

INM Version 6.0a Software Update

May 19, 2000

Version Information

INM Version 6.0a is a software update to Version 6.0. You must already have INM 6.0 to use this software update. If you do not have INM 6.0, you can order it by downloading the INM Order Form from the FAA AEE-100 web site (<http://www.aee.faa.gov/aee-100/inm>).

The Version 6.0 User's Guide and the Version 5.1 Technical Manual are the current manuals for INM Version 6.0a software.

Installation Instructions

1. Use MS Windows to make a copy of your existing INM6.0 directory. Select your INM6.0 directory and using the Windows File Manager under the "Edit" menu, select "copy" and then select "paste". This will create a new directory called "Copy of INM6.0".
2. Use the right button of your mouse to select the "Copy of INM6.0" directory created in step 1. Select "Rename" and rename the directory INM6.0a.
3. Download the INM60A.EXE file from the FAA Web site. Put it in the new INM6.0a directory.
4. Double click on the INM60a.exe file to automatically extract the updated files into the new INM6.0a directory. Select the "Unzip" button. This process will overwrite the old INM60 files and replace them with those required for INM6.0a. The new files include:

<u>Program</u>	<u>Date</u>
\inm.exe	5/18/2000
\compute.dll	5/18/2000
\graph.dll	5/18/2000
\compu50.dll	5/18/2000
\winutil.dll	5/18/2000
\process\census\census.exe	5/08/2000
\process\dxfcadcvt.exe	5/08/2000
\sys_data*. * (all files)	

A340 and EMB120 Substitution Conversion

Two new aircraft, A340 and EMB120, are included in the Version 6.0a database. These two aircraft identifiers were previously used in the Version 6.0 substitution database. The list of Version 6.0a substitution identifiers no longer includes these two names.

1. INM 6.0a will automatically switch to the new A340 and EMB120 data. An information message box will appear when you load a Version 6.0 study that uses A340 or EMB120 substitutions. The message informs you that the new data are going to be loaded. You do not have to do anything.

2. In the unlikely event that you created your own A340 (or EMB120) substitution record (which was saved in the *acft_sub.dbf* file in the study directory), an error message will appear at some point. The message will say "Error in record: A340. A record with this identifier is already stored ...". To the question "Do you want to continue input?", answer "Yes". INM will delete your A340 substitution and use the new A340 data.

Database Modifications

1. Data for the Airbus A340-221 with CFM56-5C2 engines were added to the INM database. The aircraft identifier is A340 and the noise identifier is CF56C. The single fixed-point approach profile is a standard 3-degree descent with a 3000-foot level segment. There are three sets of procedural departure profiles: ICAO_A has stage lengths 5 and 8, ICAO_B has stage lengths 1 through 8, and STANDARD has stage lengths 1 through 8. STANDARD profiles are identical to ICAO_B profiles. The stage-8 profile is to be used for departures operating at maximum gross takeoff weight.
2. The A340 identifier was removed from the substitution database. Previously, the DC870 was substituted for the A340. INM studies should now use the new A340 data.
3. Data for the Embraer 120 ER with PW118 engines were added to the database. The aircraft identifier is EMB120 and the noise identifier is EPW118. Standard procedural profiles for one approach and one departure are included. Also, EMB120 touch-and-go and circuit flight procedural profiles are included. These may be modified to model actual airport touch-and-go operations.
4. The EMB120 identifier was removed for the substitution database. Previously, the DHC8 was substituted for the EMB120. INM studies should now use the new EMB120 data.
5. Data for the Embraer 145 LR with Allison AE3007A1 engines were added to the database. The aircraft identifier is EMB14L and it uses the AE3007 noise curves, which were already in the INM database. Standard procedural profiles for one approach and six departures are included. Also, EMB14L touch-and-go and circuit flight procedural profiles are included. These may be modified to model actual airport touch-and-go operations.
6. The AE3007 approach noise-power-distance curves were replaced, and the departure 4000-lb EPNL curve was adjusted to fix a data entry error. The AE3007 noise curves are used by the EMB145 and the EMB14L aircraft.
7. Data for EMB145 touch-and-go and circuit flight procedural profiles were added to the database. These profiles may be modified to model actual airport touch-and-go operations.

Program Modifications

1. The Aircraft // Noise Identifiers window was changed so that helicopter spectral classes are listed. Users can now create noise curve records using helicopter spectra in order to represent helicopters in INM.

