

# NASGRO v10.11 Additions, Changes, and Fixes by NASGRO Module

July 20, 2023

Category	Applicable NASGRO Module										Description	
	NASGRO Main	Config Control	NASFLA	NASSIF	NASCCS	NASGLS	NASFAD	NASMAT	NASBEM	NASFORM		Users Manual
Change											X	Corrected the expression for S0 in section SC10 of Appendix C.
Change											X	Unused TC35 bitmap was removed from the main manual.
Change											X	Corrected the example 2D alternative stress file content in Appendix C.
Fix			X									When using FAD options with multi-temperature materials selected, the various FAD options would not correctly save between temperature sets.
Fix			X									When creating user 2-D materials on the "Material" tab, some of the controls would occasionally overlap at the bottom, requiring the user to resize the GUI.
Fix			X									Under FAD case, the selected FAD option would not be saved or loaded for multi-temperature data.
Fix			X									The parameter analysis scale factor grid was not being read correctly from input file, causing certain rows to contain random data. This was due to an earlier expansion of the internal storage used and its initial incomplete initialization.
Fix			X									Inconsistent column labels in OUT2 with displacement quantities when TC14 crack model was used. The error was found when the indices with displacement quantities were not in sync with those with scale factors.
Fix			X									TC14 computation crashed in "Debug" mode when more than one displacement gradient was applied.
Fix			X	X								Crack case SC37: An error in the implementation of the geometry check for the solution limit of "0.05 <= 2T/t <= 1.95" caused an error message to be inadvertently issued for valid input.
Fix				X								Crack case TC29: After running an analysis with the Output Options tab's control "Select output format" set to "Plot solutions,N15," the "View plots" button on the Computations tab produced no plots, even though all needed output files had been produced. This was caused by an error when the GUI created the names of the scriptfiles that are used in the plotting process.
Fix			X		X							Crack cases TC28, TC29: An incorrect implementation of the geometry checking code for the solution limits of "0 < max(c,c2)/W <= 0.9" (TC28) and "0 < max(c2,c)/B < 0.9" (TC29) did not allow for exact equal values of the two crack tips, causing an inadvertent error message to be issued for valid input.
Fix			X	X								Crack case SC30: An incorrect geometry error was being issued when external stress files with OPS disabled were selected.
Fix			X									Crack case SC34: The GUI code that handles file management for multiple runs using the "Parameter Analysis" grid on the Computations tab was outdated, and still used an older file naming convention, causing some output files to be misnamed and overwritten.
Fix								X				A coding error in DKth fitting for negative R with only one (R, DKth) data point was causing an incorrect Cthm value.
Fix								X				Fixed a coding error in da/dN fitting for the Walker equation for positive R data, which would decrease the convergence speed of the iteration for solving the equation system, or even make the iteration not converge.
Fix						X						NASGLS analysis for symmetric SC30 case terminated with error from improper handling of error code.
Fix			X	X	X	X	X					The "Geometry" tab would occasionally freeze when selecting a new crack case and then switching tabs.
Fix			X									Incorrect crack tip label with c2-tip contained in "crack transition information" section of OUT1 file. An internally used crack tip label was mistakenly displayed in this output section.
Fix			X	X	X	X	X					On the analysis tab, after running an analysis, the button "Save window contents to a doc file" no longer worked, and no file was created. This functionality, previously relying on an internal library function, was rewritten to process the window contents manually, resulting in a proper file being created.
Fix			X									Missing some post-transition description in crack transition information section from CC09 to TC28 in OUT1 file. The specific missing description was to show the crack dimensions with the post-transition crack model TC28. The error was found resulting from incompatible output format.
Fix			X									Inconsistent crack tip labels in crack transition information section with transition path from SC30 to TC28. The error was found in the description for the last crack model TC28 after final transition where its crack shape aspect ratio was denoted by a/c instead of c2/c.
Fix			X									Misaligned message from running SY model. A section of message issued by routines employed by SY model was found in OUT1 file.
Fix			X	X								TC28 subjected to remote loads and restrained bend not working with residual stress or shakedown enabled. When these features were combined, the error code was found in SCREEN.OUT file. The similar error could also be re-produced when running NASSIF analysis with the same features.
Fix			X									Very large number of cycles not displaced in OUT1 file and GUI. The number of cycles was found too large to be contained within the preset output format descriptor. For practicality, the format descriptor was revised to display large numbers.

