

DYNATRON SERVICE INSTRUCTIONS

**DYNATRON
“CAVALCADE”
HIGH-FIDELITY RECORD REPRODUCER
MODELS
GR1SA, GR2SA, GR1ST, GR2ST.**

*Issued by—Service Department,
Dynatron Radio Limited,
Maidenhead, Berks.*

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DYNATRON "CAVALCADE" High Fidelity Record Reproducer. Models GR1SA, GR2SA, GR1ST, GR2ST.

General Description

The Cavalcade is a high fidelity record reproducer available either as a monophonic model adaptable to stereo reproduction, or as a stereo model requiring only a matched stereo extension speaker unit (TLS1). Legs can be supplied as an optional extra for fitting to both cabinets.

The various models are summarized below :—

GR1SA

Monophonic reproduction. Adaptable for twin channel reproduction. Fitted with a twin channel pre-amplifier TC14, power amplifier LF13A, a GC2 pick-up head and single record player.

The following facilities are provided : volume, bass and treble controls, RADIO/TAPE to GRAM switch, ON/OFF switch, RADIO/TAPE input socket, and extension speaker sockets (15 ohms impedance). A 10" x 6" elliptical unit and a 5" treble unit are also incorporated. An external/internal switch isolates these speakers when an external speaker is used.

On models with serial numbers above 4999, the suffix 'A' has been added to tone control unit TC14 to denote certain circuit modifications. A "Sonotone" pick-up head is fitted for '78' and LP mono/stereo record reproduction.

GR2SA

As above but fitted with an auto-changer.

Note :

Dynatron Radio Ltd. supply stereo conversion kits for the above models. Stereo conversion instructions are included in this manual.

GR1ST

Designed for monophonic and stereophonic reproduction and incorporates the same basic features as the "SA" model but with the following additions :

- (1) An LF14 power amplifier for second channel reproduction.
- (2) A Balance control and Selector switch mounted on the motor board.
The Selector switch has MAINS OFF, RADIO/TAPE, MONAURAL, STEREO and STEREO reverse positions. The stereo reverse position is used to restore the correct placing of channels when it is necessary to have the stereo extension speaker on the right of the main unit.
- (3) Sockets for the stereo extension speaker (15 ohms impedance).

On models with serial numbers above 4999, the suffix 'A' has been added to the TC14 and LF14 units, to denote certain circuit modifications. A "Sonotone" pick-up head is fitted for '78' and LP mono/stereo record reproduction.

GR2ST

As above but fitted with an auto-changer.

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General Technical Summary :

Frequency Response : 30-15000 c/s.
Power Output : 8 watts maximum. Per channel.
Bass Control : Continuously variable +10 DB to -10DB at 50 c/s. Referred to 1 Kc/s level.
Valves : V5A & B. 1 ECC83. A.F. Amplifier. TC14
TC14A
V2, V6. 1 ECC83. Phase Invertor. LF13A)
V3, V4, 2 EL84. Output stage. LF14 &)
V7, V8. LF14A)
Rectifiers : Contact cooled bridge type.
LF13A) MR1 LF14) MR2
) LF14A)
Loudspeakers : 10" x 6" elliptical.
5" treble.
Power Supply : 200-250 volts A.C. 50 c/s.
Fuses : 2 x 1.5A Mains
Lamps : 2 x 6.5V .3A.
Dimensions : Height 12 $\frac{1}{2}$ "
Width 19 $\frac{1}{2}$ "
Depth 15 $\frac{3}{4}$ "
Weight : SA 34lb. approximately.
ST 43lb. approximately.
Finish : Mahogany or medium walnut high quality veneer.

Extension Speaker Unit TLS1.

Speakers : 10" x 6" Elliptical and 5" treble unit.
Dimensions : Height 12 $\frac{1}{4}$ "
Width 19 $\frac{1}{4}$ "
Depth 13"
Weight : 16 $\frac{1}{2}$ approximately.

Brief Circuit Description

'SA' Models

The inputs from the RADIO/TAPE and pick-up sockets are fed to the change-over switch. The selected output from the switch is fed to one half of V5 in the pre-amplifier unit TC14. The other half of the pre-amplifier is only used when the model has been converted for stereo reproduction. The output lead is cleated to the cabinet.

The output from V5A is fed to the bass and treble tone control circuits, which function as frequency selective potentiometers whose output is impressed upon the grid of V2 (LF13A), a self balancing phase invertor stage. The output from V2 is RC coupled to a pair of EL84's connected for push-pull operation, heavily biased and low loaded for maximum efficiency. As a result, the true power output developed under sine drive conditions, can only be measured by reducing both cathode resistors to a value of 270 ohms.

Negative feedback is applied from the secondary of the output transformer and injected to the cathode of V2. The H.T. is rectified by means of a bridge metal rectifier, the heater supply is balanced to earth.

The internal loudspeakers can be switched out, and the external speaker switched in, by means of the INT/EXT switch at the rear of the cabinet.

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'ST' Models

The circuit of the pre-amplifier functions in the same manner as for the 'SA' models, except that both channels are utilized. The SELECTOR switch couples the LF13A and LF14/A in parallel when set to MONAURAL or RADIO/TAPE positions.

The circuit of the second channel amplifier LF14 is similar to the LF13A, except that it incorporates a BALANCE control which attenuates the input signal to the amplifier, which has been designed to be initially more sensitive than the LF13A.

Installation

1. Remove base cover. This is carried out by removing four screws, one in each corner of the cover.
2. Check mains voltage and set the two mains adjustment panels to suit the supply.
3. Check that valves are firmly positioned in their correct sockets.
4. Replace base cover.
5. Raise the lid of the instrument and remove packing material from record changer and release pick-up arm retaining clip.
6. Remove the two transit screws temporarily securing the sprung motor plate. The changer should then 'float' freely on its springs.
7. A suitable plug must be fitted to the free end of the mains lead for connecting to your mains supply. A three-core cable is supplied, the red wire must be connected to the 'Line,' the black wire to the 'Neutral' and the green to 'Earth'. If a two-pin plug is used the green wire should be cut short so that it cannot enter the plug, but this method of operation is not recommended from a safety point of view.
8. Stereo Version Only (GR1/2ST). In addition to the preceding instructions, connect your stereo loudspeaker to the 'Cavalcade' Reproducer. Special sockets are provided at the rear of the instrument for this purpose. Place the two units some six to eight feet apart according to the size of the room.

Important. Never operate the 'Cavalcade' without the stereo extension loudspeaker. This may result in premature valve failure.

Note: It is important when the instrument has to be transported that the two transit screws be replaced and screwed down to the motor board. The pick-up arm retaining clip should also be clipped in place.

GRAMOPHONE OPERATION

'Cavalcade' with Auto-Changer.

1. Turn pick-up stylus setting lever to the correct position for the type of records to be played. 78 r.p.m. position for standard records or to the 16 $\frac{2}{3}$ -33 $\frac{1}{3}$ -45 r.p.m. for long-playing records.
2. Set the speed change knob to the required speed 78, 45, 33 $\frac{1}{3}$ or 16 $\frac{2}{3}$ r.p.m.
3. The record changer will play automatically up to ten records of 7", 10" or 12" diameter at 16 $\frac{2}{3}$, 33 $\frac{1}{3}$, 45 or 78 r.p.m. All sizes of records mentioned may if they are of similar speed be played at the same loading providing the smallest records are placed on the top of the larger ones.
Place the records on the record spindle and, whilst still holding them, move the overarm inwards until it drops on the top record. A special centre clip adaptor is available for fitting to large hole 45 r.p.m. records. This enables them to be loaded on the auto-changer. Alternatively, a large spindle is obtainable at slight extra cost; this should be fitted over the standard spindle for single playing.

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4. To switch the instrument on, the Auto Knob should be turned to the 'ON' position. Then close the lid carefully and the changer will stop automatically when the records have finished playing.
5. Adjust the volume, bass and treble controls to suit requirements. Care should be taken when using the 'BASS' control in the increased position, particularly at high volume levels, as full increase can overload the amplifier and result in distortion. The treble control is very useful for the reduction of scratch from old or worn recordings. Records which have a high scratch background noise.
6. To reject a record while the instrument is playing, move the Auto Knob to the 'ON' position. The record will then be rejected and replaced by the next one on the spindle.
7. The instrument can be stopped at any time by just pressing the right-hand knob to the 'Stop' position. If this is done while a record is playing it will automatically reject, and when the instrument is started again it will play the next record in the stack.
8. When the auto-changer stops after playing all the records, lift the overarm to the right, clear of the records, then lift the records from the spindle.

Note: Should the record-changer be stopped with the pick-up arm not on its rest while the unit is set at auto, do not handle. Move the Auto Knob to the 'ON' position and the pick-up arm will automatically return to its rest position. The pick-up arm will not move from its rest unless one or more records are on its spindle. This is a safety device designed to prevent the pick-up being damaged should the changer be switched on when being loaded with records.

Manual Operation

The auto-changer can be used as a single player.

Place a record on the turn-table, gently guiding it through the contours of the spindle. Move the lower Manual Knob to 'ON,' wait until the pick-up has lifted and returned to its rest, then place the pick-up by hand on to its rest.

'Cavalcade' with Single Record Player

If your choice of 'Cavalcade' is fitted with a single record player the instrument should be operated in the following manner:

1. Turn speed change knob to required speed, i.e. 78, 45, 33, 16 r.p.m., and ensure that the stylus setting lever is in the correct position for the type of record to be played: 78 r.p.m. position for standard records or 33-45 r.p.m. for 16 $\frac{3}{4}$, 33 $\frac{1}{4}$ and 45 r.p.m. long playing records.
2. Place record on turn-table, carefully lift and move pick-up arm to the right (this will start the motor); you can then lower the pick-up gently on to the record.
3. When the record has finished playing the motor will automatically stop. Gently lift the pick-up arm from the record and replace it on the rest, then remove the record.
4. To switch the motor off before a record has finished playing, lift pick-up and move towards centre of record.

Note: The pick-up arm should be pressed firmly on to its rest when the instrument is not in use.

Stereo Reproduction of Gramophone Records.

Operation of the record changer is as described previously but the following instructions should be carefully adhered to.

1. Change pick-up head to Stereo version.

Note: Some GR1ST and GR2ST models are fitted with a turnover cartridge which can be used for playing 78 r.p.m. or LP and stereo records. For stereo operation on these models, select the LP/STEREO stylus by rotating the protruding key on the pick-up.

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2. Switch to 'Stereo' if the extension loudspeaker is to the left of the instrument, and to 'Stereo Reverse' if the positions of the two units are reversed. The arrows on the Selector Switch plate indicate the position of the 'Cavalcade'.
3. To obtain the best results from your stereo records, it is essential to balance the two channels correctly. This is done by means of the Balance Control which is located inside the model on the left of the record playing mechanism. To set this control, switch to 'Monaural' and adjust until the sound appears to be coming from midway between the two units.
4. Switch back to 'Stereo'.
5. Check that your loudspeakers are correctly connected. Reverse the loudspeaker plugs on your extension loudspeaker for the best results. A loss of low notes will indicate incorrect connections.

SPECIFICATION

Stereo and Stereo Adaptable Models, GR1ST, GR2ST, GR1SA, GR2SA

For models up to serial numbers 4999 refer to circuit diagrams Figs 1 and 2.

For models bearing serial numbers above 5000 refer to circuit diagrams Figs 3 and 4.

Test equipment required :

Audio Oscillator.

Output Meter (with changeover switch and additional 15 ohm and 20 ohm non-inductive loads).

Avometer Model 7.

Oscilloscope.

Insulation Tester.

Static Voltages — For models bearing serial numbers up to 4999.

Using Avo Model 7.

Valve	Pin	Anode	Screen	Cathode
V2, V6A	Pin 1	108V	— Pin 3	0.93V
V2, V6B	Pin 6	108V	— Pin 8	0.93V
V3, V4, V7, V8	Pin 7	275V	Pin 9 252V	Pin 3 9.50V
V5 A	Pin 1	112V	— Pin 3	1.0V
V5B	Pin 6	112V	— Pin 8	1.0V

Static Voltages — For models bearing serial number above 4999.

