

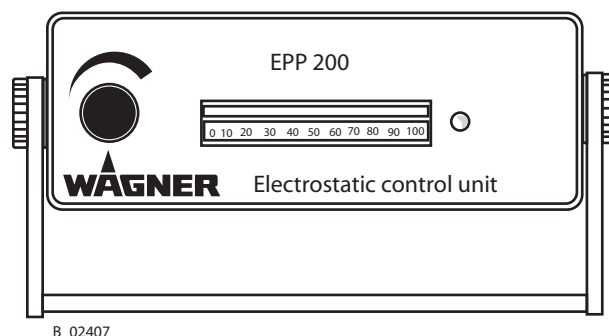
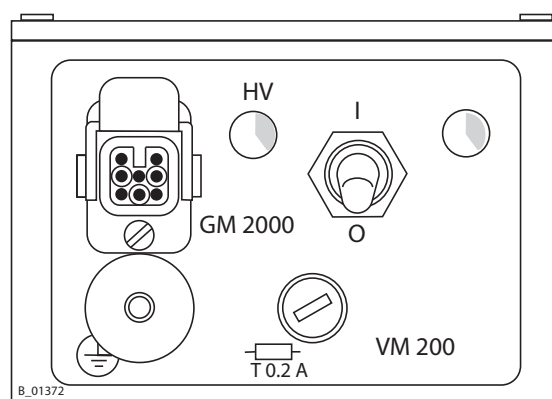
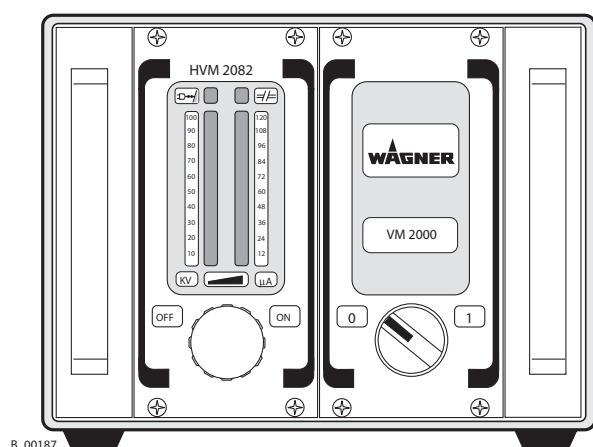


Translation of the original Operating manual

EPP 200
VM 200
VM 2000

Edition 09/ 2007

Electrostatic control units for spray guns GM 2000EA/ EAC



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1 ABOUT THESE INSTRUCTIONS

These service instructions contain information and instructions on the operation, repair, service and maintenance of the control units.

- These devices can be hazardous if they are not operated in accordance with the information provided in these service instructions and the relevant operating instructions.
- Adherence to these service instructions and the relevant operating instructions is an integral part of the warranty agreements.

1.1 LANGUAGES

EPP 200

This operating manual is available in the following languages:

Language:	Part No.	Language:	Part No.
German	0179869	English	0179881
French	0179882	Dutch	0179178
Italian	0179883	Spanish	--
Danish	0179177	Swedish	0179176

VM 200

This operating manual is available in the following languages:

Language:	Part No.	Language:	Part No.
German	0388700	English	0388701
French	0388702	Dutch	0388703
Italian	0388704	Spanish	0388705
Danish	0388707	Swedish	0388706

VM 2000


This operating manual is available in the following languages:

Language:	Part No.	Language:	Part No.
German	0388870	English	0388871
French	0388872	Dutch	0388873
Italian	0388874	Spanish	0388875
Danish	0388877	Swedish	0388876
Portuguese	0388878	Turkish	--


1.2 WARNINGS, NOTES AND SYMBOLS IN THESE INSTRUCTIONS

Warning instructions in this manual point out particular dangers to users and equipment and state measures for avoiding the hazard. These warning instructions fall into the following categories:


Danger - imminent danger. Non-observance will result in death, serious injury and serious material damage

 SIHI_0100_GB	<div style="text-align: center;">⚠ DANGER</div> <p>This line warns of the hazard ! Possible consequences of failing to observe the warning instructions. The signal word points out the hazard level.</p> <p>→ The measures for preventing the hazard and its consequences.</p>
---	---

Warning - possible danger. Non-observance can result in death, serious injury and serious material damage.

 SIHI_0103_GB	<div style="text-align: center;">⚠ WARNING</div> <p>This line warns of the hazard ! Possible consequences of failing to observe the warning instructions. The signal word points out the hazard level.</p> <p>→ The measures for preventing the hazard and its consequences.</p>
---	--

Caution - a possibly hazardous situation. Non-observance can result in minor injury.

 SIHI_0101_GB	<div style="text-align: center;">⚠ CAUTION</div> <p>This line warns of the hazard ! Possible consequences of failing to observe the warning instructions. The signal word points out the hazard level.</p> <p>→ The measures for preventing the hazard and its consequences.</p>
--	--

Caution - a possibly hazardous situation. Non-observance can cause material damage.

 SIHI_0102_GB	<div style="text-align: center;">CAUTION</div> <p>This line warns of the hazard ! Possible consequences of failing to observe the warning instructions. The signal word points out the hazard level.</p> <p>→ The measures for preventing the hazard and its consequences.</p>
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Note - provide information on particular characteristics and how to proceed.

2 GENERAL SAFETY INSTRUCTIONS

2.1 SAFETY INSTRUCTIONS FOR THE OPERATOR

- Keep these operating instructions to hand near the unit at all times.
- Always follow local regulations concerning occupational safety and accident prevention.



2.1.1 ELECTRICAL EQUIPMENT

Electrical plant and unit

- To be provided in accordance with the local safety requirements with regard to the operating mode and ambient influences.
- May only be maintained by skilled electricians or under their supervision.
- Must be operated in accordance with the safety regulations and electrotechnical regulations.
- Must be repaired immediately in the event of problems.
- Must be put out of operation if they pose a hazard.
- Must be de-energized before work is commenced on active parts. Inform staff about planned work, observe electrical safety regulations.



2.1.2 PERSONNEL QUALIFICATIONS

- Ensure that the unit is operated and repaired only by trained persons.

2.1.3 A SAFE WORK ENVIRONMENT

- Ensure that the floor of the working area is anti-static in accordance with EN 50053 Part 1, §7-2, measurement in accordance with DIN 51953.
- Ensure that all persons within the working area wear anti-static shoes, e.g. shoes with leather soles.
- Ensure that during spraying, persons wear anti-static gloves so that they are earthed via the handle of the spray gun.
- Customer to provide paint mist extraction systems conforming to local regulations.
- Ensure that the following components of a safe working environment are available:
 - Material/air hoses adapted to the working pressure
 - Personal safety equipment (breathing and skin protection)
- Ensure that there are no ignition sources such as naked flame, glowing wires or hot surfaces in the vicinity. Do not smoke.



2.2 SAFETY INSTRUCTIONS FOR STAFF

- Always follow the information in these instructions, particularly the general safety instructions and the warning instructions.
- Always follow local regulations concerning occupational safety and accident prevention.



2.2.1 SAFE HANDLING OF WAGNER SPRAY UNITS

The spray jet is under pressure and can cause dangerous injuries.

Avoid injection of paint or cleaning agents:

- Never point the spray gun at people.
- Never reach into the spray jet.
- Before all work on the unit, in the event of work interruptions and functional faults:
 - Switch off the energy/compressed air supply
 - Secure the spray gun against actuation.
 - Relieve the pressure from the spray gun and unit.
 - By functional faults: Identify and correct the problem, proceed as described in chap. „Trouble shooting“.

In the event of skin injuries caused by paint or cleaning agents:

- Note down the paint or cleaning agent that you have been using.
- Consult a doctor immediately.

Avoid danger of injury through recoil forces:

- Ensure that you have a firm footing when operating the spray gun.
- Only hold the spray gun briefly in any one position.



2.2.2 EARTH THE UNIT

Electrostatic charges can occur on the unit due to the electrostatic charge and the flow speed involved in spraying. These can cause sparks and flames upon discharge.

- Ensure that the unit is earthed for every spraying operation.
- Earth the workpieces to be coated.
- Ensure that all persons inside the working area are earthed, e.g. that they are wearing antistatic shoes.
- When spraying, wear antistatic gloves to earth yourself via the spray gun handle.



2.2.3 PAINT HOSES

- Ensure that the hose material is chemically resistant to the sprayed materials.
- Ensure that the material hose is suitable for the pressure generated in the unit.
- Ensure that the following information is visible on the high-pressure hose:
 - Manufacturer
 - Permissible operating overpressure
 - Date of manufacture.
- The electrical resistance of the complete high-pressure hose must be less than 1 MOhm.



2.2.4 CLEANING

- De-energize the unit electrically.
- Disconnect the pneumatic supply line.
- Relieve the pressure from the unit.
- Ensure that the flash point of the cleaning agent is at least 5 K above the ambient temperature.
- To clean, use only solvent-free cloths and brushes. Never use hard objects or spray on cleaning agents with a gun.

An explosive gas/air mixture forms in closed containers.

- When cleaning units with solvents, never spray into a closed container.
- Earth the container.



2.2.5 HANDLING HAZARDOUS LIQUIDS, VARNISHES AND PAINTS

- When preparing or working with paint and when cleaning the unit, follow the working instructions of the manufacturer of the paints, solvents and cleaning agents being used.
- Take the specified protective measures, in particular wear safety goggles, protective clothing and gloves, as well as hand protection cream if necessary.
- Use a mask or breathing apparatus if necessary.
- For sufficient health and environmental safety: Operate the unit in a spray booth or on a spraying wall with the ventilation (extraction) switched on.
- Wear suitable protective clothing when working with hot materials.



2.2.6 TOUCHING HOT SURFACES

- Touch hot surfaces only if you are wearing protective gloves.
- When operating the unit with a coating material with a temperature of >43°C; 109.4°F:
 - Identify the unit with a warning label that says „Warning - hot surface“.



Order No.

9998910 Information label

9998911 Safety label

2.3 CORRECT USE

WAGNER accepts no liability for any damage arising from incorrect use.

- Use the unit only to work with the materials recommended by WAGNER.
- Operate the unit only as an entire unit.
- Do not deactivate safety equipment.
- Use only WAGNER original spare parts and accessories.



2.4 GERMAN REGULATIONS AND GUIDELINES

- a) BGV A2 Electrical units and equipment
- b) BGV D15 Working with liquid ejection devices
- c) BGV D25 Using coating materials
- d) CHV 9 Regulations on flammable liquids
- e) CHV 11 Regulations on electrical equipment in Ex areas
- f) BGR 104 Explosion protection rules
- g) BGR 132 Avoiding ignition risks
- h) BGR 180 Setting up for cleaning workpieces with solvents.
- i) ZH 1/406 Guidelines for liquid ejection devices
- j) BGI 740 Painting rooms and equipment
- k) BGI 764 Electrostatic coating

Note: All titles can be ordered from Heymanns Publishing House in Cologne.

3 PRODUCT LIABILITY AND WARRANTY

3.1 IMPORTANT NOTES ON PRODUCT LIABILITY

As a result of an EC regulation, effective as from January 1, 1990, the manufacturer shall only be liable for his product if all parts come from him or are approved by him, and if the devices are properly fitted, operated and maintained.

If other makes of accessory and spare parts are used, the manufacturer's liability could be fully or partially null and void.

The usage of original WAGNER accessories and spare parts guarantees that all safety regulations are observed.

3.2 WARRANTY

This unit is covered by our warranty on the following terms:

We will at our discretion repair or replace free of charge all parts which within 24 months in single-shift, 12 months in 2-shift or 6 months in 3-shift operation from date of receipt by the Purchaser are found to be wholly or substantially unusable due to causes prior to the sale, in particular faulty design, defective materials or poor workmanship.

