APPENDICES

A. SOURCES AND CONTACTS

A.1. Federal Aviation Administration

The INM program is managed in the Office of Environment and Energy (AEE) at the following address:

- Office of Environment and Energy
  Federal Aviation Administration
  Room 900W
  800 Independence Ave. SW
  Washington, DC 20591
  FAX (202) 267-5594
  WEB **http://aee.hq.faa.gov**

The main AEE contacts and their program areas are:

- Dr. Jake A. Plante — Branch Manager
  Analysis and Evaluation Branch (AEE-120)
  PHN (202) 267-3539

- Mr. John M. Gulding — Program Manager for INM Heliport Noise Model (HNM), Area Equivalent Method (AEM)
  AEE-120
  PHN (202) 267-3654
  Email **john.gulding@faa.dot.gov**

- Dr. Steve G. Vahovich — Program Manager for AEE Web site, INM aircraft substitutions
  AEE-120
  PHN (202) 267-3559

The use of non-standard INM input for Part 150 studies and FAA Order 1050 environmental assessments (EA) and environmental impact statements (EIS) requires prior written approval by the FAA. Please contact John Gulding.

A.2. Technical Assistance

For technical assistance from the INM development team:

- Mr. Jeffrey R. Olmstead — System integration, Source data processing, Flight profiles, Flight paths, User interface, User's Guide, INM orders
  ATAC Corporation
  757 N. Mary Ave.
  Sunnyvale, CA 94086-2909
  PHN (408) 736-2822
  FAX (408) 736-8447

Email **jeffolmstead@atac.com**

- Mr. Gregg G. Fleming — Noise Model, NMPLOT
  U.S. Department of Transportation
  Research and Special Programs Administration
  John A. Volpe National Transportation Systems Center
  Acoustics Facility DTS-75
  Kendall Square
  Cambridge, MA 02142-1093
  PHN (617) 494-2876
  FAX (617) 494-2497
  Email **fleming@volpe2.dot.gov**

For technical assistance from FAA/AEE staff (see A.1 for phone numbers):

- John Gulding
- Steve Vahovich

A.3. U.S. Terrain Elevation Data

You can purchase U.S. terrain elevation data from Micropath Corporation. Formatted USGS 3-arc-second elevation data are distributed on seven CD-ROMs. The price of a CD-ROM is $500. Each CD-ROM contains data for several U.S. states, as follows:

CD#1 CT DE DC IN MA MD ME MI NH NJ NY OH PA RI VA VT WV
CD#2 AL AR FL GA LA MS NC PR TN SC VI
CD#3 IA IL MN MO ND SD WI
CD#4 KS NE NM OK TX
CD#5 AZ CO MT UT WY
CD#6 CA HI ID NV OR WA
CD#7 AK

Contact:

- Mr. Marc Miller
  Micropath Corporation
  2023 Montane Drive East
  Golden, CO 80401-8099
  PHN (303) 526-5454
  FAX (303) 526-2662
  Email **microinfo@micropath.com**
  WEB **http://www.micropath.com**

A.4. U.S. Census Data

INM uses two types of CD-ROMS that can be purchased from the U.S. Bureau of the Census:

1) Street map data for the U.S. are distributed on 6 CD-ROMs, each containing data for a several states. Order "TIGER/Line files 1995". The price of each CD-ROM is $250.
2) Population data for the U.S. are distributed on 10 CD-ROMs, each one containing data for several states. Order "Public Law 94-171 file for the United States , and Public Law Data for Puerto Rico". The price of each CD-ROM is $50.

Contact:

- U.S. Department of Commerce
  Bureau of the Census
  Customer Service
  P.O. Box 277943
  Atlanta GA, 30384-7943
  PHN (301) 457-4100
  FAX (310) 457-3842
  Email **webmaster@census.gov**
  WEB **http://www.census.gov/mp/www/rom/msrom.html**

A.5. OAG Data

OAG Basic Chronological Diskette costs: Adhoc/one time/one airport = $710, Adhoc/one time/two-five airports = $225 per airport, six+ = $140 per airport; Monthly deliveries: one airport = $450, two-five airports = $140, and 6+ airports = $90.

Contact:

- Ms. Cindy McDonald
  Official Airline Guides, Inc.
  PHN (630)574-6150
  FAX (630) 574-6373
  Email **cmcdonald@oag.com**
  WEB **http://www.oag.com**

A.6. SAE Reports

The two SAE reports that are the basis for the INM noise model are:

1) "Procedure for the Calculation of Airplane Noise in the Vicinity of Airports", SAE-AIR-1845, prepared by SAE Committee A-21, March 1986. The price is $50.

2) "Prediction Method for Lateral Attenuation of Airplane Noise During Takeoff and Landing", SAE-AIR-1751, March 1981, reaffirmed March 1991. The price is $35.

These documents can be ordered from:

- Society of Automotive Engineers, Inc.
  400 Commonwealth Drive
  Warrendale, PA 15096-0001

PHN (412) 776-4841
FAX (412) 776-5760
Email **sae@sae.org**
WEB **http://www.sae.org**

B. FAA PROFILE REVIEW CHECKLIST

The Office of Environment and Energy (AEE) requires prior written approval for all user changes to the Integrated Noise Model (INM) standard profiles for **FAR Part 150** studies. A similar requirement under National Environmental Policy Act (NEPA) will take effect with pending **FAA Order 1050.1E**.

The ability for users to modify standard INM aircraft profiles to more uniquely model an airline's noise abatement profiles or other air traffic procedures influencing noise exposure has been expanded in Version 5 of the INM. User-specified modifications to standard INM profiles affect both the estimated thrust of the engine and the distance from source to receiver, critical parameters in the final computation of noise for contours and grid point analysis.

This checklist is intended to streamline and expedite the approval process. It should save substantial time for all parties and provide assurance that user-specified profiles conform to actual aircraft performance and INM procedures.

Complete information for items listed below is necessary for AEE to initiate its review. Please submit your checklist package to: Analysis and Evaluation Branch (AEE-120), Federal Aviation Administration, Rm. 900W, 800 Independence Ave., SW, Washington, DC 20591.

Section 1 - Background

Briefly describe the project for which user-specified INM profiles are required. State if the project is for a Part 150 study, an Environmental Assessment (EA), an Environmental Impact Statement (EIS), or other type of analysis. List the sponsoring agency of the study.

Section 2 - Statement of Benefit

State why the new profiles are needed for this project and describe how the new profiles more accurately model the aircraft performance in terms of altitude, speed, and thrust.

Section 3 - Analysis Demonstrating Benefit

For departure tracks, provide SEL values for a series of grid points spaced 0.5 nautical miles apart underneath the flight track, beginning at the start of takeoff roll and ending at the end of the profile, or at 10 nautical miles from the start of takeoff roll (whichever is shorter). For arrival tracks, place the grid points 0.5 nautical miles apart underneath the flight track, beginning at the start of the profile, or at 10 nautical miles away from the runway threshold (whichever is shorter), and ending at the last point of the landing roll-out on the runway. Also include grid points for any noise sensitive areas. Interpret the results of the analysis and explain how the results correlate with the "Statement of Benefit" in Section 2. For each profile, provide a table with the following information.

INM Aircraft Model _____ Profile Weight _____

Grid Points (nmi) 0.5 1.0 1.5 2.0 ... 10.0	INM Standard Profile (SEL dB)	User Defined Profile (SEL dB)	Difference (dB)
Noise Sensitive Areas (nmi) x_1, y_1 x_2, y_2 ... x_n, y_n			

Submit a diskette containing the INM files needed to perform the above analysis. These files include all input DBF files contained in the study and case directories.

Section 4 - Concurrence on Aircraft Performance

In this section, verification is needed from an airline operator or aircraft manufacturer familiar with the performance characteristics of the aircraft. This verification could be either:

1) A description of the performance characteristics of the aircraft, such as a profile description copied from a flight manual. Define all abbreviations and terms used on the copied material. Or,

2) A statement by the operator or manufacturer certifying that the proposed profile falls within reasonable bounds of the aircraft's performance for the modeled airport location.

Section 5 - Certification of New Parameters

State that the aircraft performance characteristics submitted by the operator or manufacturer (Section 4) have been correctly translated into the INM formatted profile or procedure. Specifically, certify that:

If the new profiles are in terms of profile points:

1) Altitude is above field elevation in feet.

2) Speed is true airspeed in knots.

3) State the units of thrust-setting (for example, pounds). State that the units match the units of the thrust-setting parameter used in the aircraft's associated noise-power-distance curves.

If the new profiles are defined in terms of procedure steps:

1) If new aircraft performance coefficient data were developed, they were developed in full accordance with the procedures specified in SAE-AIR-1845 (information about obtaining SAE-AIR-1845 is in the INM User's Guide, Appendix A).

2) The procedure step data conform to the rules given in the INM User's Guide.

3) If percent units are used for thrust-setting, give the value of the aircraft's static thrust parameter used in the denominator when calculating percents. State that this value is in units of pounds.

Section 6 - Graphical and Tabular Comparison

Provide three graphics for each proposed change in profile:
1) Altitude vs. Distance
2) Speed vs. Distance
3) Thrust vs. Distance

Plot the standard profile and the proposed profile on the same graph. Also, submit tables of numbers used to plot the graphs.

C. NPD DATA DEVELOPMENT CRITERIA

The noise-power-distance (NPD) data currently in INM were developed according to a rigid set of field measurement and data reduction criteria. In the most general terms, these criteria include the following:

1) Soft ground under the measurement microphone, similar to the terrain around the microphone during aircraft certification tests.

2) For L_{AE} and L_{EPN} values, an integrated calculation procedure (involving time integration over the full spectrum time history) for airplanes where adequate field data are available.

3) Atmospheric absorption coefficients as specified by SAE, rather than standard-day conditions of 59 degrees Fahrenheit and 70 percent relative humidity, which was used prior to INM Version 3.9.

4) L_{AE} and L_{EPN} values time-integrated over the upper 10 dB of the noise event as prescribed by FAA and SAE. (The time interval from t_1 to t_2 designates the time in seconds, from the beginning to the end of the integration period for the sound produced by an airplane. The duration (t_2–t_1) should be long enough to include all significant contributions to the total sound exposure. Sufficient accuracy is usually achieved by integration over the time interval during which the frequency-weighted sound level is within 10 dB of is maximum value.)

5) L_{AE} and L_{EPN} values normalized to a reference ground speed of 160 knots.

6) Maximum sound levels and exposure-based sound levels specified as a function power per engine.

The FAA's position is to adhere closely to the above criteria, both for the development and the validation of the INM NPD data. Diligent compliance is needed to ensure confidence in having consistent and comparable aircraft NPD and performance data.

D. INM 5.1 ENHANCEMENTS

D.1. System Enhancements

1) INM 5.1 can now be run under the Windows 95 and Windows NT 4.0 operating systems. Windows NT 3.51 is still supported. The 16-bit DOS/Windows 3.1 operating system is no longer supported.

2) INM 5.0 study data are automatically converted to INM 5.1 data. A user can optionally save the old 5.0-formatted study before rewriting the study files. If a problem is encountered during conversion (because of bad 5.0 data), the 5.0 file should be fixed and then the conversion run again.

D.2. Database Enhancements

1) The MD90, in two engine configurations, is added to the database.

2) PW120 noise data are modified (2 new SEL curves and 2 new EPNL curves) so that noise levels cannot be extrapolated to unrealistically small or large values. This change affects the DHC8 and DHC830 aircraft.

3) Various NPD point errors (mostly in LAMAX) are fixed.

4) The four F16 aircraft use newly extracted NOISEMAP noise data, which are slightly different than version 5.0 data.

5) The 72710A and 72720A aircraft are removed from the standard database because they do not have noise data. Performance and procedure data for these aircraft are saved in the USR_DATA subdirectory. The DBF files are ACFT727, ASUB727, PROF727, PROC727, FLAPS727, and THRJ727.

6) CNEL and WECPNL evening multipliers are now set to 3.00, instead of 3.16. ANSI Acoustical Terminology specifies CNEL-evening as a 5-dB penalty (a 3.16 multiplier), but California Code specifies a 3.00 multiplier.

7) System airport, runway, navaid, and fix data are updated using August 15, 1996 NFDC data tapes. About 450 U.S. airports, including their runways, are in the database. The airports with the highest number of yearly operations were chosen. About 10,000 U.S. navaids and fixes are in the database.

8) A new file, OAG_APRT.DBF, is used for reading airport lat/longs to calculate stage number in the OAG function. This file contains about 2400 airports, including major non-U.S. airports.

9) Changes to the OAG_SUB.DBF file improve the translation of OAG aircraft codes to INM aircraft types.

10) Two test airports are in the Setup // Study Setup list. EW1 has a single east/west 10,000-foot runway, and NS1 has a single north/south 10,000 foot runway. These airports can be used for setting up tests that need a single arbitrary runway.

D.3. NOISEMAP and Related Enhancements

1) Aircraft data and noise curves from the Air Force NOISEMAP airport noise model are included in the INM standard database. These new aircraft do not have performance coefficients, procedure steps, or profile points.

2) NOISEMAP noise data are adjusted to conform to INM atmospheric absorption conditions, as specified in SAE-AIR-1845 page 52, instead of standard-day conditions (temperature 59F and humidity 70%).

3) Two INM 5.0 aircraft data fields, "static power" and "100 percent thrust", are replaced with a single data field, "static thrust". Static thrust is required when procedure steps are used to calculate profiles. Information about whether an aircraft uses pounds or percent-type thrust setting (formerly indicated by zero/non-zero 100-percent thrust) is moved to the Noise Group file.

4) The Noise DBF file is split into two related files: noise group and noise-power-distance (NPD) curve files. The Noise Group file contains information about the units of the thrust-setting parameter (pounds, percent, epr, other) and the type of lateral attenuation used in the noise calculations (INM or NoiseMap). The NPD Curve file contains thrust setting, type of curve (normal or afterburner), and maximum level and exposure level data at 10 distances.

5) Various windows that display NPD curve thrust settings now show the units for the noise group (pounds, percent, epr, other).

6) The Profile Points DBF file and the Acft // Profile Points window now have the type of NPD curve (normal or afterburner), so that profiles with afterburner thrust can be created for military aircraft.

7) An afterburner profile segment is created by adding an afterburner profile point at the distance/altitude the afterburner is turned on, and a normal profile point at the distance/altitude the afterburner is turned off. The thrust is essentially discontinuous at the on/off points.

8) Afterburner noise is calculated by using the afterburner NPD curve for the entire afterburner segment. Unlike normal NPD curves, there is no interpolation across thrust settings.

9) The aircraft list in the Procedure Steps window contains only those aircraft that use pounds or percent-type thrust settings.

10) The run-up thrust setting is now in NPD units (previously all run-ups were in percent of static thrust). This change is required because NPD curves can now be pounds, percent, epr, or other, and the percent method for run-ups no longer works.

11) The run-up aircraft list now contains only study aircraft (previously substitution aircraft were in the list too). This change is required because a substitution aircraft can be a combination of up to five study aircraft of differing NPD types, and thus the multiple thrust-settings could be incompatible.

D.4. Touch and Go Enhancements

1) A new kind of flight operation is added to Version 5.1; it is called "circuit flight". A set of circuit flight procedure steps can be used to model an airplane taking off from a runway, climbing and accelerating under power to altitude, climbing, descending, flying level while cruising, and then descending and landing on the same runway.

2) One of the circuit flight (CIR) procedure steps must be a "level-stretch" step, and it must have a "level" step before and after it. It is at this point in the procedure that INM stretches the profile to fit the track. Thus, the stretched section is in level flight at a given altitude and speed. A circuit flight profile must be paired with a touch-and-go (TGO) track to make a circuit flight operation. There is no special "circuit track"

3) Full touch-and-go operations (departure, touch-and-goes, approach) now can be more easily created by defining one TGO track and two profiles (TGO and CIR). Previously, three tracks and three profiles were required.

4) Procedure steps for touch-and-go and circuit flights have been added to the INM database for procedure-type aircraft. The new profiles can be used to develop touch-and-go operations by modifying them for local operational requirements (for example, pattern altitude). The 15 INM aircraft that do not have performance coefficients, and all of the new NOISEMAP aircraft, do not have touch-and-go and circuit flight profiles in the database.

5) A circuit flight profile can be plotted using the INM profile-graph function.

D.5. Other Profile Enhancements

1) Profile parameters are now checked for many error conditions. For example, flap coefficients are checked to be non-zero before they can be used with takeoff and landing procedure steps. The flight path calculator stops and displays a message box.

2) All flight procedures can take negative altitude values (relative to the airport elevation). This is useful for terrain-following profiles.

3) Approach procedures now include cruise-climb steps, so that a flight can follow terrain from low to high elevations.

4) Departure procedures now include descent steps, so that a flight can follow terrain from high to low elevations.

5) Negative altitudes are shown in the profile graphs.

6) Profile Points take precedence over Procedure Steps when they both have the same profile identifier (previously, Procedure Steps occasionally took precedence).

7) Procedure-step user-input thrust settings are in percent when the associated NPD curves are in percent. Previously, pounds input was required.

8) Touch-and-go (TGO) profile points can now be associated with a TGO profile (previously, incorrect flight paths were generated).

9) A file of profile-point data can be exported from the Acft // Profile Graphs function. The distance, altitude, speed, and thrust values, which define a user-selected profile for a given runway, are saved in a file. Both text and DBF file formats are supported.

D.6. GIS Compatibility Enhancements

1) Latitude and longitude are now in decimal degrees, instead of degrees-minutes-seconds format. Positive degrees are east and north; negative degrees are west and south.

2) Runway End points are given in x/y format (previously they were in lat/long). INM 5.0 runway data are automatically converted to x/y format.

3) A new Export As function writes out lat/longs for Runway Ends, Track Segments (only for points-type tracks), and Grids.

4) Standard Grid points include both x/y and lat/long values (previously, just x/y).

5) A new function, View // Lat/Long Calc, provides a way to input x/y and calculate lat/long and vice versa.

D.7. Noise Computation Enhancements

1) The equation that computes noise level at 90 degrees to the runway at takeoff is corrected, causing about one dB increase in noise behind takeoff.

2) The last flight path segment is now set to a fixed length, based on the type of operation. Previously, the second-to-last segment length was use for the last segment length. This caused the last TGO segment to be too large. As a result, TGO noise levels were too high near the runway. The impact of this bug on other kinds of flight operations was negligible.

3) Negative observer-to-aircraft beta angles are reset to zero for the purpose of calculating lateral attenuation. Previously, they attained positive values, thus reducing attenuation.

4) A memory management problem is fixed. Previously, INM could run out of computer memory when running a batch of cases.

5) Equations involving transcendental functions are programmed to run faster, resulting in a significant speed up in run time.

D.8. Input Graphics Enhancements

1) CAD drawings can now be displayed in the Input Graphics window.

2) Location points for south latitudes and east longitudes are now correctly plotted (previously, points to the east of the origin were plotted to the west).

3) Create Tracks by Radar function is fixed for a problem when computing with a large number of tracks.

4) The Dispersed Track function now automatically inserts default sub-track percentage values.

5) In the Add Track mode, the add-point function via the right mouse button now traps a lat/long data entry error, rather than plotting the bad point at (0,0).

D.9. Output Graphics Enhancements

1) Output graphics layers can be viewed without first running the model to produce contours.

2) Noise contour levels that contain holes are properly color-filled.

3) Very large contour files can now be displayed.

4) Contour color-codes and areas within contour levels are printed on the output legend.

5) Tracks are properly offset, based on takeoff and approach displaced thresholds (previously, tracks could be displaced from noise contours).

6) Track printing errors are fixed (previously, close-up views of output graphics resulted in incorrectly directed tracks).

7) Any number of grid arrays can be displayed (previously, more than 20 grids would crash INM).

8) A third function is added to the View // Setup Axis dialog box. "Scale Display" allows a user to set the same scale (for example, 1 : 50,000) on two output windows so their contents can be compared.

9) The Scaled Printing function is modified to correctly set the scale for printer drivers that return print-size information.

10) The terrain display control can now set terrain contour colors for all contours, instead of just a few near sea level.

11) The terrain contour line width control now works.

12) User-defined text can be positioned on the output graphics screen by defining a location point in the Setup // Location Point function. The 6-character point identifier is displayed at a given lat/long. The new type of location point is called "Text".

13) DXF output is in color and in named layers: one layer for each contour (the contour level is part of the layer name); one layer for contour labels; one layer for each type of track (APP, DEP, TGO, OVF); one layer for each set of track labels; one layer for runways; and one layer for runway labels.

D.10. Source Data Processor Enhancements

1) Two of the PreProc functions, Text-to-DBF and Text-to-Radar, are now in INM under the Files // Import function.

2) The INM 4.11 conversion processor is rewritten, is much faster, and converts directly from INM 4.11 text file to an INM 5.1 study. Touch-and-go and run-up conversions are better supported.

3) Population-point identifiers are changed to 15-characters. State and county codes are on the front of the identifiers. State numerical codes can be found in the FIPSTATE.DAT file.

4) Four TIGER/Line CD-ROM formats are supported: 1990, 1992, 1994, and 1995. TIGER 95 is based on the 1983 North American Datum (NAD 83), which is the same as the WGS 84 datum used in the INM map projection method.

5) The DXF processor now supports AutoCAD R13 DXF files, except for the arc-line-arc method of defining a curved line.

6) The terrain processor produces terrain contours from minimum to the maximum elevation in the terrain window, instead of from –200 to 14,000 feet.

D.11. Miscellaneous Enhancements

1) The Record Commit option is turn off, and now the dialog box asking you to commit a record does not appear. You can turn it back on in the INM.INI file (see Appendix S).

2) Ops // View Ops filter function is now easier to use because the various parts of a flight operation identifier are in separate edit boxes.

3) The Print // Print Preview function now works with DBF, table, and text windows.

4) Output Setup modes Difference, LogAdd, and Merge now work for MultiMetric output.

5) Time-above metrics have a maximum value of 1440 minutes = 24 hours (previously 999 minutes for some metrics).

6) X and Y values, including grid dimensions, have values between –999 and +999 nautical miles (previously ±99 nmi).

7) The maximum number of I or J grid points is increased to 999 (previously 180).

8) The maximum number of track points is increased to 999 (previously 99).

9) The maximum number of profile points is increased to 999 (previously 99).

10) The INM map projection method uses the WGS-84 spheroid parameters (previously WGS-72). WGS-84 parameters are the same as NAD-83.

11) The size of the Setup // Study location points rectangle is 58 nmi north/south and 58cos(lat) nmi east/west so that location points can be run with a terrain file (previously, 100 x 100 nmi location-point rectangle allowed points outside of the terrain rectangle, thus causing a processing error).

12) The Echo Report includes the other end of the runway in the runway-end data section.

E. INM 5.0 ENHANCEMENTS

For the convenience of users who may be new to INM 5, but who are familiar with INM 3 and 4, this Appendix lists improvements and new functions in INM Version 5.0, as compared to INM Version 4.11. This list is reproduced from the INM 5.0 User's Guide.

E.1. Improvements

1) Speed -- The INM 5.0 noise calculation module is between 1.5 and 2 times faster that INM 4.11, depending on the specific input case and computer system.

2) 32-bit program -- INM is compiled as a 32-bit program, resulting in faster run time.

3) Significance testing -- a new algorithm tests flight tracks before using them in computing noise. The new algorithm is more discriminating than the old method in distinguishing significant vs. non-significant tracks.

4) New aircraft -- one new airplane type is added to the INM standard database; it is the UPS 727QF.

5) Maximum-level input data -- many of the standard aircraft now have maximum-level noise-power-distance tables, in addition to noise exposure tables. Regression equations are used for those aircraft without maximum-level tables.

6) Exposure fraction -- a new algorithm, which is based on both noise exposure and the new maximum-level input data, improves the accuracy of noise exposure calculations.

7) Time-above metric -- a new time-above algorithm is based on the new maximum-level input data.

8) Standard metrics -- there are now 13 pre-defined noise metrics (compared to 8 before), including multi-event noise exposures. See Section 6.4 for the list of metrics.

9) Non-standard profiles -- calculation of profiles for non-standard atmospheric conditions uses an improved algorithm. Non-standard departure profiles are somewhat higher and thrusts are somewhat smaller.

10) Environmental factors -- computed profiles now depend on airport pressure, runway headwind, and runway gradient, in addition to previous environmental factors (airport elevation and temperature).

11) Acoustic impedance term -- if the terrain elevation enhancement is invoked, it is now calculated at the terrain elevation for the observer's position.

12) Run-up operations -- input data and noise calculation methods are different; a run-up is no longer a pseudo-takeoff event.

13) Touch-and-go -- touch-and-go profiles and data input methods are different; airport pattern altitude is supported.

14) Contours -- the Air Force NMPLOT Version 3.04 program is used to construct noise contours, making INM, NOISEMAP, and the Federal Highway Administration's Traffic Noise Model (FHWA TNM) contour input data compatible.

15) Standard grid analysis -- new user-defined noise Metric values are computed.

16) Detailed grid analysis -- new closest-point-of-approach parameters are computed; the top 97 percent contributors are reported (instead of the top 20 flights).

17) Operations-by-percent -- new user-defined aircraft groups make this function more versatile.

E.2. New Functions

INM 5.0 contains virtually all of the functions provided by INM 4.11; in addition, it has many new functions:

1) Track points -- tracks can now be constructed from a set of X,Y points, in addition to a set of vectoring commands.

2) Graphical track input -- you can directly create tracks in graphics window by clicking the mouse button at the end points of linear track segments.

3) Dispersed tracks -- you can create a backbone track and then generate sub-tracks, which can be graphically edited. You input the percentage values for sub-tracks. INM automatically distributes flight operations across sub-tracks.

4) Radar tracks -- you can use radar-derived data to create INM dispersed tracks. You select a bundle of radar tracks and INM computes the average position of the track point and other data that is used to make sub-tracks.

5) Aircraft substitutions -- FAA approved aircraft substitutions are included in the INM standard database. You can use substitution identifiers in flight operations. You can create substitutions that map to INM aircraft.

6) OAG input -- a preprocessing program reads OAG data and creates an input file for use in the operations-by-percent function.

7) User-defined noise metrics -- you can define your own noise metric; it can be exposure-based, maximum noise level, or time-above a threshold.

8) Multi-metric run -- INM has a new contour execution mode that computes and saves noise data in a format such that several metrics can be calculated without running the model several times.

9) Population -- you can run a preprocessing program to produce U.S. Census block-level population data. INM calculates the noise at the population points and the number of people inside each noise contour.

10) Contour processing -- contour levels can be defined after making a run. Also, you can add, difference, and merge contours using NMPLOT functions.

11) Noise charts -- noise-power-distance data are graphed.

12) Profile charts -- profile data are graphed; altitude, speed, and thrust are shown as a function of distance.

13) Rotated grids -- standard and detailed grids can be rotated; grids are displayed in the output graphics window.

14) Overlays -- output graphics functions can overlay tracks, runways, contours, population points, locations points, airport CAD drawings, and terrain contours.

15) Overflights -- a new operation type can be defined without reference to runways.

16) Non-standard atmospheric conditions for approach -- approach profiles now depend on airport environmental factors.

17) Build profiles -- you create approach and departure profiles by specifying flight procedures, such as "climb to 1000 feet"; INM computes the profiles, adjusting for airport environmental factors.

18) Airport setup data -- INM contains geographical data for hundreds of U.S. airports and runways.

19) Navaids and fixes -- INM contains location data for navaids and fixes in the U.S.

20) Special locations -- you can define location points around the airport, and INM calculates noise at those points.

21) Study management -- INM manages directories and files so that multiple cases can use common data. Data not created by the user are borrowed from the INM standard database. This will permit automatic updating of studies when new INM standard data are distributed.

22) DXF output -- you can convert INM output graphics (runways, tracks, and contours) into CAD drawings in DXF file format.

F. INM SYSTEM DIRECTORY

```
INM51\      INM system directory

      inm.exe           INM main program
      inm.hlp           help file
      inm.ini           initialization file (text)
      preproc.exe       INM Source Data Processing program
      preproc.hlp       preproc help file
      *.dll             dynamic link libraries

      SYS_DATA\   INM Standard Data subdirectory

            acdb51.bin        compressed file of dbf files (binary)
            aircraft.dbf      aircraft data
            acft_sub.dbf      aircraft substitutions
            nois_grp.dbf      noise groups
            npd_curv.dbf      noise-power-distance curves
            profile.dbf       profile definition & weight data
            prof_pts.dbf      profile points data for acft w/o procedures
            procedur.dbf      profile procedure steps
            flaps.dbf         approach & departure flap coefficients
            thr_jet.dbf       jet thrust coefficients
            thr_prop.dbf      propeller power coefficients
            metric.dbf        default noise metric parameters

      SYS_DBF\    System dbf-template subdirectory

            *.dbf             dbf file headers

      USR_DATA\   User data subdirectory

            sys_aprt.dbf      NFDC airport data
            sys_rwy.dbf       NFDC runway data
            loc_pts.dbf       NFDC navaids and fixes
            bad_rwy.txt       possible errors in runway data (text)
            acft727.dbf       72710A & 72720A aircraft data
            asub727.dbf       72710A & 72720A substitution data
            prof727.dbf       72710A & 72720A profile data
            proc727.dbf       72710A & 72720A procedure data
            flap727.dbf       72710A & 72720A flaps data
            thrj727.dbf       72710A & 72720A jet thrust data

      COMP50\     Noise computation subdirectory

            comp50.dll        dll to calculate noise
            convert.dll       dll to produce nmplot input file
            level*            temporary files of subdivided-grid data

      NMPLOT\     Contour computation subdirectory
```

```
      nmplot.bat        batch file to run nmplot in batch mode
      nmplotx.exe       nmplot v3.04 program, uses extended memory
      batch.cfg         input configuration for batch mode
      nmplot.cfg        input configuration for interactive mode
      nmplot.hlp        help file (not Windows .hlp)
      nmplot.ico        windows icon
      rtm.exe           extended memory library
      egavga.bgi        display driver
      litt.chr          character fonts
      dpmi16bi.ovl      overlay

PROCESS\CENSUS    Census CD conversion subdirectory

      census.exe        program to extract census data
      census.cfg        config file for census.exe
      fipscode.dat      list of fips codes for census.exe
      fipstate.dat      list of state codes for census.exe
      pkunzip.exe       extraction program

PROCESS\CONV411   INM 4.11 conversion subdirectory

      conv411.exe       program to convert 4.11 files
      input50.exe       INM 4.11 input.exe program
      for03.dat         INM 4.11 aircraft data (binary)

PROCESS\DXFCAD    DXF file conversion subdirectory

      cadcvrt.exe       program to convert dxf to cad format
      test50.dxf        example dxf file

PROCESS\OAGDBF    OAG conversion subdirectory

      oag_aprt.dbf      OAG airports
      oag_sub.dbf       OAG aircraft substitutions
      ord9408.oag       example OAG input file (ORD Aug 1994)

PROCESS\RADARTRK  Radar track text conversion subdirectory

      test50.csv        example radar track input file

PROCESS\TERRAIN   Terrain CD conversion subdirectory

      terrain.exe       program to create terrain files
      nmbatch.cfg       config file for nmplotx (terrain batch mode)

PROCESS\TEXTDBF   Text-to-DBF conversion subdirectory

      test.txt          example input file (text)
```

G. EXAMPLE STUDY DIRECTORY

```
TEST50\     Study directory (user-assigned name)
                  (user input data)
      study.inm          study configuration info (binary)
      case.dbf           case setup & run options
      output.dbf         output setup definitions
      runway.dbf         runways for all cases
      rwy_end.dbf        runway end data for defined runways
      track.dbf          tracks for all cases
      trk_segs.dbf       track segment data for each track
      *.dbf              changes & additions to standard data
                  (source data)
      *.3cd              terrain elevation data (binary)
      ops_aprt.dbf       OAG airport operations
      pop_pts.dbf        population-point data
      loc_pts.dbf        location-point data
                  (source graphics data)
      _fp.bin            radar-track file 1 of 2 (binary)
      _tk.bin            radar-track file 2 of 2 (binary)
      _tiger.bin         street-map file 1 of 2 (binary)
      _tiger.idx         street-map file 2 of 2 (binary)
      _cp.bin            population-point data (binary)
      _terrain.bin       terrain contours (binary)
      *.cad              drawing of airport (binary)
      track.opt          recent input graphics display settings (binary)
      lut.dat            recent look-up table of display settings (binary)
                  (other)
      inmerror.txt       temporary error file
      version.msg        info on conversion from 5.0 to 5.1 (text)

      CASE1\      Case subdirectory (user-assigned name)
                        (user input data)
            grp_pct.dbf        aircraft group percentages
            ops_aprt.dbf       airport operations
            ops_flt.dbf        flight operations
            ops_rnup.dbf       run-up operations
            grid.dbf           grid definitions
                        (input calculated)
            ops_calc.dbf       calculated flight operations
            ops_calc.err       ops calc error file (text)
            flight.pth         flight paths (binary)
            flight.err         flight path error file (text)
            _rwy_trk.bin       runway/track graphics data (binary)
                        (output intermediate)
            grid               single-metric noise file 1 of 2 (binary)
            contour            single-metric noise file 2 of 2 (binary)
                                     (or)
            grid.mn            multi-metric noise file 1 of 6 (binary)
            grid.mx            multi-metric noise file 2 of 6 (binary)
            grid.ta            multi-metric noise file 3 of 6 (binary)
            contour.mn         multi-metric noise file 4 of 6 (binary)
```

```
      contour.mx        multi-metric noise file 5 of 6 (binary)
      contour.ta        multi-metric noise file 6 of 6 (binary)
      status.dat        comp50 status file (text)
                  (output tables)
      grid_std.dbf      standard analysis of grids
      grid_dtl.dbf      detailed analysis of grids
      pop_nois.dbf      noise at population points
      loc_nois.dbf      noise at location points
      report.txt        case echo report (text)

CASE1.DNL\  Output subdirectory (user-assigned name)
                  (output intermediate)
      nmplot.grd        nmplot input file (NMBG binary)
      contours.dat      nmplot output file (binary)
                  (output tables)
      conr_pts.dbf      noise contour points
      pop_conr.dbf      area and population inside contours
                  (output graphics)
      _inm.bin          contour graphics data (binary)
      _rwy_trk.bin      runway/track graphics data (binary)
      _overlay.bin      overlay contour graphics data (_inm.bin)
      grid.dbf          copy of grid data for graphics presentation
      output.opt        recent output graphics display settings (binary)
      inm.dxf           contour/runway/track graphics (dxf)

CASE2\      Another Case subdirectory

CASE2.DNL\  Another Output subdirectory
```

H. DBF FILE FORMATS

This Appendix documents DBF file formats in terms of:

- Name of the DBF file
- Number of records in the file (for standard files)
- Number of bytes per record (including the dBase delete-byte)
- Names of the fields
- Type of field
- Size of field
- Description of field, including minimum, maximum, and default values.

