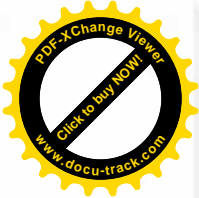
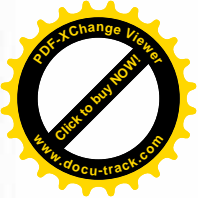


ROHDE & SCHWARZ

SERVICE DOCUMENTATION

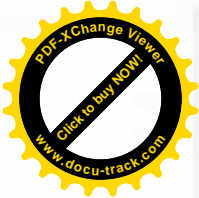
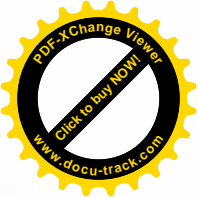
Power Supply A21 (Display Unit)

805.8513.02



Contents

	Page	
6	Service Instructions Power Supply A21 (Display Unit)	6.1
6.1	Function Description	6.1
6.1.1	Generation of Unregulated DC Voltages	6.2
6.1.2	Switch-on Logic	6.2
6.1.3	Reference Voltage	6.4
6.1.4	Voltage Regulator + 5 V	6.4
6.1.5	Voltage Regulator + 5 V _{CC}	6.4
6.1.6	Voltage Regulator + 5 V*	6.4
6.1.7	Voltage Regulator + 85 V	6.4
6.1.8	Demagnetization	6.5
6.1.9	Monitoring	6.5
6.2	Testing and Adjustment	6.6
6.3	Troubleshooting	6.7
	Parts lists	
	Circuit diagrams	
	Component location plans	



6 Service Instructions Power Supply A21 (Display Unit)

(See circuit diagrams 805.8513 S and 805.8013 S)

6.1 Function Description

This module contains the rectifier with the electrolytic capacitors for two unregulated voltages (+ 9.6 V, 100 V) from which a total of 4 voltages (+ 5 V, + 5 V_{CC}, + 5 V*, + 85 V) are generated as well as its own reference voltage, voltage monitoring and the switch-on logic for the display unit.

The transformer voltages are applied to the module via X213. The module is to a limited extent a stand-alone unit (no temperature monitoring of the heat sink).

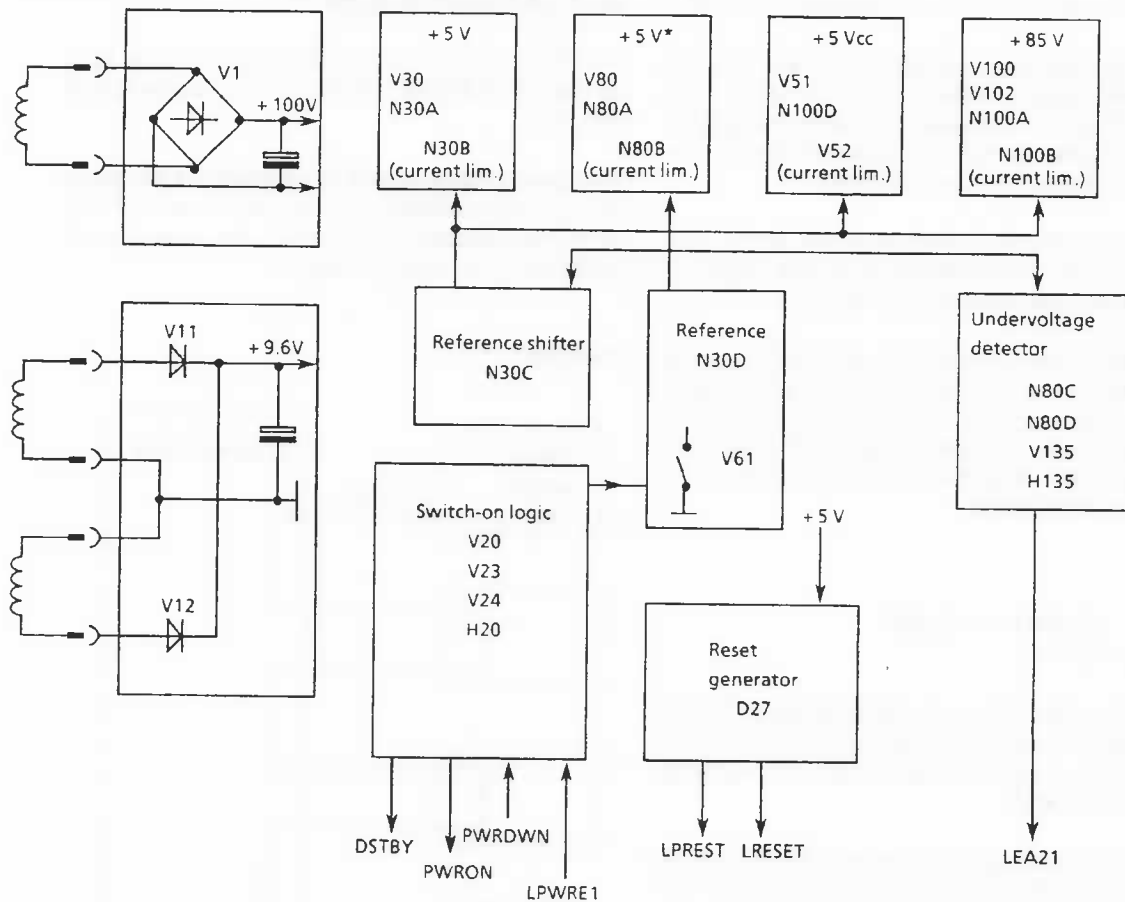
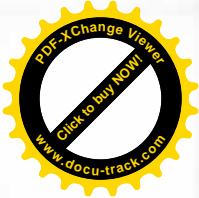
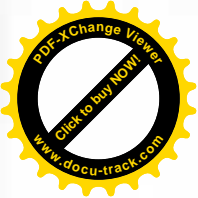


Fig. 6-1 Block diagram of the power supply module A21



6.1.1 Generation of Unregulated DC Voltages

An AC voltage of 76.5 V is applied to the rectifier via X213/1,2 and F1. C1 suppresses high-frequency rectifier noise. A DC voltage of approx. + 100 V is then present at the charging capacitor C2.

Resistors R5 to R7 are used for discharging if the power switch is opened.

An AC voltage of 7.5 V is applied to the centre point rectifier circuit V11, V12 via X213/3,4,5,6 and F10, F12. C11,C12 suppress high-frequency rectifier noise. C13, C14 act as charge capacitors.

Several ground designations are used because the power supply is fitted with some sense lines. The housing of the display unit with the ground surface of the instrument motherboard is designated "Ground analog" (GNDA).

The digital ground (GNDD) is a line and is connected on the motherboard to GNDA together with the ground sense line (SGNDD).

Although these connections are made during operation via the lines of the motherboard (several mΩ), resistors R13 and R48 are provided on the module in order to guarantee defined operation and adjustment of the module without the motherboard.

6.1.2 Switch-on Logic

(See also Fig. 6-2)

The display unit is not usually switched off using the power switch at the rear of the instrument but receives a control signal from the standby key on the RF unit.

The various voltage regulators are therefore configured such that they have a very low output voltage by reducing the reference voltage.

The standby LED of the display unit is powered via the series resistor R9.

A voltage of 5.1 V is applied to emitter V20 by R10, V21.

If the standby key is pressed, the line PWRDWN (X212/2) is connected to ground and V20 switched through.

(This switching state can be produced for testing by changing over jumper X190 from 1 to 2).

The signal PWRON is output (via the motherboard to A22) by R14 via X212/20.

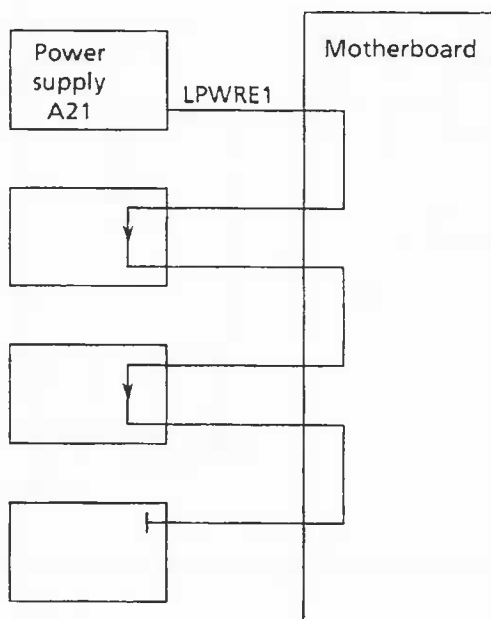
Caution:

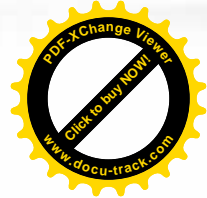
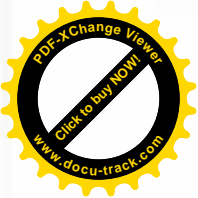
The PWRON signal is a wired-OR link and may also be switched to ground by module A22 in the event of overtemperature.

The PWRON signal is also blocked by V23 as long as the line X212/12 LPWRE1 is not connected to ground.

This ground loop is used to monitor the presence of important modules in the instrument. If one of these modules is removed, the power pack switches off all output voltages.

Principle:





6.1.3 Reference Voltage

The reference voltage of this module is adjusted using R63. Since all voltages of the individual controllers are derived from this and are programmed using fixed resistors, the reference voltage is first adjusted to a nominal value of +10 V and a fine adjustment then carried out to +85.00 V.

V61 blocks if the instrument is switched off and approx. +10 V is present at N30D/14. The generated reference voltage refers to GNDA.

The module also generates +5 V, +5 V_{CC} and +85 V which refer to GNDD and are equipped with a ground sense line (SGNDD).

The analog subtractor (N30C, R56, R58, R70, R71) transfers the reference voltage referred to GNDA to SGNDD.

6.1.4 Voltage Regulator +5 V

The voltage regulator +5 V comprises the operational amplifier N30A and the power Darlington transistor V30 connected as an emitter follower.

The voltage is equipped with sense lines in the + branch (+5 V) and in the ground branch (SGNDD).

The reference voltage of +10 V delivered by N30C/8 is divided into 5 V by the voltage divider R54, R55 and applied to the control amplifier N30A/3.

The output voltage is fed back via R40, R41 and C37, where R40 shorts the open-circuited sense line when testing or in the event of a fault and thus prevents the voltage becoming too high.

R35, C30, R33, C31 are used to correct the phase of the control loop.

The current through the load is monitored by R30, R31, R32. The connection of R30B results in a fold-back circuit which reduces the current limitation from 6 A down to 1.3 A in the event of a short-circuit. The control point is reached if the voltage at N30B/7 has reached 5.65 V. V36 then conducts and N30B governs the control loop.

C35 is a blocking capacitor. H45 indicates the presence of the voltage. If the output voltage is connected to a voltage with a different polarity, V35 prevents a reverse voltage larger than the diode forward voltage from occurring.

