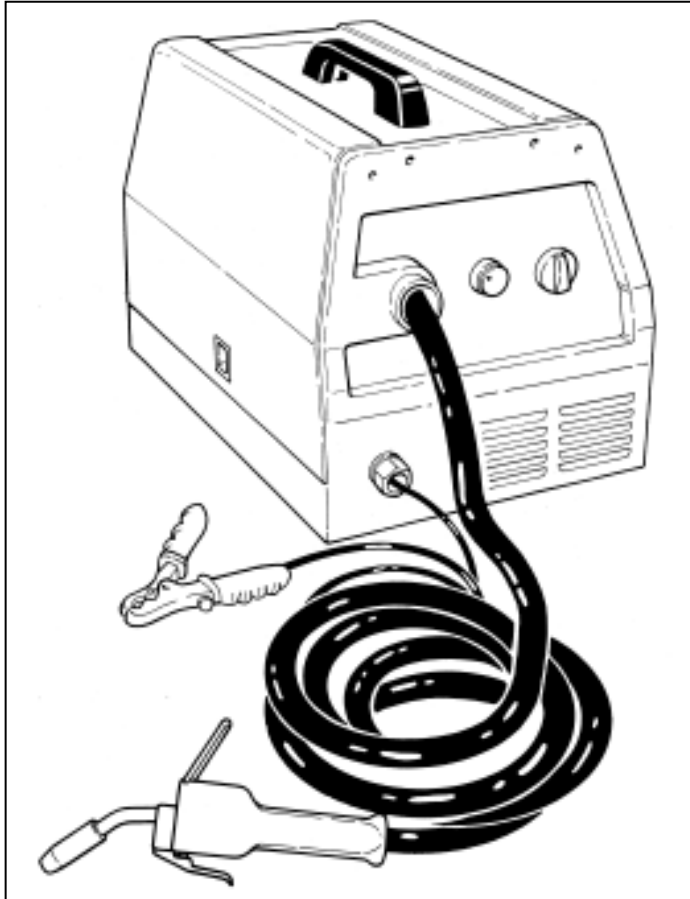


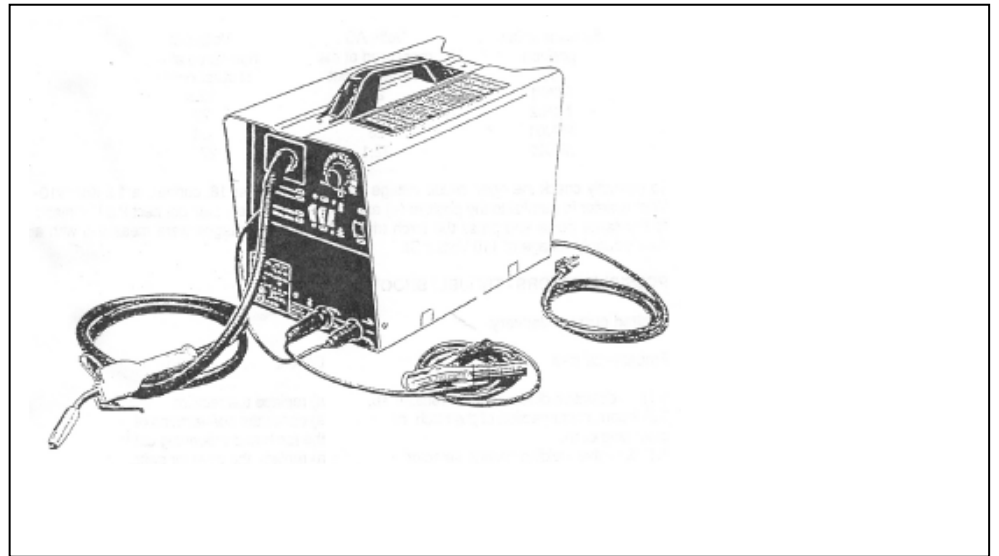
Service Manual

for

M12183, 83-319, 117-093, P10-450



M12183, 83-319 Series B



M12183, 83-319 Series A

Description of Operating Logic

When the power switch (42 or 33) is on, power is applied to:

- 1) The main transformer (49) or 32 for series A,
- 2) The rectifier (45) or 16 for series A, which in turn powers pins A5 & A7 of the PCB (48) or 30 for series A, when the trigger is pulled.

