## Some remarks

**It is advisable to switch off the apparatus by pushing down the master switch before opening the set.**

When the foregoing instructions have been properly carried out, the receiver should give entire satisfaction, the set having been thoroughly tested before being packed. If, after being installed, it does not work quite satisfactorily the following possibilities should be considered:

1) The valves may make poor contact; push them well home in their sockets and see that the valve pins are clean.
2) The aerial, earth and loudspeaker connections may make poor contact. Go over all these.
3) If the loudspeaker is provided with a switching device, this may be in the wrong position. Check this.
4) Where an aerial-earth switch is used, it may be in the wrong position. Check this.
5) The batteries, especially the "C" battery, may not have been connected exactly as indicated.
6) The batteries may be run down; the "A" battery should not read less than 3·6 volts and the "B" battery should not drop below 75 % of its original value, the set being switched on. The "C" battery should be replaced as soon as any considerable voltage-drop can be detected.
8) If a filament safety fuse is used, it may be burned out. Make sure that all connections are exactly as indicated and replace the fuse by a new one.

If a valve is suspected to be faulty, one can make sure about its condition by substituting another valve of the same type.

Should the receiver develop a fault consult your dealer, who will if necessary communicate with us.

**WITH THIS RECEIVER USE A PHILIPS LOUDSPEAKER AND A PHILIPS PICK-UP!**



# DIRECTIONS FOR USE OF

# PHILIPS

# RECEIVING SET

## MODEL 2532

## Description

Philips receiving set model 2532 has been specially constructed to operate from batteries.

The set can also be used together with a pick-up to reproduce gramophone records electrically through the loudspeaker with excellent quality and ample volume.

The receiver is supplied with the following Mullard valves:

P.M. 14 — screen-grid high-frequency valve;
P.M. 4 DX — detector valve;
P.M. 24 — power valve (pentode) with standard base.

A Philips lamp type 8047 illuminates both the tuning dials when the set is switched on, and thus also acts as a pilot light.

# Accessories required

It is essential to use the proper accessories to obtain the best results with this receiver. Only batteries of reliable manufacture should be used.

**Loudspeaker** This receiver has been specially designed to operate with a high-impedance loudspeaker. The use of a Philips moving-coil loudspeaker with an input transformer, such as Philips loudspeaker model 2109, is recommended. It is also possible to use a Philips electro-magnetic loudspeaker such as model 2019 or 2007.

**"A" battery** The "A" battery or low-tension accumulator which supplies the filament current is of the 4-volt type. In view of the low consumption of the valves incorporated, an accumulator of medium capacity is sufficient.

**"B" battery** This battery is required for supplying the anode voltage (approx. 150 volts). For this purpose two batteries can be connected in series [1]) to give the required voltage. These batteries should preferably be of the large-capacity type.
The anode voltage can also be obtained from a 150-volt accumulator.

**"C" battery** A "C" battery must be used to provide the required negative grid bias. As this battery supplies no current, a battery of small capacity will be found sufficient. This battery, the voltage of which should amount to at least

[1]) Connecting batteries in series is effected by connecting the positive terminal of the first battery to the negative of the second; the positive terminal of the second battery must in turn be connected to the negative of the third battery, if any, etc. The negative of the first battery and the positive of the last battery will then constitute the negative and positive terminals to be connected to the corresponding flexibles.



15 volts, should have tappings at intervals of 1·5 volts. It is also possible to obtain the required grid bias from the anode battery (see "Connections", page 6).

**Filament safety fuse** In order to prevent burning-out of the valves as a result of an accidental short-circuiting, a Philips filament safety fuse type 455 should be used.

**Voltmeter** In order to check the voltages of the various batteries, the use of a reliable voltmeter is essential.

# Installation

**Aerial**

Good results will be obtained with a single-wire aerial about 60 feet long (including lead-in wire).
For this purpose we recommend hard copper wire No. 18 S.W.G.
The aerial should be installed in as high and open a position as possible. Aerial and lead-in wires must be well insulated and should be kept away from metal conductors (high-tension and telephone-wires, water-pipes, heating pipes, etc.). Contact with climbing plants, etc. should be avoided. A taut wire is conducive to good reception. Care must be taken that any joints in the aerial wire are carefully soldered up.

