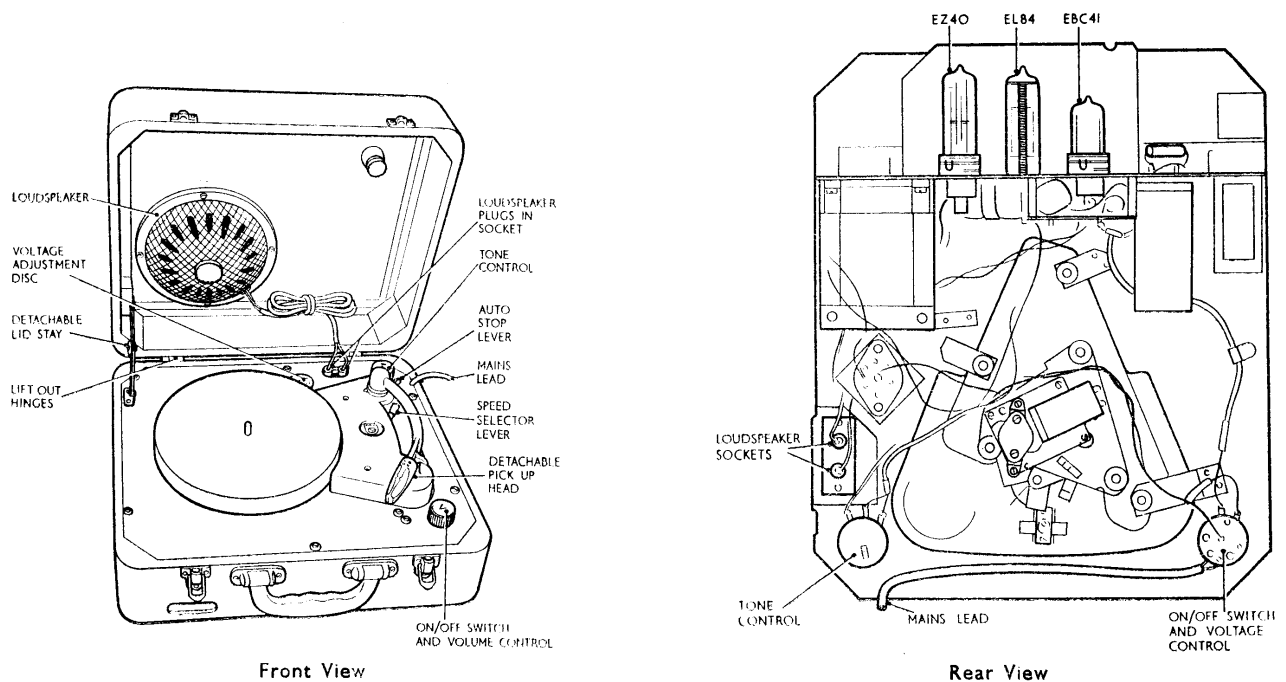


SERVICE MANUAL FOR

PHILIPS 3-SPEED PLAYER/REPRODUCER TYPE AG2121



NOTE

The AG2121 consists of a 3-speed record player unit working in conjunction with a two-valve amplifier. The record player unit is basically a 424A (Disc Jockey) unit, information for which is contained in the 424A Service Manual which has been issued. There are spare part differences, however, and a complete spares list is therefore given in this manual.

VALVE COMBINATION

V1 EBC41 Voltage Amplifier.
V2 EL84 Power Output.
V3 EZ40 Mains Rectifier.

CONSUMPTION

With 245 V. 50 c/s applied to the 245 V.
tapping. Consumption with motor on approx.
38 W. Consumption with motor off approx.
33 W.

VOLTAGE RANGE

110 V. to 245 V., 50 c/s.

DIMENSIONS OF CABINET

Height 6 $\frac{3}{4}$ ". Width 15 $\frac{1}{2}$ ". Depth 13 $\frac{1}{4}$ ".

REMOVING THE UNIT FROM ITS CASE

Unplug the speaker.

Release the lid stay from the top of the case by pulling back the locking catch and pushing the pivot out of bearing bracket.

The complete unit is held to the case by six screws.

REMOVING THE PLAYER UNIT

Remove the unit from its case.

Disconnect the pick-up lead from the volume control, the motor lead from the switch on the volume control, and the mains lead from the pick-up operated switch.

