"HIGH-COM"

USER MANUAL

manufacturer of: recording - broadcast - p.a. - mixingdesks - signal processors

HIGH-COM NOISE REDUCTION manual

First of all we thank you very much for the confidence you have put in our products. We advice you to read the subjointed directions of use carefully before using the noise reduction unit.

The high-com unit you bought consists of two separate working encoder and decoder amplifiers. For stereo use it is necessary to use two units.

SETTING UP PROCEDURE

The cable which was formerly to the recorder input must now be connected to the encoder input of the high-com. The encoder output is now going to the tape recorder input.
The tape recorder output goes to the decoder input so you can consider the decoder output as the new tape output.

SIGNAL LEVELS

If you have a mixing desk which has an output level of 0dBu than it is necessary to switch the pushbuttons, which belong to the "levels desk" as is indicated on the frontpanel. The same applies to the "levels tape" settings of the switches. It is now possible to connect a +4 dBu mixing desk to a -10dBV tape deck without any level problem.
The clip led indicator is a circuit, which in spite of the use of one led, gives information about the amount of overload. In case of overload the led begins to blink slowly; if the overload increases, the blinkings speeds up.

In the by-pass situation the level matching between the mixing desk and the tape-recorder is kept the same.

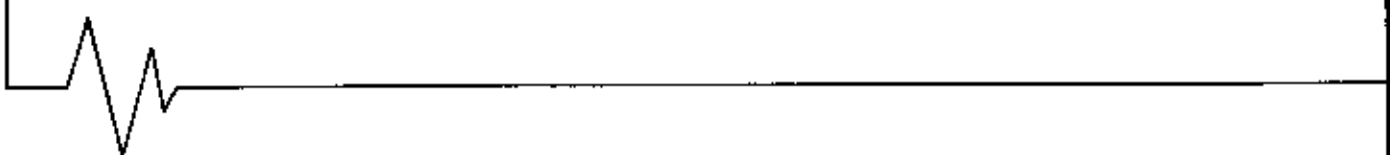
The right functioning of the High-com depends very much of the fine trim of the recorder. It is an absolute necessity to have the deck adjusted for UNITY GAIN
This means that the decoder input must get the same level as the encoder output gives. Only in this way you get a copy of the original but without the noise generated in your tape deck.
A coded signal must be decoded before processes like overdubbing and mixing are started.
We also want to point out that recordings via the High-Com can give the suggestion of less high tones. This is absolutely not true (if your recorder is allright, every dB less will be doubled in the expander amps) because our ears often interprets noise as higher harmonics of the recorded frequencies.

POWERING

The unit can be powered from 110v as well as 220 volt by setting the mains switch on the back of the unit (on 9½" units only). Some units may set already at the factory with a fuse outside instead of a voltage selector.

NOTE

READ SAFETY INSTRUCTIONS VERY CAREFULLY ON THE BACK PAGE!



PRODUCT SAFETY

This product is manufactured with the highest standards and is double checked in our quality control department for reliability in the "HIGH VOLTAGE" section.

CAUTION

Never remove any panels, or open this equipment. No user servicable parts inside.
Equipment power supply must be grounded at all times.
Only use this product as described, in user manual or brochure. Do not operate this equipment in high humidity or expose it to water or other liquids.
Check the AC power supply cable to assure secure contact. Have your equipment checked yearly by a qualified dealer service center.
Hazardous electrical shock can be avoided by carefully following the above rules.

EXTRA CAUTION FOR LIVE SOUND

Ground all equipment using the ground pin in the AC power supply cable. Never remove this pin.
Ground loops should be eliminated only by use of isolation transformers for all inputs and outputs.
Replace any blown fuse with the same type and rating only after equipment has been disconnected from AC power. If problem persists, return equipment to qualified service technician

PLEASE READ THE FOLLOWING INFORMATION VERY CAREFULLY.

Especially in sound equipment on stage the following information is essential to know.
An electrical shock is caused by voltage and current, actually it is the current that causes the shock.
In practise the higher the voltage the higher the current will be and the higher the shock.
But there is another thing to consider and it is resistance. When the resistance in Ohms is high between two poles, the current will be low and vica versa.
All three of these; voltage, current. and resistance are important in determining the effect of an electrical shock.
However, the severity of a shock primarily determined by the amount of current flowing through a person.
A person can feel a shock because the muscles in a body respond to electrical current and because the heart is a muscle it can affect, when the current is high enough. Current can also be fatal when it causes the chest muscles to contract and stop breathing. At what potential is current dangereous.
Well the first feeling of current is a tingle at 0.001 Amp of current. The current between 0.1 Amp and 0.2 Amp is fatal.
Imagine that your home fuses of 20 Amp can handle 200 times more current than is necessary to kill. How does resistance affect the shock a person feels. A typical resistance between one hand to the other in "dry" condition could well over 100,000 Ohm.

If you are playing on stage your body is perspiring extensively and your body resistance is lowered by more than 50%. This is a situation in which current can easily flow.

Current will flow when there is a difference in ground potential between equipment on stage and in the P.A. system. Please do check if there is any potential between the housing of the mikes and the guitarsynth amps, which will be linked by your body on stage. Imagine, a guitar in your hand and your lips close to the mike! A ground potential difference of above 10 volts is not unusual, in improperly wired buildings it can possibly be as high as 240 volts.

