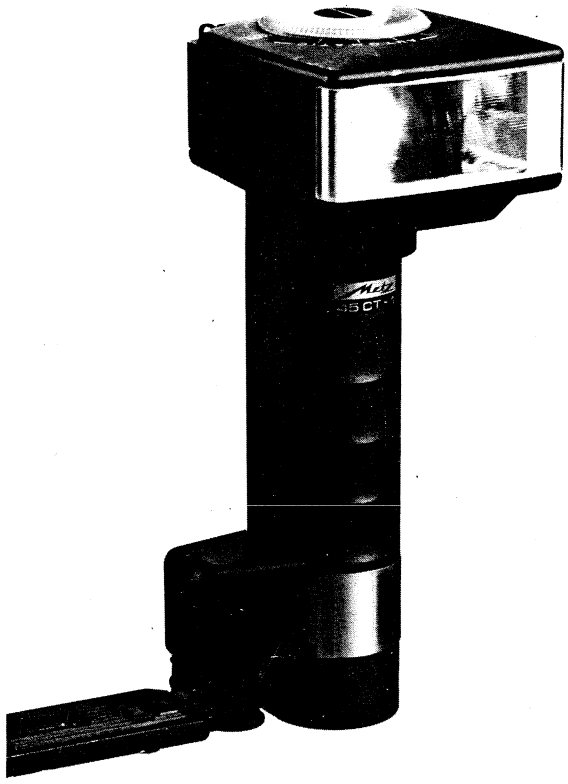
APPARATEWERKE · INH. PAUL METZ
FERNSEHEN · ELEKTRONIK
Fürth/Bay. Postfach 84 Telefon 7831

MECABLITZ 45CT1

Model: 1976



Technical and service manual

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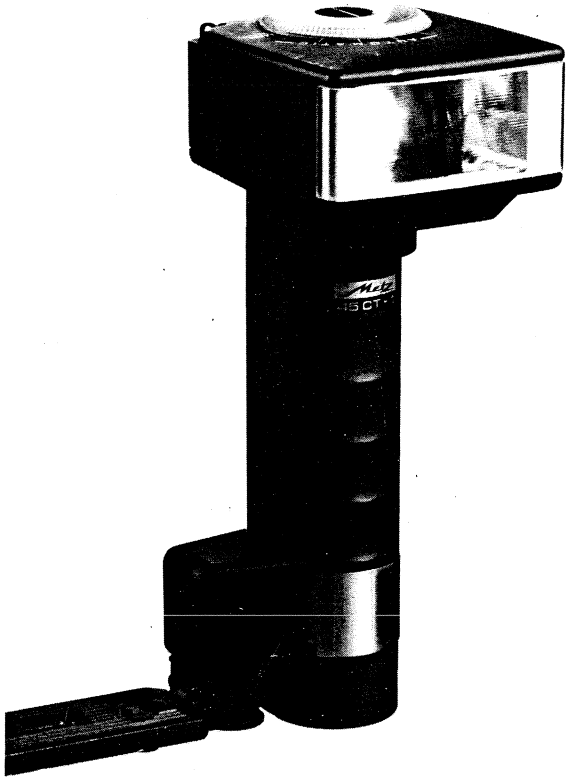


Technical and service manual

1. TECHNICAL DATA

Guide numbers :

Film speed	21 DIN 100 ASA	18 DIN 50 ASA	15 DIN 25 ASA
m	45	32	23
ft	148	105	74

Illumination angle : Rectangular
approx. 65° horizontal
approx. 46° vertical

Swivel reflector : horizontal 360°
vertical 90° (with 6 setting stops)

Colour temperature : 5600 K

Telecomputer with 5 working apertures :
21 DIN film : 2.8/4/5.6/8/11
18 DIN film : 2/2.8/4/5.6/8

Flash duration : (approx.) 1/300+ to 1/25000 sec.

Recycle time : (approx.)

with NiCd accumulator	7+ to 0.3 sec.
with alc.mang.battery	13+ to 0.3 sec.
with power pack N 20	4+ to 0.3 sec.
with power pack N 21	16+ to 0.3 sec.

Flash capacity : (approx.)

with NiCd accumulator	50+ to 2000
with alc.mang.battery	120+ to 2600
with power pack N 20	unlimited
with power pack N 21	unlimited

Power supply :
NiCd accumulator 6 x 1.2 V 0.5 Ah
6 alc. mang. Mignon cells
Mains supply via power pack N 20
Mains supply via power pack N 21

Rapid charging of NiCd accumulator : 4 hours,
external charging possible

Dimensions : (height x width x depth - approx.) 247 x 92 x 102 mm

Weight : (approx.) 910 g with NiCd accumulator

Optional accessories :
NiCd accumulator set B 45
(charger + NiCd accumulator unit)
Car charger A 16
Spiral synchron cable 45/01.6-Tz3
Power pack N 20
(special cable 45/01.26-Tz2 necessary)
Power pack N 21
Wrist strap 45/01.26-Tz1
Wide-angle diffusing lens 45/01.26-Tz3
External universal sensor

+with computer switched off only

2. CIRCUITRY AND OPERATING PRINCIPLE

2.1 GENERAL INFORMATION ON CIRCUITRY

2.1.1 AC/DC converter

A transistorized flow converter serves as AC/DC converter. The switching transistor periodically connects the battery to the transformer primary winding while the stepped-up secondary voltage charges the flash capacitor via a rectifier. When the flash capacitor has been charged, the control system reduces the battery discharge back to a minimum.

2.1.2 Mains operation

Two optional accessory power packs (N 20 and N 21) are available for direct powering from the mains. The connection socket is at the side of the bar.

2.1.3 Automatic exposure system

(Telecomputer with series-controlled thyristor)

A light power regulation system measures the amount of light reflected by the picture subject via a photo transistor. The light emission of the flash unit is interrupted as soon as the light output required for correct film exposure is reached. This guarantees correct automatic exposure within the given range with no need to reset camera aperture when shooting distance is changed.

The automatic exposure system can be easily programmed to five different working apertures. The light power regulation operates only during light emission of the flash unit and is not influenced by other external flashes.

2.1.4 Series-controlled thyristor

When the film has been correctly exposed, the series-controlled thyristor of the automatic exposure system interrupts the current to the flash tube. The light emission is stopped abruptly and the energy remaining in the flash capacitor is available for the following flashes.

This permits much shorter recycle times and a considerably higher number of flashes.

2.1.5 External universal sensor (optional accessory)

This sensor increases the application options of 45 CT 1. Special features : Telecomputer with nine working apertures (e.g. for 21 DIN film aperture 2.8 to 45). Measuring range adjustable from 25° to 12° with visor for exact area setting via horizontal and vertical tilting device. Manual flashing with seven light output stages, i.e. flash duration times (1/300 to 1/16000sec.).

2.2 OPERATION OF CIRCUITRY

2.2.1 Operating principle of converter

The primary winding of converter transformer ÜA (point 1/3/2) is designed for adapting various primary voltages for NiCd accumulator (6 x 1.25 V) or battery operation (6x1.5 V).

When switch S 101 is switched on, a negative current is conducted to the base B of transistor T 001 via resistor R 201 and winding 5/6. T 001 becomes conductive and transfers voltage to primary winding 2/3 or 2/1.

