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| **Problem** | **Solution** |
| Fans need screws and nuts   * 4x #2-56 x 1/2" screws per fan * 4x #2-56 hex nuts (HNX-256 PO Number 043156 per fan |  |
| Threading size on studs is too big… needs to drop 1 size |  |
| Nuts for Plexon connector should be much smaller   * #1-72 * Screws also #1-72 x ¾” | Plexon Connector removed, so this is no longer an issue |
| Need 14x BNCs… not 12 | Changed in parts spreadsheet |
| DVI is too close to USB | Rearranging of back panel took care of this |
| Tolerance on BNCs needs to be accounted for… holes should be slightly enlarged according to tolerance specs for BNC plugs | Cutout enlarged to account for tolerance |
| Power supply fans are too loud | Upgraded power supply |
| Ethernet extension is large and very tight against audio jacks… should have more separation | Rearranging the back panel fixed this |
| Case height needs to be increased to properly accommodate heat sink on cpu | Change to a 2U case removed this issue |
| LCD and rotary encoder need to be shifted left; the rotary encoder is too close to the phono jack which prevents the usb connector on the rotary encoder from being plugged in properly | Rearranging of front panel took care of this |
| The standoffs for the rotary encoder need to be elongated | Standoffs increased to 4-40 X 3/8” |
| The standoffs for the NI card need to be elongated | Standoffs elongated to 6-32 x 9/16”  This probably isn’t enough, so we will need to add an additional standoff while installing the card |
| The NI card should be shifted towards the rear of the case to ease strain on the PCI extension cable. | NI card shifted back ½” |
| Everything should be shifted back slightly as the front panel area is too crowded. | Increased box length to 19”   * Moved NI Connector block back 1”, this added ½” of clearance in the back * Moved logic board ¼” back just to add space for power button. Otherwise rearranging of front panel prevented most issues * Moved NI DAQ card back an additional ¼” to account for logic board movemement * Rearranging added ½” of clearance between Connector block and logic board |
| The switches have their mounting area riveted to the switch area preventing mounting.  The standoffs are the correct height, so one option is to make them through standoffs and have flush screws on the front of the case.   * $26 for machine shop to remove rivets * Another option is to use set screws (6-32x1/4") | Decided to punch out rivets |
| Portions of silkscreen are covered by components | Redid silkscreen |
| TDT connection (DB-25) needs a better panel mount component | New component selected |
| Plexon connection (IDC-26) could use a better panel mount component | Plexon connector removed. Instead we are using the DB26 connector for both the Plexon and the TDT. This means rewiring the Plexon cable, but it will make everything easier. |
| Smaller reward terminal block? | Replaced block with the style of block used on audio speakers. It isn’t smaller, but it is more convenient |
| The standoffs for the solid state relay need to be elongated | Replaced relay |
| The vertical separation of the rear panel BNC connectors needs to be slightly increased to allow for easier tightening of their mounting nuts (at present the nuts can interfere with each other if not rotated in a certain way. | Done (made easier by the change to a 2U case) |
| The upper-left rear BNC nut is too close to the ethernet jack (and more specifically, the stud for the ethernet jack) | Rear panel rearranging took care of this |
| The upper-right BNC is too close to the screw terminals to be used. | Rear panel rearranging took care of this |
| Studs for power supply are in wrong location, and need to be longer | Increased studs to 5/8”  Placed them at 19” – 0.06” (case thickness) – 7.717” (length of power supply) = 11.223 |
| Only have 1 solid state relay | Replaced solid state relay with I/O module board from Crouzet (same company as Crydom) PB4. This allows us to control up to 4 external signals (we could even control an AC signal if we needed to…) |
| Fan may interfere with wiring of I/O Modules | Moved fan back a bit |
| Fans are at bottom of case | Moved fans to center (vertically speaking). This should improve airflow a bit. |

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| **General Concerns with new design** |
| Placement of power supply studs is iffy, since I am not sure on the coordinate scheme. Studs must be 7.717” back from inside of back edge of case. |
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| Placement of Power supply cutout is iffy |