Although removing the ground wire sometimes cures a system hum, it will create a very hazardeous situation for the performing musician.
Always earth all your equipment by the grounding pin in your mains plug.
Hum loops should be only cured by propr wiring and isolation input/output transformers.

Replace fuses always with the same type and rating after the equipment has been turned off and unplugged.
If the fuse blows again you have an equipment failure, do not use it again and return it to your dealer for repair.

And last but not least be carefull not to touch a person being shocked as you, yourself could also be shocked.
Once removed from the shock, have someone send for medical help inmediately

Aways keep the above mentioned information in mind when using electrically powered equipment.

D&R ELECTRONICA B.V. WEESP

"HIGH-COM"

SERVICE MANUAL

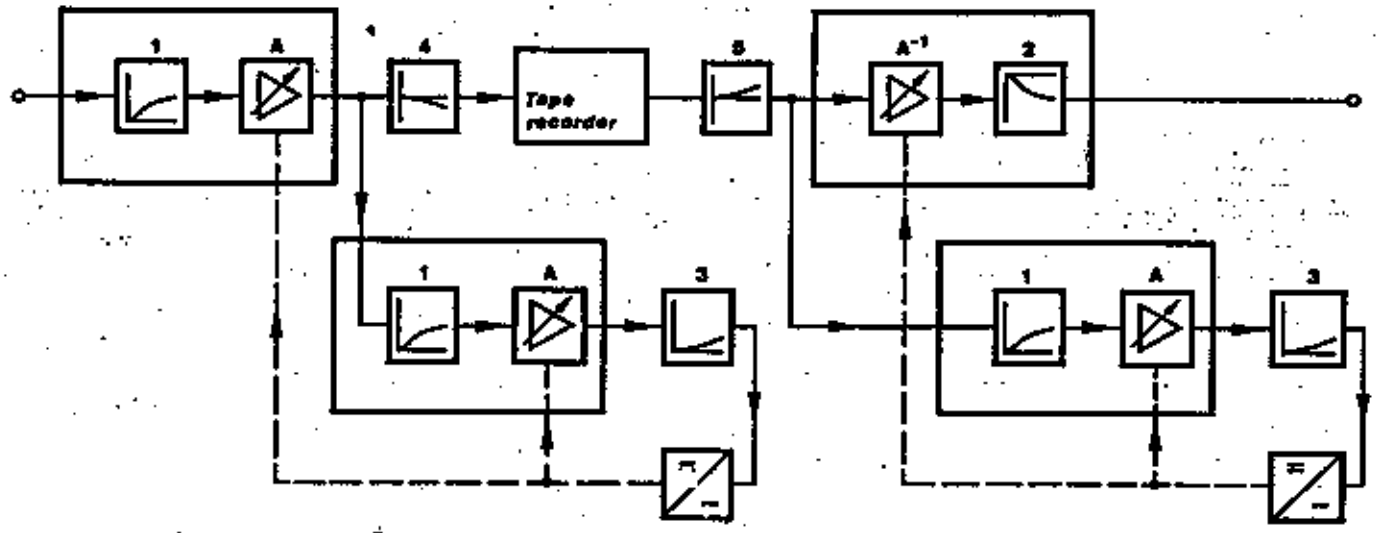


Fig. 6:
Block diagram of the HIGH COM companding circuitry.