Following the definition of the DBF file formats is a section detailing the changes that were made in going from INM 5.0 to INM 5.1.

H.1. DBF Field Format

Two types of fields are used: C = character, and N = number.

The size of the field and the size of the decimal portion of a number field are indicated by integers following C and N. For example,

- "C 20" is a 20-byte string
- "N 8 3" is an 8-byte number (including the minus sign, decimal point, and all digits), and there are 3 digits after the decimal point (for example, "–234.678").

When an N-type field has "0" digits after the decimal point, the decimal point is not stored (for example, "N 3 0" designates a 3-byte integer, such as "123").

When a number is given in exponential notation, a C-type field is used instead of a N-type field.

An asterisk (*) next to a field name means that the field is part of the record key. If there are two or more key fields, they are concatenated to make a unique identifier for a record.

```
AIRCRAFT DBF  216 records  85 bytes/record
   Aircraft Table -- INM aircraft data
* 1 ACFT_ID    C 6
      INM Aircraft identifier
  2 ACFT_DESCR C 40
      Aircraft type and engine type names
  3 GROUP_ID   C 3
      Aircraft group identifier (default: COM, GA, MIL)
  4 WGT_CAT    C 1
      Weight class (S = Small, L = Large, H = Heavy)
```

```
  5 OWNER_CAT  C 1
      Owner category (C = Commercial, G = GenAviation, M = Military)
  6 ENG_TYPE   C 1
      Engine type (J = Jet, T = Turboprop, P = Piston)
  7 NOISE_CAT  C 1
      Noise stage number (0=none, 1, 2, 3)
  8 NOISE_ID   C 6
      Noise identifier
  9 NUMB_ENG   N 1.0
      Number of engines (1..4)
      Min= 0  Max= 0  Default= 0  (enumerated)
 10 THR_RESTOR C 1
      Aircraft has Automated Thrust Restoration System (Y = Yes, N = No)
 11 MX_GW_TKO  N 6.0
      Maximum gross takeoff weight (lb)
      Min= 0  Max= 999999  Default= 0  (MmAcftWeight)
 12 MX_GW_LND  N 6.0
      Maximum gross landing weight (lb)
      Min= 0  Max= 999999  Default= 0  (MmAcftWeight)
 13 MX_DS_STOP N 5.0
      FAR landing field length at maximum landing weight (ft)
      Min= 0  Max= 20000  Default= 0  (MmStopDistance)
 14 COEFF_TYPE C 1
      Type of departure thrust coefficients (J = Jet, P = Prop)
 15 THR_STATIC N 5.0
      Static rated thrust (lb)
      Min= 0  Max= 99999  Default= 0  (MmThrustPerEngine)

ACFT_SUB DBF  263 records  102 bytes/record
   Aircraft Substitution Table -- aircraft mapped into defined INM aircraft
* 1 SUB_ID     C 6
      Substitution identifier
  2 SUB_DESCR  C 40
      Description of the substitution aircraft type
  3 ACFT_ID1   C 6
      First INM aircraft identifier
  4 PERCENT1   N 5.1
      Percent of SUB_ID that is assigned to ACFT_ID1
      Min= 0.0  Max= 100.0  Default= 0.0  (MmPercent1)
  5 ACFT_ID2   C 6
      Second INM aircraft identifier
  6 PERCENT2   N 5.1
      Percent of SUB_ID that is assigned to ACFT_ID2
      Min= 0.0  Max= 100.0  Default= 0.0  (MmPercent1)
  7 ACFT_ID3   C 6
      Third INM aircraft identifier
  8 PERCENT3   N 5.1
      Percent of SUB_ID that is assigned to ACFT_ID3
      Min= 0.0  Max= 100.0  Default= 0.0  (MmPercent1)
  9 ACFT_ID4   C 6
      Forth INM aircraft identifier
 10 PERCENT4   N 5.1
      Percent of SUB_ID that is assigned to ACFT_ID4
      Min= 0.0  Max= 100.0  Default= 0.0  (MmPercent1)
 11 ACFT_ID5   C 6
      Fifth INM aircraft identifier
 12 PERCENT5   N 5.1
      Percent of SUB_ID that is assigned to ACFT_ID5
      Min= 0.0  Max= 100.0  Default= 0.0  (MmPercent1)
```

```
NOIS_GRP DBF  175 records  9 bytes/record
   Noise Group Table -- noise identification
* 1 NOISE_ID   C 6
      Noise identifier
  2 THRSET_TYP C 1
      Type of thrust setting (L = Pounds, P = Percent, E = EPR, X = Other)
  3 MODEL_TYPE C 1
      Type of lateral attenuation model used in calculations (I = INM, N = NoiseMap)

NPD_CURV DBF  2087 records  67 bytes/record
   Noise-Power-Distance Curves -- noise data table
* 1 NOISE_ID   C 6
      Noise identifier
* 2 NOISE_TYPE C 1
      Type of noise (S = SEL, M = LAMAX, E = EPNL, P = PNLTM)
* 3 THR_SET    N 8.2
      Corrected net thrust per engine (lb, %, epr, other)
      Min= 0.10  Max= 99000.00  Default= 1.00  (MmThrustSet)
* 4 CURVE_TYPE C 1
      Type of noise curve (N = Normal, A = AfterBurner)
  5 L_200      N 5.1
      Level for 200 feet (dB)
      Min= -50.0  Max= 999.9  Default= 0.0  (MmDecibelNoiseCurve)
  6 L_400      N 5.1
      Level for 400 feet (dB)
      Min= -50.0  Max= 999.9  Default= 0.0  (MmDecibelNoiseCurve)
  7 L_630      N 5.1
      Level for 630 feet (dB)
      Min= -50.0  Max= 999.9  Default= 0.0  (MmDecibelNoiseCurve)
  8 L_1000     N 5.1
      Level for 1000 feet (dB)
      Min= -50.0  Max= 999.9  Default= 0.0  (MmDecibelNoiseCurve)
  9 L_2000     N 5.1
      Level for 2000 feet (dB)
      Min= -50.0  Max= 999.9  Default= 0.0  (MmDecibelNoiseCurve)
 10 L_4000     N 5.1
      Level for 4000 feet (dB)
      Min= -50.0  Max= 999.9  Default= 0.0  (MmDecibelNoiseCurve)
 11 L_6300     N 5.1
      Level for 6000 feet (dB)
      Min= -50.0  Max= 999.9  Default= 0.0  (MmDecibelNoiseCurve)
 12 L_10000    N 5.1
      Level for 10,000 feet (dB)
      Min= -50.0  Max= 999.9  Default= 0.0  (MmDecibelNoiseCurve)
 13 L_16000    N 5.1
      Level for 16,000 feet (dB)
      Min= -50.0  Max= 999.9  Default= 0.0  (MmDecibelNoiseCurve)
 14 L_25000    N 5.1
      Level for 25,000 feet (dB)
      Min= -50.0  Max= 999.9  Default= 0.0  (MmDecibelNoiseCurve)

PROFILE  DBF  694 records  16 bytes/record
   Profile Identification Table -- takeoff and approach weight data
* 1 ACFT_ID    C 6
      Aircraft identifier
* 2 OP_TYPE    C 1
      Type of operation (A=Approach, D=Depart, T=Touch&Go, F=CircuitFlt, V=OverFlt)
* 3 PROF_ID1   C 1
      Profile group identifier (S = standard data)
* 4 PROF_ID2   C 1
```

```
      Profile stage identifier (1..9)
  5 WEIGHT     N 6.0
      Aircraft weight during this operation (lb)
      Min= 0  Max= 999999  Default= 0  (MmAcftWeight)

PROF_PTS DBF  605 records  44 bytes/record
   Profile Points Table -- aircraft profile data
* 1 ACFT_ID    C 6
      Aircraft identifier
* 2 OP_TYPE    C 1
      Type of operation (A, D, T, F, V)
* 3 PROF_ID1   C 1
      Profile group identifier (S = standard data)
* 4 PROF_ID2   C 1
      Profile stage identifier (1..9)
* 5 PT_NUM     N 3.0
      Point number of the profile
      Min= 1  Max= 999  Default= 1  (MmThreeDigitIndex)
  6 DISTANCE   N 10.1
      Distance along the ground relative to start (ft)
      Min= -9999999.9  Max= 9999999.9  Default= 0.0  (MmProfDistance)
  7 ALTITUDE   N 7.1
      Altitude of aircraft AFE (ft)
      Min= -9999.0  Max= 60000.0  Default= 0.0  (MmAltitude)
  8 SPEED      N 5.1
      Ground speed at this point (knt)
      Min= 0.0  Max= 600.0  Default= 0.0  (MmSpeed)
  9 THR_SET    N 8.2
      Corrected net thrust per engine at this point (lb, %, epr, other)
      Min= 0.10  Max= 99000.00  Default= 1.00  (MmThrustSet)
 10 CURVE_TYPE C 1
      Type of noise curve to use (N = Normal, A = AfterBurner)

PROCEDUR DBF  5708 records  41 bytes/record
   Procedure Steps Table -- parameters used to calculate profiles
* 1 ACFT_ID    C 6
      Aircraft identifier
* 2 OP_TYPE    C 1
      Type of operation (A, D, T, F, V)
* 3 PROF_ID1   C 1
      Profile group identifier (S = standard data)
* 4 PROF_ID2   C 1
      Profile stage identifier (1..9)
* 5 STEP_NUM   N 2.0
      Step number of the procedure
      Min= 1  Max= 99  Default= 1  (MmTwoDigitIndex)
  6 STEP_TYPE  C 1
      Type of step (T, C, A, M, V, S, D, L, B) see User's Guide
  7 FLAP_ID    C 6
      Flap-setting identifier
  8 THR_TYPE   C 1
      Type of thrust (T = MaxTakeoff, C = MaxClimb, N = MaxContinue)
  9 PARAM1     N 7.1
      Parameter for this step type; see User's Guide
      Min= -9999.0  Max= 60000.0  Default= 0.0  (MmAltitude)
 10 PARAM2     N 5.1
      Parameter for this step type
      Min= 0.0  Max= 600.0  Default= 0.0  (MmSpeed)
 11 PARAM3     N 9.1
      Parameter for this step type
```

```
      Min= 0.0  Max= 9999999.9  Default= 0.0  (MmDistanceFt)

FLAPS    DBF  655 records  38 bytes/record
   Flaps Table -- data related to approach & departure flaps settings
* 1 ACFT_ID    C 6
      Aircraft identifier
  2 OP_TYPE    C 1
      Type of operation (A, D, T, F, V)
* 3 FLAP_ID    C 6
      Flap-setting identifier
  4 COEFF_R    N 8.6
      Drag-over-lift ratio
      Min= 0.000000  Max= 1.340000  Default= 0.000000  (MmFlapCoeff)
  5 COEFF_C_D  N 8.6
      Takeoff and landing speed coefficient (knt/lb^1/2)
      Min= 0.000000  Max= 1.340000  Default= 0.000000  (MmFlapCoeff)
  6 COEFF_B    N 8.6
      Takeoff distance coefficient (ft/lb)
      Min= 0.000000  Max= 1.340000  Default= 0.000000  (MmFlapCoeff)

THR_JET  DBF  163 records  59 bytes/record
   Jet Thrust Table -- coefficients for departure thrust equations
* 1 ACFT_ID    C 6
      Aircraft identifier
* 2 THR_TYPE   C 1
      Type of thrust (T, C, N)
  3 COEFF_E    N 8.1
      Corrected net thrust per engine (lb) at zero speed
      Min= 0.0  Max= 99999.9  Default= 0.0  (MmJetCoeffE)
  4 COEFF_F    N 9.5
      Speed adjustment coefficient (lb/knt TAS)
      Min= -99.99999  Max= 0.00000  Default= 0.00000  (MmJetCoeffF)
  5 COEFF_GA   C 12
      Altitude adjustment coefficient (lb/ft MSL)
  6 COEFF_GB   C 12
      Altitude-squared adjustment coefficient (lb/ft^2 MSL)
  7 COEFF_H    C 10
      Temperature adjustment coefficient (lb/degC)

THR_PROP DBF  32 records  18 bytes/record
   Propeller Thrust Table -- parameters for departure thrust equations
* 1 ACFT_ID    C 6
      Aircraft identifier
* 2 THR_TYPE   C 1
      Type of thrust (T, C)
  3 EFFICIENCY N 4.2
      Propeller efficiency ratio
      Min= 0.50  Max= 1.00  Default= 0.90  (MmPropEff)
  4 POWER      N 6.1
      Net propulsive power per engine (hp) for this type of thrust
      Min= 0.0  Max= 9999.9  Default= 0.0  (MmPropPower)

RUNWAY   DBF  0 records  14 bytes/record
   Runway Table -- geometric data for runways
* 1 RWY_ID1    C 3
      Runway end identifier
* 2 RWY_ID2    C 3
      Runway end identifier
```

```
  3 APRT_ID    C 4
      Airport identifier
  4 WIDTH      N 3.0
      Physical runway width (ft)
      Min= 0  Max= 500  Default= 150  (MmRwyWidth)

RWY_END  DBF  0 records  50 bytes/record
   Runway End Table -- data relating to runway ends
* 1 RWY_ID     C 3
      Runway end identifier
  2 X_COORD    N 9.4
      X coordinate of end (nmi)
      Min= -999.0000  Max= 999.0000  Default= 0.0000  (MmCoordXY)
  3 Y_COORD    N 9.4
      Y coordinate of end (nmi)
      Min= -999.0000  Max= 999.0000  Default= 0.0000  (MmCoordXY)
  4 ELEVATION  N 6.1
      Elevation of end MSL (ft)
      Min= -500.0  Max= 9999.9  Default= 0.0  (MmElevation)
  5 DIS_TH_TKO N 4.0
      Takeoff displaced threshold (ft)
      Min= 0  Max= 9999  Default= 0  (MmTkoThreshold)
  6 DIS_TH_APP N 4.0
      Approach displaced threshold (ft)
      Min= 0  Max= 9999  Default= 0  (MmAppThreshold)
  7 GLIDE_SL   N 3.1
      Glide slope for runway end (deg)
      Min= 0.0  Max= 9.9  Default= 3.0  (MmGlideSlope)
  8 TH_CR_HGT  N 5.1
      Approach threshold crossing height AGL (ft)
      Min= 0.0  Max= 100.0  Default= 50.0  (MmCrossingHeight)
  9 PCT_WIND   N 6.1
      Percent change (%) in airport average headwind
      Min= -500.0  Max= 500.0  Default= 0.0  (MmPctChangeWind)

TRACK    DBF  0 records  23 bytes/record
   Track Table -- dispersed track definition
* 1 RWY_ID     C 3
      Runway end identifier
* 2 OP_TYPE    C 1
      Type of operation (A, D, T, V)
* 3 TRK_ID1    C 4
      Track identifier
* 4 TRK_ID2    C 1
      Sub-track identifier (0..8) 0 = backbone track
  5 PERCENT    N 6.2
      Percent of dispersed track operations on this sub-track
      Min= 0.10  Max= 100.00  Default= 100.00  (MmPercentTrack)
  6 TRK_TYPE   C 1
      Type of track (V = Vectors, P = Points)
  7 DISTANCE   N 6.1
      Delta distance from nominal start-roll or touch-down point (ft)
      Min= -999.9  Max= 9999.9  Default= 0.0  (MmRwyDistanceFt)

TRK_SEGS DBF  0 records  32 bytes/record
   Track Segments Table -- ground track segment data
* 1 RWY_ID     C 3
      Runway end identifier
* 2 OP_TYPE    C 1
      Type of operation (A, D, T, V)
```

```
* 3 TRK_ID1    C 4
      Track identifier
* 4 TRK_ID2    C 1
      Sub-track identifier (0..8)
* 5 SEG_NUM    N 3.0
      Segment or point number of the track
      Min= 1  Max= 999  Default= 1  (MmThreeDigitIndex)
  6 SEG_TYPE   C 1
      Type of track segment (S = Straight, L = Left, R = Right, P = Point)
  7 PARAM1     N 9.4
      Parameter  S= distance(nmi),  L/R= angle(deg),   P= x-coord(nmi)
      Min= -999.0000  Max= 999.0000  Default= 0.0000  (MmCoordXY)
  8 PARAM2     N 9.4
      Parameter  S= (blank),        L/R= radius(nmi),  P= y-coord(nmi)
      Min= -999.0000  Max= 999.0000  Default= 0.0000  (MmCoordXY)

GRP_PCT  DBF  0 records  19 bytes/record
   Group Percentage Table -- percent of flights on tracks
* 1 GROUP_ID   C 3
      User-defined aircraft group identifier
* 2 RWY_ID     C 3
      Runway end identifier
* 3 OP_TYPE    C 1
      Type of operation (A, D, T, F, V)
* 4 TRK_ID1    C 4
      Track identifier
* 5 PROF_ID1   C 1
      Profile group identifier (S = standard data)
  6 PERCENT    N 6.2
      Percent of flights of this aircraft group using this track & prof.group
      Min= 0.00  Max= 100.00  Default= 0.00  (MmPercent2)

OPS_APRT DBF  0 records  36 bytes/record
   Airport Operations Table -- operations summed over tracks
* 1 ACFT_ID    C 6
      INM or substitution aircraft identifier
* 2 OP_TYPE    C 1
      Type of operation (A, D, T, F, V)
* 3 PROF_ID2   C 1
      Profile stage identifier (1..9)
  4 OPS_DAY    N 9.4
      Number of day operations on all tracks
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)
  5 OPS_EVE    N 9.4
      Number of evening operations on all tracks
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)
  6 OPS_NIGHT  N 9.4
      Number of night operations on all tracks
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)

OPS_FLT  DBF  0 records  44 bytes/record
   Flight Operations Table -- operations on tracks
* 1 ACFT_ID    C 6
      INM or substitution aircraft identifier
* 2 OP_TYPE    C 1
      Type of operation (A, D, T, F, V)
* 3 PROF_ID1   C 1
      Profile group identifier (S = standard data)
* 4 PROF_ID2   C 1
      Profile stage identifier (1..9)
```

```
* 5 RWY_ID     C 3
      Runway end identifier
* 6 TRK_ID1    C 4
      Track identifier
  7 OPS_DAY    N 9.4
      Number of day operations
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)
  8 OPS_EVE    N 9.4
      Number of evening operations
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)
  9 OPS_NIGHT  N 9.4
      Number of night operations
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)

OPS_CALC DBF  0 records  48 bytes/record
   Flight Operations Calculation Table
* 1 ACFT_ID    C 6
      INM or substitution aircraft identifier
* 2 OP_TYPE    C 1
      Type of operation (A, D, T, F, V)
* 3 PROF_ID1   C 1
      Profile group identifier (S = standard data)
* 4 PROF_ID2   C 1
      Profile stage identifier (1..9)
* 5 RWY_ID     C 3
      Runway end identifier
* 6 TRK_ID1    C 4
      Track identifier
* 7 TRK_ID2    C 1
      Sub-track identifier (0..8)
  8 GROUP_ID   C 3
      User-defined aircraft group identifier (for filtering purposes)
  9 OPS_DAY    N 9.4
      Number of day operations
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)
 10 OPS_EVE    N 9.4
      Number of evening operations
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)
 11 OPS_NIGHT  N 9.4
      Number of night operations
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)

OPS_RNUP DBF  0 records  73 bytes/record
   Run-Up Operations Table -- run-up operations
* 1 ACFT_ID    C 6
      INM aircraft identifier
* 2 RUNUP_ID   C 3
      Run-up identifier
  3 X_COORD    N 9.4
      X coordinate at run-up position (nmi)
      Min= -999.0000  Max= 999.0000  Default= 0.0000  (MmCoordXY)
  4 Y_COORD    N 9.4
      Y coordinate at run-up position (nmi)
      Min= -999.0000  Max= 999.0000  Default= 0.0000  (MmCoordXY)
  5 HEADING    N 5.1
      Aircraft heading (deg from true North)
      Min= 0.0  Max= 359.9  Default= 0.0  (MmHeading)
  6 THR_SET    N 8.2
      Corrected net thrust per engine (lb, %, epr, other)
      Min= 0.10  Max= 99000.00  Default= 1.00  (MmThrustSet)
```

```
  7 DURATION   N 5.1
      Duration of run-up event (seconds)
      Min= 0.0  Max= 999.9  Default= 1.0  (MmDuration)
  8 OPS_DAY    N 9.4
      Number of day operations
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)
  9 OPS_EVE    N 9.4
      Number of evening operations
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)
 10 OPS_NIGHT  N 9.4
      Number of night operations
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)

METRIC   DBF  13 records  32 bytes/record
   Noise Metric Definition Table -- system-default and user-defined metrics
* 1 METRIC_ID  C 6
      Noise metric identifier
  2 METRIC_TYP C 1
      Type of metric (E = Exposure, M = MaxLevel, T = TimeAbove)
  3 FREQ_TYPE  C 1
      Type of frequency weighting (A = A-Weighted, P = Perceived)
  4 WGT_DAY    N 6.2
      Weight multiplying day operations (0 or 1 for M and T types)
      Min= 0.00  Max= 999.99  Default= 1.00  (MmOpWeight)
  5 WGT_EVE    N 6.2
      Weight multiplying evening operations
      Min= 0.00  Max= 999.99  Default= 1.00  (MmOpWeight)
  6 WGT_NIGHT  N 6.2
      Weight multiplying night operations
      Min= 0.00  Max= 999.99  Default= 1.00  (MmOpWeight)
  7 DB_MINUS   N 5.2
      Decibel amount subtracted from exposure level
      Min= 0.00  Max= 99.99  Default= 0.00  (MmDbMinus)

CASE     DBF  0 records  157 bytes/record
   Case Parameters Table -- case setup parameters
* 1 CASE_ID    C 12
      Case identifier (subdirectory under the study directory)
  2 CASE_DESC  C 40
      Case description
  3 DATE       C 15
      Date and time that the subdirectory was created
  4 TEMPERATUR N 5.1
      Average temperature on the airport runways (deg F)
      Min= -30.0  Max= 120.0  Default= 59.0  (MmTemperature)
  5 PRESSURE   N 6.2
      Average atmospheric pressure on the airport runways (in-Hg)
      Min= 27.00  Max= 33.00  Default= 29.92  (MmPressure)
  6 HEADWIND   N 4.1
      Average headwind on the airport runways (knt)
      Min= 0.0  Max= 0.0  Default= 0.0  (MmHeadWind)
  7 RUN_TYPE   C 1
      Type of run (S = SingleMetric, M = MultiMetric)
  8 FREQ_TYPE  C 1
      Type of frequency weighting (A, P)
  9 METRIC_ID  C 6
      Noise metric identifier for single-metric run
 10 DO_FIELD   C 1
      Noise field representation computed (Y, N)
 11 DO_GRID1   C 1
```

```
      Standard grid analysis (Y, N)
 12 DO_GRID2   C 1
      Standard & detailed grid analysis (Y, N)
 13 DO_POP     C 1
      Population points computed (Y, N)
 14 DO_LOC     C 1
      Location points computed (Y, N)
 15 TA_THRESH  N 5.1
      Noise-level threshold for time-above metric (dB)
      Min= 0.0  Max= 150.0  Default= 85.0  (MmTaThresh)
 16 RS_REFINE  N 2.0
      Maximum number of refinement levels for subdividing grid
      Min= 4  Max= 18  Default= 6  (MmRefinement)
 17 RS_TOLER   N 5.2
      Tolerance test value used in the subdivided grid method (dB)
      Min= 0.01  Max= 10.00  Default= 1.00  (MmTolerance)
 18 RUN_DATE   C 15
      Date and time that the case was last run
 19 RUN_DURATN C 8
      Execution time for the Noise Calculation Program for the last run
 20 DO_TERRAIN C 1
      Terrain elevation calculation (Y, N)
 21 DO_DNL     C 1
      Day-Night Level (Y, N)
 22 DO_CNEL    C 1
      Community Noise Equivalent Level (Y, N)
 23 DO_LAEQ    C 1
      Equivalent A-Level for 24h (Y, N)
 24 DO_LAEQD   C 1
      Equivalent A-Level for Day 0700-2200 (Y, N)
 25 DO_LAEQN   C 1
      Equivalent A-Level for Night 2200-0700 (Y, N)
 26 DO_SEL     C 1
      Sound Exposure Level (Y, N)
 27 DO_LAMAX   C 1
      Maximum A-Level (Y, N)
 28 DO_TALA    C 1
      Time-Above an A-Level Threshold (Y, N)
 29 DO_NEF     C 1
      Noise Exposure Forecast (Y, N)
 30 DO_WECPNL  C 1
      Weighted Equivalent Continuous Perceived Noise Level (Y, N)
 31 DO_EPNL    C 1
      Effective Perceived Noise Level (Y, N)
 32 DO_PNLTM   C 1
      Maximum Perceived Noise Level (Y, N)
 33 DO_TAPNL   C 1
      Time-Above a Perceived Level Threshold (Y, N)
 34 CUTOFF_LOW N 6.1
      Low cutoff for SingleMetric noise calculation (dB or min)
      Min= 0.0  Max= 1440.0  Default= 55.0  (MmCutoffLow)
 35 CUTOFF_HI  N 6.1
      High cutoff for SingleMetric noise calculation (dB or min)
      Min= 1.0  Max= 1440.0  Default= 85.0  (MmCutoffHi)

OUTPUT   DBF  0 records  99 bytes/record
   Output Definition Table -- subdirectories for computed noise
* 1 OUTPUT_ID  C 12
      Subdirectory used to store the output files
  2 METRIC_ID  C 6
```

```
      Metric identifier
  3 OUT_TYPE   C 1
      Type or output (S = OneCase, D = Difference, A = LogAdd, M = Merge)
  4 CASE_ID1   C 12
      Case identifier (types S, D, A, and M)
  5 CASE_ID2   C 12
      Case identifier (types D, A, and M)
  6 CASE_ID3   C 12
      Case identifier (types A and M)
  7 CASE_ID4   C 12
      Case identifier (types A and M)
  8 CASE_ID5   C 12
      Case identifier (types A and M)
  9 CONR_MIN   N 6.1
      Minimum contour level (dB or min)
      Min= -999.9  Max= 1440.0  Default= 55.0  (MmConrMin)
 10 CONR_MAX   N 6.1
      Maximum contour level (dB or min)
      Min= -999.9  Max= 1440.0  Default= 85.0  (MmConrMax)
 11 CONR_INC   N 6.1
      Increment level (dB or min)
      Min= 0.1  Max= 1440.0  Default= 5.0  (MmConrInc)
 12 CONR_CALC  C 1
      Do post-processing calculations (CONVERT & NMPLOT) again (Y, N)

GRID     DBF  0 records  50 bytes/record
   Grid Definition Table -- grid points for noise calculation and analysis
* 1 GRID_ID    C 3
      Grid identifier
  2 GRID_TYPE  C 1
      Type of grid (C = Contour, S = Standard, D = Detailed)
  3 X_COORD    N 9.4
      X coordinate of the lower-left corner of the grid (nmi)
      Min= -999.0000  Max= 999.0000  Default= -8.0000  (MmCoordXYGrid)
  4 Y_COORD    N 9.4
      Y coordinate of the lower-left corner of the grid (nmi)
      Min= -999.0000  Max= 999.0000  Default= -8.0000  (MmCoordXYGrid)
  5 ANGLE      N 5.1
      Grid rotation angle (deg) from the X-axis to the I-axis
      Min= -90.0  Max= 90.0  Default= 0.0  (MmGridAngle)
  6 DIST_I     N 8.4
      Distance between points in the I direction (nmi)
      Min= 0.0000  Max= 999.0000  Default= 16.0000  (MmDistanceNmiGrid)
  7 DIST_J     N 8.4
      Distance between points in the J direction (nmi)
      Min= 0.0000  Max= 999.0000  Default= 16.0000  (MmDistanceNmiGrid)
  8 NUMB_I     N 3.0
      Number of points in the I direction
      Min= 1  Max= 999  Default= 2  (MmGridPoints)
  9 NUMB_J     N 3.0
      Number of points in the J direction
      Min= 1  Max= 999  Default= 2  (MmGridPoints)

GRID_STD DBF  0 records  129 bytes/record
   Standard Grid Analysis Table -- calculated noise metrics on the grid
* 1 GRID_ID    C 3
      Grid identifier
* 2 I_INDEX    N 3.0
      I index of the grid point
      Min= 1  Max= 999  Default= 1  (MmThreeDigitIndex)
```

```
* 3 J_INDEX    N 3.0
      J index of the grid point
      Min= 1  Max= 999  Default= 1  (MmThreeDigitIndex)
  4 X_COORD    N 9.4
      X coordinate value (nmi)
      Min= -999.0000  Max= 999.0000  Default= 0.0000  (MmCoordXY)
  5 Y_COORD    N 9.4
      Y coordinate value (nmi)
      Min= -999.0000  Max= 999.0000  Default= 0.0000  (MmCoordXY)
  6 Z_COORD    N 7.1
      Z coordinate value MSL (ft)
      Min= -9999.0  Max= 60000.0  Default= 0.0  (MmAltitude)
  7 LATITUDE   N 10.6
      Latitude of the point (degrees)
      Min= -89.999999  Max= 89.999999  Default= 0.000000  (MmLatitude)
  8 LONGITUDE  N 11.6
      Longitude of the point (degrees)
      Min= -180.000000  Max= 180.000000  Default= 0.000000  (MmLongitude)
  9 METRIC     N 6.1
      User-defined metric value (dB or minutes)
      Min= -99.9  Max= 9999.9  Default= 0.0  (MmTime)
 10 DNL        N 5.1
      Day-night average sound level (dB)
      Min= -99.9  Max= 999.9  Default= 0.0  (MmDecibel)
 11 CNEL       N 5.1
      Community noise equivalent level (dB)
      Min= -99.9  Max= 999.9  Default= 0.0  (MmDecibel)
 12 LAEQ       N 5.1
      Equivalent sound level for 24 hours (dB)
      Min= -99.9  Max= 999.9  Default= 0.0  (MmDecibel)
 13 LAEQD      N 5.1
      Equivalent sound level for day 0700-2200 (dB)
      Min= -99.9  Max= 999.9  Default= 0.0  (MmDecibel)
 14 LAEQN      N 5.1
      Equivalent sound level for night 2200-0700 (dB)
      Min= -99.9  Max= 999.9  Default= 0.0  (MmDecibel)
 15 SEL        N 5.1
      Sound exposure level (dB)
      Min= -99.9  Max= 999.9  Default= 0.0  (MmDecibel)
 16 LAMAX      N 5.1
      Maximum A-weighted sound level (dB)
      Min= -99.9  Max= 999.9  Default= 0.0  (MmDecibel)
 17 TALA       N 6.1
      Time above an A-weighted sound level threshold (minutes)
      Min= -99.9  Max= 9999.9  Default= 0.0  (MmTime)
 18 NEF        N 5.1
      Noise exposure forecast (dB)
      Min= -99.9  Max= 999.9  Default= 0.0  (MmDecibel)
 19 WECPNL     N 5.1
      Weighted equivalent continuous perceived noise level (dB)
      Min= -99.9  Max= 999.9  Default= 0.0  (MmDecibel)
 20 EPNL       N 5.1
      Effective perceived tone-corrected noise level (dB)
      Min= -99.9  Max= 999.9  Default= 0.0  (MmDecibel)
 21 PNLTM      N 5.1
      Maximum perceived tone-corrected noise level (dB)
      Min= -99.9  Max= 999.9  Default= 0.0  (MmDecibel)
 22 TAPNL      N 6.1
      Time above a perceived tone-corrected noise level threshold (minutes)
      Min= -99.9  Max= 9999.9  Default= 0.0  (MmTime)
```

```
GRID_DTL DBF  0 records  92 bytes/record
   Detailed Grid Analysis Table -- calculated noise metric components
* 1 METRIC_ID  C 6
      Metric Identifier
* 2 GRID_ID    C 3
      Grid identifier
* 3 I_INDEX    N 3.0
      I index of the grid point
      Min= 1  Max= 999  Default= 1  (MmThreeDigitIndex)
* 4 J_INDEX    N 3.0
      J index of the grid point
      Min= 1  Max= 999  Default= 1  (MmThreeDigitIndex)
* 5 ACFT_ID    C 6
      Aircraft identifier
* 6 OP_TYPE    C 1
      Type of operation (A, D, T, F, V)
* 7 PROF_ID1   C 1
      Profile group identifier (S = standard data)
* 8 PROF_ID2   C 1
      Profile stage identifier (1..9)
* 9 RWY_ID     C 3
      Runway end identifier
*10 TRK_ID1    C 4
      Track identifier
*11 TRK_ID2    C 1
      Sub-track identifier (0..8)
 12 DISTANCE   N 9.1
      Distance to aircraft at CPA (ft)
      Min= 0.0  Max= 9999999.0  Default= 0.0  (MmDistDetail)
 13 ALTITUDE   N 5.0
      Altitude of aircraft at CPA AFE (ft)
      Min= -9999  Max= 60000  Default= 0  (MmAltDetail)
 14 ELEV_ANG   N 4.1
      Elevation angle at CPA (deg above ground plane)
      Min= 0.0  Max= 90.0  Default= 0.0  (MmAngle)
 15 SPEED      N 5.1
      Speed of aircraft at CPA TAS (knt)
      Min= 0.0  Max= 600.0  Default= 0.0  (MmSpeed)
 16 THR_SET    N 8.2
      Corrected net thrust per engine (lb, %, epr, other)
      Min= 0.10  Max= 99000.00  Default= 1.00  (MmThrustSet)
 17 OPS_EQUIV  N 9.4
      Equivalent number of operations for this flight
      Min= 0.0000  Max= 9999.9999  Default= 0.0000  (MmOperation)
 18 METRIC_ONE N 6.1
      Metric value caused by one operation (dB or minutes)
      Min= -99.9  Max= 9999.9  Default= 0.0  (MmTime)
 19 METRIC_ALL N 6.1
      Metric value caused by all operations (dB or minutes)
      Min= -99.9  Max= 9999.9  Default= 0.0  (MmTime)
 20 PERCENT    N 7.3
      Percent of total metric due to this aircraft's operations
      Min= 0.000  Max= 100.000  Default= 0.000  (MmPercent3)
```

```
CONR_PTS DBF  0 records  50 bytes/record
   Contour Points Table -- points defining noise contours
* 1 LEVEL      N 6.1
      Contour level (dB or minutes)
      Min= -99.9  Max= 9999.9  Default= 0.0  (MmTime)
* 2 ISLAND_NUM N 2.0
      Island number (for multiple contours at same level)
      Min= 1  Max= 99  Default= 1  (MmTwoDigitIndex)
  3 ISLAND_TYP C 1
      Type of island (P = Positive, N = Negative)
* 4 X_COORD    N 9.4
      X coordinate on contour (nmi)
      Min= -999.0000  Max= 999.0000  Default= 0.0000  (MmCoordXY)
* 5 Y_COORD    N 9.4
      Y coordinate on contour (nmi)
      Min= -999.0000  Max= 999.0000  Default= 0.0000  (MmCoordXY)
  6 POINT_OK   C 1
      This point is on the contour and not on the border (Y, N)
  7 LATITUDE   N 10.6
      Latitude of the point (degrees)
      Min= -89.999999  Max= 89.999999  Default= 0.000000  (MmLatitude)
  8 LONGITUDE  N 11.6
      Longitude of the point (degrees)
      Min= -180.000000  Max= 180.000000  Default= 0.000000  (MmLongitude)

POP_CONR DBF  0 records  32 bytes/record
   Population Contour Table -- number of people inside noise contours
* 1 LEVEL      N 6.1
      Contour level (dB or minutes)
      Min= -99.9  Max= 9999.9  Default= 0.0  (MmTime)
  2 CONR_OK    C 1
      Contour completely contained inside grid boundary (Y, N)
  3 POPULATION N 6.0
      Number of people inside all islands of this contour
      Min= 0  Max= 999999  Default= 0  (MmPopulation)
  4 AREA       N 9.3
      Calculated area inside all islands of this contour (mi^2)
      Min= 0.000  Max= 999.990  Default= 0.000  (MmAreaContour)
  5 AREA_BLOCK N 9.3
      Area of census blocks inside this contour (mi^2)
      Min= 0.000  Max= 999.990  Default= 0.000  (MmAreaContour)

POP_PTS  DBF  0 records  53 bytes/record
   Population Points Table -- US Census PL94-171 CD data
* 1 POINT_ID   C 15
      Point identifier (state + county + census block identifier)
  2 LATITUDE   N 10.6
      Latitude of the center of the block (degrees)
      Min= -89.999999  Max= 89.999999  Default= 0.000000  (MmLatitude)
  3 LONGITUDE  N 11.6
      Longitude of the center of the block (degrees)
      Min= -180.000000  Max= 180.000000  Default= 0.000000  (MmLongitude)
  4 POPULATION N 5.0
      Number of people in the block
      Min= 0  Max= 0  Default= 0  (none)
  5 AREA_BLOCK N 8.6
      Census block area (mi^2)
      Min= 0.000000  Max= 0.000000  Default= 0.000000  (none)
  6 LAND_USE   C 3
      User-defined land-use identifier (XXX)
```

```
POP_NOIS DBF  0 records  22 bytes/record
   Population Noise Point Table -- noise at population points
* 1 POINT_ID   C 15
      Point identifier (defined in POP_PTS)
  2 METRIC     N 6.1
      Metric value (dB or minutes)
      Min= -99.9  Max= 9999.9  Default= 0.0  (MmTime)

LOC_PTS  DBF  0 records  34 bytes/record
   Location Points Table -- location of selected points
* 1 POINT_ID   C 6
      User-defined point identifier
  2 POINT_CAT  C 1
      User-defined point category (S=school, ...)
  3 LATITUDE   N 10.6
      Latitude of the point (degrees)
      Min= -89.999999  Max= 89.999999  Default= 0.000000  (MmLatitude)
  4 LONGITUDE  N 11.6
      Longitude of the point (degrees)
      Min= -180.000000  Max= 180.000000  Default= 0.000000  (MmLongitude)
  5 HEIGHT     N 5.0
      Height above the ground of the point (ft)
      Min= -9999  Max= 60000  Default= 0  (MmAltDetail)

LOC_NOIS DBF  0 records  13 bytes/record
   Location Noise Point Table -- noise at location points
* 1 POINT_ID   C 6
      Point identifier (defined in LOC_PTS)
  2 METRIC     N 6.1
      Metric value (dB or minutes)
      Min= -99.9  Max= 9999.9  Default= 0.0  (MmTime)

SYS_APRT DBF  0 records  67 bytes/record
   System Airport Table -- NFDC data 8/15/96
* 1 APRT_ID    C 4
      Airport identifier
  2 NAME       C 25
      City/airport name
  3 STATE      C 2
      U.S. state
  4 LATITUDE   N 10.6
      Latitude of airport reference point (degrees)
      Min= -89.999999  Max= 89.999999  Default= 0.000000  (MmLatitude)
  5 LONGITUDE  N 11.6
      Longitude of airport reference point (degrees)
      Min= -180.000000  Max= 180.000000  Default= 0.000000  (MmLongitude)
  6 ELEVATION  N 4.0
      Elevation of highest point on any runway MSL (ft)
      Min= -500  Max= 9999  Default= 0  (MmElevSysAprt)
  7 PATTRN_ALT N 4.0
      Pattern altitude AFE (ft)
      Min= 0  Max= 5000  Default= 900  (MmAltPattern)
  8 YR_OPS_ALL N 6.0
      Yearly operations (Commercial + GenAv + Military)
      Min= 0  Max= 999999  Default= 0  (MmOpsYear)

SYS_RWY  DBF  0 records  97 bytes/record
   System Runway Table -- NFDC data 8/15/96
* 1 APRT_ID    C 4
```

```
      Airport identifier
  2 RWY_LENGTH N 5.0
      Physical runway length (ft)
      Min= 0  Max= 30000  Default= 0  (MmRwyLength)
  3 RWY_WIDTH  N 3.0
      Physical runway width (ft)
      Min= 0  Max= 500  Default= 150  (MmRwyWidth)
* 4 A_RWY_ID   C 3
      Runway identifier for end A
  5 A_LAT      N 10.6
      Latitude of end A (degrees)
      Min= -89.999999  Max= 89.999999  Default= 0.000000  (MmLatitude)
  6 A_LONG     N 11.6
      Longitude of end A (degrees)
      Min= -180.000000  Max= 180.000000  Default= 0.000000  (MmLongitude)
  7 A_ELEVATN  N 6.1
      Elevation of end A MSL (ft)
      Min= -500.0  Max= 9999.9  Default= 0.0  (MmElevation)
  8 A_DIS_APP  N 4.0
      Approach displaced threshold for end A (ft from end)
      Min= 0  Max= 9999  Default= 0  (MmAppThreshold)
  9 A_GLIDE_SL N 3.1
      Glide slope for end A (deg)
      Min= 0.0  Max= 9.9  Default= 3.0  (MmGlideSlope)
 10 A_TCH      N 5.1
      Threshold crossing height at end A AGL (ft)
      Min= 0.0  Max= 100.0  Default= 50.0  (MmCrossingHeight)
*11 B_RWY_ID   C 3
      Runway identifier for end B
 12 B_LAT      N 10.6
      Latitude of end B (degrees)
      Min= -89.999999  Max= 89.999999  Default= 0.000000  (MmLatitude)
 13 B_LONG     N 11.6
      Longitude of end B (degrees)
      Min= -180.000000  Max= 180.000000  Default= 0.000000  (MmLongitude)
 14 B_ELEVATN  N 6.1
      Elevation of end B MSL (ft)
      Min= -500.0  Max= 9999.9  Default= 0.0  (MmElevation)
 15 B_DIS_APP  N 4.0
      Approach displaced threshold for end B (ft from end)
      Min= 0  Max= 9999  Default= 0  (MmAppThreshold)
 16 B_GLIDE_SL N 3.1
      Glide slope for end B (deg)
      Min= 0.0  Max= 9.9  Default= 3.0  (MmGlideSlope)
 17 B_TCH      N 5.1
      Threshold crossing height for end B AGL (ft)
      Min= 0.0  Max= 100.0  Default= 50.0  (MmCrossingHeight)
```