V2A	Pin 1	108V	— Pin 3	0.9V
V2B	Pin 6	108V	— Pin 8	0.9V
V3, 4, 7 and 8	Pin 7	275V	Pin 9 252V	Pin 3 9.5V
V5A	Pin 1	110V	— Pin 3	1.0V
V5B	Pin 6	110V	— Pin 8	1.0V
V6A	Pin 1	95V	Pin 3	0V
V6B	Pin 6	95V	Pin 8	0V

Sensitivity

- (1) Set Volume control at maximum.
- (2) On 'ST' models set Selector switch to RADIO, on 'SA' models set RADIO/TAPE to GRAM switch to RADIO/TAPE position.
- (3) Set Bass, Treble and Balance Controls to their mid positions.
- (4) Disconnect speakers and insert a 15 ohm N.I.L. across secondary of output transformer. Connect output meter across load.

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- (5) Inject a frequency of 1 K c/s at the RADIO/TAPE input socket. Adjust the input to give 1 watt output.
- (6) Take further readings with signal injected at the pick-up sockets, Selector switch set to MONAURAL and STEREO on 'ST' models; RADIO/TAPE to gram switch on 'SA' models, set to GRAM.
- (7) Check both channels on stereo models.
- (8) Reading should be as follows :

Up to serial numbers 4999.	Above serial numbers 4999.
Radio : 0.22V	0.13V
Monaural : 0.7V (limit ± 3 DB)	0.38V
Stereo : 0.22V	0.13V

Limits ± 2 DB except where shown.

Bass Control—For models bearing serial numbers up to 4999.

- (1) Set Volume and Bass controls to their maximum positions.
- (2) Set Treble and Balance controls to their maximum positions.
- (3) Inject a 500 c/s signal at the RADIO/TAPE socket. On 'SA' models, switch RADIO/TAPE to GRAM switch to RADIO/TAPE. On 'ST' models, turn SELECTOR switch to RADIO.
- (4) Disconnect speakers. Insert output meter across the secondary of the output transformer.
- (5) Adjust the audio signal input to give an output of two watts.
- (6) Turn Bass Control to mid position, the output should fall by $9\text{DB} \pm 3$ DB.
- (7) Turn Bass control to minimum, the output should fall a further $6\text{DB} \pm 3$ DB.
- (8) Check both channels on 'ST' models.

Bass Control — For models bearing serial numbers above 4999.

Carry out operations 1 to 5 inclusive as above, then

- (6) Turn Bass control to mid position; the output should fall by $13.0\text{DB} \pm 3$ DB.
- (7) Turn Bass control to minimum; the output should fall by a further $11\text{DB} \pm 3$ DB.
- (8) Check both channels on stereo models.

Treble Control — For models bearing serial numbers up to 4999.

- (1) Turn Volume and Bass Controls to their maximum positions.
- (2) Set Treble and Balance controls to their mid positions.
- (3) Disconnect the speakers, and connect an output meter across the output transformer secondary windings.
- (4) Inject a 10 Kc/s signal at the RADIO/TAPE input socket. On 'ST' models turn Selector switch to RADIO. On 'SA' models set RADIO/TAPE to GRAM switch to RADIO/TAPE position.
- (5) Adjust the signal input to give an output of 2 watts.
- (6) Turn Treble control to mid position, the output should fall by $13.5\text{DB} \pm 3$ DB.
- (7) Turn Treble control to minimum; the output should fall by a further $16.5\text{DB} \pm 3$ DB.
- (8) Check both channels on stereo models.

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Treble control — For models bearing serial numbers above 4999.

Operations 1, 2, 3 and 5 as above.

- (4) Inject a 10 Kc/s signal at the pick-up sockets. On 'ST' models turn Selector switch to monaural. On 'SA' models set RADIO/TAPE to gram switch to GRAM.
- (6) Turn Treble control to mid position; the output should fall by 7.0 DB \pm 3 DB.
- (7) Turn Treble control to minimum; the output should fall by a further 22 DB \pm 3 DB.
- (8) Check both channels on stereo models.

FREQUENCY RESPONSE

- (1) Set Volume control to maximum.
- (2) Set Bass, Treble and Balance controls to their mid positions.
- (3) Turn Selector Switch to MONAURAL on 'ST' models. Set RADIO/TAPE to GRAM switch to GRAM on 'SA' models.
- (4) Disconnect speaker and insert a 15 ohm N.I.L. across output transformer secondary, connect output meter across load.
- (5) Apply a 1 Kc/s audio signal to pick-up sockets, and adjust input to give 0.5 watts output.
- (6) Response figures should be :

	Up to serial numbers 4999		
50 c/s	+ 3.0 DB) Limits \pm 3 DB	
1 Kc/s	0 DB (Reference level)		
10 Kc/s	- 3.0 DB		
	Above serial numbers 4999		
50 c/s	- 3.0 DB) Limits \pm 2 DB	
1 Kc/s	0 DB (Reference level)		
10 Kc/s	0 DB		

- (7) Check both channels on stereo models.

CROSS-TALK — Stereo models only. Applicable to all serial numbers.

- (1) Turn Selector switch to STEREO.
- (2) Set Volume control to maximum.
- (3) Set Treble, Bass and Balance controls to their mid positions.
- (4) Disconnect the speakers and insert a 15 ohm N.I.L. across the appropriate output transformer secondary. Connect power meter across load.
- (5) Inject audio signals at frequencies of 350 c/s, 1K c/s and 10K c/s into Channel 'A' (LF13A). Adjust input to give 1 watt output. Measure output from Channel 'B' (LF14A). Readings should not be worse than -30DB between channels.
- (6) Inject audio signals at frequencies of 350 c/s, 1K c/s and 10 Kc/s into Channel 'B' pick-up sockets. Adjust input for 1 watt output. Measure output from Channel 'A'. Readings should not be worse than -30 DB between channels.

Balance Control. Stereo models only.

- (1) Turn selector switch to RADIO. Volume control to maximum.
- (2) Disconnect stereo speaker and insert output meter across LF14A output sockets.
- (3) Inject an audio signal of 1Kc/s at the RADIO/TAPE socket. Turn Balance control fully clockwise and inject input for 2 watts output.

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- (4) Turn Balance Control to minimum; the output should drop by :—
18DB \pm 1 DB on models up to serial number 4999.
14DB \pm 1 DB on models above serial number 4999.

Hum and Noise — All Serial Numbers.

- (1) Set Volume control to maximum.
- (2) Set Bass, Treble and Balance controls to their mid positions.
- (3) Disconnect speakers, insert output meter across output transformer secondary.
- (4) Reading on meter should be better than -60DB below 8 watts on both channels.

Power Output — Models bearing serial numbers below 4999.

- (1) Set Volume Control at maximum.
- (2) Set Bass, Treble and Balance controls to their mid positions.
- (3) Disconnect speakers and insert a 20 ohm N.I.L. across output transformer secondary. Connect O/P meter across the load. The valves of the cathode resistors should be reduced to 270 ohms for this test.
- (4) Inject an audio signal of 1Kc/s into either the RADIO/TAPE or pick-up socket. A reading of 3 watts should be obtained for an apparently pure sine wave viewed on an oscilloscope. Check both channels on stereo models.

For serial numbers above 4999.

Carry out operations as above. A reading of 4 watts should be obtained under conditions as mentioned in paragraph 4.

SERVICING

The figures given in the test specification should be used as a guide to the correct functioning of the "Cavalcade". A layout diagram of the units and their associated connections can be found on the base cover of the cabinet. When changing components, always ensure that the correct replacement type is used.

REMOVAL OF MOTOR BOARD FROM CABINET 'SA' MODELS

- (1) Remove the screws securing the moulded plywood panel at the rear of the tone control unit.
- (2) Remove the cabinet base cover to gain access to mains connector block and RADIO/TAPE to GRAM switch.
- (3) Remove the gramophone motor mains leads from the connector block. Remove the leads from the plugs on the RADIO/TAPE to GRAM switch.
- (4) Ensure that the pick-up arm is clipped to its rest. Remove the screws securing the motor board to cabinet.
- (5) Remove the unit from the cabinet carefully, easing forward and lifting at the same time. Care must be taken not to damage the grille and control unit components when carrying out this operation.

'ST' MODELS

- (1) As for 'SA' models.
- (2) Remove the cabinet base plate to gain access to main connector block and power amplifier, LF14.
- (3) Remove the gramophone motor mains leads from the connector block. Unplug pick-up leads from the socket located on power amplifier LF14.

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- (4) Ensure that the pick-up arm is clipped to its rest. Remove the screws securing motor board to cabinet. Remove 'Balance' and 'Selector' control knobs.
- (5) As for 'SA' models.
To replace the motor board, the above procedure should be reversed.

REMOVAL OF TONE CONTROL UNIT TC14

- (1) Remove the screws securing the moulded plywood panel at the rear of the tone control unit.
- (2) Disconnect all inter-unit connections associated with the TC14.
- (3) Unscrew the four screws securing unit to cabinet.
- (4) Remove unit from cabinet.
To replace the TC14, the above procedure should be reversed. Ensure that the colour coding of the input leads corresponds with that of the sockets.

REMOVAL OF AMPLIFIERS

- (1) Remove base cover from cabinet.
- (2) Unplug all inter-unit cables connected to amplifier.
- (3) Disconnect the amplifier mains leads from connector block.
- (4) Unscrew the four screws securing the amplifier to cabinet. When removing the LF14 amplifier, it will be necessary to remove the motor board. Remove amplifier from cabinet.
To replace amplifiers, the above procedure should be reversed.

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PARTS LIST

TC14 RESISTORS

Cat. No.	Value	
R40)		
R41)	2.2K	
R42)		
R43)	100K	
R44)		
R45)	68K	All resistors are ½ watt rating 10% tolerance.
R46)		
R47)	47K	
R48)		
R49)	39K	
R50)		
R51)	15K	

RESISTORS VARIABLE

Cat. No.	Value	
RV4 A/B	1M	Log.
RV6 A/B	250K	Log.

CAPACITORS

Cat. No.	Value	D.V. Volts Wkg.	Tolerance
C41)			
C42)	.05	350V.	20%
C43)	560pf	125V.	5%
C44)	8200pf	125V.	5%
C45)	560pf	125V.	5%
C46)	8200pf	125V.	5%
C47)	.005	350V.	10%
C48)	.05	350V.	10%
C49)	.005	350V.	10%
C50)	50	12V.	10%

VALVES

Cat. No.	Type
V5A & B	ECC83

LAMPS

Cat. No.	Type
LP1)	
LP2)	6.5V. .3A

TC14A

RESISTORS

Cat. No.	Value	
R40)		
R41)	3.3K	
R42)		
R43)	220K	
R44)		
R45)	100K	All resistors are ½ watt rating 10% tolerance.
R46)		
R47)	220K	
R48)		
R49)	100K	
R50)		
R51)	10K	
R77)	150K	

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RESISTORS VARIABLE

Cat. No.	Value	
RV4 A/B)		
RV6 A/B)	1M	Log.

CAPACITORS

Cat. No.	Value	D.C. Volts Wkg.	Tolerance
C41)			
C42)	.05	350V.	20%
43	560pf	125V.	5%
44	.005	125V.	5%
45	2200pf	125V.	5%
46	.005	125V.	5%
47	2200pf	125V.	5%
48	.01	125V.	5%
49	2200pf	125V.	5%
50	.01	125V.	5%

VALVES AND LAMPS

As for TC14.

LF13A

RESISTORS

Cat. No.	Value	
R4	10K	
R9	2.2K	
R10)		
R11)	220K	
R12)		
R13)	1M	
R14)		
R15)	680K	
R16)		
R17)	10K	
R18	3.3K	
R19)		
R20)	390	1 watt.
R21	56K	
R22)		
R23)	6.8K	
R24	100	
R25	2.2K	
R26	1M	
R28)		
R29)	47	
R31	1M	

All resistors are of
½ watt rating 10% tolerance
except where stated.

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CAPACITORS

Cat. No.	Value	D.C. Volts	Tolerance
C7	2	350V.	20%
C8)			
C9)	50 + 50	450V.	20%
C10)			
C11)	.05	350V.	20%
C12)			
C13)	50	12V.	10%
C14)			
C15)	.001	1500V.	20%
C18	.05	250V.	20%

VALVES

Cat. No.	Type
V2	ECC83
V3	EL84
V4	EL84

RECTIFIER

MR1 Bridge Metal Rectifier.

