSEMBLY

W31-0 FOUR ROLL DRIVE ASSEMBLY

ITEM #	PART #	DESCRIPTION
1	W31-1	Gear Box Case
2	W31-2	Gear Box Cover
3	W31-3	Shaft
4a	W31-4	Driving Gear 3.25:1, (39 rpm)
5a	W31-5..(2 off)	Driven Gear 3.25:1, (39 rpm)
4b	W31-6	Driving Gear 2.09:1, (60 rpm)
5b	W31-7..(2 off)	Driven Gear 2.09:1, (60 rpm)
4c	W31-8	Driving Gear 1:1, (126 rpm)
5c	W31-9..(2 off)	Driven Gear 1:1, (126 rpm)
6	W31-10/3	Intermediate Wire Guide (2.4 mm) (Refer to page 17 for alternate sizes)
7	W2-44	Two Roll Drive Assembly (Refer to page 17 for Parts List)
8	W17-01/6	Motor
9	W310-0/1	Bearing

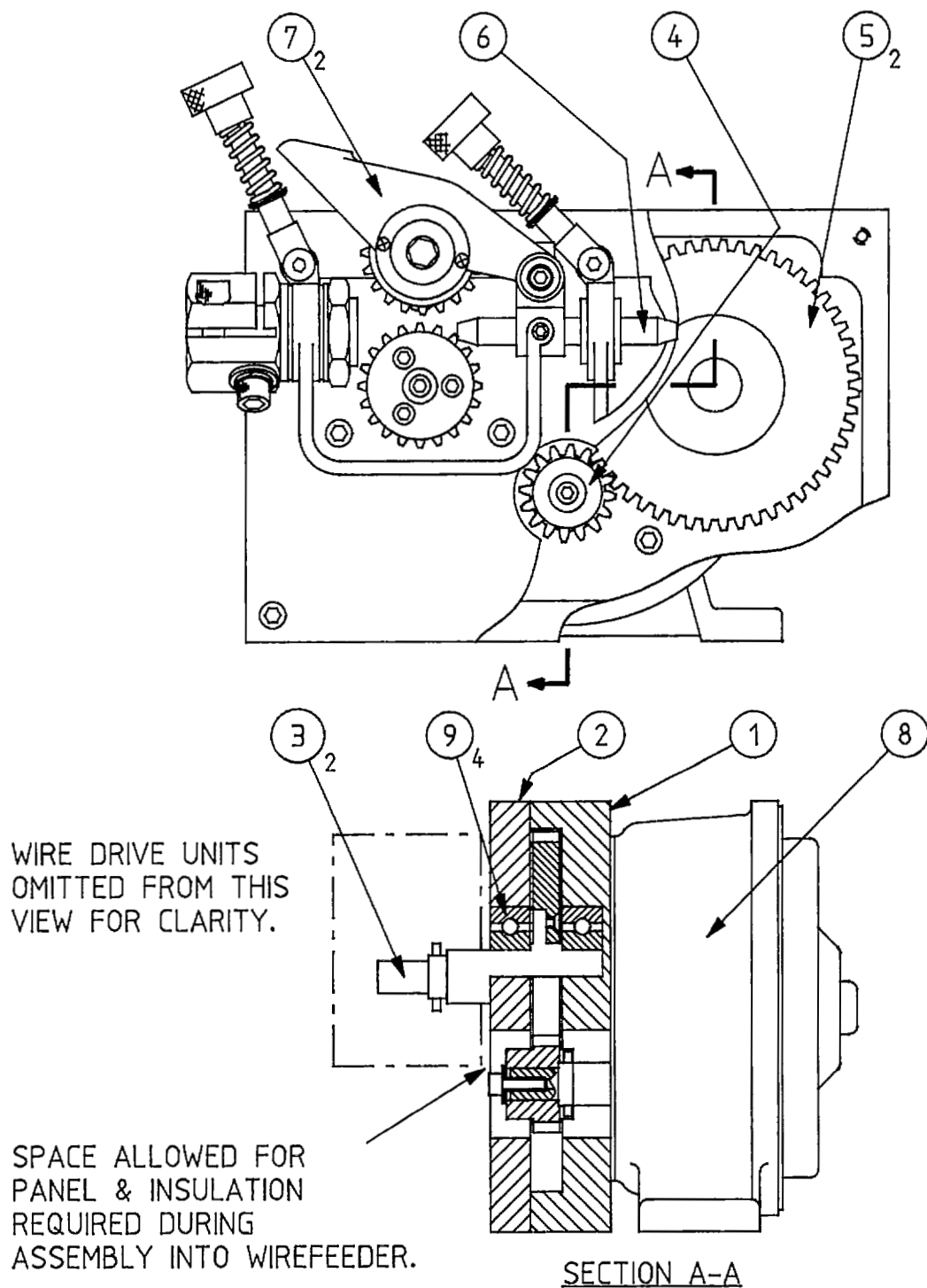


FIGURE 8. W31-0 FOUR ROLL DRIVE ASSEMBLY

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		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	W2-44/031	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

