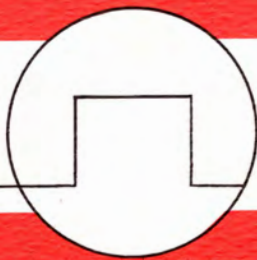


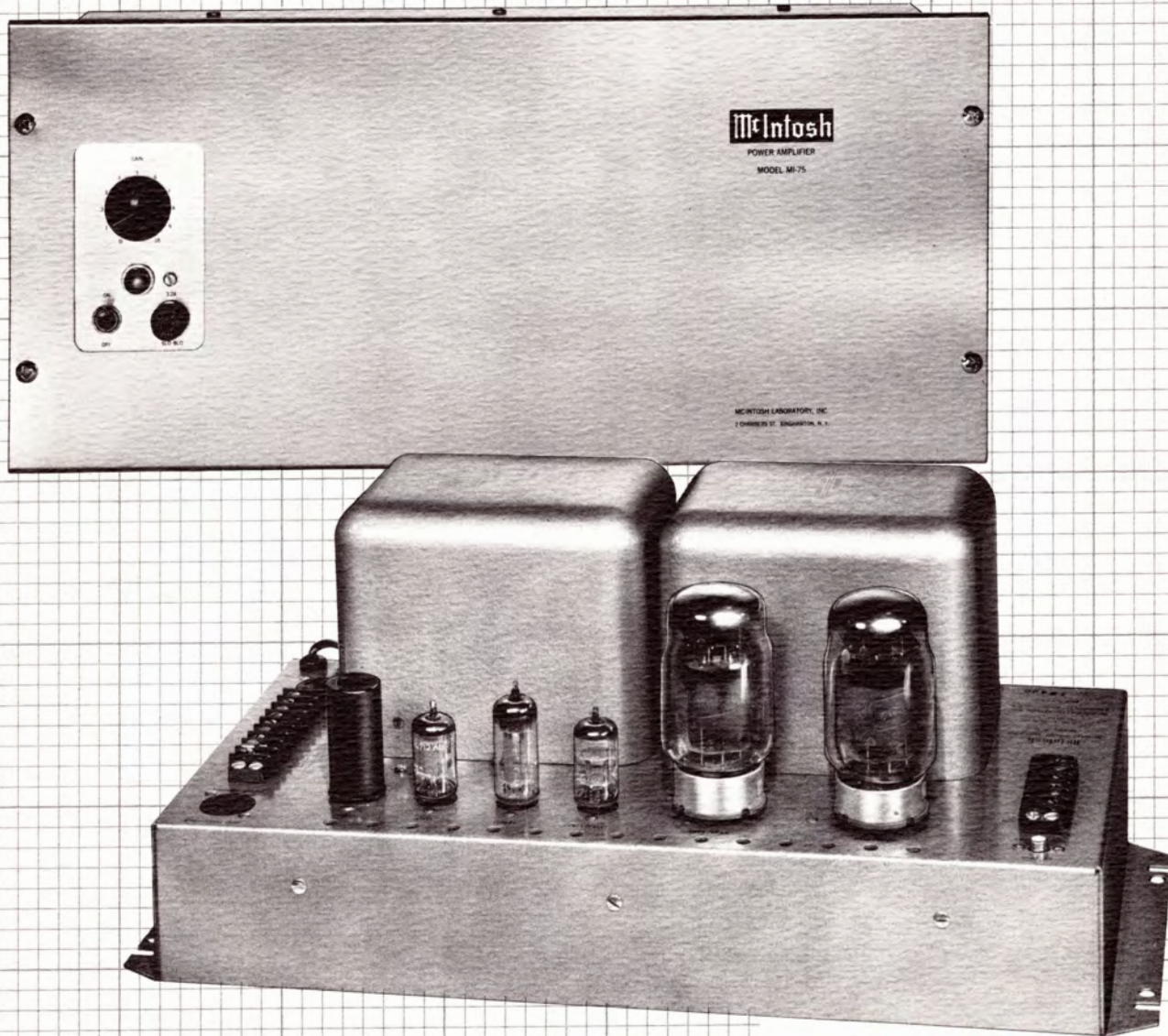
# McIntosh



# MI 75

## 75 WATT POWER AMPLIFIER

# INDUSTRIAL



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McIntosh MI 75



# McINTOSH MI 75 POWER AMPLIFIER

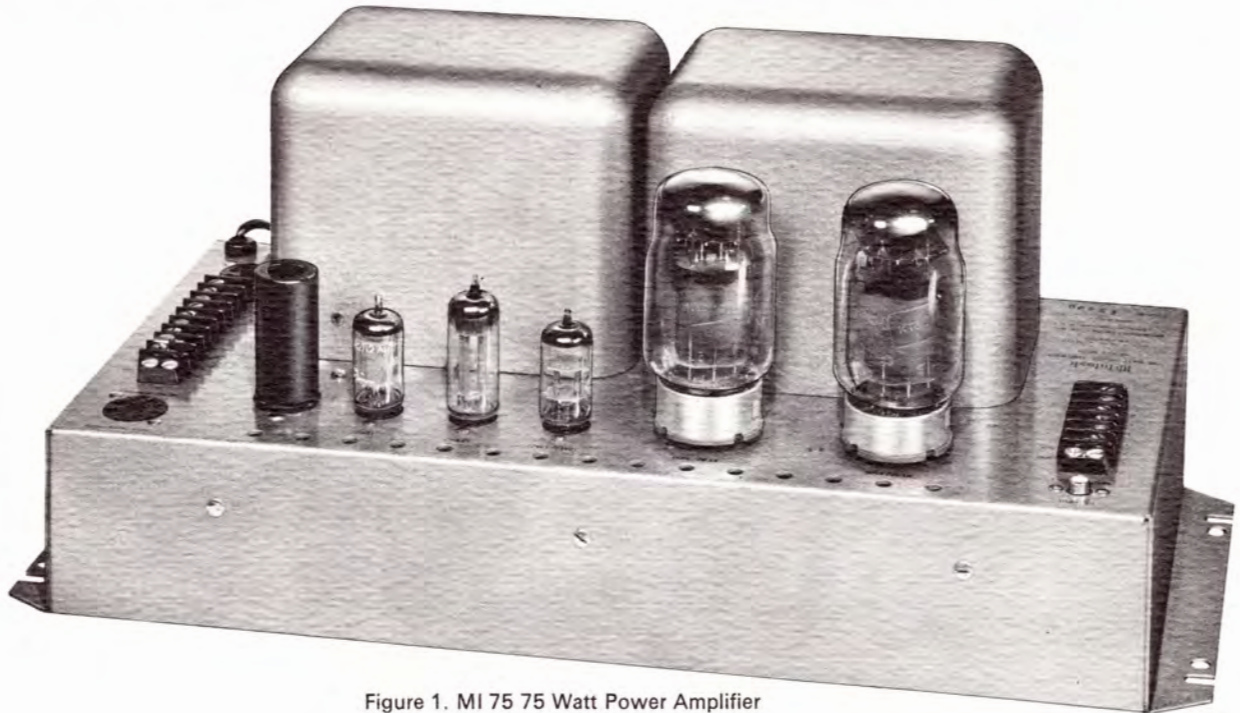


Figure 1. MI 75 75 Watt Power Amplifier

## GENERAL DESCRIPTION

The McIntosh MI 75 power amplifier is designed for heavy duty industrial audio applications. It delivers high power and high quality. The MI 75 produces 75 watts RMS power with total harmonic distortion of less than 0.5% at any frequency from 20 cycles through 20,000 cycles. Typical industrial applications for the MI 75 include recording studios, broadcast stations, high quality public address and sound reinforcement, shake table drivers and laboratory instru-

mentation.

A special feature of the MI 75 is the large number of output impedance and voltage taps provided. Include 4, 8, 16, 67, 150, 600 ohms. Voltage taps include 25 volts, 70.7 volts, 115 and 230 volts.

The MI 75 as well as all McIntosh amplifiers use the finest component parts and construction for long maintenance free operation.

## TECHNICAL DESCRIPTION

The patented McIntosh Unity Coupled circuit and output transformers have made McIntosh amplifiers the leaders of the audio industry.

Before 1947, low distortion at high power and high efficiency over the entire audio frequency range was impossible. The new McIntosh engineering approach created an amplifier which produces high power with distortion well below 1% over the entire audio range from 20 cycles through 20,000 cycles. The McIntosh Unity Coupled circuit and Bifilar wound output transformer are the keys to the superior performance of McIntosh amplifiers. With the introduction of the McIntosh amplifier, new standards for distortion-free audio performance were established.

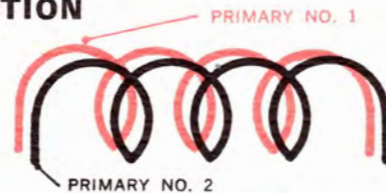


Figure 2. Bifilar Winding

The McIntosh output transformer is unique. It has two primary windings wound in a bifilar manner. In the bifilar technique both primary wires are wound side by side. Each turn of primary number one is next to the same turn of primary number two. Almost complete magnetic coupling exists between the two wires. The magnetic coupling is reinforced by the capacitance between the two wires.