If the output voltage should rise in the control unit uncontrolled as the result of a fault, the Zener diode V46 conducts above 5.6 V. If the current flowing through the diode results in a voltage drop across R46 of more than 0.7 V, thyristor V45 is fired and short-circuits the voltage which blows the quick-acting fuse F30 and prevents damage to the modules as a result of over-voltages.

6.1.5 Voltage Regulator +5 V_{CC}

The voltage regulator +5 V_{CC} generates a +5 voltage which is used to feed external equipment. The internal +5-V supply of the instrument is therefore not influenced or damaged in the event of a short-circuit.

N100D controls the series regulator V51; R52 and V52 are responsible for current limitation.

H50 indicates the presence of the voltage; V50 is the reversed voltage protection.

6.1.6 Voltage Regulator +5 V*

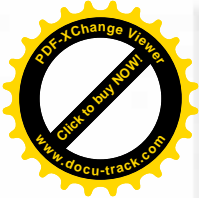
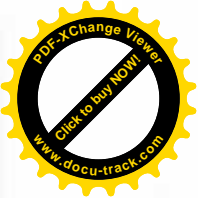
The voltage regulator +5 V* delivers an output voltage of 5.65 V referred to GNDA.

The circuit is of similar design to the +5-V circuit and only differs by R91 which forms a voltage divider together with R67. The maximum current which can be drawn is 350 mA.

6.1.7 Voltage Regulator +85 V

The voltage regulator +85 V obtains a +10-V reference voltage via N30C/8.

The control amplifier N100A controls the series transistor V100 by means of V102, R114. The voltage divider R106, R108, R112, R113 closes the control loop.



C107 is used for dynamic negative feedback. The unregulated DC voltage is connected to GNDD via R103. N100B monitors the current via R103 and, as a fold-back circuit, limits the current of max. 500 mA to 100 mA in the event of a short-circuit.

The control point is reached at 10.65 V on N100B/7 if V101 starts to conduct.

V115 indicates the presence of the +58-V voltage by means of H115.

6.1.8 Demagnetization

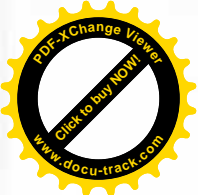
The monitor tube is demagnetized each time the power supply is switched on. The transformer voltage from X213 is routed to the demagnetization coil via the dual NTC resistor (via X211/6 and 8). The high current is reduced within a few seconds when the series-connected PTC resistor warms up. The PTC resistor connected in parallel then additionally heats up the series-connected PTC resistor and holds the residual current in the range of several mA.

6.1.9 Monitoring

N80C and N80D monitor the voltages and indicate with H135 the presence and correct functioning of the module.

If one of the voltages fails or enters the current limitation because the current drain is too high (= fault in instrument), V135 is switched on and the error message LEA21 passed to the μ P system. The LED H135 is switched off at the same time via V136.

The temperature on the heat sink of module A21 is monitored by module A22 using V200.



6.2 Testing and Adjustment

As already mentioned in the circuit description, all voltages are derived from the +10-V reference voltage and depend on its adjustment.

The +85-V supply is factory-set to $\pm 0.1\%$ using the reference voltage. An aging error of $\pm 2\%$ is permissible for the +85 V.

Caution:

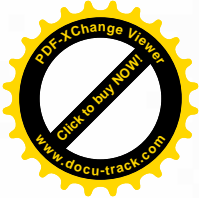
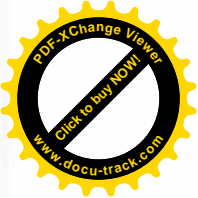
Adjustment of R63 changes all voltages by the same percentage.

The output voltages should have the following tolerances after the adjustment:

- +5 V $\pm 2\%$ (measured at sense point)
- +5 V* = 5.64 V $\pm 2\%$
- +V_{CC} = 5 V $\pm 2\%$
- +85 V $\pm 2\%$

Note:

If a voltage exceeds the tolerance limits when the +85 V is adjusted, an adjustment is also permissible whilst all other voltages are within the tolerances.



6.3 Troubleshooting

The power supply module A22 (display unit) is also incorporated in the troubleshooting.

The instrument does not respond on power-up.

- ▶ Check AC supply and fuse.
- ▶ Check that the power-on command is available at the module (PWRDWN must be Low at X212/2). If the signal is High, the power-on command can be simulated by the jumper X191/1 and 2 (test position).
- ▶ If the above-mentioned measures are not successful, the voltages at the charging capacitors C13, C18 and C2, as well as the voltages at cathode V21 and at N30D/14 (+ 10 V reference) must be checked. The latter is switched by V61.

Only the red LED lights up and possibly the blowers are working.

- ▶ If important modules are missing in the instrument, the current loop (LPWRE1 at X212/12) is interrupted and the signal High appears. This can be bypassed by setting jumper X191 to the test position (1 and 2).
- ▶ An overtemperature fault is present. The blowers rotate at a medium speed in this case, the output voltages are switched off. X222/8 (LETEMP) must be Low. The instrument switches itself on again when cooled down.

X222/8 (LETEMP) is Low, but blowers are not on.

- ▶ X222/3 (FANCON) must be High.
- ▶ -15.6 V must be present at X222/17 and the voltage at X222/18 must be between -0.7 V and approx. + 20 V (depends on speed).

The line to the 2nd temperature sensor on module A22 is interrupted.

- ▶ In this case, the voltage at X222/4 (TEMPC) is > 5 V.

The instrument can be switched on, but the green LED does not light up.

- ▶ Check which voltages are missing using the yellow LEDs. If all LEDs light up, check the tolerances of the voltages using a voltmeter.

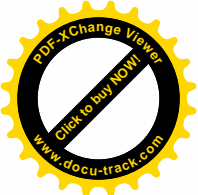
Possible causes for a missing voltage:

- ▶ Current drain in instrument is too high, or a module is faulty.

In this case, disconnect the modules in succession from the power supply by pulling out and then switch the instrument on again. The faulty module can then be determined.

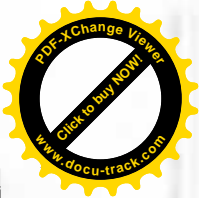
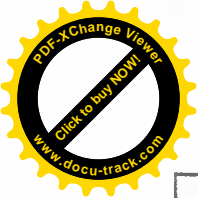
- ▶ The overvoltage protection has been triggered. A short-circuit may be present on a module, or the series regulator or control is faulty. The voltage usually then enters the current limitation unless the series transistor is faulty and the fuse is blown.
- ▶ A short-circuit is present in the instrument with a voltage of opposite polarity. The current then flows via the polarity diode.

Refer to the circuit description if components are suspect within the module.



ROHDE & SCHWARZ

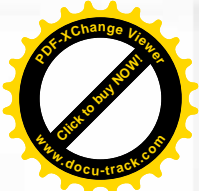
Schalteillisten
Stromläufe
Bestückungspläne
Part lists
Circuit diagrams
Components plans
Listes des pièces détachées
Schémas de Circuit
Plans des composants



Kennz. Comp.No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C1	CK 220NF+-20%250V QUADER CAPACITOR	CK 087.4210	ERO	MKC1862 422/25+-20%	
C2	CE 470UF+-20%200V RD35X45 ELECTROLYTIC CAPACITOR	805.8659	VALVO	2222-053-52471	
C11	CC 1UF+-10%50V7K1200V1EL CAPACITOR	084.5538	UNION CARB	CK06BX105K	
C12	CC 1UF+-10%50V7K1200V1EL CAPACITOR	084.5538	UNION CARB	CK06BX105K	
C13	CE 15MF+-20%16V RD30X45 ELECTROLYTIC CAPACITOR	808.4854	VALVO	2222-051-55153	
C14	CE 15MF+-20%16V RD30X45 ELECTROLYTIC CAPACITOR	808.4854	VALVO	2222-051-55153	
C16	CE 470UF-10+50% 40V 15X30 ELECTROLYTIC CAPACITOR	CE 087.0572	ROEDERST	ELKO EK470/40	
C17	CE 470UF-10+50% 40V 15X30 ELECTROLYTIC CAPACITOR	CE 087.0572	ROEDERST	ELKO EK470/40	
C18	CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR	CE 006.7142	ROEDERST	EK 00 CB 247 G	
C27	CK 100NF+-5%63V5RM MKT CAPACITOR	CK 099.2930	WIMA	MKS/2/63/0,1UF/5%	
C28	CE 4.7UF-10+50% 63V 9X13 ELECTROLYTIC CAPACITOR	CE 022.7643	ROEDERST	ELKOEK4/63	
C30	CK 100NF+-5%63V5RM MKT CAPACITOR	CK 099.2930	WIMA	MKS/2/63/0,1UF/5%	
C31	CK 1UF+-10%50V5RM MKT CAPACITOR	CK 099.2998	WIMA	MKS2/50/1UF/10%	
C35	CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR	CE 006.7142	ROEDERST	EK 00 CB 247 G	
C36	CK 100NF+-5%63V5RM MKT CAPACITOR	CK 099.2930	WIMA	MKS/2/63/0,1UF/5%	
C37	CK 100NF+-5%63V5RM MKT CAPACITOR	CK 099.2930	WIMA	MKS/2/63/0,1UF/5%	
C40	CK 100NF+-5%63V5RM MKT CAPACITOR	CK 099.2930	WIMA	MKS/2/63/0,1UF/5%	
C41	CK 100NF+-5%63V5RM MKT CAPACITOR	CK 099.2930	WIMA	MKS/2/63/0,1UF/5%	
C45	CE 47UF+-20%6,3V SAL ELECTR. CAPACITOR	CE 007.3957	VALVO	2222 128 33479	
C61	CK 100NF+-5%63V5RM MKT CAPACITOR	CK 099.2930	WIMA	MKS/2/63/0,1UF/5%	
C62	CK 100NF+-5%63V5RM MKT CAPACITOR	CK 099.2930	WIMA	MKS/2/63/0,1UF/5%	
CB1	CK 100NF+-5%63V5RM MKT CAPACITOR	CK 099.2930	WIMA	MKS/2/63/0,1UF/5%	
CB2	CK 100NF+-5%63V5RM MKT CAPACITOR	CK 099.2930	WIMA	MKS/2/63/0,1UF/5%	
CB3	CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR	CE 006.7142	ROEDERST	EK 00 CB 247 G	
CB4	CK 100NF+-5%63V5RM MKT CAPACITOR	CK 099.2930	WIMA	MKS/2/63/0,1UF/5%	
C100	CE 22 UF -10+50%100V12X31 ELECTROLYTIC CAPACITOR	CE 006.6198	SIEMENS	B41588-A-9226-T	
C101	CK 22NF+-20%250V QUADER PLASTIC-FOIL CAPACITOR	CK 006.5156	VALVO	MKT344/0,022/20/250	
C104	CK 10NF+-5%63V5RM MKT CAPACITOR	CK 099.2869	WIMA	MKS2	
C107	CK 22NF+-20%250V QUADER PLASTIC-FOIL CAPACITOR	CK 006.5156	VALVO	MKT344/0,022/20/250	
C114	CK 220PF+-20%160V RM7,5KC PLASTIC-FOIL CAPACITOR	CK 006.4550	ROEDERST	KC1848-122/1	
D27	BO TL7705ACP VOLT.DETECT VOLTAGE SUPERVISOR	347.1170	TEXAS	TL7705ACP	
F1	SS SCHMELZS.T1 DIN41662 FUSE	SS 020.7446	WICKMANN	T1 DIN 41662 TROP	
F10	SS SCHMELZS.T10D DIN41571 FUSE	SS 606.3136	WICKMANN	T10D DIN 41571 TROP	
F12	SS SCHMELZS.T10D DIN41571 FUSE	SS 606.3136	WICKMANN	T10D DIN 41571 TROP	
F30	SS SCHMELZS.T8,0DDIN41571 FUSE	SS 359.3615	WICKMANN	T8D DIN 41571 TROP	
F80	SS SCHMELZS.F500 DIN41661 FUSE	SS 020.7330	WICKMANN	F 0,5 DIN 41661 TROP	
H10	AF HLMP1503 LED GN RD3 LED	AF 252.5570	QTC	HLMP1503 L1819	