CHASSESTRAAT 25 1057 JE AMSTERDAM PHONE : 020 - 183568 ELECTRONICA	TITLE:	P.C.B. NR. :	NOTES:
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		DATE :	
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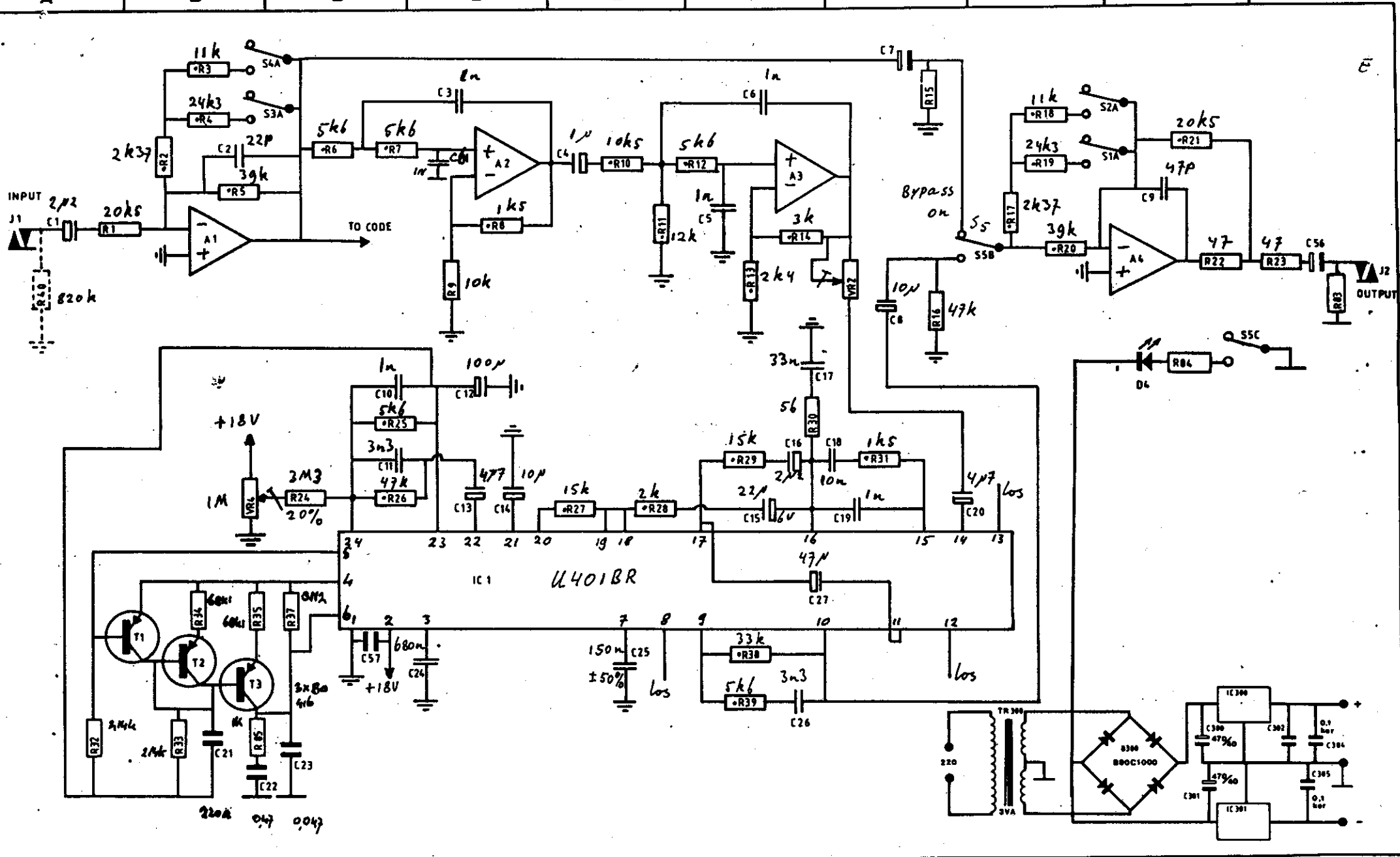
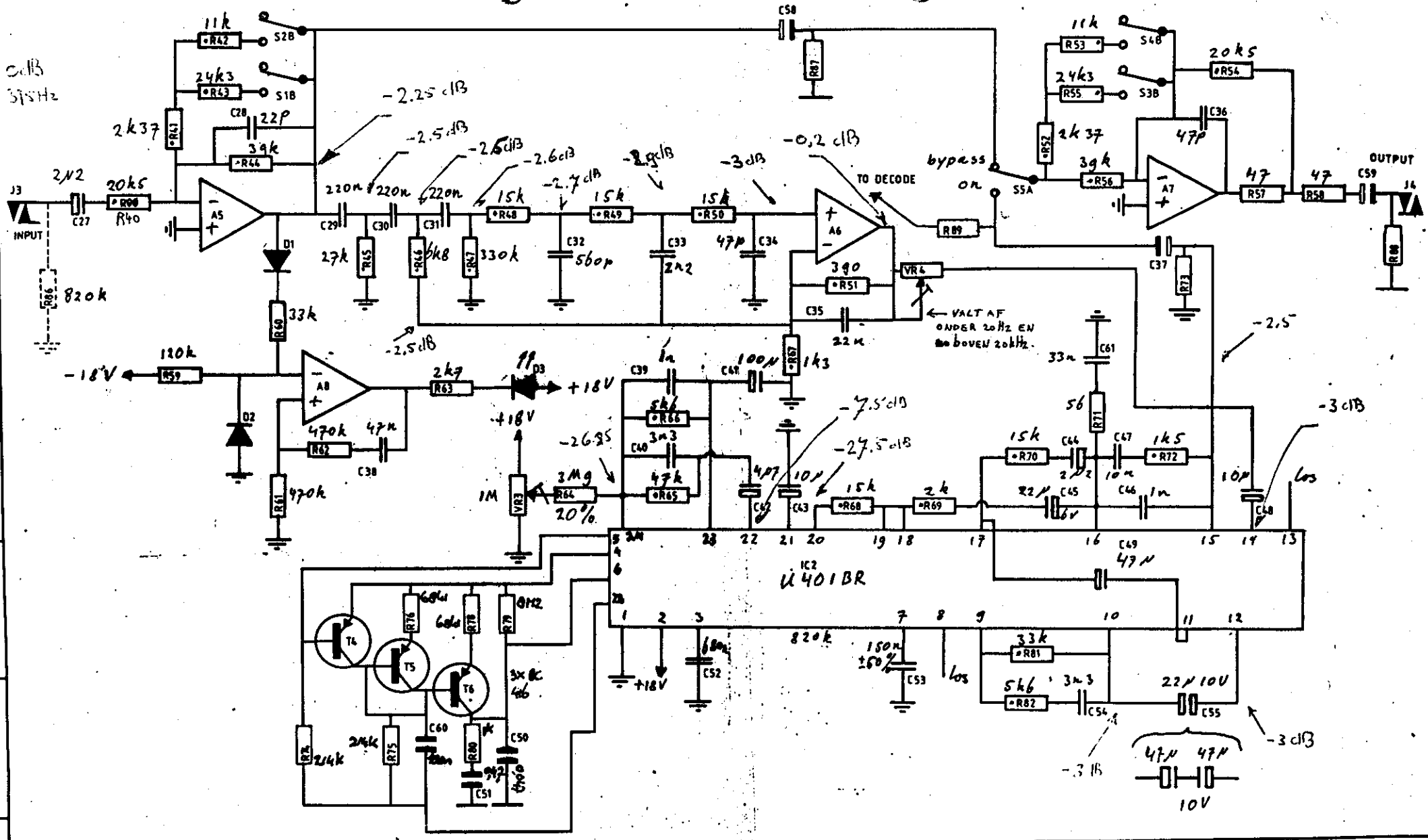


