

A 1064

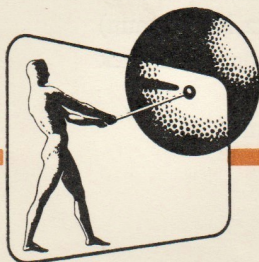
Issue 1/556

GAUMONT-KALEE

TWIN CHANNEL AMPLIFIER

TYPE 1064

MANUAL
and
SPARES LIST



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TYPE 1064 TWIN CHANNEL AMPLIFIER

OPERATORS' MANUAL

and

SPARE PARTS LIST

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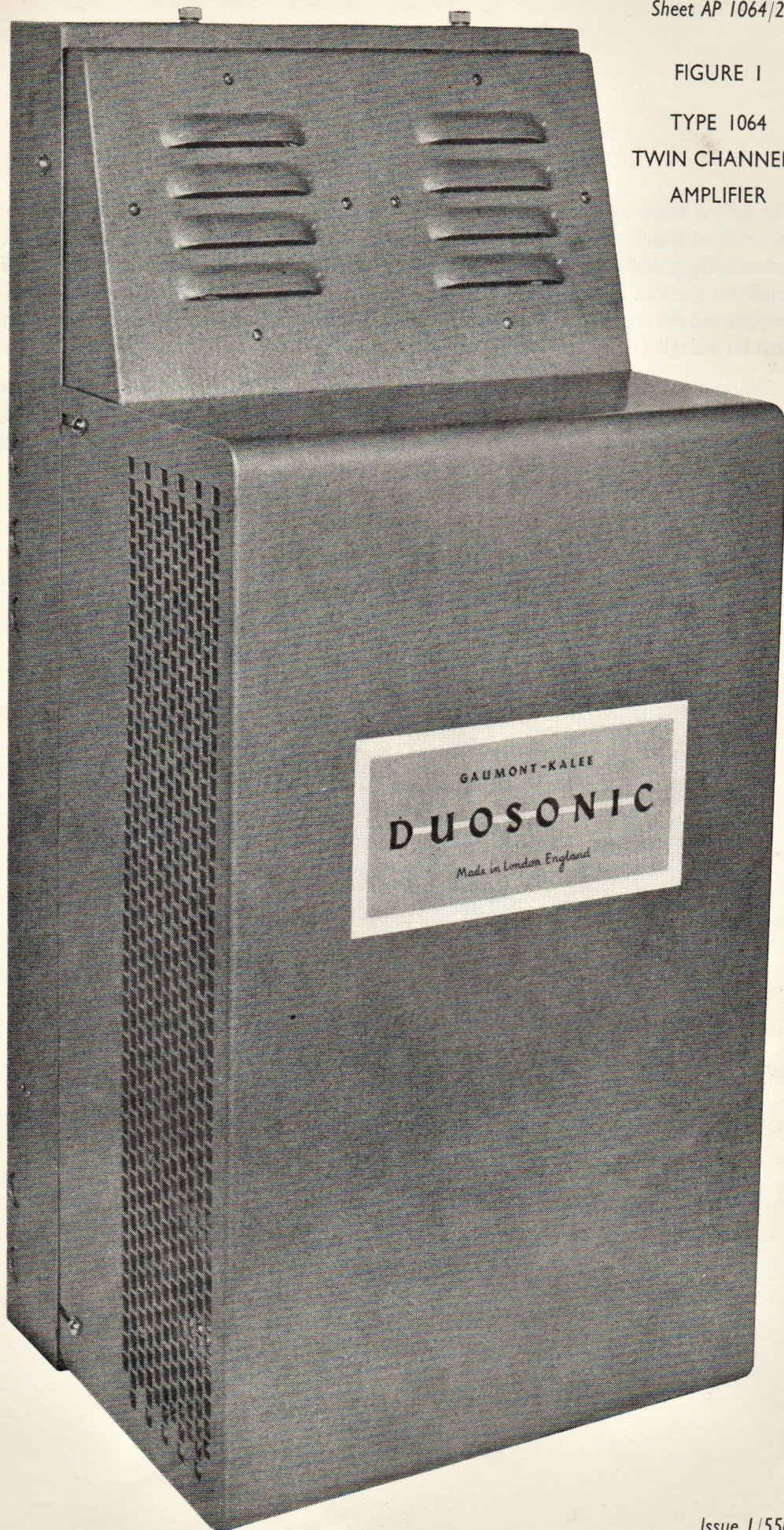
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SPECIFICATION

Output (single channel)	18 watt
(paralleled)	36 watt
Power supplies required	100-125 volt or 190-250 volt AC 40-100 cycles
Valves	Six EF37a or 6J7 Four KT66
Rectifiers	Two U52 or 5U4G
Dimensions:	
Height	2 ft. 3½ in. (700mm)
Width	1 ft. 1½ in. (340mm)
Depth	11½ in. (290mm)
Tray depth	3 in. (77.5mm)
Mounting	Four screw holes spaced on a rectangle 12 in. (305mm) by 5 in. (130mm) in back of tray.
Weight (nett)	77 lb. (35 kgm.)

FIGURE 1

TYPE 1064
TWIN CHANNEL
AMPLIFIER



INTRODUCTION

The 1064 is a new type of amplifier equipment, designed to allow the conversion to three or four channel sound systems of the following equipments; single 18 watt, dual 18 watt or 36 watt systems; single, dual or 40 watt GK 20 amplifier equipments. The 1064 consists of two identical amplifiers operated from a common power supply. Each amplifier has its own monitor loud-speaker, and the complete assembly is contained in a wall-mounting case the same size as that used for a single GK 18 amplifier.

