

Figure 1 — Front View, 1126C Amplifier.

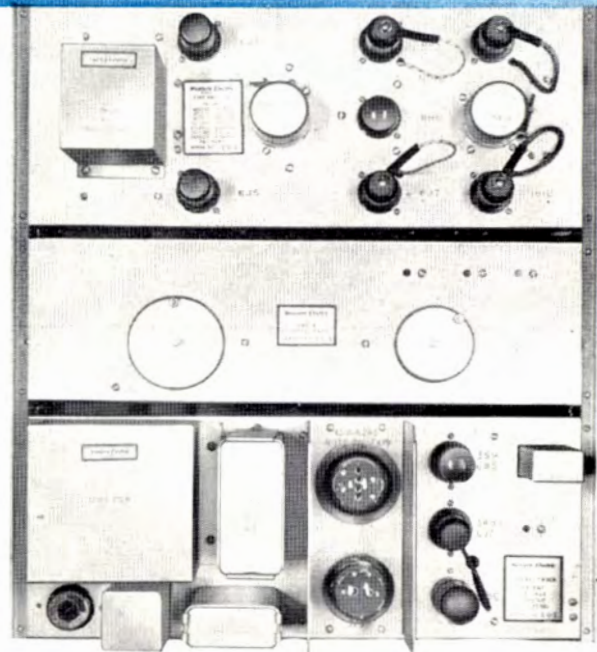


Figure 2 — Rear View, 1126C Amplifier.

1126C PROGRAM OPERATED LEVEL GOVERNING AMPLIFIER

Tops for FM

Use — The 1126C is designed to reduce excessive peaks, protecting against over-modulation in AM with its potentially inherent interference. It has an extremely short attack time. For average program use, peak level reduction will begin within the first half cycle of program frequency. This eliminates results of overloading by peaks: (1) splash or short-interval adjacent-channel interference due to instantaneous overmodulation of AM transmitter; (2) over-swing in FM transmission which may cause distortion to occur in the receiver and the guard band to be overridden; (3) instantaneous overload and consequent distortion in other transmission systems.

The self-contained automatically regulated power supply stabilizes the operation of the amplifier over a wide range of power supply conditions.

For convenience in installation, the 1126C Amplifier can be separated into three units. The control panel may, for example, be mounted in a control desk and the power supply unit at the base of a rack containing the remainder of the circuit equipment, thus lending itself to flexibility in installation.

Description — The 1126C consists of a 126C three-stage push-pull amplifier, 298A Control Panel, and 20B Rectifier. It is an audio frequency operated level governing amplifier containing automatic means to reduce its gain when the level input reaches a predetermined amount and to restore the gain as the input level falls below that amount. The 1126C has improved decoupling of the control circuit from the program circuit, and is entirely interchangeable with the 1126B.

Features

- Permits higher average program level to be transmitted. No appreciable change in frequency response or increase in distortion between conditions of no limiting and 5 db limiting.
- Switch to disable limiting action permitting use as a straight amplifier.
- Meter indicating degree of limiting.
- Self-contained attenuators for wide range of input and output levels.

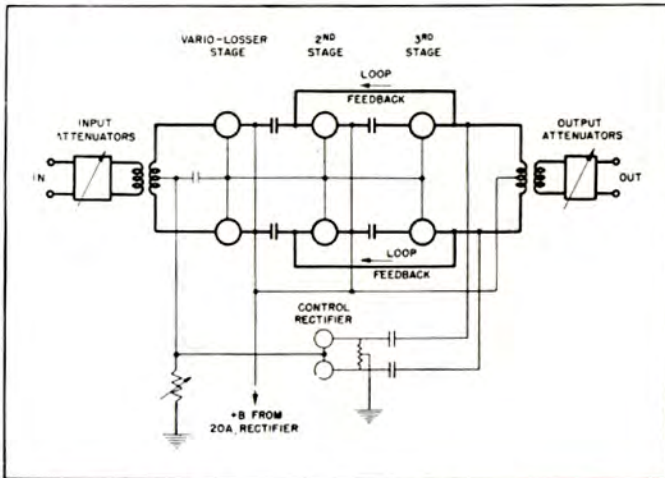


Figure 3 — Functional Schematic of 1126C Amplifier.

- Plate current checking and improved accessibility.
- Automatic means for controlling gain.
- Short attack time.
- Self-contained power supply.
- Flexibility of installation.

Specifications

Frequency Response: Uniform within ± 1 db over the range 50 to 15,000 cycles.

Output Noise: —45 dbm unweighted.

Signal-to-Noise Ratio: 69 db at point where gain reduction starts.

Harmonic Distortion: For program — less than 1 per cent for all operating conditions up to 5 db compression. For single frequency tone — (a) below compression, less than 1 per cent; (b) for 5 db compression, less than 1 per cent for frequencies above 200 cycles and not more than 1.75 per cent for frequencies as low as 50 cycles.

Compression Ratio: 10:1 (10 db input increase results in 1 db output increase above point at which gain reduction starts).

Recovery Time: Variable in 5 steps of 0.2 second each from 0.2 second to 1 second. Optional adjustment permits variation from 0.1 second to 0.5 second.

Source Impedance: 600 ohms (circuit not balanced to ground).

Load Impedance: 600 ohms (circuit not balanced to ground).

Maximum Gain: 53.5 db maximum with all input and output fixed attenuators omitted (37 db as shipped with 10 db input and 6.5 db output attenuators connected) when working from 600 ohms and into 600 ohms, both adjustable attenuators at zero.

Input Level Range: —30 dbm to +20 dbm (single frequency tone).

Output Level Range: —6 dbm to +23.5 dbm (single frequency tone).

Program Level Range: Deduct 10 db from input and output level to allow for peak factor.

Output Power: +17 dbm single frequency (as shipped and with adjustable output attenuator at zero) when gain reduction starts. (+23.5 dbm, maximum, with all output fixed attenuators omitted).

Power Supply: 105 to 125 volts, 0.7 ampere, 50-60 cycles a-c.

VACUUM TUBES

Quantity Required	Western Electric	Commercial Receiver Types
2		1612
3	348A	or 6J7-G
2		6SN7
1		6H6-G
1	274A	or 5Z3
1	351A	or 6X5-G
1	313C	
1	300B	or 2A3
—		
12		

(One No. 46 Mazda Lamp required for meter illumination)

Dimensions: 19" wide, 19-7/32" high and 6 3/4" deep.

Weight: 49 pounds.

Finish: Chassis — Gray

Mat — 1126C-15: Dark aluminum gray
1126C- 3: Black.

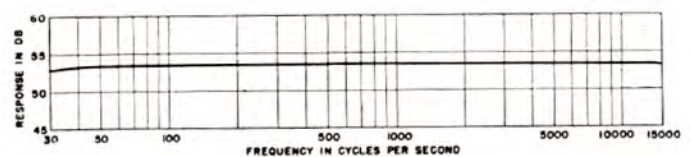


Figure 4 — Typical Overall Frequency Response.

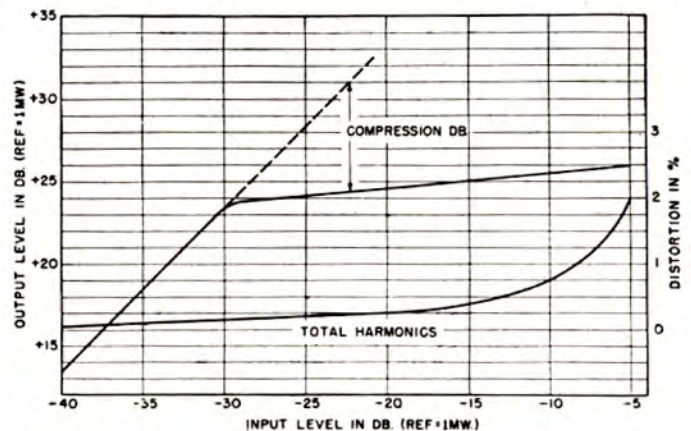


Figure 5 — Typical 1000 Cycle Load and Distortion Characteristics.



106A LINE AMPLIFIER

Tops for FM

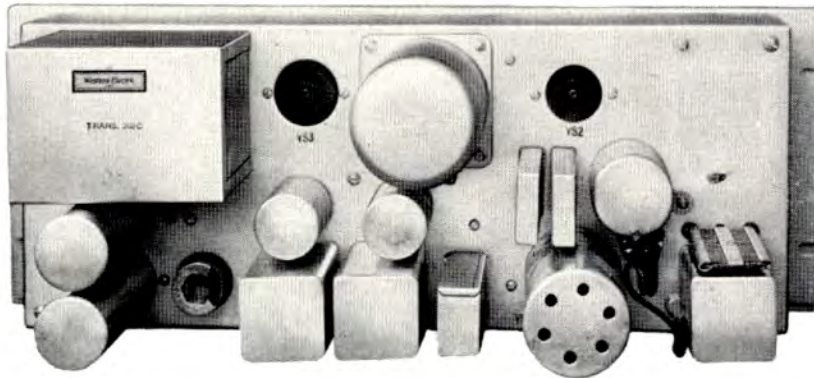


Figure 6 — Rear View, 106A Line Amplifier.

Use — The 106A is designed to provide isolation between outgoing program lines fed from the same source and to compensate for output switching circuit and line equalization losses. It may also be used as a general purpose amplifier for applications where its gain and power level are adequate.

Description — A two-stage, a-c operated line amplifier for bridging or matching service, it has a self-contained power supply. Resistors in cathode circuits are provided to permit tube checks. See Schematic, page 36.

Features

- Excellent frequency response ± 1 db, 50 to 15,000 cycles.
- Variety of application — General purpose, bridging, matching.
- Low noise level.
- Self-contained power supply.
- Two stages.
- Isolated monitor output.
- Recessed panel construction permits easy maintenance.

Specifications

Frequency Response: Uniform within ± 1 db over range 50 to 15,000 cycles.

Output Noise: Main output at maximum gain setting -52 dbm unweighted, -68 dbm weighted (normal ear sensitivity curve).

Signal-to-Noise Ratio: 70 db with $+18$ dbm output or 80 db with $+28$ dbm output.

Source Impedance: 600 ohms (matching or bridging connection).

Load Impedance: Main output 600 ohms. Monitor output 40 ohms (approximately).

Maximum Gain: 45 db (600 ohm matching connection). 20 db (10,000 ohm bridging connection).

Gain Control: 38 db in 20 steps (2 db each plus "off").

Output Power: Main output $+28$ dbm (600 milliwatts) with less than 1 per cent harmonic distortion. Monitor output 20 db less than main output (isolation between main and monitor output 20 db). $+18$ vu maximum program level allowing for a 10 db peak factor.

Power Supply: 105-125 volts, 50-60 cycles a-c, 0.4 amperes, 48 watts maximum.

VACUUM TUBES

Quantity Required	Western Electric
1	310B
1	336A
1	274A
3	

Mounting: Relay rack or equipment cabinet. Recessed panel construction. Panel has removable front mat to allow access to wiring and terminals in recessed portion of panel.

Dimensions: 19" wide, 8" deep, $6\frac{31}{32}$ " high.

Weight: 22 pounds.

Finish: Chassis: Gray Enamel
 Mat: 106A-15 Dark Aluminum Gray
 106A-3 Black.

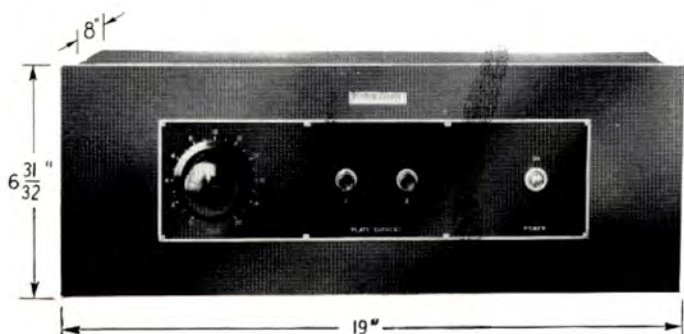


Figure 7 — Front View, 106A Line Amplifier.

