CONTENTS

1. INTRODUCTION

The S 23 Pan Effects Module is a further development in the well established SCAMP range of signal processing equipment. The philosophy of the S 23 Pan Effects Module's design is that of 'simple to operate' as with all of the SCAMP range. Such a concept will prove very popular in many studios where engineers working under pressure consider minimal adjustments to be the optimum condition.

The S 23 Pan Effects Module is a stereo unit. The two inputs can be fed from a stereo source or a dual track/group signal. The signal then can be switched to provide varying output configurations.

The operating instructions in this manual are divided into two parts;

operational — aimed at the user, engineer etc.

technical — aimed at the user's maintenance department.

Whereas it is not essential that all users are necessarily familiar with both parts, an initial reading is recommended for overall understanding and appreciation.

Wherever possible, pictures are used to give a clear indication and explanation — any queries raised should be directed at your local distributor or, if more convenient, directly to Sales Administration at ADR.

We believe that the most can only be got out of your new investment by understanding it fully, with that aim —

Happy reading!

2.1 CONTROLS

NORM & REV LEDs

When the *NORM* LED is illuminated a signal fed into channel one will ouput at channel one and a signal input to channel two will output at channel two.
When the *REV* LED is illuminated input at channel one will output at channel two. Input at channel two will output at channel one.

LEVEL CONTROL & TRIG LED

LEVEL control allows audio signal to be fed to the trigger circuit. When sufficient level is present to cause triggering the *TRIG* LED will flash as triggering occurs.

RATE CONTROL

Controls prevents the unit from being triggered for a set time, the maximum hold off is 4secs.

SPEED CONTROL

Adjusts time taken for the unit to pan from R-N etc. The pan rates that can be set are
TRIG mode 400mS – 10secs,
REP mode 70mS – 7.5secs.
(Fastest pan is obtained with the control fully clockwise.

INT-EXT SWITCH

Selects internal or external sources for trigger. The *LEVEL* control then allows the selected source to be fed to the trigger circuit.

NR-NRN & RN-RNR BUTTONS

These select panning mode.

● Unit free, runs in trigger mode or produces a static central image in repeat mode.

○ Unit will complete single pan when triggered, either manually or using *TRIG* button or from internal or external sources.

● or ○ Unit will pan twice, Reverse-Normal-Reverse or vice versa when triggered either manually using *TRIG* button or from internal or external sources.

REPETITIVE-TRIG BUTTON

In *REP* mode the unit will pan R-N or N-R at set speed and return instantly to start, then it will repeat.
In the *TRIG* mode the unit will only pan when triggered.

IN/OUT SWITCH

With the IN/OUT switch in the *OUT* position the S 23 Pan Effects Module acts as a stereo unity gain buffer with balanced inputs and balanced line drive outputs.

With the switch set to the *IN* position the control circuitry will alter the gain of each channel.

2.2 Establishment in the Channel.

The module is designed for incorporation into a SCAMP rack system. (If supplied without the SCAMP rack/power supply it will be necessary to provide a dual positive/negative supply of between 26-35v, dependent on the degree of smoothing.) The module carries its own regulation chips but care should be taken to ensure that proper regulation *is* being obtained. Supplied as a rack system the unit comes complete with power pack, it is necessary only to wire inputs and output to the solder pins on the 'mother' printed circuit board, as per connector data (see 3.2 *Module Connections).* It is suggested that the rack be wired to a patch panel for easy routing, as required. There could be further advantage in arranging for insertion into the mixing console just before channel faders. With the *'System In/Out Switch'* in *'Out'* mode establish normal programme level through that channel. This should ideally be between 0dBm and + 16dBm, certainly no greater than + 24dBm. (Refer to section 2.1 Controls for operational notes.)

Selection of balanced/unbalanced mode

The system provides for electronic balancing of inputs and outputs (see 3.2 Module connections). Check the line output switch on eack module to ensure that the module is correctly adjusted for the mode of operation being used in the system. The effect of having the module *unbalanced* when the system is wired for balanced operation will be a 6dB increase in signal level at the output, and a corresponding increase in clip level to + 30dBm.
Conversely there will be a 6dB loss with the module *balanced* when the system is wired *unbalanced.*

3 TECHNICAL SECTION

3.1 TECHNICAL SPECIFICATION

CLIP LEVEL (input/output):	+ 24 dBm electronically balanced
NOISE LEVEL:	Better than -103dB ref +8dBm
DISTORTION:	Better than 0.05% THD @ + 8dBm
FREQUENCY RESPONSE:	20Hz – 20kHz ±0.5dB

