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***Instruction
Leaflet***

J.E.SUGDEN

**A48
Amplifier**

OPERATION

Control facilities are provided by means of four knobs - BASS, TREBLE, BALANCE, combined VOLUME - ON/OFF switch, and ten push buttons on the front panel.

The push buttons, which are of independent push on and push off operation offer facilities as follows:

INPUT SELECTION—this is controlled by the two extreme left hand buttons allowing three selections to be made—

DISC button in	magnetic cartridge
RADIO (DISC & AUX in)	radio (stereo or mono)
AUX in	auxiliary

The AUX facility has the same sensitivity as the RADIO input allowing the use of an additional tuner or other high level programme source.

TAPE

To play pre-recorded tape the TAPE button should be depressed. To record from programme sources, e.g. disc or radio, it is necessary to depress those input buttons normally required to select that source (as described above). The selected input is automatically connected to the tape output socket. If the output from the monitoring circuit on the tape recorder is connected to the tape input of the amplifier, A-B monitoring is possible by depressing the TAPE button.

FILTERS

The low frequency filter is selected by depressing the LF Filter button and is useful for removing rumble, traffic and wind noise from the programme material. The turnover frequency is 70Hz and the rate of attenuation 18dB per octave. The high frequency filters are useful for removing distortion, hiss and surface noise from poor programme material and are selected by depressing one or both of the HF filter buttons. The rate of attenuation or slope is 6dB per octave and can be increased to 18dB per octave by depressing the steep button. The button marked 7KHz selects the 7KHz turnover frequency, the 10KHz button the 10KHz turnover frequency and both buttons together the 4KHz turnover frequency.

QUIET

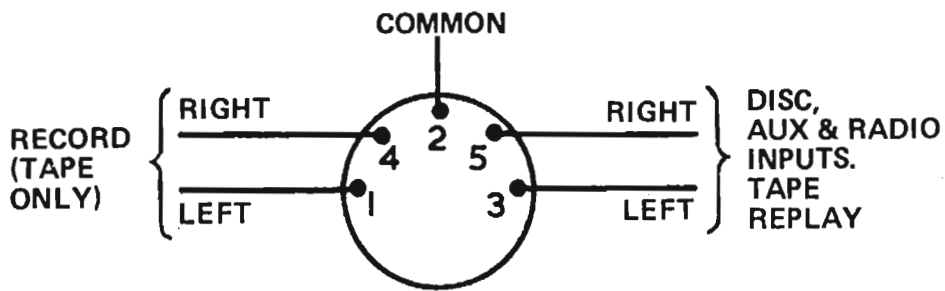
The quiet button selects the quiet listening facility. Normal level should first be set on the volume control and the quiet button depressed. The mid frequency level will then be attenuated 16dB but the lower frequencies to a less extent to cater for the equal subjective loudness effect of the ear. This facility is useful for applications such as background music.

FUNCTION

The two end right hand buttons select as follows:—

STEREO (both buttons out)	Stereo
LEFT in	left hand input to both amplifiers
RIGHT in	right hand input to both amplifiers
MONO (both buttons in)	left and right hand inputs mixed to both amplifiers.

iv Inputs



Four input sockets are provided with 5 pin DIN plugs for DISC, AUX., RADIO and TAPE, which should be wired according to DIN standards as shown, viewing from the inside of the plug, i.e. at the solder tag end.

Please note that on DISC inputs, pin 1 is connected internally in the amplifier to pin 5, and may be used as an alternative for R.H. input.

On later models pins 1 and 4 of the AUX socket are also connected via attenuators to pins 1 and 4 of the tape socket to provide a record output at DIN low level to suit the DIN record input requirements of the majority of CASSETTE RECORDERS.

Earthing of DISC input

It is important that the L.H. and R.H. screened leads from the pick-up cartridge, and the chassis lead (sometimes combined in the pick-up lead) should be connected ONLY to pin 2 of the DIN plug. Do NOT connect to the plug body, and care must be taken to insulate the screens from the plug body securing clip.

Adjustment of disc sensitivity

The sensitivity of the disc input has been carefully chosen to match most of the high quality cartridges currently available. There are a few cartridges which offer a much higher output, the use of which may necessitate a reduction of disc sensitivity — indicated by a need to operate the volume control at low settings, i.e. about 9.00 o'clock. Your dealer can do this for you. He should remove the amplifier from its cabinet, remove the control knobs and carefully remove the facia. The front panel securing screws in each corner are then removed when the front panel can be pulled forward to reveal the disc amplifier circuit board upon which will be seen two pairs of pins linked by a thin wire. If these wires are removed the resultant sensitivity will be 10mV instead of 2.5 or if they are replaced by 4.7K ohm resistors the sensitivity will be approximately 5mV. The overload capacity increases in the same proportion. On later models it is unnecessary to remove the front panel. Access to the links can be made through the two holes in the side plate.

