

ADORE Update Version 5.40

Release Date: September 15, 2008

ADORE 5.40 is enhancement of earlier version 5.30. All temporary fixes issued in version 5.31 are also included in version 5.40.

Program Enhancements

Spherical Roller Bearings

In earlier versions of ADORE, spherical roller bearings were always restricted to radial loads with the roller axis parallel to the shaft axis. In the current version 5.40 a new transformation is included which permits specification of a contact angle, which is the angle between roller and shaft axis. Thus a single row of rollers in dual row spherical roller bearings can now be better modeled. In fact, by imposing certain displacement constraints both rows of the bearing may be modeled, one at a time, fairly precisely.

The above enhancement has resulted in a new input on Record 5C corresponding to the bearing contact angle.

Materials Data Base

A significant effort was devoted to include a materials data base within ADORE. This was accomplished by introducing several new subroutines, one of which contains hard coded data for some of the available bearing materials. It is expected that this data base will continually grow as new data becomes available. The data base includes temperature variation for some of the material properties. However, presently, ADORE uses fixed properties specified at the prescribed initial temperatures.

In addition to this data base a new user programmable subroutine, AdrX0, is now included so that the user provide appropriate interface to access any materials property data base.

As a result of this enhancement the materials codes on Record 3.3 and 7.0 may now have the following values:

- 0 Default materials, same as used earlier.
- 1 Materials data specified on designated input data records, same as before.
- 2 Material properties are obtained via Subroutine ADRX0.
- m A materials code to be used for extracting material properties from ADORE database.

The available materials and their codes are listed in the input descriptions.

Animated Graphics Of Rolling Elements (AGORE)

The Java based graphic animation facility, AGORE, which has been an orderable option to ADORE, is now integrated with the Java based input and plot output facilities. Thus on the program disk, the subdirectory Disk4 has been eliminated and all Java facilities are included in subdirectory Disk3.

ADORE User Manual

ADORE version 5.40 includes a revised user manual.

Test Cases

The normal ball and cylindrical roller bearing test cases are included with the program files; in addition to the input data print output files all plot data sets are included in the program media. These examples must be run and checked after installation of the program. All outputs, at least at step 0, must match against the supplied output.

While comparing the results with those produced by earlier versions some differences in the transient solutions and time step sizes may be observed. These difference are primarily due to code corrections outlined above.

Program File Contents:

As usual program updates are distributed on a CD in normal data format. The files may be easily extracted from this disk on any computer system and then transferred to appropriate system for which ADORE is licensed for. The media may contains the following three subdirectories:

Disk1

Update540.pdf:

A pdf file containing notes of the latest updates (this file).

adoreInput.txt:

A text file containing details of ADORE input data.

adoreManual.pdf:

ADORE user's manual containing detailed instructions for program installation and use.

Ball:

Subdirectory containing ball bearing test case

Roller:

Subdirectory containing roller bearing test case

AdrxExamples

Subdirectory containing few of the user program able examples via subroutine ADRX1.

Disk2

***.f files:**

ADORE FORTRAN-90 source files

Disk3

setup.bat:

Setup batch file to compile adrInput, adrPlot and AGORE on Windows system.

adrInput.bat:

Batch file to execute adrInput.

adrPlot.bat:

Batch file to execute adrPlot.

agore.bat:

Batch file to execute the graphics animation facility, AGORE.

Java:

Subdirectory containing all Java source.

Program Installation

On the Windows system, if the Microsoft Developer Studio is used to create the executable, the following suggested procedure may be helpful.

1. Start Microsoft Developer Studio and select the File option to create a new project.
2. For type of application, select "Console Application" and name the application as adore51 or other desired name.
3. Once the project space is created, use the inert option to add source files. After navigating to the appropriate source directory, first add the file m_parameters.f only. In the second step add all the m_*.f module files. In the final step all the other source file. The file to be added is simply selected by a mouse click on the file in the selection widow. To select more than one file, simple hold the Ctrl key while clicking the mouse.
4. Now use the Build option to create the executable.

Java facilities adrInput, adrPlot and Agore

Edit the setup.bat file in Disk3 subdirectory to correct the paths to all source files and the Java Development Kit. Execute the updated setup file to compile and install these facilities.

The setup files for the three applications may then be edited to update the paths and installed in appropriate directory compatible with the environmental variables which provide access to all executables.

Contact Information

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