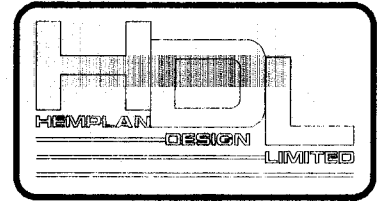


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11/08/94

EM1457, 1557 & 1564 Upgrades

The following modifications were done in order to improve mainly the reliability of the above models. The changes presented in par. 3 are NOT required as a service routine operation. All P/No's are as per EM's coding system.

1. Power Supply

An improved switching performance has been obtained from the circuit modified as per following table.

Changes:

Circuit Ref.	Old Value	Old Part No.	New Value	New Part No.
D111	RGP10M	1169-010-01	-	-
D114	BYV95C	1164-615-01	-	-
R119	33R , 1/4W, J, Carbon	4000-330-BJ	120R , 1/4W, J, Carbon	4000-121-BJ
C117	47u , 50V, M, Aluminium	3304-476-DM	10u , 50V, M, Aluminium	3304-106-DM
R125	10R , 1/2W, J, Carbon	4000-100-AJ	-	-
R126	10R , 1/2W, J, Carbon	4000-100-AJ	1k , 1/2W, J, Carbon	4000-102-AJ
C138	220p , 1kV, M, Cer-Disc	3382-221-QM	-	-

2. Beam Limiter

This is the part of the circuit around Q722. When the voltage drop across R729 exceeds -1V, Q722 takes over the excessive current reflected into a voltage drop of BL, thus a contrast reduction, keeping the average beam current constant. The voltage gain of the

circuit has been increased by increasing the load resistor R732 of the common-base amplifier Q722.

Changes:

Circuit Ref.	<i>Old</i> Value	<i>Old</i> Part No.	<u>New</u> Value	<u>New</u> Part No.
R729	2k7 , 1/4W, J, Carbon	4000-272-BJ	3k , 1/4W, J, Carbon	4000-302-BJ
R731	1k , 1/4W, J, Carbon	4000-102-BJ	10k , 1/4W, J, Carbon	4000-103-BJ
R732	10k , 1/4W, J, Carbon	4000-103-BJ	100k , 1/4W, J, Carbon	4000-103-BJ
R901	5k6 , 1/4W, J, Carbon	4000-562-BJ	56k , 1/4W, J, Carbon	4000-563-BJ
VR901	10k lin , 50mW, Rotary VR	4311-103-00	100k lin , 50mW, Rotary VR	4311-104-00

3. East-West Correction

The main task for this part of the circuit was to optimise the solution initially adopted, in order to reduce the influence of the components tolerances to the steady-points of the circuit, thus avoiding situations such as: op-amp outputs hitting supply rails, electrolytic capacitors reversed biased, etc.

Changes:

Circuit Ref.	<i>Old</i> Value	<i>Old</i> Part No.	<u>New</u> Value	<u>New</u> Part No.
R504	820k , 1/4W, J, Carbon	4000-824-BJ	470k , 1/4W, J, Carbon	4000-474-BJ
R513	5k6 , 1/4W, J, Carbon	4000-562-BJ	3k3 , 1/4W, J, Carbon	4000-332-BJ
R514	5k6 , 1/4W, J, Carbon	4000-562-BJ	3k3 , 1/4W, J, Carbon	4000-332-BJ
C528	10u, 50V, M, Aluminium (NO value change)	3304-106-DM	10u, 50V, M, Aluminium Changed polarity (positive towards pin7 U501)	3304-106-DM

4. DC-DC Converter

Some improvements have been achieved in the reference behaviour during turning the mains on and off. A few failures were due C413 not discharged low enough during a quick power off - power on cycle, thus EHT generator overshooting at power on, irreversibly damaging Q721, or reversibly activating the X-ray protection.

We also minimised the possible temperature drift of the Zener voltage references by increasing some of the biasing currents.

Changes:

Circuit Ref.	Old Value	Old Part No.	New Value	New Part No.
R412	12k, 1/4W, J, Carbon	4000-123-BJ	2k2, 1/4W, J, Carbon	4000-222-BJ
C411	22u, 50V, M, Aluminium	3304-226-DM	-	-
C413	2u2, 50V, M, Aluminium	3304-225-DM	10u, 50V, M, Aluminium	3304-106-DM
D412*	1N4148	1111-101-00	1N4148	1111-101-00
R402	22k, 1/4W, J, Carbon	4000-223-BJ	4k7, 1/4W, J, Carbon	4000-472-BJ
R420	33k, 1/2W, J, Carbon	4000-333-AJ	150k, 1/2W, J, Carbon	4000-154-AJ

*) - D412 will be mounted on the reverse side of PCB, sleeved, with the cathode connected at pin3 of JP7 (15V rail). The anode will be connected in the same point as before(fig. 4.1).

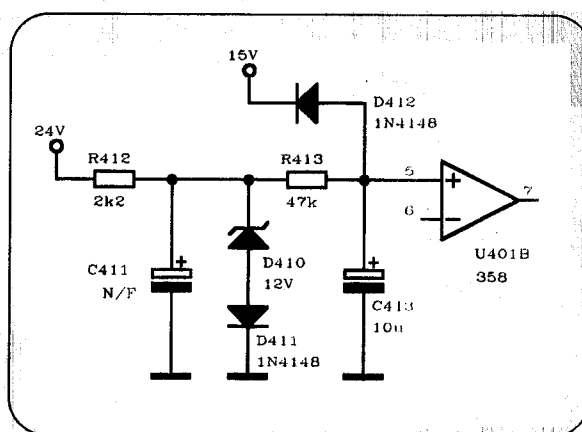


FIG. 4.1

5. EHT Generator & Line Scan Circuit

A major improvement, as far the active power losses are concerned, is a new version of the EHT generator which is saving more than 3W in power losses and reduces the burden on the LOPT with more than 1A of the peak collector current. The change consists mainly in the increased inductance value L721. The reduction in the temperature rise of L721 is significant, hence a smaller core could be specified. A similar change is to be implemented in the scan circuit (primary of T702), with about 1.5W power saving.

Changes:

Circuit Ref.	Old Value	Old Part No.	New Value	New Part No.
C724	1n8 , 1600V, J, Polyprop	3333-182-TJ	1n , 1600V, J, Polyprop	3333-102-TJ
L721	560uH , 1.5A, EE28/10	3511-561-21	1m1H , 1A, EI28/10	3511-112-21*
R705	2R2 , 1/2W, J, Carbon	4000-2R2-AJ	4R7 , 1W, J, Carbon	4000-4R7-EJ
T702	600uH , EI28/10	3911-601-21	1mH , EI28/10	3911-102-21*

*) - Specifications enclosed.

NOTE: The HV supply should be adjusted with P701 at 67V+/-0.5V for $f_H=31.5\text{kHz}$ and a dark picture is displayed.

