

TITLE: **Summary of Modifications to Model LR 200**

NUMBER:

Sheet	Old	New
1	Bandpass filter based on LC resonator and single transistor followed by a low gain amplifier. The filter is tunable by selecting capacitors in a C-2C network. A shift register is programmed by the microcontroller	Bandpass filter using operational amplifier based active filter design that is tuned by adjusting a digital potentiometer. Transistor is now just a simple gain stage with higher input impedance
2	Ramp generator needs inverted signal generated from page 4	Inverter for RAMP signal is shown on this page
3	RAMP_Threshold logic signal is redundant and needs several XOR gates. Long lines are terminated to reduce ringing at logic gate inputs (R33/34 C104/105)	Redundant signal is removed, logic is minimized (AND gate). One gate used for extra drive (U10) is removed. Logic gates for pulser drive are moved off this sheet to shorten lines to pulser and to place them under the RF EMI shield. Line termination impedance are removed because lines are shortened (R33/34 C104/105)
4	Basic pulse circuit with ~200 ohm line impedance	Drive gates for transistor pulsers are moved closer to transistor and must be powered from 3.3V. Add a regulator here because it needs to be intrinsically safe. Reduce capacitors to save power.
5	A calibration signal at 22KHz generated by the microprocessor is attenuated to a selectable level of 60dB or 20dB re 1uV RMS. Solid state relay based on MOSFETS isolates the low impedance calibration signal when the frequency of 500KHZ is used for normal operation	Use only one signal level, get rid of unnecessary MOSFETs. Single MOSFET increase impedance when calibration is complete. The calibration circuitry was moved to page 7.
6	RF section Loose ends and connector naming	No changes to schematic or operation of RF components on new page 6. Inverter for logic signal is shown here now.
Layout		Receiver has been moved from underneath the PCB to new location inside the EMC shield. Logic gates for pulser drive have moved to under the RF shield along with their voltage regulator

EMP REFERENCE SECTION TITLE: | INSERT SECTION TITLE HERE (DO NOT INCLUDE SECTION #)

ORIGINATED BY:

APPROVED BY:

DATE APPROVED:

REVISION NUMBER:

Page:

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