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TECHNICAL INFORMATION

CYRUS

MODEL NAME:

CYRUS PRE

FACTORY PRODUCTION CODE:

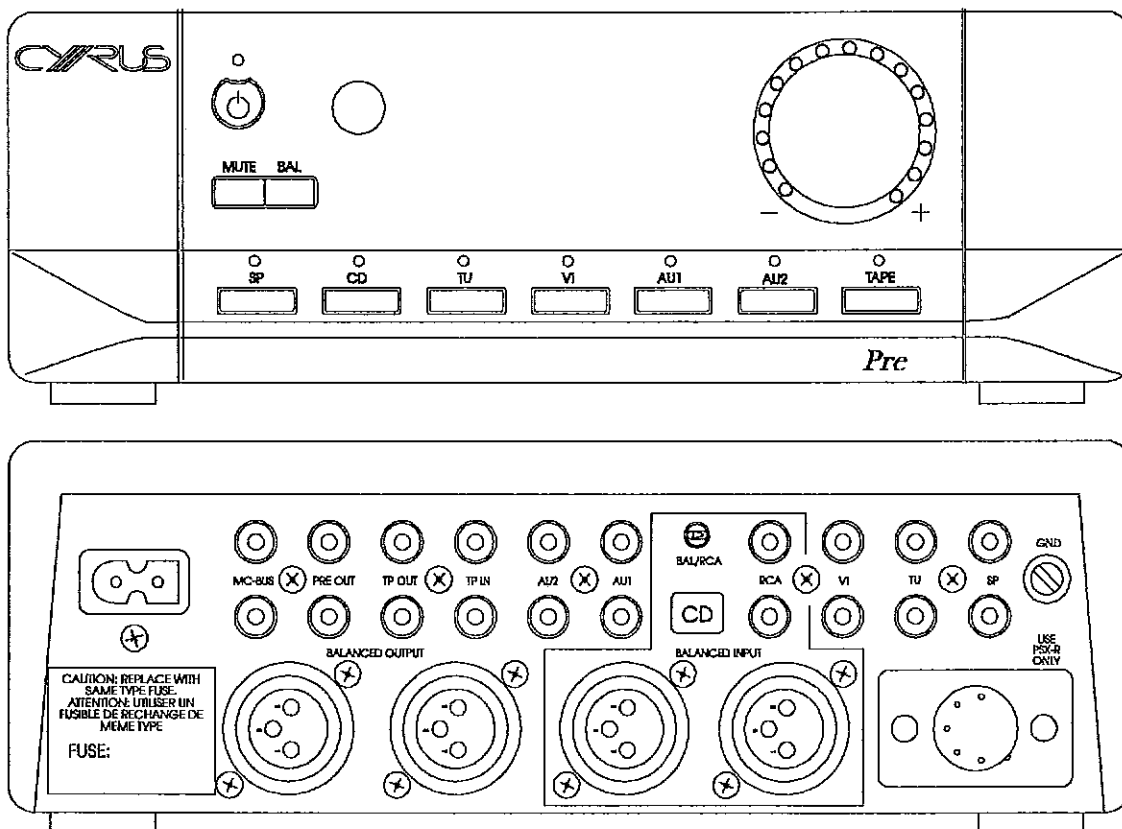
CYRUS HA7L

1. Overview.

The HA7L is a very high quality state of the art micro processor controlled stereo pre-amplifier, fitting into a standard Cyrus casting. The signal path is kept as short as possible to maintain sonic purity, while not compromising performance or features. This is achieved by using relays for input selection and tape monitor, a motorised potentiometer for the volume and balance control, a single current feedback amplifier per channel for the output buffer (the feedback path is shorter in a current feedback amplifier with respect to is equivalent conventional amplifier).

To reduce ground noise and power supply noise in the analogue circuits the HA7L is internally powered from a small internal transformer or upgradable for Cyrus PSX-R connection then with internal remote constant current sources (ccs) used in conjunction with local active zener regulators the 27V (PSX-R used in variable mode) is regulated to 15V.

The digital circuits are powered from a small internal 5V transformer regulator circuit.



Facilities include:

- Input selection where the CD input can be either 600ohm balanced or standard RCA (switch able via a small rear panel toggle switch).
- Tape monitor function.
- Volume control, 0 to -62dB then mute.
- Fading mute/unmute control.
- Balance control.
- Pseudo balanced output (balanced impedance) as well as singled ended output.
- Optional plug-in MM or MC phono module (without the upgrade module the input is a standard RCA).
- Standby control.
- Full remote control (RC5).
- PSX-R Upgradable.
- MC-bus interface.

2. Related Documents.

On RIAA Equalisation Networks* ¹	AES June 1979, Vol.27 N ^o 6
HA7MSPC3	Matching pwr amp P.I.F.
The Dual Current Feedback PWR Amp	26th June 93 by S. Sells

3. Functional Blocks.

3.1. Optional upgrade input.

The MM and MC pre-amplifier up grade module plugs into the upgrade socket on the mother board to convert the SP (SPecial) input to either MM or MC from a standard line level RCA input. Both the MM and MC modules use parallel pairs of input transistors for lower noise. The MM module uses two NE5534's per channel. The first NE5534's has its internal input stage biased off and substituted with an external low noise parallel differential pair (2SD786's), this configuration does not increase the signal path length, but improves the noise performance. The 75uS time constant is a passive pole after the first op-amp, the second op-amp finishes the E.Q. and amplification.

Shunt regulators are on the plug-in module providing 2x +/-15V.

The SP input comes with a blanking board as standard to provide an extra RCA line input.

3.2. Input selection and Tape Monitor.

In order to maintain a short signal path (in both silicon and PCB tracks) the input and tape monitor selection is via relays. The input selection relays form the equivalent to a 2P6W switch, switching 'one hot' between one of the six analogue inputs this is then followed by the tape monitor relay. The CD input can be configured either as balanced or RCA input, this is controlled by a small toggle switch on the rear of the unit. The record out signal is unity buffered to ensure the tape recorder's input impedance does not impair the listened to audio signal.

3.3. Volume Control.

To reduce the silicon/PCB signal path the volume control uses two (one per channel) motorised potentiometers (motpot) each having two ganged wafers (one linear and one log law) rather than a solid state gain cell. The micro processor controls the volume by sending a nine bit word to an R-2R ladder, the ladder's output voltage becomes the reference voltage for a DC servo whose output is connected to the motpot's motor the servo's feedback is from the motpot's second track (linear law) biased as a DC potential divider therefore the motor turns until the voltage from the linear track equals that of the reference voltage. The analogue signal is attenuated by the motpot's other ganged track (log law). During test on production the motpot's 2^9 (512) steps are calibrated to give 63 discrete 1dB steps (0dB to -62dB) to give the volume the same feel as the Cyrus III. The volume level can be adjusted either by the front panel shaft encoder, remote control or MC-Bus (for test purposes only).

3.4. Output Buffers.

The Output Buffers use current feed-back amplifiers as building blocks, with an overall voltage gain of 5.6dB to give a 381mV output for an input of 200mV, this exactly matches the Cyrus III's pre-amp gain to ensure compatibility through out the range.

3.5. Output Network.

The output network performs three functions, they are single ended output, balanced output and output mute. The balanced output is a pseudo balanced output i.e. a balanced impedance output, this will give the same external noise rejection as a true balanced output and is lower noise, distortion and lower component count.

3.6. Constant Current Sources.

The DC power for the analogue stages is distributed around the pre-amplifier by a constant currents rather than constant voltages. The output impedance of constant current sources are very high therefore the radiated and induced field from the power lines are very small. The final voltage regulation is done locally at the active blocks with shunt regulators. This method of regulation virtually eliminates stages interacting with each other via the power supplies and gives very low noise local DC rails.

The constant current sources are powered from either the internal transformer or the PSX-R, set to 27V in variable mode.

3.7. Digital 5V Regulator.

The digital circuits are power from a separate winding on the internal transformer power supply and 5V chip regulators.

3.8. The Micro Processor.

The micro processor controls all the pre-amp functions (except the CD XLR/RCA selection) and uses an NV RAM for the volume control look-up table.

4. Basic Functions.

See overview above.

5. Input and Outputs.

5.1. Inputs.

- SP Special set to analogue signal at line level, via phono sockets on the rear; being up grade-able to MM input or MC input.
- CD RCA analogue signal at line level, via phono sockets on the rear.
- CD XLR Balanced stereo analogue signal at line level, via XLR sockets on the rear.
- TU Tuner analogue signal at line level, via phono sockets on the rear.
- VI Video analogue signal at line level, via phono sockets on the rear.
- AU1 AUX1 analogue signal at line level, via phono sockets on the rear.
- AU2 AUX2 analogue signal at line level, via phono sockets on the rear.

- TP Tape analogue signal at line level, via phono sockets on the rear.
- PSX-R +/-27VDC via the PSX-R socket on the rear.
- Mains via an figure of eight mains socket on the rear, being internally fused.
- Infra red remote signal via an eye on the front panel.
- MC-BUS via a phono socket on the rear.

5.2. Outputs.

- Stereo single ended analogue signal, via phono sockets on the rear.
- Stereo pseudo balanced analogue signal, via XLR sockets on the rear.
- TP Tape record out, stereo analogue signal at line level, via phono sockets on the rear.
- MC-BUS via phono socket on the rear.

6. Connections.

6.1. Front. None.

6.2. Rear. As described in 5.2 and 5.1

7. Panel Controls

7.1. Front.

- Soft power (Standby).
- Fading mute.
- Balance mode button.
- SP selector.
- CD selector.
- TU selector.
- VI selector.
- AU1 selector.
- AU2 selector.
- TP selector.
- Volume/Balance control.

7.2. Rear.

- CD RCA/CD XLR toggle switch.

8. Remote Control.

The Pre-amp is fully control-able via an IR remote control.

9. Displays.

See user interactions.

10. User Interactions.

As per the Cyrus III except for:

- The CD input can be either RCA or XLR.
- An extra AU input has been added.

11. Error Test Conditions.

Power up

On power up the micro will reset its self sweeping all the LEDs as per the Cyrus III.

Disconnected Mains

If the mains is disconnected no LED will light

Faulty PSX-R/analogue power supply

The power LED will flash black/red, see PSX-R operation.

12. Performance/Technical Targets.

Power Input

230VAC/115VAC 5W and PSX-R

Measured Performance.

Sensitivity for rated output.

Line inputs	200mV
Bal input	77.5mV
MM (op)	2.75mV
MC (op)	150uV

Output Level (Volume at maximum)

RCA	381mV
XLR	147mV into 600 ohms

Frequency Response

Line	1Hz to 100KHz
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THD 20Hz to 20KHz (inc hum)

Line	0.005%
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Output slew rate

Line	200V/uS
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Signal to noise (inc hum where applicable)

Line/bal (500mV I/P)	110dB (AWTD)
Line/bal (500mV I/P)	108dB (UNWTD)
MM (SP) (5mV I/P)	84dB (AWTD)
MC (SP) (0.5mV I/P)	70dB (AWTD)

Volume levels

12.1. discrete 1dB steps including mute.

RESISTORS

R101	SMD 1206	1K	MF 1/8W	1%	
R102	SMD 1206	1K	MF 1/8W	1%	
R103	SMD 1206	1K	MF 1/8W	1%	
R104	SMD 1206	100K	MF 1/8W	1%	
R105	SMD 1206	110K	MF 1/8W	1%	
R106	SMD 1206	110K	MF 1/8W	1%	
R107	SMD 1206	110K	MF 1/8W	1%	
R108	SMD 1206	110K	MF 1/8W	1%	
R109	SMD 1206	22K	MF 1/8W	1%	
R110	SMD 1206	22K	MF 1/8W	1%	
R111	SMD 1206	1.8K	MF 1/8W	1%	
R112	SMD 1206	1.8K	MF 1/8W	1%	
R113	SMD 1206	6.2K	MF 1/8W	1%	
R114	SMD 1206	6.2K	MF 1/8W	1%	
R115	SMD 1206	6.2K	MF 1/8W	1%	
R116	SMD 1206	6.2K	MF 1/8W	1%	
R117	SMD 1206	1.8K	MF 1/8W	1%	
R118	SMD 1206	1.8K	MF 1/8W	1%	
R119	SMD 1206	10K	MF 1/8W	1%	
R120	SMD 1206	2K	MF 1/8W	1%	
R121	SMD 1206	10K	MF 1/8W	1%	
R122	SMD 1206	2K	MF 1/8W	1%	
R123	SMD 1206	10K	MF 1/8W	1%	
R124	SMD 1206	2K	MF 1/8W	1%	
R125	SMD 1206	10K	MF 1/8W	1%	
R126	SMD 1206	2K	MF 1/8W	1%	
R127	SMD 1206	560R	MF 1/8W	1%	
R128	SMD 1206	2.2R	MF 1/8W	1%	
R129	SMD 1206	2.2R	MF 1/8W	1%	
R130	SMD 1206	100R	MF 1/8W	1%	
R201	SMD 1206	100K	MF 1/8W	1%	
R202	SMD 1206	100K	MF 1/8W	1%	
R203	SMD 1206	100K	MF 1/8W	1%	
R204	SMD 1206	100K	MF 1/8W	1%	
R205	SMD 1206	100K	MF 1/8W	1%	
R206	SMD 1206	100K	MF 1/8W	1%	
R207	SMD 1206	100K	MF 1/8W	1%	
R208	SMD 1206	100K	MF 1/8W	1%	
R209	SMD 1206	100K	MF 1/8W	1%	
R210	SMD 1206	100K	MF 1/8W	1%	
R211	SMD 1206	100K	MF 1/8W	1%	
R212	SMD 1206	100K	MF 1/8W	1%	
R213	SMD 1206	100K	MF 1/8W	1%	
R214	SMD 1206	100K	MF 1/8W	1%	
R215	SMD 1206	100K	MF 1/8W	1%	
R216	SMD 1206	100K	MF 1/8W	1%	
R217	SMD 1206	100K	MF 1/8W	1%	
R218	SMD 1206	100K	MF 1/8W	1%	
R219	SMD 1206	100K	MF 1/8W	1%	
R220	SMD 1206	100K	MF 1/8W	1%	
R221	SMD 1206	100R	MF 1/8W	1%	
R222	SMD 1206	100R	MF 1/8W	1%	
R301	SMD 1206	10R	MF 1/8W	1%	

