

ADORE Update Version 5.80

Release Date: August 31, 2013

ADORE 5.80 is an enhancement to earlier version 5.70. All temporary fixes issued in versions 5.71 and 5.72 are now permanent in version 5.80. The following is a description of specific enhancements:

Code Enhancements

Fatigue Life Modeling

Internal research and development work to further enhance the life models continued with more correlation with experimental data and better development of model coefficients. The agreement of model predictions with experimental data and also with the original Lundberg-Palmgren model is now greatly improved. As a result a second draft of the research paper was prepared. The paper will be soon submitted to STLE for publication. This second draft is included on the program distribution disk.

This development resulted in a number of new inputs to the life models as a result the ADORE input facility has been revised. So earlier ADORE input data files will have to be reprocessed through the input facility in order for the data to work with the current version of the code.

Thermal Modeling

Some minor improvements in numerical procedures to enhance the computation of bearing heat generation and the resulting temperature field across the bearing have been implemented.

Churning and Drag Modeling

In an effort to make the churning and drag modeling more user friendly, development of a data base to compile properties of fluids required to model churning and drag effects has been initiated. Aside from several common lubricants, the current version of ADORE has built-in data base containing properties of cryogenic fluids, air and water. Churning option code has been appropriately revised to permit selection of these fluids.

ADORE User Manual

ADORE user manual has been appropriately modified to include documentation for new variables related to fatigue life and churning and drag modeling. The new version of the manual is included on the code distribution disk.

ADORE Input, Plot and Animation Facilities

As discussed above, some of the code enhancements have resulted in new input data. Thus the old input data sets will no longer be compatible with this new version. However, the old input data files may be opened with the new version of the input facility, AdrInput, distributed with ADORE 5.80, and appropriate modifications to the data can be easily made. When opening the old data files considerable care must be exercised in examining the data on each of the records, since new inputs have been incorporated and some of the old variables may have been rearranged.

There are no modifications to the plot (adrPlot) and animation facilities (agore).

ADORE Print Output

Modifications to ADORE print output includes new output for the various life models under the “Applied Parameters” section.

Test Cases

As usual the input data, print output and all plot data sets are included in these subdirectories 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.

In addition to the new output in the life modeling section, the computed lives may be slightly different from those computed in earlier versions of ADORE. This is primarily due to newer values of model coefficients which provide better correlation with experimental data.

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 contains the following three subdirectories:

Disk1

Update580.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.

STLE_Manuscript.pdf:

A draft copy of the paper to be submitted to STLE for publication.

Ball:

Subdirectory containing ball bearing test case

Roller:

Subdirectory containing roller bearing test case

TaperedRoller:

Subdirectory containing tapered roller bearing test case

AdrxExamples

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

Disk2

***.f files:**

ADORE FORTRAN-90/95 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 adore560 or other desired name.
3. Once the project space is created, use the insert 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 window.
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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