

PRADIS

DEVELOPMENT [PGO] ON FORTRAN

**PROGRAM SET FOR THE AUTOMATION OF THE
SIMULATION OF NONSTATIONARY PROCESSES IN THE
MECHANICAL SYSTEMS AND THE SYSTEMS OF OTHER
PHYSICAL NATURE**

VERSION 4.3

Content

Content.....	2
1. Description of the overall diagram of work [PGO].....	3
2. Interface [PGO].....	4
3. Graphic operators.....	6
4. Example [PGO].....	11
5. Description of the size of [repozitorija].....	13
6. Description of the process of adding new [PGO].....	15
6.1. Briefly:.....	15
6.2. It is full.....	15

1. Description of the overall diagram of work [PGO]

[PGO] on FORTRAN for the postprocessor (PP) are developed in the form BY DLL of the libraries of those connected to PP with the use of [plugin] of mechanism. PP load necessary DLL, which contains procedure [PGO]. Information about [PGO] and DLL is described in the file of [ropozitorija] [PGO] (PGO_List.txt). [Repozitorij] [PGO] it contains in its list not only OF [PGO], written on FORTRAN, but also [PGO], written to [S]++. Strictly speaking, the basic language of development [PGO] for PP is [S]++, since this language allows access to all resources of graphic nucleus. On FORTRAN the access is possible only to the operations of creating the geometric units.

When it is necessary to draw object or changed its coordinates, PP cause the appropriate procedure [PGO]. In [PGO] are transferred all massifs, just as with the call [PGO] from [reshatelja].

Graphic object [PGO] on FORTRAN is created with the aid of the collection of graphic primitives, entering the appropriate library, written on FORTRAN. Graphic primitives are called as subprograms with the specific parameters. These parameters are transferred to the special object OF PP, which builds on their basis [vyzualnyj] means [sotvetstvujushchij] to primitive and reflects it in 3d window OF PARAGRAPHS the parameters they are transferred to the object through specially [vydelennij] massif.

Input information for [PGO] are taken from the massif A of [reshatelja], which during the fulfillment of [reshatelja] are written in the special file, which has name the same as the name of the file of task and expansion .DAT. In [PGO] the input information are transferred through the input parameters, whose structure is described in the document **of plugins.doc** and in paragraph 2 of this document.

2. Interface [PGO]

[PGO] now, in contrast to the old method of the task of the input parameters, have strictly [reglamentirovannyj] list of the input parameters. The list of the parameters is the following:

- NAMEX: the name of the model, connected with [PGO]. Massif of gaps, with the values of the parameters of passport VPS=0 and EXT=0 (fixed graphic means). Has the type CHARACTER * 8 in the implementation of call on FORTRAN.
- The I: the vector of forces (moments) for the element. Has the type REAL * 8 in the implementation of call on FORTRAN.
- The X: the vector of displacements of the units of the model, connected with [PGO], dimensionality EXT. It is not used with the value of the parameters of passport VPS=0 and EXT=0, or with the value of the parameter UNV>0 (in this case it is used vector INNER). Has the type REAL * 8 in the implementation of call on FORTRAN.
- The V: the velocity vector of the units of the model, connected with [PGO], dimensionality EXT. It is not used with the value of the parameters of passport VPS=0 and EXT=0, or with the value of the parameter UNV>0 (in this case it is used vector INNER). Has the type REAL * 8 in the implementation of call on FORTRAN.
- A: the G-vector of the units of the model, connected with [PGO], dimensionality EXT. It is not used with the value of the parameters of passport VPS=0 and EXT=0, or with the value of the parameter UNV>0 (in this case it is used vector INNER).
- INNER: the vector of the real numbers of the making sense degrees of freedom of the model of element, connected with [PGO]. It is not used with the value of the parameters of passport VPS=0 and EXT=0, or with the value of the parameter UNV=0 (in this case they are used the vector of the X, the V, A).
- EXT: a quantity of degrees of freedom of the model of element, connected with [PGO] (length INNER). Has the type INTEGER * 4 in the implementation of call on FORTRAN.
- PARX: the vector of the parameters of the model, connected with [PGO]. It is not used with the value of the parameters of passport VPS=0 and EXT=0. Has the type REAL * 8 in the implementation of call on FORTRAN. The zero element of this massif contains a quantity of parameters.
- WRKX: the working vector of the model, connected with [PGO]. It is not used with the value of the parameters of passport VPS=0 and EXT=0. Has the type REAL * 8 in the implementation of call on FORTRAN.
- PAR: the vector of the parameters [PGO]. Has the type REAL * 8 in the implementation of call on FORTRAN.
- WRK: working vector [PGO]. Has the type REAL * 8 in the implementation of call on FORTRAN.
- PARLR2: the vector of the parameters of the current layer of image. Has the type REAL * 8 in the implementation of call on FORTRAN.

Accordingly title [PGO] and description of the input parameters in all [PGO] must be identical and appear as follows:

```
SUBROUTINE TSTPGO (  
  , NAMEX,  
  , The I,  
  , X_, V_, A_,  
  , INNER, EXT,
```

, PARX, WRKX,
, PAR, WRK,
, PARLR2)

C the formal parameters

CHARACTER * OF 8 NAMEX
REAL * OF 8 I (1)
REAL * 8 X_ ('), V_ ('), A_ (')
REAL * OF 8 INNER (1), OF PARX (1), OF WRKX (1), OF PAR (1), OF WRK
(1), OF PARLR2 (1)
INTEGER * OF 4 EXT

So in [PGO] is transferred from [reshatelj] the indeterminate block COMMON, whose values are accessible through the start in the text [PGO] of the file **of common.inc** of forming part complex. It is included by addition in the text of the program of the following line:

include “of common.inc”

3. Graphic operators.

The library of graphic operators is located in the file **of graphs.inc** and is connected in [PGO] by addition to the text of the program of the following line:

include "of graphs.inc"

The following operators enter into the composition of library:

C the function of the task of the color of the drawing

C THE PARAMETERS:

C COL - color of the drawing of the object

C 1 is yellow

C 2 is bright green

C e is light brown

C 4 is [rozovokrasnyj]

C shch is light blue

C ' of the whitish-blue

C " is dark red

C 8 is [grjaznozelenyj]

C 9 is violet

C 10 is dark green

C is 11 is bright red

C 12 is dark-blue

C 13 is gray

C 14 is white

SUBROUTINE COLOR (COL)

REAL * OF 8 COL

C the function of the drawing of the cylinder

C THE PARAMETERS:

C X1, Y1, Z 1- of coordinate of the center of base

C X2, Y2, Z are 2nd the coordinate of the center of the upper part of the cylinder

C DIAM - diameter of the cylinder

SUBROUTINE CYLINDER (X1, Y1, Z1, X2, Y2, Z2, DIAM)

REAL * 8 X1, Y1, Z1, X2, Y2, Z2, DIAM

C the function of the drawing of the sphere

C THE PARAMETERS:

