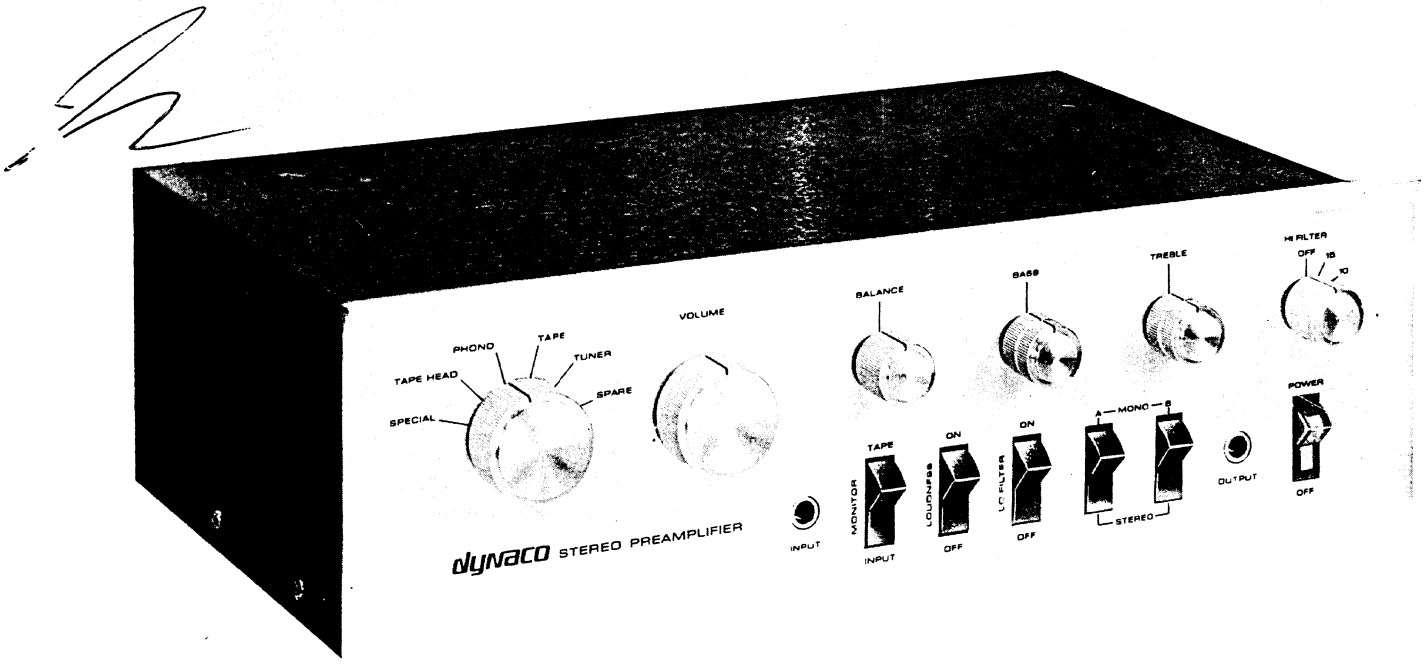
dynaco PAT-4
STEREO PREAMPLIFIER

SERIAL NUMBER
18031033

This number must be mentioned in all communications concerning this equipment.

INSTRUCTIONS FOR ASSEMBLY OPERATION



Price $1.00

patents pending

929518

dynaco INC. 3060 Jefferson St., Philadelphia, Pa. 19121 U.S.A.