R302	SMD 1206	10R	MF 1/8W 1%	
R305	SMD 1206	1K	MF 1/8W 1%	
R306	SMD 1206	1K	MF 1/8W 1%	
R307	SMD 1206	2K	MF 1/8W 1%	
R308	SMD 1206	2K	MF 1/8W 1%	
R309	SMD 1206	1K	MF 1/8W 1%	
R310	SMD 1206	1K	MF 1/8W 1%	
R311	SMD 1206	2K	MF 1/8W 1%	
R312	SMD 1206	2K	MF 1/8W 1%	
R313	SMD 1206	1K	MF 1/8W 1%	
R314	SMD 1206	1K	MF 1/8W 1%	
R315	SMD 1206	2K	MF 1/8W 1%	
R316	SMD 1206	2K	MF 1/8W 1%	
R317	SMD 1206	1K	MF 1/8W 1%	
R318	SMD 1206	1K	MF 1/8W 1%	
R319	SMD 1206	2K	MF 1/8W 1%	
R320	SMD 1206	2K	MF 1/8W 1%	
R321	SMD 1206	1K	MF 1/8W 1%	
R322	SMD 1206	1K	MF 1/8W 1%	
R323	SMD 1206	2K	MF 1/8W 1%	
R324	SMD 1206	2K	MF 1/8W 1%	
R325	SMD 1206	1K	MF 1/8W 1%	
R326	SMD 1206	1K	MF 1/8W 1%	
R327	SMD 1206	2K	MF 1/8W 1%	
R328	SMD 1206	2K	MF 1/8W 1%	
R329	SMD 1206	1K	MF 1/8W 1%	
R330	SMD 1206	1K	MF 1/8W 1%	
R331	SMD 1206	2K	MF 1/8W 1%	
R332	SMD 1206	2K	MF 1/8W 1%	
R333	SMD 1206	1K	MF 1/8W 1%	
R334	SMD 1206	1K	MF 1/8W 1%	
R335	SMD 1206	2K	MF 1/8W 1%	
R336	SMD 1206	2K	MF 1/8W 1%	
R337	SMD 1206	1K	MF 1/8W 1%	
R338	SMD 1206	1K	MF 1/8W 1%	
R339	SMD 1206	2K	MF 1/8W 1%	
R340	SMD 1206	2K	MF 1/8W 1%	
R341	SMD 1206	10K	MF 1/8W 1%	
R342	SMD 1206	10K	MF 1/8W 1%	
R343	SMD 1206	10K	MF 1/8W 1%	
R344	SMD 1206	10K	MF 1/8W 1%	
R345	SMD 1206	10K	MF 1/8W 1%	
R346	SMD 1206	470K	MF 1/8W 1%	
R347	SMD 1206	100R	MF 1/8W 1%	
R348	SMD 1206	100R	MF 1/8W 1%	
R349	SMD 1206	100R	MF 1/8W 1%	
R350	SMD 1206	100R	MF 1/8W 1%	
R355	SMD 1206	680K	MF 1/8W 1%	
R356	SMD 1206	680K	MF 1/8W 1%	
R357	SMD 1206	1K	MF 1/8W 1%	
R358	SMD 1206	1K	MF 1/8W 1%	
R401	SMD 1206	10K	MF 1/8W 1%	
R402	SMD 1206	10K	MF 1/8W 1%	
R403	SMD 1206	2K	MF 1/8W 1%	
R404	SMD 1206	2K	MF 1/8W 1%	
R405	SMD 1206	1K	MF 1/8W 1%	

R406	SMD 1206	1K	MF 1/8W 1%	
R407	SMD 1206	1K	MF 1/8W 1%	
R408	SMD 1206	1K	MF 1/8W 1%	
R409	SMD 1206	75K	MF 1/8W 1%	
R410	SMD 1206	75K	MF 1/8W 1%	
R411	SMD 1206	10K	MF 1/8W 1%	
R412	SMD 1206	10K	MF 1/8W 1%	
R413	SMD 1206	36K	MF 1/8W 1%	
R414	SMD 1206	36K	MF 1/8W 1%	
R415	SMD 1206	560R	MF 1/8W 1%	
R416	SMD 1206	560R	MF 1/8W 1%	
R417	SMD 1206	560R	MF 1/8W 1%	
R418	SMD 1206	560R	MF 1/8W 1%	
R419	SMD 1206	100R	MF 1/8W 1%	
R420	SMD 1206	100R	MF 1/8W 1%	
R421	SMD 1206	100R	MF 1/8W 1%	
R422	SMD 1206	100R	MF 1/8W 1%	
R423	SMD 1206	100R	MF 1/8W 1%	
R424	SMD 1206	100R	MF 1/8W 1%	
R425	SMD 1206	100R	MF 1/8W 1%	
R426	SMD 1206	100R	MF 1/8W 1%	
R427	SMD 1206	820R	MF 1/8W 1%	
R428	SMD 1206	820R	MF 1/8W 1%	
R429	SMD 1206	820R	MF 1/8W 1%	
R430	SMD 1206	820R	MF 1/8W 1%	
R431	SMD 1206	180R	MF 1/8W 1%	
R432	SMD 1206	180R	MF 1/8W 1%	
R433	SMD 1206	100R	MF 1/8W 1%	
R434	SMD 1206	100R	MF 1/8W 1%	
R435	SMD 1206	100R	MF 1/8W 1%	
R436	SMD 1206	100R	MF 1/8W 1%	
R437	SMD 1206	2.7K	MF 1/8W 1%	
R438	SMD 1206	2.7K	MF 1/8W 1%	
R439	SMD 1206	820R	MF 1/8W 1%	
R440	SMD 1206	820R	MF 1/8W 1%	
R441	SMD 1206	560R	MF 1/8W 1%	
R442	SMD 1206	560R	MF 1/8W 1%	
R443	SMD 1206	510R	MF 1/8W 1%	
R444	SMD 1206	510R	MF 1/8W 1%	
R445	SMD 1206	24R	MF 1/8W 1%	
R446	SMD 1206	24R	MF 1/8W 1%	
R447	SMD 1206	24R	MF 1/8W 1%	
R448	SMD 1206	24R	MF 1/8W 1%	
R449	SMD 1206	13K	MF 1/8W 1%	
R450	SMD 1206	13K	MF 1/8W 1%	
R451	SMD 1206	1M	MF 1/8W 1%	
R452	SMD 1206	1M	MF 1/8W 1%	
R453	SMD 1206	47R	MF 1/8W 1%	
R454	SMD 1206	47R	MF 1/8W 1%	
R455	SMD 1206	200R	MF 1/8W 1%	
R456	SMD 1206	200R	MF 1/8W 1%	
R457	SMD 1206	200R	MF 1/8W 1%	
R458	SMD 1206	200R	MF 1/8W 1%	
R459	SMD 1206	1M	MF 1/8W 1%	
R460	SMD 1206	1M	MF 1/8W 1%	
R461	SMD 1206	6.2K	MF 1/8W 1%	

R462	SMD 1206	6.2K	MF 1/8W 1%	
R463	SMD 1206	47R	MF 1/8W 1%	
R464	SMD 1206	47R	MF 1/8W 1%	
R467	SMD 1206	2K	MF 1/8W 1%	
R468	SMD 1206	2K	MF 1/8W 1%	
R469	SMD 1206	10K	MF 1/8W 1%	
R470	SMD 1206	10K	MF 1/8W 1%	
R501	SMD 1206	10R	MF 1/8W 1%	
R502	SMD 1206	10R	MF 1/8W 1%	
R503	SMD 1206	10R	MF 1/8W 1%	
R504	SMD 1206	10R	MF 1/8W 1%	
R505	SMD 1206	24R	MF 1/8W 1%	
R506	SMD 1206	24R	MF 1/8W 1%	
R507	SMD 1206	24R	MF 1/8W 1%	
R508	SMD 1206	24R	MF 1/8W 1%	
R509	SMD 1206	24R	MF 1/8W 1%	
R510	SMD 1206	24R	MF 1/8W 1%	
R511	SMD 1206	24R	MF 1/8W 1%	
R512	SMD 1206	24R	MF 1/8W 1%	
R513	SMD 1206	36K	MF 1/8W 1%	
R514	NOT FITTED			
R515	SMD 1206	36K	MF 1/8W 1%	
R516	SMD 1206	16K	MF 1/8W 1%	
R517	SMD 1206	2K	MF 1/8W 1%	
R518	SMD 1206	3.9K	MF 1/8W 1%	
R519	SMD 1206	3.3K	MF 1/8W 1%	
R520	SMD 1206	2.7K	MF 1/8W 1%	
R521	SMD 1206	10K	MF 1/8W 1%	
R522	SMD 1206	1.6K	MF 1/8W 1%	
R523	SMD 1206	20K	MF 1/8W 1%	
R525	SMD 1206	10K	MF 1/8W 1%	
R527	SMD 1206	10K	MF 1/8W 1%	
R529	SMD 1206	10K	MF 1/8W 1%	
R531	SMD 1206	10K	MF 1/8W 1%	
R533	SMD 1206	10K	MF 1/8W 1%	
R535	SMD 1206	10K	MF 1/8W 1%	
R536	NOT FITTED			
R537	NOT FITTED			
R538	NOT FITTED			
R539	NOT FITTED			
R540	NOT FITTED			
R601	SMD 1206	100K	MF 1/8W 1%	
R602	SMD 1206	3.3K	MF 1/8W 1%	
R603	SMD 1206	3.3K	MF 1/8W 1%	
R604	SMD 1206	10K	MF 1/8W 1%	
R605	SMD 1206	3.3K	MF 1/8W 1%	
R606	SMD 1206	3.3K	MF 1/8W 1%	
R607	SMD 1206	1K	MF 1/8W 1%	
R608	SMD 1206	220R	MF 1/8W 1%	
R609	SMD 1206	1.3K	MF 1/8W 1%	
R610	SMD 1206	10K	MF 1/8W 1%	
R612	SMD 1206	100K	MF 1/8W 1%	
R613	SMD 1206	100K	MF 1/8W 1%	
R614	SMD 1206	100K	MF 1/8W 1%	
R615	SMD 1206	100K	MF 1/8W 1%	
R616	SMD 1206	100K	MF 1/8W 1%	

R617	SMD 1206	100K	MF 1/8W 1%	
R618	SMD 1206	100K	MF 1/8W 1%	
R619	SMD 1206	100K	MF 1/8W 1%	
R620	SMD 1206	100K	MF 1/8W 1%	
R621	SMD 1206	100K	MF 1/8W 1%	
R622	SMD 1206	330R	MF 1/8W 1%	
R623	SMD 1206	330R	MF 1/8W 1%	
R624	SMD 1206	330R	MF 1/8W 1%	
R625	SMD 1206	330R	MF 1/8W 1%	
R626	SMD 1206	330R	MF 1/8W 1%	
R627	SMD 1206	330R	MF 1/8W 1%	
R628	SMD 1206	330R	MF 1/8W 1%	
R629	SMD 1206	330R	MF 1/8W 1%	
R630	SMD 1206	330R	MF 1/8W 1%	
R631	SMD 1206	330R	MF 1/8W 1%	
R632	SMD 1206	330R	MF 1/8W 1%	
R633	SMD 1206	330R	MF 1/8W 1%	
R634	SMD 1206	330R	MF 1/8W 1%	
R635	SMD 1206	330R	MF 1/8W 1%	
R636	SMD 1206	330R	MF 1/8W 1%	
R637	SMD 1206	330R	MF 1/8W 1%	
R638	SMD 1206	330R	MF 1/8W 1%	
R639	SMD 1206	330R	MF 1/8W 1%	
R640	SMD 1206	330R	MF 1/8W 1%	
R641	SMD 1206	330R	MF 1/8W 1%	
R642	SMD 1206	330R	MF 1/8W 1%	
R643	SMD 1206	330R	MF 1/8W 1%	
R644	SMD 1206	330R	MF 1/8W 1%	
R645	SMD 1206	330R	MF 1/8W 1%	
R801	SMD 1206	56K	MF 1/8W 1%	
R802	SMD 1206	56K	MF 1/8W 1%	
R803	SMD 1206	6.2K	MF 1/8W 1%	
R804	SMD 1206	6.2K	MF 1/8W 1%	
R805	SMD 1206	6.2K	MF 1/8W 1%	
R806	SMD 1206	6.2K	MF 1/8W 1%	
R807	NOT FITTED			
R808	NOT FITTED			
R809	NOT FITTED			
R810	NOT FITTED			
R811	SMD 1206	56K	MF 1/8W 1%	
R812	SMD 1206	56K	MF 1/8W 1%	
R813	SMD 1206	620R	MF 1/8W 1%	
R814	SMD 1206	620R	MF 1/8W 1%	
R815	SMD 1206	62R	MF 1/8W 1%	
R816	SMD 1206	62R	MF 1/8W 1%	
R817	SMD 1206	560R	MF 1/8W 1%	
R818	SMD 1206	560R	MF 1/8W 1%	
R819	SMD 1206	7.5K	MF 1/8W 1%	
R820	SMD 1206	7.5K	MF 1/8W 1%	
R821	SMD 1206	4.7K	MF 1/8W 1%	
R822	SMD 1206	4.7K	MF 1/8W 1%	
R823	SMD 1206	33K	MF 1/8W 1%	
R824	SMD 1206	33K	MF 1/8W 1%	
R825	SMD 1206	430K	MF 1/8W 1%	
R826	SMD 1206	430K	MF 1/8W 1%	
R827	SMD 1206	510K	MF 1/8W 1%	

R828	SMD 1206	510K	MF 1/8W 1%	
R829	SMD 1206	820K	MF 1/8W 1%	
R830	SMD 1206	820K	MF 1/8W 1%	
R831	SMD 1206	10K	MF 1/8W 1%	
R832	SMD 1206	10K	MF 1/8W 1%	
R833	SMD 1206	2K	MF 1/8W 1%	
R834	SMD 1206	2K	MF 1/8W 1%	
R835	SMD 1206	10K	MF 1/8W 1%	
R836	SMD 1206	10K	MF 1/8W 1%	
R837	SMD 1206	2K	MF 1/8W 1%	
R838	SMD 1206	2K	MF 1/8W 1%	
R839	SMD 1206	62R	MF 1/8W 1%	
R840	SMD 1206	62R	MF 1/8W 1%	
R841	SMD 1206	2K	MF 1/8W 1%	
R842	SMD 1206	2K	MF 1/8W 1%	
R843	SMD 1206	300K	MF 1/8W 1%	
R844	SMD 1206	300K	MF 1/8W 1%	

