

4. MAINTENANCE

4.1. Slide - In Unit

After having unscrewed the four fixings the slide-in unit can be taken off the chassis.

ATTENTION:

Before opening the chassis take care that the chassis is disconnected from mains- and battery-supply lines!

After having unscrewed the fixings the cover plate can be taken off.

4.2. Pre - Amplifier "F"

4.2.1. Testing Procedure

- a) Antenna input to be switched into position "PASSIVE".
- b) Socket X1 (antenna input) to be connected to a signal generator ($R_i = 50 \text{ Ohm}$, 10 kHz - 30 MHz).
- c) At first, connect a 50 Ohm resistor and then a RF-millivoltmeter to output X2 resp. X3 of the pre-amplifier.
- d) Start operation of equipment.
- e) The output voltage of the unmodulated signal generator to be adjusted to 100 mV at 50 Ohm.
- f) An equipment with good function should provide an output voltage of $190 \text{ mV} \pm 1 \text{ dB}$ within the total frequency range.

4.2.2. Dismounting of Pre - Amplifier

- a) Disconnect all lines.
- b) Unscrew the two fixings at the rear panel and the holding screw at the chassis and remove cassette.
- c) For opening of cassette, please, refer to paragraph 4.4.

4.3. Channel Amplifier "C"

4.3.1. Testing Procedure

- a) Antenna selection switch of the corresponding channel amplifier to be tested has to be switched on antenna 1.
- b) Disconnect RF-line from pre-amplifier X2.
- c) Coaxial cable leading to the channel amplifier to be connected to a signal generator ($R_i = 50 \text{ Ohm}$, 10 kHz - 30 MHz).
- d) At first, connect a 50 Ohm resistor and then a RF-millivoltmeter to the output of the channel amplifier to be tested.
- e) Start operation of equipment.
- f) The output voltage of the unmodulated signal generator to be adjusted to 100 mV at 50 Ohm.
- g) An equipment with good function should provide an output voltage of $50 \text{ mV} \pm 2 \text{ dB}$ within the frequency range of 10 kHz - 30 MHz.

4.3.2. Dismounting of Channel Amplifier

For dismounting of channel amplifier unscrew the two fixings connecting the cooling plate of the channel amplifier with the chassis and remove the channel amplifier from the socket.

4.4. Opening of Cassettes

Removing of the top - or bottom cover plate enables maintenance or measurements at the printed circuit boards. The top cover plate can be identified due to the plastic screws fixing the cooling elements for the transistors. After having unscrewed the fixings the cover plate is to be removed. Take care not to cant the top cover plate when removing it, in order to avoid the transistors being bent. Care should also be taken when replacing the cover plate, in order to have the transistors covered uniformly by the cooling elements.

When replacing transistors the spacers between transistors and circuit boards must be used again, as some of these spacers incorporate attenuators to prevent self-oscillation of the pre-amplifier.

4.5. Power Unit "J2"

4.5.1. Testing Procedure

The circuit diagram enables to control the function of the power unit by means of a multimeter.

4.5.2. Dismounting of Power Unit

- a) Disconnect mains- and battery-supply lines
- b) Remove the plug terminals for line voltage supply at X1
- c) Unscrew the fixings in the middle of the connector pair and remove the connector pair for the outgoing lines X2 and X3
- d) Unscrew the four fixings for the power supply unit at the bottom side of the chassis and remove the power unit

5. F U N C T I O N I N G

5.1. C o n s t r u c t i o n

The antenna distributors are available as 19" slide-in units, 3 pu, depth 460 mm. In this form they can be integrated, for example, into 19"-racks. All inputs and outputs as well as the fuses are situated on the rear panel of the unit. The power switch with indicator lamp and the indicator lamp for the antenna control are positioned on the front plate of the unit. Each time one plug-in channel amplifier is attached to each of the receiver outputs. One common power unit supplies the necessary operating voltages to the antenna distributor and to the eventually connected active antenna.

5.2. P r e - A m p l i f i e r "F" resp. "F1"

The received HF signal arrives at the input transformer T1 via the terminal X1 and the capacitors C28 and C29. The supply of 39 V dc for the active antennas is connected to the antenna by switch S1, and it passes the fuse F1 and the choke L1.

The failure of the fuse F1 is indicated by a light emitting diode on the front panel of the distributor.

The pre-amplifier "F1" (AAD 5/4) simultaneously feeding five channel amplifiers consists of one amplifier stage which is connected to the input trafo via the coupling capacitor C24.

The pre-amplifier "F" (AAD 10/4) consists of two identical amplifier stages which are connected to the input trafo via C24 resp. C30. Each of these stages feeds five channel amplifiers.

The function of the amplifier is as follows:

The HF signal arrives at the base of transistor V8 the quiescent current of which is 25 mA. It is impressed by transistor V12. The diodes V9, V35, and V36 protect the circuit against too high input voltages. The variable resistor R10 controlling the operational point of the amplifier shall be adjusted until the summation point V10/C20 measures half the battery supply voltage ($39 \text{ V} \times 0.5 = 18.5 \text{ V}$).

