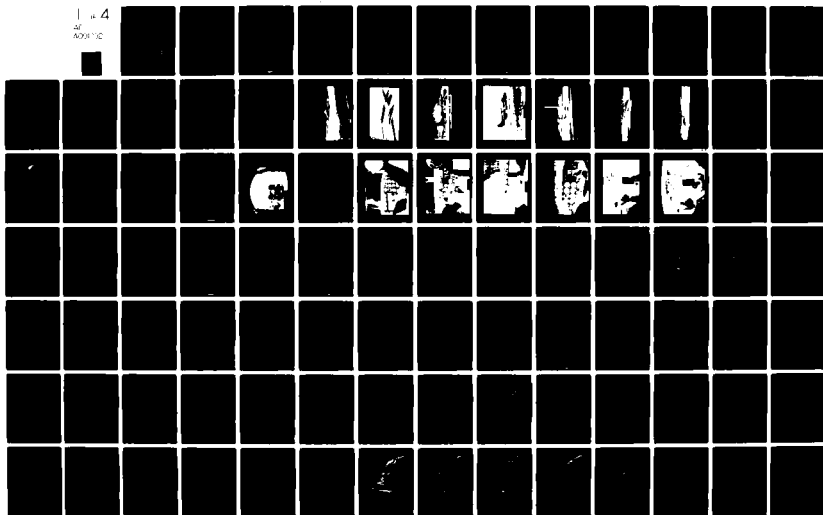


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NOISE LEVELS AND DATA CORRECTION ANALYSIS FOR SEVEN GENERAL AVI--ETC(U)
SEP 80 D W FORD, E J RICKLEY
FAA/EE-80-26 NL

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U.S. Department
of Transportation
Federal Aviation
Administration

Noise Levels and Data Correction Analysis for Seven General Aviation Propeller Aircraft

Office Of Environment
And Energy
Washington, D.C. 20591

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June 1980

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Edward J. Rickley

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13. Type of Report and Period Covered 9 Final Report.	14. Sponsoring Agency Code FAA	
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16. Abstract This document reports noise levels of a general aviation propeller aircraft noise test at the FAA National Aviation Facility Experimental Center located in Atlantic City, New Jersey. The test was performed to acquire noise data on general aviation type aircraft and examine how these noise levels are influenced by variables such as distance, aircraft speed, power settings, and propeller speeds. Aircraft were tested during takeoff, approach, and flyover modes and data are given in EPNL and in 'A'-weighted decibels. All measurements were performed in accordance with FAR 36 Appendix C and Appendix F procedures.		
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PREFACE

Recently, much attention has been focused on general aviation (G.A.) noise, primarily because of the increasing population of general aviation aircraft. FAA studies show a G.A. fleet of 154 thousand aircraft in 1971 increasing to 184 thousand in 1978. The forecast is that this steadily increasing trend will continue. Also, G.A. aircraft have always been regarded as making negligible noise relative to the larger commercial transport aircraft. However, with the advent of nighttime curfews on the larger transports, G.A. aircraft are almost the only aircraft flying during the "sensitive hours." Thus, more notice is being given to their noise levels.

This test was performed to acquire acoustical information on general aviation propeller aircraft. This information can be used to broaden the FAA's capability in predicting aircraft noise around airports. In this report, factors influencing general aviation noise such as propeller tip speeds, aircraft weight, and engine power settings are examined. Also, a comparison is made of how general aviation aircraft are regulated for noise, versus the method used for large transport aircraft.

TABLE OF CONTENTS

	<u>Page</u>
PREFACE.....	i
TABLE OF CONTENTS.....	iii
LIST OF FIGURES.....	v
LIST OF TABLES.....	vii
ACKNOWLEDGMENTS.....	viii
SYMBOLS AND ABBREVIATIONS.....	ix
EXECUTIVE SUMMARY.....	1
I. INTRODUCTION.....	4
II. OBJECTIVES.....	5
III. TEST AIRCRAFT.....	5
IV. TEST PROCEDURE.....	6
A. Site Location.....	6
B. Flight Procedure.....	14
V. INSTRUMENTATION.....	17
A. Acoustic.....	17
B. Tracking.....	19
C. Cockpit.....	21
D. Meteorological.....	21
VI. DATA.....	28
A. Existing Standards.....	28
1) Regulations.....	28
2) Measured Data Versus Standards.....	30

	<u>Page</u>
B. Corrections.....	37
1) Pseudotone.....	37
2) Meteorological.....	43
3) Position.....	46
4) Duration.....	49
5) Power.....	52
6) Speed.....	54
7) Performance.....	57
8) Helical Tip Mach Number.....	60
9) Bandsharing.....	85
C. Data Relationships.....	86
1) Sound Level Versus Weight-to-Horsepower Ratio.....	86
2) Appendix F Measurement Versus Appendix C.....	87
VII. References.....	92
APPENDIX A - Tracking	
Reference Track Procedure	
Track Plots	
APPENDIX B - Correction Data Input	
Manufacturers Performance Data	
Position Data	
Cockpit Data	
APPENDIX C - Meteorological Data	
APPENDIX D - Corrected Noise Levels	
APPENDIX E - Noise Level Correction Values	
APPENDIX F - Noncorrected Noise Levels	
APPENDIX G - INM Contour Data	
APPENDIX H - One-Third Octave Frequency Spectra Data	

LIST OF FIGURES

		<u>Page</u>
Figure 1	Piper PA 36 Photo.....	7
Figure 2	Piper PA 31 Photo.....	8
Figure 3	Convair 580 Photo.....	9
Figure 4	Cessna 421 Photo.....	10
Figure 5	Cessna 172N Photo.....	11
Figure 6	Rockwell 690B Photo.....	12
Figure 7	Rockwell 500S Photo.....	13
Figure 8	Microphone Layout.....	15
Figure 9	Map of Microphone Locations.....	16
Figure 10	Acoustical Instrumentation.....	19
Figure 11	Phototheodolite Tracking Station.....	20
Figure 12	Cockpit Photo PA 31.....	22
Figure 13	Cockpit Photo CV 580.....	23
Figure 14	Cockpit Photo 421.....	24
Figure 15	Cockpit Photo 172.....	25
Figure 16	Cockpit Photo 690B.....	26
Figure 17	Cockpit Photo 500S.....	27
Figure 18	Flyover Levels Versus Weight.....	32
Figure 19	Arrival Data Versus Noise Standards.....	34
Figure 20	Departure Data Versus Noise Standards.....	35
Figure 21	1/3 Octave Band Spectra for Flyovers.....	41
Figure 22	1/3 Octave Band Spectra for Flyovers.....	42

	<u>Page</u>
Figure 23	Temperature - Relative Humidity Test Window..... 45
Figure 24	dBA Versus Performance Correction..... 59
Figure 25	dBA Flyovers Versus Tip Mach No. (Method 1)..... 64
Figure 26	dBA Flyovers + Ref. 6 Vs. Tip Mach No. (Method 1). 66
Figure 27	dBA Flyovers Versus Tip Mach No. (Method 2)..... 67
Figure 28	dBA Flyover Vs. Tip Mach No. + Ref. 6 (Method 2).. 68
Figure 29	EPNL Flyover Versus Tip Mach No. (Method 1)..... 69
Figure 30	EPNL Flyovers Versus Tip Mach No. (Method 2)..... 70
Figure 31	dBA Departures Versus Tip Mach No. (Method 1)..... 72
Figure 32	dBA Departures Versus Tip Mach No. (Method 2)..... 73
Figure 33	EPNL Departures Versus Tip Mach No. (Method 1).... 74
Figure 34	EPNL Departures Versus Tip Mach No. (Method 2).... 75
Figure 35	Piper PA31 1/3 Octave Spectra..... 78
Figure 36	CV 580 1/3 Octave Spectra..... 79
Figure 37	Cessna 421C 1/3 Octave Spectra..... 80
Figure 38	Rockwell 690B 1/3 Octave Spectra..... 81
Figure 39	Rockwell 500S 1/3 Octave Spectra..... 82
Figure 40	Departure PNL Versus Flyover dBA..... 90
Figure 41	Arrival PNL Versus Flyover dBA..... 91

LIST OF TABLES

	<u>Page</u>
Table 1 Aircraft Tested.....	4
Table 2 Aircraft Specifications.....	6
Table 3 Regulated and Measured Sound Levels.....	36
Table 4 Change in EPNL from Low Frequency Tone Elimination.....	39
Table 5 Position Correction Comparisons.....	48
Table 6 Duration Correction.....	50
Table 7 Average Helical Tip Mach Numbers.....	52
Table 8 Average Speed Corrections.....	55
Table 9 Performance Correction.....	58
Table 10 Propeller Data.....	61
Table 11 Regression Results on Tip Mach Number.....	76
Table 12 Propeller Tip Thickness Ratio.....	83
Table 13 Regression of Weight on Noise Levels.....	87
Table 14 Regression Equations for EPNL Versus dBA.....	88

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Piper Aircraft Corporation
For providing the Tomahawk, Brave, and Navajo

Cessna Aircraft Company
For providing the Skyhawk and Golden Eagle

Rockwell International
For providing the Turbo and Shrike Commanders

Summit Airlines
For providing the Convair 580

Beech Aircraft Company
For providing the King Air and Bonanza

SYMBOLS AND ABBREVIATIONS

A	-	Ratio of Cruise Horsepower to Maximum Rated Horsepower
ACY	-	Atlantic City Very High Frequency Omnidirectional Aviation Navigational Aid
B	-	Ratio of climb power to takeoff power
BHP	-	Brake Horsepower
BPF	-	Blade Passage Frequency
BRP	-	Brake Release Point
CFA	-	Closest Point of Approach
dBA	-	'A'-Weighted Sound Level
EPNL	-	Effective Perceived Noise Level
FAR	-	Federal Air Regulation
G.A.	-	General Aviation
HP	-	Horsepower
HTM	-	Helical Tip Mach Number
HZ	-	Hertz or Cycles per Second
h	-	Height
ICAO	-	International Civil Aviation Organization
ILS	-	Instrument Landing System
IRIG-B	-	Digital Timing Signal Code
K	-	Constant
Kg	-	Kilogram
LA	-	'A'-Weighted Sound Level
Lbs	-	Pounds
M	-	Meter
PNL	-	Perceived Noise Level
R	-	Reference Condition
R ²	-	Correlation Coefficient
R/C	-	Rate of Climb
RPM	-	Revolutions per Minute
S50	-	Distance to Height of 50 Feet
T	-	Test Condition
V	-	Velocity
VASI	-	Visual Approach Slope Indicator
Vy	-	Speed for Best Rate of Climb
WT	-	Weight

EXECUTIVE SUMMARY

Noise levels of propeller aircraft were compared against Appendix C noise level standards. The test results indicated:

- All aircraft tested in the approach configuration would pass FAR 36, Appendix C, Stage 3 limits.
- The PA 36 was the only aircraft tested that would not meet Stage 3 departure limits, but would meet Stage 2. However, this is an agricultural aircraft which is neither regulated by Appendix C nor Appendix F.

The correction schemes used in this report yielded the following results:

- If Appendix C procedures were applied to Appendix F type aircraft, elimination of low frequency tone corrections from the EPNL calculation could account for as much as a 2 dB change in noise level. However, the frequency of pseudotones resulting from ground reflections fall into the same range as propeller blade passage frequencies, making an elimination of tone corrections in this frequency range inappropriate.

- The FAR 36 measurement position correction limitation of 8 dB (Section A-36.11(f)) is consistent with the test data. Test data show that where the position correction exceeded 8 dB, large inconsistencies appeared.
- The lower the helical tip mach number (HTM) the more exhaust noise makes a measurable contribution to the aircraft noise level. Therefore, a power correction should be considered only when the helical tip mach number drops significantly. This significant value is dependent on the aircraft and the geometry of its propeller.
- Most flyover events did not reach reference speed but did reach reference power.
- Test departure data have an extremely good correlation with the performance correction algorithm.
- Flyover noise is predominantly a function of helical tip mach number.
- Helical tip mach number corrections to reference flyover HTM showed the best correlation to noise levels using the following equation:

$$29 \log \frac{f(\text{REF})}{f(\text{TEST})}$$

$$f = \frac{1}{1 - \text{HTM}^2}$$

- Bandsharing corrections were on the order of 0.1 dB.
- Sound level data showed little dependence on aircraft weight.
- With the limited data available, the arrival and departure PNL could not be related to the flyover dBA.

I. INTRODUCTION

During the week of June 19, 1978, the Federal Aviation Administration (FAA), Office of Environment and Energy (AEE) conducted a noise measurement program involving seven propeller-driven aircraft. This program was performed at the National Aviation Facilities Experimental Center (NAFEC) in Pomona, New Jersey. The actual test plan involved ten aircraft, but weather degraded tracking accuracy to the extent that insufficient data were obtained for three aircraft.

Noise measurement and analysis was provided by Noise Measurement and Assessment Laboratory of the Transportation Systems Center (TSC), Cambridge, Massachusetts. NAFEC supplied aircraft tracking and airspace management and FAA's Dulles Noise Monitoring Laboratory performed track processing and plotting.

The test program included six each of level flyovers, approaches, and takeoffs of the following aircraft:

TABLE 1
AIRCRAFT TESTED

Piper	PA-36-375	Brave	Single Engine
Piper	PA-31-325	Navajo	Twin Engine
Convair	CV580		Twin Engine
Cessna	421C	Golden Eagle	Twin Engine
Cessna	172N	Skyhawk	Single Engine
Rockwell	690B	Turbo Commander	Twin Engine
Rockwell	500S	Shrike Commander	Twin Engine

The three aircraft for which insufficient data were obtained due to weather were:

Piper	PA-38-112	Tomahawk	Single Engine
Beech	C-90	King Air	Twin Engine
Beech		Bonanza	Single Engine

Although no detailed analysis could be performed with the limited data on these aircraft, the 'as measured' data is listed in Appendix F.

II. OBJECTIVE

The three principle objectives of the measurement program were:

- A. To acquire the acoustical data needed for adding to the contour generating data base of the FAA's Integrated Noise Model (INM).
- B. To examine aircraft performance variables affecting noise levels.
- C. To develop an empirical data base of noise levels for FAR 36 Appendix F type aircraft using Appendix C procedures and acoustical metrics.

III. TEST AIRCRAFT

A variety of aircraft were chosen for this test to provide data for a cross-section of engine types and aircraft weights, and performance characteristics. The test aircraft included a Convair 580 which is not categorized as a propeller-driven small aircraft. However, data on this aircraft would not only serve to improve the INM data base

but could also be used to determine noise data relationships between small aircraft and large transport type aircraft. Photographs of the aircraft tested are given in Figures 1-7, and specifications of the aircraft tested are presented in Table 2.

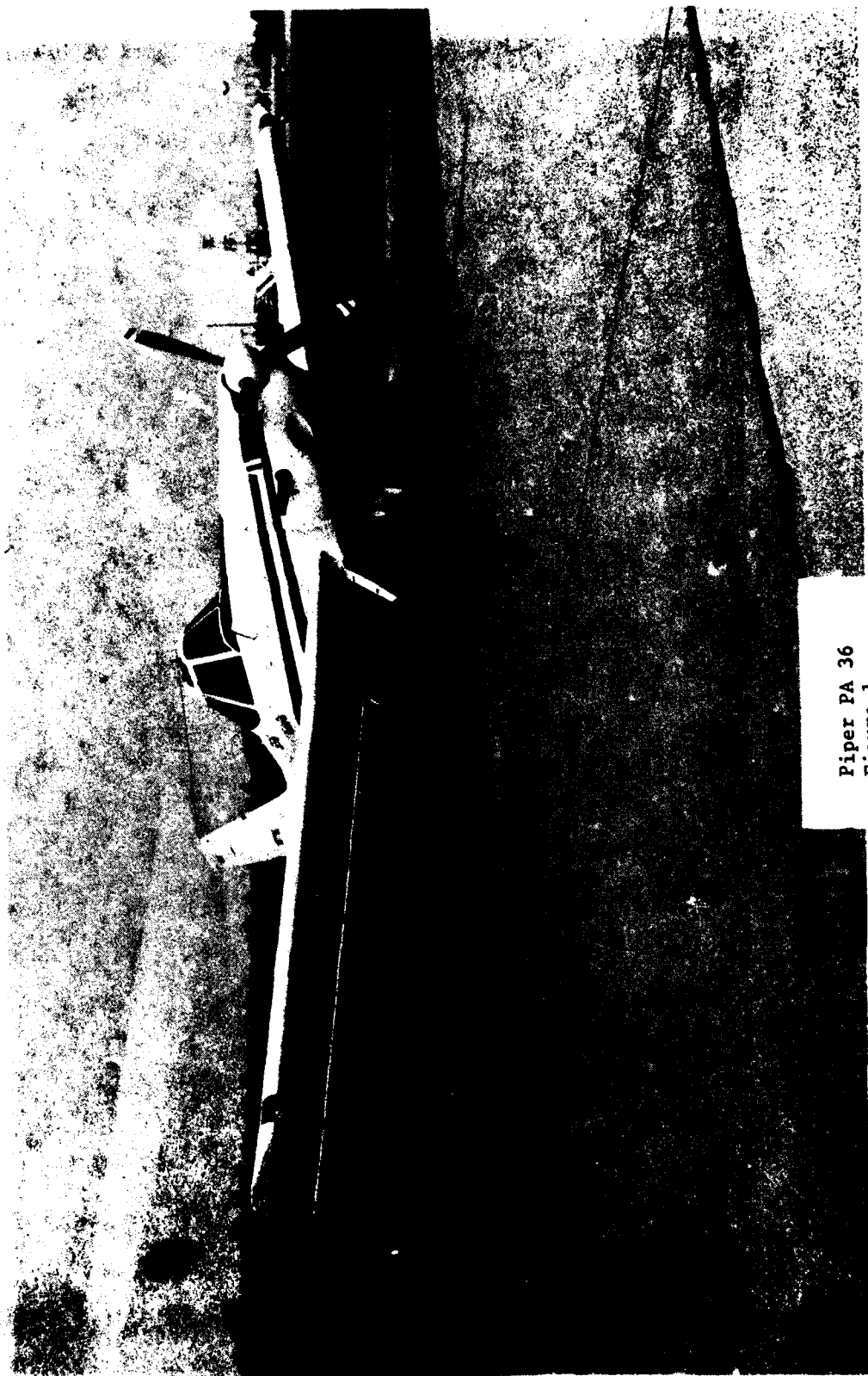
TABLE 2
AIRCRAFT SPECIFICATIONS

<u>Aircraft</u>	<u>Power Plant</u>		<u>Propeller</u>		<u>Test Date</u>	<u>Cert. Date</u>	<u>Weight</u>
	<u>Type</u>	<u>Model</u>	<u>No.</u>	<u>HP</u>			
Piper PA-36-375	Normally-Aspirated	I0-720-DICD	1	375	F8475R	6/19/78	10/4/77 4800
Piper PA-31-325	Turbo-charged	T10-540-F2BD/ LT10-540-F2BD	2	325	FC846B-GR FOC846B-GR	6/20/78	5/5/74 6500
Convair CV580	Turbo-prop	Allison 501D13	2	3400	AG441FN-606A	6/20/78	4/21/60 54600
Cessna 421C	Turbo-charged	GTS10-520-L	2	375	McC.-90UMB-0	6/21/78	10/20/75 7450
Cessna 172N	Normally-Aspirated	O-320-H2AD	1	160	McC.-1C160/ DTM7557	6/21/78	5/17/76 2300
Rockwell 690B	Turbo-prop	TPE-331-5-251K	2	717.5	HC-B3TN-5FL/ LT10282H+4	6/23/78	10/10/76 10320
Rockwell 500S	Normally-Aspirated	I0-540-E1B5	2	290	HC-A3VK-2/ HC-C3YR-2	6/23/78	5/15/68 6750

IV. TEST PROCEDURE

A. Site Location

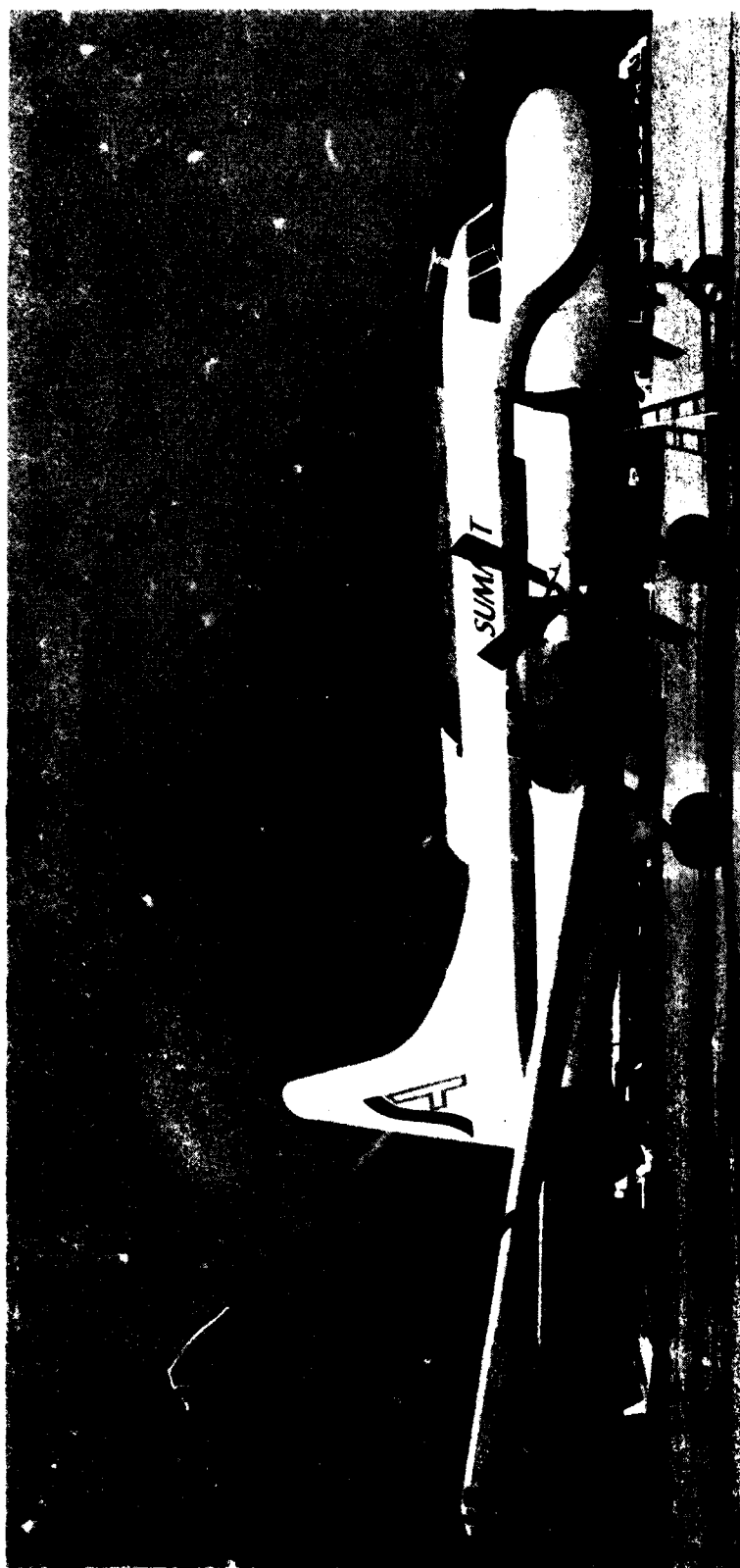
Four microphone systems were deployed along the extension of NAFEC's runway 31-13 centerline. Local terrain and ambient noise conditions prevented microphone placement at exact FAR 36 locations. However, each location was placed as close to the



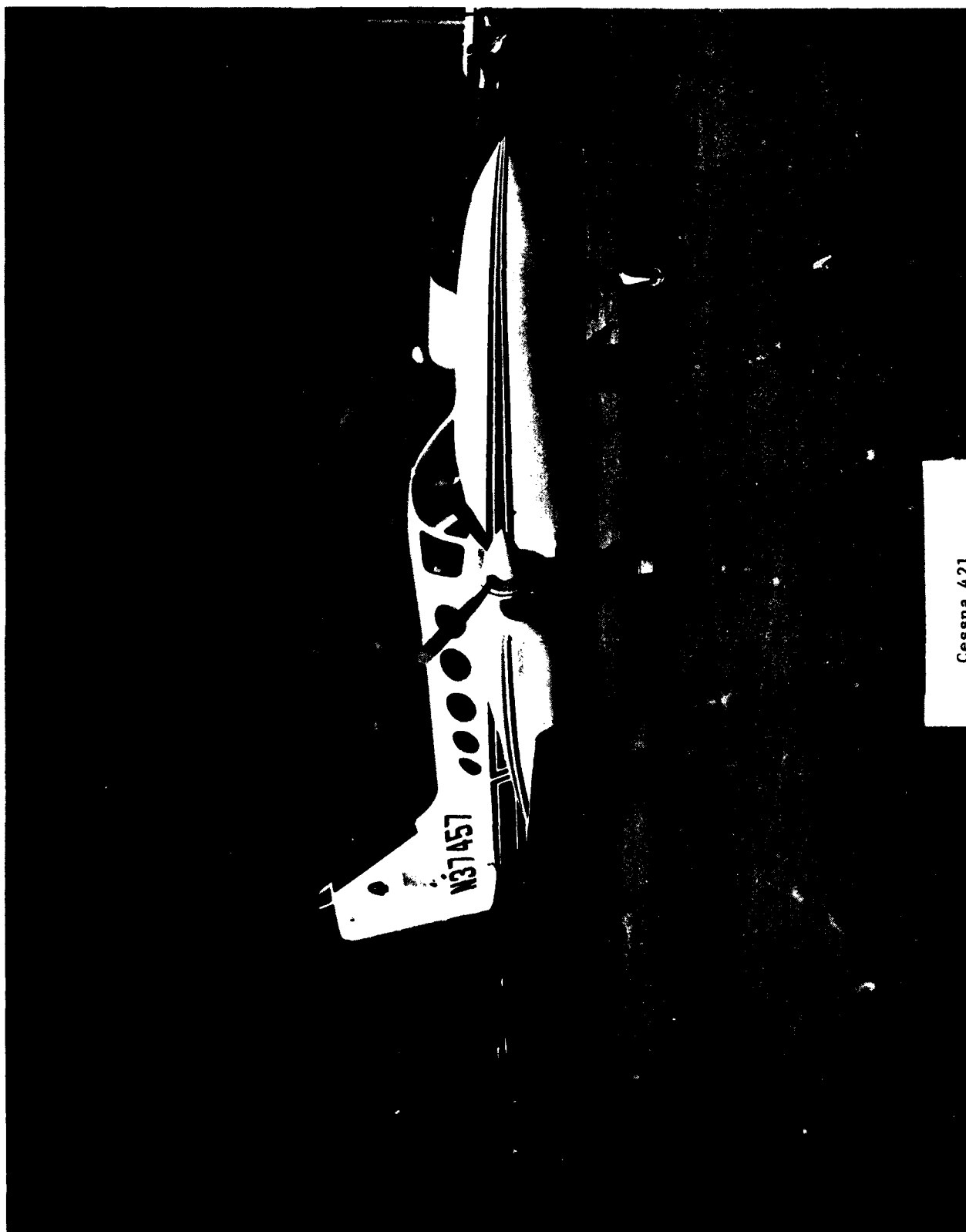
Piper PA 36
Figure 1



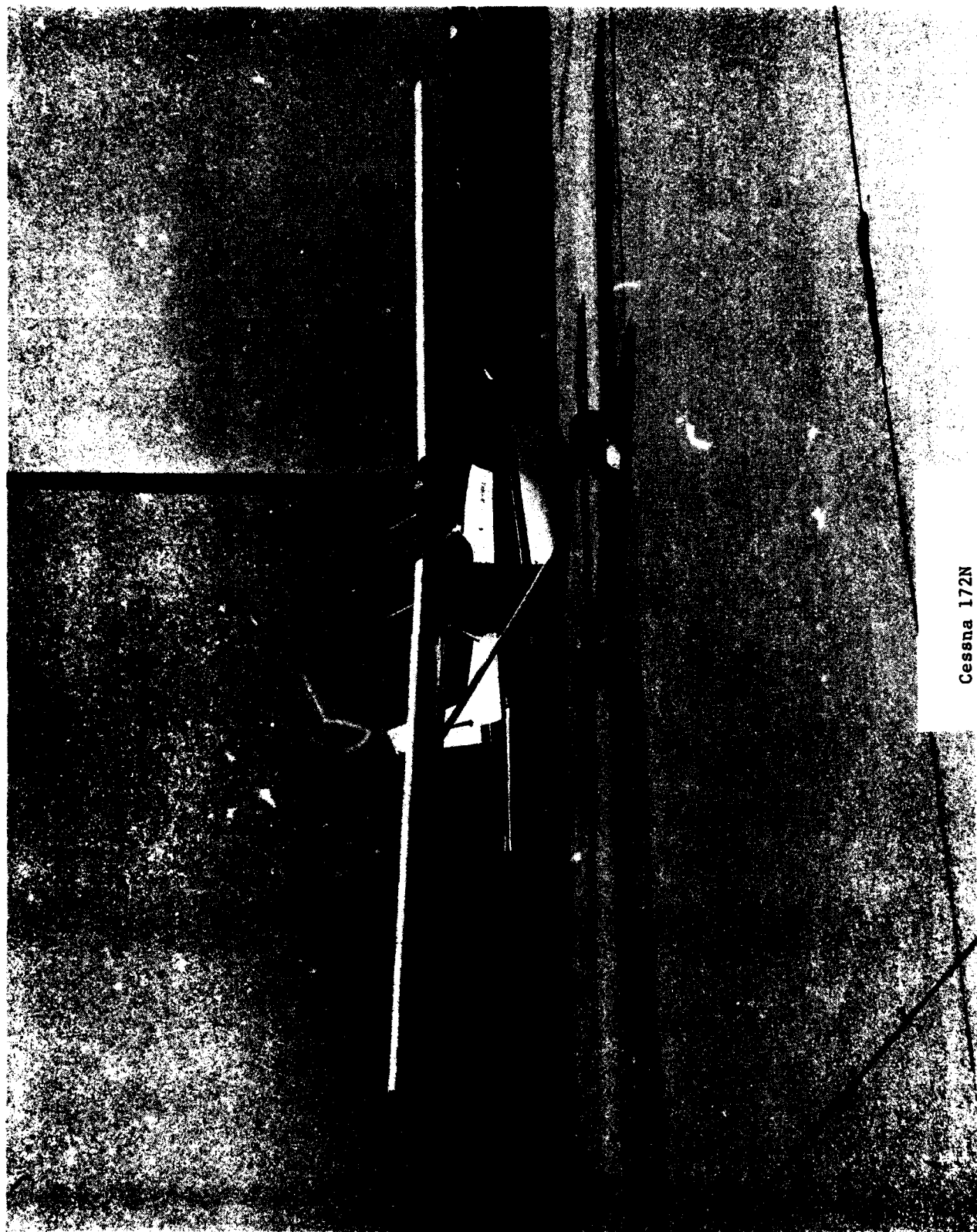
Piper PA 31
Figure 2



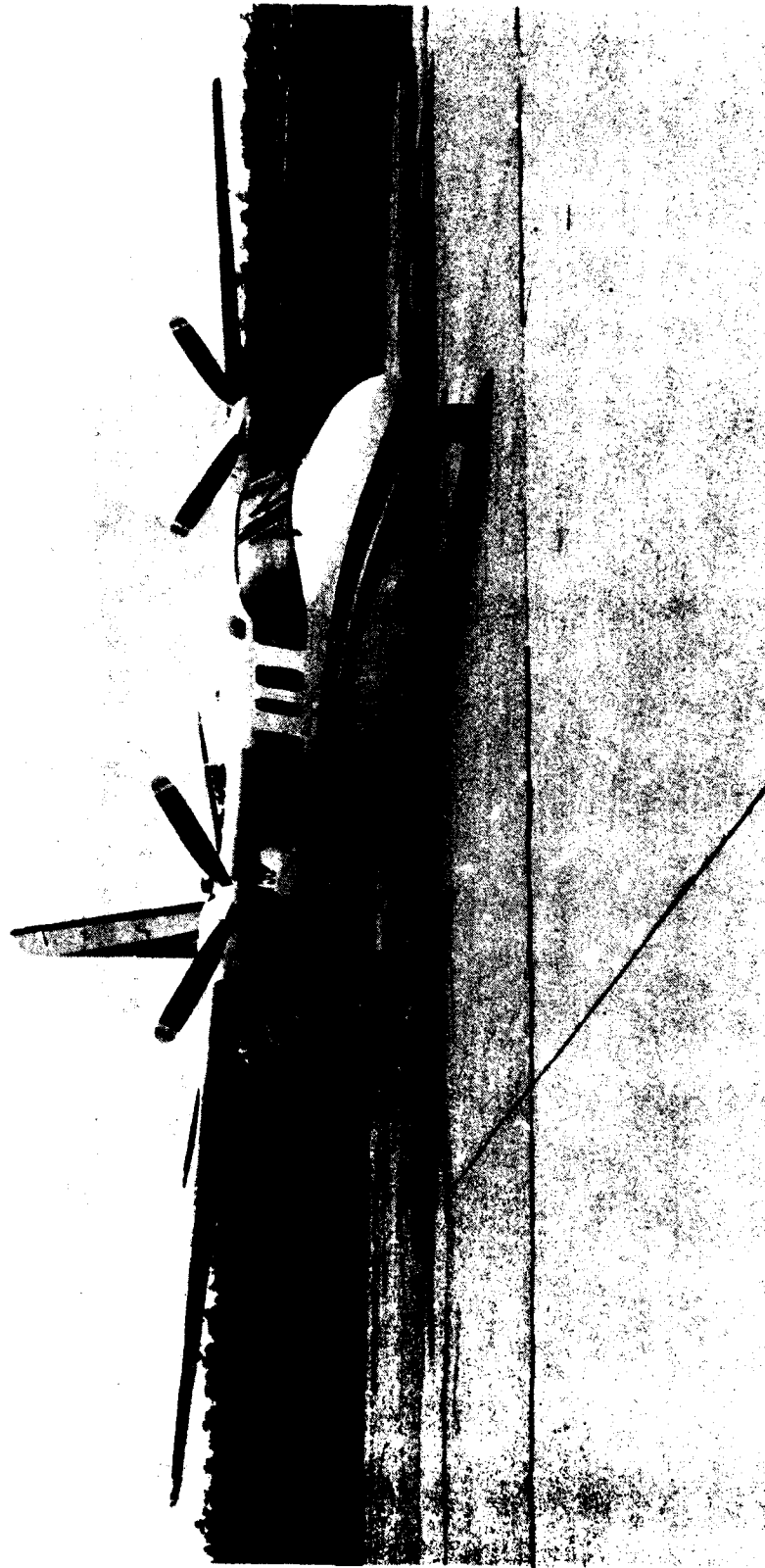
Convair 580
Figure 3



Cessna 421
Figure 4



Cessna 172N
Figure 5



Rockwell 690B
Figure 6



Rockwell 5003
Figure 7

extended runway centerline as possible. All site specifications in FAR 36 (A36.1(b)) were met. Therefore, data from microphones 31-2 and 31-4 (see Figures 8 and 9) were used for the FAR 36 arrival and departure locations, respectively, and then corrected to the standard FAR 36 locations.

The only exception was the Convair 580 which used a brake release point beginning at the threshold of runway 31. In this instance, the primary microphones were 31-2 and 31-3 (see Figures 8 and 9). Supplemental or fill-in data were obtained from the other two microphones.

Figures 8 and 9 show the test site locations and FAR 36 specified measurements locations. The displaced brake release point (BRP) was employed to assure adequate signal to ambient noise level ratios for those aircraft with high rates of climb.

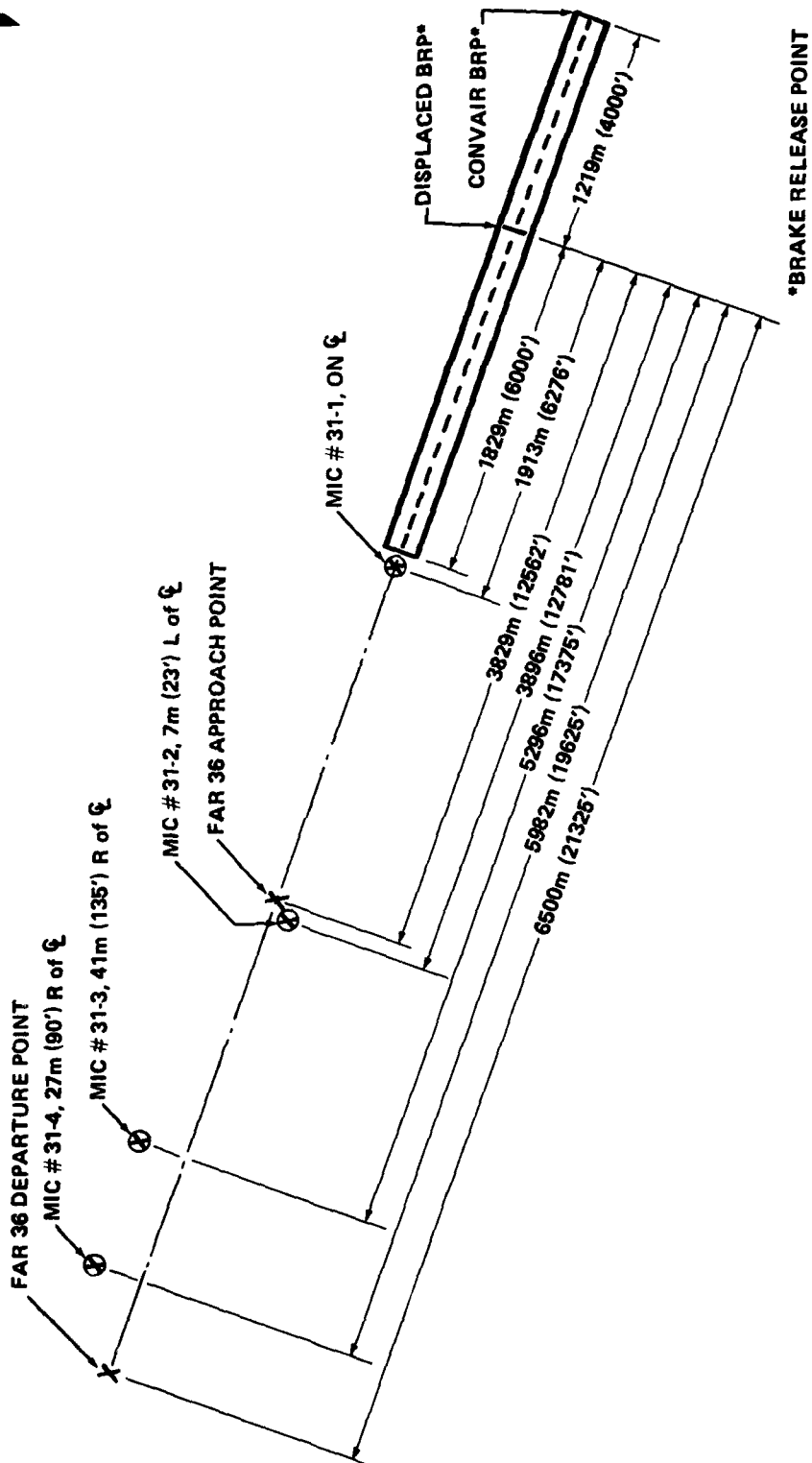
B. Flight Procedures

Each aircraft executed a series of six takeoffs, six landing operations, and six flyovers. Although these procedures did not conform to Appendix C, they typified those procedures generally used by the Appendix F type aircraft tested.

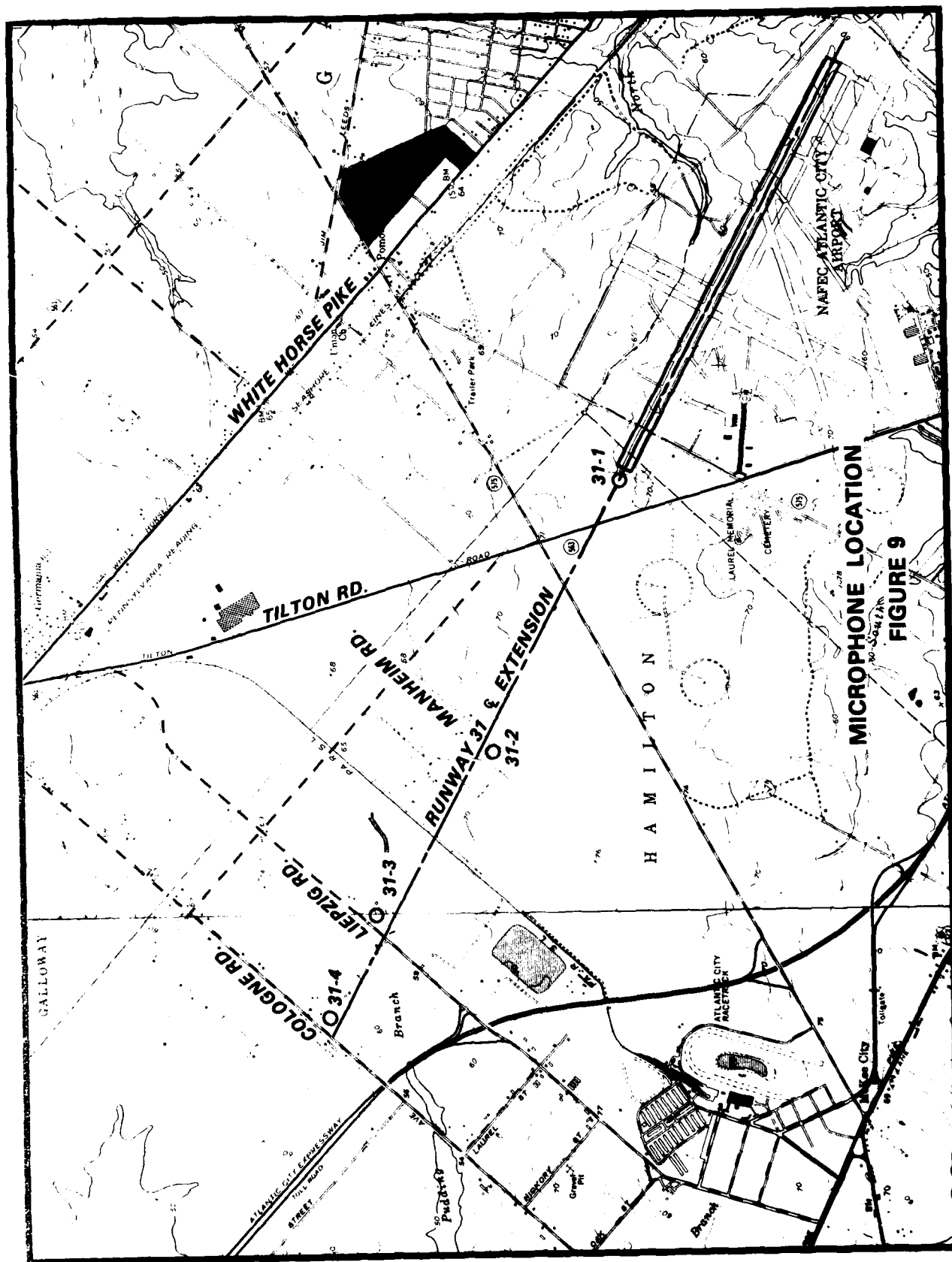
1. Departures and Arrivals

- a. Takeoffs used Runway 31 and were initiated at the displaced brake release point.

GENERAL AVIATION NOISE TEST
NAFEC 1978



MICROPHONE LAYOUT
FIG. 8 (Not to scale)



- b. After takeoff, the aircraft climbed to 152M (500 ft) at takeoff power before reducing to the manufacturer's recommended climb power. (Single-engine aircraft maintained takeoff power. The Convair reduced power again at approximately 2 miles from the brake release point to a climb gradient of 6 percent.)
- c. At six miles from the start of takeoff roll, the aircraft reversed course and proceeded inbound on the 130° ACY radial or the Runway 13 localizer.
- d. Upon intercepting the runway 13 glide slope (3°) at approximately 366M (1200 feet), the aircraft began its descent with the aid of an ILS and/or VASI (single engine aircraft used 6° slope).

2. Flyovers

- a. The level flyovers were flown at 305M (1000 ft) (three on a 130° heading and three on a 310° heading).

V. INSTRUMENTATION

A. Acoustical Measurement Instrumentation

TSC deployed Nagra two-channel direct-mode tape recorders operating with preemphasis on one channel. The preemphasis network rolled off frequencies below 10,000 HZ at 20 dB per decade. The filtered signal was then amplified to achieve

signal levels within the top 20 dB of the linear recording range. The use of preemphasis was necessary in order to boost the high frequency portion of an acoustical signal due to large differences in level (30 to 40 dB) between the high and low frequencies. Recording gains were adjusted so that the best possible signal-to-noise ratio would be achieved while allowing enough "head room" to comply with applicable distortion avoidance requirements.

IRIG-B time code synchronized with the tracking time was recorded on the cue channel of each system. The typical measurement system consisted of a General Radio one-half inch electret microphone oriented for grazing incidence driving a General Radio P-42 preamp and mounted at a height of 1.2M (4 ft). A 30.5M (100 ft) cable was used between the tripod and the instrumentation vehicle located approximately 30.5M (100 ft) from the microphone. A schematic of the acoustical instrumentation is shown in Figure 10.

B. Tracking

The NAFEC phototheodolite tracking system was used for aircraft position determination. The accuracy of the system is approximately +5 feet for the distance encountered between the targets and the tracking towers. Three-dimensional coordinates were provided for each 0.1 second interval and recorded on

ACOUSTICAL MEASUREMENT INSTRUMENTATION

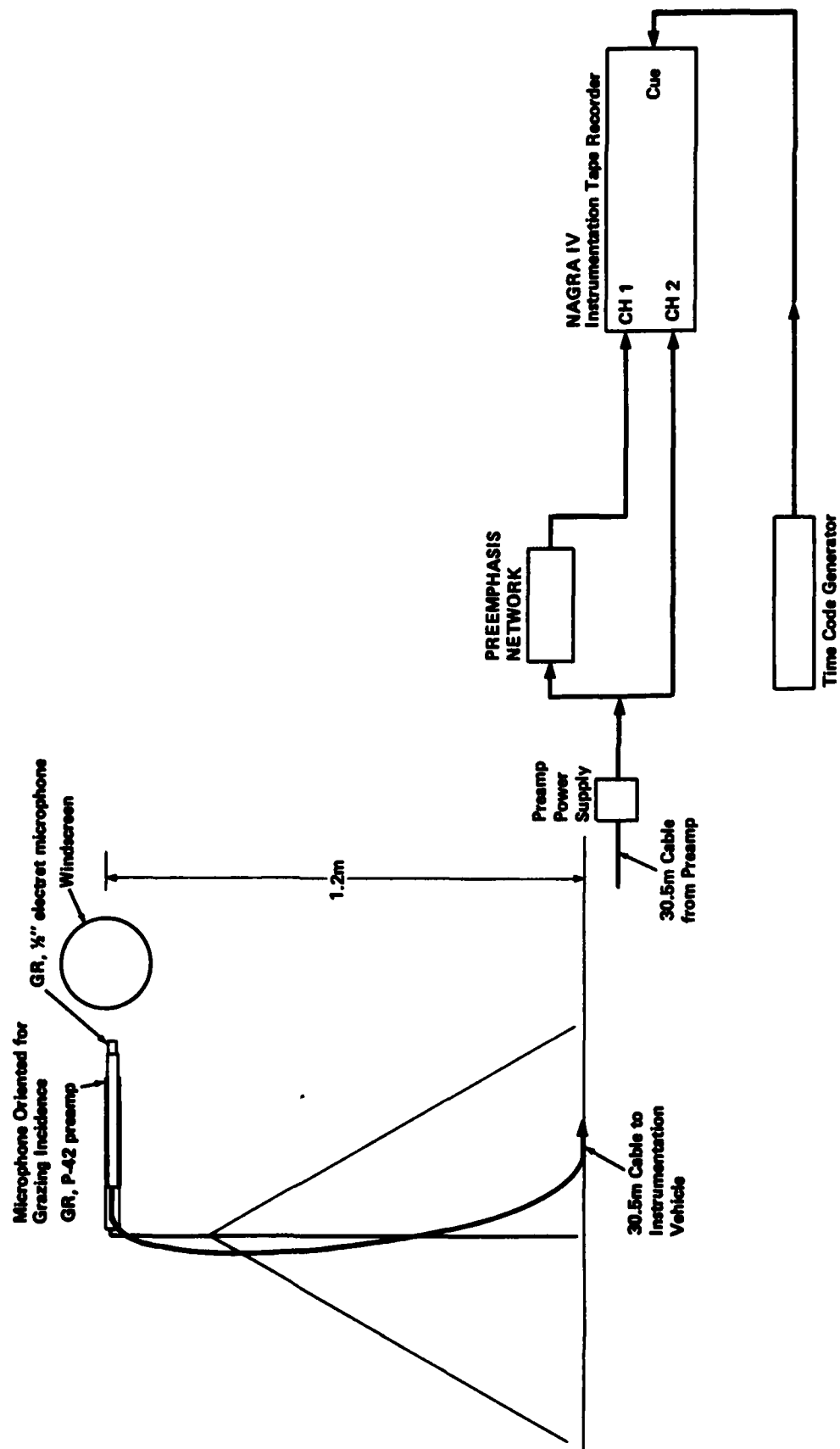
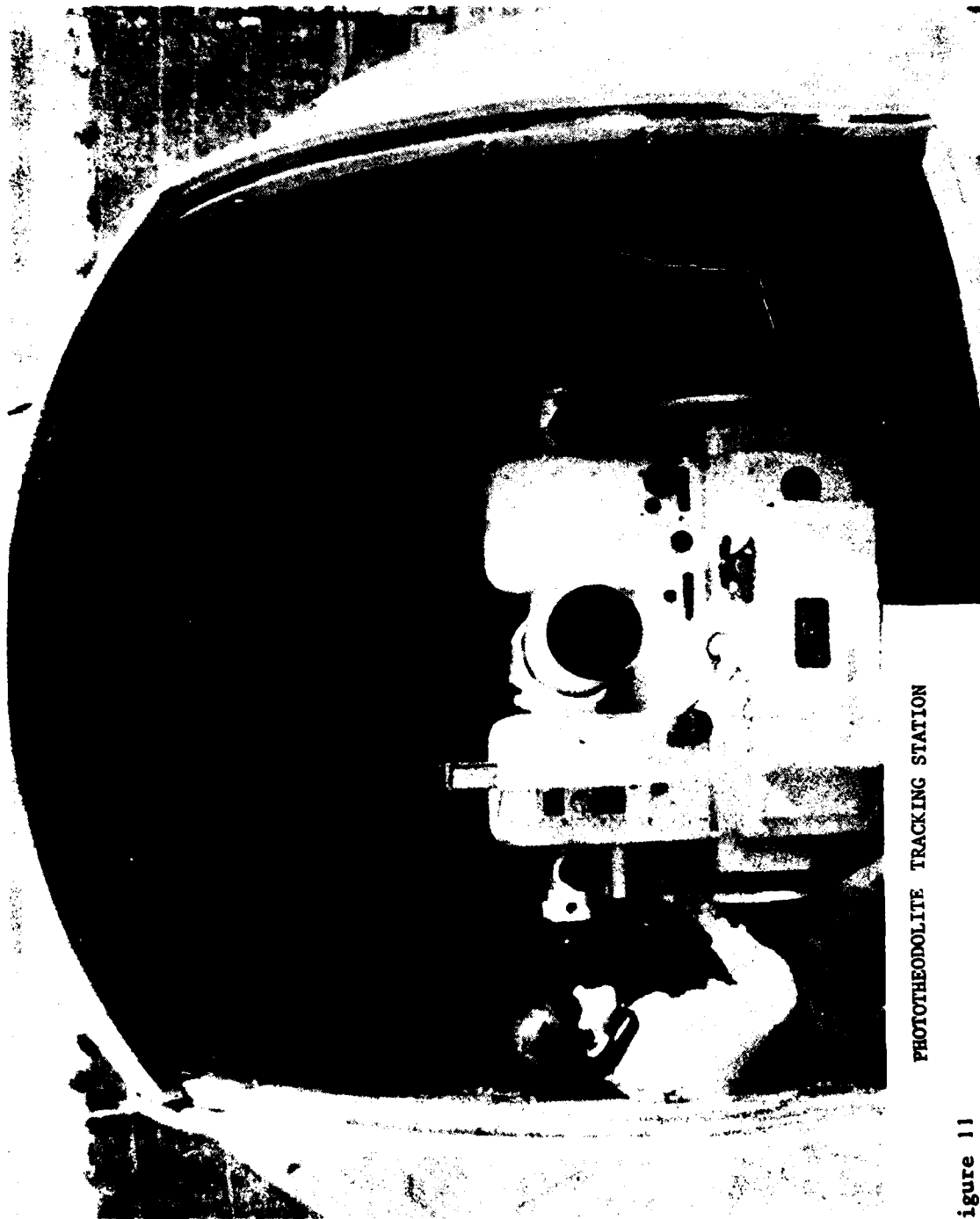


Figure 10



PHOTODOLITE TRACKING STATION

Figure 11

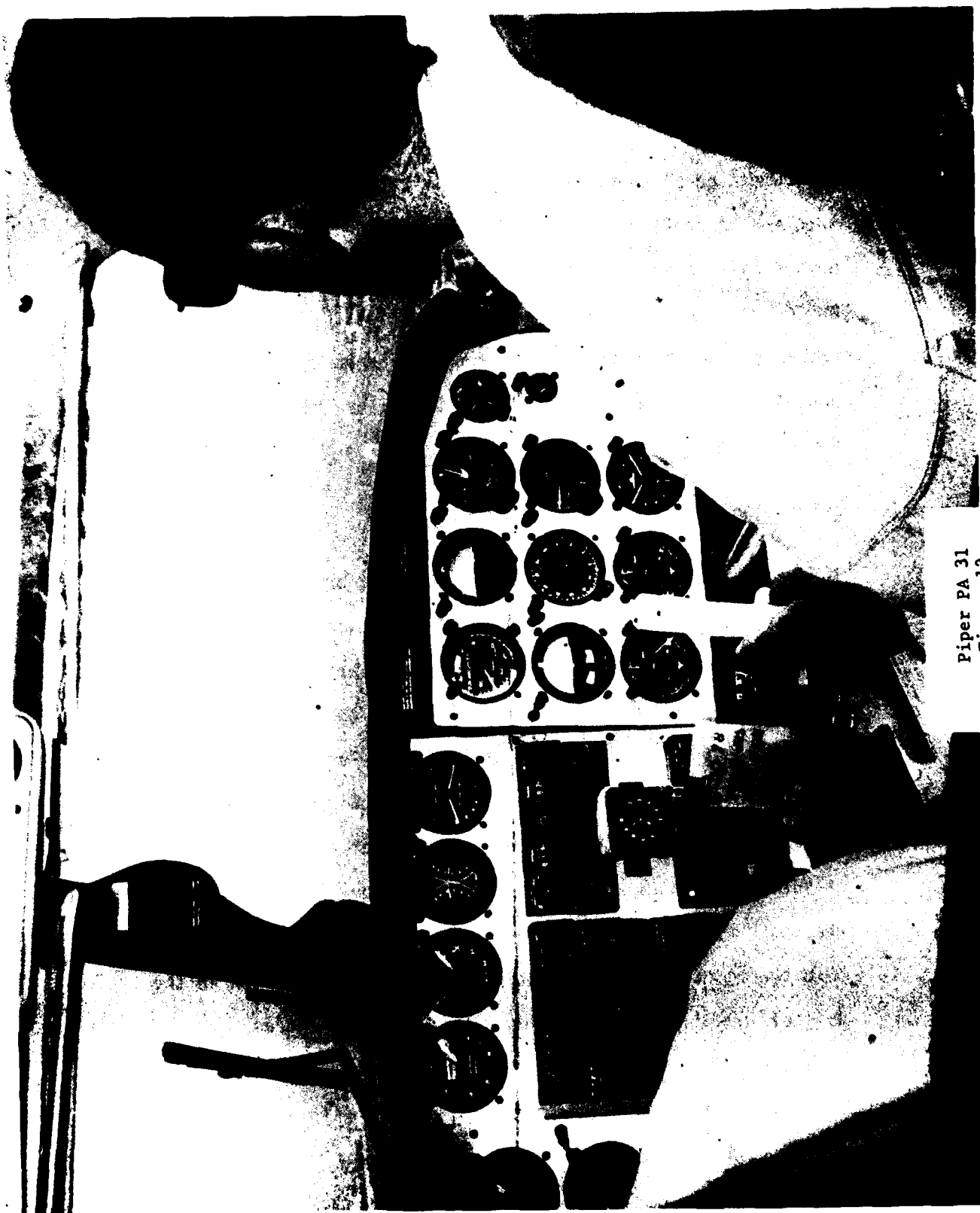
magnetic tapes. A photograph of a typical phototheodolite tracking station is shown in Figure 11, and plots of these tracks are shown in Appendix A.

C. Cockpit Photographs

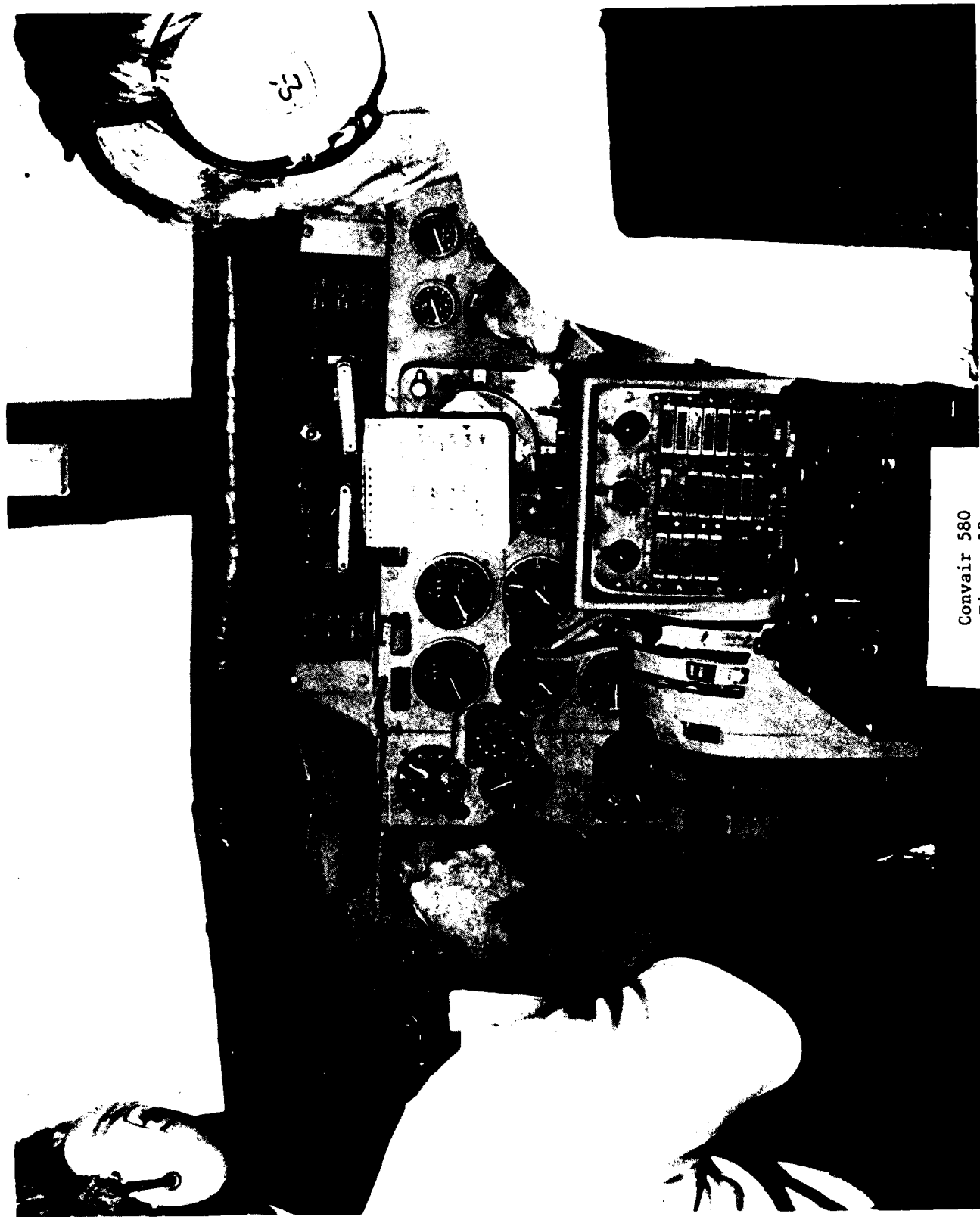
Instrument panel photos were taken for each flyover and approach when the aircraft was above the vicinity of microphone number 31-2 to obtain engine and propeller parameters. Two photos were taken on takeoff runs because of the cutback procedure for the twin engine aircraft. Examples of these photos are shown in Figures 12-17. Data from these photos are given in Appendix B.

D. Meteorological Data

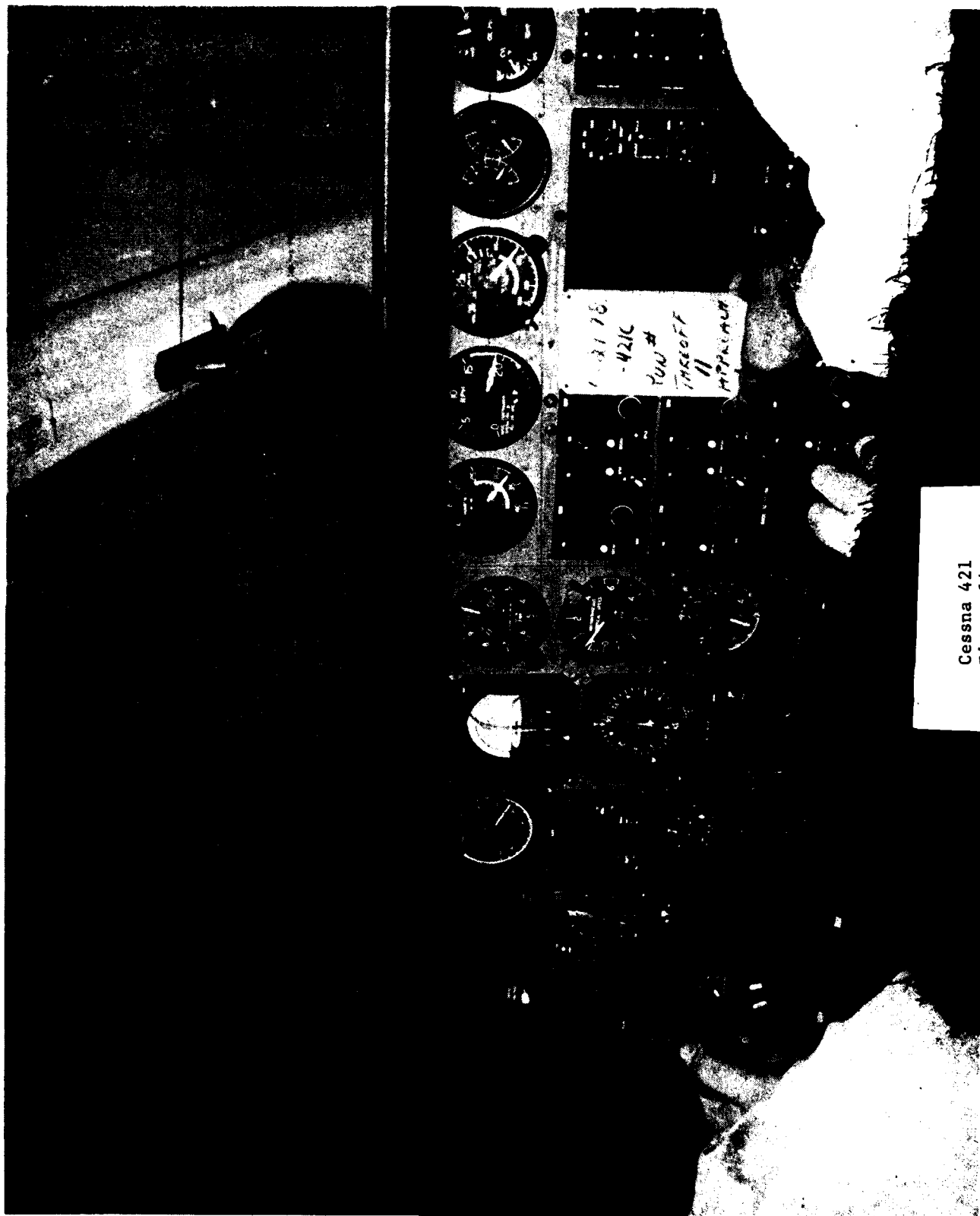
The National Weather Service Office at NAFEC provided dry and wet bulb temperatures, windspeed, and wind direction. Both temperature transducers were located approximately midfield at a height of 3M (10 ft) above field elevation, the wind instruments were at a height of 6M (20 ft) above field elevation. (This meteorological data is appropriate for Appendix F testing but not Appendix C testing which requires data at a 10 meter measurement point.) Readings were noted every 15 minutes during the tests. These data are presented in Appendix C. The dry bulb thermometer and dew point transducer were contained in the Bristol, HO-52 system operating with $\pm$ one-half degree accuracy. The windspeed and direction were measured with the Electric Motor Company F420 system operating with an accuracy of ± 1 knot and ± 1 degree.



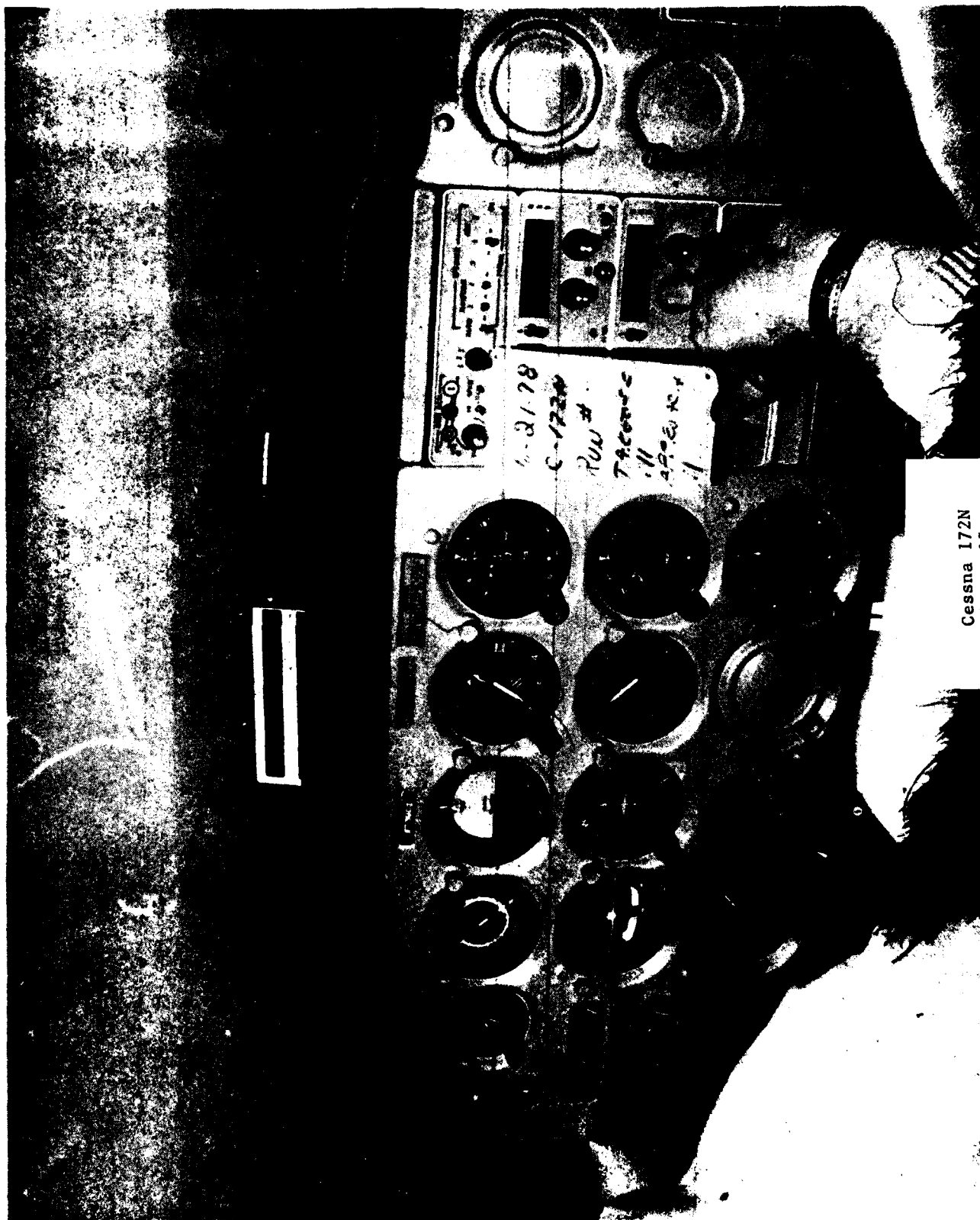
Piper PA 31
Figure 12



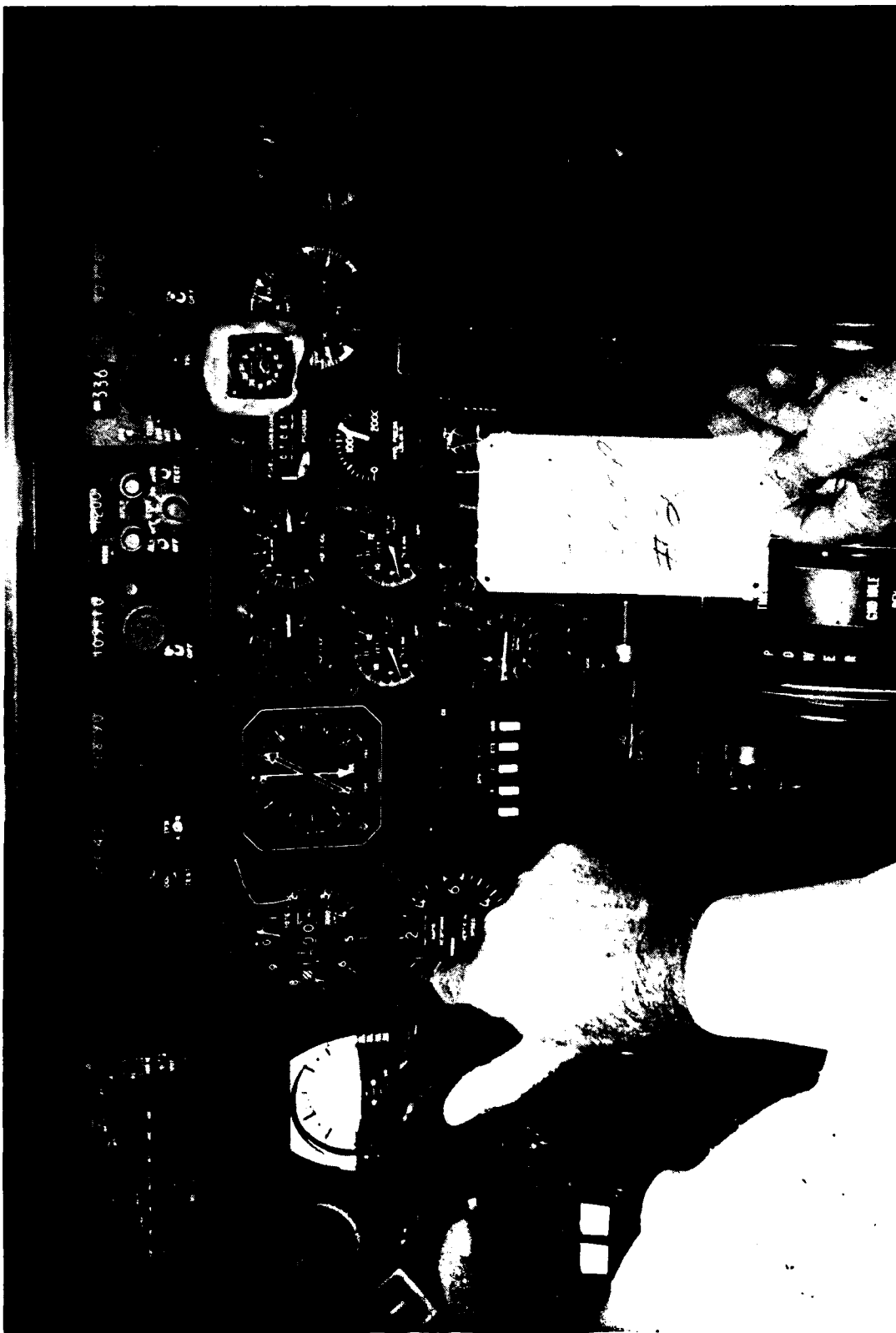
Convair 580
Figure 13



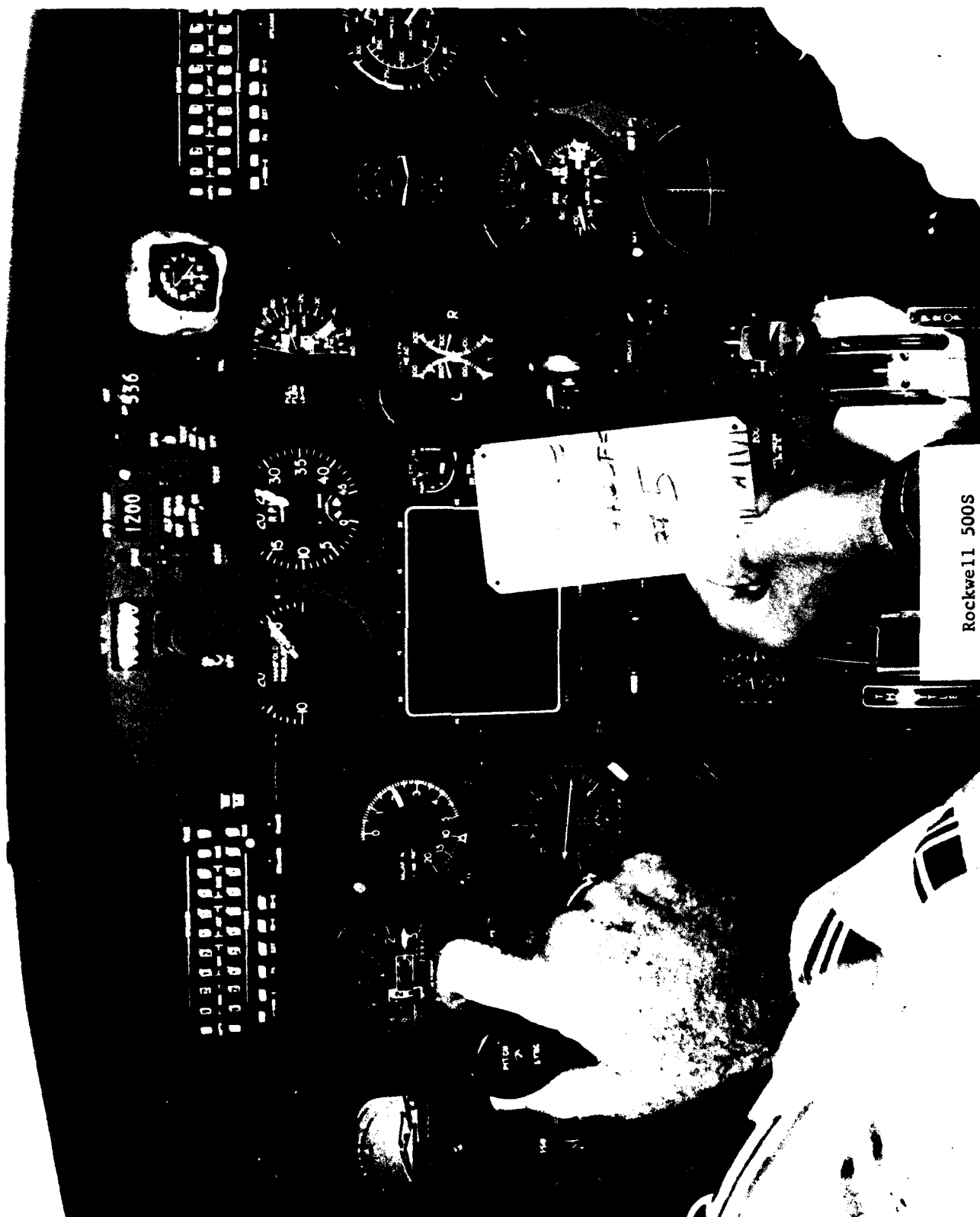
Cessna 421
Figure 14



Cessna 172N
Figure 15



Rockwell 690B
Figure 16



Rockwell 500S
Figure 17

VI. DATA

A. Existing Noise Level Standards

1. Regulations

All production type aircraft flown in the United States are required to obtain an aircraft type and airworthiness certificate from the Federal Aviation Administration. These certificates are not granted until an aircraft has met all Federal Air Regulations (FAR's) imposed on that particular type of aircraft. Standards for noise are presented in Part 36, commonly referred to as FAR 36.

FAR 36 regulates propeller driven aircraft noise based on aircraft weight with a distinction made between aircraft above and below 5670 kg (12,500 lbs). Propeller driven aircraft above 5670 kg fall into the category of transport airplanes and are regulated under Appendix C of FAR 36, as are all turbojet powered aircraft, regardless of category. Propeller-driven small aircraft which weigh 5670 kg and under are regulated under Appendix F of FAR 36.

Appendix C of FAR 36 specifies noise levels for three different flying configurations (takeoff, landing and sideline) with three different microphone locations. The acoustical descriptor used in that Appendix is the

Effective Perceived Noise Level, or EPNL, given in decibels. This value is derived from the acoustical signal emanating from an aircraft flyover and is weighted to account for annoyance, tonal quality, and duration.

The regulated limits given in FAR 36, Appendix C permit tradeoffs. That is, noise level limits prescribed may be exceeded at one or two of the measuring points specified if:

- (1) The sum of the exceedence at all three locations is not greater than 3 EPNdB;
- (2) No exceedence is greater than 2 EPNdB; and
- (3) The exceedences are completely offset by reductions at other required measuring points.

Appendix C noise limits are broken down into three stages. These stages reflect the progression of the regulations. Stage 3, the latest and most stringent limits, is intended to regulate the newest aircraft which incorporate the latest technology.

Appendix F of FAR 36 regulates small propeller aircraft under a single flying configuration measured at one location. The A-weighted decibel (L_A) is the acoustical descriptor used. The L_A regulated value is for the maximum sound level

measured during level flight at 305M (1000 ft). This metric is weighted for human perception of noise accounting for a decrease in hearing efficiency with a decrease in signal frequency.

Data correction schemes and measurement instrumentation specifications are given in FAR 36, Appendix A, while Appendix B is concerned with the actual formulation of the EPNL descriptor.

The international counterpart to FAR 36 is Annex 16. This document was produced by the International Civil Aviation Organization (ICAO).

2. Average Sound Level Data Versus Existing Noise Standards

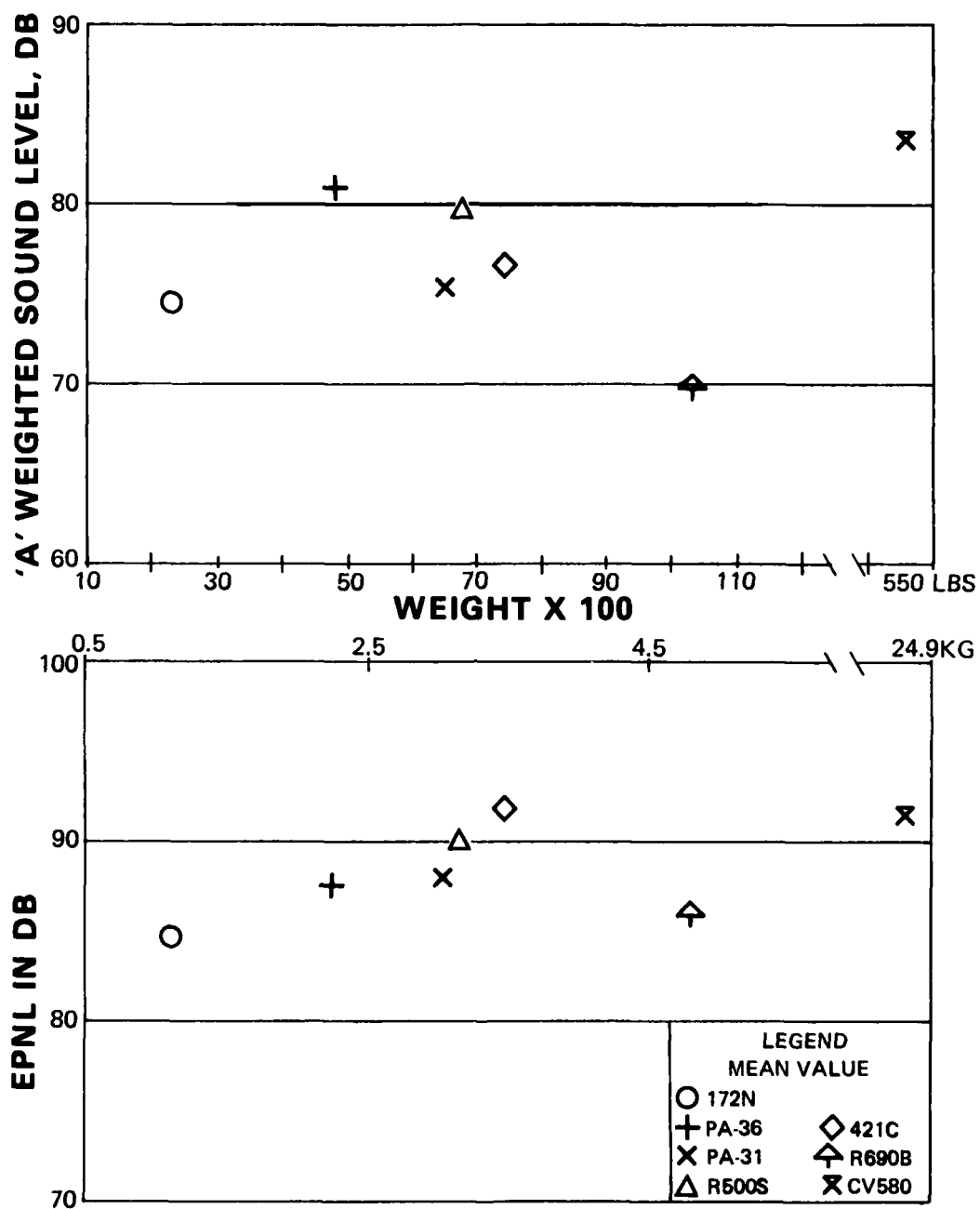
One of the objectives of this test was to help develop an empirical data base of noise levels for Appendix F type aircraft using Appendix C analysis procedures to provide a common base with which to compare small propeller aircraft with larger transport category aircraft. Appendix D in this report tabulates this data base. Figures 18, 19, and 20 show graphically the data obtained for flyovers, arrivals, and departures. Figures 19 and 20 also show how well the tested Appendix F type aircraft would conform with the Appendix C limits and test procedures.

These data have been corrected to an acoustic standard day (77°F, 70 percent R.H.) and reference flight paths.

a. Flyovers

Figure 18 shows the test noise levels for aircraft flyovers at 305M (1000 ft). Aircraft flyovers are the only configuration under which small propeller-driven aircraft (aircraft under 5670 kg) are regulated. The graph shows:

- There is a small dependence of A-weighted sound level on aircraft weight.
- Using the A-weighted unit, among the aircraft tested, turbocharged aircraft (see Table 2) were rated quieter than normally aspirated aircraft and the turboprop was rated quietest. This is attributed to the lower tip mach numbers for the turbocharged and turboprop aircraft.
- Using the EPNL unit, the two turbocharged aircraft are no longer rated the quietest. The relative level for the 421 rose considerably while the PA 31 rose slightly. Although the turboprop 690B remains rated quieter, its level has also risen relative to the normally aspirated engined aircraft.



FLYOVER LEVELS VS WEIGHT
FIGURE 18

b. Arrivals

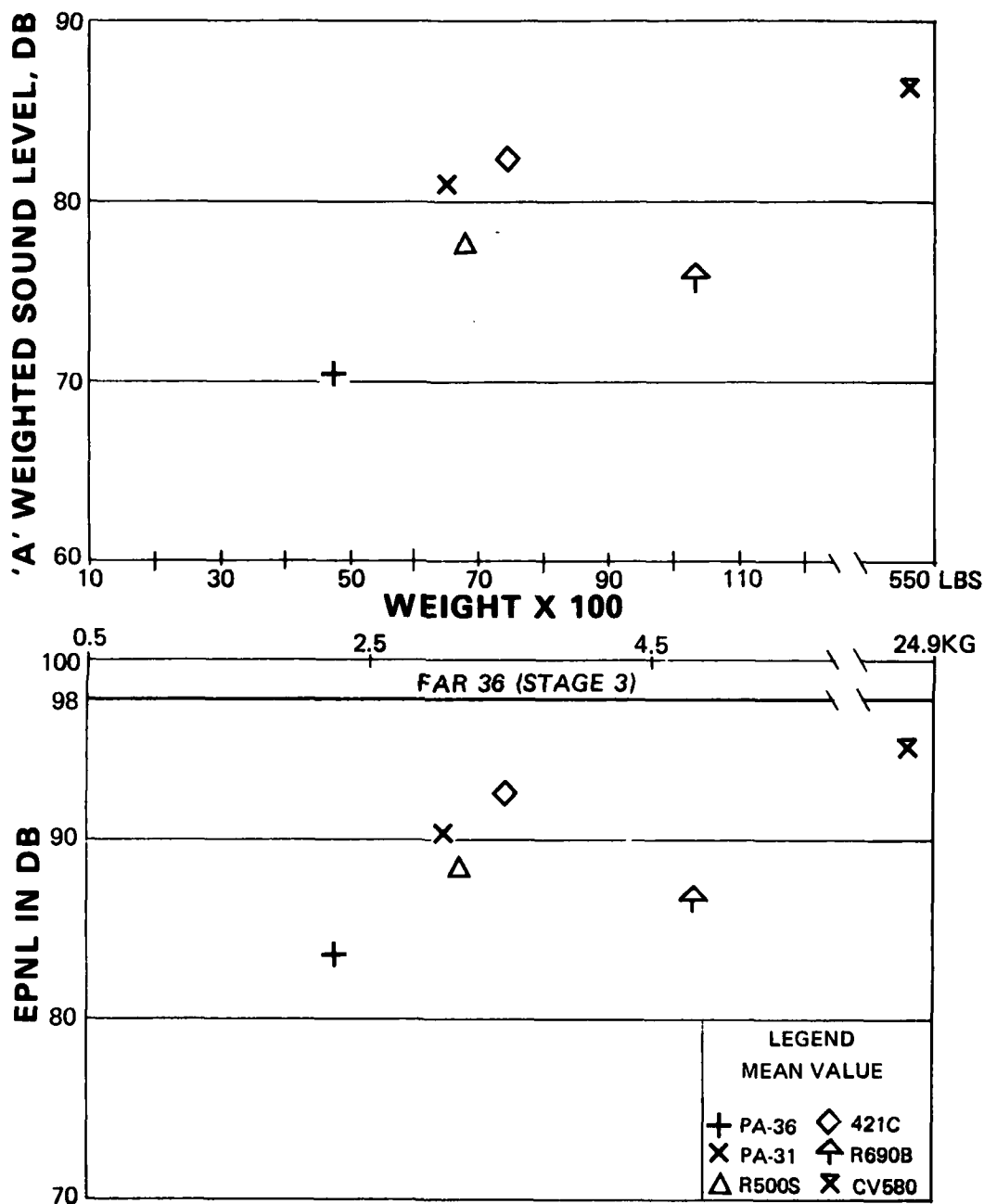
The approach data are shown in Figure 19. All of the aircraft tested are compared to Appendix C, Stage 3 noise limits. The results are as follows:

- All aircraft, including the Convair 580, meet Stage 3 approach limits.
- The relative difference between aircraft noise levels when comparing dBA to EPNL remains the same. This is in contrast to the flyover situation when the relative difference changed dramatically.

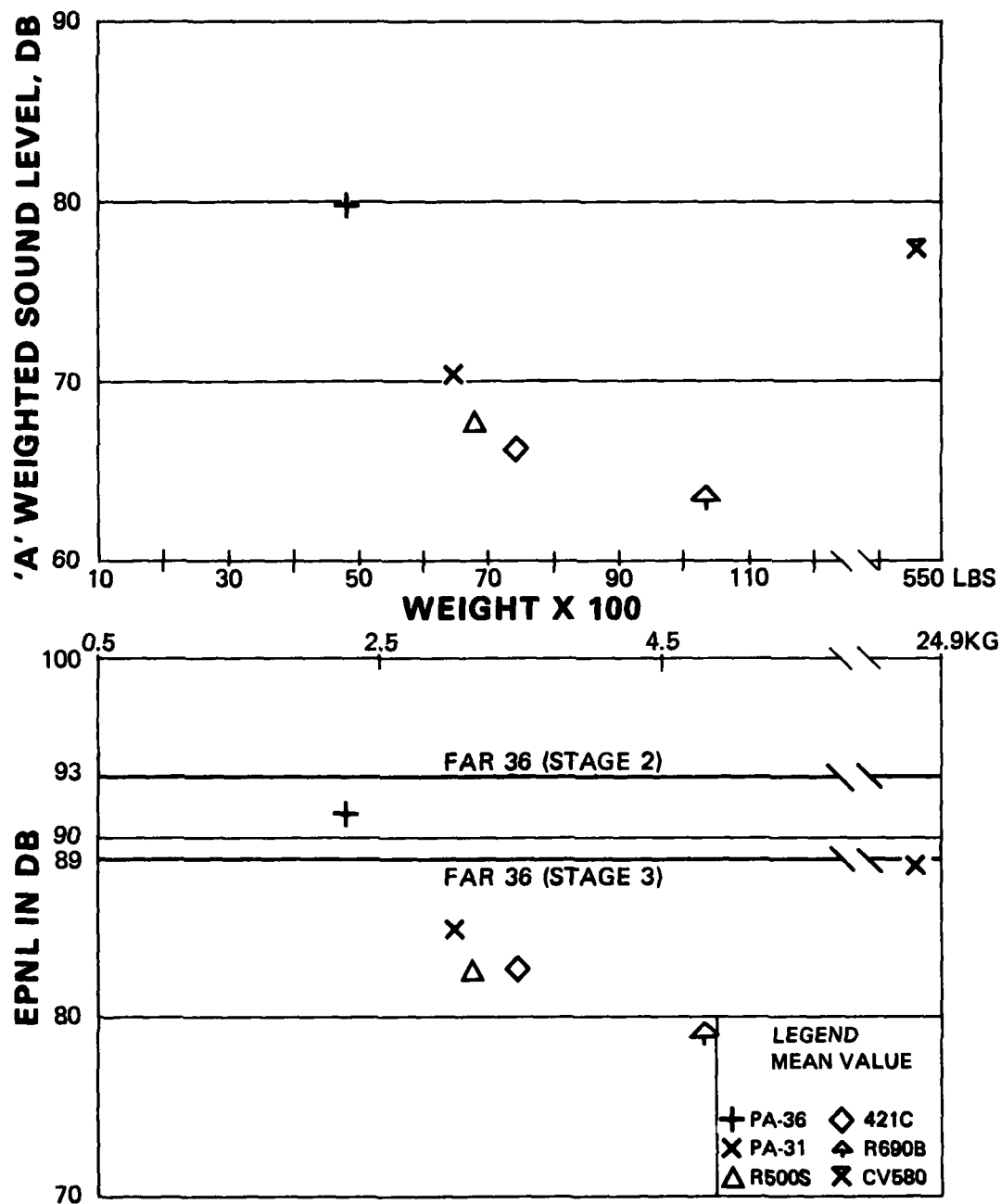
c. Departures

Departure levels are shown in Figure 20. All of the aircraft tested are compared to FAR 36 Appendix C Stage 2 and Stage 3 noise limits. The graphs show:

- Convair 580 levels meet FAR 36 Stage 3 noise limits.



ARRIVAL DATA VS NOISE STANDARDS
FIGURE 19



DEPARTURE DATA VS NOISE STANDARDS
FIGURE 20

- The PA 36 agricultural aircraft is the only aircraft that does not meet Stage 3 limits, even with a tradeoff provision considered. The aircraft does, however, meet Stage 2 limits.
- The relative noise level difference between aircraft using dBA and EPNL appears constant.

A summary of the above levels is listed in Table 3 below.

TABLE 3
REGULATED AND MEASURED SOUND LEVELS*

	Flyover (dBA) Meas.	Arrival (EPNL)** Meas. FAR 36	Departure (EPNL)** Meas. FAR 36
PA 36	81.0	83.7 98	91.3 89
PA 31	75.3	90.4 98	84.9 89
CV 580	83.6	95.1 98	88.3 89
421C	76.6	92.5 98	82.7 89
172N	74.6	- 98	- 89
690B	69.8	86.7 98	79.1 89
500S	79.7	88.6 98	82.7 89

*LA levels corrected for weather, position and Appendix F performance correction; EPNL levels corrected for weather position and duration.

**Stage 3 levels.

B. Data Corrections

There are many variables which affect the noise levels of an aircraft. For this reason, it is important to standardize operational variables when testing so that there is a basis with which to compare and regulate aircraft. Therefore, when an aircraft being tested falls outside an operational bound that has been defined, its noise level should be corrected back to reflect a standard operating condition. Corrections of this type are given in the FAR 36 appendices and account for meteorological conditions and change in flight path. Additional adjustments are made for tonal characteristics and duration of the noise events.

All recorded data in this test were reduced using the corrections and procedures outlined in both FAR 36 Appendix C and Appendix F. Corrections were also performed for speed, propeller tip speed, and power, to help define the magnitude of additional factors influencing the overall sound level. A summary of the equations used and the results for each aircraft are given in Appendix E to this report.

1. Pseudotone Elimination

Currently, FAR 36 (B36.5(m)) allows tones below 800 HZ, identified as a pseudotones not related to engine noise, to be eliminated from the tone correction scheme in the EPNL computation.

Pseudotones are spectral irregularities in the data that result when an aircraft's acoustical energy interacts with the ground plane resulting in interference patterns in the sound field near the earth's surface during an aircraft flyover. This interaction can alter the acoustical signal in such a way that a tone correction procedure would penalize an aircraft for a tone that is not emitted from that aircraft. Tones of this nature are dependent on the ground plane surrounding the measurement microphone.

There is no requirement at present in either FAR 36 or Annex 16 to identify or eliminate such tones for aircraft under 12,500 pounds, since there is no EPNL calculation. However, in this analysis it was determined that aircraft in this weight range would be affected by pseudotone elimination if an EPNL calculation were performed similar to that performed on large transport aircraft. For purposes of a first look, rather than to clearly identify a pseudotone, any tone corrections at or below 800 Hz were excluded. These values appear in Appendix E under delta EPNL.

Table 4 shows that most of the aircraft tested are rated at least 1 EPNdB quieter if low frequency tone corrections are eliminated. A change in the tone correction value changes the value of the maximum PNLT which directly offsets the event duration and changes the value of the EPNL.

TABLE 4

CHANGE IN EPNL RESULTING FROM LOW FREQUENCY TONE ELIMINATION

<u>Aircraft</u>	<u>Arrival</u>		<u>Departure</u>		<u>Flyover</u>	
	<u>Average</u>	<u>S.D.*</u>	<u>Average</u>	<u>S.D.</u>	<u>Average</u>	<u>S.D.</u>
Piper PA 36	-1.46	0.47	-1.73	0.12	-1.41	0.21
Piper PA 31	-1.58	0.13	-1.94	0.15	-1.92	0.23
Convair 580	-0.05	0.10	-1.54	0.26	-0.68	0.35
Cessna 421C	-1.43	0.26	-1.73	0.29	-0.76	0.26
Cessna 172N	-	-	-	-	-1.28	0.05
Rockwell 690B	-1.28	0.21	-1.45	-	-1.43	0.35
Rockwell 500S	-1.32	0.22	-2.12	0.13	-2.17	0.16

*Standard Deviation

When looking for pseudotones, the frequency of most concern is associated with the microphone height. Assuming that the maximum sound level occurs directly over the microphone, the effective reinforcement frequency associated with a wavelength of this distance is 142 Hz (Mic. height of 1.2 meters). A frequency of 142 Hz would have constructive interference due to reflection off the ground plane.

Constructive interference occurs when two signals of the same frequency meet at a common point and both signals have the same phase; coincident compression and rarefaction. The result is a doubling of the sound pressure for that frequency at that point. The two signals in this case are,

one direct from the aircraft and one from the reflected signal off the ground.

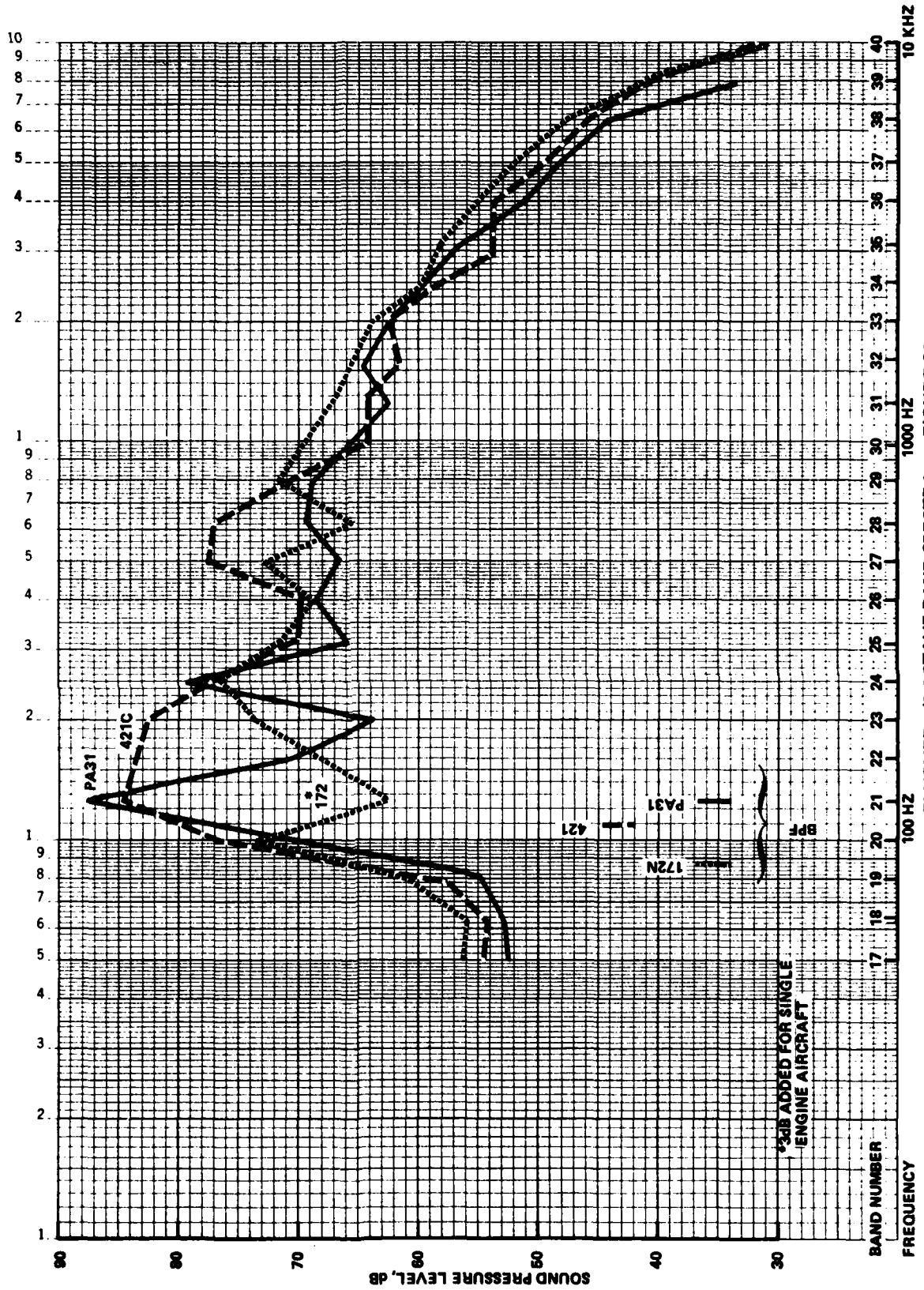
A signal at 71 Hz is also subject to interference at a 1.2M microphone, but here the interference at this frequency is destructive. This occurs because one signal is in the compression phase (high pressure) and the other is in the rarefaction (low pressure) phase. The result is a cancellation of signal.

There is one requirement in FAR 36 dealing with the pseudotone correction. Tone corrections may only be eliminated if the tones are 'clearly identified as not being related to the engine noise.' Unfortunately, not only do pseudotones occur below 800 hertz but so do the blade passage frequencies (BPF)* of most propeller driven aircraft. Therefore, extra caution must be taken to insure that this requirement is not violated.

Figures 21 and 22 show the average 1/3 octave frequency spectra for the aircraft tested. The spectra were chosen from flyover data taken directly over microphone 31-1 (Appendix H). Also shown on these plots are the BPF's of each of these aircraft.

It becomes obvious with these graphs that the most significant tones appear below 800 Hz. This accounts for the high values given in Table 4. (A close look at the

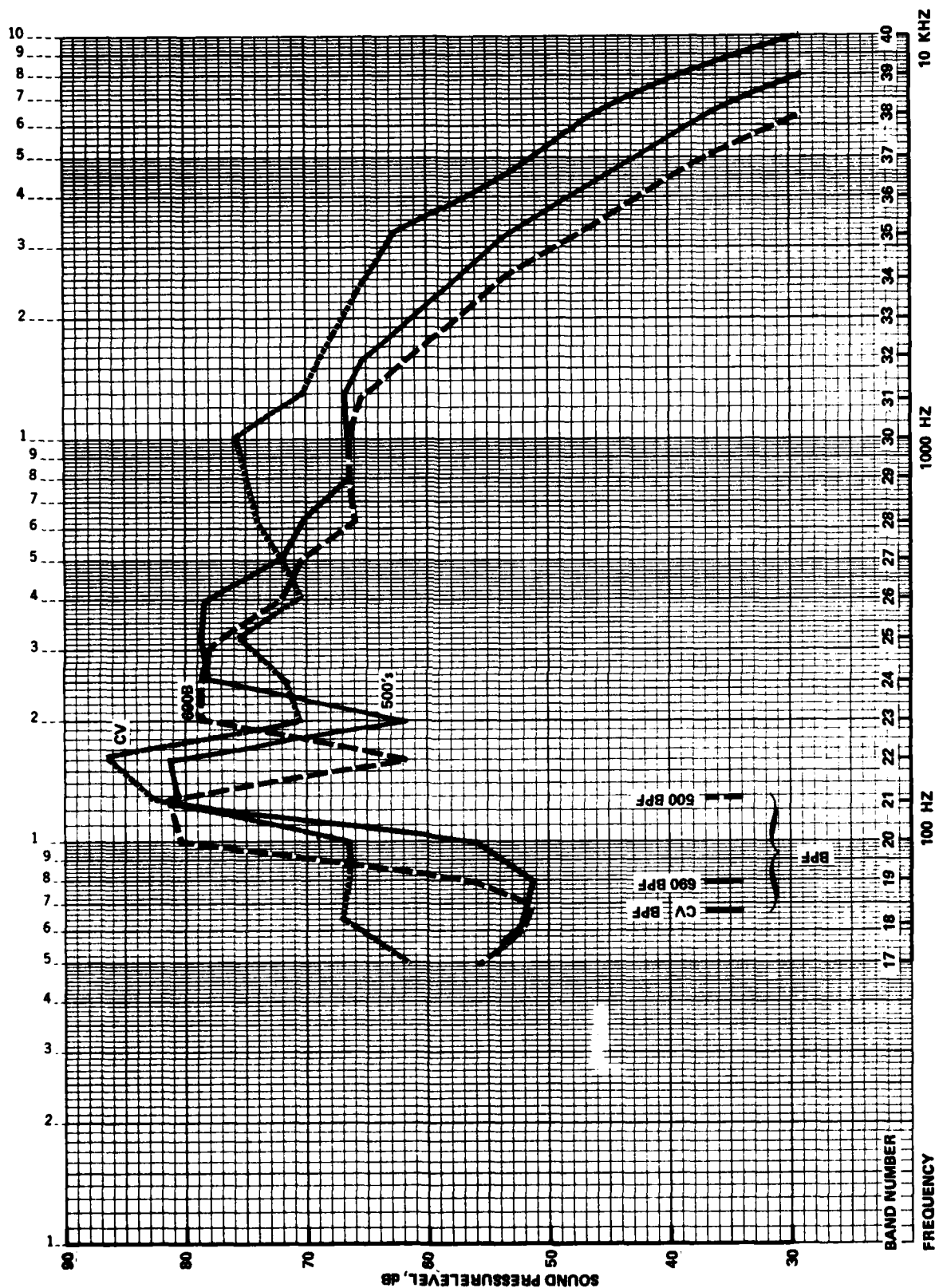
*The BPF is that fundamental frequency that is generated from a propeller, being a function of the propeller RPM and number of blades.



FLYOVER 1/3 OCTAVE BAND SPECTRA — FIGURE 21

K-E SEMI-LOGARITHMIC 0.3 CYCLES X 70 DIVISIONS
NEUPFEL & EBER CO. MADE IN U.S.A.

46 5492



FLYOVER 1/3 OCTAVE BAND SPECTRA — FIGURE 22

spectra in Appendix H shows this also to be true for arrival and departure data.) The higher values shown in Table 4 reflect those spectra with high tones below 800 Hz. The Convair, although it shows a large tone around 160 Hz, has a small value in Table 4. The reason is the fairly large tone at 1,000 Hz which becomes the maximum tone after those below 800 Hz are eliminated.

It is also clear from these graphs that many of these aircraft have BPF's, or harmonics thereof, coincident with large tones in their spectra and with the frequency for constructive interference. Not only do these aircraft have large tones inherent to their operation, which would require correction in the tone correction algorithm, but these tones may also be affected by ground reflections. Therefore, if a tone correction is desired, a method for eliminating that portion of the tone due to reflections should be considered.

2. Meteorological Corrections

All spectra at maximum PNLT and dBA were corrected to a standard day of 77° and 70 percent relative humidity using absorption coefficient given in Society of Automotive Engineers Aeronautical Recommended Practice 866A.² This correction procedure is described in FAR 36, Appendix A, A36.11(d). The 24 one-third octave band sound levels at the time of PNLT maximum are corrected for the

atmospheric absorption difference between test day and standard day. The results of the meteorological corrections are given in Appendix E under 'ATM.'