The voltages simultaneously induced in the series-connected secondary windings 5/6 and 6/4 cause a current flow from the positive winding end (4) via rectifiers D 201 and D 202 of inductor L 001, flash capacitor C 001 and emitter-base junction of T 001 to negative end (5) of secondary winding. This current serves as charge current of flash capacitor C 001 and drive current of transistor T 001. T 001 becomes fully conductive and switches the complete accumulator current to the primary winding 2/3 or 2/1. The current thus induced in the secondary winding causes a corresponding charge current in the flash capacitor C 001. The current now flowing in the primary winding 2/3 or 2/1 consists of the load current (secondary current multiplied by the step-up ratio of ÜA) and the magnetizing current of the transformer. The magnetizing current and subsequently the transformer induction increase approximately in linearity with time until the saturation induction has been reached, when the magnetizing current jumps to the highest value. As the current in the primary winding is limited by the primary circuit resistance, the load current decreases in proportion to the magnetizing current increase. As the secondary load current is also the drive current for T 001, its triggering also decreases. At the beginning of the current flow phase, the base of T 001 is substantially overcharged by secondary load current and thus the decrease in load current (base current) caused by the magnetizing current does not influence the through-connected condition of the transistor. However, when the saturation induction of the transformer has been reached, the base current of T 001 decreases so extremely on account of the rapidly increasing magnetizing current that it is not sufficient to compensate the collector current flow. The transistor is no longer fully conductive. There is a voltage drop, decreasing the voltage in the primary and secondary windings equally. The base current of T 001 drops further and the collector-emitter voltage continues to decrease, causing a feed-back which suddenly blocks T 001. The secondary winding 4/6 of the non-loaded transformer now forms, together with C 202, a resonant circuit which oscillates with the magnetizing power of the transformer for approx. half a sine period.

During this phase the voltage in the individual windings changes polarity so that T 001 receives positive voltage from the winding 5/6 at its base, blocking it. After half of the sine period, the voltages in the windings re-attain their original polarity. The voltage of the secondary winding 4/6 exceeds the value of the voltage at C 001. Rectifiers D 201 and D 202 become conductive and a current pulse flows via C 001 to the base-emitter junction of transistor T 001, making it conductive again. A new phase now begins and the functions described above are repeated.

2.2.2 Current economy control

Due to the special type of feed-back, the charge current of flash capacitor C 001 is also base current of transistor T 001. The charge current of C 001 and the base current of T 001 result from the difference between the induced voltage in the secondary winding 4/5 (accumulator voltage multiplied by step-up ratio of ÜA) and the voltage of flash capacitor C 001 divided by the total resistance of the charge circuit (resistance of secondary winding 4/5 and resistance of primary circuit transformed to secondary winding). This difference in voltage is largest with flash capacitor C 001 discharged. Subsequently, base and collector currents of T 001 have their maximum value and flash capacitor C 001 is charged strongly. The collector current of T 001 is practically the operating current withdrawn from the accumulator.

After charging, there is such a slight difference between the secondary winding current and the flash capacitor current that only the charge current necessary for covering unavoidable losses (leakage current of elektrolytic flash capacitor, voltage divider current) flows in C 001.

The base and collector current of T 001 decreases substantially compared with the currents when flash capacitor charging started. The accumulator supplies only sufficient current for covering losses to keep the flash capacitor voltage C 001 at its rated value.

2.2.3 Flash triggering

When the synchro contact (BU 002/point 1+2) is closed, the firing capacitor C 503, charged to approx. 230 V, is discharged via the primary winding 2/1 of the ignition coil UZ 501. The high-voltage pulse induced by secondary circuit is conducted to the ignition coating of flash tube Rö 501 (conductive). The series thyristor Th 501 is still blocked. The ignition sends a positive pulse through the conductive flash tube to the anode of the series thyristor Th 501 which reaches the gate of Th 501 via C 502, L 501, C 501, R 501, D 501 and the zener diode ZD 501 and ignites it. The flash circuit is thus closed and the flash tube triggers.

2.2.4 Light power regulation

At the zener diode ZD 501, a voltage of approx. 27 V, caused by the ignition pulse as described in section 2.2.2, appears which is stored via diode D 403 in C 408.

Its energy supplies the power for the light power regulation. The light reflected by the picture subject falls on the photo transistor T 301 and produces a current proportional to the light intensity in one of the integrating links R 401/C401...R 405/C 405.

The voltage at the integrating link is conducted via R 407 to the gate of the thyristor tetrode Th401.If this voltage exceeds the voltage adjusted on the collector of the control R 413 plus the threshold voltage of D 402 and Th 401, thyristor Th 401 will become conductive and the capacitor C 408, charged to approx. 27 V, will discharge via Th 401, D 402, C 409, R 415 and the gate-cathode junction of the erasing thyristor Th 402, making the latter conductive.

Prior to each reading, the relevant integrating link must be shorted via transistor T 401 for a short time (approx. 15 us). Transistor T 401 is triggered by the positive wave front of the operating voltage at C 408 which reaches the base of T 401 via R 406/C 406.

The minimum operating voltage of the light power regulation, i.e. the light emitted by the flash unit, is adjusted by means of control R 413.

2.2.5 Flash erasion

When inoperative, the erasing capacitor C 502 is charged to 360 V. The positive side lies on L 501 and thus against the anode of Th 402. If the erasing thyristor Th 402 is ignited (by power light regulation), the positive side of the erasing capacitor is connected via the anode-cathode junction of Th 402 to chassis. Now the negative side lies against the anode of the series thyristor Th 501 and blocks it with a negative pulse. Current will only flow through the flash light until the erasing capacitor has changed polarity. Then current falls below flash light conducting voltage and light will go out.

To stimulate the blocking of series thyristor Th 501, a negative pulse is given on gate, simultaneous to negative anode pulse. This is generated by C 501, the positive side of which is connected to chassis via Th 402 while the negative side is connected to the gate of Th 501 via R 501, R 502 and ZD 501.

When the flash light has gone out, the erasing capacitor C 502 is charged back to its original polarity via the resistors R 506 and R 508.

2.2.6 Operating principle of computer control indicator

After completing erasion, with flash tube Rö 501 and thyristors Th 501 and Th 402 re-blocked, the erasing capacitor C 502, polarity-changed by flash current, is re-charged at original polarity to operating voltage by flash capacitor C 001 via L 001, R 506, R 508, R 101 and parallel circuit LD 101 and R 102. A substantial part of the charge current flows through the luminescence diode LD 101 which then illuminates.

On flashing without erasion, the erasing capacitor will discharge via D 101, R 102, R 101, R 508, R 506 and L 001 to the flash capacitor C 001. Diode D 101 prevents excessive inverse voltage at LD 101.

When charging flash capacitor and erasing capacitor with AC/DC converter or charger, the voltage drop at resistor R 102 caused by the charge current of erasing capacitor C 502 remains lower than the threshold voltage of the luminescence diode LD 101 which will then not illuminate.

2.2.7 Oscillograms

The oscillograms 1 to 5 shown in the circuit diagram have been made with a flash duration of 0.1 ms. Adjustments for switching off after 0.1 ms can be made by selecting corresponding working aperture and flash distance.

The trigger pulse for the oscilloscope is given by the firing capacitor C 503 (Bu 002/point 1) via C $\approx$ 10 nF.

The oscillograms show average values. Slight differences are possible among the individual flash units.

3. CHARGER

3.1 TRANSFORMERS

The characteristic values for the transformers are the current consumption during no-load operation on the transformer primary winding and the open-circuit and on-load voltages on the secondary side.

