

To: Jay Bunting  
Subject: M/710 Barrel Cosmetics

cc: D. Diaz, M. Golemboski

In response to Ron Bristol's request, the Mayfield facility has been reviewing the M/710 components and generating a cost estimate to build the M/710. A meeting of R&D and Mayfield was requested to review each individual component with respect to design/process concerns. The barrel generated the most discussion relative to process requirements and respective manufacturing costs. Please find enclosed a side profile drawing of the M/710, with proposed barrel modifications based on manufacturing input. The primary design change from the models that have been displayed is the contour change of barrel just forward of the receiver. Both Ilion and Mayfield have indicated that the previous contour would cause difficulties during the barrel turning operation due to the sharp transition. The barrel contour shown in the enclosed sketch would eliminate the manufacturing difficulties. As a side note, this contour would also be more favorable based on the obstructed bore/high pressure round testing. The sharp transition of the previous barrel contour may have contributed to the barrel failure observed when subjected to the extreme pressure conditions generated by the obstructed bore/high pressure test.

A second issue was discussed relative to barrel processing and manufacturing issues/costs. Based on previous manufacturing input, a single barrel length regardless of caliber had been discussed/approved in past design reviews, the accepted barrel length has been 24 inches. Due to the capacity of Mayfields' black oxide tanks, a M/710 barrel assembly with a 24 inch barrel will sit 1/2 inch below the surface of a full tank. Their concern is that the tank level control is not that accurate and/or due to the agitation of the tank, there will be instances where the muzzle will not be submersed in the tank. Their request is that the standard barrel length be shortened. An obvious secondary benefit of a shorter barrel is cost savings. Mayfield estimated that an inch of barrel steel will cost approximately \$.20. Their request was to shorten the barrel to 20 inches which will save \$.80 in barrel steel and a small percentage of the total machining time/cost of the barrel. The enclosed sketch has a 20 inch barrel incorporated for your review. We realize that industry standards for barrel lengths are 22 and 24 inches (long action and magnum respectively), but would like to ask that you consider a shorter than standard barrel. Any reduction in barrel length would improve their ability to produce consistent color and would be greatly appreciated.

Please review the enclosed sketch relative to the issues stated above and respond with your thoughts.

Thanks

*Mike*

Michael D. Keeney  
Staff Engineer

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