6. LOPT Base Drive Circuits

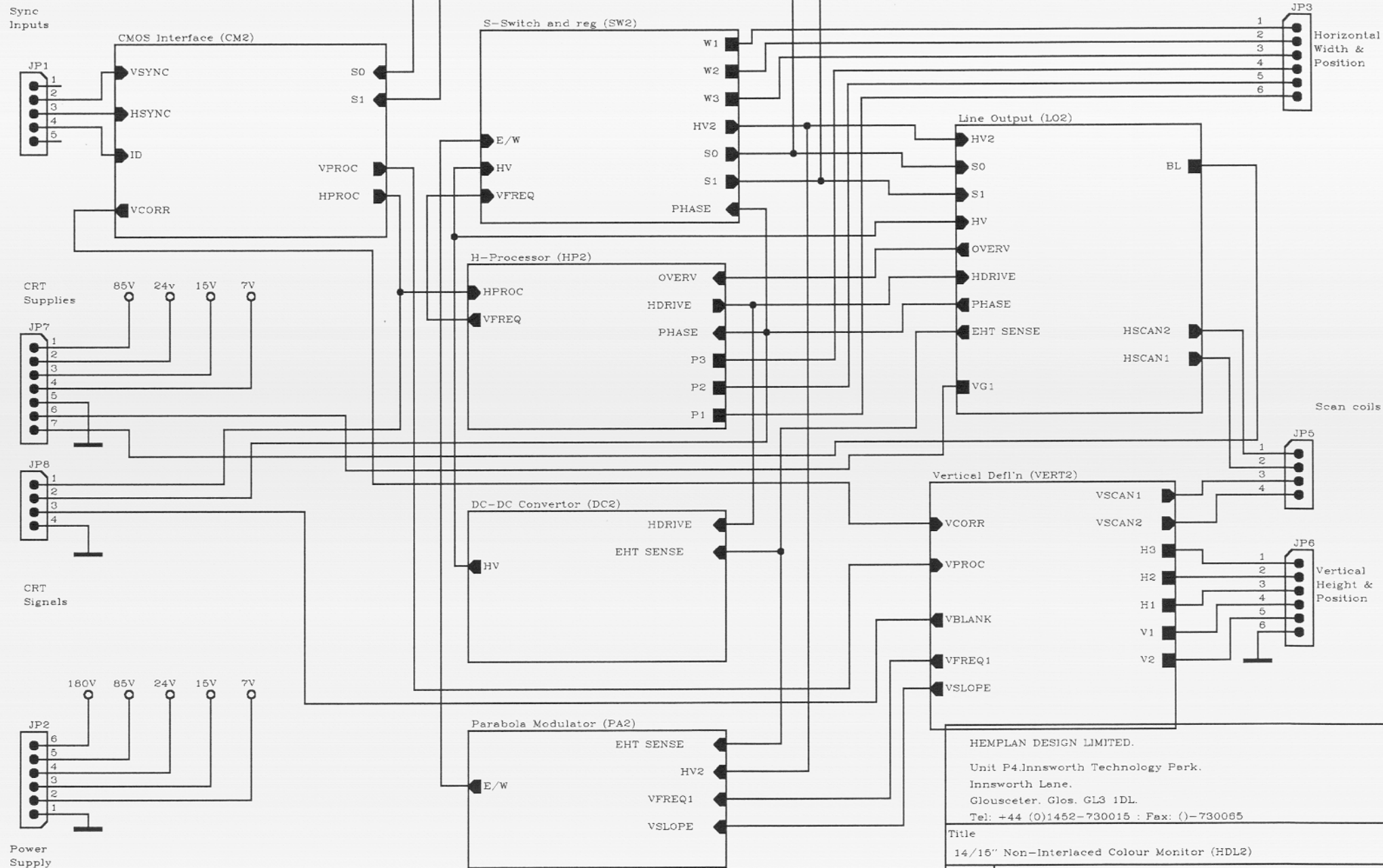
The drive circuit for Q721 has been re-engineered and the changes are given in the table below. Further power loss savings were achieved.

Changes:

Circuit Ref.	Old Value	Old Part No.	New Value	New Part No.
R724	180R , 5W, J, Metal	4022-181-JJ	33R , 1/2W, J, Carbon	4000-330-AJ**
T720	5m6H , HDT 9:1, EI19/5	3933-562-22	11mH , HDT 9:1, EI19/5	3933-113-22*
R723	330R , 1/4W, J, Carbon	4000-331-BJ	470R , 1/4W, J, Carbon	4000-471-BJ
L720	15uH , 1A, Drum, 6mm	3522-150-00	-	-
R733	1R2 , 1/4W, J, Carbon	4000-1R2-BJ	-	-

*) - Specification enclosed.

**) - The body of R724 to be spaced 5mm min from the board level.



Note N/F = Not Fitted.

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Title

14/15" Non-Interlaced Colour Monitor (HDL2)

Size

Document Number

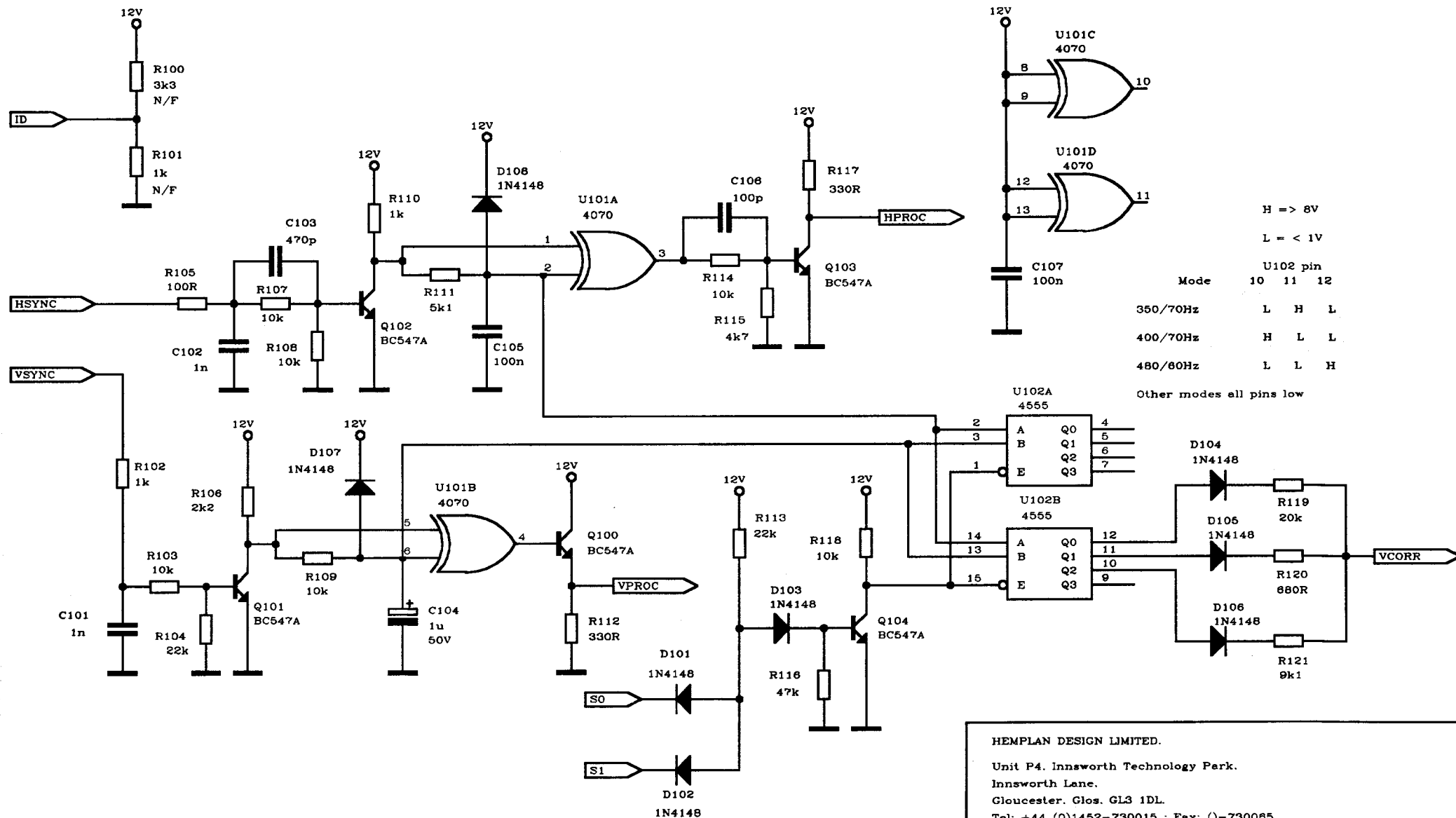
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Title