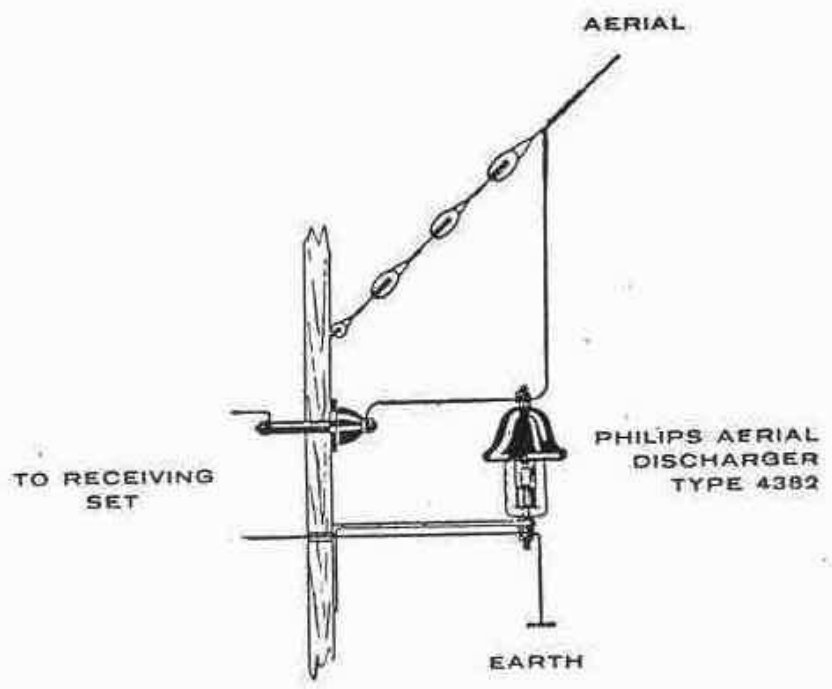



Fig. 1

We highly recommend using a Philips aerial discharger type 4382, for protection of the receiving set against atmospheric discharges. The method of connecting the aerial discharger is depicted in fig. 1.



**Earth connection**

A good earth is obtained by making connection to an earthing tube driven into damp soil or to a metal plate buried in a vertical position at the depth of damp soil.
As a rule a good connection to a clean main water-pipe by means of a clamp will be found sufficient.
The earth connection of a lightning arrester can also be used for this purpose.
The earth connection should be as short and direct as possible.
Gas mains or central heating systems should under no circumstances be used as an earth.

*Best reception results can only be obtained provided the aerial and earth are properly installed.*

**Connecting up**

First connect the sockets at the rear of the apparatus in the following manner:

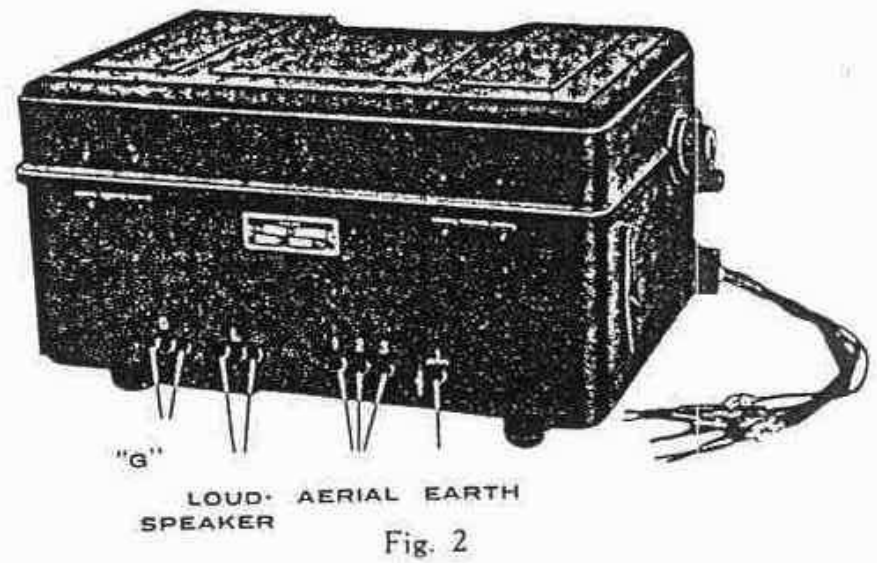



Fig. 2

Connect the earth wire to the socket marked "⏚". Insert the aerial plug in the socket number 2, the middle of the three sockets intended for this purpose. Then insert the loudspeaker plug in the sockets marked "L".