Also, when the trigger is pulled, a relay on the PCB connects pins B2 & B3 on the PCB, thus sending 120Vac to the coil on the contactor ((54) or 57 for series A) and closing it. At the same time, Dc voltage is sent to the drive motor (2.5 to 21.6 Vdc or 2.2-12.2 Vdc when switch # 16 (35 for series A) is in the no gas position). The speed of the motor is adjusted by the wire speed potentiometer that is part of the PCB, and is also affected by the gas/no gas switch (16 or 35) and the position of the heat switch (47) or 35 for series A.

The open circuit voltages with the trigger pulled are as listed:

M12183, 83-319, 117-093 Series B Switch (47)Position	Open Circuit volts (switch 16 in gas position and wire speed on maximum)
1	16.9 Vdc
2	18.3 Vdc
3	19.7 Vdc
4	20.3 Vdc
5	22.0 Vdc
6	23.9 Vdc
7	25.9 Vdc

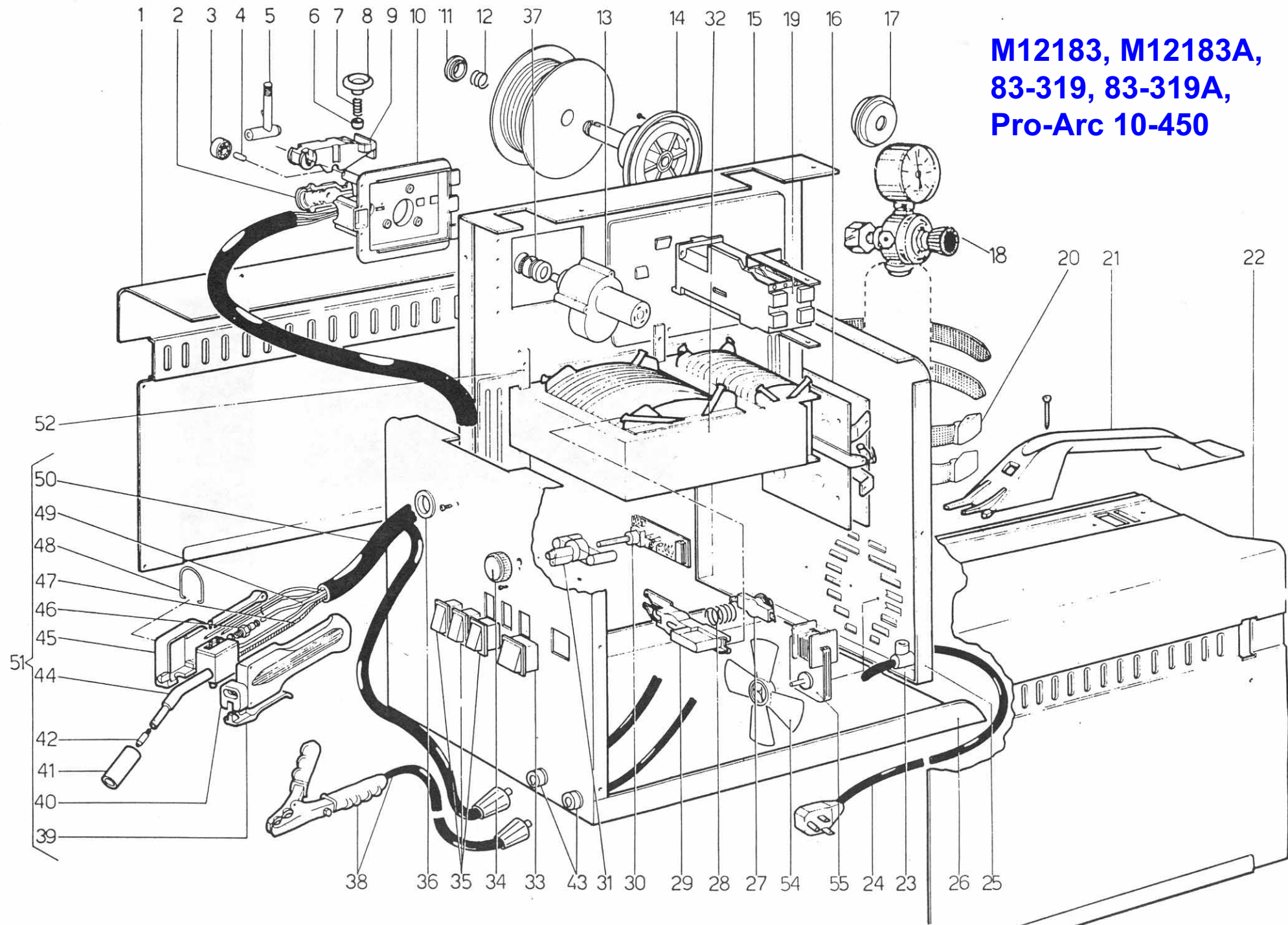
M12183, 83-319 Series A Switch (35) Position	Open Circuit Volts (switch 35 in gas position and wire speed on maximum)
Min / 1	19.8 Vdc
Min / 2	22.0 Vdc
Max / 1	24.0 Vdc
Max / 2	27.7 Vdc