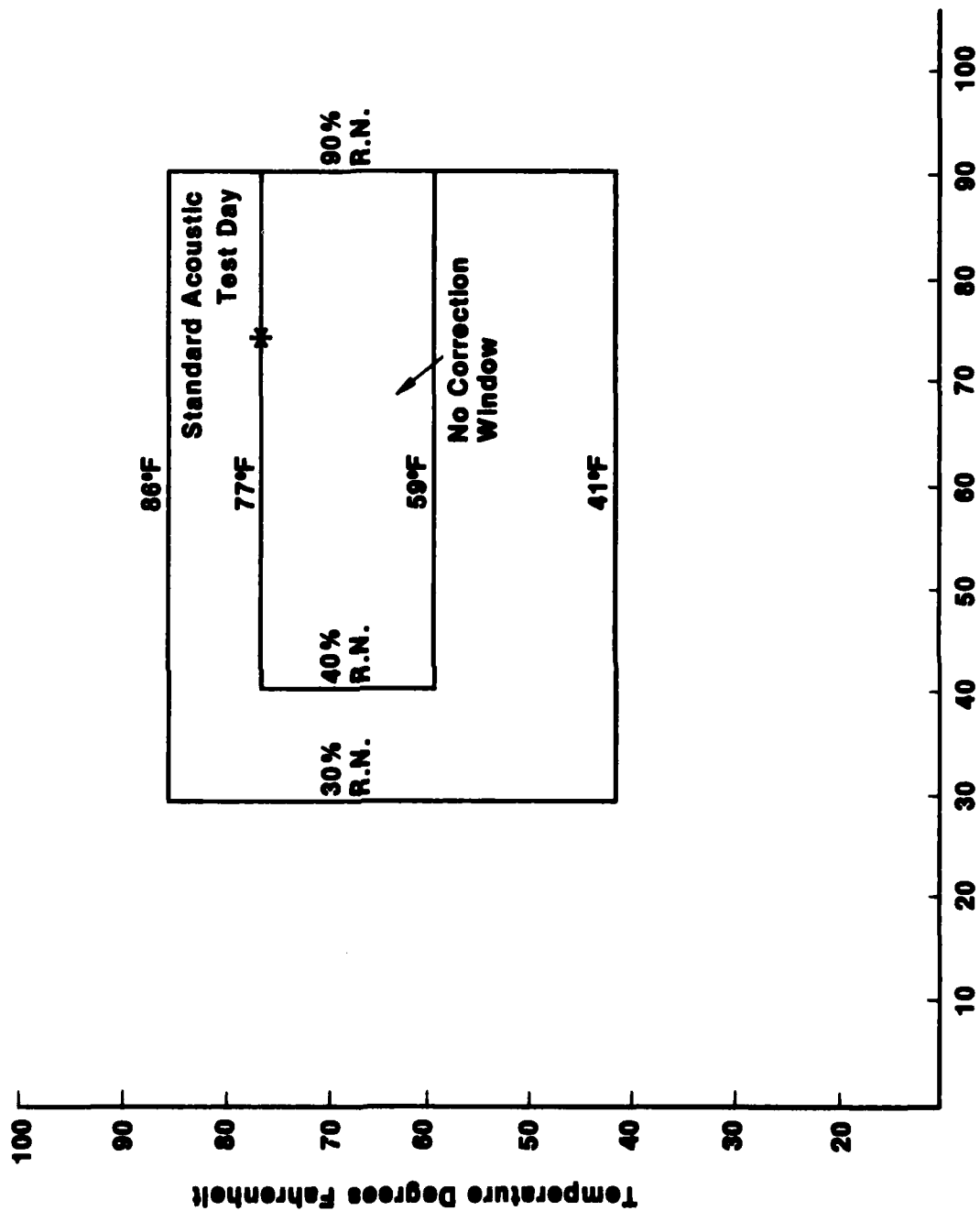
The Appendix F "no-correction window" for these aircraft, or that window in which "minor" absorption differences occur with a change of temperature and relative humidity is $68^{\circ}\text{F} \pm 9^{\circ}\text{F}$ and between 40 and 90 percent R.H.

(Figure 23). The Appendix C procedure does not provide a "no correction window" and any deviation from the standard day must be corrected to standard day.

Annex 16, Appendix 3 has a "no correction window" of $77^{\circ}\text{F} \pm 9^{\circ}\text{F}$ with a 95 percent limit on humidity. The window was defined as being that area where a test could be performed as the absorption quality of the air could be considered negligible, and, therefore, an absorption computation could be eliminated.

Appendix C in this report lists the meteorological data taken during the test. Those times that are marked with a single star indicate that the data are outside of the Appendix F "no-correction" window and times marked with two stars are data outside of the test window. Data are not acceptable for certification purposes if the test is performed on a test day that falls outside the test window, regardless of the corrections applied.

TEMPERATURE—RELATIVE HUMIDITY TEST WINDOW: FAR 36 APPENDIX F



Percent Relative Humidity

Figure 23

The only single star is on June 19 at 09:30 and occurred after the test was completed. The final run for that day occurred at 09:22. The double star times appeared on the 21st and 23rd. There were no events recorded on the 21st during a double star period. However, on the 23rd, events 2-9 are considered outside the test window. Of these events, the only events with higher than usual absorption correction are departure events 5 and 9. These corrections are -0.95 and -1.32 dB, respectively.

Most atmospheric corrections are on the order of 0.3 dB or less. Where the corrections are greater than this, the reason is usually associated with a corresponding high position correction, as is the case with runs 5 and 9.

3. Position Correction

All position data were obtained via three NAFEC phototheodolite tracking stations. These data were then triangulated into X, Y, Z, and time coordinates and stored on magnetic tape. Later these data were processed at FAA's Dulles noise laboratory where the data were smoothed and aircraft position was correlated to noise, taking into account propagation delay time of the acoustical signal.

Reference flight path for arrivals and departures were determined using reference 3. These plots are given in Appendix A along with the reference 3 algorithm. This

reference provides algorithms for determining departure aircraft heights based on operational and design parameters. Aircraft performance data for the algorithms used in reference 3 were obtained from aircraft operation manuals.

Many times it was necessary to do a position correction not only because of a deviation in flight path but also because the actual microphone location was non-standard due to local terrain. (Often, local terrain near a test site prohibits placing the microphone in the exact FAR 36 location.) In FAR 36 A36.11(f) under nonstandard takeoff location correction, it states that when necessary, the measuring station may be moved closer to the start of takeoff roll. This procedure is also used to ensure recording the complete flyover noise history required for calculating an EPNL. (This procedure is allowed provided that the correction does not exceed 8 dB and the final EPNL value is not within 1.5 dB of noise levels prescribed in Appendix C.) Many instances required using data from a close-in microphone because of the high rates of climb generally associated with small propeller aircraft and poor tracking visibility at the further out sites due to fog conditions. Table 5 compares average results of levels measured from different locations corrected to the standard FAR 36 locations.

TABLE 5
AVERAGED DATA CORRECTED TO SAME REFERENCE POINT
FROM DIFFERENT MICROPHONES

Aircraft	Approach (Corrected to 6562')					Departure (Corrected to 21325')							
	EPNL			dBA			EPNL			dBA			
MIC#	1	2	:	1	2	:	2	3	4	:	2	3	4
PA 36	81.9*	84.9*	:	68.1*	71.7	:	-	-	-	:	-	-	-
PA 31	-	-	:	-	-	:	83.8	85.4	84.5	:	68.6	70.8	70.5
CV580**	-	-	:	-	-	:	88.0	88.6	-	:	76.2	78.1	-
421C	-	-	:	-	-	:	-	81.9	81.4	:	-	64.5	67.9
690B	-	-	:	-	-	:	-	-	-	:	-	-	-
500 S	-	-	:	-	-	:	-	83.0	82.6	:	-	66.6	68.4

Note: MIC#1 6276 Distance from Brake Release pt.
MIC#2 12781 " " " " "
MIC#3 17375 " " " " "
MIC#4 19625 " " " " "

Runway length 6000 feet

*Position correction greater than 8 dB

**Add 4000' to microphone distances

The data presented in the above table have only been corrected for standard FAR 36 corrections, i.e., position, meteorological conditions, and duration. Ideally, all the numbers for a particular operation would be the same after the corrections are applied, regardless of where the

operation was measured. Therefore, conclusions can be derived from this table. For example, the PA 36 exhibits a difference in EPNL of 3 dB between microphones. The position corrections for this aircraft were between 9 and 12 dB. The PA 31 yielded only a 0.9 dB change for a position correction of 6.7 dB and the 500S changed 0.4 dB for a position correction of 7.2. The other aircraft had EPNL difference of less than 0.5 dB and position correction less than 6 dB. This is a rough indication that as the position correction increased the data spread increased and the position correction should be limited to some value between 7 and 9 dB. This is consistent with the FAR 36 position correction limitation of 8 dB.

4. Duration Correction

This correction is applied to the EPNL calculation for changes in time history duration resulting from deviation from the referenced flight path (FAR 36 A36.11(e)). The position at closest point of approach (CPA) to the microphone was used in this calculation and was obtained in the same manner as the distances for the position correction. The reference CPA was also obtained using reference 3 (Appendix A).

A deviation from a reference flight path will have the effect of changing the 10 dB down time history required for an EPNL measurement. This deviation is compensated for by

using a duration correction. The correction is $10 \log (CPA_R/CPA_T)$ where CPA_R and CPA_T are the closest point of approach reference and test, respectively. If an aircraft flies lower than reference, the PNL levels will have a shorter rise and fall time resulting in a lower EPNL value. Therefore, the CPA_T will be less than the CPA_R which will result in a positive duration correction to be arithmetically applied to the EPNL measured value.

For the aircraft tested, the average duration corrections are shown in the table below.

TABLE 6
DURATION CORRECTIONS
(In Decibels)

<u>Aircraft</u>	<u>Mic #</u>	<u>Arrival</u>	<u>Departure</u>	<u>Flyover</u>
PA 36	1	5.02		-0.02
	2	-1.14	0.28	-0.15
	3	-	-	-0.15
	4			0.10
PA 31	1			-0.51
	2	-0.26	3.22	-0.57
	3		1.87	-0.55
	4			1.16
CV 580	1			0.26
	2	-0.13	0.93	0.45
	3		-0.3	0.35
421C	1			0.12
	2	-0.27		0.19
	3		2.66	
	4		2.23	
172N	1			0.17
690B	1			0.01
	2	0.05		0.03
	3			-0.14
	4		0.95	-0.10

<u>Aircraft</u>	<u>Mic #</u>	<u>Arrival</u>	<u>Departure</u>	<u>Flyover</u>
500S	1			0.09
	2	-0.08		0.17
	3		3.49	0.11
	4		3.2	0.12

Generally, as can be seen in Table 6, the duration correction is small. This would indicate that the flight path flown was relatively close to the prescribed flight path. For instance, if a flyover occurred at 1100 feet rather than 1000 feet, the duration correction would be 0.41 dB.

The flyover data for the most part show less than a 10 percent deviation in flight path. The arrival and departure duration corrections were also small except where data from one microphone needed a correction back to a different microphone (i.e., correct mic 1 arrival data to mic 2 location). The worst case of a duration correction occurred with the PA 36 at microphone one. This resulted from the lack of tracking data for arrival runs 24 and 26 in the vicinity of microphone two, resulting in data being corrected from microphone one. This is also very evident in the position correction for these two runs which are 9.25 and 11.42 dB, respectively. Currently, FAR 36 has no limit on the maximum duration correction. However, as was pointed out earlier, there is an 8 dB limit on the position correction for a nonstandard takeoff location, which would apply here.

5. Power Correction

There is no set procedure for correcting for deviation in engine power settings. An attempt at such a correction was made on these data to correct all flyover data to determine if power setting was an influential factor on noise levels. Flyover data were chosen because of the associated high power operation. The correction applied was $10 \log (HP_R/HP_T)$ where HP_R and HP_T are the horsepower reference and horsepower during the test, respectively. This procedure, as it turns out, is not nearly adequate.

The major contributing noise source from propeller-driven aircraft during a flyover is the propeller. This is the largest source until the helical tip mach number drops sufficiently to allow the power setting and exhaust noise to contribute to the overall noise level.

The average tip mach number for the aircraft tested in this study are as follows:

TABLE 7

AVERAGE HELICAL TIP MACH NUMBERS

<u>Aircraft</u>	<u>Arrivals</u>	<u>Departures</u>	<u>Flyovers</u>
PA 36	0.84	0.84	0.84
PA 31	0.77	0.81	0.79
CV 580	0.66	0.69	0.73
421C	0.78	0.68	0.83
172N	-	-	0.79
690B	0.66	0.65	0.73
500S	0.77	0.79	0.84

There were no cockpit photos for the PA 36 (single seat aircraft) so the tip speed in the above table was calculated using the reference tip speed.

If the power correction were to be applied, the flyover data would be the least corrected operation. This is because most of the aircraft tested had constant speed or variable pitch propellers (see Table 10). Therefore, during a flyover operation, a slight change in power would have no effect on propeller speed.

The arrival operation proved to be more susceptible to a power or exhaust correction. Aircraft operating in low-power conditions often do not supply enough power for a constant-speed propeller to maintain a high constant RPM, and the RPM drops off. The noise level in this instance would then be affected by both exhaust noise and propeller noise. The propeller is no longer the dominant source.

The departure operation is also a candidate for exhaust correction. After the initial cutback in power to the 'best rate of climb,' the helical tip mach number often drops low enough for exhaust noise to have an effect. The HTM region where the exhaust noise begins to have effect appears to be a function of the propeller geometry.

Therefore, where the power setting begins to affect the noise level is different for each aircraft. This is examined closer in Part 8 of this section.

6. Speed Correction

A speed correction is very much like a duration correction. Its purpose is to compensate for a change in the PNLT time history due to speed deviations from reference speed. The equation used was $10 \log (\text{test velocity}/\text{reference velocity})$. The faster an aircraft flies, the shorter the PNLT time history and the lower the EPNL. Therefore, any flyover flying faster than a reference speed has a positive correction and an aircraft flyover slower than reference has a negative correction.

Reference speeds were determined as follows:

- a. Departures: Speed for best rate of climb (given in aircraft manuals as V_y).
- b. Arrivals: Final approach speed as recommended by manufacturer. Where approach speed is not given, $1.3 V_{\text{stall}}$ was used.³
- c. Flyovers: Reference speed used was either (1) maximum structural cruising speed or (2) maximum cruise speed, or (3) speed under maximum continuous power, whichever was defined as the "maximum allowable" speed in the flight manual.

True ground speeds were obtained from the phototheodolite tracking data. Ground speeds were used because this information was available and from a puristic view it is more appropriate than airspeed. It is the ground speed that actually influences the length of time a microphone receives sound from an aircraft flyover. The average speed corrections applied to the aircraft tested are given in Table 8:

TABLE 8
AVERAGE SPEED CORRECTIONS
(In Decibels)

<u>Aircraft</u>	<u>Arrivals</u>	<u>Departures</u>	<u>Flyovers</u>
PA 36	0.3	0.07	-0.31
PA 31	0.23	0.35	-0.43
CV 580	0.25	0.16	-0.25
421C	0.26	-0.03	-0.33
172N	-	-	-0.32
690B	-0.22	0.11	-0.61
500S	0.8	1.59	-0.35

- Arrival Speed Corrections

Arrival speed corrections indicate that all the aircraft, with the exception of the 690B, flew a faster approach than that which was referenced. Most arrival data were reduced from microphone location 31-2: 2067 meters (6782 ft) from runway threshold. This location is approximately the approach measurement location for large transport aircraft.

The track plots given in Appendix A show that the 690B flew above the reference flight path. The PA 36 also had higher flight paths for two approaches and the correction data show that these events were flown at considerably slower speeds than those events on or below the referenced approach profile.

- Departure Speed Correction

All aircraft tested, except for the 421C, flew faster on departure than the reference speed (V_y). This reference was used because it is the manufacturer's recommended climb speed. The indication here is that this aircraft flew at some rate of climb less than best. The PA 31 and 500S had the highest speeds on departure and their less than reference rate of climb can be seen in the track plots in Appendix A. The 421C also shows a significant drop in rate of climb and yet this is not reflected in the negative speed correction. Some of the departure data for this aircraft were taken from microphone 3 and 4, and it is the slower speeds at microphone 3 that account for the low average speed correction.

Flyovers

The flyover data were recorded at all microphone locations. No aircraft reached the reference speed

associated with the prescribed maximum continuous power setting. The measured flight speeds ranged from 6 to 15 percent lower than the reference speeds. This is attributed to atmospheric conditions on the test day.

7. Performance Correction

A performance correction was applied to all flyover A-weighted data in accordance with FAR 36, F36.201.(c), and Annex 16, Appendix 3, 4.2.3.2. The purpose of a performance correction stems from the fact that the noise type certification test for propeller driven small airplanes is based on the noise produced during a 305M (1000 ft) level flyover. A higher performance airplane (greater horsepower to weight ratio) would have the capability of achieving a higher altitude sooner on departures, thus producing less community noise. To compensate for this factor, a performance correction is applied which would benefit those aircraft with a high takeoff performance and penalize those with poor performance. Table 9 below is a list of the performance corrections and various factors affecting it.

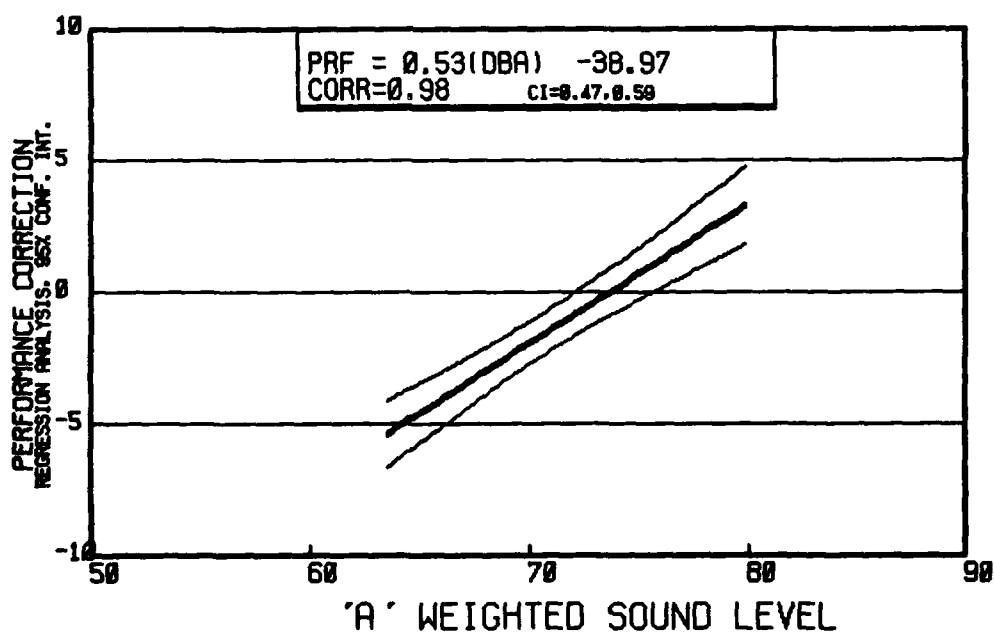
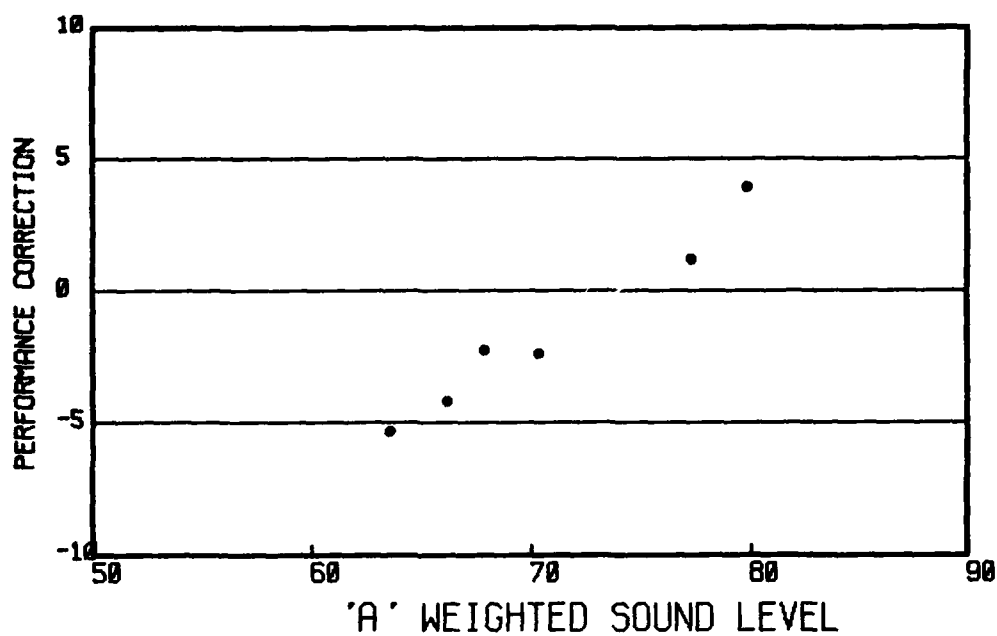
TABLE 9
PERFORMANCE CORRECTION

	<u>Vy*</u> <u>Knots</u>	<u>HP/WT</u>	<u>Rate of</u> <u>Climb</u> <u>Ft/Min.</u>	<u>Perf.</u> <u>Correction</u>	<u>Takeoff</u> <u>dBA</u>
PA 36	77	0.078	5100	3.9	75.9
PA 31	105	0.1	1450	-2.38	72.7
CV 580	170	0.125	1900	1.21	76.1
421C	111	0.101	1940	-4.20	70.2
172N	73	.070	740	-0.42	-
690B	139	0.139	2800	-5.00**	68.8
500S	96	0.086	1300	-2.30	70.1

*Speed for best rate of climb.

**Actual result from elevation was -5.33.
Correction limit is 5.0 dB

A correlation was performed between the measured departure sound levels and the calculated performance correction to determine if the theory behind this correction is valid. Figure 24 shows the measured data strongly supports the performance correction yielding a correlation coefficient of 0.98. (The 172N was excluded from this analysis for lack of departure data.) It is noted that the weighting of sound level to performance correction is approximately 2 to 1 for the aircraft tested. If equal weighting were to be considered, that is if a dB of performance correction were applied for every dB reduction of takeoff, the performance correction need only be multiplied by a factor of 1.89.



DEPARTURE VS PRF
FIGURE 24

8. Helical Tip Mach Number (HTM)

Most sources agree noise levels from general aviation type aircraft are influenced predominantly by propeller noise. There appears to be disagreement, however, in determining a standard correction to sound levels applicable to a change in propeller characteristics or movement. Generally, the following is agreed upon:

Propeller noise is a function of:

- a. RPM
- b. Aircraft forward speed
- c. Propeller diameter

These variables are all accounted for in the helical tip Mach number equation

$$\text{HTM} \# = \frac{(V_R^2 + V_T^2)^{1/2}}{C}$$

where V_R and V_T are the propeller rotational and translational velocity, respectively, and C is the speed of sound. The resulting correction generally applied is of the form:

$$\text{dB} = K \log \frac{f(\text{HTM})_{\text{REF}}}{f(\text{HTM})_{\text{TEST}}}$$

where the change in level is some constant times the log of some function of the HTM.

One method used is simply a constant times the log of the reference HTM over the test HTM. Many sources concur this is the proper form but disagree on the value of the constant. ICAO (reference 5) explains that there is an extremely wide range in values for this constant and that there is limited rational for the choice of one value over another. Their research shows the constant to vary between 60 and 240. The difference, they say, is accountable to the tip thickness ratio which is a ratio of propeller thickness to its chord. The final recommendation was to use a correction coefficient of 125 for aircraft where the tip thickness ratio is less than 6 percent. The table below lists the tip thickness ratio for each of the aircraft in this report. (The chord and tip thickness for round and elliptical tipped propellers was determined at the 95 percent radius point.)

TABLE 10
PROPELLER DATA

<u>Aircraft</u>	<u>No. Props</u>	<u>Dia.</u>	<u>No. Blades</u>	<u>Tip</u>	<u>Chord</u>	<u>Percent</u>	<u>Form</u>	<u>Pitch Type</u>
PA 36	1	86"	3	0.14"	3.0"	4.7	Elliptical	Variable
PA 31	2	80	3	0.186	4.04	4.6	Elliptical	Variable
CV 580	2	162	4	0.56	18.5	3.0	Square	Variable
421C	2	90	3	0.302	5.331	5.7	Square	Variable
172N	1	75	2	0.243	3.07	7.9	Elliptical	Fixed
690B	2	106	3	0.15	6.5	2.31	Round	Variable
500S	2	80	3	0.212	3.92	5.4	Round	Variable
B 35-B33*	1	84	2	0.254	4.15	6.1	Square	Variable

*Beech aircraft used in reference 6.

The tip form was included in the above table because certain tip forms are believed to generate more sound than others. The number of propellers, or engines, also influences the overall noise level. Twin engine aircraft have a dual noise source. Therefore, for purposes of comparing tip speed noise levels of single and twin-engine aircraft in this report and using the decibel power law, a correction of 3 dB was added to all single engine aircraft.

A second method for determining a correction for HTM is suggested by reference 7. This method also utilizes the HTM, but in the following form:

$$dB = K \log \left(\frac{H_R}{H_T} \right)$$

where $H = \left(\frac{1}{1 - HTM^2} \right)$

The equation for this correction was derived from an equation for an ideal moving noise source at the closest point of approach to the microphone. Data from reference 7 indicates that the coefficient constant K should be 30.

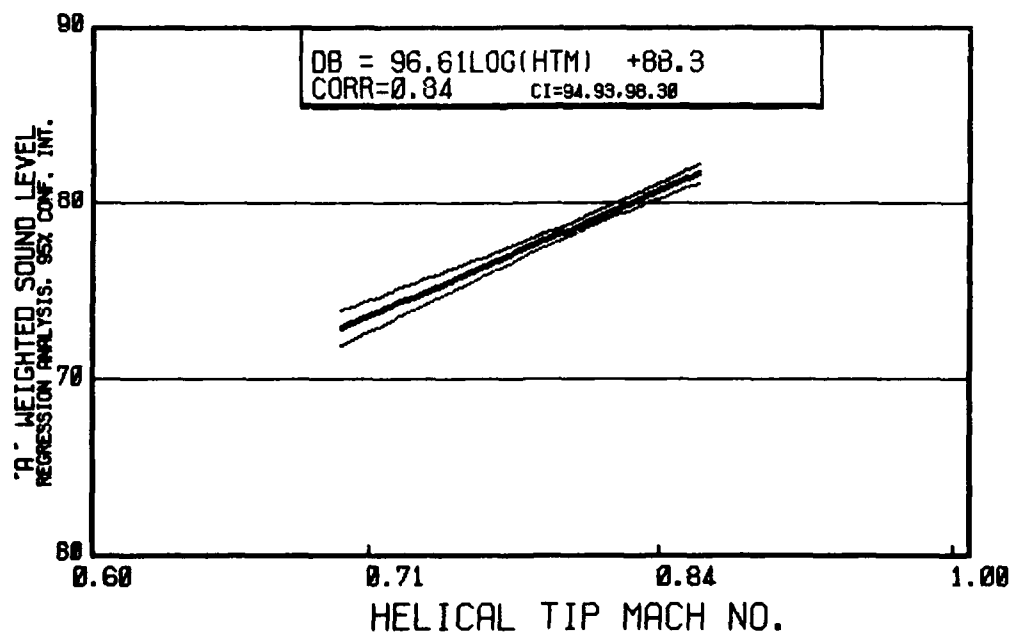
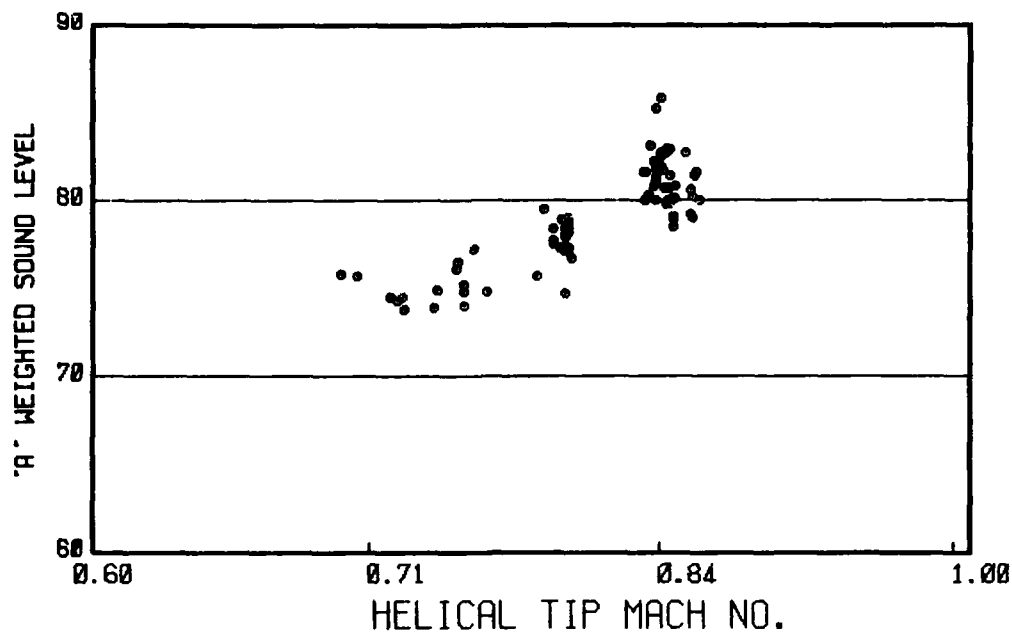
Plots were made of sound levels versus tip speed corrections for both correction methods cited above. Two plots were prepared in order to show the data spread and a regression curve fit to the data. Two additional curves

show the 95 percent confidence of the regression line. The resulting equation for the regression line is given on each plot along with the confidence interval of the slope and the correlation coefficient (R). A correlation coefficient squared (R^2) is the percent probability that one variable is directly dependent on the other.

The Convair 580 was eliminated from the correlation analysis because it falls into the large transport category and did not follow trends of the smaller general aviation type aircraft. Results are shown in Figures 25 through 34.

- Flyovers

The regression analysis for the flyover data from this test, using the straight HTM ratio method, is shown in Figure 25. (The sound level data used in the plot were only corrected for weather and position, and the RPMs necessary to compute the HTM were obtained from cockpit photographs of each run. In the case of the PA 36 where there were no cockpit photos; maximum RPM was assumed). The correlation coefficient in Figure 25 is 0.84 indicating a strong relationship between noise level and HTM. The coefficient constant of 96.6 is slightly below that recommended by ICAO (125). However, when data from reference 6 is applied

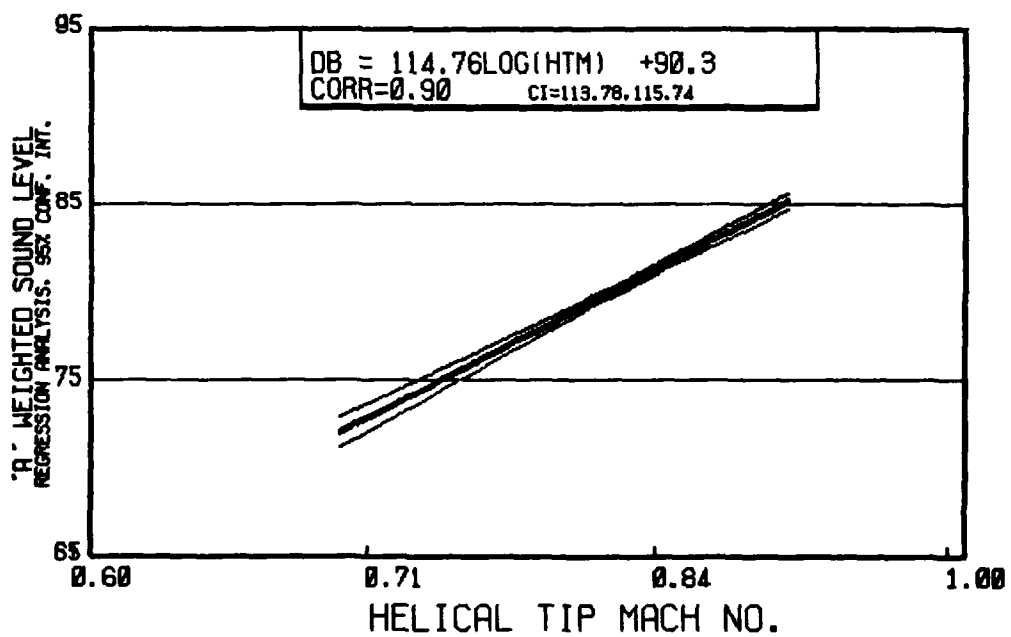
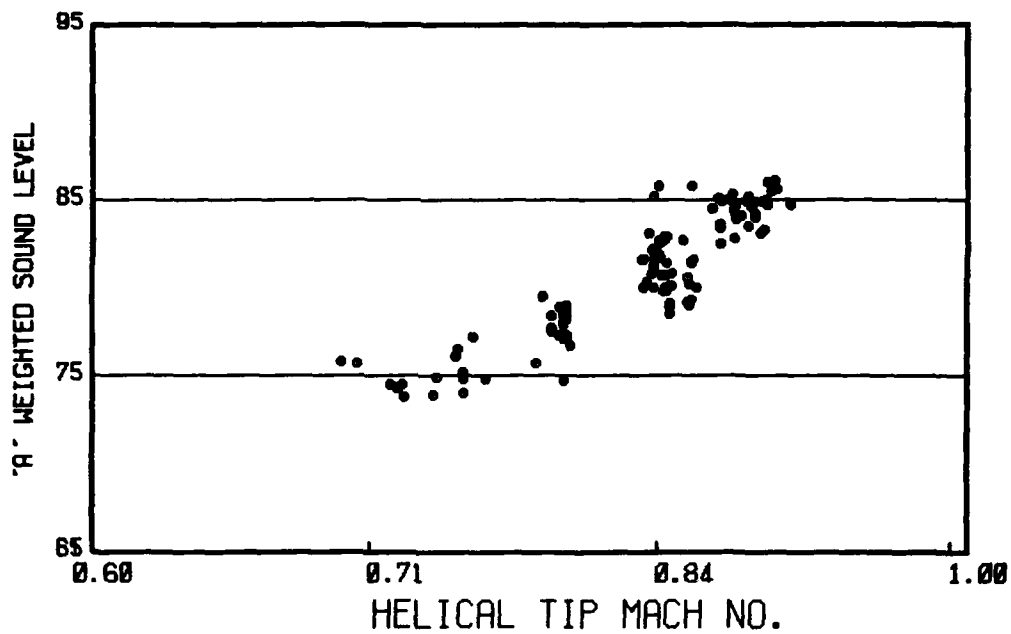


FLYOVERS VS TIP MACH NO.
MAX POWER
FIGURE 25

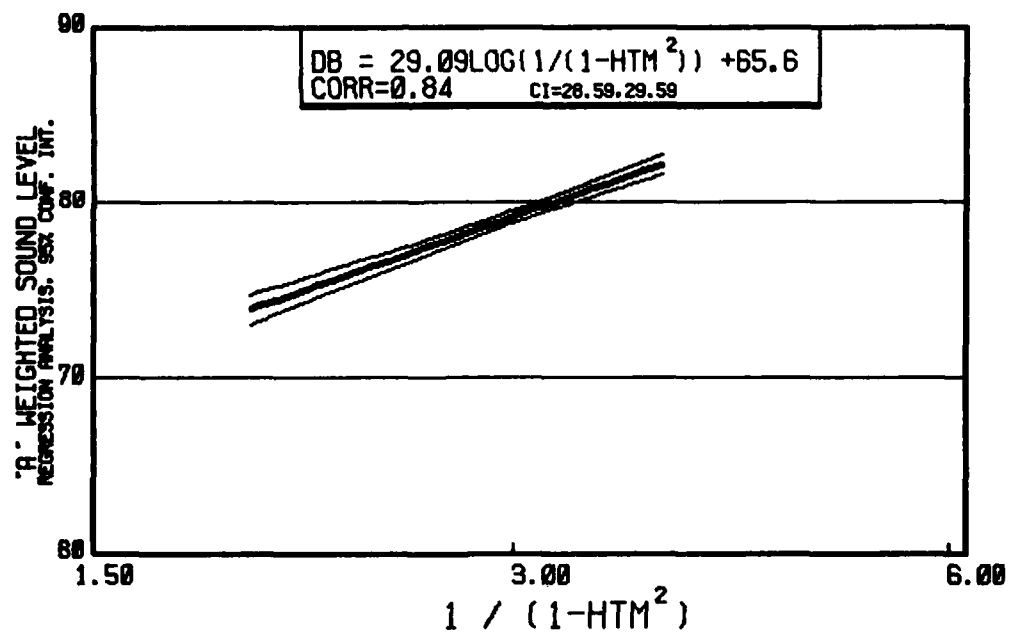
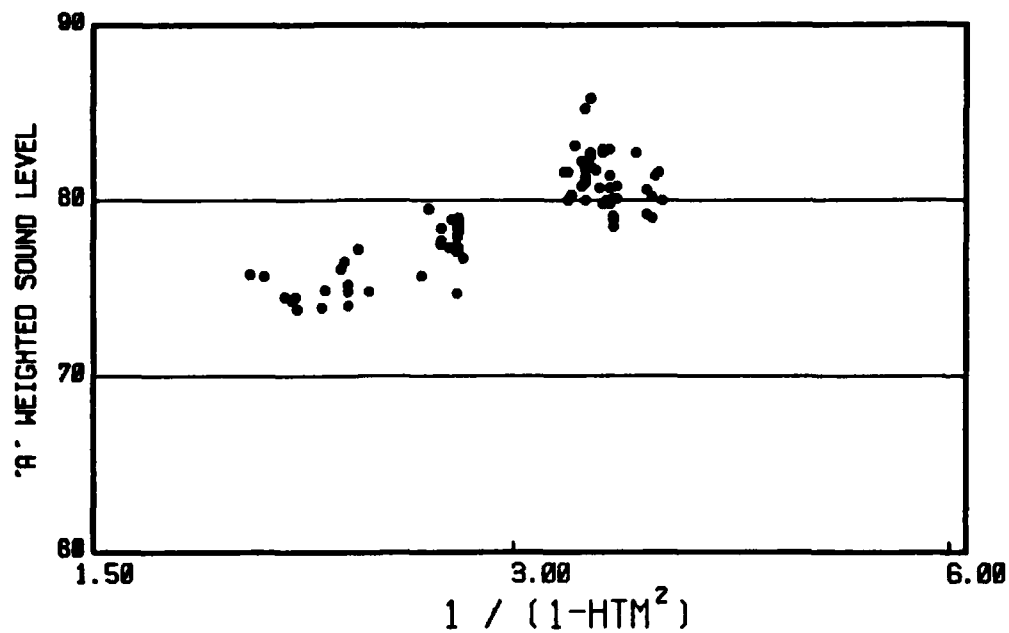
(Figure 26), the constant increases to 114.8, the confidence interval is slightly improved, and the correlation jumps to 0.90. The data used from reference 6 is for 1000-foot flyovers of a Beech 35-B33. Only that data which was within 2 percent of max rated RPM was used. This limit was a stipulation expressed in reference 6 under recommendations for conducting tests.

The test data were also used to evaluate the second correction method (reference 7), and the regression analysis is shown in Figure 27. The results show a high correlation of 0.84 with a slope of 29.09. This is very close to reference 7 recommended slope of 30. Figure 28 shows that reference 6 data support this trend. The correlation coefficient rises to 0.91 and the slope drops slightly to 28.8.

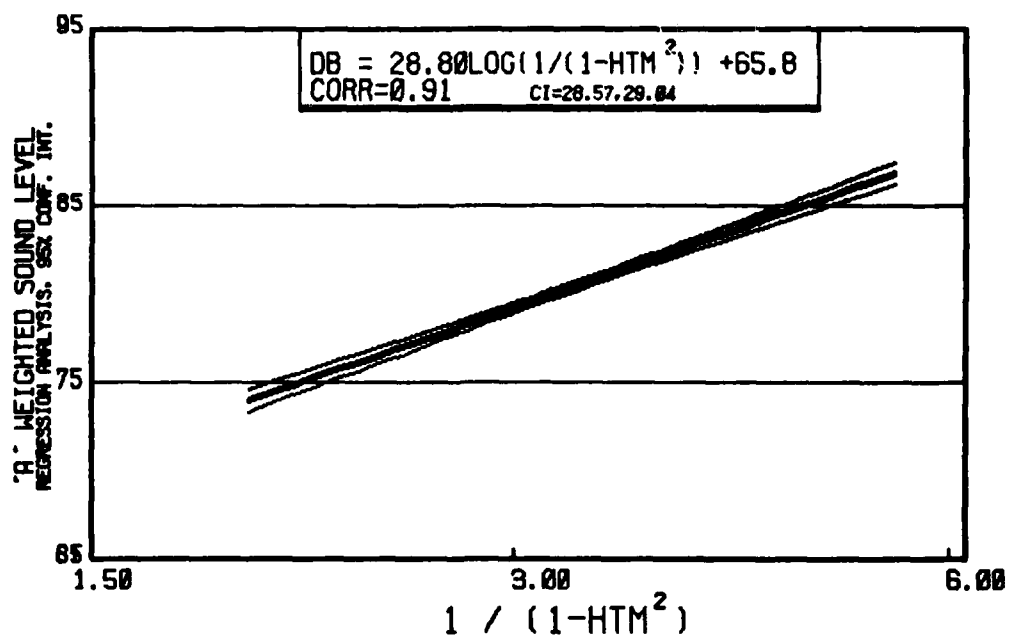
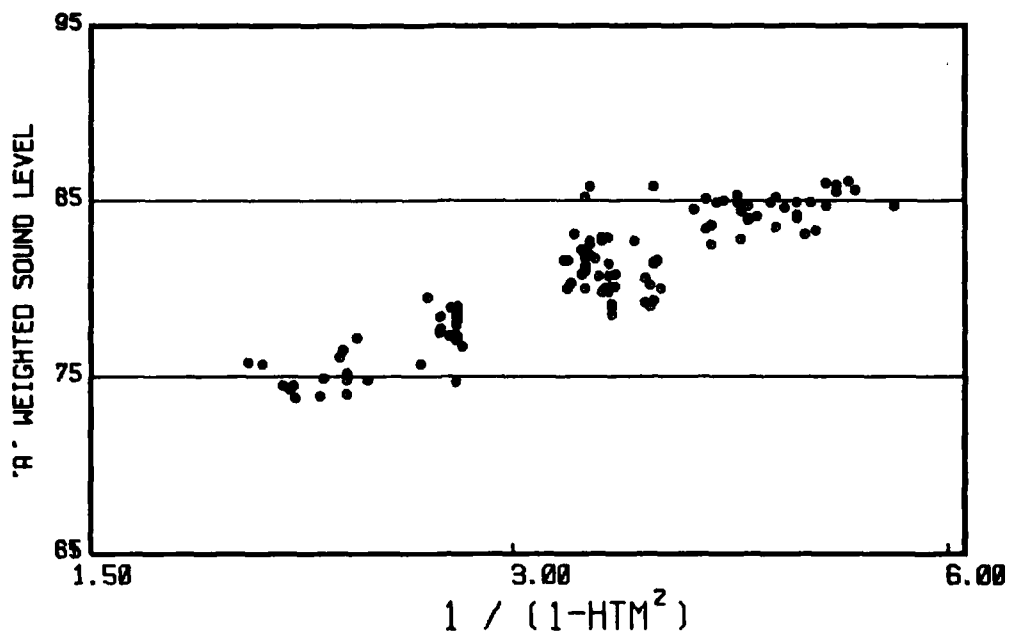
In addition to L_A , regressions were also performed between EPNL and HTM and are shown in Figures 29 and 30. Both correction methods in this case show a low correlation of 0.59 but the reference 7 method has a much better confidence interval than does the straight HTM method.



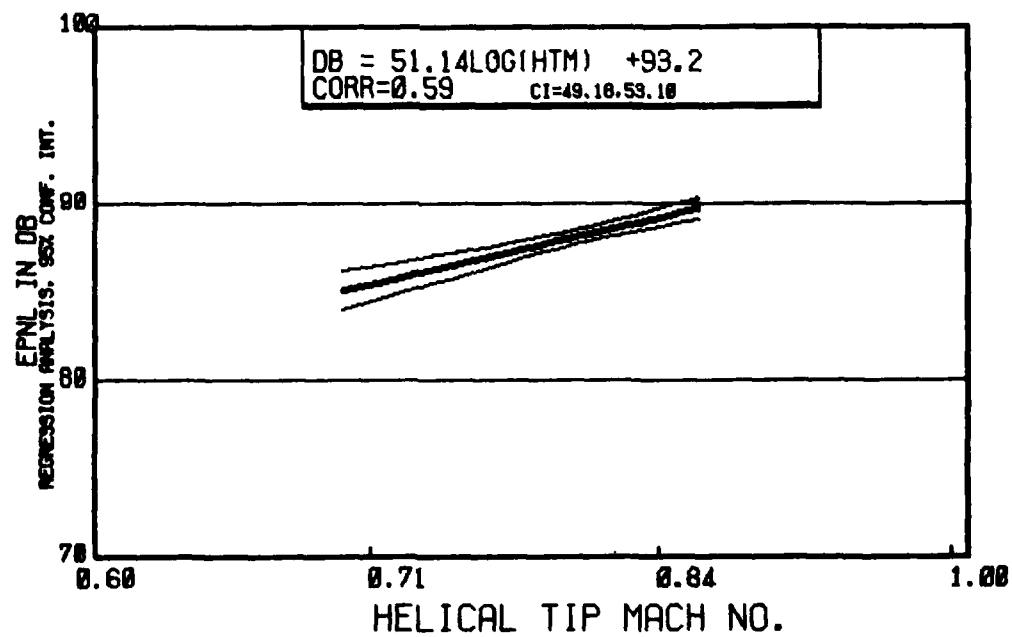
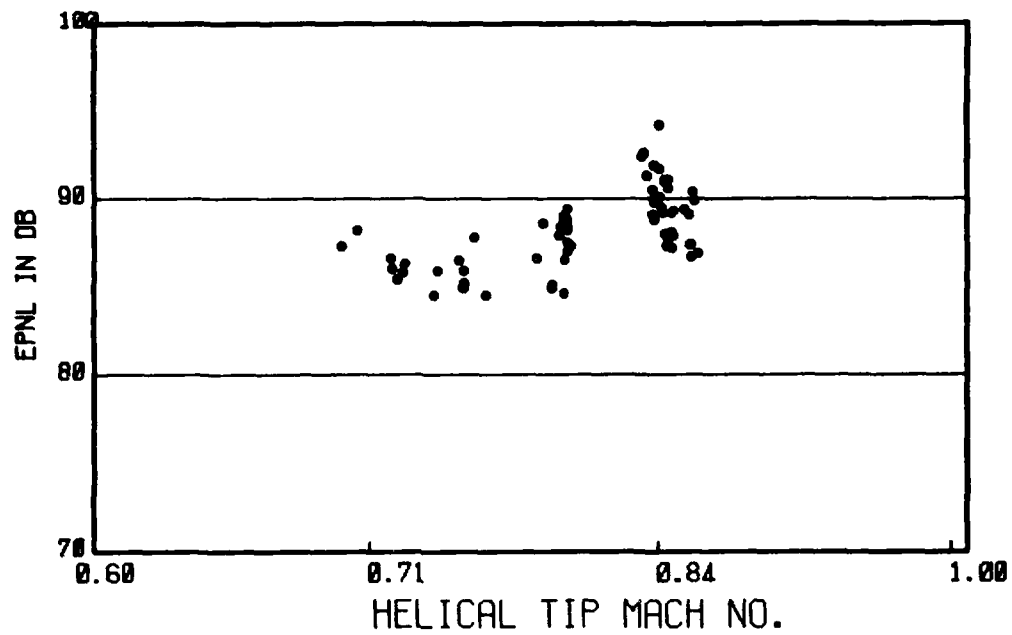
FLYOVERS VS TIP MACH NO
TEST DATA + REF. 6
FIGURE 26



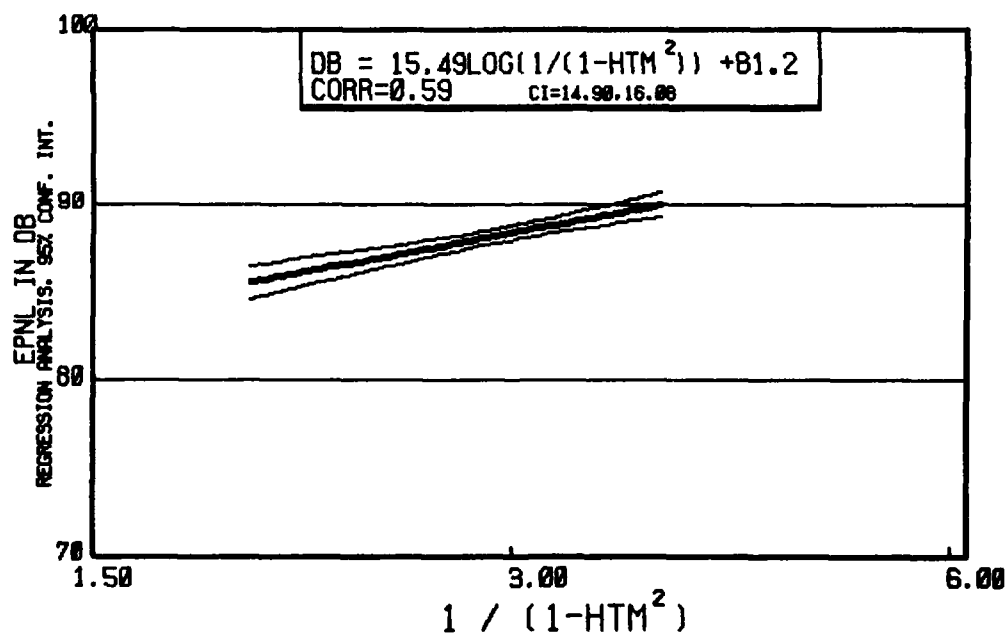
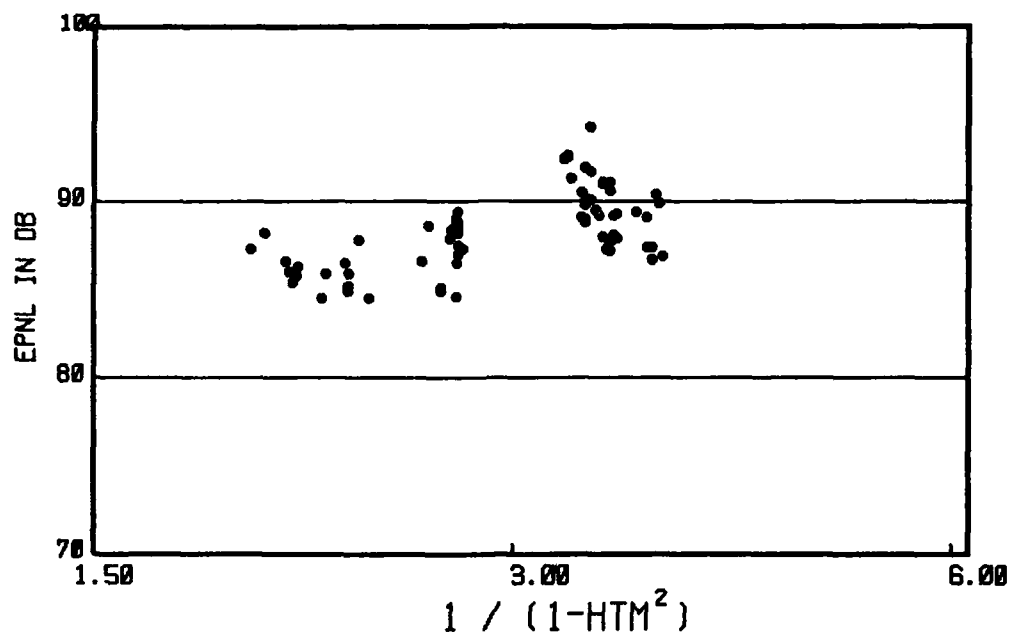
FLYOVERS VS TIP MACH NO.
MAX POWER
FIGURE 27



FLYOVERS VS TIP MACH NO.
 TEST DATA + REF. 6
 FIGURE 28



FLYOVERS VS TIP MACH NO.
MAX POWER
FIGURE 29



FLYOVERS VS TIP MACH NO.
MAX POWER
FIGURE 30

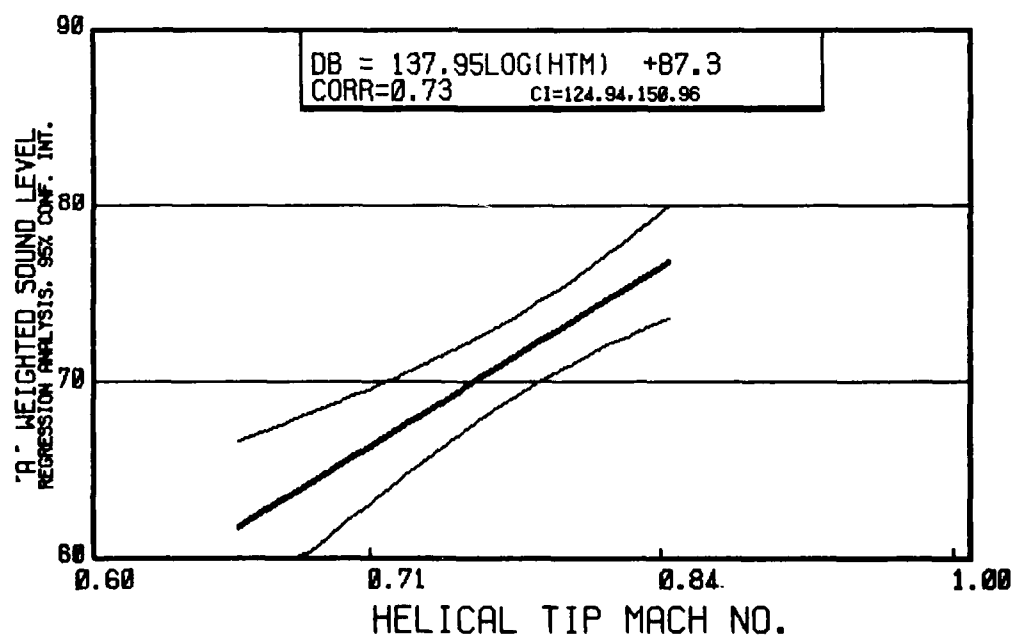
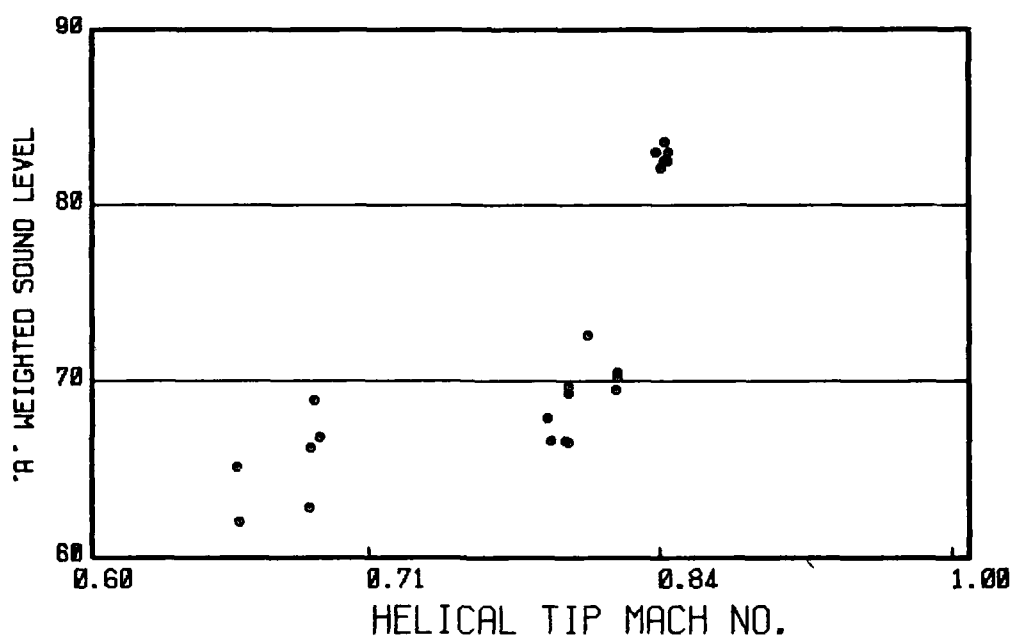
- Departure

Departure levels versus HTM were also plotted (Figures 31-34). The departure data maintains a fair correlation between sound level and tip mach number (greater than 0.7). The propeller tip speed is no longer the single most contributing factor to the overall noise level. The correlation results show a significant drop in the correlation coefficients due to a dropping off of the HTM for some aircraft. Use of EPNL also results in poorer correlation because of the many different factors involved in an EPNL computation besides the HTM such as tone and duration corrections.

In both the A-weighted and EPNL departure levels, the reference 7 HTM correction method produces superior confidence intervals to those of reference 5. A significant change, however, in reference 7 occurs with the slope of the A-weighted correlation curve. These data do not support the flyover slope of 30, but indicate that 57 may be a more correct constant. This also may be due to reduced tip speeds which often occur after cutback on departure operations.

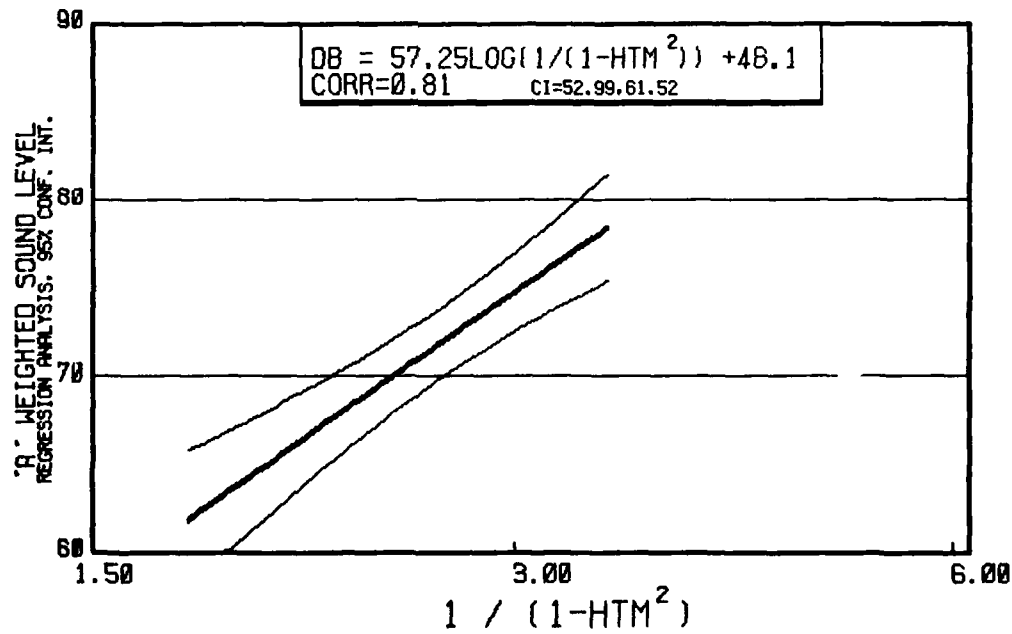
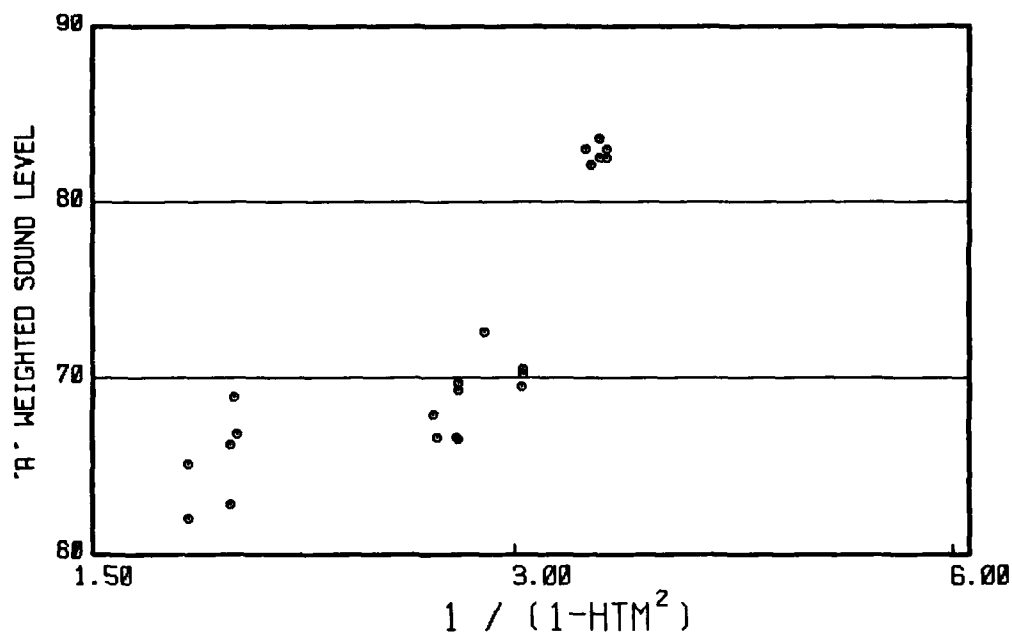
- Arrival

The arrival data showed almost no correlation with HTM (less than 0.25), therefore, results are not shown



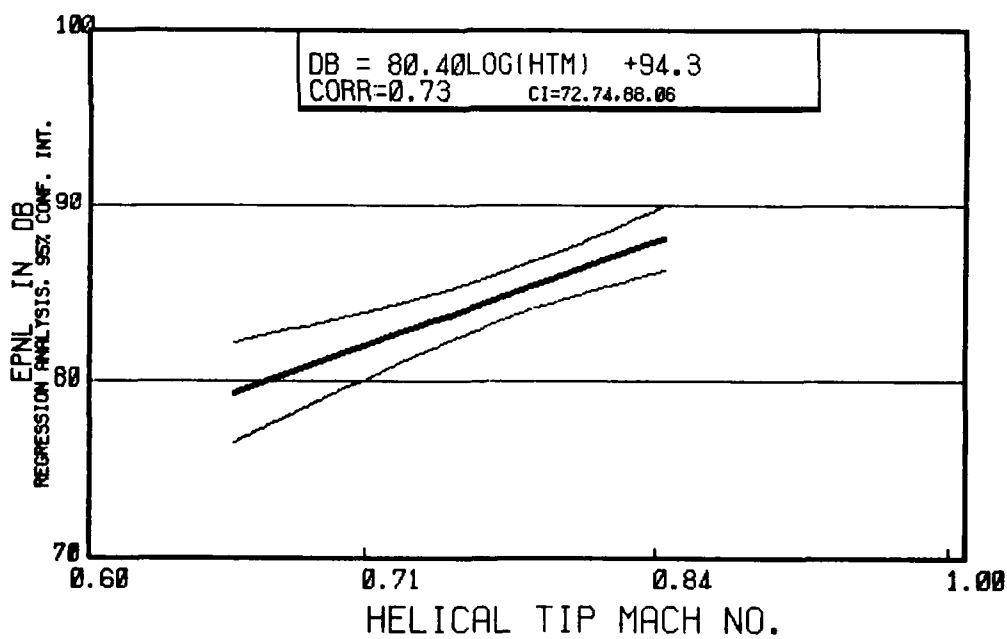
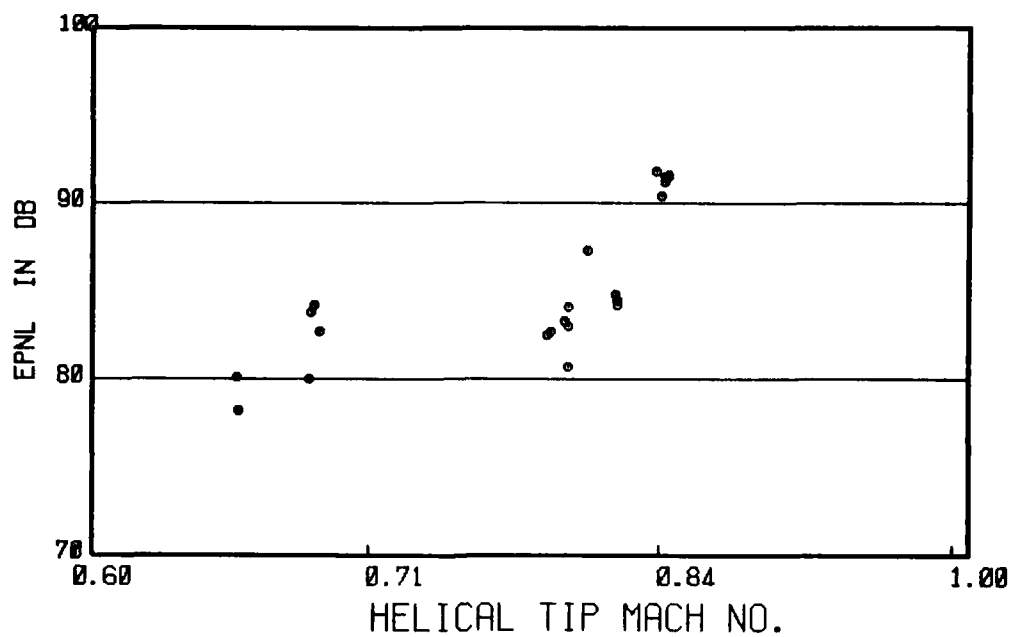
DEPARTURES VS TIP MACH NO.

FIGURE 31



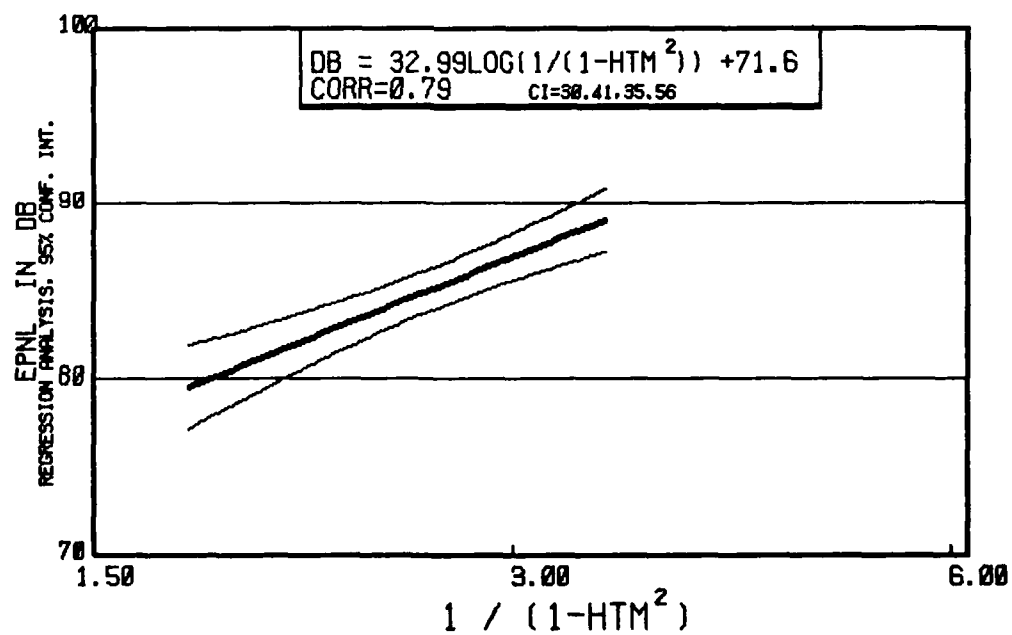
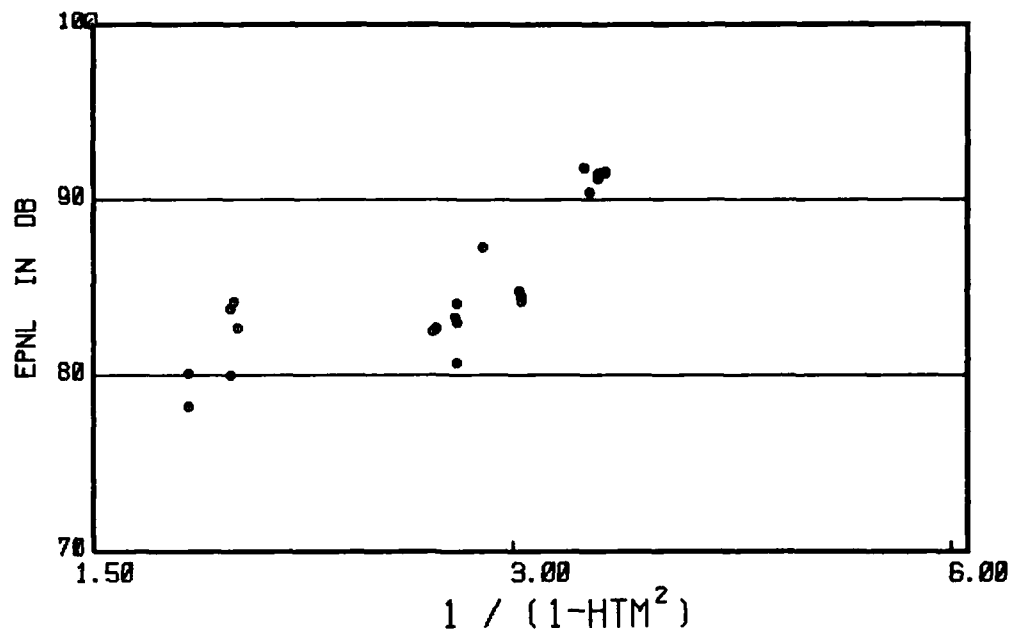
DEPARTURES VS TIP MACH NO.

FIGURE 32



DEPARTURE VS TIP MACH NO.

FIGURE 33



DEPARTURES VS TIP MACH NO.

FIGURE 34

here. The aircraft are in low power operation; therefore, many of the RPMs are low and other factors such as exhaust noise influence the overall noise level resulting in poor correlation between helical tip mach number and sound level.

A summary of all the regression results for noise level versus HTM is in the following table:

TABLE 11
REGRESSION RESULTS ON TIP MACH NUMBER

<u>Flyovers</u>						
<u>Equation</u>	<u>Slope</u>	<u>dBA</u>	<u>Confidence Interval</u>	<u>Slope</u>	<u>EPNL</u>	<u>Confidence Interval</u>
		<u>R</u>			<u>R</u>	
$K \log \frac{HTM}{HTM}$	96.6	0.84	± 1.69	51.1	0.59	± 1.96
	114.8	0.90	$\pm 0.98^*$			
$K \log \frac{H^{**}}{H}$	29.1	0.84	± 0.50	15.5	0.59	± 0.59
	28.8	0.91	$\pm 0.24^*$			
<u>Departures</u>						
<u>Equation</u>	<u>Slope</u>	<u>dBA</u>	<u>Confidence Interval</u>	<u>Slope</u>	<u>EPNL</u>	<u>Confidence Interval</u>
		<u>R</u>			<u>R</u>	
$K \log \frac{HTM}{HTM}$	138.0	0.73	± 13.01	80.4	0.73	± 7.66
$K \log \frac{H^{**}}{H}$	57.3	0.81	± 4.27	33.0	0.79	± 2.58

*Reference 6 data included

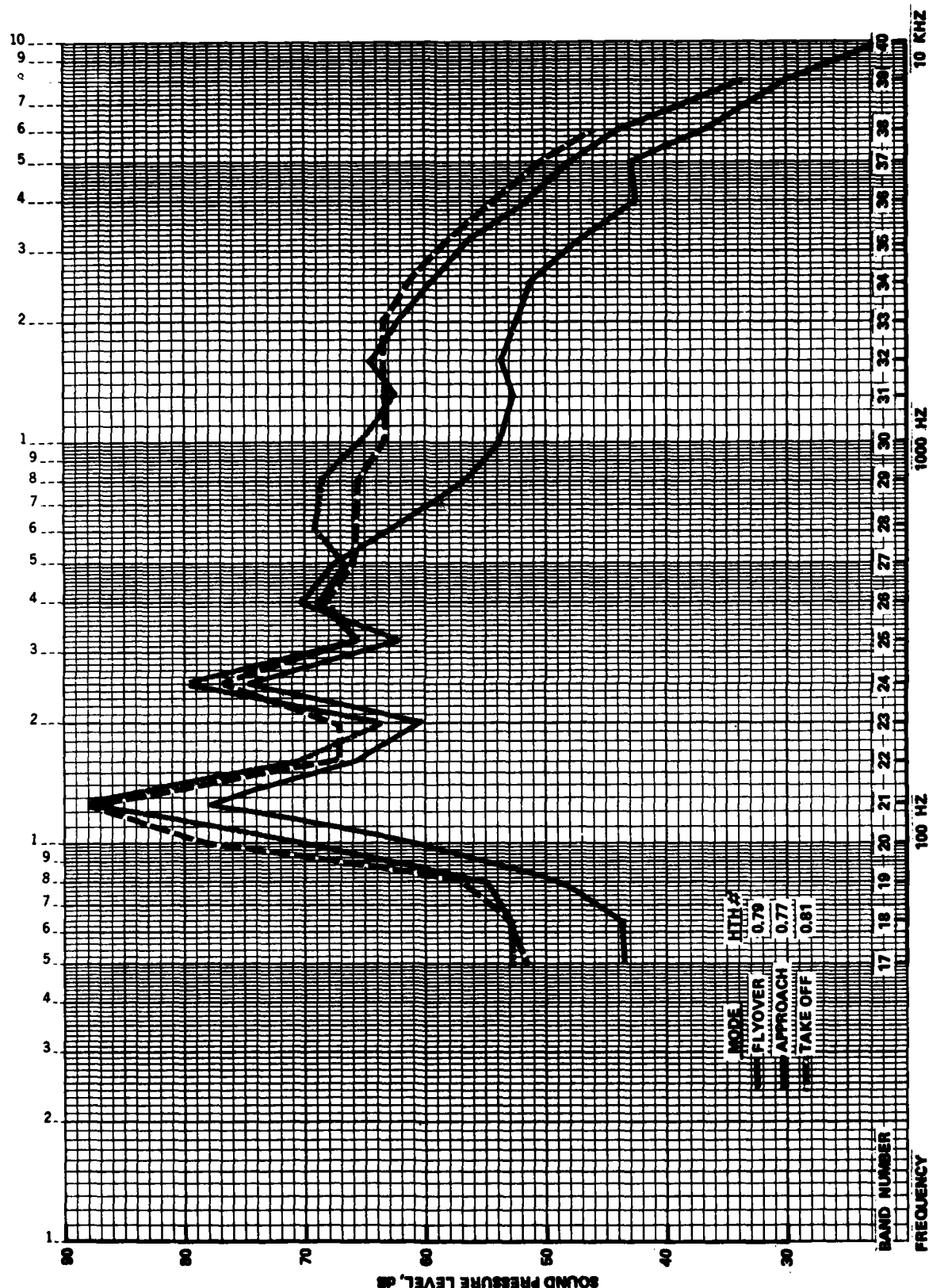
$$^{**}H = \frac{1}{1 - HTM^2}$$

Figures 35 through 39 will help to show how the HTM affects the sound levels. These graphs compare the 1/3 octave band spectra of flyovers, approaches and departures taken at the overhead microphone position and all corrected to 1,000 feet. Labeled on these graphs are the HTM numbers relating to each curve. In each instance, the spectra levels drop off with a decrease in HTM and, in most cases, this drop-off occurs across the entire frequency range.

At this point, there appears to be little doubt that the propeller is the major noise contributor of these aircraft. The next logical step is to determine how the noise is affected by various types of propellers. Many sources believe that the propeller thickness ratio (tip thickness/chord length) is a major factor of propeller noise. Figures 21 and 22 may help substantiate this belief. Again, each spectra is taken from the overhead flyover position (Appendix H) and corrected to 1,000 feet. Table 12 is a list of the aircraft tested, arranged according to decreasing A-weighted sound level along with the tip thickness ratio for each aircraft. (3 dB was added to the 172N because it is the only single engine aircraft in the group.)

K-E SEMI-LOGARITHMIC .3 CYCLES X 70 DIVISIONS
NEUTREL & SINGER CO. MADE IN U.S.A.

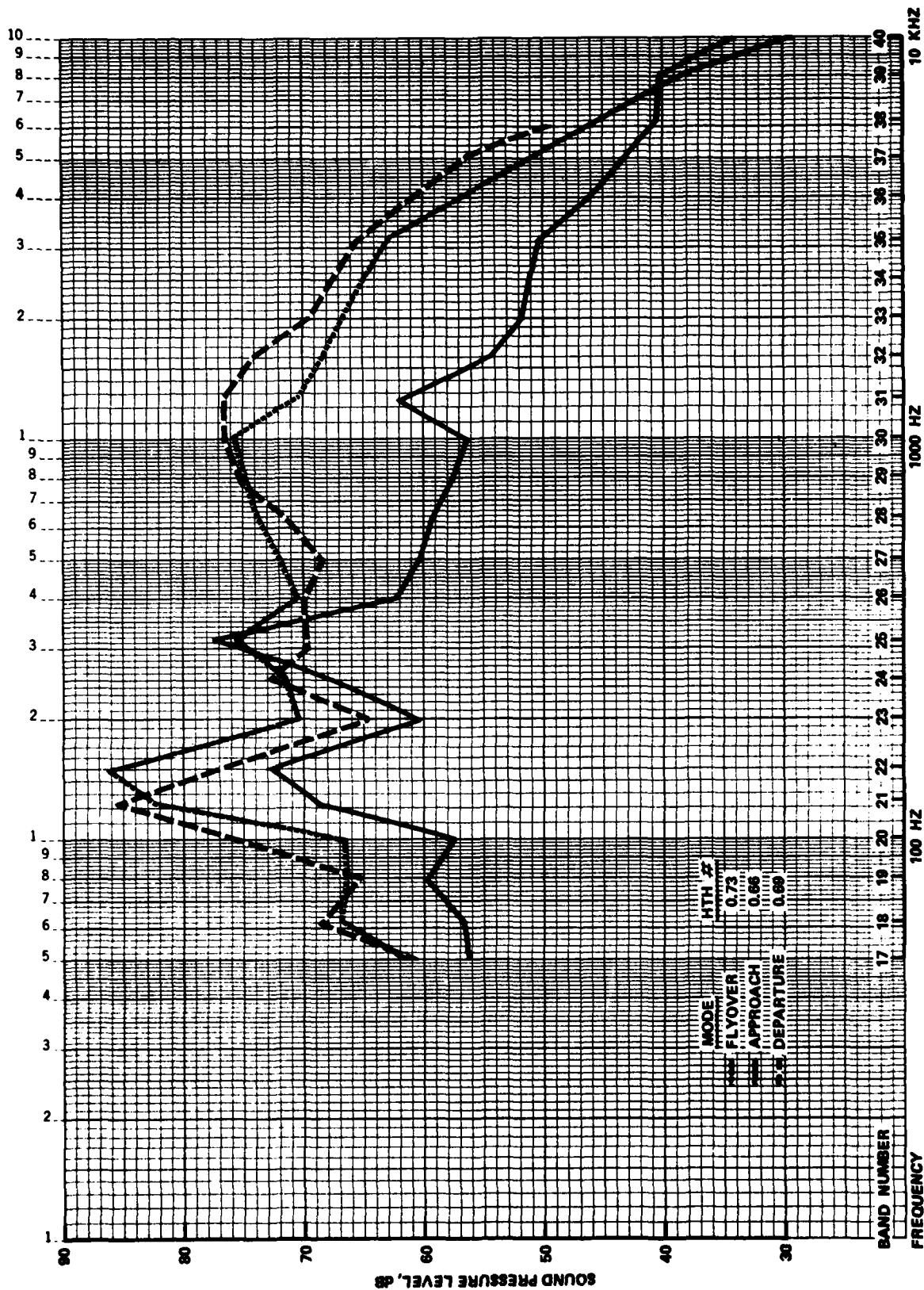
46 5492



PIPER PA31 - 1/3 OCTAVE SPECTRA - FIGURE 36

K-E SEMI-LOGARITHMIC 1 CYCLES X 70 DIVISIONS
KUPFER & BERGER CO. MADE IN U.S.A.

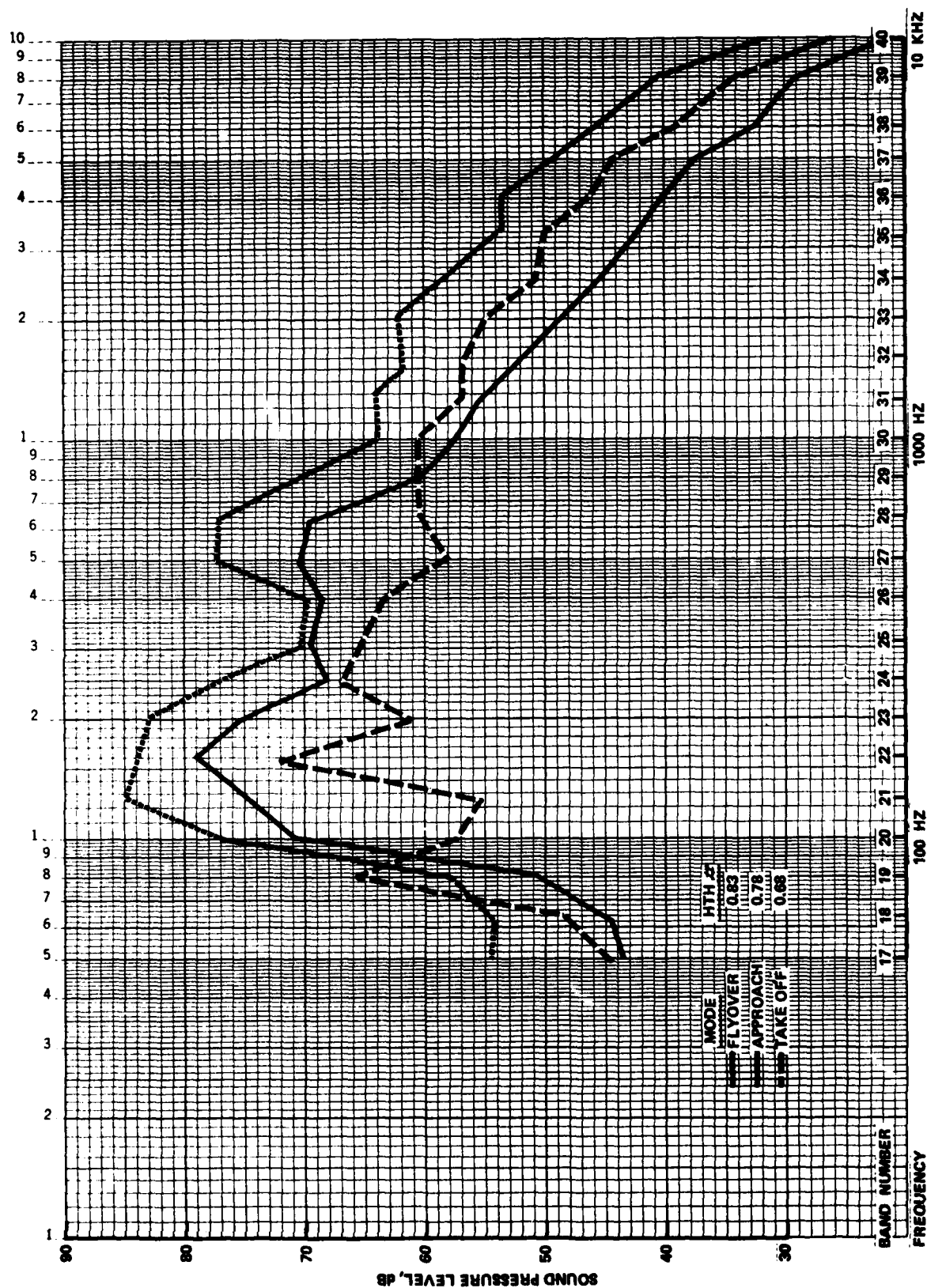
46 5492



CONVAIR 580 - 1/3 OCTAVE SPECTRA — FIGURE 36

K-E SEMI-LOGARITHMIC 3 CYCLES X 70 DIVISIONS
NEUFEL & ESSER CO. MADE IN U.S.A.

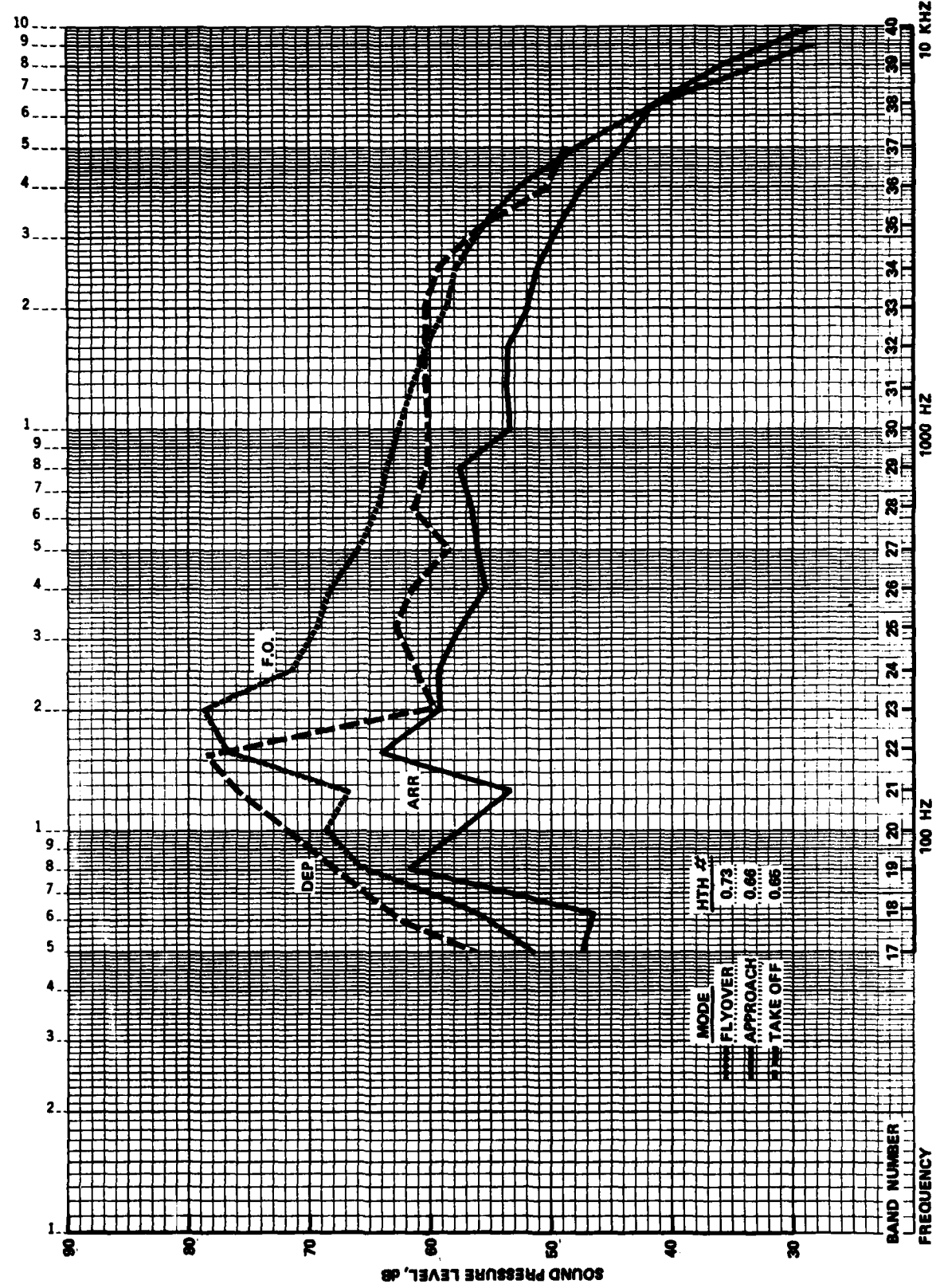
46 5492



CESSNA 421C - 1/3 OCTAVE SPECTRA - FIGURE 37

K-E SEMI-LOGARITHMIC 1/3 CYCLES X 70 DIVISIONS
 REUPPEL & EBER CO. MADE IN U.S.A.

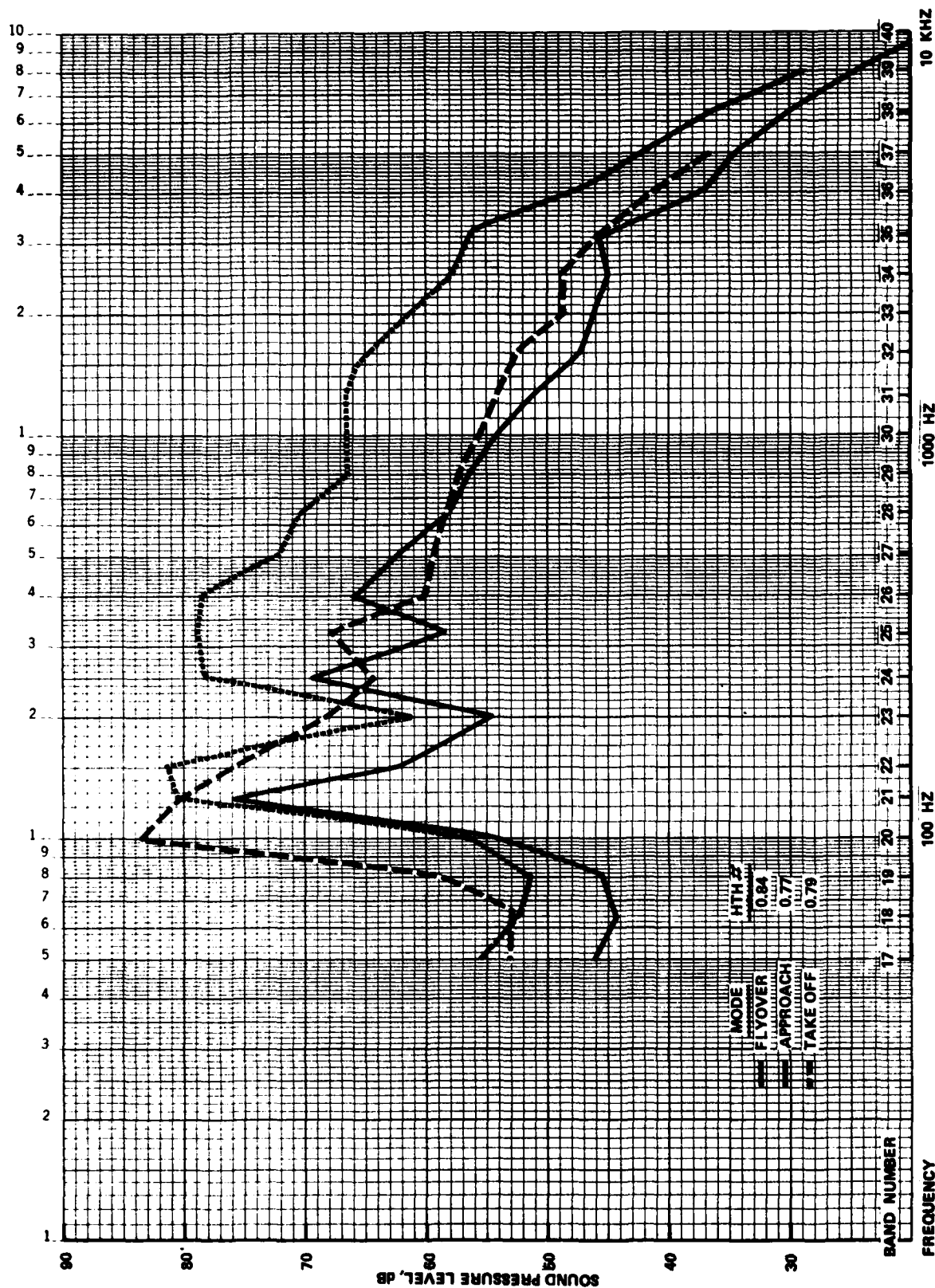
46 5492



ROCKWELL 690B - 1/3 OCTAVE SPECTRA - FIGURE 38

K-E SEMI-LOGARITHMIC-1/3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 5492



ROCKWELL 500S - 1/3 OCTAVE SPECTRA — FIGURE 39

TABLE 12

PROPELLER TIP THICKNESS RATIO

<u>Aircraft</u>	<u>Flyover d9A Sound Level</u>	<u>Tip Thickness Percent</u>	<u>HP</u>	<u>Number Blades</u>	<u>Drop Dia</u>	<u>Flyover HTM</u>
Convair 580	82.2	3.0	3,400	4	162"	.73
Cessna 421C	81.0	5.7	375	3	90	.83
Rockwell 500S	79.7	5.4	290	3	80	.84
Cessna 172N	78.8	7.9	160	2	75	.79
Piper PA31	77.7	4.6	325	3	80	.79
Rockwell 690B	74.7	2.3	718	3	106"	.73

Considering all of the different variables involved in the above table, it is impossible to make any concrete conclusions on how the tip thickness ratio affects noise levels. However, general trends can be seen. Noise levels drop off with a drop off in HTM, and also, except for the 172N, levels drop off with tip thickness. The Convair, which does not fit with either of these two trends, probably has other factors involved such as blade loading. The much larger horsepower value for the Convair would account for this. The reason for the 172N not following suite may be due to the fact that it has fewer blades than any of the other propellers, and is the only fix pitched propeller.

- Summary

Of the methods evaluated, the best method for correcting aircraft noise for variations in propeller tip speed is during flyover and is

$$dBA = 28.8 \log \frac{f(HTM)_{TEST}}{f(HTM)_{REF}}$$

where

$$f(HTM) = \frac{1}{1 - HTM^2}$$

There is a high degree of confidence using this method. However, this confidence level begins to drop off with departure data and becomes very poor for arrival data. This low level of confidence for approach and departure operations appears to be a function of the aircraft propeller HTM number. The low RPM, associated with approaches and departures after cutback, produces lower HTM numbers than does a flyover operation for some of the aircraft tested. This would account for the overall poor correlation. Also, the propeller tip thickness ratio appears to be a secondary factor in producing propeller noise. A drop off in the tip thickness ratio is coincident with a drop off in HTM number and sound level.

9. Bandsharing

The technique used for analyzing aircraft noise for Appendix C noise type certification requires the aircraft spectra to be divided into 24 discrete one-third octave bands. It becomes possible, therefore, to have a tone which lies between two contiguous one-third octave bands, and whose true value is hidden within these two adjacent filters. The bandsharing correction is a procedure devised to identify tones in these areas and apply an appropriate correction.

The bandsharing procedure, given in FAR 36, 836.5N, is based on the doppler principle. This principle states simply that as a moving signal tone approaches an observer, the tone will exhibit a pitch (frequency) higher than the source pitch, and as the signal moves away from the observer, the tone will exhibit a lower pitch. Given a moving source such as an aircraft, if there is a tone, the frequency of that tone as measured at a stationary site, will, therefore, appear to be lowering. Based on this phenomenon, if a tone is divided between two filters, in time the tone will eventually fall entirely in the lower frequency filter.

The bandsharing procedure used in this test examines the time intervals around PNLTM. If the frequency of the maximum tone corrections in the two 500ms samples before

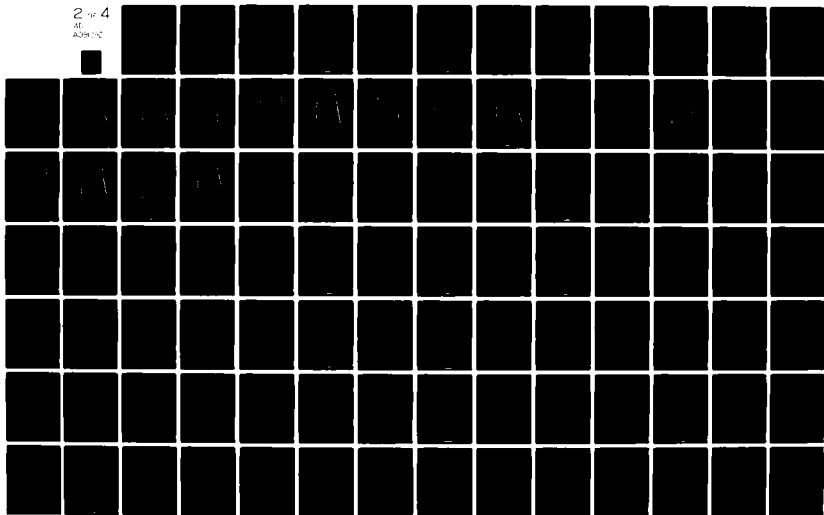
AD-A091 292

FEDERAL AVIATION ADMINISTRATION WASHINGTON DC OFFICE --ETC F/G 13/2
NOISE LEVELS AND DATA CORRECTION ANALYSIS FOR SEVEN GENERAL AVI--ETC(U)
SEP 80 D W FORD, E J RICKLEY
FAA/EE-80-26

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2 of 4
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AD-80-26



PNLTM and the two 500ms samples after PNLTM exhibit doppler shifts, bandsharing is said to exist. The average tone corrections for all five samples are then averaged and compared to the tone correction at PNLTM, and the greater value is then used for the new PNLTM.

The value for the change in PNLTM in this test never exceeded 0.1 dB.

C. Data Relationships

1. Influence of Weight on Aircraft Noise

Many aircraft that are regulated under FAR 36 are done so based on their weight. The general trend in the standard is the heavier an aircraft the higher the noise level limit. This is predominantly true for large transport aircraft. Figures 19 and 20, however, show that regulations for smaller propeller type aircraft are not dependent on weight unless the aircraft weight is below 1650 kg (3630 lbs.). This section discusses results obtained from examining the data taken during this test to determine if there are any trends indicating influence of weight on the aircraft noise levels.

The noise levels versus weight showed a negative dependency for the propeller aircraft tested. However, as was shown in section VI.B.8 of this report, propeller aircraft noise

is dominated by the propeller. Table 7 shows that the lighter aircraft have higher helical tip mach numbers. This accounts for the initial results showing a negative dependency of noise levels on weight. If this factor is normalized out of the test data by using equations in Figures 28 and 34, the following regression results are obtained.

TABLE 13
REGRESSION OF WEIGHT ON NOISE LEVELS

	<u>Slope</u>	<u>R</u>	<u>Confidence Interval</u>
Flyover dBA	3.53	0.34	+ 0.33
Arrival EPNL	-15.8	-.53	+ 3.5
Departure EPNL	-9.14	-0.34	+ 2.9

Table 13 shows that a negative dependence still exists for arrivals and departures. However, the correlation coefficient (R) indicates for those aircraft tested that weight has very little affect on aircraft noise for any of the flying modes.

2. Appendix F Measurement Versus Appendix C

As previously stated, FAR 36 regulates aircraft noise using two different descriptors. Large transport type aircraft are tested using the EPNL measure while small

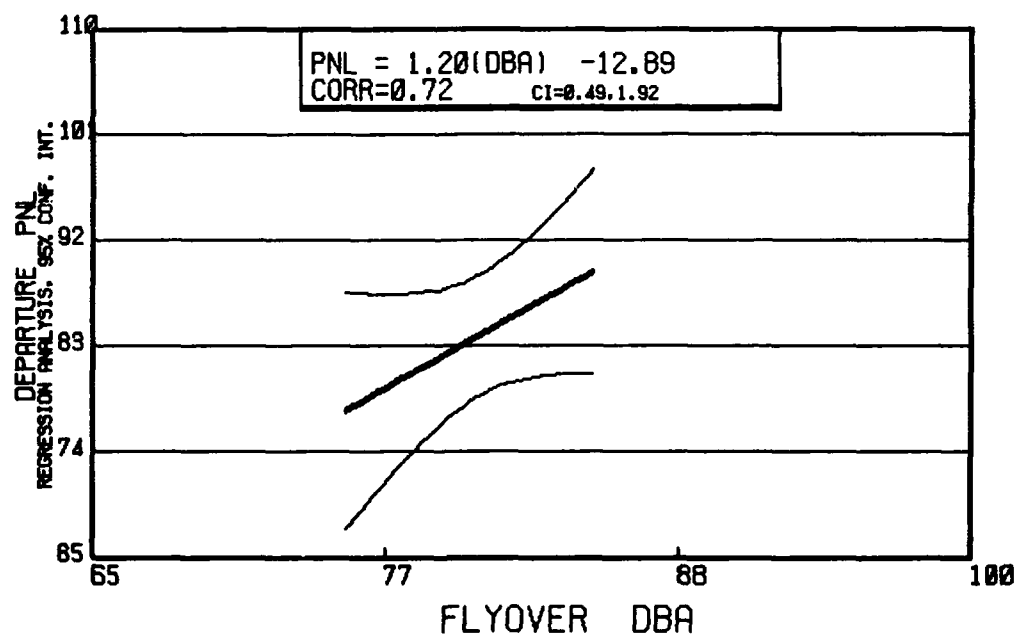
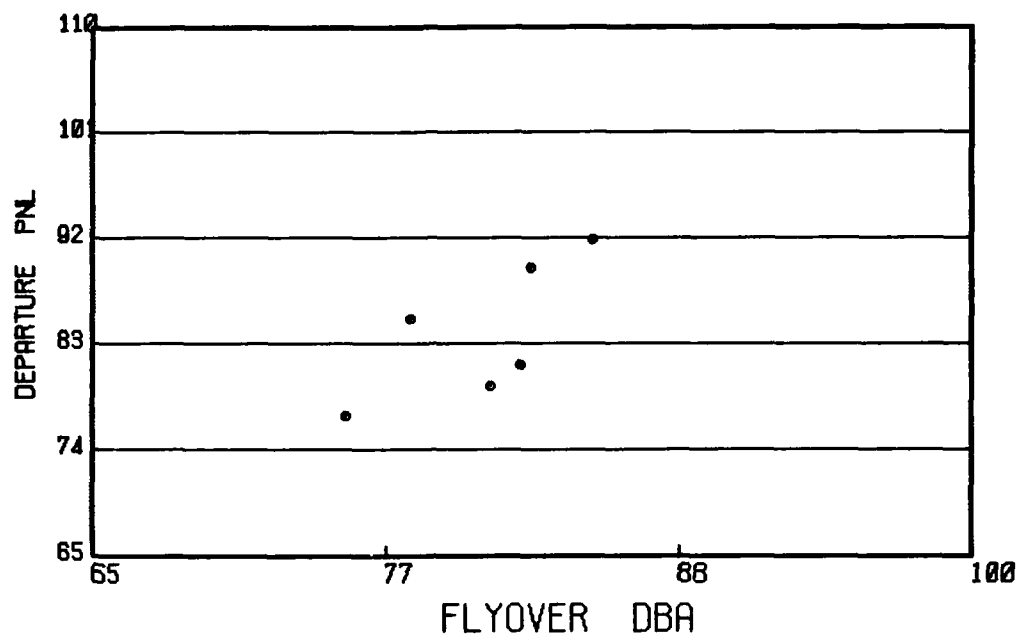
propeller-driven airplanes are tested using the 'A'-weighted sound level measure. All of the aircraft tested except for the Convair 580, are in the weight class of the small propeller-driven aircraft and were, therefore, certified using the 'A'-weighted level (Appendix F).

One of the objectives of this test was to develop a data base of noise levels on propeller aircraft measured in the same manner as large transport aircraft (Appendix C). A further step was taken to determine if there is a direct relationship between the Appendix C and the Appendix F noise levels. Figures 40 and 41 are regression plots of 'A'-weighted flyover levels versus PNL departure and arrival levels. A separate correction for tone and duration would be applied to these results to obtain an EPNL. The values on these plots are all average values from Appendix D in this report. The performance correction was not included in the flyover data and the PA 36 was deleted from the arrival data because of the large data spread. The regression equations are given in Table 14 below.

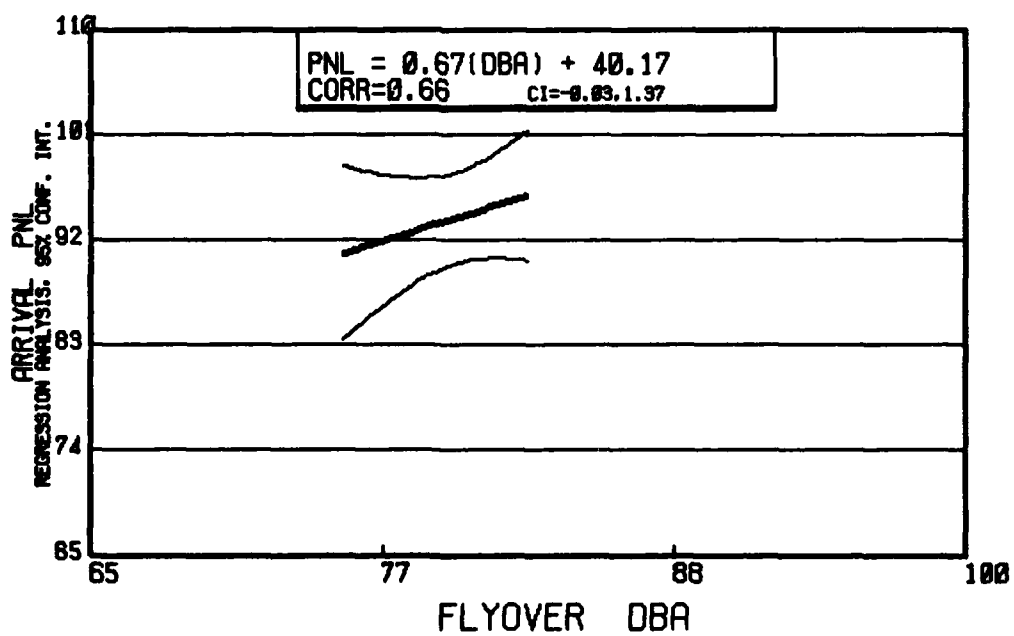
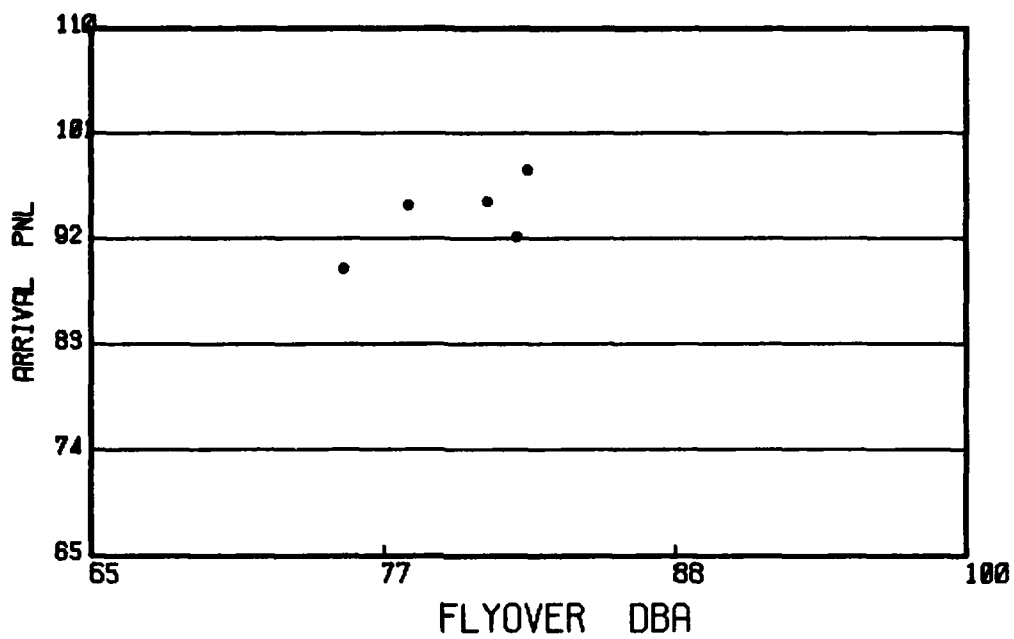
TABLE 14
REGRESSION EQUATION OF DEPARTURE/ARRIVAL PNL
ON dBA FLYOVER

Departure	PNL = 1.20 (dBA)	- 12.9	R = .72
Arrivals	PNL = 0.67 (dBA)	+ 40.2	R = .66

Although the regression coefficients are not very high, there may still be a possibility of accurately equating an Appendix C measurement to an Appendix F measurement. Additional data are needed to better define a possible relationship.