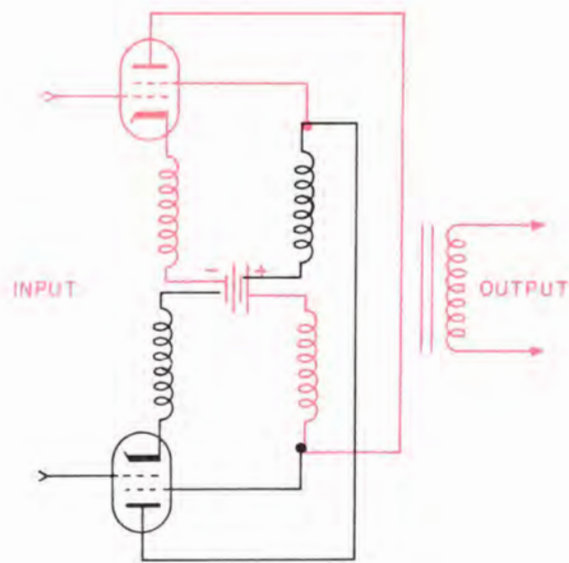


Figure 3. McIntosh Output Circuit

In the McIntosh Unity Coupled circuit one bifilar primary winding is connected through the power supply to the plate and cathode of one output tube. The other bifilar primary winding is similarly connected to the other output tube.

All conventional low distortion high power amplifiers use push-pull output circuits known as class  $AB_1$ ,  $AB_2$ , or B. The two output tubes are arranged in a balanced circuit. This permits each tube to operate alternately somewhat over half the time during one complete sine wave cycle. The push-pull method reduces heating and permits more power from a given type of tube.

Despite the advantages of the conventional push-pull circuit, one major problem remained unsolved. When the current in each tube is cut off to begin its idle period, distortion is produced at the instant of cutoff. Distortion is produced again at the instant tube current starts flowing. This form of distortion is known as Notch Distortion.

Imperfect coupling between the primary windings in conventional output transformers produces inter-primary leakage reactance. This leakage reactance causes notch distortion. Trying to improve primary coupling in a conventional transformer decreases power response at both low and high frequencies. Output tube temperature increases and power output lowers.

The McIntosh Unity Coupled output circuit

and bifilar transformer is the first commercial break-through to eliminate notch distortion. In a McIntosh amplifier both output tubes are coupled almost to perfection. Extremely close coupling eliminates the conditions causing notch distortion. The two output tubes also act as partial cathode followers. Half of the output circuit is in the cathode and half is in the plate of each output tube. The output tubes thus operate with a local feedback loop. This reduces distortion, internal generator resistance and tube balance requirements.

Lack of coupling between the primary and secondary windings of an output transformer limits high frequency response. This is due to primary-secondary leakage reactance. The primary and secondary windings of the McIntosh output transformer are interleaved 15 times to provide excellent coupling. The interleaving is accomplished by winding alternant groups of primary and secondary layers until the total transformer is wound. Interleaving assures power bandwidth to more than 40,000 cycles in the MI 75.

The McIntosh circuit brings a new level of perfection to push-pull high efficiency power amplifiers.

A silicon rectifier power supply is used in the MI 75 to improve voltage regulation. Good voltage regulation permits overloads with very fast recovery, excellent transient response and complete stability. The silicon rectifier allows higher operating efficiency, cooler operation and longer amplifier life.

A thermistor is used in series with the MI 75 AC power line input. This limits current surges when the amplifier is turned on. The thermistor resistance is approximately 25 ohms cold. After the amplifier is turned on, the AC current flow heats the thermistor. Its resistance decreases to less than 0.7 ohm for normal operation. Use of the thermistor extends tube and component life.





## **OUTPUTS**

All output impedance and voltage connections may be made to either the OUTPUT octal receptacle or the output barrier terminal strip. The numbers on the output connection chart correspond to the same numbers on both the barrier strip and the octal receptacle.

## **AC POWER**

The MI 75 can operate from a 50 or 60 cycle power source of 110 to 130 volts. An AC line voltage switch is provided on the MI 75 rear panel next to the power line cord. For line voltages from 110 to 120, set the MI 75 switch to 117. For line voltages from 120 to 130, set the MI 75 switch to 125.

SEE SCHEMATIC

Your McIntosh MI 75 Amplifier will give you many years of maintenance-free performance. If you have any questions concerning the operation or maintenance of this amplifier please contact:

Customer Service  
McIntosh Laboratory Inc.  
2 Chambers Street  
Binghamton, New York  
Our telephone number is 723-5491.  
The direct dial area code is 607.

## **GUARANTEE**

McIntosh Laboratory Incorporated guarantees this equipment to perform as advertised. We also guarantee the mechanical and electrical workmanship and components of this equipment to be free of defects for a period of 90 days from date of

purchase. This guarantee does not extend to components damaged by improper use nor does it extend to damage incurred during transportation to and from McIntosh Laboratory, Inc.

# McIntosh

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Made in U.S.A.

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Design subject to change without notice.