H.2. INM 5.1 DBF File Format Changes

INM Version 5.1 changed the format of many input and output DBF files, and added one new file.

Listed below are the DBF files that were changed from Version 5.0. Field format changes are denoted by an arrow. For example, `N7.1 --> N8.2` means that the field format is changed from (numeric, width 7, decimal 1) to (numeric, width 8, decimal 2). Other kinds of changes are denoted in parentheses.

`AIRCRAFT.DBF`

```
   ACFT_DESCR  C20 --> C40
   PWR_STATIC  (delete old field)
   THR_100PCT  (delete old field)
   THR_STATIC  N5.0  (new field)

NOIS_GRP.DBF (new file)

   NOISE_ID    C6  (key)
   THRSET_TYP  C1  (L=pounds, P=percent, E=epr, X=other)
   MODEL_TYPE  C1  (I=INM, N=NoiseMap)

NOISE.DBF --> NPD_CURV.DBF (changed file name)

   THR_SET     N7.1 --> N8.2
   CURVE_TYPE  C1  (new field: N=normal, A=afterburner)

PROF_PTS.DBF

   PT_NUM      N2.0 --> N3.0
   DISTANCE    N9.1 --> N10.1
   THR_SET     N7.1 --> N8.2
   CURVE_TYPE  C1  (new field: N=normal, A=afterburner)

PROCEDUR.DBF

   PARAM3      N7.1 --> N9.1

RWY_END.DBF

   LATITUDE    (delete old field)
   LONGITUDE   (delete old field)
   X_COORD     N9.4  (new field)
   Y_COORD     N9.4  (new field)

TRACK.DBF

   DISTANCE    N7.1 --> N6.1

TRK_SEGS.DBF

   SEG_NUM     N2.0 --> N3.0
   PARAM1      N8.4 --> N9.4
   PARAM2      N8.4 --> N9.4

OPS_RNUP.DBF

   RUNUP_ID    C2   --> C3
   X_COORD     N8.4 --> N9.4
   Y_COORD     N8.4 --> N9.4
   PCT_THR     (delete old field)
   THR_SET     N8.2  (new field)

OUTPUT.DBF

   CONR_INC    N4.1 --> N6.1

GRID.DBF

   X_COORD     N8.4 --> N9.4
```

```
   Y_COORD     N8.4 --> N9.4

GRID_STD.DBF

   X_COORD     N8.4 --> N9.4
   Y_COORD     N8.4 --> N9.4
   LATITUDE    N10.6 (new field)
   LONGITUDE   N11.6 (new field)
   METRIC      N5.1 --> N6.1

GRID_DTL.DBF

   DISTANCE    N8.1 --> N9.1
   THR_SET     N7.1 --> N8.2

CONR_PTS.DBF

   LEVEL       N5.1 --> N6.1
   X_COORD     N8.4 --> N9.4
   Y_COORD     N8.4 --> N9.4
   LATITUDE    C13 --> N10.6
   LONGITUDE   C14 --> N11.6

POP_CONR.DBF

   LEVEL       N5.1 --> N6.1
   AREA        N6.2 --> N9.3
   AREA_LAND   (delete old field)
   AREA_WATER  (delete old field)
   AREA_BLOCK  N9.3  (new field)

POP_PTS.DBF

   POINT_ID    C10 --> C15
   LATITUDE    C13 --> N10.6
   LONGITUDE   C14 --> N11.6
   AREA_LAND   (delete old field)
   AREA_WATER  (delete old field)
   AREA_BLOCK  N8.6  (new field)

LOC_PTS.DBF

   LATITUDE    C13 --> N10.6
   LONGITUDE   C14 --> N11.6

SYS_APRT.DBF

   LATITUDE    C13 --> N10.6
   LONGITUDE   C14 --> N11.6

SYS_RWY.DBF

   A_LAT       C13 --> N10.6
   A_LONG      C14 --> N11.6
   B_LAT       C13 --> N10.6
   B_LONG      C14 --> N11.6
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I. INM STANDARD DATA

This Appendix documents the INM standard database. The DBF files that comprise the standard database are listed below, including an indication as to whether the printed files are complete or not.

1)	AIRCRAFT	Complete
2)	ACFT_SUB	Complete
3)	NOIS_GRP	Complete
4)	NPD_CURV	Partial
5)	PROFILE	Partial
6)	PROF_PTS	Partial
7)	PROCEDUR	Partial
8)	FLAPS	Partial
9)	THR_JET	Partial
10)	THR_PROP	Complete
11)	METRIC	Complete

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File: D:\inm51\sys_data\aircraft.dbf
Last update: 22-Aug-1996
Fields(15):
 1  ACFT_ID      C   6
 2  ACFT_DESCR   C  40
 3  GROUP_ID     C   3
 4  WGT_CAT      C   1
 5  OWNER_CAT    C   1
 6  ENG_TYPE     C   1
 7  NOISE_CAT    C   1
 8  NOISE_ID     C   6
 9  NUMB_ENG     N   1.0
10  THR_RESTOR   C   1
11  MX_GW_TKO    N   6.0
12  MX_GW_LND    N   6.0
13  MX_DS_STOP   N   5.0
14  COEFF_TYPE   C   1
15  THR_STATIC   N   5.0
Records(216):
  707    , B707-120/JT3C                        , COM , H , C , J , 1 , JT4A   , 4 , N , 302400 , 188900 ,  6682 , J , 10120
  707120 , B707-120B/JT3D-3                     , COM , H , C , J , 1 , JT3D   , 4 , N , 302400 , 188900 ,  6893 , J , 14850
  707320 , B707-320B/JT3D-7                     , COM , H , C , J , 1 , JT3D   , 4 , N , 334000 , 247000 ,  5622 , J , 19000
  707QN  , B707-320B/JT3D-7QN                   , COM , H , C , J , 2 , JT3DQ  , 4 , N , 334000 , 247000 ,  5622 , J , 19000
  720    , B720/JT3C                            , COM , L , C , J , 1 , JT4A   , 4 , N , 223500 , 155600 ,  4871 , J , 10120
  720B   , B720B/JT3D-3                         , COM , L , C , J , 1 , JT3D   , 4 , N , 234000 , 175000 ,  5717 , J , 18000
  727100 , B727-100/JT8D-7                      , COM , L , C , J , 1 , 3JT8D  , 3 , N , 169500 , 142500 ,  4867 , J , 14000
  727200 , B727-200/JT8D-7                      , COM , L , C , J , 1 , 3JT8D  , 3 , N , 217600 , 163300 ,  5571 , J , 11895
  727D15 , B727-200/JT8D-15                     , COM , L , C , J , 1 , 3JT8D  , 3 , N , 208000 , 169000 ,  4922 , J , 15500
  727D17 , B727-200/JT8D-17                     , COM , L , C , J , 2 , 3JT8DQ , 3 , N , 208000 , 169000 ,  5444 , J , 16000
  727EM1 , FEDX 727-100/JT8D-7                  , COM , L , C , J , 3 , 3JT8E7 , 3 , N , 185900 , 142500 ,  4867 , J , 13078
  727EM2 , FEDX 727-200/JT8D-15                 , COM , L , C , J , 3 , 3JT8E5 , 3 , N , 240000 , 169000 ,  4922 , J , 14694
  727Q15 , B727-200/JT8D-15QN                   , COM , L , C , J , 2 , 3JT8DQ , 3 , N , 208000 , 169000 ,  4922 , J , 15500
  727Q7  , B727-100/JT8D-7QN                    , COM , L , C , J , 2 , 3JT8DQ , 3 , N , 169500 , 142500 ,  4867 , J , 14000
  727Q9  , B727-200/JT8D-9                      , COM , L , C , J , 2 , 3JT8DQ , 3 , N , 191000 , 160000 ,  5444 , J , 14500
  727QF  , UPS 727100 22C 25C                   , COM , L , C , J , 3 , TAY651 , 3 , N , 169000 , 142500 ,  4448 , J , 15380
  737    , B737/JT8D-9                          , COM , L , C , J , 1 , 2JT8D  , 2 , N , 109000 ,  98000 ,  3900 , J , 14500
  737300 , B737-300/CFM56-3B-1                  , COM , L , C , J , 3 , CFM563 , 2 , N , 135000 , 114000 ,  4580 , J , 20000
  7373B2 , B737-300/CFM56-3B-2                  , COM , L , C , J , 3 , CFM563 , 2 , N , 139000 , 114000 ,  4580 , J , 22000
  737400 , B737-400/CFM56-3C-1                  , COM , L , C , J , 3 , CFM563 , 2 , N , 150000 , 124000 ,  5062 , J , 23500
  737500 , B737-500/CFM56-3B-1                  , COM , L , C , J , 3 , CFM563 , 2 , N , 138500 , 111000 ,  4551 , J , 20000
  737D17 , B737-200/JT8D-17                     , COM , L , C , J , 2 , 2JT8DQ , 2 , N , 124000 , 107000 ,  4244 , J , 16000
  737QN  , B737/JT8D-9QN                        , COM , L , C , J , 2 , 2JT8DQ , 2 , N , 109000 ,  98000 ,  3900 , J , 14500
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747100 , B747-100/JT9DBD                          , COM , H , C , J , 2 , JT9DBD , 4 , N , 733000 , 516600 ,  5727 , J , 33042
74710Q , B747-100/JT9D-7QN                        , COM , H , C , J , 3 , JT9DFL , 4 , N , 733000 , 564000 ,  6200 , J , 45500
747200 , B747-200/JT9D-7                          , COM , H , C , J , 3 , JT9DFL , 4 , N , 775000 , 564000 ,  6200 , J , 45500
74720A , B747-200/JT9D-7A                         , COM , H , C , J , 3 , JT9D7Q , 4 , N , 785000 , 564000 ,  6200 , J , 46300
74720B , B747-200/JT9D-7Q                         , COM , H , C , J , 3 , JT9D7Q , 4 , N , 800000 , 630000 ,  6200 , J , 53000
747400 , B747-400/PW4056                          , COM , H , C , J , 3 , PW4056 , 4 , N , 870000 , 630000 ,  6989 , J , 56800
747SP  , B747SP/JT9D-7                            , COM , H , C , J , 3 , JT9DFL , 4 , N , 702000 , 475000 ,  5911 , J , 45500
757PW  , B757-200/PW2037                          , COM , L , C , J , 3 , PW2037 , 2 , N , 240000 , 198000 ,  4790 , J , 38300
757RR  , B757-200/RB211-535E4                     , COM , L , C , J , 3 , RR535E , 2 , N , 220000 , 198000 ,  4640 , J , 40100
767300 , B767-300/PW4060                          , COM , H , C , J , 3 , 2CF680 , 2 , N , 407000 , 320000 ,  4710 , J , 60000
767CF6 , B767-200/CF6-80A                         , COM , H , C , J , 3 , 2CF680 , 2 , N , 315500 , 270000 ,  4700 , J , 48000
767JT9 , B767-200/JT9D-7R4D                       , COM , H , C , J , 3 , 2CF680 , 2 , N , 351000 , 270000 ,  4744 , J , 48000
A10A   , FAIRCHILD THUNDERBOLT II TF34-GE-100  NM , MIL , L , M , J , 0 , AGE100 , 2 , N ,  50000 ,  33140 ,     0 , J ,  9065
A3     , MCDONNELL DOUGLAS SKYWARRIOR J79-GE-8 NM , MIL , L , M , J , 0 , GE-8   , 2 , N ,  80000 ,  62923 ,     0 , J , 11000
A300   , A300B4-200/CF6-50C2                     , COM , H , C , J , 3 , 2CF650 , 2 , N , 364000 , 295000 ,  5367 , J , 52500
A310   , A310-300/CF6-80C2A2                     , COM , H , C , J , 3 , 2CF650 , 2 , N , 331000 , 271000 ,  4880 , J , 53500
A320   , A320-211/CFM56-5A-1                     , COM , L , C , J , 3 , CFM565 , 2 , N , 162000 , 142000 ,  1730 , J , 25000
A37    , CESSNA DRAGONFLY J85-GE-17A          NM , MIL , L , M , J , 0 , J8517A , 2 , N ,  14399 ,   9556 ,     0 , J ,  2851
A4C    , MCDONNELL DOUGLAS SKYHAWK J52-P-8A   NM , MIL , L , M , J , 0 , J52P8A , 1 , N ,  24490 ,  16103 ,     0 , J ,  9293
A5C    , J79-GE-10                            NM , MIL , L , M , J , 0 , GE-10  , 2 , N ,  80000 ,  62923 ,     0 , J , 11870
A6A    , GRUMMAN INTRUDER J52-P-8B            NM , MIL , L , M , J , 0 , J52P8B , 2 , N ,  60400 ,  45500 ,  1900 , J ,  9300
A7D    ,"A-7D,E/TF-41-A-1                       ", MIL , L , M , J , 0 , TF41   , 1 , N ,  42000 ,  37100 ,  7356 , J , 14500
A7E    , VOUGHT CORSAIR II TF41-A-2           NM , MIL , L , M , J , 0 , TF41A2 , 1 , N ,  42000 ,  29426 ,     0 , J , 15000
AV8A   , BAE HARRIER AV8A                     NM , MIL , L , M , J , 0 , AV-8A  , 1 , N ,      0 ,      0 ,     0 , J ,     0
AV8B   , BAE HARRIER F402-RR-408              NM , MIL , L , M , J , 0 , RR-408 , 1 , N ,  31000 ,  25000 ,     0 , J , 24000
B1     , ROCKWELL LANCER F101-GE-102          NM , MIL , H , M , J , 0 , GE-102 , 4 , N , 477000 , 295000 ,     0 , J , 31000
B2A    , F118-GE-110                          NM , MIL , H , M , J , 0 , GE-110 , 4 , N , 376000 , 169000 ,     0 , J , 19000
B52BDE , BOEING STRATOFORTRESS J57P-19W       NM , MIL , H , M , J , 0 , J57P19 , 8 , N , 420000 ,      0 ,     0 , J ,     0
B52G   , BOEING STRATOFORTRESS J57-P-43WB     NM , MIL , H , M , J , 0 , J57P43 , 8 , N , 488000 ,      0 ,     0 , J , 14000
B52H   , BOEING STRATOFORTRESS B52H           NM , MIL , H , M , J , 0 , B-52H  , 8 , N ,      0 ,      0 ,     0 , J ,     0
B57E   , ENGLISH ELECTRIC CANBERRA J57-PW-P-5 NM , MIL , L , M , J , 0 , J57P5  , 2 , N ,  54800 ,      0 ,     0 , J , 11000
BAC111 , BAC111/SPEY MK511-14                 , COM , L , C , J , 2 , 2JT8D  , 2 , N ,  89600 ,  82000 ,  4449 , J , 11400
BAE146 , BAE146-200/ALF502R-5                 , COM , L , C , J , 3 , AL502R , 4 , N ,  93000 ,  81000 ,  3770 , J ,  6970
BAE300 , BAE146-300/ALF502R-5                 , COM , L , C , J , 3 , AL502R , 4 , N ,  97500 ,  84500 ,  3960 , J ,  6970
BEC58P , BARON 58P/TS10-520-L                 , GA  , S , G , P , 0 , TSIO52 , 2 , N ,   6100 ,   6100 ,  2733 , P ,   779
BUCCAN , RR SPEY RB 168-1A                    NM , MIL , L , M , J , 0 , RB168  , 2 , N ,  45843 ,      0 ,     0 , J , 11330
C-130E , LOCKHEED HERCULES T56-A15 C130E      NM , MIL , L , M , T , 0 , T56-15 , 4 , N , 175000 , 175000 ,     0 , J ,  4508
C-20   , GULFSTREAM III MK611-8RR             NM , MIL , L , M , J , 0 , MK6118 , 2 , N ,  74600 ,  66000 ,  3190 , J , 13850
C118   , MCDONNELL DOUGLAS LIFT PW R-2800-CB17 NM , MIL , L , M , P , 0 , RCB17  , 4 , N , 107000 ,  85180 ,     0 , P ,  1865
C119L  , FAIRCHILD FLYING BOX CAR C119L       NM , MIL , L , M , P , 0 , C-119  , 2 , N ,  74300 ,  45000 ,     0 , P ,     0
C12    , BEECH SUPER KING AIR HURON PW PT6A-41 NM , MIL , S , M , T , 0 , PT6A41 , 2 , N ,  12500 ,  12500 ,  1760 , P ,   850
C121   , C121                                  NM , MIL , L , M , J , 0 , C-121  , 2 , N ,      0 ,      0 ,     0 , J ,     0
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C123K  , FAIRCHILD PW R-2800-99W AUX J85-GE17  NM , MIL , L , M , P , 0 , R2800  , 2 , N ,  60000 ,  29904 ,     0 , P ,  1715
C130   , C-130H/T56-A-15                          , MIL , L , M , T , 3 , T56A15 , 4 , N , 155000 , 135000 ,  4850 , P ,  8026
C130AD , LOCKHEED HERCULES T56-A15             NM , MIL , L , M , T , 0 , C-130A , 4 , N , 175000 , 175000 ,     0 , P ,  4508
C130E  , C-130E/T56-A-7                           , MIL , L , M , T , 0 , T56A7  , 4 , N , 155000 , 130000 ,  4670 , P ,  7063
C130HP , LOCKHEED HERCULES C130HP              NM , MIL , L , M , T , 0 , C-130H , 4 , N ,      0 ,      0 ,     0 , P ,     0
C131B  , GENERAL DYNAMICS CV34 PW R-2800-99W   NM , MIL , L , M , J , 0 , R99W   , 2 , N ,  41740 ,  38000 ,     0 , J ,  2900
C135A  , BOEING STRATOLIFTER PW J57-59W        NM , MIL , H , M , J , 0 , J5759W , 4 , N , 300000 , 157000 ,     0 , J , 14000
C135B  , BOEING STRATOLIFTER C135B             NM , MIL , H , M , J , 0 , J5759  , 4 , N , 300000 , 157000 ,     0 , J , 14000
C137   , JT3D-3B                               NM , MIL , H , M , J , 0 , JT3D3B , 4 , N , 322000 ,      0 ,     0 , J , 18000
C140   , LOCKHEED JETSTAR TFE731-3             NM , MIL , L , M , J , 0 , TFE731 , 4 , N ,  44507 ,  38312 ,     0 , J ,  3000
C141A  , LOCKHEED STARLIFTER TF-33-P-7         NM , MIL , H , M , J , 0 , TF33P7 , 4 , N , 342283 , 124892 ,     0 , J , 21000
C17    , F117-PW-100                           NM , MIL , H , M , J , 0 , PW-100 , 4 , N , 585000 , 446000 ,  3000 , J , 40700
C18A   , JT41-11                               NM , MIL , H , M , J , 0 , JT4111 , 4 , N , 331000 , 247000 ,  2575 , J , 18000
C21A   , LEARJET 35 TFE731-2-2B                NM , MIL , L , M , J , 0 , TFE73B , 2 , N ,  18300 ,  15567 ,     0 , J ,  3500
C22    , BOEING 727 TRS18-1                    NM , MIL , L , M , J , 0 , TRS181 , 3 , N ,      0 ,      0 ,     0 , J ,     0
C23    , PT6A-65AR                             NM , MIL , L , M , J , 0 , PT6R65 , 2 , N ,  25600 ,  25100 ,  1920 , J ,  1424
C5A    , LOCKHEED GALAXY TF39-GE-1             NM , MIL , H , M , J , 0 , TF39GE , 4 , N , 769000 , 636000 ,  2230 , J , 41000
C7A    , DEHAVILLAND CARIBOU DHC-4A            NM , MIL , L , M , P , 0 , PW123  , 2 , N ,      0 ,      0 ,     0 , P ,     0
C9A    , MCDONNELL DOUGLAS DC9 JT8D-9          NM , MIL , L , M , J , 0 , JT8D9  , 2 , N , 121000 , 110000 ,  4680 , J , 14500
CANBER , 2 RR AVON 109                         NM , MIL , L , M , J , 0 , AVON   , 2 , N ,  54935 ,  27947 ,     0 , J ,  7396
CIT3   , CIT 3/TFE731-3-100S                      , GA  , L , G , J , 3 , TF7313 , 2 , N ,  20000 ,  17000 ,  2770 , J ,  3650
CL600  , CL600/ALF502L                            , GA  , L , G , J , 3 , AL502L , 2 , N ,  36000 ,  33000 ,  3300 , J ,  7500
CL601  , CL601/CF34-3A                            , GA  , L , G , J , 3 , CF34   , 2 , N ,  43100 ,  36000 ,  3550 , J ,  9220
CNA441 , CONQUEST II/TPE331-8                     , COM , S , C , T , 0 , TPE331 , 2 , N ,   9900 ,   9400 ,  1939 , P ,  1535
CNA500 , CIT 2/JT15D-4                            , GA  , L , G , J , 3 , JT15D1 , 2 , N ,  14700 ,  14000 ,  3050 , J ,  2500
COMJET , 1985 BUSINESS JET                        , GA  , L , G , J , 1 , CGAJ   , 2 , N ,  19200 ,  16200 ,  2889 , J ,  2900
COMSEP , 1985 1-ENG COMP                          , GA  , S , G , P , 0 , CGASEP , 1 , N ,   2440 ,   2400 ,  1156 , P ,   605
CONCRD , CONCORDE/OLY593                          , COM , H , C , J , 0 , OLY593 , 4 , N , 400000 , 245000 , 10600 , J , 38100
CVR580 , CV580/ALL 501-D15                        , COM , L , C , T , 0 , 501D13 , 2 , N ,  58000 ,  52000 ,  4256 , P ,  8100
DC1010 , DC10-10/CF6-6D                           , COM , H , C , J , 3 , CF66D  , 3 , N , 455000 , 363000 ,  5820 , J , 40000
DC1030 , DC10-30/CF6-50C2                         , COM , H , C , J , 3 , CF66D  , 3 , N , 572000 , 403000 ,  5418 , J , 53200
DC1040 , DC10-40/JT9D-20                          , COM , H , C , J , 3 , CF66D  , 3 , N , 555000 , 403000 ,  6020 , J , 49400
DC3    , DC3/R1820-86                             , COM , L , C , P , 0 , 2R2800 , 2 , N ,  28000 ,  24500 ,  2222 , P ,  3120
DC6    , DC6/R2800-CB17                           , COM , L , C , P , 0 , 4R2800 , 4 , N , 106000 ,  95000 ,  3010 , P ,  4180
DC820  , DC-8-20/JT4A                             , COM , H , C , J , 1 , JT4A   , 4 , N , 317600 , 194400 ,  6527 , J , 11850
DC850  , DC8-50/JT3D-3B                           , COM , H , C , J , 1 , JT3D   , 4 , N , 325000 , 240000 ,  5400 , J , 18000
DC860  , DC8-60/JT3D-7                            , COM , H , C , J , 1 , JT3D   , 4 , N , 355000 , 275000 ,  5310 , J , 19000
DC870  , DC8-70/CFM56-2C-5                        , COM , H , C , J , 3 , CFM562 , 4 , N , 355000 , 258000 ,  6500 , J , 22000
DC8QN  , DC8-60/JT8D-7QN                          , COM , H , C , J , 2 , JT3DQ  , 4 , N , 355000 , 275000 ,  5310 , J , 19000
DC910  , DC9-10/JT8D-7                            , COM , L , C , J , 1 , 2JT8D  , 2 , N ,  90700 ,  81700 ,  5030 , J , 14000
DC930  , DC9-30/JT8D-9                            , COM , L , C , J , 1 , 2JT8D  , 2 , N , 114000 , 102000 ,  4680 , J , 14500
DC950  , DC9-50/JT8D-17                           , COM , L , C , J , 2 , 2JT8DQ , 2 , N , 121000 , 110000 ,  4880 , J , 16000
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DC9Q7  , DC9-10/JT8D-7QN                          , COM , L , C , J , 2 , 2JT8DQ , 2 , N ,  90700 ,  81700 ,  5030 , J , 14000
DC9Q9  , DC9-30/JT8D-9QN                          , COM , L , C , J , 2 , 2JT8DQ , 2 , N , 114000 , 102000 ,  4680 , J , 14500
DHC6   , DASH 6/PT6A-27                           , COM , S , C , T , 0 , PT6A27 , 2 , N ,  12500 ,  12300 ,  1500 , P ,  2000
DHC7   , DASH 7/PT6A-50                           , COM , L , C , T , 3 , PT6A50 , 4 , N ,  41000 ,  39000 ,  2150 , P ,  2850
DHC8   , DASH 8-100/PW121                         , COM , L , C , T , 3 , PW120  , 2 , N ,  34500 ,  33900 ,  3000 , J ,  4750
DHC830 , DASH 8-300/PW123                         , COM , L , C , T , 3 , PW120  , 2 , N ,  43000 ,  42000 ,  3500 , J ,  4918
DOMIN  , BRISTOL SIDDELEY VIPER 521           NM  , MIL , S , M , J , 0 , VIPER  , 2 , N ,  20497 ,      0 ,     0 , J ,  3125
E3A    , BOEING SENTRY TF33-PW-100A           NM  , MIL , H , M , J , 0 , PW100A , 4 , N , 324909 , 160000 ,     0 , J , 21000
E4     , BOEING 747 CF6-50E                   NM  , MIL , H , M , J , 0 , CF650E , 4 , N , 800000 , 564000 ,  6170 , J , 52500
E8A    , JT3D-3B                              NM  , MIL , H , M , J , 0 , JT3D3  , 4 , N , 336000 , 263000 ,     0 , J , 18000
EA6B   , J52-P-408                            NM  , MIL , L , M , J , 0 , P4A    , 2 , N ,  65000 ,  45500 ,  1900 , J , 11200
F-111F , GENERAL DYNAMICS F111F               NM  , MIL , L , M , J , 0 , F111F  , 2 , N ,      0 ,      0 ,     0 , J ,     0
F-18   , MCDONNELL DOUGLAS HORNET F404-GE-400 NM  , MIL , L , M , J , 0 , GE404  , 2 , N ,  56000 ,  36665 ,     0 , J , 16000
F-4C   , MCDONNELL DOUGLAS PHANTOM J79-6517A17 NM , MIL , L , M , J , 0 , J79651 , 2 , N ,  61795 ,  46000 ,  3780 , J , 18000
F10062 , F100/TAY 620-15                          , COM , L , C , J , 3 , TAY620 , 2 , N ,  95000 ,  85500 ,  4560 , J , 13900
F10065 , F100/TAY 650-15                          , COM , L , C , J , 3 , TAY650 , 2 , N ,  98000 ,  88000 ,  4704 , J , 15100
F100D  , ROCKWELL SUPER SABRE PW J57-P-21A    NM  , MIL , L , M , J , 0 , J57P21 , 1 , N ,  32839 ,  32315 ,     0 , J , 17000
F101B  , PW J57-P-55                          NM  , MIL , L , M , J , 0 , J57P55 , 2 , N ,  52408 ,  44578 ,     0 , J ,     0
F102   , PW J57-P-23                          NM  , MIL , L , M , J , 0 , J57P23 , 1 , N ,  31505 ,      0 ,     0 , J , 17000
F104G  , LOCKHEED STARFIGHTER J79-GE-11A      NM  , MIL , L , M , J , 0 , GE11A  , 1 , N ,  28779 ,  23000 ,     0 , J , 16000
F105D  , PW J75-P-19W                         NM  , MIL , L , M , J , 0 , J75P19 , 1 , N ,  52847 ,  41321 ,     0 , J , 26000
F106   , PW J57-P-17                          NM  , MIL , L , M , J , 0 , J57P17 , 1 , N ,  41440 ,  37170 ,     0 , J , 25000
F111AE , GENERAL DYNAMICS F111AE PW TF30-P-100 NM , MIL , L , M , J , 0 , TF30P1 , 2 , N , 100000 ,  72418 ,     0 , J , 25000
F111D  , GENERAL DYNAMICS F111D               NM  , MIL , L , M , J , 0 , F111D  , 2 , N ,      0 ,      0 ,     0 , J ,     0
F117A  , F404-GE-F1D2                         NM  , MIL , L , M , J , 0 , GEF1D2 , 2 , N ,  52500 ,  45385 ,     0 , J , 11000
F14A   , GRUMMAN TOMCAT TF30-P-414A           NM  , MIL , L , M , J , 0 , TF30P4 , 2 , N ,  53000 ,  36000 ,     0 , J , 21000
F14B   , GRUMMAN TOMCAT F110-GE-400           NM  , MIL , L , M , J , 0 , GE400  , 2 , N ,  74349 ,  64277 ,     0 , J , 27000
F15A   , MCDONNELL DOUGLAS EAGLE F100-PW-100  NM  , MIL , L , M , J , 0 , PW100  , 2 , N ,  56000 ,      0 ,  2500 , J , 25000
F15E20 , MCDONNELL DOUGLAS EAGLE F100-PW-220  NM  , MIL , L , M , J , 0 , PW2205 , 2 , N ,  81000 ,  44300 ,     0 , J , 23000
F15E29 , MCDONNELL DOUGLAS EAGLE F100-PW-229  NM  , MIL , L , M , J , 0 , PW2295 , 2 , N ,      0 ,      0 ,     0 , J , 29000
F16A   , GENERAL DYNAMICS FALCON PW200            , MIL , L , M , J , 0 , PW200  , 1 , N ,      0 ,      0 ,     0 , J ,     0
F16GE  , GENERAL DYNAMICS FALCON F110-GE-100      , MIL , L , M , J , 0 , GE100  , 1 , N ,  42300 ,  29261 ,     0 , J , 29000
F16PW0 , GENERAL DYNAMICS FALCON F100-PW-220      , MIL , L , M , J , 0 , PW220  , 1 , N ,  42300 ,  28058 ,     0 , J , 24000
F16PW9 , GENERAL DYNAMICS F FALCON F100-PW-229    , MIL , L , M , J , 0 , PW229  , 1 , N ,  42300 ,  28809 ,     0 , J , 29000
F28MK2 , F28-2000/RB183MK555                      , COM , L , C , J , 2 , RB183  , 2 , N ,  65000 ,  59000 ,  3540 , J ,  9850
F28MK4 , F28-4000/RB183MK555                      , COM , L , C , J , 2 , RB183P , 2 , N ,  73000 ,  64000 ,  3546 , J ,  9900
F4C    , F-4C/J79-GE-15                           , MIL , L , M , J , 0 , J79    , 2 , N ,  52000 ,  40000 ,  4444 , J , 10900
F5AB   , NORTHRUP TIGER J85-GE-13             NM  , MIL , L , M , J , 0 , GE-13  , 2 , N ,  20576 ,  19857 ,     0 , J ,  4080
F5E    , NORTHRUP TIGER J85-GE-21B            NM  , MIL , L , M , J , 0 , GE21B  , 2 , N ,  25152 ,  25147 ,  5000 , J ,  5000
F8     , VOUGHT F-8 CRUSADER PW J57-P-201     NM  , MIL , L , M , J , 0 , J57P20 , 1 , N ,  27500 ,      0 ,     0 , J , 18000
FAL20  , FALCON 20/CF700-2D-2                     , GA  , L , G , J , 2 , CF700  , 2 , N ,  28700 ,  27300 ,  2490 , J ,  4500
FB111A , GENERAL DYNAMICS FB111 PW TF30-P-100 NM  , MIL , L , M , J , 0 , FB111A , 2 , N , 100000 ,  72418 ,     0 , J , 25000
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GASEPF , 1985 1-ENG FP PROP                          ,  GA , S , G , P , 0 , SEPFP  , 1 , N ,   2200 ,   2200 ,  1160 , P ,   560
GASEPV , 1985 1-ENG VP PROP                          ,  GA , S , G , P , 0 , SEPVP  , 1 , N ,   3000 ,   3000 ,  1111 , P ,   790
GIIB   , GIIB/SPEY MK511-8                           ,  GA , L , G , J , 2 , SP5118 , 2 , N ,  65500 ,  58500 ,  3200 , J , 11400
GIV    , GIV/TAY 611                                 ,  GA , L , G , J , 3 , TAY620 , 2 , N ,  71700 ,  58500 ,  3200 , J , 13850
HARRIE , BAE HARRIER AV8 RR PEGASUS 6          NM ,  MIL , L , M , J , 0 , PEGAS  , 1 , N ,  16000 ,  11989 ,     0 , J , 19198
HAWK   , RR ADOUR MK151                        NM ,  MIL , S , M , J , 0 , ADOUR  , 1 , N ,  12000 ,   7447 ,     0 , J ,  5350
HS748  , RR DART RDA7 MK 536-2                 NM ,  MIL , L , M , J , 0 , DART   , 2 , N ,      0 ,  46486 ,     0 , J ,     0
HS748A , HS748/DART MK532-2                       ,  COM , L , C , T , 2 , RDA532 , 2 , N ,  46500 ,  43000 ,  3360 , P ,  5150
HUNTER , RR AVON RA28                          NM ,  MIL , L , M , J , 0 , RA28   , 1 , N ,  23990 ,  13809 ,     0 , J ,  9913
IA1125 , ASTRA 1125/TFE731-3A                     ,  GA , L , G , J , 3 , TF7313 , 2 , N ,  23500 ,  20700 ,  3689 , J ,  3700
JAGUAR , SEPECAT JAGUAR                        NM ,  MIL , L , M , J , 0 , JAGUA  , 2 , N ,  34100 ,      0 ,     0 , J ,     0
KC-135 , BOEING STRATOTANKER KC135R F108-CF100 NM ,  MIL , H , M , J , 0 , F108CF , 4 , N , 323000 ,      0 ,     0 , J , 22000
KC10A  , CFG-50C2                              NM ,  MIL , H , M , J , 0 , CFG50C , 3 , N , 590000 , 403000 ,  5350 , J , 53000
KC135  , KC135A/J57-P-59W                         ,  MIL , H , M , J , 0 , J57    , 4 , N , 300000 , 228000 ,  6689 , J , 11750
KC135B , KC135B/JT3D-7                            ,  MIL , H , M , J , 0 , JT3D   , 4 , N , 300000 , 228000 ,  6689 , J , 19000
KC135R , KC135R/CFM56-2B-1                        ,  MIL , H , M , J , 0 , CFM56A , 4 , N , 324000 , 244000 ,  6556 , J , 22000
KC97L  , BOEING STRATOFREIGHTER PW R-436-59B   NM ,  MIL , L , M , P , 0 , R43659 , 4 , N ,      0 ,      0 ,     0 , P ,  2570
L1011  , L1011/RB211-22B                          ,  COM , H , C , J , 3 , RB2112 , 3 , N , 430000 , 358000 ,  5693 , J , 42000
L10115 , L1011-500/RB211-224B                     ,  COM , H , C , J , 3 , RB2112 , 3 , N , 510000 , 368000 ,  6800 , J , 50000
L188   , L188C/ALL 501-D13                         ,  COM , L , C , T , 0 , T56A7  , 4 , N , 116000 ,  98100 ,  4960 , P ,  8000
LEAR25 , LEAR 25/CJ610-8                          ,  GA , L , G , J , 2 , CJ610  , 2 , N ,  15000 ,  13500 ,  2620 , J ,  2950
LEAR35 , LEAR 36/TFE731-2                         ,  GA , L , G , J , 3 , TF7312 , 2 , N ,  18300 ,  15300 ,  3076 , J ,  3500
LIGHTN , RR AVON 302C                          NM ,  MIL , L , M , J , 0 , 302C   , 2 , N ,  41876 ,      0 ,  2880 , J , 13218
MD11GE , MD-11/CF6-80C2D1F                        ,  COM , H , C , J , 3 , 2CF68D , 3 , N , 682400 , 433300 ,  5131 , J , 61500
MD11PW , MD-11/PW 4460                            ,  COM , H , C , J , 3 , PW4460 , 3 , N , 682400 , 433300 ,  4681 , J , 60000
MD81   , MD-81/JT8D-209                           ,  COM , L , C , J , 3 , 2JT8D2 , 2 , N , 140000 , 128000 ,  4860 , J , 19300
MD82   , MD-82/JT8D-217A                          ,  COM , L , C , J , 3 , 2JT8D2 , 2 , N , 149500 , 130000 ,  4920 , J , 20900
MD83   , MD-83/JT8D-219                           ,  COM , L , C , J , 3 , 2JT8D2 , 2 , N , 160000 , 139500 ,  5200 , J , 21700
MD9025 , MD-90/V2525-D5                           ,  COM , L , C , J , 3 , V2525  , 2 , Y , 156000 , 142000 ,  3000 , J , 25000
MD9028 , MD-90/V2528-D5                           ,  COM , L , C , J , 3 , V2525  , 2 , Y , 156000 , 142000 ,  3000 , J , 28000
MU3001 , MU300-10/JT15D-4                         ,  GA , L , G , J , 3 , JT15D5 , 2 , N ,  14100 ,  13200 ,  2800 , J ,  2500
NIMROD , RR SPEY MK511                         NM ,  MIL , L , M , J , 0 , SPEY   , 4 , N , 191748 ,      0 ,     0 , J , 10947
OV10A  , ROCKWELL BRONCO T76                   NM ,  MIL , L , M , T , 0 , T76    , 2 , N ,  14466 ,  10721 ,     0 , J ,   715
P3A    , LOCKHEED ORION T56-A-14               NM ,  MIL , L , M , T , 0 , T56A14 , 4 , N , 142000 , 104000 ,     0 , J ,  4910
PHANTO , MCDONNELL DOUGLAS PHANTOM F-4         NM ,  MIL , L , M , J , 0 , PHANTO , 2 , N ,      0 ,      0 ,     0 , J ,     0
PROVOS , BRISTON SIDDELEY VIPER 11             NM ,  MIL , S , M , J , 0 , VIP11  , 1 , N ,   7295 ,   4654 ,     0 , J ,  2454
S3A&B  , LOCKHEED VIKING TF34-6E-2             NM ,  MIL , L , M , J , 0 , TF346E , 2 , N ,  52539 ,  45914 ,  1600 , J ,  9275
SABR80 , NA SABRELINER 80                         ,  GA , L , G , J , 2 , CF700  , 2 , N ,  33720 ,  27290 ,  2490 , J ,  3962
SD330  , SD330/PT6A-45AR                          ,  COM , L , C , T , 3 , PT6A45 , 2 , N ,  22900 ,  22600 ,  3650 , P ,  2670
SF340  , SF340B/CT7-9B                            ,  COM , L , C , T , 3 , CT75   , 2 , N ,  27300 ,  26500 ,  3470 , P ,  4067
SR71   , JT11D-20B                             NM ,  MIL , L , M , J , 0 , JT11D2 , 2 , N , 170000 ,  60000 ,  2600 , J , 32500
T-2C   , ROCKWELL BUCKEYE J85-6E-4             NM ,  MIL , L , M , J , 0 , J856E4 , 2 , N ,  13284 ,  12646 ,     0 , J ,  2950
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  T-38A  , NORTHRUP TALON T-38A                 NM , MIL , S , M , J , 0 , TJ85   , 2 , N ,  12093 ,      0 ,     0 , J ,  3850
  T-43A  , BOEING 737 T43A                      NM , MIL , L , M , J , 0 , T-43A  , 2 , N ,      0 ,      0 ,     0 , J ,     0
  T1     , LOCKHEED SEA STAR JT15D-5            NM , MIL , L , M , J , 0 , JT15DM , 1 , N ,  16100 ,  15700 ,     0 , J ,  2965
  T29    , GENERAL DYNAMICS CV34 PW R-2800-99W  NM , MIL , L , M , P , 0 , T-29   , 2 , N ,  41740 ,      0 ,     0 , P ,     0
  T3     , AEIO-540-D4A5                        NM , MIL , S , M , J , 0 , AEIO54 , 1 , N ,   2525 ,   2738 ,     0 , J ,   260
  T33A   , LOCKHEED T-33A J33-35                NM , MIL , L , M , J , 0 , J3335  , 2 , N ,      0 ,      0 ,     0 , J ,  5203
  T34    , BEECH MENTOR (BE45) PT6A-25          NM , MIL , S , M , P , 0 , PT6A25 , 1 , N ,   4300 ,   4300 ,     0 , P ,   715
  T37B   , CESSNA 318 J69-T-25                  NM , MIL , S , M , J , 0 , J69T25 , 2 , N ,   6625 ,      0 ,     0 , J ,  1025
  T39A   , ROCKWELL SABRELINER GEJ85            NM , MIL , L , M , J , 0 , GEJ85  , 2 , N ,      0 ,      0 ,     0 , J ,     0
  T41    , CESSNA 172 O-320-E2D                 NM , MIL , S , M , P , 0 , O320E2 , 1 , N ,      0 ,      0 ,     0 , P ,   110
  T42    , BEECH BARON (BE55)                   NM , MIL , S , M , P , 0 , IO-550 , 2 , N ,   5500 ,   5400 ,  2450 , P ,   300
  T44    , T44                                  NM , MIL , L , M , J , 0 , T-44   , 2 , N ,      0 ,      0 ,     0 , J ,     0
  T45    , PT6A-45AG                            NM , MIL , L , M , J , 0 , F405RR , 2 , N ,  14081 ,  15129 ,     0 , J ,  5450
  TORNAD , RB199-34R                            NM , MIL , L , M , J , 0 , RB1993 , 2 , N ,  45000 ,  30620 ,  1215 , J , 16075
  TR1    , J75-P-13B                            NM , MIL , L , M , J , 0 , J75P1B , 1 , N ,  40000 ,      0 ,     0 , J , 17000
  U2     , LOCKHEED U2 J75-P-13                 NM , MIL , L , M , J , 0 , J75P13 , 1 , N ,  40000 ,  10000 ,     0 , J , 11000
  U21    , BEECH UTE PW PT6A-20                 NM , MIL , S , M , T , 0 , PT6A20 , 2 , N ,  12500 ,  12500 ,  1760 , P ,   850
  U4B    , ROCKWELL SUPER COMMANDER 1G0-540B1A  NM , MIL , S , M , P , 0 , 540B1A , 2 , N ,      0 ,      0 ,     0 , P ,   350
  U6     , DEHAVILLAND BEAVER PW R-985 DHC-2    NM , MIL , S , M , P , 0 , R985   , 1 , N ,      0 ,      0 ,     0 , P ,   330
  U8F    , BEECH SEMINOLE 0-480-1 D50           NM , MIL , S , M , P , 0 , C480   , 2 , N ,      0 ,      0 ,     0 , P ,   254
  VC10   , RR CONWAY RC0-42                     NM , MIL , H , M , J , 0 , CONWY  , 4 , N , 311912 , 147875 ,     0 , J , 20996
  VICTOR , BRITISH AEROSPACE VICTOR             NM , MIL , L , M , J , 0 , VICTO  , 4 , N ,      0 ,      0 ,     0 , J ,     0
  VULCAN , BRITTEN NORMAN VULCAN RR OLYMPUS 301 NM , MIL , H , M , J , 0 , RROLYM , 4 , N , 200564 ,      0 ,     0 , J , 20007
  YC14   , GE CF6-50D                           NM , MIL , L , M , J , 0 , CF650D , 2 , N , 237000 , 181000 ,     0 , J , 51000
  YC15   , PWJT8D-17                            NM , MIL , L , M , J , 0 , JT8D17 , 4 , N ,      0 ,      0 ,     0 , J , 16000
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Last update: 3-Dec-1996
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 2  SUB_DESCR    C  40
 3  ACFT_ID1     C   6
 4  PERCENT1     N   5.1
 5  ACFT_ID2     C   6
 6  PERCENT2     N   5.1
 7  ACFT_ID3     C   6
 8  PERCENT3     N   5.1
 9  ACFT_ID4     C   6
10  PERCENT4     N   5.1
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11  ACFT_ID5     C   6
12  PERCENT5     N   5.1
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  7073SH , 707-300 ADV/C w/Shannon H/K            , 707QN  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  707C56 , 707 w/CFM56                            , DC870  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  720TJ  , B720 Turbojet                          , DC820  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  727RR1 , 727-100 with RR TAY 650 eng.           , 727EM1 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  727RR2 , 727-200 with RR TAY 650 eng.           , 727EM2 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  73717A , 737-100 w/JT8D-7A                      , 737QN  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  737215 , 737-200 ADV w/JT15QN                   , 737D17 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  7373C1 , 737-300 w/CFM56-3C1                    , 7373B2 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  7375B2 , 737-500 w/CFM56-3B2                    , 7373B2 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  7375C1 , 737-500 w/CFM56-3C1                    , 7373B2 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  737700 , Boeing 737-700                         , 737400 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  737800 , Boeing 737-800                         , 737400 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  7472G2 , 747-200 w/JT9D-7R4G2                   , 747200 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  7473G2 , 747-300 w/JT9D-7R4G2                   , 74720B , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  747R21 , 747 w/CF6 or RB211 engines             , 74720B , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  777    , Boeing 777                             , 767JT9 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  A10    , USAF Thunderbolt II                    , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  A330   , Airbus A330                            , A310   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
  0.0
  A340   , Airbus A340                            , DC870  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
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A4     , US Navy Skyhawk (All Series)             , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
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A7     , US Military Corsair II (All Series)      , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
AA5A   , Grumman Cheetah (AA5A)                   , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
AC50   , Commander 500                            , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
AC56   , Commander 560                            , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
AC69   , Jet Prop Commander                       , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
AC95   , Aero Commander 695                       , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
AEROJT , Aero Commander Jet Commander             , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
AN124  , Antonov-124                              , 74720B , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
AN26   , Antonov-26                               , CVR580 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
AN74TK , Antonov-74                               , DC9Q9  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
ATR42  , Avions de Transport Regional ATR-42      , DHC8   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
ATR72  , Avions de Transport Regional ATR-72      , HS748A , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BAEATP , British Aerospace Advanced Turboprop ATP , HS748A , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BAEJ31 , British Aerospace BAe Jetsream 31        , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BAEJ41 , British Aerospace BAe Jetstream 41       , SF340  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC100 , Beech King Air 100                       , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC18  , Beechcraft Model 18                      , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC190 , Beech 1900                               , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC200 , Beech Super King Air 200                 , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC23  , Beechcraft Model 23 Musketeer            , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
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BEC24  , Beechcraft Model 24 Sierra               , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC300 , Beech Super King Air 300                 , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC30B , Beech Super King Air 300B                , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC33  , Beechcraft Model 33 Debonair/Bonanza     , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC400 , Beechcraft Beechjet 400                  , LEAR35 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC45  , Beechcraft Model 45 Mentor (T34A & T34B) , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC50  , Beechcraft Model 50 Twin Bonanza         , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC55  , Beechcraft Model 55 Barron               , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC58  , Beechcraft Model 58 Barron               , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC60  , Beechcraft Model 60 Duke                 , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC65  , Beechcraft Model 65 Queen Air            , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC76  , Beechcraft Model 76 Duchess              , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC80  , Beechcraft Model Queen Air 80 series     , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC90  , Beech King Air C90                       , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC95  , Beechcraft Model 95 Travel Air           , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC99  , Beech Airliner Model 99                  , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BEC9F  , Beech F90 Super King Air                 , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BECM35 , Beechcraft Model M35 Bonanza             , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BL14   , Bellanca Cruisair                        , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BL26   , Bellanca Super Viking Model 17-30A       , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BLCH10 , Bellanca Champion Citabria CH10          , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
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BN2A   , Britten-Norman BN-2A Islander          , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
BN3    , Britten-Norman BN-3 Nymph              , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
C141   , Lockheed C-141 Starlifter             , 707320 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
C17A   , Globemaster III C-17                   , DC870  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
C20    , US Military Gulfstream III             , GIIB   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
C20A   , US Military Gulfstream III             , GIIB   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
C26    , Military Metro/Merlin                  , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
C45    , Military Twin beech 18                 , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
C5     , Lockheed Galaxy                        , 74720B , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
C8     , US Army DHC-5 Buffalo                  , HS748A , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
C9B    , Navy DC9-30 SkyTrain                   , DC9Q9  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CA212  , CASA C-212 Aviocar                     , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CAN235 , CACA-Nurtanio CN-235 Airtech           , SF340  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CC138  , Canadian Air Force DHC-6 Twin Otter    , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CL610  , Canadair CL-610 Challenger E           , CL601  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CLREGJ , Canadair Regional Jet                  , CL601  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA150 , Cessna 150                             , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA152 , Cessna 152                             , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA170 , Cessna 170                             , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA172 , Cessna 172 Skyhawk                     , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA177 , Cessna 177 Cardinal                    , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
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CNA180 , Cessna Skywagon                    , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA182 , Cessna 182 Skylane                 , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA185 , Cessna Skywagon                    , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA205 , Cessna 205 Super Skywagon          , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA207 , Cessna 207 Turbo Stationair        , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA208 , Cessna 208 Caravan I               , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA210 , Cessna 210 Centurion/II            , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA300 , Cessna 300                         , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA303 , Cessna 303 Crusader                , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA310 , Cessna 310                         , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA320 , Cessna 320 Skynight                , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA335 , Cessna 335                         , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA336 , Cessna 336 Skymaster               , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA337 , Cessna 337 Super Skymaster         , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA340 , Cessna 340                         , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA401 , Cessna 401                         , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA402 , Cessna 402                         , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA404 , Cessna 404 Titan                   , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA414 , Cessna 414 Chancellor              , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA421 , Cessna 421 Golden Eagle            , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA425 , Cessna 425 Corsair/Conquest I      , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
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CNA501 , Cessna Citation I Single Pilot (SP)      , CNA500 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA550 , Cessna Model 550 Citation II             , MU3001 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA551 , Cessna Citation II Single Pilot (SP)     , MU3001 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA560 , Cessna 560 Citation V                    , MU3001 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNA650 , Cessna 650 Citation VII                  , CIT3   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNACAR , Cessna AGCARRYALL                        , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNATRK , Cessna AGTRUCK                           , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNAWAG , Cessna AGWAGON                           , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNV600 , Convair 600                              , HS748A , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNV640 , Convair 640                              , HS748A , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNV880 , Convair 880                              , DC820  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CNV990 , Convair 990                              , 707    ,  50.0 , 720    ,  50.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
CONSTE , Lockheed Constellation                   , DC6    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
DBMERC , Dassualt Mercure                         , 737D17 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
DC4    , Douglas DC-4                             , DC6    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
DC7    , Douglas DC-7                             , DC6    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
DC86BT , DC8-62/63  w/Burbank Treatment           , DC8QN  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
DC9317 , DC930 w/JT8D-17 &15                      , DC9Q9  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
DC937A , DC930 w/JT8D-7 & 7A                      , DC9Q9  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
DC9411 , DC940 w/JT8D-11                          , DC9Q9  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
DHC2   , De Havilland DHC-2 Beaver                , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
```

