I have been working on one of these old AF automatic distortion meters. It is quite different to the usual fiddly variable Wien Bridge deep notch type. So it is ideally suited for setting up tape machines, where the playback level & frequency will never be that steady.

In +-----+ +-----+    AC+-----+              +-----------+
  o-¦Level+-¦Input+------¦Level+--------------¦LEVEL METER+-----+     ¦
    |Atten|  Amp |    | Det 1| DC        +-----------+     ¦
    +-----+ +-----+    ¦    ¦     +------------------------------+ ¦
    |       +---------+                      +------------+
    ¦   +---------+                      ¦ DISTORTION ¦
    | o-¦400Hz HPF+-o  +-----+  +-----+  ¦2 COIL METER¦
    |   +---------¦    ¦ Set ¦  ¦Level¦  +---------+
    |  External --o  +-----+  +-----+ DC
    ^--+Dist Range

It just uses simple RC transistor Amps & bridge diodes for the electronics. The notches are sealed LC high Q units. (M derived?)

There are only 3 presets:- Level gain, Distortion gain, & input amp Bias.
DISTORTION MEASURING PRINCIPLES

The high pass filter must completely remove the fundamental & ale LF hums etc. but leave all the harmonics intact. The detectors (especially the distortion one) should be a true RMS type, as the waveform will generally be very complex & nothing like a sine wave. The ratio of f1 to all the harmonics f2+++ is the distortion factor.

Calibration is done by adding in a 2nd tone (e.g. 3-10x freq) via high value Rs at say 10% of the level to indicate 10% distortion. The distortion meter bandwidth can also be checked with this circuit.

To check the HPF filter is working OK a very pure sine wave is needed, so an LC tuned circuit after a signal generator is used. But I did find that > 0.5V @ resonance on the meter did make the inductor distortion rise > 0.01% !

MODERN ANSWER
Of course with a good quality PC sound card & a Furrier analysis program that can add up the harmonics distortion measurement should be easy.

See my bul "Simple 1kHz AF osc".

Why don't U send an interesting bul?

73 de John, G8MNY @ GB7CIP