Although normally used to feed two channels in Stereophonic installations, the two amplifiers in the 1064 can be paralleled to give a single output of 36 watts. When operated as a twin unit, each amplifier has an undistorted output of 18 watts, of which up to 3 watts may be absorbed by the monitor loudspeaker, leaving 15 watts for the appropriate stage loudspeaker.

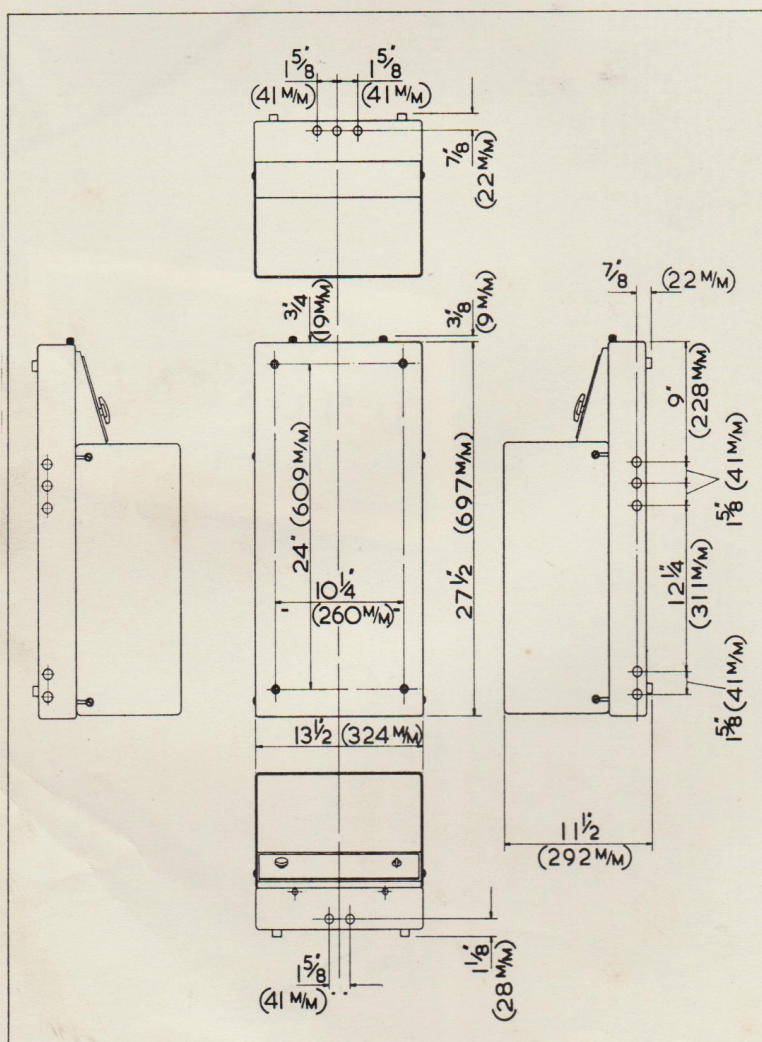


FIGURE 2. INSTALLATION DIMENSIONS OF 1064 AMPLIFIER

DESCRIPTION

MECHANICAL

The physical dimensions of the 1064 are identical with those of the GK 18 Amplifier; both being mounted on identical wall-mounting back trays. Weights and dimensions are given in the specification on sheet 1064/1 above.

The rigid steel back tray is permanently fixed to the wall, and to it a chassis of similar dimensions is attached. This chassis is held in place by interlocking grooves at the bottom, and by two screws at the top. The action of the interlocking grooves is such that when the two securing screws are removed, the chassis can be opened out at right-angles to the tray, and held in position by a stay normally clipped inside the tray. This practice allows easy access to all components for inspection or maintenance.

All the controls of the 1064 Amplifier are mounted behind the chassis, with their spindles passing through to allow for external operation. The controls consist of two Monitor-Speaker Volume controls, two Stage Loudspeaker on-off switches, and two Amplifier Gain controls.

A sheet metal cover (Part No. 522105) is fitted to the chassis.

ELECTRICAL

Amplifiers

The two amplifiers each have two resistance-capacity coupled stages, which drive a push-pull output stage through a phase-splitter. The first two amplifier stages and the phase-splitter stage all utilise either EF37A or 6J7 valves. A 250,000 ohm variable gain control is connected in the grid of the second stage.

In the output stage, two KT66s in push-pull are used. The secondary of the Output Transformer is tapped to provide outputs of 10 or 20 ohms impedance. A connection from the secondary of the Output Transformer provides negative feedback through R34 and R35. Both amplifiers take their H.T. and heater current from a common power supply.

Power Supplies

The Primary winding of the Mains Transformer is tapped for 110, 115, 200, 220 or 240 volt inputs. A 10 volt winding is provided which can be connected when required, to add to or subtract from the rating of the tapping connected.

If, for instance, a mains voltage of 230 volts is to be connected, the first input wire should be connected to the '220' volt terminal, and the second to the 'O' terminal of the 10 volt winding. The '10v' terminal of the 10 volt winding should be connected to the 'O' terminal of the Primary. This adds 10 volts to the 220 volt rating to give 230 volts.

Alternatively, to connect a mains voltage of 210 volts, the first input wire can still be connected to the '220' volt terminal on the Primary. The second must then be connected to the '10v' terminal of the 10 volt winding, and the two 'O' terminals connected together. This subtracts 10 volts to give a rating of 210 volts.

From the above examples, it will be seen that correct use of the 10 volt winding will increase, or decrease, the rating of any of the Mains Transformer Primaryappings, to suit main supplies from 100-125 volts and from 190-250 volts AC (50-100 cycles).

