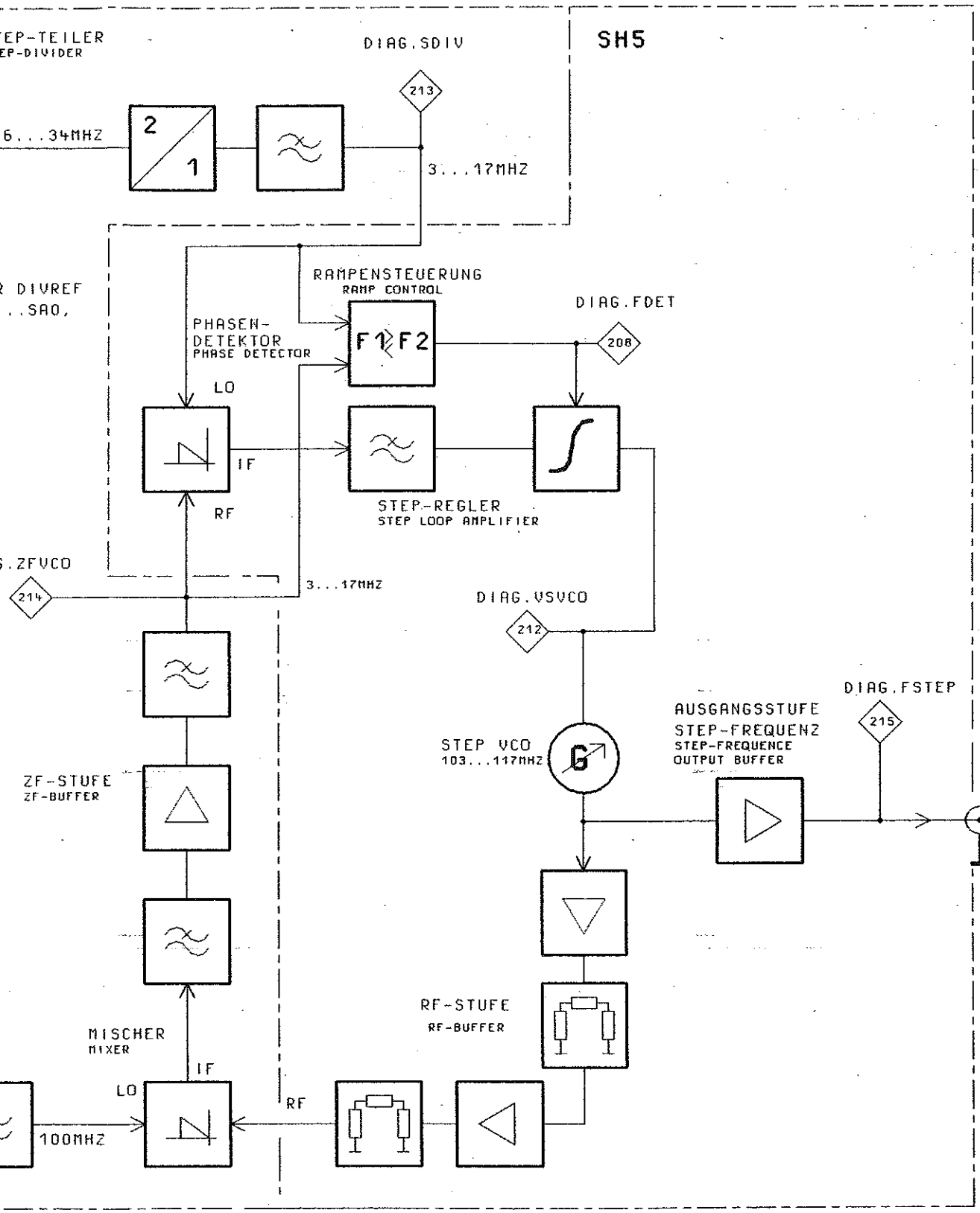
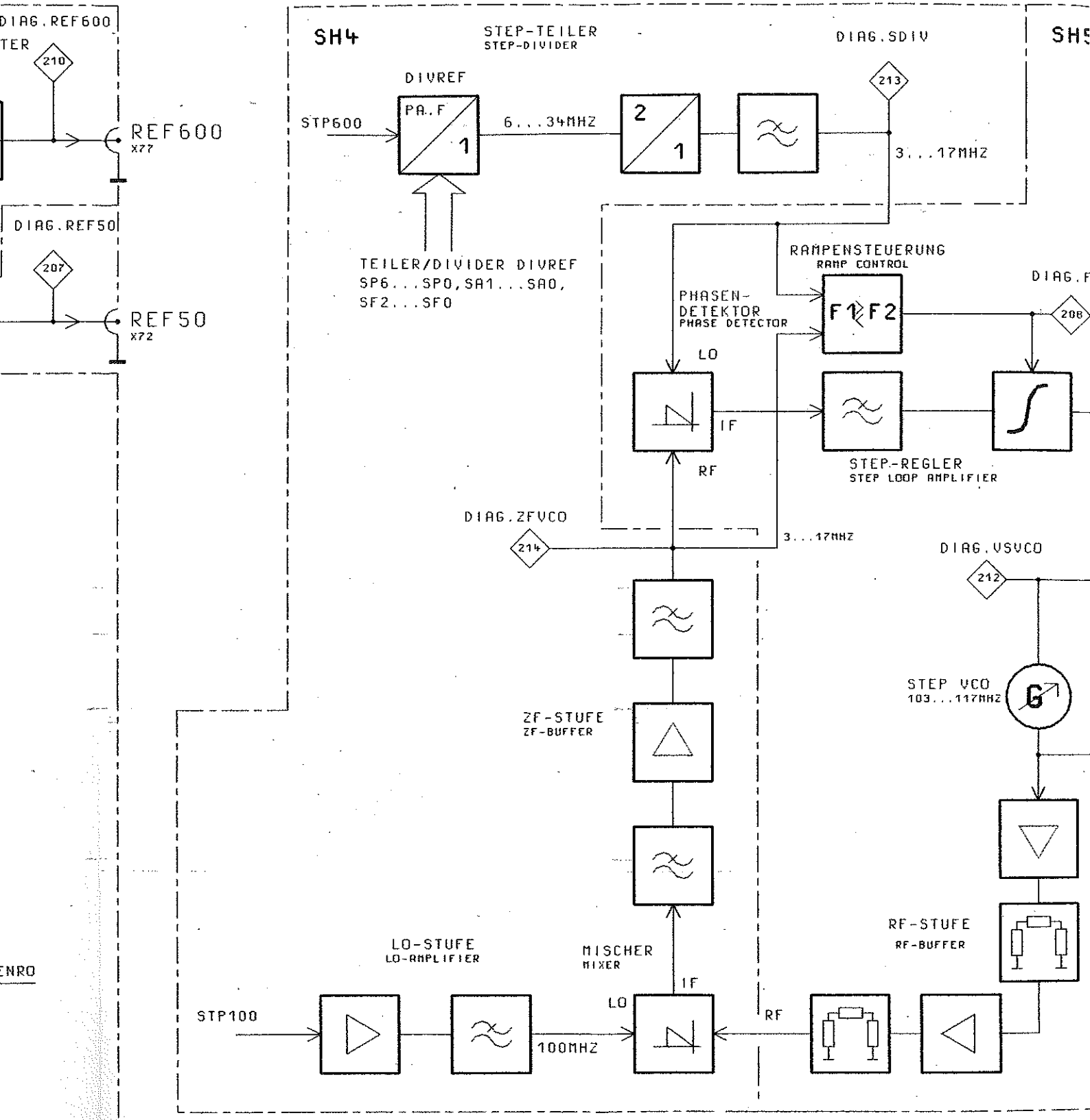


STROMLAUF GILT FUER VAR.02

CIRCUIT DIAGRAM IS VALID FOR MOD.02

07/	49155	16.11.95	HM	1GPK	TAG	NAME	BENENNUNG	
				BEARB.		HM	REFERENZ STEPSYNTHESE	
				GEPR.			REFERENZ STEPSYNTHESE	
				NORM				
				PLOTT	28.02.96			
06/01	48730 84	01.03.94	BU	R&S ROHDE&SCHWARZ			ZEICHN.-NR. 1035.6501.01S	BLATT-NR. 1+
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMP			REG.I.V. 1035.5005	ERSTE Z. 1035.5005 V. BL.



STROMLAUF GILT FUER VAR.02

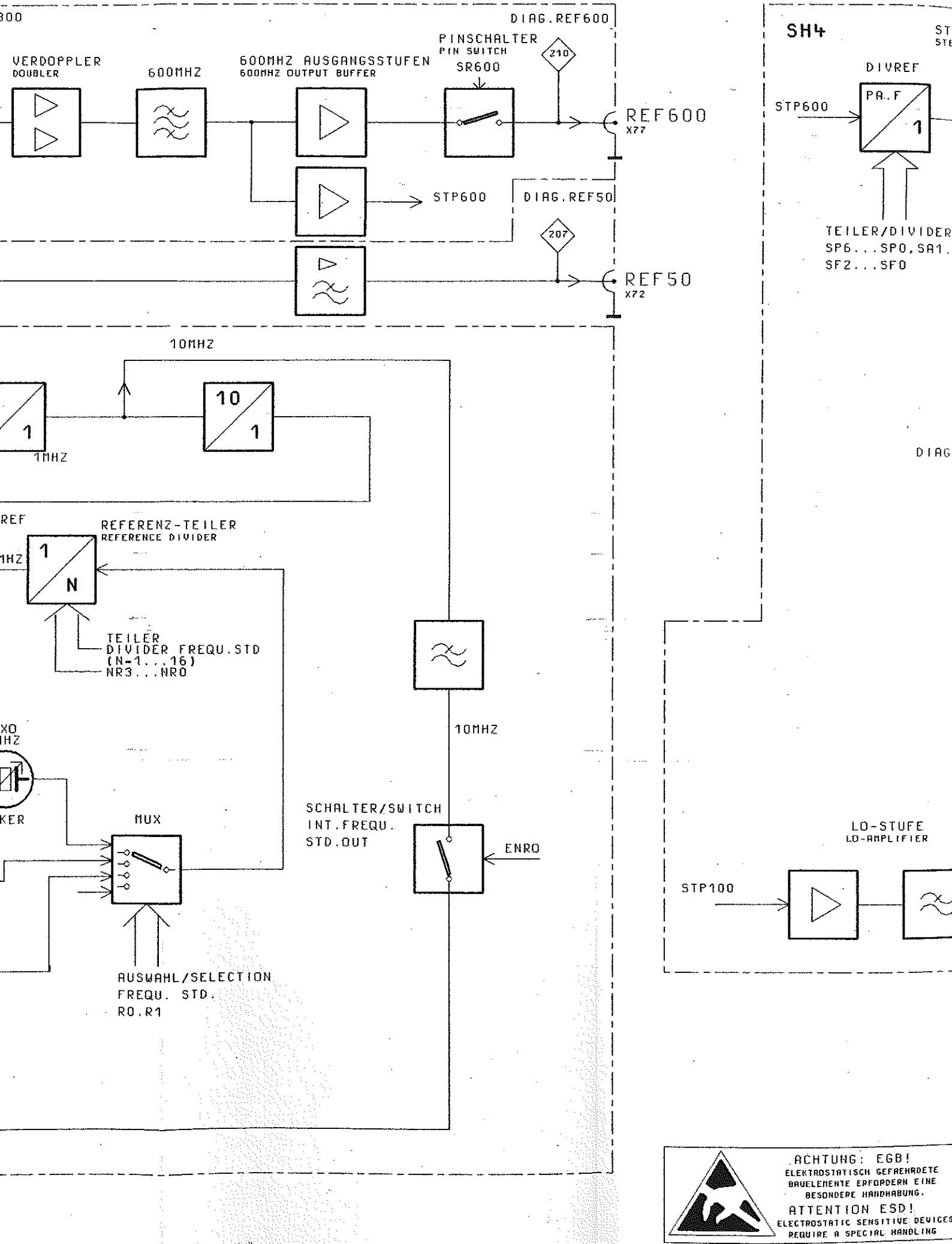
CIRCUIT DIAGRAM IS VALID FOR MOD.02

07/	49155	16.11.95	HM	1GPK	TAG	NAME
				BEARB.		HM
				GEPR.		
				NORM		
				PLOTT	28.02.96	
06/01	48730 84	01.03.94	BU			
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME			

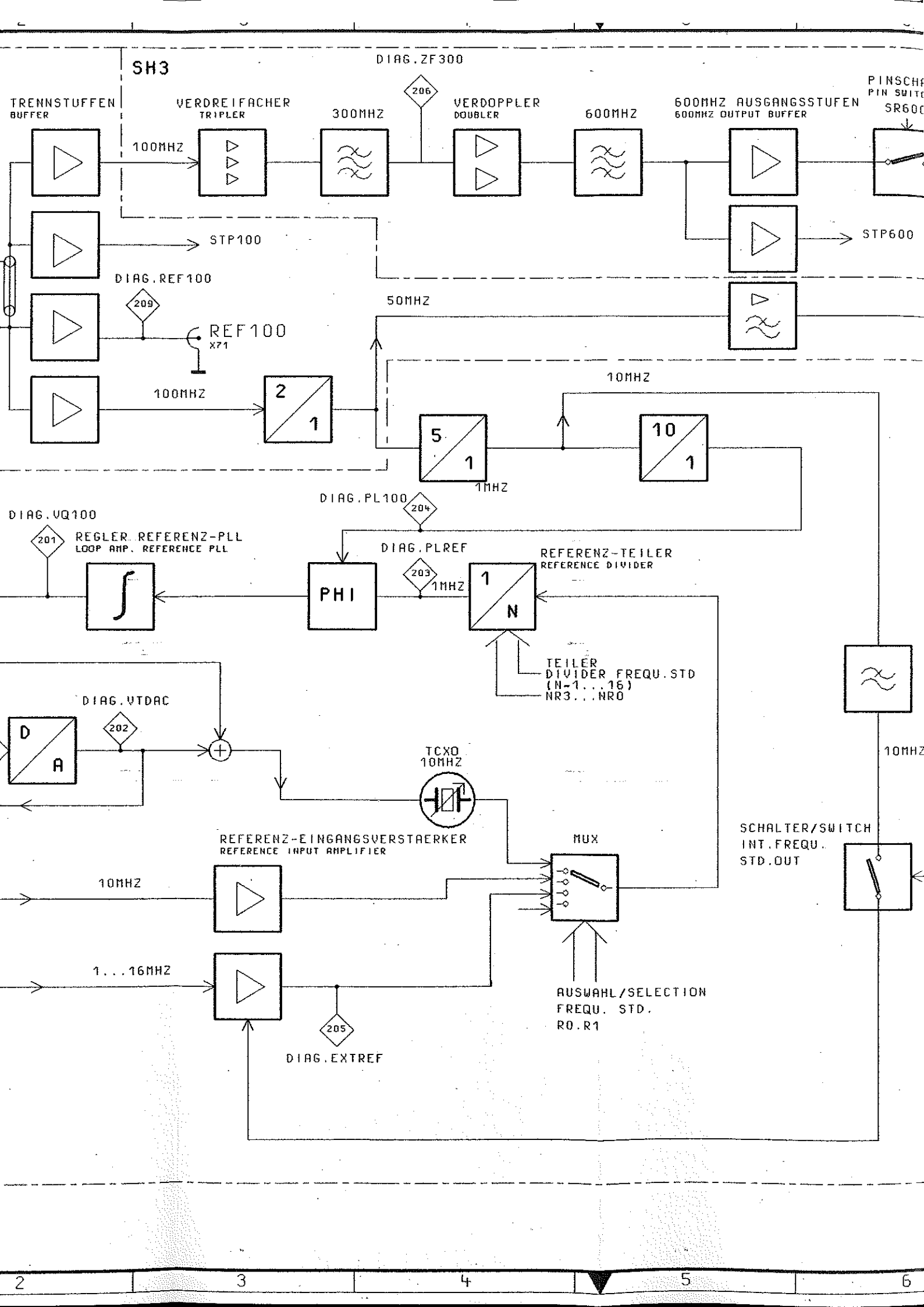
ROHDE&SCHWARZ

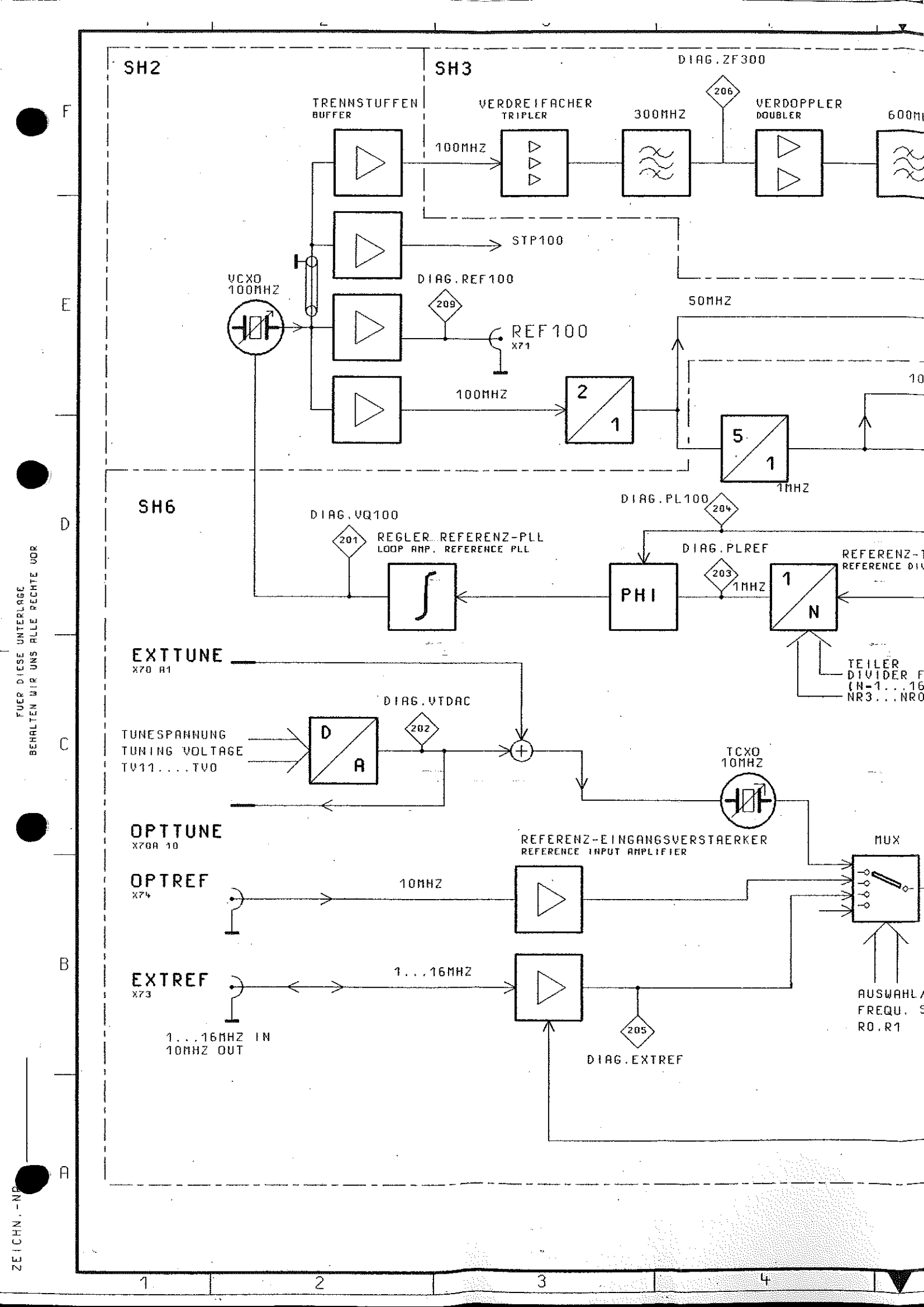
ZU GERAET SMP

ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING



ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING


SH3
DIAG.ZF300
206
TRENNSTUFFEN
BUFFER
VERDREIFACHER
TRIPLER
300MHZ
VERDOPPLER
DOUBLER
600MHZ
600MHZ AUSGANGSSTUFEN
600MHZ OUTPUT BUFFER
PINSCHA
PIN SWITC
SR600
100MHZ
STP100
STP600
DIAG.REF100
209
REF100
X71
50MHZ
10MHZ
100MHZ
2
1
5
1
10
1
1MHZ
DIAG.PL100
204
DIAG.VQ100
201
REGLER REFERENZ-PLL
LOOP AMP. REFERENCE PLL
DIAG.PLREF
203
1MHZ
PHI
REFERENZ-TEILER
REFERENCE DIVIDER
1
N
TEILER
DIVIDER FREQU.STD
(N=1...16)
NR3...NR0
DIAG.VTDAC
202
D
A
TCXO
10MHZ
10MHZ
REFERENZ-EINGANGSVERSTAERKER
REFERENCE INPUT AMPLIFIER
MUX
SCHALTER/SWITCH
INT.FREQU.
STD.OUT
10MHZ
1...16MHZ
205
DIAG.EXTREF
AUSWAHL/SELECTION
FREQU. STD.
R0.R1



FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR.

TRENNSTUFEN
UFFER

R
SF100
H3D1

TP100
H4E8

E 50MHZ AUSGANG
50MHZ OUTPUT

+5VA
L96 2U2H B
Z95 40DB 8
NVC-VAR
L97 2U2H B
PEGEL AUSGANG REF50
OUTPUT LEVEL REF50
207
REF50 X72 1 9DBM

+5VC
R99 4K75 L
D95-A 74AC74SC-B
C513 39P B
L513 330NH
R511 4K75 B
R513 100R B
V514 HSMS2810-L
C514 15P L
C511 10N B
L511 390NH
D505-A 74AC00T-L
C515 1N L
R514 10K L
R515 10K L
C516 10N L
100MHZ
50MHZ
D505-D 74AC00T-L
R507 4K75 B
DIAG.REF50 SH7E9

C69 1N L
C70 10N L
R69 10K L
DIAG.REF100 SH7D9
REF100 X71 1 5DBM
209
PEGEL AUSGANG REF100
OUTPUT LEVEL REF100

P
C519 100N B
L519 1UH L
+5VA
C517 1N B
R516 100R B
R519 274R B
2,3V
CL50 SH6E1 50MHZ
R517 825R L
V518 BSV52-B
C158 100N B
R518 562R B
-15V

R89 4K75 B
D95-B 74AC74SC-B
R94 4K75 L

C98 100N B
L98 1UH B
R98 150R B
R97 6K81 B
2,7V
V95 BSV52-B

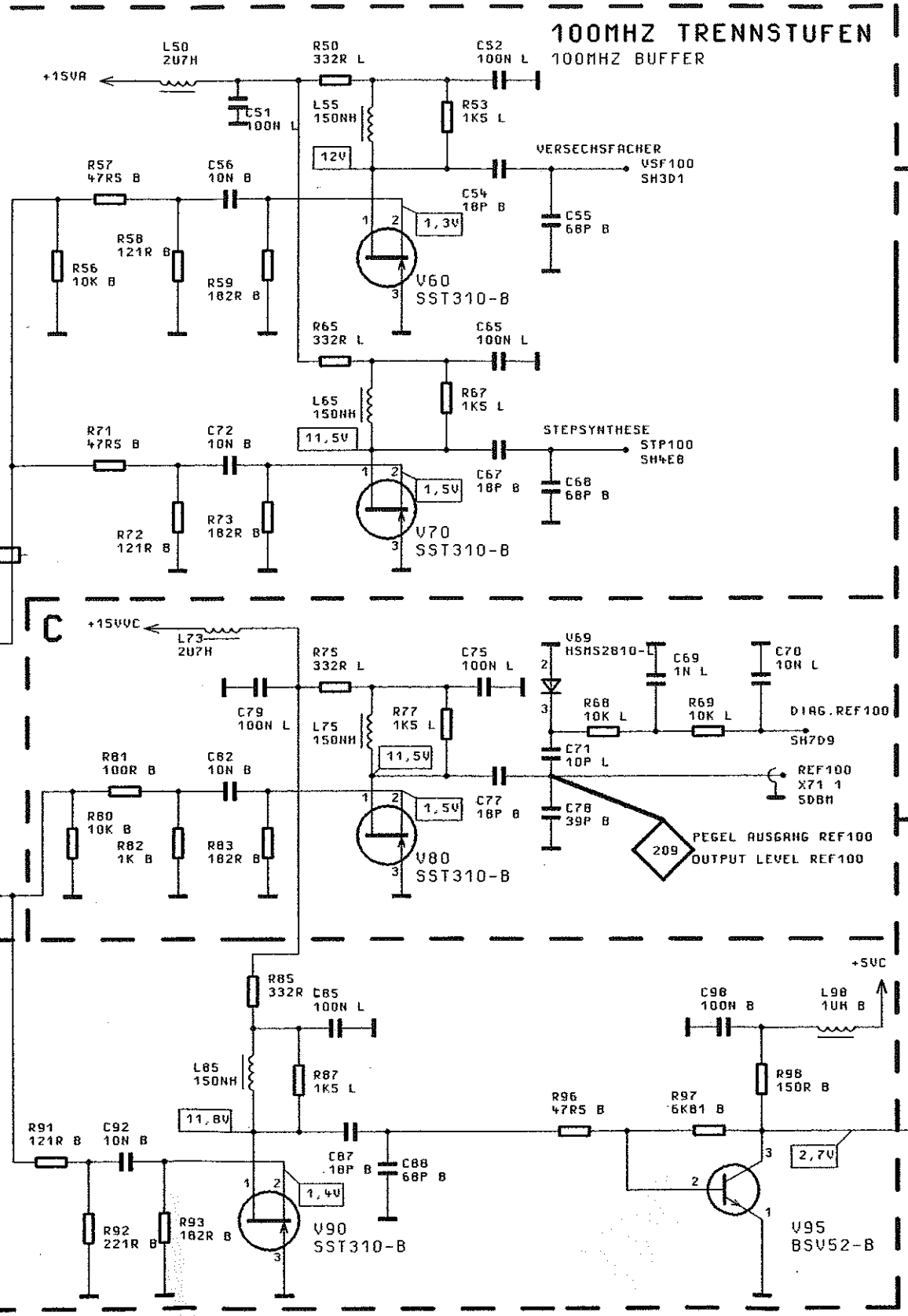
C100 100N L
D505-E
D95-C
C99 100N B

STROMLAUF GILT FUER VAR.02
CIRCUIT DIAGRAM IS VALID FOR MOD.02

07/	49155	16.11.95	HM	1GPK	TAG	NAME	BENENNUNG
				BEARB.		HM	REFERENZ STEPSYNTHESE
				GEPR.			REFERENZ STEPSYNTHESE
				NORM			
				PLOTT	28.02.96		
06/01	48730 84	01.03.94	BU	ROHDE&SCHWARZ			ZEICHN.-NR. 1035.6501.01S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMP			BLATT-NR. 2+
				REG.I.D. 1035.5005		ERSTE-Z. 1035.5005	V. BL.