Connection of mains voltages stated in Table 1 to the transformer primary winding will produce on the secondary side the open-circuit and on-load voltages indicated in Table 2.

With 120 and 127 V mains voltage, the transformer current consumption during no-load operation should not exceed 40 mA. With 220 V, 240 V and 250 V mains voltage, the maximum current consumption should be 20 mA. These values have been measured with a moving-coil multi-measuring instrument (approx. 666 Ohm/V).

Tabel 1

Transformer WV-No.(Prim.)	9039	9013	9014	9015	9014
Mains voltages (V)	120/220	127/220	120/240	220/250	240

Table 2

	End of winding	Measured value V	Loading (Ohm)
Open circuit	1/2	10.2	-
On-load voltage	1/2	9	27

3.2 FUSING

The chargers 402.12 have been equipped with a fuse - type Metz TS 3 - to separate the transformer from the mains supply when the temperature in the mains plug exceeds 135°C. This is a single-use fuse, i.e. it must be replaced after response. It is not possible to solder the temperature-sensitive joint with a normal soldering iron. Mixing special soldering material with normal solder would greatly alter the response temperature of fuse and protection would no longer be guaranteed.

If a fuse responds, there is probably a defect in the NiCd accumulator unit or the charger has been connected to over-high mains voltage. Before replacing fuse, check correct operation of charge rectifiers D 601...D 604, NiCd accumulator A 601 of NiCd battery casing and transformer ÜL of charger.

IMPORTANT !

4. INSULATION CHECK

After each repair, carefully check insulation of charger and flash unit and correct if necessary. Strictly observe the following :

4.1 Check the galvanic separation of charger's primary and secondary side. It should resist 4 kV a.c.

4.2 Check all metal parts of flash unit accessible from outside.

5. ADJUSTMENT AND SERVICE

5.1 INSTRUCTIONS FOR OPENING UNIT

Be careful when repairing - flash capacitor may be dangerously live !

Remember to switch unit off and to trigger remaining flashes. Then remove NiCd accumulator unit.

5.1.1 Opening reflector case

a) Unscrew countersunk screws (4/22) from rear panel of reflector case. (4 screws)

b) Pull reflector head cover (1) upwards. (Attention : Protective disk (11) and light screen (12) are now loose.)

c) Unsolder three connection leads (A/K/Z) on flash tube and remove complete reflector (38). Computer (20) and reflector p.c. boards (41) can be removed from fixture by bending them back from the two lugs.

Attention : Erasing capacitor C 502 (6.8 uF) on reflector p.c. board may be dangerously live and should therefore be discharged with a resistance of approx. 100 Ohm.

5.1.2 Opening flash bar

a) Tilt reflector case (15) 90° upwards.

b) Unscrew countersunk screws (34) from upper end of bar (2 screws) and oval-head screws (33) from rear panel (2 screws).

c) Remove flash bar casing (32) downwards. (Attention : Window (49) in front of photo transistor will now be loose.)

5.1.3 Separating flash bar (9) from reflector case (15) and removing flash bar cover (46)

a) Loosen hexagonal nut (3) and remove hinge fitting (13) with pressure spring (14) and lock (2). Remove reflector case (15).

b) Unscrew countersunk screw (30)and pull hinge cover (31) off forwards.

c) Loosen round nut (23) and locking washer (24). Remove hinge (5) and then entrainer disk (8) upwards. (Attention : Pressure spring (6) and bearings (7) will fall out.)

d) Unscrew countersunk screw with cross-slot (10). Tilt flash bar cover upwards and remove backwards. Release button (26) will trigger.

5.1.4 Attention

The exposed connections of the electrolytic flash capacitor C 001 may be dangerously live. For safe repair work on open unit, it is advisable to discharge flash capacitor C 001 completely.

5.2 NiCd ACCUMULATOR

7.5 V/500 mAh (1.25 V/cell)
Charge current approx. 150 mA
Charge end voltage 9 V (with charge current flowing)

5.2.1 Checking NiCd accumulator

Test condition : Accumulator fully charged.

Start test with load resistance R = 2.5 Ohm/25 W.
Eight minutes after connecting accumulator to resistance, accumulator voltage must be U $\geq$ 5.4 V.

5.3 GENERATOR

Test conditions : Accumulator fully charged, electrolytic capacitor well formed.
Ammeter Ri less than 0.1 Ohm
Voltmeter Ri more than 10 MOhm

5.3.1 Accumulator operation

Current consumption from accumulator with shorted electrolytic capacitor	7...10 A (max. measuring time 2 sec.)
Voltage of electrolytic flash capacitor after charging	340...360 V
Current consumption from accumulator after charging	less than 150 mA
Ignition point of glow lamp adjustable with control R 204 (compare exploded view)	295...305 V voltage of electrolytic flash capacitor

5.3.2 Mains operation

Voltage of electrolytic flash capacitor after charging

Power pack N 20	330...360 V
Power pack N 21	340...360 V

5.4 LIGHT POWER REGULATION

Adjustment and control are possible only with the "light measuring instrument 2", supplied by our company. Note that f-stop values of flash units are quoted of late for 21 DIN, the f-stop values of the light measuring instrument refer, however, to 18 DIN.

For 18 DIN, Mecablitz 45 CT 1 has the computer apertures 2/2.8/4/5.6/8.

As the "light measuring instrument 2" does not have the switch position aperture 2, aperture 2.8 must be set and the flash unit, set to aperture 2, must be triggered twice.

To set rated value, select the aperture to be checked and then remove reflector head cover (1). A hole will appear in the computer p.c. board (20) through which the control R 413 is accessible (compare exploded view). When measuring, make sure that protective disk (11) and light screen (12) are positioned in front of reflector (38). When replacing reflector head cover (1), make sure that lug on setting wheel engages with prong on switching spring (18).

5.4.1 Adjustment

Computer aperture 4 (18 DIN)
Measuring distance 4 m

Adjust control R 413 until light measuring instrument shows 28 scale markings after flashing (required light output). The tolerance limit is ± 3 scale markings, i.e. deviations between 25 and 31 scale markings are permissible. When re-aligning, care should, however, be taken to adjust 28 scale markings as exactly as possible.

5.4.2 Linearity check of light power regulation

Computer aperture 4 (18 DIN)

Measuring distance : 1.5 m
Tolerance limit : 23...36 scale markings

Measuring distance : 8 m
Tolerance limit : 23...36 Scale markings

5.4.3 Control of other four computer apertures

Computer aperture 2 (18 DIN)
Measuring distance : 2.8 m
Tolerance limit : 23...39 scale markings

Computer aperture 2.8/5.6/8 (18 DIN)
Measuring distance : 2.8 m
Tolerance limit for
all 3 apertures : 23...33 scale markings

5.5 EXCHANGING FLASH TUBES

When exchanging flash tubes, observe geometrical position of flash tube in reflector and position of conductive ignition strip. The twisting point of ignition wire marks the middle of the transparent conductive strip and should point forwards. For correct assembly see Fig. 1.