There are three secondary windings, one a 5 volt 6 ampere rectifier heater winding, one a 6.3 volt 7 ampere centre tapped heater winding, and the third a 480-0-480, 270 mA HT winding. Full wave rectification is obtained from two U52s or 5U4Gs, each acting as a half-wave rectifier with its anodes connected in parallel.

HT smoothing in the power supply unit is by a choke-input filter (L1-C7). The 40MFD condenser in this filter is protected by a fuse, connected in parallel with a 22,000 ohm resistor. A faulty or unformed condenser will cause this fuse to blow, leaving the resistor in circuit to limit the current from the rectifier, and to protect the Mains Transformer.

Important:

After installation of a 1064 Amplifier, this fuse (F1. 1 ampere cartridge fuse), should be removed, and the Amplifier switched on for thirty minutes to reform the electrolytic condenser. Similar action should be taken where an Amplifier has not been run for several months.

Paralleling Amplifiers

When a 36 watt single channel output is required from a 1064 amplifier unit, the inputs and outputs of both amplifiers must be connected in parallel. In this case, one of the 510 ohm loading resistors (R62 or R63) must be removed.

Alteration Of Frequency Response

The normal frequency response of a 1064 amplifier is substantially flat between 50 and 10,000 cps. If it is desired to alter this response, the following changes should be made.

To INCREASE HF RESPONSE, R10 should be shunted by a 0.02 MFD capacitor with a 1,500 ohm resistor connected in series; on the second amplifier R35 should be similarly shunted.

To REDUCE HF RESPONSE, both R24 and R49 should be shunted by 560 pF capacitors.

To INCREASE BASS RESPONSE, the purple links should be removed from the tag board on which the above components are mounted. Each link should be replaced by an 0.05 MFD. capacitor and a 220,000 ohm resistor, connected in parallel.

To REDUCE BASS RESPONSE, both C3 and C15 should be replaced by a capacitor of 0.01 MFD. This capacitor must be rated for 350 volt DC working voltage.

Loudspeaker Connections

When these Amplifiers are despatched from the Works, the output transformers are connected so that each will feed a Loudspeaker having an impedance of approximately 20 ohms. When the Amplifiers are connected in parallel, the connections are suitable for a Loudspeaker impedance of 10 ohms.

For Gaumont-Kalee type 802 or 806 Loudspeakers, or any Loudspeakers having an impedance of approximately 20 ohms, the Amplifiers should be used with the output transformers connected as despatched from the Works.

For Gaumont-Kalee 'Duosonic' Loudspeakers Nos. 1, 2, 3 or 4, or for any Loudspeakers having an impedance of approximately 10 ohms, outputs should be connected as follows:

- (a) **Amplifiers paralleled for 36 watts.** The output transformer should be left connected as despatched from the Works.
- (b) **Separate 18 watt outputs.** The brown lead connected to terminal OS2 of the output transformer is removed and reconnected to the centre tap OS1. The purple lead must not be moved.

When utilising either pair of test sockets, J1 and J2, or J3 and J4, switch off the Amplifier No. 1 Loudspeaker switch for J1 and J2, or Amplifier No. 2 for J3 and J4 respectively. Turn both Monitor Volume controls up to the maximum.

When disconnecting loudspeakers, first switch off at the Loudspeaker switches on the Amplifier.

