

# ROLA

## Loudspeaker Data

**ROLA COMPANY (AUST.) PTY. LTD.**

THE BOULEVARD, RICHMOND, E.I., VICTORIA

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# MODEL 4F

**MODEL 4F\*** is a 4-inch loudspeaker of high efficiency designed for use in small battery and AC receivers. It is also recommended for outdoor theatre installations where the weight of the speaker unit will not permit the use of a 5F speaker.

★Fluxmaster Series.

## SPECIFICATIONS

<b>Power handling capacity</b>	2½ watts
<b>Diaphragm</b>	
Fundamental resonance	
F97 cone	175 c.p.s. $\mp$ 10 c.p.s.
<b>Frequency response</b>	170 c.p.s. — 5 k.c.
<b>Voice coil impedance</b>	3.5 ohms at 400 c.p.s.
<b>Airgap flux density</b>	9,150 Gauss
<b>Transformer:</b>	
Type E or G (for equipment deriving power from mains or vibrator).	
Type G (for equipment deriving power from dry batteries).	

# MODEL 5C

**MODEL 5C\*** is a new type which replaces the earlier 5C and the intermediate Model 5B. It employs the highly efficient Rola Fluxmaster type magnet assembly.

★Fluxmaster Series.

## SPECIFICATIONS

<b>Power handling capacity</b>	2½ watts
<b>Diaphragm</b>	
Fundamental resonance	
★ F87 cone	135 c.p.s. } $\mp$ 5 c.p.s.
★ F89 cone	175 c.p.s. }
<b>Frequency response</b>	130 c.p.s. — 6.5 k.c.
	(Depending on cone)
<b>Voice coil impedance</b>	3.5 ohms at 400 c.p.s.
<b>Air gap flux density</b>	7,250 Gauss
<b>Transformer:</b>	

When Model 5C is used in AC or AC/DC or vibrator operated receivers, it is supplied with a Type E (non-Isocore) transformer. When used with battery operated receivers, the Isocore type D transformer should be used detached or type G attached. The G type can also be supplied to suit AC valves. The use of this speaker with the E type transformer with battery operated receivers is not recommended and when used under these conditions is covered by restricted warranty only.

# MODEL 5FX

**MODEL 5FX\*** is a high frequency speaker designed for use with a pair of 8M speakers (F59 Cone) as the low frequency unit.

This speaker installation has been developed to meet the needs of those who wish to take full advantage of the extended frequency range of modern recordings but who are not prepared to incur the high expense of the special amplifier, high fidelity transformer and vented enclosure necessary when full range speakers are used.

When installed with its appropriate transformers and cross-over network in a conventional radiogram cabinet, the combination will provide a very smooth response from 80 c.p.s. to 10,000 c.p.s. when driven by a standard single ended pentode or tetrode.

★Fluxmaster Series.

## SPECIFICATIONS

**Power Handling Capacity**

3 watts

**Diaphragm**

Fundamental resonance

F95 cone

125 c.p.s.  $\pm$  10 c.p.s.

**Frequency Response**

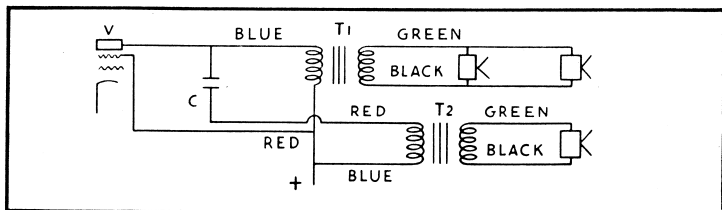
Designed to operate from  
3,000 to 10,000 c.p.s.

**Voice coil impedance**

3.5 ohms at 400 c.p.s.

**Air gap flux density**

9,150 Gaussess



*Circuit Diagram of Cross-over Network.*



**Transformers:**

6V6, 6AQ5, 6BW6. A1. Pentode 5,000 ohm load

T1: CBG58

T2: EHL32

C: .008 mfd.

6BV7, 6M5. A1. Pentode 7,000 ohm load

T1: CBG47

T2: EGL35

C: .006 mfd.

**Mounting**

The three speakers should be mounted as closely together as practicable. If cabinet design permits it is desirable to mount the speakers on the vertical axis with the Model 5FX at the top. The alternative is to mount them clover-leaf fashion with the 5FX close to the top edge of the 8 inch speaker housings.

The five-inch speaker should be mounted so that its pad ring is at least flush with the front of the cabinet, not set back by the thickness of the cabinet front as is normally the case. This can be achieved by cutting out a 4¼" diameter hole and then extending this hole from the front of the cabinet to 5" diameter for a depth of 7/32". This will allow the front of the speaker to be flush with the front of the cabinet baffle.

**Feedback**

Final stage distortion is considerably reduced due to the flat impedance/frequency characteristic of this network and speaker combination, but it may be considered desirable to improve the distortion characteristic still further by applying feedback to the amplifier. If this is done the feedback should be taken from the plate circuit of the final valve.

**Phasing**

It is important that this speaker combination, particularly the two 8M's, is correctly phased. To ensure this, follow the colour code set out in the schematic diagram.

## MODEL 5F

**MODEL 5F\*** is a new high efficiency 5-inch speaker designed to employ the Fluxmaster magnet assembly and intended expressly for use with battery operated portables, although it is also used when very high efficiency is sought from A.C. mantel or small car radio receivers. It is recommended for use in outdoor theatre installations.

★Fluxmaster Series.

### SPECIFICATIONS

<b>Power handling capacity</b>	3 watts
<b>Diaphragm</b>	
Fundamental resonance	
★F87 cone	135 c.p.s. } $\pm 5$ c.p.s.
★F89 cone	175 c.p.s. }
<b>Frequency response</b>	130 c.p.s. — 6.5 k.c. (Depending on cone)
<b>Voice coil impedance</b>	3.5 ohms at 400 c.p.s.
<b>Air gap flux density</b>	9,150 Gauss
<b>Transformer:</b>	

For battery set operation Model 5F is supplied with the G type Isocore transformer but either it or the open type E transformer may be used when the speaker is to be fitted to AC, AC/DC, or vibration operated sets.

## MODEL 5-7H

**MODEL 5-7H\*** is an elliptical type loudspeaker designed particularly for use in A.C. operated mantel receivers where space is at a minimum, yet reproduction requirements call for a relatively large speaker.

★Fluxmaster Series.

### SPECIFICATIONS

<b>Power handling capacity</b>	4 watts
<b>Diaphragm</b>	
Fundamental resonance	
★F86 cone	115 c.p.s. $\pm 5$ c.p.s.
<b>Frequency response</b>	110 c.p.s. — 6 k.c.
<b>Voice coil impedance</b>	3.5 ohms at 400 c.p.s.
<b>Air gap flux density</b>	8,550 Gauss
<b>Transformer:</b>	
Type D Isocore, detached.	

## MODEL 5-7L

**MODEL 5-7L** has similar response characteristics to those of Model 5-7H, but because of its larger magnet its acoustic efficiency is twice that of the latter model. For this reason Model 5-7L is specially recommended for use with battery operated portable, mantel and car radio receivers.

### SPECIFICATIONS

<b>Power handling capacity</b>	5 watts
<b>Diaphragm</b>	
Fundamental resonance	
★ F86 cone	115 c.p.s. $\mp$ 5 c.p.s.
<b>Frequency response</b>	110 c.p.s. — 6 k.c.
<b>Voice coil impedance</b>	3.5 ohms at 400 c.p.s.
<b>Air gap flux density</b>	11,600 Gaussess
<b>Transformer:</b>	
Type D Isocore, detached.	