DEPARTURE DATA VS FLYOVER DATA
 FIGURE 40



ARRIVAL DATA VS FLYOVER DATA
FIGURE 41

VII. REFERENCES

1. Federal Aviation Regulations Part 36, June 1974.
2. Aerospace Recommended Practice ARP 866A, Society of Automotive Engineers, Inc., 1964/1975.
3. William J. Galloway, Bolt, Beranek and Newman, Inc., "Estimated Sound Levels at FAR Part 36, Appendix C Takeoff and Approach Position for Appendix F and Other Propeller-Driven Aircraft, BBN Report 3716, 1978.
4. Ronald K. Ratchgeber and Douglas E. Spies, "The Influence of Design Parameters on Light Propeller Aircraft Noise," SAE Meeting, March 1977.
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6. William J. Galloway, Bolt, Beranek and Newman, Inc., "Investigation of Propeller Noise as a Function of Engine Power and Test Altitude," BBN Report 3170, March 1976.
7. Wyle Research Laboratory, WR 79-9, "Corrections for Aircraft Noise Data," Vol. 5.
8. Damon C. Gray, "Results of Noise Surveys of Seventeen General Aviation Type Aircraft," Report No. FAA-EQ-73-1, December 1972.
9. R. J. Klatt and F. B. Metzger, "Influence of Noise Reduction on Weight and Cost of General Aviation Propellers," Report No. FAA-AEE-79-18, June 1979.

APPENDIX A

REFERENCE TRACK PROCEDURES

AND

AIRCRAFT TRACKING PLOTS

APPENDIX A.

Reference flight tracks for the aircraft tested were produced following the guidelines of a report published by Bolt Beranek and Newman, Inc., under the auspices of the Federal Aviation Administration (reference 3).

The idea behind this report was to determine the altitude of FAR 36, Appendix F type aircraft over Appendix C measurement locations for purposes of determining noise levels using Appendix C procedures.

Certain general assumptions were considered. They are as follows:

1. Performance is based on standard day, zero wind, dry, zero gradient runway, at a sea level airport.
2. All aircraft operate at maximum takeoff and landing gross weights.
3. All aircraft climb at an equivalent airspeed that provides the best rate-of-climb at sea level, V_y .
4. All aircraft use an approach speed, when 2000 meters from the runway threshold, that is equal to 1.3 times stall speed, V_{so} , with gear down and landing flaps, unless otherwise specified.
5. Aircraft with fixed pitch propellers use full throttle for takeoff and climb.
6. Aircraft with controllable pitch propellers and reciprocating engines takeoff and climb at full throttle and maximum RPM until reaching a height of 500 feet (152 m), at which point a reduction is made to climb power. Where a climb power specification is not provided by the manufacturer, a manifold pressure of 25 inches of mercury and engine speed of 2500 RPM were assumed.

7. Turboprop aircraft takeoff and climb at takeoff power to 500 feet (152 m), at which point a power reduction is made to obtain a climb gradient at best rate-of-climb speed.
8. All single engine aircraft descend at a stable approach angle of 6 degrees when passing a point 2000 meters from the runway threshold.
9. All multi-engine aircraft descend at a stable approach angle of 3 degrees when passing a point 2000 meters from the runway threshold.
10. All aircraft are assumed to have parabolic drag polars.

AIRCRAFT HEIGHT DETERMINATION

The equations used to determine the aircraft height at the Appendix C departure points are as follows:

No Power - Reduction Procedure

$$h = (21320 - S_{50}) (0.93) \tan \gamma_1$$

$$\gamma_1 = \sin^{-1} \left(\frac{R/C}{101.4 V_y} \right)$$

The average rate of climb between sea level and altitude of 2000 feet is assumed to be 93 percent of sea level rate of climb. For aircraft with fixed pitch propellers and fixed gear, an average height loss of 50 feet is included.

With Power Reduction

$$h = 450 + (21,320 - S_{50} - \frac{450}{\tan \gamma_1}) \tan \gamma_2 - 25 C$$

$$\gamma_2 = \sin^{-1} \left(\frac{B(F_0 + \Delta F) - F_0}{W} \right)$$

$$F_0 = \frac{326 P_y}{V_y}$$

$$P_y = \frac{1.72 A (BHP)}{\left(\frac{V_c^3}{V_y}\right) + \left(\frac{V_y}{V_c}\right)}$$

$$L/F = \frac{(R/C)(W)}{101.4 V_y}$$

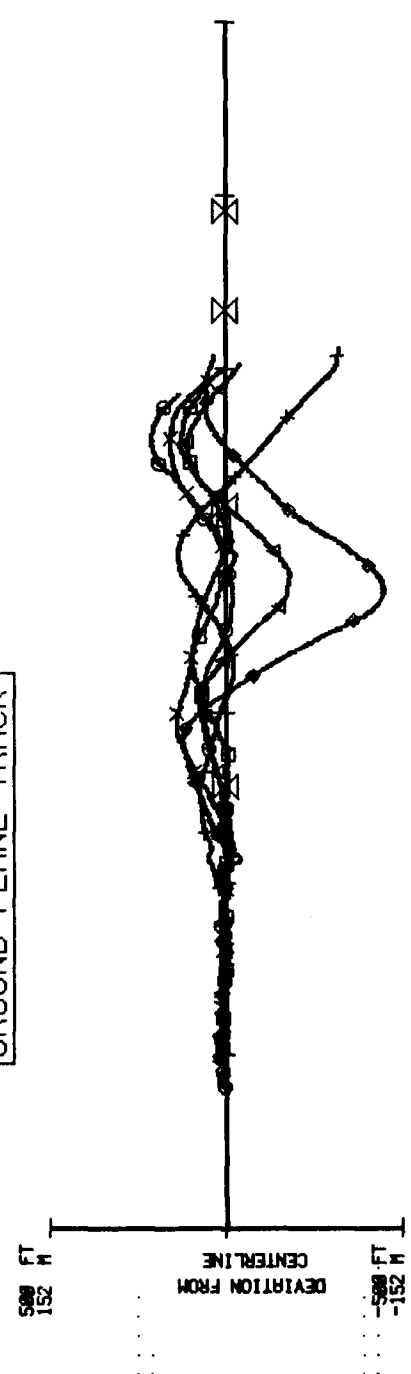
Additional assumptions considered for aircraft with power reduction are:

1. Propeller efficiency at cruise power and airspeed is 0.86.
2. The reduced propeller efficiency at V_y , compared to efficiency at cruise speeds, coupled with the difference between the power required at V_y for constant speed level flight and the power required at the airspeed for maximum lift to drag ratio, compensate to the point that the ratio of power required, P_c , at a specified cruise airspeed, V_c , is approximated by:

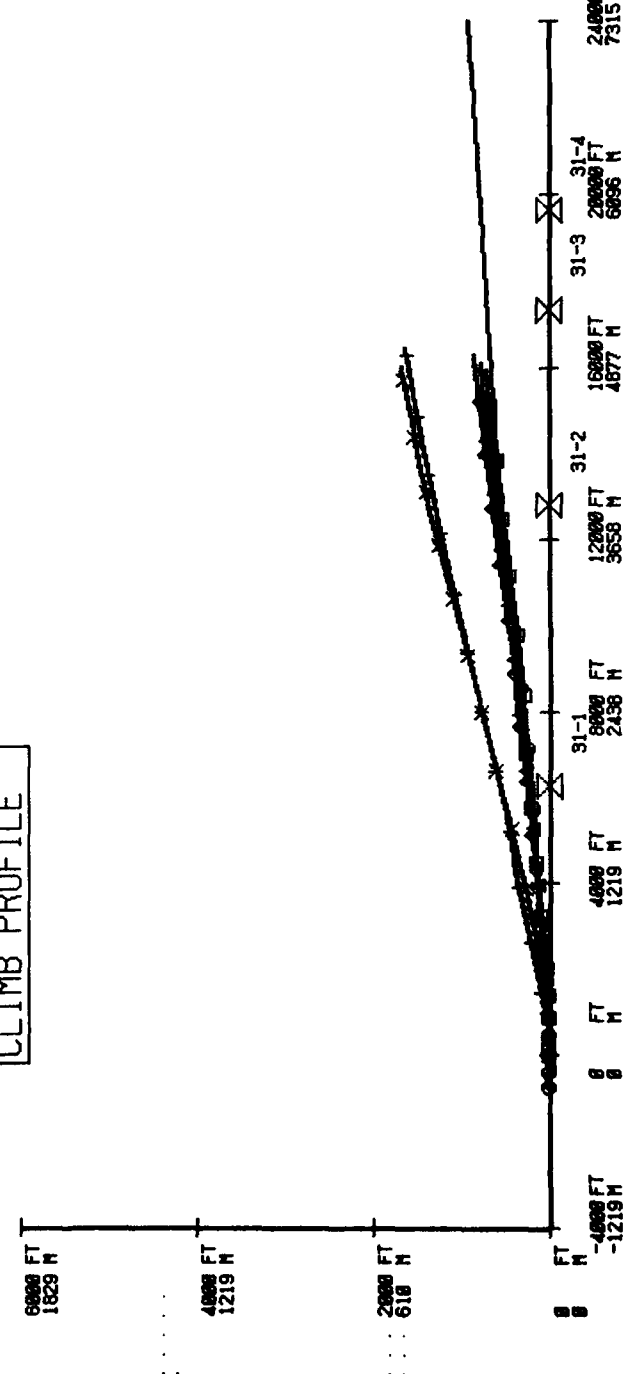
$$\frac{P_c}{P_y} = 1/2 \left(\frac{V_c}{V_y}\right)^3 + \left(\frac{V_c}{V_y}\right)^{-1}$$

3. The propeller efficiency at V_y and engine speed (RPM) for climb power is the same as that at V_y and the engine speed for takeoff power.
4. The combination of altitude lost in the gear retraction and acceleration from liftoff to V_y phase, less the excess altitude gained during the transition from initial climb to power reduction climb, results in a net altitude loss of 75 feet as compared to straight line segment approximations to the climb profile. $\approx$

GROUND PLANE TRACK



CLIMB PROFILE



DISTANCE ALONG CENTERLINE

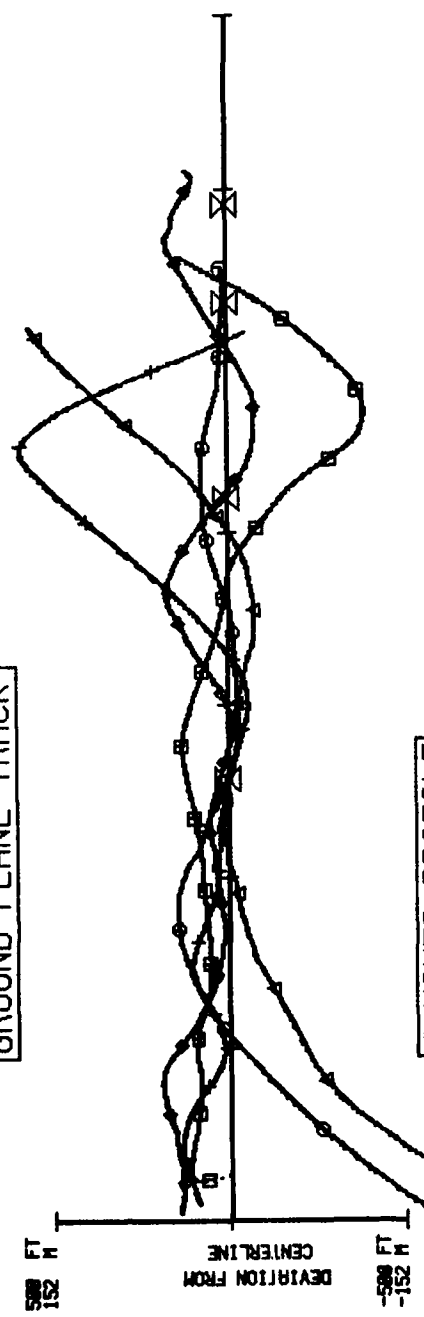
BRAKE
RELEASE

AIRCRAFT	PA-38
TEST DATE	06/19/78
EVENTS	
○ TSC	23
□ TSC	27
△ TSC	29
◇ TSC	31
+ TSC	40
x TSC	42

AIRCRAFT
PA-36
 TEST DATE:
 06/19/78
 EVENTS:

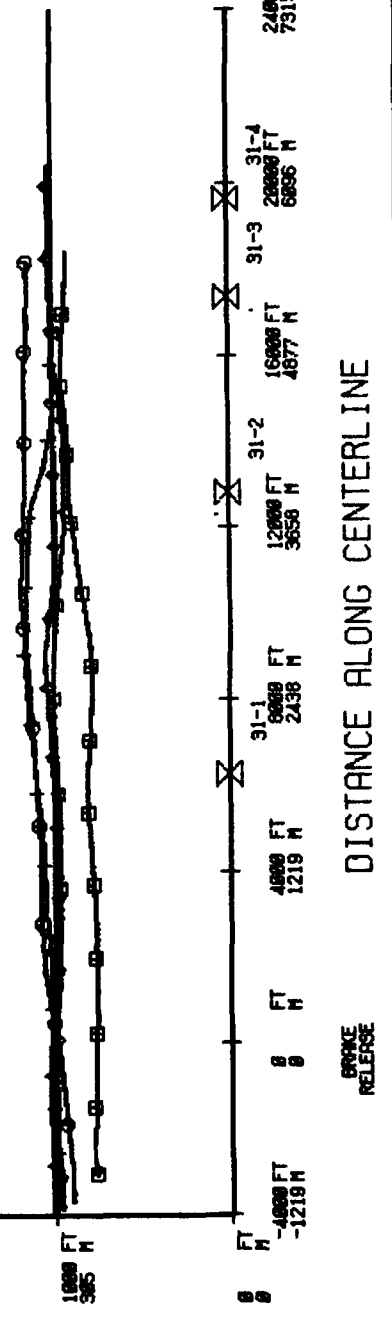
□ TSC *	32
□ TSC *	33
△ TSC *	34
◆ TSC *	35
+ TSC *	37

GROUND PLANE TRACK



FLYOVER PROFILE

REFERENCE PROFILE



DISTANCE ALONG CENTERLINE

BRAKE RELEASE

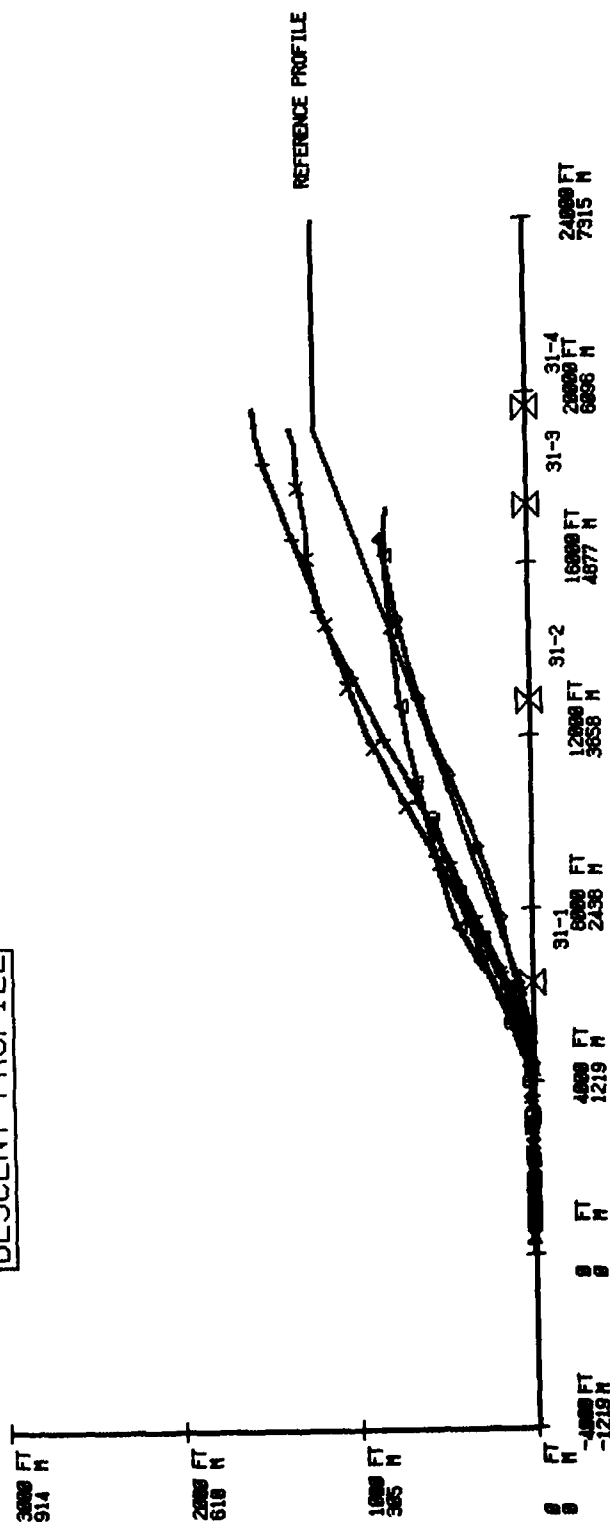
AIRCRAFT
P4-36
TEST DATE:
06/19/78
EVENTS:

□ TSC *	24
□ TSC *	26
△ TSC *	28
◆ TSC *	30
+ TSC *	41
X TSC *	43

GROUND PLANE TRACK



DESCENT PROFILE



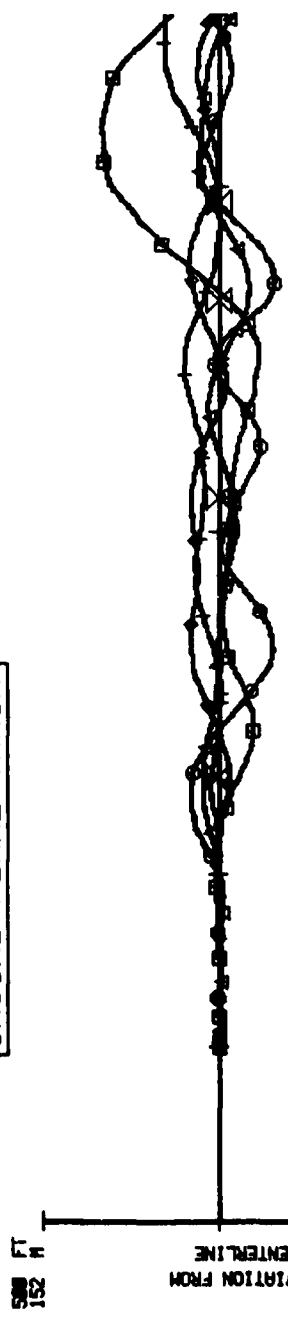
DISTANCE ALONG CENTERLINE

BRIDGE
RELEASE

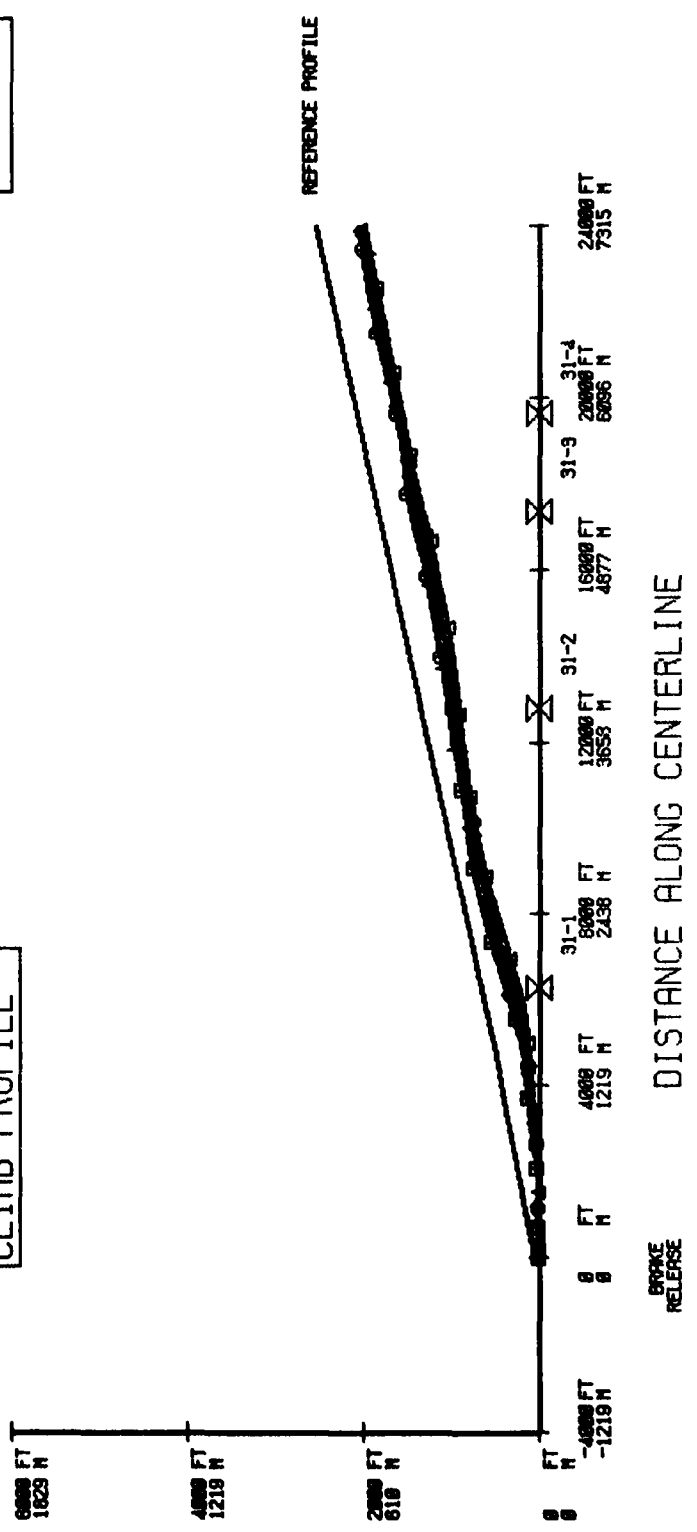
AIRCRAFT
PA-31
 TEST DATE:
 06/28/78
 EVENTS:

○ TSC	9
□ TSC	1
△ TSC	5
◆ TSC	11
+ TSC	7

GROUND PLANE TRACK



CLIMB PROFILE



DISTANCE ALONG CENTERLINE

500 FT
152 M

DEVIATION FROM
CENTERLINE

152-588 F-1

FLYOVER PROFILE

118
17
T

2000 FT
610 H

五五
五五

FM -4000 FT
-1218 M

**BRAKE
RELEASE**

DISTANCE ALONG CENTERLINE

REFERENCE PROFILE

AIRCRAFT

PA-31

TEST DATE:

06/20/78

EVENTS

① TSC * 12

□ TSC #	13

PI # TSC # 14

◆ TSC # 361 51

+TSC # 16

XISI # 17

THE NEW YORK PUBLIC LIBRARY

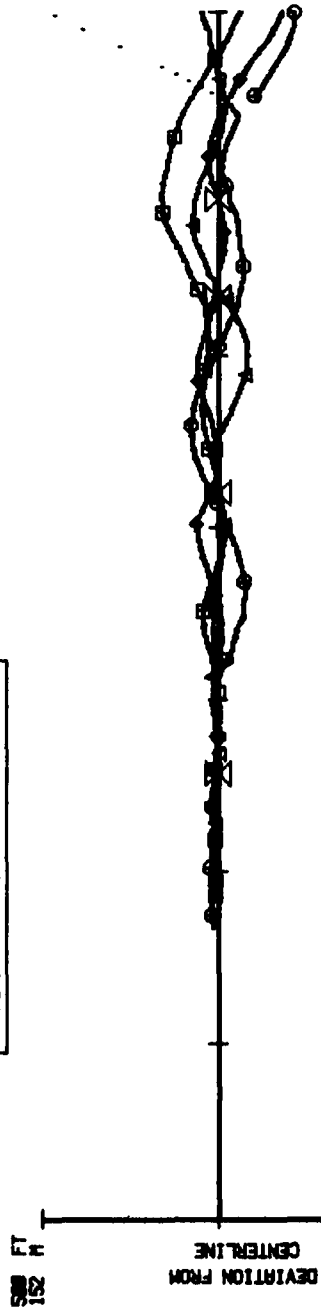
תאריך: 29.10.2011

1

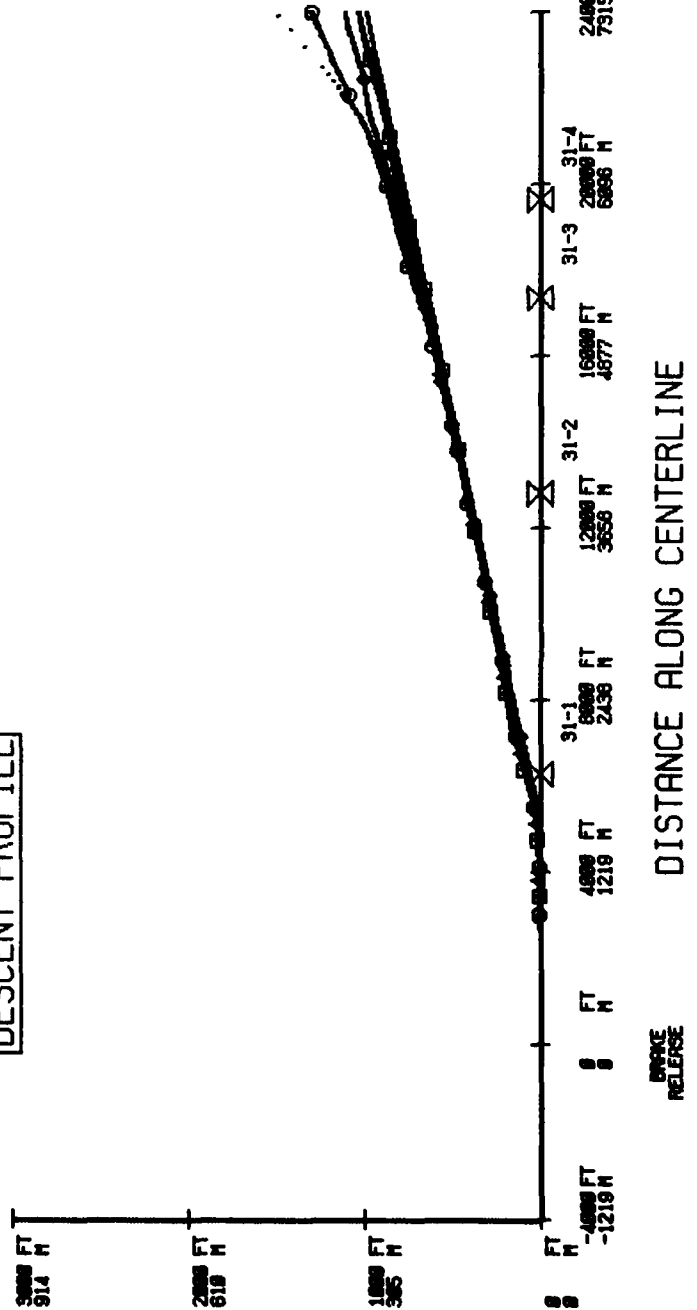
AIRCRAFT
PA-31
 TEST DATE
 06/20/78
 EVENTS

○ TSC	2
□ TSC	6
△ TSC	8
◆ TSC	18

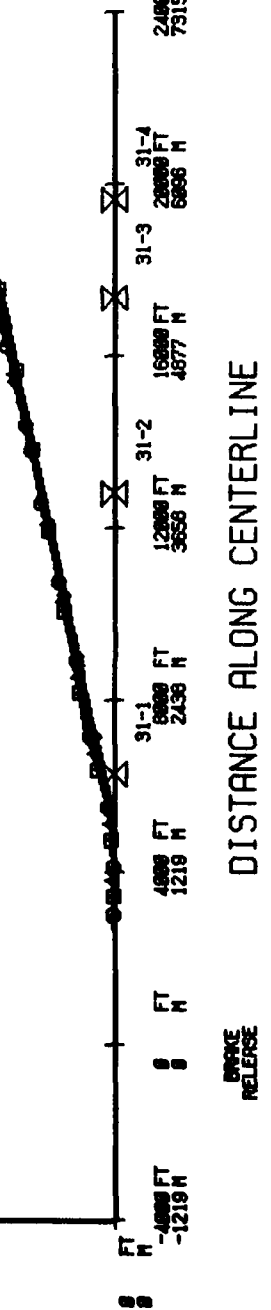
GROUND PLANE TRACK



DESCENT PROFILE



REFERENCE PROFILE

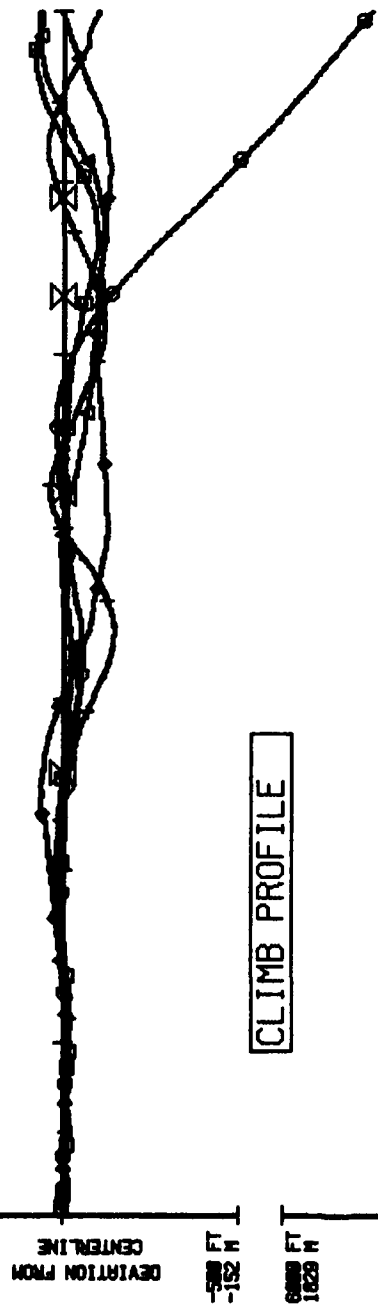


DISTANCE ALONG CENTERLINE

DRIVE
RELEASE

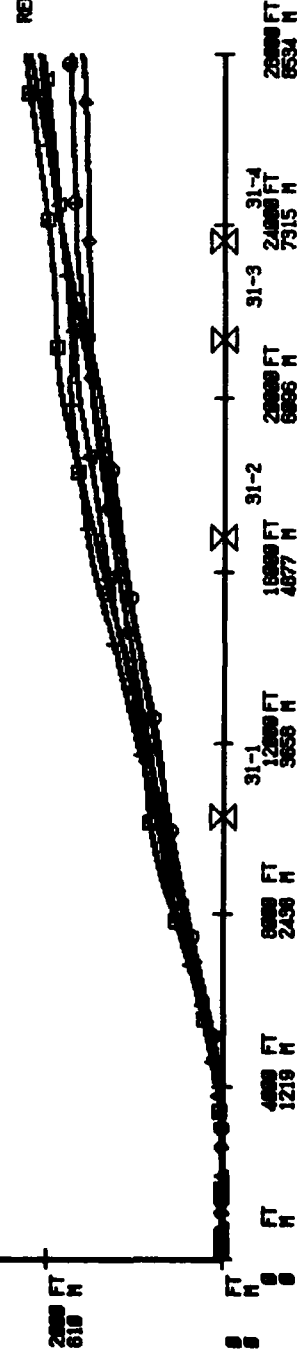
GROUND PLANE TRACK

AIRCRAFT
CV-580
TEST DATE
06/28/78
EVENTS
22 38 24 26 28
TSC *
TSC *
TSC *
TSC *
TSC *



CLIMB PROFILE

REFERENCE PROFILE



DISTANCE ALONG CENTERLINE

ALTITUDE

AIRCRAFT

CV-580

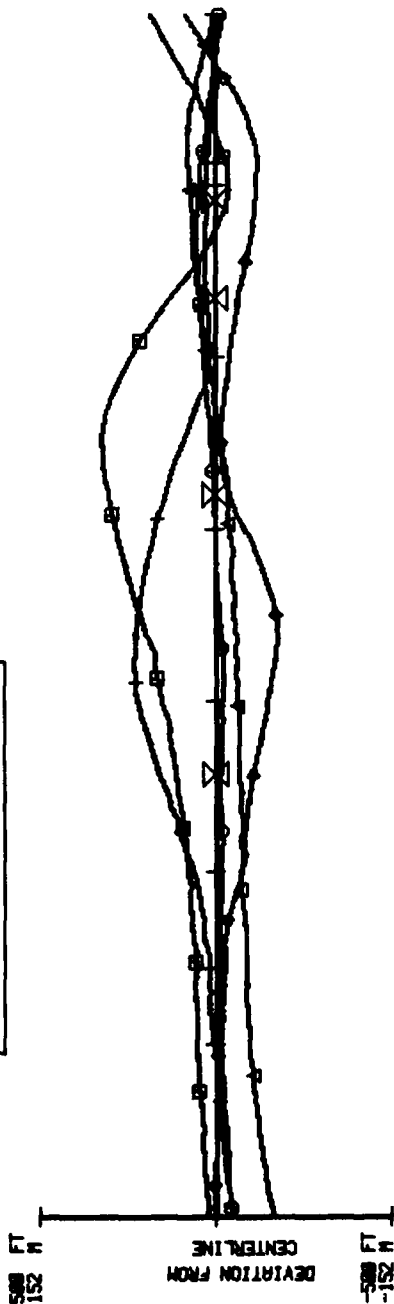
TEST DATE:

06/28/78

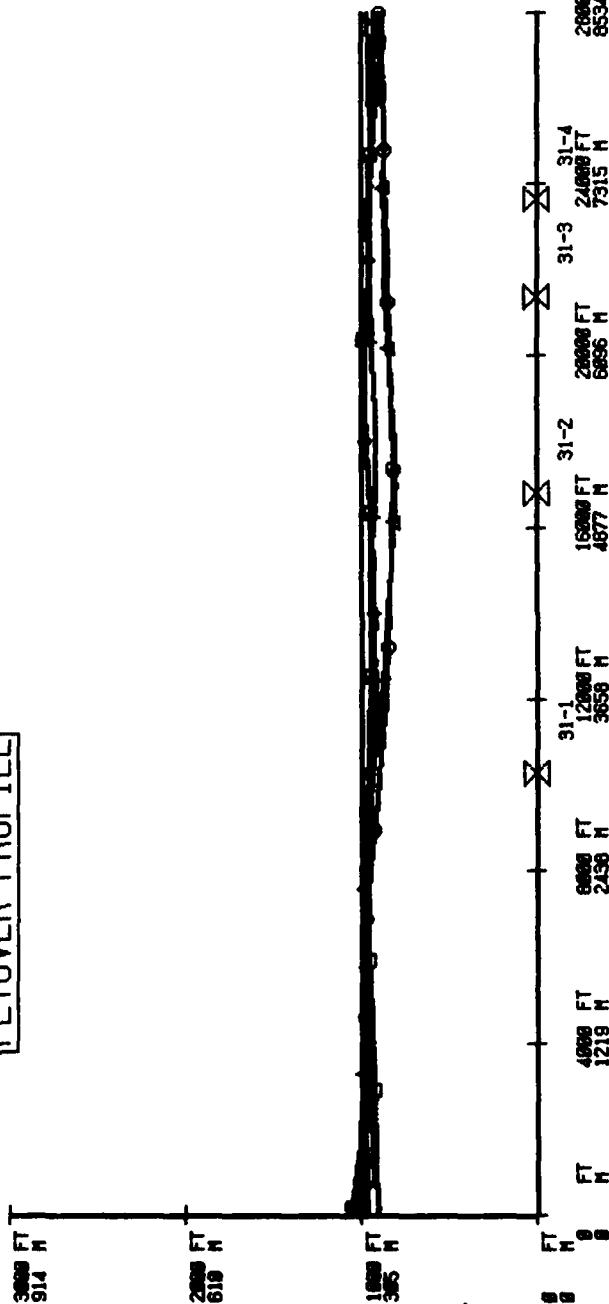
EVENTS:

□	TSC	31
□	TSC	32
△	TSC	33
◆	TSC	34
+	TSC	36

GROUND PLANE TRACK



FLYOVER PROFILE



REFERENCE PROFILE

DISTANCE ALONG CENTERLINE

BRIDGE
RELEASE

20000 FT
6034 M

31-4
24000 FT
7315 M

31-3
20000 FT
6034 M

31-2
15000 FT
4577 M

31-1
12000 FT
3658 M

6000 FT
2438 M

4000 FT
1219 M

0 FT
0 M

0 FT
0 M

0 FT
0 M

0 FT
0 M

0 FT
0 M

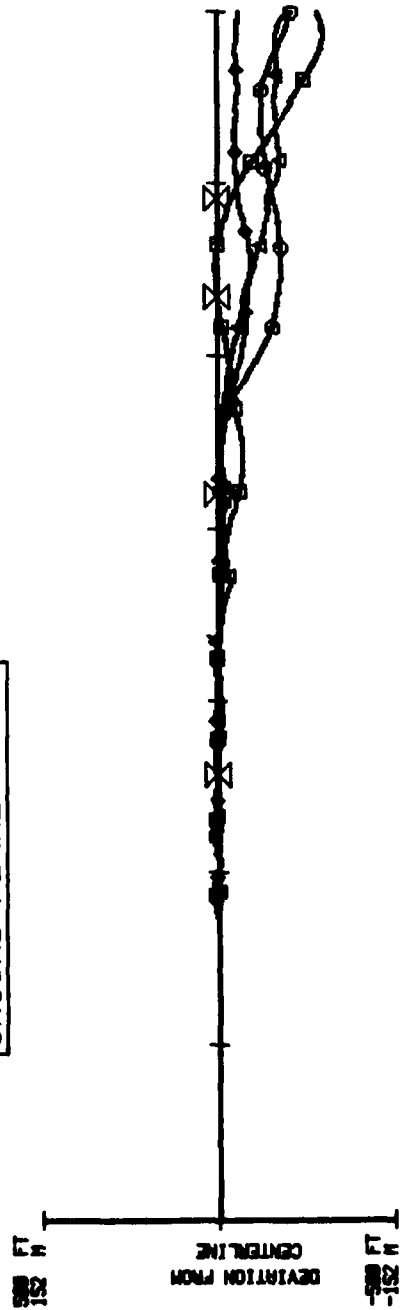
0 FT
0 M

0 FT
0 M

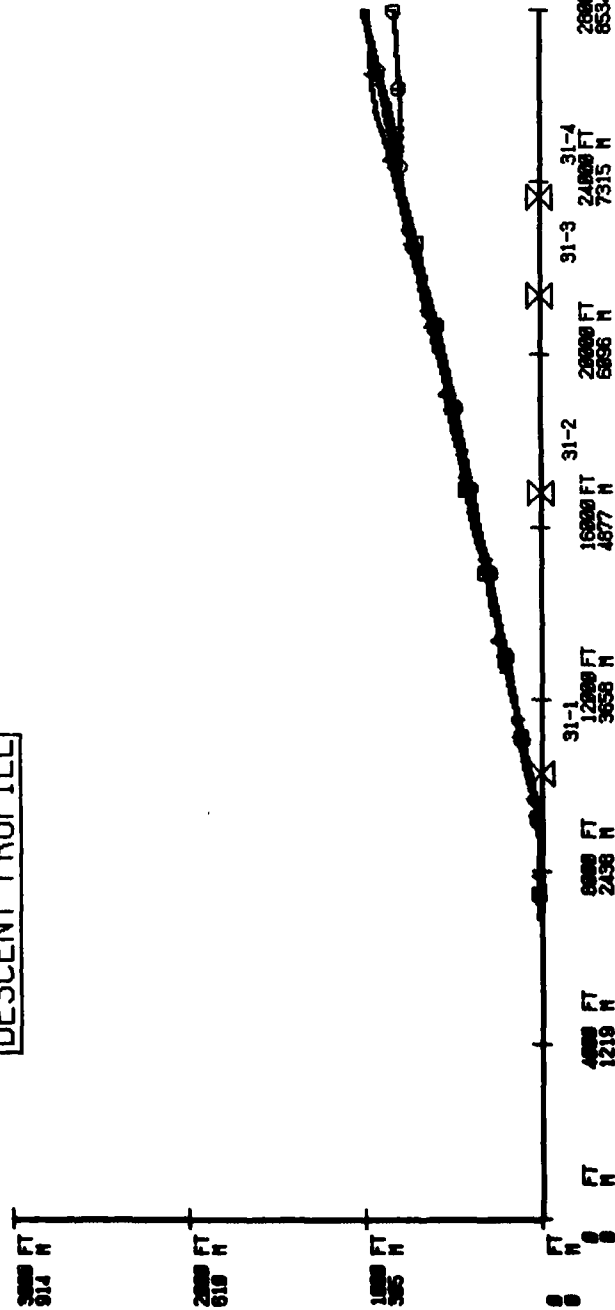
0 FT
0 M

GROUND PLANE TRACK

AIRCRAFT
CV-580
TEST DATE
06/20/78
EVENTS
TSC 19
TSC 21
TSC 27
TSC 28



DESCENT PROFILE



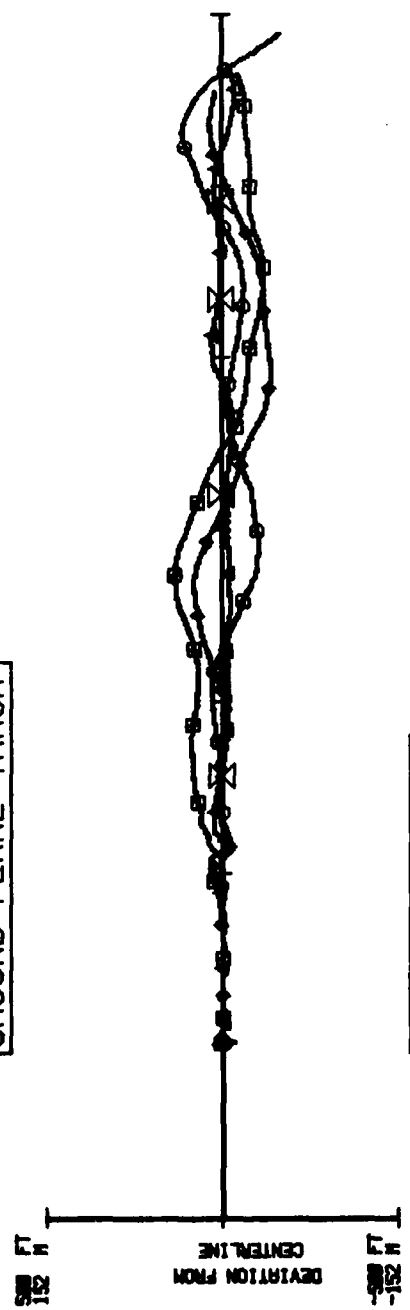
DISTANCE ALONG CENTERLINE

BRN/2
REL/2

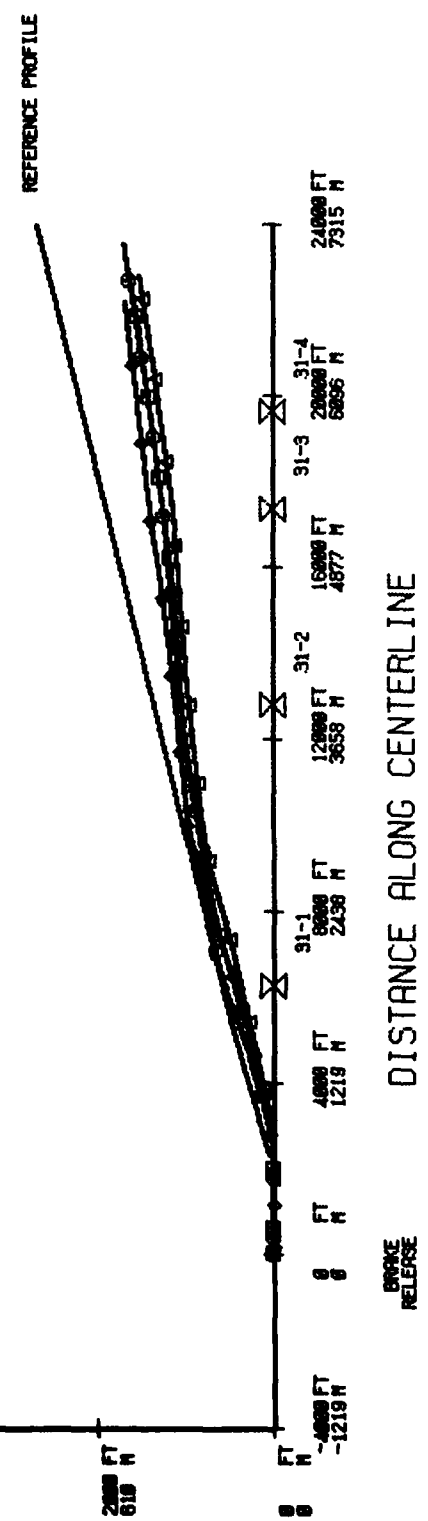
AIRCRAFT
421C
 TEST DATE:
 88/21/78
 EVENTS:

□ TSC	1
□ TSC	5
△ TSC	3
◆ TSC	9

GROUND PLANE TRACK



CLIMB PROFILE



DISTANCE ALONG CENTERLINE

DRY
RELEASE

GROUND PLANE TRACK

AIRCRAFT

421C

TEST DATE

86/21/78

EVENTS

□ TSC # 13

□ TSC # 14

△ TSC # 15

500 FT
152 M

DEVIATION FROM
CENTERLINE

-500 FT
-152 M

3000 FT
914 M

2000 FT
610 M

1000 FT
305 M

0 FT
0 M

FLYOVER PROFILE

REFERENCE PROFILE

31-1 4000 FT 1219 M
31-2 12000 FT 3658 M
31-3 16000 FT 4877 M
31-4 20000 FT 6096 M
24000 FT 7315 M

DISTANCE ALONG CENTERLINE

DRIVE
RELEASE

AIRCRAFT
421C
 TEST DATE
 06/21/78
 EVENTS:

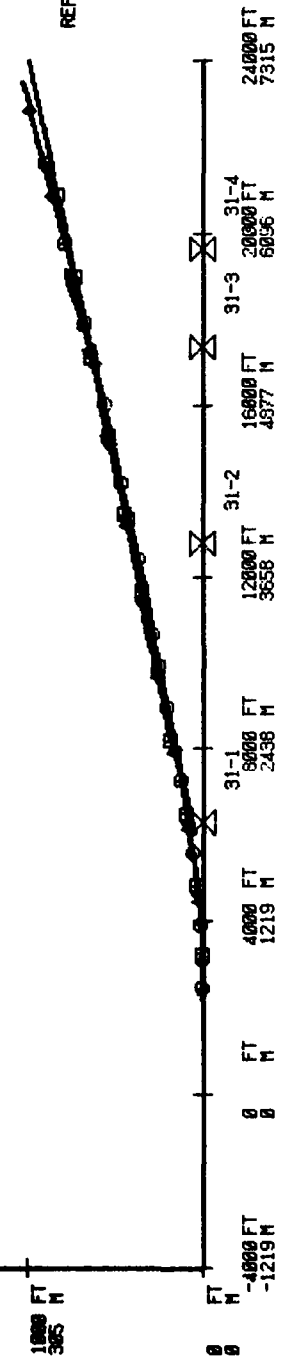
○ TSC #	2
□ TSC #	4
△ TSC #	6
◇ TSC #	8

GROUND PLANE TRACK



DESCENT PROFILE

REFERENCE PROFILE



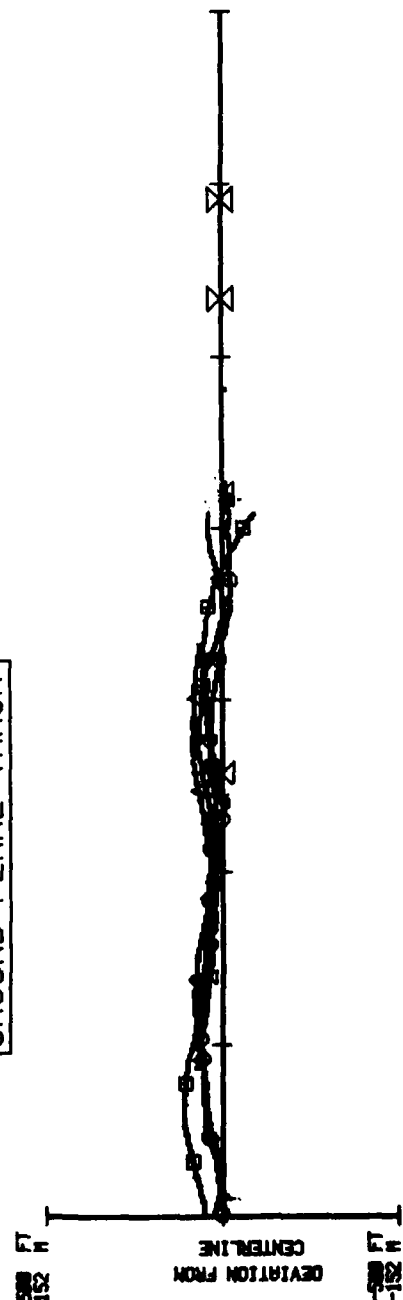
DISTANCE ALONG CENTERLINE

BRAKE
 RELEASE

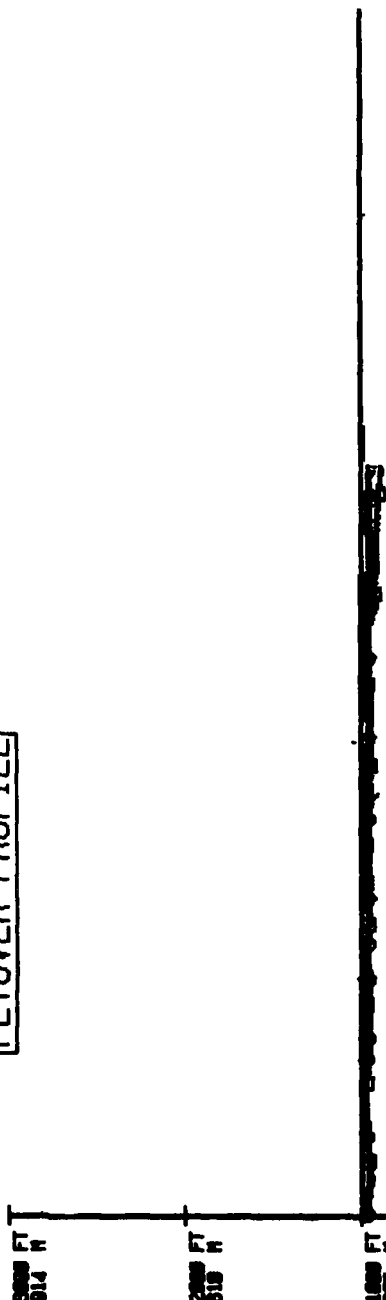
AIRCRAFT
172N
 TEST DATE:
 06/21/78
 EVENTS:

○ TSC	29
□ TSC	31
△ TSC	32
◆ TSC	33

GROUND PLANE TRACK



FLYOVER PROFILE



REFERENCE PROFILE



AIRCRAFT

R6300

TEST DATE:

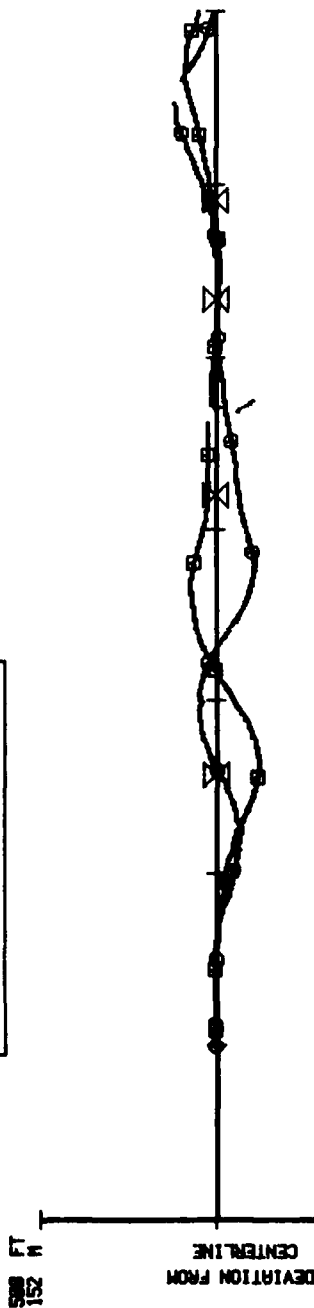
06/23/78

EVENTS:

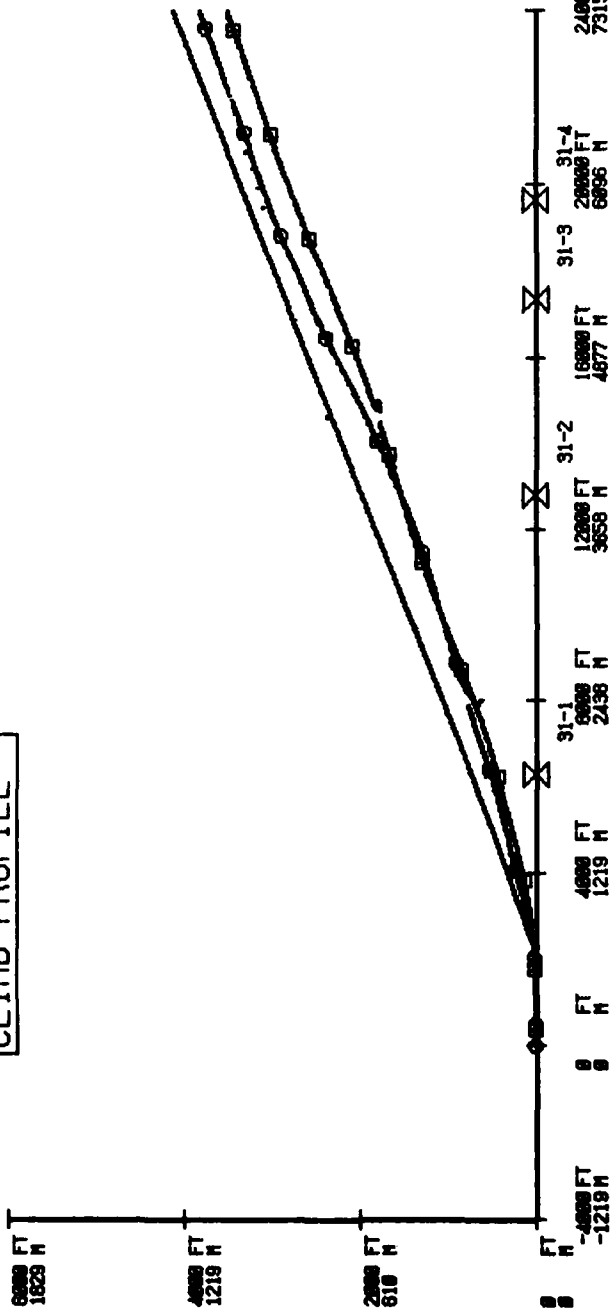
□ TSC # 5

□ TSC # 9

GROUND PLANE TRACK



CLIMB PROFILE



REFERENCE PROFILE

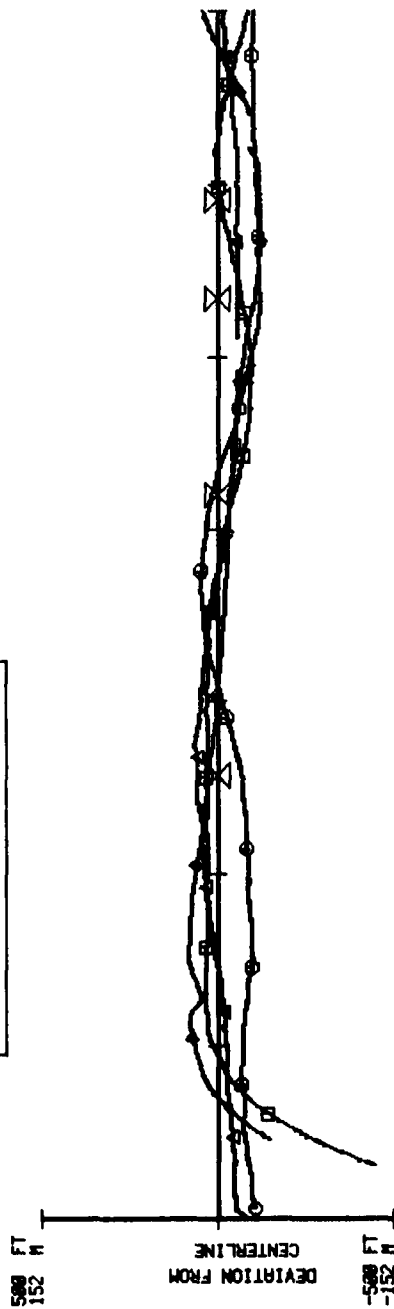
DISTANCE ALONG CENTERLINE

DRIVE
RELEASE

GROUND PLANE TRACK

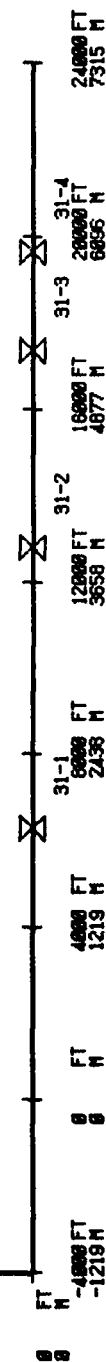
AIRCRAFT
R6908
 TEST DATE
 06/23/78
 EVENTS

□ TSC # 19
 □ TSC # 20
 △ TSC # 21
 ◆ TSC # 22



FLYOVER PROFILE

REFERENCE PROFILE



DISTANCE ALONG CENTERLINE

BRAKE
RELEASE

24000 FT
7315 M

31-4
28000 FT
8636 M

31-3
18000 FT
4877 M

31-2
12000 FT
3658 M

31-1
8000 FT
2438 M

4000 FT
1219 M

0 FT
0 M

0 FT
0 M

0 FT
0 M

0 FT
0 M

0 FT
0 M

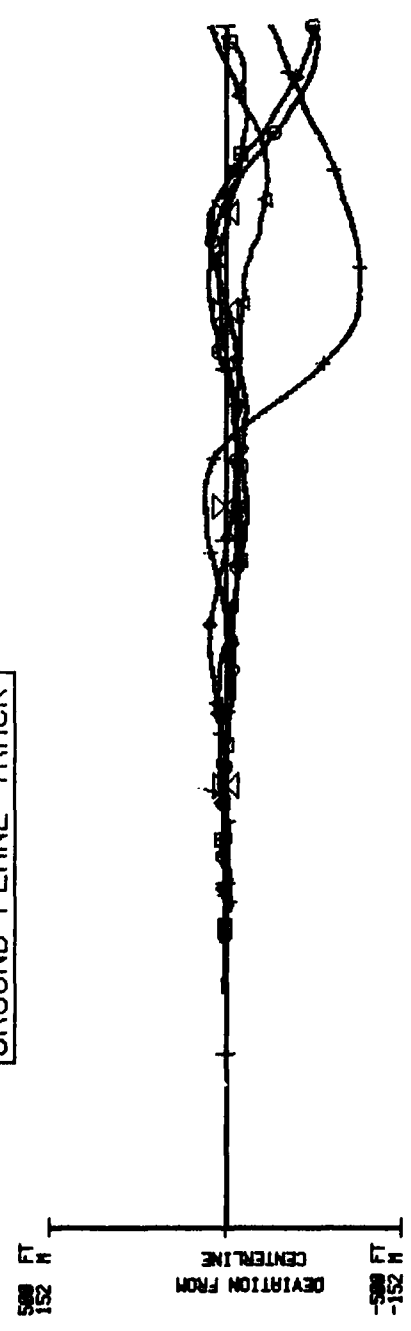
0 FT
0 M

0 FT
0 M

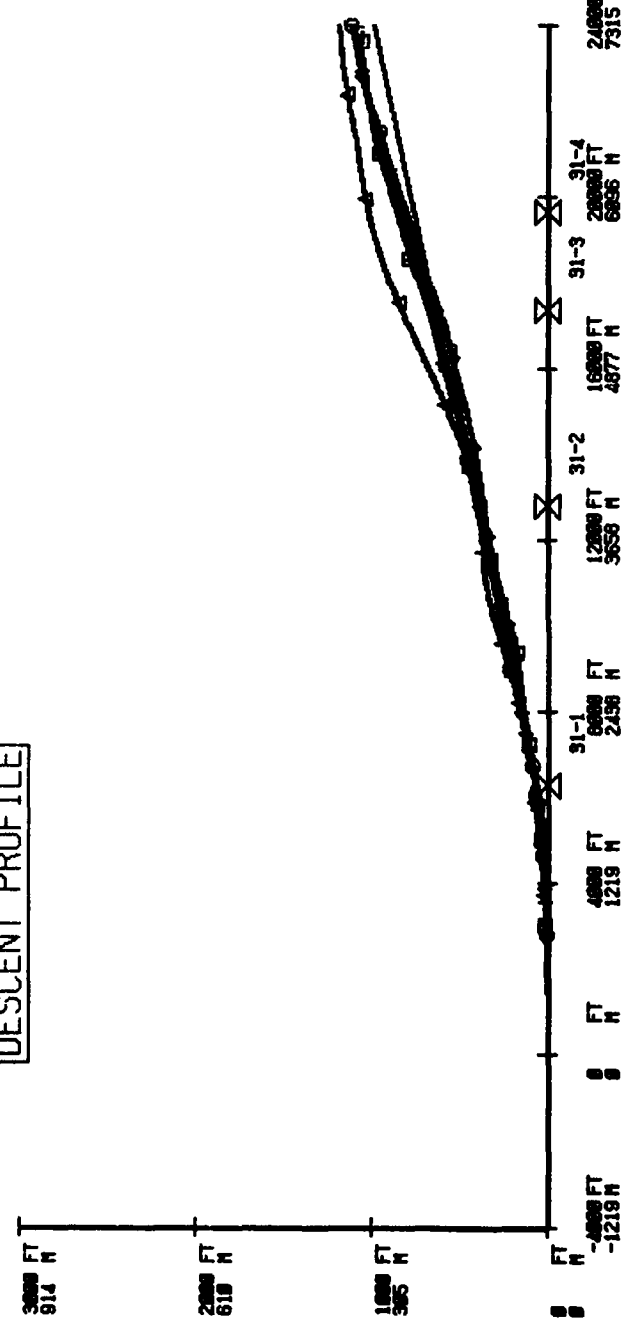
0 FT
0 M

GROUND PLANE TRACK

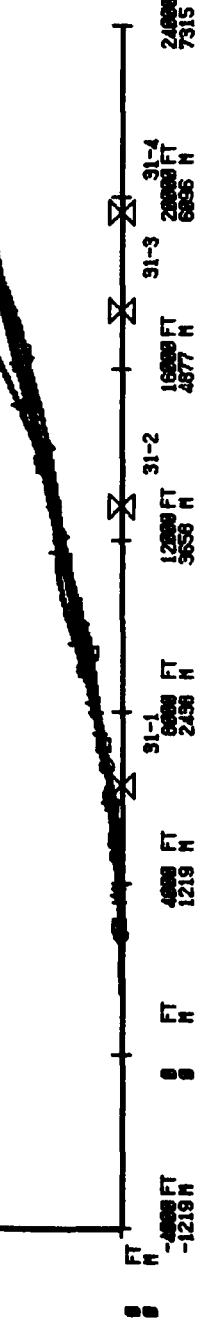
AIRCRAFT	R6908B
TEST DATE	06/23/78
EVENTS	
□ TSC #	2
□ TSC #	4
△ TSC #	6
◇ TSC #	8
+ TSC #	23



DESCENT PROFILE



REFERENCE PROFILE



DISTANCE ALONG CENTERLINE

DRIVE RELEASE

GROUND PLANE TRACK

500 FT
152 M

DEVIATION FROM
CENTERLINE

500 FT
152 M

6000 FT
1829 M

4000 FT
1219 M

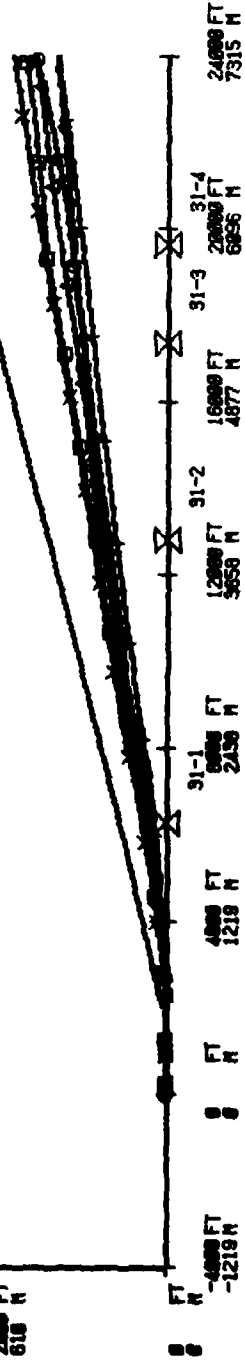
2000 FT
610 M

0 FT
0 M



CLIMB PROFILE

REFERENCE PROFILE



DISTANCE ALONG CENTERLINE

0 FT
0 M

4000 FT
1219 M

6000 FT
1829 M

8000 FT
2438 M

10000 FT
3048 M

12000 FT
3658 M

14000 FT
4268 M

16000 FT
4877 M

18000 FT
5487 M

20000 FT
6096 M

22000 FT
6706 M

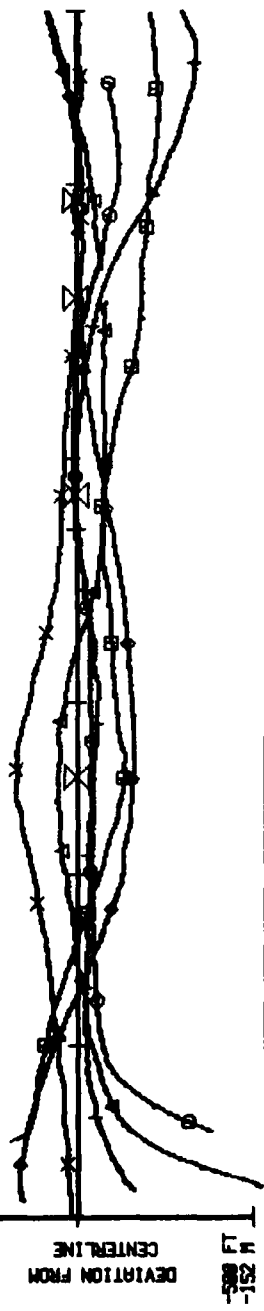
24000 FT
7315 M

AIRCRAFT	RS005
TEST DATE	06/23/78
EVENTS	
○ TSC #	24
□ TSC #	34
△ TSC #	28
◇ TSC #	30
+ TSC #	32
x TSC #	96

GROUND PLANE TRACK

AIRCRAFT
R500S
TEST DATE
06/23/78
EVENTS

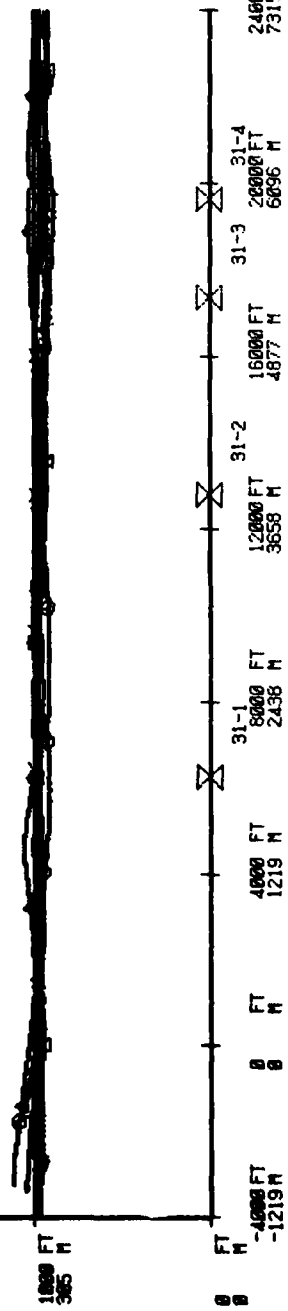
- TSC # 37
- TSC # 38
- △ TSC # 39
- ◇ TSC # 48
- + TSC # 41
- X TSC # 42



FLYOVER PROFILE

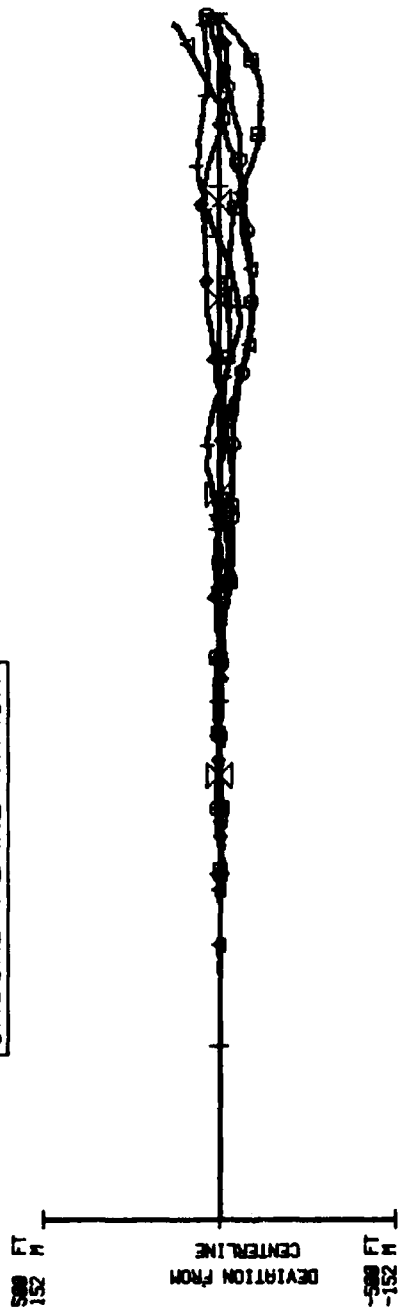
500 FT 152 M
0 FT
-500 FT -152 M

REFERENCE PROFILE

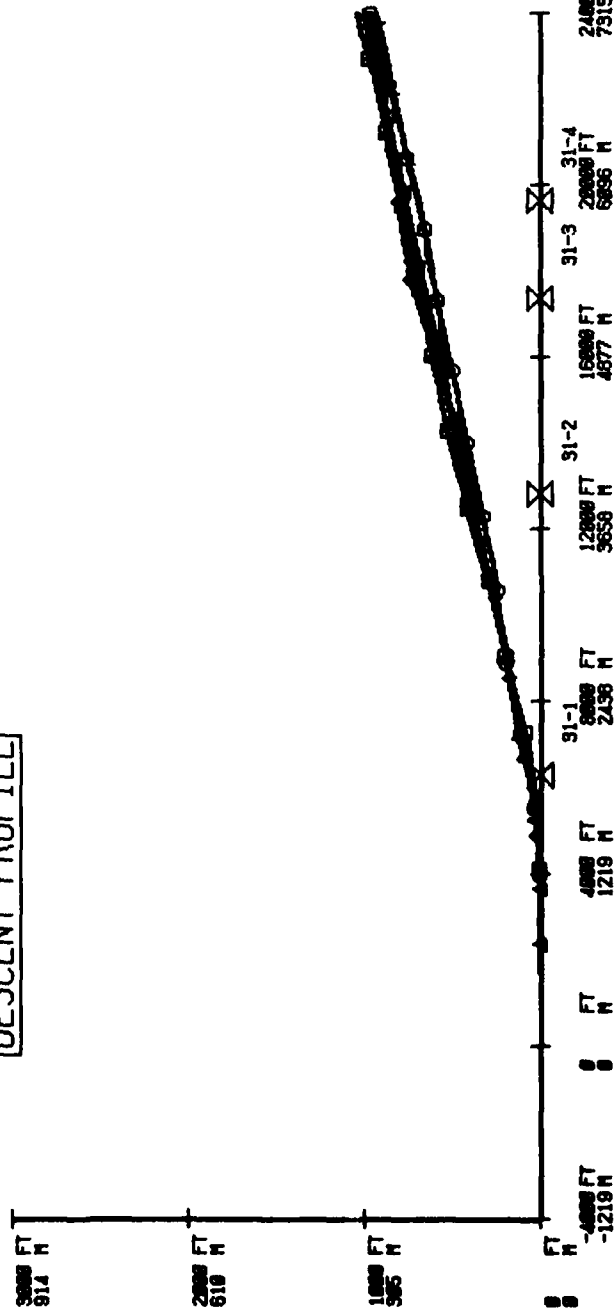


BRAKE RELEASE
DISTANCE ALONG CENTERLINE

GROUND PLANE TRACK



DESCENT PROFILE



DISTANCE ALONG CENTERLINE

BRIDGE
RELEASE

AIRCRAFT					
R500S					
TEST DATE					
06/23/78					
EVENTS					
○ TSC #	25				
□ TSC #	27				
△ TSC #	31				
◆ TSC #	33				
+ TSC #	35				

24000 FT
7315 M

31-4
20000 FT
6096 M

31-3
16000 FT
4877 M

31-2
12000 FT
3658 M

31-1
8000 FT
2438 M

4000 FT
1219 M

0 FT
0 M

4000 FT
1219 M

APPENDIX B

AIRCRAFT CORRECTION DATA

(MANUFACTURERS PERFORMANCE DATA)

(POSITION DATA)

(COCKPIT DATA)

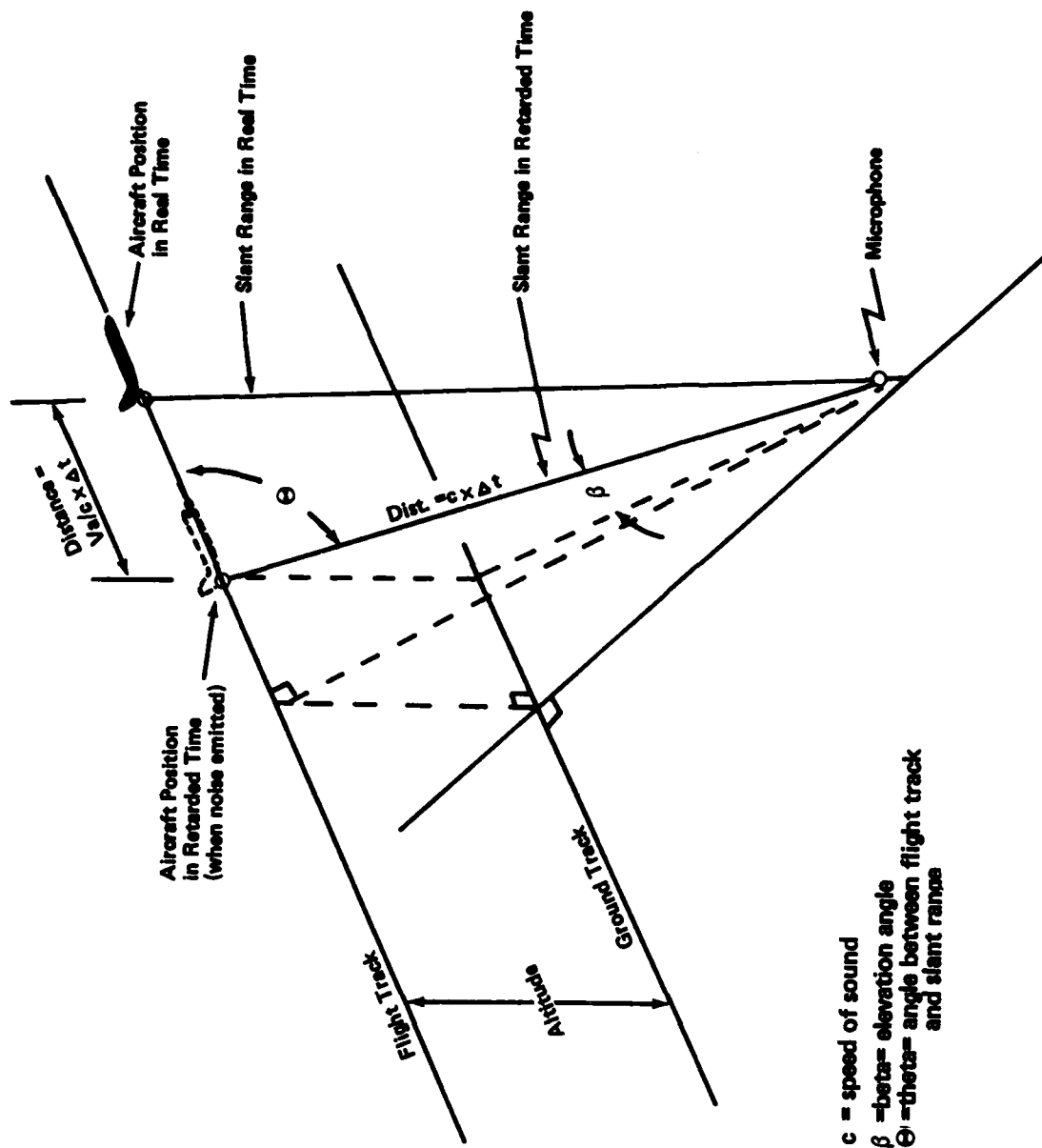
TABLE B1
AIRCRAFT PERFORMANCE DATA

Aircraft	D50 Ft.	R/C FPM	Vy Kts.	VC Kts.	Prop Dia. In.	Landing Gear Con- figuration	A*	B**	Prop Type (Pitch)	HP	Wt. Lbs. x 10
PA-36-375	2500	5100	77	117	86	Fixed	.95	.83	VAR	375	480
PA-31-325	2150	1450	105	188	80	Ret.	.85	.85	VAR	650	650
CV 580	4000	1900	170	250	162	Ret.	.80	.90	VAR	6800	5460
C 421C	2323	1940	111	200	90	Ret.	1.0	.78	VAR	750	745
C 172N	1440	740	73	125	75	Fixed	.75	1.0	Fixed	160	230
R 690B	2400	2800	139	243	106	Ret.	.96	.96	VAR	1435	1032
R 500S	2050	1300	96	200	80	Ret.	.75	.95	VAR	580	675

*Ratio of cruise horsepower to maximum rated horsepower.

**Ratio of climb power to takeoff power.

APPENDIX B



c = speed of sound
 β = elevation angle
 θ = angle between flight track and slant range

Figure B1 - Aircraft Tracking in Retarded Time.

Appendix B

**TABLE B1
COCKPIT PHOTO DATA**

**Aircraft: Piper Brave PA-36-375
Single Seat Aircraft
No Photo Data**

APPENDIX B

TABLE # B2

FAA-AEE 120 11-JUN-79
 DATE: 6/19/78 PIPER PA36 375

MICROPHONE LOCATION: 31-1
 BRAVE

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
DEPARTURES							
*** NO DATA ***							
ARRIVALS							
24	07:51:19.3	07:51:19.1	07:51:19.8	1129.5	6253.6	-19.9	219.3
26	07:59:23.3	07:59:22.8	07:59:23.3	1130.6	6257.7	-19.2	171.3
FLY-BY NORTH TO SOUTH							
32	08:23:39.3	08:23:38.0	08:23:39.3	1132.7	6263.8	4.2	1103.7
34	08:31:42.3	08:31:40.3	08:31:42.3	1132.7	6269.4	3.7	977.0
FLY-BY SOUTH TO NORTH							
33	08:28:11.8	08:28:10.6	08:28:11.3	1132.7	6291.1	118.4	808.1
35	08:52:06.3	08:52:04.0	08:52:03.8	1134.8	6261.8	24.6	1003.4
37	08:59:26.3	08:59:24.3	08:59:26.3	1135.9	6245.3	-4.4	1099.7

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B3

POSITION CORRECTION DATA

FAA/AEE 06/11/79

AIRCRAFT: PIPER PA36 375
 DATE: JUNE 19, 1978

MIC # 31-1

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
24R	A	621.9	91.3	621.7	651.4	72.6	NA	NA	NA
24T	A	221.4	91.3	221.3	231.9	72.6	NA	NA	NA
26R	A	659.6	70.5	621.7	659.6	70.5	NA	NA	NA
26T	A	183.8	70.5	173.3	183.8	70.5	NA	NA	NA
32R	FS	1002.1	86.3	1000.0	1002.1	86.3	510	129.1	2500
32T	FS	1106.0	86.3	1103.8	1106.0	86.3	NA	NA	NA
33R	FN	1004.2	84.8	1000.0	1000.1	90.7	510	129.1	2500
33T	FN	820.2	84.8	816.8	816.9	90.7	NA	NA	NA
34R	FS	1029.6	76.2	1000.0	1029.6	76.2	510	129.1	2500
34T	FS	1005.9	76.2	977.1	1005.9	76.2	NA	NA	NA
35R	FN	1024.8	77.4	1000.0	1015.1	99.9	510	129.1	2500
35T	FN	1028.7	77.4	1003.8	1018.9	99.9	NA	NA	NA
37R	FN	1010.8	81.6	1000.0	1010.8	81.6	510	129.1	2500
37T	FN	1112.1	81.6	1100.1	1112.1	81.6	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
24	A	146.8	151.2	150.4	86	2500	2500	NA	NA
26	A	146.8	157.0	156.1	86	2500	2500	NA	NA
32	FS	198.0	232.3	232.2	86	2500	2500	375	375
33	FN	198.0	168.4	168.3	86	2500	2500	375	375
34	FS	198.0	222.4	222.4	86	2500	2500	375	375
35	FN	198.0	160.6	160.6	86	2500	2500	375	375
37	FN	198.0	161.6	161.5	86	2500	2500	375	375

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTH SLANT RANGE
 TH-P--PNLTH THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B4

FAA-AEE 120		11-JUN-79		MICROPHONE LOCATION: 31-2			
DATE: 6/19/78		PIPER PA36 375		BRAVE			
EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
----	-----	----	----	---	-----	-----	-----
DEPARTURES							
23	07:47:50.8	07:47:49.9	07:47:50.8	1129.5	12738.	77.4	580.7
27	08:03:29.3	08:03:28.2	08:03:29.3	1130.6	12750.	19.7	534.5
29	08:12:58.3	08:12:57.1	08:12:58.3	1131.6	12742.	-10.9	617.2
31	08:20:55.8	08:20:54.9	08:20:55.3	1131.6	12764.	-173.3	645.6
40	09:12:37.8	09:12:35.7	09:12:37.3	1135.9	12665.	70.7	1281.9
42	09:20:11.8	09:20:10.9	09:20:11.8	1135.9	12627.	61.6	1351.0
ARRIVALS							
28	08:05:09.3	08:05:08.9	08:05:09.8	1130.6	12748.	42.4	732.0
30	08:15:29.3	08:15:29.2	08:15:29.3	1131.6	12736.	76.7	613.4
41	09:15:07.8	09:15:08.3	09:15:08.3	1135.9	12664.	122.6	914.2
43	09:22:26.3	09:22:25.8	09:22:26.3	1135.9	12693.	113.9	980.9
FLY-BY NORTH TO SOUTH							
32	08:23:09.8	08:23:08.6	08:23:09.8	1132.7	12799.	71.2	1159.3
34	08:31:11.3	08:31:10.5	08:31:11.3	1132.7	12774.	62.9	934.9
FLY-BY SOUTH TO NORTH							
33	08:28:50.8	08:28:49.2	08:28:50.8	1132.7	12761.	-144.2	907.4
35	08:52:44.8	08:52:43.9	08:52:45.3	1135.9	12780.	18.9	987.9
37	09:00:07.3	09:00:04.8	09:00:06.8	1135.9	12798.	477.0	1096.9

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # BSA

POSITION CORRECTION DATA

FAA/AEE 06/11/79

AIRCRAFT: PIPER PA36 375

DATE: JUNE 19, 1978

MIC # 31-2

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
23R	D	837.4	84.9	834.1	837.4	84.9	NA	NA	NA
23T	D	593.2	84.9	590.9	593.2	84.9	NA	NA	NA
27R	D	844.4	81.1	834.1	844.4	81.1	NA	NA	NA
27T	D	543.7	81.1	537.0	543.7	81.1	NA	NA	NA
28R	A	622.9	93.5	621.7	622.7	86.7	NA	NA	NA
28T	A	737.0	93.5	735.6	736.8	86.7	NA	NA	NA
29R	D	843.0	81.7	834.1	843.0	81.7	NA	NA	NA
29T	D	625.2	81.7	618.6	625.2	81.7	NA	NA	NA
30R	A	625.9	96.6	621.7	625.9	96.6	NA	NA	NA
30T	A	627.2	96.6	623.0	627.2	96.6	NA	NA	NA
31R	D	835.7	86.4	834.7	834.7	92.1	NA	NA	NA
31T	D	664.4	86.4	663.1	663.5	92.1	NA	NA	NA
32R	FS	1000.7	87.8	1000.0	1000.7	87.8	510	129.1	2500
32T	FS	1164.1	87.8	1163.3	1164.1	87.8	NA	NA	NA
33R	FN	1009.4	82.2	1000.0	1009.4	82.2	510	129.1	2500
33T	FN	924.3	82.2	915.7	924.3	82.2	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
23	D	129.1	131.3	131.1	86	2500	2500	NA	NA
27	D	129.1	138.0	137.9	86	2500	2500	NA	NA
28	A	146.8	172.7	172.6	86	2500	2500	NA	NA
29	D	129.1	129.1	128.9	86	2500	2500	NA	NA
30	A	146.8	179.6	179.1	86	2500	2500	NA	NA
31	D	129.1	129.8	129.6	86	2500	2500	NA	NA
32	FS	198.0	215.6	215.5	86	2500	2500	375	375
33	FN	198.0	161.8	161.8	86	2500	2500	375	375

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B5B

POSITION CORRECTION DATA

FAA/AEE 06/11/79

AIRCRAFT: PIPER PA36 375

DATE: JUNE 19, 1978

MIC # 31-2

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
34R	FS	1000.0	89.8	1000.0	1000.0	89.8	510	129.1	2500
34T	FS	938.9	89.8	938.9	938.9	89.8	NA	NA	NA
35R	FN	1000.1	89.3	1000.0	1004.7	84.5	510	129.1	2500
35T	FN	988.8	89.3	988.8	993.4	84.5	NA	NA	NA
37R	FN	1020.9	78.4	1000.0	1008.8	82.4	510	129.1	2500
37T	FN	1230.9	78.4	1205.6	1216.2	82.4	NA	NA	NA
40R	D	838.7	84.0	834.1	835.3	87.0	NA	NA	NA
40T	D	1297.7	84.0	1290.6	1292.3	87.0	NA	NA	NA
41R	A	634.9	101.7	621.7	626.6	97.1	NA	NA	NA
41T	A	952.6	101.7	932.9	940.2	97.1	NA	NA	NA
42R	D	834.4	91.5	834.1	834.4	91.5	NA	NA	NA
42T	D	1362.8	91.5	1362.4	1362.8	91.5	NA	NA	NA
43R	A	622.6	93.0	621.7	622.6	93.0	NA	NA	NA
43T	A	995.6	93.0	994.2	995.6	93.0	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
34	FS	198.0	218.6	218.6	86	2500	2500	375	375
35	FN	198.0	166.9	166.9	86	2500	2500	375	375
37	FN	198.0	178.9	178.4	86	2500	2500	375	375
40	D	129.1	136.9	136.2	86	2500	2500	NA	NA
41	A	146.8	149.1	148.1	86	2500	2500	NA	NA
42	D	129.1	125.6	124.9	86	2500	2500	NA	NA
43	A	146.8	141.9	141.4	86	2500	2500	NA	NA

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B6

FAA-AEE 120 11-JUN-79
 DATE: 6/19/78 PIPER PA36 375

MICROPHONE LOCATION: 31-3
 BRAVE

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
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DEPARTURES

*** NO DATA ***

ARRIVALS

*** NO DATA ***

FLY-BY NORTH TO SOUTH

32 08:22:47.3 08:22:46.9 08:22:47.3 1132.7 17380. 10.0 1141.0

FLY-BY SOUTH TO NORTH

33 08:29:18.3 08:29:17.9 08:29:18.3 1132.7 17426. -85.7 925.2
 35 08:53:11.3 08:53:11.2 08:53:11.3 1135.9 17365. 80.0 1013.5

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B7

POSITION CORRECTION DATA

FAA/AEE 06/11/79

AIRCRAFT: PIPER PA36 375
 DATE: JUNE 19, 1978

MIC # 31-3

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
32R	FS	1006.1	96.3	1000.0	1006.1	96.3	510	129.1	2500
32T	FS	1154.8	96.3	1147.9	1154.8	96.3	NA	NA	NA
33R	FN	1003.0	94.4	1000.0	1003.0	94.4	510	129.1	2500
33T	FN	955.5	94.4	952.6	955.5	94.4	NA	NA	NA
35R	FN	1008.4	97.4	1000.0	1008.4	97.4	510	129.1	2500
35T	FN	1023.5	97.4	1015.0	1023.5	97.4	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
32	FS	198.0	200.3	200.3	86	2500	2500	375	375
33	FN	198.0	170.7	170.7	86	2500	2500	375	375
35	FN	198.0	172.4	172.4	86	2500	2500	375	375

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B8

FAA-AEE 120 11-JUN-79
DATE: 6/19/78 PIPER PA36 375

MICROPHONE LOCATION: 31-4
BRAVE

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
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DEPARTURES

*** NO DATA ***

ARRIVALS

*** NO DATA ***

FLY-BY NORTH TO SOUTH

*** NO DATA ***

FLY-BY SOUTH TO NORTH

35 08:53:26.8 08:53:24.9 08:53:24.8 1135.9 19632. 133.8 1023.0

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
CPA TIME-TIME OF CLOSEST POINT OF APPROACH
DBAM TIME-TIME MAX DBA WAS RECEIVED
SS-SPEED OF SOUND AT TIME OF EVENT
(X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B9

POSITION CORRECTION DATA

FAA/AEE 06/11/79

AIRCRAFT: PIPER PA36 375
 DATE: JUNE 19, 1978

MIC # 31-4

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	DS0 FT.
35R	FN	1015.2	80.1	1000.0	1013.9	99.5	510	129.1	2500
35T	FN	1039.6	80.1	1024.0	1038.2	99.5	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
35	FN	198.0	175.4	175.4	86	2500	2500	375	375

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 DS0--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE B10
COCKPIT PHOTO DATA

Aircraft: Piper Navajo PA 31-325

Operation	Time	RPM	R/C	Manifold Pressure
Approach	05:33	2500	-500	-
Takeoff	05:36	2550	1250	42.5
Approach	05:42	2400	-600	18.0
Takeoff	05:49	2550	1400	42.5
Approach	05:55	2400	-600	18.5
Takeoff	05:58	2550	1300	42.0
Approach	06:06	2400	-550	18.0
Takeoff	06:18	2450	1100	40.0
Approach	06:23	2370	-550	17.5
Takeoff	06:29	2500	1100	40
Flyover	06:33	2400	0	-
Flyover	06:37	2400	-20	39
Flyover	06:42	2400	0	39
Flyover	06:46	2400	0	39
Flyover	06:51	2400	-25	39
Flyover	06:55	2400	0	39
Approach	07:01	2400	-550	18

APPENDIX B

TABLE # B11

FAA-AEE 120 11-APR-79
 DATE: 6/20/78 PIPER PA31 325 MICROPHONE LOCATION: 31-1
 NAVAJO

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
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DEPARTURES							

*** NO DATA ***							
ARRIVALS							

*** NO DATA ***							
FLY-BY NORTH TO SOUTH							

12	06:33:20.8	06:33:19.8	06:33:20.8	1119.9	6278.9	-21.7	1101.8
14	06:41:55.3	06:41:54.4	06:41:55.3	1121.0	6277.0	-111.0	1073.3
16	06:51:11.3	06:51:10.4	06:51:10.8	1123.1	6264.4	1.1	1177.3
FLY-BY SOUTH TO NORTH							

13	06:37:33.8	06:37:32.9	06:37:33.8	1121.0	6285.2	-144.5	1088.4
15	06:45:50.8	06:45:50.1	06:45:50.3	1122.0	6256.9	123.8	1116.7
17	06:54:38.3	06:54:37.6	06:54:38.3	1123.1	6258.5	181.2	1152.4

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B12

POSITION CORRECTION DATA

FAA/AEE 04/11/79

AIRCRAFT: PIPER PA31 325
 DATE: JUNE 20, 1978

MIC # 31-1

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
12R	FS	1000.0	90.0	1000.0	1000.0	90.0	1450	177.2	2150
12T	FS	1102.0	90.0	1102.0	1102.0	90.0	NA	NA	NA
13R	FN	1000.3	91.3	1000.0	1000.3	91.3	1450	177.2	2150
13T	FN	1098.3	91.3	1098.0	1098.3	91.3	NA	NA	NA
14R	FS	1000.0	90.2	1000.0	1000.0	90.2	1450	177.2	2150
14T	FS	1079.0	90.2	1079.0	1079.0	90.2	NA	NA	NA
15R	FN	1002.5	94.0	1000.0	1020.6	101.5	1450	177.2	2150
15T	FN	1126.4	94.0	1123.7	1146.8	101.5	NA	NA	NA
16R	FS	1001.0	92.5	1000.0	1014.5	99.7	1450	177.2	2150
16T	FS	1178.5	92.5	1177.3	1194.4	99.7	NA	NA	NA
17R	FN	1003.0	94.4	1000.0	1003.0	94.4	1450	177.2	2150
17T	FN	1170.2	94.4	1166.7	1170.2	94.4	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
12	FS	317.3	288.1	288.1	80	2400	2400	553	546
13	FN	317.3	287.2	287.2	80	2400	2400	553	546
14	FS	317.3	289.6	289.6	80	2400	2400	553	546
15	FN	317.3	289.1	289.0	80	2400	2400	553	546
16	FS	317.3	292.5	292.5	80	2400	2400	553	546
17	FN	317.3	282.8	282.8	80	2400	2400	553	546

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B13

FAA-AEE 120		11-APR-79		MICROPHONE LOCATION: 31-2			
DATE: 6/20/78		PIPER PA31 325		NAVAJO			
EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
DEPARTURES							
9	06:17:59.8	06:17:59.4	06:17:59.8	1119.9	12680.	-47.9	990.6
ARRIVALS							
2	05:32:36.3	05:32:35.2	05:32:35.8	1118.8	12755.	16.0	425.8
6	05:55:35.8	05:55:34.8	05:55:35.8	1119.9	12764.	-4.5	402.2
8	06:05:09.8	06:05:08.5	06:05:09.3	1119.9	12760.	-6.9	416.5
10	06:23:04.3	06:23:03.1	06:23:03.8	1119.9	12761.	25.4	418.8
FLY-BY NORTH TO SOUTH							
12	06:32:57.8	06:32:56.8	06:32:57.8	1119.9	12782.	-201.3	1102.0
14	06:41:33.3	06:41:31.9	06:41:32.8	1121.0	12780.	-93.7	1053.7
16	06:50:48.8	06:50:47.9	06:50:48.8	1123.1	12788.	145.9	1163.0
FLY-BY SOUTH TO NORTH							
13	06:37:56.8	06:37:55.6	06:37:56.8	1121.0	12775.	-339.7	1113.4
15	06:46:13.8	06:46:12.6	06:46:13.8	1122.0	12769.	-3.1	1099.3
17	06:55:01.8	06:55:00.6	06:55:01.3	1123.1	12777.	243.6	1210.8

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B14A

POSITION CORRECTION DATA

FAA/AEE 04/11/79

AIRCRAFT: PIPER PA31 325
DATE: JUNE 20, 1978

MIC # 31-2

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VV FPS	D50 FT.
2R	A	410.7	73.3	393.4	395.2	84.5	NA	NA	NA
2T	A	447.3	73.3	428.4	430.3	84.5	NA	NA	NA
6R	A	409.7	73.8	393.4	409.7	73.8	NA	NA	NA
6T	A	419.6	73.8	403.0	419.6	73.8	NA	NA	NA
8R	A	419.9	69.5	393.4	399.1	80.3	NA	NA	NA
8T	A	445.5	69.5	417.3	423.4	80.3	NA	NA	NA
9R	D	2099.3	94.9	2091.5	2099.3	94.9	NA	NA	NA
9T	D	999.7	94.9	996.0	999.7	94.9	NA	NA	NA
10R	A	411.1	73.1	393.4	396.1	83.3	NA	NA	NA
10T	A	441.1	73.1	422.0	424.9	83.3	NA	NA	NA
12R	FS	1000.0	90.3	1000.0	1000.0	90.3	1450	177.2	2150
12T	FS	1116.3	90.3	1116.3	1116.3	90.3	NA	NA	NA
13R	FN	1001.1	87.4	1000.0	1001.1	87.4	1450	177.2	2150
13T	FN	1158.8	87.4	1157.6	1158.8	87.4	NA	NA	NA
14R	FS	1007.6	82.9	1000.0	1000.1	90.7	1450	177.2	2150
14T	FS	1064.1	82.9	1056.0	1056.1	90.7	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
2	A	168.8	182.6	182.4	80	2400	2500	NA	NA
6	A	168.8	191.0	190.9	80	2400	2400	NA	NA
8	A	168.8	175.7	175.5	80	2400	2400	NA	NA
9	D	177.2	192.9	192.0	80	2575	2550	NA	NA
10	A	168.8	163.9	163.7	80	2400	2400	NA	NA
12	FS	317.3	279.7	279.7	80	2400	2370	553	546
13	FN	317.3	284.9	284.9	80	2400	2400	553	546
14	FS	317.3	292.4	292.4	80	2400	2400	553	546

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VV--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B14B

POSITION CORRECTION DATA

FAA/AEE 04/11/79

AIRCRAFT: PIPER PA31 325
DATE: JUNE 20, 1978

MIC # 31-2

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
15R	FN	1001.8	86.6	1000.0	1001.8	86.6	1450	177.2	2150
15T	FN	1101.5	86.6	1099.5	1101.5	86.6	NA	NA	NA
16R	FS	1000.3	91.4	1000.0	1000.3	91.4	1450	177.2	2150
16T	FS	1175.5	91.4	1175.2	1175.5	91.4	NA	NA	NA
17R	FN	1000.1	89.1	1000.0	1005.2	95.8	1450	177.2	2150
17T	FN	1240.0	89.1	1239.8	1246.3	95.8	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
15	FN	317.3	292.1	292.0	80	2400	2400	553	546
16	FS	317.3	289.2	289.2	80	2400	2400	553	546
17	FN	317.3	286.5	286.5	80	2400	2400	553	546

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B15

FAA-AEE 120 30-MAY-79
 DATE: 6/20/78 PIPER PA31 325

MICROPHONE LOCATION: 31-3
 NAVAJO

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT

DEPARTURES

1	05:27:46.8	05:27:45.7	05:27:46.8	1118.8	17282.	-34.3	1340.4
5	05:49:50.3	05:49:49.3	05:49:50.3	1118.8	17208.	-78.5	1303.3
9	06:18:25.3	06:18:23.4	06:18:21.8	1119.9	17242.	-135.1	1456.8
11	06:27:54.3	06:27:53.4	06:27:53.8	1119.9	17229.	61.2	1381.6

ARRIVALS

*** NO DATA ***

FLY-BY NORTH TO SOUTH

12	06:32:41.8	06:32:40.1	06:32:40.8	1119.9	17353.	-368.3	1130.9
14	06:41:15.8	06:41:16.0	06:41:16.3	1122.0	17383.	-76.6	1089.1
16	06:50:32.3	06:50:32.0	06:50:32.3	1123.1	17382.	65.5	1113.7

FLY-BY SOUTH TO NORTH

13	06:38:12.3	06:38:11.8	06:38:12.3	1121.0	17407.	-180.1	1070.0
15	06:46:29.3	06:46:28.4	06:46:28.8	1122.0	17384.	1.1	1091.2

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B16

POSITION CORRECTION DATA

FAA/AEE 05/28/79

AIRCRAFT: PIPER PA31 325

DATE: JUNE 20, 1978

MIC # 31-3

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
1R	D	2091.6	90.6	2091.5	2091.6	90.6	NA	NA	NA
1T	D	1354.3	90.6	1354.2	1354.3	90.6	NA	NA	NA
5R	D	2091.9	91.1	2091.5	2091.9	91.1	NA	NA	NA
5T	D	1331.4	91.1	1331.1	1331.4	91.1	NA	NA	NA
9R	D	2097.5	85.7	2091.5	2239.9	110.9	NA	NA	NA
9T	D	1491.8	85.7	1487.6	1593.1	110.9	NA	NA	NA
11R	D	2094.2	92.9	2091.5	2107.4	97.0	NA	NA	NA
11T	D	1393.0	92.9	1391.2	1401.8	97.0	NA	NA	NA
12R	FS	1007.0	83.2	1000.0	1004.8	95.6	1450	177.2	2150
12T	FS	1246.7	83.2	1238.0	1243.9	95.6	NA	NA	NA
13R	FN	1008.8	97.6	1000.0	1008.8	97.6	1450	177.2	2150
13T	FN	1125.7	97.6	1115.9	1125.7	97.6	NA	NA	NA
14R	FS	1050.2	107.8	1000.0	1015.4	100.0	1450	177.2	2150
14T	FS	1165.2	107.8	1109.5	1126.7	100.0	NA	NA	NA
15R	FN	1000.3	91.4	1000.0	1012.5	99.0	1450	177.2	2150
15T	FN	1099.7	91.4	1099.4	1113.2	99.0	NA	NA	NA
16R	FS	1019.0	101.1	1000.0	1019.0	101.1	1450	177.2	2150
16T	FS	1137.1	101.1	1115.9	1137.1	101.1	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
1	D	177.2	188.8	188.1	80	2575	2550	NA	NA
5	D	177.2	190.7	189.2	80	2575	2550	NA	NA
9	D	177.2	190.2	189.5	80	2575	2550	NA	NA
11	D	177.2	199.0	197.9	80	2575	2500	NA	NA
12	FS	317.3	268.2	268.1	80	2400	2370	553	546
13	FN	317.3	286.6	286.6	80	2400	2400	553	546
14	FS	317.3	296.6	296.6	80	2400	2400	553	546
15	FN	317.3	290.9	290.8	80	2400	2400	553	546
16	FS	317.3	292.7	292.7	80	2400	2400	553	546

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B17

FAA-AEE 120 12-APR-79 MICROPHONE LOCATION: 31-4
DATE: 6/20/78 PIPER PA31 325 NAVAJO

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
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DEPARTURES							
7	05:59:56.8	05:59:55.9	05:59:56.8	1119.9	19480.	0.5	1591.7
ARRIVALS							
*** NO DATA ***							
FLY-BY NORTH TO SOUTH							
*** NO DATA ***							
FLY-BY SOUTH TO NORTH							
*** NO DATA ***							

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
CPA TIME-TIME OF CLOSEST POINT OF APPROACH
DBAM TIME-TIME MAX DBA WAS RECEIVED
SS-SPEED OF SOUND AT TIME OF EVENT
(X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B18

POSITION CORRECTION DATA

FAA/AEE 03/11/79

AIRCRAFT: PIPER PA31 325
 DATE: JUNE 20, 1978

MIC # 31-4

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
7R	D	2096.2	93.8	2091.5	2096.2	93.8	NA	NA	NA
7T	D	1604.2	93.8	1600.7	1604.2	93.8	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
7	D	177.2	195.1	194.3	80	2575	2550	NA	NA

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE B19
COCKPIT PHOTO DATA

Aircraft: Convair CV-580						
Operation	Time	RPM	R/C	TIT ^{°C} ₍₁₎	TIT ₍₂₎	HP
Approach	07:48		-520		560	1000
Takeoff	07:50	1009	1600	980	970	3500
Takeoff	07:52	1024	1800	910	910	3000
Approach	08:00	-	-500	660	650	-
Takeoff	08:07	994	1220	910	930	3100
Takeoff	08:09	1009	1300	930	920	3000
Approach	08:14	-	-400	650	650	1900
Takeoff	08:38	1009	1400	970	950	3300
Takeoff	08:39	1009	1500	930	910	3000
Approach	08:44	-	-500	650	630	1800
Takeoff	08:48	1005	1500	950	950	3450
Takeoff	08:49	1013	1200	920	910	3000
Approach	08:55	-	-600	630	620	650
Takeoff	09:08	1009	1500	950	940	3200
Takeoff	09:09	1009	1600	920	920	3000
Approach	09:15	-	-550	640	630	750
Takeoff	09:21	1009	1600	950	940	3200
Takeoff	09:22	1009	1100	940	920	3200
Flyover	09:27	1016	-180	940	930	3300
Flyover	09:31	1016	0	920	920	3200
Flyover	09:35	1009	100	930	920	3300
Flyover	09:38	1009	-100	920	920	3300
Flyover	09:43	1013	-250	930	920	3300
Flyover	09:47	1013	-200	920	920	3200
Approach	09:52	-	-650	620	620	700

APPENDIX B

TABLE # B20

FAA-AEE 120 16-APR-79
DATE: 6/20/78 CV 580

MICROPHONE LOCATION: 31-1
CONVAIR

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
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DEPARTURES

*** NO DATA ***

ARRIVALS

*** NO DATA ***

FLY-BY NORTH TO SOUTH

31	09:26:33.8	09:26:33.0	09:26:33.8	1133.7	10293.	-14.2	895.7
33	09:34:46.8	09:34:46.2	09:34:46.8	1133.7	10302.	-68.0	934.2

