

1. Set the **SELECTOR** to the unit you wish to use and set **VOLUME** control to the center. Normally the **BASS** and **TREBLE** tone control knobs are placed at the center, but depending on the acoustics at the room or personal preference, these knobs may be **Altered** to accentuate or decrease the highs and lows. Also when listening at low volume levels, it is advisable to turn the **LOUDNESS** switch in "ON" position to accentuate the lows which are otherwise ordinarily lost. When listening to worn scratchy records, turning on the **SCRATCH** filter switch, this will add to your listening pleasure.

2. Set power switch in "ON" position to switch on amplifier. Operate your associated equipment (record player, tuner, etc.) and increase amplifier volume controls for desired level of sound.

If you are using a program source with a monophonic output (one cable), set the **MONO-STEREO** switch "MONO". If your program source is stereophonic, set to "Stereo" position.

## TAPE RECORDING AND MONITORING

Connect an audio cable from the left channel "TAPE-OUT" jack to the left input (high level) of the tape-recorder. Repeat for the right channel. Also left channel "TAPE-IN" to the left channel output (high level) of the tape-recorder. Repeat for the right channel. To listen to the play-back of recorded tape, place the "TAPE" switch to "ON" position. In this position it automatically bypass the "SELECTOR" switch and permits you to listen to tape only. When you are finished with the tape, immediately return the switch to the "OFF" position. Otherwise you will be unable to hear any other program material. If your taperecorder incorporates a separate play-back head with pre-amplifier, it is possible to listen to the recording a fraction of a second after it is made as a quality check.

## SPEAKER PHASING AND BALANCING:

Correct phasing and balancing is important in a stereophonic system. If the speakers are out of phase, they will work in opposition to



## CONTROL POSITIONS

each other and there will be a noticeable loss in the frequencies. If the speaker output levels are not equal or balanced initially, there may be an unnatural distribution of sound on a stereo program, resulting in a loss of the stereo effect.

To obtain correct balancing and phasing, use the following procedure.

1. Set the volume for a moderate output and stand at a position equidistant from the speakers.
2. Play a monophonic record containing heavy bass tones. Adjust the balance control so that the sound output from each speaker is roughly the same level.
3. Listen carefully to the sound output and determine the correct phase of the speaker, reversing the "+" "-" terminals of either speaker. The correct or "in-phase" connection will produce the greatest amount of bass and you will also notice that the sound seems to come from an area somewhere between the two speakers.

## NOTE:

1. Never reverse the "+" "-" connection when the power is being applied to the unit.
2. If you use identical speakers you should connect the speaker leads according to the speaker terminal positions of both speakers. In this case you can obtain the "in-phase" connection.

Inputs	: Phono (Mag), Phono (X-Tal), Tuner, Aux, Tape-in
Outputs	: Speaker Output (4-16 ohms), Tape-output
Switches	: Selector, Loudness, Tape-Monitor, Mode, Hi-Filter, and Power
Controls	: Volume, Balance, Bass, Treble
Power Source	: 117/220/240 Volts 50/60 Hz
Power Consumption	: 30 watts Max
Dimensions	: 10 $\frac{1}{2}$ " $\times$ 4" $\times$ 13 $\frac{1}{2}$ "
Weight	: 8 lbs.
Transistor & Diode	: 14-Silicon Transistor 4-Silicon Diodes