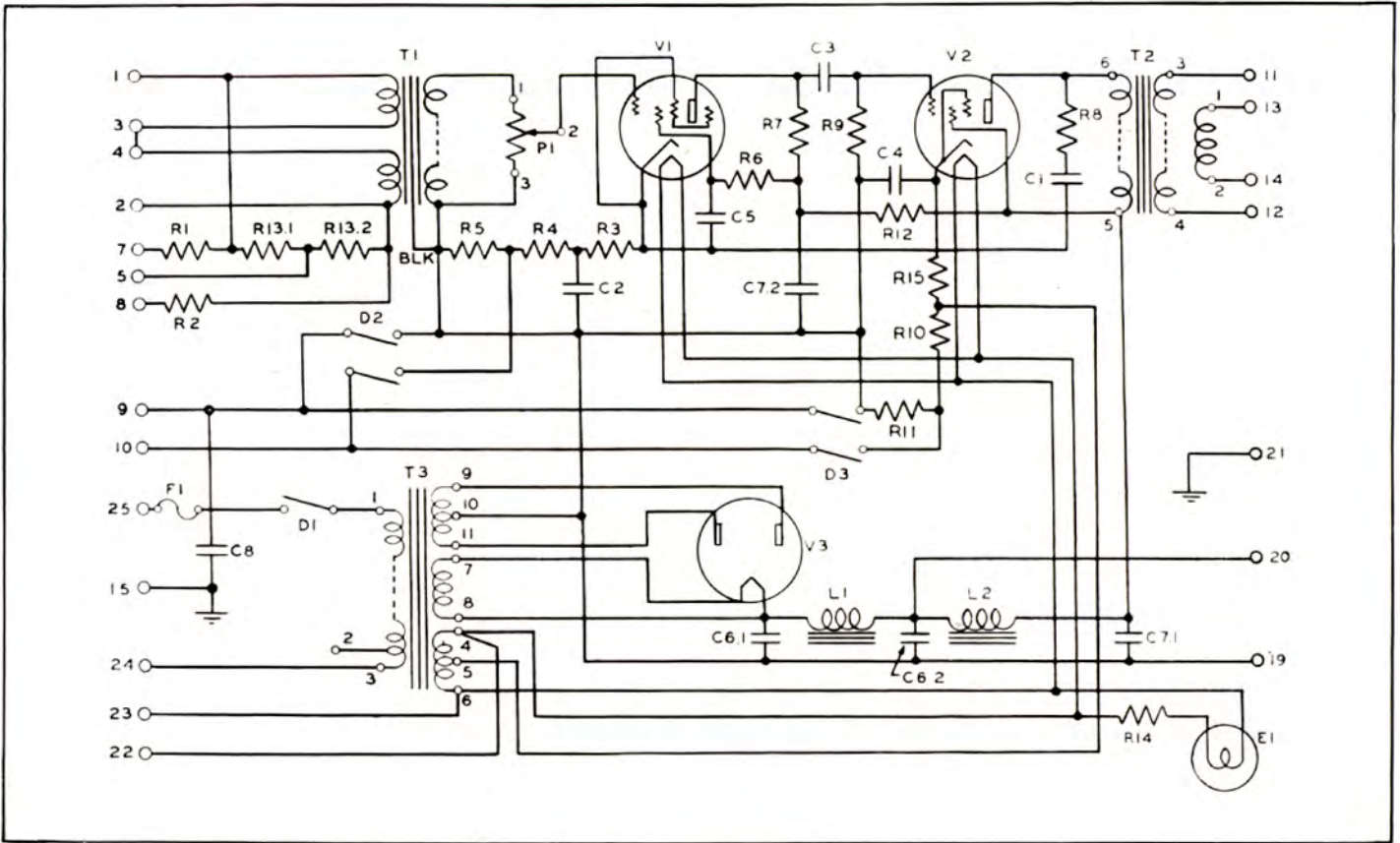


Figure 8 - Schematic of 106A Line Amplifier.

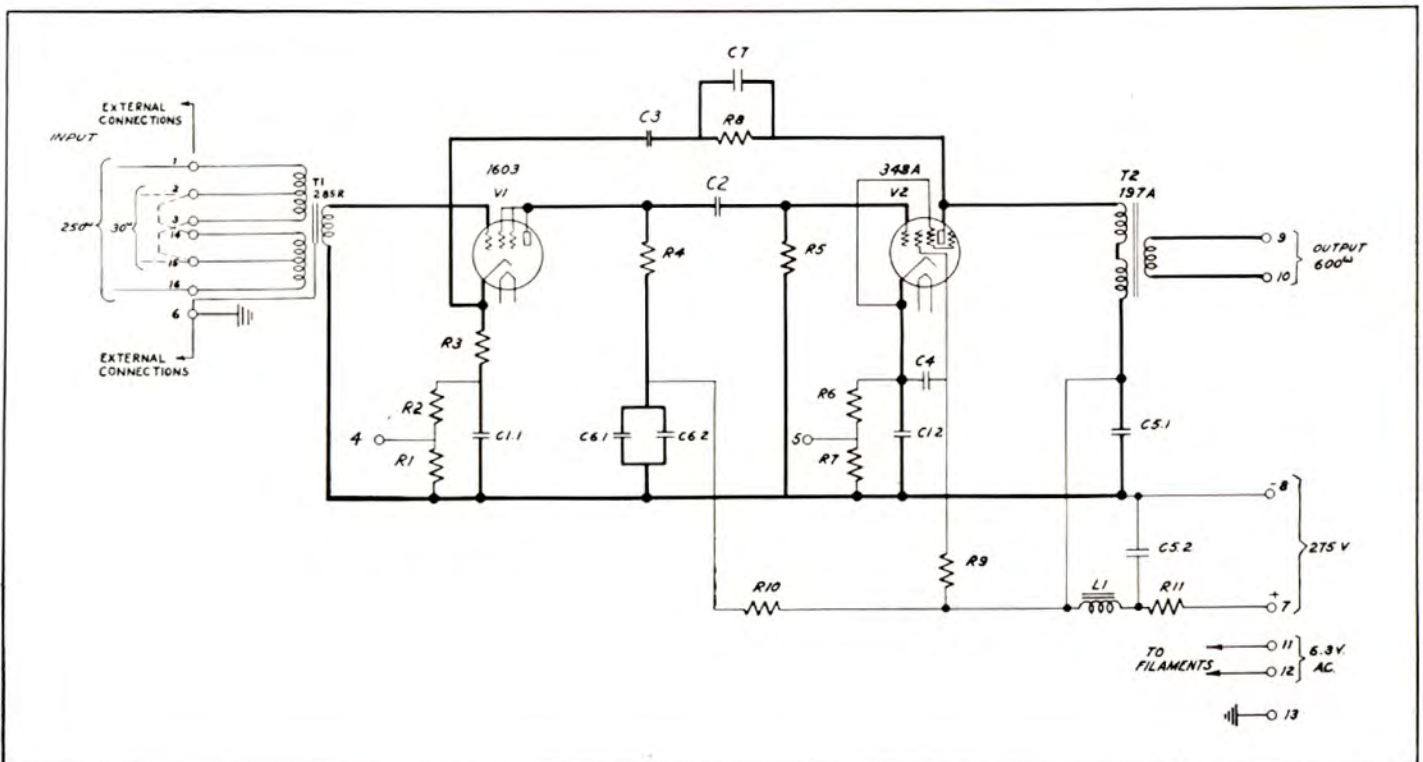


Figure 9 - Schematic of 120C Line Amplifier.



120C PRE-MIXING AMPLIFIER

Tops for FM

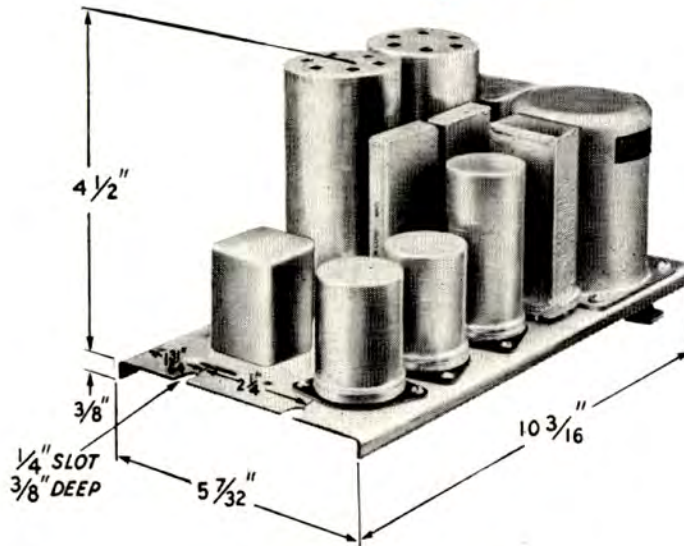


Figure 10 — 120C Line Amplifier.

Use — Designed to fulfill requirements as a pre-mixing or booster amplifier and for use in "no gain" bridging isolation amplifier circuits.

Description — It is a compact two stage 44 db fixed gain amplifier unit having excellent frequency response and low distortion. It has a balanced input transformer with electrostatic and electromagnetic shields. Resistors in cathode circuits are provided to permit checking the tubes through the use of the KS-10003 type or equivalent meter.

Features

- Compact, two stage fixed gain amplifier.
- Pre-mixing or booster application.
- Ready checking of plate circuits.
- Ease of mounting.
- Electrical and mechanical isolation.
- Isolation amplifier by use of input pad.
- Stabilized feedback.

Specifications

Frequency Response: Uniform within ± 1 db over the range 50 to 15,000 cycles.

Output Noise: 82 dbm unweighted, 87 dbm weighted. (Normal ear sensitivity curve).

Signal-to-Noise Ratio: 77 db weighted, 72 db unweighted, for -10 dbm output level.

Source Impedance: 30, 250 or 600 ohms matching. For bridging add proper input pad.

Load Impedance: 600 ohms.

Gain: 41 db.

Output Power: Single frequency output power for less than 1 per cent total harmonics: +16 dbm (38 milliwatts), at fundamental frequency of 400 cycles; +13 dbm (20 milliwatts) at fundamental frequency of 50 cycles.

Power Required: Filaments, 6.3 volts, 0.8 ampere a-c; plates, 275 volts d-c, 7 ma. Power is normally obtained from Western Electric 18 or 20 type Rectifiers which are capable of supplying a number of 120C Amplifiers. Power for one 120C Amplifier may be obtained from the Western Electric 124 type Amplifier by the use of a simple supplementary power supply circuit consisting of two resistances.

VACUUM TUBES

Quantity Required	Western Electric	Commercial Receiver Types
1	348A	1620 (or 6J7)
1		1603
2		

Mounting: Advanced type of basic amplifier unit designed for mounting in desks or other structures and also adaptable for relay rack or bay cabinet mounting through the use of 177 or 190 type mounting plates and 296 type panels. Isolation both electrically and mechanically is accomplished by using rubber supports furnished with the amplifier.

Dimensions: 10-3/16" wide, 5-7/32" deep and 6-3/16" high.

Weight: 6 1/2 pounds.

Finish: Light gray.

121A LINE AMPLIFIER

Tops for FM

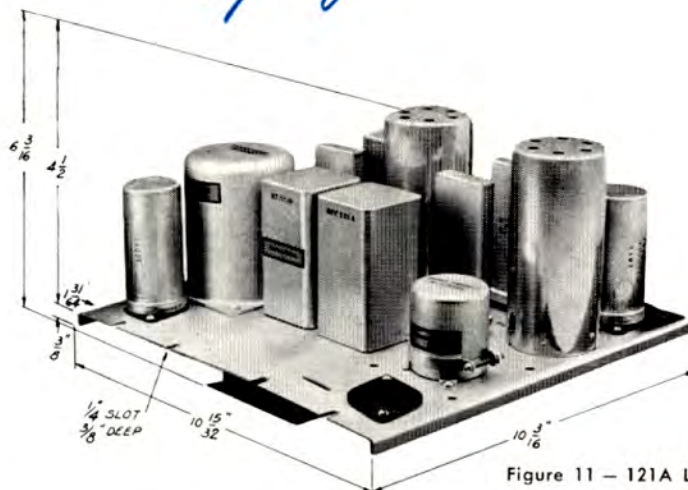


Figure 11 — 121A Line Amplifier.

Use — An adaptable 78 db fixed gain amplifier unit for use as an intermediate or microphone-to-line level main amplifier in FM and AM speech input and sound distribution systems.

Description — It is a three stage 78 db fixed gain amplifier having low distortion and high signal-to-noise ratio. Input impedances of 30, 250, or 600 ohms can be selected by arranging the strapping to the input transformer. The output impedance is 600 ohms. Each cathode circuit is arranged for checking the tubes through the use of the KS-10003 type or equivalent meter. The total d-c power required is 0.03 amperes at 275 volts. The filaments require 2 amperes at 6.3 volts.

The construction is compact and rugged resulting in a small chassis size for this type of amplifier.

Features

- Three-stage fixed gain amplifier.
- Intermediate or microphone-to-line amplifier.
- Ready checking of tubes.
- Ease and variety of mounting.
- Electrical and mechanical isolation.
- Stabilized feedback.

Specifications

Frequency Response: Uniform within ± 1 db over the range 50 to 15,000 cycles.

Output Noise: (Weighting follows normal ear sensitivity curve).

Gain	78 db	70 db	45 db
Noise Level:			
Unweighted	-42 dbm	-50 dbm	-75 dbm
Weighted	-52 dbm	-60 dbm	-85 dbm

At + 18 dbm output level signal-to-noise ratio:

Unweighted	60 db	68 db	93 db
Weighted	70 db	78 db	103 db

Source Impedance: 30, 250 or 600 ohms matching. For bridging add proper input pad.