From the emitter of V8 the signal is fed to the two bases of the final stage transistors V7 and V17. The signal is coupled out via C22, C21, and C26 with low impedance in order to supply the channel amplifiers.

The diode quartet V10 and the transistors V1, V3, V4, V6, V14, and V16 and their associated passive components form a control circuit for the temperature and cross modulation capacity of the final amplifier stage. The quiescent current in the final stage is given by the reference stage V6 and V16. A differential amplifier consisting of V3 and V4 compares the currents in the final stage with the reference. It controls the positioning transistor V1 which again adjusts the required base bias according to the operating conditions of the final stage.

The pre-amplifier is driven by 39 V dc which are supplied through the bushing-type capacitor C3. The LED fault indicator for the fuse F1 is connected to the bushing-type capacitors C1 and C2.

5.3. Channel Amplifier "C"

The RF signals of the four antennas run from the four pre-amplifiers to the channel amplifier via the plug connection X1. A signal is chosen by the relays K1 - K4 which are controlled by the rotary switches at the front panel. This signal is led to the amplifier via C4. Regarding the following circuit of the channel amplifier, please, refer to the paragraph describing the circuit of the pre-amplifier, as they are identical.

The RF signal is being coupled out to the receiver via point 5 of X2. Via X2 point 13 the channel amplifier is being served with the stabilised operating voltage of 39 V out of the power unit. The integrated circuits and the relays K1 - K4 are fed with 12 V via X1 point 3.

The relays for the antenna selection are controlled by applying an earth potential to the control inputs of the integrated circuits D1 and D2.

5.4. Power Unit "J2"

The mains supply is being passed through mains filter Z1, fuse F1, and power switch S12 to the transformer T1. The input of T1 provides tapplings for 110 V, 115 V, 220 V, and 235 V.

The first secondary winding supplies approx. 36 V ac which, after rectification, filtering and stabilisation to 39 V, serves in two parallel switched voltage control circuits as operating voltage for the pre- and channel amplifiers.

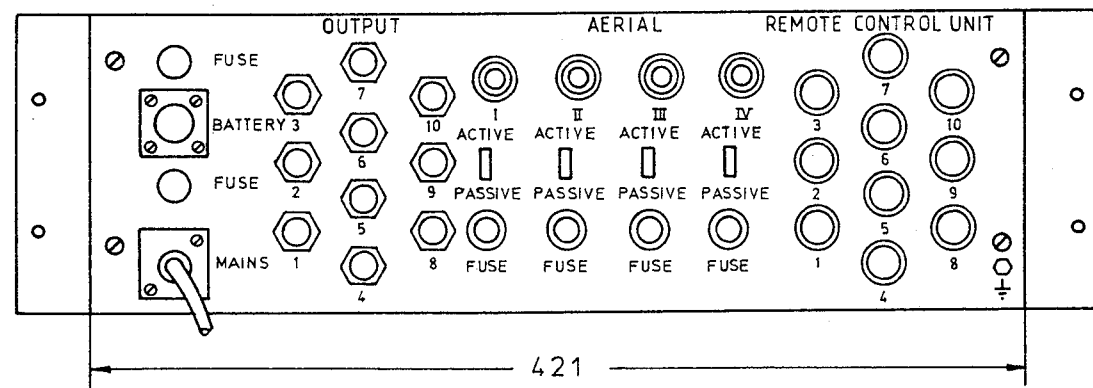
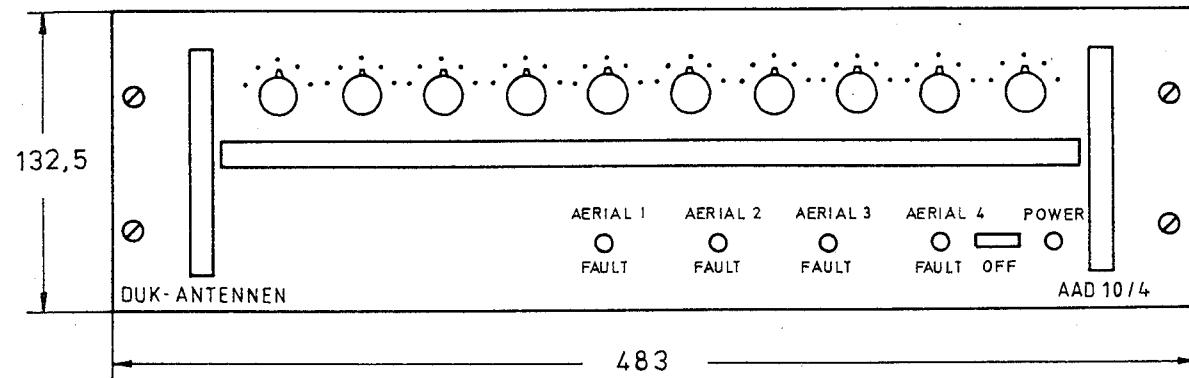
The second secondary winding supplies approx. 14 V ac which, after rectification, filtering and stabilisation to 12.6 V, serves as operating voltage for the IC's and relais.