The flexible cord of the receiver should be connected in the following manner.

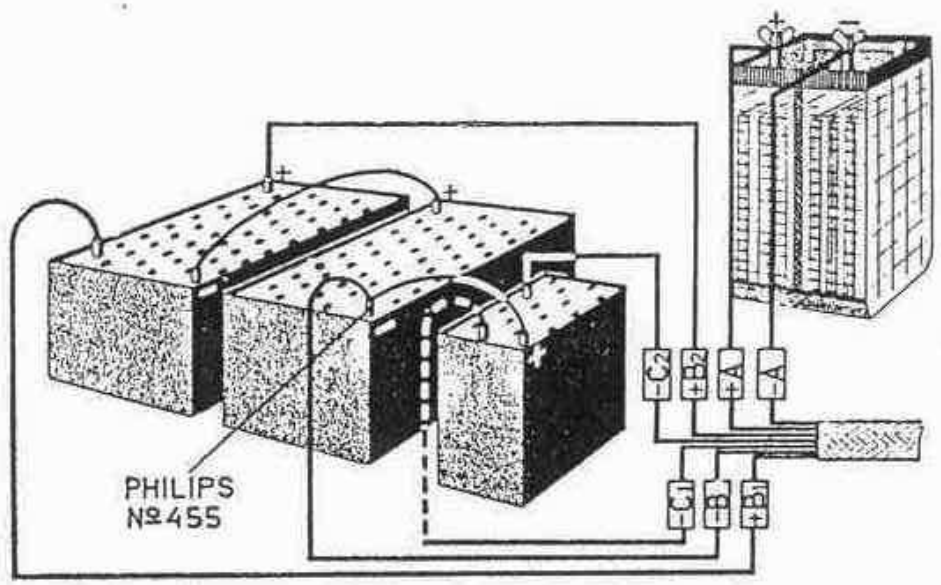



Fig. 3

Connect the wire marked:

—A to the negative terminal of the filament current accumulator ("A" battery).

+A to the positive terminal of the "A" battery (+ 4 volts).

—B to the negative terminal of the anode voltage supply ("B" battery). It is highly advisable to insert a Philips filament safety fuse type 455 in this lead.
If separate batteries are used to supply the anode voltage and grid bias, the positive terminal of the grid bias battery must be connected to "—B".

+$B_1$ to a tapping of the "B" battery which is approx. 80 volts positive relative to "—B".

+$B_2$ to the highest positive terminal of the "B" battery, i.e. approx. 150 volts positive relative to "—B".

—$C_1$ need only be connected if the set is used for electrical reproduction of gramophone records. In this case connect this lead to the tapping of the grid bias supply ("C" battery) which is 1·5 or 3 volts negative relative to the positive terminal of this battery (i.e. to "—B").

—$C_2$ to a tapping of the "C" battery which is approx. 15 volts negative relative to the positive terminal of this battery or to "—B" (see "Current consumption", page 11).