The unit is held by three bolts which pass through rubber bushes.

Spare parts for the unit are specified in this manual, but for servicing information reference should be made to the service manual for the 424A.

SPARE PARTS LIST—TYPE AG2121

IMPORTANT. When ordering spare parts, the type number of the receiver and the code number of the part, as given in this manual, **MUST** be quoted to enable the order to be correctly executed. When claiming free replacement under guarantee, the defective part should be returned and the type and serial number of the receiver, also the date of sale, should be quoted.

CASE ASSEMBLY

Leatherette covered case—complete	...	MK.976.64
Philips emblem	... ..	MK.704.88
Lid stay	... ..	MK.958.05
Brass feet for case	... ..	HY.088.26
Carrying handle complete	... ..	HY.096.44
Securing catches complete	... ..	HY.072.79
Hinges complete	... ..	HY.096.45
Felt block on lid	... ..	HY.065.00
Ornamental grilles—front and rear	... ..	MK.308.13
Ornamental grilles—side and bottom	... ..	MK.336.64
Ornamental grille for speaker aperture	... ..	MK.476.83
Protecting grille for speaker	... ..	MK.251.77
Retaining ring for above	... ..	MK.448.83
Felt pad for protecting grille	... ..	MK.476.87
Screws for speaker	... ..	MK.886.11
Grommet for speaker lead	... ..	MK.725.28
Baseboard for record player	... ..	MK.399.79
Screws for above—Brass (No. 4 × $\frac{3}{4}$" )	... ..	G7.981.34
Cup washers for above	... ..	MK.448.81
Valve position label	... ..	PG.006.53
Limited licence label	... ..	PG.006.54

CONTROL KNOBS

Control knob—Volume	... ..	MK.854.82/Crm.
Control knob—Tone	... ..	MK.854.83/Crm.
Grub screws for above (4BA × $\frac{3}{8}$" )	... ..	G7.863.50

RECORD PLAYER UNIT

Short mounting brackets for above (2)	... ..	MK.046.89
Long mounting bracket for above	... ..	MK.047.13
Rubber bushes for above	... ..	MK.725.67
Distance pieces	... ..	MK.117.06
Mounting screws (4 × 25mm.)	... ..	07.804.25

TURNTABLE ASSEMBLY

Bearing spindle for above	... ..	MK.890.26
Bearing spindle for above	... ..	49.935.16
Lock washer, for above	... ..	G7.045.43
Nut for above	... ..	07.075.16
45 r.p.m. adaptor	... ..	P4.380.39/17
Retaining clip for above	... ..	MK.750.96

MOTOR ASSEMBLY complete	... ..	49.266.24
Screws for above (3 × 20mm.)	... ..	07.803.20
Distance pieces for above	... ..	49.937.79
Rubber bushes	... ..	49.936.00
Mounting springs	... ..	49.935.30
Cap discs	... ..	49.935.31
Mounting plate for motor	... ..	49.938.01
Stator coil assembly	... ..	49.927.02
Screws for above (3 × 18mm.)	... ..	07.803.19
Threaded distance pieces for above	... ..	49.920.92
Rotor assembly	... ..	49.924.78
Bearing assembly—top	... ..	49.927.04
Bearing assembly—bottom	... ..	49.927.05
Steel ball ($\frac{1}{8}$" )	... ..	89.205.02
Stepped spindle	... ..	49.938.79
Grub screw for above	... ..	49.937.15

SPEED SELECTOR

Operating lever with spindle	... ..	HY.110.15
Knob for lever	... ..	P4.525.13/Crm.
Locating pins for spindle	... ..	07.593.37
Locking spring for above	... ..	49.938.02
Rivets for above (2 × 5mm.)	... ..	07.136.12
Selector plate assembly	... ..	HY.138.93
Stop plate for above	... ..	49.938.55
Pressure spring	... ..	49.938.07
Circlip for above	... ..	07.891.86
Circlip for bottom of spindle	... ..	07.891.83
Rubber sleeve for pressure spring	... ..	MK.117.07
Drive wheel	... ..	49.928.79
Circlip for above	... ..	07.891.83
Presspahn washers for drive wheel	... ..	49.938.15
Tension spring	... ..	49.938.54
Bracket for above	... ..	49.921.17