MISCELLANEOUS

T1 Mains Transformer.
 T2 Output Transformer.
 SW2 Switch Slider 1m 1b.

LF14A

RESISTORS

Cat. No.	Value	
R52)		
R53)	470K	
R54	22K	
R55	100K	
R56	220K	
R57	2.2K	
R58	220K	
R60	10M	
R61	3.3K	All resistors $\frac{1}{2}$ watt rating 10% tolerance except where stated.
R62)		
R63)	1M	
R64	56K	
R65	10K	
R66)		
R67)	680K	
R68	10K	
R69)		
R70)	390	1 w.
R71	6.8K	
R72	100	
R73	6.8K	
R74)		
R75)	47	
R76	10M	

On models bearing serial numbers above 500 the values of the following resistors have been altered
 R64 has been changed to 8.2K $\frac{1}{2}$ watt 10%
 R57 has been changed to 2.2K $\frac{1}{2}$ watt 10%
 R54 has been changed to 33K $\frac{1}{2}$ watt 10%

DYNATRON SERVICE INSTRUCTIONS

Dynatron "Cavalcade" Models GR1SA, GR2SA, GR1ST, GR2ST.

Page 14

RESISTORS VARIABLE

Cat. No.	Value	
RV7	200K	Linear.

CAPACITORS

Cat. No.	Value	D.C. Volts Wkg.	Tolerance
C51	220pf	125V.	10%
C55	50 + 50	450V.	20%
C56	.05	350V.	20%
C57	.05	250V.	20%
C58	.05	350V.	20%
C59	50 + 50	450V.	20%
C60)			
C61)	50	12V.	10%
C62)			
C63)	.001	1500V.	20%
C64	.01	125V.	5%

VALVES

V6	ECC83
V7	EL84
V8	EL84

RECTIFIER

MR1 Bridge Metal Rectifier.

MISCELLANEOUS

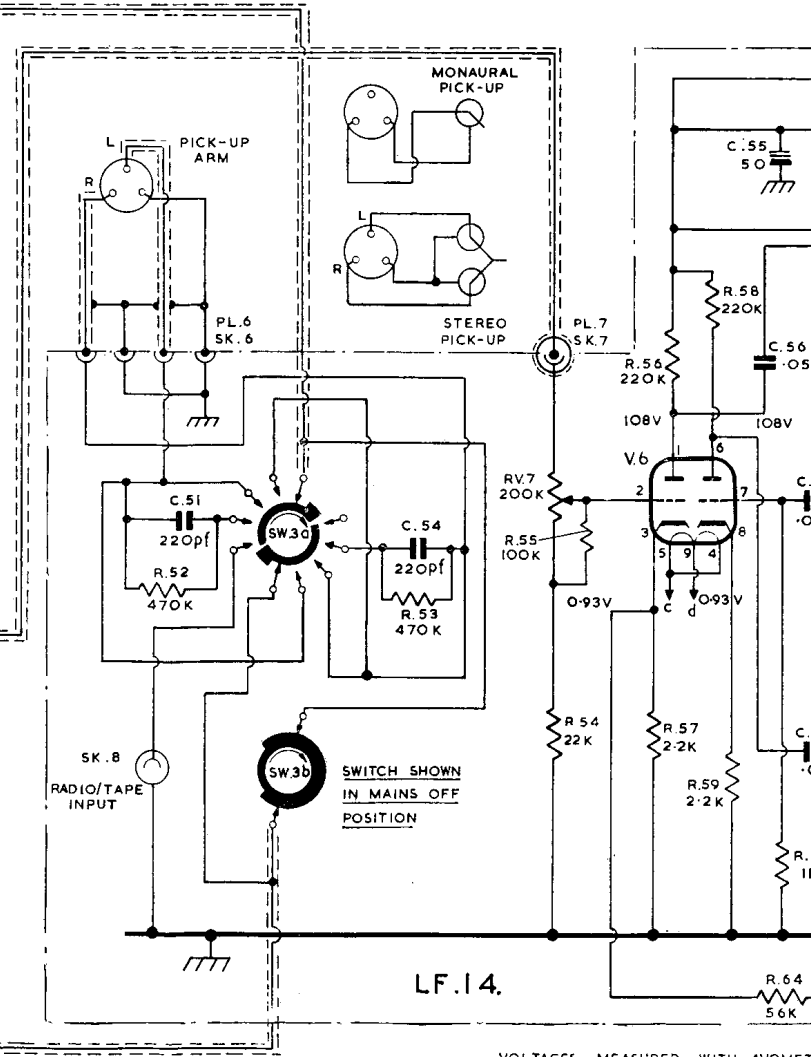
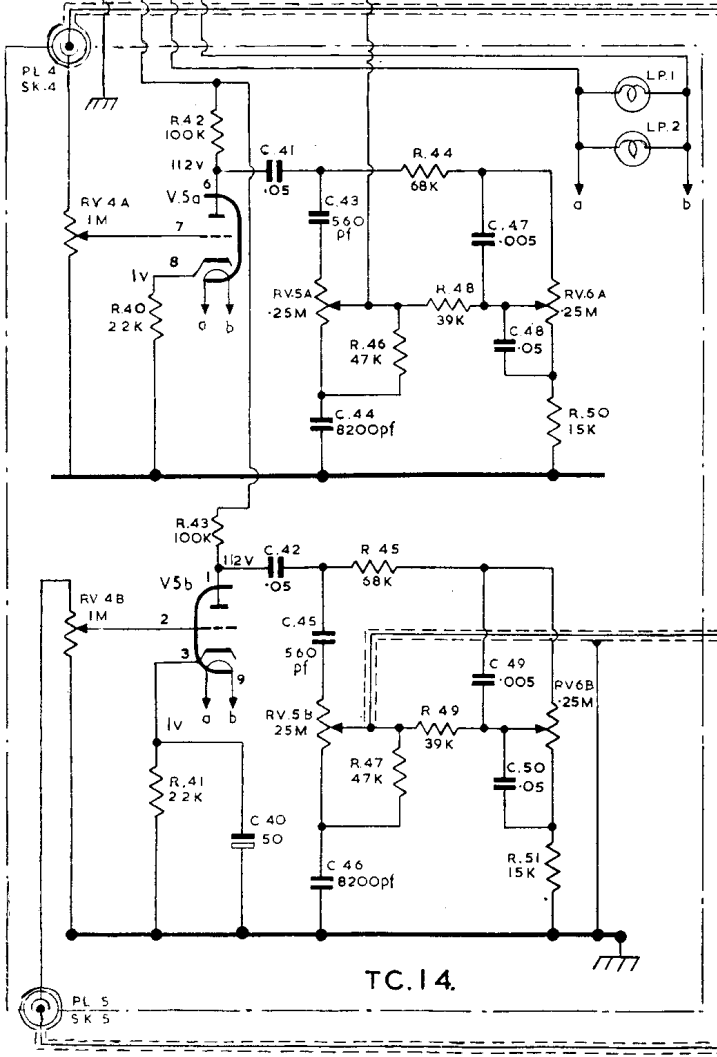
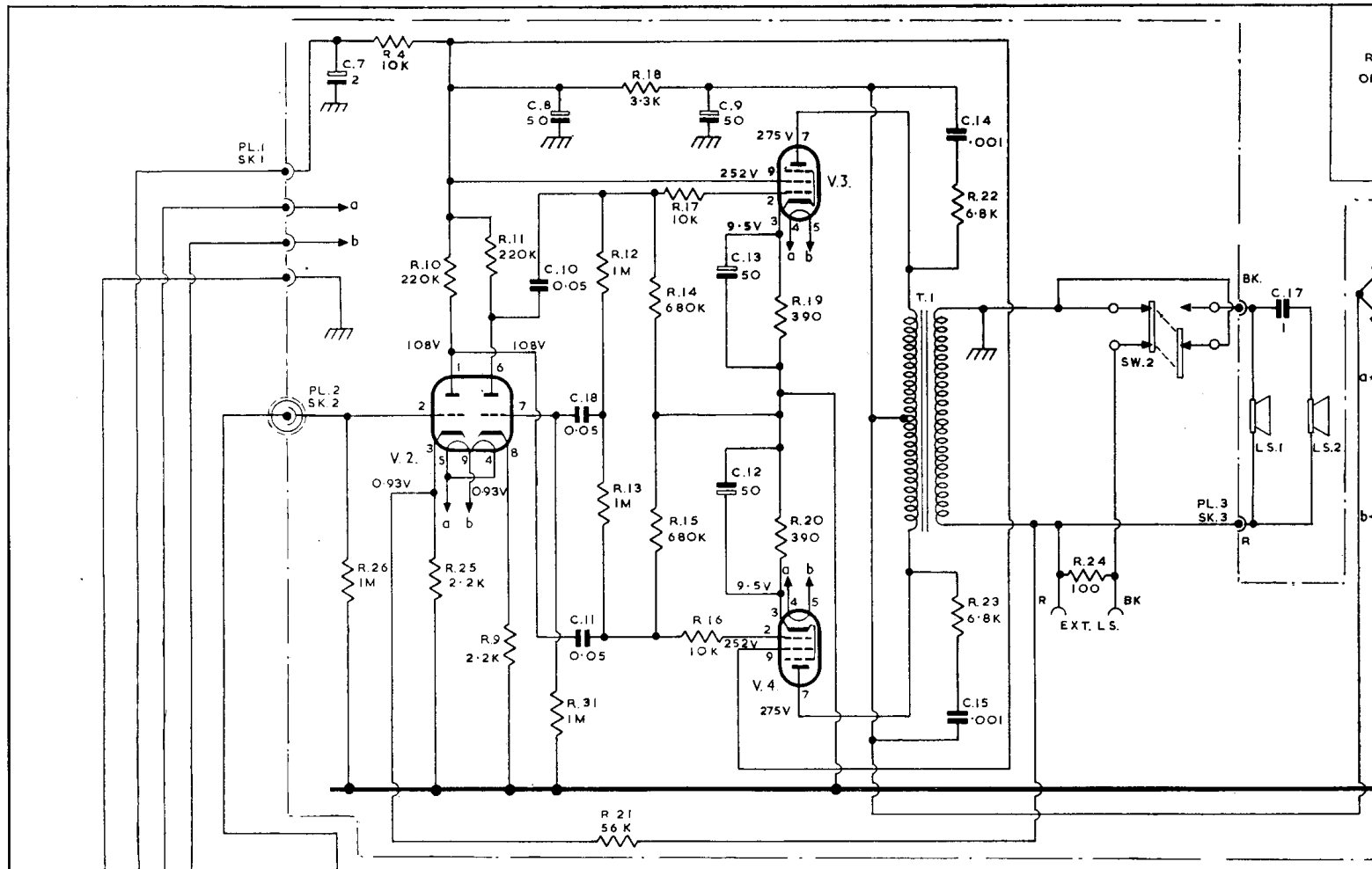
T4	Mains Transformer.
T3	Output Transformer.
SW3 A/B/C	Switch Rotary 1B 5 position. incorporating MAINS ON/OFF Switch.