In case of mains failure the emergency supply (24 V dc) is automatically being established via V13 for the RF-assemblies and via V12 and N3 for the relais and the corresponding relais selection circuit.

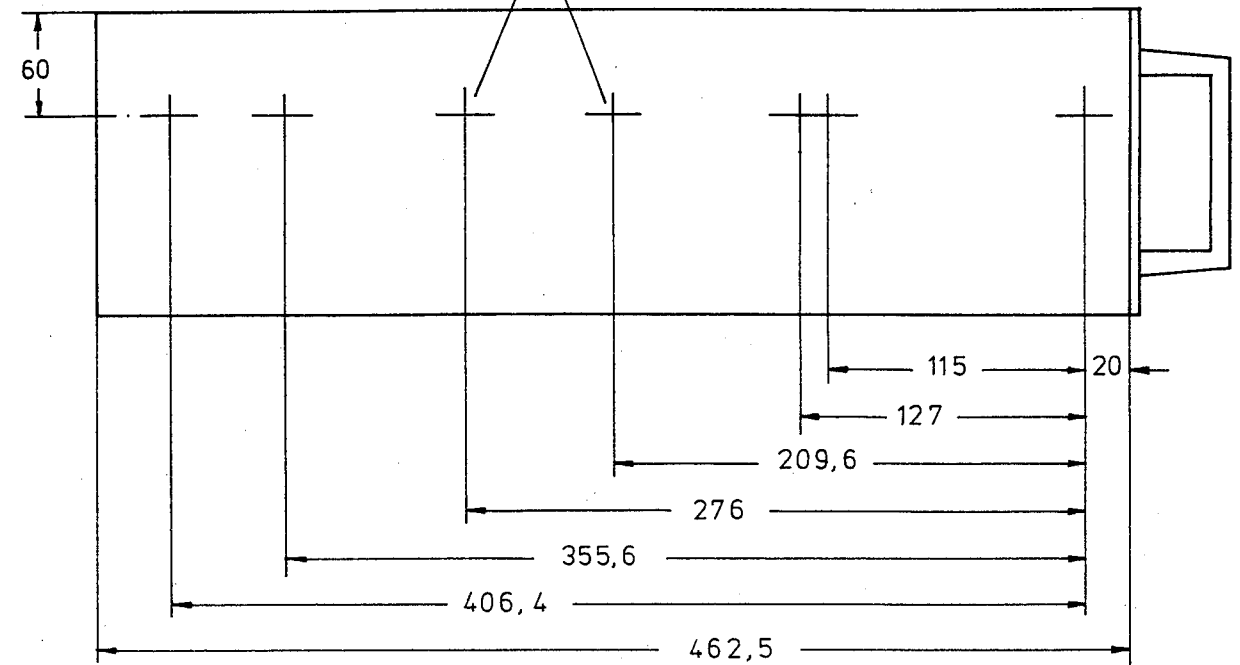
5.5. Remote Control Unit RCU 1 / RCU 2

In order to enable the antenna selection also from remote receiving places, each output can be controlled via a remote control unit. This remote control unit has to be connected to the 6-poles socket at the rear panel of the antenna distributor. For this remote antenna selection the corresponding antenna selection switch at the antenna distributor must be switched into position RCU. The green LED at the remote control unit indicates the operation condition.