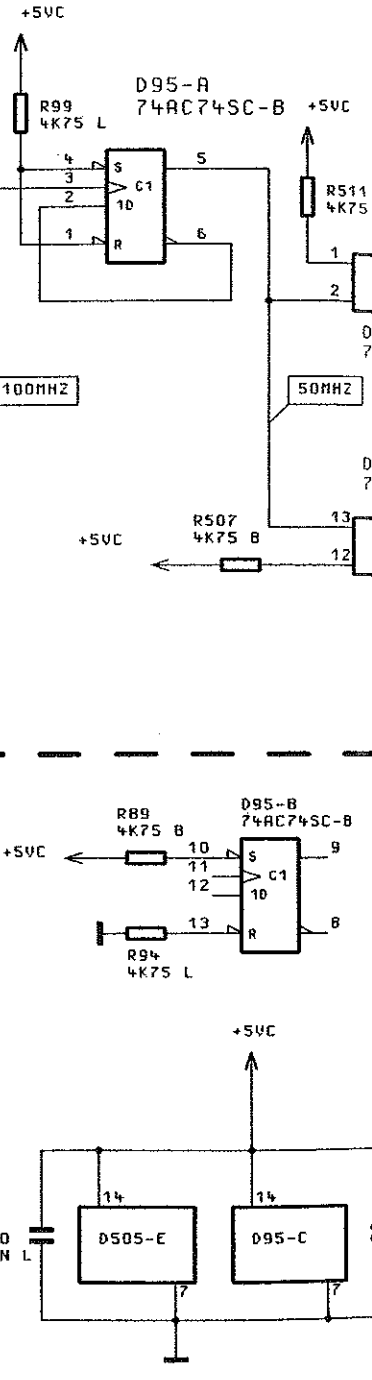
100MHZ TRENNSTUFEN

100MHZ BUFFER



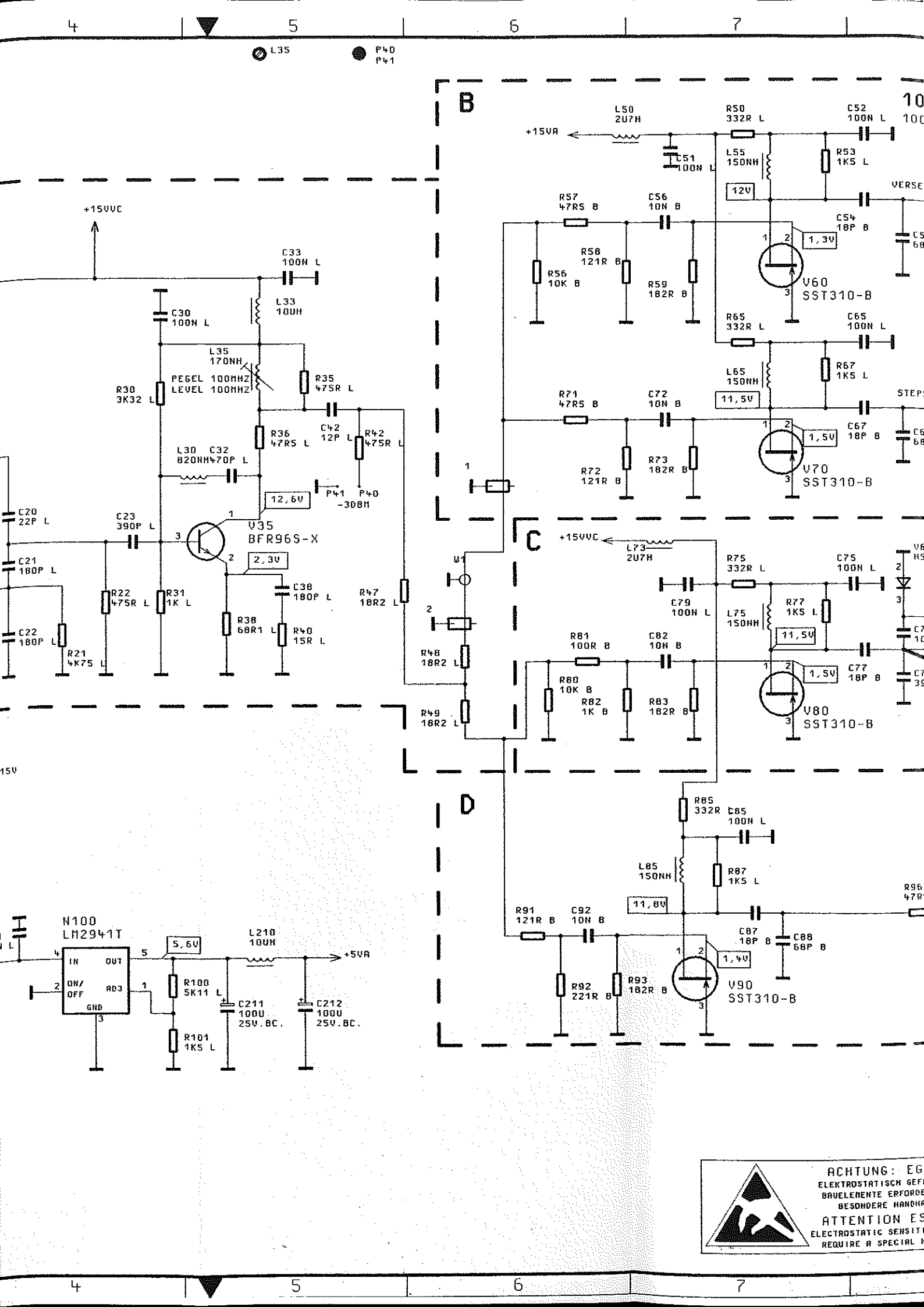
E 50MHZ AUSGAN

50MHZ OUTPUT

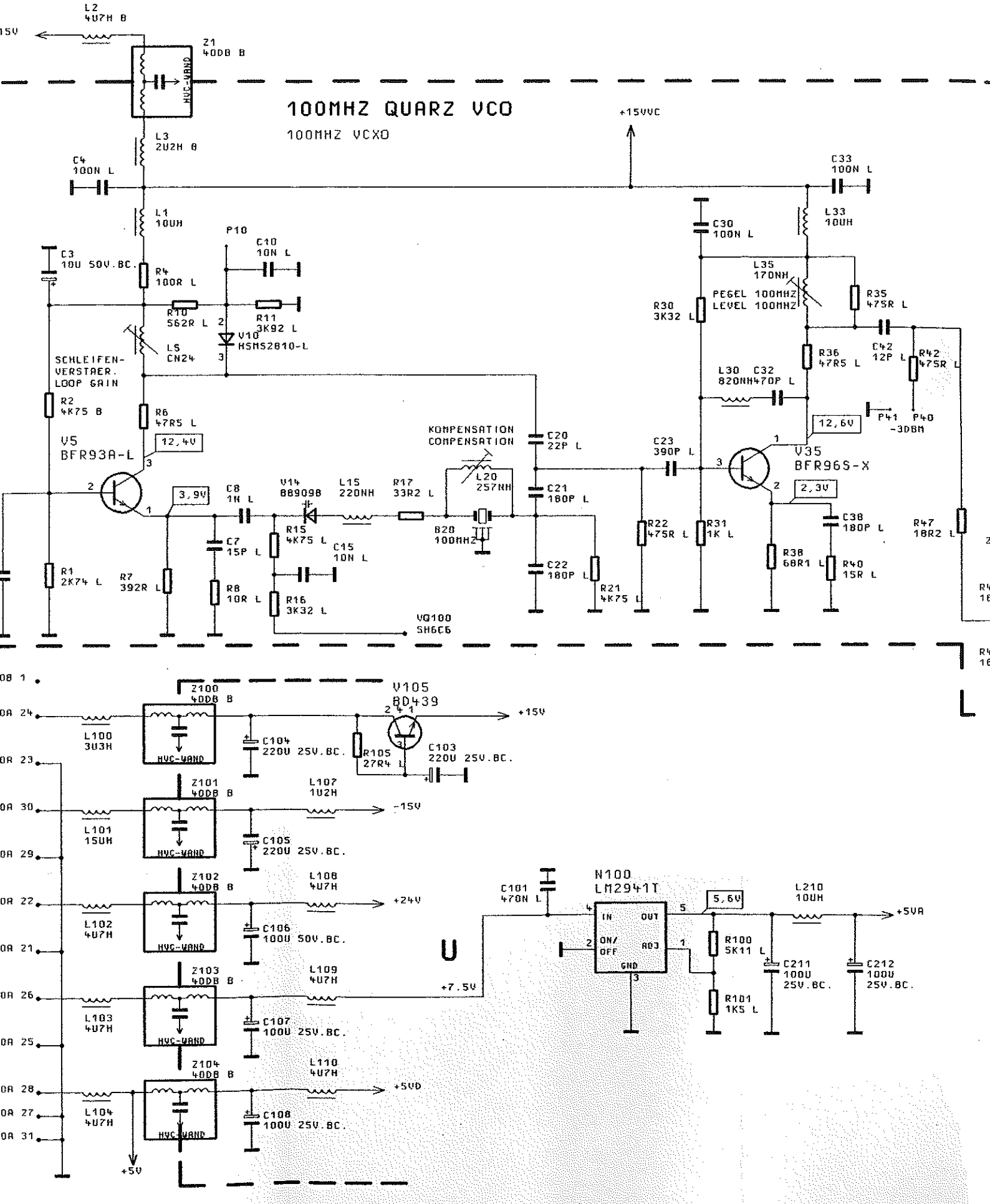


ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

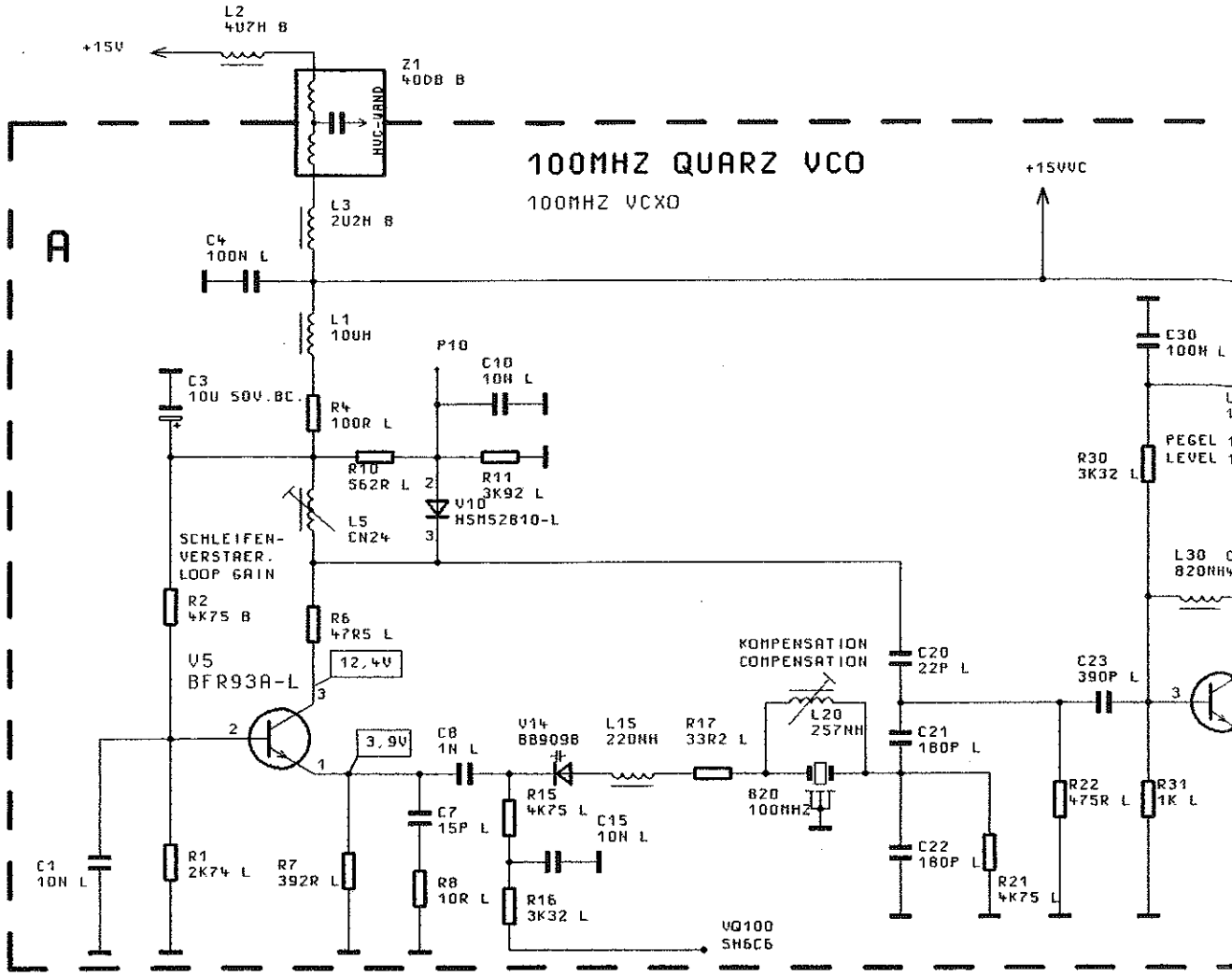
07/	49155	16.11.95	HM	1GPK	TAG
				BEARB.	
				GEPR.	
				NORM	
				PLOTT	28.02.96
06/01	48730 84	01.03.94	BU	ROHDE&SCH	
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERRET	SMP

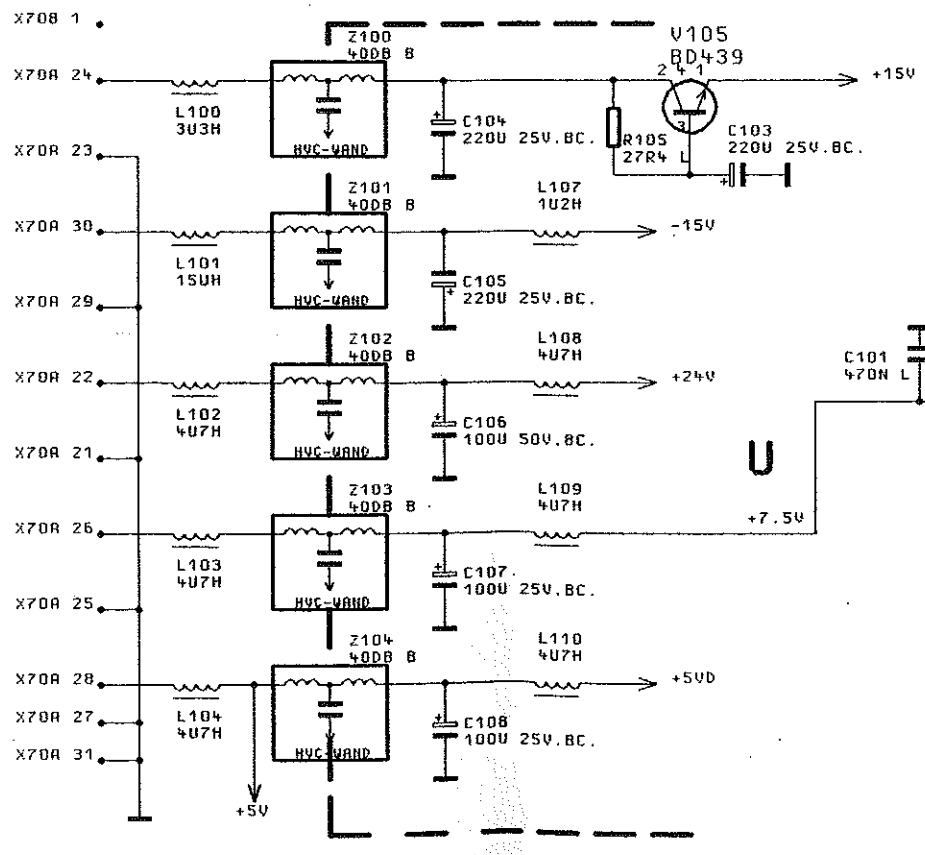

4
5
6
7
L35
P40
P41
B
C
D
+15VVC
+15VA
C33 100N L
L33 10UH
C30 100N L
L35 170NH
PEGEL 100MHZ
LEVEL 100MHZ
R30 3K32 L
R35 475R L
C42 12P L
R36 47R5 L
R42 475R L
L30 820NH
C32 470P L
12,6V
P41 P40
-308M
C20 22P L
C23 390P L
V35 BFR96S-X
2,3V
C21 180P L
C22 180P L
R21 4K75 L
R22 475R L
R31 1K L
R38 68R1 L
R40 15R L
C38 180P L
R47 18R2 L
R48 18R2 L
R49 18R2 L
U1
L50 2U7H
C51 100N L
R50 332R L
C52 100N L
L55 150NH
R53 1K5 L
12V
VERSE
R57 47R5 B
C56 10N B
R56 10K B
R58 121R B
R59 182R B
C54 18P B
1,3V
V60 SST310-B
R65 332R L
C65 100N L
L65 150NH
R67 1K5 L
11,5V
STEPS
R71 47R5 B
C72 10N B
R72 121R B
R73 182R B
C67 18P B
1,5V
V70 SST310-B
L73 2U7H
R75 332R L
C75 100N L
C79 100N L
L75 150NH
R77 1K5 L
11,5V
R81 100R B
C82 10N B
R80 10K B
R82 1K B
R83 182R B
C77 18P B
1,5V
V80 SST310-B
R85 332R L
C85 100N L
L85 150NH
R87 1K5 L
11,6V
R91 121R B
C92 10N B
R92 221R B
R93 182R B
C87 18P B
C88 68P B
1,4V
V90 SST310-B
N100 LM2941T
IN
OUT
ON/ OFF
ADJ
GND
5,6V
L210 10UH
+5VA
R100 5K11 L
R101 1K5 L
C211 100U 25V.BC.
C212 100U 25V.BC.
ACHTUNG: EG
ELEKTROSTATISCH GEF
BAUELEMENTE ERFORDE
BESONDERE HANDHA
ATTENTION ES
ELECTROSTATIC SENSIT
REQUIRE A SPECIAL

L5 P10 L20 L35 P40 P41

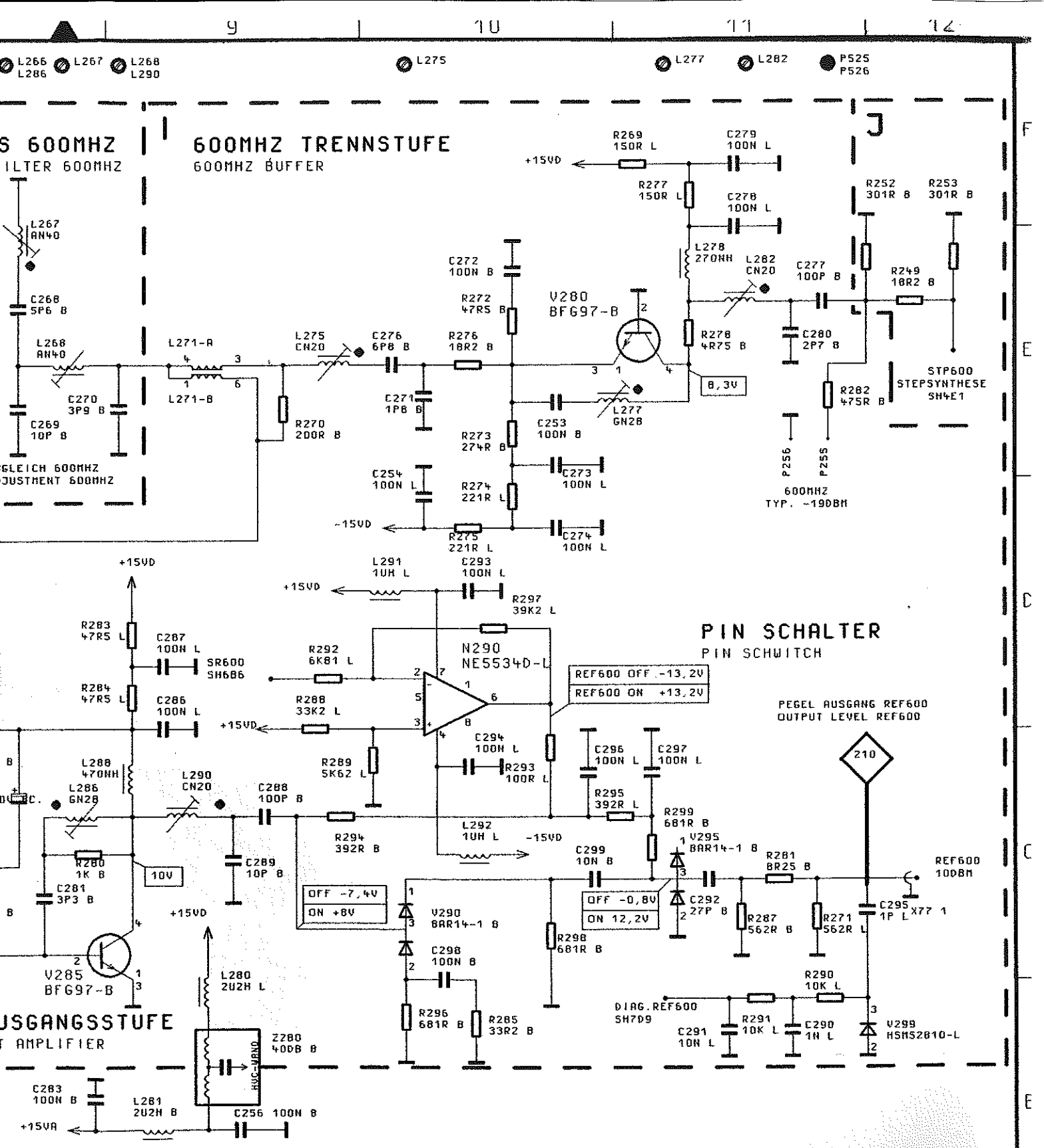


FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR





ZEICHN.-N



STROMLAUF GILT FUER VAR.02

CIRCUIT DIAGRAM IS VALID FOR MOD.02

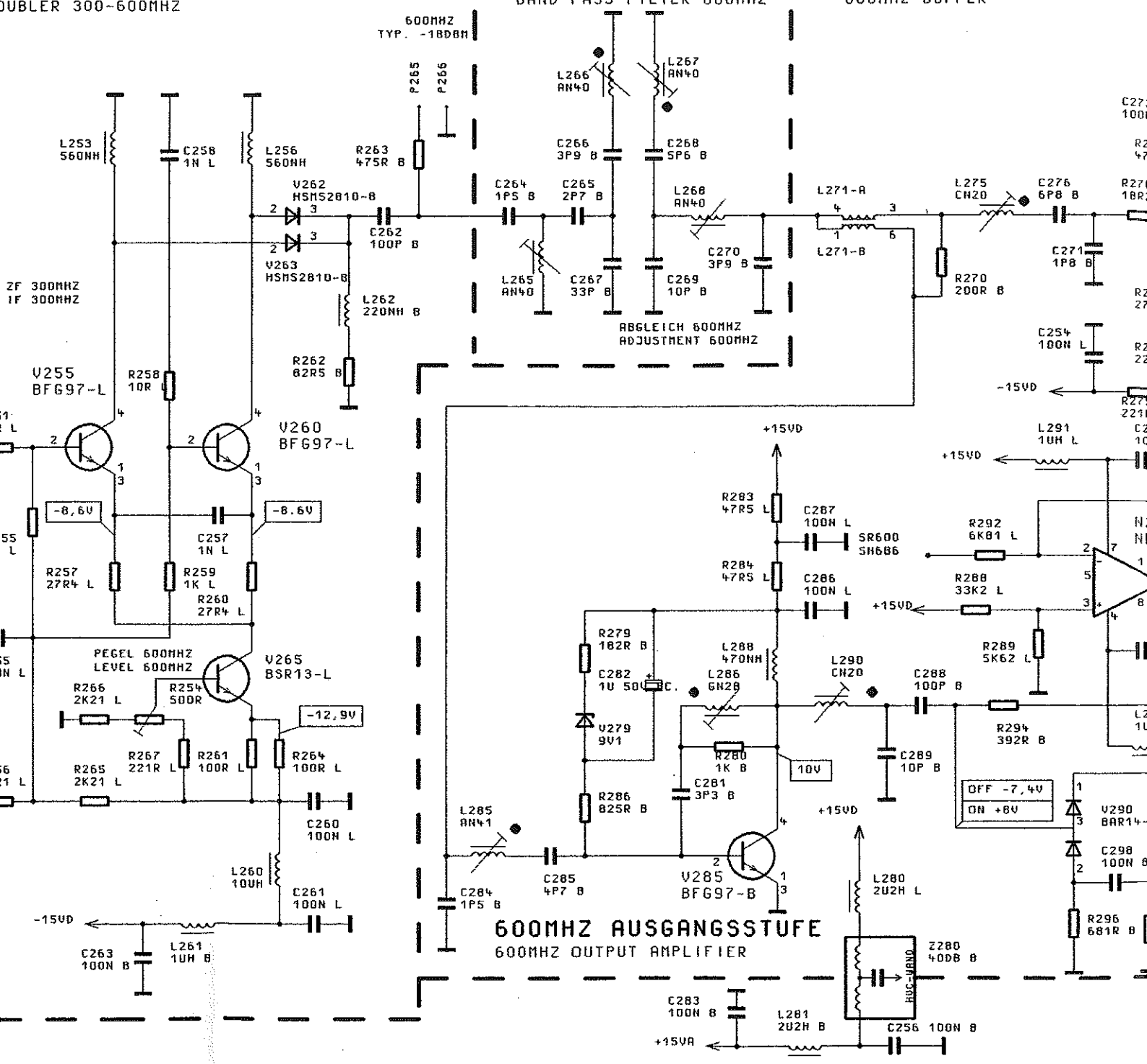
07/	49155	16.11.95	HM	1GPK	TAG	NAME	BENENNUNG
				BEARB.		HM	REFERENZ STEPSYNTHESE
				GEPR.			REFERENZ STEPSYNTHESE
				NORM			
				PLOTT	28.02.96		
06/01	48730 84	01.03.94	BU	ROHDE&SCHWARZ			ZEICHN.-NR. 1035.6501.01S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMP			BLATT-NR. 3+
				REG.I.V. 1035.5005		ERSTE Z. 1035.5005	V. BL.

R254 P265 P266 L285 L265 L266 L286 L267 L268 L290 L275

ERDOPPLER 300-600MHZ
DUBLER 300-600MHZ

BANDPASS 600MHZ
BAND PASS FILTER 600MHZ

600MHZ TRENNSTUFE
600MHZ BUFFER



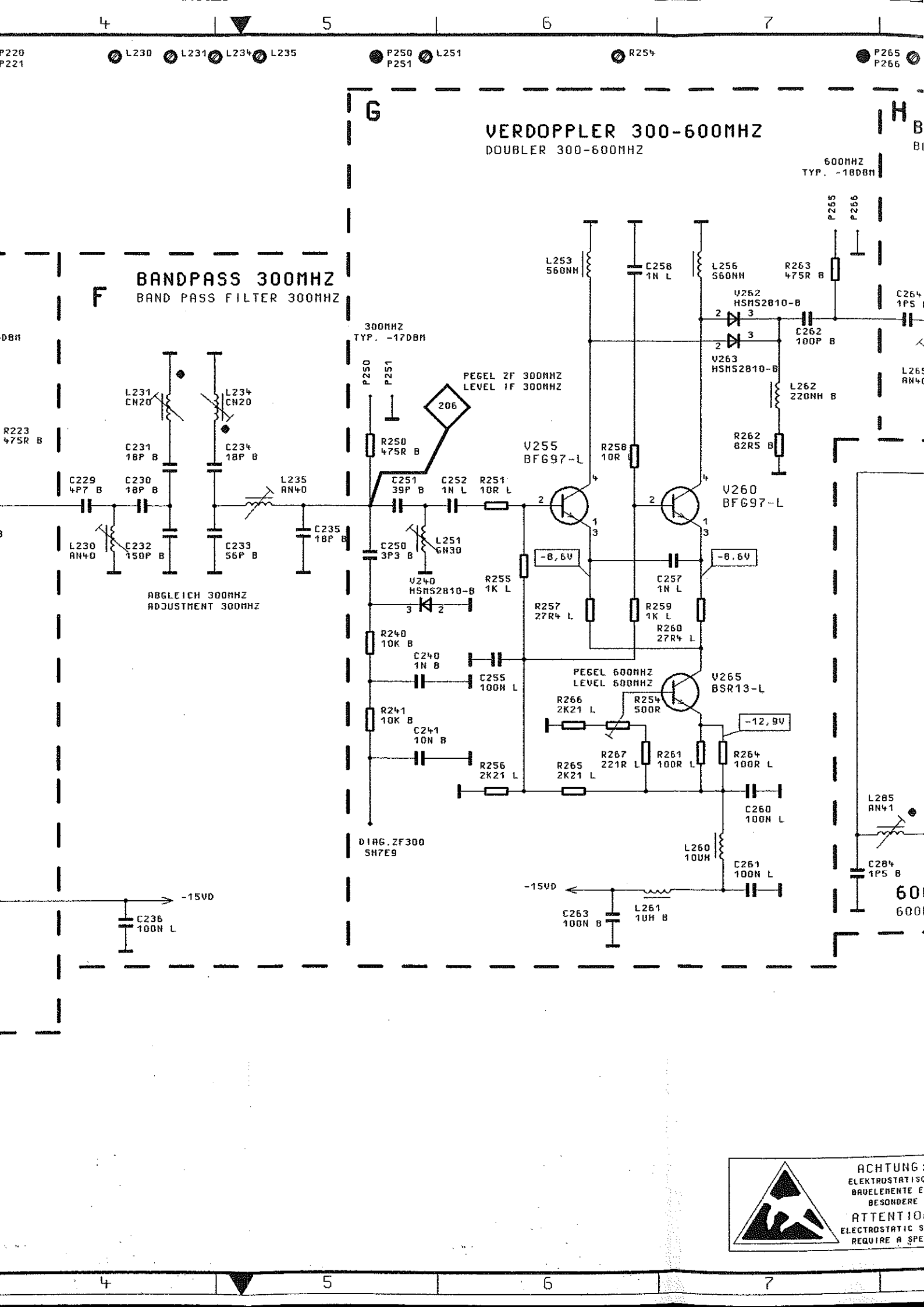
600MHZ AUSGANGSSTUFE
600MHZ OUTPUT AMPLIFIER

STROMLAUF GILT FUER
CIRCUIT DIAGRAM IS VALID FOR

07/	49155	16.11.95	HM	1GPK	TAG
				BEARB.	
				GEPR.	
				NORM	
				PLOTT	28.02.96
06/01	48730 84	01.03.94	BU		
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET	SM

ROHDE&S

ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING


4
5
6
7
P220
P221
L230
L231
L234
L235
P250
P251
L251
R254
P265
P266
G
VERDOPPLER 300-600MHZ
DOUBLER 300-600MHZ
H
600MHZ
TYP. -18DBM
F
BANDPASS 300MHZ
BAND PASS FILTER 300MHZ
300MHZ
TYP. -17DBM
PEGEL ZF 300MHZ
LEVEL IF 300MHZ
206
L253
560NH
C258
1N L
L256
560NH
R263
475R B
V262
HSMS2810-B
C262
100P B
V263
HSMS2810-B
L262
220NH B
R262
82R5 B
C264
1P5
L269
AN40
R223
475R B
L231
CN20
L234
CN20
C231
18P B
C234
18P B
C229
4P7 B
C230
18P B
L235
AN40
L230
AN40
C232
150P B
C233
56P B
C235
18P B
ABGLEICH 300MHZ
ADJUSTMENT 300MHZ
R250
475R B
C251
39P B
C252
1N L
R251
10R L
V255
BF697-L
R258
10R
V260
BFG97-L
C250
3P3 B
L251
6N30
V240
HSMS2810-B
R255
1K L
-8,6V
-8,6V
C257
1N L
R257
27R4 L
R259
1K L
R260
27R4 L
R240
10K B
C240
1N B
C255
100N L
PEGEL 600MHZ
LEVEL 600MHZ
V265
BSR13-L
R266
2K21 L
R254
500R
-12,9V
R241
10K B
C241
10N B
R267
221R L
R261
100R L
R264
100R L
R256
2K21 L
R265
2K21 L
C260
100N L
L285
AN41
L260
10UH
C261
100N L
C284
1P5 B
-15VD
C263
100N B
L261
10UH B
-15VD
C236
100N L
DIAG.ZF300
SH7E9
ACHTUNG
ELEKTROSTATISC
BAUELEMENTE E
BESONDERE
ATTENTIO
ELECTROSTATIC S
REQUIRE A SPE

P200 P201 L206 P220 P221 L230 L231 L234 L235 P250 P251

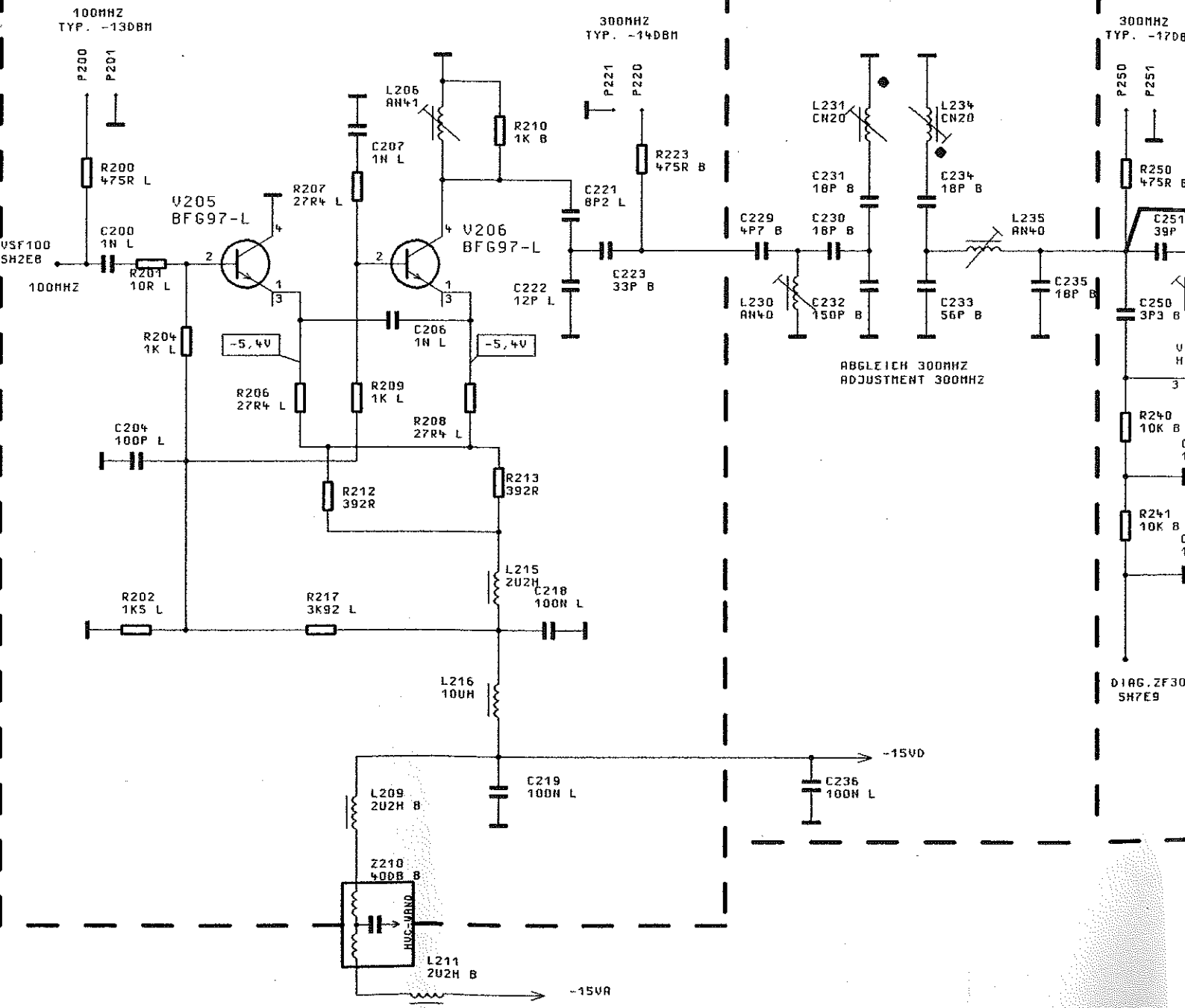
G

Y

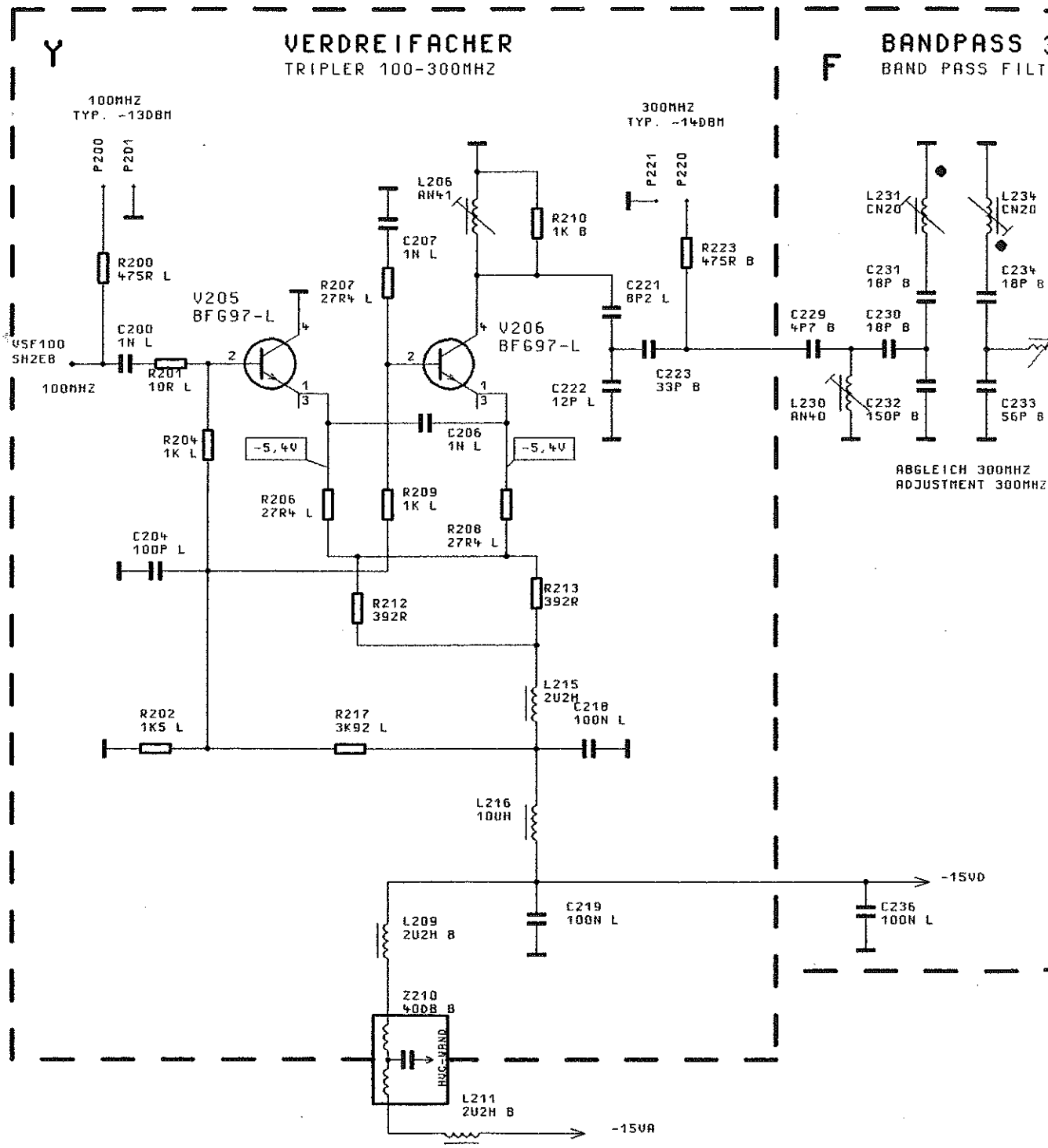
VERDREIFACHER
TRIPLER 100-300MHZ

F

BANDPASS 300MHZ
BAND PASS FILTER 300MHZ



FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

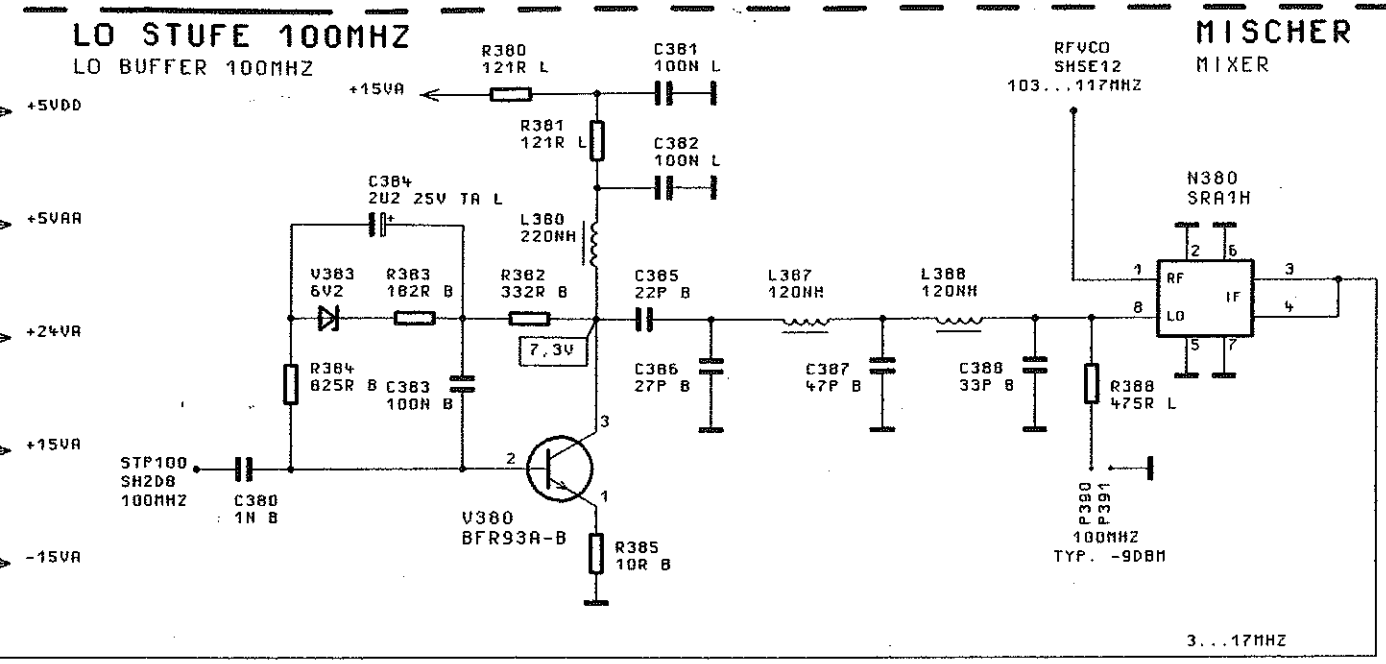


ZEICHN. NR.

