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NUCARS® 2015.2 Update

Release Notes

This installation includes all previously released updates as well as upgrades and bug fixes to the following programs:

- NUCARS
- SpringVu
- CFIT-WRCON
- Example files
- User Manual

New Features

NUCARS

- Improved flexible body damping ratio input in .sys file defined within the \FLEXIBLE BODY MODES keyword. Damping ratio 1.0 now produces critical damping. Previously, critical damping occurred at 2.0 for Euler-Bernoulli flexible beams and $1/\pi$ for FEA flexible bodies.
- FEA mode file name can now be 256 characters long, and the file name can include the folder path name. If the path is not provided, NUCARS assumes the FEA mode file is in the same folder as the .sys file.
- All FEA mode displacements can be output by using the \DOF DISPLACEMENT keyword in the .dat file.

Example files

- New AREMA standard 136 lb/yd rail profile with 8" crown, recommended for use in Chapter 11 simulations.
- Updated sample simulation. Uses 136 lb/yd rail with 8" crown and updated 2015 loaded hopper system file.

User Manual

- Release notes are incorporated into the user manual.
- Minor clarifications.

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Bug Fixes

SpringVu

- Corrected error not using all coil types if using non-sequential loaded coil types, i.e. using outer and loaded control coils while skipping inner and inner-inner coil types.
- Corrected error when using coils with duplicated free heights.
- Corrected error using custom spring library, was not using wedge rise for user coil types.
- Corrected an error with the user interface preventing execution unless in batch mode.
- Corrected error of duplicated PWL breakpoints, would not run in NUCARS.

CFIT-WRCON

- Corrected an error with the user interface in WRCON preventing display of wheel/rail contact.
- Corrected an error in .fit file modifier rotate function. Did not rotate any rails after the first usage.

Example files

- Corrections to LHopr and Ehopr .sys files:
 - Updated side frame roll inertias.
 - Files are available at and have been saved as 2015 versions.
- Corrections to measured track files located at C:\Program Files(x86)\NUCARS\msrdtrk.
 - Due to an error in the track geometry measurement system, the along track distance was off by 2% in the files labeled as Q4-2014 or Q1-2015. The corrected files are named with a -2 at the end of the filename. Do not use the previous versions of these files. To remove the previous versions, uninstall NUCARS 2015.
 - PTT-T&R-Q4-2014-2.trk, contained in the “msrdtrk\old” have smaller perturbations than required by Chapter 11. Please use PTT-T&R-Spring-2009.trk file in the “msrdtrk” folder.