SDS1000 PRODUCT MANUAL 7/2/86.

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****** PLEASE CHECK NOTES AT END OF MANUAL FOR UPDATES / ASSEMBLY CHANGES ETC.**********

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SDS 1000 OVERVIEW

DRUM KIT.
The SDS 1000 is 5 channel drum kit comprising. -
1. bass drum - software generated similar to the SDS9.
controls are pitch, click amount.
2. snare drum -four digital samples , selectable .
controls are pitch, bend up / down, decay.
3. three tom toms - similar to SDS9 except the 2nd skin amount is variable,
controls are pitch, bend up/down, filter brightness, noise/tone, click amount, decay, second skin.

SYSTEM.
The voice parameters are controlled by the on board computer.

The memory is divided into two sections, as with the sds9 - user and factory.
There are be 5 user and 5 factory kits.
Kit no. selection is achieved by "cycling" around the factory and user kits with a front panel button (select) or with a foot switch.

User data is changed by pressing "program " and selecting a channel with "select", and then setting the channels parameters with a set of seven controls as with the SDS9.

There are individual volume controls for each channel which affects the stereo, and mix outputs. The stereo image is fixed (hi tom right, low tom left, rest central), but has master volume left and right, which also controls the volume of mono headphones. When used in the mono mix mode, the right stereo volume is used as the mono volume control, and the left control does nothing, the right ouput jack carries the mono signal.
When both the left and right outputs are used, the high and low toms are panned left and right , and the two volumes (left/right) become the master stereo levels.
The individual outputs are not affected by the volume controls. Inputs and outputs are via jack sockets. Displays are a single 7 seg display for kit no. and leds for program, trigger and channel selection.

VOICE CONSOLE ENCLOSURE.
The electronics are housed in a 1u high standard rack. The rack is going to be standard for the SDS1000, TMI and SDE (see other specs as they arrive.)

VOICE CONSOLE CONSTRUCTION
Metal box, consisting of brushed, anodised, extruded front panel and sheet steel enclosure.
Single board construction, horizontal pots mounted on the front of the board, jacks etc mounted on the rear. A front panel board housing displays, switches etc mounts behind the extruded front panel. The power supply is a separate module common to the SDS1000, SDE and TMI. The metal work incorporates detachable rack mounting brackets (ears).

RACK MOUNTING THE UNIT

The SDS1000 is built in a standard 19" 1U high rack mounting unit. The unit comes fitted with the rack mounting brackets as standard and also has four rubber feet for free standing use. If you are going to be using the unit as a free standing unit remove the rack mounting brackets by unscrewing the retaining bolts as shown. If you are mounting the unit in a rack you will need to remove the four free standing rubber feet to enable the units to be fitted closely in association with other rack mounting devices.

SDS1000 MECHANICAL DISASSEMBLY

IMPORTANT - DISCONNECT FROM MAINS POWER SUPPLY BEFORE REMOVING TOP COVER.

Remove the rack mounting brackets.
Remove the top cover by unscrewing the pozi drive screws to the rear of the front panel on the top as well as the pozi drive screws on the under side of the unit as shown.

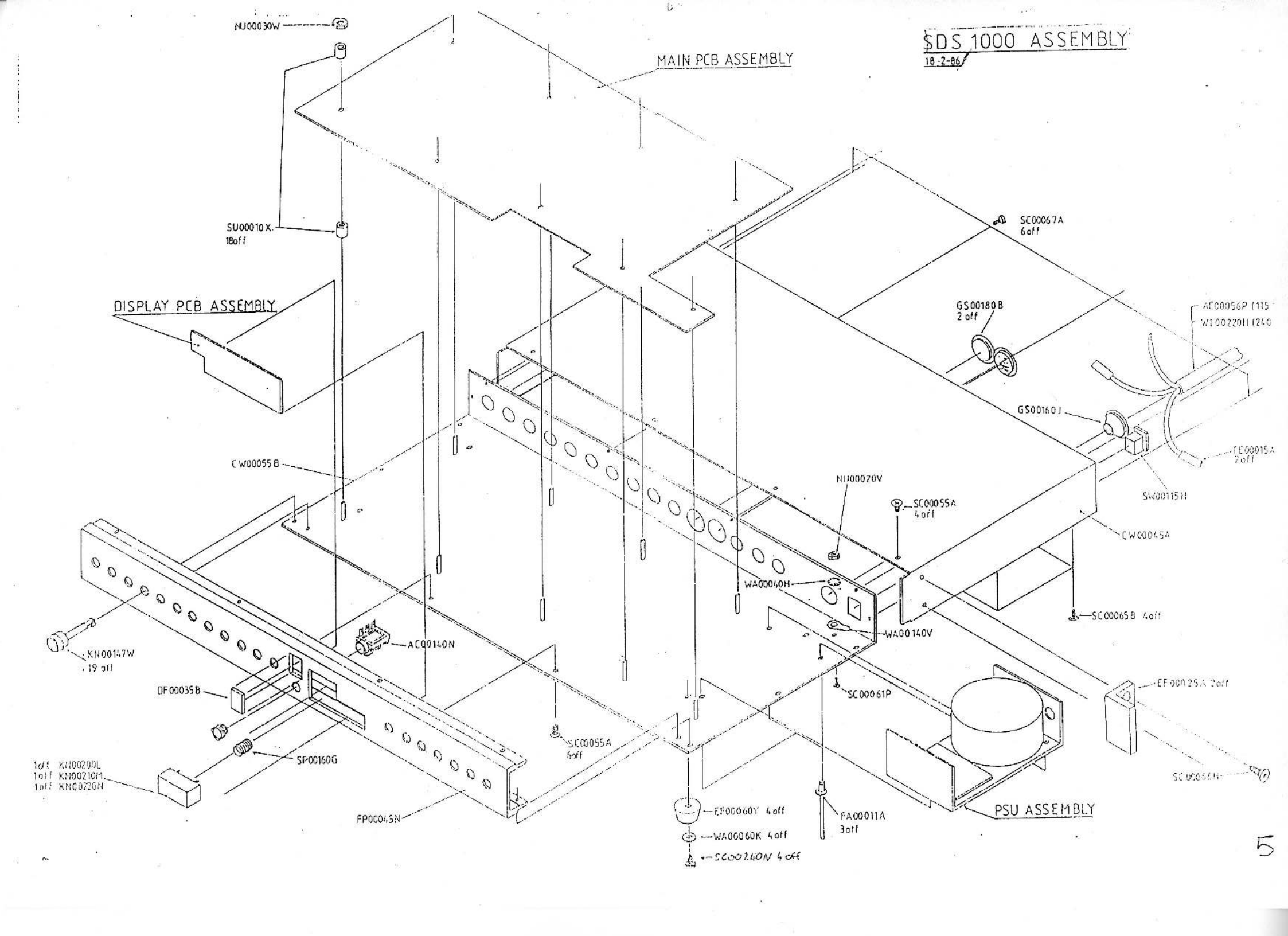
The SDS1000 electronics are mounted on a single printed circuit board running along the bottom of the unit. The printed circuit board is held in by nine studs which are secured by nine 3MM nylock screws. The power supply for the SDS1000 is a self contained unit on the right hand side of the case work and is fixed to the case with three rivits. The printed circuit board for the power supply can be removed by unclipping the plastic pillars and pulling the board up off the pillars.

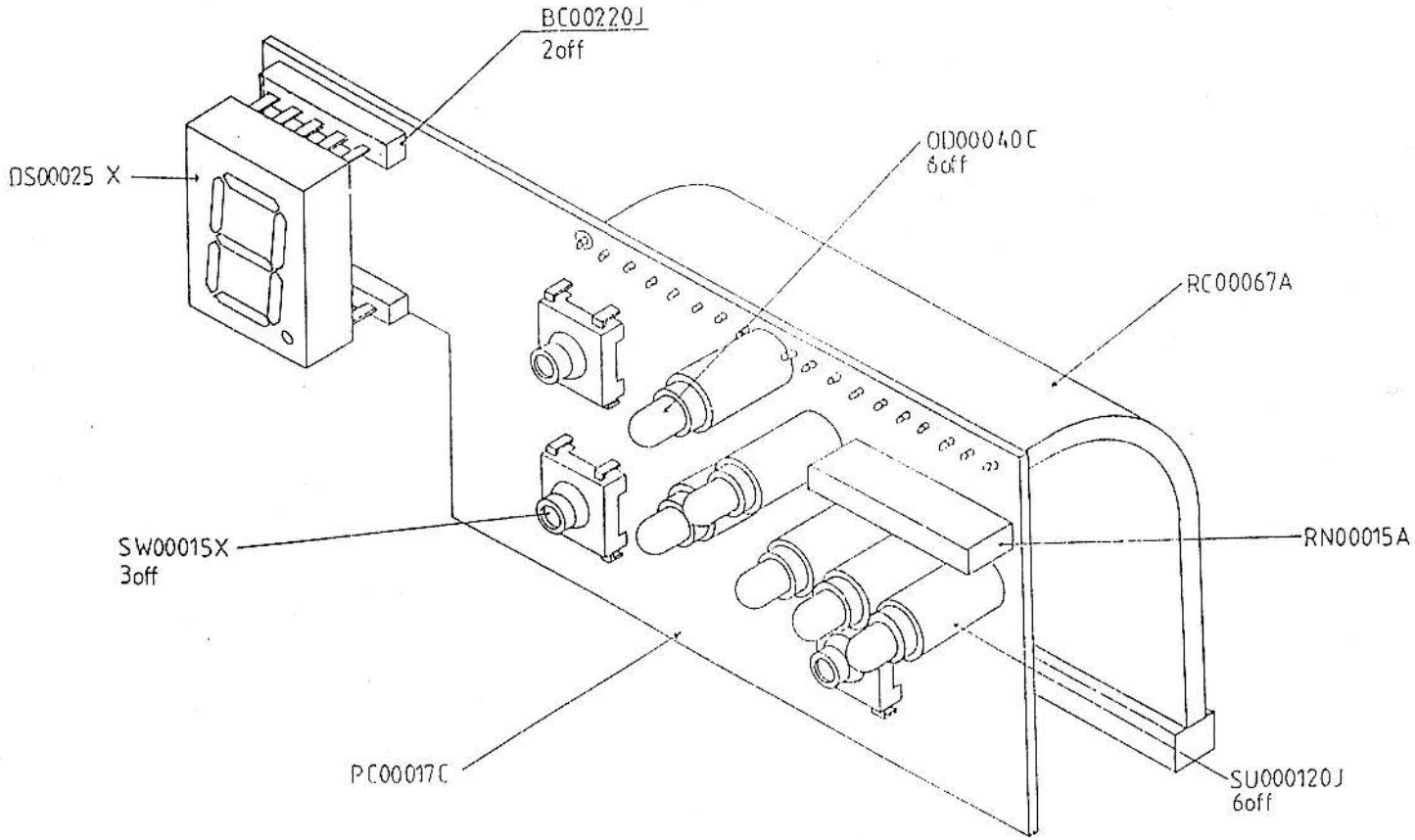
The control knobs and spindles are a single unit and plug through the front panel into the control pots RV1 to RV19. Pull the knobs forward through the front panel to remove the control knobs - squeeezing the back of the knob spindles with a pair of long nosed pliers releases the 'snap - in ' action of the knob spindles. Remove the 9 fixing nuts and then the board will lift out of the chassis. It is sometimes easier to remove the front panel entirely (4 more screws) to get at the board and display board.
The front panel of the SDS1000 consists of an aluminium extrusion with locating slots for the display boards. The display clips into these locating slots and can be removed by placing fore-finger and thumb in the centre of the display board and pulling gently backwards. The display board will clip out of the slots for servicing.