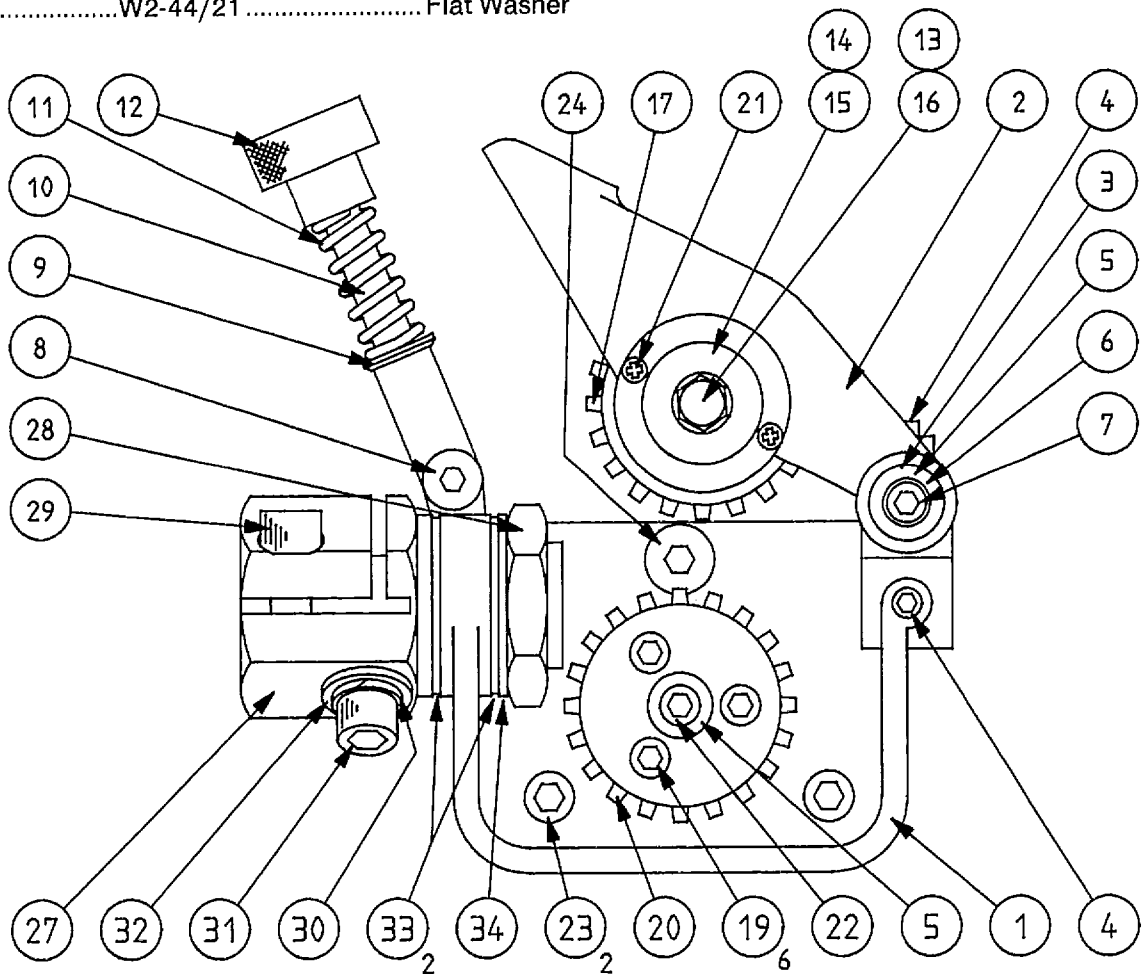
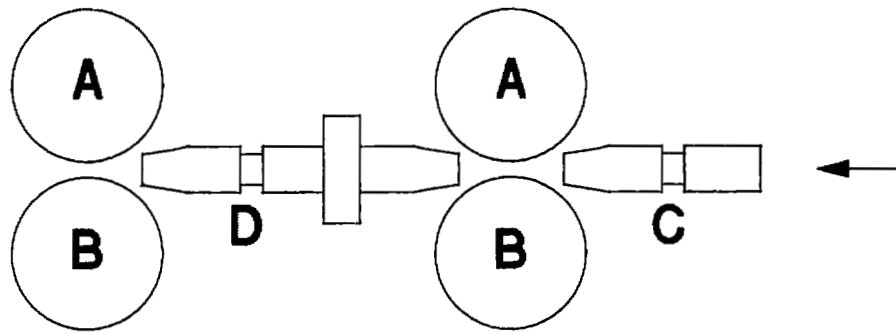


FIGURE 9. W2-44 TWO ROLL DRIVE ASSEMBLY



MATERIAL	WIRE DIA mm	A	B	C	D
STEEL		<u>FLAT ROLLER</u>	<u>PLAIN VEE ROLLER</u>		
	0.8	W2-20	W2-21	W2-44/12-1	W31-10/1
	0.9	W2-20	W2-22		
	1.2				
		<u>PLAIN VEE ROLLER</u>	<u>PLAIN VEE ROLLER</u>		
	1.6	W2-22	W2-22	W2-44/12-2	W31-10/2
		<u>KNURLED VEE ROLLER</u>	<u>KNURLED VEE ROLLER</u>		
	1.2	W2-51	W2-51	W2-44/12-1	W31-10/1
	1.6	W2-24	W2-24	W2-44/12-2	W31-10/2
	2.0				
	2.4	W2-25	W2-25	W2-44/12-3	W31-10/3
	3.2	W2-26	W2-26		
	4.0	W2-27	W2-27	W2-44/12-4	W31-10/4
	5.0	W2-28	W2-28		
	ALUMINIUM		<u>FLAT ROLLER</u>	<u>PLAIN VEE ROLLER</u>	
0.9		W2-49	W2-48	W2-44/12-1N	W31-10/1N
1.2			W2-50		
		<u>PLAIN VEE ROLLER</u>	<u>PLAIN VEE ROLLER</u>		
1.6		W2-22	W2-22	W2-44/12-2N	W31-10/2N
2.4		W2-23	W2-23	W2-44/12-3N	W31-10/3N