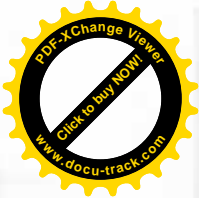
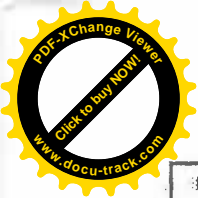
Für diese Unterlage behalten wir
uns alle Rechte vor

ROHDE & SCHWARZ	Äl	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt Page
	21	0590	ED POWER-SUPPLY D-A21	805.8513.01 SA	1+



Kennz. Comp.No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
H20	AF HLMP3301 LED RT RD5	092.8710	HEWLETT PA	HLMP3301	
H45	AF HLMP1401 LED GE RD2	AF 235.4604	GEN. INSTR.	HLMP1401-20/21	
H50	AF HLMP1401 LED GE RD3	AF 235.4604	GEN. INSTR.	HLMP1401-20/21	
H95	AF HLMP1401 LED GE RD3	AF 235.4604	GEN. INSTR.	HLMP1401-20/21	
H115	AF HLMP1401 LED GE RD3	AF 235.4604	GEN. INSTR.	HLMP1401-20/21	
H135	AF HLMP3502 LED GN RD5	235.4862	HEWLETT	HLMP3502	
N30	BO LM124J 4XL.P.OPAMP OPERATIONAL AMPLIFIER	300.6353	NSC	LM124J	
N80	BO LM124J 4XL.P.OPAMP OPERATIONAL AMPLIFIER	300.6353	NSC	LM124J	
N100	BO LM124J 4XL.P.OPAMP OPERATIONAL AMPLIFIER	300.6353	NSC	LM124J	
O1 .5	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 078.2747	-	R&S-ZCHNG.078.2747	
P20	VL WIRE-WRAP PIN WIRE-WRAP PIN	VL 088.4507	BERG	NR. 75 403-001	
R2	RL 0,35W 27,4KOHM+-1%TK50 RESISTOR	RL 082.2583	DRALORIC	SMA 0207/27,4K-F-C	
R3	RD 2,4 W 0,1 OHM+-1% WIRE-WOUND RESISTOR	RD 082.0974	SAGE	1200S/0,10HM/1%	
R4	RK KALTL. 10 OHM/2KOHM100V BALLAST TUBE	805.8671	PHILIPS	2322 662 96013	
R5	RL 0,35W 68,1KOHM+-1%TK50 RESISTOR	RL 082.2602	DRALORIC	SMA 0207/68,1K-F-C	
R6	RL 0,35W 68,1KOHM+-1%TK50 RESISTOR	RL 082.2602	DRALORIC	SMA 0207/68,1K-F-C	
R7	RL 0,35W 68,1KOHM+-1%TK50 RESISTOR	RL 082.2602	DRALORIC	SMA 0207/68,1K-F-C	
R8	RL 0,35W 392 OHM+-1%TK50 RESISTOR	RL 082.2183	DRALORIC	SMA0207/392K-F-C	
R9	RL 0,35W 392 OHM+-1%TK50 RESISTOR	RL 082.2183	DRALORIC	SMA0207/392K-F-C	
R10	RL 0,35W 121 OHM+-1%TK50 RESISTOR	RL 082.9859	DRALORIC	SMA0207/1210HM-F-D	
R11	RL 0,35W 1KOHM+-1%TK50 RESISTOR	RL 082.2160	DRALORIC	SMA0207/1K-F-C	
R12	RL 0,35W 3,32KOHM+-1%TK50 RESISTOR	RL 083.0990	DRALORIC	SMA0207/3,32K-F-D	
R13	RL 0,35W 1KOHM+-1%TK50 RESISTOR	RL 082.2160	DRALORIC	SMA0207/1K-F-C	
R14	RL 0,35W 681 OHM+-1%TK50 RESISTOR	RL 083.0490	DRALORIC	SMA0207/6810HM-F-D	
R15	RL 0,35W 10,0KOHM+-1%TK50 RESISTOR	RL 083.1297	DRALORIC	SMA0207/10K-F-D	
R16	RL 0,21W 39,2KOHM+-1%TK50 RESISTOR	RL 092.1638	RESISTA	MK1 39K2 1% TK50	
R17	RL 0,21W 22,1KOHM+-1%TK50 RESISTOR	RL 092.1609	RESISTA	MK1 22K1 1% TK50	
R18	RL 0,35W 10,0KOHM+-1%TK50 RESISTOR	RL 083.1297	DRALORIC	SMA0207/10K-F-D	
R19	RL 0,35W 475 OHM+-1%TK50 RESISTOR	RL 083.0390	DRALORIC	SMA0207/4750HM-F-D	
R27	RL 0,21W 2,21KOHM+-1%TK50 RESISTOR	RL 092.1480	RESISTA	MK1 2K21 1% TK50	
R28	RL 0,21W 47,5KOHM+-1%TK50 RESISTOR	RL 092.1644	RESISTA	MK1 47K5 1% TK50	
R29	RL 0,21W 332 OHM+-1%TK50 RESISTOR	RL 092.1380	RESISTA	MK1 3320HM 1% TK50	
R30	RD 0,8W 47 MIOHM+-1% WIRE-WOUND RESISTOR	RD 069.1458	SAGE	1000S ... 1% 1W TK20	
R31	RD 0,8W 47 MIOHM+-1% WIRE-WOUND RESISTOR	RD 069.1458	SAGE	1000S ... 1% 1W TK20	
R32	RD 0,8W 47 MIOHM+-1% WIRE-WOUND RESISTOR	RD 069.1458	SAGE	1000S ... 1% 1W TK20	
R33	RL 0,35W 10,0 OHM+-1%TK50 RESISTOR	RL 082.8852	DRALORIC	SMA0207/100HM-F-D	
R34	RL 0,35W 3,32KOHM+-1%TK50 RESISTOR	RL 083.0990	DRALORIC	SMA0207/3,32K-F-D	

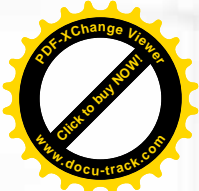
ROHDE & SCHWARZ	Äl	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt Page
	21	0590	ED POWER-SUPPLY D-A21	805.8513.01 SA	2+



Kennz. Comp.No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R35	RL 0,35W 475 OHM+-1%TK50 RESISTOR	RL 083.0390	DRALORIC	SMA0207/475OHM-F-D	
R36	RL 0,35W 221 KOHM+-1%TK50 RESISTOR	RL 083.2270	DRALORIC	SMA0207/221K-F-C	
R37	RL 0,35W 100KOHM+-1%TK50 RESISTOR	RL 082.1764	DRALORIC	SMA0207/100K-F-C	
R38	RL 0,35W 3,32KOHM+-1%TK50 RESISTOR	RL 083.0990	DRALORIC	SMA0207/3,32K-F-D	
R39	RL 0,35W 100KOHM+-1%TK50 RESISTOR	RL 082.1764	DRALORIC	SMA0207/100K-F-C	
R40	RL 0,35W 274 OHM+-1%TK50 RESISTOR	RL 083.0178	DRALORIC	SMA0207/274OHM-F-D	
R41	RL 0,35W 4,75KOHM+-1%TK50 RESISTOR	RL 083.1097	DRALORIC	SMA0207/4,75K-F-D	
R45	RL 0,35W 274 OHM+-1%TK50 RESISTOR	RL 083.0178	DRALORIC	SMA0207/274OHM-F-D	
R46	RL 0,35W 100 OHM+-1%TK50 RESISTOR	RL 082.6543	DRALORIC	SMA0207/100/HM-F-D	
R47	RL 0,35W 10,0 OHM+-1%TK50 RESISTOR	RL 082.8852	DRALORIC	SMA0207/10OHM-F-D	
R50	RL 0,35W 274 OHM+-1%TK50 RESISTOR	RL 083.0178	DRALORIC	SMA0207/274OHM-F-D	
R51	RL 0,35W 4,75KOHM+-1%TK50 RESISTOR	RL 083.1097	DRALORIC	SMA0207/4,75K-F-D	
R52	RL 0,35W 1,0 OHM+-1%TK50 METALFILMRESISTOR	RL 099.7860	RESISTA	MK2 1,00 OHM 1% TK50	
R53	RL 0,35W 100 OHM+-1%TK50 RESISTOR	RL 082.6543	DRALORIC	SMA0207/100/HM-F-D	
R54	RL 0,35W 10,0KOHM+-1%TK50 RESISTOR	RL 083.1297	DRALORIC	SMA0207/10K-F-D	
R55	RL 0,35W 10,0KOHM+-1%TK50 RESISTOR	RL 083.1297	DRALORIC	SMA0207/10K-F-D	
R56	RL 0,35W 100KOHM+-1%TK50 RESISTOR	RL 082.1764	DRALORIC	SMA0207/100K-F-C	
R57	RL 0,35W 10,0KOHM+-1%TK50 RESISTOR	RL 083.1297	DRALORIC	SMA0207/10K-F-D	
R58	RL 0,35W 100KOHM+-1%TK50 RESISTOR	RL 082.1764	DRALORIC	SMA0207/100K-F-C	
R60	RL 0,35W 4,75KOHM+-1%TK50 RESISTOR	RL 083.1097	DRALORIC	SMA0207/4,75K-F-D	
R61	RL 0,35W 3,92KOHM+-1%TK50 RESISTOR	RL 083.1039	RESISTA	MK2	
R62	RL 0,35W 8,25KOHM+-1%TK50 RESISTOR	RL 083.1239	DRALORIC	SMA0207/8,25K-F-D	
R63	RS 0,75W 5KOHM+-10% DEPOS.-CARBON POTENTIOMET	RS 037.7380	BOURNS	3006P-1-5 KOHM+-10%	
R64	RL 0,35W 6,81KOHM+-1%TK50 RESISTOR	RL 082.2560	DRALORIC	SMA 0207/6,81K-F-C	
R65	RL 0,35W 562 OHM+-1%TK50 RESISTOR	RL 083.0461	DRALORIC	SMA0207/562OHM-F-D	
R66	RL 0,35W 10,0KOHM+-1%TK50 RESISTOR	RL 083.1297	DRALORIC	SMA0207/10K-F-D	
R67	RL 0,21W 1,21KOHM+-1%TK50 RESISTOR	RL 092.1450	RESISTA	MK1 1K21 1% TK50	
R68	RL 0,35W 10,0KOHM+-1%TK50 RESISTOR	RL 083.1297	DRALORIC	SMA0207/10K-F-D	
R69	RL 0,35W 100KOHM+-1%TK50 RESISTOR	RL 082.1764	DRALORIC	SMA0207/100K-F-C	
R70	RL 0,35W 100KOHM+-1%TK50 RESISTOR	RL 082.1764	DRALORIC	SMA0207/100K-F-C	
R71	RL 0,35W 82,5 OHM+-1%TK50 RESISTOR	RL 082.9707	DRALORIC	SMA0207/82,5OHM-F-D	
R72	RL 0,35W 10,0KOHM+-1%TK50 RESISTOR	RL 083.1297	DRALORIC	SMA0207/10K-F-D	
R80	RL 0,35W 1,0 OHM+-1%TK50 METALFILMRESISTOR	RL 099.7860	RESISTA	MK2 1,00 OHM 1% TK50	
R81	RL 0,35W 1,0 OHM+-1%TK50 METALFILMRESISTOR	RL 099.7860	RESISTA	MK2 1,00 OHM 1% TK50	
R82	RL 0,35W 1,0 OHM+-1%TK50 METALFILMRESISTOR	RL 099.7860	RESISTA	MK2 1,00 OHM 1% TK50	
R83	RL 0,35W 3,92KOHM+-1%TK50 RESISTOR	RL 083.1039	RESISTA	MK2	
R85	RL 0,35W 100 OHM+-1%TK50 RESISTOR	RL 082.6543	DRALORIC	SMA0207/100/HM-F-D	
R86	RL 0,35W 221 KOHM+-1%TK50 RESISTOR	RL 083.2270	DRALORIC	SMA0207/221K-F-C	
R87	RL 0,35W 100KOHM+-1%TK50 RESISTOR	RL 082.1764	DRALORIC	SMA0207/100K-F-C	

