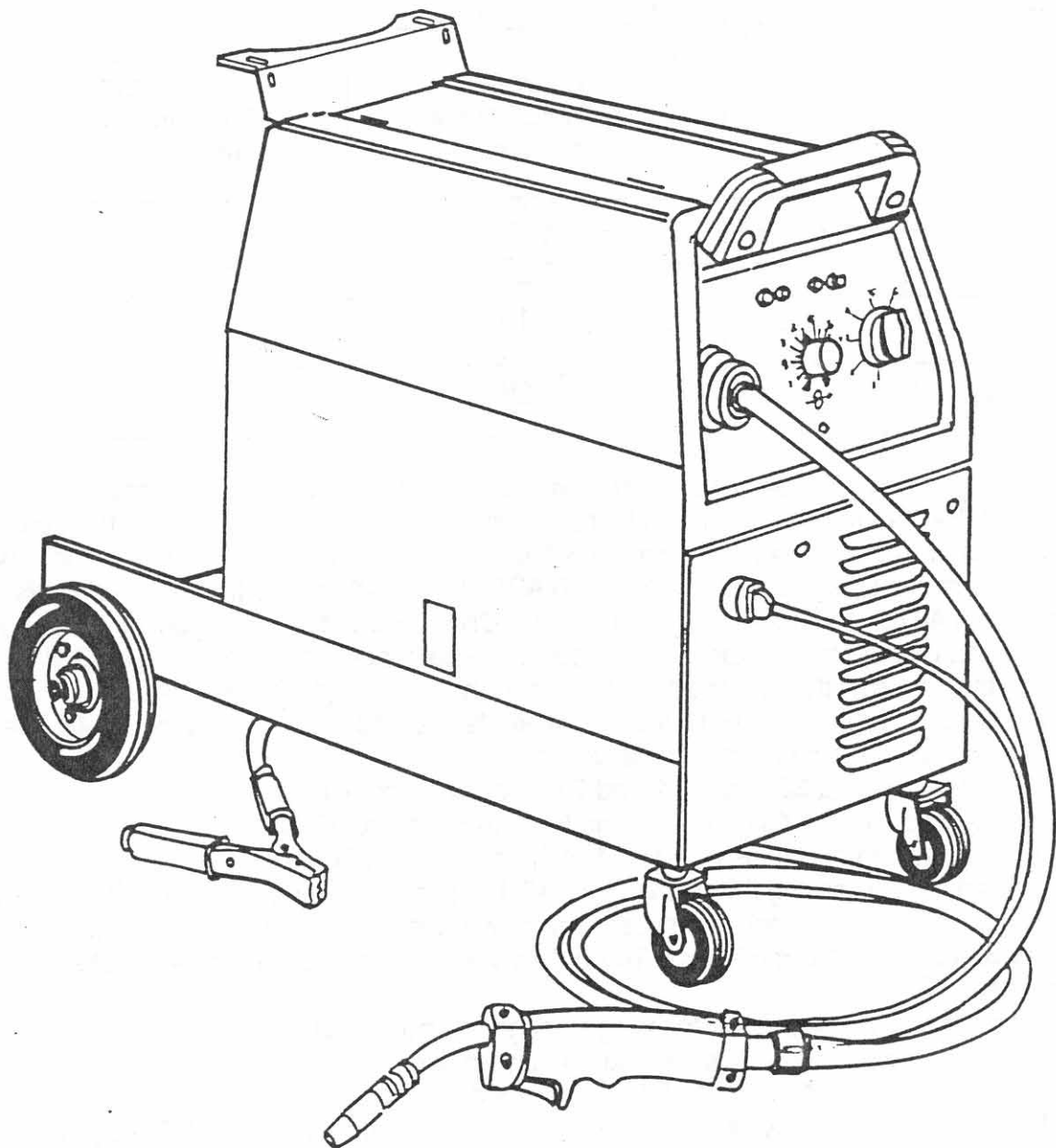


# M12184, MB135, 83-318 Service Manual



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

## DESCRIPTION OF OPERATING LOGIC.

The machine can be started by setting the switch/selector **47** to one of the 7 settings. Power reaches the following components directly:

- 1) motor-driven fan **29**.
- 2) control circuit **48**.