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SPECIFICATIONS

Frequency Response: High Level inputs: ±0.5 db from 10 Hz to 100 KHz
Low Level inputs: ±1 db from 20 Hz to 20 KHz (equalized)

Distortion at rated 2 volt output: THD less than 0.05% 20 Hz to 20 KHz
IM less than 0.05% with any combination of test frequencies

Hum and Noise: Magnetic Phono: 70 db below a 10 mv input signal
High Level: 85 db below a 0.5 volt input signal

Gain: Magnetic Phono: 54 db at 1000 Hz
High Level: 20 db

Tone Control Range: ±16 db @ 50 Hz
±12 db @ 10 KHz

Maximum Output: 10 volts into high impedance
5 volts into 600 ohms

Impedances: Magnetic Phono: 47,000 ohms
Tape Head: 100,000 ohms
High Level: 100,000 ohms
Audio Output: 600 ohms
To Tape: from low level inputs, 600 ohms
from high level inputs, same as source
Amplifier Input: Nominal load 10,000 ohms or higher

Inputs: Low level or high level RIAA magnetic phono or ceramic phono; NAB 7½" tape head; Special (normally microphone); Tape amplifier; Tuner; Spare high level for TV, etc.; Front panel high level

Outputs: Tape output ahead of controls; 2 Audio outputs (one switched by front panel jack); Front panel output

Controls: Selector switch; Volume control; Balance control; 2 Bass controls; 2 Treble controls; High Filter switch @ 15 KHz, 10 KHz and 7 KHz; Loudness compensation switch; Tape Monitor switch; Low Filter switch; paired Stereo-Mono switches to provide A or B channels independently or combined (A + B) with 6 db blend for 3rd channel output, or stereo; illuminated power switch

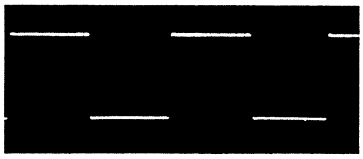
Semiconductor Complement: 8 transistors; 2 diodes

Dimensions: 13½" wide by 4¼" high by 9" deep

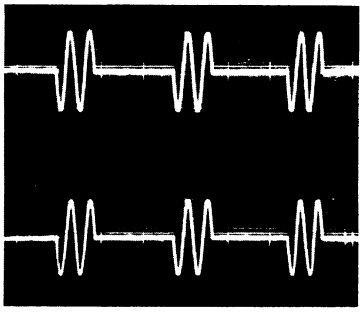
Shipping Weight: 10 lbs.

Power Consumption: 5 watts

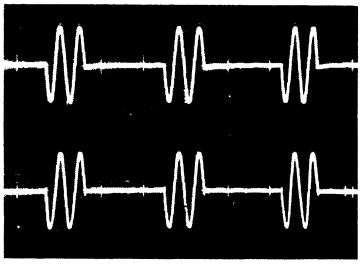
100 Hz Square Wave



10 KHz Square Wave

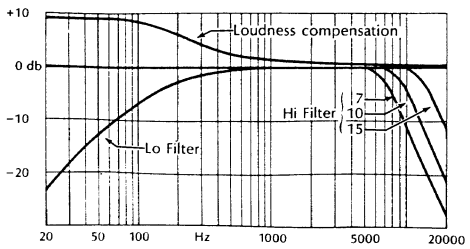


2 cycle 100 Hz Tone Burst

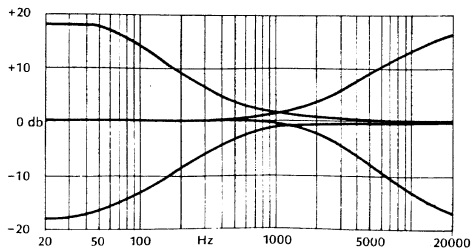


2 cycle 10 KHz Tone Burst

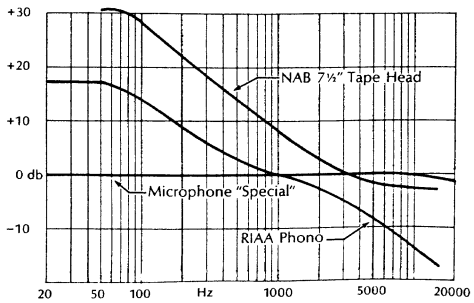
Tone bursts are indistinguishable at output of PAT-4 (top) from generator output (bottom).