MOULDED COVER PLATE

MOULDED COVER PLATE	... ..	49.928.80
Screws for above (3 × 25mm.)	... ..	07.687.22
Philips emblem	... ..	23.654.14

PICK-UP ARM ASSEMBLY

PICK-UP ARM ASSEMBLY	... ..	49.945.35
Spring for swivel	... ..	49.938.12
Pick-up shaft	... ..	49.938.10
Grub screw for above	... ..	07.852.05
Circlip for base of spindle	... ..	49.939.26
Washers for above	... ..	07.014.52
Lead	... ..	49.945.48
Pick-up head complete	... ..	AG.3010
Resistor 0.47 M.ohm $\frac{1}{4}$ watt 10%	... ..	48.550.10/470K

SPARE PARTS LIST—(Contd.)

SWITCH UNIT	...	...	...	A3.186.59
Frame assembly	...	...	...	HY.088.21
Switch contact—moving	...	...	...	HY.072.68
Switch contact—fixed	...	...	...	HY.072.69
Paxolin retaining plate for above	...	...	...	A3.661.53
Insulating spacer for above	...	...	...	A3.661.72
Moulded stop pin	...	...	...	A3.661.61
Contact plunger assembly	...	...	...	23.951.33
Release plate for above	...	...	...	A3.661.56
Operating swivel	...	...	...	A3.661.59
Set screw for above	...	...	...	49.936.06
Spring	...	...	...	A3.661.57
Pin for above	...	...	...	A3.661.58
Moulded operating lever	...	...	...	23.690.85

MISCELLANEOUS

Voltage adjustment plate only	...	...	...	MK.875.51
Voltage adjustment disc	...	...	...	MK.854.69
Valveholders—V1 and V3	...	...	...	MK.225.45
Valveholder—V2	...	...	...	MK.225.43
Valve retainer—V2	...	...	...	MK.894.15
Clamp for C5	...	...	...	A1.524.09
Asbestos washers—large	...	...	...	MK.447.52
Asbestos washers—small	...	...	...	A3.559.14
Mains lead (2 yds.)	...	...	...	K3.975.10
Fixing clip for above	...	...	...	25.038.33
Speaker lead (1 yd.)	...	...	...	K3.975.00/Crm.
Holding clip for mains lead	...	...	...	MK.751.03
Holding clip for speaker lead	...	...	...	MK.751.02
Screws for above (No. 4 × 1/4" Brass)	...	...	...	G7.980.26

Socket plate	...	...	...	MK.874.45
Single-pin plug—red	...	...	...	MK.875.54
Single-pin plug—black	...	...	...	MK.875.34
Chassis fixing screws (4 × 15mm.)	...	...	...	07.804.15

SCREWS

2.6 × 4mm.	...	07.802.04	3 × 20mm....	07.803.20
3 × 5mm.	...	07.803.05	3 × 30mm....	07.803.30
3 × 6mm.	...	07.803.06	4 × 8mm. ...	07.804.08
3 × 10mm.	...	07.803.10	4 × 15mm....	07.804.15
3 × 12mm.	...	07.803.12	4 × 25mm....	07.804.25
3 × 18mm.	...	07.803.19		

NUTS

3mm.	...	07.104.30	4mm.	...	07.104.40
------	-----	-----------	------	-----	-----------

WASHERS

3mm.	...	07.014.30	4mm.	...	07.014.40
------	-----	-----------	------	-----	-----------

VALVES

V1	...	...	...	...	EBC.41
V2	...	...	...	...	EL84
V3	...	...	...	...	EZ40

TRANSFORMERS

S1-S3	Mains transformer	...	...	MK.514.21
S4/S5	Output transformer	...	...	MK.514.23
S6	Loudspeaker	...	...	MK.956.45

