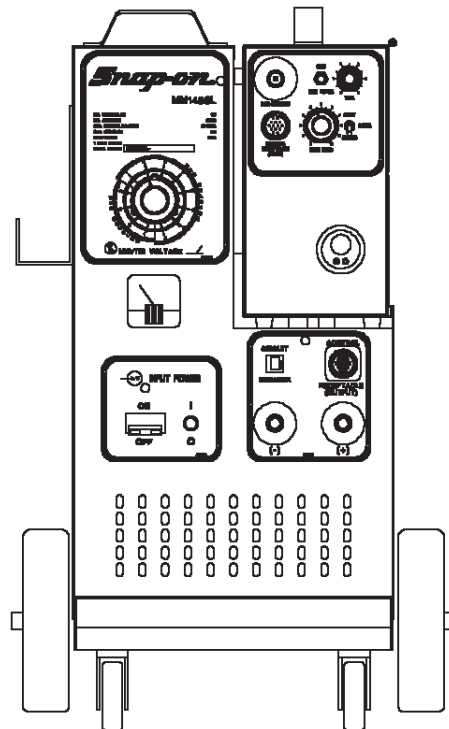


# MM140SL



## SERVICE MANUAL

FOR  
SERIAL NUMBERS MM140SL-2000 AND LATER

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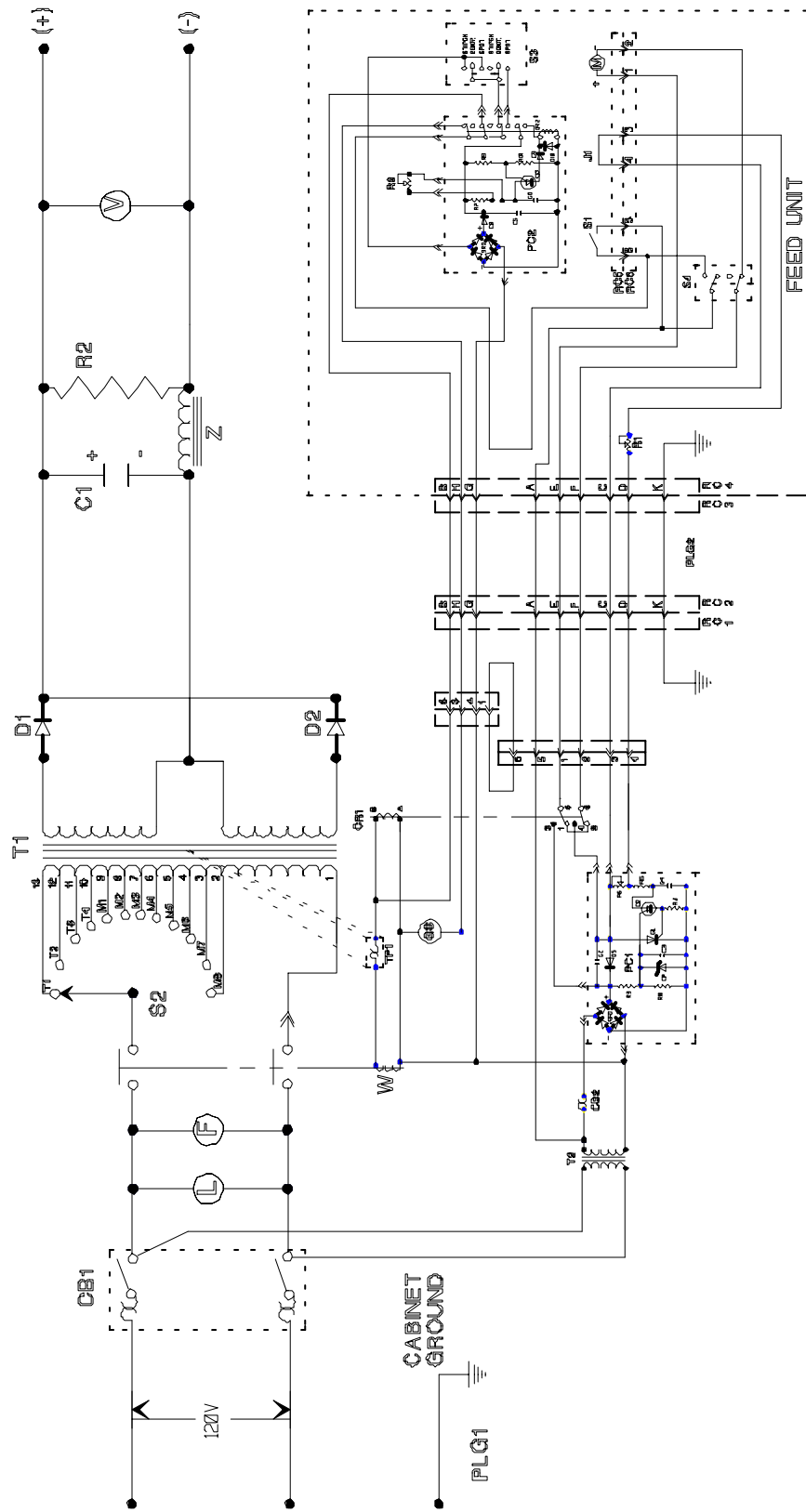