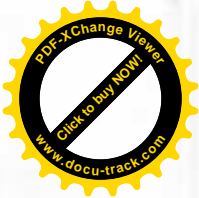
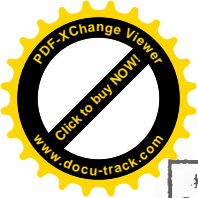
Für diese Unterlage behalten wir uns alle Rechte vor

ROHDE & SCHWARZ	AI	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt Page
	21	0590	ED POWER-SUPPLY D-A21	805.8513.01 SA	3+



Kennz. Comp.No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R88	RL 0,35W 3,92KOHM+-1%TK50 RESISTOR	RL 083.1039	RESISTA	MK2	
R89	RL 0,35W 100KOHM+-1%TK50 RESISTOR	RL 082.1764	DRALORIC	SMA0207/100K-F-C	
R90	RL 0,35W 4,75KOHM+-1%TK50 RESISTOR	RL 083.1097	DRALORIC	SMA0207/4,75K-F-D	
R91	RL 0,35W 39,2KOHM+-1%TK50 RESISTOR	RL 083.1745	DRALORIC	SMA/207/39,2K-F-C	
R95	RL 0,35W 332 OHM+-1%TK50 RESISTOR	RL 083.0255	DRALORIC	SMA0207/332OHM-F-D	
R96	RL 0,35W 100 OHM+-1%TK50 RESISTOR	RL 082.6543	DRALORIC	SMA0207/100/OHM-F-D	
R97	RL 0,35W 10,0 OHM+-1%TK50 RESISTOR	RL 082.8852	DRALORIC	SMA0207/10OHM-F-D	
R101	RL 0,35W 182 KOHM+-1%TK50 RESISTOR	RL 083.2193	DRALORIC	SMA0207/182K-F-C	
R102	RL 0,35W 1KOHM+-1%TK50 RESISTOR	RL 082.2160	DRALORIC	SMA0207/1K-F-C	
R103	RD 0,8W 1 OHM+-1% WIRE WOUND RESISTOR	RD 087.5251	SAGE	1000S1,0OHM+-1%	
R104	RL 0,35W 100KOHM+-1%TK50 RESISTOR	RL 082.1764	DRALORIC	SMA0207/100K-F-C	
R106	RL 0,35W 82,5KOHM+-1%TK50 RESISTOR	RL 082.2302	DRALORIC	SMA0207/82,5K-F-C	
R107	RL 0,35W 1KOHM+-1%TK50 RESISTOR	RL 082.2160	DRALORIC	SMA0207/1K-F-C	
R108	RL 0,35W 825 KOHM+-1%TK50 RESISTOR	RL 083.2812	DRALORIC	SMA0207/825K-F-C	
R110	RL 0,35W 3,32KOHM+-1%TK50 RESISTOR	RL 083.0990	DRALORIC	SMA0207/3,32K-F-D	
R111	RD 0,8W 1,2 OHM+-1% WIRE-WOUND RESISTOR	RD 069.1087	SAGE	1000S/1,2OHM/1%	
R112	RL 0,21W 221 OHM+-1%TK50 RESISTOR	RL 092.1367	RESISTA	MK1 221OHM 1% TK50	
R113	RL 0,21W 10,0KOHM+-1%TK50 RESISTOR	RL 092.1567	RESISTA	MK1 10K0 1% TK50	
R114	RL 0,35W 4,75KOHM+-1%TK50 RESISTOR	RL 083.1097	DRALORIC	SMA0207/4,75K-F-D	
R115	RL 0,35W 100KOHM+-1%TK50 RESISTOR	RL 082.1764	DRALORIC	SMA0207/100K-F-C	
R116	RL 0,35W 8,25KOHM+-1%TK50 RESISTOR	RL 083.1239	DRALORIC	SMA0207/8,25K-F-D	
R117	RL 0,35W 221 OHM+-1%TK50 RESISTOR	RL 083.0084	DRALORIC	SMA0207/221OHM-F-D	
R125	RL 0,35W 100KOHM+-1%TK50 RESISTOR	RL 082.1764	DRALORIC	SMA0207/100K-F-C	
R126	RL 0,35W 12,1KOHM+-1%TK50 RESISTOR	RL 083.1351	DRALORIC	SMA0207/12,1K-F-D	
R127	RL 0,35W 3,32KOHM+-1%TK50 RESISTOR	RL 083.0990	DRALORIC	SMA0207/3,32K-F-D	
R128	RL 0,35W 10,0KOHM+-1%TK50 RESISTOR	RL 083.1297	DRALORIC	SMA0207/10K-F-D	
R130	RL 0,35W 27,4KOHM+-1%TK50 RESISTOR	RL 082.2583	DRALORIC	SMA 0207/27,4K-F-C	
R131	RL 0,35W 10,0KOHM+-1%TK50 RESISTOR	RL 083.1297	DRALORIC	SMA0207/10K-F-D	
R132	RL 0,35W 33,2KOHM+-1%TK50 RESISTOR	RL 083.1674	DRALORIC	SMA0207/33,2K-F-C	
R133	RL 0,35W 27,4KOHM+-1%TK50 RESISTOR	RL 082.2583	DRALORIC	SMA 0207/27,4K-F-C	
R135	RL 0,35W 22,1KOHM+-1%TK50 RESISTOR	RL 083.1545	DRALORIC	SMA/207/22,1K-F-C	
R136	RL 0,35W 4,75KOHM+-1%TK50 RESISTOR	RL 083.1097	DRALORIC	SMA0207/4,75K-F-D	
R137	RL 0,35W 10,0KOHM+-1%TK50 RESISTOR	RL 083.1297	DRALORIC	SMA0207/10K-F-D	
R138	RL 0,35W 274 OHM+-1%TK50 RESISTOR	RL 083.0178	DRALORIC	SMA0207/274OHM-F-D	
R140	RD 2,4W 68 OHM+-1% WIRE-WOUND RESISTOR	RD 087.5139	SAGE	1200S 3W TK20	
R141	RL 0,35W 10,0KOHM+-1%TK50 RESISTOR	RL 083.1297	DRALORIC	SMA0207/10K-F-D	
R150	RL 0,35W 10,0 OHM+-1%TK50 RESISTOR	RL 082.8852	DRALORIC	SMA0207/10OHM-F-D	
R160	RL 0,35W 2,21KOHM+-1%TK50 RESISTOR	RL 082.2477	DRALORIC	SMA 0207/2,21K-F-C	
R161	RL 0,35W 22,1KOHM+-1%TK50 RESISTOR	RL 083.1545	DRALORIC	SMA/207/22,1K-F-C	

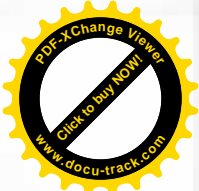
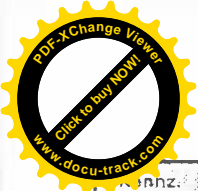
ROHDE & SCHWARZ	Äl	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt Page
	21	0590	ED-POWER-SUPPLY D-A21	805.8513.01 SA	4+



