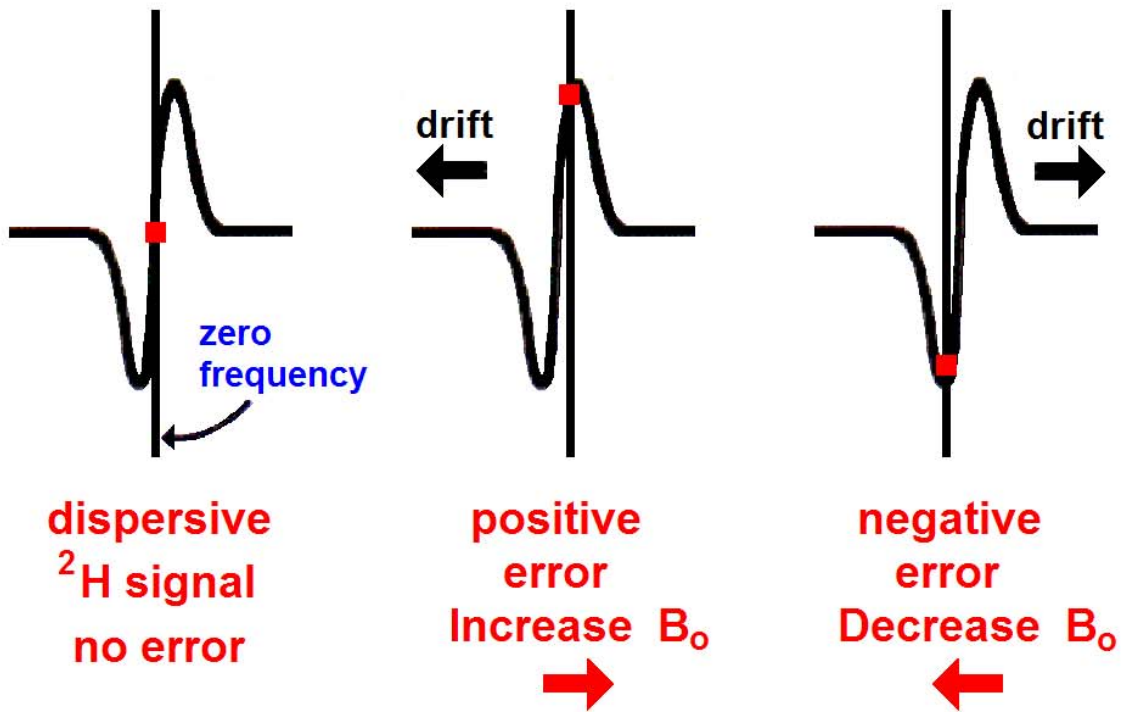


Lock Circuit Feedback Loop



Regardless of the lock display presented to the user, the lock circuitry sees a dispersive deuterium signal centered on the zero frequency (null point) of the feedback circuit. If the magnetic field decreases slightly, the ^2H signal is shifted to left leading to a positive error signal. This signal increases the current in the Z0 ("field") coil in the shim stack which adds to the magnetic field, correcting the drift. A slight increase in magnetic field leads to the opposite error signal and a compensating decrease in current sent to the shim coil. The system cannot achieve lock unless the null point is between the two dispersive peaks. The proper lock phase setting assures a symmetrical dispersive signal in the feedback loop.