CAPACITORS

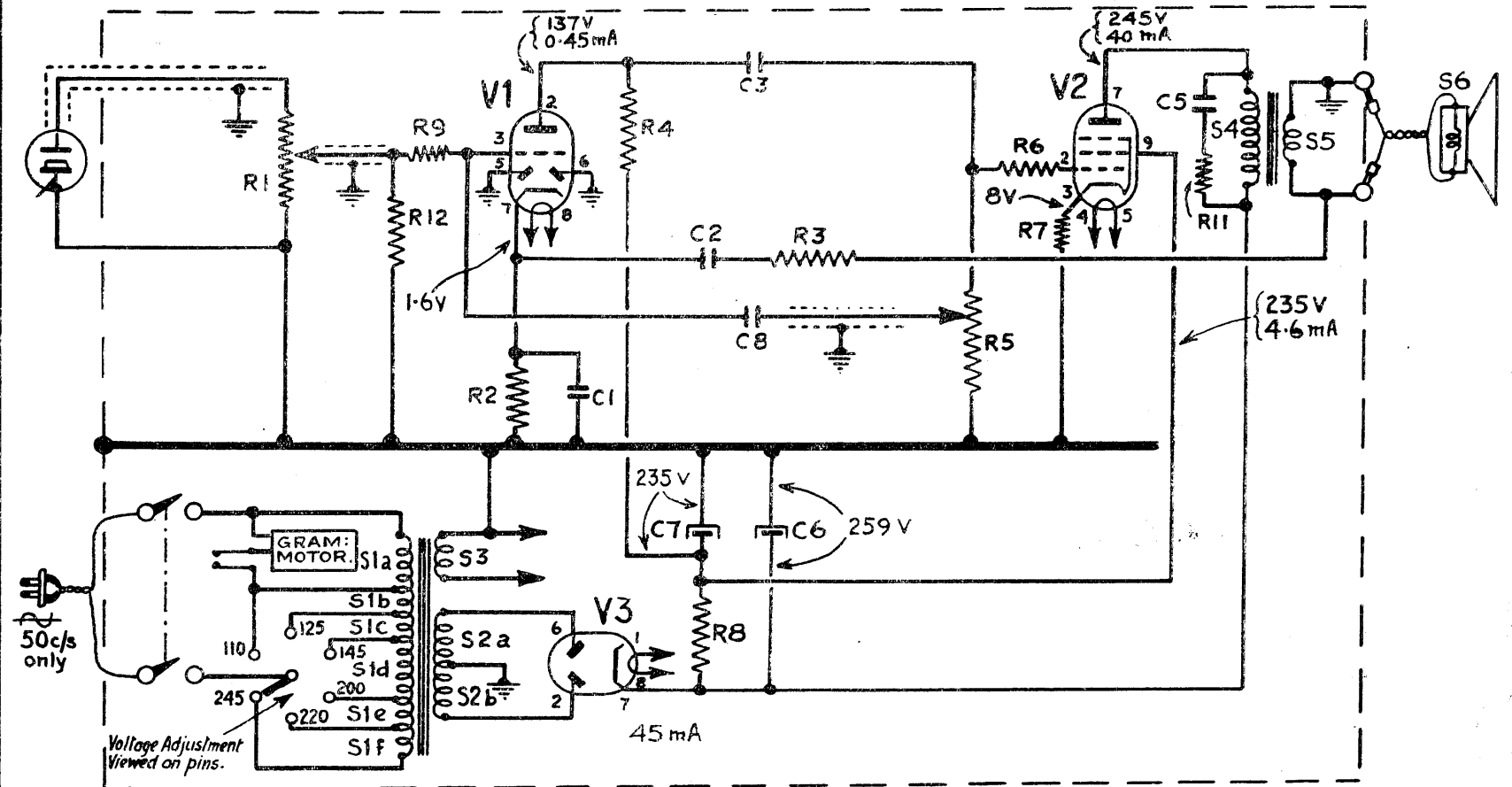
					Working Voltage	Permitted Tolerance	
C1	Paper	...	...	0.15 uF	125V	10%	48.750.10/150K
C2	Paper	...	...	12,000 pF	125V	10%	48.750.10/12K
C3	Paper	...	...	10,000 pF	400V	20%	48.751.10/10K
C5	Paper	...	...	4,700 pF	1,000V	10%	48.758.10/4K7
C6/7	Electrolytic	...	...	50 + 50 uF	350V		MK.182.35/50 + 50
C8	Ceramic	...	...	56 pF		10%	48.406.10/56E

RESISTORS

N.B.—Wattage is based upon an ambient temperature of 70°C.