## MODEL 6H

**MODEL 6H★** is a lightweight 6 inch loudspeaker designed for use in A.C. table and mantel model receivers and portable sound systems. It may also be used advantageously in multiple loudspeaker systems where an extensive coverage at individually low sound levels is desired.

★Fluxmaster Series.

### SPECIFICATIONS

<b>Power handling capacity</b>	4 watts
<b>Diaphragm</b>	
Fundamental resonance	
F79 cone	90 c.p.s. $\left. \begin{array}{l} 115 \text{ c.p.s.} \\ 130 \text{ c.p.s.} \end{array} \right\} \mp 5 \text{ c.p.s.}$
★ F81 cone	
F82 cone	85 c.p.s. — 6.5 k.c.
<b>Frequency response</b>	(Depending on cone)
<b>Voice coil impedance</b>	3.5 ohms at 400 c.p.s.
<b>Air gap flux density</b>	8,550 Gaussess
<b>Transformer:</b>	
D type Isocore transformer, attached or detached for chassis mounting.	

# MODEL 6L

**MODEL 6L** has essentially the same response characteristic as that of Model 6H, but due to its larger magnet, its acoustic output for a given electrical input is twice that of the latter. For this reason Model 6L is recommended for use with battery operated mantels and portables, portable radiograms, car radio receivers and sound systems in which really high efficiency from small speakers is sought.

## SPECIFICATIONS

<b>Power handling capacity</b>	5 watts
<b>Diaphragm</b>	
Fundamental resonance	
F79 cone	90 c.p.s. }
* F81 cone	115 c.p.s. } $\mp$ 5 c.p.s.
F82 cone	130 c.p.s. }
<b>Frequency response</b>	85 c.p.s. — 6.5 k.c. (Depending on cone)
<b>Voice coil impedance</b>	3.5 ohms at 400 c.p.s.
<b>Air gap flux density</b>	11,600 Gauss
<b>Transformer:</b>	
D type Isocore transformer, attached or detached for chassis mounting.	

# MODEL 6-9H

**MODEL 6-9H\*** is intended for use with A.C. operated mantel receivers and portable radiograms. This elliptical model loudspeaker possesses an important advantage in that, though its cone area is slightly greater than that of the conventional 8 inch loudspeaker, it will fit the same vertical space as is required by a standard 6 inch speaker.

\*Fluxmaster Series.

## SPECIFICATIONS

<b>Power handling capacity</b>	4 watts
<b>Diaphragm</b>	
Fundamental resonance	
F69 cone	90 c.p.s. }
* F70 cone	115 c.p.s. } $\mp$ 5 c.p.s.
<b>Frequency response</b>	85 c.p.s. — 5.5 k.c. (Depending on cone)
<b>Voice coil impedance</b>	3.5 ohms at 400 c.p.s.
<b>Air gap flux density</b>	8,550 Gauss
<b>Transformer:</b>	
Type D Isocore, attached or detached for chassis mounting.	

# MODEL 6-9L

**MODEL 6-9L** is the elliptical model counterpart of Model 6L and should be used for the same applications as the latter. Because of its space-saving design and high acoustic efficiency, Model 6-9L has particular application in car radio receivers. Like all elliptical speakers, it will give the best sound radiation in the horizontal plane when it is mounted so that its long axis lies in the vertical plane.

## SPECIFICATIONS

<b>Power handling capacity</b>	5 watts
<b>Diaphragm</b>	
Fundamental resonance	
F69 cone	90 c.p.s. /
★ F70 cone	115 c.p.s. } $\pm$ 5 c.p.s.
<b>Frequency response</b>	85 c.p.s. — 5.5 k.c.
	(Depending on cone)
<b>Voice coil impedance</b>	3.5 ohms at 400 c.p.s.
<b>Air gap flux density</b>	11,600 Gauss
<b>Transformer:</b>	
Type D Isocore, attached or detached for chassis mounting.	

# MODEL 8H

**MODEL 8H★** is a lightweight 8 inch loudspeaker which has special application in high quality portable receivers and in A.C. operated mantel type sets. Its power handling capacity is similar to that of the 6 inch Model 6H, but its frequency response is wider than that of the smaller speaker.

★Fluxmaster Series.

## SPECIFICATIONS

<b>Power handling capacity</b>	4 watts
<b>Diaphragm</b>	
Fundamental resonance	
★ F74 cone	110 c.p.s. /
F76 cone	80 c.p.s. } $\pm$ 5 c.p.s.
<b>Frequency response</b>	75 c.p.s. — 6.5 k.c.
	(Depending on cone)
<b>Voice coil impedance</b>	3.5 ohms at 400 c.p.s.
<b>Air gap flux density</b>	8,550 Gauss
<b>Transformer:</b>	
Type D Isocore, attached or detached for chassis mounting.	

# MODEL 8K

**MODEL 8K\*** is a low priced 8-inch model designed for use in medium priced mantel receivers and radiograms. Its response characteristics are such that it will give the best possible performance in either application, and its efficiency is more than adequate for use with any standard A.C. receiver. It supersedes 8J.

★Fluxmaster Series.

## SPECIFICATIONS

<b>Power handling capacity</b>	5½ watts
<b>Diaphragm</b>	
Fundamental resonance	
★ F57 cone	90 c.p.s. }
★ F59 cone	75 c.p.s. } ± 5 c.p.s.
F63 cone	125 c.p.s. }
<b>Frequency response</b>	70 c.p.s. — 6 k.c. (Depending on cone)
<b>Voice coil impedance</b>	2 ohms at 400 c.p.s.
<b>Air gap flux density</b>	7,780 Gauss
<b>Transformer:</b>	
Type J (initial equipment only) or Type C Isocore, attached or detached for chassis mounting.	

# MODEL 8M

**MODELS 8M and 8M (P.A.)★**, due to their larger and more powerful magnet, have a higher efficiency, and will handle more power than the 8K and 8K (P.A.), although their other characteristics are similar. Model 8M is specially recommended for use with battery or vibrator receivers and Model 8M (P.A.) in sound systems where higher than normal efficiency is needed.

★Fluxmaster Series.

## SPECIFICATIONS

<b>Power handling capacity</b>	7 watts
<b>Diaphragm</b>	
Fundamental resonance	
★ F57 cone	90 c.p.s. }
★ F59 cone	75 c.p.s. } ± 5 c.p.s.
F63 cone	125 c.p.s. }
<b>Frequency response</b>	70 c.p.s. — 6 k.c. (Depending on cone)
<b>Voice coil impedance</b>	2 ohms at 400 c.p.s.
<b>Air gap flux density</b>	9,000 Gauss
<b>Transformer:</b>	
Type C Isocore, attached or detached for chassis mounting.	



# MODEL 12K

**MODEL 12K\*** is a low-priced 12 inch model designed expressly for use with medium-priced A.C. operated console receivers and radio gramophone combinations. It has superseded model 12J.

\*Fluxmaster Series.

## SPECIFICATIONS

**Power handling capacity**

5½ watts

**Diaphragm**

Fundamental resonance

F24 cone

F25 cone

\* F27 cone

65 c.p.s. }  
65 c.p.s. }  $\pm$  5 c.p.s.  
85 c.p.s. }

**Frequency response**

60 c.p.s. — 5.5 k.c.  
(Depending on cone)

**Voice coil impedance**

2 ohms at 400 c.p.s.

**Air gap flux density**

7,780 Gauss

**Transformer:**

Type J (initial equipment only) or Type C, attached or detached for chassis mounting.

# MODEL 12M

**MODEL 12M\*** is the 12 inch counterpart of Model 8M and, is particularly designed for use in high-grade console type receivers and radiograms.

\*Fluxmaster Series.

