

dynaco

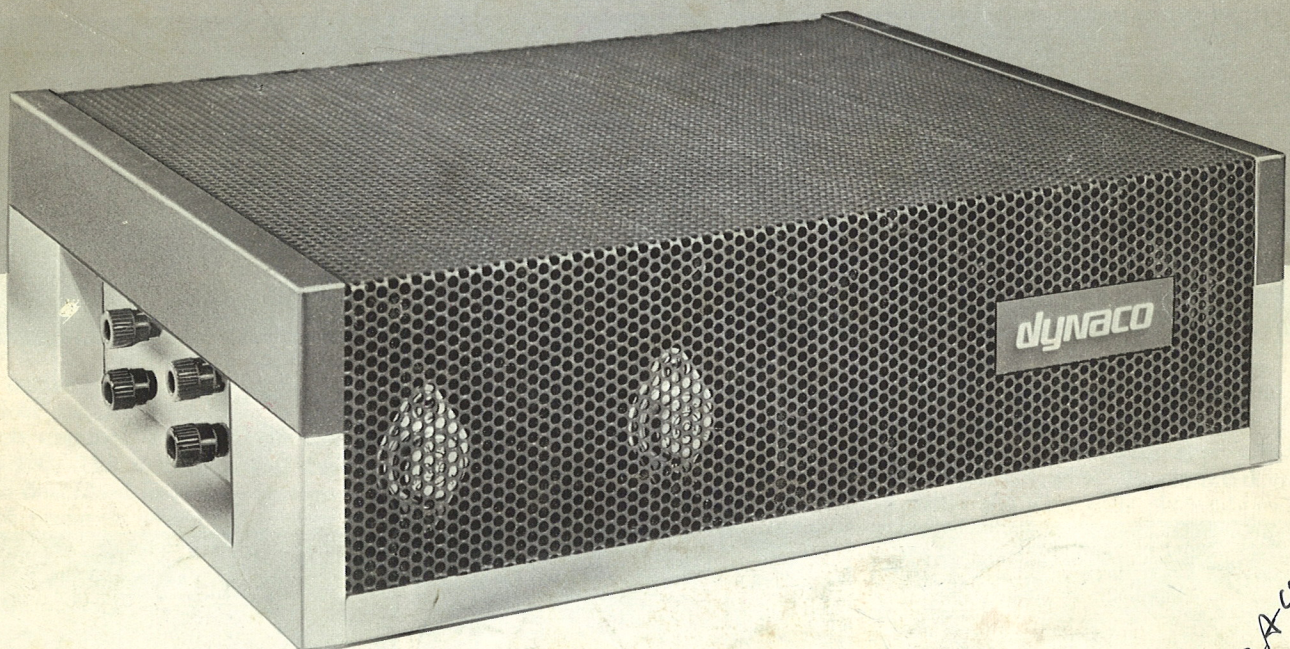
STEREO 120

SERIAL NUMBER

17318043

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

INSTRUCTIONS FOR ASSEMBLY OPERATION



RC440636

Price \$1.00

patents pending

929917

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SPECIFICATIONS

FREQUENCY RESPONSE: 5 Hz to 100 kHz ± 0.5 db.

POWER BANDWIDTH (IHF): 5 Hz to 50 kHz half power output at less than 0.5% total harmonic distortion into an 8 ohm load.

HARMONIC DISTORTION: *Less than 0.5%* at any power level up to 60 watts per channel into 8 ohms at any frequency between 20 Hz and 20 kHz. Distortion reduces at lower power levels.

INTERMODULATION DISTORTION: *Less than 0.5%* at any power level up to 60 watts per channel into 8 ohms with any combination of test frequencies. Distortion reduces at lower power levels.

NOISE: 95 db below rated output *unweighted* with shorted input; 100 db down by IHF standards.

DAMPING FACTOR: Greater than 40 from 20 Hz to 20 kHz.

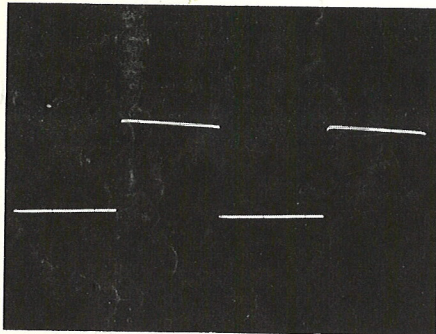
SEPARATION: More than 70 db from 20 Hz to 20 kHz.