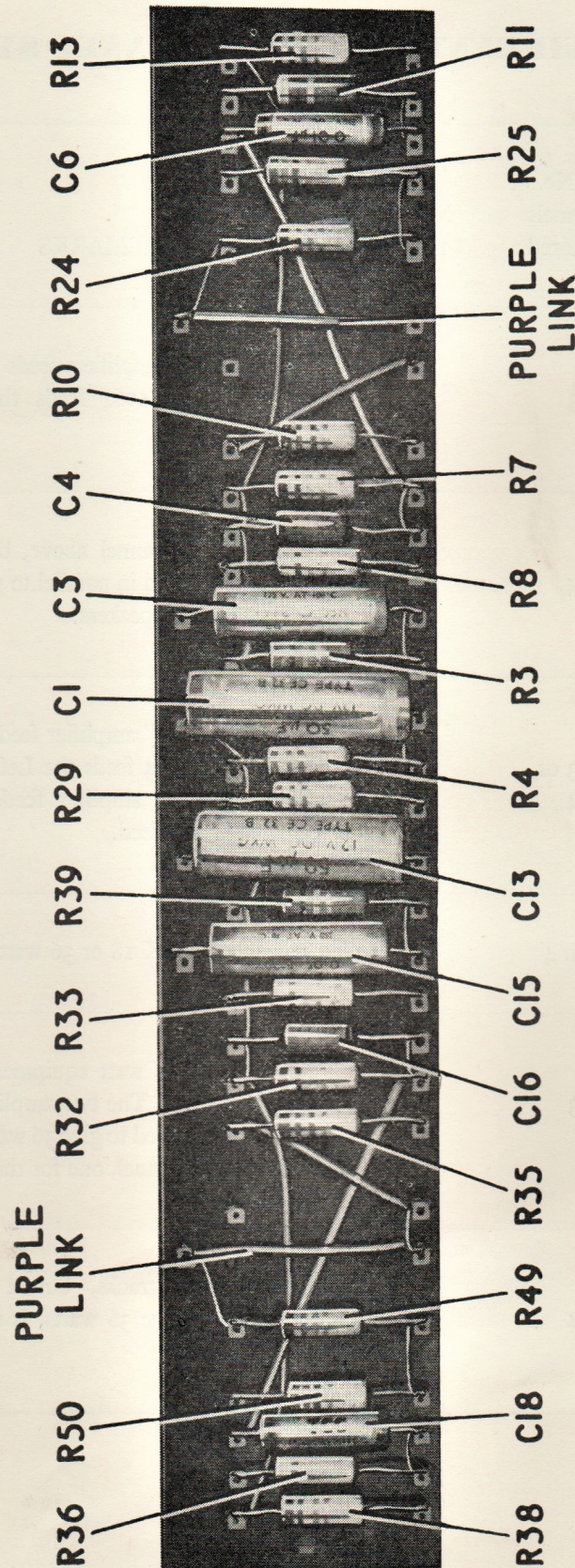


FIGURE 3
COMPONENTS PANEL OF 1064 AMPLIFIER BEARING THE COMPONENTS USED TO
CHANGE THE FREQUENCY RESPONSE

USE OF TYPE 1064 TWIN AMPLIFIER TO CONVERT EXISTING EQUIPMENT TO MULTI-CHANNEL SYSTEMS

Existing Amplifiers	Total No. of Channels Required	No. of 1064s	REMARKS
Single GK 18 or Single GK 20	3	1	The existing Amplifier feeds the Centre speaker. The 1064 feeds the Left and Right speakers.
Single GK 18 or Single GK 20	4	2	As for the 3-channel above, but a second 1064 is connected in parallel to give 36 watts for the Effects speakers. <i>as at Sauriston</i>
Dual GK 18 or 36 watt	3 or 4	1	The existing "A" amplifier feeds the Centre speaker, the 1064 feeds the Left and Right, the existing "B" amplifier feeds the Effects channel if required.
Dual GK 20	3 or 4	1	As with dual GK 18 or 36 watt.
GK 18 (36 watt output)	3	2	The existing 36 watt equipment feeds the Centre speaker. The two amplifiers in each 1064 are connected to give 36 watts each; one for the Left channel, one for the Right.
GK 18 (36 watt output)	4	3	As for three tracks, but a third 1064 connected to give 36 watts, is used for the Effects channel.

MAINTENANCE

Great care should be taken when handling these Amplifiers, to keep them clean and free from dust or condensation. When removing and replacing valves, handle them with care.

Where it is necessary to replace condensers, check while removing the old condenser whether it is insulated from its clip and the chassis. If it is insulated in this way, the insulation **MUST** always be fitted again with the new condenser, and care must be taken to ensure that the condenser body is in no danger of making electrical contact with the chassis. When replacement of a condenser introduces hum on the sound reproduction, this is usually an indication that the condenser body is making electrical contact with the Amplifier chassis.

Note: When soldering inside the Amplifier, take great care that solder, flux and strands of wire do not fall into the faders or switches, or into any position where they may cause a short circuit between terminals or insulated components and the Chassis.

		AVO Model 7 500 Ω /Volt		AVO Model 40 166 Ω /Volt		Taylor Meter 1000 Ω /Volt	
		1000 V. Range	100 V. Range	1200V. Range	120 V. Range	1000 V. Range	100 V. Range
V1 & V6	Va	95		82		100	
V2 & V7	Va	47		40		55	
	Vg2	60		50		70	
V3 & V8	Va	185		175		190	
	Vk		42		36		50

Table 1. VOLTAGE MEASUREMENTS ON 1064 AMPLIFIER

This Table shows the voltages at the various points indicated on the circuit (Figure 2), as they are shown on test instruments. (The values shown on the circuit are true voltages.)

NOTES

The first of these is the fact that the data for the first two years (1950-51 and 1951-52) are not available for the first two years of the series. This is due to the fact that the data for these years were not available until 1953. The second of these is the fact that the data for the first two years (1950-51 and 1951-52) are not available for the first two years of the series. This is due to the fact that the data for these years were not available until 1953. The third of these is the fact that the data for the first two years (1950-51 and 1951-52) are not available for the first two years of the series. This is due to the fact that the data for these years were not available until 1953.

Year	1950-51		1951-52		1952-53	
	Value	Range	Value	Range	Value	Range
1950-51	100	100-100	100	100-100	100	100-100
1951-52	100	100-100	100	100-100	100	100-100
1952-53	100	100-100	100	100-100	100	100-100
1953-54	100	100-100	100	100-100	100	100-100
1954-55	100	100-100	100	100-100	100	100-100

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SPARE PARTS LIST

Parts shown on the photographs are all in one list, while the electrical components shown in the circuit diagram (Figure 4) are all listed together.

When ordering Spare Parts from this List, always give as much information as possible. In addition to the number of the part to be replaced, quote its name, the type and serial numbers of the unit in which it is fitted.

IMPORTANT: The Part Number must ALWAYS be quoted.

NOTE: Every major assembly has a Part Number ending in three noughts. The Number prefixing these three noughts is known as the Type Number, normally used to describe the assembly. Each sub-assembly or part produced for this assembly has a three figure Part Number prefixed by the Type Number. Exceptions to this are proprietary parts, which are given a Stock Reference Number, prefixed by identifying letters.

E.G.: The Amplifier covered by this manual is Type 1064, its Part Number is 1,064,000. The Part Number of the Tray is 1064,004, of a socket SOC 315.