FLY-BY SOUTH TO NORTH

32	09:30:33.3	09:30:31.3	09:30:33.3	1133.7	10273.	113.4	953.7
34	09:38:28.3	09:38:28.1	09:38:29.8	1134.8	10286.	-107.8	957.6
36	09:46:17.3	09:46:16.6	09:46:17.3	1135.9	10284.	158.5	936.8

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
CPA TIME-TIME OF CLOSEST POINT OF APPROACH
DBAM TIME-TIME MAX DBA WAS RECEIVED
SS-SPEED OF SOUND AT TIME OF EVENT
(X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # 821

POSITION CORRECTION DATA

FAA/AEE 04/13/79

AIRCRAFT: CV 580
DATE: JUNE 20, 1978

MIC # 31-1

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
31R	FS	1000.4	88.5	1000.0	1000.4	88.5	1900	287.0	4000
31T	FS	896.3	88.5	896.0	896.3	88.5	NA	NA	NA
32R	FN	1078.1	68.1	1000.0	1078.1	68.1	1900	287.0	4000
32T	FN	1035.4	68.1	960.4	1035.4	68.1	NA	NA	NA
33R	FS	1003.9	95.1	1000.0	1003.9	95.1	1900	287.0	4000
33T	FS	940.7	95.1	937.1	940.7	95.1	NA	NA	NA
34R	FN	1028.6	103.5	1000.0	1047.9	72.6	1900	287.0	4000
34T	FN	991.3	103.5	963.7	1009.9	72.6	NA	NA	NA
36R	FN	1001.8	93.4	1000.0	1001.8	93.4	1900	287.0	4000
36T	FN	951.8	93.4	950.1	951.8	93.4	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
31	FS	422.0	432.5	432.4	162	1021	1019	6800	6600
32	FN	422.0	352.2	352.2	162	1021	1019	6800	6400
33	FS	422.0	431.8	431.6	162	1021	1012	6800	6600
34	FN	422.0	360.8	360.8	162	1021	1012	6800	6600
36	FN	422.0	350.7	350.7	162	1021	1016	6800	6400

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B22

FAA-AEE 120 18-APR-79		MICROPHONE LOCATION: 31-2					
DATE: 6/20/78 CV 580		CONVAIR					
EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
-----	-----	-----	-----	----	-----	-----	-----
DEPARTURES							
22	08:07:46.3	08:07:44.6	08:07:47.3	1129.5	16702.	5.6	1156.2
30	09:20:47.3	09:20:47.3	09:20:50.3	1132.7	16611.	-7.8	1440.1
ARRIVALS							
19	07:44:22.3	07:44:20.7	07:44:22.3	1127.4	16761.	-10.8	385.4
21	08:00:31.3	08:00:29.5	08:00:31.3	1128.4	16760.	-58.0	421.6
27	08:55:10.8	08:55:09.2	08:55:10.8	1131.6	16760.	-19.3	409.8
29	09:14:45.8	09:14:44.1	09:14:45.8	1132.7	16759.	-4.6	400.4
FLY-BY NORTH TO SOUTH							
31	09:26:18.8	09:26:17.5	09:26:18.8	1133.7	16785.	4.5	821.8
33	09:34:31.8	09:34:30.8	09:34:31.3	1133.7	16789.	-35.6	805.2
FLY-BY SOUTH TO NORTH							
32	09:30:49.3	09:30:48.7	09:30:50.3	1133.7	16762.	303.0	952.4
34	09:38:46.8	09:38:45.0	09:38:46.8	1135.9	16766.	-35.5	954.4
36	09:46:34.8	09:46:34.0	09:46:35.8	1135.9	16795.	142.3	921.2

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B23A

POSITION CORRECTION DATA

FAA/AEE 04/16/79

AIRCRAFT: CV 580
DATE: JUNE 20, 1978

MIC # 31-2

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
19R	A	459.9	58.8	393.4	459.9	58.8	NA	NA	NA
19T	A	451.4	58.8	386.1	451.4	58.8	NA	NA	NA
21R	A	461.6	58.4	393.4	461.6	58.4	NA	NA	NA
21T	A	497.1	58.4	423.6	497.1	58.4	NA	NA	NA
22R	D	1628.8	80.5	1606.5	1734.7	67.8	NA	NA	NA
22T	D	1175.2	80.5	1159.2	1251.6	67.8	NA	NA	NA
27R	A	447.7	61.5	393.4	447.7	61.5	NA	NA	NA
27T	A	467.0	61.5	410.3	467.0	61.5	NA	NA	NA
29R	A	459.3	58.9	393.4	459.3	58.9	NA	NA	NA
29T	A	468.7	58.9	401.4	468.7	58.9	NA	NA	NA
30R	D	1661.1	104.7	1606.5	1685.1	72.4	NA	NA	NA
30T	D	1499.3	104.7	1450.0	1520.9	72.4	NA	NA	NA
31R	FS	1043.6	73.4	1000.0	1043.6	73.4	1900	287.0	4000
31T	FS	858.1	73.4	822.3	858.1	73.4	NA	NA	NA
32R	FN	1005.3	95.9	1000.0	1039.7	74.1	1900	287.0	4000
32T	FN	1012.1	95.9	1006.8	1046.8	74.1	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
19	A	180.6	193.1	192.8	162	1021	1021	NA	NA
21	A	180.6	191.9	191.7	162	1021	1021	NA	NA
22	D	287.0	296.3	295.6	162	1021	1012	NA	NA
27	A	180.6	190.7	190.5	162	1021	1021	NA	NA
29	A	180.6	190.6	190.4	162	1021	1021	NA	NA
30	D	287.0	281.8	279.9	162	1021	1012	NA	NA
31	FS	422.0	406.8	406.8	162	1021	1019	6800	6600
32	FN	422.0	401.8	401.8	162	1021	1019	6800	6400

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B23B

POSITION CORRECTION DATA

FAA/AEE 04/16/79

AIRCRAFT: CV 580
 DATE: JUNE 20, 1978

MIC # 31-2

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
33R	FS	1008.4	82.6	1000.0	1008.0	97.2	1900	287.0	4000
33T	FS	812.2	82.6	805.4	811.8	97.2	NA	NA	NA
34R	FN	1077.3	68.2	1000.0	1077.3	68.2	1900	287.0	4000
34T	FN	1028.4	68.2	954.6	1028.4	68.2	NA	NA	NA
36R	FN	1000.0	90.4	1000.0	1074.1	68.6	1900	287.0	4000
36T	FN	936.1	90.4	936.1	1005.4	68.6	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
33	FS	422.0	413.1	413.0	162	1021	1012	6800	6600
34	FN	422.0	408.6	408.6	162	1021	1012	6800	6600
36	FN	422.0	401.6	401.6	162	1021	1016	6800	6400

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B24

FAA-AEE 120 30-MAY-79
DATE: 6/20/78 CV 580

MICROPHONE LOCATION: 31-3
CONVAIR

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
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DEPARTURES							
24	08:38:08.8	08:38:06.1	08:38:09.3	1131.6	17284.	-95.7	1688.9
26	08:49:01.8	08:49:01.8	08:49:03.8	1131.6	17354.	-97.0	1517.3
28	09:08:52.8	09:08:50.7	09:08:52.8	1132.7	17327.	-111.7	1732.6
30	09:21:05.8	09:21:03.9	09:21:05.8	1132.7	17328.	-64.3	1903.1
ARRIVALS							
*** NO DATA ***							
FLY-BY NORTH TO SOUTH							
31	09:26:05.8	09:26:05.7	09:26:06.3	1133.7	17370.	45.0	844.4
33	09:34:19.8	09:34:19.3	09:34:19.8	1133.7	17363.	45.9	862.1
FLY-BY SOUTH TO NORTH							
32	09:31:01.3	09:30:60.0	09:31:00.7	1133.7	17389.	124.6	966.2
34	09:38:55.8	09:38:56.1	09:38:56.8	1134.8	17383.	-67.1	957.6
36	09:46:45.3	09:46:45.1	09:46:45.8	1135.9	17364.	24.5	948.4

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
CPA TIME-TIME OF CLOSEST POINT OF APPROACH
DBAM TIME-TIME MAX DBA WAS RECEIVED
SS-SPEED OF SOUND AT TIME OF EVENT
(X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B25

POSITION CORRECTION DATA

FAA/AEE 05/28/79

AIRCRAFT: CV 580
 DATE: JUNE 20, 1978

MIC # 31-3

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	DSO FT.
24R	D	1641.0	78.2	1606.5	1672.9	73.8	NA	NA	NA
24T	D	1743.6	78.2	1706.9	1777.4	73.8	NA	NA	NA
26R	D	1675.4	106.5	1606.5	1620.1	82.6	NA	NA	NA
26T	D	1600.9	106.5	1535.1	1548.0	82.6	NA	NA	NA
28R	D	1613.8	84.6	1606.5	1613.8	84.6	NA	NA	NA
28T	D	1758.6	84.6	1750.7	1758.6	84.6	NA	NA	NA
30R	D	1607.7	87.8	1606.5	1607.7	87.8	NA	NA	NA
30T	D	1915.5	87.8	1914.1	1915.5	87.8	NA	NA	NA
31R	FS	1040.0	105.9	1000.0	1001.5	93.1	1900	287.0	4000
31T	FS	883.1	105.9	849.2	850.4	93.1	NA	NA	NA
32R	FN	1019.0	78.9	1000.0	1001.8	93.5	1900	287.0	4000
32T	FN	984.8	78.9	966.4	968.2	93.5	NA	NA	NA
33R	FS	1007.4	97.0	1000.0	1007.4	97.0	1900	287.0	4000
33T	FS	873.3	97.0	866.8	873.3	97.0	NA	NA	NA
34R	FN	1139.4	118.6	1000.0	1002.0	93.6	1900	287.0	4000
34T	FN	1115.2	118.6	978.7	980.7	93.6	NA	NA	NA
36R	FN	1046.8	107.2	1000.0	1002.6	94.1	1900	287.0	4000
36T	FN	999.5	107.2	954.9	957.4	94.1	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
24	D	287.0	298.0	297.6	162	1021	1012	NA	NA
26	D	287.0	319.2	319.2	162	1021	1016	NA	NA
28	D	287.0	298.7	298.5	162	1021	1012	NA	NA
30	D	287.0	295.4	295.3	162	1021	1012	NA	NA
31	FS	422.0	370.1	370.1	162	1021	1019	6800	6600
32	FN	422.0	427.5	427.5	162	1021	1019	6800	6400
33	FS	422.0	385.7	385.7	162	1021	1012	6800	6600
34	FN	422.0	421.9	421.8	162	1021	1012	6800	6600
36	FN	422.0	418.9	418.9	162	1021	1016	6800	6400

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 DSO--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE 26
COCKPIT PHOTO DATA

Aircraft: CESSNA 421C

<u>Operation</u>	<u>Time</u>	<u>RPM</u>	<u>RC</u>	<u>Manifold Pressure</u>
Approach	07:13	2180	-550	17.5
Takeoff	07:18	2250	1600	39.0
Takeoff		1900	600	32.0
Approach	07:23	2220	-700	17.0
Takeoff	07:26	2260	1600	39.0
Takeoff		1900	600	32.0
Approach	07:31	2150	-600	17.0
Takeoff	07:33	1910	700	32.0
Approach	07:37	2200	-500	17.5
Takeoff	07:40	2260	1700	39.0
Takeoff		1900	650	33.0
Flyover	07:55	2250	-300	39.0
Flyover	07:57	2250	-50	39.0
Flyover	08:00	2250	-250	39.0
Flyover	08:03	2250	-110	39.0
Approach	08:06	2250	-800	17.0

APPENDIX B

TABLE # B27

FAA-AEE 120 03-JUL-79 MICROPHONE LOCATION: 31-1
 DATE: 6/21/78 CESSNA 421C GOLDEN EAGLE

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
-----	-----	-----	-----	---	----	----	----
DEPARTURES							

*** NO DATA ***							
ARRIVALS							

*** NO DATA ***							
FLY-BY NORTH TO SOUTH							

14	08:01:38.8	08:01:36.8	08:01:37.3	1129.5	6271.1	59.4	945.2
FLY-BY SOUTH TO NORTH							

13	07:58:01.8	07:57:59.5	07:58:00.7	1129.5	6270.8	167.2	994.8
15	08:04:26.3	08:04:24.8	08:04:25.3	1129.5	6277.2	59.8	958.7

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B28

POSITION CORRECTION DATA

FAA/AEE 07/03/79

AIRCRAFT: CESSNA 421C
 DATE: JUNE 21, 1978

MIC # 31-1

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
13R	FN	1076.4	68.3	1000.0	1004.0	84.9	1940	187.4	2323
13T	FN	1085.8	68.3	1008.8	1012.8	84.9	NA	NA	NA
14R	FS	1073.4	68.7	1000.0	1009.1	97.7	1940	187.4	2323
14T	FS	1016.5	68.7	947.1	955.7	97.7	NA	NA	NA
15R	FN	1020.2	78.6	1000.0	1006.3	96.4	1940	187.4	2323
15T	FN	980.0	78.6	960.6	966.7	96.4	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
13	FN	337.6	302.1	302.1	90	2235	2250	750	750
14	FS	337.6	345.4	345.4	90	2235	2250	750	750
15	FN	337.6	305.6	305.6	90	2235	2250	750	750

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B29

FAA-AEE 120 03-JUL-79		MICROPHONE LOCATION: 31-2					
DATE: 6/21/78 CESSNA 421C		GOLDEN EAGLE					
EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
DEPARTURES							
*** NO DATA ***							
ARRIVALS							
2	07:14:39.3	07:14:38.2	07:14:38.8	1127.4	12754.	221.0	383.3
4	07:24:05.8	07:24:04.1	07:24:04.8	1129.5	12757.	26.6	400.8
6	07:31:52.8	07:31:53.3	07:31:53.8	1129.5	12765.	28.1	401.0
8	07:38:53.3	07:38:51.9	07:38:52.3	1129.5	12760.	4.8	409.4
FLY-BY NORTH TO SOUTH							
*** NO DATA ***							
FLY-BY SOUTH TO NORTH							
13	07:58:20.3	07:58:20.9	07:58:21.3	1129.5	12782.	41.7	974.5
15	08:04:48.3	08:04:46.0	08:04:46.8	1129.5	12777.	147.5	920.9

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B30

POSITION CORRECTION DATA

FAA/AEE 07/03/79

AIRCRAFT: CESSNA 421C
 DATE: JUNE 21, 1978

MIC # 31-2

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
2R	A	406.4	75.5	393.4	394.3	86.1	NA	NA	NA
2T	A	470.2	75.5	455.1	456.2	86.1	NA	NA	NA
4R	A	455.3	59.8	393.4	398.2	81.0	NA	NA	NA
4T	A	468.2	59.8	404.5	409.5	81.0	NA	NA	NA
6R	A	429.0	113.5	393.4	393.8	87.3	NA	NA	NA
6T	A	441.1	113.5	404.5	405.0	87.3	NA	NA	NA
8R	A	427.7	66.9	393.4	393.4	89.6	NA	NA	NA
8T	A	446.6	66.9	410.8	410.9	89.6	NA	NA	NA
13R	FN	1121.5	116.9	1000.0	1012.9	99.2	1940	187.4	2323
13T	FN	1095.3	116.9	976.6	989.2	99.2	NA	NA	NA
15R	FN	1095.2	65.9	1000.0	1000.2	91.2	1940	187.4	2323
15T	FN	1025.7	65.9	936.5	936.7	91.2	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
2	A	170.5	177.6	177.3	90	2200	2180	NA	NA
4	A	170.5	181.1	180.8	90	2200	2220	NA	NA
6	A	170.5	189.1	188.9	90	2200	2150	NA	NA
8	A	170.5	177.4	177.2	90	2200	2200	NA	NA
13	FN	337.6	307.7	307.7	90	2235	2250	750	750
15	FN	337.6	306.2	306.2	90	2235	2250	750	750

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B31

FAA-AEE 120 03-JUL-79
 DATE: 6/21/78 CESSNA 421C

MICROPHONE LOCATION: 31-3
 GOLDEN EAGLE

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT

DEPARTURES

1	07:09:48.3	07:09:50.9	07:09:50.3	1127.4	17317.	-63.9	1247.8
5	07:28:21.8	07:28:21.5	07:28:16.3	1129.5	17287.	-112.8	1246.9

ARRIVALS

*** NO DATA ***

FLY-BY NORTH TO SOUTH

*** NO DATA ***

FLY-BY SOUTH TO NORTH

*** NO DATA ***

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # 832

POSITION CORRECTION DATA

FAA/AEE 07/03/79

AIRCRAFT: CESSNA 421C
 DATE: JUNE 21, 1978

MIC # 31-3

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
1R	D	2672.0	118.7	2344.0	2415.6	104.0	NA	NA	NA
1T	D	1441.9	118.7	1264.8	1303.5	104.0	NA	NA	NA
5R	D	2360.3	96.7	2344.0	3258.0	134.0	NA	NA	NA
5T	D	1283.1	96.7	1274.3	1771.0	134.0	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
1	D	187.4	177.9	177.8	90	1900	1900	NA	NA
5	D	187.4	182.1	181.6	90	1900	1900	NA	NA

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B33

FAA-AEE 120 03-JUL-79 MICROPHONE LOCATION: 31-4
DATE: 6/21/78 CESSNA 421C GOLDEN EAGLE

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT

DEPARTURES

3	07:20:06.8	07:20:04.7	07:20:06.8	1128.4	19541.	18.7	1281.9
9	07:42:59.3	07:42:57.8	07:42:59.3	1129.5	19550.	-36.7	1523.4

ARRIVALS

*** NO DATA ***

FLY-BY NORTH TO SOUTH

*** NO DATA ***

FLY-BY SOUTH TO NORTH

*** NO DATA ***

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
CPA TIME-TIME OF CLOSEST POINT OF APPROACH
DBAM TIME-TIME MAX DBA WAS RECEIVED
SS-SPEED OF SOUND AT TIME OF EVENT
(X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B34

POSITION CORRECTION DATA

FAA/AEE 07/06/79

AIRCRAFT: CESSNA 421C
 DATE: JUNE 21, 1978

MIC # 31-4

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
3R	D	2366.0	82.2	2344.0	2366.0	82.2	NA	NA	NA
3T	D	1298.6	82.2	1286.6	1298.6	82.2	NA	NA	NA
9R	D	2344.5	88.8	2344.0	2344.5	88.8	NA	NA	NA
9T	D	1530.8	88.8	1530.5	1530.8	88.8	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
3	D	187.4	194.9	194.5	90	1900	1900	NA	NA
9	D	187.4	190.6	190.4	90	1900	1900	NA	NA

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE B35
COCKPIT PHOTO DATA

Aircraft: CESSNA 172N

Operation	Time	RPM	R/C FPM
Takeoff		2390	650
Takeoff		2400	420
Approach	07:20	1600	-500
Takeoff	07:24	2400	720
Takeoff	07:24	2400	500
Approach	07:29	1680	-580
Takeoff	08:33	2400	600
Takeoff	08:34	2400	490
Approach	08:40	1600	-500
Takeoff	08:58	2400	600
Takeoff	08:59	2400	690
Approach	08:05	1700	-490
Takeoff	09:09	2400	730
Takeoff	09:10	2400	600
Flyover	09:12	2650	-220
Flyover	09:16	2650	-180
Flyover	09:19	2660	-70
Flyover	09:21	2650	-150
Flyover	09:25	2650	-50
Flyover	09:38	2650	120
Approach	09:43	1700	-470

APPENDIX B

TABLE # B36

FAA-AEE 120 05-JUL-79
 DATE: 6/21/78 CESSNA 172N

MICROPHONE LOCATION: 31-1
 SKYHAWK

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
----	-----	-----	-----	----	-----	-----	-----
DEPARTURES							

*** NO DATA ***							
ARRIVALS							

*** NO DATA ***							
FLY-BY NORTH TO SOUTH							

32	09:27:02.3	09:27:01.5	09:27:01.8	1131.6	6294.1	76.2	959.6
FLY-BY SOUTH TO NORTH							

29	09:15:55.3	09:15:55.8	09:15:56.3	1131.6	6260.5	17.7	971.0
31	09:22:40.3	09:22:38.8	09:22:40.3	1131.6	6282.2	28.1	943.7
33	09:29:29.8	09:29:28.6	09:29:29.8	1131.6	6294.1	55.8	969.3

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B37

POSITION CORRECTION DATA

FAA/AEE 07/05/79

AIRCRAFT: CESSNA 172N
 DATE: JUNE 21, 1978

MIC # 31-1

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
29R	FN	1032.7	104.4	1000.0	1001.9	93.5	740	123.2	1440
29T	FN	1003.0	104.4	971.3	973.1	93.5	NA	NA	NA
31R	FN	1009.5	82.1	1000.0	1009.5	82.1	740	123.2	1440
31T	FN	953.1	82.1	944.1	953.1	82.1	NA	NA	NA
32R	FS	1000.2	91.0	1000.0	1008.7	97.5	740	123.2	1440
32T	FS	962.9	91.0	962.8	971.1	97.5	NA	NA	NA
33R	FN	1001.6	86.8	1000.0	1001.6	86.8	740	123.2	1440
33T	FN	972.6	86.8	971.1	972.6	86.8	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
29	FN	207.6	184.9	184.9	75	2700	2650	160	160
31	FN	207.6	187.6	187.6	75	2700	2650	160	160
32	FS	207.6	215.8	215.7	75	2700	2650	160	160
33	FN	207.6	184.4	184.4	75	2700	2650	160	160

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

TABLE B38
COCKPIT PHOTO DATA

Aircraft: Rockwell 690B

Operation	Time	RPM %	R/C FPM	ITT (1) °C	ITT (2) °C	HP (1)	HP (2)
Takeoff	05:00	95	2100	865	895	700	700
Approach	05:07	95	-650	550	550	60	20
Takeoff	05:11	95	2000	870	870	700	700
Approach	05:17	95	-500	575	600	100	160
Takeoff	05:21	95	2400	880	910	700	700
Approach	05:30	95	-620	575	600	100	100
Takeoff	05:34	95	2100	850	860	660	640
Approach	05:41	95	-680	575	600	90	110
Takeoff	05:48	90	3000	885	930	690	700
Approach	05:56	95	-700	600	600	160	160
Takeoff	06:00	95	2200	700	700	700	700
Approach	06:09	95	-550	600	600	180	180
Takeoff	06:16	90	2500	880	880	680	640
Flyover	06:30	100	0	870	870	740	700
Flyover	06:36	100	0	850	870	700	700
Flyover	06:40	100	-500	850	870	700	700
Flyover	06:44	100	+300	855	870	720	700
Flyover	06:52	100	0	850	865	720	700
Approach	06:58	98	-	600	600	120	120

APPENDIX B

TABLE # B39

FAA-AEE 120 26-MAY-79
 DATE: 6/23/78 ROCKWELL 690B

MICROPHONE LOCATION: 31-1
 TURBO CMDR

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
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DEPARTURES

*** NO DATA ***

ARRIVALS

*** NO DATA ***

FLY-BY NORTH TO SOUTH

20 06:45:55.3 06:45:54.3 06:45:55.3 1121.0 6301.3 31.7 1002.7

FLY-BY SOUTH TO NORTH

19 06:40:58.3 06:40:55.9 06:40:58.3 1121.0 6246.3 -70.6 976.5
 21 06:49:23.8 06:49:21.2 06:49:23.8 1121.0 6269.4 64.5 1007.1

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B40

POSITION CORRECTION DATA

FAA/AEE 05/26/79

AIRCRAFT: ROCKWELL 690B

DATE: JUNE 23, 1978

MIC # 31-1

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
19R	FN	1110.4	64.2	1000.0	1110.4	64.2	2800	234.6	2400
19T	FN	1087.7	64.2	979.5	1087.7	64.2	NA	NA	NA
20R	FS	1000.9	87.6	1000.0	1000.9	87.6	2800	234.6	2400
20T	FS	1004.4	87.6	1003.6	1004.4	87.6	NA	NA	NA
21R	FN	1121.6	63.1	1000.0	1121.6	63.1	2800	234.6	2400
21T	FN	1131.9	63.1	1009.1	1131.9	63.1	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
19	FN	410.2	318.7	318.5	106	1591	1591	1435	1400
20	FS	410.2	385.2	385.1	106	1591	1591	1435	1420
21	FN	410.2	328.8	328.8	106	1591	1591	1435	1420

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B41

FAA-AEE 120 26-MAY-79
 DATE: 6/23/78 ROCKWELL 690B MICROPHONE LOCATION: 31-2
 TURBO CMDR

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
----	-----	----	----	----	-----	-----	-----
DEPARTURES							

*** NO DATA ***							
ARRIVALS							

2	04:57:57.8	04:57:56.9	04:57:57.8	1115.6	12759.	-25.8	398.4
4	05:08:11.3	05:08:09.6	05:08:11.3	1115.6	12755.	-60.9	403.4
6	05:18:39.3	05:18:37.5	05:18:38.8	1116.7	12763.	-41.3	386.0
8	05:32:20.8	05:32:19.6	05:32:20.8	1118.8	12766.	-20.4	362.5
23	06:59:57.3	06:59:55.8	06:59:57.3	1122.0	12774.	57.7	384.1
FLY-BY NORTH TO SOUTH							

20	06:45:38.8	06:45:37.2	06:45:38.3	1121.0	12752.	-42.5	944.2
22	06:53:26.8	06:53:25.5	06:53:26.3	1122.0	12777.	-37.4	984.4
FLY-BY SOUTH TO NORTH							

19	06:41:16.8	06:41:14.9	06:41:16.3	1121.0	12785.	21.7	1033.8
21	06:49:41.3	06:49:39.6	06:49:40.8	1122.0	12781.	-31.8	1012.1

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B42

POSITION CORRECTION DATA

FAA/AEE 05/26/79

 AIRCRAFT: ROCKWELL 690B
 DATE: JUNE 23, 1978

MIC # 31-2

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VV FPS	D50 FT.
2R	A	416.4	70.8	393.4	416.4	70.8	NA	NA	NA
2T	A	422.4	70.8	399.0	422.4	70.8	NA	NA	NA
4R	A	472.4	56.4	393.4	472.4	56.4	NA	NA	NA
4T	A	487.5	56.4	406.0	487.5	56.4	NA	NA	NA
6R	A	507.9	50.8	393.4	448.2	61.4	NA	NA	NA
6T	A	499.6	50.8	386.9	440.9	61.4	NA	NA	NA
8R	A	439.4	63.5	393.4	439.4	63.5	NA	NA	NA
8T	A	405.2	63.5	362.8	405.2	63.5	NA	NA	NA
19R	FN	1062.0	70.3	1000.0	1016.7	79.6	2800	234.6	2400
19T	FN	1098.9	70.3	1034.8	1052.1	79.6	NA	NA	NA
20R	FS	1037.3	74.6	1000.0	1004.4	84.6	2800	234.6	2400
20T	FS	980.1	74.6	944.8	949.0	84.6	NA	NA	NA
21R	FN	1047.8	72.6	1000.0	1008.5	82.5	2800	234.6	2400
21T	FN	1060.5	72.6	1012.2	1020.8	82.5	NA	NA	NA
22R	FS	1013.2	80.7	1000.0	1000.1	90.9	2800	234.6	2400
22T	FS	997.5	80.7	984.5	984.7	90.9	NA	NA	NA
23R	A	459.5	58.9	393.4	459.5	58.9	NA	NA	NA
23T	A	458.6	58.9	392.6	458.6	58.9	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
2	A	236.2	247.5	247.1	106	1512	1512	NA	NA
4	A	236.3	221.0	220.5	106	1512	1512	NA	NA
6	A	236.3	232.7	232.4	106	1512	1512	NA	NA
8	A	236.3	205.1	204.9	106	1512	1512	NA	NA
19	FN	410.2	390.7	390.7	106	1591	1591	1435	1400
20	FS	410.2	364.6	364.5	106	1591	1591	1435	1420
21	FN	410.2	391.5	391.5	106	1591	1591	1435	1420
22	FS	410.2	361.1	361.1	106	1591	1591	1435	1420
23	A	236.3	220.4	220.3	106	1512	1559	NA	NA

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VV--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B43

FAA-AEE 120 29-MAY-79		MICROPHONE LOCATION		31-3			
DATE: 6/23/78 ROCKWELL 690B		TURBO CMDR					
EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
----	-----	----	----	----	-----	-----	-----
DEPARTURES							
*** NO DATA ***							
ARRIVALS							
*** NO DATA ***							
FLY-BY NORTH TO SOUTH							
20	06:45:25.8	06:45:23.2	06:45:25.3	1121.0	17402.	-68.5	985.5
22	06:53:13.8	06:53:12.1	06:53:13.8	1122.0	17366.	-105.6	975.4
FLY-BY SOUTH TO NORTH							
19	06:41:27.8	06:41:26.4	06:41:27.8	1121.0	17345.	-120.8	1075.3
21	06:49:52.3	06:49:51.0	06:49:52.3	1121.0	17366.	-56.2	1001.2

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B44

POSITION CORRECTION DATA

FAA/AEE 05/28/79

AIRCRAFT: ROCKWELL 690B
 DATE: JUNE 23, 1978

MIC # 31-3

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
19R	FN	1008.6	82.5	1000.0	1008.6	82.5	2800	234.6	2400
19T	FN	1115.3	82.5	1105.7	1115.3	82.5	NA	NA	NA
20R	FS	1113.0	64.0	1000.0	1058.5	70.9	2800	234.6	2400
20T	FS	1120.5	64.0	1006.7	1065.6	70.9	NA	NA	NA
21R	FN	1010.9	81.6	1000.0	1010.9	81.6	2800	234.6	2400
21T	FN	1030.5	81.6	1019.4	1030.5	81.6	NA	NA	NA
22R	FS	1034.2	75.2	1000.0	1034.2	75.2	2800	234.6	2400
22T	FS	1039.0	75.2	1004.7	1039.0	75.2	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
19	FN	410.2	390.8	390.6	106	1591	1591	1435	1400
20	FS	410.2	310.0	309.9	106	1591	1591	1435	1420
21	FN	410.2	415.0	414.9	106	1591	1591	1435	1420
22	FS	410.2	326.8	326.8	106	1591	1591	1435	1420

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B45

FAA-AEE 120 26-MAY-79 MICROPHONE LOCATION: 31-4
 DATE: 6/23/78 ROCKWELL 690B TURBO CMDR

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
----	-----	----	----	---	----	----	----
DEPARTURES							
5	05:13:21.8	05:13:18.5	05:13:21.8	1115.6	19107.	10.9	2956.5
9	05:36:08.3	05:36:06.1	05:36:08.3	1118.8	19125.	6.5	2646.9
ARRIVALS							
*** NO DATA ***							
FLY-BY NORTH TO SOUTH							
20	06:45:15.8	06:45:15.6	06:45:15.3	1121.0	19618.	-9.1	956.9
22	06:53:06.8	06:53:04.6	06:53:06.8	1122.0	19639.	-120.2	955.6
FLY-BY SOUTH TO NORTH							
19	06:41:32.8	06:41:32.1	06:41:32.8	1121.0	19642.	-111.3	1119.9
21	06:49:57.3	06:49:56.5	06:49:56.8	1121.0	19621.	-54.5	1010.7

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B46

POSITION CORRECTION DATA

FAA/AEE 05/26/79

AIRCRAFT: ROCKWELL 690B
 DATE: JUNE 23, 1978

MIC # 31-4

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	DSO FT.
5R	D	3547.4	87.0	3542.5	3547.4	87.0	NA	NA	NA
5T	D	3006.6	87.0	3002.4	3006.6	87.0	NA	NA	NA
9R	D	3543.1	91.0	3542.5	3543.1	91.0	NA	NA	NA
9T	D	2695.4	91.0	2694.9	2695.4	91.0	NA	NA	NA
19R	FN	1008.6	97.5	1000.0	1008.6	97.5	2800	234.6	2400
19T	FN	1147.8	97.5	1138.0	1147.8	97.5	NA	NA	NA
20R	FS	1018.5	100.9	1000.0	1058.4	109.1	2800	234.6	2400
20T	FS	979.9	100.9	962.0	1018.2	109.1	NA	NA	NA
21R	FN	1000.6	92.0	1000.0	1032.2	104.3	2800	234.6	2400
21T	FN	1021.6	92.0	1021.0	1053.9	104.3	NA	NA	NA
22R	FS	1072.7	68.8	1000.0	1072.7	68.8	2800	234.6	2400
22T	FS	1049.7	68.8	978.5	1049.7	68.8	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
5	D	234.6	243.9	240.2	106	1527	1512	NA	NA
9	D	234.6	245.4	241.1	106	1527	1512	NA	NA
19	FN	410.2	409.7	409.7	106	1591	1591	1435	1400
20	FS	410.2	278.3	278.3	106	1591	1591	1435	1420
21	FN	410.2	426.9	426.9	106	1591	1591	1435	1420
22	FS	410.2	296.6	296.6	106	1591	1591	1435	1420

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 DSO--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE B47
COCKPIT PHOTO DATA

Aircraft: Rockwell 500S

Operation	Time	RPM FPM	R/C	Manifold Pressure HG
Takeoff	07:32	2550	900	30.0
Takeoff	07:33	2400	700	29.0
Approach	07:38	2400	-600	17.00
Takeoff	07:41	2560	750	29.5
Takeoff	07:42	2450	850	29.0
Approach	07:48	2400	-500	17.5
Takeoff	08:02	2550	820	30
Takeoff	08:03	2450		29.5
Approach	08:08	2450		18.5
Takeoff	08:20	2580		30
Takeoff	08:21	2450	700	29.5
Approach	08:25	2450	-800	11.5
Takeoff	08:30	2550		30
Takeoff	08:31	2450		29
Approach	08:35	2450	-500	11.5
Takeoff	08:39	2550	1000	29.5
Takeoff	08:40	2450		29.0
Flyover	08:45	2550		30
Flyover	08:49	2600		30
Flyover	08:54	2580		30
Flyover	08:57	2550		30
Flyover	09:04	2550		30
Flyover	09:07	2550		30
Approach	09:15	2400	-600	18

APPENDIX B

TABLE # B48

FAA-AEE 120 26-MAY-79 MICROPHONE LOCATION: 31-1
 DATE: 6/23/78 ROCKWELL 500S SHRIKE CMD

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT
DEPARTURES							
*** NO DATA ***							
ARRIVALS							
*** NO DATA ***							
FLY-BY NORTH TO SOUTH							
37	08:45:41.3	08:45:39.8	08:45:41.3	1129.5	6278.9	-36.0	914.3
39	08:54:00.2	08:53:58.4	08:54:00.2	1130.6	6262.8	57.0	976.4
41	09:04:29.8	09:04:28.0	09:04:29.3	1131.6	6280.8	-49.4	965.9
FLY-BY SOUTH TO NORTH							
38	08:48:55.3	08:48:54.0	08:48:55.3	1129.5	6266.4	-134.4	983.2
40	08:56:51.8	08:56:50.3	08:56:51.8	1130.6	6291.7	-159.2	1005.1
42	09:07:39.8	09:07:38.0	09:07:39.8	1130.6	6270.1	174.0	995.1

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B49

POSITION CORRECTION DATA

FAA/AEE 05/26/79

AIRCRAFT: ROCKWELL 500S

DATE: JUNE 23, 1978

MIC # 31-1

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	DSO FT.
37R	FS	1023.1	77.8	1000.0	1023.1	77.8	1300	162.1	2050
37T	FS	936.1	77.8	915.0	936.1	77.8	NA	NA	NA
38R	FN	1009.9	82.0	1000.0	1009.9	82.0	1300	162.1	2050
38T	FN	1002.2	82.0	992.4	1002.2	82.0	NA	NA	NA
39R	FS	1041.1	73.8	1000.0	1041.1	73.8	1300	162.1	2050
39T	FS	1018.3	73.8	978.1	1018.3	73.8	NA	NA	NA
40R	FN	1017.2	79.4	1000.0	1017.2	79.4	1300	162.1	2050
40T	FN	1035.2	79.4	1017.7	1035.2	79.4	NA	NA	NA
41R	FS	1041.1	73.8	1000.0	1009.3	82.2	1300	162.1	2050
41T	FS	1006.8	73.8	967.1	976.1	82.2	NA	NA	NA
42R	FN	1035.8	74.9	1000.0	1035.8	74.9	1300	162.1	2050
42T	FN	1046.3	74.9	1010.2	1046.3	74.9	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
37	FS	337.6	305.1	305.1	80	2575	2550	580	580
38	FN	337.6	313.6	313.6	80	2575	2600	580	580
39	FS	337.6	302.2	302.2	80	2575	2580	580	580
40	FN	337.6	310.2	310.1	80	2575	2550	580	580
41	FS	337.6	307.6	307.6	80	2575	2550	580	580
42	FN	337.6	313.2	313.2	80	2575	2550	580	580

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 DSO--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B50

FAA-AEE 120 26-MAY-79
 DATE: 6/23/78 ROCKWELL 500S

MICROPHONE LOCATION: 31-2
 SHRIKE CMD

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT

DEPARTURES

*** NO DATA ***

ARRIVALS

25	07:28:12.3	07:28:10.7	07:28:11.3	1123.1	12764.	-37.1	350.0
27	07:37:58.3	07:37:56.5	07:37:57.8	1124.2	12751.	-37.4	427.6
31	08:08:32.8	08:08:31.5	08:08:32.8	1126.3	12757.	-5.8	406.0
33	08:26:47.8	08:26:46.5	08:26:47.8	1127.4	12763.	-3.0	385.3
35	08:36:12.8	08:36:11.2	08:36:11.8	1128.4	12755.	14.5	433.3

FLY-BY NORTH TO SOUTH

37	08:45:19.8	08:45:18.6	08:45:19.8	1129.5	12771.	2.2	959.6
39	08:53:37.3	08:53:36.6	08:53:37.3	1130.6	12795.	-78.0	930.4
41	09:04:08.3	09:04:06.8	09:04:07.8	1131.6	12779.	7.7	940.8

FLY-BY SOUTH TO NORTH

38	08:49:15.3	08:49:14.6	08:49:15.3	1130.6	12781.	-78.5	967.1
40	08:57:12.3	08:57:11.0	08:57:12.3	1131.6	12792.	-82.3	976.9
42	09:07:59.8	09:07:58.5	09:07:59.3	1130.6	12781.	40.4	982.1

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # BS1A

POSITION CORRECTION DATA

FAA/AEE 05/26/79

AIRCRAFT: ROCKWELL 500S
 DATE: JUNE 23, 1978

MIC # 31-2

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
25R	A	457.6	59.3	393.4	396.8	82.5	NA	NA	NA
25T	A	407.9	59.3	350.6	353.7	82.5	NA	NA	NA
27R	A	449.7	61.0	393.4	418.3	70.1	NA	NA	NA
27T	A	490.3	61.0	428.9	456.1	70.1	NA	NA	NA
31R	A	427.4	67.0	393.4	427.4	67.0	NA	NA	NA
31T	A	442.2	67.0	407.0	442.2	67.0	NA	NA	NA
33R	A	431.6	65.7	393.4	431.6	65.7	NA	NA	NA
33T	A	423.7	65.7	386.2	423.7	65.7	NA	NA	NA
35R	A	432.6	65.4	393.4	394.9	85.0	NA	NA	NA
35T	A	479.1	65.4	435.7	437.3	85.0	NA	NA	NA
37R	FS	1006.3	83.6	1000.0	1006.3	83.6	1300	162.1	2050
37T	FS	966.0	83.6	959.9	966.0	83.6	NA	NA	NA
38R	FN	1001.4	93.0	1000.0	1001.4	93.0	1300	162.1	2050
38T	FN	970.1	93.0	968.7	970.1	93.0	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
25	A	146.9	170.8	170.6	80	2450	2450	NA	NA
27	A	146.9	175.4	175.0	80	2450	2400	NA	NA
31	A	146.9	184.4	184.1	80	2450	2450	NA	NA
33	A	146.9	186.6	186.4	80	2450	2450	NA	NA
35	A	146.9	168.2	167.9	80	2450	2450	NA	NA
37	FS	337.6	303.7	303.7	80	2575	2550	580	570
38	FN	337.6	323.1	323.1	80	2575	2600	580	570

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B51B

POSITION CORRECTION DATA

FAA/AEE 05/26/79

AIRCRAFT: ROCKWELL 500S

DATE: JUNE 23, 1978

MIC # 31-2

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
39R	FS	1000.7	92.1	1000.0	1000.7	92.1	1300	162.1	2050
39T	FS	932.8	92.1	932.2	932.8	92.1	NA	NA	NA
40R	FN	1008.8	82.4	1000.0	1008.8	82.4	1300	162.1	2050
40T	FN	987.4	82.4	978.8	987.4	82.4	NA	NA	NA
41R	FS	1021.6	78.2	1000.0	1001.4	87.0	1300	162.1	2050
41T	FS	961.6	78.2	941.3	942.6	87.0	NA	NA	NA
42R	FN	1007.9	82.8	1000.0	1000.6	92.0	1300	162.1	2050
42T	FN	991.9	82.8	984.2	984.8	92.0	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
39	FS	337.6	301.8	301.7	80	2575	2580	580	570
40	FN	337.6	317.9	317.9	80	2575	2550	580	570
41	FS	337.6	306.1	306.1	80	2575	2550	580	570
42	FN	337.6	322.5	322.5	80	2575	2550	580	570

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

TABLE # B52

APPENDIX B

FAA-AEE 120 29-MAY-79
 DATE: 6/23/78 ROCKWELL 500S

MICROPHONE LOCATION: 31-3
 SHRIKE CMD

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT

DEPARTURES

24	07:22:58.8	07:22:56.4	07:22:58.3	1123.1	17318.	33.2	964.1
34	08:30:45.3	08:30:43.3	08:30:44.8	1128.4	17273.	38.2	1192.7

ARRIVALS

*** NO DATA ***

FLY-BY NORTH TO SOUTH

37	08:45:05.3	08:45:03.5	08:45:05.3	1129.5	17372.	-34.9	936.0
41	09:03:53.3	09:03:51.8	09:03:53.3	1131.6	17378.	-68.4	911.4

FLY-BY SOUTH TO NORTH

38	08:49:29.3	08:49:28.8	08:49:29.8	1130.6	17360.	-185.3	932.0
40	08:57:26.3	08:57:25.4	08:57:26.3	1131.6	17368.	-13.2	1015.6
42	09:08:13.8	09:08:12.9	09:08:13.8	1130.6	17382.	-4.6	980.3

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B53

POSITION CORRECTION DATA

FAA/AEE 05/28/79

 AIRCRAFT: ROCKWELL 500S
 DATE: JUNE 23, 1978

MIC # 31-3

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
24R	D	2567.9	69.9	2411.9	2487.8	75.8	NA	NA	NA
24T	D	1033.8	69.9	971.1	1001.6	75.8	NA	NA	NA
34R	D	2444.3	80.7	2411.9	2418.6	85.7	NA	NA	NA
34T	D	1217.0	80.7	1200.9	1204.3	85.7	NA	NA	NA
37R	FS	1047.9	72.6	1000.0	1047.9	72.6	1300	162.1	2050
37T	FS	996.9	72.6	951.3	996.9	72.6	NA	NA	NA
38R	FN	1007.5	97.0	1000.0	1000.8	87.7	1300	162.1	2050
38T	FN	993.0	97.0	985.7	986.5	87.7	NA	NA	NA
40R	FN	1000.1	89.3	1000.0	1000.1	89.3	1300	162.1	2050
40T	FN	1026.4	89.3	1026.3	1026.4	89.3	NA	NA	NA
41R	FS	1024.7	77.4	1000.0	1024.7	77.4	1300	162.1	2050
41T	FS	957.0	77.4	933.9	957.0	77.4	NA	NA	NA
42R	FN	1000.2	88.8	1000.0	1000.2	88.8	1300	162.1	2050
42T	FN	990.4	88.8	990.2	990.4	88.8	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
24	D	162.1	232.2	231.9	80	2450	2450	NA	NA
34	D	162.1	220.0	219.2	80	2450	2450	NA	NA
37	FS	337.6	309.5	309.5	80	2575	2550	580	570
38	FN	337.6	321.5	321.5	80	2575	2600	580	570
40	FN	337.6	298.2	298.2	80	2575	2550	580	570
41	FS	337.6	304.8	304.7	80	2575	2550	580	570
42	FN	337.6	323.4	323.4	80	2575	2550	580	570

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTH SLANT RANGE
 TH-P--PNLTH THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B54

FAA-AEE 120 26-MAY-79
 DATE: 6/23/78 ROCKWELL 500S

MICROPHONE LOCATION: 31-4
 SHRIKE CMD

EVENT NO.	PNLTM TIME	CPA TIME	DBAM TIME	SS FPS	XCPA FT	YCPA FT	ZCPA FT

DEPARTURES

28	07:42:10.3	07:42:08.3	07:42:10.3	1124.2	19540.	-5.7	1211.8
30	08:02:48.8	08:02:44.9	08:02:48.8	1125.2	19583.	32.3	1062.7
32	08:20:49.3	08:20:48.7	08:20:49.3	1127.4	19566.	-12.7	966.4
36	08:40:26.3	08:40:25.8	08:40:26.3	1129.5	19507.	27.5	1405.0

ARRIVALS

*** NO DATA ***

FLY-BY NORTH TO SOUTH

37	08:44:57.3	08:44:56.1	08:44:56.8	1129.5	19618.	-107.2	924.0
39	08:53:15.3	08:53:14.0	08:53:14.3	1130.6	19634.	-50.4	941.8
41	09:03:44.3	09:03:44.6	09:03:44.3	1131.6	19588.	-204.1	889.8

FLY-BY SOUTH TO NORTH

38	08:49:36.3	08:49:35.9	08:49:36.8	1130.6	19633.	-205.4	953.7
40	08:57:33.3	08:57:32.5	08:57:33.3	1131.6	19630.	4.8	1025.8
42	09:08:20.3	09:08:19.8	09:08:20.3	1130.6	19622.	-17.1	970.3

PNLTM TIME-TIME MAX PERCEIVED NOISE LEVEL WAS RECEIVED
 CPA TIME-TIME OF CLOSEST POINT OF APPROACH
 DBAM TIME-TIME MAX DBA WAS RECEIVED
 SS-SPEED OF SOUND AT TIME OF EVENT
 (X,Y,Z)CPA-AIRCRAFT POSITION AT CPA

APPENDIX B

TABLE # B55A

POSITION CORRECTION DATA

FAA/AEE 03/26/79

AIRCRAFT: ROCKWELL 500S
 DATE: JUNE 23, 1978

MIC # 31-4

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
28R	D	2447.9	80.2	2411.9	2447.9	80.2	NA	NA	NA
28T	D	1236.8	80.2	1218.5	1236.8	80.2	NA	NA	NA
30R	D	2861.7	57.4	2411.9	2861.7	57.4	NA	NA	NA
30T	D	1263.7	57.4	1065.0	1263.7	57.4	NA	NA	NA
32R	D	2417.1	93.8	2411.9	2417.1	93.8	NA	NA	NA
32T	D	975.7	93.8	973.6	975.7	93.8	NA	NA	NA
36R	D	2428.0	96.6	2411.9	2428.0	96.6	NA	NA	NA
36T	D	1420.7	96.6	1411.3	1420.7	96.6	NA	NA	NA
37R	FS	1009.3	82.2	1000.0	1000.3	91.4	1300	162.1	2050
37T	FS	953.6	82.2	944.8	945.1	91.4	NA	NA	NA
38R	FN	1011.4	98.6	1000.0	1000.1	89.3	1300	162.1	2050
38T	FN	1009.8	98.6	998.5	998.5	89.3	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
28	D	162.1	241.1	240.5	80	2450	2450	NA	NA
30	D	162.1	248.0	247.8	80	2450	2450	NA	NA
32	D	162.1	250.0	249.5	80	2450	2450	NA	NA
36	D	162.1	216.8	216.0	80	2450	2450	NA	NA
37	FS	337.6	312.1	312.1	80	2575	2550	580	570
38	FN	337.6	319.0	319.0	80	2575	2600	580	570

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX B

TABLE # B55B

POSITION CORRECTION DATA

FAA/AEE 05/26/79

AIRCRAFT: ROCKWELL 500S

DATE: JUNE 23, 1978

MIC # 31-4

EV#	OP	P-SR FT.	TH-P DEG.	CPA FT.	A-SR FT.	TH-A DEG.	R/C FPM	VY FPS	D50 FT.
39R	FS	1011.7	81.3	1000.0	1015.5	100.0	1300	162.1	2050
39T	FS	963.4	81.3	952.3	967.0	100.0	NA	NA	NA
40R	FN	1000.9	92.4	1000.0	1000.9	92.4	1300	162.1	2050
40T	FN	1030.3	92.4	1029.4	1030.3	92.4	NA	NA	NA
41R	FS	1072.2	111.2	1000.0	1072.2	111.2	1300	162.1	2050
41T	FS	1005.6	111.2	937.8	1005.6	111.1	NA	NA	NA
42R	FN	1007.8	97.1	1000.0	1007.8	97.1	1300	162.1	2050
42T	FN	983.8	97.1	976.2	983.8	97.1	NA	NA	NA

EV#	OP	VTR FPS	VTT FPS	GS FPS	D IN	RR RPM	RT RPM	HPR HP	HPT HP
39	FS	337.6	314.5	314.5	80	2575	2550	580	570
40	FN	337.6	310.0	310.0	80	2575	2550	580	570
41	FS	337.6	309.5	309.4	80	2575	2550	580	570
42	FN	337.6	326.4	326.4	80	2575	2550	580	570

R--REF T--TEST EV--EVENT OP--OPERATION P-SR--PNLTM SLANT RANGE
 TH-P--PNLTM THETA CPA--CLOSEST PT. OF APP. A-SR--DBA SLANT RANGE
 TH-A--DBA THETA R/C--BEST RATE OF CLIMB VY--SPEED FOR R/C
 D50--DIST TO 50 FT VTR--REF TRANS. VEL VTT--TEST TRANS. VEL
 D--PROP DIA. RT--TEST RPM RR--REF RPM TEM--TEMP DEG F
 HPR--REF HP HPT--TEST HP GS--GROUND SPEED N--NORTH S--SOUTH
 F--FLYBY A--ARRIVAL D--DEPARTURE

APPENDIX C

METEOROLOGICAL DATA

TABLE C1
METEOROLOGICAL DATA
JUNE 19, 1979

Time (EDST)	Windspeed (Kts.)	Wind Direction	Outside Air Temp. (°F)	Relative Humidity (%)	Dew Point (°F)	Barometric Pressure (Inches of Ht.)
0400	7	155	65	90	62	30.02
0415	7	155	65	90	62	30.02
0430	5	145	65	90	62	30.02
0445	8	180	65	90	62	30.01
0500	6	200	65	90	62	30.01
0515	5	205	65	90	62	30.02
0530	7	205	65	90	62	30.02
0545	4	160	65	90	62	30.02
0600	5	180	65	90	62	30.02
0615	6	150	65	90	62	30.02
0630	6	150	65	90	62	30.02
0645	5	200	67	87	63	30.02
0700	6	200	68	87	64	30.02
0715	6	210	69	84	64	30.03
0730	4	180	70	84	65	30.03
0745	5	195	71	81.5	65	30.03
0800	6	215	72	81.5	66	30.03
0815	4	230	73	79	66	30.03
0830	7	210	74	79	67	30.03
0845	9	230	76	76.5	68	30.03
0900	8	240	77	74	68	30.03
0915	9	220	77	74	68	30.03
0930*	9	230	78	71.5	68	30.02

*Outside No Correction Window.

TABLE C2
METEOROLOGICAL DATA

JUNE 20, 1979

Time (EDST)	Windspeed (Kts.)	Wind Direction	Outside Air Temp. (°F)	Relative Humidity (%)	Dew Point (°F)	Barometric Pressure (Inches of H _g)
0400	4	320	63	90	60	30.04
0415	5	320	63	90	60	30.04
0430	4	320	63	90	60	30.04
0445	3	325	62	90	59	30.05
0500	5	330	62	87	58	30.05
0515	5	335	62	87	58	30.05
0530	5	335	61	87	57	30.06
0545	5	330	61	87	57	30.06
0600	5	330	62	87	58	30.06
0615	3	330	62	84	57	30.07
0630	3	330	62	87	58	30.07
0645	2	330	64	84	59	30.08
0700	3	330	66	78	59	30.09
0715	5	330	66	81	60	30.09
0730	5	350	68	76	60	30.10
0745	6	330	69	73	60	30.11
0800	6	360	70	71	60	30.11
0815	6	340	71	68	60	30.11
0830	5	360	72	66	60	30.12
0845	4	360	73	64	60	30.12
0900	5	360	73	66	61	30.12
0915	5	340	74	62	60	30.13
0930	5	350	75	57.5	59	30.13
0945	5	030	77	56	60	30.12

AD-A091 292

FEDERAL AVIATION ADMINISTRATION WASHINGTON DC OFFICE --ETC F/G 13/2
NOISE LEVELS AND DATA CORRECTION ANALYSIS FOR SEVEN GENERAL AVI--ETC(U)
SEP 80 D W FORD, E J RICKLEY
FAA/EE-80-26

UNCLASSIFIED

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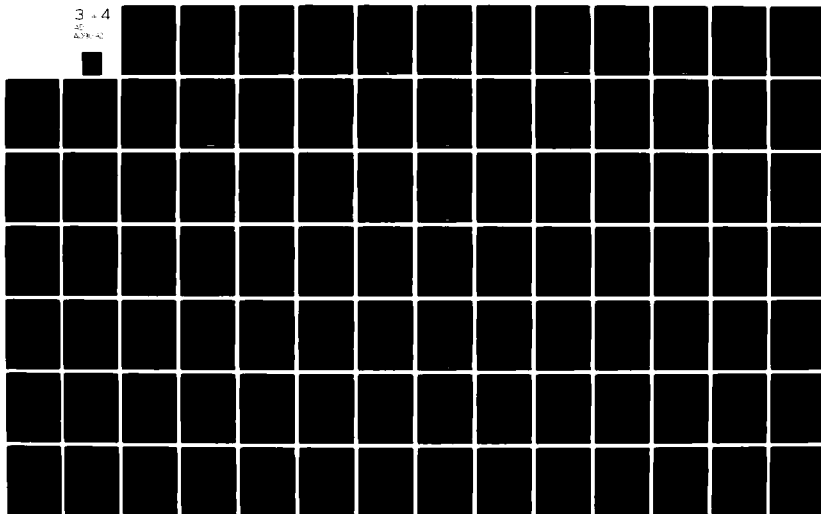


TABLE C3
METEOROLOGICAL DATA
JUNE 21, 1979

Time (EDST)	Windspeed (Kts.)	Wind Direction	Outside Air Temp. (°F)	Relative Humidity (%)	Dew Point (°F)	Barometric Pressure (Inches of H _g)
0400**	5	115	65	96.5	64	30.01
0415**	6	170	65	96.5	64	30.01
0430**	8	150	65	96.5	64	30.01
0445**	4	145	65	96.5	64	30.01
0500**	3	140	65	96.5	64	30.01
0515**	6	175	65	96.5	64	30.01
0530**	6	170	65	96.5	64	30.01
0545**	5	155	65	96.5	64	30.01
0600**	5	180	65	96.5	64	30.01
0615**	5	210	66	97	65	30.01
0630	6	210	68	90	65	30.01
0645	5	205	68	90	65	30.01
0700	4	200	68	90	65	30.01
0715	5	205	69	87	65	30.01
0730	5	210	71	81.5	65	30.01
0745	5	180	71	81.5	65	30.01
0800	7	210	71	84	66	30.02
0815	6	205	71	81.5	65	30.02
0830	6	205	72	81.5	66	30.02
0845	8	220	72	81.5	66	30.02
0900	6	215	72	81.5	66	30.02
0915	5	220	73	79	66	30.01
0930*	4	210	73	82	67	30.01

**Outside FAR 36 Test Window.

TABLE C4
METEOROLOGICAL DATA

JUNE 23, 1979

Time (EDST)	Windspeed (Kts.)	Wind Direction	Outside Air Temp. (°F)	Relative Humidity (%)	Dew Point (°F)	Barometric Pressure (Inches of Hg)
0400**	2	265	60	93	58	30.02
0415**	3	325	59	93	57	30.02
0430**	3	325	59	93	57	30.01
0445**	3	325	59	93	57	30.01
0500**	3	325	58	96.5	57	30.01
0515**	2	335	58	93	56	30.01
0530**	3	335	61	93	59	30.02
0545**	5	350	61	93	59	30.02
0600**	5	355	61	96.5	60	30.02
0615**	5	360	62	93	60	30.02
0630	5	010	62	90	59	30.03
0645	4	030	63	87	59	30.03
0700	4	030	64	84	59	30.03
0715	4	030	64	84	59	30.03
0730	4	030	65	84	60	30.04
0745	5	025	66	78.5	59	30.04
0800	5	045	67	78.5	60	30.04
0815	9	040	68	73	59	30.04
0830	9	065	70	68	59	30.04
0845	4	040	71	68	60	30.04
0900	6	040	73	66	61	30.04
0915	7	090	72	66	60	30.04

**Outside FAR 36 Test Window.

APPENDIX D
CORRECTED NOISE LEVEL DATA

TABLE NO. 0.1 Rev-1

PIPER PA-38-112 (TOMAHAWK) AIRCRAFT
CORRECTED NOISE LEVELS

DOT/TSC
8/31/79

JUNE 19, 1978

EVENT	EPNL(1)	EPNL(2)	EPNL(3)	dBA(1)	dBA(2)	dBA(3)	DATA FROM SITE NO.

APPROACH - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-2

***** NO DATA AVAILABLE *****

TAKEOFF - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-4

***** NO DATA AVAILABLE *****

LEVEL FLY-BY - (AVERAGE OF ALL SITES)

***** NO DATA AVAILABLE *****

EPNL(1)=EPNL(AS MEAS.)+/-1
EPNL(2)=EPNL(AS MEAS.)+/-2
EPNL(3)=EPNL(AS MEAS.)+/-3

dBA(1)=dBA(AS MEAS.)+/-1A
dBA(2)=dBA(AS MEAS.)+/-2A
dBA(3)=dBA(AS MEAS.)+/-3A

TABLE NO. D.2 Rev-1
PIPER PA-36-375 (BRAVE AG.) AIRCRAFT
CORRECTED NOISE LEVELS

DOT/TSC
9/28/79

JUNE 19, 1978

EVENT	EPNL(1)	EPNL(2)	EPNL(3)	dBA(1)	dBA(2)	dBA(3)	DATA FROM SITE NO.
-----	-----	-----	-----	-----	-----	-----	-----

APPROACH - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-2

24	81.9	80.5	80.2	67.8	67.5	67.2	31-1
26	81.8	80.8	80.5	68.3	68.0	67.7	31-1
28	89.5	87.5	87.0	83.1	82.6	82.2	31-2
30	86.7	85.4	85.0	75.7	75.2	74.7	31-2
41	-	-	-	63.5	63.5	63.4	31-2
43	78.4	77.1	77.1	64.4	64.4	64.5	31-2
Avg.	83.7	82.2	82.0	70.5	70.2	69.9	
Std Dv	4.4	4.2	4.0	7.6	7.4	7.2	

TAKEOFF - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-4

23	91.6	89.7	89.4	80.0	79.7	79.4	31-2
27	91.5	89.7	89.4	79.5	79.1	78.8	31-2
29	91.5	89.4	89.2	79.5	79.3	79.1	31-2
31	91.2	89.5	89.3	80.6	80.4	80.2	31-2
40	90.4	89.0	88.9	79.1	79.1	79.0	31-2
42	91.8	89.9	89.9	80.0	80.0	80.0	31-2
Avg.	91.3	89.5	89.4	79.8	79.6	79.4	
Std Dv	0.5	0.3	0.3	0.5	0.5	0.6	

LEVEL FLY-BY - (AVERAGE OF ALL SITES)

Avg.	87.7	86.0	86.0	81.0	81.1	81.1	
Std Dv	0.8	0.7	0.8	1.1	1.1	1.2	14 EVENTS

EPNL(1)=EPNL(AS MEAS.)+/\1
EPNL(2)=EPNL(AS MEAS.)+/\2
EPNL(3)=EPNL(AS MEAS.)+/\3

dBA(1)=dBA(AS MEAS.)+/\1A
dBA(2)=dBA(AS MEAS.)+/\2A
dBA(3)=dBA(AS MEAS.)+/\3A

SEE TABLES E.2.a-d FOR CORRECTIONS

TABLE NO. 0.3 Rev-1
PIPER PA-31-325 (NAVAJO) AIRCRAFT
CORRECTED NOISE LEVELS

DOT/TSC
10/ 3/79

JUNE 20, 1978

EVENT	EPNL(1)	EPNL(2)	EPNL(3)	dBA(1)	dBA(2)	dBA(3)	DATA FROM SITE NO.

APPROACH - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-2

2	90.5	86.3	83.4	82.0	78.9	76.0	31-2
6	91.0	88.8	87.9	82.0	80.9	79.9	31-2
8	91.2	88.8	88.0	81.4	80.6	79.8	31-2
10	89.0	86.6	85.9	78.4	77.7	77.0	31-2
Avg.	90.4	87.6	86.3	81.0	79.5	78.2	
Std Dv	1.0	1.4	2.1	1.7	1.5	2.0	

TAKEOFF - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-4

1	84.8	82.7	82.3	69.5	69.1	68.7	31-3
5	84.2	82.0	81.6	70.2	69.7	69.3	31-3
7	84.5	82.5	82.1	70.5	70.1	69.7	31-4
9	83.8	82.0	81.6	68.6	68.1	67.7	31-2
11	87.3	86.2	86.6	72.6	73.0	73.5	31-3
Avg.	84.9	83.1	82.8	70.3	70.0	69.8	
Std Dv	1.4	1.8	2.1	1.5	1.9	2.2	

LEVEL FLY-BY - (AVERAGE OF ALL SITES)

Avg.	88.1	85.8	85.8	75.3	75.3	75.3	
Std Dv	0.9	0.8	0.8	1.2	1.2	1.3	17 EVENTS

EPNL(1)=EPNL(AS MEAS.)+/\1
EPNL(2)=EPNL(AS MEAS.)+/\2
EPNL(3)=EPNL(AS MEAS.)+/\3

dBA(1)=dBA(AS MEAS.)+/\1A
dBA(2)=dBA(AS MEAS.)+/\2A
dBA(3)=dBA(AS MEAS.)+/\3A

SEE TABLES 0.3.a-d FOR CORRECTIONS

TABLE NO. 0.4 Rev-1

CONVAIR CV-580 AIRCRAFT

DOT/TSC
10/ 3/79

CORRECTED NOISE LEVELS

JUNE 20, 1978

EVENT	EPNL(1)	EPNL(2)	EPNL(3)	dBA(1)	dBA(2)	dBA(3)	DATA FROM SITE NO.

APPROACH - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-2

19	95.1	95.2	95.2	85.9	85.9	85.9	31-2
21	94.6	94.4	94.1	86.0	85.6	85.3	31-2
27	95.2	95.1	94.9	86.5	86.3	86.1	31-2
29	95.6	95.6	95.5	86.8	86.7	86.5	31-2
Avg.	95.1	95.1	94.9	86.3	86.1	86.0	
Std Dv	0.4	0.5	0.6	0.5	0.5	0.5	

TAKEOFF - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-3

22	87.6	85.2	84.5	76.0	75.2	74.5	31-2
24	91.7	90.1	89.7	83.0	82.5	82.0	31-3
26	87.3	85.5	84.7	75.0	74.1	73.4	31-3
28	86.7	85.3	85.3	76.2	76.2	76.1	31-3
30	88.4	85.9	85.3	76.4	75.8	75.2	31-2
Avg.	88.3	86.4	85.9	77.3	76.7	76.2	
Std Dv	2.0	2.1	2.1	3.2	3.3	3.4	

LEVEL FLY-BY - (AVERAGE OF ALL SITES)

Avg.	91.5	91.3	91.8	83.6	84.4	84.9	
Std Dv	1.5	1.6	2.2	1.5	1.8	2.6	15 EVENTS

EPNL(1)=EPNL(AS MEAS.)+/\1
 EPNL(2)=EPNL(AS MEAS.)+/\2
 EPNL(3)=EPNL(AS MEAS.)+/\3

dBA(1)=dBA(AS MEAS.)+/\1A
 dBA(2)=dBA(AS MEAS.)+/\2A
 dBA(3)=dBA(AS MEAS.)+/\3A

Note: Site 31-3 is FAR-36 reference site for CONVAIR CV-580

SEE TABLES 2.4.a-c FOR CORRECTIONS

TABLE NO. D.5 Rev-1
CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
CORRECTED NOISE LEVELS

DOT/TSC
10/ 1/79

JUNE 21, 1978

EVENT	EPNL(1)	EPNL(2)	EPNL(3)	dBA(1)	dBA(2)	dBA(3)	DATA FROM SITE NO.
	-----	-----	-----	-----	-----	-----	-----

APPROACH - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-2

2	90.6	89.5	89.4	80.4	80.3	80.3	31-2
4	92.2	90.1	89.3	82.0	81.0	80.1	31-2
6	95.2	94.4	95.0	85.7	86.4	87.0	31-2
8	92.1	90.7	90.3	81.6	81.2	80.9	31-2
Avg.	92.5	91.2	91.0	82.4	82.2	82.1	
Std Dv	1.9	2.2	2.7	2.3	2.8	3.3	

TAKEOFF - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-4

1	83.8	81.7	81.4	66.2	65.9	65.6	31-3
3	82.7	81.0	80.6	66.8	66.3	65.9	31-4
5	80.0	77.5	77.3	62.8	62.6	62.4	31-3
9	84.2	82.2	81.8	68.9	68.6	68.3	31-4
Avg.	82.7	80.6	80.3	66.2	65.8	65.5	
Std Dv	1.9	2.1	2.0	2.6	2.5	2.4	

LEVEL FLY-BY - (AVERAGE OF ALL SITES)

Avg.	91.9	90.7	90.6	76.6	76.5	76.4	
Std Dv	0.7	1.0	1.3	0.7	0.9	1.1	5 EVENTS

EPNL(1)=EPNL(AS MEAS.)+/-1
EPNL(2)=EPNL(AS MEAS.)+/-2
EPNL(3)=EPNL(AS MEAS.)+/-3

dBA(1)=dBA(AS MEAS.)+/-1A
dBA(2)=dBA(AS MEAS.)+/-2A
dBA(3)=dBA(AS MEAS.)+/-3A

SEE TABLE E.5.b FOR CORRECTIONS

TABLE NO. D.6 REV-1
CESSNA 172N (SKYHAWK) AIRCRAFT
CORRECTED NOISE LEVELS

DOT/TSC
9/28/79

JUNE 21, 1978

EVENT	EPNL(1)	EPNL(2)	EPNL(3)	dBA(1)	dBA(2)	dBA(3)	DATA FROM SITE NO.

APPROACH - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-2

***** NO DATA *****

TAKEOFF - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-4

***** NO DATA *****

LEVEL FLY-BY - (AVERAGE OF ALL SITES)

Avg.	84.9	84.3	85.1	74.6	75.5	76.4	
Std Dv	0.2	0.2	0.3	0.5	0.4	0.4	4 EVENTS

EPNL(1)=EPNL(AS MEAS.)+/\1
EPNL(2)=EPNL(AS MEAS.)+/\2
EPNL(3)=EPNL(AS MEAS.)+/\3

dBA(1)=dBA(AS MEAS.)+/\1A
dBA(2)=dBA(AS MEAS.)+/\2A
dBA(3)=dBA(AS MEAS.)+/\3A

SEE TABLE E.6.a FOR CORRECTIONS

TABLE NO. D.7 Rev-1
BEECH C90 (KING AIR) AIRCRAFT
CORRECTED NOISE LEVELS

DOT/TSC
8/31/79

JUNE 22, 1978

EVENT	EPNL(1)	EPNL(2)	EPNL(3)	dBA(1)	dBA(2)	dBA(3)	DATA FROM SITE NO.

APPROACH - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-2

***** NO DATA AVAILABLE *****

TAKEOFF - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-4

***** NO DATA AVAILABLE *****

LEVEL FLY-BY - (AVERAGE OF ALL SITES)

***** NO DATA AVAILABLE *****

EPNL(1)=EPNL(AS MEAS.)+/-1
EPNL(2)=EPNL(AS MEAS.)+/-2
EPNL(3)=EPNL(AS MEAS.)+/-3

dBA(1)=dBA(AS MEAS.)+/-1A
dBA(2)=dBA(AS MEAS.)+/-2A
dBA(3)=dBA(AS MEAS.)+/-3A

TABLE NO. D.8 Rev-1
 ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
 CORRECTED NOISE LEVELS

DOT/TSC
 10/ 3/79

JUNE 23, 1978

EVENT	EPNL(1)	EPNL(2)	EPNL(3)	dBA(1)	dBA(2)	dBA(3)	DATA FROM SITE NO.
-----	-----	-----	-----	-----	-----	-----	-----

APPROACH - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-2

2	-	-	-	75.7	74.4	73.3	31-2
4	87.6	85.3	84.7	76.9	76.3	75.7	31-2
6	86.2	84.2	83.4	75.1	74.2	73.5	31-2
8	86.9	84.7	84.6	75.1	75.0	74.9	31-2
23	86.1	82.9	81.3	75.6	73.8	72.1	31-2
Avg.	86.7	84.3	83.5	75.7	74.7	73.9	
Std Dv	0.7	1.0	1.6	0.7	1.0	1.4	

TAKEOFF - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-4

5	80.1	77.7	77.0	65.1	64.4	63.7	31-4
9	78.2	76.6	76.1	62.0	61.4	60.9	31-4
Avg.	79.1	77.2	76.5	63.5	62.9	62.3	
Std Dv	1.4	0.7	0.7	2.2	2.1	2.0	

LEVEL FLY-BY - (AVERAGE OF ALL SITES)

Avg.	86.0	84.8	85.5	69.8	70.6	71.3	
Std Dv	1.1	1.3	2.3	1.0	1.4	2.4	15 EVENTS

EPNL(1)=EPNL(AS MEAS.)+/\1
 EPNL(2)=EPNL(AS MEAS.)+/\2
 EPNL(3)=EPNL(AS MEAS.)+/\3

dBA(1)=dBA(AS MEAS.)+/\1A
 dBA(2)=dBA(AS MEAS.)+/\2A
 dBA(3)=dBA(AS MEAS.)+/\3A

SEE TABLES E.8.a-d FOR CORRECTIONS

TABLE NO. **D.9** Rev-1
 ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
 CORRECTED NOISE LEVELS

DOT/TSC
 10/ 3/79

JUNE 23, 1978

EVENT	EPNL(1)	EPNL(2)	EPNL(3)	dBA(1)	dBA(2)	dBA(3)	DATA FROM SITE NO.
	-----	-----	-----	-----	-----	-----	-----

APPROACH - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-2

25	88.6	87.3	86.5	77.8	76.9	76.1	31-2
27	88.2	88.0	88.2	76.9	77.1	77.2	31-2
31	89.7	88.2	87.3	79.1	78.1	77.3	31-2
33	88.7	87.5	86.7	78.0	77.1	76.4	31-2
35	88.0	86.6	86.0	77.0	76.4	75.9	31-2
Avg.	88.6	87.5	86.9	77.8	77.1	76.6	
Std Dv	0.7	0.6	0.8	0.9	0.6	0.6	

TAKEOFF - DATA ADJUSTED TO REFERENCE CONDITIONS OF SITE 31-4

24	83.3	81.3	79.8	66.6	64.9	63.5	31-3
28	83.0	80.9	79.4	69.3	67.6	66.0	31-4
30	84.1	82.0	80.4	69.7	67.9	66.3	31-4
32	80.7	78.8	77.2	66.5	64.9	63.3	31-4
34	82.7	80.8	79.8	66.6	65.5	64.4	31-3
36	82.5	80.4	79.5	67.9	66.9	65.9	31-4
Avg.	82.7	80.7	79.3	67.8	66.3	64.9	
Std Dv	1.1	1.1	1.1	1.4	1.4	1.4	

LEVEL FLY-BY - (AVERAGE OF ALL SITES)

Avg.	90.3	88.3	88.8	79.7	80.3	80.8	
Std Dv	1.3	1.5	1.7	1.5	1.7	1.9	22 EVENTS

EPNL(1)=EPNL(AS MEAS.)+/\1	dBA(1)=dBA(AS MEAS.)+/\1A
EPNL(2)=EPNL(AS MEAS.)+/\2	dBA(2)=dBA(AS MEAS.)+/\2A
EPNL(3)=EPNL(AS MEAS.)+/\3	dBA(3)=dBA(AS MEAS.)+/\3A

SEE TABLES E.9.a-d FOR CORRECTIONS

APPENDIX E

NOISE LEVEL CORRECTION VALUES

Table E /

Corrected Noise Level Data

Definitions - Equations

- EPNL - Effective Perceived Noise Level EPN dB

- Δ EPNL - The change in EPNL when tone corrections 800Hz and below are considered a result of pseudo-tones and are excluded from the PNLT calculation.

- P-ATM - Atmospheric Correction = PNLT - PNLT_M (as measured) where, PNLT is calculated after adjusting SPL levels of the PNLT_M spectra for the effects of temperature and humidity. dB
 - ie, $SPL_{ic} = SPL_i (\alpha_a - \alpha_{a0}) SR + \alpha_{a0}(SR - SR_r)$
 - where SR_c = actual slant range at time of PNLT_M
 - SR_r = reference slant range
 - α = atmospheric sound absorption coefficients per ARP 866A

- P-DIS - Distance Correction = PNLT - PNLT_M (as measured) - P-ATM dB
 - where PNLT is calculated after adjusting SPL values of PNLT_M spectra for effects of temperature, humidity and distance
 - ie, $SPL_{ic} = SPL_i + (\alpha_a - \alpha_{a0}) SR + \alpha_{a0}(SR - SR_r) + 20 \log (SR/SR_r)$

- DUR - Duration Correction = $-10 \log (CPA/CPA_r)$ dB
 - when CPA = actual closet point of approach
 - CPA_r = reference closet point of approach

- PWR - Power Correction = $10 \log (HP_{max}/HP_{test})$ dB
 - where HP = horsepower

- SPD - Speed Correction = $10 \log (\text{test velocity}/\text{reference velocity})$ dB

- TSP(125) - Helical Tip Speed (125) = $125 \log (TM_{ref}/TM_{test})$ dB
 - where TM_{ref} = Ref. Tip Mach Number = $(V_{RR}^2 + V_{TT}^2)^{1/2} / 1135.5$
 - TM_{test} = Test Tip Mach Number = $(V_{RT}^2 + V_{TT}^2)^{1/2} / [49.0 (T + 460)^{1/2}]$
 - V_R = Rotational velocity = $\pi D(RPM)/720$ ft/sec
 - D = Diameter in
 - V_T = Translational velocity ft/sec
 - T = Temperature °F

- TSP(240) - Helical Tip Speed (240) = $240 \log (TM_{ref}/TM_{test})$ dB

- BDSH - Band Sharing Correction

- PRF -- Performance Correction = $60 - 20 \log (50 + (11430 - D50) (R/C)/V_y)$ dB
 - where R/C is best rate of climb
 - V_y is best rate of climb speed
 - D50 is distance to 50 feet

- A-ATM - Atmospheric Correction = dBA - dBA (M) as measured dB
 - where dBA is calculated after adjusting SPL levels of the dBA(M) spectra for the effects of temperature and humidity
 - ie $SPL_{ic} = SPL_i + (\alpha_a - \alpha_{a0}) SR + \alpha_{a0}(SR - SR_r)$
 - where SR = actual slant range at time of dBA(M)
 - SR_r = reference slant range
 - α = atmospheric absorption coefficients per ARP 866A

- A-DIS - Distance Correction = $20 \log (SR/SR_r)$ dB

TABLE NO. E.2.a Rev 1
 PIPER PA-36-375 (BRAVE AG.) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 9/27/79

SITE NO. 31-1

84 M. NORTH THRESHOLD RWY. 13

JUNE 19, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD SH
		$\Delta 1$	$\Delta 2$	$\Delta 3$	Δ EPNL	P-ATH	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	
24 A	87.5	-5.6	-6.9	-7.2	-1.2	-0.82	-9.25	4.49	-	0.11	-0.32	-0.62	0.00
26 A	88.8	-6.9	-8.0	-8.3	-1.0	-1.06	-11.42	5.55	-	0.27	-0.35	-0.67	0.00
Avg.	88.1	-6.3	-7.5	-7.8	-1.1	-0.94	-10.33	5.02	-	0.19	-0.34	-0.65	0.00
Std Dv	-	-	-	-	-	-	-	-	-	-	-	-	-
32 F	86.4	0.5	-0.5	-1.1	-1.1	0.09	0.88	-0.43	0.00	0.69	-0.61	-1.16	0.00
33 F	89.2	-1.3	-3.2	-3.0	-1.3	-0.40	-1.80	0.88	0.00	-0.71	0.16	0.31	0.00
34 F	86.9	-0.2	-1.3	-1.7	-1.2	-0.06	-0.21	0.10	0.00	0.51	-0.44	-0.85	0.00
35 F	87.3	0.0	-2.0	-1.6	-1.5	-0.02	0.03	-0.02	0.00	-0.91	0.37	0.71	0.00
37 F	87.3	0.7	-1.2	-0.8	-1.4	0.26	0.86	-0.41	0.00	-0.88	0.39	0.74	0.00
Avg.	87.4	-0.0	-1.6	-1.7	-1.3	-0.03	-0.05	0.02	0.00	-0.26	-0.02	-0.05	0.00
Std Dv	1.1	0.8	1.0	0.8	0.1	0.24	1.09	0.53	0.00	0.79	0.47	0.90	0.00

See Note
Below

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								
		$\Delta 1A$	$\Delta 2A$	$\Delta 3A$	A-ATH	A-DIS	PRF	PWR	TSP 125	TSP 240
24 A	77.4	-9.6	-9.9	-10.2	-0.62	-8.97	-	-	-0.32	-0.62
26 A	80.1	-11.8	-12.1	-12.4	-0.67	-11.10	-	-	-0.35	-0.67
Avg.	78.8	-10.7	-11.0	-11.3	-0.64	-10.03	-	-	-0.34	-0.65
Std Dv	-	-	-	-	-	-	-	-	-	-
32 F	76.1	4.8	4.2	3.7	0.09	0.86	3.90	0.00	-0.61	-1.16
33 F	79.9	1.8	2.0	2.2	-0.30	-1.76	3.90	0.00	0.16	0.31
34 F	76.3	3.6	3.2	2.8	-0.09	-0.20	3.90	0.00	-0.44	-0.85
35 F	76.9	4.0	4.3	4.7	0.02	0.03	3.90	0.00	0.37	0.71
37 F	75.8	4.9	5.2	5.6	0.13	0.83	3.90	0.00	0.39	0.74
Avg.	77.0	3.8	3.8	3.8	-0.03	-0.05	3.90	0.00	-0.02	-0.05
Std Dv	1.7	1.2	1.2	1.4	0.17	1.07	0.00	0.00	0.47	0.90

Corrected to Reference
Conditions of Site
31-2

LEGEND

$\Delta 1$ = P-ATH + P-DIS + DUR
 $\Delta 2$ = $\Delta 1$ + PWR + SPD + TSP(125) + Δ EPNL
 $\Delta 3$ = $\Delta 1$ + PWR + SPD + TSP(240) + Δ EPNL
 $\Delta 1A$ = A-ATH + A-DIS + PRF
 $\Delta 2A$ = $\Delta 1A$ + PWR + TSP(125)
 $\Delta 3A$ = $\Delta 1A$ + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED
 A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 KHz 1/3 OCTAVE BAND LESS THAN
 12 dB/100 METERS.

TABLE NO. E.2.b Rev-1
 PIPER PA-36-375 (BRAVE AG.) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 10/ 4/79

SITE NO. 31-2

2067 M. NORTH THRESHOLD RWY. 13

JUNE 19, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD SH
		Δ 1	Δ 2	Δ 3	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	
28 A	88.6	0.8	-1.2	-1.6	-2.2	0.09	1.48	-0.73	-	0.70	-0.49	-0.93	0.00
30 A	86.7	-0.0	-1.3	-1.8	-1.6	-0.02	0.02	-0.00	-	0.86	-0.52	-1.00	0.00
41 A	-	2.8	2.8	2.8	-	0.69	3.89	-1.76	-	0.04	-0.02	-0.04	0.00
43 A	75.3	3.1	1.8	1.8	-1.3	0.64	4.54	-2.04	-	-0.16	0.07	0.13	0.00
Avg.	83.5	1.7	0.5	0.3	-1.7	0.35	2.48	-1.14	-	0.36	-0.24	-0.46	0.00
Std Dv	7.2	1.5	2.1	2.4	0.5	0.37	2.10	0.94	-	0.50	0.31	0.59	0.00
23 T	93.7	-2.1	-4.0	-4.3	-1.7	-0.53	-3.04	1.50	-	0.07	-0.31	-0.60	0.00
27 T	94.1	-2.6	-4.4	-4.7	-1.8	-0.64	-3.86	1.91	-	0.29	-0.32	-0.60	0.00
29 T	93.3	-1.8	-3.9	-4.1	-1.9	-0.48	-2.62	1.30	-	-0.00	-0.21	-0.40	0.00
31 T	92.6	-1.4	-3.1	-3.3	-1.6	-0.35	-2.02	1.00	-	0.02	-0.19	-0.36	0.00
40 T	87.6	2.8	1.4	1.4	-1.6	0.89	3.85	-1.90	-	0.23	-0.06	-0.12	0.00
42 T	88.6	3.2	1.3	1.3	-1.8	0.95	4.34	-2.13	-	-0.14	0.04	0.08	0.00
Avg.	91.6	-0.3	-2.1	-2.3	-1.7	-0.03	-0.56	0.28	-	0.07	-0.17	-0.33	0.00
Std Dv	2.8	2.6	2.7	2.8	0.1	0.74	3.66	1.80	-	0.16	0.14	0.27	0.00
32 F	86.5	0.9	-0.8	-1.2	-1.7	0.24	1.34	-0.66	0.00	0.37	-0.39	-0.75	0.00
33 F	88.7	-0.6	-2.7	-2.4	-1.4	-0.23	-0.78	0.38	0.00	-0.88	0.23	0.44	0.00
34 F	87.8	-0.4	-1.9	-2.3	-1.6	-0.13	-0.56	0.27	0.00	0.43	-0.40	-0.76	0.00
35 F	87.7	-0.0	-2.3	-2.0	-1.8	-0.03	-0.10	0.05	0.00	-0.74	0.31	0.60	0.00
37 F	85.9	1.3	-0.1	0.0	-1.1	0.42	1.66	-0.81	0.00	-0.45	0.21	0.41	0.00
Avg.	87.3	0.2	-1.6	-1.6	-1.5	0.05	0.31	-0.15	0.00	-0.25	-0.01	-0.01	0.00
Std Dv	1.1	0.8	1.1	1.1	0.3	0.27	1.12	0.55	0.00	0.62	0.36	0.68	0.00

See Note
Below

CORRECTIONS - dB re 20 micro PASCAL											
EVENT	dBA(M) AS MEAS.										
		△ 1A	△ 2A	△ 3A	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240	
28 A	81.6	1.5	1.0	0.6	0.05	1.46	-	-	-0.49	-0.93	
30 A	75.7	0.0	-0.5	-1.0	0.00	0.02	-	-	-0.52	-1.00	
41 A	59.5	4.0	4.0	3.9	0.45	3.53	-	-	-0.02	-0.04	
43 A	59.9	4.5	4.5	4.6	0.39	4.08	-	-	0.07	0.13	
Avg.	69.2	2.5	2.3	2.0	0.22	2.27	-	-	-0.24	-0.46	
Std Dv	11.2	2.1	2.4	2.7	0.23	1.88	-	-	0.31	0.59	
23 T	83.3	-3.3	-3.6	-3.9	-0.32	-2.10	-	-	-0.31	-0.60	
27 T	83.7	-4.2	-4.6	-4.9	-0.42	-3.82	-	-	-0.32	-0.60	
29 T	82.4	-2.9	-3.1	-3.3	-0.30	-2.60	-	-	-0.21	-0.40	
31 T	82.9	-2.3	-2.5	-2.7	-0.31	-1.99	-	-	-0.19	-0.36	
40 T	74.8	4.3	4.3	4.2	0.53	3.79	-	-	-0.06	-0.12	
42 T	75.1	4.9	4.9	4.9	0.59	4.26	-	-	0.04	0.08	
Avg.	80.4	-0.6	-0.8	-0.9	-0.04	-0.56	-	-	-0.17	-0.33	
Std Dv	4.2	4.1	4.2	4.3	0.47	3.60	-	-	0.14	0.27	
32 F	76.1	5.4	5.0	4.6	0.17	1.31	3.90	0.00	-0.39	-0.75	
33 F	76.7	3.1	3.3	3.5	-0.08	-0.77	3.90	0.00	0.23	0.44	
34 F	77.8	3.3	2.9	2.5	-0.09	-0.55	3.90	0.00	-0.40	-0.76	
35 F	77.0	3.7	4.1	4.3	-0.06	-0.10	3.90	0.00	0.31	0.60	
37 F	75.2	5.8	6.0	6.2	0.28	1.62	3.90	0.00	0.21	0.41	
Avg.	76.6	4.3	4.2	4.2	0.04	0.31	3.90	0.00	-0.01	-0.01	
Std Dv	1.0	1.3	1.3	1.4	0.17	1.09	0.00	0.00	0.36	0.68	

Corrected to Reference
Conditions of
Site 31-4

Corrected to Reference
Conditions of
Site 31-4

TABLE NO. 6.2.c Rev 1
 PIPER PA-36-375 (BRAVE AG.) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 9/27/79

SITE NO. 31-3

3520 M. NORTH THRESHOLD RWY. 13

JUNE 19, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD SH
		$\Delta 1$	$\Delta 2$	$\Delta 3$	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	
32 F	88.6	0.8	-0.7	-0.9	-1.4	0.22	1.22	-0.60	0.00	0.05	-0.20	-0.39	0.00
33 F	89.7	-0.4	-2.3	-2.2	-1.4	-0.21	-0.43	0.21	0.00	-0.65	0.14	0.28	0.00
35 F	-	0.0	-0.3	-0.0	-	-0.02	0.13	-0.06	0.00	-0.60	0.26	0.50	0.00
Avg.	89.1	0.2	-1.1	-1.1	-1.4	-0.00	0.31	-0.15	0.00	-0.40	0.07	0.13	0.00
Std Dv	-	0.6	1.1	1.1	-	0.21	0.84	0.41	0.00	0.39	0.24	0.46	0.00

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								TSP 125	TSP 240
		$\Delta 1A$	$\Delta 2A$	$\Delta 3A$	A-ATM	A-DIS	PRF	PWR			
32 F	78.4	5.2	5.0	4.8	0.08	1.20	3.90	0.00	-0.20	-0.39	
33 F	77.6	3.4	3.6	3.7	-0.06	-0.42	3.90	0.00	0.14	0.28	
35 F	78.3	4.0	4.3	4.5	-0.00	0.13	3.90	0.00	0.26	0.50	
Avg.	78.1	4.2	4.3	4.3	0.00	0.30	3.90	0.00	0.07	0.13	
Std Dv	0.4	0.9	0.7	0.6	0.07	0.82	0.00	0.00	0.24	0.46	

LEGEND

$\Delta 1$ = P-ATM + P-DIS + DUR
 $\Delta 2$ = $\Delta 1$ + PWR + SPD + TSP(125) + Δ EPNL
 $\Delta 3$ = $\Delta 1$ + PWR + SPD + TSP(240) + Δ EPNL
 $\Delta 1A$ = A-ATM + A-DIS + PRF
 $\Delta 2A$ = $\Delta 1A$ + PWR + TSP(125)
 $\Delta 3A$ = $\Delta 1A$ + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED
 A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN
 12 dB/100 METERS.

TABLE NO. E.2.d Rev 1
 PIPER PA-36-375 (BRAVE AG.) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 9/27/79

SITE NO. 31-4

4715 M. NORTH THRESHOLD RNWY. 13

JUNE 19, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											
		$\Delta 1$	$\Delta 2$	$\Delta 3$	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	BD SH
35 F	87.0	0.2	-1.5	-1.3	-1.4	0.08	0.21	-0.10	0.00	-0.53	0.23	0.44	0.00
Avg.	87.0	0.2	-1.5	-1.3	-1.4	0.08	0.21	-0.10	0.00	-0.53	0.23	0.44	0.00
Std Dv	-	-	-	-	-	-	-	-	-	-	-	-	-

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								
		△ 1A	△ 2A	△ 3A	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240
35 F	75.3	4.1	4.3	4.5	-0.02	0.21	3.90	0.00	0.23	0.44
Avg.	75.3	4.1	4.3	4.5	-0.02	0.21	3.90	0.00	0.23	0.44
Std Dv	-	-	-	-	-	-	-	-	-	-

LEGEND

$\Delta 1$ = P-ATM + P-DIS + DUR
 $\Delta 2$ = $\Delta 1$ + PWR + SPD + TSP(125) + Δ EPNL
 $\Delta 3$ = $\Delta 1$ + PWR + SPD + TSP(240) + Δ EPNL
 $\Delta 1A$ = A-ATM + A-DIS + PRF
 $\Delta 2A$ = $\Delta 1A$ + PWR + TSP(125)
 $\Delta 3A$ = $\Delta 1A$ + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED
 A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN
 12 dB/100 METERS.

TABLE NO. 5.3.b Rev-1
 PIPER PA-31-325 (NAVAJO) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 10/ 2/79

SITE NO. 31-1

84 M. NORTH THRESHOLD RWY. 13

JUNE 20, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											
		Δ 1	Δ 2	Δ 3	Δ EPNL	P-ATH	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	BD SH
12 F	88.4	0.4	-2.3	-2.4	-2.1	-0.07	0.86	-0.42	0.05	-0.42	-0.14	-0.27	0.00
13 F	88.4	0.4	-2.1	-2.2	-2.0	-0.04	0.82	-0.41	0.05	-0.43	-0.09	-0.18	0.00
14 F	87.2	0.3	-2.1	-2.2	-2.0	-0.02	0.67	-0.33	0.05	-0.40	-0.11	-0.22	0.00
15 F	86.0	0.5	-1.7	-1.8	-1.8	-0.00	1.03	-0.51	0.05	-0.41	-0.07	-0.14	0.00
16 F	87.7	0.8	-1.8	-1.9	-2.2	0.06	1.44	-0.71	0.05	-0.35	-0.11	-0.20	0.00
17 F	87.2	0.7	-1.7	-1.6	-2.1	0.05	1.36	-0.67	0.05	-0.50	0.11	0.21	0.00
Avg.	87.5	0.5	-2.0	-2.0	-2.0	-0.00	1.03	-0.51	0.05	-0.42	-0.07	-0.13	0.00
Std Dv	0.9	0.2	0.2	0.3	0.1	0.05	0.31	0.15	0.00	0.05	0.09	0.17	0.00

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								
		△ 1A	△ 2A	△ 3A	A-ATH	A-DIS	PRF	PWR	TSP 125	TSP 240
12 F	78.2	-1.6	-1.7	-1.9	-0.09	0.84	-2.38	0.05	-0.14	-0.27
13 F	77.1	-1.6	-1.6	-1.7	-0.02	0.81	-2.38	0.05	-0.09	-0.18
14 F	76.7	-1.8	-1.9	-2.0	-0.09	0.66	-2.38	0.05	-0.11	-0.22
15 F	73.7	-1.4	-1.4	-1.5	0.00	1.01	-2.38	0.05	-0.07	-0.14
16 F	77.0	-0.9	-1.0	-1.1	0.02	1.42	-2.38	0.05	-0.11	-0.20
17 F	75.9	-1.0	-0.8	-0.7	0.06	1.34	-2.38	0.05	0.11	0.21
Avg.	76.4	-1.4	-1.4	-1.5	-0.02	1.01	-2.38	0.05	-0.07	-0.13
Std Dv	1.5	0.4	0.4	0.5	0.06	0.30	0.00	0.00	0.09	0.17

LEGEND

Δ 1 = P-ATH + P-DIS + DUR
 Δ 2 = Δ 1 + PWR + SPD + TSP(125) + Δ EPNL
 Δ 3 = Δ 1 + PWR + SPD + TSP(240) + Δ EPNL
 Δ 1A = A-ATH + A-DIS + PRF
 Δ 2A = Δ 1A + PWR + TSP(125)
 Δ 3A = Δ 1A + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED
 A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN
 12 dB/100 METERS.

TABLE NO. E.3.b Rev-1
 PIPER PA-31-325 (NAVAJO) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 10/ 2/79

SITE NO. 31-2

2067 M. NORTH THRESHOLD RWY. 13

JUNE 20, 1978

		CORRECTIONS - dB re 20 micro PASCAL													
EVENT	EPNL AS MEAS.	△ 1	△ 2	△ 3	△EPNL	P-ATH	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	BD	SH	
2 A	90.1	0.4	-3.8	-6.7	-1.4	0.03	0.75	-0.37	-	0.34	-3.12	-5.99	0.00		
6 A	90.9	0.0	-2.1	-3.1	-1.6	-0.06	0.21	-0.10	-	0.53	-1.08	-2.07	0.00		
8 A	90.9	0.3	-2.1	-2.9	-1.7	0.02	0.52	-0.26	-	0.17	-0.86	-1.65	0.00		
10 A	88.8	0.2	-2.2	-2.9	-1.6	-0.12	0.62	-0.31	-	-0.13	-0.71	-1.36	0.00		
Avg.	90.2	0.2	-2.5	-3.9	-1.6	-0.03	0.53	-0.26	-	0.23	-1.44	-2.77	0.00		
Std Dv	1.0	0.2	0.8	1.9	0.1	0.07	0.23	0.11	-	0.28	1.13	2.17	0.00		
9 T	88.9	-5.1	-6.9	-7.3	-1.7	-1.70	-6.65	3.22	-	0.35	-0.45	-0.87	0.00	See Note Below	
Avg.	88.9	-5.1	-6.9	-7.3	-1.7	-1.70	-6.65	3.22	-	0.35	-0.45	-0.87	0.00		
Std Dv	-	-	-	-	-	-	-	-	-	-	-	-	-		
12 F	88.1	0.5	-1.2	-0.6	-1.8	0.01	0.97	-0.48	0.05	-0.55	0.63	1.22	0.00		
13 F	87.8	0.6	-1.8	-1.9	-2.0	-0.04	1.29	-0.64	0.05	-0.47	-0.05	-0.09	0.00		
14 F	88.2	0.1	-2.4	-2.6	-2.1	-0.13	0.48	-0.24	0.05	-0.36	-0.17	-0.33	0.00		
15 F	86.6	0.4	-2.1	-2.2	-2.0	-0.04	0.83	-0.41	0.05	-0.36	-0.13	-0.25	0.00		
16 F	87.7	0.8	-1.6	-1.6	-2.0	0.11	1.42	-0.70	0.05	-0.40	-0.04	-0.08	0.00		
17 F	87.3	1.1	-1.0	-1.0	-1.8	0.17	1.89	-0.93	0.05	-0.44	0.04	0.08	0.00		
Avg.	87.6	0.6	-1.7	-1.6	-1.9	0.01	1.15	-0.57	0.05	-0.43	0.05	0.09	0.00		
Std Dv	0.6	0.4	0.5	0.7	0.1	0.11	0.50	0.24	0.00	0.07	0.30	0.57	0.00		

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL										TSP 125	TSP 240
		△ 1A	△ 2A	△ 3A	A-ATM	A-DIS	PRF	PWR					
2 A	81.3	0.7	-2.4	-5.3	-0.03	0.74	-	-	-3.12	-5.99			
6 A	81.8	0.2	-0.9	-1.9	-0.00	0.21	-	-	-1.08	-2.07			
8 A	81.0	0.4	-0.4	-1.2	-0.07	0.51	-	-	-0.86	-1.65			
10 A	77.8	0.6	-0.1	-0.8	-0.04	0.61	-	-	-0.71	-1.36			
Avg.	80.5	0.5	-1.0	-2.3	-0.03	0.52	-	-	-1.44	-2.77			
Std Dv	1.8	0.2	1.0	2.0	0.03	0.23	-	-	1.13	2.17			
9 T	76.3	-7.7	-8.2	-8.6	-1.30	-6.44	-	-	-0.45	-0.87	—Corrected to Reference Conditions of Site 31-4		
Avg.	76.3	-7.7	-8.2	-8.6	-1.30	-6.44	-	-	-0.45	-0.87			
Std Dv	-	-	-	-	-	-	-	-	-	-			
12 F	78.6	-1.5	-0.8	-0.2	-0.06	0.96	-2.38	0.05	0.63	1.22			
13 F	76.7	-1.1	-1.1	-1.1	0.04	1.27	-2.38	0.05	-0.05	-0.09			
14 F	78.3	-2.0	-2.1	-2.3	-0.08	0.47	-2.38	0.05	-0.17	-0.33			
15 F	77.4	-1.6	-1.7	-1.8	-0.05	0.82	-2.38	0.05	-0.13	-0.25			
16 F	75.6	-0.9	-0.9	-1.0	0.03	1.40	-2.38	0.05	-0.04	-0.08			
17 F	76.9	-0.4	-0.3	-0.3	0.11	1.87	-2.38	0.05	0.04	0.08			
Avg.	77.2	-1.3	-1.2	-1.1	-0.00	1.13	-2.38	0.05	0.05	0.09			
Std Dv	1.1	0.6	0.6	0.8	0.08	0.49	0.00	0.00	0.30	0.57			

TABLE NO. 5.3.c Rev-1
 PIPER PA-31-325 (NAVAJO) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 10/ 2/79

SITE NO. 31-3

3520 M. NORTH THRESHOLD RNVY. 13

JUNE 20, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											
		$\Delta 1$	$\Delta 2$	$\Delta 3$	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	BD SH
1 T	88.1	-3.2	-5.4	-5.8	-2.0	-1.28	-3.82	1.89	-	0.26	-0.44	-0.85	0.00
5 T	87.5	-3.2	-5.4	-5.8	-2.0	-1.21	-3.99	1.96	-	0.29	-0.46	-0.88	0.00
11 T	90.4	-3.1	-4.2	-3.7	-2.1	-1.26	-3.61	1.77	-	0.48	0.49	0.95	0.00
Avg.	88.6	-3.2	-5.0	-5.1	-2.0	-1.25	-3.81	1.87	-	0.34	-0.14	-0.26	0.00
Std Dv	1.5	0.0	0.7	1.2	0.0	0.03	0.19	0.10	-	0.12	0.55	1.05	0.00
12 F	85.5	1.1	-0.2	0.6	-1.5	0.13	1.89	-0.93	0.05	-0.73	0.86	1.65	0.00
13 F	88.5	0.5	-1.7	-1.8	-1.7	0.00	0.97	-0.48	0.05	-0.44	-0.08	-0.15	0.00
14 F	86.8	0.5	-1.4	-1.7	-1.4	0.00	0.92	-0.45	0.05	-0.29	-0.26	-0.50	0.00
15 F	89.0	0.4	-2.0	-2.1	-2.1	0.02	0.84	-0.41	0.05	-0.38	-0.11	-0.20	0.00
16 F	87.8	0.4	-2.1	-2.2	-2.1	-0.04	0.97	-0.48	0.05	-0.35	-0.12	-0.22	0.00
Avg.	87.5	0.6	-1.5	-1.4	-1.8	0.02	1.12	-0.55	0.05	-0.44	0.06	0.12	0.00
Std Dv	1.4	0.3	0.8	1.1	0.3	0.07	0.44	0.21	0.00	0.17	0.45	0.87	0.00

See Note
Below

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL									
		$\Delta 1A$	$\Delta 2A$	$\Delta 3A$	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240	
1 T	74.6	-5.1	-5.5	-5.9	-1.30	-3.78	-	-	-0.44	-0.85	
5 T	75.2	-5.0	-5.5	-5.9	-1.10	-3.93	-	-	-0.46	-0.88	
11 T	77.0	-4.4	-4.0	-3.5	-0.91	-3.54	-	-	0.49	0.95	
Avg.	75.6	-4.8	-5.0	-5.1	-1.10	-3.75	-	-	-0.14	-0.26	
Std Dv	1.2	0.3	0.9	1.4	0.20	0.19	-	-	0.55	1.05	
12 F	73.7	-0.4	0.5	1.3	0.13	1.85	-2.38	0.05	0.86	1.65	
13 F	76.5	-1.5	-1.5	-1.6	-0.04	0.95	-2.38	0.05	-0.08	-0.15	
14 F	75.9	-1.6	-1.8	-2.0	-0.08	0.90	-2.38	0.05	-0.26	-0.50	
15 F	77.4	-1.6	-1.7	-1.8	-0.04	0.82	-2.38	0.05	-0.11	-0.20	
16 F	76.2	-1.5	-1.5	-1.7	-0.05	0.95	-2.38	0.05	-0.12	-0.22	
Avg.	75.9	-1.3	-1.2	-1.1	-0.02	1.10	-2.38	0.05	0.06	0.12	
Std Dv	1.4	0.5	1.0	1.4	0.08	0.43	0.00	0.00	0.45	0.87	

Corrected to Reference
Conditions of
Site 31-4

LEGEND

$\Delta 1$ = P-ATM + P-DIS + DUR
 $\Delta 2$ = $\Delta 1$ + PWR + SPD + TSP(125) + Δ EPNL
 $\Delta 3$ = $\Delta 1$ + PWR + SPD + TSP(240) + Δ EPNL
 $\Delta 1A$ = A-ATM + A-DIS + PRF
 $\Delta 2A$ = $\Delta 1A$ + PWR + TSP(125)
 $\Delta 3A$ = $\Delta 1A$ + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED
 A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNL CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 11: ATMOSPHERIC ABSORPTION 8 KHz 1/3 OCTAVE BAND LESS THAN
 12 dB/100 METERS.

TABLE NO. 5.3.d Rev-1
 PIPER PA-31-325 (NAVAJO) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 10/ 2/79

SITE NO. 31-4

4715 M. NORTH THRESHOLD RNWY. 13

JUNE 20, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD SH
		$\Delta 1$	$\Delta 2$	$\Delta 3$	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	
7 T	86.4	-1.9	-3.9	-4.3	-1.9	-0.74	-2.36	1.16	0.0	0.40	-0.48	-0.92	0.00
Avg. Std Dev	86.4	-1.9	-3.9	-4.3	-1.9	-0.74	-2.36	1.16	0.0	0.40	-0.48	-0.92	0.00

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL									TSP 125	TSP 240
		$\Delta 1A$	$\Delta 2A$	$\Delta 3A$	A-ATM	A-DIS	PRF	PWR				
7 T	73.4	-2.9	-3.3	-3.7	-0.56	-2.32	-	0.0	-0.48	-0.92		
Avg. Std Dev	73.4	-2.9	-3.3	-3.7	-0.56	-2.32	-	0.0	-0.48	-0.92		

LEGEND

$\Delta 1 = P-ATM + P-DIS + DUR$
 $\Delta 2 = \Delta 1 + PWR + SPD + TSP(125) + \Delta EPNL$
 $\Delta 3 = \Delta 1 + PWR + SPD + TSP(240) + \Delta EPNL$

$\Delta 1A = A-ATM + A-DIS + PRF$
 $\Delta 2A = \Delta 1A + PWR + TSP(125)$
 $\Delta 3A = \Delta 1A + PWR + TSP(240)$

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED
 A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN
 12 dB/100 METERS.

