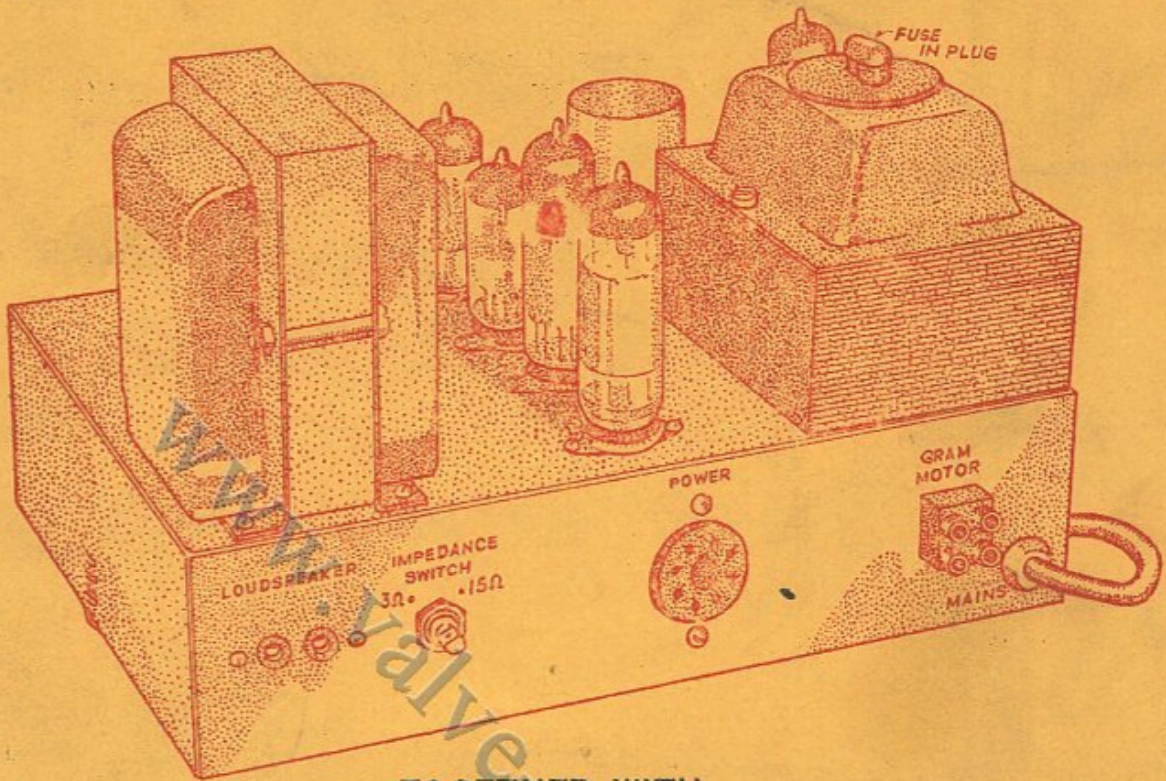
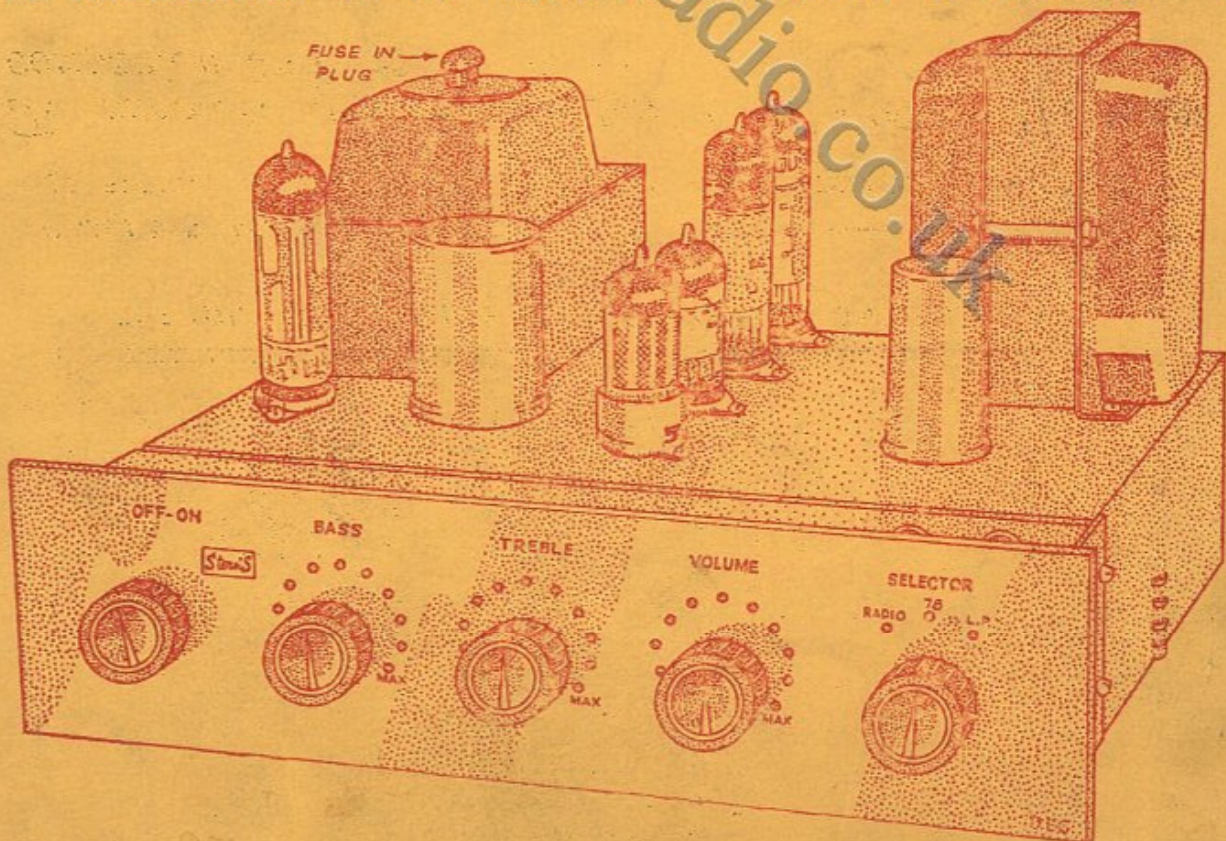


# Stern's

COMPLETE ASSEMBLY DATA AND DIAGRAMS FOR THE CONSTRUCTION OF  
THE MULLARD '5-10' MAIN AMPLIFIER ONLY



TOGETHER WITH  
THE MULLARD '5-10' INCORPORATING CONTROL UNIT



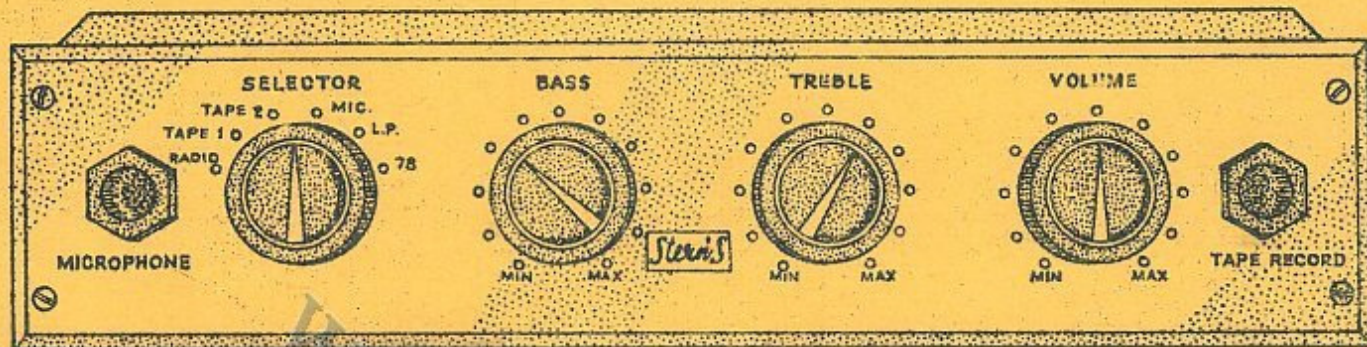
STERN RADIO LTD,  
109, 111, 115, FLEET STREET, E.C.4  
Telephone: FLEET STREET, 5812-3-4

1/3

© DESIGNED TO OPERATE WITH THE MULLARD RANGE OF POWER AMPLIFIER DESIGNS.

© FRONT PANEL FINISHED IN HIGHLY POLISHED DARK MAROON PERSPEX WITH GOLD LETTERING TO BLEND WITH MODERN FURNISHING.