UPDATED 5.6.86

The SDS1000 board should be removed as follows;

1. Remove knobs (squeeze the clips at the back of the pot with a pair of pliers).
2. Remove front panel.
3. Remove nuts holding board in position.
4. Lift board starting from the back - bend the back panel clear of the rack sockets (it will spring back) - the board will lift clear of the power supply - so you do not have to dismantle the voltage regulators.


SDS 1000 ASSEMBLY
10-2-86
MAIN PCB ASSEMBLY
DISPLAY PCB ASSEMBLY
PSU ASSEMBLY
NU00030W
SU00010X
18off
SC00067A
6off
GS00180B
2 off
AC00056P (115
WI00220H (240
GS00160J
EE00015A
2off
SW00115H
CW00055B
NU00020V
SC00055A
4off
CW00045A
WA00040H
WA00140V
SC00065B 4off
KN00147W
19 off
AC00140N
OF00035B
SP00160G
1off KN00200L
1off KN00210M
1off KN00220N
FP00045N
SC00055A
4off
SC00061P
EF00025A 2off
EP00060Y 4off
WA00060K 4off
SC00240N 4off
FA00011A
3off
5

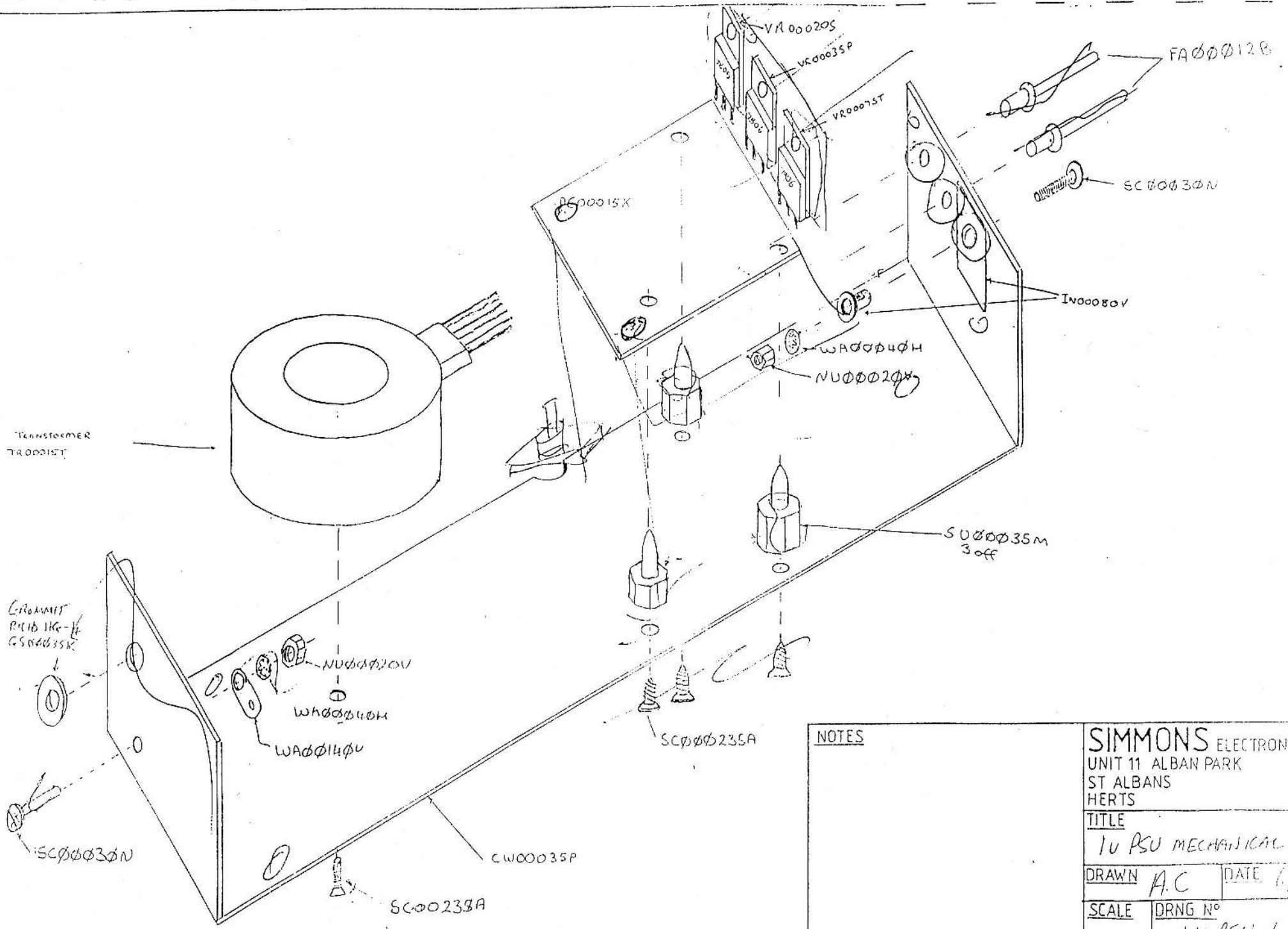


NOTES

SIMMONS ELECTRONICS LTD
UNIT 11 ALBAN PARK
ST ALBANS
HERTS

TITLE SDS 1000 DISPLAY BOARD ASSEMBLY

DRAWN	JIM	DATE	29 1 86
SCALE	2:1	DRNG N°	1000-17
REV	1		



NOTES

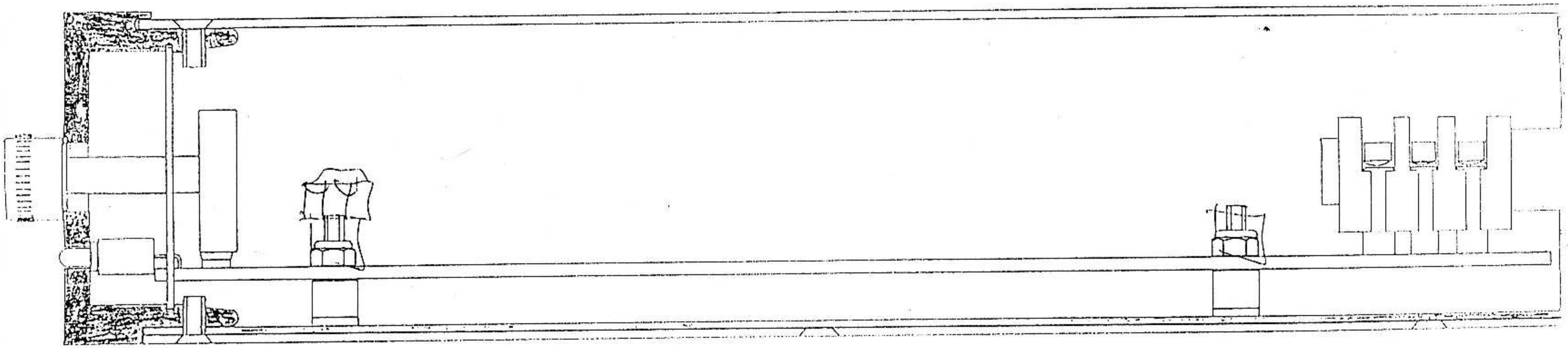
SIMMONS ELECTRONICS LTD.
UNIT 11 ALBAN PARK
ST ALBANS
HERTS

TITLE
1U PSU MECHANICAL ASSY.

