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MANUAL

Traveling Wave Tube Amplifier
with
Power Supply RWNH 120
and
Traveling Wave Tubes
RW 89D
RW 90D
RW 1125D
RW 1125G

A65107-A41-A2-5-7618

Contents

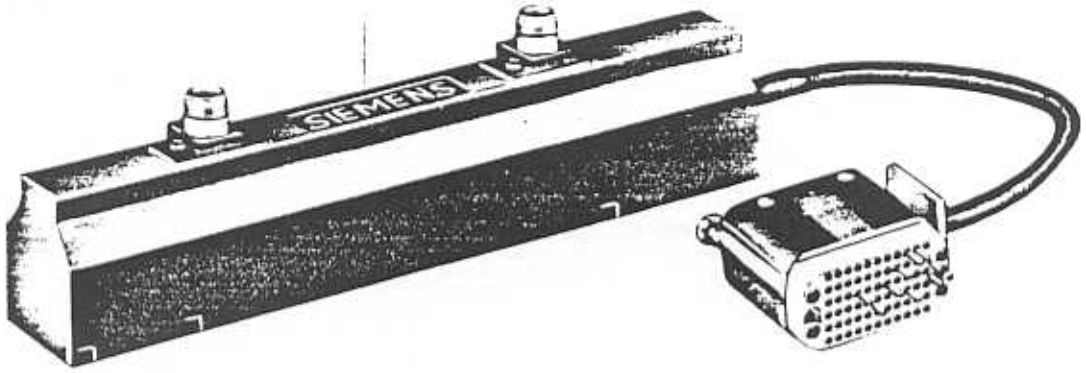


Figure 1. Traveling Wave Tube RW 89D, RW 90D

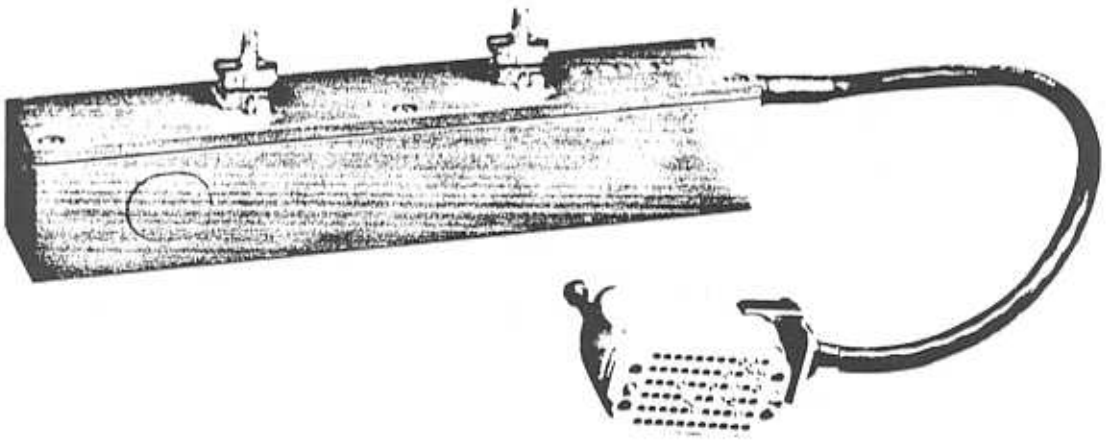


Figure 2. Traveling Wave Tube RW 1125D, RW 1125G

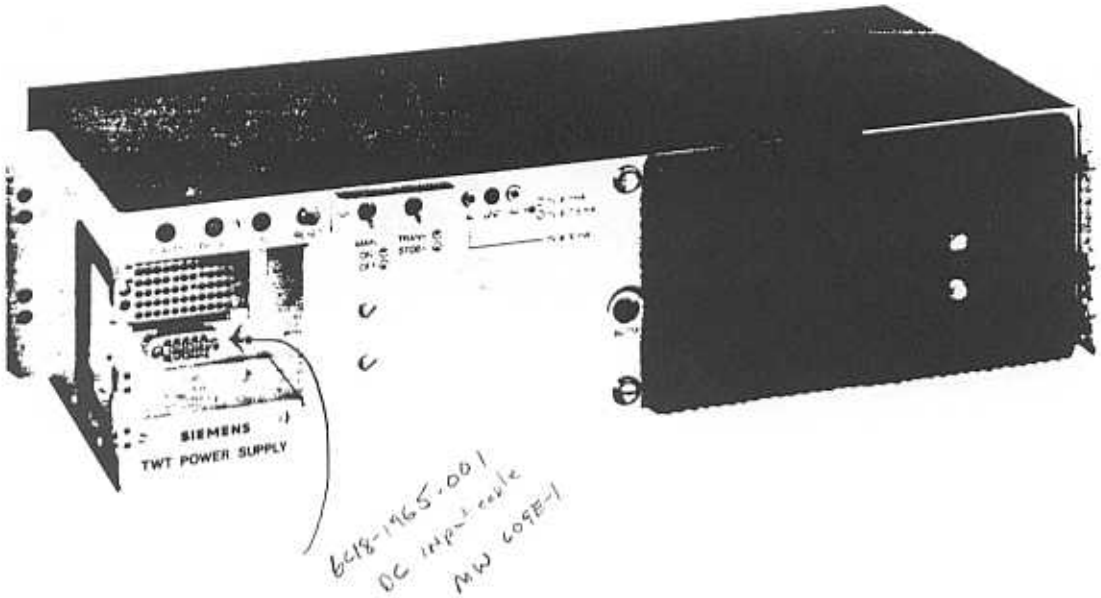


Figure 3. Plug-in Power Supply RWNH 120

1. General

The traveling wave tube amplifier (TWTA, figure 4), existing of the plug-in power supply RWNH 120 (figure 3) and the TWT RW 89 D, RW 90 D, RW 1125 D or RW 1125 G (figure 1 and 2), is designed to be used in a microwave radio as a power amplifier. Depending on the operated TWT the amplifier delivers a CW power output of up to 15 W in the frequency range 5.9 to 8.5 GHz and up to 20 W in the range 10.7 to 13.25 GHz.

The tube construction is metal-ceramic with double-stage collector and an integrated periodic permanent magnet system. The TWT is conduction cooled by means of a heat sink. The RF input and output connectors are coaxial connections. Connection between TWT and the power supply is via a cable with a 66-pin Winchester connector.

The RWNH 120 applies all voltages for proper tube operation and contains automatic helix overcurrent protection. An integrated alarm circuit board provides external alarm indication (front panel or remote). The primary input DC power ranges from 21 to 75 V (without strapping).

The TWTA operates with a constant helix voltage; the output power is adjustable by means of a potentiometer, located on the front panel, for beam current (single dial control).

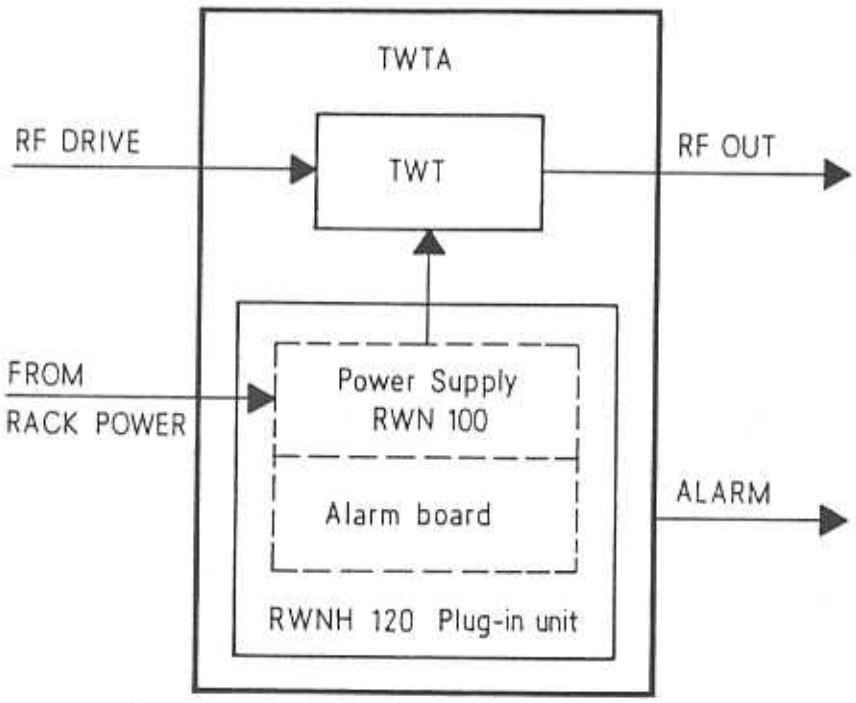


Figure 4. TWTA Typical Application

2. Physical and Electrical Characteristics

2.1 Size

TWT RW 89D, RW 90D	285 mm x 46 mm x 54 mm (11.2 in. x 1.8 in. x 2.1 in.)
TWT RW 1125D, RW 1125G	265 mm x 45 mm x 48 mm (10,4 in. x 1.77 in. x 1.9 in.)
Power Supply RWNH 120	482 mm x 110 mm x 215 mm (19 in. x 4.3 in. x 8.5 in.)

2.2 Weight

TWT RW 89D, RW 90D	1.4 kg (3.1 lb)
TWT RW 1125D, RW 1125G	1.8 kg (4 lb)
Power Supply RWNH 120	5.8 kg (12.9 lb)

2.3 Service Conditions

Ambient temperature *) full specification operational	 0 to 60 °C -20 to +65 °C
Storage temperature	-40 to +75 °C
Relative humidity	max. 95 % (no condensation)
Altitude	max. 4500 m
Vibration and Shock	Normal storage and handling
Duty	Continuous, unattended

*) see also "6. Dissipated heat of TWT"

2.4 Power Requirements

Nominal input voltage range	U_B	24 to 60	Vdc
Operating input voltage range	U_B	21 to 75	Vdc
Power input	P_B	max. 110	W
Internal input fuse (picofuse)		7	A

Attention $+U_B$ is connected with case. Before switching-on, the power supply must be properly grounded. Switching-on without grounding destroys the unit.

2.5.1 Interface Requirements at Operation with RW 89D

Operating frequency	5.925 to 7.125			GHz
Analog operation:				
Power output	15	11	3	W
Power input (± 1 dB)	1.5	1.5	0.3	mW
Gain flatness across any 40 MHz band; typical	0.2	0.25	0.3	dB
AM/PM conversion, nom	2.5	2.5	2	°/dB
max	4	4	3	°/dB
Noise figure, nom	23	23	23	dB
max	26	26	26	dB
Gain change (over ambient temperature operating range)	≤±0.5	≤±0.5	≤±0.5	dB
Input current at U_B = 24 V	≤3.4	≤ 3	≤ 3	A
Digital operation (16 QAM)				
Power output		35		dBm
Cathode current		55 ± 2		mA
Gain		≥ 45		dB
Third order intermodulation products measured with two carriers of 32 dBm		≥ 28		dB
Input current at U_B = 24 V		≤ 3		A
Radiated Emission (measured using an F70 or R70 waveguide to coax transition located 150 mm/6 in. from P.A.)		≤-60		dBm
Helix current				
nominal		1		mA
maximum		2		mA
switch-off limit		3.7 mA (+ 8%)		
prealarm		3 mA (± 10%)		
Maximum permissible load reflection		3		W
End of life	2 dB maximum power output reduction from original value			

2.5.2 Interface Requirements at Operation with RW 90D

Operating frequency	7.1 to 8.5			GHz
Analog operation:				
Power output	15	11	3	W
Power input (± 1 dB)	1.5	1.5	0.3	mW
Gain flatness across any 40 MHz band; typical	0.2	0.25	0.3	dB
AM/PM conversion, nom	3	3	2	°/dB
max	4	4	3	°/dB
Noise figure, nom	23	23	23	dB
max	26	26	26	dB
Gain change (over ambient temperature operating range)	≤±0.5	≤±0.5	≤±0.5	dB
Input current at U_B = 24 V	≤3.4	≤ 3	≤ 3	A
Digital operation (16 QAM)				
Power output		35		dBm
Cathode current		53 + 2		mA
Gain		≥ 45		dB
Third order intermodulation products measured with two carriers of 32 dBm		≥ 28		dB
Input current at U_B = 24 V		≤ 3		A
Radiated Emission (measured using an F84 or R84 waveguide to coax transition located 150 mm/6 in. from P.A.)		≤-60		dBm
Helix current				
nominal		1		mA
maximum		2		mA
switch-off limit		3.7 mA (± 8 %)		
prealarm		3 mA (± 10%)		
Maximum permissible load reflection		3		W
End of life	2 dB maximum power output reduction from original value			

2.5.3 Interface Requirements at Operation with RW 1125D

Operating frequency	10.7 to 12.7			GHz
Analog operation:				
Power output	15	11	3	W
Power input (± 1 dB)	1.5	1.5	0.3	mW
Gain flattness across any 40 MHz band; typical	0.2	0.25	0.3	dB
AM/PM conversion, nom	4	3.5	2	°/dB
max	5	4.5	3	°/dB
Noise figure, nom	25	25	25	dB
max	27	27	27	dB
Gain change (over ambient temperature operating range)	≤±0.5	≤±0.5	≤±0.5	dB
Input current at U_B = 24 W	≤3.9	≤ 3	≤ 3	A
Digital operation (16 QAM)				
Power output		35		dBm
Cathode current		55 ± 2		mA
Gain		≥ 45		dB
Third order intermodulation. Products measured with two carriers of 32 dBm		≥ 29		dB
Input current at U_B = 24 V		≤ 3.1		A
Radiated Emission (measured using an F100 or R100 waveguide to coax transition located 150 mm/6 in. from P.A.)		≤-60		dBm
Helix current				
nominal		1		mA
maximum		2.5		mA
switch-off limit		3.7 mA (± 8 %)		
prealarm		3 mA (± 10%)		
Maximum permissible load reflection		≤3		W
End of life	2 dB maximum power output reduction from original value			

2.5.4 Interfarce Requirements at Analag Operation with RW 1125 G

Operating frequency	10.7 to 13.25	GHz
Power output	20	W
Power input (± 0.5 dB)	1.6	mW
Gain flatness across any 40 MHz band; typical	0.2	dB
AM/PM conversion		
nominal (10.7 to 11.7 GHz)	3	°/dB
(11.7 to 13.25 GHz)	4	°/dB
maximum (10.7 to 11.7 GHz)	3.5	°/dB
(11.7 to 13.25 GHz)	5	°/dB
Noise figure		
nominal	25	dB
maximum	27	dB
Gain change (over ambient temperature operating range)	≤±0.5	dB
Radiated Emission (measured using an F100 or R100 waveguide to coax transition located 150 mm/6 in. from P.A.)	≤-60	dBm
Helix current		
nominal	1	mA
maximum	2.5	mA
switch-off limit	3.7 mA (± 8 %)	
prealarm	3 mA (± 10%)	
Input current at U_B = 24 V	≤4.5	A
Maximum permissible load reflection	≤3	W
End of life	2 dB maximum power output reduction from original value	

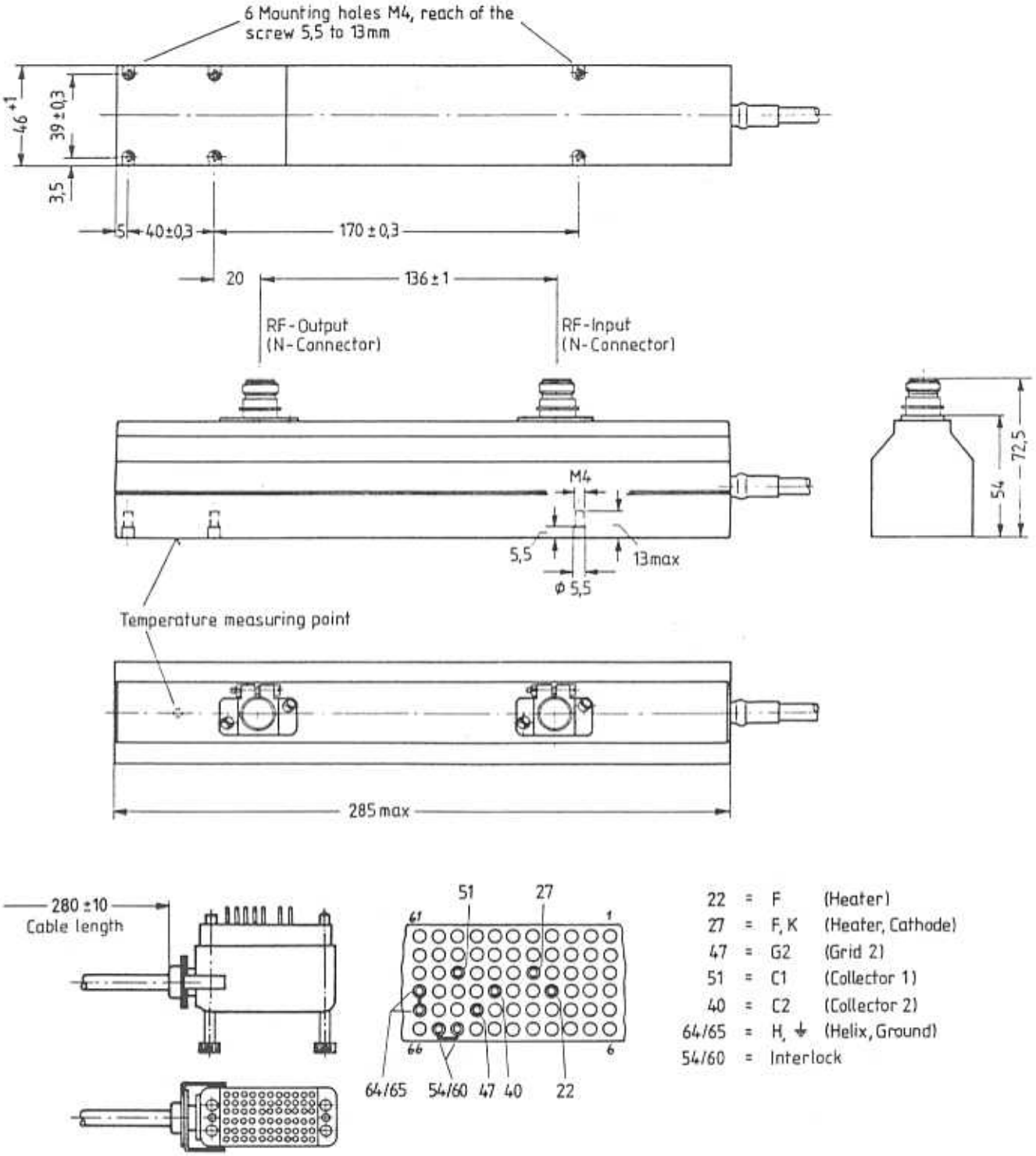
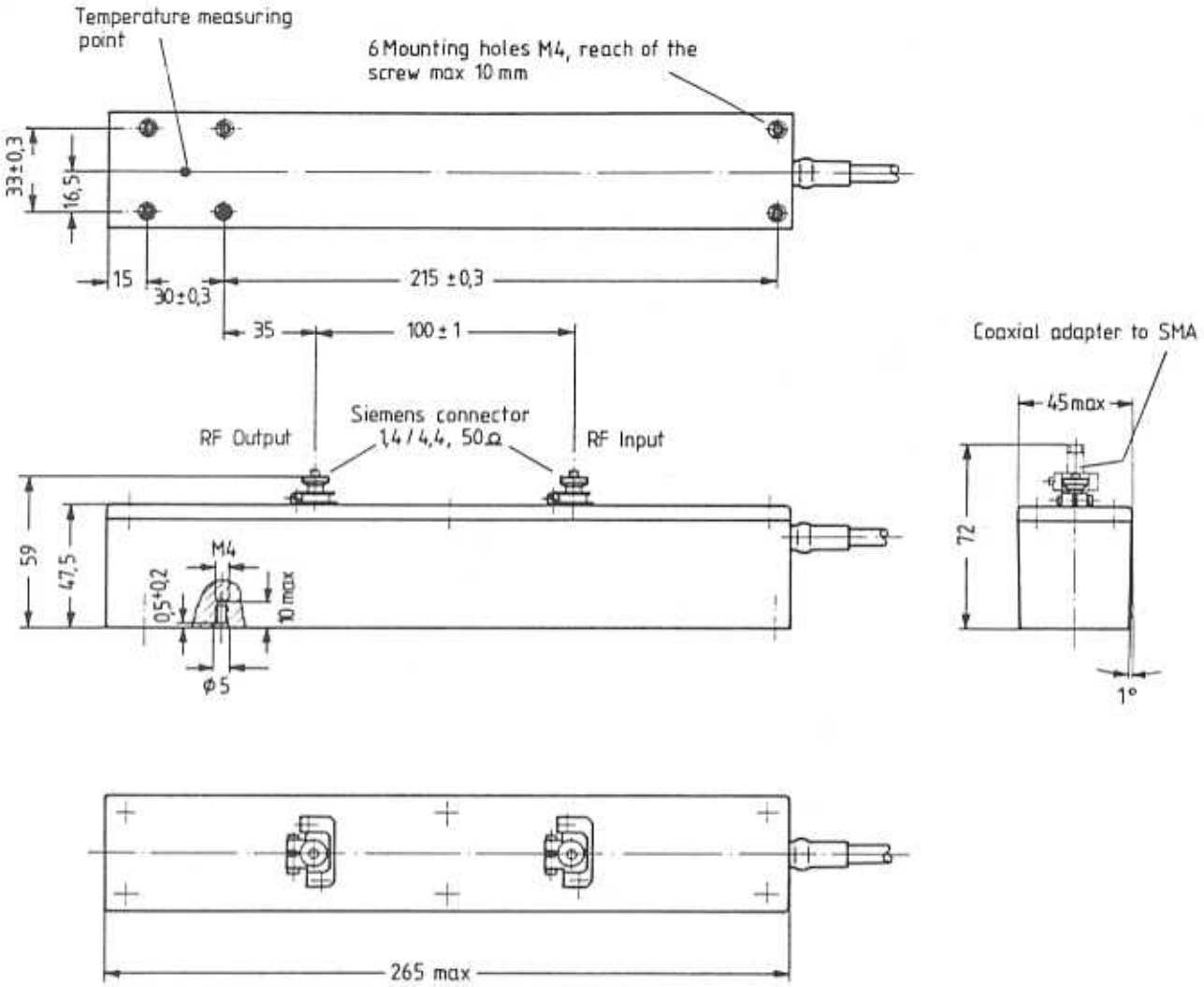
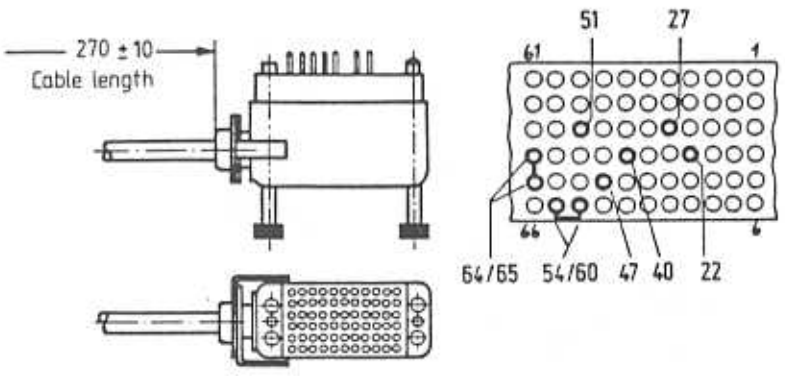


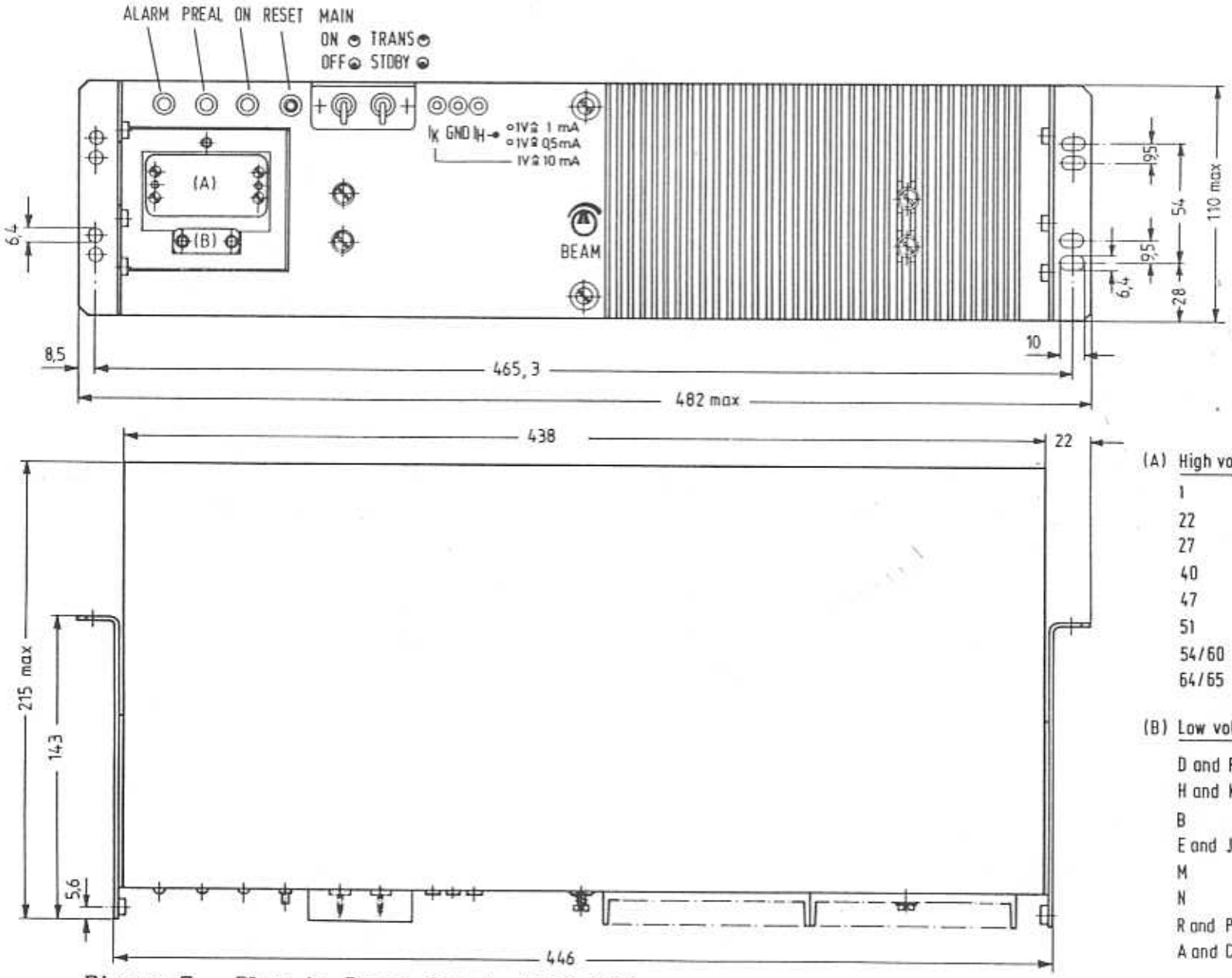
Figure 5. Traveling Wave Tube RW 89D, RW 90D





22	=	F (Heater)
27	=	F, K (Heater, Cathode)
47	=	G2 (Grid 2)
51	=	C1 (Collector 1)
40	=	C2 (Collector 2)
64/65	=	H, ⏚ (Helix, Ground)
54/60	=	Interlock

Figure 6. Traveling Wave Tube RW 1125D, RW 1125G



(A) High voltage connector

1	Alarm 2
22	-Heater
27	+Heater and Cathode
40	Collector 2
47	Grid 2
51	Collector 1
54/60	Interlock
64/65	Helix, Ground

(B) Low voltage connector

D and F	$-U_B$
H and K	$+U_B$, Ground
B	Ground
E and J	Alarm
M	$+I_K$
N	$+I_H$
R and P	Remote Prealarm
A and C	Remote Reset

Figure 7. Plug-in Power Supply RWNH 120

3. Switches, Indicators, Test points and Connectors

3.1 Main switch
Main switch for two pole disconnection of supply voltage U_B

3.2 STDBY/TRANS switch
Change-over switch from stand-by to RF operation

3.3 RESET push button
After a I_H over-current switch off, the off state can be finished by means of the RESET push button.

