NASA's Plans for Future NASTRAN Capability

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INTRODUCTION

NASA has developed and maintained the NASTRAN System over the past eleven years. During this period, the system has evolved into one of the most versatile and widely used structural analysis systems currently available to the public. In order for the many users to plan their future use of the system, the present and future contents of NASTRAN are essential information. This paper presents the planned future additions to NASTRAN as defined by July 1976, and eventually leading to Level 17.

NEW CAPABILITIES

Recently, NASTRAN Level 16 was released through COSMIC. With that release, a large number of improvements being developed by NASA were made available to the U.S. public. This level has already been defined (ref. 1), and will not be reviewed again here.

However, some additional improvements are currently being pursued in the NASTRAN Systems Management Office (NSMO) for later inclusion in Level 16. Among these items are (1) the FEER eigenmethod and its extension to complex eigenvalue problems, (2) the addition of a "supersonic flutter package" which allows gust response calculations and active control effects as well, (3) the provision for a general purpose data generator, and (4) some additional advanced rigid, membrane, plate and shell elements. All of these improvements are in varying stages of contractual development, and their availability will define the release date for the new level.

NASTRAN MAINTENANCE

In addition to these new capabilities, the correction of reported NASTRAN errors has been continuing as a primary effort and should result in Level 17 being the version of NASTRAN with the fewest errors. The Error Correction Information System (ECIS) is available on the CYBERNET system, and is up-dated every two weeks on a

1

routine basis including Level 16 error information. A "User Info." file has also been added, and current rush information is placed on this file as soon as it is available. Users access this file with a single instruction. This activity indicates that NASA has been attempting to provide support to individual users as directly as possible.

NASA currently supplies direct contract maintenance support on only one computer program (NASTRAN) as a so-called "Class I" program. Some steps to allow users better direct maintenance on their own have already been made by the NSMO:

(1) Utility programs for NASTRAN maintenance have been announced as available in the newsletter and have been freely distributed to a number of user facilities to allow self maintenance and improvement.

(2) User groups have been formed by NSMO for programmers using each of the three major computers now being supported.

(3) Leasing of the NASTRAN program has also been initiated with funds being used for maintenance.

(4) More and more maintenance activity is being handled directly by the maintenance contractor.

CONCLUDING REMARKS

The activities in the NSMO at Langley Research Center are still continuing, directed to development of a sound, advanced NASTRAN Level 17. Additions to NASTRAN for this specific level have been described briefly. Also additional maintenance tools for users have been developed and are discussed herein.

REFERENCES

1. Weidman, D. J.: NASTRAN Status and Plans, pp. 1-10, NASTRAN Users' Experiences, TMX-3278, Sept. 1975.