FIGURE 1 - SCHEMATIC DIAGRAM

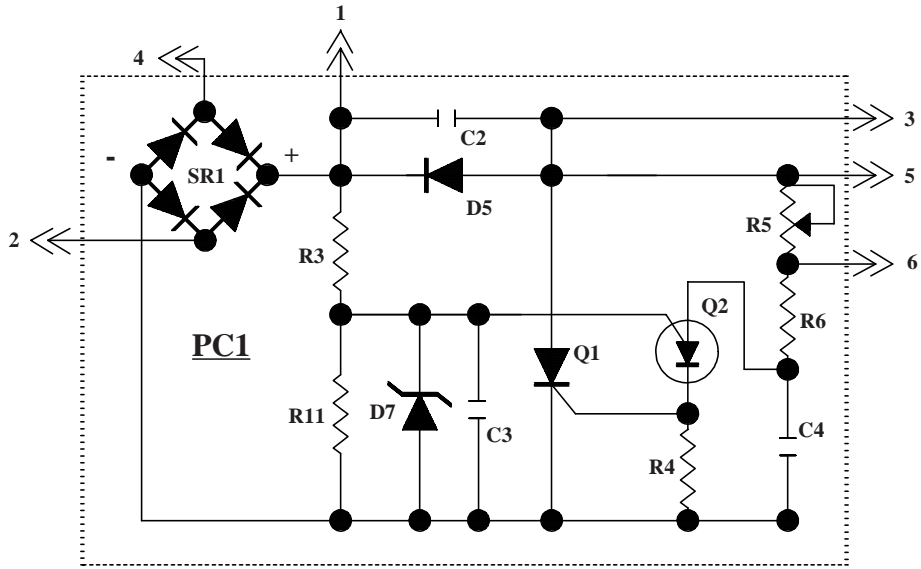


FIGURE 1A - SCHEMATIC, WIRE FEED CIRCUIT BOARD

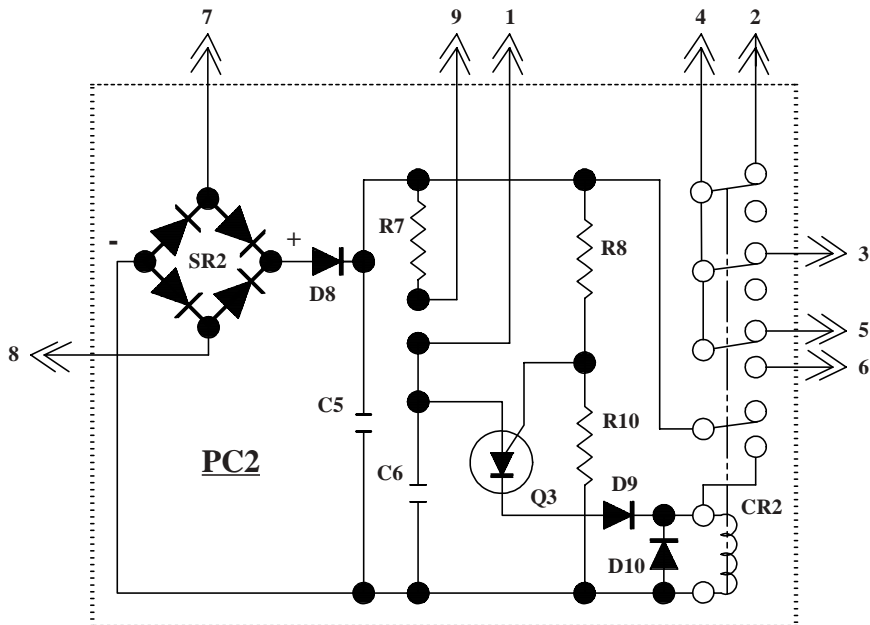


FIGURE 1B - SCHEMATIC, SPOT TIME CIRCUIT BOARD

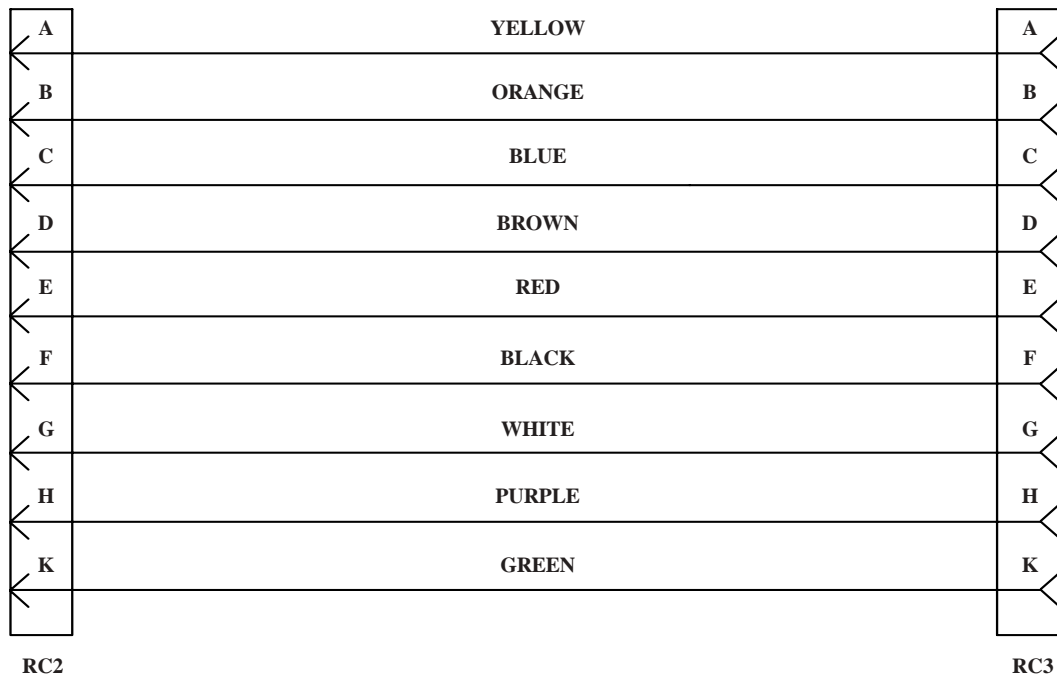


FIGURE 2 - WIRING DIAGRAM, CONTROL CABLE ASSEMBLY

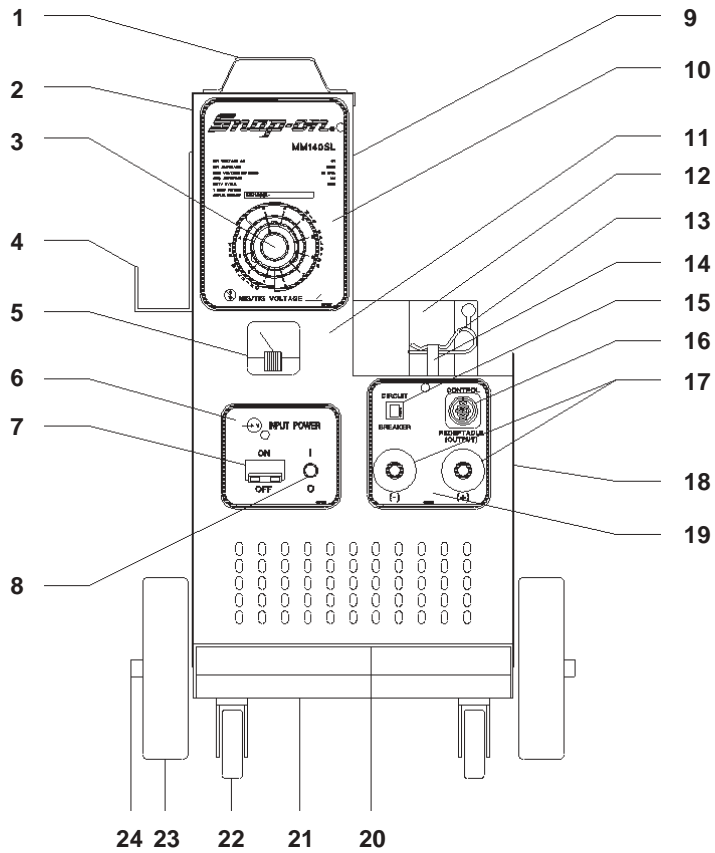


FIGURE A - FRONT ASSEMBLY

**FIGURE A**

ITEM NO.	DIA. MKGS.	PART NO.	DESCRIPTION	QTY.
1		SN-180A	HANDLE .....	1
2		SN-6060	LEFT SIDE & COVER (INCLUDES MM140SL-4716 THRU 4735) .....	1
		SN-6060A	LEFT SIDE & COVER (SERIAL# MM140SL-4690 THRU 4715 & MM140SL-4736 AND LATER) .....	1
3		SN-330A	KNOB, HEAT .....	1
4		SN-319	CABLE HANGER .....	2
5	V	SN-115	VOLTMETER (ROUND CORNERS) .....	1
		SN-115A	VOLTMETER (SQUARE CORNERS) (SERIAL# MM140SL-5163 AND LATER) .....	1
		SN-115L	LENS, VOLTMETER (ROUND CORNERS) .....	1
		SN-115AL	LENS, VOLTMETER (SQUARE CORNERS) .....	1
6		SN-1102	LABEL, ON/OFF .....	1
7	CB1	SN-482	CIRCUIT BREAKER, 35 AMP .....	1
		SN-955	BREAKER BRACKET .....	1