3.4 ON indicator
The ON indicator LED lights if I_K is higher than 20 $\pm$ 3 mA.

3.5 PREALARM indicator

The PREALARM indicator LED lights due to the following conditions:

a) the failure counter in the power supply initiates the last automatic switch on
b) helix current exceeds 3 $\pm$ 0.3 mA

3.6 ALARM indicator

The ALARM indicator LED lights due to the following conditions:

a) during preheating time
b) at stand-by operation (STDBY/TRANS switch in position STDBY)
c) cathode current falls below 20 $\pm$ 3 mA
d) the unit switches off due to excessive helix current or after 8 short supply voltage interruptions within 2 hours (failure counter responses after short supply voltage interruptions).

In case d) LED PREALARM lights also.

3.7 Sockets I_K and GND or pins M and B on low-voltage connector

for measurement of cathode current.

Measuring voltage:	1 V corresponds to 10 mA cathode current
Internal resistance of measuring instrument:	100 kΩ ($\pm$ 5%)
Impedance of measuring output:	approx 2.2 kΩ
Polarity:	+ on socket I_K/Pin M - on socket GND/Pin B

3.8 Sockets I_H and GND or pins N and B on low-voltage connector

for measurements of helix current.

Measuring voltage:	1 V corresponds to 1 mA helix current (switchable in the unit to "1 V corresponds to 0.5 mA", see figure 8)
Internal resistance of measuring instrument:	≧ 100 kΩ
Polarity;	+ on socket I_H/Pin N - on socket GND/Pin B
Impedance of measuring output:	1 kΩ (2 kΩ)

3.9 Alarm outputs

Alarm 1 (pins E and J on low voltage connector)

At normal operating range (LED ON lights), Alarm 1 connections are short circuited to ground by a relay contact (max 1 A/ 20 VA/100 Vdc).
Alarm 1 is switchable in the unit to operate in the same way as Alarm 2 by switching S1 to position B (see circuit diagram C65107-A43-B10-*-11 and drawing C65107-A43-B10).

Alarm 2 (socket 1 on high-voltage connector)

In case of fault (LED AlARM lights), Alarm 2 connection is short circuited to ground by a relay contact (max 1 A/20 VA/ 100 Vdc).

Remote prealarm (pins R and P on low voltage connector)

These pins are connected by a relay contact (max. 1 A/20 VA/ 100 Vdc) under the same conditions as LED Prealarm lights. (Switchable to operate in the opposite way by switching S2 to position B; see circuit diagram C65107-A43-A10-*11 and drawing C65107-A43-B10).

3.10 Remote Reset (pins A and C on low voltage connector)

A connection between these pins initiates a reset command.

3.11 High-voltage connections

		PIN
+Heater/Cathode	+F/K	27
-Heater	-F	22
Grid 2	G2	47
Helix, Ground	H,	64/65
Collector 1	C1	51
Collector 2	C2	40
Interlock		54-60
Alarm 2		1

3.12 Low-voltage connections

	PIN
$-U_B$	D and F
$+U_B$, Ground	H and K
Ground	B
Alarm 1	E and J
Meter output $+I_K$	M
Meter output $+I_H$	N
Remote prealarm	R and P
Remote reset	A and C

4. Protective Device Response

The power supply is automatically switched off when the maximum admissible helix current of the tube is exceeded.

After switching off due to excessive helix current the power supply is automatically switched on eight times before it is ultimately switched off if the overcurrent condition still exists. A new switch-on cycle can be initiated by means of the "RESET" push button.

Following automatic switch-off due to helix overcurrent or an input voltage failure of ≤ 5 seconds duration, the tube is operational immediately after automatic switch-on.

Following a failure of switch-off of longer than 5 seconds, the grid 2 voltage will be applied to the tube after the full preheating time of approximately 1 minute.

If inadmissible excess temperature occures, the power supply switches off automatically. It switches on again if the temperature decreases in the permissable range. The switch-off value is designed for a temperature of approximately 85 ^{o}C on the heat sink.

5. Starting and Switching-Off

Pay Attention! Before changing tube, switch off power supply by MAIN switch.

For safety precautions the power supply can not be switched on without TWT (interlock function, pin 54 - 60).

5.1 TWT mounting (check length of metric screws)

The distance between the tube and ferromagnetic parts should be at least 10 mm.
When mounting two tubes side by side, a distance of at least 30 mm must be observed.
Stray fields should not exceed following values at the surface of tube:

DC field	20 A/cm
Alternating field, rms	0.8 A/cm

The RF coaxial leads to the tube should be flexible to prevent any mechanical stress on the RF input and output of the tube.

To ensure intimate RF contact the N-connectors of the tubes RW 89D and RW 90D must be tightened with a torque of minimum 2 Nm. The maximum permissible torque is 4 Nm.

5.2 Initial starting

5.2.1 Set operating voltages by means of code switches and wire bridge in the unit to required TWT conditions (see table 1 or 2 and figure 8). The input voltage range is 21 to 75 Vdc, no strapping required.
The settings which are strapped by the manufacturer are shown on the power supply lable "POWER SUPPLY ADJUSTMENTS". Strapping by the user should be marked on the same lable.

5.2.2 Connect TWT and power supply

5.2.3 Check RF input drive
a) For analog operation it should be set to the value shown in table 1
b) For digital operation it should be adjusted for the desired RF power output after setting the cathode current (see 5.2.8b)

5.2.4 Rotate potentiometer for grid 2 voltage (BEAM) fully counterclockwise.

5.2.5 Apply input voltage and set MAIN switch to ON position.

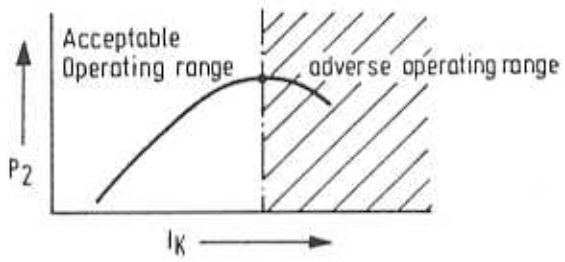
5.2.6 Push RESET button

5.2.7 Set STDBY/TRANS switch to TRANS
(ALARM indicator lights up during TWT-preheating time of approximately 60 seconds and I_K ≤20 ± 3 mA)

5.2.8 After approximately 5 minutes warm-up adjust the desired RF operation point.

a) For analog operation adjust RF power output by setting grid 2 voltage potentiometer (BEAM) at the specified power input (table 1).
Be sure that the maximum admissible cathode current of TWT and a helix current of 2.5 mA are not exceeded (monitor voltages at I_H and I_K test points).

Because it is possible to set the tube operating point near the saturation power with two different cathode currents (see following illustration), particular attention should be paid that the operating point is set only with the lower current. Operation in the adverse range will result in reduced efficiency and a decrease in tube life.
(Each tube is labeled with its typical cathode and helix current)



b) For digital operation adjust the cathode current to the value stated on table 2 by setting the grid 2 potentiometer. Then adjust RF input signal to the desired RF power output.

5.3 Switching off

The unit will be switched off by MAIN switch.

5.4 Switching on again

5.4.1 Set MAIN switch to ON position

5.4.2 Push RESET button

5.4.3 Set STDBY/TRANS switch to TRANS

5.4.4 After a preheating time of approximately 60 s the amplifier is operational.
The ALARM indicator goes out after preheating time.

5.5 Stand-by operation (for service and maintaining periods)

If STDBY/TRANS switch is in the STDBY position, all voltages - except grid 2 voltage - are applied to the TWT. During stand-by operation the ALARM indicator lights.

After switching to TRANS position the amplifier is operational.

For longer life, the tube should not be operated in STDBY position during maintaining or testperiods for more than 1000 hours without interruption.
Leaving a second tube on hot stand-by is allowed only in the TRANS position.

6. Dissipated heat of TWT

The heat of the TWT will be dissipated over the cooling surface. The temperature must not exceed 100 °C on the tube (temperature measuring point).
In the interest of long life and reliability it is advisable that the tube temperature remains well below the maximum limits.

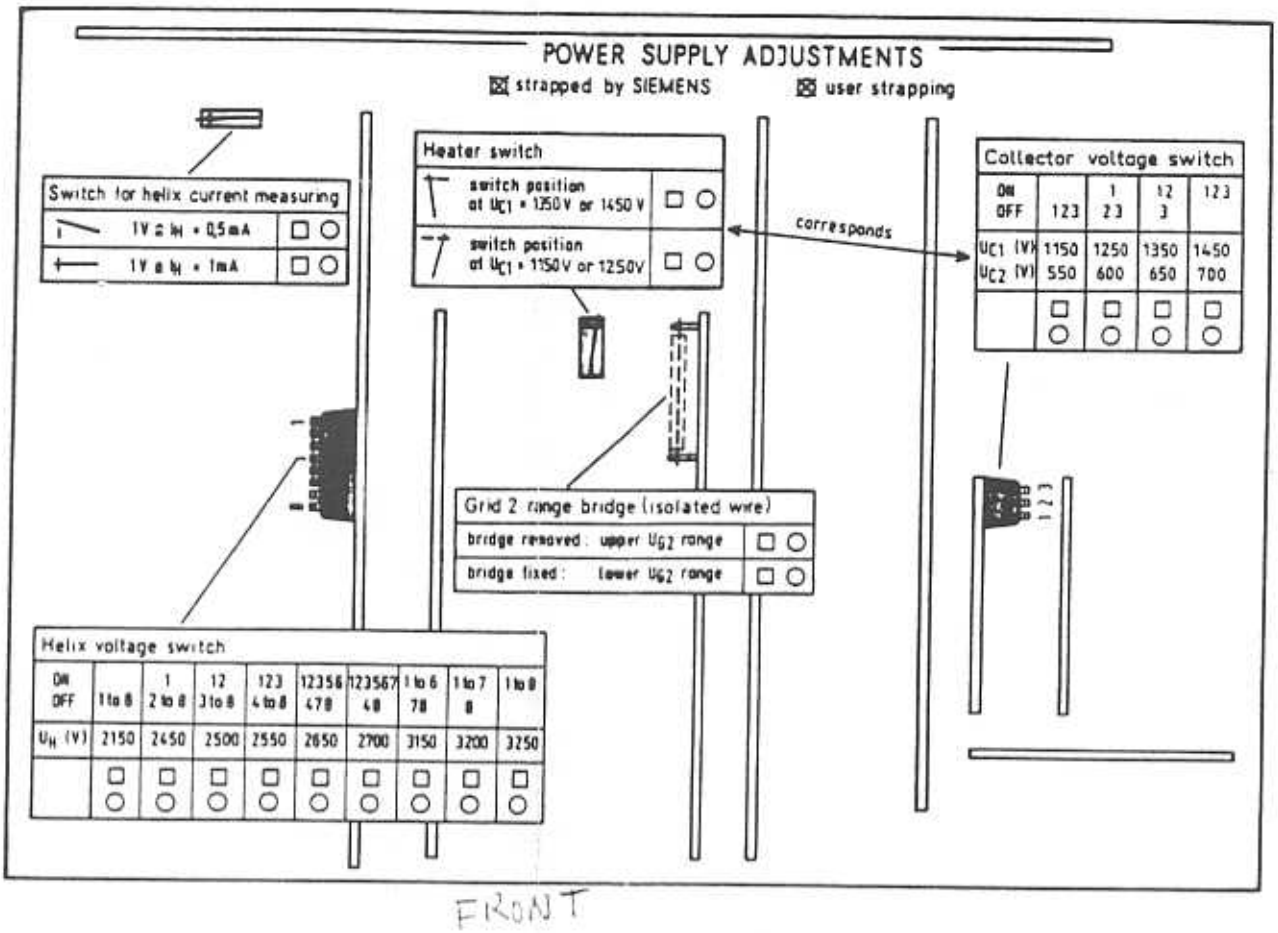


Figure 8. Permissible power supply adjustments.

Strapping can be done by removing the shielding hood (2 looking screws on the front panel, one-fourth turned) and the upper metal sheet (2 screws).

Attention Be sure that no insulating material is removed from inside of metal sheet during handling.

Setting / Tube	Option			Requirements						Strapping
	f GHz	P_2 W	P_1(±1dB) mW	Collector voltage switch ON	Collector voltage switch OFF	Helix voltage switch ON	Helix voltage switch OFF	Grid 2 range bridge	Heater switch	
RW890	5.925 to 7.125	3(<7)	0.3		1-2-3	1-2	3 to 8	fixed	⁻ ⌇	1
	5.925 to 7.125	10(7 to 12)	1.5		1-2-3	1-2	3 to 8	fixed	⁻ ⌇	1
	5.925 to 6.425	15(>12)	1.5		1-2-3	1-2-3	4 to 8	fixed	⁻ ⌇	2
	6.425 to 7.125	15(>12)	1.5		1-2-3	1-2	3 to 8	fixed	⁻ ⌇	1
RW900	7.1 to 8.5	3(<7)	0.3		1-2-3	1-2	3 to 8	fixed	⁻ ⌇	1
	7.1 to 8.5	10(7 to 12)	1.5		1-2-3	1-2	3 to 8	fixed	⁻ ⌇	1
	7.1 to 8.5	15(>12)	1.5		1-2-3	1-2-3	4 to 8	fixed	⁻ ⌇	2
RW1125D	10.7 to 12.7	3(<7)	0.3	1-2	3	1 to 6	7-8	removed	⌇ ⁻	3
	10.7 to 12.7	10(7 to 12)	1.5	1-2	3	1 to 6	7-8	removed	⌇ ⁻	3
	10.7 to 12.7	15(12 to 16)	1.5	1-2-3		1 to 7	8	removed	⌇ ⁻	4
RW1125G	10.7 to 13.25	20(>16)	1.6(±0.5 dB)	1-2-3		1 to 7	8	removed	⌇ ⁻	4

Table 1. ~~TWTA~~ Strapping ~~for Analog Operation~~

Setting / Tube	Option			Requirements						Strapping Position
	f GHz	P_2 dBm	I_K mA	Collector voltage switch ON	Collector voltage switch OFF	Helix voltage switch ON	Helix voltage switch OFF	Grid 2 range bridge	Heater switch	
RW 890	5.925 to 7.125	35	55±2		1-2-3	1-2	3 to 8	fixed	⁻ ⌇	1
RW 900	7.1 to 8.5	35	53±2		1-2-3	1-2-3	4 to 8	fixed	⁻ ⌇	2
RW 1125D	10.7 to 12.7	35	55±2	1-2-3		1 to 7	8	removed	⌇ ⁻	4

Table 2. TWTA Strapping for Digital Operation

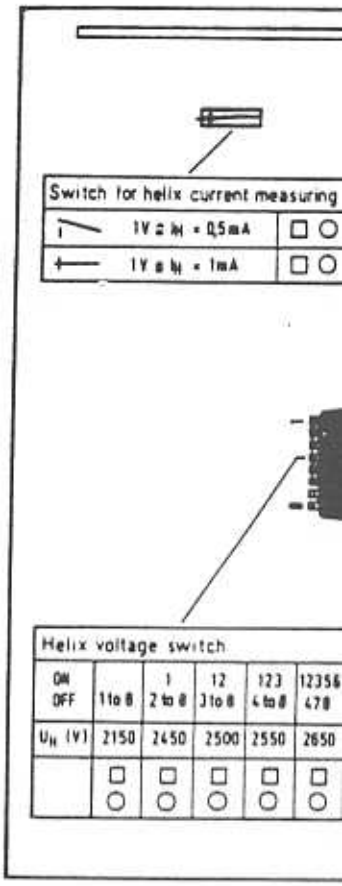


Figure 8. Permis
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Functional Description TWT Power Supply RWN 100
(see block diagram, figure 9)

The battery voltage applies to the flyback converter through an input filter, which together with the stages driver, modulator and regulator operates as preregulator.

The voltage originated on the flyback-converter output is constant, but changeable in 4 steps.

This intermediate-circuit voltage will be supplied to a half bridge inverter and contains a saturation transformer TR 501 in the circuit of the power transistor switch.

The primary side of the collector transformer TR 101 applies on the bridge arms of this inverter. The inverter operates with a frequency of approximately 28 kHz, on the primary winding originates a rectangular voltage of about 0.5 times of the preregulator output voltage. This ac voltage serves over the transformer TR 102 to produce the needed auxiliary voltages for helix control and external AUX. The inverter is switchable over the control output "HV OFF" of the control unit.

The secondary side of the transformer TR 101 produces:

- on the winding C2 a rectangular ac voltage, which will be rectified and filtered. This voltage applies between cathode (-) and collector 2 (+) of the TWT.
- on the winding C1 a rectangular ac voltage, which will be rectified, filtered and connected in series with collector 2 voltage. This voltage applies between cathode (-) and collector 1 (+) of the TWT.

The total cathode current flows as a ac current in the C2 winding of the transformer TR 101. A current-voltage transformer (I_K transformer) TR 600 delivers on its secondary side an ac voltage, which rectified applies on a pin of the low-voltage connector for telemetering of the cathode current.

The rectangular ac voltage on the C2 winding of TR 101 supplies additionally the heater source over the heater transformer TR 103. The heater source consists of a voltage stabilized series control with a current limiting control to limit the warm-up current of the tube and transient protection.

To reach high efficiency, TR 103 is switchable on its primary side. Depending on set collector voltages the available energy for the heater voltage source will be reduced or rised.

The helix voltage is built with collector 2, collector 1 and ΔU_H dc voltages in series. A voltage doubler circuit takes the energy from the helix transformer. One primary pin of the transformer is connected with the primary side of the collector transformer TR 101, the second pin is connected with the serious regulator in the helix control. As helix voltage must be extremely stabil, but collector 1 and collector 2 voltage are not really stabilized, the helix voltage will be regulated depending on load. The actual value of cathode potential will be supplied to the helix regulator over the helix measuring resistor R 142. According to tube operating values the set-point adjustment of this regulator can be changed in steps.

The control level of the amplifier drives the transistor T 003, which determines the current flow through the transformer TR 104. R 120 in connection with the helix control electronic is monitoring the helix current of the tube. The voltage drop on R 120 is applied to two comparators and an integrator. Comparator 1 changes its state of output if a definite helix current limit is exceeded and signals the function prealarm at the pin INDIC of the low-voltage connector. Comparator 2 changes its state of output if the maximum permissible helix current is exceeded and switches on an integrator which measures the product of current amplitude times time. After reading the maximum charge quantity Q_H, the power supply is switched off by the control unit.

The grid 2 voltage is generated from the voltage between helix and cathode by a high voltage resistance divider with subsequent amplifiers. The grid 2 voltage is continuously adjustable in the necessary range of operated tube.

The control unit includes the following functions:

- Interlock circuit:
  It prevents to generate output voltages if tube is not connected

- Preheating time:
  After preheating time of approx. 60 s the tube can be switched on by input STDBY/TRANS, applying grid 2 voltage over relais S 103

- Grid 2 delay after HV-start:
  Grid 2 delay after HV-start prevents simultaneously rising with the helix voltage to avoid helix overload conditions.

After supply voltage interruption of less than 5 s duration, the power supply switches on immediately without preheating time.

After supply voltage interruptions of more than 5 s, the power supply switches on automatically if preheating time of 60 s is expired.

- Helix overload counter:
  After switching off due to excessive helix current each automatic switch-on procedure for the high voltage part of the supply will be counted.
  The power supply switches off totally if 8 automatic switch-on procedures occur in a short periode of time.

  At the last automatic switch-on cycle, the indicator will be activated and indicates that with the next failure the power supply switches off totally, Indicator is still active.

- Automatic reset
  Every 2 hours the failure counter will be set to zero through automatic electronic order.
  If the power supply switches off due to 8 failures, it will be switched on again within two hours or start a new testing cycle.