Now, pressing the torch trigger will close the relay **RL1** (located on the circuit **48**), thereby powering the solenoid valve **22** and power transformer **32**. The power transformer **32** directly powers the rectifier **49**; the positive (+) and negative (-) poles are connected to a terminal board located in the coil compartment so that the polarity can easily be reversed if flux-cored wire is used for welding (no gas). The voltage leaving the rectifier **49** varies in relation to the setting of the selector switch **47**, as listed in the table below:

Open circuit reference voltages for the welding machine:

Selector switch setting 47	AC Volts Measured at the rectifier input	DC Volts Measured at the rectifier output
1	19.50	16.5
2	21.20	18.0
3	22.60	19.2
4	23.10	19.8
5	25.60	21.9
6	27.60	23.6
7	30.00	25.8

To correctly check the open circuit output voltage from the rectifier **49**, you must connect a 1.2-Kohm/10-Watt resistor in parallel to the positive (+) and negative (-) poles, then connect the Volt meter to the same poles and press the torch trigger (the voltages listed above were tested at a mains supply voltage of Volts **120** AC). The output voltage from the rectifier is sent to the circuit **48** (pins n° 1 and 5 of the connector **CN1**), and is duly managed for use in powering the gearmotor. This voltage is regulated by the potentiometer on the circuit **48**. With this system, the speed of the gearmotor **8** is linked to the position (1-7) of the selector switch **47**, and may later be regulated also by the potentiometer located on the control circuit **48**. The following are also connected to the same circuit **48**:

- a) the thermostat **33** (pins n° 2 and 7 of the connector **CN1**);
- b) the torch trigger **45** (pins n° 6 and 8 of the connector **CN1**);
- c) the gearmotor **8** (pins n° 3 and 4 of the connector **CN1**).

To summarize: by pressing the torch trigger **45**, the circuit **48** closes the relay **RL1**. The closed contact of the relay makes it possible to power the solenoid valve **22**, the power transformer **32** and thus the rectifier **49**. The output voltage from the rectifier **49** is used for two purposes:

- a) to power the gearmotor (passing through the circuit **48**).
- b) As welding voltage (positive and negative poles).

Set the selector switch **47** to "0" to turn off the welding machine.

## POSSIBLE ERRORS - TROUBLESHOOTING

### Limited current distributed.

Probable causes:

- 1) defective diode or diodes on the rectifier **49**.
- 2) incorrect connections on the torch **45** or grounding cable **37**.
- 3) defective welding voltage regulator selector switch **47**.
- 4) broken connections on the outputs from the power transformer **32**.

Remedies:

- a) replace the rectifier.
- a) check the connections on the torch and grounding cable.
- a) replace the selector switch.
- a) restore the connection.

### Excessive metal sprays during welding.

Probable causes:

- 1) welding parameters incorrectly set
- 2) welding wire moves forward irregularly
- 3) grounding cable incorrectly connected

Remedies:

- a) find the appropriate parameters by adjusting the selector switch **47** and wire advancement speed potentiometer.
- a) See paragraph 6.3 of the instruction manual 3.300.614.
- a) make sure the connections are correct.

### The contact **89** does not close when the torch trigger is pressed.

Probable causes:

- 1) defective torch trigger.
- 2) defective circuit **43**
- 3) coil of the contact **89** is broken or not powered.
- 4) connection cable **54** is broken.
- 5) no voltage on the service transformer **71**.

Remedies:

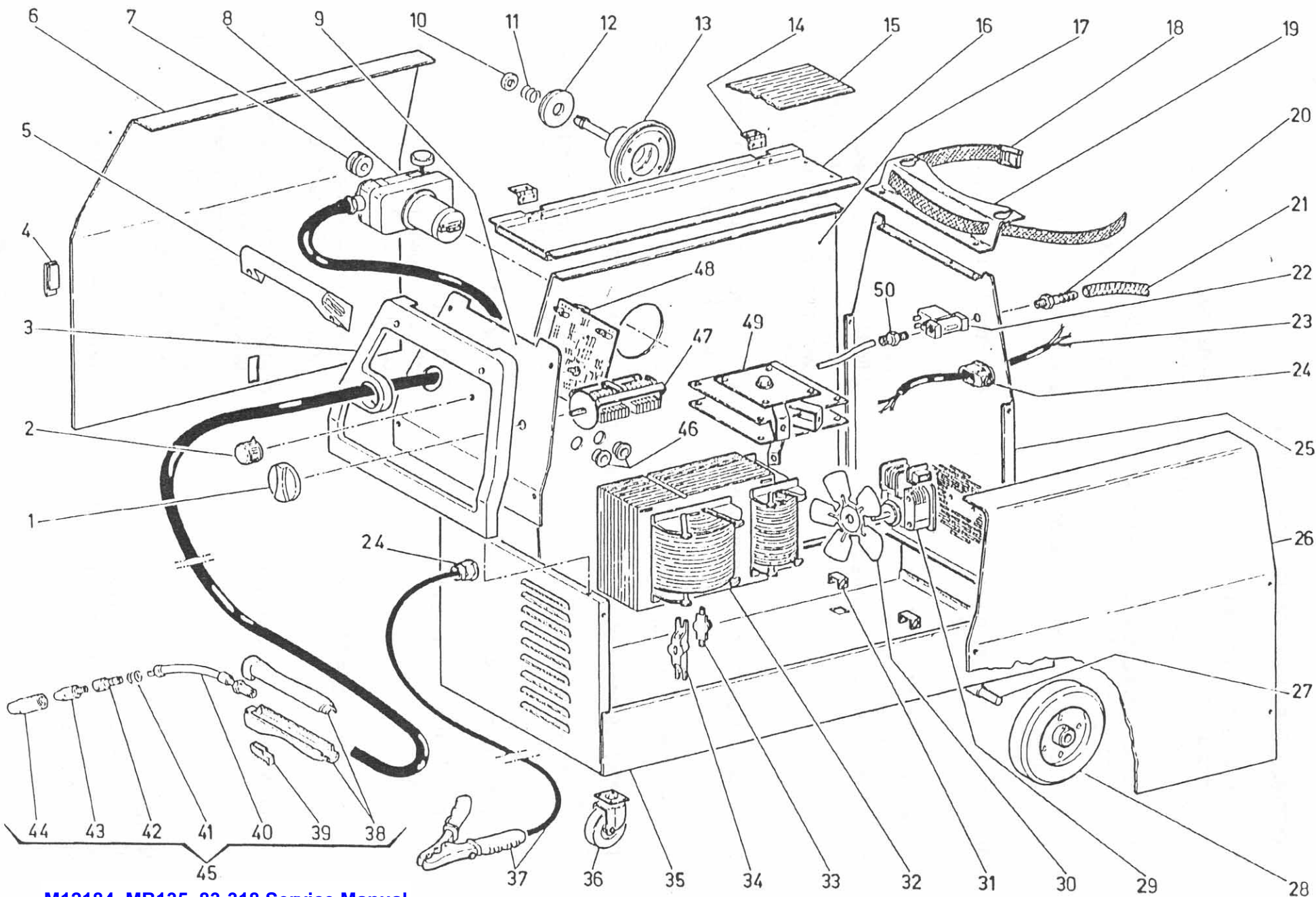
- a) make sure the trigger and its connections are in good working order
- a) replace it.
- a) check the coil wire  
b) check the power connections for the coil on contact **89**.
- a) make sure the connections on the connection cable **54** are intact.
- a) make sure the service transformer **71** is correctly powered.  
b) check the secondary voltage on the service transformer **71**: 27 V AC, and corresponding fuse.

### 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.





# M12184, MB135, 83-318

<u>Item</u>	<u>Stock #</u>	<u>Customer #</u>	<u>Description</u>
1		246945	Knob
2		246946	Knob
3		246947	Frame
4		246948	Latch
5		246949	Handle
6		246950	Hinged Side Panel
7	310-210-666	246951	Drive Roller
8	216-116-000	246952	Wire Feed Motor
9		251049, 251050	Control Panel
10		251030	Ring
11		251031	Spring
12		251027	Coil Support Spacer
13		251022	Coil Support
14		246958	Hinged Side Panel
15		246959	Rubber Mat
16		246961	Cover
17		246962	Center Divider
20			Hose Barb Joint
21	059-245-666	246169	Gas Hose
22	246-530-666	251036	Solenoid Valve
23		B7023370	Power Cord
24		B7022370	Strain Relief
25		246971	Back Panel
26		246972	Fixed Side Panel
29		251037	Fan Motor

<b>Model</b>	<b>Primary Input</b>	<b>Input Plug</b>	<b>Duty Cycle at Rated Output</b>
M12184	120V, 23 amp	15A	15%

<u>Item</u>	<u>Stock #</u>	<u>Customer #</u>	<u>Description</u>
30		246193	Fan Blade
32		251044	Transformer
33	S26399-21	B7065370	Thermostat
34	S26399-20	B7028370	Thermostat Support
35		251048, 251020	Undercarriage
37	S26399-3	246983	Ground Cable
40	334-628-000	B7123370	Gooseneck
41	334-172-000	B7124370	Spring
42	334-632-000	246311	Diffuser
43			Contact Tip
	KP2039-1B1	M15522	0.024 Contact Tips
	KP2039-2B1	M15523	0.030 Contact Tips
	KP2039-3B1	M15524	0.035 Contact Tips
44	334-164-400	M15520	Nozzle
45	334-634-000	247008	Torch Assembly
46		246993	Cable Outlet
47		246994	Switch
48	880-595-000	251045	Circuit Board
49	S26399-5	246996	Rectifier
50		246997	Fitting

## Not Shown

51	334-637-000	246199	Steel Liner
52	334-645-000	M15520	Teflon Liner
53	334-286-666		Gas Regulator

2/28/2006

<b>Rated Output</b>	<b>Voltage Settings</b>	<b>Agency Listing</b>	<b>Max Output</b>
90 amps	7	CSA	135 amps