DRAWN A.C DATE 6/11/86

SCALE

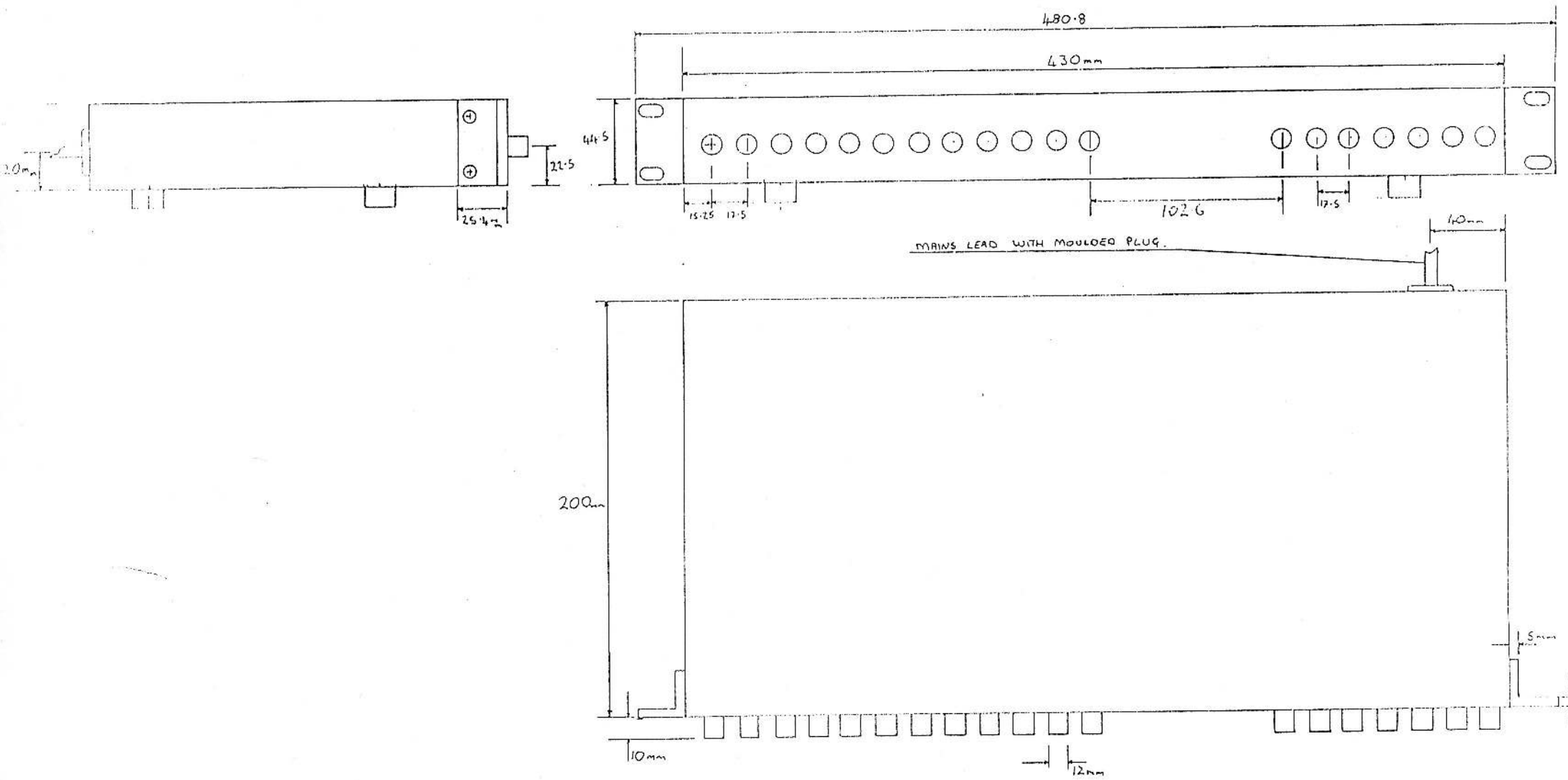
DRNG N° 1U PSU-4

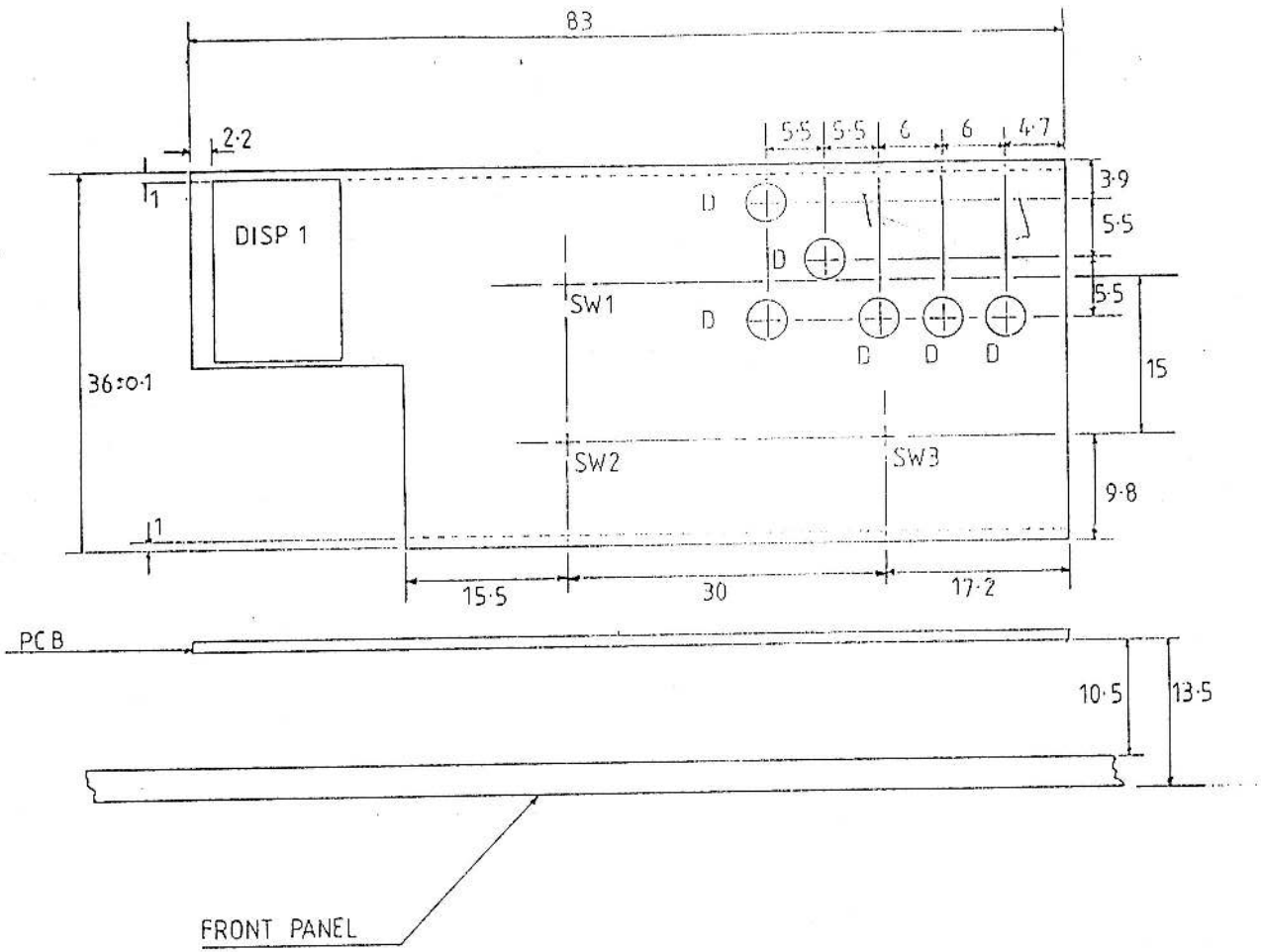


SIDE VIEW CUTOUT

STEPHENS LABORATORIES LTD, ST ALBANS, HERTS

IU OVERALL CASE DIMENSIONS SCALE 1:2





NOTES

1 PCB TO BE $\frac{1}{32}$" GLASS FIBRE

2 ALL DIMENSIONS IN mm

3 USABLE BOARD AREA BETWEEN DOTTED LINES

SIMMONS ELECTRONICS LTD.
UNIT 11 ALBAN PARK
ST ALBANS
HERTS

TITLE DISPLAY BOARD
MECHANICAL & PCB PHYSICAL

DRAWN J PINNOCK

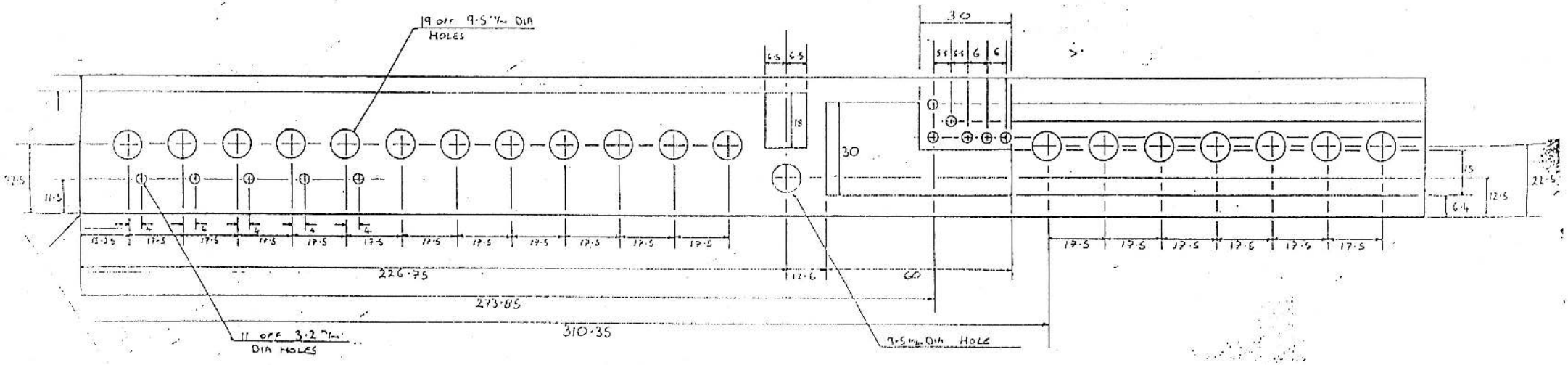
DATE 1-11-85

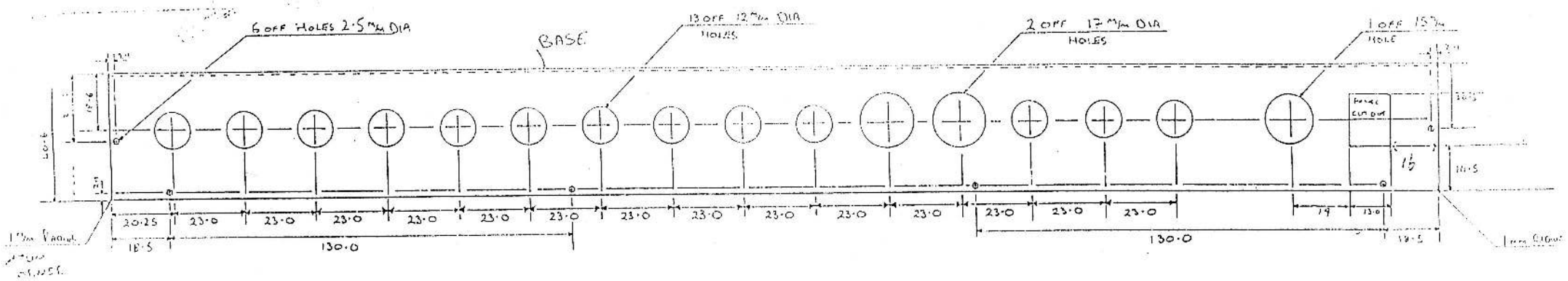
SCALE TWICE SIZE

DRNG N° 900·7

SDS1000

FRONT PANEL CUTOUTS FOR 1U PRODUCTS SEE DRG 1U-4 FOR BLANK DETAILS




6 OFF HOLES 2·5mm DIA
BASE
13 OFF 12·7mm DIA HOLES
2 OFF 17·5mm DIA HOLES
1 OFF 15·7mm HOLE
20·25
23·0
18·5
130·0
19
13·0

CIRCUIT DESCRIPTION COMPUTER

The SDS1000 is built round an 8051 micro controller which contains 4K of machine program plus 128 bytes of RAM. The machine program is masked into the 8051, therefore the processor is specific to the functioning of the SDS1000. The computer circuit is drawn on drawing number 900.1. Port one of the processor IC3 is connected to a eight bit DAC, IC5 and two eight bit latches, IC9 and IC10. The computer uses IC9 and IC10 to light up the various displays on the display boards, ie the seven segment and various LEDs. IC5 is used to output values via a buffer IC8 to a 37 way analogue multiplexer made up of IC12, IC13, IC14 and IC15. The output from IC5 is also fed to one input of a comparator IC8a the other input of which is driven by the input MUX IC1, the output of the comparator is fed back to the CPU, this enables the CPU to use IC5 as a successive approximation analogue to digital convertor.