8	L	SN-184	INDICATOR LAMP .....	1
9		SN-6050	BAFFLE .....	1
10		SN-1057	LABEL, CONTROL .....	1
11		SN-6080	FRONT (INCLUDES MM140SL-4716 THRU 4735) .....	1
		SN-6080A	FRONT (SERIAL# MM140SL-4690 THRU 4715 & MM140SL-4736 AND LATER) .....	1
12		SN-211	BRACKET, CYLINDER .....	1
13		SN-699H	CLIP, HAIRPIN (SERIAL# MM140SL-2682 AND LATER) .....	1
14		SN-699A	STOP W/ CLIP HOLE, FEEDER (REPLACES ORIGINAL) .....	1
15	CB2	SN-519	MINI BREAKER, 5A .....	1
16	RC1	SN-6191A	RECEPTACLE, CONTROL (OUTPUT) .....	1
17		SN-146C	WELD CONNECTOR W/GAS HOLE .....	2
		SN-72	NUT, WELD CONNECTOR .....	2
		SN-178	GROUND CABLE ASSEMBLY, 15' (NOT SHOWN) .....	1
		SN-165	CLAMP, GROUND (NOT SHOWN) .....	1
18		SN-6040	SIDE, RIGHT .....	1
		SN-1008	LABEL, PRO'S ADVANTAGE .....	1
19		SN-1103	LABEL, WELD CONNECTOR .....	1
20		SN-6010	BASE .....	1
21		SN-213	CASTER BRACKET .....	1
22		SN-121-3	CASTER, FRONT 3" .....	2
23		SN-124-8	REAR WHEEL, 8" .....	2
24		SN-171	AXLE .....	1
		SN-171C	AXLE, CAPS .....	2
		SN-217W	WASHERS, AXLE .....	4

