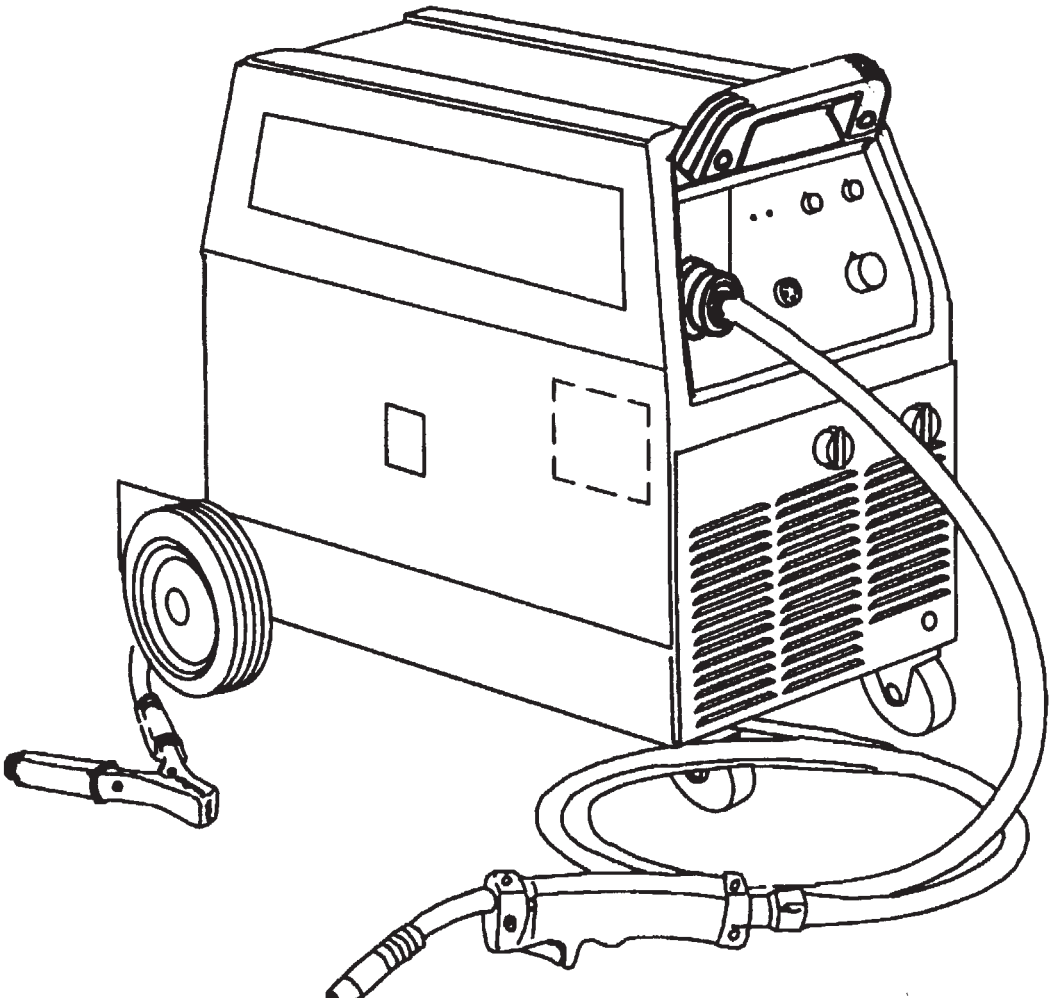
M12211, 83-381 Service Manual



WARNING: all operations listed in this repair manual must be carried out by specialized, trained personnel.

When working inside the machine, be especially careful of all non-insulated wires and terminals and moving parts (motor-driven fan).

Description of operating logic.

The machine is powered by setting the switch **54** to position "1 or 2"; in this way, via the contacts "L-3 and N1-4", the mains voltage powers the service transformer **37**, whose output of 0-220 Volts AC (protected by a fuse) powers the fan **50**. There are three outputs in the secondary coil of the service transformer **37**:

A) 0-27 Volts AC, to power the gas solenoid valve **28**.
B) 0-8.5 Volts AC, which directly powers the digital ammeter circuit **15**.
C) 0-26.5 Volts AC powering the circuit **39**.