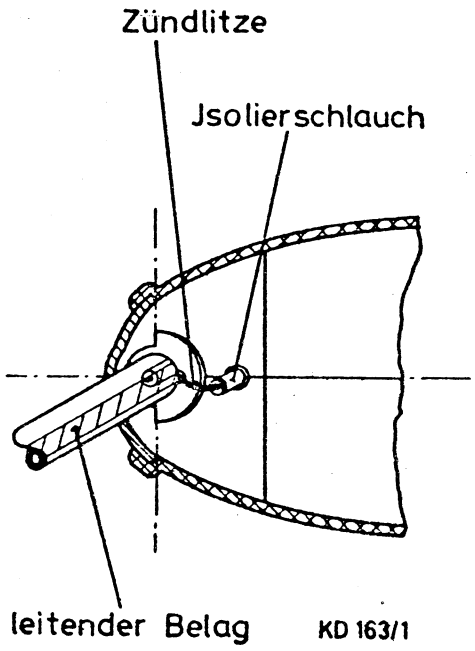


Bild 1

Schlüssel Bild 1	Key Fig. 1
Zündlitze	Ignition strip
Isolierschlauch	Insulating sleeve
Leitender Belag	Conductive coating

ERSATZTEILLISTE / SPARE-PARTS LIST / LISTE DE PIÈCES DE RECHANGE 45 CT 1

Schaltbild-position Circuit item Position de schéma	Gegenstand Designation Objet	Bestell-Nr. Order-no. No. de commande	Preis-Code Price-code Prix-code
R 201	Schichtwiderstand/resistor/résistance	27kOhm 0,2W	F 1
R 202	Schichtwiderstand/resistor/résistance	47 Ohm 0,2W	F 1
R 203	Schichtwiderstand/resistor/résistance	330kOhm 0,2W	F 1
R 204 44 *	Trimmwiderstand/trimming resistor/ résistance ajustable	470kOhm 0,1W	V 1
R 205	Schichtwiderstand/resistor/résistance	1,2MOhm 0,2W	F 1
R 101	Kohlemassewiderstand/carbon resistor/ résistance au charbon	390 Ohm	F 1
R 102	Schichtwiderstand/resistor/résistance	470 Ohm 0,2W	F 1
R 301	Schichtwiderstand/resistor/résistance	560 Ohm 0,2W	F 1
R 401	Schichtwiderstand/resistor/résistance	8,2kOhm 0,2W	F 1
R 402	Schichtwiderstand/resistor/résistance	3,9kOhm 0,2W	F 1
R 403	Schichtwiderstand/resistor/résistance	1,5kOhm 0,2W	F 1
R 404	Schichtwiderstand/resistor/résistance	1 kOhm 0,2W	F 1
R 405	Schichtwiderstand/resistor/résistance	470 Ohm 0,2W	F 1
R 406	Schichtwiderstand/resistor/résistance	1kOhm 0,2W	F 1
R 407	Schichtwiderstand/resistor/résistance	2,2kOhm 0,2W	F 1
R 408	Schichtwiderstand/resistor/résistance	1kOhm 0,2W	F 1
R 409	Schichtwiderstand/resistor/résistance	180 Ohm 0,2W	F 1
R 410	Kohlemassewiderstand/carbon resistor/ résistance au charbon	22 Ohm 1/4W	F 1
R 411	Schichtwiderstand/resistor/résistance	10kOhm 0,2W	F 1
R 412	Schichtwiderstand/resistor/résistance	1kOhm 0,2W	F 1
R 413 39 *	Trimmerwiderstand/trimming resistor/ résistance ajustable	220kOhm 0,1W	V 1
R 414	Schichtwiderstand/resistor/résistance	180kOhm 0,2W	F 1
R 415	Schichtwiderstand/resistor/résistance	100 Ohm 0,2W	F 1
R 501	Kohlemassewiderstand/carbon resistor/ résistance ajustable	47 Ohm 1/4W	F 1
R 502	Kohlemassewiderstand/carbon resistor/ résistance ajustable	470 Ohm 1/4W	F 1
R 503	Kohlemassewiderstand/carbon resistor/ résistance ajustable	470 Ohm 1/4W	F 1

* Nr. in Explosionszeichnung
No. of exploded drawing
No. dans le dessin d'explosion

Schaltbild-position Circuit item Position de schéma	Gegenstand Designation Objet	Bestell-Nr. Order-no. No. de commande	Preis-Code Price-code Prix-code
R 504	Schichtwiderstand/resistor/résistance	560kOhm 0,5W	F 1
R 505	Schichtwiderstand/resistor/résistance	2,2MOhm 0,5W	F 1
R 506	Metalloxidwiderstand/metallic oxyde resistor/résistance oxyde métallique	6,8kOhm 1,5W	Q 1
R 507	Schichtwiderstand/resistor/résistance	820kOhm 0,5W	F 1
R 508	Metalloxidwiderstand/metallic oxyde resistor/résistance oxyde métallique	3,3kOhm 1,5W	Q 1
R 609	Kohlemassewiderstand/carbon resistor/ résistance ajustable	10 Ohm 0,5W	F 1
C 001 47 *	Blitzelko/flash electrolyt condenser/ condensateur électrolytique du flash	1500uF 360/385V MN-V/364 45/01.1/A-Tz1	P 3
C 201	Tantal-Kondensator/condenser/condensateur	6,8uF 6,3V	W 1
C 202	Impulskondensator/impulse-capacitor/ condensateur impulsion	390pF 2kVs	W 1
C 401	Kondensator/condenser/condensateur	4,7nF 250V	S 1
C 402	Kondensator/condenser/condensateur	10nF 250V	V 1
C 403	Kondensator/condenser/condensateur	22nF 250V	V 1
C 404	Kondensator/condenser/condensateur	47nF 250V	V 1
C 405	Kondensator/condenser/condensateur	0,1uF 100V	W 1
C 406	Keramik-Kondensator/ceramic condenser/ condensateur céramique	1,5nF 63 V	S 1
C 407	Keramik-Kondensator/ceramic condenser/ condensateur céramique	470pF 63 V	S 1
C 408	Kondensator/condenser/condensateur	0,22uF 100V	W 1
C 409	Tantal-Kondensator/condenser/condensateur	1uF 35 V	U 1
C 501	Elko isoliert/insulated electrolytic condenser condensateur electrolytique isolé	2,2uF 350V MN-V/195	V 1
C 502	Kondensator/condenser/condensateur	6,8uF 360V 218.1/A-Tz3	U 2
C 503	Kondensator/condenser/condensateur	0,1uF 250V MN-V/093	X 1
C 504	Kondensator/condenser/condensateur	0,1uF 400V	A 2
D 001	Siliziumgleichrichter/silicon rectifier/ redresseur de silicium	C 1740 MN-V/267	H 2
D 201	Siliziumdiode/silicon diode/diode de silicium	1N 4007 MN-V/179	G 2
D 202	Siliziumdiode/silicon diode/diode de silicium	1N 4007 MN-V/179	G 2
D 203	Siliziumdiode/silicon diode/diode de silicium	1N 4004	A 2