Troubleshooting

Symptom	Possible Problem	Test	Probable Solution
Have wire feed, but no arc	1. Contactor not closing 2. Connection at contactor burnt 3. Ground clamp / cable in poor condition	1. See if the contactor is receiving 120Vac 2. Check connections at the contactor 3. Check ground clamp / cable	1a. If 120 Vac is at the contactor and it is not closing, replace it. 1b. If there is no voltage at the contactor's coil, and open circuit dc voltage is present (with the trigger pulled) between terminals A5 & A7 of the PCB, replace the PCB. 2. Replace connection and / or contactor 3. Replace ground clamp / cable
Output suddenly dropped significantly, but still welds	1. Low line voltage 2. Bad connection, bad ground 3. Rectifier bad	1. Verify 120Vac input 2. Check connections and ground cable/clamp 3. Test rectifier	1. If low and using an extension cord, try plugging into wall directly 2. Tighten connections or replace ground cable / clamp 3. Replace rectifier
No wire feed	1. Trigger circuit bad 2. Drive motor bad	1. Do continuity test from the rectifier (+) to A7 on the pcb with the trigger pulled 2. Apply 12 Vdc to motor	1. Repair or replace gun assembly if bad 2. Replace if bad
Nozzle arcs to material	Nozzle dirty or bad	Check for continuity from the inside to the outside of the nozzle	Replace if there is continuity
Gas is always on	Gun bad	Check for loose hose connection	Replace gun assembly
Only the Fan Runs	Open Thermostat	Do continuity check on thermostat	If cool and open, replace thermostat

Symptom	Possible Problem	Test	Probable Solution
Poor or porous weld	1. No gas 2. Polarity wrong 3. Low line voltage 4. Wrong wire 5. Contact tip wrong	1. Make sure the bottle has sufficient gas, the regulator is working, and is flowing out of the nozzle 2. Check polarity 3. If using an extension cord, try plugging directly into the wall 4. Check wire type and size 5. Be sure tip and wire sizes are the same	1. Refill bottle, replace regulator or mig gun 2. Correct polarity 3. For a 50' cord, use 12/3 or heavier 4. Use only 0.025 solid wire (ER70S-6) with gas, or 0.030 flux (E71-T) without gas 5. Install correct tip

**M12183, M12183A,
83-319, 83-319A,
Pro-Arc 10-450**



M12183, M12183A, 83-319, 83-319A, P10-450

Lincoln

Stock #

Customer #

Description

1		B7059370	Left side panel
2-10	334-635-000	246229	Drive base assembly
11		B7010370	Ring
12		B7011370	Spring
13	216-114-000	B7062370	Wire feed motor
14		B7013370	Coil support
15		B7014370	Center support
16		B7015370	Rectifier
17		B7016370	Reel outer support
18	334-460-001		Gas Regulator
19		B7055370	Contactor
20		B7018370	Belt
21		B7020370	Handle
22		B7061370	Fixed housing
23		B7022370	Cable holder
24	S26399-19	B7023370	Powercord
25		B7024370	Back panel
26		B7064370	Front/base
27		B7065370	Thermostat
28		B7027370	Spring
29	S26399-20	B7028370	Thermostat support
30	880-590-000	B7066370	Circuit board
31		B7067370	Circuit board bracket
32		B7068370	Transformer
33	246-537-666	B7069370	Switch