"SA" MODELS ONLY

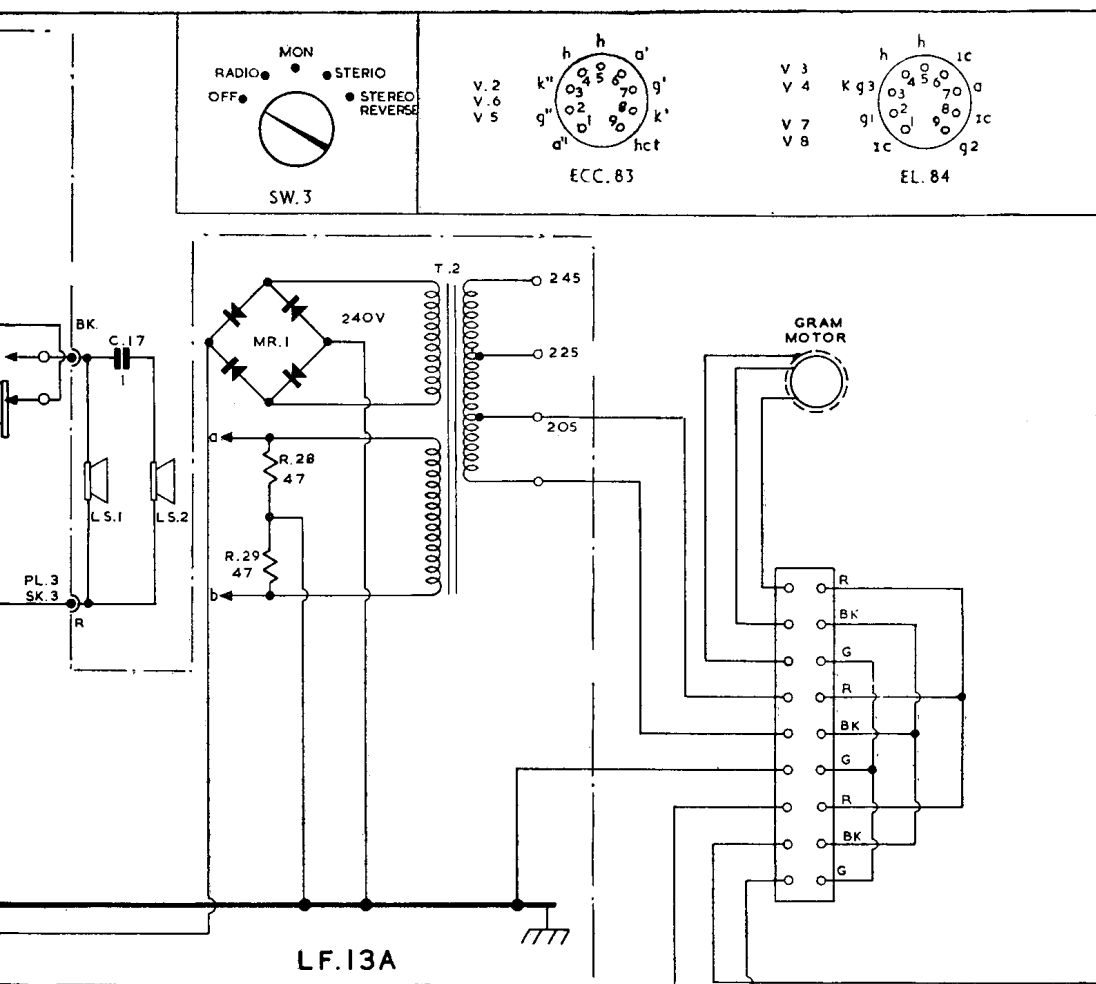
S1	Selector Switch D.P.S.T.
R1	Resistor Fixed. 470K $\frac{1}{2}$ watt 10%) Radio/Tape to Gram
C1	Capacitor. 100 pf 150 v.w. 5%) Switch Panel.

MISCELLANEOUS

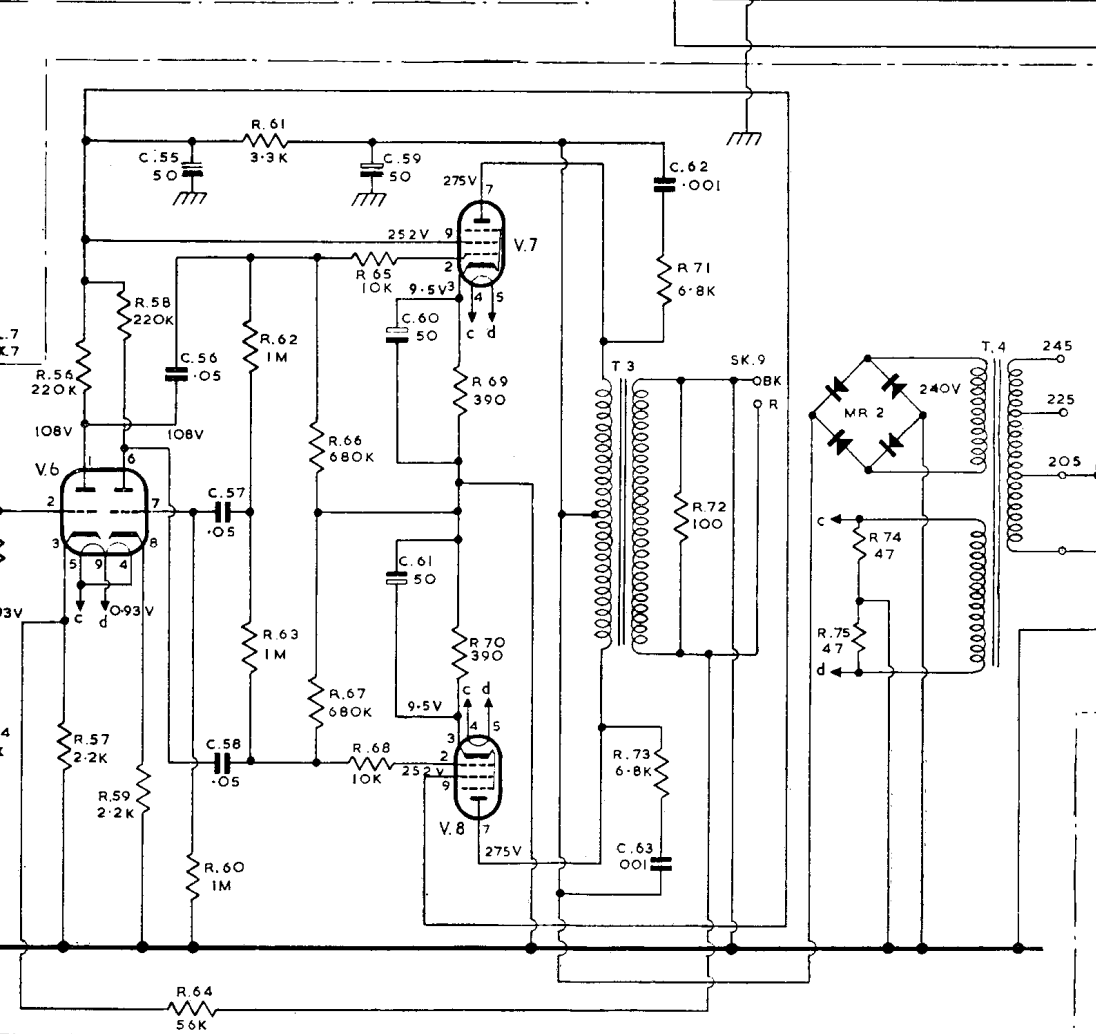
Cat. No.	
LS1	Loudspeaker 10" x 6" 15 ohm High Flux P.M.
LS2	Loudspeaker 5" 15 ohm High Flux P.M.
C17	Capacitor 1 mfd. 150v.w. 20%
F1)	
F2)	Fuse Link 1.5A (Numbered F3 and F4 on 'ST' models.)



VOLTAGES MEASURED WITH AVOMETE



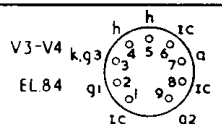
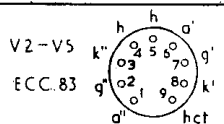
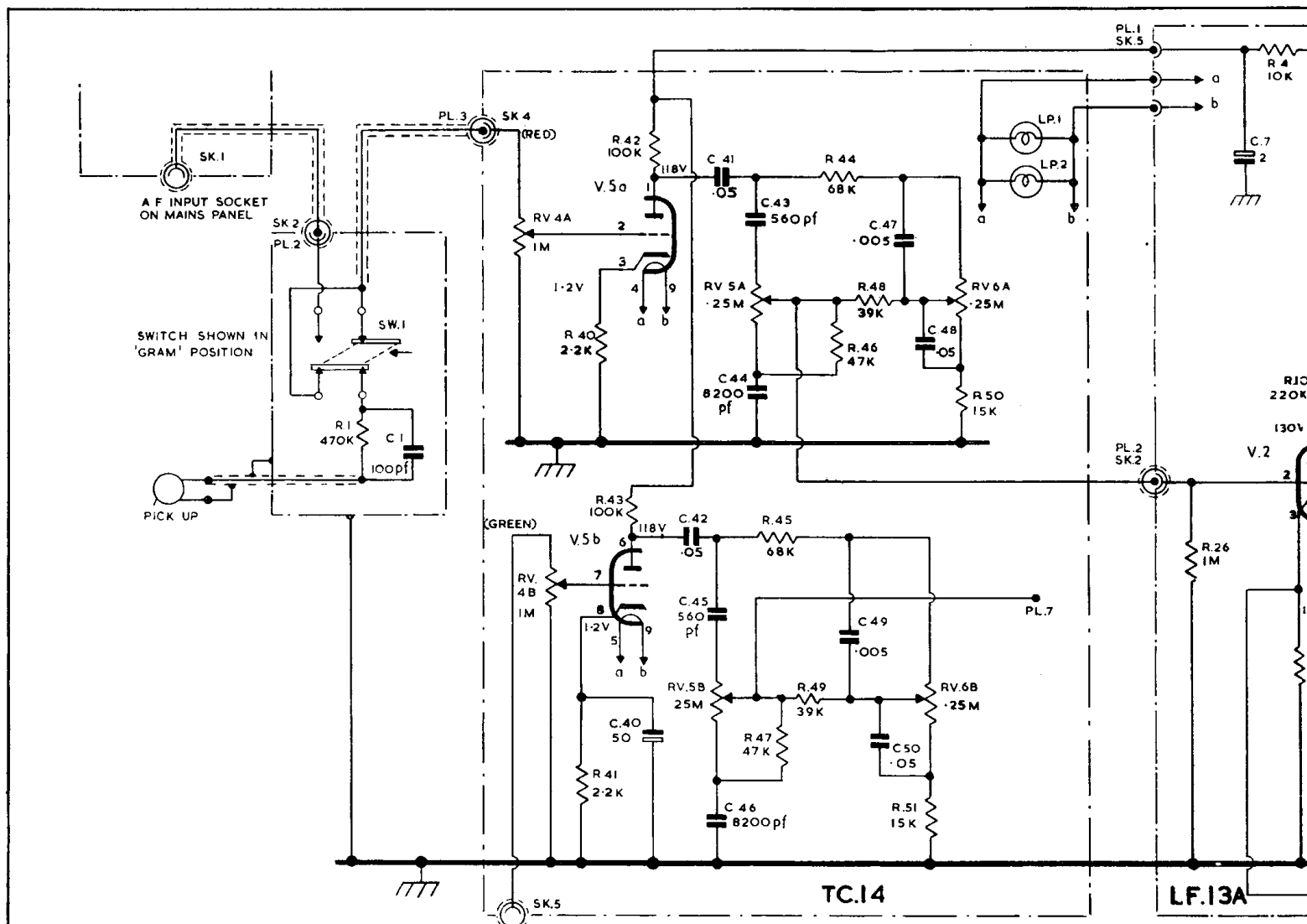
No REQD	
MATL	
FINISH	
DRAWN BY	A.F
TRACED BY	
CHECKED BY	
APPROVED	<i>J. Knight</i>
A.M. APPD.	
DATE	13 9 58
LIMITS EXCEPT WHERE OTHERWISE STATED TO BE	
FRACTIONAL $\pm 1/64"$	
DECIMAL $\pm .005"$	
ISSUES 9-12-58	
2 A.F. MOD SHEET No. 2.	