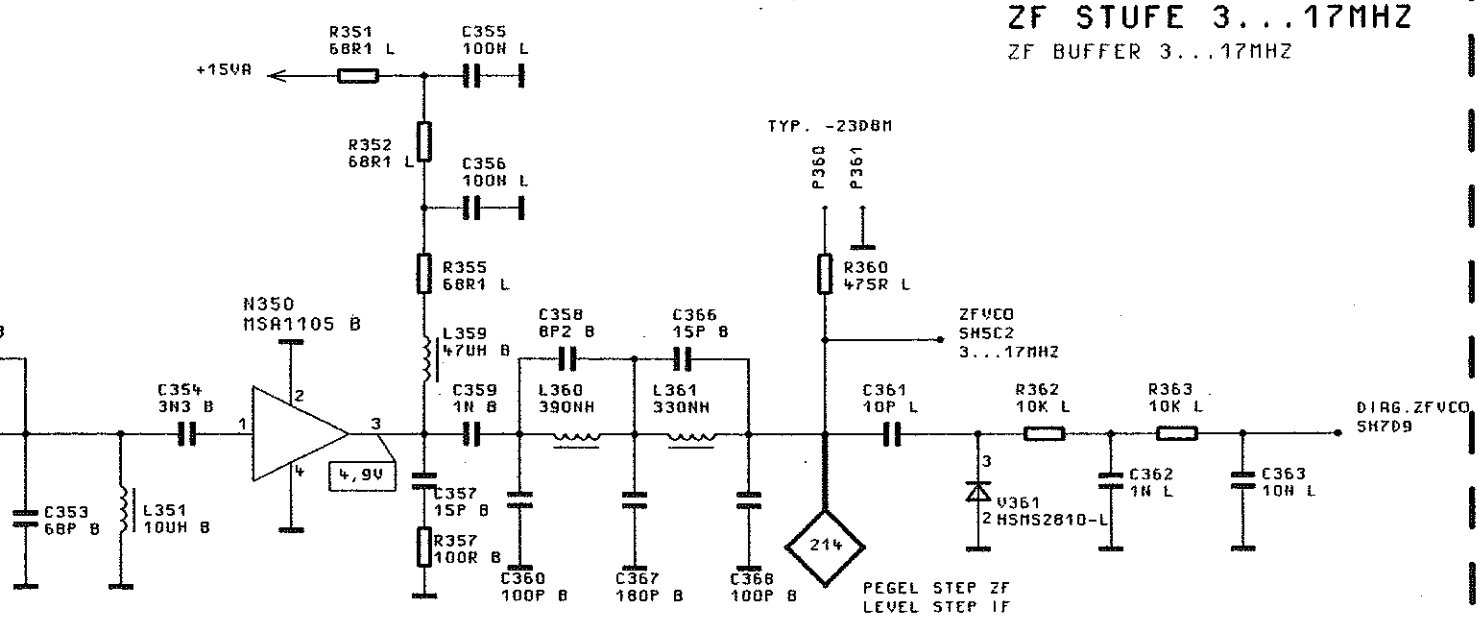
P360 P361 P390 P391

LO STUFE 100MHZ
LO BUFFER 100MHZ

MISCHER
MIXER



ZF STUFE 3...17MHZ
ZF BUFFER 3...17MHZ



STROMLAUF GILT FUER VAR.02
CIRCUIT DIAGRAM IS VALID FOR MOD.02

07/	49155	16.11.95	HM	1GPK	TAG	NAME	BENENNUNG
				BEARB.		HM	REFERENZ STEPSYNTHESE
				GEPR.			REFERENZ STEPSYNTHESE
				NORM			
				PLOTT	28.02.96		
06/01	48730 84	01.03.94	BU	ROHDE&SCHWARZ			ZEICHN.-NR. 1035.6501.01S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMP			BLATT-NR. 4+
				REG.I.V. 1035.5005		ERSTE Z. 1035.5005	V. BL.

P325
P326

320-A
4ACT74M-B

TYP. -19DBM

P325 P326

R324 475R B

R325 100R B L326 10SH

SDIV SH5B1 3...17MHZ

C319 100P B C326 82P B

R323 10K B

DIAG.SDIV SH7D9

C321 1N B C320 10N B

894T-L

SF0 SF1 SF2 SA0 SA1 SP0 SP1 SP2

894T-L

SP3 SP4 SP5 SP6

SR600 SH3D9

K

L381 2U2H B L382 2U2H B +5VD → +5VDD

Z382 40DB B HVC-VAND

L383 220NH L384 220NH +5VA → +5VAA

Z384 40DB B HVC-VAND

L390 2U2H B L391 2U2H B +24V → +24VA

Z390 40DB B HVC-VAND

L392 2U2H L393 2U2H +15V → +15VA

Z391 40DB B HVC-VAND

L394 2U2H B L395 2U2H B -15V → -15VA

Z392 40DB B HVC-VAND

LO STUFE 100MHZ

LO BUFFER 100MHZ

+15VA

R380 121R L C3 10

R381 121R L C3 10

C384 2U2 25V TA L

L380 220NH

V383 6V2 R383 182R B R382 332R B C385 22P

7,3V

R384 825R B C383 100N B C386 27P

STP100 SH2D8 100MHZ C380 1N B

V380 BFR93A-B

R385 10R B

O

+15VA

R351 68R1 L C355 100N L

R352 68R1 L C356 100N L

R355 68R1 L

C351 8P2 B L352 330NH L353 270NH C354 3N3 B

N350 NSA1105 B

4,9V

L359 47UH B C358 8P2 B C359 1N B L360 390NH

C352 68P B C353 68P B L351 10UH B

L350 10UH B

C350 56P B

R350 47R5 B

C357 15P B

R357 100R B

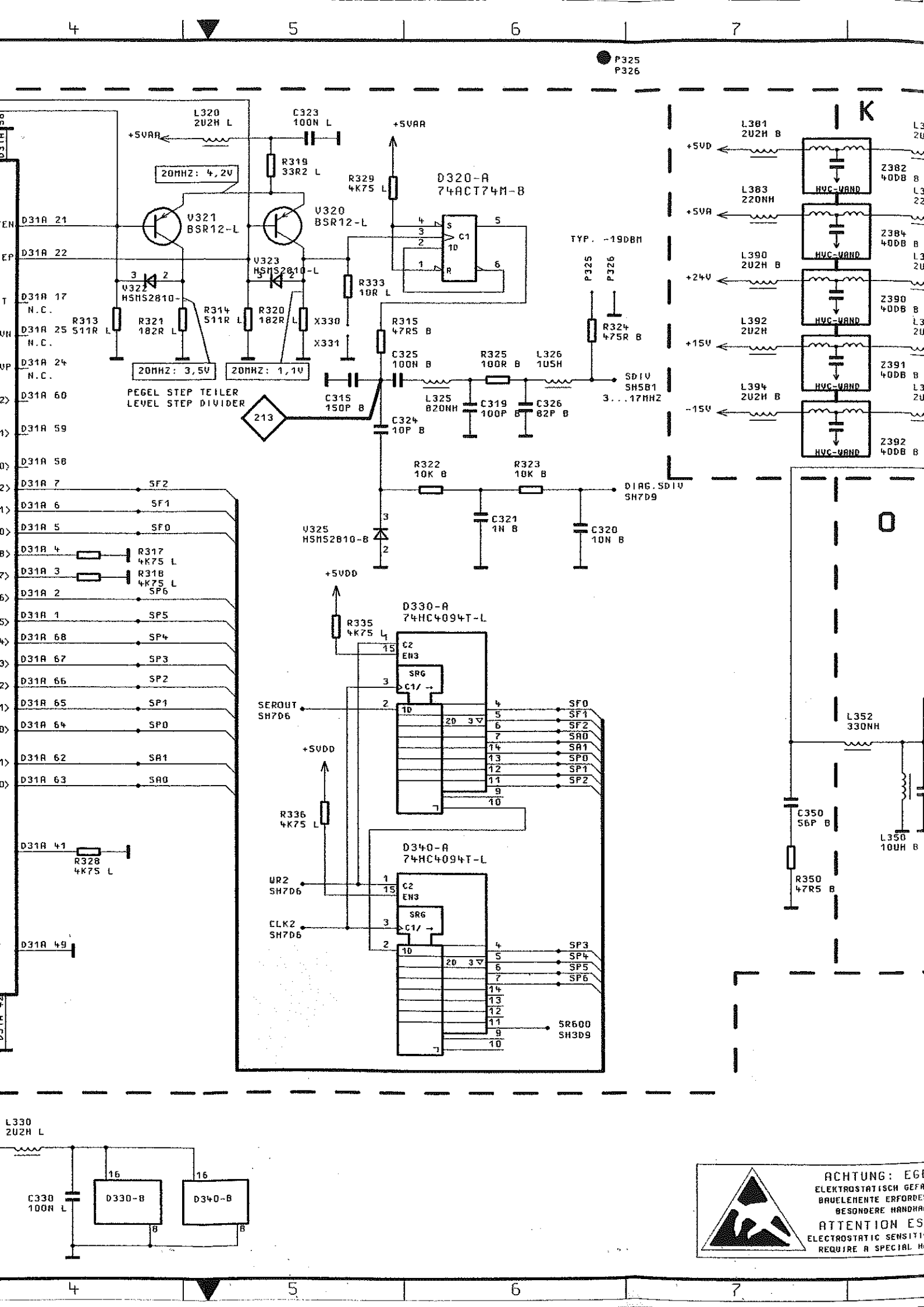
C360 100P B C367 180P

STROMLAUF GILT FUE

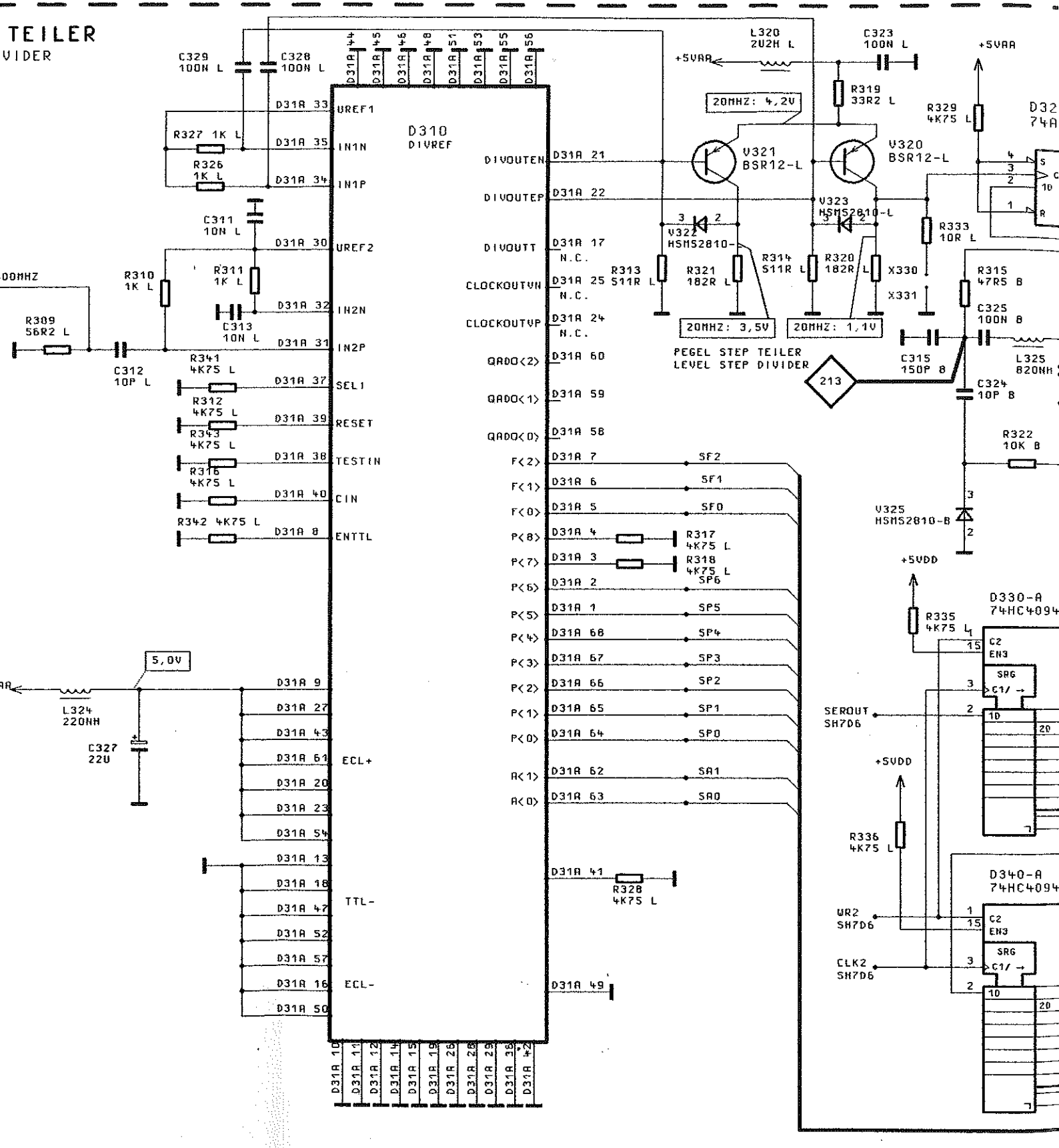
CIRCUIT DIAGRAM IS VALID FO

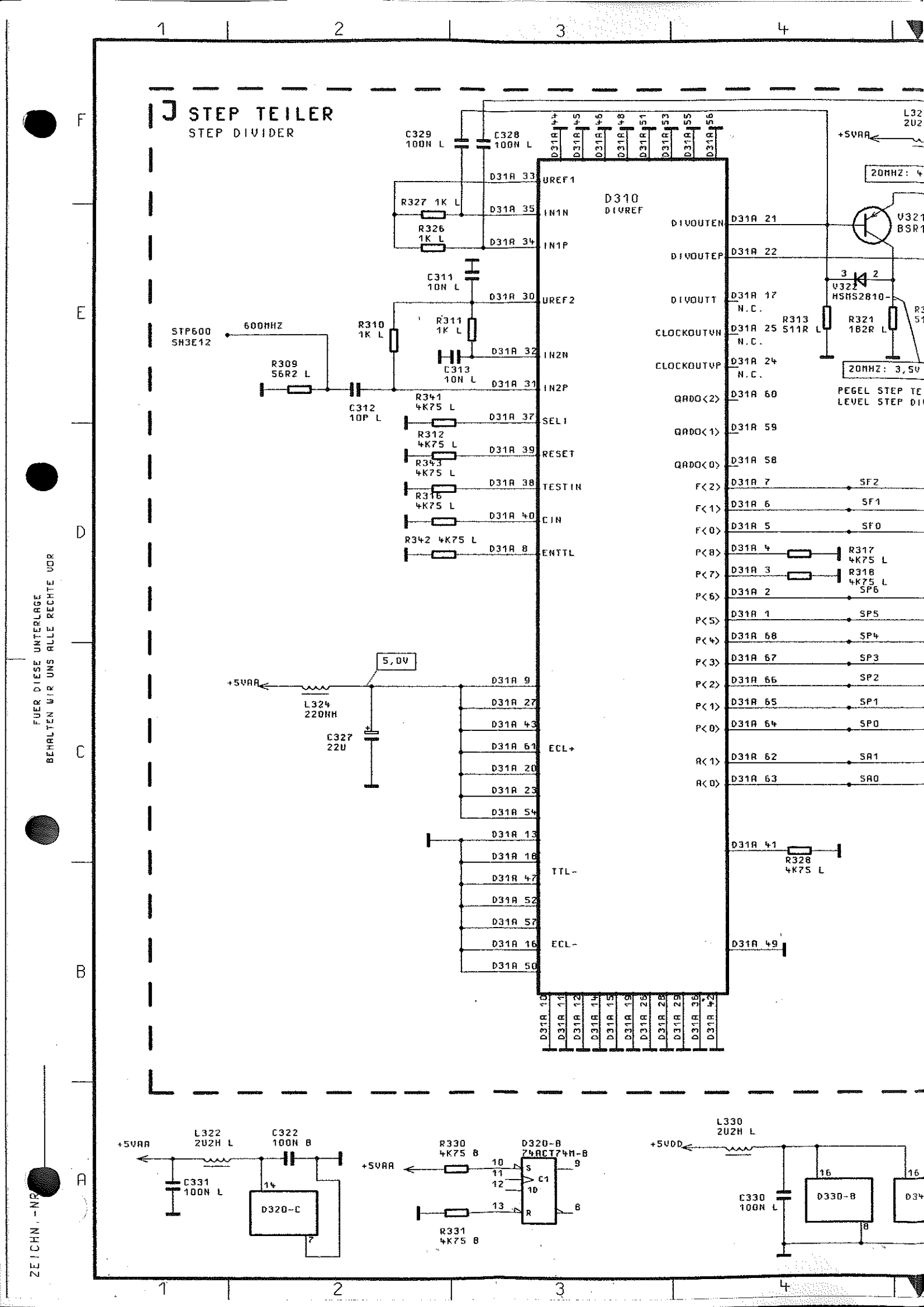
ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

07/	49155	16.11.95	HM	1GPK	TA
				BEARB.	
				GEPR.	
				NORM	
				PLOTT	28.02
06/01	48730 84	01.03.94	BU		
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE& ZU GERAET	


P325
P326
L320
2U2H L
+5VAA
C323
100N L
R319
33R2 L
20MHZ: 4,2V
V321
BSR12-L
V320
BSR12-L
R329
4K75 L
D320-A
74ACT74M-B
TYP. -19DBM
D31A 21
D31A 22
V322
HSMS2810-L
V323
HSMS2810-L
R333
10R L
D31A 17
N.C.
D31A 25
N.C.
D31A 24
N.C.
R313
511R L
R321
182R L
R314
511R L
R320
182R L
X330
X331
R315
47R5 B
R324
475R B
20MHZ: 3,5V
20MHZ: 1,1V
PEGEL STEP TEILER
LEVEL STEP DIVIDER
213
C325
100N B
R325
100R B
L326
10SH
SDIV
SH5B1
3...17MHZ
C315
150P B
L325
820NH
C319
100P B
C326
82P B
C324
10P B
D31A 60
D31A 59
D31A 58
R322
10K B
R323
10K B
DIAG.SDIV
SH7D9
V325
HSMS2810-B
C321
1N B
C320
10N B
D31A 7
D31A 6
D31A 5
D31A 4
D31A 3
D31A 2
D31A 1
D31A 68
D31A 67
D31A 66
D31A 65
D31A 64
D31A 62
D31A 63
D31A 41
D31A 49
SF2
SF1
SF0
R317
4K75 L
R318
4K75 L
SP6
SP5
SP4
SP3
SP2
SP1
SP0
SA1
SA0
R328
4K75 L
+5VDD
R335
4K75 L
D330-A
74HC4094T-L
SEROUT
SH7D6
R336
4K75 L
D340-A
74HC4094T-L
WR2
SH7D6
CLK2
SH7D6
SR600
SH3D9
L381
2U2H B
L383
220NH
L390
2U2H B
L392
2U2H
L394
2U2H B
+5VD
+5VA
+24V
+15V
-15V
Z382
40DB B
Z384
40DB B
Z390
40DB B
Z391
40DB B
Z392
40DB B
HVC-VAND
L352
330NH
C350
56P B
L350
10UH B
R350
47R5 B
L330
2U2H L
C330
100N L
D330-B
D340-B
ACHTUNG: EGE
ELEKTROSTATISCH GEFA
BAUELEMENTE ERFORDE
BESONDERE HANDHA
ATTENTION ES
ELECTROSTATIC SENSITI
REQUIRE A SPECIAL H

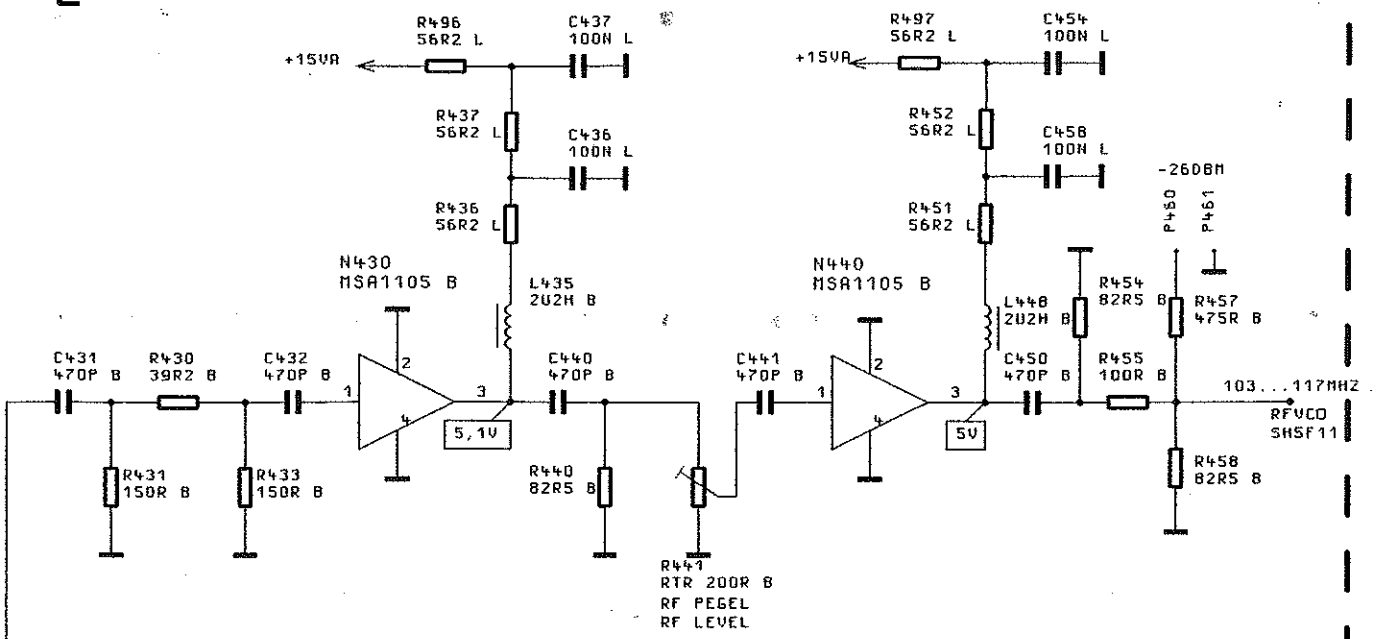
TEILER
VIDER



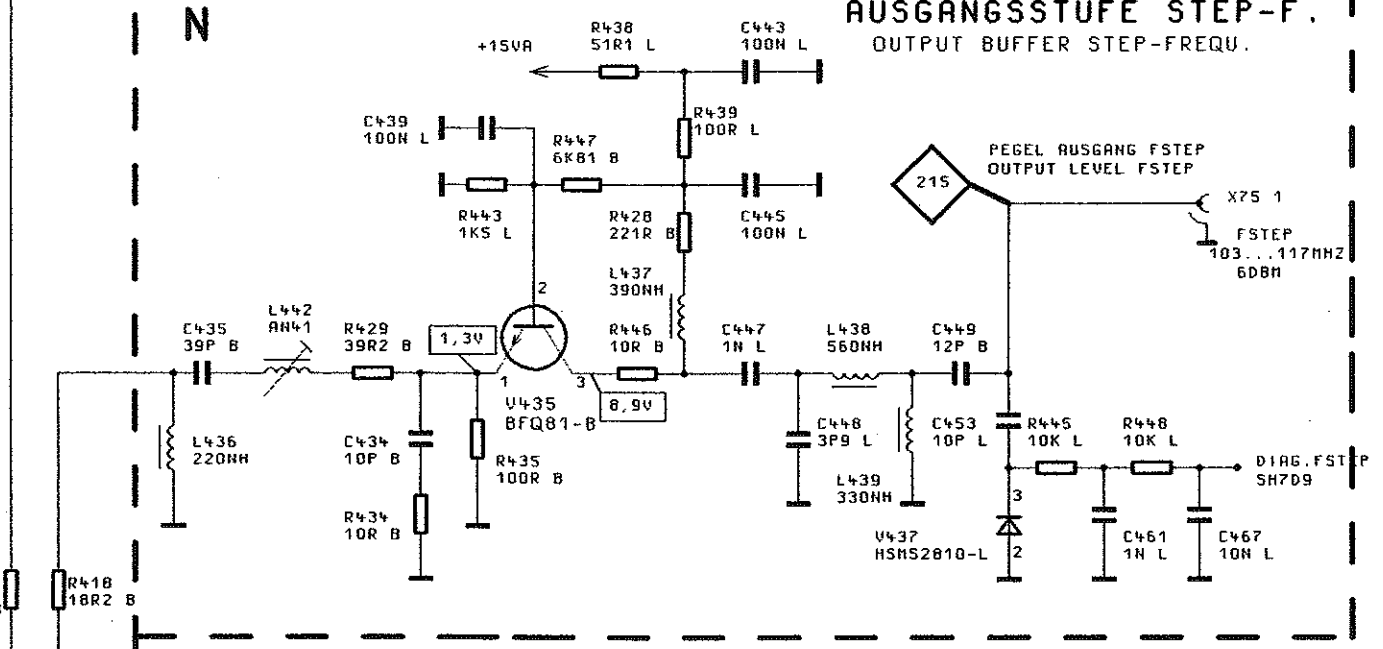

J STEP TEILER
STEP DIVIDER
D310
DIVREF
C329 100N L
C328 100N L
R327 1K L
R326 1K L
C311 10N L
R310 1K L
R311 1K L
C313 10N L
R309 56R2 L
C312 10P L
R341 4K75 L
R312 4K75 L
R343 4K75 L
R316 4K75 L
R342 4K75 L
STP600 SH3E12
600MHZ
5,0V
+5VAA
L324 220NH
C327 22U
UREF1
IN1N
IN1P
UREF2
IN2N
IN2P
SEL1
RESET
TESTIN
CIN
ENTTL
ECL+
TTL-
ECL-
DIVOUTEN
DIVOUTP
DIVOUTT
CLOCKOUTVN
CLOCKOUTVP
QADO<2>
QADO<1>
QADO<0>
F<2>
F<1>
F<0>
P<8>
P<7>
P<6>
P<5>
P<4>
P<3>
P<2>
P<1>
P<0>
A<1>
A<0>
N.C.
R313 511R L
R321 182R L
V322 HSMS2810-
20MHZ: 3,5V
R317 4K75 L
R318 4K75 L
R328 4K75 L
SF2
SF1
SF0
SP6
SP5
SP4
SP3
SP2
SP1
SP0
SA1
SA0
PEGEL STEP TE
LEVEL STEP DI
L322 2U2H L
C322 100N B
C331 100N L
D320-C
R330 4K75 B
R331 4K75 B
D320-B 74ACT74M-B
L330 2U2H L
C330 100N L
D330-B
FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR
ZEICHN.-NR.

L442 R441 P460 P461

RF STUFE 103...117MHZ
RF BUFFER 103...117MHZ



AUSGANGSSTUFE STEP-F.
OUTPUT BUFFER STEP-FREQU.



ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

CIRCUIT DIAGRAM IS VALID FOR MOD.02
STROMLAUF GILT FUER VAR.02

07/04		23.07.96	HM	1GPK	TAG	NAME	BENENNUNG
				BEARB.		HM	REFERENZ STEPSYNTHESE
				GEPR.			REFERENZ STEPSYNTHESE
				NORM			
				PLOTT	24.07.96		
07/02	48730 84	15.11.96	HM	ROHDE&SCHWARZ			ZEICHN.-NR. 1035.6501.01S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERRET	SMP		BLATT-NR. 5+
				REG.I.V.	1035.5005	ERSTE Z.	1035.5005

P450 P451 L406 C400 L421 R414 L442

M STEP VCO 103...117MHZ

STEP VCO 103...117MHZ

O

D460-B DG441 +5VAA

R427 4K75 B

HSMS2800-B HSMS2800-B

B SH7C12

D460-A DG441

R479 681R L

R459 681R L

VSVCO SH5E8

-15VA

C476 100N L C478 10U

R495 47R5 L

R494 1K L

-15VA

V404 BBY40-B

V405 BB620-B

V406 BB620-B

V407 BBY40-B

X408 X405 X406 X407

L402 3U3H

VSVCO SH5C5

V403 BBY40-B V402 BB620-B V401 BB620-B V400 BBY40-B

L405 3U3H

ABSTIMMBEREICH TUNING RANGE

C400 10-1PF

C401 10PP B

L406 180NH TOKO

C402 4P7P B

C406 22P B

C404 27P B

L408 3U3H

R401 100R B

V408 SST310-B

R405 1392R B

L415 10UH

+15VA

7,7V

L410 102H

C408 100N B

C420 100N L

C418 100N L

R406 274R B

C424 10P B

R411 475R B

V418 5V1 B

C410 407 10V TA L

R407 681R L

C411 100N B

R412 68R1 B

V420 BFS17-B

R414 RTR 200R B

-15VA

PEGEL FSTEP LEVEL FSTEP

5,6V

L418 390NH

C414 33P B

C413 82P B

R417 332R B

L421 CN23

C423 100N L

C417 18P B

L420 10UH

R416 475R B

P450

P451

TYP. -12DBM

C421 100N L

R415 18R2 B

+15VA

103...117MHZ

L

R496 56R2 L

C437 100N L

+15VA

R437 56R2 L

C436 100N L

R436 56R2 L

N430 MSA1105 B

L435 2U2H B

C431 470P B

R430 39R2 B

C432 470P B

C440 470P B

5,1V

R431 150R B

R433 150R B

R440 82R5 B

N

+15VA

R438 51R1

C439 100N L

R447 6K81 B

R443 1K5 L

L442 AN41

C435 39P B

R429 39R2 B

1,3V

V435 BFQ81-B

8,9V

L436 220NH

C434 10P B

R435 100R B

R434 10R B

R419 18R2 B

R418 18R2 B

ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICE REQUIRE A SPECIAL HANDLING

07/04		23.07.96	HM	1GPK	TAG
				BEARB.	
				GEPR.	
				NORM	
				PLOTT	24.07.96
07/02	48730 84	15.11.96	HM		
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET	SMP

ROHDE&SCHW

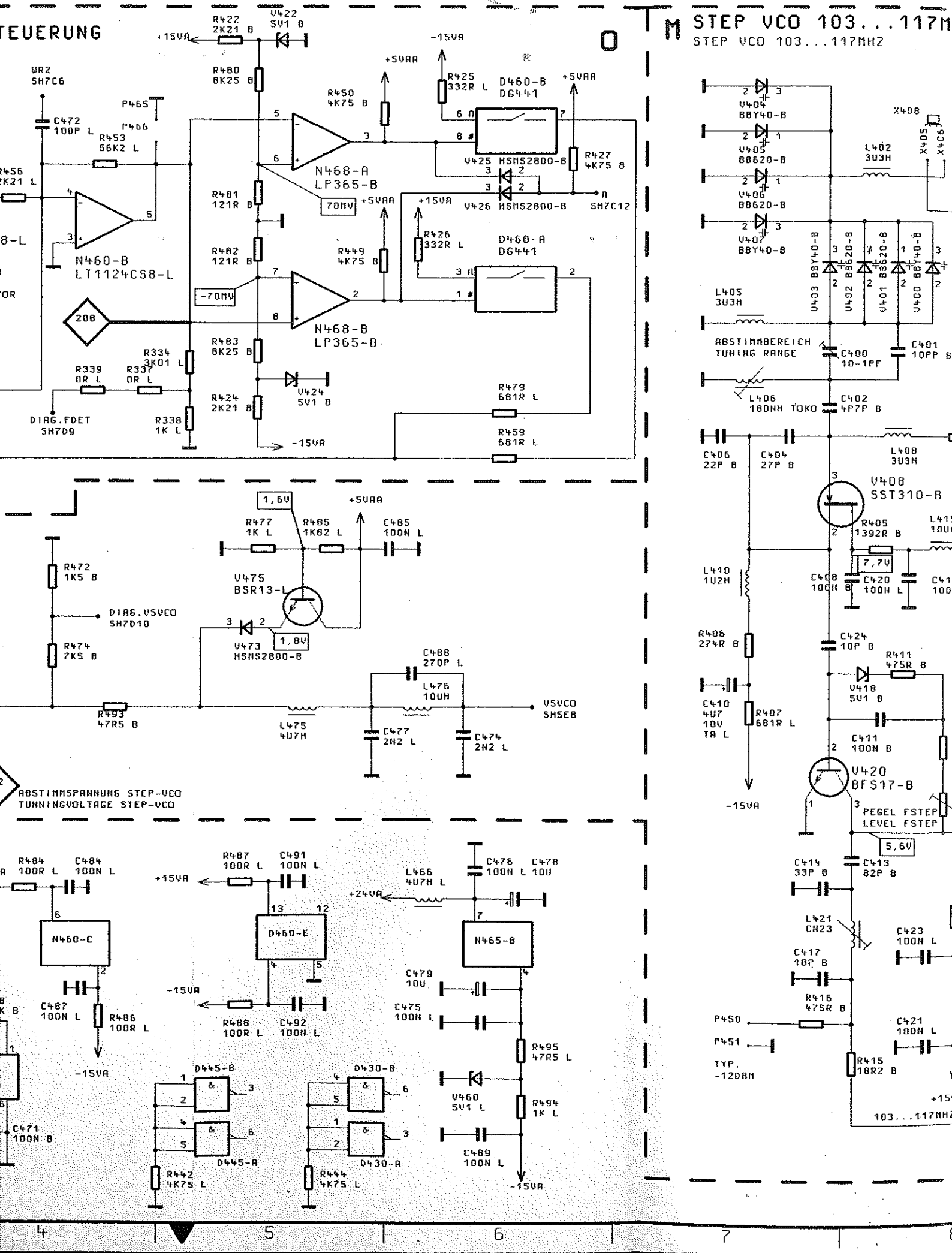
P465 P466

P450 P451 L406 C400 L421 R414

TEUERUNG

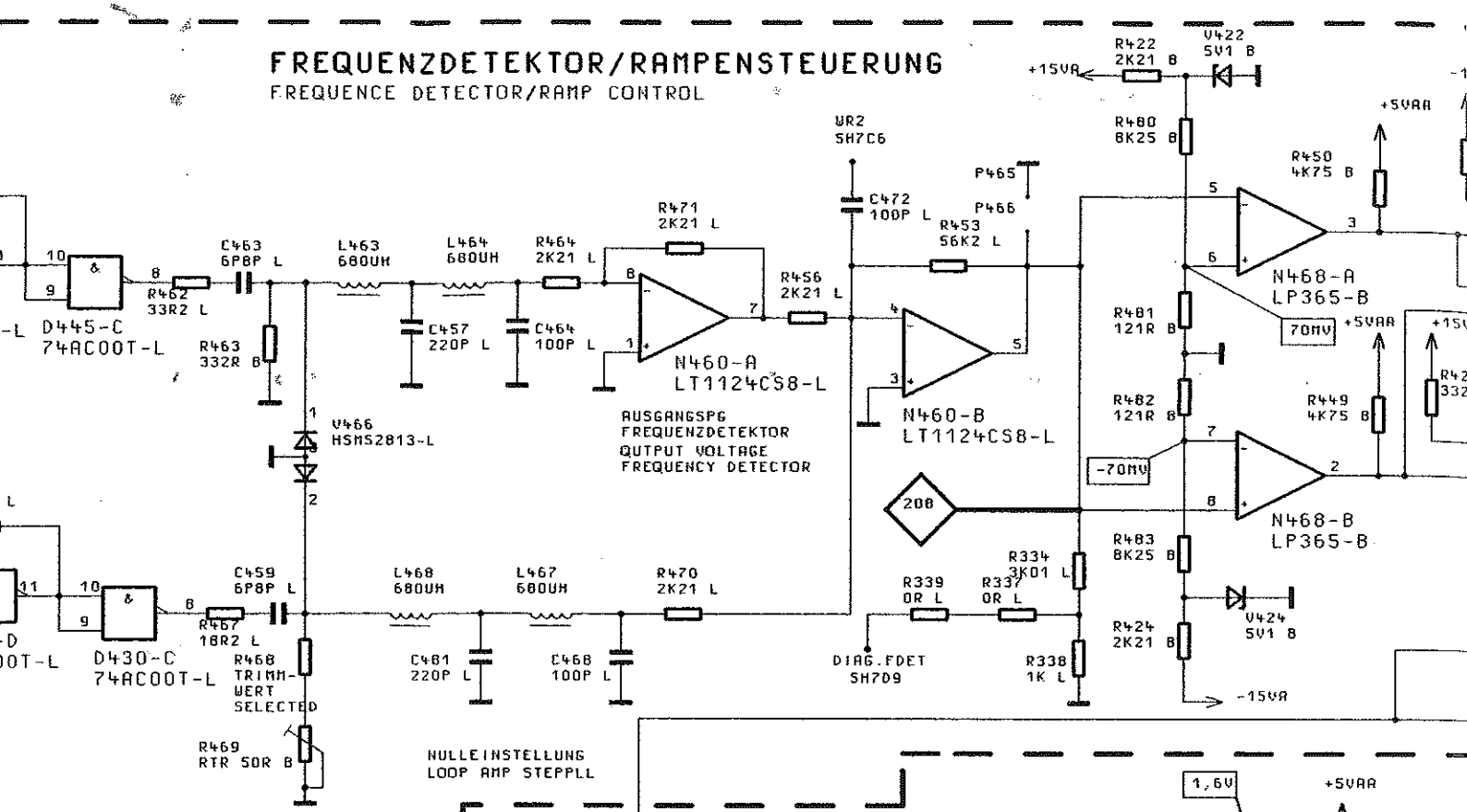
STEP VCO 103...117M

STEP VCO 103...117MHZ

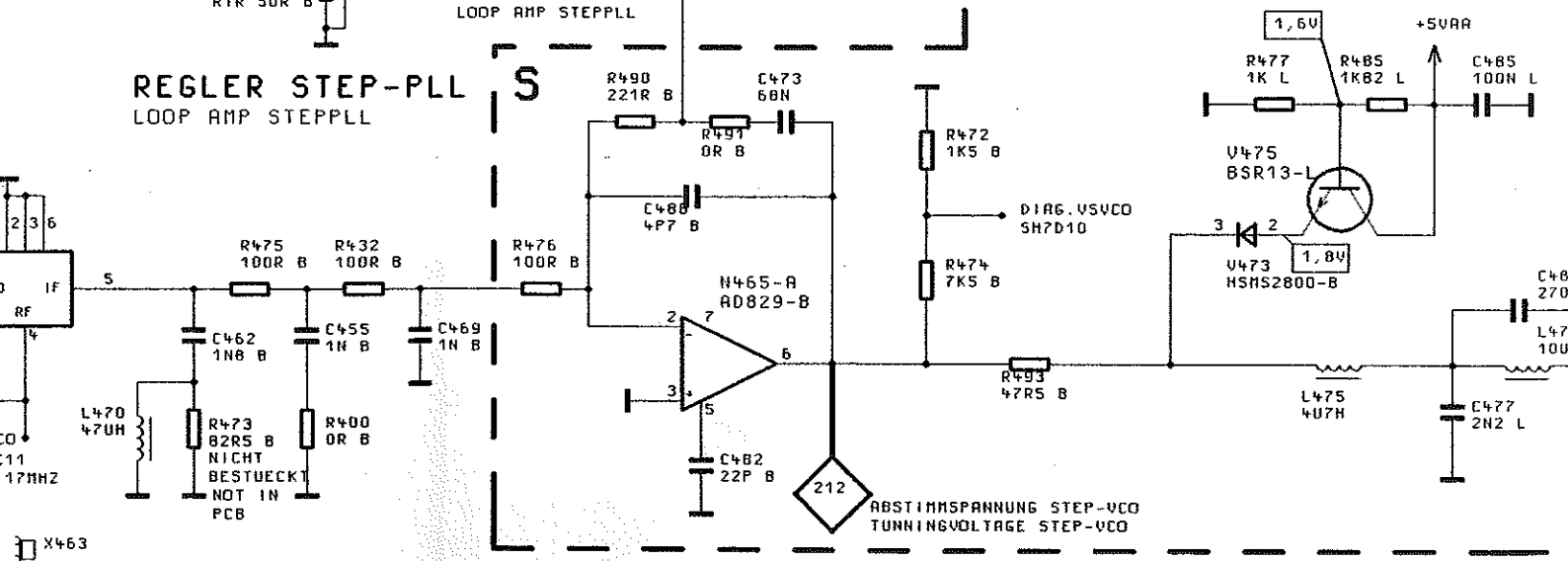


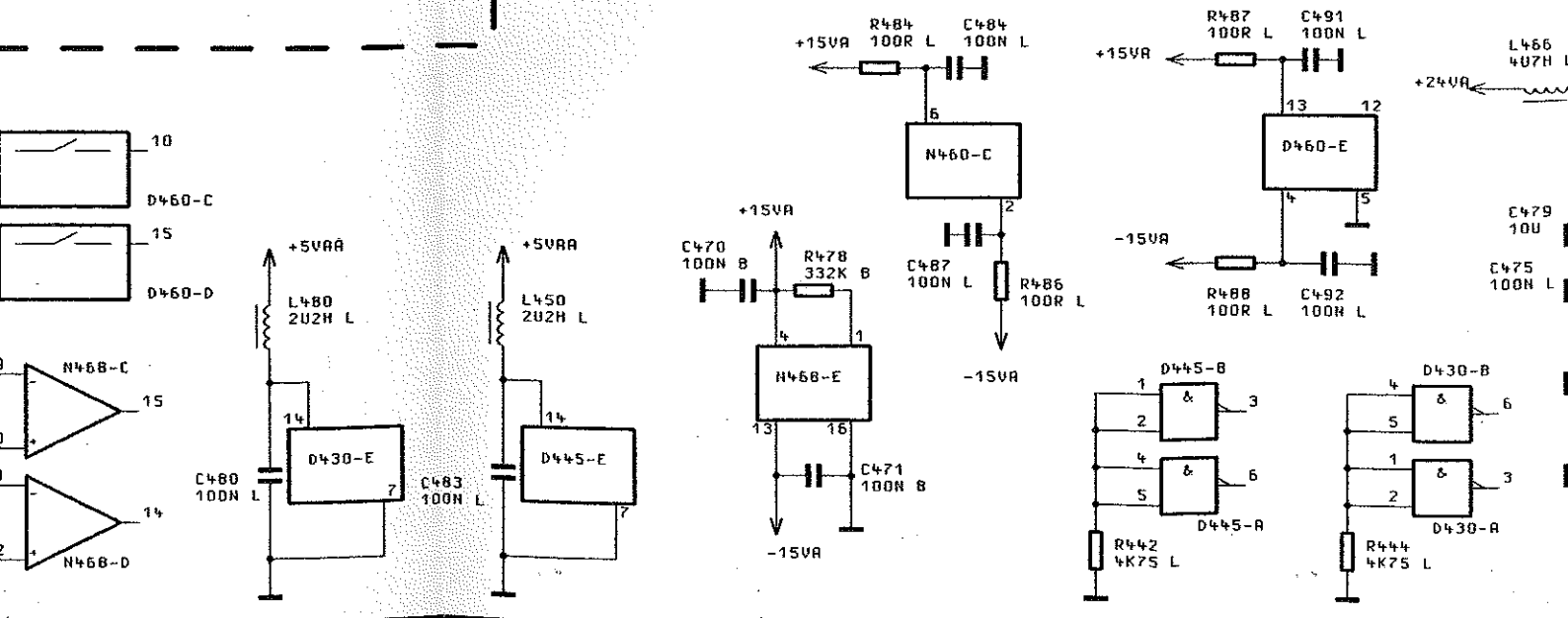
R469 P465 P466

FREQUENZDETEKTOR/RAMPENSTEUERUNG
FREQUENCE DETECTOR/RAMP CONTROL



REGLER STEP-PLL
LOOP AMP STEPPLL





FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

FREQUENZDETEKTOR/RAMPENSTEUERUNG
FREQUENCE DETECTOR/RAMP CONTROL

REGLER STEP-PLL
LOOP AMP STEPPLL

R469

+15VA

VR2
SH7C6

R461
47K5 L

D445-D
74AC00T-L

D445-C
74AC00T-L

R462
33R2 L

C463
6P8P L

L463
680UH

L464
680UH

R464
2K21 L

R471
2K21 L

C472
100P L

P465

P466

R453
56K2 L

R456
2K21 L

C457
220P L

C464
100P L

R463
332R B

R460
475R B

N460-A
LT1124CS8-L

N460-B
LT1124CS8-L

C460
1N B

V466
HSMS2813-L

AUSGANGSPG
FREQUENZDETEKTOR
OUTPUT VOLTAGE
FREQUENCY DETECTOR

208

R466
47K5 L

D430-D
74AC00T-L

D430-C
74AC00T-L

R467
18R2 L

C459
6P8P L

L468
680UH

L467
680UH

R470
2K21 L

R334
3K01 L

R339
0R L

R337
0R L

DIAG.FDET
SH7D9

R338
1K L

C481
220P L

C468
100P L

R468
TRIMM-
WERT
SELECTED

R465
475R B

R469
RTR 50R B

NULLEINSTELLUNG
LOOP AMP STEPPLL

C465
1N B

R490
221R B

C473
68N

R491
0R B

C480
4P7 B

R472
1K5 B

DIAG.VSVCO
SH7D10

R474
7K5 B

R475
100R B

R432
100R B

R476
100R B

N465-A
AD829-B

R493
47R5 B

C462
1N8 B

C455
1N B

C469
1N B

N470
RMS1

L470
47UH

R473
82R5 B
NICHT
BESTUECKT
NOT IN
PCB

R400
0R B

ZFVCO
SH4C11
3...17MHZ

C482
22P B

212

ABSTIMMSPANNUNG STEP-VCO
TUNNINGVOLTAGE STEP-VCO

X462
X461
X460
X463

SDIV
SH4E6
3...17MHZ

R484
100R L

C484
100N L

+15VA

N460-C

-15VA

R498
4K75 L

D460-C

R499
4K75 L

D460-D

+5VAA

L480
2U2H L

L450
2U2H L

D430-E

D445-E

C480
100N L

C483
100N L

C470
100N B

R478
332K B

N468-E

C487
100N L

R486
100R L

C471
100N B

R489
4K75 L

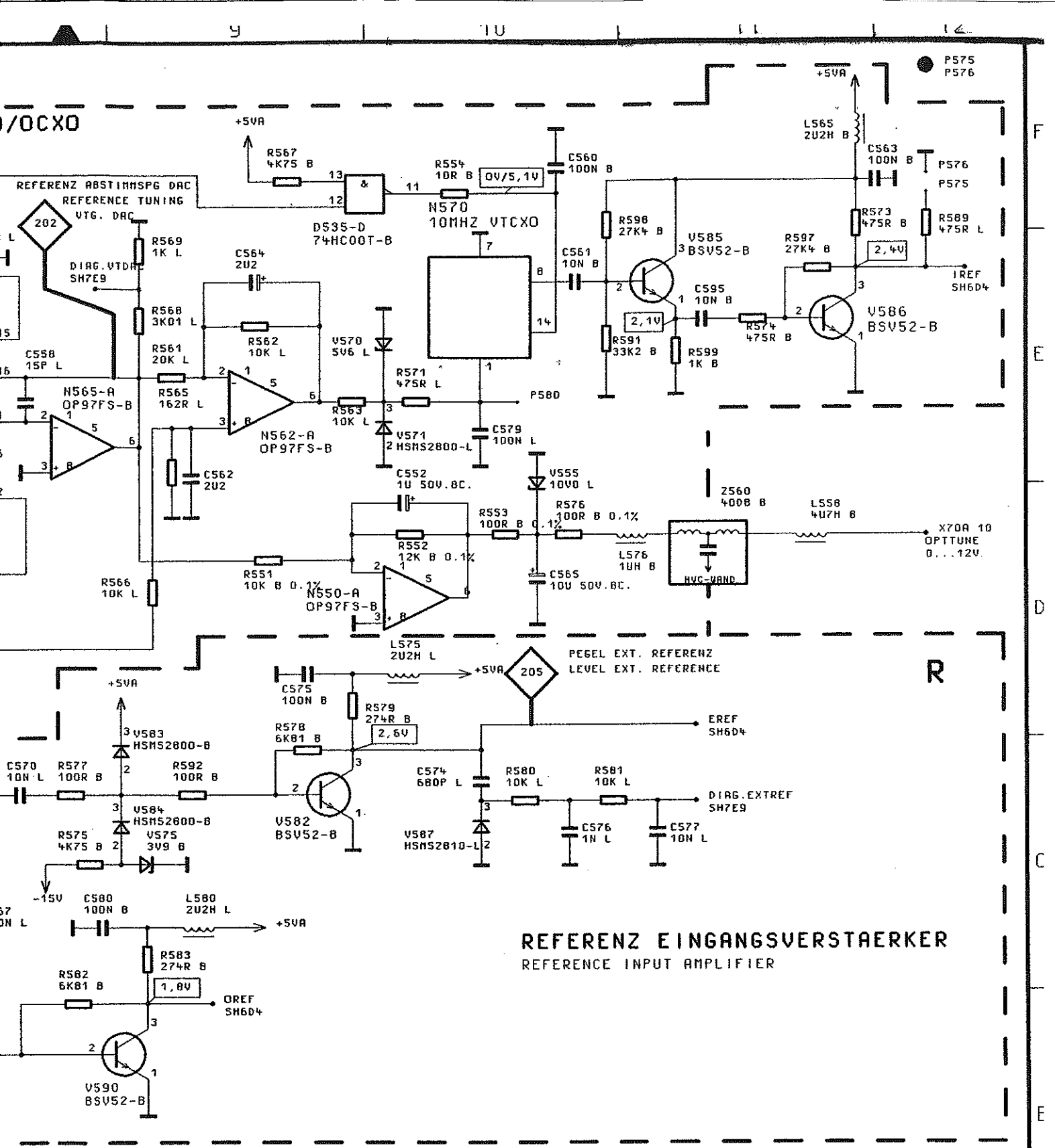
N468-C

R492
4K75 L

N468-D

R442
4K75 L

ZEICHN.-NR.



REFERENZ EINGANGSVERSTAERKER
REFERENCE INPUT AMPLIFIER

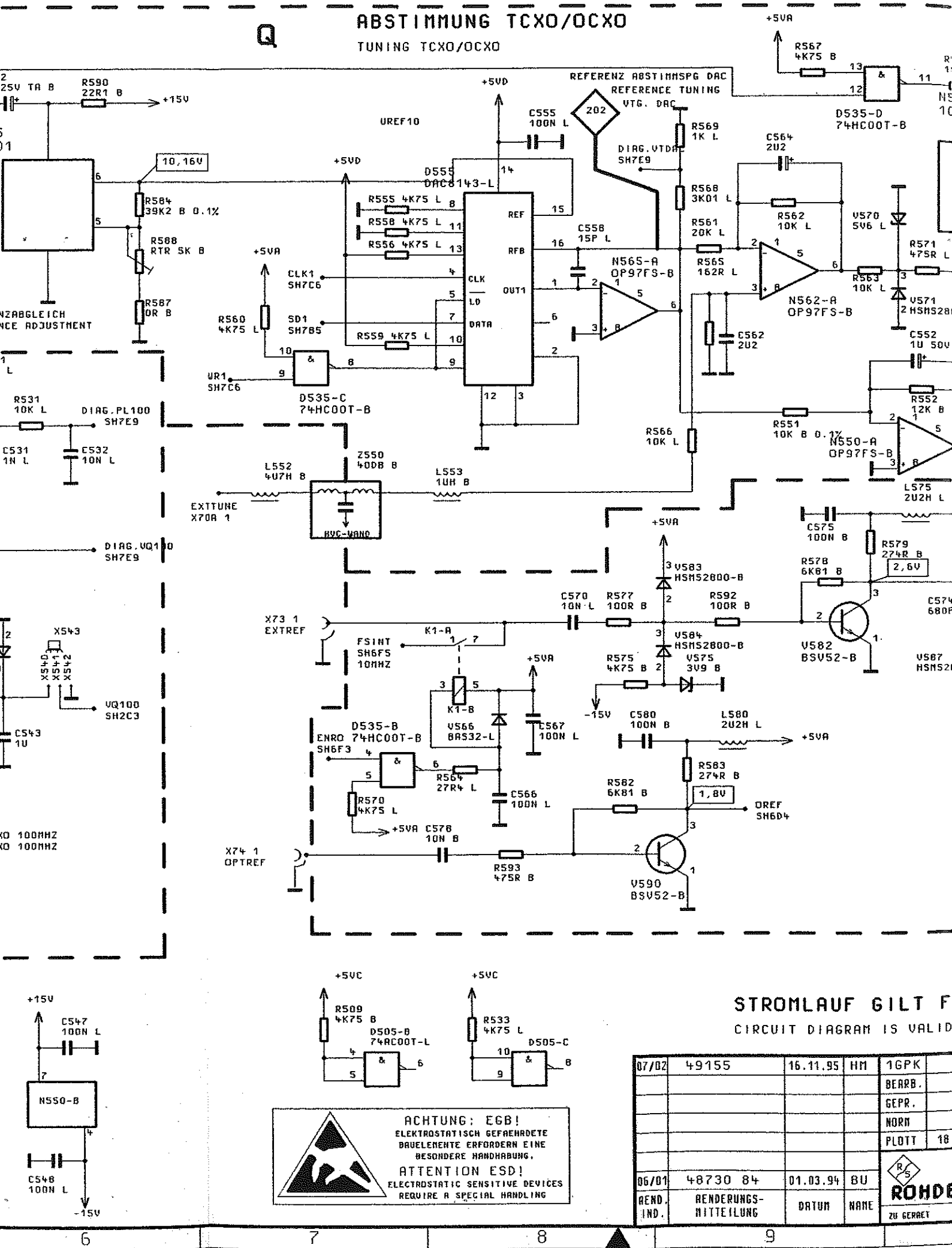
STROMLAUF GILT FUER VAR.02
CIRCUIT DIAGRAM IS VALID FOR MOD.02

07/02	49155	16.11.95	HM	1GPK	TAG	NAME	BENENNUNG
				BEARB.		HM	REFERENZ STEPSYNTHESE
				GEPR.			REFERENZ STEPSYNTHESE
				NORM			
				PLOTT	18.03.96		
06/01	48730 84	01.03.94	BU	ROHDE&SCHWARZ			ZEICHN.-NR. 1035.6501.01S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMP			BLATT-NR. 6+
				REG.I.V. 1035.5005		ERSTE Z. 1035.5005	V. BL.

R588

Q ABSTIMMUNG TCXO/OCXO

TUNING TCXO/OCXO

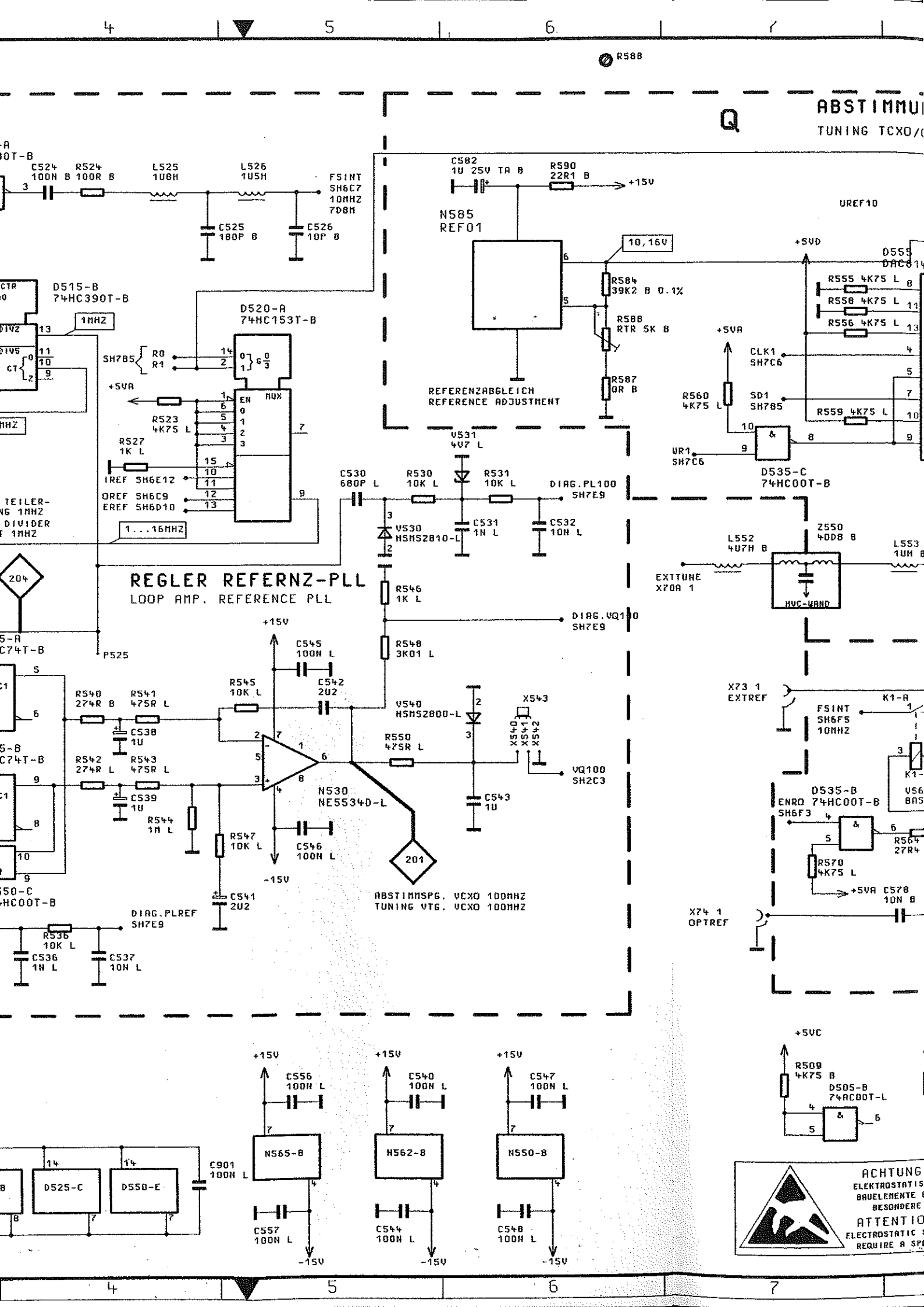


ACHTUNG: EGB!
ELEKTROSTATISCH GEFAEHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

STROMLAUF GILT F

CIRCUIT DIAGRAM IS VALID

07/02	49155	16.11.95	HM	1GPK
				BEARB.
				GEPR.
				NORM
				PLOTT 18
06/01	48730 84	01.03.94	BU	
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ROHDE ZU GERAET


ABSTIMMU
TUNING TCXO/
REGLER REFERNZ-PLL
LOOP AMP. REFERENCE PLL
N585
REF01
REFERENZABGLEICH
REFERENCE ADJUSTMENT
N530
NE5534D-L
D515-B
74HC390T-B
D520-A
74HC153T-B
D535-C
74HC00T-B
D535-B
ENRO 74HC00T-B
D525-C
D550-E
N565-B
N562-B
N550-B
D505-B
74AC00T-L
ABSTIMMSPG. VCXO 100MHZ
TUNING VTG. VCXO 100MHZ
ACHTUNG
ELEKTROSTATIS
BAUELEMENTE
BESONDERE
ATTENTIO
ELECTROSTATIC
REQUIRE A SP

