OPERADIO

SOUND EQUIPMENT

OPERADIO MANUFACTURING CO.,
ST. CHARLES, ILLINOIS,
U. S. A.

OPERADIO SOUND EQUIPMENT

Quality Engineered and Constructed

As pioneers in the field of electronics, Operadio has consistently engineered, designed and produced highest quality equipment. Back in 1923, just after radio was introduced, Operadio developed and marketed the first self-contained portable radio. Operadio was first again with an A. C. operated theatre amplifier for "talkies". During the war Operadio was selected to engineer and build thousands of general alarm and battle announcing systems for the fleet... thousands of intercommunicating systems for ships, planes and tanks.

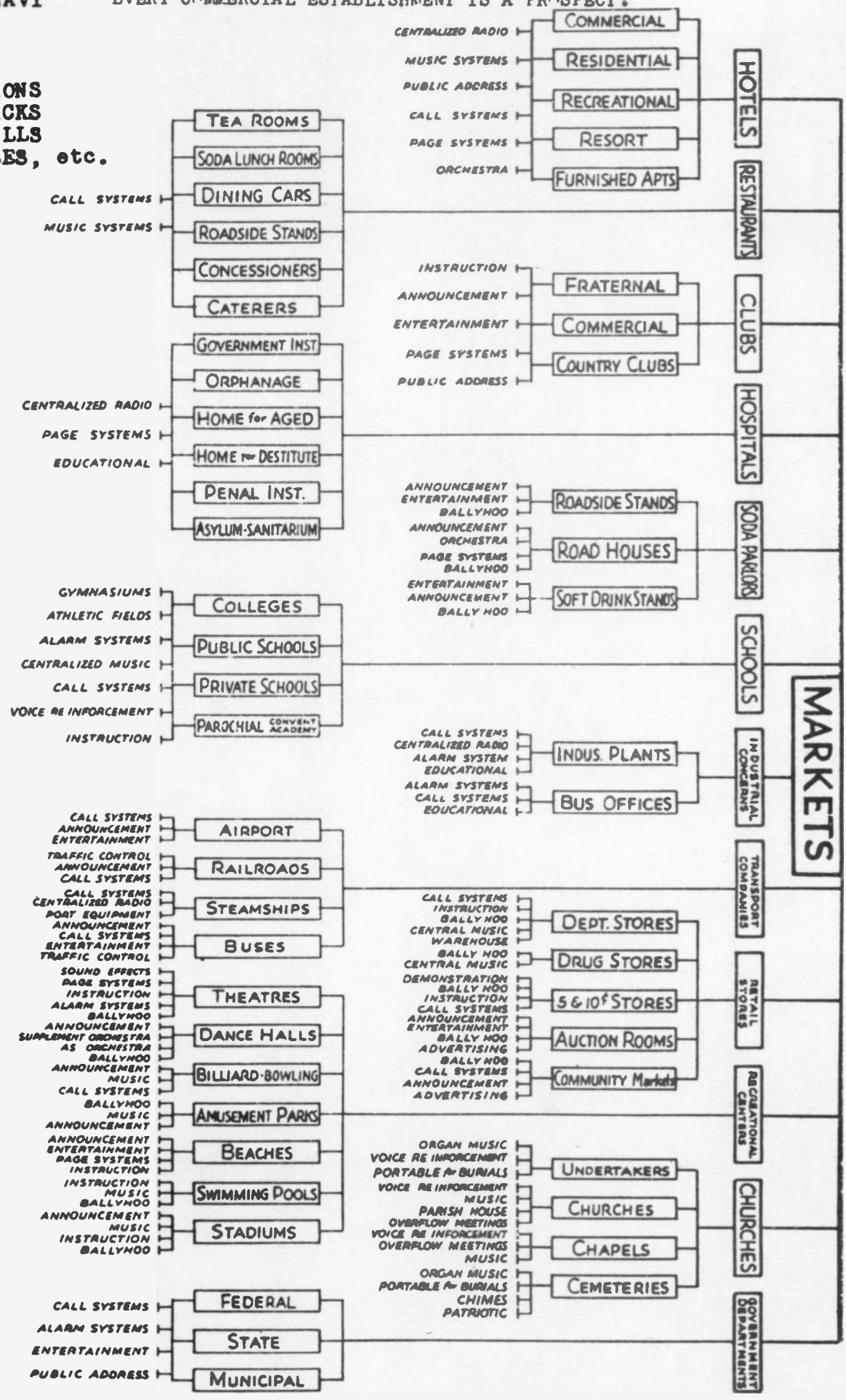
Years of experience, engineering and producing quality equipment is reflected in the present day line of Operadio Amplifiers, Speakers, and accessories. The potential market for sound equipment has greatly increased and the chart on the following page shows this broad market broken down for your convenience.

You'll find that the Operadio Sound Equipment shown in this catalog will enable you to meet practically any requirements. Contact every prospect either personally or by mail and get your share of this profitable sound equipment b usiness.

OPERADIO MANUFACTURING CO.
St. Charles, Illinois

MISCELLANEOUS
ARMY & NAVY
BANKS
GARAGES
MINES
PLANTATIONS
RACE TRACKS
SUGAR MILLS
WAREHOUSES, etc.

ANALYZE THE HUGE POTENTIAL!
EVERY COMMERCIAL ESTABLISHMENT IS A PROSPECT!



THIS CHART SHOWS THE BROAD MARKET FOR FLEXIFONE

NOW! a Dual Amplifier of Finest Quality!

FOR PLANT BROADCASTING AND PUBLIC ADDRESS

OPERADIO SOUNDCASTER

"YOU CAN ACTUALLY *HEAR* THE DIFFERENCE!"

SOUNDCASTER

Gives You Plant Broadcasting and Public Address Service in a BRAND NEW "PACKAGE"!

Built to Top Standards and Costs More Accordingly

The Operadio Soundcaster is a rugged 40-watt amplifier of the highest quality—carefully designed and engineered by Operadio audio frequency specialists to power modern public address or plant broadcasting systems. The *Soundcaster* is a completely standardized, flexible unit—available in three models—offering performance, features and durability usually found only in expensive custom-built "rack and panel" amplifiers. Listen to *Soundcaster* quality—*you can actually hear the difference!*

An important innovation on each *Soundcaster* model is a switch for quick selection of "public address" or "plant broadcasting" service. Snapping the switch instantly provides the desired type of circuit.

For plant broadcasting, a 3-way switch on the control panel permits pre-set volume selection of three important operations:

1. *Work Music*—Switch in "Center" position for continuous music programs.
2. *Voice Paging*—Press switch down for paging—spring tension returns switch to the "Center" position. This is neutral position when music is not playing.
3. *Announcements*—Switch locks in "Up" position for announcements from remote executive microphone or paging microphone.

Built of the finest, more costly component parts, the *Soundcaster* achieves greater control of high fidelity for all normal listening levels. Because of this *EXTRA QUALITY*, *Soundcaster* models are priced higher than ordinary amplifiers. Wherever amplification of voice or music is needed for plant broadcasting or public address uses, a *Soundcaster* will deliver outstanding service, unmatched in the small amplifier field.

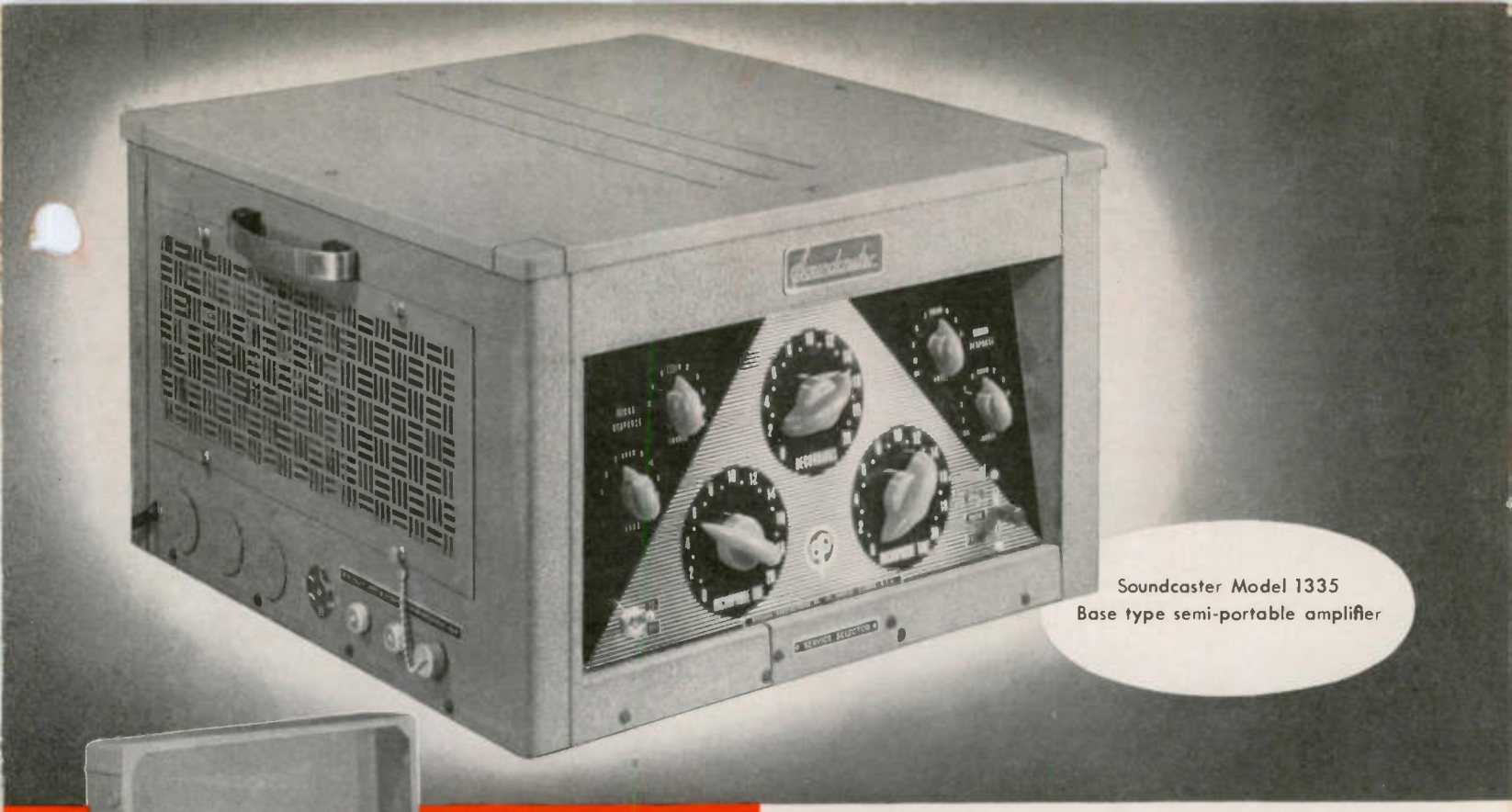
Two microphones may be used with the *Soundcaster*. A special auxiliary input is provided for hook-ups with radio, separate record player, or leased telephone wire. All *Soundcaster* models are finished in Operadio blue-gray wrinkle. Streamlined control panel, with contrasting red knobs, is illuminated by two recessed pilot lights.

Operadio Loudspeakers — To get the utmost in faithful reproduction with the *Soundcaster*, the highest quality speakers should also be used. Separate literature gives detailed information on the Operadio loudspeaker line.

Operadio Booster Amplifiers — Can be used with the *Soundcaster* where greater power output is needed. Fully described in separate literature. For large plants, the famous Operadio *Plant-Broadcaster* is recommended.

A FEW PRACTICAL APPLICATIONS

- AIRPORTS
- HOSPITALS
- HOTEL LOBBIES
- NIGHT CLUBS
- RESTAURANTS
- INSTITUTIONS
- OUTDOOR EVENTS
- BROADCAST STUDIOS
- SALES MEETINGS
- BUS AND TRAIN DEPOTS
- FAIRS AND CARNIVALS
- DEPARTMENT STORES
- FACTORIES
- SERVICE CLUBS
- COMMUNITY CENTERS
- AUDITORIUMS
- SCHOOLS
- PLAYGROUNDS



Soundcaster Model 1335
Base type semi-portable amplifier

(A) Soundcaster Model 531: Specifications same as Model 1335, plus manually operated two-speed turntable providing 33⅓ R.P.M. for transcriptions and 78 R.P.M. for standard records.

(B) Soundcaster Model 530: Same as Model 1335, plus automatic record-changer. Plays 10 twelve-inch or 12 ten-inch records. 78 R.P.M. only.

Specifications

OUTPUT: 40 watts at 2% distortion, maximum 60 watts.

TUBES: 2-5U4G, 4-6L6GA, 1-6SN7GT, 3-6J7.

FREQUENCY RESPONSE: Within 2db from 30 CPS to 15,000 CPS.

STAGES: Microphone 4, Phonograph 3.

INPUTS: 2 microphone channels; 1 phonograph input; 1 auxiliary input for radio; 0 level for telephone lines; separate tone controls.

OUTPUT: For microphones and phonograph.

OUTPUT IMPEDANCE: 2-4-8-16, 31-62-125-250-500 at output terminals. Provisions for mounting 3 output receptacles to connect directly to terminal strip for portable work.

CONTROLS: 2 microphone volume controls, 1 phono volume control, 1 microphone bass attenuator, 1 microphone treble attenuator, 1 phono bass attenuator, 1 phono treble attenuator, 1 power switch, 1 paging switch and 1 service selector switch.

POWER SUPPLY: 105-125, 50-60 cycle only.

POWER CONSUMPTION: 205 watts.

PROVISION FOR REMOTE VOLUME CONTROL or mixing control.

DIMENSIONS: 11¾" high x 17½" wide by 17¾" deep.

Here's Why

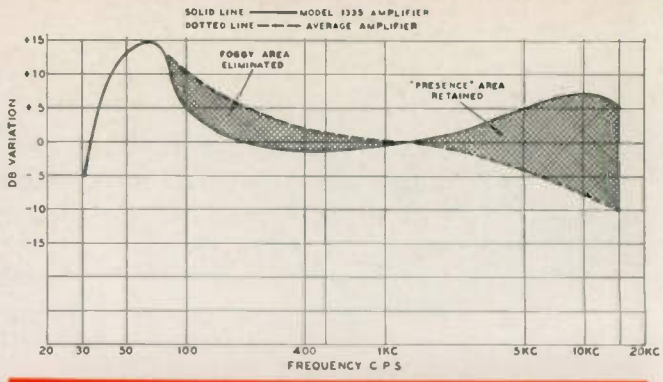
SOUNDCASTER

is Superior!

These charts show you how Soundcaster quality construction and costly, rugged component parts give you MORE RESERVE POWER • FINEST TONE QUALITY EXTRA DYNAMIC RANGE!

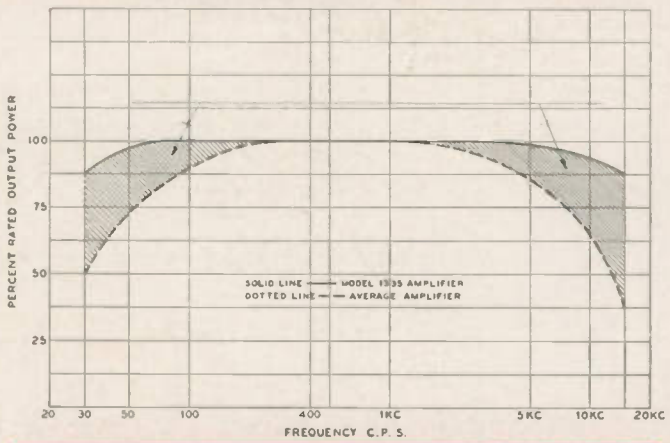
"YOU CAN ACTUALLY *HEAR* THE DIFFERENCE!"

FREQUENCY RESPONSE FOR LOW LEVEL MUSIC REPRODUCTION



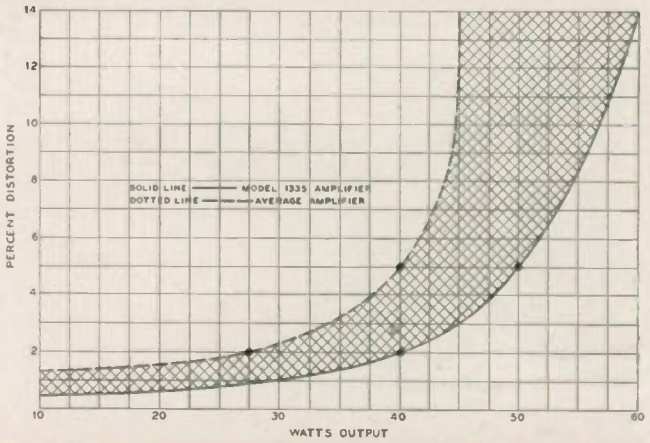
One of the most desirable results that can be obtained from a music sound system is the ability to reproduce the proper amount of high and low frequencies at low or medium volume. Because of the characteristics of the average human ear, it is difficult to achieve the proper frequency response for good listening. After lengthy development, Operadio engineers have succeeded in building this important quality into the *Soundcaster*. The chart shows how extremely low frequencies can be accentuated without distorting the low-middle range. This feature eliminates the "fogginess" of male singing voices while giving full and faithful low frequency reproduction of the instruments. On the high end, high frequency response is retained, creating the "voice presence" so essential to natural reproduction. The *Soundcaster* gives a voice or an instrument the quality of actually being in the room. Additional costly component parts are used to achieve this "full-range" reproduction.

INCREASE IN UNDISTORTED OUTPUT POWER OVER AVERAGE AMPLIFIER



It is standard practice to rate the power output of an amplifier at a frequency of 400 cycles. This does not necessarily mean that it has that full output at *all* frequencies. The cheaper the amplifier, the more restricted is the band of frequencies over which it will produce its rated power output; and conversely, the more expensive, the wider the range of rated power. Shaded area in the chart above clearly indicates the *Soundcaster's* margin of quality over and above the average amplifier. This *EXTRA QUALITY* produces a fullness and naturalness of tone that is very evident to the ear. More costly components supply this increase in undistorted output power.

AREA OF RESERVE POWER FOR INCREASED DYNAMIC RANGE



The manufacturers' rating of an amplifier may or may not tell the whole story. A low-priced unit may not have necessary reserve power, and very quickly "go to pieces" after rated output is reached. The *Soundcaster* is rated at a lower total harmonic distortion (2%, whereas the usual rating is 5%), and also has more reserve power. As the chart indicates, it produces a full 50 watts at 5% distortion, although it is rated at only 40 watts. Shaded area beyond 40 watts shows "area of reserve power" of the *Soundcaster*. When an especially loud signal is fed into the *Soundcaster*, it responds with perfect clarity and definition of sound. Costlier components accomplish this quality improvement.

OPERADIO MANUFACTURING CO., ST. CHARLES, ILL., U. S. A.

FORM NO. 3519 G125 PRINTED IN U. S. A. BULLETIN NO. 133

OPERADIO

AMPLIFIERS

DESIGNED, ENGINEERED AND BUILT TO TOP STANDARDS

OPERADIO MODEL 1A140 • 12 WATT AMPLIFIER

Rear View of Model 1A140 Chassis

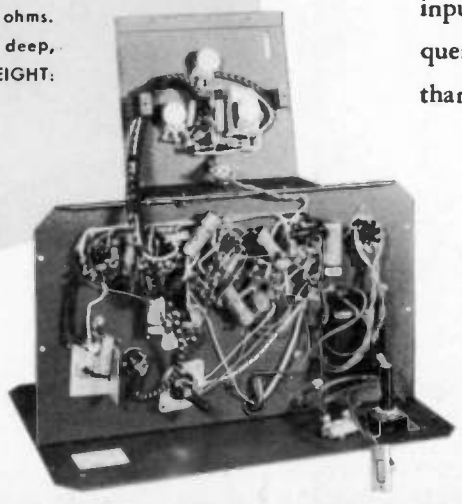
SPECIFICATIONS
MODEL 1A140 — 12 WATT AMPLIFIER

OUTPUT: 12 watts at less than 5% distortion, maximum 18 watts. TUBES: 2-6J7, 1-6SL7, 2-6V6GT, 1-5Y3GT. FREQUENCY RESPONSE: Desired frequency response obtained by adjusting potentiometer controlling high and low frequencies. STAGES: Microphone 4, Phonograph 3. INPUTS: 1 hi-impedance microphone, 1 hi-impedance phonograph. CONTROLS: 1 microphone volume control, 1 phonograph volume control, 1 tone control. POWER SUPPLY: 105-125 volts, A.C. . . . 50-60 cycle. POWER CONSUMPTION: 75 watts. FUSE: 2 Amp. OUTPUT IMPEDANCES: 5 contact screw type terminal strip —Common—3 to 7.5 ohms—8 to 16 ohms—100 to 200 ohms—200 to 500 ohms. DIMENSIONS: 8½" high, 9" deep, by 14¼" long. SHIPPING WEIGHT: 20 lbs.

Outstanding Tone Quality . . . Extra Dynamic Range

The Operadio Model 1A140, 12 watt amplifier, offers performance, features and durability unmatched in its field. It features two high impedance inputs . . . one microphone input and one phonograph input with a high and low frequency tone control. The Model 1A140 is rated at less than 5% total harmonic distortion.

Operadio engineering, meticulous production and inspection, plus highest quality component parts, achieves greater control of high fidelity for all listening levels.



Front View of Model 1A140 Chassis

OPERADIO MANUFACTURING CO. • ST. CHARLES, ILLINOIS

FORM No. 4520-A308

OPERADIO

ENGINEERING SPECIFICATIONS FOR MODEL No. 1A140

1. Mfg'd by
OPERADIO MFG. CO., ST. CHARLES, ILL.

2. DESCRIPTION - 12 WATT PORTABLE

1 - Hi-Impedance Micro Input
1 - Hi-Impedance Phono Input
1 - Tone Control

3. OUTPUT POWER & DISTORTION RATINGS

A. PHONO **Input:**

100 cy. 12 W 4.2 % Dist.
400 cy. 12 W 2.8 % Dist.
5000 cy. 12 W 3.5 % Dist.

B. MICRO **Input:**

100 cy. 12 W 4.3 % Dist.
400 cy. 12 W 3.8 % Dist.
5000 cy. 12 W 4.5 % Dist.

C. Maximum Output 18 **Watts.**

NOTE: Load Condition: 350 Ohms
(Uniform Response)

4. GAIN (400 CY–FLAT RESPONSE)

A. PHONO - 63 **DB** 100M **Ohms Input**
B. MICRO - 103 **DB** 100M **Ohms Input**
C. _____ **DB** _____ **Ohms Input**

5. FREQUENCY RESPONSE – (SEE GRAPHS)

A. PHONO **Fig. 1 (Typical Response)**
B. MICRO **Fig. 2 (Typical Response)**

6. NOISE LEVEL

A. PHONO **Input:**

1. **With reference to 1 MW** -21.5 **DB**
2. **Signal to noise ratio:** 62 **DB down from** 12 **watts output.**

B. MICRO **Input:**

1. **With reference to 1 MW** -6 **DB**
2. **Signal to noise ratio:** 47 **DB down from** 12 **watts output.**

7. IMPEDANCE AND VOLTAGES

A. Source Impedance

1. PHONO - 2.5 Megohms
2. MICRO - 10 Megohms
3. _____

B. Load Impedances

3 to 7.5 Ohms 8 to 16 Ohms
100 to 200 Ohms 250 to 500 Ohms

C. Input Voltages (400 Cy.)

1. PHONO - .9 V
2. MICRO - .007V
3. _____

D. Output Voltage at 12 **Watts**

4 Ohms - 6.9V 10.5 Ohms - 11.2V
150 Ohms - 42.5V 350 Ohms - 65V

OPERADIO MANUFACTURING CO., St. Charles, Illinois
NO. 270-4

Model No. 1A140

E. Output Regulation

100 cy. 5.0 DB
400 cy. 4.8 DB
5000 cy. 5.4 DB
(Measured from full load to open circuit load)

8. POWER SUPPLY

A. Voltage 105 - 125 V
B. Frequency 50 - 60 Cycles
C. Power Consumption 75 Watts
D. Stand-by 75 Watts
E. Fuses 2 Ampere

9. TUBES AND STAGES

A. Stages:
1. PHONO 3 stages
2. MICRO 4 stages

B. Tube Complement
2 - 6J7 1 - 6SL7
2 - 6V6GT 1 - 5Y3GT

10. CONTROL

A. Gain or level 1 - PHONO
1 - MICROPHONE

B. Tone 1 - Tone Control
(Max. Bass - Normal - Max. Treble)

C. Special

11. PHYSICAL DIMENSIONS AND WEIGHT

8-3/4" High 10" Wide
10-1/4" Long Weight 21 pounds

12. CONNECTIONS

A. Input MICRO - Amphenol MC1F
PHONO - Cinch #1336

B. Output 5 Contact Screw Terminal Strip

C. Remote

D. Power Cord and Plug

E. Special

13. LABELS

A. Patent

B. Underwriter's

C. Others License Notice

14. ACCESSORIES

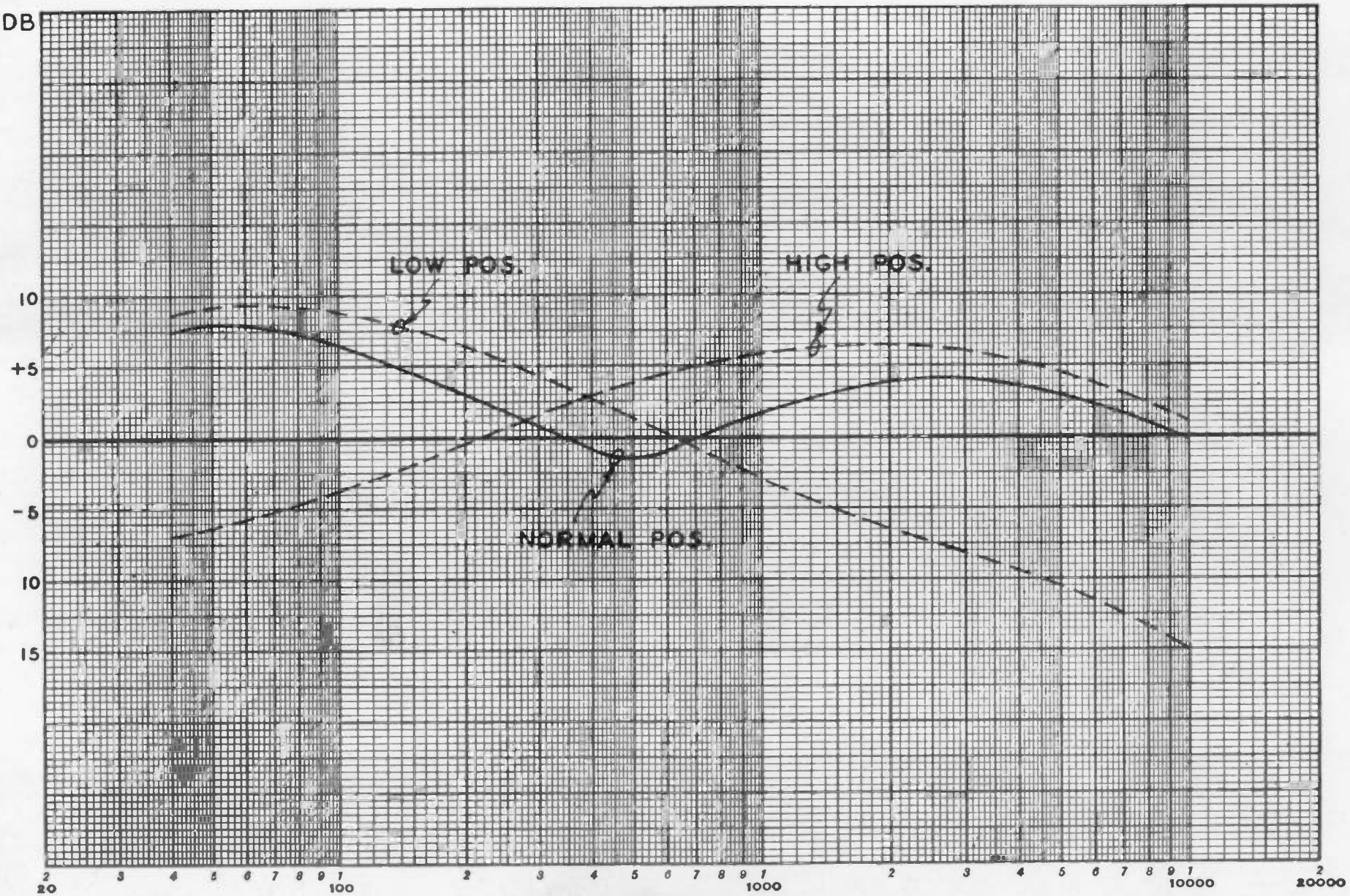
Model 3A10 Transformer may be used to convert to 50 Ohm Micro Inputs

15. SPECIAL FEATURES

OPERADIO MANUFACTURING CO., St. Charles, Illinois
No. 270-4

PHONO INPUT

TYPICAL RESPONSE



FREQUENCY IN CYCLES PER SECOND

VOLUME CONTROL SET 6DB DOWN FROM FULL OUTPUT

Sheet 3

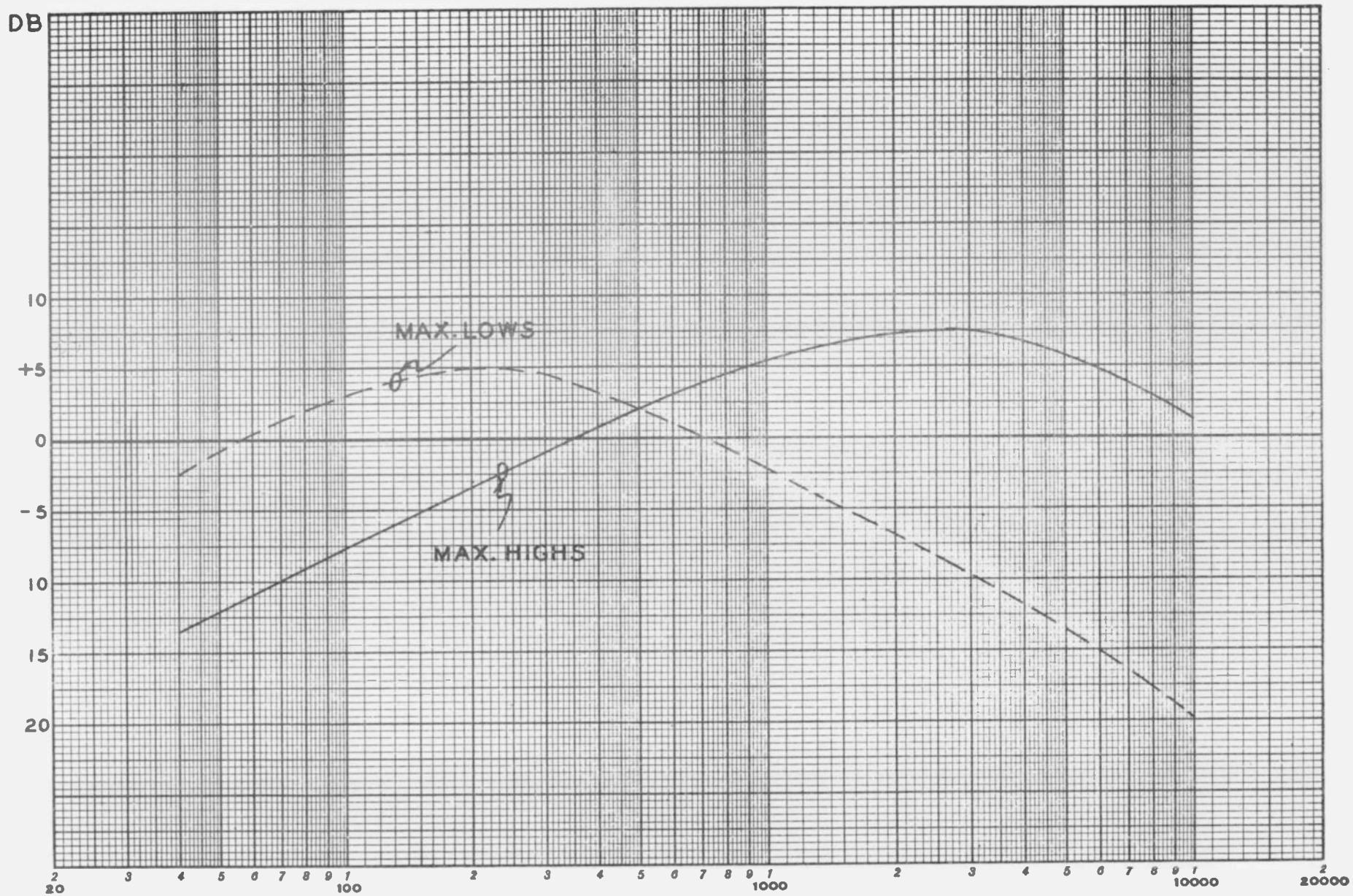
FIG. 1

No. 270-4

Sheet 4

MICRO INPUT

TYPICAL RESPONSE



FREQUENCY IN CYCLES PER SECOND

VOLUME CONTROL SET 6DB DOWN FROM FULL OUTPUT

FIG. 2

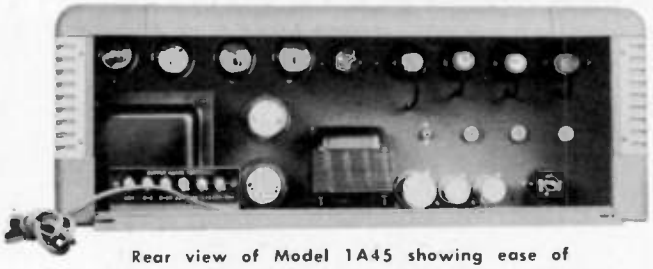
No. 270-4

OPERADIO

AMPLIFIERS

DESIGNED, ENGINEERED AND BUILT TO TOP STANDARDS

OPERADIO MODEL 1A45 • 50 WATT AMPLIFIER



Rear view of Model 1A45 showing ease of accessibility to Input and Output Connections.