CMOS Interface. (CM2)

Size

Document Number

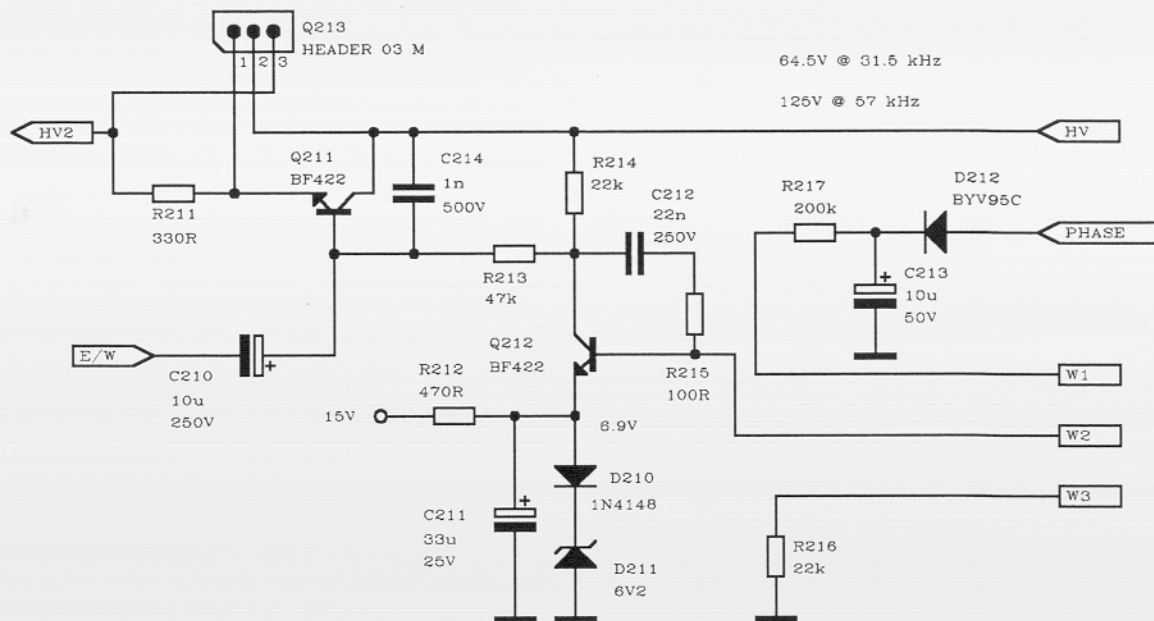
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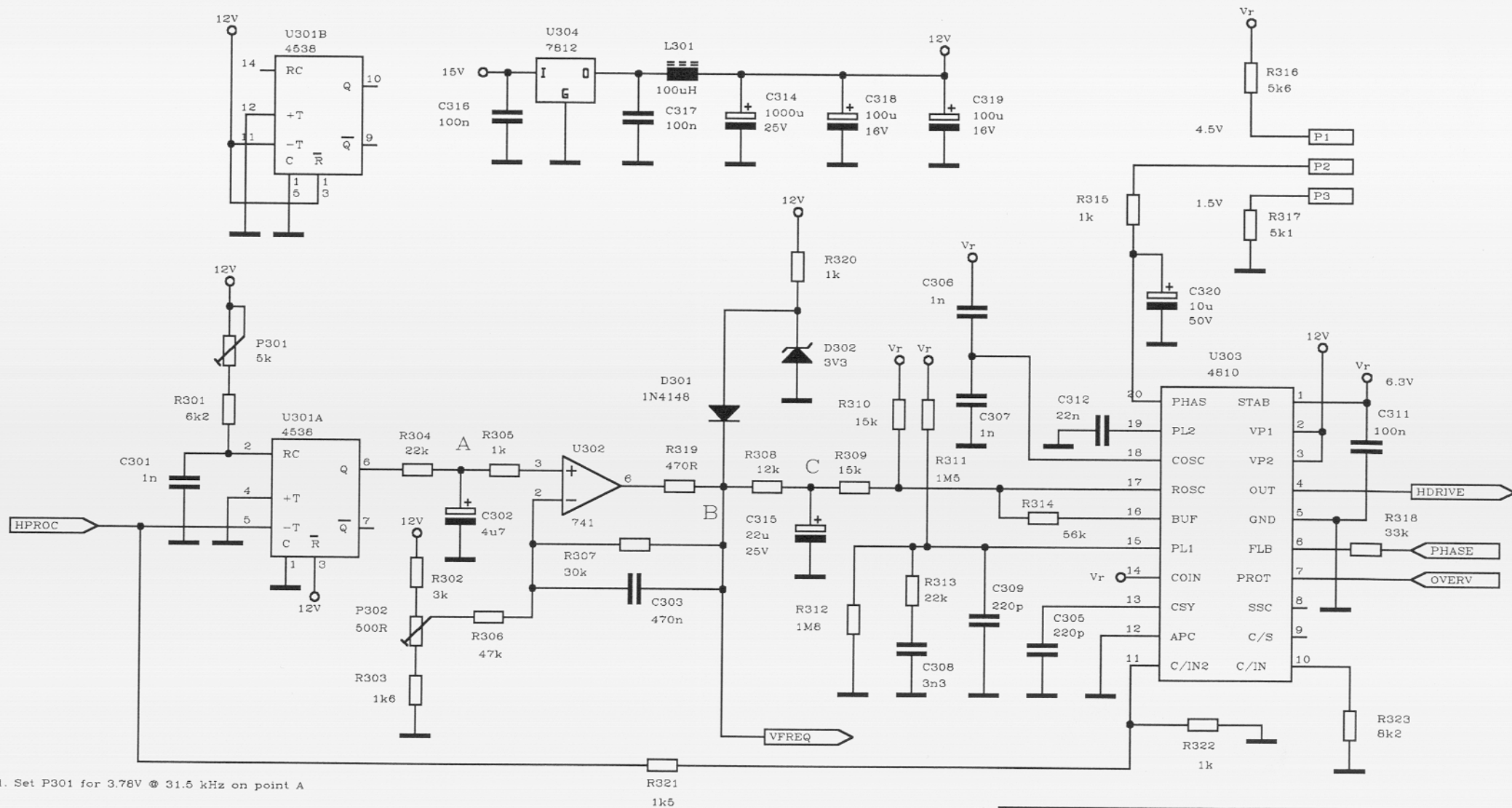
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Title				
S-Switch and EW regulator (SW2)				
Size	Document Number			REV
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Date:	February	9, 1996	Sheet	3 of 8