P520

TEILER REFERENZ-PLL
DIVIDER REFERENCE-PLL

D535-A
74HC00T-B

ENRO SH6C7

C524 100N B

R524 100R B

L525 1U8H

L526 1U5H

FSINT SH6C7 10MHZ 7DBM

C525 180P B

C526 10P B

C582 1U 25V TA

N585 REF01

D500-A
74AC161T-B

R500 4K75 L

R501 4K75 L

R502 4K75 L

R503 4K75 L

R504 4K75 L

R505 4K75 L

R506 4K75 L

CTR4

C2/1,3,4+

1,2D

4CT=15

10MHZ

R510 4K75 L

D515-B
74HC390T-B

CTR

CT=0

DIV2

DIV5

1MHZ

2MHZ

D520-A
74HC153T-B

SH7B5 R0 R1

+5VA

R523 4K75 L

R527 1K L

IREF SH6E12

OREF SH6C9

EREF SH6D10

MUX

1...16MHZ

REFERENZABGLE
REFERENCE ADJ

V531 4V7 L

C530 680P L

R530 10K L

R531 10K L

V530 HSMS2810-L

C531 1N L

R525 4K75 L

D550-B
74HC00T-B

R526 4K75 L

D550-A
74HC00T-B

PEGEL TEILER-
AUSGANG 1MHZ
LEVEL DIVIDER
OUTPUT 1MHZ

REGLER REFERNZ-PLL
LOOP AMP. REFERENCE PLL

R546 1K L

R548 3K01 L

D510-A
74HC161T-B

R528 4K75 L

R529 4K75 L

204

D525-A
74HC74T-B

PS25

D550-D
74HC00T-B

PEGEL REFERENZ 1MHZ
LEVEL REFERNCE 1MHZ

203

D525-B
74HC74T-B

PS20

+15V

C545 100N L

C542 2U2

R545 10K L

R540 274R B

R541 475R L

C538 1U

R542 274R L

R543 475R L

C539 1U

R544 1M L

R547 10K L

C546 100N L

-15V

C541 2U2

N530 NE5534D-L

V540 HSMS2800-L

R550 475R L

C543 1U

201

ABSTIMMSPG. VCXO 100M
TUNING VTG. VCXO 100M

REFERENZTEILER
REFERENCE DIVIDER

D515-A
74HC390T-B

C535 680P

D550-C
74HC00T-B

R535 10K L

R536 10K L

DIAG.PLREF SH7E9

V535 HSMS2810-L

V536 4V7 L

C536 1N L

C537 10N L

+5VA

L510 2U2H B

L550 2U2H B

D535-E C510 100N B

D515-C

C900 22U 50V .8C

D520-B

D510-B

D525-C

D550-E

C901 100N L

+15V

C556 100N L

N565-B

C557 100N L

-15V

+15V

C540 100N L

N562-B

C544 100N L

-15V

P520

P

TEILER REFERENZ-PLL
DIVIDER REFERENCE-PLL

D535-A
74HC00T-B

ENRO
SH6C7

C524
100N B

R524
100R B

L525
1U8H

L526
1U5H

C525
180P B

+5VA

D500-A
74AC161T-B

R500 4K75 L
R501 4K75 L
R502 4K75 L
R503 4K75 L
R504 4K75 L
R505 4K75 L
R506 4K75 L

CTR4
R
M1
G3
G4
C2/1,3,4+
T,2D
4CT=15

CL50
SH3D11
50MHZ

R510
4K75 L

10MHZ

D515-B
74HC390T-B

CTR
CT=0
DIV2
DIV5
CT

1MHZ

2MHZ

SH7B5
R0
R1

D520
74HC

+5VA

EN

R523
4K75 L

R527
1K L

IREF SH6E12
OREF SH6C9
EREF SH6D10

R525
4K75 L

+5VA

D550-B
74HC00T-B

R526
4K75 L

+5VA

D550-A
74HC00T-B

PEGEL TEILER-
AUSGANG 1MHZ
LEVEL DIVIDER
OUTPUT 1MHZ

1...16MHZ

+5VA

D510-A
74HC161T-B

R520 4K75 L
R521 4K75 L
R522 4K75 L

CTR4
M1
G3
G4
C2/1,3,4+
T,2D
4CT=15

NR0
NR1
NR2
NR3
SH7B5

+5VA

R528
4K75 L

R529
4K75 L

204

REGLER REFE
LOOP AMP. REFERE

D550-D
74HC00T-B

1MHZ

D525-A
74HC74T-B

P525

PEGEL REFERENZ 1MHZ
LEVEL REFERNCE 1MHZ

203

D525-B
74HC74T-B

P520

R540
274R B

R541
475R L

R542
274R L

R543
475R L

R545
10K L

C538
1U

C539
1U

R544
1M L

R547
10K L

C541
2U2

C535
680P

D550-C
74HC00T-B

R535
10K L

R536
10K L

DIAG.PLREF
SH7E9

V535
HSMS2810-L

V536
4V7 L

C536
1N L

C537
10N L

REFERENZTEILER
REFERENCE DIVIDER

+5VA

R512
4K75 B

D515-A
74HC390T-B

CTR
CT=0
DIV2
DIV5
CT

+5VA

L500
1UH B

C501
100N L

C500
100N B

D500-B

D535-E

C510
100N B

L510
2U2H B

D515-C

L550
2U2H B

C900
22U 50V.8C

D520-B

D510-B

D525-C

D550-E

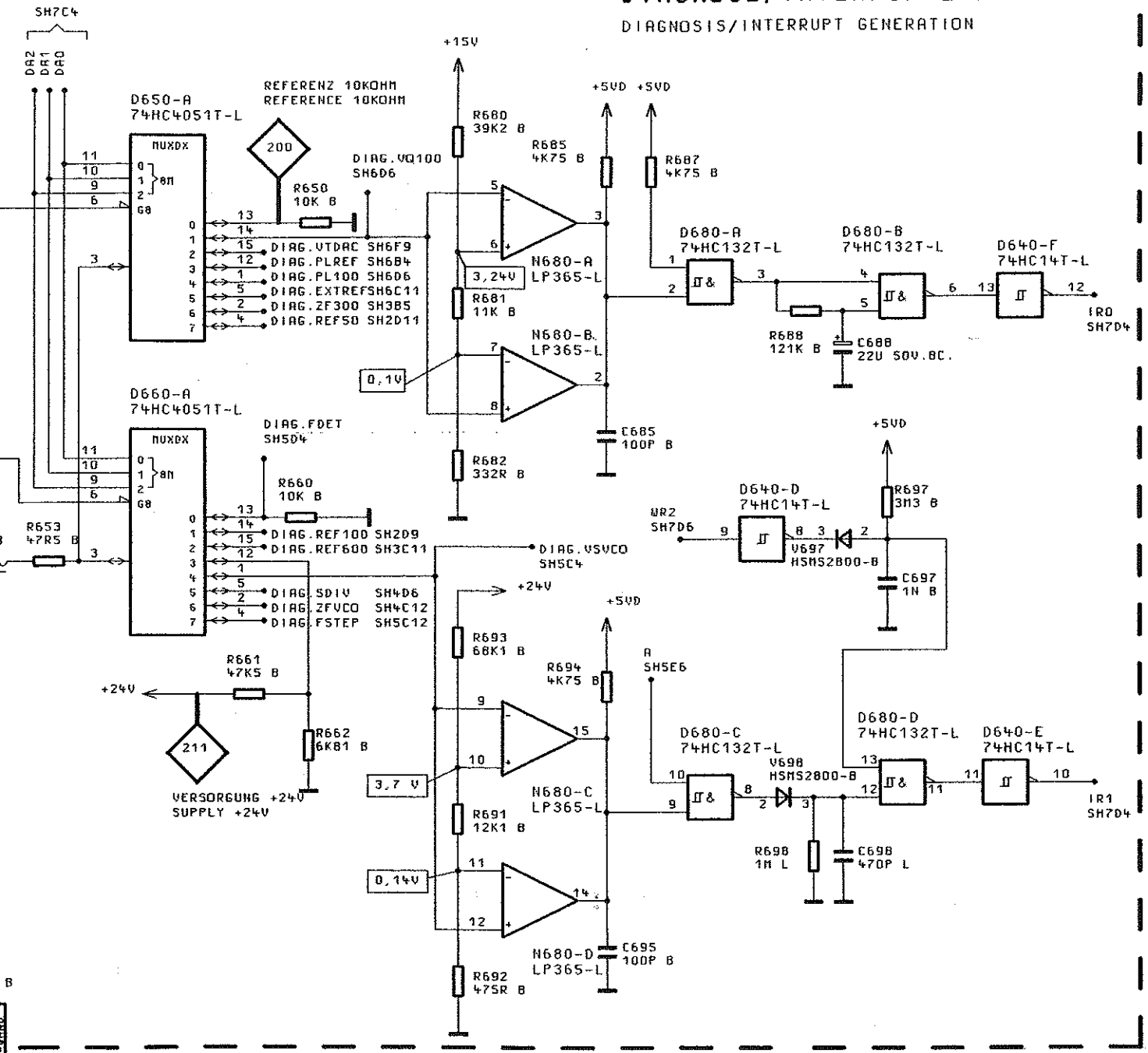
C901
100N L

FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR.

DIAGNOSE/INTERRUPTERZEUGUNG

DIAGNOSIS/INTERRUPT GENERATION



STROMLAUF GILT FUER VAR.02

CIRCUIT DIAGRAM IS VALID FOR MOD.02

07/	49155	06.06.95	HM	1GPK	TAG	NAME	BENENNUNG
				BEARB.		HM	REFERENZ STEPSYNTHESE
				GEPR.			REFERENZ STEPSYNTHESE
				NORM			
				PLOTT	08.06.95		
06/01	48730 84	01.03.94	BU	R&S ROHDE&SCHWARZ			ZEICHN.-NR. 1035.6501.01S
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMP			BLATT-NR. 7 ÷
				REG.I.V. 1035.5005		ERSTE Z. 1035.5005	V. BL.

ATENUEBERTRAGUNG
ATA TRANSFER

R643-R645 NICHT BESTUECKT
PCB

SEROUT SH4C5
CLK2 WR2 SH4B5
CLK1 WR1 SH6E7

SH6C1
SH6F4
SH6E4
SH6E7

SH7C4
DA2 DA1 DA0

D640-A 74HC14T-L
END0 SH7B4

D650-A 74HC4051T-L
NUXDX
REFERENZ 10KOHM
REFERENCE 10KOHM
200
R650 10K B
DIAG.VQ100 SH6D6
DIAG.VTDAC SH6F9
DIAG.PLREF SH6B4
DIAG.PL100 SH6D6
DIAG.EXTREFSH6C11
DIAG.ZF30D SH3B5
DIAG.REF5D SH2D11

+15V
R680 39K2 B
R685 4K75 B
3,24V
N680-A LP365-L
R681 11K B
0,1V
N680-B LP365-L
R682 332R B

D640-B 74HC14T-L
END1 SH7B4

D660-A 74HC4051T-L
NUXDX
DIAG.FDET SH5D4
R660 10K B
L551 1UH B
R653 47R5 B
DIAG.REF100 SH2D9
DIAG.REF600 SH3C11
DIAG.SDIV SH4D6
DIAG.ZFVCO SH4C12
DIAG.FSTEP SH5C12
DIAG.VSU SH5C4

+24V
R661 47K5 B
211
R662 6K81 B
VERSORGUNG +24V
SUPPLY +24V

R693 68K1 B
R694 4K75 B
3,7 V
N680-C LP365-L
R691 12K1 B
0,14V
N680-D LP365-L
R692 475R B

Z650 100B B
HUC-VAND.
R652 475R B
X70A 19 DIAG-5V

+5VD
R649 4K75 B
D640-C 74HC14T-L

C690 100N L

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CIRCUIT DIAGRAM IS VALID FOR MOD.02

07/	49155	06.06.95	HM	16PK	TAG	NAM
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				GEPR.		
				NORM		
				PLOTT	08.06.95	
06/01	48730 84	01.03.94	BU			
AEND. IND.	AENDERUNGS-MITTEILUNG.	DATUM	NAME	ROHDE&SCHWA		
				ZU GERAET	SMP	

R630-R633,R635,R636
NICHT BESTUECKT/NOT IN PCB

DATENUEBERTRAGUNG
DATA TRANSFER

T

+5VD

L621
10UH

C621
22U 50V.BC.

D610
SERBUS

TRISTATE
HANDTREE
RESET-P
A1
A2
A3
A4
A5
A6
A7
VDD
VSS
VDD
VSS

R630 4K75 L
R631 4K75 L
R632 4K75 L
R633 4K75 L
R634 4K75 L
R635 4K75 L
R636 4K75 L

SYNC
SERCLK
DATAEN
DATAIN
DATAOUT
INTEN
INT
IRQUIT
MASK
IR0
IR1
IR2
IR3
PARDAT0
PARDAT1
PARDAT2
PARDAT3
PARDAT4
PARDAT5
PARDAT6
PARDAT7
SEROUT
CLK1
RD1
WR1
SERIN1
CLK2
RD2
WR2
SERIN2

R638 4K75 L
R639 4K75 L
R640 4K75 L
R641 4K75 L
R642 4K75 L
R643 4K75 L
R644 4K75 L
R645 4K75 L

R641, R643-R645 NICHT BESTUECKT
/NOT IN PCB

R619
10K L

IR1
SH7C12

IR0
SH7E12

SEROUT
SH4C5

CLK2
WR2
SH4B5

CLK1
WR1
SH6E7

D640-A
74HC14T-L
END0
SH7B4

D640-B
74HC14T-L
END1
SH7B4

P

D630-A
74HC4094T-B
R629
4K75 L
+5VA
C2
EN3
SRG
C1/→

DA0
DA1
DA2
END0
SH7E8
END1
SH7D8

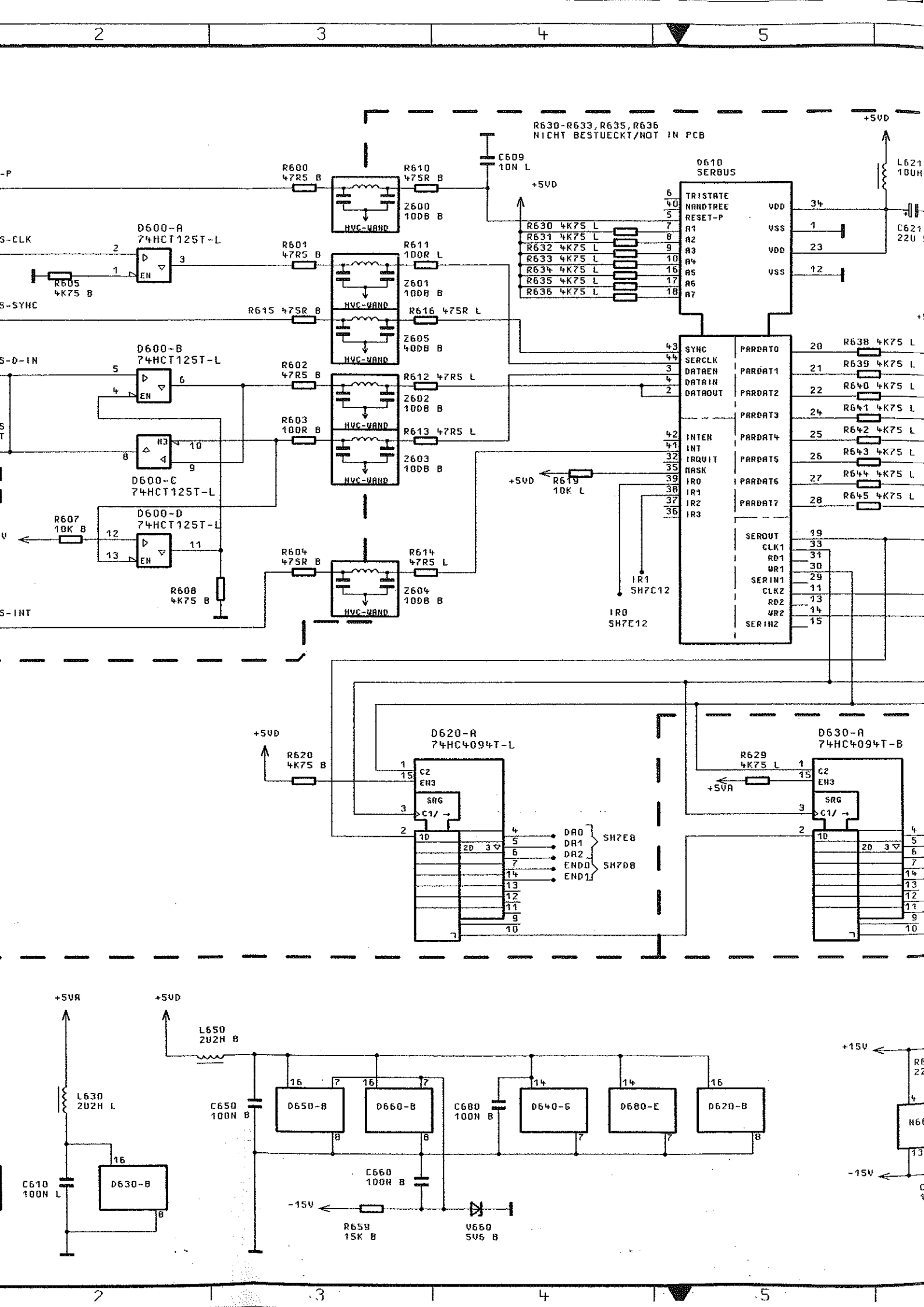
NR0
NR1
NR2
NR3
SH6C1
ENR0
SH6F4
R0
R1
SH6E4
SD1
SH6E7

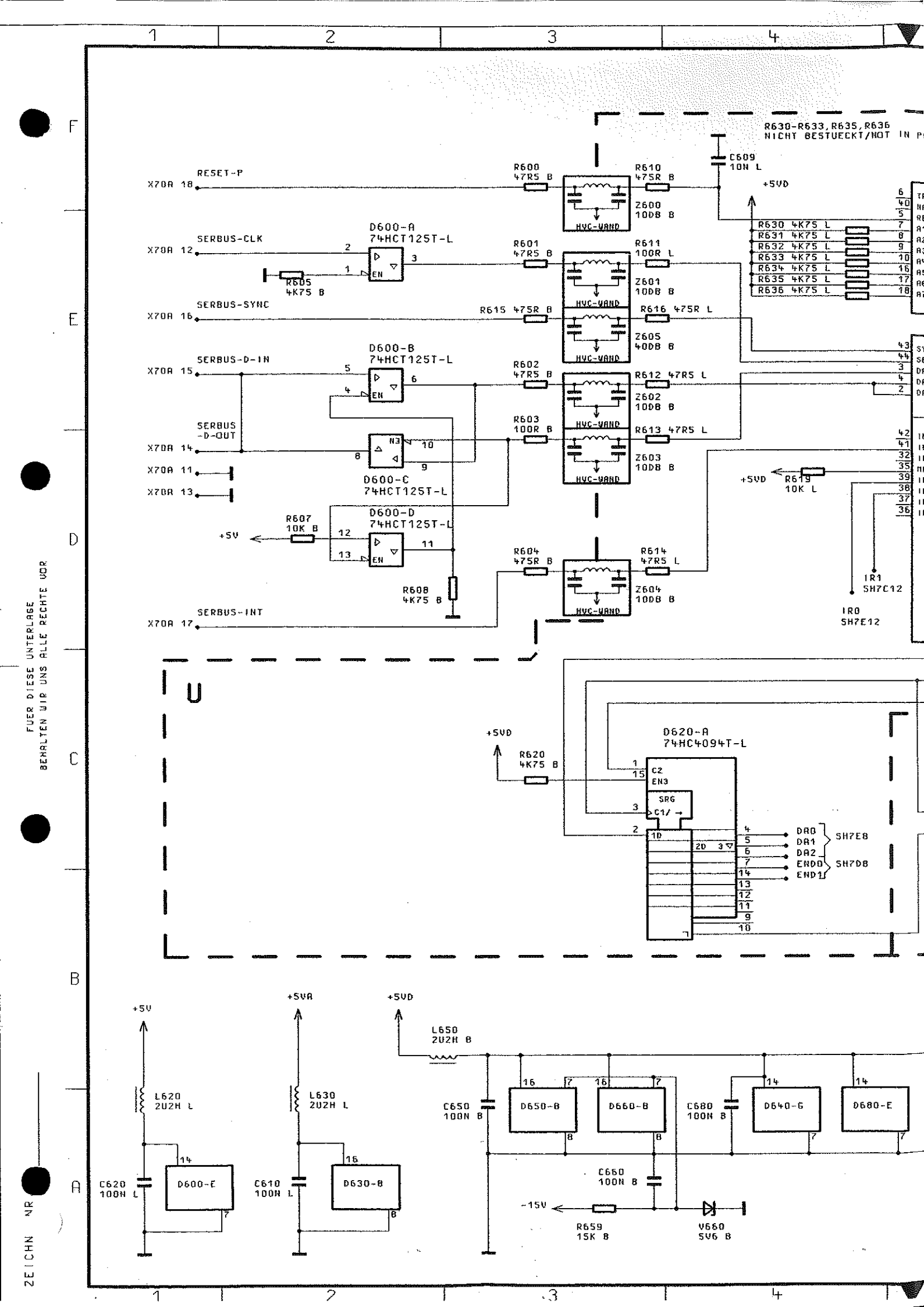
D640-G
D680-E
D620-B

+15V
R690
221K
N680-E
C690
100N L
-15V
C691
100N B

+5VD
R649
4K75 B
D640-C
74HC14T-L

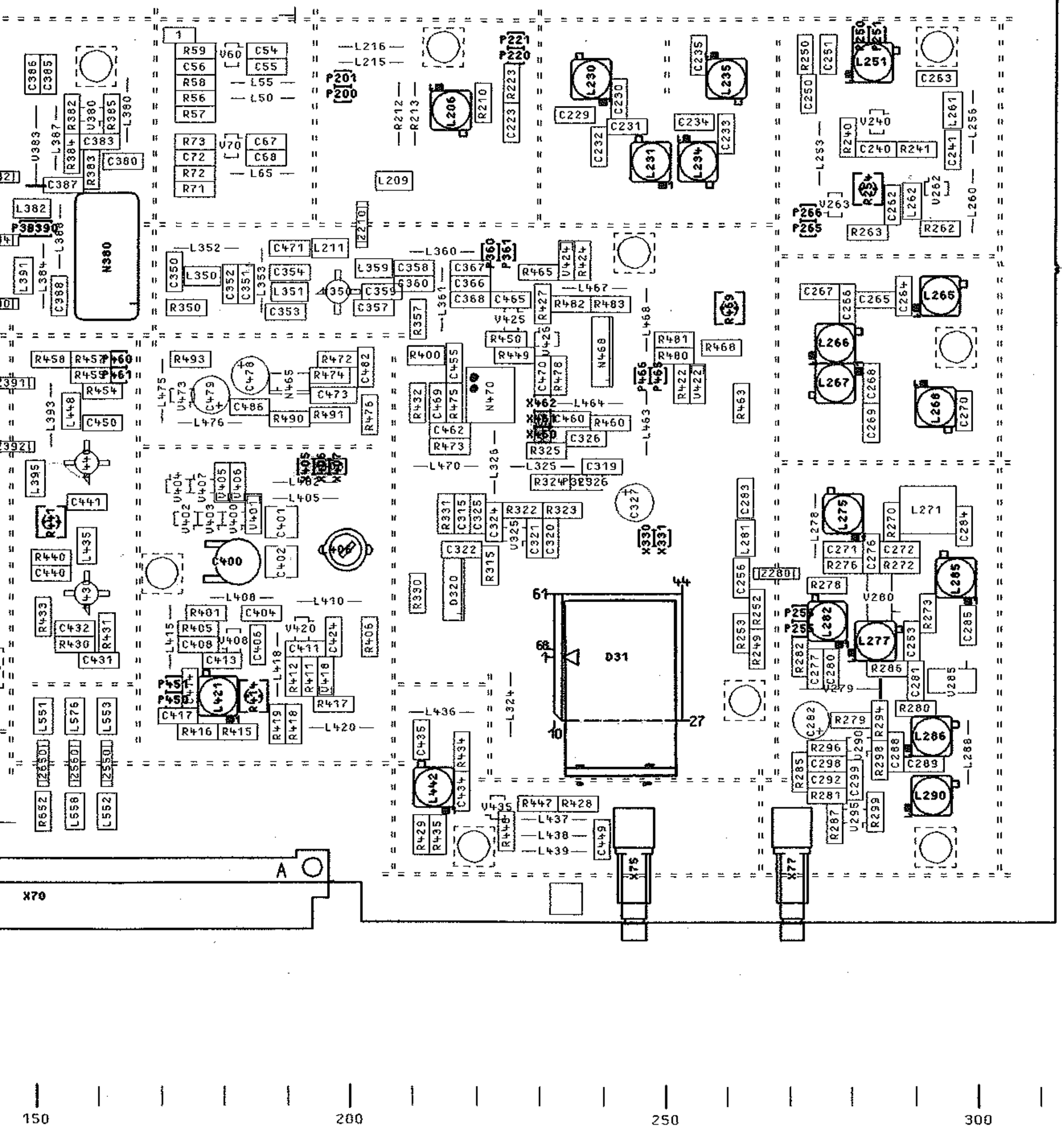
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R630-R633,R635,R636
NICHT BESTUECKT/NOT IN PCB
+5VD
C609
10N L
D610
SERBUS
L621
10UH
C621
22U
R600
47R5 B
R610
475R B
Z600
100B B
HVC-VAND
D600-A
74HCT125T-L
S-CLK
R605
4K75 B
R601
47R5 B
R611
100R L
Z601
100B B
S-SYNC
R615 475R B
R616 475R L
Z605
400B B
D600-B
74HCT125T-L
S-D-IN
R602
47R5 B
R612 47R5 L
Z602
100B B
R603
100R B
R613 47R5 L
Z603
100B B
D600-C
74HCT125T-L
R607
10K B
D600-D
74HCT125T-L
R604
475R B
R614
47R5 L
Z604
100B B
R608
4K75 B
S-INT
R630 4K75 L
R631 4K75 L
R632 4K75 L
R633 4K75 L
R634 4K75 L
R635 4K75 L
R636 4K75 L
TRISTATE
NANDTREE
RESET-P
A1
A2
A3
A4
A5
A6
A7
VDD
VSS
VDD
VSS
SYNC
SERCLK
DATAEN
DATAIN
DATAOUT
INTEN
INT
IRQVIT
MASK
IR0
IR1
IR2
IR3
PARDAT0
PARDAT1
PARDAT2
PARDAT3
PARDAT4
PARDAT5
PARDAT6
PARDAT7
SEROUT
CLK1
RD1
WR1
SERIN1
CLK2
RD2
WR2
SERIN2
R638 4K75 L
R639 4K75 L
R640 4K75 L
R641 4K75 L
R642 4K75 L
R643 4K75 L
R644 4K75 L
R645 4K75 L
+5VD
R619
10K L
IR1
SH7C12
IR0
SH7E12
+5VD
R620
4K75 B
D620-A
74HC4094T-L
C2
EN3
SRG
C1/→
1D
2D
3▽
DA0
DA1
DA2
END0
END1
SH7E8
SH7D8
D630-A
74HC4094T-B
R629
4K75 L
+5VA
+5VA
+5VD
L650
2U2H B
L630
2U2H L
C650
100N B
D650-B
D660-B
C680
100N B
D640-G
D680-E
D620-B
C610
100N L
D630-B
C660
100N B
-15V
R659
15K B
V660
5V6 B
+15V
-15V



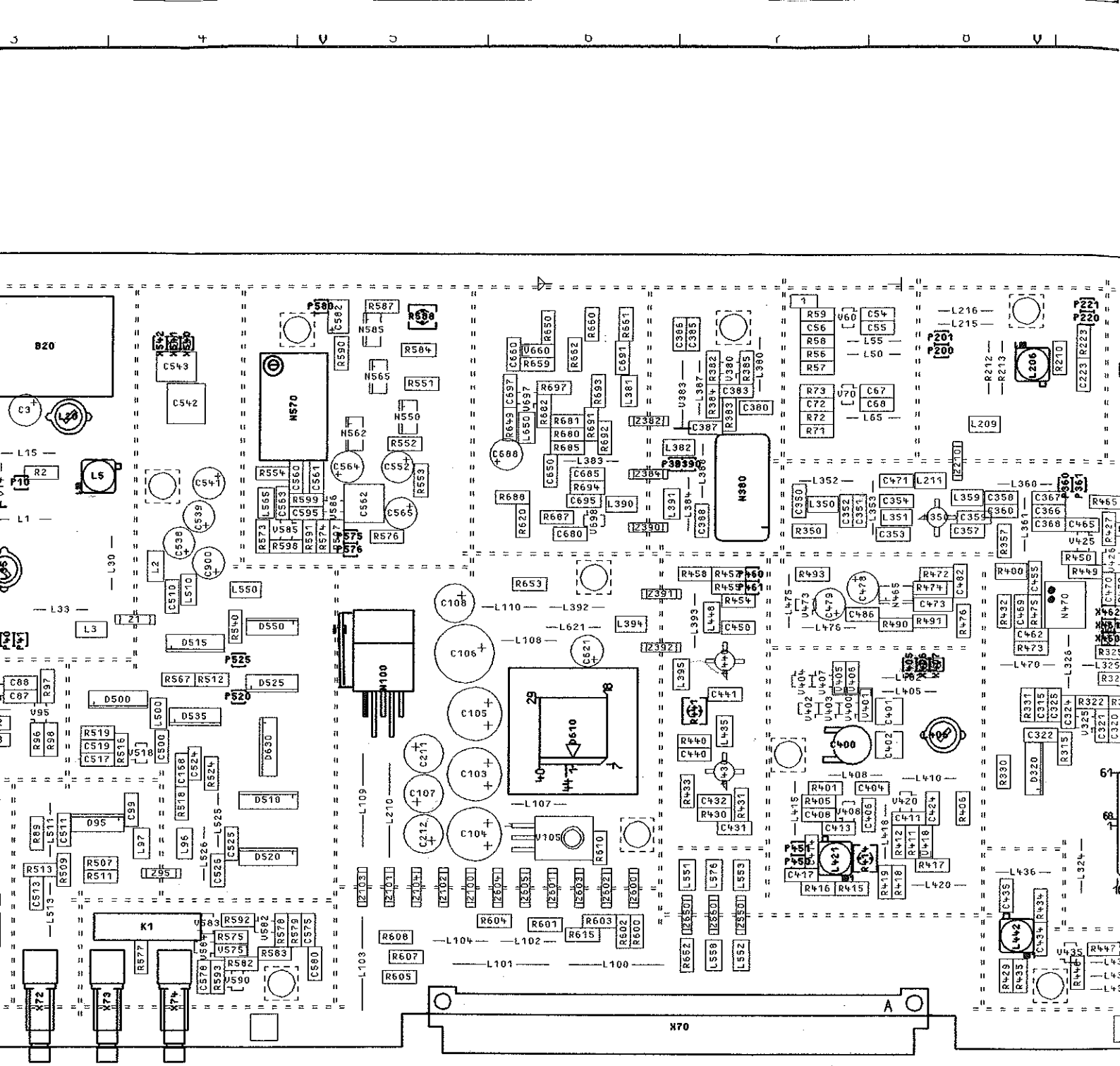
FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN NR



05/03	49155	01.03.94	BU	1GPK	TRG	NAME	BENENNUNG
				BEARB.		HM	REFERENZ STEPSYNTHESE
				GEPR.			REFERENZ STEPSYNTHESE
				NORM			Z
				PLOTT	16.11.95		
02/	48730	12.93	HM	ROHDE&SCHWARZ			ZEICHN.-NR. 1035.6501.01 EE — BLATT-NR. 1+
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET	SMP		REG.T.V. 1035.5005 — ERSTE Z. 1035.5005

7 8 9 10 11

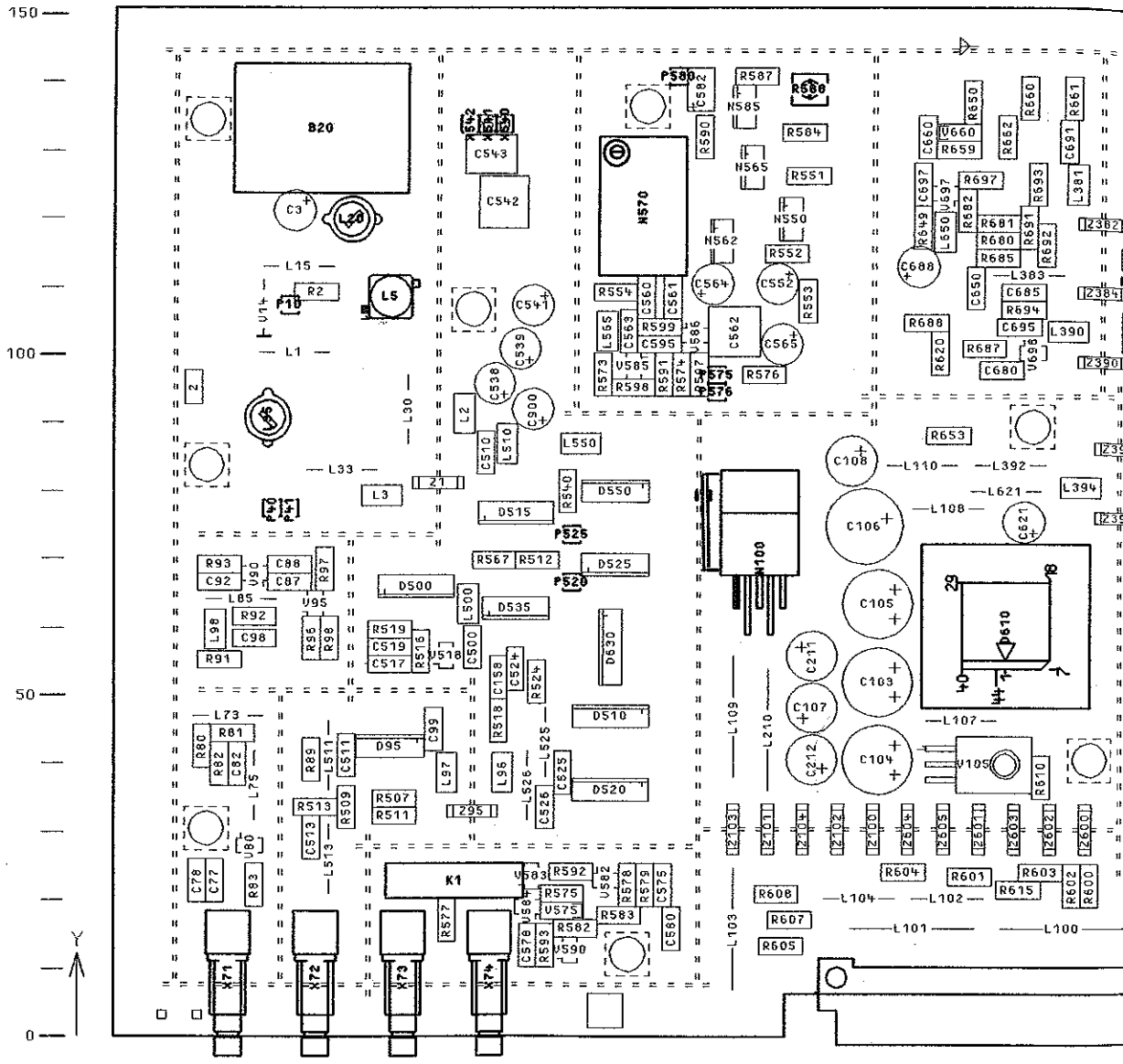


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TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

05/03	4915
02/	48730
AEND. IND.	AENDER. MITTEI



DARSTELLUNG SEITE B

VIEW ON SIDE B

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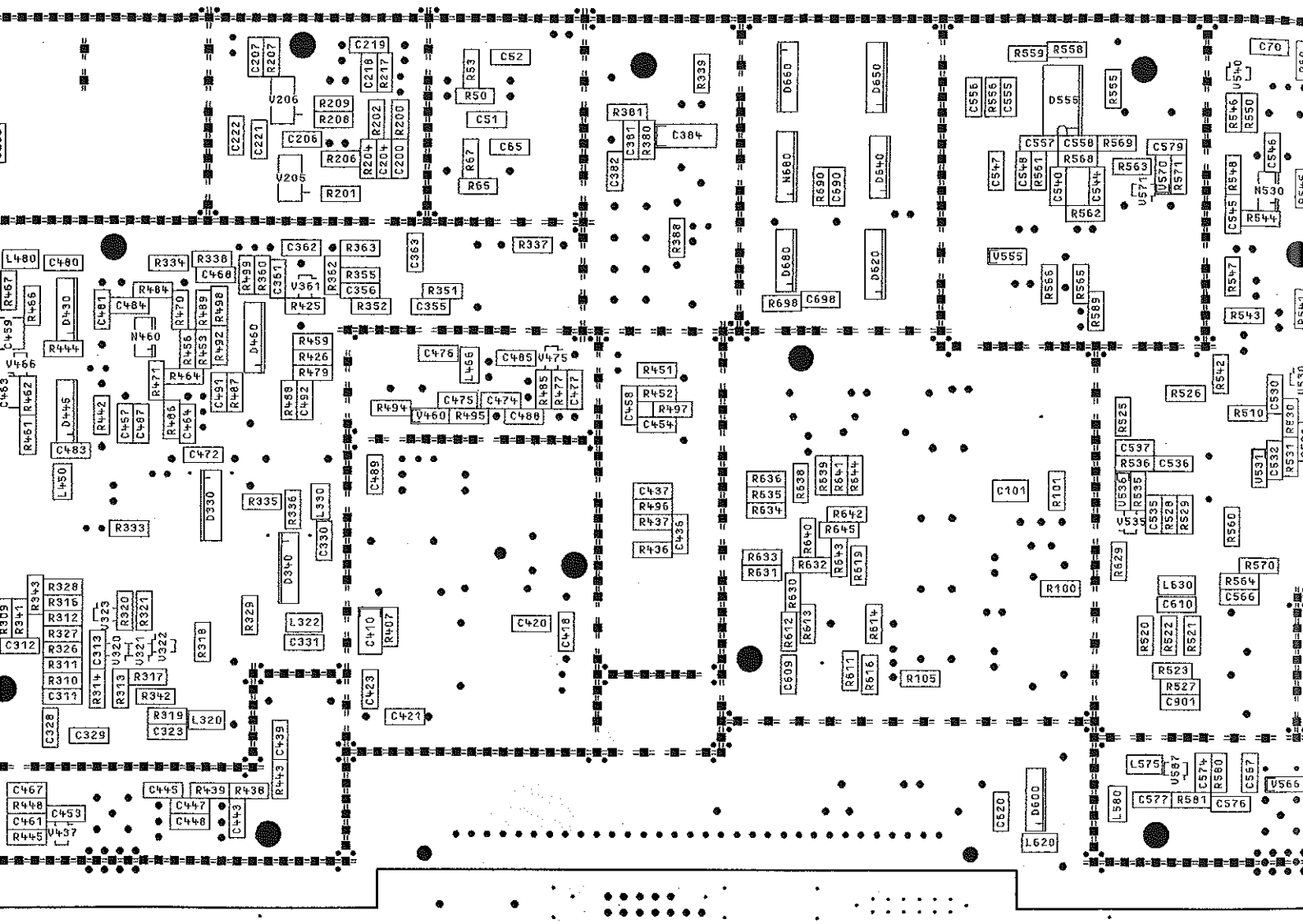
BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.