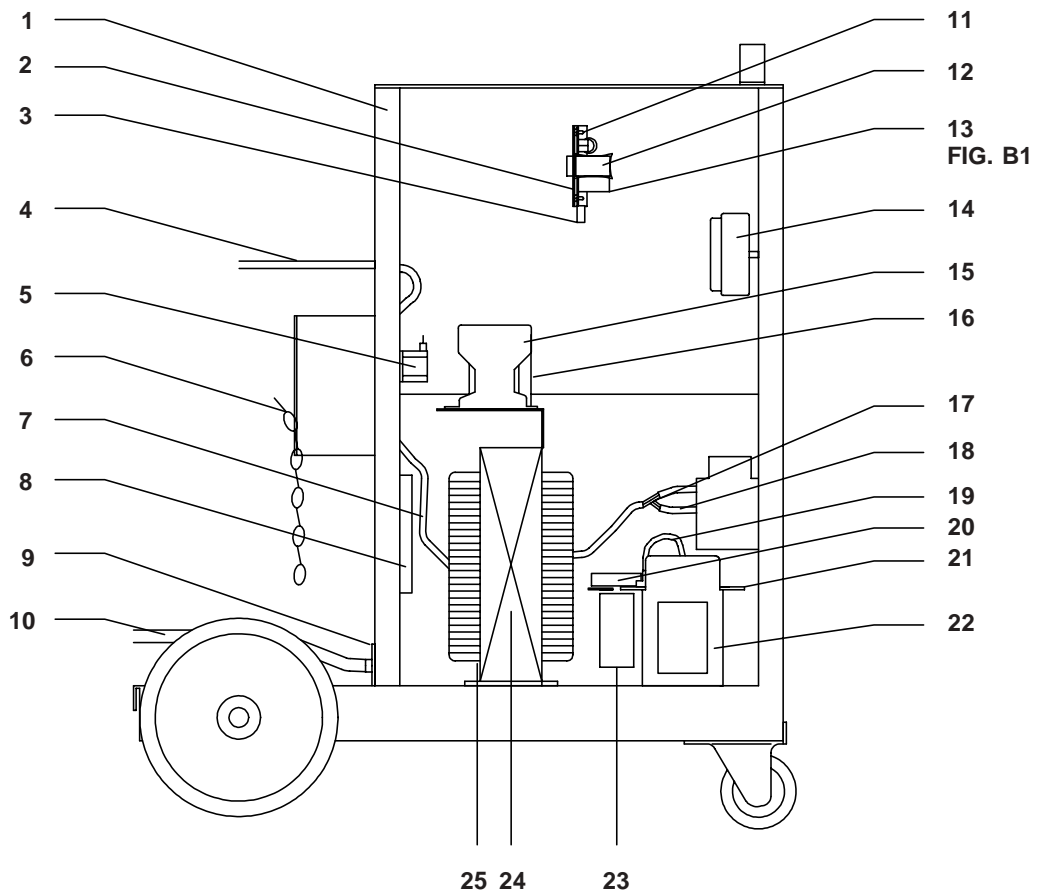


FIGURE B - LEFT SIDE VIEW & INTERNAL COMPONENTS



**FIGURE B**

ITEM NO.	DIA. MKGS.	PART NO.	DESCRIPTION	QTY.
1		SN-6030	BACK .....	1
2		SN-421U	BRACKET, CONTROL (U-BOARD) .....	1
3		SN-685	TERMINAL HOUSING, HARNESS .....	1
		SN-685P	PIN, TERMINAL HOUSING .....	6
4		SN-253A	GAS HOSE, PRIMARY .....	1
5	GS	SN-126B	SOLENOID ASSEMBLY, 24VAC .....	1
		2200	GAS FITTING, INLET .....	1
		2200SN	GAS FITTING, OUTLET .....	1
6		SN-211C	CYLINDER CHAIN .....	1
7		SN-353C	GAS HOSE .....	1
8	F	SN-517	FAN, 4" .....	1
9		SN-220	STRAIN RELIEF .....	1
		SN-220N	NUT, STRAIN RELIEF .....	1
10	PLG1	20CP-140A	POWER INPUT CABLE W/PLUG, 20' .....	1
		SN-339	SUPPLY PLUG, 115V (NOT SHOWN) .....	1
11		SN-601	STAND OFF, NYLON .....	4
12	CR1	SN-276S	RELAY, 8 PIN .....	1
		SN-276CL	CLIP, RELAY .....	1
		SN-236	SOCKET, RELAY 8 PIN .....	1
13	PC1	SN-774U	WIRE FEED CONTROL BOARD (FIGURE B1) .....	1
14	S2	SN-163-12	HEAT SWITCH, 12 POSITION .....	1
15	W	SN-153	CONTACTOR, 24VAC .....	1
16	T2	SN-287M	CONTROL TRANSFORMER, 115V-28V .....	1
17		SN-600	FITTING, "Y" HOSE .....	1
18		SN-353Y	HOSE .....	2
19	D1,2	SN-260	DIODE .....	2
20	R2	SN-162	RESISTOR, 100 OHM 25W .....	1
21		SN-460	HEAT SINK ASSEMBLY, COMPLETE .....	1
		SN-460T	HEAT SINK ASSEMBLY, COMPLETE (SERIAL# MM140SL-2290 AND LATER) .....	1
22		SN-255M	LEG, HEAT SINK .....	2
23	C1	SN-125S	CAPACITOR, 12,000UF 50V .....	4
24	T1	SN-86T	TRANSFORMER, POWER .....	1
	TP1	SN-654	THERMAL SWITCH (N.C.) .....	1
25	Z	SN-188C	CHOKE (BEHIND) .....	1