## SPECIFICATIONS

**Power handling capacity**

7 watts

**Diaphragm**

Fundamental resonance

F24 cone

F25 cone

\* F27 cone

65 c.p.s. }  
65 c.p.s. }  $\pm$  5 c.p.s.  
85 c.p.s. }

**Frequency response**

60 c.p.s. — 5.5 k.c.  
(Depending on cone)

**Voice coil impedance**

2 ohms at 400 c.p.s.

**Air gap flux density**

9,000 Gauss

**Transformer:**

Type C Isocore, attached or detached for chassis mounting.

# MODEL 12-O

**MODEL 12-O**★ has become recognised as one of Australia's finest loudspeakers. Its radically new design is responsible for Model 12-O's outstanding performance and wide frequency response, which extends above 7 K.c. This model is recommended for use in all high quality battery, vibrator or A.C. operated consoles and gramophone combinations. When fitted with the specially rim treated F29 diaphragm, Model 12-O has a frequency response extending from 70 c.p.s. to above 8 K.c., a range more than adequate for reproduction of Long Playing records on better than average equipment.

★Fluxmaster Series.

## SPECIFICATIONS

**Power handling capacity**

7 watts

**Diaphragm**

Fundamental resonance

F22 cone

65 c.p.s.  $\pm$  5 c.p.s.

★ F28 cone

80 c.p.s. }  $\pm$  5 c.p.s.

★★ F29 cone

75 c.p.s. }

**Frequency response**

70 c.p.s. — 8 k.c.

(Depending on cone)

**Voice coil impedance**

2 ohms at 400 c.p.s.

**Air gap flux density**

12,000 Gauss

**Transformer:**

Type C Isocore, attached or detached for chassis mounting.

★Standard Equipment.

★★ Fitted only to 12-O DeLuxe.

# MODEL 12-Ox

**MODEL 12-Ox**★ is a wide range speaker which has been acclaimed as one of Rola's outstanding achievements. Its response characteristic is so wide and so even as to necessitate the employment of the very best associate equipment—amplifier, pick-up, records, tape recorder or F.M. receiver.

★Fluxmaster Series.

## SPECIFICATIONS

**Power handling capacity**

6 watts (Max.)

**Diaphragm**

Fundamental resonance

★ F30 cone

50 c.p.s.  $\pm$  5 c.p.s.

**Frequency response**

45 c.p.s. — 12 k.c.

**Voice coil impedance**

2 ohms at 400 c.p.s.

**Air gap flux density**

12,800 Gauss

**Transformer:**

Not supplied. A high fidelity transformer should be used.

# MODEL 12U

**MODEL 12U\*** is a modern version of the famous G12, which for so long has been accepted as a standard in high quality loudspeakers. Model 12U's large power handling capacity makes it an ideal auditorium or P.A. speaker.

★Fluxmaster Series.

## SPECIFICATIONS

<b>Power handling capacity</b>	15 watts
<b>Diaphragm</b>	
Fundamental resonance	
★ F21 cone	60 c.p.s. $\mp$ 5 c.p.s. 55 c.p.s. — 5 k.c.
<b>Frequency response</b>	
<b>Voice coil impedance</b>	8.4 ohms at 400 c.p.s.
<b>Air gap flux density</b>	13,000 Gauss
<b>Transformer:</b>	
Type B.	

# MODEL 12Ux

**MODEL 12Ux\***. This speaker combines the frequency response characteristics of the 12-Ox with the high power handling capacity of the 12-U. It has special application in wide range sound systems where, for example, in theatre installations, substantial audio powers have to be handled.

★Fluxmaster Series.

## SPECIFICATIONS

<b>Power handling capacity</b>	12 watts (Max.)
<b>Diaphragm</b>	
Fundamental resonance	
★ F31 cone	50 c.p.s. $\mp$ 5 c.p.s. 45 c.p.s. — 12 k.c.
<b>Frequency response</b>	
<b>Voice coil impedance</b>	8.4 ohms at 400 c.p.s.
<b>Air gap flux density</b>	13,000 Gauss
<b>Transformer:</b>	
Not supplied. A high fidelity transformer should be used.	

★ Standard Equipment.

# LOUDSPEAKER CONES

- F22** The response characteristic of this cone is relatively flat from the low to the mid-frequency range but has a rising characteristic from 2 to 4.5 k.c. to compensate for the side-band clipping encountered in selective receivers. It is recommended for use with film projectors and selective radio receivers.
- F24** This cone has a relatively flat response characteristic throughout its range and is recommended for use with broadly tuned radio receivers and gramophone combinations. It is intended for use with Models 12K and 12M.
- F25** Similar to the F22 but intended for use with Models 12K and 12M.
- F27** This cone has similar response characteristics to those of the F22 but because of its higher main resonance (85 c.p.s.  $\pm$  5 c.p.s.) speakers fitted with it will have an apparently higher bass response and sensitivity than those using the F22 or F24 cones. Like the F24 and F25, the F27 is intended for use with Models 12K and 12M.
- F28** This cone is intended for use with Model 12-O and, except that its higher main resonance (80 c.p.s.  $\pm$  5 c.p.s.) will result in apparently higher bass response and overall sensitivity, its performance will be similar to that of the F22.
- F29** The fundamental resonance of the F29 cone, 75 c.p.s.  $\pm$  5 c.p.s., makes it suitable for use in the larger type of radiogram. Its response is relatively flat from 70 c.p.s. to 8 k.c. It is fitted only to Model 12-O De Luxe.
- F30** This is a low main resonance F22 type cone deigned for use with Model 12-Ox in which it is combined with a small high frequency cone to extend the speaker's response to 12 k.c. The fundamental resonance of the F30 is 50 c.p.s.  $\pm$  5 c.p.s.
- F37** This cone is intended for use with the 10-inch loudspeaker Model 10M. Its frequency range is from 75 - 5,500 c.p.s. and its response has the 2 to 4 k.c. peak which makes it suitable for use with most A.C. receivers.
- F57** This is one of a group of cones intended for use with the 8-inch Models 8K and 8M. The F57 has a frequency range of 85 - 6,000 c.p.s. and a response characteristic similar to that of the F37.

- F59** The lower fundamental resonance of this cone makes it of special value when used with receivers incorporating bass boosting or inverse feedback. Its frequency range is from 70 to 6,000 c.p.s. Its mid and high frequency response is similar to that of the F57. F59 is intended for use with Models 8K and 8M.
- F63** This is a high main resonance cone specially designed for public address work or for use with car radios (underdash mounted type). Its response range is from 120 to 6,000 c.p.s. F63 may be used with any of the 1" voice coil 8-inch type loudspeakers and is standard equipment with Model 8M (PA).
- F69** This is a special elliptical cone for use with Models 6-9H and 6-9L. Its frequency range is from 85 - 5,500 c.p.s. and its response is slightly peaked in the 2 - 4 k.c. region to suit the characteristics of car radios (behind the dash types) and small domestic receivers.
- F70** This cone is similar to the F69 but its higher main resonance, 115 c.p.s.  $\pm$  5 c.p.s., gives a higher apparent bass and overall sensitivity.
- F74** This cone is intended for use with the  $\frac{3}{4}$ " voice coil 8-inch Model 8H. Its frequency range is from 110 - 6,500 c.p.s. and it has the characteristic rise in the 2 - 4 k.c. region to suit the requirements of the average selective receiver.
- F76** This cone is also intended for use with Model 8H. Its frequency response from 75 - 6,500 c.p.s. is similar to that of the F74 and its low main resonance makes it particularly useful with receivers employing bass boosting or inverse feedback.
- F79** This is one of a group of three cones designed for use with the 6" Models 6H and 6L. The F79 has a frequency response from 85 - 6,500 c.p.s. and its low main resonance will prove advantageous with sets using inverse feedback or bass boosting.
- F81** This is a standard type cone for use with Models 6H and 6L. Except for its higher main resonance, its frequency response is similar to that of the F79.
- F82** This cone has a higher main resonance than either F79 or the F81 and because of its high apparent sensitivity has special application to small battery, car radio, or A.C. receivers. Its frequency range is from 125 - 6,500 c.p.s. and its response is similar to that of the F79. The F82 is intended for use with Models 6H and 6L.