The terms of the warranty are met at our discretion by the repair or replacement of the unit or parts thereof. The resulting costs, in particular shipping charges, road tolls, labour and material costs will be borne by us except where these costs are increased due to the subsequent shipment of the unit to a location other than the address of the purchaser.

This warranty does not cover damage caused by:

Unsuitable or improper use, faulty installation or commissioning by the purchaser or a third party, normal wear, negligent handling, defective maintenance, unsuitable coating products, substitute materials and the action of chemical, electrochemical or electrical agents, except when the damage is attributable to us.

Abrasive coating products such as redlead, emulsions, glazes, liquid abrasives, zinc dust paints and similar reduce the service life of valves, packings, spray guns, nozzles, cylinders, pistons etc. Any wear resulting from the aforementioned causes is not covered by this warranty.

Components not manufactured by Wagner are subject to the warranty terms of the original maker.

The replacement of a part does not extend the warranty period of the unit.

The unit should be inspected immediately upon receipt.

To avoid loss warranty, any apparent defect should be notified to us or the dealer in writing within 14 days from date of sale of the unit.

The right to commission warranty services to a third party is reserved.

Warranty claims are subject to proof of purchase by submitting an invoice or delivery note. If an inspection finds damage not covered by the present warranty, the repair will be carried out at the expense of the purchaser.

Note that this warranty does not in any way restrict legally entitled claims or those contractually agreed to in our general terms and conditions.

3.3 CE-CONFORMITY

Herewith we declare that the supplied version of

0179113	Electrostatic control unit EPP 200		for spray guns
0179104	Electrostatic control unit VM 200	0179006	Spray gun GM2000 EAR
0179109	Electrostatic control unit VM 2000	0179007	Spray gun GM2000 EAF
		0179013	Spray gun GM 2000EACR
		0179014	Spray gun GM 2000EACF
		0179045	Spray gun GM 2000EACR Special lengths
		0179046	Spray gun GM 2000EACF Special lengths
		0179037	Spray gun GM 2800EA
		0179047	Spray gun GM 2800EA Special lengths



Complies with the following provisions applying to it:

73/23/EWG
89/336/EWG
92/31/EWG
93/68/EWG
98/37/EG
94/9/EG

Applied standards, in particular:

EN 292-1	EN 60204-1
EN 292-2	EN 61000-4-2
EN 1050	EN 61000-4-4
EN 1127-1	EN 61000-4-6
EN 1953	EN 61000-4-11
EN 50014	EN 61000-6-1
EN 50050	EN 61000-6-2
EN 55011	EN 61000-6-3
EN 55022	EN 61000-6-4

Applied national technical standards and specifications, in particular:
see chapter 2.4

Identification:

CE 0102 **Ex** II 2G EEx 0.24 mJ

EC Certificate of Conformity

The certificate is enclosed with this product. The certificate of conformity can be reordered from your WAGNER representative, quoting the product and serial number.

Part number:

EPP 200	0179780
VM 200	0179780
VM 2000	0179780

4 DESCRIPTION OF CONTROL UNIT EPP 200

4.1 FIELDS OF APPLICATION, USING IN ACCORDANCE WITH THE INSTRUCTIONS

The electrostatic control unit EPP 200, may only be used with the spray guns

GM 2000EA

GM 2000EAC

GM 2800EA

The Wagner Electrostatic control unit EPP 200 controls the high voltage supply to the spray guns used to apply liquid coating media (part numbers see chapter 1).

4.2 EXTENT OF DELIVERY

Qty	Part No.	Description
1	0179113	Electrostation control unit EPP 200 230V 50/ 60 Hz
		<i>The basic equipment comprises:</i>
1	0130215	Earthing cable assy.
1	0179869	Operating manual German
	Kap. 1	Operating manual for the other language
1	0179968	Spare parts set **
		** The spare parts set comprises:
2	9951117	Thermal delay fuse 1A
2	9951115	Thermal delay fuse 0.5A

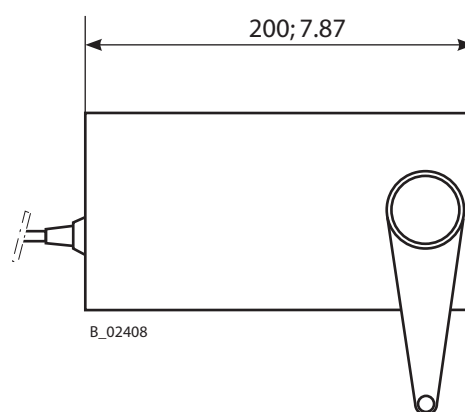
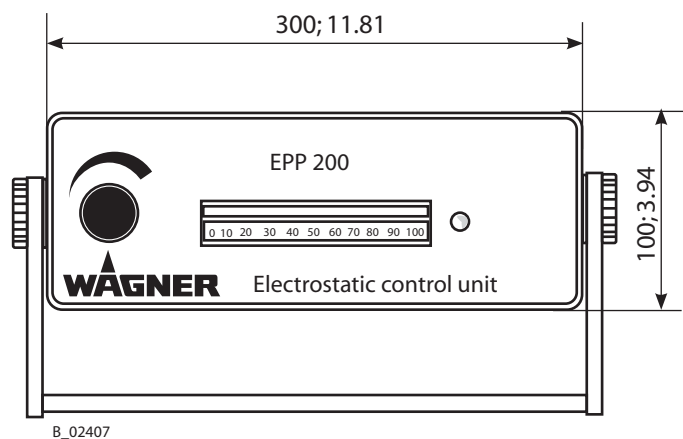
For special versions the delivery note applies.

4.3 TECHNICAL DATA EPP 200

Input voltage:	230 V ~ 50/ 60 Hz *
Input power:	maximum 30 W
Output voltage:	maximum 17 Vpp
Output current:	maximum 0.7A
Spraying current limit:	100 µA DC
Radio interference level:	FN
Protection class:	IP 54
Mains cable length:	3 m; 9.84 ft
Weight:	5.4 kg; 11.90 lbs

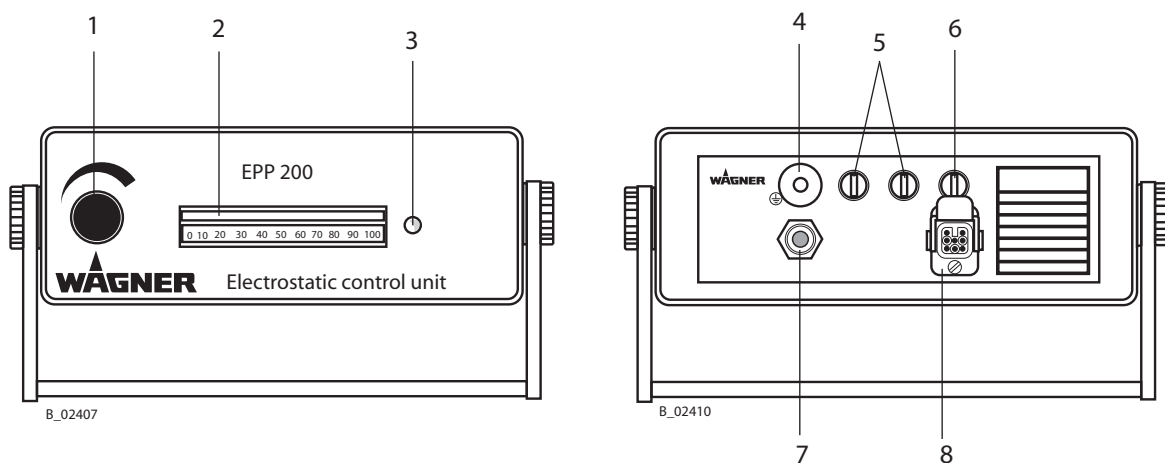
* Other voltages possible. Conversion by Wagner Service Center.

Dimensions EPP 200: mm; inch



4.4 FUNCTIONAL DESCRIPTION EPP 200

The electrostatic control unit EPP 200 should be supplemented with the appropriate spray-gun to make an electrostatic spraying system. The high-voltage is switched on and off at the spray-gun by the trigger. If the spray gun comes close to the object being sprayed (or earth) the voltage is automatically reduced by an integrated proximity switch.



1 Rotary switch and high voltage controller

1.1 Switching on and off:

Turn clockwise past the switching point: the electrostatic control unit is switched on, indicator lamp (3) is on.

Turn anti-clockwise past the switching point: electrostatic control unit is switched off, indicator lamp (3) off.

1.2 Pre-setting the high-voltage

By turning the rotary switch clockwise, the high-voltage can be preset (in percents of the maximal value).

2 High-voltage display

When the trigger is activated the high-voltage preset is displayed as a percentage of maximum value (80 kV).

3 Indicator lamp

Green light = unit is switched on

No light = unit is switched off

4 Knurled nut earthing

Connection for earth cable

5 Safety fuse

Primary electric circuit 0.5 A T (230 V)

6 Safety fuse

Secondary electric circuit 1 A T 6 (20 V)

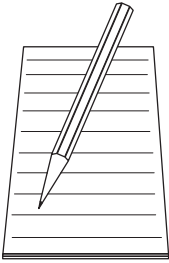
7 Mains cable

Connect to the mains socket interlocked (with the ventilation equipment).

8 Gun connection socket

The connection between the gun cable plug and the socket must be secured using the safety clip.

SERVICE MANUAL



A series of horizontal lines for writing notes or service information, starting from the notepad icon and extending across the page.

5 SPARE PARTS CATALOGUE EPP 200

5.1 HOW TO ORDER SPARE PARTS?

Always supply the following information to ensure delivery of the right spare part:

Part Number, description and quantity

The quantity need not be the same as the number given in the „Quantity“ column. This number merely indicates how many of the respective parts are used in each subassembly.



The following information is also required to ensure smooth processing of your order:

- Address for the invoice
- Address for delivery
- Name of the person to be contacted in the event of any queries
- Type of delivery required (air freight or mail, sea route or overland route, etc.)

Marks in spare parts lists

Note to column „K“ in the following spare parts lists.

- ◆ = Wearing parts
Note: No liability is assumed for wearing parts
- = Not part of standard equipment, available, however, as additional extra.