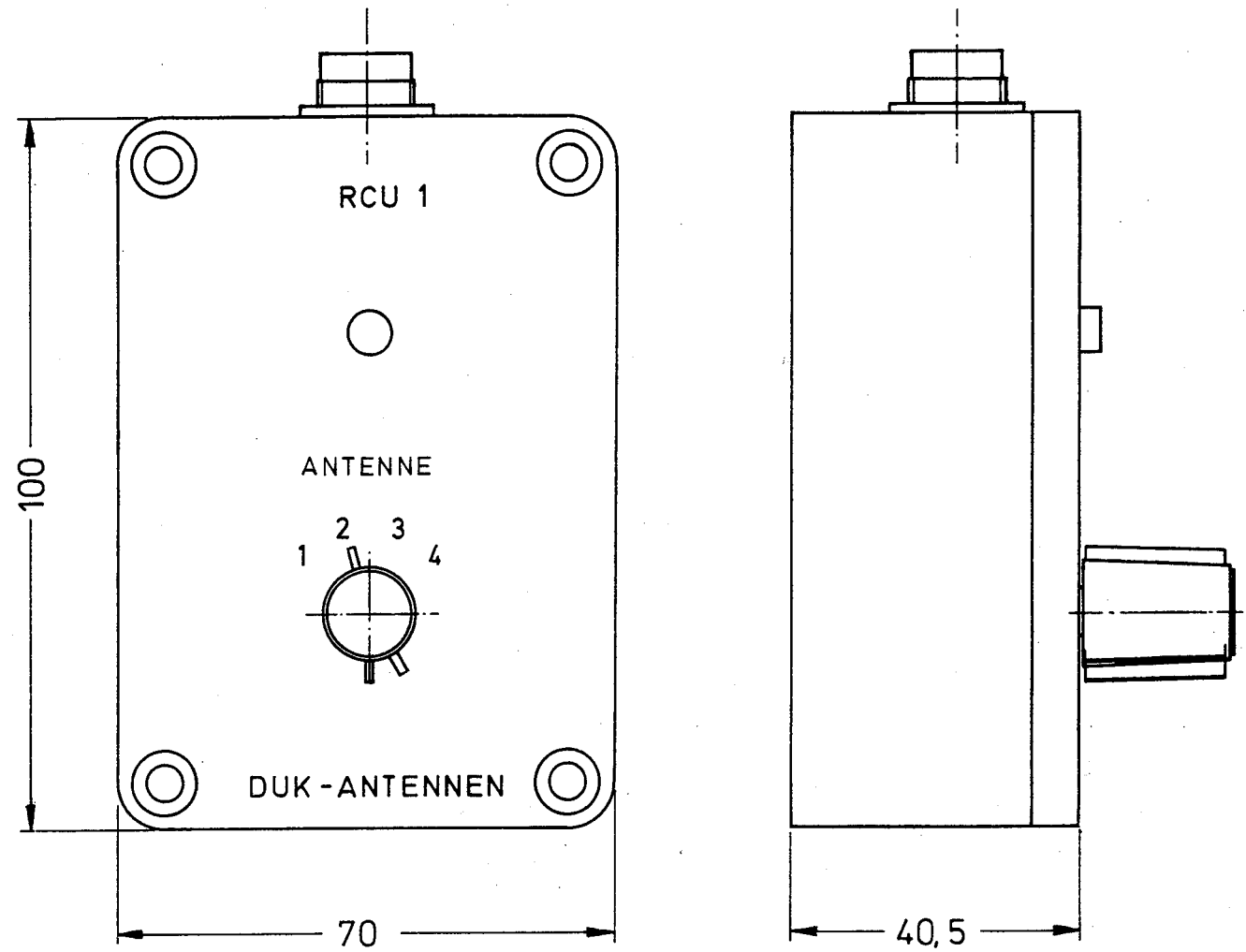
The connection cable between antenna distributor and remote control unit must be a 6-core, screened cable (e.g. LIY(c)Y 6x0.25 qmm). The max. permissible cable length is 300 m.



Fixing points for telescopic bars M4 tophole
 Befestigungspunkte mit Muttergewinde
 M4 vorhanden

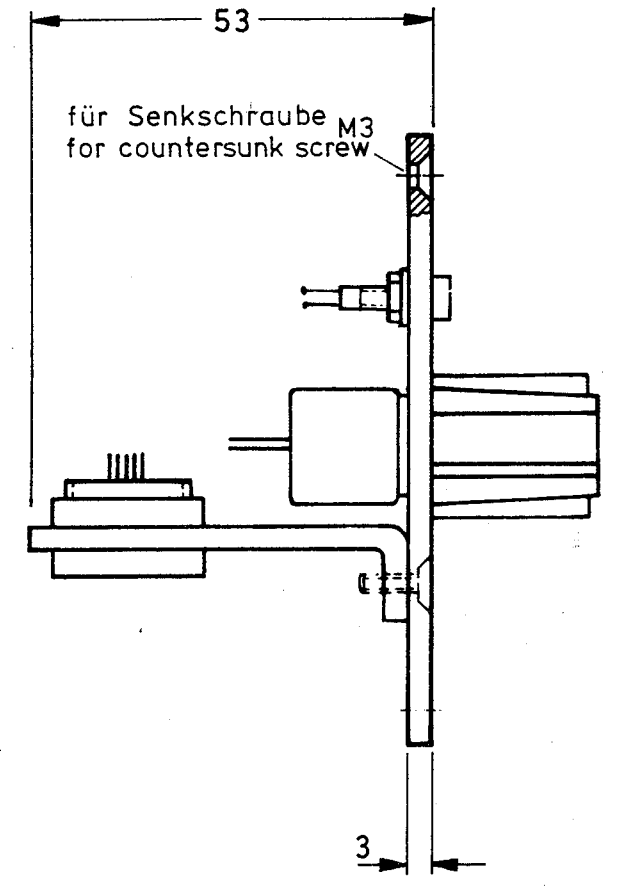
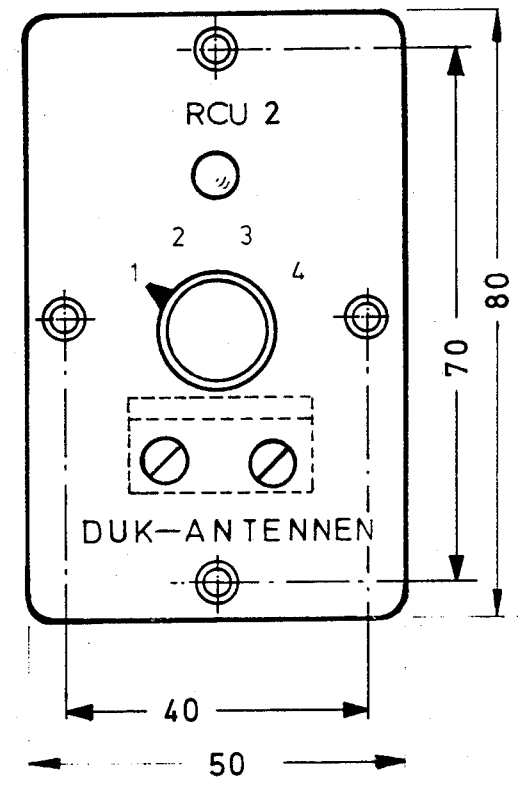
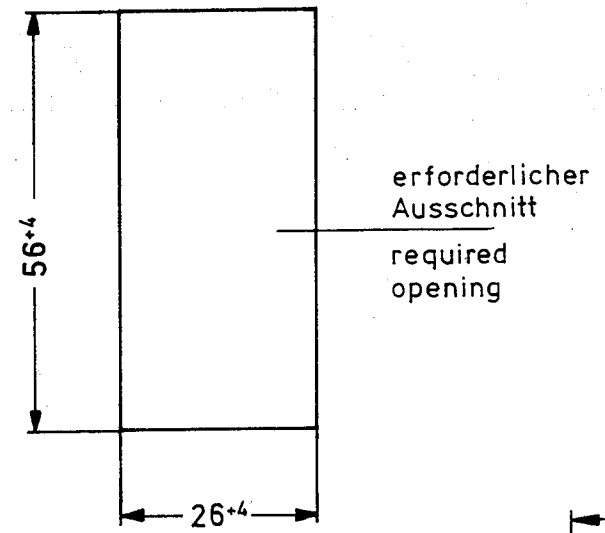