2. A report that provides details on the spectral classes is available from VNTSC. The report title is "Spectral Classes for FAA's Integrated Noise Model Version 6.0", December 1999. See the INM 6.0 User's Guide, Appendix A, for points of contact to obtain a copy of the report.
3. The Case Echo Report section reporting Grid data was changed to blank out TA- threshold, ambient-delta, and percent-time-period fields when those parameters are not used for the case computation.
4. The algorithm that constructs the NMPLLOT.GRD file was changed so that 5x5 subgrids are written instead of 3x3 subgrids. This makes the GRD file smaller and quicker to load.
5. The Output Graphics window was changed to display information message boxes while NMPlot calculates contours and while INM loads a GRD file to enable the noise-at-point function. The Loading-GRD message reminds the user that the noise-at-point function can be disabled in Window // Options if loading a NMPLLOT.GRD file takes too long.
6. The date/time validation step was removed from the 5.2-to-6.0 conversion processor so that Version 5.2 studies that were created using the Convert 4.11 function can be converted to Version 6.0 without a problem. There were time-format and year 2000 issues within the Version 5.2 CONV411.EXE program. A corrected version of CONV411.EXE is available on the FAA/AEE web site (See [Previous INM Release Series](#) on main INM page). This program is used with old INM 4.11 files that need to be converted to INM 5.2 prior to updating to INM 6.0x.
7. The Files // Delete Non-essential Files function was changed so that the list of deleted files is saved in the *deleted_files.txt* file in the study directory instead of appearing in the message box.
8. The maximum allowed value for flap coefficients B, C, D, or R was increased from 1.34 to 2.0. This change has no effect on noise computations and was made to support new single engine prop aircraft that are being developed for INM.
9. The copy/paste function was modified so that Ctrl-X, Ctrl-C, and Ctrl-V keys now work the same as they do in many other Windows programs (i.e., highlighted text can be copied from one place to another). Previously, these keys operated on highlighted INM *dbf* records instead of highlighted text.
10. The Input Graphics Pick Track box was modified so that it lists all visible tracks in the immediate vicinity of the pick point (the Pick Track box is activated within functions such as Delete Track, Move Point, etc.). Previously, the Pick Track box listed only 10 tracks, including tracks that were not actually displayed.
11. The Input Graphics Track Display function was modified so that tracks can be displayed by runway end. Previously, tracks associated with both ends of a runway were displayed.

Reported Problems Fixed

1. A change was made in the calculation of the perceived tone-corrected noise exposure metrics (i.e. NEF, EPNL, and, WECPNL). This correction does not affect the A-weighted metrics such as DNL, CNEL, and, LAEQ. This problem was unique to INM 6.0.

2. User-created Version 5.2 noise-power-distance curves are now assigned to both approach and departure noise. This is done by duplicating the NPD records. Previously, the 5.2-to-6.0 conversion process turned the NPD records into approach noise, with no corresponding departure noise.
3. A problem using terrain 3CD files for parts of the world other than north latitude and west longitude was fixed. Previously, 3CD files with names NxxEyyy, SxxEyyy, and SxxWyyy produced error messages (xx = degrees latitude, yyy = degrees longitude of the southwest corner of the 1x1-degree terrain area).
4. A file-open problem in the DXF file conversion program, CADCVRT.EXE, was fixed. Previously, a file or directory name that had imbedded spaces could not be accessed.
5. The high-temperature thrust algorithm was fixed. Previously, only the default equation was used. Now, high-temperature Jet Thrust Coefficients records are used, providing that they are in the database. Currently, four aircraft have high-temperature records: A340, MD9025, MD9028, and 727QF. All others use the default equation.
6. A problem with selecting substitution aircraft identifiers was fixed. Previously, in the Ops // Flight Operations window, an internal database error was generated when selecting from a list of substitution aircraft identifiers that were associated with multiple INM aircraft.
7. A problem when changing aircraft profile identifiers was fixed. Previously, an error message appeared when trying to change multiple records in the Acft // Profiles Identifiers window.
8. The aircraft weight assigned to an approach profile is now tested as described in the User's Guide on page 8-20. Previously, the test used the maximum gross takeoff weight instead of the landing weight. This rule is relaxed for Circuit and Touch-and-Go profiles in which there is standard data that contains a weight greater than the landing weight. A profile may have only one representative weight and these weights at times exceed the maximum landing weight. Users may adjust these standard data records accordingly. Examples include the CNA411, DHC6, LEAR25 and LEAR35.
9. The latitude and longitude of the study's x,y-coordinate origin is now correctly written to the NMPlot.GRD file. Previously, the CART section of the file was not written in decimal degrees. This change was made to support users who need to combine INM NMPlot files with output from other noise models that also utilize NMPlot such as NOISEMAP, the Rotorcraft Noise Model (RNM), and a modification to the FAA's Heliport Noise Model (HNM) that will produce an NMPlot input file.
10. An Input/Output Graphics vectors-type track display problem with runway approach/depart threshold and track delta distance was fixed. Previously, the tracks were not displayed at their proper offset position. However, noise was calculated by taking into account runway thresholds and track delta distances. This display problem affected only vectors-type tracks, not points-type tracks.
11. An Output Graphics display problem with P-subtracks was fixed. Previously, points-type subtracks could not be accessed to change line width and color.
12. An Output Graphics export overlay contours to DXF bug was fixed. Previously, the *overlay* noise contour layer could not be written out to a DXF file.

13. The Files // Export as DXF function was fixed so that contours with decimal values (e.g., 1.5 dB) can be exported to an AutoCAD layer. The contour layer name uses a hyphen for a decimal point because AutoCAD does not allow periods or commas in layer names. Previously only integer contour layers were exported to DXF format.
14. The noise stage identifier in the Case Echo Report was fixed. Previously, the noise stage number was not being set with its data value.
15. A special case percentage contribution per flight operation in Detailed Grid output was fixed. Previously, when the *percent-time-above* metric was used, the percentage contribution values for other metrics were reported incorrectly. This problem only occurred when the percent-time-above metric was used.
16. The Save-100%-Flights run option for Detailed Grid output was fixed. Previously, all contributing flights (contributing to 100% to six decimal places) were output but non-contributing flights were not listed. Now, all flights are written out.
17. The Files // Import Data into Study // Census TIGER Street Files function (i.e., the CENSUS.EXE program) was fixed so that multiple counties can be processed to create a street map. Previously, only one county at a time could be processed.