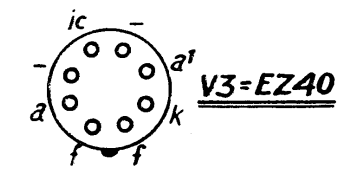
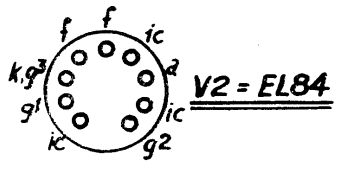
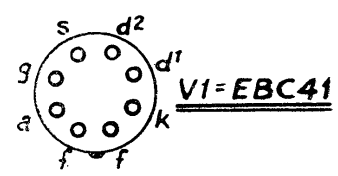
					Wattage	Permitted Tolerance	
R1	Potentiometer	...	...	0.5M ohm	Log Law		MK.810.60
R2		...	...	3,900 ohm	1/2 watt	10%	48.426.10/3K9
R3		...	...	10,000 ohm	1/2 watt	10%	48.426.10/10K
R4		...	...	82,000 ohm	1/2 watt	20%	48.426.10/82K
R5	Potentiometer	...	...	0.5M ohm	Linear Law		MK.810.61
R6		...	...	1,000 ohm	1/2 watt	20%	48.426.10/1K
R7		...	...	120 ohm	1 watt	10%	48.427.10/120E
R8		...	...	4,700 ohm	1 watt	20%	48.427.10/4K7
R9		...	...	0.22M ohm	1/2 watt	10%	48.426.10/220K
R11		...	...	10,000 ohm	1/2 watt	10%	48.426.10/10K
R12		...	...	0.22M ohm	1/2 watt	20%	48.426.10/220K

C			1.	2.	3.						5.	
R		1.	12.	9.	2.	4.	8.	3.	5.	6.	7.	11.



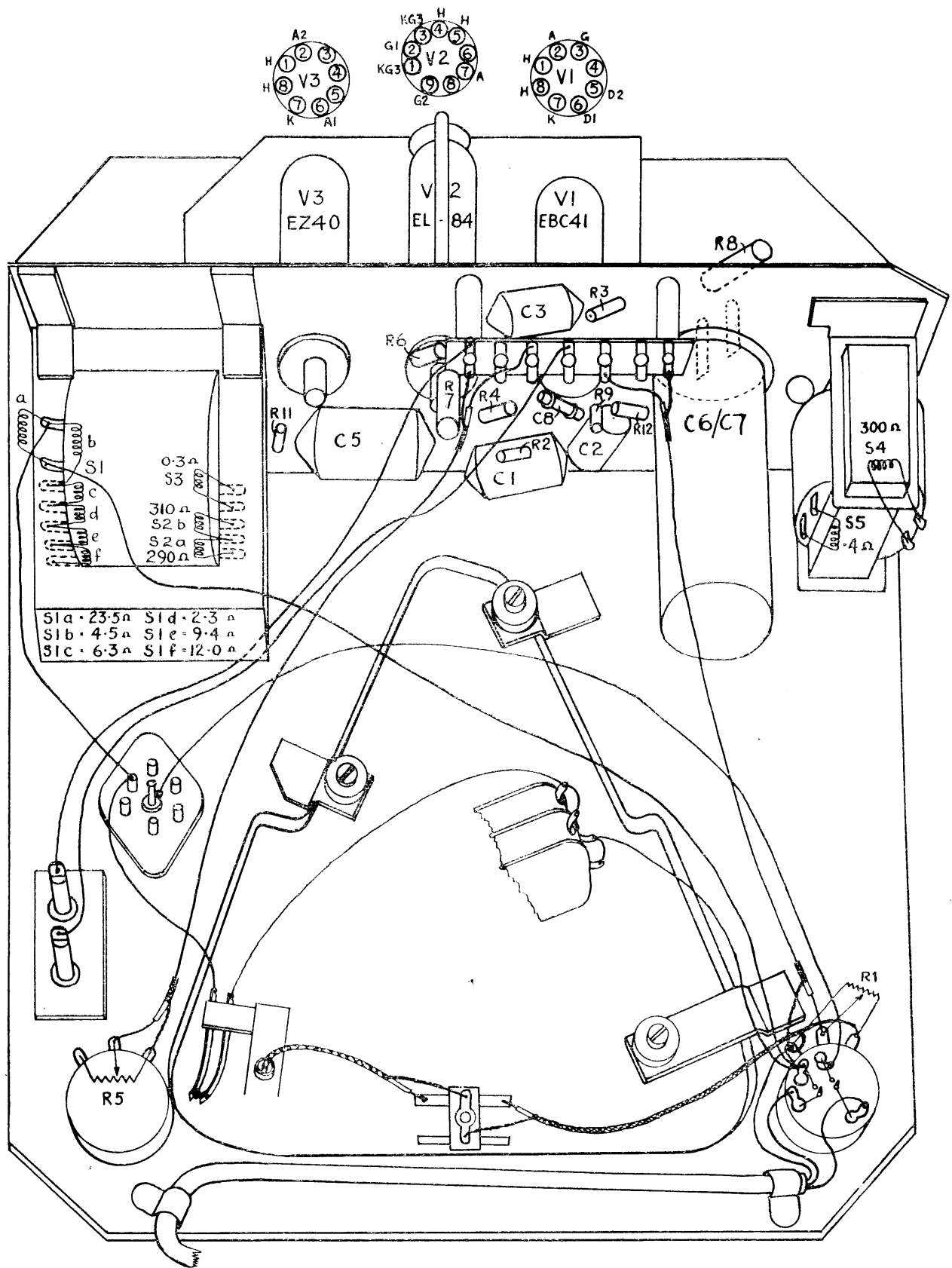
DC Resistances of Transformers.

