

GENERAL FACTS TO KNOW ABOUT ALIGNMENT

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OPERATING LEVELS

Operating Level +9dB (520 nWb/m) +6dB (370 nWb/m) +5dB (320 nWb/m)
 +3dB (250 nWb/m) 0dB (185 nWb/m)

Test Tape

Reference

Fluxivity Level to be shown on VU meter

Recommended Bias Settings - 10kHz

Note - Bias varies by tape speed, record gap and tape type

Tape

Speed	GP9 & 499	456, 478/480 & 406		
	0.25 mil	0.5 mil	0.25 mil	0.5 mil
30	1.75	1.25	1.5	1.0
15	4.0	3.0	3.0	2.0
7 1/2	7.0	4.0	5.0	4.0

Recommended Maximum Operating Levels

Quantegy GP9 520 nW/m +9

Quantegy 499 520 nW/m +9

Quantegy 456 370 nW/m +6

Quantegy 478/480 250 nW/m +3

Quantegy 406 250 nW/m +3

General record head gap length information

Ampex ATR 102/104 0.5 mil

Otari (MTR 90, 100) 0.25 mil

Studer (all) 0.25 mil

Set the machine to read off of the REPRO head for the entire alignment

Step 1 – Reproduce Alignment

Gain

With the MRL tape playback 1Khz (located at the top of the tape) and adjust the repro gain pot to the desired level. The MRL tape is a +6 or 370 nanowebers so if you are trying to achieve a +6 alignment calibrate the VU's to 0. If you are doing a +9 alignment you would want to calibrate the VU's to -3. If you are doing a +5 alignment you would calibrate the VU's to +1.

Treble or HF eq

With the MRL tape playback 10Khz (I think it is located about 2:40 for the top of the tape) and adjust the reproduce HF to read the same as you set with the repro gain pot.

Step 2 – Record alignment

Bias

Leader a piece of tape for this section of the alignment. We are going to use this piece of tape to record tones from the console and we do not want to use this piece for audio recording. Send 10 Khz from the console at a -3 level. Record this tone on the tape while reading off of the repro head. Adjust the master bias control (third card from the left, notice which position the toggle switch is in... if it is on 1 you will be adjusting the pot with a 1 next to it, if it is on 2 adjust the pot with a 2 next to it. These settings are to store two different biases, however since bias interaction can change with each new batch of tape I do not recommend using this function) counter clockwise until the meters reach a peak and start to fall. Then begin adjusting the pot clockwise until you reach the peak again and continue in this direction until the meters have fallen 1.25 over the peak. This is known as overbias.

Record gain

Adjust the console oscillator to 0. There is a detent for 0 if you turn the amplitude pot completely counter clockwise. Set the oscillator to 1Khz. Begin recording on the tape and adjust the record gain pot until the meter read 0.

Record HF

Repeat the record gain process but use 10Khz from the console and adjust the record hf pot.

Step 3 – Low frequency reproduce alignment

There is no adjustment for low frequency record alignment. It is a playback or reproduce function only.

Send 100Hz from the console at 0 while in record and adjust the repro LF pots until the meters are even and as close to 0 as possible. Because of the type of record heads used in this machine you won't be able to get the low end all the way to 0.