3. TECHNICAL SECTION

PAN

3.2 Module Connections

1	+ Ve Supply
2	— Ve Supply
3	0v
4	0v
5	
6	
7	48v Phantom supply
8	0v Phantom supply
9	
10	
11	
12	
13	External Trigger Input — ve
14	External Trigger Input + ve
15	0v
16	Output channel 2 + ve
17	Output channel 2 — ve
18	0v
19	Output channel 1 + ve
20	Output channel 1 — ve
21	0v
22	Input channel 2 — ve
23	Input channel 2 + ve
24	0v
25	Input channel 1 — ve
26	Input channel 1 + ve
27	0v
28	
29	
30	
31	
32	
33	
34	
35	
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INPUT CONNECTIONS

From *balanced*/floating source:
Connect + phase and — phase as normal.
From *Unbalanced* source:
Connect — phase to signal earth of source

OUTPUT CONNECTIONS

To *balanced*/floating load:
Switches on board to *BAL*, connect + and — phase and chassis earth as normal
To *unbalanced* mode:
Switches on board to *UNBAL*. Connect — phase to signal earth of load, + phase to signal input of load, earth to chassis earth of load.

N.B. Tracks 34 through 45 should be cut with a track cutter between channels.

3.3 SETUP PROCEDURE

3.3.1 COMMON MODE REJECTION

Channel 1

Set front panel controls *SYSTEM OUT*

i) Feed in 0dBm @ 1kHz on Pins 25 (hot) and 27 (0v).
ii) Connect a millivolt meter to channel one output at pins 19 (hot) and 21 (0v).
iii) Switch *UNBAL/BAL* switches to *UNBAL*
iv) Link pin 26 (cold input) to pin 25 (hot input)
v) Adjust pre-set No. 1 for best common mode rejection — output to measure -70dBm or better.
vi) Increase input frequency to 10kHz and measure output to be -50dBm or better
vii) Remove pin 26 from pin 25 and take to 0v (27)

Channel 2

i) Feed in 0dBm @ 1kHz on pin 22 (hot) and pin 24 (0v)
ii) Connect a millivolt meter to channel 2 output at pins 16 (hot) and 18 (0v)
iii) Link pin 23 (cold input) to pin 22 (hot input)
iv) Adjust pre-set No. 2 for best common mode rejection — output to measure -70dBm or better.
v) Increase input frequency to 10kHz and measure output to be -50dBm or better.
vi) Remove pin 23 from pin 22 and take to 0v (pin 24)

3.3.2 TRIANGLE WAVE GENERATOR LINEARITY

i) Set front panel controls:
system *IN*
Panning Mode to *ALT* (both buttons pushed in)
select *REP*
select *INT*
Set *SPEED* control to *MIN* (fully anti clockwise)
ii) Monitor with a scope at T.P. *A*
iii) Remove link x—x (N.B This is done to increase the triangle waveform frequency at the slow speed setting so as to get a clearly defined view of the waveform at its most non-linear point).
iv) Adjust pre-set No.3 for best waveform linearity
v) Replace link to bring down waveform frequency
vi) Check frequency to be approxiamately 0.1Hz (1 cycle per 10 seconds)
vii) Increase *SPEED* pot. to *MAX* (clockwise).
viii) Check frequency to be approxiamately 14Hz (1 cycle per 70mS).

3.3 Setup procedure

3.3.3 N-R-N CHECK

i) Switch out the *RN/RNR* button (i.e. the lower of the two *Pan Mode* buttons

ii) Check waveform at T.P. *A* to be sawtooth (sloping down to right).

iii) Switch *RN/RNR* button back in

iv) Switch out *NR/NRN* button (i.e. the upper of the two *Pan Mode* buttons)

v) Check waveform to be inverse of that at ii) i.e sloping down to left

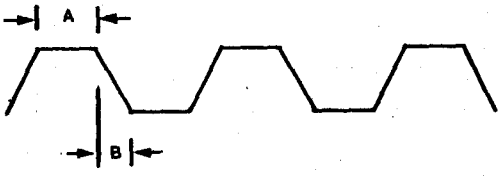
vi) Switch *NR/NRN* button back in

3.3.4 TRIGGER CHECK

i) Set front panel:
Level — MAX (fully clockwise)
Rate — MAX (fully clockwise)
REP/TRIG — To TRIG (in)
All other switches as at NRN check

ii) *TRIG* led should flash at approxiamately five times per second and *NORM/REV* led's should flash alternatively every time the *TRIG* led lights.

iii) Observe waveform at T.P.*A* to be:



A = Trigger hold-off period *Fast = 140mS* *Slow = 2.4secs*

iv) *Turning RATE* control anti clockwise will increase trigger hold-off from 140mS to 2.4 secs

v) Switch *INT/EXT* switch to *EXT* (in).

vi) Decrease *SPEED to MIN (anticlockwise)*

vii) *Push manual TRIG* button once and *NORM/REV* led's should sweep once

viii) Apply the input signal to the external trig input (pins 13 (hot) and 15 (0v)).

ix) Set front panel as at i) and check ii) iii) & iv) still apply.