	<div style="text-align: center;">  WARNING </div> <p>Incorrect maintenance/repair! Risk of injury and damage to the equipment.</p> <ul style="list-style-type: none"> → Repairs and part replacement may only be carried out by specially trained staff or a WAGNER service center. → Before all work on the unit and in the event of work interruptions: <ul style="list-style-type: none"> - Switch off the energy/compressed air supply. - Relieve the pressure from the spray gun and unit. - Secure the spray gun against actuation. → Observe the operating and service instructions when carrying out all work.
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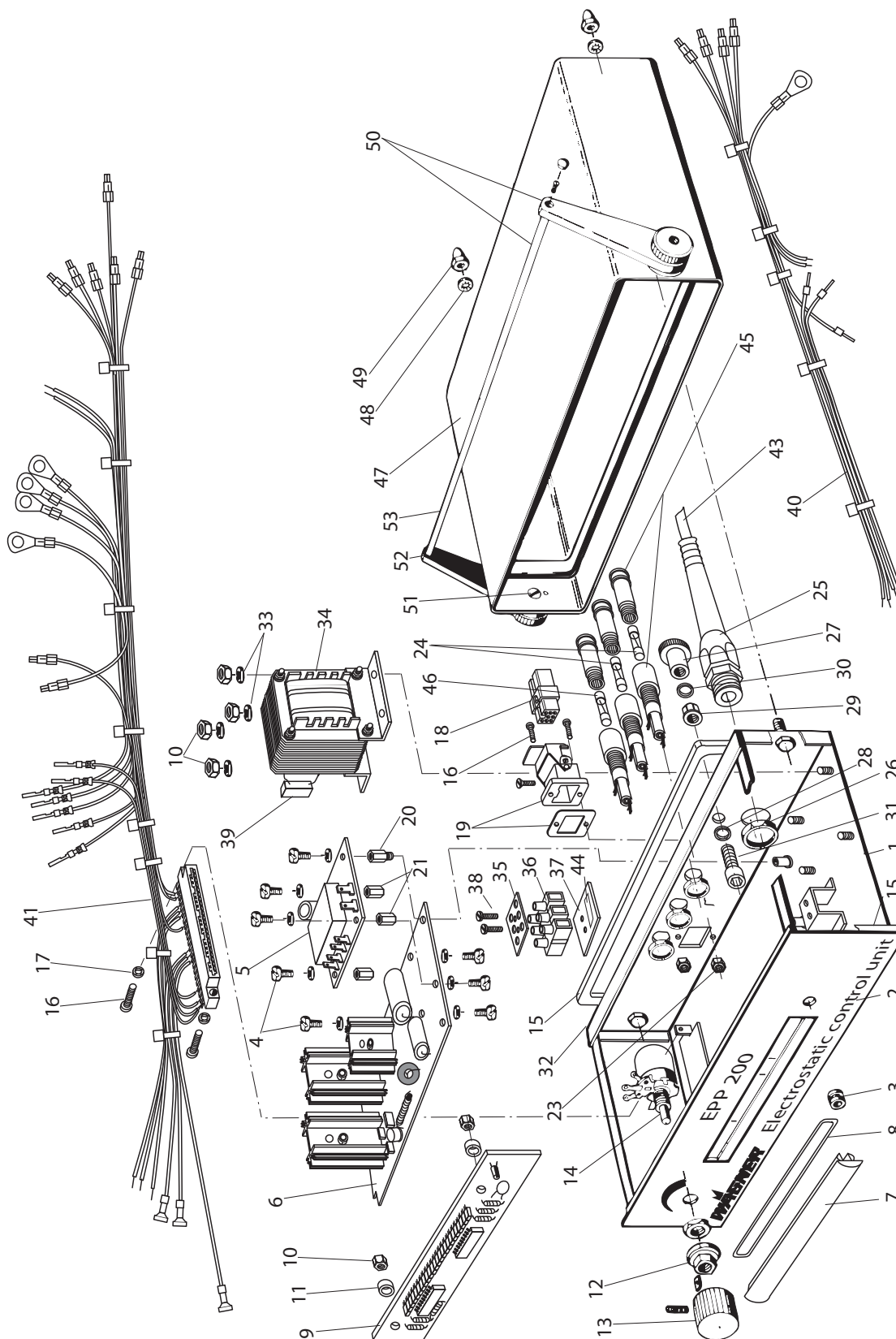
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5.2 SPARE PARTS LIST EPP 200**Spare parts Control unit EPP 200**

Pos	K	Qty	Part No.	Description
1		1	0179682	Housing S EPP 200
2		1	0179493	Frontplate
3		1	9994516	Grommet
4		8	9903312	Phillips head screw DIN7985
5		1	0179700	Print assy. VM 200
6	◆	1	0179701	Print assy. EPP 200 Controlling print
7		1	0132315	Covers
8		1	9971156	O-ring
9	◆	1	0132209	Indication print assy.
10		6	9910108	Hexagon nut DIN934
11		2	9921802	Dubo-Lock screw
12		1	0132420	Sealing nut
13		1	0132298	Cap assy.
14		1	0179699	Potentiometer and switch
15		1	9974032	Sealing tape 1.42 m; 4.66 ft
16		4	9903327	Phillips head screw DIN7985
17		2	9920114	Washer DIN125
18		1	9952653	Plug, contact insert
19		1	9950392	Plug, surface mounted
20		1	9950522	Spacer bolt
21		3	9950560	Spacer bolt with inside threads
23		2	9910211	Hexagon nut with clamp
24	◆	2	9951115	Thermal delay fuse 0.5A
25		1	9951018	Cable threaded joint PG11 with antikinking spiral
26		1	9951017	Hexagon nut PG11
27		1	9910522	Knurled nut
28		1	9922109	Serrated washer DIN6797
29		1	9992131	Sealing nut Seal-Lock
30		1	9920118	Washer DIN125 Cu
31		1	9900315	Hexagon socket head cap screw DIN912
32		1	0179566	Backplate EPP 200
33		4	9922101	Tooth lock washer DIN6797
34		1	9950980	Single-phase transformer
35		1	9950581	Terminal strip Marking 3 pins
36		1	9950582	Terminal strip 3 pins
37		1	0175322	Insulating plate
38		2	9902304	Screw, Sheet Metal DIN7971
39		1	9950451	Capicator-MP PME 271

◆ Wearing part

● Not part of standard equipment for spray gun. Available, however, as additional extra



Spare parts Control unit EPP 200

Pos	K	Qty	Part No.	Description
40		1	0179709	Cable assembly primary EPP 200
41		1	0179708	Cable assembly secondary EPP 200
43		1	0139242	Mains cable 3 m; 9.84 ft with Schuko switch
44		1	0175370	Marking
45		3	9951032	Fuse holder
46	◆	1	9951117	Delay-action fuses 1.0A
47		1	0132513	Housing welded
48		2	9922106	Serrated washer DIN6797
49		2	9910701	Cap nut DIN1587
50		1	0132212	Handle assy.
51		2	9900955	Countersunk screw DIN963 with slit
52		1	9950534	Holder (1 pair)
53		1	0132312	Handle section

◆ Wearing part

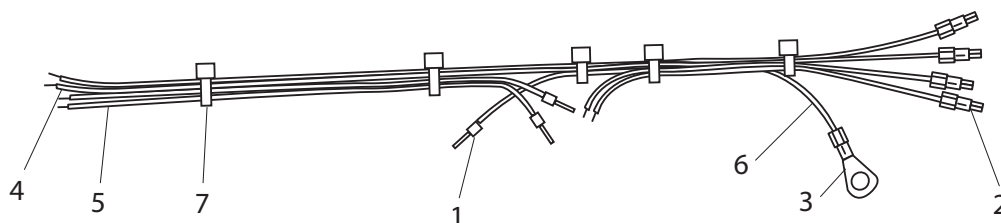
● Not part of standard equipment for spray gun. Available, however, as additional extra

5.3 SPARE PARTS LIST CABLE ASSEMBLY PRIMARY EPP 200**Spare parts list Cable assembly primary**

Pos	K	Qty	Part No.	Description
1		3	9951319	Wire end sleeve
2		4	9950612	Female tab lug
3		1	9950616	Cable lug with isolation
4		-	9952945	Strand brown 1.01 m; 3.31 ft
5		-	9951705	Strand blue 1.07 m; 3.51 ft
6		-	9951298	Strand yellow-green 0.24 m; 0.79 ft
7		6	9950615	Cable tie

◆ Wearing part

● Not part of standard equipment for spray gun. Available, however, as additional extra



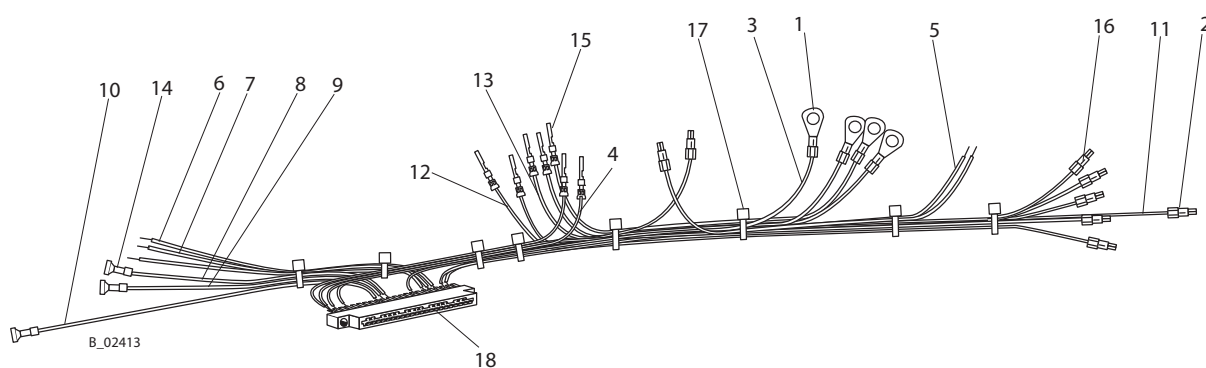
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5.4 SPARE PARTS LIST CABLE ASSEMBLY SECONDARY EPP 200**Spare parts list Cable assembly secondary**

Pos	K	Qty	Part No.	Description
1		4	9950616	Cable lug with isolation
2		6	9950612	Female tab lug
3		-	9951298	Strand yellow-green 0.85 m; 2.79 ft
4		-	9951706	Strand black 1.5 m; 4.92 ft
5		-	9952978	Strand grey 0.18 m; 0.59 ft
6		-	9952981	Strand green 0.18 m; 0.59 ft
7		-	9952985	Strand brown 0.18 m; 0.59 ft
8		-	9952984	Strand red 0.15 m; 0.49 ft
9		-	9952977	Strand violet 0.14 m; 0.46 ft
10		-	9952982	Strand blue 1.03 m; 3.38 ft
11		-	9952980	Strand orange 0.45 m; 1.48 ft
12		-	9952976	Strand yellow 0.26 m; 0.85 ft
13		-	9952973	Strand white 0.58 m; 1.90 ft
14		3	9950532	Socket Typ D
15		7	9952649	Contact female
16		2	9950640	Female tab lug
17		8	9950615	Cable tie
18		1	9950971	PC-switch

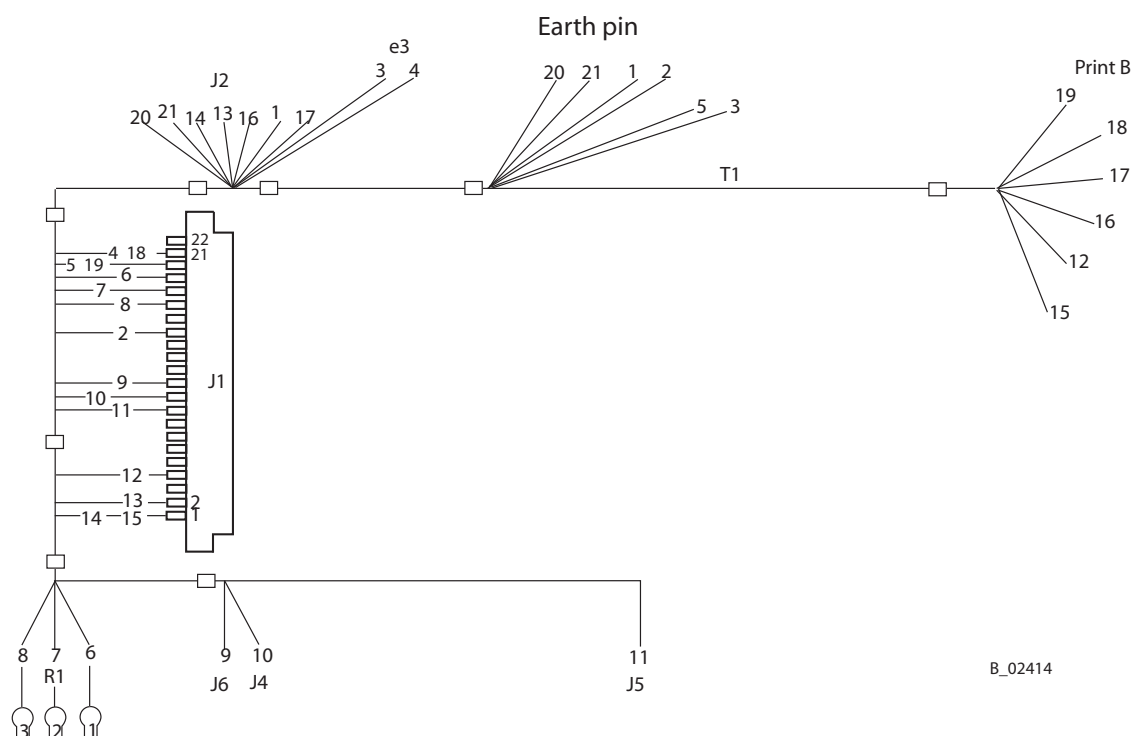
◆ Wearing part

● Not part of standard equipment for spray gun. Available, however, as additional extra