• SPECIFICATIONS •

MODEL 1A45 • 50 WATT AMPLIFIER

OUTPUT: 50 watts at 3% distortion, maximum 65 watts. TUBES: 2-5U4G, 4-6L6GA, 1-6SN7GT, 4-6J7. FREQUENCY RESPONSE: Within 2 db from 30 CPS to 10,000 CPS. STAGES: Microphone 4, Phonograph 3. INPUTS: 3 microphone channels; 1 phonograph input; separate tone controls for microphones and phonograph. OUTPUT IMPEDANCE: RMA standard 70V tap for using new RMA method of impedance matching of speaker load. Unit also has 500 ohm terminal. 70V—100 ohms, 500 ohms; 25V — 16 ohm balanced line. CONTROLS: 3 microphone volume controls, 1 phono volume control, 1 master gain control, 1 microphone bass attenuator, 1 microphone treble attenuator, 1 phono bass attenuator, 1 phono treble attenuator, 1 power switch. POWER SUPPLY: 105-125, 50-60 cycle. POWER CONSUMPTION: 240 watts.

The Aristocrat of High Fidelity Sound

The reserve power, outstanding tone quality and extra dynamic range, of the Operadio Model 1A45 50 watt Amplifier, truly classifies this unit as the aristocrat of high fidelity sound. The Model 1A45 offers performance, features and durability unmatched in its field.

Operadio engineering, meticulous production and inspection, plus highest quality component parts, achieves greater control of high fidelity for all listening levels.

The Operadio Model 1A45 50 watt Amplifier features 3 microphone channels; 1 phonograph input; separate tone controls permitting 24 db high and low frequency control with no apparent change in over-all level. It is possible to mix microphone and phonograph inputs simultaneously and control volume with master gain control.

YOU CAN ACTUALLY HEAR THE DIFFERENCE!

Here's Why

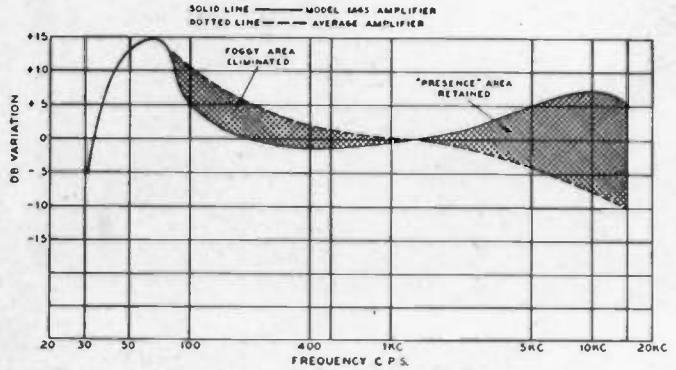
OPERADIO MODEL No. 1A45 AMPLIFIER IS SUPERIOR!

These charts show you how Operadio quality construction and costly, rugged component parts give you

MORE RESERVE POWER • FINEST TONE QUALITY
EXTRA DYNAMIC RANGE!

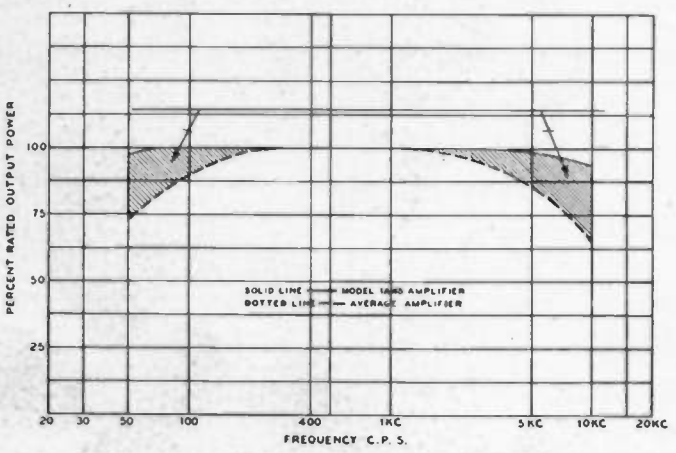
"YOU CAN ACTUALLY *HEAR* THE DIFFERENCE!"

FREQUENCY RESPONSE FOR LOW LEVEL MUSIC REPRODUCTION



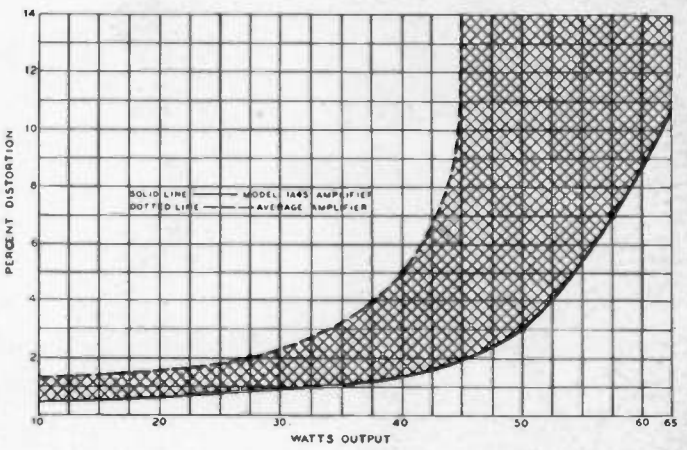
One of the most desirable results that can be obtained from a music sound system is the ability to reproduce the proper amount of high and low frequencies at low or medium volume. Because of the characteristics of the average human ear, it is difficult to achieve the proper frequency response for good listening. After lengthy development, Operadio engineers have succeeded in building this important quality into the Model 1A45. The chart shows how extremely low frequencies can be accentuated without distorting the low-middle range. This feature eliminates the "fogginess" of male singing voices while giving full and faithful low frequency reproduction of the instruments. On the high end, high frequency response is retained, creating the "voice presence" so essential to natural reproduction. The 1A45 ampifier gives a voice or an instrument the quality of actually being in the room. Additional costly component parts are used to achieve this "full-range" reproduction.

INCREASE IN UNDISTORTED OUTPUT POWER OVER AVERAGE AMPLIFIER



It is standard practice to rate the power output of an amplifier at a frequency of 400 cycles. This does not necessarily mean that it has that full output at all frequencies. The cheaper the amplifier, the more restricted is the band of frequencies over which it will produce its rated power output; and conversely, the more expensive, the wider the range of rated power. Shaded area in the chart above clearly indicates the Model 1A45's margin of quality over and above the average amplifier. This EXTRA QUALITY produces a fullness and naturalness of tone that is very evident to the ear. More costly components supply this increase in undistorted output power.

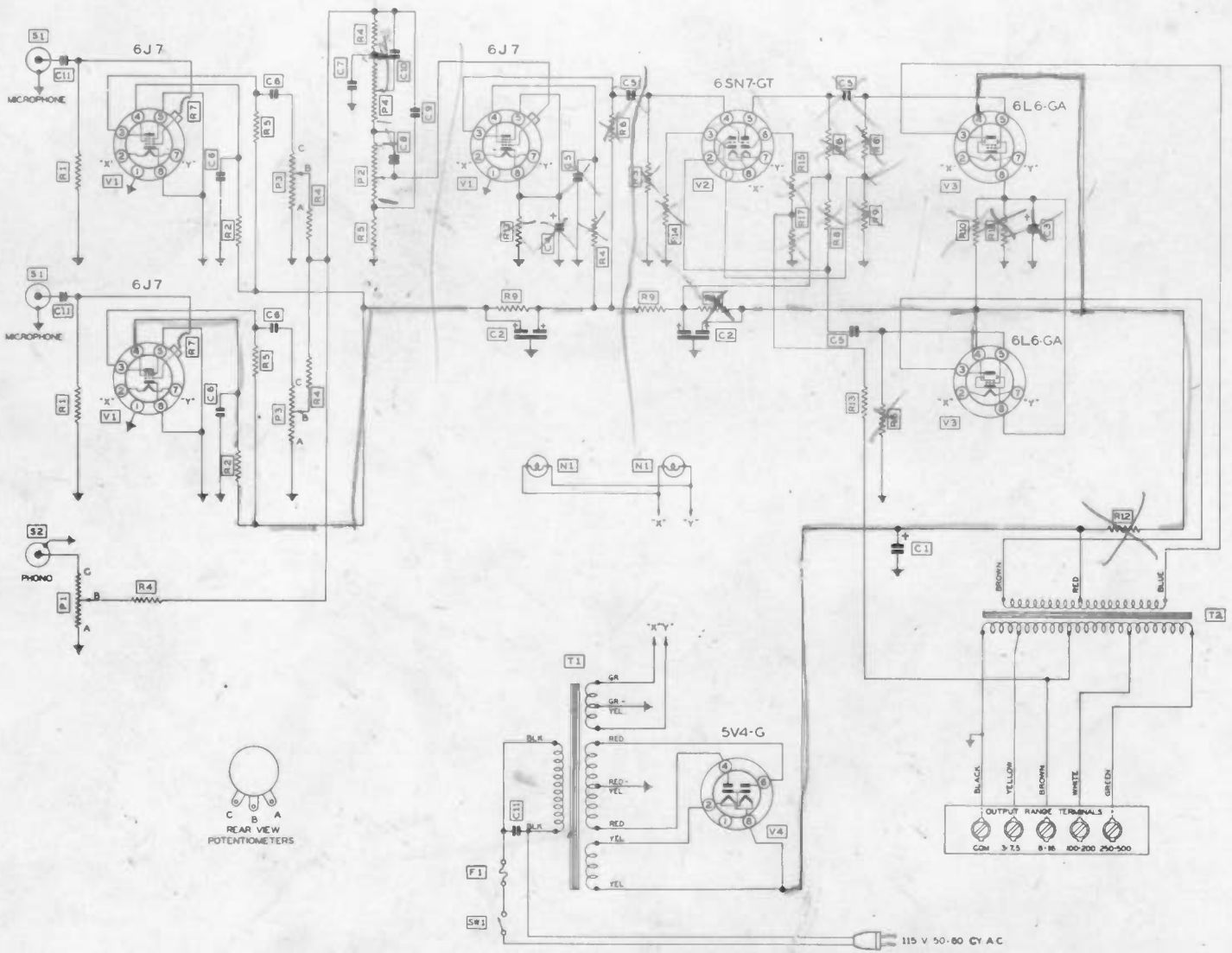
AREA OF RESERVE POWER FOR INCREASED DYNAMIC RANGE



The manufacturers' rating of an amplifier may or may not tell the whole story. A low-priced unit may not have necessary reserve power, and very quickly "go to pieces" after rated output is reached. The Model 1A45 is rated at a lower total harmonic distortion (3% whereas the usual rating is 5%), and also has more reserve power. As the chart indicates, it produces a full 60 watts at 7% distortion, although it is rated at only 50 watts. Shaded area beyond 50 watts shows "area of reserve power" of the Model 1A45. When an especially loud signal is fed into the Model 1A45 it responds with perfect clarity and definition of sound. Costlier components accomplish this quality improvement.

OPERADIO MANUFACTURING CO., ST. CHARLES, ILL., U. S. A.

FORM No. 4509-K157



LIST OF ELECTRICAL PARTS

LEGEND	DESCRIPTION	QNTY	PART NO.
R 1	RESISTOR 10.0 MEG ± ½ W	2	600-0080-108
R 2	" 1.5 MEG ± 1W	2	600-0118-155
R 3	" 560 M ± 1W	1	600-0118-564
R 4	" 470 M ± 1W	5	600-0118-474
R 5	" 270 M ± 1W	3	600-0118-274
R 8	" 100 M ± 1W	3	600-0118-104
R 7	" 68 M ± 1W	2	600-0043-683
R 8	" 56 M ± 2W	2	600-0153-563
R 9	" 10 M ± 1W	3	600-0116-103
R 10	" 10 M ± 25W	1	600-1018-103
R 11	" 4700 ± 1W	1	600-0118-472
R 12	" 2000 ± 25W	1	600-1018-202
R 13	" 1500 ± 1W	2	600-0118-152
R 14	" 1000 ± 1W	1	600-0118-102
R 15	" 560 ± 1W	1	600-0118-561
R 16	" 185 ±10 W	1	600-9001-000
R 17	" 82 ± 1W	1	600-0118-820
P 1	POTENTIOMETER 2.5 MEG. ±	1	601-3589
P 2	" 2.5 MEG. ±	1	601-10
P 3	" 500 M ±	2	601-3289
P 4	" 300 M ±	1	601-11
C 1	CAPACITOR 20-20 MFD 500 V.	1	199-2914
C 2	" 10-10 MFD 450 V.	2	199-2902
C 3	" 20 MFD. 150 V.	1	199-2016-206
C 4	" 20 MFD. 25 V.	1	199-2001-206
C 5	" 0.1 MFD. 400 V.	4	199-4021-104
C 6	" 0.01 MFD. 400 V.	4	199-4020-103
C 7	" 0.002 MFD. 600 V.	1	199-4030-202
C 8	" 0.001 MFD. 600 V.	1	199-4030-102
C 9	" 0.0001 MFD. 600 V.	1	199-4030-101
C 10	" 0.00025 MFD. 600 V.	1	199-4030-251
C 11	" 0.006 MFD. 600 V.	3	199-4030-602
T 1	TRANSFORMER ✓ POWER	1	710-4019
T 2	" OUTPUT	1	710-2008
SW-1	SWITCH	1	680-30
V 1	VACUUM TUBE 6J7	3	262-6021
V 2	" 6SN7 GT	1	262-6005
V 3	" 6L6 GA	2	262-6020
V 4	" 5V4 G	1	262-5000
N 1	PILOT LAMP MAZDA 44	2	456-8498
F 1	FUSE 3 AMPERE TYPE 3AG	1	320-835-0300

OPTRADIO

SCHEMATIC DIAGRAM
MODEL 1A30
AMPLIFIER

SCALE

DATE 11-30-55

DRAWN LEC. APPD

CHECKED

NO. 190-66

oPERADIo

ENGINEERING SPECIFICATIONS FOR MODEL No. 1A30

1. **Mfg'd by**
   OPERADIO MFG. CO., ST. CHARLES, ILL.

2. **DESCRIPTION**
   20 WATT GENERAL PURPOSE
   2 - Hi-Impedance Micro Inputs
   1 - Hi-Impedance Phono Input

3. **OUTPUT POWER & DISTORTION RATINGS**
   A. PHONO Input:
   100 cy. 20 W 3.7 % Dist.
   400 cy. 20 W 1.65 % Dist.
   5000 cy. 20 W 2.5 % Dist.

   B. MICRO Input:
   100 cy. 20 W 4.5 % Dist.
   400 cy. 20 W 2.2 % Dist.
   5000 cy. 20 W 3.3 % Dist.

   C. Maximum Output 32 Watts.
   NOTE: Load Condition: 400 Ohm Tap
   Uniform Response

4. **GAIN (400 CY–FLAT RESPONSE)**
   A. PHONO - 67 DB 100M Ohms Input
   B. MICRO - 109 DB 100M Ohms Input
   C. _____ DB _____ Ohms Input

5. **FREQUENCY RESPONSE – (SEE GRAPHS)**
   A. PHONO Fig. 1 (Typical Response)
   B. MICRO Fig. 2 (Typical Response)

6. **NOISE LEVEL**
   A. PHONO Input:
   1. With reference to 1 MW -25 DB
   2. Signal to noise ratio: 68 DB down from 20 watts output.

   B. MICRO Input:
   1. With reference to 1 MW -5 DB
   2. Signal to noise ratio: 48 DB down from 20 watts output.

7. **IMPEDANCE AND VOLTAGES**
   A. Source Impedance
   1. PHONO - 2.5 Megohms
   2. MICRO - 10 Megohms
   3. _____

   B. Load Impedances
   3 to 7.5 Ohms 8 to 16 Ohms
   100 to 200 Ohms 250 to 500 Ohms

   C. Input Voltages (400 Cy.)
   1. PHONO - .55 V
   2. MICRO - .0046V
   3. _____

   D. Output Voltage at 20 Watts
   4.5 Ohms - 9.5V 11 Ohms - 15V
   150 Ohms - 55 V 375 Ohms - 86V

OPERADIO MANUFACTURING CO., St. Charles, Illinois
Form No. 270–1

Model No. 1A30

E. Output Regulation

100 cy. 5.25 DB
400 cy. 5. DB
5000 cy. 5. DB
(Measured from full load to open circuit load)

8. POWER SUPPLY

A. Voltage 105 - 125 V.A.C.
B. Frequency 50 - 60 Cycles
C. Power Consumption 115 Watts
D. Stand-by 115 Watts
E. Fuses 3 Ampere - Type 3AG

9. TUBES AND STAGES

A. Stages:
1. PHONO 3 stages
2. MICRO 4 stages

B. Tube Complement
3 - 6J7 1 - 6SN7
2 - 6L6 1 - 5V4G

10. CONTROL

A. Gain or level 2 - Microphone
1 - Phonograph

B. Tone 1 - Bass
1 - Treble

C. Special

11. PHYSICAL DIMENSIONS AND WEIGHT

8-3/4" High 10" Wide
16-1/2" Long Weight 26 pounds

12. CONNECTIONS

A. Input PHONO - Cinch #1336
MICRO - Amphenol MC1F

B. Output 5 Contact Screw Terminal Strip

C. Remote

D. Power Cord and Plug

E. Special

13. LABELS

A. Patent

B. Underwriter's

C. Others License Notice

14. ACCESSORIES

Model 3A10 Micro Transformer
(To convert to 50 Ohms Micro Inputs)

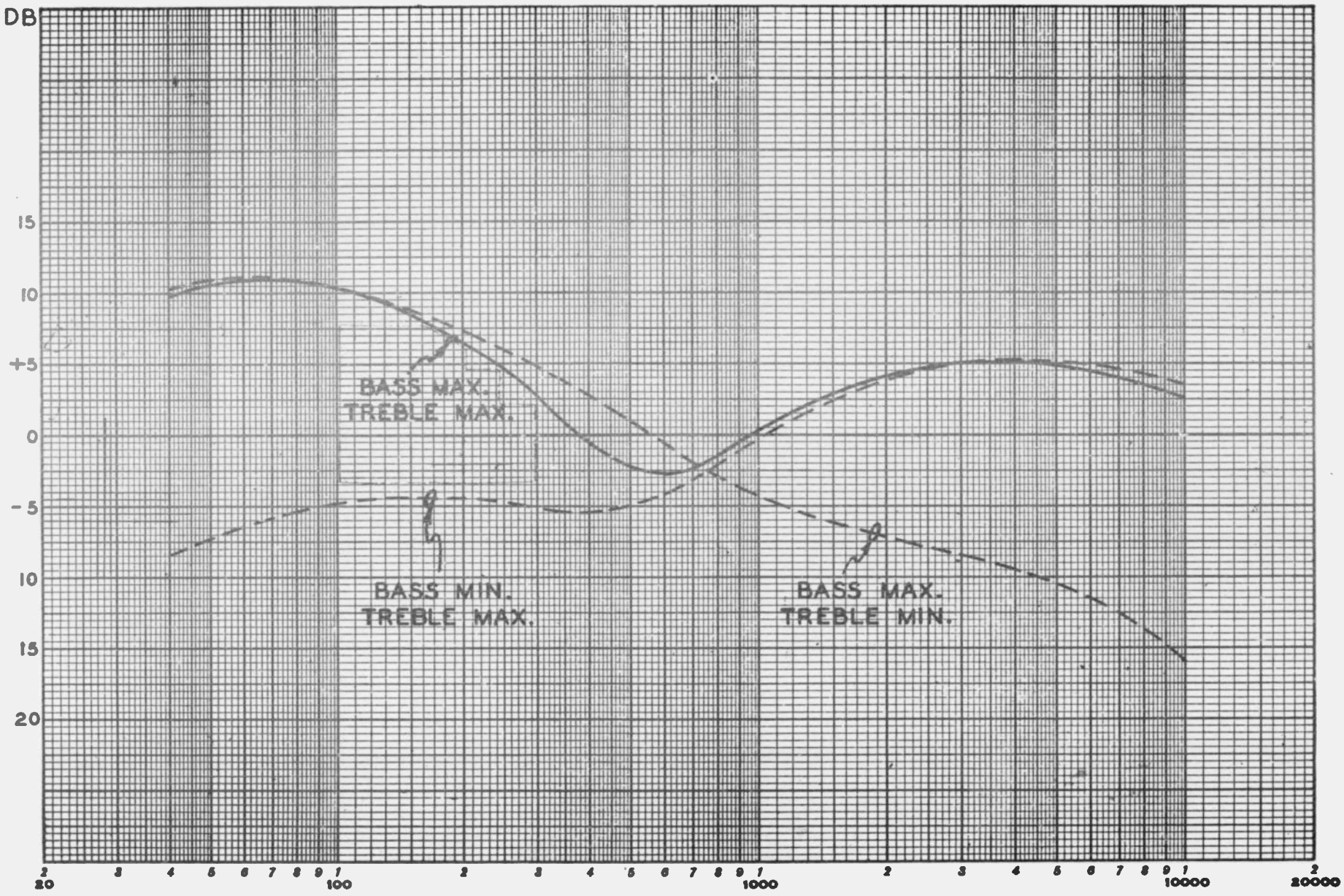
15. SPECIAL FEATURES

OPERADIO MANUFACTURING CO., St. Charles, Illincis
No. 270-1

Sheet 3

PHONO INPUT

TYPICAL RESPONSE



FREQUENCY IN CYCLES PER SECOND

VOLUME CONTROL SET 6DB DOWN FROM FULL OUTPUT

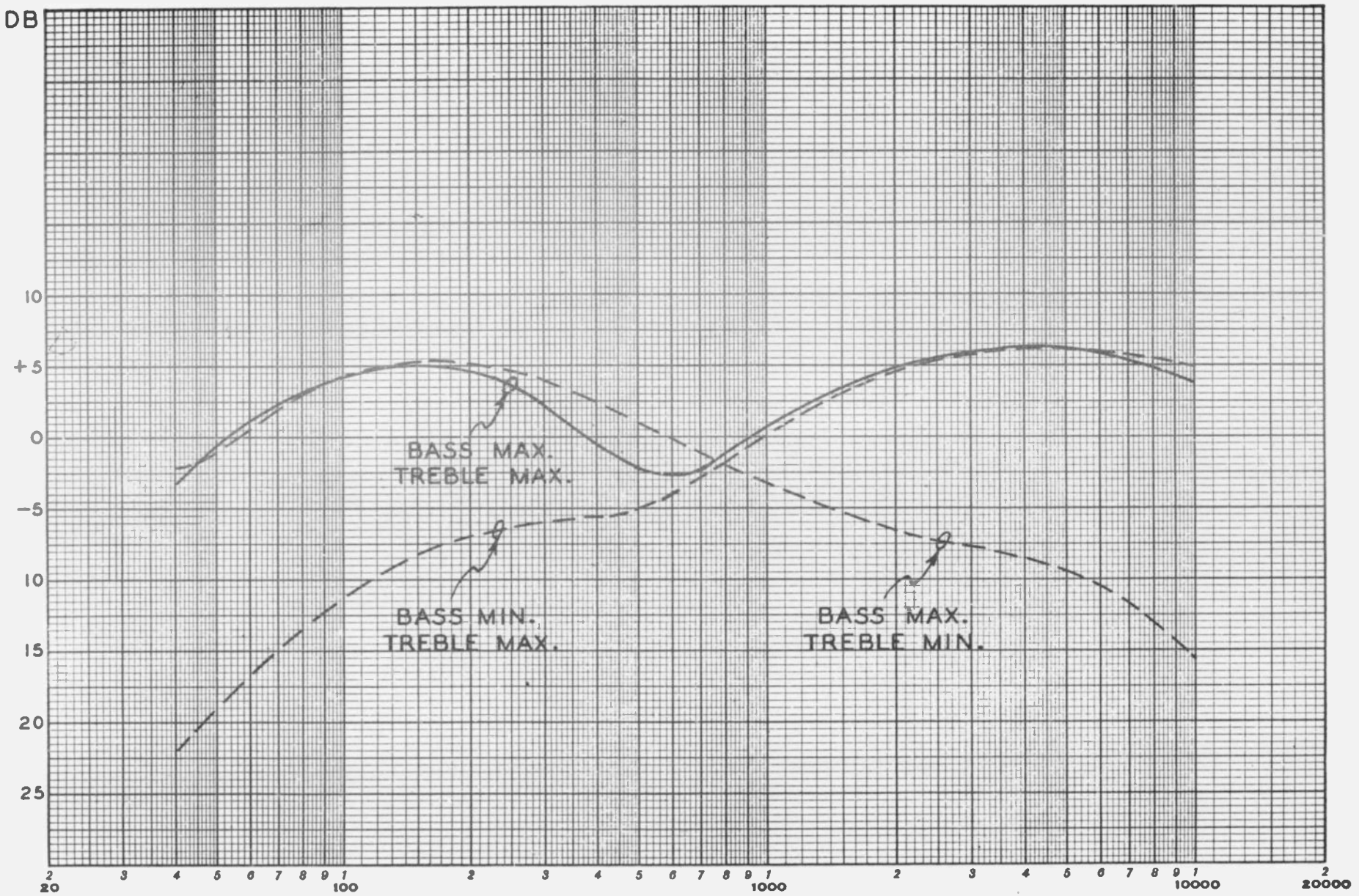
FIG. 1

No. 270-1

Sheet 4

MICRO INPUT

TYPICAL RESPONSE



FREQUENCY IN CYCLES PER SECOND

VOLUME CONTROL SET 6DB DOWN FROM FULL OUTPUT

FIG. 2

No. 270-1

OPERADIO

AMPLIFIERS

DESIGNED, ENGINEERED, AND BUILT TO TOP STANDARDS!

MODEL 1A30 20-WATT AMPLIFIER WITH TWO MICROPHONE INPUT AND ONE PHONOGRAPH INPUT

The new Operadio 20-watt amplifier incorporates the newest electronic features in the field of audio-amplification. New method of tone control permits 24 db high and low frequency control with no apparent change in over-all level. This feature automatically classifies this amplifier as the finest of this type ever built.

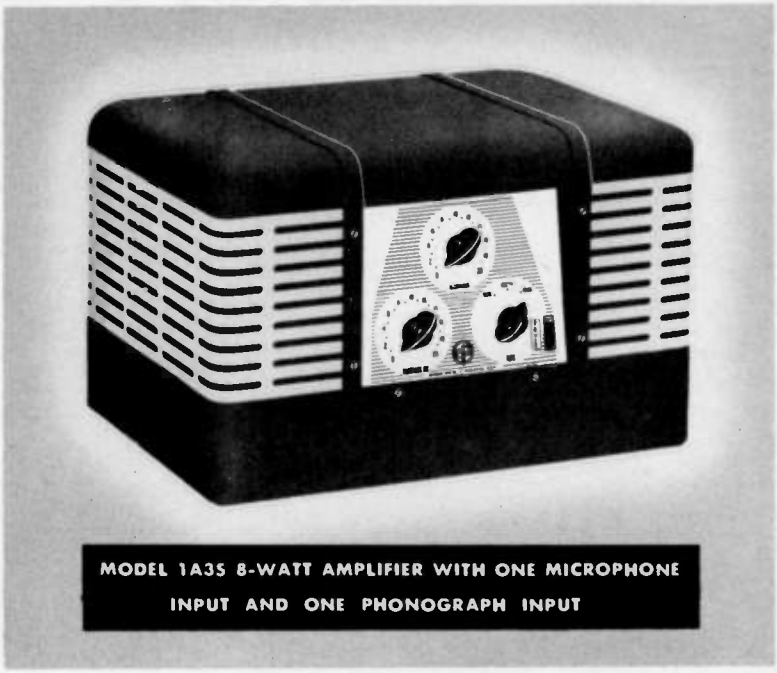
• SPECIFICATIONS •

OUTPUT: 20 watts at less than 5% distortion.
TUBES: 1-5V4G, 2-6L6GA, 1-6SN7, and 3-6J7.
STAGES: Microphone 4, Phonograph 3.
INPUTS: 2 microphone channels; 1 phonograph channel.
TONE CONTROLS: New Dynamic range high and low frequency controls.
LEVEL CONTROL: 2 microphone; 1 phonograph.
OUTPUT TERMINALS: This amplifier is equipped with 4 output taps. Each tap will handle a range of load impedances. These taps are:

No. 1 3 ohms to 7 ohms
No. 2 7.5 ohms to 16 ohms
No. 3 100 ohms to 200 ohms
No. 4 250 ohms to 500 ohms

The amplifier is capable of delivering 20 watts of audio power at less than 5% distortion into any of the range of impedances mentioned above.
POWER SUPPLY: 105-125 volts, 50-60 cycle.
POWER CONSUMPTION: 105 watts under full load.
FINISH: High lustre, dark green wrinkle housing . . . lacquered aluminum grillwork.
DIMENSIONS: 8½" high x 9" deep and 16" long.

OPERADIO QUALITY CONSTRUCTION AND COMPONENT PARTS DEVELOP MORE RESERVE POWER —— OUTSTANDING TONE QUALITY AND EXTRA DYNAMIC RANGE



MODEL 1A35 8-WATT AMPLIFIER WITH ONE MICROPHONE INPUT AND ONE PHONOGRAPH INPUT

To meet the demand for a high quality 8-watt amplifier, Operadio developed the Model 1A35. This unit is the ultimate in quality . . . and definitely outstanding in every respect.

• SPECIFICATIONS •

OUTPUT: 8 watts.

TUBES: 1-5Z4, 1-6L6GA, 1-6SN7, 1-6SJ7.

STAGES: Microphone 4, Phonograph 3.

INPUT: 1 microphone channel; 1 phonograph channel.

TONE CONTROL: 3 step control—VOICE — NORMAL — MUSIC.

LEVEL CONTROL: 1 microphone; 1 phonograph.

OUTPUT TERMINALS: This amplifier is equipped with 3 output range taps: No. 1, 3-5 ohms; No. 2, 6-8 ohms; No. 3, 400-600 ohms.

POWER SUPPLY: 105-125 volts, 50-60 cycle.

POWER CONSUMPTION: 65 watts at full load.

FINISH: High lustre, dark green wrinkle housing . . . lacquered aluminum grillwork.

DIMENSIONS: 8½" high, 9" deep, by 14¼" long.

OPERADIO MANUFACTURING CO. — ST. CHARLES, ILL.