FIGURE 10. DRIVE ROLL AND WIRE GUIDE TABLE

ACCESSORY LEAD KIT

ITEM #	PART #	DESCRIPTION
1	AM15	Welding Current Plug Assembly
2	AA2	'G' Type Work Clamp
3	CABW70	Welding Cable 70mm ²
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

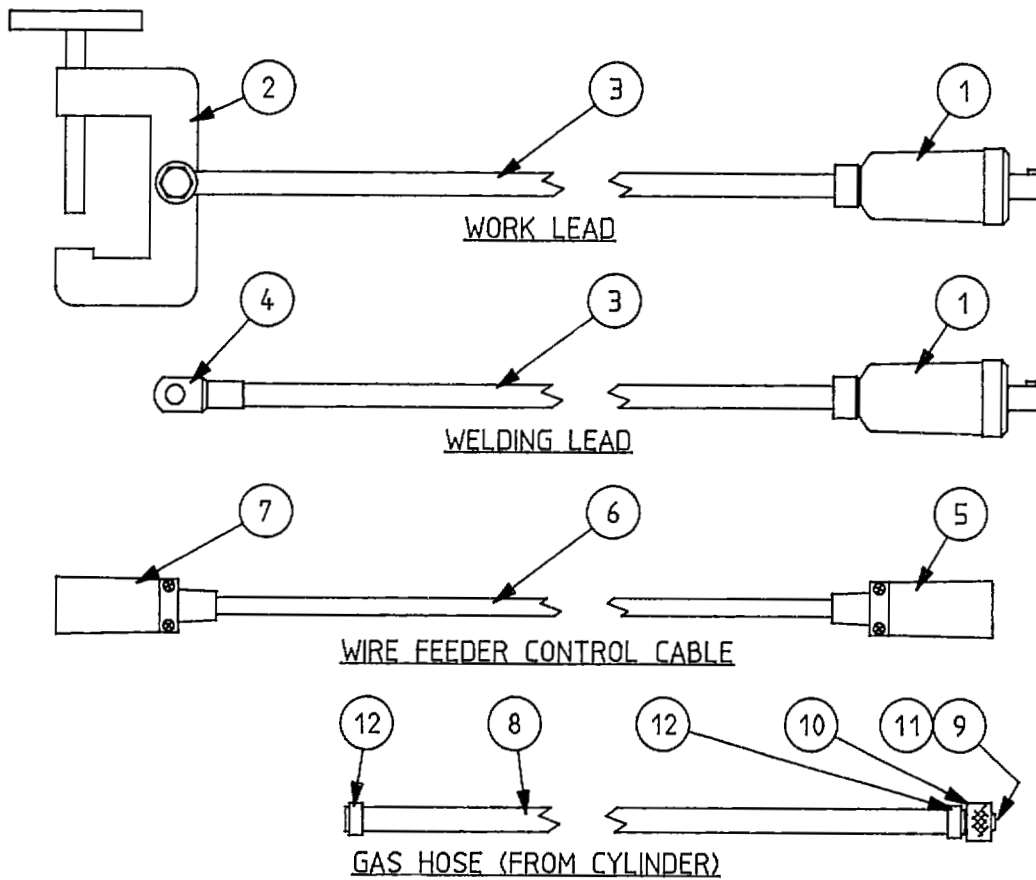


FIGURE 11. ACCESSORY LEAD KIT

8. 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 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.

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.