# NASGRO v10.11 Additions, Changes, and Fixes by NASGRO Module

July 20, 2023

Category	Applicable NASGRO Module										Description	
	NASGRO Main	Config Control	NASFLA	NASSIF	NASCCS	NASGLS	NASFAD	NASMAT	NASBEM	NASFORM		Users Manual
Fix			X	X	X							Crack Case CC08: When using "Tension, bend, pin load" for the "Crack plane stress definition from" option, if a residual stress table was entered, this table data could not be plotted using the "Plot stresses" button.
Fix				X								Specified NASSIF plot limits along y-axis showing no effect in plot. A typo was found such that the parsed maximum and minimum plot limits were the same. This issue was found only when plotting SIF solutions.
Fix			X									Stress plots for clustered stress points were inconsistent with those from v9.21. An incomplete fix for the previous bug report was identified.
Fix			X									On the NASFLA GUI's Material tab, for the "Select failure criteria" section on the left side, the footnote text reminder "(must specify stress and strain material properties)" was inadvertently removed from a prior NASGRO version. This text note has now been added back in, and is displayed on the selector of either "FAD:Fitnet Option 3" or "FAD: API 579 L3 Method B" failure criterion.
Fix			X									When attempting to save "All calculated data to csv files" in the NASFLA GUI on the Computations tab, the code that reads the output would get stuck in an inner loop, repeatedly writing out the last line of data to a CSV file, but not ending. A new breakout condition was implemented that prevents this erroneous rewrite.
Fix				X								Crack case TC28/TC29: The "Plot solutions" options were inadvertently enabled despite not being supported by those crack cases.
Fix			X	X	X							Crack case TC29: When plotting the post-processing data "Kmax vs a", the graph's x-axis contained the generic crack tip label of 'a' instead of the specific crack tip for the data that was actually plotted: c, c1, c2, or c3.
Fix			X	X	X							Crack case TC29: An incorrect internal variable setting prevented the "Plot stresses" button's functionality for the "Tabular input" selection of the "Crack plane stress definition from" radiobox. This has been corrected.
Fix			X	X	X							Crack case TC13: An incorrect implementation of the geometry limit check for the "Crack in long ligament" option caused a valid input to be read as invalid and an error message was erroneously issued.
Fix						X						NASGLS did not print K values for crack tip c for 2D cases for block and step output. A data format bug was introduced during the transition of software structure from v8.2 to v9.0. It led to an offset to the left with the columns related to crack depths and their SIFs for 2D crack models.
Fix				X								Crack case SC26: An incorrect implementation of the geometry check for the solution limit of " $0 < c/a \leq 8$ " caused valid input files to be read as invalid and an input error message to be erroneously issued.
Fix			X									Crack case TC01: When under metric units, the dye penetrant NDE value was incorrect.
Fix			X									Crack case CC08: Loading an input file older than 10.1 resulted in the "Post-transition geometry option" radiobox (a control newly added in 10.1) to be set to the 10.1 default selection of "TC43", which was incorrect. Input files older than 10.1 should have this new radiobox set to the transition geometry of "TC13", which was the only option for pre-10.1 analyses.
Fix			X	X	X							Crack case SC01: The geometry check for the solution limit of " $0.1 \leq a/c \leq 1.2$ " had been implemented as a warning message, which incorrectly allowed an analysis that exceeded this limit to proceed. This has been changed to be an explicit warning message and will now correctly prevent an analysis that exceeds the limit from running.
Fix			X	X	X							Crack case TC35: The section of "Restrained" for the radiobox option "Bending restraints at remote ends" correctly disabled the "Tabular input" option for the "Crack plane stress definition from" radiobox. However, if another crack case was selected (for example, TC18), this "Tabular input" option incorrectly remained disabled.
Fix			X									When using 2-D tabular growth rates with all R values having the same da/dN values, the unit conversion of da/dN and dK values was incorrect.
Fix				X								For some cases, the plot solutions batchfile would incorrectly flag 2-D cases as 1-D
Fix						X						Occasionally the geometry grid on some FAD cases would update to display erroneous fields.
Fix							X					M7G12AB01 was incorrectly labeled as 7075 instead of 7050
Fix			X									Crack cases EC04, EC05, SC31: Erroneous error checks were being triggered for these cases, blocking computation.
Fix						X						On rare occasions, selecting a new crack case with one already selected could cause the GUI to crash.
Fix			X									Crack Cases CC18, CC28: The geometry checks were not correctly checking the status of the OPS checkbox. This problem was universal to all displacement cases.
Fix					X							Crack Case CC26: The a/c geometry checks were using an outdated lower bound of 0.5 instead of 0.1
Fix			X									When loading an input file, the analysis type would be cleared even if the load was canceled, resetting it to the default.
Fix			X									Crack case TC39: The batchfile was missing some SIF compounding data for the c1,c2 tip configuration due to a mismatch between how the data is read from input file vs. how it is stored internally and then read from that internal storage to write to the batchfile.