CAPACITORS

C101	RE2	22MF	EL 63V 10%	
C102	RE2	22MF	EL 63V 10%	
C103	RE2	22MF	EL 63V 10%	
C104	RE2	22MF	EL 63V 10%	
C105	SMD 1206	100pF	CP 50V 10%	
C106	SMD 1206	100pF	CP 50V 10%	
C107	SMD 1206	100pF	CP 50V 10%	
C108	SMD 1206	100pF	CP 50V 10%	
C109	SMD 1206	22pF	CP 50V 10%	
C110	SMD 1206	22pF	CP 50V 10%	
C201	SMD 1206	100nF	CP 50V 10%	
C202	SMD 1206	100nF	CP 50V 10%	
C203	SMD 1206	100nF	CP 50V 10%	
C205	RE2	10MF	EL 50V 10%	
C206	RE2	10MF	EL 50V 10%	
C207	RE2	10MF	EL 50V 10%	
C208	RE2	10MF	EL 50V 10%	
C209	RE2	22MF	EL 63V 10%	
C210	RE2	22MF	EL 63V 10%	
C301	SMD 1206	100nF	CP 50V 10%	
C302	SMD 1206	100nF	CP 50V 10%	
C303	SMD 1206	100nF	CP 50V 10%	
C304	RE2	10MF	EL 50V 10%	
C305	RE2	10MF	EL 50V 10%	
C306	RBP2	47MF	BP 10V 20%	
C307	RBP2	47MF	BP 10V 20%	
C308	RE2	10MF	EL 50V 10%	
C309	SMD 1206	100nF	CP 50V 10%	
C310	SMD 1206	100nF	CP 50V 10%	
C311	RBP2	2.2MF	BP 35V 20%	
C312	RBP2	2.2MF	BP 35V 20%	
C401	RE2	22MF	EL 63V 10%	
C402	RE2	22MF	EL 63V 10%	
C403	RE2	22MF	EL 63V 10%	
C404	RE2	22MF	EL 63V 10%	

C405	MKS2	1MF	PE 63V 10%	
C406	MKS2	1MF	PE 63V 10%	
C411	SMD 1206	100pF	CP 50V 10%	
C412	SMD 1206	100pF	CP 50V 10%	
C413	SMD 1206	100pF	CP 50V 10%	
C414	SMD 1206	100pF	CP 50V 10%	
C415	SMD 1206	100pF	CP 50V 10%	
C416	SMD 1206	100pF	CP 50V 10%	
C417	MKS2	100nF	PE 100V 10%	
C418	MKS2	100nF	PE 100V 10%	
C419	MKS2	100nF	PE 100V 10%	
C420	MKS2	100nF	PE 100V 10%	
C421	MKS2	1nF	PE 63V 10%	
C422	MKS2	1nF	PE 63V 10%	
C423	MKS2	1nF	PE 63V 10%	
C424	MKS2	1nF	PE 63V 10%	
C425	MKS2	1nF	PE 63V 10%	
C426	MKS2	1nF	PE 63V 10%	
C427	RE2	22MF	EL 63V 10%	
C428	RE2	22MF	EL 63V 10%	
C429	SMD 1206	56pF	CP 50V 10%	
C430	SMD 1206	56pF	CP 50V 10%	
C501	SMD 1206	100nF	CP 50V 10%	
C502	SMD 1206	100nF	CP 50V 10%	
C503	RC	2200MF	EL 16V 20%	
C504	RE2	100MF	EL 16V 10%	
C505	RC	2200MF	EL 35V 20%	
C506	RC	2200MF	EL 35V 20%	
C507	SMD 1206	100nF	CP 50V 10%	
C508	SMD 1206	100nF	CP 50V 10%	
C509	RE2	100MF	EL 16V 10%	
C510	RE2	100MF	EL 16V 10%	
C511	RE2	22MF	EL 63V 10%	
C512	RE2	22MF	EL 63V 10%	
C513	SMD 1206	100nF	CP 50V 10%	
C514	SMD 1206	100nF	CP 50V 10%	
C601	SMD 1206	27pF	CP 50V 10%	
C602	SMD 1206	27pF	CP 50V 10%	
C603	SMD 1206	100nF	CP 50V 10%	
C604	SMD 1206	100nF	CP 50V 10%	
C605	SMD 1206	100nF	CP 50V 10%	
C606	SMD 1206	100nF	CP 50V 10%	
C607	SMD 1206	100nF	CP 50V 10%	
C608	SMD 1206	100nF	CP 50V 10%	
C609	SMD 1206	100nF	CP 50V 10%	
C610	RE2	10MF	EL 50V 10%	
C611	RE2	10MF	EL 50V 10%	
C612	RE2	2.2MF	EL 25V 10%	
C801	SMD 1206	47pF	CP 50V 10%	
C802	SMD 1206	47pF	CP 50V 10%	
C803	SMD 1206	33pF	CP 50V 10%	
C804	SMD 1206	33pF	CP 50V 10%	
C805	SMD 1206	33pF	CP 50V 10%	
C806	SMD 1206	33pF	CP 50V 10%	
C807	SMD 1206	82pF	CP 50V 10%	
C808	SMD 1206	82pF	CP 50V 10%	

C809	FKP2	10nF	PP 63V 2.5%	
C810	FKP2	10nF	PP 63V 2.5%	
C811	RE2	2.2MF	EL 50V 10%	
C812	RE2	2.2MF	EL 50V 10%	
C813	FKP2	10nF	PP 63V 2.5%	
C814	FKP2	10nF	PP 63V 2.5%	
C815	RE2	22MF	EL 63V 10%	
C816	RE2	22MF	EL 63V 10%	
C817	RE2	22MF	EL 63V 10%	
C818	RE2	22MF	EL 63V 10%	
C819	RE2	10MF	EL 50V 10%	
C820	RE2	10MF	EL 50V 10%	
C821	RE2	10MF	EL 50V 10%	
C822	RE2	10MF	EL 50V 10%	
C823	SMD 1206	2.7pF	CP 50V 10%	
C824	SMD 1206	2.7pF	CP 50V 10%	

DIODES

D105	SOT-23	BAS16	300mW SIGNAL DIODE	
D106	SOT-23	BAS16	300mW SIGNAL DIODE	
D107	SOT-23	BAS16	300mW SIGNAL DIODE	
D108	SOT-23	BAS16	300mW SIGNAL DIODE	
D301	SOT-23	BZX84-5V1	300mW 5.1V ZENER DIODE	
D302	SOT-23	BZX84-5V1	300mW 5.1V ZENER DIODE	
D303	SOT-23	BZX84-5V1	300mW 5.1V ZENER DIODE	
D304	SOT-23	BZX84-5V1	300mW 5.1V ZENER DIODE	
D305	SOT-23	BAS16	300mW SIGNAL DIODE	
D501	Axial	IN4002	1A RECTIFIER DIODE	
D502	Axial	IN4002	1A RECTIFIER DIODE	
D503	Axial	IN4002	1A RECTIFIER DIODE	
D504	Axial	IN4002	1A RECTIFIER DIODE	
D505	Axial	IN4002	1A RECTIFIER DIODE	
D506	Axial	IN4002	1A RECTIFIER DIODE	
D507	Axial	IN4002	1A SIGNAL DIODES	
D508	Axial	IN4002	1A SIGNAL DIODES	
D509	Axial	IN4002	1A RECTIFIER DIODE	
D510	Axial	IN4002	1A RECTIFIER DIODE	
D511	Axial	IN4002	1A RECTIFIER DIODE	
D512	Axial	IN4002	1A RECTIFIER DIODE	
D601	SOT-23	SLM132VRFT96	15mA SMD RED LED	
D602	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D603	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D604	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D605	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D606	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D607	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D608	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D609	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D610	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D611	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D612	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D613	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D614	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	

D615	SOT-23	SLM132MGFT97	15mA SMD GREEN LED	
D616	SOT-23	SLM132VRFT96	15mA SMD RED LED	
D617	SOT-23	SLM132VRFT96	15mA SMD RED LED	
D618	SOT-23	SLM132VRFT96	15mA SMD RED LED	
D619	SOT-23	SLM132VRFT96	15mA SMD RED LED	
D620	SOT-23	SLM132VRFT96	15mA SMD RED LED	
D621	SOT-23	SLM132VRFT96	15mA SMD RED LED	
D622	SOT-23	SLM132VRFT96	15mA SMD RED LED	
D623	SOT-23	BAS16	300mW SIGNAL DIODE	
LED623	RADIAL	LTL-52RG	25mA BICOLOUR LED 3PIN	

TRANSISTORS

T301	SOT-23	BC846BLT1	NPN SIGNAL	
T302	SOT-23	BC856BLT1	PNP SIGNAL	
T303	TO92	BC327	PNP SIGNAL	
T304	TO92	BC337	NPN SIGNAL	
T305	TO92	BC337	NPN SIGNAL	
T306	TO92	BC337	NPN SIGNAL	
T307	TO92	BC327	PNP SIGNAL	
T308	TO92	BC327	PNP SIGNAL	
T405	TO-126	BD136	PNP SIGNAL	
T406	TO-126	BD136	PNP SIGNAL	
T407	TO-126	BD136	PNP SIGNAL	
T408	TO-126	BD136	PNP SIGNAL	
T409	SOT-23	BC856BLT1	PNP SIGNAL	
T410	SOT-23	BC856BLT1	PNP SIGNAL	
T411	SOT-23	BC846BLT1	NPN SIGNAL	
T412	SOT-23	BC846BLT1	NPN SIGNAL	
T413	SOT-23	BC856BLT1	PNP SIGNAL	
T414	SOT-23	BC856BLT1	PNP SIGNAL	
T415	SOT-23	BC846BLT1	NPN SIGNAL	
T416	SOT-23	BC846BLT1	NPN SIGNAL	
T417	SOT-23	BC856BLT1	PNP SIGNAL	
T418	SOT-23	BC856BLT1	PNP SIGNAL	
T419	SOT-23	BC846BLT1	NPN SIGNAL	
T420	SOT-23	BC846BLT1	NPN SIGNAL	
T421	SOT-23	BC846BLT1	NPN SIGNAL	
T422	SOT-23	BC846BLT1	NPN SIGNAL	
T423	SOT-23	BC856BLT1	PNP SIGNAL	
T424	SOT-23	BC856BLT1	PNP SIGNAL	
T425	SOT-23	BC856BLT1	PNP SIGNAL	
T426	SOT-23	BC856BLT1	PNP SIGNAL	
T427	SOT-23	BC846BLT1	NPN SIGNAL	
T428	SOT-23	BC846BLT1	NPN SIGNAL	
T429	SOT-23	BC846BLT1	NPN SIGNAL	
T430	SOT-23	BC846BLT1	NPN SIGNAL	
T431	SOT-23	BC846BLT1	NPN SIGNAL	
T432	SOT-23	BC846BLT1	NPN SIGNAL	
T433	SOT-23	BC856BLT1	PNP SIGNAL	
T434	SOT-23	BC856BLT1	PNP SIGNAL	
T435	TO-126	MJE243	NPN POWER	
T436	TO-126	MJE243	NPN POWER	
T437	TO-126	MJE253	PNP POWER	
T438	TO-126	MJE253	PNP POWER	

T501	TO-220	TIP32	PNP POWER	
T502	TO-220	TIP31	NPN POWER	
T503	TO-220	TIP32	PNP POWER	
T504	TO-220	TIP31	NPN POWER	
T505	TO-126	BD136	PNP POWER	
T506	TO-126	BD135	NPN POWER	
T507	TO-126	BD136	PNP POWER	
T508	TO-126	BD135	NPN POWER	
T509	TO-126	BD136	PNP POWER	
T510	TO-126	BD135	NPN POWER	
T511	TO-126	BD136	PNP POWER	
T512	TO-126	BD135	NPN POWER	
T513	SOT-23	BC856BLT1	PNP SIGNAL	
T514	SOT-23	BC846BLT1	NPN SIGNAL	
T515	SOT-23	BC856BLT1	PNP SIGNAL	
T516	SOT-23	BC846BLT1	NPN SIGNAL	
T517	SOT-23	BC856BLT1	PNP SIGNAL	
T518	SOT-23	BC846BLT1	NPN SIGNAL	
T519	SOT-23	BC856BLT1	PNP SIGNAL	
T520	SOT-23	BC846BLT1	NPN SIGNAL	
T521	SOT-23	BC856BLT1	PNP SIGNAL	
T522	SOT-23	BC846BLT1	NPN SIGNAL	
T523	SOT-23	BC856BLT1	PNP SIGNAL	
T524	SOT-23	BC846BLT1	NPN SIGNAL	
T601	SOT-23	BC856BLT1	PNP SIGNAL	
T602	SOT-23	BC846BLT1	NPN SIGNAL	
T801	NOT FITTED			
T802	NOT FITTED			
T803	TO92	2SC2389	NPN SIGNAL	
T804	TO92	2SC2389	NPN SIGNAL	
T805	SOT-23	BC846BLT1	NPN SIGNAL	
T806	SOT-23	BC846BLT1	NPN SIGNAL	
T807	SOT-23	BC846BLT1	NPN SIGNAL	
T808	SOT-23	BC846BLT1	NPN SIGNAL	
T809	TO92	2SC2389	NPN SIGNAL	
T810	TO92	2SC2389	NPN SIGNAL	
T811	NOT FITTED			
T812	NOT FITTED			

VOLTAGE REGULATORS

VR501	TO220	LM7805T	+5V REGULATOR 1.0A	
VR502	TO220	LM7815T	+15V REGULATOR 1.0A	
VR503	TO220	LM7915T	-15V REGULATOR 1.0A	
VR601	TO220	LM7805T	+5V REGULATOR 1.0A	

INTEGRATED CIRCUITS

IC101	DIL-8	OPA 275GP	Low Noise Dual OP AMP	
IC102	DIL-8	OPA 275GP	Low Noise Dual OP AMP	
IC103	TO-92	TL431CLP	Shunt Regulator	
IC104	TO-92	TL431CLP	Shunt Regulator	
IC105	TO-92	TL431CLP	Shunt Regulator	
IC106	TO-92	TL431CLP	Shunt Regulator	
IC201	SO16	74HC4094	8-Bit Shift Register	
IC202	DIL-8	NE5532	Dual OP AMP	
IC203	DIL 16	ULN2004A	Darlington Driver	
IC204	DIL 16	ULN2004A	Darlington Driver	
IC301	SO16	74HC4094	8-Bit Shift Register	
IC302	SO16	74HC4094	8-Bit Shift Register	
IC303	SO16	74HC4094	8-Bit Shift Register	
IC304	DIL-8	TL072	Dual FET Input OP AMP	
IC401	DIL-8	TL072	Dual FET Input OP AMP	
IC402	TO-92	TL431CLP	Shunt Regulator	
IC403	TO-92	TL431CLP	Shunt Regulator	
IC404	TO-92	TL431CLP	Shunt Regulator	
IC405	TO-92	TL431CLP	Shunt Regulator	
IC501	DIL-8	LM393	Dual Comparator	
IC502	TO-92	TL431CLP	Shunt Regulator	
IC601	DIL40	Z86C21	DO NOT FIT-Provide SK602	
IC602	DIL-8	X24C02A	E2PROM (N.V. RAM)	
IC603	SO16	74HCT04	Hex Inverter (TTL comp)	
IC604	SO16	74HC4094	8-Bit Shift Register	
IC605	SO16	74HC4094	8-Bit Shift Register	
IC606	SO16	74HC4094	8-Bit Shift Register	
IC607	SO16	74HC04	Hex Inverter	
IC801	DIL-8	NE5534	OP AMP	
IC802	DIL-8	NE5534	OP AMP	
IC803	DIL-8	NE5534	OP AMP	
IC804	DIL-8	NE5534	OP AMP	
IC805	TO-92	TL431CLP	Shunt Regulator	
IC806	TO-92	TL431CLP	Shunt Regulator	
IC807	TO-92	TL431CLP	Shunt Regulator	
IC808	TO-92	TL431CLP	Shunt Regulator	