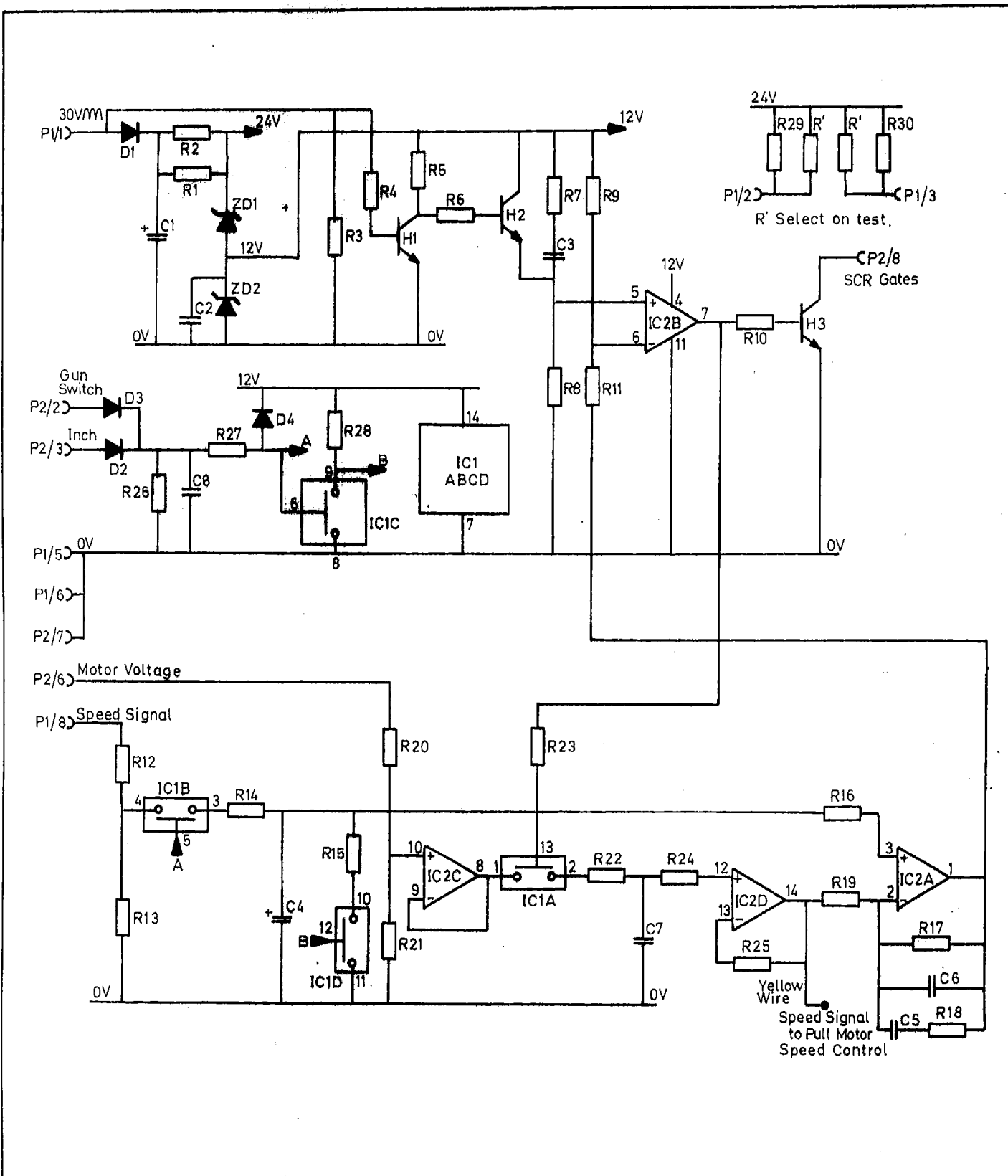
SHOCK PREVENTION.

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.

APPENDIX



F					TOLERANCES GENERAL NOTES		
E					WELDING INDUSTRIES OF AUSTRALIA PTY. LTD. 112 DAWS ROAD, EDWARDSTOWN, S.A. 5039		
D							
C					TITLE W16-20 SPEED CONTROL BOARD		
B					CIRCUIT DIAGRAM		
A					<i>ORIGINAL ISSUE.</i>		
ISSUE	DATE	CHK'D		REVISION	DRAWN JGB	DATE 15-12-88	DRAWING No. W16-20/C1
THIS DRAWING IS THE PROPERTY OF WELDING INDUSTRIES OF AUSTRALIA PTY. LTD. AND MUST NOT BE RETAINED, COPIED OR OTHERWISE USED WITHOUT PRIOR APPROVAL.					CHECKED	SCALE	



MATERIAL-PARTS LIST FOR :-
WIRE FEEDER SPEED BOARD

DRAWING NO.
W16-20

JOB NO. QUANTITY

ITEM NO.	PART NO.	PART NAME AND MATERIAL	SOURCE OF SUPPLY	QUANT.		JOB NO.	QUANTITY
				FOR MACHINE	FOR MACHINES		
1	W16-20/02	PRINTED CIRCUIT BOARD	IMP	1			
P1	W16-11/2	MOLEX M2145-8A/1 RIGHT ANGLE CONNECTOR	UTILUX	✓			
P2	W16-11/2	MOLEX M2145-8A/1 RIGHT ANGLE CONNECTOR	UTILUX	2			
IC1	W16-20/2	CD4013B CMOS INT. CCT	SOANAR	1			
IC2	W16-20/3	LM324 INT. CCT	SOANAR	1			
H1	W11-6/21	TRANSISTOR BC337/25	SOANAR	✓			
H2	W11-6/21	TRANSISTOR BC337/25	SOANAR	✓			
H3	W11-6/21	TRANSISTOR BC337/25	SOANAR	3			
D1	W11-7/18	DIODE IN4004	SOANAR	✓			
D2	W11-7/8	DIODE IN4004	SOANAR	✓			
D3	W11-7/18	DIODE IN4004	SOANAR	✓			
D4	W11-7/18	DIODE IN4004	SOANAR	4			
C1	W11-19/31	ELECTROLYTIC CAPACITOR 220 uF 63V TYPE RB	SOANAR	1			
C2	W11-6/13	POLYCARBONATE CAPACITOR 0.1 uF 100V GREEN CAP	SOANAR	✓			
C3	W11-6/13	POLYCARBONATE CAPACITOR 0.1 uF 100V GREEN CAP	SOANAR	✓			
C4	W16-20/8	TANTALUM CAPACITOR 2.2 uF 25V	SOANAR	1			
C5	W11-6/13	POLYCARBONATE CAPACITOR 0.1 uF 100V GREEN CAP	SOANAR	✓			
C6	W11-6/13	POLYCARBONATE CAPACITOR 0.1 uF 100V GREEN CAP	SOANAR	✓			
C7	CP28-14/5	POLYCARBONATE CAPACITOR 0.022 uF 100V GREEN CAP	SOANAR	1			
C8	W11-6/13	POLYCARBONATE CAPACITOR 0.1 uF 100V GREEN CAP	SOANAR	5			
Z1	W14-18/9	ZENER DIODE BZX61-C12	SOANAR	✓			
Z2	W14-18/9	ZENER DIODE BZX61-C12	SOANAR	2			
R1	AM126/4	CARBON FILM RESISTOR 1.2K 1/2W 5%	SOANAR	✓			
R2	AM126/4	CARBON FILM RESISTOR 1.2K 1/2W 5%	SOANAR	2			
R3	W11-7/5	CARBON FILM RESISTOR 10K 1/2W 5%	SOANAR	✓			
R4	W16-11/4	CARBON FILM RESISTOR 100K 1/2W 5%	SOANAR	✓			
R5	W11-7/5	CARBON FILM RESISTOR 10K 1/2W 5%	SOANAR	✓			
ISSUED BY JGB		CHECKED BY DATE 26-10-88		ISSUE NO. 5	LIST CONT. 3 PAGES PAGE NO. 1	MONTH	SCHEDULE