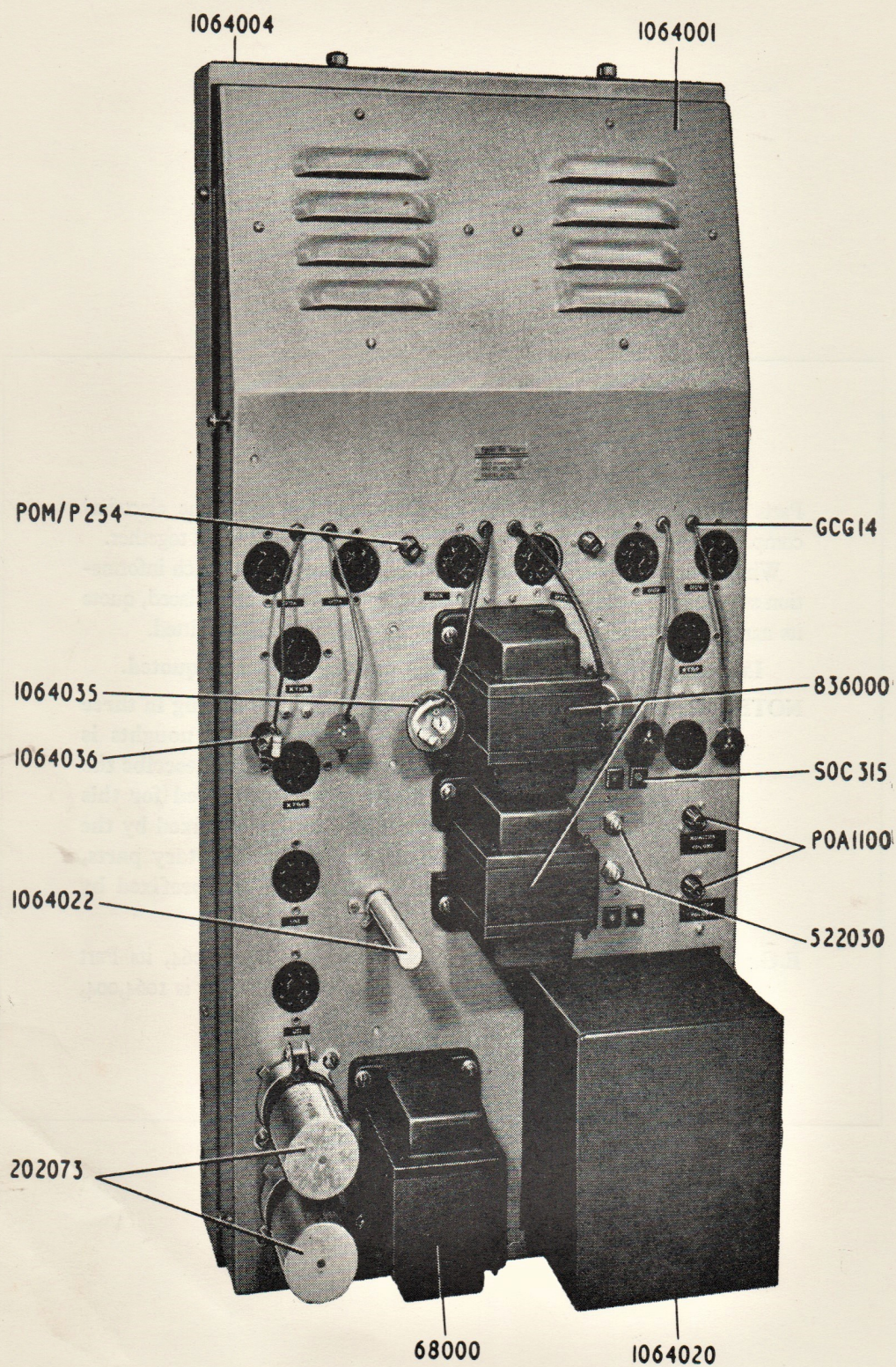


FIGURE 5
SPARE PARTS OF 1064 AMPLIFIER CHASSIS, EXTERNAL
(With Cover removed)

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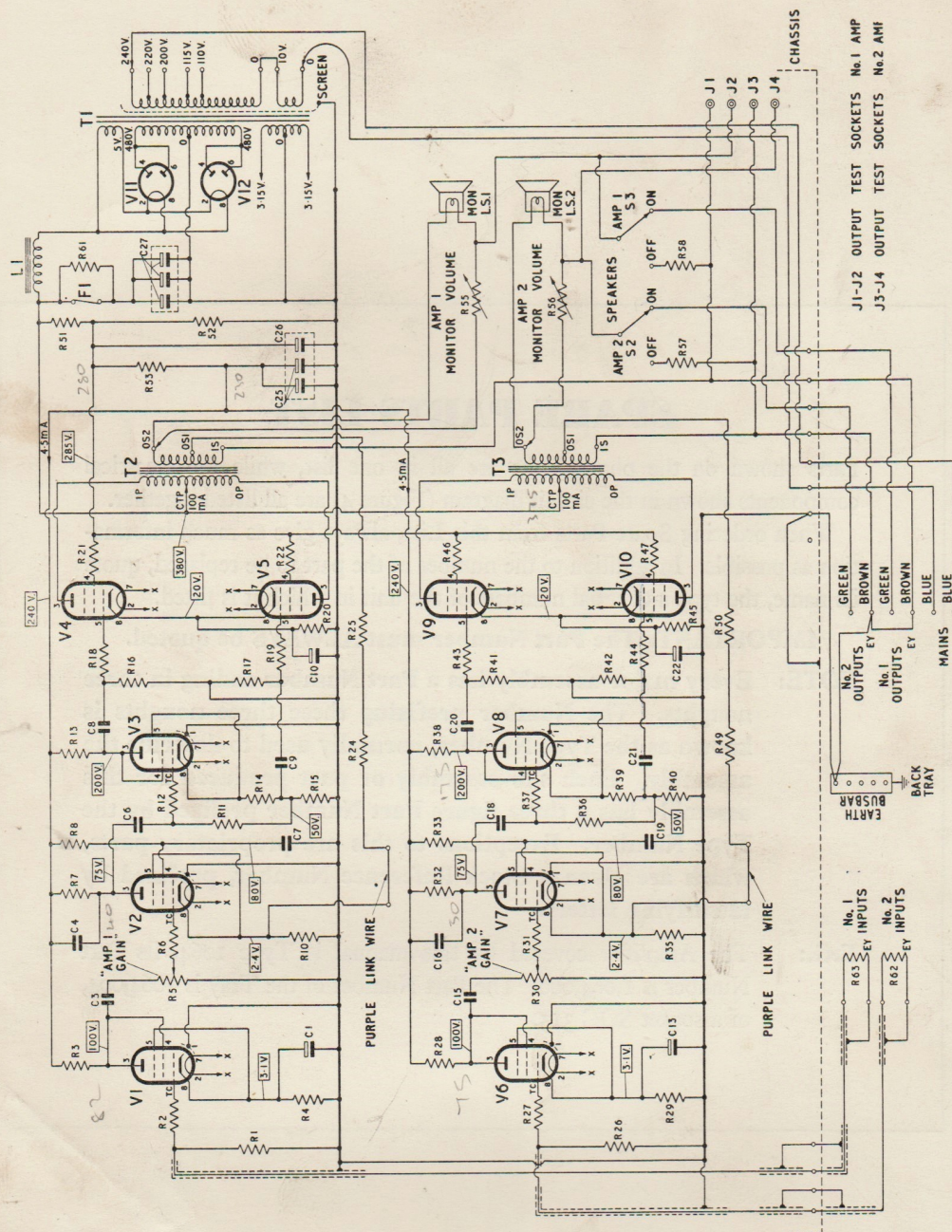