CRYSTALS AND INDUCTORS

X601	KBR 8.0M		8MHz Ceramic Resonator	
L101	NOT FITTED			
L102	NOT FITTED			

CONNECTORS

SK101	RJ-1018-020		DUAL RCA SOCKET GOLD	
SK102	RJ-1018-020		DUAL RCA SOCKET GOLD	
SK103	RJ-1018-020		DUAL RCA SOCKET GOLD	
SK104	RJ-1018-020		DUAL RCA SOCKET GOLD	
SK105	RJ-1018-020		DUAL RCA SOCKET GOLD	
SK106A	13 PIN SIL	13 PIN SIL 0.1 PITCH	13 Way Socket For MM/MC Mod	
SK106B	13 PIN SIL	13 PIN SIL 0.1 PITCH	13 Way Socket For MM/MC Mod	
CON101	8370-151-000-800		15 WAY FLEX FOIL	
CON102	8370-151-000-800		15 WAY FLEX FOIL	
CON103	Test Points		LOUPOT	
TX501	Test Points		LOUPOT	
TX503	Test Points		LOUPOT	
TX504	Test Points		LOUPOT	
TX505	Test Points		LOUPOT	
TX510	Test Points		LOUPOT	
TX511	Test Points		LOUPOT	
TX901	Test Points		LOUPOT	
TX902	Test Points		LOUPOT	
TX903	Test Points		LOUPOT	
TX904	Test Points		LOUPOT	
SK501	5 Pin	MKS3475	5-Pin Socket	
SK601	8370-151-000-800		15 WAY FLEX FOIL	
SK602	ISS0140	DIL-40	40 PIN IC SOCKET	
CON701	8370-151-000-800		15 WAY FLEX FOIL	
SK701			3-Pin XLR (Female)	
SK702			3 Pin XLR (Female)	
SK703			3 Pin XLR (Male)	
SK704			3 Pin XLR (Male)	
PL801A	13 PIN SIL	13 PIN SIL 0.1 PITCH	13 Way Plug For MM/MC Mod	
PL801B	13 PIN SIL	13 PIN SIL 0.1 PITCH	13 Way Plug For MM/MC Mod	

FUSES, FUSE HOLDERS

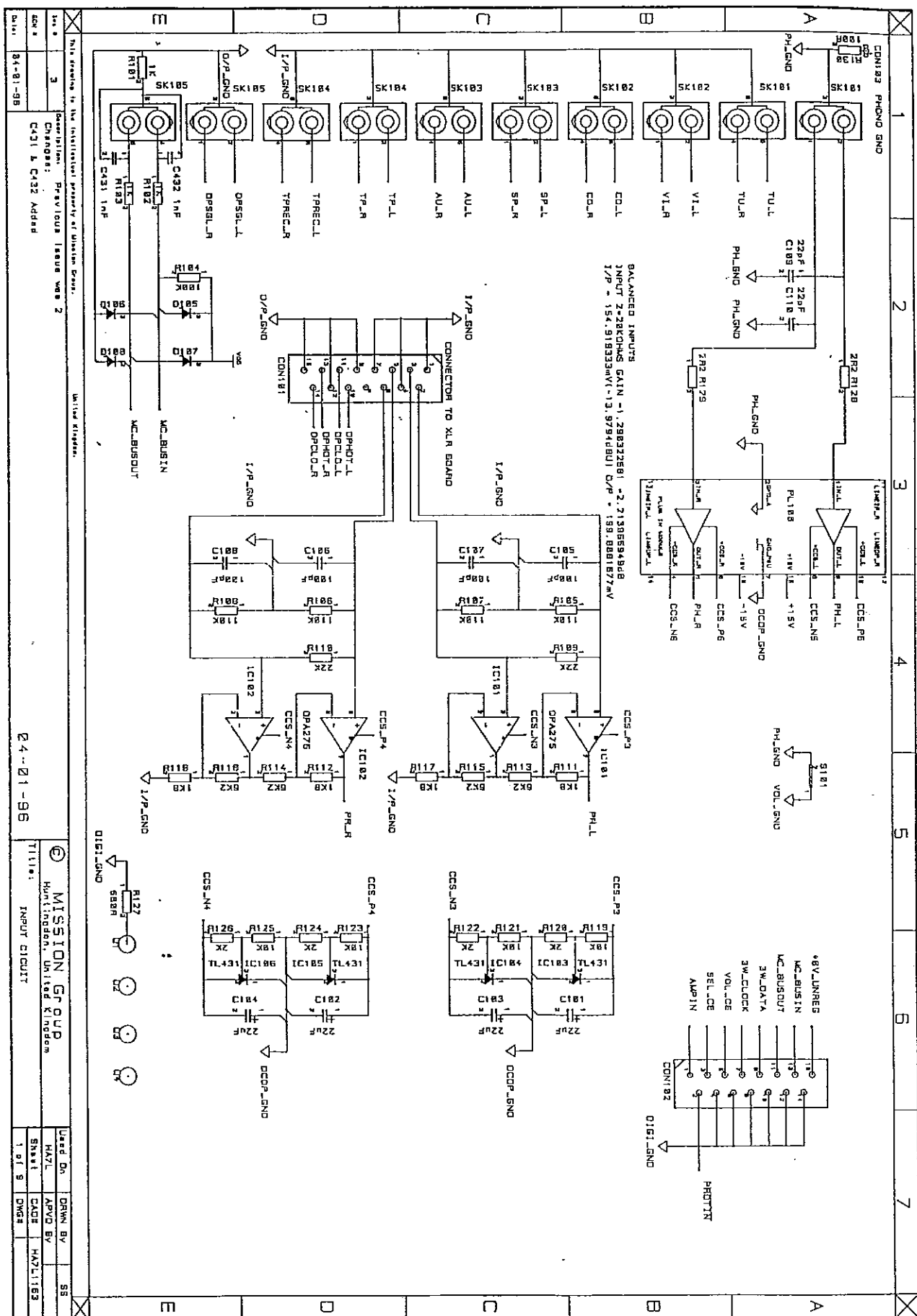
FS901	Fuse Holder	20mm	PCB Mount for use with QC	
FC901	Fuse Cap		For FS901	

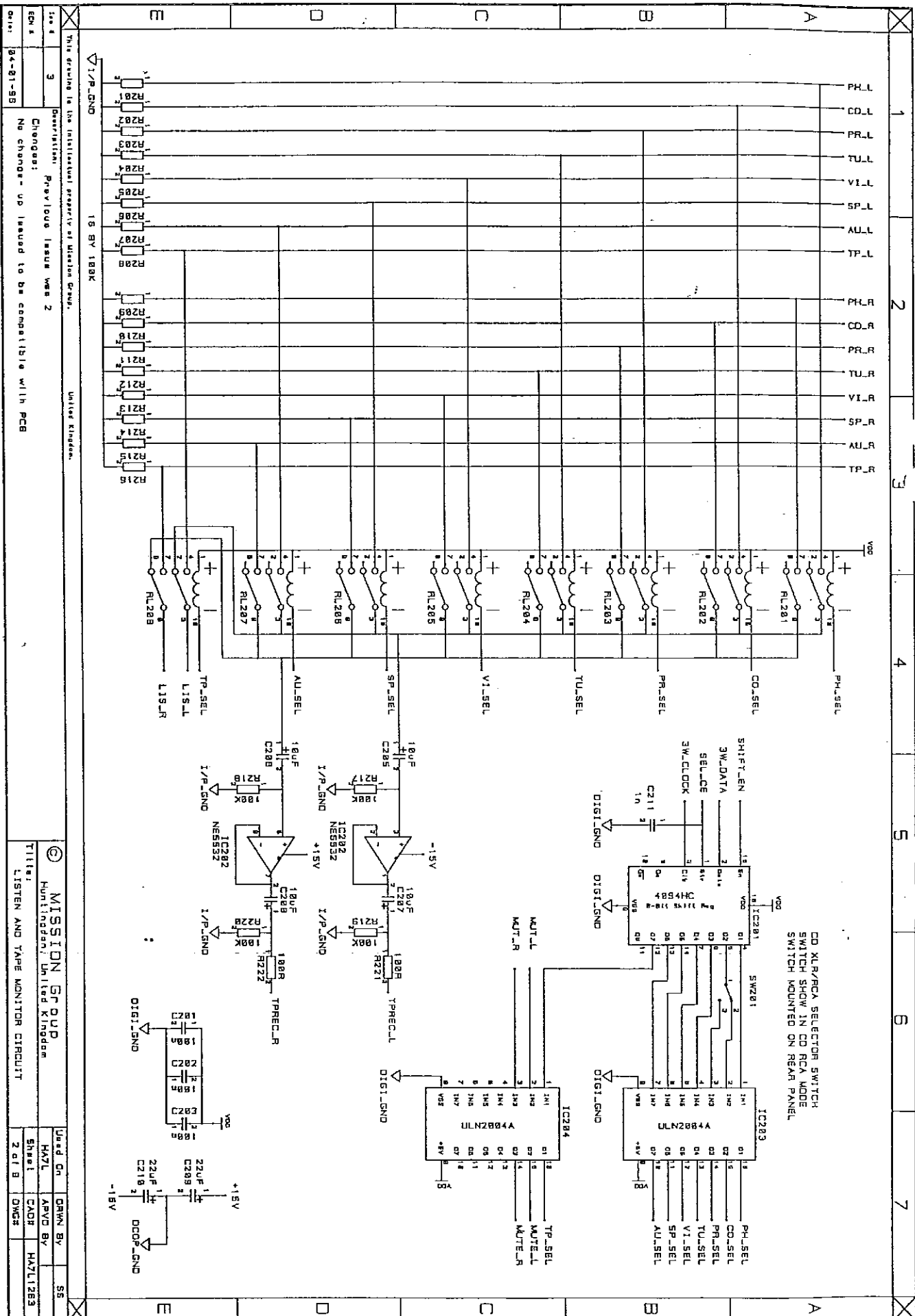
TERMINALS AND OTHERS

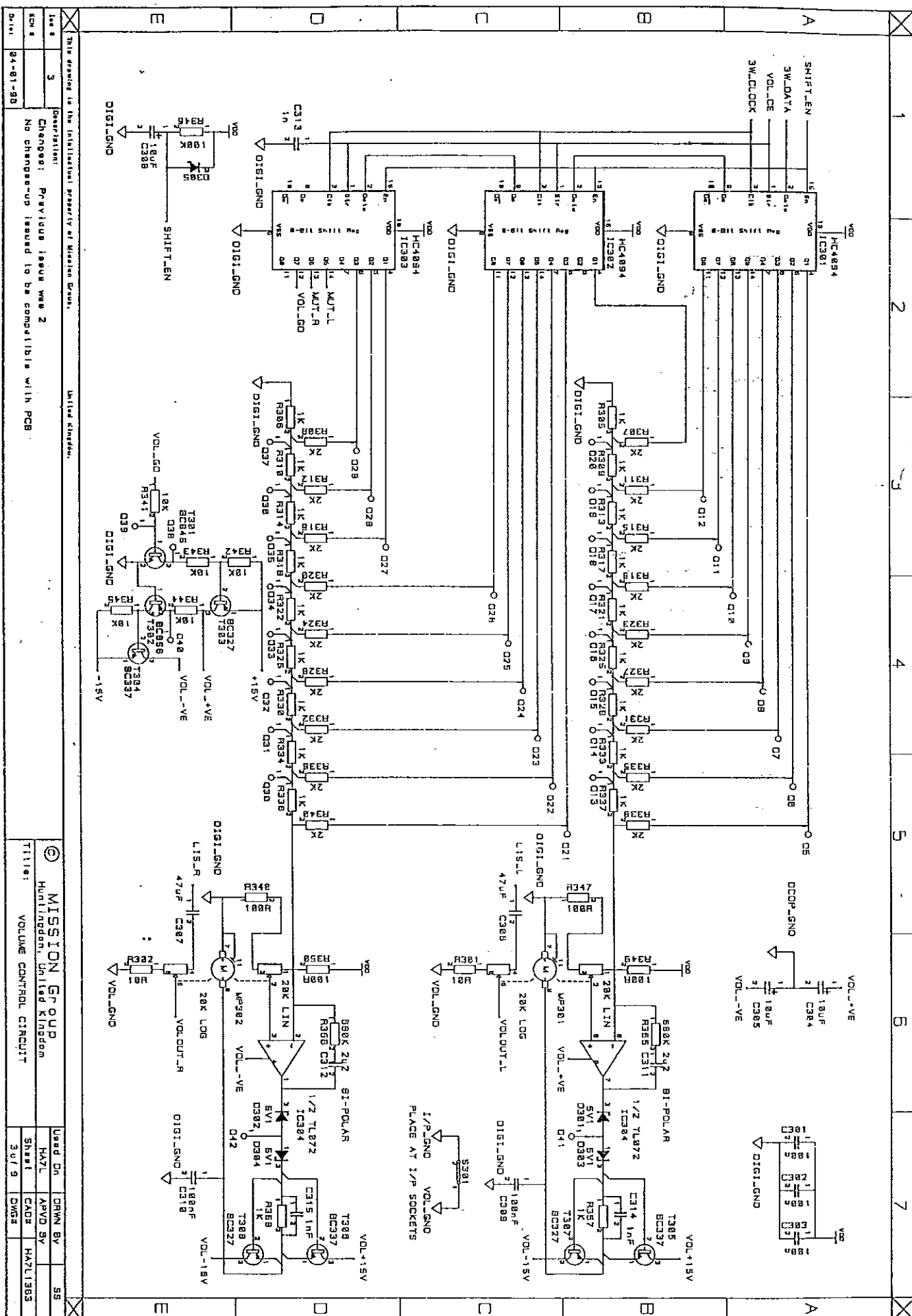
RL201		DPDT	TQ2-5V	Double Pole 5V Relay
RL202		DPDT	TQ2-5V	Double Pole 5V Relay
RL203		DPDT	TQ2-5V	Double Pole 5V Relay
RL204		DPDT	TQ2-5V	Double Pole 5V Relay
RL205		DPDT	TQ2-5V	Double Pole 5V Relay
RL206		DPDT	TQ2-5V	Double Pole 5V Relay
RL207		DPDT	TQ2-5V	Double Pole 5V Relay
RL208		DPDT	TQ2-5V	Double Pole 5V Relay
MP301		Mot Pot	20K LIN/LOG Motorised Pot 5V	PCB Mount Mot Pot Special
MP302		Mot Pot	20K LIN/LOG Motorised Pot 5V	PCB Mount Mot Pot Special
RL401		DPDT	TQ2-5V	Double Pole 5V Relay
RL402		DPDT	TQ2-5V	Double Pole 5V Relay
IR601		Infra Red	SBX1610	DO NOT FIT-Provide pads
RE601		Rot Encode	RENC01	DO NOT FIT-Provide pads