5.5 CONNECTION PLAN CABLE ASSEMBLY SECONDARY EPP 200

Numbers	Address A	Cable end A	Spare part list Pos	Color	Cross sections	Lenght mm; inch	Spare part list Pos	Cable end B	Spare part list Pos	Address B
1	Earth pin	Cable terminal	1	ye-gn	0.75	180	3	Contact	15	J 2/1
2	Earth pin	Cable terminal	1	ye-gn	0.75	310	3	tinned		J 1/8
3	T 1/1	tinned		sw	0.75	210	4	Female tab lug	2	e 3/1
4	J 1/21	tinned		sw	0.75	220	4	Female tab lug	2	e 3/2
5	J 1/20	tinned		sw	0.75	290	4	tinned		T 1/2
6	J 1/19	tinned		grey	0.5	180	5	tinned		R 1/1
7	J 1/18	tinned		green	0.5	180	6	tinned		R 1/2
8	J 1/17	tinned		brown	0.5	180	7	tinned		R 1/3
9	J 1/11	tinned		red	0.5	150	8	Socket	14	J 6
10	J 1/10	tinned		violet	0.5	140	9	Socket	14	J 4
11	J 1/9	tinned		blue	0.5	310	10	Socket	14	J 5
12	J 1/4	tinned		orange	0.5	450	11	Female tab lug	2	Print B/4
13	J 1/2	tinned		yellow	0.5	260	12	Contact	15	J 2/6
14	J 1/1	tinned		blue	0.5	260	10	Contact	15	J 2/7
15	J 1/1	tinned		blue	0.5	460	10	Female tab lug	2	Print B/3
16	J 2/4	tinned	15	ws	0.75	290	13	Female tab lug	16	Print B/5

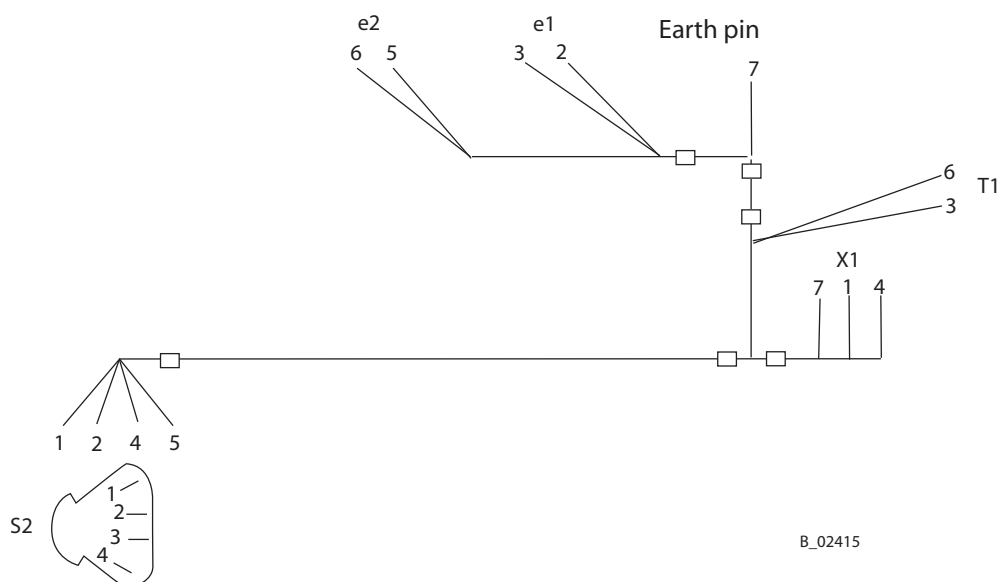


B_02414

Numbers	Address A	Cable end A	Spare part list Pos	Color	Cross sections	Lenght mm; inch	Spare part list Pos	Cable end B	Spare part list Pos	Address B
17	J 2/3	tinned	15	ws	0.75	290	13	Female tab lug	16	Print B/6
18	J 1/21	tinned		sw	0.75	390	4	Female tab lug	2	Print B/1
19	J 1/20	tinned		sw	0.75	390	4	Female tab lug	2	Print B/2
20	Earth pin	Cable terminal	1	ye-gn	0.75	180	3	Contact	15	J 2/2
21	Earth pin	Cable terminal	1	ye-gn	0.75	180	3	Contact	15	J 2/5

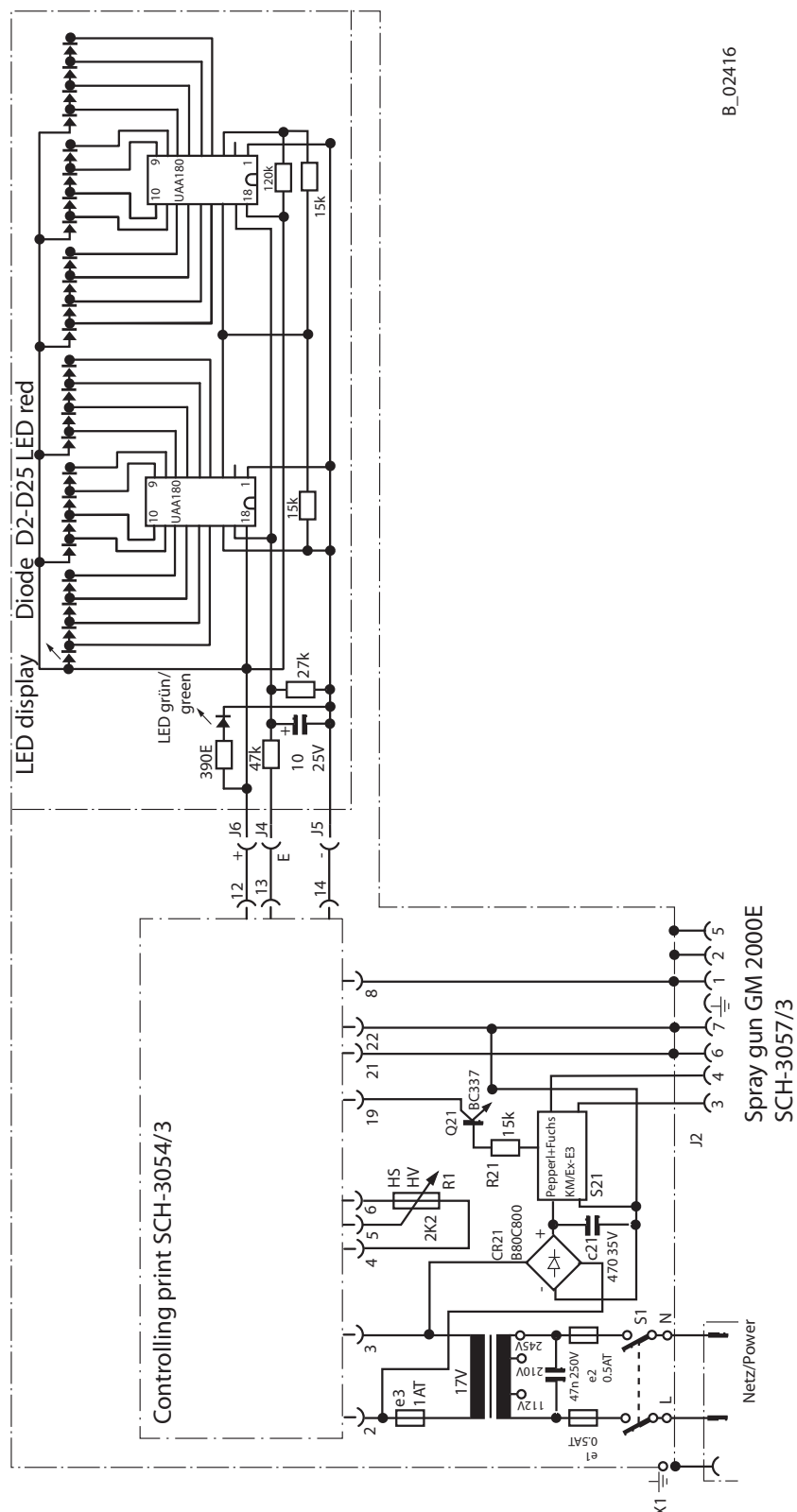
5.6 ANSCHLUSS KABELBAUM PRIMÄR EPP 200

Numbers	Address A	Cable end A	Spare part list Pos	Color	Cross sections	Lenght mm; inch	Spare part list Pos	Cable end B	Spare part list Pos	Address B
1	X 1/1	Wire-end ferrule	1	brown	0.75	280	4	tinned	15	S 1/1
2	e 1/1	Female tab lug	2	brown	0.75	480	4	tinned		S 1/2
3	e 1/2	Female tab lug	2	brown	0.75	250	4	tinned	2	T 1/7
4	X 1/N	Wire-end ferrule	1	blue	0.75	280	5	tinned	2	S 1/3
5	e 2/1	Female tab lug	2	blue	0.75	510	5	tinned		S 1/4
6	e 2/2	Female tab lug	2	blue	0.75	280	5	tinned		T 1/12
7	X 1/	Wire-end ferrule	1	ye-gn	0.75	240	6	Cable terminal	3	Earth pin



B_02415

5.7 CONNECTION DIAGRAM EPP 200



B_02416

6 DESCRIPTION CONTROL UNIT VM 200

6.1 FIELDS OF APPLICATION, USING IN ACCORDANCE WITH THE INSTRUCTIONS

The electrostatic control unit VM 200, may only be used with the spray guns

GM 2000EA

GM 2000EAC

GM 2800EA.

WAGNER's electrostatic control unit VM 200 controls the high voltage supply to the spray guns used to apply liquid coating media (part numbers see chapter 1).

6.2 DELIVERY SCOPE

Qty	Part No.	Description
1	0179104	Control unit VM 200 230 V ~50/60 Hz

The standard equipment includes:

Qty	Part No.	Description
1	0139242	Mains cable standard 3 m; 9.8 ft
1	0130215	Earthing cable 10 m; 32.8 ft
1	0179948	Spare parts set *
1	0179780	CE-Declaration of Conformity
1	0388700	Operating manual German
1	chapter 1	An operating manual in the local language

* The spare parts set comprises:

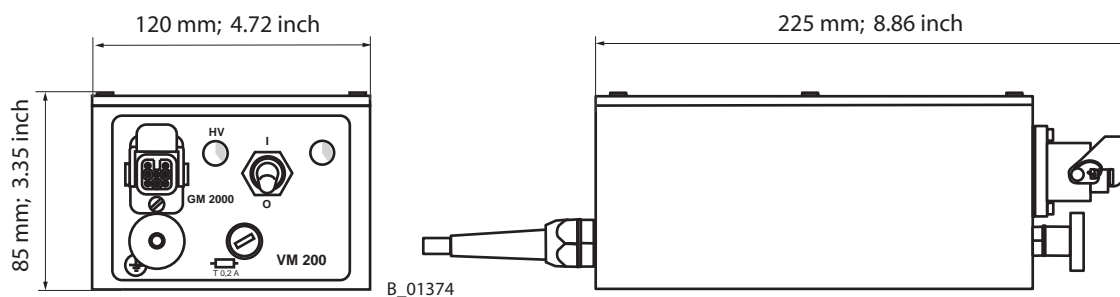
Qty	Part No.	Description
2	9951118	Thermal delay fuse 0.2 A

For special versions the delivery note applies.

