

Fig. 23

C. RECORD/PLAYBACK

EQUALIZATION – FREQUENCY RESPONSE

When a record/playback frequency response is run on a magnetic tape head with **no** record or playback equalization (constant-current record, flat playback) the output response curve will look like "CC R/P" in Fig. 24. The rising output in the low frequency region is caused by the typical $d\phi/dt$ effect of a magnetic transducer. The high frequency falloff is caused by playback gap losses, core losses, and tape demagnetization at shorter wavelengths.

Standard practice to develop a flat R/P response is to **equalize** the playback and record amplifiers by **boosting** the low frequencies during playback and **boosting** the **highs** during record. (See the PB and REC curves.) This system gives the best signal-to-noise ratio, dynamic range and frequency response. Since this response condition is caused by the shorter recorded wavelengths at the higher frequencies, the groups of curves are similar for various tape speeds, but are shifted to the right or the left of the frequency spectrum for higher or lower speeds.

A slight boost is usually incorporated in the low frequencies below 100 Hz during recording to compensate for droop in play amplifier equalization.

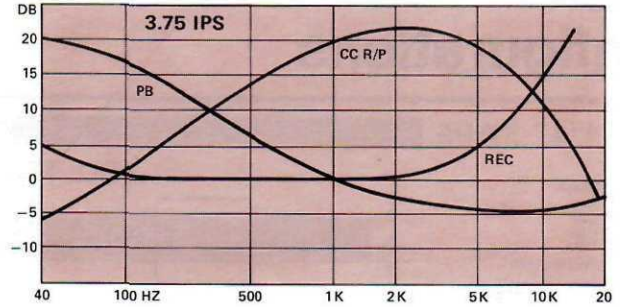
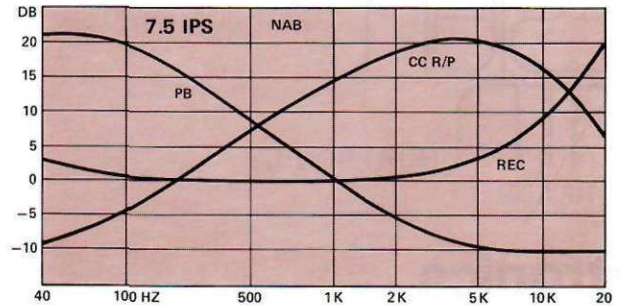


Fig. 24

Adjustments, Playback. Standard alignment or test tapes are available for most tape or film speeds. Practice is to play the test tape and trim the playback equalization until the response is flat over the spectrum. The frequency tones on the test tape have been recorded with the correct record equalization. The additive sum of all three curves on the graph should generate a flat response.

Record Equalization Adjustment. After the playback equalization has been adjusted from the test tape the record equalization is next varied to produce a flat record/play response from an audio oscillator. **Record level** during this procedure should be **-10 dB** from Standard Reference Level to prevent overloading at the high frequencies and erroneous results.

HOW TO SELECT AND SPECIFY

Selecting the proper head for your application can be accomplished by referring to the information below. Technical data on all Nortronics heads listed in the following index is contained on the

individual pages referenced. In determining the part number for your application, please refer to the step-by-step selection guide below.

1	2	3	4	5	6	7	8
DESIGNATE SERIES	DESIGNATE CASE STYLE	NUMBER OF CHANNELS	NUMBER OF TRACKS	TRACK LOCATION	ERASE ELECTRICAL CODE	R/P ELECTRICAL CODE	MOUNTING STYLE
P=Premium series XP=Extended tip—Premium PR or WP= Professional series (Standard has no prefix)	List proper letter designation from case outline drawings on each page	1=mono 2=stereo 3=3 channel 4=4 channel	H=2 track (half track) Q=4 track (quarter track) L=8 track	(mono heads only) NONE=Standard stereo offset C=Centered track Y=.020 off center (G1HY) .040 off center (B1HY)	(combo heads only) List code from specification chart	List code from specification chart	List proper mounting code shown on individual pages
EXAMPLE:							
P series	A case style	1 channels	Q tracks	C track location	4 erase code	6K electrical code	SL mounting
PREMIUM SERIES:	"A" case style; 1 channel (mono); 4 track; centered track; combination erase-R/P head; No. 4 erase electrical code; No. 6K R/P electrical code; side mount with erase section to the left.						

NORTRONICS CO. INC. designs and heads are in many cases patented in the United States and Foreign Countries. These include: U.S. Patent No's. 3211843, 3155359, 3484562, 3484564, 3484565, 3806902, 3521006, 3564153, 3744040 and 3710362.