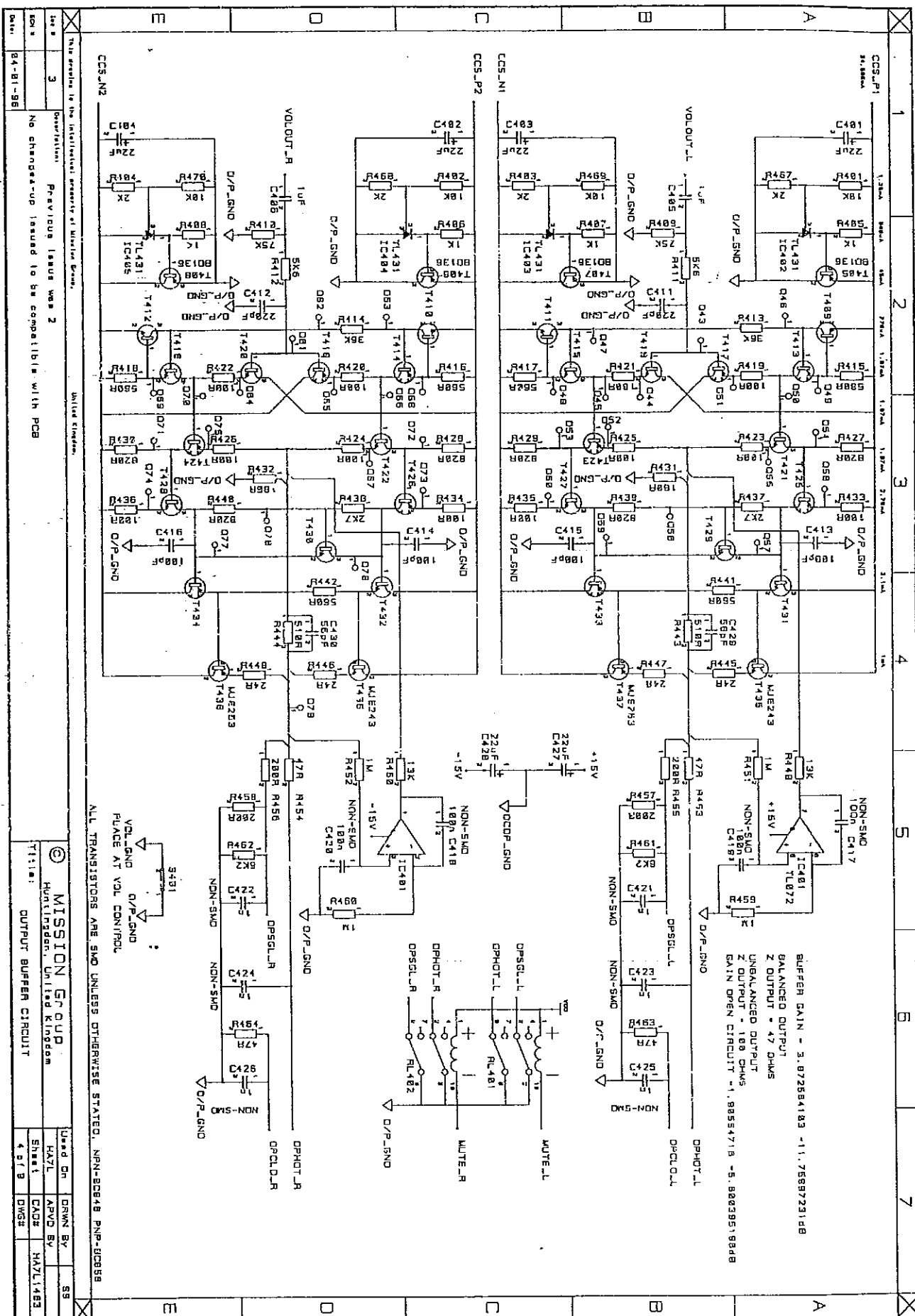
SWITCHES

SW201	RS-K9-664-244		Mini PCB Toggle Switch	
SW601	TAC Switch		SOA-112HS	Micro Switch (4.3mm)
SW602	TAC Switch		SOA-112HS	Micro Switch (4.3mm)
SW603	TAC Switch		SOA-112HS	Micro Switch (4.3mm)
SW604	TAC Switch		SOA-142HS	Micro Switch (9.5mm)
SW605	TAC Switch		SOA-142HS	Micro Switch (9.5mm)
SW606	TAC Switch		SOA-142HS	Micro Switch (9.5mm)
SW607	TAC Switch		SOA-142HS	Micro Switch (9.5mm)
SW608	TAC Switch		SOA-142HS	Micro Switch (9.5mm)
SW609	TAC Switch		SOA-142HS	Micro Switch (9.5mm)
SW610	TAC Switch		SOA-142HS	Micro Switch (9.5mm)
SW801	NOT FITTED			