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DHC4   , De Havilland DHC-4 Caribou               , DC3    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
DO228  , Dornier-228                              , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
DO328  , Dornier-328                              , DHC8   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
EA6    , US Navy EA-6 Intruder (Electronic)       , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
EMB110 , Embraer Bandeirante 110                  , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
EMB120 , Embraer Bandeirante 120                  , DHC8   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
F10    , Douglas Skyknight                        , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
F100   , USAF Super Sabre                         , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
F14    , US Navy F-14 Tomcat                      , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
F18    , US Navy F-18 Hornet                      , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
F90    , Beech Super King Air                     , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
FAL10  , Falcon 10                                , LEAR35 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
FAL200 , Falcon 200                               , LEAR35 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
FH227  , Fairchild-Hiller F-227 (Fokker 27 Elong) , HS748A , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
FH27   , Fairchild-Hiller F-27 (Fokker 27)        , HS748A , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
FK27   , Fokker F.27                              , HS748A , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
FK50   , Fokker 50                                , DHC830 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
FK70   , Fokker 70                                , F10062 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
G164AG , GrummanAmerican Super Agcat              , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
GA7    , Grumman Cougar (GA7)                     , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
GC1    , Vought Swift                             , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
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GROB15 , Burkhart Grob G 115                       , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
GULF1  , Gulfstream I (G159)                       , HS748A , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
GULF2  , Gulfstream II (Noise Stage 1 Aircraft)    , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
GULF3  , Gulfstream III                            , GIIB   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
GULFCO , Gulfstream Commander                      , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
HS125  , Hawker-Siddeley 125                       , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
HS1258 , BAe (Hawker-Siddeley) 125-800             , LEAR35 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
IA1123 , IAI 1123 Westwind                         , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
IA1124 , IAI 1124 Westwind                         , IA1125 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
IARAVA , IAI Arava                                 , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
IL114  , Ilyushin-114                              , CVR580 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
IL62   , Ilyushin-62                               , 707QN  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
IL76   , Ilyushin-76                               , DC8QN  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
IL86   , Ilyushin-86                               , DC8QN  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
IL96   , Illyushin-96                              , 747200 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
JST1TF , Jetstar 1 Turbofan                        , LEAR35 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
JST1TJ , Jetstar 1 Turbojet                        , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
JST2TF , Lockheed Jetstar 2                        , LEAR35 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
KC135E , Boeing KC135 Stratotanker (Re-engined)    , 707320 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
LA42   , Lake LA-4-200 Buccaneer                   , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
LEAR23 , Learjet 23                                , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
```

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LEAR24 , Learjet 24                          , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
LEAR31 , Learjet 31                          , LEAR35 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
LEAR36 , Learjet 36                          , LEAR35 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
LEAR55 , Learjet 55                          , LEAR35 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
M20J   , Mooney 201LM and 205  (M20J)        , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
M20K   , Mooney 252TSE (M20K)                , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
M20L   , Mooney Pegasus (M20L)               , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
MB339C , Aermacchi M.B. 339-C                , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
MD80   , McDonnell-Douglas  MD80             , MD81   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
MD87   , McDonnell-Douglas  MD87             , MD81   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
MD88   , McDonnell-Douglas  MD88             , MD83   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
MD8819 , MD88 w/JT8D-119                     , MD81   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
MD90   , McDonnell-Douglas  MD90             , MD83   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
MD95   , McDonnell Douglas MD-95             , MD81   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
MU2    , Mitsubishi MU-2                     , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
MU300  , Mitsubishi Diamond MU-300           , CNA500 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
N24    , Gov. Aircraft Factories N24         , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
NRD262 , Nord-Aviation NORD-262              , SD330  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
OV1    , Grumman Mohawk OV-1                 , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
P3     , US Navy Lockheed Orion              , L188   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA17   , Piper PA-17 Vagabond                , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
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PA18   , Piper PA-18 Super Cub                  , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA22CO , Piper PA-22 Colt                       , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA22TR , Piper PA-22 Tripacer                   , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA23AP , Piper PA-23-235 Apache                 , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA23AZ , Piper PA-23 Aztec                      , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA24   , Piper PA-24 Comanche                   , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA25   , Piper PA-25 Pawnee                     , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA28AR , Piper PA-28-181 Archer II              , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA28C2 , Piper PA-28-235E Cherokee 235E         , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA28CA , Piper PA-28R-200 Cherokee Arrow II     , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA28CC , Piper PA-28-180 Cherokee Challenger    , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA28CH , Piper PA-28-140 Cherokee 140           , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA28DK , Piper PA-28-236 Dakota                 , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA28WA , Piper PA-28-161 Warrior II             , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA30   , Piper PA-30 Twin Comanche              , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA31   , Piper PA-31 Navajo                     , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA31CH , Piper PA-31-350 Chieftain              , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA31T  , Piper PA-31T Cheyenne                  , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA32C6 , Piper PA-32 Cherokee Six               , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA32LA , Piper PA-32R-300 Lance                 , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA32SG , Piper PA-32 Saratoga                   , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
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PA34   , Piper PA-34 Seneca                        , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
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PA36   , Piper 36 Brave                            , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA38   , Piper PA-38-112 Tomahawk                  , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA39   , Piper PA-39 Twin Comanche C/R             , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA42   , Piper PA-42 Cheyenne III                  , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA44   , Piper 44 Seminole                         , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA46   , Piper PA-46 Malibu                        , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA60   , Piper Aerostar Model 600/700              , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PA61   , Piper PA-61 Aerostar Model 601            , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
PC6    , Pilatus PC-6                              , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
RJ70   , RJ70                                      , BAE146 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
RWCM12 , Rockwell Commander 112 (Alpine)           , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
RWCM14 , Rockwell Commander 114 (Gram Turismo)     , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
RWCM50 , Rockwell Shrike Commander 500S            , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
RWCM69 , Rockwell Turbo Commander 690              , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
RWCMTH , Rockwell Thrust Commander (SR2)           , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
S212   , Siai Marchetti S212                       , CNA500 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
S3     , US Navy Viking (Lockheed)                 , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SA226  , Swearingen Metro II                       , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SA227  , Swearingen Metro III                      , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SAAB20 , SAAB 2000                                 , HS748A , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
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SABR40 , Sabreliner 40                          , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SABR60 , Sabreliner 60                          , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SABR65 , Sabreliner 65                          , LEAR35 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SABR70 , Sabreliner 70                          , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SABR75 , Sabreliner 75                          , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SAMER2 , Swearingen Merlin II                   , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SAMER3 , Swearingen Merlin III                  , CNA441 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SAMER4 , Swearingen Merlin IV                   , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SD360  , Shorts 360                             , SD330  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SE210  , Aerospatiale Caravelle                 , 737    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SF260M , Siai Marchetti SF260M                  , GASEPV , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
SN600  , Aerospatiale SN 600 Corvette           , CNA500 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
T2     , US Navy North American Buckeye         , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
T2C    , US Navy T-2C Buckeye                   , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
T33    , USAF Lockheed Shooting Star (Trainer)  , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
T37    , USAF Cessna T37 or 318                 , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
T38    , USAF Northrop T38                      , LEAR25 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
T43A   , USAF 737-200                           , 737    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
T47A   , US Navy Cessna Citation S/II           , CNA500 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
TA4    , US Navy Skyhawk (two seat trainer)     , A7D    , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
TAYF19 , Taylorcraft Sportsman 100 (F19)        , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
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TED600 , Ted Smith Aerostar 600                , GASEPF , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
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TU134  , Tupolev-134                           , 737QN  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
TU154  , Tupolev-154                           , 727D17 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
TU204  , Tupolev-204                           , 757RR  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
TU334  , Tuploev-334                           , F10065 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
U3     , USAF Cessna Model 310                 , BEC58P , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
UV18   , US Military DHC-6 Twin Otter          , DHC6   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
VC10TF , Vickers VC10 TurboFan                 , 707    ,  50.0 , 720    ,  50.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
VC10TJ , Vickers VC10 TurboJet                 , DC820  , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
VC2    , Vickers VC2 Viscount                  , L188   , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
YAK42  , Yakolev Yak-42                        , 727100 , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
YS11   , Nihon Aeroplane (NAMC) YS-11          , HS748A , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
0.0
YS11C  , Nihon Aeroplane (NAMC) YS-11 Cargo    , HS748A , 100.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,   0.0 , -NONE- ,
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Last update: 28-Jul-1996
Fields(3):
 1  NOISE_ID     C   6
 2  THRSET_TYP   C   1
 3  MODEL_TYPE   C   1
Records(175):
  2CF650 , L , I
  2CF680 , L , I
  2CF68D , L , I
  2JT8D  , L , I
  2JT8D2 , L , I
  2JT8DQ , L , I
  2R2800 , P , I
  302C   , P , N
  3JT8D  , L , I
  3JT8DQ , L , I
  3JT8E5 , L , I
  3JT8E7 , L , I
  4R2800 , P , I
  501D13 , P , I
  540B1A , X , N
  ADOUR  , P , N
  AEIO54 , P , N
  AGE100 , X , N
  AL502L , L , I
  AL502R , L , I
  AV-8A  , P , N
  AVON   , P , N
  B-52H  , L , N
  C-119  , X , N
  C-121  , X , N
  C-130A , X , N
  C-130H , X , N
  C480   , P , N
  CF34   , L , I
  CF650D , X , N
  CF650E , L , N
  CF66D  , L , I
  CF700  , L , I
  CFG50C , X , N
  CFM562 , L , I
  CFM563 , L , I
  CFM565 , L , I
  CFM56A , L , I
  CGAJ   , P , I
  CGASEP , P , I
  CJ610  , L , I
  CONWY  , P , N
  CT75   , P , I
  DART   , P , N
  F108CF , X , N
  F111D  , X , N
  F111F  , X , N
  F405RR , L , N
  FB111A , X , N
  GE-10  , P , N
  GE-102 , P , N
  GE-110 , X , N
  GE-13  , P , N
  GE-8   , P , N
  GE100  , X , N
  GE11A  , P , N
  GE21B  , P , N
  GE400  , X , N
  GE404  , X , N
  GEF1D2 , P , N
  GEJ85  , P , N
  IO-550 , P , N
  J3335  , P , N
  J52P8A , X , N
  J52P8B , P , N
  J57    , L , I
  J5759  , P , N
  J5759W , P , N
  J57P17 , P , N
  J57P19 , P , N
  J57P20 , P , N
  J57P21 , P , N
  J57P23 , X , N
  J57P43 , P , N
  J57P5  , P , N
  J57P55 , X , N
  J69T25 , P , N
  J75P13 , P , N
  J75P19 , X , N
  J75P1B , P , N
  J79    , L , I
  J79651 , P , N
  J8517A , P , N
  J856E4 , P , N
  JAGUA  , P , N
  JT11D2 , X , N
  JT15D1 , L , I
  JT15D5 , L , I
  JT15DM , X , N
  JT3D   , L , I
  JT3D3  , E , N
  JT3D3B , P , N
  JT3DQ  , L , I
  JT4111 , E , N
  JT4A   , L , I
  JT8D17 , E , N
  JT8D9  , E , N
  JT9D7Q , L , I
  JT9DBD , L , I
  JT9DFL , L , I
  MK6118 , L , N
  O320E2 , P , N
  OLY593 , L , I
  P4A    , P , N
  PEGAS  , P , N
  PHANTO , P , N
  PT6A20 , P , N
  PT6A25 , P , N
  PT6A27 , P , I
  PT6A41 , P , N
  PT6A45 , P , I
  PT6A50 , P , I
  PT6R65 , P , N
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PW-100 , L , N
PW100  , X , N
PW100A , E , N
PW120  , P , I
PW123  , X , N
PW200  , X , N
PW2037 , L , I
PW220  , X , N
PW2205 , X , N
PW229  , X , N
PW2295 , X , N
PW4056 , L , I
PW4460 , L , I
R2800  , X , N
R43659 , X , N
R985   , P , N
R99W   , X , N
RA28   , P , N
RB168  , P , N
RB183  , L , I
RB183P , L , I
RB1993 , P , N
RB2112 , L , I
RCB17  , X , N
RDA532 , P , I
RR-408 , P , N
RR535E , L , I
RROLYM , P , N
SEPFP  , P , I
SEPVP  , P , I
SP5118 , L , I
SPEY   , P , N
T-29   , X , N
T-43A  , E , N
T-44   , P , N
T56-15 , X , N
T56A14 , X , N
T56A15 , P , I
T56A7  , P , I
T76    , P , N
TAY620 , L , I
TAY650 , L , I
TAY651 , L , I
TF30P1 , X , N
TF30P4 , X , N
TF33P7 , X , N
TF346E , X , N
TF39GE , X , N
TF41   , L , I
TF41A2 , X , N
TF7312 , L , I
TF7313 , L , I
TFE731 , P , N
TFE73B , X , N
TJ85   , P , N
TPE331 , P , I
TRS181 , E , N
TSIO52 , P , I
V2525  , L , I
VICTO  , P , N
VIP11  , P , N
VIPER  , P , N
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Last update: 9-Sep-1996
Fields(14):
 1  NOISE_ID     C   6
 2  NOISE_TYPE   C   1
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 4  CURVE_TYPE   C   1
 5  L_200        N   5.1
 6  L_400        N   5.1
 7  L_630        N   5.1
 8  L_1000       N   5.1
 9  L_2000       N   5.1
10  L_4000       N   5.1
11  L_6300       N   5.1
12  L_10000      N   5.1
13  L_16000      N   5.1
14  L_25000      N   5.1
Records(2087):
  2CF650 , E , 10000.00 , N , 106.2 , 101.1 ,  97.2 ,  92.5 ,  84.2 ,  75.0 ,  68.0 ,  61.4 ,  53.4 ,  43.3
  2CF650 , E , 25000.00 , N , 109.8 , 105.1 , 101.5 ,  97.3 ,  90.3 ,  82.0 ,  76.0 ,  70.0 ,  62.7 ,  53.9
  2CF650 , E , 40000.00 , N , 113.0 , 108.6 , 105.2 , 101.5 ,  95.6 ,  88.2 ,  83.1 ,  77.5 ,  70.8 ,  63.3
  2CF650 , M , 10000.00 , N ,  99.2 ,  91.9 ,  86.7 ,  81.0 ,  72.1 ,  63.0 ,  56.7 ,  49.6 ,  41.6 ,  33.1
  2CF650 , M , 25000.00 , N , 105.3 ,  98.3 ,  93.4 ,  88.0 ,  79.5 ,  70.5 ,  64.3 ,  57.4 ,  49.7 ,  41.5
  2CF650 , M , 40000.00 , N , 109.1 , 102.3 ,  97.6 ,  92.5 ,  84.3 ,  75.4 ,  69.3 ,  62.6 ,  55.1 ,  47.2
  2CF650 , S , 10000.00 , N ,  99.9 ,  95.0 ,  91.4 ,  87.5 ,  81.3 ,  74.6 ,  69.7 ,  64.2 ,  57.7 ,  50.7
  2CF650 , S , 25000.00 , N , 103.7 ,  99.3 ,  96.1 ,  92.7 ,  87.1 ,  80.6 ,  75.8 ,  70.5 ,  64.3 ,  57.5
  2CF650 , S , 40000.00 , N , 106.8 , 102.9 , 100.1 ,  97.1 ,  92.0 ,  85.8 ,  81.0 ,  75.9 ,  69.9 ,  63.4
  2CF680 , E ,  7000.00 , N , 104.4 ,  99.5 ,  95.8 ,  91.6 ,  84.1 ,  76.3 ,  71.1 ,  65.8 ,  60.3 ,  55.1
  2CF680 , E , 12000.00 , N , 106.5 , 101.5 ,  97.7 ,  93.5 ,  85.7 ,  78.1 ,  73.0 ,  67.9 ,  62.6 ,  57.6
  2CF680 , E , 17000.00 , N , 107.1 , 102.5 ,  99.1 ,  94.5 ,  86.9 ,  79.5 ,  75.3 ,  69.5 ,  64.0 ,  58.4
  2CF680 , E , 25000.00 , N , 107.4 , 102.9 ,  99.5 ,  95.9 ,  89.2 ,  82.2 ,  77.4 ,  71.8 ,  65.9 ,  59.8
  2CF680 , E , 33000.00 , N , 107.7 , 103.7 , 100.7 ,  97.1 ,  91.8 ,  85.5 ,  80.7 ,  75.2 ,  69.0 ,  62.6
  2CF680 , E , 41000.00 , N , 111.6 , 107.8 , 105.0 , 102.1 ,  96.9 ,  90.6 ,  85.8 ,  80.3 ,  74.1 ,  67.7
  2CF680 , S ,  7000.00 , N ,  98.1 ,  93.9 ,  90.8 ,  87.4 ,  81.4 ,  75.0 ,  70.3 ,  65.7 ,  60.6 ,  55.7
  2CF680 , S , 12000.00 , N ,  99.3 ,  95.0 ,  91.9 ,  88.5 ,  82.5 ,  76.2 ,  71.7 ,  67.2 ,  62.3 ,  57.6
  2CF680 , S , 17000.00 , N , 100.0 ,  95.6 ,  92.6 ,  89.3 ,  83.7 ,  77.6 ,  73.1 ,  68.5 ,  63.4 ,  58.4
  2CF680 , S , 25000.00 , N , 100.3 ,  96.7 ,  93.9 ,  90.9 ,  85.9 ,  79.8 ,  75.4 ,  70.5 ,  65.2 ,  59.8
  2CF680 , S , 33000.00 , N , 103.3 ,  99.9 ,  97.3 ,  94.5 ,  89.7 ,  83.6 ,  79.2 ,  74.3 ,  69.0 ,  63.5
  2CF680 , S , 41000.00 , N , 106.2 , 103.1 , 100.8 ,  98.2 ,  93.6 ,  87.6 ,  83.1 ,  78.1 ,  72.5 ,  66.8
  2CF68D , E , 10020.00 , N , 101.6 ,  97.0 ,  93.0 ,  89.0 ,  82.1 ,  75.5 ,  70.1 ,  64.3 ,  58.1 ,  52.3
  2CF68D , E , 23190.00 , N , 110.9 , 106.0 , 102.2 ,  98.7 ,  90.1 ,  81.7 ,  75.7 ,  69.3 ,  62.5 ,  55.9
  2CF68D , E , 25940.00 , N , 110.7 , 104.2 , 100.2 ,  96.2 ,  89.5 ,  81.2 ,  75.2 ,  68.4 ,  61.2 ,  54.2
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2CF68D , E , 39180.00 , N , 112.2 , 106.7 , 103.2 ,  99.5 ,  93.2 ,  86.2 ,  80.7 ,  74.2 ,  67.2 ,  60.2
2CF68D , E , 51530.00 , N , 114.7 , 110.2 , 107.2 , 104.2 ,  98.7 ,  92.4 ,  88.0 ,  82.0 ,  75.2 ,  68.5
2CF68D , E , 55500.00 , N , 117.2 , 112.7 , 110.0 , 107.2 , 101.8 ,  96.2 ,  91.7 ,  86.7 ,  80.2 ,  73.7
2CF68D , S , 10020.00 , N ,  99.5 ,  95.1 ,  91.4 ,  88.3 ,  82.5 ,  76.3 ,  71.9 ,  66.6 ,  61.3 ,  56.3
2CF68D , S , 23190.00 , N , 105.1 , 100.6 ,  97.1 ,  93.7 ,  87.0 ,  80.1 ,  75.1 ,  69.5 ,  64.0 ,  58.4
2CF68D , S , 25940.00 , N , 103.7 ,  98.7 ,  95.4 ,  92.2 ,  87.0 ,  80.7 ,  76.0 ,  70.2 ,  64.0 ,  55.2
2CF68D , S , 39180.00 , N , 106.0 , 101.7 ,  98.7 ,  96.2 ,  91.2 ,  85.2 ,  80.2 ,  75.0 ,  68.7 ,  60.2
2CF68D , S , 51530.00 , N , 110.2 , 106.2 , 103.4 , 100.7 ,  96.2 ,  90.7 ,  86.2 ,  81.2 ,  75.2 ,  67.2
2CF68D , S , 55500.00 , N , 113.2 , 109.2 , 106.4 , 103.7 ,  98.2 ,  94.2 ,  89.7 ,  85.2 ,  79.2 ,  72.0
2JT8D  , E ,  3000.00 , N , 107.0 , 102.4 ,  98.7 ,  94.4 ,  87.0 ,  78.6 ,  73.0 ,  66.4 ,  59.0 ,  49.4
2JT8D  , E ,  6000.00 , N , 110.3 , 105.8 , 102.1 ,  97.9 ,  91.0 ,  83.0 ,  77.3 ,  71.0 ,  63.3 ,  54.1
2JT8D  , E ,  8000.00 , N , 112.9 , 108.4 , 104.7 , 100.9 ,  94.0 ,  86.2 ,  80.6 ,  74.7 ,  67.6 ,  59.3
2JT8D  , E , 10000.00 , N , 115.7 , 111.5 , 108.0 , 104.3 ,  98.0 ,  90.8 ,  85.9 ,  80.3 ,  73.8 ,  66.1
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File:D:\inm51\sys_data\profile.dbf
Last update: 24-Sep-1996
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 1  ACFT_ID      C   6
 2  OP_TYPE      C   1
 3  PROF_ID1     C   1
 4  PROF_ID2     C   1
 5  WEIGHT       N   6.0
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  707    , A , S , 1 , 170000
  707    , D , S , 1 , 175000
  707    , D , S , 2 , 185000
  707    , D , S , 3 , 200000
  707    , D , S , 4 , 220000
  707    , D , S , 5 , 245000
  707    , D , S , 6 , 257000
  707120 , A , S , 1 , 170000
  707120 , D , S , 1 , 175000
  707120 , D , S , 2 , 185000
  707120 , D , S , 3 , 200000
  707120 , D , S , 4 , 220000
  707120 , D , S , 5 , 245000
  707120 , D , S , 6 , 257000
  707320 , A , S , 1 , 222300
  707320 , D , S , 1 , 214000
  707320 , D , S , 2 , 228000