Frequency	A	B	C
31.5 kHz	3.78V	3.46V	3.3V
35.5 KHz	4.3V	4.3V	
38.0 kHz	4.6V	4.8V	4.0V
48.0 kHz	5.7V	7.0V	
57.0 kHz	6.8V	8.4V	6.0V

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Title

Horizontal Processor (HP2)

Size

Document Number

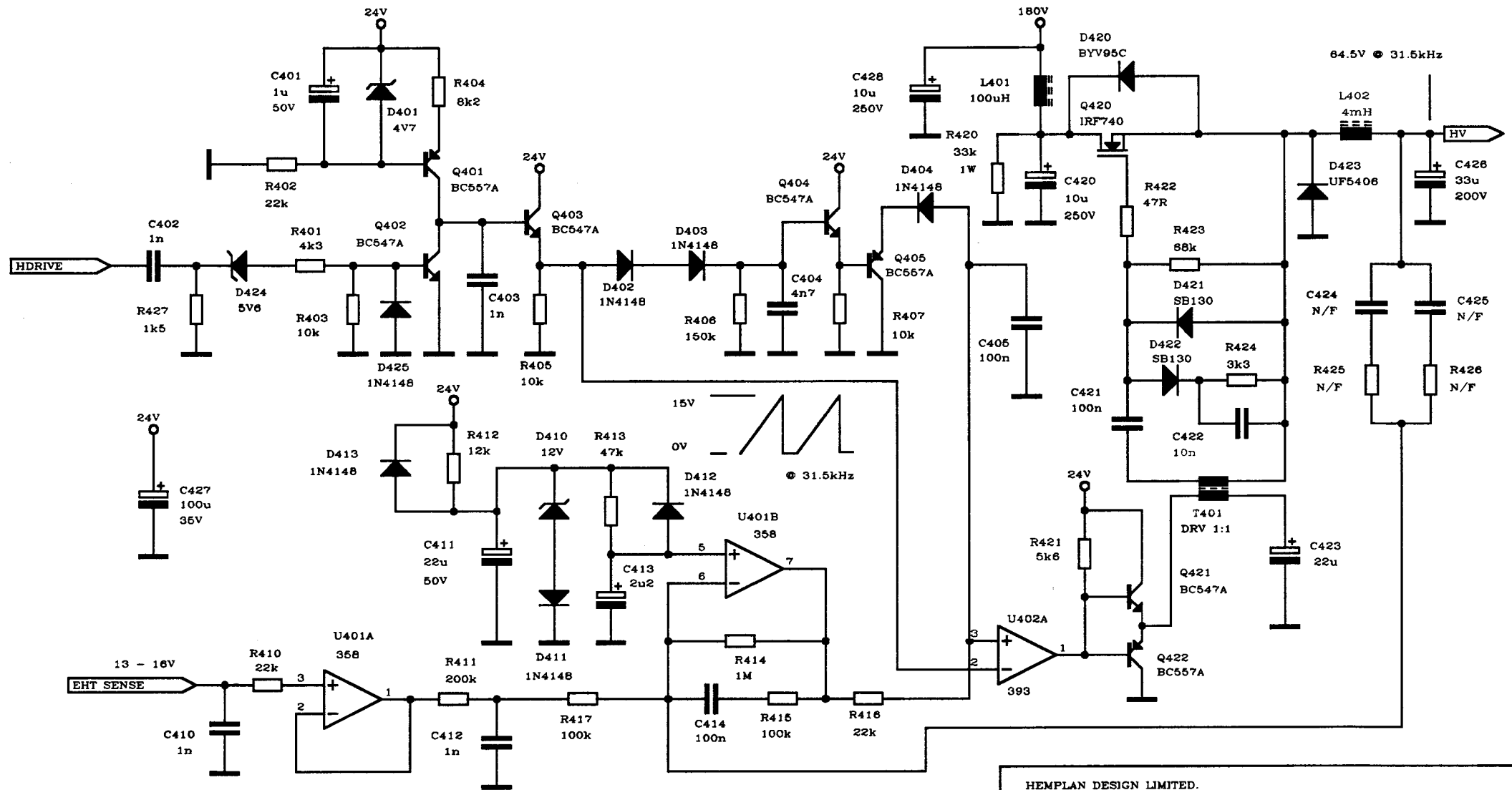
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Title

DC-DC Converter (DC2)