- F86** This cone is intended for use with the 5" x 7" elliptical Models 5-7H and 5-7L. Its main resonance, 115 c.p.s.  $\pm$  5 c.p.s., is particularly suitable where the baffle area is restricted. Its overall response is similar to that of the F81 cone.
- F87** This cone is designed to give the best overall response from Model 5C when used under average conditions. Its frequency range extends from 150 - 6,500 c.p.s. and its response has a peak in the 2 - 4 k.c. region to compensate for the side-band clipping encountered in selective receivers.
- F89** This cone is similar to the F87 but its higher main resonance (175 c.p.s.  $\pm$  5 c.p.s.) gives better apparent bass and overall sensitivity than the F87. It is standard equipment with Model 5F and has special advantages for portable receiver use.
- F94** This cone is intended for use with the 3-inch Model 3C. Its frequency range is from 225 - 8,500 c.p.s. and its very smooth response is particularly suited to use with midget portables, inter-comm. systems and monitor use. Although the F94 cone has an extended frequency range, the low efficiency of Model 3C makes its use as a H.F. unit in a multi-speaker system impracticable.
- F95** This is an extended frequency range cone designed for use with Model 5FX. Its fundamental resonance is 125 c.p.s.  $\pm$  5 c.p.s. and its frequency range 120-10,000 c.p.s.
- F97** This is the standard cone for use with the four inch speaker Models 4C and 4F. It has a fundamental resonance of 175 c.p.s.  $\pm$  10 c.p.s. and a frequency range of 170 - 5,000 c.p.s.



## LOUDSPEAKER DATA

Model	Power Handling Capacity Watts	Cone	Fundamental Diaphragm Resonance $\pm$ 5 c.p.s.
3C	.5	F94	237*
4C	2.5	F97	175**
4F	2.5	F97	175**
5C	2.5	F87	135
		F89	175
5F	3	For other data see Model 5C	
5FX	3	F95	125
5-7H	4	F86	115
5-7L	5	F86	115
6H	4	F79	90
		F81	115
		F82	130
6L	5	For other data see Model 6H	
6-9H	4	F69	90
		F70	115
6-9L	5	For other data see Model 6-9H	
8H	4	F74	110
		F76	80
8K, 8K (P.A.)	5½	F57	90
		F59	75
		*** F63	125
8M, 8M (P.A.)	7	For other data see Model 8K	
12K	5½	F24	65
		F25	65
		F27	85
12M	7	For other data see Model 12K	
12-0	7	F22	65
		F28	80
		F29	75
12-0x	6	F30	50
12U	15	F21	55
12UX	12	F31	50

\*  $\pm$  12 c.p.s.\*\*  $\pm$  10 c.p.s.

\*\*\* P.A. Diaphragm

# LOUDSPEAKER DATA

Frequency Range c.p.s.	Voice-Coil Impedance Ohms at 400 c.p.s.	Diameter of Baffle Opening (Inches)	Transformer Types
220 - 8,500	3.5	2-3/4	G
170 - 5,000	3.5	3-3/4	E, G
170 - 5,000	3.5	3-3/4	E, G
130 - 6,500	3.5	4	E, G
170 - 6,500	3.5	4	E
120 - 10,000	3.5	4	E
110 - 6,000	3.5	6-3/4 x 4-5/8	D
110 - 6,000	3.5	6-3/4 x 4-5/8	D
85 - 6,500	3.5	5-1/2	D
110 - 6,500	3.5	5-1/2	
125 - 6,500	3.5	5-1/2	D
85 - 5,500	3.5	8-3/4 x 5-3/4	D
110 - 5,500	3.5	8-3/4 x 5-3/4	D
105 - 6,500	3.5	7	D
75 - 6,500	3.5	7	
85 - 6,000	2	7	C, J
70 - 6,000	2	7	
120 - 6,000	2	7	C
60 - 5,000	2	11	C, J
60 - 5,000	2	11	
80 - 5,000	2	11	C
60 - 8,000	2	11	C
75 - 8,000	2	11	C
70 - 8,000	2	11	
45 - 12,000	2	11	Not supplied
50 - 5,000	8.4	11	B
45 - 12,000	8.4	11	Not supplied

## TABLE OF REPAIRABILITY OF ROLA SPEAKERS

Provided that they are not extensively damaged, Rola speakers listed below with the word "Yes" are worth repairing. Obsolete, unlisted types are not worth repairing.

Model	Worth Repairing	Voice Coil Impedance at 400 Cycles	Replacement Transformer Type
<b>3½" Permanent Magnet Types</b>			
3C .....	Yes	3.5	D, E, F, G
<b>4" Permanent Magnet Types</b>			
4C .....	Yes	3.5	E, G
4F .....	Yes	3.5	E, G
<b>5" Permanent Magnet Types</b>			
5-4 .....	Yes	3.5	D, E
5-7 .....	Yes	3.5	D
5-9 .....	Yes	3.5	D, E
5-15 .....	No	3.5	D
5B .....	Yes	3.5	L, E
5C .....	Yes	3.5	D, E, G
5F .....	Yes	3.5	G
5FX .....	Yes	3.5	E
5-7H .....	Yes	3.5	D
5-7L .....	Yes	3.5	D
<b>6" Electro Dynamic Types†</b>			
F5B (Permafex spider) .....	Yes	3.5	D
<b>6" Permanent Magnet Types</b>			
6-6 (Permafex spider) .....	Yes	3.5	D
6-8 .....	Yes	3.5	D
6-11 .....	Yes	3.5	D
6-12 .....	Yes	3.5	D
6-15 .....	Yes	3.5	D
6H .....	Yes	3.5	D
6K, 6L .....	Yes	3.5	D
6-9H .....	Yes	3.5	D
6-9L .....	Yes	3.5	D
9-6H .....	Yes	3.5	D
<b>8" Electro Dynamic Types†</b>			
F6 (Internal spider) .....	Yes	2	C
F8 (Permafex spider) .....	Yes	3.5	D
K8 (Internal spider) .....	Yes	2	C
K8 (Permafex spider) .....	Yes	2	C

**REPAIRABILITY OF ROLA SPEAKERS (cont'd)**

Model	Worth Repairing	Voice Coil Impedance at 400 Cycles	Replacement Transformer Type
<b>8" Permanent Magnet Types</b>			
8-8 (Permafex spider) .....	Yes	2	C
8-11 (Permafex spider) .....	Yes	3.5	D
8-14 (Permafex spider) .....	Yes	2	C
8-15 (Permafex spider) .....	Yes	3.5	D
8-20 (Permafex spider) .....	Yes	2	C
8-21 (Permafex spider) .....	Yes	2	C
8-42 (Permafex spider) .....	Yes	2	C
8H, 8L .....	Yes	3.5	D
8J, 8K .....	Yes	2	C
8M, 8MPA .....	Yes	2	C
8-0 .....	Yes	2	C
<b>10" Electro Dynamic Types†</b>			
F10 (Permafex spider) .....	No	2	C
F10 (Internal spider) .....	No	2	C
K10 (Permafex spider) .....	No	2	C
<b>10" Permanent Magnet Types</b>			
10-20 (Permafex spider) .....	Yes	2	C
10-21 (Permafex spider) .....	Yes	2	C
10-42 (Permafex spider) .....	Yes	2	C
10K, 10M .....	Yes	2	C
<b>12" Electro Dynamic Types†</b>			
F12 (Permafex spider) .....	No	2	C
G12† (Permafex spider) .....	Yes	8.4	B
K12 (Permafex spider) .....	No	2	C
<b>12" Permanent Magnet Types</b>			
12-20 (Permafex spider) .....	Yes	2	C
12-21 (Permafex spider) .....	Yes	2	C
12-42 (Permafex spider) .....	Yes	2	C
12J, 12K, 12M .....	Yes	2	C
12-0 .....	Yes	2	C
12-0x .....	Yes	2	—
12R .....	Yes	8.4	B
12U .....	Yes	8.4	B
12Ux .....	Yes	8.4	—
G12 Speakers .....	Yes	8.4	B

†No Field Coil Replacements.