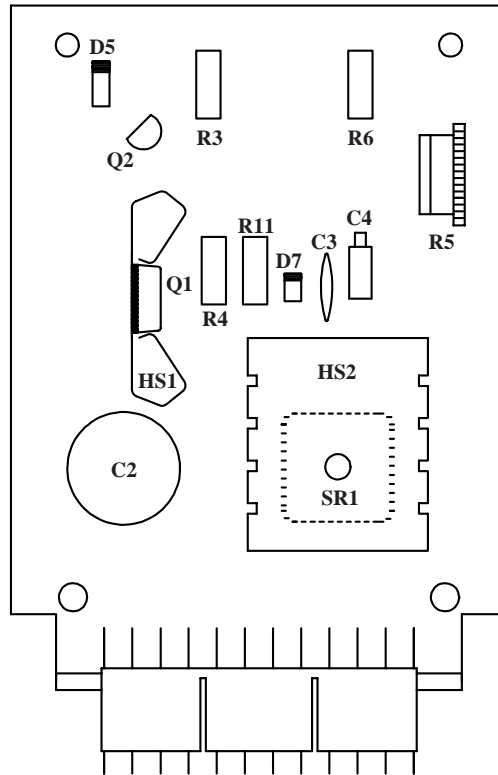


FIGURE B1 - PRINTED CIRCUIT BOARD (SN-774U)

**FIGURE B1**

ITEM NO.	DIA. MKGS.	PART NO.	DESCRIPTION	QTY.
C2	MI-623		CAPACITOR, 1000uF 50V .....	1
C3	HG-578		CAPACITOR, .02UF 100V .....	1
C4	MI-626		CAPACITOR, .68UF 50DC .....	1
D5	HG-579		DIODE, 2A .....	1
D7	HG-196		DIODE, ZENER 7.5V .....	1
HS1	CB-251		HEAT SINK, SCR .....	1
HS2	CB-250		HEAT SINK, BRIDGE RECTIFIER .....	1
Q1	HG-194A		SCR, 10A .....	1
Q2	MI-627		TRANSISTOR, PUT .....	1
R3,6	CB-043		RESISTOR, 1K OHM 1/2W .....	2
R4	MI-127		RESISTOR, 100 OHM 1/2W .....	1
R5	MI-135A		RESISTOR, TRIM 1 MEG OHM .....	1
R11	MI-159		RESISTOR, 330 OHM 1/2W .....	1
SR1	CB-048		RECTIFIER, BRIDGE .....	1

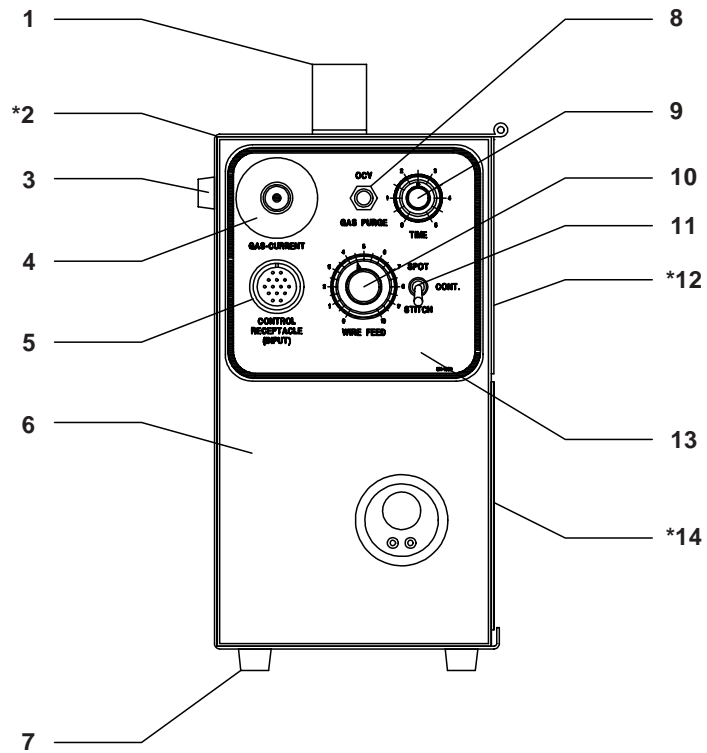


FIGURE C - FRONT VIEW - REMOTE FEED UNIT

**FIGURE C**

ITEM NO.	DIA. MKGS.	PART NO.	DESCRIPTION	QTY.
1		SN-05	HANDLE .....	1
*2		SN-6110	CABINET, FEED UNIT .....	1
		SN-6110A	" (SERIAL# MM140SL-2631 AND LATER) .....	1
*		SN-6110C	COMPLETE CABINET ASSEMBLY (MUST BE PURCHASED AS A COMPLETE ASSEMBLY)	
3		SN-700	BUMPER PAD, SELF-TAPPING (SERIAL# MM140SL-2631 AND LATER) .....	2
4		SN-246B	TERMINAL, GAS-CURRENT .....	1
5	RC4	SN-6190	RECEPTACLE, CONTROL (INPUT) .....	1
6		SN-6180	FRONT, FEED UNIT .....	1
7		SN-889F	FEET, RUBBER .....	4
8	S4	SN-425B	SWITCH, N/O-N/C PURGE .....	1
9		SN-2520	KNOB, TIMER .....	1
10		SN-67	KNOB, FEED .....	1
11	S3	SN-245M	SWITCH, MODE .....	1
*12		SN-6270U	DOOR, UPPER FEEDER .....	1
*		SN-6270UP	DOOR PIN (ONLY), UPPER .....	1
13		SN-1059	LABEL, FEED UNIT CONTROL .....	1
*14		SN-6270L	DOOR, LOWER FEEDER .....	1
*		SN-6270LP	DOOR PIN (ONLY), LOWER .....	1
*		SN-1006	LABEL, MUSCLE MIG .....	1