All three outputs are protected by fuses.

Connect the torch **64** to the central fitting **61**; this allows you to control the following functions by pressing the torch trigger, via the circuit **39**:

1) Opening the gas solenoid valve **28**, so that gas flows out of the torch **64**.
2) Starting the gearmotor **17**: the torch begins to output welding electrode.
3) Closing the contact **35**, thus allowing the mains voltage to power the power transformer **53** via the selector switch **41**; the transformer in turn powers the rectifier **32**. This machine belongs to the "COMBI" series, and thus the voltage output from the rectifier **32** is connected to the terminal board **77**, located in the coil compartment, which makes it possible to reverse the polarity if an electrode that does not require the use of gas is used for welding, such as: flux cored wire. In normal user conditions, the positive pole (+) of the rectifier **32** is connected directly to the torch. The negative pole (-) instead passes through the impedance **47** and the shunt **33** before arriving at the grounding cable **79**. During welding, the shunt **33** converts the amperes that pass through it into millivolts, which are sent to the ammeter circuit for conversion into digital values, shown on the display **15**.

Based on the position of the selector switches **53** and **54**, the reference voltage for welding is as follows:

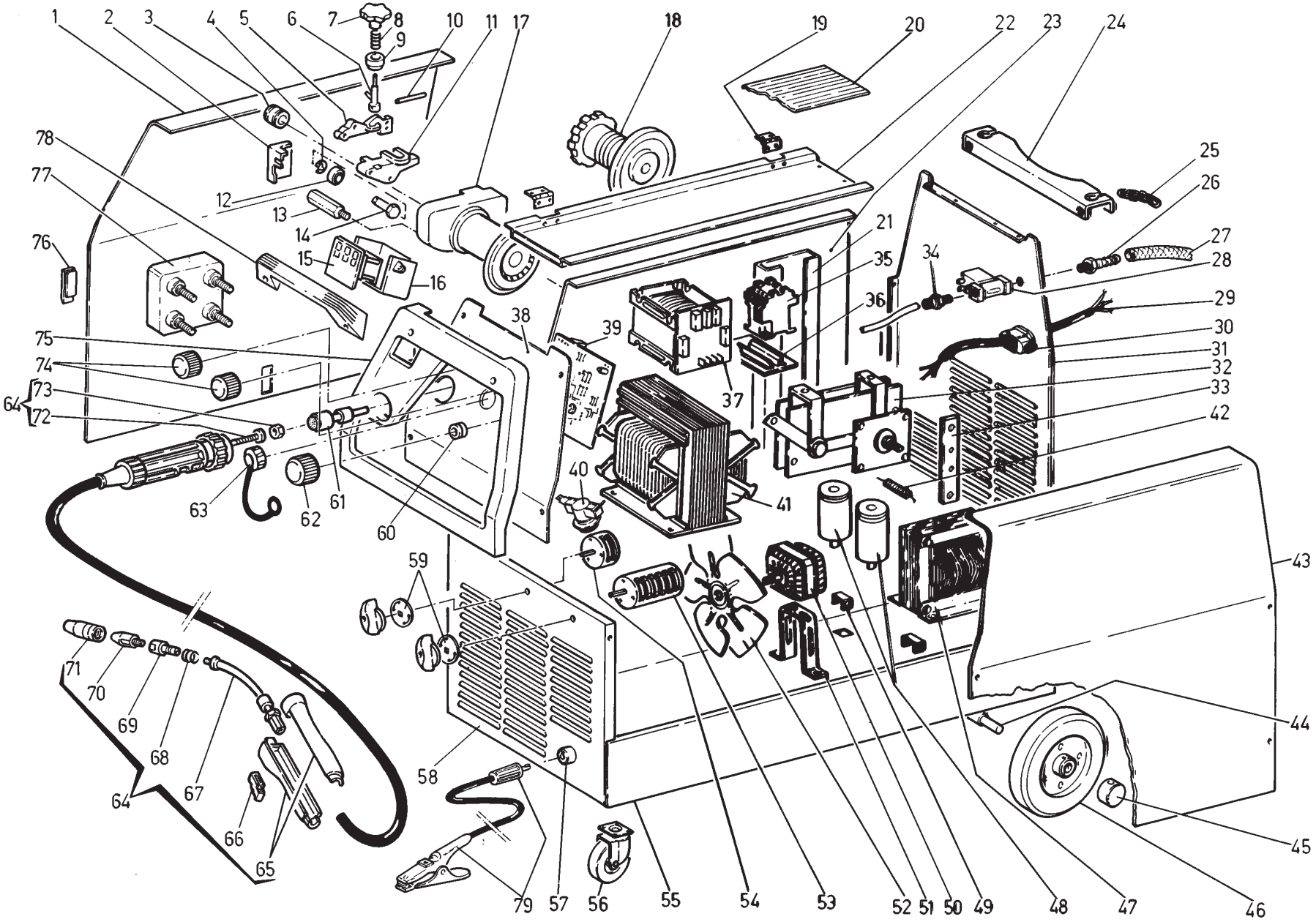
Selector switch position	AC Voltage	DC Voltage
1-1	14.2 V	18 V
1-2	14.6 V	18.65 V
1-3	15.15 V	19.5 V
1-4	15.7 V	20.30 V
1-5	16.3 V	21.2 V
1-6	16.9 V	22.2 V
1-7	17.7 V	23.4 V
1-8	18.5 V	24.6 V
2-1	19 V	25.5 V
2-2	19.8 V	26.7 V
2-3	20.8 V	28 V
2-4	21.8 V	29.6 V
2-5	23 V	31.2 V
2-6	24.3 V	33.2 V
2-7	25.9 V	35.6 V
2-8	27.7 V	39 V