6.3 TECHNICAL DATA VM 200

Input voltage	230 VAC 50/60 Hz
Input power	max. 15 W
Output voltage	max. 17 Vpp
Output current	max. 0.7 A
Spraying current limit	100 µA DC
Polarity	for positive and negative high voltage generator
Enclosure class	IP 54 *
Weight (without cables)	1.8 kg; 3.97 lbs
Working temperature range	5-40°C; 41-104°F
Dimension Width (B)	120 mm; 4.72 inch
Dimension Height (H)	85 mm; 3.35 inch
Dimension Depth (T)	225 mm; 8.86 inch

* Splash-proof protection is only guaranteed when the gun cable socket is fixed to the device plug with the control unit plug with the safety clip.

Dimensions

B_01374

6.4 FUNCTION

The VM 200 is made up into an electrostatic spraying system with the appropriate spray gun and other components. The high-voltage is switched on and off at the spraygun by the trigger.

The high voltage characteristics have the effect that if the spray gun gets too close to the object being sprayed (or to earth), the voltage is automatically reduced thus preventing an unintentional spark discharge.

6.5 CONTROL FUNCTIONS

Front of the control unit

1 Mains switch (Power)

OFF= control unit switched off

ON = control unit switched on

2 Luminous display green

- Illuminated green =
Control unit switched on.

- not illuminated =
Control unit switched off

3 High voltage indicator (Luminous display red)

Indicates the operating status of the connected spraygun:

Illuminated red =

The high-voltage supply has been switched on by pressing the trigger;

not illuminated =

The high-voltage supply has not been switched on at the spraygun.

4 Connecting socket

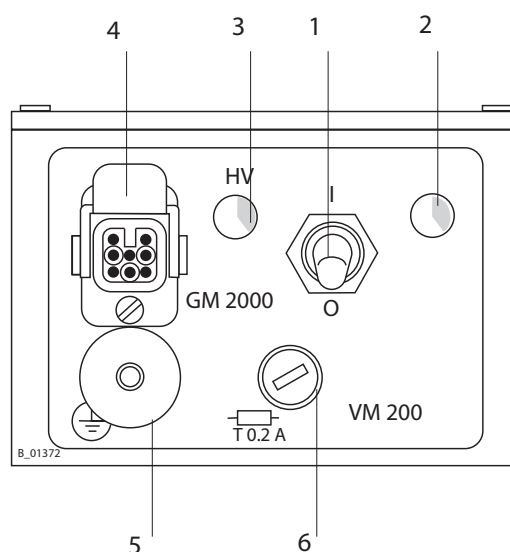
Connection for gun cable with safetyclip.

5 Milled nut earthing

Connection for the earth cable (system earth).

6 Fuse

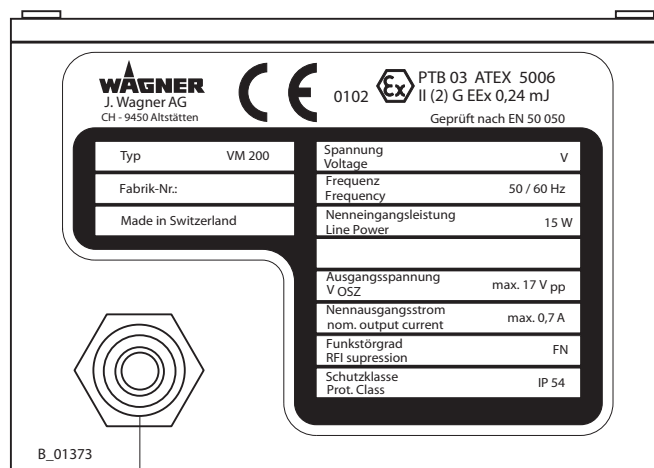
Check if the green luminous display does not light up when the control unit has been switched on.



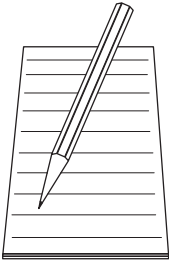
Rear of the control unit

10 Power supply

Connection with Mains cable



SERVICE MANUAL



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7 SPARE PARTS CATALOGUE VM 200

7.1 HOW TO ORDER SPARE PARTS?

Always supply the following information to ensure delivery of the right spare part:

Part Number, description and quantity

The quantity need not be the same as the number given in the „Quantity“ column. This number merely indicates how many of the respective parts are used in each subassembly.



The following information is also required to ensure smooth processing of your order:

- Address for the invoice
- Address for delivery
- Name of the person to be contacted in the event of any queries
- Type of delivery required (air freight or mail, sea route or overland route, etc.)

Marks in spare parts lists

Note to column „K“ in the following spare parts lists.

- ◆ = Wearing parts
Note: No liability is assumed for wearing parts
- = Not part of standard equipment, available, however, as additional extra.

	<div style="text-align: center;">  WARNING </div> <p>Incorrect maintenance/repair! Risk of injury and damage to the equipment.</p> <ul style="list-style-type: none"> → Repairs and part replacement may only be carried out by specially trained staff or a WAGNER service center. → Before all work on the unit and in the event of work interruptions: <ul style="list-style-type: none"> - Switch off the energy/compressed air supply. - Relieve the pressure from the spray gun and unit. - Secure the spray gun against actuation. → Observe the operating and service instructions when carrying out all work.
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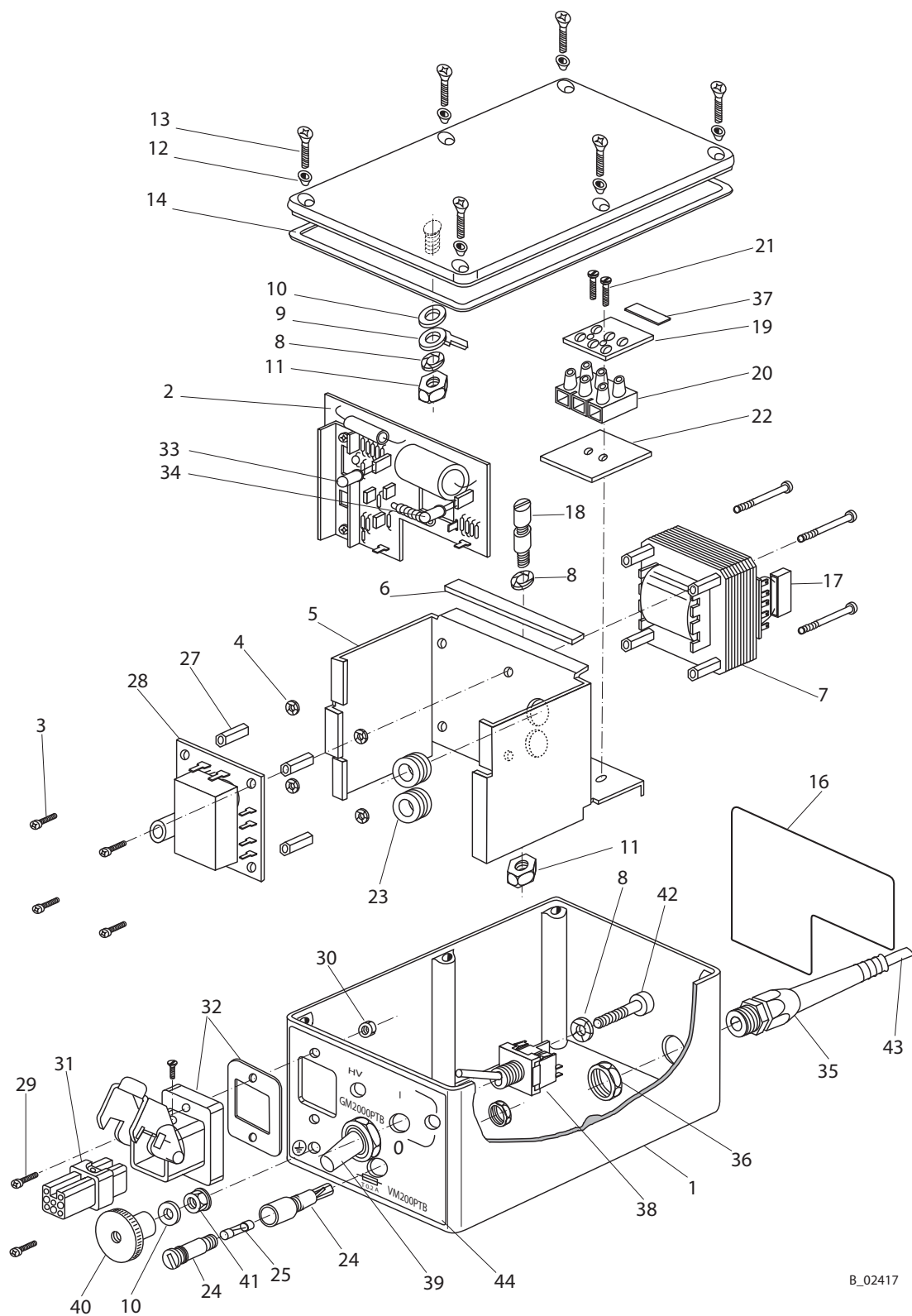
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7.2 SPARE PARTS LIST VM 200**Spare parts list Control unit VM 200**

Pos	K	Qty	Part No.	Description
1			0175385	Housing
2	◆		0179702	Controlling print assy.
3			9903306	Phillips head screw DIN7985
4			9921508	Spring washer DIN127
5			0175316	Mounting sheet VM100
6			9994637	Sealing tape 0.1 m; 0.33 ft, self adhesive
7			9952645	Transformer
8			9922109	Serrated washer DIN6797
9			9950622	Catch
10			9920118	Washer DIN125
11			9911005	Hexagon nut DIN 439
12			9920710	Securing ring
13			9903105	Countersunk screw DIN965
14			0175376	Housing seal
16			0179567	Backplate VM 200
17			9950451	Capicator MP-PME 271
18			9950518	Earting clamp
19			9950581	Description sticker 3 channels
20			9950582	Terminal strip 3 channels
21			9902304	Cylinder self-tapping screw DIN7971
22			0175322	Insulating plate
23			9994519	Cable socket
24	◆		9951032	Fuse holder
25	◆		9951118	Delay-action fuses 0.2A
27			9950522	Spacer bolt DIN176
28			0179700	Print assy. VM 200 Separating switch
29			9900735	Cap head screw DIN84
30			9910211	Hexagon nut with clamp DIN985
31			9952653	Plug, contact insert
32			9950392	Plug, surface mounted

◆ Wearing part

● Not part of standard equipment for spray gun. Available, however, as additional extra



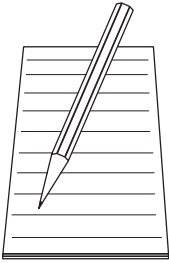
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Spare parts list Control unit VM 200