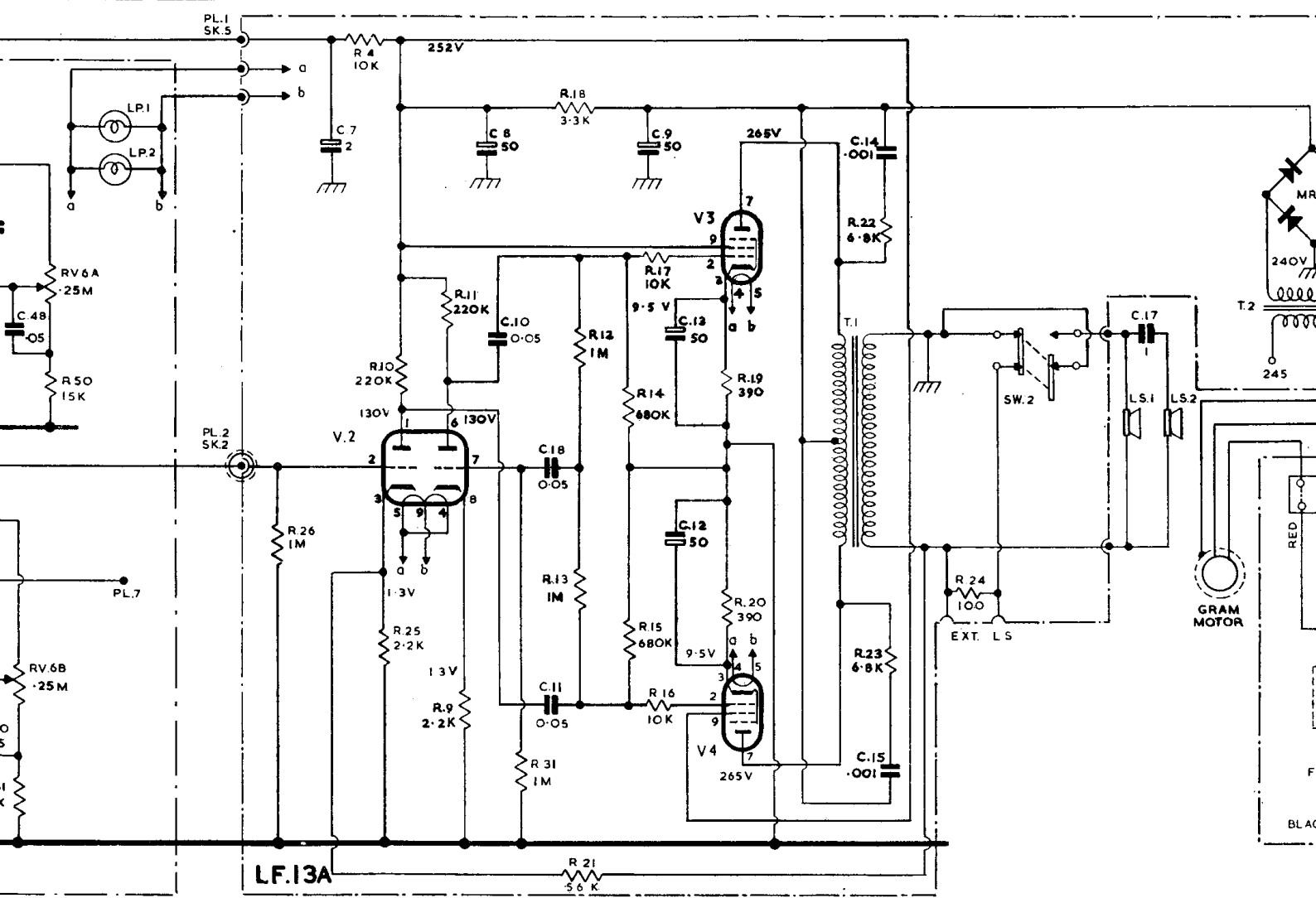
FLAT SIZE	
DYNATRON RADIO LTD.	
STEREO CAVALCADE	
MODELS GR.1/ST GR.2/ST	
FOR SERIAL Nos. UP TO 4999.	
SCALE	DRAWING No.
CD/106/1	

MEASURED WITH AVOMETER MODEL 7

Fig. 1

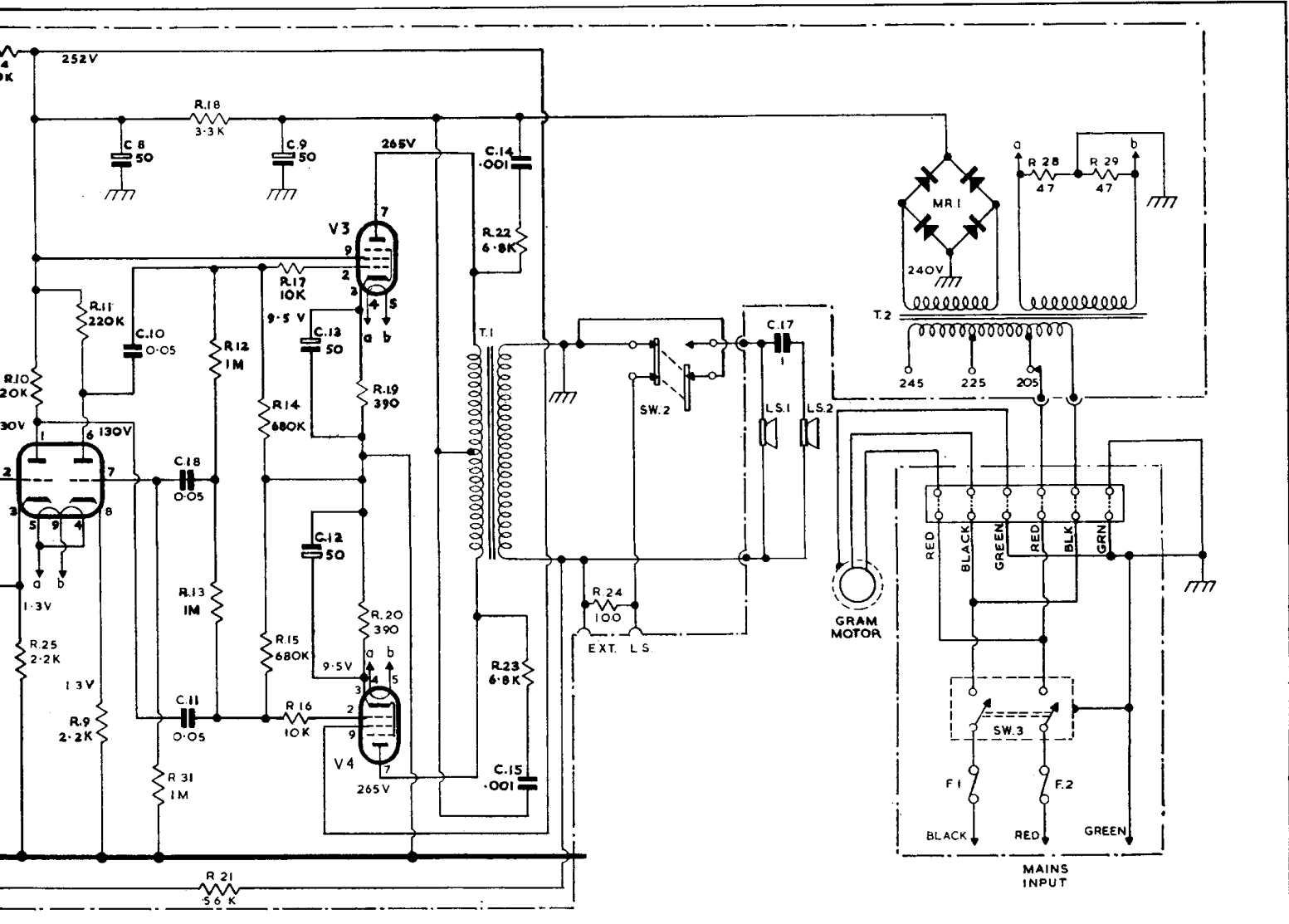


ISSUE	DATE	MOD. No.
2	5-12-58	MOD SHT N° 6.
3	6-1-59	MOD SHT N° 7.



VOLTAGES MEASURED WITH AVO METER MODEL No. 7

DRAWN A.S.F	DYN MAIDENHE ADAPTABL MODELS SERIAL I
CHECKED.	
TRACED:	
APPROVED: <i>J. H. ...</i>	

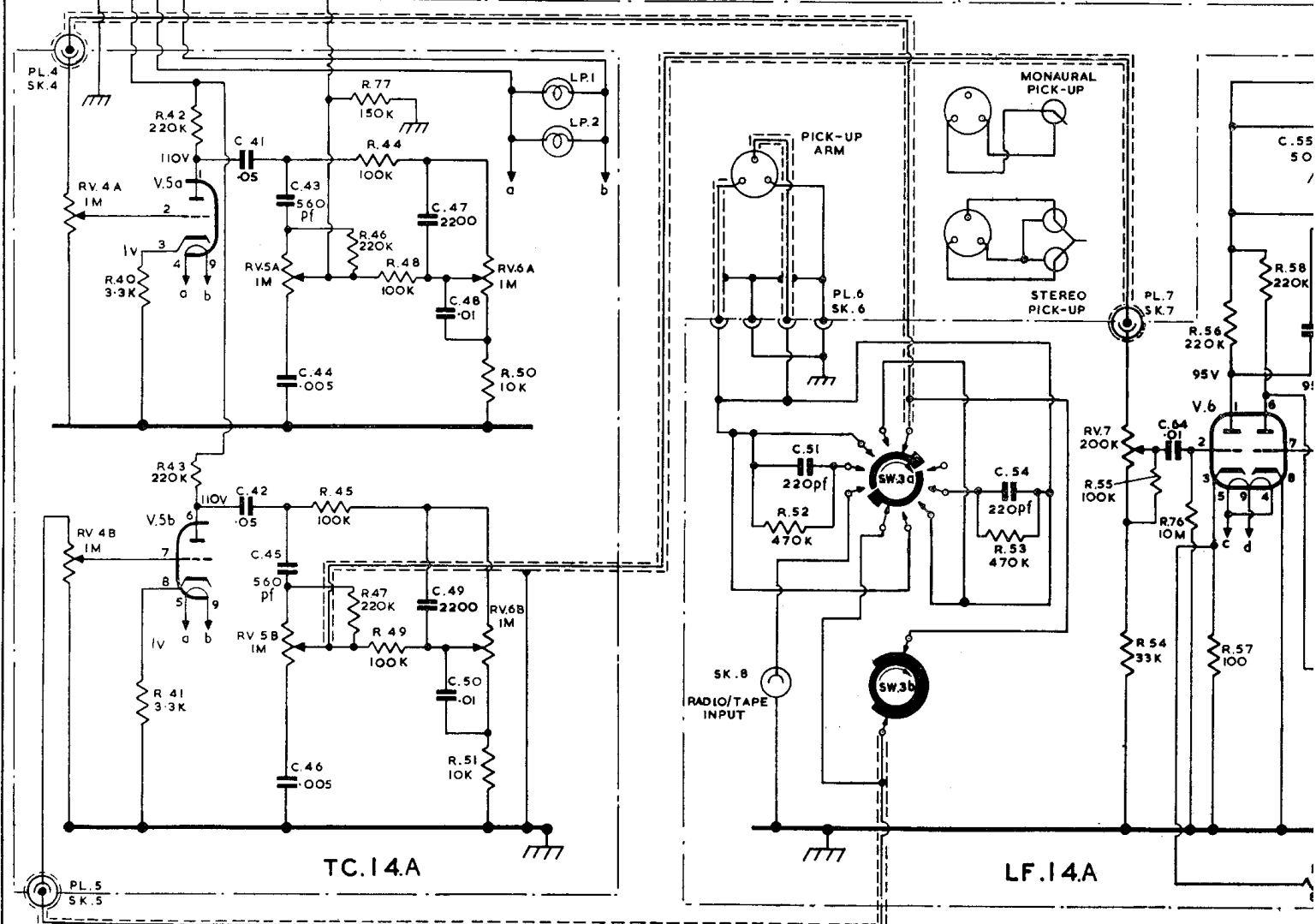
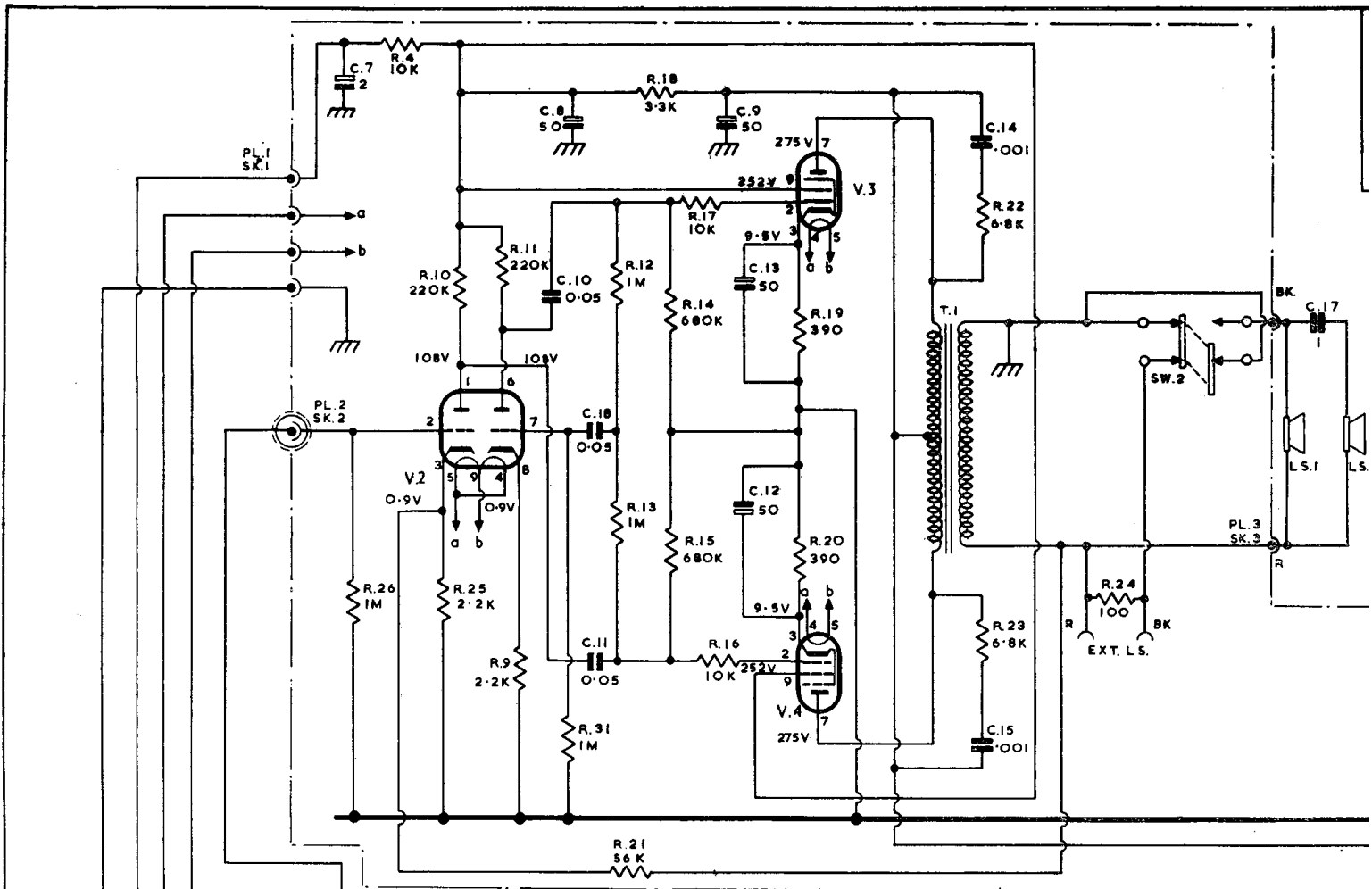