OPERADIO

AMPLIFIERS

PRICE LIST

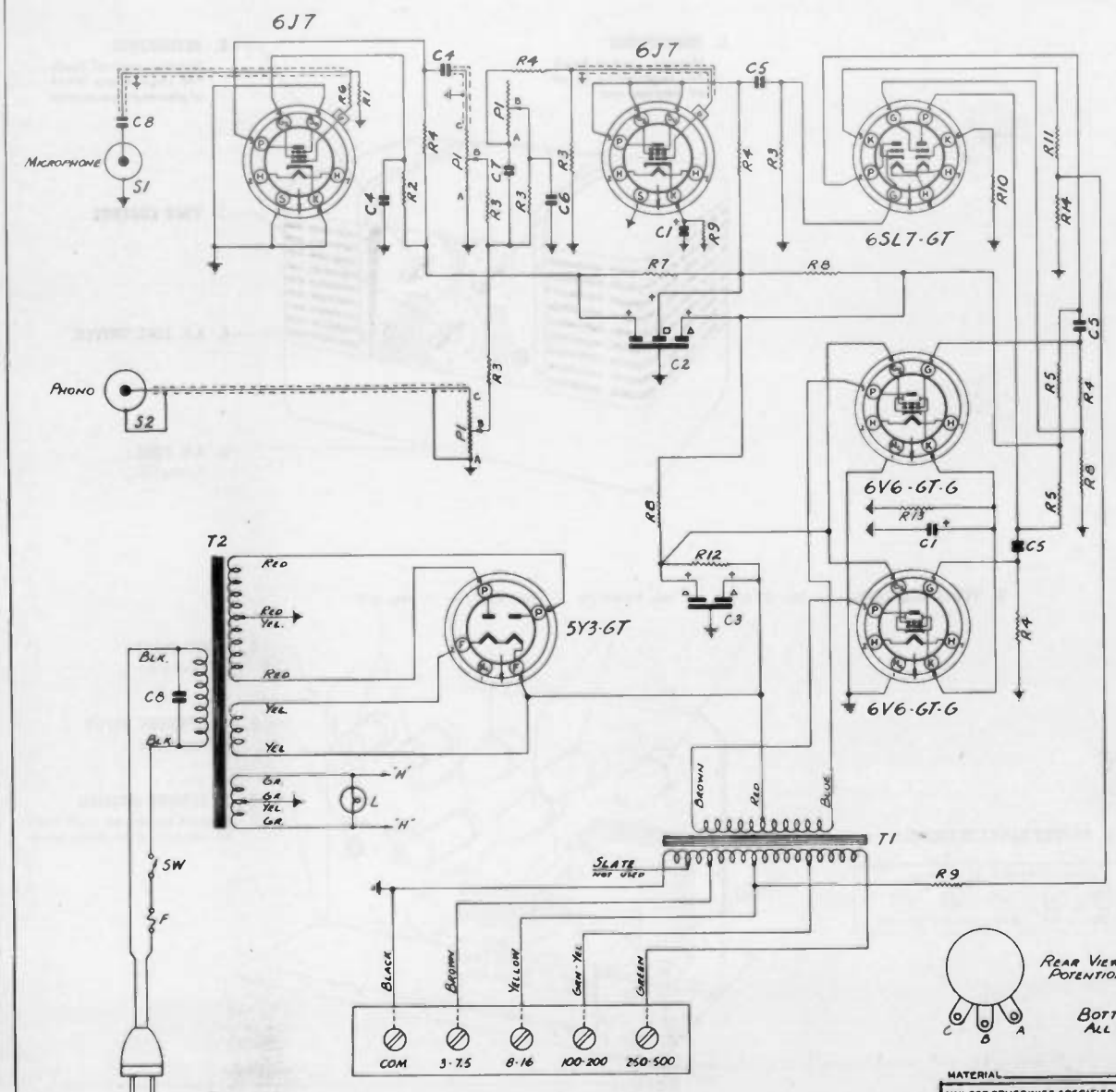
MODEL	DESCRIPTION	PRICE EA.
1A30	20-watt Amplifier with Two Microphone Inputs and One Phonograph Input. Complete with Tubes.	$129.50
1A35	8-watt Amplifier with One Microphone Input and One Phonograph Input. Complete with Tubes.	59.50
530	40-watt Amplifier with Two Microphone Inputs, Phonograph Input, and an Auxiliary Input for Radio, etc. Incorporates an Automatic Record-Changing Mechanism . . . Playing Twelve 10" or Ten 12" Recordings Consecutively. Complete with Tubes.	365.00
531	40-watt Amplifier with Two Microphone Inputs, Phonograph Input, and an Auxiliary Input for Radio, etc. Incorporates Two-Speed Turntable Providing 33⅓ R. P. M. for Transcriptions and 78 R. P. M. for Standard Recordings. Complete with Tubes.	325.00

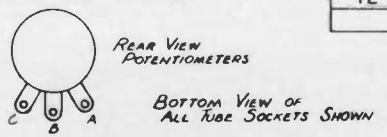
All Prices F.O.B. St. Charles, Illinois. Subject To Change Without Notice.
Slightly Higher West of the Rockies.

Unless otherwise specified shipments will be made cheapest way.

(All Operadio Amplifier and Intercommunicating Systems are Licensed by Electrical Research Products, Inc., and U. S. patents of American Telephone and Telegraph Company, and Western Electric Company, Inc).

190-110





REAR VIEW POTENTIOMETERS

BOTTOM VIEW OF ALL TUBE SOCKETS SHOWN

LIST OF ELECTRICAL PARTS

LEGEND	DESCRIPTION	QNTY	PART NO.
C1	CAPACITOR 20 MFD 25 V	2	199-2001-206
C2	" 20 " 450 V		
	" 10 " 400 V	1	199-2904
	" 5 " 350 V		
C3	" 20-20 " 500 V	1	199-2914
C4	" 0.01 " 400 V	2	199-4020-103
C5	" 0.1 " 400 V	3	199-4021-104
C6	" 0.002 " 600 V	1	199-4030-202
C7	" 0.0005 " 600 V	1	199-4030-501
C8	" 0.006 " 600 V	2	199-4030-602
V1	VACUUM TUBE 5Y3-GT	1	262-5001
V2	" " 6V6-GT-G	2	262-6015
V3	" " 6SL7-GT	1	262-6016
V4	" " 6J7	2	262-6021
F	FUSE 2.0 AMP TYPE 3AG	1	320-835-0200
L	LAMP-PILOT MAZDA 44	1	456-8496
S1	RECEPTACLE - MICROPHONE	1	597-07299
S2	" - PHONO	1	597-12692
R1	RESISTOR 10 MEG Ω 1/4 W	1	600-0043-106
R2	" 1.5 " Ω 1 W	1	600-0116-155
R3	" 470 M Ω 1 W	5	600-0116-474
R4	" 270 M Ω 1 W	5	600-0116-274
R5	" 100 M Ω 1 W	2	600-0116-104
R6	" 68 M Ω 1/4 W	1	600-0043-683
R7	" 47 M Ω 1 W	1	600-0116-473
R8	" 10 M Ω 1 W	3	600-0116-103
R9	" 2700 Ω 1 W	2	600-0116-272
R10	" 1000 Ω 1 W	1	600-0116-102
R11	" 560 Ω 1 W	1	600-0116-561
R12	" 500 Ω 5 W	1	600-1008-501
R13	" 250 Ω 5 W	1	600-1008-251
R14	" 82 Ω 1 W	1	600-0116-820
P	POTENTIOMETER 2.5 MEG. Ω	3	601-3589
SW	SWITCH - A.C. LINE	1	680-30
B	TERMINAL STRIP - OUTPUT	1	703-37
T1	TRANSFORMER - OUTPUT	1	710-2017
T2	" - POWER	1	710-4041

MATERIAL _____ FINISH _____

UNLESS OTHERWISE SPECIFIED DECIMAL DIMENSIONS TO BE ± ____ FRACTIONAL DIMENSIONS TO BE ± ____

ISSUE	WAS	DATE	APPR

OPERADIO MANUFACTURING CO. ST. CHARLES, ILL. U.S.A.

SCHEMATIC DIAGRAM MODEL 1A140 AMPLIFIER

SCALE _____ DATE 3-1-47

DRAWN E.G.C. APP'D _____

CHECKED _____ ENGR. _____

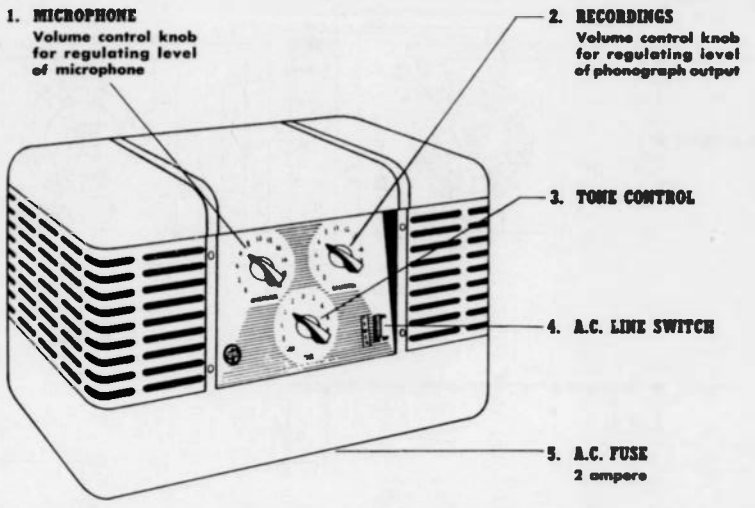
NO. 190-110 00

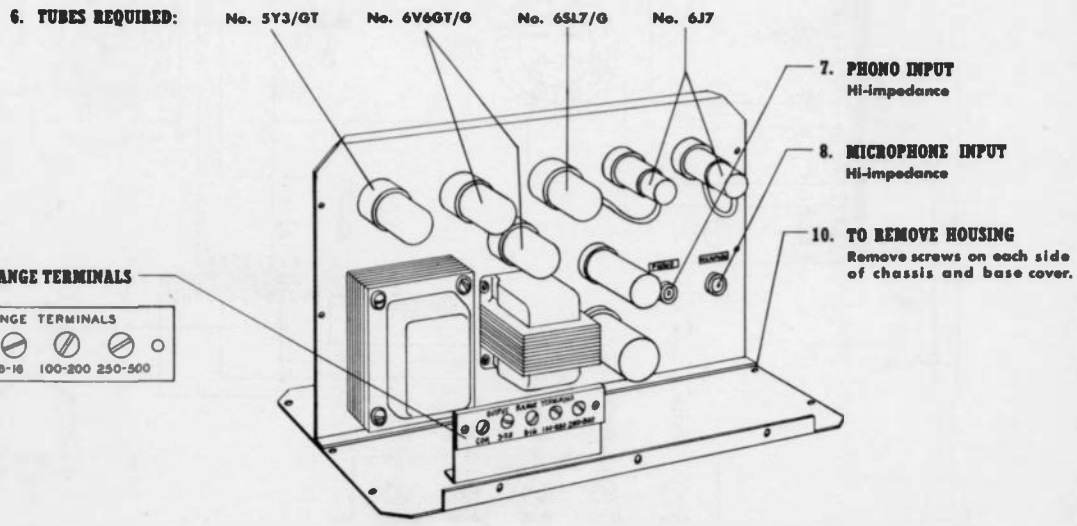
OPERATING INSTRUCTIONS FOR OPERADIO MODEL 1A140 12-WATT AMPLIFIER

The Model 1A140 Amplifier is a unit of highest quality, with a rated output of 12 watts at less than 5% distortion, maximum 18 watts. It is designed for operation on 105-125 volts, 50-60 cycles A.C. only. Power consumption is 75 watts at full load. There is one high impedance microphone input and one high impedance phonograph input.

The entire unit was designed for ease of servicing, and housing can be easily removed from chassis for this purpose. The back cover is hinged for access to "wide range" output terminal strip, microphone input, phono input, and tubes.

1. **MICROPHONE:** Dial marked "Microphone" controls volume of microphone.
2. **RECORDINGS:** Dial marked "Recordings" controls volume of phonograph.
3. **TONE CONTROL:** High and low frequency.
4. **A.C. LINE SWITCH:** Power is controlled by sliding "OFF-ON" switch at lower right on control panel.
5. **A.C. FUSE:** A 2 ampere fuse is conveniently mounted on bottom cover . . . and is accessible by tipping unit on its back.
6. **TUBES:** Tubes used are 2 (two) No. 6J7; 1 (one) No. 65L7/G; 2 (two) No. 6V6GT/G; 1 (one) No. 5Y3GT; and are easily accessible by opening hinged back cover.
7. **PHONO INPUT:** Hi-impedance phono input connection is accessible inside hinged back cover.
8. **MICROPHONE INPUT:** Hi-impedance microphone input is also accessible inside hinged back cover.
9. **OUTPUT TERMINAL STRIP:** 5 contact screw type terminal strip has following taps: No. 1, Common; No. 2, 3 to 7.5 ohms; No. 3, 8 to 16 ohms; No. 4, 100 to 200 ohms; No. 5, 200 to 500 ohms. The terminal strip is accessible inside hinged back cover. See illustration at right.
10. **TO REMOVE HOUSING:** Housing is readily removed by simply removing screws around base of amplifier, around control panel, and two screws on each side of chassis inside of housing.





OPERADIO MANUFACTURING CO. . . ST. CHARLES, ILL.

OPERADIO

ENGINEERING SPECIFICATIONS FOR MODEL No. 1A45

1. **Mfg'd by**
   OPERADIO MFG. CO., ST. CHARLES, ILL.

2. **DESCRIPTION**
   50 WATT PORTABLE AMPLIFIER
   3 Hi-Impedance Micro. Inputs
   1 Hi-Impedance Phono. Input

3. **OUTPUT POWER & DISTORTION RATINGS**

   A. PHONO Input:

   100 cy. 50 W 6 % Dist.
   400 cy. 50 W 2.5 % Dist.
   5000 cy. 50 W 1.9 % Dist.

   B. MICRO Input:

   100 cy. 50 W 6.2 % Dist.
   400 cy. 50 W 2.7 % Dist.
   5000 cy. 50 W 2.5 % Dist.

   C. Maximum Output 75 Watts.

   NOTE: Load Condition: 70V Tap
   100 Ohms Uniform Response

4. **GAIN (400 CY–FLAT RESPONSE)**

   A. Phono - 75.2 DB 100M Ohms Input
   B. Micro - 114.9 DB 100M Ohms Input
   C. _____ DB _____ Ohms Input

5. **FREQUENCY RESPONSE – (SEE GRAPHS)**

   A. PHONO Fig. 1 (Typical Response)
   B. MICRO Fig. 2 (Typical Response)

6. **NOISE LEVEL**

   A. PHONO Input:

   1. With reference to 1 MW -18 DB
   2. Signal to noise ratio: 65 DB down from 50 watts output.

   B. MICRO Input:

   1. With reference to 1 MW -5 DB
   2. Signal to noise ratio: 42 DB down from 50 watts output.

7. **IMPEDANCE AND VOLTAGES**

   A. **Source Impedance**

   1. PHONO - 2.7 Megohms
   2. MICRO - 3. Megohms
   3. _____

   B. **Load Impedances**

   R.M.A. Std. 70 V Tap - 100 Ohms
   500 Ohm Tap - 25 V Balanced
   Winding Center Tapped - 12.5 Ohms

   C. **Input Voltages (400 Cy.)**

   1. PHONO - .35 V
   2. MICRO - .0042V
   3. _____

   D. **Output Voltage at 50 Watts**

   100 Ohms - 70V 500 Ohms - 158 V
   12.5 Ohms - 25V

OPERADIO MANUFACTURING CO., St. Charles, Illinois
NO. 270-2

Model No. 1A45

E. Output Regulation

100 cy. 9.6 DB
400 cy. 6.6 DB
5000 cy. 6.6 DB
(Measured from full load to open circuit load)

8. POWER SUPPLY

A. Voltage 105 - 125 V.A.C.
B. Frequency 50 - 60 Cycles
C. Power Consumption 240 Watts
D. Stand-by 240 Watts
E. Fuses 5 Ampere A.C. Input
.18 Ampere in Screen Circuit

9. TUBES AND STAGES

A. Stages:
1. PHONO 3 stages
2. MICRO 4 stages

B. Tube Complement
4 - 6J7 1 - 6SN7
4 - 6L6G 2 - 5U4G

10. CONTROL

A. Gain or level 3 - Microphone
1 - Phonograph

B. Tone 1 Bass, 1 Treble for Microphone
1 Bass, 1 Treble for Phonograph

C. Special 1 - Master Gain

11. PHYSICAL DIMENSIONS AND WEIGHT

8-3/4" High 10" Wide
23" Long Weight 41 pounds

12. CONNECTIONS

A. Input PHONO - Cinch #1336
MICRO - Amphenol MC1F

B. Output 6 Contact Screw Terminal Strip

C. Remote Mixtroler

D. Power Cord and Plug

E. Special

13. LABELS

A. Patent

B. Underwriter's

C. Others License Notice

14. ACCESSORIES

Model 3A10 Transformer may be used to convert to 50 Ohms Micro Inputs

15. SPECIAL FEATURES

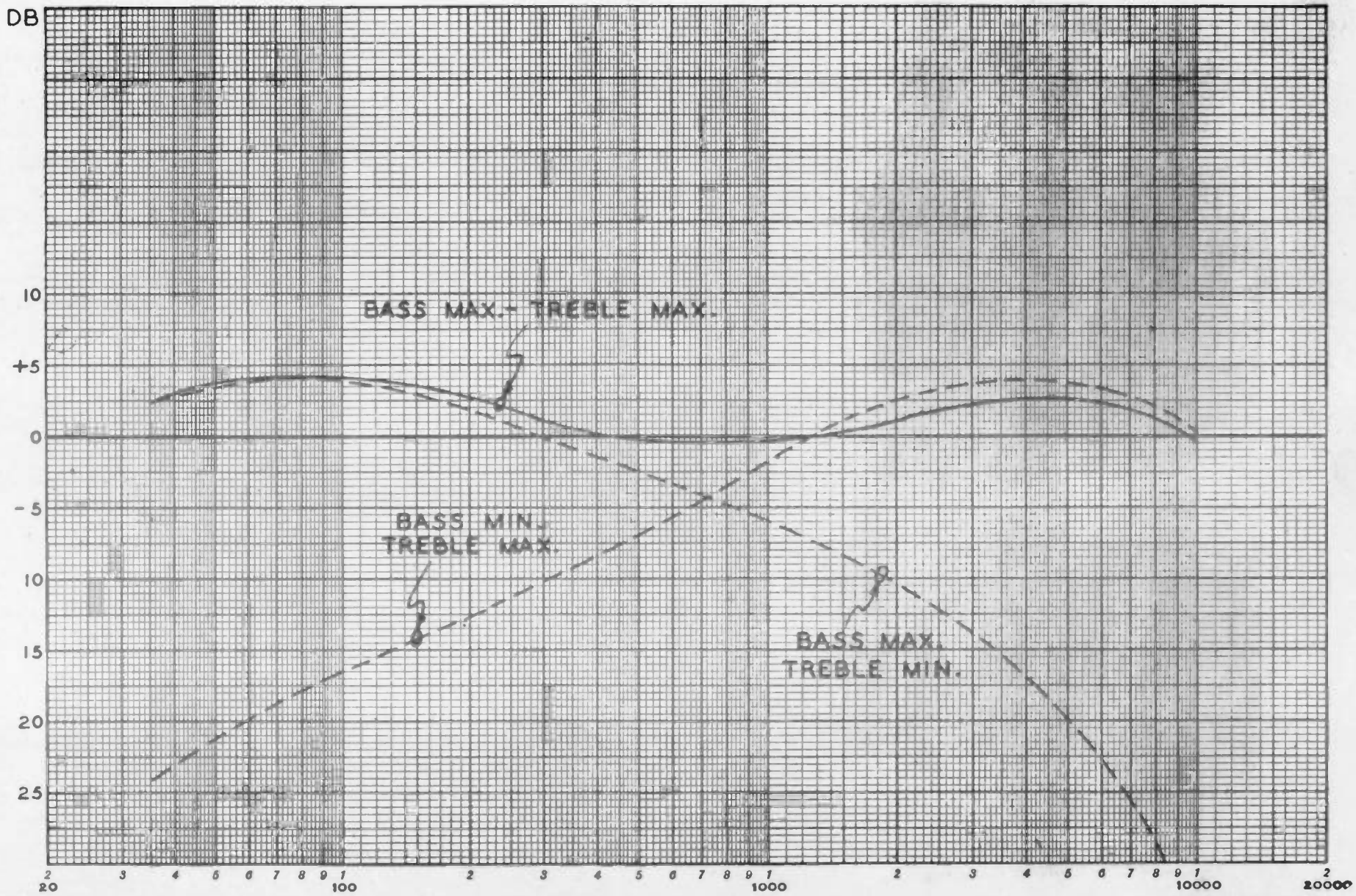
Remote Control of Microphone Inputs

OPERADIO MANUFACTURING CO., St. Charles, Illinois
NO. 270-2

Sheet 3

PHONO INPUT

TYPICAL RESPONSE



FREQUENCY IN CYCLES PER SECOND

VOLUME CONTROL SET 6DB DOWN FROM FULL OUTPUT

FIG. 1

No. 270-2

MICRO INPUT

TYPICAL RESPONSE

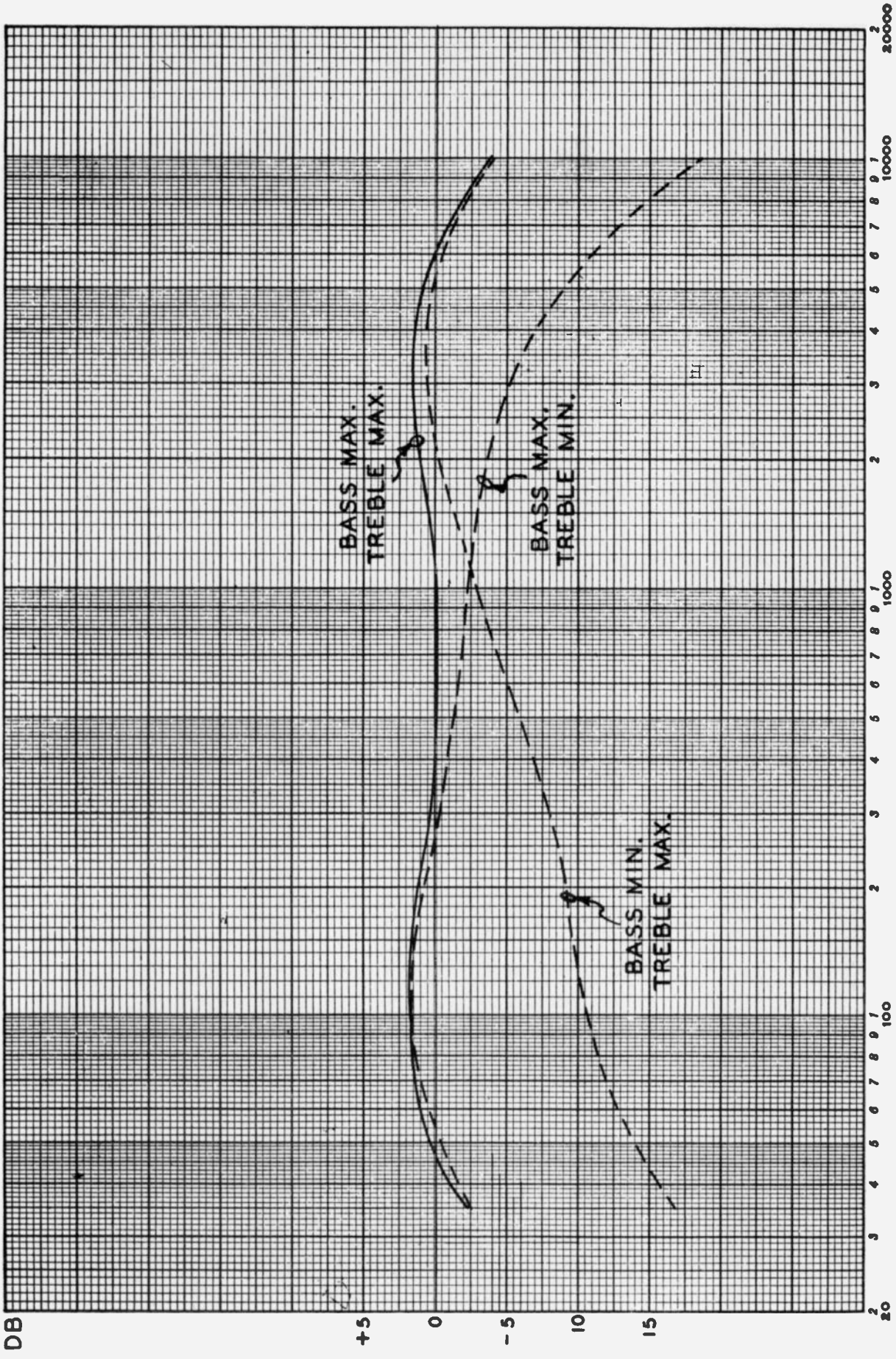
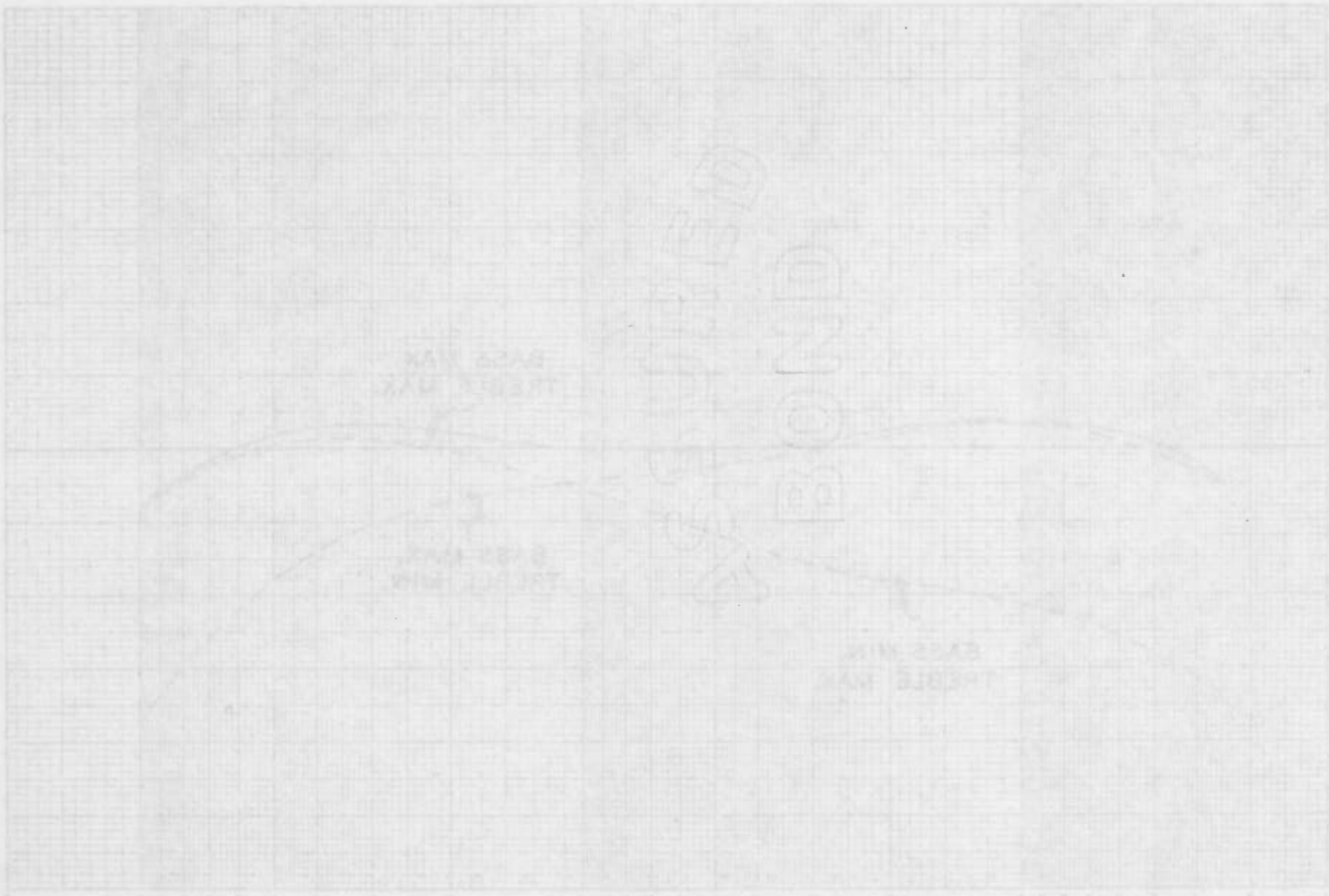
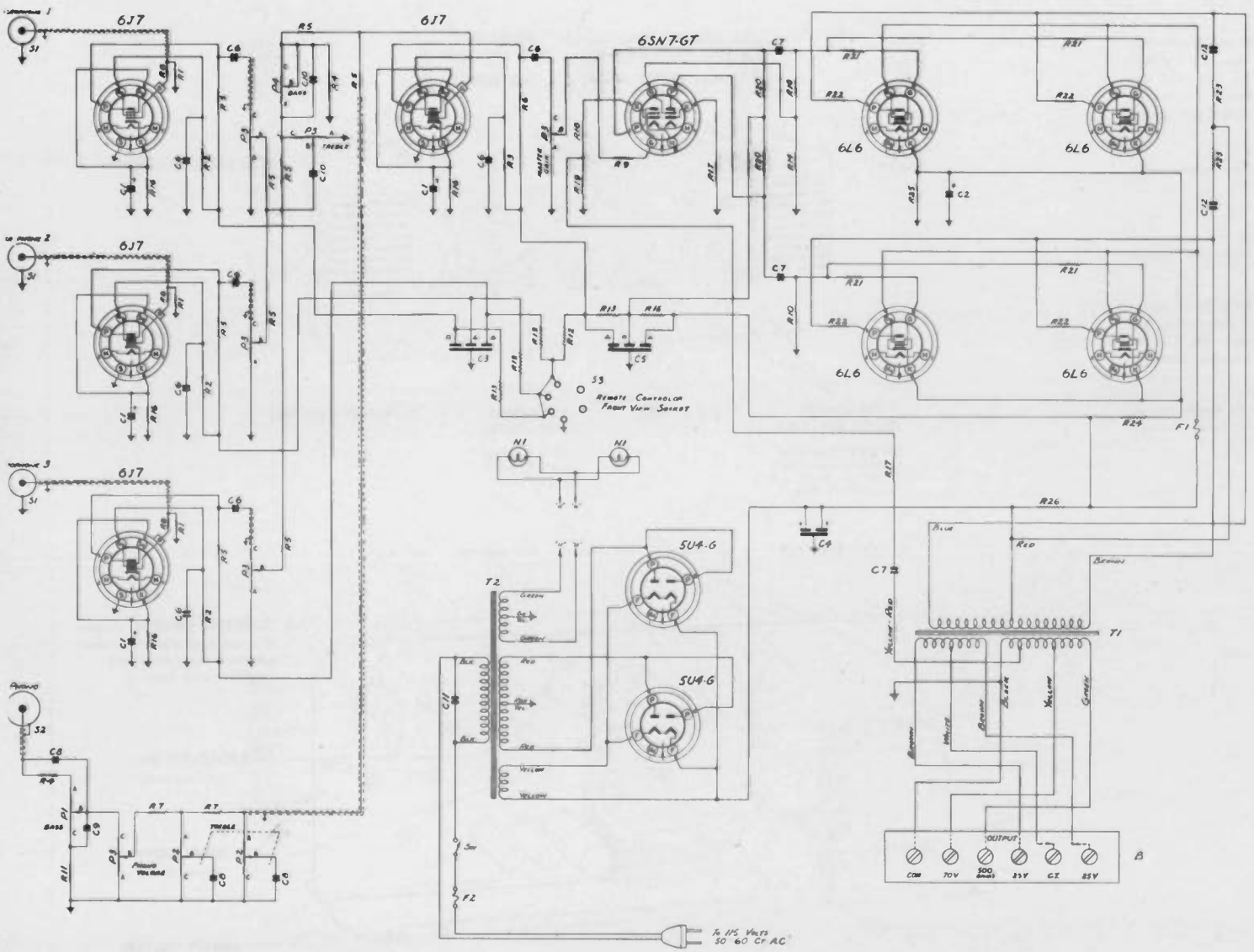


FIG. 2

NO. 270-2





LEGEND	DESCRIPTION	QNTY	PART NO
C1	CAPACITOR 20 MFD 25 V	4	199-2001-208
C2	" 20 " 150 V	1	199-2016-208
C3	" 10-5-5 " 450 V	1	199-2006
C4	" 20-20 " 500 V	1	199-2014
C5	" 30-20-10 " 350 V	1	199-2006
C6	" 0.1 " 400 V	6	199-4021-104
C7	" 0.5 " 400 V	3	199-4022-504
C8	" 0.001 " 600 V	3	199-4030-102
C9	" 0.003 " 600 V	1	199-4030-302
C10	" 0.0005 " 600 V	1	199-4030-501
C11	" 0.006 " 600 V	1	199-4030-602
C12	" 0.002 " 1200 V	2	199-5041-202
V1	VACUUM TUBE 5U4 G	2	262-5004
V2	" " 6SN7 GT	1	262-6005
V3	" " 6L6 GA	4	262-6020
V4	" " 6J7	4	262-6021
F1	FUSE .18 AMP TYPE 3AG	1	320-835-0018
F2	" 5.0 " " "	1	320-835-0500
N1	LAMP-PILOT MAZDA 44	2	456-6406
S1	RECEPTACLE - MICROPHONE	3	597-07200
S2	" - PHONO	1	597-12602
S3	" - REMOTE CONTROLOR	1	597-08676
R1	RESISTOR 2.7 MEG ± 1/4 W	3	600-0043-275
R2	" 1.0 " ± 1 W	3	600-0116-105
R3	" 560 M ± 1 W	1	600-0116-564
R4	" 470 M ± 1 W	2	600-0116-474
R5	" 270 M ± 1 W	9	600-0116-274
R6	" 150 M ± 1 W	1	600-0116-154
R7	" 100 M ± 1 W	2	600-0116-104
R8	" 68 M ± 1/4 W	3	600-0043-683
R9	" 68 M ± 1 W	1	600-0116-683
R10	" 56 M ± 1 W	2	600-0116-563
R11	" 47 M ± 1 W	1	600-0116-473
R12	" 22 M ± 1 W	1	600-0116-223
R13	" 10 M ± 1 W	4	600-0116-103
R14	" 6800 ± 1 W	1	600-0116-682
R15	" 4700 ± 1 W	1	600-0116-472
R16	" 1500 ± 1 W	4	600-0116-152
R17	" 1000 ± 1 W	2	600-0116-102
R18	" 560 ± 1 W	1	600-0116-561
R19	" 82 ± 1 W	1	600-0116-820
R20	" 56 M ± 2 W	2	600-0153-563
R21	" 56 ± 1 W	4	600-1004-560
R22	" 50 ± 5 W	4	600-1008-500
R23	" 5000 ± 10 W	2	600-1011-502
R24	" 5000 ± 25 W	1	600-1018-502
R25	" 85 ± 25 W	1	600-9015
R26	" 1200 ± 25 W	1	600-9008
P1	POTENTIOMETER OHM	1	601-6
P2	" " "DUAL"	1	601-7
P3	" 500 M "	6	601-3289
P4	" 2.5 MEG "	1	601-3589
SW	SWITCH - A.C. LINE	1	680-10
B	TERMINAL STRIP - OUTPUT	1	703-85
T1	TRANSFORMER - OUTPUT	1	710-2020
T2	" - POWER	1	710-4031-02

REAR VIEW POTENTIOMETERS

BOTTOM VIEW OF ALL TUBE SOCKETS SHOWN

MATERIAL _____ FINISH _____

UNLESS OTHERWISE SPECIFIED DECIMAL DIMENSIONS TO BE ± .2 " FRACTIONAL DIMENSIONS TO BE ± 1/32

01 Deleted 1-P4 (Comm) added 1-P3 (Comm) 6-6-67 MAB DATE

OPERADIO MANUFACTURING CO. ST. CHARLES, ILL. U.S.A.