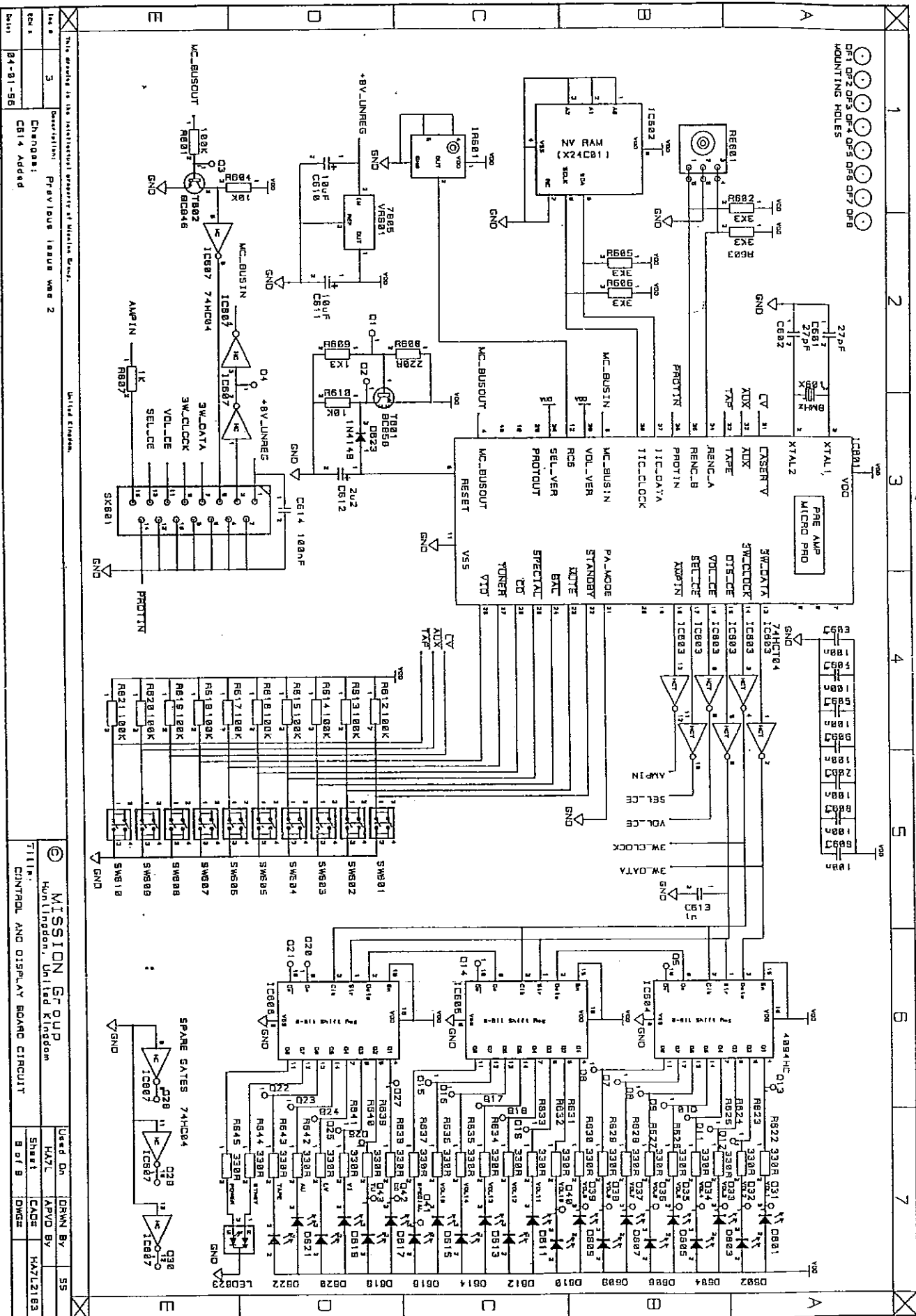


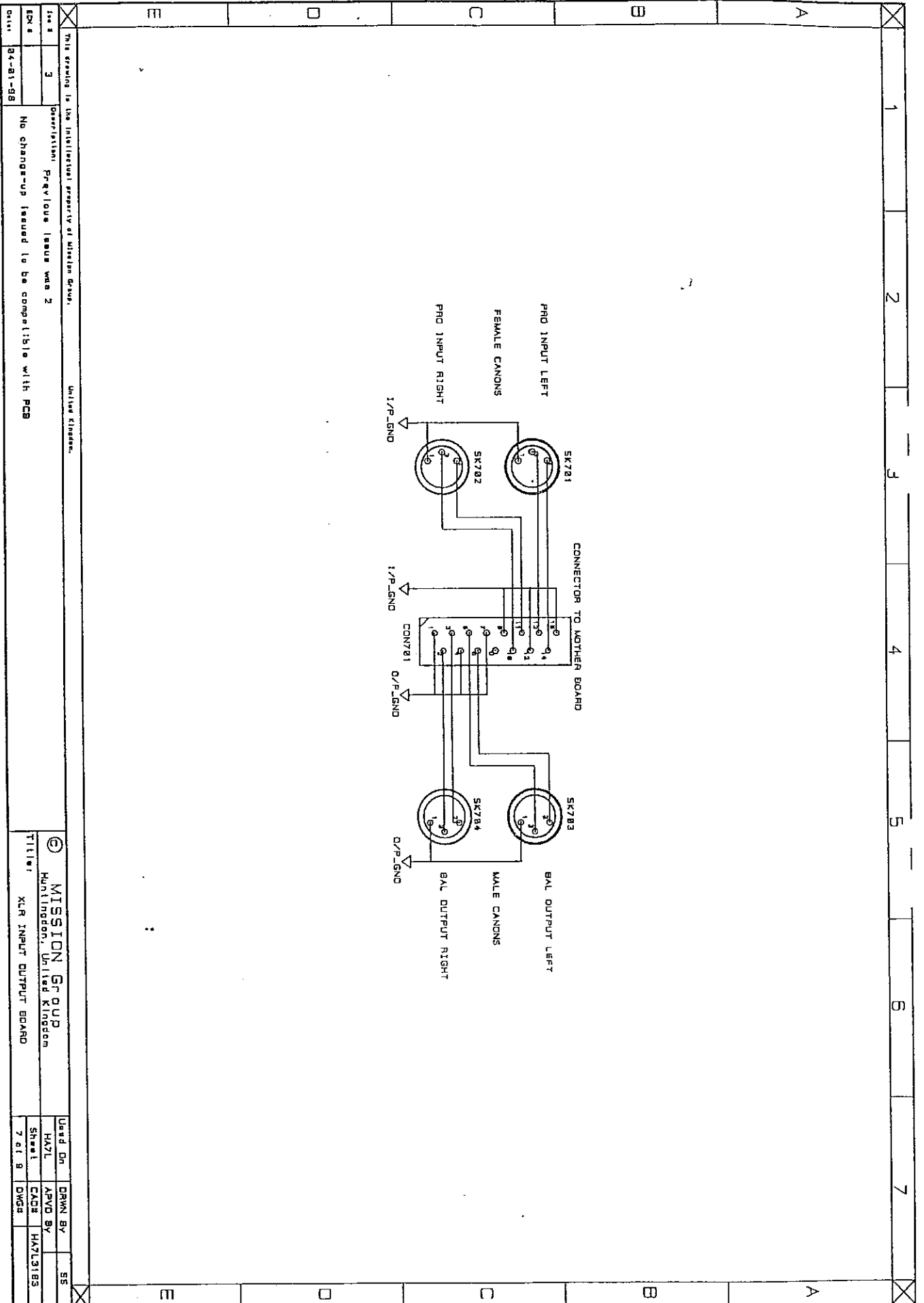


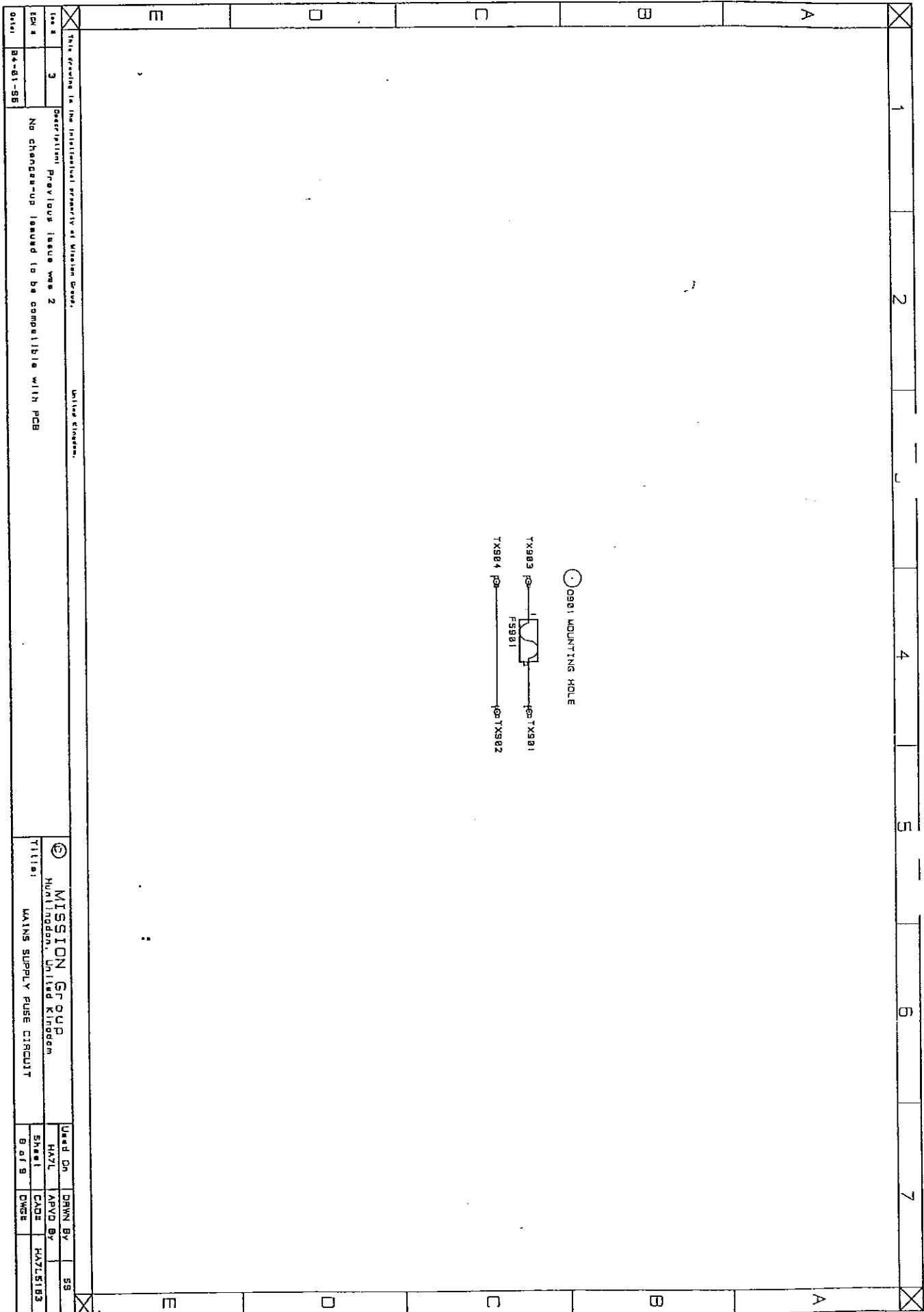


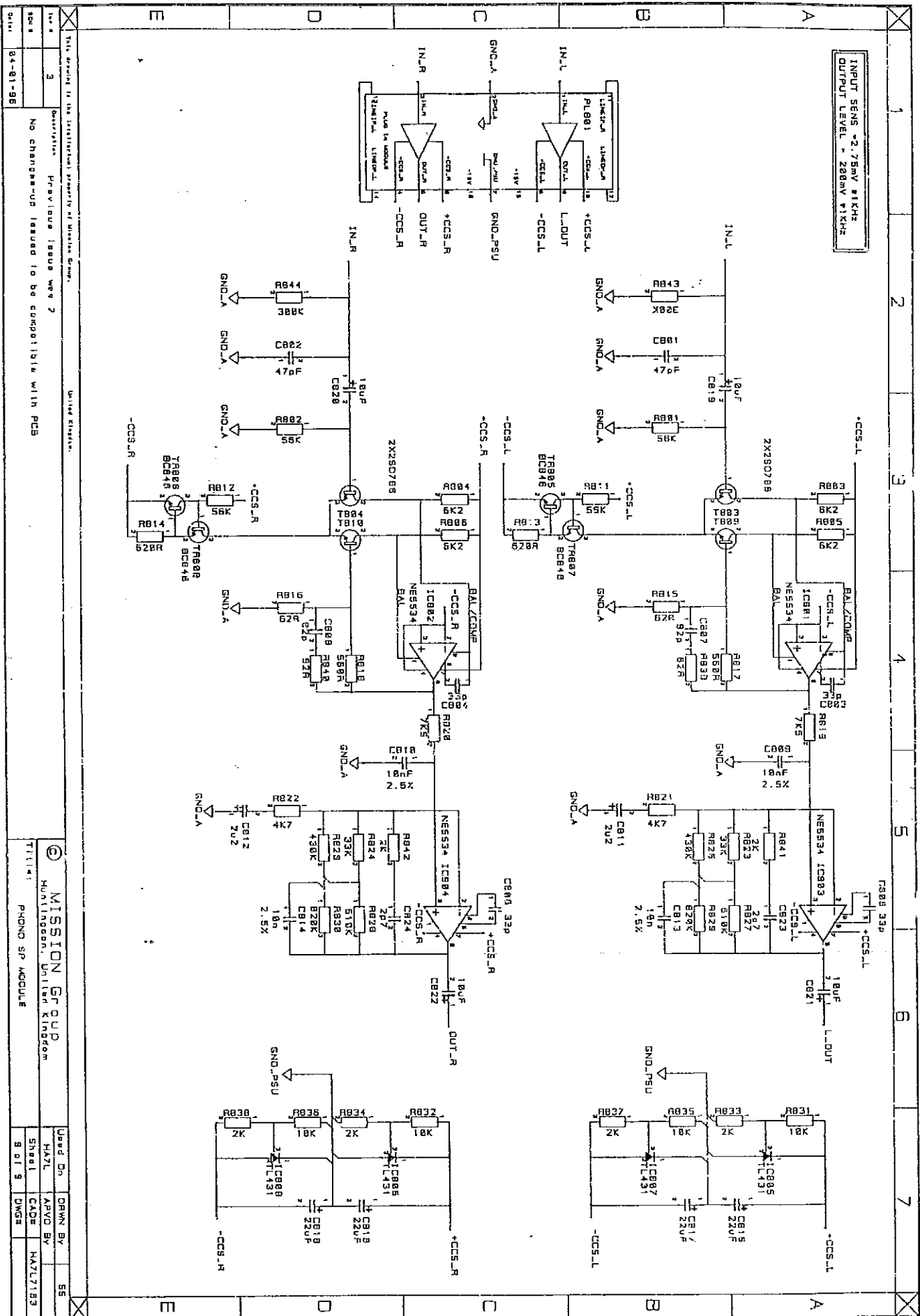


ALL TRANSISTORS ARE SMO UNLESS OTHERWISE STATED, NPN-2SC478 PNP-2SC355









MISSION

CONFIDENTIAL

TECHNICAL INFORMATION

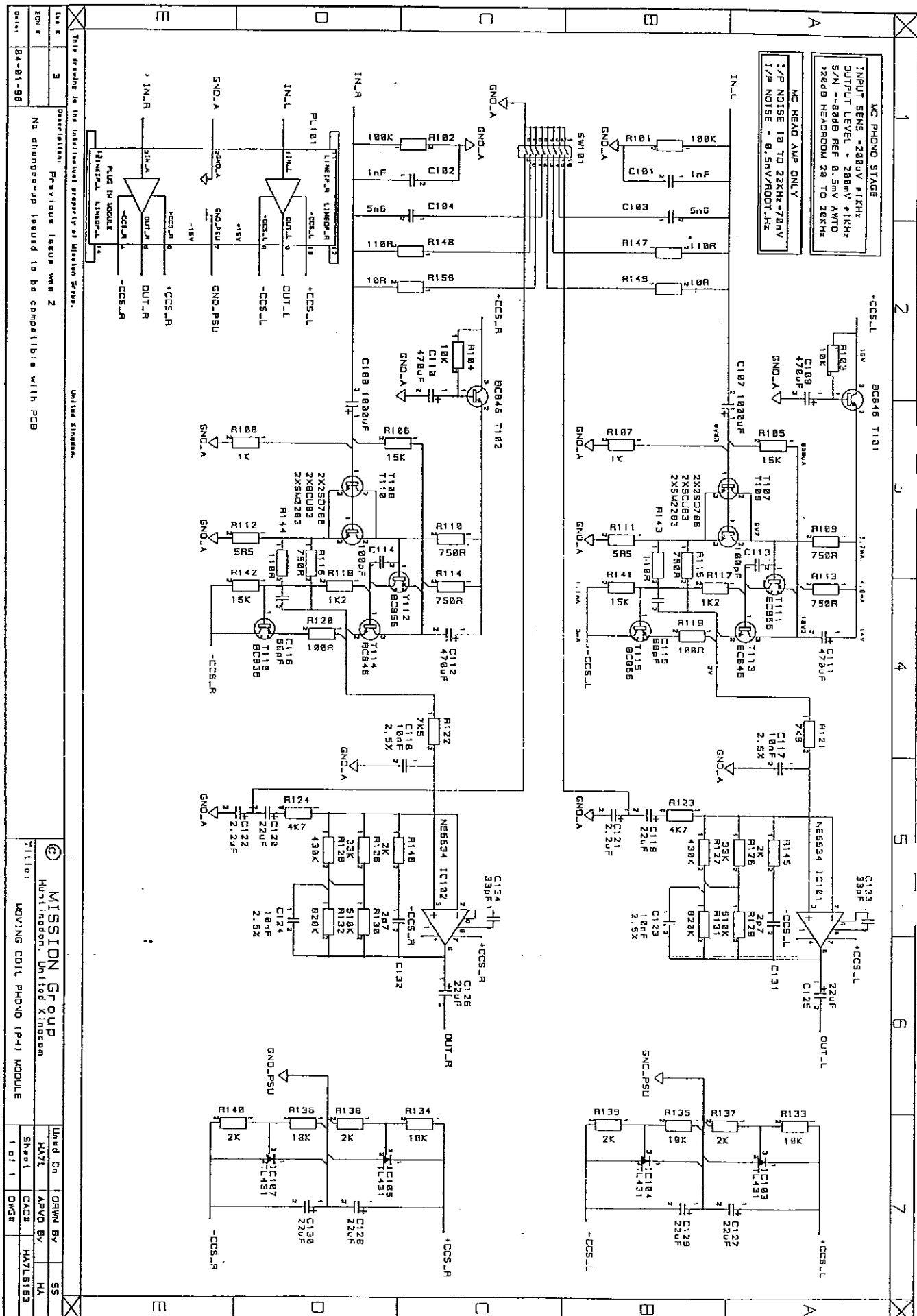
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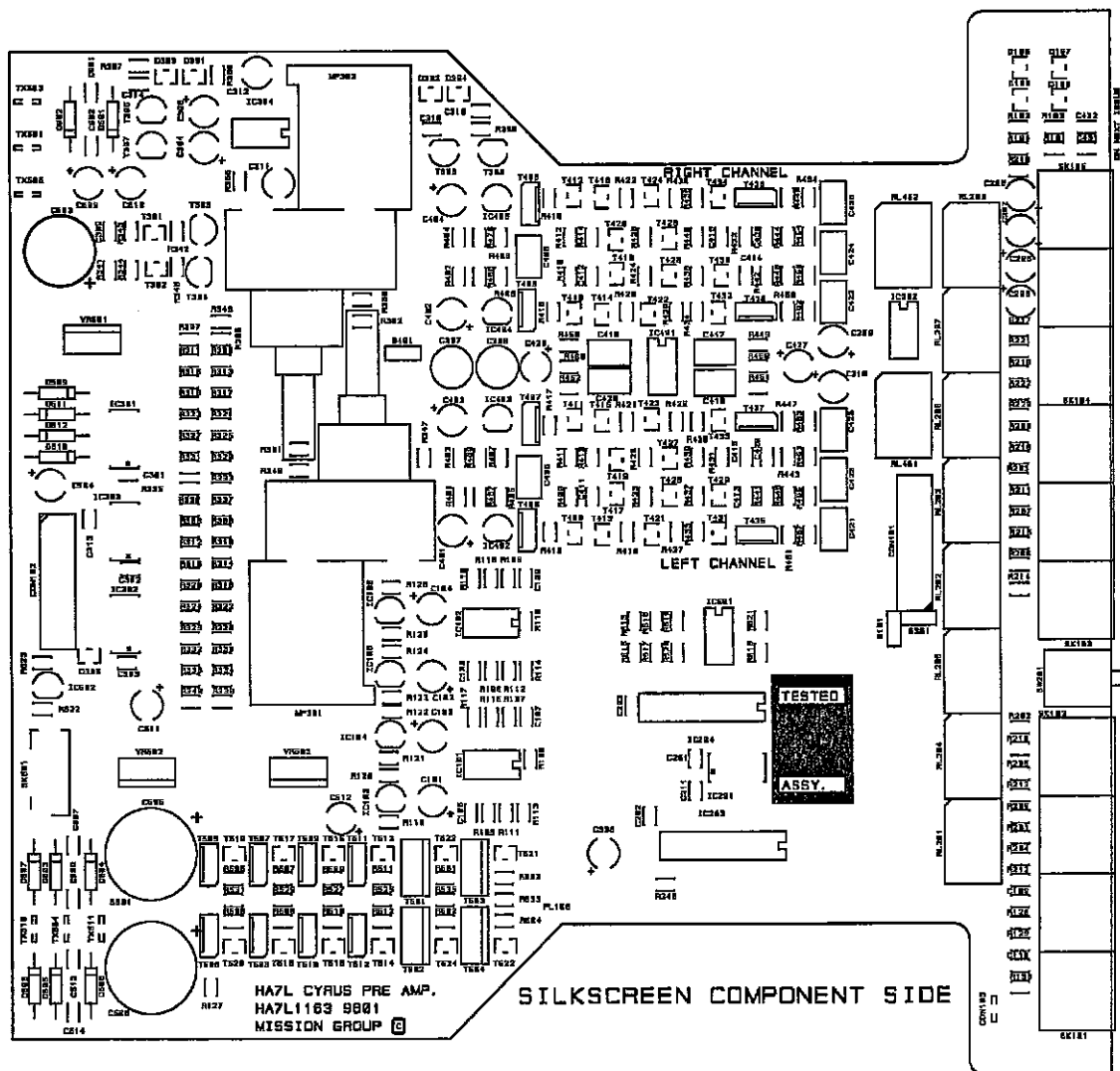
MODEL NAME:

CYRUS MC1

FACTORY PRODUCTION CODE:

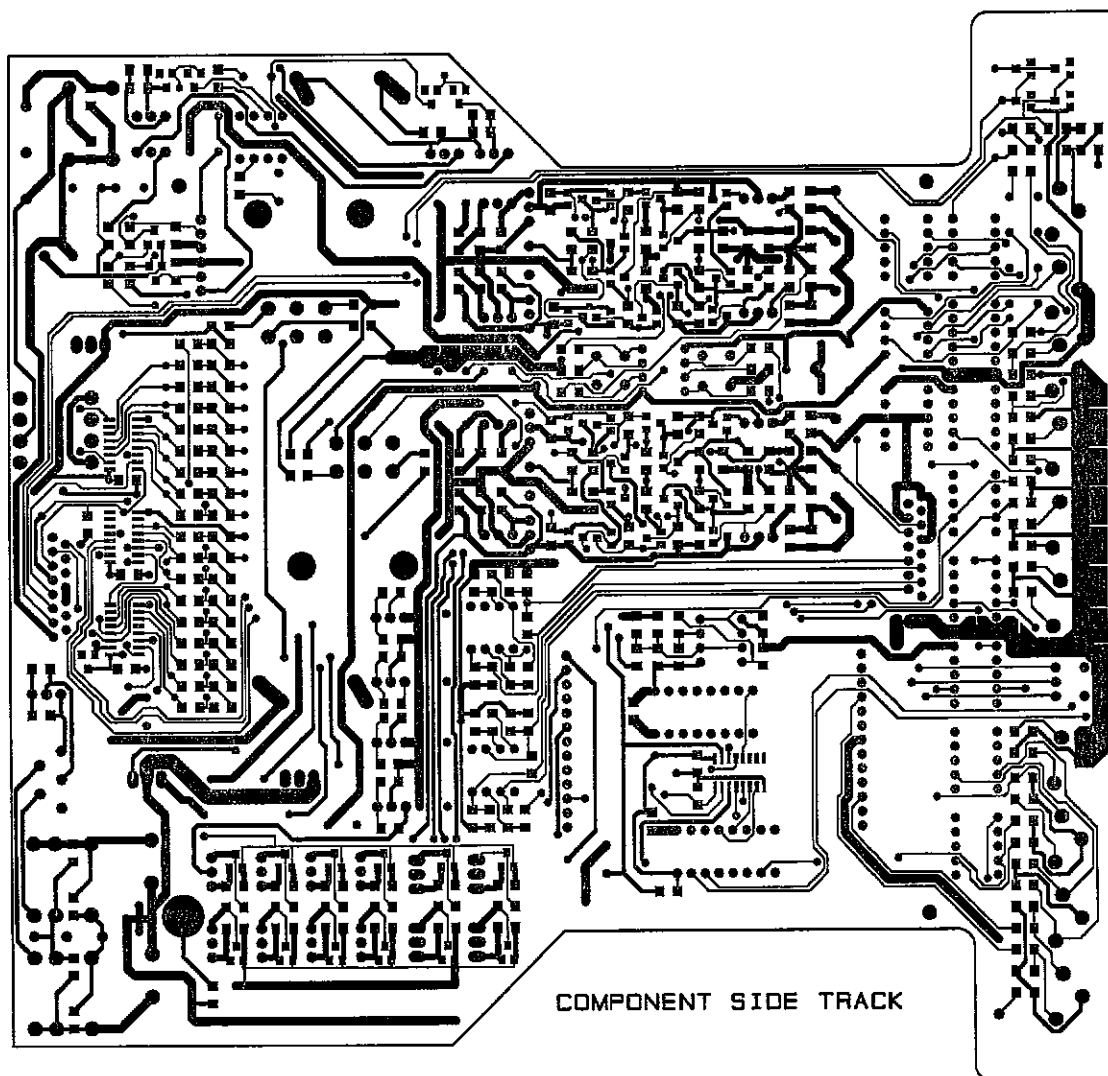
CYRUS MC1





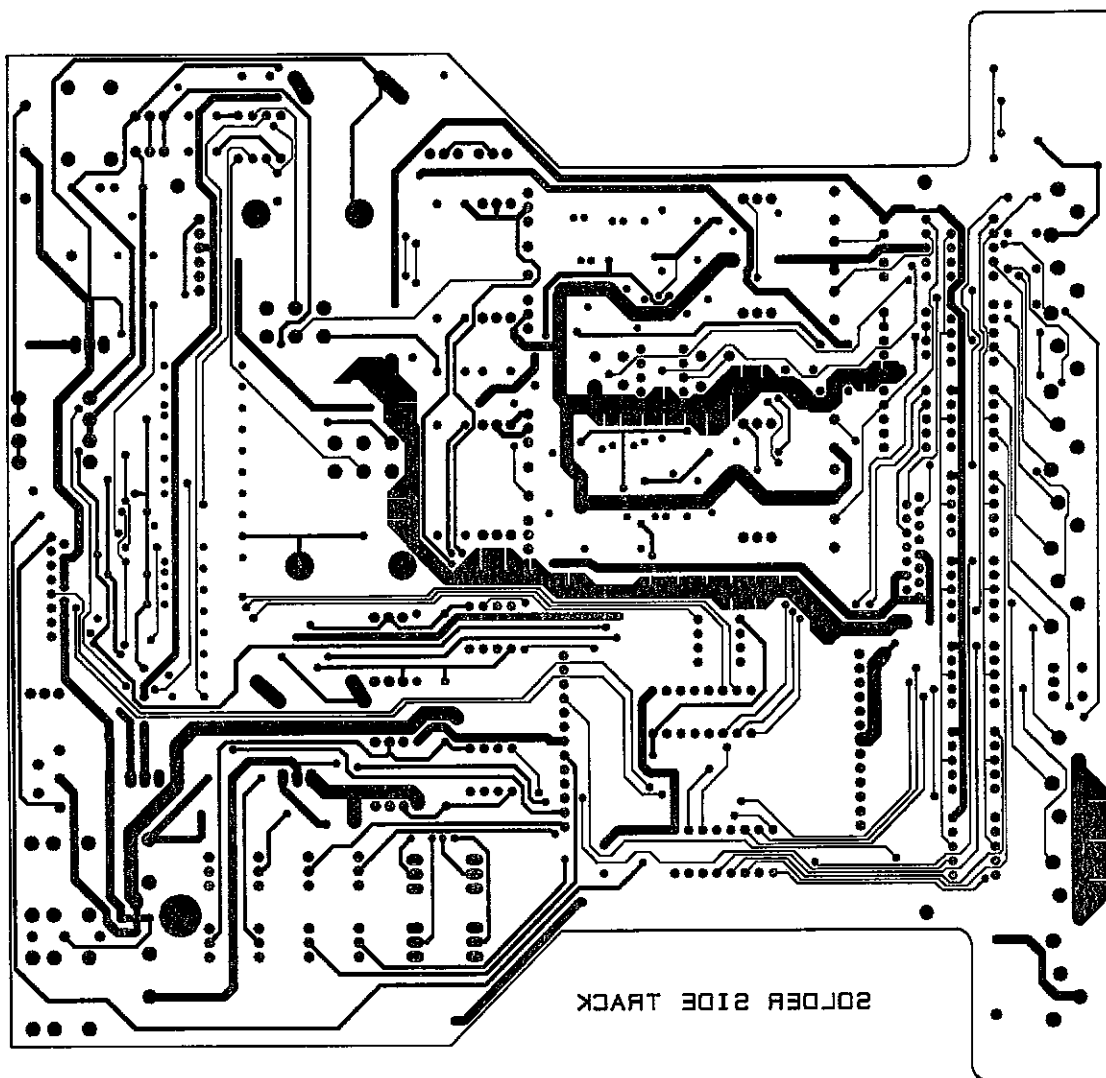
NOTE:
LAYER 1-COMPONENT SIDE TRACK
" 2-COMPONENT SIDE SILKSCREEN
" 3-COMP. SIDE SOLDER RESIST
COMBINE WITH LAYER 1 PAD (SMD)
" 12-80. OUTLINE, CUTOUTS/ROUTING
" 14-SOLDER SIDE SOLDER RESIST
" 16-SOLDER SIDE TRACK
" 17/18-FIGURES & DOC. TEXT
CUTOUTS/ROUTING IS TO L12 DRAWING

C431, C432 ADDED 03/01/86
P/C 18 WAS 0.055" 02/02/86



NOTE:
 LAYER 1-COMPONENT SIDE TRACK
 " 2-COMPONENT SIDE SILKSCREEN
 " 3-COMP. SIDE SOLDER RESIST
 " COMBINE WITH LAYER 1 PAD (SMD)
 " 12-SD. OUTLINE, CUTOUTS/ROUTING
 " 14-SOLDER SIDE SOLDER RESIST
 " 16-SOLDER SIDE TRACK
 " 17/18-FIGURES & DEC. TEXT
 CUTOUTS/ROUTING IS TO L12 DRAWING

C431, C432 ADDED 03/01/98
 P/C 18 WAS 0,855" 02/02/98



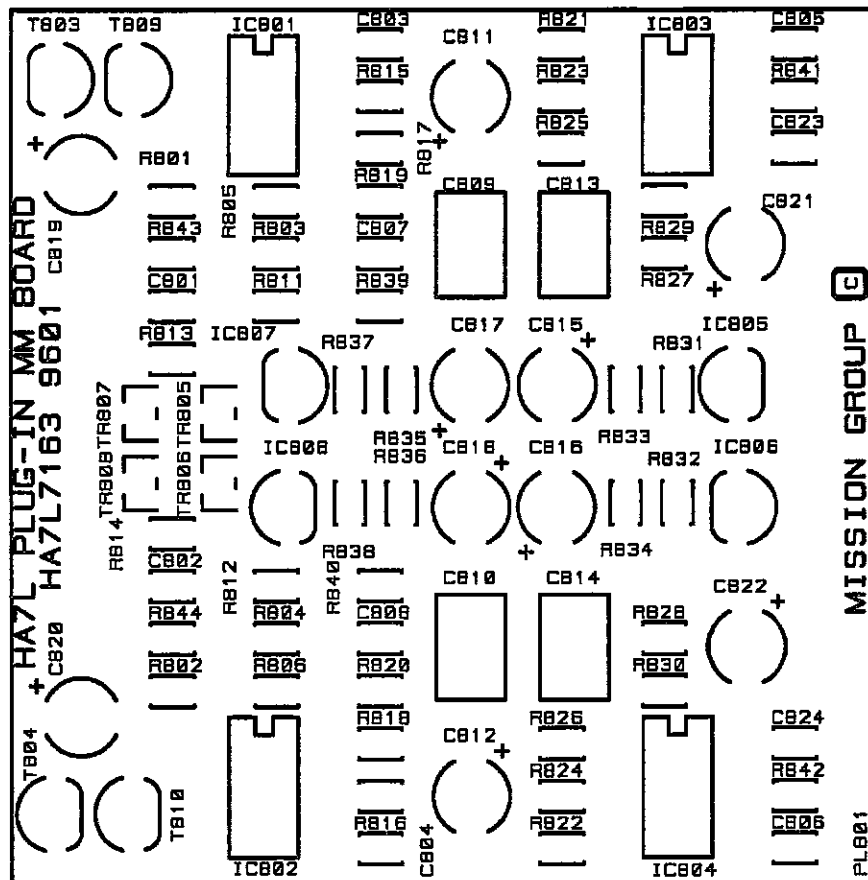
SOLDER SIDE TRACK

NOTE:

- LAYER 1-COMPONENT SIDE TRACK
- " 2-COMPONENT SIDE SILKSCREEN
- " 3-COMP. SIDE SOLDER RESIST
- " COMBINE WITH LAYER 1 PAD (9MO)
- " 12-BD. OUTLINE, CUTOUTS/ROUTING
- " 14-SOLDER SIDE SOLDER RESIST
- " 16-SOLDER SIDE TRACK
- " 17/18-FIGURES & DOC. TEXT

CUTOUTS/ROUTING IS TO L12 DRAWING

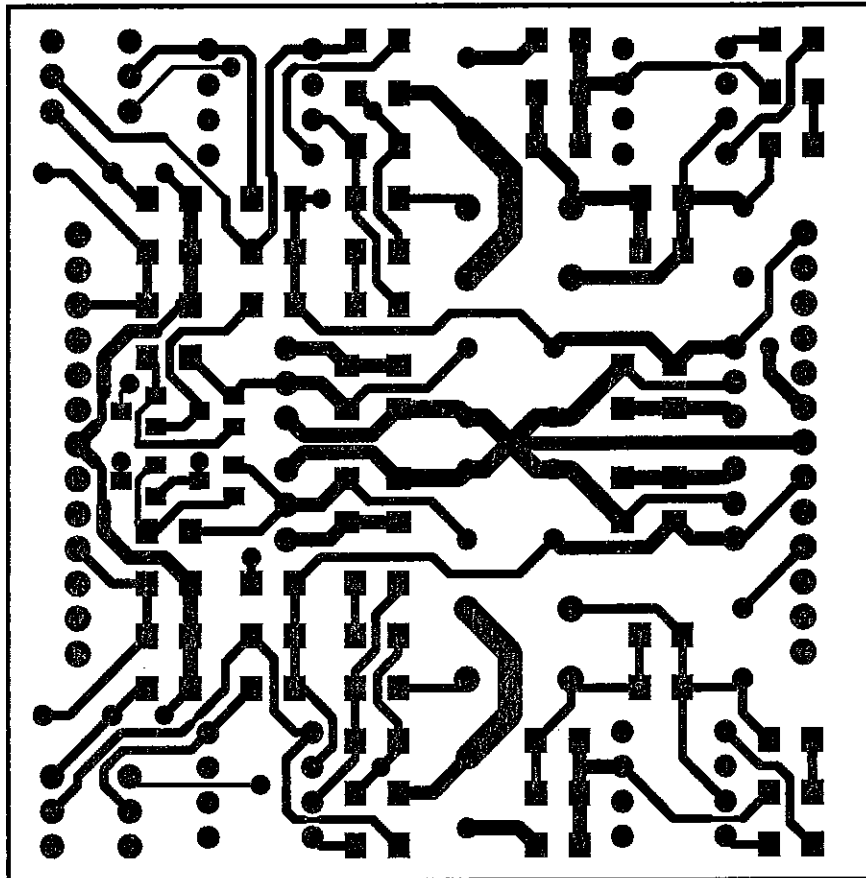
C431, C432 ADDED 03/01/86
P/C 16 WAS 0.055" 02/02/86



SILKSCREEN COMPONENT SIDE

NOTE;

- LAYER 1-COMPONENT SIDE TRACK
- " 2-COMPONENT SIDE SILKSCREEN
- " 3-COMP.SIDE SOLDER RESIST
COMBINE WITH LAYER 1 PAD (SMD)
- " 12-BOARD OUTLINE & ROUTING
- " 14-SOLDER SIDE SOLDER RESIST
- " 15-SOLDER SIDE SILKSCREEN
- " 16-SOLDER SIDE TRACK
- " 17/18-FIGURES&DOC.TEXT