TABLE NO. 2.4.2 Rev-1
CONVAIR CV-580 AIRCRAFT
NOISE LEVEL CORRECTION VALUES

DOT/TSC
10/ 3/79

SITE NO. 31-1

84 M. NORTH THRESHOLD RWY. 13

JUNE 20, 1978

		CORRECTIONS - dB re 20 micro PASCAL											
EVENT	EPNL AS MEAS.	Δ 1	Δ 2	Δ 3	Δ EPNL	P-ATH	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	BD SH
31 F	92.1	-0.7	-1.2	-1.6	-0.3	-0.25	-0.97	0.48	0.13	0.11	-0.38	-0.73	0.00
32 F	91.0	-0.3	-0.0	1.9	-1.4	-0.11	-0.36	0.18	0.26	-0.79	2.17	4.17	0.00
33 F	91.7	-0.4	-0.5	-0.6	-0.3	-0.10	-0.57	0.28	0.13	0.10	-0.04	-0.08	0.00
34 F	90.8	-0.2	0.5	2.6	-1.0	-0.00	-0.33	0.16	0.13	-0.68	2.27	4.35	0.00
36 F	91.1	-0.3	0.2	2.4	-1.4	-0.11	-0.45	0.22	0.26	-0.80	2.44	4.69	0.00
Avg.	91.3	-0.4	-0.2	1.0	-0.9	-0.11	-0.54	0.26	0.18	-0.41	1.29	2.48	0.00
Std Dv	0.5	0.2	0.7	1.9	0.5	0.09	0.26	0.13	0.07	0.47	1.38	2.65	0.00

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								
		$\Delta 1A$	$\Delta 2A$	$\Delta 3A$	A-ATH	A-DIS	PRF	PWR	TSP 125	TSP 240
31 F	85.1	0.0	-0.2	-0.6	-0.21	-0.95	1.21	0.13	-0.38	-0.73
32 F	82.4	0.8	3.2	5.2	-0.10	-0.35	1.21	0.26	2.17	4.17
33 F	84.1	0.5	0.6	0.6	-0.14	-0.57	1.21	0.13	-0.04	-0.08
34 F	82.9	0.8	3.2	5.3	-0.07	-0.32	1.21	0.13	2.27	4.35
36 F	81.1	0.7	3.4	5.6	-0.10	-0.44	1.21	0.26	2.44	4.69
Avg.	83.1	0.6	2.0	3.2	-0.12	-0.53	1.21	0.18	1.29	2.48
Std Dv	1.5	0.3	1.7	3.0	0.05	0.26	0.00	0.07	1.38	2.65

LEGEND

$\Delta 1$ = P-ATH + P-DIS + DUR
 $\Delta 2$ = $\Delta 1$ + PWR + SPD + TSP(125) + Δ EPNL
 $\Delta 3$ = $\Delta 1$ + PWR + SPD + TSP(240) + Δ EPNL
 $\Delta 1A$ = A-ATH + A-DIS + PRF
 $\Delta 2A$ = $\Delta 1A$ + PWR + TSP(125)
 $\Delta 3A$ = $\Delta 1A$ + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

TABLE NO. E.4.b Rev-1
CONVAIR CV-580 AIRCRAFT
NOISE LEVEL CORRECTION VALUES

DOT/TSC
10/ 2/79

SITE NO. 31-2

2067 M. NORTH THRESHOLD RWNY. 13

JUNE 20, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD SH
		Δ 1	Δ 2	Δ 3	Δ EPNL	P-ATH	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	
19 A	95.3	-0.2	-0.1	-0.1	-0.2	-0.16	-0.16	0.08	-	0.28	-	-	0.00
21 A	94.2	0.3	0.2	-0.2	-0.0	0.02	0.65	-0.32	-	0.26	-0.36	-0.68	0.00
27 A	94.9	0.2	0.2	0.0	-0.0	0.06	0.37	-0.18	-	0.23	-0.21	-0.39	0.00
29 A	95.5	0.1	0.1	-0.0	-0.0	0.01	0.18	-0.09	-	0.23	-0.15	-0.30	0.00
Avg.	95.0	0.1	0.0	-0.0	-0.1	-0.02	0.26	-0.13	-	0.25	-0.24	-0.46	0.00
Std Dv	0.6	0.3	0.2	0.0	0.1	0.10	0.34	0.17	-	0.03	0.11	0.20	0.00
22 T	90.1	-2.4	-4.9	-5.6	-1.8	-0.96	-2.88	1.42	-	0.13	-0.81	-1.55	0.00
30 T	89.1	-0.7	-3.2	-3.8	-1.8	-0.25	-0.91	0.45	-	-0.11	-0.61	-1.16	0.00
Avg.	89.6	-1.6	-4.0	-4.7	-1.8	-0.61	-1.90	0.93	-	0.01	-0.70	-1.35	0.00
Std Dv	-	-	-	-	-	-	-	-	-	-	-	-	-
31 F	91.8	-1.2	-1.8	-2.0	-0.4	-0.33	-1.73	0.85	0.13	-0.16	-0.19	-0.36	0.00
32 F	90.6	-0.0	-0.9	-1.0	-0.7	-0.05	0.06	-0.03	0.26	-0.21	-0.17	-0.33	0.00
33 F	93.1	-1.3	-2.3	-2.8	-0.5	-0.32	-1.92	0.94	0.13	-0.09	-0.54	-1.04	0.00
34 F	91.6	-0.3	-1.5	-2.0	-0.6	-0.13	-0.41	0.20	0.13	-0.14	-0.51	-0.98	0.00
36 F	91.8	-0.4	-1.1	-1.4	-0.5	-0.08	-0.59	0.29	0.26	-0.22	-0.27	-0.52	0.00
Avg.	91.8	-0.7	-1.5	-1.8	-0.6	-0.18	-0.92	0.45	0.18	-0.16	-0.34	-0.65	0.00
Std Dv	0.9	0.6	0.6	0.7	0.1	0.13	0.86	0.42	0.07	0.05	0.18	0.34	0.00

See Note
Below

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL									TSP 125	TSP 240	
		Δ 1A	Δ 2A	Δ 3A	A-ATH	A-DIS	PRF	PWR					
19 A	86.1	-0.2	-0.2	-0.2	-0.07	-0.16	-	-	-	-	-	-	
21 A	85.3	0.7	0.3	-0.0	0.02	0.64	-	-	-	-0.36	-0.68		
27 A	86.2	0.3	0.1	-0.0	-0.05	0.37	-	-	-	-0.21	-0.39		
29 A	86.7	0.1	-0.0	-0.2	-0.04	0.18	-	-	-	-0.15	-0.30		
Avg.	86.1	0.2	0.0	-0.1	-0.04	0.26	-	-	-	-0.24	-0.46		
Std Dv	0.6	0.4	0.2	0.0	0.04	0.34	-	-	-	0.11	0.20		
22 T	79.7	-3.7	-4.5	-5.2	-0.83	-2.84	-	-	-	-0.81	-1.55		Corrected to Reference Conditions of Site 31-3
30 T	77.6	-1.2	-1.8	-2.4	-0.35	-0.89	-	-	-	-0.61	-1.16		
Avg.	78.7	-2.4	-3.2	-3.8	-0.59	-1.86	-	-	-	-0.70	-1.35		
Std Dv	-	-	-	-	-	-	-	-	-	-	-		
31 F	83.2	-0.9	-1.0	-1.1	-0.41	-1.70	1.21	0.13	-0.19	-0.36			
32 F	81.4	1.3	1.4	1.2	0.00	0.06	1.21	0.26	-0.17	-0.33			
33 F	84.7	-1.1	-1.5	-2.0	-0.40	-1.88	1.21	0.13	-0.54	-1.04			
34 F	82.3	0.7	0.3	-0.2	-0.11	-0.40	1.21	0.13	-0.51	-0.98			
36 F	82.6	0.5	0.5	0.2	-0.15	-0.57	1.21	0.26	-0.27	-0.52			
Avg.	82.8	0.1	-0.1	-0.4	-0.21	-0.90	1.21	0.18	-0.34	-0.65			
Std Dv	1.2	1.0	1.2	1.2	0.18	0.85	0.00	0.07	0.18	0.34			

TABLE NO. E.4.c Rev-1

CONVAIR CV-580 AIRCRAFT

DOT/TSC
10/ 2/79

NOISE LEVEL CORRECTION VALUES

SITE NO. 31-3

3520 M. NORTH THRESHOLD RWY. 13

JUNE 20, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD SH
		$\Delta 1$	$\Delta 2$	$\Delta 3$	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	
24 T	91.4	0.4	-1.2	-1.7	-1.2	0.08	0.54	-0.26	-	0.16	-0.52	-1.00	0.00
26 T	87.7	-0.3	-2.2	-3.0	-1.5	-0.14	-0.41	0.20	-	0.46	-0.85	-1.62	0.00
28 T	86.1	0.5	-0.8	-0.9	-1.4	0.13	0.76	-0.37	-	0.17	-0.07	-0.14	0.00
30 T	-	1.2	1.4	1.4	-	0.37	1.58	-0.76	-	0.12	0.06	0.12	0.00
Avg.	88.4	0.4	-0.7	-1.0	-1.4	0.11	0.62	-0.30	-	0.23	-0.34	-0.66	0.00
Std Dv	2.7	0.6	1.5	1.9	0.1	0.21	0.82	0.39	-	0.16	0.42	0.80	0.00
31 F	94.6	-1.0	-0.7	0.8	-0.9	-0.29	-1.44	0.71	0.13	-0.57	1.62	3.10	0.00
32 F	93.7	-0.3	-0.7	-0.8	-0.5	-0.10	-0.30	0.15	0.26	0.06	-0.20	-0.38	0.00
33 F	94.1	-0.8	-0.3	1.1	-0.6	-0.20	-1.26	0.62	0.13	-0.39	1.46	2.81	0.00
34 F	88.2	-0.0	-0.2	0.0	-0.6	0.02	-0.19	0.09	0.13	-0.00	0.32	0.61	0.00
36 F	93.4	-0.2	-0.2	0.0	-0.5	-0.03	-0.41	0.20	0.26	-0.03	0.30	0.58	0.00
Avg.	92.8	-0.5	-0.4	0.2	-0.6	-0.12	-0.72	0.35	0.18	-0.19	0.70	1.34	0.00
Std Dv	2.6	0.4	0.3	0.7	0.1	0.13	0.58	0.29	0.07	0.28	0.80	1.53	0.00

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								
		△ 1A	△ 2A	△ 3A	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240
24 T	82.4	0.6	0.1	-0.4	0.05	0.53	-	-	-0.52	-1.00
26 T	75.6	-0.6	-1.5	-2.2	-0.23	-0.31	-	-	-0.85	-1.62
28 T	75.3	0.9	0.9	0.8	0.18	0.75	-	-	-0.07	-0.14
30 T	72.1	2.0	2.1	2.1	0.48	1.52	-	-	0.06	0.12
Avg.	76.3	0.7	0.4	0.1	0.12	0.60	-	-	-0.34	-0.66
Std Dv	4.3	1.1	1.5	1.9	0.29	0.79	-	-	0.42	0.80
31 F	85.9	-0.4	1.3	2.8	-0.21	-1.42	1.21	0.13	1.62	3.10
32 F	84.5	0.8	0.8	0.6	-0.15	-0.30	1.21	0.26	-0.20	-0.38
33 F	85.4	-0.3	1.3	2.7	-0.24	-1.24	1.21	0.13	1.46	2.81
34 F	79.5	0.9	1.4	1.7	-0.11	-0.19	1.21	0.13	0.32	0.62
36 F	84.6	0.7	1.3	1.6	-0.06	-0.40	1.21	0.26	0.30	0.58
Avg.	84.0	0.3	1.2	1.9	-0.15	-0.71	1.21	0.18	0.70	1.34
Std Dv	2.6	0.6	0.2	0.9	0.07	0.58	0.00	0.07	0.80	1.53

LEGEND

 $\Delta 1 = P-ATM + P-DIS + DUR$ $\Delta 2 = \Delta 1 + PWR + SPD + TSP(125) + \Delta EPNL$ $\Delta 3 = \Delta 1 + PWR + SPD + TSP(240) + \Delta EPNL$ $\Delta 1A = A-ATM + A-DIS + PRF$ $\Delta 2A = \Delta 1A + PWR + TSP(125)$ $\Delta 3A = \Delta 1A + PWR + TSP(240)$

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 HZ AND BELOW ARE CONSIDERED
A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH

T - TAKEOFF

F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN
12 dB/100 METERS.

TABLE NO. E.5.a Rev-1
CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
NOISE LEVEL CORRECTION VALUES

DOT/TSC
10/ 1/79

SITE NO. 31-1

84 M. NORTH THRESHOLD RWY. 13

JUNE 21, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											
		$\Delta 1$	$\Delta 2$	$\Delta 3$	Δ EPNL	P-ATH	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	BD SH
13 F	92.4	-0.0	-1.1	-1.0	-0.6	-0.12	0.08	-0.04	0.00	-0.48	0.07	0.15	0.00
14 F	91.5	-0.4	-2.2	-3.0	-1.2	-0.17	-0.48	0.24	0.00	0.10	-0.78	-1.50	0.00
15 F	92.9	-0.3	-1.5	-1.5	-0.8	-0.13	-0.35	0.18	0.00	-0.43	0.00	0.02	0.00
Avg.	92.3	-0.3	-1.6	-1.8	-0.8	-0.14	-0.25	0.12	0.00	-0.27	-0.23	-0.45	0.00
Std Dv	0.7	0.2	0.6	1.0	0.3	0.03	0.29	0.14	0.00	0.32	0.48	0.92	0.00

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								
		△ 1A	△ 2A	△ 3A	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240
13 F	81.6	-4.2	-4.1	-4.0	-0.06	0.08	-4.20	0.00	0.07	0.15
14 F	81.3	-4.8	-5.6	-6.3	-0.11	-0.47	-4.20	0.00	-0.78	-1.50
15 F	82.0	-4.6	-4.6	-4.6	-0.08	-0.35	-4.20	0.00	0.00	0.02
Avg.	81.6	-4.5	-4.8	-5.0	-0.08	-0.25	-4.20	0.00	-0.23	-0.45
Std Dv	0.4	0.3	0.7	1.2	0.02	0.29	0.00	0.00	0.48	0.92

LEGEND

$\Delta 1$ = P-ATH + P-DIS + DUR
 $\Delta 2$ = $\Delta 1$ + PWR + SPD + TSP(125) + Δ EPNL
 $\Delta 3$ = $\Delta 1$ + PWR + SPD + TSP(240) + Δ EPNL
 $\Delta 1A$ = A-ATH + A-DIS + PRF
 $\Delta 2A$ = $\Delta 1A$ + PWR + TSP(125)
 $\Delta 3A$ = $\Delta 1A$ + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN 12' dB/100 METERS.

TABLE NO. E.5.b Rev-1
CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
NOISE LEVEL CORRECTION VALUES

DOT/TSC
9/28/79

SITE NO. 31-2

2067 M. NORTH THRESHOLD RNMV. 13

JUNE 21, 1978

EPNL AS MEAS.			CORRECTIONS - dB re 20 micro PASCAL											
			△ 1	△ 2	△ 3	△EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	BD SH
2	A	90.0	0.7	-0.5	-0.5	-1.3	0.01	1.29	-0.63	-	0.17	-0.02	-0.04	0.00
4	A	92.2	0.0	-2.0	-2.9	-1.4	-0.09	0.25	-0.12	-	0.26	-0.95	-1.82	0.00
6	A	95.1	0.0	-0.6	-0.0	-1.8	-0.04	0.25	-0.12	-	0.45	0.65	1.25	0.00
8	A	91.9	0.2	-1.2	-1.6	-1.2	0.01	0.38	-0.19	-	0.17	-0.39	-0.75	0.00
Avg.		92.3	0.2	-1.1	-1.3	-1.4	-0.03	0.54	-0.27	-	0.26	-0.18	-0.34	0.00
Std Dv		2.1	0.3	0.7	1.3	0.3	0.05	0.50	0.25	-	0.13	0.67	1.29	0.00
13	F	91.5	-0.2	-1.3	-1.4	-0.6	-0.14	-0.21	0.10	0.00	-0.40	-0.03	-0.06	0.00
15	F	92.9	-0.4	-1.4	-1.4	-0.6	-0.15	-0.58	0.29	0.00	-0.42	-0.00	-0.00	0.00
Avg.		92.2	-0.3	-1.4	-1.4	-0.6	-0.14	-0.39	0.19	0.00	-0.41	-0.02	-0.03	0.00
Std Dv		-	-	-	-	-	-	-	-	-	-	-	-	-

		CORRECTIONS - dB re 20 micro PASCAL								
EVENT	dBA(M) AS MEAS.	△ 1A	△ 2A	△ 3A	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240
2 A	79.1	1.3	1.2	1.2	0.00	1.27	-	-	-0.02	-0.04
4 A	81.7	0.3	-0.7	-1.6	0.02	0.24	-	-	-0.95	-1.82
6 A	85.5	0.2	0.9	1.5	-0.02	0.24	-	-	0.65	1.25
8 A	81.2	0.4	0.0	-0.3	0.03	0.38	-	-	-0.39	-0.75
Avg.	81.9	0.5	0.4	0.2	0.00	0.53	-	-	-0.18	-0.34
Std Dv	2.7	0.5	0.9	1.4	0.02	0.49	-	-	0.67	1.29
13 F	80.6	-4.5	-4.6	-4.6	-0.12	-0.21	-4.20	0.00	-0.03	-0.06
15 F	80.7	-4.9	-4.9	-4.9	-0.10	-0.57	-4.20	0.00	-0.00	-0.00
Avg.	80.7	-4.7	-4.7	-4.7	-0.11	-0.39	-4.20	0.00	-0.02	-0.03
Std Dv	-	-	-	-	-	-	-	-	-	-

LEGEND

$\Delta 1$ = P-ATM + P-DIS + DUR
 $\Delta 2$ = $\Delta 1$ + PWR + SPD + TSP(125) + Δ EPNL
 $\Delta 3$ = $\Delta 1$ + PWR + SPD + TSP(240) + Δ EPNL
 $\Delta 1A$ = A-ATM + A-DIS + PRF
 $\Delta 2A$ = $\Delta 1A$ + PWR + TSP(125)
 $\Delta 3A$ = $\Delta 1A$ + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

TABLE NO. E.5.c Rev-1
CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
NOISE LEVEL CORRECTION VALUES

DOT/TSC
10/ 1/79

SITE NO. 31-3

3520 M. NORTH THRESHOLD RWY. 13

JUNE 21, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											
		Δ 1	Δ 2	Δ 3	Δ EPNL	P-ATH	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	BD SH
1 T	87.9	-4.1	-6.3	-6.5	-1.7	-1.27	-5.49	2.68	-	-0.23	-0.27	-0.51	0.00
5 T	84.3	-4.3	-6.8	-7.0	-2.1	-0.91	-6.00	2.65	-	-0.14	-0.23	-0.43	0.00
Avg.	86.1	-4.2	-6.5	-6.7	-1.9	-1.09	-5.74	2.66	-	-0.18	-0.25	-0.47	0.00
Std Dv	-	-	-	-	-	-	-	-	-	-	-	-	-

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								
		△ 1A	△ 2A	△ 3A	A-ATH	A-DIS	PRF	PWR	TSP 125	TSP 240
1 T	72.3	-6.1	-6.4	-6.7	-0.78	-5.36	-	-	-0.27	-0.51
5 T	68.7	-5.9	-6.1	-6.3	-0.61	-5.29	-	-	-0.23	-0.44
Avg.	70.5	-6.0	-6.3	-6.5	-0.70	-5.33	-	-	-0.25	-0.47
Std Dv	-	-	-	-	-	-	-	-	-	-

LEGEND

$\Delta 1$ = P-ATH + P-DIS + DUR
 $\Delta 2$ = $\Delta 1$ + PWR + SPD + TSP(125) + Δ EPNL
 $\Delta 3$ = $\Delta 1$ + PWR + SPD + TSP(240) + Δ EPNL
 $\Delta 1A$ = A-ATH + A-DIS + PRF
 $\Delta 2A$ = $\Delta 1A$ + PWR + TSP(125)
 $\Delta 3A$ = $\Delta 1A$ + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

TABLE NO. 6.5.d Rev-1
CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
NOISE LEVEL CORRECTION VALUES

DOT/TSC
10/ 1/79

SITE NO. 31-4

4715 M. NORTH THRESHOLD RWY. 13

JUNE 21, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD	SH
		Δ 1	Δ 2	Δ 3	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240		
3 T	86.8	-4.0	-5.7	-6.2	-1.4	-1.15	-5.48	2.61	-	0.16	-0.51	-0.97	0.00	
9 T	87.1	-2.9	-5.0	-5.3	-1.7	-0.96	-3.83	1.85	-	0.07	-0.36	-0.69	0.00	
Avg.	86.9	-3.5	-5.3	-5.7	-1.5	-1.05	-4.65	2.23	-	0.12	-0.43	-0.83	0.00	
Std Dv	-	-	-	-	-	-	-	-	-	-	-	-	-	-

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								TSP 125	TSP 240
		Δ 1A	Δ 2A	Δ 3A	A-ATM	A-DIS	PRF	PWR			
3 T	72.6	-5.8	-6.3	-6.8	-0.57	-5.21	-	-	-	-0.51	-0.97
9 T	73.1	-4.2	-4.5	-4.9	-0.45	-3.70	-	-	-	-0.36	-0.69
Avg.	72.9	-5.0	-5.4	-5.8	-0.51	-4.46	-	-	-	-0.43	-0.83
Std Dv	-	-	-	-	-	-	-	-	-	-	-

LEGEND

Δ 1 = P-ATM + P-DIS + DUR
 Δ 2 = Δ 1 + PWR + SPD + TSP(125) + Δ EPNL
 Δ 3 = Δ 1 + PWR + SPD + TSP(240) + Δ EPNL
 Δ 1A = A-ATM + A-DIS + PRF
 Δ 2A = Δ 1A + PWR + TSP(125)
 Δ 3A = Δ 1A + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

TABLE NO. 2.6.8 Rev-1
CESSNA 172N (SKYHAWK) AIRCRAFT
NOISE LEVEL CORRECTION VALUES

DOT/TSC
9/28/79

SITE NO. 31-1

84 M. NORTH THRESHOLD RNMW. 13

JUNE 21, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD SH
		$\Delta 1$	$\Delta 2$	$\Delta 3$	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	
29 F	85.4	-0.3	-1.0	-0.0	-1.3	-0.16	-0.26	0.13	0.00	-0.50	1.06	2.04	0.00
31 F	85.6	-0.5	-1.2	-0.2	-1.2	-0.25	-0.52	0.25	0.00	-0.44	1.03	1.97	0.00
32 F	85.0	-0.4	-0.8	-0.2	-1.3	-0.17	-0.35	0.17	0.00	0.17	0.64	1.23	0.00
33 F	85.2	-0.3	-1.1	-0.1	-1.3	-0.18	-0.27	0.13	0.00	-0.52	1.07	2.05	0.00
Avg.	85.3	-0.4	-1.0	-0.1	-1.3	-0.19	-0.35	0.17	0.00	-0.32	0.95	1.82	0.00
Std Dv	0.3	0.1	0.2	0.1	0.0	0.04	0.12	0.06	0.00	0.33	0.21	0.40	0.00

		CORRECTIONS - dB re 20 micro PASCAL								
EVENT	dBA(M) AS MEAS.	-----								
		△ 1A	△ 2A	△ 3A	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240
29 F	75.0	-0.7	0.3	1.3	-0.06	-0.25	-0.42	0.00	1.06	2.04
31 F	76.1	-1.1	-0.1	0.9	-0.16	-0.50	-0.42	0.00	1.03	1.97
32 F	75.9	-0.9	-0.3	0.3	-0.19	-0.33	-0.42	0.00	0.64	1.23
33 F	74.9	-0.8	0.2	1.2	-0.16	-0.26	-0.42	0.00	1.07	2.05
Avg.	75.5	-0.9	0.0	0.9	-0.14	-0.33	-0.42	0.00	0.95	1.82
Std Dv	0.6	0.1	0.3	0.5	0.05	0.12	0.00	0.00	0.21	0.40

LEGEND

$\Delta 1 = P-ATM + P-DIS + DUR$
 $\Delta 2 = \Delta 1 + PWR + SPD + TSP(125) + \Delta EPNL$
 $\Delta 3 = \Delta 1 + PWR + SPD + TSP(240) + \Delta EPNL$

$\Delta 1A = A-ATM + A-DIS + PRF$
 $\Delta 2A = \Delta 1A + PWR + TSP(125)$
 $\Delta 3A = \Delta 1A + PWR + TSP(240)$

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
T - TAKEOFF
F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

TABLE NO. E.8.a Rev-1
 ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 10/ 3/79

SITE NO. 31-1

84 M. NORTH THRESHOLD RWY. 13

JUNE 23, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD SM
		$\Delta 1$	$\Delta 2$	$\Delta 3$	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	
19 F	85.8	-0.4	-1.3	0.5	-1.9	-0.29	-0.18	0.09	0.11	-1.10	1.95	3.74	0.00
20 F	86.4	-0.4	-1.9	-1.9	-1.3	-0.42	0.03	-0.02	0.05	-0.27	0.06	0.11	0.00
21 F	86.4	-0.1	-1.1	0.4	-1.8	-0.16	0.08	-0.04	0.05	-0.96	1.70	3.27	0.00
Avg.	86.2	-0.3	-1.4	-0.3	-1.7	-0.29	-0.02	0.01	0.07	-0.78	1.24	2.37	0.00
Std Dv	0.3	0.2	0.4	1.4	0.3	0.13	0.14	0.07	0.04	0.44	1.03	1.97	0.00

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								
		$\Delta 1A$	$\Delta 2A$	$\Delta 3A$	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240
19 F	74.7	-5.7	-3.7	-1.9	-0.23	-0.18	-5.33	0.11	1.95	3.74
20 F	76.3	-5.5	-5.4	-5.4	-0.21	0.03	-5.33	0.05	0.06	0.11
21 F	73.9	-5.4	-3.6	-2.1	-0.12	0.08	-5.33	0.05	1.70	3.27
Avg.	75.0	-5.5	-4.2	-3.1	-0.19	-0.02	-5.33	0.07	1.24	2.37
Std Dv	1.2	0.2	1.0	2.0	0.06	0.14	0.00	0.04	1.03	1.97

LEGEND

$\Delta 1 = P-ATM + P-DIS + DUR$
 $\Delta 2 = \Delta 1 + PWR + SPD + TSP(125) + \Delta EPNL$
 $\Delta 3 = \Delta 1 + PWR + SPD + TSP(240) + \Delta EPNL$

$\Delta 1A = A-ATM + A-DIS + PRF$
 $\Delta 2A = \Delta 1A + PWR + TSP(125)$
 $\Delta 3A = \Delta 1A + PWR + TSP(240)$

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

TABLE NO. E.8.b Rev-1
 ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 10/ 2/79

SITE NO. 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

		CORRECTIONS - dB re 20 micro PASCAL											
EVENT	EPNL AS MEAS.	Δ 1	Δ 2	Δ 3	ΔEPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	BD SH
2 A	-	-0.1	-1.1	-2.3	-	-0.16	0.13	-0.06	-	0.11	-1.24	-2.38	0.00
4 A	87.7	-0.1	-2.4	-3.0	-1.4	-0.11	0.28	-0.14	-	-0.30	-0.63	-1.20	0.00
6 A	86.6	-0.4	-2.4	-3.2	-1.1	-0.35	-0.15	0.07	-	-0.07	-0.85	-1.64	0.00
8 A	87.6	-0.7	-2.9	-3.0	-1.5	-0.31	-0.72	0.35	-	-0.62	-0.13	-0.24	0.00
23 A	86.2	-0.1	-3.3	-5.0	-1.1	-0.12	-0.02	0.00	0.05	-0.30	-1.82	-3.49	0.00
Avg.	87.0	-0.3	-2.4	-3.3	-1.3	-0.23	-0.10	0.05	0.05	-0.22	-0.93	-1.79	0.00
Std Dv	0.7	0.3	0.8	1.0	0.2	0.10	0.38	0.19	-	0.30	0.64	1.22	0.00
19 F	85.9	0.0	-1.8	-2.0	-1.6	-0.15	0.30	-0.15	0.11	-0.21	-0.13	-0.24	0.00
20 F	86.5	-0.6	-1.8	-1.2	-1.4	-0.37	-0.50	0.25	0.05	-0.51	0.67	1.29	0.00
21 F	85.2	-0.0	-1.7	-1.9	-1.4	-0.14	0.11	-0.05	0.05	-0.20	-0.12	-0.24	0.00
22 F	84.8	-0.3	-1.1	-0.4	-1.1	-0.24	-0.14	0.07	0.05	-0.55	0.80	1.54	0.00
Avg.	85.6	-0.3	-1.6	-1.3	-1.4	-0.23	-0.06	0.03	0.06	-0.37	0.31	0.59	0.00
Std Dv	0.8	0.3	0.3	0.7	0.2	0.11	0.35	0.17	0.03	0.19	0.50	0.96	0.00

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								
		$\Delta 1A$	$\Delta 2A$	$\Delta 3A$	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240
2 A	75.7	-0.1	-1.3	-2.4	-0.18	0.13	-	-	-1.24	-2.38
4 A	76.8	0.0	-0.5	-1.1	-0.18	0.27	-	-	-0.63	-1.20
6 A	75.5	-0.4	-1.3	-2.0	-0.26	-0.14	-	-	-0.85	-1.64
8 A	76.2	-1.1	-1.2	-1.3	-0.38	-0.70	-	-	-0.13	-0.24
23 A	75.8	-0.2	-2.0	-3.7	-0.21	-0.02	-	0.05	-1.82	-3.49
Avg.	76.0	-0.3	-1.3	-2.1	-0.24	-0.09	-	0.05	-0.93	-1.79
Std Dv	0.5	0.5	0.5	1.0	0.08	0.38	-	-	0.64	1.22
19 F	74.7	-5.2	-5.2	-5.3	-0.13	0.30	-5.33	0.11	-0.13	-0.24
20 F	75.6	-6.0	-5.3	-4.7	-0.18	-0.49	-5.33	0.05	0.67	1.29
21 F	74.1	-5.4	-5.4	-5.6	-0.15	0.11	-5.33	0.05	-0.12	-0.24
22 F	74.3	-5.7	-4.8	-4.1	-0.22	-0.14	-5.33	0.05	0.80	1.54
Avg.	74.7	-5.5	-5.2	-4.9	-0.17	-0.06	-5.32	0.06	0.31	0.59
Std Dv	0.7	0.4	0.3	0.7	0.04	0.34	0.00	0.03	0.50	0.96

LEGEND

$\Delta 1$ = P-ATM + P-DIS + DUR
 $\Delta 2$ = $\Delta 1$ + PWR + SPD + TSP(125) + Δ EPNL
 $\Delta 3$ = $\Delta 1$ + PWR + SPD + TSP(240) + Δ EPNL
 $\Delta 1A$ = A-ATM + A-DIS + PRF
 $\Delta 2A$ = $\Delta 1A$ + PWR + TSP(125)
 $\Delta 3A$ = $\Delta 1A$ + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

TABLE NO. 6.8.c Rev-1

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT

DOT/TSC
10/ 2/79

NOISE LEVEL CORRECTION VALUES

SITE NO. 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD SH
		$\Delta 1$	$\Delta 2$	$\Delta 3$	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	
19 F	84.5	0.4	-0.7	-0.9	-0.9	-0.05	0.90	-0.44	0.11	-0.21	-0.13	-0.25	0.00
20 F	86.8	-0.2	-0.9	1.2	-1.7	-0.26	0.06	-0.03	0.05	-1.22	2.19	4.21	0.00
21 F	84.5	-0.0	-1.8	-2.5	-0.9	-0.17	0.17	-0.08	0.05	0.05	-0.85	-1.63	0.00
22 F	85.9	-0.1	-0.8	0.9	-1.5	-0.15	0.04	-0.02	0.05	-0.99	1.77	3.40	0.00
Avg.	85.4	-0.0	-1.0	-0.3	-1.2	-0.14	0.29	-0.14	0.06	-0.59	0.75	1.43	0.00
Std Dv	1.1	0.3	0.5	1.7	0.4	0.09	0.41	0.20	0.03	0.61	1.47	2.82	0.00

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								
		$\Delta 1A$	$\Delta 2A$	$\Delta 3A$	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240
19 F	74.4	-4.5	-4.5	-4.7	-0.06	0.87	-5.33	0.11	-0.13	-0.25
20 F	74.7	-5.5	-3.2	-1.2	-0.22	0.06	-5.33	0.05	2.19	4.21
21 F	74.9	-5.4	-6.2	-7.0	-0.25	0.17	-5.33	0.05	-0.85	-1.63
22 F	74.7	-5.5	-3.7	-2.1	-0.25	0.04	-5.33	0.05	1.77	3.40
Avg.	74.7	-5.2	-4.4	-3.7	-0.19	0.28	-5.32	0.06	0.75	1.43
Std Dv	0.2	0.5	1.3	2.6	0.09	0.40	0.00	0.03	1.47	2.82

LEGEND

 $\Delta 1 = P-ATM + P-DIS + DUR$ $\Delta 2 = \Delta 1 + PWR + SPD + TSP(125) + \Delta EPNL$ $\Delta 3 = \Delta 1 + PWR + SPD + TSP(240) + \Delta EPNL$ $\Delta 1A = A-ATM + A-DIS + PRF$ $\Delta 2A = \Delta 1A + PWR + TSP(125)$ $\Delta 3A = \Delta 1A + PWR + TSP(240)$

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED
A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH

T - TAKEOFF

F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN
12 dB/100 METERS.

TABLE NO. E.8.d Rev-1
ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
NOISE LEVEL CORRECTION VALUES

DOT/TSC
10/ 2/79

SITE NO. 31-4

4715 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD	SH
		Δ 1	Δ 2	Δ 3	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240		
5 T	81.8	-1.7	-4.1	-4.8	-1.8	-0.95	-1.47	0.72	-	0.10	-0.72	-1.38	0.00	
9 T	80.9	-2.7	-4.3	-4.8	-1.1	-1.32	-2.58	1.19	-	0.12	-0.60	-1.14	0.00	
Avg.	81.3	-2.2	-4.2	-4.8	-1.4	-1.14	-2.03	0.95	-	0.11	-0.66	-1.26	0.00	
Std Dv	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19 F	85.9	0.6	-1.1	-1.8	-1.2	0.03	1.15	-0.56	0.11	-0.00	-0.72	-1.37	0.00	
20 F	87.6	-0.3	-0.8	2.0	-1.8	-0.17	-0.34	0.17	0.05	-1.69	3.00	5.76	0.00	
21 F	88.1	-0.3	-2.4	-3.6	-1.1	-0.38	0.19	-0.09	0.05	0.17	-1.23	-2.36	0.00	
22 F	88.5	-0.3	-1.1	1.3	-1.9	-0.23	-0.19	0.09	0.05	-1.41	2.57	4.93	0.00	
Avg.	87.5	-0.0	-1.4	-0.5	-1.5	-0.19	0.20	-0.10	0.06	-0.73	0.91	1.74	0.00	
Std Dv	1.2	0.5	0.7	2.6	0.4	0.17	0.67	0.33	0.03	0.95	2.19	4.20	0.00	

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL									TSP 125	TSP 240
		Δ 1A	Δ 2A	Δ 3A	A-ATM	A-DIS	PRF	PWR				
5 T	67.0	-1.9	-2.6	-3.3	-0.48	-1.44	-	-	-	-	-0.72	-1.38
9 T	65.1	-3.1	-3.7	-4.2	-0.71	-2.38	-	-	-	-	-0.60	-1.14
Avg.	66.1	-2.5	-3.2	-3.8	-0.60	-1.91	-	-	-	-	-0.66	-1.26
Std Dv	-	-	-	-	-	-	-	-	-	-	-	-
19 F	75.4	-4.2	-4.8	-5.5	-0.04	1.12	-5.33	0.11	-0.72	-1.37		
20 F	76.4	-5.9	-2.8	-0.0	-0.23	-0.34	-5.33	0.05	3.00	5.76		
21 F	77.2	-5.3	-6.4	-7.6	-0.12	0.18	-5.33	0.05	-1.23	-2.36		
22 F	76.1	-5.7	-3.1	-0.7	-0.19	-0.19	-5.33	0.05	2.57	4.93		
Avg.	76.3	-5.3	-4.3	-3.5	-0.14	0.19	-5.32	0.06	0.91	1.74		
Std Dv	0.7	0.7	1.7	3.7	0.08	0.66	0.00	0.03	2.19	4.20		

LEGEND

Δ 1 = P-ATM + P-DIS + DUR
 Δ 2 = Δ 1 + PWR + SPD + TSP(125) + Δ EPNL
 Δ 3 = Δ 1 + PWR + SPD + TSP(240) + Δ EPNL
 Δ 1A = A-ATM + A-DIS + PRF
 Δ 2A = Δ 1A + PWR + TSP(125)
 Δ 3A = Δ 1A + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

TABLE NO. E.9.a Rev-1
 ROCKWELL 5008 (SHRIKE COMMANDER) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 10/ 2/79

SITE NO. 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD SH
		$\Delta 1$	$\Delta 2$	$\Delta 3$	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	
37 F	89.6	-0.6	-2.1	-1.4	-1.9	-0.22	-0.78	0.39	0.00	-0.44	0.80	1.53	0.00
38 F	89.3	-0.2	-2.9	-3.2	-2.1	-0.16	-0.07	0.03	0.00	-0.32	-0.28	-0.54	0.00
39 F	90.0	-0.2	-2.1	-1.4	-2.2	-0.11	-0.11	0.10	0.00	-0.48	0.80	1.53	0.00
40 F	89.3	-0.2	-2.3	-2.1	-2.1	-0.29	0.16	-0.08	0.00	-0.37	0.31	0.60	0.00
41 F	90.2	-0.2	-2.0	-1.2	-2.2	-0.10	-0.29	0.15	0.00	-0.40	0.83	1.59	0.00
42 F	90.1	0.0	-1.6	-1.0	-2.0	-0.00	0.09	-0.04	0.00	-0.33	0.71	1.37	0.00
Avg.	89.7	-0.2	-2.2	-1.7	-2.1	-0.15	-0.18	0.09	0.00	-0.39	0.53	1.01	0.00
Std Dv	0.4	0.2	0.4	0.8	0.1	0.10	0.34	0.17	0.00	0.06	0.44	0.85	0.00

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL								
		$\Delta 1A$	$\Delta 2A$	$\Delta 3A$	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240
37 F	81.9	-3.2	-2.4	-1.7	-0.16	-0.77	-2.30	0.00	0.80	1.53
38 F	79.4	-2.5	-2.7	-3.0	-0.08	-0.07	-2.30	0.00	-0.28	-0.54
39 F	80.2	-2.5	-1.7	-1.0	-0.04	-0.19	-2.30	0.00	0.80	1.53
40 F	80.0	-2.2	-1.9	-1.6	-0.02	0.15	-2.30	0.00	0.31	0.60
41 F	81.7	-2.7	-1.8	-1.1	-0.07	-0.29	-2.30	0.00	0.83	1.59
42 F	81.9	-2.3	-1.6	-0.9	-0.05	0.09	-2.30	0.00	0.71	1.37
Avg.	80.8	-2.6	-2.0	-1.5	-0.07	-0.18	-2.30	0.00	0.53	1.01
Std Dv	1.1	0.4	0.5	0.8	0.05	0.33	0.00	0.00	0.44	0.85

LEGEND

$\Delta 1$ = P-ATM + P-DIS + DUR
 $\Delta 2$ = $\Delta 1$ + PWR + SPD + TSP(125) + Δ EPNL
 $\Delta 3$ = $\Delta 1$ + PWR + SPD + TSP(240) + Δ EPNL
 $\Delta 1A$ = A-ATM + A-DIS + PRF
 $\Delta 2A$ = $\Delta 1A$ + PWR + TSP(125)
 $\Delta 3A$ = $\Delta 1A$ + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE EPNL CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

TABLE NO. E.9.b Rev-1
 ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 10/ 2/79

SITE NO. 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD	SH
		Δ 1	Δ 2	Δ 3	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240		
25 A	89.2	-0.6	-1.9	-2.7	-1.1	-0.09	-1.01	0.50	-	0.65	-0.89	-1.71	0.00	
27 A	87.8	0.4	0.3	0.4	-1.1	0.01	0.76	-0.38	-	0.76	0.16	0.30	0.00	
31 A	89.6	0.1	-1.4	-2.3	-1.6	-0.03	0.30	-0.15	-	0.98	-0.93	-1.78	0.00	
33 A	88.8	-0.2	-1.4	-2.1	-1.4	-0.09	-0.16	0.08	-	1.04	-0.85	-1.64	0.00	
35 A	87.5	0.5	-0.9	-1.4	-1.4	0.05	0.91	-0.44	-	0.58	-0.58	-1.11	0.00	
Avg.	88.6	0.1	-1.1	-1.6	-1.3	-0.03	0.16	-0.08	-	0.80	-0.62	-1.19	0.00	
Std Dv	0.9	0.5	0.8	1.2	0.2	0.06	0.78	0.38	-	0.20	0.45	0.87	0.00	
37 F	90.1	-0.3	-2.0	-1.3	-2.2	-0.10	-0.36	0.18	0.08	-0.46	0.82	1.57	0.00	
38 F	90.2	-0.3	-3.1	-3.6	-2.3	-0.15	-0.28	0.14	0.08	-0.19	-0.46	-0.88	0.00	
39 F	91.1	-0.5	-3.0	-2.6	-2.4	-0.15	-0.62	0.31	0.08	-0.49	0.34	0.66	0.00	
40 F	89.7	-0.2	-2.0	-1.5	-2.3	-0.08	-0.19	0.09	0.08	-0.26	0.63	1.21	0.00	
41 F	89.5	-0.4	-2.2	-1.4	-2.3	-0.15	-0.53	0.26	0.08	-0.43	0.86	1.65	0.00	
42 F	89.6	-0.4	-2.4	-1.9	-2.5	-0.29	-0.14	0.07	0.08	-0.20	0.53	1.02	0.00	
Avg.	90.0	-0.3	-2.5	-2.1	-2.3	-0.15	-0.35	0.17	0.08	-0.34	0.45	0.87	0.00	
Std Dv	0.6	0.1	0.5	0.9	0.1	0.07	0.19	0.09	0.00	0.14	0.49	0.93	0.00	

		CORRECTIONS - dB re 20 micro PASCAL								
EVENT	dBA(M) AS MEAS.	△ 1A	△ 2A	△ 3A	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240
25 A	78.9	-1.1	-2.0	-2.8	-0.08	-1.00	-	-	-0.89	-1.71
27 A	76.2	0.7	0.9	1.0	-0.03	0.75	-	-	0.16	0.30
31 A	78.8	0.2	-0.7	-1.5	-0.05	0.30	-	-	-0.93	-1.78
33 A	78.2	-0.2	-1.1	-1.8	-0.04	-0.16	-	-	-0.85	-1.64
35 A	76.1	0.9	0.3	-0.2	0.00	0.89	-	-	-0.58	-1.11
Avg.	77.6	0.1	-0.5	-1.1	-0.04	0.16	-	-	-0.62	-1.19
Std Dv	1.4	0.8	1.1	1.5	0.03	0.77	-	-	0.45	0.87
37 F	82.2	-2.8	-1.9	-1.1	-0.10	-0.36	-2.30	0.08	0.82	1.57
38 F	81.9	-2.6	-3.0	-3.4	-0.05	-0.28	-2.30	0.08	-0.46	-0.88
39 F	83.7	-3.1	-2.7	-2.3	-0.15	-0.61	-2.30	0.08	0.34	0.66
40 F	81.9	-2.5	-1.8	-1.3	-0.05	-0.19	-2.30	0.08	0.63	1.21
41 F	81.4	-2.9	-2.0	-1.2	-0.09	-0.53	-2.30	0.08	0.86	1.65
42 F	80.9	-2.5	-1.9	-1.4	-0.06	-0.14	-2.30	0.08	0.53	1.02
Avg.	82.0	-2.7	-2.2	-1.8	-0.08	-0.35	-2.30	0.08	0.45	0.87
Std Dv	1.0	0.2	0.5	0.9	0.04	0.19	0.00	0.00	0.49	0.93

LEGEND

Δ 1 = P-ATM + P-DIS + DUR
 Δ 2 = Δ 1 + PWR + SPD + TSP(125) + Δ EPNL
 Δ 3 = Δ 1 + PWR + SPD + TSP(240) + Δ EPNL
 Δ 1A = A-ATM + A-DIS + PRF
 Δ 2A = Δ 1A + PWR + TSP(125)
 Δ 3A = Δ 1A + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

TABLE NO. E.9.c Rev-1
 ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 10/ 2/79

SITE NO. 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											BD SH
		Δ 1	Δ 2	Δ 3	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	
24 T	88.7	-5.4	-7.4	-8.8	-1.9	-1.30	-8.07	3.95	-	1.55	-1.61	-3.09	0.00
34 T	87.0	-4.3	-6.2	-7.2	-2.1	-1.08	-6.25	3.03	-	1.31	-1.14	-2.18	0.00
Avg.	87.8	-4.9	-6.8	-8.0	-2.0	-1.19	-7.16	3.49	-	1.43	-1.37	-2.64	0.00
Std Dv	-	-	-	-	-	-	-	-	-	-	-	-	-
37 F	92.0	-0.3	-1.7	-1.1	-1.8	-0.10	-0.44	0.22	0.08	-0.38	0.71	1.36	0.00
40 F	-	-0.0	0.5	1.4	-	-0.19	0.23	-0.11	0.08	-0.54	1.00	1.93	0.00
41 F	90.9	-0.4	-2.1	-1.3	-2.2	-0.12	-0.60	0.30	0.08	-0.45	0.89	1.70	0.00
42 F	91.3	-0.2	-1.9	-1.5	-2.2	-0.12	-0.09	0.04	0.08	-0.19	0.52	0.99	0.00
Avg.	91.4	-0.2	-1.3	-0.6	-2.1	-0.13	-0.22	0.11	0.08	-0.39	0.78	1.49	0.00
Std Dv	0.5	0.2	1.2	1.3	0.2	0.04	0.37	0.18	0.00	0.15	0.21	0.41	0.00

See Note

EVENT	dBA(M) AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL									TSP 125	TSP 240	
		Δ 1A	Δ 2A	Δ 3A	A-ATM	A-DIS	PRF	PWR					
24 T	75.7	-9.1	-10.8	-12.2	-1.24	-7.90	-	-	-	-1.61	-3.09		Corrected to Reference Conditions of Site 31-4
34 T	73.4	-6.8	-7.9	-9.0	-0.73	-6.06	-	-	-	-1.14	-2.18		
Avg.	74.5	-8.0	-9.3	-10.6	-0.98	-6.98	-	-	-	-1.37	-2.64		
Std Dv	-	-	-	-	-	-	-	-	-	-	-	-	
37 F	83.3	-2.9	-2.1	-1.4	-0.12	-0.43	-2.30	0.08	0.71	1.36			
40 F	82.9	-2.1	-1.0	-0.0	0.00	0.23	-2.30	0.08	1.00	1.93			
41 F	82.9	-3.0	-2.1	-1.2	-0.13	-0.59	-2.30	0.08	0.89	1.70			
42 F	82.9	-2.5	-1.9	-1.4	-0.07	-0.08	-2.30	0.08	0.52	0.99			
Avg.	83.0	-2.6	-1.7	-1.0	-0.08	-0.22	-2.30	0.08	0.78	1.49			
Std Dv	0.2	0.4	0.5	0.6	0.06	0.37	0.00	0.00	0.21	0.41			

LEGEND

Δ 1 = P-ATM + P-DIS + DUR
 Δ 2 = Δ 1 + PWR + SPD + TSP(125) + Δ EPNL
 Δ 3 = Δ 1 + PWR + SPD + TSP(240) + Δ EPNL
 Δ 1A = A-ATM + A-DIS + PRF
 Δ 2A = Δ 1A + PWR + TSP(125)
 Δ 3A = Δ 1A + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

NOTE 1: ATMOSPHERIC ABSORPTION 8 kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

TABLE NO. 6.9.d Rev-1
 ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
 NOISE LEVEL CORRECTION VALUES

DOT/TSC
 10/ 2/79

SITE NO. 31-4

4715 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

EVENT	EPNL AS MEAS.	CORRECTIONS - dB re 20 micro PASCAL											
		$\Delta 1$	$\Delta 2$	$\Delta 3$	Δ EPNL	P-ATM	P-DIS	DUR	PWR	SPD	TSP 125	TSP 240	BD SH
28 T	87.1	-4.1	-6.2	-7.7	-2.1	-1.08	-6.04	2.97	-	1.71	-1.69	-3.24	0.00
30 T	89.1	-5.0	-7.1	-8.7	-2.2	-1.27	-7.24	3.55	-	1.84	-1.73	-3.32	0.00
32 T	86.8	-6.1	-8.0	-9.6	-2.1	-1.58	-8.43	3.94	-	1.87	-1.69	-3.24	0.00
36 T	85.8	-3.3	-5.3	-6.3	-2.3	-0.83	-4.78	2.33	-	1.25	-1.06	-2.03	0.00
Avg.	87.2	-4.6	-6.7	-8.1	-2.2	-1.19	-6.62	3.20	-	1.67	-1.54	-2.96	0.00
Std Dv	1.4	1.2	1.1	1.4	0.0	0.31	1.57	0.70	-	0.29	0.32	0.62	0.00
37 F	94.6	-0.4	-2.2	-1.5	-2.1	-0.18	-0.50	0.25	0.08	-0.34	0.66	1.27	0.00
38 F	90.4	-0.0	-2.7	-3.1	-2.1	-0.06	-0.01	0.00	0.08	-0.25	-0.38	-0.73	0.00
39 F	-	-0.3	0.1	0.7	-	-0.09	-0.43	0.21	0.08	-0.31	0.67	1.29	0.00
40 F	-	0.1	0.6	1.3	-	-0.02	0.26	-0.13	0.08	-0.37	0.79	1.51	0.00
41 F	92.5	-0.6	-2.3	-1.6	-2.2	-0.36	-0.56	0.28	0.08	-0.38	0.80	1.53	0.00
42 F	91.6	-0.6	-2.3	-1.9	-2.1	-0.53	-0.21	0.11	0.08	-0.15	0.46	0.88	0.00
Avg.	92.3	-0.3	-1.5	-1.0	-2.1	-0.21	-0.24	0.12	0.08	-0.30	0.50	0.96	0.00
Std Dv	1.8	0.3	1.4	1.7	0.1	0.20	0.32	0.16	0.00	0.09	0.45	0.86	0.00

		CORRECTIONS - dB re 20 micro PASCAL								
EVENT	dBA(M) AS MEAS.	-----								
		△ 1A	△ 2A	△ 3A	A-ATM	A-DIS	PRF	PWR	TSP 125	TSP 240
28 T	75.9	-6.6	-8.3	-9.9	-0.71	-5.93	-	-	-1.69	-3.24
30 T	77.6	-7.1	-9.7	-11.3	-0.85	-7.10	-	-	-1.73	-3.32
32 T	75.9	-9.4	-11.0	-12.6	-1.48	-7.88	-	-	-1.69	-3.24
36 T	73.8	-5.9	-6.9	-7.9	-1.21	-4.66	-	-	-1.06	-2.03
Avg.	75.8	-7.5	-9.0	-10.4	-1.06	-6.39	-	-	-1.54	-2.96
Std Dv	1.6	1.5	1.8	2.0	0.35	1.41	-	-	0.32	0.62
37 F	86.4	-2.9	-2.1	-1.5	-0.06	-0.49	-2.30	0.08	0.66	1.27
38 F	81.5	-2.4	-2.7	-3.0	-0.04	-0.01	-2.30	0.08	-0.38	-0.73
39 F	83.0	-2.8	-2.1	-1.5	-0.10	-0.43	-2.30	0.08	0.67	1.29
40 F	81.7	-2.1	-1.3	-0.6	-0.09	0.25	-2.30	0.08	0.79	1.51
41 F	85.9	-3.0	-2.1	-1.4	-0.12	-0.56	-2.30	0.08	0.80	1.53
42 F	83.2	-2.6	-2.0	-1.6	-0.05	-0.21	-2.30	0.08	0.46	0.88
Avg.	83.6	-2.6	-2.0	-1.6	-0.08	-0.24	-2.30	0.08	0.50	0.96
Std Dv	2.1	0.3	0.4	0.8	0.03	0.31	0.00	0.00	0.45	0.86

LEGEND

$\Delta 1$ = P-ATM + P-DIS + DUR
 $\Delta 2$ = $\Delta 1$ + PWR + SPD + TSP(125) + Δ EPNL
 $\Delta 3$ = $\Delta 1$ + PWR + SPD + TSP(240) + Δ EPNL
 $\Delta 1A$ = A-ATM + A-DIS + PRF
 $\Delta 2A$ = $\Delta 1A$ + PWR + TSP(125)
 $\Delta 3A$ = $\Delta 1A$ + PWR + TSP(240)

Δ EPNL - THE CHANGE IN EPNL WHEN TONE CORRECTIONS 800 Hz AND BELOW ARE CONSIDERED
 A RESULT OF PSEUDOTONES AND ARE EXCLUDED FROM THE PNLT CALCULATION.

A - APPROACH
 T - TAKEOFF
 F - LEVEL FLYBY

APPENDIX F

NON-CORRECTED NOISE LEVEL DATA
(AS MEASURED)

TABLE NO. F-1-a

PIPER PA-38-112 (TOMAHAWK) AIRCRAFT

DOT/TSC
10/18/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-1

60 M. NORTH THRESHOLD RNWY. 13

DATE: JUNE 19, 1978

EVENT	EPNL	DBA(M)	DBD(M)	DASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	87.2	78.7	85.6	88.5	93.7	95.5	3.0	1.8	-1.4
4	87.9	78.8	86.0	89.7	94.3	95.8	3.0	1.5	-1.3
16				NO DATA AVAILABLE					
18	88.0	78.7	86.0	89.4	94.1	96.2	3.0	2.1	-1.6
20	82.9	73.9	81.3	85.3	89.0	91.0	3.5	2.0	-1.5
22	85.9	77.1	84.1	86.8	91.8	93.9	3.0	2.1	-1.5

TAKEOFF

1	88.6	74.7	81.0	83.0	88.2	90.6	14.0	2.4	-1.6
3	88.3	74.0	80.7	81.9	87.1	89.0	16.5	2.4	-1.7
5	88.2	74.2	80.7	81.3	87.3	88.8	15.5	1.7	-1.6
15	87.8	75.0	81.3	80.1	87.8	89.3	13.5	2.1	-1.5
17	87.9	73.8	80.5	81.9	87.0	89.2	15.0	2.3	-1.6
19	88.1	73.5	80.3	81.8	87.0	89.4	15.5	2.3	-1.6
21	88.0	74.5	81.2	81.8	87.8	89.5	15.0	2.3	-1.5

LEVEL FLY-BY NORTH TO SOUTH

6				NO DATA AVAILABLE					

LEVEL FLY-BY SOUTH TO NORTH

7	-	68.2	73.6	75.7	80.4	82.5	-	2.3	-
11	80.7	66.5	72.2	74.5	79.2	81.1	24.5	1.9	-1.0

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-2-b*

PIPER PA-38-112 (TOMAHAWK) AIRCRAFT

DOT/TSC
10/18/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-2 2000 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 19, 1978

EVENT	EPNL	DBA(M)	DBD(M)	DASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	74.0	60.8	68.1	71.7	74.9	76.0	12.5	1.1	-1.0
4	72.9	59.4	66.6	70.5	72.7	74.8	13.5	2.2	-1.3
16	69.7	54.7	62.4	67.6	68.1	70.6	16.0	2.5	-0.9
18	72.7	59.9	66.7	70.5	73.1	75.4	11.0	2.3	-1.1
20	78.1	64.9	71.6	74.2	78.4	80.6	11.5	2.2	-1.3
22	75.9	62.8	69.8	72.9	76.6	78.8	10.5	2.2	-1.4

TAKEOFF

1	82.2	63.8	70.1	72.8	76.3	78.8	48.5	2.5	-1.5
3	82.2	63.6	70.1	72.5	76.5	78.9	45.5	2.5	-1.5
5	82.0	63.8	70.2	73.2	76.6	78.9	47.0	2.4	-1.4
15	81.8	64.5	70.8	73.2	77.0	79.3	36.5	2.4	-1.3
17	82.1	64.5	71.3	73.1	77.8	79.4	42.0	2.4	-1.4
19	81.3	64.0	70.1	71.6	76.6	78.2	49.5	1.6	-1.4
21	81.8	64.4	70.4	72.9	76.9	78.8	45.0	2.4	-1.3

LEVEL FLY-BY NORTH TO SOUTH

6	77.6	66.8	72.1	71.0	78.4	79.9	13.0	1.5	-1.2

LEVEL FLY-BY SOUTH TO NORTH

7	80.9	67.1	72.6	74.1	79.2	80.7	25.0	2.0	-1.4
11	81.1	66.7	72.1	74.6	78.6	80.5	24.5	2.1	-1.4

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-1-c
 PIPER PA-38-112 (TOMAHAWK) AIRCRAFT
 SUMMARY NOISE LEVEL DATA
 AS MEASURED *

DOT/TSC
 11/13/78

SITE NO. 31-3 3485 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 19, 1978

EVENT EPNL DBA(M) DBD(M) OASPL PNL(M) PNLT(M) DUR(P) TC Δ EPNL **
 APPROACH

----- NO DATA AVAILABLE -----

TAKEOFF

----- NO DATA AVAILABLE -----

LEVEL FLY-BY NORTH TO SOUTH

----- NO DATA AVAILABLE -----

LEVEL FLY-BY SOUTH TO NORTH

----- NO DATA AVAILABLE -----

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-1-J

PIPER PA-38-112 (TOMAHAWK) AIRCRAFT

DOT/TSC
11/24/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-4 4715 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 19, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **
APPROACH									

----- NO DATA AVAILABLE -----

TAKEOFF

----- NO DATA AVAILABLE -----

LEVEL FLY-BY NORTH TO SOUTH

----- NO DATA AVAILABLE -----

LEVEL FLY-BY SOUTH TO NORTH

----- NO DATA AVAILABLE -----

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-2-a*

PIPER PA-36-375 (BRAVE AG.) AIRCRAFT

DOT/TSC
10/13/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-1

60 M. NORTH THRESHOLD RNWY. 13

DATE: JUNE 19, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

24	87.5	77.4	85.1	88.8	92.5	94.0	4.5	1.5	-1.2
26	88.8	80.1	87.3	90.3	94.6	95.7	4.5	1.1	-1.0
28	86.7	76.4	84.0	81.9	90.7	91.4	6.5	1.1	-0.8
30	93.1	85.5	92.6	95.6	100.4	101.3	3.5	1.0	-0.9
39	92.3	84.3	90.9	94.6	98.4	99.7	4.0	1.2	-1.0
41	83.5	73.6	81.7	85.8	89.5	90.4	4.5	1.0	-1.0
43	80.7	71.0	78.6	80.1	85.5	86.4	6.0	1.2	-0.7
45	86.3	77.5	83.3	87.1	90.2	91.8	6.5	1.6	-1.4

TAKEOFF

23	99.2	92.8	96.9	99.0	104.4	106.4	4.0	2.0	-1.6
25	97.1	90.2	94.4	96.3	101.5	103.3	5.0	1.7	-1.3
27	98.6	91.1	95.6	97.8	103.0	104.9	4.5	2.0	-1.7
29	99.0	92.1	96.3	98.0	103.3	105.5	4.5	2.2	-1.6
31	98.5	91.8	95.5	97.5	102.6	104.4	5.0	2.0	-1.4
40	91.9	82.5	87.2	89.6	94.2	96.3	8.5	2.1	-1.4
42	92.8	83.6	87.8	89.8	95.0	97.2	8.0	2.1	-1.6
44	92.6	83.3	87.1	89.3	94.2	96.4	9.5	2.2	-1.6

LEVEL FLY-BY NORTH TO SOUTH

32	86.4	76.1	80.9	83.4	87.7	89.8	9.5	2.1	-1.1
34	86.9	76.3	81.5	84.3	88.4	90.3	10.0	1.9	-1.2
36	87.0	77.2	81.8	84.0	88.7	90.9	9.0	2.2	-1.3

LEVEL FLY-BY SOUTH TO NORTH

33	89.2	79.9	83.8	85.7	90.6	92.4	10.5	1.8	-1.3
35	87.3	76.9	80.7	83.4	87.5	89.6	11.5	2.1	-1.5
37	87.3	75.8	80.6	82.9	87.3	89.2	14.0	2.0	-1.4

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-2-b*

PIPER PA-36-375 (BRAVE AG.) AIRCRAFT

DOT/TSC
10/18/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-2 2000 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 19, 1978

EVENT EPNL DBA(M) DBD(M) OASPL PNL(M) PNLT(M) DUR(P) TC Δ EPNL **

APPROACH

24	88.0	81.0	85.5	87.1	91.8	93.9	6.0	2.1	-1.6
26	89.8	83.6	87.4	89.1	93.3	96.0	5.5	2.7	-2.3
28	88.6	81.6	85.6	87.5	91.4	94.3	6.0	2.9	-2.2
30	86.7	75.9	82.2	86.0	88.9	91.0	7.5	2.1	-1.5
39	-	70.3	77.3	81.1	84.2	85.9	-	1.7	-
41	-	59.5	67.5	71.9	74.0	75.7	-	1.7	-
43	75.3	59.9	68.5	73.8	74.8	76.8	18.0	2.1	-1.3
45	88.3	80.0	84.5	86.6	90.6	93.2	7.5	2.7	-2.0

TAKEOFF

23	93.7	83.4	88.3	90.7	95.2	97.6	9.5	2.3	-1.6
25	94.0	84.0	88.7	90.9	95.7	98.1	9.5	2.4	-1.7
27	94.3	83.9	89.0	91.4	95.9	98.3	8.5	2.4	-1.8
29	93.3	82.5	88.1	90.5	95.0	97.5	8.5	2.5	-1.8
31	92.6	83.1	87.4	89.7	94.4	96.6	8.5	2.2	-1.5
40	87.6	74.8	80.5	83.9	86.9	89.2	17.0	2.4	-1.6
42	88.6	75.1	80.3	83.5	86.8	89.1	18.0	2.4	-1.8
44	88.2	74.5	80.1	82.7	86.3	88.8	20.0	2.5	-1.6

LEVEL FLY-BY NORTH TO SOUTH

32	86.5	76.1	81.8	84.1	88.7	91.0	9.5	2.4	-1.8
34	87.8	77.9	83.2	85.1	90.1	92.3	8.0	2.2	-1.6
36	87.5	76.6	82.0	84.2	88.8	91.3	9.0	2.4	-1.6

LEVEL FLY-BY SOUTH TO NORTH

33	88.7	76.8	82.4	85.1	89.4	91.7	12.0	2.3	-1.4
35	87.7	77.0	82.1	84.3	88.8	91.1	10.0	2.4	-1.8
37	85.9	75.2	79.8	82.6	87.0	88.8	14.0	1.9	-1.1

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-2-C

PIPER PA-36-375 (BRAVE AG.) AIRCRAFT

DOT/TSC
10/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-3 3485 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 19, 1978

EVENT EPNL DBA(M) DBD(M) OASPL PNL(M) PNLT(M) DUR(P) TC Δ EPNL **

APPROACH

24	89.4	80.4	84.9	87.0	91.1	93.7	8.0	2.5	-1.9
26	89.6	82.1	86.3	88.3	92.4	95.0	6.0	2.6	-1.7
28		-----		NO DATA AVAILABLE			-----		
30		-----		NO DATA AVAILABLE			-----		
39		-----		NO DATA AVAILABLE			-----		
41	80.7	67.6	74.2	78.2	79.8	81.6	16.5	1.8	-1.4
43	84.2	73.3	79.0	82.0	84.5	86.9	12.0	2.6	-1.5
45	88.6	80.2	85.1	87.5	91.3	93.9	7.0	2.6	-1.8

TAKEOFF

23	92.7	80.6	86.4	89.4	93.5	95.8	11.5	2.4	-1.3
25	-	80.8	86.7	89.6	93.6	96.0	-	2.4	-
27	92.8	81.0	86.0	88.8	93.1	95.2	12.0	2.2	-1.3
29	-	82.1	87.2	89.6	94.0	96.4	-	2.4	-
31	92.4	79.5	85.5	88.4	91.9	94.2	15.0	2.3	-1.5
40	86.2	72.4	77.5	81.6	84.2	86.3	22.5	2.1	-1.2
42	87.3	74.4	79.8	82.8	85.8	88.1	19.0	2.3	-1.4
44	-	72.0	77.2	80.4	83.2	85.6	-	2.3	-

LEVEL FLY-BY NORTH TO SOUTH

32	88.6	78.4	83.5	85.8	89.9	92.0	9.5	2.2	-1.4
34	87.8	78.6	83.1	85.8	90.2	92.0	9.0	1.8	-1.0
36	89.6	78.7	84.0	86.5	90.7	92.8	11.0	2.1	-1.4

LEVEL FLY-BY SOUTH TO NORTH

33	89.7	77.6	83.4	86.3	90.4	92.6	13.5	2.2	-1.4
35	-	78.3	84.1	87.0	90.8	93.2	-	2.4	-
37	88.5	76.8	81.5	84.3	88.3	90.1	13.5	1.8	-1.1

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL, THE CHANGE IN EPNL ASSUMING TONES 800 HZ AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-2-d*

PIPER PA-36-375 (BRAVE AG.) AIRCRAFT

DOT/TSC
11/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-4 4715 M. NORTH THRESHOLD RWY. 13 DATE: JUNE 19, 1978

EVENT EPNL DBA(M) DBD(M) OASPL PNL(M) PNLT(M) DUR(P) TC Δ EPNL **

APPROACH

24		-----		NO DATA AVAILABLE	-----			
26		-----		NO DATA AVAILABLE	-----			
28		-----		NO DATA AVAILABLE	-----			
30	-	78.7	83.3	86.1 89.9 92.3	-	2.4	-	
39		-----		NO DATA AVAILABLE	-----			
41	-	72.9	78.0	80.6 85.0 86.7	-	1.7	-	
43		-----		NO DATA AVAILABLE	-----			
45	-	76.8	81.1	84.0 87.3 89.8	-	2.6	-	

TAKEOFF

23		-----		NO DATA AVAILABLE	-----			
25		-----		NO DATA AVAILABLE	-----			
27		-----		NO DATA AVAILABLE	-----			
29		-----		NO DATA AVAILABLE	-----			
31		-----		NO DATA AVAILABLE	-----			
40	83.2	69.7	75.7	79.9 82.5 84.4	22.5	1.9	-1.0	
42		-----		NO DATA AVAILABLE	-----			
44	78.6	68.1	72.4	74.5 78.6 80.1	19.0	1.4	-0.9	

LEVEL FLY-BY NORTH TO SOUTH

32	-	75.8	81.6	85.0 88.1 90.3	-	2.2	-	
34		-----		NO DATA AVAILABLE	-----			
36		-----		NO DATA AVAILABLE	-----			

LEVEL FLY-BY SOUTH TO NORTH

33	86.3	75.8	80.5	83.7 87.6 89.2	11.5	1.6	-0.9	
35	87.0	75.3	80.5	83.7 87.3 89.2	11.5	2.1	-1.4	
37	84.1	74.1	78.7	80.9 85.7 87.2	10.5	1.5	-1.1	

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-3-a

PIPER PA-31-325 (NAVAJO) AIRCRAFT

DOT/TSC
10/13/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-1

60 M. NORTH THRESHOLD RNWY. 13

DATE: JUNE 20, 1978

EVENT	EPNL	DBA(M)	DBD(M)	DASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	95.3	87.8	94.9	97.5	102.6	104.1	3.0	1.5	-1.2
4	97.7	89.2	96.8	100.8	104.9	106.6	2.5	1.8	-1.0
6	98.4	90.6	97.9	101.7	105.9	107.4	2.5	1.5	-0.9
8	97.4	88.5	96.5	100.9	104.5	105.9	3.0	1.5	-1.3
10	96.3	88.4	95.8	99.5	103.5	105.0	3.0	1.5	-1.5
18	92.4	84.2	91.4	93.4	99.7	101.3	3.0	1.6	-1.5

TAKEOFF

1	98.7	88.7	95.2	98.8	102.9	105.8	4.0	2.9	-2.2
3	97.9	89.0	94.1	96.6	101.2	103.8	5.0	2.8	-1.8
5	99.8	92.2	98.0	100.1	105.2	107.9	3.0	2.8	-2.0
7	98.4	90.3	96.4	99.1	103.6	106.5	3.5	2.9	-2.3
9	99.2	89.9	95.7	99.1	103.2	105.9	4.0	2.8	-2.1
11	98.5	89.2	95.3	99.0	103.0	105.9	4.0	3.0	-2.0

LEVEL FLY-BY NORTH TO SOUTH

12	88.4	78.2	85.2	89.4	91.9	94.8	5.0	2.9	-2.1
14	87.2	76.7	83.0	86.9	89.9	92.7	6.5	2.9	-2.0
16	87.7	77.0	84.3	88.6	90.9	93.9	5.5	3.0	-2.2

LEVEL FLY-BY SOUTH TO NORTH

13	88.4	77.1	84.5	88.9	91.3	94.3	6.0	2.9	-2.0
15	86.0	73.7	79.8	83.6	87.1	89.7	10.0	2.6	-1.8
17	87.2	75.9	83.4	88.0	90.1	93.1	5.5	3.0	-2.1

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL, THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-3-6

PIPER PA-31-325 (NAVAJO) AIRCRAFT

DOT/TSC
10/ 5/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-2 2000 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 20, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	90.1	81.3	87.6	91.3	94.5	96.8	4.5	2.3	-1.4
4	90.3	82.3	88.2	91.0	94.6	97.1	5.0	2.6	-1.6
6	90.9	81.9	88.6	92.3	95.6	98.0	4.5	2.4	-1.6
8	90.9	81.0	87.7	92.2	95.0	97.4	5.5	2.5	-1.7
10	88.8	77.8	84.7	88.8	92.2	94.1	6.0	1.9	-1.6
18	86.9	77.1	83.5	85.7	90.5	93.2	5.5	2.6	-1.5

TAKEDOFF

1	90.2	78.9	85.4	88.9	92.0	95.0	6.5	3.0	-2.2
3	92.3	80.6	87.1	90.7	93.5	96.6	7.5	3.1	-2.3
5	90.1	78.2	85.5	89.7	92.5	95.3	6.5	2.9	-2.0
7	90.5	77.4	85.1	90.1	91.8	94.7	8.5	2.8	-2.0
9	88.9	76.3	83.4	88.7	90.3	92.9	7.5	2.9	-1.7
11	89.4	77.6	85.2	89.8	92.1	94.9	7.5	2.8	-2.0

LEVEL FLY-BY NORTH TO SOUTH

12	88.1	78.6	85.1	88.4	90.8	93.8	6.5	3.0	-1.8
14	88.2	78.3	84.1	87.6	90.7	93.6	6.5	3.0	-2.1
16	87.7	75.6	83.7	88.5	90.1	93.1	7.0	3.0	-2.0

LEVEL FLY-BY SOUTH TO NORTH

13	87.8	76.8	84.3	88.6	91.0	94.0	5.5	3.0	-2.0
15	86.6	77.4	83.2	85.7	89.3	92.1	7.5	2.8	-2.0
17	87.3	76.9	83.6	87.5	89.7	92.7	6.0	3.0	-1.8

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-3-c*
 PIPER PA-31-325 (NAVAJO) AIRCRAFT
 SUMMARY NOISE LEVEL DATA

DOT/TSC
 10/27/78

AS MEASURED *

SITE NO. 31-3 3485 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 20, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	86.7	74.6	81.8	85.7	89.1	91.5	7.5	2.4	-1.8
4	88.5	77.0	83.5	87.3	90.8	93.6	7.0	2.8	-1.6
6	89.2	77.6	84.5	87.9	91.6	94.4	7.0	2.8	-1.8
8	88.1	76.8	83.2	86.0	90.2	92.6	7.5	2.4	-1.1
10	86.7	74.6	81.6	85.8	88.9	91.3	8.0	2.4	-1.2
18	86.3	74.8	81.7	86.0	88.8	91.4	8.5	2.5	-1.3

TAKEOFF

1	88.1	74.6	81.3	85.4	88.5	91.5	13.0	3.0	-2.0
3	88.6	74.9	82.3	86.5	89.2	92.0	8.5	2.9	-1.8
5	87.5	75.2	82.8	87.3	89.8	92.7	7.0	2.9	-2.0
7	87.8	73.9	81.6	85.6	88.6	91.4	11.0	2.9	-1.8
9	-	73.3	81.2	86.4	87.6	90.3	-	2.6	-
11	90.4	77.0	84.8	89.6	92.3	95.1	7.0	2.8	-2.1

LEVEL FLY-BY NORTH TO SOUTH

12	85.5	73.8	80.3	83.8	87.5	89.6	9.5	2.1	-1.5
14	86.8	75.9	81.6	85.1	88.6	91.3	8.0	2.7	-1.4
16	87.8	76.2	83.3	87.7	90.4	93.4	7.0	3.0	-2.1

LEVEL FLY-BY SOUTH TO NORTH

13	88.5	76.5	84.5	89.3	91.6	94.5	6.5	3.0	-1.7
15	89.0	77.4	85.2	90.1	92.2	94.8	5.0	2.6	-2.1
17		-----		NO DATA AVAILABLE			-----		

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-3-d*

PIPER PA-31-325 (NAVAJO) AIRCRAFT

DOT/TSC
11/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-4 4715 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 20, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	83.8	72.1	79.6	84.2	86.2	88.6	9.5	2.4	-1.8
4	87.1	74.8	82.3	87.5	89.2	91.5	7.5	2.2	-1.4
6	87.0	74.1	83.1	88.6	89.6	92.1	8.0	2.4	-1.9
8	86.2	73.5	80.9	86.1	87.9	89.8	10.0	1.9	-1.4
10	85.2	72.7	81.0	86.2	88.0	90.2	8.5	2.2	-1.4
18	86.3	73.8	81.1	86.3	88.2	90.4	8.0	2.2	-1.4

TAKEOFF

1	88.0	73.2	81.0	86.6	87.4	90.5	12.5	3.1	-2.1
3	86.6	73.0	79.6	84.5	86.1	89.1	12.0	3.1	-2.0
5	85.6	72.1	78.0	82.0	84.8	87.4	16.0	2.6	-1.3
7	86.4	73.4	81.1	86.3	87.7	90.7	11.0	3.1	-1.9
9	86.7	72.4	80.3	85.7	86.8	89.9	9.0	3.1	-1.8
11	86.9	72.8	81.5	87.0	87.8	90.5	8.5	2.7	-1.9

LEVEL FLY-BY NORTH TO SOUTH

12	85.7	73.9	79.2	83.8	86.2	89.0	9.5	2.8	-1.5
14	89.5	78.3	85.8	90.6	92.8	95.6	5.5	2.9	-2.1
16	88.0	77.0	84.3	89.1	91.4	94.3	5.0	2.9	-1.9

LEVEL FLY-BY SOUTH TO NORTH

13	87.6	75.7	82.6	87.3	89.9	92.2	8.5	2.3	-1.8
15	89.0	77.3	84.6	89.5	91.7	94.4	6.0	2.8	-2.1
17	88.3	77.2	84.5	89.2	91.2	94.2	5.0	3.0	-2.2

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-4-a
CONVAIR CV-580 AIRCRAFT
SUMMARY NOISE LEVEL DATA
AS MEASURED *

DOT/TSC
10/18/78

SITE NO. 31-1 60 M. NORTH THRESHOLD RWY. 13 DATE: JUNE 20, 1978

EVENT EPNL DBA(M) DBD(M) OASPL PNL(M) PNLT(M) DUR(P) TC Δ EPNL **

APPROACH

19	107.2	101.0	105.3	104.3	113.1	115.5	3.0	1.6	0.0
21	107.7	101.8	105.6	104.4	113.8	116.7	3.0	1.4	0.0
23	105.1	99.0	103.2	102.1	111.1	113.6	3.5	1.4	0.0
25	105.4	99.5	103.4	102.8	111.4	113.9	3.5	1.4	0.0
27	106.3	100.4	104.1	103.4	112.1	114.8	3.0	1.4	0.0
29	105.7	99.6	103.7	103.0	111.8	114.6	3.0	1.2	0.0
37	106.2	99.8	103.8	103.7	111.9	114.9	3.0	1.7	0.0

TAKEOFF

22					NO DATA AVAILABLE				
24	95.2	86.1	90.9	93.5	98.1	100.0	7.0	1.9	-1.6
26	94.5	85.3	90.3	92.6	97.7	100.0	6.0	2.3	-1.5
28	94.2	84.9	89.5	92.0	96.9	98.8	6.5	1.9	-1.7
30	94.3	84.6	89.1	91.5	96.5	98.6	7.0	2.1	-1.5

LEVEL FLY-BY NORTH TO SOUTH

31	92.1	85.1	88.8	89.9	95.3	96.9	7.5	1.6	-0.3
33	91.7	84.1	88.1	89.9	94.9	96.7	6.5	1.7	-0.3
35	91.6	84.1	87.5	88.5	94.1	96.2	8.0	1.7	-0.3

LEVEL FLY-BY SOUTH TO NORTH

32	91.0	82.4	86.9	89.5	94.0	96.2	6.5	2.2	-1.4
34	90.8	82.9	86.6	88.2	93.1	95.3	7.0	2.2	-1.0
36	91.1	81.1	88.1	92.0	94.8	97.2	5.5	2.4	-1.4

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-4- b

CONVAIR CV-580 AIRCRAFT

DOT/TSC
10/ 5/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-2 2000 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 20, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

19	95.3	86.1	90.0	89.9	97.8	100.8	6.5	1.7	-0.2
21	94.2	85.3	89.2	89.3	96.8	99.9	6.5	1.7	-0.0
23	95.0	85.5	89.4	89.4	97.1	100.2	7.0	1.6	-0.1
25	94.1	84.8	88.5	87.8	96.1	99.3	7.0	1.4	-0.0
27	94.9	86.2	89.9	89.9	97.6	100.7	7.0	1.6	-0.0
29	95.5	86.7	90.2	89.6	97.9	100.8	6.5	1.7	-0.0
37	94.4	85.7	89.0	88.5	96.7	99.5	7.0	2.0	-0.1

TAKEOFF

22	90.1	79.7	84.7	87.7	91.9	93.7	8.5	1.8	-1.8
24	89.4	78.1	83.5	87.2	90.4	92.6	9.0	2.2	-1.7
26	89.6	79.1	84.2	87.7	91.2	93.1	9.0	2.0	-1.5
28	88.8	77.0	81.5	85.0	88.7	91.1	12.0	2.3	-1.7
30	89.1	77.6	82.1	85.8	89.1	91.7	11.0	2.6	-1.8

LEVEL FLY-BY NORTH TO SOUTH

31	91.8	83.2	87.8	89.0	94.6	96.2	7.0	1.7	-0.4
33	93.1	84.7	89.3	91.1	96.6	98.5	6.0	1.9	-0.5
35	93.0	84.1	88.4	89.2	95.1	96.7	8.0	1.6	-0.6

LEVEL FLY-BY SOUTH TO NORTH

32	90.6	81.4	85.1	86.7	92.0	94.1	10.5	1.8	-0.7
34	91.6	82.3	87.1	89.7	94.2	96.3	7.0	2.1	-0.6
36	91.8	82.6	87.5	90.6	94.9	97.2	7.0	2.3	-0.5

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-4-C*
CONVAIR CV-580 AIRCRAFT
SUMMARY NOISE LEVEL DATA
AS MEASURED *

DOT/TSC
11/13/78

SITE NO. 31-3 3485 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 20, 1978

EVENT	EPNL	DBA(M)	DRD(M)	DASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

19	98.3	87.0	91.1	91.4	98.8	102.1	10.0	3.4	0.0
21	91.5	80.3	84.5	86.6	92.0	94.8	9.5	2.7	-0.0
23	94.2	83.4	87.6	87.4	95.4	98.9	7.5	3.5	0.0
25	95.1	85.9	89.4	87.9	97.0	100.2	7.0	1.4	-0.1
27				NO DATA AVAILABLE					
29	94.7	85.0	88.2	86.9	95.9	99.5	8.0	1.5	-0.0
37	94.9	85.3	88.6	87.1	96.2	99.6	7.5	1.7	0.0

TAKEOFF

22				NO DATA AVAILABLE					
24	91.4	82.4	85.4	84.6	91.3	93.6	14.0	2.4	-1.2
26	87.7	75.6	80.9	84.4	87.8	90.1	12.0	2.4	-1.5
28	86.1	75.3	80.0	83.5	87.2	89.4	13.0	2.2	-1.4
30	-	72.1	77.8	81.5	84.8	87.2	-	2.5	-

LEVEL FLY-BY NORTH TO SOUTH

31	94.6	86.0	91.5	94.7	98.4	100.4	5.5	2.3	-0.9
33	94.1	85.4	90.8	93.4	97.9	100.1	6.5	2.3	-0.7
35	92.9	84.1	88.5	89.3	95.3	97.2	8.5	1.9	-0.7

LEVEL FLY-BY SOUTH TO NORTH

32	93.7	84.5	88.7	89.3	95.7	97.2	9.5	1.7	-0.5
34	88.2	79.5	83.5	84.9	90.5	92.0	8.5	1.5	-0.6
36	93.4	84.6	88.9	90.6	95.6	97.3	8.5	1.7	-0.5

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 HZ AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-4-d
CONVAIR CV-580 AIRCRAFT
SUMMARY NOISE LEVEL DATA
AS MEASURED *

DOT/TSC
12/29/78

SITE NO. 31-4 4715 M. NORTH THRESHOLD RWY. 13 DATE: JUNE 20, 1978

EVENT EPNL DBA(M) DBD(M) OASPL PNL(M) PNLT(M) DUR(P) TC Δ EPNL **

APPROACH

19	91.1	81.0	84.5	86.6	92.3	95.6	9.0	3.3	-0.0
21	90.7	80.3	83.5	84.0	91.3	94.1	9.5	3.1	-0.0
23	92.2	82.5	85.4	86.8	93.3	96.7	8.0	3.5	-0.1
25	91.5	81.7	84.8	85.6	92.6	96.1	8.5	3.5	-0.0
27	91.5	81.3	84.8	86.5	92.3	95.8	8.5	3.7	-0.0
29	90.7	80.2	83.6	84.8	91.3	94.7	10.0	3.4	-0.0
37		-----		NO DATA AVAILABLE			-----		

TAKEOFF

22	85.2	72.5	78.4	82.5	85.4	87.5	13.5	2.1	-1.3
24		-----		NO DATA AVAILABLE			-----		
26	85.8	76.3	80.1	82.0	86.8	88.4	10.5	1.7	-1.1
28	-	73.5	78.8	82.6	85.4	87.9	-	2.4	-
30	83.7	72.7	76.4	79.0	82.5	84.4	21.5	1.9	-

LEVEL FLY-BY NORTH TO SOUTH

31	91.2	82.0	86.5	88.2	93.8	95.7	7.0	1.9	-1.1
33	91.5	81.6	86.7	89.7	94.3	96.2	7.0	2.1	-0.9
35	92.2	83.3	88.2	90.3	95.2	96.9	6.5	2.0	-1.0

LEVEL FLY-BY SOUTH TO NORTH

32	92.6	83.7	88.1	90.8	95.4	97.6	7.0	2.2	-0.4
34	91.0	82.3	86.4	88.8	93.4	95.9	8.0	2.5	-0.4
36	91.7	82.2	87.0	89.9	93.8	96.0	9.0	2.4	-0.5

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-5-a*

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT

DOT/TSC
10/14/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-1

60 M. NORTH THRESHOLD RNWY. 13

DATE: JUNE 21, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	100.8	94.1	100.9	104.3	107.8	109.6	2.5	1.8	-1.5
4	101.0	93.9	100.7	104.3	107.8	110.0	2.5	2.2	-1.8
6	99.8	93.3	99.8	102.8	106.4	108.6	3.0	2.2	-1.7
8	99.3	91.8	98.9	102.6	106.1	107.9	2.5	1.8	-1.5
10	99.7	92.8	99.4	102.8	106.3	108.3	2.5	2.0	-1.5
16	101.9	95.2	101.6	104.9	108.5	110.5	2.5	2.0	-1.5

TAKEOFF

1	97.4	86.3	92.1	96.8	98.0	100.8	8.5	2.8	-1.8
3	100.7	90.2	96.6	100.7	103.5	105.8	6.0	2.3	-1.6
5	97.9	87.7	93.0	97.7	99.8	102.4	7.0	2.5	-1.5
7	98.9	89.1	94.8	98.4	101.3	103.1	7.0	1.8	-1.1
9	99.4	88.8	95.8	100.6	102.4	104.9	5.5	2.5	-1.7
11	99.0	89.3	95.7	99.6	102.8	104.9	6.5	2.1	-1.6

LEVEL FLY-BY NORTH TO SOUTH

12	92.0	81.5	87.0	90.6	93.7	95.3	7.5	2.3	-0.8
14	91.5	81.3	86.8	91.1	93.5	95.7	8.5	2.2	-1.2

LEVEL FLY-BY SOUTH TO NORTH

13	92.4	81.6	88.7	93.2	95.3	96.9	9.0	2.4	-0.6
15	92.9	82.0	87.8	91.9	94.7	97.1	7.0	2.4	-0.8

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-5-6*

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT

DOT/TSC
10/ 5/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-2 2000 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 21, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	90.0	79.1	86.4	90.2	92.8	95.1	7.0	2.3	-1.3
4	92.2	81.7	87.4	90.6	94.2	96.3	8.0	2.5	-1.4
6	95.1	85.5	91.2	94.3	97.7	99.4	7.5	2.0	-1.8
8	91.9	81.2	86.9	90.6	93.9	96.3	7.5	2.5	-1.2
10	92.9	82.2	88.4	92.0	94.9	97.6	7.5	2.8	-1.5
16	94.7	86.5	90.6	93.3	96.5	98.9	7.5	2.4	-2.1

TAKEOFF

1	88.2	74.3	82.1	86.1	87.9	90.1	14.0	2.2	-1.6
3	87.7	74.2	82.2	86.3	88.1	90.5	12.5	2.5	-1.2
5	88.1	74.2	82.4	87.3	88.3	90.2	12.0	1.9	-1.0
7	87.5	73.7	82.2	87.4	88.5	89.7	14.5	1.2	-0.9
9	87.3	72.4	80.4	84.5	85.9	88.7	17.0	2.8	-0.7
11	87.7	72.8	80.8	85.1	86.6	89.0	16.0	2.4	-1.0

LEVEL FLY-BY NORTH TO SOUTH

12	91.7	80.6	85.7	89.2	92.6	94.7	10.0	2.1	-0.6
14	91.9	80.6	87.0	89.7	93.7	95.8	9.0	2.2	-0.7

LEVEL FLY-BY SOUTH TO NORTH

13	91.5	80.6	86.3	88.9	92.9	95.2	10.0	2.3	-0.7
15	92.9	80.7	87.2	90.9	94.2	96.6	9.0	2.4	-0.6

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-5-c

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT

DOT/TSC
11/ 8/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-3 3485 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 21, 1978

EVENT EPNL DBA(M) DBD(M) OASPL PNL(M) PNLT(M) DUR(P) TC Δ EPNL **

APPROACH

2	90.0	77.6	83.7	87.5	90.4	92.7	10.5	2.4	-1.3
4	91.0	79.1	85.1	88.9	91.4	93.8	10.5	2.7	-1.3
6	90.6	81.1	86.1	88.3	91.1	93.8	10.5	2.7	-1.8
8	89.7	78.1	84.3	88.1	90.2	92.2	11.5	2.5	-1.3
10	-	79.5	84.6	89.2	91.4	93.9	-	2.5	-
16	92.5	82.0	86.3	88.9	92.6	94.6	11.0	2.0	-1.7

TAKEOFF

1	87.9	72.3	80.6	85.3	86.6	88.3	17.0	2.3	-1.7
3	88.5	73.9	82.0	86.3	87.7	89.9	13.5	2.2	-1.8
5	84.3	68.7	76.8	81.7	82.0	85.1	18.0	3.1	-2.1
7	85.4	70.4	78.6	83.0	84.8	87.1	16.0	2.4	-1.5
9				NO DATA AVAILABLE					
11	86.8	71.5	80.0	84.9	85.9	87.7	18.0	2.0	-1.4

LEVEL FLY-BY NORTH TO SOUTH

12	92.3	81.8	88.2	91.9	94.6	95.6	9.5	1.1	-0.6
14	92.8	81.8	88.0	91.8	95.1	96.8	8.0	1.7	-0.7

LEVEL FLY-BY SOUTH TO NORTH

13	93.8	80.9	88.5	93.1	94.8	97.5	9.0	2.7	-1.1
15	93.0	83.2	88.7	91.6	95.2	97.0	8.0	1.9	-1.2

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-5-d

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT

DOT/TSC
11/23/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-4 4715 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 21, 1978

EVENT EPNL DBA(M) DBD(M) OASPL PNL(M) PNLT(M) DUR(P) TC Δ EPNL **

APPROACH

2	89.0	77.4	84.1	87.3	89.5	91.8	11.0	2.4	-1.3
4	90.0	79.2	84.8	87.8	90.7	92.8	11.0	2.3	-
6	92.1	81.3	86.4	89.0	92.5	94.4	11.0	1.9	-1.7
8	90.8	80.8	86.0	88.0	92.0	93.7	11.0	1.6	-1.5
10	90.5	79.3	85.1	89.1	90.9	93.7	10.0	2.8	-1.8
16	91.3	81.7	87.1	89.6	92.6	94.5	11.0	2.0	-1.7

TAKEOFF

1	-	72.0	80.8	85.9	86.8	87.9	-	1.2	-
3	86.8	72.6	81.3	86.4	87.3	88.5	14.5	1.1	-1.4
5				NO DATA AVAILABLE					
7	85.7	70.2	78.6	82.9	84.2	86.5	25.0	2.3	-1.2
9	87.1	73.1	81.1	85.4	87.0	89.0	17.5	2.0	-1.7
11	-	69.7	77.7	82.0	83.4	85.2	-	1.8	-

LEVEL FLY-BY NORTH TO SOUTH

12	92.4	81.4	87.2	91.0	93.9	96.2	8.5	2.3	-1.1
14	92.1	82.4	88.2	92.0	94.7	96.7	7.0	2.0	-

LEVEL FLY-BY SOUTH TO NORTH

13	93.5	80.8	88.8	93.4	95.3	97.5	8.0	2.4	-1.0
15	93.1	81.4	88.1	91.3	94.6	97.2	8.0	2.6	-1.2

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL, THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-6-a*

CESSNA 172N (SKYHAWK) AIRCRAFT

DOT/TSC
10/17/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-1

60 M. NORTH THRESHOLD RNWY. 13

DATE: JUNE 21, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

18	82.0	74.6	81.4	84.9	89.0	89.7	3.5	0.7	-0.7
20	82.3	75.1	81.9	85.3	89.4	90.2	3.5	0.7	-0.8
22	82.3	74.5	81.5	85.0	89.3	90.9	3.0	1.6	-1.1
24	82.1	74.8	81.7	85.2	89.4	90.4	3.0	0.9	-0.7
26	83.6	76.6	83.2	85.8	90.9	91.9	3.0	1.0	-0.6
34	84.2	77.4	83.7	85.9	91.2	92.4	3.0	1.2	-0.9

TAKEOFF

17	89.3	77.3	82.9	83.4	89.9	92.1	13.5	2.3	-1.3
19	89.2	76.6	82.1	83.4	89.0	91.3	15.0	2.3	-1.5
21	89.2	78.4	83.6	83.9	90.3	92.5	11.5	2.2	-1.5
23	89.6	78.2	83.6	84.4	90.5	92.8	12.0	2.4	-1.6
25	89.4	78.4	84.0	85.0	91.1	93.7	9.5	2.6	-1.6
27	90.9	80.3	85.6	84.5	92.1	94.4	10.5	2.3	-1.5

LEVEL FLY-BY NORTH TO SOUTH

				NO DATA AVAILABLE					
28									
30	84.9	76.5	80.4	80.7	86.8	88.8	8.5	2.0	-1.1
32	85.0	75.9	79.9	80.1	86.5	88.4	9.5	1.9	-1.3

LEVEL FLY-BY SOUTH TO NORTH

29	85.4	75.0	79.4	80.1	86.3	88.2	11.0	2.1	-1.3
31	85.6	76.1	80.7	80.8	87.3	88.9	10.5	1.6	-1.2
33	85.2	74.9	79.5	79.8	86.3	88.2	11.0	1.9	-1.3

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-6-6

CESSNA 172N (SKYHAWK) AIRCRAFT
 SUMMARY NOISE LEVEL DATA
 AS MEASURED *

DOT/TSC
 10/ 5/78

SITE NO. 31-2 2000 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 21, 1978

EVENT EPNL DBA(M) DBD(M) OASPL PNL(M) PNLT(M) DUR(P) TC Δ EPNL **

APPROACH

18	73.9	61.9	68.7	71.9	75.9	77.2	14.0	1.3	-0.3
20	73.7	62.7	69.1	72.5	76.3	78.5	7.5	2.2	-0.7
22	72.7	61.6	68.3	71.7	75.5	77.1	9.0	1.6	-0.7
24	72.7	61.7	68.3	71.8	75.4	76.9	8.5	1.5	-0.4
26	73.4	61.2	67.7	70.4	74.6	76.5	13.5	2.0	-0.4
34		-----		NO DATA AVAILABLE			-----		

TAKEOFF

17	83.5	69.2	74.0	75.0	80.7	82.7	41.5	2.0	-1.0
19	83.0	68.1	73.3	74.9	79.9	82.1	32.0	2.2	-1.1
21	82.5	68.5	74.1	75.4	80.5	82.8	24.5	2.3	-1.0
23	82.7	68.4	73.4	74.7	79.8	81.6	36.5	1.8	-0.8
25	83.0	68.3	73.7	75.4	80.2	82.5	29.0	2.5	-1.0
27	82.9	68.3	73.6	75.0	79.9	82.2	37.0	2.3	-0.7

LEVEL FLY-BY NORTH TO SOUTH

28	83.6	74.3	78.5	79.0	85.1	86.6	9.5	1.9	-1.2
30	83.8	74.3	78.7	79.4	85.6	86.9	9.0	1.7	-1.2
32	83.7	74.2	78.4	79.0	85.4	86.8	10.5	1.4	-1.2

LEVEL FLY-BY SOUTH TO NORTH

29	84.0	73.7	78.2	79.1	85.2	86.6	12.0	2.0	-1.2
31	84.3	74.0	78.5	79.4	85.6	86.9	12.0	1.3	-1.1
33	83.2	72.3	77.1	78.8	84.2	85.7	12.0	1.6	-1.1

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-6-C
CESSNA 172N (SKYHAWK) AIRCRAFT
SUMMARY NOISE LEVEL DATA
AS MEASURED *

DOT/TSC
11/ 8/78

SITE NO. 31-3 3485 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 21, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

18	-	60.1	65.8	68.7	72.7	73.3	-	1.0	-
20	-	60.6	66.9	72.0	73.3	75.0	-	1.7	-
22	71.2	58.9	65.3	68.1	72.0	74.1	18.0	0.9	-0.5
24	71.5	58.9	65.2	69.1	71.6	73.3	25.0	1.4	-0.5
26		NO DATA AVAILABLE							
34	-	59.1	65.1	69.8	71.6	73.4	-	1.8	-

TAKEOFF

17	81.7	66.0	71.6	73.8	77.8	79.8	43.0	2.4	-1.2
19		NO DATA AVAILABLE							
21	81.6	66.2	71.5	73.7	77.7	79.5	51.5	2.3	-1.3
23	81.4	66.3	71.8	73.9	78.2	80.2	35.0	2.0	-1.4
25	82.0	65.2	70.7	73.5	77.3	79.4	54.5	2.3	-1.3
27		NO DATA AVAILABLE							

LEVEL FLY-BY NORTH TO SOUTH

28	83.8	73.4	78.7	80.5	85.6	87.2	9.5	1.6	-1.0
30	84.3	73.9	78.6	79.7	85.4	87.4	10.0	2.2	-1.1
32	84.3	74.9	79.7	80.8	86.3	88.1	8.5	1.8	-1.0

LEVEL FLY-BY SOUTH TO NORTH

29	85.5	74.3	78.8	79.9	85.8	86.5	19.5	1.8	-1.0
31	85.2	74.2	78.7	79.8	86.0	87.2	15.5	1.2	-1.4
33	85.1	74.2	78.5	79.4	85.6	87.2	14.0	1.6	-0.8

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-6-d

CESSNA 172N (SKYHAWK) AIRCRAFT

DOT/TSC
11/23/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-4 4715 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 21, 1978

EVENT EPNL DBA(M) DBD(M) DASPL PNL(M) PNLT(M) DUR(P) TC Δ EPNL **

APPROACH

18		NO DATA AVAILABLE							
20	-	59.1	66.2	71.0	73.0	75.3	-	2.3	-
22	-	57.4	64.7	73.3	70.9	72.1	-	1.3	-
24	-	57.2	64.5	69.8	70.8	72.5	-	1.7	-
26	-	64.3	72.3	81.1	78.4	79.3	-	0.9	-
34	-	66.6	73.2	76.1	80.1	80.6	-	0.5	-

TAKEOFF

17		NO DATA AVAILABLE							
19		NO DATA AVAILABLE							
21		NO DATA AVAILABLE							
23	-	63.8	69.4	72.0	76.0	78.0	-	2.0	-
25	79.8	62.6	68.2	71.2	74.5	76.9	51.0	2.4	-1.4
27		NO DATA AVAILABLE							

LEVEL FLY-BY NORTH TO SOUTH

28	84.8	74.2	79.0	80.4	86.2	88.4	9.5	2.2	-1.3
30	84.2	74.3	79.3	80.5	86.6	88.2	9.0	1.6	-1.2
32	85.0	74.6	79.3	82.5	86.4	88.3	14.5	1.9	-1.1

LEVEL FLY-BY SOUTH TO NORTH

29	84.7	74.2	79.1	80.4	86.0	87.3	12.0	1.3	-1.1
31	84.6	74.1	78.8	80.2	86.2	87.8	11.0	1.7	-1.1
33	84.5	74.4	78.9	80.3	86.5	87.9	9.5	1.4	-1.0

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 HZ AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-7-a*

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT

DOT/TSC
10/18/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-1

60 M. NORTH THRESHOLD RNWY. 13

DATE: JUNE 23, 1978

EVENT	EPNL	DBA(M)	DBD(M)	DASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	-	90.6	97.5	95.3	104.8	106.2	-	1.4	-
4	97.0	89.6	96.7	94.2	103.8	105.4	3.0	1.6	-
6	95.0	87.8	94.8	92.5	101.9	103.1	3.5	1.2	-1.1
8	96.9	89.7	96.6	94.2	103.6	105.2	3.0	1.5	-1.3
10	95.5	88.1	94.6	94.0	102.0	103.4	3.5	1.4	-1.5
12	95.5	87.7	94.8	91.3	101.9	103.2	3.0	1.3	-1.2
14	97.3	89.7	96.9	93.5	103.9	105.6	3.0	1.7	-1.5
23	97.1	89.6	96.6	94.9	103.6	105.5	3.0	1.9	-1.6

TAKEOFF

1	90.4	79.2	86.9	90.1	94.2	97.0	6.0	2.8	-2.0
3	90.5	78.7	86.3	89.4	93.2	96.0	8.0	2.8	-2.2
5	91.9	80.5	88.3	91.8	95.8	98.3	5.5	2.5	-2.1
7	90.7	77.8	86.0	89.9	91.9	94.6	10.0	2.6	-2.0
9	91.2	79.9	87.2	89.2	94.6	97.2	7.0	2.6	-2.0
11	94.8	84.2	91.5	94.0	99.0	101.3	5.0	2.4	-2.1
13	91.3	80.4	87.7	90.3	95.4	97.8	7.0	2.4	-2.3
15	89.2	78.7	85.7	88.2	93.0	95.2	7.0	2.1	-1.8

LEVEL FLY-BY NORTH TO SOUTH

16	84.0	73.5	80.1	83.1	87.5	89.7	6.5	2.3	-1.2
18	87.3	76.5	83.0	86.3	90.3	92.4	7.5	2.1	-1.4
20	86.4	76.3	82.7	85.3	90.0	91.5	6.0	1.5	-1.3
22	85.3	75.3	80.9	82.1	88.0	89.1	9.0	1.4	-1.1

LEVEL FLY-BY SOUTH TO NORTH

17	83.7	72.3	78.6	81.3	85.3	87.6	10.0	2.4	-1.4
19	85.8	74.7	82.4	86.0	89.3	92.0	6.0	2.7	-1.9
21	86.4	73.9	81.9	86.0	88.8	91.4	7.5	2.6	-1.8

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL, THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. **F-7-6**

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT

DOT/TSC
10/18/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-2 2000 M. NORTH THRESHOLD RWY. 13 DATE: JUNE 23, 1978

EVENT EPNL DBA(M) DBD(M) OASPL PNL(M) PNLT(M) DUR(P) TC Δ EPNL **

APPROACH

2	-	75.7	82.6	82.5	89.7	91.4	-	1.8	-
4	87.7	76.8	84.1	80.6	90.5	92.6	7.0	2.1	-1.4
6	86.6	75.5	82.4	79.9	89.3	90.8	7.5	1.5	-1.1
8	87.6	76.2	83.5	83.1	90.2	92.5	7.0	2.2	-1.5
10	85.8	74.8	81.4	81.7	88.2	90.1	8.5	1.9	-1.4
12	85.5	75.1	81.8	81.5	88.8	90.8	7.0	2.0	-1.1
14	86.2	75.5	82.4	84.1	89.5	91.4	7.0	1.9	-0.9
23	86.2	75.8	82.7	83.0	89.6	91.6	6.5	2.0	-1.1

TAKEOFF

1	81.0	66.7	74.1	78.2	80.9	83.2	19.0	2.3	-1.4
3	83.5	70.6	78.5	82.5	84.7	87.3	11.5	2.6	-2.0
5	82.5	71.0	78.9	82.8	85.1	87.5	7.5	2.4	-1.6
7	85.5	69.2	77.6	82.2	83.1	85.7	24.0	2.7	-2.2
9	82.5	68.5	76.1	80.9	82.7	85.0	15.5	2.4	-1.7
11	84.6	71.1	78.5	82.7	85.5	87.8	12.5	2.4	-1.5
13	83.3	68.1	76.5	81.3	82.9	85.5	14.5	2.6	-2.0
15	81.6	67.6	75.4	80.0	81.7	84.3	14.0	2.5	-2.0

LEVEL FLY-BY NORTH TO SOUTH

16	83.9	74.3	80.5	82.1	87.2	88.3	8.0	1.4	-1.1
18	84.8	74.2	80.5	83.9	87.3	89.3	9.0	2.0	-1.3
20	86.5	75.7	82.7	85.7	89.9	91.8	6.5	1.9	-1.4
22	84.8	74.3	80.6	82.8	87.5	89.1	9.0	1.6	-1.1

LEVEL FLY-BY SOUTH TO NORTH

17	84.0	73.7	80.5	84.1	87.3	89.1	7.5	1.8	-1.2
19	85.9	74.7	82.3	85.9	89.2	91.6	5.5	2.4	-1.6
21	85.2	74.1	81.6	85.7	88.8	91.1	6.0	2.4	-1.4

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-7-C*

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-3 3485 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 23, 1978

EVENT EPNL DBA(M) DBD(M) OASPL PNL(M) PNLT(M) DUR(P) TC Δ EPNL **

APPROACH

2	85.3	74.0	80.9	82.5	88.3	90.8	8.0	2.5	-1.3
4	84.4	72.7	79.1	78.3	85.7	87.7	10.0	2.0	-1.1
6	83.4	71.2	77.9	77.0	84.2	86.4	11.5	2.3	-1.1
8	87.3	75.4	82.1	79.0	88.5	90.5	10.5	2.2	-1.3
10	85.6	72.6	79.2	78.6	85.5	87.7	12.5	2.2	-1.2
12	85.1	72.5	80.0	81.9	87.2	89.9	8.0	2.6	-1.2
14	84.1	71.4	77.8	77.4	84.8	86.7	12.5	1.6	-1.1
23	-	69.0	74.9	74.6	81.3	82.7	-	1.4	-

TAKEDOFF

1	80.7	66.2	73.8	78.7	80.2	82.6	13.5	2.5	-1.6
3	82.9	67.8	75.8	81.1	81.8	84.2	15.0	2.3	-1.6
5	81.6	67.2	75.2	79.4	81.1	83.8	13.5	2.7	-1.2
7				NO DATA AVAILABLE					
9	81.6	67.3	74.6	78.4	81.1	83.4	21.5	2.4	-1.6
11	83.0	67.7	75.1	79.7	81.4	84.0	19.0	2.6	-1.8
13	87.8	78.1	85.2	89.4	92.2	94.2	5.0	2.0	-1.9
15	80.6	66.2	74.0	78.0	79.5	82.2	16.0	2.7	-1.9

LEVEL FLY-BY NORTH TO SOUTH

16	89.1	78.3	85.9	89.6	93.1	95.2	5.5	2.1	-1.3
18	86.3	74.6	81.1	84.0	88.3	90.8	10.5	2.5	-1.7
20	86.8	74.7	81.5	84.8	88.8	91.1	9.0	2.5	-1.7
22	85.9	74.7	80.8	83.0	87.8	90.0	11.5	2.2	-1.5

LEVEL FLY-BY SOUTH TO NORTH

17	84.9	75.2	81.2	83.6	88.2	89.7	7.5	1.5	-1.0
19	84.5	74.4	80.2	82.5	87.3	88.4	8.5	1.2	-0.9
21	84.5	74.9	80.7	82.7	87.8	88.8	8.5	1.1	-0.9

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-7-d*

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT

DOT/TSC
11/28/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-4 4715 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 22, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	82.7	71.4	76.8	77.5	83.9	86.2	10.5	2.4	-1.0
4	82.5	70.9	76.4	76.0	83.0	84.8	13.0	2.1	-1.0
6	81.8	69.8	75.7	77.1	82.6	84.5	13.0	2.0	-1.2
8	82.3	70.9	75.8	73.6	82.4	83.6	14.5	2.0	-0.9
10	83.7	71.2	77.9	79.5	85.0	87.5	11.5	2.5	-1.3
12	82.5	70.9	76.2	77.1	83.1	85.2	13.0	2.1	-1.1
14	82.4	69.8	75.8	76.0	82.5	84.7	14.0	2.2	-1.1
23	82.0	69.7	76.0	77.2	83.0	85.2	13.0	2.2	-0.8

TAKEOFF

1	-	63.5	70.2	73.4	75.5	77.9	-	2.4	-
3	80.8	65.5	71.9	76.0	78.4	80.9	29.0	2.6	-1.2
5	81.8	67.0	75.2	79.4	80.6	83.6	21.0	2.9	-1.8
7	83.9	66.3	74.5	78.6	79.5	82.2	38.0	2.8	-1.4
9	80.9	65.1	73.1	77.2	79.4	82.1	29.0	2.8	-1.1
11	81.9	67.4	75.7	80.3	81.6	84.3	14.5	2.8	-1.5
13	80.2	65.4	73.7	78.2	79.4	82.2	23.5	2.8	-2.0
15	-	65.6	73.6	77.8	78.9	81.7	-	2.8	-

LEVEL FLY-BY NORTH TO SOUTH

16	87.3	76.8	83.5	85.9	90.2	92.0	7.5	2.0	-1.3
18	86.3	74.7	80.9	83.5	87.7	89.6	12.5	2.0	-1.5
20	87.6	76.4	83.3	86.9	90.3	92.8	7.5	2.5	-1.8
22	88.5	76.1	83.9	87.9	91.1	93.7	8.0	2.6	-1.9

LEVEL FLY-BY SOUTH TO NORTH

17	87.1	77.1	83.4	85.0	90.3	91.8	7.5	1.8	-1.1
19	85.9	75.4	81.5	84.0	89.1	90.5	7.5	1.4	-1.2
21	88.1	77.2	84.1	87.4	91.5	93.2	6.0	1.5	-1.1

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 HZ AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-8-a

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT

DOT/TSC
10/16/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-1

60 M. NORTH THRESHOLD RNWY. 13

DATE: JUNE 23, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **
APPROACH									
25	99.3	92.9	98.1	101.1	105.7	107.8	2.5	2.4	-1.8
27	99.7	95.1	99.1	99.7	106.7	108.8	2.5	2.2	-1.8
29	102.3	96.6	101.8	104.1	109.3	111.6	2.5	2.3	-0.6
31	95.9	88.8	94.3	95.9	101.6	103.2	4.5	1.6	-1.3
33	97.7	89.6	96.3	99.9	104.4	106.5	3.0	2.1	-1.4
35	96.4	89.8	94.8	96.6	102.6	104.7	3.0	2.2	-1.7
43	95.9	88.8	94.4	97.3	102.2	104.4	3.0	2.2	-1.0
TAKEOFF									
24	98.2	90.3	95.3	99.5	102.6	105.2	4.5	2.5	-2.0
26	97.2	89.7	95.1	98.0	102.1	104.6	4.0	2.5	-1.7
28	98.1	91.4	96.1	99.1	102.8	105.4	4.0	2.7	-2.2
30	99.2	93.4	98.2	100.5	105.0	107.2	3.5	2.2	-1.8
32	100.0	94.5	99.5	102.0	106.3	108.7	3.0	2.4	-1.9
34	101.5	94.1	100.5	104.3	106.9	109.6	3.0	2.7	-2.3
36	-	91.0	95.9	100.3	102.6	105.5	-	2.9	-
LEVEL FLY-BY NORTH TO SOUTH									
37	89.6	81.9	87.5	89.3	93.9	96.5	4.5	2.6	-1.9
39	90.0	80.2	86.7	90.2	92.6	95.5	7.0	2.9	-2.2
41	90.2	81.7	87.2	90.2	93.4	95.9	5.5	2.6	-2.2
LEVEL FLY-BY SOUTH TO NORTH									
38	89.3	79.4	85.3	88.5	90.8	93.3	7.5	2.5	-2.1
40	89.3	80.0	84.7	87.4	91.5	94.0	7.0	2.4	-2.1
42	90.1	81.9	87.4	89.9	93.8	96.6	5.0	2.8	-2.0

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-8-b

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAF

DOT/TSC
10/ 5/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-2 2000 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 23,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

25	89.2	78.9	85.7	90.7	92.5	95.1	5.0	2.7	-1.1
27	87.8	76.2	84.4	89.8	91.1	93.6	5.5	2.5	-1.1
29	87.6	77.3	83.9	88.5	90.5	93.1	6.0	2.7	-0.8
31	89.6	78.8	86.8	91.8	93.3	96.1	5.0	2.9	-1.6
33	88.8	78.2	85.9	90.7	92.5	95.4	5.0	2.8	-1.4
35	87.5	76.1	83.7	89.0	90.4	93.1	6.0	2.7	-1.4
43	85.1	74.8	81.2	86.7	87.7	89.6	7.0	1.9	-0.8

TAKEDOFF

24	88.1	77.7	84.2	88.3	90.5	92.9	8.5	2.4	-2.1
26	88.3	76.8	84.8	90.5	91.3	93.8	7.0	2.5	-2.1
28	90.1	79.2	87.4	93.1	93.7	96.4	4.5	2.8	-2.1
30	89.6	78.7	86.8	92.2	92.9	95.6	6.0	2.7	-2.3
32	92.7	84.1	88.7	93.3	95.0	97.9	5.5	3.0	-2.1
34	87.3	78.4	84.9	88.2	90.6	93.6	5.0	3.0	-2.4
36	87.9	77.7	84.8	89.9	90.9	93.6	5.5	2.7	-2.0

LEVEL FLY-BY NORTH TO SOUTH

37	90.1	82.2	87.8	90.4	93.4	96.1	6.0	2.7	-2.2
39	91.1	83.7	88.1	89.6	93.8	96.4	5.5	2.6	-2.4
41	89.5	81.5	86.3	88.8	92.2	94.5	5.5	2.6	-2.3

LEVEL FLY-BY SOUTH TO NORTH

38	90.2	81.9	86.9	89.0	92.8	95.4	6.0	2.6	-2.3
40	89.7	81.9	87.3	89.9	93.1	95.9	5.5	2.7	-2.3
42	89.6	80.9	86.1	88.2	92.4	94.9	6.0	2.5	-2.5

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-8 - C*
 ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAF
 SUMMARY NOISE LEVEL DATA
 AS MEASURED *

DOT/TSC
11/ 9/78

SITE NO. 31-3 3485 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 23, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

25	87.3	78.1	82.6	87.4	89.7	92.4	6.5	2.7	-1.7
27	88.7	78.7	85.4	89.5	93.2	94.8	6.0	1.6	-1.1
29	87.2	77.5	83.0	88.0	90.1	92.8	6.5	2.7	-1.3
31	87.3	77.9	83.2	88.5	89.8	92.7	6.5	2.8	-1.8
33	85.9	76.8	81.6	83.0	89.4	91.0	7.5	1.6	-1.2
35	86.4	77.3	82.7	87.1	89.4	92.3	6.5	3.0	-1.9
43	85.5	75.9	82.0	86.2	88.5	91.4	7.5	2.9	-2.1

TAKEOFF

24	88.7	75.7	84.1	90.0	90.3	93.0	9.5	2.7	-1.9
26	87.4	74.2	81.6	86.3	88.2	91.2	9.5	3.0	-2.1
28	88.0	75.0	82.3	87.0	88.3	91.3	11.5	3.0	-2.1
30		-----		NO DATA AVAILABLE			-----		
32		-----		NO DATA AVAILABLE			-----		
34	87.0	73.4	81.7	87.7	87.3	89.9	11.5	2.9	-2.1
36	87.5	77.5	83.0	86.0	90.7	92.5	9.5	1.8	-1.6

LEVEL FLY-BY NORTH TO SOUTH

37	92.0	83.3	88.7	91.2	95.3	98.0	5.5	2.8	-1.8
39	90.7	82.5	86.9	88.4	93.0	95.2	6.5	2.4	-1.9
41	90.9	82.9	88.1	90.0	94.2	96.7	5.5	2.5	-2.2

LEVEL FLY-BY SOUTH TO NORTH

38	90.6	82.3	87.8	91.0	93.5	96.2	6.0	2.9	-1.9
40	-	82.9	88.8	92.0	94.3	96.8	-	2.5	-
42	91.3	82.9	87.8	90.5	93.9	96.6	6.0	2.7	-2.2

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-8-D*

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT

DOT/TSC
12/29/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-4 4715 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 23, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

25	88.0	74.5	82.2	87.6	88.9	91.5	9.0	2.5	-1.1
27	87.0	75.4	83.6	89.0	89.5	92.3	6.5	2.9	-1.7
29	92.2	80.3	87.8	92.9	95.4	97.8	6.5	2.4	-1.7
31	87.6	76.4	83.1	88.6	89.4	92.1	8.0	2.8	-1.6
33	-	72.2	80.8	86.7	87.6	89.6	-	2.1	-
35	86.6	72.8	81.4	87.1	87.8	90.4	9.5	2.6	-1.3
43	84.5	71.5	79.6	85.4	85.9	88.0	10.5	2.1	-1.3

TAKEOFF

24	87.4	75.5	83.1	88.5	89.6	92.3	7.0	2.8	-2.1
26	86.6	76.4	84.2	89.4	90.1	92.8	6.0	2.7	-2.0
28	87.1	75.9	83.7	88.6	89.0	92.0	8.0	3.0	-2.1
30	89.1	77.6	85.6	90.6	91.2	94.0	7.5	2.8	-2.2
32	86.8	75.9	81.4	85.3	88.0	90.9	10.5	2.9	-2.1
34				NO DATA AVAILABLE					
36	85.8	73.8	81.9	87.2	87.6	90.3	10.5	2.7	-2.3

LEVEL FLY-BY NORTH TO SOUTH

37	94.6	86.4	91.8	94.2	98.1	100.8	5.5	2.6	-2.1
39	-	83.0	87.5	91.2	93.5	96.2	-	2.7	-
41	92.5	85.9	90.4	91.6	96.4	99.0	5.5	2.4	-2.2

LEVEL FLY-BY SOUTH TO NORTH

38	90.4	81.5	87.2	90.1	93.3	96.1	6.0	2.8	-2.1
40	-	81.7	85.9	89.5	92.8	95.3	-	2.6	-
42	91.6	83.2	87.9	91.1	94.7	97.4	5.5	2.3	-2.1

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 HZ AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. F-9-a

BEECH C90 (KING AIR) AIRCRAFT

DOT/TSC
10/17/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-1 60 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 22, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	97.3	89.2	96.6	94.5	104.1	105.5	3.0	1.4	-1.0
7	99.0	93.6	99.2	98.2	106.1	107.1	3.0	0.9	-1.1
9	95.5	88.4	95.5	94.4	102.6	104.1	3.0	1.5	-1.2

TAKEOFF

1	93.5	85.2	89.3	91.5	95.3	98.0	7.5	2.7	-1.0
3	90.9	81.8	86.5	90.5	92.3	95.1	8.0	2.9	-0.6
8	92.5	84.3	88.8	92.5	95.1	97.8	6.5	2.7	-1.1

LEVEL FLY-BY NORTH TO SOUTH

4	89.1	81.6	85.0	87.5	91.7	94.2	7.0	2.5	-1.3
6	92.9	88.0	91.3	91.7	98.8	100.4	4.0	1.7	-1.1

LEVEL FLY-BY SOUTH TO NORTH

5	-	74.3	78.1	82.0	83.7	86.2	-	2.6	-

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-9-b*BEECH C90 (KING AIR) AIRCRAFT
SUMMARY NOISE LEVEL DATADOT/TSC
10/ 5/78

AS MEASURED *

SITE NO. 31-2 2000 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 22, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	87.2	75.2	83.0	83.0	90.2	92.7	6.5	2.5	-0.4
7	90.1	80.8	85.9	87.9	93.4	95.6	6.5	2.2	-1.8
9	87.1	75.3	82.5	82.0	89.7	92.1	7.5	2.4	-0.7

TAKEOFF

1	83.9	69.7	78.7	85.2	85.1	88.1	11.5	3.0	-1.7
3	81.4	66.7	73.8	79.8	80.4	83.2	24.5	2.8	-1.0
8	82.0	69.5	76.9	82.3	82.3	85.2	14.0	2.9	-0.7

LEVEL FLY-BY NORTH TO SOUTH

4	88.4	79.7	84.5	87.9	91.3	93.1	6.5	1.8	-1.8
6	92.9	87.1	91.5	94.0	98.7	100.3	4.0	1.6	-1.6

LEVEL FLY-BY SOUTH TO NORTH

5	93.7	87.7	91.7	92.9	99.3	101.1	4.0	1.8	-1.6

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-9-C*
 BEECH C90 (KING AIR) AIRCRAFT
 SUMMARY NOISE LEVEL DATA

DOT/TSC
 11/ 9/78

AS MEASURED *

SITE NO. 31-3 3485 M. NORTH THRESHOLD RWY. 13 DATE: JUNE 22, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	85.4	71.8	79.8	81.6	87.0	89.4	9.5	2.4	-0.3
7	89.9	82.7	86.3	87.1	93.5	95.1	6.5	1.5	-1.6
9	86.2	73.1	80.2	78.9	87.5	89.7	10.0	1.6	-0.1

TAKEOFF

1	83.5	69.2	75.3	80.1	81.1	83.9	27.5	2.9	-1.2
3	81.2	68.6	74.9	79.7	80.2	82.6	17.0	2.7	-1.5
8	82.8	69.0	75.8	81.2	81.4	84.4	17.0	3.0	-1.2

LEVEL FLY-BY NORTH TO SOUTH

4	90.5	83.0	86.4	88.2	93.0	95.4	7.0	2.7	-1.8
6	93.5	88.1	91.5	92.1	98.8	100.5	4.5	1.8	-1.4

LEVEL FLY-BY SOUTH TO NORTH

5	-	86.7	90.8	91.3	97.9	99.8	-	1.9	-

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

TABLE NO. *F-9-8*

BEECH C90 (KING AIR) AIRCRAFT

DOT/TSC
11/28/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 31-4 4715 M. NORTH THRESHOLD RNWY. 13 DATE: JUNE 22, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	Δ EPNL **

APPROACH

2	84.6	71.8	79.1	81.4	86.0	88.3	9.5	2.3	-0.4
7	90.6	83.5	87.5	89.1	94.9	96.7	5.5	1.8	-1.2
9	83.9	70.0	77.0	77.1	83.7	86.2	14.5	2.5	-

TAKEOFF

1	84.0	69.8	75.9	81.7	81.5	84.4	21.5	2.9	-1.3
3	82.5	67.8	76.4	82.5	82.2	85.2	16.0	3.1	-1.3
8	-	67.5	72.7	76.8	79.4	81.4	-	2.3	-

LEVEL FLY-BY NORTH TO SOUTH

4	90.1	82.4	87.1	90.3	93.0	94.9	7.0	2.3	-1.8
6	95.7	89.9	93.7	94.2	101.3	103.1	4.0	1.4	-1.2

LEVEL FLY-BY SOUTH TO NORTH

5	95.1	87.8	92.8	95.7	100.0	101.8	4.5	1.5	-1.4

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

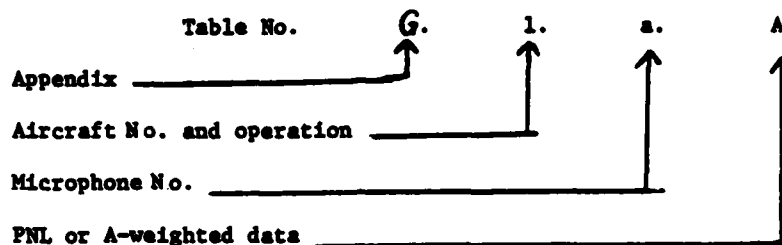
APPENDIX G

INM CONTOUR DATA

Appendix G

Average extrapolated PNL and A-weighted directivity contour data is presented for nine General Aviation Aircraft.