VOLTAGES MEASURED WITH AVO METER MODEL No. 7

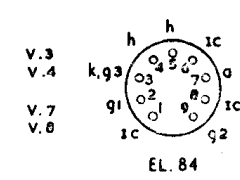
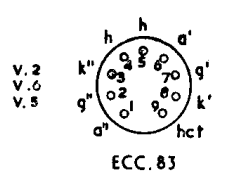
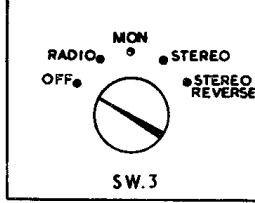
DRAWN A.S.F
CHECKED.
TRACED.
APPROVED: <i>J. Lewis</i>

DYNATRON RADIO LTD.	
MAIDENHEAD BERKS.	
ADAPTABLE CAVALCADE MODELS GR1/SA & GR2/SA	
SERIAL Nos UP TO 4999	
DRAWING No CD/106/28	

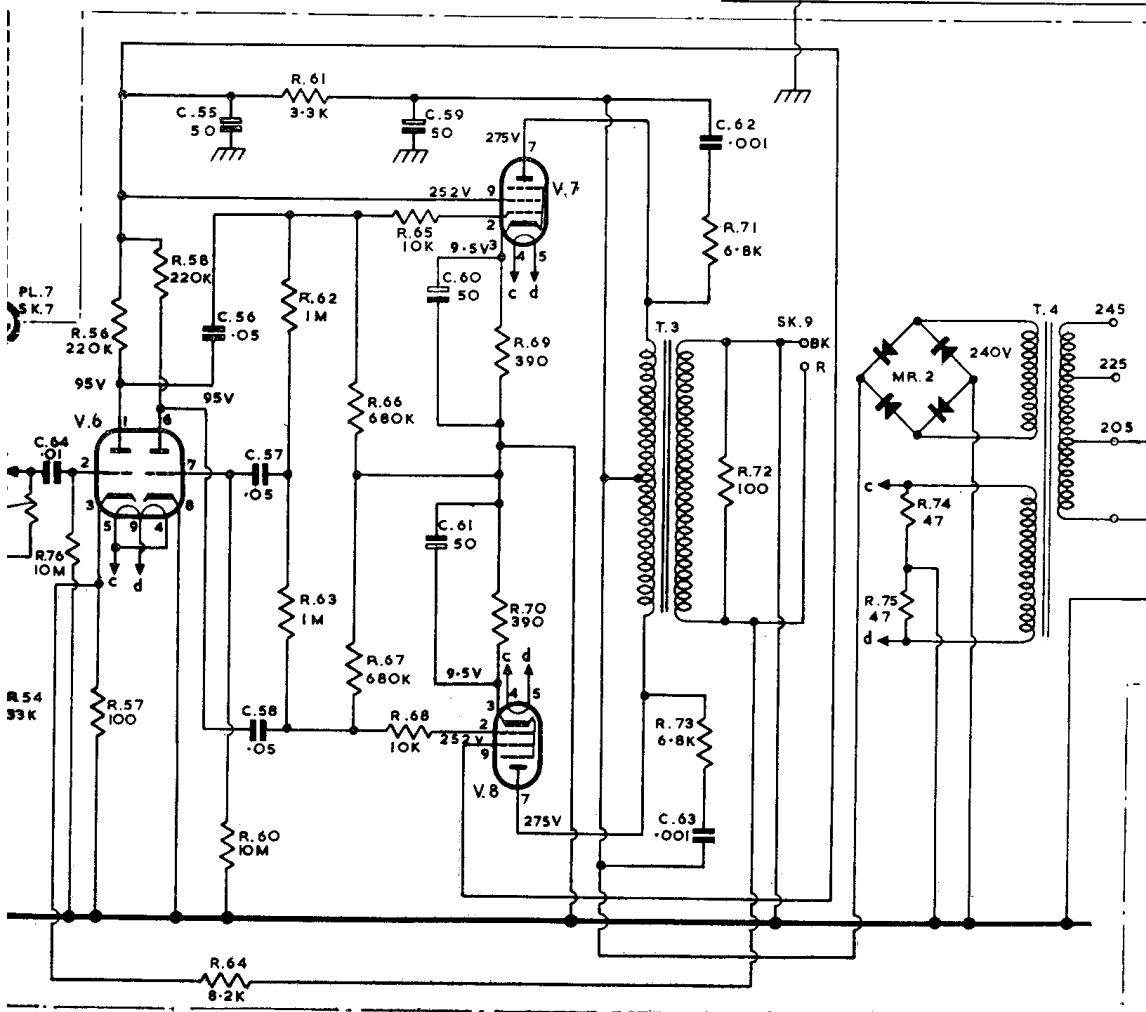
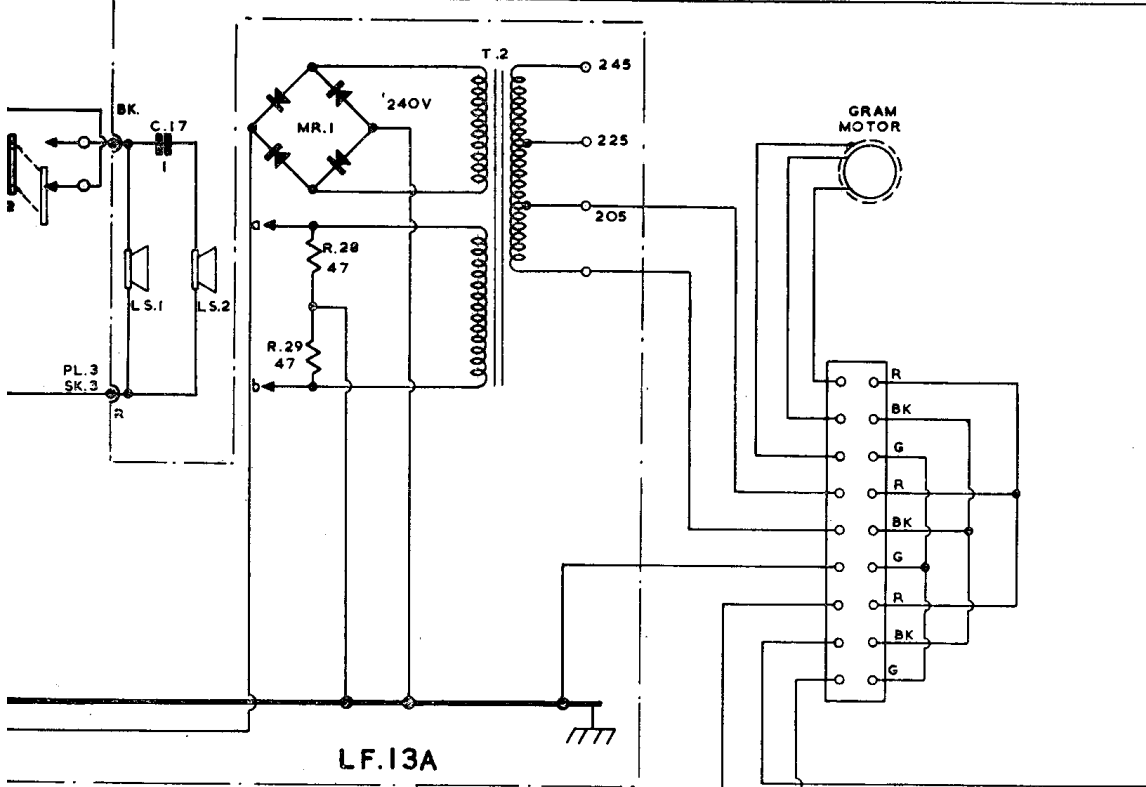
Fig. 2