INPUT: 100,000 ohms; 1.5 volts for 60 watts output.

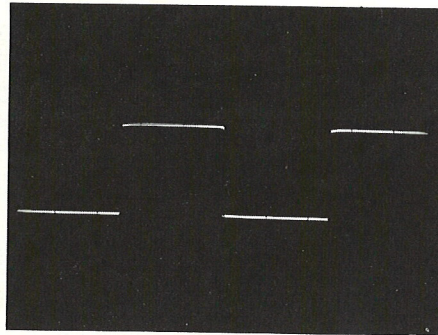
SEMICONDUCTOR COMPLEMENT: 15 transistors; 15 diodes.

SIZE: 13" x 10 $\frac{1}{2}$ " x 4". **WEIGHT:** 20 lbs.

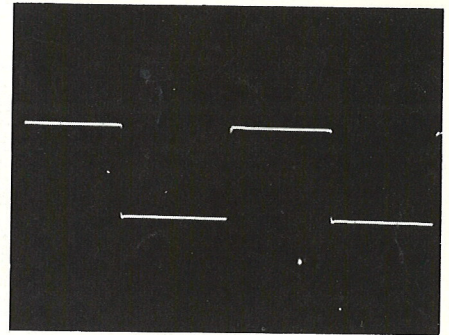
MAXIMUM POWER CONSUMPTION: 400 watts.



100 Hz

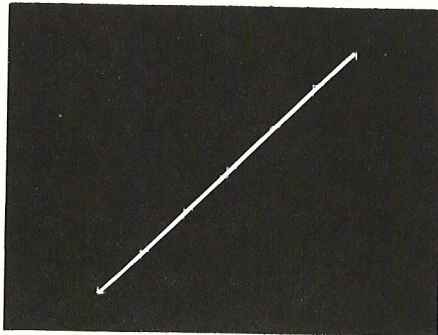


1 kHz

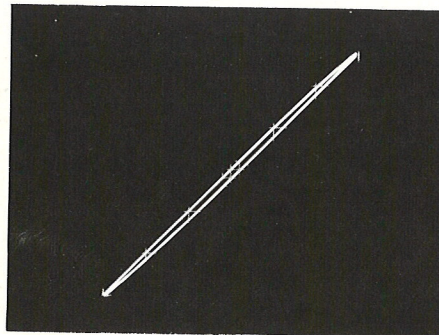


10 kHz

SQUARE WAVE PERFORMANCE: This is a good indication of linearity from 10 Hz to 100 kHz, since good square wave reproduction requires bandwidth in excess of 1/10th to 10 times displayed frequency.

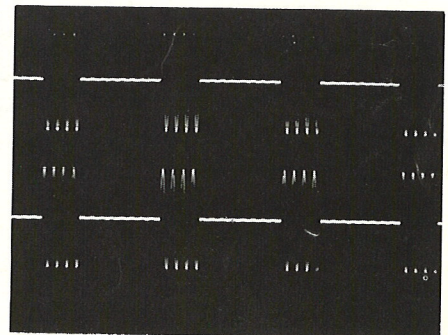


2 kHz



20 kHz

INPUT-OUTPUT LINEARITY AT 60 WATTS



TONE BURST:

4 cycle 20 kHz through amplifier at 60 watts is indistinguishable from generator (below).

THE DYNACO STEREO 120

Do not attempt to install or use this amplifier until the section "Operating Instructions" has been carefully read.

INTRODUCTION

The Dynaco Stereo 120 is an all silicon transistor basic power amplifier for use with separate preamplifiers such as the Dynaco PAS-3X or PAT-4, or for use with tape recorders or tuners such as the Dynaco FM-5 which have their own volume controls. The Stereo 120 contains two 60 watt amplifiers on one chassis with a common power supply.