SCHEMATIC DIAGRAM MODEL 1A45 AMPLIFIER

SCALE DATE 2-28-67

DRAWN E.G.C. APP'D

CHECKED SIZE

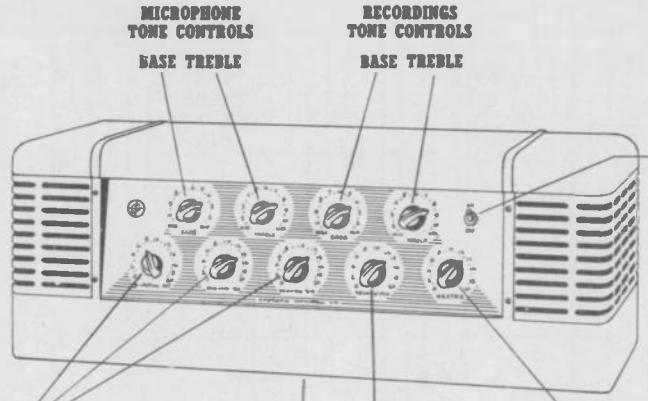
NO. 190-107

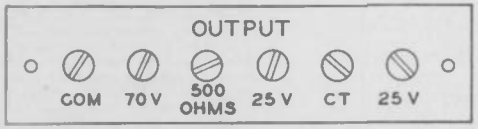
01

OPERATING INSTRUCTIONS FOR OPERADIO MODEL 1A45 AMPLIFIER

The Model No. 1A45 Amplifier provides a full 50 watts at 3% distortion with a maximum 65 watts. It features 3 microphone channels, 1 phonograph input; separate tone controls permitting 24 DB high and low frequency control with no apparent change in over-all level. It is possible to mix microphone and phonograph inputs and control volume with master gain control.

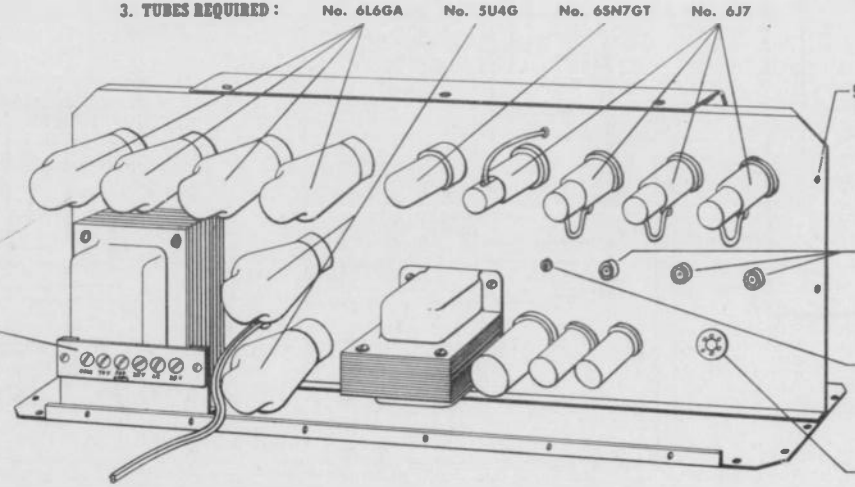
1. **A.C. LINE SWITCH:** Power is turned "ON" or "OFF" by toggle switch on panel.
2. **A.C. FUSES:** One .18 ampere and one 5.0 amperes.
3. **TUBES:** Tubes used are 2 (two) No. 5U4G - 4 (four No. 6L6GA - 1 (one) No. 6SN7GT - 4 (four) No. 6J7.
4. **OUTPUT RANGE TERMINALS:** The Model No. 1A45 Amplifier is equipped with five output taps. No. 1 is the 70V. tap when using new RMA method for impedance matching of speaker loads. No. 2 is the 500 ohms terminal. Nos. 3, 4, 5 are for a 25V.–12.5 ohms balanced line.
5. **TO REMOVE HOUSING:** Housing is readily removed by simply removing screws around base of amplifier, around control panel, and two screws on each side of chassis inside housing.





4. OUTPUT RANGE TERMINALS

3. TUBES REQUIRED: No. 6L6GA No. 5U4G No. 6SN7GT No. 6J7



OPERADIO MANUFACTURING CO. . . ST. CHARLES, ILL.

400-36

OPERADIO

AMPLIFIERS

DESIGNED, ENGINEERED, AND BUILT TO TOP STANDARDS!

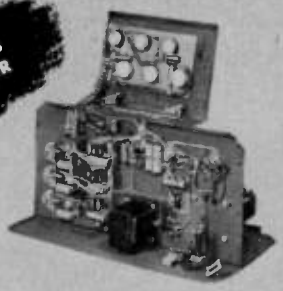
A New Four Position Pre-Amplifier and 50 Watt Booster Offering Outstanding Features and Performance!

This versatile combination is the ultimate in the field of audio-amplification. The Model #1A65 Pre-amplifier will drive from one to eight of the Model #1A70 Booster Amplifiers . . . this flexibility permits the building-up of a paging or sound system to any required size. The Pre-amplifier has three microphone inputs, which can be either high or low impedence by means of individual selector switches.

The Model #1A70 Booster Amplifier provides a full 50 watts at less than 5% distortion and features high level, low level, high impedance phono, and intercom inputs. The several input levels make it possible to pick-up and amplify zero level signals for leased wire transmission and it can be used as a booster amplifier with a "FLEXIFONE" intercommunication system . . . plus many other applications.

Original and distinctive design of housing, chassis, and control panel for accessibility and servicing both chassis are designed for rack mounting.

MODEL #1A65 PRE-AMPLIFIER



Front View of Chassis

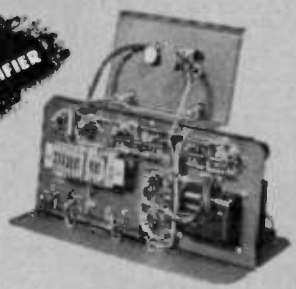
Rear View of Chassis

• SPECIFICATIONS •

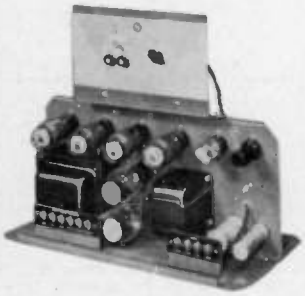
MODEL 1A65 PRE-AMPLIFIER

TUBES: 4 (four) 6J7's — 1 (one) 6SN7 — 1 (one) 6X5-GT.
STAGE: Microphone 3 (three) stage — Phono 2 (two) stage.
INPUTS: 3 (three) High Impedance Microphones or 3 (three) Low Impedance Inputs available by means of selector switches; 1 (one) Phono Input.
TONE CONTROLS: New Dynamic range high and low frequency controls.
CONTROLS ON FRONT PANEL: 3 (three) Microphone; 1 (one) Phono; 1 (one) High Frequency Control; 1 (one) Low Frequency Control; 1 (one) A. C. Line Switch.
OUTPUT: 10 V. across 5000 ohms at less than 2% distortion at 1000 cycles.
OUTPUT TERMINAL: 5000 Ohms Balanced Line; 500 Ohms Balanced Line; 5000 Ohms Single Ended Line; 1250 Ohms Single Ended Line; 500 Ohms Single Ended Line; 125 Ohms Single Ended Line.
POWER SUPPLY: 105-125 Volts — 50-60 Cycle.
POWER CONSUMPTION: 40 Watts.
DIMENSIONS: 8½" high x 9" deep and 16" long.
WEIGHT: 25 lbs.

MODEL #1A70 BOOSTER AMPLIFIER



Front View of Chassis



Rear View of Chassis

• SPECIFICATIONS •

MODEL 1A70 BOOSTER AMPLIFIER

OUTPUT: 50 Watts at less than 5% distortion.
TUBES: 1 (one) 6J5 — 1 (one) 6SN7 — 4 (four) 6L6's — 2 (two) 5U4G's.
STAGES: 3 (three) stage for Phono or Driver Input.
INPUT: 1 (one) High Impedance Phono; 1 (one) Intercom Input; 1 (one) High Impedance Input (10,000 to 50,000 Ohms). Requires approximately 8 Volts to drive amplifier to full output; 1 (one) Low Impedance Input (50 to 5000 Ohms). Requires approximately 1.7 Volts to drive amplifier to full output.
CONTROLS: 1 (one) Master Volume Control.
OUTPUT TERMINALS: This booster amplifier is equipped with 5 (five) output taps. Each tap will handle a range of load impedances: #1—2 to 4 Ohms; #2—8 to 16 Ohms; #3—30 to 60 Ohms; #4—60 to 120 Ohms; #5—125 to 250 Ohms.
POWER SUPPLY: 105 to 125 Volts — 50-60 Cycle.
POWER CONSUMPTION: 240 Watts maximum.
DIMENSIONS: 8½" high x 9" deep x 17⅜" long.
WEIGHT: 39 lbs.

OPERADIO

AMPLIFIERS

PRICE LIST

MODEL	DESCRIPTION	PRICE EA.
1A65	Four Stage Pre-amplifier with Three High or Low Microphone Inputs and One Phono Input. Will Drive From One to Eight 50 Watt Booster Amplifiers. Complete with Tubes.	$144.00
1A70	Booster Amplifier with One High Impedance, One Low Impedance, a High Impedance Phono, and an Intercom Input. A Full 50 Watts at Less Than 5% Distortion. Complete with Tubes.	169.50
1A30	20-watt Amplifier with Two Microphone Inputs and One Phonograph Input. Complete with Tubes.	129.50
1A35	8-watt Amplifier with One Microphone Input and One Phonograph Input. Complete with Tubes.	59.50
530	40-watt Amplifier with Two Microphone Inputs, Phonograph Input, and an Auxiliary Input for Radio, etc. Incorporates an Automatic Record-Changing Mechanism . . . Playing Twelve 10" or Ten 12" Recordings Consecutively. Complete with Tubes.	365.00
531	40-watt Amplifier with Two Microphone Inputs, Phonograph Input, and an Auxiliary Input for Radio, etc. Incorporates Two-Speed Turntable Providing 33⅓ R.P.M. for Transcriptions and 78 R.P.M. for Standard Recordings. Complete with Tubes.	325.00

All Prices F.O.B. St. Charles, Illinois. Subject To Change Without Notice.
Slightly Higher West of the Rockies.

Unless otherwise specified shipments will be made cheapest way.

OPERADIO

ENGINEERING SPECIFICATIONS FOR MODEL No. 1A70-A

1. Mfg'd by
OPERADIO MFG. CO., ST. CHARLES, ILL.

2. DESCRIPTION - 50 WATT BOOSTER AMPLIFIER

4 Inputs:
- Auxiliary
- High Level
- Low Level
- Intercom

3. OUTPUT POWER & DISTORTION RATINGS

A. Auxiliary Input:

100 cy. 50 W 3.2 % Dist.
400 cy. 50 W 1.65 % Dist.
5000 cy. 50 W 2.3 % Dist.

B. _____ Input:

100 cy. _____ W _____ % Dist.
400 cy. _____ W _____ % Dist.
5000 cy. _____ W _____ % Dist.

C. Maximum Output 75 Watts.

NOTE: Load Condition: 70V Tap 100 Ohms
Tone Control - None

4. GAIN (400 CY–FLAT RESPONSE)

A. Auxiliary-76.3 DB 32M Ohms Input
B. _____ DB _____ Ohms Input
C. _____ DB _____ Ohms Input

5. FREQUENCY RESPONSE – (SEE GRAPHS)

A. Auxiliary Fig. 1 (Typical Response)
B. _____ Fig. 2 (Typical Response)

6. NOISE LEVEL

A. Auxiliary Input:
1. With reference to 1 MW -24 DB
2. Signal to noise ratio: 71 DB down from 50 watts output.

B. _____ Input:
1. With reference to 1 MW _____ DB
2. Signal to noise ratio: _____ DB down from _____ watts output.

7. IMPEDANCE AND VOLTAGES

A. Source Impedance
1. Auxiliary - 32M
2. High Level- 60M
3. Low Level - 5600 Ohms
   Intercom - 5600 Ohms

B. Load Impedances
R.M.A. Std. 70 V Tap - 100 Ohms
500 Ohms Tap - 25V Balanced
Winding Center Tapped - 12.5 Ohms

C. Input Voltages (400 Cy.)
1. Auxiliary - .2V
2. High Level- 2.1V
3. Low Level - .2V
   Intercom - .3V

D. Output Voltage at 50 Watts
100 Ohms - 70V 500 Ohms - 158V
12.5 Ohms - 25V

OPERADIO MANUFACTURING CO., St. Charles, Illinois
NO. 270-3

Model No. 1A70-A

E. Output Regulation

100 cy. 5.6 DB
400 cy. 6. DB
5000 cy. 5.9 DB
(Measured from full load to open circuit load)

8. POWER SUPPLY

A. Voltage 105 - 125 V.A.C.
B. Frequency 50 - 60 Cycles
C. Power Consumption 240 Watts
D. Stand-by 240 Watts
E. Fuses 3 ampere A.C. Input
.18 ampere Screen circuit

9. TUBES AND STAGES

A. Stages:
1. AUXILIARY 3 stages
2. _____ _____ stages

B. Tube Complement
1 - 6J5 1 - 6SN7
4 - 6L6GA 2 - 5U4G

10. CONTROL

A. Gain or level Master

B. Tone

C. Special

11. PHYSICAL DIMENSIONS AND WEIGHT

8-3/4" High 10" Wide
17-3/4" Long Weight 35 pounds

12. CONNECTIONS

A. Input AUXILIARY - Cinch #1336
Other 3 input connections have screw terminals

B. Output
6 contact screw terminal strip

C. Remote

D. Power Cord and Plug

E. Special

13. LABELS

A. Patent

B. Underwriter's

C. Others License Notice

14. ACCESSORIES

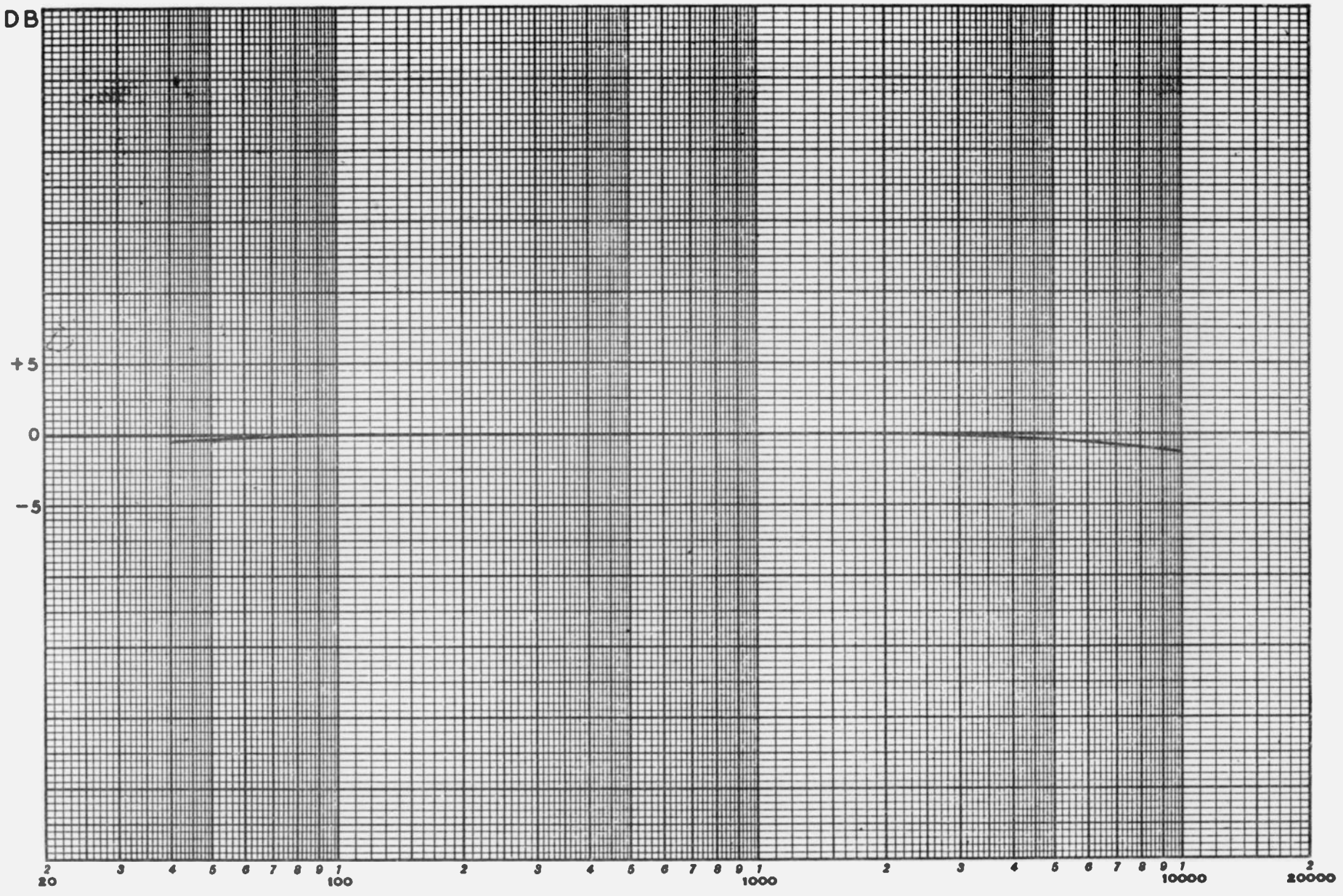
15. SPECIAL FEATURES

Pre-amplifier Voltage Receptacles

OPERADIO MANUFACTURING CO., St. Charles, Illinois
NO. 270-3

AUXILIARY INPUT

TYPICAL RESPONSE

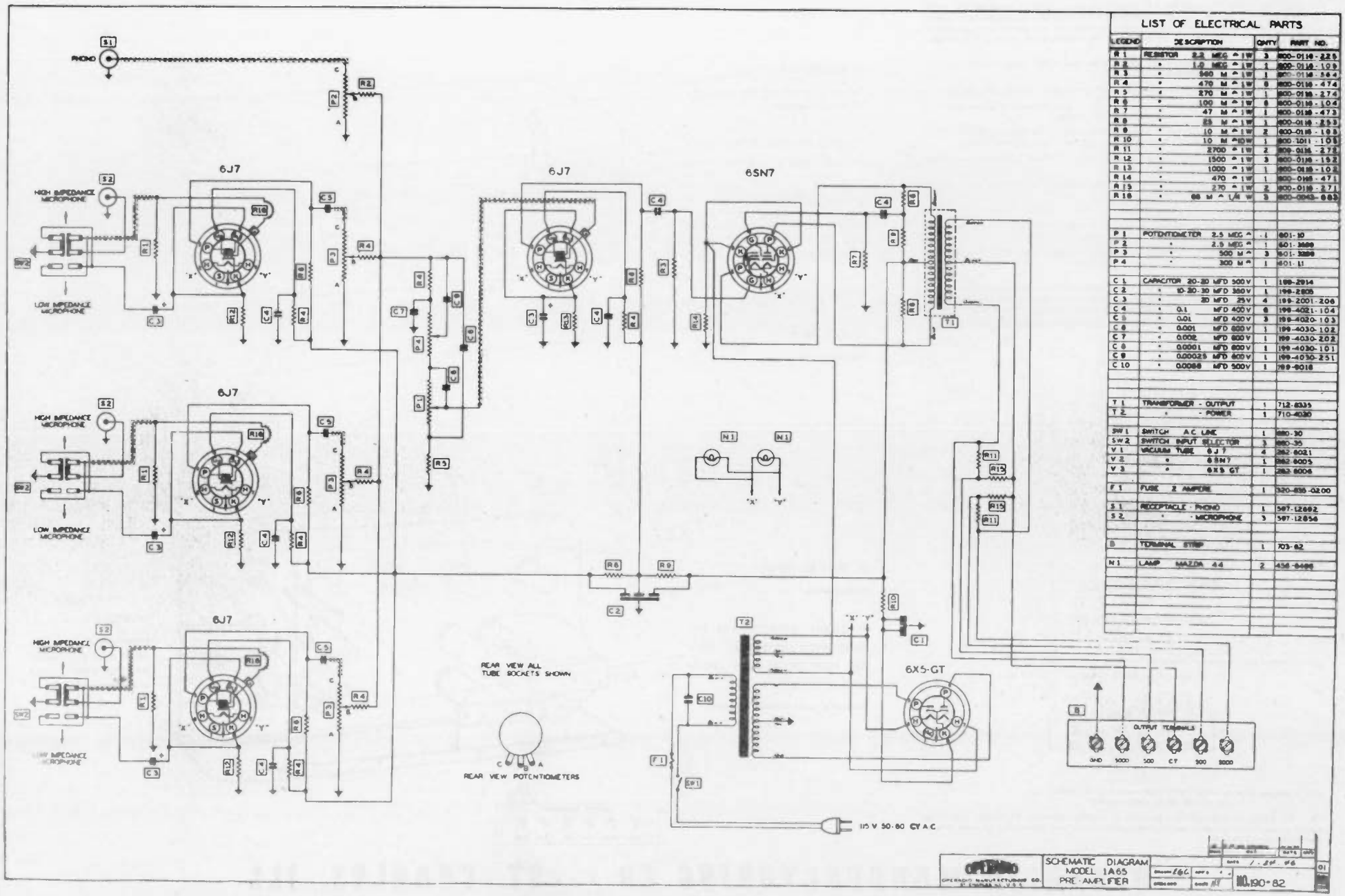


VOLUME CONTROL SET 6DB DOWN FROM FULL OUTPUT

FIG. 1

No. 270-3

Sheet 9



LIST OF ELECTRICAL PARTS

LEGEND	DESCRIPTION	QNTY	PART NO.
R 1	RESISTOR 2.2 MEG ^ 1W	3	800-0118-225
R 2	" 1.0 MEG ^ 1W	1	800-0118-105
R 3	" 560 M ^ 1W	1	800-0118-564
R 4	" 470 M ^ 1W	8	800-0118-474
R 5	" 270 M ^ 1W	1	800-0118-274
R 6	" 100 M ^ 1W	8	800-0118-104
R 7	" 47 M ^ 1W	1	800-0118-473
R 8	" 25 M ^ 1W	1	800-0118-253
R 9	" 10 M ^ 1W	2	800-0118-103
R 10	" 10 M ^ 2W	1	800-1011-103
R 11	" 2700 ^ 1W	2	800-0118-272
R 12	" 1500 ^ 1W	3	800-0118-152
R 13	" 1000 ^ 1W	1	800-0118-102
R 14	" 470 ^ 1W	1	800-0118-471
R 15	" 270 ^ 1W	2	800-0118-271
R 16	" 68 M ^ 1/4 W	3	800-0043-683
P 1	POTENTIOMETER 2.5 MEG ^	1	801-10
P 2	" 2.5 MEG ^	1	801-3888
P 3	" 500 M ^	3	801-3889
P 4	" 300 M ^	1	801-11
C 1	CAPACITOR 20-20 MFD 500 V	1	199-2914
C 2	" 10-20-30 MFD 350 V	1	199-2805
C 3	" 20 MFD 25 V	4	199-2001-206
C 4	" 0.1 MFD 400 V	6	199-4021-104
C 5	" 0.01 MFD 400 V	3	199-4020-103
C 6	" 0.001 MFD 600 V	1	199-4030-102
C 7	" 0.002 MFD 600 V	1	199-4030-202
C 8	" 0.0001 MFD 600 V	1	199-4030-101
C 9	" 0.00025 MFD 600 V	1	199-4030-251
C 10	" 0.0068 MFD 500 V	1	199-6018
T 1	TRANSFORMER - OUTPUT	1	712-8335
T 2	" - POWER	1	710-4030
SW 1	SWITCH A.C. LINE	1	880-30
SW 2	SWITCH INPUT SELECTOR	3	880-35
V 1	VACUUM TUBE 6 J 7	4	262-6021
V 2	" 6 SN 7	1	262-6005
V 3	" 6 X 5 GT	1	263-6004
F 1	FUSE 2 AMPERE	1	520-835-0200
S 1	RECEPTACLE - PHONO	1	597-12682
S 2	" - MICROPHONE	3	597-12856
B	TERMINAL STRIP	1	703-82
N 1	LAMP MAZDA 44	2	456-6406

OPERATING INSTRUCTIONS FOR OPERADIO MODEL 1A65 PRE-AMPLIFIER

The Model No. 1A65 Pre-amplifier will drive from one to eight of the Model No. 1B70 Booster Amplifiers . . . this flexibility permits the building-up of a paging or sound system to any required size. The Model No. 1A65 Pre-amplifier has one phono input and three microphone inputs, which can be either high or low impedance by means of individual selector switches.

Housing, chassis, and control panel are designed for accessibility and servicing. Chassis is also designed for rack mounting.

1. **RECORDINGS:** Dial marked "RECORDINGS" controls volume of phonograph.

2. **TONE CONTROLS:** Extended dynamic range; upper left dial regulates bass . . . and upper right controls treble, of microphones and phono.

3. **MICROPHONES:** Dials marked "MICROPHONE ONE," "MICROPHONE TWO," and "MICROPHONE THREE" provide individual volume control of each microphone.

4. **A.C. LINE SWITCH.** Power is controlled by sliding "Off-On" switch at lower right on control panel.

5. **A.C. FUSE:** A 2-ampere fuse is conveniently mounted on bottom cover . . . and is accessible by tipping unit on its back.

6. **TUBES:** Tubes used are 4 (four) No. 6J7 — 1 (one) No. 6SN7 — 1 (one) No. 6X5-GT.

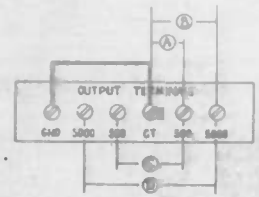
7. **PHONE INPUT:** Hi-impedance phono input is easily accessible inside hinged back cover. Any hi-impedance phonograph may be used.

8. **MICROPHONE INPUT:** 3 (three) hi-impedance microphones or 3 (three) lo-impedance inputs available by means of selector switches . . . and are accessible inside hinged back cover.

9. **OUTPUT TERMINAL STRIP:** 5000 ohms balanced line; 500 ohms balanced line; 5000 ohms single ended line; 1250 ohms single ended line; 500 ohms single ended line; 125 ohms single ended line. The terminal strip is accessible inside hinged back cover.

The output impedances listed above can be obtained by the following combination of connections:

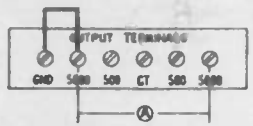
I.



with a jumper wire between "GROUND" and "CENTER" tap . . .

A is 125 ohms single ended
B is 1250 ohms single ended
C is 500 ohms balanced line
D is 5000 ohms balanced line

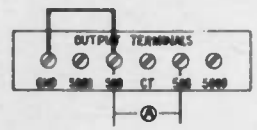
II.



with a jumper wire between "GROUND" and the "5000 OHM" tap . . .

A is 5000 ohms single ended.

III.



with a jumper wire between "GROUND" and the "500 OHM" tap . . .

A is 500 ohms single ended.

10. **TO REMOVE HOUSING:** Housing is readily removed by simply removing screws around base of amplifier, around control panel, and two screws on each side of chassis inside of housing.

1. **RECORDINGS**

Volume control knob for regulating level of phonograph.

2. **BASS TONE CONTROL AND TREBLE TONE CONTROL**

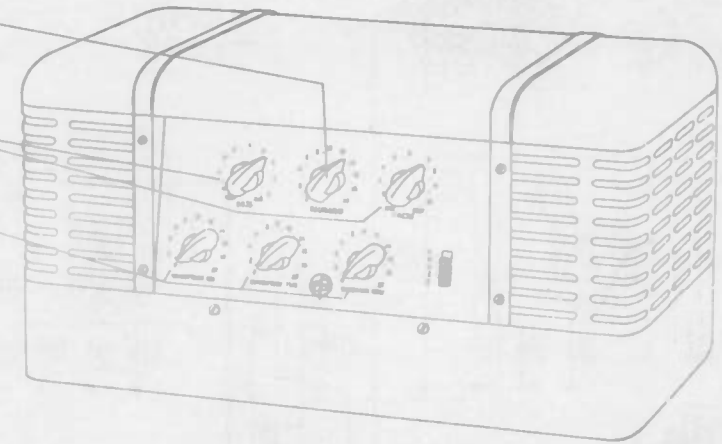
3. **MICROPHONES**

Volume control knob for regulating level of "Microphone One," "Microphone Two," and "Microphone Three."

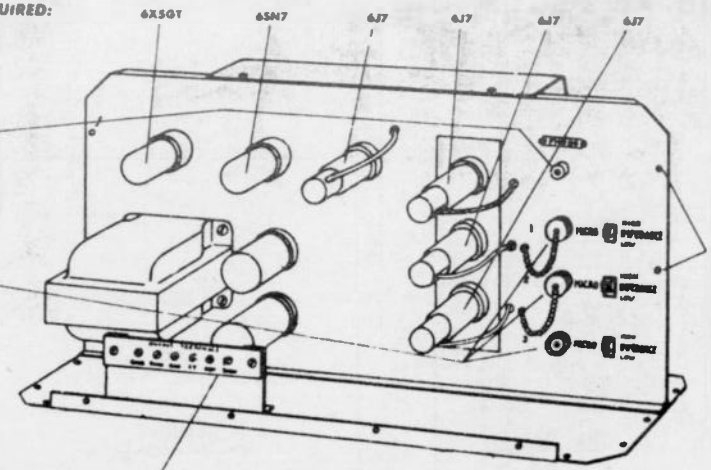
4. **A.C. LINE SWITCH**

5. **A.C. FUSE**

2-ampere fuse.



6. **TUBES REQUIRED:**



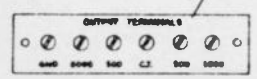
7. **PHONO INPUT**

Hi-impedance.

8. **THREE MICROPHONE INPUTS WITH INDIVIDUAL HIGH OR LOW IMPEDANCE SELECTOR SWITCHES.**

Accessible inside hinged back cover.

9.

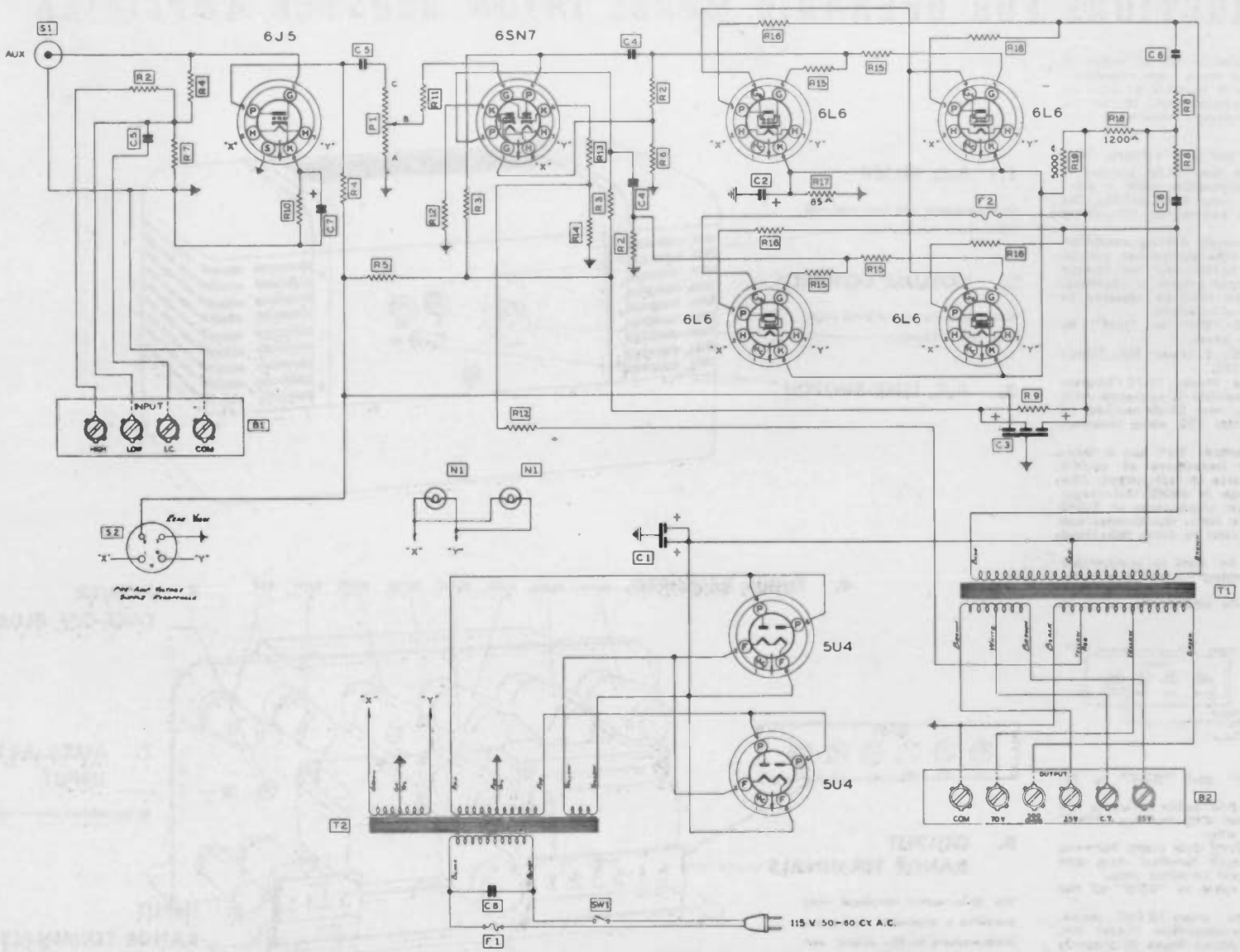


10. **TO REMOVE HOUSING**

Remove two screws on each side of housing . . . around base of amplifier . . . and at bottom of control panel.