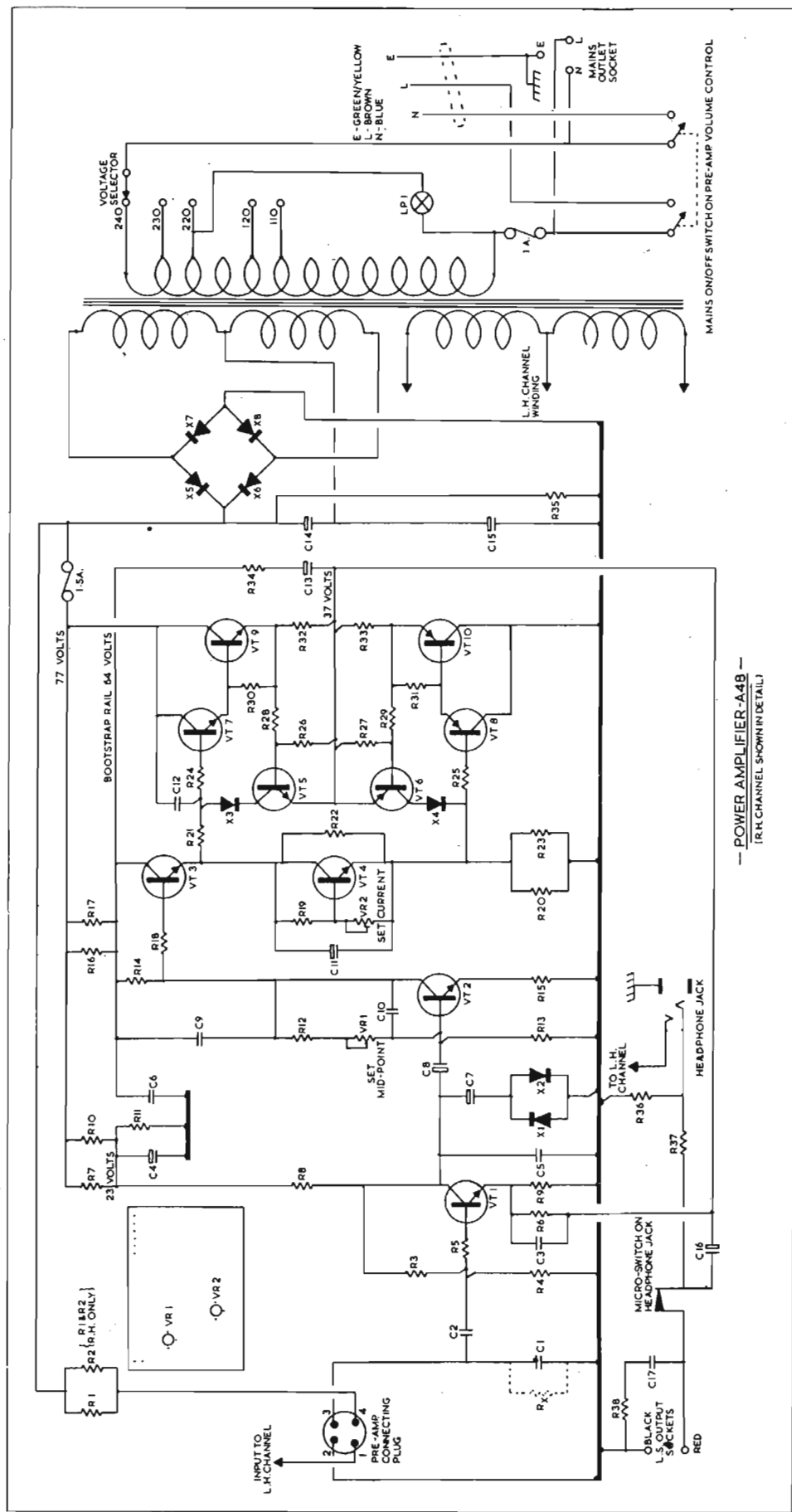
SPECIFICATION

(all levels quoted ± 1 dB)