C X1, Y1, Z 1- of coordinate of the center of the sphere

C DIAM - diameter of the sphere

SUBROUTINE SPHERE (X1, Y1, Z1, DIAM)

REAL * 8 X1, Y1, Z1, DIAM

C the function of the drawing of the straight line

C THE PARAMETERS:

C X1, Y1, Z 1- of coordinate of the first point of the line

C X2, Y2, Z are 2nd the coordinate of the second point of [lini]

SUBROUTINE LINE (X1, Y1, Z1, X2, Y2, Z2)

REAL * 8 X1, Y1, Z1, X2, Y2, Z2

C the function of the drawing of the circle

C THE PARAMETERS:

C X1, Y1, Z 1- of coordinate of the center of the circle

C X2, Y2, Z are 2nd the coordinate of point, which lies on the axis of the circle

C DIAM - diameter of the circle

C FACE - if = 0, then the outline is sketched

C - if = 1, then the surface is sketched

SUBROUTINE CIRCLE (X1, Y1, Z1, X2, Y2, Z2, DIAM, FACE)

REAL * 8 X1, Y1, Z1, X2, Y2, Z2, DIAM, FACE

C the function of drawing four-coalpoornoy of the prism

C THE PARAMETERS:

C X1, Y1, Z1, X2, Y2, Z2,

C X3, Y3, Z3, X4, Y4, Z 4- of coordinate of four points of quadratic prism

C X5, Y5, Z are 5th the coordinate of the upper point of prism, which lies on the same edge,

C that also point X1, Y1, Z1

SUBROUTINE BOX (X1, Y1, Z1, X2, Y2, Z2,

'X3, Y3, Z3, X4, Y4, Z4, X5, Y5, Z5)

REAL * 8 X1, Y1, Z1, X2, Y2, Z2,

'X3, Y3, Z3, X4, Y4, Z4, X5, Y5, Z5

C the function of the drawing of the arc

C THE PARAMETERS:

C X1, Y1, Z 1- of coordinate of the center of the arc

C X2, Y2, Z are 2nd the coordinate of point, which lies on the axis of the arc

C ANG1, ANG are 2nd the angles, between which is sketched the arc

C DIAM - diameter of the arc

SUBROUTINE ARC (X1, Y1, Z1, X2, Y2, Z2, ANG1, ANG2, DIAM)

REAL * 8 X1, Y1, Z1, X2, Y2, Z2, ANG1, ANG2, DIAM

C the function of the load of the graphic file

C THE PARAMETERS:

C X1, Y1, Z 1- of coordinate of the arrangement of the center of the loaded means

C NOMB - number of the file

C SCALE - scale [koeffitsient]

SUBROUTINE LOADGM (X1, Y1, Z1, NOMB, SCALE)

REAL * 8 X1, Y1, Z1, NOMB

This function loads the graphic file, created with what or means of three-dimensional simulation and preserved in the size Of bRep (size Of openCASCADE). This file must be located in the same folder, as file DAT and to have accurately specific name: <[imja] of the file of [zadanija]>.<[nomer] of the file = Of nOMB>.img. For example, for the task with the name of **swing** this file can have the following names: **swing.1.img, swing.2.img,.... swing.100.img** and the like the zero point of means from the file is placed into the given point X1, Y1, Z1. The size of means changes on SCALE scale [koeffitsient]. If SCALE =1, then size does not change.

C the function of the drawing of the cone

C THE PARAMETERS:

C X1, Y1, Z 1- of coordinate of the center of the base of the cone

C X2, Y2, Z are 2nd the coordinate of point, which lies on the axis of the cone

C R 1- diameter of the base of the cone (it can be equal to zero)

C R is 2nd the diameter of the upper part of the cone (it can be equal to zero)

C H - height of the cone

SUBROUTINE CONE (X1, Y1, Z1, X2, Y2, Z2, R1, R2, H)

REAL * 8 X1, Y1, Z1, X2, Y2, Z2, R1, R2, H

C the function of the drawing of the triangle

C THE PARAMETERS:

C X1, Y1, Z 1- of coordinate of the first point of the triangle

C X2, Y2, Z are 2nd the coordinate of the second point of the triangle

C X3, Y3, Z 3- of the coordinate of the third point of the triangle

C FACE - if = 0, then the outline is sketched

C - if = 1, then the surface is sketched

SUBROUTINE TRIANGLE (X1, Y1, Z1, X2, Y2, Z2, X3, Y3, Z3, FACE)

REAL * 8 X1, Y1, Z1, X2, Y2, Z2, X3, Y3, Z3, FACE

C the function of the drawing of the quadrangle

C THE PARAMETERS:

C X1, Y1, Z 1- of coordinate of the first point of the quadrangle

C X2, Y2, Z are 2nd the coordinate of the second point of the quadrangle

C X3, Y3, Z 3- of the coordinate of the third point of the quadrangle

C X4, Y4, Z 4- of coordinate of the fourth point of the quadrangle

C FACE - if = 0, then the outline is sketched

C - if = 1, then the surface is sketched

SUBROUTINE RECTANGLE (X1, Y1, Z1, X2, Y2, Z2,

'X3, Y3, Z3, X4, Y4, Z4, FACE)

REAL * 8 X1, Y1, Z1, X2, Y2, Z2,

'X3, Y3, Z3, X4, Y4, Z4, FACE

C the function of the drawing of trihedron (3d coordinate systems)

C THE PARAMETERS:

C X1, Y1, Z 1- the origin coordinates of point A (center of mobile basis)

C along the axes OX, OY, OZ;

C X2, Y2, Z are 2nd the origin coordinates of the point B, which determines together

C with the point A the initial position of local axis Z'

C of the mobile basis (axis Z' it is directed from A toward B)

C X3, Y3, Z 3- the origin coordinates of the point C, which determines together

C with the points A and B the plane of the arrangement of the axis of X';

C LENGTH - length of the axes of the depicted basis.

SUBROUTINE TRIHEDRON (X1, Y1, Z1, X2, Y2, Z2,

'X3, Y3, Z3, LENGTH)

REAL * 8 X1, Y1, Z1, X2, Y2, Z2,

'X3, Y3, Z3, LENGTH

C the function of the drawing of the ellipsoid

C THE PARAMETERS:

C X1, Y1, Z 1- of initial coordinate of point A

C X2, Y2, Z are 2nd the initial coordinate of point B

C X3, Y3, Z 3- of the initial coordinate of point C
 C X4, Y4, Z 4- of initial coordinate of point D
 C R1, R2, R 3- of the semiaxis of ellipsoid, R1, R2, R3 (>0).
 C DEGREE - degree of ellipsoid (p>1)
 SUBROUTINE ELLIPSOID (X1, Y1, Z1, X2, Y2, Z2,
 'X3, Y3, Z3, X4, Y4, Z4,
 'R1, R2, R3, DEGREE)
 REAL * 8 X1, Y1, Z1, X2, Y2, Z2,
 'X3, Y3, Z3, X4, Y4, Z4,
 'R1, R2, R3, DEGREE

C the function of the drawing of the vector

C THE PARAMETERS:
 C X1, Y1, Z 1- of coordinate of the initial
 C X2, Y2, Z are 2nd the coordinate of the end point
 C LEN - size of the pointer
 SUBROUTINE VECTOR (X1, Y1, Z1, X2, Y2, Z2, LEN)
 REAL * 8 X1, Y1, Z1, X2, Y2, Z2, LEN

C function returning the minimum value of the distance between two points

REAL * OF 8 FUNCTION MINLEN ()

This function is used for checking the correctness of the parameters of those assigned into the graphic operators. If what or points are located nearer to each other than the value of that returned by this function of value, then these points are considered identical and the distance between them is equal to zero.