## ROLA TRANSFORMER TYPES

Rola Company manufactures a wide range of output transformers, each type especially designed accurately to match a Rola speaker to the output valve. Because it is impracticable for distributors to stock all transformers, a limited number of transformers are selected as standard and these are readily available for sale at standard prices.

Special applications call for special transformers. Your retailer can order such a transformer for you.

State distributors and wholesalers carry a full range of standard Rola transformers. There is naturally a time delay when ordering special types and there is a surcharge of 1/2d. on the retail price of non-standard types.

**TYPE "B":** This is a non-Isocore transformer designed to operate with Models 12R, 12U, G12 or G12PM loudspeakers which have a voice coil impedance of 8.4 ohms.

**TYPE "C":** This is an Isocore transformer specially designed to prevent electrolysis taking place between the primary winding and the core. This transformer is normally designed to operate with loud-speakers having a voice coil impedance of 2 ohms, although special manufacturers' types to match 3.5 ohms also are supplied.

**TYPE "D":** This also is an Isocore transformer but smaller than Type C and designed to operate with speakers having a voice coil impedance of 3.5 ohms. When 3C and 5C loudspeakers (which are not normally supplied with Isocore transformers) are used with battery operated receivers, Type D or Type G transformers should be used detached.

**TYPE "E":** This is a compact, unsealed transformer designed for use with 3", 4" and 5" loudspeakers when used with A.C. receivers.

**TYPE "G":** This is a midget Isocore type transformer intended for use with Model 3C and Model 5F loudspeakers in A.C. and battery receivers. Its secondary winding matches voice coils having an impedance of 3.5 ohms.

**TYPE "H":** This is a manufacturers' type non-isocore transformer possessing similar electrical characteristics to those of the Type D.

**TYPE "J":** This type was developed for use with Models 12J and 12K, 8J and 8K. It is an Isocore type possessing the same

physical dimensions as Type D, but is fitted with a 2 ohm secondary winding.

**TYPE "K":** This is an unsealed transformer similar in electrical characteristics to the Type C.

**TYPE "L":** This is a midget open type transformer intended for use with Models 3C, 4C and 5C loudspeakers in A.C. receivers, its secondary winding matches voice coils having an impedance of 3.5 ohms.

## COLOR CODES:

### Transformer Primary

Start — Red if primary untapped. Brown if primary tapped  
Finish — Blue.

Centre Tap (if used) — Red.

NOTE: In Isocore transformers the Red lead is connected internally to the laminations. Always connect the Red lead to the high voltage source (B+).

### Transformer Secondary

Start — Black

Finish — Green

NOTE: Two additional leads, White and Maroon, are fitted when provision for feedback is included. The White lead connects to the Green lead and the Maroon lead to the Black lead.

All Rola transformers are supplied without mounting brackets. To mount a transformer to the loudspeaker, knock out the rivets holding the existing transformer and secure the new transformer with machine screws. **Never attempt to remove the transformer bracket from the loudspeaker for if this is done the loudspeaker will be damaged.**

## TRANSFORMER DIMENSIONS

Type	Height	Width	Overall Length*	Mounting Centres
B .....	2-1/8"	2"	2-5/8"	3-1/8"
C .....	2-1/4"	1-15/16"	2-9/16"	3-1/16"
D .....	2"	1-3/4"	2-1/8"	2-1/2"
E .....	1-7/16"	1-5/16"	1-25/32"	2-1/16"
F .....	1-1/4"	1-1/16"	1-9/16"	2-1/16"
G .....	1-19/32"	1-1/4"	1-3/4"	2-1/16"
H .....	1-1/2"	1-5/16"	1-13/16"	2-1/8"
J .....	2"	1-3/4"	2-1/8"	2-1/2"
K .....	1-13/16"	1-9/16"	2-1/4"	2-1/2"
L .....	1-1/4"	1-1/16"	1-9/16"	2-1/16"

\*Not including mounting lugs.



## ROLA STANDARD OUTPUT TRANSFORMERS

VALVE	OPERATING CONDITION	PLATE VOLTS	SCREEN VOLTS	LOAD IMP. (OHMS)
1S4	Al Pentode	45 67.5	45 67.5	8,000 5,000
3S4	Al Pentode Par. Fil. Par. Fil.	67½ 90	67½ 67½	5,000 8,000
3V4	Al Pentode Par. Fil.	90	90	10,000
6AQ5 (See 6V6)				
6BV7	Al Pentode	250 180	250 180	7,000 7,000
6BW6 (See 6V6)				
6L6, 6L6G, KT66, 807	Al P.P. Tetrode Self Bias	250 270	250 270	5,000 c.t. 5,000 c.t.
	AB1 P.P. Tetrode Fixed Bias			
6M5	Al Pentode Self Bias	250	250	7,000
6V6, 6AQ5, 6BW6	Al Pentode	250 250	250 250	5,000 10,000 c.t.
	AB1 P.P. Pentode			

(Preferred Types in bold type)

## ROLA STANDARD OUTPUT TRANSFORMERS

(Listed by Load Impedance)

LOAD IMPEDANCE (OHMS)	TRANSFORMER TYPE				
	B	C	D	E	G
5,000 c.t.	BPL126				
5,000		CBG81	DCG87	ECG87	GDG68
5,000		CFL31	DEB55		GCB91
7,000		CBG64	DBG96	EBG96	GCG72
8,000			DDB53		GCL67
10,000 c.t.	BPL73	CQL34			
10,000 c.t.	BOL109	COL53			
10,000			DBB74	EBB74	
10,000			DDB46		GCL58

# ROLA STANDARD OUTPUT TRANSFORMERS

POWER OUT- PUT (WATTS)	TRANSFORMER TYPE						
	B	C	D	E	G	J	L
0.065 0.18			DEB55		GCL67 GCB91		
0.18 0.27			DEB55 DDB53		GCB91 GCL67		
0.27		CCB42	DDB46		GCL58		
4.0 } 2.0 }		CBG64	DBG96	EBG96	GCG72	JBG69	LCG72
13.8 } 18.5 }	BPL126						
4.5		CBG64	DBG96	EBG96	GCG72	JBG69	LCG72
4.5 10.0	BOL109	CBG81 COL53	DCG87	ECG87	GDG68	JCG64	LDG68

# ROLA STANDARD OUTPUT TRANSFORMERS

(Listed by Load Impedance)

FOR USE WITH THESE VALVE TYPES			
J	L	A.C. VALVES	BATTERY VALVES
		6L6G, 807, KT66 25L6G, 50L6G 6L6G, 807, KT66 6AQ5, 6BW6, 6V6G, 25A6G	
JCG64	LDG68		154, 354
JBG69	LCG72	2A5, 6BV7, 6F6, 6K6, 6M5, 7B5, 41, 42 AL2, AL3, EBL1, EL3N, EL33, E443H 6M5	
			1C5G, 1G5G, 1Q5G, 3Q5G, 354
		EBL1, EL3NG, EL33 2A5, 6AC5G, 6F6, 6AQ5, 6BW6, 6V6G, 42, AL2, AL3, E443H, KT61 6AQ5, 6BW6, 6V6G	
			3Q4, 3V4