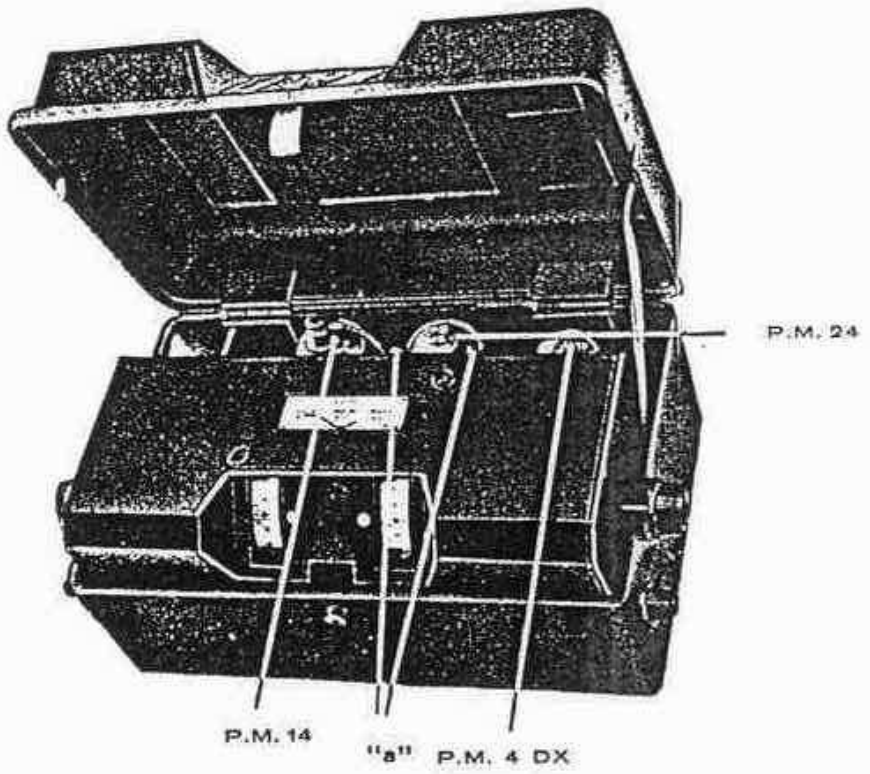



Fig. 4

**Inserting the valves**

Press the knob in front and open the lid. Carefully remove all packing and push the valves well home in their sockets as illustrated in fig. 4. Then close the lid.

# How to operate the set

**Switching on** The master switch which will be found on the left side of the receiver must be pressed upwards.

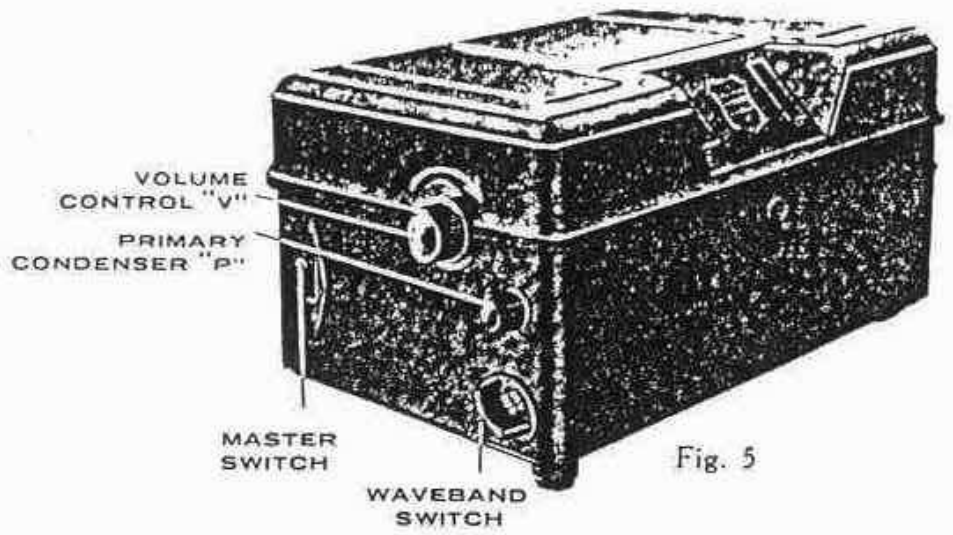



Fig. 5

**Waveband switch** The waveband switch has the following three positions:

200 — 450 m (1,500 kc/s — 667 kc/s)
400 — 950 m ( 750 kc/s — 316 kc/s)
900 — 2,100 m ( 333 kc/s — 143 kc/s).

Reception on the waveband desired is obtained by turning this switch so that the small arrow points towards the corresponding figures.

**Tuning** First turn the volume control "V" as far as it will go in the direction of the arrow (see fig. 5).
Then turn the reaction control "R" in the direction of the arrow (see fig. 6) until the receiver starts oscillating (the so-called oscillation point). At this point a "plop" will be heard, followed by a soft breathing sound. This oscillation does not cause interference in neighbouring sets.
Turn the tuning control "S" of the secondary condenser until a whistling sound — the carrier wave of a transmitter — becomes audible. Then turn control



"P" of the primary condenser until the whistling is at its loudest, and re-adjust control "S" until the whistling has reached its deepest pitch.
Turn the control "R" in the direction opposite to that of the arrow until the whistling ceases and music or