C function returning the code of the error

C the codes:
 C 0 - there are no errors
 C1 - the distance between two points it is equal to zero
 C is 2nd diameter less or it is equal to zero
 C 3- scale factor less or is equal to zero
 C 4- height less or is equal to zero
 C is 5th it is long less or it is equal to zero
 C ' the degree of ellipsoid less or is equal to one
 C " – the incorrect code of the color
 From 8 – is exceeded a maximum quantity of the primitives
 INTEGER * OF 4 FUNCTION ERRCODE ()

This function should be caused after each graphic operator for checking the correctness of the input parameters. If function returns the code, different from zero, it means the input parameters they were assigned incorrectly and no drawing it occurs.

Examples of the calls of these operators are given below:

CALL SPHERE (X1, X2, X3, DIAM * 2.)
CALL CYLINDER (X1, X2, X3, X4, X5, X6, DIAM)
CALL SPHERE (X4, X5, X6, DIAM * 2.)
CALL LINE (X1, X2, X3, X4, X5, X6)
CALL CIRCLE (X1, X2, X3, X4, X5, X6, DIAM * shch, FACE)
CALL BOX (X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12,

```

'X13, X14, X15)
  CALL ARC (X1, X2, X3, X4, X5, X6, ANG1, ANG2, DIAM * 8)
  CALL LOADGM (X4, X5, X6, NOMB, SCALE)
  CALL CONE (X1, X2, X3, X4, X5, X6, R1, R2, H)
  CALL TRIANGLE (X1, X2, X3, X4, X5, X6, X7, X8, X9, FACE)
  CALL RECTANGLE (X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12, FACE)
  CALL TRIHEDRON (X1, X2, X3, X4, X5, X6, X7, X8, X9, LENGTH)
  CALL ELLIPSOID (X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12,
'R1, R2, R3, DEGREE)
  CALL VECTOR (X1, X2, X3, X4, X5, X6, LEN)
  ERRRC=ERRCODE ()
  MINLN=MINLEN ()

```

4. Example [PGO]

Is further given a example of the text of simple [PGO]:

C IMAGE TSTPGO:EXT=6, PAR=2

C

C HELP the means of the element of the compressive cylindrical

C HELP of rod with the spheres at the ends

C

C the date of creation 04/09/2006 11:52 am

C the date of last correction 05/09/2006 03:55 pm

include "of init.inc"

include "of graphs.inc"

**SUBROUTINE TSTPGO (
, NAMEX,
, The I,
, X_, V_, A_,
, INNER, EXT,
, PARX, WRKX,
, PAR, WRK,
, PARLR2)**

!DEC\$ ATTRIBUTES DLLEXPORT::TSTPGO

include "of common.inc"

C the formal parameters

CHARACTER * OF 8 NAMEX

REAL * OF 8 I (1)

REAL * 8 X_ ('), V_ ('), A_ (')

**REAL * OF 8 INNER (1), OF PARX (1), OF WRKX (1), OF PAR (1), OF WRK
(1), OF PARLR2 (1)**

INTEGER * OF 4 EXT, ERRC, COL, ERRCODE

REAL * 8 X1, X2, X3, X4, X5, X6,

REAL * OF 8 DIAM, MINLN, MINLEN

X1 = PARX (1) + X_ (1)

X2 = PARX (2) + X_ (2)

X3 = PARX (e) + X_ (e)

X4 = PARX (4) + X_ (4)

X5 = PARX (shch) + X_ (shch)

X6 = PARX (') + X_ (')

DIAM = OF PAR (1)

COL = 4.

CALL COLOR (COL)

```

      MINLN=MINLEN ()
      L = OF Sqrt " the X 1- X4) * (the X 1- X4) + (the X it is 2nd X5) * (the X it is 2nd
X5) + (X 3- X6) * (X 3- X6))
      IF (L .LT. MINLN) GOTO 1
      IF (OF DIAM .LT. MINLN) GOTO 1

      CALL SPHERE (X1, X2, X3, DIAM * 2.)
      ERRC=ERRCODE ()
      IF (ERRC OF.GT.O) OF GOTO 1

      CALL CYLINDER (X1, X2, X3, X4, X5, X6, DIAM)
      IF (ERRC OF.GT.O) OF GOTO 1

      CALL SPHERE (X4, X5, X6, DIAM * 2.)
      IF (ERRC OF.GT.O) OF GOTO 1

1 RETURN
  END

```

5. Description of the size of [repozitorija].

[Repozitorij] [PGO] it is stored in the text file Of pGO_List.txt. File is stored in the same catalog, where is located the carried out file OF PP Of postprocessor.exe. For each [PGO] the list contains three parameters, recorded through the comma:

- name [PGO],
- the name of the caused function PP,
- the name DLL of library.

For [PGO] on FORTRAN the parameter “the name of the caused function PP” always must be FORTRAN, and the parameter “the name DLL of library” must be always PGO. However, the name of very DLL of the library, which contains this [PGO], must completely coincide with the name [PGO]. For example, for [PGO] with the name **TSTPGO** the name of [byblioteki] must be **TSTPGO.DLL**, and line in [repozitorii] must be following: **“TSTPGO, FORTRAN, PGO”**.

Attention. In the future is assumed a change in the size of [repozitorija].

Is given below the text of [repozitorija] OF PP for version 4.0 (7.09.2006):

DOTD, DOTD, PGO
AERHT, AERHT, PGO
GSV, GSV, PGO
GRET, GRET, PGO
PRUG, PRUG, PGO
AKLAB, AKLAB, PGO
D3LAB, D3LAB, PGO
GROT2, GROT2, PGO
GROT3, GROT3, PGO
TRTER, TRTER, PGO
KN3EFV, KN3EFV, PGO
KN3FFV, KN3FFV, PGO
EL3DP, EL3DP, PGO
LSK 3d, LSK 3d, PGO
POINT, Point, PGO
PRLGRM, PRLGRM, PGO
RECTD, RECTD, PGO
LSK, LSK, PGO
LINED, Lined, PGO
LINEV, Linev, PGO
CIL3DC, CIL3DC, PGO
GCYL, GCYL, PGO
AMORT, AMORT, PGO
ARROW, ARROW, PGO
CMASS, CMASS, PGO
GNIRS, GNIRS, PGO
HS2VS, HS2VS, PGO
OPORA, OPORA, PGO
OPORAD, OPORAD, PGO
SILUET, SILUET, PGO
KONTUR, KONTUR, PGO
PRUZS, PRUZS, PGO