- S1a = 23.5 Ω
- S1b = 4.5 Ω
- S1c = 6.3 Ω
- S1d = 2.3 Ω
- S1e = 9.4 Ω
- S1f = 12.0 Ω
- S2 = 290 + 310 Ω
- S3 = 0.3 Ω
- S4 = 300 Ω
- S5 = 0.4 Ω



Page Five

CIRCUIT DIAGRAM



UNDER VIEW OF CHASSIS

SERVICE DATA FOR THE PHILIPS RECORD PLAYER

TYPE NG5050

This unit is similar to the AG2121 for which a Service Manual has been issued.

A complete spares list is given below, the differences between the two units being mainly associated with the cabinet.

SPARE PARTS LIST—TYPE NG5050

IMPORTANT. When ordering spare parts, the type number of the receiver and the code number of the part, as given in this manual, **MUST** be quoted to enable the order to be correctly executed. When claiming free replacement under guarantee, the defective part should be returned and the type and serial number of the receiver, also the date of sale, should be quoted.

CASE ASSEMBLY

Case complete—Red/Grey	...	...	MK.979.84
Case complete—Green/Grey	...	...	MK.979.85
Philips emblem	...	...	MK.704.88
Ornamental grille for speaker aperture	...	...	MK.477.19
Baseboard for record player	...	...	MK.399.79
Screws for above—Brass (No. 4 × $\frac{3}{4}$" )	...	...	G7.981.34
Cup washers for above	...	...	MK.448.81
Lens for L1	...	...	MK.961.09/Red

CONTROL KNOBS

Control knob—Volume	...	...	MK.854.82/Crm.
Control knob—Tone	...	...	MK.854.83/Crm.
Grub screws for above (4BA × $\frac{3}{8}$" )	...	...	G7.863.50

TURNTABLE ASSEMBLY

Bearing spindle for above	...	...	HY.142.17
Lock washer for above	...	...	49.935.16
Nut for above	...	...	G7.045.43
45 r.p.m. adaptor	...	...	B.020.CD/5
Retaining clip for above	...	...	P4.380.39/17
	...	...	MK.750.96

MOTOR ASSEMBLY complete	...	...	49.266.24
Stator coil assembly	...	...	49.927.02
Rotor assembly	...	...	49.924.78
Bearing assembly—top	...	...	49.927.04
Bearing assembly—bottom	...	...	49.927.05
Stepped spindle	...	...	49.938.79
Grub screw for above	...	...	49.937.15

SPEED SELECTOR

Operating lever with spindle	...	...	HY.110.15
Knob for lever	...	...	P4.525.13/Crm.
Locating pins for spindle	...	...	B.074.AF/2×24
Locking spring for above	...	...	49.938.02
Rivets for above (2 × 5mm.)	...	...	B.010.AG/2×5
Selector plate assembly	...	...	HY.138.93
Stop plate for above	...	...	49.938.55
Pressure spring	...	...	49.938.07
Circlip for above	...	...	B.048.AF/7
Drive wheel	...	...	49.928.79
Circlip for above	...	...	B.048.AF/4
Presspahn washers for drive wheel	...	...	49.938.15
Tension spring	...	...	49.938.54

MOULDED COVER PLATE

Screws for above (3 × 25mm.)	...	...	49.928.80
Philips emblem	...	...	B.054.GH/3×25
	...	...	23.654.14

PICK-UP ARM ASSEMBLY

Spring for swivel	...	...	49.945.35
Lead	...	...	49.938.12
Pick-up head complete	...	...	49.945.48
	...	...	AG.3010

SPARE PARTS LIST (Contd.)