© SUITABLE INPUTS FOR CRYSTAL AND VARIABLE RELUCTANCE PICK-UPS, MICROPHONE & TAPE REPLAY HEADS.



THE MULLARD 2 VALVE PRE-AMPLIFIER CONTROL UNIT

AVAILABLE ASSEMBLED AND TESTED FOR \_\_\_\_\_ £8. 0. 0.  
OR SPECIAL HOME CONSTRUCTORS KIT OF PARTS FOR \_\_\_\_\_ £6. 6. 0.

*To complete your high fidelity installation the ideal companion unit would be —*

THE STERN F.M. TUNER Mk. II

or

THE STERN A.M./F.M. TUNER

- \* Incorporates the Mullard Permeability Tuned Tuning Heart.
- \* Perfect Reproduction from the Home - Light - Third V.H.F. Transmissions.
- \* Specially Stabilised to be free from drift.
- \* Attractively styled Perspex Scale finished in Dark Maroon with Gold Lettering Size 10 inches x 5¼ inches high.
- \* Supplied Assembled and Tested for ..... £14.5.0.  
or the Home Constructor can Build it for .....£10.10.0.

- \* Incorporates the Mullard Permeability Tuned Tuning Heart.
- \* Highly Efficient A.M. Medium Waveband Tunes the Popular Continental Programmes.
- \* Two Controls - Wavechange & Tuning Ensures Simplicity of Operation.
- \* Small and Compact with attractively styled Glass Scale in Gold and Maroon with separate Escutcheon.
- \* Supplied Assembled and Tested for ..... £18. 0. 0.  
or the Home Constructor can Build it for ..... £13. 0. 0.

SEND S.A.E. FOR FULL DETAILS OR THE COMPLETE ASSEMBLY MANUALS ARE AVAILABLE FOR 1/6d. EACH.

## THE STERN MULLARD "5-10" AMPLIFIER

The Mullard '5-10' is now quite famous for its excellent performance characteristics and certainly needs no further recommendation from us. We present the design incorporating improvements on the original layout. These in no way affect the excellent performance of the Amplifier, but undoubtedly make for a more compact and simplified Unit which even an inexperienced Home Constructor can successfully assemble.

We comply entirely with the MULLARD circuit specification, including the supply of specified components, and we incorporate the latest ULTRA LINEAR OUTPUT TRANSFORMER type P2642 by PARMEKO LTD., or at a slightly higher cost a transformer especially made for us by Messrs. PARTRIDGE thus ensuring maximum undistorted output, and the widest possible frequency response. We also incorporate a PARMEKO HEAVY DUTY MAINS TRANSFORMER, which has sufficient reserve of power to supply both a PRE-AMPLIFIER TONE CONTROL UNIT and a RADIO TUNING UNIT, the reserve supply being 6.3 Volts at 2.5 Amps, and H.T. 250 Volts at 35 mA.

The manner in which we present this design (i.e. drawings of the separate Main Amplifier plus a drawing of the Control Unit) gives the Home Constructor the choice of building either a complete Amplifier incorporating Control Unit, or alternatively the Main Amplifier only which would be used with the MULLARD 2 VALVE PREAMPLIFIER - CONTROL UNIT, or similar Units. The full specification of the PREAMPLIFIER is shown separately in this manual, but as it is frequently used with other 'Hi-Fi' Main Amplifiers the complete Assembly Manual (price 1/6d) is the subject of a separate publication.

### CIRCUIT DESCRIPTION ...

The Amplifier is operated from A.C. Mains supply of 200/250 Volts and incorporates five Mullard valves. The first stage uses a high gain pentode type EF86 which is coupled directly to the phase splitter to reduce the phase shift at low frequencies. A double triode valve type ECC83 serves the combined function of phase splitter and driver amplifier, the use of a cathode coupled circuit provides for low distortion and facilitates direct coupling to the first stage. The output stage operates with two EL84 output pentodes in cathode-biased push-pull, the stage is operated under the latest distributed load (ultra linear) conditions therefore low distortion is ensured. The output transformer is normally a PARMEKO type P2642 but for a slightly higher cost a PARTRIDGE OUTPUT TRANSFORMER similar in performance to the PARTRIDGE type P4014 is supplied. Both transformers are of the highest grade, and allow for accurate matching into 3.75 ohm or 15 ohm loudspeakers, the change over is effected by means of an impedance switch at the rear of the Amplifier, which also selects the correct feedback network. Overall NEGATIVE feedback (20 dB) is taken from the secondary of the output transformer to the cathode of the input stage (EF86). A full wave rectifier type EZ31 provides power for the Amplifier and is adequate to supply the extra current for the associate equipment. Attention to the noise level in the high gain input stage has been given, and high stability resistors in this section are incorporated.

### CONTROL UNIT ...

Consists of separate completely enclosed Unit and is normally fitted (via six fixing screws provided) direct to the front of the Main Amplifier Chassis, thus forming a completely self contained Amplifier. The Unit, however, can if desired, be removed from the Chassis and fitted in any position remote from the Main Amplifier, this merely involves extending the Cables (i.e., Switch, Volume and Lamp Leads.) These Cables must not be extended beyond two yards, otherwise attenuation of H.F. response, and an increase of hum level will be apparent.

When using the Control Unit the input requirement to fully drive the Amplifier to 10 Watts is 600 milli/Volts, thus any of the popular Record Players incorporating the high output Crystal Pick Ups, and most Radio Tuning Units amply fulfil this requirement and operate perfectly with the complete Amplifier (by "popular Record Players" we refer to the standard models made by B.S.R., Collaro and Garrard.)

Two Co-Axial Input Sockets are provided on the Chassis for direct connection to a Record Player and a Radio Tuning Unit. The Front CONTROL PANEL is very attractively presented, it is a highly polished dark maroon Perspex Panel with gold lettering and blends excellently with modern furnishings.

#### TECHNICAL DATA - MAIN AMPLIFIER

##### RATED POWER OUTPUT

10 Watts.

##### HARMONIC DISTORTION

10 Watts, 400 c/s ... 0.1%

##### INTERMODULATION DISTORTION

At 10 W for 40 c/s & 10 Kc/s.

##### FREQUENCY RESPONSE

At 1 Watt within 1 dB of 1 Kc Level from 5 c/s to 20 Kc/s.

At 10 Watts within 1 dB of 1 Kc Level from 30 c/s to 15 Kc/s.

POWER CONSUMPTION 60 Watts (approx).

##### SENSITIVITY

40 mV for 10 Watts.

##### HUM & NOISE

65 dB below 10 Watts.

##### LOOP GAIN

20.5 dB at 1 Kc/s

#### TECHNICAL DATA - CONTROL UNIT

##### CONTROLS

1. Mains OFF/ON Switch.
2. Bass Control. Continuously Variable. +11dB to -5dB at 20 c/s.
3. Treble Control. Continuously Variable. +10dB to -10dB at 10,000 c/s.
4. Volume Control.
5. Selector Switch. (3 Position) 1. Radio. 2. Gram. 78. 3. Gram L.P.

##### INPUT SOCKETS CO-AXIAL

1. Radio Tuner Unit.
2. High Output Crystal Pick-ups.

##### SENSITIVITY

600 mV for 10 Watts.

##### FINISH

|                         |                       |
|-------------------------|-----------------------|
| Main Amplifier only ... | 10" x 7" x 7" high.   |
| Control Unit only ..... | 10" x 1½" x 2½" high. |
| Combined together ..... | 10" x 8½" x 7" high.  |
| Front Perspex Panel ... | 11" x 3".             |
| Weight (Combined) ..... | 13 lbs.               |

## POWER SUPPLY AVAILABLE FROM AMPLIFIER

1. For Radio Tuning Unit ... The H.T. current available is 250V. at 35 ma. This is drawn from the reservoir capacitor C1, via filter network R26 and C14. We recommend that a further resistor with value chosen to ensure correct operating voltage be mounted in the Tuner Unit and decoupled with a 16 mfd Condenser. This network is incorporated in all Tuner Units supplied by us. The Tuner H.T.+ line is connected to pin 4 of the Octal Take Off Socket.
2. Pre-Amplifier ... The H.T. current required by the Pre-Amplifier is only a few milli-amps therefore it is drawn from the smoothed side of R18 and fed from C2 thus taking advantage of the additional filtering of this Capacitor. The Pre-Amplifier H.T.+ line is connected to pin 3 of the Octal Take Off Socket.
3. L.T. Supply ... When the 2 Valve Pre-Amplifier Control Unit is used with the Main Amplifier a total of 2 Amps at 6.3 Volts is available for a Tuner Unit, alternatively 2.5 amps is available when the Control Unit is incorporated in the Main Chassis.