**MATERIAL-PARTS LIST FOR :-**
WIRE FEEDER SPEED BOARDDRAWING NO.
W16-20

JOB NO. QUANT'Y

ITEM NO.	PART NO.	PART NAME AND MATERIAL	SOURCE OF SUPPLY	QUANT.						
				EACH MACHINE	FOR MACHINES					
R6	W11-7/5	CARBON FILM RESISTOR 10K 1/2W 5%	SOANAR	U						
R7	CP23-17/16	CARBON FILM RESISTOR 398 OHM 1/2W 5%	SOANAR	1						
R8	AM69-1/17	CARBON FILM RESISTOR 68K 1/2W 5%	SOANAR	U						
R9	AM69-1/17	CARBON FILM RESISTOR 68K 1/2W 5%	SOANAR	2						
R10	W11-19/20	CARBON FILM RESISTOR 6.8K 1/2W 5%	SOANAR	1						
R11	W11-7/5	CARBON FILM RESISTOR 10K 1/2W 5%	SOANAR	U						
R12	W16-11/4	CARBON FILM RESISTOR 100K 1/2W 5%	SOANAR	U						
R13	W16-11/6	CARBON FILM RESISTOR 33K 1/2W 5%	SOANAR	1						
R14	CP64-17/6	CARBON FILM RESISTOR 56K 1/2W 5%	SOANAR	1						
R15	W11-7/9	CARBON FILM RESISTOR 1K 1/2W 5%	SOANAR	1						
R16	W16-11/4	CARBON FILM RESISTOR 100K 1/2W 5%	SOANAR	U						
R17	W16-20/4	CARBON FILM RESISTOR 3.3M 1/2W 5%	SOANAR	1						
R18	W16-20/5	CARBON FILM RESISTOR 820K 1/2W 5%	SOANAR	1						
R19	W16-11/4	CARBON FILM RESISTOR 100K 1/2W 5%	SOANAR	U						
R20	W11-7/5	CARBON FILM RESISTOR 10K 1/2W 5%	SOANAR	U						
R21	W11-25/12	CARBON FILM RESISTOR 3.3K 1/2W 5%	SOANAR	1						
R22	W11-7/5	CARBON FILM RESISTOR 10K 1/2W 5%	SOANAR	U						
R23	W11-7/5	CARBON FILM RESISTOR 10K 1/2W 5%	SOANAR	7						
R24	W16-20/6	CARBON FILM RESISTOR 2.2M 1/2W 5%	SOANAR	U						
R25	W16-20/6	CARBON FILM RESISTOR 2.2M 1/2W 5%	SOANAR	2						
R26	W16-11/4	CARBON FILM RESISTOR 100K 1/2W 5%	SOANAR	U						
R27	W16-20/7	CARBON FILM RESISTOR 330K 1/2W 5%	SOANAR	1						
R28	W16-11/4	CARBON FILM RESISTOR 100K 1/2W 5%	SOANAR	U						
R29	W16-11/10	CARBON FILM RESISTOR 5.6K 1/2W 5%	SOANAR	1						

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MATERIAL-PARTS LIST FOR:-
WIRE FEEDER SPEED BOARD

DRAWING NO.
W16-20

JOB NO. QUANTITY

ITEM NO.	PART NO.	PART NAME AND MATERIAL	SOURCE OF SUPPLY	QUANTITY		MONTH		SCHEDULED	
				EACH MACHINE	FOR MACHINES	1	2	3	4
R30	W16-11/8	CARBON FILM RESISTOR 3.9K 1/2W 5%	SOANAR	1					
R31	W16-11/4	CARBON FILM RESISTOR 100K 1/2W 5%	SOANAR	7					