Size

Document Number

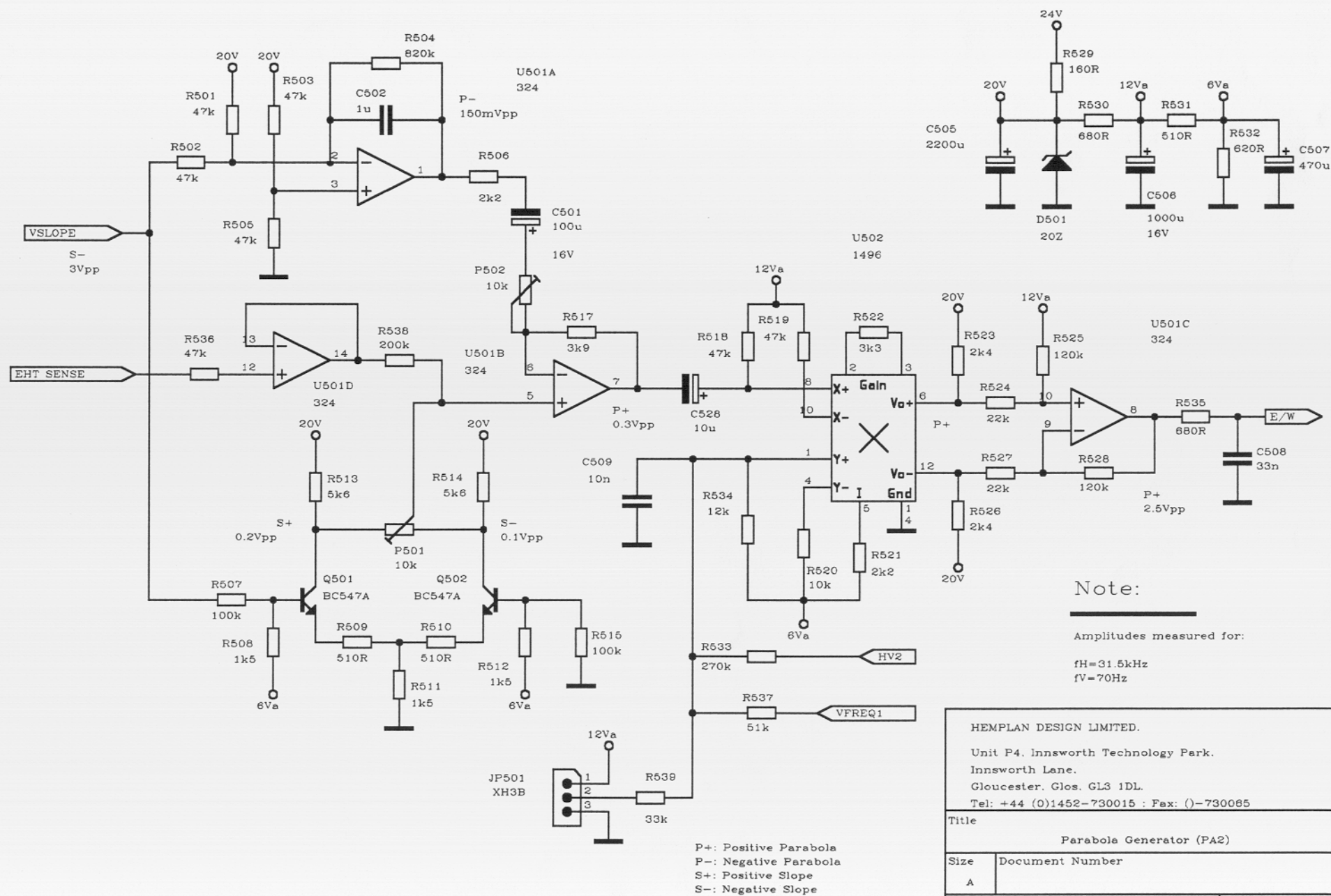
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Note:

Amplitudes measured for:

$f_H = 31.5\text{kHz}$

$f_V = 70\text{Hz}$

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Title

Parabola Generator (PA2)

Size

Document Number

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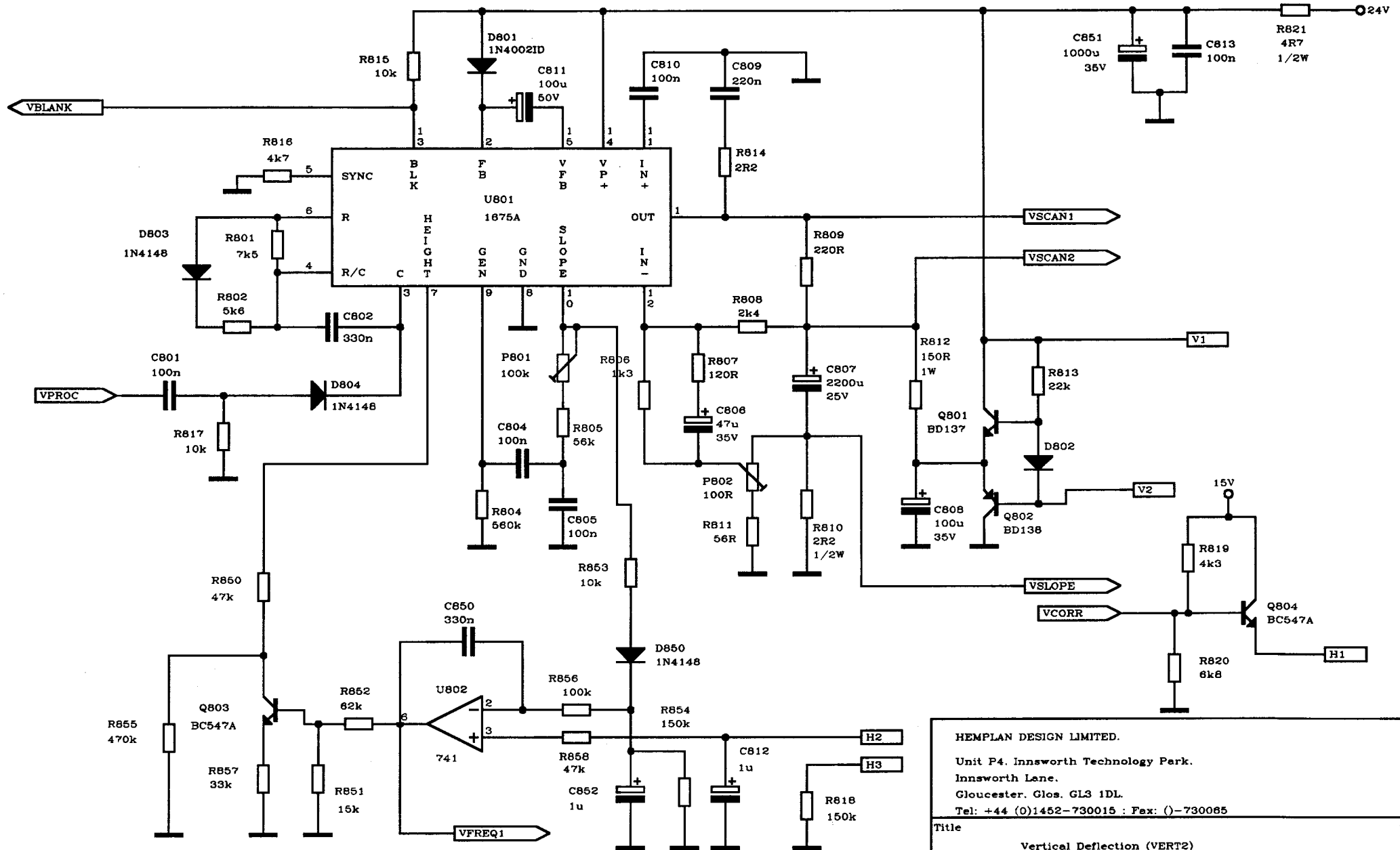
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P+: Positive Parabola
P-: Negative Parabola
S+: Positive Slope
S-: Negative Slope



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Title

Vertical Deflection (VERT2)