Pos	K	Qty	Part No.	Description
33	◆		9951815	LED red
34	◆		9951801	LED green
35			9951018	Cable coupling PG11 with antikinking spiral
36			9951017	Hexagon nut PG11
37			0175370	Clamp marking
38			9953536	Toggle switch 2 channels
39	◆		9971519	Rubber seal
40			9910522	Knurled nut DIN466
41			9992131	Sealing nut Seal-Lock
42			9900315	Hexagon socket head cap screw DIN912
43			0139242	Mains cable 3 m; 9.84 ft with Schuko-switch
44			0179565	Frontplate VM 200
			0179707	Cable assembly VM 200 (Single parts see chapter 7.3)





- ◆ Wearing part
- Not part of standard equipment for spray gun. Available, however, as additional extra

SERVICE MANUAL

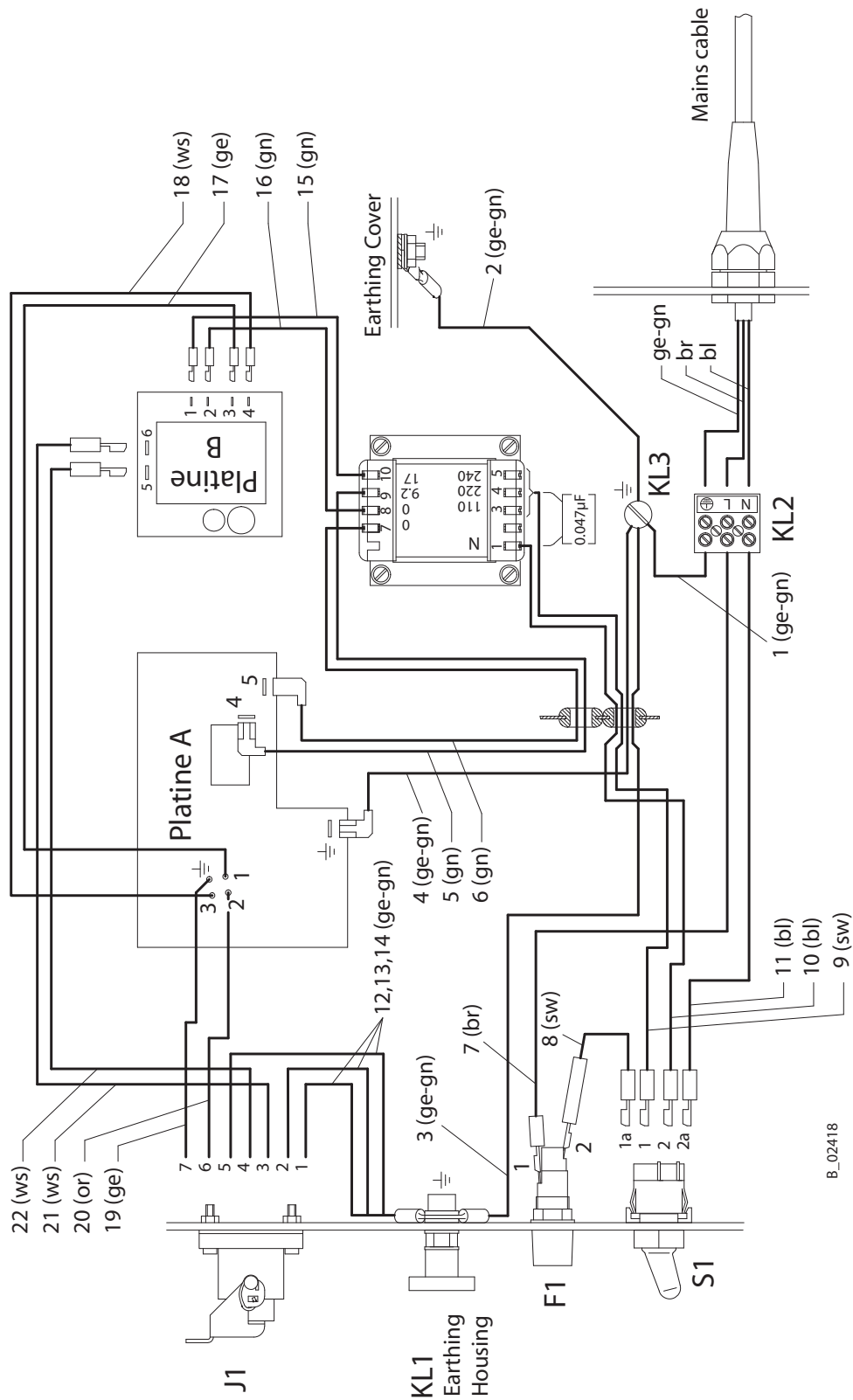


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7.3 CONNECTION CABLE SET VM 200

Number	Address A	Cable end A	Part No.	Colour	Cross section	Length mm; inch	Part No.	Cable end B	Part No.	Address B
1	KL2 / 	Wire-end ferrule	9951319	ge-gn	0.75	70; 2.76	9951298	Cable sleeve	9951316	KL3
2	Cover 	Female tab lug	9951333	ge-gn	0.75	240; 9.45	9951298	Cable sleeve	9951316	KL3
3	KL1 / 	Cable lug	9950616	ge-gn	0.75	240; 9.45	9951298	Cable sleeve	9951316	KL3
4	Plate A	Female tab lug	9950640	ge-gn	0.75	240; 9.45	9951298	Cable sleeve	9951316	KL3
5	Plate A 4	Female tab lug	9950640	gn	0.75	310; 12.20	9952946	tinned		Trafo / 9
6	Plate A 5	Female tab lug	9950640	gn	0.75	310; 12.20	9952946	tinned		Trafo / 10
7	F1 / 1	Female tab lug	9950612	br	0.75	170; 6.69	9952945	Wire-end ferrule	9951319	KL2 / L
8	S1 / 1a	Female tab lug	9950613	sw	0.75	100; 3.94	9951706			F1 / 2
9	S1 / 1	Female tab lug	9950613	sw	0.75	220; 8.66	9951706	tinned		Trafo / 3-5
10	S1 / 2	Female tab lug	9950613	bl	0.75	220; 8.66	9951705	tinned		Trafo / 1
11	S1 / 2a	Female tab lug	9950613	bl	0.75	170; 6.69	9951705	Wire-end ferrule	9951319	KL2 / N
12	KL1	Cable lug	9950616	ge-gn	0.75	80; 3.15	9951298	Contact AWG18	9952649	J1 / 1
13	KL1	Cable lug	9950616	ge-gn	0.75	80; 3.15	9951298	Contact AWG18	9952649	J1 / 2
14	KL1	Cable lug	9950616	ge-gn	0.75	80; 3.15	9951298	Contact AWG18	9952649	J1 / 5
15	Trafo / 10	tinned		gn	0.75	240; 9.45	9952946	Female tab lug	9950612	Plate B / 1
16	Trafo / 8	tinned		gn	0.75	240; 9.45	9952946	Female tab lug	9950612	Plate B / 2
17	Plate A 1	tinned		ge	0.75	220; 8.66	9952970	Female tab lug	9950612	Plate B / 3
18	Plate A 2	tinned		ws	0.75	220; 8.66	9952973	Female tab lug	9950612	Plate B / 4
19	Plate A 	tinned		ge	0.75	80; 3.15	9952970	Contact AWG18	9952649	J1 / 7
20	Plate A 2	tinned		or	0.75	80; 3.15	9952975	Contact AWG18	9952649	J1 / 6
21	Plate B 6	Female tab lug	9950613	ws	0.75	250; 9.84	9952973	Contact AWG18	9952649	J1 / 3
22	Plate B 5	Female tab lug	9950613	ws	0.75	250; 9.84	9952973	Contact AWG18	9952649	J1 / 4

7.4 CIRCUIT DIAGRAM VM 200



B_02418

8 DESCRIPTION VM 2000

8.1 FIELDS OF APPLICATION, USING IN ACCORDANCE WITH THE INSTRUCTIONS

WAGNER's electrostatic control unit VM 2000 controls the high voltage supply to the spray guns used to apply liquid coating media GM 2000EAC, GM 2000EA bzw. GM 2800EA.

The VM 2000 electrostatic control unit can only be used in conjunction with spray guns of type GM 2000EAC, GM 2000EA or GM 2800EA.

8.2 DELIVERY SCOPE VM 2000

Qty	Part No.	Description
1	0179109	Control unit VM 2000 230 VAC 50/60 Hz
1	0179115	Control unit VM 2000 USA 115 VAC 50/60 Hz

The standard equipment includes:

Qty	Part No.	Description
0179109 0179115		
1	-	0241270 Main cable standard 3 m; 9.8 ft
-	1	0264626 Main cable USA 2 m; 6.6 ft
1	1	0130215 Earthing cable 10 m; 32.8 ft
1	1	0132920 Spare parts set *
1	1	0179780 CE-Declaration of Conformity
1	-	0388870 Operating manual German
-	1	0388871 Operating manual English
1	1	chapter 1 An operating manual in the local language

* The spare parts set comprises:

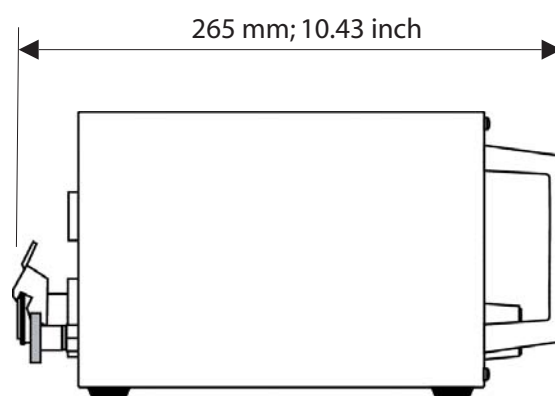
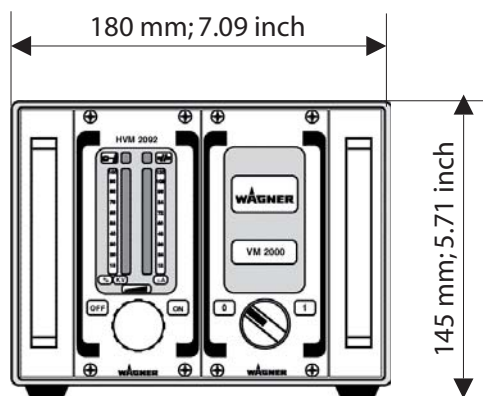
Qty	Part No.	Description
2	9951110	Thermal delay fuse 1.6 A
2	9951115	Thermal delay fuse 0.5 A

For special versions the delivery note applies.

8.3 TECHNICAL DATA

Input voltage	230 VAC 50/60 Hz 115 VAC 50/60 Hz
Input power	max. 30 W
Output voltage	max. 17 Vpp
Output current	max. 0.9 A
High voltage limiter	80 kV DC
Spraying current limit	100 µA DC
Polarity	for positive and negative high voltage generator
Enclosure class	IP 54 *
Weight (without cables)	3.2 kg; 7.1 lb
Working temperature range	5-40°C; 41-104°F
Dimension Width (B)	180 mm; 7.09 inch
Dimension Height (H)	145 mm; 5.71 inch
Dimension Depth (T)	265 mm; 10.43 inch

* Splash-proof protection is only guaranteed when the gun cable socket is fixed to the device plug and the mains cable plug with the control unit plug with the safety clip.



B_00196

8.4 FUNCTION

The VM 2000 is made up into an electrostatic spraying system with the appropriate spray gun and other components. The required high-voltage value is set on the VM 2000 control unit. The high-voltage is switched on and off at the spraygun by the trigger.

The high voltage characteristics have the effect that if the spray gun gets too close to the object being sprayed (or to earth), the voltage is automatically reduced thus preventing an unintentional spark discharge.

