

Set RATE and COLOR (feedback) controls to minimum (CCW) and mode switch to the FILTER MATRIX position.

The clock waveform is now an unmodulated square wave whose frequency is determined by the RANGE control.

Set the RANGE control to maximum (CW).

Adjust clock frequency trim (VR4) for approx. 35kHz, (28.6 micro-second period), at pin 1 of IC 4.

Connect a 200Hz sine wave to the input of the unit and set bias trim, (VR1) for the maximum unclipped waveform at VR3 wiper. This should be at least 1.6V p/p. Set input level to 1.0V p/p at pin 6 of IC 1 and set gain trim (VR2) for the same level, (unity gain), at VR3 wiper.

Disconnect the input signal and set clock balance trim, (VR3) for minimum clock noise.

Reconnect input and recheck unity gain.

Vary RANGE control over its full travel and adjust bias trim, (VR1) for maximum unclipped signal at VR3 wiper.

Set input to 0.5V p/p and 3kHz. The signal level at VR3 wiper should now be approx. 0.9V p/p due to the pre-emphasis, but the output of the unit should remain at approx. 0.5V p/p due to the de-emphasis.

Set mode switch to FLANGE and examine the clock waveform at pin 1 of IC4. This should be a square wave whose frequency is being swept at a rate determined by the position of the RATE control. Varying the RANGE control adjusts the width of the sweep, the maximum frequency of the sweep remaining constant.

Set input to 0.2V p/p at 400Hz and set COLOR and RANGE controls to maximum, (CW), and RATE control to minimum (CCW).

Switch mode to FLANGE and observe the output.

If the unit oscillates, adjust feedback trim, (VR5) until the oscillation just ceases, ensuring that the oscillation does not occur at any point of the sweep. The oscillation can easily be recognized by bursts of a large amplitude waveform at a higher frequency than the output waveform itself. This can be heard as a very loud screeching sound at the output.