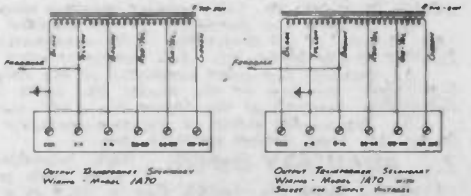
OPERADIO MANUFACTURING CO. - - - ST. CHARLES, ILL.

FORM 3575-K 266



LIST OF ELECTRICAL PARTS

LEGEND	DESCRIPTION	QNTY	PART NO.
	RESISTOR		
R 2	" 56 M Ω 1 W	3	600-0118-563
R 3	" 56 M Ω 2 W	2	600-0153-563
R 4	" 27 M Ω 1 W	2	600-0118-273
R 5	" 10 M Ω 1 W	1	600-0118-103
R 6	" 6800 Ω 1 W	1	600-0118-682
R 7	" 5600 Ω 1 W	1	600-0118-562
R 8	" 5000 Ω 10 W	2	600-1011-502
R 9	" 4700 Ω 1 W	1	600-0118-472
R 10	" 2700 Ω 1 W	1	600-0118-272
R 11	" 68000 Ω ½ W	1	600-0043-683
R 12	" 1000 Ω 1 W	2	600-0118-102
R 13	" 560 Ω 1 W	1	600-0118-561
R 14	" 82 Ω 1 W	1	600-0118-820
R 15	" 56 Ω 1 W	4	600-1004-560
R 16	" 50 Ω 5 W	4	600-1008-500
R 17	" 85 Ω 25 W	1	600-9015
R 18	" 1200 Ω 25 W	1	600-9008
R 19	" 5000 Ω 25 W	1	600-1018-502
P 1	POTENTIOMETER 500 M Ω	1	601-3289
C 1	CAPACITOR 20-20 MFD 500 V.	1	199-2814
C 2	" 20 MFD 150 V	1	199-2018-206
C 3	" 20-10-5 MFD 450 V	1	199-2904
C 4	" 0.5 MFD 600 V	2	199-4022-504
C 5	" 0.05 MFD 600 V	2	199-4021-503
C 6	" 0.0025 MFD 600 V	2	199-5041-202
C 7	" 20 MFD 25 V	1	199-2001-206
C 8	" 0.008 MFD 500 V	1	199-4030-802
T 1	TRANSFORMER - OUTPUT	1	710-2020
T 2	" POWER	1	710-4031-02
SW 1	SWITCH A.C. LINE	1	680-6
V 1	VACUUM TUBE 6J5	1	262-6003
V 2	" 6SN7	1	262-6005
V 3	" 6L6 GA	4	262-6020
V 4	" 5U4 G	2	262-5004
F 1	FUSE 3 AMPERE 3 AG	1	320-835-0300
F 2	" .18 AMPERE 3 AG	1	320-835-0018
B 1	TERMINAL STRIP - INPUT	1	703-80
B 2	" OUTPUT	1	703-85
S 1	RECEPTACLE - PHONO	1	597-12882
S 2	" - VOLT. SUP.	1	635-05-00838
N 1	LAMP MAZDA 44	2	456-8406



Output Impedance Secondary Windings - Model 1A70

Output Transformer Secondary Windings - Model 1A70 with Speaker for Supply Voltages

OPERADIO MANUFACTURING CO. ST. CHARLES, ILL. U.S.A.

SCHEMATIC DIAGRAM
MODEL 1A70-A
BOOSTER AMPLIFIER

SCALE

DRAWN GC APP'D

CHECKED ENGR

DATE 1-21-46

NO. 190-77

02

OPERATING INSTRUCTIONS FOR OPERADIO MODEL 1A70-A BOOSTER AMPLIFIER

The Model No. 1A70 Booster Amplifier provides a full 50 watts at less than 5% distortion, and features high level, low level, high impedance and intercom inputs. The several input levels make it possible to pick up and amplify zero level signals for leased wire transmission. It can be used as a booster amplifier with a FLEXIFONE intercommunication system . . . plus many other applications.

1. A.C. FUSES: One 3-ampere fuse and one .18 ampere fuse.

2. VOLUME CONTROL: When a single No. 1A70 booster is operated in conjunction with a driving amplifier, the volume control should be set near MAXIMUM. The volume level should be regulated by the volume control on the driver amplifier.

When two or more boosters are driven by a single driving amplifier, the volume control on the booster connected to the loudspeaker groups requiring the most power should be set at 16 or better, and the volume level of the driving amplifier raised until the proper output is achieved. The volume controls on the remaining boosters can then be adjusted to meet the power requirements of their respective loud speakers.

3. A.C. LINE SWITCH: Power is turned "ON" or "OFF" by toggle switch on panel.

4. TUBES: Tubes used are 4 (four) No. 6L6G; 2 (two) No. 5U4G; 1 (one) No. 6SN7; 1 (one) No. 6J5.

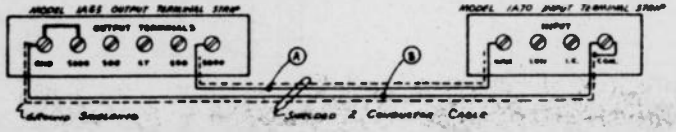
5. OUTPUT RANGE TERMINALS: The Model 1A70 Booster Amplifier is equipped with five output taps. No. 1 is the 70V tap for using new RMA method of impedance matching of speaker load. No. 2 is the 500 ohm terminal. Nos. 3, 4, 5 are for a 25V-12.5 ohm balanced line.

6. INPUT CONNECTIONS Terminal marked "HI" has a maximum input impedance of 80,000 ohms and requires 5.5-volt signal to drive the booster to full output. Any impedance can be used as long as the signal voltage is within this range.

Terminal marked "LO" has a maximum input impedance of 5,000 ohms, and, with an input of approximately .5 audio volts, the booster can be driven to full output. Any impedance may be used to drive this input as long as the signal voltage is within this range.

Terminal marked "IC" is a special input to be used in conjunction with Operadio FLEXIFONE Master Intercommunicating Units. This combination becomes an effective paging system.

The Operadio Model 1A65 is connected to the Model No. 1A70 in the following manner:



A. Connect a jumper wire between "GND" and "5000" as indicated on Model No. 1A65 output terminal strip.

B. Connect one conductor of the shielded pair cable between the "HI" terminal of the Model No. 1A70 input terminal strip and the "5000" terminal of the Model No. 1A65 output terminal strip.

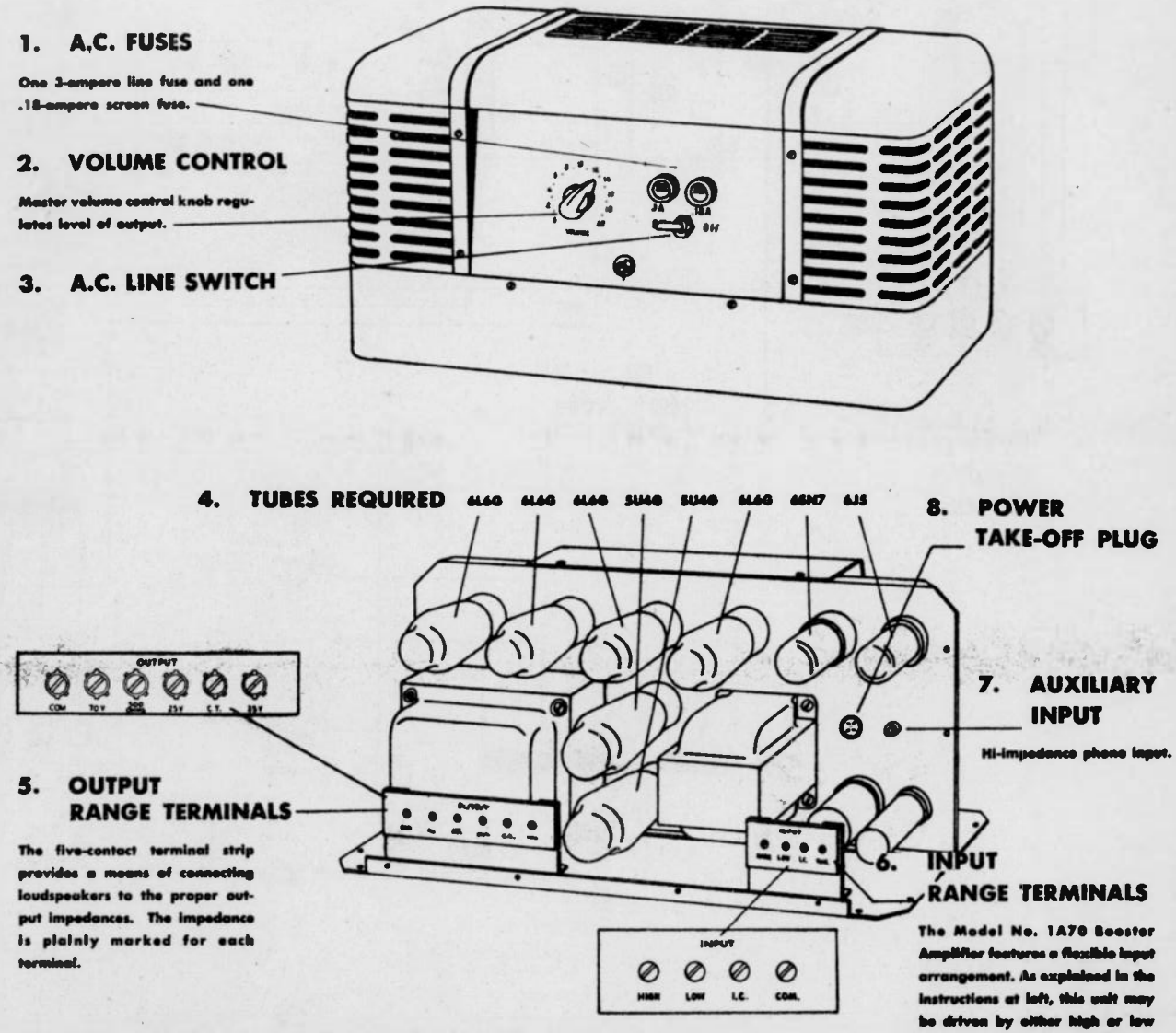
C. Connect the other conductor of the shielded pair cable between the "COM" terminal of the Model No. 1A70 input terminal strip and the "GND" terminal of the Model No. 1A65 output terminal strip.

D. Ground the shield of the two-conductor cable to "GND" of the Model No. 1A65 output terminal strip.

7. AUXILIARY INPUT: High impedance input-33,000 ohms. Used with pre-amplifiers Model No. 1A150 and Model No. 1A155. Can be used as a phono input if properly compensated by using Model No. 1A155 Pre-Amplifier with Model No. 9A70 Tone Controls.

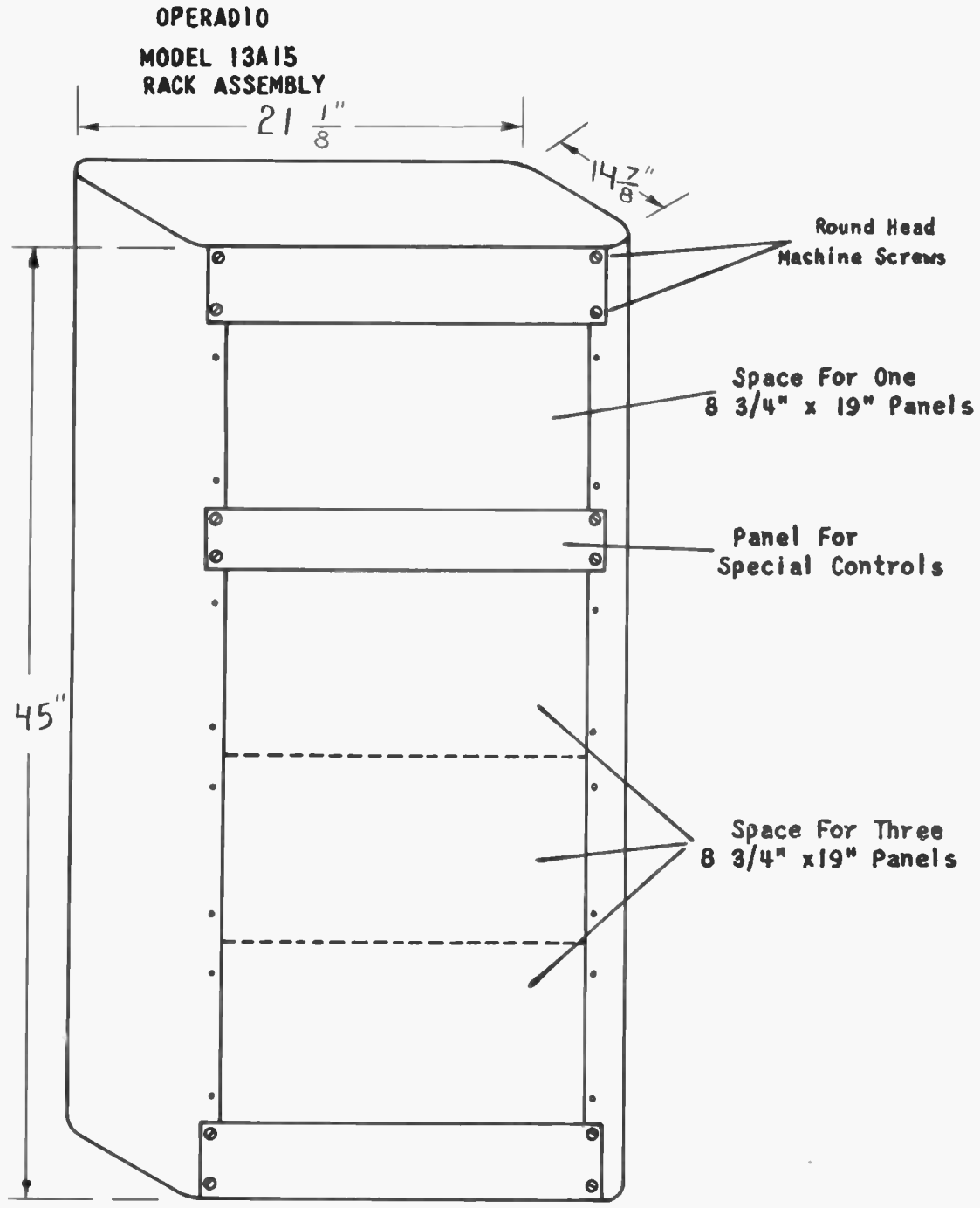
8. POWER TAKE-OFF PLUG: This plug will supply Pre-Amplifiers Model No. 1A150 and Model 1A155 to a maximum of 3 units.

9. TO REMOVE HOUSING: Housing is readily removed by simply removing screws around base of amplifier, around control panel, and two screws on each side of chassis inside housing.



OPERADIO MANUFACTURING CO. - - - ST. CHARLES, ILL.

FORM 3586 - M17



MODEL 13A15 CONSISTS OF:

1 - Part #211-92 Top
1 - Part #560-50 Blank Panel 2 7/8" x 19"
1 - Part #107-34 Mounting Bracket (Rear)
1 - Part #107-35 Mounting Bracket (Front)
1 - Part #189-13 Left Side
1 - Part #189-12 Right Side
All Required Hardware For Assembly

ACCESSORIES AND AMPLIFIERS FOR MODEL 13A15 RACK ASSEMBLY

PART 560-51 TOP PANEL

Panel is cut out to incorporate Webster Model 56 Automatic Record Changer.

(It is possible to incorporate a transcription player by using the standard part 211-92 Top Panel and drilling necessary mounting holes.)

PART 560-50 BLANK PANEL

A small panel suitable for mounting of special controls. Dimensions: 2 7/8" x 19".

PART 560-49 BLANK PANEL

Dimensions: 8 3/4" x 19".

MODEL 1B65 PRE-AMPLIFIER

A four position pre amplifier designed to be mounted in the Model 13A15 Rack.

SPECIFICATIONS

MODEL 1B65 PRE-AMPLIFIER

TUBES: 4(four) 6J7's--1(one) 6SN7--1(one) 6X5-Gt.
STAGE: Microphone 3(three) stage--Phono 2(two) stage.
INPUTS: 3(three) High Impedance Microphones or 3 (three) Low Impedance Inputs available by means of selector switches; 1 (one) Phono Input.
TONE CONTROLS: New Dynamic range high and low frequency controls.
CONTROLS ON FRONT PANEL: 3(three) Microphone; 1(one) Phono; 1(one) High Frequency Control; 1(one) Low Frequency Control; 1(one) A. C. Line Switch.
OUTPUT: 10V. across 5000 ohms at less than 2% distortion at 1000 cycles.
OUTPUT TERMINAL: 5000 Ohms Balanced Line; 500 Ohms Balanced Line; 5000 Ohms Single Ended Line; 1250 Ohms Single Ended Line; 500 Ohms Single Ended Line; 125 Ohms Single Ended Line.
POWER SUPPLY: 105-125 Volts--50-60 Cycle.
POWER CONSUMPTION: 40 Watts
DIMENSIONS: 8 1/2" high x 9" deep and 16" long.
WEIGHT: 25 lbs.

PART 560-56 MOUNTING PANEL

Panel is designed to convert the Operadio Model 1A65 Pre-amplifier to a Model 1B65... Making it suitable for mounting in Model 13A15 Rack Assembly.

MODEL 1B70 BOOSTER AMPLIFIER

A 50 watt Booster Amplifier designed to be mounted in the Model 13A15 Rack.

SPECIFICATIONS

MODEL 1B70 BOOSTER AMPLIFIER

OUTPUT: 50 Watts at less than 5% distortion.
TUBES: 1 (one) 6J5--1(one) 6SN7--4(four) 6L6's--2(two) 5U4G's.
STAGES: 3(three) stage for Phono or Driver Input.
INPUT: 1(one) High Impedance Phono; 1(one) Intercom Input; 1(one) High Impedance Input (10,000 to 50,000 Ohms.) Requires Approximately 8 Volts to drive amplifier to full output; 1(one) Low Impedance Input (50 to 5000 Ohms.) Requires approximately 1.7 Volts to drive amplifier to full output.
CONTROLS: 1(one) Master Volume Control.
OUTPUT TERMINALS: This booster amplifier is equipped with 5(five) output taps. Each tap will handle a range of load impedances; 1--2 to 4 Ohms; 2--8 to 16 Ohms; 3--30 to 60 Ohms; 4--60 to 120 Ohms; 5--125 to 250 Ohms.
POWER SUPPLY: 105 to 125 Volts--50-60 Cycle.
POWER CONSUMPTION: 240 Watts maximum.
DIMENSIONS: 8 1/2" high x 9" deep x 17 3/8" long.
WEIGHT: 39 lbs.

PART 560-55 MOUNTING PANEL

Panel is designed to convert the Operadio Model 1A70 Booster Amplifier to a Model 1B65... making it suitable for mounting in Model 13A15 Rack Assembly.

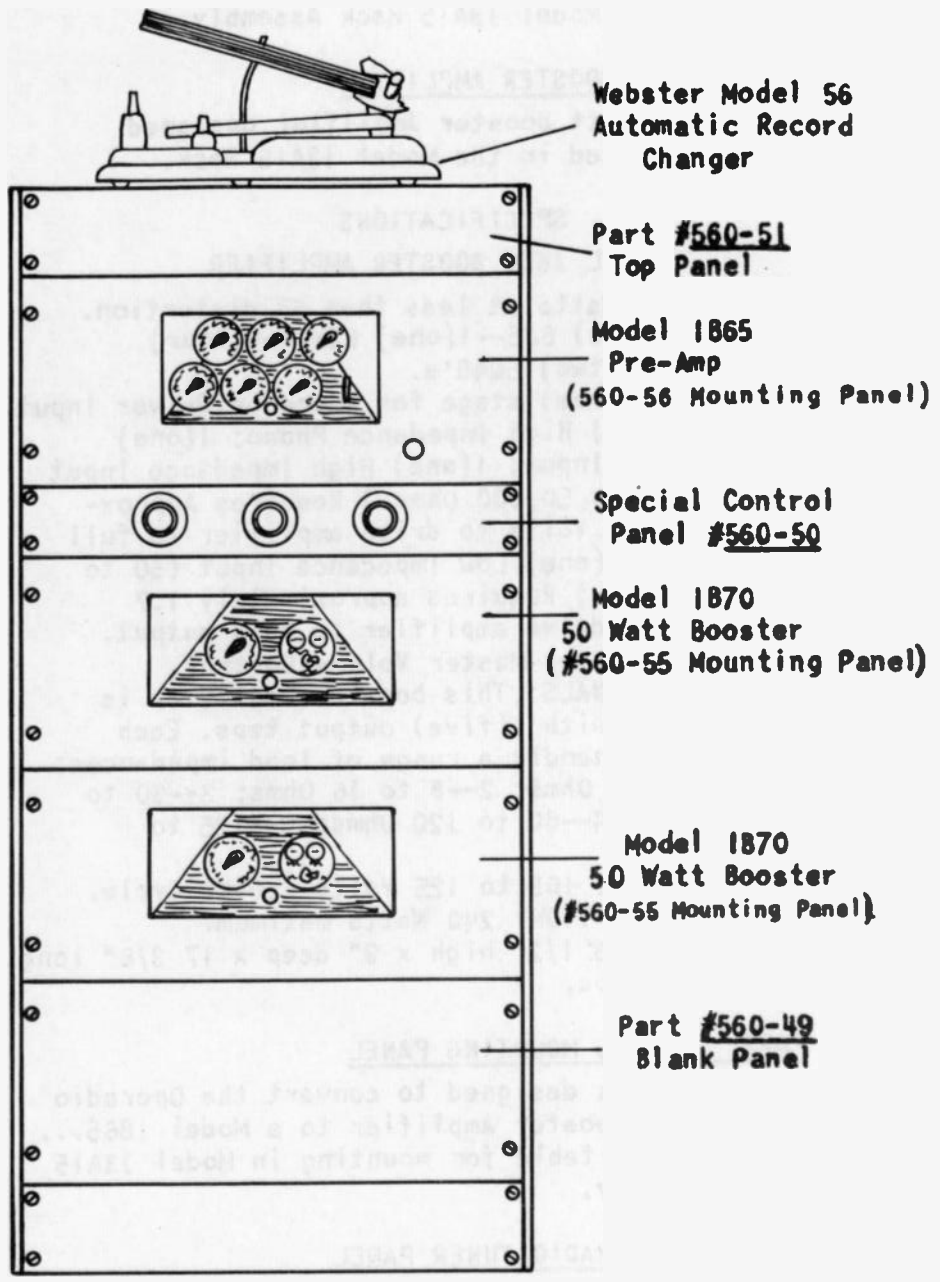
MODEL 10A15 RADIO TUNER PANEL

(Not available at the present time.)

MODEL 9A50 SELECTOR SWITCH PANEL

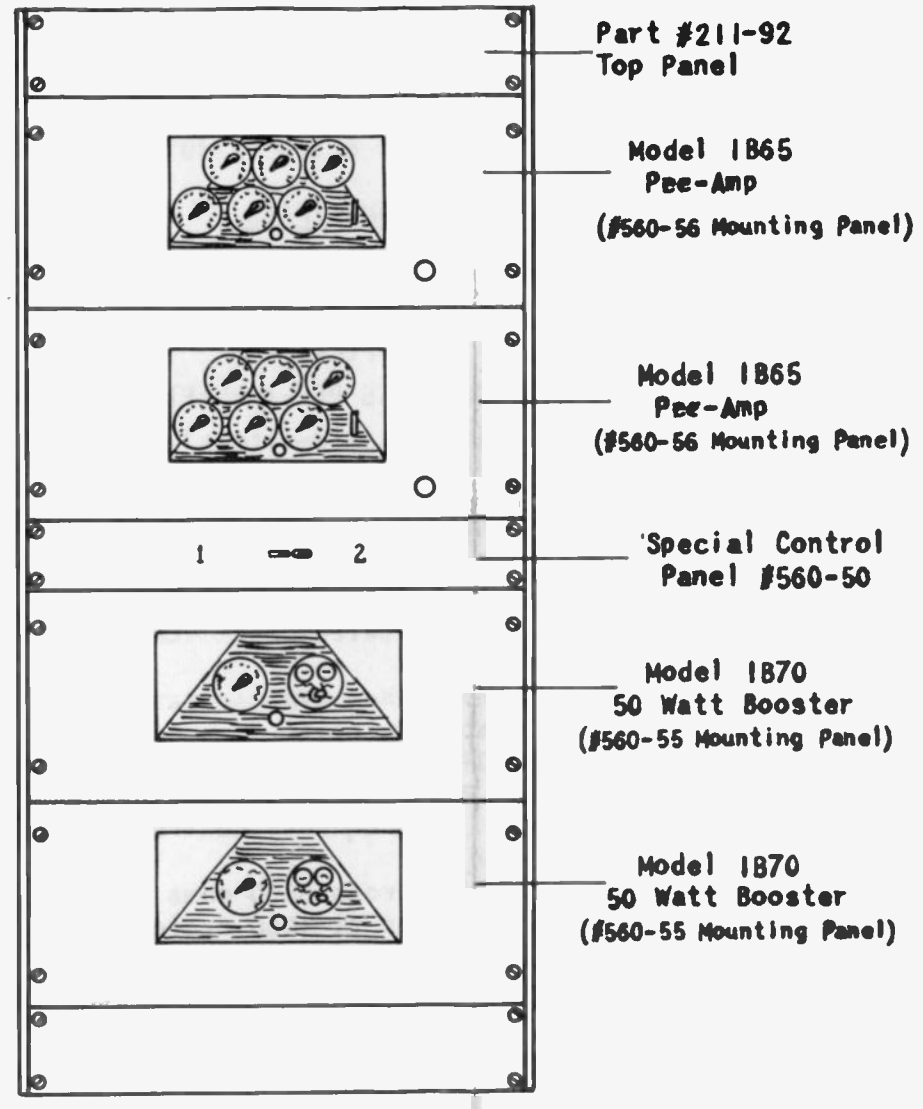
Fifteen "4-way" selector switches incorporated in a 2 7/8" x 19" panel.

THREE TYPICAL OPERADIO RACK ASSEMBLIES MADE UP FROM Model 13A15 RACK AND ACCESSORIES



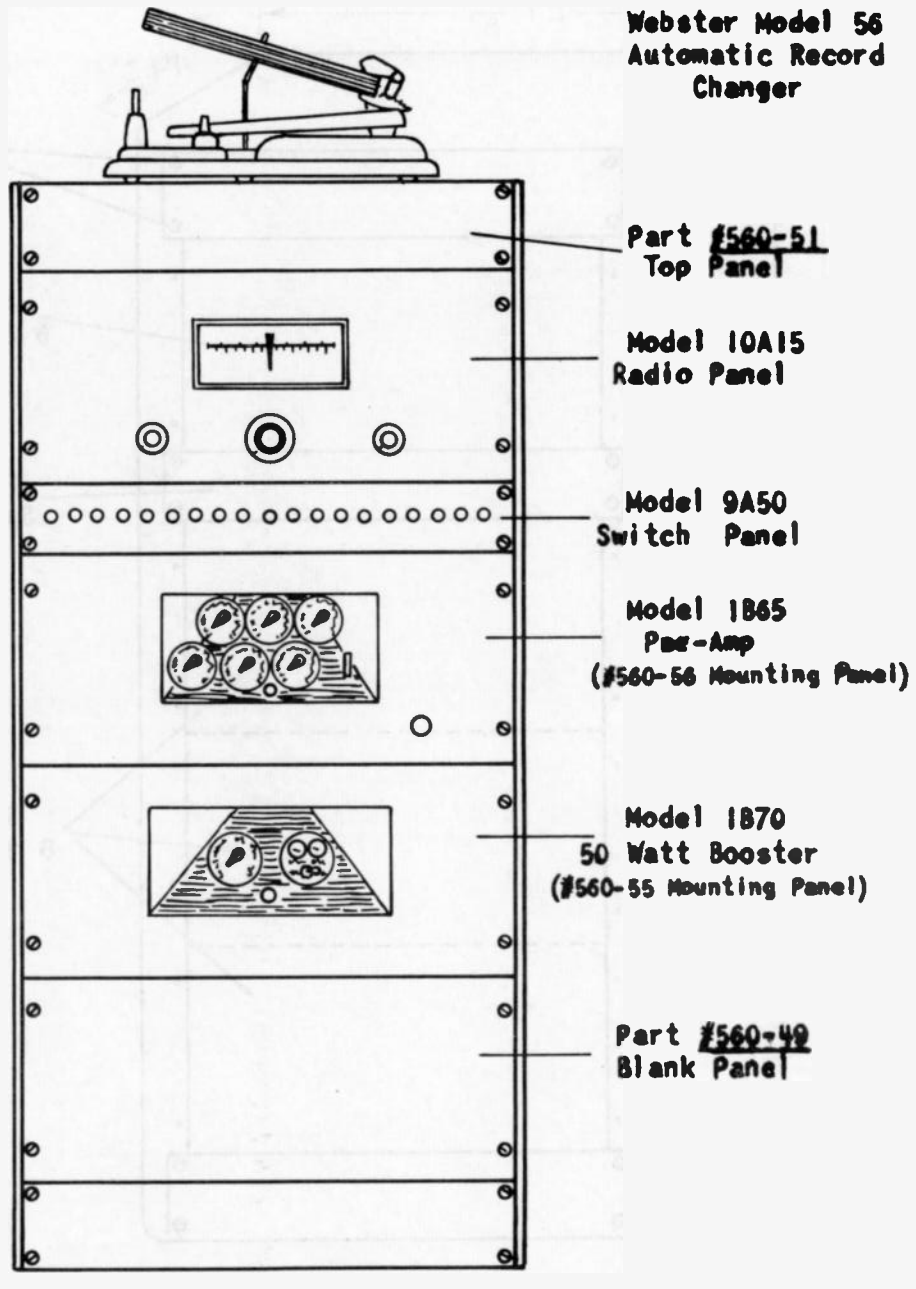
LARGE P.A. SYSTEM

3 Micro Inputs
1 Automatic Phono
100 Watts Output
Special Control Panel
Built & Designed By Customer



COMBINATION SYSTEM

Single Channel
6 Micro Inputs
100 Watts Output
or
Dual Channel
3 Micro Inputs
50 Watts Per Channel



SCHOOL SYSTEM

3 Micro Inputs
1 Automatic Phono
1 Radio Tuner
1 Switch Bank
50 Watts Output

These three typical assemblies are just an indication of the many types of sound systems it is possible to build up with the Operadio Model #13A15 Rack Assembly.

OPERADIO

BAFFLES

MODELS TO MEET EVERY SOUND INSTALLATION REQUIREMENT

A COMPLETE SELECTION OF BAFFLES TO COMPLEMENT THE OPERADIO LINE OF SPEAKERS FOR HIGH FIDELITY REPRODUCTION!

Wall baffles . . . two-way baffles . . . ceiling type baffles . . . chandelier types . . . attractive models suitable for every and any sound installation. This complete line of baffles is both modern and functional in design . . . assuring high fidelity reproduction.

MODEL 6A8 WALL BAFFLE. Designed to incorporate an 8" speaker. Constructed with selected, natural grain, solid wood top and bottom pieces . . . plywood back cover . . . and rounded "Acousti-board" front attractively finished. Utilizes the "Infinite Baffle" principle. Overall dimensions: Width 14¼"; Height 16¼"; Depth 5½".