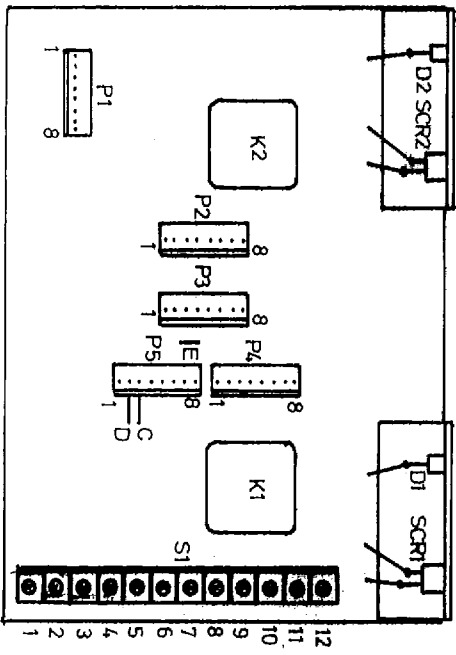
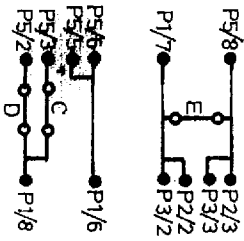
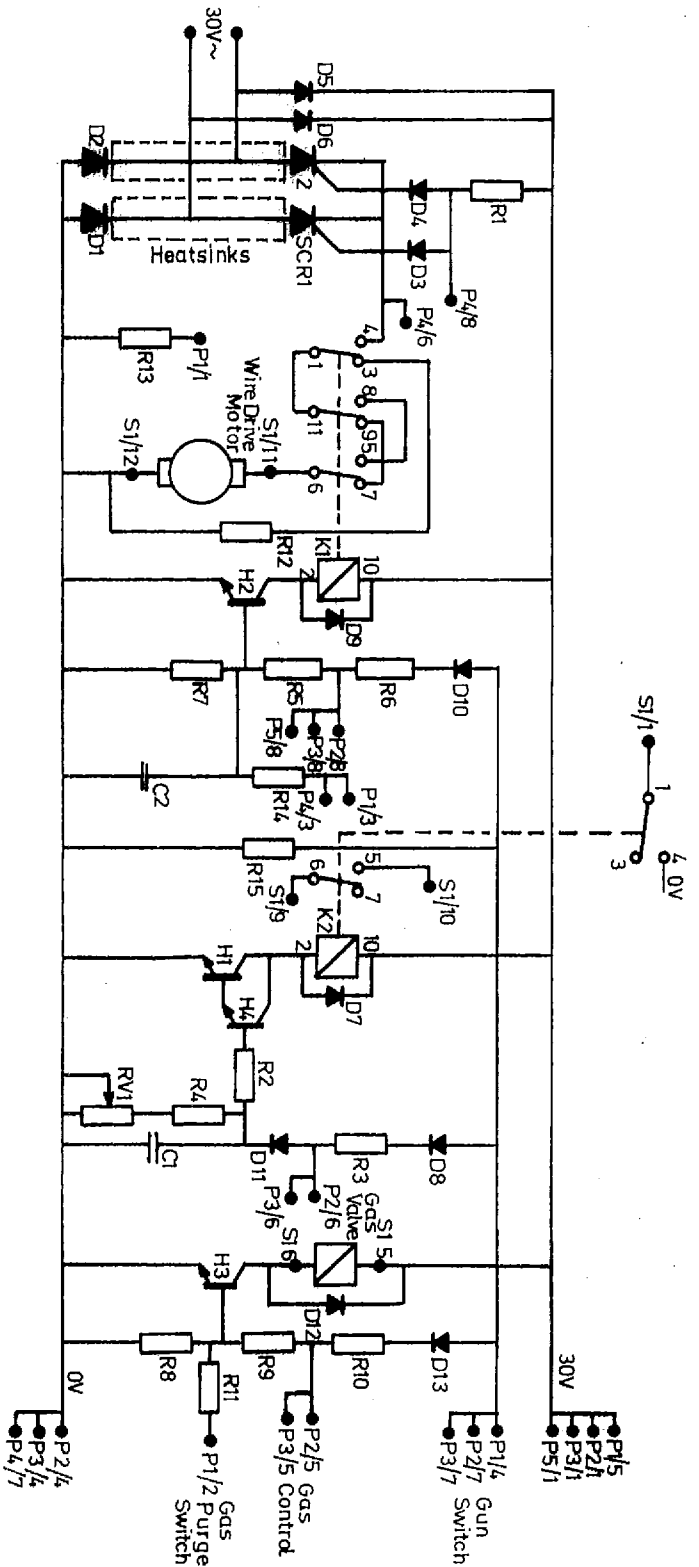
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ISSUE	DATE	CHK'D	REVISION	