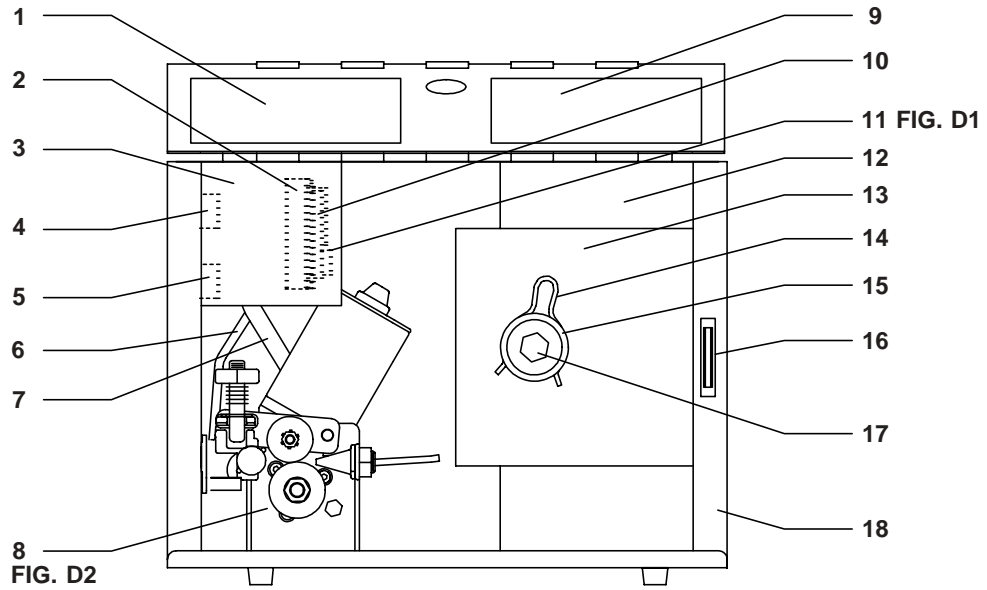


FIGURE D - RIGHT SIDE VIEW & INTERNAL COMPONENTS  
REMOTE FEED UNIT

**FIGURE D**

ITEM NO.	DIA. MKGS.	PART NO.	DESCRIPTION	QTY.
1		LB-1365	LABEL, ACCESS DOOR - LEFT .....	1
2		SN-6421U	BRACKET, CONTROL (BEHIND COVER) .....	1
3		SN-6230	DUST COVER .....	1
4	R9	SN-222	POTENTIOMETER, 35K SPOT TIMER (BEHIND COVER) .....	1
5	R1	SN-35U	POTENTIOMETER, 75K FEED (BEHIND COVER) .....	1
6		SN-605A	HOSE, SECONDARY GAS .....	1
7		SN-609	CABLE, SECONDARY CURRENT .....	1
8		SN-138C24M	WIRE DRIVE ASSY., COMPLETE (FIGURE D2) .....	1
9		LB-1366	LABEL, ACCESS DOOR - RIGHT .....	1
10		SN-685	TERMINAL HOUSING, HARNESS (BEHIND COVER) .....	1
		SN-685P	PIN, TERMINAL HOUSING (BEHIND COVER) .....	9
11	PC2	SN-529U	SPOT TIMER BOARD (BEHIND COVER)(FIGURE D1) .....	1
		SN-601	STAND OFF, NYLON (BEHIND COVER) .....	4
12		SN-6220	SPOOL BRACKET .....	1
13		SN-6314I	INSULATOR CARD, SPOOL HUB .....	1
14		SN-22	SPOOL CLIP .....	1
15		SN-314	SPOOL HUB .....	1
16		SN-606	DOOR CATCH, MAGNETIC .....	1
17		SN-450N	BOLT, NYLON SPOOL HUB .....	1
		SN-451	NUT, SPOOL HUB .....	1
		SN-19	WASHER, SPOOL HUB .....	2
18		SN-6130	BACK, SMALL FEEDER .....	1

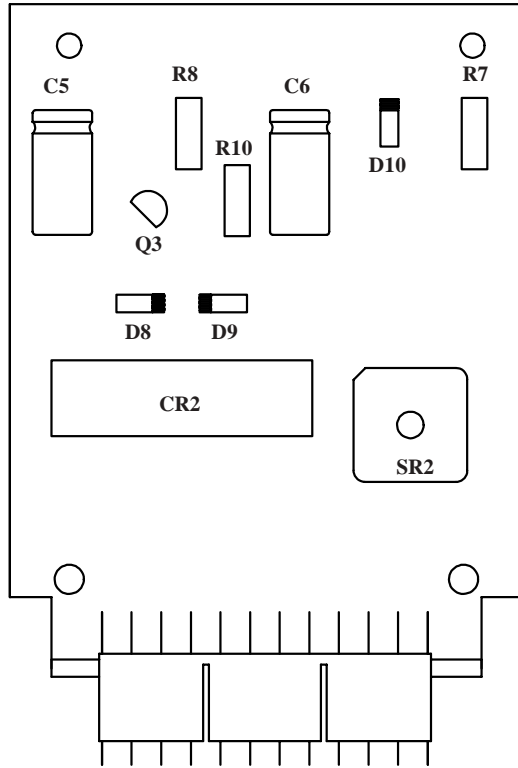


FIGURE D1 - PRINTED CIRCUIT BOARD (SN-529U)