## CONSTRUCTIONAL

All components should be placed as nearly as possible in the precise positions shown in the diagrams and all wiring must be kept as short and direct as possible consistent with the general layout shown in the drawings. A little extra care to effect neat and positive solder joints will be well rewarded, bad joints result in noise and intermittent crackles, and special attention should be paid to ensure that the wires to be soldered are clean even to the point of scraping each wire lightly with a blade and then tinning before actually soldering to the appropriate connection point. Ensure that all resistors are put in the correct positions by carefully checking the value by the colour code shown in the parts list. Attention to the points mentioned should make certain of first time results.

## MULTIPLE EARTHS ...

To avoid 'Earth Loops' and the resultant increase in hum level a single inter-chassis earth system is used. The inter-chassis connection between the Amplifier and Pre-Amplifier is via the screened braiding of the audio lead, and this is the only earth between the units. We recommend that the equipment be disconnected from the mains before removing the Audio Co-Axial Plug from the Amplifier otherwise a shock will be experienced. The earth line connected to pin 1 of the Octal Take-Off Socket is taken up to the Pre-Amplifier and terminated to pin 1 of the Tuner Supply socket, and it will be observed that it is not connected to the Pre-Amplifier bus-bar or chassis, it is the inter-chassis connection for the Tuner Unit.

## SPECIFICATION OF THE MULLARD 2 VALVE PRE-AMPLIFIER - CONTROL UNIT

- Facilities.
- \* Equalisation for latest R.I.A.A. Characteristics.
  - \* Input for Variable Reluctance Magnetic Pick-Up.
  - \* Input for Crystal Pick-Up.
  - \* Input for Tape Replay.
    - (a) Direct from High Impedance Tape Head.
    - (b) or from a Tape Pre-Amplifier.
  - \* Sensitive Microphone Channel.
  - \* Wide range Separate Bass and Treble Controls.
  - \* Front panel styled to match modern furnishings.

### Technical Specification

|                      |   |  |
|----------------------|---|--|
| <u>Signal Inputs</u> | A ... <u>Radio</u>  | Impedance 1 Meg ohm.<br>Sensitivity 300 mV.                                    |
|                      | B ... <u>Tape Playback</u> (1)<br>Crystal Pick Up (High Output) | Impedance 1 Meg ohm.<br>Sensitivity 300 mV.                                    |
|                      | C ... <u>Tape Playback</u> (2)                                  | Impedance 100 K ohm.<br>Sensitivity 4 mV.                                      |
|                      | D ... <u>Microphone</u> (Jack 1)                                | Impedance 1 Meg ohm.<br>Sensitivity 7.5 mV.                                    |
|                      | E ... <u>Magnetic Pick Up</u>                                   | Impedance 100 K ohm.<br>L.P. Sensitivity 5 mV.<br>Std. 78 Sensitivity 13 mV.   |
|                      | F ... <u>Crystal Pick Up</u>                                    | Impedance 100 K ohm.<br>L.P. Sensitivity 70 mV.<br>Std. 78 Sensitivity 200 mV. |

Audio Output Voltage The standard AUDIO OUTPUT of the PRE-AMPLIFIER is 250 milli-volts. For use with the 5-10 Amplifier correct attenuation is added to produce the required output of 40/50 milli-volts across the AUDIO OUTPUT LEAD.

Tape Record The Output Jack is fed from the anode of V2, therefore the signal voltage is not affected by the tone or volume controls. By the addition of a tape deck, pre-recorded tapes may be played back through the Pre-Amplifier. We must emphasize that for recording purposes a bias oscillator tape amplifier is necessary.

Power Requirements 250/350 Volts at 3 mA.  
L.T. 6.3 Volts at 0.6 Amps.

Valves 1 ... EF86, First Stage ... Equalisation.  
1 ... EF86, Second Stage ... Voltage Amplifier and Tone Control.

Controls (a) Input Selector ... Six position Switch.  
(b) Bass } Low impedance, continuously variable  
(c) Treble } Tone Controls.  
(d) Volume and Mains On/off Switch.

Dimensions Length ... 9 $\frac{1}{8}$ ". Depth ... 4 $\frac{1}{2}$ ".  
Height ... 2 $\frac{3}{8}$ ". Weight ... 3 $\frac{1}{4}$  lbs.

Front Panel Finished in attractive highly polished Dark Maroon Perspex with Gold Lettering. Size ... 10 $\frac{1}{2}$ " x 2 $\frac{5}{8}$ ".

THE COMPLETE KIT OF PARTS to build the MULLARD 2 VALVE PRE-AMPLIFIER CONTROL UNIT is available for ... £6. 6. Od. or alternatively we supply it ASSEMBLED AND TESTED for ... £8. 0. Od.

Carriage and Insurance is 5/- extra.

PARTS LIST & COMPONENT PRICES - MAIN AMPLIFIER ONLY

| RESISTORS ... |                               |        |                       | CAPACITORS ... |                   |                                |                              |   |   |   |   |
|---------------|-------------------------------|--------|-----------------------|----------------|-------------------|--------------------------------|------------------------------|---|---|---|---|
|               | s                             | d      |                       |                | s                 | d                              |                              |   |   |   |   |
| R1            | 2.2 Meg.                      | 1/2W.  | Red-Red-Grn.          | 4              | C1                | )                              | 50+50 mfd. Electrolytic.     | 7 | 9 |   |   |
| R2            | 120K                          | High   | Stability As mkd.     | 1              | C2                | )                              | 350 V Wkg.                   |   |   |   |   |
| R3            | 470K                          | High   | Stab. As marked.      | 1              | C3                | )                              | 16+16 mfd. Electrolytic.     | 4 | 6 |   |   |
| R4            | 1.8K                          | High   | Stab. As marked.      | 1              | C4                | )                              | 350 V Wkg.                   |   |   |   |   |
| R5            | 100 ohm                       | High   | Stab. As m'ked        | 1              | C5                |                                | 100 mfd. Elect. Tubular.     |   |   |   |   |
| R6            | 150K                          | 1/2W.  | Brn-Grn-Yellow.       | 4              |                   |                                | 12/25V. Wkg.                 | 3 | 0 |   |   |
| R7            | 68K                           | 1/2W.  | Blue-Grey-Orange.     | 4              | C6                |                                | .05mfd. Tub. 350 V Wkg.      | 1 | 0 |   |   |
| R8            | 1 Meg.                        | 1/2W.  | Brn-Black-Green.      | 4              | C7                |                                | .1mfd. Tub. 350 V Wkg.       | 1 | 0 |   |   |
| R9            | 100K                          | 1/2W.  | Brn-Black-Yellow.     | 4              | C8                |                                | .1mfd. Tub. 350 V Wkg.       | 1 | 0 |   |   |
| R10           | 100K                          | 1/2W.  | Brn-Black-Yellow.     | 4              | C9                |                                | .1mfd. Tub. 350 V Wkg.       | 1 | 0 |   |   |
| R11           | 33K                           | 1/2W.  | Orange-Orge-Orge.     | 4              | C10               |                                | 50mfd. Elect. 25/50V Wkg.    | 2 | 6 |   |   |
| R12           | 820K                          | 1/2W.  | H.S. As marked.       | 1              | C11               |                                | 50mfd. Elect. 25/50V Wkg.    | 2 | 6 |   |   |
| R13           | 820K                          | 1/2W.  | H.S. As marked.       | 1              | C12A              |                                | 220pF. S.M. (3 ohm Spk.)     |   | 9 |   |   |
| R14           | 4.7K                          | 1/2W.  | Yellow-Mauve-Red.     | 4              | C12B              |                                | 100pF. S.M. (15 ohm Spk.)    |   | 9 |   |   |
| R15           | 4.7K                          | 1/2W.  | Yellow-Mauve-Red.     | 4              | C13               |                                | 300/330pF. Silver Mica.      |   | 9 |   |   |
| R16           | 270/300 ohm.                  | 5W.    | As marked.            | 1              | C14               |                                | 16mfd. Elect. Tub. 350V.     | 3 | 6 |   |   |
| R17           | 270/300 ohm.                  | 5W.    | As marked.            | 1              |                   |                                |                              |   |   |   |   |
| R18           | 5.6K                          | 1W.    | Green-Blue-Red.       | 6              |                   |                                |                              |   |   |   |   |
| R19           | 47 ohm.                       | 1/2W.  | Yell-Mauve-Blk.       | 4              | MISCELLANEOUS ... |                                |                              |   |   |   |   |
| R20           | 47 ohm.                       | 1/2W.  | Yell-Mauve-Blk.       | 4              | 1                 | B9A Skirted Nylon loaded Valve |                              |   |   |   |   |
| R21A          | 15K                           | 1/2W.  | (for 3 ohm Speaker)   |                |                   | Base with Screen (V1).         |                              |   | 1 | 9 |   |
|               |                               |        | Brown-Green-Orange.   | 4              | 4                 | B9A Valve Bases.               |                              |   | 2 | 8 |   |
| R21B          | 33K                           | 1/2W.  | (for 15 ohm Speaker)  |                | 1                 | Int. Octal Valve Base.         |                              |   |   | 9 |   |
|               |                               |        | Orange-Orange-Orange. | 4              | 1                 | Int. Octal Plug.               |                              |   | 2 | 3 |   |
| R22           | 10K                           | 1/2W.  | Brown-Black-Orange.   | 4              | 1                 | Co-Axial Skt. Flush (SK1)      |                              |   | 1 | 0 |   |
| R23           | 300 ohm.                      | 3W.    | As marked.            | 1              | 1                 | Co-Axial Plug.                 |                              |   | 1 | 3 |   |
| R24           | 300 ohm.                      | 3W.    | As marked.            | 1              | 1                 | 16 Way Group Board.            |                              |   | 2 | 0 |   |
| R25           | 1K                            | 1/2W.  | Brown-Black-Red.      | 4              | 2                 | Single Tag Posts.              |                              |   | 4 |   |   |
| R26           | 1K/1.2K.                      | 5W.    | As marked.            | 1              | 1                 | 2 Way Terminal Block.          |                              |   |   | 6 |   |
|               |                               |        |                       | 6              | 1                 | Paxolin Condenser Mounting     |                              |   |   |   |   |
| 1             | Chassis Drilled & Cut.        |        |                       | 13             | 9                 | Base, large.                   |                              |   |   | 2 |   |
| 1             | Mains Transformer, Parmeko    |        |                       |                |                   | 1                              | Paxolin Condenser Mounting   |   |   |   |   |
|               | Fused                         | £2.5.0 |                       |                |                   | Base, small.                   |                              |   |   | 2 |   |
| 1             | Output Transformer, Parmeko   |        |                       |                |                   | 1                              | Loudspeaker 2 Way Socket.    |   |   |   | 5 |
|               | type P2642.                   | £2.1.6 |                       |                |                   | 1                              | 3 Pole 2 Way Switch Pre-Set  |   |   | 2 | 6 |
|               | - or -                        |        |                       |                |                   | 1                              | Cable Clip.                  |   |   |   | 2 |
| 1             | Output Transformer, Partridge |        |                       |                |                   | 1                              | yard. Flexible Wire, Green,  |   |   |   |   |
|               | type TD4832.                  | £3.7.6 |                       |                |                   |                                | for heaters.                 |   |   |   | 3 |
|               |                               |        |                       |                |                   | 3                              | yards. 1/2 mm Sleeving.      |   |   |   | 9 |
|               |                               |        |                       |                |                   | 3                              | yards. 3 Core Mains Cable.   |   |   | 2 | 3 |
|               |                               |        |                       |                |                   | 1                              | pkt. Nuts, Screws, Grommets, |   |   |   |   |
|               |                               |        |                       |                |                   |                                | etc.                         |   |   | 4 | 6 |
|               |                               |        |                       |                |                   | 1                              | Instruction Manual.          |   |   | 1 | 3 |