DIESE ZEICHNUNG IST EIN RECHNERAUSDRUCK, RENDERUNGEN DURFEN NUR DURCH RENDERN DES DATENSATZES ERFOLGEN
FUER DIESE ZEICHNUNG BEHALTEN WIR UNS ALLE RECHTE VOR.



05/01	48730 84	01.03.94	BU	16PK	TAG	NAME	BENENNUNG
				BEARB.		BU	REFERENZ STEPSYNTHESE
				GEPR.		BU	REFERENZ STEPSYNTHESE
				NORM			Z
				PLOTT	06.04.94		
02/	48730	12.93	HM	ROHDE&SCHWARZ			ZEICHN.-NR. 1035.6501.01 EE
AEND. IND.	AENDERUNGS-MITTEILUNG	DATUM	NAME	ZU GERAET SMP			BLATT-NR. 2
				REG.I.V. 1035.5005			ERSTE Z.



250 200 150 100

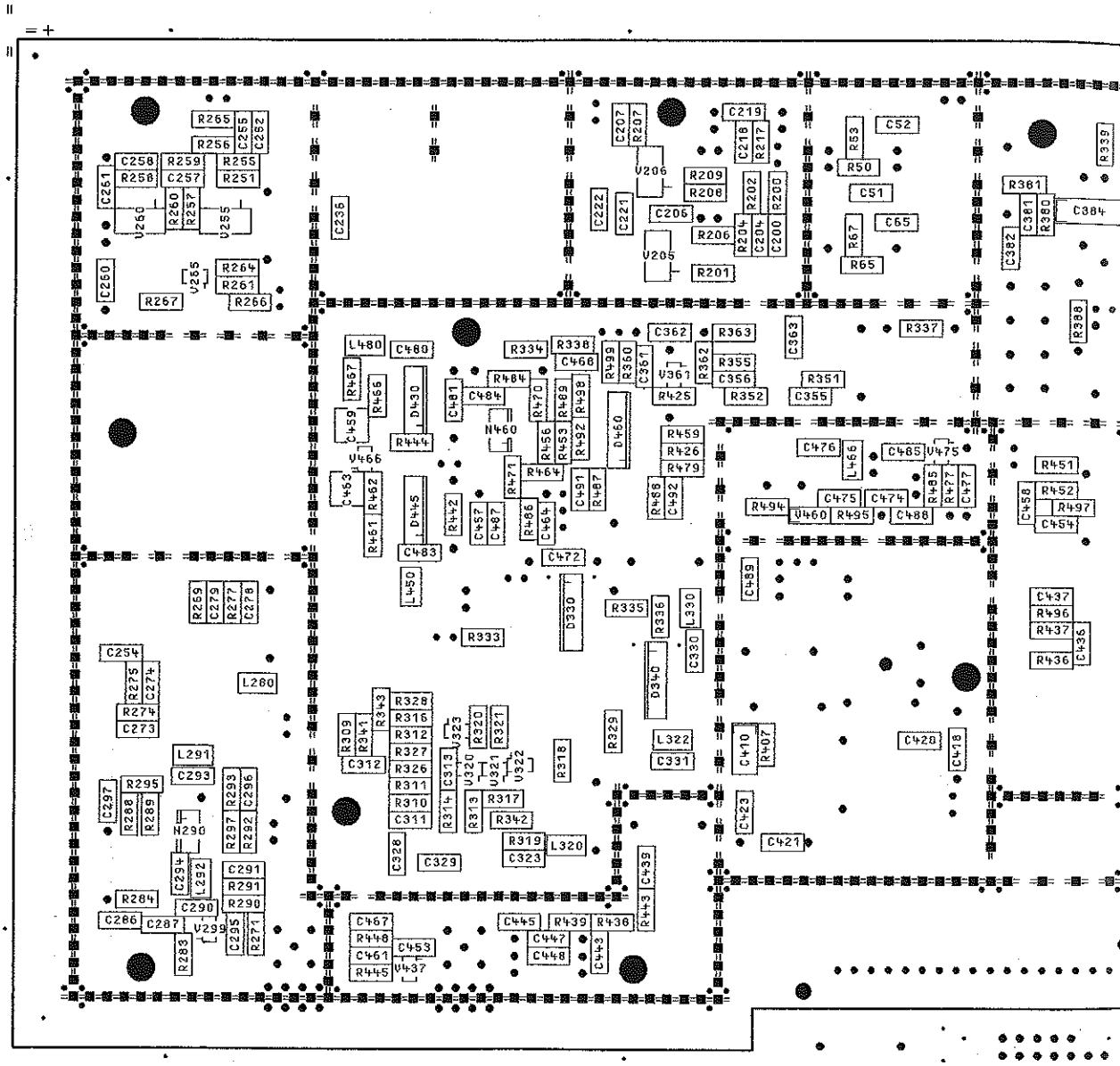
EGB!
GEFÄHRDETE
FORDERN EINE
ERDUNG.
ESD!
SITIVE DEVICES
DL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

05/81	48730 84	81.0
02/	48730	12.93
REND. IND.	RENDERUNGS-MITTEILUNG	DAT

4 5 6 7 8 9



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DARSTELLUNG SEITE A

VIEW ON SIDE A

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FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.

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Schaltteilliste
Koordinatenliste
Stromlauf
Bestückungsplan

7. Prüfen und Instandsetzen der Baugruppe

7.1 Funktionsbeschreibung

Die Baugruppe DIGITALE SYNTHESE (kurz DSYN) generiert mit Hilfe des DDS-Bausteines DDS-GA (DDS-Gate-Array) auf rein digitale Weise ein Sinussignal im Frequenzbereich 14.1...15.6MHz (SMP: 10.3...15.6MHz) mit der Auflösung von 50MHz/2^48=0.178uHz. Die erzeugte Frequenz ist so genau wie die Taktfrequenz vom DDS-GA (50MHz). Das Taktsignal kommt von der Baugruppe REFSS an die Eingangsbuchse REF50 (X81). Das Ausgangssignal an der Ausgangsbuchse FDDS (X89) wird zur Baugruppe SUMMIERSCHLEIFE geleitet und dient dort als Referenzsignal einer Phasenregelschleife.

Auf der Baugruppe befindet sich auch eine Phasenregelschleife, die sogenannte PUFFERSCHLEIFE (kurz PS), über die das DDS-Signal wahlweise geführt werden kann, damit nichtharmonische Störsignale weggefiltert werden.

In die Baugruppe DSYN kann die Tochterbaugruppe Option DATENCODER (kurz DCOD) eingebaut werden, die ein digitales Modulationssignal (FM) an das DDS-Gate-Array über ein Parallelport liefert.

Über das MOTHERBOARD können der Option DCOD Daten- und Taktsignale und dem DDS-Gate-Array ein FSK-Signal und ein serielles Modulationssignal (SYNTHESE-FM) zugeführt werden.

Als Schnittstelle zur Rechnerbaugruppe sind auf DSYN zwei SERBUS-DECODER. SERBUS-D1 ist ausschließlich für DSYN zuständig und SERBUS-D2 ausschließlich für die Tochterbaugruppe Option DATENCODER.

7.1.1 DIREKTE DIGITALE SYNTHESE

Nach der Eingangsbuchse REF50 wird das sinusförmige 50MHz-Referenzsignal mit einer Sternschaltung in drei Pfade geführt, dem Pfad für den DDS-GA-Takt, dem Pfad für den DCOD-Takt und dem für den DA-Wandler (DAC).
Vom CLOCK-AMPLIFIER wird das Sinussignal in ein HCMOS-Signal für das DDS_GA umgewandelt.
Die DELAY-LINE verzögert das Taktsignal zum DAC derart, daß die Daten vom DDS-GA zum optimalen Zeitpunkt in den DAC eingelesen werden.
Vom ALIASING-FILTER wird das Sample-And-Hold-Signal vom DAC in ein nahezu sinusförmiges Signal umgewandelt.
Die parallelen Modulationsdaten von DCOD kommen über die Leitungen FMDAT(0)...FMDAT(13) zum DDS-GA und werden mit der steigenden Flanke vom LOADM-Signal eingelesen.
Die seriellen Modulationsdaten vom MOTHERBOARD kommen über die Leitung DATA zum DDS-GA und werden mit der fallenden Flanke vom DATACLK-Signal eingelesen. Ein serielles Datenwort ist 16 Bit lang. Das MSB, welches zuerst übertragen wird, wird durch ein HIGH-Signal auf der Leitung BURST markiert.
Die Leitungen BURST, DATA und DATACLK führen alle zu Gerätebuchsen.

Für die FSK-Modulation ohne Basisbandfilterung (harte Umtastung), wird das Datensignal ebenfalls über die Leitung DATA dem DDS-GA zugeführt. Vom FSK-INVERTER kann dieses Signal invertiert werden.

7.1.2 PUFFERSCHLEIFE

Wird die PUFFERSCHLEIFE (kurz PS), mit PS_ON=1 eingeschaltet, so ist der PIN-Dioden-Schalter V600 und V603 geschlossen.

Zwischen OSCILLATOR, dem VCO und dem PHASE-DETECTOR befindet sich kein frequenzumsetzendes Modul, sodaß die Ausgangsfrequenz (VCO-Frequenz) mit der Eingangsfrequenz identisch ist.

Mit dem MOS-Schalter N700 kann die Schleifenbandbreite zwischen 1kHz und 100kHz umgeschaltet werden. Es gibt drei verschiedene Modi, diese Umschaltung zu Nutzen:

MODUS1: Wird vom Rechner BAND=1 gesetzt, so ist die Bandbreite fest auf 100kHz.

MODUS2: Wird vom Rechner BAND=0 und AUTO=1 gesetzt, so ist die Bandbreite fest auf 1kHz.

MODUS3: Wird vom Rechner BAND=0 und AUTO=0 gesetzt, so ist die Bandbreite auf 1kHz, wird jedoch bei jedem Frequenzwechsel vom MONOFLOP für 250us auf 100kHz geschaltet, damit die Einschwingzeit geringer wird.

Der MODUS3 wird bei CW-Betrieb verwendet, wenn der Frequenzsprung größer als 3kHz ist. Bei Frequenzsprüngen unter 3kHz, wird auf MODUS2 geschaltet, da die Schleife im Fangbereich bleibt.
Mit der schmalbandigen Regelschleife werden bei CW-Betrieb nichtharmonische Störsignale weggefiltert.

Der MODUS1 wird dazu verwendet, nichtharmonische Störsignale wie z.B. Aliasingprodukte unter 100kHz neben dem Träger, bei digitaler FM-Modulation wegzufiltern.
Wenn die PUFFERSCHLEIFE eingeschaltet ist (PS_ON=1), jedoch nicht synchronisiert (VCO-Abstimmspannung an X37 oder Diagnosespannung 305 am unteren oder oberen Anschlag; <0V oder >21.5V), so löst der INTERRUPT-DETECTOR beim SERBUS-D1 Interrupt aus und es erscheint am Gerätedisplay eine Fehlermeldung.

7.2 Meßgeräte und Hilfsmittel

- Servicekit 1039.3520
- Zweikanaloszilloskop (0...250 MHz)
- Spektrumanalysator (1...100 MHz)
- Rechteckgenerator (100Hz...1MHz) (z.B. ADS)
- Prüfmustergenerator (z.B. ADS)
- Frequenzzähler (10...20MHz) (im FSA enthalten)
- Modulationsanalysator (z.B. FMB)

7.3 Fehlersuche

Fehlerhafte Datenübertragung (siehe 7.4.2).	Prüfe SERBUS-D1 (D110), SERBUS-BUFFER (D50) und die Schieberegister D150 und D155.
Taktsignal an P32/P33 außer Toleranz (siehe 7.4.4).	Prüfe den CLOCK-AMPLIFIER (V220, Diagnosepunkt 303).
Taktsignal und Datensignal zum DAC (D300) an P4/P14 und P5/P15 außer Toleranz (siehe 7.4.5).	Prüfe die DELAY-LINE und den Taktverstärker V210 (Die Setup- und die Hold-Zeit kann mit R215 bzw. R212 durch Verändern der DELAY-LINE-Laufzeit korrigiert werden.)
Ausgangssignal bei CW-Betrieb außer Toleranz (DIG. MOD OFF) (siehe 7.4.8).	Prüfe, ob die Spannung an P6 -9.5+-1V ist. Prüfe die Pindiode V603 und den OSCILLATOR.
Ausgangssignal bei abgeschalteter PS außer Toleranz (FSK-MOD. ON) (siehe 7.4.8).	Prüfe, ob die Spannung an P6 11.6+-1V ist. Prüfe das DDS-Gatearray D20, die Pindiode V601, den DAC (D300), das ALIASING-FILTER (L405) und den DDS-AMPLIFIER (N400).
Phasenregelschleife (Pufferschleife) synchronisiert nicht (siehe 7.4.7.1).	Prüfe, ob die Steckbrücke X36/X37 gesteckt ist. Prüfe OSCILLATOR (V512), Taktverstärker V610 und V612, CONTROL-AMPLIFIER (N700, N702, D700, V702, V704). Prüfe, ob die Spannung an P6 -9.5V+-1V ist, und prüfe die Pindioden V603, V600 und V601. Prüfe ob die Spannung an P9/P8 24V/0V+-1V oder 0V/24V+-1V ist.
Es erscheint die Fehlermeldung "Digital synthesis buffer VCO unlocked" (siehe 7.4.10).	Prüfe, ob die Phasenregelschleife synchronisiert (Spng. an P7 1V...21V, Diagnosepunkt 305). Wenn nicht, siehe vorhergehenden Absatz. Prüfe den INTERRUPT-DETEKTOR (N120, V150).

7.4 Prüfen und Abgleich

Vorbemerkung:

Zum Servicebetrieb wird der obere Deckel abgeschraubt, anstelle der Baugruppe wird der Serviceadapter in den Steckplatz eingesetzt und anschließend die Baugruppe auf den Adapter gesteckt. Nachdem die HF-Verbindungen hergestellt worden sind, ist die Baugruppe wieder betriebsbereit.

7.4.1 Prüfung der Stromaufnahme

Die Stromaufnahme der Baugruppe kann geprüft werden, indem anstelle der Spulen L80, L82, L76, L78 und des Widerstandes R48 jeweils ein Ampermeter eingeschleift wird. Die Sollwerte zu den jeweiligen Versorgungsspannungen finden sich in Kap. 7.6.

7.4.2 Prüfen der Datenübertragung

- Den lötseitigen Deckel abschrauben und an D150 nach folgender Tabelle die Spannungen prüfen.

Einstellung	D150 Pin 4	5	6	7	14	13	12	11	
PRESET	0	0	0	0	x	0	0	1	
DIG.MOD-FSK-SOURCE-PRBS	x	x	x	x	x	0	1	1	
DIG.MOD-GFSK-SOURCE-PRBS	x	x	x	x	x	0	0	0	
DIG.MOD-FSK-SOURCE-PRBS -POLARITY-INV	x	x	x	x	x	1	1	1	

- Den lötseitigen Deckel wieder verschrauben.

7.4.3 Prüfung der Spannungsregler

- Die Baugruppe Option DM-CODER wenn vorhanden ausbauen, damit die Prüfpunkte P20 und P21 zugänglich sind.

▶ Die Spannung am Prüfpunkt P20 muß +5V±0.15V betragen.

▶ Die Spannung am Prüfpunkt P21 muß -5V±0.15V betragen.

7.4.4 Prüfen des Taktsignales zum DDS-GA D20

- Oszilloskop an P32/P33 (Signal/Masse) anschließen (50Ω).

▶ Es muß eine periodische Wechselspannung mit der Frequenz 50MHz, der Maximalspannung über 0.19V und der Minimalspannung unter 0.048V zu messen sein (Zwischen Signal und Prüfpunkt befindet sich ein 1kΩ-Vorwiderstand).

7.4.5 Prüfen der digitalen Signale am DA-Wandler (DAC, D300)

- Einstellung: **FREQUENCY 1350.8MHz**

- Oszilloskop, Kanal1 an P4/P14 (Taktsignal) und Kanal2 an P5/P15 (Datensignal) anschließen und die Triggerschwelle für das Taktsignal auf -40mV einstellen (Triggerung bei negativer Flanke, Impedanz 50Ω).

▶ Das Datensignal sollte als Augenmuster erscheinen. Der HIGH-Pegel sollte zum Triggerzeitpunkt -40mV±7mV betragen.

▶ Der LOW-Pegel sollte zum Triggerzeitpunkt -83mV±7mV betragen.

▶ Die obere Spitzenspannung des Taktsignales sollte >-10mV sein und die untere Spitzenspannung <-110mV sein.

▶ Die SETUP-Zeit und die HOLD-Zeit des Datensignales bezüglich des Triggerzeitpunktes (Datenübernahme), sollte <5ns betragen.

7.4.6 OSCILLATOR-Abgleich

Auf Bauelementeseite ein Spezialdeckel verschrauben, der die Kammer A und F frei läßt, damit verschiedene Prüfpunkte zugänglich sind, und der zum Abgleich von L507 und L506 zwei Löcher hat. Dieser Deckel soll im weiteren mit OSCILLATOR-Deckel bezeichnet werden.

- Einstellung: **FREQUENCY 1000MHz**

- Steckbrücke X36/X37 ziehen und Gleichspannung an X37 einspeisen.

- Spektrumanalysator an X89 (FDDS) anschließen.

▶ Den Oszillator nach folgender Tabelle wechselweise abgleichen. Die anzustrebenden Frequenzwerte sind 10.3 bzw. 15.6 MHz. Falls diese Werte nicht erreicht werden können, so ist der angegebene Toleranzbereich einzuhalten, wobei hierbei an beiden Abgleichpunkten ein möglichst gleicher Frequenzfehler anzustreben ist.
Beim Abgleichpunkt OSZ3 kann wahlweise L506 oder L507 oder beide Spulen abgeglichen werden.

Spannung X37	Abgleichpunkt	Sollfrequenz an X89
18V	OSZ3(L506/L507)	15.6 ... 15.9 MHz
1.6V	OSZ4 (R433)	10 ... 10.3 MHz

- Die Steckbrücke X36/X37 wieder stecken.

7.4.7 Prüfung der PUFFERSCHLEIFE

7.4.7.1 Statisches Verhalten

- Der OSCILLATOR-Deckel muß verschraubt sein.
- Einstellung: **FREQUENCY 1350.2/1351.4MHz**

▶ Die Spannung an P7 muß 14.6/18.0+-1V sein.

7.4.7.2 Einschwingverhalten

- Die Baugruppe Option DATENCODER ausbauen, damit der Prüfpunkt P28 zugänglich ist.
- Der OSCILLATOR-Deckel muß verschraubt sein.
- An P35 (PD-Signal) ein Oszilloskop anschließen, das mit dem FRS-Signal an P28 getriggert wird (negative Flanke, Triggerschwelle 3V).
- Einstellung: **FREQUENCY laut Tabelle**
  (schmalbandige PS)

▶ Die Spannung an P35 muß bei einem Frequenzsprung von 1350.2 auf 1351.4MHz und umgekehrt 3ms nach der Triggerung den Wert von 0.1V unterschritten haben.

- Prüfung bei Ausrüstung mit DATENCODER.
- Einstellung: **FREQUENCY laut Tabelle**
  DIGITAL MOD - 4FSK - SOURCE EXT
  (breitbandige PS)

▶ Die Spannung an P35 muß bei einem Frequenzsprung von 1350.2 auf 1351.4MHz und umgekehrt 70us nach der Triggerung den Wert von 0.1V unterschritten haben.

7.4.7.3 Übertragungsverhalten

- Die Option DATENCODER muß eingebaut sein.
- Der OSCILLATOR-Deckel muß verschraubt sein.
- An X89 (FDDS) einen Modulationsanalysator (z.B. FMB) anschließen und einen Tiefpaß mit 23kHz einschalten.
- Einstellung: **FREQUENCY 835MHz**
  DIGITAL MOD - 4FSK - SOURCE DATA (breitb. PS)
  -FILL-LIST DATA "1000"

▶ Das FM-demodulierte Signal muß einen Spitzenhub von 4.6875kHz+-1% und eine Modulationsfrequenz von 1.5625kHz+-1% haben. Es dürfen keine Überschwinger zu sehen sein.

7.4.8 Prüfung des Ausgangssignales bei CW-Betrieb

- Der OSCILLATOR-Deckel muß verschraubt sein.
- An den Ausgang X89 (FDDS) einen Spektrumanalysator anschließen.
- Einstellung: **FREQUENCY laut Tabelle**
  DIGITAL MOD - FSK - SOURCE EXT/OFF
  - DEVIATION 0Hz

▶ Nach folgender Tabelle verschiedene Frequenzen einstellen und am Ausgang die Frequenz für SOURCE EXT und SOURCE OFF prüfen.

FREQUENCY/MHz	1350.2	1351.4
Sollfrequ./MHz+-1kHz	14.351	15.551

▶ Der Pegel soll 2+-1.5dBm und der Oberwellenabstand <-40dBc betragen.

▶ Nach folgender Tabelle verschiedene Nebenwellen prüfen:

FREQU. in MHz	EXT / OFF	Träger-Frequenz in MHz	Offset-Frequenz in MHz	Nebenw.-Abstand in dBc
1350.69275	EXT	14.84375+-0.1	+-1.5625	<-66
1350.69275	OFF	14.84375+-0.0001	+-1.5625	<-80
1351.27869	EXT	15.4296875+-0.1	+-1.5625	<-66
1351.27869	OFF	15.4296875+-0.0001	+-1.5625	<-80
835.1	EXT	15.1+-0.1	+-0.2	<-66
835.1	OFF	15.1+-0.0001	+-0.2	<-80

7.4.9 Prüfung der Interrupt-Funktion

- Einstellung: **FREQUENCY 1000MHz**

▶ Steckbrücke X36/X37 ziehen. Es muß die Fehlermeldung "Digital synthesis buffer VCO unlocked" erscheinen.

7.4.10 Prüfung der Diagnose

- Einstellung: **FREQUENCY 1000MHz**
  UTILITIES - DIAG - TPOINT...

TPOINT	Meßpunkt	Faktor	Sollspannung
300	+15V-Versorgung	4	14...16V
301	DCOD, OSZ.-Abst.sp.	5	-100...100mV
302	DCOD, OSZ.-Pegel	1	-20...20mV
303	DDS-GA-Taktpegel	1	0.5...1.5V
304	Pegel am Ausg. FDDS	1	50...200mV
305	OSZ.-Abstimmsp.	5	12...20V
306	-15V-Versorgung	4	-14...16V
307	+7.5V-Versorgung	2	14...16V

7.4.11 Prüfung der CODAM-Leitung

- An X3.19/20 (SIG/GND) einen Signalgenerator (50Ohm) anschließen und 10MHz/10dBm einspeisen.
- An X80.9/11 (SIG/GND) einen Spektrumanalysator anschließen und CENTER 10MHz einstellen.

▶ Der zu messende Pegel bei 10MHz muß 4dBm+-2 dB betragen.

Nach dem Öffnen des Gerätes, entriegeln der Baugruppen und dem Lösen der HF-Verbindungen an X81 und X89 kann die Baugruppe aus ihrem Steckplatz genommen werden. Die Schirmdeckel der Baugruppe sind auf herkömmliche Art verschraubt.

7.5 Zerlegung und Zusammenbau

Nach dem Öffnen des Gerätes, Entriegeln der Baugruppe und dem Lösen der HF-Verbindungen an X81 und X89 kann die Baugruppe aus ihrem Steckplatz genommen werden. Die Schirmdeckel der Baugruppe sind auf herkömmliche Art verschraubt.

7.6 Externe Schnittstellen

Pin	Name	Ein/Ausgang	Herkunft/Ziel	Wertebereich	Signalbeschreibung
X80.A12	SERBUS-CLK	Eingang	A3, FRO X50.40	HCMOS-Pegel	Serbus-Clock
X80.A14 X80.A15	SERBUS-DAT	bidir.	A3, FRO X50.39	HCMOS-Pegel	Serbus-Daten
X80.A17	SERBUS-INT	Ausgang	A3, FRO X50.38	HCMOS-Pegel	Serbus-Interrupt
X80.A18	RES-P	Eingang	A3, FRO X50.28	HCMOS-Pegel	Serbus-Reset
X80.A19	DIAG-5V	Ausgang	A3, FRO X50.44	-5V...5V	Diagnose
X80.A24	VA15-P	Eingang	A2, POWS1	14.80V...15.75V 44...66mA	Versorgungsspannung analog
X80.A26	VA7.5-P	Eingang	A2, POWS1	7.45V...7.95V 328...500mA	Versorgungsspannung analog
X80.A28	VD-5P	Eingang	A2, POWS1	5.10V...5.25V 0...10mA	Versorgungsspannung digital
X80.A30	VA15-N	Eingang	A2, POWS1	-15.75V...-14.85V 208...310mA	Versorgungsspannung analog
X80.A1	DATACLK	bidir.	A3, FRO	HCMOS-Pegel	Datentakt des DATENCODER
X80.A2	DATA	bidir	A3, FRO	HCMOS-Pegel	Datensignal des DATENCODER
X80.A3	BURST	bidir.	Rückwand	HCMOS-Pegel	BURST-Signal des DATENCODER
X80.A9	CODAM	Ausgang	A10, OPU1	-1V...+1V	AM-Signal vom DATENCODER
X80.A32	LSWI	Ausgang	A10, OPU1	HCMOS-Pegel	LEVEL-SWITCH-Signal zum OPU
X81	REF50	Eingang	A5, MGEN X99	9dBm+-2dB	HF-Eingang, Referenzsignal
X89	FDDS	Ausgang	A9, SUM, X51	2dBm+-2dB	HF-Ausgang, DDS-Signal

ROHDE&SCHWARZ

SERVICE INSTRUCTIONS

Digital Synthesis

1038.7344.01

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Coordinates list
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7. Checking and Repair of the Module

7.1 Functional Description

Using the DDS component DDS-GA (DDS gate array), the DIGITAL SYNTHESIS module (DSYN for short) digitally generates a sinewave signal in the frequency range 14.1 to 15.6 MHz (SMP: 10.3 to 15.6 MHz) with a resolution of 50 MHz/2^48=0.178 uHz. The generated frequency is as accurate as the clock frequency of the DDS-GA (50 MHz). The clock signal is taken from the REFSS module to the input socket REF50 (X81). The output signal at the output socket FDDS (X89) is routed to the SUMMING LOOP module, where it serves as reference signal for a phase-locked loop.

The module also contains a phase-locked loop, the so-called buffer loop (PS for short (German: PufferSchleife)). The DDS signal can be routed via this loop for suppression of non-harmonic spurious signals.

The DATA CODER option (DCOD) can be fitted in the DSYN module. It provides a digital modulation signal (FM) to the DDS gate array via a parallel port.

Data and clock signals can be applied to the DCOD option and an FSK signal and a serial modulation signal (SYNTHESE-FM) to the DDS gate array via the motherboard.

DSYN contains two SERBUS DECODERs as interfaces to the controller module. SERBUS-D1 is exclusively used for DSYN and SERBUS-D2 for the DATA CODER option.

7.1.1 DIRECT DIGITAL SYNTHESIS

Following the input socket REF50, the sinewave 50-MHz reference signal is divided into three paths by means of a Y-connection: the path for the DDS-GA clock, the path for the DCOD clock and that for the D/A converter (DAC).
The CLOCK AMPLIFIER converts the sinewave signal into a HCMOS signal for the DDS_GA.
The DELAY LINE delays the clock signal for the DAC such that the data from the DDS-GA are read into the DAC at the optimal point in time.
The ALIASING FILTER converts the sample-and-hold signal from the DAC into an sinewave signal.
The parallel modulation data from DCOD are applied via the lines FMDAT(0)...FMDAT(13) to the DDS-GA and are read in with the rising edge of the LOADM signal.
The serial modulation data from the MOTHERBOARD are applied via the DATA line to the DDS-GA and read in with the falling edge of the DATACLK signal. A serial data word is 16 bits long. The MSB, which is transferred first, is marked by a HIGH signal on the BURST line.
The lines BURST, DATA and DATACLK all lead to instrument sockets.

For the FSK modulation without baseband filtering (hard frequency-shift keying), the data signal is also applied via the DATA line to the DDS-GA. This signal can be inverted by the FSK-INVERTER.

7.1.2 BUFFER LOOP

When the buffer loop (PS for short) is activated with PS_ON=1, the PIN diode switches V600 and V603 are closed.

There is no frequency-converting module between the OSCILLATOR (VCO) and the PHASE DETECTOR so that the output frequency (VCO frequency) and the input frequency are identical.

MOS switch N700 permits to switch the loop bandwidth between 1 kHz and 100 kHz. There are three modes of switching:

MODE 1: If BAND=1 is set by the controller, the bandwidth is set to 100 kHz.

MODE 2: If BAND=0 and AUTO=1 are set by the controller, the bandwidth is set to 1 kHz.

MODE 3: If BAND=0 and AUTO=0 are set by the controller, the bandwidth is set to 1 kHz, however, each time the frequency is changed, it is set to 100 kHz for 250 us by the MONOFLOP in order to reduce the settling time.

MODE 3 is used in CW mode if the frequency change is greater than 3 kHz. In the case of a frequency change below 3 kHz, MODE 2 is selected, since the loop remains in the lock-in range.
The narrowband control loop is used to suppress non-harmonic spurious signals in CW mode.

