INTERFACES IN THE FIELD
The realisation of a human-computer interface for an information storage and retrieval system used by the staff of a company in mechanical engineering industry is described in this paper. The system had to be designed according to the needs, skills and data processing background of this user group, taking the tasks to be performed into consideration. The system design process, based on human factor design goals and integrating quality control, is compared with the usual software development procedure. The description of the system explains the way in which different dialogue tools such as menu selection, form filling, function keys etc. have been integrated. Data entry and query functions are used as examples.

1. INTRODUCTION

The staff of a company with activities in design and development of internal combustion engines was faced with a rapidly increasing amount of information on engines (mostly test results), which needed processing. An information storage and retrieval system in which the results of previous developments were stored, was developed to reduce the cost of improvements and development and to specify requirements at the beginning of each new project. For the realisation of the system the programming language FORTRAN 77, a forms management system, and an interactive query and reports system with a call interface for FORTRAN-programs, were available. Nearly all members of the staff, who were to use the system, had little or no knowledge of data processing (naive users). They wanted to be able to use the information storage and retrieval system as a tool for solving their problems without having to invest much time and effort. The theoretical justification of a system as such (in which the user's skills and requirements were taken into consideration) will now follow.

2. DESIGN GOALS

The aim and purpose of a design process is to develop a software-technical solution to the problems which arise when the user's requirements are to be translated into concrete facilities within the software product (Balzert, 1982). Because the types of users and the tasks they wish to perform differ from system to system, system designers must have a thorough understanding of the needs and skills of the users and the tasks that must be accomplished (Sneiderman, 1983). In principle we can divide the design goals into two categories: primary design goals and human factors design goals.