As you can see the proccessor is doing A - D and D - A with IC5. The input mulitplexer IC1 is a 4067 16 channel analogue multiplexer and is addressed via port 0 and enables the processor to look at values on the seven programming pots RV13 to RV19, triggering signals from the bass drum, snare drum, toms 1 to toms 3, as well as the three switches and foot select jack socket. The switches are located on the display board and are high when not pressed and low when pressed. As far as the processor is concerned the switch inputs are treated just the same as the other analogue inputs.

The reading of the various inputs with the successive approximation is as follows: The relevant channel is opened on IC1 and the most significant bit to IC5 is set. The processor then reads the comparator to see if the value is higher or lower than the bit set. It then sets the second significant bit and checks the comparator again. It does this for all eight bits to arrive at the word which represents the value on that particular input channel. It then repeats this for the other fifteen inputs. The trigger inputs to the 4067 from the bass, snare and 3 toms are generated by the envelope and trigger-in circuits on drawing 900.2 in the case of the snare, and 900.3 in the case of the toms and 900.4 for the bass drum.

D - A

The D - A is handled as follows: There are three SSM 2300 chips and one 4051 plus pulse stretchers and buffers, which form 37 outputs to drive the function control voltages and computer triggering of the snare and toms, as well as the audio signal for the bass drum which is generated directly by the 80 51 CPU. The SSM 2300 is a direct replacement for the normal 40 51 analogue multiplexer + sample and hold arrangement as used on the SDS9, in other words inside the 2300 is an eight way analogue multiplexer, eight capacitors and eight buffers. These three SSM 2300s, IC13, 14 and 15 supply 32 control voltage signals which control the sound parameters of the snare and three tom toms. IC12 is a 4051 and gives five outputs, one is the direct audio signal buffered by IC47a to produce the bass drum signal. The other four signals are trigger signals used to trigger the snare and tom voices when the CPU receives midi input signals. See Midi.

IMPORTANT - THE 2300 ARE EASILY DAMAGED BY HANDLING - SEE '2300 HANDLING PRECAUTIONS'.

(.....CONT)

The processor does not have time to give wide trigger signals, therefore the diode, capacitor and resistor network on the output of the 4051 stretches the 2USd pulse to approximately 1 MS. The signals from the buffers IC16 are fed to the envelope generators for the snare and toms.

INTERRUPTS

The processor derives its timing signals from a 555 timer IC2 running at 1 KHZ, this timer also supplies the ramp voltage for the decay comparators shown on drawing 900.3.

MEMORY

The SDS1000 uses an EE-Prom IC4 which can store 120 bytes of information. These 120 bytes are the user parameters for the user to program his own kit sounds. As it is a prom memory no battery back up is required. It is a serial device so is controlled by three control lines, a clock, a chip select and data in - out.

MIDI

Midi has been designed into the hardware for future implementation and 'midi in' will be fed through the normal opto and buffered by IC6 and fed to the U-art input on the processor The processor will generate 'midi out' signals via the internal U-art through IC6 to the midi out socket. The present SDS1000 triggers its envelopes directly from the pads, the processor is not interpreting the trigger signals as with the SDS9. When midi is implemented it will be for producing midi down a single midi channel at pre-set note values via the trigger inputs received via the input MUX IC1. Midi in signals to the SDS1000 produce a parallel set of trigger signals via IC12 and the pulse stretchers.

******** IMPORTANT - READ THIS BEFORE BUYING *******

PARTS LISTS AND BILL OFF MATEIRIALS ARE SHOWN AS FOR THE MIDI VERSION.
ITEMS *STARRED* AND / OR UNDERLINED ARE NOT FITTED TO THE NON - MIDI SDS1000.

TOM TOMS

The tom tom circuit diagram is shown on drawing 900.3 and is based around 3394 Curtis voice chip. The 3394 has a VCO, VCA, VCF and input mixing circuitry on board. The output of the 3394 is buffered by IC21 and sent directly to the individual output sockets. The volume controls for each channel feed the mix and left and right controls. Each tom tom is identical apart from the tuning capacitors C29 35 and 53 which are progressivly bigger and tune the three toms naturally at a high medium and low pitch (there is a 'trim offset' stored in memory to fine tune the tom's - see the test procedure). Control inputs to the tom toms are as follows: Voltage controlled oscilator frequency, filter frequency, final VCA gain (envelope), bend amount, second skin amount, noise tone balance and click amount.
IC6 on drawing 900.1 forms an osc running at approximately 150 cycles which produces a modulation frequencey called the second skin which is controlled via IC17 and fed to modulate the VCO frequency on each tom. IC17b forms an inverter for the envelope signal which when the bend amount is turned progressively up cancels the fixed bend sent to the VCO frequency via R54, so that at the mid control voltage point you have bend up and bend down cancelled out. At the extreme of the CV range you have bend up and bend down. IC19 forms an inverter for the VCF frequency control. A fixed amount of sweep is fed into this inverter via R59 and the off-set for the inverter is produced by the control voltage for the VCF frequency.

Noise is generated by TR8 and IC48 on drawing 900.4 and is fed to the noise inputs of the 3394s. The balance between the internal oscilator and the external noise generator is controlled by the noise tone balance control voltage fed into pin 10 via R50.

IC19 forms a peak detector and envelope generator for the tom toms. C29 is the main storage for the envelope voltage. D15 and R39 force this to discharge quickly at higher voltage levels. IC46 - an LM339 quad comparator - has two inputs, one is the decay control voltage and the other is the decay ramp produced by the 1KH timer. As the ramp crosses the control voltage point the output will sink current through R40 and discharge C29. The output of the envelope generator is buffered by IC19 and fed to the VCA via R54 and to the other control circuits. D18, R146, C27 and C26 form a shaping circuit for a 20ms click envelope. Noise is fed into IC18 and the click control envelope is fed into pin 1 of IC18 and gates noise to form the white noise burst or click. This click signal is fed to pin 13 of IC18, the second half of the gain cell. The gain of this half is controlled by the click amount control voltage. Because the 3394s do not have external access to the filter inputs the click signal is taken into the 3394 via the first pole of the filter, pin12. D42, C30 and IC19 form the shaping circuit for the computer trigger inputs, this gives a 20 to 30 millisecond pulse to the computer which can detect it as a trigger signal. The computer triggers the envelope generator via D20 and the click envelope via D19. RV3 forms sensitivity control for the input to the envelope generator.

SNARE DRUM

The circuitry for the snare drum is shown on drawing 900.2 and consists of three main areas. 1. The sensitive, input trigger, comparator and anti-splat one-shot which is used to re-set the counters to the start of the sample. 2. The envelope generator used for dynamic control and 3, the sample prom counters and digital to analogue converter.

RESET TRIGGERS

As you can see the input for IC37 bypasses the sensitivity control RV2. The output of IC37 is shaped by R166 and C71 and integrated with C73 and R167. Further gain is achieved with IC37b and the output of this chip is fed to IC37c which forms a sensitive comparator. As the drum is struck (no matter how lightly) a pulse appears on the cathode of D53. This is fed into a one shot timer 555 which gates out any new triggers for a period of approximately 35 milliseconds, thus there is a clean trigger on pin 3. This trigger is a negative going pulse so C76 is used to differentiate this signal to produce a positive going pulse on pin 2 and 11 of IC39 and IC40. These are the reset pins for the counters, so as the drum is struck these counters are reset which always starts the prom at the first byte of the sample.

DYNAMIC ENVELOPE CONTROL

IC44d forms a peak detector which charges up C79. There are two ways to discharge C79. One is through decay comparator IC4 at the point where the control voltage and decay ramp cross over and secondly at the end of the sample when pin 11 of IC39 goes high and switches on transistor TR5, grounding out the voltage on C79. The voltage on C79 forms the envelope for the snare which is buffered by IC37d and fed to the multiply input of the DAC IC42, thus as TR5 is turned on the DAC is switched off- cutting off any digital noise after the end of the sample.

DIGITAL CIRCUIT

The voltage controlled oscilator IC43 is used to provide the clock for the counters IC14 and IC39. The frequency of the clock is formed from the snare control voltage for pitch, as well as IC45 which produces a cancellation for the bend signal. At extremes of the bend control voltage is bend up and bend down and in the middle no bend at all.

IC41 is a 32Kbyte prom which stores four different 8K snare sample sounds. The selection of the sample is under program control via the two upper address lines pins 26 and 27 so the user can select one of four samples. When the drum is struck the counters are reset and then the clocks continue to count from byte 1 to byte 8,000 at which point pin 11 of IC39 goes high which kills the decay via TR5 and stops the clock via pin5 of IC43, the prom outputs bytes to IC42 which produces a voltage proportional to the byte value x the voltage on pin 14 which comes from the envelope, thus producing a voltage proportional to how hard the drum struck. This signal is amplified by IC44 and fed into tone shaper IC44b.
The computer trigger comes in 900.1/1 and charges up the envelope generator via D57 and resets the sample counters via C105. R177 and C78 form the shaping for the computer trigger signal which is buffered by IC44c and fed to the input MUX for the computer.

HEADPHONE MIXING AND OUTPUTS

Various inputs, outputs and extras are shown on drawing 900.4. There are two volume controls left and right and two outputs left out and right out on the SDS1000. When a single jack is plugged into the right output only (P13), a mono mix is obtained and the left hand level (RV11) does nothing. The low tom, tom3 is fed to the right hand circuit via R254 and R212 when there is no plug inserted in the left output. When a mono jack plug is plugged into the left output this signal is grounded. Therefore only the right hand tom tom comes out the right output and the left hand tom tom comes out of the left output. To recap - If the unit is being used for mono use the right output and right volume control. The left volume control does nothing. When used for stereo - plug in ouputs into the left and right output and the left and right volume controls act as masters. The bass, snare and middle tom tom will be in the centre of the stereo image the high tom is fed to the right output and low tom, is fed to the left output. IC50 forms a headphone amplifier which is fed from the right hand output volume control.

BASS DRUM FILTER

The computer produces two signals for the base drum, one is the audio signal which comprises of the click and thump portion of a bass drum sound and secondly the bass filter control which is used to switch in a filter during the thump portion of the sound to filter out any high frequency noise present on the computer generated sound. TR7 is used to switch in and out a .1 microfarad capacitor which heavily filters the thump portion of the sound. This bass signal is buffered and amplified by IC47b.

NOISE GENERATOR

Noise is produced by reverse biasing TR8 with the unregulated + 10 volts supply. The noise produced on the emitter is amplified by IC48, the amount of noise is set by RV20 and should be approximately 4 Volts peak to peak.