The key to the table numbering is as follows:



Microphone No a - 84 meters north threshold runway 13
 b - 2067 meters north threshold runway 13
 c - 3520 meters north threshold runway 13

		<u>Approach</u>	<u>Takeoff</u>	<u>Flyover</u>	<u>Type</u>	<u>Remarks</u>
Table No.	D.	1, 11, 21			Piper PA-38-112	No extrapolation No track data
		2, 12, 22			Piper PA-36-375	
		3, 13, 23			Piper PA-31-325	
		4, 14, 24			Convair CV-580	
		5, 15, 25			Cessna 421C	
		6, 16, 26			Cessna 172N	
		7, 17, 27			Beech C90	No extrapolation No track data
		8, 18, 28			Rockwell 690B	
		9, 19, 29			Rockwell 500S	

TABLE NO. G-1.2.b

PIPER PA-36-375 (BRAVE AG.) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 PERCEIVED NOISE LEVEL PNdB

DOT/TSC
 2/23/80

APPROACH EVENTS: 28,30,41,43

SITE: 31-2 2067 M. NORTH THRESHOLD RNWY. 13 JUNE 19,1978

SLANT RANGE (ft.)		200	500	1000	2000	4000	7000	10000	20000
THETA	BETA	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL							
(DEGREES)									
28.0	27.7	99.1	89.6	81.4	72.2	62.4	53.9	48.9	38.8
37.9	37.5	89.1	79.6	71.5	62.2	51.8	43.0	38.0	30.5
48.3	47.8	83.7	74.4	66.6	57.6	47.6	39.3	34.9	30.0
56.2	55.6	82.1	73.1	65.6	57.3	47.9	40.8	36.6	30.4
67.6	66.7	79.8	70.7	63.3	54.8	45.3	38.6	34.4	29.8
80.0	78.3	76.6	67.6	60.0	51.4	42.0	35.9	32.9	29.4
89.7	84.0	75.1	66.1	58.4	49.6	40.9	34.9	32.4	29.2
102.4	75.6	70.8	61.5	53.4	44.1	35.8	30.5	29.9	29.1
112.9	66.1	71.5	62.0	53.8	44.2	35.8	30.9	29.7	29.5
121.9	57.5	73.0	63.5	55.4	45.8	36.7	31.7	29.9	29.6
136.2	43.6	74.4	64.9	56.9	47.5	38.2	32.4	30.2	29.5
146.3	33.6	75.6	66.2	58.2	49.0	39.3	32.9	30.4	29.3

STANDARD DEVIATION - PNLT dB									
28.0	27.7	4.2	4.6	5.3	6.2	6.9	7.6	7.7	7.1
37.9	37.5	4.3	4.3	4.1	3.9	4.2	4.3	4.2	1.7
48.3	47.8	3.5	3.5	3.7	4.1	4.5	4.6	4.5	1.2
56.2	55.6	4.6	4.6	4.9	5.1	5.5	4.8	4.4	1.4
67.6	66.7	4.8	4.9	5.1	5.5	5.9	5.1	5.2	1.0
80.0	78.3	2.8	2.8	3.1	3.5	3.7	3.6	3.3	0.4
89.7	84.0	3.7	3.9	4.2	4.9	4.4	4.0	3.0	0.5
102.4	75.6	-	-	-	-	-	-	-	-
112.9	66.1	-	-	-	-	-	-	-	-
121.9	57.5	-	-	-	-	-	-	-	-
136.2	43.6	-	-	-	-	-	-	-	-
146.3	33.6	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 62.b.A

PIPER PA-36-375 (BRAVE AG.) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/23/80

NOISE LEVEL dBA

APPROACH EVENTS: 28,30,41,43

SITE: 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 19,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL							
28.0	27.7	82.7	73.3	65.5	57.6	49.6	43.0	38.6
37.9	37.5	73.8	64.8	57.4	49.4	41.2	34.1	29.4
48.3	47.8	68.9	60.1	53.1	45.4	37.2	30.0	25.1
56.2	55.6	67.2	58.7	52.0	44.9	37.4	30.7	26.1
67.6	66.7	65.2	56.6	49.9	42.7	35.0	28.3	23.7
80.0	78.3	62.0	53.5	46.8	39.7	32.1	25.4	21.1
89.7	84.0	60.5	52.1	45.5	38.4	30.9	24.4	20.1
102.4	75.6	56.4	48.1	41.5	34.6	27.3	21.1	17.3
112.9	66.1	56.4	48.0	41.5	34.6	27.4	21.4	17.8
121.9	57.5	57.4	49.0	42.3	35.3	28.0	21.9	18.3
136.2	43.6	59.3	50.9	44.2	37.2	29.8	23.4	19.4
146.3	33.6	60.8	52.4	45.8	38.7	31.1	24.6	20.4

STANDARD DEVIATION - dBA

28.0	27.7	4.1	4.4	4.8	5.3	5.8	6.1	6.2	6.2
37.9	37.5	4.1	3.9	3.7	3.6	3.7	4.0	4.1	3.6
48.3	47.8	3.7	3.6	3.6	3.6	3.7	4.0	4.2	3.2
56.2	55.6	4.5	4.5	4.5	4.4	4.4	4.3	4.2	2.7
67.6	66.7	4.4	4.5	4.5	4.6	4.7	4.8	4.7	2.6
80.0	78.3	2.6	2.6	2.8	2.9	3.0	3.0	2.9	1.2
89.7	84.0	3.8	3.8	3.8	3.7	3.7	3.5	3.2	1.1
102.4	75.6	-	-	-	-	-	-	-	-
112.9	66.1	-	-	-	-	-	-	-	-
121.9	57.5	-	-	-	-	-	-	-	-
136.2	43.6	-	-	-	-	-	-	-	-
146.3	33.6	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 2.c

PIPER PA-36-375 (BRAVE AG.) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 PERCEIVED NOISE LEVEL PNdB

DOT/TSC
 2/23/80

APPROACH EVENTS: 41,43

SITE: 31-3

3520 M. NORTH THRESHOLD RWY. 13

JUNE 19, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
35.8	33.7	101.8	93.1	85.9	77.8	68.7	60.9	55.7	45.1
40.3	39.3	101.2	92.6	85.4	77.4	68.5	60.9	55.8	45.2
50.4	49.4	100.0	91.4	84.4	76.4	67.6	60.3	55.5	45.1
60.1	59.0	101.4	92.8	85.6	77.6	68.8	61.4	56.6	46.3
69.4	68.1	102.6	94.1	87.1	79.1	70.6	63.2	58.4	48.1
80.5	78.4	103.4	94.7	87.7	79.9	71.4	63.9	58.9	48.4
91.5	85.5	102.0	93.4	86.4	78.7	70.3	62.9	58.1	47.2
100.8	78.3	100.9	92.2	85.0	77.0	68.3	60.9	56.1	45.4
109.3	70.1	99.2	90.4	83.0	74.9	66.1	58.6	53.8	43.1
120.2	59.6	97.2	87.9	79.9	70.9	61.5	53.2	48.4	38.4

STANDARD DEVIATION - PNLT dB

35.8	33.7	-	-	-	-	-	-	-	-
40.3	39.3	2.8	2.7	2.6	2.6	2.5	2.4	2.3	2.5
50.4	49.4	0.7	0.6	0.6	0.5	0.4	0.2	0.2	0.1
60.1	59.0	1.0	1.0	1.1	1.3	1.3	1.5	1.3	1.1
69.4	68.1	1.5	1.6	1.7	1.9	2.1	2.2	2.2	2.3
80.5	78.4	2.7	2.8	2.8	3.2	3.5	3.3	3.0	3.3
91.5	85.5	2.9	2.9	3.0	3.3	3.4	3.3	3.1	3.1
100.8	78.3	2.4	2.5	2.6	2.7	2.8	2.8	2.7	2.8
109.3	70.1	1.6	1.8	1.9	2.1	2.4	2.5	2.3	2.2
120.2	59.6	2.2	2.9	4.0	5.2	6.2	7.3	7.5	6.3

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.2.c.A

PIPER PA-36-375 (BRAVE AG.) AIRCRAFT

DOT/TSC

2/23/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

APPROACH EVENTS: 41,43

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 19, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL							
35.8 33.7	85.8	77.2	70.3	63.2	55.8	49.3	44.8	34.6
40.3 39.3	85.5	76.9	70.1	63.1	55.7	49.3	44.8	34.9
50.4 49.4	83.8	75.5	69.0	62.2	55.1	48.8	44.5	35.0
60.1 59.0	84.7	76.3	69.7	62.9	55.6	49.4	45.1	35.8
69.4 68.1	86.4	78.1	71.6	64.7	57.4	51.1	46.6	36.9
80.5 78.4	88.1	79.8	73.3	66.4	59.1	52.4	47.8	37.7
91.5 85.5	87.1	78.8	72.3	65.5	58.1	51.4	46.8	36.8
100.8 78.3	84.9	76.4	69.8	62.9	55.5	49.0	44.5	34.7
109.3 70.1	82.9	74.3	67.6	60.5	53.2	46.9	42.4	32.9
120.2 59.6	80.9	71.9	64.6	56.8	48.9	42.2	37.8	28.1

STANDARD DEVIATION - dBA

THETA BETA	200	500	1000	2000	4000	7000	10000	20000
35.8 33.7	-	-	-	-	-	-	-	-
40.3 39.3	1.7	1.5	1.3	1.2	1.1	1.3	1.3	1.7
50.4 49.4	0.6	0.7	0.8	0.8	0.8	0.6	0.5	0.3
60.1 59.0	2.2	2.3	2.3	2.4	2.3	2.2	2.1	1.6
69.4 68.1	2.0	2.1	2.2	2.3	2.3	2.2	2.0	1.5
80.5 78.4	3.0	3.0	3.1	3.2	3.2	3.0	2.9	2.3
91.5 85.5	3.5	3.5	3.6	3.5	3.5	3.5	3.3	2.7
100.8 78.3	3.2	3.3	3.5	3.5	3.4	3.3	3.1	2.8
109.3 70.1	2.5	2.8	3.1	3.3	3.3	3.2	3.0	3.0
120.2 59.6	3.0	3.7	4.7	5.8	6.6	6.9	6.8	6.4

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.3.b

PIPER PA-31-325 (NAVAJO) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 PERCEIVED NOISE LEVEL FNdB

DOT/TSC
 2/22/80

APPROACH EVENTS: 2 , 6 , 8 , 10

SITE: 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
30.3	30.1	90.8	81.9	74.4	66.4	57.4	49.4	44.2	34.0
40.1	39.8	93.8	85.0	77.6	69.6	60.9	53.3	48.3	38.0
49.0	48.7	95.5	86.7	79.4	71.4	62.7	55.0	49.9	39.6
57.0	56.6	96.9	88.3	80.9	72.9	64.3	56.8	52.0	41.7
66.9	66.4	97.7	89.1	81.8	73.8	65.1	57.6	52.8	42.6
78.1	77.4	98.8	90.1	82.9	75.1	66.5	59.0	54.1	43.2
90.4	84.6	101.7	93.0	86.1	78.4	69.9	62.4	57.4	46.6
99.9	78.7	102.8	94.1	87.2	79.5	71.0	63.5	58.6	48.3
109.9	69.5	103.8	95.2	88.3	80.7	72.1	64.8	59.9	49.8
119.8	59.8	103.2	94.6	87.7	80.1	71.5	64.2	59.3	49.4
128.2	51.5	101.2	92.6	85.7	77.8	69.1	61.7	57.0	47.2
139.0	40.8	97.5	88.8	81.5	73.4	64.7	57.2	52.5	42.0
150.2	29.5	92.2	83.2	75.6	67.5	58.5	50.4	45.1	34.7

STANDARD DEVIATION - FNLT dB

THETA	BETA	200	500	1000	2000	4000	7000	10000	20000
30.3	30.1	0.9	0.9	0.9	1.0	1.2	1.4	1.5	1.4
40.1	39.8	1.6	1.8	1.7	1.8	1.9	2.0	2.3	2.3
49.0	48.7	2.2	2.4	2.5	2.5	2.6	2.9	3.2	3.6
57.0	56.6	0.9	1.0	1.1	1.2	1.2	1.3	1.3	1.4
66.9	66.4	0.9	0.9	1.0	1.1	1.1	1.2	1.2	1.4
78.1	77.4	1.0	1.1	1.2	1.3	1.4	1.5	1.4	1.4
90.4	84.6	1.2	1.3	1.3	1.4	1.6	1.6	1.6	1.7
99.9	78.7	1.9	1.9	2.1	2.2	2.3	2.4	2.5	2.7
109.9	69.5	1.6	1.7	1.7	1.9	2.1	2.1	2.1	2.2
119.8	59.8	1.4	1.5	1.5	1.7	1.8	1.8	1.9	1.8
128.2	51.5	1.0	1.1	1.1	1.2	1.3	1.3	1.3	1.3
139.0	40.8	1.5	1.5	1.6	1.7	1.7	1.8	1.7	1.9
150.2	29.5	1.3	1.4	1.5	1.6	1.7	2.0	2.3	2.1

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.3.b.A

PIPER PA-31-325 (NAVAJO) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/22/80

NOISE LEVEL dBA

APPROACH EVENTS: 2 , 6 , 8 , 10

SITE: 31-2

2067 M. NORTH THRESHOLD RWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL							
30.3	30.1	76.6	68.1	61.4	54.2	46.4	39.6	34.9
40.1	39.8	78.1	69.7	63.1	56.1	48.7	42.2	37.9
49.0	48.7	79.1	70.6	64.0	56.9	49.4	43.0	38.6
57.0	56.6	79.4	71.0	64.4	57.4	50.0	43.6	39.3
66.9	66.4	80.1	71.7	65.1	58.1	50.8	44.5	40.3
78.1	77.4	82.9	74.5	67.9	61.1	53.7	47.1	42.5
90.4	84.6	86.4	78.1	71.6	64.7	57.4	50.7	46.1
99.9	78.7	86.8	78.5	72.0	65.2	57.8	51.3	46.7
109.9	69.5	87.0	78.6	72.1	65.3	58.1	51.7	47.3
119.8	59.8	85.7	77.3	70.8	64.0	56.9	50.8	46.6
128.2	51.5	83.5	75.1	68.5	61.7	54.7	48.7	44.7
139.0	40.8	79.7	71.3	64.7	57.8	50.6	44.6	40.4
150.2	29.5	76.7	68.2	61.5	54.3	46.4	39.6	34.9

STANDARD DEVIATION - dBA									
30.3	30.1	0.7	0.7	0.7	0.7	0.8	0.9	1.1	1.2
40.1	39.8	0.9	1.0	1.0	1.2	1.4	1.6	1.7	1.9
49.0	48.7	1.3	1.3	1.4	1.6	1.8	2.1	2.3	2.9
57.0	56.6	0.7	0.7	0.7	0.8	0.9	1.0	1.1	1.3
66.9	66.4	0.6	0.6	0.7	0.7	0.7	0.9	0.9	1.1
78.1	77.4	0.9	0.9	1.0	1.0	1.1	1.2	1.3	1.3
90.4	84.6	1.5	1.5	1.6	1.6	1.5	1.6	1.6	1.8
99.9	78.7	1.9	2.0	2.0	2.1	2.0	2.0	2.0	1.9
109.9	69.5	1.8	1.9	1.9	2.0	2.0	1.9	1.9	1.7
119.8	59.8	1.6	1.7	1.7	1.8	1.8	1.7	1.6	1.5
128.2	51.5	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1
139.0	40.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8
150.2	29.5	1.1	1.1	1.1	1.2	1.4	1.6	1.7	1.7

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 6.3.c

PIPER PA-31-325 (NAVAJO) AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

PERCEIVED NOISE LEVEL PNdB

APPROACH EVENTS: 2 , 8 , 10

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
29.6	29.0	95.2	85.9	78.0	68.9	59.1	50.3	44.6	33.8
39.1	38.2	97.5	88.6	81.1	72.7	63.3	55.3	50.1	39.3
50.0	48.5	98.1	89.2	81.6	73.3	64.3	56.4	51.2	40.8
59.8	57.5	101.3	92.7	85.5	77.4	68.6	60.9	55.9	45.7
69.6	66.2	103.1	94.5	87.6	79.6	70.9	63.4	58.3	48.2
81.5	74.6	103.6	95.0	88.0	80.2	71.5	63.9	58.9	48.6
88.9	77.0	103.4	94.8	87.8	79.8	71.1	63.5	58.4	48.1
98.3	74.1	102.1	93.4	86.2	78.1	69.2	61.4	56.4	46.0
109.6	66.4	99.6	90.5	82.8	74.4	65.2	57.1	52.0	41.1
119.4	57.8	99.2	90.1	82.2	73.9	64.7	56.7	51.7	41.0
129.6	48.5	97.8	89.0	81.4	73.1	64.0	56.2	51.5	40.8
139.5	39.0	95.9	87.1	79.6	71.4	62.5	54.7	49.7	39.0
150.0	29.0	96.1	87.3	79.8	71.5	62.3	54.4	49.3	39.1

STANDARD DEVIATION - PNLT dB									
29.6	29.0	1.4	1.4	1.4	1.0	0.5	0.4	0.5	0.6
39.1	38.2	0.7	0.8	1.0	1.4	2.0	2.4	2.8	2.8
50.0	48.5	1.1	1.2	1.3	1.3	1.3	1.3	1.5	1.5
59.8	57.5	0.7	0.8	1.0	1.1	1.2	1.4	1.5	1.7
69.6	66.2	0.3	0.3	0.3	0.3	0.4	0.5	0.6	0.7
81.5	74.6	0.6	0.6	0.5	0.4	0.3	0.2	0.2	0.3
88.9	77.0	0.9	0.9	0.9	0.8	0.8	0.7	0.6	0.6
98.3	74.1	1.8	1.8	1.9	1.9	1.9	1.9	1.7	1.8
109.6	66.4	1.5	1.3	1.5	1.6	1.7	1.8	1.9	2.1
119.4	57.8	1.9	1.7	1.3	1.3	1.1	0.8	0.7	0.7
129.6	48.5	0.9	0.9	0.9	0.9	0.9	0.8	1.2	1.3
139.5	39.0	1.1	1.0	0.8	0.6	0.3	0.3	0.5	0.4
150.0	29.0	1.3	1.3	1.3	1.2	1.3	1.5	2.0	2.2

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 6.3.c.A

PIPER PA-31-325 (NAVAJO) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/22/80

NOISE LEVEL dBA

APPROACH EVENTS: 2 , 8 , 10

SITE: 31-3 3520 M. NORTH THRESHOLD RNWY. 13 JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
29.6	29.0	80.2	71.4	64.3	56.4	47.9	40.3	35.2	24.4
39.1	38.2	81.7	73.0	66.1	58.8	51.0	44.3	39.7	29.7
50.0	48.5	81.6	73.0	66.0	58.6	50.6	44.0	39.5	30.1
59.8	57.5	83.6	75.1	68.3	61.1	53.4	47.0	42.6	33.6
69.6	66.2	85.7	77.2	70.5	63.4	55.8	49.4	45.1	36.0
81.5	74.6	86.9	78.4	71.7	64.6	57.1	50.6	46.2	36.9
88.9	77.0	86.8	78.3	71.6	64.4	56.8	50.2	45.9	36.6
98.3	74.1	85.6	77.0	70.1	62.7	55.0	48.5	44.1	34.9
109.6	66.4	84.0	75.2	67.9	60.2	52.1	45.4	41.1	31.8
119.4	57.8	82.8	74.0	66.8	59.2	51.4	44.9	40.6	31.6
129.6	48.5	81.2	72.6	65.6	58.4	50.8	44.5	40.4	31.4
139.5	39.0	79.3	70.8	64.0	56.8	49.3	42.9	38.5	29.2
150.0	29.0	78.6	70.0	63.2	55.9	48.1	41.6	37.3	28.3

STANDARD DEVIATION - dBA

29.6	29.0	1.2	1.1	1.0	0.7	0.4	0.1	0.1	0.1
39.1	38.2	0.9	0.8	0.7	0.8	1.2	1.7	2.0	2.6
50.0	48.5	0.8	0.7	0.6	0.4	0.3	0.4	0.6	1.0
59.8	57.5	0.9	0.9	0.8	0.8	1.0	1.2	1.3	1.5
69.6	66.2	0.7	0.7	0.5	0.4	0.4	0.5	0.6	0.7
81.5	74.6	1.2	1.1	1.0	0.9	0.7	0.6	0.5	0.2
88.9	77.0	1.3	1.2	1.2	1.0	0.9	0.8	0.6	0.5
98.3	74.1	2.0	2.0	2.0	2.0	1.8	1.6	1.5	1.3
109.6	66.4	1.5	1.5	1.4	1.3	1.2	1.3	1.3	1.4
119.4	57.8	1.8	1.6	1.4	1.1	0.8	0.7	0.6	0.5
129.6	48.5	1.5	1.3	1.1	0.9	0.8	0.8	0.9	1.0
139.5	39.0	1.1	1.0	0.7	0.3	0.2	0.3	0.4	0.4
150.0	29.0	0.9	0.8	0.6	0.2	0.4	0.8	1.0	1.5

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 4.4.b

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

PERCEIVED NOISE LEVEL PNdB

APPROACH EVENTS: 19,21,27,29

SITE: 31-2

2067 M. NORTH THRESHOLD RWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
33.0	33.0	102.8	93.5	86.0	78.0	69.1	60.3	54.9	43.4
43.0	42.9	100.1	90.8	83.2	75.1	65.6	57.3	51.7	40.1
52.6	52.5	99.0	89.7	81.9	73.5	64.3	56.0	50.4	38.7
62.4	62.2	100.5	91.7	84.4	76.4	67.7	59.8	54.4	42.8
73.1	73.0	102.6	93.8	86.7	78.9	70.5	62.8	57.6	46.5
83.3	82.8	103.2	94.4	87.3	79.5	71.0	63.5	58.3	46.9
89.5	85.8	103.5	94.7	87.6	79.8	71.4	63.8	58.7	46.9
101.2	78.5	104.6	95.8	88.6	80.8	72.3	64.7	59.6	46.8
113.2	66.6	106.4	97.5	90.0	81.8	73.0	65.1	59.7	45.7
123.3	56.6	108.7	99.8	92.3	83.7	74.1	66.0	60.2	46.6
131.6	48.3	109.2	100.3	92.8	84.1	74.1	65.6	59.8	46.2
143.8	36.2	107.0	98.0	90.4	81.8	71.5	62.7	57.0	43.9
153.0	26.9	106.3	97.5	90.1	81.9	72.8	64.8	59.2	47.3

STANDARD DEVIATION - PNLT dB

THETA	BETA	200	500	1000	2000	4000	7000	10000	20000
33.0	33.0	1.1	0.8	0.7	0.6	0.7	0.4	0.4	0.3
43.0	42.9	0.9	0.9	0.8	0.8	0.7	0.8	0.8	0.8
52.6	52.5	0.9	0.9	0.7	0.7	0.7	0.7	0.7	0.6
62.4	62.2	0.7	0.7	0.8	0.9	1.1	1.1	1.2	1.5
73.1	73.0	0.8	0.9	0.9	1.0	1.1	1.2	1.2	1.2
83.3	82.8	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.4
89.5	85.8	0.8	0.9	1.1	1.1	1.3	1.3	1.5	2.2
101.2	78.5	0.4	0.4	0.4	0.4	0.5	0.5	0.6	1.0
113.2	66.6	0.5	0.6	0.5	0.4	0.4	0.4	0.4	0.5
123.3	56.6	0.3	0.2	0.2	0.2	0.6	0.7	0.9	0.9
131.6	48.3	0.3	0.3	0.3	0.3	0.4	0.9	1.3	0.9
143.8	36.2	0.6	0.6	0.7	0.8	0.9	1.0	1.0	1.2
153.0	26.9	1.9	1.8	1.7	1.4	1.1	1.0	0.9	0.8

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.

BETA - THE ELEVATION ANGLE.

TABLE NO. 6.4.b.A

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

APPROACH EVENTS: 19,21,27,29

SITE: 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
33.0	33.0	86.3	77.7	70.7	63.3	55.5	48.6	43.7	32.2
43.0	42.9	84.6	76.0	69.0	61.5	53.5	46.3	41.3	29.9
52.6	52.5	84.3	75.6	68.6	61.0	52.7	45.4	40.3	29.1
62.4	62.2	85.3	76.8	70.1	62.9	55.0	48.1	43.2	32.1
73.1	73.0	86.9	78.6	72.0	65.1	57.6	51.0	46.3	35.2
83.3	82.8	87.5	79.1	72.6	65.7	58.3	51.7	46.9	35.9
89.5	85.8	87.7	79.3	72.9	65.9	58.4	51.7	46.9	35.8
101.2	78.5	88.7	80.3	73.6	66.5	58.9	52.1	47.4	36.6
113.2	66.6	91.2	82.7	75.7	68.1	59.6	52.1	47.1	36.3
123.3	56.6	94.0	85.4	78.3	70.5	61.3	53.0	47.4	36.4
131.6	48.3	94.9	86.2	79.1	71.2	61.9	53.2	47.4	36.0
143.8	36.2	93.6	84.9	77.8	69.9	60.7	52.0	46.1	34.4
153.0	26.9	92.4	83.9	76.9	69.2	60.4	52.2	46.7	35.4

STANDARD DEVIATION - dBA

33.0	33.0	0.5	0.3	0.3	0.2	0.3	0.3	0.3	0.3
43.0	42.9	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7
52.6	52.5	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.7
62.4	62.2	0.4	0.5	0.6	0.8	1.0	1.1	1.1	0.9
73.1	73.0	0.7	0.8	0.8	0.9	1.0	1.0	1.0	1.0
83.3	82.8	0.9	0.9	1.0	1.0	1.1	1.2	1.3	1.6
89.5	85.8	0.8	0.9	1.1	1.3	1.5	1.7	1.9	2.1
101.2	78.5	0.1	0.1	0.1	0.1	0.2	0.4	0.5	0.6
113.2	66.6	0.6	0.6	0.6	0.5	0.4	0.3	0.3	0.4
123.3	56.6	0.5	0.4	0.4	0.4	0.3	0.5	0.5	0.5
131.6	48.3	0.5	0.5	0.5	0.4	0.3	0.3	0.5	0.7
143.8	36.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7
153.0	26.9	2.0	2.0	1.9	1.8	1.5	1.0	0.7	0.5

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.4.c

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

PERCEIVED NOISE LEVEL PNdB

APPROACH EVENTS: 19,21,29

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 20,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
31.2	29.7	106.2	97.2	89.8	81.9	72.9	65.0	59.6	47.8
39.7	37.4	104.0	94.9	87.5	79.4	70.4	62.5	57.1	45.4
50.2	46.8	105.0	96.0	88.4	80.3	71.4	63.5	58.1	45.8
59.4	54.7	106.7	97.9	90.5	82.6	73.9	66.1	60.7	48.5
69.8	62.7	108.0	99.2	92.0	84.2	75.8	68.1	62.8	50.0
77.2	67.4	108.4	99.6	92.4	84.7	76.0	68.3	63.0	49.5
90.9	67.6	111.9	102.9	95.3	86.6	76.8	68.7	63.3	49.3
98.2	69.3	110.9	101.9	94.4	85.9	76.2	67.9	62.4	48.3
105.8	65.1	111.2	102.2	94.6	86.0	76.1	67.5	62.0	47.7
117.1	57.0	110.4	101.4	93.9	85.2	75.1	65.7	59.7	44.7
128.5	47.4	109.1	100.1	92.5	83.6	73.1	64.0	57.9	44.5
137.0	39.8	107.0	98.1	90.6	82.4	72.9	64.8	59.2	46.9
147.1	30.7	107.4	98.5	91.2	83.0	74.0	66.3	60.7	48.6

STANDARD DEVIATION - PNLT dB

31.2	29.7	5.3	5.4	5.4	5.4	5.6	5.7	5.7	5.4
39.7	37.4	4.6	4.8	4.9	5.0	5.1	5.2	5.1	4.8
50.2	46.8	3.1	2.8	2.4	2.1	1.8	1.5	1.4	0.7
59.4	54.7	2.7	2.5	2.4	2.1	1.9	1.8	1.7	1.1
69.8	62.7	3.1	3.1	3.1	3.0	2.9	2.9	2.8	2.6
77.2	67.4	3.4	3.4	3.3	3.1	3.0	3.0	3.0	3.1
90.9	67.6	2.7	2.7	2.8	2.9	3.5	3.6	3.8	4.8
98.2	69.3	4.2	4.1	4.2	3.9	3.4	3.3	3.3	3.8
105.8	65.1	4.1	4.1	4.0	3.9	3.2	2.8	2.7	2.9
117.1	57.0	3.5	3.5	3.4	3.3	2.6	1.6	1.6	1.2
128.5	47.4	2.7	2.7	2.6	2.2	2.2	2.9	3.1	3.6
137.0	39.8	3.5	3.5	3.6	3.6	4.0	4.0	3.9	4.2
147.1	30.7	4.5	4.5	4.3	4.3	4.3	4.2	4.1	4.1

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 6.4 c.A

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

APPROACH EVENTS: 19,21,29

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 20,1978

SLANT RANGE (ft.) 200 500 1000 2000 4000 7000 10000 20000

THETA BETA
(DEGREES)

AVERAGE LEVEL - dBA re 20 micro PASCAL

31.2	29.7	90.2	81.6	74.7	67.5	59.8	52.9	48.1	36.8
39.7	37.4	88.4	79.7	72.8	65.5	57.6	50.8	45.9	35.0
50.2	46.8	89.6	81.0	74.1	66.6	58.5	51.4	46.4	35.3
59.4	54.7	91.3	82.7	75.9	68.5	60.4	53.3	48.4	37.6
69.8	62.7	92.1	83.6	76.9	69.6	61.7	54.7	49.9	39.0
77.2	67.4	92.5	84.0	77.1	69.8	61.8	54.7	49.9	39.0
90.9	67.6	96.0	87.3	80.2	72.4	63.3	55.3	50.0	39.1
98.2	69.3	95.3	86.7	79.6	71.7	62.6	54.3	48.8	37.8
105.8	65.1	96.0	87.3	80.2	72.2	62.9	54.3	48.6	37.4
117.1	57.0	95.7	87.0	79.9	71.9	62.4	53.4	47.2	35.4
128.5	47.4	94.9	86.2	79.1	71.1	61.8	52.9	46.9	35.0
137.0	39.8	93.3	84.7	77.6	69.9	61.0	52.8	47.3	36.0
147.1	30.7	93.2	84.6	77.7	70.1	61.3	53.2	47.7	36.4

STANDARD DEVIATION - dBA

31.2	29.7	5.0	5.1	5.0	5.1	5.1	5.1	5.1	5.0
39.7	37.4	4.2	4.2	4.2	4.1	4.1	4.1	4.1	3.9
50.2	46.8	3.5	3.2	3.0	2.5	1.9	1.4	1.4	1.6
59.4	54.7	3.2	3.0	2.7	2.3	1.6	1.2	1.2	1.6
69.8	62.7	3.3	3.1	3.0	2.9	2.7	2.5	2.5	2.3
77.2	67.4	3.3	3.2	3.2	3.1	2.9	2.9	2.8	2.6
90.9	67.6	2.3	2.3	2.4	2.5	2.6	3.0	3.3	3.9
98.2	69.3	3.9	3.8	3.7	3.5	3.2	2.9	3.0	3.5
105.8	65.1	3.9	3.8	3.7	3.5	3.1	2.7	2.6	2.8
117.1	57.0	3.6	3.5	3.4	3.1	2.6	2.0	1.6	1.5
128.5	47.4	3.2	3.2	3.1	3.0	2.9	2.7	2.7	2.8
137.0	39.8	4.0	4.0	3.9	3.8	3.6	3.4	3.3	3.3
147.1	30.7	4.8	4.8	4.7	4.5	4.1	3.7	3.5	3.3

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. G.5.5

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT

DOT/TSC
2/23/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

PERCEIVED NOISE LEVEL PNdB

APPROACH EVENTS: 2 , 4 , 6 , 8

SITE: 31-2

2067 M. NORTH THRESHOLD RWY. 13

JUNE 21, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
29.3	29.1	99.7	91.1	84.1	76.4	68.0	60.6	55.6	44.8
38.3	36.5	100.1	91.5	84.7	77.3	69.0	61.7	56.8	46.3
49.0	46.4	101.6	93.1	86.4	79.1	71.0	63.9	59.1	48.5
59.4	56.0	102.0	93.6	86.8	79.6	71.5	64.4	59.6	49.2
69.8	65.2	101.8	93.3	86.5	79.1	71.0	63.9	59.1	48.4
79.0	71.1	101.7	93.2	86.4	79.1	71.0	64.0	59.2	48.6
90.9	76.6	101.8	93.3	86.5	79.2	71.0	63.9	59.2	48.6
101.5	69.1	102.4	94.1	87.3	80.0	71.9	64.8	60.1	49.8
111.1	63.5	103.4	95.0	88.2	80.9	72.7	65.8	61.0	50.8
121.0	54.9	103.9	95.4	88.6	81.5	73.4	66.3	61.6	51.6
128.1	47.7	103.9	95.4	88.6	81.4	73.4	66.4	61.7	51.8
140.0	37.8	102.0	93.5	86.6	79.4	71.2	64.2	59.5	49.6
149.2	29.2	97.7	89.0	81.8	74.1	65.5	58.3	53.3	42.4

STANDARD DEVIATION - PNLT dB									
29.3	29.1	1.6	1.6	1.7	1.8	1.9	2.0	2.0	2.2
38.3	36.5	2.0	2.1	2.1	2.3	2.4	2.5	2.5	2.7
49.0	46.4	3.3	3.4	3.4	3.6	3.9	4.0	4.1	4.2
59.4	56.0	3.5	3.6	3.7	3.9	4.2	4.3	4.4	4.3
69.8	65.2	3.4	3.5	3.5	3.8	4.2	4.2	4.2	4.3
79.0	71.1	3.4	3.4	3.5	3.7	3.9	3.9	3.8	3.7
90.9	76.6	1.9	2.0	2.0	2.1	1.9	1.8	1.7	1.7
101.5	69.1	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.4
111.1	63.5	0.6	0.6	0.6	0.6	0.4	0.6	0.6	0.5
121.0	54.9	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.5
128.1	47.7	1.5	1.5	1.5	1.5	1.7	1.7	1.7	1.7
140.0	37.8	2.3	2.4	2.4	2.6	2.8	3.0	3.0	3.0
149.2	29.2	2.4	2.5	2.7	2.9	3.1	3.2	3.4	4.1

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 6.5.b 1

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT

DOT/TSC
2/23/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

APPROACH EVENTS: 2 , 4 , 6 , 8

SITE: 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 21, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
29.3	29.1	84.0	75.7	69.2	62.3	54.9	48.3	43.7	33.4
38.3	36.5	84.6	76.4	69.9	63.2	56.1	49.8	45.3	35.4
49.0	46.4	86.1	77.9	71.6	65.0	58.0	51.8	47.5	37.8
59.4	56.0	86.9	78.8	72.4	65.8	58.8	52.6	48.3	38.6
69.8	65.2	87.4	79.3	72.9	66.3	59.1	52.8	48.4	38.5
79.0	71.1	87.8	79.6	73.2	66.4	59.2	52.8	48.3	38.2
90.9	76.6	88.2	79.9	73.5	66.7	59.3	52.7	48.0	37.8
101.5	69.1	87.3	79.1	72.7	66.0	58.6	52.2	47.6	37.6
111.1	63.5	87.8	79.6	73.2	66.4	59.2	52.7	48.3	38.5
121.0	54.9	87.0	78.8	72.4	65.8	58.7	52.6	48.3	39.0
128.1	47.7	86.5	78.3	72.0	65.4	58.5	52.6	48.5	39.4
140.0	37.8	85.3	77.1	70.7	64.1	57.2	51.1	46.9	37.8
149.2	29.2	82.7	74.3	67.8	60.8	53.3	46.7	42.1	32.2

STANDARD DEVIATION - dBA

THETA	BETA	200	500	1000	2000	4000	7000	10000	20000
29.3	29.1	1.2	1.2	1.3	1.3	1.5	1.6	1.8	2.1
38.3	36.5	1.2	1.2	1.3	1.3	1.5	1.6	1.7	2.0
49.0	46.4	2.5	2.5	2.6	2.7	2.8	3.0	3.1	3.2
59.4	56.0	2.6	2.7	2.7	2.8	2.9	3.0	3.1	3.2
69.8	65.2	2.7	2.7	2.8	2.8	2.9	3.0	3.0	3.0
79.0	71.1	3.5	3.5	3.5	3.5	3.5	3.4	3.3	3.2
90.9	76.6	2.7	2.7	2.6	2.6	2.4	2.2	2.0	1.9
101.5	69.1	0.9	0.9	0.8	0.7	0.5	0.2	0.1	0.3
111.1	63.5	1.8	1.7	1.7	1.6	1.3	1.1	0.9	0.7
121.0	54.9	1.2	1.2	1.1	1.0	0.9	0.7	0.6	0.4
128.1	47.7	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3
140.0	37.8	1.9	1.9	2.0	2.1	2.2	2.3	2.4	2.5
149.2	29.2	1.1	1.2	1.3	1.5	1.8	2.1	2.3	2.8

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 6.5.c

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 PERCEIVED NOISE LEVEL PNdB

DOT/TSC
 2/23/80

APPROACH EVENTS: 2 , 4 , 6 , 8

SITE: 31-3 3520 M. NORTH THRESHOLD RNWY. 13 JUNE 21, 1978

SLANT RANGE (ft.)		200	500	1000	2000	4000	7000	10000	20000
THETA	BETA	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL							
(DEGREES)									
31.7	30.8	107.1	98.6	91.8	84.5	76.6	69.5	64.6	54.0
41.7	40.5	107.1	98.6	91.9	84.7	76.7	69.6	64.6	54.1
50.7	49.1	105.8	97.4	90.6	83.5	75.5	68.4	63.6	53.1
61.3	59.0	105.4	96.9	90.1	83.0	75.0	67.9	63.2	52.8
72.1	68.8	103.9	95.5	88.7	81.6	73.6	66.6	62.0	51.9
80.4	75.4	103.7	95.3	88.6	81.5	73.6	66.8	62.2	52.2
88.7	78.0	103.0	94.5	87.8	80.8	73.0	66.2	61.6	51.8
99.5	75.6	101.5	93.0	86.3	79.3	71.4	64.6	60.0	50.2
109.1	68.0	99.6	91.1	84.4	77.3	69.3	62.5	58.0	48.2
119.2	58.7	97.1	88.6	81.8	74.4	66.3	59.5	55.0	44.7
128.9	49.5	94.4	85.8	78.9	71.3	63.1	56.2	51.5	40.6
138.6	40.1	92.2	83.5	76.4	68.7	60.4	53.2	48.2	37.2
148.0	31.5	91.3	82.4	75.2	67.6	59.1	51.8	46.7	35.9

STANDARD DEVIATION - FNLT dB									
31.7	30.8	0.4	0.3	0.3	0.6	0.8	1.0	1.2	1.3
41.7	40.5	2.2	2.3	2.3	2.4	2.8	2.9	3.0	3.1
50.7	49.1	0.7	0.8	0.7	0.8	0.9	0.9	0.8	0.5
61.3	59.0	0.9	1.0	0.9	1.0	1.0	1.0	0.9	0.7
72.1	68.8	1.4	1.4	1.4	1.3	1.3	1.2	1.2	1.2
80.4	75.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
88.7	78.0	1.1	1.0	0.9	0.9	0.9	0.8	0.7	0.7
99.5	75.6	1.4	1.5	1.5	1.6	1.7	1.8	1.8	1.7
109.1	68.0	1.1	1.1	1.1	1.2	1.4	1.5	1.5	1.5
119.2	58.7	1.5	1.5	1.6	1.7	1.8	1.9	1.9	2.2
128.9	49.5	1.6	1.8	2.0	2.2	2.4	2.7	2.9	3.5
138.6	40.1	1.2	1.3	1.3	1.4	1.6	1.9	2.2	2.3
148.0	31.5	0.4	0.5	0.6	0.7	1.1	1.5	1.8	1.4

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 6.5.c.A

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
NOISE LEVEL dBA

DOT/TSC
2/23/80

APPROACH EVENTS: 2 ,4 ,6 ,8

SITE: 31-3 3520 M. NORTH THRESHOLD RNWY. 13 JUNE 21,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
31.7	30.8	91.5	83.3	76.9	70.3	63.2	57.0	52.7	42.8
41.7	40.5	92.9	84.6	78.3	71.6	64.3	57.9	53.3	43.2
50.7	49.1	92.2	84.1	77.6	70.9	63.6	56.9	52.2	41.9
61.3	59.0	90.6	82.4	76.0	69.3	62.0	55.4	50.8	40.7
72.1	68.8	88.2	80.0	73.7	67.0	59.9	53.6	49.2	39.5
80.4	75.4	87.0	78.8	72.5	66.0	59.0	53.0	48.8	39.5
88.7	78.0	86.2	78.1	71.8	65.4	58.5	52.5	48.3	39.2
99.5	75.6	85.0	76.8	70.6	64.1	57.2	51.2	47.1	38.0
109.1	68.0	83.5	75.4	69.1	62.6	55.7	49.7	45.6	36.4
119.2	58.7	81.5	73.3	67.0	60.4	53.4	47.3	43.0	33.7
128.9	49.5	79.9	71.7	65.4	58.6	51.4	45.1	40.6	30.9
138.6	40.1	78.4	70.2	63.8	57.0	49.6	43.0	38.3	28.1
148.0	31.5	77.1	68.8	62.3	55.4	48.0	41.2	36.4	25.7

STANDARD DEVIATION - dBA

THETA BETA	31.7	30.8	0.5	0.5	0.5	0.6	0.7	0.8	0.9	0.9
41.7	40.5	1.9	1.9	2.0	2.0	2.0	2.0	2.0	1.9	1.6
50.7	49.1	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.6	1.3
61.3	59.0	2.4	2.4	2.4	2.3	2.2	2.0	2.0	1.7	1.1
72.1	68.8	1.2	1.2	1.1	1.1	0.9	0.7	0.6	0.6	0.8
80.4	75.4	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.0
88.7	78.0	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
99.5	75.6	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
109.1	68.0	1.2	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2
119.2	58.7	1.5	1.5	1.5	1.5	1.6	1.7	1.7	1.7	1.8
128.9	49.5	1.4	1.5	1.5	1.6	1.8	2.0	2.1	2.1	2.4
138.6	40.1	1.5	1.5	1.6	1.6	1.6	1.7	1.8	1.8	1.8
148.0	31.5	0.5	0.6	0.7	0.8	1.0	1.2	1.2	1.2	1.2

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. G.8.b

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
PERCEIVED NOISE LEVEL PNdB

DOT/TSC
2/23/80

APPROACH EVENTS: 4 ,6 ,8 ,23

SITE: 31-2 2067 M. NORTH THRESHOLD RWY. 13 JUNE 23,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
30.2	30.0	97.5	88.1	80.0	70.8	60.8	51.5	45.5	34.8
40.0	39.7	98.8	89.4	81.2	71.7	61.4	51.9	45.6	34.8
48.6	48.1	98.2	88.9	80.9	71.9	61.9	52.5	46.2	34.6
60.1	59.4	96.7	87.3	79.2	70.4	60.3	51.1	44.8	33.3
73.1	72.8	95.1	85.7	77.6	68.5	58.5	49.4	43.4	32.3
79.2	74.0	94.9	85.6	77.5	68.7	58.6	48.5	42.0	29.7
90.7	84.4	95.5	86.1	77.9	68.7	59.0	50.1	44.1	33.2
103.9	75.5	98.2	88.8	80.7	71.6	62.0	53.4	47.8	36.9
111.3	67.4	98.2	88.9	80.8	71.6	62.0	53.4	47.7	36.7
120.6	58.7	99.3	89.9	82.0	73.2	63.7	55.3	49.8	38.8
129.8	49.7	100.7	91.0	82.9	73.9	64.2	55.7	50.3	39.0
139.3	40.4	100.2	90.4	81.9	72.7	62.9	54.0	48.3	37.0
149.8	30.0	97.6	87.9	79.3	69.9	60.2	51.1	45.2	34.1

STANDARD DEVIATION - PNLT dB									
30.2	30.0	1.2	1.2	1.2	1.2	1.3	2.0	2.0	2.5
40.0	39.7	1.4	1.3	1.3	1.1	1.0	1.6	2.0	2.2
48.6	48.1	0.7	0.6	0.5	0.5	1.0	1.6	2.0	2.8
60.1	59.4	0.8	0.8	0.9	0.6	0.9	1.3	1.8	2.7
73.1	72.8	0.5	0.5	0.6	0.3	0.8	1.1	1.4	1.7
79.2	74.0	-	-	-	-	-	-	-	-
90.7	84.4	0.8	0.8	0.8	0.9	1.0	1.1	1.1	1.3
103.9	75.5	0.6	0.5	0.1	0.9	1.3	1.6	2.1	2.1
111.3	67.4	1.7	1.8	1.8	1.5	1.5	1.7	1.9	1.8
120.6	58.7	0.7	0.8	1.2	1.6	1.9	2.1	2.6	2.4
129.8	49.7	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5
139.3	40.4	1.9	1.9	1.9	1.9	2.3	2.6	2.9	2.9
149.8	30.0	2.3	2.1	1.9	1.7	2.0	2.1	2.1	1.8

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 6.8.b.A

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/23/80

NOISE LEVEL dBA

APPROACH EVENTS: 4 , 6 , 8 , 23

SITE: 31-2 2067 M. NORTH THRESHOLD RWY. 13 JUNE 23, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
30.2	30.0	82.1	73.3	66.1	58.0	48.8	40.6	35.0	23.9
40.0	39.7	83.1	74.2	66.9	58.6	49.4	41.1	35.5	24.2
48.6	48.1	83.0	74.2	66.9	58.8	49.7	41.4	35.6	23.9
60.1	59.4	81.9	73.0	65.7	57.7	48.6	40.4	34.7	22.9
73.1	72.8	80.8	71.9	64.7	56.7	47.9	39.9	34.3	22.9
79.2	74.0	80.9	72.2	65.0	57.0	48.0	39.6	33.6	21.2
90.7	84.4	80.8	71.9	64.7	56.8	48.1	40.4	35.1	24.2
103.9	75.5	82.1	73.0	65.6	57.5	48.9	41.5	36.6	26.3
111.3	67.4	82.9	73.8	66.3	58.3	49.7	42.3	37.2	26.6
120.6	58.7	83.2	74.1	66.6	58.7	50.3	43.2	38.4	28.4
129.8	49.7	84.5	75.2	67.5	59.3	50.6	43.3	38.4	28.4
139.3	40.4	84.2	74.9	67.2	58.9	50.1	42.5	37.6	27.3
149.8	30.0	81.8	72.7	65.2	57.2	48.7	41.1	35.9	25.4

STANDARD DEVIATION - dBA

30.2	30.0	0.7	0.7	0.7	0.7	0.6	0.5	0.6	1.6
40.0	39.7	0.8	0.7	0.7	0.6	0.3	0.1	0.5	1.5
48.6	48.1	0.7	0.7	0.7	0.8	0.8	0.8	0.9	1.8
60.1	59.4	0.8	0.7	0.7	0.7	0.6	0.6	0.8	1.8
73.1	72.8	0.9	0.8	0.7	0.5	0.3	0.3	0.4	0.8
79.2	74.0	-	-	-	-	-	-	-	-
90.7	84.4	0.7	0.6	0.6	0.5	0.5	0.3	0.3	0.4
103.9	75.5	0.8	0.7	0.6	0.4	0.1	0.2	0.5	1.1
111.3	67.4	1.3	1.2	1.0	0.9	0.9	1.1	1.3	1.7
120.6	58.7	0.4	0.5	0.6	0.7	0.9	1.1	1.2	1.7
129.8	49.7	0.8	0.8	0.6	0.4	0.3	0.5	0.7	1.1
139.3	40.4	1.7	1.6	1.4	1.2	1.1	1.1	1.4	1.8
149.8	30.0	1.6	1.5	1.3	1.2	1.2	1.3	1.5	2.0

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 6.8.c

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
PERCEIVED NOISE LEVEL PNdB

DOT/TSC
2/23/80

APPROACH EVENTS: 2 , 4 , 6 , 8

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
30.8	30.3	107.9	98.3	90.0	80.4	69.8	61.1	55.1	42.7
40.6	39.9	105.9	96.4	88.3	78.9	69.1	60.5	54.7	42.6
49.9	49.0	104.6	95.2	87.1	77.7	67.6	59.0	53.2	41.5
59.9	58.5	103.5	94.1	86.1	77.1	67.4	59.0	53.4	42.1
69.6	67.2	101.8	92.4	84.4	75.5	65.9	57.4	52.0	40.9
78.8	74.5	99.7	90.1	82.1	73.3	63.6	55.1	49.7	38.7
91.5	79.3	96.5	86.9	78.8	70.4	60.4	51.7	46.1	35.3
100.6	74.3	95.4	85.7	77.5	68.9	59.0	50.2	44.5	33.8
109.7	67.1	94.6	84.9	76.7	67.9	57.7	48.4	42.5	32.4
117.9	59.7	93.0	83.4	75.4	66.6	56.4	47.0	41.1	30.9
128.0	50.3	91.2	81.7	73.9	65.2	55.1	45.7	39.6	29.9
137.6	41.1	90.3	80.9	73.0	64.4	54.3	44.9	39.2	29.8
148.4	30.5	90.2	80.8	72.9	64.3	54.2	44.8	39.4	29.9

STANDARD DEVIATION - PNLT dB									
30.8	30.3	1.1	1.1	1.0	1.3	1.8	2.1	2.3	2.9
40.6	39.9	0.8	0.9	1.0	1.4	1.9	2.3	2.7	3.5
49.9	49.0	0.7	0.9	1.3	2.1	2.9	3.4	3.8	4.8
59.9	58.5	1.1	1.1	1.0	1.3	1.8	2.2	2.5	3.3
69.6	67.2	1.9	1.7	1.3	1.0	1.1	1.4	1.5	1.9
78.8	74.5	3.0	3.1	2.7	2.3	2.5	2.3	2.4	2.4
91.5	79.3	2.9	3.0	3.3	3.1	3.5	3.8	4.1	3.9
100.6	74.3	2.6	2.7	2.7	2.6	2.6	2.8	2.8	2.8
109.7	67.1	2.6	2.6	2.4	2.0	1.8	1.7	1.6	1.1
117.9	59.7	2.9	2.7	2.4	2.1	1.7	1.2	1.0	0.5
128.0	50.3	2.2	2.2	1.9	1.7	1.6	1.6	1.5	0.4
137.6	41.1	1.4	1.5	1.4	1.4	1.5	1.3	0.9	1.0
148.4	30.5	2.0	2.0	2.1	2.1	2.0	1.7	1.5	0.7

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

AD-A091 292

FEDERAL AVIATION ADMINISTRATION WASHINGTON DC OFFICE --ETC F/G 13/2
NOISE LEVELS AND DATA CORRECTION ANALYSIS FOR SEVEN GENERAL AVI--ETC(U)
SEP 80 D W FORD, E J RICKLEY

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TABLE NO. 6.8.c.A

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/23/80

NOISE LEVEL dBA

APPROACH EVENTS: 2 , 4 , 6 , 8

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
30.8	30.3	92.1	83.0	75.3	66.8	57.4	49.2	43.7	32.4
40.6	39.9	90.5	81.4	73.8	65.5	56.4	48.4	43.1	32.3
49.9	49.0	89.0	79.9	72.4	64.2	55.1	47.2	41.9	31.3
59.9	58.5	87.5	78.3	70.8	62.6	53.7	46.0	41.0	30.8
69.6	67.2	85.8	76.7	69.1	60.9	52.2	44.7	39.8	29.8
78.8	74.5	83.9	74.8	67.3	59.1	50.4	43.0	38.1	28.2
91.5	79.3	80.8	71.8	64.5	56.5	48.0	40.7	35.8	25.8
100.6	74.3	79.6	70.7	63.4	55.5	46.9	39.4	34.5	24.5
109.7	67.1	78.4	69.5	62.3	54.4	45.9	38.4	33.4	23.4
117.9	59.7	77.3	68.5	61.3	53.6	45.1	37.5	32.5	22.4
128.0	50.3	76.2	67.6	60.5	52.8	44.4	36.8	31.6	21.5
137.6	41.1	75.6	67.0	59.9	52.3	43.7	36.0	30.8	20.4
148.4	30.5	75.4	66.7	59.6	51.9	43.2	35.5	30.1	19.4

STANDARD DEVIATION - dBA

30.8	30.3	0.5	0.5	0.4	0.4	0.7	1.2	1.6	2.1
40.6	39.9	0.6	0.5	0.4	0.2	0.5	1.0	1.4	1.9
49.9	49.0	0.6	0.6	0.5	0.5	1.2	2.0	2.5	3.4
59.9	58.5	1.5	1.4	1.3	1.1	1.1	1.7	2.1	2.8
69.6	67.2	2.1	1.9	1.7	1.3	0.9	0.9	1.3	1.7
78.8	74.5	2.7	2.6	2.4	2.1	1.7	1.5	1.5	1.6
91.5	79.3	2.8	2.6	2.6	2.3	2.1	2.2	2.3	2.7
100.6	74.3	2.8	2.6	2.4	2.2	1.9	1.8	1.8	1.8
109.7	67.1	2.6	2.5	2.2	1.9	1.6	1.3	1.2	0.9
117.9	59.7	2.6	2.4	2.2	2.0	1.7	1.3	1.1	0.8
128.0	50.3	2.2	2.2	2.0	1.9	1.7	1.4	1.3	1.1
137.6	41.1	1.7	1.6	1.6	1.5	1.4	1.2	1.1	0.8
148.4	30.5	1.6	1.6	1.6	1.6	1.5	1.4	1.3	1.2

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 6.9.b

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/23/80

PERCEIVED NOISE LEVEL PNdB

APPROACH EVENTS: 25,27,31,33,35

SITE: 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 23,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
29.4	29.3	92.2	83.4	76.2	68.3	59.4	51.5	46.4	36.1
39.4	39.3	93.3	84.2	76.7	68.7	59.8	51.8	46.5	35.7
48.6	48.5	93.9	84.7	77.3	69.4	60.5	52.5	47.0	35.7
58.1	58.0	94.0	85.1	77.7	69.9	61.1	53.2	47.9	36.9
68.3	68.0	96.8	88.2	80.9	73.0	64.4	57.0	52.2	41.7
80.0	79.5	98.1	89.6	82.4	74.6	66.1	58.8	54.1	43.7
90.6	86.3	98.3	89.7	82.6	74.8	66.4	59.0	54.1	43.6
102.2	77.3	99.4	90.8	83.9	76.3	67.9	60.5	55.6	44.8
112.8	67.0	100.7	92.2	85.4	77.8	69.5	62.2	57.5	47.3
121.2	58.7	102.1	93.6	86.9	79.5	71.2	64.1	59.4	49.7
129.5	50.3	101.5	93.0	86.3	78.8	70.5	63.3	58.7	49.0
140.6	39.4	96.9	88.1	80.7	72.8	64.1	56.3	51.4	41.1
149.2	30.7	93.5	84.6	77.2	69.1	60.2	52.1	46.8	36.5

STANDARD DEVIATION - PNLT dB

29.4	29.3	1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.1
39.4	39.3	1.7	1.6	1.6	1.7	1.8	1.8	1.8	1.7
48.6	48.5	0.5	0.5	0.4	0.3	0.4	0.6	0.6	1.1
58.1	58.0	0.7	0.8	0.6	0.5	0.5	0.7	0.8	1.4
68.3	68.0	0.7	0.7	0.9	0.9	1.0	1.1	1.2	1.2
80.0	79.5	0.2	0.2	0.3	0.4	0.4	0.5	0.4	0.5
90.6	86.3	0.6	0.6	0.7	0.6	0.7	0.7	0.7	1.0
102.2	77.3	1.3	1.4	1.5	1.4	1.5	1.6	1.7	2.3
112.8	67.0	1.8	1.8	1.9	2.2	2.2	2.3	2.4	2.6
121.2	58.7	0.9	0.9	1.0	1.1	1.1	1.2	1.1	1.1
129.5	50.3	0.8	0.7	0.8	0.9	0.9	0.9	0.8	0.8
140.6	39.4	2.0	2.2	2.5	2.6	2.9	3.1	3.2	3.6
149.2	30.7	1.1	1.2	1.3	1.4	1.7	1.9	2.1	1.8

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 6.9.b.A

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/23/80

NOISE LEVEL dBA

APPROACH EVENTS: 25,27,31,33,35

SITE: 31g2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
29.4	29.3	78.1	69.7	63.0	55.9	48.1	41.1	36.1	24.9
39.4	39.3	78.6	70.2	63.4	56.1	48.2	41.2	36.3	25.4
48.6	48.5	78.8	70.4	63.6	56.3	48.4	41.3	36.5	25.9
58.1	58.0	78.7	70.3	63.6	56.4	48.6	41.7	36.8	26.4
68.3	68.0	80.0	71.6	65.1	58.2	50.7	44.1	39.7	30.2
80.0	79.5	81.4	73.2	66.7	59.8	52.5	46.0	41.6	32.0
90.6	86.3	82.5	74.3	67.8	60.9	53.6	47.0	42.4	32.3
102.2	77.3	83.7	75.4	69.0	62.2	54.9	48.4	43.8	33.7
112.8	67.0	84.1	75.9	69.5	62.8	55.7	49.4	45.1	35.6
121.2	58.7	84.3	76.1	69.8	63.2	56.3	50.3	46.2	37.4
129.5	50.3	83.4	75.2	68.8	62.3	55.4	49.6	45.6	36.9
140.6	39.4	80.0	71.6	65.0	58.0	50.7	44.4	40.1	31.0
149.2	30.7	78.3	69.8	63.0	55.7	47.8	41.1	36.4	26.3

STANDARD DEVIATION - dBA

29.4	29.3	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7
39.4	39.3	1.8	1.8	1.7	1.7	1.7	1.6	1.5	1.3
48.6	48.5	0.4	0.5	0.5	0.5	0.6	0.7	0.8	1.3
58.1	58.0	0.5	0.5	0.5	0.6	0.6	0.7	0.8	1.3
68.3	68.0	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.2
80.0	79.5	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.5
90.6	86.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.4
102.2	77.3	0.5	0.5	0.6	0.6	0.8	0.9	1.1	1.6
112.8	67.0	1.2	1.2	1.3	1.3	1.5	1.7	1.8	2.1
121.2	58.7	0.9	1.0	0.9	1.0	1.0	1.1	1.1	1.1
129.5	50.3	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.7
140.6	39.4	1.6	1.7	1.8	1.9	2.1	2.2	2.3	2.5
149.2	30.7	0.7	0.7	0.8	0.9	1.2	1.6	1.9	2.3

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 6.9.c

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/23/80

PERCEIVED NOISE LEVEL PNdB

APPROACH EVENTS: 25,27,31,33,35

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 23,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
31.3	30.4	99.9	90.9	83.4	75.2	66.1	58.1	52.7	41.3
39.8	38.2	102.2	93.3	85.9	77.8	68.8	60.9	55.4	43.8
49.8	47.4	104.2	95.5	88.4	80.5	71.8	63.9	58.5	46.8
60.1	56.7	104.5	95.9	89.0	81.4	72.9	65.4	60.4	49.3
67.8	62.5	102.0	93.4	86.5	78.9	70.5	63.1	58.2	47.5
78.2	70.5	101.4	92.8	85.9	78.2	69.8	62.5	57.6	47.4
86.8	73.7	98.9	90.4	83.3	75.5	67.0	59.7	54.9	44.6
98.5	71.1	95.2	86.5	79.3	71.5	62.9	55.3	50.4	39.9
106.9	66.2	93.2	84.4	77.1	69.4	60.7	52.8	47.8	37.3
119.3	56.4	90.6	81.7	74.3	66.4	57.6	49.7	44.7	34.5
129.1	47.7	89.9	80.8	73.4	65.3	56.3	48.2	43.1	33.3
138.1	39.5	90.2	80.9	73.3	65.0	55.7	47.2	41.9	32.6
147.8	30.4	93.6	84.7	77.0	68.7	59.5	51.4	46.2	36.3

STANDARD DEVIATION - PNLT dB

31.3	30.4	2.8	2.9	3.0	3.0	3.1	3.2	3.3	3.7
39.8	38.2	1.7	1.6	1.6	1.4	1.3	1.3	1.5	1.8
49.8	47.4	1.5	1.5	1.5	1.4	1.5	1.6	1.8	2.1
60.1	56.7	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.7
67.8	62.5	2.1	2.2	2.3	2.4	2.5	2.5	2.5	2.9
78.2	70.5	3.6	3.7	3.9	4.1	4.2	4.2	4.2	4.4
86.8	73.7	3.6	3.6	3.9	4.1	4.2	4.3	4.3	4.5
98.5	71.1	3.3	3.5	3.6	3.6	3.7	3.8	3.9	3.9
106.9	66.2	2.0	2.2	2.3	2.4	2.7	2.7	2.9	2.6
119.3	56.4	2.1	2.3	2.3	2.4	2.6	2.9	3.0	2.6
129.1	47.7	2.3	2.4	2.4	2.4	2.6	2.8	2.6	2.2
138.1	39.5	1.3	1.4	1.4	1.5	1.6	1.6	1.4	0.9
147.8	30.4	2.5	2.6	2.6	2.7	2.8	3.0	3.2	3.5

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. G.9.c.A

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT

DOT/TSC
2/23/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

APPROACH EVENTS: 25,27,31,33,35

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
31.3	30.4	84.5	75.8	68.9	61.6	53.7	46.6	41.7	30.8
39.8	38.2	87.1	78.6	71.8	64.5	56.5	49.3	44.2	33.1
49.8	47.4	90.3	81.9	75.3	68.1	60.1	52.8	47.5	36.1
60.1	56.7	89.9	81.6	75.0	68.0	60.2	53.2	48.3	37.6
67.8	62.5	86.4	78.1	71.6	64.7	57.2	50.4	45.7	35.6
78.2	70.5	84.2	75.9	69.4	62.6	55.4	49.1	44.8	35.6
86.8	73.7	82.1	73.8	67.4	60.6	53.4	47.2	42.9	33.8
98.5	71.1	79.7	71.4	64.9	58.1	50.9	44.6	40.2	30.6
106.9	66.2	78.0	69.7	63.1	56.3	49.0	42.6	38.1	28.3
119.3	56.4	75.8	67.4	60.8	53.8	46.2	39.6	35.1	25.1
129.1	47.7	74.6	66.2	59.5	52.4	44.7	38.0	33.4	23.8
138.1	39.5	74.5	66.0	59.2	51.9	44.0	37.2	32.7	23.2
147.8	30.4	76.9	68.2	61.3	53.9	46.1	39.4	35.0	25.8

STANDARD DEVIATION - dBA

31.3	30.4	2.2	2.2	2.3	2.2	2.3	2.3	2.4	3.0
39.8	38.2	1.6	1.5	1.5	1.4	1.2	1.1	1.0	1.4
49.8	47.4	0.8	0.7	0.7	0.6	0.7	0.8	1.1	1.8
60.1	56.7	1.6	1.6	1.5	1.5	1.4	1.4	1.5	2.3
67.8	62.5	2.7	2.7	2.7	2.7	2.5	2.2	2.1	2.0
78.2	70.5	3.2	3.2	3.2	3.2	3.3	3.3	3.4	3.5
86.8	73.7	2.9	2.9	3.0	3.0	3.1	3.1	3.2	3.4
98.5	71.1	2.6	2.6	2.6	2.7	2.8	2.9	2.9	3.1
106.9	66.2	1.8	1.9	2.0	2.1	2.3	2.4	2.4	2.5
119.3	56.4	1.9	1.8	1.9	2.0	2.2	2.4	2.6	2.8
129.1	47.7	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0
138.1	39.5	1.6	1.6	1.6	1.6	1.5	1.4	1.3	1.1
147.8	30.4	2.2	2.1	1.9	1.8	1.7	1.9	2.1	2.8

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.12.b

PIPER PA-36-375 (BRAVE AG.) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/25/80

PERCEIVED NOISE LEVEL PNdB

TAKEOFF EVENTS: 23,25,29,31,40,42

SITE: 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 19,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
30.2	29.9	84.2	75.2	67.9	59.6	50.0	42.0	37.3	30.4
39.7	37.3	83.7	74.7	67.4	59.1	49.7	41.6	36.6	29.7
49.8	46.0	83.2	74.2	66.9	58.9	49.7	42.1	37.2	30.0
60.1	54.6	83.1	74.1	66.8	58.7	49.5	41.9	37.0	29.9
69.3	61.7	85.0	76.0	68.8	60.7	51.5	43.5	38.5	30.2
81.3	66.5	85.9	77.0	69.8	61.8	52.8	44.8	39.5	30.7
90.5	70.0	86.0	77.0	69.8	61.7	52.7	44.5	39.5	30.9
101.9	66.6	87.2	78.3	71.1	63.1	54.1	45.8	40.7	31.7
110.8	62.1	88.2	79.3	72.0	64.0	54.8	46.8	41.8	32.6
120.8	54.4	89.9	81.1	73.8	65.8	56.8	48.7	43.5	33.5
131.5	45.6	91.8	82.9	75.6	67.6	58.5	50.2	45.0	34.9
141.2	37.1	97.3	88.5	81.2	73.1	63.9	55.8	50.5	39.1
151.0	28.3	105.3	96.1	88.5	80.0	70.7	62.6	57.2	46.0

STANDARD DEVIATION - PNLT dB

30.2	29.9	6.8	6.9	7.1	7.3	7.5	6.5	5.9	1.6
39.7	37.3	4.9	4.8	4.8	5.0	4.9	4.3	4.1	0.7
49.8	46.0	3.4	3.5	3.6	3.8	4.0	3.6	3.5	0.5
60.1	54.6	1.5	1.5	1.5	1.4	1.5	1.3	1.5	1.1
69.3	61.7	2.2	2.3	2.2	2.3	2.5	2.4	2.3	0.5
81.3	66.5	2.8	2.8	2.9	3.0	3.3	3.5	3.5	1.3
90.5	70.0	2.9	3.0	3.1	3.2	3.4	3.2	3.1	1.6
101.9	66.6	2.7	2.8	2.8	2.8	3.1	3.5	3.4	2.3
110.8	62.1	4.9	5.0	5.0	5.1	5.5	5.7	5.6	4.4
120.8	54.4	5.1	5.2	5.2	5.2	5.4	5.8	5.9	5.2
131.5	45.6	8.7	8.7	8.8	8.8	9.0	9.1	8.8	7.5
141.2	37.1	9.7	9.7	9.7	9.6	9.8	10.0	10.0	9.7
151.0	28.3	9.1	8.8	8.4	8.0	7.8	7.8	7.9	7.9

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 6.12.d.A

PIPER PA-36-375 (BRAVE ...) AIRCRAFT

DOT/TSC
2/25/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

TAKEOFF EVENTS: 23,25,29,31,40,42

SITE: 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 19, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
30.2	29.9	70.5	62.2	55.6	48.5	40.7	33.6	28.7	18.9
39.7	37.3	70.6	62.3	55.6	48.5	40.5	33.2	28.1	18.0
49.8	46.0	69.7	61.4	54.8	47.8	40.1	33.1	28.1	18.1
60.1	54.6	69.3	61.0	54.4	47.4	39.7	32.7	27.9	18.0
69.3	61.7	71.9	63.5	56.8	49.7	41.8	34.5	29.4	19.8
81.3	66.5	72.5	64.2	57.6	50.5	42.6	35.3	30.2	19.4
90.5	70.0	72.6	64.2	57.7	50.7	42.9	35.8	30.8	20.1
101.9	66.6	74.0	65.6	59.0	52.0	44.2	37.0	32.0	21.1
110.8	62.1	74.7	66.3	59.6	52.5	44.7	37.5	32.4	21.6
120.8	54.4	76.4	68.1	61.4	54.3	46.4	39.2	34.2	23.0
131.5	45.6	78.0	69.6	62.9	55.7	47.8	40.5	35.4	24.3
141.2	37.1	83.3	74.9	68.0	60.7	52.7	45.5	40.3	29.0
151.0	28.3	90.6	81.6	74.2	66.5	58.4	51.4	46.5	35.9
STANDARD DEVIATION - dBA									
30.2	29.9	7.2	7.2	7.1	7.0	6.8	6.3	5.8	4.0
39.7	37.3	4.7	4.7	4.6	4.4	4.3	4.1	3.8	2.5
49.8	46.0	4.0	4.0	4.0	3.9	3.7	3.4	3.0	1.5
60.1	54.6	1.2	1.2	1.1	1.0	1.0	0.8	0.8	1.0
69.3	61.7	2.1	2.1	2.0	2.0	1.9	1.8	1.7	1.2
81.3	66.5	2.4	2.5	2.5	2.5	2.6	2.6	2.7	2.2
90.5	70.0	3.4	3.3	3.4	3.4	3.3	3.2	3.1	2.7
101.9	66.6	2.9	3.0	3.0	3.0	3.1	3.2	3.3	3.3
110.8	62.1	4.1	4.1	4.1	4.1	4.2	4.5	4.7	5.0
120.8	54.4	4.0	4.0	4.0	4.1	4.3	4.6	5.0	5.7
131.5	45.6	7.6	7.6	7.7	7.7	7.8	7.9	7.9	7.8
141.2	37.1	8.9	8.9	8.8	8.8	8.9	9.0	9.1	9.4
151.0	28.3	8.3	7.6	6.9	6.3	6.2	6.3	6.4	6.9

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.13.a

PIPER PA-31-325 (NAVAJO) AIRCRAFT

DOT/TSC
2/12/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

PERCEIVED NOISE LEVEL PNdB

TAKEOFF EVENTS: 1 ,5 ,7 ,9 ,11

SITE: 31-1

84 M. NORTH THRESHOLD RWY. 13

JUNE 20,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
31.2	30.6	99.0	90.2	83.1	75.4	66.9	59.3	53.9	42.6
37.9	37.2	99.0	90.3	83.1	75.4	66.8	59.1	53.7	42.2
49.6	48.7	101.4	92.6	85.4	77.6	69.0	61.1	55.6	43.9
62.0	61.5	104.7	96.0	88.7	80.7	71.7	63.6	58.0	45.4
70.0	67.0	106.2	97.4	90.2	82.2	73.3	65.3	59.8	47.9
82.7	78.4	109.4	100.7	93.7	86.0	77.2	69.5	64.3	53.4
93.2	81.7	110.3	101.7	94.7	87.0	78.3	70.7	65.6	54.7
100.8	76.4	111.5	102.9	95.9	88.4	80.0	72.5	67.5	56.8
113.2	65.4	111.3	102.7	95.7	88.3	80.0	72.6	67.6	57.0
122.4	56.8	109.4	100.9	94.0	86.7	78.4	71.1	66.1	55.8
130.3	49.0	106.0	97.4	90.5	83.0	74.5	67.2	62.2	51.8
140.5	39.1	101.1	92.4	85.4	77.8	69.5	61.9	56.8	45.4
150.0	29.8	97.9	89.2	82.1	74.3	65.7	58.1	52.8	40.8
154.6	25.3	97.9	89.1	81.9	74.2	65.6	58.0	52.6	40.7

STANDARD DEVIATION - PNLT dB

31.2	30.6	1.9	1.9	2.0	2.1	2.1	2.3	2.3	2.3
37.9	37.2	1.9	2.0	2.1	2.1	2.3	2.5	2.5	2.5
49.6	48.7	2.0	2.1	2.2	2.2	2.3	2.4	2.5	2.5
62.0	61.5	0.5	0.6	0.7	0.8	1.1	1.4	1.6	1.5
70.0	67.0	1.7	1.8	1.9	1.9	2.0	2.1	2.3	3.4
82.7	78.4	1.3	1.3	1.3	1.5	1.7	1.8	1.9	2.0
93.2	81.7	1.1	1.1	1.1	1.3	1.5	1.4	1.5	1.5
100.8	76.4	0.8	0.8	0.8	0.9	1.1	1.1	1.1	1.2
113.2	65.4	0.5	0.5	0.6	0.7	0.8	0.9	0.9	1.0
122.4	56.8	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.1
130.3	49.0	3.6	3.6	3.7	3.8	3.9	3.9	3.9	4.0
140.5	39.1	3.4	3.4	3.5	3.4	3.4	3.5	3.6	4.2
150.0	29.8	1.3	1.4	1.4	1.5	1.6	1.7	1.7	1.6
154.6	25.3	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. G.13.a.A

PIPER PA-31-325 (NAVAJO) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/12/80

NOISE LEVEL dBA

TAKEOFF EVENTS: 1 ,5 ,7 ,9 ,11

SITE: 31-1		84 M. NORTH THRESHOLD RNWY. 13					JUNE 20,1978		
SLANT RANGE (ft.)		200	500	1000	2000	4000	7000	10000	20000
THETA (DEGREES)	BETA	AVERAGE LEVEL - dBA re 20 micro PASCAL							
31.2	30.6	84.5	76.1	69.5	62.4	54.7	47.8	42.8	31.2
37.9	37.2	84.9	76.5	69.8	62.7	54.9	47.9	42.9	31.5
49.6	48.7	87.6	79.3	72.6	65.5	57.6	50.5	45.4	33.8
62.0	61.5	90.9	82.4	75.8	68.5	60.4	52.9	47.4	35.2
70.0	67.0	92.2	83.7	77.0	69.6	61.4	53.8	48.5	36.9
82.7	78.4	94.1	85.6	78.9	71.5	63.5	56.3	51.3	40.8
93.2	81.7	94.3	85.9	79.1	71.8	63.9	56.9	52.1	42.1
100.8	76.4	94.7	86.2	79.5	72.4	64.7	58.0	53.4	43.8
113.2	65.4	93.9	85.5	78.9	71.8	64.3	57.8	53.4	44.1
122.4	56.8	91.6	83.2	76.6	69.7	62.4	56.2	51.9	42.8
130.3	49.0	89.4	81.0	74.5	67.6	60.4	53.9	49.5	39.9
140.5	39.1	86.9	78.6	72.1	65.2	57.8	51.1	46.3	35.5
150.0	29.8	84.4	76.1	69.5	62.6	54.9	47.9	42.9	31.5
154.6	25.3	84.1	75.7	69.1	62.0	54.2	47.2	42.3	31.1

STANDARD DEVIATION - dBA									
31.2	30.6	1.7	1.7	1.8	1.9	2.1	2.3	2.3	2.4
37.9	37.2	1.7	1.8	1.9	2.0	2.2	2.4	2.5	2.5
49.6	48.7	1.8	1.8	1.9	2.0	2.1	2.3	2.3	2.3
62.0	61.5	0.3	0.2	0.2	0.3	0.4	0.7	0.9	1.1
70.0	67.0	1.3	1.3	1.3	1.4	1.5	1.6	1.7	2.2
82.7	78.4	0.4	0.4	0.4	0.5	0.7	1.0	1.2	1.8
93.2	81.7	0.8	0.7	0.7	0.6	0.4	0.3	0.3	0.7
100.8	76.4	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.7
113.2	65.4	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.7
122.4	56.8	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.8
130.3	49.0	2.6	2.5	2.4	2.3	2.4	2.4	2.5	3.0
140.5	39.1	1.8	1.7	1.7	1.7	1.7	1.9	2.1	2.8
150.0	29.8	1.2	1.2	1.2	1.3	1.4	1.5	1.6	1.8
154.6	25.3	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 13.b

PIPER PA-31-325 (NAVAJO) AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

PERCEIVED NOISE LEVEL PNdB

TAKEOFF EVENTS: 1, 5, 7, 9, 11

SITE: 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
31.4	31.3	96.3	87.5	80.4	72.5	63.6	55.8	50.3	38.9
40.3	40.3	98.0	89.3	82.0	74.1	65.4	57.5	52.0	41.0
50.5	50.4	100.9	92.2	84.9	76.8	68.0	60.2	54.9	44.3
59.6	59.4	102.5	93.7	86.5	78.4	69.5	61.7	56.3	45.7
70.2	69.9	105.7	97.0	90.0	82.2	73.6	65.9	60.6	49.6
80.4	79.9	108.1	99.5	92.6	85.0	76.4	68.9	63.7	52.9
90.8	85.6	108.9	100.3	93.4	85.9	77.5	70.0	64.9	54.6
101.6	77.8	108.9	100.4	93.6	86.4	78.2	70.9	66.1	56.0
111.8	67.9	105.6	97.1	90.4	83.0	74.6	67.4	62.6	52.7
121.1	58.7	102.0	93.6	86.7	78.9	70.3	63.0	58.2	48.1
131.3	48.6	100.3	91.7	84.6	76.8	68.3	60.9	56.1	45.2
141.3	38.6	97.7	89.0	81.9	74.0	65.3	57.7	52.5	41.1
148.5	31.5	96.8	87.9	80.5	72.2	63.0	54.7	49.4	38.3

STANDARD DEVIATION - PNLT dB									
31.4	31.3	1.1	1.1	1.2	1.4	1.4	1.5	1.5	1.5
40.3	40.3	0.9	0.9	0.7	0.7	0.7	0.6	0.8	0.9
50.5	50.4	1.9	2.0	2.3	2.4	2.5	2.7	2.8	3.2
59.6	59.4	1.6	1.7	1.9	2.0	2.1	2.1	2.2	2.5
70.2	69.9	1.6	1.7	1.7	1.9	2.1	2.1	2.1	1.9
80.4	79.9	1.1	1.2	1.2	1.4	1.6	1.7	1.7	1.7
90.8	85.6	1.6	1.7	1.8	2.1	2.3	2.5	2.6	2.7
101.6	77.8	0.8	0.8	0.7	0.8	0.8	0.9	0.8	0.8
111.8	67.9	1.3	1.3	1.3	1.5	1.5	1.6	1.6	1.6
121.1	58.7	1.8	1.8	2.0	2.2	2.4	2.4	2.5	3.0
131.3	48.6	1.2	1.2	1.4	1.5	1.5	1.6	1.7	2.3
141.3	38.6	1.1	1.1	1.3	1.4	1.7	1.8	2.1	2.5
148.5	31.5	2.0	1.7	1.2	0.7	0.6	1.1	1.5	1.4

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 6.13.b.A

PIPER PA-31-325 (NAVAJO) AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

TAKEOFF EVENTS: 1 ,5 ,7 ,9 ,11

SITE: 31-2

2067 M. NORTH THRESHOLD RWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL							
31.4	31.3	82.8	74.3	67.6	60.3	52.4	45.4	40.4
40.3	40.3	83.7	75.2	68.5	61.2	53.3	46.4	41.6
50.5	50.4	85.4	76.9	70.0	62.6	54.6	47.6	42.9
59.6	59.4	86.7	78.1	71.2	63.8	55.6	48.5	43.8
70.2	69.9	89.6	81.1	74.4	67.2	59.5	52.8	48.1
80.4	79.9	91.7	83.3	76.6	69.6	62.0	55.5	51.0
90.8	85.6	91.9	83.5	76.8	69.8	62.4	56.0	51.6
101.6	77.8	91.0	82.7	76.2	69.5	62.5	56.4	52.2
111.8	67.9	88.2	79.9	73.5	66.8	59.8	53.8	49.7
121.1	58.7	84.5	76.2	69.7	62.9	55.8	49.7	45.5
131.3	48.6	83.1	74.8	68.3	61.5	54.3	47.9	43.5
141.3	38.6	82.6	74.2	67.6	60.7	53.1	46.3	41.6
148.5	31.5	81.8	73.3	66.6	59.4	51.6	44.6	39.6

STANDARD DEVIATION - dBA									
31.4	31.3	0.7	0.7	0.7	0.8	0.9	1.0	1.1	1.2
40.3	40.3	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.4
50.5	50.4	1.3	1.3	1.4	1.5	1.7	1.9	2.0	2.3
59.6	59.4	1.3	1.3	1.3	1.4	1.5	1.7	1.8	2.1
70.2	69.9	1.6	1.6	1.7	1.8	2.0	2.1	2.1	1.9
80.4	79.9	1.1	1.1	1.3	1.4	1.6	1.8	1.9	1.8
90.8	85.6	1.2	1.3	1.4	1.5	1.7	1.9	1.9	2.2
101.6	77.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8
111.8	67.9	1.0	0.9	0.9	1.0	1.0	1.0	1.1	1.2
121.1	58.7	1.5	1.6	1.6	1.7	1.8	2.0	2.1	2.3
131.3	48.6	0.6	0.6	0.6	0.6	0.7	0.8	0.9	1.2
141.3	38.6	0.8	0.8	0.9	1.0	1.2	1.4	1.6	1.8
148.5	31.5	0.9	0.7	0.5	0.5	0.6	0.8	0.9	1.0

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 6.13.c

PIPER PA-31-325 (NAVAJO) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/23/80

PERCEIVED NOISE LEVEL PNdB

TAKEOFF EVENTS: 1, 5, 7, 9, 11

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
29.8	29.5	101.5	92.6	85.1	76.9	67.7	59.4	53.8	42.5
39.2	38.9	103.0	94.3	87.0	79.0	70.0	62.1	56.6	45.4
49.4	48.9	104.8	95.9	88.5	80.4	71.2	63.0	57.2	45.3
59.3	58.6	107.4	98.5	91.2	83.2	74.2	66.4	61.0	50.1
70.1	68.9	109.8	101.1	93.9	86.0	77.2	69.4	64.2	53.5
80.3	78.0	110.1	101.3	94.2	86.5	77.9	70.2	64.9	54.1
89.6	82.9	109.4	100.8	93.8	86.3	77.8	70.2	65.1	54.6
99.9	77.9	105.6	97.0	89.9	82.1	73.4	65.8	60.6	50.0
109.1	69.8	103.5	94.8	87.7	79.7	70.9	63.2	58.1	47.4
119.7	59.9	101.5	93.0	85.8	77.8	69.0	61.5	56.5	45.8
128.3	51.4	101.1	92.6	85.6	77.7	69.1	61.6	56.7	46.1
136.0	44.0	102.0	93.5	86.7	79.4	71.0	63.6	58.7	48.4
145.6	34.3	101.2	91.9	84.6	76.2	66.8	58.8	53.5	42.5

STANDARD DEVIATION - PNLT dB

29.8	29.5	0.9	1.0	1.1	1.2	1.5	2.1	2.3	2.5
39.2	38.9	0.6	0.6	0.5	0.6	0.7	0.8	1.0	1.3
49.4	48.9	0.8	0.7	0.7	0.7	0.9	1.1	1.3	2.2
59.3	58.6	2.0	2.1	2.3	2.5	2.6	2.7	2.9	3.3
70.1	68.9	2.7	2.7	2.9	3.4	3.9	4.1	4.4	4.9
80.3	78.0	2.8	2.8	2.9	3.0	3.3	3.6	3.8	4.2
89.6	82.9	1.8	1.8	1.9	2.0	2.4	2.6	2.8	3.2
99.9	77.9	1.7	1.9	2.2	2.6	2.8	3.0	3.2	3.7
109.1	69.8	2.1	2.2	2.5	2.8	2.9	3.0	3.2	3.9
119.7	59.9	2.4	2.5	2.8	3.1	3.3	3.3	3.4	3.9
128.3	51.4	1.1	1.3	1.3	1.3	1.3	1.3	1.5	1.8
136.0	44.0	-	-	-	-	-	-	-	-
145.6	34.3	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE 613.c.A

PIPER PA-31-325 (NAVAJO) AIRCRAFT

DOT/TSC

2/23/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

TAKEOFF EVENTS: 1 ,5 ,7 ,9 ,11

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 20,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL							
29.8	29.5	86.7	78.0	71.0	63.5	55.4	48.5	43.7
39.2	38.9	87.5	79.0	72.1	64.7	56.8	49.8	45.0
49.4	48.9	89.7	81.2	74.2	66.8	58.5	51.1	45.9
59.3	58.6	91.5	82.9	76.0	68.4	60.3	53.2	48.3
70.1	68.9	93.1	84.4	77.4	70.0	62.0	55.2	50.6
80.3	78.0	93.1	84.4	77.5	70.1	62.3	55.6	51.2
89.6	82.9	91.9	83.4	76.6	69.4	61.9	55.5	51.2
99.9	77.9	89.3	80.8	73.9	66.7	59.0	52.5	48.2
109.1	69.8	87.0	78.5	71.7	64.4	56.7	50.1	45.7
119.7	59.9	84.6	76.2	69.5	62.5	55.0	48.6	44.2
128.3	51.4	84.2	75.9	69.3	62.5	55.1	48.7	44.4
136.0	44.0	85.8	77.6	71.1	64.4	57.2	50.8	46.4
145.6	34.3	85.0	76.1	69.0	61.5	53.6	46.7	42.0

STANDARD DEVIATION - dBA

THETA BETA (DEGREES)	200	500	1000	2000	4000	7000	10000	20000
29.8	29.5	1.0	1.0	1.1	1.2	1.3	1.5	1.6
39.2	38.9	1.0	1.0	1.0	1.1	1.1	1.2	1.2
49.4	48.9	0.9	0.8	0.8	0.8	1.0	1.1	1.2
59.3	58.6	1.4	1.5	1.5	1.7	1.9	2.1	2.3
70.1	68.9	1.4	1.3	1.3	1.6	2.1	2.8	3.2
80.3	78.0	1.7	1.6	1.6	1.8	2.1	2.5	2.7
89.6	82.9	1.1	1.1	1.1	1.4	1.7	2.0	2.2
99.9	77.9	1.1	1.1	1.1	1.3	1.6	2.0	2.2
109.1	69.8	1.6	1.6	1.6	1.7	1.9	2.2	2.5
119.7	59.9	2.1	2.1	2.1	2.1	2.1	2.3	2.5
128.3	51.4	0.8	0.8	0.9	1.0	1.2	1.3	1.6
136.0	44.0	-	-	-	-	-	-	-
145.6	34.3	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.

BETA - THE ELEVATION ANGLE.

TABLE NO. 14.a

CONVAIR CV-580 AIRCRAFT

DOT/TSC

2/11/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

PERCEIVED NOISE LEVEL PNdB

TAKEOFF EVENTS: 24,26,28,30

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)		200	500	1000	2000	4000	7000	10000	20000
THETA	BETA								
(DEGREES)		AVERAGE LEVEL - PNLT dB re 20 micro PASCAL							
32.4	32.3	106.8	97.6	89.4	79.9	70.4	61.8	55.8	43.0
41.1	41.1	106.9	97.6	89.5	80.6	71.2	62.8	57.1	44.9
49.1	49.1	107.9	98.8	90.9	82.4	73.2	65.1	59.6	48.0
60.5	60.4	108.4	99.4	92.2	84.2	75.3	67.5	62.2	51.2
69.6	69.5	110.2	101.5	94.4	86.7	78.2	70.6	65.4	54.5
79.1	78.9	110.5	101.8	94.7	87.0	78.3	70.7	65.5	54.5
88.7	86.2	111.0	102.3	95.2	87.6	78.9	71.2	65.9	54.9
99.9	79.7	111.6	102.9	95.9	88.3	79.5	71.7	66.4	55.2
107.9	71.9	112.4	103.8	96.7	89.1	80.3	72.4	67.1	55.8
119.4	60.5	111.1	102.4	95.3	87.5	78.6	70.7	65.2	53.7
129.4	50.5	107.2	98.5	91.4	83.5	74.7	66.8	61.3	49.2
138.9	41.1	103.9	95.1	87.9	79.9	70.9	63.0	57.5	45.4
148.8	31.2	101.7	92.4	84.8	76.6	67.4	59.1	53.2	41.0

STANDARD DEVIATION - PNLT dB

32.4	32.3	1.6	1.5	1.4	1.4	1.3	1.4	1.4	1.4
41.1	41.1	1.1	1.1	1.1	1.6	1.8	2.0	2.2	2.9
49.1	49.1	1.5	1.8	2.4	2.9	3.2	3.6	3.8	4.5
60.5	60.4	1.3	1.6	1.6	1.8	2.0	2.2	2.2	2.2
69.6	69.5	0.6	0.6	0.6	0.7	0.8	0.8	0.9	0.8
79.1	78.9	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
88.7	86.2	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.4
99.9	79.7	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.4
107.9	71.9	0.6	0.7	0.7	0.7	0.8	0.9	1.0	1.2
119.4	60.5	2.3	2.4	2.5	2.6	2.6	2.7	2.8	2.9
129.4	50.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.8
138.9	41.1	1.7	1.7	1.7	1.8	1.8	1.8	1.9	2.0
148.8	31.2	1.9	2.0	2.3	2.5	2.4	2.7	2.9	2.8

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.14.a.A

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/11/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

TAKEOFF EVENTS: 24,26,28,30

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
32.4	32.3	92.5	83.6	76.2	68.0	59.0	51.1	45.7	34.0
41.1	41.1	91.9	83.0	75.8	67.9	59.2	51.5	46.3	35.1
49.1	49.1	92.3	83.5	76.4	68.5	60.1	52.7	47.7	37.2
60.5	60.4	92.7	83.9	76.9	69.2	61.0	53.9	49.2	39.2
69.6	69.5	94.0	85.4	78.4	71.0	63.1	56.3	51.7	42.2
79.1	78.9	94.8	86.2	79.3	71.8	63.8	56.9	52.3	42.6
88.7	86.2	95.7	87.2	80.3	72.9	64.8	57.8	53.1	43.4
99.9	79.7	96.9	88.3	81.4	73.9	65.6	58.2	53.2	43.1
107.9	71.9	97.9	89.4	82.5	75.0	66.5	58.9	53.7	43.1
119.4	60.5	97.5	89.0	82.1	74.6	66.1	58.4	53.0	41.7
129.4	50.5	93.6	85.1	78.4	71.0	62.9	55.5	50.3	39.2
138.9	41.1	89.7	81.1	74.3	66.9	58.9	51.9	47.0	36.3
148.8	31.2	86.8	78.1	71.0	63.3	55.0	47.8	42.9	32.3

STANDARD DEVIATION - dBA

32.4	32.3	1.3	1.3	1.3	1.2	1.2	1.2	1.3	1.4
41.1	41.1	0.8	0.8	0.9	0.9	1.1	1.3	1.5	2.0
49.1	49.1	1.4	1.4	1.5	1.7	1.9	2.2	2.4	3.0
60.5	60.4	1.0	1.1	1.2	1.3	1.4	1.6	1.7	1.8
69.6	69.5	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9
79.1	78.9	0.8	0.8	0.9	0.9	0.9	0.8	0.9	0.9
88.7	86.2	0.9	1.0	1.0	1.0	0.8	0.7	0.6	0.6
99.9	79.7	0.9	0.9	0.9	0.8	0.6	0.3	0.1	0.4
107.9	71.9	0.3	0.3	0.3	0.3	0.1	0.2	0.4	1.0
119.4	60.5	1.9	1.9	1.8	1.7	1.6	1.6	1.6	1.9
129.4	50.5	2.7	2.7	2.7	2.6	2.4	2.2	2.0	1.8
138.9	41.1	1.8	1.9	1.9	2.0	2.0	2.0	1.9	1.8
148.8	31.2	2.2	2.2	2.2	2.3	2.4	2.5	2.5	2.4

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.14.b

CONVAIR CV-580 AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 PERCEIVED NOISE LEVEL PNdB

DOT/TSC
 2/22/80

TAKEOFF EVENTS: 24,26,28,30

SITE: 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
28.7	28.7	106.6	97.5	89.5	80.2	70.6	62.0	56.1	43.4
38.4	38.3	107.2	98.0	90.0	81.1	71.7	63.3	57.6	45.1
48.8	48.7	108.6	99.7	92.4	84.3	75.2	67.2	61.8	50.6
59.6	59.5	110.1	101.4	94.3	86.7	78.2	70.6	65.4	54.5
67.7	67.6	110.2	101.6	94.6	87.0	78.6	71.1	65.9	55.1
79.3	79.1	110.4	101.8	94.7	87.2	78.7	71.1	65.9	55.0
89.1	86.6	110.5	101.6	94.4	86.5	77.7	69.8	64.4	53.1
99.9	79.7	111.0	102.4	95.4	87.7	78.9	71.0	65.6	54.3
109.4	70.4	110.3	101.6	94.6	86.8	77.9	69.9	64.3	52.8
118.5	61.4	108.6	99.9	92.9	85.0	76.1	68.2	62.6	50.8
128.9	51.0	105.2	96.5	89.3	81.4	72.5	64.5	58.9	46.3
138.9	41.1	104.5	95.5	87.7	79.2	69.9	61.7	56.0	43.3
146.6	33.3	102.2	93.0	85.2	77.0	67.6	59.3	53.7	41.5

STANDARD DEVIATION - PNLT dB

28.7	28.7	0.7	0.7	0.7	0.8	0.9	1.0	1.2	1.3
38.4	38.3	1.3	1.3	1.3	1.2	1.1	1.0	1.0	1.0
48.8	48.7	0.4	0.6	0.8	1.2	1.5	1.8	1.9	2.5
59.6	59.5	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7
67.7	67.6	1.1	1.2	1.3	1.4	1.7	1.9	2.0	2.2
79.3	79.1	0.8	0.8	0.9	0.9	1.0	1.1	1.1	1.1
89.1	86.6	0.4	0.7	0.9	1.5	1.8	2.1	2.2	2.5
99.9	79.7	0.5	0.5	0.5	0.6	0.7	0.8	0.9	1.1
109.4	70.4	1.1	1.2	1.2	1.4	1.5	1.7	1.8	2.0
118.5	61.4	1.2	1.2	1.3	1.3	1.2	1.2	1.3	1.8
128.9	51.0	1.6	1.6	1.6	1.6	1.7	1.7	1.6	1.6
138.9	41.1	1.2	1.2	1.1	1.1	1.1	1.1	1.2	1.2
146.6	33.3	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.14.b.A

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

TAKEOFF EVENTS: 24,26,28,30

SITE: 31-2

2067 M. NORTH THRESHOLD RWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL							
28.7	28.7	92.4	83.5	76.2	68.2	59.3	51.4	45.9
38.4	38.3	92.5	83.7	76.5	68.6	59.9	52.0	46.7
48.8	48.7	93.4	84.6	77.5	69.7	61.3	54.0	49.1
59.6	59.5	93.9	85.3	78.4	71.0	63.1	56.3	51.7
67.7	67.6	93.9	85.4	78.6	71.3	63.5	56.7	52.2
79.3	79.1	94.5	85.9	79.1	71.7	63.7	56.9	52.3
89.1	86.6	95.6	87.0	80.0	72.5	64.1	56.7	51.8
99.9	79.7	96.8	88.3	81.4	73.9	65.5	58.0	52.8
109.4	70.4	97.1	88.6	81.8	74.4	65.9	58.2	52.6
118.5	61.4	95.3	86.8	80.0	72.7	64.4	56.8	51.4
128.9	51.0	91.9	83.4	76.6	69.2	61.0	53.5	48.3
138.9	41.1	90.3	81.6	74.6	66.8	58.3	50.7	45.6
146.6	33.3	86.7	78.1	71.1	63.6	55.3	48.0	42.9

STANDARD DEVIATION - dBA

THETA	BETA	200	500	1000	2000	4000	7000	10000	20000
28.7	28.7	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.2
38.4	38.3	1.3	1.3	1.4	1.3	1.2	1.0	0.8	0.6
48.8	48.7	0.5	0.6	0.6	0.5	0.3	0.5	0.8	1.5
59.6	59.5	0.7	0.6	0.5	0.4	0.5	0.8	1.0	1.5
67.7	67.6	0.4	0.4	0.5	0.7	0.9	1.2	1.5	1.9
79.3	79.1	0.8	0.9	0.8	0.8	0.9	1.0	1.1	1.3
89.1	86.6	0.8	0.8	0.8	0.8	0.9	1.1	1.4	1.9
99.9	79.7	0.5	0.5	0.6	0.5	0.5	0.2	0.2	0.9
109.4	70.4	0.7	0.8	0.8	0.8	0.8	0.9	1.0	1.3
118.5	61.4	1.2	1.2	1.2	1.1	1.1	1.0	0.9	0.9
128.9	51.0	1.8	1.8	1.9	1.9	1.8	1.7	1.6	1.4
138.9	41.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
146.6	33.3	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. G.14.c

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

PERCEIVED NOISE LEVEL PNdB

TAKEOFF EVENTS: 24,26,28,30

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 20,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
31.1	30.9	118.2	108.1	98.7	87.8	76.8	67.6	61.5	48.9
41.7	41.3	112.4	102.7	94.6	85.6	75.7	67.1	61.5	49.8
50.9	50.2	111.2	102.2	94.8	86.4	77.2	69.2	63.7	52.5
62.0	61.1	111.4	102.6	95.3	87.2	78.2	70.4	65.0	53.9
71.5	70.0	110.9	102.1	94.9	86.8	77.7	69.9	64.5	53.4
82.5	79.2	111.6	102.8	95.5	87.5	78.1	70.0	64.5	53.3
91.2	82.1	112.1	103.3	96.0	87.9	78.5	70.4	64.9	53.5
100.7	76.9	111.6	102.7	95.4	87.1	77.5	69.1	63.5	51.8
111.1	67.6	110.8	101.9	94.3	85.6	75.7	67.1	61.1	48.7
121.5	57.7	109.7	100.6	92.8	84.1	74.2	65.1	58.6	44.7
131.4	48.0	110.7	100.3	90.9	81.1	71.1	62.3	56.1	42.6
141.6	38.0	109.8	99.4	89.8	79.8	69.7	60.5	54.4	41.2
150.8	28.8	125.3	113.6	101.6	85.6	70.5	60.4	54.1	40.9

STANDARD DEVIATION - PNLT dB

31.1	30.9	10.0	8.2	5.6	3.1	1.8	1.8	2.0	2.5
41.7	41.3	5.5	4.6	4.1	3.0	1.9	1.3	1.1	1.1
50.9	50.2	3.1	2.7	2.1	1.1	0.8	1.0	1.2	1.6
62.0	61.1	3.5	3.1	2.8	2.2	1.8	1.7	1.7	1.8
71.5	70.0	2.9	2.6	2.3	1.7	1.4	1.5	1.6	1.9
82.5	79.2	3.0	2.7	2.3	1.6	0.8	0.4	0.3	0.4
91.2	82.1	3.0	2.8	2.5	1.9	1.3	1.0	0.8	0.5
100.7	76.9	3.9	3.8	3.5	3.0	2.1	1.5	1.3	0.7
111.1	67.6	4.4	4.3	4.3	4.0	3.4	2.8	2.2	2.2
121.5	57.7	3.4	3.2	3.0	2.7	2.1	1.4	0.9	0.3
131.4	48.0	8.5	7.0	5.0	3.3	2.5	2.0	1.4	1.0
141.6	38.0	10.2	8.5	6.0	4.0	2.8	2.5	2.1	1.4
150.8	28.8	21.9	19.2	14.8	6.8	0.1	0.8	1.0	1.6

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE 6.14.c.A

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

TAKEOFF EVENTS: 24,26,28,30

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 20,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
31.1	30.9	104.5	94.3	84.9	74.8	65.1	56.4	50.4	38.3
41.7	41.3	97.4	88.1	80.4	72.3	63.3	55.3	49.8	38.6
50.9	50.2	96.2	87.3	80.1	72.3	63.8	56.2	51.1	40.3
62.0	61.1	95.8	87.2	80.1	72.3	63.8	56.3	51.4	41.4
71.5	70.0	95.7	87.0	80.0	72.3	63.7	56.2	51.2	41.1
82.5	79.2	97.0	88.3	81.3	73.4	64.6	56.8	51.8	41.8
91.2	82.1	97.9	89.2	82.1	74.2	65.1	56.9	51.4	41.0
100.7	76.9	97.7	89.0	81.9	74.0	64.8	56.3	50.5	39.2
111.1	67.6	97.5	88.9	81.8	73.9	64.7	55.9	49.7	37.4
121.5	57.7	97.0	88.3	81.2	73.2	64.0	55.2	48.9	35.9
131.4	48.0	97.4	86.9	77.9	69.3	60.3	52.1	46.3	34.3
141.6	38.0	95.6	85.2	76.1	67.4	58.3	50.1	44.4	32.8
150.8	28.8	111.7	99.9	87.7	70.6	57.1	48.7	43.0	31.3

STANDARD DEVIATION - dBA

31.1	30.9	12.0	9.5	5.8	2.6	2.1	1.7	1.7	2.0
41.7	41.3	5.7	4.5	3.7	3.1	2.4	1.6	1.1	0.8
50.9	50.2	3.7	3.2	2.9	2.4	1.7	0.9	0.6	1.3
62.0	61.1	4.0	3.8	3.5	3.1	2.3	1.6	1.5	1.6
71.5	70.0	3.5	3.3	3.1	2.7	1.9	1.2	1.2	1.8
82.5	79.2	3.7	3.6	3.4	3.1	2.4	1.4	0.7	0.4
91.2	82.1	3.8	3.7	3.6	3.5	2.9	2.0	1.3	0.5
100.7	76.9	4.7	4.6	4.5	4.3	3.8	2.9	2.0	0.6
111.1	67.6	4.8	4.8	4.6	4.4	4.0	3.2	2.5	1.4
121.5	57.7	3.7	3.5	3.4	3.2	2.7	1.9	1.3	0.2
131.4	48.0	9.2	6.9	4.4	3.4	2.9	2.2	1.7	1.0
141.6	38.0	12.0	9.4	6.2	4.8	4.1	3.0	2.1	0.9
150.8	28.8	29.2	26.0	20.2	8.1	1.4	0.6	0.2	0.3

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.