Schaltbild-position Circuit item Position de schéma	Gegenstand Designation Objet	Bestell-Nr. Order-no. No. de commande	Preis-Code Price-code Prix-code
D 101	Siliziumdiode/silicon diode/diode de silicium	1 N 4148	S 1
LD 101	Lumineszenzdiode/luminescence diode/ diode lumineuse	CQY 24 A	V 1
D 401	Siliziumdiode/silicon diode/diode de silicium	1 N 4148	S 1
D 402	Siliziumdiode/silicon diode/diode de silicium	1 N 4148	S 1
D 403	Siliziumdiode/silicon diode/diode de silicium	BY 206	H 2
ZD 401	Zenerdiode/zener diode/diode zener	ZPD 8,2	D 2
D 501	Siliziumdiode/silicon diode/diode de silicium	1 N 4004	A 2
D 502	Siliziumdiode/silicon diode/diode de silicium	1 N 4004	A 2
ZD 501	Zenerdiode/zener diode/diode zener	ZPD 27	D 2
ZD 502	Zenerdiode/zener diode/diode zener	ZPY 15	F 2
D 601	Siliziumdiode/silicon diode/diode de silicium	N 104	S 1
D 602	Siliziumdiode/silicon diode/diode de silicium	N 104	S 1
D 603	Siliziumdiode/silicon diode/diode de silicium	N 104	S 1
D 604	Siliziumdiode/silicon diode/diode de silicium	N 104	S 1
T 001	Transistor/transistor/transistor	AD 136 VI	W 2
T 301	Fototransistor/photo transistor/ photo transistor	BP 101 II MN-V/245	U 2
T 401	Transistor/transistor/transistor	BC 238 C	D 2
Th 401	Thyristortetrode/thyristor tetrode/ tétrode du thyristor	BR 101	P 2
Th 402	Thyristor/thyristor/thyristor	BStC 0733 T/L	V 2
Th 501	Thyristor/thyristor/thyristor	BStE 0326 TS5	E 3
Rö 101	Glimmlampe/glow lamp/ lampe témion	Nr.76210(2637) MN-V/023	V 1
Rö 501	Blitzröhre/flash tube/lampe d'eclair	45/01.1/A-1	B 3
La 601	Glühlämpchen/glowing lamp/ lampe à incandescence	5V 0,4A Größe T2	T 1
S 101	Umschalter 2pol./switch 2-pin/ commutateur bipolaire	184.1/A-Tz3 Ausf. 1	X 1
ÜZ 501 40 *	Zündspule/ignition coil/bobine d'allumage	ZS 1052	K 2
ÜA	Transformator/transformer/transformateur	45/01.17-Tz1 WV 9164	U 2
L 501	Drossel/choke/bobine d'arrêt	45/01.15-Tz9 WV 9165	P 2
L 001 48 *	Drosselspule/choking coil/bobine d'arrêt	45/01.15-Tz6 WV 9168	R 2

Nr. in Explosionszeichng. No. of exploded drawing No. dans le dessin d'explosion	Gegenstand Designation Objet	Bestell-Nr. Order-No. No. de commande	Preis-Code Price-code Prix-code
1	Reflektorkopfdeckel mit Blendenrechner, vollstdg. reflector head cover with diaphragm scale, cpl. couvercle de la tête du réflecteur avec des diaphragmes, compl.	45/01.10-Tz5	X 2
2	Rastteil/locking part/partie d'engienage	45/01.10-30	W 1
3	Sechskantmutter/nut/ècrou	202.10-46	
13	Gelenkachse/joint axle/axe d'articulation	45/01.10-22	
14	Gelenkdruckfeder/joint pressure spring/ ressort de pression d'articulation	45/01.10-23	
4	Senkschraube mit Kreuzschlitz, schwarz cross-slotted countersunk screw, black vis tête fraisée plate et cruciform, noir	M 2,5x8 DIN 965 M1 p. 10St.	
5	Gelenk/joint/charnière	45/01.7-27	H 2
6	Druckfeder/pressure spring/ ressort de pression	2095.6-17	
7	Kugel Ø 5/steel ball Ø 5/bille Ø 5		
8	Mitnehmerscheibe/driving disk/ rondelle d'entrainement	45/01.7-24	
23	Rundmutter/round nut/ècrou crenelé	45/01.7-26	
24	Sicherungsscheibe/rocking washer/ rondelle d'arrêt	45/01.7-36	
10	Senkschraube mit Kreuzschlitz, schwarz cross-slotted countersunk screw, black vis a tête fraisée plate et cruciform, noir	M 2,5x4 DIN 965 M1 p. 10St.	
11	Schutzscheibe/protective pane/ carreau de protection	45/01.10-12	G 2
12	Reflektorblende/reflector covering frame/ cadre du réflecteur	45/01.10-13	
15	Reflektorgehäuse/reflector housing/ boitier du réflecteur	45/01.10-1	C 1
16	Blitzröhre mit Halterung, vollst. flash-tube with support, cpl. lampe d'èclair avec support, compl.	45/01.10-Tz3	D 3
18	Schaltfeder/switch spring/ lame ressort de commande	45/01.10-10	Q 1
19	Schaltfederhalter/switch spring dip/ support du ressort de commande	45/01.10-11	

Nr. in Explosionszeichng. No. of exploded drawing No. dans le dessin d'explosion	Gegenstand Designation Objet	Bestell-Nr. Order-no. No. de commande	Preis-Code Price-code Prix-code
20	Computerleiterplatte, vollstg. circuit plate for computer, cpl. plaque de circuit pour computer compl.	45/01.10-Tz4	L 3
21	Netzbuchse, vollstg./power plug, cpl./ douille pour dispositif secteur, compl.	45/01.15-Tz7	X 1
22	Senkblechschraube mit Kreuzschlitz, schwarz countersunk selftapping screw, cross-slotted, black vis tête fraisée plate cruciform de tôle, noir	BZ2,2x25 DIN 7982	M1 p. 10St.
25	Schaltknebel, vollstg./switch, cpl. commutateur, compl.	45/01.7-Tz4	S 1
	Generator-Baustein, vollstdg., bestehend aus: generator-component, compl., consisting of: bloc du générateur compl., consiste:	45/01.15-Tz10	T 3
27	Schalterleiterplatte/switch circuit plate plaque de circuit d'interrupteur	45/01.15-Tz1	
27	Generatorleiterplatte/generator circuit plate plaque de circuit imprimé pour le générateur	45/01.15-Tz2	
42	Fototransistorleiterplatte mit Fototransistorhalter photo transistor circuit plate with photo transistor clip plaque de circuit pour phototransistor avec support du transistor	45/01.15-Tz3	
26	Auslöseknopf vollstg., bestehend aus: release button cpl., consisting of: bouton délencer compl., bonsiste:	45/01.7-Tz10	M 1
	Auslösekontakt/release contact/ contact déclencheur	45/01.7-12	
	Auslösedruckfeder/release pressure spring/ ressort de pression déclencheur	45/01.7-13	
	Scheibe/disk/disque isolant	Ø 2,2x Ø4xO,5 Hp.	
28	Chassishalter/support for chassis/ support de chassis	45/01.7-17	A 1
29	Kontakthalter, vollstg. (für Batterieanschluß) support for contact (f. battery connection) support de contact (pour connexion batterie)	45/01.7-Tz7	Q 2
30	Senkblechschraube, schwarz/ counter sunk screw, black/vis de tôle, noir	BZ2,2x6,5 DIN 7972	M1 p. 10St.
31	Gelenkabdeckung/joint cover/ recouvrement de l'articulation	45/01.7-28	T 1
32	Lampenstabgehäuse/flash head housing/ boitier de la torche	45/01.7-Tz2	Q 2