NOTE: If a digital multi-meter is used to measure the voltages on the positive and negative poles of the rectifier 32 W, a resistive load of 3.3 K 1W must be connected to the rectifier. This resistance should be connected in a parallel circuit to the positive "+" and negative "-" poles, as well as the ends of the multi-meter, and the torch trigger must remain pressed while measuring.
This machine is also set up to work with the Cebora Spool Gun torch Art.1562 and corresponding connector cables, from 6 to 12 meters long (arts.1324 and 1324.20). When using this type of torch, the welding controls are on the grip (start and wire output gearmotor speed adjustment).

TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	REMEDY
The welding machine supplies limited current	Line fuse blown.	Replace line fuse.
	Burnt out diode or diodes.	Replace rectifier.
	Burnt out electronic board.	Replace electronic board.
	Loosened torch or earth connections or any other electrical power connection.	Tighten all connection.
Weld with a lot of metal spatter	Voltage adjustment switch has a loose contact.	Replace the switch.
	Improper adjustment of welding parameters.	Select the correct parameters through the welding-voltage switch and the wire-speed adjustment potentiometer.
	Insufficient grounding.	Check grounding connections.
The wire jams or entangles between the drive rolls and the torch infeed wire guide.	Contact tip with wrong diameter.	Replace.
	Misalignment of the drive roll groove.	Realign.
	Obstructed or clogged liner.	Remove and clean.
No wire feed or irregular wire feed.	Drive roll with too large a groove.	Replace the drive roll.
	Obstructed or clogged liner.	Remove and clean.
	Wire holding roller not completely tightened.	Tighten all the way.
	Clogged contact tip.	Replace.
	Wire feeder motor with problems.	Replace.
	Circuit board with problems.	Replace.

NOTES:
Always use original Cebora spare parts
After every repair job, all safety tests must be carried out as described in paragraph 6.1.3 of the standard IEC 974.1.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M12211, 83-381