NOTE ... FOR AN ADDITIONAL CHARGE OF £1. 6. 0. WE WILL SUPPLY THE PARTRIDGE ULTRA-LINEAR OUTPUT TRANSFORMER, AS SPECIFIED IN PLACE OF THE PARMEKO.

PLEASE INCLUDE 1/- EXTRA WITH SUNDRY ORDERS FOR CARRIAGE and INSURANCE.

PARTS LIST & COMPONENT PRICES - CONTROL UNIT ONLY

| RESISTORS ... |         |       |                    | CAPACITORS ... |    |   |                           |  |   |
|---------------|---------|-------|--------------------|----------------|----|---|---------------------------|--|---|
|               | s       | d     |                    |                | s  | d |                           |  |   |
| R1            | 1 Meg   | 1/2W. | Brown-Black-Green. | 4              | C1 |   | 30/33pF. S.M. or Tubular. |  | 9 |
| R2            | 1.5 Meg | 1/2W. | Brown-Grn-Grn.     | 4              | C2 |   | 30/33pF. S.M. or Tubular. |  | 9 |
| R3            | 150K    | 1/2W. | Brn-Green-Yellow.  | 4              | C3 |   | 680/700pF. S.M. or Tub.   |  | 9 |
| VR1           | 1 Meg   | Log   | Potentiometer.     | 3              | C4 |   | 270pF Silver Mica or Tub. |  | 9 |
| VR2           | 2 Meg   | Log   | Potentiometer.     | 3              | C5 |   | 3000/3300pF. S.M. or Tub. |  | 9 |
| VR3           | 2 Meg   | Log   | Potentiometer.     | 3              |    |   |                           |  |   |

Special Price Reductions continued from overleaf ...

(e) BOTH THE 5-10 AMPLIFIER and the MULLARD 2 VALVE PREAMPLIFIER  
TONE CONTROL UNIT incorporating PARMEKO  
TRANSFORMER ... .. £18. 18. 0.

HIRE PURCHASE - Deposit £3.16.8 and 12 monthly  
payments of £1.7.8 or alternatively ...  
Deposit £6.6.0 and 12 monthly  
payments of £1.3.1.

(f) BOTH THE 5-10 AMPLIFIER and the MULLARD 2 VALVE PREAMPLIFIER  
TONE CONTROL UNIT incorporating PARTRIDGE  
OUTPUT TRANSFORMER ... .. £20. 4. 0.

HIRE PURCHASE - Deposit £4.0.0 and 12 monthly  
payments of £1.9.8 or alternatively ...  
Deposit £6.14.8 and 12 monthly  
payments of £1.4.8.

PLEASE INCLUDE COST OF CARRIAGE AND INSURANCE AS SHOWN FOR KITS.

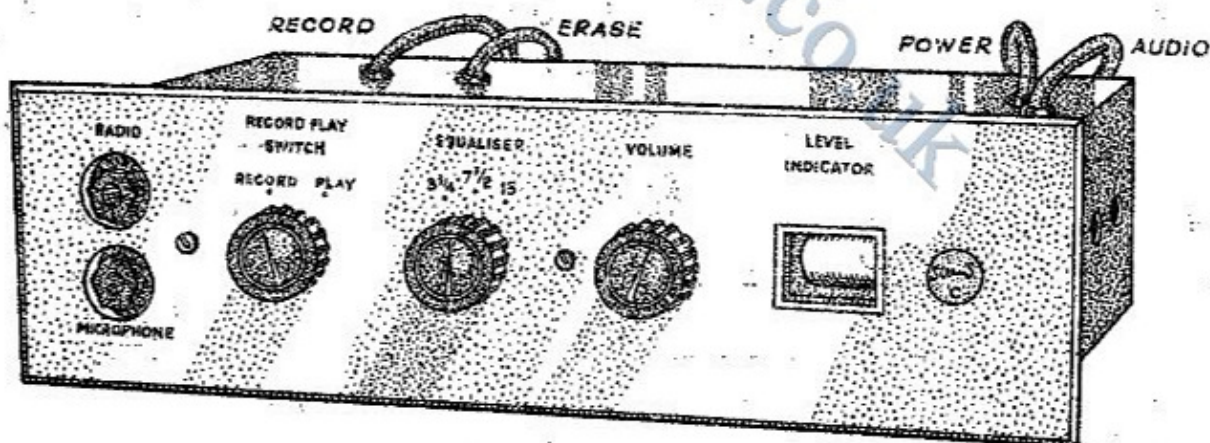
A VERY HIGH QUALITY TAPE PRE-AMPLIFIER SPECIFICALLY DESIGNED TO FORM  
THE "LINK" REQUIRED TO ADD TAPE FACILITIES TO HIGH FIDELITY SOUND  
INSTALLATIONS ...

STERN'S "TYPE C" TAPE PRE-AMPLIFIER

Based Entirely on the latest Design by Mullard Laboratories  
INCORPORATING FERROXUBE POT CORES

For  
Push Pull OSCILLATOR and Treble EQUALISATION  
(Tapped Secondary for Head Patching) (Switched for Three  
Head Patching) Tape Speeds)

CAN BE SUPPLIED MATCHED FOR BRENELL, COLLARO, LANE, MOTEK, TRUVOX,  
WEARITE TAPE DECKS.



Available as a Complete Kit of Parts ... .. £14. 0. 0.  
Alternatively, Fully Assembled and Tested ... .. £17. 0. 0.  
(carr. & ins. 5/- extra)

HIRE PURCHASE TERMS - Assembled Unit only. Deposit £3.8.0 and  
12 monthly payments of £1.4.11.