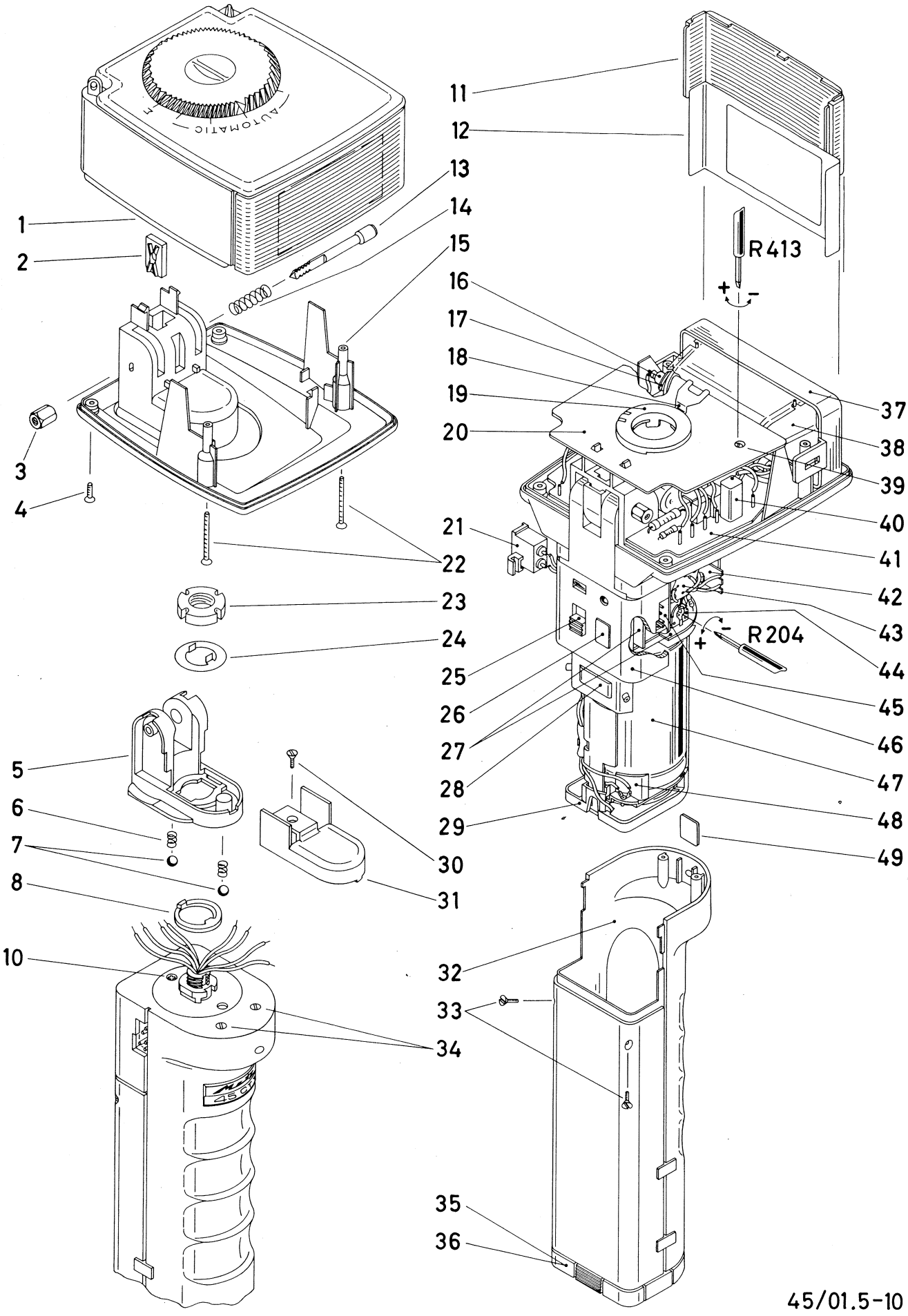
Nr. in Explosionszeichng. No. of exploded drawing No. dans le dessin d'explosion	Gegenstand Designation Objet	Bestell-Nr. Order-no. No. de commande	Preis-Code Price-code Prix-code
49	Fenster/window/fenêtre	45/01.7-37	
	Typenschild/name plate/plaque singalétique	45/01.7-32	
33	Linsensenkblechschraube, schwarz oval-head countersunk screw, black vis conique bombée cruciform de tôle, noir	BZ2,2x6,5 DIN 7983	P1 p. 10St.
34	Senkblechschraube, schwarz/ counter sunk screw,black/vis de tôle, noir	BZ2,2x9,5 DIN 7972	M1 p. 10St.
35	Batteriegehäuse, vollstg./batterie housing, cpl./boitier de batterie compl.	45/01.8-Tz1	W 2
36	NC-Akku, vollstg./NC-batterie cpl./ batterie NC compl.	45/01.9-Tz1	S 3
36	NC-Batteriegehäuse, vollstg./NC battery housing, cpl./boitier de batterie NC, compl.	45/01.9-Tz10	C 3
37	Reflektor-Isolierrahmen isolating frame for reflector cadre isolant du réflecteur	45/01.10-14	X 1
38	Reflektor mit Blitzröhre und Isolierrahmen, vollstg. reflector c/w flashtube and isolating frame,cpl. réflecteur avec tube-éclair et cadre isolant compl.	45/01.10-Tz2	L 3
	Reflektorspiegelhälften reflector mirror halves moitiés du miroir réflecteur	45/01.10-18	U 2
	Reflektor-Mittelschale/reflector centre/ partie centrale du réflecteur	45/01.10-16	
17	Federbügel/spring clip/ étrier de ressort de fermeture	45/01.10-31	
41	Reflektor-Leiterplatte, vollstg. reflector circuit plate, cpl. plaque de circuit pour réflecteur compl.	45/01.15-Tz5	P 3
43	Transistorhalterung (Plastikteil) support for transistor (plastic) support de transistor (plastique)	184.15-3	A 1
45	Sensorbuchse, vollstg./sensor jack, cpl./ douille du sensor, compl.	45/01.15-Tz8	N 2
46	Lampenstab-Deckel/flash head cover/ couvercle de la torche	45/01.7-2	X 1
	NC-Batteriegehäuse-Leiterplatte, vollstg. NC-battery housing circuit plate, cpl. plaque de circuit pour boitier de batterie NC, compl.	45/01.15-Tz6	S 2

Nr. in Explosionszeichng. No. of exploded drawing No. dans le dessin d'explosion	Gegenstand Designation Objet	Bestell-Nr. Order-no. No. de commande	Preis-Code Price-code Prix-code
	Spannbandgehäuse, vollstg. clamp with housing, cpl. support du collier compl.	45/01.11-Tz2	Q 2
	Schnellraste, vollstg./quick release, cpl./ attache rapide complête	403.26-Tz2	T 2
	Schiene, vollstg./bracket, cpl./ glissière, compl.	45/01.11-Tz4	A 3
	Rändelschraube 1/4"/knurled screw 1/4"/ vis moletée 1/4"	403.6-Tz7	B 2
	Rändelschraube M4 mit Sicherungsscheibe knurled screw with locking disk vis maletée M4 avec clip 2,3	45/01.11-7	V 1
	Synchronkabel/synchro-cable/ câble de synchronisation	45/01.6-Tz1	M 2
	Spiral-Synchronkabel/spiral synchro-cord/ câble de synchronisation à boudin	45/01.6-Tz3	V 2
	Synchronkabel lang/synchro-cable long/ câble de synchronsation long.	45/01.6-Tz4	P 2
	Tragriemen/carrying strap/ courroie de transport	45/01.26-Tz1	HPL
	Bedienungsanweisung/operating instructions notice d'utilisation	45/01.5	V 1
	Verpackungsschalen-Satz packing set (styropor) emballage polystyréne paire	45/01.5-5/9	H 2
	Faltschachtel/outerpacking/ carton d'emballage	45/01.5-6	D 2
	Schnelladegerät (Ausführung und Ersatzteile wie Mecablitz 402) quick charging unit (design and spare parts as Mecablitz 402) chargeur rapide (modéles et piéces de changement comme le Mecablitz 402		