TSTPGO, FORTRAN, PGO
ELP 3d, ELP 3d, PGO

6. Description of the process of adding new [PGO]

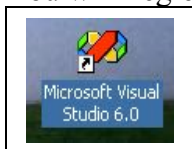
6.1. Briefly:

1. To create in VC ' the new project of dynamic library with the name of project completely corresponding to the name of created [PGO] (for example **TSTPGO**).
2. To select the point Of project - > Settings... In the appeared dialog box to select the laying Of fortran. To select the point Of run Of time in upper priest- AP of menu with the name Of category. To make that not selected (to remove [galochku]) a point Of array & Of string Of bounds. To harvest button Ok.
3. To include in project the following files: init.inc, common.inc, graphs.inc.
4. To create file with the name, which corresponds to the name of created [PGO] and by expansion .FOR (for example **TSTPGO.FOR**). To fill this file with the text of program [PGO] according to the rules given above and being guided by the example [PGO] given above, and so by the document **of plugins.doc**, in which is in detail described the mechanism of [plaginov] for [Pradis].
5. To compile project. Obtained dynamic library (for example **TSTPGO.DLL**) to place into the catalog **% OF DINSYS % \ of dinamа \ of Post** or into another place, accessible for the load of dynamic libraries.
6. To include new [PGO] in [repozitorij] PP by addition to the file **Of pGO_List.txt** of new line (for example **“TSTPGO, FORTRAN, PGO”**)
7. To include new [PGO] in the system catalog Of [pradis]. For this it is necessary to copy file with the text [PGO] (for example **TSTPGO.FOR**) into the various catalog, to remove from the file of program [PGO] (for example **TSTPGO.FOR**) all calculations and calls of graphic operators, and so the line **“of include “of graphs.inc”**”, after leaving the subprogram for empty, and to neglect command ARM with the key “+” and the name [PGO] (for example **% DINSYS % \ of dinamа \ of pradis32 \ OF ARM + OF TSTPGO**). In more detail operational procedure with the system catalog and the utility **ARM** is described in the document **of description_slang.doc**.
8. To neglect [Pradis] solver to the calculation of the task, which contains the call of new [PGO].
9. After the completion of calculation to neglect to the fulfillment BY PP, to load that obtained as a result of [rasschetov] DAT- file. [PGO] must be mapped into 3d [vjuvere] OF PARAGRAPHS.

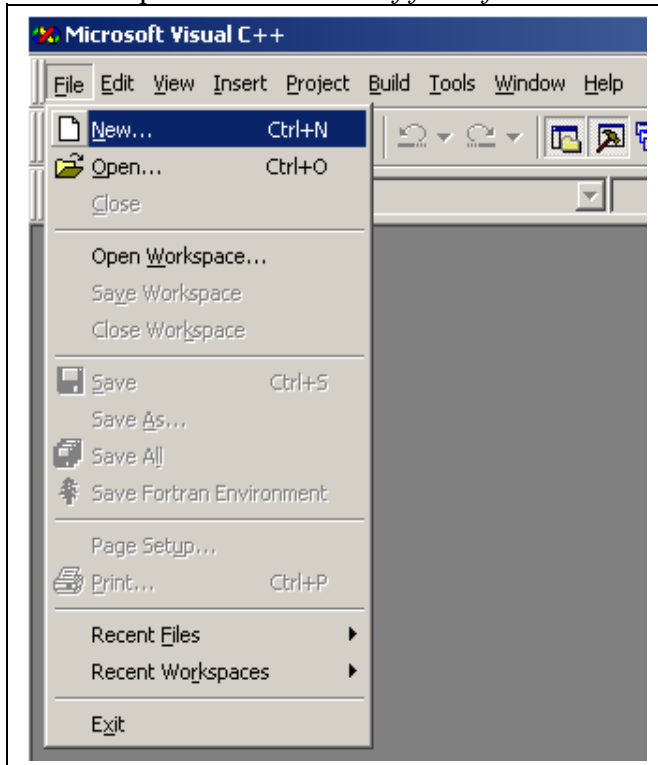
6.2. It is full

We will allow they wanted to create new [PGO] on FORTRAN by the name “PGOTST”. For this us it will be necessary to carry out the following:

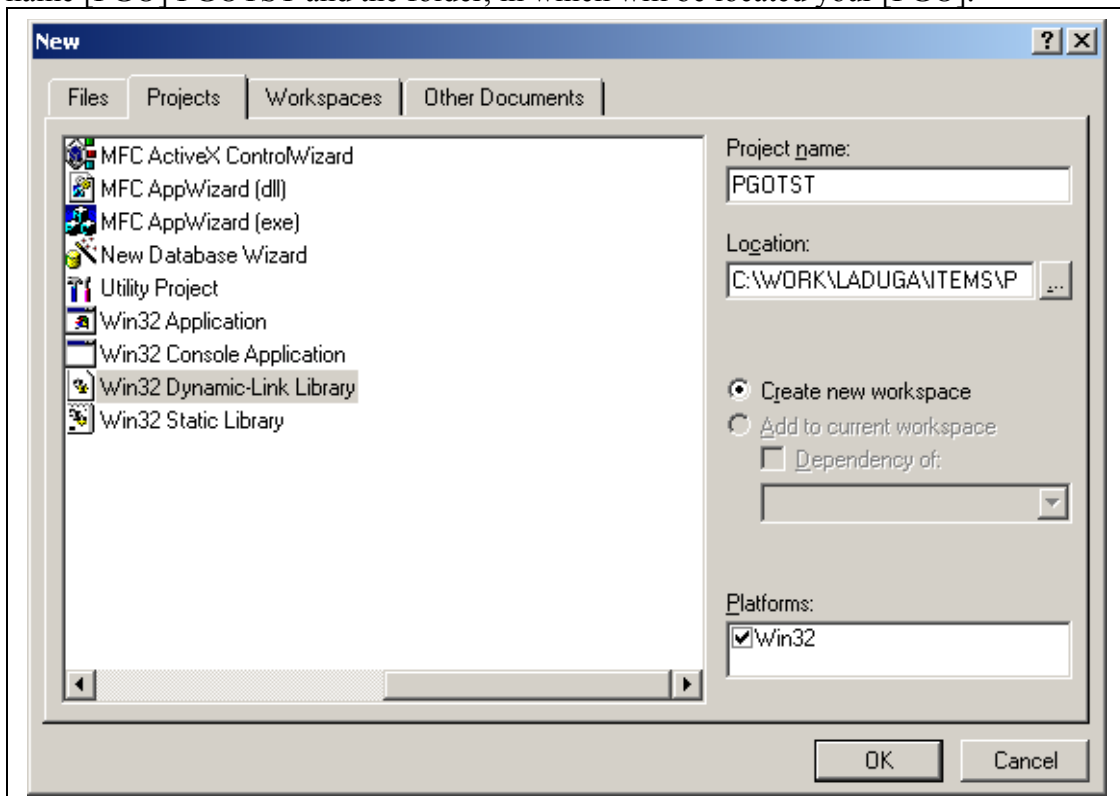
1. You will neglect Microsoft Of visual Of studio. As a rule this mark on the working table:



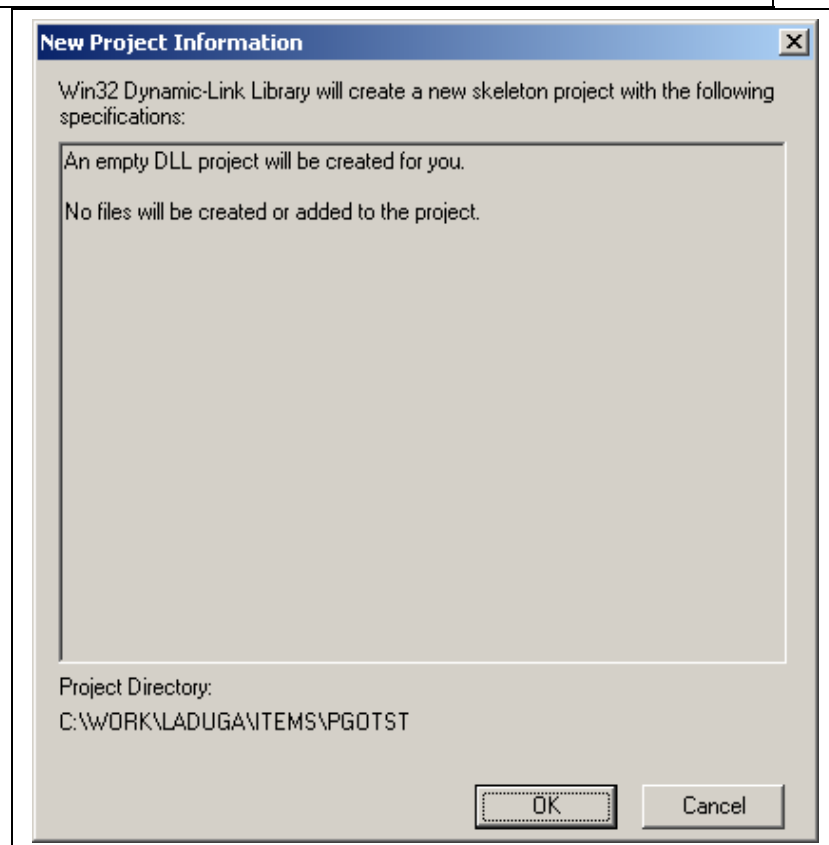
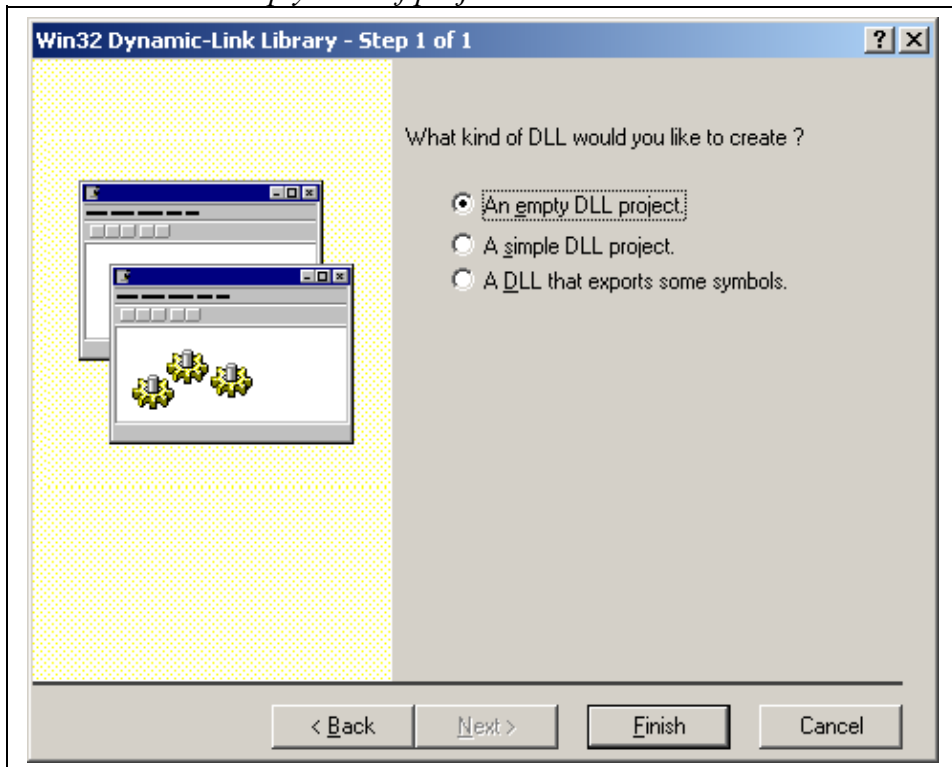
2. Select the point of the menu *Of file/Of new*.



3. Select in the laying *Of projects* the point *Of win32 Of dynamic-Link Of library*. Introduce the name [PGO] PGOTST and the folder, in which will be located your [PGO].