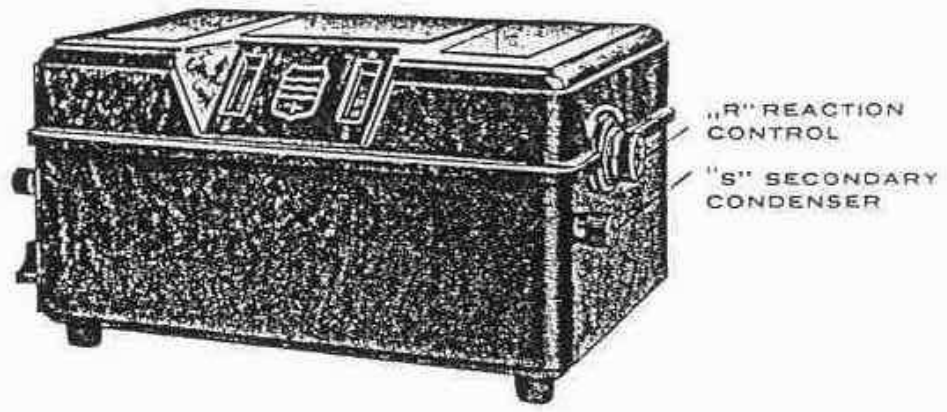



Fig. 6

speech is heard. This knob should be turned back sufficiently so that no distortion can be detected and there should be no whistling when control "S" is turned slightly to and fro.
By turning back control "V" or "R" the volume is decreased and can in this way be adjusted to the value required (see under "Selectivity").
A slight additional adjustment of both tuning controls "S" and "P" is essential in order to obtain best results.

**Sound volume** The volume can be increased not only by turning the controls "V" and "R" in the direction of the arrow, but also by removing the aerial plug from its socket "2" and inserting it in socket "3". This, however, causes a slight decrease in selectivity. Whenever the position of the aerial plug has been altered, the tuning control "P" must be re-adjusted.

**Selectivity** If the reception of a certain transmitter is jammed by another station the selectivity must be increased.
Good selectivity is obtained when the reaction control

"R" is turned as near as possible to the oscillation point — but without causing distortion — the volume being diminished as desired by turning control "V" in the direction opposite to that of the arrow.
Further increase in selectivity is obtained when the aerial plug is placed in socket "1", after which control "P" must be re-adjusted. This, however, results in a decrease in sound volume, which must be offset by re-adjusting control "R" or, if necessary, "V".

**Wavelength** For a given position of the waveband switch the higher the number shown by the dials, the greater will be the wavelength to which the set is tuned.
When the adjustment for a certain transmitter has been found, it should be noted. When this adjustment has repeatedly been found correct, it may be entered in the chart at the end of this booklet. Stations thus recorded can be reverted to at a moment's notice.

**Reception** All stations of sufficient power operating on wavelengths between 200 and 2,100 m can be regularly received with this apparatus. Under favourable conditions, especially at night, weaker and more distant transmitters can also be well heard.

**Tone filter** With the reception of certain stations the tone character may sometimes seem rather highly pitched; it can be softened by means of a Philips tone filter, which must then be inserted between receiving set and loudspeaker. This is done by placing the tone filter on the loudspeaker plug and plugging it into the loudspeaker sockets of the set.