# NASGRO v10.11 Additions, Changes, and Fixes by NASGRO Module

July 20, 2023

Category	Applicable NASGRO Module										Description
	NASGRO Main Config Control	NASFLA	NASSIF	NASCCS	NASGLS	NASFAD	NASMAT	NASBEM	NASFORM	Users Manual	
Fix		X	X								Bivariant shakedown failed from zero stress points in stress gradient definition. The zero stress points caused issues during iterations requiring stress scaling in the numerical scheme for shakedown.
Fix			X								Only the first load pair in spectrum used in EPFM fatigue crack growth computation. The fix in this release would resolve the consistency in the definition of load steps, blocks, and schedules between NASGRO LEFM and EPFM.
Fix			X								Incorrect error messages were generated when stress files contained more than 500 points and OPS was enabled.
Fix							X				NASMAT would not plot correctly when all 8 stress ratio boxes were used. The last box has now been disabled.
Fix							X				NASMAT would incorrectly round R values to a single decimal point when entering a vs. N data with constant load.
Fix			X								For elastic-plastic mode, the secondary load values entered and displayed in the grid on the Load Blocks tab were not correctly saved to internal storage when entered using the clipboard Copy and Paste function, preventing that data from being saved to an input file, or to be used in an analysis run, since the source of the data when writing to both input file and batch file is the GUI's internal storage, not what is shown on-screen.
Fix			X								For elastic-plastic mode, the on-screen grid that displays the secondary load values for each step in the block was not being cleared after a new input file was loaded or a new project was started, causing the previous run's grid values to erroneously remain on-screen.
Fix			X								The NASFLA GUI would crash during the use of the Compare Two IDs dialog, whenever certain buttons in that dialog were clicked, including the "Save ID and Close" button at the bottom. This was caused by too large of an internal function that grouped many button events together.
Fix			X								Cleaned up inconsistent description in OUT1 and SCREEN.OUT files from EPFM analysis. Previously, GUI for EPFM only allowed one distinct load block definition, but the output would show multiple load blocks.
Fix			X	X							OPS routine throwing errors when external stress files containing 855 data pairs were used. The revision applied a fix to remove such an internal cap.
Fix			X								An incorrect source code index used during reading of the input file for elastic-plastic secondary load values caused the load values for step 1 of the block to be incorrectly applied to each step in the block, whether that step had its own secondary load values or not.
Fix			X								Crack case CC01: For elastic-plastic mode, removed the radiobox "Post-transition geometry option" for this case, which was shown in error.
Fix			X								When adding new user data without first selecting a crack case, FAD controls would be inadvertently enabled
Fix			X								When switching elasticity modes, the various GUI tabs could become unresponsive and fail to properly load and display controls
Fix					X						No output from NASCCS with SC35 for critical crack size from fatigue crack growth threshold. The unexpected termination was from the inconsistent upper bound of crack depth in the iteration bracket when the specified a/c ratio was less than 2/pi. This erroneous scenario could also be re-produced for using other criteria to compute CCS.