3. TECHNICAL SECTION

3.3 Setup procedure

3.3.5 AUDIO FUNCTIONS

Attenuation — Channel to Channel

i) Set front panel at *SYSTEM OUT*
ii) Feed in 0dBm@1kHz on pins 25 (hot) and 27 (0v)
iii) Measure the output of channel two to be -60dBm or better
iv) Feed in 0dBm@1kHz on pins 22 (hot) and 24 (0v)
v) Measure the output at channel one to be -60dBm or better

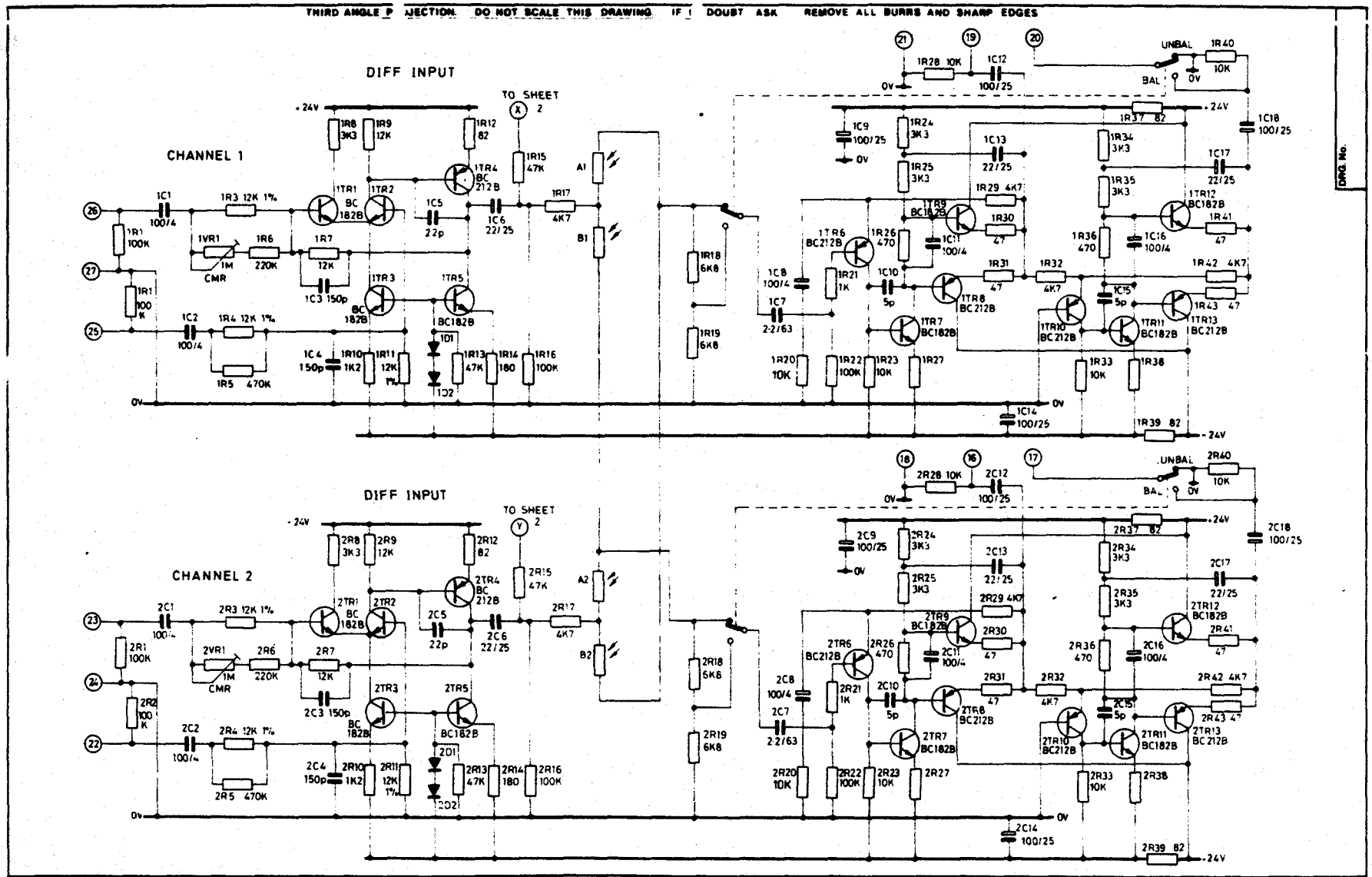
3.3.6 DISTORTION

i) Feed in + 10dBm@1kHz on channel one input
ii) Switch system out and read output of channel one to be + 10dBm
iii) Ref. to 100% to analyzer and measure distortion to be better than 0.1%
iv) Repeat the process for channel two