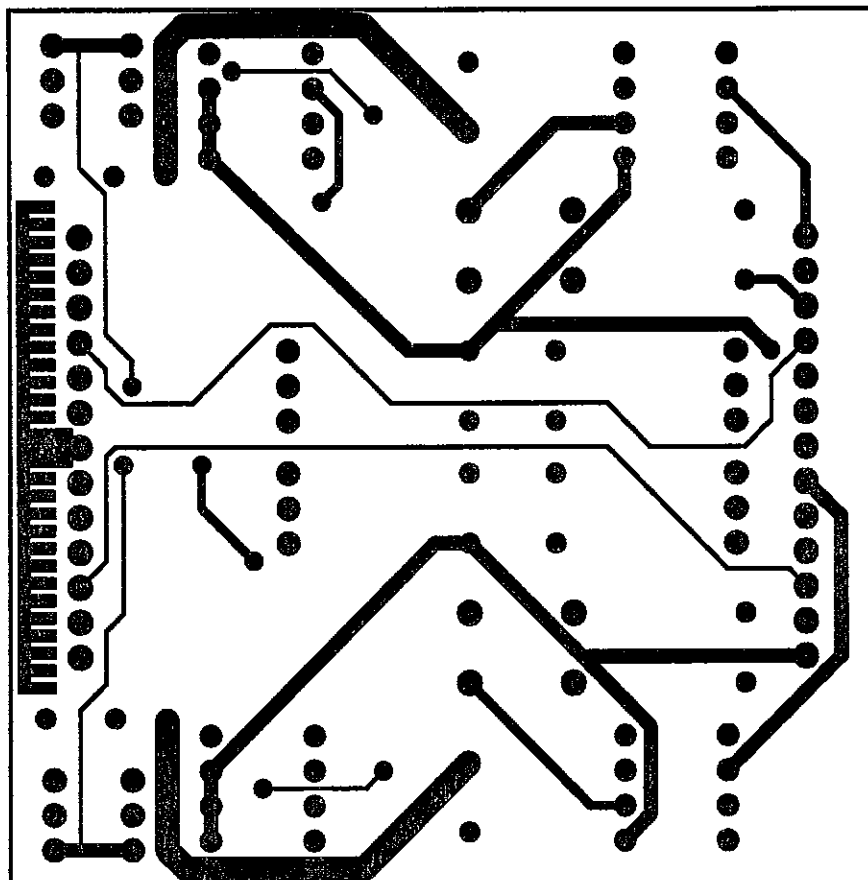


COMPONENT SIDE TRACK

NOTE;

LAYER 1-COMPONENT SIDE TRACK

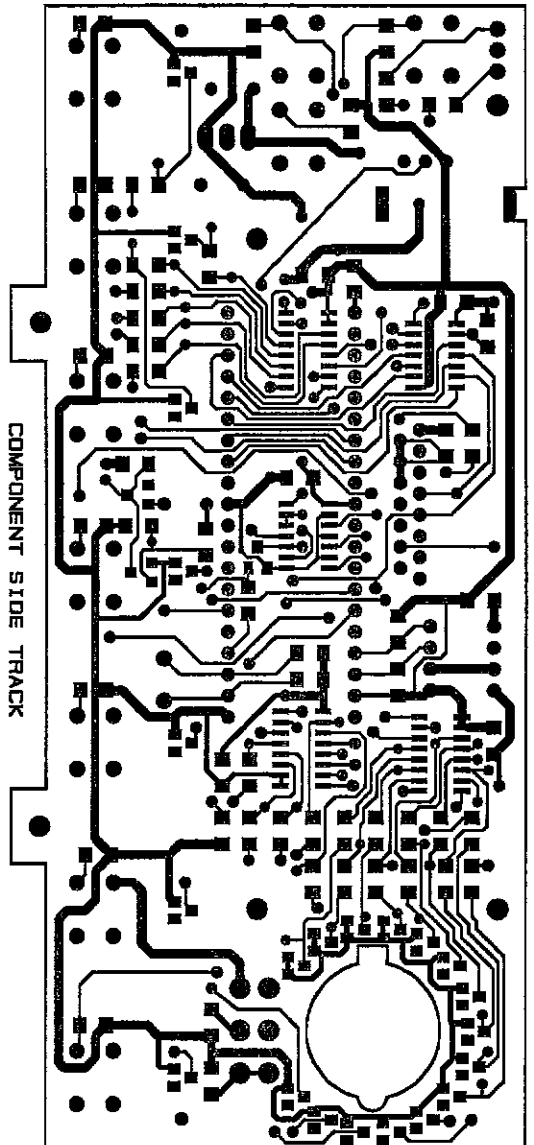
- " 2-COMPONENT SIDE SILKSCREEN
- " 3-COMP.SIDE SOLDER RESIST
COMBINE WITH LAYER 1 PAD (SMD)
- " 12-BOARD OUTLINE & ROUTING
- " 14-SOLDER SIDE SOLDER RESIST
- " 15-SOLDER SIDE SILKSCREEN
- " 16-SOLDER SIDE TRACK
- " 17/18-FIGURES&DOC.TEXT



SOLDER SIDE TRACK

NOTE;

- LAYER 1-COMPONENT SIDE TRACK
- " 2-COMPONENT SIDE SILKSCREEN
- " 3-COMP.SIDE SOLDER RESIST
COMBINE WITH LAYER 1 PAD (SMD)
- " 12-BOARD OUTLINE & ROUTING
- " 14-SOLDER SIDE SOLDER RESIST
- " 15-SOLDER SIDE SILKSCREEN
- " 16-SOLDER SIDE TRACK
- " 17/18-FIGURES&DOC. TEXT



COMPONENT SIDE TRACK

NOTE:

LAYER 1-COMPONENT SIDE TRACK
 " 2-COMPONENT SIDE SILKSCREEN
 " 3-COMP. SIDE SOLDER RESIST
 COMBINE WITH LAYER 1 PAD (SMD)
 " 12-DRILL DRAWING/ROUTING
 " 14-SOLDER SIDE SOLDER RESIST
 " 16-SOLDER SIDE TRACK
 " 17/18-FIGURE/DOC. TEXT

ALL CUTOUTS/ROUTING TO LAYER 12 DRAWING

CHANGES 22-FEB-94

1 ADD PROTIN LINE FOR PSX TESTER

R853 ADDED AS PULL UP.

2 CHANGE DIODE'S AND LED'S PAD SIZE.

CHANGES 21-AUG-95

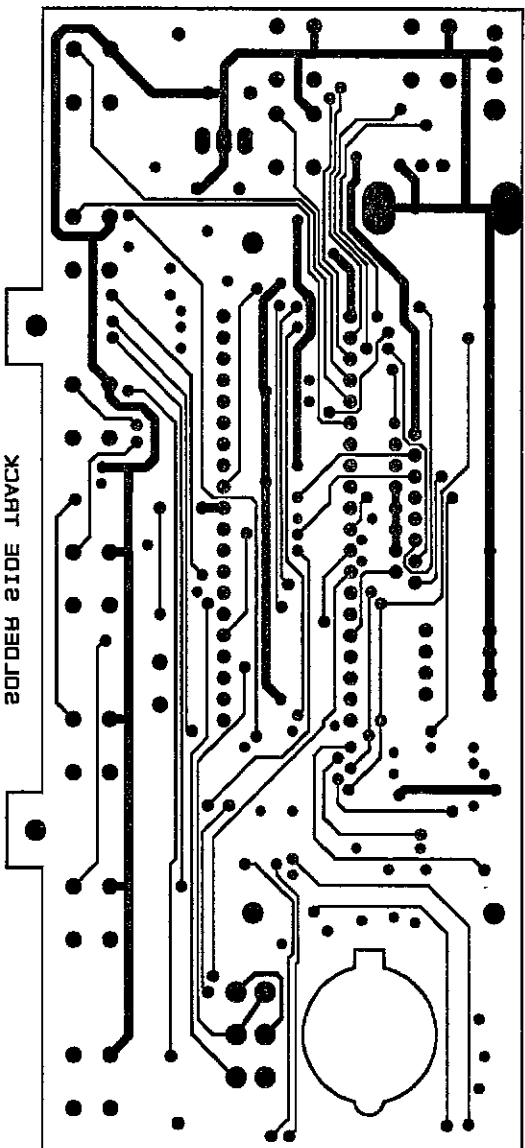
1 C813 (SMD) ADDED.

CHANGES 14-DEC-954

1 MFGG. INSTRUCTION FOR REMOTE EYE REMOVED,
 CONNECTION MODIFIED.

CHANGES 03-JAN-96

1 ADD C814 EMC CAP



XCART 3012 REQ102

NOTE:

LAYER 1-COMPONENT SIDE TRACK

" 2-COMPONENT SIDE SILKSCREEN

" 3-COMP. SIDE SOLDER RESIST

" COMBINE WITH LAYER 1 PAD (SMD)

" 12-DRILL DRAWING/ROUTING

" 14-SOLDER SIDE SOLDER RESIST

" 16-SOLDER SIDE TRACK

" 17/18-FIGURE/DOC. TEXT

ALL CUTOUTS/ROUTING TO LAYER 12 DRAWING

CHANGES 22-FEB-94

1 ADD PROTIN LINE FOR PSX TESTER

R653 ADDED AS PULL UP.

2 CHANGE DIODE'S AND LED'S PAD SIZE.

CHANGES 21-AUG-96

1 C613 (SMD) ADDED.

CHANGES 14-DEC-954

1 MFGNG. INSTRUCTION FOR REMOTE EYE REMOVED,

CONNECTION MODIFIED.

CHANGES 03-JAN-96

1 ADD C614 EMC CAP

RESISTORS:

R101	SMD 1206	100K	MF 1/8W	1%	
R102	SMD 1206	100K	MF 1/8W	1%	
R103	SMD 1206	10K	MF 1/8W	1%	
R104	SMD 1206	10K	MF 1/8W	1%	
R105	SMD 1206	15K	MF 1/8W	1%	
R106	SMD 1206	15K	MF 1/8W	1%	
R107	SMD 1206	1K	MF 1/8W	1%	
R108	SMD 1206	1K	MF 1/8W	1%	
R109	SMD 1206	750R	MF 1/8W	1%	
R110	SMD 1206	750R	MF 1/8W	1%	
R111	SMD 1206	5.6R	MF 1/8W	1%	
R112	SMD 1206	5.6R	MF 1/8W	1%	
R113	SMD 1206	750R	MF 1/8W	1%	
R114	SMD 1206	750R	MF 1/8W	1%	
R115	SMD 1206	750R	MF 1/8W	1%	
R116	SMD 1206	750R	MF 1/8W	1%	
R117	SMD 1206	1.2K	MF 1/8W	1%	
R118	SMD 1206	1.2K	MF 1/8W	1%	
R119	SMD 1206	100R	MF 1/8W	1%	
R120	SMD 1206	100R	MF 1/8W	1%	
R121	SMD 1206	7.5K	MF 1/8W	1%	
R122	SMD 1206	7.5K	MF 1/8W	1%	
R123	SMD 1206	4.7K	MF 1/8W	1%	
R124	SMD 1206	4.7K	MF 1/8W	1%	
R125	SMD 1206	33K	MF 1/8W	1%	
R126	SMD 1206	33K	MF 1/8W	1%	
R127	SMD 1206	430K	MF 1/8W	1%	
R128	SMD 1206	430K	MF 1/8W	1%	
R129	SMD 1206	510K	MF 1/8W	1%	
R130	SMD 1206	510K	MF 1/8W	1%	
R131	SMD 1206	820K	MF 1/8W	1%	
R132	SMD 1206	820K	MF 1/8W	1%	
R133	SMD 1206	10K	MF 1/8W	1%	
R134	SMD 1206	10K	MF 1/8W	1%	
R135	SMD 1206	10K	MF 1/8W	1%	
R136	SMD 1206	10K	MF 1/8W	1%	
R137	SMD 1206	2K	MF 1/8W	1%	
R138	SMD 1206	2K	MF 1/8W	1%	
R139	SMD 1207	2K	MF 1/8W	1%	
R140	SMD 1208	2K	MF 1/8W	1%	
R141	SMD 1209	15K	MF 1/8W	1%	
R142	SMD 1210	15K	MF 1/8W	1%	
R143	SMD 1206	110R	MF 1/8W	1%	
R144	SMD 1206	110R	MF 1/8W	1%	
R145	SMD 1206	2K	MF 1/8W	1%	
R146	SMD 1206	2K	MF 1/8W	1%	
R147	SMD 1206	110R	MF 1/8W	1%	
R148	SMD 1206	110R	MF 1/8W	1%	
R149	SMD 1206	10R	MF 1/8W	1%	
R150	SMD 1206	10R	MF 1/8W	1%	

CAPACITORS:

C101	SMD 1206	1nF	CP 63V 10%	
C102	SMD 1206	1nF	CP 63V 10%	
C103	SMD 1206	5.6nF	CP 63V 10%	
C104	SMD 1206	5.6nF	CP 63V 10%	
C105	DELETED			
C106	DELETED			
C107	RE2	1000MF	EL 16V 10%	
C108	RE2	1000MF	EL 16V 10%	
C109	RE2	470MF	EL 25V 10%	
C110	RE2	470MF	EL 25V 10%	
C111	RE2	470MF	EL 25V 10%	
C112	RE2	470MF	EL 25V 10%	
C113	SMD 1206	100pF	CP 63V 10%	
C114	SMD 1206	100pF	CP 63V 10%	
C115	SMD 1206	68pF	CP 63V 10%	
C116	SMD 1206	68pF	CP 63V 10%	
C117	FKP2	10nF	PP 63V 2.5%	
C118	FKP2	10nF	PP 63V 2.5%	
C119	RE2	33MF	EL 50V 10%	
C120	RE2	33MF	EL 50V 10%	
C121	RE2	2.2MF	EL 50V 10%	
C122	RE2	2.2MF	EL 50V 10%	
C123	FKP2	10nF	PP 63V 2.5%	
C124	FKP2	10nF	PP 63V 2.5%	
C125	RE2	22MF	EL 50V 10%	
C126	RE2	22MF	EL 50V 10%	
C127	RE2	22MF	EL 50V 10%	
C128	RE2	22MF	EL 50V 10%	
C129	RE2	22MF	EL 50V 10%	
C130	RE2	22MF	EL 50V 10%	
C131	SMD 1206	2.7pF	CP 63V 10%	
C132	SMD 1206	2.7pF	CP 63V 10%	
C133	SMD 1206	33pF	CP 63V 10%	
C134	SMD 1206	33pF	CP 63V 10%	

TRANSISTORS:

T101	SOT-23	BC846BLT1	Signal Transistor
T102	SOT-23	BC846BLT1	Signal Transistor
T107	T0-92	BCU83	Very Low Noise Transistor
T108	T0-92	BCU83	Very Low Noise Transistor
T109	T0-92	BCU83	Very Low Noise Transistor
T110	T0-92	BCU83	Very Low Noise Transistor
T111	SOT-23	BC856BLT1	Signal Transistor
T112	SOT-23	BC856BLT1	Signal Transistor
T113	SOT-23	BC846BLT1	Signal Transistor
T114	SOT-23	BC846BLT1	Signal Transistor
T115	SOT-23	BC856BLT1	Signal Transistor
T116	SOT-23	BC856BLT1	Signal Transistor

INTEGRATED CIRCUITS:

IC101	DIL-8	NE5534	OP AMP
IC102	DIL-8	NE5534	OP AMP
IC103	TO-92	TL431CLP	Shunt Regulator
IC104	TO-92	TL431CLP	Shunt Regulator
IC105	TO-92	TL431CLP	Shunt Regulator
IC107	TO-92	TL431CLP	Shunt Regulator

SOCKETS:

SK101A	13 PIN SIL	13 PIN SIL 0.1 PITCH	13 Way Socket
SK101B	13 PIN SIL	13 PIN SIL 0.1 PITCH	13 Way Socket

OTHERS:

SW101	8P1T	8 Pole DIP Switch (PCB Mount)	
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