Kennz. Comp.No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R162	RL 0.35W 5.62KOHM+-1%TK50 RESISTOR	RL 082.2190	DRALORIC	SMA0207/5.62K-F-C	
R163	RL 0.35W 22.1KOHM+-1%TK50 RESISTOR	RL 083.1545	DRALORIC	SMA/207/22.1K-F-C	
R164	RL 0.35W 5.62KOHM+-1%TK50 RESISTOR	RL 082.2190	DRALORIC	SMA0207/5.62K-F-C	
R510	RL 0.21W 221 OHM+-1%TK50 RESISTOR	RL 092.1367	RESISTA	MK1 2210HM 1% TK50	
R514	RL 0.21W 6.81KOHM+-1%TK50 RESISTOR	RL 092.1544	RESISTA	MK1 6K81 1% TK50	
V1	AG B250C1500 BRGL RECTIFIER	AG 208.2340	AEG-TELEF.	B250/C1500SI	
V9	AD 1N4448 75V 0A15 UDI DIODE	AD 012.0700	TEXAS INST	1N4448 GEGURTET	
V11	AG MBR1645 SGL 45V 12A0 RECTIFIER	AG 355.0057	GEN.INSTR.	MBR1645	
V12	AG MBR1645 SGL 45V 12A0 RECTIFIER	AG 355.0057	GEN.INSTR.	MBR1645	
V15	AG 1N4007 GL1000V 1A0 RECTIFIER	AG 013.0310	AEG-TELEF	1N4007	
V16	AG 1N4007 GL1000V 1A0 RECTIFIER	AG 013.0310	AEG-TELEF	1N4007	
V17	AG 1N4007 GL1000V 1A0 RECTIFIER	AG 013.0310	AEG-TELEF	1N4007	
V20	AK BCY791X P 45V 200MA TRANSISTOR	AK 010.3777	VALVO	BCY791X	
V21	AE BZX55/B5V1 0.5W ZDI ZENER DIODE	AE 262.5837	VALVO	BZX55/B5V1	
V22	AD 1N4448 75V 0A15 UDI DIODE	AD 012.0700	TEXAS INST	1N4448 GEGURTET	
V23	AK BCY591X N 45V 200MA TRANSISTOR	AK 010.5163	VALVO	BCY591X	
V24	AK BCY591X N 45V 200MA TRANSISTOR	AK 010.5163	VALVO	BCY591X	
V25	AD 1N4448 75V 0A15 UDI DIODE	AD 012.0700	TEXAS INST	1N4448 GEGURTET	
V27	AD 1N4448 75V 0A15 UDI DIODE	AD 012.0700	TEXAS INST	1N4448 GEGURTET	
V28	AD 1N4448 75V 0A15 UDI DIODE	AD 012.0700	TEXAS INST	1N4448 GEGURTET	
V30	AL BDX67B N 100V DARL TRANSISTOR	AL 287.6320	VALVO	BDX67B	
V35	AG BY251 GL 200V 3A0 RECTIFIER	AG 250.3128	INTERMETAL	BY251	
V36	AD 1N4448 75V 0A15 UDI DIODE	AD 012.0700	TEXAS INST	1N4448 GEGURTET	
V45	AG TIC126S THY700V12A0 THYRISTOR	AG 553.0397	TEXAS INST	TIC126S	
V46	AE BZX79/B5V6 0.5W ZDI ZENER DIODE	AE 012.5254	VALVO	BZX79/B5V6	
V50	AG 1N4007 GL1000V 1A0 RECTIFIER	AG 013.0310	AEG-TELEF	1N4007	
V51	AL BDX77 N 80V 8A0 TRANSISTOR	AL 300.6318	VALVO	BDX77	
V52	AK BCY591X N 45V 200MA TRANSISTOR	AK 010.5163	VALVO	BCY591X	
V60	AE 1N827 6.2V REF DI REFERENCE DIODE	AE 418.0029	CDI	1N827	
V61	AK BCY591X N 45V 200MA TRANSISTOR	AK 010.5163	VALVO	BCY591X	
V80	AL BDX77 N 80V 8A0 TRANSISTOR	AL 300.6318	VALVO	BDX77	
V81	AG BY251 GL 200V 3A0 RECTIFIER	AG 250.3128	INTERMETAL	BY251	
V82	AD 1N4448 75V 0A15 UDI DIODE	AD 012.0700	TEXAS INST	1N4448 GEGURTET	
V96	AE BZX55/B6V2 0.5W ZDI ZENER DIODE	AE 012.2161	VALVO	BZX55/B6V2	
V97	AG TIC126S THY700V12A0 THYRISTOR	AG 553.0397	TEXAS INST	TIC126S	
V100	AL BDT62C P 120V DARL TRANSISTOR	805.8665	VALVO	BDT 62C	
V101	AD 1N4448 75V 0A15 UDI DIODE	AD 012.0700	TEXAS INST	1N4448 GEGURTET	
V102	AK 2N3439 N 350V1000MA TRANSISTOR	AK 010.5592	RCA	2N3439	

Für diese Unterlage behalten wir uns alle Rechte vor

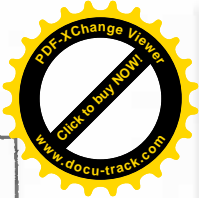
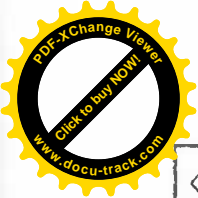
ROHDE & SCHWARZ	Äl. Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt Page
	21 0590	ED POWER-SUPPLY D-A21	805.8513.01 SA	5+



Anz. Comp.No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
V103	AG 1N4007 RECTIFIER	GL1000V 1A0	AG 013.0310	AEG-TELEF 1N4007	
V104	AG 1N4007 RECTIFIER	GL1000V 1A0	AG 013.0310	AEG-TELEF 1N4007	
V105	AG 1N4007 RECTIFIER	GL1000V 1A0	AG 013.0310	AEG-TELEF 1N4007	
V110	AD 1N4448 DIODE	75V 0A15 UDI	AD 012.0700	TEXAS INST 1N4448 GEGURTET	
V111	AD 1N4448 DIODE	75V 0A15 UDI	AD 012.0700	TEXAS INST 1N4448 GEGURTET	
V112	AD 1N4448 DIODE	75V 0A15 UDI	AD 012.0700	TEXAS INST 1N4448 GEGURTET	
V115	AK BCY59IX TRANSISTOR	N 45V 200MA	AK 010.5163	VALVO BCY59IX	
V125	AD 1N4448 DIODE	75V 0A15 UDI	AD 012.0700	TEXAS INST 1N4448 GEGURTET	
V126	AD 1N4448 DIODE	75V 0A15 UDI	AD 012.0700	TEXAS INST 1N4448 GEGURTET	
V135	AK BCY59IX TRANSISTOR	N 45V 200MA	AK 010.5163	VALVO BCY59IX	
V136	AD 1N4448 DIODE	75V 0A15 UDI	AD 012.0700	TEXAS INST 1N4448 GEGURTET	
V200	BJ LM335H PRECION TEMP.SENSOR	TEMP.SENSOR	395.2867	NSC LM335H	
X190	FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 3-POLIG/3PINS		FP 243.3578	BINDER 742-5-11-0187-00-36	
X191	FP KURZSCHLUSSBUCHSE SHORTING PLUG		FP 342.1895	BERG 76264-101	
X211	FP STIFTSOCKEL F.GS 9P. CONNECTOR 9POL		681.1150	AMP 350712-1	
X212	FP LP-STECKER 2REIH.26W PCB CONNECTOR,26 CONTACT		805.8636		
X213	FP BUCHSENSOCKEL GS 6P. CONNECTOR 6P		808.4877	AMP 350827-1	

- ENDE -

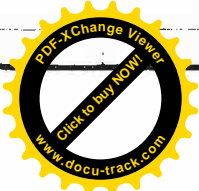
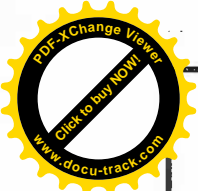
ROHDE & SCHWARZ	Ä	Datum Date	Schaltteilliste für Parts list for	Sachnummer Stock No.	Blatt Page
	21	0590	ED POWER-SUPPLY D-A21	805.8513.01 SA	6-



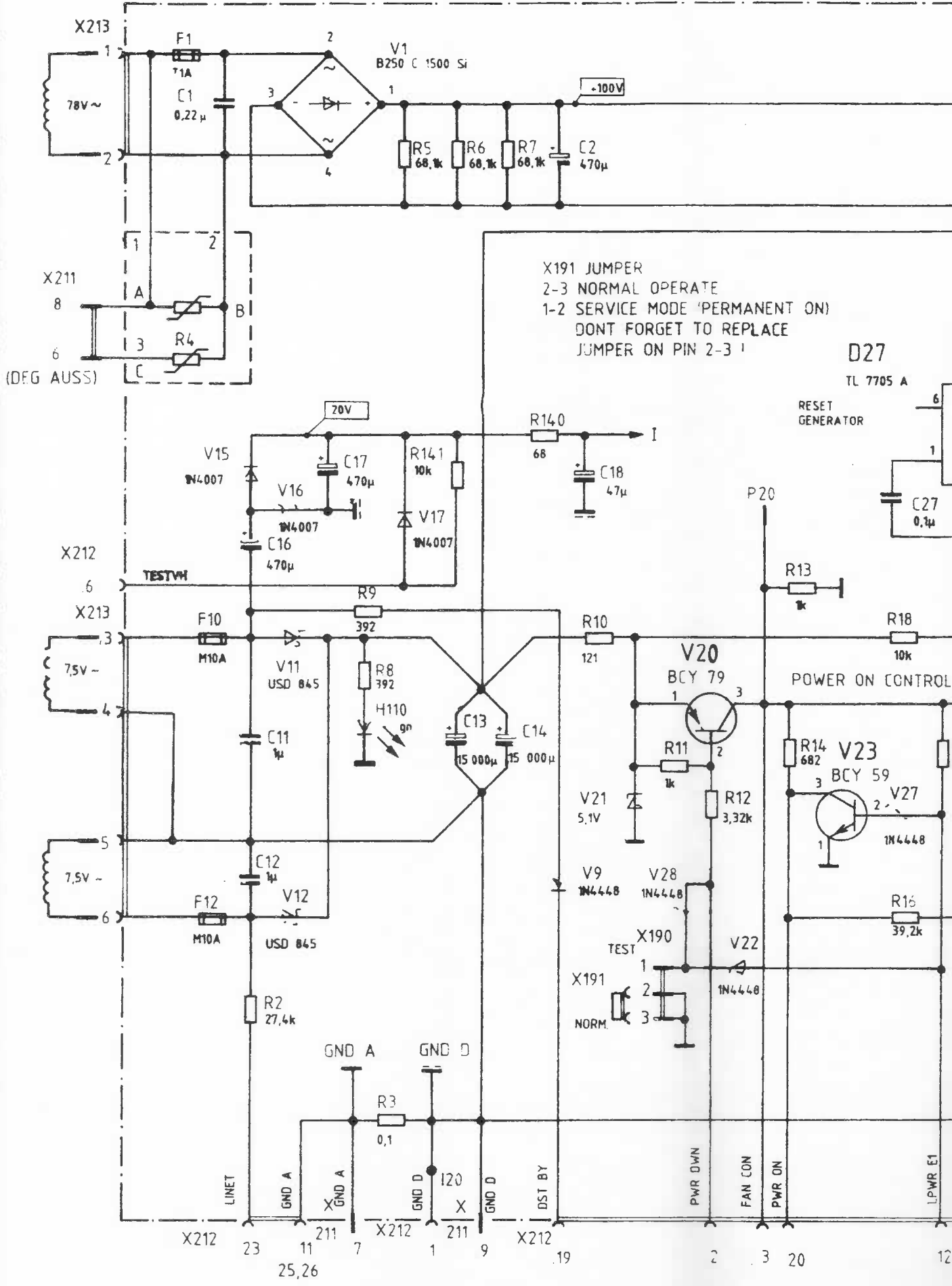
 ROHDE & SCHWARZ	ÄZ	Datum	Schaltteilliste für Parts list for ZE D-POWER SUPPLY	Sachnummer Stock No. 805.8013.01 SA	Blatt Page 1
	03	0585			