RIJNKADE 15b 1382 GS WEESP HOLLAND PHONE:02940 18014 ELECTRONICA BV	TITLE: HIGH COM DECODE	P.C.B.INDEX. 3 DRAWN :DHB DATE :04-04-85	NOTES: 504
	SHEET OF	© 1984 CHECKED:	



RIJNKADE 15b 1382 GS WEESP HOLLAND PHONE:02940 18014 ELECTRONICA BV	TITLE: HIGH COM CODE	P.C.B.INDEX3 DRAWN : OHB DATE : 04.04.85 CHECKED:	NOTES: 504
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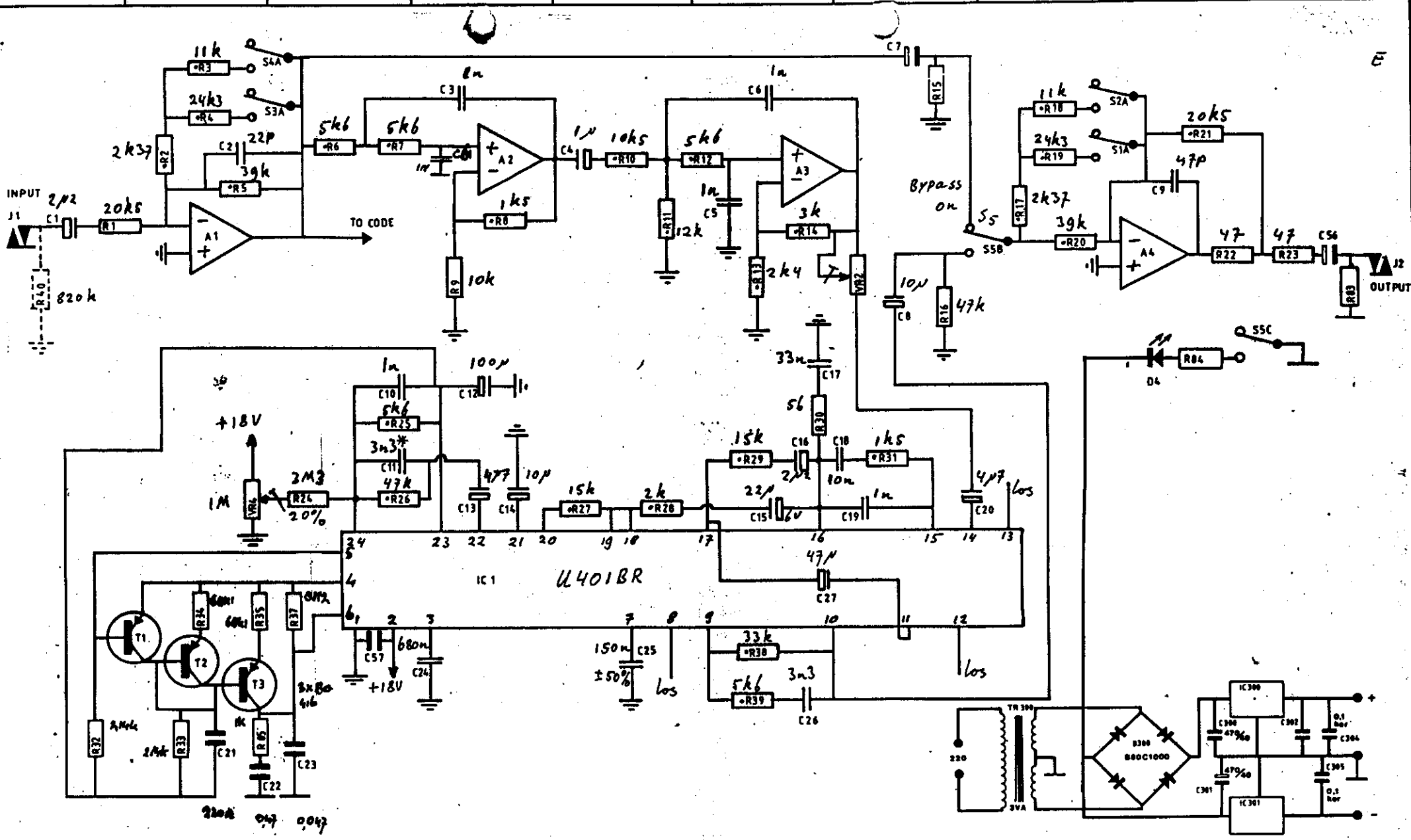
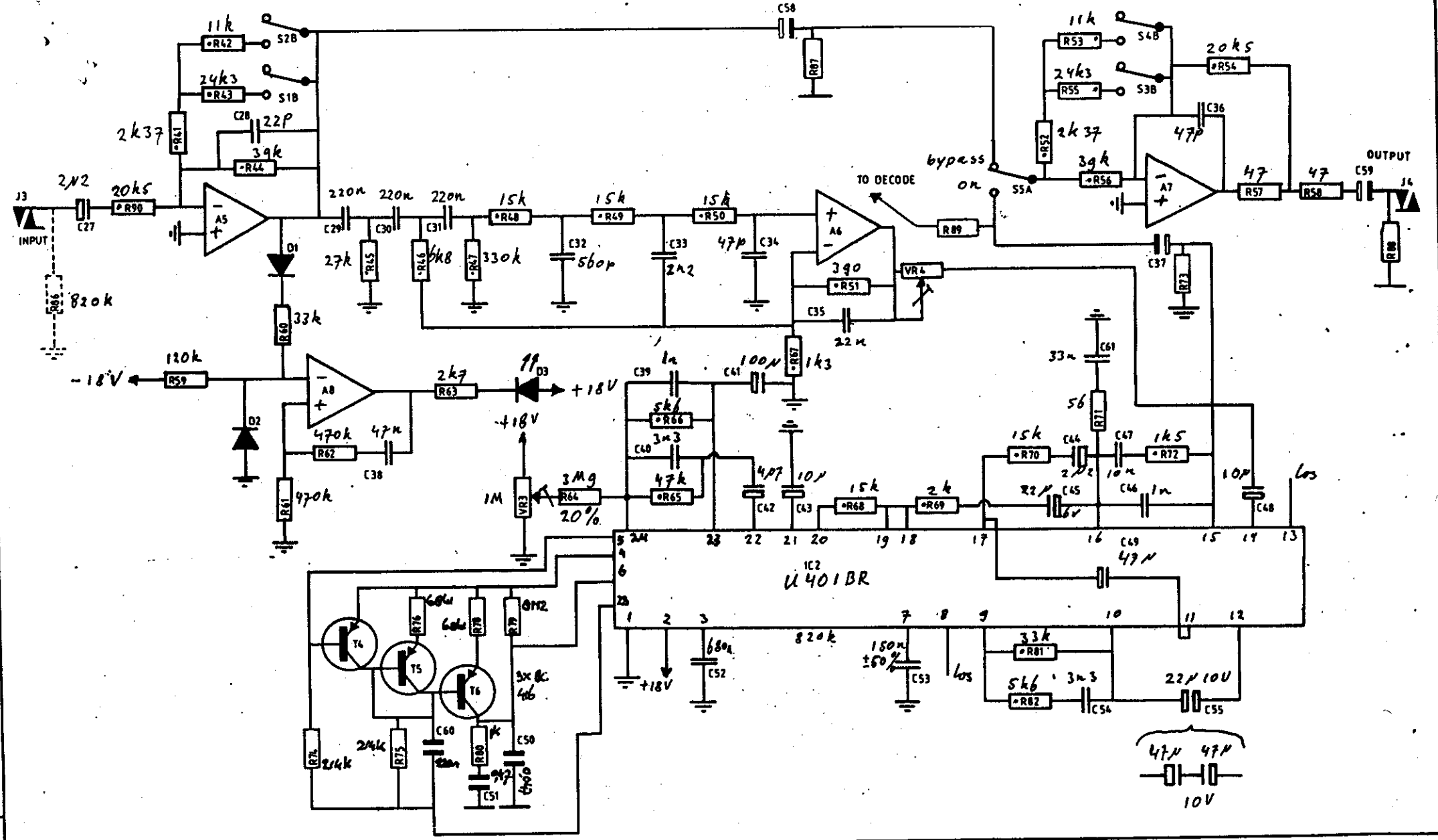