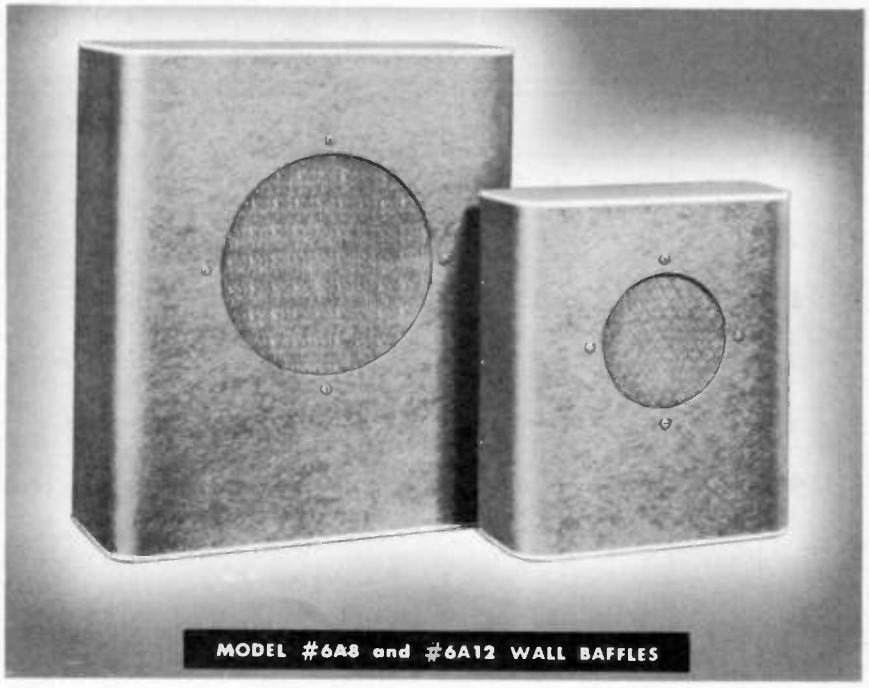
MODEL 6A12 WALL BAFFLE. Identical to Model 6A8 Baffle except dimensions are proportionately larger to incorporate a 12" speaker. Overall Dimensions: Width 19½"; Height 23"; Depth 7".

MODEL 6B8 TWO-WAY SIDE WALL BAFFLE. This baffle is designed for long narrow rooms, corridors or paging systems for mounting on either wall or ceiling. It is constructed of metal grill-work in a dull chrome type finish and dark green wooden top and bottom pieces. Baffle plate is incorporated and speaker is mounted vertically and at right angles to the back cover allowing two way distribution of sound, which is superior to previous two-way speaker housings. Dimensions: Height 9"; Depth 9"; Rear Width 10"; Front Width 4".

MODEL 6C8 FLUSH MOUNTED CEILING BAFFLE. An attractive 360° Flush Mounted Ceiling Baffle designed to incorporate an 8" speaker. Excellent tone, because ceiling acts as an infinite baffle. Grill is of metal construction, finished in egg-shell white, with rodent-proof glass cloth cover over top to protect speaker. Dimensions: Outside Diameter 12"; Inside Diameter 10"; Height 6".

6C66 "TWIN SIX" CHANDELIER BAFFLE. A completely new type of baffle especially suited for restaurants, lobbies, or any areas where it is desired to bring speakers into the room for low level coverage instead of conventional wall mounting. Designed to incorporate two 6" speakers and be suspended from ceiling. Sound is evenly distributed and radiated. It is constructed of metal grill-work in a dull chrome type finish and dark green wooden end pieces with a metal top piece. A "V" shaped, two way metal baffle plate is built-in for mounting of speakers. Chain and mounting bracket are furnished with baffle. Dimensions: Length 21"; Height 9"; Width at Top 10"; Width at Bottom 4".

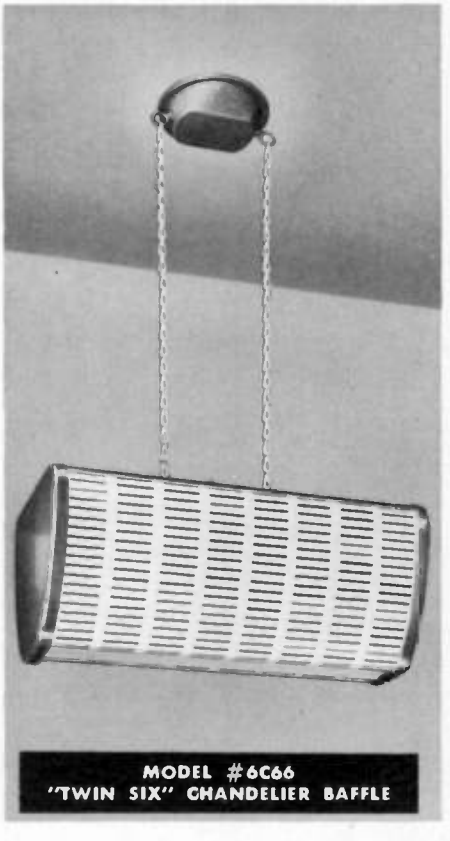
FOR QUALITY SOUND USE OPERADIO SPEAKERS!



MODEL #6A8 and #6A12 WALL BAFFLES

MODEL #6B8 "TWO-WAY" BAFFLE

MODEL #6C8 CEILING BAFFLE



MODEL #6C66 "TWIN SIX" CHANDELIER BAFFLE

OPERADIO MANUFACTURING CO. — ST. CHARLES, ILL.

oPERADIo

SPEAKER BAFFLES AND ENCLOSURES

PRICE LIST

MODEL	DESCRIPTION	PRICE EA.
6A8	Wall Baffle For 8" Speaker.....	
6A12	Wall Baffle for 12" Speaker.....	
6C8	Flush Mounted Ceiling Baffle For 8" Speaker.....	
6B8	Two-Way Side Wall Baffle For 8" Speaker.....	
6C66	"Twin Six" Chandelier Baffle.....	

ALL PRICES F.O.B. ST. CHARLES, ILLINOIS
SUBJECT TO CHANGE WITHOUT NOTICE.

Prices slightly higher west of Rockies.

Unless Otherwise Specified, Shipments Will Be Made Cheapest Way.

PILOTUNER

PILOT RADIO - MODEL T-601

AC Operation Only **Tuning Range 88-108 Mc.**

- Pilot Radio's 39 years of engineering skill and renown as the "standard of excellence" bring you the finest in frequency modulation reception.
- The FM PILOTUNER is a complete, high quality frequency modulation unit that can be attached simply to your radio, large or small, old or new . . . to any separate phonograph, record player or amplifier system. The safety requirements of this set have been tested, and the model listed, with the Underwriters' Laboratories
- This booklet has been prepared especially for you. Read it carefully. The few minutes spent in reading it and in following the installation instructions will bring you an ample reward . . . the finest in FM reception.

—— • ——

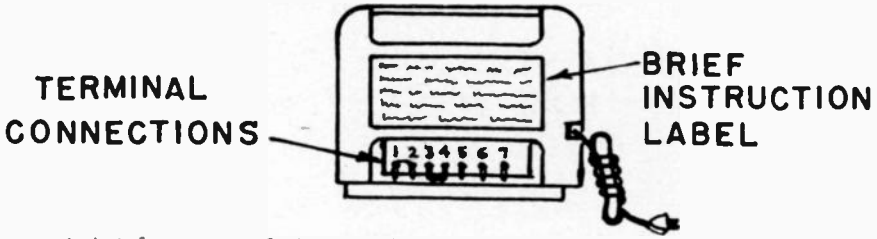
Pilot

RADIO CORPORATION

LONG ISLAND CITY 1, N.Y. U.S.A.

I. GENERAL

The FM PILOTUNER is a complete, superheterodyne frequency modulation unit, consisting of 5 miniature tubes and a selenium rectifier. It contains its own power supply, designed for **AC operation only.** However, it does not contain a loudspeaker and audio system. Therefore, the FM PILOTUNER must be connected and operated through your own radio receiver, or separate phonograph, record player or amplifier system. All installation connections **from** and **to** the FM PILOTUNER are made to the terminals on the back of the cabinet, numbered from 1 to 7.

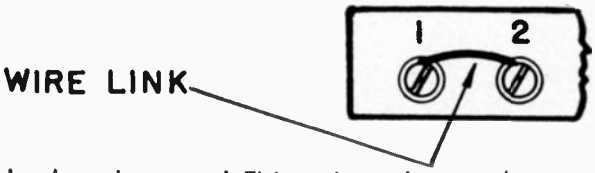


A brief resume of the installation instructions is printed on the label attached to the back of the cabinet. For complete explanation, follow the detailed instructions contained in this booklet.

II. ANTENNA CONNECTIONS

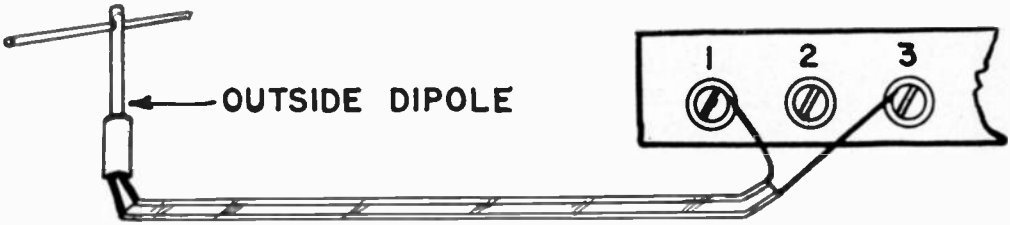
The choice of antenna to be used for the best FM reception depends on many factors: your location, the type of building, power and distance of the FM station. The three main types of antennas are explained below. Test your FM PILOTUNER and choose the one most practical for your use.

A. **For local high-powered FM stations:** The PILOTUNER, when shipped from the factory, is equipped with a permanent **built-in antenna that** will be satisfactory for good reception of most local FM stations. This built-in antenna is connected internally through a wire link between terminals No. 1 and No. 2. For best results when using the built-in antenna, keep the electric line cord extended to its full length and separated from the connector cable of the PILOTUNER.



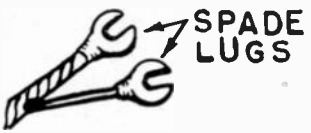
B. **For local weak-powered FM stations:** Improved reception of weak FM stations may be obtained, in some localities, by disconnecting the wire link between terminals No. 1 and No. 2, and attaching **a 4 ft. length of wire** to terminal No. 1. Keep this wire stretched out at full length in order to secure the maximum signal pick-up.

C. **For distant FM stations:** In a few cases, an **outside FM dipole antenna** may be found to be necessary when the FM PILOTUNER is operated at a great distance from the broadcasting station, or under unusual operating conditions. The outside dipole antenna (equipped with a 300 ohm flat lead-in) should be connected to terminals No. 1 and No. 3, after the wire link between terminals No. 1 and No. 2 has been disconnected.

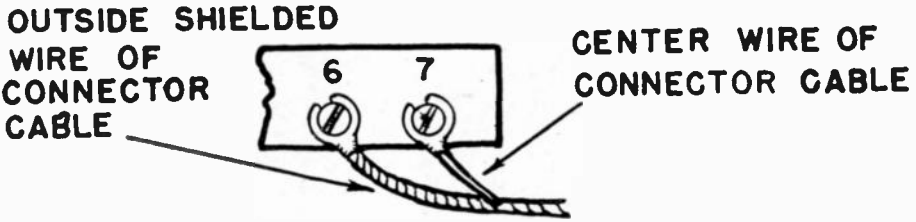


III. CONNECTIONS FROM PILOTUNER TO RADIO RECEIVER

A 5 ft. shielded cable is furnished with the FM PILOTUNER to facilitate connecting the tuner to your radio receiver, or separate phonograph, record player or amplifying system. One end of this cable is provided with spade lugs for easy connection to the terminals at the back of the PILOTUNER.



Attach the center wire of one end of the connector cable to terminal No. 7; attach the outside shielded wire of the same end of the connector cable to terminal No. 6.



Now, the FM PILOTUNER is ready for attachment to your radio receiver. The method of connecting the PILOTUNER will depend on whether the radio receiver is a combination set with phonograph, a radio with phonograph outlet only, or a radio without phonograph or phonograph outlet.

A. **Combination Radio Receiver with Phonograph:** Locate the phonograph terminal at the back of your radio receiver chassis. Usually it will be marked PHONO or TELEVISION. There are, in general, three different types of phonograph terminals on standard receivers, as follows:

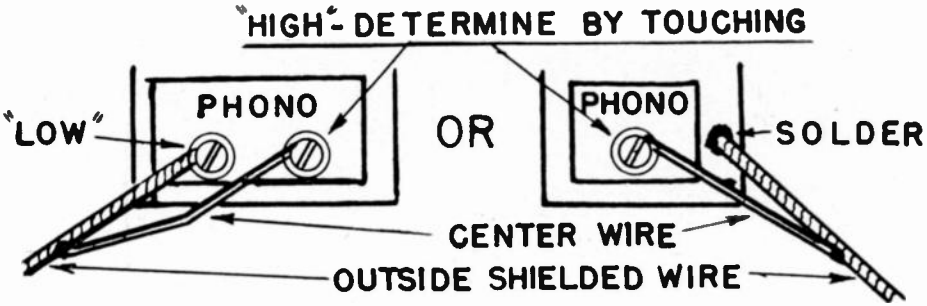
1. **Screw-type Photo Terminal:**

Disconnect any wires attached to this type of phono terminal, and mark them for future reference.

SCREW TYPE

Attach center wire of the free end of the PILOTUNER connector cable to the "high" side of the phono terminal. You can determine the "high" side by touching each of the screws of the phono terminal with the radio receiver

in operation, and the selector switch on PHONO position; the "high" side will cause speaker hum. Then, attach the outside shielded wire of the same end of the PILOTUNER cable to the "low" or grounded side of the phono terminal. If there is only **one** screw on the phono terminal of your radio receiver, it will be the "high" side.

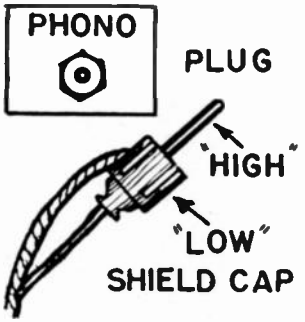


Therefore, connect the outside shielded wire of the PILOTUNER connector cable firmly, preferably by soldering, to the radio receiver chassis.

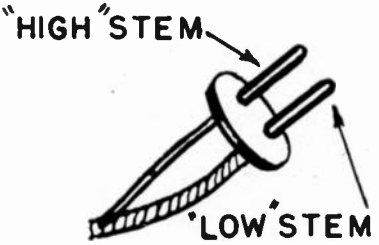
2. **One-hole Plug Phono Terminal:**

Remove plug from phono terminal. Disconnect wires attached to the plug, and mark for future reference.

Connect center wire of PILOTUNER connector cable firmly, preferably by soldering, into center stem of plug ("high" side), and then connect outside shielded wire of connector cable firmly to the outside shield cap of plug ("low" side). Replace plug into single-hole phono terminal.



3. **Two-hole Plug Phono Terminal:**



Remove plug from phono terminal. Disconnect wires attached to the plug, and mark for future reference. Connect center wire of PILOTUNER connector cable firmly, preferably by soldering, into one stem of the plug ("high" side), and outside shielded wire of connector cable into other stem of plug ("low" side). Replace two-hole plug into phono terminal.

B. Radio receiver with Phono Outlet only (no Phonograph):

Connection of the PILOTUNER will be made similar to the instructions outlined in paragraph III A above, except that no phonograph leads have to be disconnected.

C. Receiver without Phonograph or Phono Outlet

THIS INSTALLATION MUST BE MADE BY A COMPETENT RADIO SERVICE TECHNICIAN SINCE IT IS NECESSARY TO WIRE THE PILOTUNER DIRECTLY INTO THE CIRCUIT OF YOUR RADIO RECEIVER.

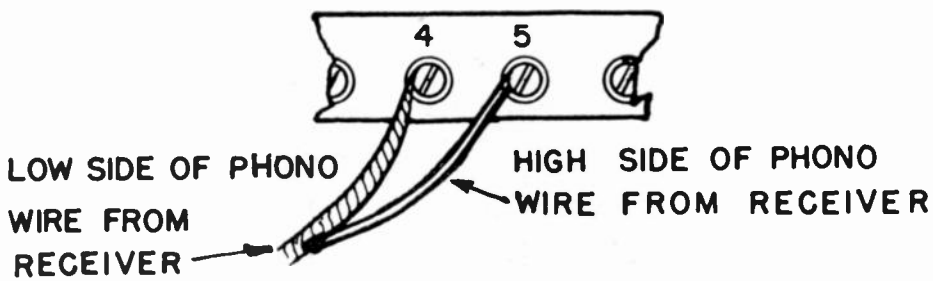
IV. CONNECTIONS FROM PILOTUNER TO SEPARATE PHONOGRAPH, RECORD PLAYER OR AMPLIFIER SYSTEM

Connection of the PILOTUNER is possible in accordance with instructions outlined in paragraphs III A 1, 2 and 3 above. provided there is a phono terminal available. However, if there is no phono terminal, this type of installation **must be made** by a radio service technician, following the instructions given in paragraph III C, above.

V. CONNECTIONS FROM RADIO RECEIVER PHONOGRAPH TO PILOTUNER

If you disconnected any wires from the phonograph terminal of your radio receiver in order to connect the FM PILOTUNER (paragraph III A 1, 2 and 3, above), locate these wires which you marked for future reference.

Attach the "high" side of the phonograph wire from your radio receiver to terminal No. 5 of the PILOTUNER; and attach the "low" side of the phonograph wire from your radio receiver to terminal No. 4 of the PILOTUNER. The phonograph of your combination radio will operate normally when the ON - OFF switch of the PILOTUNER is in the OFF position.



VI. OPERATION OF THE FM TUNER

After the necessary installation has been made according to the instructions contained in the preceding paragraphs, the electric line cord of the PILOTUNER may be plugged into an AC wall socket. Turn the ON-OFF switches of **both** the FM PILOTUNER and your radio receiver to the ON position. NOTE: The selector switch of your own radio receiver must be on PHONO position, if your radio is a combination set with phonograph, or a radio with phono outlet. If your radio receiver does not have a phonograph or a phono outlet, merely turn the ON - OFF switch to the ON position. The volume for FM reception is regulated by the volume control of your own radio receiver. The FM band is ultra high frequency. This necessitates precision tuning. Therefore, it is necessary to move the tuning knob of the FM PILOTUNER very slowly when tuning in stations. Rotate the knob back and forth several times over the station desired. You will know that the station is "on-the-button" when all side-band noise disappears.

If the power supply hum is excessive, reverse the electric line cord plug of your radio receiver or of the FM PILOTUNER, or both in the wall socket. Also check to determine whether the wires of the PILOTUNER connector cable have been attached to the proper terminals.

The FM PILOTUNER is designed for AC operation only, and will give best results when connected to an AC radio receiver. However, if the PILOTUNER is connected to an AC-DC radio receiver operated on AC a very slight hum may occur when the volume control is on full for reception on weak-powered stations. In this case, we suggest the use of an improved antenna system as described in paragraphs II B and C.

VII. SERVICING OF THE FM PILOTUNER (For use of Radio Technican)

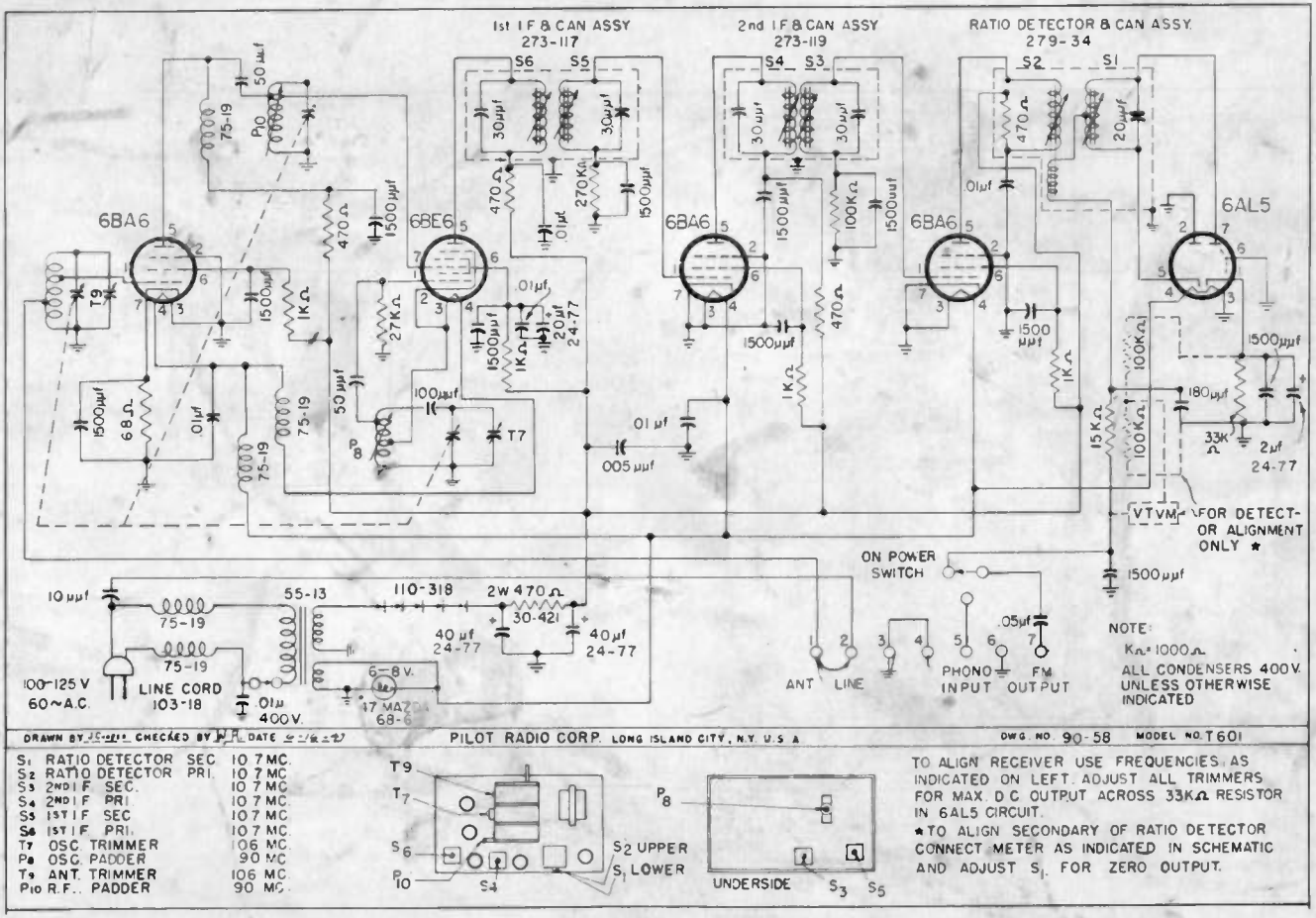
Should the FM PILOTUNER become inoperative for any reason, we suggest you contact your local Pilot Radio dealer for servicing. The chart and schematic on the following pages are for the use of your radio serviceman.

Alignment of the PILOTUNER should be done by a competent radio service technician, provided the proper output meter and signal generator are available. Insulated alignment tools are necessary. The output meter should be a D.C. vacuum tube voltmeter with a range of at least 20 volts. The signal generator should cover the frequencies of 10.7, 90 and 106 mc. Allow the PILOTUNER to warm up for at least 30 minutes before making any adjustments. The location of the adjustment screws is indicated clearly on the schematic diagram. Follow the sequence in the alignment chart.

ALIGNMENT CHART

(Follow sequence as indicated)

CIRCUIT ALIGNED	STEP	RCVR. DIAL POINTER	SIGNAL GEN. FREQ.	SIGNAL GEN. CONNECTIONS	METER	METER CONNECTIONS	TRIMMER OR SLUG ADJUSTMENT	PROCEDURE
IF	1	88 mc	10.7 mc	Through .01 mfd. cap. to grid of 6BE6	VTVM	Across two 100K resistors —indicated by dotted lines in schematic	S2, S1, S4, S3, S6, S5	Adjust for maximum output
	2		Repeat Step No 1					
Ratio Detector	3	88 mc	10.7 mc	Same as No. 1	VTVM	From: Junction of two 100K resistors TO: Audio output of ratio detector. Connections indicated by dotted lines in schematic	S1	Adjust meter to zero (Check proper zero set) Meter should register reverse polarity when slug is rotated through zero output.
Oscillator	4	90 mc	90 mc	Through carbon 300 ohm resistor to Ant. Terminal	VTVM	Same as Step No. 1	P8	Same as Step No. 1
	5	106 mc	106 mc	Same as No. 4	VTVM	Same as No. 1	T7	Same as No. 1
	6		Repeat Steps No. 4 & 5					
	7	90 mc	90 mc	Same as No. 4	VTVM	Same as No. 1	P10	Same as No. 1
RF	8	106 mc	106 mc	Same as No. 4	VTVM	Same as No. 1	T9	Same as No. 1



NOTE:
K Ω = 1000 Ω

DRAWN BY JC-GH CHECKED BY WPL DATE 6-16-47

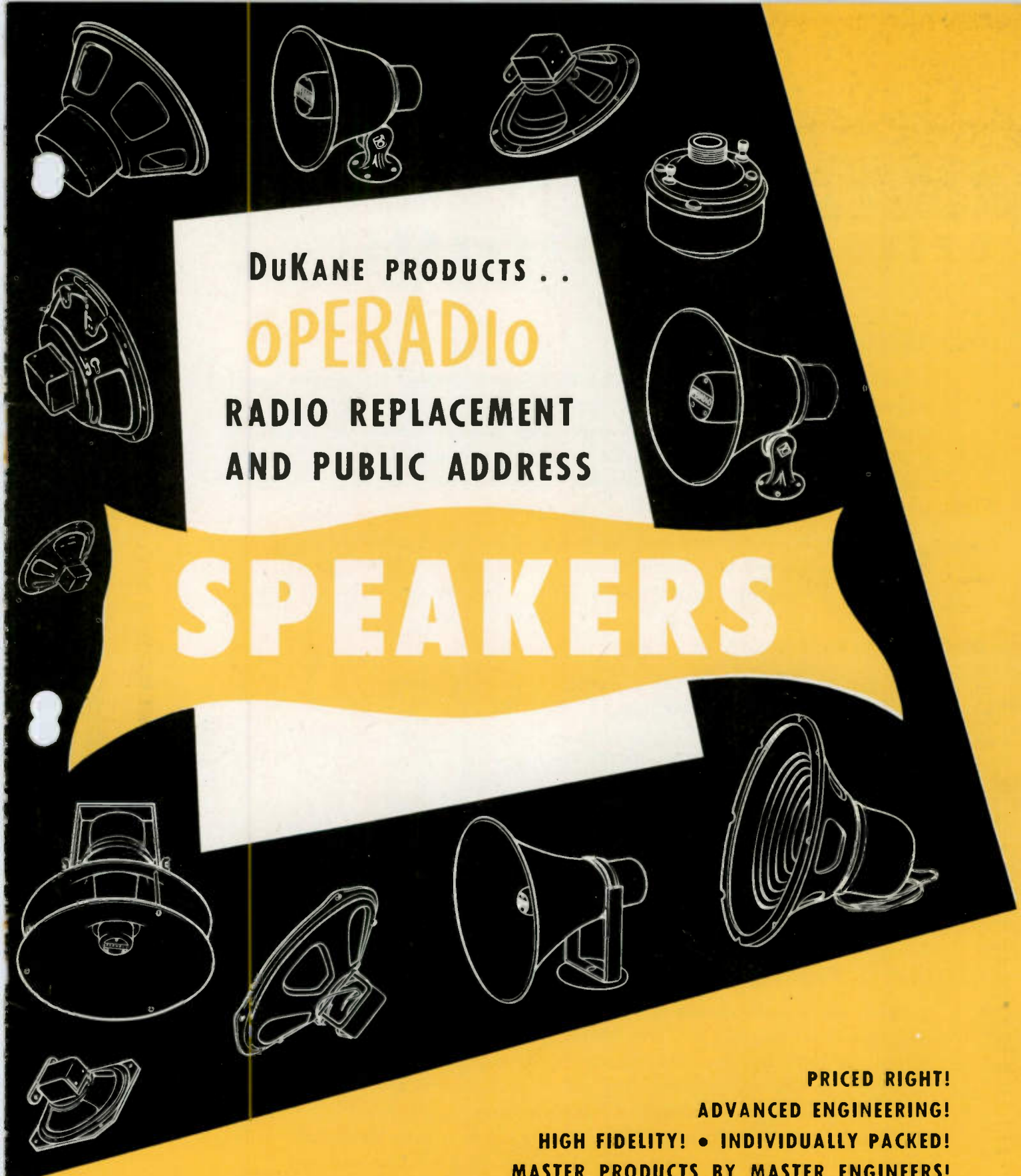
PILOT RADIO CORP. LONG ISLAND CITY, N.Y. U.S.A.

DWG. NO. 90-58 MODEL NO. T601

S_1	RATIO DETECTOR SEC.	10.7 MC.
S_2	RATIO DETECTOR PRI.	10.7 MC.
S_3	2ND I.F. SEC.	10.7 MC.
S_4	2ND I.F. PRI.	10.7 MC.
S_5	1ST I.F. SEC.	10.7 MC.
S_6	1ST I.F. PRI.	10.7 MC.
T_7	OSC. TRIMMER	106 MC.
P_8	OSC. PADDER	90 MC.
T_9	ANT. TRIMMER	106 MC.
P_{10}	R.F. PADDER	90 MC.

TO ALIGN RECEIVER USE FREQUENCIES AS INDICATED ON LEFT. ADJUST ALL TRIMMERS FOR MAX. D.C. OUTPUT ACROSS 33KΩ RESISTOR IN 6AL5 CIRCUIT.

★TO ALIGN SECONDARY OF RATIO DETECTOR CONNECT METER AS INDICATED IN SCHEMATIC AND ADJUST S_1 FOR ZERO OUTPUT.



DUKANE PRODUCTS . .

oPERADIo

RADIO REPLACEMENT AND PUBLIC ADDRESS

SPEAKERS

PRICED RIGHT!
ADVANCED ENGINEERING!
HIGH FIDELITY! • INDIVIDUALLY PACKED!
MASTER PRODUCTS BY MASTER ENGINEERS!

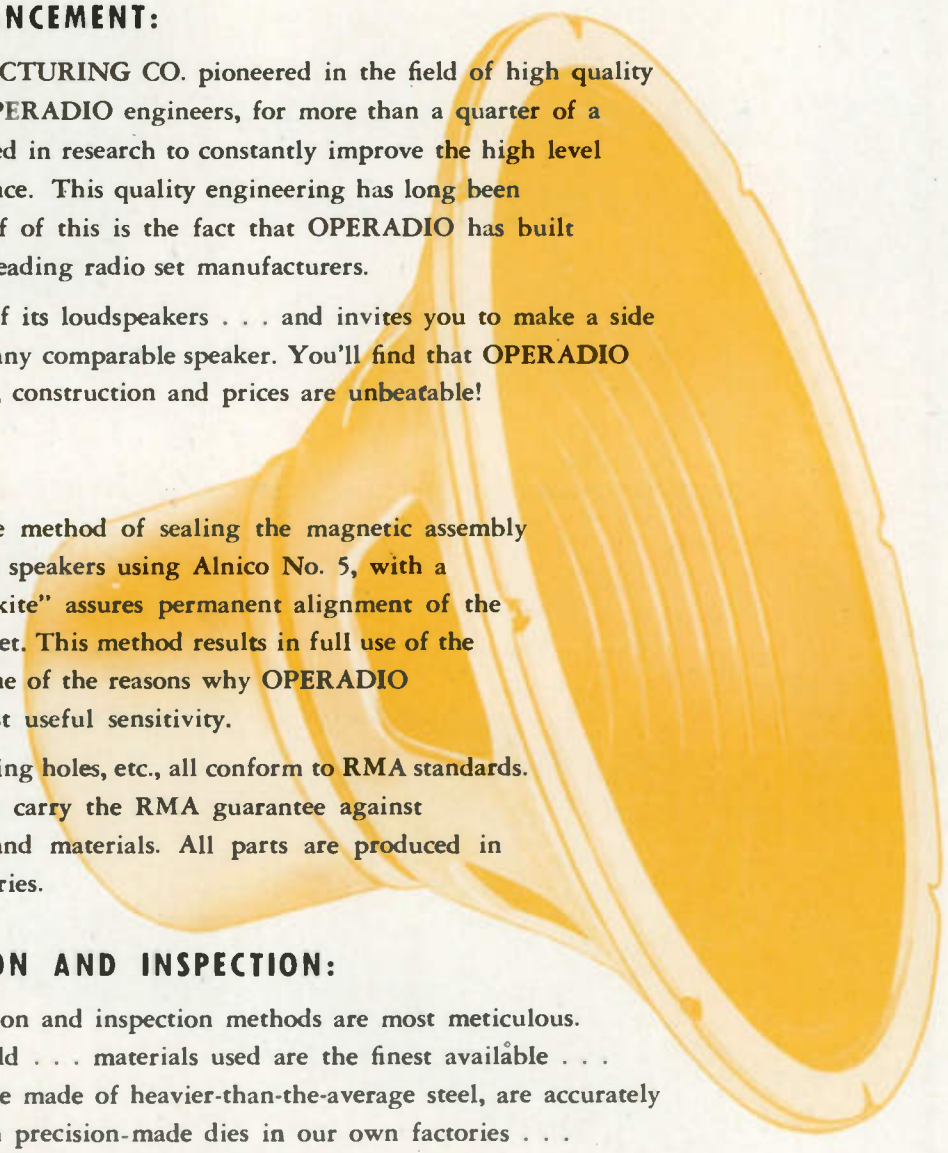
OPERADIO MANUFACTURING CO. • ST. CHARLES, ILLINOIS

REASONS WHY YOU SHOULD USE OPERADIO LOUDSPEAKERS!