# ROLA STANDARD OUTPUT TRANSFORMERS

Listed by Types and Code Numbers

Transformer	Load Impedance (Ohms)	Used With Valves
<b>"B" TYPES:</b>		
<b>BOL109</b> .....	10,000 c.t.	2A5, KT61, 6AC5G, 6AQ5, 6F6, 6V6, 6BW6
<b>BPL126</b> .....	5,000 c.t.	KT66, 6L6, 8O7
<b>"C" AND "K" TYPES:</b>		
<b>CBG64</b> .....	7,000	AL2, AL3, EBL1, EL3NG, EL33, 2A5, 6K6, 6M5, 41, 42, E443H, 6BV7
<b>CBG81</b> .....	5,000	6AQ5, 6V6, 6BW6, 25A6
<b>COL53</b> .....	10,000 c.t.	AL2, AL3, KDD1, KT61, 1J6, 2A5, 6AQ5, 19, 42, E443H, 6V6, 6BW6
<b>"D" AND "E" TYPES:</b>		
<b>DBB61</b> .....	14,000	6AQ5, 6V6, 6BW6
<b>DBB74</b> .....	10,000	6V6, 6BW6
<b>DBG96</b> .....	7,000	AL2, AL3, EBL1, EL3N, EL3NG, EL33, 2A5, 6F6, 6K6, 6M5, 6BV7, 7B5, 41, 42, E443H
<b>DCG87</b> .....	5,000	6AQ5, 6V6, 6BW6, 25A6
<b>DDB46</b> .....	10,000	3Q4, 3V4
<b>DDB53</b> .....	8,000	1C5, 1G5G, 1Q5, 3Q5, 3S4
<b>"F" AND "G" TYPES:</b>		
<b>GBL59</b> .....	15,000	1D4, 1L5G
<b>GCB91</b> .....	5,000	1S4, 3S4
<b>GCG72</b> .....	7,000	AL2, AL3, EBL1, EL3NG, EL33, 2A5, 6F6, 6K6, 6M5, 41, 42, E443H, 6BV7
<b>GCL58</b> .....	10,000	3V4
<b>GCL67</b> .....	8,000	1C5, 1G5G, 1Q5, 1S4, 3S4, 3Q5GT
<b>GDG68</b> .....	5,000	6V6, 6BW6, 6AQ5
<b>"J" TYPES:†</b>		
<b>JBG69</b> .....	7,000	6BV7, 6M5
<b>JCG64</b> .....	5,000	6V6, 6BW6, 6AQ5
<b>"L" TYPES:*</b>		
<b>LCG72</b> .....	7,000	AL2, AL3, EBL1, EL3NG, EL33, 2A5, 6F6, 6K6, 6M5, 41, 42, E443H, 6BV7
<b>LDG68</b> .....	5,000	6V6, 6BW6, 6AQ5

## ROLA LINE TRANSFORMERS

Imped- ance Ohms	B Type	C Type	D & E Types	Imped- ance Ohms	B Type	C Type	D & E Types
200	BLL111	CLL54	DLL77	2000		CFL50	DFL71
250	BJL131	CJL64	DJL94	2500		CEL58	DEL83
500	BIL112	CIL54	DIL77	3000		CEL52	DEL73
600	BHL129	CHL64	DHL93	4000		CDL55	DDL78
1000	BGL119	CGL58	DGL82	5000		CCL61	DCL87
1500	BFL123	CFL60	DFL85	6000		CCL55	DCL78
1750	BFL113	CFL55	DFL76				

## ROLA FILTER CHOKES

Below will be found relevant data on the two standard Rola filter chokes. Type 12/50 is intended for use with small A.C. receivers and Type 14/60 for use with larger table or console types. When the ambient temperature does not exceed 150 deg. F. the 12/50 choke may be used with receivers drawing up to 65 mA and the 14/60 choke with receivers drawing up to 75 mA. At these current drains, the inductance of the 12/50 choke will drop to 8.6 henries and that of the 14/60 to 11.5 henries.

### 14/60:

Inductance 14 henries at 60 mA D.C. with 10 volts A.C.  
100 c.p.s. superimposed.  
D.C. resistance 550 ohms (cold).  
Lead length, 6".

### 12/50: (Replaces 7/70 and 6/60.)

Inductance 12 henries at 50 mA D.C. with 10 volts A.C.  
100 c.p.s. superimposed.  
D.C. resistance 540 ohms (cold).  
No leads.

## FILTER CHOKE DIMENSIONS

Type	Height	Width	Overall Length*	Mounting Centres
14/60 .....	1-13/16"	1-5/8"	2-3/16"	2-1/2"
12/50 .....	1-1/2"	1-5/16"	1-13/16"	2-1/8"

\*Not including mounting lugs.

# VENTED ENCLOSURES

The vented enclosure type of loudspeaker baffle has become extremely popular with users of high quality audio equipment, for it provides adequate baffling of low frequencies in a much smaller space than would be needed for a flat baffle or an exponential horn.

Many hard and fast rules have been laid down by writers on the design of vented enclosures, but it has been found experimentally that quite wide deviations may be made from the theoretically correct design without seriously affecting the aural results.

In these enclosures best performance is obtained when the area of the vent opening is equal to that of the loudspeaker diaphragm.

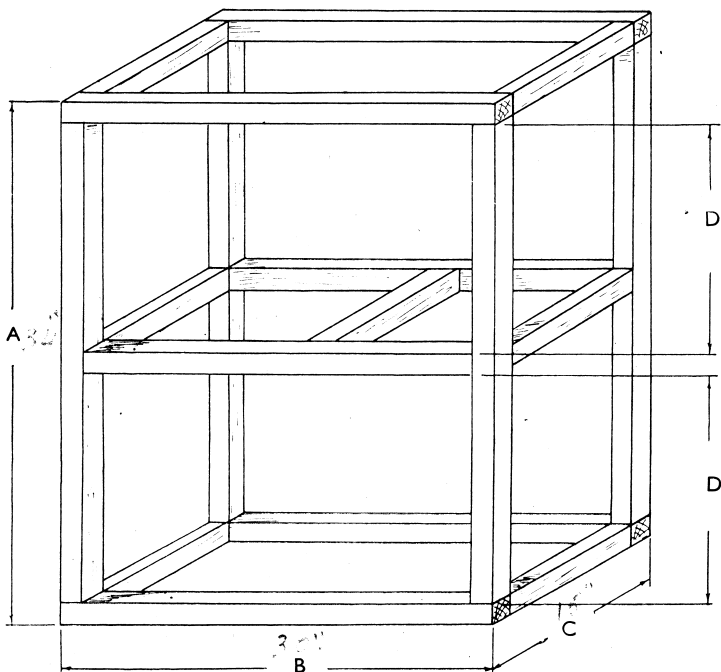


FIG. 1.—Frame detail for vented enclosure.