8.5 CONTROL FUNCTIONS

Front of the control unit

1 Mains switch (Power)

OFF= control unit switched off
ON = control unit switched on

2 Voltage regulator

- Rotate anti-clockwise past switching point to turn off the high-voltage module.
- Rotate clockwise to adjust the high-voltage (max 80 kV)

3 Spraying current display (Luminous display green)

Shows the spraying current in μA as a bar display

4 High voltage indicator (Luminous display green)

Shows the high-voltage (actual value) in kV as a bar display

5 Luminous display red (left)

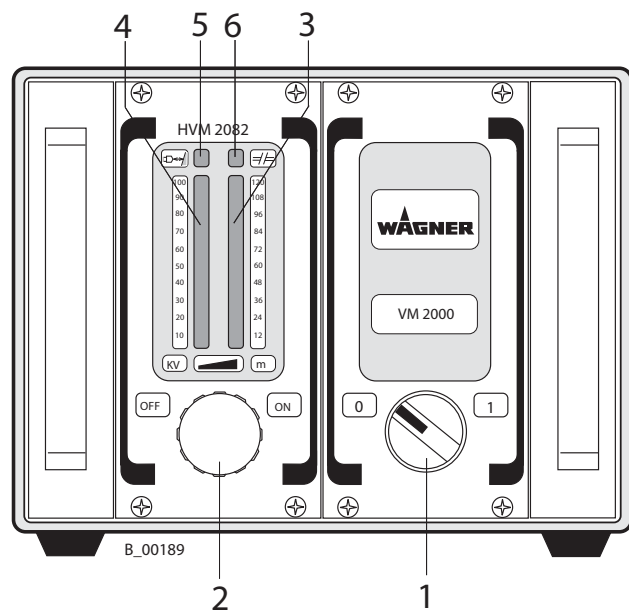
No function

6 Ground monitoring (Luminous display red)

Illuminates when the connecting cable has not been connected from the VM 2000 to the spray gun or is defective.

HVM goes into fault mode, i.e.

- High-voltage is turned off
- Remove cause, i.e., check connecting cable from gun to VM 2000.
If faulty, repair by WAGNER-Service..
- Turn off HVM with the voltage regulator and then turn it on again.



Rear of the control unit**10 Primary fuse**

0.5 ampere slow-acting

11 Secondary fuse

1.6 ampere slow-acting

12 Milled nut earthing

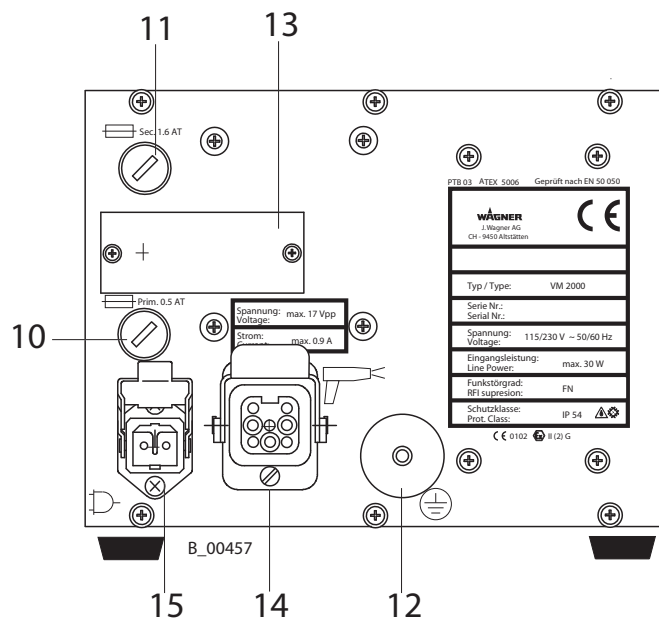
Connection for the earth cable (system earth)

13 Cover**14 Connection socket**

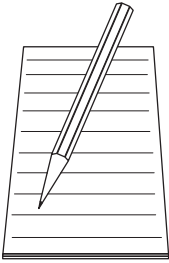
Connection for gun cable with safetyclip

15 Connection socket

Connection for main cable with safetyclip



SERVICE MANUAL



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9 SPARE PARTS CATALOGUE VM 2000

9.1 HOW TO ORDER SPARE PARTS?

Always supply the following information to ensure delivery of the right spare part:

Part Number, description and quantity

The quantity need not be the same as the number given in the „Quantity“ column. This number merely indicates how many of the respective parts are used in each subassembly.



The following information is also required to ensure smooth processing of your order:

- Address for the invoice
- Address for delivery
- Name of the person to be contacted in the event of any queries
- Type of delivery required (air freight or mail, sea route or overland route, etc.)

Marks in spare parts lists

Note to column „K“ in the following spare parts lists.

- ◆ = Wearing parts
Note: No liability is assumed for wearing parts
- = Not part of standard equipment, available, however, as additional extra.

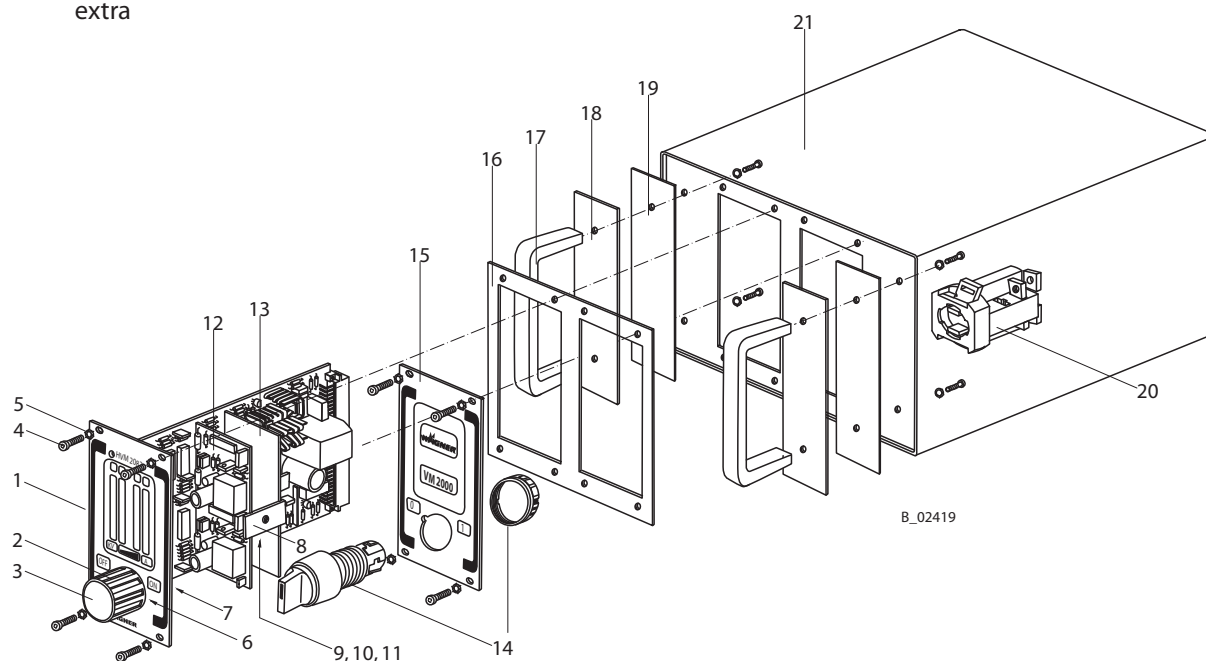
	 WARNING
	<p>Incorrect maintenance/repair! Risk of injury and damage to the equipment.</p> <ul style="list-style-type: none"> → Repairs and part replacement may only be carried out by specially trained staff or a WAGNER service center. → Before all work on the unit and in the event of work interruptions: <ul style="list-style-type: none"> - Switch off the energy/compressed air supply. - Relieve the pressure from the spray gun and unit. - Secure the spray gun against actuation. → Observe the operating and service instructions when carrying out all work.

9.2 SPARE PARTS LIST VM 2000**Spare parts VM 2000**

Pos	K	Qty	Part No.	Description
1	◆	1	0350202	Modul HVM2082 complete
2		1	9952607	Rotary knob
3		1	9952606	Rotary knob-Cover
4		14	9903311	Phillips head screw DIN7985
5		14	9922011	Serrated lock washer DIN6798
6		1	9950814	Sealing nut for potentiometer
7		1	9952339	Potentiometer
8		2	0260362	Circuit board guide
9		1	9903333	Phillips head screw DIN7985
10		1	9952597	Spacer bolt with inside threads
11		1	9903215	Phillips head screw DIN966
12		1	0260253	Print complete with Switching controller HVM
13		1	0260252	Print complete final stage HVM
14		1	9951055	Rotary switch
15		1	0179729	Front panel VM 2000
16		1	0179721	Seal front VM 2000
17		2	9994110	Handle
18		2	0350367	Handle support VM 2000
19		2	0241362	Spacer
20		1	9950970	Logic element standard
21		1	0179719	Housing VM 2000
22		1	0179722	Seal rear panel VM 2000

◆ Wearing part

● Not part of standard equipment for spray gun. Available, however, as additional extra



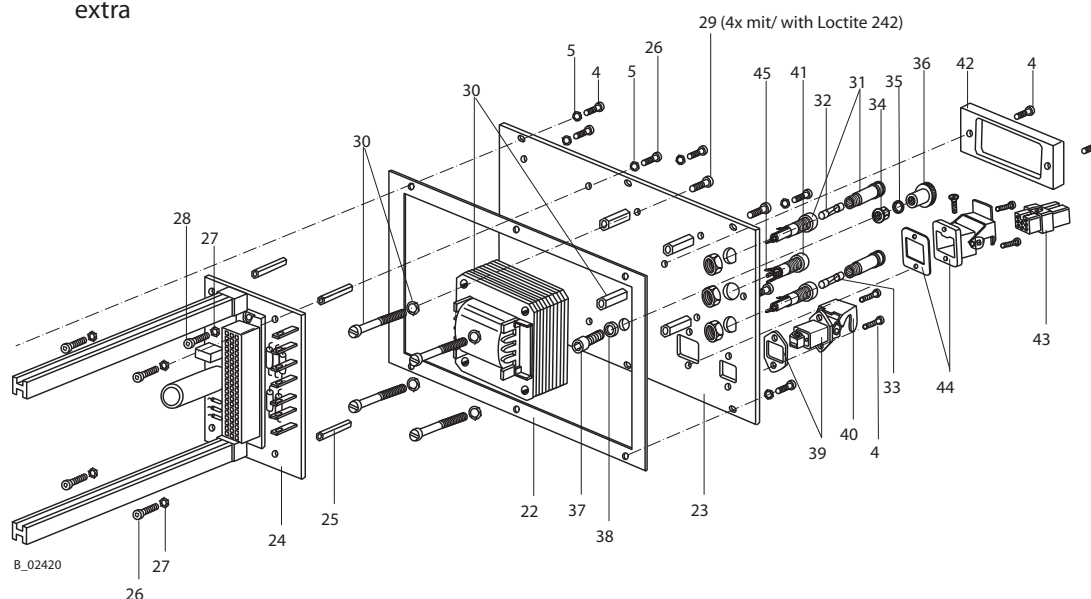
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Spare parts VM 2000