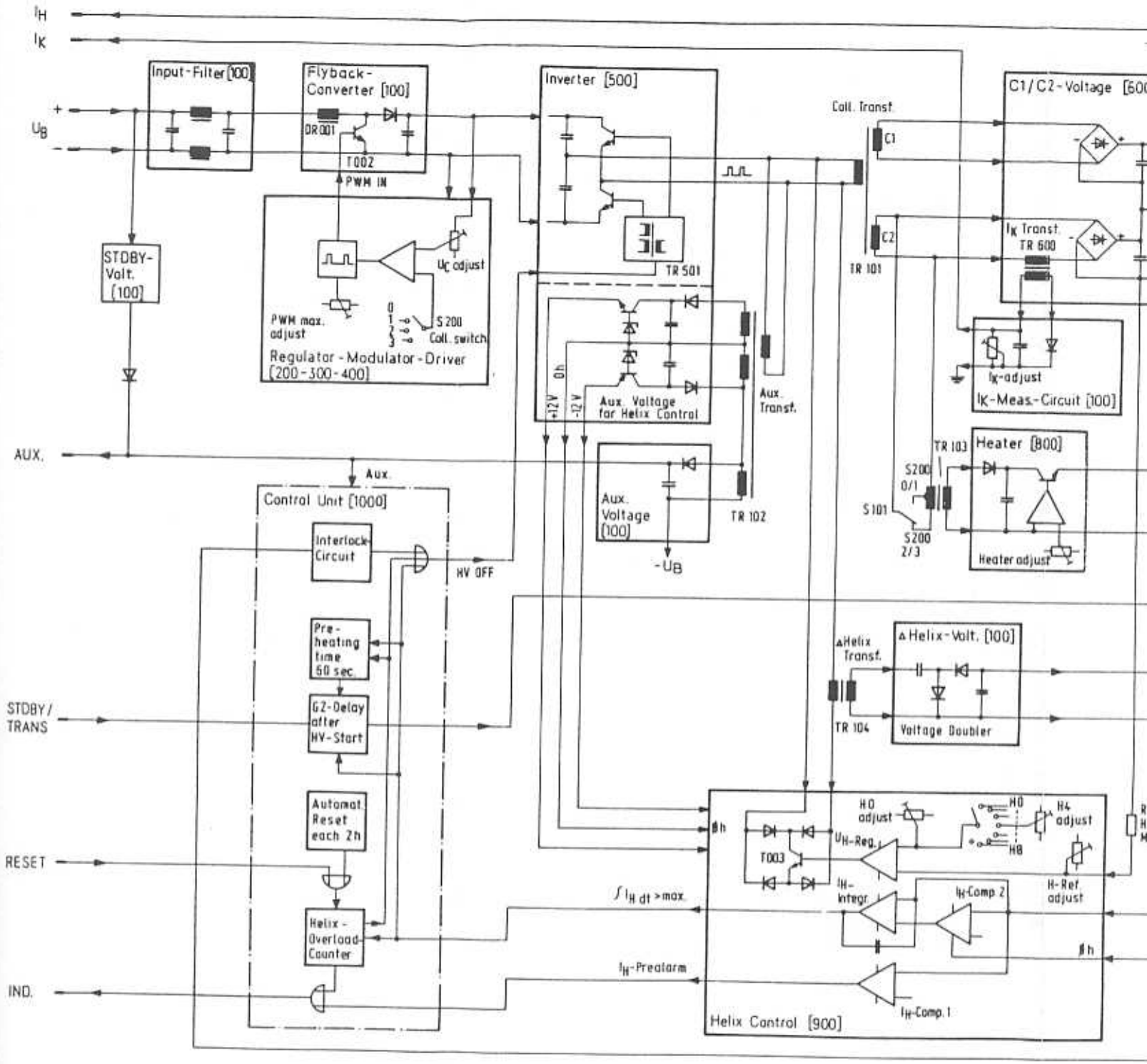


Figure 9. Block Diagram for Power Su
(Rem.: Parts are located

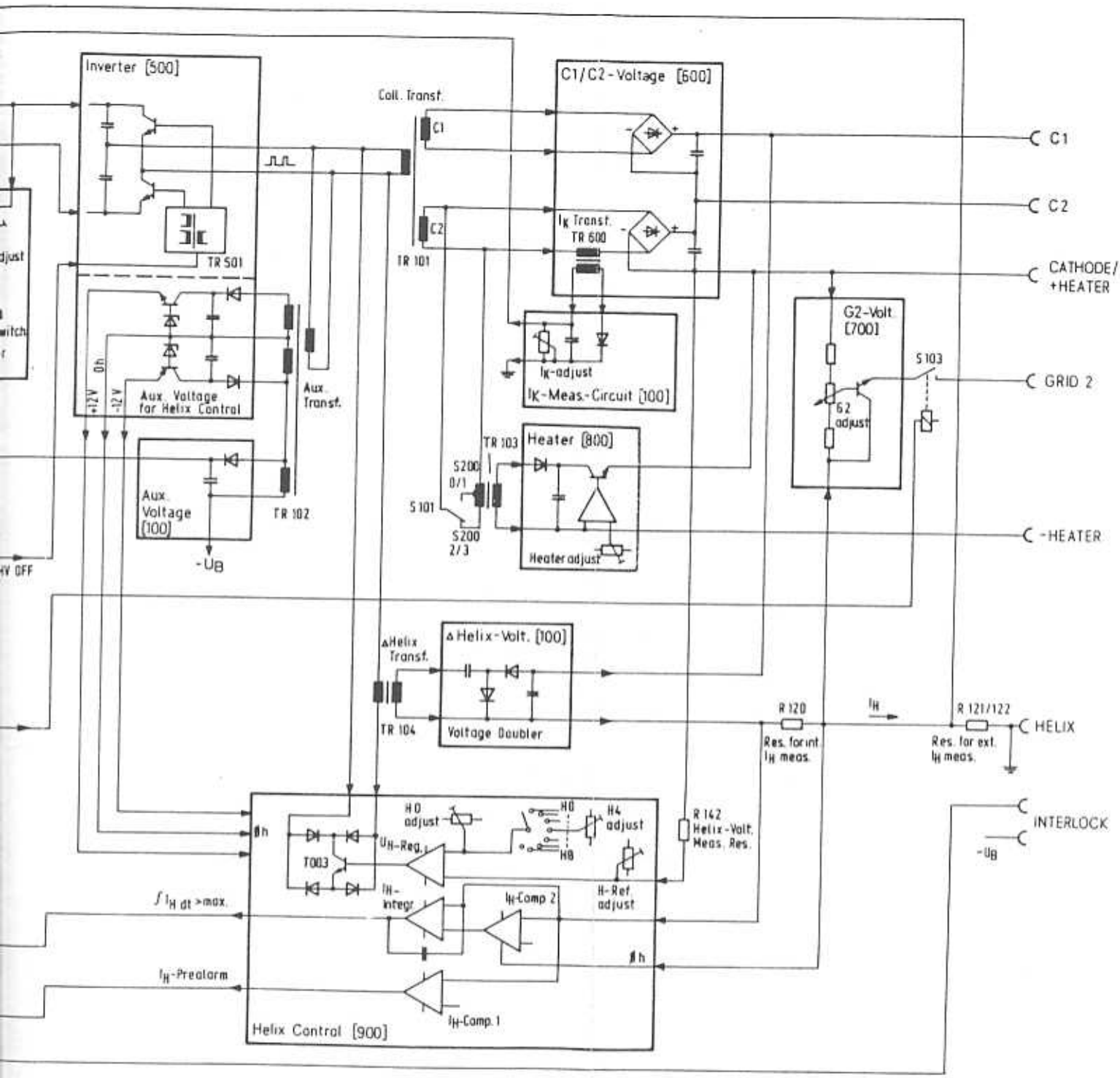


Figure 9. Block Diagram for Power Supply RWN 100
(Rem.: Parts are located on PC-board No. [...])

8. Functional Description Alarm PC Board
(see circuit diagram C65107-A43-B10-*-11)

Supply voltage / poles confusing protection:

The supply voltage U_B will be fed to the TWT power supply RWN 100 over the main switch and the fuse Si 1. $+U_B$ is connected with case.
The diode GR 5 serves as protection for confusing of poles. Are the poles of U_B confused, the diode GR 5 can fail with the fuse Si 1. Those components are mounted on soldering pins for easier replacing.

Auxiliary voltage:

A positive auxilary voltage referred to $-U_B$ serves to supply all command and alarm signals.

Reset and remote reset function:

Reset function is initiated by connecting RESET (+) with AUX (+).

Stand-by/Transmit function:

A connection of STDBY/TRANS (+) with AUX (+) activates the G2-relay and the amplifier starts transmitting.

LED Prealarm:

LED 2 PREALARM lights up if the function IND in RWN 100 is active. Current flows over AUX, LED 2, R 4, IND (+), IND (-).

Remote prealarm:

The relay 2 operates under the same conditions as LED prealarm.

I_K interpretation and alarm signal:

Over GR 1 the base of the transistor T3 will be fixed to approx. -13 V, on the emitter of T3 originates a constant voltage of approx. -12 V referred to $+U_B$. R1 serves as transient protection. The negative voltage on the emitter of T3 is very constant and of this reason it is used as supply voltage and reference voltage for the operational amplifier IC 1. It receives a reference voltage of -6 V on its positive input (3) from the devider R14/R15.

Cathode current measuring, nominal/actual rating comparison:

The cathode current measuring output (9) of the RWN 100 will be terminated over R18 and R13 to $+U_B$. Between R13 (+) and $+U_B$ originates a voltage which is proportionally to I_K.

The negative input (2) of the IC 1 will be so negative biased over the actual-value divider R17, P1, R16, that the output of the IC 1 is applied on +V. If the positive voltage is added to the actual-value divider from the I_K measuring, the output (6) of IC 1 changes to approx. -V. Now the diode in OC 1 will be activated over GR 2, R7, OC 1, IC 1 (6), -V.

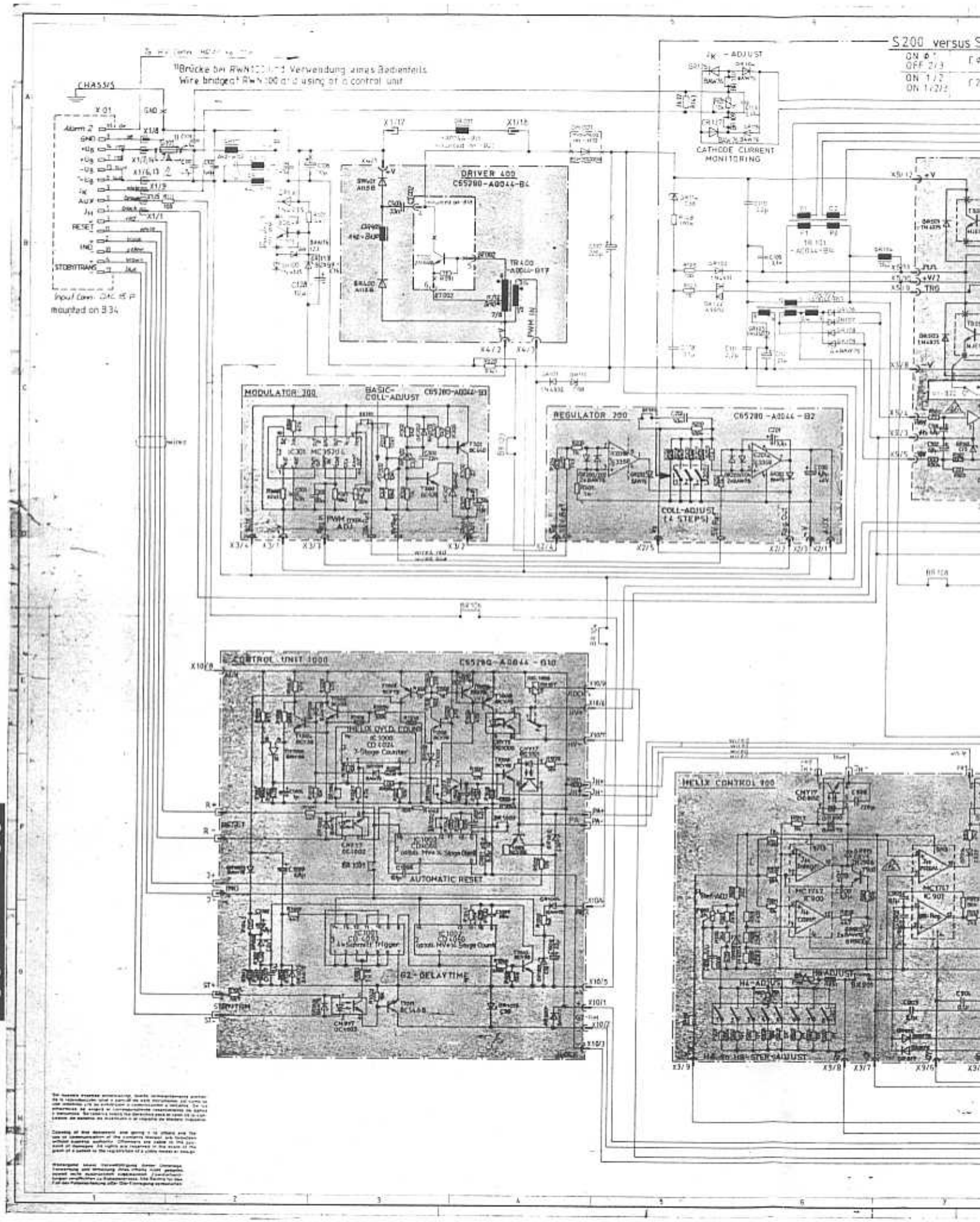
LED 1, LED 3 and relay 1 function:

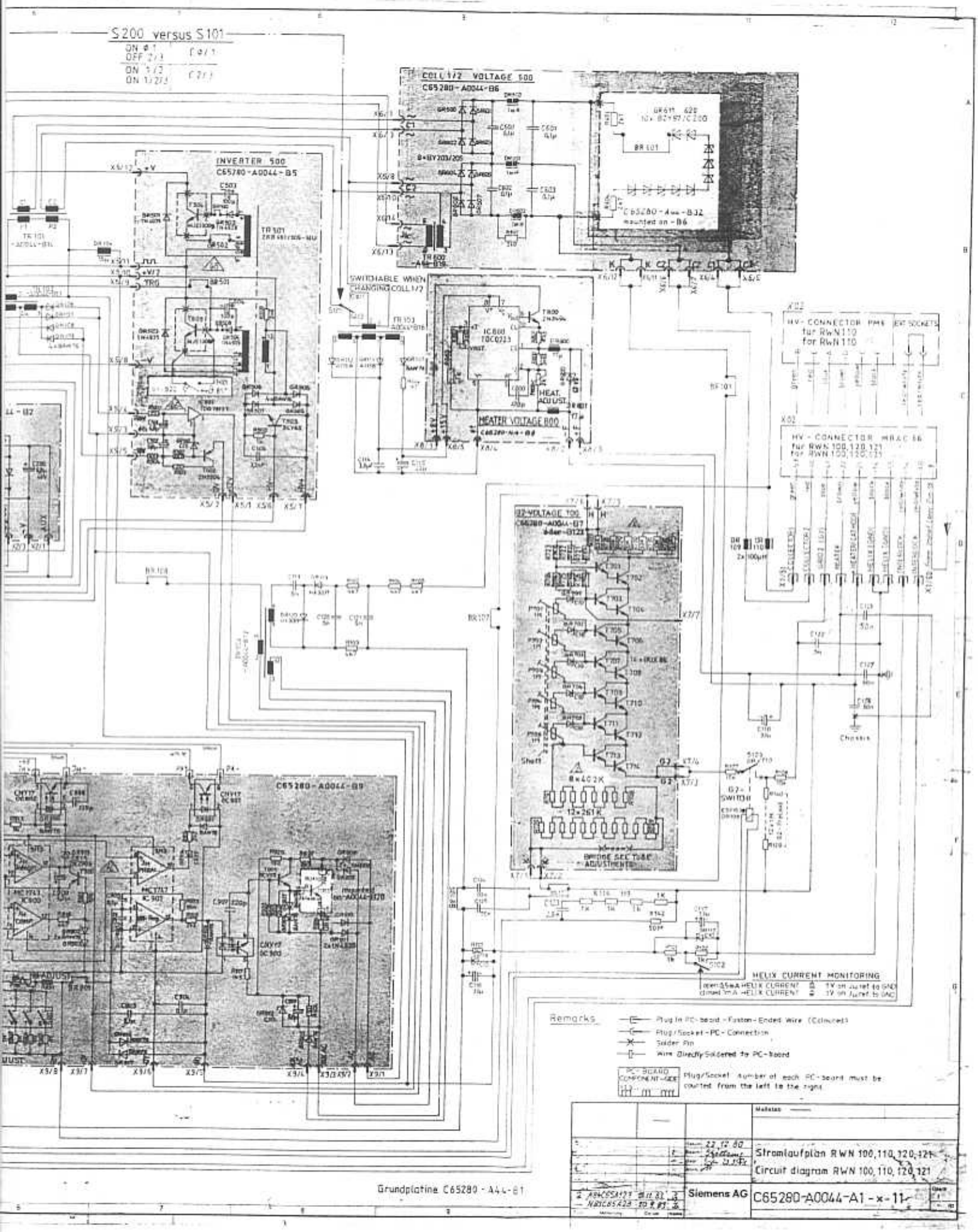
With the current flow through the diode of OC 1, its transistor initiates T2 and therefore, relay 1 energizes across LED 3. If T2 is on, T1 is locked and interrupts the current flow through LED 1 over AUX, LED 1, R5 and T1.

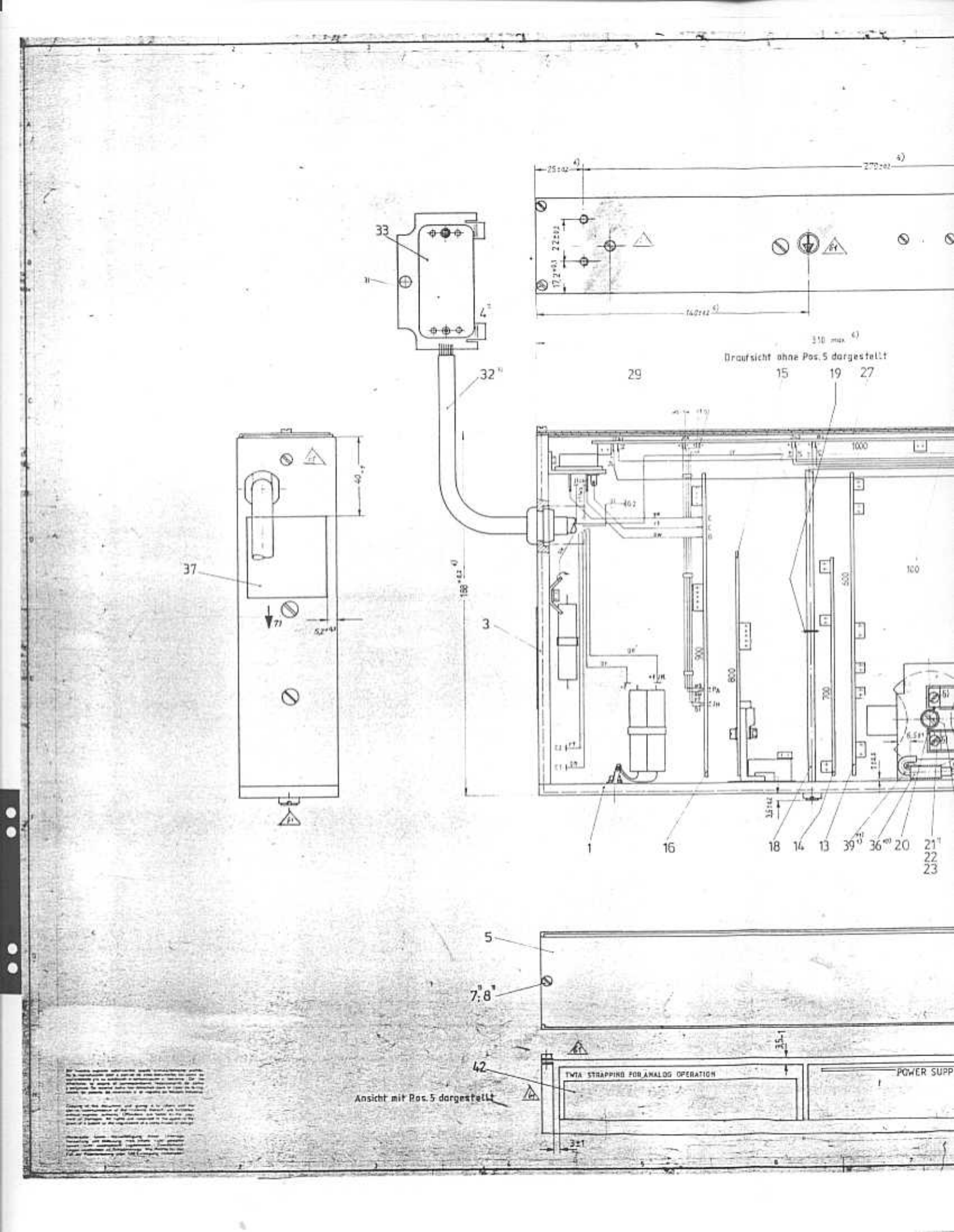
9. Maintenance

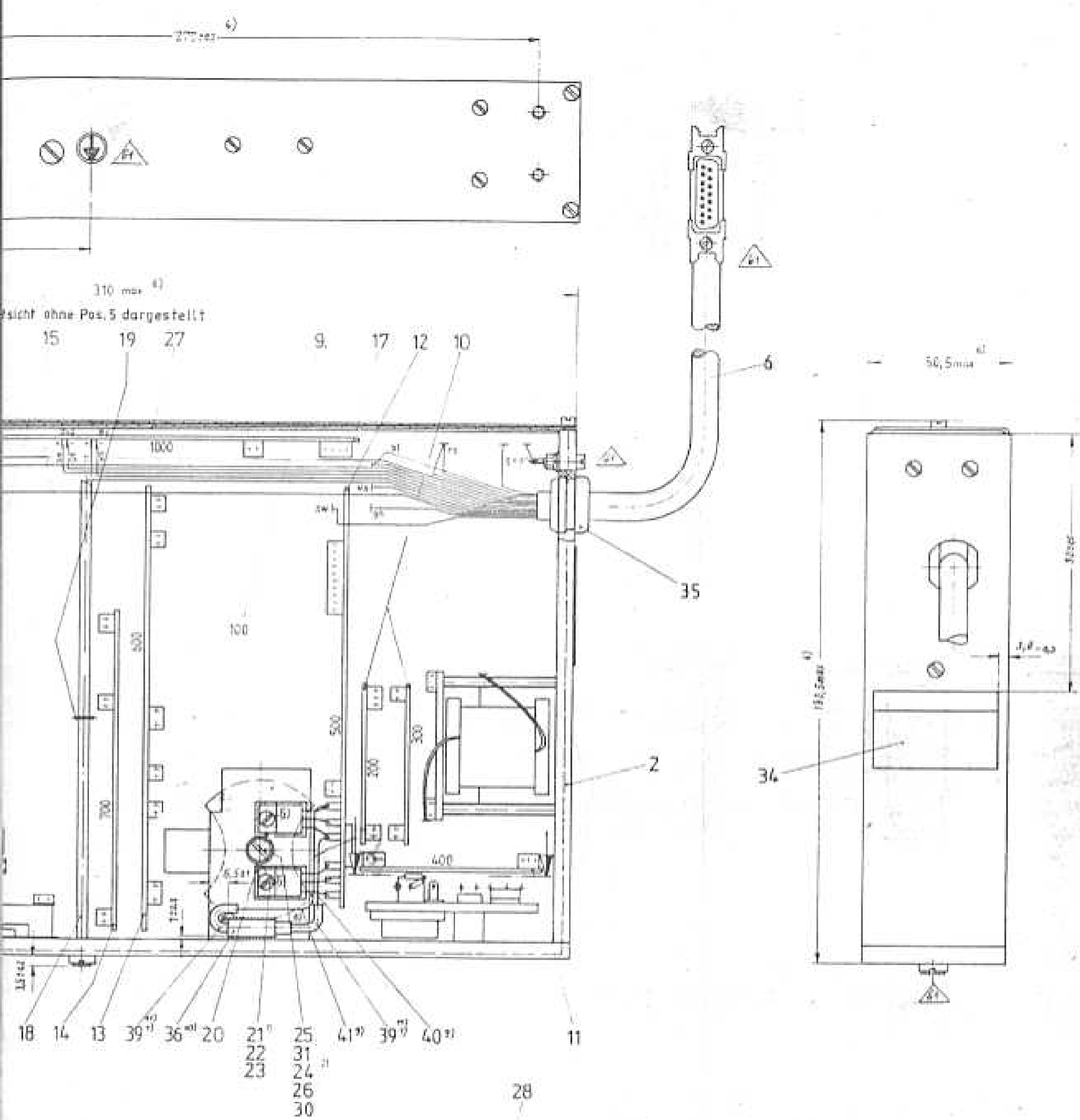
The following drawings provides maintenance information:

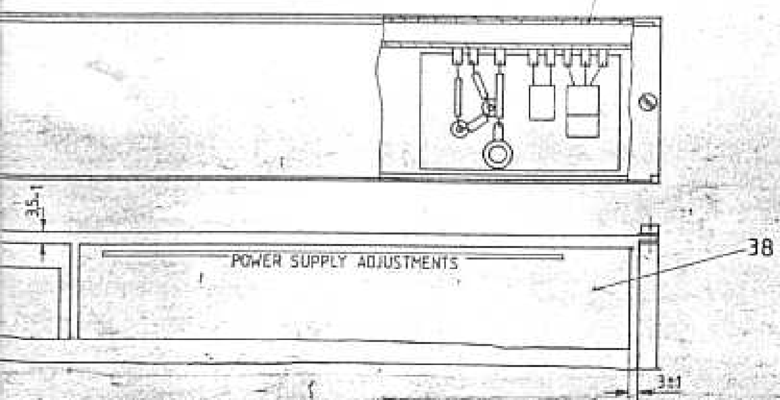
Drawing	Number
TWT power supply RWN 100	
Circuit diagram	C65280-A44-A1-*-11
Power supply RWN 100	C65280-A44-A1
Power supply parts list	C65280-A44-A1-*-07
Main PC board (100)	C65280-A44-B1
Main PC board parts list	C65280-A44-B1-*-16
Regulator unit PC board	C65280-A44-B31
Regulator unit PC board parts list	C65280-A44-B31-*-07
Regulator PC board (200)	C65280-A44-B2
Regulator PC board parts list	C65280-A44-B2-*-16
Modulator PC board (300)	C65280-A44-B3
Modulator PC board parts list	C65280-A44-B3-*-16
Driver PC board (400)	C65280-A44-B4
Driver PC board parts list	C65280-A44-B4-*-16
Inverter PC board (500)	C65280-A44-B5
Inverter PC board parts list	C65280-A44-B5-*-16
C1/C2 voltage PC board (600)	C65280-A44-B6
C1/C2 voltage PC board parts list	C65280-A44-B6-*-16
Diode PC board	C65280-A44-B32
Diode PC board parts list	C65280-A44-B32-*-07
G2 voltage PC board (700)	C65280-A44-B7
G2 voltage PC board parts list	C65280-A44-B7-*-16
Heater voltage PC board (800)	C65280-A44-B8
Heater voltage PC board parts list	C65280-A44-B8-*-16
Helix control PC board (900)	C65280-A44-B9
Helix control PC board parts list	C65280-A44-B9-*-16
Control unit PC board (1000)	C65280-A44-B10
Control unit PC board parts list	C65280-A44-B10-*-16
Alarm card	
Circuit diagram	C65107-A43-B10-*-11
Alarm PC board	C65107-A43-B10
Alarm PC board parts list	C65107-A43-B10-*-16


"Brücke bei RWN100 und Verwendung eines Bedienteils
Wire bridged RWN100 and using of a control unit
CHASSIS
DRIVER 400
C65280-A0044-B4
MODULATOR 300
BASIC-COIL-ADJUST
REGULATOR 200
C65280-A0044-B2
COIL-ADJUST (4 STEPS)
CONTROL UNIT 3000
C65280-A0044-G10
HELIX CONTROL 900
AUTOMATIC RESET
G2-DELAYTIME
H4-ADJUST
CATHODE CURRENT MONITORING
S200 versus S


S200 versus S101
ON 1
OFF 2/3
ON 1/2
ON 3/4
COIL 1/2 VOLTAGE 500
C65280-A0044-B6
INVERTER 500
C65280-A0044-B5
SWITCHABLE WHEN CHANGING COIL 1/2
HEATER VOLTAGE 800
HEAT. ADJUST
HV-CONNECTOR PM6 EXT SOCKETS
for RWN110
for RWN110
HV-CONNECTOR MRAC 86
for RWN 100,120,121
for RWN 100,110,120,121
G2-VOLTAGE 700
C65280-A0044-B7
C65280-A0044-B9
HELIX CURRENT MONITORING
HELIX CURRENT
HELIX CURRENT
Chassis
Remarks
Plug in PC-board - Faston-Ended Wire (Crimped)
Plug/Socket-PC-Connection
Solder Pin
Wire Directly Soldered to PC-Board
PC-BOARD COMPONENT-SIDE
Plug/Socket number of each PC-board must be counted from the left to the right
Stromlaufplan RWN 100,110,120,121
Circuit diagram RWN 100, 110, 120, 121
Siemens AG
C65280-A0044-A1-x-11
Grundplatine C65280-A44-B1


Draufsicht ohne Pos. 5 dargestellt
TWTA STRAPPING FOR ANALOG OPERATION
POWER SUPP
Ansicht mit Pos. 5 dargestellt