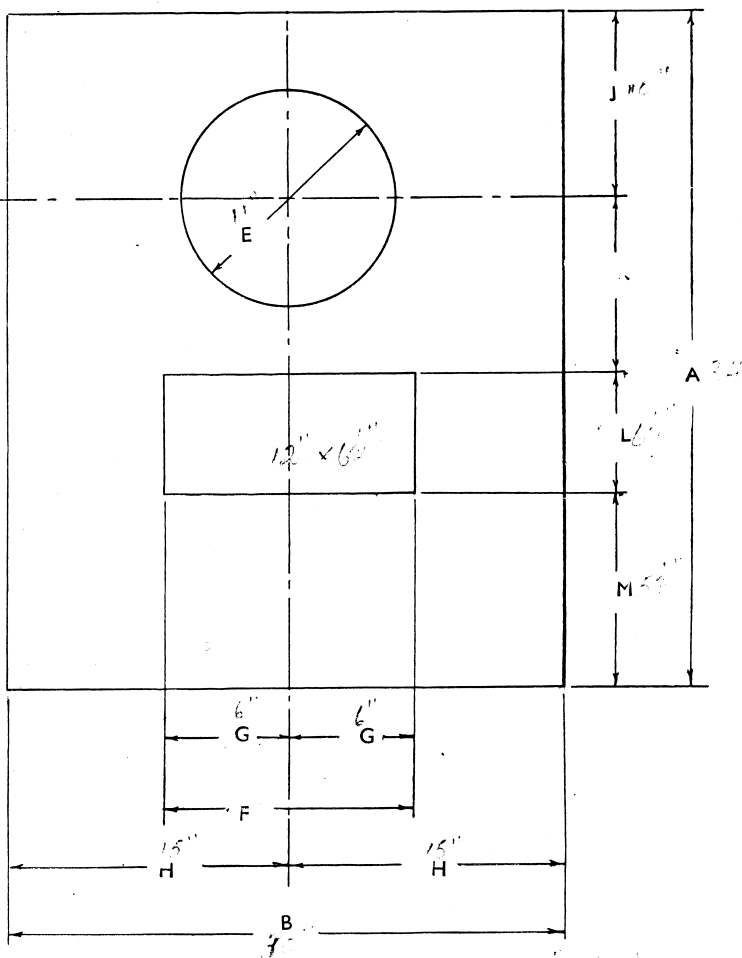


FIG. 2.—Front panel detail of vented enclosure.



# MODEL 3C

**MODEL 3C** is a 3½ inch loudspeaker intended particularly for use in personal portable receivers, intercommunication systems and hospital radio installations. It also has application as a monitor loudspeaker.

## SPECIFICATIONS

<b>Power handling capacity</b>	.5 watts (max.)
<b>Diaphragm</b>	
Fundamental resonance	
★ F94 cone	237 c.p.s. $\mp$ 12 c.p.s.
<b>Frequency response</b>	220 c.p.s. — 8.5 k.c.
<b>Voice coil impedance</b>	3.5 ohms at 400 c.p.s.
<b>Air gap flux density</b>	9,650 Gauss
<b>Transformer:</b>	
G type Isocore, detached for chassis mounting	

# MODEL 4C

**MODEL 4C\*** is a 4-inch loudspeaker designed for those applications where a 5-inch speaker cannot be accommodated but where substantial power needs to be handled without loss of efficiency.

★Fluxmaster Series.

## SPECIFICATIONS

<b>Power handling capacity</b>	2½ watts
<b>Diaphragm</b>	
Fundamental resonance	
F97 cone	175 c.p.s. $\mp$ 10 c.p.s.
<b>Frequency response</b>	170 c.p.s. — 5 k.c.
<b>Voice coil impedance</b>	3.5 ohms at 400 c.p.s.
<b>Airgap flux density</b>	7,250 Gauss
<b>Transformer:</b>	
Type E or G (for equipment deriving power from mains or vibrator).	
Type G (for equipment deriving power from dry batteries).	

It is possible to lower the resonant frequency of the enclosure by extending the vent in the form of a tube. This permits reduction of the dimensions of the enclosure needed for a given loudspeaker.

However, experiments lead to the belief that better results are obtained from a large box and a vent of minimum length than are possible from a small box and an extended vent. This also has been commented on by other investigators.

For this reason, all the dimensions set out in Table 1 are for enclosures having a vent but no internal tube.

In building a vented enclosure, it is essential to ensure that the construction is such as to provide complete rigidity. If this is not done, it will be found that when any but the lowest audio powers are being handled by the speaker the cabinet will vibrate and "drum" at one or more frequencies.

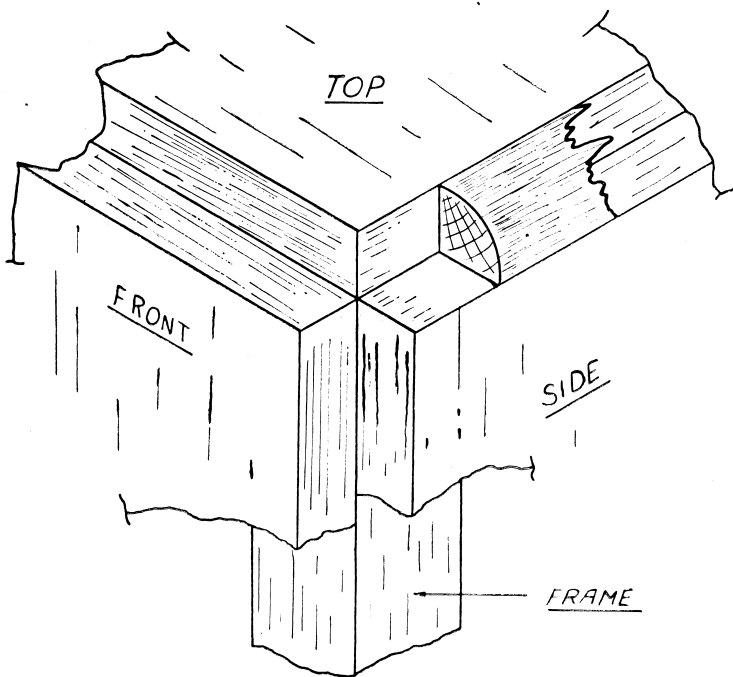


FIG. 3.—Sketch showing method of using "quad" moulding to provide a finish to the front and side faces of the vented enclosure cabinet.

TABLE 1. VENTED ENCLOSURE DIMENSIONS (INCHES)

Model	Diaphragm	Dia. Key	A	B	C	D	E	F	G	H	J	K	L	M
12U	F21 } F30 } F31 }	Fig. 1 (Frame)	34	30	15	14 $\frac{3}{4}$								
12OX		Fig. 2 (Front)	34	30			11	12	6	15	10	12	6 $\frac{1}{2}$	5 $\frac{1}{2}$
12UX														
12-O	F29 } F27 }	Fig. 1 (Frame)	32 $\frac{1}{2}$	22 $\frac{1}{2}$	15	14								
12M		Fig. 2 (Front)	32 $\frac{1}{2}$	22 $\frac{1}{2}$			11	12	6	11 $\frac{1}{4}$	9	11 $\frac{1}{2}$	6 $\frac{1}{2}$	5 $\frac{1}{2}$
8M	F59 } F59 }	Fig. 1 (Frame)	26	18 $\frac{1}{2}$	11	11 $\frac{3}{4}$								
8J		Fig. 2 (Front)	26	18 $\frac{1}{2}$			7	8	4	9 $\frac{1}{4}$	8	8	4	6
6L	F79 } F79 }	Fig. 1 (Frame)*	27 $\frac{1}{2}$	16 $\frac{1}{2}$	10									
6H		Fig. 2 (Front)	27 $\frac{1}{2}$	16 $\frac{1}{2}$			5 $\frac{3}{4}$	7 $\frac{1}{4}$	3 $\frac{5}{8}$	8 $\frac{1}{4}$	10 $\frac{5}{8}$	6 $\frac{1}{8}$	3	7 $\frac{1}{2}$

\*These are external measurements of  $\frac{3}{4}$ " plywood panels. This enclosure is not built around a frame.

To ensure the utmost rigidity the 12-inch and 8-inch speaker cabinets are framed with  $1\frac{1}{2}'' \times 1\frac{1}{2}''$  timber as shown in Fig. 1. Note particularly the mid brace in the central section of the frame.