Pos	K	Qty	Part No.	Description
23		1	0179730	Back plate VM 2000
24	◆	1	0179118	Print complete VM 2000 with rectifier
25		4	9935003	Distance holder
26		8	9903306	Phillips head screw DIN7985
27		1	9920114	Washer DIN125
28		1	9900744	Slotted cheese head screw with slit DIN84
29		4	9903301	Phillips head screw DIN7985
30		1	9955017	Single-phase transformer 20 V / 1.5A
31	◆	2	9955021	Fuse holder
32	◆	1	9951110	Delay-action fuses 1.6A
33	◆	1	9951115	Delay-action fuses 0.5A
34		1	9992131	Sealing nut Seal-Lock
35		1	9920118	Washer
36		1	9910522	Knurled nut
37		1	9900315	Hexagon socket head cap screw
38		1	9922109	Serrated washer
39		1	9952587	Equipment plug
40		1	9950330	Safety latch
41		1	9955022	Voltage selector
42		1	0241323	Cover
43		1	9952653	Plug, contact insert
44		1	9950392	Plug, surface mounted
45		1	9982126	Flexible insulating hose 0.100 m; 0.33 ft
		1	0179727	Cable assembly VM 2000
		5	9950615	Cable binder
		1	0179723	Back plate VM 2000 completely assembled

◆ Wearing part

● Not part of standard equipment for spray gun. Available, however, as additional extra

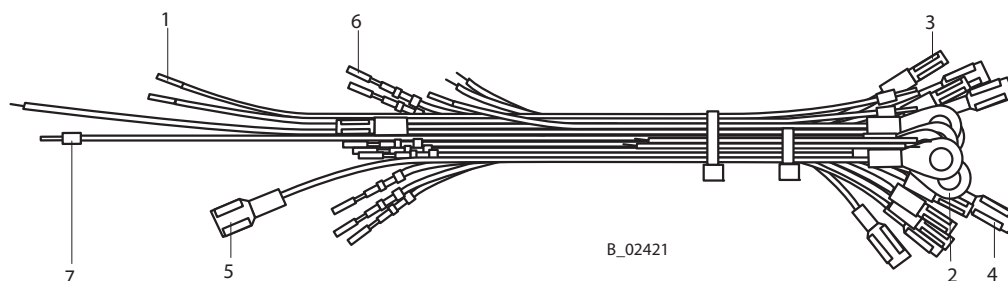


9.3 SPARE PARTS LIST CABLE ASSEMBLY VM 2000**Spare parts list Cable assembly VM 2000**

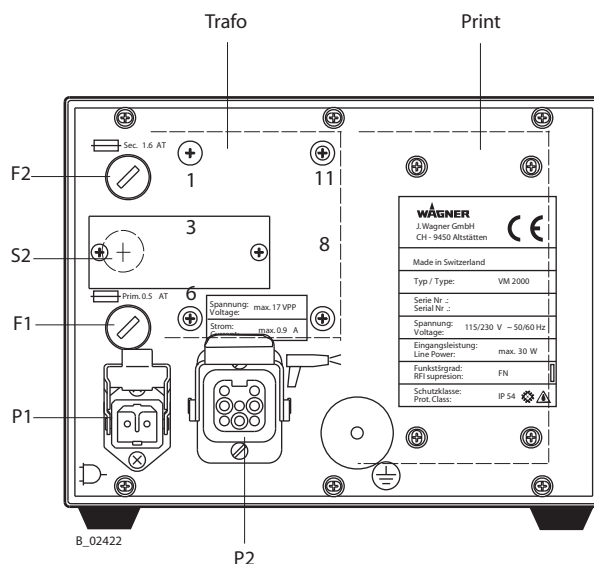
Pos	K	Qty	Part No.	Description
1		3	9950650	Wire end sleeve without insulation
2		6	9950616	Cable lug with isolation
3		6	9950612	Female tab lug 2.8x0.5
4		5	9950613	Female tab lug 4.8x0.8
5		1	9951333	Female tab lug 6.3x0.8
6		8	9952649	Contact female
7		4	9951319	Wire end sleeve with insulation
10		-	9951298	Strand yellow-green (ge-gn) 1.01 m; 3.31 ft
11		-	9953420	Strand lightblue (lightbl) 0.72 m; 2.36 ft
12		-	9952945	Strand brown (br) 0.82 m; 2.69 ft
13		-	9951706	Strand black (sw) 0.06 m; 0.2 ft
14		-	9951707	Strand red 0.34 m; 1.12 ft
15		-	9952973	Strand white (ws) 0.28 m; 0.92 ft
16		-	9952946	Strand green (gn) 0.15 m; 0.49 ft
17		-	9952970	Strand yellow (ge) 0.15 m; 0.49 ft
18		-	9951705	Strand darkblue 0.16 m; 0.52 ft
19		-	9952972	Strand grey (gr) 0.14 m; 0.46 ft

◆ Wearing part

● Not part of standard equipment for spray gun. Available, however, as additional extra



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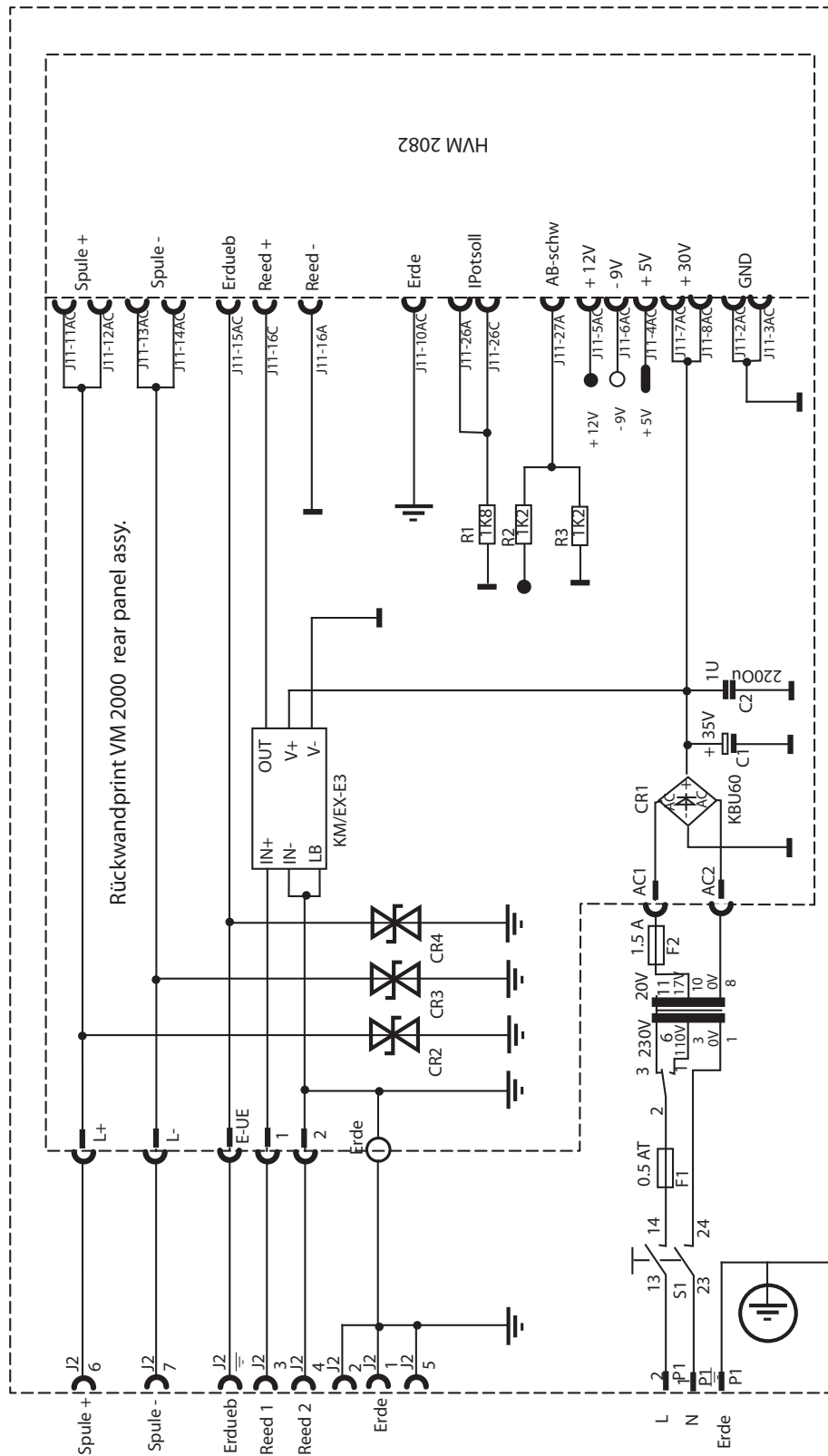
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P2

9.4 CONNECTION DIAGRAM VM 2000

Number	Address A	Cable end A	Position in spare parts lists	Colour	Cross section	Length mm; inch	Position in spare parts lists	Cable end B	Position in spare parts lists	Address B
1	P1 /	Wire end sleeve	1	ge-gn	0.75	130;5.12	10	Cable lug	2	Earth pin
2	Housing	Female tab lug	5	ge-gn	0.75	240;9.45	10	Cable lug	2	Earth pin
3	Trafo /	tinned		ge-gn	0.75	140;5.51	10	Cable lug	2	Earth pin
5	J2 /	Contact female	6	ge-gn	0.75	140;5.51	10	Cable lug	2	Earth pin
6	J2 / 2	Contact female	6	ge-gn	0.75	140;5.51	10	Cable lug	2	Earth pin
7	J2 / 5	Contact female	6	ge-gn	0.75	140;5.51	10	Cable lug	2	Earth pin
8	P1 / 1	Wire end sleeve	1	lightbl	0.75	320;12.60	11	Wire end sleeve	7	S1 / 23
9	Trafo / 1	tinned		lightbl	0.75	400;15.75	11	Wire end sleeve	7	S1 / 24
10	P1 / 2	Wire end sleeve	1	brown	0.75	320;12.60	12	Wire end sleeve	7	S1 / 13
11	F1 / 2	Female tab lug	3	brown	0.75	350;13.78	12	Wire end sleeve	7	S1 / 14
12	F1 / 1	Female tab lug	3	brown	0.75	100;3.94	12	tinned		S2 / 2
13	Trafo / 6	tinned		brown	0.75	70;2.76	12	tinned		S2 / 3
14	Trafo / 3	tinned		black	0.75	70;2.76	13	tinned		S2 / 1
15	Trafo / 8	tinned		red	0.75	70;2.76	14	Female tab lug	4	Print / AC2
16	Trafo / 10	tinned		red	0.75	140;5.51	14	Female tab lug	3	F2 / 1
17	F2 / 2	Female tab lug	3	red	0.75	140;5.51	14	Female tab lug	4	Print / AC1
18	J2 / 4	Contact female	6	grey	0.75	140;5.51	19	Female tab lug	3	Print / 2
19	J2 / 3	Contact female	6	white	0.75	140;5.51	15	Female tab lug	3	Print / 1
20	J2 / 1	Contact female	6	green	0.75	150;5.90	16	Female tab lug	4	Print / E-Ue
21	J2 / 7	Contact female	6	yellow	0.75	150;5.90	17	Female tab lug	4	Print / L-
22	J2 / 6	Contact female	6	blue	0.75	160;6.30	18	Female tab lug	4	Print / L+

9.5 CIRCUIT DIAGRAM VM 2000

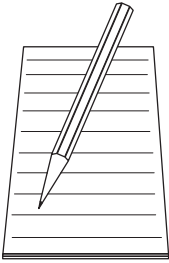


B_02423

10 SPECIAL TOOLS, TEST DEVICES AND ASSEMBLY AIDS

Part No.	Description	Using
9955408	Crimping pliers	Cable terminal cascade side
9955409	Crimping pliers	Socket contact cascade side
9955410	Crimping jaws	for Crimping pliers 9955409
9955405	Unlocking tool	Disassembly of crimp contacts from insulator, Phoenix connector
9955406	Crimping pliers	For solid contacts, Phoenix contacts
9955407	Crimping pliers	For rolled contacts, Phoenix contacts

SERVICE MANUAL



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SERVICE MANUAL

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