TWO DECADES OF ADVANCEMENT:

OPERADIO MANUFACTURING CO. pioneered in the field of high quality loudspeakers . . . and OPERADIO engineers, for more than a quarter of a century, have been engaged in research to constantly improve the high level of OPERADIO performance. This quality engineering has long been recognized . . . and proof of this is the fact that OPERADIO has built millions of speakers for leading radio set manufacturers.

OPERADIO is proud of its loudspeakers . . . and invites you to make a side by side comparison with any comparable speaker. You'll find that OPERADIO fidelity, volume, response, construction and prices are unbeatable!



QUALITY FEATURES:

OPERADIO'S exclusive method of sealing the magnetic assembly of the permanent magnet speakers using Alnico No. 5, with a material known as "Markite" assures permanent alignment of the gap, pole piece, and magnet. This method results in full use of the magnet area and is but one of the reasons why OPERADIO speakers have the greatest useful sensitivity.

The dimensions, mounting holes, etc., all conform to RMA standards. All OPERADIO speakers carry the RMA guarantee against defective workmanship and materials. All parts are produced in OPERADIO'S own factories.

METICULOUS PRODUCTION AND INSPECTION:

OPERADIO'S production and inspection methods are most meticulous. Tolerances are closely held . . . materials used are the finest available . . . baskets and metalware are made of heavier-than-the-average steel, are accurately drawn and punched with precision-made dies in our own factories . . . inspection is critical . . . handling and packing is careful and thorough . . . each speaker is individually packed, which makes it easy to stock OPERADIO speakers . . . neat boxing means stocks will be kept in good condition until used.

OPERADIO MANUFACTURING COMPANY

Manufacturers of DUKANE Products • ST. CHARLES, ILLINOIS

Radio Replacement Speakers . . .

OPERADIO'S new line of Radio Replacement Speakers is complete in every respect . . . permanent magnet and electro-dynamic sizes to meet every requirement.

The quality engineering and production of OPERADIO Replacement Speakers assures reliability and permanence.

OPERADIO'S tremendous production of speakers makes the outstanding values listed below possible.

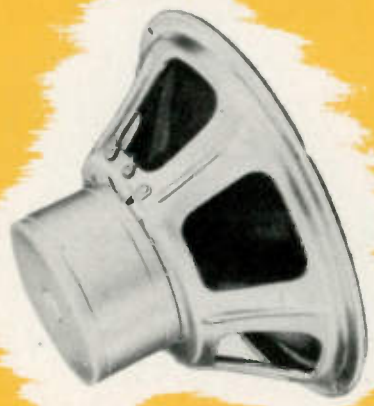
	MODEL NUMBER	SPEAKER DIAMETER	MAGNET WEIGHT OR LBS. OF COPPER	ALNICO MAGNET	RESISTANCE OF FIELD	VOICE COIL IMPEDANCE	VOICE COIL DIAMETER	NORMAL WATTAGE	PEAK WATTAGE	TRANSFORMER MTG. CENTERS	PRICE EACH
	10445-4	4"	.68 oz.	# 5		3.4	9/16"	3	4	2"	$ 3.70
	10300-4	4"	1.00 oz.	# 5		3.4	9/16"	3	5	2"	4.30
*	10345-4	4"	1.47 oz.	# 5		3.4	9/16"	3	5	2"	5.25
	10595-46	4" x 6"	.68 oz.	# 5		3.4	9/16"	3	5	2"	4.50
	10325-5	5"	1.00 oz.	# 5		3.4	9/16"	3	5	2"	4.50
	10340-6	6"	1.47 oz.	# 5		3.4	9/16"	3	5	2"	5.20
	10305-4	4"	.21 lb.		450	3.4	9/16"	3	5	2"	4.75
	10310-5	5"	.21 lb.		450	3.4	9/16"	3	5	2"	4.90
	10315-5	5"	.18 lb.		1000	3.4	9/16"	3	5	2"	4.90
	10320-5	5"	.20 lb.		2500	3.4	9/16"	3	5	2"	5.50
	10330-6	6"	.33 lb.		450	3.4	9/16"	3	5	2"	5.50
	10335-6	6"	.20 lb.		1000	3.4	9/16"	3	5	2"	5.50
	10600-57	5" x 7"	1.47 oz.	# 5		3.4	¾"	5	8	2"	6.25
	10605-8	8"	1.47 oz.	# 5		3.4	¾"	5	8	2⅜"	7.00
	10610-8	8"	.30 lb.		1000	3.4	¾"	5	8	2⅜"	7.25
	10615-8	8"	.288 lb.		2500 with 1800 tap	3.4	¾"	5	8	2⅜"	7.25
	10630-10	10"	3.16 oz.	# 5		3.4	1"	8	12	2", 2⅜"	11.25
	10645-12	12"	3.16 oz.	# 5		3.4	1"	8	12	2", 2⅜", 3⅛"	12.50
**	10455-69	6" x 9"	.3 lb.		4	3.4	1"	8	11	None	7.75
	10620-10	10"	.20 lb.		1000	3.4	1"	8	12	2", 2⅜"	10.95
	10625-10	10"	.456 lb.		2500 with 1800 tap	3.4	1"	8	12	2⅜"	11.00
	10635-12	12"	.290 lb.		1000	3.4	1"	8	12	2", 2⅜", 3⅛"	12.50
	10640-12	12"	.456 lb.		2500 with 1800 tap	3.4	1"	8	12	2", 2⅜", 3⅛"	13.00

* The 10345-4 is a weatherproof speaker designed for such installations as outdoor theaters, etc. It will stand exposure to weather if shielded from rain, snow and sleet.

** The 10455-69 is specifically for car radio replacement.

All prices F.O.B., St. Charles, Illinois. Prices Subject to Change Without Notice.

OPERADIO'S line of heavy duty Public Address Speakers is famous for fullness of tone and authentic clarity of reproduction, whether it's the sweetest note of a piccolo or the full crescendo of a symphonic orchestra. The extended range of these speakers, which is high fidelity reproduction from 50 up to 10,000 cycles, depending on which model is used, makes them well qualified for broadcast monitoring purposes, replacing and modernizing FM and television receivers, for radio-phonograph combinations, and any type of public address system.



Public Address Speakers

	MODEL NUMBER	SPEAKER DIAMETER	MAGNET WEIGHT OR LBS. OF COPPER	ALNICO MAGNET	RESISTANCE OF FIELD	VOICE COIL IMPEDANCE	VOICE COIL DIAMETER	NORMAL WATTAGE	PEAK WATTAGE	TRANSFORMER MTG. CENTERS	PRICE EACH
	9930-6	6"	1.47 oz.	# 5		7	9/16"	3	5	2"	7.75
	9935-8	8"	3.16 oz.	# 5		7	¾"	5	8	2", 2⅜"	9.50
	9940-8	8"	4.64 oz.	# 5		8	1"	8	10	2", 2⅜"	11.00
	9945-12	12"	6.8 oz.	# 5		8	1"	8	12	2", 2⅜", 3⅛"	17.45
	9950-12	12"	3 lbs.	# 3		8	1¼"	12	16	2", 2⅜", 3⅛"	26.50
	9955-12	12"	4¾ lbs.	# 3		8	1¼"	15	20	2", 2⅜", 3" ⅛	38.50
	9960-15	15"	7 lbs.	# 3		8	1½"	15	25	2", 2⅜", 3⅛"	49.50
***	10450-15	15"	2.3 lbs.		2500	8	1½"	15	25	None	49.50

All Prices F.O.B., St. Charles, Ill.

Prices Subject to Change Without Notice.

*** MODEL No. 17A15 POWER SUPPLY AVAILABLE:

2500 Ohm Field — 27 Watts, 5000 Ohm Field — 15 Watts, Price $9.50

Operadio's MODEL 5A10 *Driver...*

THE ULTIMATE IN EFFICIENCY WITH A SUPERIOR FREQUENCY CHARACTERISTIC!

SPECIFICATIONS

Power:	25 Watts (Peak Voice or Music)
Impedance:	16 Ohms
Frequency:	90 to 6000 cycles (Depending on Type or Horn Used)
Diameter:	4 ¼ inches
Height:	4 inches
Weight:	4 ½ lbs.
Thread Size:	1 ⅜"—18
Flux Density in Gauss per sq. CM:	15,000

OPERADIO MODEL 5A10 DRIVER..... $35.50

Operadio's new Driver is truly the ultimate of the permanent magnet, dynamic type. It is the result of research to develop a superior and smoother frequency response with outstanding efficiency. The many exclusive design features and construction provides a rugged unit with voice coil and head assembly permanently centered in a much closer controlled magnetic gap.

The Operadio Driver is rated at a conservative 25 Watts peak power handling capacity. It is a weather-resistant sealed unit in a non-corrosive housing. The fabric base, plastic diaphragm is completely moisture-proof, impervious to salt air, and immune to extreme temperatures, which assures uniform sensitivity and frequency characteristics.

All prices F.O.B., St. Charles, Ill.
Prices Subject to Change Without Notice.

Operadio MODEL 5A40 DIRECTIONAL

Re-entrant Trumpet

INCORPORATES MODEL 5A10 DRIVER . . . ACOUSTIC LENGTH 3½ FEET

A compact trumpet of the double re-entrant type, designed to occupy a small space, yet having a long air column. The Model 5A40 delivers highly concentrated sound with maximum efficiency and carries over long distances.

The base and inside tone chambers are made of aluminum castings . . . outside bell is of heavy gauge aluminum spinning. The center reflecting section is of special acoustic material to avoid distorting effects prevalent in all metal reflecting surfaces.

The trumpet is finished in an attractive dark green wrinkle with the center reflecting section finished in silver.

The Operadio Model 5A40 Directional Re-entrant Trumpet incorporates a Model 5A10 Driver enclosed in a weather-proof housing.

SPECIFICATIONS

Driver Unit: Operadio Model 5A10 described on preceding page.

Re-entrant Trumpet: Acoustic length 3½ feet. Actual overall length 24 inches. Bell diameter 18 inches. Nominal acoustic cut-off 195 cps. Weight 7 lbs. Complete with U-brackets for mounting.

OPERADIO MODEL 5A40 DIRECTIONAL RE-ENTRANT TRUMPET..... $ 68.00

Operadio MODEL 5A45 RADIAL

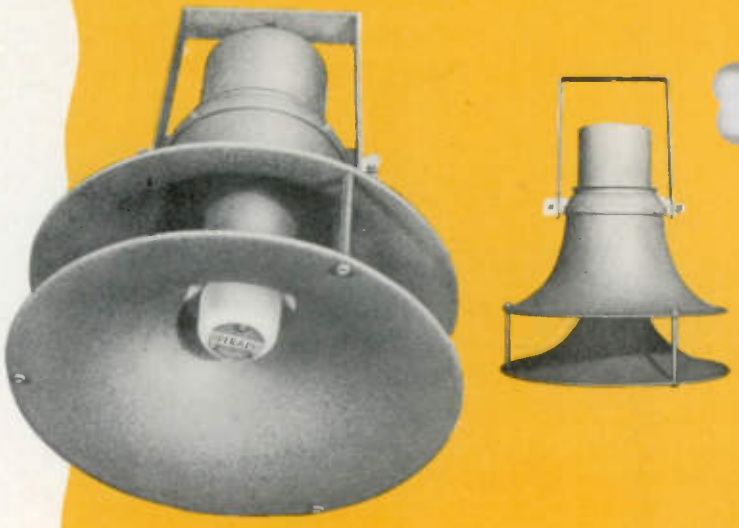
Re-entrant Trumpet

A 3½ foot re-entrant trumpet designed to project sound over a complete circumference at 360 degrees, distributing the sound with an even intensity.

The base and inside tone arm are made of aluminum castings . . . outside bells are of heavy gauge aluminum spinning acoustically treated to subdue metallic overtones. The center deflector and deflecting bells are of special acoustic material.

The trumpet is finished in an attractive dark green wrinkle with the center reflecting section finished in silver.

The Operadio Model 5A45 Radial Re-entrant Trumpet incorporates a Model 5A10 Driver enclosed in a weather-proof housing.



SPECIFICATIONS

Driver Unit: Operadio Model 5A10 described on preceding page.

Re-entrant Trumpet: Acoustic length 3½ feet. Actual height 19 inches. Bell diameter 17 inches. Nominal acoustic cut-off 295 cps. Weight 7 lbs.

OPERADIO MODEL 5A45 RADIAL RE-ENTRANT TRUMPET..... $75.50

All Prices F.O.B., St. Charles, Ill. Prices Subject to Change Without Notice.

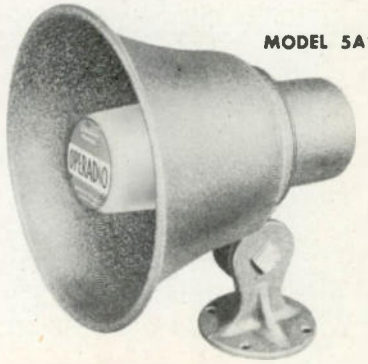
Operadio MODEL 5A35 AND 5A25

Small Re-entrant Trumpets

MODEL 5A35

Compact double re-entrant type trumpets of smaller sizes. Will deliver highly concentrated sound with the greatest efficiency obtainable. Supplied complete with driver unit, back cover and swivel ratchet mounting bracket.

Trumpets are weather-proof, corrosion-resistant, light in weight and easily installed. Especially suited for all installations where high efficiency is necessary.



MODEL 5A25

SPECIFICATIONS MODEL 5A35 TRUMPET

Length 9⅞". Bell diameter 8¾".
Nominal acoustic cut-off 330 cps.
Handling capacity 20 Watts. Impedance 15 Ohms.
Weight 4¾ lbs.

OPERADIO MODEL 5A35 20-WATT SMALL RE-ENTRANT TRUMPET

$34.00

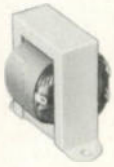
SPECIFICATIONS MODEL 5A25 TRUMPET

Length 5⅝". Bell diameter 6⅝".
Nominal acoustic cut-off 440 cps.
Handling capacity 8 Watts. Impedance 15 Ohms.
Weight 2½ lbs.

OPERADIO MODEL 5A25 8-WATT SMALL RE-ENTRANT TRUMPET

$26.00

LOUDSPEAKER LINE MATCHING TRANSFORMERS



* Enclosed in weather-proof housing and includes mounting bracket.

MODEL NO.	LINE VOLTS	VOICE COIL IMPEDANCE	PRIMARY			FREE PRIMARY IMPEDANCE @ 100 CYCLES	% EFFICIENCY	CORE SIZE	PRICE
			TAP 1	TAP 2	TAP 3				
710-3018	70.7	8	½ W. 10,000 ohms	1 W. 5000 ohms	2 W. 2500 ohms	70,000 ohms	84	⅝"x⅝"	$3.75
	70.7	16	¼ W. 20,000 ohms	½ W. 10,000 ohms	1 W. 5000 ohms	70,000 ohms	90		
*710-3022	70.7	8	4 W. 1250 ohms	8 W. 625 ohms		15,000 ohms	85	¾"x¾"	$7.65
	70.7	16	2 W. 2500 ohms	4 W. 1250 ohms	8 W. 625 ohms	15,000 ohms	91		
710-3017	25	8	½ W. 1250 ohms	1 W. 625 ohms	2 W. 310 ohms	9200 ohms	83	⅝"x⅝"	$3.75
	25	16	¼ W. 2500 ohms	½ W. 1250 ohms	1 W. 625 ohms	9200 ohms	89		

All Prices F.O.B. St. Charles, Ill. Prices Subject to Change Without Notice.

The Radio Manufacturers Association has adopted an improved method of matching a number of speakers to a power amplifier. This method of impedance matching will readily distribute proper power to the various speakers on a line and will maintain the proper match to the amplifier.

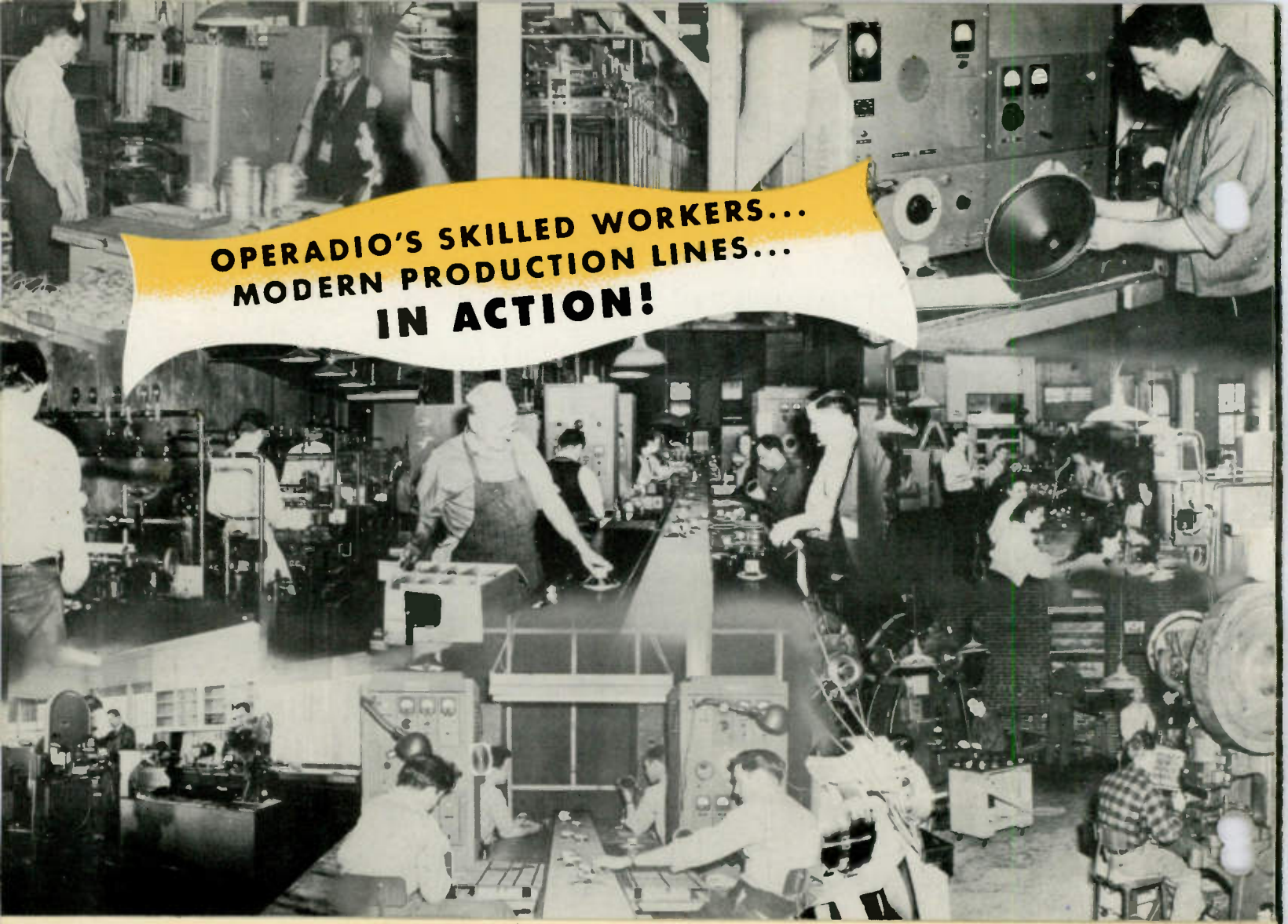
To use this standardized method requires that all power amplifiers have a tapped output transformer which will deliver 70.7 volts at the rated output of the amplifier. The impedance of this tap will change with the power rating of the amplifier—that is, for a 10 watt amplifier, the 70.7 volt tap would be the 500 ohms winding; for a 20 watt amplifier, it would be the 250 ohms winding; for a 50 watt amplifier, it would be the 100 ohms winding, etc.

The speaker matching transformers have the taps marked in watts. The wattage calculations for each tap are based on a 70 volt primary connection to the transformer.

Using the formula $R=\frac{E^2}{W}$, it can be calculated that for a 1 watt tap the transformer should reflect 5000 ohms.

½	Watt.....	10,000 ohms
2	Watts.....	2,500 ohms
4	Watts.....	1,250 ohms
8	Watts.....	625 ohms

The technician using this method of speaker impedance matching need only to find the total number of watts being absorbed by the various speaker transformers. If this total is less than or equal to the rating of the amplifier, he can be sure he has a favorable load condition. An exact load match would be when the total of watts being absorbed by the speaker matching transformers is equal to the power rating of the amplifier.



During the past twenty years, millions of Operadio speakers have been built for leading radio manufacturers!

OPERADIO MANUFACTURING CO. • ST. CHARLES, ILLINOIS

MANUFACTURERS OF DUKANE PRODUCTS

Form No. 4527-D228 Bulletin No. 138 Printed in U. S. A.

OPERADIO PRESENTS THE NEW...

Program Master

CENTRAL SOUND CONTROL

• FOR **SCHOOLS** • HOSPITALS • INSTITUTIONS

DEPARTMENT STORES • HOTELS • FACTORIES

Outstanding Features of the PROGRAM MASTER

- Dual Speed Transcription Player
- AM-FM Radio Receiver
- Emergency Switch to Control All Speakers
- Program Selector and Control For Selecting and Mixing Several Program Sources
- Remote Inputs Provided for the Connecting of Remote Microphone Positions
- Individual Speaker Selection for Each Speaker in System
- Two Way Intercommunication Panel Available

A COMPLETE AND FUNCTIONAL CENTRAL SOUND SYSTEM ... DESIGNED, ENGINEERED AND BUILT TO MEET THE HIGHEST STANDARDS OF QUALITY SOUND

oPERADIo

PROGRAM MASTER

CENTRAL SOUND CONTROL

OPERADIO MANUFACTURING CO., ST. CHARLES, ILLINOIS

THE PROGRAM MASTER "60" DUAL CHANNEL CONSOLE WITH CAPACITY UP TO 90 INDIVIDUAL SPEAKERS

The PROGRAM MASTER "60" is engineered as a central sound control to operate through loudspeaker outlets in various rooms, departments, auditoriums, cafeterias, etc. for the distribution of sound to various selected rooms, or areas. It utilizes a high fidelity 50 watt amplifier for each channel and is suitable for schools, hospitals, department stores, institutions, or industrial plants requiring from 45 to 90 loudspeaker outlets.

With this dual channel sound control system, two programs may be transmitted simultaneously to different rooms, or groups of rooms, . . . and, with the optional intercommunication panel, two-way conversation may be carried on, with selected rooms, without interfering with the program channels.

The standard PROGRAM MASTER "60" dual channel system incorporates one AM-FM Radio, a dual speed transcription player, 60 switches for room selection, two 50 watt amplifiers, two "Program Selector" panels, a "Control" panel, a microphone . . . and, six inputs are provided, which are: (1) Desk Microphone; (2) Phonograph; (3) Radio; (4) Remote Input No. 1; (5) Remote Input No. 2; (6) Auxiliary Input. The intercommunication panel is optional. An EMERGENCY switch is provided on the "Control" panel for connecting all speakers instantaneously, regardless of programs in operation. Additional switch panels may be added up to a total of 90 selector switches, and provisions are made for the addition of 50 watt boosters to each channel, for a total of 200 watts . . . or 100 watts to a channel. It is also possible to install two radio tuners if needed.

The PROGRAM MASTER is housed in a distinctively styled console of all metal construction, finished in rich mahogany brown. The complete console occupies a space only 61" wide, 21½" deep, and 43" high.

The appearance, flexibility, functional operation, and outstanding tonal quality of the voice or music programs being distributed, are the result of OPERADIO'S constant efforts for a quarter of a century of engineering some of the largest sound installations and producing the ultimate in quality sound and intercommunication equipment.

PROGRAM MASTER "60" "30"

THE PROGRAM MASTER "30" SINGLE CHANNEL CO WITH CAPACITY UP TO 45 INDIVIDUAL SPEAKER

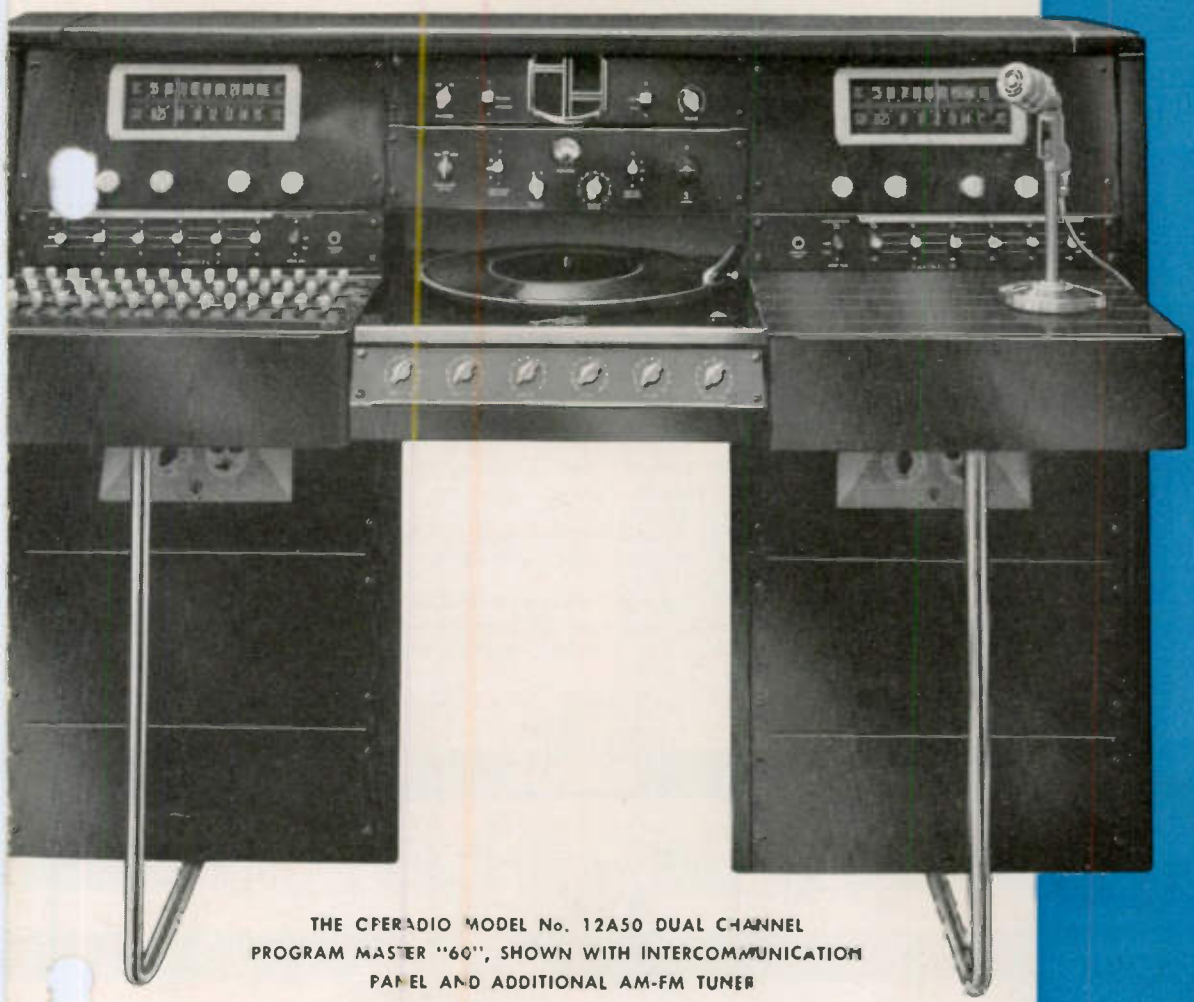
The PROGRAM MASTER "30", Model No. 12A25, is very similar to the PROGRAM MASTER "60" except that it is a single channel system. It is the perfect answer for the typical smaller school, hospital, department store or industrial plant requiring from 15 to 45 loudspeaker outlets.

The PROGRAM MASTER "30" unit is housed in a modern consolette of all metal construction and finished in rich mahogany brown. The entire unit is only 61" wide, 19" deep, and 16" high . . . and can be very conveniently placed on a standard size desk or table.

An AM-FM radio and a dual speed transcription player are incorporated. A phonograph, radio, or public address program may be transmitted to the rooms, or areas selected. However, with a single channel unit only one program at a time may be transmitted. Space is provided for an intercommunication panel if required, and a two-way conversation can then be carried on over the intercommunication channel without interfering with the program channel.

The standard PROGRAM MASTER "30" is furnished complete with AM-FM radio, two speed transcription player, a 20 watt amplifier, a "Program Selector" panel, a "Control" panel, and 30 room selector switches. Four inputs are provided: Radio, Desk Microphone, Phonograph, and Remote No. 1. An emergency switch is located on the control panel for connecting all speakers instantaneously, regardless of programs then being transmitted. An additional switch panel may be added to increase the number of selector switches to a maximum of 45.

When installed with OPERADIO speakers and baffles, the flexibility, functional operation, outstanding tonal quality and appearance of the PROGRAM MASTER "30", classifies this model as an outstanding production masterpiece of one of America's foremost pioneers in the field of electronics and audio-amplification.



THE OPERADIO MODEL No. 12A50 DUAL CHANNEL
PROGRAM MASTER "60", SHOWN WITH INTERCOMMUNICATION
PANEL AND ADDITIONAL AM-FM TUNER

SPECIFICATIONS MODEL No. 12A50 PROGRAM MASTER

AMPLIFIERS: Two high fidelity 50 watt amplifiers. Output: 50 watts at less than 5% distortion. Gain: 75 db (Input impedance 32,600 ohms). Power Supply: 105 to 125 volts—50-60 cycles; 250 watts. *Tubes*: Three Stages of amplification—1-6J5, 1-6SN7, 4-6L6G, 2-5V4G.

PRE AMPLIFIERS: One high impedance microphone pre-amplifier. One high impedance phonograph pre-amplifier ("Remote No. 1" and "Remote No. 2" are for use with a remote pre-amplifier or remote low impedance microphone).

TRANSCRIPTION PLAYER: Heavy duty dual speed motor—33⅓ and 78 rpm.

RADIO: Wave bands: broadcast 540 to 1600 kilocycles; frequency modulation—88 to 108 megacycles.

INTERCOMMUNICATION (Optional): Powerful intercommunication unit with less than 8% distortion at full output. *Impedance*: Input impedance—125 ohms balanced line, output impedance—500 ohms balanced line.

PROGRAM SELECTING CONTROLS: One desk microphone, one transcription player, one radio, one auxiliary, two remote microphone inputs.

CONTROL PANEL: Incorporates main AC switch operated by tumbler type lock and key, level indicating meter, auditorium speaker switch, monitor speaker switch and volume control, emergency switch.

ROOM SELECTOR SWITCHES: Lever action, four position (Communication — Off — Channel A—Channel B).

MONITOR SPEAKER: A separate 8" speaker and baffle furnished with system for monitoring purposes.

DESK MICROPHONE: Hi-impedance dynamic microphone.

CONSOLE: All metal construction. Distinctively styled—rich brown mahogany finish. Dimensions: 61" wide, 21½" deep and 43" high.

ONSOLETTE

S

THE OPERADIO MODEL No. 12A25 SINGLE CHANNEL
PROGRAM MASTER "30" SHOWN WITH
INTERCOMMUNICATION PANEL

SPECIFICATIONS MODEL No. 12A25 PROGRAM MASTER

AMPLIFIER: High fidelity amplifier. Output: 20 watts at less than 5% distortion. Gain: 72 db (Input impedance 27,000 ohms). Power Supply: 105 to 125 volts—50-60 cycle; 100 watts. *Tubes*: Three stages over all . . . 1-6S7, 1-6SN7GT, 2-6L6G, 1-5V4G.

PRE-AMPLIFIERS: One high impedance microphone pre-amplifier. One high impedance phonograph pre-amplifier ("Remote No. 1" and "Remote No. 2" are for use with a remote pre-amplifier or remote low impedance microphone).

TRANSCRIPTION PLAYER: Heavy duty dual speed motor—33⅓ and 78 rpm.

RADIO: Wave bands: broadcast 540 to 1600 kilocycles; frequency modulation—88 to 108 megacycles.

INTERCOMMUNICATION (Optional): Powerful intercommunication unit with less than 8% distortion at full output. *Impedance*: Input impedance—125 ohms balanced line, output impedance—500 ohms balanced line.

PROGRAM SELECTING CONTROLS: One desk microphone, one transcription player, one radio, one auxiliary, two remote microphone inputs.

CONTROL PANEL: Incorporates main AC switch operated by tumbler type lock and key, level indicating meter, auditorium speaker switch, monitor speaker switch and volume control, emergency switch.

ROOM SELECTOR SWITCHES: Lever action, four position (Communication — Off — Channel A—Channel B).

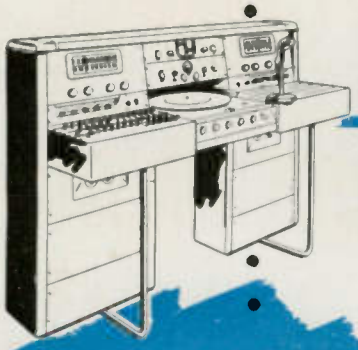
MONITOR SPEAKER: A separate 8" speaker and baffle furnished with system for monitoring purposes.