Zubehör/accesories/Accessoires

Spiral/Synchronkabel spiral synchro-cord câble de synchronisation à boudin	45/01.6-Tz3
Tragriemen carrying strap courroie de transport	45/01.26-Tz1
Autoladegerät car recharger chargeur pour auto	A 16
NC-Akku-Set (Ladegerät u. NC-Akku-Einsatz) NC-accu-set (charger and NC-pack) ensemble de accu NC (chargeur et piece du accu NC)	B 45
Netzgerät (nur mit Kabel 45/01.26-Tz2) mains unit (requires special cable 45/01.26-Tz2) dispositif secteur (seulement avec cable 45/01.26-Tz2)	N 20
Netzgerät mains unit dispositif secteur	N 21
Mecamat (externer Universal-Sensor) Mecamat (external universal-sensor) Mecamat (sensor universel externe)	45-20
Weitwinkel- und Filter-Set (1 Streuscheibe, 1 klare Scheibe, 3 Farbfilter) wide angle and filter set (1 diffusing screen, 1 transparent screen, 3 colour filters) ensemble de largeur angulaire et filtres (1 diffuseur, 1 carreau transparent, 3 filtres de couleur)	45/21
Televorsatz tele-adapter tele-adapteur	46-22
Reflexschirm reflection screen parapluie de réflection	45-23
Bereitschaftstasche (für Gerät und Zubehör) utility bag (for unit and accesories) poche universelle (pour appareil et accessoires)	46-24

Notizen/notes/notes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R 413
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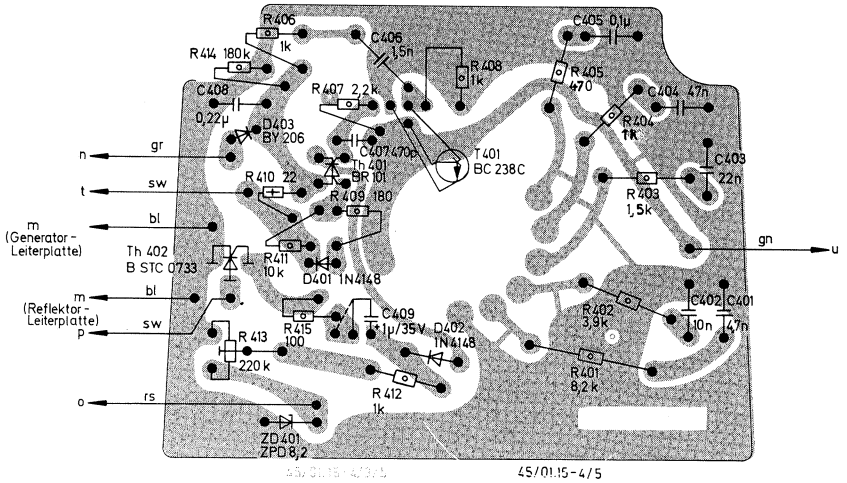
AUTOMATIC