				Maßstab 1:3 1/3	
				85 Datum Name	
				Bearb. 2.4 Ni	
				Gepr. 3.4. K. Log.	
				Norm	
				Massbild AAD 10/4	
				Dimensions AAD 10/4	
				03-08-81-01-00	
				Blatt	
				Bl.	
Zust	Anderung	Datum	Name		



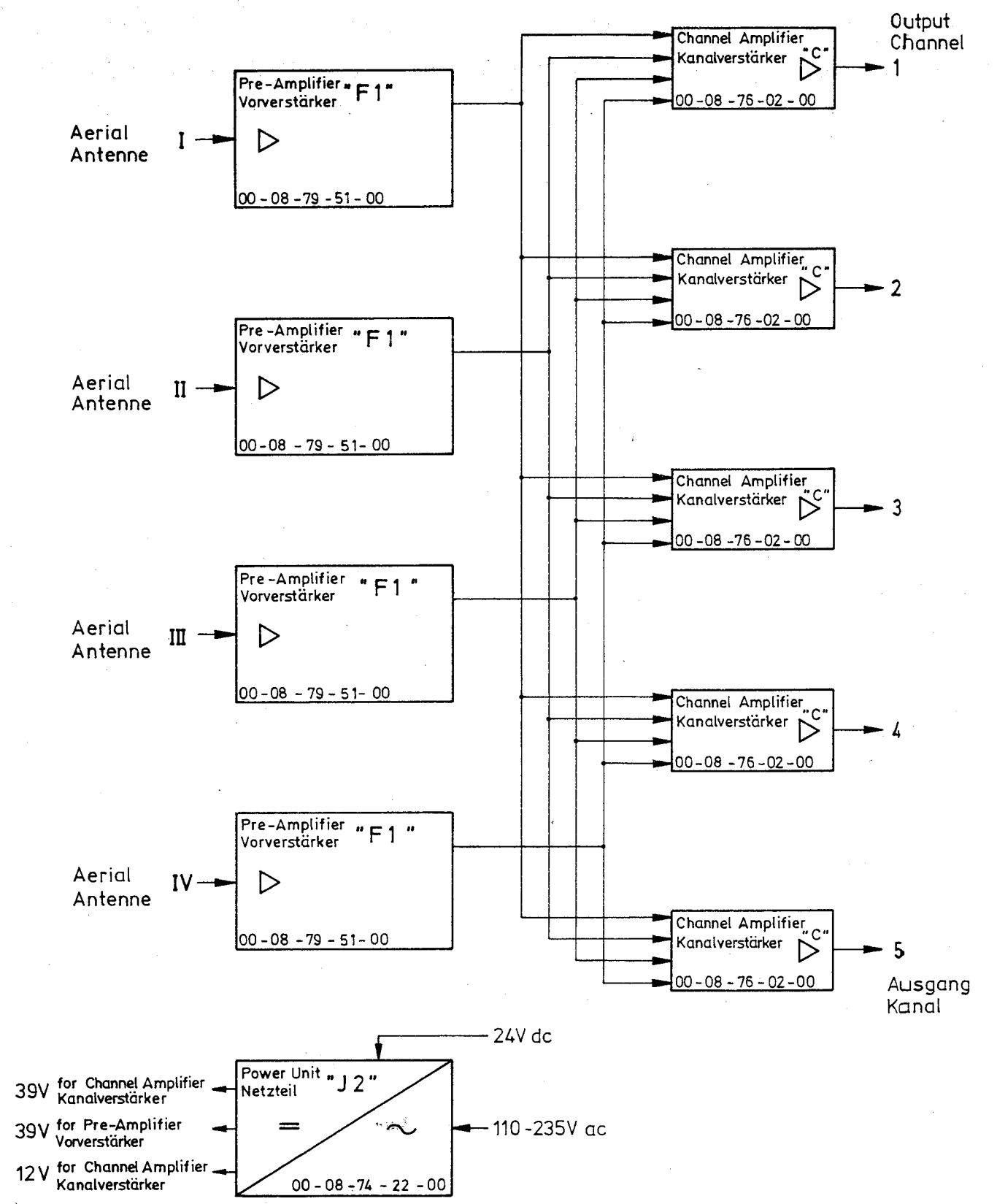
Oberfläche: lackiert
surface varnished

				Maßstab 1:1		
				Maßbild RCU 1 Dimensions		
			Datum			Name
			Bearb. 23.3.87			Müller
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			Norm			
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				Bl.		
Zust.	Änderung	Datum	Name			