MODE 1 is used to suppress non-harmonic spurious signals, e.g. aliasing products above 100 kHz off the carrier in the case of digital FM modulation.
If the buffer loop is activated (PS_ON=1) but does not synchronize (VCO tuning voltage at X37 or diagnostic voltage 305 at lower or upper stop; <0 V or >21.5 V), the INTERRUPT DETECTOR causes an interrupt at the SERBUS-D1, and an error message is indicated on the instrument display.

7.2 Measuring Instruments and Accessories

- Service kit 1039.3520
- Dual-channel oscilloscope (0 to 250 MHz)
- Spectrum analyzer (1 to 100 MHz)
- Squarewave generator (100 Hz to 1 MHz) (e.g. ADS)
- Test pattern generator (e.g. ADS)
- Frequency counter (10 to 20 MHz) (included in FSA)
- Modulation analyzer (e.g. FMB)

7.3 Troubleshooting

Faulty data transmission (see 7.4.2).	Check SERBUS-D1 (D110), SERBUS BUFFER (D50) and the shift registers D150 and D155.
Clock signal at P32/P33 out of tolerance (see 7.4.4).	Check CLOCK AMPLIFIER (V220, diagnostic point 303).
Clock signal and data signal to DAC (D300) at P4/P14 and P5/P15 out of tolerance (see 7.4.5).	Check the DELAY LINE and the clock amplifier V210 (The setup and hold time can be corrected using R215 or R212 by varying the DELAY LINE delay.)
Output signal out of tolerance in CW mode (DIG. MOD OFF) (see 7.4.8).	Check whether the voltage at P6 corresponds to -9.5+-1 V. Check pin diode V603 and the OSCILLATOR.
Output signal out of tolerance with PS deactivated (FSK-MOD. ON) (see 7.4.8).	Check whether the voltage at P6 corresponds to 11.6+-1 V. Check the DDS gate array D20, pin diode V601, the DAC (D300), the ALIASING FILTER (L405) and the DDS AMPLIFIER (N400).
Phase-locked loop (buffer loop) does not synchronize (see 7.4.7.1).	Check whether jumper X36/X37 is inserted. Check OSCILLATOR (V512), clock amplifier V610 and V612, CONTROL AMPLIFIER (N700, N702, D700, V702, V704). Check whether the voltage at P6 is -9.5 V+-1 V, check pin diodes V603, V600 and V601. Check whether the voltage at P9/P8 is 24 V/0 V+-1 V or 0 V/24 V+-1 V.
The error message "Digital synthesis buffer VCO unlocked" is indicated (see 7.4.10).	Check whether is phase-locked loop synchronizes (voltage at P7 1 V to 21 V, diagnostic point 305). If not, see the above paragraph. Check the INTERRUPT DETECTOR (N120, V150).

7.4 Checking and Adjustment

Preliminary remark:

For service operation, unscrew the upper cover, insert the service adapter into the location instead of the module and plug the module onto the adapter. After the RF connections have been restored, the module is ready for use again.

7.4.1 Testing the Current Consumption

The current consumption of the module can be checked by replacing coils L80, L82, L76, L78 and resistor R48 by an ammeter each. The nominal values for the respective supply voltages are to be obtained from section 7.6.

7.4.2 Testing the Data Transmission

- Unscrew the cover on the solder side and check the voltages according to the following table.

Setting	D150 Pin 4	5	6	7	14	13	12	11	
PRESET	0	0	0	0	x	0	0	1	
DIG.MOD-FSK-SOURCE-PRBS	x	x	x	x	x	0	1	1	
DIG.MOD-GFSK-SOURCE-PRBS	x	x	x	x	x	0	0	0	
DIG.MOD-FSK-SOURCE-PRBS -POLARITY-INV	x	x	x	x	x	1	1	1	

- Fasten the cover on the solder side again.

7.4.3 Testing the Voltage Regulators

- Remove the DM-CODER option, if fitted, so that test points P20 and P21 are accessible.

▶ The voltage at test point P20 must be +5 V ±0.15 V.

▶ The voltage at test point P21 must be -5 V ±0.15 V.

7.4.4 Testing the Clock Signal to the DDS-GA D20

- Connect oscilloscope to P32/P33 (signal/ground) (50 Ω).

▶ A periodic AC voltage with the frequency 50 MHz, the maximum voltage above 0.19 V and the minimum voltage below 0.048 V must be measured (There is a 1-kΩ series resistor between signal and test point).

7.4.5 Testing the Digital Signals at the D/A-Converter (DAC, D300)

- Setting: **FREQUENCY 1350.8MHz**

- Connect the oscilloscope with channel1 to P4/P14 (clock signal) and channel2 to P5/P15 (data signal) and set the trigger threshold for the clock signal to -40 mV (negative-edge triggering, impedance 50 Ω).

▶ The data signal should appear as an eye pattern. The HIGH level should be -40 mV ±7 mV at the trigger point.

▶ The LOW level should be -83 mV± 7 mV at the trigger point.

▶ The upper peak voltage of the clock signal should be >-10 mV and the lower peak voltage <-110 mV.

▶ The SETUP time and the HOLD time of the data signal referred to the trigger point (data acquisition) should be <5 ns.

7.4.6 Adjustment of OSCILLATOR

Fasten a special cover with screws on the component side so that chamber A and F and thus various test points remain freely accessible. For adjustment of L507 and L506, this cover features two holes. It will be referred to as OSCILLATOR cover in the following.

- Setting: **FREQUENCY 1000MHz**
- Remove jumper X36/X37 and apply DC voltage to X37.
- Connect spectrum analyzer to X89 (FDDS).

▶ Alternately adjust the oscillator according to the following table. The intended frequency values are 10.3 and 15.6 MHz. If these values cannot be obtained, the specified tolerance range is to be observed, and, if possible, the same frequency error should be obtained at both trimmers.
In the case of trimmer OSZ3, either L506 or L507 or both coils can be adjusted.

Voltage X37	Trimmer	Nom. frequency at X89
18 V	OSZ3(L506/L507)	15.6 ... 15.9 MHz
1.6 V	OSZ4 (R433)	10 ... 10.3 MHz

- Replace jumper X36/X37.

7.4.7 Testing the BUFFER LOOP

7.4.7.1 Static Response

- The OSCILLATOR cover must be fastened with screws.
- Setting: **FREQUENCY 1350.2/1351.4 MHz**

▶ The voltage at P7 must be 14.6/18.0 +-1 V.

7.4.7.2 Transient Response

- Remove the DATA CODER option so that test point P28 becomes accessible.
- The OSCILLATOR cover must be fastened with screws.
- Connect an oscilloscope to P35 (PD signal), which is triggered with the FRS signal at P28 (negative edge, trigger threshold 3 V).
- Setting: **FREQUENCY acc. to table (narrowband PS)**

▶ When the frequency changes from 1350.2 to 1351.4 MHz and vice versa, the voltage at P35 must be below 0.1 V 3 ms after triggering.

- Testing with a DATA CODER fitted.
- Setting: **FREQUENCY acc. to table**
  DIGITAL MOD - 4FSK - SOURCE EXT
  (broadband PS)

▶ When the frequency changes from 1350.2 to 1351.4 MHz and vice versa, the voltage must be below 0.1 V 70 us after triggering.

7.4.7.3 Transmission Response

- The DATA CODER option must be fitted.
- The OSCILLATOR cover must be fastened with screws.
- Connect a modulation analyzer to X89 (FDDS) (e.g. FMB) and cut in a 23-kHz lowpass.
- Setting: **FREQUENCY 835MHz**
  DIGITAL MOD - 4FSK - SOURCE DATA (broadb. PS)
  -FILL-LIST DATA "1000"

▶ The FM-demodulated signal must feature a peak deviation of 4.6875 kHz +-1% and a modulation frequency of 1.5625 kHz +-1%. There must not be any overshoots.

7.4.8 Testing the Output Signal in CW Mode

- The OSCILLATOR cover must be fastened with screws.

- Connect a spectrum analyzer to output X89 (FDDS).
- Setting: **FREQUENCY acc. to table**
  DIGITAL MOD - FSK - SOURCE EXT/OFF
  - DEVIATION 0Hz

▶ Set various frequencies according to the following table and check the frequency for SOURCE EXT and SOURCE OFF at the output.

FREQUENCY/MHz	1350.2	1351.4
Nom. freq./MHz+-1kHz	14.351	15.551

▶ The level must be 2 +-1.5 dBm and the harmonics suppression <-40 dBc.

▶ Check nonharmonic spuria according to the following table:

FREQU. in MHz	EXT / OFF	Carrier frequency in MHz	Offset frequency in MHz	Nonharm. spuria in dBc
1350.69275	EXT	14.84375+-0.1	+-1.5625	<-66
1350.69275	OFF	14.84375+-0.0001	+-1.5625	<-80
1351.27869	EXT	15.4296875+-0.1	+-1.5625	<-66
1351.27869	OFF	15.4296875+-0.0001	+-1.5625	<-80
835.1	EXT	15.1+-0.1	+-0.2	<-66
835.1	OFF	15.1+-0.0001	+-0.2	<-80

7.4.9 Testing the Interrupt Function

- Setting: **FREQUENCY 1000MHz**

▶ Remove jumper X36/X37. The error message "Digital synthesis buffer VCO unlocked" must be displayed.

7.4.10 Testing the Diagnosis

- Setting: **FREQUENCY 1000MHz**
  UTILITIES - DIAG - TPOINT...

TPOINT	Test point	Factor	Nom. voltage
300	+15V supply	4	14...16 V
301	DCOD, OSC.tun. volt.	5	-100...100 mV
302	DCOD, OSC. level	1	-20...20 mV
303	DDS-GA clock level	1	0.5...1.5 V
304	Level at outp. FDDS	1	50...200 mV
305	OSC. tuning voltage	5	12...20 V
306	-15-V supply	4	-14...16 V
307	+7.5-V supply	2	14...16 V

7.4.11 Testing the CODAM Line

- Connect a signal generator (50 Ω) to X3.19/20 (SIG/GND) and apply 10 MHz/10 dBm.
- Connect a spectrum analyzer to X80.9/11 (SIG/GND) and set CENTER 10 MHz.

▶ The level to be measured at 10 MHz must be 4 dBm +-2 dB.

The module can be removed from its location after opening the instrument, unlocking the modules and loosening the RF connections at X81 and X89. The screening covers of the module are conventionally fastened with screws.

7.5 Removal and Assembly

The module can be removed from its location after opening the instrument, unlocking the module and loosening the RF connections at X81 and X89. The screening covers of the module are conventionally fastened with screws.

7.6 Interface Description

Pin	Name	Inp./Output	Origin/Destination	Value range	Signal description
X80.A12	SERBUS-CLK	Input	A3, FRO X50.40	HCMOS level	Serbus clock
X80.A14 X80.A15	SERBUS-DAT	bidir.	A3, FRO X50.39	HCMOS level	Serbus data
X80.A17	SERBUS-INT	Output	A3, FRO X50.38	HCMOS level	Serbus interrupt
X80.A18	RES-P	Input	A3, FRO X50.28	HCMOS level	Serbus reset
X80.A19	DIAG-5V	Output	A3, FRO X50.44	-5V...5V	Diagnosis
X80.A24	VA15-P	Input	A2, POWS1	14.80V...15.75V 44...66mA	Supply voltage analog
X80.A26	VA7.5-P	Input	A2, POWS1	7.45V...7.95V 328...500mA	Supply voltage analog
X80.A28	VD-5P	Input	A2, POWS1	5.10V...5.25V 0...10mA	Supply voltage digital
X80.A30	VA15-N	Input	A2, POWS1	-15.75V...-14.85V 208...310mA	Supply voltage analog
X80.A1	DATACLK	bidir.	A3, FRO	HCMOS level	Data clock of DATA CODER
X80.A2	DATA	bidir	A3, FRO	HCMOS level	Data signal of DATA CODER
X80.A3	BURST	bidir.	Rear panel	HCMOS level	BURST signal of DATA CODER
X80.A9	CODAM	Output	A10, OPU1	-1V...+1V	AM signal from DATA CODER
X80.A32	LSWI	Output	A10, OPU1	HCMOS level	LEVEL-SWITCH signal to OPU
X81	REF50	Input	A5, MGEN X99	9dBm+-2dB	RF input, reference signal
X89	FDDS	Output	A9, SUM, X51	2dBm+-2dB	RF output, DDS signal

ROHDE&SCHWARZ

Schaltteillisten
numerisch geordnet
Part lists
in numerical order
Listes des pièces détachées
par numéros de référence

(R 29500 BI 3)
095 1800 BI 3

Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C50	CE 4,7UF+-10% 10V 3528 TANTALUM SMD-CAPACITOR	CE 0007.7275.00	KEMET	T491 B 475 K 010 AS	
C77	CE 47UF+-20%50V RM2,5 ELECTROLYTIC CAPACITOR	CE 0008.7479.00	PANASONIC	ECA-1HFG470I	
C79	CE 100UF+-20%25V RM2.5 ELECTROLYTIC CAPACITOR	CE 0008.7891.00	PANASONIC	ECA-1EFG101I	
C81	CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR	CE 0008.7927.00	PANASONIC	ECA 1 AFG 221 I	
C83	CE 100UF+-20%25V RM2.5 ELECTROLYTIC CAPACITOR	CE 0008.7891.00	PANASONIC	ECA-1EFG101I	
C100	CE 100UF+-20%6,3V AL-CHIP SMD-ELECTROLYTIC CAPACIT.	CE 0008.1841.00	VALVO	TYP 2222 139 63101	
C102	CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR	CC 0007.7398.00	PHILIPS_CO	2222 863 *8102	
C110	CE 100UF+-20%6,3V AL-CHIP SMD-ELECTROLYTIC CAPACIT.	CE 0008.1841.00	VALVO	TYP 2222 139 63101	
C111	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C112	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C114 ..120	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C129	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C130	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C131	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C132	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C133	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C134	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C135	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C150	CE 10UF+-20%50V ALU-CHIP SMD-ELECTROLYTIC CAPACIT.	CE 0008.1812.00	VALVO	TYP 2222 139 61109	
C162	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C168	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C180	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C182	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C186	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C200	CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR	CE 0008.7927.00	PANASONIC	ECA 1 AFG 221 I	
C202	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C203	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C204	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C205	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C210	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C212	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C214	CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR	CE 0007.7246.00	KEMET	T491D106K025AS	
C216	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C218	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C219	CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR	CC 0007.7398.00	PHILIPS_CO	2222 863 *8102	
C220	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C222	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C230	CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0099.8521.00	MURATA	GRM42-6X7R103K 50PT	
C231	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C232	CC 2,2PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR	CC 0007.8171.00	MURATA	GRM42-6C0G 2R2 C50PT	
C233	CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR	CC 0007.7398.00	PHILIPS_CO	2222 863 *8102	
C300	CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR	CE 0007.7246.00	KEMET	T491D106K025AS	
C302	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C304	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C306	CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR	CE 0008.7927.00	PANASONIC	ECA 1 AFG 221 I	
C308	CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR	CE 0008.7927.00	PANASONIC	ECA 1 AFG 221 I	
C310	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C312	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C402	CC 180PF+-1%50V NPO 1206 CHIP CAPACITOR	CC 0099.8844.00	PHILIPS_CO	2238 863 18181	
C403	CC 27PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8409.00	MURATA	GRM42-6C0G 270F 50PT	
C404	CC 180PF+-1%50V NPO 1206 CHIP CAPACITOR	CC 0099.8844.00	PHILIPS_CO	2238 863 18181	
C405	CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8415.00	MURATA	GRM42-6C0G 101F 50PT	
C406	CC 180PF+-1%50V NPO 1206 CHIP CAPACITOR	CC 0099.8844.00	PHILIPS_CO	2238 863 18181	
C407	CC 68PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8815.00	MURATA	GRM42-6C0G 680F 50PT	
C408	CC 330PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8873.00	PHILIPS_CO	2238 863 18331	
C409	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C410	CC 390PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8880.00	PHILIPS_CO	2238 863 18391	
C411	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C412	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C414	CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR	CE 0007.7246.00	KEMET	T491D106K025AS	
C420	CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR	CE 0007.7246.00	KEMET	T491D106K025AS	
C500	CC 270PF+-5% 200V PELL CAPACITOR TRIMMWERT/SELECTED"	CC 0556.8730.00	TEKELEC	201 CHB 271J WL	
C502	CC 56PF+-5% 500V PELL CAPACITOR	CC 0556.8660.00	TEKELEC	501 CHB 560 J(W/V)LE	
C505	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C506	CC 470PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8515.00	PHILIPS_CO	2238 863 18471	
C508	CC 470PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8515.00	PHILIPS_CO	2238 863 18471	
C510	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C512	CC 39PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8796.00	MURATA	GRM42-6C0G 390F 50PT	
C514	CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR	CE 0007.7246.00	KEMET	T491D106K025AS	
C516	CC 150PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8509.00	PHILIPS_CO	2238 863 18151	
C518	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C519	CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR	CE 0007.7246.00	KEMET	T491D106K025AS	
C600	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C602	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C604	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C620	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C621	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
C622	CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR	CC 0007.7398.00	PHILIPS_CO	2222 863 *8102	
C623	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C624	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C625	CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR	CC 0007.7398.00	PHILIPS_CO	2222 863 *8102	
C626	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C627	CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8850.00	PHILIPS_CO	2238 863 18221	
C628	CC 330PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8873.00	PHILIPS_CO	2238 863 18331	
C629	CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8850.00	PHILIPS_CO	2238 863 18221	
C630	CC 2,2PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR	CC 0007.8171.00	MURATA	GRM42-6C0G 2R2 C50PT	
C631	CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR	CC 0007.7398.00	PHILIPS_CO	2222 863 *8102	
C640	CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR	CC 0007.7398.00	PHILIPS_CO	2222 863 *8102	
C641	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C642	CC 470PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8515.00	PHILIPS_CO	2238 863 18471	
C646	CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR	CC 0007.7398.00	PHILIPS_CO	2222 863 *8102	
C647	CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR	CC 0007.5237.00	PHILIPS_CO	2238 581 55649	
C648	CC 470PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8515.00	PHILIPS_CO	2238 863 18471	
C662	CC 10PF+-0,25 50VNP0 1206 CERAMIC CHIP CAPACITOR	CC 0099.8480.00	MURATA	GRM42-6C0G 100 C50PT	
C663	CC 10PF+-0,25 50VNP0 1206 CERAMIC CHIP CAPACITOR	CC 0099.8480.00	MURATA	GRM42-6C0G 100 C50PT	
C700	CE 47UF+-20%50V RM2,5 ELECTROLYTIC CAPACITOR	CE 0008.7479.00	PANASONIC	ECA-1HFG470I	
C701	CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR	CE 0008.7927.00	PANASONIC	ECA 1 AFG 221 I	
C702	CK 22NF +-1% 63V RM5 KP POLYPROPYLENE CAPACITOR	CK 0007.7675.00	ROEDERSTEI	KP1830-322 06 1 3 W	
C703	CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR	CK 0099.2998.00	ERO	MKT 1826-510/054-R	
C705	CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR	CC 0007.7398.00	PHILIPS_CO	2222 863 *8102	
C706	CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8415.00	MURATA	GRM42-6C0G 101F 50PT	
C710	CC 68PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR	CC 0099.8815.00	MURATA	GRM42-6C0G 680F 50PT	
D20	BG L5A8836 DDS GA ASIC IC GATE-ARRAY	1036.4325.00	LSI_LOGIC	R&S-SACHNR.	
D50	BL PC74HCT125T 4XBUFF. 3S QUAD LINE DRIVER	BL 0007.5395.00	PHILIPS_SE	(PC)74HCT125(D/T)	
D110	BG TH3032.1C SERBUSD ASIC IC GATE ARRAY	0008.6143.00	THESYS	TH3032.1C	
D112	BG TH3032.1C SERBUSD ASIC IC GATE ARRAY	0008.6143.00	THESYS	TH3032.1C	
D120	BL PC74HCT132T 4X2IN SCHM NAND SCHMITT TRIGGER	BL 0007.6340.00	PHILIPS	(PC)74HCT132(D/T)	
D125	BL PC74HCT132T 4X2IN SCHM NAND SCHMITT TRIGGER	BL 0007.6340.00	PHILIPS	(PC)74HCT132(D/T)	
D130	BL PC74HCT4051T 8CH.A.MUX ANALOG MULTIPLEXER	BL 0007.6827.00	PHILIPS	(PC)74HCT4051(T)	
D135	BL 74ACT86SC 4X 2IN-EXOR QUAD 2-INPUT EXOR GATE	BL 2005.4307.00	HARRIS	(CD74)ACT86(M)	
D150	BL PC74HCT4094T 8ST.SHREG SHIFT REGISTER	BL 0007.6885.00	PHILIPS	(PC)74HCT4094(D)	
D155	BL PC74HCT4094T 8ST.SHREG SHIFT REGISTER	BL 0007.6885.00	PHILIPS	(PC)74HCT4094(D)	
D175	BL PC74HC4538T 2X MULTIV DUAL MULTIVIBRATOR	BL 6014.4382.00	PHILIPS_SE	(PC)74HC4538(T)	
D300	BJ CX20201A-1 MPY 10B-DAC IC DIGITAL/ANALOG CONV	1039.1340.00	HARRIS	HI20201JCB	
D600	BL 74AC74SC 2XD-FLIPFL DUAL D-TYPE FLIPF	BL 0820.3602.00	NSC	74AC74(SC)	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
D700	BS SD5400CY 4X ANALOGSCH QUAD ANALOG SWITCH	0351.0000.00	SILICONIX	SD5400CY	
L76	LD 150UH BEI 0,17A 6,20HM CHOKE	LD 0026.4055.00	DALE	IM 6	
L78	LD 150UH BEI 0,17A 6,20HM CHOKE	LD 0026.4055.00	DALE	IM 6	
L80	LD 3,3UH BEI 1,63A0,160HM CHOKE	LD 0026.4061.00	DALE	IM 6	
L82	LD 15UH 10% 1R2 0,46A CHOKE	LD 0026.4149.00	DALE	IM 6	
L110	LD 1UH 10% 0,38A 1210 SMD-INDUCTOR	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L135	LD 1UH 10% 0,38A 1210 SMD-INDUCTOR	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L150	LD 100UH 10% 0,06A 1210 SMD-INDUCTOR	LD 0007.9261.00	SIEMENS	B82422-A1104-J(K)100	
L200	LD 0,22UH10%0,140HM1,045A CHOKE	LD 0067.2786.00	DALE	IM2	
L201	LD 1UH 10% 0,38A 1210 SMD-INDUCTOR	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L202	LD 0,47UH10%0,350HM0,660A CHOKE	LD 0067.2828.00	DALE	IM2	
L204	LD 0,47UH10%0,350HM0,660A CHOKE	LD 0067.2828.00	DALE	IM2	
L206	LD 0,47UH10%0,350HM0,660A CHOKE	LD 0067.2828.00	DALE	IM2	
L208	LD 0,22UH10%0,140HM1,045A CHOKE	LD 0067.2786.00	DALE	IM2	
L210	LD 4,70UH10%1,200HM0,239A CHOKE	LD 0067.2940.00	DALE	IM2	
L212	LD 1UH 10% 0,38A 1210 SMD-INDUCTOR	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L214	LD 1UH 10% 0,38A 1210 SMD-INDUCTOR	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L216	LD 1UH 10% 0,38A 1210 SMD-INDUCTOR	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L300	LD 1UH 10% 0,38A 1210 SMD-INDUCTOR	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L302	LD 1UH 10% 0,38A 1210 SMD-INDUCTOR	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L304	LD 1UH 10% 0,38A 1210 SMD-INDUCTOR	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L306	LD 1UH 10% 0,38A 1210 SMD-INDUCTOR	LD 6006.0130.00	SIEMENS	B82422-A1102-J(K)100	
L403	LD 0,39UH10%0,300HM0,710A CHOKE	LD 0067.2811.00	DALE	IM2	
L405	LD 0,22UH10%0,140HM1,045A CHOKE	LD 0067.2786.00	DALE	IM2	
L406	LD 0,22UH10%0,140HM1,045A CHOKE	LD 0067.2786.00	DALE	IM2	
L408	LD 10 UH 10% 3R3 144 MA CHOKE	LD 0026.4184.00	DALE	IM2	
L500	LD 56,0UH10%5,700HM0,100A CHOKE	LD 0067.3076.00	DALE	IM2	
L502	LD 56,0UH10%5,700HM0,100A CHOKE	LD 0067.3076.00	DALE	IM2	
L504	LD 22,0UH10%3,300HM0,114A CHOKE	LD 0067.3024.00	DALE	IM2	
L506	LD 530NH 9,5W CM19P FE-K COIL	0817.0058.00	TOKO	E526 HN-100109	
L507	LD 530NH 9,5W CM19P FE-K COIL	0817.0058.00	TOKO	E526 HN-100109	
L508	LD 56,0UH10%5,700HM0,100A CHOKE	LD 0067.3076.00	DALE	IM2	
L514	LD 2,70UH10%0,550HM0,355A CHOKE	LD 0067.2911.00	DALE	IM2	
L516	LD 1,50UH10%0,220HM0,560A CHOKE	LD 0067.2886.00	DALE	IM2	
L600	LD 10UH 10% 0,18A 1210 SMD-INDUCTOR	LD 0007.9255.00	SIEMENS	B82422-A1103-J(K)100	
L602	LD 56ONH 5% 0R5 0,495A CHOKE	0300.9752.00	DALE	IM 2	
L603	LD 56ONH 5% 0R5 0,495A CHOKE	0300.9752.00	DALE	IM 2	
L700	LD 100UH 10% 0,06A 1210 SMD-INDUCTOR	LD 0007.9261.00	SIEMENS	B82422-A1104-J(K)100	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
L701	LD 100UH 10% 0,06A 1210 SMD-INDUCTOR	LD 0007.9261.00	SIEMENS	B82422-A1104-J(K)100	
L705	LD 56,0UH10%5,700HMO,100A CHOKE	LD 0067.3076.00	DALE	IM2	
N100	BO LM2940CT LOWDROP+VREGL VOLTAGE REGULATOR	BO 0350.5809.00	NSC	LM2940CT-5.0	
N110	BO UA7905UC -5V1AO VREGL VOLTAGE REGULATOR	BO 0282.5449.00	NSC	LM7905 CT	
N120	BO LM2903D 2XLP COMPAR DUAL	0520.7734.00	SIGNETICS	LM2903(D)	
N130	BO LM2903D 2XLP COMPAR DUAL	0520.7734.00	SIGNETICS	LM2903(D)	
N400	BM MAR8 MMIC BROADBAND AMPLIFIER	0656.4720.00	MINI-CIRCU	MAR8	
N600	BO MC1458D 2X OPAMP OPERATION AMPLIFIER	0007.3763.00	SIGNETICS	MC1458(D)	
N700	BO NE5534D OPAMP OPERATIONAL AMPLIFIER	0815.7555.00	SIGNETICS	NE5534(D)	
N702	BO AD829JR 1XLOLN OPAMP IC OPAMP	1036.4254.00	ANALOG_DEV	AD829JR	
P1	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P2	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P3	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P4	VL EINPRESSSTIFT L=6,8 PIN	VL 0010.7250.00	AMP	1-928776-5	
P5	VL EINPRESSSTIFT L=6,8 PIN	VL 0010.7250.00	AMP	1-928776-5	
P6	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P7	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P8	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P9	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P10	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P11	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P12	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P13	VL EINPRESSSTIFT L=6,8 PIN	VL 0010.7250.00	AMP	1-928776-5	
P14	VL EINPRESSSTIFT L=6,8 PIN	VL 0010.7250.00	AMP	1-928776-5	
P15	VL EINPRESSSTIFT L=6,8 PIN	VL 0010.7250.00	AMP	1-928776-5	
P16	VL EINPRESSSTIFT L=6,8 PIN	VL 0010.7250.00	AMP	1-928776-5	
P17	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P18	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P20	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P21	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P22	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P23	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P24	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P27	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P28	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P29	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P30	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P32	VL EINPRESSSTIFT L=6,8 PIN	VL 0010.7250.00	AMP	1-928776-5	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
P33	VL EINPRESSSTIFT L=6,8 PIN	VL 0010.7250.00	AMP	1-928776-5	
P34	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P35	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P39	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P40	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P41	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P42	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P43	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
P44	VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG	VL 0078.2747.00	-	R&S-ZCHNG.078.2747	
R48	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RC02	
R49	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R50	RG 475 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5695.00	ROEDERSTEI	D25	
R51	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R52 ..61	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R64	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R65	RG 475 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5695.00	ROEDERSTEI	D25	
R66	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R67	RG 475 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5695.00	ROEDERSTEI	D25	
R68	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R69	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R70	RG 475 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5695.00	ROEDERSTEI	D25	
R71	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R72	RG 475 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5695.00	ROEDERSTEI	D25	
R73	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R74	RG 475 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5695.00	ROEDERSTEI	D25	
R75	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R93	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R94	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R96	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R101	RG 909 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.7265.00	ROEDERSTEI	D25	
R102	RG 909 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.7265.00	ROEDERSTEI	D25	
R103	RG 909 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.7265.00	ROEDERSTEI	D25	
R104	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R106	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R108	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R110	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R112	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R114	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R117	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R118	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R119	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R121	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R124	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R128	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R129	RG 47,5KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5950.00	ROEDERSTEI	D25	
R130	RG 2,7MOHM+-5%TK200 1206 CHIP RESISTOR	0007.9984.00	ROEDERSTEI	D 25	
R131	RG 27,4KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5895.00	ROEDERSTEI	D25	
R132	RG 27,4KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5895.00	ROEDERSTEI	D25	
R133	RG 27,4KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5895.00	ROEDERSTEI	D25	
R134	RG 27,4KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5895.00	ROEDERSTEI	D25	
R135	RG 27,4KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5895.00	ROEDERSTEI	D25	
R136	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R137	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R140	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R142	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R143	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R144	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R145	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R146	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R148	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R149	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RCO2	
R150	RG 27,4KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5895.00	ROEDERSTEI	D25	
R151	RG 12,1KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0007.0841.00	PHILIPS_CO	RCO2	
R152	RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR	RG 0007.1948.00	ROEDERSTEI	D25	
R153	RG 130,0KOH+-1%TK100 1206 RESISTOR CHIP	RG 0007.5966.00	ROEDERSTEI	D25	
R154	RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM	RG 0007.5108.00	DRALORIC	CR 1206	
R155	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RCO2	
R156	RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR	RG 0007.1948.00	ROEDERSTEI	D25	
R157	RG 33,2KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5914.00	ROEDERSTEI	D25	
R158	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RCO2	
R159	RG 90,9KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0007.1931.00	ROEDERSTEI	D25	
R160	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R161	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R162	RG 33,2KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5914.00	ROEDERSTEI	D25	
R163	RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR	RG 0007.1948.00	ROEDERSTEI	D25	
R164	RG 33,2KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5914.00	ROEDERSTEI	D25	
R165	RG 562 KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.6091.00	ROEDERSTEI	D25	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R166	RG 10,OKOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RCO2	
R167	RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5743.00	ROEDERSTEI	D25	
R168	RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5743.00	ROEDERSTEI	D25	
R169	RG 33,2KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5914.00	ROEDERSTEI	D25	
R170	RG 562 KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.6091.00	ROEDERSTEI	D25	
R171	RG 10,OKOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RCO2	
R172	RG 10,OKOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RCO2	
R174	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RCO2	
R175	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RCO2	
R176	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RCO2	
R177	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RCO2	
R178	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RCO2	
R179	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R180	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R181	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R182	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R183	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R184	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R185	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R186	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R187	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R188	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R189	RG 2,7MOHM+-5%TK200 1206 CHIP RESISTOR	0007.9984.00	ROEDERSTEI	D 25	
R190	RG 2,7MOHM+-5%TK200 1206 CHIP RESISTOR	0007.9984.00	ROEDERSTEI	D 25	
R191	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R192	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R193	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R194	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R195	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R196	RG 10,OKOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RCO2	
R197	RG 100,OKOH+-1%TK100 1206 CHIP RESISTOR	RG 0007.1948.00	ROEDERSTEI	D25	
R198	RG 33,2KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5914.00	ROEDERSTEI	D25	
R200	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R201	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R202	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R203	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R204	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R205	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RCO2	
R206	RG 475 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5695.00	ROEDERSTEI	D25	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R207	RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5820.00	ROEDERSTEI	D25	
R210	RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8849.00	ROEDERSTEI	D25	
R211	RG 562 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9068.00	PHILIPS_CO	RC02	
R212	RG 22,1KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5872.00	ROEDERSTEI	D25	
R215	RG 15,OKOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5843.00	ROEDERSTEI	D25	
R216	RG 1,O KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R218	RG 1,O KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R220	RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8826.00	ROEDERSTEI	D25	
R222	RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8849.00	ROEDERSTEI	D25	
R224	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RC02	
R226	RG 6,81KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0007.0758.00	ROEDERSTEI	D25	
R228	RG 221 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5614.00	ROEDERSTEI	D25	
R240	RG 562 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9068.00	PHILIPS_CO	RC02	
R241	RG 562 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9068.00	PHILIPS_CO	RC02	
R242	RG 562 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9068.00	PHILIPS_CO	RC02	
R243	RG 562 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9068.00	PHILIPS_CO	RC02	
R244	RG 562 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9068.00	PHILIPS_CO	RC02	
R245	RG 562 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9068.00	PHILIPS_CO	RC02	
R246	RG 562 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9068.00	PHILIPS_CO	RC02	
R247	RG 562 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9068.00	PHILIPS_CO	RC02	
R248	RG 562 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9068.00	PHILIPS_CO	RC02	
R249	RG 562 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9068.00	PHILIPS_CO	RC02	
R250	RG 1,O KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R252	RN 9X330 OHM+-2%SIL10 H5 RESISTOR NETWORK	0379.8306.00	BI_TECHNOL	L 10 1 S 331 M*	
R253	RG 332 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5650.00	PHILIPS_CO	RC02	
R256	RN 9X330 OHM+-2%SIL10 H5 RESISTOR NETWORK	0379.8306.00	BI_TECHNOL	L 10 1 S 331 M*	
R257	RG 332 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5650.00	PHILIPS_CO	RC02	
R260	RG O-OHM WIDERSTAND-CHIP RESISTOR CHIP O-OHM	RG 0007.5108.00	DRALORIC	CR 1206	
R261	RG 121 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8903.00	ROEDERSTEI	D25	
R262	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R263	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RC02	
R264	RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8849.00	ROEDERSTEI	D25	
R265	RG 6,81KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0007.0758.00	ROEDERSTEI	D25	
R266	RG 221 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5614.00	ROEDERSTEI	D25	
R267	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RC02	
R268	RG 47,5KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5950.00	ROEDERSTEI	D25	
R269	RG 1,O KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R270	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R271	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R272	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R273	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R274	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R277	RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5566.00	ROEDERSTEI	D25	
R300	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R302	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R304	RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5766.00	PHILIPS_CO	RC02	
R306	RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5766.00	PHILIPS_CO	RC02	
R310	RG 8,25KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0007.0770.00	ROEDERSTEI	D25	
R312	RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9968.00	ROEDERSTEI	D25	
R314	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R400	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R401	RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8826.00	ROEDERSTEI	D25	
R402	RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8826.00	ROEDERSTEI	D25	
R403	RG 18,2 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5466.00	ROEDERSTEI	D25	
R404	RG 1,1KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9951.00	ROEDERSTEI	D25	
R405	RG 27,4 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5508.00	ROEDERSTEI	D25	
R406	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RC02	
R407	RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8849.00	ROEDERSTEI	D25	
R408	RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8849.00	ROEDERSTEI	D25	
R409	RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8849.00	ROEDERSTEI	D25	
R420	RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR	RG 0007.1948.00	ROEDERSTEI	D25	
R424	RG 27,4KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5895.00	ROEDERSTEI	D25	
R433	RS 0,5W5OKOHM+-10%10X10X5 CERMET POTENTIOMETER T	RS 0087.7677.00	SPECTROL	63X ... TO10	
R502	RG 681 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.9080.00	ROEDERSTEI	D25	
R503	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RC02	
R504	RG 274 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5637.00	ROEDERSTEI	D25	
R505	RG 18,2 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5466.00	ROEDERSTEI	D25	
R506	RG 274 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5637.00	ROEDERSTEI	D25	
R510	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R512	RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5714.00	ROEDERSTEI	D25	
R514	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RC02	
R516	RG 3,32KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5789.00	ROEDERSTEI	D25	
R518	RG 82,5 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8861.00	PHILIPS_CO	RC02	
R519	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RC02	
R520	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RC02	
R521	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RC02	
R600	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R601	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RC02	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R602	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RC02	
R603	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RC02	
R604	RG 68,1KOHM+-1%TK100 1206 CHIP RESISTOR	RG 0007.1902.00	ROEDERSTEI	D25	
R605	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RC02	
R606	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R607	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R610	RG 475 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5695.00	ROEDERSTEI	D25	
R611	RG 475 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5695.00	ROEDERSTEI	D25	
R612	RG 475 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5695.00	ROEDERSTEI	D25	
R614	RG 47,5KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5950.00	ROEDERSTEI	D25	
R618	RG 18,2 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5466.00	ROEDERSTEI	D25	
R619	RG 18,2 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5466.00	ROEDERSTEI	D25	
R620	RG 18,2 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5466.00	ROEDERSTEI	D25	
R630	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RC02	
R631	RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8849.00	ROEDERSTEI	D25	
R632	RG 3,32KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5789.00	ROEDERSTEI	D25	
R633	RG 221 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5614.00	ROEDERSTEI	D25	
R634	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R635	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R636	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R637	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R640	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RC02	
R641	RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8849.00	ROEDERSTEI	D25	
R642	RG 3,32KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5789.00	ROEDERSTEI	D25	
R643	RG 221 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5614.00	ROEDERSTEI	D25	
R646	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R647	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R650	RG 150 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5589.00	ROEDERSTEI	D25	
R652	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R653	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R702	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R704	RG 392 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5672.00	ROEDERSTEI	D25	
R705	RG 332 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5650.00	PHILIPS_CO	RC02	
R706	RG 24,3KOHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5889.00	ROEDERSTEI	D25	
R707	RG 332 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5650.00	PHILIPS_CO	RC02	
R708	RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM	RG 0007.5108.00	DRALORIC	CR 1206	
R709	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R710	RG 332 OHM+-1%TK100 1206 RESISTOR CHIP	RG 0007.5650.00	PHILIPS_CO	RC02	
R712	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RC02	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
R713	RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR	RG 0007.0793.00	PHILIPS_CO	RC02	
R715	RG 100 OHM+-1%TK100 1206 CHIP RESISTOR	RG 0006.8884.00	PHILIPS_CO	RC02	
R716	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
R717	RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR	RG 0006.7271.00	PHILIPS_CO	RC02	
T200	LU HF-UEBERTR. 0,2-350MHZ WIDE-BAND TRANSFORMER	0276.3619.00	MINI-CIRCU	T 4-1 W38	
V100	AD BAV99 70V DUO UDI DIODE	AD 0911.0092.00	VALVO	BAV99	
V102	AD BAV99 70V DUO UDI DIODE	AD 0911.0092.00	VALVO	BAV99	
V104	AD BAV99 70V DUO UDI DIODE	AD 0911.0092.00	VALVO	BAV99	
V150	AM BSS123 N-E 100V MOSF FET	0815.7961.00	SIEMENS	BSS 123 E-6327	
V152	AD BAV99 70V DUO UDI DIODE	AD 0911.0092.00	VALVO	BAV99	
V153	AD BAV99 70V DUO UDI DIODE	AD 0911.0092.00	VALVO	BAV99	
V154	AD BAV99 70V DUO UDI DIODE	AD 0911.0092.00	VALVO	BAV99	
V200	AE BB620 45/03PF CDI TUNING DIODE	0848.5251.00	SIEMENS	BB620	
V202	AE BB620 45/03PF CDI TUNING DIODE	0848.5251.00	SIEMENS	BB620	
V204	AE BB620 45/03PF CDI TUNING DIODE	0848.5251.00	SIEMENS	BB620	
V206	AE BB620 45/03PF CDI TUNING DIODE	0848.5251.00	SIEMENS	BB620	
V210	AK BFS17 N 30V 50MA TRANSISTOR	AK 0010.6460.00	VALVO	BFS17	
V220	AK BFS17 N 30V 50MA TRANSISTOR	AK 0010.6460.00	VALVO	BFS17	
V222	AE HSMS2800 SCHOTTKY DIODE	AE 0836.8421.00	HEWLETT_PA	HSMS-2800(#L31)	
V500	AE BB130PAAR 300/22PF CDI TUNING DIODE (PAIR)	0372.2231.00	PHILIPS	BB130/PAAR	
V501	AE BB130PAAR 300/22PF CDI TUNING DIODE (PAIR)	0372.2231.00	PHILIPS	BB130/PAAR	
V502	AE BB130PAAR 300/22PF CDI TUNING DIODE (PAIR)	0372.2231.00	PHILIPS	BB130/PAAR	
V503	AE BB130PAAR 300/22PF CDI TUNING DIODE (PAIR)	0372.2231.00	PHILIPS	BB130/PAAR	
V504	AE BB130PAAR 300/22PF CDI TUNING DIODE (PAIR)	0372.2231.00	PHILIPS	BB130/PAAR	
V505	AE BB130PAAR 300/22PF CDI TUNING DIODE (PAIR)	0372.2231.00	PHILIPS	BB130/PAAR	
V507	AE BB212 2X500/22PF CDI TUNNING DIODE	0373.6901.00	PHILIPS_SE	BB212	
V510	AK BFQ81 N 16V 30MA TRANSISTOR	0920.1717.00	SIEMENS	BFQ81	
V512	AK BFQ81 N 16V 30MA TRANSISTOR	0920.1717.00	SIEMENS	BFQ81	
V514	AK BFQ81 N 16V 30MA TRANSISTOR	0920.1717.00	SIEMENS	BFQ81	
V516	AK BCX71J P 45V 200MA TRANSISTOR	AK 0007.2096.00	VALVO	BCX71J GEGURTET	
V518	AK BCX71J P 45V 200MA TRANSISTOR	AK 0007.2096.00	VALVO	BCX71J GEGURTET	
V600	AE BAR14-1 2X 100V PIN PIN DIODE	0820.3283.00	SIEMENS	BAR14-1	
V601	AE BAR14-1 2X 100V PIN PIN DIODE	0820.3283.00	SIEMENS	BAR14-1	
V603	AE BAR14-1 2X 100V PIN PIN DIODE	0820.3283.00	SIEMENS	BAR14-1	
V605	AE HSMS2800 SCHOTTKY DIODE	AE 0836.8421.00	HEWLETT_PA	HSMS-2800(#L31)	
V610	AK BFS17 N 30V 50MA TRANSISTOR	AK 0010.6460.00	VALVO	BFS17	
V612	AK BFS17 N 30V 50MA TRANSISTOR	AK 0010.6460.00	VALVO	BFS17	
V614	AD BAS16 75V UDI DIODE	AD 0007.4924.00	VALVO	BAS16 (A6P)	