V - 2 GENERATOR

All the gain cells for controlling the various sound parameters on the SDS1000 are LM13600 dual transconductance amplifiers. These current controlled gain cells have a power supply of 0 to +6 Volts, so an extra power supply rail is required at the centre point between 0 and +6, ie 3Volts. This is so that when the control voltage is at 0Volts the gain cell will be fully off and whilst at plus 4.5Volts the gain cell will be turned on. If the 136's were fed by + and - 6 Volts we would have to have a control voltage that went from -6 to +6Volts. The 3v rail or V-2 as it is labelled throughout the diagram is generated by IC21d.

(CONT....)

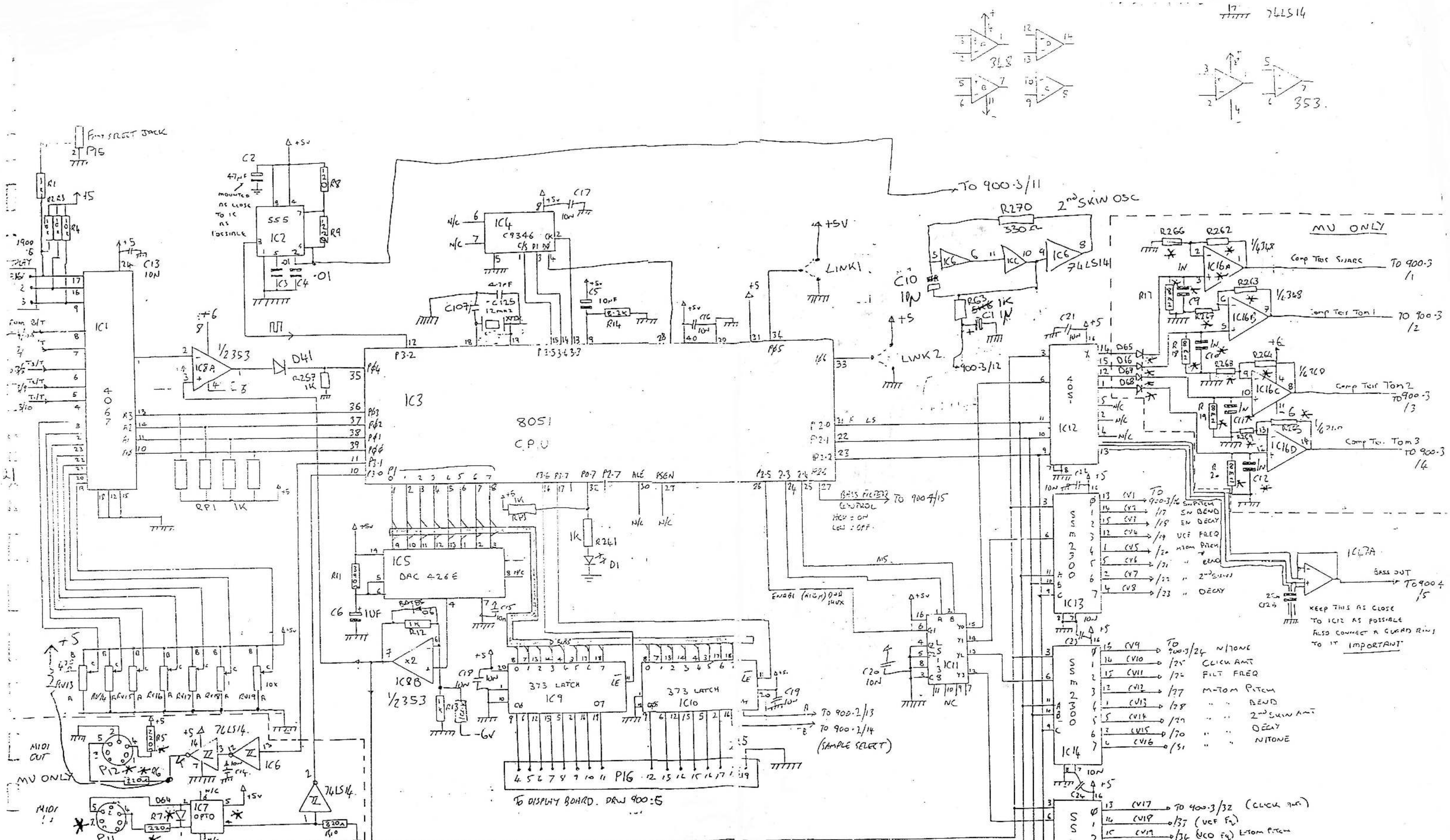
(...CONT)

BASS DRUM COMPUTER TRIGGER

Signals from the bass drum pad are fed via RV1 the sensitivity control to IC47d. D63, C98 and R246 form a peak detector and IC47c buffers the voltage on C98 and feeds this trigger signal of approximately 30 milliseconds to the computer input MUX IC1.

POWER SUPPLY

The power supply used on the SDS1000 is a universal power supply for the SDS1000, SDE and TMI and is mounted on its own heatsink and chassis. The power supply provides +5 volts for the digital circuitry, + and - 6 Volts for the analogue circuitry plus + and - unregulated 10 Volts for the headphone amplifier and the biasing for the noise transistor TR8. It can be configured for two line voltages, 220/240 and 100/120.


74LS14
348
353
FOOTSWITCH JACK
P15
R1
R2 R3
R4
+5
C2
47µF MOUNTED AS CLOSE TO IC AS POSSIBLE
555
IC2
R8
R9
C3
C4
·01
+5V
TO 900·3/11
R270
330Ω
2nd SKIN OSC
IC4
C9346
C17
10N
N/C
C107
C125
12MHZ
XTAL
10NF
8·2K
R14
IC1
4067
C13
10N
1/2 353
IC8A
D41
R257
1K
IC3
8051
CPU
RP1
1K
P3·2
P1
P0·7
P2·7
ALE
PSEN
LINK 1
LINK 2
C10
10N
R263
1K
C11
1N
IC6
74LS14
900·3/12
C21
D65
D66
D67
D68
IC12
4051
MU ONLY
R266
R262
1/4 348
IC16A
Comp Trig Snare
TO 900·3/1
R263
1/4 348
IC16B
Comp Trig Tom 1
TO 900·3/2
R264
IC16C
Comp Trig Tom 2
TO 900·3/3
R265
IC16D
Comp Trig Tom 3
TO 900·3/4
IC5
DAC 426E
R11
C6
1UF
R12
IC8B
x2
1/2 353
R261
1K
D1
BASS FILTER CONTROL
HIGH = ON
LOW = OFF
TO 900·4/15
ENABLE (HIGH) D→A
MUX
IC11
373 LATCH
IC9
373 LATCH
IC10
TO 900·2/13
TO 900·2/14
(SAMPLE SELECT)
P16
TO DISPLAY BOARD. DRW 900:5
C19
10N
C20
10N
-6V
IC13
SSM 2300
CV1
CV2
CV3
CV4
CV5
CV6
CV7
CV8
TO 900·3/16
S.N PITCH
S.N BEND
S.N DECAY
VCF FREQ
M-TOM PITCH
BEND
2nd SKIN
DECAY
IC7A
BASS OUT
TO 900·4/5
KEEP THIS AS CLOSE TO IC12 AS POSSIBLE
ALSO CONNECT A GUARD RING TO IT
IMPORTANT
IC14
SSM 2300
CV9
CV10
CV11
CV12
CV13
CV14
CV15
CV16
TO 900·3/24
N/TONE
CLICK AMT
FILT FREQ
M-TOM PITCH
BEND
2nd SKIN AMT
DECAY
N/TONE
IC15
SSM 2300
CV17
CV18
CV19
CV20
CV21
CV22
CV23
CV24
TO 900·3/32 (CLICK AMT)
(VCF FQ)
(VCO FQ) L-TOM PITCH
(BEND)
(2nd SKIN AMT)
(DECAY)
(NOISE/TONE)
(CLICK AMT)
RV13
RV14
RV15
RV16
RV17
RV18
RV19
10K
MIDI OUT
P12
R5
R6
220Ω
74LS14
IC6
MU ONLY
MIDI IN
P11
D64
R7
220Ω
IC7
OPTO
74LS14
820Ω
R10

NOTES (1) EACH IC IS TO BE DECOUPLED BY A 10N CERAMIC DISC ACROSS ITS SUPPLY PINS. THIS APPLIES ONLY TO ICS ON THIS DRAWING

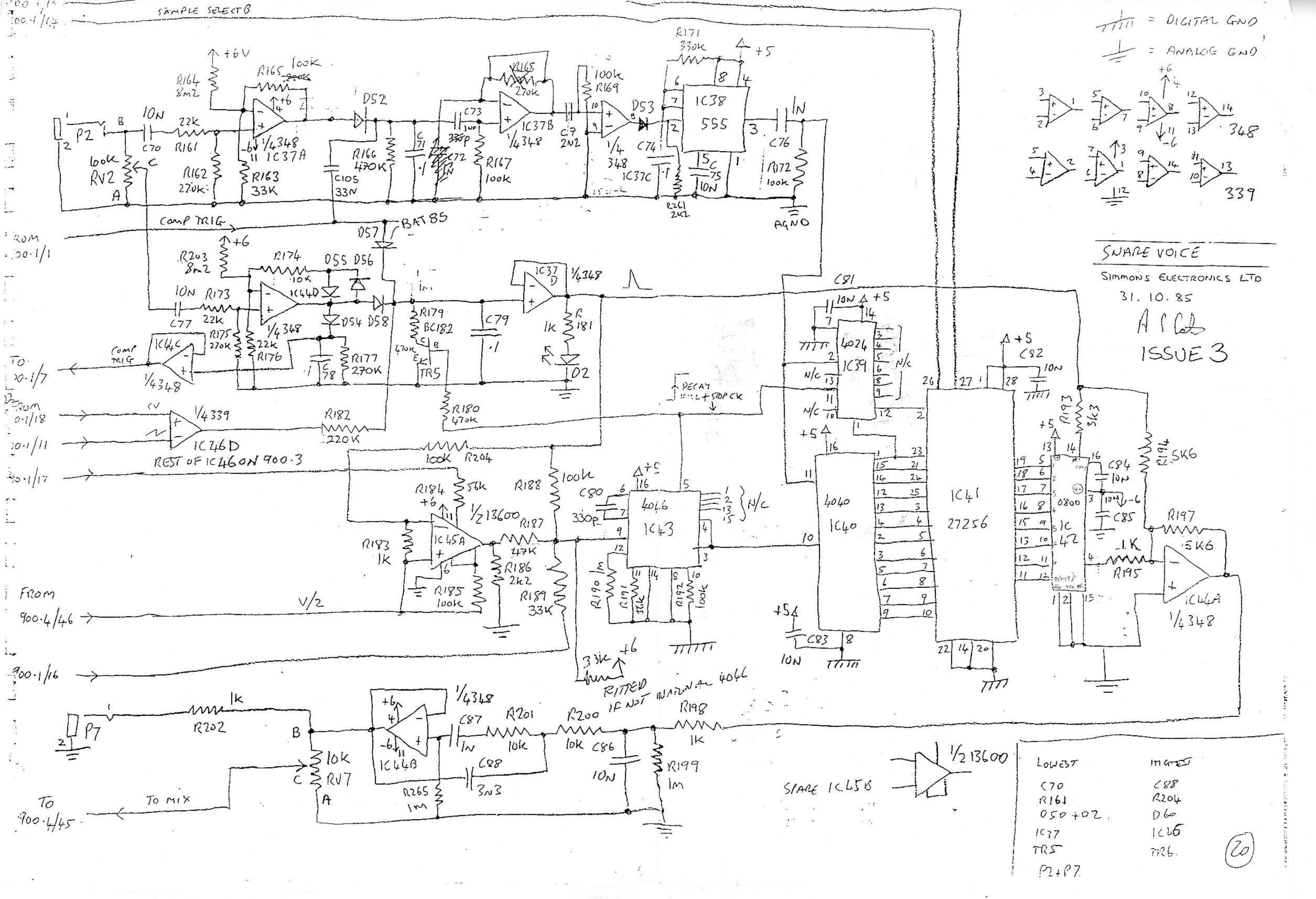
= DIGITAL GROUND.