**FIGURE D1**

ITEM NO.	DIA. MKGS.	PART NO.	DESCRIPTION	QTY.
C5,6	MI-143		CAPACITOR, 47uFD 50V .....	2
CR2	HG-576		RELAY, 24VDC 4PDT .....	1
D8,9,10	HG-579		DIODE, 2A .....	3
Q3	MI-627		TRANSISTOR, PUT .....	1
R7	MI-125		RESISTOR, 4.7K OHM 1/2W .....	1
R8	MI-148		RESISTOR, 1.2K OHM 1/2W .....	1
R10	MI-126		RESISTOR, 3.3K OHM 1/2W .....	1
SR2	CB-048		RECTIFIER, BRIDGE .....	1

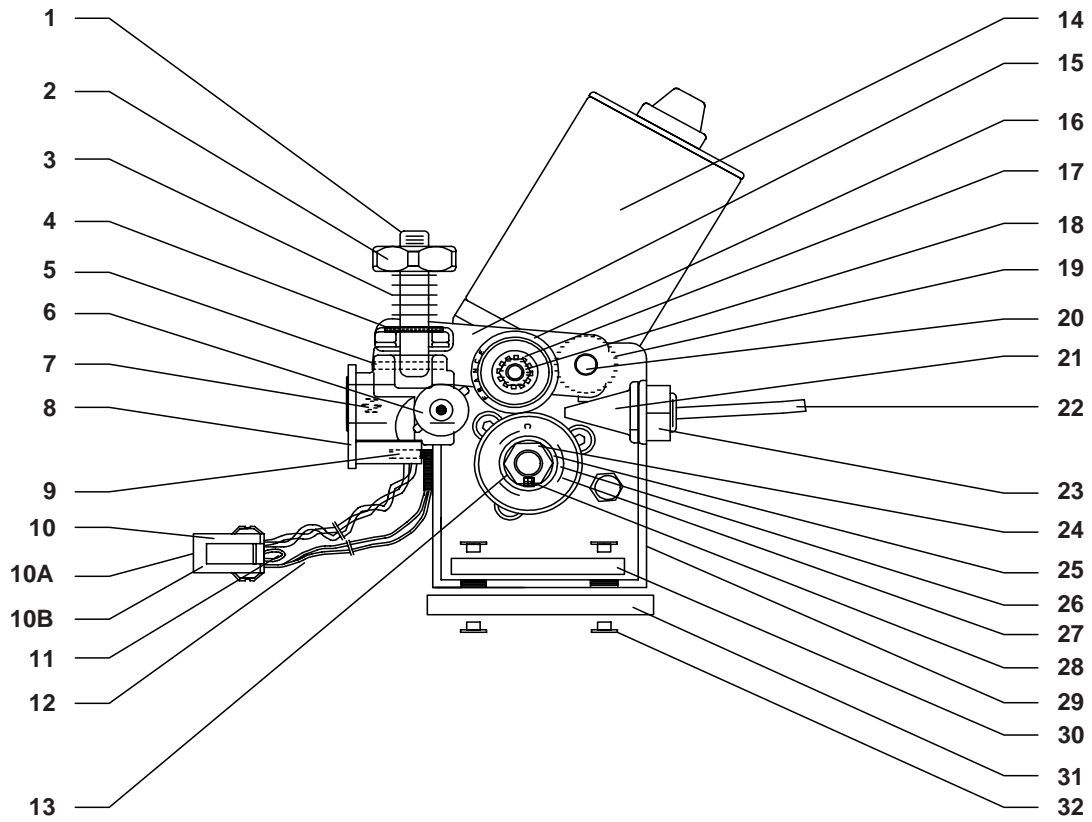


FIGURE D2 - WIRE DRIVE ASSEMBLY (SN-138C24M)

