OPERATING THE CONTROLS WHEN PLAYING RECORDS

15. (*a*) The 'RIAA' (same as British Standard 1928/61 for Fine Groove Records) playback characteristic has been incorporated in the 'STEREO 30' as this is an internationally agreed standard, and has been in world-wide use since 1955 for 33⅓ and 45 r.p.m. records. This characteristic does not take into account the acoustics of the recording studio, the position of the microphones relative to the artistes, your pickup, your loudspeaker systems, the acoustics of your room and your particular ears! In other words, the playback characteristic is of use only as an approximation, and it may well be necessary to adjust the final result by using the controls marked 'BASS' and 'TREBLE'; this is the reason for their presence. When playing LP records (33⅓ and 45 r.p.m.) made prior to 1955 the bass and treble controls may be used to correct for differences in the recording characteristic.
When playing European 78 records the 'TREBLE' control should, theoretically, be turned to '2 o'clock' and the bass control to '11 o'clock' but, here again, you may prefer the results with the controls at '12 o'clock'!

(*b*) The 'FILTER' switch can be used to give very comprehensive control of the treble frequencies. When the control is turned to '9' a filter is switched into circuit, the turnover frequency being 9 kc/s (i.e. the frequency at which the response falls 3dB). Other turnover frequencies of 6 kc/s and 4 kc/s are also obtainable. The 'SLOPE' control varies the rate of attenuation above the turnover frequency from 12 dB per octave ('GRADUAL') to 30 dB per octave ('STEEP'). The 'FILTER' and 'SLOPE' controls together with the 'TREBLE' control give an enormous range of high frequency attenuation which is very useful when reproducing music in which there is high distortion at high frequencies, for it is then possible to remove much of the offensiveness whilst losing a minimum of the musical content. The 'SLOPE' control is inoperative when the 'FILTER' is at 'OFF'.

SPECIAL NOTE
With our previous Varislope pre-amplifiers a number of users reported that the filter 'does not work' on the 9 kc/s and 6 kc/s positions. In *every case* on our checking the pre-amplifier it was faultless.
The explanation must be that either the high frequencies were not being reproduced due to inadequate complementary equipment, i.e. pickups, loudspeakers, etc., and/or the particular listener could not hear large changes of intensity at high frequencies.

(*c*) BASS CONTROL
Consumer opinion in some countries insists on a magnitude of available bass boost which, if used at maximum, can only result in a travesty of the original music. We have provided you with an availability of bass boost which you certainly should not need if your pickup and loudspeakers are moderately good. It is not possible to obtain *true* bass from small loudspeaker systems by turning the 'BASS' control to maximum, though an intermediate setting may be helpful, particularly when listening at low intensity levels (as in an apartment late at night).

NOTES ON THE CHOICE AND PERFORMANCE OF STEREO PICKUPS

16. (*a*) Pickup Arms.
An arm should be as light and as rigid as possible, with the lowest possible friction in the pivots. A heavy arm will be necessary with a pickup cartridge (head) which is inferior in respect of its bass-resonance frequency being initially too high. Ideally, an arm and cartridge should be designed conjunctively; it is not possible to specify the performance of one without the other.

(*b*) The Stylus.
We most emphatically recommend *only* diamond. The initial cost will be greater, but the long term cost is much less, for diamond will last 100 times longer than the next best material, sapphire. Furthermore, because diamond does not chip and retains its contour it is less likely to damage expensive records.

(*c*) Pickup Cartridges for Stereo.
There are presently four basic types:
(i) Moving-magnet, and (ii) Variable-reluctance (magnetic, moving-iron). These are the most widely used types, and, assuming a high degree of design skill, the performances are comparable. They are robust and relatively simple to manufacture.
(iii) Moving-coil (Dynamic). Ideally, the moving-coils should be wound on a non-magnetic former. A low impedance coil together with a shielded transformer is essential for the best signal/hiss ratio. The moving-coil type is more difficult and more expensive to manufacture than types i and ii.
(iv) Crystal and Ceramic types. These are the cheapest, and because the output is high, the hum and hiss levels can be extremely low. However, to date these types give lower fidelity than the moving-coil, moving-magnet or variable-reluctance types of pickup.

GRAMOPHONE (PHONOGRAPH) MOTORS OR TURNTABLES

17. The main trouble with cheaper turntables and record changers is vibration, which is transmitted to the pickup stylus and appears in the sound output as a low-pitched 'rumble'. This 'rumble' will be more obtrusive when reproducing from stereo records because a stereo pickup is sensitive to vertical vibrations. Expensive transcription turntables are relatively free from 'rumble' because they are more precisely engineered than mass-produced units.