Item	Lincoln Stock #	Customer #	Description
1		**250888**	Right Side Panel
2			Cover
3		B7091370 **(3080241)**	Drive Roller
4		250870 **(3080453)**	Snap Ring
5			Cover
6		246200 **(3080000)**	Roller Pin
7		246180 **(3055077)**	Knob
8		246215 **(3115060)**	Spring
9			Rest
10		246220 **(3075192)**	Wire Guide
11			Support
12		246232 **(3130136)**	Bearing
13		246186 **(3060367)**	Locking Pin
14		251222	Pin
15		251108 **(3215089)**	Ammeter, 8 Vac
16		251224 **(3070094)**	Cover
17		246284 **(5750682)**	Drive Motor
18		B7125370 **(3060278)**	Wire Spindle
19		251097 **(3120058)**	Hinge
20		251064 **(3070093)**	Rubber Mat
21		251123 **(5803008)**	Support
22		250880	Cover
23		251225	Center Divider
24		B7106370 **(5800828)**	Tank Bracket
25		B7108370 **(3080353)**	Chain
26		B7107370 **(3160016)**	Hose Barb Joint
27		246169 **(1020151)**	Gas Hose
28		B7105370 **(3160181)**	Gas Solenoid, 24Vac
29		251110	Power Cord
30		250874	Strain Relief
31		251300 **(5802384)**	Back Panel
32		251105 **(3200311)**	Rectifier
33		251109 **(3215190)**	Shunt
34		B7116370 **(3160014)**	Hose Connector Joint
35		251104 (3190276)	Contactor
36		B7099370	Relay Bracket
37		251111 **(5600629)**	Control Transformer
38		251117 / 251118	Control Panel
39	880-592-000 **NLA**	251113 (5600789), **246278 (5600931)**	New PCB (2LEDs), **Old PCB**
41		251112 **(5600714)**	Weld Transformer
42		251106 **(3205046)**	Resistor
43		251114 **(5801481)**	Left Side Panel