TOLERANCES
GENERAL NOTES

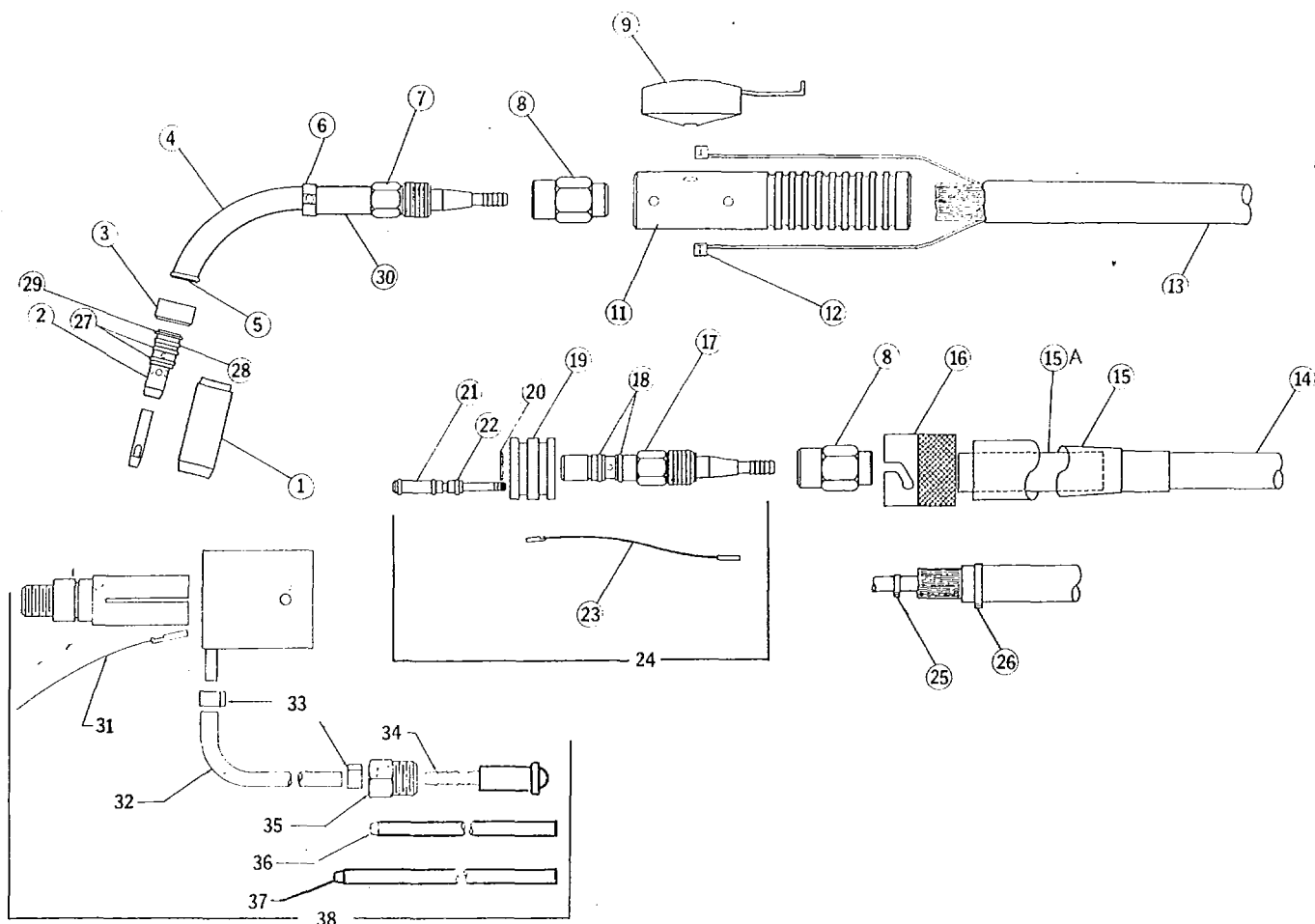
WELDING INDUSTRIES
OF AUSTRALIA PTY. LTD.
112 DAWS ROAD, EDWARDSTOWN, S.A. 5039

TITLE
W16-21 MOTHER BOARD CIRCUIT
DIAGRAM.

DRAWN J. B.
CHECKED _____

DATE 24-5-89
SCALE _____
DRAWING No.
W16-21/C1

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E-Z FEED PARTS LIST

Illust.	Description	Part No.
1	Nozzle Insulator	4591
2	Head Assembly	4635
3	Cap	R4423
4	Body Assembly (includes item #5)	4627
5	"O" Ring	R1516
6	Spacer Kit	1518
7	End Fitting	R4613
8	Cone Nut	R4616
9	Complete Switch w/screws	422
10	Switch Only (not shown)	R420
11	Handle	408
12	Switch Terminal	R457
13	Cable Assy (without Quick Disconnect)	10 Ft. 4641 12 Ft. 4642 15 Ft. 4645
14	Cable Assy (with Quick Disconnect)	10 Ft. 4651 12 Ft. 4652 15 Ft. 4655
15	Strain Relief	R4903
15A	Reinforcing Sleeve	4618

Illust.	Description	Part No.
16	Locking Sleeve	4925
17	Power Pin	4948
18	"O" Ring	R4929
19	Quick Disconnect Body	4901
20	Snap Ring	R4912
21	Gas Pin w/"O" Rings	4919
22	"O" Rings	R4907
23	Pin and Wire Assy	
24	Cable End (2 each)	R4924
24	Quick Disconnect (Cable End Only)	4640
25	Hose Clamp	R4993
26	Hose Clamp	R4944
27	Retaining Ring	R7560
28	"O" Ring	R7127
29	Snap Ring	R1510
30	Insulator Spacer	R4617
31	Pin and Wire Assembly	
31	Feeder End (2 each)	R4942
32	Gas Hose, 2 Ft.	1571
33	Hose Clamp	R4661
34	Gas Barb	R663
35	Inert Gas Nut, R. Hand	R1566
36	Guide Tube, 8-7/16", Sm. I.D.	478
37	Guide Tube, 10-15/16", Large I.D.	479
38	Quick Disconnect Feeder End	4920

E-Z FEED ADAPTOR KITS

4980	Universal, Most Makes and Models
4981	Lincoln, LN-4, LN-5, LN-6, LN-8, LN-9
4981S	Lincoln, LN-4, LN-5, LN-6, LN-8, LN-9 w/Plug and Solenoid
4982	Hobart, All Models
4983	Miller, 10 and 30 Series MHFC-H, MHFC-R1, MW-10
4984	Linde, SWM 11B, 23, 24, 25, 35, SEN3, SEN 5, SEN 10
4985	Linde, SWM-31, 32, 34, 37, 11-H(S) EH-9
4986	Lincoln, w/Plug LN-7
4986S	Lincoln, w/Plug N-7 w/Plug and Solenoid

4987	Amsco, SA-600, Auto Arc, All Models Murex, M&T-100, 200, 300; Oxo (Most Models)
4988	Airco, AHF-N, AHF-R, AHF-S, AHF-T, AHF-U, AHF-V, AHF-J, AHF-L
4995	Miller Swing-Arc, Part 079-548

All E-Z Feed Adaptor Kits include Part No. 4920, (Quick Disconnect - Feeder End) and 2 precut guide tubes.