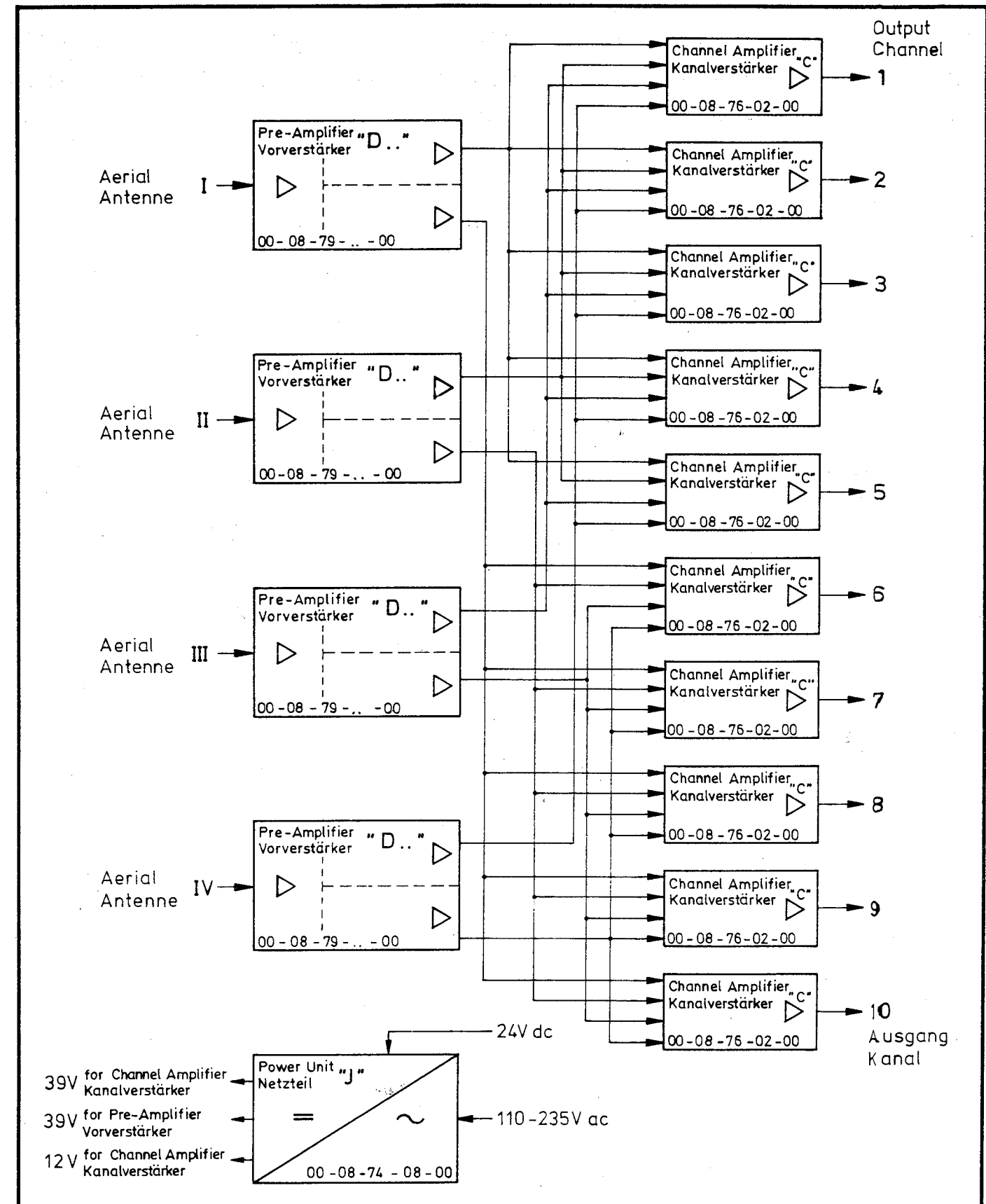
Oberfläche: lackiert
surface varnished

				Maßstab 1:1		
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	87	Datum	Name			
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	Gepr.	21. 3.	<i>hald</i>			
	Norm					