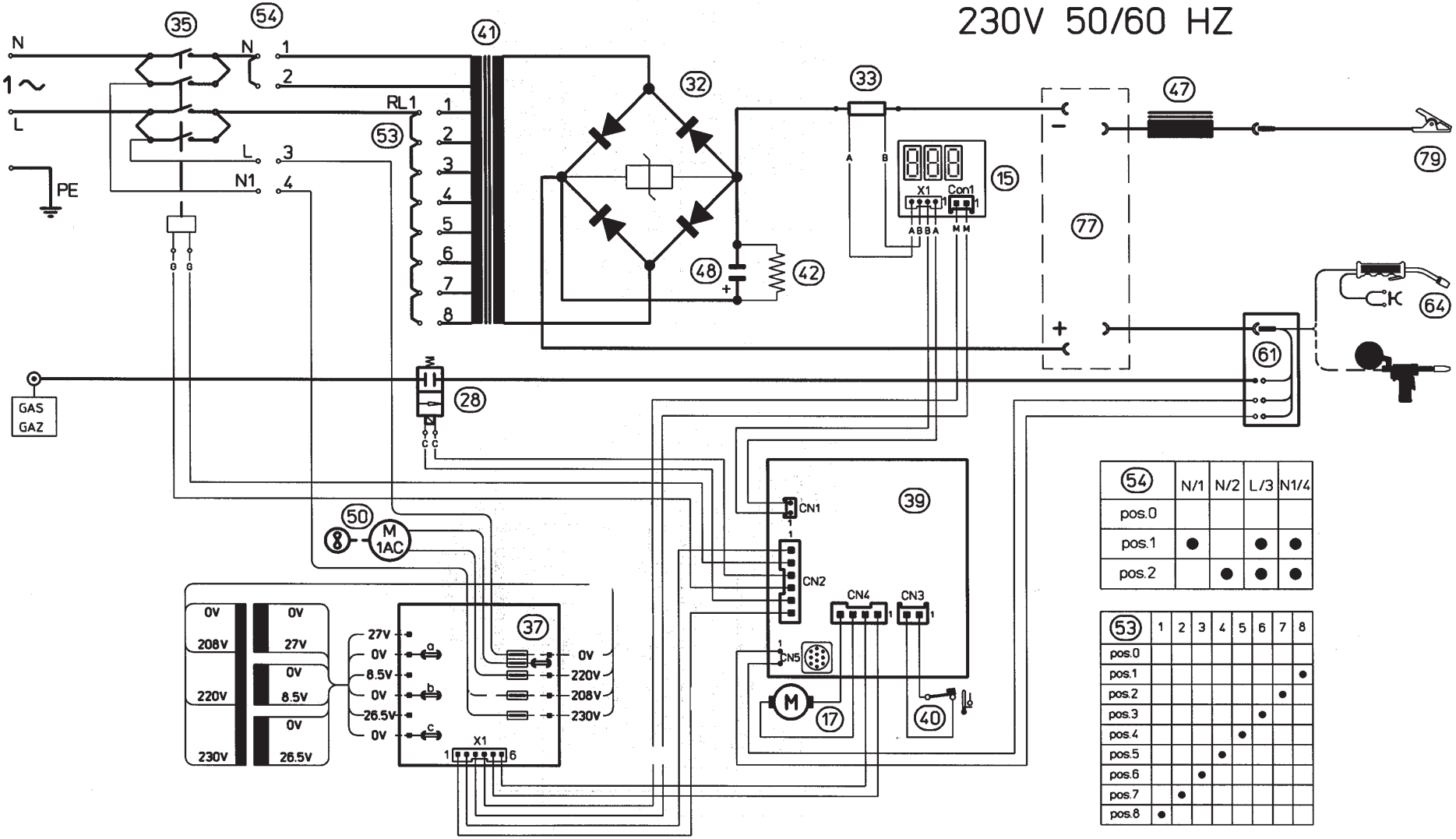
Item	Lincoln Stock #	Customer #	Description
44		251096 **(3080076)**	Axle
45		251094 **(3070162)**	Cover
46		251098 **(3130089)**	Wheel
47		251107 **(3205344)**	Reactor Coil
48		251101 **(3175730)**	Capacitor
49		251124 **(5803470)**	Support
50	216-108-666	246224 **(3165203)**	Fan Motor
51	412-752-666	246188	Fan Motor Bracket
52		246194 **(3065103)**	Fan Blade
53		251102 **(3190107)**	Switch with Knob
54		251103 **(3190108)**	Switch with Knob
55		251115 (5801732)	Undercarriage
56		251099 **(3130098)**	Caster
57		246252 **(3175354)**	Receptacle
58		251119 / 251120	Front Panel
59		251061	Insulator
60		251060	Insulator
61		B7080370	Adapter
62		246219 **(3055116)**	Knob
63		251093 **(3070154)**	Cover
64		**M15210 (004N0091)**	**10' Mig Gun**
	411-121-666	**M15192**	**Steel Liner**
	411-123-666	**M15194**	**Teflon Liner**
65		B7121370 **(3055607)**	Handle Halves
66		246258 **(3190057)**	Switch
67		251087 **(1494)**	Swan Neck
68		251086 **(1495)**	Spring
69		246355 **(1496)**	Gas Diffuser
70	**KP2052-1B1**	**M15464 (83-644)**	**0.025 Contact Tip**
	KP2052-2B1	**M15465 (83-645)**	**0.030 Contact Tip**
	KP2052-3B1	**M15466 (83-646)**	**0.035 Contact Tip**
	KP2052-4B1	**M15189 (83-236)**	**0.045 Contact Tip**
71	**334-498-400**	**M15215**	**Tapered Nozzle**
72		**M15192**	Steel Liner
73		246255	Liner Nut
74		251089 **(3055127)**	Knob
75		251091 **(3070090)**	Frame
76	S26400-1	246948	Latch
77		251100 **(3170802)**	Terminal Board
78		246949 **(3055176)**	Handle
79		246272 **(5580600)**	Ground Cable

2/8/2007

Model	Primary Input	Input Plug	Duty Cycle at Rated Output
M12211, 83-381	230V, 30 amp	50A	30%

Rated Output	Voltage Settings	Agency Listing	Max Output
265 Amps	7	CSA	265 amps

	WIRING DIAGRAM COLOUR CODE
A	BLACK
B	RED
C	GREY
D	WHITE
E	GREEN
F	PURPLE
G	YELLOW
H	BLUE
K	BROWN
J	ORANGE
I	PINK
L	PINK-BLACK
M	GREY-PURPLE
N	WHITE-PURPLE
O	WHITE-BLACK
P	GREY-BLUE
Q	WHITE-RED
R	GREY-RED
S	WHITE-BLUE
T	BLACK-BLUE
U	YELLOW-GREEN



54	N/1	N/2	L/3	N1/4
pos.0				
pos.1	●		●	●
pos.2		●	●	●

53	1	2	3	4	5	6	7	8
pos.0								
pos.1								●
pos.2							●	
pos.3						●		
pos.4					●			
pos.5				●				
pos.6			●					
pos.7		●						
pos.8	●							