BETA - THE ELEVATION ANGLE.

TABLE NO. G.15.a

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT

DOT/TSC

2/12/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

PERCEIVED NOISE LEVEL PNdB

TAKEOFF EVENTS: 1, 5, 9

SITE: 31-1

84 M. NORTH THRESHOLD RWY. 13

JUNE 21, 1978

SLANT RANGE (ft.)		200	500	1000	2000	4000	7000	10000	20000
THETA	BETA								
(DEGREES)		AVERAGE LEVEL - PNLT dB re 20 micro PASCAL							
29.8	29.6	100.5	91.9	84.9	77.3	68.8	61.4	56.2	45.1
39.2	39.0	103.9	95.3	88.6	81.5	73.4	66.2	61.3	50.8
49.6	49.3	105.4	96.9	90.1	82.9	74.9	67.7	62.7	51.6
61.7	61.2	107.0	98.5	91.7	84.4	76.3	69.0	63.9	52.6
72.2	71.4	108.5	99.9	93.0	85.6	77.3	69.8	64.4	52.5
81.1	79.0	108.7	100.1	93.2	85.7	77.3	69.7	64.3	53.1
89.7	84.7	108.4	99.9	93.0	85.5	77.0	69.5	64.4	53.6
99.5	79.0	109.7	101.2	94.4	87.1	79.0	71.8	66.9	56.6
110.3	68.9	111.9	103.4	96.7	89.6	81.9	74.9	70.1	60.0
119.0	60.5	112.5	104.1	97.4	90.3	82.7	76.1	71.4	61.3
130.6	49.1	109.8	101.3	94.6	87.5	80.0	73.2	68.5	58.5
140.1	39.6	104.6	96.1	89.3	82.0	73.9	66.9	62.2	51.9
150.4	29.5	98.1	89.5	82.4	74.8	66.4	59.1	54.1	43.2

STANDARD DEVIATION - PNLT dB

29.8	29.6	0.8	0.8	0.9	1.1	1.2	1.3	1.4	1.6
39.2	39.0	1.6	1.6	1.7	1.7	2.0	2.1	2.1	2.1
49.6	49.3	0.9	1.0	1.1	1.3	1.5	1.8	2.1	3.1
61.7	61.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.7
72.2	71.4	1.3	1.2	1.2	1.2	1.1	1.0	0.8	1.0
81.1	79.0	0.6	0.6	0.6	0.4	0.3	0.1	0.1	0.8
89.7	84.7	0.7	0.7	0.8	1.0	1.1	1.2	1.6	1.7
99.5	79.0	1.5	1.6	1.6	1.7	2.1	2.1	2.2	2.2
110.3	68.9	1.0	1.1	1.1	1.2	1.3	1.5	1.5	1.5
119.0	60.5	1.1	1.1	1.1	1.2	1.2	1.4	1.4	1.5
130.6	49.1	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.7
140.1	39.6	2.1	2.0	2.0	2.0	2.2	2.2	2.3	2.3
150.4	29.5	3.0	3.1	3.2	3.5	3.7	4.0	4.1	4.9

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.

BETA - THE ELEVATION ANGLE.

TABLE NO. Q.15.a.A

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 NOISE LEVEL dBA

DOT/TSC
 2/12/80

TAKEOFF EVENTS: 1 ,5 ,9

SITE: 31-1

84 M. NORTH THRESHOLD RWY. 13

JUNE 21,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL							
29.8	29.6	85.4	77.2	70.6	63.8	56.4	49.7	45.1
39.2	39.0	88.6	80.5	74.1	67.5	60.5	54.2	49.9
49.6	49.3	91.0	82.8	76.4	69.8	62.6	56.2	51.7
61.7	61.2	93.0	84.8	78.4	71.6	64.1	57.3	52.5
72.2	71.4	95.0	86.7	80.3	73.4	65.8	58.8	53.6
81.1	79.0	95.1	86.8	80.3	73.4	65.9	58.8	53.7
89.7	84.7	94.7	86.4	79.9	73.1	65.5	58.6	53.7
99.5	79.0	94.0	85.8	79.3	72.5	65.3	58.8	54.3
110.3	68.9	94.3	86.1	79.7	73.2	66.2	60.2	56.1
119.0	60.5	94.9	86.7	80.5	74.0	67.2	61.3	57.2
130.6	49.1	92.5	84.3	78.0	71.6	64.7	58.8	54.7
140.1	39.6	88.4	80.1	73.8	67.1	59.9	53.6	49.2
150.4	29.5	82.9	74.6	68.2	61.3	53.9	47.3	42.6

STANDARD DEVIATION - dBA									
29.8	29.6	0.6	0.7	0.7	0.9	1.0	1.1	1.2	1.2
39.2	39.0	1.9	1.9	2.0	2.0	2.2	2.3	2.3	2.5
49.6	49.3	0.8	0.8	0.9	1.0	1.2	1.6	1.8	2.7
61.7	61.2	1.3	1.3	1.3	1.2	1.1	0.9	0.8	1.4
72.2	71.4	0.9	0.9	0.9	0.8	0.7	0.5	0.4	0.3
81.1	79.0	0.1	0.0	0.1	0.1	0.3	0.5	0.6	1.1
89.7	84.7	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.5
99.5	79.0	1.5	1.6	1.6	1.6	1.7	1.7	1.8	1.9
110.3	68.9	1.2	1.2	1.3	1.3	1.3	1.4	1.3	1.3
119.0	60.5	1.1	1.1	1.2	1.3	1.3	1.3	1.4	1.4
130.6	49.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.5
140.1	39.6	1.5	1.5	1.5	1.6	1.6	1.7	1.9	2.2
150.4	29.5	2.7	2.7	2.8	3.0	3.1	3.4	3.6	4.0

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.15.b

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 PERCEIVED NOISE LEVEL PNdB

DOT/TSC
 2/23/80

TAKEOFF EVENTS: 1 ,3 ,5 ,9

SITE: 31-2

2067 M. NORTH THRESHOLD RWY. 13

JUNE 21,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
31.3	31.2	100.0	91.0	83.7	75.7	66.5	58.3	53.1	41.6
41.4	41.2	101.8	93.3	86.5	79.1	70.2	63.0	58.2	48.3
51.8	51.6	103.2	94.7	87.9	80.7	72.6	65.6	60.9	51.2
61.3	61.1	104.4	95.9	89.1	82.1	74.2	67.2	62.5	52.7
71.1	70.8	105.1	96.6	89.8	82.7	74.9	67.9	63.2	53.4
81.9	81.2	105.3	96.7	89.9	82.6	74.6	67.6	62.8	52.5
91.5	86.7	104.2	95.7	88.8	81.4	73.2	66.0	61.1	51.1
101.7	78.1	102.7	94.1	87.2	79.5	71.0	63.6	58.7	48.6
111.6	68.3	103.1	94.5	87.5	79.8	71.3	63.9	58.9	48.5
121.8	58.2	102.4	93.8	86.7	78.9	70.4	62.9	57.9	47.3
131.6	48.4	99.1	90.5	83.2	75.2	66.1	58.5	53.5	42.2
141.3	38.6	100.0	91.1	83.7	75.8	66.3	57.9	52.8	41.4
150.2	29.8	102.2	92.7	84.3	75.6	66.1	58.3	53.1	41.9

STANDARD DEVIATION - PNLT dB									
31.3	31.2	2.1	1.7	1.6	1.6	1.5	0.7	0.6	0.5
41.4	41.2	1.2	1.2	1.2	1.3	1.5	1.5	1.5	1.6
51.8	51.6	1.5	1.6	1.6	1.6	1.8	1.8	1.9	1.9
61.3	61.1	1.5	1.5	1.5	1.6	1.7	1.7	1.7	1.7
71.1	70.8	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8
81.9	81.2	0.7	0.9	1.0	1.2	1.3	1.5	1.7	2.4
91.5	86.7	1.0	1.2	1.3	1.6	1.8	2.0	2.2	2.7
101.7	78.1	1.3	1.4	1.5	1.8	1.8	2.0	2.0	2.3
111.6	68.3	2.0	2.1	2.2	2.6	2.8	3.0	3.2	3.7
121.8	58.2	1.7	1.7	1.8	1.9	2.0	2.1	2.2	2.6
131.6	48.4	1.2	1.2	1.3	1.4	1.8	1.8	1.8	1.9
141.3	38.6	1.0	0.9	0.8	0.8	0.7	1.3	1.4	1.7
150.2	29.8	1.7	1.1	0.8	1.0	1.3	1.5	1.5	1.3

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 15.b.A

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT

DOT/TSC

2/23/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

TAKEOFF EVENTS: 1 ,3 ,5 ,9

SITE: 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 21,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL							
31.3	31.2	84.4	75.8	69.0	61.8	54.1	47.2	42.3
41.4	41.2	84.7	76.3	69.9	63.1	56.0	49.8	45.6
51.8	51.6	86.2	77.9	71.6	65.0	58.1	52.1	48.0
61.3	61.1	87.3	79.1	72.8	66.3	59.5	53.6	49.4
71.1	70.8	88.0	79.8	73.5	67.1	60.2	54.3	50.2
81.9	81.2	88.6	80.4	74.0	67.5	60.5	54.4	50.1
91.5	86.7	87.7	79.5	73.1	66.4	59.4	53.4	49.2
101.7	78.1	86.5	78.1	71.5	64.7	57.5	51.4	47.3
111.6	68.3	86.7	78.4	71.8	65.0	57.8	51.6	47.3
121.8	58.2	85.8	77.5	70.9	64.1	57.0	50.7	46.4
131.6	48.4	84.1	75.7	69.0	62.0	54.5	47.8	43.0
141.3	38.6	84.2	75.8	69.1	62.0	54.3	47.3	42.5
150.2	29.8	85.5	76.4	68.8	61.1	53.4	46.6	41.8

STANDARD DEVIATION - dBA

31.3	31.2	1.1	1.0	0.9	0.9	0.8	0.7	0.6	0.5
41.4	41.2	0.9	0.9	0.9	1.0	1.0	1.2	1.3	1.4
51.8	51.6	1.4	1.5	1.5	1.6	1.7	1.7	1.8	1.8
61.3	61.1	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6
71.1	70.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.8
81.9	81.2	0.6	0.7	0.7	0.8	1.0	1.3	1.5	2.4
91.5	86.7	0.5	0.6	0.7	0.9	1.1	1.4	1.6	2.2
101.7	78.1	1.2	1.3	1.5	1.7	2.0	2.2	2.3	2.5
111.6	68.3	1.2	1.3	1.5	1.7	1.9	2.2	2.4	2.9
121.8	58.2	1.0	1.0	1.0	1.0	1.1	1.3	1.4	1.7
131.6	48.4	0.8	0.9	1.0	1.0	1.1	1.3	1.4	1.6
141.3	38.6	0.6	0.7	0.8	0.8	0.9	0.9	0.9	0.8
150.2	29.8	1.0	0.9	1.3	1.9	2.0	1.9	1.9	1.9

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.15.c

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/23/80

PERCEIVED NOISE LEVEL PNdB

TAKEOFF EVENTS: 1 ,3 ,5

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 21,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
30.5	30.2	105.0	96.5	89.8	82.6	74.5	67.4	62.6	52.7
40.4	39.9	106.3	97.9	91.2	84.0	76.2	69.2	64.6	54.6
51.3	50.5	105.7	97.2	90.4	83.1	75.3	68.3	63.6	53.2
60.5	59.4	105.2	96.7	89.9	82.6	74.6	67.6	62.9	52.5
71.3	69.5	103.8	95.3	88.5	81.0	72.9	65.8	61.1	50.4
80.0	76.6	104.2	95.7	88.9	81.5	73.2	66.0	61.0	50.8
90.2	80.9	103.8	95.2	88.4	81.0	72.6	65.4	60.3	50.3
100.9	75.6	102.2	93.7	86.8	79.2	70.9	63.3	58.6	48.4
110.7	67.5	101.5	93.0	86.2	78.5	70.1	62.9	58.2	48.3
121.0	57.8	98.2	89.7	82.6	74.8	66.3	59.1	54.4	44.1
130.6	48.7	94.5	85.8	78.6	70.8	62.2	54.9	49.7	38.5
141.2	38.5	97.8	89.0	81.8	73.9	65.1	57.5	52.1	40.7
148.5	31.4	94.7	85.9	78.9	71.0	62.0	54.0	48.5	37.0

STANDARD DEVIATION - PNLT dB

30.5	30.2	2.3	2.2	2.0	1.8	1.7	1.6	1.5	1.4
40.4	39.9	1.1	1.0	0.8	0.6	0.5	0.3	0.2	0.2
51.3	50.5	2.9	2.9	2.9	3.0	3.2	3.2	3.3	4.0
60.5	59.4	3.6	3.6	3.6	3.8	3.9	3.9	4.0	4.7
71.3	69.5	2.4	2.3	2.2	2.4	2.3	2.2	2.0	3.3
80.0	76.6	1.4	1.3	1.2	1.2	1.2	1.0	1.4	1.7
90.2	80.9	1.9	1.9	1.9	2.0	2.0	1.9	2.2	2.3
100.9	75.6	2.6	2.6	2.6	2.7	2.6	3.0	2.8	3.4
110.7	67.5	2.1	2.1	2.0	2.3	2.3	2.3	2.4	2.4
121.0	57.8	1.9	1.9	2.2	2.2	2.3	2.4	2.4	2.7
130.6	48.7	1.7	1.6	1.6	1.5	1.2	0.9	0.8	0.8
141.2	38.5	2.4	2.3	2.2	2.1	1.8	1.6	1.3	1.2
148.5	31.4	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 15.c.A

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT

DOT/TSC
2/23/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

TAKEOFF EVENTS: 1, 3, 5

SITE: 31-3

3520 M. NORTH THRESHOLD RWY. 13

JUNE 21, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL							
30.5	30.2	88.2	79.9	73.6	66.9	59.9	53.8	49.6
40.4	39.9	89.1	81.0	74.6	68.1	61.2	55.2	51.1
51.3	50.5	89.1	80.9	74.6	68.1	61.1	55.1	50.8
60.5	59.4	88.5	80.3	74.0	67.4	60.5	54.4	50.2
71.3	69.5	87.3	79.0	72.6	66.0	59.1	53.0	48.9
80.0	76.6	87.1	78.9	72.5	65.9	59.0	53.1	49.0
90.2	80.9	85.7	77.5	71.1	64.4	57.5	51.5	47.5
100.9	75.6	84.2	76.0	69.5	62.9	55.8	49.7	45.6
110.7	67.5	83.5	75.2	68.8	62.1	55.1	49.0	44.8
121.0	57.8	81.2	73.0	66.5	59.8	52.5	46.2	41.8
130.6	48.7	80.5	72.3	65.8	58.8	51.3	44.6	39.8
141.2	38.5	83.4	75.0	68.3	61.1	53.2	46.2	41.2
148.5	31.4	80.3	71.9	65.3	58.2	50.3	43.1	38.0

STANDARD DEVIATION - dBA

30.5	30.2	1.4	1.4	1.3	1.2	1.1	1.1	1.1	1.2
40.4	39.9	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.1
51.3	50.5	1.5	1.5	1.5	1.6	1.8	2.1	2.4	3.4
60.5	59.4	2.6	2.6	2.6	2.7	2.8	3.1	3.3	4.0
71.3	69.5	2.0	1.9	1.9	1.9	1.9	2.0	2.2	2.6
80.0	76.6	2.1	2.0	2.0	1.9	1.8	1.8	1.9	1.9
90.2	80.9	2.0	1.9	1.9	1.8	1.8	1.8	1.9	1.9
100.9	75.6	1.7	1.6	1.6	1.5	1.6	1.8	2.0	2.5
110.7	67.5	1.7	1.7	1.7	1.7	1.8	1.9	2.0	2.0
121.0	57.8	1.5	1.6	1.7	1.7	1.8	1.9	2.0	2.1
130.6	48.7	1.3	1.3	1.2	1.1	1.0	0.8	0.7	0.7
141.2	38.5	2.5	2.4	2.1	1.8	1.5	1.1	1.0	0.5
148.5	31.4	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 6.16.a

CESSNA 172N (SKYHAWK) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/12/80

PERCEIVED NOISE LEVEL PNdB

TAKEOFF EVENTS: 17,19,21,23,25,27

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 21, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
29.5	29.3	98.2	89.4	81.8	73.5	64.4	56.4	51.3	40.8
39.6	39.3	97.4	88.3	80.3	71.7	62.0	53.6	48.0	36.8
49.8	49.3	97.7	88.4	80.4	71.8	62.5	54.1	48.4	37.0
58.3	57.7	98.7	89.5	81.8	73.5	64.3	56.1	50.8	39.4
70.8	69.7	99.6	90.6	83.1	74.8	65.7	57.5	52.3	41.1
79.5	77.2	99.4	90.5	83.1	74.8	65.7	57.6	52.3	41.0
88.5	83.8	99.3	90.5	83.1	75.1	66.1	58.1	52.7	41.2
99.0	79.2	99.2	90.4	83.0	74.8	65.9	57.8	52.4	40.8
111.0	68.1	98.5	89.4	81.9	73.8	64.7	56.5	50.9	39.2
118.7	60.7	97.9	88.7	81.0	72.7	63.4	55.1	49.4	38.1
129.2	50.3	96.7	87.3	79.2	70.3	60.6	51.8	46.0	34.6
139.3	40.5	95.6	86.2	78.1	69.4	59.6	50.6	44.8	33.2
149.5	30.4	93.2	84.0	76.2	67.7	57.9	48.6	42.5	31.2

STANDARD DEVIATION - PNLT dB

29.5	29.3	0.8	0.8	0.8	0.8	0.8	1.0	1.1	1.3
39.6	39.3	1.3	1.2	1.0	0.9	1.0	1.2	1.5	1.7
49.8	49.3	1.6	1.5	1.5	1.6	1.6	1.6	1.8	1.6
58.3	57.7	2.0	2.0	1.9	1.8	1.8	1.7	1.8	1.8
70.8	69.7	1.6	1.4	1.3	1.2	1.1	1.0	0.9	0.8
79.5	77.2	0.6	0.5	0.5	0.6	0.6	0.7	0.9	1.1
88.5	83.8	1.0	1.0	1.1	1.1	1.2	1.3	1.4	1.6
99.0	79.2	0.8	0.9	1.0	1.1	1.2	1.4	1.8	2.1
111.0	68.1	0.6	0.8	1.0	1.1	1.4	1.7	2.0	2.2
118.7	60.7	0.5	0.6	0.8	1.0	1.3	1.7	2.0	2.1
129.2	50.3	0.6	0.6	0.7	1.1	1.5	2.2	2.6	2.8
139.3	40.5	0.5	0.5	0.5	0.7	0.9	1.5	1.6	1.9
149.5	30.4	2.1	2.0	1.9	1.7	1.5	1.4	1.4	0.9

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. G.16.1 A

CESSNA 172N (SKYHAWK) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 NOISE LEVEL dBA

DOT/TSC
 2/12/80

TAKEOFF EVENTS: 17,19,21,23,25,27

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 21,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
29.5	29.3	81.1	72.5	65.6	58.2	50.1	43.1	38.6	29.5
39.6	39.3	81.3	72.5	65.4	57.6	49.1	41.7	36.8	27.2
49.8	49.3	82.6	73.8	66.7	58.9	50.4	42.9	37.9	27.8
58.3	57.7	83.5	74.8	67.7	60.0	51.6	44.2	39.3	29.2
70.8	69.7	84.5	75.8	68.7	61.1	52.6	45.3	40.3	30.0
79.5	77.2	84.6	76.0	69.0	61.5	53.2	45.9	40.9	30.2
88.5	83.8	84.6	76.1	69.2	61.8	53.7	46.4	41.5	30.8
99.0	79.2	84.9	76.3	69.5	62.0	53.8	46.4	41.4	30.4
111.0	68.1	84.4	75.9	68.9	61.4	53.1	45.5	40.3	29.0
118.7	60.7	83.6	75.0	68.0	60.4	51.9	44.3	38.9	27.6
129.2	50.3	82.1	73.3	66.2	58.4	49.8	41.9	36.4	24.9
139.3	40.5	80.9	72.1	65.0	57.4	49.0	41.4	36.0	24.8
149.5	30.4	79.1	70.5	63.5	55.9	47.3	39.4	33.9	22.9

STANDARD DEVIATION - dBA

29.5	29.3	1.3	1.2	1.0	0.9	0.7	0.8	0.9	0.9
39.6	39.3	1.8	1.7	1.5	1.4	1.1	0.9	0.8	0.8
49.8	49.3	1.6	1.6	1.5	1.5	1.3	1.1	1.0	0.9
58.3	57.7	1.9	1.9	1.8	1.6	1.4	1.3	1.2	1.3
70.8	69.7	1.7	1.7	1.6	1.4	1.1	0.9	0.7	0.6
79.5	77.2	0.9	0.9	0.8	0.7	0.5	0.4	0.5	0.7
88.5	83.8	0.6	0.7	0.7	0.7	0.8	0.9	1.0	1.2
99.0	79.2	0.7	0.7	0.7	0.7	0.8	1.0	1.3	1.7
111.0	68.1	0.4	0.4	0.4	0.4	0.6	0.9	1.2	1.8
118.7	60.7	0.6	0.6	0.5	0.6	0.7	1.0	1.2	1.9
129.2	50.3	0.7	0.6	0.7	0.8	1.0	1.2	1.4	1.7
139.3	40.5	0.4	0.4	0.4	0.5	0.6	0.8	0.9	1.1
149.5	30.4	1.6	1.6	1.6	1.5	1.3	1.2	1.1	1.2

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.18.a

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 PERCEIVED NOISE LEVEL PNdB

DOT/TSC
 2/12/80

TAKEOFF EVENTS: 5 , 7 , 9

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
31.2	30.7	100.9	91.7	83.9	74.9	65.3	56.6	50.8	39.3
40.2	39.5	101.1	92.1	84.6	76.2	66.9	58.7	53.2	42.0
50.8	49.9	100.7	91.5	83.8	75.2	65.9	57.5	51.9	40.4
56.5	56.5	103.0	94.0	86.8	78.6	69.5	61.4	56.1	45.5
67.1	65.7	102.0	92.9	85.2	76.7	67.6	59.5	54.0	43.1
80.3	77.1	102.9	93.9	86.3	78.3	69.5	61.7	56.5	45.5
90.6	85.3	106.6	97.9	90.8	83.2	74.9	67.4	62.4	52.2
99.9	77.1	105.6	96.9	89.7	82.0	73.4	65.8	60.7	49.9
109.9	68.5	107.3	98.6	91.5	83.8	75.4	67.8	62.8	52.4
119.3	59.7	107.5	98.8	91.6	83.9	75.3	67.8	62.7	52.3
126.8	52.1	106.1	97.3	90.1	82.2	73.4	65.7	60.5	50.0
137.4	42.2	103.9	94.9	87.4	79.0	69.8	61.8	56.4	45.1
147.5	32.2	101.2	92.4	84.7	75.9	66.4	58.0	52.6	40.7

STANDARD DEVIATION - PNLT dB

31.2	30.7	2.4	2.4	2.8	3.0	3.2	3.6	4.2	5.3
40.2	39.5	2.4	2.7	3.1	3.3	3.5	3.8	3.9	3.9
50.8	49.9	2.5	2.4	2.8	3.1	3.3	3.5	3.5	3.3
56.5	56.5	-	-	-	-	-	-	-	-
67.1	65.7	4.3	4.9	5.5	6.4	7.2	7.8	8.3	9.1
80.3	77.1	6.2	6.6	7.2	7.9	8.8	9.5	9.9	10.7
90.6	85.3	2.8	2.8	2.9	3.2	3.5	3.7	3.7	3.7
99.9	77.1	4.1	4.3	4.5	4.8	5.1	5.5	5.8	6.8
109.9	68.5	2.8	2.9	3.0	3.3	3.6	3.8	4.0	4.2
119.3	59.7	1.7	1.7	1.7	1.8	2.1	2.3	2.4	2.4
126.8	52.1	2.5	2.6	2.6	2.8	3.0	3.2	3.3	3.4
137.4	42.2	1.0	1.2	1.6	1.9	2.4	2.8	3.0	3.8
147.5	32.2	2.2	2.2	2.3	2.3	2.4	2.5	2.5	3.0

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.18.a.A

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/12/80

NOISE LEVEL dBA

TAKEOFF EVENTS: 5 , 7 , 9

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
31.2	30.7	84.8	76.0	68.8	60.9	52.2	44.5	39.2	28.2
40.2	39.5	84.9	76.2	69.1	61.5	53.2	45.9	41.0	30.5
50.8	49.9	85.1	76.4	69.3	61.5	53.0	45.5	40.3	29.4
56.5	56.5	87.8	79.0	71.8	64.1	55.8	48.9	44.3	34.5
67.1	65.7	85.9	77.2	70.3	62.7	54.6	47.5	42.6	32.1
80.3	77.1	87.1	78.5	71.7	64.4	56.6	49.7	45.1	34.9
90.6	85.3	89.1	80.6	74.0	67.0	59.8	53.6	49.3	39.7
99.9	77.1	88.7	80.2	73.5	66.4	59.0	52.5	48.1	38.2
109.9	68.5	89.9	81.4	74.6	67.5	60.1	53.8	49.6	40.1
119.3	59.7	89.9	81.3	74.4	67.2	59.7	53.3	49.0	39.8
126.8	52.1	88.9	80.2	73.1	65.7	58.0	51.6	47.2	38.0
137.4	42.2	86.9	78.0	70.9	63.2	55.2	48.6	44.2	35.1
147.5	32.2	83.7	74.8	67.6	59.8	51.6	44.6	40.1	31.1

STANDARD DEVIATION - dBA

31.2	30.7	2.2	2.1	1.8	1.5	1.3	1.5	2.1	3.8
40.2	39.5	2.5	2.5	2.5	2.5	2.7	3.0	3.2	4.0
50.8	49.9	2.8	2.8	2.7	2.8	2.9	3.1	3.3	3.6
56.5	56.5	-	-	-	-	-	-	-	-
67.1	65.7	3.6	3.8	4.2	4.7	5.6	6.5	7.1	8.1
80.3	77.1	4.7	5.1	5.5	6.1	7.0	7.8	8.3	9.2
90.6	85.3	2.8	3.0	3.1	3.3	3.5	3.6	3.7	3.7
99.9	77.1	2.4	2.4	2.6	2.9	3.3	3.8	4.2	5.1
109.9	68.5	1.5	1.6	1.7	2.0	2.3	2.7	3.0	3.5
119.3	59.7	1.1	1.2	1.4	1.7	1.9	2.1	2.2	2.3
126.8	52.1	1.8	1.8	2.1	2.2	2.4	2.5	2.6	2.6
137.4	42.2	0.8	1.0	1.2	1.7	2.1	2.4	2.4	2.3
147.5	32.2	1.3	1.2	1.1	1.2	1.4	1.7	1.8	2.1

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. G.18.b

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
PERCEIVED NOISE LEVEL PNdB

DOT/TSC
2/23/80

TAKEOFF EVENTS: 5 , 7 , 9

SITE: 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)		200	500	1000	2000	4000	7000	10000	20000
THETA	BETA								
(DEGREES)		AVERAGE LEVEL - PNLT dB re 20 micro PASCAL							
30.9	30.8	102.4	93.3	85.7	77.2	67.8	59.6	54.2	42.6
40.7	40.6	102.2	93.3	85.9	77.9	68.7	60.7	55.3	44.1
51.6	51.5	99.8	90.9	83.5	75.4	66.2	58.1	52.6	41.4
61.2	61.1	102.3	93.5	86.3	78.4	69.7	62.0	56.8	45.8
70.9	70.6	105.7	97.1	90.2	82.7	74.4	67.1	62.1	51.9
80.7	80.2	106.4	97.9	91.0	83.6	75.5	68.2	63.3	53.2
90.5	86.5	105.7	97.1	90.2	82.7	74.2	66.8	61.8	51.5
100.9	78.9	105.5	96.9	89.8	82.1	73.4	65.8	60.7	50.4
110.4	69.5	103.8	95.1	88.0	80.1	71.3	63.5	58.3	47.8
120.6	59.3	102.1	93.4	86.1	77.9	68.8	60.8	55.5	44.4
130.8	49.2	100.4	91.2	83.3	74.7	65.3	57.0	51.5	40.4
140.7	39.3	102.2	92.8	84.3	74.1	62.9	52.7	46.0	34.0
150.4	29.6	106.6	96.8	87.9	76.5	61.1	48.6	41.8	31.0
STANDARD DEVIATION - PNLT dB									
30.9	30.8	0.9	0.9	1.1	1.1	1.2	1.3	1.4	1.5
40.7	40.6	2.1	2.2	2.5	2.7	2.8	3.1	3.3	4.0
51.6	51.5	2.0	2.1	2.4	2.5	2.7	2.8	2.9	3.3
61.2	61.1	5.9	6.2	6.6	7.2	7.9	8.4	8.7	9.4
70.9	70.6	4.1	4.2	4.3	4.6	5.1	5.4	5.5	5.7
80.7	80.2	1.7	1.7	1.7	1.7	1.9	1.9	1.9	1.8
90.5	86.5	0.9	0.9	0.8	0.9	0.9	0.9	0.9	0.8
100.9	78.9	2.3	2.4	2.4	2.5	2.5	2.6	2.6	2.5
110.4	69.5	1.4	1.4	1.4	1.6	1.5	1.5	1.6	1.7
120.6	59.3	1.5	1.4	1.6	1.6	1.6	1.7	1.7	1.9
130.8	49.2	1.5	1.6	1.8	2.1	2.2	2.1	2.1	2.0
140.7	39.3	2.2	2.2	2.1	1.9	1.0	0.2	0.6	0.9
150.4	29.6	6.8	6.3	5.6	4.1	1.1	1.1	1.4	1.0

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE 4.18.b.A

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
NOISE LEVEL dBA

DOT/TSC
2/23/80

TAKEOFF EVENTS: 5 ,7 ,9

SITE: 31-2

2067 M. NORTH THRESHOLD RWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
30.9	30.8	86.3	77.6	70.5	62.8	54.6	47.3	42.5	32.1
40.7	40.6	86.7	78.1	71.1	63.6	55.5	48.3	43.4	32.9
51.6	51.5	85.4	76.8	69.8	62.2	54.0	46.8	41.8	31.1
61.2	61.1	87.2	78.7	71.9	64.6	56.8	50.1	45.4	35.3
70.9	70.6	88.7	80.3	73.7	66.8	59.6	53.3	49.0	39.5
80.7	80.2	88.7	80.4	73.9	67.2	60.1	54.1	49.9	40.8
90.5	86.5	88.4	80.0	73.3	66.4	59.0	52.8	48.6	39.3
100.9	78.9	88.5	79.9	73.0	65.6	58.0	51.7	47.4	38.2
110.4	69.5	87.0	78.4	71.4	63.9	56.0	49.4	45.1	35.8
120.6	59.3	85.9	77.2	70.2	62.7	54.7	47.9	43.4	33.9
130.8	49.2	83.6	74.9	67.7	60.0	51.8	44.9	40.2	30.6
140.7	39.3	85.0	75.8	68.0	59.2	49.7	41.7	36.4	26.4
150.4	29.6	90.3	80.4	71.4	59.8	47.1	38.5	33.2	22.5

STANDARD DEVIATION - dBA

THETA	BETA	200	500	1000	2000	4000	7000	10000	20000
30.9	30.8	0.8	0.8	0.9	1.0	1.2	1.3	1.5	1.6
40.7	40.6	1.7	1.7	1.8	1.9	2.2	2.7	3.0	3.7
51.6	51.5	1.6	1.6	1.6	1.7	1.9	2.2	2.3	2.7
61.2	61.1	3.8	4.0	4.4	4.9	5.5	6.2	6.7	7.6
70.9	70.6	3.5	3.6	3.8	4.1	4.4	4.7	4.9	5.2
80.7	80.2	1.4	1.4	1.4	1.4	1.4	1.5	1.6	1.7
90.5	86.5	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8
100.9	78.9	2.0	1.9	1.9	1.8	1.8	1.9	1.9	2.2
110.4	69.5	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.2
120.6	59.3	1.6	1.5	1.5	1.3	1.2	1.1	1.1	1.0
130.8	49.2	2.2	2.3	2.3	2.3	2.0	1.9	1.9	2.1
140.7	39.3	1.9	1.9	2.0	1.9	1.1	0.5	0.3	0.3
150.4	29.6	7.9	7.2	6.0	3.5	0.3	0.5	0.8	1.7

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. G.18.c

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 PERCEIVED NOISE LEVEL PNdB

DOT/TSC
 2/23/80

TAKEOFF EVENTS: 5 ,9

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
33.1	32.9	109.6	99.8	90.9	80.3	70.5	60.1	54.2	41.7
43.4	43.3	107.2	98.6	91.5	83.8	75.1	67.5	62.3	51.8
53.7	53.6	108.5	99.9	93.0	85.4	76.9	69.4	64.4	54.1
63.6	63.4	108.3	99.7	92.7	85.2	76.8	69.4	64.4	54.1
72.6	72.3	106.2	97.6	90.5	82.7	74.0	66.4	61.3	50.9
82.9	82.1	103.9	94.7	86.7	77.6	68.0	59.7	54.1	42.4
92.5	85.8	103.7	94.7	87.6	79.4	70.3	62.4	56.8	46.3
102.1	77.4	102.8	94.1	87.1	79.0	70.0	62.1	56.6	46.2
113.3	66.6	102.2	93.2	85.8	77.3	67.7	59.6	54.4	43.5
122.9	57.0	105.1	95.6	87.4	77.9	67.1	58.3	52.6	41.1

STANDARD DEVIATION - PNLT dB

33.1	32.9	-	-	-	-	-	-	-	-
43.4	43.3	1.8	1.8	1.9	2.1	2.1	2.3	2.2	2.3
53.7	53.6	0.1	0.1	0.0	0.1	0.4	0.5	0.5	0.6
63.6	63.4	1.3	1.3	1.5	1.6	2.1	2.3	2.4	2.5
72.6	72.3	2.1	2.1	2.3	2.6	3.0	3.4	3.6	3.8
82.9	82.1	0.1	0.1	0.1	0.4	0.8	1.0	1.1	1.2
92.5	85.8	1.3	1.6	1.8	1.9	2.2	2.4	2.9	3.3
102.1	77.4	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.8
113.3	66.6	0.0	0.4	0.4	0.6	0.6	0.6	0.4	0.1
122.9	57.0	2.1	2.3	2.1	1.1	0.4	1.0	1.7	2.5

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.18.c.A

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT

DOT/TSC

2/23/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

TAKEOFF EVENTS: 5 ,9

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 23,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
33.1	32.9	93.0	83.1	74.7	66.0	57.2	49.7	44.4	33.0
43.4	43.3	91.4	82.9	76.1	68.9	61.2	54.6	50.0	40.1
53.7	53.6	91.2	82.7	76.0	68.9	61.6	55.4	51.1	41.7
63.6	63.4	90.7	82.3	75.6	68.6	61.3	55.1	50.9	41.6
72.6	72.3	89.3	80.6	73.8	66.5	58.9	52.5	48.1	38.7
82.9	82.1	87.9	79.1	71.8	63.7	55.2	48.0	43.2	33.0
92.5	85.8	87.4	78.7	71.6	63.8	55.7	48.9	44.6	35.3
102.1	77.4	86.0	77.4	70.5	63.1	55.4	48.9	44.7	35.7
113.3	66.6	85.8	76.9	69.6	61.8	53.6	46.6	42.0	32.7
122.9	57.0	88.2	78.8	70.9	62.2	53.0	45.3	40.4	30.8

STANDARD DEVIATION - dBA

33.1	32.9	-	-	-	-	-	-	-	-
43.4	43.3	1.6	1.6	1.5	1.4	1.4	1.6	1.6	2.0
53.7	53.6	0.1	0.1	0.1	0.4	0.5	0.6	0.6	0.6
63.6	63.4	0.6	0.8	1.0	1.4	1.7	2.0	2.1	2.3
72.6	72.3	0.6	0.8	1.1	1.7	2.3	2.7	2.9	3.2
82.9	82.1	0.3	0.1	0.0	0.4	0.8	1.1	1.3	1.4
92.5	85.8	0.2	0.3	0.4	0.8	1.3	1.6	1.8	1.8
102.1	77.4	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.6
113.3	66.6	1.1	1.3	1.3	1.2	0.6	0.0	0.2	0.2
122.9	57.0	3.7	3.7	3.5	2.9	1.3	0.3	1.0	1.6

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.19.a

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 PERCEIVED NOISE LEVEL PNdB

DOT/TSC
 2/12/80

TAKEOFF EVENTS: 24,28,30,32,34,36

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
28.7	28.6	95.5	86.9	79.7	71.9	63.2	55.7	50.8	39.8
39.5	39.3	95.0	86.3	79.1	71.3	62.6	55.1	50.1	38.9
50.6	50.4	97.1	88.4	81.3	73.5	64.6	56.9	51.7	40.1
59.8	59.7	97.2	88.5	81.4	73.9	65.5	58.1	52.8	41.2
81.1	80.0	99.5	90.9	83.9	76.4	67.9	60.5	55.3	43.8
92.8	85.5	101.1	92.4	85.4	77.8	69.5	62.0	56.7	45.1
101.2	78.8	102.9	94.3	87.3	79.7	71.2	63.5	58.2	46.1
111.3	68.2	106.9	98.4	91.6	84.2	76.0	68.6	63.3	51.7
122.7	57.0	108.3	99.9	93.0	85.8	77.6	70.3	65.2	54.1
132.4	47.4	110.1	101.6	94.9	87.7	79.6	72.3	67.3	56.5
142.0	37.9	109.7	101.2	94.4	87.1	79.0	71.7	66.7	55.9
150.3	29.6	109.2	100.7	93.7	86.2	77.9	70.4	65.3	54.6

STANDARD DEVIATION - PNLT dB

28.7	28.6	1.2	1.2	1.2	1.2	1.4	1.6	1.6	1.5
39.5	39.3	1.3	1.3	1.3	1.3	1.4	1.5	1.6	1.2
50.6	50.4	4.0	4.0	4.0	4.1	4.2	3.8	3.9	3.3
59.8	59.7	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.9
81.1	80.0	5.4	5.6	5.7	5.8	5.9	6.0	6.0	6.0
92.8	85.5	4.2	4.4	4.5	4.5	4.4	4.4	4.5	5.0
101.2	78.8	-	-	-	-	-	-	-	-
111.3	68.2	3.7	3.8	4.0	4.2	4.4	4.6	4.9	5.5
122.7	57.0	4.3	4.4	4.5	4.7	5.1	5.2	5.2	5.4
132.4	47.4	1.9	1.9	2.0	2.1	2.5	2.6	2.8	3.2
142.0	37.9	1.5	1.5	1.6	1.6	1.7	1.7	1.6	1.6
150.3	29.6	3.0	3.1	3.2	3.5	3.7	3.8	3.8	3.7

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.19.a.A

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 NOISE LEVEL dBA

DOT/TSC
 2/12/80

TAKEOFF EVENTS: 24,28,30,32,34,36

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)		200	500	1000	2000	4000	7000	10000	20000
THETA	BETA								
(DEGREES)		AVERAGE LEVEL - dBA re 20 micro PASCAL							
28.7	28.6	81.9	73.5	67.0	59.9	52.0	44.6	39.3	28.1
39.5	39.3	81.9	73.6	67.0	59.9	51.9	44.4	39.0	27.4
50.6	50.4	84.6	76.2	69.6	62.4	54.3	46.7	41.2	29.4
59.8	59.7	84.0	75.7	69.1	62.0	54.1	46.8	41.6	29.9
81.1	80.0	86.4	78.1	71.5	64.3	56.4	49.1	43.9	32.5
92.8	85.5	88.6	80.2	73.6	66.4	58.3	50.8	45.5	33.8
101.2	78.8	90.9	82.5	75.9	68.6	60.5	53.0	47.7	35.9
111.3	68.2	92.8	84.5	77.9	70.8	63.1	56.0	51.1	40.3
122.7	57.0	93.6	85.3	78.8	71.8	64.1	57.3	52.5	42.2
132.4	47.4	94.9	86.6	80.0	73.1	65.5	58.9	54.2	44.2
142.0	37.9	93.8	85.5	79.0	72.0	64.5	57.9	53.3	43.6
150.3	29.6	93.7	85.3	78.7	71.7	64.1	57.4	52.8	42.8
STANDARD DEVIATION - dBA									
28.7	28.6	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.3
39.5	39.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.3
50.6	50.4	4.1	4.0	4.0	4.0	3.9	3.8	3.9	3.9
59.8	59.7	1.4	1.4	1.4	1.3	1.4	1.6	1.6	1.6
81.1	80.0	4.7	4.7	4.7	4.8	4.8	5.1	5.3	5.9
92.8	85.5	4.4	4.3	4.2	4.1	4.0	3.7	3.7	4.3
101.2	78.8	-	-	-	-	-	-	-	-
111.3	68.2	2.8	2.9	2.9	3.1	3.3	3.7	4.0	4.7
122.7	57.0	3.6	3.7	3.8	3.9	4.2	4.5	4.7	5.1
132.4	47.4	1.1	1.1	1.1	1.2	1.3	1.6	1.9	2.5
142.0	37.9	2.8	2.7	2.7	2.5	2.3	2.1	2.0	1.7
150.3	29.6	3.8	3.8	3.8	3.8	3.7	3.5	3.5	3.5

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.19.b

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 PERCEIVED NOISE LEVEL PNdB

DOT/TSC
 2/23/80

TAKEOFF EVENTS: 24,28,30,32,34,36

SITE: 31-2

2067 M. NORTH THRESHOLD RNWY. 13

JUNE 23,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - FNLT dB re 20 micro PASCAL								
29.9	29.7	97.9	89.1	82.0	74.2	65.5	57.6	52.2	40.2
39.5	39.3	96.9	88.3	81.1	73.3	64.6	56.8	51.5	39.9
49.4	49.1	98.0	89.4	82.3	74.5	65.9	58.3	53.0	41.1
58.4	58.0	99.9	91.3	84.2	76.5	67.9	60.3	55.1	43.9
68.8	68.1	102.1	93.6	86.7	79.0	70.6	63.1	58.0	46.9
78.9	77.8	104.1	95.6	88.8	81.4	73.2	65.8	60.7	49.4
90.2	84.4	105.9	97.4	90.7	83.5	75.3	68.0	63.0	52.0
98.5	80.1	106.6	98.2	91.5	84.4	76.3	69.0	64.0	53.3
108.3	71.1	106.0	97.6	90.9	83.7	75.6	68.5	63.6	53.3
117.4	62.2	103.7	95.3	88.5	81.2	73.0	65.7	60.8	50.3
127.9	51.8	102.0	93.5	86.6	79.1	70.7	63.4	58.5	48.0
138.6	41.2	99.9	91.1	84.0	76.2	67.5	59.7	54.4	43.0
148.4	31.5	100.2	91.0	83.3	74.8	65.5	57.0	51.2	39.3
154.4	25.5	101.9	92.8	84.9	75.8	66.2	57.7	51.7	39.4

STANDARD DEVIATION - FNLT dB

29.9	29.7	1.0	1.0	1.0	1.1	1.2	1.4	1.8	2.0
39.5	39.3	2.5	2.6	2.5	2.6	2.6	2.7	3.0	3.2
49.4	49.1	2.0	2.0	2.1	2.0	2.1	2.2	2.4	2.9
58.4	58.0	2.0	2.1	2.2	2.3	2.6	2.8	3.0	3.7
68.8	68.1	1.7	1.8	1.9	2.1	2.2	2.3	2.3	2.5
78.9	77.8	2.0	2.1	2.2	2.4	2.5	2.6	2.6	2.6
90.2	84.4	1.2	1.2	1.2	1.3	1.3	1.4	1.4	1.4
98.5	80.1	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.4
108.3	71.1	2.6	2.6	2.7	2.9	3.0	3.1	3.2	3.5
117.4	62.2	5.5	5.7	5.8	6.3	6.8	7.2	7.4	8.1
127.9	51.8	2.4	2.6	2.8	3.1	3.2	3.4	3.5	4.2
138.6	41.2	1.9	2.0	2.1	2.3	2.5	2.8	3.0	3.5
148.4	31.5	2.3	2.3	2.1	1.9	1.9	2.0	2.2	2.3
154.4	25.5	0.7	0.7	0.8	0.6	0.1	0.1	0.4	0.4

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TAB. E. 19.5.A

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
NOISE LEVEL dBA

DOT/TSC
2/23/80

TAKEOFF EVENTS: 24,28,30,32,34,36

SITE: 31-2 2067 M. NORTH THRESHOLD RNWY. 13 JUNE 23,1978

SLANT RANGE (ft.)		200	500	1000	2000	4000	7000	10000	20000
THEIA	BETA								
(DEGREES)		AVERAGE LEVEL - dBA re 20 micro PASCAL							
29.9	29.7	85.4	77.0	70.4	63.2	55.1	47.5	42.0	29.6
39.5	39.3	84.0	75.6	69.0	61.9	53.9	46.7	41.5	30.0
49.4	49.1	84.5	76.2	69.5	62.4	54.4	47.1	42.1	31.0
58.4	58.0	85.9	77.5	70.9	63.8	55.8	48.6	43.6	32.9
68.8	68.1	88.0	79.6	73.1	65.9	58.1	50.9	45.9	35.3
78.9	77.8	89.6	81.3	74.7	67.8	60.1	53.2	48.4	37.7
90.2	84.4	90.6	82.4	76.0	69.2	61.8	55.3	50.7	40.5
98.5	80.1	90.7	82.5	76.1	69.3	62.1	55.8	51.4	41.6
108.3	71.1	89.2	81.0	74.6	67.9	60.8	54.6	50.3	41.1
117.4	62.2	87.1	78.8	72.4	65.7	58.5	52.2	47.9	38.6
127.9	51.8	85.2	77.0	70.6	63.8	56.7	50.5	46.2	36.9
138.6	41.2	84.4	75.9	69.2	62.1	54.5	47.7	42.9	32.3
148.4	31.5	85.9	77.2	70.1	62.4	53.9	46.4	41.1	29.3
154.4	25.5	87.4	78.6	71.5	63.6	54.6	46.7	41.1	29.4

STANDARD DEVIATION - dBA									
29.9	29.7	1.1	1.1	1.0	0.9	0.8	0.8	1.0	1.6
39.5	39.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.6
49.4	49.1	1.8	1.7	1.7	1.7	1.6	1.5	1.6	1.9
58.4	58.0	1.3	1.3	1.3	1.4	1.5	1.7	2.0	2.7
68.8	68.1	1.7	1.7	1.7	1.6	1.7	1.8	1.9	2.1
78.9	77.8	2.2	2.2	2.2	2.3	2.4	2.6	2.6	2.6
90.2	84.4	1.8	1.7	1.7	1.7	1.6	1.5	1.5	1.3
98.5	80.1	1.3	1.3	1.2	1.1	1.0	0.7	0.6	0.8
108.3	71.1	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.7
117.4	62.2	3.9	3.9	4.1	4.3	4.7	5.2	5.6	6.7
127.9	51.8	1.7	1.7	1.8	2.0	2.2	2.5	2.8	3.7
138.6	41.2	0.8	0.9	1.0	1.2	1.5	1.8	2.1	2.9
148.4	31.5	1.9	1.8	1.7	1.6	1.4	1.4	1.6	1.9
154.4	25.5	1.1	1.1	1.0	0.6	0.1	0.4	0.8	1.8

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. G.19.c

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT

DOT/TSC

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

2/23/80

PERCEIVED NOISE LEVEL PNdB

TAKEOFF EVENTS: 24,28,34,36

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 23,1978

SLANT RANGE (ft.)		200	500	1000	2000	4000	7000	10000	20000
THEIA	BETA								
(DEGREES)		AVERAGE LEVEL - PNLT dB re 20 micro PASCAL							
30.0	29.7	107.7	98.5	91.0	83.1	74.3	66.4	61.0	49.3
41.6	41.1	107.1	98.6	91.6	84.0	75.4	67.8	62.5	51.5
51.2	50.5	108.2	99.7	92.8	85.5	77.2	69.8	64.8	54.3
60.7	59.8	108.6	100.1	93.3	85.9	77.7	70.3	65.3	54.9
71.7	70.3	106.3	97.8	91.0	83.6	75.3	67.9	63.1	52.8
80.2	77.7	104.3	95.9	89.1	81.9	73.6	66.4	61.6	51.7
90.2	82.7	102.7	94.3	87.6	80.2	71.7	64.4	59.7	50.0
101.2	76.8	100.5	92.0	85.2	77.4	68.8	61.5	56.6	46.3
111.6	67.4	99.1	90.5	83.6	75.9	67.5	60.0	55.0	44.3
121.2	58.2	98.4	89.7	82.8	75.0	66.4	58.7	53.5	42.8
130.0	49.6	97.1	88.3	81.1	73.2	64.3	56.3	51.0	40.0
140.4	39.3	99.0	89.8	82.1	73.6	64.4	56.1	50.3	38.8
149.5	30.3	98.4	89.2	81.3	72.2	62.1	53.4	47.4	36.1

STANDARD DEVIATION - PNLT dB

30.0	29.7	3.5	2.3	1.7	1.6	1.6	1.8	2.0	2.8
41.6	41.1	1.9	2.0	2.1	2.4	2.5	2.7	3.0	3.4
51.2	50.5	1.4	1.4	1.5	1.6	1.7	1.9	2.0	2.1
60.7	59.8	2.4	2.3	2.0	1.8	1.6	1.6	1.7	1.8
71.7	70.3	1.6	1.3	1.0	0.7	0.8	1.0	1.2	1.8
80.2	77.7	0.5	0.7	0.9	1.3	1.6	1.8	2.0	2.3
90.2	82.7	0.7	0.8	0.7	0.9	0.9	0.9	0.8	0.8
101.2	76.8	1.0	1.1	1.1	1.3	1.4	1.5	1.5	1.8
111.6	67.4	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7
121.2	58.2	0.5	0.5	0.7	0.8	0.9	1.1	1.2	1.3
130.0	49.6	0.5	0.7	0.8	0.8	0.9	1.1	1.4	1.7
140.4	39.3	1.8	1.9	2.0	2.2	2.3	2.4	2.5	2.1
149.5	30.3	1.6	1.6	1.4	1.9	2.6	2.9	3.2	2.8

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.1^o c.A

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT

DOT/TSC

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

2/23/80

NOISE LEVEL dBA

TAKEOFF EVENTS: 24,28,34,36

SITE: 31-3

3520 M. NORTH THRESHOLD RNWY. 13

JUNE 23,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
30.0	29.7	92.5	83.6	76.6	69.4	61.6	54.5	49.5	38.6
41.6	41.1	91.7	83.4	76.7	69.6	61.8	54.8	50.0	39.5
51.2	50.5	91.5	83.2	76.6	69.7	62.3	55.9	51.5	42.0
60.7	59.8	92.0	83.6	77.1	70.2	62.7	56.2	51.9	42.7
71.7	70.3	89.6	81.3	74.8	68.0	60.7	54.4	50.1	41.1
80.2	77.7	87.2	79.0	72.5	65.9	58.9	52.9	48.9	40.4
90.2	82.7	84.8	76.6	70.3	63.6	56.7	50.8	46.8	38.3
101.2	76.8	82.5	74.3	67.7	61.0	53.8	47.7	43.5	34.6
111.6	67.4	82.5	74.2	67.6	60.8	53.5	47.2	42.8	33.1
121.2	58.2	82.6	74.3	67.6	60.6	53.0	46.4	41.9	31.7
130.0	49.6	82.4	74.0	67.2	59.9	52.0	45.1	40.2	29.5
140.4	39.3	84.6	76.0	68.9	61.2	52.7	45.1	39.9	28.5
149.5	30.3	83.9	75.2	67.9	59.9	50.8	42.6	37.0	25.2

STANDARD DEVIATION - dBA

30.0	29.7	3.5	2.4	1.7	1.5	1.3	1.0	0.9	1.5
41.6	41.1	0.9	0.9	0.9	1.1	1.3	1.5	1.8	2.4
51.2	50.5	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.4
60.7	59.8	3.0	2.7	2.3	1.7	1.0	0.6	0.8	1.2
71.7	70.3	3.0	2.7	2.4	1.9	1.2	0.8	0.8	1.3
80.2	77.7	0.3	0.4	0.5	0.7	1.1	1.4	1.6	2.0
90.2	82.7	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.8
101.2	76.8	1.0	1.1	1.1	1.2	1.3	1.3	1.4	1.3
111.6	67.4	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5
121.2	58.2	0.4	0.4	0.4	0.5	0.7	0.8	1.0	1.3
130.0	49.6	0.5	0.5	0.4	0.3	0.4	0.7	0.9	1.4
140.4	39.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1
149.5	30.3	0.4	0.3	0.4	0.6	1.1	2.0	2.5	3.4

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 6.23.a

PIPER PA-31-325 (NAVAJO) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 PERCEIVED NOISE LEVEL PNdB

DOT/TSC
 2/12/80

FLYOVER EVENTS: 12,13,14,15,16

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
28.5	28.5	100.7	91.7	84.2	76.0	66.7	58.5	52.9	40.4
38.3	38.3	99.4	90.7	83.5	75.6	66.7	58.6	52.9	40.7
48.3	48.1	101.9	93.4	86.4	78.7	70.2	62.6	57.5	46.9
59.5	59.3	103.0	94.4	87.5	79.6	71.0	63.4	58.2	47.7
66.1	65.8	106.1	97.6	90.7	83.2	74.7	67.3	62.2	51.9
80.8	79.6	108.9	100.4	93.5	86.1	77.6	70.2	65.1	54.6
88.3	85.1	109.5	100.9	94.0	86.6	78.2	70.7	65.6	55.2
95.7	82.3	108.7	100.1	93.2	85.6	77.1	69.5	64.4	53.9
109.0	70.3	105.9	97.3	90.4	82.6	73.9	66.2	61.2	50.8
120.0	59.5	102.8	94.2	87.1	79.1	70.4	62.7	57.5	46.7
128.8	50.8	101.8	93.2	86.1	78.2	69.6	62.0	56.9	46.2
138.0	41.8	100.3	91.7	84.8	77.2	68.7	61.2	56.1	45.3
148.6	31.2	98.2	89.5	82.3	74.4	65.5	57.7	52.5	41.3
154.5	25.4	97.7	88.8	81.5	73.4	64.2	56.0	50.6	39.3

STANDARD DEVIATION - PNLT dB									
28.5	28.5	2.0	1.7	1.2	0.9	0.8	0.8	0.9	1.0
38.3	38.3	0.6	0.6	0.6	0.7	0.8	1.0	1.2	1.7
48.3	48.1	0.8	0.8	0.8	1.0	1.1	1.2	1.3	1.6
59.5	59.3	0.7	0.7	0.8	0.8	0.8	0.9	0.9	1.1
66.1	65.8	1.0	1.1	1.1	1.3	1.4	1.4	1.5	1.6
80.8	79.6	1.6	1.7	1.7	1.9	2.0	2.1	2.2	2.2
88.3	85.1	1.9	1.9	2.1	2.3	2.6	2.7	2.8	2.8
95.7	82.3	2.0	2.0	2.1	2.5	2.8	2.9	3.1	3.2
109.0	70.3	1.3	1.3	1.4	1.6	1.7	1.8	1.8	1.8
120.0	59.5	1.0	1.0	1.1	1.2	1.4	1.4	1.5	1.9
128.8	50.8	1.0	1.0	1.2	1.4	1.6	1.8	1.9	2.0
138.0	41.8	2.3	2.4	2.6	2.8	3.0	3.4	3.6	4.3
148.6	31.2	0.7	0.8	0.9	1.0	1.1	1.3	1.4	1.8
154.5	25.4	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 6.23.a.A

PIPER PA-31-325 (NAVAJO) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/12/80

NOISE LEVEL dBA

FLYOVER EVENTS: 12,13,14,15,16

SITE: 31-1

84 M. NORTH THRESHOLD RWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL							
28.5	28.5	86.4	77.8	70.8	63.1	54.6	47.0	41.7
38.3	38.3	86.3	77.8	71.0	63.5	55.3	47.9	42.7
48.3	48.1	87.2	78.8	72.0	64.7	56.8	50.0	45.3
59.5	59.3	88.1	79.6	72.8	65.6	57.7	50.9	46.3
66.1	65.8	89.6	81.2	74.5	67.5	59.9	53.4	49.1
80.8	79.6	92.5	84.0	77.4	70.3	62.7	56.1	51.6
88.3	85.1	92.5	84.1	77.4	70.4	62.7	56.2	51.8
95.7	82.3	91.8	83.3	76.6	69.4	61.7	55.0	50.5
109.0	70.3	89.5	81.0	74.1	66.9	59.1	52.5	48.1
120.0	59.5	86.8	78.4	71.6	64.4	56.8	50.2	45.6
128.8	50.8	85.1	76.7	70.1	63.0	55.6	49.0	44.5
138.0	41.8	84.3	76.0	69.4	62.5	55.1	48.6	44.1
148.6	31.2	82.6	74.2	67.5	60.3	52.6	45.8	41.2
154.5	25.4	82.7	74.1	67.3	59.9	52.0	45.1	40.2

STANDARD DEVIATION - dBA

THETA	BETA	200	500	1000	2000	4000	7000	10000	20000
28.5	28.5	0.8	0.6	0.4	0.3	0.4	0.6	0.8	1.0
38.3	38.3	0.6	0.6	0.6	0.6	0.7	0.8	1.0	1.4
48.3	48.1	0.4	0.4	0.4	0.5	0.6	0.8	0.9	1.3
59.5	59.3	0.6	0.6	0.7	0.7	0.8	0.8	0.8	1.0
66.1	65.8	0.5	0.5	0.6	0.6	0.8	0.9	0.9	1.2
80.8	79.6	1.4	1.5	1.6	1.7	1.9	2.1	2.2	2.3
88.3	85.1	1.5	1.6	1.7	1.9	2.1	2.4	2.6	2.8
95.7	82.3	1.2	1.3	1.4	1.6	1.9	2.3	2.5	3.0
109.0	70.3	0.9	0.9	0.9	1.0	1.1	1.3	1.4	1.6
120.0	59.5	1.2	1.2	1.3	1.4	1.5	1.7	1.7	1.8
128.8	50.8	0.7	0.7	0.9	1.1	1.3	1.5	1.6	1.7
138.0	41.8	1.3	1.4	1.5	1.8	2.2	2.6	2.9	3.4
148.6	31.2	0.4	0.4	0.4	0.5	0.7	0.9	1.0	1.2
154.5	25.4	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. G.24.a

CONVAIR CV-580 AIRCRAFT

DOT/TSC

2/11/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

PERCEIVED NOISE LEVEL PNdB

FLYOVER EVENTS: 31,32,33,34,36

SITE: 31-1

84 M. NORTH THRESHOLD RWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)		200	500	1000	2000	4000	7000	10000	20000
THETA	BETA								
(DEGREES)		AVERAGE LEVEL - PNLT dB re 20 micro PASCAL							
28.8	28.7	109.8	100.6	92.9	84.2	73.8	65.2	59.3	46.2
40.3	40.2	110.4	101.4	93.8	85.3	75.7	67.4	61.7	49.0
50.6	50.3	109.6	100.6	93.0	84.8	75.5	67.4	61.9	49.7
59.1	58.7	109.2	100.2	92.8	84.7	75.6	67.5	62.0	50.0
70.2	69.4	110.4	101.7	94.7	87.0	78.4	70.7	65.4	54.0
79.9	77.9	111.3	102.7	95.7	88.1	79.7	72.1	67.0	55.9
90.9	83.5	111.3	102.6	95.6	88.0	79.3	71.6	66.3	55.1
100.3	77.3	111.3	102.5	95.3	87.6	78.9	71.0	65.7	54.0
109.6	69.3	111.1	102.3	95.1	87.1	77.9	69.8	64.2	52.6
118.1	61.1	110.5	101.8	94.5	86.5	77.3	69.0	63.4	51.3
128.7	50.8	107.8	99.1	91.8	83.7	74.6	66.2	60.4	47.4
138.1	41.4	106.4	97.6	90.4	82.3	73.2	64.9	59.0	45.9
147.8	31.8	105.3	96.6	89.2	81.1	71.8	63.2	57.2	44.9
153.7	26.2	108.3	99.5	92.3	84.3	75.1	66.3	59.9	44.8

STANDARD DEVIATION - PNLT dB									
28.8	28.7	3.7	3.9	4.0	4.2	4.1	4.2	4.4	4.6
40.3	40.2	3.1	3.2	3.4	3.4	3.3	3.4	3.6	3.5
50.6	50.3	1.4	1.6	1.6	1.5	1.5	1.5	1.6	1.4
59.1	58.7	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5
70.2	69.4	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9
79.9	77.9	0.9	0.9	0.9	0.9	1.1	1.1	1.1	1.1
90.9	83.5	1.2	1.2	1.3	1.4	1.7	1.9	2.0	2.2
100.3	77.3	1.0	1.3	1.5	1.7	2.0	2.2	2.4	2.5
109.6	69.3	0.9	1.0	1.2	1.5	1.9	2.2	2.4	2.7
118.1	61.1	1.2	1.2	1.3	1.4	1.6	1.9	2.1	2.6
128.7	50.8	1.1	1.1	1.0	1.1	1.1	0.9	0.9	0.9
138.1	41.4	1.1	1.1	1.1	1.2	1.1	1.0	0.9	1.3
147.8	31.8	1.0	1.0	1.0	1.0	1.0	0.9	0.8	0.5
153.7	26.2	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.

BETA - THE ELEVATION ANGLE.

TABLE NO. **G.24.a.A**
CONVAIR CV-580 AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
NOISE LEVEL dBA

DOT/TSC
2/11/80

FLYOVER EVENTS: 31,32,33,34,36

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 20, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
28.8	28.7	95.1	86.4	79.2	71.2	61.8	53.0	47.1	35.3
40.3	40.2	96.3	87.7	80.6	72.7	63.7	55.4	49.8	38.2
50.6	50.3	96.0	87.3	80.3	72.5	63.6	55.5	50.1	38.8
59.1	58.7	96.4	87.8	80.8	73.1	64.2	56.2	50.7	39.3
70.2	69.4	96.5	88.0	81.1	73.5	65.1	57.5	52.4	42.0
79.9	77.9	96.8	88.3	81.5	74.0	65.8	58.4	53.5	43.4
90.9	83.5	97.5	88.9	82.1	74.5	66.2	58.7	53.6	43.2
100.3	77.3	97.5	89.0	82.1	74.5	66.1	58.5	53.3	42.7
109.6	69.3	97.9	89.4	82.4	74.9	66.3	58.3	52.8	41.4
118.1	61.1	97.5	89.0	82.1	74.6	65.9	57.9	52.2	40.1
128.7	50.8	95.2	86.8	80.0	72.6	64.2	56.3	50.6	38.1
138.1	41.4	92.4	84.0	77.2	69.9	61.7	54.0	48.5	36.4
147.8	31.8	89.8	81.3	74.5	67.2	59.0	51.4	45.9	33.9
153.7	26.2	91.1	82.7	76.0	68.8	60.5	52.5	46.4	32.1

STANDARD DEVIATION - dBA

28.8	28.7	3.0	3.0	3.0	2.9	2.7	2.6	2.7	3.1
40.3	40.2	2.7	2.7	2.7	2.6	2.4	2.1	2.2	2.5
50.6	50.3	1.4	1.4	1.3	1.3	1.1	0.8	0.7	0.6
59.1	58.7	1.8	1.8	1.7	1.7	1.6	1.4	1.4	1.5
70.2	69.4	1.7	1.7	1.7	1.5	1.3	1.0	0.8	0.8
79.9	77.9	1.4	1.4	1.3	1.3	1.1	0.8	0.8	0.9
90.9	83.5	1.0	1.0	1.0	0.9	0.9	1.1	1.4	1.9
100.3	77.3	0.5	0.5	0.5	0.5	0.6	1.0	1.5	2.4
109.6	69.3	0.3	0.3	0.2	0.2	0.3	0.7	1.0	2.0
118.1	61.1	0.7	0.7	0.6	0.6	0.6	0.6	0.7	1.4
128.7	50.8	1.2	1.2	1.1	1.1	1.0	0.9	0.8	0.7
138.1	41.4	1.3	1.3	1.3	1.2	1.1	0.9	0.7	0.4
147.8	31.8	1.0	0.9	1.0	0.9	1.0	0.9	0.9	1.0
153.7	26.2	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.25.a

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

DOT/TSC
2/12/80

PERCEIVED NOISE LEVEL PNdB

FLYOVER EVENTS: 13,14,15

SITE: 31-1

84 M. NORTH THRESHOLD RWY. 13

JUNE 21,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL								
31.2 31.0	108.9	100.3	93.4	85.9	77.4	69.7	64.4	53.4	
40.7 40.4	107.6	99.0	92.1	84.6	76.1	68.4	63.1	52.0	
50.7 50.4	107.4	98.8	91.9	84.4	76.0	68.3	63.1	52.2	
60.6 60.0	108.2	99.6	92.7	85.2	76.9	69.3	63.9	52.4	
72.2 71.3	109.6	101.0	94.1	86.6	78.3	70.7	65.5	54.0	
81.7 80.0	109.7	101.3	94.4	86.9	78.6	71.2	66.2	55.2	
91.2 83.7	110.0	101.5	94.6	87.2	79.0	71.7	66.9	56.0	
102.8 75.9	111.5	103.0	96.2	88.8	80.9	73.8	69.1	58.6	
110.8 68.4	112.1	103.6	96.8	89.5	81.7	74.6	69.8	59.5	
121.6 57.9	110.9	102.4	95.5	88.2	80.3	73.2	68.4	58.2	
131.9 47.7	108.3	99.7	92.8	85.3	77.3	70.1	65.3	55.1	
142.5 37.3	103.6	95.0	87.9	79.8	71.1	63.5	58.2	47.6	
151.4 28.4	101.3	92.5	85.1	76.9	68.0	60.1	54.5	42.9	

STANDARD DEVIATION - PNLT dB									
31.2	31.0	0.8	0.8	0.7	0.6	0.6	0.5	0.4	0.1
40.7	40.4	3.0	3.1	3.2	3.4	4.0	4.3	4.4	4.7
50.7	50.4	2.5	2.6	2.6	2.8	3.1	3.4	3.5	3.6
60.6	60.0	1.4	1.4	1.5	1.5	1.7	1.8	1.8	2.1
72.2	71.3	1.1	1.2	1.3	1.4	1.8	2.1	2.3	2.7
81.7	80.0	0.8	0.4	0.5	0.8	1.1	1.5	1.6	1.6
91.2	83.7	1.0	1.1	1.2	1.3	1.5	1.5	1.3	1.0
102.8	75.9	1.2	1.3	1.3	1.4	1.5	1.6	1.9	2.0
110.8	68.4	0.8	0.9	0.9	1.0	1.0	1.1	1.1	1.1
121.6	57.9	1.1	1.2	1.2	1.4	1.7	2.0	2.1	2.2
131.9	47.7	1.6	1.7	1.7	1.9	2.2	2.4	2.4	2.5
142.5	37.3	0.7	0.8	0.8	0.9	0.9	1.0	1.1	1.4
151.4	28.4	2.6	2.6	2.9	3.0	3.0	3.1	3.0	3.1

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
BETA - THE ELEVATION ANGLE.

TABLE NO. 25.a.A

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 NOISE LEVEL dBA

DOT/TSC
 2/12/80

FLYOVER EVENTS: 13,14,15

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 21, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL							
31.2 31.0	93.6	85.1	78.4	71.4	63.9	57.4	52.8	42.5
40.7 40.4	92.3	83.9	77.2	70.1	62.6	56.0	51.4	41.1
50.7 50.4	91.9	83.6	76.9	69.9	62.3	55.6	51.0	40.5
60.6 60.0	93.6	85.3	78.7	71.7	64.1	57.1	52.1	40.9
72.2 71.3	95.4	87.1	80.5	73.6	65.9	58.8	53.7	42.3
81.7 80.0	95.9	87.6	81.1	74.1	66.4	59.3	54.3	43.4
91.2 83.7	95.8	87.5	81.0	74.1	66.5	59.6	54.8	44.6
102.8 75.9	95.5	87.2	80.7	73.9	66.6	60.2	55.7	46.2
110.8 68.4	94.7	86.4	80.0	73.2	66.2	60.0	55.8	46.7
121.6 57.9	93.2	85.0	78.5	71.8	64.8	58.8	54.6	45.5
131.9 47.7	91.3	83.0	76.5	69.8	62.7	56.7	52.6	43.5
142.5 37.3	87.9	79.4	72.7	65.6	58.2	51.6	47.1	37.4
151.4 28.4	86.3	77.7	70.9	63.7	55.8	48.8	43.9	33.0

STANDARD DEVIATION - dBA

31.2 31.0	0.8	0.8	0.7	0.6	0.4	0.2	0.3	0.5
40.7 40.4	1.9	2.0	2.2	2.5	2.8	3.1	3.3	3.7
50.7 50.4	1.6	1.6	1.8	1.9	2.3	2.6	2.9	3.3
60.6 60.0	0.9	0.9	0.9	1.0	1.1	1.2	1.3	1.5
72.2 71.3	0.8	0.9	0.9	1.0	1.1	1.3	1.5	2.3
81.7 80.0	0.4	0.4	0.4	0.6	0.7	0.8	1.0	1.4
91.2 83.7	0.4	0.4	0.4	0.5	0.6	0.7	0.8	1.1
102.8 75.9	0.8	0.9	0.9	1.0	1.2	1.4	1.6	1.9
110.8 68.4	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0
121.6 57.9	0.7	0.8	1.0	1.2	1.4	1.8	1.9	2.3
131.9 47.7	1.3	1.4	1.5	1.7	1.9	2.0	2.1	2.4
142.5 37.3	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.8
151.4 28.4	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.8

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.26.a

CESSNA 172N (SKYHAWK) AIRCRAFT

DOT/TSC
2/12/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

PERCEIVED NOISE LEVEL PNdB

FLYOVER EVENTS: 29,31,32,33

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 21, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000
THETA BETA (DEGREES)	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL							
30.8 30.8	100.3	91.1	83.1	74.1	64.4	55.7	49.9	38.5
40.8 40.8	99.4	90.2	82.3	73.4	64.0	55.5	49.6	38.1
51.6 51.4	100.9	91.7	84.0	75.5	66.2	57.8	52.2	40.4
60.2 60.1	102.0	92.9	85.5	77.2	67.9	59.8	54.3	42.6
71.6 71.4	103.9	95.0	87.6	79.4	70.2	62.1	56.5	44.6
79.9 79.5	103.8	94.9	87.5	79.4	70.2	62.0	56.4	44.1
91.4 84.9	103.9	95.0	87.7	79.6	70.7	62.6	57.0	44.8
102.3 77.2	103.2	94.2	86.8	78.6	69.6	61.5	55.8	43.5
111.0 68.8	101.3	92.3	84.6	76.2	67.1	58.8	53.0	40.9
120.8 59.1	100.9	91.6	83.7	74.9	65.6	57.2	51.5	39.8
131.8 48.1	98.5	89.1	81.0	71.5	61.5	52.6	46.5	35.0
141.0 39.0	98.6	89.1	81.0	71.9	62.4	53.8	48.0	36.8
150.0 29.9	97.4	87.9	79.7	70.9	61.2	52.4	46.4	35.3

STANDARD DEVIATION - PNLT dB

30.8 30.8	1.6	1.6	1.6	1.9	1.9	2.0	2.3	2.4
40.8 40.8	1.8	1.8	1.8	1.5	1.4	1.4	1.4	1.2
51.6 51.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.3
60.2 60.1	1.5	1.3	1.3	1.4	1.3	1.4	1.3	1.4
71.6 71.4	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7
79.9 79.5	0.2	0.1	0.2	0.1	0.2	0.3	0.3	0.4
91.4 84.9	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3
102.3 77.2	1.0	0.9	1.0	1.1	1.1	1.2	1.3	1.3
111.0 68.8	1.3	1.4	1.6	1.9	2.0	2.2	2.4	2.5
120.8 59.1	0.9	0.9	1.0	1.2	1.3	1.4	1.5	1.4
131.8 48.1	1.0	1.1	1.1	1.4	1.9	2.3	2.4	2.3
141.0 39.0	0.9	0.9	0.5	0.2	0.4	0.5	0.6	0.5
150.0 29.9	1.1	1.0	0.8	0.4	0.1	0.2	0.3	0.6

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.26.a.A

CESSNA 172N (SKYHAWK) AIRCRAFT

DOT/TSC
2/12/80

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

NOISE LEVEL dBA

FLYOVER EVENTS: 29,31,32,33

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 21, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
30.8	30.8	85.0	76.2	68.9	60.9	51.9	44.0	38.8	28.5
40.8	40.8	84.9	76.1	69.0	61.1	52.2	44.3	38.8	27.5
51.6	51.4	86.7	77.9	70.8	62.8	54.0	46.0	40.5	29.3
60.2	60.1	87.1	78.4	71.2	63.5	54.8	47.3	42.2	31.5
71.6	71.4	89.6	80.9	73.9	66.3	57.9	50.4	45.2	34.0
79.9	79.5	90.1	81.6	74.7	67.1	58.6	50.9	45.5	33.8
91.4	84.9	90.4	81.9	75.0	67.4	59.0	51.3	45.9	34.2
102.3	77.2	89.6	81.0	74.0	66.3	57.8	50.2	44.9	33.4
111.0	68.8	87.3	78.6	71.6	63.9	55.4	47.9	42.7	31.5
120.8	59.1	85.9	77.2	70.0	62.2	53.5	45.8	40.6	29.5
131.8	48.1	83.4	74.6	67.3	59.3	50.5	42.6	37.1	25.7
141.0	39.0	83.0	74.1	66.8	58.9	50.2	42.5	37.3	26.5
150.0	29.9	82.3	73.4	66.2	58.3	49.5	41.7	36.4	25.5

STANDARD DEVIATION - dBA

THETA	BETA	200	500	1000	2000	4000	7000	10000	20000
30.8	30.8	1.6	1.6	1.6	1.5	1.3	1.1	1.0	1.3
40.8	40.8	1.5	1.4	1.3	1.1	1.0	1.0	1.0	1.0
51.6	51.4	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.2
60.2	60.1	1.2	1.1	1.1	1.1	1.1	1.3	1.4	1.4
71.6	71.4	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6
79.9	79.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4
91.4	84.9	0.5	0.4	0.5	0.5	0.4	0.3	0.3	0.1
102.3	77.2	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1
111.0	68.8	1.6	1.7	1.7	1.8	1.8	1.8	1.9	2.0
120.8	59.1	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.3
131.8	48.1	1.2	1.3	1.4	1.6	1.7	1.7	1.7	1.6
141.0	39.0	0.2	0.2	0.4	0.5	0.6	0.5	0.5	0.5
150.0	29.9	1.0	0.9	1.0	1.0	0.9	0.7	0.4	0.1

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.28.a

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 PERCEIVED NOISE LEVEL PNdB

DOT/TSC
 2/12/80

FLYOVER EVENTS: 19,20,21,22

SITE: 31-1

84 M. NORTH THRESHOLD RWY. 13

JUNE 23,1978

SLANT RANGE (ft.)		200	500	1000	2000	4000	7000	10000	20000
THETA (DEGREES)	BETA	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL							
30.9	30.9	98.8	89.6	81.9	73.3	64.0	55.4	49.5	37.6
40.7	40.6	101.0	92.0	84.5	76.3	67.1	58.9	53.2	41.4
49.9	49.8	101.7	92.7	85.3	77.0	67.8	59.6	54.0	42.0
57.9	57.8	101.2	92.2	84.9	76.7	67.5	59.3	53.7	41.8
67.3	67.1	101.6	92.8	85.6	77.6	68.6	60.5	55.1	43.5
79.6	79.1	103.2	94.5	87.5	79.7	70.9	63.2	57.9	46.7
88.8	86.3	104.6	95.9	88.9	81.2	72.5	64.8	59.5	48.6
99.9	79.8	105.6	96.9	89.8	82.1	73.5	65.9	60.7	49.8
108.5	71.3	106.4	97.6	90.5	82.9	74.4	66.9	61.8	51.1
118.0	61.8	107.1	98.4	91.4	83.7	75.2	67.7	62.6	52.0
128.0	51.9	105.2	96.5	89.3	81.4	72.5	64.8	59.5	48.8
137.9	42.0	103.2	94.3	86.7	78.2	68.9	60.7	55.2	43.3
147.8	32.1	101.2	92.4	84.9	76.2	66.7	58.2	52.6	40.7
154.2	25.8	98.2	89.4	81.5	72.7	63.2	54.3	48.5	36.6

STANDARD DEVIATION - PNLT dB

30.9	30.9	3.5	3.5	3.9	4.3	4.5	4.7	4.7	3.9
40.7	40.6	2.3	2.3	2.3	2.4	2.5	2.5	2.5	2.0
49.9	49.8	1.3	1.2	1.1	1.1	1.1	1.2	1.1	1.2
57.9	57.8	1.9	1.8	1.8	1.8	1.8	1.8	1.7	1.6
67.3	67.1	2.9	3.0	3.1	3.2	3.3	3.4	3.4	3.5
79.6	79.1	2.9	2.9	3.0	3.0	3.0	3.0	3.0	3.2
88.8	86.3	2.2	2.2	2.2	2.3	2.4	2.4	2.4	2.4
99.9	79.8	1.4	1.5	1.5	1.7	1.9	2.2	2.5	3.3
108.5	71.3	1.2	1.5	1.7	2.1	2.4	2.7	2.9	3.6
118.0	61.8	1.5	1.8	1.8	2.1	2.5	2.8	2.9	3.5
128.0	51.9	0.7	0.8	0.8	1.0	1.1	1.3	1.3	1.7
137.9	42.0	1.5	1.4	1.6	1.8	1.9	2.0	2.1	2.7
147.8	32.1	1.4	1.3	1.7	1.7	1.6	1.7	1.9	2.4
154.2	25.8	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. G.28.a.A

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 NOISE LEVEL dBA

DOT/TSC
 2/12/80

FLYOVER EVENTS: 19,20,21,22

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 23,1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
30.9	30.9	84.6	75.9	68.9	61.3	52.7	44.9	39.4	27.9
40.7	40.6	86.7	78.1	71.1	63.5	55.1	47.6	42.3	31.1
49.9	49.8	87.6	79.0	72.0	64.4	55.9	48.3	43.1	31.7
57.9	57.8	87.5	78.9	71.9	64.3	55.8	48.3	43.0	31.5
67.3	67.1	87.4	78.8	71.9	64.4	56.2	48.9	43.8	32.8
79.6	79.1	88.2	79.7	72.9	65.7	57.9	51.1	46.4	36.0
88.8	86.3	89.4	80.9	74.1	67.0	59.4	52.7	48.1	37.8
99.9	79.8	89.8	81.3	74.5	67.4	59.8	53.2	48.7	38.9
108.5	71.3	89.9	81.4	74.7	67.6	60.1	53.7	49.3	39.6
118.0	61.8	90.1	81.6	74.9	67.7	60.2	53.7	49.3	39.8
128.0	51.9	89.2	80.5	73.5	66.0	58.1	51.4	46.9	37.3
137.9	42.0	87.4	78.6	71.5	63.9	55.6	48.4	43.7	33.8
147.8	32.1	85.7	77.0	69.9	62.2	53.7	46.4	41.4	31.4
154.2	25.8	82.8	74.0	66.7	58.8	50.3	43.0	38.2	28.6

STANDARD DEVIATION - dBA

THETA BETA	30.9	40.7	49.9	57.9	67.3	79.6	88.8	99.9	108.5	118.0	128.0	137.9	147.8	154.2
30.9	4.4	3.4	2.4	2.7	3.1	2.6	2.1	1.5	0.5	0.1	0.5	1.6	1.9	-
40.6	4.4	3.4	2.4	2.8	3.1	2.5	2.1	1.5	0.4	0.3	0.4	1.5	1.8	-
49.8	4.5	3.4	2.4	2.8	3.1	2.5	2.0	1.4	0.3	0.4	0.3	1.5	1.7	-
57.8	4.7	3.4	2.4	2.8	3.2	2.3	1.9	1.3	0.4	0.8	0.2	1.5	1.5	-
67.1	4.8	3.3	2.3	2.7	3.2	2.2	1.8	1.3	0.9	1.3	0.4	1.5	1.2	-
79.1	4.8	3.2	2.0	2.5	3.2	2.0	1.9	1.5	1.4	1.9	0.7	1.6	1.0	-
86.3	4.7	3.0	1.9	2.3	3.1	2.0	2.0	1.8	1.7	2.3	0.9	1.7	0.9	-
79.8	4.2	2.4	1.4	1.8	3.0	2.1	2.3	2.3	2.4	2.9	1.4	1.9	1.4	-
71.3	2.3	2.3	1.4	1.8	2.1	2.3	2.3	2.3	2.4	2.9	1.4	1.9	1.4	-
61.8	2.3	2.3	1.4	1.8	2.1	2.3	2.3	2.3	2.4	2.9	1.4	1.9	1.4	-
51.9	2.3	2.3	1.4	1.8	2.1	2.3	2.3	2.3	2.4	2.9	1.4	1.9	1.4	-
42.0	2.3	2.3	1.4	1.8	2.1	2.3	2.3	2.3	2.4	2.9	1.4	1.9	1.4	-
32.1	2.3	2.3	1.4	1.8	2.1	2.3	2.3	2.3	2.4	2.9	1.4	1.9	1.4	-
25.8	2.3	2.3	1.4	1.8	2.1	2.3	2.3	2.3	2.4	2.9	1.4	1.9	1.4	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 6.29.a

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT

DOT/TSC

AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS

2/12/80

PERCEIVED NOISE LEVEL PNdB

FLYOVER EVENTS: 37,38,39,40,41,42

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)		200	500	1000	2000	4000	7000	10000	20000
THETA	BETA	AVERAGE LEVEL - PNLT dB re 20 micro PASCAL							
(DEGREES)									
28.4	28.3	101.2	92.5	85.3	77.4	68.6	60.6	55.1	43.0
38.3	38.1	101.8	93.1	86.0	78.2	69.5	61.6	56.2	44.1
47.2	46.8	101.6	93.0	85.9	78.0	69.3	61.5	56.2	44.7
57.1	56.6	103.2	94.6	87.6	80.0	71.4	63.8	58.7	48.0
67.8	66.8	105.1	96.5	89.6	82.1	73.7	66.2	61.0	50.2
81.0	79.0	107.5	98.9	92.0	84.6	76.2	68.7	63.5	52.4
90.2	83.8	108.6	100.1	93.2	85.8	77.4	69.9	64.6	53.4
98.9	78.9	109.8	101.3	94.5	87.1	78.8	71.4	66.1	54.7
107.0	71.8	110.5	102.0	95.2	87.9	79.8	72.4	67.2	55.8
117.3	61.9	109.6	101.1	94.3	87.1	79.1	71.8	66.8	56.1
128.3	51.3	106.4	98.0	91.1	83.7	75.3	67.9	63.0	52.4
137.6	42.0	103.3	94.7	87.7	79.8	71.2	63.5	58.5	47.5
148.1	31.7	102.8	93.9	86.7	78.5	69.5	61.4	56.0	44.8
154.3	25.5	104.4	95.0	86.9	78.0	68.4	59.9	54.1	42.1

STANDARD DEVIATION - PNLT dB

28.4	28.3	2.1	2.2	2.2	2.5	2.6	2.8	2.9	2.8
38.3	38.1	1.3	1.3	1.4	1.4	1.4	1.6	1.6	1.8
47.2	46.8	1.4	1.4	1.5	1.6	1.6	1.7	1.8	2.3
57.1	56.6	1.2	1.2	1.2	1.3	1.4	1.4	1.5	1.7
67.8	66.8	1.4	1.5	1.6	1.8	2.0	2.2	2.4	2.9
81.0	79.0	0.7	0.7	0.8	0.8	0.8	1.0	1.1	1.7
90.2	83.8	0.6	0.6	0.5	0.4	0.3	0.3	0.4	1.1
98.9	78.9	0.9	0.9	0.9	0.9	1.0	1.1	1.2	1.5
107.0	71.8	1.4	1.4	1.4	1.5	1.6	1.7	1.8	1.8
117.3	61.9	1.6	1.6	1.6	1.6	1.7	1.7	1.6	1.9
128.3	51.3	2.3	2.4	2.5	2.8	3.1	3.2	3.3	3.7
137.6	42.0	0.8	0.8	0.9	0.9	1.0	1.1	1.1	1.3
148.1	31.7	0.6	0.6	0.6	0.7	0.9	1.1	1.2	1.5
154.3	25.5	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

TABLE NO. 6.29.a.A

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
 AVERAGE EXTRAPOLATED DIRECTIVITY CONTOURS
 NOISE LEVEL dBA

DOT/TSC
 2/12/80

FLYOVER EVENTS: 37,38,39,40,41,42

SITE: 31-1

84 M. NORTH THRESHOLD RNWY. 13

JUNE 23, 1978

SLANT RANGE (ft.)	200	500	1000	2000	4000	7000	10000	20000	
THETA BETA (DEGREES)	AVERAGE LEVEL - dBA re 20 micro PASCAL								
28.4	28.3	87.8	79.4	72.7	65.4	57.3	49.8	44.3	31.8
38.3	38.1	88.2	79.8	73.1	65.8	57.6	50.1	44.7	32.8
47.2	46.8	88.7	80.2	73.5	66.1	57.7	50.0	44.7	33.4
57.1	56.6	88.7	80.2	73.5	66.1	58.0	50.7	45.7	35.3
67.8	66.8	90.2	81.8	75.1	68.0	60.1	53.1	48.2	37.9
81.0	79.0	92.8	84.5	77.9	70.9	63.2	56.4	51.5	40.7
90.2	83.8	94.6	86.2	79.7	72.7	65.1	58.2	53.4	42.3
98.9	78.9	95.4	87.1	80.6	73.6	66.0	59.2	54.4	43.5
107.0	71.8	95.4	87.1	80.6	73.7	66.2	59.6	54.9	44.4
117.3	61.9	93.5	85.2	78.7	71.9	64.6	58.1	53.7	44.0
128.3	51.3	90.1	81.8	75.3	68.4	61.0	54.4	50.0	40.5
137.6	42.0	87.9	79.5	72.9	65.9	58.3	51.6	46.9	36.7
148.1	31.7	87.5	78.9	71.9	64.4	56.4	49.5	44.7	33.9
154.3	25.5	88.8	79.9	72.5	64.4	55.7	48.3	43.2	31.8

STANDARD DEVIATION - dBA

28.4	28.3	1.3	1.3	1.4	1.6	1.7	2.0	2.1	2.5
38.3	38.1	1.2	1.2	1.2	1.2	1.3	1.5	1.5	1.7
47.2	46.8	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.8
57.1	56.6	1.0	0.9	1.0	0.9	1.0	1.0	1.1	1.4
67.8	66.8	0.8	0.9	1.0	1.2	1.5	1.9	2.2	2.6
81.0	79.0	0.6	0.6	0.6	0.6	0.5	0.6	0.7	1.0
90.2	83.8	0.6	0.6	0.5	0.4	0.4	0.5	0.5	0.8
98.9	78.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.3
107.0	71.8	1.2	1.2	1.3	1.3	1.3	1.5	1.6	1.9
117.3	61.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
128.3	51.3	1.3	1.4	1.4	1.4	1.5	1.7	1.9	2.5
137.6	42.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0
148.1	31.7	0.7	0.6	0.6	0.6	0.8	1.0	1.2	1.5
154.3	25.5	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE.
 BETA - THE ELEVATION ANGLE.

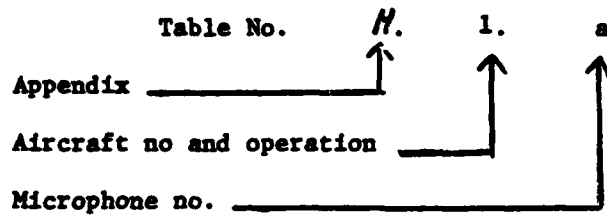
APPENDIX H

ONE-THIRD OCTAVE BAND DATA

Appendix H

Averaged $1/3$ octave frequency spectra extrapolated to a slant range of 1000 feet for nine General Aviation Aircraft are presented.

The key to the table numbering is as follows.



Microphone no. a - 84 meters north threshold runway 13
 b - 2067 meters north threshold runway 13
 c - 3520 meters north threshold runway 13

	Approach	Takeoff	Flyover	Type	Remarks
Table No. E.	1,	11,	21	Piper PA-38-112	No extrapolation No track data
	2,	12,	22	Piper PA-36-375	
	3,	13,	23	Piper PA-31-325	
	4,	14,	24	Convair CV-580	
	5,	15,	25	Cessna 421C	
	6,	16,	26	Cessna 172N	
	7,	17,	27	Beech C90	No extrapolation No track data
	8,	18,	28	Rockwell 690B	
	9,	19,	29	Rockwell 500S	

TABLE NO. M.2.b

DOT/ISC
2/23/80

PIPER PA-36-375 (BRAVE AG.) AIRCRAFT

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

APPROACH EVENTS: 28,30,41,43

JUNE 19, 1978

2067 M. NORTH THRESHOLD RNNY. 13

SITE: 31-2

SLANT RANGE 1000 FEET.

THETA	28.0	37.9	48.3	56.2	67.6	80.0	89.7	102.4	112.9	121.9	136.2	146.3
BETA	27.7	37.5	47.8	55.6	66.7	78.3	84.0	75.6	66.1	57.5	43.6	33.6

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	49.7	48.0	44.4	42.3	41.2	39.9	40.2	37.3	36.9	38.3	40.8	42.5
18	50.5	48.8	46.5	45.7	43.7	43.4	42.7	42.7	42.7	43.5	43.7	45.4
19	54.8	52.2	49.1	48.8	47.5	46.3	45.6	46.1	46.8	46.9	45.8	47.2
20	64.9	55.7	51.9	52.0	50.7	49.6	49.2	45.5	45.2	45.0	45.7	48.5
21	75.5	55.2	49.8	51.1	48.0	46.2	45.4	48.2	50.9	52.4	52.9	53.7
22	68.7	58.3	50.5	47.1	44.2	42.2	41.8	42.0	43.1	44.3	46.2	47.7
23	64.0	57.7	53.3	51.9	48.7	41.6	41.0	38.9	38.3	37.6	38.9	40.7
24	62.9	56.1	51.9	52.0	49.3	45.1	43.5	36.7	36.2	36.0	37.1	37.7
25	63.0	54.9	53.5	55.5	53.4	49.7	48.7	39.5	38.3	37.5	40.4	41.1
26	58.5	48.7	44.7	43.1	42.1	40.7	40.2	35.7	34.8	33.9	36.4	37.3
27	59.6	50.4	45.8	43.3	41.7	39.1	38.4	38.4	37.1	36.9	40.4	41.5
28	56.4	47.2	43.5	43.4	41.1	36.0	35.4	31.9	31.6	32.0	36.0	38.3
29	53.2	45.4	42.9	39.7	37.8	34.6	33.3	27.6	27.4	29.0	31.4	35.6
30	52.7	45.7	42.1	38.2	37.4	34.3	34.3	26.9	26.9	28.7	29.4	31.7
31	52.2	45.3	41.9	37.1	35.8	31.8	30.3	23.9	24.8	28.6	30.3	32.9
32	51.9	45.0	42.1	38.4	36.1	31.1	29.5	23.4	23.4	27.3	27.7	30.6
33	52.3	46.4	41.6	38.1	36.4	32.2	29.8	23.3	23.7	26.8	28.0	28.8
34	53.2	46.6	41.0	36.7	34.4	30.4	28.8	22.2	22.3	24.2	26.0	27.2
35	53.5	45.7	38.7	35.5	32.9	28.0	26.3	19.8	20.6	23.7	24.3	24.8
36	52.4	43.3	35.6	32.2	30.2	24.4	21.7	16.9	16.8	19.6	20.3	20.5
37	51.7	42.0	33.0	29.3	26.9	22.0	20.0	16.1	15.4	17.3	18.8	20.1
38	51.0	38.8	-	21.9	18.8	14.3	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M.2.c

PIPER PA-36-375 (BRAVE AG.) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DUT/TSC
2/23/80

APPROACH EVENTS: 41,43

SITE: 31-3 3520 M. NORTH THRESHOLD RWY. 13 JUNE 19,1978

SLANT RANGE 1000 FEET.

	35.8	40.3	50.4	60.1	69.4	80.5	91.5	100.8	109.3	120.2
THETA	33.7	39.3	49.4	59.0	68.1	78.4	85.5	78.3	70.1	59.6
BETA										

	AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)									
17	56.9	56.6	54.1	53.4	50.4	49.7	47.8	49.4	49.3	50.8
18	58.1	55.4	52.3	51.3	50.2	47.1	48.5	49.2	49.6	50.2
19	58.1	53.1	52.4	51.1	50.6	51.2	51.5	50.6	50.5	51.7
20	55.7	54.6	53.5	56.8	60.5	63.2	64.7	65.4	65.1	62.7
21	61.9	68.0	74.9	78.2	80.0	80.3	78.7	77.0	74.6	70.5
22	68.7	72.2	74.2	74.8	73.8	73.6	73.9	74.1	73.3	71.4
23	76.0	76.4	74.4	71.9	68.7	64.6	62.5	61.1	60.4	58.9
24	68.3	66.8	61.2	67.1	72.8	75.0	75.1	71.8	69.8	62.2
25	68.8	62.8	62.2	66.2	65.4	63.9	63.3	62.2	62.5	63.1
26	61.6	66.2	65.9	64.2	69.7	73.7	71.6	67.3	60.8	57.3
27	62.9	60.9	58.7	60.9	62.7	66.1	65.5	62.4	59.3	61.2
28	56.2	59.1	57.8	60.6	62.2	64.4	65.6	61.0	59.6	57.5
29	57.5	56.0	54.4	59.5	60.4	61.6	61.0	61.8	58.8	50.6
30	55.0	55.1	52.7	54.3	57.6	60.7	58.5	56.4	54.2	48.9
31	54.9	54.5	52.5	53.7	54.5	56.5	57.9	55.9	50.3	48.4
32	54.0	54.2	50.3	51.8	51.1	53.5	53.8	50.6	48.3	48.6
33	54.0	53.9	49.1	50.7	50.1	49.8	49.0	48.8	48.1	48.3
34	53.1	55.0	49.6	51.4	50.4	50.4	47.8	49.2	48.8	50.0
35	52.2	53.9	47.8	49.3	50.4	49.0	47.7	49.2	49.1	49.5
36	49.9	50.1	46.5	47.7	47.6	47.4	46.3	47.9	48.0	49.4
37	53.3	49.7	45.0	44.5	44.4	45.1	44.6	46.8	46.8	47.1
38	-	-	-	40.8	39.8	41.1	40.2	42.9	43.4	43.9
39	-	-	-	-	-	35.6	-	38.1	38.3	38.5
40	-	-	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M.3.b

PIPER PA-31-325 (NAVAJO) AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

APPROACH EVENTS: 2, 6, 8, 10

SITE: 31-2 2067 M. NORTH THRESHOLD RNNV, 13 JUNE 20, 1973

SLANT RANGE 1000 FEET.

	30.3	40.1	49.0	57.0	66.9	78.1	90.4	99.9	109.9	119.8	128.2	139.0	150.2
THETA	30.1	39.8	48.7	56.6	66.4	77.4	84.6	78.7	69.5	59.8	51.5	40.8	29.5

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

	45.5	46.0	44.8	44.3	43.2	42.3	42.2	42.9	44.8	47.6	50.3
17	48.1	45.9	45.5	46.0	44.8	44.3	43.2	42.3	42.2	42.9	44.8
18	51.8	50.6	49.0	47.2	45.8	44.7	43.9	43.9	44.4	46.0	47.3
19	51.2	49.1	46.5	44.5	44.1	44.1	48.9	50.9	52.9	53.4	52.8
20	49.6	48.3	49.2	51.1	52.9	54.0	61.1	65.5	70.7	74.6	75.4
21	61.2	69.8	73.2	74.9	75.7	74.3	78.3	80.9	82.7	82.7	80.9
22	59.4	65.7	67.1	66.5	67.0	66.2	66.0	65.9	67.0	67.6	68.5
23	63.8	66.7	66.2	63.2	62.4	61.0	60.4	58.8	60.0	61.1	60.9
24	61.1	63.0	60.3	58.9	64.0	71.5	74.5	73.2	73.1	70.5	66.5
25	58.7	57.0	54.9	56.1	58.4	60.3	62.5	63.8	64.5	63.4	61.7
26	51.7	55.5	59.1	59.2	57.7	65.2	70.1	70.4	69.8	66.8	60.6
27	54.5	53.9	53.6	56.1	56.3	61.5	67.7	68.6	67.5	64.6	59.2
28	52.4	53.2	54.0	54.3	55.2	57.3	62.1	62.4	61.5	59.1	55.4
29	51.3	50.7	51.4	52.0	52.8	53.4	56.9	57.1	57.0	55.5	53.7
30	49.3	49.7	50.3	50.2	50.4	51.6	53.8	54.7	54.6	53.5	52.4
31	48.9	49.7	51.4	51.8	51.9	52.5	52.7	52.6	52.7	51.9	50.9
32	47.2	48.5	50.9	51.2	51.5	52.4	53.5	53.7	54.1	53.5	52.2
33	46.5	48.5	50.2	49.9	50.0	50.9	52.5	53.5	54.9	54.6	53.4
34	45.2	45.3	46.9	46.8	47.8	49.1	51.2	52.1	52.8	52.6	51.2
35	40.6	40.2	40.7	40.9	41.8	45.0	47.4	49.3	51.1	51.4	50.4
36	38.1	37.0	37.0	37.1	38.0	40.3	42.2	44.2	46.3	47.1	46.5
37	35.0	35.7	37.2	38.3	40.3	42.0	43.0	44.0	45.4	45.4	44.2
38	28.6	29.4	31.3	31.9	33.8	35.7	36.9	38.6	40.1	40.2	39.0
39	-	-	24.7	26.0	27.4	28.7	30.0	31.5	32.8	33.1	32.3
40	-	-	-	18.3	19.5	20.7	22.1	23.2	24.3	24.9	24.7

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. N.3.c

PIPER PA-31-325 (NAVAJO) AIRCRAFT
 AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DOT/ISC
 2/22/80

APPROACH EVENTS: 2, 8, 10

SITE: 31-3 3520 M. NORTH THRESHOLD RUNY. 13 JUNE 20, 1978

SLANT RANGE 1000 FEET.

THETA	29.6	39.1	50.0	59.8	69.6	81.5	88.9	98.3	109.6	119.4	129.6	139.5	150.0
BETA	29.0	38.2	48.5	57.5	66.2	74.6	77.0	74.1	66.4	57.8	48.5	39.0	29.0

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	51.9	51.6	52.1	51.5	49.9	47.3	46.1	46.7	48.2	50.5	52.6	54.5	54.5
18	55.7	55.2	54.8	53.1	52.3	50.2	49.0	49.0	50.7	51.2	52.4	54.0	56.1
19	55.1	52.4	49.3	49.5	51.4	52.5	52.3	51.2	48.5	48.8	51.1	52.9	55.5
20	53.4	50.3	51.3	57.3	61.2	63.8	65.4	66.6	67.6	71.8	73.8	70.3	73.9
21	61.9	69.4	73.5	78.9	81.0	81.4	81.1	79.5	75.4	73.8	72.1	66.1	63.5
22	59.4	65.1	64.2	67.5	69.9	70.2	69.6	69.3	70.6	71.2	70.0	64.9	55.7
23	61.5	69.0	65.8	63.5	63.9	62.7	61.6	59.9	58.7	62.2	66.5	69.2	66.4
24	61.4	66.9	61.9	61.6	69.0	73.0	72.7	70.3	64.4	60.4	60.5	61.1	58.8
25	58.2	59.5	57.8	58.7	59.7	59.8	59.2	58.1	59.6	61.2	60.4	52.0	54.6
26	52.9	57.8	60.3	60.1	60.6	61.0	60.6	57.7	55.7	55.0	54.0	55.7	50.9
27	56.9	56.3	56.6	62.1	62.4	60.7	59.6	59.5	59.9	57.8	54.5	52.7	53.5
28	55.4	55.0	55.9	58.5	61.1	63.2	63.4	62.0	57.9	53.4	52.0	53.5	53.5
29	54.1	53.9	54.6	57.8	62.4	64.2	64.4	62.6	57.1	55.4	54.2	52.5	52.8
30	53.3	53.4	52.2	54.3	54.5	59.0	58.8	57.1	55.4	54.7	53.5	52.4	52.0
31	53.5	53.2	52.3	53.1	54.4	55.0	55.0	54.7	53.8	53.5	52.3	50.4	50.6
32	53.0	53.0	55.4	55.9	58.0	59.5	59.2	58.0	55.8	54.0	51.7	50.2	50.5
33	52.6	52.9	54.8	55.4	54.1	57.2	57.5	57.2	55.8	52.5	49.7	49.2	47.5
34	52.4	52.8	52.5	54.0	54.6	54.3	54.8	55.3	55.3	54.0	51.6	48.7	47.5
35	47.3	47.8	47.1	48.7	50.0	51.5	52.5	53.8	54.8	54.1	51.2	47.2	45.9
36	46.1	45.2	43.8	44.9	46.1	47.7	48.2	49.4	50.6	49.8	47.7	44.3	43.7
37	41.6	45.8	43.3	46.0	46.5	46.0	46.3	47.3	47.9	46.4	43.1	40.1	38.8
38	-	-	-	39.1	40.2	40.6	41.0	41.8	42.3	40.9	38.5	35.9	-
39	-	-	31.1	32.3	34.2	34.2	34.2	35.0	35.2	34.4	33.2	-	-
40	-	-	-	-	25.8	26.2	26.6	27.1	27.4	27.5	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. 4.b

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

APPROACH EVENTS: 19.21, 27.29

SITE: 31-2 2067 M. NORTH THRESHOLD RWY. 13

JUNE 20, 1978

SLANT RANGE 1000 FEET.