  707320 , D , S , 3 , 240000
  707320 , D , S , 4 , 260000
  707320 , D , S , 5 , 286000
  707320 , D , S , 6 , 312000
  707320 , D , S , 7 , 330000
  707320 , F , S , 1 , 214000
  707320 , T , S , 1 , 214000
  707QN  , A , S , 1 , 222300
  707QN  , D , S , 1 , 214000
  707QN  , D , S , 2 , 228000
  707QN  , D , S , 3 , 240000
  707QN  , D , S , 4 , 260000
  707QN  , D , S , 5 , 286000
  707QN  , D , S , 6 , 312000
  707QN  , D , S , 7 , 330000
  707QN  , F , S , 1 , 214000
  707QN  , T , S , 1 , 214000
  720    , A , S , 1 , 140000
  720    , D , S , 1 , 145000
  720    , D , S , 2 , 155000
  720    , D , S , 3 , 165000
  720    , D , S , 4 , 180000
  720    , D , S , 5 , 190000
  720B   , A , S , 1 , 157500
  720B   , D , S , 1 , 165000
  720B   , D , S , 2 , 175000
  720B   , D , S , 3 , 185000
  720B   , D , S , 4 , 200000
  720B   , D , S , 5 , 210000
  720B   , F , S , 1 , 165000
  720B   , T , S , 1 , 165000
  727100 , A , S , 1 , 128250
  727100 , D , S , 1 , 136000
  727100 , D , S , 2 , 143000
  727100 , D , S , 3 , 150000
  727100 , D , S , 4 , 158000
  727100 , F , S , 1 , 136000
  727100 , T , S , 1 , 136000
  727200 , A , S , 1 , 147000
  727200 , D , S , 1 , 152000
  727200 , D , S , 2 , 163000
  727200 , D , S , 3 , 174000
  727200 , D , S , 4 , 185000
  727D15 , A , S , 1 , 152100
  727D15 , D , S , 1 , 156000
  727D15 , D , S , 2 , 164000
  727D15 , D , S , 3 , 175000
  727D15 , D , S , 4 , 189000
  727D15 , D , S , 5 , 204000
  727D15 , F , S , 1 , 156000
  727D15 , T , S , 1 , 156000
  727D17 , A , S , 1 , 152100
  727D17 , D , S , 1 , 157000
  727D17 , D , S , 2 , 169000
  727D17 , D , S , 3 , 180000
  727D17 , D , S , 4 , 189000
  727D17 , F , S , 1 , 157000
  727D17 , T , S , 1 , 157000
  727EM1 , A , S , 1 , 128250
  727EM1 , D , S , 1 , 136000
  727EM1 , D , S , 2 , 143000
  727EM1 , D , S , 3 , 150000
  727EM1 , D , S , 4 , 158000
  727EM2 , A , S , 1 , 152100
  727EM2 , D , S , 1 , 156000
  727EM2 , D , S , 2 , 164000
  727EM2 , D , S , 3 , 175000
  727EM2 , D , S , 4 , 189000
  727EM2 , D , S , 5 , 204000
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  727Q15 , D , S , 1 , 156000
  727Q15 , D , S , 2 , 164000
  727Q15 , D , S , 3 , 175000
  727Q15 , D , S , 4 , 189000
  727Q15 , D , S , 5 , 204000
  727Q15 , F , S , 1 , 156000
  727Q15 , T , S , 1 , 156000
  727Q7  , A , S , 1 , 128250
  727Q7  , D , S , 1 , 136000
  727Q7  , D , S , 2 , 143000
  727Q7  , D , S , 3 , 150000
  727Q7  , D , S , 4 , 158000
  727Q7  , F , S , 1 , 136000
  727Q7  , T , S , 1 , 136000
  727Q9  , A , S , 1 , 152100
  727Q9  , D , S , 1 , 156000
  727Q9  , D , S , 2 , 168000
  727Q9  , D , S , 3 , 180000
  727Q9  , D , S , 4 , 191000
  727Q9  , F , S , 1 , 156000
  727Q9  , T , S , 1 , 156000
  727QF  , A , S , 1 , 128250
  727QF  , D , S , 1 , 136000
  727QF  , D , S , 2 , 143000
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727QF  , D , S , 4 , 158000
727QF  , F , S , 1 , 136000
727QF  , T , S , 1 , 136000
737    , A , S , 1 ,  88200
737    , D , S , 1 ,  82000
737    , D , S , 2 ,  85000
737    , D , S , 3 ,  92000
737    , D , S , 4 , 100000
737    , F , S , 1 ,  82000
737    , T , S , 1 ,  82000
737300 , A , S , 1 , 102600
737300 , D , S , 1 ,  96000
737300 , D , S , 2 , 102000
737300 , D , S , 3 , 108000
737300 , D , S , 4 , 119000
737300 , F , S , 1 ,  96000
737300 , T , S , 1 ,  96000
7373B2 , A , S , 1 , 102600
7373B2 , D , S , 1 ,  98000
7373B2 , D , S , 2 , 105000
7373B2 , D , S , 3 , 111000
7373B2 , D , S , 4 , 122000
7373B2 , F , S , 1 ,  98000
7373B2 , T , S , 1 ,  98000
737400 , A , S , 1 , 111600
737400 , D , S , 1 , 107000
737400 , D , S , 2 , 115000
737400 , D , S , 3 , 121000
737400 , D , S , 4 , 133000
737400 , F , S , 1 , 107000
737400 , T , S , 1 , 107000
737500 , A , S , 1 ,  99900
737500 , D , S , 1 ,  98000
737500 , D , S , 2 , 105000
737500 , D , S , 3 , 111000
737500 , D , S , 4 , 122000
737500 , F , S , 1 ,  98000
737500 , T , S , 1 ,  98000
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File: D:\inm51\sys_data\prof_pts.dbf
Last update: 30-May-1996
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 1  ACFT_ID      C   6
 2  OP_TYPE      C   1
 3  PROF_ID1     C   1
 4  PROF_ID2     C   1
 5  PT_NUM       N   3.0
 6  DISTANCE     N  10.1
 7  ALTITUDE     N   7.1
 8  SPEED        N   5.1
 9  THR_SET      N   8.2
10  CURVE_TYPE   C   1
Records(605):
  707    , A , S , 1 ,   1 ,  -114487.0 ,  6000.0 , 250.0 ,   600.00 , N
  707    , A , S , 1 ,   2 ,   -57243.0 ,  3000.0 , 124.0 ,  3560.00 , N
  707    , A , S , 1 ,   3 ,   -28622.0 ,  1500.0 , 124.0 ,  3585.00 , N
  707    , A , S , 1 ,   4 ,   -19081.0 ,  1000.0 , 124.0 ,  3585.00 , N
  707    , A , S , 1 ,   5 ,        0.0 ,     0.0 , 124.0 ,  3585.00 , N
  707    , A , S , 1 ,   6 ,      506.0 ,     0.0 , 124.0 ,  6070.00 , N
  707    , A , S , 1 ,   7 ,     5060.0 ,     0.0 ,  30.0 ,  1010.00 , N
  707    , D , S , 1 ,   1 ,        0.0 ,     0.0 ,  16.0 , 10120.00 , N
  707    , D , S , 1 ,   2 ,     3963.0 ,     0.0 , 141.0 , 10120.00 , N
  707    , D , S , 1 ,   3 ,    11856.0 ,  1000.0 , 141.0 , 10120.00 , N
  707    , D , S , 1 ,   4 ,    15071.0 ,  1262.0 , 151.0 , 10120.00 , N
  707    , D , S , 1 ,   5 ,    16071.0 ,  1336.0 , 154.0 ,  9108.00 , N
  707    , D , S , 1 ,   6 ,    21854.0 ,  1743.0 , 171.0 ,  9108.00 , N
  707    , D , S , 1 ,   7 ,    26167.0 ,  2043.0 , 191.0 ,  9108.00 , N
  707    , D , S , 1 ,   8 ,    33607.0 ,  3000.0 , 191.0 ,  9108.00 , N
  707    , D , S , 1 ,   9 ,    50032.0 ,  3884.0 , 250.0 ,  9108.00 , N
  707    , D , S , 1 ,  10 ,    64678.0 ,  5500.0 , 250.0 ,  9108.00 , N
  707    , D , S , 1 ,  11 ,    84775.0 ,  7500.0 , 250.0 ,  9108.00 , N
  707    , D , S , 1 ,  12 ,   113530.0 , 10000.0 , 250.0 ,  9108.00 , N
  707    , D , S , 2 ,   1 ,        0.0 ,     0.0 ,  16.0 , 10120.00 , N
  707    , D , S , 2 ,   2 ,     4429.0 ,     0.0 , 145.0 , 10120.00 , N
  707    , D , S , 2 ,   3 ,    13188.0 ,  1000.0 , 145.0 , 10120.00 , N
  707    , D , S , 2 ,   4 ,    16777.0 ,  1261.0 , 155.0 , 10120.00 , N
  707    , D , S , 2 ,   5 ,    17777.0 ,  1327.0 , 158.0 ,  9108.00 , N
  707    , D , S , 2 ,   6 ,    23903.0 ,  1731.0 , 175.0 ,  9108.00 , N
  707    , D , S , 2 ,   7 ,    28831.0 ,  2021.0 , 195.0 ,  9108.00 , N
  707    , D , S , 2 ,   8 ,    37100.0 ,  3000.0 , 195.0 ,  9108.00 , N
  707    , D , S , 2 ,   9 ,    53610.0 ,  3807.0 , 250.0 ,  9108.00 , N
  707    , D , S , 2 ,  10 ,    70261.0 ,  5500.0 , 250.0 ,  9108.00 , N
  707    , D , S , 2 ,  11 ,    92180.0 ,  7500.0 , 250.0 ,  9108.00 , N
  707    , D , S , 2 ,  12 ,   123675.0 , 10000.0 , 250.0 ,  9108.00 , N
  707    , D , S , 3 ,   1 ,        0.0 ,     0.0 ,  16.0 , 10120.00 , N
  707    , D , S , 3 ,   2 ,     5176.0 ,     0.0 , 149.0 , 10120.00 , N
  707    , D , S , 3 ,   3 ,    15387.0 ,  1000.0 , 149.0 , 10120.00 , N
  707    , D , S , 3 ,   4 ,    19138.0 ,  1217.0 , 159.0 , 10120.00 , N
  707    , D , S , 3 ,   5 ,    20138.0 ,  1270.0 , 162.0 ,  9108.00 , N
  707    , D , S , 3 ,   6 ,    26414.0 ,  1600.0 , 179.0 ,  9108.00 , N
  707    , D , S , 3 ,   7 ,    31515.0 ,  1840.0 , 199.0 ,  9108.00 , N
  707    , D , S , 3 ,   8 ,    42489.0 ,  3000.0 , 199.0 ,  9108.00 , N
  707    , D , S , 3 ,   9 ,    58611.0 ,  3639.0 , 250.0 ,  9108.00 , N
  707    , D , S , 3 ,  10 ,    79178.0 ,  5500.0 , 250.0 ,  9108.00 , N
  707    , D , S , 3 ,  11 ,   104049.0 ,  7500.0 , 250.0 ,  9108.00 , N
  707    , D , S , 3 ,  12 ,   140036.0 , 10000.0 , 250.0 ,  9108.00 , N
  707    , D , S , 4 ,   1 ,        0.0 ,     0.0 ,  16.0 , 10120.00 , N
  707    , D , S , 4 ,   2 ,     6263.0 ,     0.0 , 156.0 , 10120.00 , N
  707    , D , S , 4 ,   3 ,    18791.0 ,  1000.0 , 156.0 , 10120.00 , N
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707    , D , S , 4 ,   4 ,    24025.0 ,  1257.0 , 166.0 , 10120.00 , N
707    , D , S , 4 ,   5 ,    25025.0 ,  1302.0 , 168.0 ,  9108.00 , N
707    , D , S , 4 ,   6 ,    33512.0 ,  1683.0 , 186.0 ,  9108.00 , N
707    , D , S , 4 ,   7 ,    39650.0 ,  1931.0 , 206.0 ,  9108.00 , N
707    , D , S , 4 ,   8 ,    51477.0 ,  3000.0 , 206.0 ,  9108.00 , N
707    , D , S , 4 ,   9 ,    68056.0 ,  3575.0 , 250.0 ,  9108.00 , N
707    , D , S , 4 ,  10 ,    91865.0 ,  5500.0 , 250.0 ,  9108.00 , N
707    , D , S , 4 ,  11 ,   122142.0 ,  7500.0 , 250.0 ,  9108.00 , N
707    , D , S , 4 ,  12 ,   164959.0 , 10000.0 , 250.0 ,  9108.00 , N
707    , D , S , 5 ,   1 ,        0.0 ,     0.0 ,  16.0 , 10120.00 , N
707    , D , S , 5 ,   2 ,     7767.0 ,     0.0 , 163.0 , 10120.00 , N
707    , D , S , 5 ,   3 ,    24013.0 ,  1000.0 , 163.0 , 10120.00 , N
707    , D , S , 5 ,   4 ,    30363.0 ,  1224.0 , 173.0 , 10120.00 , N
707    , D , S , 5 ,   5 ,    31363.0 ,  1276.0 , 175.0 ,  9108.00 , N
707    , D , S , 5 ,   6 ,    41136.0 ,  1573.0 , 193.0 ,  9108.00 , N
707    , D , S , 5 ,   7 ,    47922.0 ,  1771.0 , 213.0 ,  9108.00 , N
707    , D , S , 5 ,   8 ,    64158.0 ,  3000.0 , 213.0 ,  9108.00 , N
707    , D , S , 5 ,   9 ,    79744.0 ,  3399.0 , 250.0 ,  9108.00 , N
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File: D:\inm51\sys_data\procedur.dbf
Last update: 30-Sep-1996
Fields(11):
 1  ACFT_ID      C   6
 2  OP_TYPE      C   1
 3  PROF_ID1     C   1
 4  PROF_ID2     C   1
 5  STEP_NUM     N   2.0
 6  STEP_TYPE    C   1
 7  FLAP_ID      C   6
 8  THR_TYPE     C   1
 9  PARAM1       N   7.1
10  PARAM2       N   5.1
11  PARAM3       N   9.1
Records(5708):
  707320 , A , S , 1 ,  1 , D , ZERO   ,    ,  6000.0 , 250.0 ,       3.0
  707320 , A , S , 1 ,  2 , D , 14     ,    ,  3000.0 , 160.0 ,       3.0
  707320 , A , S , 1 ,  3 , D , D-25   ,    ,  1500.0 , 145.0 ,       3.0
  707320 , A , S , 1 ,  4 , D , D-40   ,    ,  1000.0 , 131.6 ,       3.0
  707320 , A , S , 1 ,  5 , L , D-40   ,    ,   410.6 , 131.6 ,       0.0
  707320 , A , S , 1 ,  6 , B ,        ,    ,  3695.4 , 124.9 ,      60.0
  707320 , A , S , 1 ,  7 , B ,        ,    ,     0.0 ,  30.0 ,      10.0
  707320 , D , S , 1 ,  1 , T , 14     , T ,     0.0 , 144.5 ,       0.0
  707320 , D , S , 1 ,  2 , C , 14     , T ,  1000.0 ,   0.0 ,       0.0
  707320 , D , S , 1 ,  3 , A , 14     , T ,  2047.0 , 175.0 ,       0.0
  707320 , D , S , 1 ,  4 , A , INT    , C ,  1000.0 , 195.0 ,       0.0
  707320 , D , S , 1 ,  5 , C , ZERO   , C ,  3000.0 ,   0.0 ,       0.0
  707320 , D , S , 1 ,  6 , A , ZERO   , C ,  1000.0 , 250.0 ,       0.0
  707320 , D , S , 1 ,  7 , C , ZERO   , C ,  5500.0 ,   0.0 ,       0.0
  707320 , D , S , 1 ,  8 , C , ZERO   , C ,  7500.0 ,   0.0 ,       0.0
  707320 , D , S , 1 ,  9 , C , ZERO   , C , 10000.0 ,   0.0 ,       0.0
  707320 , D , S , 2 ,  1 , T , 14     , T ,     0.0 , 149.2 ,       0.0
  707320 , D , S , 2 ,  2 , C , 14     , T ,  1000.0 ,   0.0 ,       0.0
  707320 , D , S , 2 ,  3 , A , 14     , T ,  1905.0 , 179.0 ,       0.0
  707320 , D , S , 2 ,  4 , A , INT    , C ,  1000.0 , 199.0 ,       0.0
  707320 , D , S , 2 ,  5 , C , ZERO   , C ,  3000.0 ,   0.0 ,       0.0
  707320 , D , S , 2 ,  6 , A , ZERO   , C ,  1000.0 , 250.0 ,       0.0
  707320 , D , S , 2 ,  7 , C , ZERO   , C ,  5500.0 ,   0.0 ,       0.0
  707320 , D , S , 2 ,  8 , C , ZERO   , C ,  7500.0 ,   0.0 ,       0.0
  707320 , D , S , 2 ,  9 , C , ZERO   , C , 10000.0 ,   0.0 ,       0.0
  707320 , D , S , 3 ,  1 , T , 14     , T ,     0.0 , 153.1 ,       0.0
  707320 , D , S , 3 ,  2 , C , 14     , T ,  1000.0 ,   0.0 ,       0.0
  707320 , D , S , 3 ,  3 , A , 14     , T ,  1793.0 , 183.0 ,       0.0
  707320 , D , S , 3 ,  4 , A , INT    , C ,  1000.0 , 203.0 ,       0.0
  707320 , D , S , 3 ,  5 , C , ZERO   , C ,  3000.0 ,   0.0 ,       0.0
  707320 , D , S , 3 ,  6 , A , ZERO   , C ,  1000.0 , 250.0 ,       0.0
  707320 , D , S , 3 ,  7 , C , ZERO   , C ,  5500.0 ,   0.0 ,       0.0
  707320 , D , S , 3 ,  8 , C , ZERO   , C ,  7500.0 ,   0.0 ,       0.0
  707320 , D , S , 3 ,  9 , C , ZERO   , C , 10000.0 ,   0.0 ,       0.0
  707320 , D , S , 4 ,  1 , T , 14     , T ,     0.0 , 159.3 ,       0.0
  707320 , D , S , 4 ,  2 , C , 14     , T ,  1000.0 ,   0.0 ,       0.0
  707320 , D , S , 4 ,  3 , A , 14     , T ,  1624.0 , 189.0 ,       0.0
  707320 , D , S , 4 ,  4 , A , INT    , C ,  1000.0 , 209.0 ,       0.0
  707320 , D , S , 4 ,  5 , C , ZERO   , C ,  3000.0 ,   0.0 ,       0.0
  707320 , D , S , 4 ,  6 , A , ZERO   , C ,  1000.0 , 250.0 ,       0.0
  707320 , D , S , 4 ,  7 , C , ZERO   , C ,  5500.0 ,   0.0 ,       0.0
  707320 , D , S , 4 ,  8 , C , ZERO   , C ,  7500.0 ,   0.0 ,       0.0
  707320 , D , S , 4 ,  9 , C , ZERO   , C , 10000.0 ,   0.0 ,       0.0
  707320 , D , S , 5 ,  1 , T , 14     , T ,     0.0 , 167.1 ,       0.0
  707320 , D , S , 5 ,  2 , C , 14     , T ,  1000.0 ,   0.0 ,       0.0
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  707320 , D , S , 5 ,  3 , A , 14     , T ,  1430.0 , 197.0 ,       0.0
  707320 , D , S , 5 ,  4 , A , INT    , C ,  1000.0 , 217.0 ,       0.0
  707320 , D , S , 5 ,  5 , C , ZERO   , C ,  3000.0 ,   0.0 ,       0.0
  707320 , D , S , 5 ,  6 , A , ZERO   , C ,  1000.0 , 250.0 ,       0.0
  707320 , D , S , 5 ,  7 , C , ZERO   , C ,  5500.0 ,   0.0 ,       0.0
  707320 , D , S , 5 ,  8 , C , ZERO   , C ,  7500.0 ,   0.0 ,       0.0
  707320 , D , S , 5 ,  9 , C , ZERO   , C , 10000.0 ,   0.0 ,       0.0
  707320 , D , S , 6 ,  1 , T , 14     , T ,     0.0 , 174.5 ,       0.0
  707320 , D , S , 6 ,  2 , C , 14     , T ,  1000.0 ,   0.0 ,       0.0
  707320 , D , S , 6 ,  3 , A , 14     , T ,  1259.0 , 205.0 ,       0.0
  707320 , D , S , 6 ,  4 , A , INT    , C ,   800.0 , 225.0 ,       0.0
  707320 , D , S , 6 ,  5 , C , ZERO   , C ,  3000.0 ,   0.0 ,       0.0
  707320 , D , S , 6 ,  6 , A , ZERO   , C ,   800.0 , 250.0 ,       0.0
  707320 , D , S , 6 ,  7 , C , ZERO   , C ,  5500.0 ,   0.0 ,       0.0
  707320 , D , S , 6 ,  8 , C , ZERO   , C ,  7500.0 ,   0.0 ,       0.0
  707320 , D , S , 6 ,  9 , C , ZERO   , C , 10000.0 ,   0.0 ,       0.0
  707320 , D , S , 7 ,  1 , T , 14     , T ,     0.0 , 179.5 ,       0.0
  707320 , D , S , 7 ,  2 , C , 14     , T ,  1000.0 ,   0.0 ,       0.0
  707320 , D , S , 7 ,  4 , A , INT    , C ,   800.0 , 229.0 ,       0.0

File: D:\inm51\sys_data\flaps.dbf
Last update: 4-Oct-1996
Fields(6):
 1  ACFT_ID      C   6
 2  OP_TYPE      C   1
 3  FLAP_ID      C   6
 4  COEFF_R      N   8.6
 5  COEFF_C_D    N   8.6
 6  COEFF_B      N   8.6
Records(645):
  707320 , A , D-25   , 0.107756 , 0.307537 , 0.000000
  707320 , A , D-40   , 0.134567 , 0.279116 , 0.000000
  707320 , A , D-50   , 0.154720 , 0.275511 , 0.000000
  707320 , A , U-25   , 0.098219 , 0.000000 , 0.000000
  707320 , D , 14     , 0.089316 , 0.312431 , 0.004514
  707320 , D , INT    , 0.072743 , 0.000000 , 0.000000
  707320 , D , ZERO   , 0.056170 , 0.000000 , 0.000000
  707QN  , A , D-25   , 0.107756 , 0.307537 , 0.000000
  707QN  , A , D-40   , 0.134567 , 0.279116 , 0.000000
  707QN  , A , D-50   , 0.154720 , 0.275511 , 0.000000
  707QN  , A , U-25   , 0.098219 , 0.000000 , 0.000000
  707QN  , D , 14     , 0.089316 , 0.312431 , 0.004514
  707QN  , D , INT    , 0.072743 , 0.000000 , 0.000000
  707QN  , D , ZERO   , 0.056170 , 0.000000 , 0.000000
  720B   , A , D-30   , 0.109478 , 0.350247 , 0.000000
  720B   , A , D-50   , 0.148843 , 0.339412 , 0.000000
  720B   , A , U-30   , 0.098050 , 0.000000 , 0.000000
  720B   , D , 20     , 0.091933 , 0.356426 , 0.005730
  720B   , D , 30     , 0.104243 , 0.340735 , 0.005238
  720B   , D , INT    , 0.074052 , 0.000000 , 0.000000
  720B   , D , ZERO   , 0.056170 , 0.000000 , 0.000000
  727100 , A , D-25   , 0.128359 , 0.350485 , 0.000000
  727100 , A , D-30   , 0.145903 , 0.343897 , 0.000000
  727100 , A , D-40   , 0.186604 , 0.335992 , 0.000000
  727100 , A , U-15   , 0.090698 , 0.000000 , 0.000000
  727100 , A , U-25   , 0.113154 , 0.000000 , 0.000000
  727100 , D , 15     , 0.095459 , 0.392649 , 0.008301
  727100 , D , 2      , 0.085700 , 0.000000 , 0.000000
  727100 , D , 25     , 0.115623 , 0.371567 , 0.007389
  727100 , D , 5      , 0.088916 , 0.415048 , 0.008692
```

```
727100 , D , ZERO   , 0.063600 , 0.000000 , 0.000000
727D15 , A , D-25   , 0.109535 , 0.383689 , 0.000000
727D15 , A , D-30   , 0.143164 , 0.378419 , 0.000000
727D15 , A , D-40   , 0.184387 , 0.372094 , 0.000000
727D15 , A , U-15   , 0.089969 , 0.000000 , 0.000000
727D15 , A , U-25   , 0.109535 , 0.000000 , 0.000000
727D15 , D , 15     , 0.100631 , 0.387088 , 0.008078
727D15 , D , 2      , 0.085700 , 0.000000 , 0.000000
727D15 , D , 20     , 0.108897 , 0.376653 , 0.007712
727D15 , D , 25     , 0.117828 , 0.365969 , 0.007391
727D15 , D , 5      , 0.094926 , 0.409200 , 0.009062
727D15 , D , ZERO   , 0.063600 , 0.000000 , 0.000000
727D17 , A , D-25   , 0.124821 , 0.383689 , 0.000000
727D17 , A , D-30   , 0.143164 , 0.378419 , 0.000000
727D17 , A , D-40   , 0.184387 , 0.372094 , 0.000000
727D17 , A , U-15   , 0.089969 , 0.000000 , 0.000000
727D17 , A , U-25   , 0.109535 , 0.000000 , 0.000000
727D17 , D , 15     , 0.100631 , 0.387088 , 0.008078
727D17 , D , 2      , 0.085700 , 0.000000 , 0.000000
727D17 , D , 20     , 0.108897 , 0.376653 , 0.007712
727D17 , D , 25     , 0.117828 , 0.365969 , 0.007391
727D17 , D , 5      , 0.094926 , 0.409200 , 0.009062
727D17 , D , ZERO   , 0.063600 , 0.000000 , 0.000000
727Q15 , A , D-25   , 0.109535 , 0.383689 , 0.000000
727Q15 , A , D-30   , 0.143164 , 0.378419 , 0.000000
727Q15 , A , D-40   , 0.184387 , 0.372094 , 0.000000
727Q15 , A , U-15   , 0.089969 , 0.000000 , 0.000000
727Q15 , A , U-25   , 0.109535 , 0.000000 , 0.000000
727Q15 , D , 15     , 0.100631 , 0.387088 , 0.008078
727Q15 , D , 2      , 0.085700 , 0.000000 , 0.000000
727Q15 , D , 20     , 0.108897 , 0.376653 , 0.007712
727Q15 , D , 25     , 0.117828 , 0.365969 , 0.007391
727Q15 , D , 5      , 0.094926 , 0.409200 , 0.009062
727Q15 , D , ZERO   , 0.063600 , 0.000000 , 0.000000
727Q7  , A , D-25   , 0.128359 , 0.350485 , 0.000000
727Q7  , A , D-30   , 0.145903 , 0.343897 , 0.000000
727Q7  , A , D-40   , 0.186604 , 0.335992 , 0.000000
727Q7  , A , U-15   , 0.090698 , 0.000000 , 0.000000
727Q7  , A , U-25   , 0.113154 , 0.000000 , 0.000000
```

```
File: D:\inm51\sys_data\thr_jet.dbf
Last update: 4-Oct-1996
Fields(7):
 1  ACFT_ID      C   6
 2  THR_TYPE     C   1
 3  COEFF_E      N   8.1
 4  COEFF_F      N   9.5
 5  COEFF_GA     C  12
 6  COEFF_GB     C  12
 7  COEFF_H      C  10
Records(159):
  707320 , C ,  15943.8 , -13.95840 , +1.67200e-01 , +5.70740e-06 , +0.000e+00
  707320 , T ,  18044.7 , -15.79760 , +1.89300e-01 , +6.45950e-06 , +0.000e+00
  707QN  , C ,  15943.8 , -13.95840 , +1.67200e-01 , +5.70740e-06 , +0.000e+00
  707QN  , T ,  18044.7 , -15.79760 , +1.89300e-01 , +6.45950e-06 , +0.000e+00
  720B   , C ,  14540.1 , -13.41490 , +1.21548e-01 , +1.78264e-06 , +0.000e+00
  720B   , T ,  16768.6 , -15.47100 , +1.40178e-01 , +2.05590e-06 , +0.000e+00
  727100 , C ,  12029.2 ,  -7.99864 , -5.20250e-02 , +5.44617e-06 , +0.000e+00
  727100 , T ,  13218.9 ,  -8.78972 , -5.71710e-02 , +5.98480e-06 , +0.000e+00
  727D15 , C ,  13421.0 ,  -7.65638 , +2.11202e-01 , -2.63762e-05 , +0.000e+00
  727D15 , T ,  14829.8 ,  -8.46009 , +2.33373e-01 , -2.91450e-05 , +0.000e+00
  727D17 , C ,  13812.7 ,  -7.52948 , +2.07702e-01 , -2.59390e-05 , +0.000e+00
  727D17 , T ,  15519.8 ,  -8.46009 , +2.33373e-01 , -2.91450e-05 , +0.000e+00
  727Q15 , C ,  13421.0 ,  -7.65638 , +2.11202e-01 , -2.63762e-05 , +0.000e+00
  727Q15 , T ,  14829.8 ,  -8.46009 , +2.33373e-01 , -2.91450e-05 , +0.000e+00
  727Q7  , C ,  12029.2 ,  -7.99864 , -5.20250e-02 , +5.44617e-06 , +0.000e+00
  727Q7  , T ,  13218.9 ,  -8.78972 , -5.71710e-02 , +5.98480e-06 , +0.000e+00
  727Q9  , C ,  12746.2 ,  -8.11613 , -4.90000e-04 , -4.53384e-06 , +0.000e+00
  727Q9  , T ,  13705.6 ,  -8.72702 , -5.27000e-04 , -4.87510e-06 , +0.000e+00
  727QF  , C ,  11266.0 ,  -9.33500 , +1.69297e-01 , -4.70391e-06 , +0.000e+00
  727QF  , N ,  11987.0 ,  -9.33500 , +1.58001e-01 , -4.70391e-06 , +0.000e+00
  727QF  , T ,  14100.0 , -12.25000 , +1.49500e-01 , -1.17500e-05 , +0.000e+00
  737    , C ,  12740.1 ,  -7.93589 , -2.66230e-02 , -4.27620e-07 , +0.000e+00
  737    , T ,  13847.9 ,  -8.62596 , -2.89390e-02 , -4.64800e-07 , +0.000e+00
  737300 , C ,  17448.0 , -17.32000 , +1.55700e-01 , +0.00000e+00 , +0.000e+00
  737300 , T ,  18745.0 , -20.12000 , +4.04300e-01 , +0.00000e+00 , +0.000e+00
  7373B2 , C ,  18859.0 , -17.91000 , +1.95300e-01 , +0.00000e+00 , -2.034e+00
  7373B2 , T ,  20758.0 , -20.65000 , +2.17200e-01 , +0.00000e+00 , -2.418e+00
  737400 , C ,  19695.0 , -18.15000 , +2.08000e-01 , +0.00000e+00 , +0.000e+00
  737400 , T ,  21610.0 , -20.83000 , +2.27400e-01 , +0.00000e+00 , +0.000e+00
  737500 , C ,  17448.0 , -17.32000 , +1.55700e-01 , +0.00000e+00 , +0.000e+00
  737500 , T ,  18745.0 , -20.12000 , +4.04300e-01 , +0.00000e+00 , +0.000e+00
  737D17 , C ,  13083.2 ,  -7.13185 , +1.96733e-01 , -2.45690e-05 , +0.000e+00
  737D17 , T ,  15519.8 ,  -8.46009 , +2.33373e-01 , -2.91450e-05 , +0.000e+00
  737QN  , C ,  12740.1 ,  -7.93589 , -2.66230e-02 , -4.27620e-07 , +0.000e+00
  737QN  , T ,  13847.9 ,  -8.62596 , -2.89390e-02 , -4.64800e-07 , +0.000e+00
  74710Q , C ,  36791.4 , -43.50740 , +3.00400e-01 , -9.20000e-06 , +0.000e+00
  74710Q , T ,  42780.7 , -50.59000 , +3.49279e-01 , -1.06970e-05 , +0.000e+00
  747200 , C ,  36791.4 , -43.50740 , +3.00400e-01 , -9.20000e-06 , +0.000e+00
  747200 , T ,  42780.7 , -50.59000 , +3.49279e-01 , -1.06970e-05 , +0.000e+00
  74720A , C ,  34860.0 , -35.00000 , +4.96200e-01 , +0.00000e+00 , +0.000e+00
  74720A , T ,  40870.0 , -40.11000 , +4.43500e-01 , +0.00000e+00 , +0.000e+00
  74720B , C ,  39594.0 , -38.08000 , +5.26200e-01 , +0.00000e+00 , +0.000e+00
  74720B , T ,  48866.0 , -43.68000 , +6.64100e-01 , +0.00000e+00 , +0.000e+00
  747400 , C ,  43601.0 , -42.70000 , +7.26000e-01 , +0.00000e+00 , +0.000e+00
  747400 , T ,  53670.0 , -54.30000 , +5.15000e-01 , +0.00000e+00 , +0.000e+00
  747SP  , C ,  36791.4 , -43.50740 , +3.00400e-01 , -9.20000e-06 , +0.000e+00
  747SP  , T ,  42780.7 , -50.59000 , +3.49279e-01 , -1.06970e-05 , +0.000e+00
  757PW  , C ,  28765.0 , -32.00000 , +4.01500e-01 , +0.00000e+00 , +1.471e-01
  757PW  , T ,  35866.0 , -39.72000 , +6.80600e-01 , +0.00000e+00 , -8.371e-01
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757RR  , C ,  29350.0 , -29.50000 , +4.15300e-01 , +0.00000e+00 , +0.000e+00
757RR  , T ,  37092.0 , -33.50000 , +3.99800e-01 , +0.00000e+00 , +0.000e+00
767300 , C ,  45480.0 , -41.90000 , +5.59000e-01 , +0.00000e+00 , +0.000e+00
767300 , T ,  56370.0 , -53.00000 , +2.51000e-01 , +0.00000e+00 , +0.000e+00
767CF6 , C ,  38057.0 , -43.24000 , +7.05000e-01 , +0.00000e+00 , +0.000e+00
767CF6 , T ,  44769.0 , -48.34000 , +5.00000e-01 , +0.00000e+00 , +0.000e+00
767JT9 , C ,  38700.0 , -34.50000 , +4.90000e-01 , +0.00000e+00 , +0.000e+00
767JT9 , T ,  43190.0 , -39.30000 , +8.76000e-01 , +0.00000e+00 , +0.000e+00
A300   , C ,  43416.5 , -35.00000 , -1.25234e-01 , +6.27209e-07 , +0.000e+00
A300   , T ,  49336.9 , -39.82430 , -1.42311e-01 , +7.12738e-07 , +0.000e+00
A310   , C ,  43524.4 , -42.80000 , +1.14627e+00 , -2.39432e-05 , +0.000e+00
A310   , T ,  49459.6 , -48.64640 , +1.30258e+00 , -2.72082e-05 , +0.000e+00
A320   , C ,  20891.4 , -18.56110 , -6.36000e-02 , +3.16980e-07 , +0.000e+00
A320   , T ,  23740.2 , -21.09210 , -7.22000e-02 , +3.59700e-07 , +0.000e+00
A7D    , C ,  12844.2 ,  -5.33364 , +1.53447e-01 , +3.47724e-06 , +0.000e+00
A7D    , T ,  13961.1 ,  -5.79744 , +1.66790e-01 , +3.77961e-06 , +0.000e+00
BAC111 , C ,   9827.9 ,  -5.89674 , -1.96560e-02 , +0.00000e+00 , +0.000e+00
BAC111 , T ,  11168.1 ,  -6.70084 , -2.23360e-02 , +0.00000e+00 , +0.000e+00
BAE146 , C ,   6339.4 ,  -9.95850 , +5.60570e-02 , -1.23124e-05 , +0.000e+00
```