FIGURE 4
GAUMONT KALEE TWIN 18 watt AMPLIFIER
TYPE 1064 CIRCUIT DIAGRAM

SPARE PARTS LIST

ELECTRICAL COMPONENTS

Component	Description	Part No.
VALVES		
V1, V2, V3, V6, V7, V8	EF37a or 6J7	VEF 37A
V4, V5, V9, V10	KT66 or 6L66 or EL 37	VKT 66
V11, V12	U 52 or 5U4G	VU 52
GENERAL		
T1	Mains transformer	1064020
T2, T3	Output transformer	836000
LS1, LS2	Monitor loudspeakers	1064031
L1	Choke	68000
S2, S3	Switch	522030
J1, J2, J3, J4	Sockets	SOC 315
RESISTORS		
R1, R26	1 Megohm.	REW 8105
R2, 6, 12, 18, 19, 27, 31, 38	47,000 ohm.	REW 9473
R3, 16, 17, 28, 41, 42	100,000 ohm.	REX 8104
R4, 14, 29, 39	2,200 ohm.	REX 8222
R5, 30	250,000 ohm. Potentiometer	POM P254
R7, 32	150,000 ohm.	REX 8154
R8, 33, 11, 35	470,000 ohm.	REX 8474
R10, 34	1,600 ohm.	REY 8162
R13, 15, 37, 39	22,000 ohm.	REX 8223
R20, 45	200 ohm.	REJ 3201
R21, 22, 46, 47	100 ohm.	REW 8101
R24, 49	56,000 ohm.	REY 8563
R25, 50	6,800 ohm.	REX 8682
R51 + 52	1,600 + 8,000 ohm.	1064022
R53	4,700 ohm.	REX 8472
R55, 56	10 ohm. Potentiometer	POA 1100
R57, 58	20 ohm.	RED 3200
R61	22,000 ohm.	REW 2223
R62, 63	510 ohm.	REX 8611
CONDENSERS		
C1, 13	50 MFD.	CS 2481
C3, 15	0.05 MFD.	CX 3051
C4, 16	0.0003 MFD.	CX 2203
C6, 18	0.01 MFD.	CX 3854
C7, 19	0.25 MFD.	CS 1825
C8, 9, 20, 21	0.1 MFD.	CX 1822
C10, 22	50 MFD.	CS 2497
C25 + 26	16 + 16 + 8	202073
C27	16 + 16 + 8	202073