Lincoln

Stock #

Customer #

Description

34	S26399-22	B7033370	Knob
35	S26399-30	B7070370	Switch
36		B7035370	Bushing
37	S26399-31	B7071370	Drive roller
38		B7072370	Ground cable
39	S26399-23	B7037370	Torch lever/trigger
40	S26399-24	B7038370	Handgrip, Left
41	334-500-400	M15598 (83-636)	Nozzle
42	KP2039-1B1	M15522 (83-393)	0.025 contact tip
	KP2039-2B1	M15523 (83-394)	0.030 contact tip
	KP2039-3B1	M15524 (83-395)	0.035 contact tip
43	079-306-666	B7073370	Quick connect
44	246-534-000	B7074370	Gas valve with gooseneck
45	S26399-25	B7043370	Handgrip, Right
46		B7043370	Quick coupling
47	S26399-32	B7075370	Liner
48	S26399-27	B7046370	Torch hook
49	S26399-28	B7045370	Gas hose
50	N/A	B7076370	Torch hose
51	334-597-000	M15184 (83-637)	Complete Torch (old style with plug)
	238-595-000	M15218 (83-248)	Complete Torch (new style with lugs)
52		B7050370	Locking device
54		B7051370	Fan blade
55		B7052370	Fan motor

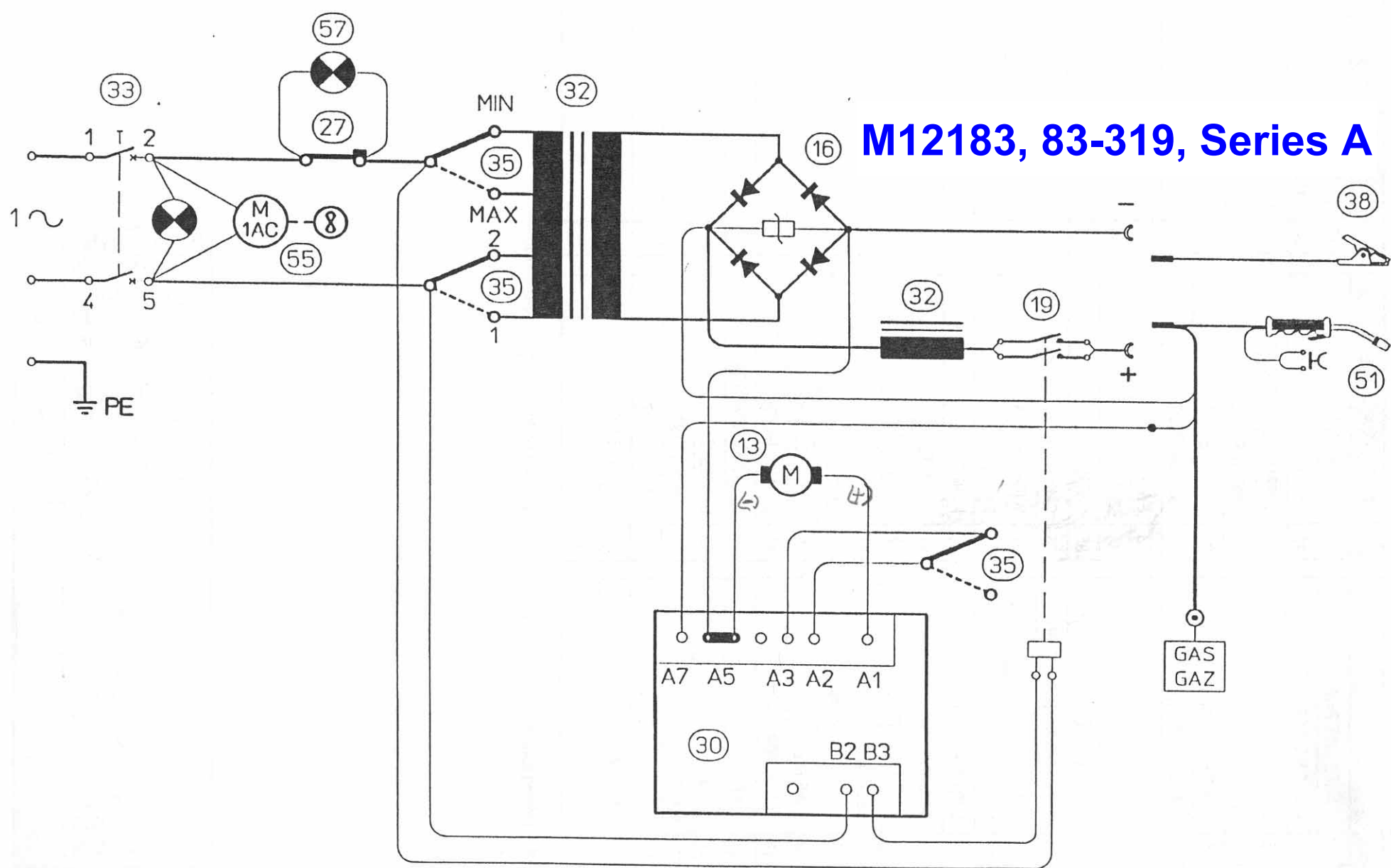
1 year warranty on unit

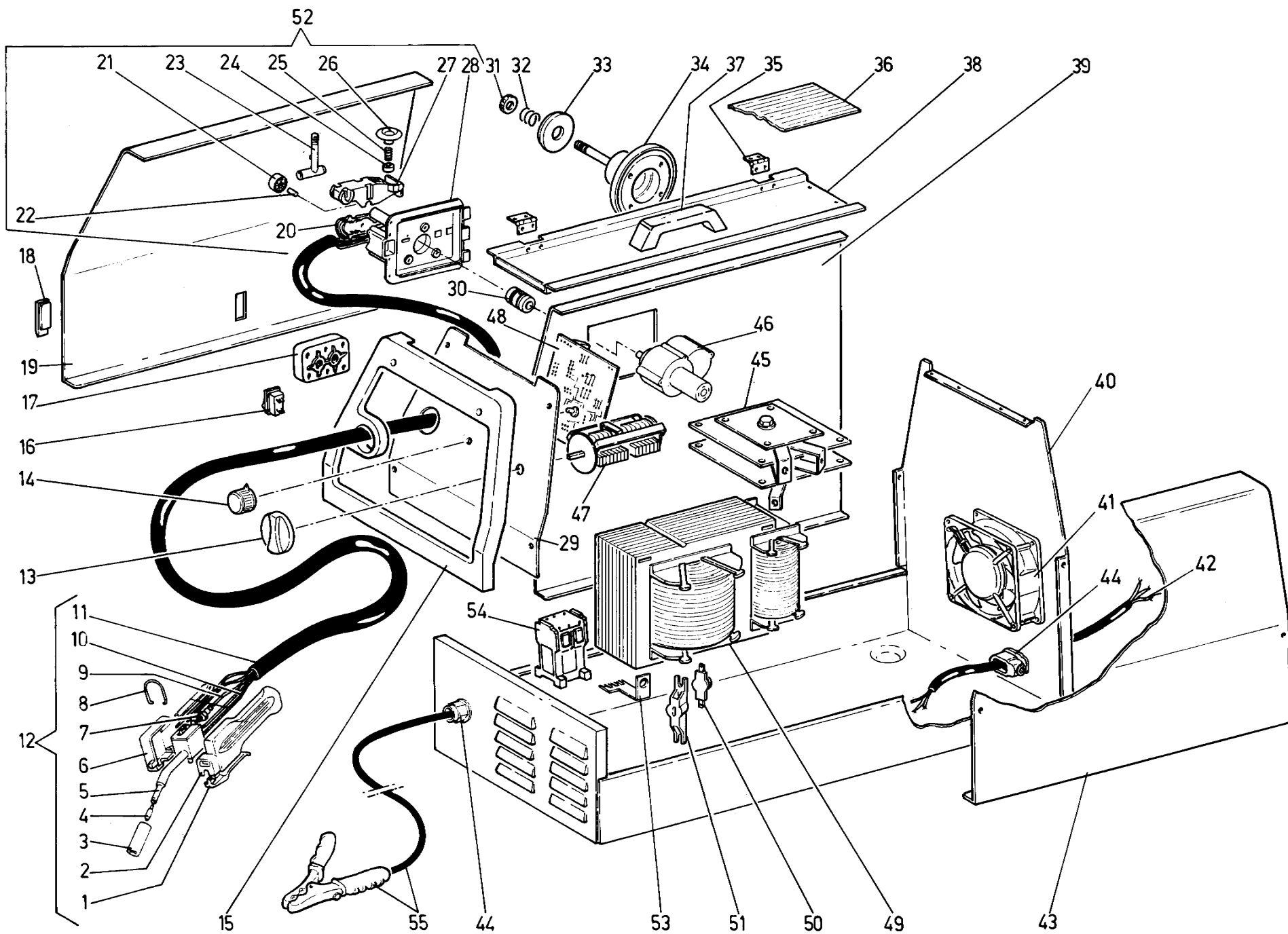
11/7/2005

Model	Primary Input	Input Plug	Duty Cycle at Rated Output
M12183	120V, 20 amp	15A	20%

Rated Output	Voltage Settings	Agency Listing	Max Output
85 amps	4	CSA	110 amps

M12183, 83-319, Series A