Load Impedance: 600 ohms.

Maximum Gain: 78 db; 70 db by internal connection change; 45 db by restrapping to eliminate the first stage.

Output Power: Single frequency output power for less than 1 per cent total harmonics: +28 dbm (600 milliwatts) for fundamental frequency of 400 cycles; +25 dbm (300 milliwatts) for fundamental frequency of 50 cycles.

Power Required: Filaments, 6.3 volts, 2 amperes; plates, 275 volts, d-c, 30 ma.

Power normally obtained from Western Electric 18 or 20 type Rectifiers.

VACUUM TUBES

Quantity Required	Western Electric	Commercial Receiver Types
1	347A	or 6J7 (or 1620)
1	348A	or 6J7 (or 1620)
1	349A	or 6F6 (or 6V6)
3		

Mounting: This basic amplifier unit is designed for mounting in desks or other structures; also adaptable for relay rack or bay cabinet mounting through the use of 177 or 190 type mounting plates and 296 type panels. Isolation, both electrically and mechanically, is accomplished by using rubber supports which are furnished with the amplifier.

Dimensions: 10-3/16" wide, 10-15/32" deep and 6-3/16" high.

Weight: 10 pounds.

Finish: Light gray.

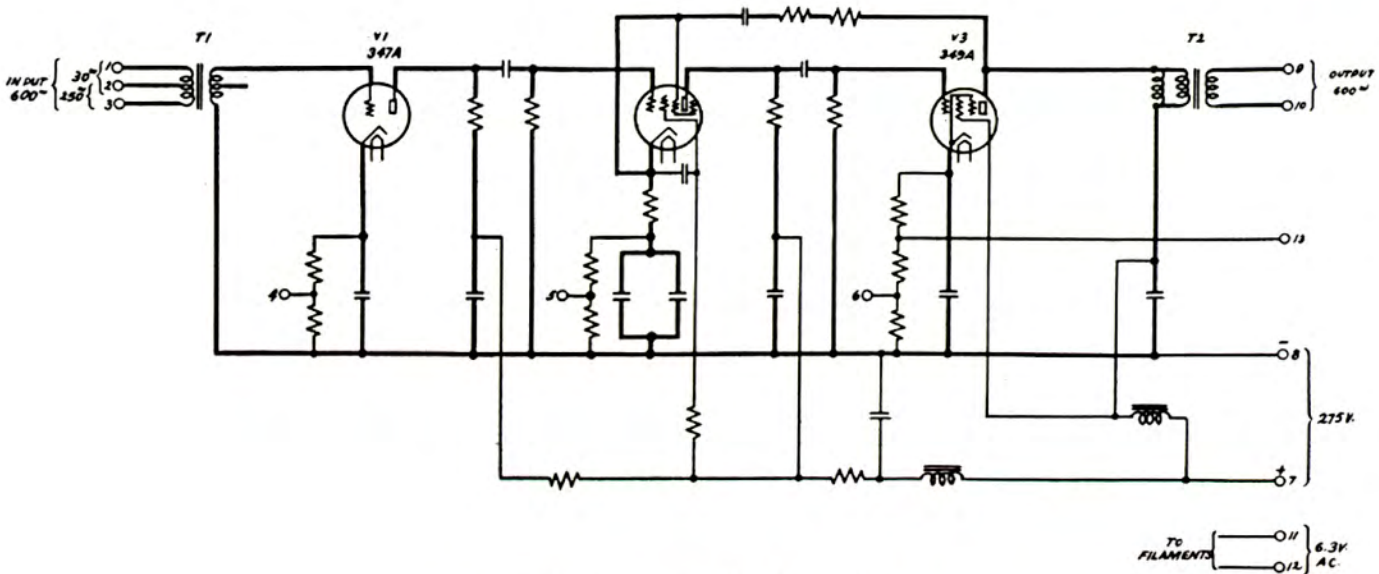


Figure 12 — Schematic of 121A Line Amplifier.

124 SERIES LOUDSPEAKER AND GENERAL PURPOSE AMPLIFIERS

Brief guide to selection based on application of 124 type amplifiers; see individual descriptions for details.

- 124A — One input — line level.
Basic unit — lowest cost.
No control on front panel — can be set in loudspeaker base or rack mounting.
- 124E — One input — line level.
More flexible input circuit.
Gain control and power switch on front panel, rack or cabinet mounting.

- 124F — Two inputs — one line level.
— one microphone level.
Two gain controls and a power switch on front panel, rack or cabinet mounting.
- 124G — Two inputs — both microphone level.
Two gain controls and a power switch on front panel, rack or cabinet mounting.

The following chart of Output Transformer Terminations (T-2) applies to all amplifiers in the 124 series, i.e., 124A, 124E, 124F and 124G:

OUTPUT TRANSFORMER TERMINATIONS (T-2)

Nominal Load Impedance (ohms)	Working Range of Load Impedance (ohms)	Strap Terminals	Output Connections
600	300 to 1200	7-8, 9-10, 11-12	5 and 14
150	70 to 300	7-8, 9-14, 11-12, 5-10	5 and 14
30	20 to 70	7-8, 9-10, 11-12	6 and 13
16	10 to 20	8-10, 9-11, 7-8, 11-12	6 and 13
7.5	3 to 10	7-9, 11-13, 9-10, 6-8, 10-12	6 and 13
1.75	1 to 3	6-8-10-12, 7-9-11-13	6 and 13

Figure 12A.

124A AND 124E MONITOR AND AUDITION AMPLIFIERS



Figure 13 — Front View, 124E Monitor Amplifier.

Use — These amplifiers are intended primarily for use as high quality AM and FM monitoring and audition loudspeaker amplifiers.

Description — They are identical except that the 124E has a gain control and power switch mounted on the face mat and two extra fixed pads in the input circuit for a wider range of input level connection. In addition to its primary use as a loudspeaker amplifier, the 124E is also widely used as a high level booster and general purpose amplifier.

The frequency characteristics of the amplifier, signal-to-noise ratio and power handling capability, conform fully to the requirements of radio broadcast frequency modulation systems. The frequency response is uniform from 50 to 15,000 cycles and at full power output of 20 watts, the dynamic range between signal and noise is about 80 db. Designed for quiet operation, the 124A or 124E may be placed in the loudspeaker cabinet. The 124A, because it has no panel controls, may be placed face down in the cabinet. Its design, furthermore, facilitates use in high gain assemblies by reducing to a minimum the radiated field from the power transformer and retard coil.

Features

- Tapped output coil for operating into load impedance from 1 to 1200 ohms.
- 12 or 20 watt output.
- Input coil especially shielded and rotatable to a position of minimum noise pick-up.
- Stabilized feedback. Glass fibre insulated wire. Self-contained power supply.

Specifications

Frequency Response: Uniform within ± 1 db over the range 50 to 15,000 cycles.

Output Noise: Unweighted, -37 dbm (signal approximately 78 db above noise).

Source Impedance: Line input 600 ohms matching or bridging. See input arrangements at end of this section.

Load Impedance: 1-1200 ohms.

Tops for FM

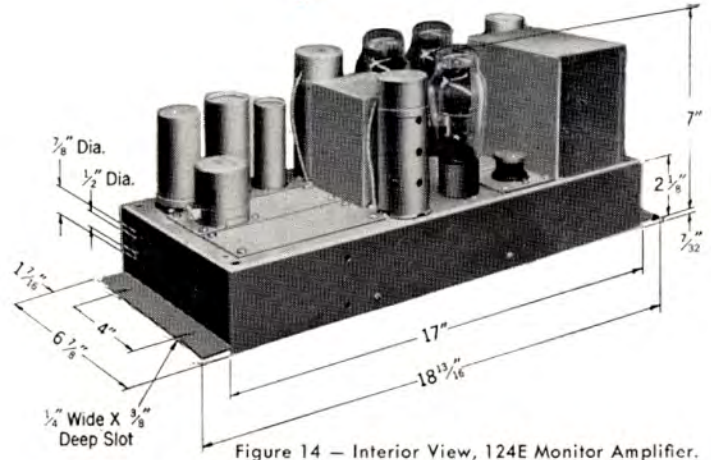


Figure 14 — Interior View, 124E Monitor Amplifier.

Nominal load impedances: 600, 150, 30, 16, 7.5 or 1.75 ohms. See chart Figure 12A.

Maximum Gain: 124A — 50 db bridging input, 63 db high gain input.
 124E — depends on the input strapping used — see schematic of input arrangements, see page 41.

Gain Control: 124A — no gain control.
 124E — 38 db in 2 db steps.

Maximum Input Level: 124A — 8 vu bridging input, 25 vu high gain input.
 124E — depends on input strapping used. See schematic. Levels given are as read on volume indicator calibrated for 600 ohm load, connected across input terminals.

Output Power: 12 watts (+41 dbm) with less than 2 per cent total harmonics as shipped; 20 watts (+43 dbm) with less than 5 per cent total harmonics available by a simple reconnection of taps for higher plate voltage and use of Western Electric tubes.

Power Supply: 105-125 volts, 50-60 cycles.
 125 watts maximum. Fused with 1.25 amp. Buss Fustar.

VACUUM TUBES

This amplifier should not be operated with a mixed complement of Western Electric and non-Western Electric amplifier tubes. This, however, does not apply to the rectifier tube.

Quantity Required	Western Electric	or	Commercial Receiver Types
2	348A	or	6J7 (or 6J7G)
2	350B	or	6L6 (or 6L6G)
1	274B	or	5T4 (or 5U4G)
5			



Installation: Connections — all external connections are normally made to terminals under the chassis. Knockouts are provided in the ends of the chassis to admit the wires. There are additional knockouts in the sides of the chassis where sockets may be installed if plug and socket connections are desired.

Dimensions: 19" wide, 7" deep and 6-31/32" high.

Weight: 20 pounds.

Finish: Chassis — Light gray.

Mat — 124A (or E) — 15: dark aluminum gray.

— 124A (or E) — 3: black.

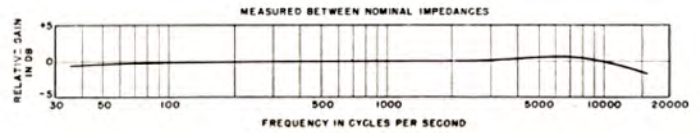


Figure 15 — Typical Overall Frequency Response, Measured Between Nominal Impedances.

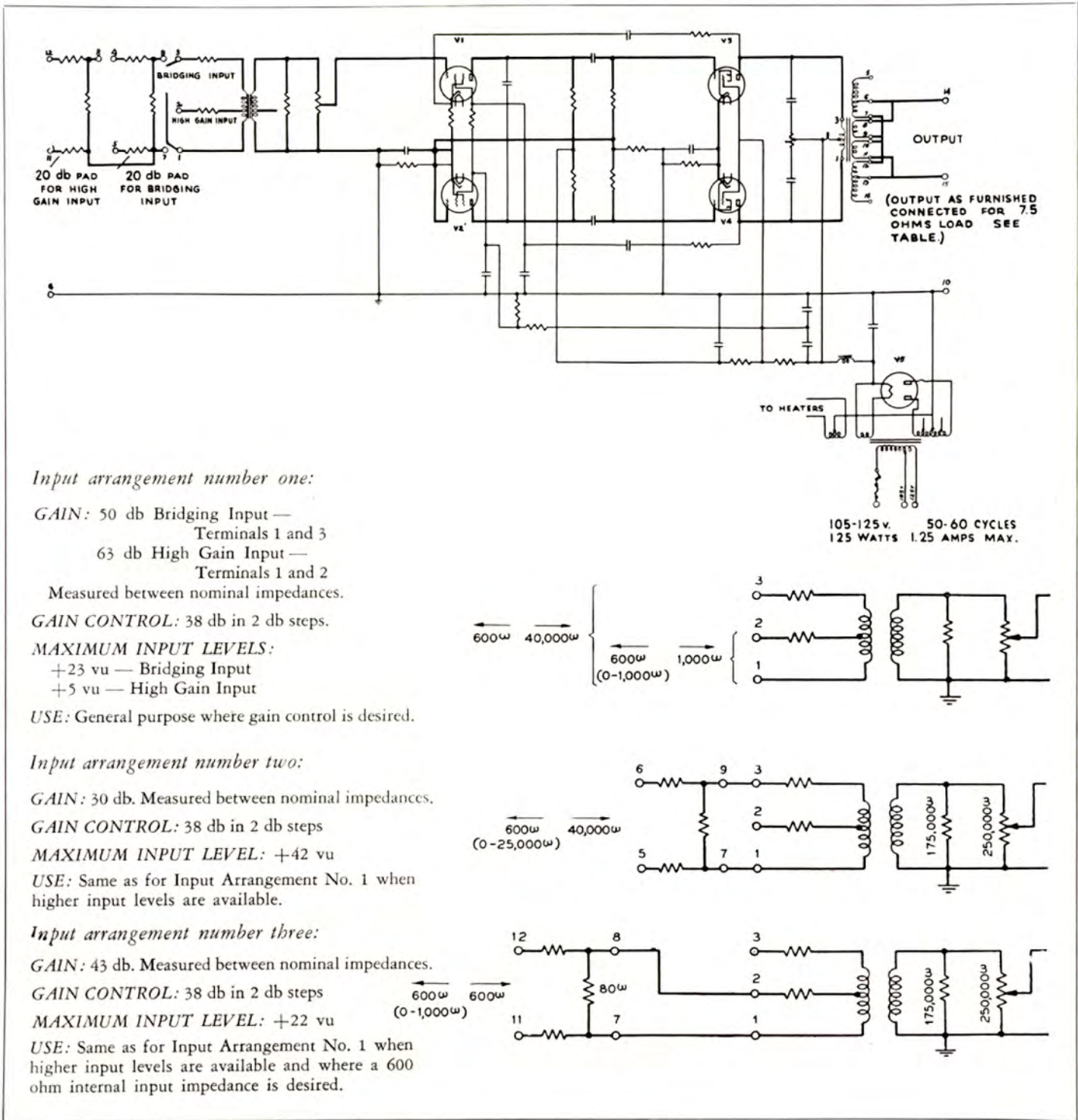


Figure 16 — Schematic of 124E Monitor Amplifier.