Size

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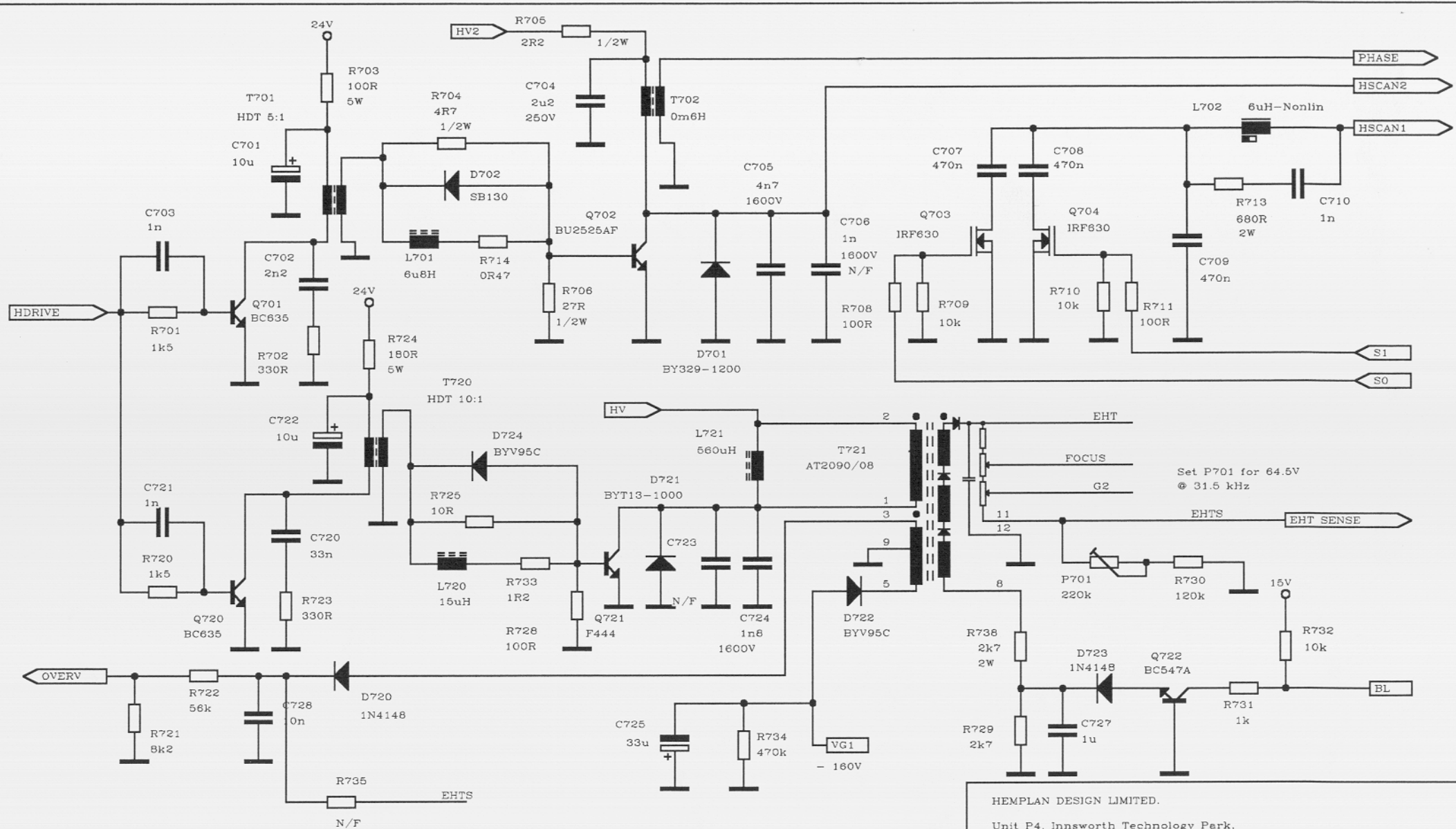
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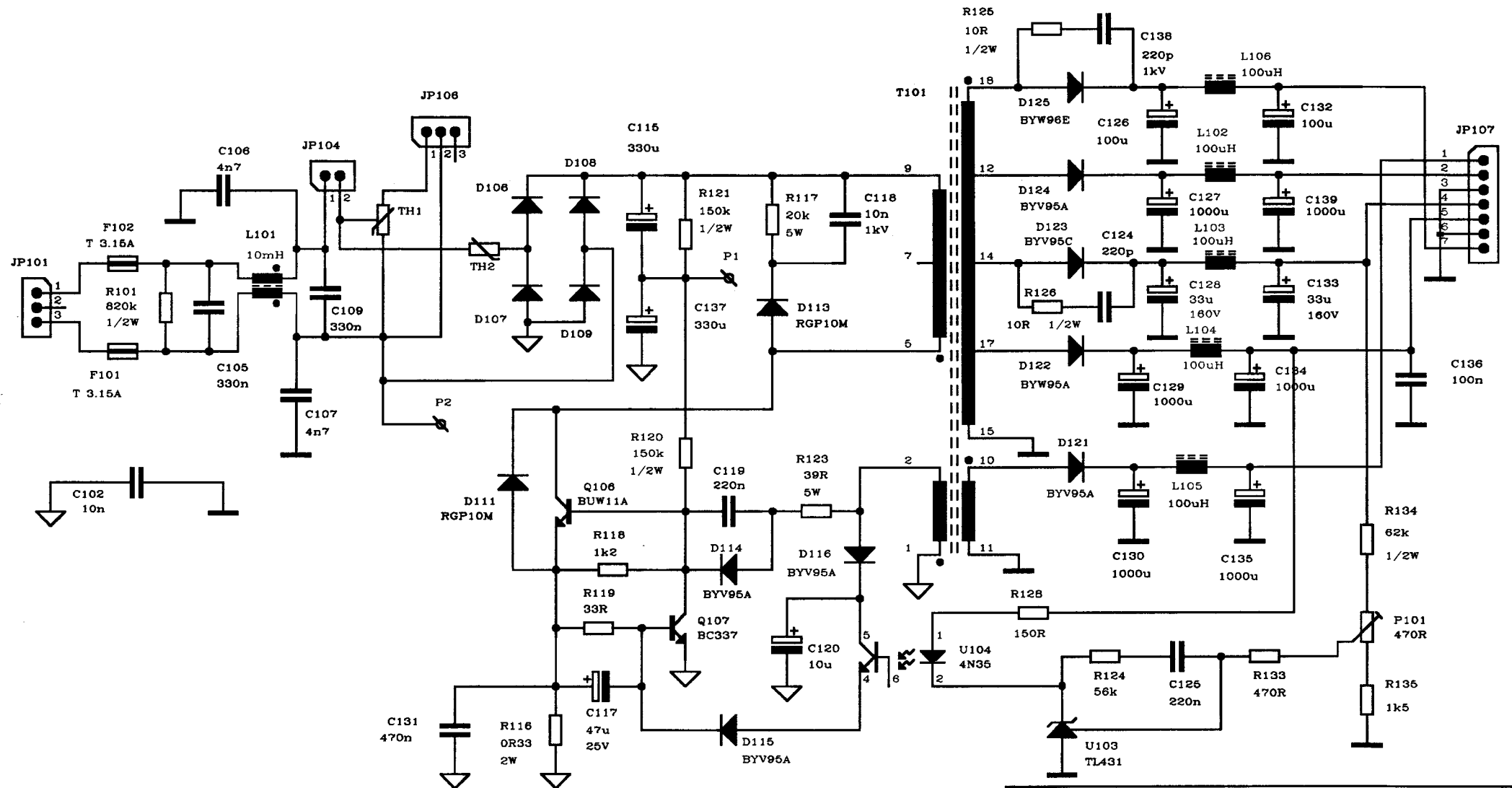
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Title