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Kennz. Comp. No.	Benennung Designation	Sachnummer Stock No.	Hersteller Manufacturer	Bezeichnung Designation	enthalten in contained in
V615	AD BAS16 75V UDI DIODE	AD 0007.4924.00	VALVO	BAS16 (A6P)	
V702	AK BC850B N 45V 200MA TRANSISTOR	AK 0007.7969.00	VALVO	BC850B	
V704	AK BC860B P 45V 200MA TRANSISTOR	AK 0007.7975.00	MOTOROLA	BC860B	
V708	AE HSMS2800 SCHOTTKY DIODE	AE 0836.8421.00	HEWLETT_PA	HSMS-2800(#L31)	
X1	FP STIFTLEISTE 20P.2REIH. CONNECTOR 20P.	FP 0520.6521.00	BINDER	11-0209-00-20	
X2	FP STIFTLEISTE 20P.2REIH. CONNECTOR 20P.	FP 0520.6521.00	BINDER	11-0209-00-20	
X3	FP STIFTLEISTE 20P.2REIH. CONNECTOR 20P.	FP 0520.6521.00	BINDER	11-0209-00-20	
X36	VL EINPRESSSTIFT L=6,8 PIN	VL 0010.7250.00	AMP	1-928776-5	
X37	VL EINPRESSSTIFT L=6,8 PIN	VL 0010.7250.00	AMP	1-928776-5	
X38	VL EINPRESSSTIFT L=6,8 PIN	VL 0010.7250.00	AMP	1-928776-5	
X80	FP STECKERLEISTE 32POL. CONNECTOR 32P.	FP 0008.5718.00	DEUT_ELCO	16 8457 064 002 027	
X81	FJ EINBAUSTECKER F.GS SMB ANGLE CONNECTOR	FJ 0602.8804.00	IMS	81.1524.201	
X89	FJ EINBAUSTECKER F.GS SMB ANGLE CONNECTOR	FJ 0602.8804.00	IMS	81.1524.201	
Z52	LD SMD-T-FILTER 100PF SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z54	LD SMD-T-FILTER 100PF SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z56	LD SMD-T-FILTER 100PF SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z58	LD SMD-T-FILTER 100PF SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z60	LD SMD-T-FILTER 100PF SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z64	LD SMD-T-FILTER 100PF SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z66	LD SMD-T-FILTER 100PF SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z68	LD SMD-T-FILTER 100PF SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z70	LD SMD-T-FILTER 100PF SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z72	LD SMD-T-FILTER 100PF SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z74	LD SMD-T-FILTER 100PF SMD-FILTER	1039.1356.00	MURATA	NFM61R00T101T1	
Z76	LD SMD-T-FILTER 3,3NF SMD-FILTER	1039.1362.00	MURATA	NFM61R20T332T1	
Z78	LD SMD-T-FILTER 3,3NF SMD-FILTER	1039.1362.00	MURATA	NFM61R20T332T1	
Z80	LD SMD-T-FILTER 3,3NF SMD-FILTER	1039.1362.00	MURATA	NFM61R20T332T1	
Z82	LD SMD-T-FILTER 3,3NF SMD-FILTER	1039.1362.00	MURATA	NFM61R20T332T1	

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ROHDE&SCHWARZ

XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

Part: Bauelement-Kennzeichen.

Side: Leiterplatten-Seite, auf der sich das Bauelement befindet.

X/Y: Koordinaten (Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt.

SQR, PG: Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement.

Explanation of column designations:

Part: Identification of instrument part.

Side: Side of the PC board on which instrument part is positioned.

X/Y: Coordinates (millimeter) of the component on the PC board in reference to zero point.

SQR, PG: Square and page of the diagram for the respective instrument part.

Service-Relevante Bauteile / Service-Relevant Components

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
L506	B	240	63	10C	4	P15	B	231	106	4B	3	P35	B	177	67	6E	4
L507	B	226	45	10C	4	P16	B	252	94	5B	3	P39	B	273	48	10E	4
P1	B	134	72	5D	2	P17	B	90	72	7C	2	R214	B	227	139	3B	3
P2	B	121	72	5D	2	P18	B	76	72	7B	2	R433	B	291	139	9E	4
P3	B	196	137	5E	3	P20	B	69	44	4E	5	X1	B	164	136	3F	3
P4	B	258	94	5B	3	P21	B	46	44	4D	5	X2	B	164	104	6F	2
P5	B	231	109	4B	3	P22	B	107	117	6B	2	X3	B	164	71	4F	2
P6	B	278	21	3C	4	P23	B	88	107	6B	2	X36	B	200	70	7D	4
P7	B	205	76	8C	4	P24	B	137	101	6D	2	X37	B	200	73	8D	4
P8	B	112	65	12E	2	P27	B	88	99	7B	2	X38	B	200	76	8D	4
P9	B	94	65	12E	2	P28	B	148	120	9E	2	X80A	B	189	11	1D	2
P10	B	293	58	8D	3	P29	B	116	119	10E	2	X80D	B	189	11		
P11	B	250	60	11C	4	P30	B	109	128	10C	2	X81	B	17	15	4F	3
P12	B	264	63	11C	4	P32	B	215	138	5D	3	X89	B	296	15	5B	4
P13	B	255	94	5B	3	P33	B	217	138	5D	3						
P14	B	261	94	5B	3	P34	B	274	116	6C	3						

Nicht-Service-Relevante Bauteile / Non-Service-Relevant Components

Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
1	B	283	122	6D	3	C200	B	217	133	3E	3	C408	B	295	89	8C	3
C50	B	139	18	2D	5	C202	A	197	127	3D	3	C409	A	290	81	7D	3
C77	B	177	30	2C	5	C203	A	187	120	3E	3	C410	B	293	86	7D	3
C79	B	182	30	2B	5	C204	A	197	114	2D	3	C411	B	293	70	7D	3
C81	B	106	18	2E	5	C205	A	200	120	3D	3	C412	A	295	53	7E	3
C83	B	106	26	2D	5	C210	B	182	98	3D	3	C414	A	290	48	7E	3
C100	B	69	36	4E	5	C212	A	215	98	2B	3	C420	A	290	125	9E	4
C102	A	113	49	3C	2	C214	A	227	133	2C	3	C500	B	232	68	8B	4
C110	B	57	36	4D	5	C216	B	222	89	2A	3	C502	B	240	68	10C	4
C111	A	81	86	5E	5	C218	B	231	88	3A	3	C505	B	240	74	8C	4
C112	A	124	78	5E	5	C219	B	226	98	4A	3	C506	B	250	68	10C	4
C114	B	102	114	6E	5	C220	A	221	102	3B	3	C508	B	252	63	10C	4
C115	B	102	100	7E	5	C222	A	237	106	4B	3	C510	B	263	70	11D	4
C116	B	146	126	8E	5	C230	B	185	137	4D	3	C512	B	275	70	10D	4
C117	B	142	133	8E	5	C231	A	200	132	5E	3	C514	A	257	74	11D	4
C118	B	145	111	5D	5	C232	A	194	133	5E	3	C516	B	269	51	11E	4
C119	B	124	111	5D	5	C233	A	189	126	6D	3	C518	B	255	57	10C	4
C120	B	150	97	7E	5	C300	A	270	130	6C	3	C519	A	244	48	11B	4
C129	A	96	119	5C	2	C302	A	265	122	6C	3	C600	A	224	24	5B	5
C130	A	95	107	5B	2	C304	A	265	108	6C	3	C602	A	266	24	6B	5
C131	A	156	123	5B	2	C306	B	275	125	6C	3	C604	A	250	28	6B	5
C132	A	151	123	5B	2	C308	B	275	112	6C	3	C620	A	244	32	2C	4
C133	A	151	133	5A	2	C310	A	272	103	6B	3	C621	A	252	36	2B	4
C134	A	140	124	5A	2	C312	A	261	103	5B	3	C622	A	281	22	3B	4
C135	A	140	130	5A	2	C401	B	290	116	7C	3	C623	B	278	30	4C	4
C150	B	110	53	7E	5	C402	B	299	117	7C	3	C624	B	280	37	3B	4
C162	A	114	121	9E	2	C403	B	297	111	7C	3	C625	B	295	33	4B	4
C168	A	103	62	10E	2	C404	B	299	99	7C	3	C626	B	289	30	4B	4
C180	B	103	128	6D	5	C405	B	296	104	8C	3	C627	B	295	30	4B	4
C182	B	105	69	7D	5	C406	B	297	99	8C	3	C628	B	292	25	4B	4
C186	B	124	126	6D	5	C407	B	290	96	8C	3	C629	B	287	15	5B	4

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	04	22.11.94	EE DIGITALE_SYNTHESE DIGITAL_SYNTHESIS	1038.7344.01 XY	1+

Part	Side	X	Y	Sqr	Pg
C630	B	281	15	5B	4
C631	A	267	17	5B	4
C640	B	250	30	2D	4
C641	B	241	36	3E	4
C642	B	217	34	4D	4
C646	B	250	18	2E	4
C647	B	241	12	3F	4
C648	B	217	11	4E	4
C662	A	296	28	4B	4
C663	A	290	22	4B	4
C700	B	185	49	5C	5
C701	B	191	49	5C	5
C702	B	192	69	7E	4
C703	B	192	62	7E	4
C705	A	192	73	7E	4
C706	B	205	72	7C	4
C708	B	185	60	6E	4
C710	A	188	60	6C	4
C712	B	195	54	6C	4
D20A	B	196	131	3E	3
D50-A	A	137	17	2C	2
D50-B				2C	2
D50-C				2B	2
D50-D				2B	2
D50-E				2D	5
D110-A	B	128	77	5D	2
D110-B				5E	5
D112-A	B	83	77	7C	2
D112-B				6E	5
D120-A	A	98	112	4B	2
D120-B				5B	2
D120-C				5B	2
D120-D				4A	2
D120-E				7E	5
D125-A	A	98	98	4B	2
D125-B				5B	2
D125-C				5B	2
D125-D				3B	2
D125-E				7E	5
D130-A	A	142	124	4B	2
D130-B				8E	5
D135-A	A	147	95	7E	2
D135-B				11D	2
D135-C				11D	2
D135-D				11C	2
D135-E				8E	5
D150-A	A	142	109	7E	2
D150-B				5E	5
D155-A	A	121	109	7D	2
D155-B				6E	5
D175-A	A	121	124	9E	2
D175-B				11C	2
D175-C				6E	5
D300	B	257	125	5C	3
D600-A	B	226	27	4D	4
D600-B				4E	4
D600-C				5B	5
D700-A	A	178	69	6E	4
D700-B				6E	4
D700-C				7E	4
D700-D				7E	4
L76	B	182	18	2C	5
L78	B	182	23	2B	5
L80	B	111	18	2E	5
L82	B	111	23	2D	5
L110	A	109	78	5F	5
L135	A	141	94	7F	5
L150	A	119	55	6E	5
L200	B	182	96	3D	3
L201	A	217	128	3D	3
L202	B	195	91	2C	3
L204	B	200	96	2C	3
L206	B	215	91	2B	3
L208	B	218	96	2B	3
L210	B	215	96	2B	3
L212	A	221	105	3B	3
L214	A	237	103	4B	3
L216	A	203	128	5E	3
L300	A	277	119	6C	3
L302	A	275	103	6B	3
L304	A	268	100	6B	3
L306	A	264	100	5B	3
L403	B	299	104	7C	3
L405	B	289	102	8C	3
L406	B	293	89	8C	3
L408	B	298	72	7D	3
L500	B	217	71	8B	4
L502	B	214	72	8C	4
L504	B	233	77	8C	4
L508	B	247	51	11C	4
L514	B	269	60	11E	4
L516	B	279	57	11E	4
L600	A	230	30	5B	5
L602	B	289	28	4B	4
L603	B	290	15	5B	4
L700	A	189	46	5C	5
L701	A	193	52	5C	5
L705	B	203	76	8C	4
N100	B	74	31	3E	5
N110	B	51	31	3D	5
N120-A	A	98	126	9C	2
N120-B				9C	2
N120-C				7E	5
N130-A	A	100	67	11E	2
N130-B				11E	2
N130-C				7E	5
N400	B	293	78	7D	3
N600-A	A	257	24	2C	4
N600-B				6B	4
N600-C				6B	5
N700-A	A	179	58	5E	4
N700-B				5C	5
N702-A	A	182	51	6D	4
N702-B				6C	5
P40	B	140	29	2F	2
P41	B	135	29	2E	2
P42	B	150	29	2E	2
P43	B	156	29	2D	2
P44	B	145	29	2D	2
R48	A	121	18	2D	5
R49	A	134	21	2C	2
R50	A	146	22	2B	2
R51	A	149	19	2B	2
R52	B	143	29	3F	2
R53	B	141	45	3F	2
R54	A	138	29	3E	2
R55	A	136	45	3E	2
R56	A	153	29	3E	2
R57	A	151	45	3E	2
R58	A	158	29	3D	2
R59	A	156	45	3D	2
R60	A	148	29	3D	2
R61	A	146	45	3D	2
R64	A	112	29	3C	2
R65	A	110	45	3C	2
R66	A	123	29	3C	2
R67	A	121	45	3C	2
R68	A	128	29	3B	2
R69	A	126	45	3B	2
R70	A	133	29	3B	2
R71	A	131	45	3B	2
R72	A	117	29	3B	2
R73	A	116	45	3B	2
R74	A	107	29	3A	2
R75	A	105	45	3A	2
R92	B	100	78	6B	2
R93	B	100	81	6B	2
R94	B	100	83	6B	2
R95	B	100	86	6B	2
R96	B	100	88	6B	2
R97	B	100	91	6B	2
R98	B	100	93	6B	2
R101	A	154	55	4E	2
R102	A	159	55	4E	2
R103	A	149	55	4E	2
R104	A	151	55	5E	2
R106	A	156	55	5E	2
R108	A	146	55	5E	2
R110	B	145	75	5D	2
R111	B	145	77	5D	2
R112	B	145	80	5D	2
R113	B	145	83	5D	2
R114	B	145	90	5D	2
R115	B	145	93	5D	2
R116	B	145	95	5D	2

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Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
R117	A	124	76	5D	2	R177	A	142	135	8E	5	R252-D				4C	3
R118	A	112	76	5C	2	R178	A	155	109	5E	5	R252-E				4C	3
R119	A	115	79	5C	2	R179	A	84	77	6B	2	R252-F				4C	3
R120	B	131	101	6D	2	R180	A	72	90	6A	2	R252-G				4C	3
R121	A	135	99	6D	2	R181	A	138	107	6D	2	R252-H				4C	3
R122	A	132	99	6D	2	R182	A	118	107	6C	2	R252-I				4C	3
R123	A	130	99	6D	2	R183	A	75	82	7A	2	R253	A	243	105	4C	3
R124	A	127	99	6D	2	R184	A	132	135	11C	2	R256-A	B	241	111	4C	3
R125	A	124	99	6D	2	R185	A	130	135	11C	2	R256-B				4C	3
R126	A	122	99	6C	2	R186	A	132	120	11C	2	R256-C				4C	3
R127	A	119	99	6C	2	R187	A	130	120	11B	2	R256-D				4C	3
R128	A	104	109	4C	2	R188	A	156	98	10C	2	R256-E				4C	3
R129	A	95	117	5B	2	R189	A	167	74	3B	5	R256-F				4C	3
R130	A	95	104	5B	2	R190	A	49	34	3D	5	R256-G				4C	3
R131	A	159	123	6B	2	R191	A	97	82	7A	2	R256-H				4C	3
R132	A	154	123	6B	2	R192	A	77	89	7A	2	R256-I				4C	3
R133	A	151	131	6A	2	R193	A	80	98	7A	2	R257	A	241	108	4C	3
R134	A	136	121	6A	2	R194	A	97	84	7A	2	R260	B	144	136	4E	3
R135	A	140	133	6A	2	R195	A	97	87	7A	2	R261	B	154	136	4E	3
R136	A	92	97	4C	2	R196	A	100	79	8A	2	R262	B	150	138	4E	3
R137	A	149	93	7E	2	R197	A	49	37	3D	5	R263	B	176	137	4D	3
R140	A	155	111	6E	2	R198	A	55	34	3C	5	R264	B	179	137	4D	3
R142	A	134	111	6D	2	R200	A	187	115	2E	3	R265	B	190	140	4D	3
R143	A	140	99	6C	2	R201	A	189	115	2E	3	R266	B	201	140	5E	3
R144	A	117	99	6C	2	R202	A	192	115	2E	3	R267	B	199	136	5E	3
R145	A	114	99	6C	2	R203	A	199	115	2D	3	R268	A	191	126	6E	3
R146	B	141	85	6C	2	R204	A	202	115	2D	3	R269	A	205	136	5E	3
R148	B	141	88	6C	2	R205	A	204	115	2D	3	R270	A	189	98	2E	3
R149	A	142	103	6C	2	R206	A	178	112	2D	3	R271	A	192	98	2E	3
R150	A	116	133	9C	2	R207	A	178	115	2D	3	R272	A	178	105	2E	3
R151	A	118	136	9C	2	R210	B	154	133	4E	3	R273	A	178	107	2E	3
R152	A	96	126	9C	2	R211	B	147	138	4E	3	R274	A	178	110	2E	3
R153	A	100	132	9C	2	R212	A	235	139	3B	3	R277	A	194	98	2D	3
R154	A	103	135	9C	2	R215	A	228	137	3B	3	R300	A	261	105	5C	3
R155	A	134	109	5E	5	R216	A	224	135	3C	3	R302	A	261	113	5C	3
R156	A	167	76	3B	5	R218	A	224	128	3C	3	R304	A	257	108	5C	3
R157	A	156	74	3B	5	R220	B	222	96	2A	3	R306	A	257	110	5C	3
R158	A	92	122	10D	2	R222	B	225	88	3A	3	R310	A	275	128	6C	3
R159	A	74	34	3E	5	R224	B	228	86	2A	3	R312	A	268	133	6C	3
R160	A	114	126	9E	2	R226	B	228	92	3A	3	R314	A	253	97	5B	3
R161	A	114	129	9E	2	R228	B	220	98	3B	3	R400	B	288	117	6C	3
R162	A	114	124	9E	2	R240	B	234	134	4C	3	R401	B	290	118	7C	3
R163	A	80	34	3E	5	R241	B	234	131	4C	3	R402	B	297	117	7C	3
R164	A	95	71	10E	2	R242	B	234	129	4C	3	R403	B	290	89	7D	3
R165	A	98	71	11E	2	R243	B	234	126	4C	3	R404	A	290	75	7D	3
R166	A	98	61	11E	2	R244	B	234	124	4C	3	R405	B	293	64	7D	3
R167	A	105	59	10E	2	R245	B	234	121	4C	3	R406	B	295	91	8C	3
R168	A	100	62	11E	2	R246	B	234	119	4C	3	R407	A	298	55	7E	3
R169	A	102	65	11E	2	R247	B	234	116	4C	3	R408	A	289	53	7E	3
R170	A	109	71	11E	2	R248	B	234	114	4C	3	R409	A	289	59	7E	3
R171	A	109	61	11E	2	R249	B	234	111	4C	3	R420	A	294	133	9F	4
R172	A	93	67	10D	2	R250	B	237	109	4C	3	R424	A	287	137	8E	4
R174	A	108	106	6F	5	R252-A	B	243	111	4C	3	R502	B	260	73	11D	4
R175	A	108	102	7F	5	R252-B				4C	3	R503	A	261	70	11D	4
R176	B	140	121	8E	5	R252-C				4C	3	R504	B	272	51	11E	4

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Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg	Part	Side	X	Y	Sqr	Pg
R505	B	269	48	11E	4	R643	B	238	12	3F	4	V502	B	222	68	8B	4
R506	B	272	44	11E	4	R646	B	217	18	4E	4	V503	B	224	55	7B	4
R510	B	244	55	11C	4	R647	B	215	14	5E	4	V504	B	227	68	8B	4
R512	B	250	51	11C	4	R650	B	212	24	4E	4	V505	B	229	55	7B	4
R514	B	255	54	10C	4	R652	A	261	30	6B	4	V507	B	236	74	8C	4
R516	B	255	59	10C	4	R653	A	269	28	6B	4	V510	B	257	65	10D	4
R518	B	261	63	11C	4	R702	A	177	64	6E	4	V512	B	252	65	10C	4
R519	A	257	42	11B	4	R704	A	179	67	6E	4	V514	B	257	63	10C	4
R520	B	258	48	10B	4	R705	A	186	67	6E	4	V516	B	258	52	10B	4
R521	B	247	45	9B	4	R706	A	179	64	6E	4	V518	B	250	47	10B	4
R600	A	247	34	2C	4	R707	A	186	64	6E	4	V600	B	289	35	3B	4
R601	A	247	27	2C	4	R708	A	187	69	7E	4	V601	B	294	35	3B	4
R602	A	252	42	2C	4	R709	A	179	54	5D	4	V603	B	283	32	4B	4
R603	A	252	33	2B	4	R710	A	203	73	8D	4	V605	A	276	14	5B	4
R604	A	255	22	3C	4	R712	A	196	75	7E	4	V610	B	237	16	3E	4
R605	A	266	22	3B	4	R713	A	190	77	8E	4	V612	B	237	34	3D	4
R606	A	281	25	3B	4	R715	A	197	56	7D	4	V614	B	216	22	4E	4
R607	B	278	24	3B	4	R716	A	194	60	6D	4	V615	B	216	28	4E	4
R610	B	286	37	3B	4	R717	A	199	56	6D	4	V702	A	196	64	7D	4
R611	B	293	33	3B	4	T200	B	235	92	4B	3	V704	A	200	64	7C	4
R612	B	286	30	4B	4	V100	A	154	51	4E	2	V708	B	179	56	6D	4
R614	A	274	17	5B	4	V102	A	159	51	4E	2	Z52	B	141	35	3F	2
R618	B	272	30	4C	4	V104	A	149	51	4E	2	Z54	B	136	35	3E	2
R619	B	268	33	4C	4	V150	A	103	122	9C	2	Z56	B	151	35	3E	2
R620	B	265	30	4C	4	V152	A	103	73	10E	2	Z58	B	156	35	3D	2
R630	B	250	33	2D	4	V153	A	105	75	10E	2	Z60	B	146	35	3D	2
R631	B	244	30	2D	4	V154	A	125	120	9E	2	Z64	B	110	35	3C	2
R632	B	237	30	3D	4	V200	B	185	88	2C	3	Z66	B	121	35	3C	2
R633	B	238	36	3E	4	V202	B	195	88	2C	3	Z68	B	126	35	3B	2
R634	A	225	34	3F	4	V204	B	205	88	2B	3	Z70	B	131	35	3B	2
R635	A	222	34	4F	4	V206	B	215	88	2B	3	Z72	B	116	35	3B	2
R636	B	220	31	4D	4	V210	B	228	96	3A	3	Z74	B	105	35	3A	2
R637	B	220	37	5D	4	V220	B	191	136	5D	3	Z76	B	177	35	3C	5
R640	B	250	16	2E	4	V222	A	189	134	6E	3	Z78	B	182	35	3B	5
R641	B	244	18	2E	4	V500	B	217	68	8B	4	Z80	B	96	23	3E	5
R642	B	237	18	3E	4	V501	B	218	55	7B	4	Z82	B	96	28	3D	5

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Stromläufe
Bestückungspläne
Circuit diagrams
Components plans
Schémas de circuit
Plans des composants

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