VOLTAGES MEASURED WITH AV



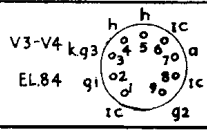
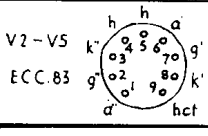
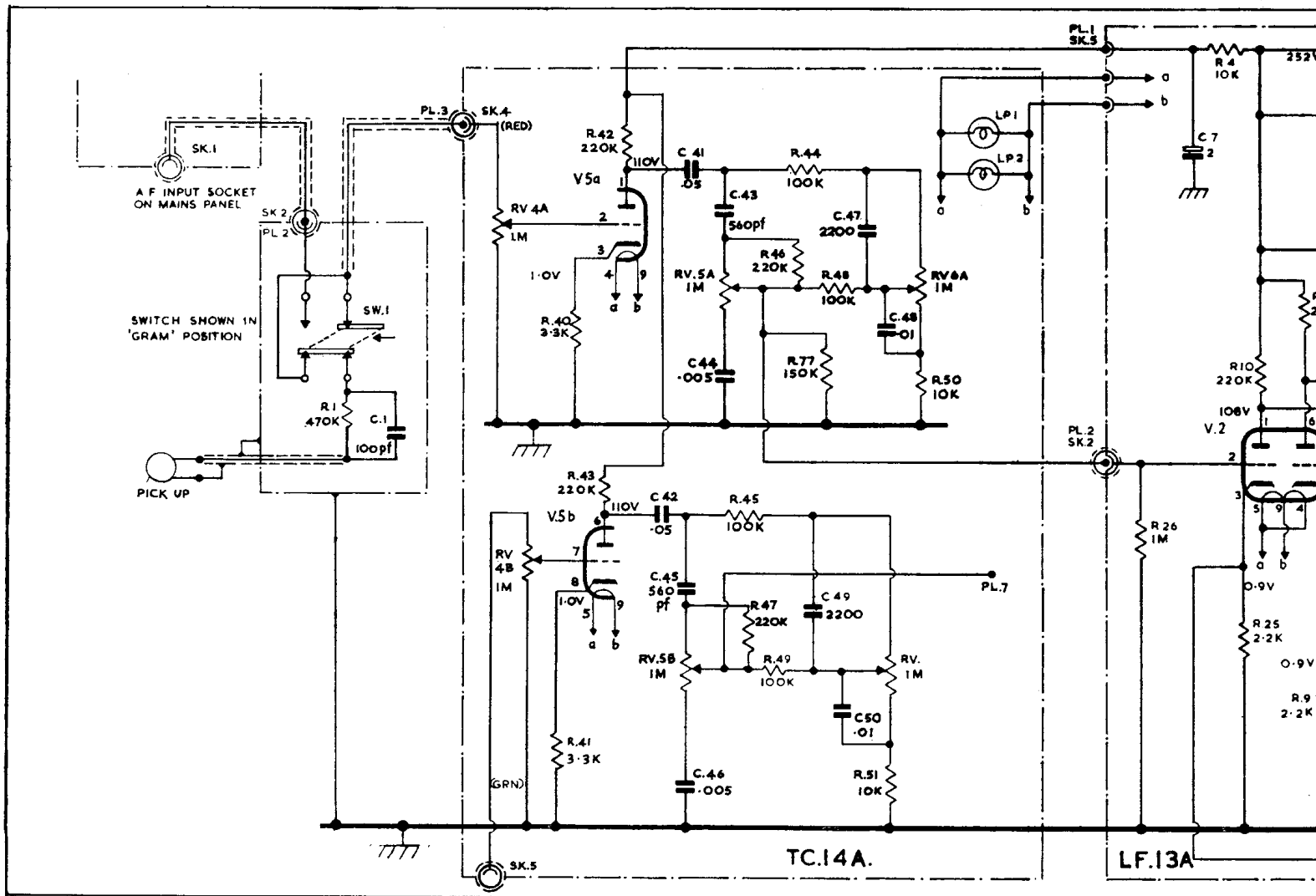
No. REQD.	
MATL	
FINISH	
DRAWN BY	A.F.
TRACED BY	
CHECKED BY	
APPROVED	<i>Theighton</i>
A.M. APPD	
DATE	13.9.58
LIMITS EXCEPT WHERE OTHERWISE STATED TO BE	
FRACTIONAL	± 1/64"
DECIMAL	± .005"
ISSUES. 9.12.58	
2 A.F. MOD SHEET No. 2.	
3 A.F. 20.1.59	



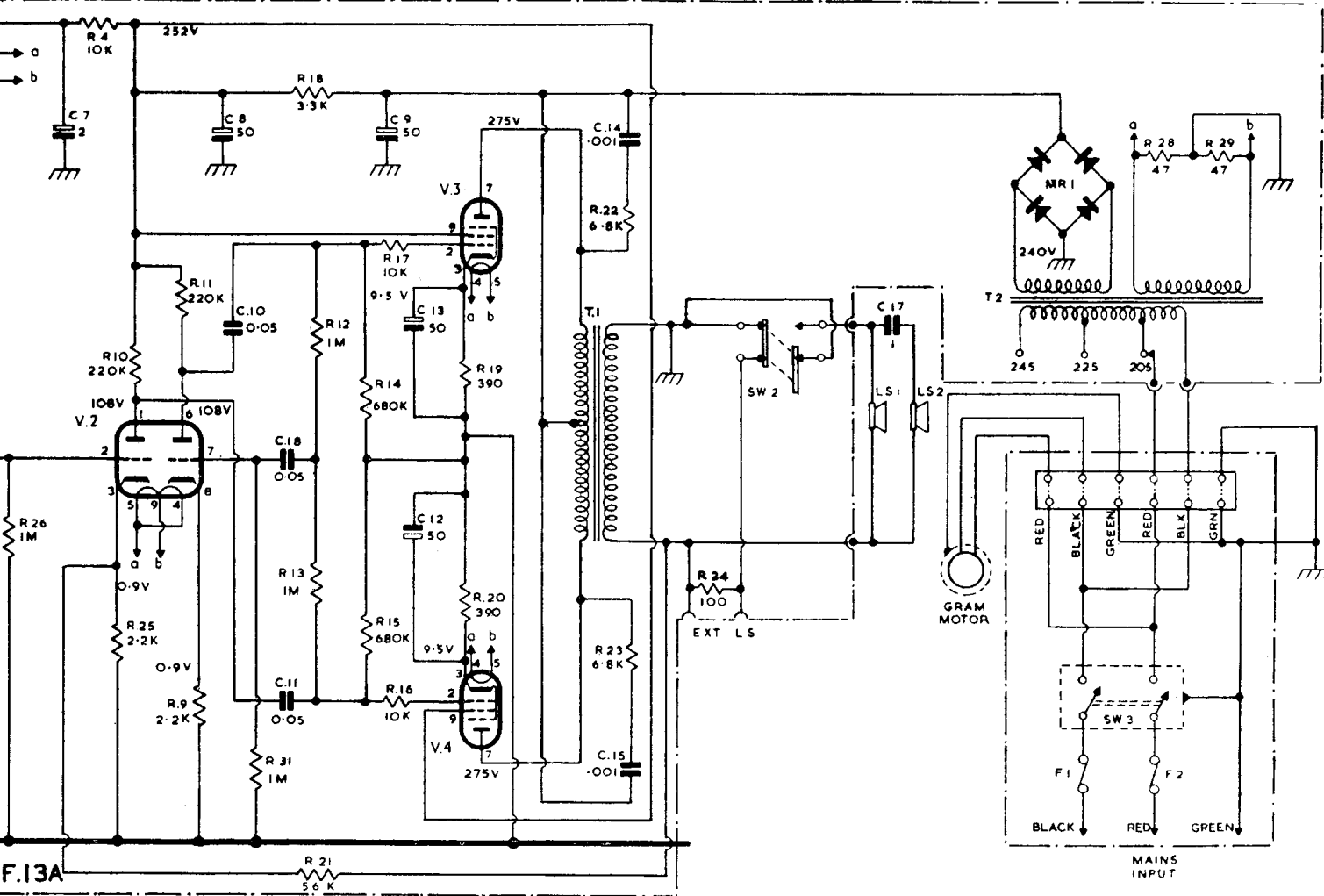
LIMITS EXCEPT WHERE OTHERWISE STATED TO BE	
FRACTIONAL	± 1/64"
DECIMAL	± .005"
ISSUES. 9.12.58	
2 A.F. MOD SHEET No. 2.	
3 A.F. 20.1.59	
FLAT SIZE	
DYNATRON RADIO LTD.	
STEREO CAVALCADE	
MODELS GR.1/ST GR.2/ST	
FOR SERIAL Nos: 5000 ONWARDS	
SCALE	DRAWING No.
CD/106/29	

MEASURED WITH AVOMETER MODEL 7

Fig. 3



ISSUE	DATE	MOD	No.