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File: D:\inm51\sys_data\thr_prop.dbf
Last update: 12-Sep-1994
Fields(4):
 1  ACFT_ID      C   6
 2  THR_TYPE     C   1
 3  EFFICIENCY   N   4.2
 4  POWER        N   6.1
Records(32):
  BEC58P , C , 0.90 ,  261.3
  BEC58P , T , 0.90 ,  310.0
  C130   , C , 0.85 , 3575.0
  C130   , T , 0.85 , 4205.0
  C130E  , C , 0.85 , 3200.0
  C130E  , T , 0.85 , 3700.0
  CNA441 , C , 0.90 ,  620.0
  CNA441 , T , 0.90 ,  635.5
  COMSEP , C , 0.85 ,  154.0
  COMSEP , T , 0.85 ,  165.0
  CVR580 , C , 0.85 , 3344.0
  CVR580 , T , 0.85 , 3800.0
  DC3    , C , 0.85 , 1130.0
  DC3    , T , 0.85 , 1302.0
  DC6    , C , 0.90 , 1750.0
  DC6    , T , 0.90 , 1900.0
  DHC6   , C , 0.90 ,  557.5
  DHC6   , T , 0.90 ,  587.0
  DHC7   , C , 0.90 ,  846.0
  DHC7   , T , 0.90 ,  940.0
  GASEPF , C , 0.85 ,  133.0
  GASEPF , T , 0.85 ,  142.0
  GASEPV , C , 0.85 ,  242.0
  GASEPV , T , 0.85 ,  260.0
  HS748A , C , 0.90 , 1805.0
  HS748A , T , 0.90 , 2006.0
  L188   , C , 0.90 , 3180.0
  L188   , T , 0.90 , 3460.0
  SD330  , C , 0.90 ,  972.0
  SD330  , T , 0.90 , 1080.0
  SF340  , C , 0.90 , 1587.0
  SF340  , T , 0.90 , 1763.0
```

```
File: D:\inm51\sys_data\metric.dbf
Last update: 25-Sep-1996
Fields(7):
 1  METRIC_ID    C   6
 2  METRIC_TYP   C   1
 3  FREQ_TYPE    C   1
 4  WGT_DAY      N   6.2
 5  WGT_EVE      N   6.2
 6  WGT_NIGHT    N   6.2
 7  DB_MINUS     N   5.2
Records(13):
  DNL    , E , A ,   1.00 ,   1.00 ,  10.00 , 49.37
  CNEL   , E , A ,   1.00 ,   3.00 ,  10.00 , 49.37
  LAEQ   , E , A ,   1.00 ,   1.00 ,   1.00 , 49.37
```

```
LAEQD  , E , A ,   1.00 ,   1.00 ,   0.00 , 47.32
LAEQN  , E , A ,   0.00 ,   0.00 ,   1.00 , 45.11
SEL    , E , A ,   1.00 ,   1.00 ,   1.00 ,  0.00
LAMAX  , M , A ,   1.00 ,   1.00 ,   1.00 ,  0.00
TALA   , T , A ,   1.00 ,   1.00 ,   1.00 ,  0.00
NEF    , E , P ,   1.00 ,   1.00 ,  16.67 , 88.00
WECPNL , E , P ,   1.00 ,   3.00 ,  10.00 , 39.37
EPNL   , E , P ,   1.00 ,   1.00 ,   1.00 ,  0.00
PNLTM  , M , P ,   1.00 ,   1.00 ,   1.00 ,  0.00
TAPNL  , T , P ,   1.00 ,   1.00 ,   1.00 ,  0.00
```

J. NOISE CROSS REFERENCE

Use this Appendix to look up a Noise identifier and find all the Aircraft that use it.

Noise Id	Aircraft Id
2CF650	A300 A310
2CF680	767CF6 767JT9 767300
2CF68D	MD11GE
2JT8D	BAC111 DC910 DC930 737
2JT8D2	MD81 MD82 MD83
2JT8DQ	DC950 DC9Q7 DC9Q9 737D17 737QN
2R2800	DC3
302C	LIGHTN
3JT8D	727D15 727100 727200
3JT8DQ	727D17 727Q15 727Q7 727Q9
3JT8E5	727EM2
3JT8E7	727EM1
4R2800	DC6
501D13	CVR580
540B1A	U4B
ADOUR	HAWK
AEIO54	T3
AGE100	A10A
AL502L	CL600
AL502R	BAE146 BAE300
AV-8A	AV8A
AVON	CANBER
B-52H	B52H
C-119	C119L
C-121	C121
C-130A	C130AD
C-130H	C130HP
C480	U8F
CF34	CL601
CF650D	YC14
CF650E	E4
CF66D	DC1010 DC1030 DC1040
CF700	FAL20 SABR80
CFG50C	KC10A
CFM562	DC870
CFM563	7373B2 737300 737400 737500
CFM565	A320
CFM56A	KC135R
CGAJ	COMJET
CGASEP	COMSEP
CJ610	LEAR25
CONWY	VC10
CT75	SF340
DART	HS748
F108CF	KC-135
F111D	F111D
F111F	F-111F

F405RR	T45
FB111A	FB111A
GE-10	A5C
GE-102	B1
GE-110	B2A
GE-13	F5AB
GE-8	A3
GE100	F16GE
GE11A	F104G
GE21B	F5E
GE400	F14B
GE404	F-18
GEF1D2	F117A
GEJ85	T39A
IO-550	T42
J3335	T33A
J52P8A	A4C
J52P8B	A6A
J57	KC135
J5759	C135B
J5759W	C135A
J57P17	F106
J57P19	B52BDE
J57P20	F8
J57P21	F100D
J57P23	F102
J57P43	B52G
J57P5	B57E
J57P55	F101B
J69T25	T37B
J75P13	U2
J75P19	F105D
J75P1B	TR1
J79	F4C
J79651	F-4C
J8517A	A37
J856E4	T-2C
JAGUA	JAGUAR
JT11D2	SR71
JT15D1	CNA500
JT15D5	MU3001
JT15DM	T1
JT3D	DC850 DC860 KC135B 720B 707120 707320
JT3D3	E8A
JT3D3B	C137
JT3DQ	DC8QN 707QN
JT4111	C18A
JT4A	DC820 707 720
JT8D17	YC15
JT8D9	C9A
JT9D7Q	74720A 74720B
JT9DBD	747100
JT9DFL	747SP 74710Q 747200
MK6118	C-20
O320E2	T41
OLY593	CONCRD

P4A	EA6B	
PEGAS	HARRIE	
PHANTO	PHANTO	
PT6A20	U21	
PT6A25	T34	
PT6A27	DHC6	
PT6A41	C12	
PT6A45	SD330	
PT6A50	DHC7	
PT6R65	C23	
PW-100	C17	
PW100	F15A	
PW100A	E3A	
PW120	DHC8	DHC830
PW123	C7A	
PW200	F16A	
PW2037	757PW	
PW220	F16PW0	
PW2205	F15E20	
PW229	F16PW9	
PW2295	F15E29	
PW4056	747400	
PW4460	MD11PW	
R2800	C123K	
R43659	KC97L	
R985	U6	
R99W	C131B	
RA28	HUNTER	
RB168	BUCCAN	
RB183	F28MK2	
RB183P	F28MK4	
RB1993	TORNAD	
RB2112	L1011	L10115
RCB17	C118	
RDA532	HS748A	
RR-408	AV8B	
RR535E	757RR	
RROLYM	VULCAN	
SEPFP	GASEPF	
SEPVP	GASEPV	
SP5118	GIIB	
SPEY	NIMROD	
T-29	T29	
T-43A	T-43A	
T-44	T44	
T56-15	C-130E	
T56A14	P3A	
T56A15	C130	
T56A7	L188	C130E
T76	OV10A	
TAY620	F10062	GIV
TAY650	F10065	
TAY651	727QF	
TF30P1	F111AE	
TF30P4	F14A	
TF33P7	C141A	

TF346E	S3A&B
TF39GE	C5A
TF41	A7D
TF41A2	A7E
TF7312	LEAR35
TF7313	CIT3 IA1125
TFE731	C140
TFE73B	C21A
TJ85	T-38A
TPE331	CNA441
TRS181	C22
TSIO52	BEC58P
V2525	MD9025 MD9028
VICTO	VICTOR
VIP11	PROVOS
VIPER	DOMIN

K. TEST411 ECHO REPORT

This Appendix presents Study input data that were produced by converting the INM 4.11 TESTCASE.INP file. This Study is in the system directory under the INM51 \ EXAMPLES \ TEST411 subdirectory.