The above prices include supply of separate small POWER SUPPLY UNIT ..  
PRICES EXCLUDING this Unit are £11.15.0 and £14.10.0 respectively.

The Assembly Manual containing complete specification, drawings, etc.  
is available for 3/- including postage, or send S.A.E. for fully  
descriptive leaflet.



Parts List of Control Unit continued from overhead ...

CHASSIS AND PANEL ...

|  |   |   |
|--|---|---|
| 1 Box Chassis complete with Indicator Brkt and under Chassis Screen. | 9 | 6 |
| 1 Engraved Front Panel, Perspex.                                     | 7 | 6 |
| 6" Single Screened Ins. Cable  | 6 |   |
| 1 yd. 1/2 mm. Sleeving.  | 3 |   |
| 1 pkt of Nuts, Screws, Grommets, etc.                                | 2 | 0 |
| 1 yd. Single PVC for Switch and Pilot Lamp.                          | 4 |   |

MISCELLANEOUS ...

|                                      |   |   |
|--------------------------------------|---|---|
| S1 2 pole 3 Way Switch               | 2 | 9 |
| S2 Single Pole OFF/ON Rotary Switch. | 2 | 9 |
| 1 Lilliput Lamp Holder.              | 1 | 9 |
| 1 Lilliput Lamp, 6.5V.               | 1 | 1 |
| 2 Co-Axial Sockets, Flush.           | 2 | 0 |
| 5 Control Knobs.                     | 3 | 9 |
| 2 Co-Axial Plugs.                    | 2 | 6 |
| 1 Single Tag Post.                   | 1 | 2 |

SPECIAL PRICE REDUCTIONS

QUALITY OF THIS NATURE HAS NEVER BEFORE BEEN OFFERED AT SUCH LOW COST

WE WILL SUPPLY  
KITS OF PARTS ..

- (a) TO BUILD THE 5-10 AMPLIFIER ONLY with PARMEKO OUTPUT TRANSFORMER ... .. £10. 0. 0.  
(plus 5/- carr. & ins.)
- (b) TO BUILD THE 5-10 AMPLIFIER with PARTRIDGE ULTRA LINEAR OUTPUT TRANSFORMER ... .. £11. 6. 0.  
(plus 5/- carr. & ins.)
- (c) TO BUILD BOTH THE 5-10 AMPLIFIER, CONTAINING PARMEKO TRANSFORMER and the CONTROL ... .. £11. 10. 0.  
(plus 7/6 carr. & ins.)
- (d) TO BUILD BOTH THE 5-10 AMPLIFIER, CONTAINING PARTRIDGE TRANSFORMER and the CONTROL UNIT ... .. £12. 16. 0.  
(plus 7/6 carr. & ins.)
- (e) TO BUILD BOTH THE 5-10 AMPLIFIER and the MULLARD 2 VALVE PREAMPLIFIER-TONE CONTROL UNIT, incorporating the PARMEKO TRANSFORMER ... .. £15. 15. 0.  
(plus 7/6 carr. & ins.)
- (f) TO BUILD BOTH THE 5-10 AMPLIFIER and the MULLARD 2 VALVE PREAMPLIFIER-TONE CONTROL UNIT, incorporating the PARTRIDGE OUTPUT TRANSFORMER ... .. £17. 1. 0.  
(plus 7/6 carr. & ins.)

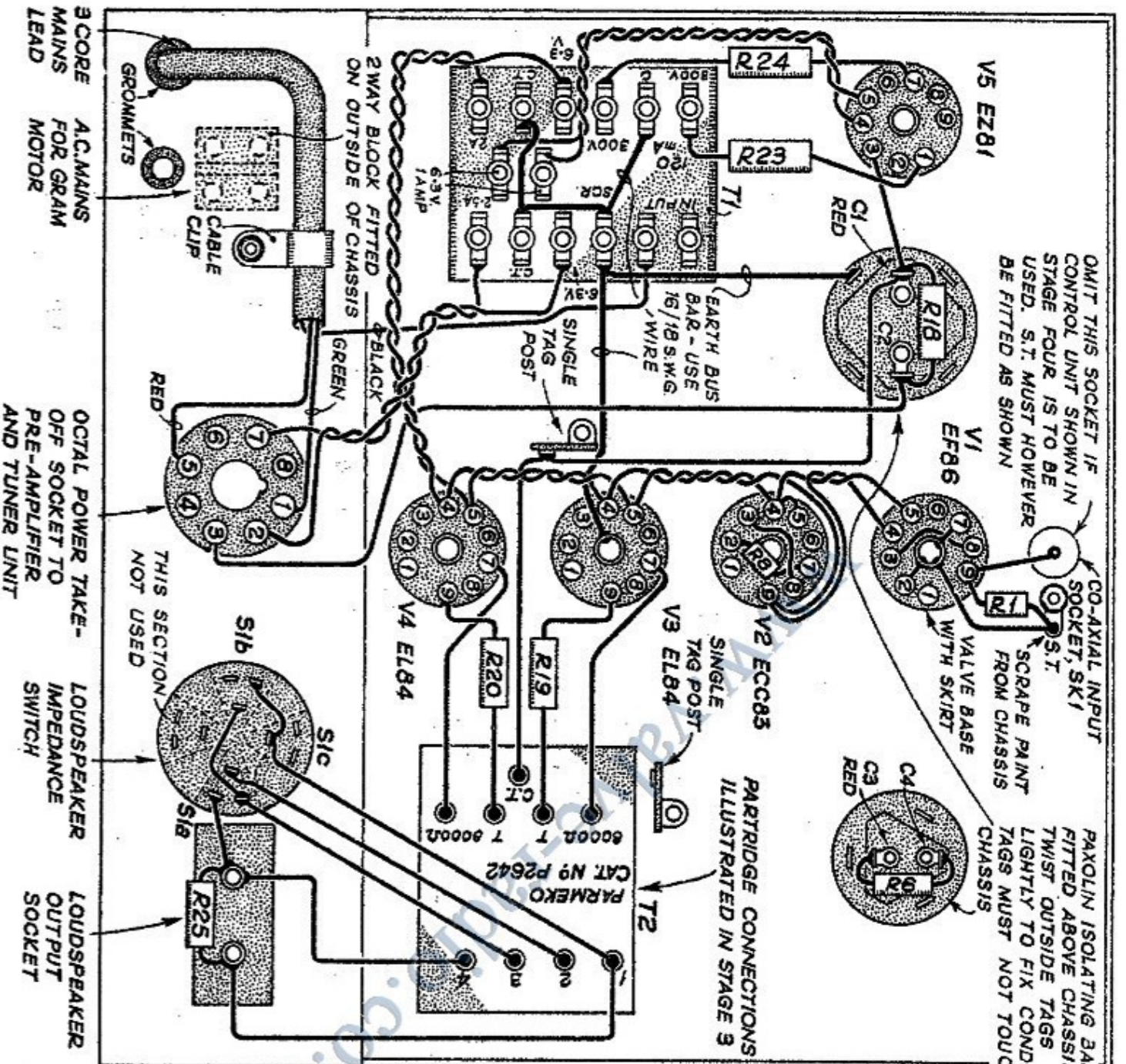
ALTERNATIVELY WE SUPPLY  
ASSEMBLED READY & FULLY TESTED

- (a) THE 5-10 MAIN AMPLIFIER ONLY containing the PARMEKO OUTPUT TRANSFORMER ... .. £11. 10. 0.
- (b) THE 5-10 MAIN AMPLIFIER ONLY incorporating the PARTRIDGE OUTPUT TRANSFORMER ... .. £12. 16. 0.
- (c) THE 5-10 AMPLIFIER incorporating the CONTROL UNIT and containing PARMEKO TRANSFORMER ... .. £13. 10. 0.

HIRE PURCHASE - Deposit £2.14.0 and 12 monthly payments of 19/10 or alternatively ...  
Deposit £4.10.0 and 12 monthly payments of 16/8d.

- (d) THE 5-10 AMPLIFIER incorporating the CONTROL UNIT and PARTRIDGE OUTPUT TRANSFORMER ... .. £14. 16. 0.

HIRE PURCHASE - Deposit £3.0.0 and 12 monthly payments of £1.1.8 or alternatively ...  
Deposit £4.18.8 and 12 monthly payments of 18/1d.