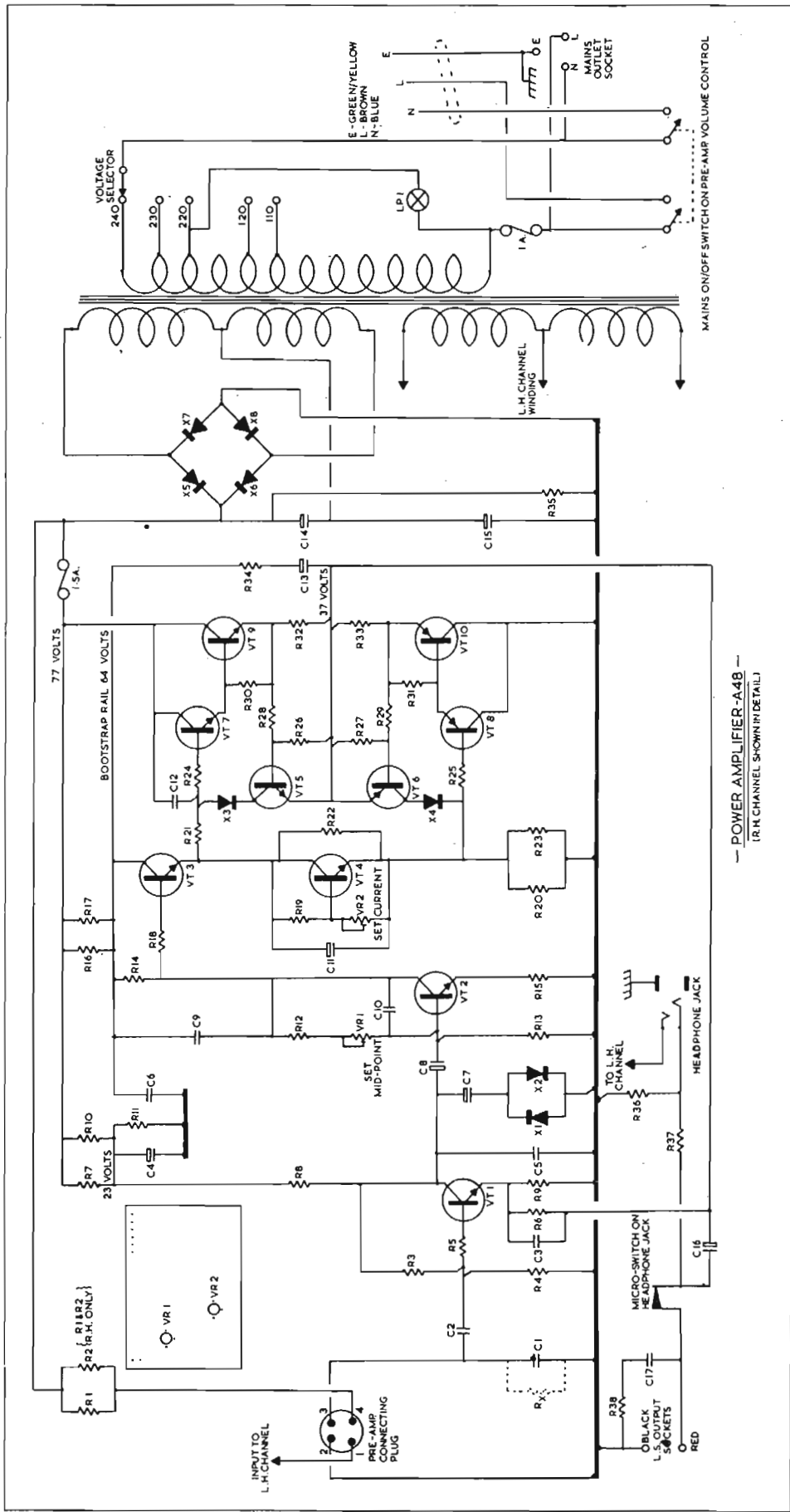
Power output:		40 watts RMS per channel both channels driven at clipping level into 8 ohm loads.
Total harmonic distortion		less than 0.1%, mainly 2nd & 3rd harmonic, negligible proportion of high order harmonics and reducing in proportion with reducing power.
Frequency and power response		± 1 dB 30Hz to 20KHz.
Output to tape recorder		direct connection from radio and aux. inputs, 200mV from disc amplifier when correctly loaded at average modulation.
Input sensitivity:	Radio	100mV into 200 Kohm flat response
(25W level 8 ohms)	Tape	" " " " "
	Auxiliary	" " " " "
	Magnetic Cartridge	2.5mV into 47K, equalized to R.I.A.A.
Overload capabilities		100mV on magnetic disc input; infinite on radio, aux. and tape inputs.
Signal to noise ratio		80dB on radio, aux, and tape inputs.
(30 phon weighting)		70dB on disc inputs.
Interchannel crosstalk		typically 40dB 20Hz - 10KHz, dependant upon input load impedance.
Rumble filter		Built in on disc input, 12dB per octave below 30Hz.
Control knobs:	Bass	± 14 dB at 40Hz.
	Treble	± 14 dB at 10KHz
	Volume	Logarithmic (Channel Balance ± 1 dB maintained to 40dB attenuation)
	Balance	± 6 dB for 180° rotation, either channel eliminated at limits of rotation.
Push buttons to select:	Inputs	DISC, RADIO, AUXILIARY, TAPE.
	L.F. filter	18dB per octave below 70Hz.
	H.F. filter	turnover 4, 7 or 10KHz, slope 6 or 18dB/octave.
	Function	Mono, Stereo, Input Right, Input Left.
General: Power consumption		140 watts maximum.
	Size	15½" x 5" x 9" (400 x 130 x 230mm)
	Weight	24 lbs (11 Kg)

