

## **Studer A820 Multitrack Alignment**

### **1. Preparation**

- a. Cleaning (dust and swab)
- b. Select VU Mode
- c. Select correct tape speed (typically 15ips at Electrical)
- d. Choose correct equalization (typically CCIR at Electrical)  
--to switch between EQ curves, hold down "Set Enable" button and then press the desired EQ button.

### **2. Azimuth Adjust**

- a. Mount MRL calibration tape on machine (make sure you're using the desired tone speed).
- b. Select All Repro.
- c. Patch tape out channel 2 and 23 (or 2 and 15 if using 16 track head) to oscilloscope in L and R.
- d. Adjust oscilloscope intensity and set to dual (out of x/y).
- e. Make sure console is monitoring A820. Turn up control room level, stereo fader, and channels 2 and 23 to an audible level.
- f. Play MRL's 1kHz tone and align waveforms using hex tool to adjust Repro head (furthest right). Oscilloscope adjustment may be necessary (time/div knob).
- g. Play MRL's 10kHz tone and align waveforms using hex tool to adjust Repro head (furthest right). Oscilloscope adjustment may be necessary (time/div knob).
- h. Select all Sync. Repeat steps f and g for Sync Head (middle head).

### **3. Repro and Sync Adjust**

- a. Select AUTOPAR Align.
- b. Select All Repro.
- c. Select Repro Level and 0dB.
- d. Play MRL's 1kHz tone and press Store Start.
- e. Select All Sync and repeat steps c and d.
- f. Select all Repro.
- g. Select Repro Treble and 0dB.
- h. Play MRL's 10kHz tone and press Store Start.\*\*\*
- i. Select All Sync and repeat steps g and h.\*\*\*

\*\*\*NOTE: Sometime the tape machine needs more than the 1 minute of MRL test tone to adjust itself. This most often occurs when adjusting the Treble for the Repro and Sync heads. To avoid this, when the MRL's 10kHz tone begins, hold down the "Trans" Button and press the "LOC 1" button next to it. This sets a locate point. If the machine has not adjusted when the counter gets 50 seconds into the tone, press "LOC 1" and then play. The machine temporarily suspends the adjustment and resumes from the locate point.

### **4. Record Adjust**

- a. Dismount MRL tape and mount target tape(reel to be used for recording). Set counter to 0.
- b. Select All Repro and All Ready.
- c. Select Record Bias 10kHz at -10dB. Confirm overbias setting is correct for the brand of tape you are using by turning on Bias Preset button.
- d. Press Play and Record and Store Start.
- e. Select Record Level 1kHz at 0dB. Rewind to 0 (zero locate).
- f. Press Play and Record and Store Start.
- g. Select Record Treble 10kHz at 0dB. (Machine defaults to 14kHz at -10dB. Press 10kHz sweep and 0dB to set properly). Rewind to 0 (zero locate).
- h. Press Play and Record and Store Start.
- i. Select Repro Bass. Turn Generator on (GEN. ON). 100Hz at 0dB. Must manually adjust frequency from 30Hz to 100Hz (.10 kHz). Rewind to 0 (zero locate).
- j. Press Play and Record and Store Start.

### **5. Test Tones**

- a. Rewind to 0 (zero locate).
- b. Turn off AUTOPAR Align. Turn Generator on (GEN. ON).
- c. Select All Repro and All Ready.
- d. Set tone generator to 1kHz at 0dB. Press Play and Record. Record 1kHz tone for 45 seconds.
- e. Set tone generator to 10kHz at 0dB. Press Play and Record. Record 10kHz tone for 45 seconds.
- f. Set tone generator to 100Hz at 0dB. Press Play and Record. Record 100Hz tone for 45 seconds.
- g. Set tone generator to 50Hz at 0dB. Press Play and Record. Record 50Hz tone for 15 seconds.
- h. Turn generator off. Set to Peak Mode (out of the VU mode).
- i. Add leader tape between tones and the rest of the reel.\*\*\*
- j. Erase any leftover tones after the leader.

\*\*\*NOTE: The next time the tape machine will be calibrated for this session, you will use the test tones recorded to the tape, not the MRL calibration tones. You do not re-record test tones, you simply use the same tones every time you need to calibrate the machine for this session. You may want to add a "record pad" to the reel in the case that the session will be continued at a later date (with time off in between tracking days). This is done to make sure you have enough useable tape for the Record Adjust next time you need to track. It is not a necessary procedure, but it can come in handy if you know the session will be a continuing project. Simply use a minute and a half of blank tape directly after the test tones or at the tail of the reel. Make sure to partition off the record pad with leader tape and make a note of it on the box label. This can be done before the session starts or later. Be aware that by adding a record pad you ARE losing a minute and a half of tape on that particular reel.