OMIT THIS SOCKET IF CONTROL UNIT SHOWN IN STAGE FOUR IS TO BE USED. S.T. MUST HOWEVER BE FITTED AS SHOWN


CO-AXIAL INPUT SOCKET, SKI

SCRAP PAINT FROM CHASSIS

VALVE BASE WITH SKIRT

PAXOLIN ISOLATING BASE FITTED ABOVE CHASSIS. TWIST OUTSIDE TAGS LIGHTLY TO FIX CONDENSER. TAGS MUST NOT TOUCH CHASSIS

PARTRIDGE CONNECTIONS ILLUSTRATED IN STAGE 3

- WIRING INSTRUCTIONS -**
1. ENSURE THAT ALL WIRING IS RUN AS NEAR AS POSSIBLE TO THAT SHOWN IN THE DIAGRAM. THE WIRING FROM THE BACK PANEL WILL OF COURSE BE SHORTER THAN ILLUSTRATED BECAUSE THE PANEL IS DRAWN FLAT FOR CLARITY OF WIRING.
  2. ALL WIRES CARRYING A.C. MUST BE LIGHTLY TWISTED TOGETHER TO AVOID HUM RADIATION. SUCH WIRING IS SHOWN 
  3. ENSURE THAT THE PAINT IS SCRAPED AWAY FROM THE CHASSIS BEFORE FIXING THE SOLDER TAG S.T. THIS IS THE SINGLE AND ONLY POINT THAT THE BUS-BAR EARTH LINE JOINS TO THE CHASSIS.
  4. CHECK CAREFULLY ALL CONNECTIONS AND PROCEED TO NEXT STAGE.

**STAGE ONE - MAIN ASSEMBLY & BASIC WIRING**

3 CORE A.C. MAINS LEAD FOR GRAM MOTOR

2 WAY BLOCK FITTED ON OUTSIDE OF CHASSIS

CABLE CLIP

GROMMETS

BLACK

GREEN

RED

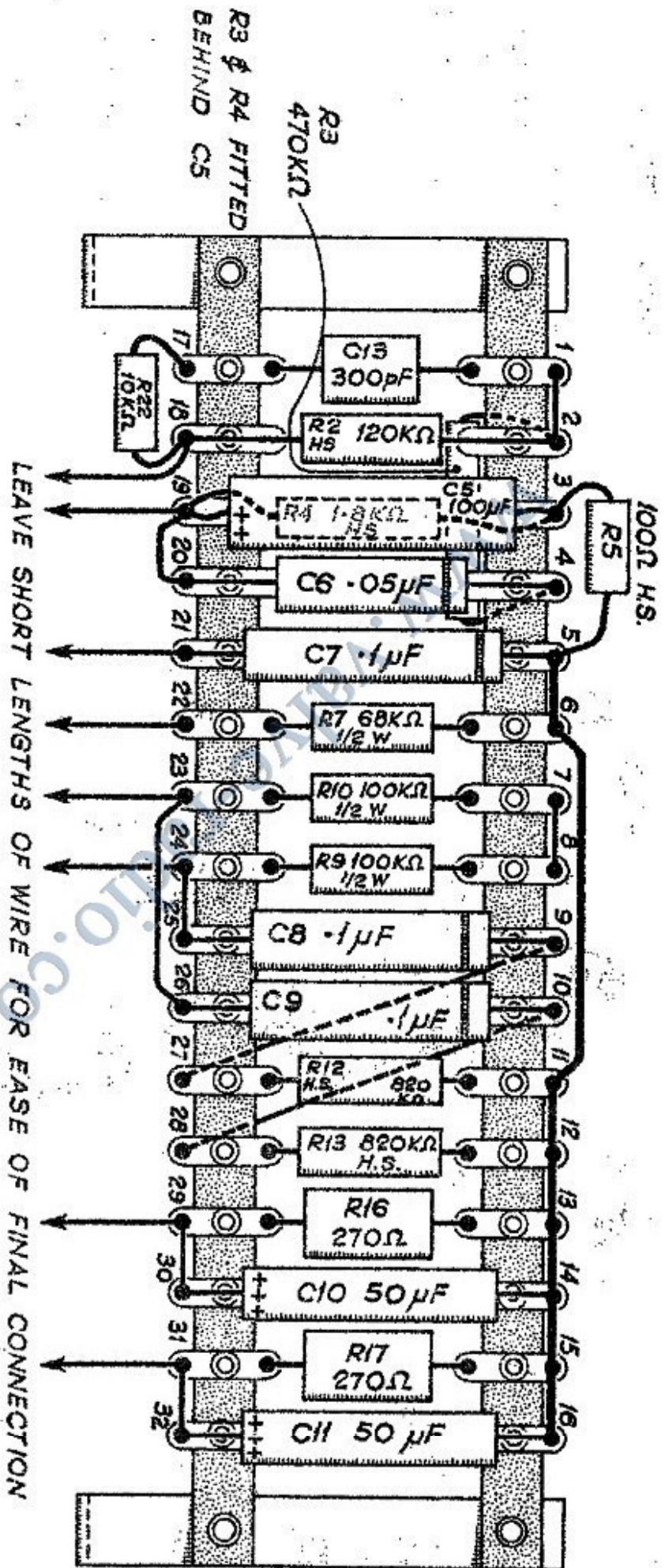
OCTAL POWER TAKE-OFF SOCKET TO PRE-AMPLIFIER AND TUNER UNIT

THIS SECTION NOT USED

LOUDSPEAKER IMPEDANCE SWITCH

LOUDSPEAKER OUTPUT SOCKET

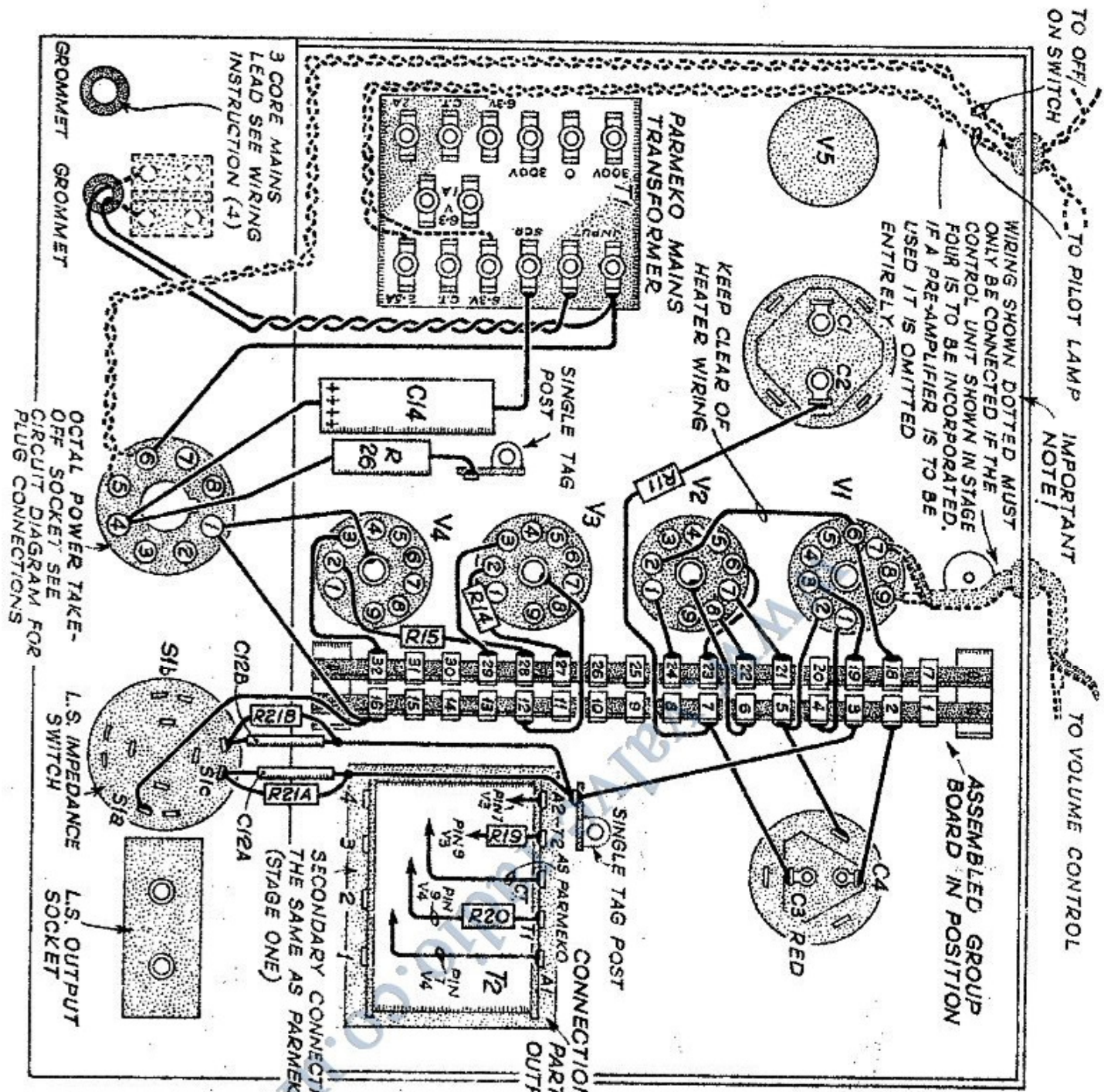
STAGE TWO - GROUP BOARD WIRING  
BEFORE ASSEMBLY TO CHASSIS



BLACK BANDS ON CONDENSERS C6-7-8-9 INDICATE OUTSIDE FOIL

**WIRING INSTRUCTIONS -**

1. THE WIRING OF THE GROUP BOARD MUST BE SHORT AND DIRECT. ENSURE THAT ANY METAL CASED COMPONENTS DO NOT SHORT TO THE CONNECTING TAG. WIRING TO THE TOP OF TAG BOARD, i.e., 1-16 MUST BE KEPT BELOW THE LEVEL OF THE TAGS. THIS AVOIDS THE POSSIBILITY OF THE WIRING STANDING PROUD OF THE CHASSIS WHEN FITTED.