RIJNKADE 15b 1382 GS WEESP HOLLAND PHONE:02940 18014 ELECTRONICA BV	TITLE: HIGH COM DECODE	P.C.B.INDEX. 3 DRAWN :OHB DATE :04.04.85	NOTES: 504
	SHEET OF © 1984	CHECKED:	



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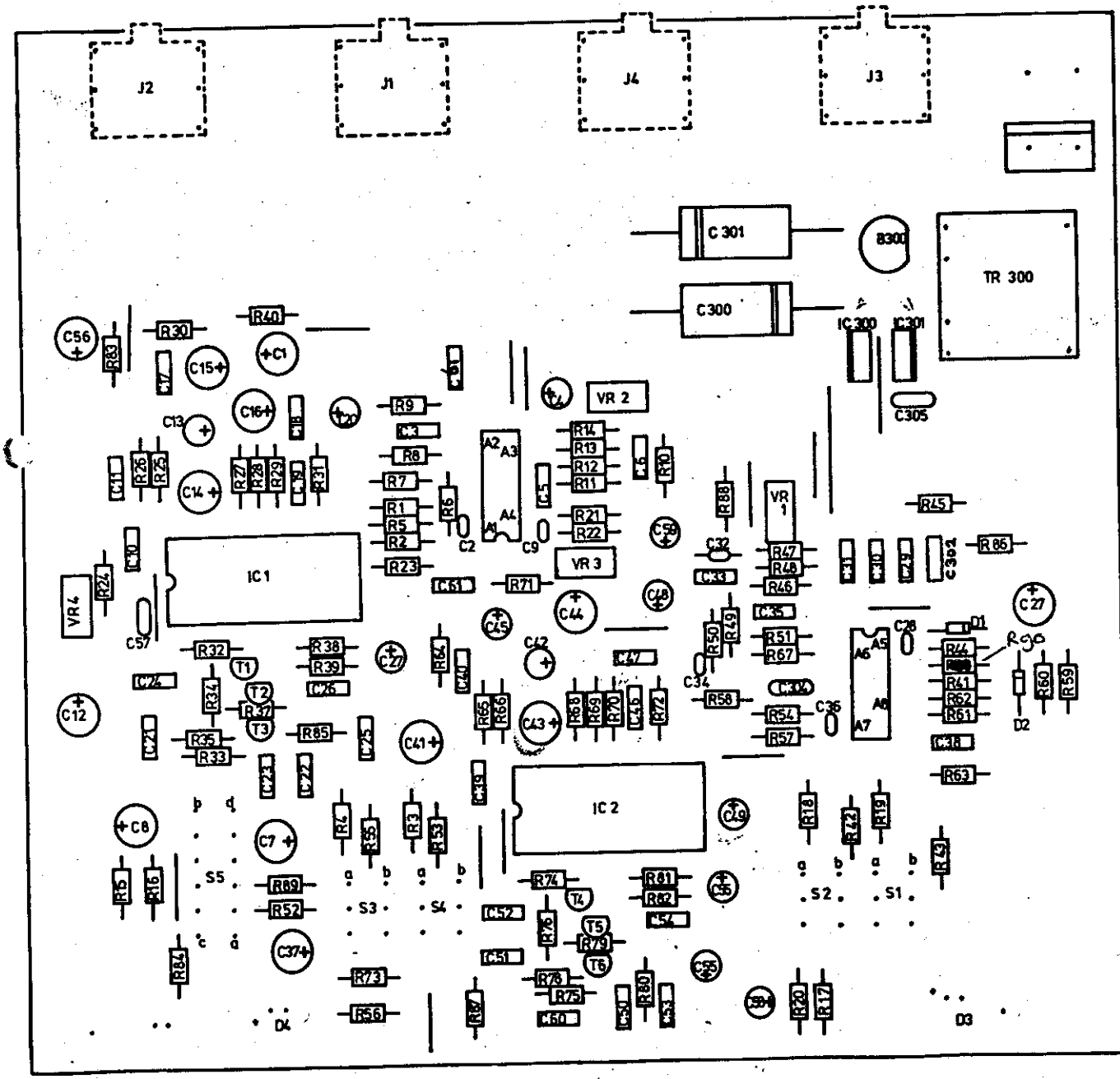
	SHEET OF	© 1984	

A B C D E F G H K L


J2
J1
J4
J3
C 301
8300
TR 300
C300
IC 300
IC 301
C305
C56
R30
R40
R83
C15
+C1
C16
C13
C14
R26
R25
R27
R28
R29
R31
R9
R3
R8
R7
R1
R5
R2
R23
R6
C2
C9
A2
A3
A1
A4
VR 2
R14
R13
R12
R11
R21
R22
VR 3
C61
R71
C44
C45
C42
C47
C48
C50
R88
VR 1
R47
R48
R46
C32
C33
C35
R50
R49
R51
R67
R58
C34
C36
C304
R54
R57
R45
R86
C27
C28
D1
R44
R41
R62
R61
R60
R59
D2
R63
C18
A5
A6
A7
A8
IC 1
VR4
R24
C57
R32
R38
R39
T1
T2
T3
R34
R37
R35
R33
R85
C24
C26
C21
C23
C22
C25
C12
C41
R64
R40
R65
R66
C43
R68
R69
R70
C46
R72
IC 2
C49
C29
C8
C7
R4
R55
R3
R53
R5
R16
S5
R89
R52
S3
S4
C37
R84
R73
R56
D4
R74
T4
T5
T6
R79
R76
R75
C52
C51
C54
R81
R82
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C50
R20
R17
R18
R42
R19
R43
S2
S1
D3