= ANALOG GROUND.

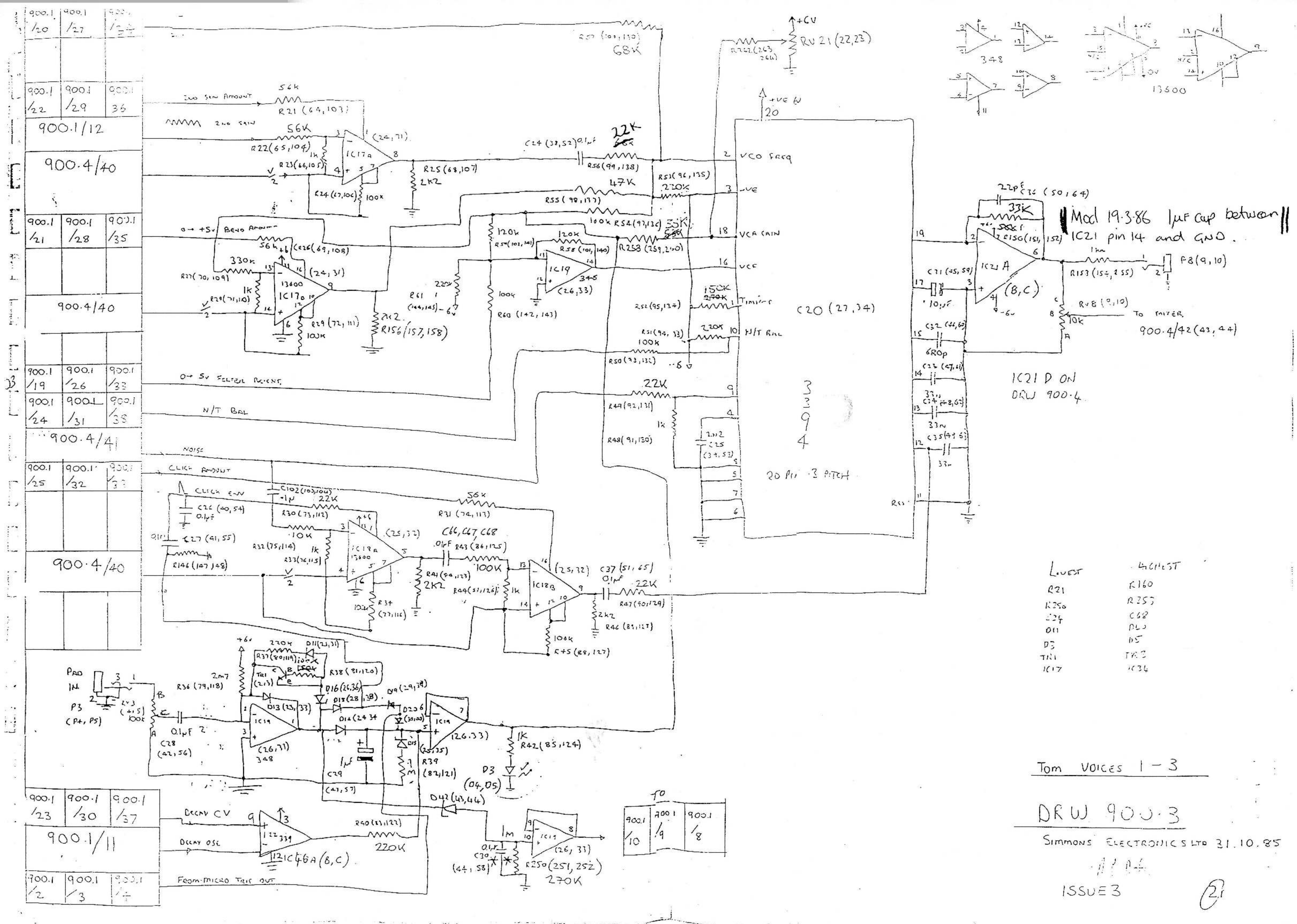
ISSUE 3

SDS1000 CPU

SIMMONS ELECTRONICS LTD



SAMPLE SELECT B
= DIGITAL GND
= ANALOG GND
348
339
SNARE VOICE
SIMMONS ELECTRONICS LTD
31. 10. 85
ISSUE 3
P2
RV2 100k
R161 22k
C70 10N
R162 270k
R163 33K
R164 8m2
R165 100k
IC37A 1/4348
D52
C105 33N
R166 470K
C71 .1
C72 1N
C73 1NF
R168 270k
IC37B 1/4348
R167 100k
C7 2N2
R169 100k
D53
IC37C 1/4 348
C74 .1
IC38 555
R171 330k
C75 10N
R261 2K2
C76 1N
R172 100k
AGND
COMP TRIG
FROM 900·1/1
D57 BAT85
R203 8m2
R174 10K
D55 D56
IC44D 1/4348
D54 D58
C77 10N
R173 22k
R175 270K
R176 22k
C78 .1
R177 270K
IC44C 1/4348
TO 900·1/7
R179 470K
BC182
TR5
C79 .1
IC37 D 1/4348
R181 1K
D2
R180 470K
FROM 900·1/18
CV
1/4339
IC46D
R182 220K
900·1/11
REST OF IC46 ON 900·3
900·1/17
R204 100K
R184 56k
R188 100k
IC45A 1/2 13600
R183 1K
R185 100k
R187 47K
R186 2k2
R189 33K
FROM 900·4/46
V/2
DECAY KILL + STOP CK
C80 330p
IC43 4046
R190
R191 330K
R192 100K
N/C
33k +6
FITTED IF NOT NATIONAL 4046
C81
IC39 4024
IC40 4040
C83 10N
IC41 27256
C82 10N
R193 3k3
C84 10N
0800 IC42
C85
R194 5K6
R197 5K6
R195 1K
IC44A 1/4348
900·1/16
P7
R202 1k
RV7 10k
IC44B 1/4348
C87 1N
R201 10k
R200 10k
C86 10N
R198 1K
R199 1M
C88 3N3
R265 1M
TO 900·4/45
TO MIX
1/2 13600
SPARE IC45B
LOWEST
C70
R161
D50 + D2
IC37
TR5
P2 + P7
HIGHEST
C88
R204
D60
IC46
TR6
20


Mod 19.3.86 1µF cap between IC21 pin 14 and GND.
VCO FREQ
VCA GAIN
VCF
N/T BAL
IC20 (27,34)
3394
20 PIN .3 PITCH
IC21 D ON DRW 900.4
TO MIXER 900.4/42 (43,44)
2ND GAIN AMOUNT
BEND AMOUNT
0→5V FILTER BEND
N/T BAL
NOISE
CLICK AMOUNT
CLICK ENV
PAD IN
DECAY CV
DECAY OSC
FROM MICRO TRIG OUT
LOWEST HIGHEST
R21 R160
R250 R253
C24 C68
D11 D20
D3 D5
TR1 TR2
IC17 IC34
Tom Voices 1 - 3
DRW 900.3
SIMMONS ELECTRONICS LTD 31.10.85
ISSUE 3