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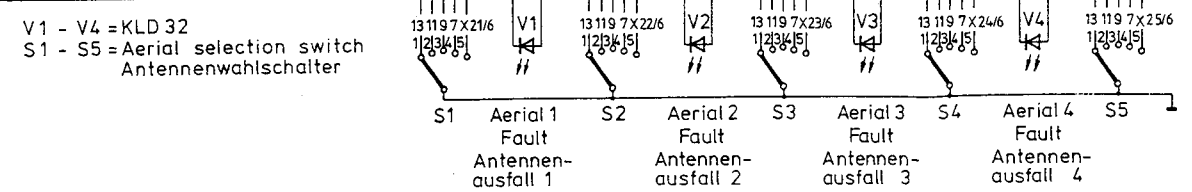
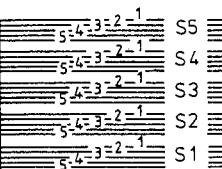
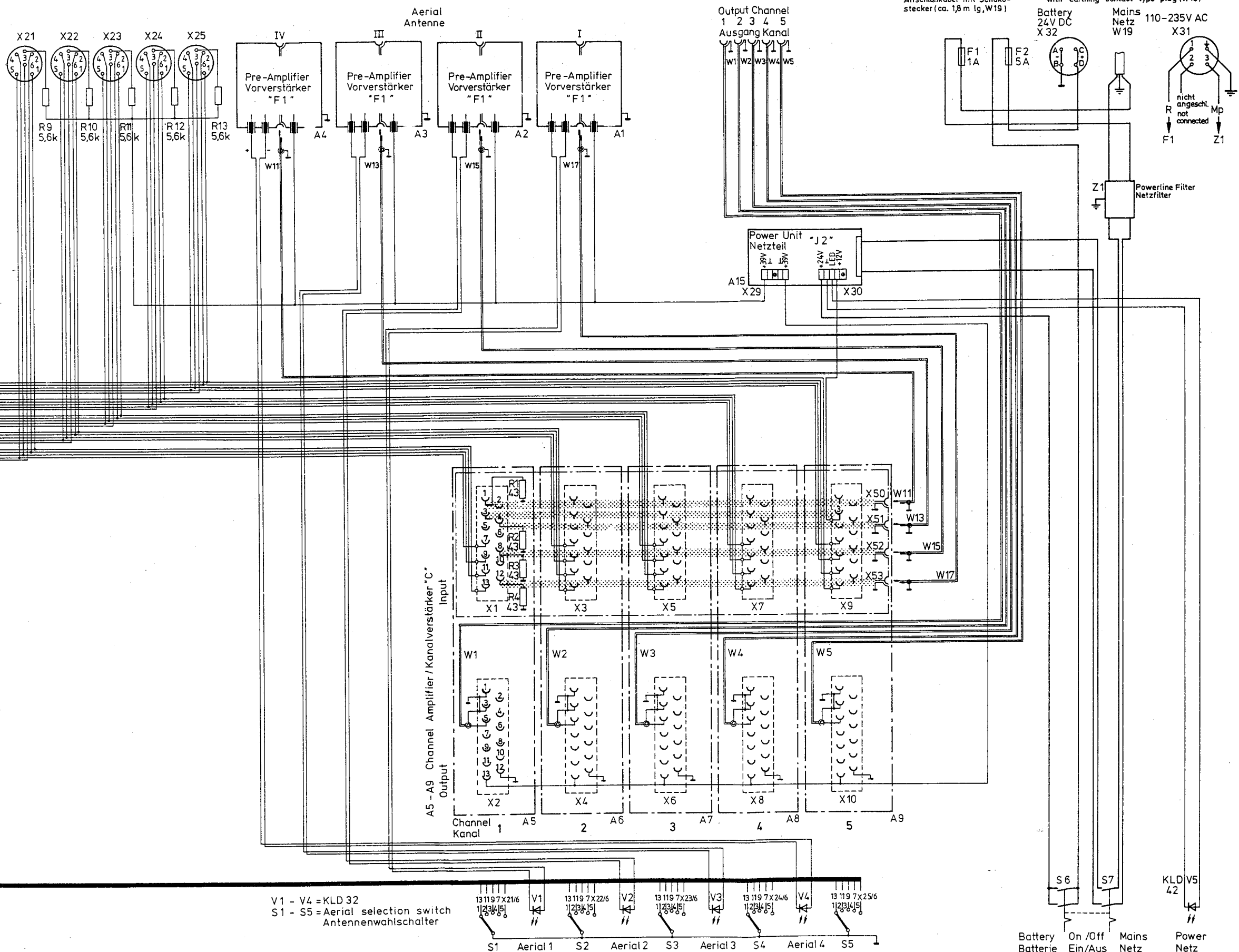


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				Norm	
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				Blatt	
A	845	06.04.	Bl.		
Zust.	Änderung	Datum	Name		