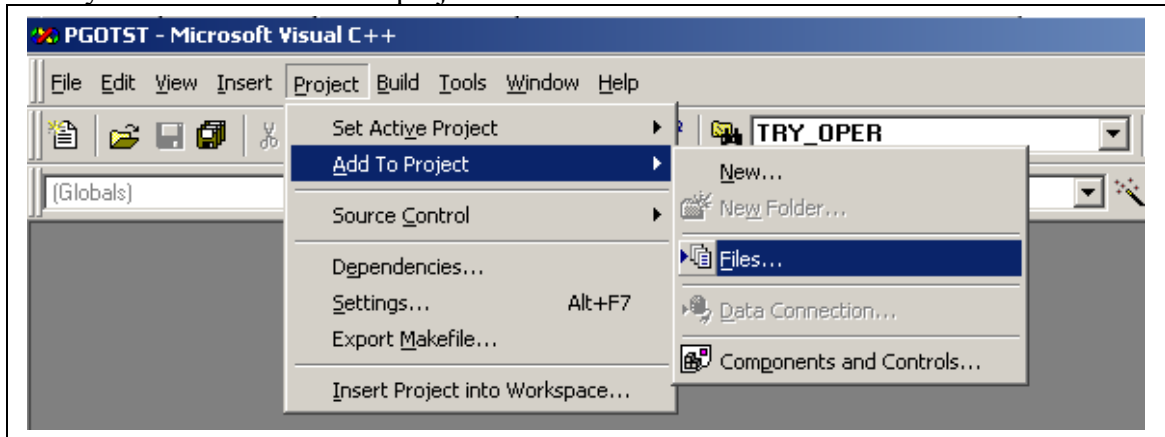


4. Further select *An empty DLL of project*.

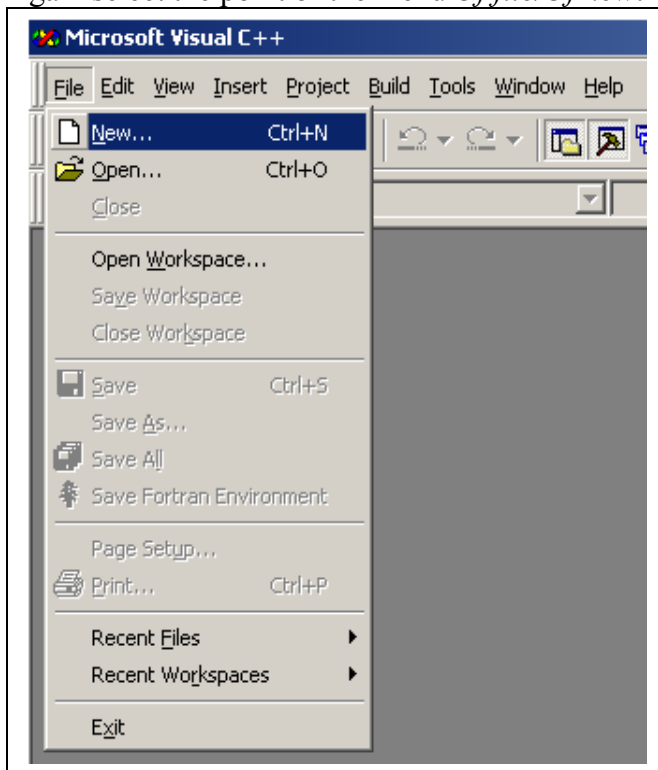


5. Harvest [OK].
6. Copy the files of init.inc, common.inc, graphs.inc into the recently created folder of project, indicated in the window above.

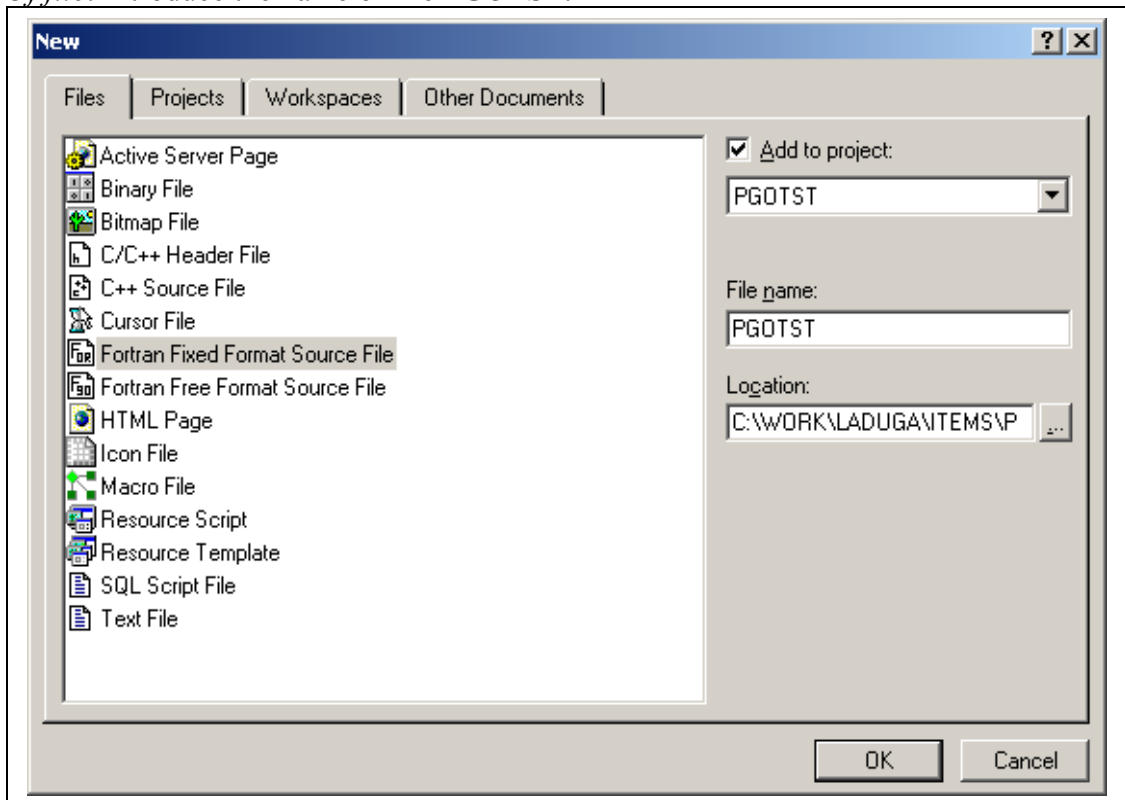
7. Select the point of the menu *Of project/Add to of project/Of files*. This point of menu will allow you to add files into the project.



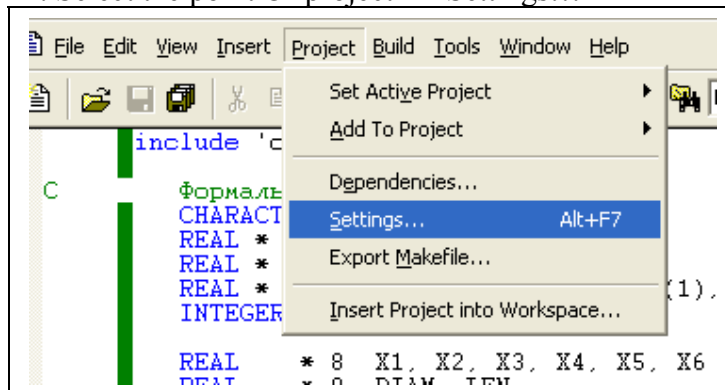
8. Add the files of *init.inc*, *common.inc*, *graphs.inc* from the folder of project.
9. Again select the point of the menu *Of file/Of new*.