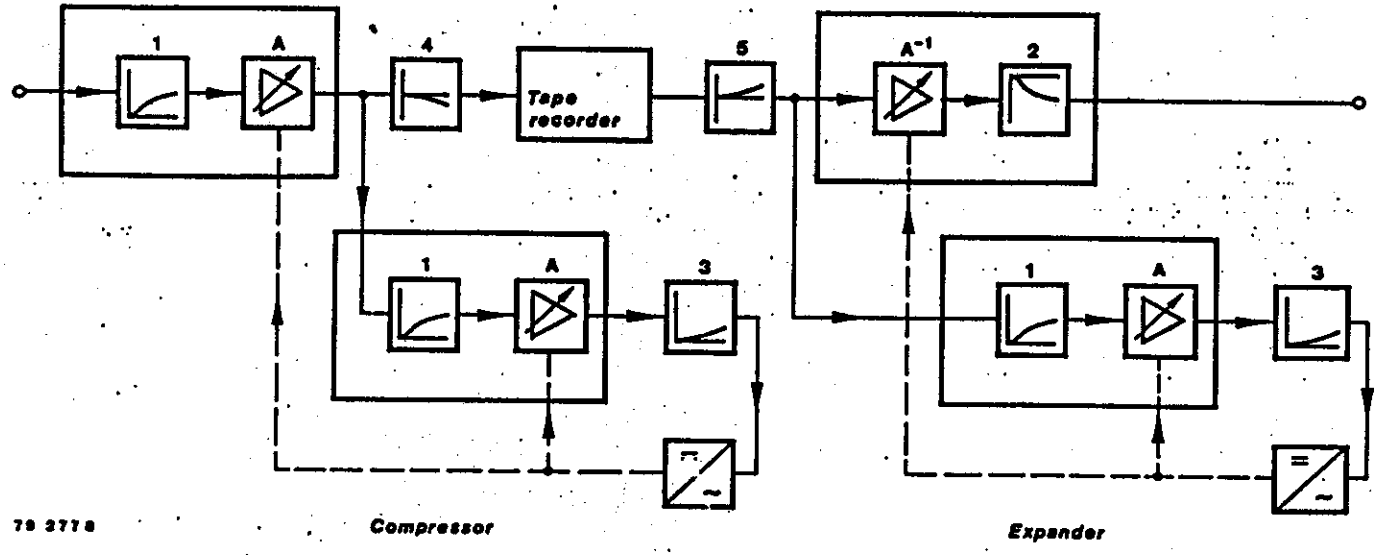


Fig. 5:
Block diagram of the HIGH COM companding circuitry.

CHASSESTRAAT 26
1057 JE AMSTERDAM
PHONE : 020 - 183556
ELECTRONICA

TITLE:

SHEET OF

P.C.B. NR. :

DRAWN :

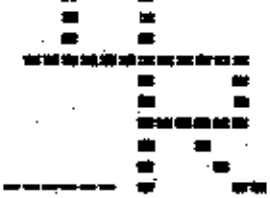
DATE :

CHECKED:

NOTES:

ADJUSTMENT PROCEDURE D&R HIGHCOM

- adjust sinusgenerator at 315 Hz, 0dBm (775 mV).
- set levelswitches highcom at 0dB.
- connect sinusgenerator to comp.in and a millivoltmeter to comp.out.
- adjust VR3 at maximum amplitude of outputsignal
  and VR1 at outputlevel of 0dBm.
- connect comp.out to exp.in (decode) and connect millivoltmeter to exp.out
- adjust VR4 at minimum amplitude of outputsignal and VR2 at outputlevel of 0dBm.



ELECTRONICA B.V.

produktie en ontwikkeling van
geluidsmengpanelen en accessoires

Date: 05-11-1986 R & D department

PARTLIST ; HIGH-COM code+decode 9.5'' print index=4

PartNr	Value	Notes	ArtNr
R1	20 k 5	1%	0875
R2	2 k 37	1%	0838
R3	11 k 0	1%	0850
R4	24 k 3	1%	0859
R5	39 k 2	1%	0865
R6	5 k 62	1%	0845
R7	5 k 62	1%	0845
R8	1 k 50	1%	0833
R9	10 k 0	1%	0848
R10	10 k 5	1%	0849
R11	12 k 1	1%	0851
R12	5 k 62	1%	0845
R13	2 k 43	1%	0839
R14	3 k 01	1%	0842
R15	47 k 5	1%	0866
R16	47 k 5	1%	0866
R17	2 k 37	1%	0838
R18	11 k 0	1%	0850
R19	24 k 3	1%	0859
R20	39 k 2	1%	0865
R21	20 k 5	1%	0857
R22	47 E 5	1%	0807
R23	47 E 5	1%	0807
R24	3 M 3	5%	0770
R25	5 k 62	1%	0845
R26	47 k 5	1%	0866
R27	15 k 0	1%	0852
R28	2 k 00	1%	0835
R29	15 k 0	1%	0852
R30	68 E	1%	0715
R31	1 k 50	1%	0833
R32	215 k	1%	0880
R33	215 k	1%	0880
R34	68 k 1	1%	0868
R35	68 k 1	1%	0868
R36	----		
R37	8 M 2	5%	0775
R38	33 k 2	1%	0862
R39	5 k 62	1%	0845
R40	825 k	1%	0877
R41	2 k 37	1%	0838
R42	11 k 0	1%	0850
R43	24 k 3	1%	0859
R44	39 k 2	1%	0865
R45	27 k 4	1%	0860
R46	6 k 81	1%	0846
R47	332 k	1%	0875
R48	15 k 0	1%	0852
R49	15 k 0	1%	0852
R50	15 k 0	1%	0852