Although the Stereo 120 is a solid state device, containing transistors and similar semi-conductors, it has been designed to be used under normal conditions without special safety precautions, just as if it were a high grade tube amplifier. Thus it can be connected to source and speaker components and used with confidence in all conventional arrangements. There are no circuit breakers, speaker fuses, or other resettable devices to impede the use of the Stereo 120 under any reasonable conditions of use or abuse. This is achieved by using novel circuits (on which patents are pending) which automatically and instantly protect the amplifier.

The components in the Stereo 120 are of the highest quality to protect against failure, both now and for many years in the future. All parts are used conservatively with

close tolerances to assure proper operation, and etched circuit modules are pretested under actual use conditions to ensure that every unit, after assembly, will meet the specifications normally associated with laboratory prototypes.

The specifications of the Stereo 120 speak for themselves. The distortion at low levels is comparable to that of the finest tube designs, while the high power distortion remains inaudible. Specifications do not reveal all the facets of sound quality, however. In use with varying program material, the Stereo 120 justifies its design efforts to have qualities of ease and naturalness always sought and rarely achieved in solid state designs. There is no extra brightness or stridency which is unfortunately sometimes attributed to high fidelity sound, but rather there is an impression of limitless range and effortless handling of the highest power peaks.

Like any precision equipment, the superior capabilities of the Stereo 120 will best be obtained when it is utilized properly. Therefore, read these instructions, and make the specified connections to the input audio source and to the loudspeakers *before connecting the amplifier to a source of AC power.*

OPERATING INSTRUCTIONS

Connection from preamplifier or other signal source

Since the Stereo 120 is a *basic* stereo power amplifier, it has no operating controls; it should be supplied with an audio signal from a stereo preamplifier or similar signal source (such as a multiplex tuner or a stereo tape player with a volume control). Most preamplifiers can supply the required 1.5 volt signal and can operate into the 100,000 ohm input impedance of the Stereo 120. In particular, the Dynaco PAS-3X (or PAS-2X) is recommended with the Stereo 120, as well as the solid state PAT-4 preamplifier. With earlier Dynaco preamplifiers such as the PAS-2, PAS-3 or a pair of PAM-1s, a simple change of a resistor on each channel will provide the proper match for the Stereo 120. The installation of this resistor in the preamplifier is described in a later section of this manual. Earlier Dynaco preamps which have been modified by adding the TC-3X tone control kit are directly useable.

If the Stereo 120 is being used with another make of preamplifier, tuner or tape recorder, you should check with the manufacturer of the equipment to see if it is suitable for 100,000 ohm load impedance.

From the preamplifier, or other source, conventional single-conductor shielded cables with standard "phono" plugs should be connected to the inputs of the Stereo 120. Make certain that the plugs are pushed fully into the sockets, and that the outer ground connections on the plugs are gripping the sockets tightly at each end. The maximum length of these shielded cables is determined by the output impedance of the preamplifier and can generally be as much as 25 feet if the Stereo 120 is to be remotely installed.

Connection to loudspeakers

The Stereo 120 is supplied with two pairs of different color binding posts, one pair for each channel output. The "common" terminal is black, and the "hot" connection is red. The two black posts are electrically connected internally, and are also connected to the chassis, so that the amplifier may be used with special output connections which require common grounds if desired. *You must be certain that the polarity of such output connections is never reversed, and that the "hot" sides are never accidentally connected together in accessory equipment.*

The binding posts accept single "banana plugs", double "banana plugs" (such as the General Radio type 274-MB), spade lugs, or simply stranded wire. If stranded wire is used (as from lamp cord) the wire ends preferably should be "tinned" with solder first to avoid fraying. To connect the wire, unscrew the cap until the horizontal hole in the metal shaft is uncovered, push the wire end through the hole and tighten the cap. Make certain that no wire strands are touching another post or the chassis. The banana plugs are inserted into the ends of the posts. These plugs are available from any radio parts distributor.

Quality loudspeakers whose rated impedances are between 4 and 16 ohms can be connected directly to the binding posts. For short distances (25 feet or less) ordinary #18 lamp cord can be used. For longer distances, it is suggested that heavier cable (#16 or #14) be used.

The terminals on loudspeakers are marked in different ways, and sometimes are left unidentified. They may be (+) and (-), (1) and (2), or (C) and (8 ohms) for