DESK MICROPHONE: Hi-impedance dynamic microphone.

CONSOLETTE: All metal construction. Distinctively styled—rich brown mahogany finish. Dimensions: 61" wide, 19" deep and 16" high.

LES, ILLINOIS

THE FLEXIBILITY OF THE OPERADIO PROGRAM MASTER MEETS EVERY CENTRALIZED SOUND SYSTEM REQUIREMENT!

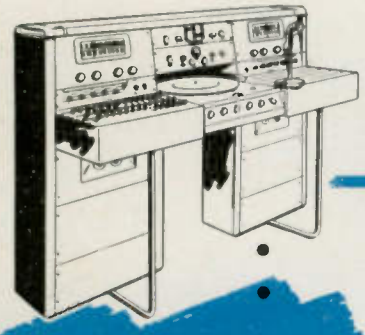


for SCHOOLS

An efficient, flexible school sound system is an important factor in complementing the modern teaching methods of today. A centralized central sound system, such as the PROGRAM MASTER, greatly broadens the education of the student in history, music, languages, literature, dramatics, public speaking, etc. It also greatly increases the operating efficiency of the school by use of the two-way intercommunication panel. The EMERGENCY SWITCH is a positive necessity for quickly alerting all students and personnel in case of fire or disaster and in all probability averting the loss of life.

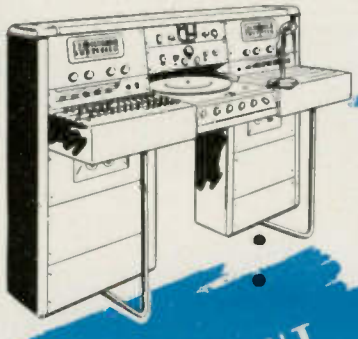
Above is a simplified diagram indicating a typical PROGRAM MASTER in operation. The diagram shows a dual channel system with phonograph music being fed into one channel for music appreciation classes . . . a radio lecture being fed into the second channel for science classes . . . and the intercommunication being used to give orders to the engineer in the boiler room.

The PROGRAM MASTER is also used for sound distribution in the auditorium, gymnasium, cafeteria, etc.

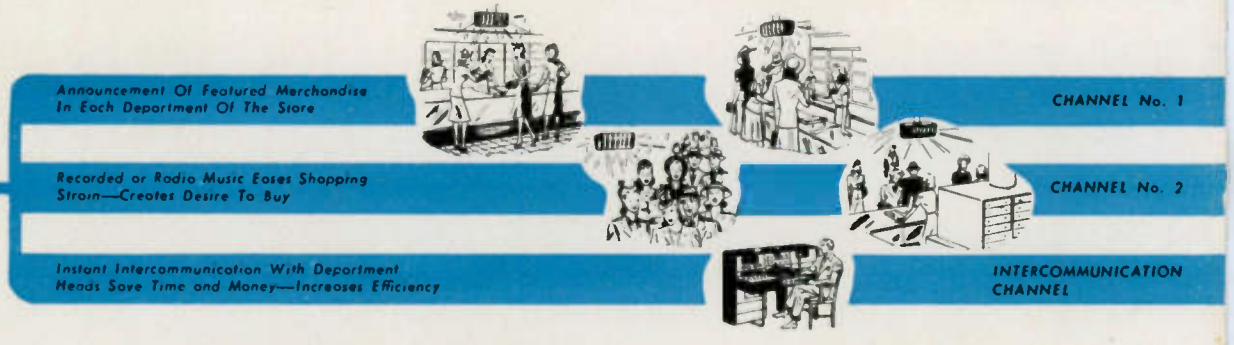


for HOSPITALS

PROGRAM MASTER installations in hospitals increase the operating efficiency and ease the demands on the hospital staff. With a centralized control system of this type, it is a simple matter to locate and converse with doctors, nurses and other personnel . . . constantly saving vital minutes which total up to many hours a day. Actual tests have proved the value of correctly selected phonograph and radio programs in hastening the convalescence of patients. It has also been determined that programs keeping the patients in touch with the outside world and keeping them mentally alert and occupied, will not only hasten their recovery, but eases the strain placed on the entire hospital staff by unoccupied shut-ins.



for DEPARTMENT STORES



Department stores have increased sales by using Central Sound Control Systems to promote departmental specials with storewide announcements. In this manner they advertise directly to the customers while they are in the store and at the point of sale.

Properly selected music played throughout the store decreases shopping fatigue, which in turn increases the desire to buy.

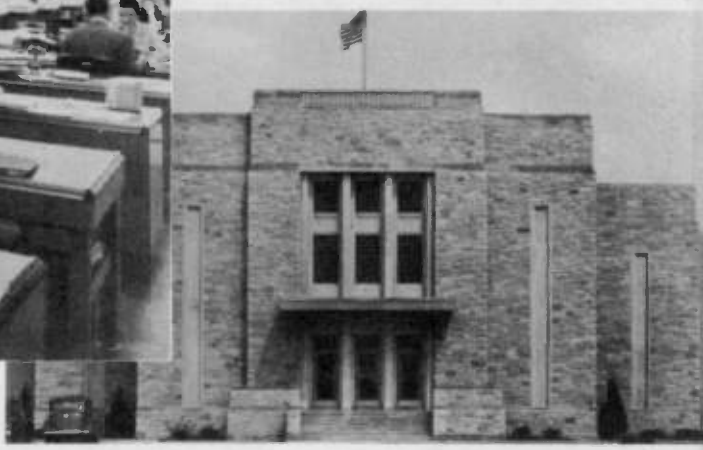
To locate and converse with store personnel can be instantly accomplished by using the voice paging and intercommunication features incorporated in the Program Master.

Form No. 4507-H187

ON THE PRODUCTION FRONT

"It's Operadio Sound ...for Action!"

In Woodward Governor Company's ultra-modern plant, general office and drafting department personnel receive light, air, and sound from the ceiling! Note small neat grille concealing flush-type ceiling speaker.



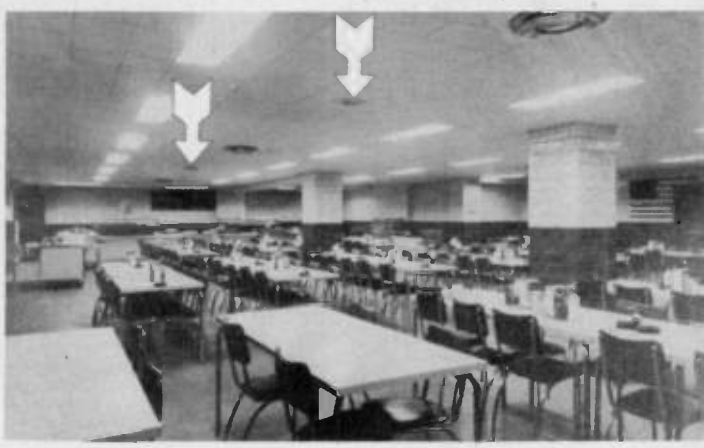
Only windows in the plant are these glass blocks over the main entrance. This fine modern plant is air conditioned throughout.

AT WOODWARD GOVERNOR COMPANY

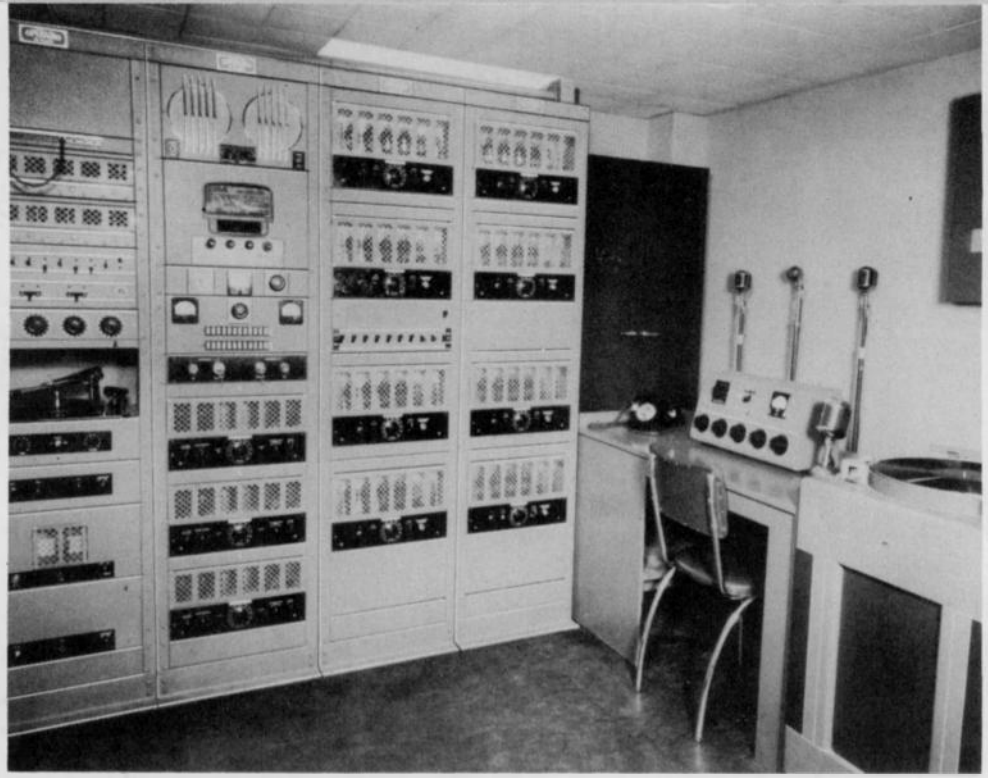
How a modern, scientifically designed plant uses Operadio Sound to speed operations all along the line is a typical story of modern industry meeting the challenge of war. With facilities for windowless lighting and air conditioning, acoustic control and sound distribution engineered into the plant, every facility is present for doing the vital jobs faster and better. Streamlined throughout, the structure is especially planned to cut wasteful seconds off production time, thus speeding equipment to the fighting front. Illustrated are some of the modern features.

Auditorium seating 500 has two large speakers behind grille in proscenium arch. Microphones may be plugged in on stage or at several points throughout the handsomely designed auditorium.

Even in the locker rooms, OPERADIO Sound speaks out to those needed for urgent telephone calls or conferences. Voice paging is an important production feature.



Woodward workers eat 2,500 meals every 24 hours in this modern cafeteria. Music broadcast from ceiling speakers helps them relax.

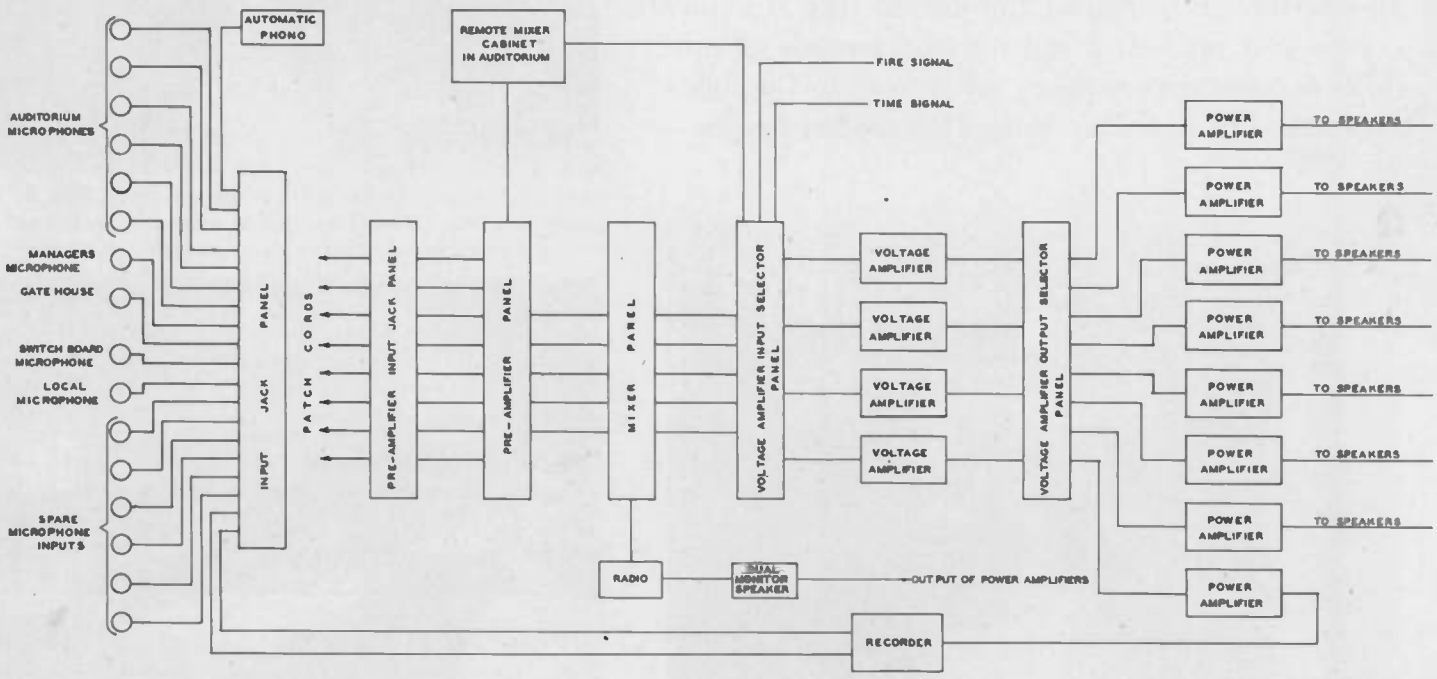


In the control room is located the rack and panel assembly incorporating all central equipment for full 3-channel operation with provision for ready addition of a fourth channel and additional power amplification whenever needed. Recording and playback equipment is seen at the right-hand corner.

Over a network of 133 speakers, a system of voice paging and automatic time and fire signal operations links all departments and executives together twenty-four hours a day. In addition, the OPERADIO System includes equipment for distributing radio programs or music from an automatic record changer and for recording executive meetings or messages, all provided with maximum protection so that failure of any component will not make this system inoperative.

Paging may originate from two independent positions through a "locked-out" circuit so that both paging positions cannot operate simultaneously with resulting confusion. In addition to the paging microphones, there is a microphone in the manager's office for direct and immediate communication with every part of the plant. Wherever the voice and other sound can speed operations, OPERADIO serves!

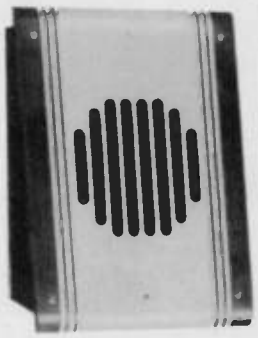
Although an unusually complete and modern installation, the OPERADIO Communicating System at Woodward Governor Company illustrates how such equipment can be engineered to meet the needs of any plant, whether large or small. Investigate today!



Operadio Communicating Equipment for Every Requirement

Many acoustic and electronic factors are involved in engineering a communicating system to do its job effectively and efficiently. Some of the standard *Unit-Matched* equipment developed by OPERADIO is shown here and on the following page. Also illustrated are special types of equipment frequently embodied in OPERADIO Communicating Systems. *Unit-Matched* design assures proper balance and co-ordination throughout.

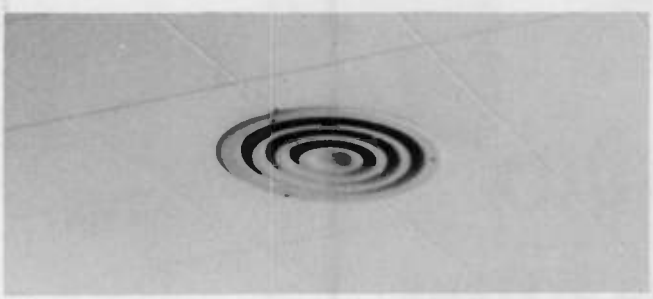
DYNAMIC MICROPHONES are used for maximum voice clarity without distortion and without distracting "whiskers" sometimes experienced with high amplification of sound picked up by microphones.



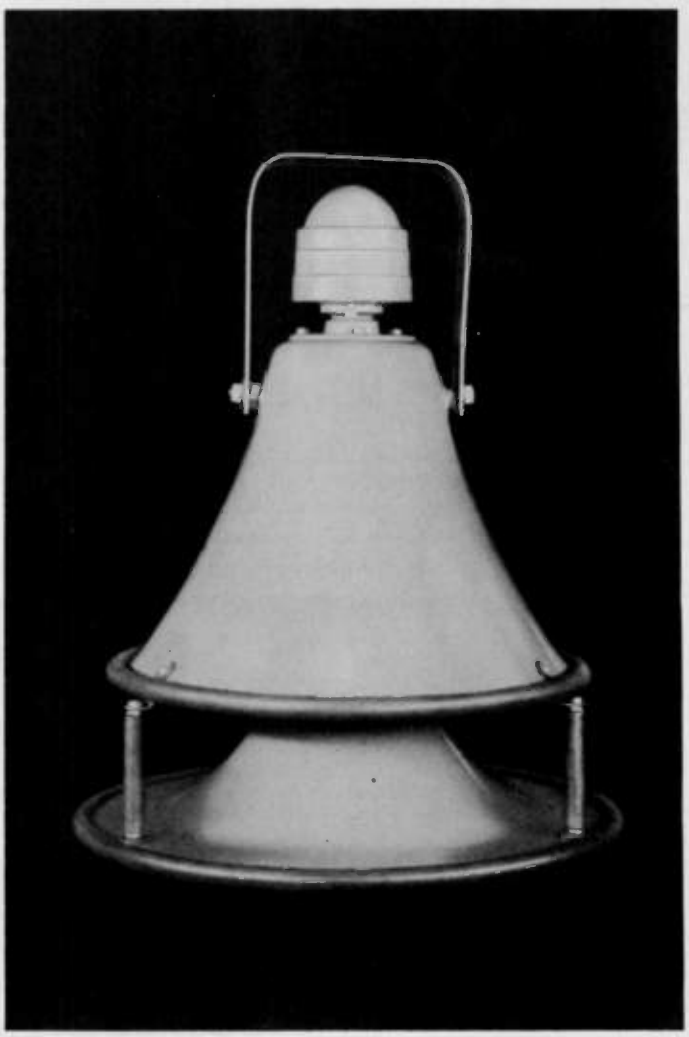
FOR OFFICES AND CAFETERIAS where superior tone quality is required, this type of permanent-magnet dynamic speaker is available in 2 sizes. A popular style. (Two tone cabinet.)

FOR FACTORY CORRIDORS this 8-inch permanent-magnet dynamic speaker unit with output from 3 to 8 watts has serviceable metal housing with brown crackle finish. Sturdy, efficient design.

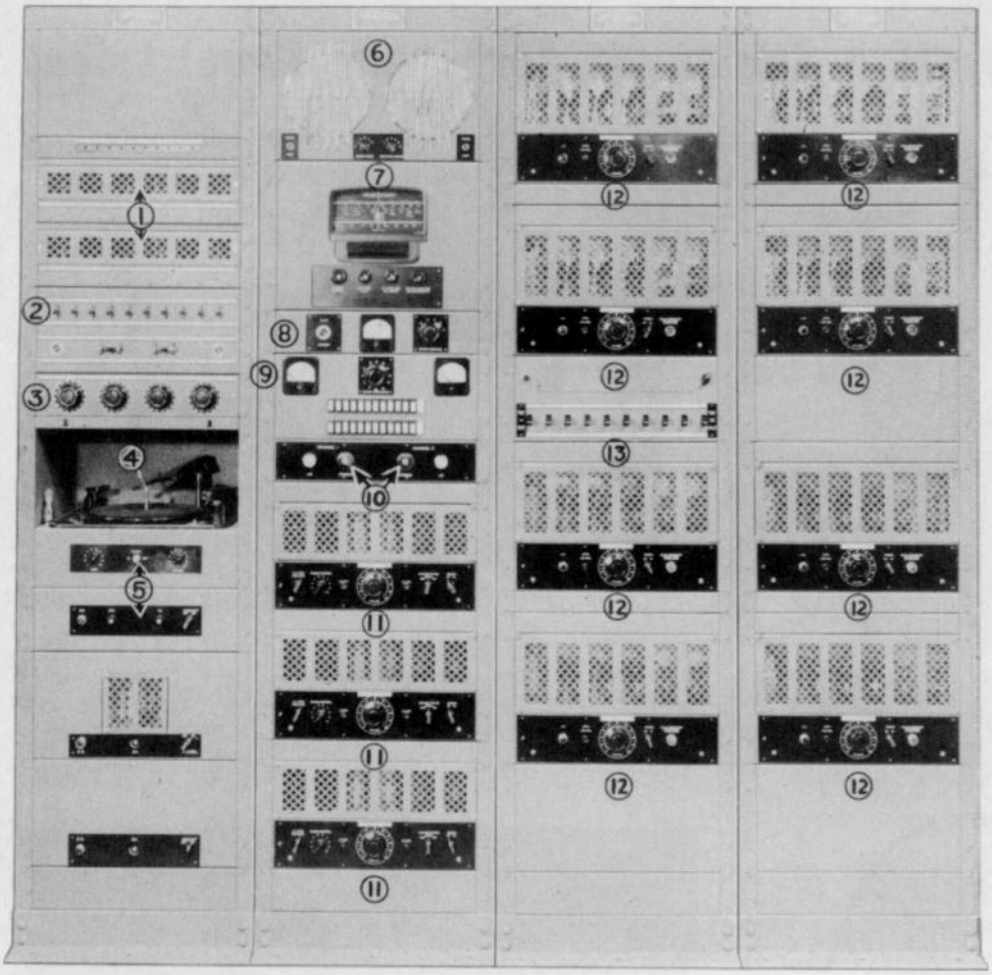
FOR NOISY FACTORY LOCATIONS where ceiling or girder height permits, this 25-watt high efficiency reentrant type speaker is used. Bell diameter 20¾ inches; depth 16⅜ inches; acoustic length 48 inches.



OFFICES AND OFFICE CORRIDORS often require a flush type ceiling speaker with decorative grille. Available with output ranging from 5 to 15 watts. Note simplicity and unobtrusiveness of design.



FOR FACTORY AREAS WITH LOW CEILINGS. This powerful 25-watt speaker gives uniform sound distribution over a 360-degree radius. Bell diameter 15 inches; overall height 12 inches. In use in many war plants.



DUKANE TYPE RACK AND PANEL COMBINES MATCHED UNITS TO FIT EVERY REQUIREMENT

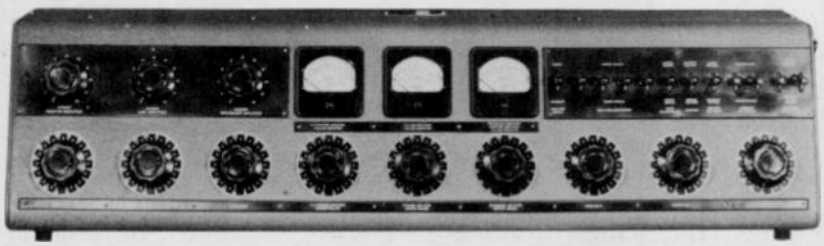
Rack and Panel Amplifier (*left*) is the power and automatic control center of a representative OPERADIO Paging and Intercommunication System. Each of the 4 racks is 20″ wide, 77″ high, 14″ deep; component units are identified by numbers.

1. Dual Pre-Amplifier units.
2. Special switch panel.
3. Mixing controls for multiple pickup.
4. Automatic record changer and controls.
5. Dual A. C. power supply.
6. Monitor speakers, phone jacks.
7. All-wave radio receiver.
8. Meters and switches for testing tubes.
9. Alternating current and output level meters.
10. Lock and key power switch.
11. Triple "Driver Amplifiers" wired for interchangeable use on 3 channels.
12. Standard Power Amplifier units providing any output from 50 watts to 400 watts through switch control panel (13).

Blank panels allow for future expansion or revision of system as required.

RIGHT is an example of OPERADIO Rack and Panel for a hospital installation with complete dual equipment wired for emergency use. Dimensions: each of the 3 racks is 20″ wide, 77″ high, 14″ deep.

ABOVE AND BELOW are examples of custom-built Remote Control Units incorporating the finest control equipment in portable consoles. Enables the sound engineer to control with full reliability a complex or mixed program right from the point of origin.



OPERADIO

SYMBOL OF QUALITY SOUND

COMMUNICATING SYSTEMS

VOICE PAGING • "FLEXIFONE" INTERCOMMUNICATION • PUBLIC ADDRESS • MUSIC & RADIO • SIGNAL & ALARM

OPERADIO MANUFACTURING COMPANY, ST. CHARLES, ILL.

Form No. 2938 E 225 Printed in U. S. A. Bulletin No. 127

OPERADIO WARRANTY

We warrant all products manufactured or sold by us to be free from defects in materials and workmanship; our obligations under this warranty being generally limited to repairing or replacing with reasonable promptness any of our products with the exception of vacuum tubes and other expendables, which shall, within ninety days after delivery to the original purchaser, prove to be defective and which are returned to us; provided, however, that the purchaser shall have reasonably inspected products received and notified us of any apparent defects discovered within fifteen days of receipt of shipment; vacuum tubes are covered under this warranty for a period of thirty days.

Transportation charges covering any defective products returned shall be at our expense, however, transportation charges covering any products returned which prove not to be defective shall be at purchaser's expense.

Material delivered by us shallnot be considered as defective or not in compliance with the order therefore, even though not in exact accordance with specifications, if it satisfactorily fulfills purchaser's performance requirements and/or is in accordance with approved samples.

This warranty does not extend to any of our products which have been subject to misuse, neglect, accident, or improper installation or application, nor shall it extent to units which have been repaired or substantially altered outside of our factory.

This warranty is in lieu of all other warranties expressed or implied.

OPERADIO MANUFACTURING CO.

MASTER PRICE LIST

FLEXIFONE INTERCOMMUNICATION EQUIPMENT

Model	Description	Price
4B10	10-Station FLEXIFONE Master--AC Only	83.00
4B15	20-Station FLEXIFONE Master--AC Only	95.50
8A10	Junction Box	4.45
200-5	Plug & Cable Assembly For Model 4A10	6.20
200-6	Plug & Cable Assembly For Model 4A15	11.55
7A10	Handset For Model 4A10 or 4A15	39.50
4A35	10-Station FLEXIFONE Master--AC-DC Including Plug & Cable Assembly & Junction Box	109.50
4A55	20-Station FLEXIFONE Master--AC-DC Including Plug & Cable Assembly & Junction Box	139.50
7A30	Handset For Model 4A35 or 4A55	42.50
4M25	6-Station "Official" FLEXIFONE--AC Only	48.50
4A25	6-Station "Supervisory" FLEXIFONE--AC Only	48.50
4A20	Remote Speaker Station	16.20
4A21	Remote Speaker Station with Call Switch	18.10
9A15	Remote Call-in Switch Box	2.75
4A24	Remote Speaker Station with 4 Call Switches	24.50
4A30	3-Station FLEXIFONE Master--AC-DC	33.50
4A51	Remote Speaker Station-For Model 4A30	6.45
4A50	Remote Speaker Station With Call Switch For Model 4A30	9.95
176-7585	2-Conductor Cable	3.45C
176-2	2-Conductor Cable-Shielded	6.50C
176-3	3-Conductor Cable-One Conductor Shielded	9.50C
176-4	4-Pair Cable	12.00C
176-7	7-Pair Cable	18.25C
176-11	11-Pair Cable	28.40C
176-12	12-Conductor Cable	27.40C
176-22	22-Conductor Cable	47.30C

Prices Subject to Change Without Notice
August 1, 1948

Operadio Manufacturing Co.
St. Charles, Illinois

MASTER PRICE LIST

AMPLIFIERS

Model	Description	Price
1A50	125 Watt Booster Amplifier	375.00
1A45	50 Watt Amplifier No Phono incorporated	279.00
530	40 Watt SOUNDCASTER Automatic Phono incorporated	365.00
1A30	20 Watt Amplifier	129.50
1A140	12 Watt Amplifier	96.50
1A65	Pre-Amplifier	144.00
1B65	Pre-Amplifier (Same as 1A65 except Rack Mounting)	139.50
1A70	50-Watt Booster Amplifier	169.50
1B70	50-Watt Booster Amplifier (Same as 1A70 except Rack Mounting)	164.50

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Oneradio Manufacturing Co.
St. Charles, Illinois

MASTER PRICE LIST

RACK, PANELS, MICROPHONES, ETC.

Model	Description	Price
13A15	Rack	62.50
560-49	Blank Panel (Dimensions: 8 3/4" x 19")	2.95
560-50	Blank Panel (Dimensions: 2 7/8" x 19")	2.45
560-51	Top Plate (Fitted to Webster #56 Changer)	12.00
560-55	Blank Panel to Panel Mount 1A70	7.50
560-56	Blank Panel to Panel Mount 1A65	7.50
7A25	Hi-Impedance Microphone	26.00
7A26	Lo-Impedance Microphone	26.00
651-1	Microphone Stand	15.00
651-2	Microphone Desk Stand	5.60

BAFFLES

6A40	Wall Baffle for 8" Speaker	9.95
6B8	Two-way Wall Baffle for 8" Speaker	14.85
6A12	Wall Baffle for 12" Speaker	13.50
6C66	Twin Ceiling Baffle 6"	29.50
6C8	Flush 8" Ceiling Baffle	33.00

MATCHING TRANSFORMERS

710-3017	Matching Transformer Output Capability 2 Watts	3.75
710-3018	Matching Transformer Output Capability 2 Watts	3.75
710-3022	Matching Transformer--Enclosed in steel shield--Output Capability 8 Watts	7.65

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Operadio Manufacturing Co.
St. Charles, Illinois

MASTER PRICE LIST

PUBLIC ADDRESS SPEAKERS Individually packed.

Model	Description	Price
S9930-6	6" Speaker	5.75
S9935-8	8" Speaker	9.50
S9940-8	8" Speaker	11.00
S9945-12	12" Speaker	17.45
S9950-12	12" Speaker	26.50
S9955-12	12" Speaker	38.50
S9960-15	15" Speaker	49.50
S10450-15	15" Speaker	49.50

RADIO REPLACEMENT SPEAKERS Individually packed.

10445-4	4" PM Speaker	3.70
10300-4	4" PM Speaker	4.30
10305-4	4" ED Speaker	4.75
10345-4	4" PM Speaker	5.25
10595-46	4" x 6" PM Speaker	4.50
10325-5	5" PM Speaker	4.50
10310-5	5" ED Speaker	4.90
10315-5	5" ED Speaker	4.90
10320-5	5" ED Speaker	5.50
10600-57	5" x 7" PM Speaker	6.25
10340-6	6" PM Speaker	5.20
10710-6	6" PM Speaker	6.25
10330-6	6" ED Speaker	5.50
10335-6	6" ED Speaker	5.50
10455-69	6" x 9" ED Speaker	7.75
10705-69	6" x 9" PM Speaker	9.00
10605-8	8" PM Speaker	7.00
10610-8	8" ED Speaker	7.25
10615-8	8" ED Speaker	7.25
10620-10	10" ED Speaker	10.95
10625-10	10" ED Speaker	11.00
10630-10	10" PM Speaker	11.25
10635-12	12" ED Speaker	12.50
10640-12	12" ED Speaker	13.00
10645-12	12" PM Speaker	12.50

Prices Subject to Change Without Notice

August 1, 1948

Operadio Manufacturing Co.
St. Charles, Illinois

MASTER PRICE LIST

RE-ENTRANT TYPE HORNS

Model	Description	Price
5A10	Operadio Driver Unit - 16 Ohms 25 Watts	35.50
5A40	3½ ft. Re-entrant Type Loudspeaker With Operadio Driver Unit 16 Ohms - 25 Watts	68.00
5A45	3½ ft. Radial Re-entrant Type Loudspeaker With Operadio Driver Unit 16 Ohms - 25 Watts	75.50
5A35	Small Re-entrant Type Loudspeaker 15 Ohms - 20 Watts	34.00
5A25	Small Re-entrant Type Loudspeaker 15 Ohms - 8 Watts	26.00

POWER SUPPLY

17A15	Power Supply	9.50

Prices Subject to Change Without Notice

August 1, 1948

Operadio Manufacturing Co.
St. Charles, Illinois

MASTER PRICE LIST

PROGRAM MASTER CENTRAL SOUND CONTROL SYSTEMS AND PANELS

Model	Description	Price
12A50	Dual Channel Program Master "60"	1695.00
12A25	Single Channel Program Master "30"	945.00
4A45	Intercommunication Panel	103.50
10A20	Radio Panel--AM-FM Tuner	225.00
1B70	50 Watt Booster Amplifier	164.50
1B190	20 Watt Booster Amplifier	85.00
9A50	Selector Switch Panel	63.00
1A150	Microphone Pre-Amplifier	25.00
1A155	Phono Pre-Amplifier	13.50
1A180	Telephone Line Pre-Amplifier	44.50
3A10	Microphone Input Transformer Assembly	13.50
19A10	Signal Generator *	34.50
9A70	Tone Control Assembly	9.25
17A20	Power Supply (for Pre-Amplifier)	36.50

* Not a stock item.

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August 1, 1948

Operadio Manufacturing Co.
St. Charles, Illinois