HEAD PHONE

AND MIX CIRCUITS

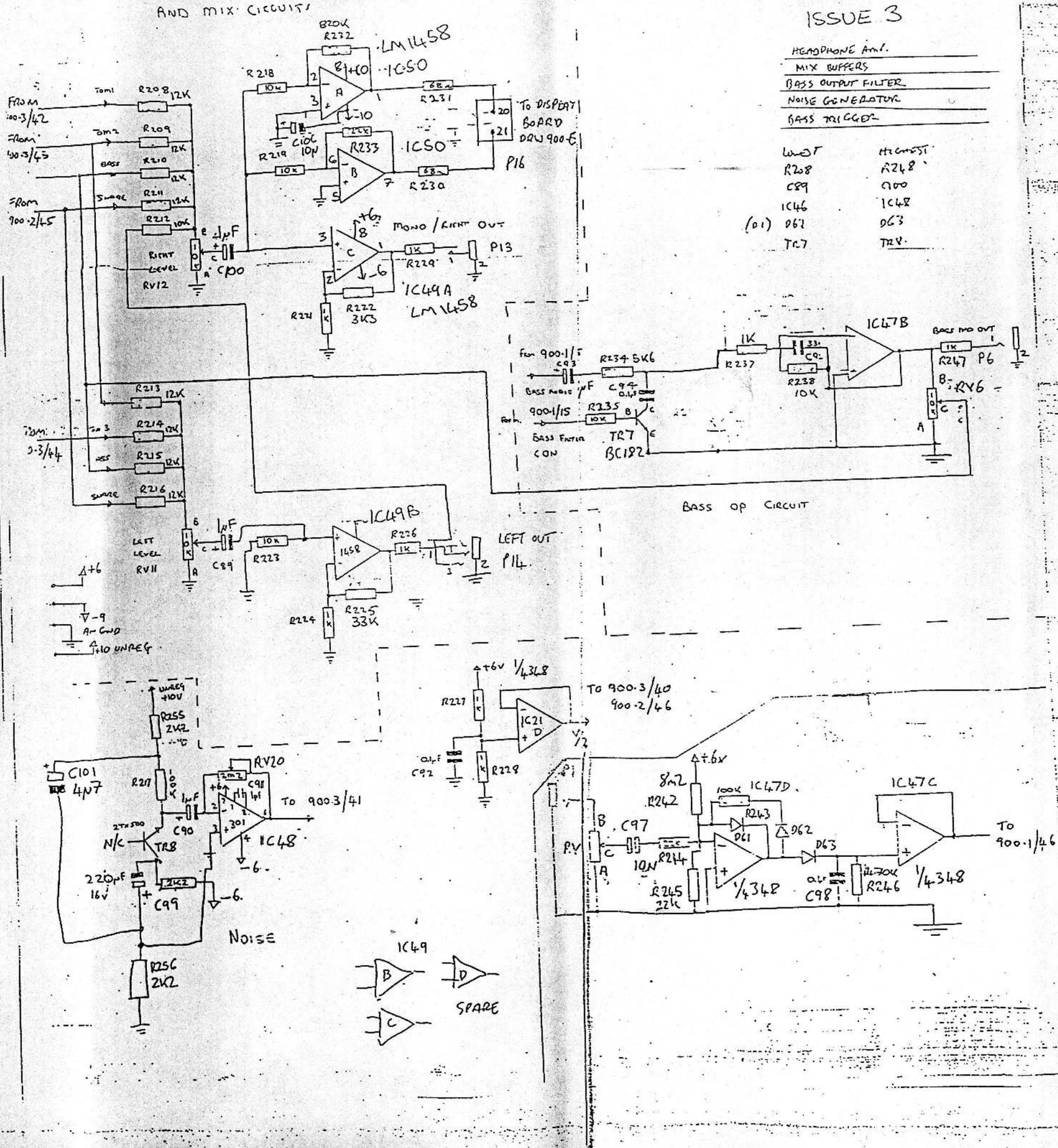
SIMMONS ELECTRONICS LTD

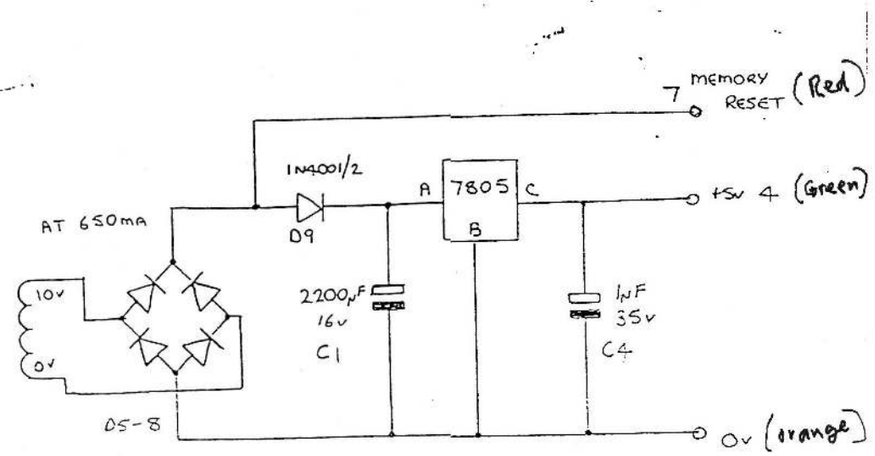
A I [illegible] 31.10.85

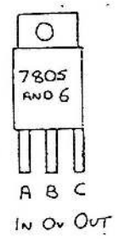
ISSUE 3

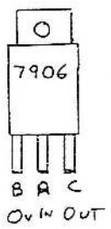
HEADPHONE AMP.
MIX BUFFERS
BASS OUTPUT FILTER
NOISE GENERATOR
BASS TRIGGER

WAS	NOW
R208	R248
C89	C100
IC46	IC48
(D1) D61	D63
TR7	TR9



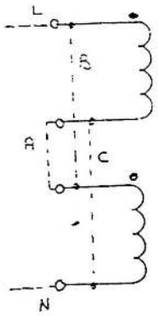


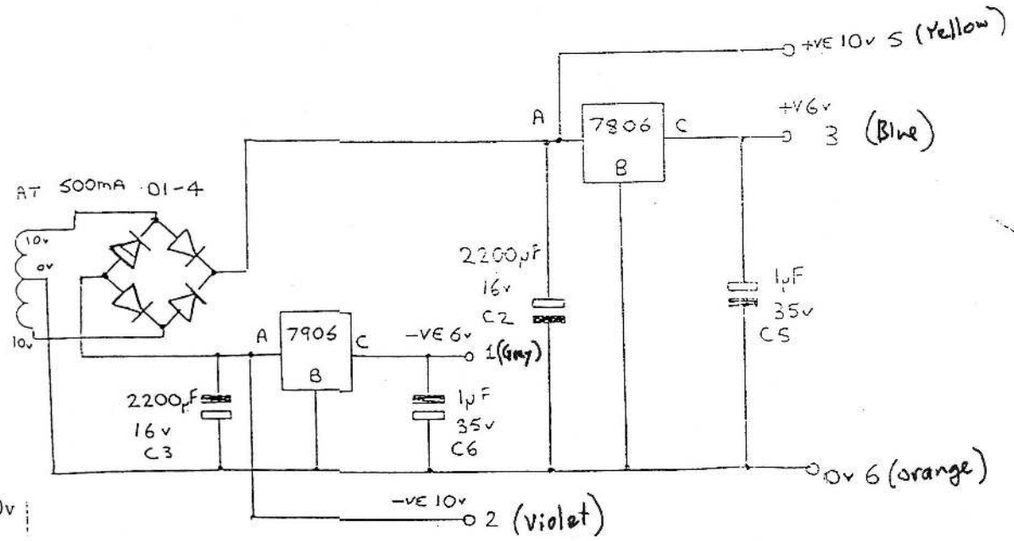




NOTE

This regulator must be mounted with an insulating kit





For 240v omit links B and C

Insert A for 100v omit link A and insert B and C

Fuse Rating

1 Amp for Europe
2 Amp for America and Japan

NC-08 (brown)

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NOTES

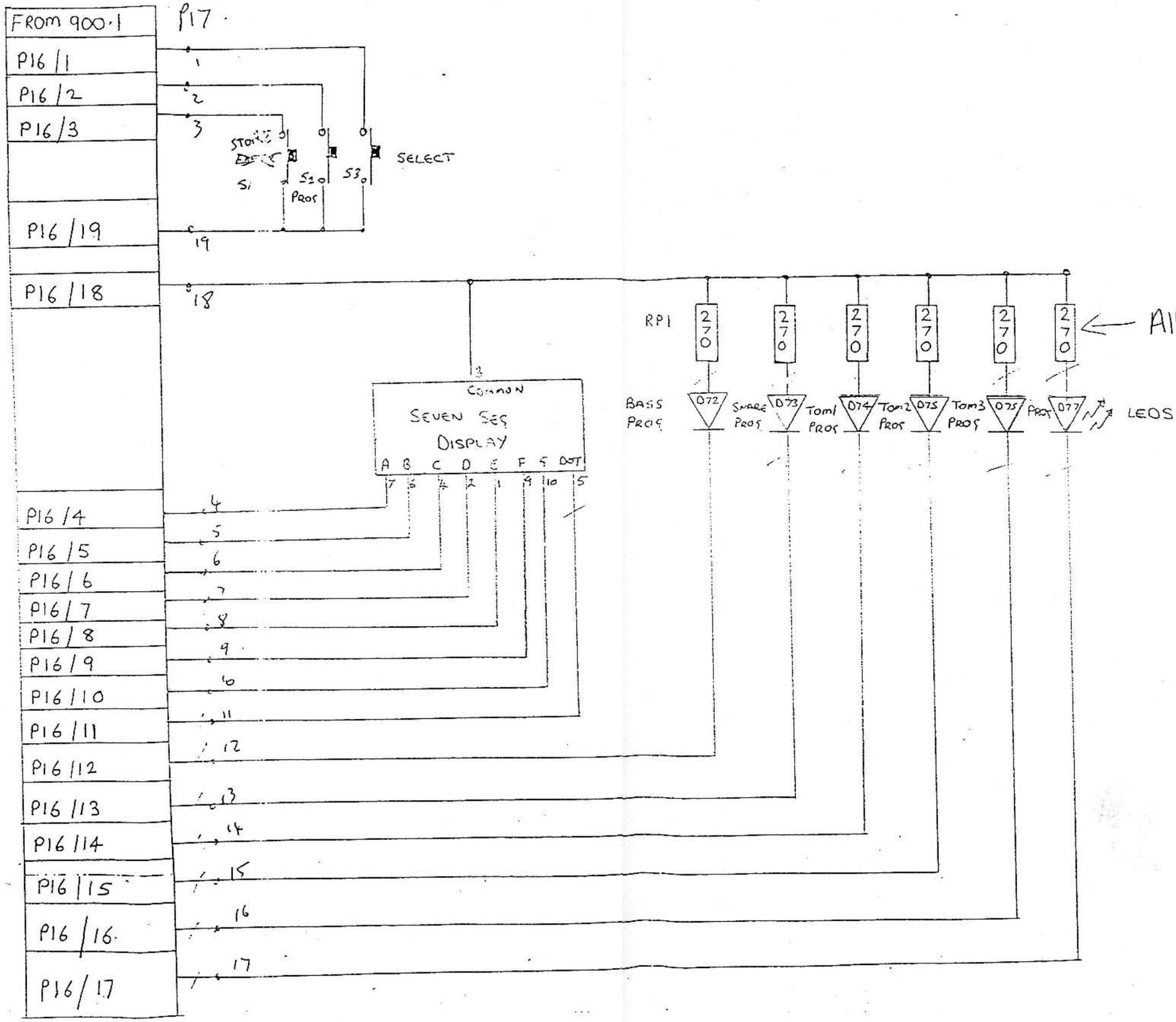
SIMMONS ELECTRONICS LTD.
UNIT 11 ALBAN PARK
ST ALBANS
HERTS

TITLE: 1U PSU CIRCUIT DIAG.

