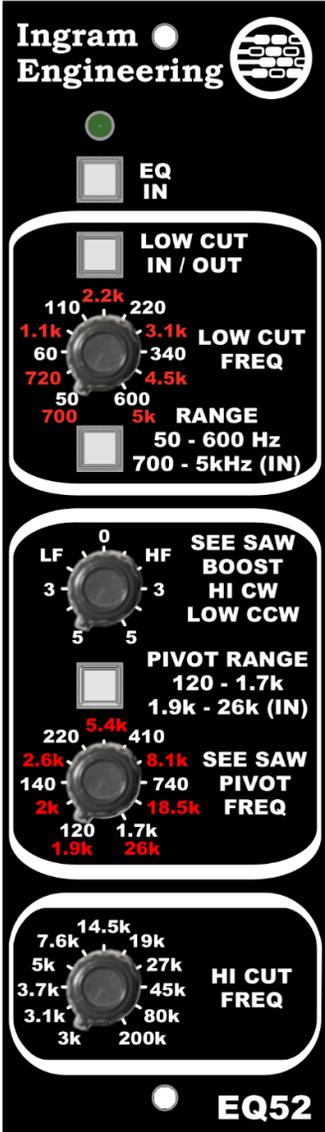


## Matching Settings of Two EQ52 Units

The Ingram Engineering EQ52 is a 500-series equalizer module that contains extremely versatile and musical sounding Low Cut, High Cut and See-Saw filters. The unique See-Saw filter contains a combined bass and treble control that allows broad frequency response adjustments with a single control knob. The equalizer controls are highlighted in the figure below. Filter controls have smooth, not detented, pots in order that full control of settings is possible. Units sold as pairs are matched in performance at the factory.

Filter controls are not linked between individual units, but a simple procedure can be used to adjust individual units for equal filter responses. This Application Note provides the procedure for adjusting individual units for matching filter responses.



**Ingram Engineering**

EQ IN

LOW CUT IN / OUT

**LOW CUT FREQ**  
110 2.2k 220  
1.1k 3.1k  
60 340  
720 4.5k  
50 600  
700 5k  
**RANGE**  
50 - 600 Hz  
700 - 5kHz (IN)

**SEE SAW BOOST**  
LF 0 HF  
3 3  
5 5  
**HI CW**  
**LOW CCW**

**PIVOT RANGE**  
  
120 - 1.7k  
1.9k - 26k (IN)

**SEE SAW PIVOT FREQ**  
220 5.4k 410  
2.6k 8.1k  
140 740  
2k 18.5k  
120 1.7k  
1.9k 26k

**HI CUT FREQ**  
7.6k 14.5k 19k  
5k 27k  
3.7k 45k  
3.1k 80k  
3k 200k

**EQ52**

Low Cut Filter Sweeps from 50 Hz to 5 kHz in Two Ranges

See-Saw Filter Simultaneously Adjusts High / Low Frequencies

Pivot Frequency Sweeps from 120 Hz to 26 kHz in Two Ranges

High Cut Filter Sweepable from 3 kHz to >200 kHz

Hardwire Bypass Around the Entire EQ

Adjusting the Knob Clockwise Boosts Highs / Cuts Low

Counter-Clockwise Boosts Low / Cuts High

**Procedure for Matching Two EQ52 Modules**

Typically, an Engineer will apply a common filtering to a stereo audio pair during mixing or mastering. In order to set a pair of EQ52's so that their frequency responses are identical, a simple procedure can be used.

First, the general filter settings needed for the mix can be determined with both left and right stereo channels passed through the pair.

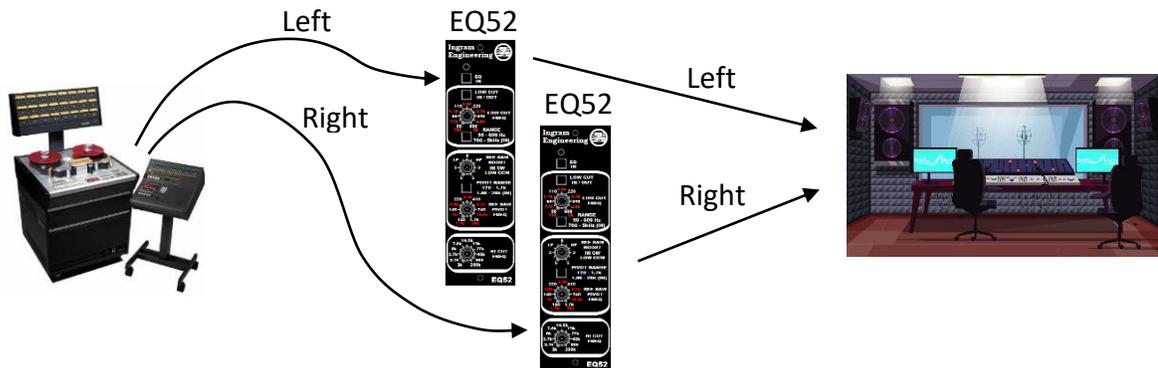


Figure 1: First Step is to Adjust EQ for the Mix as Normal

Then, to confirm the settings for one EQ52 are identical to the other, a mono audio signal or a sine wave can be substituted for the stereo pair. The best way to do this is to split the left or right music channel to both EQ52's. Then, invert the phase of the signal going through one of the EQ52's. Adjust the filter settings of either EQ52 in very small increments until the resulting output level is at a minimum. When this occurs, the two signals are nearly identical in amplitude and phase, and filter settings are virtually identical, to within very small dB increments.

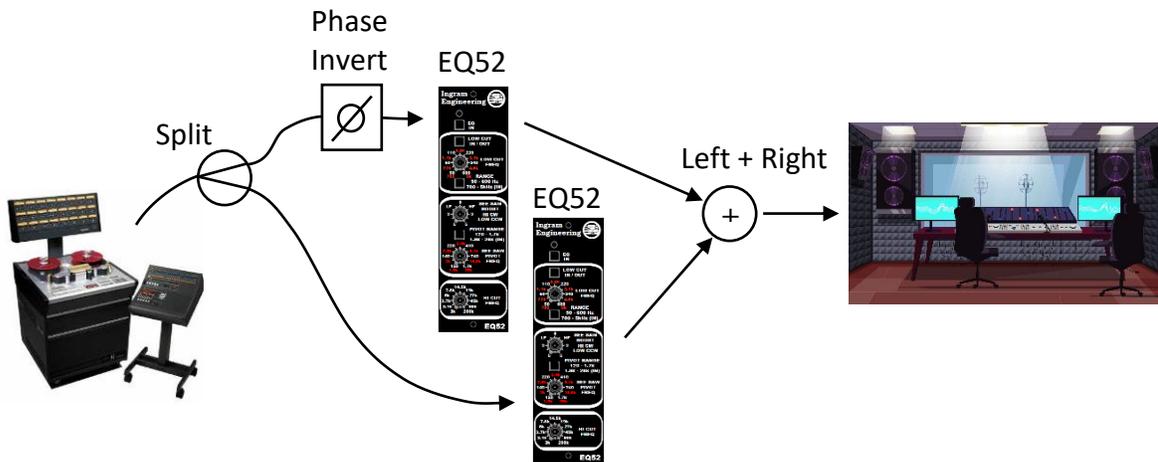


Figure 2: Second Step is to Pass Mono, Invert One, Sum L & R, then Adjust for Null