45/01.5-10

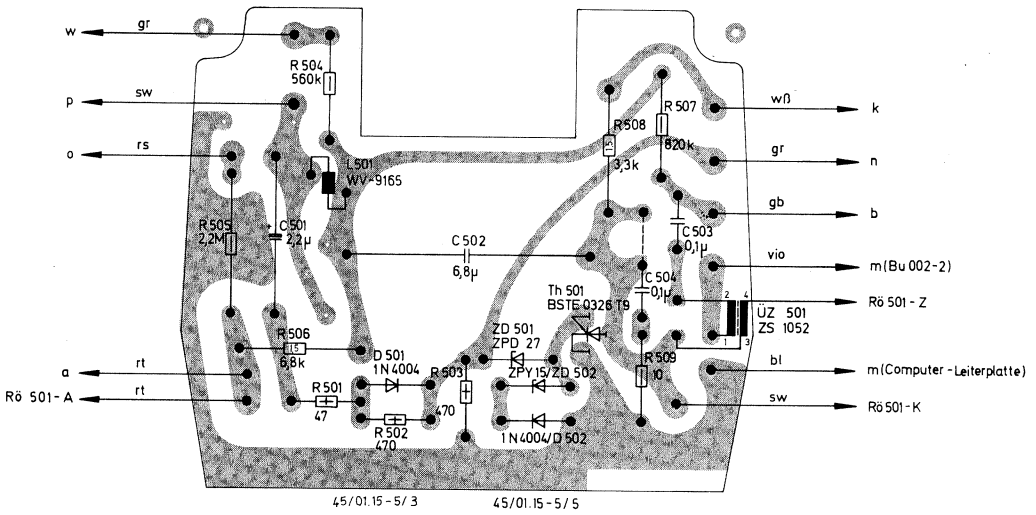
Computer-Leiterplatte 45/01.15-4

circuit plate of computer
plaque de circuit pour computer



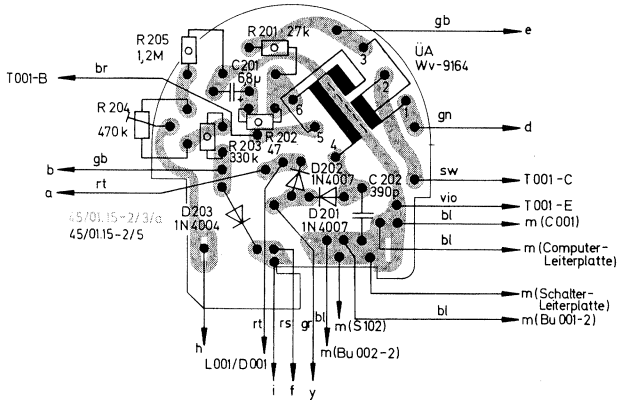
Reflektor-Leiterplatte 45/01.15-5

circuit plate of reflector
plaque de circuit pour reflecteur



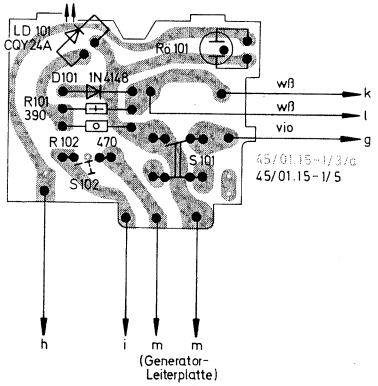
Generator-Leiterplatte 45/01.15-2

circuit plate of generator
plaque de circuit pour generateur



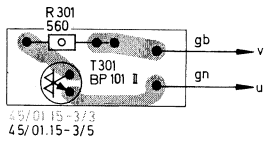
Schalter-Leiterplatte 45/01.15-1

circuit plate of switches
plaque de circuit pour interrupteur



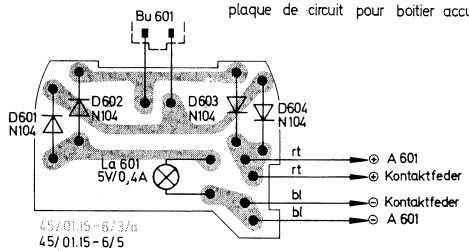
Fototransistor-Leiterplatte 45/01.15-3

circuit plate of phototransistor
plaque de circuit pour transistor photo



NC-Batteriegehäuse-Leiterplatte 45/01.15-6

circuit plate of NC-battery-housing
plaque de circuit pour boitier accu-NC

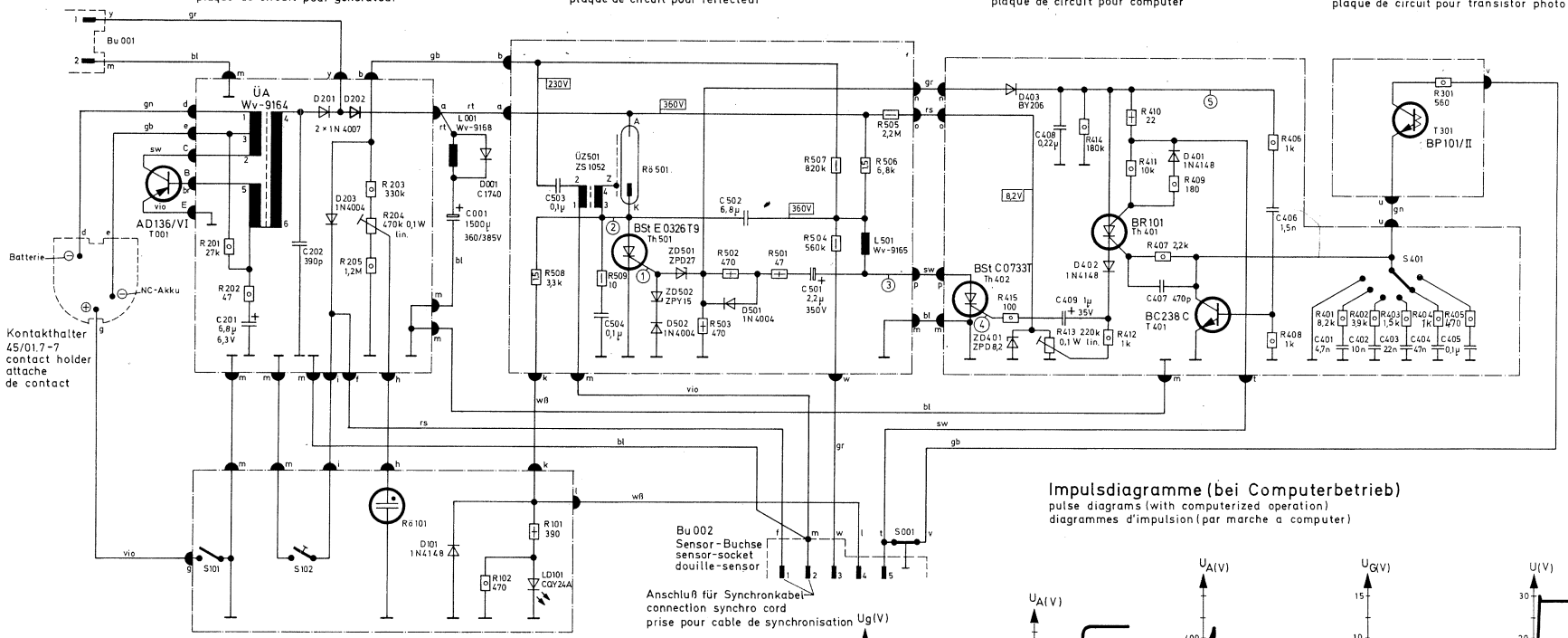


Generator-Leiterplatte 45/01.15-2
circuit plate of generator
plaque de circuit pour generateur

Reflektor-Leiterplatte 45/01.15-5
circuit plate of reflector
plaque de circuit pour reflecteur

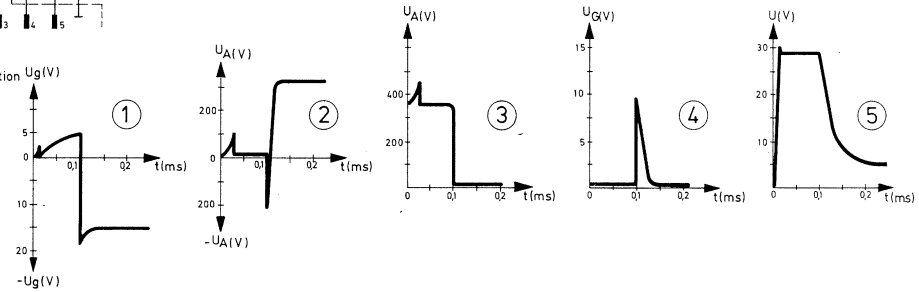
Computer-Leiterplatte 45/01.15-4
circuit plate of computer
plaque de circuit pour computer

Fototransistor-Leiterplatte 45/01.15-3
circuit plate of phototransistor
plaque de circuit pour transistor photo



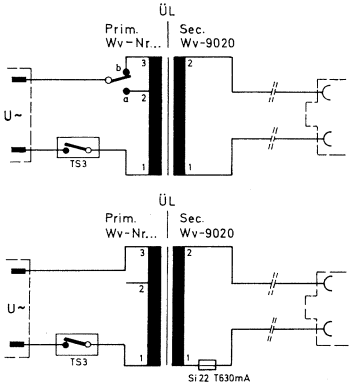
Schalter-Leiterplatte 45/01.15-1
circuit plate of switches
plaque de circuit pour interrupteur

Impulsdiagramme (bei Computerbetrieb)
pulse diagrams (with computerized operation)
diagrammes d'impulsion (par marche a computer)

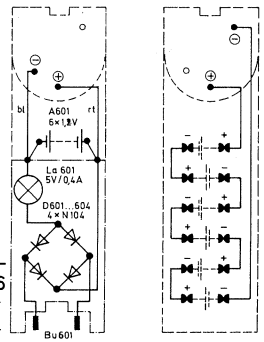


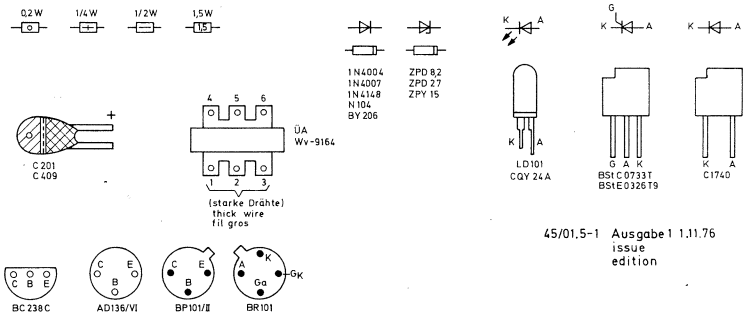
U~ a (V) b	ÜL-Prim. Wv-Nr
120 / 220	9093
127 / 220	9013
120 / 240	9014
220/ 250	9015

U~ (V)	ÜL-Prim. Wv-Nr
240	9014



NC-Akku 45/01.9-Tz1
NC-battery
accu - NC





45/01.5-1 Ausgabe 1 1.11.76
issue
edition

Änderungen vorbehalten!
subject to changes
modifications reservées

Ladegerät 402.12
charging unit
chargeur

NC-Batteriegehäuse-Leiterplatte 45/01.15-6
circuit plate of NC-battery-housing
plaque de circuit pour boitier accu-NC

Batteriegehäuse 45/01.8-1
battery-housing
boitier de piles

Schaltbild circuit diagram schéma de circuit

mecablitz 45CT1