DRAWN A.C. DATE 7/1/86

SCALE

DRNG Nº 1U PSU 01



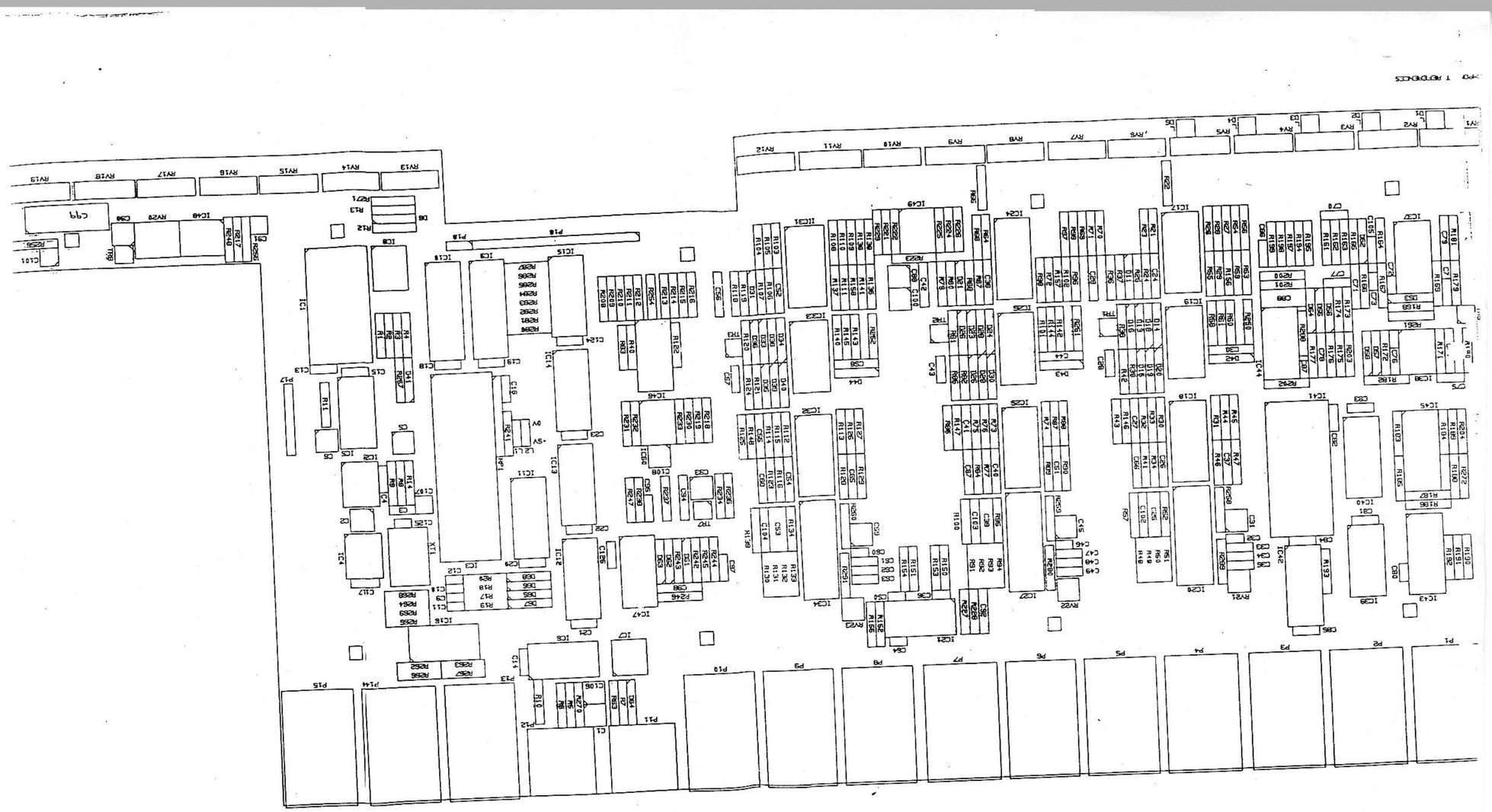
LOWEST	HIGHEST
D72	D77
S1	S3

SIMMONS ELECTRONICS LTD

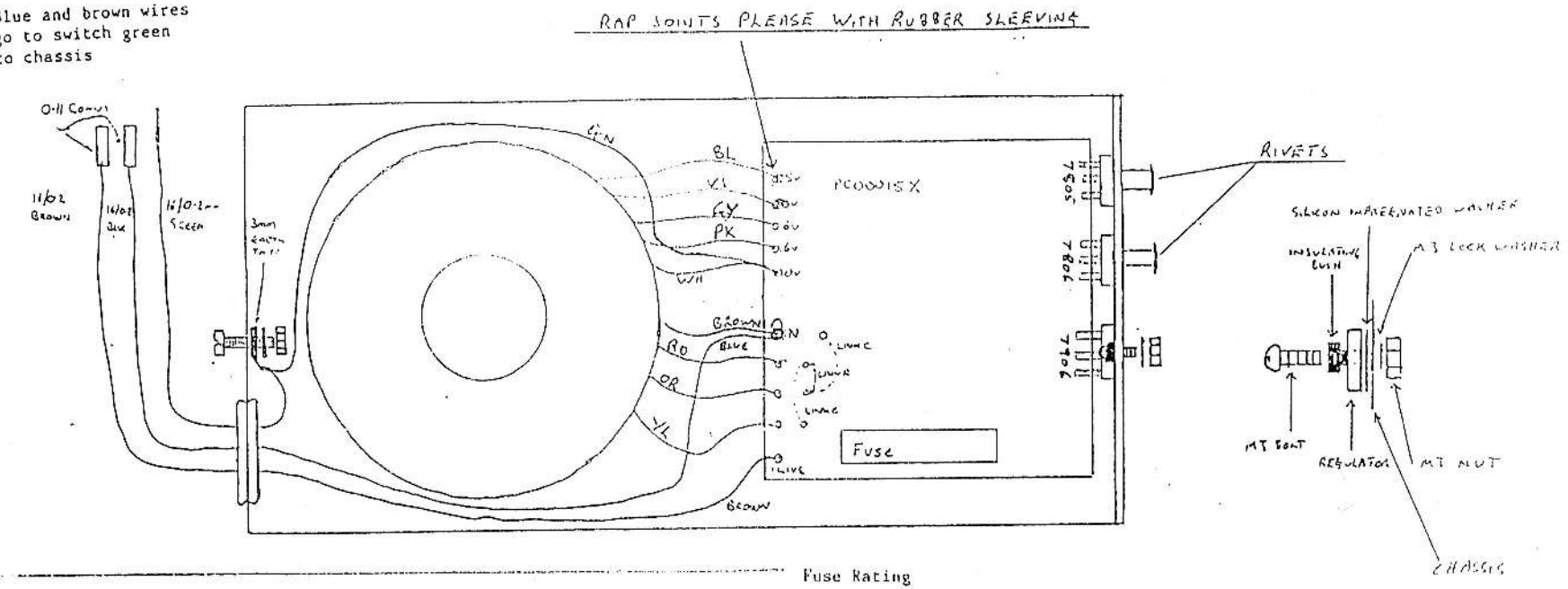
SDS ~~900~~ 1000. DISPLAY BOARD

DRW ~~900~~.6

A P Carter 12.11.85



Blue and brown wires
go to switch green
to chassis



Note (1) Use link A for 220/240v, Link B and C for 100v/110v. Note (2) Each connection to PCB must have Heat Shrink sleeving.

Fuse Rating

1 Amp 220/240 2 Amp 100/110v

NOTES

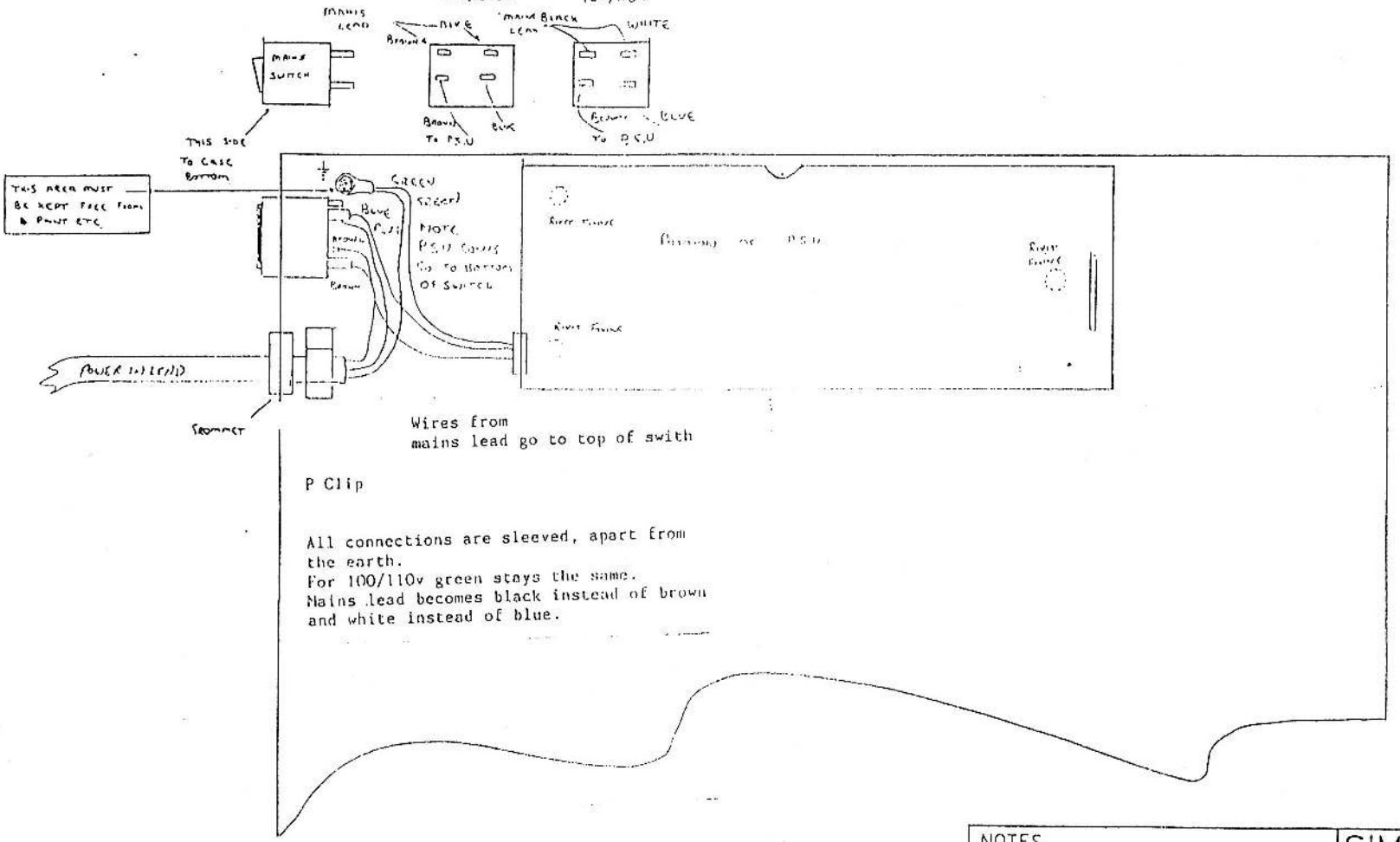
SIMMONS ELECTRONICS LTD.
UNIT 11 ALBAN PARK
ST ALBANS
HERTS

TITLE
IV PSU. ELECTRICAL ASSY.

DRAWN A.C. DATE 6/1/86

SCALE DRNG Nº

REAR VIEW OF SWITCH



NOTES

SIMMONS ELECTRONICS LTD
UNIT 11 ALBAN PARK
ST ALBANS
HERTS

TITLE
1U CHASSIS – POWER CONNECTION

DRAWN	A.C.	DATE	7/1/86.
SCALE		DRNG Nº	1U·10

SDS1000

wire the headphones as follows :

Note the head phone socket is a ' chrome type' but fitted with a black bezel.