# Recommended Sound Reader LED Adjustment Procedure

As we gain more experience with the visible light (660nM) LED reverse-scan sound readers, we are learning some things, which should help to extend LED life and reduce maintenance. The main thing we want to address here is the matter of LED brightness. It is no secret that the output from all LEDs will diminish with age. If that LED is just an indicator light, it isn't important, but when we are depending upon an LED's brightness for maintaining Dolby level, it is very important.

What we are learning is that we need to operate our LED's at as low a current level as possible and thereby extend their life and try to keep their brightness level as high as we can for as long as we can. What follow are the steps we recommend for reaching that minimum current level.

We want to do three things: increase the gain of the reader's pre-amp, optimize the alignment of the LEDs, and adjust the power supply's output. (A possible 4th thing would be to assure that the lens is clean.) While this process is concerned primarily with analog readers, the applicable steps are equally important for Dolby Digital. The difference is that the video pre-amps are already at their highest gain, and we already use the power supply output for our level setting.

The analog reader pre-amp gain can be increased by about 8dB by cutting two links on the rear of the unit. These are shown in this illustration. If you have a pair of small cutters with 45° blades, you may be able to reach these links without removing the lens/pre-amp assembly from the sound head. (Look at them first, as they may already be cut. We are now shipping them this way.)
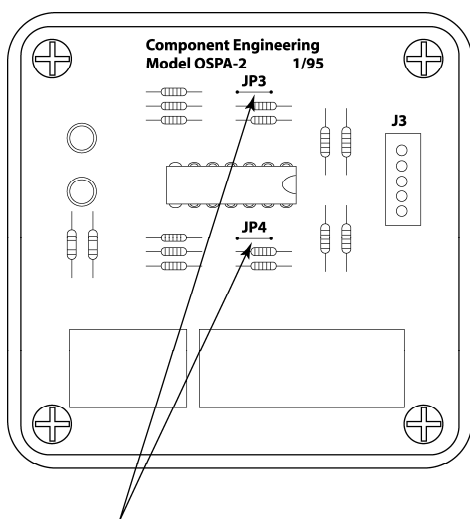
Cut jumpers JP3 and JP4 for higher pre-amp gain.

You may want to lower the processor's level adjustments before you go on to the next step, which is to check the physical alignment of the LEDs. If you have never done this, simple loosen the clamp screw enough that you can move the copper mounting block easily, but with enough friction that it will stay in place when you take your hand off of it.

The most critical part of the adjustment is the vertical because the light from the LED is a very thin band and we want to hit the hot spot of this band by slowly pivoting the LED mount so that it moves up and down until your output indicator peaks. You will find that there is more latitude with the horizontal adjustment. Once the LED is peaked, reset the clamp screw, being careful not to use too much muscle that might strip the threads in the copper.

Finally, we want to set Dolby level more by use of the power supply output than the processor level adjusters. This is very much like setting level for Dolby Digital. For a beginning point, run the processor level adjusters up to maximum. Thread and run Dolby Cat. No. 69T and adjust the LS-30 Power Supply output until you are a little above normal Dolby Level. (On a Dolby processor this can be the upper Red indicator LED). Now, with the processor's level adjusters you can bring the level back down and balance the two channels.

The procedure is exactly the same if you are using the EL-2 Power supply except that it is harder to get to the output control. If you are doing a whole complex of identical systems, you may find that after you have done one unit you can then measure the current to the LED and merely set the rest of them to the same current. You will still have to cut the links, and, most important of all, check the LED position adjustment. This really can make a big difference. Also, if you have different processors you will have to go through the whole routine for each different type.

Now that you have done all of this, routine maintenance adjustment of Dolby Tone should be easily accomplished by tweaking the power supply. If you feel that too much current increase is required (particularly in a complex where you find one or two readers lower than the rest), then it would be wise to check the LED position adjustment. It may have been bumped out of alignment.