124F MONITOR AND TALKBACK AMPLIFIER

Tops for FM

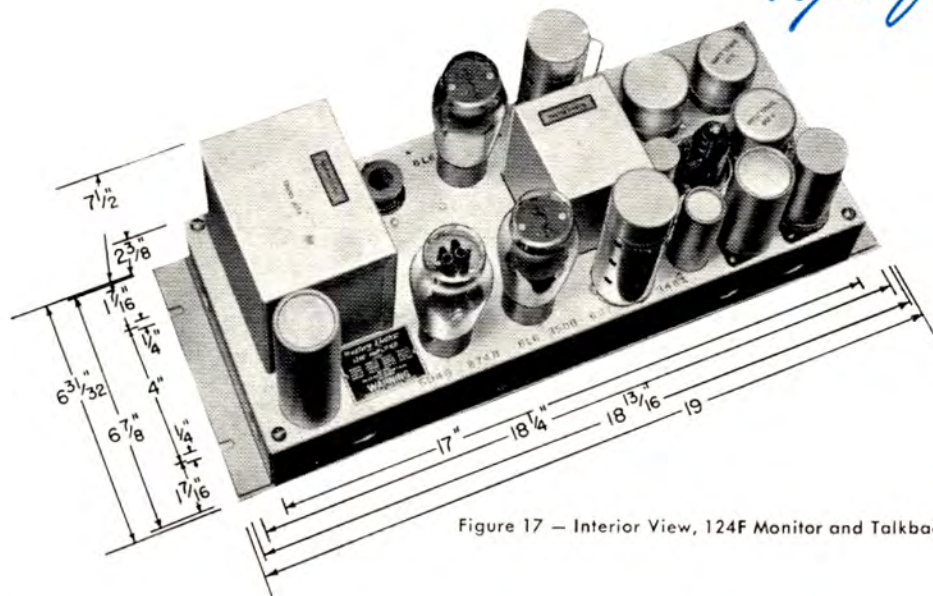


Figure 17 — Interior View, 124F Monitor and Talkback Amplifier.

Use — Ideally suited as a monitor and talkback amplifier, the 124F has separate line level and microphone level input circuits, each with its own gain control.

Description — The microphone input includes one 116B Pre-amplifier. In addition to the other features described for the 124E, the 124F provides a means of feeding programs to booth and studio loudspeakers, as well as cue-feeding to remote lines, either from low level sources or from line or bus level sources. The low level circuit allows talkback and cue to performers in an associated studio.

Features

- Two inputs — one microphone — one line level.
- Separate gain controls both of which may be removed from amplifier and located remotely.
- Quiet operation — The 124F Amplifier may be placed in the loudspeaker cabinet.
- Minimum field radiation from power and retard coil, facilitating its use in high gain assemblies.
- Shielded input coil — Rotatable to position of minimum noise pickup.
- Stabilized feedback.
- Glass-fiber insulated wiring.
- Push-pull output.
- Self-contained power supply.

Specifications

- Frequency Response:** Uniform within ± 1 db over the range 50 to 10,000 cycles. Down approximately 3 db at 15,000 cycles on line input.
- ± 1 db from 50 to 15,000 cycles for microphone input.
- Output Noise:** -8 dbm unweighted, under maximum gain conditions (signal approximately 50 db above noise).

Source Impedance: Line input 600 ohms matching or bridging. Low level input 15 to 250 ohms.

Load Impedance: 1 to 1,200 ohms. Nominal load impedances: 600, 150, 30, 16, 7.5 or 1.75 ohms. See chart, figure 12A.

Maximum Gain: Line level input 60 db (600 ohm matching connection) ; 45 db (20,000 ohm bridging connection). Low level input 104 db.

Gain Control: Line input 38 db in 2 db steps. Low level input 35 db continuously adjustable.

Output Power: 12 watts (+41 dbm) with less than 2 per cent total harmonics as shipped; 20 watts, (+43 dbm) with less than 5 per cent total harmonics available by a simple reconnection of taps for higher plate voltage and use of Western Electric tubes.

Power Supply: 105-125 volts, 50-60 cycles, 1.25 amperes, 125 watts maximum. Fused with Buss Fustat.

VACUUM TUBES

The amplifier should not be operated with a mixed complement of Western Electric and non-Western Electric

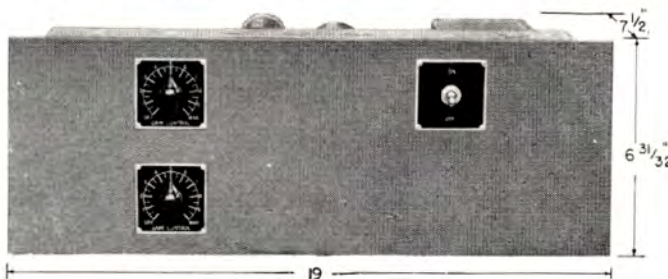


Figure 18 — Front View, 124F Monitor and Talkback Amplifier.

Amplifier Tubes. This however does not apply to the rectifier tube, nor to the 1612 Type tube.

Quantity Required	Western Electric	Commercial Receiver Types
2	348A	6J7G (or 6J7)
2	350A	6L6G (or 6L6)
1	274B	5U4G (or 5T4)
1		1612 Type (or 6L7G or 6L7)
6		

Mounting: Standard 19" relay rack occupying 7" of panel space.

Dimensions: 19" wide, 7 1/2" deep and 6-31/32" high.

Weight: 20 pounds.

Finish: Chassis — Light gray.

Mat — 124F-15: dark aluminum gray.

124F-3: black.



Figure 19 — 116B Pre-Amplifier used in 124F, 124G, and other amplifiers. Employs d-c bias gain control.

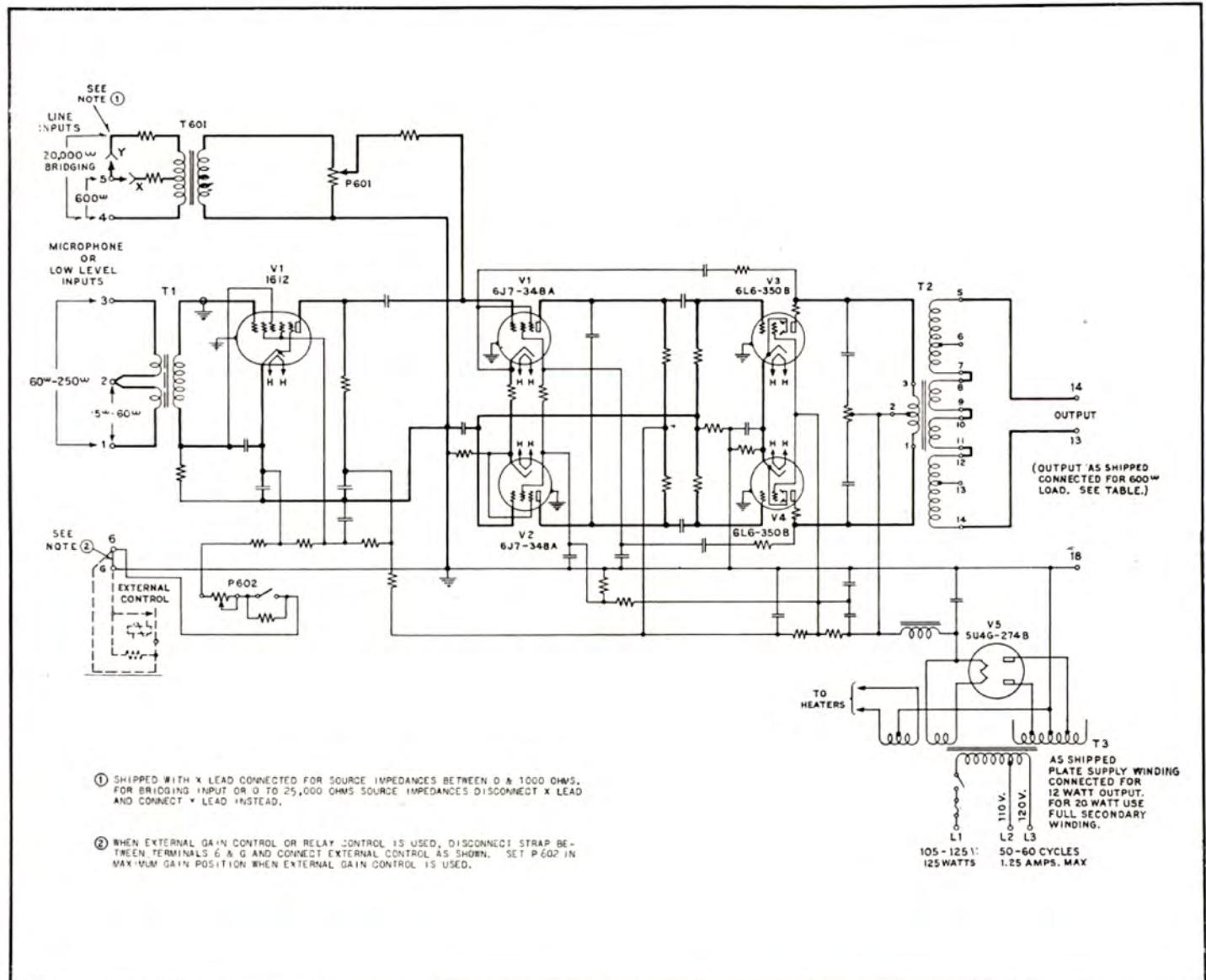


Figure 20 — Schematic of 124F Monitor and Talkback Amplifier.

124G MONITOR AND AUDITION AMPLIFIER

Tops for FM

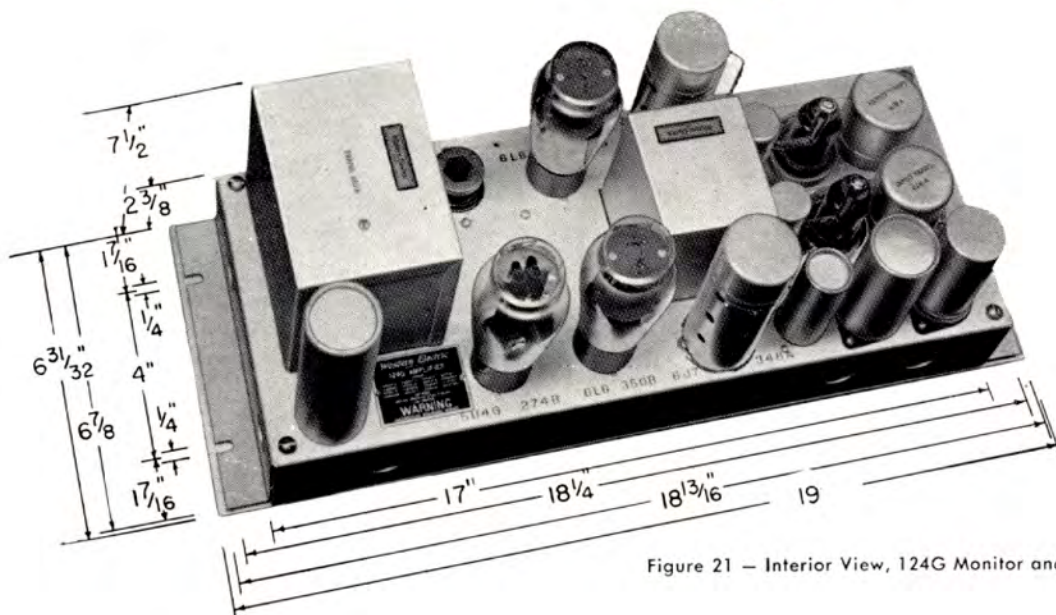


Figure 21 — Interior View, 124G Monitor and Audition Amplifier.