Kennzeichen Component No.	Benennung/Beschreibung Designation	Sachnummer Stock No.	enthalten in contained in
A21	ED POWER-SUPPLY D-A21	805.8513.02	
A22	ED POWER SUPPLY D-A22	805.8813.02	
E1	ZE LUEFTER	808.4177	
F1	SS SCHMELZS.T2,5DDIN41571 FUSE WICKMANN T2,5D DIN 41571 TROP FUER/FOR 220/240V FUER/FOR 100/120V SS099.6735	SS 020.7575	
R1	RK VARISTOR 35-540V/1KA VARISTOR	808.4202	
R2	CONRADTY CONOX 17M 130 VB RK VARISTOR 35-540V/1KA VARISTOR CONRADTY CONOX 17M 130 VB	808.4202	
S1	SK WIPPSCH.2POL.AUS SW SWITCH MARQUARDT 1802.1102	SK 553.2925	
T1	ZE TRANSFORMATOR	805.8136	
X1	FN NETZFILT.M.SPANNUNGSW. FILTER SCHAFFNER FN 369-2/01	FN 099.3313	
X213	FP BUCHSENGEHAEUSE 6POL. CONNECTORHOUSING 6POL AMP 350 715-1	805.7800	805.8136
X223	FP KUPPLUNGSGEHAEUSE 4POL CONNECTOR 4POL AMP 350779-1	808.4660	805.8136
			- ENDE -

Für diese Unterlage behalten wir uns alle Rechte vor

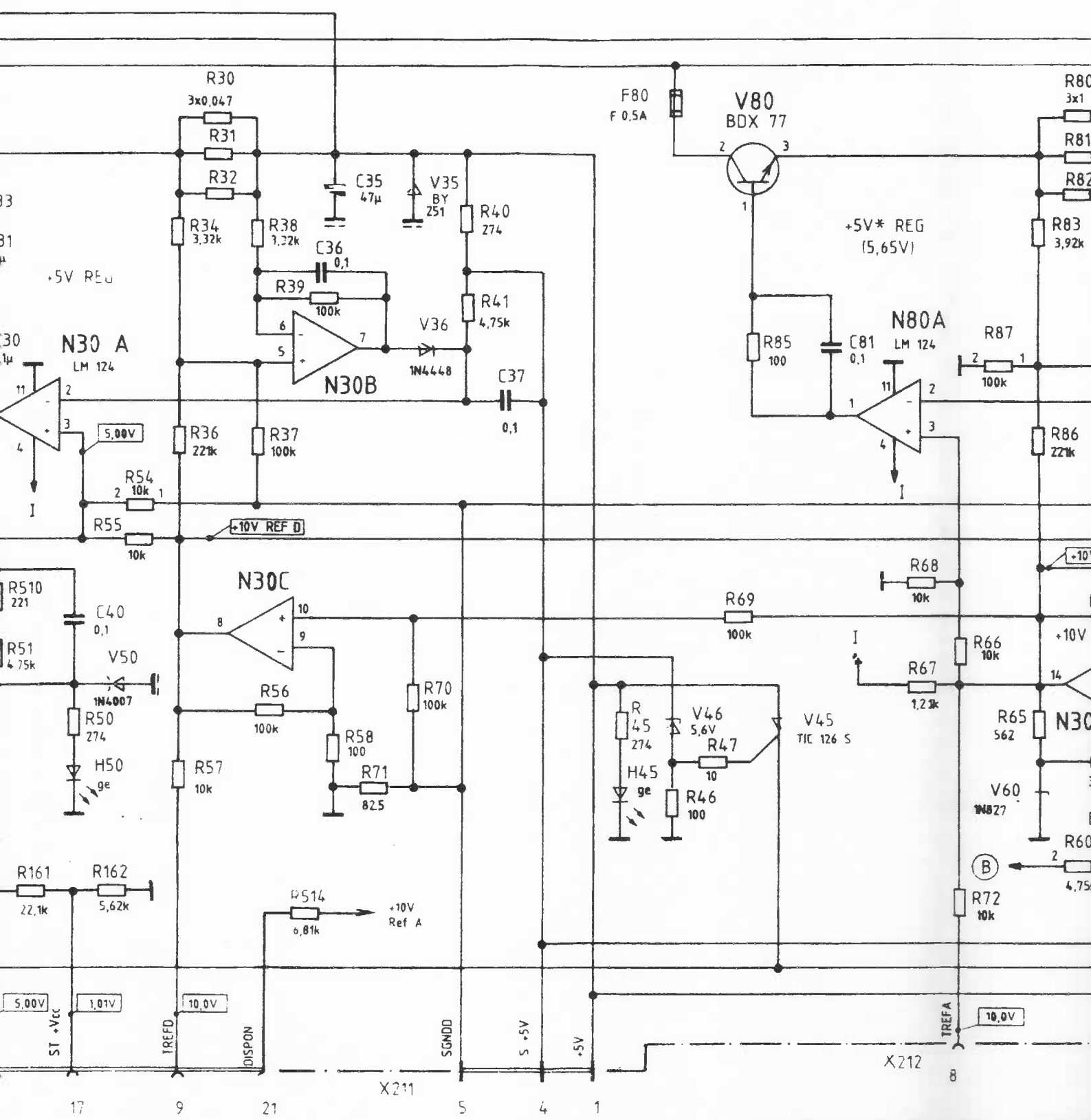
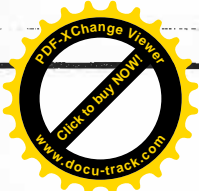


A
B
C
D
E

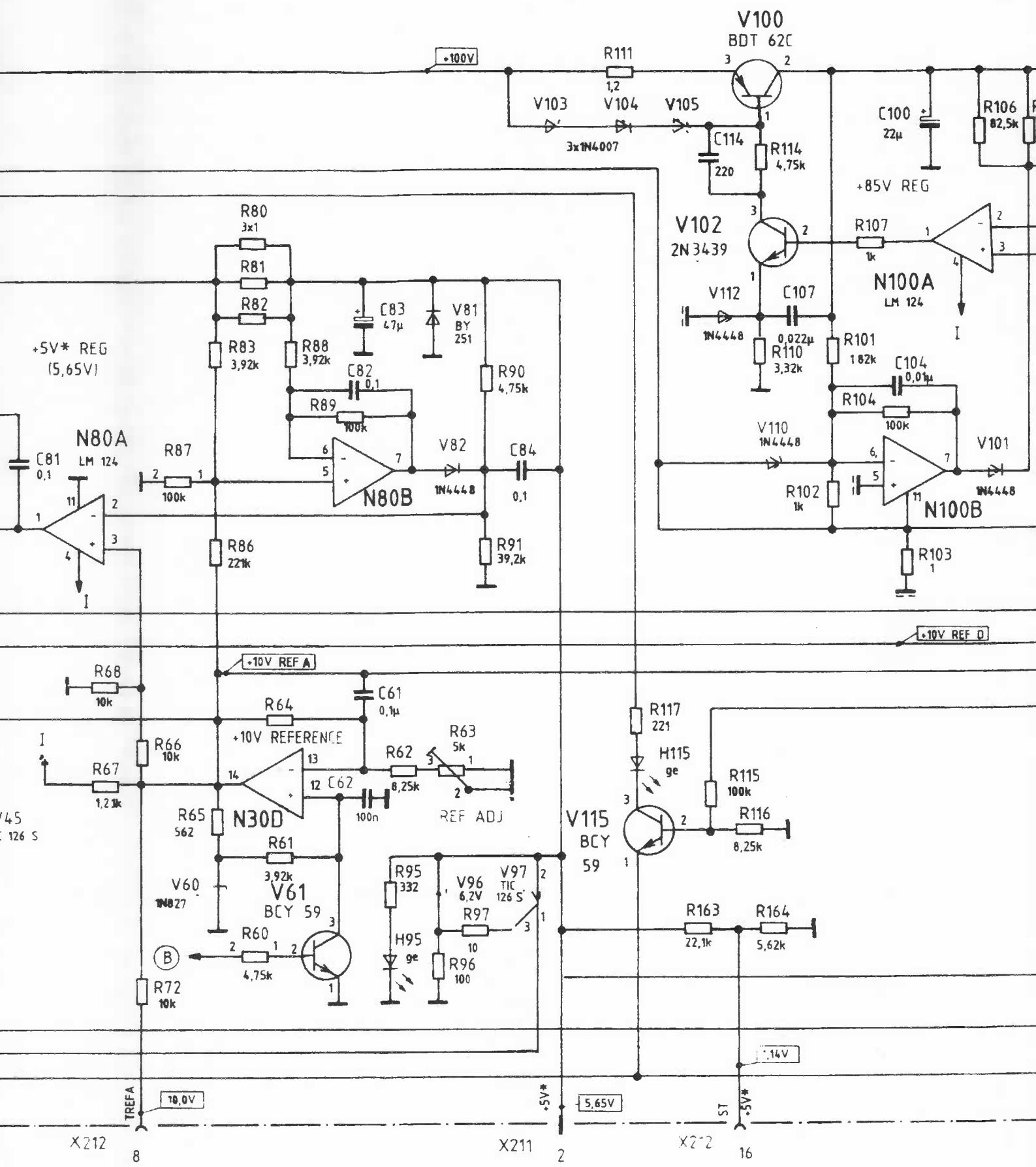
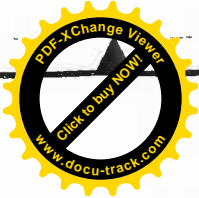
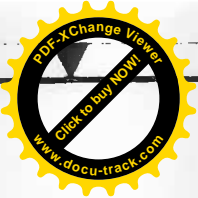