Power Supply (Non-Interlaced)

Size

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Sheet 1 of 1

Video input

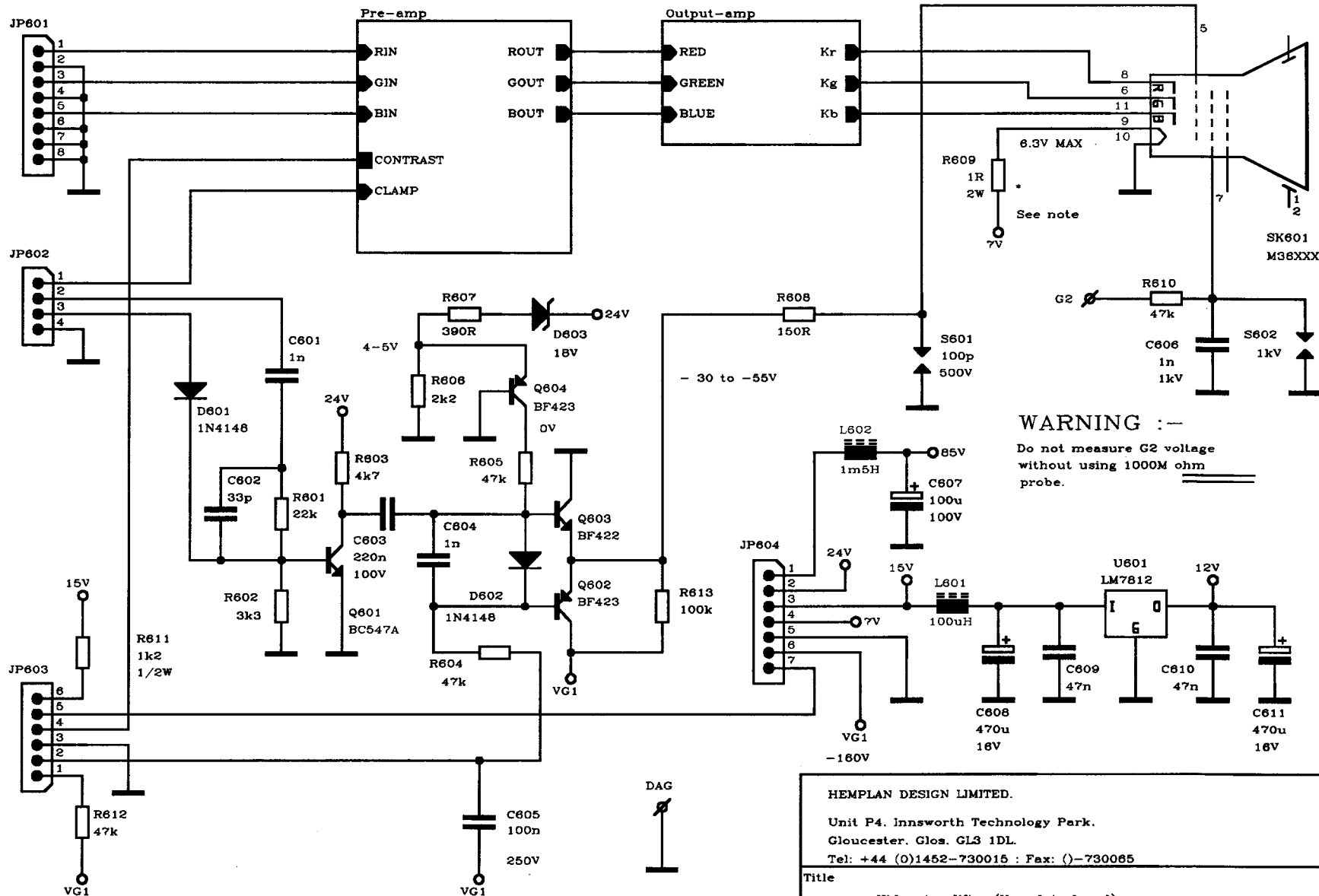
Horizontal blanking
Vertical blanking

LED supply
Contrast high
Contrast wiper
VR board GND
Brightness
Brightness low

Note :-

* = 1R0 Hitachi
Samsung

* = 2R0 Toshiba
Philips



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Title

Video Amplifier (Non-Interlaced)

Size

Document Number

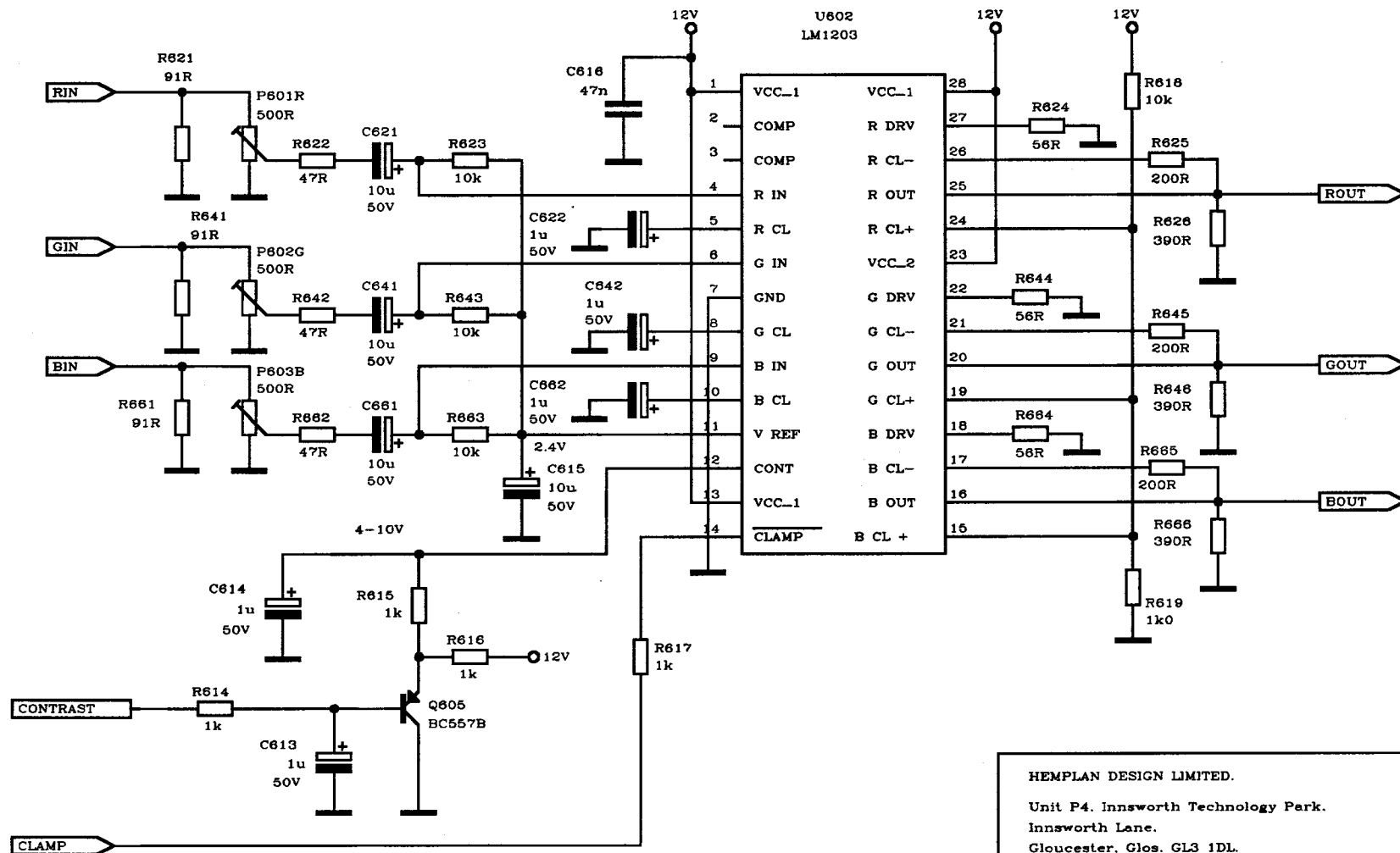
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Title