Use — The 124G is a high quality amplifier designed to feed program busses, lines or loudspeakers. It can be adapted as an emergency standby system for larger program production systems because its overall gain and output power are high enough to cover the entire range between input and output network levels. Its performance characteristics make it ideally suited for FM applications as a monitor amplifier.

Description — This unit is completely self-contained, including the power supply. It has two input channels feeding a common output circuit. The input stages are single tube units, each having its own gain control. The output transformer can be connected to work into any impedance from 1 to 1200 ohms.

Features

- Two inputs — both microphone level.
- Separate gain controls both of which may be removed from amplifier and located remotely.
- Quiet operation — The 124G Amplifier may be placed in the loudspeaker cabinet.
- Minimum field radiation from power and retard coil, facilitating its use in high gain assemblies.
- Shielded input coil — rotatable to position of minimum noise pick-up.
- Stabilized feedback.
- Glass-fiber insulated wiring.
- Push-pull output.
- Self-contained power supply.

Specifications

Frequency Response: Uniform within ± 1 db over the range 50 to 15,000 cycles.

Output Noise: -8 dbm unweighted, under maximum gain conditions. (Signal approximately 50 db above noise).

Source Impedance: 15 to 250 ohms. See schematic for connections, Figure 23.

Load Impedance: 1 to 1,200 ohms. Nominal load impedances 600, 150, 30, 16, 7.5 or 1.75 ohms. See chart, Figure 12A.

Maximum Gain: Approximately 104 db.

Gain Control: 35 db continuously adjustable — separate control for each input.

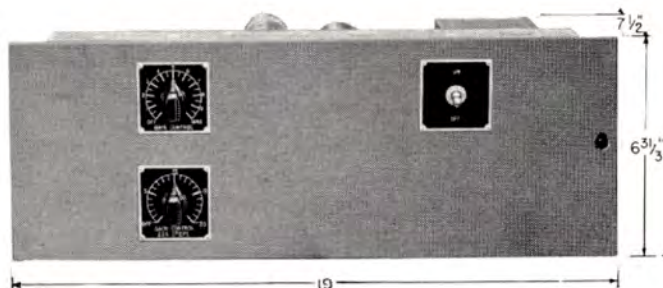


Figure 22 — Front View, 124G Monitor and Audition Amplifier.



Output Power: 12 watts (+41 dbm) with less than 2 per cent total harmonics; 20 watts (+43 dbm) with less than 5 per cent total harmonics available by a simple reconnection of taps for higher plate voltage and use of Western Electric tubes.

Power Supply: 105-125 volts, 50-60 cycles, 1.25 amperes, 125 watts maximum. Fused with Buss Fustat.

VACUUM TUBES

Quantity Required	Western Electric	Commercial Receiver Types
2	348A	or 6J7G (or 6J7)
2	350B	or 6L6G (or 6L6)
1	274B	or 5U4G (or 5T4)
2		1612 (or 6L7G or 6L7)
7		

The amplifier should not be operated with a mixed complement of Western Electric and non-Western Electric Amplifier Tubes. This however does not apply to the rectifier tube, nor to the 1612 Type tube.

Mounting: Standard 19" relay rack occupying 7" of panel space.

Dimensions: 19" wide, 7½" deep and 6-31/32" high.

Weight: 20 pounds.

Finish: Chassis — Light gray.

Mat — 124G-15: Dark aluminum gray.
124G-3: Black.

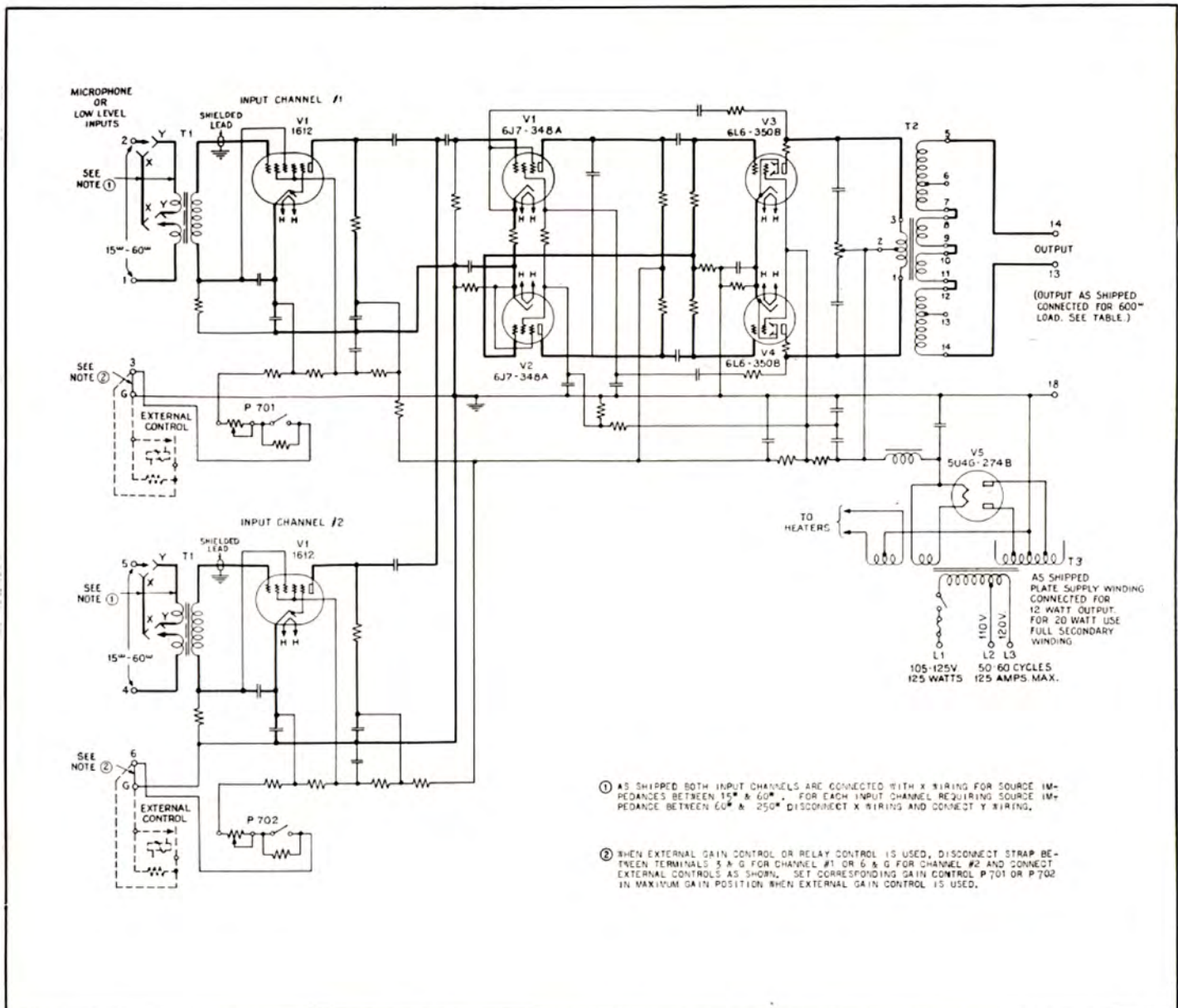


Figure 23 — Schematic of 124G Monitor and Audition Amplifier.

129A PRE-MIXING AMPLIFIER

Tops for FM

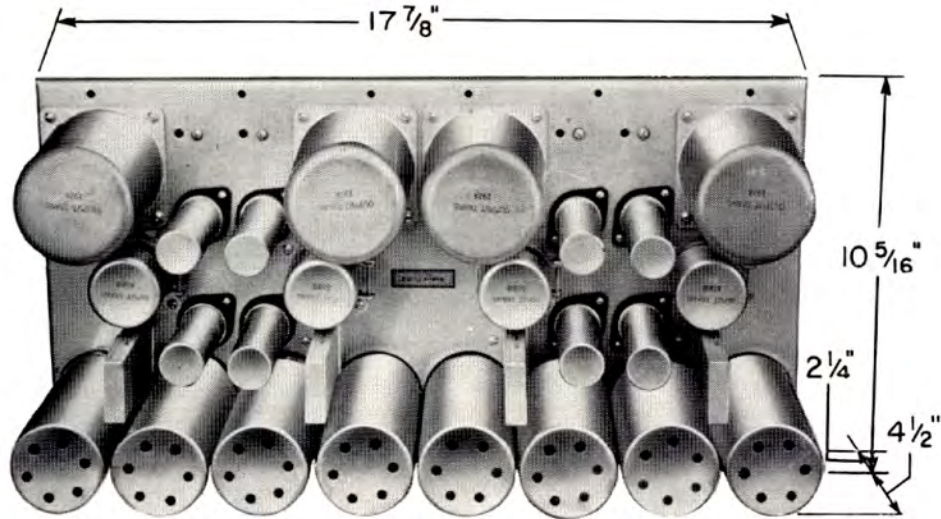


Figure 24 — 129A Pre-Mixing Amplifier.

Use — The 129A is particularly designed for use as a pre-mixing or booster amplifier in high quality AM and FM speech input and sound systems; it can also be connected for use as a group of "no-gain" low level bridging isolation amplifiers.

Description — Four identical two-stage amplifiers with fixed gain, mounted on a common chassis, comprise the 129A unit. Four electrically separate audio channels are provided in which the inputs from four low level sources (microphones or reproducers) are simultaneously and individually amplified prior to mixing. Each input transformer is arranged so that it can be rotated to provide a minimum pick-up from electromagnetic field interference. Cathode resistors are provided to permit tube checks.

Features

- High quality pre-mixing and booster amplifier.
- Useful with no-gain low level bridging isolation amplifiers.
- Four electrically separate channels for simultaneous and individual amplification.
- Designed for minimum pick-up from electromagnetic field interference.
- Cathode resistors for tube check circuits.
- Stabilized feedback.

Specifications

Frequency Response: Flat within ± 1 db over the range 50 to 15,000 cycles.

Output Noise: -82 dbm unweighted, -87 dbm weighted. (Normal ear sensitivity curve).

Signal-to-Noise Ratio: 77 db weighted, 72 db unweighted, for -10 dbm output.

Source Impedance: 30, 250 or 600 ohms matching. For bridging add proper input pad.

Load Impedance: 600 ohms.

Gain: 41 db.

Output Power: Single frequency output power for less than 1 per cent total harmonics: +16 dbm (38 milliwatts) at fundamental frequency of 400 cycles: +13 dbm (20 milliwatts) at fundamental frequency of 50 cycles.

Power Supply (For Complete Amplifier): Filament 6.3 volts, 3.2 amperes. Plate 275 volts, 30 milliamperes d-c. Two of the pre-amplifiers can be supplied from one source while the other two are supplied from another. 1.6 amperes filament and 15 milliamperes plate required for each half of the amplifier. 20 Type Rectifier recommended for power supply. A single 20 Type Rectifier will supply power for several 129A Amplifiers.

VACUUM TUBES

Quantity Required	Western Electric	or	Commercial Receiver Types
4	348A		1620 (or 6J7)
4			1603
8			

Mounting: Designed for console mounting; also for rack mounting on 190 Type Mounting Plate (one per plate). Type 296 panel required as face mat.



Dimensions: 17⁷/₈" wide, 10-5/16" deep and 6³/₄" high.

Weight: 20¹/₄ pounds.

Finish: Light gray.

Accessories: The following accessory equipment is recom-

mended for use with the 129A Amplifier:

KS-10003 Meter (for measuring plate currents of vacuum tubes).

Western Electric 190 Type Mounting Plate (one mounts one 129A Amplifier).

Western Electric 296 Type panel.