TO OFF/ ON SWITCH

TO PILOT LAMP

IMPORTANT NOTE!

TO VOLUME CONTROL

WIRING SHOWN DOTTED MUST ONLY BE CONNECTED IF THE CONTROL UNIT SHOWN IN STAGE FOUR IS TO BE INCORPORATED. IF A PRE-AMPLIFIER IS TO BE USED IT IS OMITTED ENTIRELY.

ASSEMBLED GROUP BOARD IN POSITION

3 CORE MAINS LEAD SEE WIRING INSTRUCTION (4)

PARMEKO MAINS TRANSFORMER

KEEP CLEAR OF HEATER MAINS

SINGLE TAG POST

C/4 R 26

SINGLE TAG POST

OCTAL POWER TAKE-OFF SOCKET SEE CIRCUIT DIAGRAM FOR PLUG CONNECTIONS

L.S. IMPEDANCE SWITCH

L.S. OUTPUT SOCKET

CONNECTIONS FOR PARTIRIDGE OUTPUT TRANS.

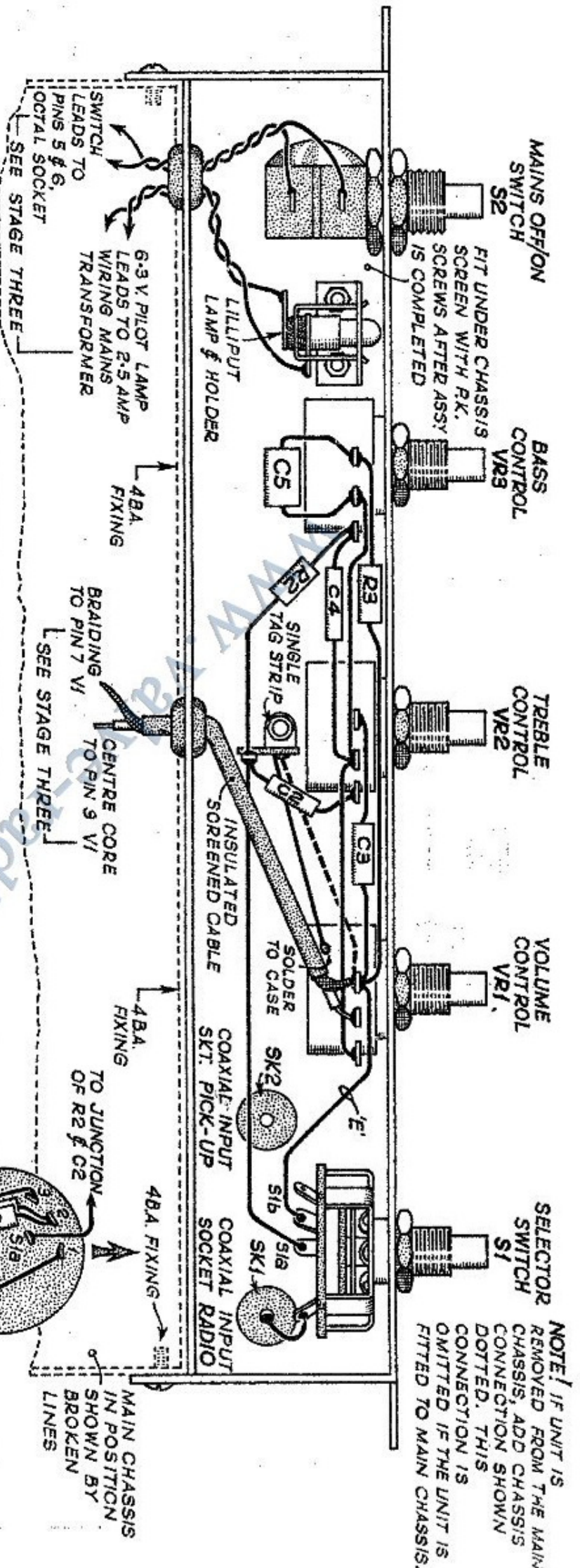
SECONDARY CONNECTIONS THE SAME AS PARMEKO (STAGE ONE)

**STAGE THREE - FINAL WIRING**

**FEEDBACK** - SHOULD A HIGH PITCHED OSCILLATION BE APPARENT WHEN FIRST SWITCHING ON, SWITCH OFF IMMEDIATELY AND REVERSE CONNECTION OF R14 & R15 ON /6 WAY GROUP BOARD.

**WIRING INSTRUCTIONS -**

1. THE WIRING DETAIL SHOWN IN THE PREVIOUS DRAWING HAS BEEN OMITTED IN THIS STAGE FOR CLARITY.
2. ENSURE THAT THE COMPONENTS AND WIRING ARE PLACED AS NEAR AS POSSIBLE TO THAT SHOWN IN THE DRAWING.
3. ENSURE THAT COMPONENTS FITTED PREVIOUSLY TO THE /6 WAY TAG BOARD DO NOT SHORT TO CHASSIS.
4. TO ENSURE MINIMUM HUM LEVEL THE GREEN CORE OF THE MAINS LEAD SHOULD BE CONNECTED TO A GOOD EARTH.