FILTER ACTION



TONE CONTROL RANGE



EQUALIZATION

DYNACO PAT-4 SOLID STATE STEREO PREAMPLIFIER

INTRODUCTION

The Dynaco PAT-4 is an all silicon solid state control center and preamplifier which must be used in conjunction with a basic power amplifier, such as the Dynaco Stereo 70 or Stereo 120, and a pair of loudspeakers. In addition, the PAT-4 provides sufficient power for a pair of 600 ohm headphones. When headphones only are to be used, a power amplifier is not required.

All input signal sources, such as a phonograph, radio tuner, tape recorder, etc., are connected to the inputs of the PAT-4 and this preamplifier is the control center for all mono and stereo signals. Thoughtful planning has provided exceptional flexibility to accommodate future requirements for such sources as a second phonograph or a microphone, television sound, musical instruments requiring electronic amplification, etc. A standard phone jack input and output on the front panel enables convenient connection of a tape recorder or headphones, even when the preamplifier is installed in a cabinet.

The components in the PAT-4 are of the highest quality to protect against failure, and all parts are operated conservatively with close tolerances to assure continued proper operation. The transistors have been specially selected for minimum noise and distortion in sustained use and the etched circuit modules have been pretested in the circuit to ensure that every unit, after assembly, will meet the specifications normally associated only with laboratory prototypes.

The specifications of the PAT-4 speak for themselves. The distortion and noise, up to levels well beyond those required to drive any conventional amplifier, are comparable to the finest tube designs and below the levels which can be accurately measured with commercial grade test equipment. Specifications cannot define all the facets of superior audio performance, however. In use with varying program material, the PAT-4 achieves its design goals of sonic ease and naturalness always sought but rarely achieved in solid state designs. There is remarkable clarity and an impression of direct contact with the original without the extra brightness or stridency which, unfortunately, is sometimes attributed to high fidelity sound.

Like any precision equipment, the superior capabilities of the PAT-4 will best be realized when it is properly connected and operated. Please read the Operating Instructions below before attempting to use this preamplifier.

OPERATING INSTRUCTIONS

Connection to Power Amplifiers

On the back panel of the PAT-4 there are two pairs of audio outputs which may be connected to a power amplifier, and one pair for connection to a tape recorder. The upper row of sockets is for the Left or "A" channel, and the lower row is for the Right or "B" channel of a stereo system. A monophonic connection may be made to either channel, but the left one is most commonly used. The PAT-4 may also be used on either channel as a monophonic preamplifier without difficulty and without termination of the second channel.

Output 1 provides a low impedance (600 ohms) output at all times for normal connection to the amplifier through shielded single conductor cable of any length up to 50 feet. Two 6 foot audio cables are supplied with the unit for this purpose.

Output 2 is identical to Output 1 with the exception that it is interlocked with the front panel *Output* jack, so that Output 2 is automatically disconnected when a phone plug is inserted into the front panel jack. Thus, if headphones were connected, the loudspeakers would be silenced.

If Output 1 is used, and headphones are also connected, it will be necessary to advance the volume control farther because of the power requirements of the headphones to obtain the same level of sound from the loudspeakers.

Connection from Phonograph

There are three pairs of input sockets marked "Phono." The type and output level of the cartridge used determines which pair (only one at a time) should be used. One pair is for a ceramic cartridge, marked *Cer,* and the other two pairs provide RIAA equalization for magnetic cartridges. The *Low* input is used with all normal magnetic cartridges (maximum inputs up to 80 mv). If higher output cartridges become available, these can be used instead on the *High* input with a simple modification to each circuit board. Information and parts for this change will be supplied on request by Dynaco.

Ground Connection

Sometimes the phonograph or tape machine will have an extra wire which is to be attached to the preamplifier chassis. A grounding screw *Gnd* is provided for this purpose. Under some unusual conditions of use, where it is advisable to ground the system to a water pipe or similar earth connection, this screw can serve as the connection point.

In general, it is advisable to use the *minimum* number of separate ground leads necessary to achieve lowest hum. Some experimentation may be necessary, but extra leads often cause an increase in the hum level of a good music system.