1. INTRODUCTION

In the composition of the computational nucleus of the program set PRADIS besides a constant part enter several libraries the programs, which provide the possibility of complex in the part solution of problems for one or other subject area or another and mapping the obtained results.

These are - the expansible libraries of complex. For each the type of the libraries of complex (models of elements, the programs of the calculation of output variable ([PRVP]), the programs graphic means ([PGO]) and the programs of mapping) there is a set of base modules, it is sufficient universal, in order to in many tasks to be limited only to their use. However, large the variety of technical systems and criteria of evaluation of those taking place in them processes they require the appropriate flexibility from software. This flexibility in PK PRADIS it is supported by the possibility of the start of new modules as in base, so into the user libraries. Therefore the composition the libraries of complex it is dynamic for the current version of the complex it depends on configuration and object orientation by the concrete delivery.

Inclusion of any module in the composition of complex PRADIS it can be realized by the qualified user on to the formal rules, described in the present document.

For that, in order to the beginning developer of the library the modules of complex PRADIS it visualized the place of these programs in computational algorithm, we will use Fig. 1.1. Initial the system of differential equations is solved numerically. For each the step of integration adapt the formulas of discreteness (for different methods of integration they DIFFERENT), which allows to switch over from initial equations to the system of nonlinear equations. The obtained system of equations is solved iteratively, also, for each iterations are produced turning to THE MODELS of elements. On the completion of each step of integration for calculating required output variables occurs turning to necessary TO PROGRAMS OF THE CALCULATION OF OUTPUT VARIABLES. If user in its task provided mapping object on the course of computation, that here occurs turning to the programs of the realization GRAPHIC MEANS.

In Fig. 1.1. is not indicated one important special feature computational algorithm PRADIS. Certain part of models and the programs of calculation output variables it can require the [predrasschetnoj] initialization of data. Therefore there is a concept ZERO STEP OF INTEGRATION. At the zero step of the integration rotation are produced only to the models of elements and the programs the calculation of output variables. At this step of integration the number of iteration it is equal to 0, actual integration is not produced. Thus, all initializations, checking the parameters on permissibility and the single calculations

- in THE MODELS of elements and THE PROGRAMS OF THE CALCULATION OF THE OUTPUT VARIABLES should be produced at the zero step integration and with each new call of the program

integration, achieved with the use
title i RESTORE;

- in THE PROGRAMS OF THE REALIZATION OF GRAPHIC MEANS - on the first step of integration.

Structure of the library modules of complex in many respects it is similar. However, since modules of different types are carried out in the composition of complex PRADIS different functions, naturally, that the meaningful part of these modules has significant difference. Information, general for the library modules of all types, it is brought in the division of 2 present documents. Further it is brought the further information, necessary for the inclusion the complex PRADIS of the model of element (chapter e), program of the calculation output variables (chapter 4) and the program of the realization graphic means (chapter shch). The examples there are given the concrete library programs of different types.

Each of the included in the composition of complex library programs it must correctly interact with others by the components of the computational nucleus of complex. Therefore with to the development of its programs user must give to them unique names. List of the reserved names PRADIS it is brought in appendix 2 to the present document. Furthermore, the name of the newly developed module must not intersect by the list of already existing in the composition of your complex models elements, the programs of the calculation of output variables and programs the realization of graphic means (information on these modules it reveals along the demand ARM?).

If the program of user accomplishes the operations input-output into th temporary or permanent workers e created by it the files, discovered by the very program of user, it is necessary to bear in mind, that the numbers of files from 1 through 20 can be used by the computational nucleus of complex for its needs.

And the latter. Initial code of complex PRADIS in essence it satisfies the standard of language FORTRAN-77. Retreats from the standard:

- the explicit describers of types (REAL * 8, INTEGER * 4);

- the presence of symbolic and numerical variables in one and the same COMMON- block (symbolic variable NAME in the unnamed overall region of the computational nucleus PRADIS).

Since you use this document for the start its programs into the composition of complex PRADIS, utilized by you compiler from FORTRAN[a] makes it possible this to make (otherwise, the complex PRADIS in you would not work). If you want, in order to the developed by you modules, as PRADIS, did not meet problems with the transfer from one computational installation on other, then it is better not to allow other retreats from the standard.