11) geschrumpft
10) geklebt mit Kupferklebeharz K6 n. W65000-A1061-A39
9) Drahtenden überlappt (ca. 3mm) verlötet
8) direktes Abknicken der Drähte am Thermoschalterausgang unbedingt vermeiden
7) in Pfeilrichtung lesbar
6) Einbaumaß
5) mit Loctite gesichert n. F12-F1517 (bei T504, T505)
4) Anschlußnr. und Farben identisch C65280-A44-B34
3) Anschlußnr. und Farben identisch C65280-A44-B50
2) Montagereihenfolge
1) mehrfach aufgeführt

Maßstab 1:1

Stromversorgung RWN 100
Power-Supply

Siemens AG

C65280 - A44 - A1

SIEMENS

Nr.	Stück	Benennung	Sachnummer	Bemerkungen
1	1	Frontschiene kompl. Complete front pan.	C65280-A44-B22	
2	1	Seitenteil Side plate	C65280-A44-B28	
3	1	Seitenteil Side plate	C65280-A44-B26	
4	4	Senkschraube Count sunk screw	D963-L120-S3	M3x12 DIN963-5.8
5	2	Blech Metal sheet	C65280-A38-C21	
6	1	Kabelbaum Cable	C65280-A44-B34	
7	2	Zylinderschraube Screw	D84-L80-S3	M3x8 DIN84-5.8
8	2	Scheibe Washer	D125-A32-S1	A3,2 DIN125-St-669
9	1	Grundplatine (100) Main p.c.board	C65280-A44-B1	
10	1	Reglereinheit Regulator unit	C65280-A44-B31	(B2+B3)
11	1	Treiber (400) Driver	C65280-A44-B4	
12	1	Inverter (500)	C65280-A44-B5	
13	1	C1/C2 Spannung (600) C1/C2 voltage	C65280-A44-B6	
14	1	Gitter 2-Spannung Grid 2-voltage (700)	C65280-A44-B7	
15	1	Heizspannung (800) Heater voltage	C65280-A44-B8	
16	1	Wendelsteuerung Helix control (900)	C65280-A44-B9	
17	1	Steuereinheit (1000) Control unit	C65280-A44-B10	
18	1	Steckwelle Shaft	C65280-A44-C43	
19	1	Splint Split pin	D94-B100-S865	1x10 DIN94-St
20	2	Glimmerscheibe Mica insulator	C65117-Z9111-C7	Nr.105338 o.Z.
21	2	Zylinderschraube Screw	D84-L50-S3	M3x5 DIN84-5.8
22	2	Federscheibe Spring washer	D137-A30-R60	A3 DIN137-St-669
23	2	Isolierbuchse Insulating bush	C65187-Z31-C1 1)	Nr.105359 o.Z.
24	1	Scheibe Washer	D433-A43-M37	4,3 DIN433-Ms
25	1	Zylinderschraube Screw	D84-P400-M37	M4x40 DIN84-Ms

1) Fa. Assmann, Lüdenscheid
2) " Bürklin, München
3) " Airborne-Vert. Fa. Hofmann, Rosenheim
4) " Hamlin

TR	Ausg	Änderung/Mitteilung	Datum	Name
	—	N83C65A28	20.9.83	
	61	A83C65A176	25.2.83	
RW' '100	60	A82C65A 329	2.7.82	
	59	A82C65A 300	4.6.82	
	58	A82C65A 162	20.1.82	
	57	A82C65A 103	14.11.81	

Datum 20.3.81
Bearb gez. Ermer
Gepr
Norm Stühlinger

Stromversorgung
Power supply
RWN 100

Siemens AG

C65280-A44-A1-x-07

Blatt 1

S 6100 7000 1.79 1227

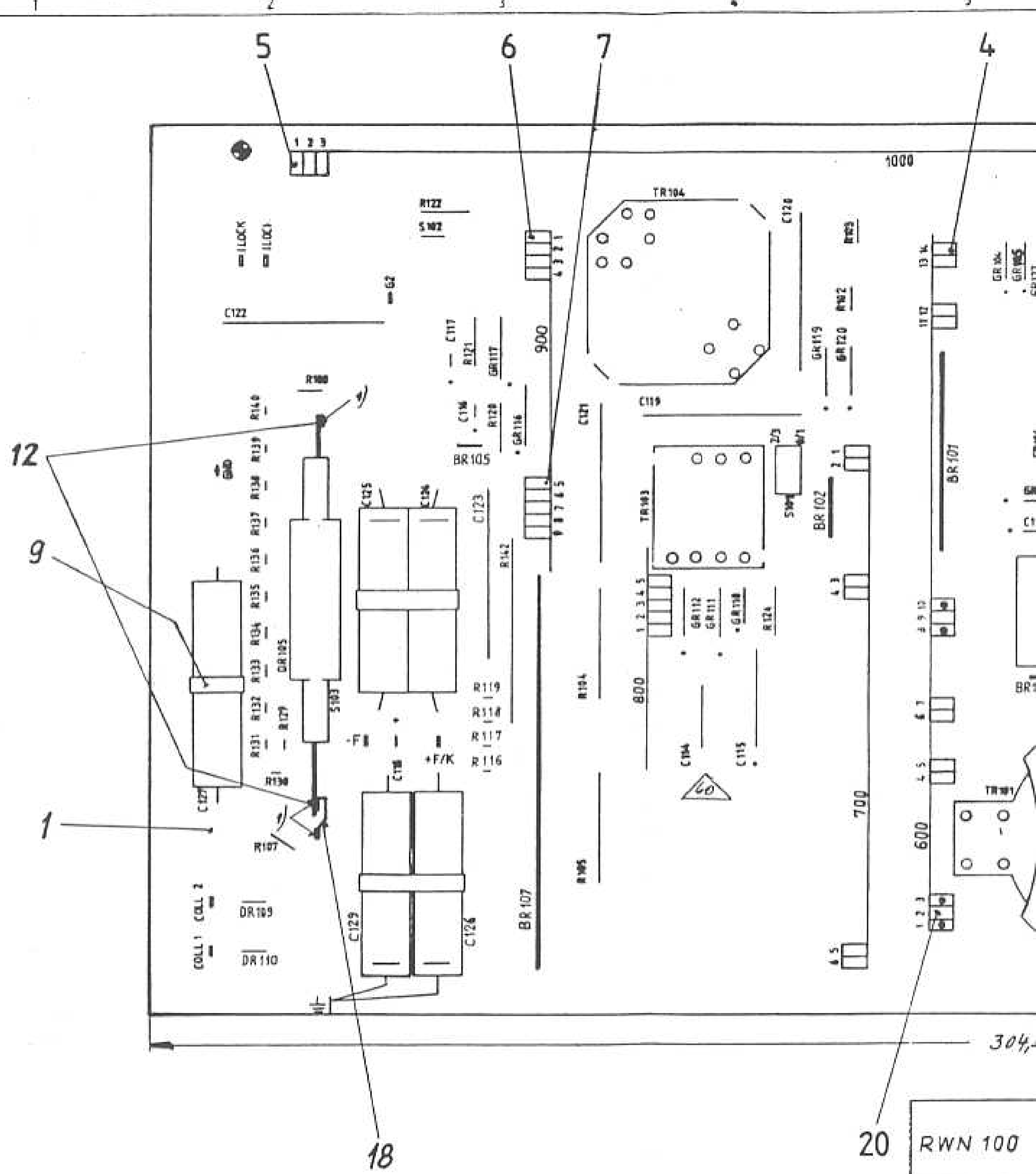
SIEMENS

Nr.	Stück	Benennung	Sachnummer	Bemerkungen
26	1	Sechskantmutter Hexagonal nut	D934-A40-M37	M4 DIN934-Ms
27	1	Platte plate	C65280-A44-C46	
28	1	Platte Plate	C65280-A44-C47	
29	1	Verbindungskabel Connecting cable	C65280-A44-B91	
30	1	Federscheibe Springwasher	D137-A40-B865	A4 DIN137-CuSn8
31	1	Isolierscheibe Insulating washer	C65187-Z20-C1 2)	KU791 Nr.61B552 o.Z.
32	1	Kabelbaum Cable	C65280-A44-B50	
33	1	vollst. HV-Platte Complete HV-Plate	C65280-A44-B57	
34	1	Typenschild Identification label	C65322-A1052-C82	
35	1	Kabeldurchführung Grommet	C65195-Z600-C1 2)	SR-6N-4 Typ Heyco 12H2876
36	1	Thermokontakt 85° Thermo switch	C65361-Z5-C1 4)	TS A 85° o.Z.
37	1	Schild label	C65322-A2-C114	
38	1	Einstellschild Adjusting label	C65322-A2-C117	
39	2	Schrumpfschlauch Thermo shrink.tube	H50776-F10-J190	SN50776-PE/SV-sw- -32 20lg.
40	1	Litze Litz	C65280-A44-C85	40lg.
41	1	Litze Litz	C65280-A44-C89	80lg.
42	1	Einstellschild Adjusting label	C65322-A2-C171	
48	1	Verpackung Package	C65365-A84-A3	
49	1	Unterlagenübersicht und Gerätestand	C65280-A44-A1-x-22	
50	1	Stromlaufplan Circuit diagram	C65280-A44-A1-x-11	

					Datum 20.3.81	Stromversorgung Power supply RWN 100
					Bearb ger. Ermer	
—	N83C65A28	20.9.83			Gepr	
61	A83C65A176	25.2.83			Norm	
60	A82C65A329	2.7.82				
59	A82C65A300	4.6.82				
58	A82C65A162	20.1.82			Siemens AG	C65280-A44-A1-x-07 Blatt 2
57	A82C65A103	14.11.81				
TR	Ausg	Änderung/Mitteilung	Datum	Name		

Rh 100

S 6100 7000 1.79 1227



Stromlauf siehe -A44-A1--11*

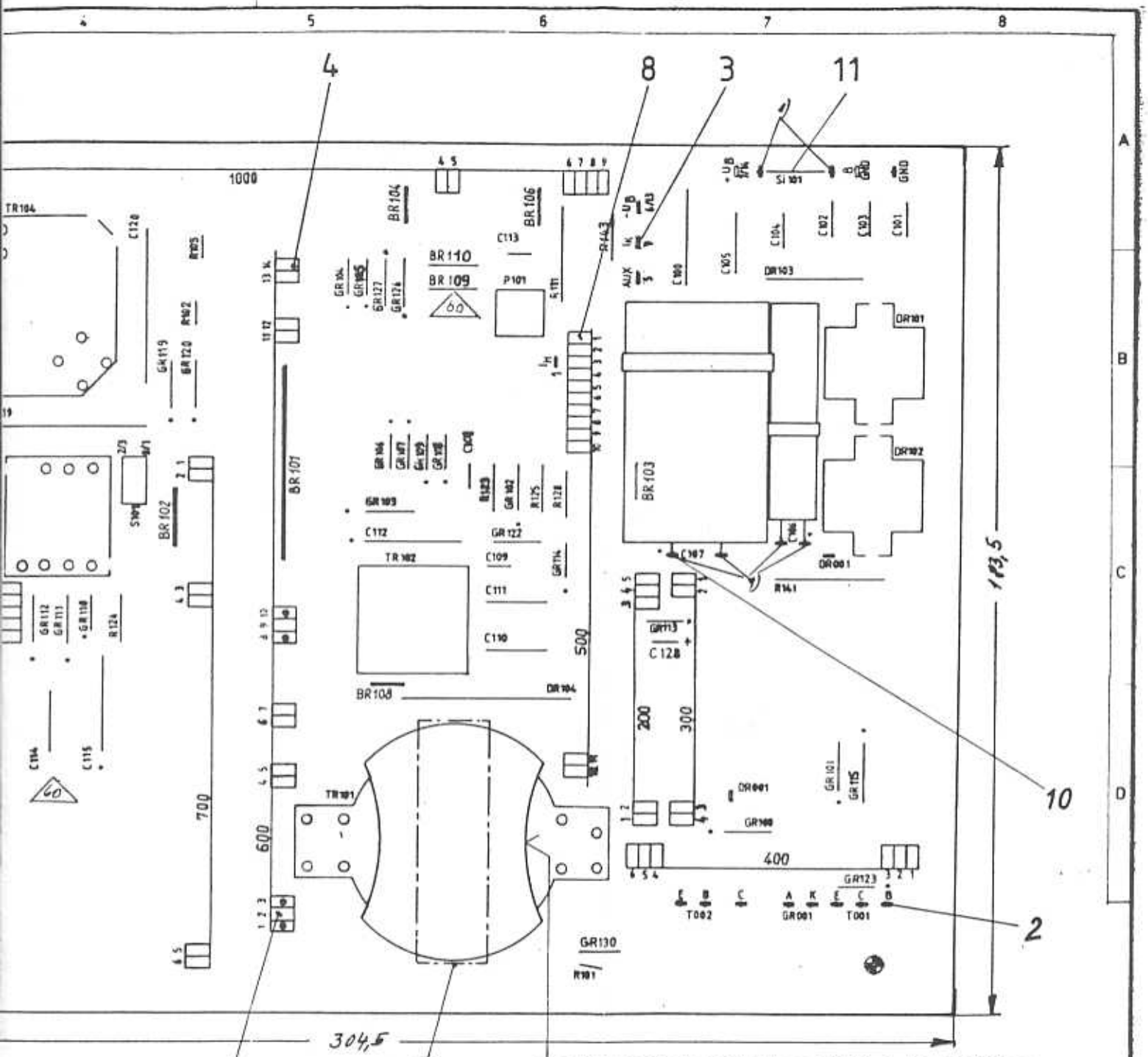
hergestellt n. F12-F1412

1) weich gelötet

RWN 100

58	A83C65A
57	A82C65A 2
56	A82C65A 1
55	A82C65A
—	N83C65A2
60	A83C65A2
59	A83C65A1

- A1



RWN 100	–		Maßstab	1:1
			21 Tesaband 657, ca. 50 mm lang	
58 A83C65A68 22.10.82 HB		25.3.81	Grundplatine Main p.c. board	(100)
57 A82C65A 233 11.3.82 Ki				
56 A82C65A 162 20.1.82 Ki				
55 A82C65A 103 14.11.81 Ki				
— N83C65A28 20.9.83 K.	Siemens AG		C65280-A44-B1	Blatt 1
60 A83C65A290 28.7.83 K.				
59 A83C65A176 25.2.83 HB				

-A44-A1-*-11
F12-F1412

geklebt

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates / Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck	Benennung	Daten / Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
1	1	Kohleschichtwider. Carbon film resist.	Typ100- 15R	65002-Z1-C7	2)	R123	L12,5
2	1	"	" -47R	" " -C8	2)	R124	L12.5
3	1	"	" -100R	" " _C13	2)	R125	L12.5
4	1	Metallschichtwid. Metal film resist.	EE471 3k92 1%	C65004-Z4-C89	2)	R143	L12.5
5	4	Kohleschichtwider. Carbon film resist.	Typ100-1k	C65002-Z1-C28	2)	R116...119	S3,75
6	1	"	" -100k	C " " -C24	2)	R128	L12.5
7	12	"	" -1M	C65001-Z37-C5	2)	R129...140	S3.75
8	3	"	Typ107-4k7 1W	C65002-Z3-C3	2)	R101...103	S7,5 3x
9	2	"	" -4k7 1W	" "-C3	2)	R104...105	L25 2x
10	1	"	" -10k 1W	" "-C4	2)	R107 12)	S7,5
11	1	"	" -10k 1W	" "-C4	2)	R108 12)	S8.2
12	2	Drahtbrücke Wiring bridge		V26121-B144-M5	1)	BR109 ,BR110	L12,5
13	1	Kohleschichtwider. Carbon film resist.	Typ107-100R1W	C65002-Z3-C5	2)	R111	L22,5
14	2	Metallschichtwid. Metal film resist.	EE471 1k 0,25W	C65004-Z4-C47	2)	R121,R122	L12,5
15	1	"	" 50R 0,25W	" " -C296	2)	R120	L12,5
16	1	"	MG710 50M 7kV	C65004-Z4-C242	4)	R142	L40
17	1	Drahtwiderstand Wire wound resist.	KN350-8 R020 4W 5%	C65004-Z26-C2	2)	R141	L25
18							
19							
20	1	MKT-Kondensator " -capacitor	3,3nF 400V	B32510-D6332-K	1)	C109	
21	1	"	0,1µF 100V	B32510-D1104-K	1)	C108	
22	1	"	0,33µF 100V	B32510-D1334-K	1)	C113	
23	4	"	0,47µF 100V	B32511-D1474-K	1)	C101...104	
24	1	"	1µF 100V	B32512-D1105-K	1)	C105	
25	2	"	2,2µF 100V	B32512-D1225-K	1)	C110,C111	

1) Fa. Siemens, München
2) " Vitrohm, Pinneberg
3) " General Electric, München
4) " Caddock, Wetronik-München
5) " Thomson CSP, München
6) " Semtech, Wiesbaden
7) Fa. Wickmann, Witten
8) " Bourns, Stuttgart
9) " ERIE, Nürnberg
10) " Motorola, Wiesbaden
11) " ESF-Weidner,
12) freies Ende mit isol. Schlauch überzogen

zum Beispiel/for instance:
Montage:
L15 = liegend - horizontal Rastermaß/racheting=15mm
S5 = stehend - vertical Rastermaß/racheting=5mm
Draht-wire = ⌀mm

Zust.	Mitteilung	Datum	Name
2	A84C85A127	18.11.83	H.
—	A83C65A28	20.9.83	H.
62	A83C65A290	28.7.83	H.
61	A83C65A176	25.2.83	Ho
60	A83C65A68	22.10.82	HB
59	A82C65A162	20.1.82	H.
58	A82C65A157	14.12.81	H.

Datum 24.11.80
Bearb. ger. Ermer/Hi
Gepr.
Norm Feldinger

Siemens AG

Grundplatine
Main p. c. board
(100)

C65280-A44-B1-x-16

Blatt 1
3 Bl

RSWN100

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates / Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck	Benennung	Daten / Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
26	1	MKT-Kondensator "-capacitor	4,7µF 100V	B32513-D1475-K	1)	C100	
27	5	MKH-Kondensator " -capacitor	50nF 4kV	B32227-J4503-M	1)	C124...127 C129	L47,5
28	4	"	5nF 4kV	B32237-J4502-S	1)	C119...122	L35
29	1	MKT-Kondensator " -capacitor	2,5nF 4kV	B32237-J4252-S	1)	C123	L40
30							
31	2	Elektrolyt-Kondens. Electrolytic capac.	22µF 40V	B41588-C7226-T	1)	C112,C115	L22,5
32	1	MKT-Kondensator " capacitor	3,3µF 100V	B32235-A1335-M	1)	C114	L15
33	1	"	TypA1 SIC-FRS 100µF 100V	C65010-Z12-C1	5)	C106	
34	1	"	Typ CJ-FRS 220µF 250V	C65010-Z12-C2	5)	C107	
35	3	Tantal-Kondensator Tantalum-capacitor	33µF 10V	B45181-A1336-M	1)	C116...118	
36	1	"	10µF 25V	B45181-C3106-M	1)	C128	
37	10	Diode	BAW 76	Q62702-A397	1)	GR104...110 GR 123,126,127	L10
38	2	"	HX 30M	C65169-Z1001-C108	9)	GR119,GR120	L12,5
39	5	"	1N4935	C65169-Z1065-C3	10)	GR 100...103 GR130	L12,5
40	4	"	A114B	C65169-Z1056-C3	3)	Wahlweise f. lfd.Nr.39	L12,5
41	2	"	A115B	C65169-Z1043-C1	3)	GR111,GR112	L12,5
42		"					
43	2	Z-Diode	BZ V40 C10	Q62702-V16-F82	1)	GR116,GR117	L15
44	1	"	BZ V40 C68	Q62702-V42-F82	1)	GR115	L15
45	1	"	BZX 97 C16	Q68000-A958 -F82	1)	GR113	L10
46	1	"	BZX 83 C39	Q62702-Z1397-F82	1)	GR114	L10
47	1	Diac	A9903	C66047-Z1304-A1		GR122	L12,5
48	2	Drossel/Choke		C65280-A42-B105		DR101,DR102	
49	1	"	1µH 6A	B82111-A-C11	1)	DR103	L22,5
50	1	"	15µH 4A	B82111-B-C23	1)	DR 104	L37,5

Änderungs-Hinweis

zum Beispiel/for instance:
Montage:
L15 = liegend - horizontal
Rastermaß/racheting=15mm
S5 = stehend - vertical
Rastermaß/racheting=5mm
Draht-wire = ϕ mm

2	A84C65A127	18.11.83		Datum 24.11.80
—	N83C65A28	20.9.83		Bearb. gez. Ermer/Hi.
62	A83C65A290	28.7.83		Gepr.
61	A83C65A176	25.2.83		Norm
60	A83C65A68	22.10.82		
59	A82C65A162	20.1.82		
58	A82C65A157	16.12.81		
Zust.	Mitteilung	Datum	Name	

Siemens AG

Grundplatine
Main p. c. board
(100)

C65280-A44-B1-x-16

Blatt 2
3 Bl

RWN 100

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates / Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck	Benennung	Daten / Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
51	1	Potentiometer	Typ3386 P1-103 10k	C65408-Z132-C4	8)	P101	
52	2	Drossel Choke	100µH	B82111-A-C8	1)	DR109,DR110	S7,5
53	1	Transformator Transformer		C65280-A44-B14		TR101	
54	1	"		C65280-A44-B13		TR102	
55	1	"		C65280-A44-B16		TR103	
56	1	"		C65280-A44-B12		TR104	
57	1	Spule Coil	ESF 1538	C65330-Z243-C2	11	DR105 o.Z.	
58							
59	1	Reedkontakt Reed contact	DR VT 10	C65315-Z39-C1		S103	
60							
61	1	DIP-FIX	1/24Ein-Aus On-Off	C42315-A1347-A1	1)	S102 o.Z.	
62	1	"	1/12 Ein-Aus/On-Off	C42315-A1347-A1	1)	S101 o.Z.	
63							
64	1	Drahtbrücke Wiring bridge	7,5mm	C65280-A108o-C153		BR105	
65	1	"	10mm	C " " -C155		BR108	
66	1	"	10mm	" " "		BR106	
67	1	"	10mm	" " "		BR104	
68	1	"	10mm	" " "		BR103	
69	1	"	15mm	" " -C159		BR102	
70	1	"	45mm	" " -C189		BR101	
71	1	"	84mm	C65280-A44 -C70		BR107	
75	-	Al-Elko	220µF/350V	B43306-S4227-T4	1)	ersatzweise für Pos. 34 (C107)	

zum Beispiel/for instance:
Montage:
L15 = liegend - horizontal
Rastermaß/racheting=15mm
S5 = stehend - vertical
Rastermaß/racheting=5mm
Draht-wire = ⌀ mm

				Datum	24.11.80
				Bearb	gez. Ermer/Hi.
				Gepr	
—	N83C65A28	20.9.83	H.	Norm	
61	A83C65A176	25.2.83	Hi		
60	A83C65A68	22.10.82	HB		
59	A82C65A162	20.1.82	Hi		
58	A82C65A157	16.12.81	Hi		
Zust.	Mitteilung	Datum	Name		

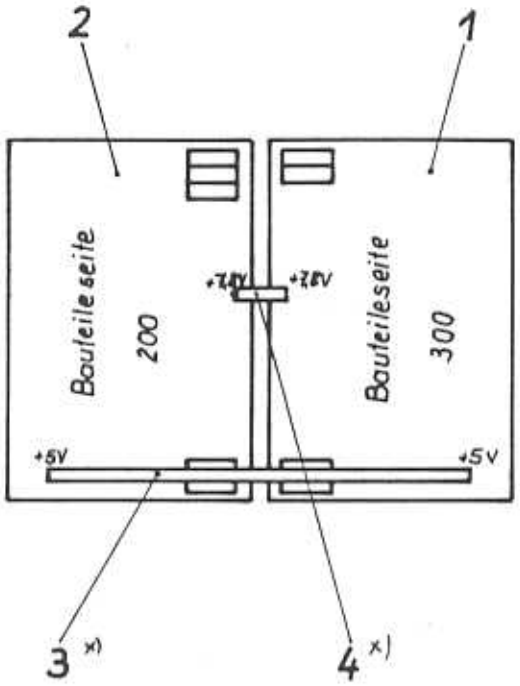
Grundplatine
Main p. c. board
(100)

Siemens AG

C65280-A44-B1-x-16

Blatt 3
3 Bl

RWN100



x) Litze an den Punkten +5V Ref/ +7,8V Ref durchgesteckt und von Hand verlötet

RWN 100	—			Maßstab 1:1	
			Datum 19.3.81	Regeleinheit Regulator unit	
			Bearb.		
			Gepr.		
			Norm		
53 A82C65A 162		20.1.82		Siemens AG	C65280-A44-B31
52 A82C65A 103		14.11.81			Blatt 1 - Bl.
51	—	—	—		
Zust.	Mitteilung	Datum	Name		

-A1

S 6280 50 000 3 80 1487

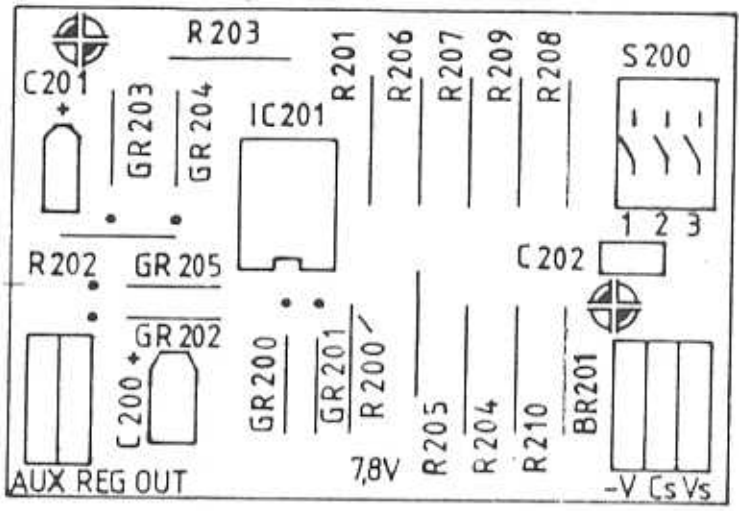
SIEMENS

Nr.	Stück	Benennung	Sachnummer	Bemerkungen
1	1	Modulator (300)	C65280-A44-B3	
2	1	Regler (200) Regulator	C65280-A44-B2	
3	1	Litze Litz	C65280-A44-C102	rt
4	1	"	C65280-A44-C120	bl

