

PHASE LOCKED LOOP IC FLUTTER METER

Every day, new applications are being found for the integrated circuit. One interesting use in the audio test field has been published by Signetics: a tape recorder flutter meter using a 'phase locked loop' IC. Signetics, a leader in the development and manufacture of integrated circuits, includes the flutter meter circuit in their recent PLL applications book.

According to the circuit's designer, "the Signetics PLL 561B is used to detect the frequency variations of the playback 3kHz tone. The VCO frequency is set to a nominal 3kHz by C_0 and fine tuning trimmer. The demodulated output is AC coupled to a high input impedance amplifier. An oscilloscope can be used to measure peak deviations, and a true RMS voltmeter is used to make RMS flutter readings.

"The output may be calibrated by feeding in a 3 kHz tone from

an oscillator, and offsetting the frequency by 1% and measuring the output level shift. Good recorders have RMS flutter of less than 0.1%. The output can be filtered to study selected frequency bands.

"Speed variations in the movement of tape across the heads in a tape recorder cause the playback frequency to vary from the original signal being recorded. These speed variations are caused by mechanical problems associated with the tape drive and tape guidance mechanisms. The variation in frequency of the playback signal is called flutter and is generally measured over a frequency range of 5 to 200 Hz.

"Test tapes with low recorded flutter variations are available to test playback mechanisms. These tapes are standardized at 3 kHz. With systems equipped with record heads, a 3 kHz tone can be recorded for analysis." ■

