

Erasing a tape

When a recording is to be made the tape must first be either 'clean' (no signal recorded on it) or 'wiped clean' (erased) if it does have a recording on it.

The principle of erasing a tape is similar to the degaussing of a television. The tape is subjected to a very strong magnetising force which saturates the tape in alternate directions and then gradually reduces to zero.

A special head with an extra wide gap is used for erasing. The erase head is fed with a high frequency sinewave signal (usually the same signal which is used for the bias) and the ratio of gap-to-signal wavelength is such that a large number of cycles are possible across the head gap.

Examination of the distribution of flux across the head would show that the flux is maximum in the centre of the head gap and minimum at the edge of the gap.

As the tape passes over the head it will see, at first, a very small alternating flux. This flux will gradually increase as the tape nears the centre of the gap and the tape will be saturated in alternate directions which will swamp any previous recording.

As the tape passes the centre of the head gap it is subjected to a gradually reducing alternating flux which will finally rest at zero. Any previous recording will have been swamped and the swamping signal gradually reduced to zero leaving the tape clean.

Although the flux density is greatest at the edges of the gap the extent the flux penetrates the coating at these points is minimal, with maximum penetration at the centre of the gap.

In practice it is necessary to have an erase head and a record/replay head.

When making a recording, both the erase head and the record head are driven. The tape must pass over the erase head first so that it can be wiped clean before the new recording is made.

During replay the erase head is switched off and the record head is switched so that it can be used for playback. In some recorders there are separate heads for record and playback but this is not essential.