RW. 100

				Datum	19.3.81	Regeleinheit Regulator unit
				Bearb	gez. Ermer/Hi	
				Gepr	Hiblinger	
				Norm.		
53	A82 C65A	162	20.1.82	Hi	Siemens AG	C65280-A44-B31-x-C7
52	A82 C65A	103	14.11.81	Hi		Blatt 1
TR	Ausg	Änderung/Mitteilung	Datum	Name		

S 6100 7000 1.79 1227



1

2) Bauteilehöhe

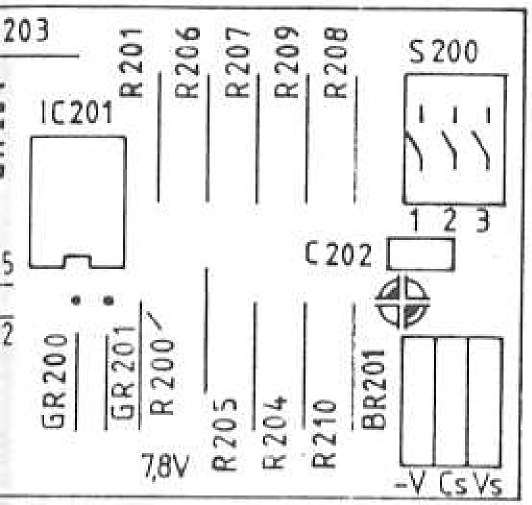
1) überstehende Lötanschlüsse

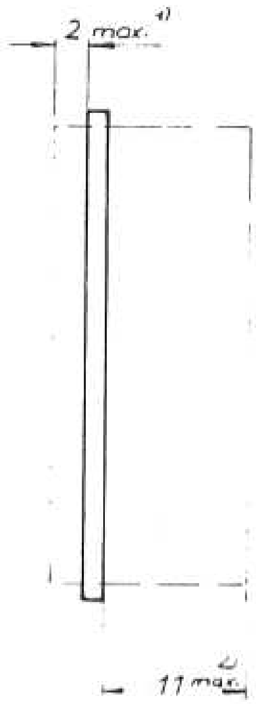
Elektrische

RWN 100

55	A82C65A 162
54	A82C65A 103
53	A81C65A 273
52	A81C65A 183
51	

B31





Elektrische Bauteile s. Bauteileübersicht   Hergestellt n. F12 - 1412

RWN 100	—		2:1
		16. 3. 81	Regler Regulator (200)
55 A82C65A 162 20.1.82			
54 A82C65A 103 14.11.81			
53 A81C65A 273 29.7.81		Siemens AG	C 65280-A44-B2
52 A81C65A 183 16.4.81			Blatt 1
51 — — —			

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates / Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck.	Benennung	Daten / Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
1	1	Doppel Op-Amp. Double "	MC 3358 P1	C65467-Z71-C2	4)	IC201	
2	1	Drahtbrücke Wiring bridge		C65280-A1080-C107		BR201	
3	1	Tantal-Kondensator Tantalum-capacitor	6.8µF 40V	B45181-B4685-M	1)	C200	
4	1	"	3,3µF 40V	B45181-B4335-M	1)	C201	
5	1	MKT-Kondensator "-capacitor	10nF 250V	B32510-D3103-K	1)	C202	
6							
7	6	Diode	BAW 76	Q62702-A397	1)	GR200...205	L10
8							
9	4	Kohleschichtwider. Carbon film resist.	Typ100 1k 0,27W 5%	C65002-Z1-C28	2)	R200...203	L12,5
10	1	"	Typ100 1,5k o,27W 5%	C65002 Z1-C18	2)	R204	L12,5
11	1	"	Typ100 7,5k o,27W 5%	C65002-Z1-C34	2)	R205	L12,5
12	1	Metallschichtwid. Metal film resist.	Typ471 6k04 1%	C65004 Z4-C298	2)	R206	L12,5
13	1	"	" 60k4 1%	C65004-Z4-C204	2)	R207	L12,5
14	1	"	" 61k9 1%	C65004-Z4-C205	2)	R208	L12,5
15	1	"	" 63k4 1%	C65004-Z4-C299	2)	R209	L12,5
16	1	"	" 100k 1%	C65004-Z4-C215	2)	R210	L12,5
17							
18							
19	1	DIP-Switch	76B 03-S	C65315-Z321-C3	5)	S200	
20	1	Buchsenleiste Socket strip	Best.Nr. 5.17.201.008.00	C65334-Z132-C1	3)		
21	1	"	" 00 5.17.201.008.003.00	" " -C2	3)		

1) Fa. Siemens, Müncheb
2) " Vitrohm, Pinneberg
3) " Otto Dunkel, Mühldorf
4) " Motorola, Wiesbaden
5) " Grayhill, München

zum Beispiel/for instance:
Montage:
L15 = liegend - horizontal
Rastermaß/racheting = 15mm
S5 = stehend - vertical
Rastermaß/racheting = 5mm
Draht-wire = ø mm

				Datum	24.11.80
				Bearb	ga Ermer / Hi.
				Gepr	Hiebinger
				Norm	
55	A82C65A162	20.1.82	Hi	Siemens AG	
54	A82C65A103	14.11.81	Hi		
Zust.	Mitteilung	Datum	Name		

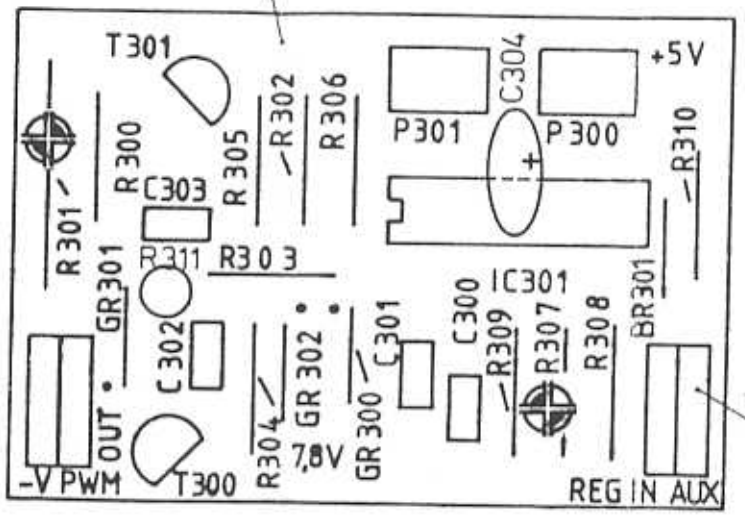
Regler
Regulator
(200)

C65280-A44-B2-x-16

Blatt 1
- Bl.

RWN100

C304 liegt auf dem IC301



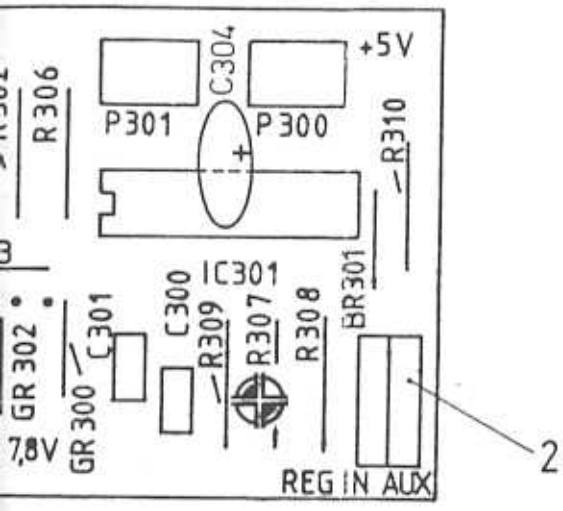
Änderungs
Hinw

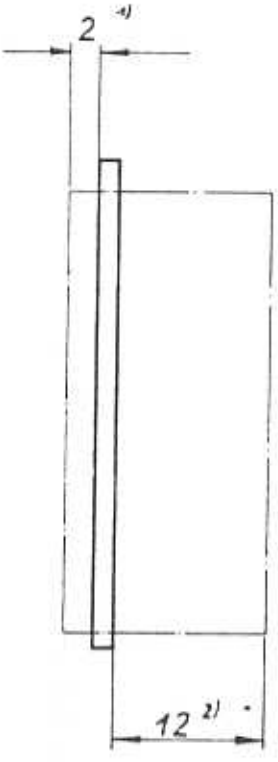
Elektrische Baute

RWN 100		—
56	A84C65A266	16.3.8
55	A82C65A 162	20.1.82
54	A82C65A 103	14.11.8
53	A81C65A 213	29.7.81
52	A81C65A 183	16.4.8
51		
Zust.	Änderung	Datum

2) max. Bauteilehöhe
1) max. Lötanschlüsse

C304 liegt auf dem IC301





Änderungs-
Hinweise

Elektrische Bauteile s. Bauteileübersicht Hergestellt n. F12-F1412

RWN 100	—				Maßstab 2:1	
				Datum	19.3.81	Modulator (300)
				Bearb.		
56	A84C65A266	16.3.84	MR	Gepr.		
55	A82C65A 142	20.1.82		Norm.		
54	A82C65A 103	14.11.81				
53	A81C65A 273	29.7.81		Siemens AG		C65280-A44-B3
52	A81C65A 183	16.4.81				Blatt 1
51						
Zust.	Änderung	Datum	Name			

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates / Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck.	Benennung	Daten / Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
1	1	Regel-Schaltkreis Regular circuit	TDA3520L	C65467-Z71-C3	3)	IC301	
2	1	Transistor	BC639	Q68000-A3361-	1)	T300	
3	1	"	BC640	Q68000-A3367-	1)	T301	
4	1	Diode	BAW76	Q62702-A397	1)	GR300	L10
5	1	"	BAY45	Q60201-Y45	1)	GR301	L10
6	1	Z-Diode	BZX83C3V9	Q62702-Z1067-F82	1)	GR302	L10
7	1	Tantal-Kondensat. Tantalum-capacit.	6,8uF/35V	C65011-Z2-C6	6)	C304	S2,5
8	1	Keramik-Kondensat Ceram.capacitor	100nF/63V	B37449-F6104-S2	1)	C300	
9	1	MKC-Kondensator "-Capacitor	4,7nF/50V	B32545-C6472-K	1)	C301	
10	1	MKT-Kondensator " -capacitor	22nF/63V	B32509-B223-M	1)	C302	
11	1	"	0,1µF/100V	B32510-D1104-K	1)	C303	
12	1	Trim-Potentiomet.	VRN760-40-10k	C65408-Z134-C2	2)	P300	
13	1	"	VRN760-40-50k	C65408-Z134-C1	2)	P301	
14	1	Kohleschichtwid. Carbon film res.	Typ102 27R 0,33W	C65002-Z4-C1	2)	R300	L12,5
15		Drahtwiderstand Wiring resistor	Typ236 240R	C65005-Z134-C1	2)	R301	L20
16	2	Kohleschichtwid. Carbon film res.	Typ102 1k2	C65002-Z4-C10	2)	R302,R303	L12,5
17	1	Brücke Bridge		C65280-A1080-C155		BR301	L10
18	2	Kohleschichtwid. Carbon film res.	Typ100 1k 0,27W	C65002-Z1-C28	2)	R304,R305	L12,5
19	1	"	Typ100 47k 0,27W	C65002-Z1-C17	2)	R306	L12,5
20	2	Metallschichtwid. Metal film resist	Typ471 16k2 1%	C65004-Z4-C157	2)	R307,R308	L12,5
21	2	"	Typ471 12k1 1%	C65004-Z4-C136	2)	R309,R310	L12,5
22	1	Kaltleiter PTC-resistor	100R/30V	Q63100-P330-C11	1)	R311 *	S2,5
		*Einbau stehend,abgewinkelt auf	IC301 liegend				

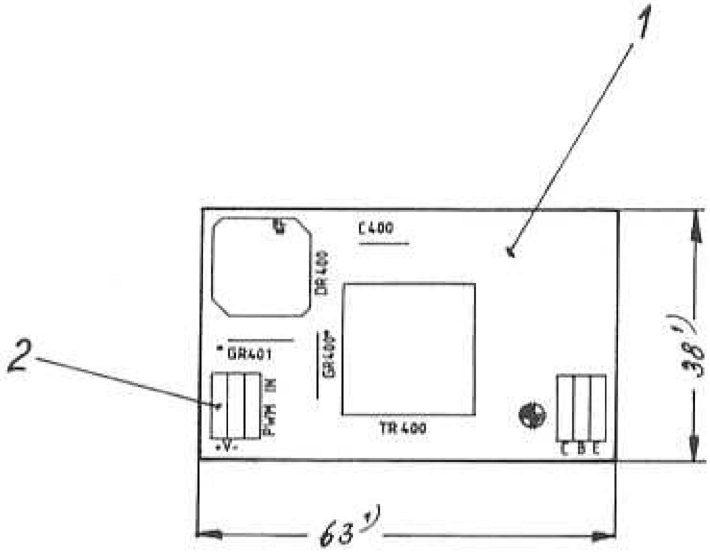
1) Fa.Siemens,München
2) " Vitrohm,Pinneberg
3) " Motorola,Wiesbaden
4)
5) " DALE
6) " Componenta,Mch,Ottobrunn

ÄNDERUNGS-
Hinweis

				Datum	24.11.80	
				Bearb	Ermer	
				Gepr		Modulator 300
				Norm		
1	A84C65A266	16.3.84	MR	Siemens AG	C65280-A44-B3- X -16	Blatt 1
51	-------	----	--			- 51
Zust.	Änderung	Datum	Name			

1 2 3 4

A B C D E



1) Einbaumaß

Elektrische Bauteile s. Bauteilübersicht. Hergestellt n. F12-F1412

RWN 100	—		Maßstab 1:1

Zust.	Mitteilung	Datum	Name
54	A82C65A 162	20.1.82	Ki
53	A82C65A 103	14.11.81	Ki
52	A81C65A 183	16.4.81	Ki
51	—	—	—

Datum	20.3.81
Bearb	Ki
Gepr	Klein
Norm	27.3.81

Siemens AG

Treiber
Driver
(400)

C65280-A44-B4

Blatt 1

— Bl

-B1

S 6260 50 000 3 80 1487

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates / Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck	Benennung	Daten / Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
1	2	Diode	A115B	C65169-Z1043-C1	5)	GR400,GR401	L12,5
2							
3	1	Drossel Choke		C65280-A42-B130		DR400	
4							
5	1	Steuertrafo Driving transform.		C65280-A44-B17		TR400	
6							
7	1	MKT-Kondensator "- capacitor	33nF 400V	B32511-D6333-K	1)	C400	

1) Fa.Siemens,München
5) " General-Electric,München

zum Beispiel/for instance :
Montage :
L15 = liegend - horizontal
Rastermaß/racheting=15mm
S5 = stehend - vertical
Rastermaß/racheting=5mm
Draht-wire = ϕ mm

				Datum	24.11.80
				Bearb	ger. Ermer/Hi.
				Gepr	
				Norm	
53	A82C65A 162	20.1.82			
52	A82C65A 103	14.11.81			
Zust.	Mitteilung	Datum	Name		

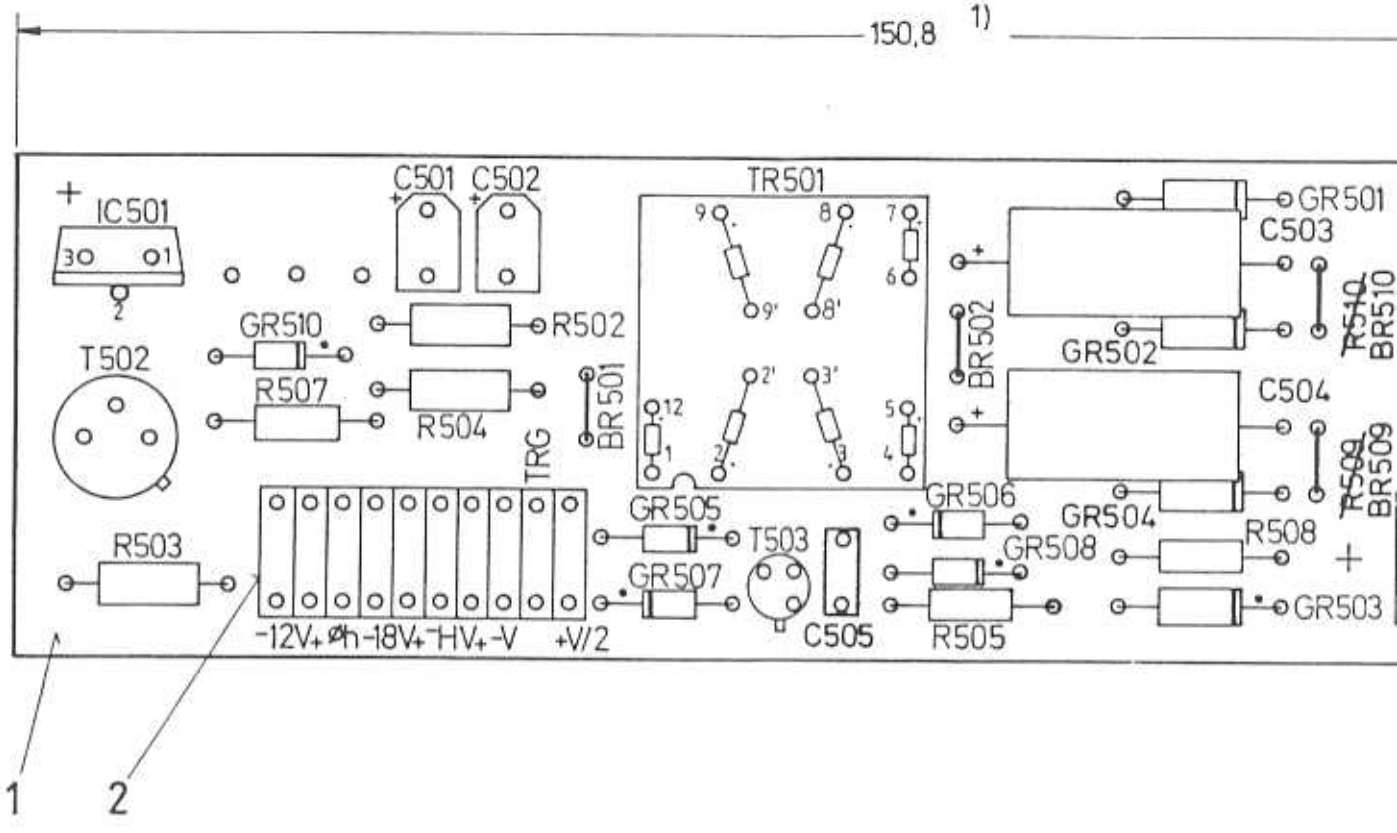
Treiber
Driver
(400)

Siemens AG

C65280-A44-B4-x-16

Blatt 1
- Bl.

RWN100



1) Einbaumaße

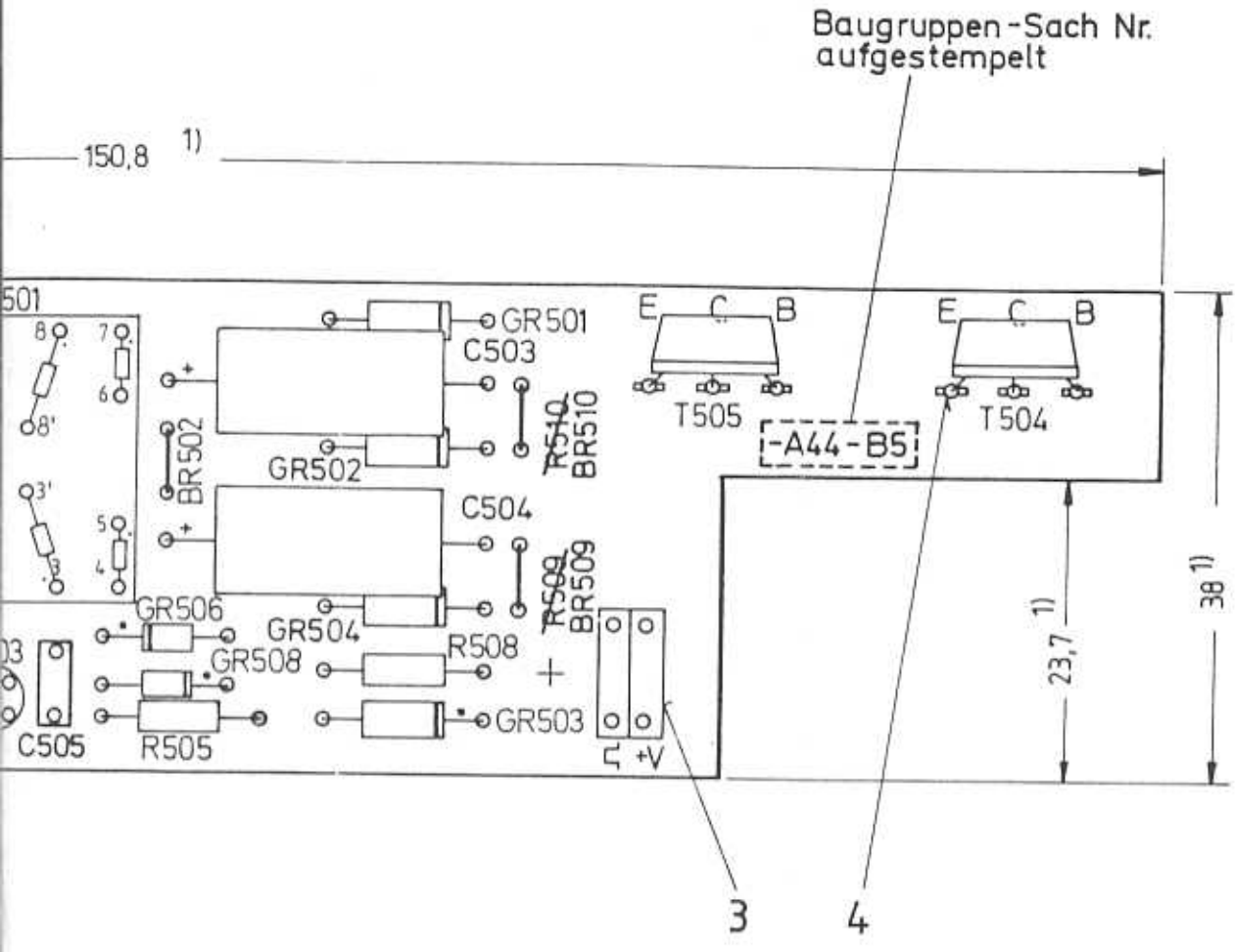
Elektrische Bauteile siehe Bauteileübersicht

Hergestellt nach F12 – F1412

Änderungs-Hinweis 59/

RWN 100	

56 A83C65A176 25. 2. 8
55 A82C65A162 20. 1. 8



Änderungs-
Hinweis 59/84

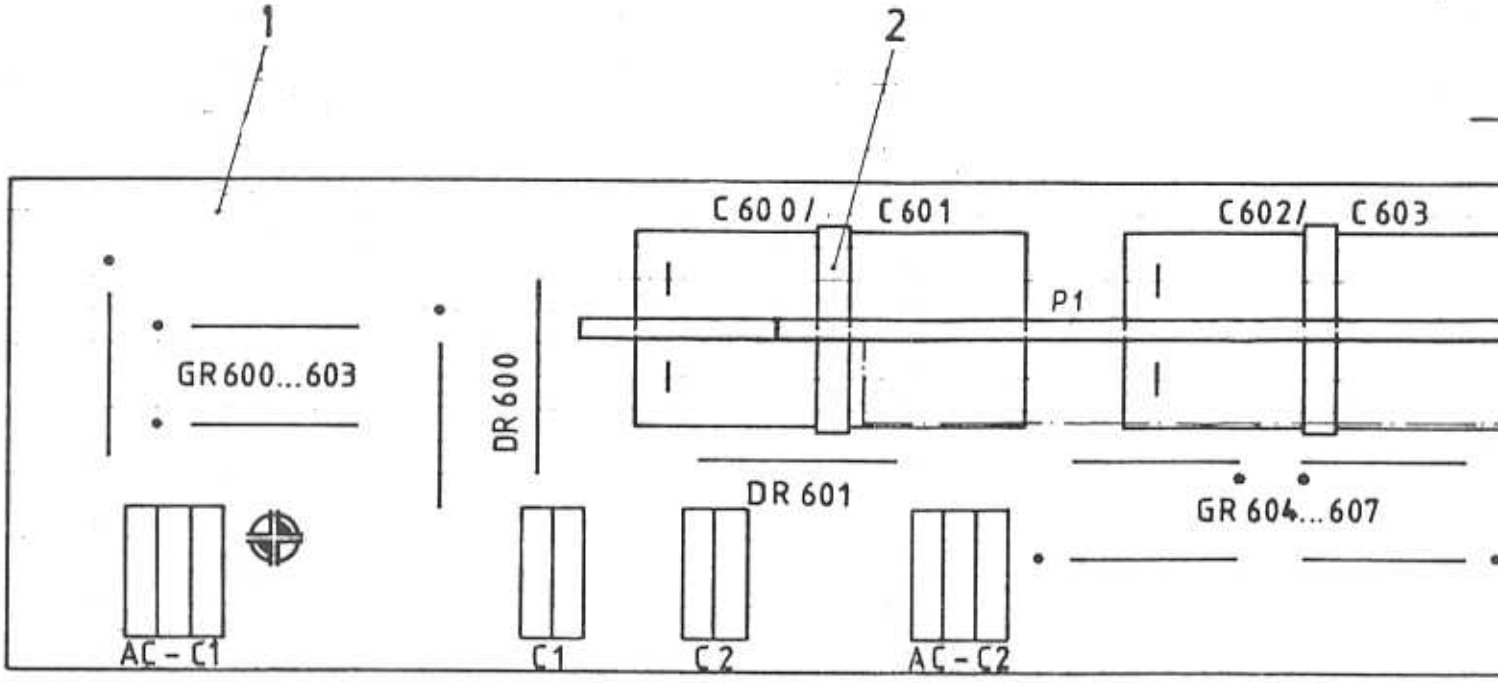
RWN 100			Maßstab 2:1
		19.3.81 gez. Hauser/Hi/Ri M. B	Inverter 500
56 A83C65A176 25.2.83 Kl. 55 A82C65A162 20.1.82 gez.Hi.		Siemens AG	C 65280-A44-B5