SWITCH UNIT			
Switch contact—moving	...	...	A3.186.59
Switch contact—fixed	...	...	HY.072.68
Moulded stop pin	...	...	HY.072.69
Contact plunger assembly	...	...	A3.661.61
Release plate for above	...	...	23.951.33
Operating swivel	...	...	A3.661.56
Set screw for above	...	...	A3.661.59
Spring	...	...	49.936.06
Pin for above	...	...	A3.661.57
Moulded operating lever	...	...	A3.661.58
			23.690.85

VALVES AND PILOT LAMP

V1	...	...	...	...	EBC41
V2	...	...	...	...	EL84
V3	...	...	...	...	EZ40
L1	...	...	...	...	00.080.28D.00

TRANSFORMERS

S1-S3	Mains transformer	...	...	MK.514.21
S4/S5	Output transformer	...	...	MK.514.23
S6	Loudspeaker	...	...	MK.956.45

MISCELLANEOUS

Voltage adjustment plate only	...	...	MK.875.51
Voltage adjustment disc	...	...	MK.854.69
Valveholders—V1 and V3	...	...	MK.225.45
Valveholder—V2	...	...	MK.225.43
Mains lead (2 yds.)	...	...	K3.975.10
Speaker lead (1 yd.)	...	...	K3.975.00/Crm.
Holding clip for mains lead	...	...	MK.751.03
Holding clip for speaker lead	...	...	MK.751.02
Screws for above (No. 4 × ¼" Brass)	...	...	G7.980.26

CAPACITORS

					Working Voltage	Permitted Tolerance	
C1	Paper	...	...	0.15 uF	125V	10%	48.751.10/150K
C2	Paper	...	...	12,000 pF	125V	10%	48.751.10/12K
C3	Paper	...	...	10,000 pF	400V	20%	48.751.10/10K
C5	Paper	...	...	4,700 pF	1,000V	10%	48.758.10/4K7
C6/7	Electrolytic	...	...	50 + 50 uF	350V		MK.182.35/50 + 50
C8	Ceramic	...	...	56 pF		10%	48.406.02/56E

RESISTORS

N.B.—Wattage is based upon an ambient temperature of 70°C.

					Wattage	Permitted Tolerance	
R1	Potentiometer	...	...	0.5M ohm	Log Law		MK.810.60
R2		...	...	3,900 ohm	½ watt	10%	48.426.10/3K9
R3		...	...	10,000 ohm	½ watt	10%	48.426.10/10K
R4		...	...	82,000 ohm	½ watt	20%	48.426.10/82K
R5	Potentiometer	...	...	0.5M ohm	Linear Law		MK.810.61
R6		...	...	1,000 ohm	½ watt	20%	48.426.10/1K
R7		...	...	180 ohm	1 watt	10%	48.427.10/180E
R8		...	...	4,700 ohm	1 watt	20%	48.427.10/4K7
R9		...	...	0.22M ohm	½ watt	10%	48.426.10/220K
R11		...	...	10,000 ohm	½ watt	10%	48.426.10/10K
R12		...	...	0.22M ohm	½ watt	20%	48.426.10/220K

SUPPLEMENTARY SERVICE INFORMATION
for the
PHILIPS RECORD PLAYER
TYPE NG 5050

Since the Service Notes for the NG 5050 were issued, additional colours have been used for the turn-table and carrying handle. The spare parts list should be amended as follows:—

CASE ASSEMBLY

Add:—	Carrying handle — red	...	...	HY 096 65
	Carrying handle — black	...	...	HY 096 66
	End pieces for above	...	...	HY 128 54

TURNTABLE ASSY.

Turn-table assy. — beige	...	...	HY 142 17
Turn-table assy. — red	...	...	HY 142 36
Turn-table assy. — green	...	...	HY 142 37