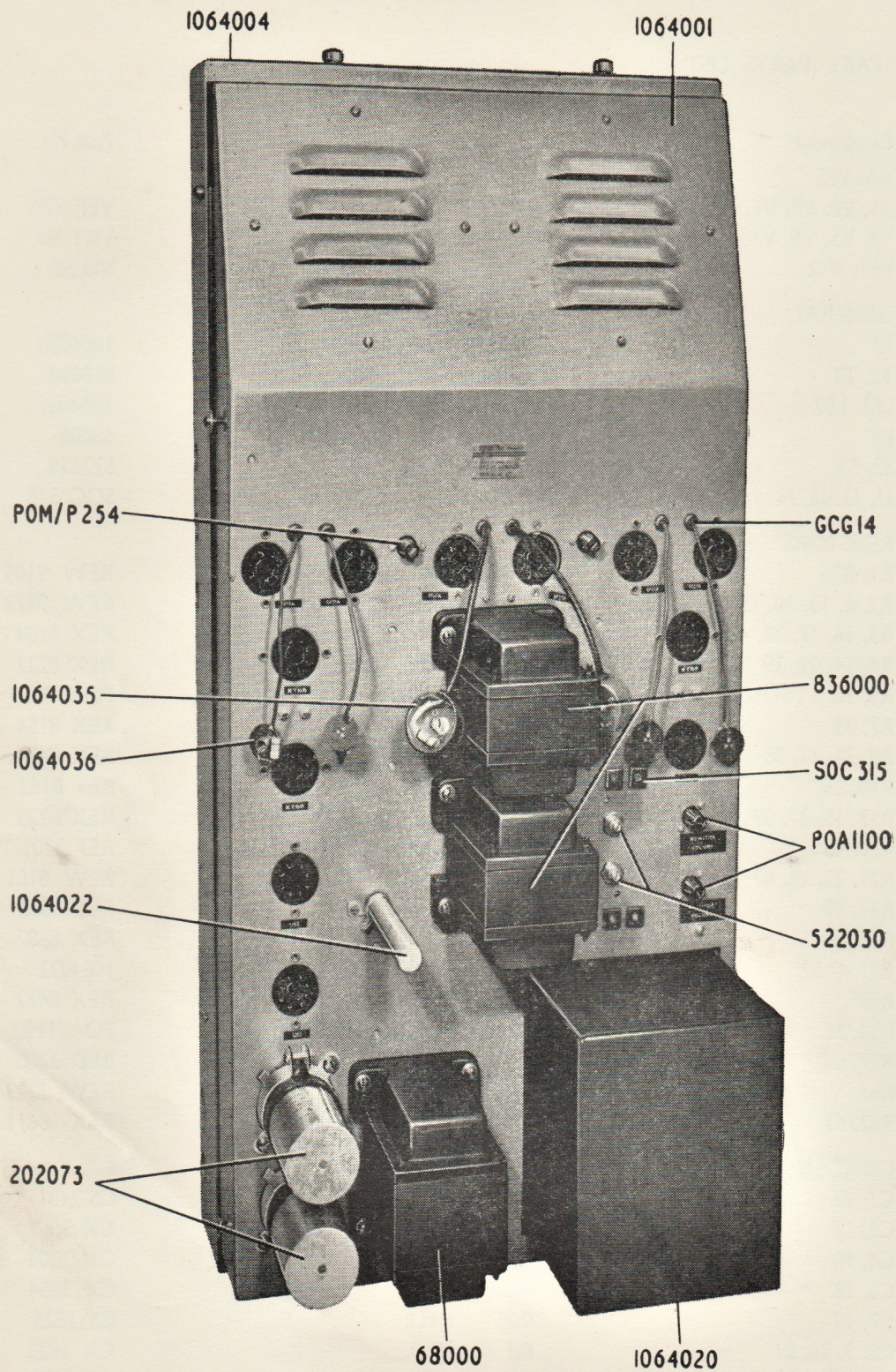


FIGURE 5
SPARE PARTS OF 1064 AMPLIFIER CHASSIS, EXTERNAL
(With Cover removed)

SPARE PARTS LIST

FIGURES 4 and 5

1064004	Tray	1064035	Grid connector
1064034	Grid connector	522169	Knurled hd. captive screw
1064036	Grid connector	522151	Valveholder
VHSP 8US	Valve holder	202081	Spacing rivet
CCS 808	Condenser clip	GCG 14	Grommet
522105	Cover	GCG 15	Grommet
1064012	Tag board assy.	1064007	Bracket
1064010	Insulating board	1064009	Tag board assy.
1064021	Name plate	425002	$\frac{3}{4}$ in. sling clip
383015	SE clip	1064013	Insulating board
522120	Stay	1064033	Insulator
414004	Earth bar assy.	383016	Cable clip
522121	Spring clip	522119	Pivot
51082	Transfer	1064024	Nameplate
369033	Transfer	51080	Transfer
1064017	Transfer	54020	Transfer
522027	Stud	1064016	Transfer
51204	Tag	1064019	Transfer
522106	Top bracket	51121	Terminal block
522108	Spacing bush	73032	Rivet bush
202013	Insulator plate	522107	Bottom bracket
1064030	Cableform	522152	Stop pin
1064001	Chassis	1064029	Cableform
1064020	Mains transformer	51004	Terminal block assy.