Blatt 1 — 91

No.	Pcs.	Designation / Benennung	Dates / Ordering codes / Daten / Bestellnummer/Typ	Part-number / Sachnummer	Prod by / Fa	Remarks / Bemerkungen	Montage
1	1	Transformator Transformer	ZKB461/305--51-U	C65381-Z59-C1	7)	TR501	
2	4	Diode	1N4935	C65169-Z1065-C3	4)	GR501...504	L12,5
3	4	"	BAW76	C65702-A397	1)	GR505... 508	L10
4	1	Z-Diode	BZX97C13	Q68000-A956-F82	1)	GR510	L10
5							
6							
7	1	Transistor	2N2904	Q62702-F65	1)	T502	
8	1	"	BCY65E	Q60203-Y65-S2	1)	T503	
9	2	"	MJE13009	C65060-Z29-C1	4)	T504,T505	
10	2	Tantal-Kondensat. Tantalum capacit.	6,8µF/40V	B45181-B4685-M	1)	C501,C502	
11	2	Elektrolyt-Kond. Electrolyte capac.	100µF/16V	B41588-C4107-T	1)	C503,C504	L25
12	2	Kohleschichtwid. Carbon film res.	Typ100 ±5% 22R	C65002-Z1-C40	2)	R502,R503	L12,5
13	1	"	Typ100 ±5% 1K	C65002-Z1-C28	2)	R505	L12,5
14	1	"	Typ100 ±5% 2k2	C65002-Z1-C20	2)	R507	L12,5
15	1	"	Typ SK3 2k4	C65001-Z71-C3	9)	R508	L12,5
16	1	"	Typ100 ±5% 100R	C65002-Z1-C13	2)	R504	L12,5
17							
18	4	Diode	A114B	C65169-Z1056-C4	5)	wahlweise für Lfd. Nr. 2 , optional for No. 2	
19	1	Spannungsregler Voltage regulator	TDB7812T	Q67000-A1057	1)	IC501	
20	2	Brücke Wiring bridge		C65280-A1080-C151		BR501,BR502	
21	2	"		C65280-A1080-C101		BR509,BR510	
22	1	Keramik-Kondensat Ceram.capacitor	2,2nF/100V	B37981-S1222-K3	1)	C505	S5

1) Fa.Siemens,München
2) " Vitrohm,Pinneberg
3) " Otto Dunkel,Mühldorf
4) " Motorola,Wiesbaden
5) " General Electric,München
6) " RCA
7) Fa.VAC,Hanau
8) " AEG-TFK,Ulm
9) " Roederstein-Zillner

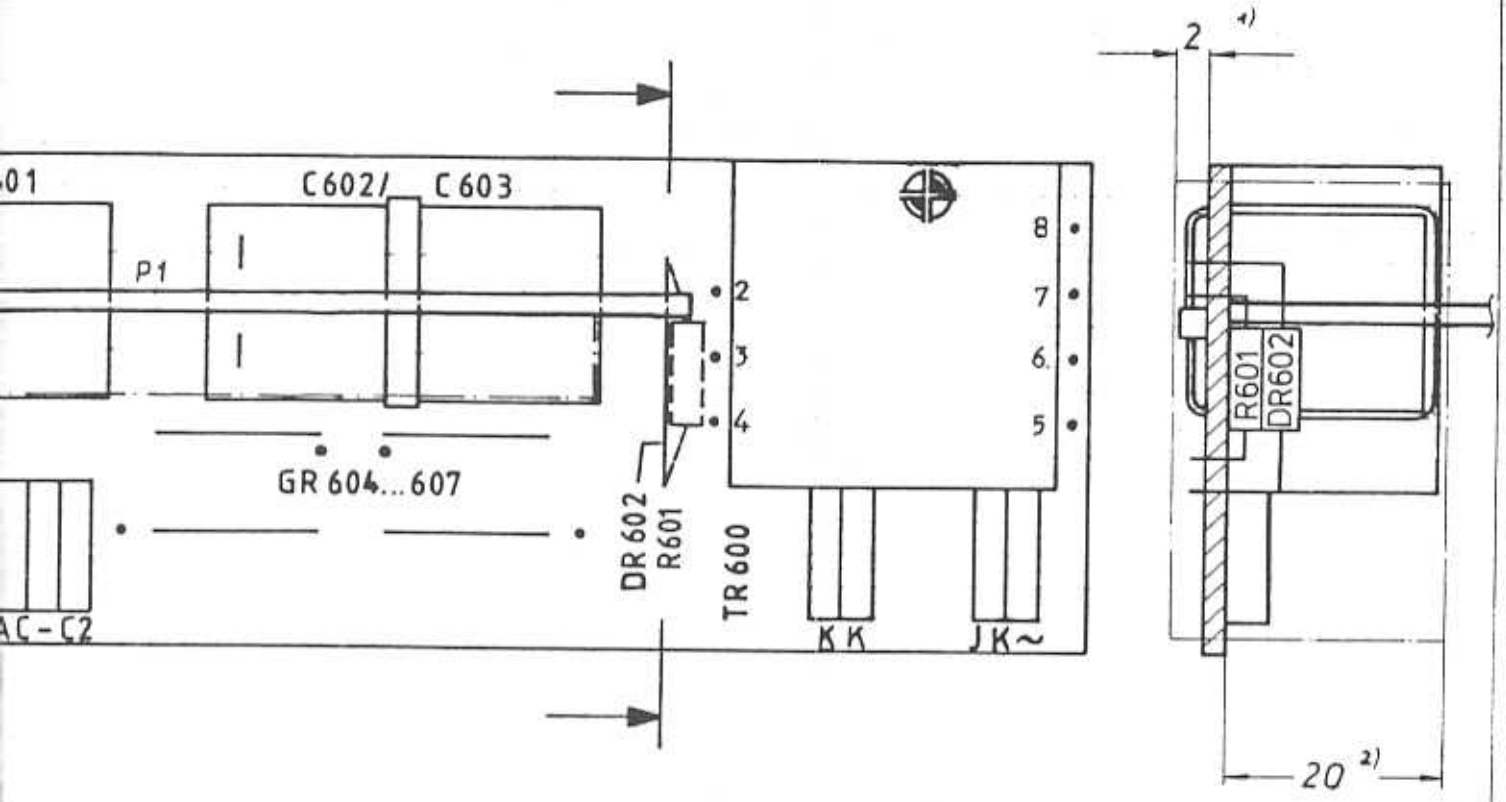
Änderungs-Hinweis				Datum	24.11.80	Inverter 500	
				Bearb	Ermer/Hi		
				Gepr	Hilching.		
				Norm			
—	N83C65A28	20.9.83	J.				
58	A83C85A290	28.7.83	J.	Siemens AG		C65280-A44-B5- X -16	Blatt 1 — 6
57	A83C65A176	25.2.83	Wa				
56	A83C65A68	22.10.82	ger.B				
Änd.	Änderungsindex	Datum	Name				



Elektrische B

RWN 100		
58	A83C65A68	22
57	A82C65A255	2.
56	A82C65A193	10
55	A82C65A162	20
54	A82C65A103	14
53	A81C65A273	29
52	A81C65A183	16
51	———	—
Zust.	Mitänderung	D

2) max. Bauteilehöhe
1) max. Lötanschlüsse



Elektrische Bauteile s. Bauteileübersicht Hergestellt n. F12-F1412

RWN 100						Maßstab 2:1	
58	A83C65A68	22.10.82	HB	Datum	18.3.81	C1/C2-Spannung C1/C2-Voltage (600)	
57	A82C65A255	2.4.82		Bearb.			
56	A82C65A193	10.2.82		Gepr.			
55	A82C65A162	20.1.82		Norm.			
54	A82C65A103	14.11.81					
53	A81C65A273	29.7.81		Siemens AG		C65280-A44-B6	Blatt 1
52	A81C65A183	16.4.81					
51							
Zust.	Änderung	Datum	Name				

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck	Benennung	Daten Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
1	8	Diode	BY203/20S Ur-2kV/250mA	C65169-Z1001-C117	4)	GR600...607	L15
2	1	Dioden-Platine Diodep.c.board		C65280-A44-B32		P1	
3	4	MKH-Kondensator " -capacitor	0,1µF 1,6kV	B32227-J1104-M	1)	C600...603	L35
4	1	Kohleschichtwiderstand Carbon film resistor	Typ 102 - 200R ±5 %, 0,33W	C65002 - Z4 - C13	2)	R601	L12,5
5	4	Buchsenleiste Socket strip	Best.Nr. 5.17.201.008.002.00	C65334-Z132-C1	3)		
6	2	Buchsenleiste Socket strip	Art. Nr. 5.19.201.008.002.00	C65334-Z132-C15	3)	ohne Mittelkontakt	
7	3	HF-Drossel BC-Choke	1mH	B78108-S1105-J	1)	DR600...602	L17,5
8							
9	1	Transformator Transformer		C65280-A44-B19		TR600	

1) Pa. Siemens, München
2) " Vitrohm, Pinneberg
3) " Otto Dunkel, Mühldorf
4) " AEG-TFK, Ulm

Änderungs-Hinweis

zum Beispiel/for instance:
Montage:
L15 = liegend - horizontal
Rastermaß/racheting = 15 mm
S5 = stehend - vertical
Rastermaß/racheting = 5 mm
Draht-wire = ϕ mm

Zust.	Mitteilung	Datum	Name
59	A83C65A176	25.2.83	
58	A83C65A68	22.10.82	
57	A82C65A255	2.4.82	
56	A82C65A193	10.2.82	
55	A82C65A162	20.1.82	
54	A82C65A103	14.11.81	

Datum 24.11.80
Bearb gez. Ermer/Hi
Gepr
Norm

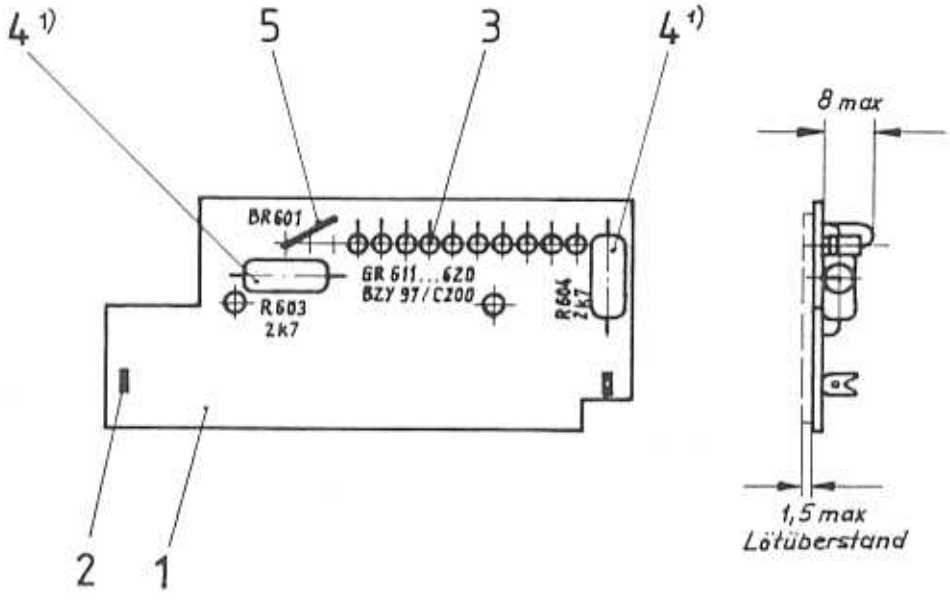
C1/C2-Spannung
C1/C2-voltage
(600)

Siemens AG

C65280-A44-B6-x-16

Blatt 1 - Bl

RWN100



1) mehrfach aufgeführt

RWN 100	—			Maßstab 1 : 1	
				Datum 3. 7. 81	Diodenplatine Diode p. c. board
				Bearb. Hildinger	
56	A82C65A 255	31. 3. 82	Hi	Gepr.	
55	A82C65A 205	22. 2. 82	Hi	Norm.	
54	A82C65A 162	20. 1. 82	Hi		
53	A82C65A 159	17. 12. 81	Hi	Siemens AG	C65280-A44-B32
52	A82C65A 103	14. 11. 81	Hi		Blatt 1 – Bl.
51	A81C65A 273	29. 7. 81	Hi		
Zust	Mitteilung	Datum	Name		

-B6

S 6260 50 000 3.80 1487

SIEMENS

Nr.	Stück	Benennung	Sachnummer	Bemerkungen
1	1	Leiterplatte Printed c. board	C65280-A44-C75	
2	2	Lötstift Soldering pin	C26334-A58-C7 1)	
3	10	Z-Diode BZY97-C200	Q68000-A984-F82 1)	GR611...620 o.Z.
4	2	Drahtwiderstand Wiring resistor	C65005-Z73-C3 2)	2K7 4W 5% Typ W21 R603,R604 o.Z.
5	1	Isolierte Drahtbr. Insulating wire	C65280-A1080-C154	BR 601 L3,75
6		Z-Diode ZY200	C65169-Z1060-C2 3)	wahlweise bei lfd.Nr.3

1) Fa.Siemens,München
2) " Hegener u. Glaser (Welwyn) München
3) Fa. ITT

TR	Ausg	Änderung/Mitteilung	Datum	Name
	58	A83C65A68	22.10.82	HB
	57	A82C65A 300	4. 6. 82	
	56	A82C65A 255	31. 3. 82	
	55	A82C65A 205	22. 2. 82	
	54	A82C65A 162	20. 1. 82	
	53	A82C65A 159	17. 12. 81	

Datum 3.7.81
Bearb
Gepr
Norm.

Diodenplatine
Diode p. c. board

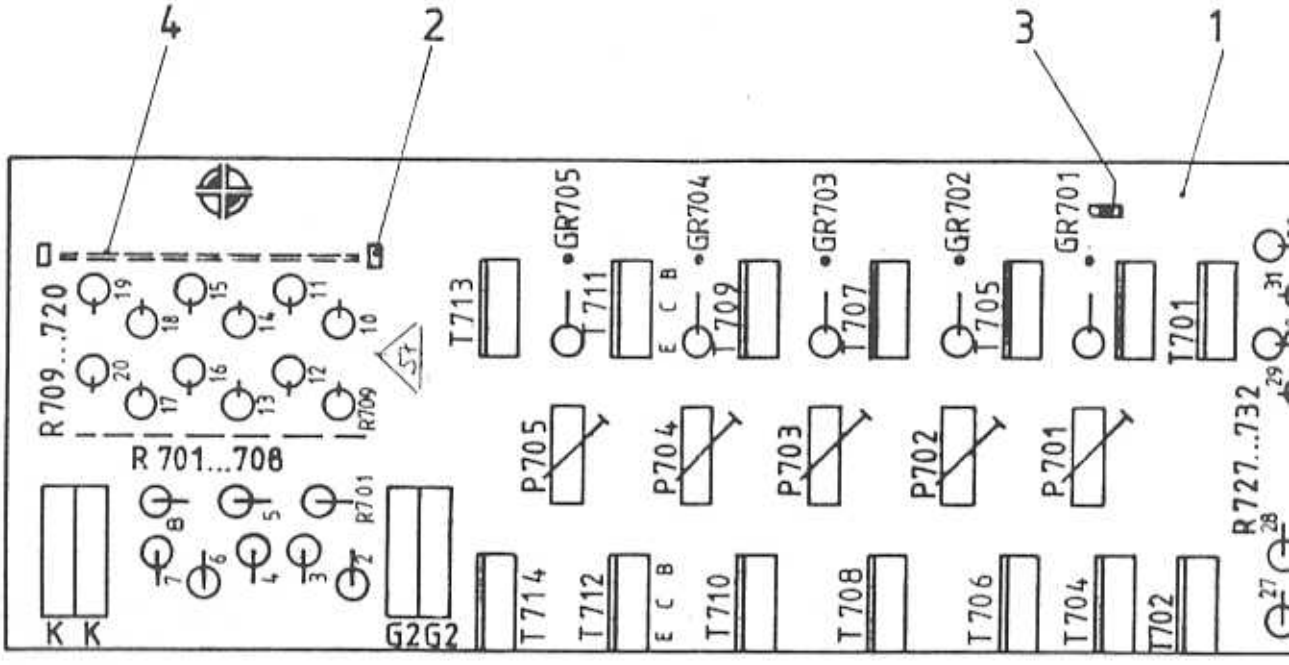
RWN 100

Siemens AG

C65280-A44-B32-x-07

Blatt 1

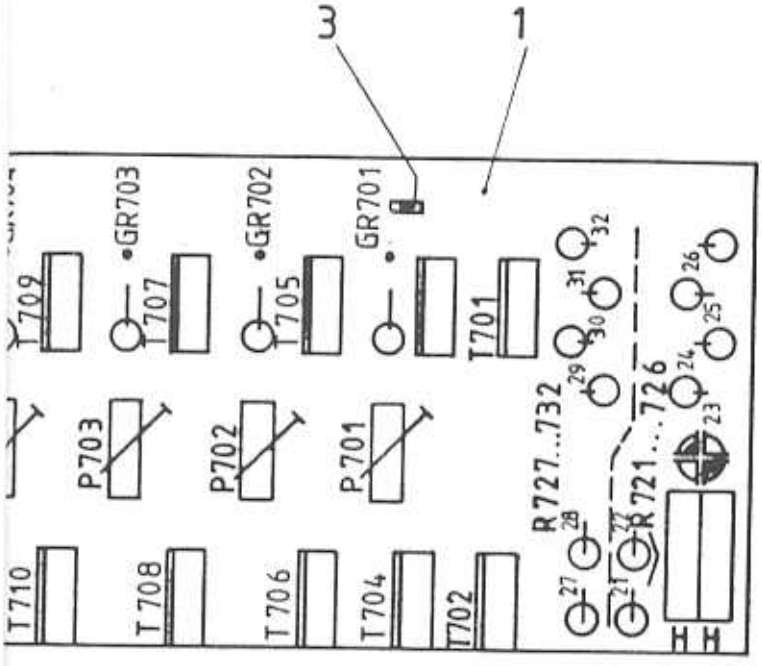
S 6100 7000 1.79 1227

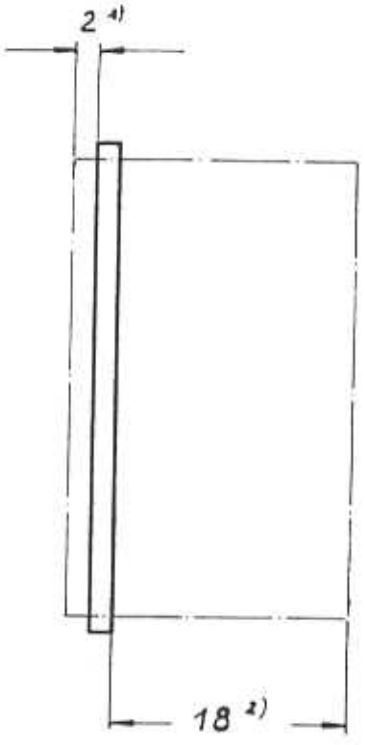


3) für Einstellung frontseitig !
2) max. Bauteilehöhe
1) max. Lötanschlüsse

Elektrische Bo

RWN 100		
	N83C65A28	20.
57	A83C65A290	28.
56	A83C65A176	25.
55	A82C65A339	22.
54	A82C65A162	20.
53	A82C65A103	14.
52	A81C65A183	16.
51		
Zust.	Vermerkung	Da





Elektrische Bauteile s. Bauteileübersicht Hergestellt n. F12 - F1412

RWN 100	—		Änderungs-Hinweis	Maßstab 2:1	
—	N83C65A28	20.9.83	Datum 18.3.81	Gitter 2-Spannung Grid 2-Voltage (700)	
57	A83C65A290	28.783	Bearb.		
56	A83C65A176	25.2.83	Gepr 25.3.81		
55	A82C65A339	22.7.82	Norm.		
54	A82C65A162	20.1.82			
53	A82C65A103	14.11.81			
52	A81C65A183	16.4.81	Siemens AG	C65280-A44-B7	Blatt 1 — Bl.
S1	—	—	—		
Zust.	Änderung	Datum	Name		

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates / Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck	Benennung	Daten / Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
1	8	Metallschichtwider. Metal film resist.	Typ471 402K C,25W 5%	C65004-Z4-C257	2)	R701...708	S2,5
2	6	"	Typ471 37k4 C,25W 5%	" " C194	2)	R721...726	S2,5
3	6	Kohleschichtwider. Carbon film resist.	Typ104 33k C,5W 5%	C65002-Z5-C2	2)	R727...732	S2,5
4	12	Metallschichtwider. Metal film resist.	Typ471 261K C,25W 5%	C65004-Z4-C253	2)	R709...720	S2,5
5	14	Transistor	BUX86	Q68000-A3870	1)	T701...714	
6	"	"	BUX87	Q68000-A5167	1)	"wahlweise f. lfd.Nr.5	
7	5	Trimm-Potentiometer	Typ0673-300-1M lin. ± 10%	C65408-Z130-C4	3)	P701...705	S5
8							
9	5	Z-Diode	B2X 97 C1C	Q68000-A953 -P82	1)	GR701...705	S5
10	3	Buchsenleiste Socket strip		C65334-Z132-C1	4)	Best.Nr. o.Z. 5,17,055,CC2,CC2,00	
11							

1) Pa. Siemens, München
2) " Vitrohm, Pinneberg
3) " Ruf, Höhenkirchen
4) " Otto Dunkel, Mühldorf

zum Beispiel/for instance:
Montage:
L15 = liegend - horizontal
Rastermaß/racheting = 15mm
S5 = stehend - vertical
Rastermaß/racheting = 5mm
Draht-wire = ϕ mm

Zust.	Mitteilung	Datum	Name
2	AB4C65A127	18.11.83	
—	N83C65A28	20.9.83	
57	A83C65A290	28.7.83	
56	A83C65A176	25.2.83	
55	A83C65A68	22.10.82	
54	A82C65A162	20.1.82	
53	A82C65A103	14.11.81	

Änderungsvorschläge / Hinweise

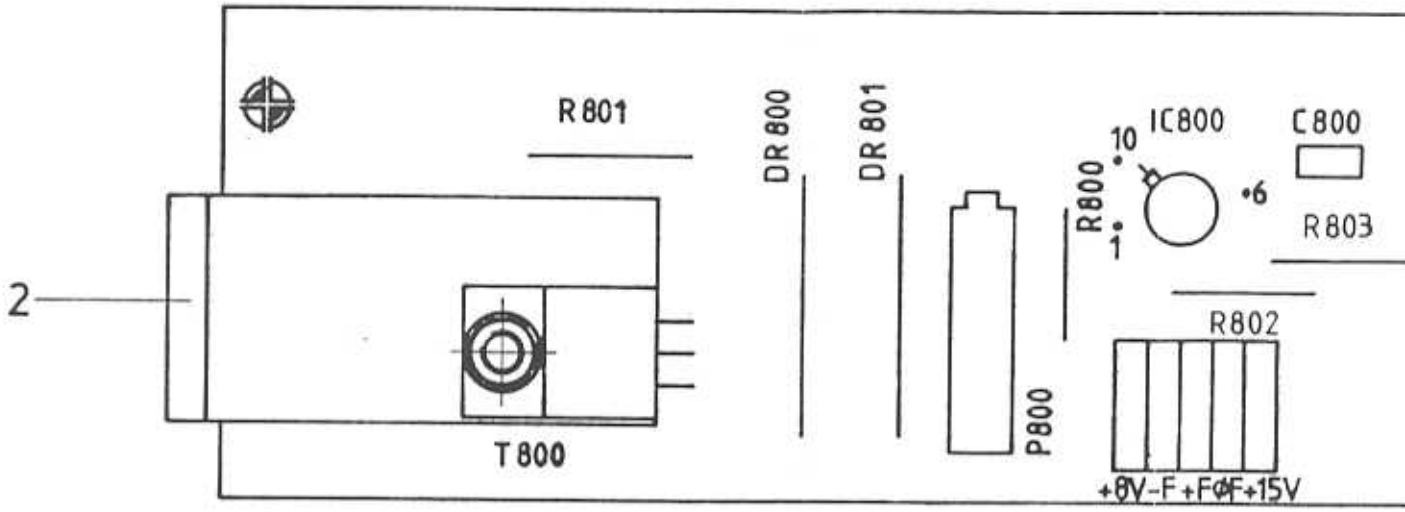
Datum: 24.11.80
Bearb: gez. Ermer/Hi.
Gepr:
Norm:

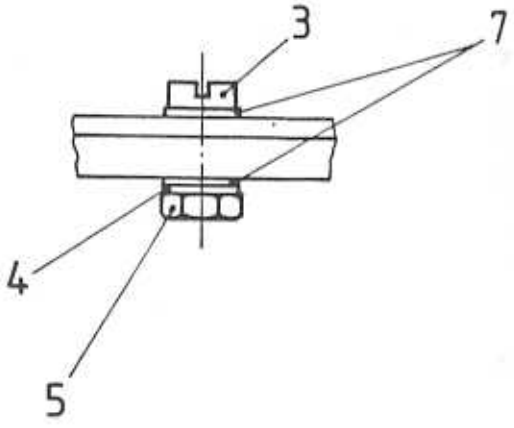
Gitter 2-Spannung
Grid 2-voltage
(700)

Siemens AG

C65280-A44-B7-x-16

Blatt 1 — Bl.