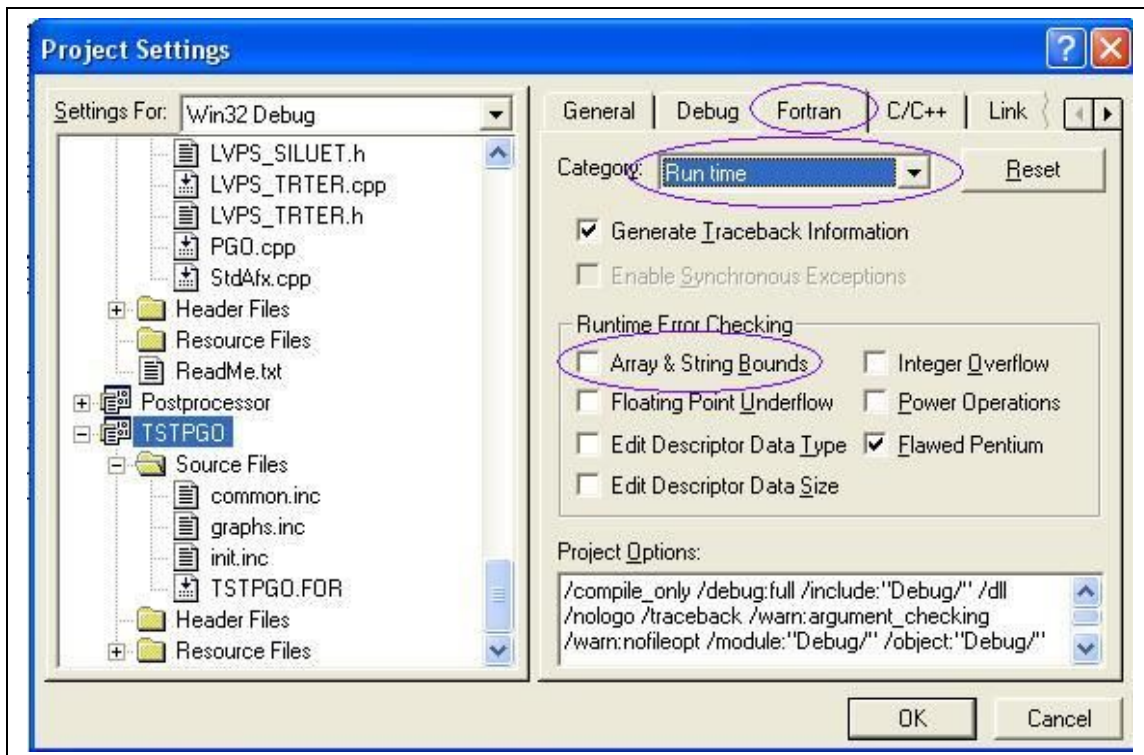
10. In the supplementary sheet *Of files* select the point *Of fortran Of fixed Of format Of source Of file*. Introduce the name of file PGOTST.



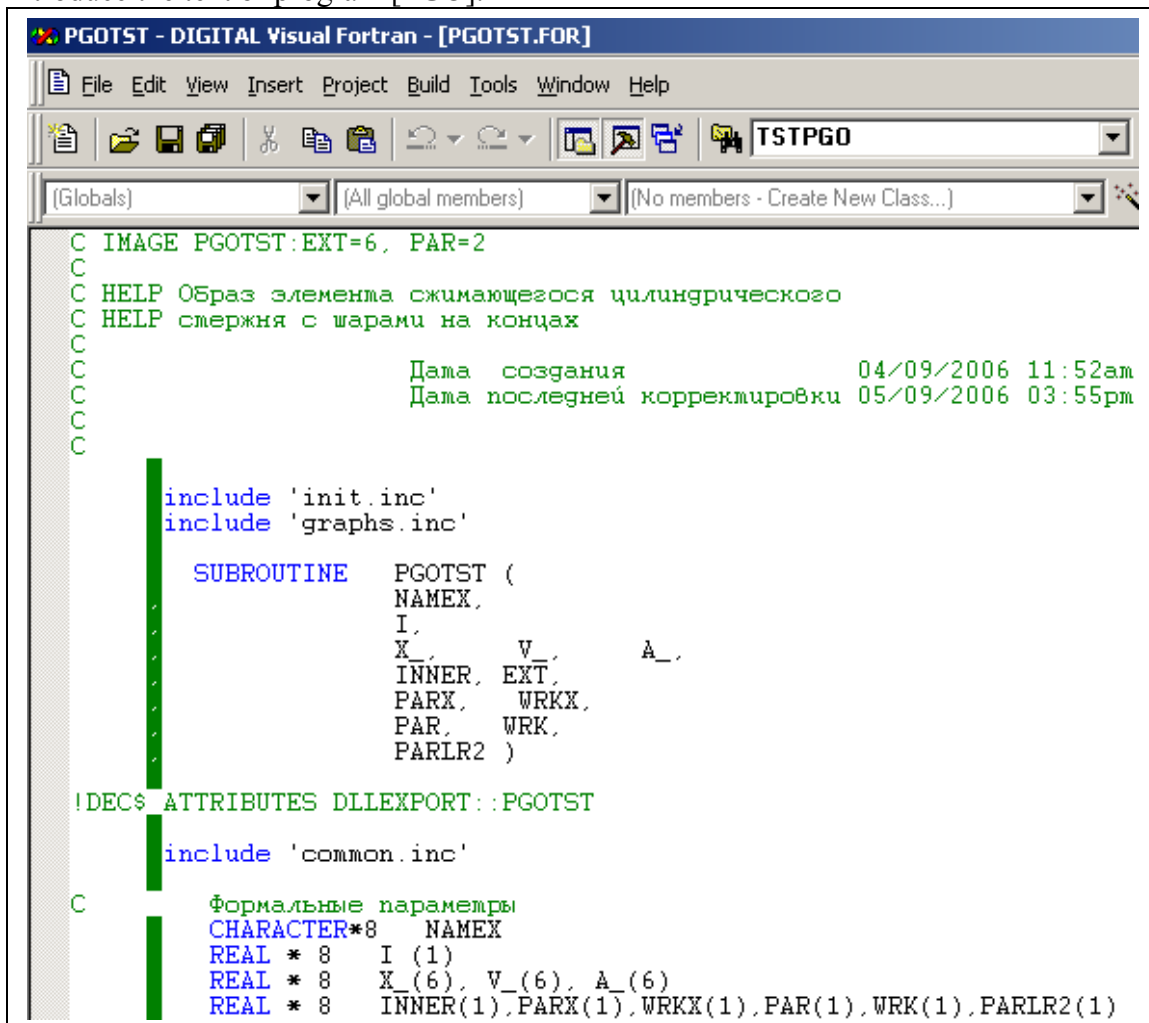
11. Select the point *Of project -> Settings...*



12. In the appeared dialog box select the laying *Of fortran*. Select the point *Of run Of time* in upper priest- AP of menu with the name *Of category*. Make that not selected (remove [galochku]) a point *Of array & Of string Of bounds*. Press button *Ok*.