Für diese Unterlage behalten wir uns alle Rechte vor

Zeichn Nr 8513 S

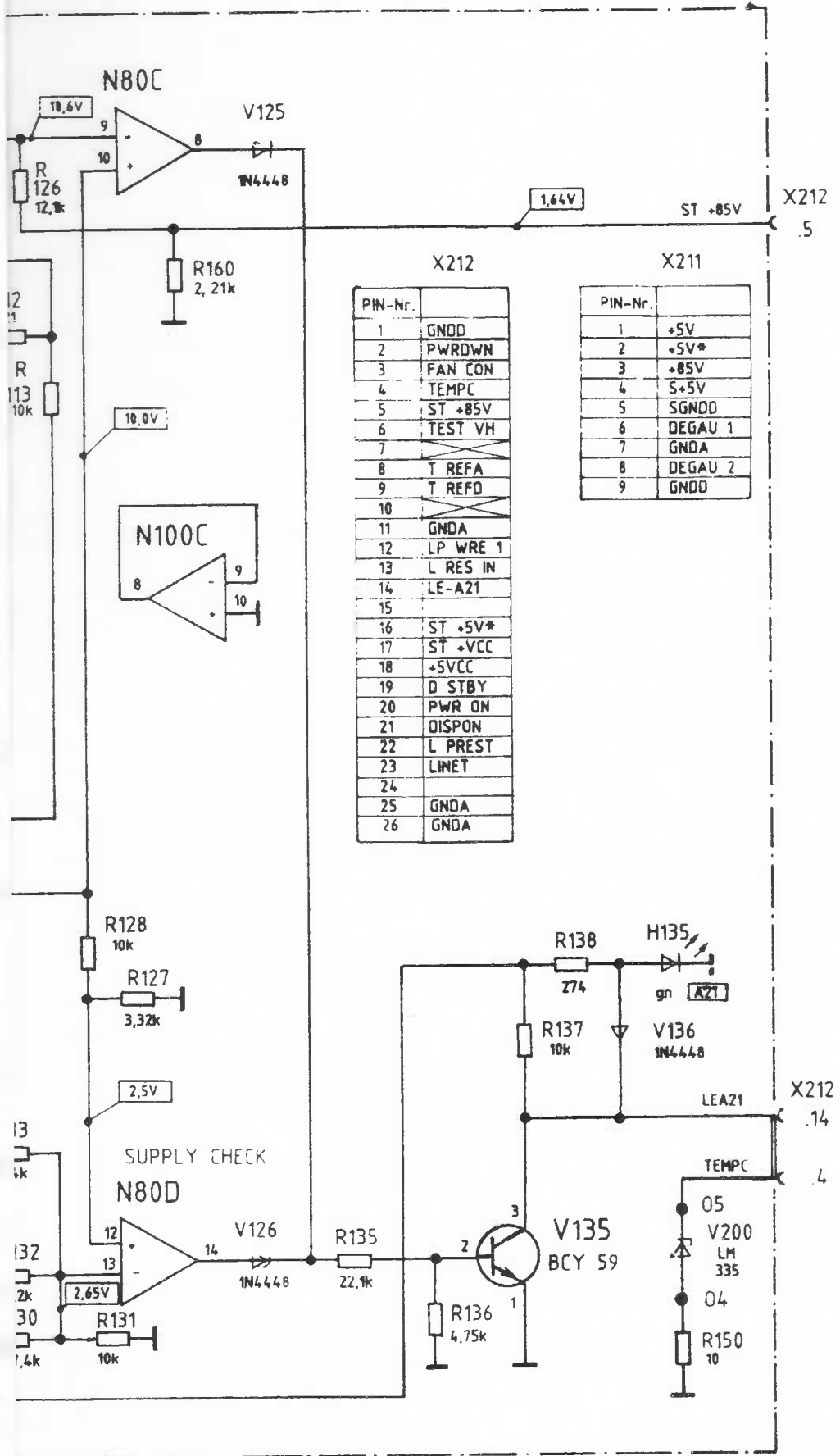
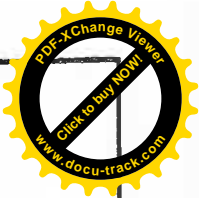
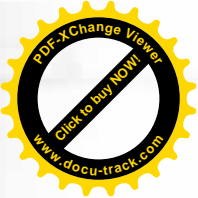


	H	37
	I	37
	K	37



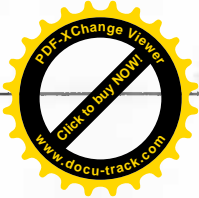
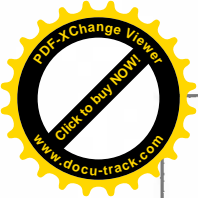
Code	Part No.	Quantity	Unit	Material	Part No.	Quantity	Unit	Material	Tag	Name	Reference
H	37 065 (6)	04.89	BG	E	32 744 (38)	07.86	Bg	1KGF			
I	37 065 (11)	07.89	Bg	F	32 744 (60)	10.86	Bg	Bearb	04.85	BG	
K	37 065 (13)	07.89	Bg	G	32 744 (84)	02.87	Bg	Sec			

HDE & SCHWARZ



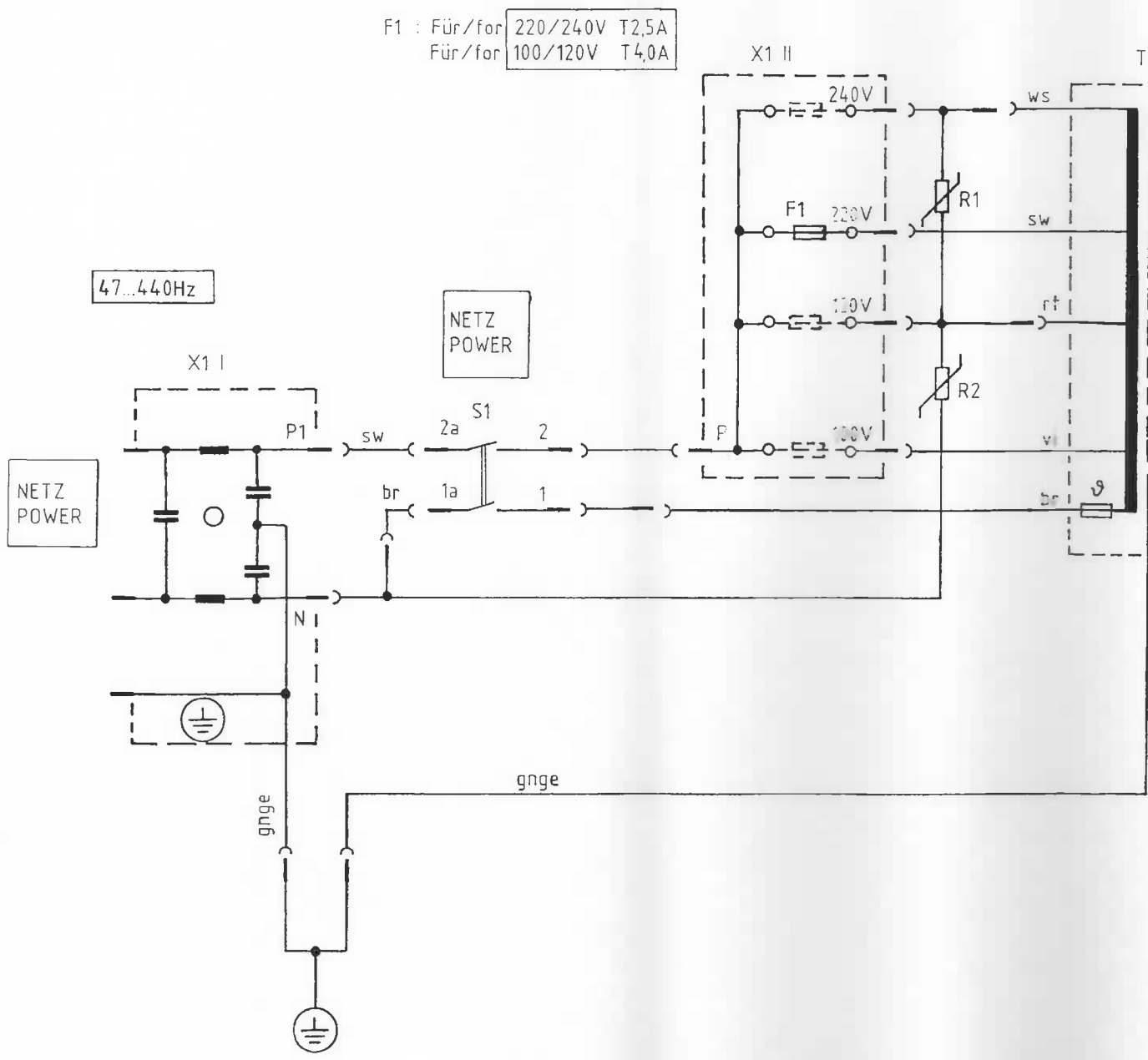
PIN-Nr.	
1	GNDD
2	PWRDWN
3	FAN CON
4	TEMPC
5	ST +85V
6	TEST VH
7	
8	T REFA
9	T REFD
10	
11	GND A
12	LP WRE 1
13	L RES IN
14	LE-A21
15	
16	ST +5V*
17	ST +VCC
18	+5VCC
19	D STBY
20	PWR ON
21	DISPON
22	L PREST
23	LINET
24	
25	GND A
26	GND A

PIN-Nr.	
1	+5V
2	+5V*
3	+85V
4	S+5V
5	SGND
6	DEGAU 1
7	GND A
8	DEGAU 2
9	GNDD

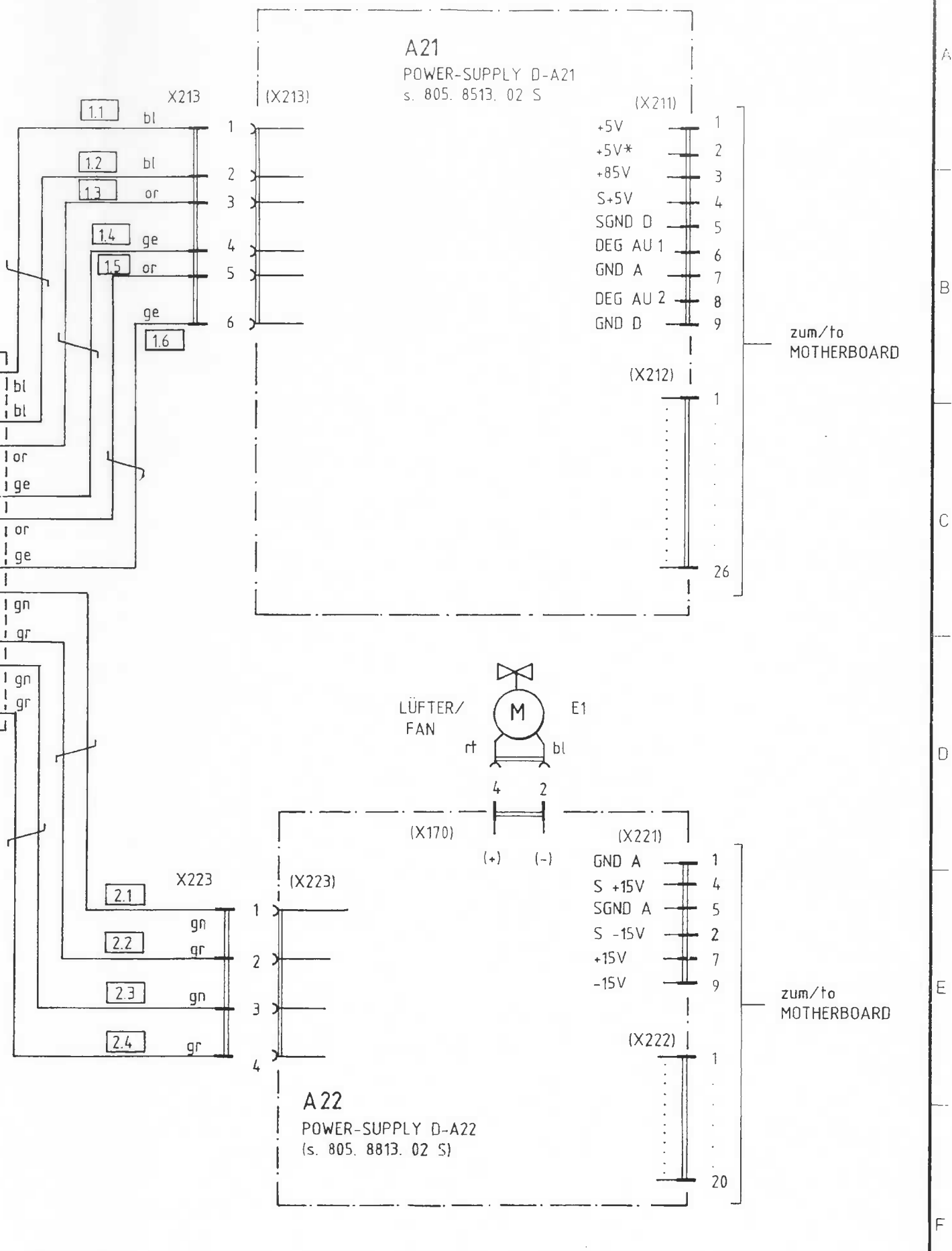
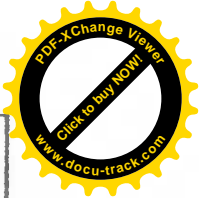
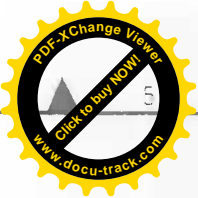


