

To: Ken Soucy
From: Edward Ford
Subject: May Monthly Report

CADD Software Study:

Autodesk assigned Mike Fears, an application engineer from MicroEngineering Solutions (MES), to replace Ben Crawsdale on the M/700 synthetic stock benchmark. He and Kevin Hennessey presented their results on May 12, 1993. Those present for the presentation agree that Autodesk has made a giant leap forward in surfacing technology with their acquisition of MES, but they still lack some of the capabilities that we currently have with Computer Vision. The Solution 3000 software will not be available until August as a module to AutoCAD and it will not be fully integrated into the AutoCAD environment until rev. 13 which should be released in 1994. Some concerns which are currently being worked on include:

1. Analyzing and blending of adjacent surfaces.
2. Conversion of CV files to AutoCAD files.

Autodesk has agreed to demonstrate their surface cutting capabilities by cutting the stock from a block of wood provided by Remington. Cutting the stock will demonstrate whether they have a problem with blending and warping of adjacent surfaces.

Gene Saunders is preparing a magnetic tape with the Peerless Frame data file to send to Autodesk to have them translate this file from CV to AutoCAD. Upon successful file conversion, concern #2 will be eliminated.

Design/Develop Improved Test Jack:

No new activity.

M/700 Varmint Synthetic - Stainless Steel:

The parts list and model drawings for the M/700 VS-SS are currently on hold until Process Engineering builds two samples for marketing to evaluate at the June Product Team meeting. One action will have a satin finish identical to our current M/700 SS with a powder coated trigger guard assembly. The second action will be polished with the same process as our regular carbon steel barrels prior to black oxide. It will have a nickel plated trigger guard assembly. Both actions will be mounted in the current varmint synthetic stock from HS Precision.

M/Seven Stainless Synthetic Stock:

The aluminum stock mold was run off on June 1, 1993. The run-off was successful with a few areas needing some additional work.

1. The recoil pad screw holes were out of position and need to be shifted approximately .300".
2. The take down screw hole pins were missing from the mold and need to be added.
3. The barrel bracket groove needs to have the radii on both ends removed to add additional clearance.
4. The tang cut needs to be shortened approximately .150" to improve metal to plastic margin.
5. The barrel pad 2.00" from the stock tip needs to be added.
6. A cooling fixture needs to be built to prevent the receiver and barrel channel from closing in while cooling.

These alterations should be complete by June 7, 1993 and a second run-off will be scheduled for later that week. If the second run-off is successful and all 5 areas corrected the mold will be sent for texturing. The texturing process will take about one week and the finished mold should be delivered during the week beginning June 20, 1993.

Beebe Rubber Co. altered the old four cavity compression mold for the recoil pads. Preliminary parts were received May 18, 1993. Inspection of the pads showed the screw holes to be out of position. In talking with Mike Kane from Beebe Rubber Co., he failed to take into consideration the steel reinforcement spacer when calculating the shrink rates. Therefore the material did not shrink as much as he calculated leaving the hole position approximately .050" oversized. The mold was sent back to the tool maker to be altered and new pads should be received by June 8, 1993.

M/870 Barrel Burst Testing:

The M/870 barrel burst testing began on May 10, 1993. Three rounds of each of the following ammunition were fired while filming the motion of the gun with the high speed camera:

1. Light Target (RTL12L)
2. Premier Target (RTL12M)
3. High Base Field Load (SP12)
4. 3" Magnum (SP12HNM)
5. 12 ga. Factory Proof Round

Six rounds of each of the following were hand loaded, five rounds shot in the Pressure/Velocity Range to get an average pressure, and one round fired while filming the motion of the gun:

6. High Pressure Reload in the 30000/35000 PSI Range.
7. High Pressure Reload in the 40000/45000 PSI Range.
8. High Pressure Reload in the 60000+ PSI Range.

The video was downloaded to both the VCR and the motion analysis workstation. I am currently working on plotting both the gun motion and the recoil velocity using the Kodak Motion Analysis software and Lotus 1-2-3.

All of this testing was done with the lights available from the photo lab and with the Kodak EktaPro High-Spec Imager. Some of the video footage is quite dark and therefore the test may be rerun in July or August with the Kodak EktaPro Intensified Imager and with the new lights which are currently on order.