Blockschaltbild AAD 5/4
Functional block diagram AAD 5/4



				Maßstab		
				Blockschaltbild AAD 10/4 Functional block diagram AAD10/4		
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	Gepr.	11.4	26.			
		Norm				
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Zust.	Änderung	Datum	Name	Blatt		
				B/		



Netzanschluß wahlweise mit Flanschstecker (X31) oder Anschlußkabel mit Schuko-stecker (ca. 1,8 m lg, W19)

Power supply connection via flange plug (X31) alternative via connection lead equipped with earthing contact-type plug (W19)

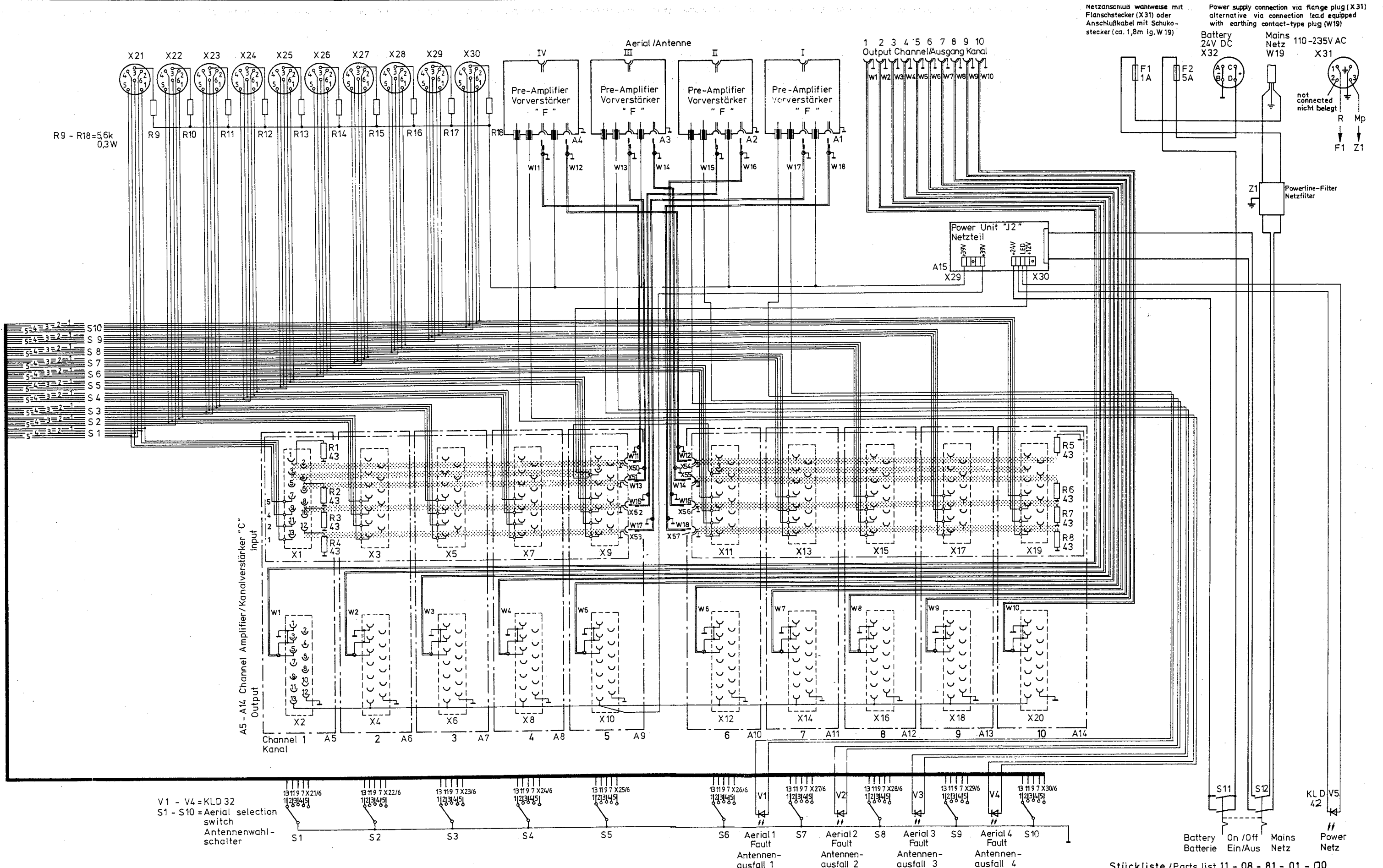
Battery 24V DC X32
Mains Netz 110-235V AC X31

F1 1A F2 5A
Z1 Powerline Filter Netzfilter

nicht angeschl. R not connected
Mp
F1 Z1

Stückliste/Parts list 11 - 08 - 82 - 01 - 00

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85	16.04.	Blume	Schaltbild AAD 5/4 Circuit diagram AAD 5/4
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Netzanschluss wahlweise mit Flanschstecker (X31) oder Anschlußkabel mit Schuko-stecker (ca. 1,8m lg. W19)
 Power supply connection via flange plug (X31) alternative via connection lead equipped with earthing contact-type plug (W19)

Stückliste / Parts list 11 - 08 - 81 - 01 - 00

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