Für diese Unterlage behalten wir uns alle Rechte vor

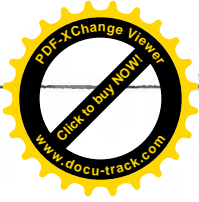
A
B
C
D
E
F



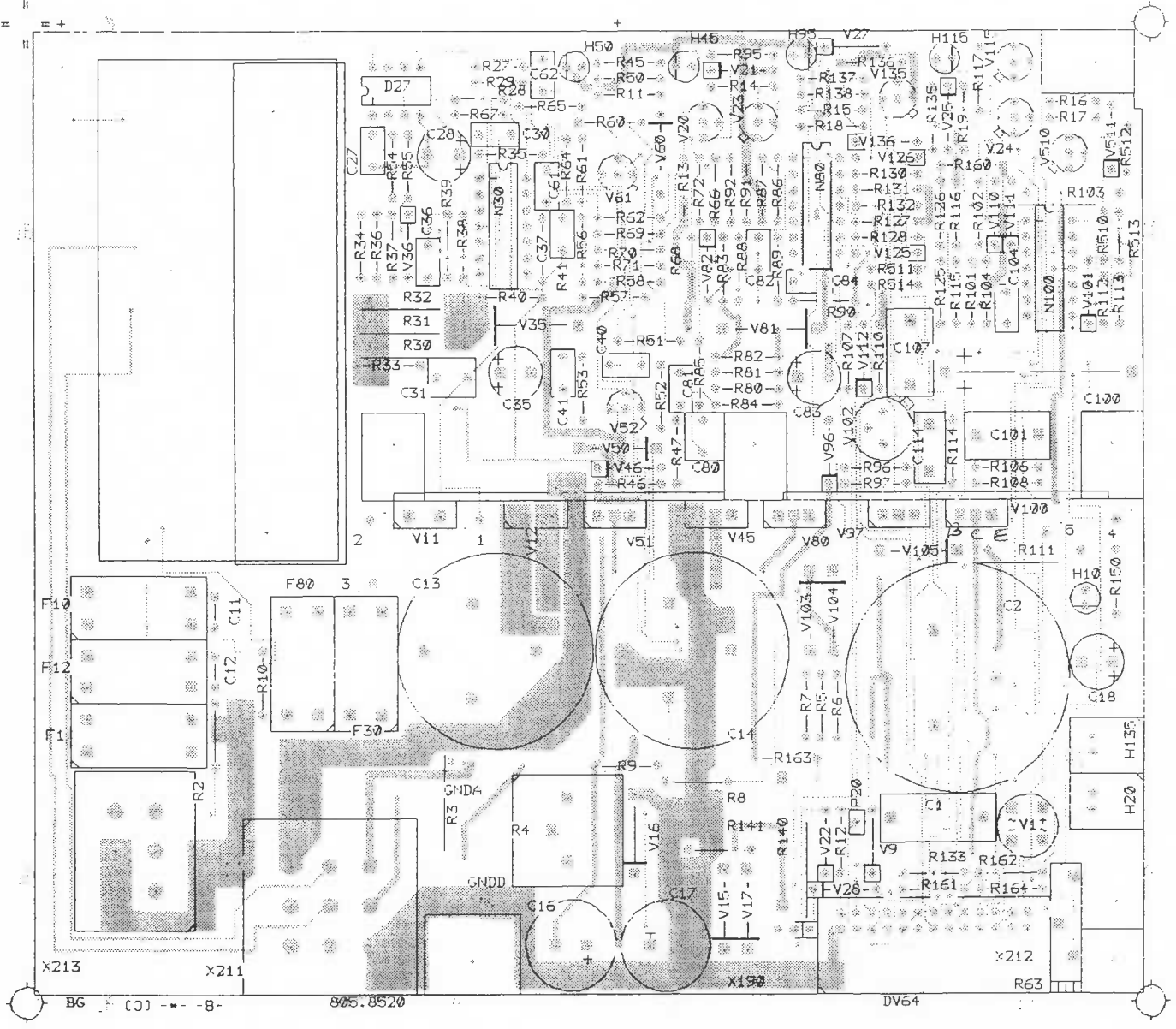
					A	12 85	BG	1KGF	Tag	Name
					B	03 86	BG	Bearb	07 85	BG
					C	32 744 (102)	Bg	Gepr		
	And Zust	Anderungs Mittellung	Datum	Name	And Zust	Anderungs Mittellung	Name	Norm		



Benennung	D-POWER-SUPPLY	Zerhör. Nr.	805. 8013 S	Blatt-Nr.	1
zu Gerät	FSA-Display	Typ	804. 9516 V	1	R1
		erste F.	804. 9516		



Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

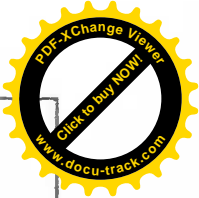
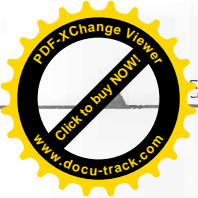


Für diese Unterlage behalten wir uns alle Rechte vor

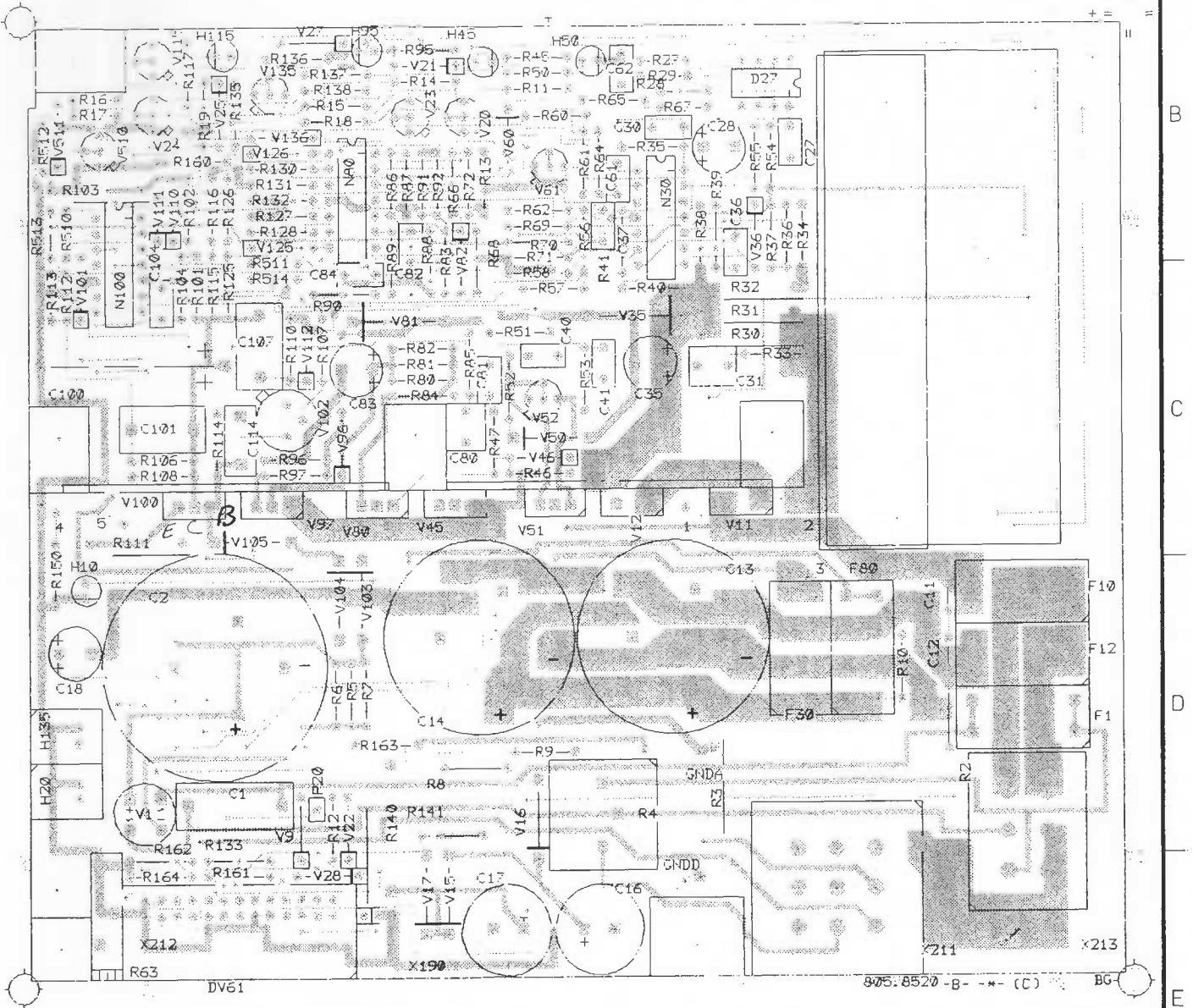


ACHTUNG: EGB!
Elektrostatisch gefährdete Bauelemente erfordern eine besondere Handhabung
ATTENTION ESD!
Electrostatic sensitive devices require a special handling

Proj. in
ode E



Ansicht und Leitungsführung Lotseite
View of tracks on solder side



VARIANTENERKLÄRUNG / VERSION
VAR02 - GRUNDAUSFÜHRUNG / BASIC MODEL

H	32744	10.86	BG	Masse ohne Toleranzangabe	Maßstab 1 : 1		
					Halbzeug Werkstoff		
				1KGF Tag Name	Benennung		
				Bearb 10.86 BG	POWER SUPPLY D A21	Z	
				Gepr			F
				Norm			
					Zeichn.-Nr.	Blatt.-Nr.	
				zu Gerät FSA	805.8513.01 ED	2	
And. Zust.	Änderungs-Mitteilung	Tag	Name	Reg. 804.9516 V	erste Z.		