M12183B, 83-319B, 117-093

Item	Lincoln Stock #	Customer #	Description
1	S26399-23	B7037370	Torch Lever
2	S26399-24	B7038370	Handgrip, Left
3	334-500-400	M15598 (83-636)	Tapered Nozzle
	334-501-400	M15599	Spot Nozzle
4	334-159-400	M15522 (83-393)	Contact Tips .024"
	334-160-400	M15523 (83-394)	Contact Tips .030"
	334-161-400	M15524 (83-395)	Contact Tips .035"
5	246-534-000	B7074370	Switch
6	S26399-25	B7043370	Handgrip, Right
7	S26399-26	B7044370	Quick Coupling
8	S26399-27	B7046370	Torch Hook
9	S26399-28	B7047370	Gas Hose
10	S26399-32	B7075370	Cable Liner
11	S26399-29	B7048370	Torch Sheath
12	238-595-000	M15218 (83-248)	Complete Torch (new style with lug)
	334-597-000	M15184 (83-637)	Complete Torch (old style with plug)
13	S26399-1	246945	Knob
14	S26399-22	B7033370	Knob
15	312-516-666	260470	Frame
16	S26399-30	B7070370	Switch
17	S26399-10	251067	Terminal Board
18	S26400-1	246948	Side Panel Latch
19	S26399-12	260531	Hinged Side Panel
20	See 52	B7001370	Cable holder
21	See 52	B7002370	Bearing
22	See 52	B7003370	Roller pin
23	See 52	B7004370	Roller presser pin
24	See 52	B7005370	Spring rest ring
25	See 52	B7006370	Spring
26	See 52	B7007370	Knob

Model	Primary Input	Input Plug	Duty Cycle at Rated Output