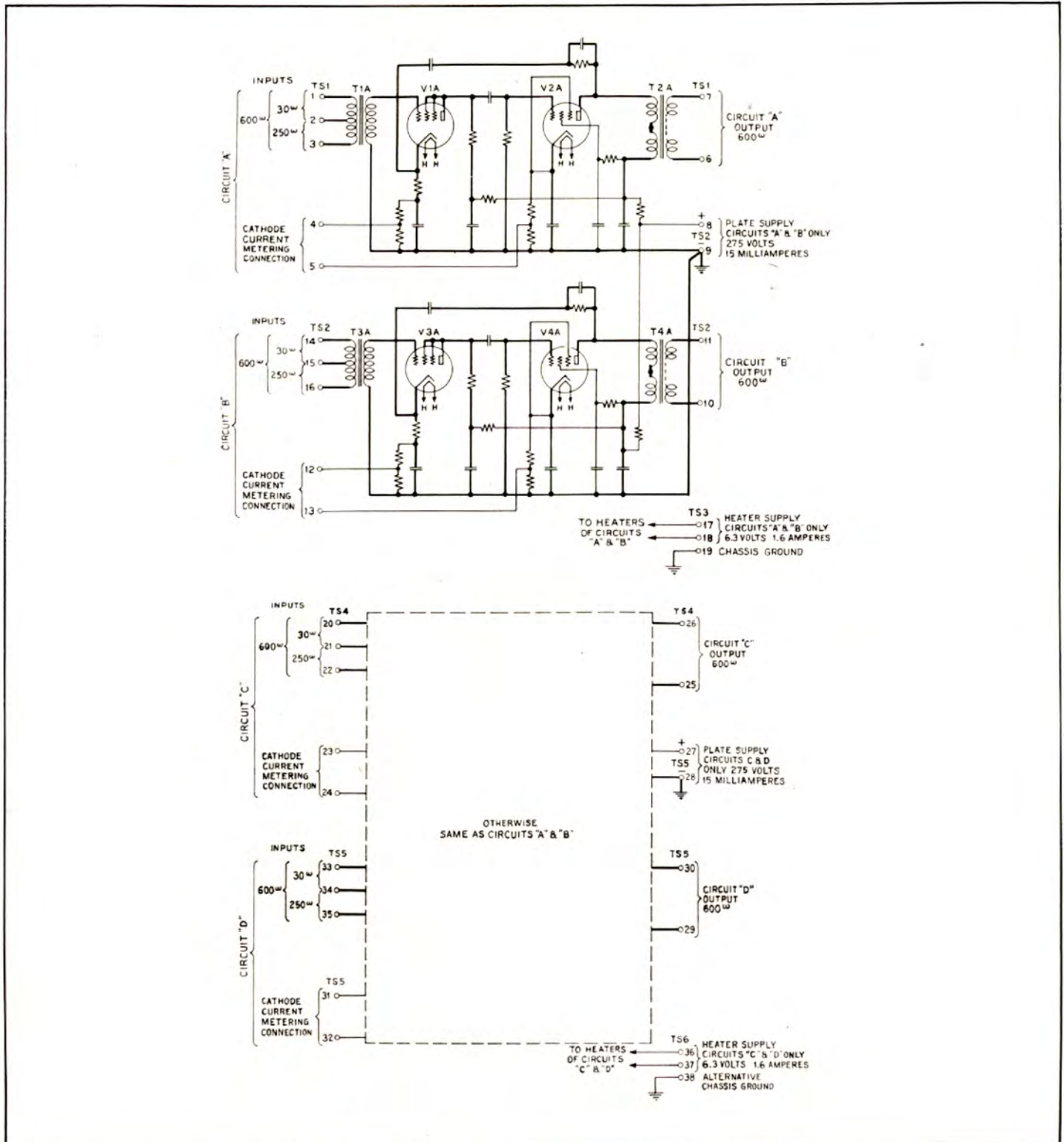


Figure 25 – Schematic of 129A Pre-Mixing Amplifier.

130B TWIN CHANNEL MAIN AMPLIFIER

Tops for FM

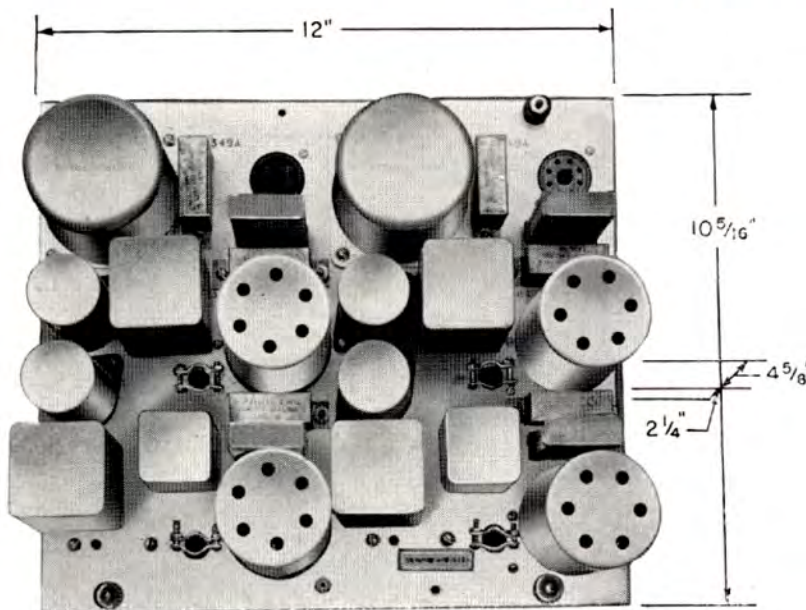


Figure 26 — 130B Twin Channel Main Amplifying Equipment.

Use — Recommended for use in high quality AM and FM audio systems where it is desirable to feed two programs through a single program production unit simultaneously. May also be used to provide one regular and one emergency transmission channel. Each amplifier element is arranged for its own interstage gain control, which is intended as the master gain control for that channel.

Description — Two identical, electrically separate, three stage amplifiers are mounted on a common chassis. In operation, cross talk between the two channels is held below audible levels through careful circuit design and expert selection of components.

By the same means a high signal-to-noise ratio and low harmonic distortion characteristic, comparable to that featured in units of the single channel type, have been achieved in this equipment. Resistors in cathode circuits are provided to permit tube checks.

Features

- Handles two programs simultaneously.
- Twin, electrically separate, three stage amplifiers.
- Crosstalk held below audible levels.
- High signal-to-noise ratio.
- Low harmonic distortion.
- Stabilized feedback.

Specifications

Frequency Response: Uniform within ± 1 db over the range 50 to 15,000 cycles.

Output Noise: Main output with maximum gain setting —37 dbm unweighted, —47 dbm weighted (normal ear

sensitivity curve).

Signal-to-Noise Ratio: 61 db unweighted, 71 db weighted; with +24 dbm output.

Source Impedance: 30, 250 or 600 ohms matching. For bridging add proper input pad.

Load Impedance: Main output 600 ohms. Monitor output 40 ohms (approximately).

Maximum Gain: 81 db.

Gain Control: Requires two (one for each amplifier unit) 100,000 ohm potentiometers mounted externally; low capacity wiring for interconnection must be used as this is a high impedance interstage gain control.

Output Power: Normal +24 dbm (250 milliwatts), for frequencies between 100 and 5,000 cycles less than 1 per cent harmonic distortion; +22 dbm (160 milliwatts) at 50 cycles 1 per cent harmonic distortion. Monitor output 20 db less than main output. (Isolation between main and monitor output is 20 db).

Power Supply for Complete Amplifier (2 amplifier units): Filament 6.3 volts, 3.6 amperes (d-c or a-c). Plate 275 volts, 65 milliamperes, d-c.

VACUUM TUBES

Quantity Required	Western Electric	Commercial Receiver Types
2		1603
2	348A or	1620 (or 6J7)
2	349A or	6F6
6		



Mounting: This amplifier is designed for mounting in desks or other structures. It is also adaptable for relay rack or bay cabinet mounting thru the use of a 190 Type Mounting Plate (one per plate). 296 Type Panel required as a face mat.

Dimensions: 12" wide, 10-5/16" deep and 6 7/8" high.

Weight: 17 1/4 pounds.

Finish: Light gray.

Accessories: The following accessory equipment is recommended for use with this amplifier:

- 2 — 100,000 ohm potentiometers, Western Electric BA-73987-3 or BA-73987-4 (for gain controls).
- 1 — KS-10003 Meter (for measuring plate currents of vacuum tubes).
- 1 — 18 or 20 Type Rectifier.
- 1 — Western Electric 190 Type Mounting Plate (one mounts one 130B Amplifier).
- 1 — Western Electric 296 Type Panel.

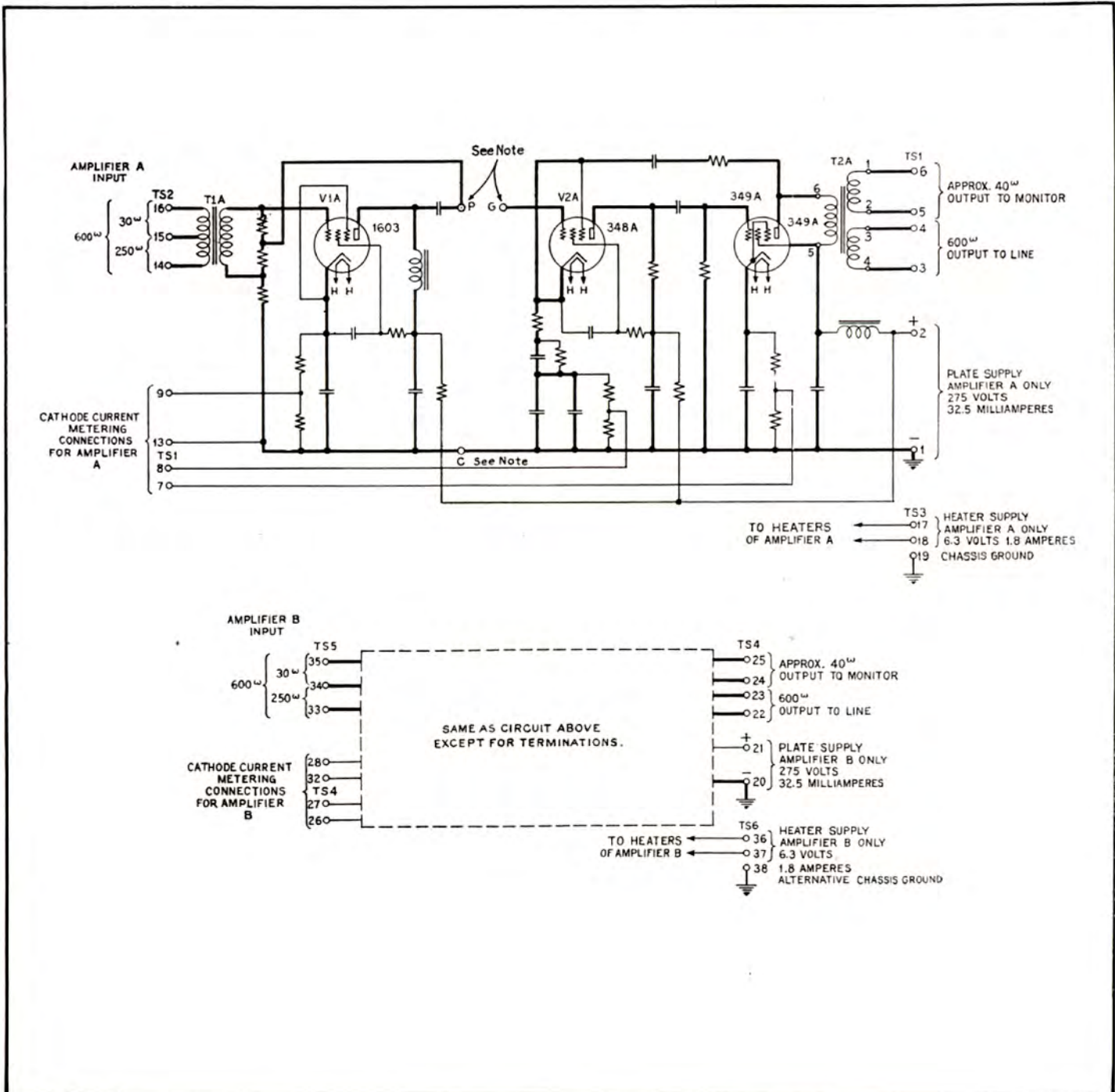


Figure 27 — Schematic of 130B Twin Channel Main Amplifying Equipment.

131A MONITOR AMPLIFIER

Tops for FM

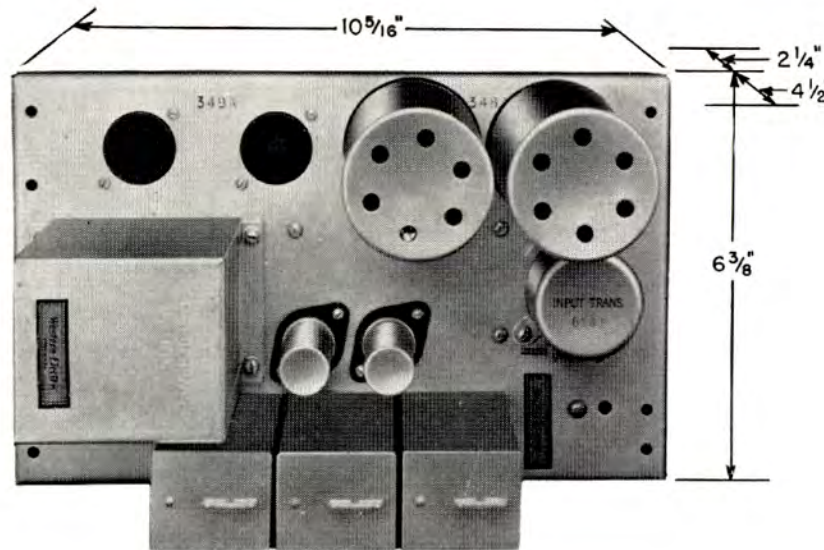


Figure 28 — 131A Monitor Amplifier.