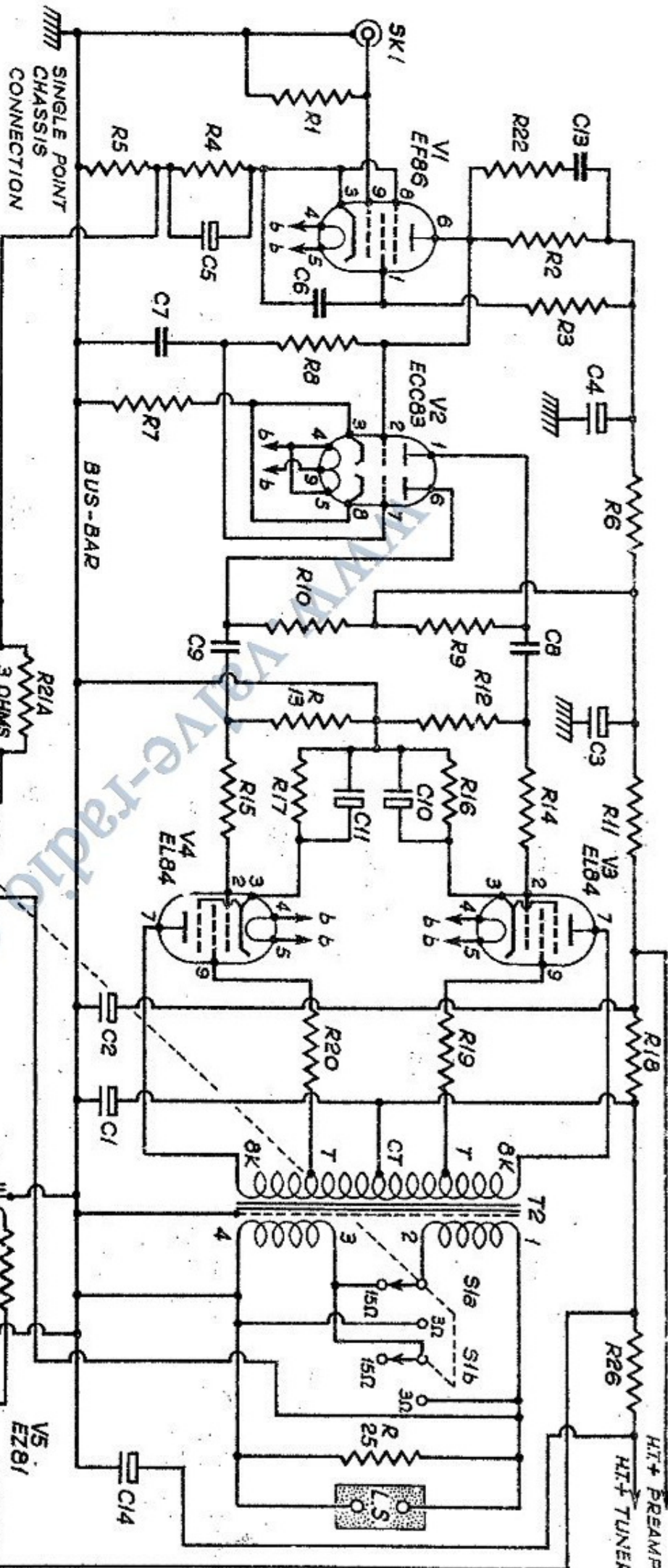
**WIRING INSTRUCTIONS -**

1. WIRE SELECTOR SWITCH BEFORE FITTING TO CHASSIS. LEAVE SHORT LEADS FOR FINAL CONNECTIONS.
2. ENSURE THAT WIRING AND COMPONENTS ARE POSITIONED AS CLOSELY AS POSSIBLE TO THAT SHOWN IN THE DRAWING.
3. THE A.C. SWITCH, PILOT LAMP AND GRID CONNECTIONS TO THE MAIN AMPLIFIER CAN, IF REQUIRED, BE EXTENDED SO THAT THE CONTROL UNIT MAY BE USED AS A REMOTE CONTROL UNIT DETACHED FROM THE MAIN AMPLIFIER. LOSS OF H.F. RESPONSE AND HUM WILL RESULT IF THE AUDIO SCREENED GRID LEAD IS EXTENDED BEYOND 2 YARDS.
4. ENSURE THAT THE UNDER CHASSIS SCREEN IS FITTED ON COMPLETION OF ASSEMBLY.
5. TO AVOID "EARTH LOOPS" A SINGLE EARTH OR INTERCHASSIS CONNECTION IS USED, THIS IS VIA THE SCREENED BRAIDING OF THE AUDIO LEAD. (OBSERVE NOTE IF THE UNIT IS REMOVED FROM THE MAIN CHASSIS).
6. HIGH GRADE SCREENED CABLE MUST BE USED FOR ALL INPUT CONNECTIONS - GRAMOPHONE MOTORS SHOULD BE EARTHED SEPARATELY AND NOT VIA THE BRAIDING OF THE SCREENED PICK-UP LEAD.

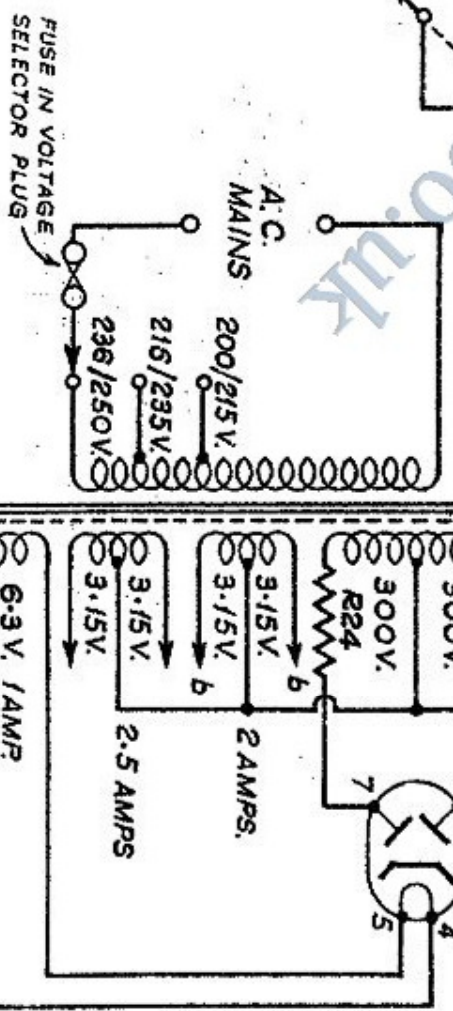
**STAGE FOUR - OPTIONAL CONTROL UNIT FOR ATTACHING TO MAIN 5-10 AMPLIFIER CHASSIS**

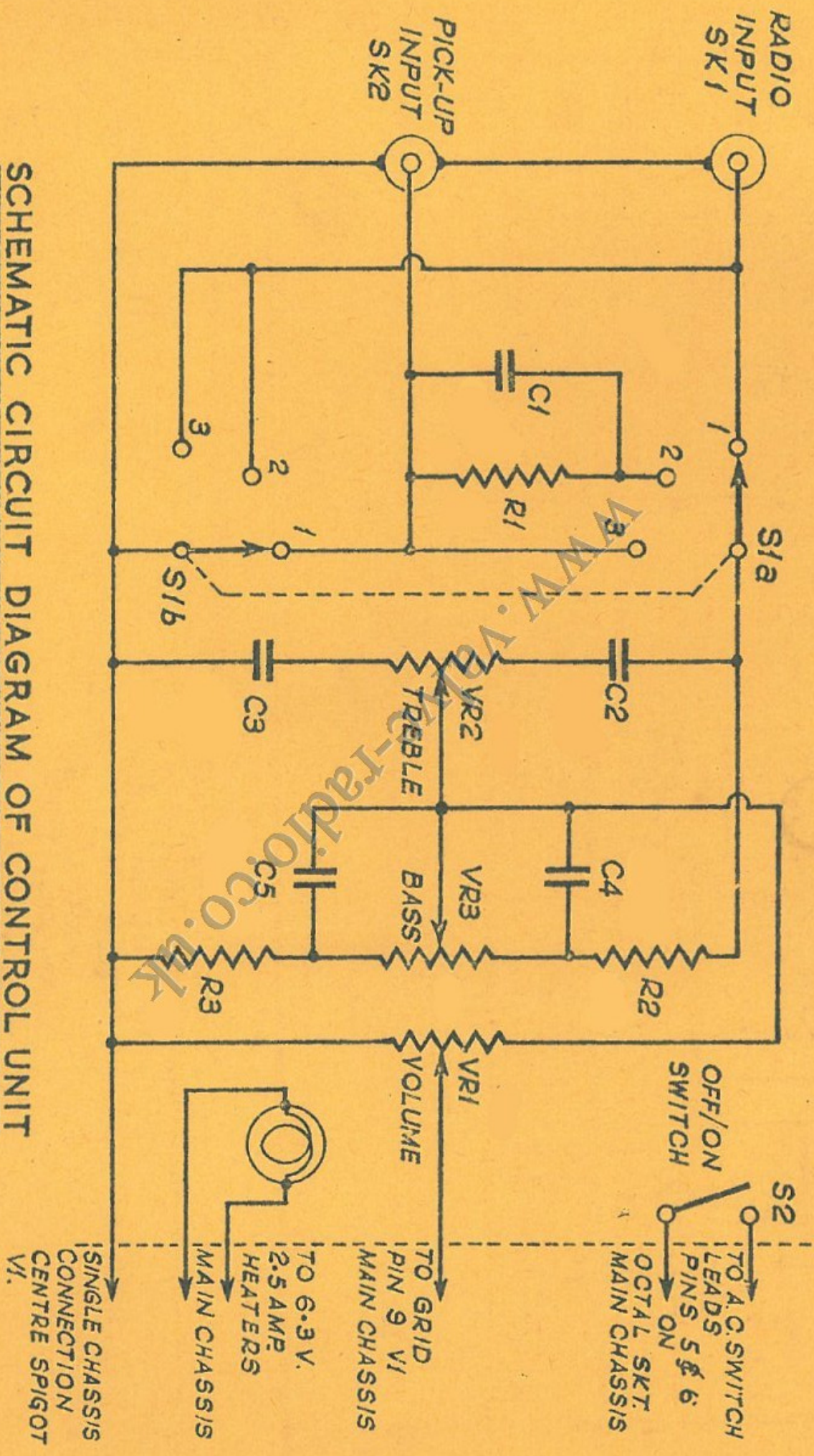
NOTE! IF UNIT IS REMOVED FROM THE MAIN CHASSIS, ADD CHASSIS CONNECTION SHOWN DOTTED. THIS CONNECTION IS OMITTED IF THE UNIT IS FITTED TO MAIN CHASSIS.

### 5-10 AMPLIFIER CIRCUIT DIAGRAM (Incorporating Ultra Linear Output Transformer)



- 1 TUNER EARTH LINE
- 2 HEATER
- 3 PRE-AMP H.T.+
- 4 TUNER H.T.+
- 5 A.C. SWITCH.
- 6 A.C. SWITCH. HEATER
- 7 NO CONNECTION
- 8 NO CONNECTION





**SCHEMATIC CIRCUIT DIAGRAM OF CONTROL UNIT**