THETA	33.0	43.0	52.6	62.4	73.1	83.3	89.5	101.2	113.2	123.3	131.6	143.8	153.0
BETA	33.0	42.9	52.5	62.2	73.0	82.8	85.8	78.5	66.6	56.6	48.3	36.2	26.9

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	60.2	60.2	58.6	57.3	55.7	56.3	56.2	55.2	55.7	56.6	58.5	61.8	63.6
18	61.0	60.0	59.0	57.7	56.4	57.4	56.8	60.5	61.3	64.5	68.9	72.4	74.3
19	68.4	64.0	66.9	65.6	63.3	61.0	59.9	59.8	59.6	58.8	57.8	56.8	60.9
20	57.3	52.8	51.3	51.9	54.6	57.2	57.8	60.0	62.0	63.4	63.5	59.1	53.7
21	49.9	53.3	56.7	60.3	64.8	69.0	68.8	74.1	76.2	76.7	75.8	70.3	59.9
22	60.1	65.1	67.4	69.8	73.7	74.3	72.9	74.3	72.6	70.3	69.7	70.6	67.0
23	60.7	63.4	63.1	62.8	62.3	62.0	60.7	60.7	60.8	62.8	65.2	70.7	71.5
24	64.8	64.9	62.9	62.1	64.0	66.6	67.9	71.7	73.5	75.6	75.3	71.9	76.4
25	74.0	69.8	67.2	73.1	76.6	77.2	77.4	76.3	73.8	70.3	69.5	69.3	63.6
26	60.9	61.8	63.1	62.3	61.1	61.5	62.5	64.2	66.2	67.3	67.3	66.6	64.4
27	61.0	62.0	60.4	59.7	59.5	60.1	60.2	62.4	64.7	66.1	66.6	65.8	64.6
28	59.8	59.1	59.7	59.2	58.7	59.4	59.4	61.5	63.5	65.8	66.8	65.5	63.0
29	57.8	58.0	58.2	58.1	57.9	57.5	57.7	59.8	62.3	65.4	66.5	65.1	62.5
30	54.4	57.1	57.3	57.1	56.8	57.0	56.5	59.3	64.5	69.7	71.6	72.8	74.2
31	56.6	57.3	58.7	59.3	59.3	60.3	62.0	65.3	71.3	74.8	75.5	72.5	69.0
32	56.6	56.4	57.1	56.9	56.3	55.7	54.6	56.0	59.5	62.4	63.6	63.4	60.3
33	53.7	53.7	54.2	53.3	52.7	52.3	52.0	53.4	57.2	60.4	61.8	61.9	59.8
34	54.0	52.9	53.2	52.1	51.3	51.6	51.7	53.3	57.4	60.1	61.2	60.5	57.9
35	59.1	55.2	53.6	51.6	50.3	50.5	50.5	51.8	54.3	56.8	58.0	57.5	55.7
36	49.4	47.3	46.8	45.7	45.5	46.1	46.2	48.2	51.3	54.0	55.3	55.0	52.8
37	46.3	44.4	44.0	43.0	43.1	43.6	43.6	45.8	49.0	51.6	52.8	52.7	50.5
38	42.9	40.6	39.9	39.2	39.4	40.4	40.5	43.1	46.1	48.7	49.8	49.4	47.2
39	40.6	39.9	39.2	38.9	39.0	40.1	40.2	41.8	43.5	45.1	45.8	44.7	42.0
40	36.8	34.7	33.3	32.9	33.1	34.6	34.5	36.5	37.7	38.5	38.6	37.5	34.5

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M. 4.c

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

APPROACH EVENTS: 19,21,29

SITE: 31-3 3520 M. NORTH THRESHOLD RUNY. 13 JUNE 20, 1978

SLANT RANGE 1000 FEET.

THETA	31.2	39.7	50.2	59.4	69.8	77.2	90.9	98.2	105.8	117.1	128.5	137.0	147.1
BETA	29.7	37.4	46.8	54.7	62.7	67.4	67.6	69.3	65.1	57.0	47.4	39.8	30.7

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	68.0	66.8	66.2	63.5	63.4	63.8	63.8	63.3	63.2	64.1	64.8	66.5	68.2
18	68.2	66.6	67.0	69.1	68.1	67.6	69.8	70.2	72.7	75.2	76.0	78.0	77.0
19	76.9	75.6	76.7	78.8	74.8	71.1	65.9	62.4	61.6	62.5	60.3	61.3	66.1
20	68.5	67.3	65.3	65.1	64.0	64.7	67.0	66.5	66.6	64.0	60.0	58.2	64.0
21	59.9	60.3	62.9	69.3	72.1	74.9	81.0	79.8	78.6	74.5	70.5	67.1	64.6
22	65.6	70.9	72.6	76.4	77.4	77.6	77.5	74.2	72.2	70.9	70.6	69.9	66.8
23	66.0	67.0	68.2	68.3	68.0	68.4	70.3	68.8	68.7	69.6	72.1	72.1	71.9
24	70.0	69.3	67.8	67.3	70.3	72.5	75.6	76.8	76.5	72.8	73.2	77.2	78.4
25	80.8	77.0	74.9	77.4	80.0	79.7	76.4	73.3	72.0	70.4	69.9	66.7	68.9
26	67.5	64.5	67.8	68.3	66.6	66.2	66.9	66.5	66.1	66.2	69.3	69.9	64.5
27	64.0	65.6	64.5	65.1	67.0	67.6	69.7	68.4	68.7	67.8	66.5	65.4	66.7
28	65.9	61.8	64.2	64.4	64.3	65.8	68.5	68.1	68.6	67.9	67.3	65.8	65.3
29	60.3	60.1	61.1	61.9	62.1	63.5	66.7	66.3	66.7	66.3	65.2	63.2	62.5
30	61.1	60.2	61.3	61.9	62.9	63.8	67.9	68.3	70.7	73.0	74.4	74.0	76.4
31	60.7	61.1	67.1	70.2	71.2	71.8	77.0	77.4	78.2	77.4	75.1	72.8	71.1
32	61.8	61.3	64.0	65.2	63.8	63.1	65.8	65.0	65.2	65.3	64.0	62.5	61.2
33	60.2	59.1	59.6	60.2	59.9	60.1	63.2	62.4	63.1	63.6	63.5	61.7	61.8
34	60.8	58.8	58.9	59.3	59.2	60.0	64.2	63.8	64.6	64.0	63.2	61.4	60.2
35	63.9	59.0	58.4	58.4	57.4	58.3	61.5	60.9	61.8	61.6	60.9	59.1	57.9
36	55.1	52.5	53.7	53.8	53.4	54.7	59.0	57.8	58.9	59.1	58.3	56.7	55.3
37	51.5	49.3	50.8	50.6	50.6	51.9	56.4	55.4	55.9	56.2	55.2	53.4	52.0
38	47.0	44.9	47.1	46.8	47.3	48.5	53.1	52.7	53.3	53.3	52.6	50.6	48.7
39	-	42.7	46.5	45.6	46.1	47.1	50.9	49.7	49.8	49.4	47.9	45.1	43.0
40	-	-	40.7	39.6	40.4	41.6	44.8	43.8	43.5	41.9	39.8	36.6	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. 5.b

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRADOT/ISC
2/23/80

APPROACH EVENTS: 2, 4, 6, 8

SITE: 31-2 2067 M. NORTH THRESHOLD RNNY. 13

JUNE 21, 1978

SLANT RANGE 1000 FEET.		AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)											
THETA	BETA	49.0	59.4	69.8	79.0	90.9	101.5	111.1	121.0	128.1	140.0	149.2	159.2
29.3	38.3	45.6	44.6	44.2	44.0	43.8	43.5	43.3	43.7	44.3	45.2	46.1	47.1
29.1	36.5	47.7	46.6	46.0	45.7	44.7	43.2	44.0	44.3	45.2	46.2	47.2	48.2
		50.3	48.2	46.7	46.8	45.0	50.5	53.4	53.9	52.9	51.4	52.9	54.9
		53.4	55.2	59.8	63.7	67.0	71.0	73.8	74.0	72.9	66.2	60.0	60.0
		61.7	70.8	74.2	75.7	76.1	70.5	72.0	70.6	70.8	73.6	70.9	70.9
		63.2	72.6	75.4	76.9	78.1	80.3	81.5	82.8	83.6	83.2	75.2	75.2
		78.2	81.4	80.5	78.8	75.2	70.2	70.6	67.6	66.9	66.8	65.1	65.1
		66.8	69.1	69.3	68.5	68.2	64.3	66.3	63.8	61.5	59.8	63.8	63.8
		63.1	61.7	64.7	69.0	69.1	71.1	69.7	68.7	67.7	65.7	62.9	62.9
		62.4	60.3	61.3	66.6	69.5	67.4	66.6	64.5	62.0	62.0	62.6	62.6
		61.4	63.0	62.3	63.1	67.4	68.3	68.6	65.5	62.7	63.5	62.7	62.7
		64.0	60.8	59.9	60.3	62.3	67.7	68.1	64.8	58.3	59.2	59.0	59.0
		55.9	56.6	55.9	55.5	56.0	58.9	59.9	57.9	55.0	55.7	56.0	56.0
		53.0	53.4	53.3	54.2	57.0	57.3	57.1	55.2	54.0	53.2	55.6	55.6
		52.8	53.3	53.2	53.1	54.5	55.3	55.2	54.1	53.2	51.9	54.3	54.3
		51.4	51.7	53.1	53.6	52.7	52.9	54.1	53.9	53.5	50.8	50.7	50.7
		50.5	49.7	49.8	49.9	49.4	48.6	49.7	50.0	50.2	48.2	46.2	46.2
		46.7	45.5	45.5	45.6	45.4	45.3	46.7	47.6	48.1	48.2	46.0	46.0
		42.8	42.6	42.9	42.6	42.5	43.1	44.5	45.1	45.4	45.6	44.8	44.8
		42.5	40.6	39.8	40.1	40.1	40.7	42.6	43.1	42.8	42.8	42.2	42.2
		41.3	38.4	37.5	37.4	37.9	38.5	39.6	40.0	39.9	40.1	39.5	39.5
		33.5	32.5	32.6	32.8	32.9	34.6	36.1	36.7	36.7	35.4	34.5	34.5
		27.2	27.6	27.7	28.3	29.3	30.1	31.5	32.2	32.2	31.7	31.8	31.8
		-	21.2	21.6	21.4	21.3	22.7	24.5	25.7	26.0	26.7	27.5	27.5

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. *M.S.c*
 CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
 AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

001/ISC
 2/23/80

APPROACH EVENTS: 2 14 16 18

SITE: 31-3 3520 M. NORTH THRESHOLD RNVY. 13 JUNE 21, 1978

SLANT RANGE 1000 FEET.		AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)											
THETA	BETA	50.7	41.3	72.1	80.4	88.7	99.5	109.1	119.2	128.9	138.6	148.0	
		49.1	59.0	68.8	75.4	78.0	75.6	68.0	58.7	49.5	40.1	31.5	
17	57.2	55.2	50.9	49.3	48.0	48.0	48.2	48.0	47.7	48.8	51.7	53.8	
18	62.9	60.9	58.7	57.1	56.1	55.8	57.2	56.5	56.9	58.2	60.3	56.8	
19	57.5	57.8	56.1	56.5	56.0	54.7	53.6	52.5	51.9	52.6	54.4	56.1	
20	60.7	69.0	74.7	76.6	75.9	74.1	71.6	68.7	65.1	61.8	63.2	61.2	
21	73.3	77.5	78.1	75.0	70.2	69.0	68.5	70.3	70.6	69.9	68.3	58.9	
22	76.0	80.7	81.9	82.1	82.7	83.4	83.2	82.2	80.3	77.3	73.8	68.5	
23	85.1	84.4	78.8	73.9	69.1	67.0	66.2	66.3	67.1	66.7	65.2	62.3	
24	76.4	74.8	77.0	76.0	69.0	63.9	60.9	59.0	58.0	59.1	62.9	63.6	
25	67.7	73.2	74.1	71.8	70.1	69.7	69.7	67.5	65.3	62.0	60.9	63.5	
26	71.8	73.8	72.1	70.9	69.4	66.8	63.7	60.8	59.8	61.2	61.6	54.8	
27	66.3	75.9	74.7	73.0	68.7	65.1	63.7	63.3	62.9	61.1	60.4	57.0	
28	65.4	67.6	72.3	71.6	66.6	62.0	58.7	57.7	57.1	57.3	54.8	54.6	
29	59.1	63.1	63.2	61.2	56.6	54.0	51.6	51.2	51.3	50.9	50.0	47.1	
30	58.2	60.2	59.0	56.6	53.4	51.5	50.6	49.7	48.9	48.8	49.2	47.2	
31	58.6	58.3	54.5	53.0	51.2	50.7	50.2	49.2	46.9	45.8	46.5	44.0	
32	55.3	54.8	51.2	49.9	49.0	48.1	46.6	45.2	44.1	42.7	42.2	44.1	
33	52.6	51.5	47.7	46.6	46.1	45.3	43.6	43.4	41.6	39.9	39.6	39.9	
34	49.9	48.7	46.0	44.5	43.2	41.9	40.3	40.2	39.4	38.3	37.6	37.7	
35	47.6	46.7	45.0	44.0	42.4	40.6	38.8	37.5	36.5	36.0	34.7	35.7	
36	45.2	44.2	41.9	40.3	38.6	37.1	34.9	34.1	33.4	32.7	30.8	-	
37	-	41.7	38.3	36.9	35.8	34.2	31.7	30.3	28.5	-	-	-	
38	-	38.2	34.4	32.9	31.2	29.2	26.5	25.2	23.8	-	-	-	
39	-	-	-	-	-	-	-	-	-	-	-	-	
40	-	-	-	-	-	-	-	-	-	-	-	-	

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. 8.b

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DUT/TSC
2/23/80

APPROACH EVENTS: 4, 6, 8, 23

SITE: 31-2 2067 M. NORTH THRESHOLD RNMV. 13 JUNE 23, 1978

SLANT RANGE 1000 FEET.

THETA	30.2	40.0	48.6	60.1	73.1	79.2	90.7	103.9	111.3	120.6	129.8	139.3	149.8
BETA	30.0	39.7	48.1	59.4	72.8	74.0	84.4	75.5	67.4	58.7	49.7	40.4	30.0

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	47.9	47.9	47.4	47.2	46.7	47.1	47.2	46.6	48.5	50.0	51.7	53.4	52.2
18	52.5	51.0	49.9	49.1	47.4	47.3	46.7	46.8	49.1	53.5	54.7	62.1	66.9
19	56.2	55.5	54.1	51.9	57.5	51.4	61.7	63.9	65.3	67.8	66.2	64.1	63.6
20	69.1	67.7	65.5	61.8	59.8	55.0	57.4	56.0	56.2	55.2	53.0	50.7	47.8
21	49.1	47.2	47.7	49.3	51.1	52.7	53.5	54.0	55.9	59.0	62.0	64.3	65.0
22	46.8	52.4	54.6	55.9	58.4	59.0	64.0	68.5	67.7	71.0	71.2	69.7	64.1
23	60.2	63.2	64.0	63.2	62.0	57.4	59.1	57.2	56.9	57.1	56.7	60.4	62.7
24	56.6	57.2	56.2	53.7	54.8	51.7	59.3	61.4	63.8	63.2	61.6	56.6	56.0
25	57.3	55.4	53.7	54.8	56.7	56.0	57.7	57.2	58.7	58.9	58.6	57.7	55.0
26	53.8	53.4	56.3	56.7	55.6	55.1	55.5	56.3	58.3	57.8	57.8	56.8	57.4
27	54.7	57.4	56.5	56.2	56.3	55.4	56.1	56.1	56.4	56.6	57.1	57.1	56.8
28	57.1	57.4	58.2	57.0	56.1	56.8	56.3	56.9	58.1	58.3	59.4	59.9	59.1
29	60.3	60.2	61.6	59.8	58.3	60.6	57.9	57.1	57.4	56.5	56.5	56.6	55.4
30	56.6	57.4	56.9	55.9	54.4	54.5	53.6	53.0	54.0	54.2	55.4	55.8	54.3
31	55.6	56.5	55.9	55.1	54.3	53.7	53.7	53.6	55.1	55.4	56.6	56.8	54.6
32	55.8	56.4	56.2	55.1	53.7	53.8	53.6	54.3	55.1	55.2	56.7	56.8	54.0
33	54.5	55.4	54.8	53.6	52.1	51.7	52.0	53.4	54.2	53.9	55.7	55.5	52.2
34	53.5	55.0	54.0	52.9	51.4	51.3	51.2	53.3	54.1	53.9	55.5	54.8	51.4
35	50.7	53.0	52.0	50.7	49.7	48.7	49.6	52.1	52.3	51.7	53.1	52.4	49.2
36	47.1	49.8	49.3	48.2	47.1	46.7	47.1	49.4	50.2	50.0	51.5	51.1	48.0
37	42.6	44.6	44.1	43.5	43.6	41.6	44.2	48.4	49.7	51.2	53.6	54.0	50.9
38	38.4	40.7	40.9	40.7	40.4	38.9	41.9	45.8	46.9	47.6	49.6	49.7	46.8
39	31.1	33.7	34.0	33.6	33.7	32.2	35.8	40.4	42.1	44.1	46.6	47.1	43.2
40	-	-	24.9	25.5	26.5	24.9	28.6	32.8	34.8	36.2	38.4	38.9	36.2

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M8.c

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT

DOT/ISC
2/23/80

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

APPROACH EVENTS: 2 14 16 18

JUNE 23, 1978

3520 M. NORTH THRESHOLD RWY. 13

SITE: 31-3

SLANT RANGE 1000 FEET.

THETA	30.8	40.6	49.9	59.9	69.6	78.8	91.5	100.6	109.7	117.9	128.0	137.6	148.4
BETA	30.3	39.9	49.0	58.5	67.2	74.5	79.3	74.3	67.1	59.7	50.3	41.1	30.5

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	57.1	55.7	54.5	53.2	52.7	52.8	53.3	52.1	51.7	51.5	51.1	49.9	50.4
18	57.0	55.0	52.9	51.8	55.7	60.6	65.6	67.9	69.7	70.5	70.9	69.7	67.6
19	65.0	69.3	68.6	63.4	58.7	59.7	61.0	62.9	63.0	62.4	60.9	58.6	56.3
20	71.0	67.6	65.0	57.9	54.7	52.0	48.0	46.1	45.5	45.4	45.9	47.3	48.9
21	60.0	61.9	63.7	65.4	65.4	64.9	64.5	63.3	61.9	59.9	57.2	53.0	53.7
22	68.2	74.4	75.0	74.9	73.4	71.4	68.2	65.3	61.3	57.4	53.9	50.0	46.9
23	73.2	68.2	62.0	59.0	59.8	59.8	60.4	60.2	59.6	58.1	56.1	55.5	50.1
24	65.0	65.4	65.2	61.6	56.9	54.4	52.4	52.1	52.5	53.4	54.2	53.9	53.0
25	64.2	64.0	64.1	61.7	60.4	58.5	55.2	52.5	50.9	49.7	50.7	52.3	54.4
26	63.6	62.9	61.9	59.9	57.9	56.8	56.3	55.3	54.9	53.9	51.4	48.9	53.2
27	64.6	61.7	59.8	58.2	57.7	56.8	55.9	54.9	54.4	54.5	54.8	53.5	50.9
28	64.7	63.7	61.9	60.3	59.3	58.1	56.8	55.5	55.1	55.5	54.9	55.3	54.8
29	67.1	66.0	62.9	60.9	59.3	57.8	55.0	54.9	53.5	52.7	51.9	50.3	49.6
30	65.5	63.9	62.8	60.6	58.5	56.7	53.8	53.5	52.7	51.8	51.4	50.5	49.9
31	65.0	63.9	63.3	62.0	60.3	58.3	54.2	53.4	52.1	51.2	50.2	49.8	49.3
32	64.4	63.4	61.8	60.0	58.4	56.5	53.3	52.2	51.0	49.9	48.9	48.2	48.2
33	64.1	62.2	60.6	59.5	57.8	56.7	53.9	52.4	50.6	48.8	47.2	46.7	47.2
34	63.8	61.5	59.7	58.3	56.8	55.0	51.5	50.7	49.1	47.5	46.2	45.8	46.1
35	62.6	60.3	58.6	57.4	56.5	55.0	50.4	48.9	47.0	45.4	43.6	42.9	43.3
36	62.0	59.1	57.0	55.7	54.1	52.0	47.6	46.2	44.7	43.0	40.7	39.3	39.5
37	57.1	55.3	55.2	51.0	49.5	53.8	52.4	49.7	47.6	45.4	41.1	37.8	37.1
38	54.3	53.5	52.2	46.1	44.6	42.4	42.6	41.3	39.1	36.5	33.6	30.9	-
39	-	47.9	47.0	36.9	34.2	31.4	25.1	23.3	-	29.9	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. 9.b

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT

DOT/TSC
2/23/80

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

APPROACH EVENTS: 25,27,31,33,35

SITE: 31-2 2067 M. NORTH THRESHOLD RNMV. 13

JUNE 23, 1978

SLANT RANGE 1000 FEET.

THETA	29.4	39.4	48.6	58.1	68.3	80.0	90.6	102.2	112.8	121.2	129.5	140.6	149.2
BETA	29.3	39.3	48.5	58.0	68.0	79.5	86.3	77.3	67.0	58.7	50.3	39.4	30.7

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	54.0	52.5	52.2	50.8	49.2	47.7	46.2	45.1	44.6	44.4	44.7	46.4	47.9
18	52.3	50.3	48.8	47.7	46.8	45.3	44.4	42.8	43.7	44.7	45.1	45.9	47.5
19	51.1	47.9	45.9	44.2	42.8	43.6	45.5	48.3	50.5	51.6	51.3	48.4	49.1
20	49.2	46.2	45.4	45.9	50.8	53.6	54.9	60.6	68.7	73.2	74.5	71.2	65.4
21	55.8	62.6	67.2	69.3	74.6	76.3	76.0	77.1	80.5	82.6	82.2	75.8	64.2
22	58.0	60.2	63.8	63.7	64.8	64.1	62.5	60.4	59.3	59.9	60.9	61.1	58.1
23	53.8	57.8	58.2	58.1	56.9	55.7	54.6	57.1	59.4	60.0	59.7	64.6	66.4
24	62.7	62.6	60.6	59.0	65.0	67.6	69.3	72.1	72.5	71.7	68.9	63.2	62.0
25	64.4	63.4	58.6	55.9	57.9	58.5	58.9	60.3	60.1	60.6	62.4	62.4	57.8
26	53.7	56.4	60.8	61.4	59.5	64.2	66.0	67.6	66.5	63.9	58.9	56.2	55.8
27	54.5	56.5	56.0	57.9	58.6	59.6	62.6	62.0	61.2	59.9	58.4	55.6	54.1
28	57.2	56.2	55.5	56.2	57.7	57.6	58.0	57.3	57.6	57.5	56.7	54.5	53.3
29	51.5	54.0	54.5	54.0	55.4	55.9	56.2	56.9	56.6	55.8	54.5	52.3	50.9
30	50.0	51.1	51.8	51.7	52.5	53.2	54.2	55.0	54.2	53.5	52.0	51.2	51.4
31	49.2	50.6	50.8	49.7	49.3	49.6	51.2	52.0	51.6	50.8	50.2	50.8	51.7
32	47.8	49.7	49.7	48.3	47.3	46.8	47.6	48.1	48.4	48.6	48.9	49.7	49.7
33	46.3	48.3	48.1	46.9	45.8	45.6	46.1	46.9	47.1	47.2	47.3	48.2	48.7
34	44.2	46.0	45.6	44.7	44.0	44.1	45.0	45.4	46.1	46.9	49.5	50.7	49.2
35	44.5	47.4	47.1	45.2	45.9	46.4	45.7	44.8	43.0	42.4	42.1	43.0	43.5
36	38.0	38.8	38.4	37.3	37.0	36.6	37.0	37.3	37.5	38.0	38.0	39.0	39.7
37	33.9	34.4	34.3	33.9	34.1	33.8	34.2	34.8	35.3	35.7	35.6	36.0	36.1
38	-	29.3	29.8	29.8	29.8	30.0	30.2	31.1	31.7	32.3	32.4	32.4	31.8
39	-	23.5	23.5	23.5	23.7	24.1	24.5	26.0	27.1	27.9	28.1	27.9	27.1
40	-	-	-	-	15.2	15.6	16.3	18.4	19.9	21.1	21.7	21.6	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M.9.c

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DOI/TSC
2/23/80

APPROACH EVENTS: 25,27,31,33,35

SITE: 31-3 3520 M. NORTH THRESHOLD RWY. 13 JUNE 23,1978

SLANT RANGE 1000 FEET.

	THETA	BETA	31.3	39.8	49.8	60.1	67.8	78.2	86.8	98.5	106.9	119.3	129.1	138.1	147.8
			30.4	38.2	47.4	56.7	62.5	70.5	73.7	71.1	66.2	56.4	47.7	39.5	30.4

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
THETA	59.7	58.0	58.2	56.6	50.5	53.2	50.7	49.8	49.8	51.1	52.3	53.1	53.8	51.1	52.2	53.7	51.1	52.2	53.7	51.1	52.2	53.7	51.1	52.2	53.7
BETA	30.4	38.2	47.4	56.7	62.5	70.5	73.7	71.1	66.2	56.4	47.7	39.5	30.4	30.4	38.2	47.4	56.7	62.5	70.5	73.7	71.1	66.2	56.4	47.7	39.5

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

PIPER PA-36-375 (BRAVE AG.) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

TAKEOFF EVENTS: 23,25,29,31,40,42

2067 M. NORTH THRESHOLD RHWY. 13

SITE: 31-2

SLANT RANGE 1000 FEET.

THETA	30.2	39.7	49.8	60.1	69.3	81.3	90.5	101.9	110.8	120.8	131.5	141.2	151.0
BETA	29.9	37.3	46.0	54.6	61.7	66.5	70.0	66.6	62.1	54.4	45.6	37.1	28.3

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

[illegible]

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE(DEGREES).

TABLE NO. W.13.a

PIPER PA-31-325 (NAVAJO) AIRCRAFT

DOT/TSC
2/12/80

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

TAKEOFF EVENTS: 1 5 7 9 11

SITE: 31-1

84 M. NORTH THRESHOLD RNNY. 13

JUNE 20, 1978

SLANT RANGE 1000 FEET.

	31.2	37.9	49.6	62.0	70.0	82.7	93.2	100.8	113.2	122.4	130.3	140.5	150.0	154.6
THETA	31.2	37.9	49.6	62.0	70.0	82.7	93.2	100.8	113.2	122.4	130.3	140.5	150.0	154.6
BETA	30.6	37.2	48.7	61.5	67.0	78.4	81.7	76.4	65.4	56.8	49.0	39.1	29.8	25.3

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
SLANT RANGE 1000 FEET.	56.6	55.7	55.4	55.1	53.5	53.1	50.7	50.6	49.4	48.0	48.5	50.3	52.5	54.0	54.6	53.9	54.6	52.4	51.9	69.8	65.7	67.4	66.5	65.6	63.5	56.3
THETA	50.0	49.5	49.1	48.9	49.1	48.2	47.4	48.3	49.4	49.9	50.3	52.4	53.3	51.3	51.9	52.4	53.3	52.4	51.9	69.8	65.7	67.4	66.5	65.6	63.5	56.3
BETA	53.2	52.8	51.3	49.2	49.7	49.3	50.3	52.7	53.4	53.5	52.4	51.9	53.3	51.3	51.9	52.4	53.3	52.4	51.9	69.8	65.7	67.4	66.5	65.6	63.5	56.3
SLANT RANGE 1000 FEET.	53.2	52.0	49.7	50.8	54.5	61.9	65.0	69.1	72.0	73.5	73.0	69.8	65.7	67.4	66.5	65.6	63.5	56.3	50.3	52.5	54.0	54.6	53.9	54.6	52.4	51.9
THETA	55.9	61.6	68.8	74.5	79.2	85.1	86.5	88.8	89.1	88.2	85.2	78.4	66.5	65.6	63.5	56.3	50.3	52.5	54.0	54.6	53.9	54.6	53.9	54.6	52.4	51.9
BETA	46.1	69.4	73.8	73.1	74.6	74.6	73.5	73.8	72.5	70.1	70.4	68.1	63.5	56.3	50.3	52.5	54.0	54.6	53.9	54.6	53.9	54.6	53.9	54.6	52.4	51.9
SLANT RANGE 1000 FEET.	55.5	59.3	62.5	64.7	65.0	64.9	64.4	65.0	65.6	65.6	68.7	69.9	67.5	67.5	68.5	68.9	67.5	67.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5
THETA	63.4	64.7	65.9	66.1	70.3	75.8	76.8	78.4	78.4	75.3	73.5	69.9	67.5	67.5	68.5	68.9	67.5	67.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5
BETA	73.2	72.5	70.9	68.5	68.0	66.9	66.7	67.6	68.5	69.7	71.6	70.9	68.5	68.9	68.9	68.9	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5
SLANT RANGE 1000 FEET.	62.3	63.9	71.9	73.2	73.1	74.2	75.9	75.0	74.7	71.4	71.6	71.8	67.3	61.4	61.4	61.4	61.4	61.4	61.4	61.4	61.4	61.4	61.4	61.4	61.4	61.4
THETA	61.0	63.3	67.6	71.7	70.3	71.7	70.5	70.4	69.3	69.0	67.6	66.0	65.7	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6
BETA	62.2	62.1	66.2	71.3	72.6	73.1	71.4	72.0	70.4	67.6	65.2	61.6	60.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1
SLANT RANGE 1000 FEET.	56.6	58.4	60.9	65.9	70.3	71.3	70.6	71.0	69.0	64.9	62.6	58.6	59.0	60.3	60.3	60.3	60.3	60.3	60.3	60.3	60.3	60.3	60.3	60.3	60.3	60.3
THETA	55.1	56.1	57.9	62.2	65.2	68.9	70.5	69.0	67.1	61.8	61.5	55.9	56.3	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8
BETA	52.8	53.8	56.5	61.0	62.7	64.9	65.0	65.3	64.2	61.0	58.4	55.0	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5
SLANT RANGE 1000 FEET.	55.7	56.6	59.1	62.3	63.7	64.7	64.7	64.5	63.5	60.4	58.7	54.4	52.1	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5
THETA	55.1	55.6	57.3	60.0	62.0	63.5	63.9	64.3	63.6	61.1	58.7	53.9	49.0	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2
BETA	50.0	51.1	53.3	57.0	58.3	60.0	60.5	61.0	60.3	57.9	55.4	51.0	46.2	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9
SLANT RANGE 1000 FEET.	43.2	44.5	47.3	52.2	54.2	57.5	58.3	59.1	58.5	56.2	53.7	48.7	45.1	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6
THETA	39.2	40.0	43.3	48.1	50.4	53.6	54.8	55.1	54.6	51.6	50.2	45.5	41.8	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5
BETA	39.6	41.5	45.0	49.6	51.4	53.0	54.1	53.1	52.4	48.3	48.1	43.0	38.7	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3
SLANT RANGE 1000 FEET.	34.8	34.9	40.6	45.3	48.4	49.9	50.5	50.2	49.5	45.8	45.8	41.3	36.3	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4
THETA	27.4	29.6	34.1	38.7	41.6	42.7	43.8	42.8	42.4	38.7	38.7	34.2	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
BETA	27.4	29.6	34.1	38.7	41.6	42.7	43.8	42.8	42.4	38.7	38.7	34.2	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).

BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. 13.b

PIPER PA-31-325 (NAVAJO) AIRCRAFT

1001.154
2/22/89

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

TAKEOFF EVENTS: 1 5 7 9 11

SITE: 31-2 2067 M. NORTH THRESHOLD RWY. 13

JUNE 20, 1978

SLANT RANGE 1000 FEET.		AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)													
THETA	BETA	31.4	40.3	50.5	59.6	70.2	80.4	90.8	101.6	111.8	121.1	131.3	141.3	148.5	158.5
THETA	BETA	31.3	40.3	50.4	59.4	69.9	79.9	85.6	77.8	67.9	58.7	48.6	38.6	31.5	21.5
		AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)													
17	53.5	51.4	49.9	48.1	47.1	45.6	44.9	44.6	46.0	46.0	48.6	50.1	49.9	51.0	51.0
18	54.5	53.5	52.8	51.0	49.5	48.7	47.9	49.1	50.9	51.0	51.0	51.2	53.0	56.2	56.2
19	53.2	51.0	48.5	47.6	50.3	54.3	55.7	56.0	56.2	55.3	55.3	52.9	51.2	54.2	54.2
20	51.9	50.5	53.2	55.7	59.8	66.2	72.6	78.2	80.4	80.8	80.8	78.3	69.6	59.2	59.2
21	62.4	70.7	77.2	78.3	80.1	84.0	87.0	88.3	85.3	85.3	79.4	71.7	63.5	58.2	58.2
22	61.4	66.9	69.0	67.6	67.3	67.7	67.8	68.1	67.4	68.4	67.3	67.0	67.0	62.8	62.8
23	62.7	65.2	64.4	62.6	62.2	63.1	63.6	68.0	70.6	67.5	67.5	69.7	70.9	68.9	68.9
24	67.8	67.8	63.6	68.6	78.4	80.2	77.8	77.5	75.4	69.2	63.4	60.6	60.6	61.5	61.5
25	66.8	64.5	62.5	62.8	65.0	66.8	69.6	69.8	66.6	65.2	69.1	64.7	64.7	60.1	60.1
26	61.8	65.7	67.2	65.2	69.0	73.6	74.7	71.4	66.9	65.1	62.4	67.0	67.0	65.2	65.2
27	61.8	62.1	64.6	65.0	66.2	69.1	70.0	67.5	62.3	60.9	60.0	58.9	58.9	60.4	60.4
28	59.2	57.9	60.7	64.1	65.3	64.8	64.9	61.4	58.6	57.1	56.0	56.0	56.0	57.6	57.6
29	55.5	55.2	55.8	60.7	63.6	62.9	61.9	59.1	56.6	56.0	56.8	56.8	56.8	56.1	56.1
30	54.0	53.8	54.9	57.8	61.6	62.0	60.0	57.9	55.6	53.5	54.2	53.9	53.9	54.1	54.1
31	53.3	54.0	55.2	56.5	59.1	60.5	60.8	59.2	56.5	54.1	51.9	53.9	53.9	53.1	53.1
32	56.0	58.2	61.4	62.3	62.9	63.9	63.3	60.3	57.2	53.9	50.6	52.6	52.6	51.0	51.0
33	55.0	56.5	58.1	58.9	59.8	61.7	61.9	60.1	56.7	52.3	48.3	49.8	49.8	49.4	49.4
34	49.5	51.0	53.4	55.4	57.2	59.1	59.8	57.1	53.7	49.4	46.6	47.5	47.5	48.6	48.6
35	42.9	44.1	47.0	49.8	53.1	55.4	56.6	55.0	51.3	46.9	45.8	44.7	44.7	50.8	50.8
36	39.7	40.0	42.7	46.1	49.3	51.5	52.3	50.4	47.0	43.6	43.0	43.4	43.4	43.2	43.2
37	-	38.7	42.7	45.4	47.6	49.2	49.3	47.2	43.6	40.3	38.5	38.1	38.1	-	-
38	-	-	36.2	40.3	44.0	45.5	44.9	42.6	39.3	36.0	-	-	-	-	-
39	-	-	-	-	34.2	35.7	35.2	33.1	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M.13.c

PIPER PA-31-325 (NAVAJO) AIRCRAFT

001-TSC
2/26/80

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

TAKEOFF EVENTS: 1 5 7 9 11

SITE: 31-3 3520 M. NORTH THRESHOLD RNMV. 13

JUNE 20, 1978

SLANT RANGE 1000 FEET.

	29.8	39.2	49.4	59.3	70.1	80.3	89.6	99.9	109.1	119.7	128.3	136.0	145.6
THETA	29.8	39.2	49.4	59.3	70.1	80.3	89.6	99.9	109.1	119.7	128.3	136.0	145.6
BETA	29.5	38.9	48.9	58.6	68.9	78.0	82.9	77.9	69.8	59.9	51.4	44.0	34.3

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

	53.0	51.2	54.0	55.3	51.6	48.9	50.4	50.6	51.4	49.2	52.3
17	53.0	51.2	54.0	55.3	51.6	48.9	50.4	50.6	51.4	49.2	52.3
18	55.6	55.3	53.8	55.7	52.3	51.0	51.2	49.6	50.9	52.1	55.7
19	57.7	57.1	53.0	56.5	58.7	55.1	54.8	54.8	54.4	57.1	61.5
20	56.2	53.4	55.3	62.7	74.4	77.8	79.3	79.7	77.5	58.9	58.9
21	66.4	75.9	76.6	82.6	87.4	87.9	88.0	83.7	81.0	75.9	70.8
22	63.6	68.5	67.4	69.4	70.2	68.2	67.1	67.3	70.5	62.3	60.5
23	67.1	65.6	66.4	64.3	64.1	65.9	67.1	67.9	64.7	69.2	73.8
24	72.9	71.6	66.7	75.8	77.0	77.7	76.4	74.2	67.6	63.4	64.2
25	69.6	65.9	64.0	65.6	66.1	66.8	65.9	64.7	67.1	67.5	68.1
26	61.5	71.1	71.8	66.0	67.2	69.4	68.3	66.0	64.0	64.0	66.5
27	63.7	63.3	71.1	70.3	68.4	66.3	66.0	64.6	63.9	62.2	58.5
28	60.1	60.3	66.1	69.0	68.6	68.0	65.8	64.0	59.7	56.0	55.4
29	57.8	58.9	61.0	66.8	68.7	68.4	65.9	61.3	59.4	58.7	58.5
30	56.4	57.3	59.1	61.9	64.0	64.8	63.3	60.9	59.6	57.2	57.0
31	56.9	57.6	59.6	61.3	62.9	63.9	63.4	62.1	60.4	58.3	54.9
32	61.3	61.9	64.4	66.4	66.6	65.6	63.5	61.1	59.1	55.8	53.9
33	60.3	60.5	62.0	63.6	64.6	64.2	63.3	61.4	59.3	53.8	50.8
34	54.7	56.4	59.2	61.1	63.4	63.0	61.6	59.0	56.6	50.8	49.8
35	48.8	51.3	54.2	57.1	60.0	60.1	58.1	55.4	52.5	48.5	46.8
36	51.6	48.4	50.3	53.7	56.0	56.3	54.0	50.9	48.6	45.9	44.1
37	49.3	45.5	48.6	51.0	52.8	52.9	50.1	46.4	44.6	41.4	39.7
38	-	-	-	47.0	50.2	51.3	46.2	41.8	39.9	-	-
39	-	-	-	-	-	50.9	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. 14.a

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/11/80

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

TAKEDOFF EVENTS: 24,26,28,30

SITE: 31-1 84 M. NORTH THRESHOLD RNNY. 13 JUNE 20,1978

SLANT RANGE 1000 FEET.

	32.4	41.1	49.1	60.5	69.6	79.1	88.7	99.9	107.9	119.4	129.4	138.9	148.8
THETA	32.4	41.1	49.1	60.5	69.6	79.1	88.7	99.9	107.9	119.4	129.4	138.9	148.8
BETA	32.3	41.1	49.1	60.4	69.5	78.9	86.2	79.7	71.9	60.5	50.5	41.1	31.2

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

	63.5	62.6	61.3	62.1	61.7	62.2	62.3	62.7	64.2	67.5	72.4	74.2	74.0
17	63.5	62.6	61.3	62.1	61.7	62.2	62.3	62.7	64.2	67.5	72.4	74.2	74.0
18	64.9	65.0	64.6	66.4	67.4	68.5	70.2	74.5	77.6	80.5	83.6	81.2	76.0
19	78.3	77.8	78.5	77.9	76.8	74.7	71.3	66.4	65.0	64.3	62.7	64.3	67.1
20	66.3	64.2	62.8	61.3	63.3	66.1	67.9	69.2	70.0	69.6	66.9	60.7	62.3
21	61.1	60.2	65.9	70.7	78.5	82.4	85.8	86.7	87.2	85.0	79.5	70.2	60.2
22	64.7	74.1	79.8	82.4	85.6	85.3	84.4	81.2	78.6	75.8	74.3	72.1	64.8
23	64.7	68.5	70.4	71.2	71.6	71.3	71.1	71.0	71.7	73.6	74.3	74.7	69.4
24	70.5	71.9	72.6	70.9	69.3	69.9	71.7	73.6	74.2	72.5	69.1	71.2	71.6
25	71.8	70.6	69.3	69.5	71.6	73.1	73.6	73.8	74.3	76.0	75.4	70.7	66.7
26	67.8	66.5	67.9	69.6	69.0	69.1	70.3	72.4	74.1	74.2	72.0	70.4	61.5
27	66.2	67.4	67.6	67.7	69.4	70.9	71.8	73.4	74.9	75.9	74.0	67.5	62.7
28	68.2	68.3	68.1	68.4	69.8	71.4	73.2	75.2	76.4	76.1	72.7	66.6	61.8
29	66.5	66.9	67.9	67.5	68.5	69.5	70.9	73.1	74.8	74.6	70.4	64.8	61.7
30	66.3	65.5	65.7	66.4	68.4	69.9	71.2	72.8	74.0	74.1	69.6	63.2	60.8
31	65.8	65.0	65.7	65.9	67.3	68.5	70.0	71.6	72.9	72.9	67.7	62.4	60.3
32	65.2	64.1	64.4	65.0	65.9	66.8	67.9	69.2	70.2	70.2	65.6	61.1	59.3
33	65.4	63.8	64.1	64.0	65.0	65.4	65.8	66.6	67.2	66.4	62.4	59.5	58.3
34	64.2	62.9	62.9	62.9	63.2	63.4	64.0	64.6	65.3	64.0	60.5	58.7	57.9
35	62.8	61.7	61.8	61.4	61.5	61.7	61.9	62.2	62.7	61.5	57.7	56.5	56.3
36	59.6	58.3	58.3	57.5	57.5	57.3	57.5	57.5	58.0	57.0	53.6	52.5	52.1
37	55.1	54.2	54.5	54.1	53.9	53.6	53.3	53.2	53.6	52.7	49.5	47.5	46.7
38	50.4	49.8	50.4	50.2	50.2	50.0	49.6	49.0	49.1	48.1	45.1	42.9	-
39	-	-	42.4	42.9	43.2	43.2	42.9	42.4	42.2	41.2	38.2	-	-
40	-	-	-	-	34.8	34.8	34.6	34.0	33.5	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. N.14.b

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

TAKEOFF EVENTS: 24,26,28,30

SITE: 31-2 2067 M. NORTH THRESHOLD RNMV. 13

JUNE 20, 1978

SLANT RANGE 1000 FEET.

	THETA	BETA	28.7	38.3	48.8	59.6	67.7	79.3	89.1	99.9	109.4	118.5	128.9	138.9	146.6
			28.7	38.3	48.7	59.5	67.6	79.1	86.6	79.7	70.4	61.4	51.0	41.1	33.3

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
	63.6	64.4	78.8	70.2	59.6	65.4	65.8	71.9	71.4	66.1	66.0	68.6	68.0	66.2	65.8	64.8	65.1	63.9	61.9	58.9	53.0	-	-	-
	61.4	62.8	76.3	64.7	62.3	73.7	69.1	73.1	67.6	70.1	68.5	67.6	69.2	67.4	67.4	65.0	64.5	63.1	61.5	58.8	52.8	-	-	-
	60.6	63.9	74.0	63.1	62.3	81.9	71.0	70.8	72.8	68.7	66.9	66.2	69.2	67.2	67.0	65.9	65.4	63.5	62.0	58.6	53.2	46.9	-	-
	59.8	65.4	71.7	64.9	68.2	86.6	68.9	67.8	74.0	67.0	66.7	66.2	70.5	69.4	68.1	68.5	66.8	65.9	61.4	56.3	52.2	45.0	-	-
	60.2	73.7	71.2	69.6	84.3	85.6	65.5	74.3	72.2	71.6	74.5	65.5	73.4	70.6	69.5	70.6	66.3	64.8	62.5	56.7	51.0	44.5	-	-
	59.9	73.4	66.6	69.3	85.9	77.4	66.8	74.7	71.6	72.5	73.8	74.8	76.3	73.0	70.7	68.9	63.5	61.4	58.7	55.8	49.5	-	-	-
	62.5	76.6	63.6	69.3	83.9	72.9	66.8	74.3	74.6	75.8	76.6	74.6	72.8	70.7	68.9	66.1	63.5	61.0	59.2	57.6	53.2	47.4	-	-
	66.2	79.5	62.4	68.8	81.5	73.1	68.8	74.6	74.6	78.9	73.9	74.6	68.9	67.0	65.7	63.6	61.9	60.6	58.8	54.8	50.0	-	-	-
	71.9	80.8	59.5	66.3	75.6	72.8	71.5	73.8	74.6	70.8	70.9	68.7	66.2	64.8	64.8	62.8	61.9	59.2	57.6	53.2	49.9	47.4	-	-
	77.1	80.7	64.2	63.3	68.1	71.6	72.5	67.6	74.3	70.9	65.7	68.7	66.9	60.4	60.3	59.6	57.5	56.8	53.2	49.9	48.8	-	-	-
	73.8	71.3	63.0	59.5	60.1	69.1	70.2	69.3	67.6	62.4	62.4	64.5	60.3	58.3	57.5	56.8	53.2	49.9	48.8	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. 14.c

CONVAIR CV-580 AIRCRAFT

DOT/TSC
2/22/80

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

TAKEOFF EVENTS: 24,26,28,30

SITE: 31-3 3520 M. NORTH THRESHOLD RNNY, 13

JUNE 20, 1978

SLANT RANGE 1000 FEET.

	THETA	31.1	41.7	50.9	62.0	71.5	82.5	91.2	100.7	111.1	121.5	131.4	141.6	150.8
BETA		30.9	41.3	50.2	61.1	70.0	79.2	82.1	76.9	67.6	57.7	48.0	38.0	28.8

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
THETA	68.0	67.8	81.5	72.0	61.3	79.7	72.0	76.8	72.5	68.2	73.3	71.2	75.8	74.5	73.2	73.3	74.0	73.6	71.8	69.2	65.2	-	-	-	-
BETA	64.8	66.9	79.4	66.1	64.9	64.9	68.5	67.6	67.5	71.4	67.3	71.4	73.8	74.5	71.1	70.2	69.7	69.7	70.1	66.3	59.3	-	-	-	-
THETA	61.1	63.5	68.7	64.0	64.0	79.4	68.5	69.8	72.3	67.1	69.4	70.0	72.7	72.4	70.3	73.4	69.8	67.7	66.5	61.7	54.9	-	-	-	-
BETA	60.8	65.2	66.8	66.1	66.3	79.4	68.5	72.3	70.5	68.6	68.2	69.4	73.7	74.7	70.6	72.3	68.9	67.6	65.9	61.5	49.8	-	-	-	-
THETA	62.0	73.6	65.6	66.6	66.2	85.4	71.7	72.8	70.2	70.9	69.3	71.4	76.5	77.6	77.4	74.5	70.2	67.6	65.9	62.2	56.9	-	-	-	-
BETA	66.0	78.9	62.0	66.7	66.7	80.1	67.8	69.1	70.8	70.8	72.0	72.0	77.0	75.8	75.6	72.1	68.6	66.8	64.4	60.8	56.0	-	-	-	-
THETA	69.8	78.9	62.6	65.1	65.1	74.9	71.3	66.3	64.3	68.9	69.7	68.5	74.3	69.7	70.2	67.8	65.7	64.4	61.9	60.1	-	-	-	-	-
BETA	74.6	79.3	65.5	63.1	63.1	70.0	70.5	70.2	68.8	69.3	69.7	71.0	68.8	69.7	70.4	67.4	65.2	64.4	61.7	60.1	-	-	-	-	-
THETA	77.1	75.0	67.7	61.6	61.6	70.0	67.3	65.1	63.3	67.2	65.3	66.1	68.8	69.0	70.4	67.4	65.2	62.7	60.8	61.0	-	-	-	-	-
BETA	79.5	73.1	65.3	63.8	63.8	67.9	70.0	66.6	67.1	62.1	62.4	67.1	66.9	65.2	66.0	63.7	62.4	62.7	60.8	61.0	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. H. 15. a

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DOT/TSC
2/12/80

TAKEOFF EVENTS: 1 15 19

SITE: 31-1 84 M. NORTH THRESHOLD RHWY. 13

JUNE 21, 1978

SLANT RANGE 1000 FEET.

	29.8	39.2	49.6	61.7	72.2	81.1	89.7	99.5	110.3	119.0	130.6	140.1	150.4
THETA	29.8	39.2	49.6	61.7	72.2	81.1	89.7	99.5	110.3	119.0	130.6	140.1	150.4
BETA	29.6	39.0	49.3	61.2	71.4	79.0	84.7	79.0	68.9	60.5	49.1	39.6	29.5

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

	54.5	52.6	51.0	52.1	51.9	51.8	49.9	52.1	55.4	55.3	52.2	53.0	54.3
17	54.5	52.6	51.0	52.1	51.9	51.8	49.9	52.1	55.4	55.3	52.2	53.0	54.3
18	55.0	52.9	51.6	50.9	50.7	51.0	50.4	52.1	53.0	52.5	52.8	55.0	57.9
19	57.7	56.5	55.6	54.1	55.3	57.8	59.6	61.8	63.0	62.5	60.2	59.9	64.8
20	61.3	58.9	57.6	60.8	68.1	74.4	80.8	85.8	88.0	86.8	80.2	68.9	67.2
21	69.2	62.6	68.6	74.8	79.3	81.6	83.8	84.1	82.6	80.0	75.9	72.2	67.9
22	61.2	69.9	72.7	74.4	77.0	77.4	81.1	86.0	90.1	92.2	90.3	83.8	75.6
23	75.2	82.5	83.1	80.7	77.8	74.1	74.3	74.9	75.2	75.2	73.4	69.4	61.4
24	72.0	76.5	78.9	78.5	76.5	74.5	69.1	66.8	66.5	64.9	63.8	64.3	66.9
25	64.5	64.8	65.5	69.9	74.3	78.0	76.5	75.5	74.8	75.8	72.8	66.4	68.9
26	67.5	64.6	73.4	77.0	78.3	77.7	76.9	75.1	73.2	71.4	67.5	70.2	60.4
27	62.8	65.2	67.7	75.4	79.7	79.6	78.8	76.5	72.5	70.7	69.9	67.9	64.3
28	62.6	62.7	64.6	68.3	71.0	71.7	72.4	71.2	68.9	66.7	64.8	65.5	60.0
29	57.4	58.5	61.7	68.5	69.0	66.8	67.3	64.6	63.1	61.0	59.7	59.6	55.0
30	55.7	55.8	58.3	61.6	63.9	63.2	63.9	62.4	60.4	58.4	57.9	57.9	53.5
31	54.8	54.9	56.4	58.5	59.1	59.1	59.3	59.4	59.6	58.5	55.7	55.7	52.6
32	54.8	55.8	56.8	57.2	57.4	58.6	59.7	61.2	61.0	59.4	53.3	51.7	49.5
33	52.4	52.2	53.8	54.6	55.1	56.9	57.3	58.3	58.5	57.6	53.4	47.4	45.2
34	46.7	46.6	47.6	48.4	49.3	51.1	51.7	53.5	55.2	55.1	53.2	47.8	43.6
35	44.3	43.9	45.2	45.8	47.1	48.8	49.9	52.0	52.6	52.4	51.9	49.1	42.6
36	43.0	43.0	45.0	46.5	48.4	50.2	50.9	52.1	52.4	51.9	50.2	46.9	40.8
37	39.7	39.5	41.1	42.5	44.2	45.8	47.1	48.4	48.5	48.4	47.2	42.9	-
38	34.9	35.0	36.5	39.3	42.1	44.3	45.7	46.9	46.5	45.7	43.7	-	-
39	29.3	29.4	31.8	35.4	38.2	40.8	42.6	43.7	43.1	41.9	39.7	-	-
40	-	21.6	23.6	26.4	28.6	30.7	32.3	33.1	32.3	31.1	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. 15.D

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DUT/ISC
2/23/80

TAKEDOFF EVENTS: 1 3 5 9

SITE: 31-2 2067 M. NORTH THRESHOLD RHWY. 13 JUNE 21, 1978

SLANT RANGE 1000 FEET.		AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)													
THETA	BETA	31.3	41.4	51.8	61.3	71.1	81.9	91.5	101.7	111.6	121.8	131.6	141.3	150.2	29.8
17	51.5	50.4	49.2	48.8	48.5	48.2	48.2	47.1	48.0	47.6	49.2	50.4	52.4	54.3	52.4
18	52.4	50.1	49.2	47.8	47.2	47.2	48.2	48.7	49.6	50.6	52.0	55.3	54.3	54.3	52.4
19	56.9	55.8	51.5	50.9	54.8	60.1	63.3	65.6	68.7	66.6	57.6	66.6	67.5	67.5	52.4
20	63.9	56.8	57.3	48.1	72.8	76.8	77.3	76.2	74.0	68.1	56.7	59.9	65.0	65.0	52.4
21	61.2	60.9	65.3	69.0	72.6	75.6	79.3	81.2	82.3	79.9	71.7	72.6	62.3	62.3	52.4
22	71.5	80.2	83.2	84.7	85.1	83.9	82.9	79.6	74.2	71.5	71.7	69.7	62.6	62.6	52.4
23	67.6	68.8	69.6	69.7	68.4	67.2	66.4	68.1	74.6	74.6	68.5	68.1	66.5	66.5	52.4
24	66.8	65.8	61.8	60.1	63.3	67.2	66.4	68.1	74.6	74.6	68.5	67.2	71.6	71.6	52.4
25	67.8	63.5	68.6	70.2	72.3	75.9	72.2	65.2	67.7	66.7	64.3	60.2	61.2	61.2	52.4
26	60.2	61.9	63.2	60.7	61.4	62.5	63.1	64.1	62.0	59.4	60.5	62.5	60.6	60.6	52.4
27	63.4	62.3	59.7	62.7	61.2	59.8	59.7	61.4	61.5	62.3	66.3	65.6	64.6	64.6	52.4
28	63.1	59.5	60.4	58.3	58.2	59.4	59.4	60.4	61.9	61.5	61.8	63.8	59.9	59.9	52.4
29	57.6	55.4	53.4	53.1	52.7	53.3	54.1	55.5	55.7	55.4	56.9	58.7	56.4	56.4	52.4
30	54.6	53.8	51.8	51.7	52.4	52.7	53.3	54.6	53.5	53.2	53.8	56.5	54.9	54.9	52.4
31	54.5	53.9	53.8	53.8	54.0	54.9	55.6	56.0	53.9	51.8	52.6	54.2	54.4	54.4	52.4
32	56.4	54.6	53.8	54.2	54.1	55.6	57.7	57.2	55.7	53.5	49.7	50.8	50.5	50.5	52.4
33	53.2	50.7	50.0	50.7	50.9	52.7	54.6	55.2	55.7	53.8	49.5	46.2	46.7	46.7	52.4
34	48.7	47.4	46.7	46.8	47.7	49.6	51.3	52.7	53.8	53.7	50.7	46.8	45.1	45.1	52.4
35	45.5	44.4	44.6	45.1	45.8	47.0	48.2	49.4	49.1	50.1	49.1	46.7	44.7	44.7	52.4
36	45.8	43.2	42.9	43.7	44.6	46.1	47.7	48.6	48.1	47.8	46.8	45.8	49.9	49.9	52.4
37	51.4	46.8	43.8	42.6	42.7	43.4	44.8	45.7	46.1	46.5	47.5	51.0	58.2	58.2	52.4
38	-	-	33.5	34.6	36.5	39.1	41.4	42.2	41.3	40.0	38.0	-	-	-	52.4
39	-	-	-	-	30.5	33.2	34.9	35.4	35.0	33.8	-	-	-	-	52.4
40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52.4

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. 15.c

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DOT/ISC
2/23/80

TAKEOFF EVENTS: 1, 3, 5

SITE: 31-3 3520 M. NORTH THRESHOLD RNMV. 13 JUNE 21, 1978

SLANT RANGE 1000 FEET.
THETA 30.5 40.4 51.3 60.5 71.3 80.0 90.2 100.9 110.7 121.0 130.6 141.2 148.5
BETA 30.2 39.9 50.5 59.4 69.5 76.6 80.9 75.6 67.5 57.8 48.7 38.5 31.4

AVERAGE SOUND PRESSURE LEVEL (db re 20 micro PASCAL)

17	56.5	54.9	52.4	51.3	51.8	51.1	50.5	49.9	50.1	51.9	52.4	54.9	56.2
18	58.5	55.9	54.3	53.6	52.1	52.8	53.3	53.7	53.6	55.3	58.4	55.3	59.4
19	61.4	57.0	56.6	60.5	64.3	65.4	65.9	63.2	57.8	57.7	61.5	62.8	71.3
20	60.8	68.8	73.0	76.4	76.4	73.4	70.0	65.4	61.1	58.0	55.6	56.6	60.7
21	64.1	68.8	73.9	77.9	80.9	83.7	83.7	82.2	81.6	77.7	68.9	61.3	62.9
22	84.2	86.1	85.7	85.0	82.2	80.7	75.2	71.4	69.3	66.8	64.5	64.3	54.9
23	73.5	71.0	69.9	68.5	69.1	70.6	69.1	64.4	63.9	64.9	66.2	64.5	61.5
24	69.8	66.0	63.8	67.2	68.1	68.4	70.3	68.0	65.2	58.9	66.4	69.7	61.9
25	67.6	71.9	74.9	74.2	70.2	67.3	63.8	64.8	64.5	62.2	58.0	60.5	63.3
26	65.6	65.8	62.3	65.0	64.2	63.0	61.8	59.1	58.1	58.3	62.3	62.6	54.0
27	65.0	63.8	62.7	61.1	60.2	60.3	59.1	60.7	63.8	63.3	60.8	65.7	62.7
28	63.7	62.8	61.8	60.6	61.3	61.5	60.6	60.0	59.1	59.2	59.8	58.5	58.6
29	57.4	55.7	53.5	54.2	53.9	55.7	55.8	55.0	53.0	52.9	54.2	56.8	55.6
30	54.6	53.2	53.3	52.7	54.2	55.7	53.9	53.5	53.1	50.8	51.7	54.5	54.3
31	56.1	55.0	54.2	55.1	55.1	55.8	54.1	52.4	51.1	50.2	51.8	55.0	53.0
32	57.2	54.9	54.8	55.6	55.9	56.0	53.2	51.8	50.3	44.6	46.0	55.7	48.5
33	54.0	51.4	51.3	51.9	53.3	54.1	52.8	50.9	48.2	43.6	42.1	55.1	44.2
34	50.7	49.9	49.8	50.4	51.2	52.1	52.2	50.9	48.7	43.7	42.5	51.6	43.6
35	-	48.4	48.2	48.4	49.0	49.5	48.4	47.1	46.0	41.9	40.9	45.9	42.2
36	-	-	47.4	47.2	47.7	47.5	45.7	43.9	42.3	39.4	-	41.1	-
37	-	-	43.3	44.2	44.6	44.8	43.0	40.6	-	-	-	40.3	-
38	-	-	-	-	42.1	42.5	39.3	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. 16.a

CESSNA 172N (SKYHAWK) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DOT/TSC
2/12/80

TAKEOFF EVENTS: 17,19,21,23,25,27

SITE: 31-1 84 N. NORTH THRESHOLD RWY. 13 JUNE 21, 1978

SLANT RANGE 1000 FEET.

THETA	29.5	39.6	49.8	58.3	70.8	79.5	88.5	99.0	111.0	118.7	129.2	139.3	149.5
BETA	29.3	39.3	49.3	57.7	69.7	77.2	83.8	79.2	68.1	60.7	50.3	40.5	30.4

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	49.5	48.2	48.1	46.5	45.6	44.8	44.5	46.0	47.6	48.4	50.0	50.6	52.9
18	53.6	51.8	50.3	49.0	47.2	47.4	48.3	49.4	49.6	49.2	53.4	57.2	60.5
19	72.7	70.9	67.9	64.2	58.0	61.8	65.9	66.6	64.5	60.4	63.3	67.3	69.3
20	76.3	72.4	67.4	62.9	54.5	55.2	57.1	57.1	55.4	53.3	50.5	49.5	52.6
21	52.4	48.9	48.8	51.3	53.0	54.8	55.5	56.7	57.7	57.6	55.6	54.1	52.2
22	49.7	59.9	48.1	71.3	72.5	71.9	72.0	71.5	70.5	69.8	65.8	63.9	59.2
23	52.2	60.4	45.9	67.0	65.4	63.0	61.0	58.9	56.5	56.0	58.1	60.7	56.4
24	56.8	58.1	59.1	58.3	60.4	65.1	67.2	64.0	64.0	58.2	56.0	60.5	55.6
25	59.4	54.7	54.0	58.7	63.7	65.2	66.1	66.1	65.8	64.7	61.7	52.9	54.5
26	60.5	55.7	57.1	57.7	58.8	61.6	63.4	63.8	60.8	56.1	54.5	57.2	53.1
27	54.4	54.6	55.8	57.6	58.9	58.7	58.3	57.9	58.2	57.2	58.0	56.8	58.0
28	57.3	58.5	60.2	61.0	61.1	61.1	60.7	61.4	62.6	62.9	60.8	60.9	57.4
29	57.3	57.7	59.3	60.0	61.3	60.6	60.3	59.8	58.9	58.3	56.8	57.3	57.0
30	54.7	55.4	54.2	56.8	57.7	57.3	57.4	57.3	55.4	54.5	52.7	51.7	52.1
31	54.8	53.0	54.0	55.3	56.8	57.7	57.1	58.2	57.5	55.8	54.2	51.4	53.9
32	52.3	53.0	54.2	55.7	56.6	55.8	55.1	55.3	54.7	53.8	51.6	49.5	47.9
33	51.3	50.1	51.4	52.6	53.2	52.4	51.2	52.3	52.4	52.2	52.0	49.2	46.0
34	48.7	49.6	51.2	52.4	52.8	51.3	50.3	49.9	49.5	50.0	51.0	49.2	44.5
35	48.1	47.6	48.2	49.2	49.7	48.1	46.7	46.7	46.8	47.7	48.1	47.1	41.5
36	45.6	45.1	44.4	47.0	47.7	46.1	44.4	43.9	44.0	44.8	45.6	45.2	40.9
37	42.7	41.8	42.8	43.1	43.0	41.4	39.4	40.1	40.7	41.9	43.0	41.9	38.4
38	39.4	34.3	37.2	37.3	37.2	35.7	34.1	34.5	35.4	36.8	37.5	36.3	-
39	34.5	27.6	28.7	28.9	28.8	27.4	25.8	26.7	27.5	29.3	29.6	28.4	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M.18.a

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DOT/ISC
2/12/80

TAKEOFF EVENTS: 5, 7, 9

SITE: 31-1 84 M. NORTH THRESHOLD RNMV. 13 JUNE 23, 1978

SLANT RANGE 1000 FEET.

THETA	31.2	40.2	50.8	56.5	67.1	80.3	90.6	99.9	109.9	119.3	126.8	137.4	147.5
BETA	30.7	39.5	49.9	56.5	65.7	77.1	85.3	77.1	68.5	59.7	52.1	42.2	32.2

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	50.1	49.7	49.5	52.4	47.0	52.7	58.2	56.6	55.1	54.4	56.3	56.9	58.4
18	55.8	58.7	56.3	56.7	52.1	52.9	57.2	62.0	62.1	62.1	71.8	80.9	82.9
19	63.0	70.2	66.4	60.3	56.9	57.8	73.3	77.7	76.7	73.5	74.5	75.3	70.7
20	75.7	75.7	71.3	54.7	65.5	60.3	61.0	61.9	60.7	59.1	57.4	56.4	52.5
21	56.9	54.5	50.9	56.6	58.2	63.1	64.2	66.7	70.7	73.9	75.7	76.5	68.5
22	51.2	59.7	64.6	77.2	80.6	85.0	84.0	83.1	84.8	84.0	81.9	75.4	61.4
23	56.7	63.3	65.2	71.2	71.6	72.9	70.3	68.4	67.3	64.4	64.0	68.4	65.4
24	60.0	69.5	69.3	65.2	62.5	64.8	70.7	70.4	70.0	68.0	62.3	60.2	61.2
25	62.9	64.6	63.5	62.5	68.5	70.7	73.7	72.0	71.0	70.8	68.2	63.0	56.4
26	61.8	60.3	58.7	63.8	62.1	63.5	66.5	65.3	64.2	63.8	61.9	62.2	60.5
27	59.8	59.9	61.2	59.7	61.1	62.3	63.4	62.8	62.6	62.5	63.5	62.2	59.4
28	58.7	61.1	60.1	62.0	59.8	60.3	60.6	61.2	62.7	63.1	63.5	62.4	59.5
29	62.5	62.0	63.4	63.2	61.1	60.3	60.2	61.3	62.2	61.9	61.5	59.7	57.8
30	58.8	58.9	59.7	59.3	58.6	58.2	58.5	59.4	60.2	61.2	60.1	58.9	56.8
31	57.4	56.6	57.4	59.4	56.9	56.9	57.9	58.8	60.0	60.9	59.9	58.4	55.6
32	57.6	56.6	57.2	60.3	57.3	57.4	58.8	58.6	59.5	60.3	59.9	57.8	55.3
33	57.2	56.0	56.3	60.1	55.9	56.6	58.0	58.2	60.0	60.5	60.6	58.2	55.1
34	56.3	54.2	56.3	59.2	55.9	56.1	57.0	57.5	59.2	59.7	59.5	57.4	54.4
35	54.5	54.3	55.1	57.5	54.5	54.4	55.6	55.6	57.2	57.3	57.7	55.7	52.9
36	53.1	51.7	52.2	54.8	51.5	51.3	52.3	53.2	54.8	55.0	55.2	54.1	51.2
37	48.6	47.3	47.9	50.0	47.4	47.9	45.1	50.4	51.9	53.1	53.1	51.3	48.9
38	42.3	42.7	43.5	44.1	43.6	43.9	45.0	45.8	46.8	47.7	47.3	46.5	44.5
39	-	-	34.6	35.3	35.3	36.5	37.7	39.4	40.8	41.8	-	-	38.7
40	-	-	-	-	-	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M. 18.b

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT DUT/ISC
2/23/80
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

TAKEOFF EVENTS: 5, 7, 9

SITE: 31-2 2067 M. NORTH THRESHOLD RNNY. 13 JUNE 23, 1978

SLANT RANGE 1000 FEET.

THETA	30.9	40.7	51.6	61.2	70.9	80.7	90.5	100.9	110.4	120.6	130.8	140.7	150.4
BETA	30.8	40.6	51.5	61.1	70.6	80.2	86.5	78.9	69.5	59.3	49.2	39.3	29.6

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	50.8	50.3	48.1	53.7	52.0	53.0	52.6	52.5	52.9	53.1	53.2	55.2	57.5
18	54.1	55.8	53.0	54.3	59.5	64.4	67.5	68.7	67.9	70.9	73.4	76.5	71.3
19	64.6	62.8	60.2	66.8	77.3	80.9	81.1	79.0	72.6	70.2	65.7	65.1	60.6
20	73.9	68.6	59.0	57.6	62.3	63.1	62.3	58.5	56.3	55.5	53.8	52.2	53.3
21	53.9	54.1	57.3	63.0	66.1	66.6	67.2	72.3	74.2	75.8	73.3	64.2	55.0
22	67.4	74.6	72.5	83.6	85.4	84.6	82.4	82.0	79.1	75.3	69.4	59.0	55.4
23	71.6	72.9	69.4	70.6	70.8	69.0	66.6	66.0	60.2	60.6	64.0	60.3	57.9
24	64.9	64.3	60.6	68.8	73.7	71.7	73.1	68.8	61.5	60.1	56.8	56.3	56.9
25	64.9	65.8	67.2	68.1	70.4	68.4	66.9	65.7	63.8	64.3	63.0	55.0	53.6
26	58.4	64.6	63.1	63.8	66.4	66.4	65.0	62.9	62.2	60.8	59.0	59.5	53.7
27	62.8	62.4	61.9	64.1	62.5	60.0	60.5	60.4	61.1	61.4	60.6	55.8	57.7
28	61.1	62.9	60.5	60.4	60.5	60.3	61.1	61.2	62.0	62.5	58.7	58.9	54.1
29	62.3	62.7	61.2	60.4	59.6	59.1	60.6	60.2	60.4	60.2	57.6	57.3	52.6
30	61.0	60.2	59.6	58.8	58.7	58.3	59.9	59.6	58.8	58.5	56.7	56.2	53.1
31	59.0	58.6	57.9	58.5	58.4	57.1	59.4	59.6	59.1	58.4	56.6	57.4	53.2
32	58.4	58.4	57.7	59.6	58.7	58.1	59.3	60.8	58.9	57.9	56.0	57.4	52.6
33	56.4	57.4	57.0	57.3	57.3	57.6	58.5	62.1	59.7	58.5	56.3	57.8	53.4
34	55.7	57.6	56.1	56.2	56.2	55.9	57.5	60.9	58.9	56.6	55.7	57.8	58.8
35	53.4	54.1	52.8	53.2	53.3	53.0	54.3	55.9	54.4	53.0	52.0	-	59.6
36	53.4	50.9	49.3	49.0	49.3	49.6	50.9	52.2	51.3	51.6	-	-	-
37	-	-	-	-	43.9	-	45.2	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M.18.c

ROCKWELL 6908 (TURBO COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DOT/TSC
2/23/80

TAKEOFF EVENTS: 5,9

SITE: 31-3 3520 M. NORTH THRESHOLD RNMV. 13 JUNE 23, 1978

SLANT RANGE 1000 FEET.

THETA	33.1	43.4	53.7	63.6	72.6	82.9	92.5	102.1	113.3	122.9
BETA	32.9	43.3	53.6	63.4	72.3	82.1	85.8	77.4	66.6	57.0

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	55.1	54.3	57.5	55.8	55.8	57.3	56.3	57.2	56.1	58.0
18	62.5	58.4	59.9	60.9	65.9	68.6	62.1	66.3	64.5	72.0
19	65.5	67.1	75.8	75.1	76.7	76.9	67.9	67.7	63.6	66.5
20	66.0	59.7	62.2	61.5	59.9	59.2	57.8	58.2	56.8	57.4
21	57.2	63.3	66.6	69.9	69.8	66.8	75.6	78.9	76.7	74.9
22	68.5	83.1	85.3	85.7	82.8	73.2	78.4	76.9	71.2	67.1
23	71.4	74.8	70.9	67.8	67.6	63.8	59.8	57.7	64.2	64.6
24	68.3	72.2	75.9	73.1	70.0	65.1	61.0	59.1	58.8	54.9
25	66.5	73.4	69.1	72.0	69.9	69.2	63.1	61.9	61.7	59.8
26	69.4	67.1	67.1	65.9	65.4	62.9	61.6	60.5	58.3	57.8
27	64.4	68.6	64.7	62.5	61.5	60.2	58.7	58.6	58.6	59.3
28	64.4	65.9	63.9	61.6	61.4	61.4	61.6	60.6	59.7	57.7
29	65.7	66.4	63.9	62.2	61.2	60.9	60.2	60.0	60.2	59.6
30	62.9	62.4	61.1	59.4	60.3	60.7	60.2	59.8	60.3	60.3
31	61.7	62.5	60.7	59.6	59.2	59.4	60.5	58.5	60.0	61.6
32	61.2	61.9	60.8	61.0	60.3	59.6	60.3	57.9	58.5	62.5
33	60.9	62.2	61.6	61.4	60.4	61.1	60.1	57.2	57.0	61.0
34	60.4	61.9	61.5	61.0	59.9	61.9	59.3	55.5	54.9	60.7
35	58.5	58.5	57.1	57.0	57.4	57.3	56.2	53.1	52.4	58.9
36	56.9	54.9	54.1	53.4	53.2	52.0	50.3	48.3	51.5	57.3
37	65.6	50.8	52.1	48.9	50.1	48.2	48.7	48.9	53.0	58.2
38	63.3	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M. 19. a

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DOT/TSC
2/12/80

TAKEOFF EVENTS: 24,28,30,32,34,36

SITE: 31-1 84 M. NORTH THRESHOLD RNNV. 13 JUNE 23,1978

SLANT RANGE 1000 FEET.
THETA 28.7 39.5 50.6 59.8 81.1 92.8 101.2 111.3 122.7 132.4 142.0 150.3
BETA 28.6 39.3 50.4 59.7 80.0 85.5 78.8 68.2 57.0 47.4 37.9 29.6

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)												
17	56.9	54.7	51.6	53.5	52.0	52.5	53.3	54.7	54.6	55.3	55.6	55.8
18	48.0	46.6	49.8	46.0	48.8	48.7	49.0	51.9	52.2	53.5	54.0	54.5
19	53.9	51.7	53.7	50.6	52.2	51.8	50.0	53.9	53.7	55.9	55.6	55.5
20	52.2	50.3	50.1	46.9	52.3	49.1	47.8	66.4	71.4	74.2	74.5	74.9
21	57.9	56.4	66.5	56.4	74.2	73.0	68.7	84.3	87.1	88.8	87.7	86.7
22	71.3	69.6	70.5	67.0	72.7	75.2	73.0	74.0	74.8	76.0	76.0	75.8
23	51.3	50.2	55.9	55.4	58.8	60.0	60.4	62.5	63.8	65.5	67.0	69.9
24	51.8	54.7	59.9	61.7	74.4	68.4	74.3	80.9	82.4	81.7	80.0	81.3
25	57.9	63.7	67.8	71.3	70.0	70.0	72.6	71.5	71.8	71.9	71.3	72.0
26	60.3	60.5	64.7	60.0	69.4	68.5	68.7	74.3	75.4	76.5	76.3	76.0
27	62.1	60.8	63.7	59.4	65.5	67.9	69.6	69.9	70.0	71.1	71.4	72.1
28	64.8	63.4	66.6	61.1	66.0	69.6	70.9	70.6	71.1	70.8	70.2	70.3
29	59.5	61.7	64.2	62.8	65.6	67.9	67.4	69.5	70.3	70.4	70.3	70.6
30	54.2	55.4	61.4	60.9	64.3	65.3	66.6	68.8	69.3	69.6	69.1	69.8
31	49.1	49.3	58.9	54.9	61.0	62.6	64.2	65.8	66.6	68.0	67.8	68.0
32	46.8	46.6	54.5	49.3	57.3	58.7	61.9	61.7	63.0	63.6	63.8	64.4
33	44.5	44.3	49.2	45.6	54.1	54.9	57.1	58.5	59.5	59.4	59.4	60.4
34	42.4	42.0	45.6	43.1	48.0	50.0	51.0	52.8	53.7	54.6	55.6	57.7
35	41.1	40.9	42.8	41.7	43.9	45.2	46.7	48.0	49.2	50.5	51.7	54.0
36	38.0	37.8	39.9	38.4	39.9	40.8	41.8	43.2	44.6	46.0	47.8	51.1
37	34.3	34.3	36.4	34.8	36.4	37.1	38.9	39.6	41.0	42.8	44.9	48.2
38	29.5	29.8	32.3	30.3	32.3	32.9	34.8	35.7	37.3	39.1	41.3	44.5
39	-	-	-	23.3	26.0	26.9	28.7	30.2	32.1	34.3	36.6	39.9
40	-	-	-	-	18.5	18.8	20.7	22.9	25.5	27.9	30.5	33.9

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M. 19.5

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT

DDI/ISA
2/23/80

AVERAGE EXTRAPOLATED FREQUENCY SPECIFICS

TAKEOFF EVENTS: 24, 28, 30, 32, 34, 36

SITE: 31-2 2067 M. NORTH THRESHOLD RNNY. 13

JUNE 23, 1978

SLANT RANGE 1000 FEET.

SLANT RANGE	1000 FEET.	29.9	39.5	49.4	58.4	68.8	78.9	90.2	98.5	108.3	117.4	127.9	138.6	148.4	154.4
THETA	29.9	39.5	49.4	58.4	68.8	78.9	90.2	98.5	108.3	117.4	127.9	138.6	148.4	154.4	
BETA	29.7	39.3	49.1	58.0	68.1	77.8	84.4	80.1	71.1	62.2	51.8	41.2	31.5	25.5	

AVERAGE SOUND PRESSURE LEVEL (dB re 20 MICRO PASCAL)

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
55.2	53.2	51.9	51.5	50.5	49.0	47.4	46.6	46.5	46.8	48.3	51.3	51.0	52.5											
52.9	52.6	52.2	51.7	51.0	49.5	48.7	48.8	48.8	48.9	49.6	50.7	53.7	54.8											
56.5	55.0	52.7	50.3	48.4	48.5	50.5	53.0	54.3	55.4	54.8	51.8	54.8	58.4											
52.4	50.9	50.6	51.9	53.7	56.7	67.8	72.9	76.3	79.3	80.1	71.6	62.1	68.8											
58.2	67.8	71.6	74.9	76.7	77.1	82.7	85.2	86.5	86.8	82.0	65.9	56.6	62.9											
64.8	70.4	71.1	74.5	74.6	71.3	67.5	65.0	65.2	64.8	64.5	64.2	58.3	62.1											
59.5	61.9	62.6	60.9	58.5	59.9	63.4	64.8	65.0	63.3	69.8	73.3	69.0	66.4											
62.9	62.3	61.3	64.8	72.8	79.0	80.4	79.9	77.4	72.7	65.7	65.2	62.3	60.3											
70.1	66.7	63.6	64.1	66.1	67.7	67.3	66.9	65.4	66.0	69.0	67.9	65.4	67.4											
62.5	65.2	66.5	65.1	68.0	70.7	73.7	73.4	71.4	66.3	61.6	65.1	65.4	59.7											
63.7	65.3	64.9	65.4	66.0	66.9	66.6	66.8	65.4	64.2	62.5	61.8	64.7	64.2											
65.5	61.3	63.4	66.4	67.4	66.9	65.5	64.7	63.6	63.6	61.7	59.6	61.9	64.3											
63.6	61.7	61.1	62.3	66.4	66.6	65.7	64.0	63.1	62.1	58.5	56.3	59.3	61.8											
61.7	61.0	60.5	59.7	62.4	63.9	63.5	62.5	61.3	59.4	54.9	55.7	58.6	60.9											
55.8	56.3	58.1	59.0	60.6	61.4	61.9	61.9	60.1	57.2	53.3	55.1	58.9	61.3											
53.1	51.8	53.0	55.8	57.2	58.5	58.8	58.5	56.8	53.5	51.4	54.4	59.0	61.3											
50.3	49.3	50.5	51.4	53.5	54.0	54.2	54.1	50.2	51.6	50.2	54.3	58.9	60.9											
48.2	46.8	47.2	48.3	50.2	50.5	50.1	50.2	50.0	49.8	50.1	53.4	58.1	59.2											
45.9	44.6	44.9	45.1	45.5	45.9	45.9	46.2	46.6	46.4	46.7	49.3	54.2	54.4											
42.8	41.6	41.6	40.9	40.7	40.7	40.7	41.3	41.8	42.0	42.3	45.0	49.5	50.9											
37.4	36.7	36.8	36.5	36.4	36.5	36.5	37.2	37.9	38.0	38.3	41.0	45.5	50.9											
-	-	-	30.8	30.6	30.8	31.1	31.7	32.5	32.6	-	-	-	-											
-	-	-	-	-	-	23.7	24.6	-	-	-	-	-	-											
-	-	-	-	-	-	-	-	-	-	-	-	-	-											

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M.19.c

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DOT/TSC
2/23/80

TAKEOFF EVENTS: 24,28,34,36

SITE: 31-3 3520 M. NORTH THRESHOLD RNMV. 13 JUNE 23,1978

SLANT RANGE 1000 FEET.

SLANT RANGE	30.0	41.6	51.2	60.7	71.7	80.2	90.2	101.2	111.6	121.2	130.0	140.4	149.5
THETA	29.7	41.1	50.5	59.8	70.3	77.7	82.7	76.8	67.4	58.2	49.6	39.3	30.3
BETA													

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	58.8	54.5	59.6	59.7	54.0	53.1	53.2	53.1	52.6	54.2	54.8	56.6	
18	60.1	57.1	61.2	60.1	54.7	52.8	51.5	52.1	53.1	53.7	54.7	55.1	
19	62.9	57.6	58.3	61.6	63.6	60.8	58.4	56.0	52.5	53.3	55.1	57.0	
20	60.6	64.0	70.9	77.3	81.4	83.5	83.3	79.7	70.2	64.3	62.1	63.9	66.5
21	81.5	84.0	86.6	87.6	85.7	85.1	80.8	73.7	63.0	56.5	57.3	59.7	57.0
22	76.3	70.3	67.9	69.9	69.6	64.7	64.2	64.5	64.9	61.5	57.2	55.7	51.4
23	68.6	64.2	64.6	68.2	68.0	64.8	68.3	72.3	75.1	74.1	70.8	68.2	62.0
24	69.2	76.3	79.3	78.4	74.5	66.1	64.5	64.2	64.9	64.4	63.9	62.1	57.2
25	69.6	67.5	66.8	67.1	67.8	68.1	67.6	62.6	62.2	59.8	61.5	66.1	64.5
26	74.4	72.6	71.1	66.1	64.4	62.3	60.0	59.5	59.3	62.7	64.1	59.3	58.9
27	71.5	71.3	65.7	65.7	65.2	62.0	59.5	58.5	57.8	58.8	60.0	63.2	55.4
28	71.0	70.2	67.4	68.3	65.6	60.8	58.2	56.7	55.5	56.7	55.6	60.0	59.5
29	67.3	67.8	66.8	67.6	65.8	59.9	57.3	55.2	54.5	55.1	54.2	59.3	57.6
30	64.5	66.3	64.9	66.7	64.2	59.1	55.5	54.4	54.2	55.6	55.9	58.3	57.6
31	63.5	62.5	63.0	67.2	64.4	57.5	54.2	52.8	53.8	55.2	56.1	59.6	58.2
32	61.5	59.9	61.0	64.8	60.9	54.3	52.5	51.3	51.6	53.2	54.4	58.7	57.3
33	58.6	57.8	58.8	62.1	58.0	50.9	48.8	49.5	50.7	52.6	52.6	57.5	57.7
34	57.5	56.7	55.4	58.8	55.6	50.1	48.9	48.7	49.3	51.1	51.6	56.4	54.9
35	56.7	54.4	52.8	56.0	53.3	47.0	45.5	44.9	44.8	45.9	48.0	50.5	49.9
36	53.0	49.7	48.5	53.6	51.3	43.7	41.3	39.5	40.2	41.8	45.3	45.0	45.0
37	50.2	45.1	44.6	51.1	49.1	40.3	36.4	35.2	34.5	35.8	37.8	-	-
38	-	41.0	42.1	50.0	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-

ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).

TABLE NO. H.23.a

PIPER PA-31-325 (NAVAJO) AIRCRAFT
DOT/TSC
2/12/80

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

FLYOVER EVENTS: 2,13,14,15,16

SITE: 31-1 84 M. NORTH THRESHOLD RWY. 13 JUNE 20,1978

SLANT RANGE 1000 FEET.

SLANT RANGE	1000 FEET.	28.5	38.3	48.3	59.5	66.1	80.8	88.3	95.7	109.0	120.0	128.8	138.0	148.6	154.5
THETA		28.5	38.3	48.3	59.5	66.1	80.8	88.3	95.7	109.0	120.0	128.8	138.0	148.6	154.5
BETA		28.5	38.3	48.1	59.3	65.8	79.6	85.1	82.3	70.3	59.5	50.8	41.8	31.2	25.4

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
59.4	59.4	60.9	59.8	63.1	61.8	68.1	61.5	62.9	61.9	61.9	62.1	64.8	58.1	60.0	61.4	59.9	57.3	54.0	51.3	52.6	-	-	-	-	-
56.6	56.6	57.8	57.4	58.9	60.8	70.5	65.8	64.6	65.3	67.7	65.5	62.4	59.7	59.8	61.7	60.5	58.7	53.1	48.4	44.1	38.1	-	-	-	-
55.1	55.1	54.2	53.5	57.3	58.8	78.1	74.1	72.1	66.4	65.0	65.2	62.8	63.4	60.3	61.2	61.1	59.4	55.6	50.3	45.0	41.9	-	-	-	-
53.0	53.0	53.1	52.6	60.2	84.2	78.1	64.9	66.6	67.1	68.9	66.7	64.2	64.6	62.3	61.4	62.0	60.1	56.5	51.2	46.4	43.8	38.0	-	-	-
52.7	52.7	52.8	53.1	69.9	87.8	74.1	64.9	66.6	67.1	68.9	66.7	64.2	64.6	62.3	61.4	62.0	60.1	56.5	51.2	46.4	43.8	38.0	-	-	-
52.4	52.4	53.1	53.8	71.6	86.9	74.1	64.9	66.6	67.1	68.9	66.7	64.2	64.6	62.3	61.4	62.0	60.1	56.5	51.2	46.4	43.8	38.0	-	-	-
51.9	51.9	53.8	55.8	79.0	83.9	65.8	62.4	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8
53.6	53.6	53.6	55.6	77.5	77.5	65.6	62.4	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	
55.2	55.2	53.8	55.5	77.5	67.9	66.3	62.4	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	
58.7	58.7	55.9	56.3	69.5	61.8	65.3	62.4	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	
55.2	55.2	55.9	56.3	69.5	61.8	65.3	62.4	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	
60.7	60.7	60.7	60.7	70.1	57.6	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.7	
67.7	67.7	67.7	67.7	77.5	57.2	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	
57.2	57.2	57.2	57.2	67.9	57.2	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	
55.8	55.8	55.8	55.8	66.3	59.7	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	
67.3	67.3	67.3	67.3	71.2	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	
61.7	61.7	61.7	61.7	64.4	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	
67.8	67.8	67.8	67.8	62.6	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	
63.7	63.7	63.7	63.7	65.2	58.4	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	
53.3	53.3	53.3	53.3	61.1	56.7	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	
57.0	57.0	57.0	57.0	59.9	57.1	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	
54.7	54.7	54.7	54.7	58.5	58.2	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	
56.4	56.4	56.4	56.4	56.6	54.6	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	
55.3	55.3	55.3	55.3	56.1	52.4	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	
54.1	54.1	54.1	54.1	52.4	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	
52.9	52.9	52.9	52.9	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	
50.8	50.8	50.8	50.8	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4	
47.1	47.1	47.1	47.1	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	
48.7	48.7	48.7	48.7	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	
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CONVAIR CV-580 AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DOT/TSC
2/11/80

FLYOVER EVENTS: 31,32,33,34,36

SITE: 31-1

SILANT RANGE 1000 FEET.

SLANT RANGE 1000 FEET.														
TITMETHA	28.8	40.3	50.6	59.1	70.2	79.9	90.9	100.3	109.6	118.1	128.7	138.1	147.8	153.7
TITMETHA	28.7	40.2	50.3	58.7	69.4	77.9	83.5	77.3	69.3	61.1	50.8	41.4	31.8	26.2

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	64.9	66.1	65.6	63.9	62.6	61.3	61.6	62.1	64.2	69.3	74.3	79.3	82.1	77.1
18	63.3	62.5	62.3	61.9	61.4	61.0	67.0	73.4	76.6	79.0	80.9	77.0	73.7	65.7
19	66.9	69.6	70.5	68.6	68.1	67.8	66.4	66.0	64.9	63.7	60.8	62.2	65.2	62.8
20	80.3	77.1	71.8	69.6	65.1	65.4	66.7	67.5	67.8	68.0	67.7	64.9	63.1	65.3
21	65.5	61.3	63.0	66.4	72.3	78.9	82.7	84.6	84.2	82.5	76.5	68.8	59.9	58.5
22	60.4	71.5	78.0	79.8	85.0	86.9	86.2	84.3	80.4	74.4	72.9	72.2	66.5	57.7
23	69.1	78.2	77.5	77.8	75.5	72.6	70.5	69.8	70.2	70.9	71.7	73.3	70.8	64.7
24	69.5	74.1	73.0	71.3	69.5	69.3	71.6	73.5	73.2	71.9	68.5	70.4	70.9	67.6
25	72.3	73.3	70.1	72.9	74.7	75.5	75.8	75.5	74.4	74.8	74.1	69.6	66.6	66.8
26	70.7	70.1	72.4	72.7	71.3	69.8	70.9	71.9	72.7	72.7	72.3	71.9	65.9	62.7
27	67.1	71.0	70.2	70.8	71.3	71.3	72.0	72.9	74.3	75.2	74.3	70.4	65.9	62.0
28	69.2	71.0	71.5	71.9	72.9	73.3	74.0	74.9	75.3	76.2	75.6	74.5	73.2	76.9
29	67.7	70.9	71.2	71.6	71.7	73.7	75.0	75.1	76.9	76.7	74.1	69.3	63.0	58.5
30	71.3	73.0	73.4	75.3	76.0	75.9	75.9	74.6	74.6	73.6	70.4	65.8	61.8	58.5
31	75.8	74.1	73.5	73.2	71.1	69.8	70.6	71.3	71.8	71.3	67.9	64.4	61.2	58.8
32	65.8	67.7	67.4	67.7	67.5	67.3	68.5	69.2	69.6	69.0	65.6	62.5	59.7	58.0
33	65.4	66.8	66.6	67.2	66.8	66.2	67.0	67.4	67.3	66.6	63.0	60.4	58.1	57.1
34	64.6	66.2	65.0	64.9	64.4	64.1	65.1	65.3	65.4	64.5	61.2	59.4	57.4	55.7
35	63.1	62.9	62.1	61.8	61.8	62.1	62.8	63.0	62.7	61.6	58.1	56.3	54.7	55.1
36	59.4	58.7	57.3	57.0	56.5	56.1	56.8	57.3	57.4	56.9	54.1	52.2	50.6	48.6
37	52.6	52.6	51.9	51.6	51.0	50.9	51.5	51.9	52.3	52.0	49.9	48.1	45.9	44.2
38	-	47.0	46.7	46.3	45.9	46.1	46.6	46.7	47.3	47.1	45.3	43.8	-	-
39	-	-	-	37.9	38.1	38.5	39.1	39.0	39.8	39.7	-	-	-	-
40	-	-	-	-	29.5	29.5	29.5	29.6	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
ETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M.25.a

CESSNA 421C (GOLDEN EAGLE) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DOT/TSC
2/12/80

FLYOVER EVENTS: 13,14,15

JUNE 21, 1978

84 M. NORTH THRESHOLD RNMV. 13

SITE: 31-1

SLANT RANGE 1000 FEET.
THETA 31.2 40.7 50.7 60.6 72.2 81.7 91.2 102.8 110.8 121.6 131.9 142.5 151.4
BETA 31.0 40.4 50.4 60.0 71.3 80.0 83.7 75.9 68.4 57.9 47.7 37.3 28.4

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	59.3	58.5	57.9	57.0	55.5	54.9	54.5	56.3	56.6	55.7	56.7	56.7	59.8
18	58.7	57.9	57.2	55.2	53.2	53.2	54.1	55.1	55.0	53.9	56.1	59.9	61.2
19	61.0	58.2	55.3	54.4	54.5	55.4	57.9	60.6	61.3	60.7	59.1	62.5	68.8
20	59.5	57.7	56.0	57.5	61.8	67.4	76.8	83.8	84.9	82.0	73.5	67.4	70.9
21	60.0	61.2	64.9	71.7	78.2	81.4	84.5	84.1	81.5	77.5	81.6	78.9	68.8
22	67.1	67.4	67.1	67.4	71.2	77.8	83.7	88.8	90.1	89.8	87.4	77.2	63.9
23	83.0	84.4	83.9	82.5	83.8	84.0	82.8	80.3	76.4	73.3	74.3	72.0	64.4
24	81.9	78.0	74.4	72.2	76.3	77.6	77.0	73.6	67.9	64.1	63.4	69.5	72.5
25	71.2	68.7	68.4	67.3	66.9	67.1	70.0	73.6	73.6	74.2	70.0	65.1	68.2
26	66.4	70.1	72.3	77.1	75.0	71.6	69.8	72.8	72.8	67.9	67.4	69.3	63.2
27	65.3	68.2	68.6	75.7	79.2	78.6	77.5	75.3	72.5	68.5	67.6	66.6	67.0
28	70.7	68.0	69.4	71.0	73.7	76.6	77.0	74.8	71.3	65.4	63.1	63.9	62.3
29	65.1	65.3	64.4	65.8	71.0	72.3	70.8	67.5	64.8	61.1	59.7	59.1	59.7
30	66.0	63.2	62.9	64.2	64.5	64.3	64.1	63.6	62.2	59.7	58.8	57.8	57.7
31	63.8	62.1	61.6	62.2	63.5	64.0	64.1	63.1	61.9	60.5	57.9	55.7	57.1
32	62.1	61.5	60.4	61.0	60.4	60.6	61.5	62.9	62.6	61.6	60.7	59.3	59.7
33	62.5	60.7	60.1	60.3	60.0	61.0	62.1	63.6	63.6	63.0	60.0	55.1	51.8
34	64.5	63.1	62.5	61.3	60.6	59.5	58.2	56.9	56.5	56.9	57.1	55.3	53.0
35	59.7	55.8	53.9	52.9	53.1	53.3	53.8	55.1	55.4	55.7	56.0	55.6	54.4
36	53.7	51.5	50.7	50.5	51.4	52.5	53.7	55.0	54.7	53.8	53.0	52.1	51.2
37	49.0	46.9	46.8	47.1	47.7	48.2	49.0	50.6	50.6	49.8	49.2	48.6	46.2
38	-	40.9	40.9	40.7	42.0	43.5	45.8	48.5	48.9	47.9	45.9	44.9	42.8
39	-	-	-	34.5	36.1	38.4	40.8	43.9	44.4	43.1	40.3	-	-
40	-	-	-	-	-	-	31.5	33.4	33.5	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M.26.a

CESSNA 172N (SKYHAWK) AIRCRAFT

DOT/TSC
2/12/80

AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

FLYOVER EVENTS: 29,31,32,33

SITE: 31-1 84 M. NORTH THRESHOLD RUNW. 13 JUNE 21,1978

SLANT RANGE 1000 FEET.

THETA	30.8	40.8	51.6	60.2	71.6	79.9	91.4	102.3	111.0	120.8	131.8	141.0	150.0
BETA	30.8	40.8	51.4	60.1	71.4	79.5	84.9	77.2	68.8	59.1	48.1	39.0	29.9

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	55.1	54.7	53.2	52.7	52.3	53.0	53.2	53.8	54.1	56.1	57.3	58.3	62.8
18	59.7	55.7	53.5	53.3	51.9	52.2	53.0	52.4	52.5	53.5	55.2	58.6	65.1
19	64.7	61.7	59.0	57.1	57.8	58.7	63.0	66.5	66.6	62.3	63.6	69.3	70.0
20	74.1	66.3	62.1	67.9	70.3	70.3	69.9	68.4	64.1	57.7	55.1	56.4	57.8
21	64.3	55.8	56.8	58.7	60.1	59.8	59.7	59.3	58.1	55.9	53.8	53.1	54.4
22	52.0	54.2	57.8	60.1	62.0	62.3	64.8	68.9	71.1	71.0	65.3	64.2	58.2
23	60.4	68.0	71.3	73.4	74.5	72.8	70.5	68.0	65.6	61.9	58.1	58.0	56.4
24	58.6	60.0	59.1	58.6	65.1	69.3	73.3	72.8	69.8	62.7	60.9	65.9	64.1
25	63.8	58.4	56.7	66.0	71.5	70.9	68.7	64.7	63.5	65.9	62.5	53.6	58.6
26	58.9	62.5	63.8	60.3	59.4	61.0	65.1	67.4	66.0	60.4	58.4	56.0	52.5
27	57.2	61.1	59.7	61.0	66.0	68.7	69.9	68.2	63.4	60.3	56.9	54.9	56.0
28	59.0	56.4	58.9	60.8	63.9	63.7	63.7	63.7	62.4	62.4	59.6	58.5	58.5
29	60.7	61.9	64.1	63.8	67.5	68.8	68.4	66.1	63.9	63.1	60.8	60.0	59.4
30	60.0	60.6	63.3	62.7	65.7	66.7	66.1	65.0	62.0	59.8	58.3	58.5	57.9
31	61.0	60.1	62.2	61.8	62.5	63.7	64.4	62.7	59.2	56.8	55.1	54.7	54.9
32	57.6	56.8	58.4	58.5	60.6	61.3	62.8	63.8	61.8	60.1	55.8	55.0	54.8
33	58.0	57.9	58.6	59.3	60.3	60.1	61.0	61.0	59.0	58.3	54.4	52.4	53.6
34	55.4	53.9	55.4	55.7	56.4	56.0	56.2	57.1	55.9	56.7	55.5	53.3	51.4
35	54.7	53.0	54.4	55.4	56.7	55.6	55.6	55.8	53.4	52.2	52.2	53.6	50.6
36	51.2	49.6	51.7	52.4	54.3	52.7	52.0	52.7	51.0	49.9	49.4	49.8	49.7
37	47.1	45.7	49.3	49.5	51.7	50.4	49.2	48.8	47.6	47.9	46.3	46.8	46.6
38	-	41.8	45.5	45.9	46.9	45.3	44.6	44.3	43.1	43.8	42.3	43.7	43.7
39	-	-	38.7	39.8	40.4	38.6	37.7	38.2	37.0	37.1	36.5	-	-
40	-	-	-	-	31.0	29.4	28.2	29.0	28.6	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND BLANT RANGE (DEGREES).
 BETA - THE ELEVATION ANGLE(DEGREES).

TABLE NO. M.28.a

ROCKWELL 690B (TURBO COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

D01/ISC
2/12/80

FLYOVER EVENTS: 19,20,21,22

SITE: 31-1 84 M. NORTH THRESHOLD RNMV. 13 JUNE 23,1978

SLANT RANGE 1000 FEET.

	THETA	BETA	30.9	40.7	49.9	57.9	67.3	79.6	88.8	99.9	108.5	118.0	128.0	137.9	147.8	154.2
17	55.9	53.0	52.5	51.5	51.4	51.5	51.3	53.8	54.7	56.7	58.0	60.0	63.4	62.4	63.4	62.4
18	57.9	57.4	57.1	56.4	56.2	55.8	56.0	57.5	57.9	60.9	73.3	80.7	82.6	80.4	82.6	80.4
19	60.8	60.0	59.0	58.2	58.2	61.1	65.1	74.7	74.4	71.6	70.6	68.4	65.6	65.1	65.6	65.1
20	67.4	69.4	67.4	64.5	65.6	68.7	68.5	69.3	67.1	64.6	61.1	58.8	58.9	56.7	58.9	56.7
21	64.9	68.9	64.9	60.8	62.0	63.8	65.9	66.9	68.2	74.1	76.1	75.1	64.7	58.3	64.7	58.3
22	53.8	55.3	59.5	61.8	64.6	71.8	76.8	81.3	83.5	84.3	80.1	70.8	61.0	53.9	61.0	53.9
23	62.2	67.9	71.7	72.3	74.9	77.7	78.7	77.2	72.9	66.5	68.8	70.7	67.4	59.7	67.4	59.7
24	65.8	67.6	66.2	65.2	64.6	69.0	71.9	69.7	70.9	68.0	65.0	60.6	65.0	62.9	65.0	62.9
25	66.3	67.7	66.3	64.6	64.6	67.4	69.1	68.8	68.9	69.4	67.7	65.2	60.0	61.4	60.0	61.4
26	65.0	64.4	65.0	67.0	68.3	68.0	68.1	67.5	67.1	66.2	64.3	64.3	62.8	55.8	62.8	55.8
27	62.2	64.7	65.9	65.8	65.4	65.4	65.9	65.1	64.0	63.2	63.7	63.2	62.4	58.2	62.4	58.2
28	63.3	65.5	65.0	64.9	64.9	64.5	64.6	64.2	64.0	64.1	64.5	63.4	62.8	59.4	62.8	59.4
29	63.2	63.0	63.7	63.6	63.5	63.7	63.9	64.3	63.6	63.4	62.9	62.2	61.1	55.7	61.1	55.7
30	61.8	63.3	63.3	63.7	63.3	62.4	62.7	62.6	61.9	62.1	61.9	61.0	60.0	55.5	60.0	55.5
31	59.5	61.4	62.1	62.1	61.4	61.0	61.4	61.8	61.1	61.4	61.4	60.9	59.1	56.2	59.1	56.2
32	58.2	59.7	60.8	60.4	59.6	59.8	60.5	60.9	60.3	60.7	60.8	59.7	58.9	54.9	58.9	54.9
33	56.6	58.2	59.0	59.2	58.4	58.0	58.5	59.5	59.6	60.6	61.4	59.7	58.3	55.3	58.3	55.3
34	55.1	56.4	57.0	57.0	56.6	57.1	58.0	58.9	58.8	59.4	59.6	58.5	56.5	54.3	56.5	54.3
35	52.9	54.1	54.9	55.0	55.0	55.1	56.0	57.0	57.0	57.4	57.1	55.5	54.1	52.5	54.1	52.5
36	48.0	50.0	50.5	50.6	50.7	51.5	52.8	53.4	53.3	53.9	54.2	52.7	51.1	49.0	51.1	49.0
37	42.9	44.7	45.3	45.5	45.8	46.7	47.8	48.7	49.4	50.3	50.8	49.4	46.2	44.6	46.2	44.6
38	-	-	-	38.3	38.8	40.2	42.1	43.3	43.8	44.5	44.4	42.4	-	-	-	-
39	-	-	-	-	-	-	32.9	34.4	35.1	36.1	36.6	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

TABLE NO. M.29.a

ROCKWELL 500S (SHRIKE COMMANDER) AIRCRAFT
AVERAGE EXTRAPOLATED FREQUENCY SPECTRA

DOT/TSC
2/12/80

FLYOVER EVENTS: 37,38,39,40,41,42

SITE: 31-1 84 M. NORTH THRESHOLD RNNV. 13 JUNE 23, 1978

SLANT RANGE 1000 FEET.

THETA 28.4 38.3 47.2 57.1 67.8 81.0 90.2 98.9 107.0 117.3 128.3 137.6 148.1 154.3
BETA 28.3 38.1 46.8 56.6 66.8 79.0 83.8 78.9 71.8 61.9 51.3 42.0 31.7 25.5

AVERAGE SOUND PRESSURE LEVEL (dB re 20 micro PASCAL)

17	57.4	55.9	54.3	55.4	56.0	56.3	55.9	55.4	54.3	52.7	53.2	55.4	57.8	63.5
18	59.4	56.4	55.7	53.3	51.9	51.4	52.1	54.8	57.6	58.3	58.7	58.6	58.6	62.2
19	60.0	57.6	58.6	57.6	55.7	53.0	51.3	51.6	54.1	58.1	58.0	55.6	57.0	64.0
20	59.6	56.5	53.6	51.7	51.6	53.1	56.3	58.9	65.3	72.7	77.1	76.1	65.6	69.4
21	54.7	53.4	56.3	61.3	67.3	73.4	80.3	82.6	85.4	87.7	85.4	74.7	57.8	58.1
22	67.1	71.7	75.8	79.2	81.7	82.1	81.2	78.6	75.1	69.4	67.1	64.3	59.9	53.6
23	58.8	61.0	62.3	63.3	63.0	61.9	62.8	65.1	65.7	70.1	76.3	75.4	69.1	69.1
24	60.8	63.3	62.7	62.0	64.8	72.1	78.3	82.9	85.0	83.2	74.8	71.6	68.2	65.5
25	73.3	73.5	71.0	66.5	74.8	78.7	78.8	77.1	73.9	69.6	71.8	69.4	67.8	70.8
26	67.0	64.2	62.6	63.6	64.2	74.5	78.4	79.2	78.0	73.2	67.4	66.0	66.8	64.5
27	63.2	63.7	67.4	68.3	67.5	69.4	72.1	72.5	71.2	69.5	67.7	66.5	65.7	64.2
28	67.5	66.7	63.7	65.5	67.3	68.6	70.5	69.8	68.9	67.4	67.4	66.7	60.7	62.7
29	66.9	66.7	66.9	64.4	65.2	66.3	66.1	66.2	67.7	67.8	66.2	62.3	58.2	58.1
30	61.5	64.4	66.6	65.6	65.6	66.7	66.7	67.5	68.5	67.8	64.8	58.8	58.8	60.1
31	58.3	62.6	64.2	64.4	63.7	65.5	66.8	68.8	68.6	66.5	59.9	57.0	59.5	59.8
32	57.1	56.7	58.3	59.6	61.3	63.3	65.4	66.9	65.9	62.3	56.6	56.0	60.1	61.6
33	54.7	54.2	54.3	55.6	57.8	60.1	61.6	61.5	60.6	57.4	54.9	55.6	59.0	62.6
34	52.8	52.5	52.4	52.7	54.1	56.6	57.4	57.6	56.8	55.2	54.4	55.6	58.5	60.7
35	50.0	49.8	49.6	50.0	50.9	52.3	53.6	53.8	52.9	51.5	51.4	52.3	55.9	59.9
36	47.2	47.0	47.1	47.1	47.1	47.2	47.8	48.0	47.7	47.5	48.0	48.7	52.4	55.1
37	-	40.6	40.1	40.1	41.0	41.9	42.5	43.1	43.5	44.2	44.6	44.7	47.4	50.4
38	-	-	-	33.4	34.8	36.0	36.7	37.4	38.1	39.0	39.5	39.1	-	-
39	-	-	-	-	-	-	28.9	30.0	31.1	32.2	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-	-

THETA - THE ANGLE BETWEEN THE FLIGHT TRACK AND SLANT RANGE (DEGREES).
BETA - THE ELEVATION ANGLE (DEGREES).

FILMED
2-8