**FIGURE D2**

ITEM NO.	DIA. MKGS.	PART NO.	DESCRIPTION	QTY.
1		SN-48	PRESSURE ROLL TENSION BOLT .....	1
2		SN-51	TENSION NUT .....	1
3		SN-50F	PRESSURE SPRING .....	1
4		SN-49	TENSION BOLT WASHER .....	1
5		SN-47	TENSION BOLT PIN .....	1
6		M3-906	THUMB SCREW .....	1
7		SN-24	GAS FITTING (2291, 1192) (BEHIND) .....	1
8		M3-900C	TORCH PANEL MOUNT (HG-525) .....	1
9		SN-604	WIRE CONNECTOR, 90 DEG. ....	2
10	RC5	SN-860C	FUNCTION PLUG ASSEMBLY .....	1
10A		SN-860	PIN HOUSING .....	1
10B		SN-860M	MALE PIN CONNECTOR .....	6
	RC6	SN-861C	FUNCTION RECEPTACLE ASSEMBLY (NOT SHOWN) .....	1
11	J1	AD-10	JUMPER .....	1
12		SN-237	CONTROL WIRE ASSEMBLY .....	2
13		SN-65	DRIVE ROLL LOCK WASHER .....	1
14	M	SN-138C24	24VDC MOTOR .....	1
15		SN-53F	ROCKER ARM .....	1
16		SN-158	PRESSURE ROLL .....	1
17		SN-55F	BEARING SPACER (BEHIND) .....	1
18		HW-1420KHN	1/4-20 KEP NUT .....	1
19		SN-89	SPRING WASHER (BEHIND) .....	1
20		SN-52	SHOULDER BOLT .....	1
21		SN-33F	INLET GUIDE .....	1
22		SN-136C	INLET GUIDE TUBE .....	1
23		SN-34	NUT, INLET GUIDE .....	1
		HW-58ILW	LOCK WASHER, INTERNAL .....	1
24		SN-64	DRIVE ROLL NUT .....	1
25		SN-62	DRIVE ROLL WASHER .....	1
26		SN-603	ADJUSTING COLLAR (BEHIND) .....	1
27		SN-60	DRIVE ROLL (30-45DR) .....	1
28		SN-61C	1/2 WOODRUFF DRIVE KEY .....	1
29		SN-131S	MOTOR BRACKET, ADJUSTABLE .....	1
30		SN-139AD	INSULATOR, TOP .....	1
31		SN-139	MOTOR BASE INSULATOR .....	1
32		SN-40	INSULATING WASHER .....	4

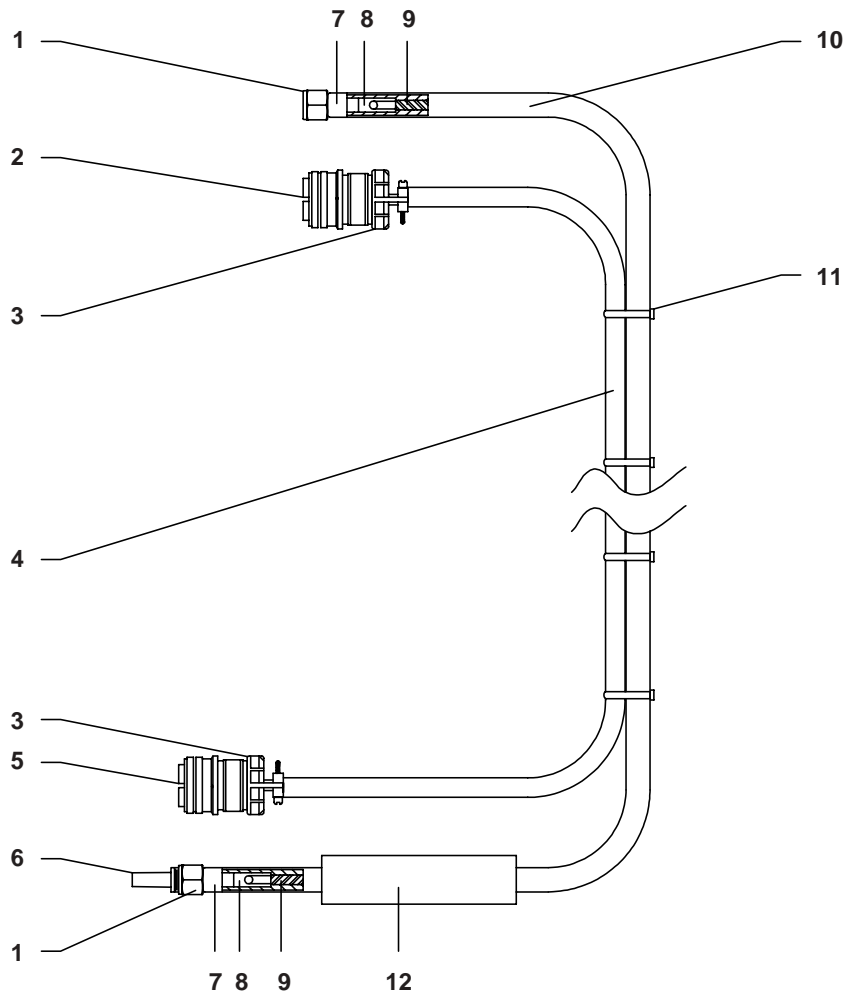


FIGURE E - FEEDER CABLE ASSEMBLY (FCA-15)

**FIGURE E**

ITEM NO.	DIA. MKGS.	PART NO.	DESCRIPTION	QTY.
1		SN-026	NUT, GAS HOSE .....	2
2	RC3	SN-6204	PLUG, 14 PIN (FEMALE PINS) .....	1
3		SN-6204B	CLAMP, 14 PIN PLUG .....	2
4	PLG2	CC-300-15	CONTROL CABLE ASSY., 15' 14 PIN .....	1
		SN-6209-15	CABLE ONLY, 15' .....	1
5	RC2	SN-6191B	PLUG, 14 PIN (MALE PINS) .....	1
6		PS-4A	POWER PLUG W/GAS HOLE .....	1
7		SN-028	FERRULE, HOSE .....	2
8		SN-025	CABLE FITTING .....	2
9		SN-023	WELD CABLE ONLY (14'-10") .....	1
10		SN-2157E-15	GAS/CURRENT CABLE ASSY., 15' EXTENSION .....	1
		SN-027-15	GAS HOSE ONLY , 15' .....	1
11		SN-2008	CABLE TIE .....	15
12		SN-807G	BOOT/CABLE COVER .....	1