Video Pre-amplifier (Non-Interlaced)

Size

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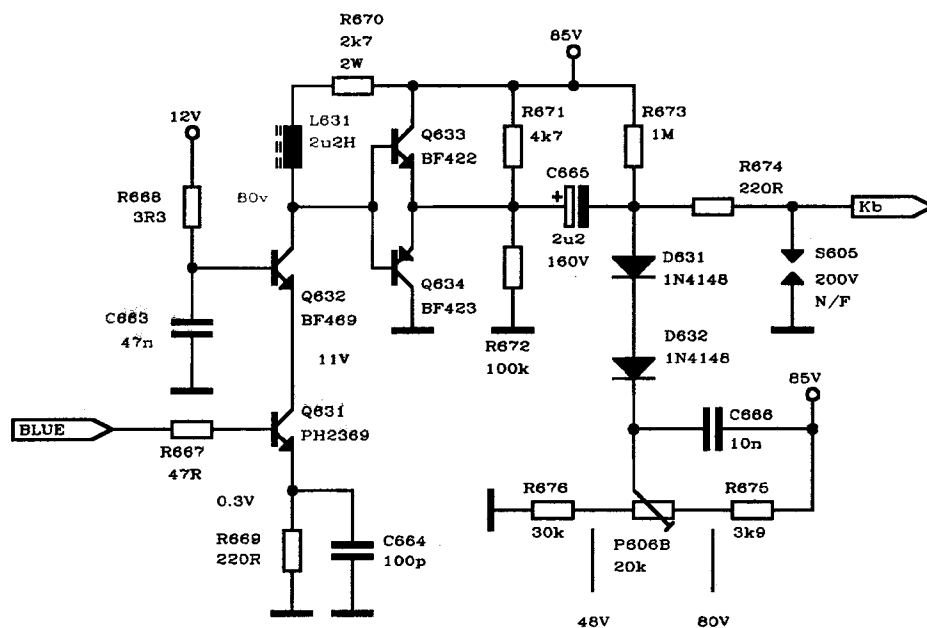
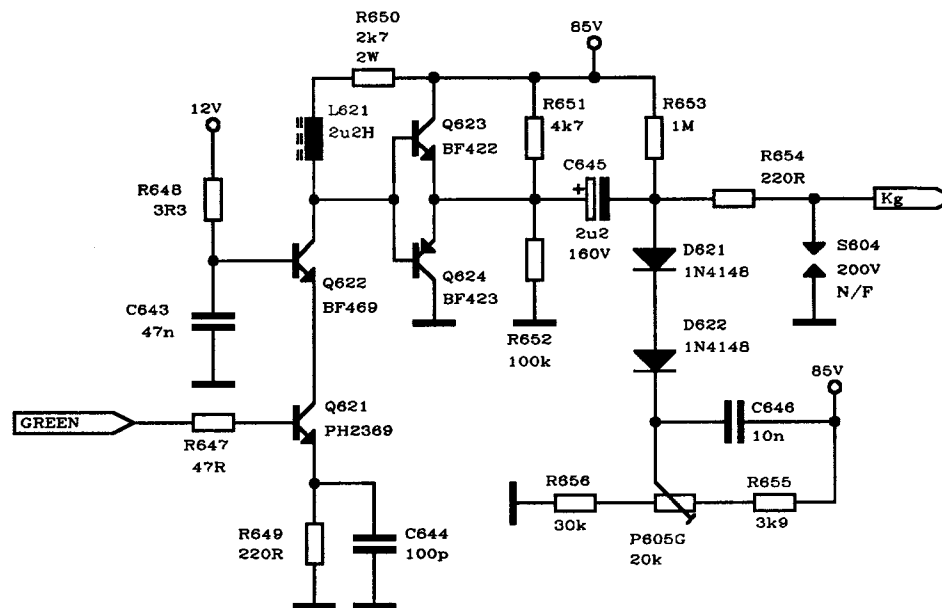
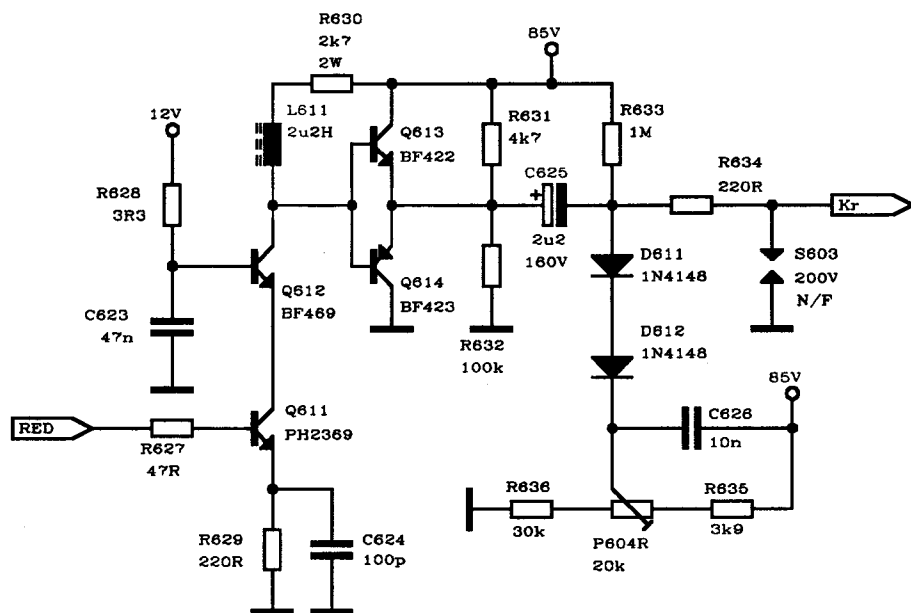
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Video Output Amplifiers (Non-Interlaced)

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