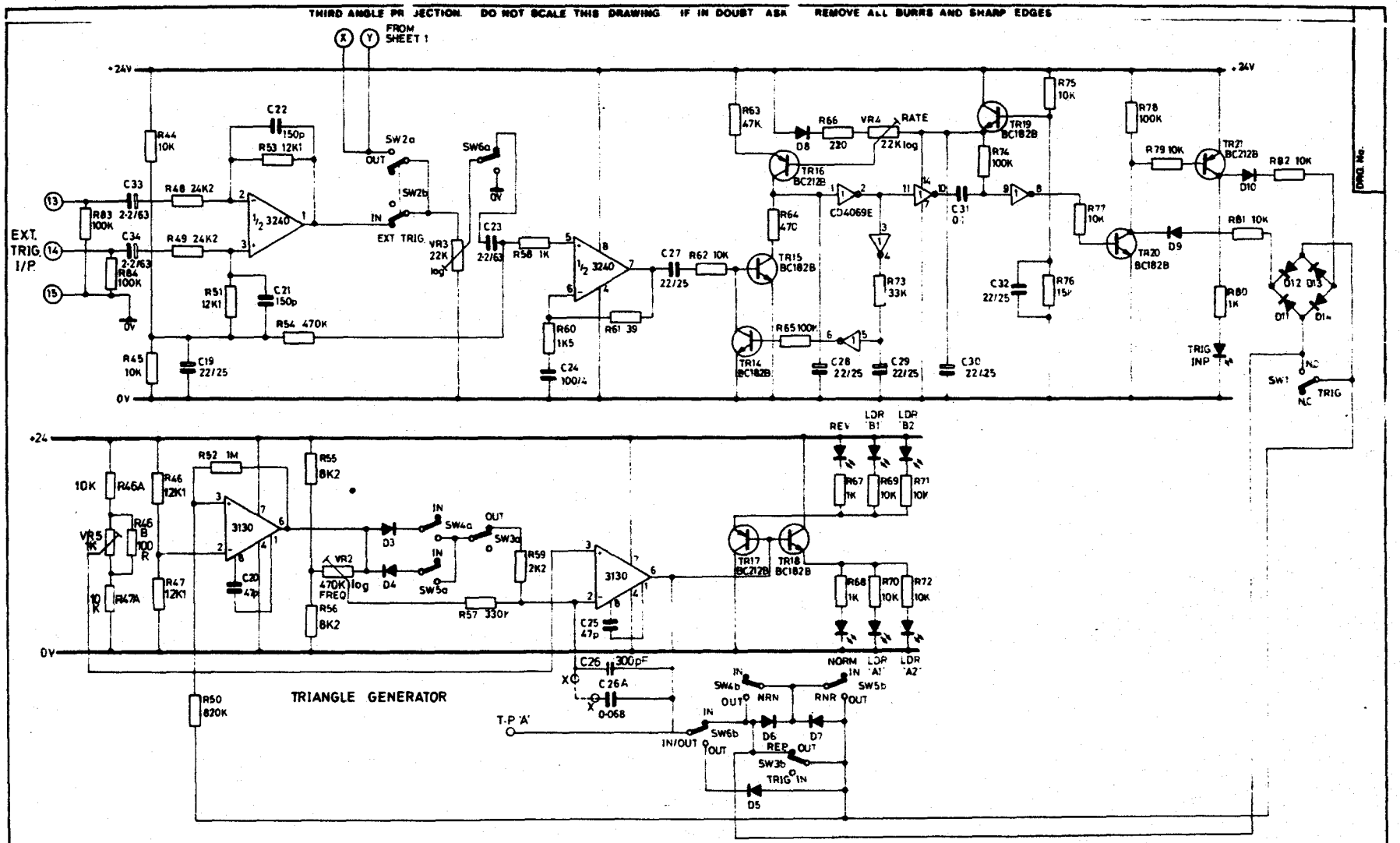
3.3.7 NOISE

i) Ref channel one and two inputs to 0v
ii) Using band limited network (-3dB@20Hz and -3dB@25kHz) measure noise at each of the outputs to be -95dB ref to 0dBm.

S2300/3CD SHT. 1



S2300/3CD SHT. 2



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