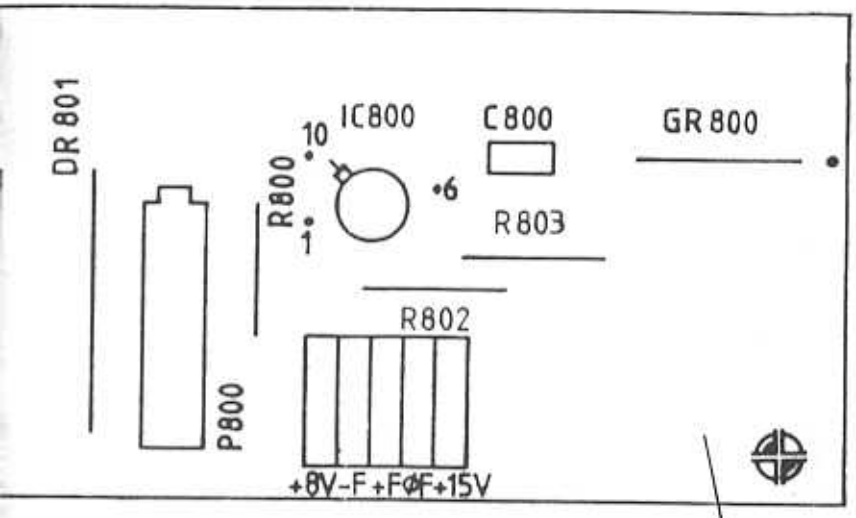


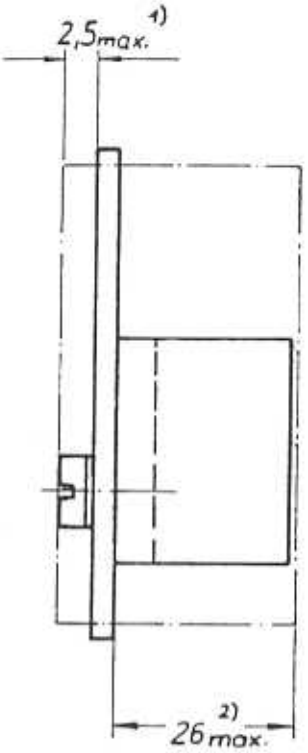


2) Bauteilehöhe
1) überstehende Lötanschlüsse

Elektrische Baut

RWN 100		-
59	A82C65A 278	7. 5.
58	A82C65A 205	22.2.
Zust.	Änderung	Datum





1

Elektrische Bauteile s. Bauteileübersicht

Hergestellt n. F12 - F1412

RWN 100	—			Maßstab 2:1	
			Datum 17.3.81	Heizspannung Heater voltage (800)	
			Bearb. Gang		
			Gepr. 25.3.81 GL		
			Norm.		
59	A82C65A 278	7.5.82			
58	A82C65A 205	22.2.82	Siemens AG	C65280-A44-B8	Blatt 1
Zust.	Änderung	Datum	Name		

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck	Benennung	Daten Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
1	1	Metallschichtwid. Metal film resist.	Typ471 3k65 0,25W 1%	C65004-Z4-C87	2)	R800/R802	I12,5
2	1	Drahtwiderstand Wire wound resist.	Typ OR33 0,5W 5%	C65005-Z43-c1	2)	R801	I15
3	1	Metallschichtwiderstand Metal film resistor	Typ471 1k 0,25W 1%	C65004-Z4-C47	2)	R803	L12,5
4	1	Keramik-Kondens. Ceramic capacitor	470pF	B37986-A1471-K	1)	C800	
5							
6	1	Z-Diode	BZV40 C7V5	Q62702-V12-F82	1)	GR800	I15
7							
8	1	Spannungsregler Voltage regulator	TDC 0723	Q67000-A1070	1)	IC 800	
9							
10	1	Transistor	2N 5494	C65060-Z2-C101	5)	T 800	
11							
12	1	Potentiometer	Typ3006P-1-202 2k 0,75W 10%	C65408-Z132-C1	6)	P 800	
13							
14	2	Drossel Choke	17µH 2A	B82111-B-C14	1)	DR800,DR801	I22,5
15							
16	1	Buchsenleiste Socket strip		C65334-Z132-C8	3)	Best.Nr. o.Z. 5.17.201.C08.005.0	

1) Fa. Siemens, München
2) " Vitrohm, Pinneberg
3) " Otto Dunkel, Mühldorf
4) " Signetics, EBV-München
5) " RCA, München
6) " Bourns, Stuttgart

zum Beispiel/for instance:
Montage:
L15 = liegend - horizontal
Rastermaß/racheting = 15mm
S5 = stehend - vertical
Rastermaß/racheting = 5mm
Draht-wire = ⌀ mm

55	A82C65A278	7.5.82	
54	A82C65A162	20.1.82	
53	A82C65A103	14.11.81	
Zust.	Mitteilung	Datum	Name

RWN100

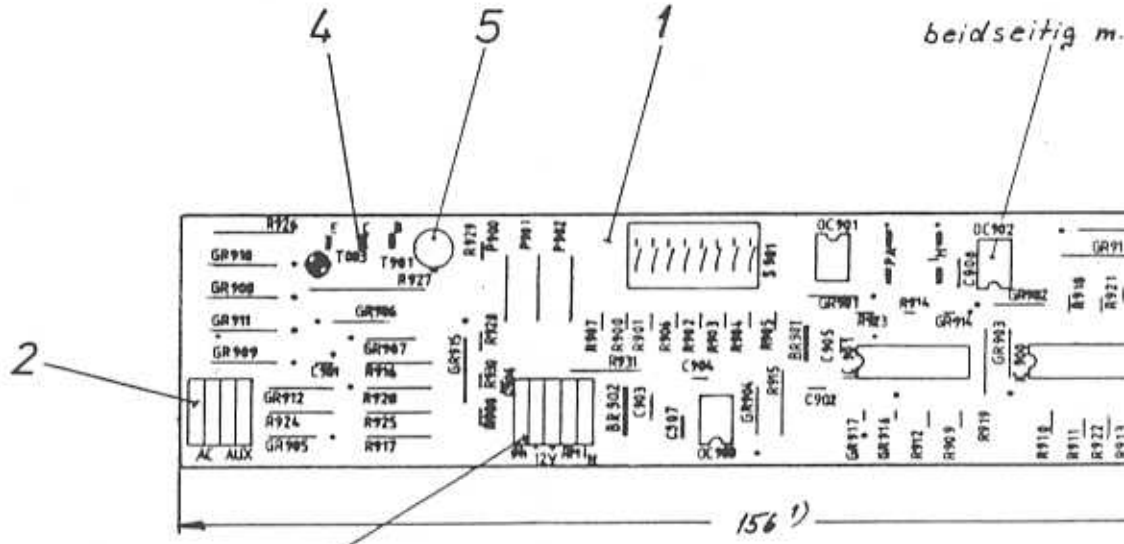
Datum 24.11.80
Bearb. gez. Ermer/Hi.
Gepr
Norm

Heizspannung
Heater voltage
(800)

Siemens AG

C65280-A44-B8-x-16

Blatt 1
- 81

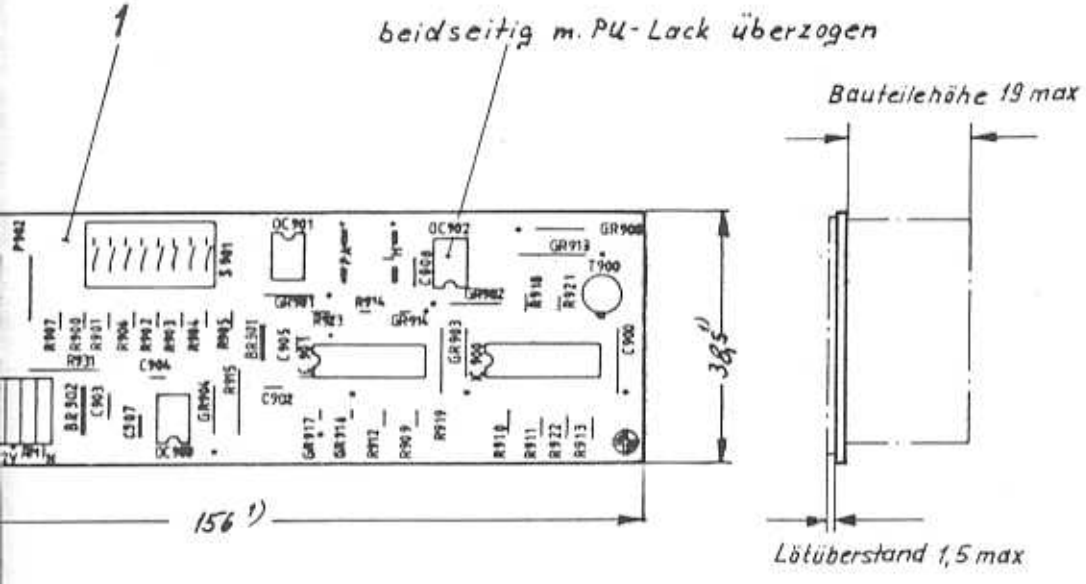


1) Einbaumaß

Elektrische Ba

RWN 100	
57 A83C65A96	8
56 A83C65A68	22.
55 A82C05A 162	20.
54 A82C65A 103	14.
53 A81C65A 273	29.
52 A81C65A 183	16.
51 —	

Zust. Mitteilung Da



Elektrische Bauteile s. Bauteileübersicht. Hergestellt v. F12-F1412

RWN 100			Maßstab 1:1	
			Datum 18.3.81	Wendelsteuerung Helix control (900)
57	A83C65A96	8.12.82	Bearb.	
56	A83C65A68	22.10.82	Gepr.	
55	A82C05A162	20.1.82	Norm	
54	A82C65A 103	14.11.81		
53	A81C65A273	29.7.81	Siemens AG	C65280 - A44 - B9
52	A81C65A183	16.4.81		Blatt 1 - Bl
51	—	—	—	
Zust.	Änderung	Datum	Name	

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates / Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck	Benennung	Daten / Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
1	3	Kohleschichtwider, Carbon film resist.	Typ10C 1k	C65C02-Z1-C28	2)	R911...913	S5
2	1	"	" 2k2	" -C20	2)	R914	S3,75
3	2	"	" 2k2	" -C20	2)	R915,R916	I12,5
4	1	"	" 1k5	" -C18	2)	R917,R920	I12,5
5	1	"	" 4k7	" -C23	2)	R918	S5
6							
7	1	"	" 10k	" -C29	2)	R921	S5
8	1	"	" 18k	" -C35	2)	R922	S5
9	1	"	" 56k	" -C36	2)	R923	S5
10	1	"	" 10R	" -C9	2)	R924	I12,5
11	1	"	" 150R	" -C37	2)	R925	I12,5
12							
13	1	Drahtwiderstand Wire wound resist.	Typ234-C R47 0,75W 10%	C65005-Z58-C3	2)	R926	I15
14	1	Kohleschichtwider, Carbon film resist.	Typ104 2k2 0,5W	C65002-Z3-C2	2)	R927	L20
15							
16	6	Metallschichtwid. Metal film resist.	Typ471 1M 0,25W 1%	C65004-Z4--C208	2)	R900...905	S5
17	1	"	" 165k 0,25W 1%	" " -C336	2)	R907 o.Z.	S5
18	1	"	" 475R 0,25W 1%	" " -C112	2)	R908	S3,75
19	1	"	" 19R1 0,25W 1%	" " -C335	2)	R909 o.Z.	S5
20	1	"	" 82R5 0,25W 1%	" " -C141	2)	R910	S5
21	1	"	" 6k19 0,25W 1%	" " -C108	2)	R919	I12,5
22	1	"	" 392R 0,25W 1%	" " -C15	2)	R928	S3,75
23	1	"	" 2k74 0,25W 1%	" " -C75	2)	R929	S3,75
24	1	"	" 3k4 0,25W 1%	" " -C311	2)	R930	S3,75
25	1	"	" 178k 0,25W 1%	" " -C337	2)	R931	I12,5

1) Fa. Siemens, München
2) Vitrohm, Pinneberg
3) Otto Dunkel, Mühldorf
4) Motorola, Wiesbaden
5) General Electric, München
6) Bourns, Stuttgart
7) General instruments - Münch.
8) Ettinger, München
9) Grayhill, München

zum Beispiel/for instance:
Montage:
L15 = liegend - horizontal
Rastermaß/racheting = 15 mm
S5 = stehend - vertical
Rastermaß/racheting = 5 mm
Draht-wire = ⌀ mm

Zust.	Mitteilung	Datum	Name
59	A83C65A176	25.2.83	MR
58	A83C65A96	9.12.82	
57	A83C65A68	22.10.82	MB
56	A82C65A162	20.1.82	Hi
55	A82C65A103	14.11.81	Hi

Datum 26.11.80
Bearb. gez. Emmer / Hi
Gear. Hildinger
Norm

Wendelsteuerung
Helix control
(900)

Siemens AG

C65280-A44-B9-x-16

Blatt 1
2 Bl

RWN 100

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates / Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck	Benennung	Daten / Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
26	1	Metallschichtwid. Metal film resist.	Typ 471 75k 0,25W 1%	C65004-Z4-C211	2)	R906	S5
27	1	Drahtbrücke Wiring bridge		C65280-A1080-C153		BR901	I7,5
28	3	Opto Koppler Opto-coupler	CNY 17/III	C65117-Z9124-C1	5)	OC900...902	
29	2	Doppel Op.Amp. Double " "	MC 1747I	C65467-Z38-C1	4)	IC900,IC901	
30	1	Drahtbrücke Wiring bridge		C65280-A1080-C155		BR902	L10
31	1	Transistor	2N 2906	C65060-Z2-C1		T900	
32	1	"	BCY 59IX	Q60203-Y59-J	1)	T901	
33							
34	1	Diode	BAW 76	Q62702-A397		GR903	I10
35	7	"	"	" "		GR900...902 GR904...907	I10
* 36	2	"	"	" "		GR916,GR917	S3,75
37	4	"	1N 4935	C65169-Z1065-C3	4)	GR908...911	I12,5
38	1	Z-Diode	BZX 83 C10	Q62702-Z1077-F82	1)	GR912	I12,5
39	1	"	" C5V1	" -Z1070- "	1)	GR913	I12,5
40	1	"	" "	" " "	1)	GR914	S3,75
41	1	Referenzdiode	1N 937A	Q62702-Z790-F82	7)	GR915	I12,5
42	1	Potentiometer	Typ3006P-1-202 2k 0,75W 5%	C65408-Z132-C1	6)	P900 o.Z.	
43	1	"	Typ3006P-1-203 20k 0,75W 10%	" " -C2	6)	P901 o.Z.	
44	1	"	Typ3006P-1-503 50k 0,75W 10%	" " -C5	6)	P902 o.Z.	
45	1	Tantal-Kondensat. Tantalum capacitor	3,3µF 16V	B45178-A3335-M	1)	C900	I12,5
46	1	"	6,8µF 40V	B45181-B4685-M	1)	C901	
47	1	Keramik-Kondens. Ceramic capacit	680pF	B37986-A1681-J	1)	C902	
48	4	"	0,1µF 63V	B37449-F6104-S3	1)	C903..C906	
49	2	"	220pF 50V	B37979-S5221-J3	1)	C907,C908	S5
50	1	DIP-Switch	76-B08-S	C65315-Z321-C2	9)	S901	

zum Beispiel/for instance:
Montage:
L15 = liegend - horizontal
Rastermaß/racheting=15mm
S5 = stehend - vertical
Rastermaß/racheting=5mm
Draht-wire = ϕ mm

Zust.	Mitteilung	Datum	Name
59	A83C65A176	25.2.83	
58	—	—	—
57	A83C65A68	22.10.82	
56	A82C65A162	20.1.82	
55	A82C65A103	14.11.81	

Datum 24.11.80
Bearb ges. Ermer/Hi.
Gepr
Norm

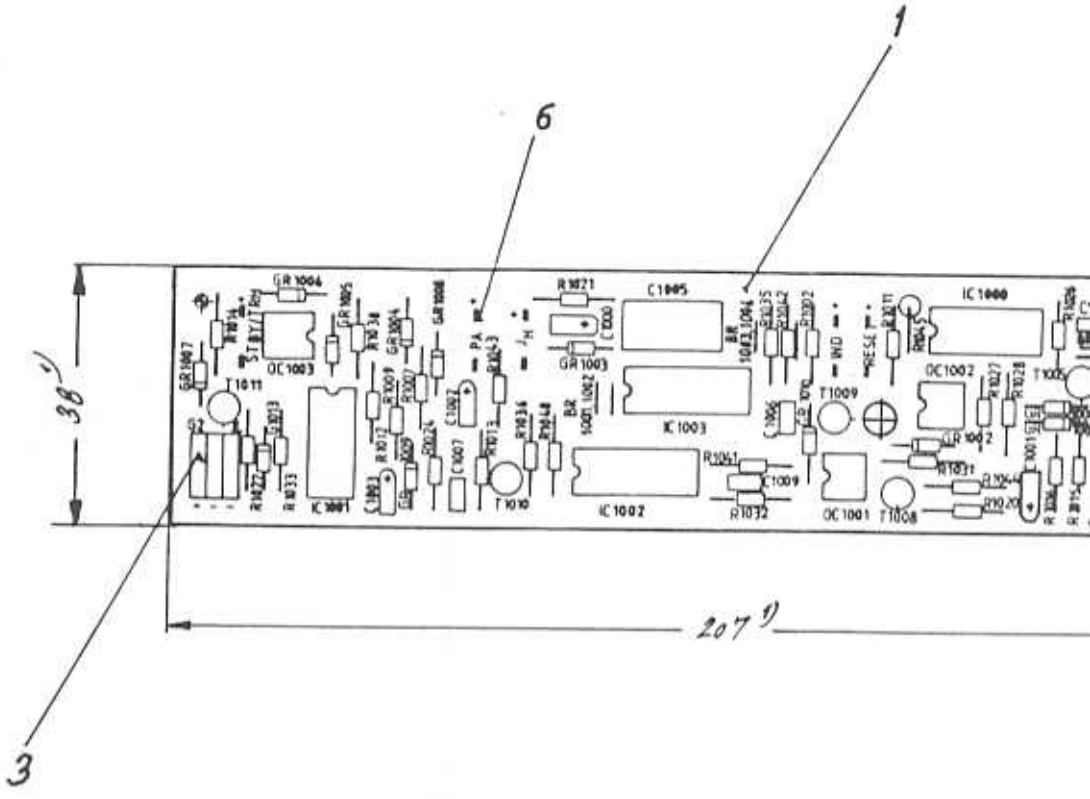
Siemens AG

Wendelsteuerung
Helix control
(900)

C65280-A44-B9-x-16

Blatt 2
2 Bl

RWN100

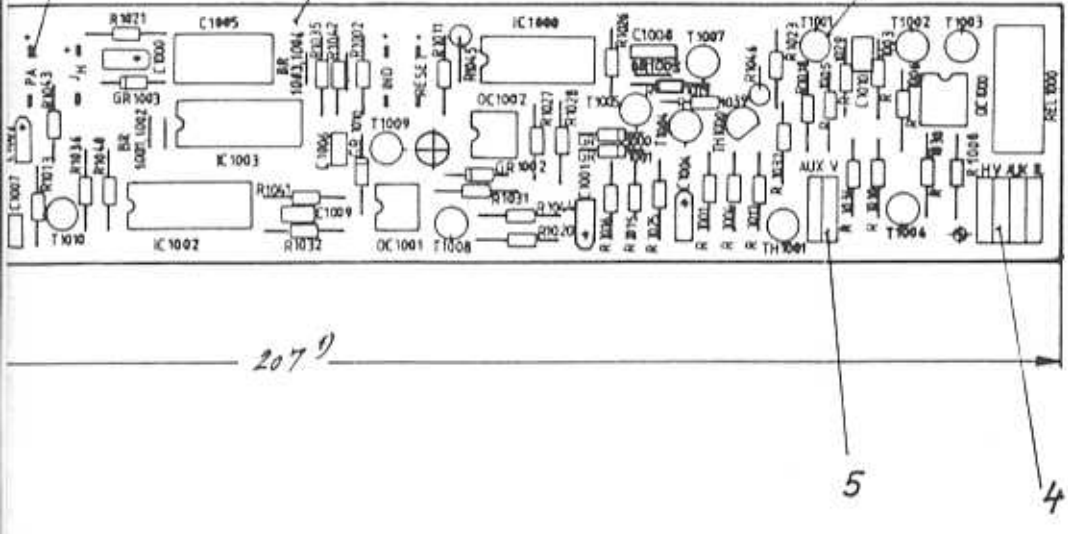


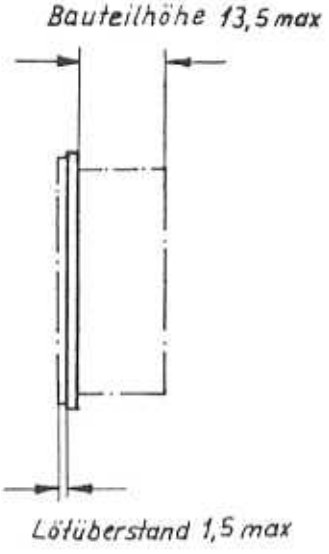
1) Einbaumaß

Elektrische Bau

RWN 100	–

58	A83C65A68	22.10.82
57	A82C65A162	20.1.82
56	A82C65A103	14.11.81
55	A81C65A339	2. 9.81
54	A81C65A323	11.8.81
53	A81C65A273	29.7.81
52	A81C65A183	16.4.81
51	—	—





Elektrische Bauteile s. Bauteileübersicht. Hergestellt n. F12-F1412

RWN 100	–		Maßstab 1:1
58 A83C65A68 22.10.82 Hi 57 A82C65A162 20.1.82 Hi 56 A82C65A103 14.11.81 Hi 55 A81C65A 339 2. 9.81 Hi 54 A81C65A 323 11.8.81 Hi 53 A81C65A 273 29.7.81 Hi 52 A81C65A 183 16.4.81 Hi 51 — —	Datum 25.2.81 Bearb. Hi Zeichn. Hi 2238 Norm.	Siemens AG	Steuereinheit Control unit (1000) C65280 - A44 - B10 Blatt 1 - BI

4

1	2	3	4	5	6	7	8
No.	Pos.	Designation	Dates / Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck	Benennung	Daten / Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
1	1	Kohleschichtwid. Carbon film res.	Typ 100 47R	C65002-Z1-C8	2)	R1001	L12,5
2	1	"	" 100R	C65002-Z1-C13	2)	R1002	L12,5
3	1	"	" 220R	C65002-Z1-C10	2)	R1003	L12,5
4	5	"	" 1k	C65002-Z1-C28	2)	R1004...R1007 R1019	L12,5
5	3	"	" 1,5k	C65002-Z1-C18	2)	R1008,R1009 R1010	L12,5
6							
7	4	"	" 4k7	C65002-Z1-C23	2)	R1011...R1014	L12,5
8	9	"	" 10k	C65002-Z1-C29	2)	R1033	L12,5
9	1	"	" 22k	C65002-Z1-C16	2)	R1024	L12,5
10	9	"	" 47k	C65002-Z1-C17	2)	R1025...R1032	L12,5
11	4	"	" 100k	C65002-Z1-C24	2)	R1034...R1036 R1039	L12,5
12	2	"	" 150k	C65002-Z1-C25	2)	R1037,R1038	L12,5
13	1	"	" 220k	C65002-Z1-C26	2)	R1040	L12,5
14	1	"	" 470k	C65002-Z1-C15	2)	R1041	L12,5
15	2	"	" 1M	C65002-Z1-C30	2)	R1042,R1043	L12,5
16	2	"	" 10k	C65002-Z1-C29	2)	R1045 R1046	S7,5 S5
17							
18	1	Zähler Counter	CD4024BF	C65467-Z5-C3	4)	IC1000	
19	1	4fachSchmitt-Trig. Quadr. " "	CD4093BF	C65467-Z48-C1	4)	IC1001	
20	2	Zähler Counter	CD4060BF	C65467-Z30-C1	4)	IC1002,1003	
21							
22	3	Transistor	BCY79	Q62702-Y79	1)	T1001...T1003	
23	7	Transistor	BCY59IX	Q60203-Y59-J	1)	T1004...T1010	
24	1	Transistor	BC 546 B	Q62702-C687-V2	1)	T1011	

1) Fa. Siemens, München
2) " Vitrohm, Pinneberg
3) " General Electric, München
4) " RCA, München
5) " Componenta, Neuried-München
6) " Ettinger, München

zum Beispiel/for instance:
Montage:
L15 = liegend - horizontal
Rastermaß/racheting = 15mm
S5 = stehend - vertical
Rastermaß/racheting = 5mm
Draht-wire = ø mm

Änderungs-Hinweis				Datum	24.11.80
				Bearb	Hilching.
				Gepr	
				Norm	

Steuereinheit 1000
Control unit 1000

Zust.	Mitteilung	Datum	Name
—	N83C65A28	20.9.83	Jr.
62	A83C65A290	28.7.83	Jr.
61	A83C65A176	25.2.83	HB

Siemens AG

C65280-A44-B10- X -16

Blatt 1
2 Bl.

