NexGen Setup

Nexgen is designed to make your Amplitude Modulated signal as loud as possible and control the negative half cycle of your audio so there is no over modulation which causes harmful adjacent interference.

NexGen takes advantage of the typical human voice asymmetrical characteristics. Basically, the typical human voice is not like a sine wave (symmetrical) but has unequal energy between the two half cycles. NexGen allows one to take advantage of the higher energy half cycle and force it into the positive modulation direction with the lower energy half cycle to modulate the AM carrier in the negative direction (zero carrier).

NexGen splits the useable audio spectrum into three bands and processes (level controls)each seperately and then combines all three. This three channel combined audio is then fed to a fourth audio processor which controls the level on an asymmetrical basis. This stage of processing has adjustments for each of the two half cycles of audio so that the negative and positive halves of the modulation envelope may be controlled separately.

The first step in setting up the NexGen is to switch the phase of the feed to your transmitter for proper phase polarity. This is accomplished by watching the modulation monitor or scope and while speaking into your mic or applying a audio sine wave into the NexGen identify the zero carrier location of the modulated envelope and increase the "negative loading" trim pot R132. You will notice the audio peaks either negative or positive start to become "rounded off" as you increase negative loading. Once you have identified the rounding, switch the rear panel "audio output phasing" switch to place the rounded peaks toward the "zero carrier" of the modulated envelope.

Now speak into the mic again and note whether your positive peaks are greater than your negatives. Adjust the input phasing jumpers so that your positive peaks are greater than your negatives.

Lastly, reduce your negative loading trimpot (fully ccw) and increase your output level of NexGen (front panel pot) so you are nearly 100% negative modulation. As you speak into the mic if you notice any over modulation occurrences, you may use the negative loading trimpot to "catch" these small overshoots in modulation. Try not to use any more negative loading than necessary as it causes distortion in the audio waveform.

Lastly, you may contour your audio to your preferences. Turn all three trim pots fully CCW and as you speak into the mic, turn up the Mid Range trimpot RR72 to 3/4 position. Then as you listen to your audio with a headset, bring in the Low Range trimpot R73 up part way and then bring up the High Range trimpot R71. Adjust these two trimpots until you get the balance you desire while leaving the Mid Range trimpot at the 3/4 position.

While speaking into the mic at normal volume and position, you should see the "Min" LED on the front panel lit for the duration of your speaking into the mic while the "Max" LED should flash only on high

peaks. You may adjust R116 TrimPot so that the front panel input Pot is at ¾ CW. This adjustment should be such that the front panel Green LED is on for the duration of your voice and the Red LED flashes on sibilance. R78 (5khz filter input) should be adjusted so that the front panel output control is at ¾ pot when your transmitter is modulated fully.

It is imperative that only the two front panel pots and R71 , R72 , R73, R78, R116 and R132 be adjusted. Adjusting other trimpots within NexGen can render NexGen totally inoperative!