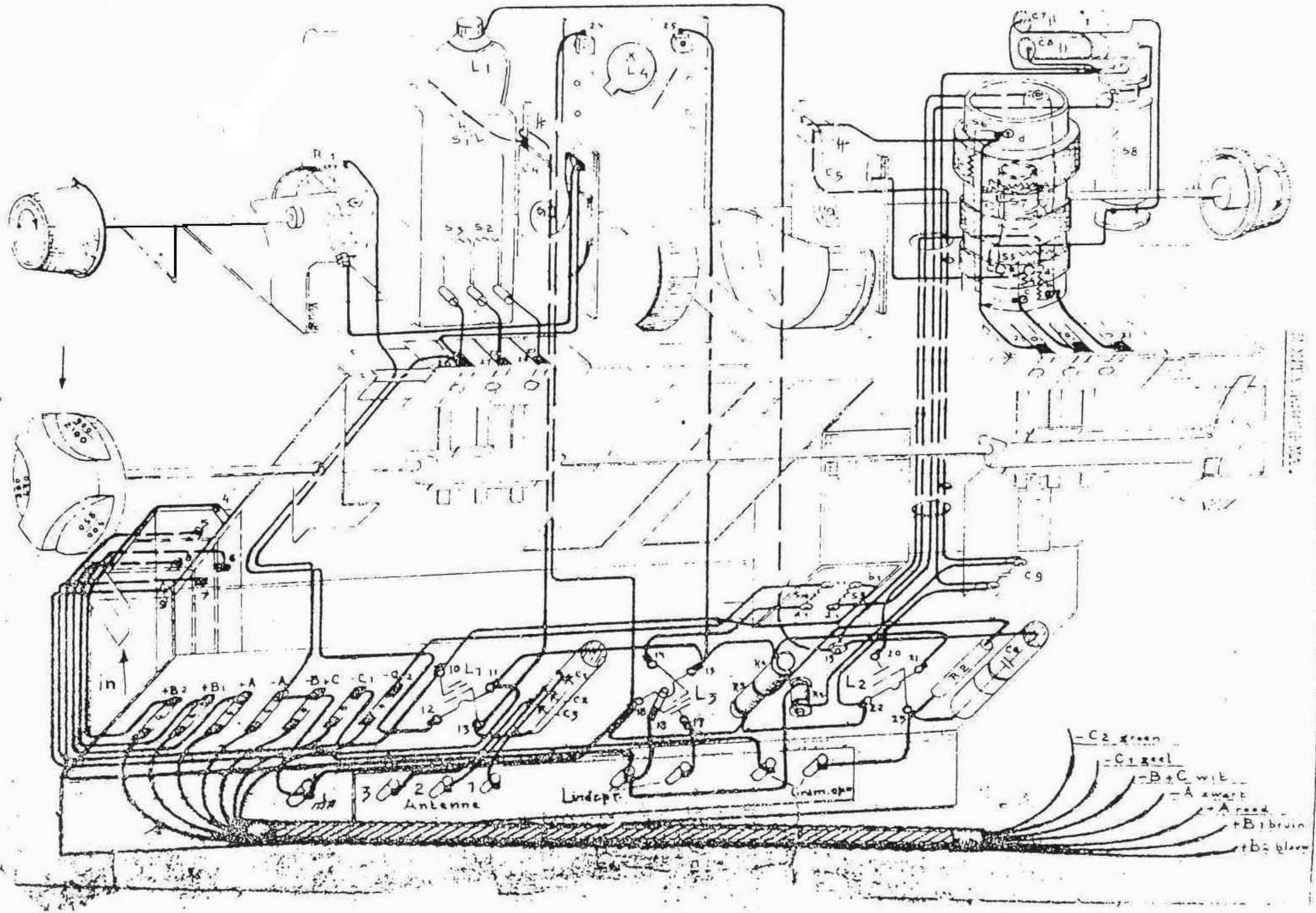
**Use of a pick-up** Gramophone record reproduction by means of a good electrical pick-up is much better than that obtained by means of a gramophone with an ordinary sound-box. All details of electrically-recorded records will be perfectly rendered; moreover, sound volume can be



adjusted to the desired strength by means of a separate volume control.
The pick-up must be connected to the two sockets provided for this purpose, marked "G" (see fig. 2). It is advisable then to turn the control "V" and "R" as far as possible in the direction opposite to that of the arrow. The flexible wires to loudspeaker and pick-up should be kept clear of each other.
The use of a Philips pick-up is strongly recommended. When reverting to radio-reception, disconnect the pick-up leads from the receiving set.

**Current consumption** The use of the pilot light in this receiver is optional, and it can be omitted in cases where low consumption of the current supplied by the "A" battery is of primary importance. In order to lift out this lamp loosen the two screws indicated by "a" in fig. 4. The holder together with the Philips lamp type 8047 can then easily be lifted out.
The higher the negative grid bias of the tapping to which the lead "$-C_2$" is connected, the lower will be the anode current, thus giving the anode battery a longer life. The output of the receiver will, however, be slightly larger if connection is made to a tapping of lower voltage. The grid bias of the lead "$-C_2$" may therefore range between $-12$ and $-21$ volts.