-A1

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates / Ordering codes	Part-number	Prod by	Remarks	Montage
Nr.	Stck	Benennung	Daten / Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
26	8	Diode	BAW 76	Q62702-A397	1)	GR1000..1007	I10
27	1	Z-Diode	BZX 83 C5V1	Q62702-Z1070-F82	1)	GR1008	I10
28	1	"	" C10	" -Z1077-F82	1)	GR1009	I10
29	1	"	" C39	" -Z1397-F82	1)	GR1010	L12,5
30	3	Tantal-Kondensat. Tantalum-capacitor.	6,8µF 40V	B45181-B4685-M	1)	C1000..1002	S5
31	1	"	22µF 16V	" -A2226-M	1)	C1003	S5
32	1	"	1µF 50V	C65011-Z3-C1	-	C1004	S5
33	1	MKT-Kondensator "-capacitor	2,2µF 100V	B32512-D1225-K	1)	C1005	I15
34	2	Keramik-Kondens. Ceramic-capacitor	0,1µF 63V	B37449-F6104-S2	1)	C1006,1007	S5
35	1	"	0,22µF 25V	B37988-J5224-M	1)	C1010	S5
36	1	"	68nF 63V	B37449 F6683-S2	1)	C1009	S5
37	1	"	0,1µF 63V	B37449-F6104-S2	1)	C1008	S7,5
37	1	Relais	RH 16	C65303-Z319-C1	5)	Rel.1000	
38	4	Optokoppler Opto-coupler	CNY 17/III	C65117-Z9124-C1	3)	OC1000!.1003	
39	1	Thyristor	BRY 56	Q68000-A803	1)	TH 1000	
40	1	"	BRY 58/60	" -A2677-F10	1)	TH 1001	
41	2	Drahtbrücke Wiring bridge		C65280-A1080-C101		BR1001..1002	I5
42	3	"		" " -C102		BR1003..1005	I6,25
43	1	Z-Diode	BZX83 C39	Q62702-Z1397-F82	1)	GR 1013	L10

zum Beispiel/for instance:
Montage:
L15 = liegend - horizontal
Rastermaß/racheting = 15mm
S5 = stehend - vertical
Rastermaß/racheting = 5mm
Draht-wire = ϕ mm

				Datum	24.11.80
				Bearb	ger. Ermer/Hi.
——	N83C65A28	20.9.83	Ji.	Gepr	
61	A83C65A176	26.2.83	Hö	Norm	
60	A83C65A68	22.10.82	HB		
59	A82C65A329	2.7.82	Hi.		
58	A82C65A162	28.1.82	Hi.		
57	A82C65A103	14.11.81	Hi.		
Zust.	Mitteilung	Datum	Name		

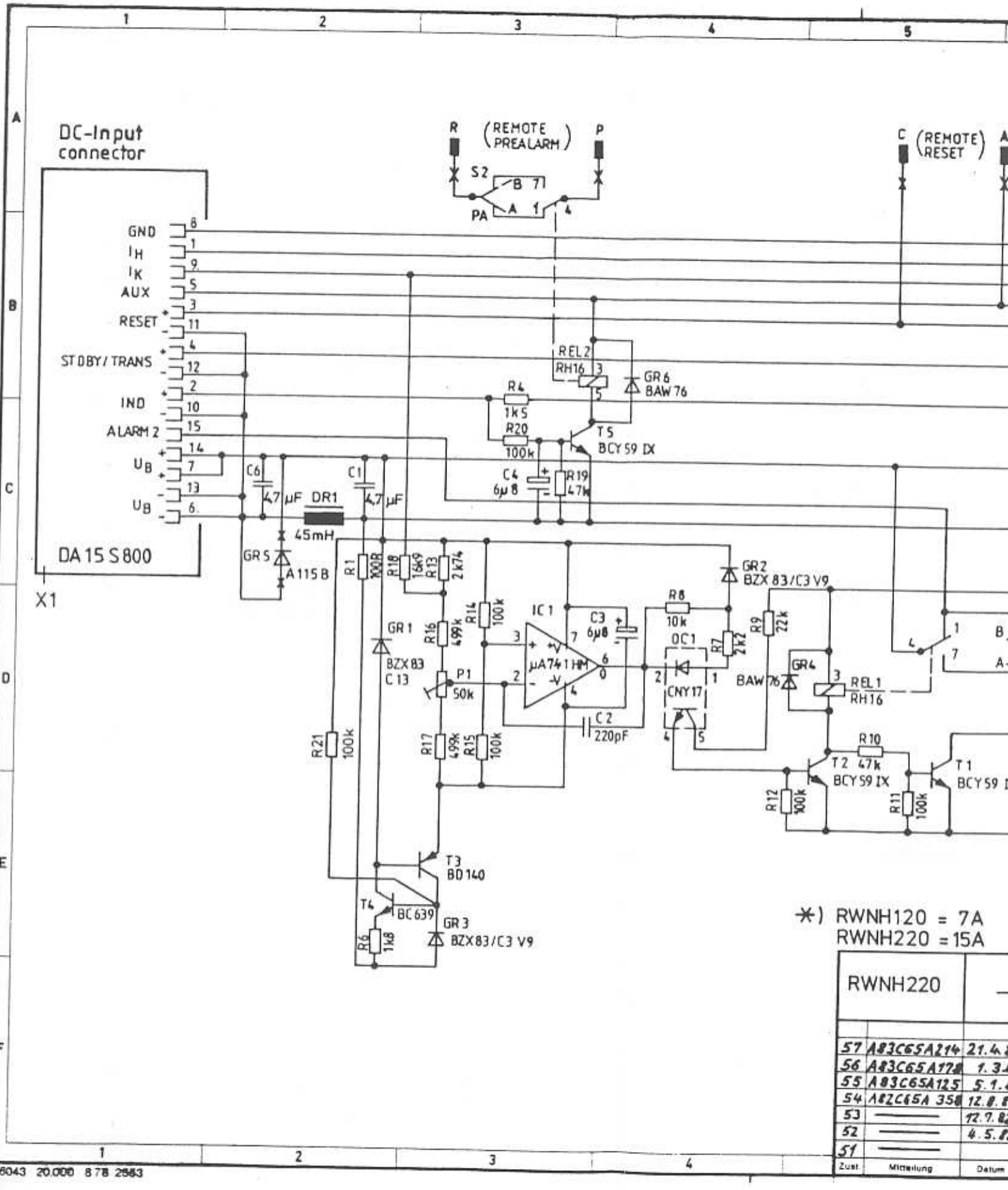
RWN100

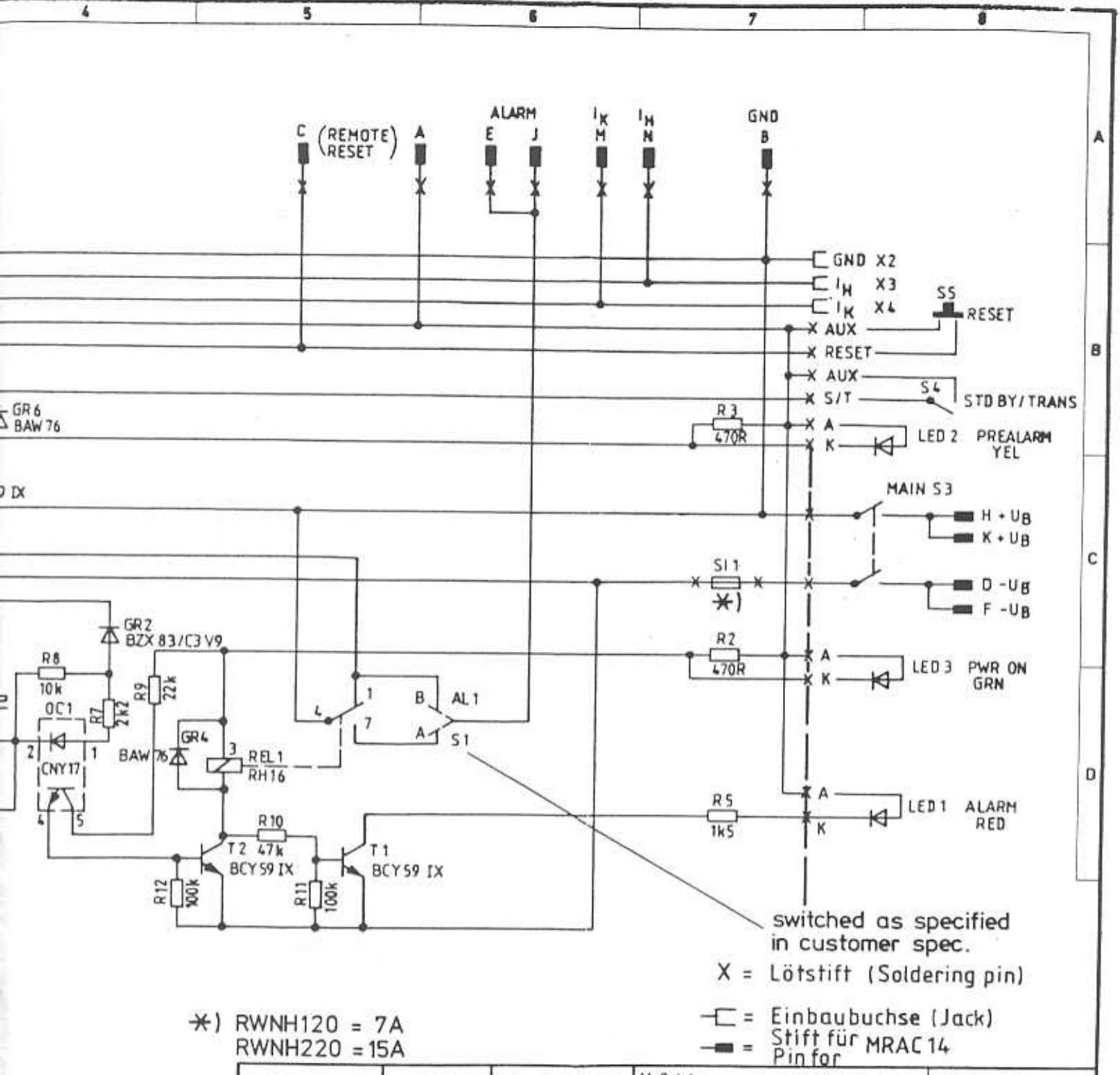
Siemens AG

Steuereinheit
Control unit
(1000)

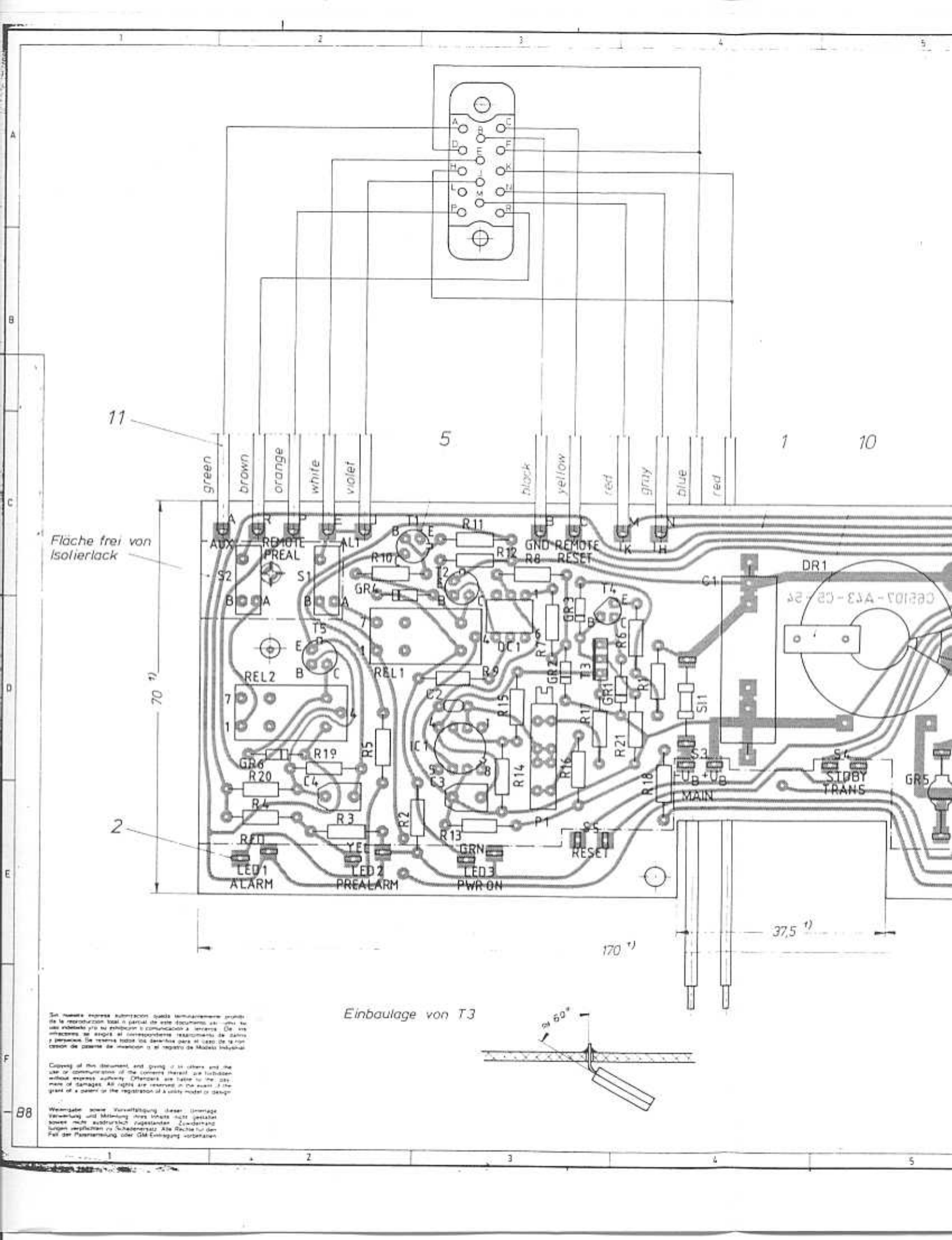
C65280-A44-B10-x-16

Blatt 2 / 2 Bl.

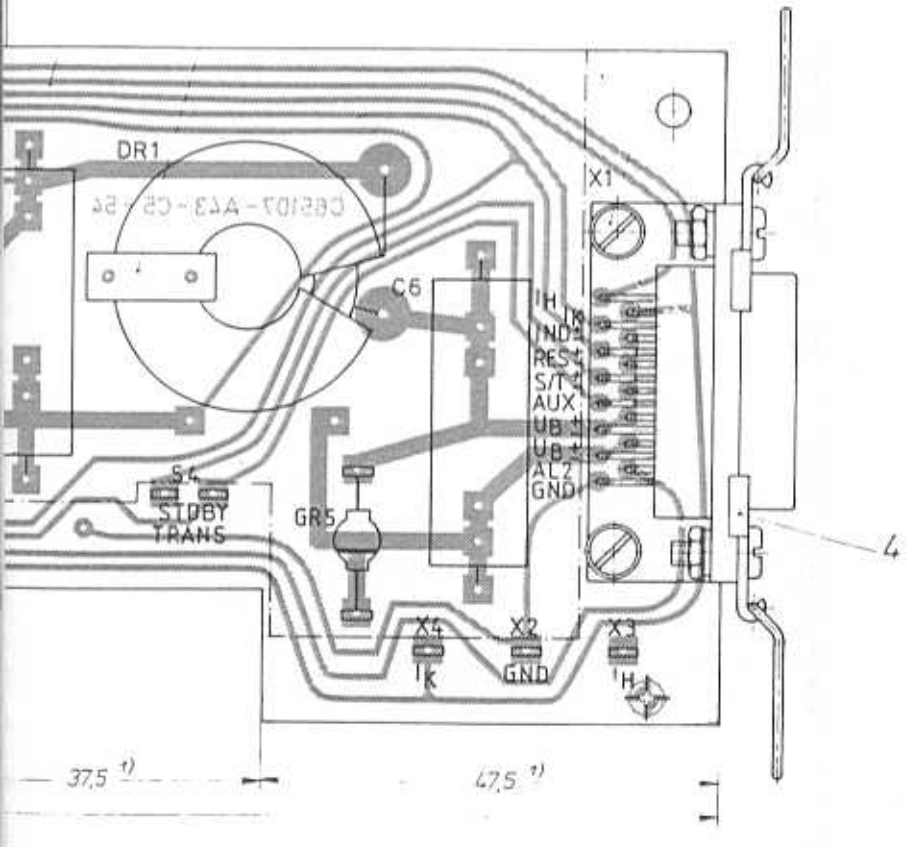

DC-Input connector
DA 15 S 800
X1
GND
IH
IK
AUX
RESET
STDBY/TRANS
IND
ALARM 2
UB
UB
R (REMOTE PREALARM) P
S2
PA
C (REMOTE RESET)
REL2
RH16
GR6 BAW 76
R4 1k5
R20 100k
T5 BCY59 IX
C4 6µ8
R19 47k
C6 4,7 µF
DR1 45mH
C1 4,7 µF
GR5 A115B
R1 100R
R18 16k9
R13 2k74
GR1 BZX83 C13
R16 499k
R14 100k
P1 50k
R17 499k
R15 100k
R21 100k
IC1 µA741HM
C3 6µ8
C2 220pF
R8 10k
OC1 CNY17
R7 2k2
GR2 BZX83/C3V9
R9 22k
BAW 76
GR4
REL1 RH16
R10
T2 47k BCY59 IX
T1 BCY59
R12 100k
R11 100k
T3 BD140
T4 BC639
R6 1k8
GR3 BZX83/C3V9
*) RWNH120 = 7A
RWNH220 = 15A
RWNH220
57 A83C65A214 21.4.
56 A83C65A178 1.3.
55 A83C65A125 5.1.
54 A82C65A 358 12.8.
53 12.7.
52 4.5.
51
Zust. Mitteilung Datum
S 6043 20.000 878 2563

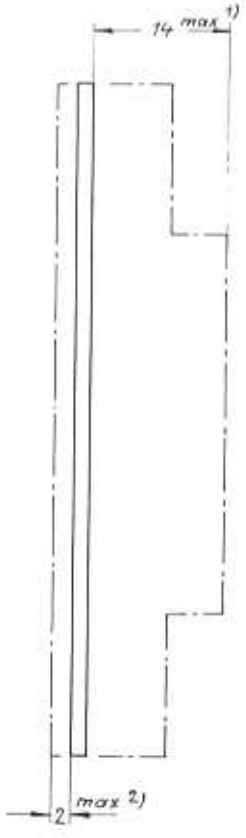


RWNH220	—			Maßstab —	
				Datum 15.2.82	
57	A83C65A214	21.4.83	HB	Bearb Hilbinger	Stromlaufplan - Alarmplatine
56	A83C65A178	1.3.83	HB	Gepr	Circuit diagram-Alarm p.c.board
55	A83C65A125	5.1.83	HB	Norm	
54	A82C65A358	12.8.82			
53	—	12.7.82		Siemens AG	C65107-A43-B10-* -11
52	—	4.5.82			Blatt 1
51	—				Bl.
Zust.	Mitteilung	Datum	Name		



1 10 Fläche frei von Isolierlack 6,7,8,9





beidseitig mit CRC -Urethane Isolierlack beschichtet

2) Lötüberstände
1) Einbaumaß

RWNH220			Maßstab 2:1
		Datum 23.2.82	Alarmplatine Alarm PC board
55 A83C65A125 5.1.83 K/S		Siemens AG	C65107-A43-B10
Zust. Änderung	Datum Name		Blatt 1 — Bl.

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates Ordering codes	Part - number	Prod. by	Remarks	Montage
Nr.	Stck.	Benennung	Daten Bestellnummer/Typ	Sachnummer	Fa.	Bemerkungen	Montage
1	1	Kohleschichtwiderstand Carbon film resistor	100 R / ± 5 % / 0,27 W Typ 100	C 65002 - Z1 - C13	1)	R1 o.Z.	L12,5 0,65
2	2	"	470 R / ± 5 % / 0,27 W Typ 100	" " - C38	1)	R2; R3 o.Z.	"
3	2	"	1k5 / ± 5 % / 0,27 W Typ 100	" " - C18	1)	R4, R5 o.Z.	"
4	1	"	1k8 / ± 5 % / 0,27 W Typ 100	" " - C39	1)	R6 o.Z.	"
5	1	"	2k2 / ± 5 % / 0,27 W Typ 100	" " - C20	1)	R7 o.Z.	"
6	1	"	10k / ± 5 % / 0,27 W Typ 100	" " - C29	1)	R8 o.Z.	"
7	1	"	22 k / ± 5 % / 0,27 W Typ 100	" " - C16	1)	R9 o.Z.	"
8	2	"	47k / ± 5 % / 0,27 W Typ 100	" " - C17	1)	R10; R19 o.Z.	"
9	4	"	100 k / ± 5 % / 0,27 W Typ 100	" " - C24	1)	R11; R12; R20, R21 o.Z.	"
10							
11							
12	1	Metallschichtwiderstand Metal film resistor	2 k74 / ± 1 % / 0,25 W Typ EE 471	C 65004 - Z4 - C75	1)	R13 o.Z.	L12,5 0,65
13	2	"	100 k / ± 1 % / 0,25 W Typ EE 471	" " - C215	1)	R14; R15 o.Z.	"
14	2	"	499 k / ± 1 % / 0,25 W Typ EE 471	" " - C234	1)	R16; R17 o.Z.	"
15	1	"	16 k 9 / ± 1 % / 0,25 W Typ EE 471	" " - C151	1)	R18 o.Z.	"
16							
17	1	Trimmpotentiometer "	50 K	C 65408 - Z132 - C5	3)	P1 o.Z.	L
18							
19							
20							
21	2	DIP - FIX - Umschalter " - switch	12 teilig b = 3,1	C 42315 - A1347 - A212	2)	S1; S2 o.Z	L
22							
23	3	NPN - Transistor " "	BCY 59 IX	Q 60203 - Y59 - J	2)	T1; T2; T5 o.Z.	S
24	1	PNP - Transistor " "	BD 140	Q 62702 - D111	2)	T3 o.Z.	S

1) Fa. Vitrohm - Pinneberg
2) " Siemens - München
3) " Bourns - München
4) " General - Instruments - München
5) " Componenta - München
6) Fa. Fairschild - München
7) " General - Electric, München
8) " Souriau - Elektrik
9) Roederstein, Landshut

zum Beispiel / for instance:
Montage:
L15 = Liegend - horizontal
Rastermaß / racheting = 15mm
S5 = stehend - vertical
Rastermaß / racheting = 5mm
Draht / wire = Ø mm

58	A83C65A214	21.4.83	HB
57	A83C65A125	5.1.83	HB
56	A83C65A59	13.10.82	HB
55	A82C65A 358	12.8.82	Hi
54	A82C65A 344	26.7.82	Hi
53	———	12.7.82	Hi
52	———	4.5.82	Hi
51	———	———	———
Zust.	Mitteilung	Datum	Name

Datum 17.2.82
Bearb. Hildinger
Gepr.
Norm

SIEMENS
AKTIENGESELLSCHAFT

Bauteileübersicht für
Alarmplatine
Components table for
Alarm p. c. board

C65107 - A43 - B10 - * - 16

Blatt 1
2 Bl

1	2	3	4	5	6	7	8
No.	Pcs.	Designation	Dates / Ordering codes	Part - number	Prod. by	Remarks	Montage
Nr.	Stck	Benennung	Daten / Bestellnummer/Typ	Sachnummer	Fa	Bemerkungen	Montage
25	1	NPN - Transistor " "	BC 639	Q 68000 - A3361	2)	T4 o.Z.	S
26							
27	1	Z - Diode	BZX83, C13	Q62702 -Z1080 - F82	2)	GR1 o.Z.	L10 0,55
28	2	"	BZX83, C3V9	Q62702 - Z1067 - F82	2)	GR2 ; GR3 o.Z.	L10 0,55
29							
30	2	Diode	BAW 76	Q62702 - A397-	2)	GR4 ; GR6 o.Z.	L10 0,5
31	1		A 115 B	C65169 - Z1043 - C1	4)	GR5 o.Z.	L15 1,1
32							
33	2	MKT-Kondensator " -capacitor	4,7µF/100V	C65015-Z5-C1	9)	C1;C6 o.Z.	L35
34	1	Keramik-Kondensator Ceramic capacitor	220pF/50V	B37979 - S5221 - J3	2)	C2 o.Z.	S5 0,6
35	2	Tantal-Kondensator Tantalum capacitor	6µ8 / 40V	B45181 - B4685 - M	2)	C3 ; C4 o.Z.	S5 0,5
36							
37	2	Relais	RH 16 V (SDS)	C65303 - Z319 - C1	5)	REL1 ; REL2 o.Z.	L 0,6
38	1	Opt - Ampl. Operations amplifier	µA 741 HM	C65117 - Z9512 - C1	6)	IC1 o.Z	L
39	1	Optokoppler Operations coupler	CNY17 II	C65117 - Z9124 - C1	7)	OC1 o.Z.	L
40		Sicherung Fuse	Pico - Fuse Typ 2760...	C65327 - Z28 - C..	*)	Si 1 o.Z.	L 0,813
41							
42	1	Steckverbindung Connector	Typ DA 155 800	C65334 - Z193 - C1	8)	X1 o.Z.	
43							
44	1	Drossel Choke	45mH/6A	C65107-A43-B12		DR1	L15
45							
46							
47							
48							

*)in C65107-A41-A2- X -07 oder
C65107-A43-A1- X -07 angezogen

zum Beispiel/for instance :
Montage:
L15 = Liegend - horizontal
Rastermaß/racheting = 15mm
S5 = stehend - vertical
Rastermaß/racheting = 5mm
Draht/wire = Ø mm

Zust.	Mitteilung	Datum	Name
56	A83C65A725	5.1.83	HB
55	A82C65A 358	12.8.82	
54	A82C65A 344	26.7.82	
53	———	12.7.82	
52	———	4.5.82	
51	———	———	———

Datum 17.2.82
Bearb
Gepr Hildinger
Norm

SIEMENS AKTIENGESELLSCHAFT

Bauteileübersicht für Alarmplatine
Components table for Alarm p.c. board

C65107 - A43-B10-*-16

Blatt 2 / 2 Bl.