Use — This amplifier is a compact single unit, especially designed for AM and FM studio-booth monitoring applications where the control booth operator requires a means for program cueing to performers in an associated studio or to remote pick up lines. A booth and two studio loudspeakers, as well as line cue-feeding circuits, can be served from its output network.

Description — The 131A Amplifier is of the two-stage push-pull type and possesses adequate gain to operate either from the output of a single preamplifier or to be bridged across the output of a main amplifier.

Output power is sufficient to satisfy normal booth and studio requirements. Taps are provided on the output transformer which permit adjustment to work into impedances from 1 to 1200 ohms, thus assuring high quality performance over a wide variety of loudspeaker impedance combinations. The unit is constructed for operation from an external power supply source.

Each of the three loudspeaker branch circuits is provided with a cut-off relay which may be connected to operate from microphone or talkback keys so that switching a microphone on, will at the same time, automatically silence the associated loudspeaker. This feature is desirable where microphone and loudspeakers are located in the same room since it offers a safeguard against acoustic feedback or "singing" which is likely to occur when a microphone is exposed to sound from a loudspeaker connected to the same amplifier channel.

Power for operating the relays is obtained from the power stage cathode circuit of the amplifier so that a separate relay power supply is not required.

Features

- Excellent for studio-booth monitoring.
- Variety of application.
- Cut-off relays — for loudspeakers.
- Tapped output transformer to permit working into impedances from 1 to 1200 ohms.
- Stabilized feedback.

Specifications

Frequency Response: Uniform within ± 1 db over the range 50 to 15,000 cycles.

Output Noise: -55 dbm unweighted, with maximum gain.

Signal-to-Noise Ratio: 80 db under conditions of normal gain and output level.

Source Impedance: 600 ohms matching. For bridging add proper input pad.

Load Impedance: Tapped output transformer provides for operation into any impedance from 1 to 1,200 ohms.

Maximum Gain: 50 db.

Output Power: 3.2 watts (+35 dbm) with 1 per cent harmonic distortion; 5 watts (+37 dbm) with 5 per cent harmonic distortion.

Power Supply: Filament 6.3 volts, 3 amperes a-c or d-c; plate 275 volts, 75 ma., d-c. (18 or 20 Type Rectifiers recommended for power supply).

VACUUM TUBES

Quantity Required	Western Electric	Commercial Receiver Types
2	348A	1620 (or 6J7)
2	349A	6F6
4		

Mounting: Designed for console mounting; also for rack mounting on 190C Type Mounting Plate (capacity one per plate). 296 Type Panel required with each 190 Type Mounting Plate.

Dimensions: 10-5/16" wide, 6 3/8" deep and 6 3/4" high.

Weight: 7 3/4 pounds.

Finish: Gray.

Accessories: The Western Electric 18 or 20 Type Rectifier is recommended for use with the 131A Amplifier.

- 1 — Western Electric 177 Type or 190 Type Mounting Plate.
- 1 — Western Electric 296 Type Panel. See "Components and Accessories" for ordering information.

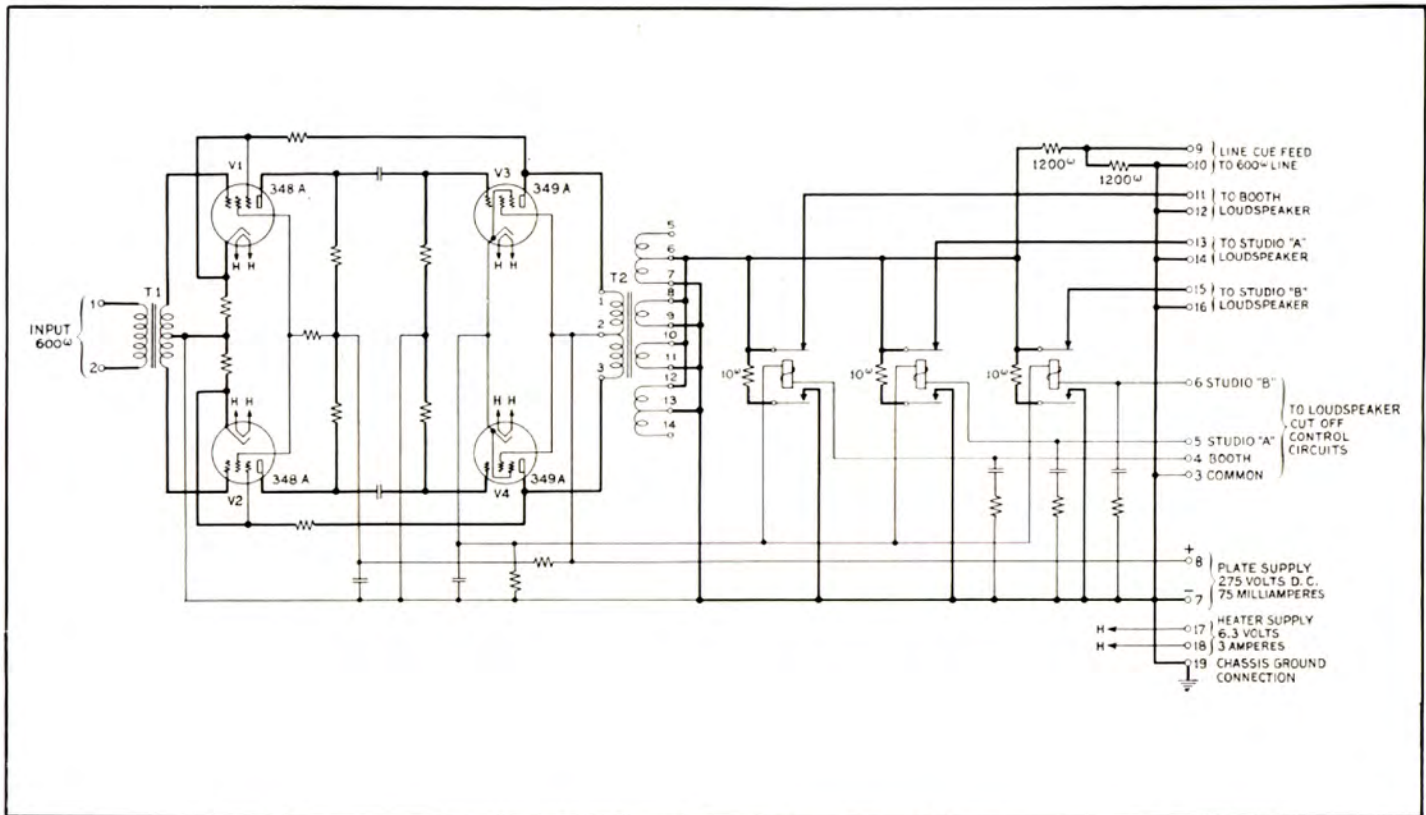


Figure 29 — Schematic of 131A Monitor Amplifier.

OUTPUT TRANSFORMER STRAPPING TABLE T-2

NOMINAL LOAD IMPEDANCE	WORKING RANGE OF LOAD IMPEDANCE	STRAP TERMINALS	OUTPUT CONNECTIONS
600 ^w	300 ^w TO 1200 ^w	7-8, 9-10, 11-12	5 & 14
150 ^w	70 ^w TO 300 ^w	7-8, 9-14, 11-12, 5-10	5 & 14
30 ^w	20 ^w TO 70 ^w	7-8, 9-10, 11-12	6 & 13
16 ^w	10 ^w TO 20 ^w	7-8-10, 9-11-12	6 & 13
7.5 ^w	3 ^w TO 10 ^w	7-9-10-12, 6-8, 11-13	6 & 13
1.75 ^w	1 ^w TO 3 ^w	6-8-10-12, 7-9-11-13	6 & 13

132A MAIN AMPLIFIER

Tops for FM

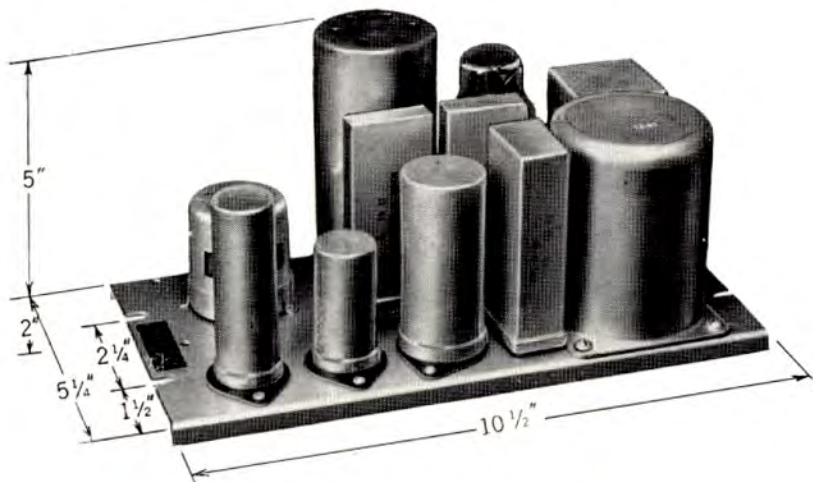


Figure 30 — 132A Main Amplifier.

Use — The 132A is recommended as a Main Amplifier in modern AM and FM audio system installations. In addition to feeding normally equalized transmission lines or master switching circuits, adequate power is available to handle program bus systems or studio auditioning facilities.

Description — This two stage amplifier has compact physical dimensions, low signal-to-noise ratio, gain and output capable of providing a suitable margin above line level to allow for losses in coupling and equalizing devices. Fidelity is maintained over the full 50-15,000 cycle range through use of stabilized feedback, and components are fully shielded to prevent self-generated noise. The 132A operates from an external power supply, and is suited for either desk or rack mounting. Resistors in cathode circuits are provided to permit tube checks.

Features

- Latest design for modern AM and FM.
- Can handle program bus systems and studio auditioning facilities.
- High signal-to-noise ratio.
- Stabilized feedback.
- Desk or rack mounting.
- Easy checking of tubes.
- Compact.

Specifications

Frequency Response: Uniform within ± 1 db over the range 50 to 15,000 cycles.

Output Noise: -65 dbm unweighted, -75 dbm weighted (normal ear sensitivity curve).

Signal-to-Noise Ratio: 73 db unweighted, 83 db weighted, for +18 dbm output.

Source Impedance: 30, 250 or 600 ohms matching. For bridging add proper input pad.

Load Impedance: 600 ohms.

Maximum Gain: 48 db.

Output Power: +28 dbm (600 milliwatts) with 1 per cent total harmonic distortion.

Power Supply: Filament 6.3 volts, 1.5 amperes; plate 275 volts, 31 ma. d-c.

VACUUM TUBES

Quantity Required	Western Electric	Commercial Receiver Types
1	348A or	6J7 (6J7G or 1620)
1	349A or	6F6 (or 6F6G)
2		

Mounting: Designed for console mounting; also for rack mounting on a 177 or 190 Type Mounting Plate (Capacity three 132A Amplifiers per plate). A 296 Type Panel required for each mounting plate.

Dimensions: 10 1/2" wide, 5 1/4" deep and 7" high (overall).

Weight: 6 1/2 pounds.

Finish: Gray.

Accessories: The following accessory equipment is recommended for use with this amplifier:

- 1 — KS-10003 Meter (for measuring plate currents of vacuum tubes).



- 1 — 18 or 20 type Rectifier.
- 1 — Western Electric 177 or 190 Type Mounting Plate.
- 1 — Western Electric 296 Type Panel. See "Components and Accessories" for ordering information.

132B AMPLIFIER

The 132B Amplifier is the same as the 132A Amplifier except that it has a 50 db gain, a balanced input transformer with an electrostatic shield and an extra electro-magnetic shield.