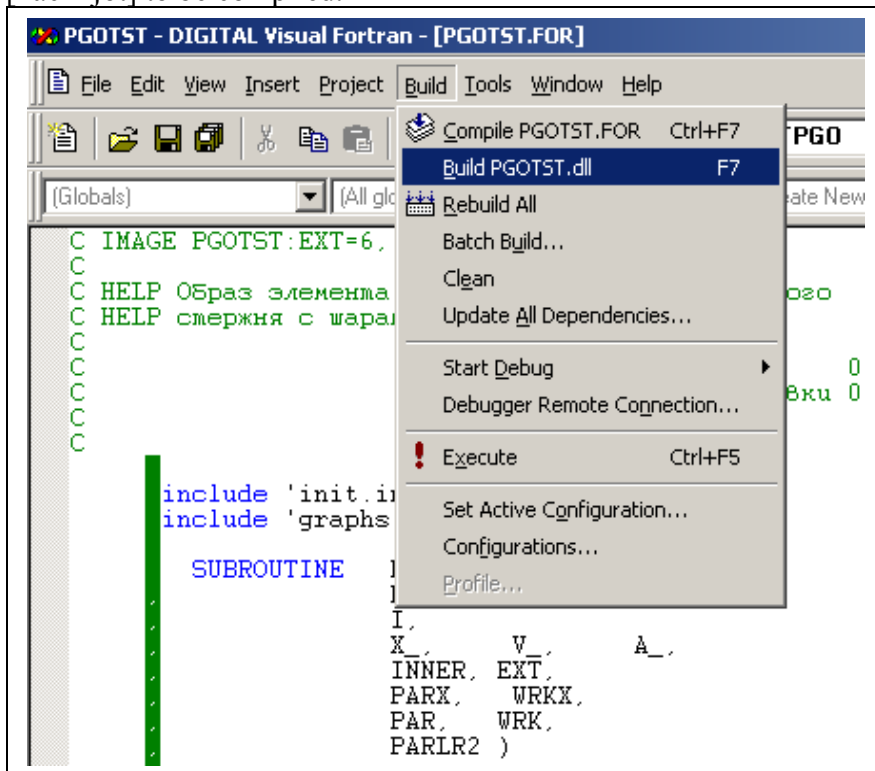


13. Introduce the text of program [PGO].

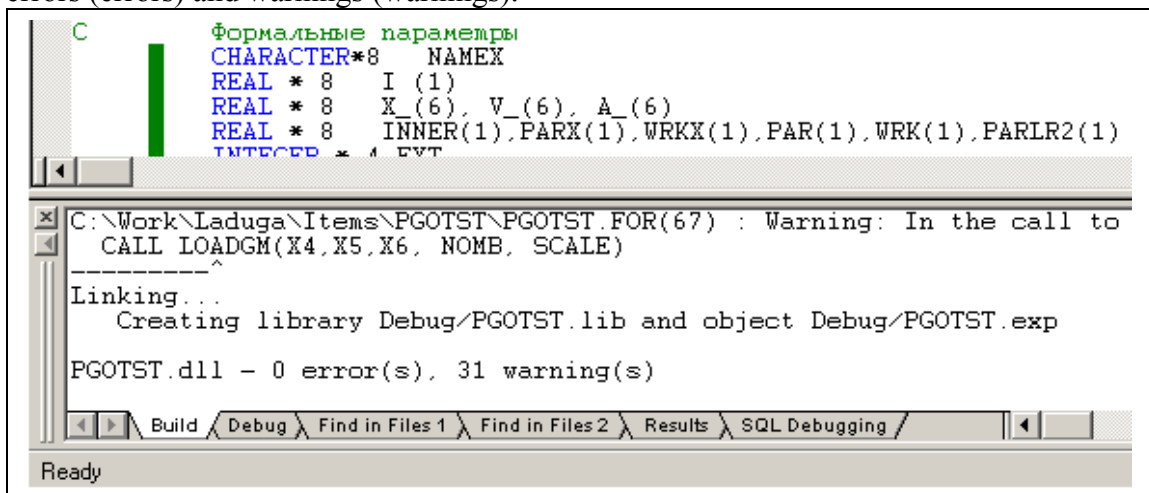


14. Press "Ctrl- s" in order to preserve the text of program.

15. Select the point of the menu *Of build/Of build Of pGOTST.dll* or simply press F7. Program of [nachnjot] to be compiled.



16. Wait for, when compilation ends and below will appear communication about the number of errors (errors) and warnings (warnings).



17. If errors not a zero quantity (0 error (s)), then most probably in your program on FORTRAN be present errors. Correct them and return to point 12. If errors zero, then you pass to the following point.
18. In the folder of project had to be created the folder Of debug, at it lies the recently created by you library Of pGOTST.dll. Copy it into the folder % OF DINSYS % \ of dinama \ of Post.

19. At the folder OF PP lies the file Of pGO. list.txt. Add into the horses of file the still one line:

```
GNTRS, GNTRS, PGO
HS2US, HS2US, PGO
OPORA, OPORA, PGO
OPORAD, OPORAD, PGO
SILUET, SILUET, PGO
KONTUR, KONTUR, PGO
PRUZZ, PRUZZ, PGO
TSTPGO, FORTRAN, PGO
ELP3D, ELP3D, PGO
PGOTST, FORTRAN, PGO
```

PGOTST, FORTRAN, PGO.

20. Copy into the folder *DINAMA/of pradis32* file PGOTST.FOR from the folder of project.

21. Remove from *DINAMA/pradis32/OF PGOTST.FOR* all calculations and line “of include “of graphs.inc””. [Ostajotsja] is something like empty [PGO]. Do not forget, that the first line must be the form: “C IMAGE PGOTST:EXT=6, PAR=2”.

```
edit PGOTST.FOR - Far
C:\dinama\pradis32\PGOTST.FOR Win Line
C IMAGE PGOTST:EXT=6, PAR=2
C
C HELP Образ элемента сжимающегося цилиндрического
C HELP стержня с шарами на концах
C
C Дата создания 04/09/2006 11:52am
C Дата последней корректировки 05/09/2006 03:55pm
C
C
C include 'init.inc'
C include 'graphs.inc'
C
C SUBROUTINE PGOTST <
C NAMEX,
C I,
C X_, U_, A_,
C INNER, EXT,
C PARX, WRKX,
C PAR, WRK,
C PARLR2 >
C
C !DEC$ ATTRIBUTES DLLEXPORT::PGOTST
C
C include 'common.inc'
C
C Формальные параметры
C CHARACTER*8 NAMEX
C REAL * 8 I (1)
C REAL * 8 X_(6), U_(6), A_(6)
C REAL * 8 INNER(1), PARX(1), WRKX(1), PAR(1), WRK(1), PARLR2(1)
C INTEGER * 4 EXT
C
C REAL * 8 X1, X2, X3, X4, X5, X6
C REAL * 8 DIAM, LEN
C
C REAL * 8 ANG1, ANG2, NOMB, SCALE, R1, R2, R3, H, X7, X8, X9,
C X10, X11, X12, X13, X14, X15, LENGTH, DEGREE
C
C
C X1 = PARX(1) + X_(1)
C X2 = PARX(2) + X_(2)
C X3 = PARX(3) + X_(3)
```

22. Pass in *DINAMA/of pradis32* and you will neglect “arm + OF PGOTST”.

```
C:\dinama\pradis32>arm + PGOTST
1 C IMAGE PGOTST:EXT=6, PAR=2

Паспорт программы PGOTST    добавлен в системный каталог

2 C
3 C HELP Образ элемента сжимающегося цилиндрического
4 C HELP стержня с шарами на концах
5 C
6 C          Дата создания          04/09/2006 11:52am
7 C          Дата последней корректировки 05/09/2006 03:55pm
8 C
9 C
10
11 include 'init.inc'

C:\dinama\pradis32>
1Left 2Right 3View.. 4Edit.. 5Print 6MkLink 7Find 8History 9Video 10Tr
```

23. Now you can use new [PGO] PGOTST as any another.