To: John Winske

cc. John Floyd
Dick Jackson
Bob Orf
Sam Rensi
Ken Soucy

From: Ed Ford

Subject: CADD Software Update

John,

In response to your E-Mail message to Ken Soucy on May 16, 1993 you inquired about the AutoCAD benchmark results. The following is a summary of the CADD software study and what is currently happening.

As you already know there are two Computer-Aided Design and Drafting (CADD) software packages currently in use at Remington - Computer Vision's CADDS 4X and Autodesk's AutoCAD v. 12.0. The purpose of the evaluation was to determine which of these packages could satisfactorily meet both R&D and ATO requirements in the hope of converging to one system.

Last November, a cover letter accompanied by two video tapes demonstrating Structural Dynamics Research Corporation's (SDRC) I-DEAS was sent to Remington by their local salesperson. This packet was awaiting me when I arrived here in December. Also in December, Skip Smith had Parametric Technology Co. present their CADD software, Pro/ENGINEER, to the technology group after seeing their display at the AutoFACT show in Detroit. By the end of December, the evaluation had expanded to include all four of the above mentioned companies.

Parametric Technology presented their results of the M/700 synthetic stock benchmark at the January Tech Presentation held on January 19, 1993. Computer Vision chose not to participate in the benchmark until they received clarification about the guidelined contract between DuPont and Parametric Technology.

SDRC was sent a copy of the benchmark on February 8, 1993. During the meeting held in Ken Soucy's office on Friday, February 12, 1993 with staff members and other members of management, the decision was made to stay with Computer Vision and phase in AutoCAD wherever appropriate. Therefore, the benchmark was canceled with SDRC and Parametric Technology. Autodesk representatives, Kevin Hennessey and Ben Crawsdale, gave a 30 minute presentation to members of Research, Process Engineering and MIM on Thursday, February 25, 1993. A copy of the benchmark was given to Kevin and Ben at the conclusion of this meeting. They tentatively planned to present their results during the last week in March.

Autodesk has gone through some internal restructuring since its purchase of MicroEngineering Solutions, Inc. (MES) last fall. Unfortunately Ben Crawsdale was one of the persons to be

reassigned. Therefore, our benchmark was delayed until another application engineer could be brought up to speed with our problem. Mike Fears, an application engineer from MES, was chosen to replace Ben on our assignment and he and Kevin 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. In addition, 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 still need to be addressed include:

1. Analyzing and blending of adjacent surfaces.
2. Conversion of CV files to AutoCAD files.
3. Geometric tolerancing capabilities.
4. Time frame of when Autodesk plans to incorporate parametric programming within AutoCAD.

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 O/U Frame file to send to Autodesk to have them translate this file from CV to AutoCAD. Upon successful file conversion, concern #2 will be eliminated.

Geometric tolerancing is not available direct from Autodesk, however, because of its 'open' architecture it is available through third party software companies. A Geometric Tolerancing Symbols Library is available from Drafting Technology Services Inc. for $49.

The last item of concern can only be answered with time and possibly a little insight from Kevin Hennessey about what Autodesk is working on and when he expects it to become available.