M12183	120V, 20 amp	15A	20%

Item	Lincoln Stock #	Customer #	Description
27	See 52	B7008370	Roller holder arm
28	See 52	B7009370	Drive motor support
29	S26399-16	260546	Front Panel
30	S26399-31	B7071370	Drive Roller
31	S26399-8	251030	Washer / Ring
32	S26399-9	251031	Spring
33	S26399-7	251027	Coil Support Spacer
34	S26399-6	251022	Coil Support
35	S26399-2	246958	Hinge
36	512-265-666	260467	Rubber Matt
37	312-515-666	250975	Handle
38	S26399-12	260533	Cover
39	S26399-14	260534	Center Divider
40	S26399-17	260548	Undercarriage
41	216-110-666	260453	Fan Motor
42	S26399-19	B7023370	Input Power Cord
43	512-265-666	260461	Rubber Mat
44	312-515-666	B7018380	Strain Relief
45	S26399-5	246996	Rectifier
46	216-114-000	B7062370	Wire Speed Motor
47	S26399-4	246994	Switch
48	880-590-000	B7066370	Circuit Board
49	S26399-11	260454	Reactor Coil
50	S26399-21	B7032380	Thermostat
51	S26399-20	B7028370	Thermostat Support
52	334-635-000	246229	Drive Base Assy. (includes 20-28)
53	S26399-15	260545	Contactoer Bracket
54	246-519-666	B7053370	Contactoer
55	S26399-3	246983	Ground Cable Assy
56	334-460-001	--	Gas Regulator

Rated Output	Voltage Settings	Agency Listing	Max Output
85 amps	7	CSA	130 amps

12/19/2005

M12183, 83-319, 117-093