The panels, which may be of  $\frac{3}{4}''$  or  $\frac{7}{8}''$  plywood or solid timber, should be screwed and glued to the frame members. The rear panel is only screwed so that access may be had to the speaker.

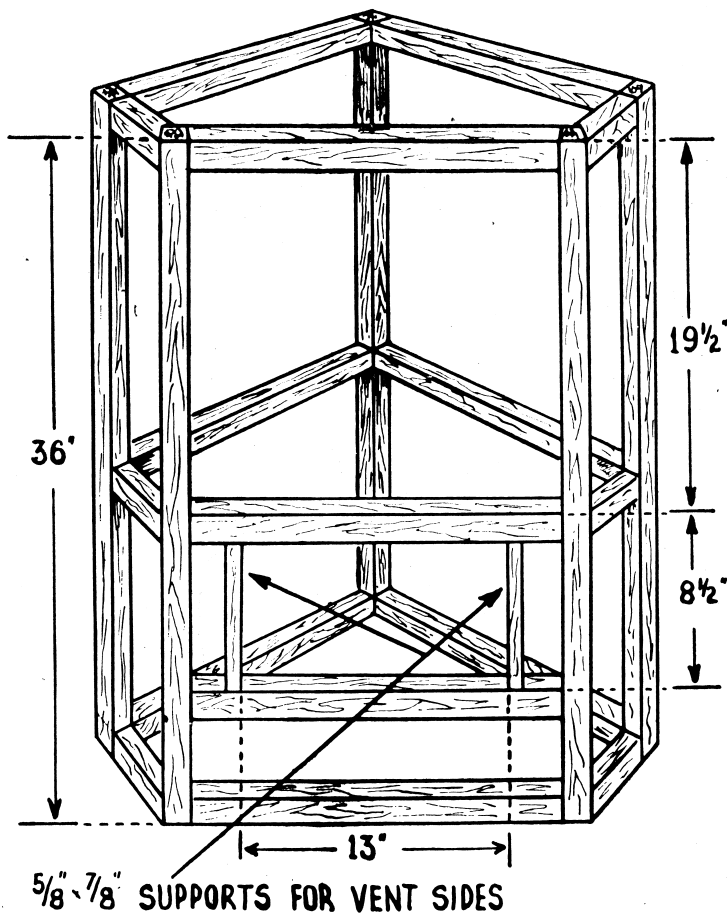


FIG. 4.—Frame details for corner enclosure.

All panels fit flush with the edges of the frame except that the side, top and bottom panels extend past the rear of the frame for a distance equal to the thickness of the panel material. This is done to ensure a virtually air-tight seal.

It is not essential to frame the cabinet for the six-inch speakers but it is necessary that all joints be screwed and glued and that 1" x 1" section timber be screwed on all inside rear faces to allow the back panel to be firmly and air-tightly attached.

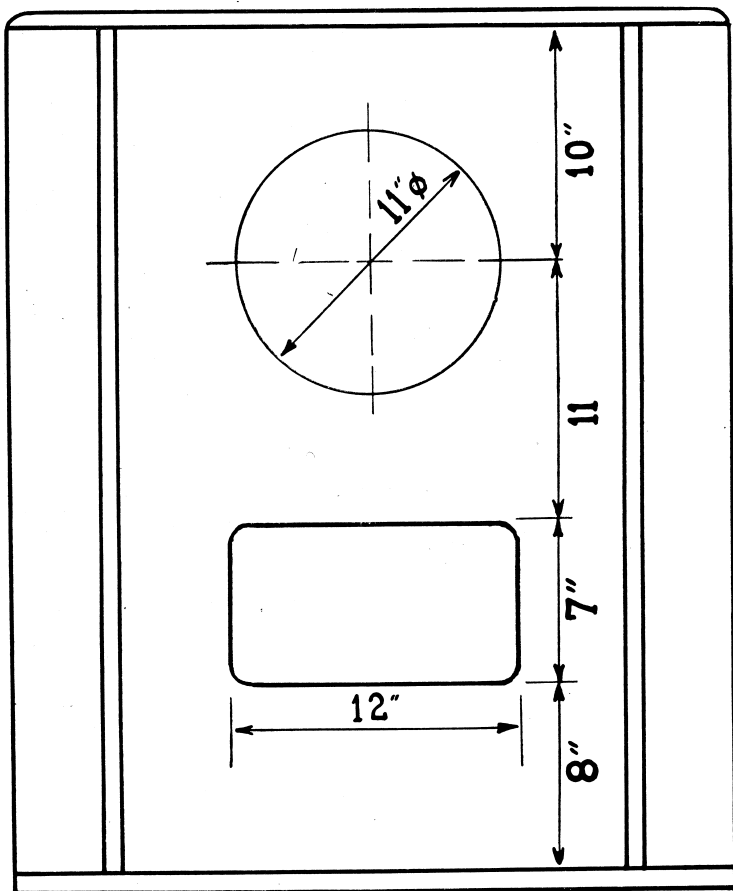


FIG. 5.—Front detail of corner enclosure.

When completed, all interior walls of the cabinet, except the front one, should be covered with a two-inch thickness of lightly packed kapok or fibre glass. This is held in place by covering it with cheese cloth or butter muslin, which is tacked to the frame members, and to the back panel.

Felt, and similar materials, may be used to line the cabinet, but, as their acoustic qualities vary, experiment will be necessary to decide the required amount of packing. Pressed fibre boards should not be used because their comparatively hard surface will reflect sound, not absorb it.

Finally, if grille cloth is to be used to cover the speaker and vent openings, it should be as light in weight and open in mesh as possible — *in other words, it should offer the minimum opposition to air flow.*

If the constructional details listed above and the dimensions set out in Fig. 1 are followed the resultant vented enclosure will represent the optimum design for the particular model Rola loudspeaker with which it is intended to be used.

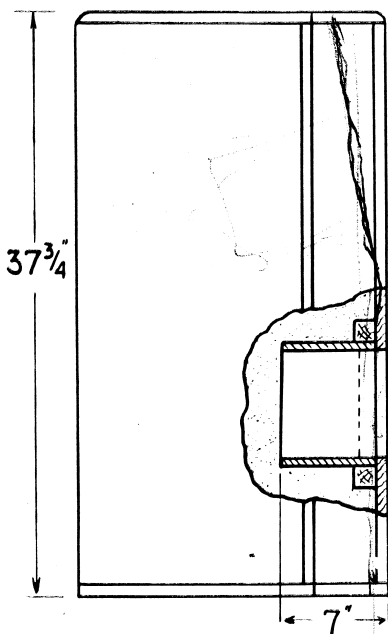


FIG. 6.—Detail of tube in corner enclosure.

To meet the requirements of those for whom the space occupied by the 12-inch enclosure is too neat, we have provided in Figs. 4, 5 and 6 constructional details of a "corner" enclosure which, though it will not provide as good results as the conventional type of enclosure, represents a reasonable compromise when space is at a premium. It should be noted that the upper outside 12" x 7" face of the tube fitted to the vent of this cabinet should be covered with a layer of  $\frac{1}{2}$ " hair felt. The two diagonal walls and the inside top and bottom of the enclosure should be damped with kapok in the manner specified for the larger unit.

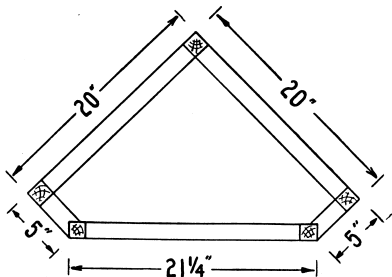


FIG. 7.—Plan view of corner enclosure frame.