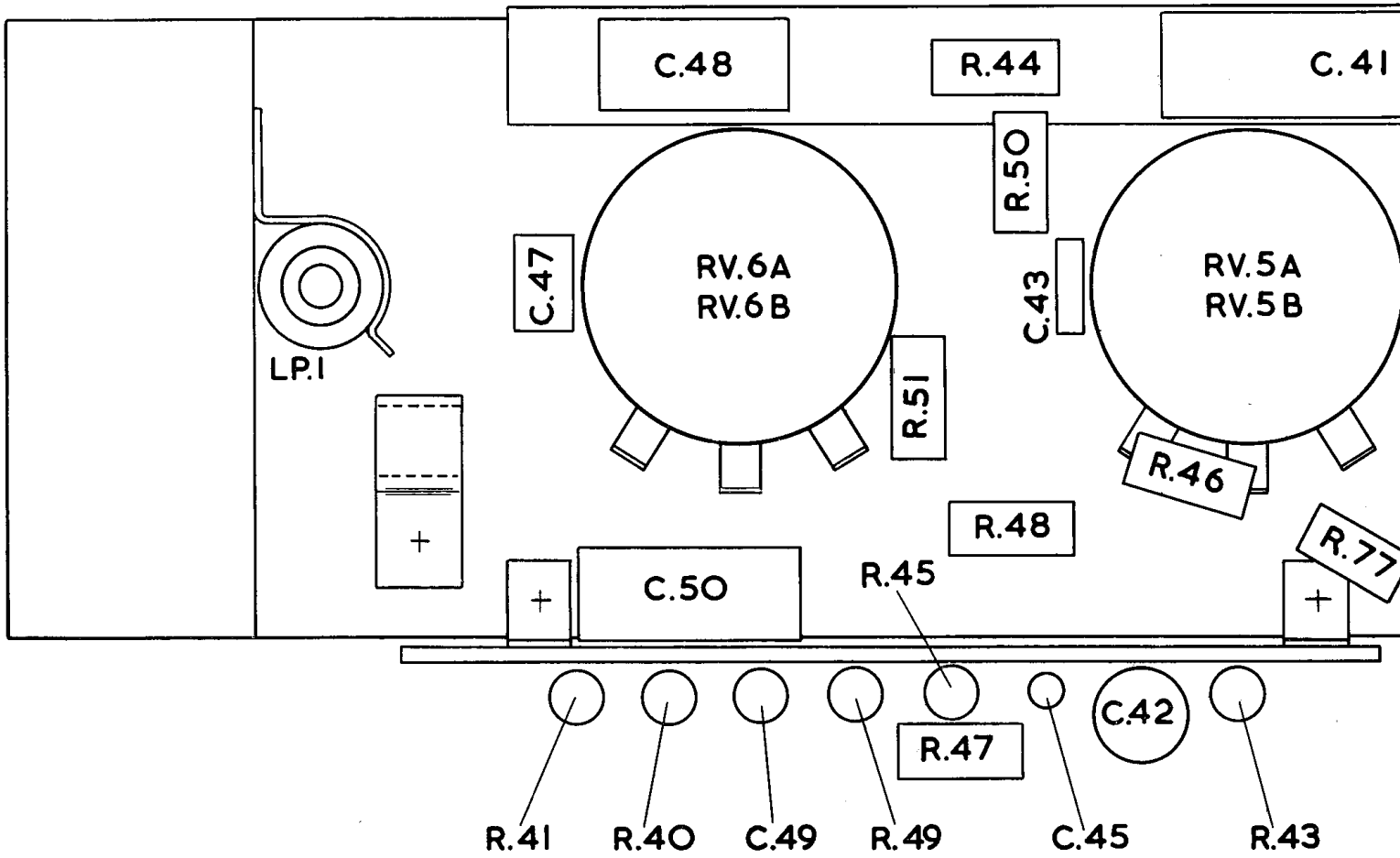


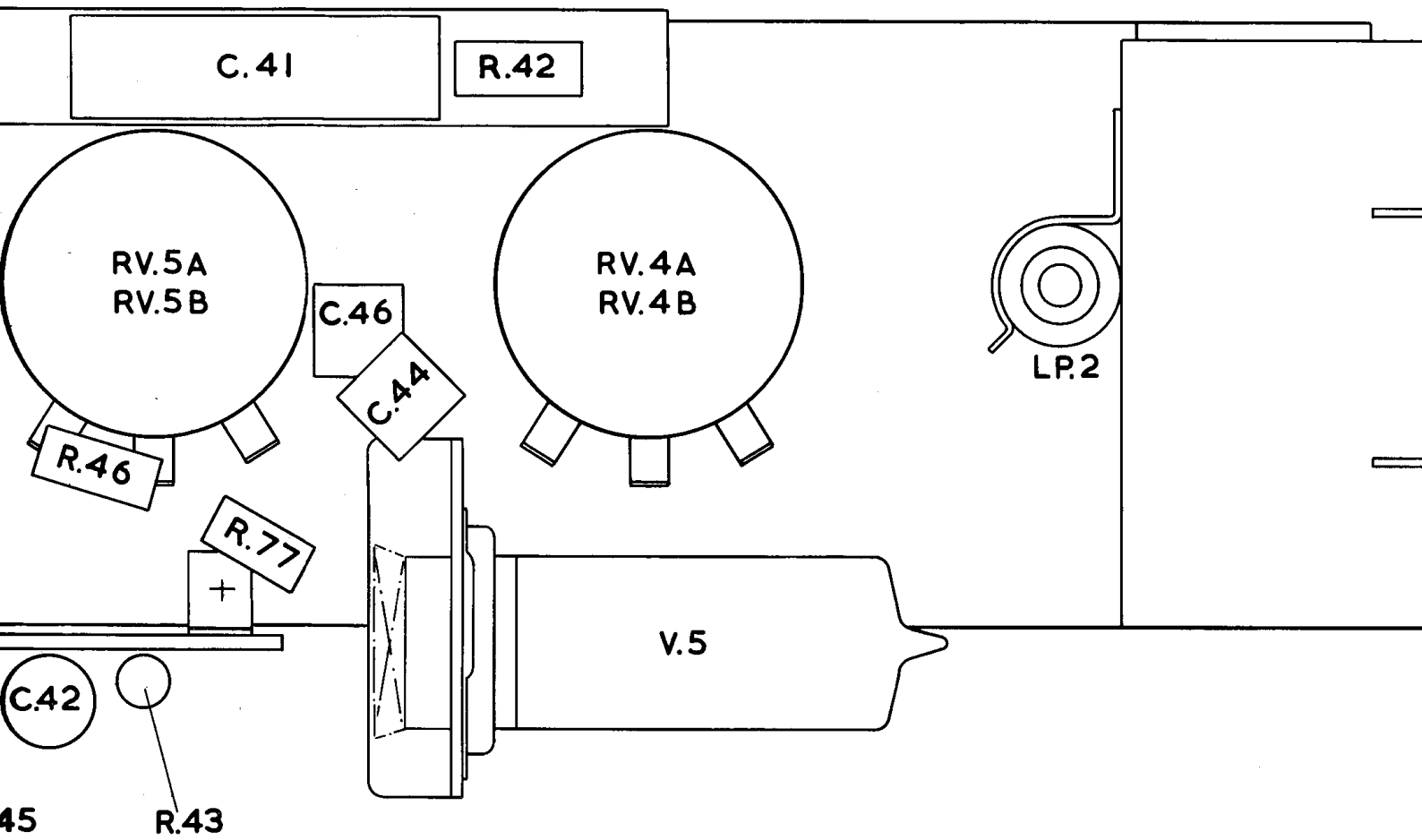
VOLTAGES MEASURED WITH AVO METER MODEL No 7.

DRAWN A S F
 CHECKED
 TRACED
 APPROVED *J. H. W.*

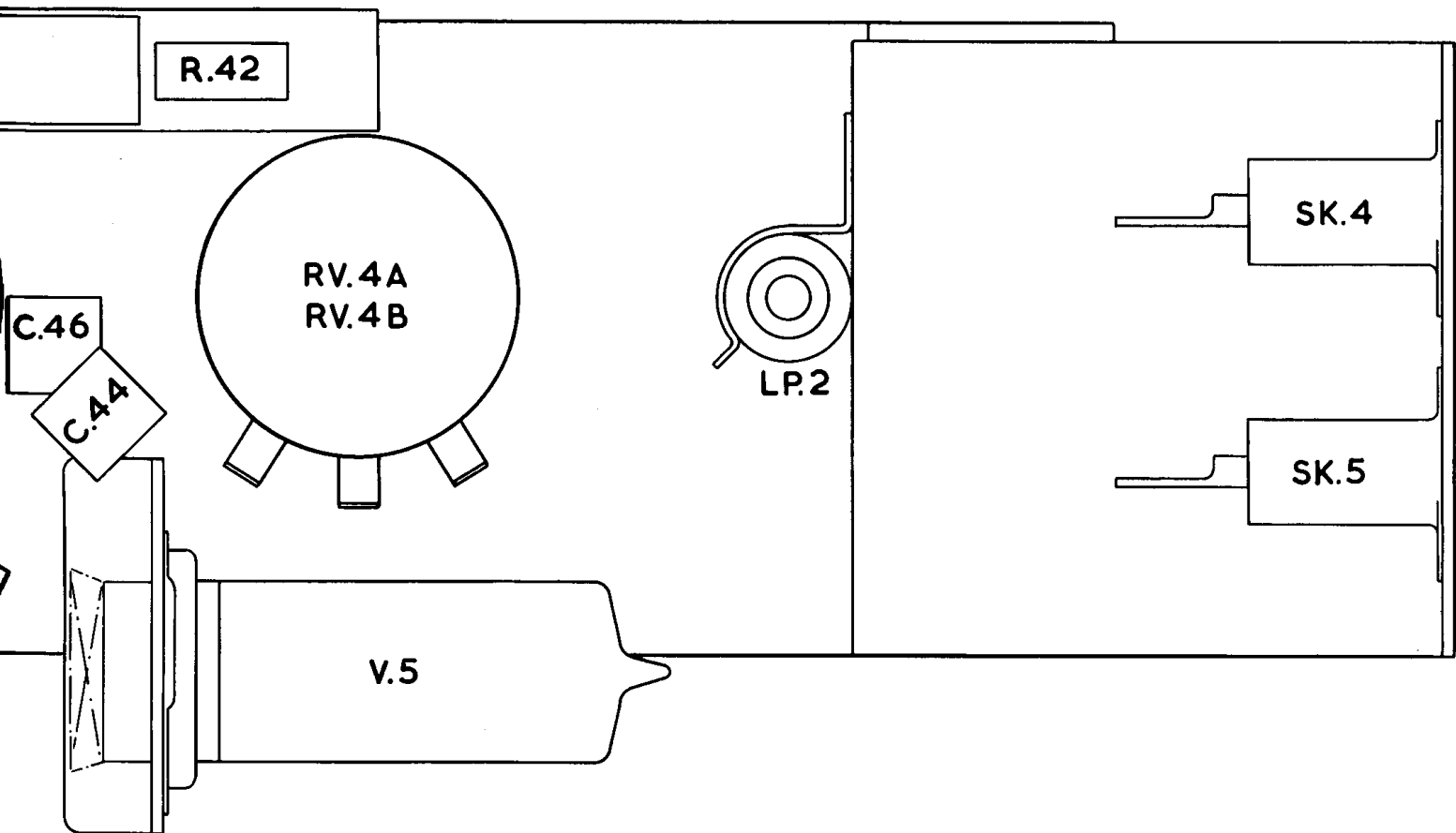
DYNATRON RADIO LTD.
 MAIDENHEAD BERKS
 ADAPTABLE CAVALCADE
 MODELS GR1/SA & GR2/SA
 SERIAL Nos 5000 ONWARDS. DRAWING No CD/106/30

Fig. 4



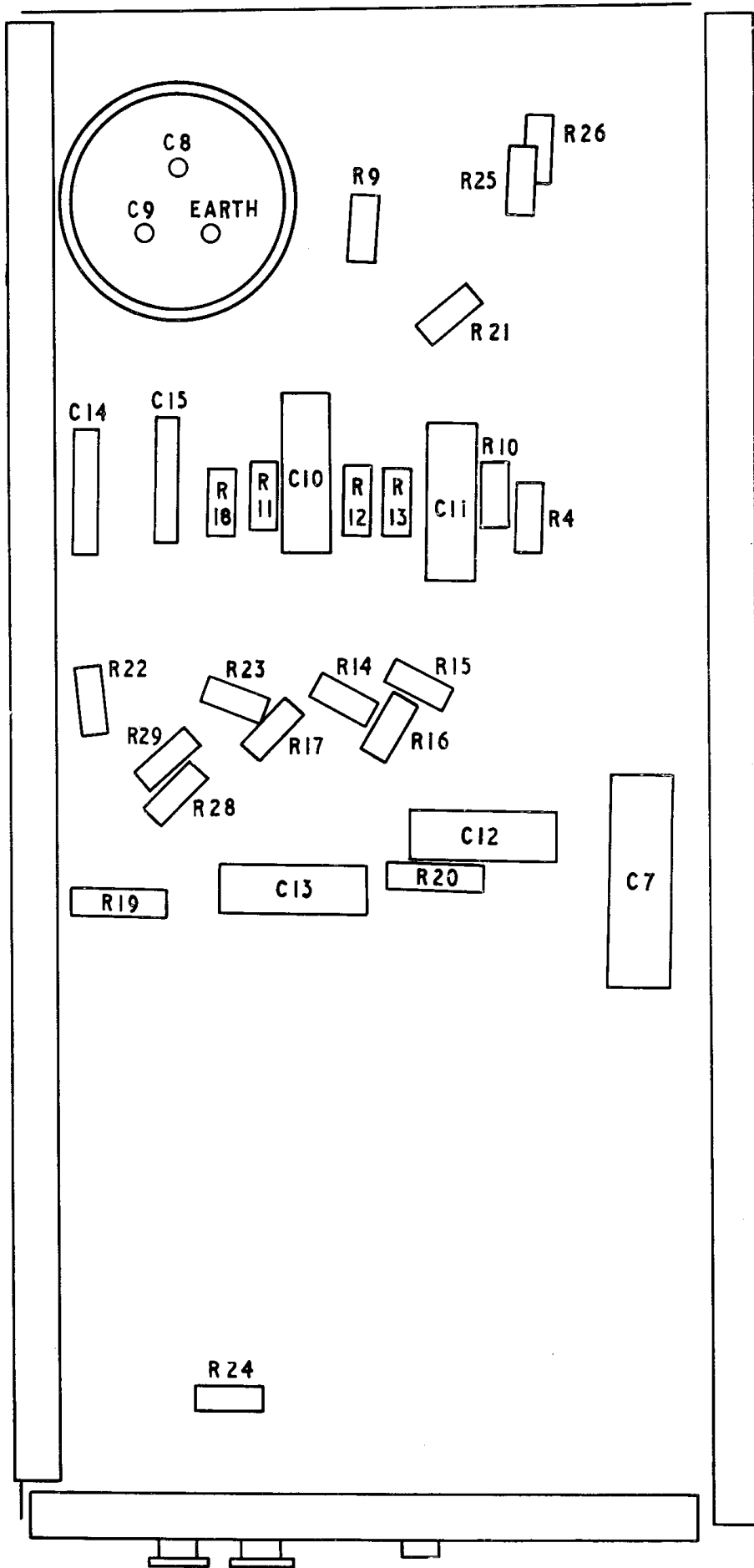


TONE CON



TONE CONTROL TC.14.A.

Fig. 5



**LF 13 AMPLIFIER
UNDERSIDE VIEW**

DYNATRON RADIO LIMITED.

SERVICE MANUAL

ERRATA

The following amendments should be incorporated in the "ROMANY", "NOMAD" and "CAVALCADE" Service Manuals.

Dynatron Radio Ltd. very much regret these errors and apologise for any inconvenience that may have been caused as a result.

"ROMANY"

PAGE 5 **Components List - RESISTORS and CAPACITORS.**
Headings: "VALVE" should read "VALUE"

"NOMAD"

PAGES 8 & 9 **Components Lists - RESISTORS and CAPACITORS.**
Headings: "VALVE" should read "VALUE"

PAGE 8 **Components List - RESISTORS.**
Delete: "VR3 - 250K variable - Linear" and
insert at bottom of page, after RV1/S3.

"CAVALCADE"

PAGE 2 **Sub-heading: "NOTE"**
Delete: "in this manual"
Insert: "with the kits"

PAGE 3 **Heading: "EXTENSION SPEAKER UNIT TLS1"**
Sub-heading: "WEIGHT"
Insert: "lb" after "16½"

PAGE 13 **Components List - RESISTORS.**
In sentence at bottom of resistor list
"500" should read "5000"