**Switching off** The apparatus is switched off by pressing the lever of the master switch downwards.




N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN
A.D. LAMPEN AFD. VOORSCHRIFTEN EN NORMALISATIE
2532
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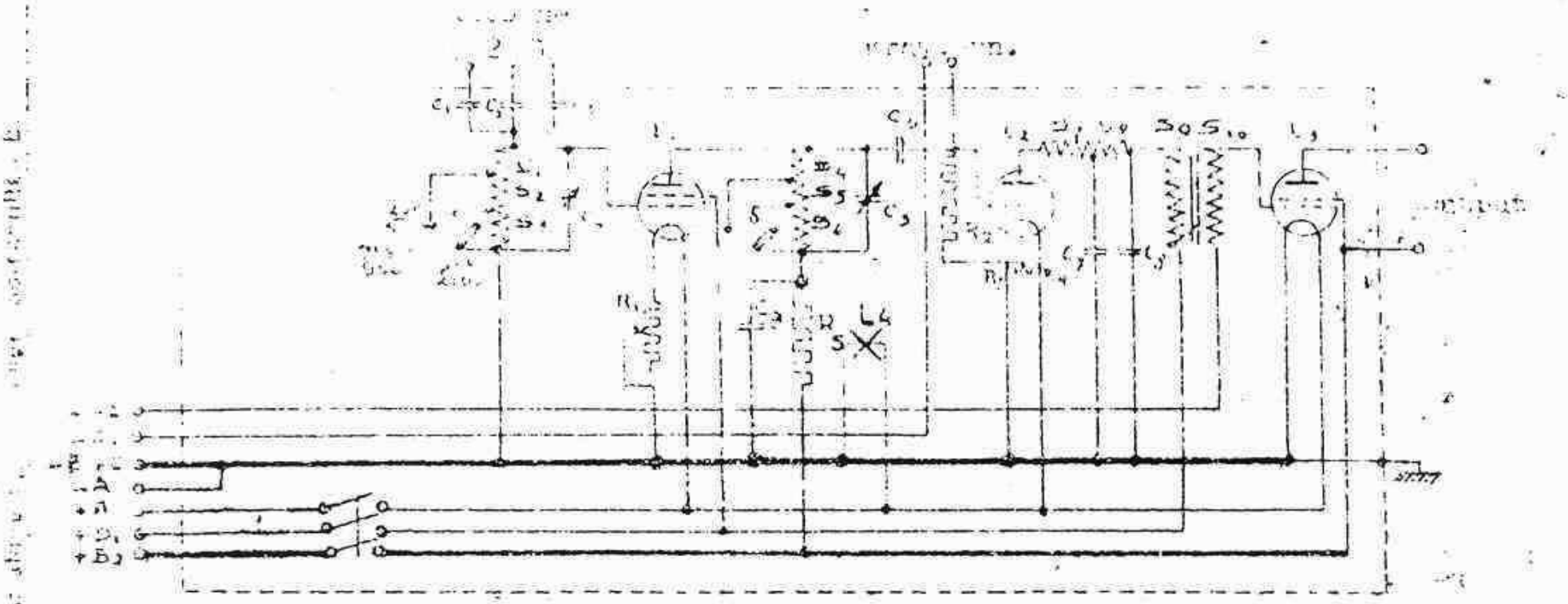

| INSLEN | BEREKENINGNR | CONDENSATOREN | BEREKENINGNR | WEERSTANDEN | BEREKENINGNR |
|---|---|---|---|---|---|
| 1 = 44 W. | A 10165 | C1 = 17 µµF | C 10000 | R1 = 60 Ω | W 10096 |
| = 00 " | A 10166 | C2 = 65 " | | R2 = 1 MΩ | |
| 220 " | A 10166 | C3 = 250 " | | R3 = 120 Ω | A 10448 |
| = 42 " | A 10200 | C4 = 830 " | | R4 = 200 Ω | |
| = 54 " | | C5 = 550 " | | R5 = 5000 Ω | W 10135 |
| = 170 " | | C6 = 170 " | C 10001 | | |
| = 2x35 " | A 10172 | C7 = 1650 " | C 10008 | | |
| = 3x500 " | A 15016 | C8 = 550 " | C 10021 | | |
| = 150 " | A 10210 | C9 = 1 µF | C 10004 | | |
| 10= 2150 " | | | | | |

| AFBEELDINGEN SCHEMA'S | | | LAMPEN. | | | SAMENST.TEKN. P 043770 |
|---|---|---|---|---|---|---|
| Pl=,troolsvat, | S1-3 | S 10182 | L1 = A 442 | : huis | A 35 | |
| ge. | S4-7 | S 10317 | L2 = A 415 | : huis | A 32 | |
| L.F.Transf. | S9-10 | S 10230 | L3 = B 443 | : huis | O 35 | |
| Cond.doos | C9 | S 10100 | L4 = 8047 | | | |

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