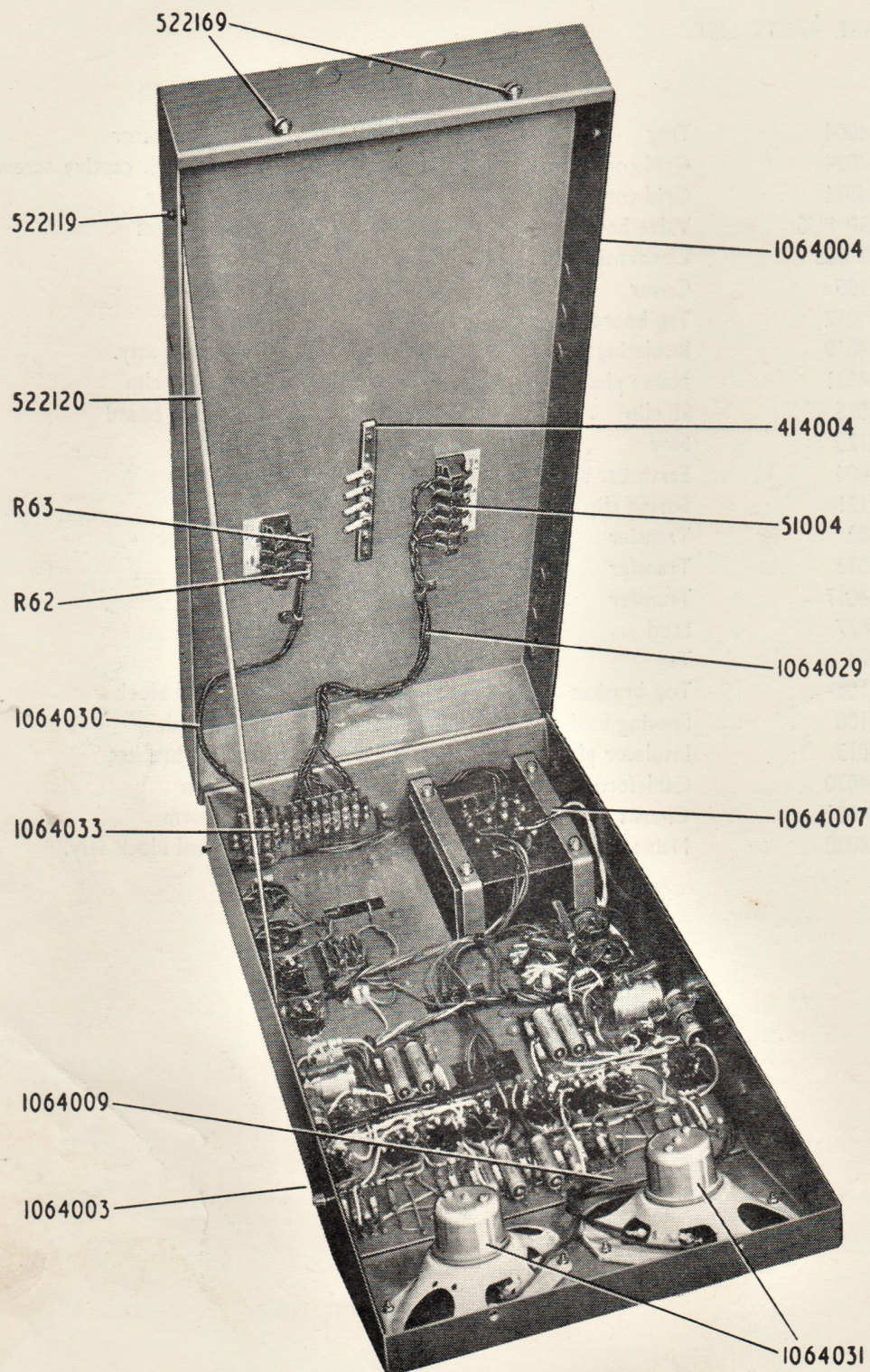


FIGURE 6. SPARE PARTS OF I064 CHASSIS AND BACK TRAY, INTERNAL

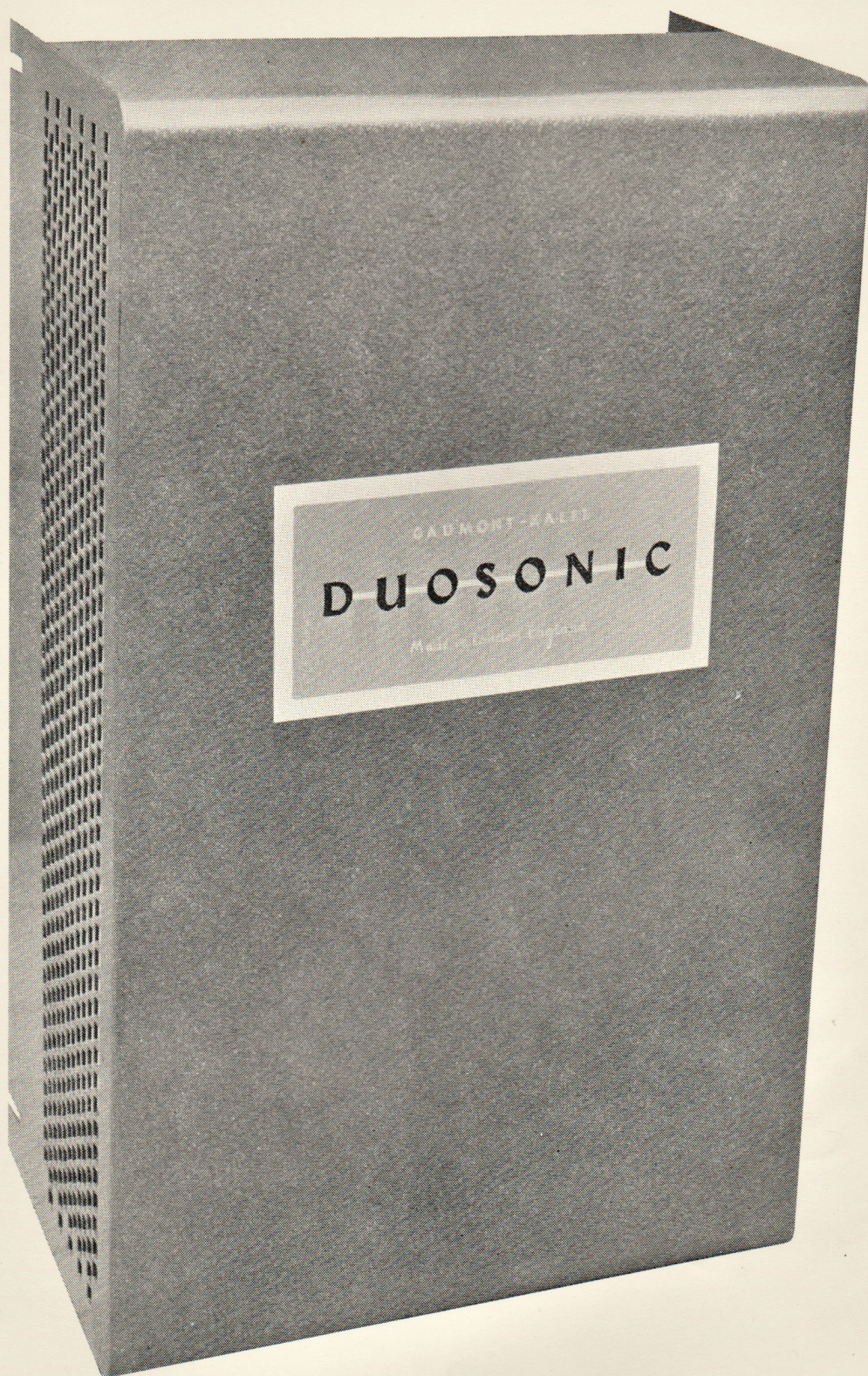


FIGURE 7. COVER 522,105