The right is reserved to change the specification or design without notice.

J. E. Sugden & Co. Ltd., Carr Street, Cleckheaton, Yorkshire.



— POWER AMPLIFIER-A4B —
 (R.H. CHANNEL SHOWN IN DETAIL)



— POWER AMPLIFIER-A48 —
[L.H. CHANNEL SHOWN IN DETAIL]

A48

Component List Pre-Amplifier Section

R 1	2K7	R41	2K2	C16	470p
R 2	330K	R42	10K	C17	.022
R 3	56K	R43	1M	C18	.1
R 4	2K2	R44	18K	C19	2200
R 5	100K	R45	18K	C20	1500
R 6	8K2	R46	1K5	C21	4700
R 7	22K	R47	6K8	C22	3300
R 8	2K2	R48	47K	C23	1500
R 9	2M2	R49	470K	C24	2200
R10	470K	R50	68K	C25	.01
R11	1M	R51	1K	C26	6800
R12	75K	R52	4K7	C27	.01
R13	10K	R53	1K2	C28	.01
R14	39K	R54	4K7	C29	2.5
R15	15K	R55	220	C30	.1
R16	4K7	R56	33K	C31	.022
R17	4K7	R57	470K	C32	.022
R18	8M2			C33	.22
R19	680	VR1	250K Log	C34	2.5
R20	8M2	VR2	50K	C35	1000p
R21	100K	VR2T	220K	C36	2.5
R22	1M	VR3	250K	C37	470
R23	220K	VR3T	1M	C38	470
R24	220K	VR4	50K	C39	470
R25	1K2			C40	.01
R26	1K	C 1	100	C41	.01
R27	4K7	C 2	.22	C42	470p
R28	10K	C 3	470p	VT1	BC109S
R29	10K	C 4	100	VT2	BC109S
R30	1M	C 5	3600	VT3	BC109S
R31	1K2	C 6	.1	VT4	BC109S
R32	8M2	C 7	47p	VT5	BC109S
R33	8M2	C 8	10	VT6	BC109S
R34	8M2	C 9	1000p	X1	BZY88-C27
R35	8M2	C10	470p		
R36	8M2	C11	100		
R37	8M2	C12	.22		
R38	4K7	C13	.01		
R39	1K	C14	.1		
R40	3K9	C15	.01		

Power Amplifier Section

R 1	5K6	VR1	220K	VT 1	BC109C
R 2	5K6	VR2	4K7	VT 2	ZTX341
R 3	2M2			VT 3	BD519
R 4	470K	C 1	270p	VT 4	BC548
R 5	6K8	C 2	0.1	VT 5	BC548
R 6	1K5	C 3	2200p	VT 6	BC558
R 7	8K2	C 4	470	VT 7	BD519
R 8	4K7	C 5	1000p	VT 8	BD520
R 9	47	C 6	0.1	VT 9	2N3055 Motorola
R10	8K2	C 7	100	VT10	MJ2955
R11	2K2	C 8	100		
R12	220K	C 9	470p		
R13	10K	C10	270p		
R14	10K	C11	470p		
R15	100	C12	47p		
R16	1K2	C13	470		
R17	1K2	C14	2500		
R18	1K2	C15	2500		
R19	4K7	C16	2500		
R20	3K9	C17	0.1		
R21	1K8	X 1	BAX13		
R22	390	X 2	BAX13		
R23	3K9	X 3	BAX13		
R24	10	X 4	BAX13		
R25	10	X 5	SKE1/02		
R26	1K5	X 6	SKE1/02		
R27	1K5	X 7	SKE1/02		
R28	2K7	X 8	SKE1/02		
R29	2K7				
R30	100				
R31	100				
R32	0.33				
R33	0.33				
R34	10				
R35	10K				
R36	390				
R37	390				
R38	1.0				
Rx*	27K-220K				

* For channel balance (one channel only) Adjust on test.