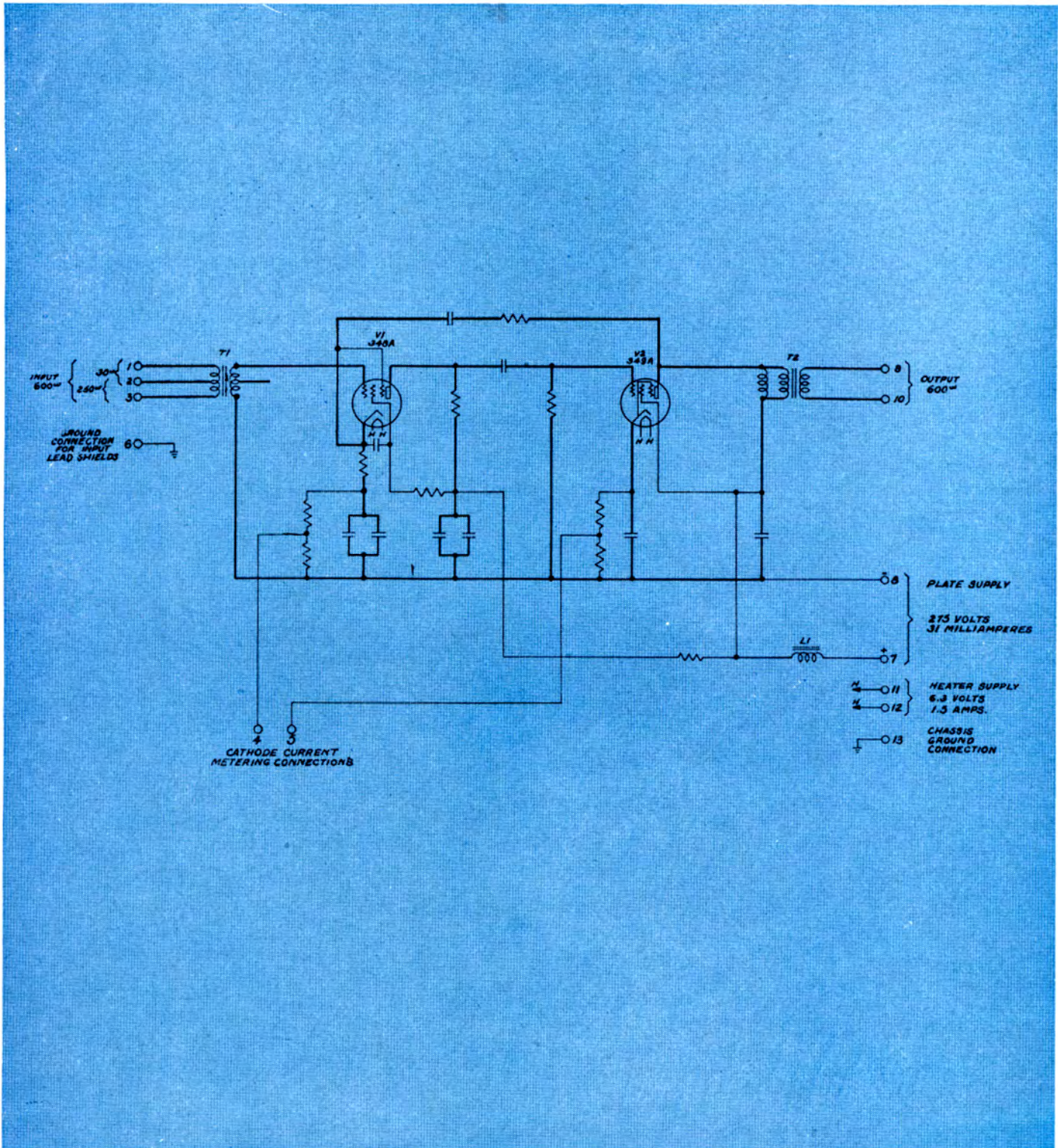


Figure 31 — Schematic of 132A Main Amplifier.

133A LINE AMPLIFIER

Tops for FM

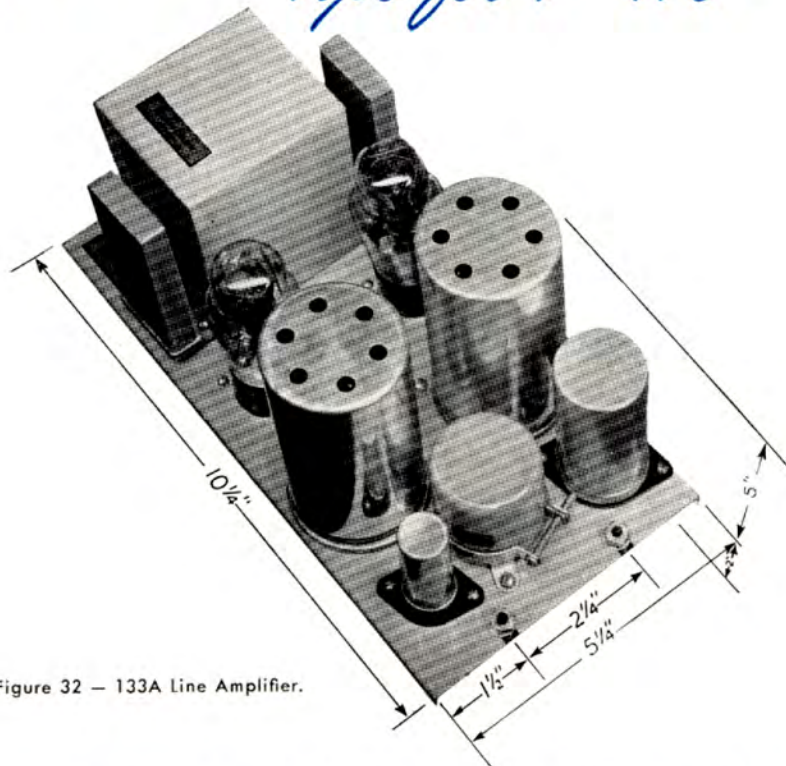


Figure 32 — 133A Line Amplifier.

Use — A multi-purpose amplifier providing greater output power than most line amplifiers and less harmonic distortion than many lower-powered units of this type. Its versatility of application is outstanding in the AM and FM speech input and sound system fields.

Used as a line amplifier, the unit can either match or bridge 600 ohm impedances, and provides ample power capacity to feed heavily equalized transmission lines, complex switching systems or branching networks, contributing a minimum of harmonic distortion — less than is found in many lower-powered units.

As an isolation amplifier, it can be bridged on main circuits without noticeably affecting the main line transmission. Here again, power and gain are adequate for supplying even the highest level studio bus systems.

For general monitoring purposes, the 133A Amplifier has sufficient power for many studio applications. An output transformer with taps which will satisfactorily feed circuit impedances over a range from 1 to 1200 ohms has been included in its design.

Description — The 133A Amplifier is of the two-stage, push-pull type, incorporating stabilized feedback as a further assurance of high grade transmission. The unit is small in size, light in weight, permitting ready installation in new or existing systems. Resistors in cathode circuits are provided to permit easy tube checks.

Features

- Multi-purpose amplifier.
- Versatility of application, as line or isolation amplifier

- or for general monitoring purposes.
- Output transformer for feeding circuit impedances from 1 to 1200 ohms.
- Stabilized feedback for high grade transmission.
- Small size, lightweight.

Specifications

Frequency Response: Uniform within ± 1 db over the range 50 to 15,000 cycles.

Output Noise: -65 dbm unweighted with maximum gain. -70 dbm unweighted with 5.2 db output pad connected.

Source Impedance: 600 ohms nominal matching or high impedance (20,000 ohms) bridging.

Load Impedance: Tapped output transformer provides for operation into any impedance from 1 to 1200 ohms.

Maximum Gain: 47 db with 600 ohm matching input; 21.5 db with bridging input.

Output Power: 4 watts (+36 dbm) with 1 per cent harmonics.

Power Supply: Filament 6.3 volts, 3 amperes; plate 275 volts, 66 ma., d-c.

VACUUM TUBES

Quantity Required	Western Electric	Commercial Receiver Types
2	348A or	1620 (or 6J7)
2	349A or	6F6
4		

Mounting: Designed for horizontal or vertical desk mounting or for rack mounting on a 177 or 190 Type Mounting Plate. A 296 Type Panel required for each mounting plate.

Dimensions: 10 1/4" wide, 5 1/4" deep and 7" high.

Weight: 6 1/2 pounds.

Finish: Light gray.

Accessories: The following accessory equipment is recom-

mended for use with the Western Electric 133A Amplifier:

- 1 — KS-10003 Meter (for measuring plate currents of vacuum tubes).
- 1 — Western Electric 18 or 20 Type Rectifier.
- 1 — Western Electric 177 or 190 Type Mounting plate.
- 1 — Western Electric 296 Type Panel. See "Components and Accessories" for ordering information.

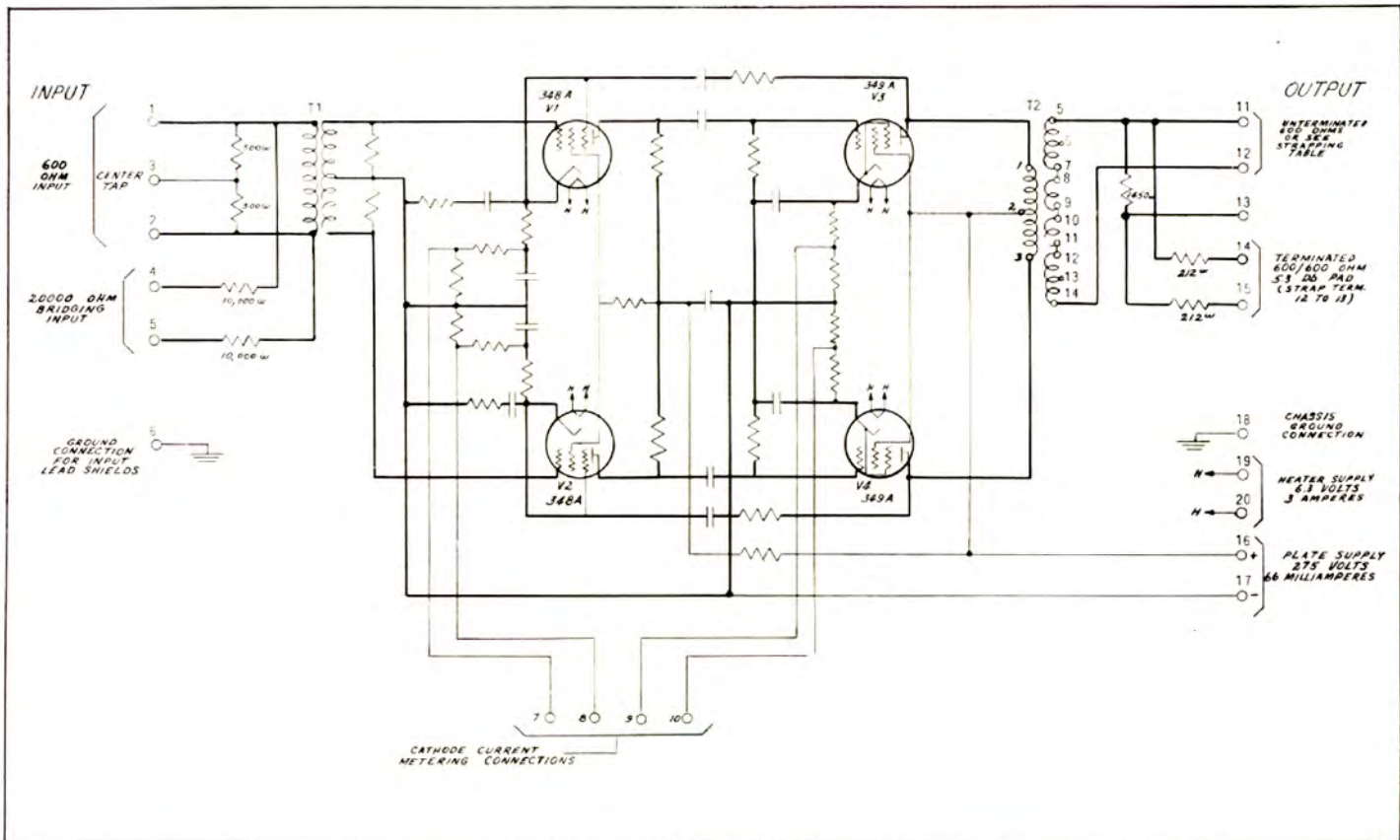


Figure 33 — Schematic of 133A Line Amplifier.

OUTPUT TRANSFORMER STRAPPING TABLE T-2

NOMINAL LOAD IMPEDANCE	WORKING RANGE OF LOAD IMPEDANCE	STRAP TERMINALS	OUTPUT CONNECTIONS
600 w	300 w TO 1200 w	7-8, 9-10, 11-12	5 & 14
150 w	70 w TO 300 w	7-8, 9-14, 11-12, 5-10	5 & 14
30 w	20 w TO 70 w	7-8, 9-10, 11-12	6 & 13
16 w	10 w TO 20 w	7-8-10, 9-11-12,	6 & 13
7.5 w	3 w TO 10 w	7-9, 10-12, 6-8, 11-13	6 & 13
1.75 w	1 w TO 3 w	6-8-10-12, 7-9-11-13	6 & 13

Western Electric