```
INM 5.1 ECHO REPORT  02-Jan-97 10:21

STUDY: D:\INM51\EXAMPLES\TEST411\
   Created : 19-Dec-96 12:20
   Units   : English
   Airport : T411
   Description :
     INM 4.11 CONVERSION
     ANNUAL AVERAGE EXPOSURE AT AN EXAMPLE OF A MEDIUM HUB AIRPORT
     EXAMPLE TEST411

CASE: CASE1
   Created date: 19-Dec-96 12:20
   Description : DNL case from INM 4.11 conversion

STUDY AIRPORT
   Lat    :   39.870431 deg
   Long   :  -75.245183 deg
   Elev   : 0.00 ft
   Temp   : 59.00 F
   Press  : 29.92 in-Hg
   Wind   : 8.00 knt

STUDY RUNWAYS
   09L
      Lat      :   39.870431 deg
      Long     :  -75.245183 deg
      X        : 0.0000 nmi
      Y        : 0.0000 nmi
      Elevation: 0.0 ft
      OtherEnd : 27R
      Length   : 9500 ft
      Gradient : 0.00%
      Wind     : 8.0 knt
      TkoThrsh : 0 ft
      AppThrsh : 0 ft
   09R
      Lat      :   39.867563 deg
      Long     :  -75.269836 deg
      X        : -1.1389 nmi
      Y        : -0.1718 nmi
      Elevation: 0.0 ft
      OtherEnd : 27L
      Length   : 11128 ft
      Gradient : 0.00%
      Wind     : 8.0 knt
      TkoThrsh : 0 ft
      AppThrsh : 0 ft
   17
      Lat      :   39.888937 deg
```

```
      Long     :  -75.222350 deg
      X        : 1.0545 nmi
      Y        : 1.1096 nmi
      Elevation: 0.0 ft
      OtherEnd : 35
      Length   : 5459 ft
      Gradient : 0.00%
      Wind     : 8.0 knt
      TkoThrsh : 0 ft
      AppThrsh : 0 ft
   27L
      Lat      :   39.866559 deg
      Long     :  -75.230211 deg
      X        : 0.6917 nmi
      Y        : -0.2321 nmi
      Elevation: 0.0 ft
      OtherEnd : 09R
      Length   : 11128 ft
      Gradient : 0.00%
      Wind     : 8.0 knt
      TkoThrsh : 0 ft
      AppThrsh : 0 ft
   27R
      Lat      :   39.869062 deg
      Long     :  -75.211384 deg
      X        : 1.5614 nmi
      Y        : -0.0818 nmi
      Elevation: 0.0 ft
      OtherEnd : 09L
      Length   : 9500 ft
      Gradient : 0.00%
      Wind     : 8.0 knt
      TkoThrsh : 0 ft
      AppThrsh : 0 ft
   35
      Lat      :   39.874178 deg
      Long     :  -75.218978 deg
      X        : 1.2105 nmi
      Y        : 0.2248 nmi
      Elevation: 0.0 ft
      OtherEnd : 17
      Length   : 5459 ft
      Gradient : 0.00%
      Wind     : 8.0 knt
      TkoThrsh : 0 ft
      AppThrsh : 100 ft

STUDY TRACKS
   RwyId-OpType-TrkId
     Sub  PctSub   TrkType   Delta(ft)
   09L-DEP-TR1
      0   100.00   Vectors     0.0
   09R-APP-TR9
      0   100.00   Vectors     0.0
   09R-DEP-TR3
      0   100.00   Vectors     0.0
   17 -APP-TR11
      0   100.00   Vectors     0.0
   17 -DEP-TR6
      0   100.00   Vectors     0.0
```

```
   17 -DEP-TR7
      0   100.00   Vectors     0.0
   17 -TGO-TR14
      0   100.00   Vectors     0.0
   27R-APP-TR8
      0   100.00   Vectors     0.0
   27R-DEP-TR2
      0   100.00   Vectors     0.0
   27R-DEP-TR4
      0   100.00   Vectors     0.0
   35 -APP-TR10
      0   100.00   Vectors     0.0
   35 -DEP-TR5
      0   100.00   Vectors     0.0

STUDY TRACK DETAIL
   RwyId-OpType-TrkId-SubTrk
           SegType      Param1    Param2(nmi)
   09L-DEP-TR1 -0
       1  Straight     4.1000 nmi
       2  LeftTurn    88.0000 deg    1.6000
       3  Straight    50.0000 nmi
   09R-APP-TR9 -0
       1  Straight    50.0000 nmi
       2  RightTurn   12.0000 deg    1.5000
       3  Straight     7.0000 nmi
   09R-DEP-TR3 -0
       1  Straight     1.3000 nmi
       2  LeftTurn    15.0000 deg    1.0000
       3  Straight     1.4000 nmi
       4  RightTurn   57.0000 deg    1.8000
       5  Straight     0.5000 nmi
       6  RightTurn   50.0000 deg    1.6000
       7  Straight    50.0000 nmi
   17 -APP-TR11-0
       1  Straight    50.0000 nmi
   17 -DEP-TR6 -0
       1  Straight    50.0000 nmi
   17 -DEP-TR7 -0
       1  Straight     1.5000 nmi
       2  RightTurn   95.0000 deg    0.2500
       3  Straight     3.0000 nmi
       4  LeftTurn    20.0000 deg    1.0000
       5  Straight    50.0000 nmi
   17 -TGO-TR14-0
       1  Straight     3.0000 nmi
       2  LeftTurn   180.0000 deg    2.0000
       3  Straight     6.0000 nmi
       4  LeftTurn   180.0000 deg    2.0000
       5  Straight     3.0000 nmi
   27R-APP-TR8 -0
       1  Straight    50.0000 nmi
       2  RightTurn   82.0000 deg    1.5000
       3  Straight     4.2000 nmi
   27R-DEP-TR2 -0
       1  Straight     4.1000 nmi
       2  LeftTurn    88.0000 deg    1.6000
       3  Straight    50.0000 nmi
   27R-DEP-TR4 -0
       1  Straight     4.1000 nmi
```

```
       2  LeftTurn    43.0000 deg    2.2000
       3  Straight    50.0000 nmi
   35 -APP-TR10-0
       1  Straight    50.0000 nmi
   35 -DEP-TR5 -0
       1  Straight    50.0000 nmi

STUDY AIRCRAFT
   727Q15 Standard data
   737300 Standard data
   747200 Standard data
   757PW  Standard data
   A300   Standard data
   BEC58P Standard data
   DC1030 Standard data
   DC870  Standard data
   DC930  Standard data
   MD81   Standard data
   S-76   User-defined
      Descrip   : INM 4.11 user-defined S-76  -250C30
      UserID    : GA
      WgtCat    : Small
      OwnerCat  : GenAviation
      EngType   : Piston
      NoiseCat  : 0
      Type      : Prop
      NumEng    : 1
      NoiseId   : 250C30
      ATRS      : No
      TkoWgt    : 10000 lb
      LndWgt    : 10000 lb
      LndDist   : 0 ft
      StaticThr : 2 lb
   SABR80 Standard data

STUDY SUBSTITUTION AIRCRAFT

USER-DEFINED NOISE
      Type   Thrust Crv  200   400   630  1000  2000  4000  6300  10000 16000 25000
   250C30 ThrustType:other  ModelType:INM
      EPNL      1.0  N  90.2  85.8  82.8  79.4  73.7  67.6  62.5  56.8  51.0  45.5
      EPNL      2.0  N  91.2  87.2  84.1  80.7  75.1  68.2  63.2  57.4  51.5  45.9
      EPNL      3.0  N  97.2  93.1  90.3  87.4  82.6  77.2  73.2  68.7  64.1  59.7
      SEL       1.0  N  88.6  84.2  81.2  77.8  72.1  66.0  60.9  55.2  49.4  43.9
      SEL       2.0  N  90.0  85.6  82.5  79.1  73.5  66.6  61.6  55.8  49.9  44.3
      SEL       3.0  N  95.6  91.5  88.7  85.8  81.0  75.6  71.6  67.1  62.5  58.1

USER-DEFINED PROFILES
     OpType   Prof       Weight(lb)
   727Q15
      APP      U1        152100
   DC870
      APP      U1        232200
   DC930
      APP      U1         91800
   S-76
      APP      U1         10000
      DEP      U1         10000

USER-DEFINED PROFILE POINTS
```

```
        Distance(ft)  Altitude(ft)  Speed(knt)  Thrust    Curve
   727Q15-APP-U1
      1   -122518.8     6000.0        273.4      2495.2 lb   N
      2    -61757.6     3236.0        167.3      2495.2 lb   N
      3    -31377.1     1644.0        153.0      3143.6 lb   N
      4    -19224.8     1007.0        149.8      4854.6 lb   N
      5     -7072.6      370.0        147.6      4682.3 lb   N
      6         0.0        0.0        140.0      9300.0 lb   N
      7      3433.5        0.0         30.0      1550.0 lb   N
   DC870 -APP-U1
      1   -122518.8     6000.0        273.4      1353.0 lb   N
      2    -61757.6     3236.0        174.3      1353.0 lb   N
      3    -31377.1     1644.0        154.1      4103.3 lb   N
      4    -19224.8     1007.0        148.9      4821.0 lb   N
      5     -7072.6      370.0        146.7      4649.9 lb   N
      6         0.0        0.0        139.2     13200.0 lb   N
      7      4853.5        0.0         30.0      2200.0 lb   N
   DC930 -APP-U1
      1   -122518.8     6000.0        273.4      1749.9 lb   N
      2    -61757.6     3236.0        169.9      1749.9 lb   N
      3    -31377.1     1644.0        155.9      2019.8 lb   N
      4    -19224.8     1007.0        144.6      4010.0 lb   N
      5     -7072.6      370.0        142.5      3867.7 lb   N
      6         0.0        0.0        135.2      8700.0 lb   N
      7      3215.5        0.0         30.0      1450.0 lb   N
   S-76  -APP-U1
      1    -23696.8     2500.0        160.0         3.0      N
      2    -18836.0     2000.0        160.0         3.0      N
      3    -14582.7     1500.0        160.0         3.0      N
      4     -9721.8     1000.0        160.0         3.0      N
      5     -4860.9      500.0        160.0         3.0      N
      6         0.0        0.0        160.0         3.0      N
      7         0.0        0.0        160.0         3.0      N
   S-76  -DEP-U1
      1         0.0        0.0         32.0         2.0      N
      2      1376.0        0.0        160.0         2.0      N
      3      4126.0      500.0        160.0         2.0      N
      4      6876.0     1000.0        160.0         2.0      N
      5      6877.0     1000.0        160.0         1.0      N
      6      9626.0     1500.0        160.0         1.0      N
      7     10000.0     1500.0        160.0         1.0      N
      8     15000.0     1500.0        160.0         1.0      N

USER-DEFINED PROCEDURES
         StepType     Flap    ThrType        Param1    Param2(knt)   Param3

FLIGHT OPERATIONS
   AcftId Op Prof Rwy Track  Group    Day       Eve       Night
   727Q15 APP U1  09R  TR9   0 COM   19.6000    0.0000    2.8000
   727Q15 APP U1  27R  TR8   0 COM   50.4000    0.0000    7.2000
   727Q15 DEP S1  09L  TR1   0 COM    3.0000    0.0000    0.5000
   727Q15 DEP S1  09R  TR3   0 COM   21.0000    0.0000    2.5000
   727Q15 DEP S1  27R  TR2   0 COM    6.0000    0.0000    1.0000
   727Q15 DEP S2  09L  TR1   0 COM    2.6000    0.0000    0.6000
   727Q15 DEP S2  09R  TR3   0 COM   16.5000    0.0000    4.0000
   727Q15 DEP S2  27R  TR2   0 COM    4.4000    0.0000    1.4000
   727Q15 DEP S3  09L  TR1   0 COM    1.2000    0.0000    0.1000
   727Q15 DEP S3  09R  TR3   0 COM    8.0000    0.0000    0.5000
   727Q15 DEP S3  27R  TR2   0 COM    1.8000    0.0000    0.4000
   737300 APP S1  09R  TR9   0 COM    0.4200    0.0000    0.1400
```

```
737300 APP S1  27R  TR8  0 COM    1.0800    0.0000    0.3600
737300 DEP S1  09L  TR1  0 COM    1.5000    0.0000    0.5000
737300 DEP S2  09R  TR3  0 COM    0.5000    0.0000    0.0000
747200 APP S1  09R  TR9  0 COM    0.8400    0.0000    0.0000
747200 APP S1  27R  TR8  0 COM    2.1600    0.0000    0.0000
747200 DEP S1  09L  TR1  0 COM    1.1000    0.0000    0.0000
747200 DEP S2  09L  TR1  0 COM    1.1000    0.0000    0.0000
747200 DEP S3  09L  TR1  0 COM    1.1000    0.0000    0.0000
757PW  APP S1  09R  TR9  0 COM    1.6800    0.0000    0.2800
757PW  APP S1  27R  TR8  0 COM    4.3200    0.0000    0.7200
757PW  DEP S2  09L  TR1  0 COM    1.5000    0.0000    0.0000
757PW  DEP S3  09R  TR3  0 COM    2.5000    0.0000    0.0000
A300   APP S1  09R  TR9  0 COM    0.5600    0.0000    0.2800
A300   APP S1  27R  TR8  0 COM    1.4400    0.0000    0.7200
A300   DEP S2  27R  TR2  0 COM    2.0000    0.0000    0.0000
A300   DEP S3  27R  TR2  0 COM    1.0000    0.0000    0.0000
BEC58P APP S1  17   TR11 0 GA    29.4000    0.0000    3.5000
BEC58P APP S1  35   TR10 0 GA    12.6000    0.0000    1.5000
BEC58P DEP S1  17   TR6  0 GA    30.0000    0.0000    3.0000
BEC58P DEP S1  35   TR5  0 GA    13.0000    0.0000    1.0000
BEC58P CIR S1  17   TR14 0 GA     4.6000    0.0000    0.0000
BEC58P TGO S1  17   TR14 0 GA    18.4000    0.0000    0.0000
DC1030 APP S1  09R  TR9  0 COM    6.1600    0.0000    0.5600
DC1030 APP S1  27R  TR8  0 COM   15.8400    0.0000    1.4400
DC1030 DEP S1  09L  TR1  0 COM    1.5000    0.0000    0.0000
DC1030 DEP S1  27R  TR2  0 COM    1.5000    0.0000    0.0000
DC1030 DEP S2  09L  TR1  0 COM    2.5000    0.0000    0.0000
DC1030 DEP S2  27R  TR2  0 COM    3.0000    0.0000    0.0000
DC1030 DEP S3  27R  TR2  0 COM    1.0000    0.0000    0.0000
DC1030 DEP S4  09L  TR1  0 COM    2.0000    0.0000    0.0000
DC1030 DEP S4  27R  TR2  0 COM    1.0000    0.0000    0.0000
DC1030 DEP S5  27R  TR2  0 COM    0.5000    0.0000    0.0000
DC1030 DEP S6  27R  TR2  0 COM    0.5000    0.0000    0.0000
DC870  APP U1  09R  TR9  0 COM    6.1600    0.0000    0.5600
DC870  APP U1  27R  TR8  0 COM   15.8400    0.0000    1.4400
DC870  DEP S1  09R  TR3  0 COM    2.0000    0.0000    0.5000
DC870  DEP S1  27R  TR2  0 COM    2.0000    0.0000    0.5000
DC870  DEP S2  09R  TR3  0 COM    3.5000    0.0000    1.0000
DC870  DEP S2  27R  TR2  0 COM    3.5000    0.0000    1.0000
DC870  DEP S3  09R  TR3  0 COM    1.0000    0.0000    0.0000
DC870  DEP S3  27R  TR2  0 COM    1.0000    0.0000    0.0000
DC870  DEP S4  09R  TR3  0 COM    1.5000    0.0000    0.0000
DC870  DEP S4  27R  TR2  0 COM    2.5000    0.0000    0.0000
DC870  DEP S5  09R  TR3  0 COM    0.5000    0.0000    0.0000
DC870  DEP S5  27R  TR2  0 COM    1.0000    0.0000    0.0000
DC870  DEP S6  27R  TR2  0 COM    0.5000    0.0000    0.0000
DC930  APP U1  09R  TR9  0 COM   19.6000    0.0000    1.1200
DC930  APP U1  27R  TR8  0 COM   50.4000    0.0000    2.8800
DC930  DEP S1  09L  TR1  0 COM   26.5000    0.0000    0.5000
DC930  DEP S1  09R  TR3  0 COM   26.5000    0.0000    0.5000
DC930  DEP S2  09L  TR1  0 COM    8.0000    0.0000    0.5000
DC930  DEP S2  09R  TR3  0 COM    8.0000    0.0000    0.5000
DC930  DEP S3  09L  TR1  0 COM    1.5000    0.0000    0.0000
DC930  DEP S3  09R  TR3  0 COM    1.5000    0.0000    0.0000
MD81   APP S1  09R  TR9  0 COM    1.1200    0.0000    0.1400
MD81   APP S1  27R  TR8  0 COM    2.8800    0.0000    0.3600
MD81   DEP S1  09R  TR3  0 COM    3.0000    0.0000    0.5000
MD81   DEP S2  09L  TR1  0 COM    1.0000    0.0000    0.0000
S-76   APP U1  17   TR11 0 GA     3.5000    0.0000    0.0000
S-76   APP U1  35   TR10 0 GA     1.5000    0.0000    0.0000
```

```
   S-76   DEP U1  17   TR7  0 GA     5.0000    0.0000    0.0000
   SABR80 APP S1  17   TR11 0 GA    17.5000    0.0000    1.4000
   SABR80 APP S1  35   TR10 0 GA     7.5000    0.0000    0.6000
   SABR80 DEP S1  17   TR6  0 GA    12.5000    0.0000    0.5000
   SABR80 DEP S1  27R  TR4  0 GA     3.0000    0.0000    0.1000
   SABR80 DEP S1  35   TR5  0 GA    30.5000    0.0000    2.5000

RUNUP OPERATIONS
          ID    X(nmi)   Y(nmi)   Head  Thrust    Time(sec) Day         Eve      Night
   747200 A01   0.0000    0.0000   93.0 41971.0 lb    1.0   10.0000    0.0000    0.0000

USER-DEFINED METRICS
           Type      Family     Day    Eve   Night  Time(dB)

USER-DEFINED FLAP COEFFICIENTS
          Flap   Op  Coeff R   Coeff C_D  Coeff B

USER-DEFINED JET THRUST COEFFICIENTS
               ThrType    CoeffE   Coeff F    CoeffGA       CoeffGB          CoeffH

USER-DEFINED PROP THRUST COEFFICIENTS
               ThrType  Efficiency Power

GRIDS
                     X(nmi)       Y(nmi)     Ang(deg)       DistI(nmi)  DistJ(nmi) NI NJ
   CNR Contour    -8.2289      -8.2289        0.0          16.4579     16.4579    2  2
   D01 Detailed    1.8104       0.4937        0.0           0.0000      0.0000    1  1
   S01 Standard   -0.4937       0.2469        0.0           0.1646      0.1152    2  3

RUN OPTIONS
   Run Type      : SingleMetric
   NoiseMetric   : DNL
   TA Threshold  : 85.0 dB
   Do Terrain    : No
   Do Contour    : Yes
   Refinement    : 6
   Tolerance     : 1.00
   Do Population : No
   Do Locations  : No
   Do Stand.Grid : Yes
   Do Detail.Grid: Yes
   Low Cutoff    : 65.0
   High Cutoff   : 75.0
   Compute System Metrics:
      DNL    : No
      CNEL   : No
      LAEQ   : No
      LAEQD  : No
      LAEQN  : No
      SEL    : No
      LAMAX  : No
      TALA   : No
      NEF    : No
      WECPNL : No
      EPNL   : No
      PNLTM  : No
      TAPNL  : No
```

L. EXAMPLE PROCEDURES FOR AC91-53A

The following two DBF files show example data for Close-in and Distant NADPs. The NADP Procedure Steps were derived from standard data by using the methods in Sections 8.9.14 and 8.9.15. The standard data are also shown for comparison.

```
File: C:\INM\CPP\TEST\SAVE\PROFILE.DBF
Last update: 13-Sep-1994
Fields(5):
 1  ACFT_ID      C   6
 2  OP_TYPE      C   1
 3  PROF_ID1     C   1
 4  PROF_ID2     C   1
 5  WEIGHT       N   6.0
Records(3):
 747200 , D , C , 4 , 610000            { C = Close-in NADP  }
 747200 , D , D , 4 , 610000            { D = Distant NADP   }
 747200 , D , S , 4 , 610000            { S = standard profile }

File: C:\INM\CPP\TEST\SAVE\PROCEDUR.DBF
Last update: 14-Sep-1994
Fields(11):
 1  ACFT_ID      C   6
 2  OP_TYPE      C   1
 3  PROF_ID1     C   1
 4  PROF_ID2     C   1
 5  STEP_NUM     N   2.0
 6  STEP_TYPE    C   1
 7  FLAP_ID      C   6
 8  THR_TYPE     C   1
 9  PARAM1       N   7.1
10  PARAM2       N   5.1
11  PARAM3       N   7.1
Records(27):
 747200 , D , C , 4 ,  1 , T , 10     , T ,     0.0 ,   0.0 ,     0.0
 747200 , D , C , 4 ,  2 , C , 10     , T ,   800.0 ,   0.0 ,     0.0
 747200 , D , C , 4 ,  3 , C , 10     , R ,  3000.0 ,   0.0 ,     0.0
 747200 , D , C , 4 ,  4 , A , 10     , C ,  1000.0 , 195.1 ,     0.0
 747200 , D , C , 4 ,  5 , A , 5      , C ,   750.0 , 235.1 ,     0.0
 747200 , D , C , 4 ,  6 , A , ZERO   , C ,   750.0 , 255.1 ,     0.0
 747200 , D , C , 4 ,  7 , C , ZERO   , C ,  5500.0 ,   0.0 ,     0.0
 747200 , D , C , 4 ,  8 , C , ZERO   , C ,  7500.0 ,   0.0 ,     0.0
 747200 , D , C , 4 ,  9 , C , ZERO   , C , 10000.0 ,   0.0 ,     0.0

 747200 , D , D , 4 ,  1 , T , 10     , T ,     0.0 ,   0.0 ,     0.0
 747200 , D , D , 4 ,  2 , C , 10     , T ,   800.0 ,   0.0 ,     0.0
 747200 , D , D , 4 ,  3 , A , 10     , T ,  1508.0 , 195.1 ,     0.0
 747200 , D , D , 4 ,  4 , A , 5      , C ,   750.0 , 235.1 ,     0.0
 747200 , D , D , 4 ,  5 , C , ZERO   , R ,  3000.0 ,   0.0 ,     0.0
 747200 , D , D , 4 ,  6 , A , ZERO   , C ,   750.0 , 255.1 ,     0.0
 747200 , D , D , 4 ,  7 , C , ZERO   , C ,  5500.0 ,   0.0 ,     0.0
 747200 , D , D , 4 ,  8 , C , ZERO   , C ,  7500.0 ,   0.0 ,     0.0
 747200 , D , D , 4 ,  9 , C , ZERO   , C , 10000.0 ,   0.0 ,     0.0
```

```
747200 , D , S , 4 ,  1 , T , 10     , T ,     0.0 , 165.3 ,     0.0
747200 , D , S , 4 ,  2 , C , 10     , T ,  1000.0 ,   0.0 ,     0.0
747200 , D , S , 4 ,  3 , A , 10     , T ,  1508.0 , 195.1 ,     0.0
747200 , D , S , 4 ,  4 , A , 5      , C ,   750.0 , 235.1 ,     0.0
747200 , D , S , 4 ,  5 , C , ZERO   , C ,  3000.0 ,   0.0 ,     0.0
747200 , D , S , 4 ,  6 , A , ZERO   , C ,   750.0 , 255.1 ,     0.0
747200 , D , S , 4 ,  7 , C , ZERO   , C ,  5500.0 ,   0.0 ,     0.0
747200 , D , S , 4 ,  8 , C , ZERO   , C ,  7500.0 ,   0.0 ,     0.0
747200 , D , S , 4 ,  9 , C , ZERO   , C , 10000.0 ,   0.0 ,     0.0
```

M. PROCEDURE STEP DETAILS

The table below shows the types of data values that are placed in the last three fields of a Procedure Step record. These fields are called PARAM1, PARAM2, and PARAM3. They take on a different meaning for each combination of operation type, procedure step type, and thrust type. A missing entry in a flap-identifier or thrust-type field means that blanks should be put in that field. For example, a departure operation (D) level step (V) should have a valid flaps identifier, a blank thrust type, altitude, speed, and distance-flown values.

OP_TYPE	STEP_TYPE	FLAP_ID	THR_TYPE	PARAM1	PARAM2	PARAM3
A,D,T,F,V	V	ID		ALT	SPD	DIST
A,T,F,V	D	ID		ALT	SPD	ANG
A,T,F	L	ID		DIST	0	0
A,F	B			DIST	SPD	PCT
D,F	T	ID	T,C,N	0	0	0
D,F	T	ID	U	0	0	THR
T	T	ID	T,C,N	0	SPD	0
T	T	ID	U	0	SPD	THR
D,T,F	C	ID	T,C,N,R	ALT	0	0
D,T,F	C	ID	K,U	ALT	0	THR
D,T,F	A	ID	T,C,N,R	CLM	SPD	0
D,T,F	A	ID	K,U	CLM	SPD	THR
V	M	ID		ALT	SPD	ANG
F	S	ID		0	0	0

OP_TYPE
- A = Approach
- D = Depart
- T = Touch&Go
- F = CircuitFlight
- V = OverFlight

STEP_TYPE
- V = Level
- D = Descend
- L = Land
- B = Decelerate
- T = Takeoff
- C = Climb
- A = Accelerate
- M = CruiseClimb
- S = LevelStretch

THR_TYPE
- T = MaxTakeoff
- C = MaxClimb
- N = MaxContinue
- R = ReduceThrust
- K = UserCutback
- U = UserValue

PARAM
- THR = Thrust
- ALT = Altitude
- SPD = Speed
- DIST = Distance
- ANG = Angle
- PCT = Percent
- CLM = Climb Rate

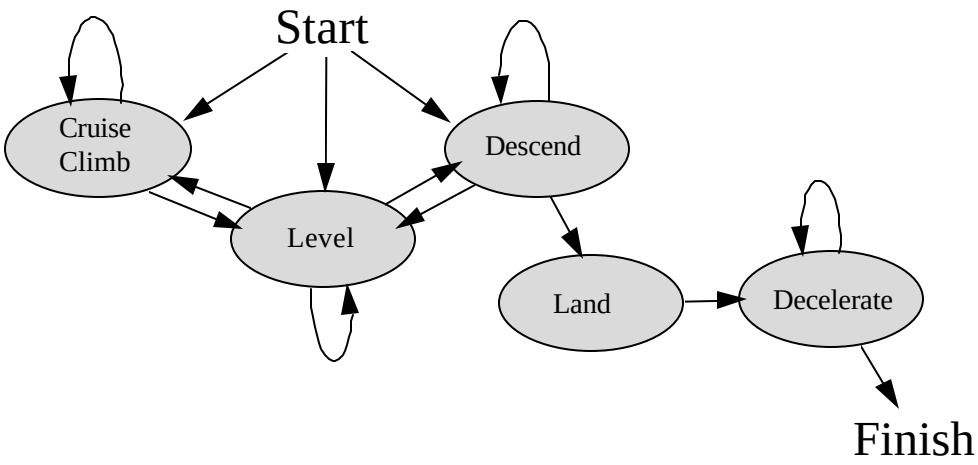
The five diagrams on the following pages show the allowed transitions from one type of procedure step to another for each of the five kinds of flight operations.

In these diagrams:

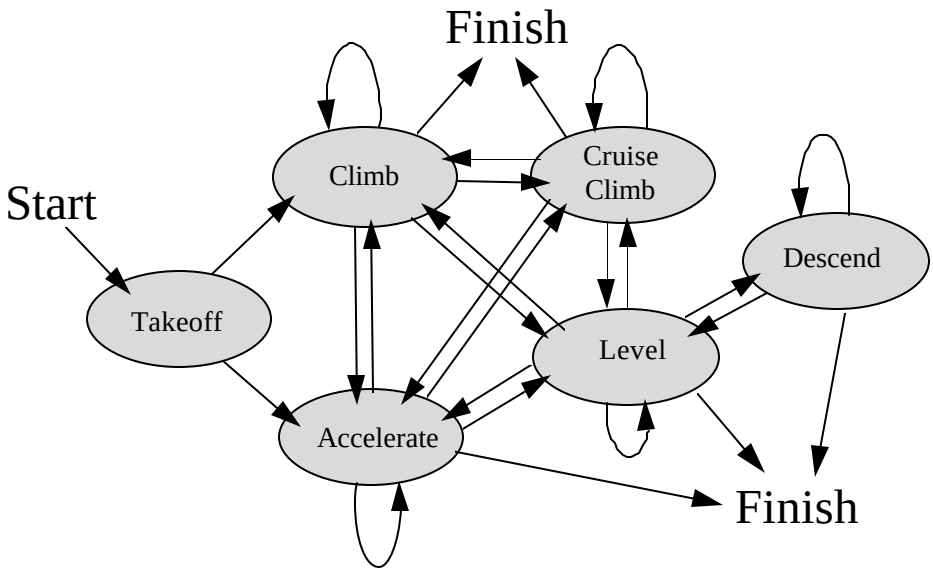
- the type of procedure step (STEP_TYPE) is represented by an ellipse

- an allowed transition is indicated by an arrow.

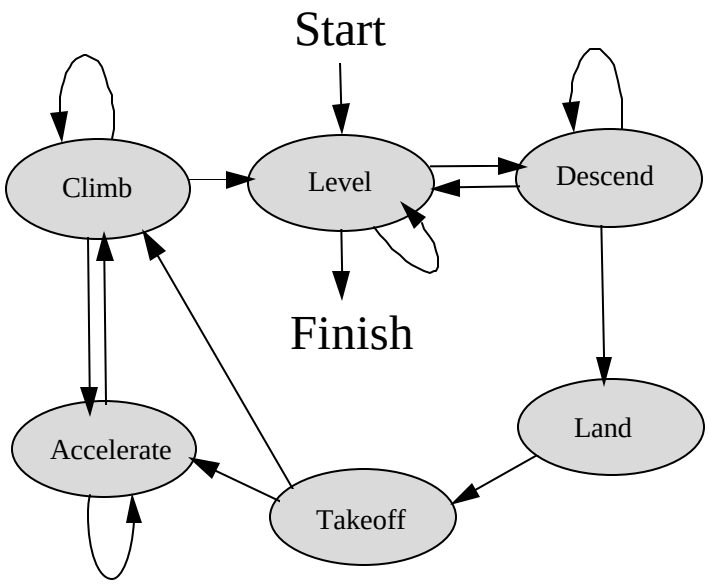
Approach Operation
Procedure Step Transition Diagram



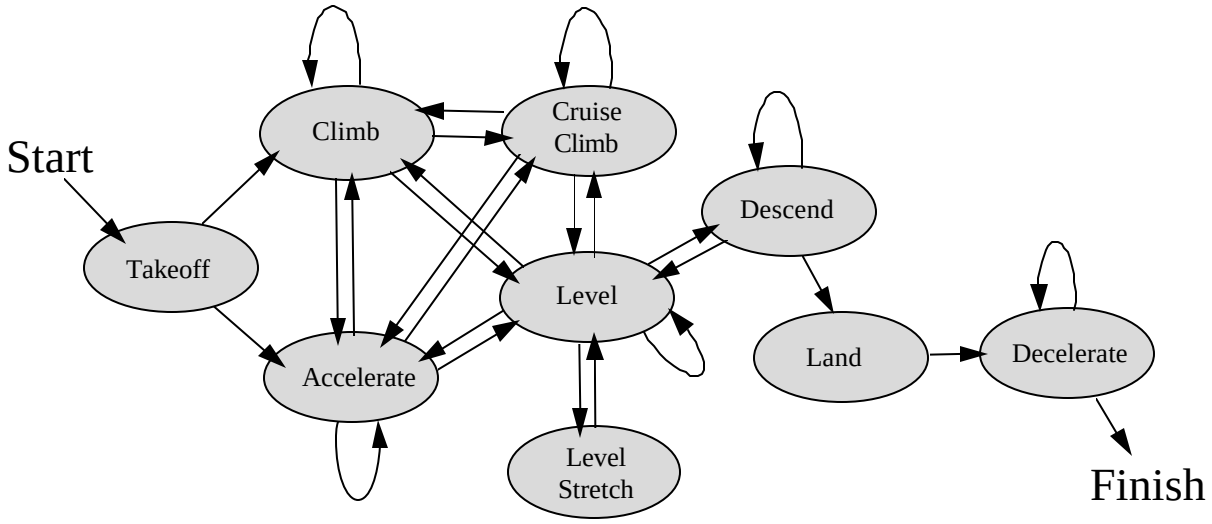
Departure Operation
Procedure Step Transition Diagram



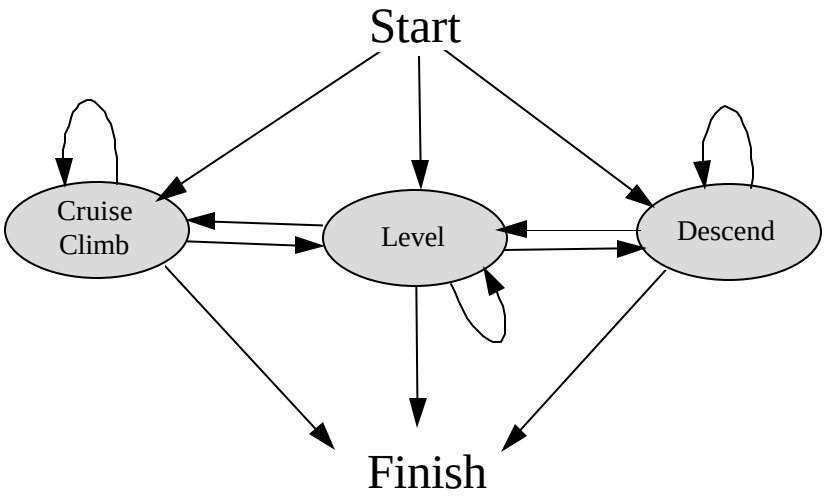
Touch and Go Operation
Procedure Step Transition Diagram



Circuit Flight Operation
Procedure Step Transition Diagram



Overflight Operation
Procedure Step Transition Diagram



N. TERRAIN ELEVATION FILE FORMAT

The INM terrain file, which has a "3CD" file extension, is a binary file of elevation data in integer meters. The first part of the file -- the elevation data -- is in the same format as the source data 3CD files distributed by Micropath (see Appendix A.3). The last part of the file is unique to INM. The file format is the same as used in INM 4.11.

Record#	Data Item
0 to 1442400	Elevation data in integer meters above mean sea level. Use C "short int" type (size of record is 2 bytes). A record number can be computed by: rec = 1201 * i + j where (0,0) is the SW corner, i = 0..1200 increases East, and j = 0..1200 increases North. There are 1201 x 1201 elevation values. The distance between adjacent points is 3 arc-seconds. The matrix of points covers a 1-deg x 1-deg area.
1442401	Minimum elevation in meters (short int, 2 bytes)
1442402	Maximum elevation in meters (short int, 2 bytes)
1442403	Reserved (8 bytes)
1442407	Southeast corner (long int, 4 bytes) Encoded SE latitude/longitude value = 100000*(100*LatDeg + LatMin) + (100*LongDeg + LongMin) Note: north latitude and west longitude only.
1442409	Reserved (2 bytes)
1442410	Latitude distance metric (feet/arc-second) (float, 4 bytes)
1442412	Longitude distance metric (feet/arc-second) (float, 4 bytes)
1442414	Change in latitude metric (feet/arc-sec^2) (float, 4 bytes)
1442416	Change in longitude metric (feet/arc-sec^2) (float, 4 bytes)

Note: Only elevation data and SE-corner data are used in INM 5.1

Non-U.S. Users: If your airport is in the eastern or southern hemispheres, you must translate its coordinates to a fictitious location that has north latitude and west longitude. The reason is that the SE-corner encode equation cannot take negative numbers. Also, the COMP50 terrain function is programmed such that latitude increases to the north and longitude increases to the west.

O. PL94-171 CD-ROM DATA EXTRACTION

The population data on the PL94-171 CD-ROM are in dBase format, one DBF file for each U.S. state. The INM PREPROC Census processor scans a DBF file looking for records that have summary level 750 (SUMLEV = 750), which indicates that the population count data on the record apply at the Census Block level. The following data are extracted from the record:

Description	Field	Start	Size
Block	BLCK	47	4
Block Numbering Area	TRACTBNA	52	6
County Code	CNTY	72	3
State FIPS Code	STATEFP	133	2
Land Area	AREALAND	172	10
Latitude	INTPLAT	269	9
Longitude	INTPLNG	278	10
Population Count	POP100	291	9

A 15-character population point identifier is used in INM. It is a concatenation of the above identifiers (including any blank characters), as follows:

```
INM Population Point Id  =  STATEFP + CNTY + TRACTBNA + BLCK
```

The data are written to a _CP.BIN binary file, which can be converted to a POP_PTS.DBF file via a PREPROC Census conversion function.

The State FIPS Code (a number) can be identified with a U.S. state by referring to the FIPSTATE.DAT text file in the PROCESS \ CENSUS subdirectory.

P. OAG FILE FORMAT

All records in the OAG Basic Chronological Diskette adhere to a column format. Each record contains 59 columns. The rules for the column format are specified in this Appendix.

The first two records of an OAG Basic Chronological Diskette contain header information. The OAG Processor ignores these two records.

Column	Field Name	Description
Record 1		
1-10	Copyright	Contains "COPYRIGHT"
11-14	Copyright year	Year in which the file was created.
15-47	Copyright data	This field contains a portion of Official Airline Guides statutory copyright notice.
48-59	Blank	Blank Spaces
Record 2		
1-19	City/State	City and State of the copyright data.
20-59	Blank	Blank Spaces
Records 3 to End of File		
1-3	Port1	This is the 3 character selected airport code for this record. It is usually the source/destination for the INM airport under study.
4-7	Time1	Depending on the direction of travel (col 46), the time field indicates arrival or departure time. If the direction field contains a T' it is the arrival time of the selected port. If the direction field contains an F' it is the departure time of the selected port.
8-10	Carrier code	Airline carrier code for this flight.
11-14	Flight number	Flight number for this flight.
15-21	Frequency	This field contains the days of the week for this flight. There are seven spaces in this record each representing a day of the week. Position 15 is for Monday and position 21 is for Sunday. A number in the position indicated the flight is active for that day. For example a 1' in position 15 indicated the flight is active on Monday. A 2' in position 16 indicates the flight is active on Tuesday. A blank space in any position indicates the flight is not active on that day.

22-24	Port2	This field contains a 3 position port code. If the direction (col 46) code is T', this field is the airport from which the flight originated. If the direction code is F', this airport represents the destination of the flight.
25-27	Equipment	The three character code representing the airplane or helicopter equipment used for this flight. A list of airplane codes supported by this program is given in the file OAG_SUB.DBF. Helicopter codes such as BH2 (Bell Helicopters), S58 (Sikorsky S-58T), NDE (Aerospatiale AS 350/AS 355 Ecureuil) and NDH (Aerospatiale SA 365 Dauphin 2) are not supported.
28-37	Class of service	Type of class of service used for this flight. This field is not read by the OAG processor.
38-41	Effective date	The beginning date for which this record applies. The format is MMDD. If this record is blank, the effective begin date is the first day of the month.
42-45	Discontinue date	The ending date for which this record applies. The format is MMDD. If this record is blank, the end date is the last day of the month.
46	Direction	This field contains either a "T" or an "F" depending on whether the information for the selected port (Port1) is an arrival or departure. F=Departure from Port1 T=Arrival to Port1
47-55	Issue date	This field contains the effective issue date of the ACTS02.ACTOUT file. The information is in MMMDDYYYY format. MMM is a three character code for the month.
56-59	Time2	This field represents the Port2 time. If the selected airport Port1 is the arrival airport, then this field is the departure time form Port2. If Port1 is the departure airport, then this field is the arrival time for port2. This field is not read by the OAG processor.

The following listing contains a sample of an OAG Basic Chronological Diskette.

```
COPYRIGHT 1994 BY OFFICIAL AIRLINE GUIDES,
OAK BROOK, ILLINOIS
ORD0001UA  120123456 LAX757FYBMQ     09070930TSEP0119941815
ORD0001UA  120      7LAX757FYBMQ     09100924TSEP0119941815
ORD0005AA 22841234567DFWM80FYBMV     0907    TSEP0119942200
ORD0007AA 22841234567DFWM80FYBMV         0906TSEP0119942200
ORD0008UA  2421234567DEN320FYBMQ         0902TSEP0119942059
ORD0008UA  242123    DEN320FYBMQ     09040906TSEP0119942059
ORD0543AA  650123456 LASM80FYBMV     0907    TSEP0119940025
ORD0543AA 1036      7LASM80FYBMV     0911    TSEP0119940025
ORD0722UA  705  3    BUF735FYBMQ     09070907TSEP0119940650
ORD0722UA  705123456 BUF73AFYBMQ     09080926TSEP0119940650
ORD0722UA  705      7BUF732FYBMQ     09110925TSEP0119940650
ORD0722UA  705  345  BUF73AFYBMQ     09280930TSEP0119940650
ORD1015UA  316  3    ICT732FYBMQ     09070907TSEP0119940835
ORD1015UA  3161234567ICT735FYBMQ     09080930TSEP0119940835
ORD1237AA 20981234567SJCM80FYBMV         0906TSEP0119940632
ORD1514NW  19812345 7MSP320FYBMH     0915    TSEP0119941400
ORD1709UA 53951234567MKE146YBMQH             TSEP0119941630
```

```
ORD1710DL 16671234567JFK72SFYBMH     0912    TSEP0119941530
ORD1710H9  12812345  CGXNDEY                 TSEP0119941700
ORD1803UA 15271234567BNA732FYBMQ     09070930TSEP0119941630
```

Q. FLIGHT PATH FILE FORMAT

The FLIGHT.PTH file is a binary file containing three-dimensional flight paths for Case-specific aircraft operations.

The following file format specification uses C++ data structures. All strings are zero terminated. The file is packed on 1-byte boundaries.

The binary file starts with a header section:

```
struct FF_Header
   // Data at the beginning of the flight file
   {
   char    case_id [80];       // full path name of case subdirectory
   double  aprt_lat;           // airport latitude (seconds +N)
   double  aprt_long;          // airport longitude (seconds +E)
   float   aprt_elev;          // airport elevation (feet)
   float   aprt_temp;          // airport temperature (degF)
   float   aprt_press;         // airport pressure (in-Hg)
   float   ta_thresh;          // time-above threshold (dB)
   short   rs_refine;          // max number of refinement levels
   float   rs_toler;           // tolerance test value (dB or min)
   char    run_type;           // type of run (single or multi metric)
   char    metric_id [7];      // metric identifier (single metric)
   char    fq_type;            // type of freq. weighting (multimetric)
   float   min_level;          // minimum contour level (dB, minutes)
   float   max_level;          // maximum contour level (dB, minutes)
   char    metric_type;        // type of metric (expos, lmax, ta)
   float   metric_weight [3];  // day, evening, night weights
   float   metric_time;        // 10 log( time / ref. time )
   char    do_contour_grid;    // file contains a contour grid (0,1)
   char    do_standard_grids;  // file contains standard grids (0,1)
   char    do_detailed_grids;  // file contains detailed grids (0,1)
   char    do_metric [13];     // metric calculation array (0=no, 1=yes)
   char    do_terrain;         // terrain calculation (0=no, 1=yes)
   char    terrain_file [90];  // full path name of terrain file
   short   numb_noise;         // number of noise-curve records
   long    numb_acft;          // number of aircraft ops (flt + rnup)
   long    numb_grids;         // number of grids
   long    numb_pop_pts;       // number of population points
   long    numb_loc_pts;       // number of location points
   };
   // do_metric[13] order:
   // DNL, CNEL, LAEQ, LAEQD, LAEQN, SEL, LAMAX, TALA,
   // NEF, WECPNL, EPNL, PNLTM, TAPNL
```

The next section in the file contains the Noise curves. FF_Noise records are written into the file such that records for given Noise identifier are contiguous and the thrust values increase from low to high values. There are "numb_noise" FF_Noise records, and they are implicitly indexed from zero to (numb_noise – 1). FF_Acft records reference a set of FF_Noise records by employing a starting index and the number of records in the set. In this way, one set of Noise data can serve all Aircraft.

```
struct FF_Noise
   // Data for a pair of noise curves.
   // Standard speed of 160 knots.
   // Noise is given for 10 distances:
   // 200, 400, 630, 1000, 2000, 4000, 6300, 10000, 16000, 25000 feet
   {
   float  thrust;       // corrected net thrust per engine (lb, %, epr, other)
   char   curve_type;   // type of noise curve (N=normal, A=afterburner)
   float  expos [10];   // single-event noise exposure level (dB)
   float  lmax  [10];   // maximum noise level (dB)
   };
```

The next section contains aircraft operations, and it comprises the bulk of the file. For each aircraft operation, a FF_Acft record is written, followed by either a FF_Runup record or a FF_Flight record. If there is a FF_Flight record, it is follow by multiple FF_Segment records. The run-up operations are written first, followed by the flight operations. There are "numb_acft" operations.

```
struct FF_Acft
   // Data for an aircraft operation
   {
   char   acft_id [7];   // inm aircraft type id string
   char   eng_type;      // type of engine (J, T, P)
   char   owner_cat;     // owner category (C, G, M)
   char   op_type;       // type of operation (A, D, T, F, V, R=run-up)
   float  numb_ops [3];  // array of number of ops (day, eve, nght)
   short  first_a_noise; // index of the first A-weighted noise record
   short  numb_a_noise;  // number of A noise records for this acft
   short  first_p_noise; // index of the first P-weighted noise record
   short  numb_p_noise;  // number of P noise records for this acft
   char   model_type;    // type of attenuation model (I=inm, N=noisemap)
   };

struct PointXY
   // Two-dimensional point
   {
   float x, y;
   };

struct FF_Runup
   // Data for a runup-type operation
   {
   char     runup_id [4];  // runup pad id string
   PointXY  point;         // x,y of runup pad
   float    heading;       // aircraft heading (deg from N)
   float    thrust;        // corrected net thrust per engine (lb, %, epr, other)
   float    duration;      // time duration of runup event (sec)
   };

struct FF_Flight
   // Data for a flight-type operation
   {
   char   op_type;       // type of operation (A, D, T, F, V)
   char   prof_id1 [2];  // profile group id string
   char   prof_id2 [2];  // profile stage id string
```

```
   char   rwy_id [4];    // runway end id string
   char   trk_id1 [5];   // track id string
   char   trk_id2 [2];   // sub-track id string
   short  numb_segs;     // number of path segments
   };

struct PointXYZ
   // Three-dimensional point or vector
   {
   float x, y, z;
   };

struct FF_Segment
   // Data for a flight path segment
   {
   PointXYZ  start;      // segment start x,y,z (z AFE) point (ft)
   PointXYZ  unit;       // unit vector along the segment
   float     length;     // length of the path segment (ft)
   float     speed;      // start speed (knt)
   float     delta_spd;  // change in speed along segment (knt)
   float     thrust;     // start thrust (lb, %, epr, other)
   float     delta_thr;  // change in thrust along segment (lb, %, epr, other)
   char      curve_type; // type of noise curve (N=normal, A=afterburner)
   };
```

The next section in the file contains grid information. For each grid specified by the user, a FF_Grid record is written. The data members "point" and "numb_points" are set to zero. These two variables are enabled when the file is read. There are "numb_grid" FF_Grid records.

```
struct FF_Grid
   // Data for observer grid geometry
   {
   char      grid_id [4];  // grid id string
   char      grid_type;    // type of grid (C, S, D)
   PointXY   origin;       // x,y of lower-left grid point (ft)
   float     angle;        // angle from X-axis to I-axis (deg)
   float     delta_i;      // distance between I-points (ft)
   float     delta_j;      // distance between J-points (ft)
   short     numb_i;       // number of I-points
   short     numb_j;       // number of J-points
   PointXY*  point;        // pointer to array of grid points
   long      numb_points;  // number of grid points in the array
   };
```

If the user asked for noise to be calculated at population points, the next section in the file contains the X,Y values for the population points. The points are in the same order as in the POP_PTS DBF file (the point identifiers are not written into the FLIGHT.PTH file). There are "numb_pop_pts" PointXY records.

If the user asked for noise to be calculated at location points, the next section in the file contains the X,Y,Z values for the location points. The points are in the same order as in the LOC_PTS DBF file. There are "numb_loc_pts" PointXYZ records.

The following example file shows the data that are passed from the flight path calculation module to the noise calculation module. This is a text version of the FLIGHT.PTH file.

```
HEADER (study and case static data)

  case_id           = F:\INM5\EXAMPLES\TEST411\BASECASE
  aprt_lat          = 143533.00  (airport latitude, sec north)
  aprt_long         = -270882.00 (airport longitude, sec west)
  aprt_elev         = 0.00       (airport elevation, ft)
  aprt_temp         = 59.00      (airport temperature, F)
  aprt_press        = 29.92      (airport pressure, in-Hg)
  ta_thresh         = 85.00      (time-above threshold, dB)
  rs_refine         = 6          (refinement parameter)
  rs_toler          = 1.00       (tolerance parameter, dB)
  run_type          = S          (case run type = single-metric)
  metric_id         = DNL        (noise metric to compute)
  fq_type           = A          (noise family = A-weighted)
  metric_type       = E          (metric type = exposure)
  metric_weight     = 1.00, 1.00, 10.00  (day, evening, night ops)
  metric_time       = 49.37      (10 log( T/1s), dB)
  min_level         = 55.0       (minimum contour cutoff, dB)
  max_level         = 85.0       (maximum contour cutoff, dB)
  do_contour_grid   = 1          (yes)
  do_standard_grids = 1          (yes)
  do_detailed_grids = 1          (yes)
  do_metric         = 0, 0, 0, 0, 0, 1, 1, 1, 0, 0, 0, 0, 0 (CNEL=no DNL=no etc.)
  do_terrain        = 0          (no)
  terrain_file      =            (none)
  numb_noise        = 110        (number of noise curves)
  numb_acft         = 80         (number of flight+runup operations)
  numb_grid         = 3          (number of grids)
  numb_pop_pts      = 0          (number of population points)
  numb_loc_pts      = 0          (number of locations points)

NOISE (index, thrust, type, 10 SEL or EPNL values, 10 LMAX or PNLTM values)

  0   3000.0 N  96.6  92.8  89.8  86.8  81.8  75.4  71.0  65.6  59.2  52.2
                96.9  90.2  85.6  80.6  72.8  64.3  58.1  51.2  43.3  34.8
  1   6000.0 N 101.8  98.0  95.1  92.0  87.0  80.9  76.2  70.8  64.4  57.4
               101.1  94.4  89.8  84.8  77.0  68.5  62.3  55.4  47.5  39.0
  2   8000.0 N 106.3 102.6  99.7  96.7  91.7  85.7  81.1  75.8  69.6  62.8
               106.1  99.4  94.8  89.8  82.0  73.6  67.5  60.6  52.9  44.6
  3  10000.0 N 111.0 107.2 104.5 101.5  96.6  90.6  86.1  81.0  74.9  68.3
               111.2 104.5  99.9  95.0  87.2  78.8  72.8  66.1  58.5  50.5
  4  12000.0 N 115.8 112.1 109.4 106.5 101.6  95.8  91.3  86.2  80.4  74.1
               116.6 109.9 105.3 100.4  92.5  84.3  78.4  71.7  64.4  56.6
  5  14000.0 N 121.1 117.4 114.8 112.0 107.1 101.4  97.0  92.1  86.4  80.4
               122.1 115.4 110.8 106.0  98.1  89.9  84.1  77.6  70.4  62.9

(... and so on for more noise indexes)

AIRCRAFT OPERATIONS (runup and flight operation data)

0 (runup/flight operation index)
  acft_id     = 747200    (aircraft identifier)
  eng_type    = J         (engine type = jet)
  owner_cat   = C         (user category = commercial)
  op_type     = R         (operation type = runup)
  numb_ops    = 10.0000, 0.0000, 0.0000  (day, evening, night)
```

```
  frst_a_nois = 24        (first A-weighted index, above table)
  numb_a_nois = 5         (number of A-weighted noise curves)
  frst_p_nois = 29        (first perceived-weighted index)
  numb_p_nois = 5         (number of perceived noise curves)
  model_type  = I         (attenuation model type, I=INM N=Noisemap)
  runup_id    = R1        (runup identifier)
  point       = 0.0, 0.0  (runup pad x,y location, ft)
  heading     = 93.0      (deg ccw from north)
  thrust      = 41996.5   (corrected net pounds per engine)
  duration    = 1.0       (runup duration, sec)
1
  acft_id     = 727Q15
  eng_type    = J
  owner_cat   = C
  op_type     = A  (approach)
  numb_ops    = 19.6000, 0.0000, 2.8000
  frst_a_nois = 0
  numb_a_nois = 6
  frst_p_nois = 6
  numb_p_nois = 6
  model_type  = I
  flt_path    = A-U3-09R-TR9 (0)  (path id = optype-profile-runway-track(sub))
  numb_segs   = 21                (number of flight path segments)
  0 (flight path segment index)
    start  = -126404.5, -13175.6, 6000.0  (starting x,y,z point, ft)
    unit   = 0.9834, 0.1754, -0.0454      (unit vector)
    length = 6758.2                       (segment length, ft)
    speed  = 273.5, -11.8                 (speed, and change in speed, knt)
    thrust = 809.2, 187.3                 (thrust, and change in thrust, lb)
    thrset = N                            (thrust setting type N=normal A=afterburn)
  1
    start  = -119758.2, -11989.8, 5692.9
    unit   = 0.9834, 0.1754, -0.0454
    length = 6758.2
    speed  = 261.7, -11.8
    thrust = 996.5, 187.3
    thrset = N
  2
    start  = -113111.9, -10804.1, 5385.8
    unit   = 0.9834, 0.1754, -0.0454
    length = 6758.2
    speed  = 249.9, -11.8
    thrust = 1183.9, 187.3
    thrset = N
  3
    start  = -106465.6, -9618.4, 5078.7
    unit   = 0.9834, 0.1754, -0.0454
    length = 6758.2
    speed  = 238.1, -11.8
    thrust = 1371.2, 187.3
    thrset = N

(... and so on for more path segments and flight operations)

GRIDS (grid definitions)

0 (grid index)
  grid_id   = CNR
  grid_type = C               (contouring window grid)
  origin    = -50000, -50000  (lower-left corner x,y point, ft)
```

```
  angle     = 0.0             (angle of I-axis from X-axis, deg cw)
  delta_i,j = 100000, 100000  (distances between grid points, ft)
  numb_i,j  = 2, 2            (number of points in I and J directions)
    0  x,y  = -50000, -50000  (list of x,y points in the grid, ft)
    1  x,y  = -50000, 50000
    2  x,y  = 50000, -50000
    3  x,y  = 50000, 50000
1
  grid_id   = D01
  grid_type = D (detailed grid)
  origin    = 11000, 3000
  angle     = 0.0
  delta_i,j = 0, 0
  numb_i,j  = 1, 1
    0  x,y  = 11000, 3000
2
  grid_id   = S01
  grid_type = S (standard grid)
  origin    = -3000, 1500
  angle     = 0.0
  delta_i,j = 1000, 700
  numb_i,j  = 2, 3
    0  x,y  = -3000, 1500
    1  x,y  = -3000, 2200
    2  x,y  = -3000, 2900
    3  x,y  = -2000, 1500
    4  x,y  = -2000, 2200
    5  x,y  = -2000, 2900

POPULATION POINTS
   (x,y list goes here)

LOCATION POINTS
   (x,y list goes here)
```

R. INM MAP PROJECTION METHOD

The mapping of latitude-longitude coordinates to and from INM x-y coordinates is accomplished by projecting a small portion of the earth's surface onto a cone. The transformation equations are outlined below.

Let $A = 6378137.000$ m = radius of the equator circle (WGS-84 spheroid).
$B = 6356752.314$ m = distance from earth center to the N and S pole.

$\phi_o \ \lambda_o$ = latitude and longitude of the origin of the x-y coordinate system.
$\phi \ \lambda$ = latitude and longitude of a point on the earth (radians).
$x \ y$ = coordinate values of the same point (meters, 1852 m/nmi).

North latitude is positive and south latitude is negative. East longitude is positive and west longitude is negative. Positive x is toward the east, and positive y is toward the north.

The two principal radii of curvature at latitude ϕ_o are:

$$R_p = A^2 / \text{sqrt}(A^2 \cos^2\phi_o + B^2 \sin^2\phi_o)$$
$$R_m = R_p^3 B^2 / A^4$$

where,

R_p = radius of curvature (m) in a plane perpendicular to a meridian plane
R_m = radius of curvature (m) in a meridian plane.

A cone is constructed with its vertex on the line of poles, tangent to the earth spheroid along a latitude circle at ϕ_o. The cone is cut from edge to vertex and unfolded so that it lies flat. An x-y coordinate system is constructed on the unfolded cone. The x-axis is tangent to the latitude circle at ϕ_o, and the y-axis is tangent to the longitude ellipse at λ_o.

For conic projections, latitude circles (parallels) map into circles centered on the vertex of the unfolded cone, and longitude ellipses (meridians) map into straight lines that converge at the vertex of the unfolded cone.

For points on the y-axis, the y-coordinate is accurately approximated by the meridian arc-distance:

$$x = 0$$
$$y = R_m (\phi - \phi_o) .$$

For points off the y-axis, the y=constant coordinates lie on a conic circle centered at the vertex of the unfolded cone. For this case, the x-coordinate is approximated by the arc-distance along a conic circle; and the y-coordinate is approximated by the y-value at x=0 plus a parabolic correction:

$$x = (R_p \cos\phi_o - y_o \sin\phi_o) (\lambda - \lambda_o)$$
$$y = y_o + E_o x^2$$

where,

$$y_o = R_m (\phi - \phi_o)$$
$$E_o = \tfrac{1}{2} \tan\phi_o / R_p$$

An exact inverse transformation is provided by the following equations:

$$\phi = \phi_o + y_o / R_m$$
$$\lambda = \lambda_o + x / (R_p \cos\phi_o - y_o \sin\phi_o)$$

where,

$$y_o = y - E_o x^2$$

The above conic projection method provides a simple and very quick transformation between latitude-longitude and x-y coordinates. (The radii of curvature R_p R_m, the sine and cosine terms $\cos\phi_o$ $\sin\phi_o$, and the off-axis correction coefficient E_o are constants that are calculated only once.) A computationally quick transformation is required because lat/long values are calculated and displayed for every movement of the mouse pointer when in lat/long mode in an INM graphics window.

The INM conic projection method is not exactly conformal (angles on the earth do not exactly map into the same angles in the x-y coordinate system). However, the method is very accurate within an area of approximately one hundred miles around the origin of coordinates.

For example, if the origin is at 45°N 90°E, a 1-km square on the earth's surface located at 46°N 91°E (about 73 nmi from the origin), when mapped into INM x-y coordinates, is 23 cm longer in the east-west direction and 25 cm shorter in the north-south direction. By comparison, the same 1-km square mapped by the standard Mercator projection method is 1786 cm larger in both directions.

S. INM INITIALIZATION FILE

INM stores various user preferences as program initialization information. In Version 5.1, these data are kept in a text file, INM.INI, located in the same directory as INM.EXE. In this way INM remembers your settings between sessions.

The settings in the INI file can, for the most part, be managed from within INM.EXE. In all cases, the program uses suitable defaults if a particular setting is missing or incorrect.

For your reference, the following describes the sections and settings.

[Recent Study List]

```
1=D:\INM5\INM\STUDIES\ENGLISH1\STUDY.INM
2=D:\INM5\INM\STUDIES\TEST411\STUDY.INM
3=K:\NETWORK\INM5\SFO\STUDY.INM
4=
5=
```

This section lists the five most recently used INM Studies. Each Study name is a full file path specification. INM.EXE manages this list for you automatically, and display Studies in order on the File menu. INM.EXE tries to automatically load Study 1 when the program is started.

[Operations Filter]

```
CDialog=******D**17******
```

This section saves the last flight operation filter (search criteria) that you used. This value is a key mask for an OPS_CALC.DBF record.

[FONTS]

```
CINMRowView=-11,0,400,0,0,34,MS Sans Serif      // font for row views
CStaticDoc=-38,0,400,0,0,49,Courier New         // font for the printer
CStdReportView=-24,0,400,0,0,49,Roman 10cpi     // font for printing echo report
CEditViewRO=-13,0,400,0,0,49,Lucida Console     // font for progress reports (msg files)
```

This section saves your font preferences for INM print jobs, output tables, and text windows. You should not change the INI file values; use the Font selection dialogs in INM.EXE instead. Note that the actual fonts available vary among computers and printers, and between operating systems on a given machine, so fonts that work well for you might not be optimal for a co-worker at a different workstation.

[PRINTER]

```
Margins=0.5,0.5,0.5,0.5
```

This section saves your preferred margin settings (in inches) for printing INM database records. Typically, you would set these from the Margins command available on the INM Print dialog box when you need to adjust your printed output. The margins are in the order of Left, Top, Right, Bottom.

[File Save]

```
Directory=D:\inm5\inm\studies\TEST_RLB\
Format=1,1
Range=1
```

This section saves your choices for using the File // Export As function to write database records.

Directory is the path to the last file written.

Format is the last file format used. The first number is the file type: 0 = dBase, 1 = fixed length, 2 = quote delimited. The second number is the point location format for those data that export either lat/long or x,y coordinates (e.g., runway ends): 0 = x,y coordinates, 1 = lat/long.

Range is the set of records written: 0 = selected records only, 1 = all records.

[OPTIONS]

```
Units=0
CToolBar=1,32
CStatusBar=1
RecordDelete=1
RecordCommit=0
BackupInterval=2
```

Units is the measurement system INM uses as a default for new Studies and for some display purposes: 0 = English units, 1 = metric units. Users outside the U.S. may want to change this to 1. This switch can only be changed by editing the INI file.

CToolBar displays or hides the bar of 'shortcut' buttons at the top of the INM main window, and configures 'prompts' for various INM commands. Tool bar display: 1 = show the bar, 0 = hide the bar. Prompts that describe the action a menu item or tool bar button performs can appear as text on the INM status bar (on the left side) or as 'balloons': 0 = turn off all prompts, 16 = show tip 'balloons', 32 = show tips on status bar, 48 = show tips in 'balloons' and as status bar text. INM manages your tool bar display preference, however the 'prompts' display can only be changed by editing the INI file.

CStatusBar display or hide the information bar at the bottom of the INM main window: 1 = show the bar, 0 = hide the bar. INM manages this for you via the Window menu.

RecordDelete can be turned on or off: 1 = on, 0 = off. Turn it on if you want INM to prompt you each time you try to delete a record; the record will not be deleted without your confirmation. Turn it off if you want deletes to occur without confirmation. This switch can only be changed by editing the INI file.

RecordCommit can be turned on if you want INM to check with you before committing changes for any record you modify. INM commits your changes in a variety of situations (for example, when you close a window), so this can be useful if you want to always be aware when your changes are committed. This switch has no effect on the Edit // Commit (check mark button) command. This switch can only be changed by editing the INI file.

BackupInterval is in minutes. INM automatically writes all changed input database files to disk, similar to most word processors. You can set this to 0, or delete the item entirely to eliminate automatic backups. This switch has no effect on the File // Save (floppy disk button) command. This switch can only be changed by editing the INI file.

Like most relational databases, INM.EXE writes data to your disk at arbitrary times. Once you commit a record you can assume that the change is permanent. When a Study is saved, either manually or automatically, the modified files are completely written.

```
[INM Text Data]

Input=D:\inm5\process\txt2dbf\test.txt
Output=D:\inm5\process\txt2dbf\
Flags=0 0 0 1
Import=1
Convert=1
Units=E
Latitude=61.174337,N,Y
Longitude=-149.006212

[Radar Track Data]

Input=D:\inm5\process\radartrk\test50.csv
Output=D:\arts\data\dbase\
Import=0
Convert=1
Units=M
Latitude=61.174337,N,Y
Longitude=-149.006212
```

For convenience, INM saves your instructions each time you use one of the source data processors available via the File // Import item. Currently there are two such data converters — one for formatted text inputs and one for track data. The entries in these sections are seen in the dialog boxes you set up inside of INM, which will manage these settings for you.

INM Order Form

FAA Integrated Noise Model Version 5.1

Id Number_____(from previous orders) Date_____

First Name_____ Last Name_____

Company_____

Division_____

Street_____

U.S. City_____ State_____ Zip+4_____

Non-U.S.
City and Postal Code_____

Country_____

Phone_____ Fax_____

Email_____

Number of copies of INM 5.1 at **$250** each _____ $ _____

Number of extra User's Guides at **$50** each _____ $ _____

Total Enclosed $ _____

_____

Payment: Please send a check, money order, or purchase order payable to "ATAC", with this Order Form to:

Ms. Lois Masin
ATAC Corporation
757 N. Mary Ave.
Sunnyvale, CA 94086

Phone (408) 736-2822
Fax (408) 736-8447
Email loismasin@atac.com

ATAC will accept a valid company purchase order and will send the invoice with your INM shipment. You can fax or email your order if you include the company purchase order. ATAC cannot accept payment by credit card.

Licensing: An INM package must be purchased for each distinct company address (site), although copies may be made to permit several individuals at one site to use INM. The User's Guide may be photocopied. Additional User's Guides can be purchased for $50 each.

Package: The INM package includes five 3.5-inch diskettes and a 350-page User's Guide. The package price also includes minor upgrades, a Technical Manual (pending), limited technical support, and shipping and handling costs. INM 5.1 runs on a PC using the Windows 95, NT 3.51, or NT 4.0 operating system.

Delivery: U.S. orders will be sent via U.S. Mail and non-U.S. orders via Air Mail. Express delivery (for example, FedEx) can be used if you request such delivery and include your express delivery account number so that the delivery cost is billed to you.