BERNARD®

Box 667, Beecher, Illinois 60401
Phone: (312) 946-2281

DOVER CORPORATION / BERNARD DIVISION



MATERIAL-PARTS LIST FOR:-
WIRE FEEDER MOTHER BOARD

DRAWING NO.
W16-21

JOB NO. **QUANT'Y**

ITEM NO.	PART NO.	PART NAME AND MATERIAL	SOURCE OF SUPPLY	QUANT.					
				EACH MACHINE	FOR MACHINES				
R10	W11-7/9	CARBON FILM RESISTOR 1K 1/2W 5%	SOANAR	6					
R11	W11-7/10	CARBON FILM RESISTOR 2.2K 1/2W 5%	SOANAR	1					
R12	W16-12/12	RESISTOR 0.47 OHM 5W	SOANAR	1					
R13	W14-18/6	CARBON FILM RESISTOR 1K 1W 5%	SOANAR	1					
R14	W11-7/5	CARBON FILM RESISTOR 10K 1/2W 5%	SOANAR	1					
R15	W11-25/12	CARBON FILM RESISTOR 3.3K 1/2W 5%	SOANAR	1					
RV1	W11-7/8	HIGH STABILITY CERMET TRIMPOT 50K 1/2W	SOANAR	1					
	H1996	TERMINALS UTILUX H1996	UTILUX	2					
		SCREWS 1/8"W X 1/2" R.H. STEEL PLATED	KAM	4					
		NUTS 1/8"W HEX STEEL PLATED	KAM	4					
		SHAKEPROOF WASHERS 1/8" STEEL EXT.Tooth	KAM	4					
	W11-10/5	PORCELAIN BEAD	MICA & INS.	4					

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MATERIAL-PARTS LIST FOR:-
WIRE FEEDER MOTHER BOARD

DRAWING NO.
W16-21

JOB NO.

QUANTY

ITEM NO.	PART NO.	PART NAME AND MATERIAL	SOURCE OF SUPPLY	QUANT. EACH MACHINE	QUANT. FOR MACHINES
1	W16-21/01	PRINTED CIRCUIT BOARD ISSUE NO.1	I.M.P.	1	
F1/P5	W16-12/2	MOLEX CONNECTOR M2391-8A/1	UTILUX	5	
S1	W16-12/13	SATO ML30 CONNECTOR	ASSOCIATED SERVICES	1	
K1	W11-7/26	RELAY OMRON MK3P-5 24V DC COIL	W & F	1	
K2	W11-7/26	RELAY OMRON MK3P-5 24V DC COIL	W & F	2	
B1	W11-7/27	RELAY BASE OMRON PLEE 11-0	W & F	1	
B2	W11-7/27	RELAY BASE OMRON PLEE 11-0	W & F	2	
H/S	W16-19	HEATSINK 50X25X3 ALUMINIUM ANGLE	WIA GAM	2 140MM	
H1/H4	W11-6/21	TRANSISTOR BC337/25	SOANAR	4	
SCR1	W11-10/4	SILICON CONTROLLED RECTIFIER C230D	GEC	1	
SCR2	W11-10/4	SILICON CONTROLLED RECTIFIER C230D	GEC	2	
D1	MC36-2/16	DIODE M16-400	GEC	1	
D2	MC36-2/16	DIODE M16-400	GEC	2	
D3/D13	W11-7/18	DIODE IN4004	SOANAR	11	
C1	W11-6/15	ELECTROLYTIC CAPACITOR 10uF 25V TYPE RBL	SOANAR	1	
C2	W11-6/13	POLYCARBONATE CAPACITOR 0.1uF 100V GREEN CAP	SOANAR	1	
R1	W11-6/12	RESISTOR 330 OHM 5W	SOANAR	1	
R2	CP28-14/3	CARBON FILM RESISTOR 8.2K 1/2W 5%	SOANAR	1	
R3	W11-7/9	CARBON FILM RESISTOR 1K 1/2W 5%	SOANAR	1	
R4	CP23-17/13	CARBON FILM RESISTOR 470 OHM 1/2W 5%	SOANAR	1	
R5	CP28-14/3	CARBON FILM RESISTOR	SOANAR	2	
R6	W11-7/9	CARBON FILM RESISTOR 1K 1/2W 5%	SOANAR	1	
R7	W11-7/9	CARBON FILM RESISTOR 1K 1/2W 5%	SOANAR	1	
R8	W11-7/9	CARBON FILM RESISTOR 1K 1/2W 5%	SOANAR	1	
R9	W11-7/9	CARBON FILM RESISTOR 1K 1/2W 5%	SOANAR	1	

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