C27	2.2/ 63	elco	0280
C28	22 p	ker	0217
C29	0.22 u	poly	0264
C30	0.22 u	poly	0264
C31	0.22 u	poly	0264
C32	560 p/680 p	ker	0233
C33	2200 p	poly	0248
C34	47 p	ker	0221
C35	0.022 u	poly	0256
C36	47 p	ker	0221
C37	10 / 63	elco	0284
C38	0.047 u	poly	0258
C39	1000 p	poly	0246
C40	3300 p	poly	0249
C41	100 / 25	elco	0292
C42	4.7/ 63	elco	0281
C43	10 / 63	elco	0284
C44	2.2/ 63	elco	0280
C45	22 / 40	elco	0285
C46	1000 pF	poly	0246
C47	0.01 uF	poly	0253
C48	10 / 63	elco	0284
C49	47 / 25	elco	0287
C50	0.047 u	poly	0258
C51	0.47 u	poly	0266
C52	0.68 u	poly	0267
C53	0.15 u	poly	0262
C54	3300 p	poly	0249
C55	47 / 25	elco	0287
C56	47 / 25	elco	0287
C57	0.022 u	ker	0240
C58	47 / 25	elco	0287
C59	47 / 25	elco	0287
C60	0.22 u	poly	0264
C61	1000 p	poly	0246
C62	47 / 25	elco	0287
C63	0.033 u	poly	0257
C64	47 / 25	elco	0287
C300	470 / 40	sx	0295
C301	470 / 40	sx	0295
C302	47 / 25	elco	0287
C303	47 / 25	elco	0287
C304	0.1 / 63	ker	0241
C305	0.1 / 63	ker	0241

D1	1N4148	sgn	0342
D2	1N4148	sgn	0342
D3	LED 5 x 2 (9.5'')	red	0390
D4	LED 5 x 2 (9.5'')	red	0390
D5 (only in 9.5'')	LED 5 x 2	red	0390

VR1	4 k 7	mini trim	0144
VR2	4 k 7	mini trim	0144
VR3	1 M	mini trim	0151
VR4	1 M	mini trim	0151

J1	break CLIFF	CLIFF	0432
J2	break CLIFF	CLIFF	0432
J3	break CLIFF	CLIFF	0432
J4	break CLIFF	CLIFF	0432

S1	2 x 2 switch	FOX BBM	0400
S2	2 x 2 switch	FOX BBM	0400
S3	2 x 2 switch	FOX BBM	0400
S4	2 x 2 switch	FOX BBM	0400
S5	2 x 4 switch	FOX BBM	0401
S300	115/230 V	print switch	0083

R51	392 E	1%	0818
R52	2 k 37	1%	0838
R53	11 k 0	1%	0850
R54	20 k 5	1%	0857
R55	24 k 3	1%	0859
R56	39 k 2	1%	0865
R57	47 E 5	1%	0866
R58	47 E 5	1%	0866
R59	121 k	1%	0872
R60	33 k 2	1%	0862
R61	475 k	1%	0876
R62	475 k	1%	0875
R63	2 k 7	5%	0734
R64	3 M 9	5%	0736
R65	47 k 5	1%	0866
R66	5 k 62	1%	0845
R67	1 k 30	1%	0831
R68	15 k 0	1%	0852
R69	2 k 00	1%	0835
R70	15 k 0	1%	0852
R71	68 E	5%	0715
R72	1 k 50	1%	0833
R73	47 k 5	1%	0866
R74	215 k	1%	0800
R75	215 k	1%	0800
R76	68 k 1	1%	0868
R77	-----		
R78	68 k 1	1%	0868
R79	8 M 2	5%	0740
R80	1 k 07	1%	0829
R81	33 k 2	1%	0862
R82	5 k 62	1%	0845
R83	47 k 5	1%	0866
R84	2 k 2	5%	0733
R85	1 k 07	1%	0829
R86	825 k	1%	0877
R87	47 k 5	1%	0866
R88	47 k 5	1%	0866
R89	47 k 5	1%	0866
R90	20 k 5	1%	0857
R91	2 k 2	5%	0733

C1	2.2/ 63	rad	0280
C2	22 p	ker	0217
C3	1000 p	poly	0246
C4	1 / 63	elco	0279
C5	1000 p	poly	0246
C6	1000 p	poly	0246
C7	47 / 25	elco	0287
C8	10 / 63	elco	0284
C9	47 p	ker	0221
C10	1000 p	poly	0246
C11	3300 p	poly	0249
C12	100 / 25	elco	0292
C13	4.7/ 63	elco	0281
C14	10 / 63	elco	0284
C15	22 / 40	elco	0285
C16	2.2/ 63	elco	0280
C17	0.033u	poly	0257
C18	0.01 u	poly	0253
C19	1000 p	poly	0246
C20	4.7/ 63	elco	0281
C21	0.22 u	poly	0264
C22	0.47 u	poly	0266
C23	0.047 u	poly	0258
C24	0.68 u	poly	0267
C25	0.15 u	poly	0262
C26	3300 p	poly	0257

IC1	U401 BR	highcom	0340
IC2	U401 BR	highcom	0340
IC300	7818	pos.reg.	0322
IC301	7918	neg.reg.	0323
A1-4	TL074	biFET opamp	0305
A5-8	TL074	biFET opamp	0305
T1	BC 416	PNP	0327
T2	BC 416	PNP	0327
T3	BC 416	PNP	0327
T4	BC 416	PNP	0327
T5	BC 416	PNP	0327
T6	BC 416	PNP	0327
B300	B80C1000	bridge rect.	0345
TR300	2x110V/2x18V 3VA	print-trafo	0582
FS300	160 mA slow	fuseholder	0693+0675